WIDE-AREA AUGMENTATION SYSTEM PERFORMANCE ANALYSIS REPORT

Report #55

Reporting Period: October 1 to December 31, 2015

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Executive Summary

Since 1999 the WAAS Test Team at the William J. Hughes Technical Center has reported GPS performance as measured against the GPS Standard Positioning Service (SPS) Signal Specification. These quarterly reports are known as the GPS PAN (Performance Analysis Network) Report. In addition to the GPS PAN reports, the WAAS Test Team also reports on the performance of the Wide-Area Augmentation System (WAAS). This is WAAS PAN Report #55; it covers WAAS performance during the period from October 1, 2015 to December 31, 2015.

This report shows results for the following: accuracy, availability, coverage, safety index, range accuracy, WAAS broadcast message rates, GEO ranging availability, WAAS airport availability, WAAS CNMP analysis, WAAS reference station survey validation, and SQM.

The WAAS system support modification (SSM) cutover began in August 2015 with the first WAAS system upgrade to G3 receivers on September 4, 2015 at Seattle in preparation for a full constellation of dual civil frequency GPS satellite (L1/L5). Fourteen WAAS reference sites were upgraded during this quarter with the total of forty-two G3 receivers on the WAAS system. This is the first report that shows results on G3 receiver performance on the WAAS system.

The following table shows observations for accuracy and availability made during the reporting period for CONUS and Alaska sites. The international sites are excluded from this table, but are included in the body of the report. LP service is available when the calculated Horizontal Protection Level (HPL) is less than 40 meters. LPV service is available when the calculated HPL is less than 40 meters and the Vertical Protection Level (VPL) is less than 50 meters. LPV200 service is available when the calculated HPL is less than 40 meters, and the VPL is less than 35 meters. The NSTB sites—Grand Forks, Atlantic City, and Arcata—are outliers due to receiver quality issues, and not due to the WAAS signal in space quality.

Parameter	CONUS Site/Maximum	CONUS Site/Minimum	Alaska Site/Maximum	Alaska Site/Minimum
95% Horizontal Accuracy (HPL <= 40 meters)	Atlantic City 1.379 meters	Kansas City 0.683 meters	Kotzebue 0.697 meters	Bethel 0.638 meters
95% Vertical Accuracy (VPL <= 50 meters)	Houston 1.635 meters	Seattle 0.858 meters	Barrow 1.527 meters	Cold Bay 1.105 meters
LP Availability (HPL <= 40 meters)	All Sites 100%	Grand Forks 99.87%	Multiple Sites 100%	Kotzebue 99.97%
LPV Availability (HPL <= 40 meters & VPL <= 50 meters)	Multiple Sites 100%	Grand Forks 99.87%	Multiple Sites 100%	Barrow 99.84%
LPV200 Availability (HPL <= 40 meters & VPL < =35 meters)	Multiple Sites 100%	Grand Forks 99.86%	Juneau 100%	Cold Bay 95.75%
99% HPL	Boston 16.967 meters	Kansas City 10.816 meters	Cold Bay 26.87 meters	Juneau 14.107 meters
99% VPL	Arcata 32.382 meters	Kansas City 19.119 meters	Barrow 41.451 meters	Juneau 22.523 meters

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1.0 INTRODUCTION

The FAA monitors WAAS and GPS SPS performance in order to ensure the safe and effective use of the satellite navigation system in the National Airspace System (NAS). The Wide Area Augmentation System (WAAS) adds more timely integrity monitoring of GPS and improves position accuracy and availability of GPS within the WAAS coverage area.

Objectives of this report are:

a. To evaluate and monitor the ability of WAAS to augment GPS by characterizing important performance parameters.
b. To analyze the effects of GPS satellite operation and maintenance, and ionospheric activity on the WAAS performance.
c. To investigate any GPS and WAAS anomalies and determine their impact on potential users.
d. To archive performance of GPS and WAAS for future evaluations.

The WAAS data transmitted from geostationary satellites (GEOs) PRN-135 (CRW), PRN-138 (CRE) and PRN-133 (AMR) are used in the evaluation. CRE and CRW GEOs provide a precision approach (PA) ranging capability that supports all levels of WAAS service. AMR GEO no longer provides non-precision approach (NPA) ranging service beginning July 18, 2015 until further notice.

The terms "PA" and "NPA" are used in this report to refer to the two modes of user equipment operation. PA and NPA are terms used in the original WAAS specification, FAA-E-2892. See Table 1-1 for a mapping of these terms to the user service levels.

Receivers in PA mode are required to: use all WAAS corrections, use only corrected satellites, not mix corrections from multiple GEOs, only use the designated Space Based Augmentation System (SBAS) for the published approach procedure, and not use ranging from a GPS or GEO satellite having a User Differential Range Error (UDRE) status of greater than 15 meters. Receiver in NPA mode may: mix corrected and uncorrected satellites, mix corrections from different GEOs or SBASs, use either the WAAS ionosphere corrections or the GPS Klobuchar model for ionosphere corrections, and use ranging from a GPS or GEO satellite that have a UDRE status of greater than 15 meters. NPA mode receivers may also operate using Fault Detection / Fault Detection Exclusion (FD/FDE) in the absence of a SBAS. The data presented in this report does not take credit for the additional NPA mode availability and continuity provided by the use of FD/FDE, whether full FD/FDE or partial FD/FDE used to allow the mixing of corrected and uncorrected satellites. The NPA accuracy data presented in this report uses Klobuchar ionosphere corrections in order to be conservative.

The results in this report are based on the application of the WAAS corrections to receiver data from the WAAS receiver network and receivers of the FAA's National Satellite Test Bed (NSTB) network and from analysis based on the correction data broadcast by WAAS. Table 1-2 lists the receivers used in the PA analyses. Table 1-3 lists the receivers used in the NPA analyses.

Table 1-1 WAAS Service Levels

User Service	NPA or PA	WAAS Protection Levels
RNP 0.3	NPA	HPL <= 0.3 nmi
RNP 0.1	NPA	HPL <= 0.1 nmi
LNAV	NPA	HPL <= 556 m
LNAV/VNAV	PA	HPL <= 556 m VPL <= 50 m
LP	PA	HPL <= 40 m
LPV	PA	HPL <= 40 m VPL <= 50 m
LPV200	PA	HPL <= 40 m VPL <= 35 m

Table 1-2 PA Evaluation Sites

	Number of Days Evaluated	Number of Samples
NSTB:		
Arcata	90	7735311
Atlantic City	91	7898123
Grand Forks	88	7637547
Oklahoma City	84	7289041
WAAS:		
Albuquerque	92	7927772
Anchorage	92	7942051
Atlanta	92	7930937
Barrow	92	7941684
Bethel	92	7941683
Billings	92	7938562
Boston	92	7944923
Chicago	92	7941727
Cleveland	92	7925589
Cold Bay	92	7944521
Dallas	92	7931023
Denver	92	7932199
Fairbanks	92	7940230
Gander	92	7944125
Goose Bay	92	7944980
Houston	92	7928130
Iqaluit	92	7943347
Jacksonville	91	7851746
Juneau	88	7581525
Kansas City	92	7925297
Kotzebue	92	7942748
Los Angeles	92	7941505
Memphis	92	7927655
Merida	91	7843827
Mexico City	92	7944108
Miami	92	7928372
Minneapolis	92	7944551
New York	92	7932270
Oakland	92	7940766
Puerto Vallarta	90	7759025
Salt Lake City	92	7944494
San Jose Del Cabo	77	6628411
Seattle	92	7940527
Washington DC	92	7944622
Winnipeg	92	7944664

Table 1-3 NPA Evaluation Sites

Location	Number of Days Evaluated	Number of Samples
Albuquerque	92	7931087
Anchorage	92	7945064
Atlanta	91	7839700
Barrow	92	7940982
Bethel	91	7869194
Billings	92	7937203
Boston	92	7944913
Cleveland	92	7944737
Cold Bay	92	7944890
Fairbanks	92	7940256
Gander	92	7924872
Honolulu	92	7942451
Houston	92	7935211
Iqaluit	92	7939288
Juneau	89	7652463
Kansas City	92	7926517
Kotzebue	92	7941644
Los Angeles	92	7944906
Merida	91	7902678
Miami	92	7926748
Minneapolis	92	7942435
Oakland	92	7941964
Salt Lake City	92	7944836
San Jose Del Cabo	78	6773941
San Juan	92	7926957
Seattle	92	7938801
Tapachula	92	7914431
Washington DC	92	7945005

The report is divided in the performance categories listed below.

1. WAAS Position Accuracy
2. WAAS Operational Service Availability
3. WAAS Coverage
4. WAAS Integrity
5. WAAS Range Domain Accuracy
6. WAAS GEO Ranging Performance
7. WAAS Airport Availability
8. WAAS CNMP Analysis
9. WAAS Antenna Survey Validation
10. WAAS SQM Analysis

Table 1-4 lists the performance parameters evaluated for the WAAS in this report. Note that these are the performance parameters associated with the WAAS system. These requirements are extracted from the FAA Specification FAA-E-2892C and FAA Specification FAA-E-2976, as applicable.

Table 1-4 WAAS Performance Parameters

Performance Parameter	Expected WAAS Performance
LPV Accuracy Horizontal	≤ 1.5m error 95% of the time
LPV Accuracy Vertical	≤ 2m error 95% of the time
LNAV Accuracy Horizontal	≤ 36m error 95% of the time
Availability LPV CONUS	99% availability of 100% of CONUS
Availability LPV Alaska	95% availability of 75% of Alaska
Availability LNAV CONUS	99.99% availability with HPL < 556m
Availability LNAV Alaska	99.9% availability with HPL < 556m
Availability En route OCONUS	99.9% availability with HPL < 2nmi
Probability of Hazardously Misleading Information (HMI)	< 10e-7 per approach

1.1 Event Summary

Table 1-5 lists events that affected WAAS performance or the ability to determine the WAAS performance during the reporting period. These events include GPS or WAAS anomalies, relevant receiver malfunctions, receiver maintenance, and ionospheric activity. The reporting of ionospheric activity includes reference to the Kp index for the event time period. The Kp index quantifies the disturbance in the earth's magnetic field and is an indicator of solar storms causing geomagnetic disturbances that can cause the ionosphere to become unpredictable. WAAS increases GIVE values making PA service unavailable when WAAS detects that the ionosphere is disturbed.

Analyses of events that merit more detailed investigations are documented in the Discrepancy Reports (DRs). The DRs are posted on the website http://www.nstb.tc.faa.gov under 'WAAS Technical Reports' and can also be accessed via hyperlink from Table 1-5 below. Note that "TOW" is the time of GPS week, which is the cumulative number of seconds since 00:00:00 Sunday (GMT without leap seconds).

Table 1-6 lists events related to WAAS upgrades that happened this quarter. Table 1-7 lists events related to GUS switchovers. A GUS switchover is the transition from one uplink site to the other uplink site for a GEO.

Table 1-5 Events

Start Date	End Date	Location/ Satellite	Service Affected	Event Description
9/30/2015	10/1/2015	GEO138, Woodbine (QWE)	LPV200_Alaska, LPV200_Canada	The uplink for the CRE GEO, PRN-138 switched from the Woodbine uplink site to the Brewster uplink site at 06:01 GMT. This caused a 4-second outage of the CRE broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN-138. This caused the UDRE for CRE to be elevated. The elevated UDRE for CRE caused moderate degradation of LPV200 service coverage in Canada, extending the daily outages at 07:30 GMT, 08:40 GMT, 16:00 GMT, 17:25 GMT, 20:50 GMT, and 22:00 GMT on 9/30. The elevated UDRE for CRE also caused minor degradation of: (1) LPV200 service coverage in

Start Date	End Date	Location/ Satellite	Service Affected	Event Description
				Alaska from about 20:40 GMT until 21:00 GMT on 9/30; and (2) LPV200 service coverage in Canada, extending the daily outages at 07:40 GMT for 25 minutes on 10/1. Please see plot(s): LPV200_9/30/2015 LPV200_10/1/2015
10/1/2015	10/1/2015	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV200_Alaska, LPV200_Canada	Geomagnetic activity (Kp = 4) disturbed the ionosphere causing elevated GIVE values. This resulted in minor degradation of: (1) LPV200 service coverage in Alaska from 18:00 GMT until 18:20 GMT; and (2) LPV200 service coverage in Canada from about 17:12 GMT until 17:45 GMT and 22:30 GMT until 23:00 GMT. Please see plot(s): LPV200_10/1/2015
10/4/2015	10/4/2015	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	None	Geomagnetic activity (Kp = 6) disturbed the ionosphere causing higher delays in signal for localized area at the WAAS Barrow receiver. This resulted in increased vertical position errors (VPE) for Barrow at about 06:10 GMT.
10/5/2015	10/5/2015	GEO135, Littleton (APA)	LPV_Alaska, LPV200_Alaska, LPV200_Canada	The uplink for the CRW GEO, PRN- 135 switched from the Littleton uplink site to the Napa uplink site at 03:17 GMT. This caused a 4 second outage of the CRW broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN-135. This also caused the UDRE for CRW to be elevated. The elevated UDRE for CRW caused moderate degradation of LPV200 service coverage in Alaska, extending the normal daily outages at 06:03 GMT, 09:12 GMT, 13:07 GMT, 17:38 GMT, and 20:20 GMT. The elevated UDRE also caused minor degradation of: (1) LPV service coverage in Alaska from 20:24 GMT until 20:44 GMT; and (2) LPV200 service coverage in Canada from 17:42 GMT until 17:50 GMT and 20:30 GMT until 20:45 GMT. Please see plot(s): LPV_10/5/2015 LPV200_10/5/2015
10/7/2015	10/7/2015	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	None	Geomagnetic activity (Kp = 7) disturbed the ionosphere causing higher delays in signal for localized areas. This resulted in increased vertical position errors (VPE) at multiple WAAS receivers.
10/14/2015	10/14/2015	Iqaluit (YFB1), Iqaluit (YFB2), Iqaluit (YFB3)	LPV200_Canada	A 607 second data outage from the Iqaluit reference station at about 17:35 GMT resulted in the reinitialization of the WAAS carrier smoothing algorithm for the reference station. The loss of measurements resulted in elevated GIVE values and caused moderate degradation of the LPV200 service coverage in Canada from 17:35 GMT until 17:45 GMT. Please see plot(s): LPV200_10/14/2015

Start Date	End Date	Location/ Satellite	Service Affected	Event Description
10/16/2015	10/16/2015	Iqaluit (YFB1), Iqaluit (YFB2), Iqaluit (YFB3)	LPV200_Canada	A 484 second data outage from the Iqaluit reference station at about 17:36 GMT resulted in the reinitialization of the WAAS carrier smoothing algorithm for the reference station. The loss of measurements resulted in elevated GIVE values and caused moderate degradation of the LPV200 service coverage in Canada from 17:38 GMT until 17:55 GMT. Please see plot(s): LPV200_10/16/2015
10/18/2015	10/18/2015	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV_Alaska, LPV200_Alaska	Geomagnetic activity (Kp = 5) disturbed the ionosphere causing elevated GIVE values. This resulted in moderate degradation of LPV200 service coverage in Alaska from 09:53 GMT until 10:03 GMT and from 12:15 GMT until 12:30 GMT. The elevated GIVE values also resulted in minor degradation of LPV service coverage in Alaska from 09:51 GMT until 09:53 GMT. Please see plot(s): LPV_10/18/2015 LPV200_10/18/2015
10/19/2015	10/19/2015	GEO135, NAPA (APC)	None	Message sent with bad CRC from GEO-135 from the NAPA uplink station and the Atlanta C&V as the selected source. Napa received a message almost half a second late while Littleton did not have any problems receiving the message. TOW 108332-108334.
10/19/2015	10/19/2015	GEO135, NAPA (APC)	None	Message sent with bad CRC from GEO-135 from the NAPA uplink station and the Atlanta C&V as the selected source. Napa received a message almost half a second late while Littleton did have any problems receiving the message. TOW 106031-106033.
10/19/2015	10/20/2015	PRN23	LPV_Alaska, LPV200_CONUS, LPV200_Alaska, LPV200_Canada	The reduction in LPV200 Alaska and Canada, and LPV Alaska was due to a GPS NANU on PRN23 (see NANU 2015086) which was unusable from 18:00 GMT on 10/19 until 14:56 GMT on 10/20. The NANU caused significant degradation of the LPV200 service coverage in Alaska on 10/20. The NANU caused moderate degradation of: (1) LPV service coverage in Alaska on 10/20; and (2) LPV200 service coverage in Canada on 10/20. After the NANU on PRN23, the UDRE remained "Not Monitored" until the end of the day. See DR, "DR 129 WAAS set PRN 23 to Not Monitored Following the Conclusion of NANU 2015086". Please see plot(s): LPV_10/20/2015 LPV200_10/20/2015
10/27/2015	10/27/2015	GEO138, Brewster (BRE-B)	LPV200_Alaska, LPV200_Canada	The uplink for the CRE GEO, PRN-138 switched from the Brewster uplink site to the Woodbine uplink site at 08:00 GMT. This caused a 4 second outage of the CRE broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN-138. This caused the UDRE for CRE to

Start Date	End Date	Location/ Satellite	Service Affected	Event Description
				be elevated. The elevated UDRE for CRE caused moderate degradation of LPV200 service coverage in Canada, extending the daily outages at 14:25 GMT, 13:05 GMT, 18:55 GMT, 21:00 GMT, and 21:20 GMT on 10/27. The elevated UDRE for CRE also caused minor degradation of: (1) LPV200 service coverage in Alaska from about 18:50 GMT until 19:05 GMT on 10/27; and (2) LPV200 service coverage in Canada from 05:48 GMT until 06:05 GMT on 10/28. TOW 201625-201630. Please see plot(s): LPV200_10/27/2015
10/28/2015	10/29/2015	GEO138, Woodbine (QWE)	LPV200_Alaska, LPV200_Canada	The uplink for the CRE GEO, PRN-138 switched from the Woodbine uplink site to the Brewster uplink site at 23:13 GMT. This caused a 4 second outage of the CRE broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN-138. This caused the UDRE for CRE to be elevated. The elevated UDRE for CRE caused moderate degradation of: (1) LPV200 service coverage in Canada, extending the daily outages at 06:00 GMT, 14:15 GMT, 15:43 GMT, 18:42 GMT, and 20:45 GMT on 10/29; and (2) LPV200 service coverage in Alaska from about 18:40 GMT until 19:00 GMT. TOW 342821-342826. Please see plot(s): LPV200_10/29/2015
10/30/2015	10/30/2015	GEO138, Brewster (BRE-B)	LPV_Canada, LPV200_Alaska, LPV200_Canada	The uplink for the CRE GEO, PRN-138 switched from the Brewster uplink site to the Woodbine uplink site at 08:00 GMT. This caused a 4 second outage of the CRE broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN-138. This caused the UDRE for CRE to be elevated. The elevated UDRE for CRE caused moderate degradation of: (1) LPV200 service coverage in Alaska from 18:38 GMT until 19:00 GMT on 10/30; (2) LPV200 service coverage in Canada, extending the daily outages at 14:10 GMT, 15:00 GMT, 15:55 GMT, 16:17 GMT, 18:41 GMT, and 20:50 GMT on 10/30; and (3) LPV200 service coverage in Canada from 15:10 GMT until 15:30 GMT and 16:30 until 18:10 GMT on 10/31. The elevated UDRE for CRE also caused minor degradation of LPV service coverage in Canada from about 16:57 GMT until 17:15 GMT on 10/30. TOW 460857-460862. Please see plot(s): LPV_10/30/2015 LPV200_10/30/2015 Cov_vs_Time_Canada_10/30/2015
11/2/2015	11/2/2015	PRN4	LPV200_Canada	SVN-01 (PRN-4) was decommissioned (see NANU 2015091). This change in constellation caused daily LPV200 outages in northeast Canada from the beginning of the day until 00:15 GMT, 11:38 GMT until 12:00 GMT, and 23:37 GMT

Start Date	End Date	Location/ Satellite	Service Affected	Event Description
				until the end of the day. This minor change in LPV200 service for Canada is expected for subsequent days starting on November 3rd.
11/3/2015	11/4/2015	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV_Canada, LPV200_Alaska, LPV200_Canada	Geomagnetic activity (Kp = 5) disturbed the ionosphere causing elevated GIVE values. This resulted in moderate degradation of: (1) LPV service coverage in Canada from 20:46 until 21:15 GMT on 11/3; (2) LPV200 service coverage in Alaska from 09:15 GMT until 09:45 GMT and 11:15 GMT until 11:45 GMT on 11/3 and 06:30 GMT until 06:40 GMT and 11:00 GMT until 11:30 GMT on 11/4; and (3) LPV200 service coverage in Canada throughout the day, especially at 07:45 GMT until 08:15 GMT, 09:45 GMT until 10:00 GMT, and 19:00 GMT until 22:00 GMT on 11/3. The elevated GIVE values also caused minor degradation of LPV200 service coverage in Canada from 06:28 GMT until 06:35 GMT and 15:01 GMT until 15:12 GMT on 11/4. Please see plot(s): LPV_11/3/2015 LPV200_11/3/2015 Cov_vs_Time_Alaska_11/3/2015 Cov_vs_Time_Canada_11/3/2015
11/4/2015	11/4/2015	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV), PRN8	RNP1_All	A small drop in RNP 0.1 coverage near Hawaii occurred at 22:01 GMT. PRN-8 UDREi had bumped to 14, causing the protection level near Hawaii to be elevated above the 185 m threshold.
11/7/2015	11/7/2015	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV200_Alaska	Geomagnetic activity (Kp = 6) disturbed the ionosphere causing elevated GIVE values. This resulted in moderate degradation of LPV200 service coverage in Alaska from 06:15 GMT until 06:25 GMT and from 10:37 GMT until 11:05 GMT. Please see plot(s): LPV200_11/7/2015
11/10/2015	11/10/2015	Memphis (ZME1), Memphis (ZME2), Memphis (ZME3)	None	SSM-44: This system support modification (SSM) upgrades Ring 2 of the WAAS Terrestrial Communications Subsystem (TCS) and the WAAS Reference Stations and Master Stations. This upgrade supports the transition to WAAS dual frequency operations. ZME WAAS reference receiver and router was upgraded.
11/11/2015	11/11/2015	GEO138, Woodbine (QWE)	LPV_Canada, LPV200_Alaska, LPV200_Canada	The uplink for the CRE GEO, PRN-138 switched from the Woodbine uplink site to the Brewster uplink site at 08:50 GMT. This caused a 4 second outage of the CRE broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN-138. This also caused the UDRE for CRE to be elevated. The elevated UDRE for CRE caused moderate degradation of LPV200 service coverage in Canada, extending the daily outages at 14:00 GMT, 15:00 GMT, 18:00 GMT, and 20:00

Start Date	End Date	Location/ Satellite	Service Affected	Event Description
				GMT. The elevated UDRE also caused minor degradation of: (1) LPV200 service coverage in Alaska from about 17:48 GMT until 18:10 GMT; (2) LPV service coverage in northeastern Canada (since the decommission of PRN-4) from 23:27 GMT until 23:38 GMT; and (3) LPV200 service coverage in Canada at 14:00 GMT and from 14:30 GMT until 14:40 GMT on 11/12. Please see plot(s): LPV_11/11/2015 LPV200_11/11/2015
11/13/2015	11/13/2015	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV200_Alaska, LPV200_Canada	Geomagnetic activity (Kp = 4) disturbed the ionosphere causing elevated GIVE values. This resulted in moderate degradation of LPV200 service coverage in Canada from 15:25 GMT until 15:40 GMT. The elevated GIVE values also resulted in minor degradation of LPV200 service coverage in Alaska from about 10:30 GMT until 10:40 GMT and 15:00 GMT until 15:15 GMT. Please see plot(s): LPV200_11/13/2015
11/13/2015	11/13/2015	Goose Bay (YYR1), Goose Bay (YYR2), Goose Bay (YYR3)	Local	Local RFI caused a reduction and eventual loss of SV tracking on reference receivers at Goose Bay reference station. The reference receiver AGC drops were periodic, occurring approximately every 30 seconds over a 7-minute period from 10:39 GMT to 10:46 GMT. The RFI resulted in LP/LPV/LPV200 outages at the receiver location from 10:44 GMT to 10:45 GMT.
11/18/2015	11/18/2015	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV200_Alaska, LPV200_Canada	Geomagnetic activity (Kp = 5) disturbed the ionosphere causing elevated GIVE values. This resulted in moderate degradation of LPV200 service coverage in Canada from 11:15 GMT until 11:40 GMT and from 22:38 GMT until 22:50 GMT. The elevated GIVE values also resulted in minor degradation of LPV200 service coverage in Alaska from 10:11 GMT until 10:22 GMT and from 22:25 GMT until 22:40 GMT. Please see plot(s): LPV200_11/18/2015 Cov_vs_Time_Canada_11/18/2015
11/18/2015	11/18/2015	San Juan (ZSU1), San Juan (ZSU2), San Juan (ZSU3)	LPV200_CONUS	SSM-44: This system support modification (SSM) upgrades Ring 2 of the WAAS Terrestrial Communications Subsystem (TCS) and the WAAS Reference Stations and Master Stations. This upgrade supports the transition to WAAS dual frequency operations. ZSU WAAS reference receiver and router was upgraded on November 18th, causing moderate degradation of the LPV200 service coverage in southeast CONUS (southern Florida) from around 16:44 GMT to 17:15 GMT. Please see plot(s): LPV200_11/18/2015
11/19/2015	11/19/2015	Washington D.C. (CnV),	LPV200_Canada	Geomagnetic activity (Kp = 4) disturbed the ionosphere causing elevated GIVE values. This resulted in minor degradation of LPV200 service

Start Date	End Date	Location/ Satellite	Service Affected	Event Description
		Los Angeles (CnV), Atlanta (CnV)		coverage in Canada from 00:00 GMT until 00:25 GMT and from 03:02 to 03:15 GMT. Please see plot(s): LPV200_11/19/2015
11/20/2015	11/20/2015	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV200_Alaska	Geomagnetic activity (Kp = 3) disturbed the ionosphere causing elevated GIVE values. This resulted in minor degradation of LPV200 service coverage in Alaska from 09:55 GMT until 10:15 GMT. Please see plot(s): LPV200_11/20/2015
11/28/2015	11/28/2015	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV200_Alaska	Geomagnetic activity (Kp = 3) disturbed the ionosphere causing elevated GIVE values. This resulted in minor degradation of LPV200 service coverage in Alaska from 12:22 GMT to 12:32 GMT and from 02:03 to 02:25 GMT. Please see plot(s): LPV200_11/28/2015
11/30/2015	11/30/2015	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV200_Canada	Geomagnetic activity (Kp = 5) disturbed the ionosphere causing elevated GIVE values. This resulted in minor degradation of LPV200 service coverage in Canada from 01:00 GMT until 01:20 GMT and from 10:45 GMT until 10:50 GMT. Please see plot(s): LPV200_11/30/2015
12/2/2015	12/2/2015	Oakland (ZOA1), Oakland (ZOA2), Oakland (ZOA3)	LPV200_CONUS	LPV200 service outages in western CONUS (California) were extended from around 11:19 GMT until 11:35 GMT and 23:04 GMT until 23:10 GMT. The magnitude of the expected LPV200 service outages increased during periods of minor changes in satellite tracking. Please see plot(s): LPV200_12/2/2015
12/4/2015	12/4/2015	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV200_Canada	Geomagnetic activity (Kp = 3) disturbed the ionosphere causing elevated GIVE values. This resulted in moderate degradation of LPV200 service coverage in Canada from 03:57 GMT to 04:15 GMT and from 04:46 GMT to 05:00 GMT. Please see plot(s): LPV200_12/4/2015
12/5/2015	12/5/2015	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV_Alaska, LPV200_Alaska, LPV200_Canada	Geomagnetic activity (Kp = 4) disturbed the ionosphere causing elevated GIVE values. This resulted in moderate degradation of LPV200 service coverage in Alaska from 08:55 GMT until 09:05 GMT and 16:11 GMT until 16:30 GMT. The elevated GIVE values also resulted in minor degradation of: (1) LPV service coverage in Alaska (northwest region) from 16:13 GMT until 16:22 GMT; and (2) LPV200 service coverage in Canada from 09:25 GMT until 09:35 GMT and 16:20 GMT until 16:25 GMT. Please see plot(s): LPV_12/5/2015 LPV200_12/5/2015
12/6/2015	12/6/2015	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV200_Alaska, LPV200_Canada	Geomagnetic activity (Kp = 5) disturbed the ionosphere causing elevated GIVE values. This resulted in minor degradation of: (1) LPV200 service coverage in Alaska from 13:37 GMT until 13:47 GMT; and (2) LPV200 service coverage in

Start Date	End Date	Location/ Satellite	Service Affected	Event Description
				Canada from 12:53 GMT until 13:05 GMT. Please see plot(s): LPV200_12/6/2015
12/7/2015	12/8/2015	GEO135, Napa (APC)	LPV_Alaska, LPV200_Alaska, LPV200_Canada	The uplink for the CRW GEO, PRN-135 switched from the Napa uplink site to the Littleton uplink site at 08:01 GMT. This caused a 4 second outage of the CRW broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN-135. This also caused the UDRE for CRW to be elevated. The elevated UDRE for CRW resulted in moderate degradation of: (1) LPV200 service coverage in Alaska from 08:51 GMT until 09:01 GMT, 10:51 GMT until 11:11 GMT, 12:57 GMT until 13:50 GMT, and 16:02 GMT until 16:30 GMT on 12/7; (2) LPV200 service coverage in Alaska from 01:37 GMT until 02:00 GMT, 08:50 GMT until 09:00 GMT, 16:01 GMT until 16:20 GMT; and 21:00 GMT until 21:04 GMT on 12/8; (3) LPV200 service coverage in Canada from 12:58 GMT until 13:18 GMT, 16:00 GMT until 16:30 GMT and 19:11 GMT until 19:25 GMT on 12/7; and (4) LPV200 service coverage in Canada from 00:29 GMT until 00:50 GMT, 02:57 GMT until 03:20 GMT, 15:55 GMT until 16:25 GMT and 18:30 GMT until 18:40 GMT . The elevated UDRE for CRW also resulted minor degradation of LPV service coverage in Alaska from 16:01 GMT until 16:30 GMT on 12/7 and 12/8. Please see plot(s): LPV200_12/7/2015 Cov_vs_Time_Alaska_12/7/2015 LPV200_12/8/2015
12/9/2015	12/9/2015	PRN10	None	GPS satellite SVN-73 (PRN-10) was usable as of December 9th 2015 beginning 01:16 GMT.
12/9/2015	12/10/2015	GEO135, Littleton (APA)	LPV_Alaska, LPV200_CONUS, LPV200_Alaska, LPV200_Canada	The uplink for the CRW GEO, PRN-135 switched from the Littleton uplink site to the Napa uplink site at 00:46 GMT. This caused a 4 second outage of the CRW broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN-135. This also caused the UDRE for CRW to be elevated. The elevated UDRE for CRW resulted in moderate degradation of: (1) LPV200 service coverage in Alaska from 01:34 GMT until 01:55 GMT, 04:43 GMT until 04:53 GMT, 13:13 GMT until 13:28 GMT and 16:06 GMT until 16:20 GMT on 12/9; (2) LPV200 service coverage in Alaska from 01:30 GMT until 01:50 GMT, 08:40 GMT until 08:50 GMT, and 13:07 GMT until 13:40 GMT on 12/10; (3) LPV200 service coverage in Canada from 15:45 GMT until 16:25 GMT on 12/9; and (4) LPV200 Service coverage in Canada from 02:50 GMT until 03:10 GMT, 04:24 GMT until 04:44 GMT, and 09:07 GMT until 09:30 GMT on 12/10. The elevate UDRE for CRW also resulted in minor degradation of: (1)

Start Date	End Date	Location/ Satellite	Service Affected	Event Description
				LPV service coverage in Alaska from 16:06 GMT until 16:25 GMT on 12/9; and (2) LPV200 service coverage in southern CONUS (OKC and Dallas region) from 01:47 GMT until 01:50 GMT on 12/9. Please see plot(s): LPV200_12/9/2015 Cov_vs_Time_Alaska_12/9/2015 LPV200_12/10/2015
12/10/2015	12/10/2015	PRN22	None	GPS NANU on PRN-22 (see NANU2015097), which was unusable from 16:36 GMT to 23:58 GMT on 12/10/15.
12/11/2015	12/11/2015	PRN133	None	TOW 510921-0 (14-15).
12/14/2015	12/15/2015	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV200_Canada	Geomagnetic activity (Kp = 5) disturbed the ionosphere causing elevated GIVE values. This resulted in moderate degradation of LPV200 service coverage in Canada from 18:30 GMT until 19:15 GMT, 20:52 GMT until 21:10 GMT, and from 22:30 GMT until 22:40 GMT in 12/14. The elevated GIVE values also resulted in minor degradation of LPV200 service coverage in Canada from 03:05 GMT until 03:15 GMT on 12/15. Please see plot(s): LPV200_12/14/2015
12/16/2015	12/16/2015	Puerto Vallarta (MPR1), Puerto Vallarta (MPR2), Puerto Vallarta (MPR3)	LPV200_CONUS, LPV200_Mexico	An approximately 8300 second data outages from Puerto Vallarta reference station from 12:53 GMT until 15:11 GMT resulted in the reinitialization of the WAAS carrier smoothing algorithm for those sites. The loss of measurements resulted in elevated GIVE values, and along with a PRN-21 SV Alert and elevated UDRE on PRN-135, caused minor degradation to the LPV200 service coverage in CONUS and Mexico from 13:52 GMT until 14:02 GMT and 14:10 GMT until 14:20 GMT. Please see plot(s): LPV200_12/16/2015
12/16/2015	12/17/2015	GEO135, NAPA (APC)	LPV_Alaska, LPV200_CONUS, LPV200_Alaska, LPV200_Canada	The uplink for the CRW GEO, PRN-135 switched from the NAPA uplink site to the Littleton uplink site at 08:00 GMT. This caused a 4 second outage of the CRW broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN-135. This also caused the UDRE for CRW to be elevated. The elevated UDRE for CRW caused moderate degradation of: (1) LPV200 service coverage in Alaska from 08:12 GMT until 08:22 GMT, 10:30 GMT until 10:35 GMT, 12:23 GMT until 13:20 GMT, and 15:10 GMT until 15:20 GMT on 12/16; and (2) LPV200 service coverage in Canada, extending the normal service outages throughout the day on 12/16. The elevated UDRE for CRW also caused minor degradation of: (1) LPV service coverage in Alaska from 15:28 GMT until 15:55 GMT on 12/16; (2) LPV service coverage in Alaska from 15:25 GMT until 15:47

Start Date	End Date	Location/ Satellite	Service Affected	Event Description
				GMT on 12/17; (3) LPV200 service coverage in southwestern CONUS from 13:52 GMT until 14:02 GMT and 14:10 GMT until 14:20 GMT, along with PRN21 SV Alert and Puerto Vallarta communication outage on 12/16; (4) LPV200 service coverage in southwestern CONUS from 13:48 GMT until 13:56 GMT and at 01:10 GMT in central CONUS (less than 1 minute) on 12/17; and (5) LPV200 service coverage in Alaska from 08:12 GMT until 08:22 GMT, 12:30 GMT until 13:10 GMT on 12/17. Please see plot(s): LPV_12/16/2015 LPV200_12/16/2015 Cov_vs_Time_Alaska_12/16/2015
12/16/2015	12/16/2015	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV), PRN21	LPV200_CONUS, LPV200_Mexico	A carrier phase discontinuity on PRN-21 caused the WAAS carrier smoothing algorithm to reinitialize, resulting in the UDRE for PRN-21 being set to "Not Monitored" for about 5 minutes. The high UDRE for PRN-21, along with a communication outage at Puerto Vallarta, caused minor degradation of LPV200 service in southwestern CONUS from 14:10 GMT until 14:20 GMT and in Mexico. Please see plot(s): LPV200_12/16/2015
12/17/2015	12/18/2015	PRN3	LPV_CONUS, LPV200_CONUS, LPV200_Alaska, LPV200_Canada, LPV200_Mexico	The reduction in CONUS LPV service coverage was due to a GPS NANU on PRN-3 (see NANU2015100), which was unusable from 20:25 GMT on 12/17 to 03:52 GMT on 12/18. The NANU caused minor degradation of: (1) LPV service coverage in CONUS (southern California) from 21:53 GMT until 21:57 GMT on 12/17; (2) LPV200 service coverage in CONUS from 00:56 GMT until 00:59 GMT (southern Texas) and 01:06 GMT until 01:12 GMT (OK and northern Texas) on 12/18; (3) LPV200 service coverage in Alaska from 23:15 GMT until 23:35 GMT on 12/17; and (4) LPV200 service coverage in Canada from 00:00 GMT until 00:15 GMT on 12/18. Please see plot(s): LPV_12/17/2015 LPV200_12/17/2015 LPV200_12/18/2015
12/18/2015	1/3/2016	San Jose Del Cabo (MSD1), San Jose Del Cabo (MSD2), San Jose Del Cabo (MSD3)	LPV200_CONUS	San Jose Del Cabo WRS was taken offline. The loss of measurements resulted in elevated GIVE values in the south causing minor degradation of LPV200 service coverage in southern California around 21:48 until 21:55 GMT and in southeastern Arizona from 13:44 GMT until 13:55 GMT. Request to shutdown WRE-A&C until frequency standars are received to prevent continuous PID alerts.
12/19/2015	12/19/2015	Washington D.C. (CnV),	LPV200_Canada	Geomagnetic activity (Kp = 4) disturbed the ionosphere causing elevated GIVE values. This resulted in moderate degradation of LPV200

Start Date	End Date	Location/ Satellite	Service Affected	Event Description
		Los Angeles (CnV), Atlanta (CnV)		service coverage in Canada from 02:40 GMT until 02:50 GMT and from 11:45 GMT until 12:05 GMT. Please see plot(s): LPV200_12/19/2015
12/20/2015	12/21/2015	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV_All, LPV200_All	Geomagnetic activity (Kp = 6) disturbed the ionosphere causing elevated GIVE values. This resulted in significant degradation of: (1) LPV service coverage of CONUS from 20:27 GMT until 22:37 GMT and 22:56 GMT until 23:02 GMT on 12/20 and from 10:47 GMT until 11:56 GMT (Florida and Texas) on 12/21; (2) LPV service coverage of Canada from 18:10 GMT until 18:50 GMT, 19:59 GMT until 21:11 GMT, and 22:23 GMT until 23:20 GMT on 12/20; (3) LPV service coverage of Mexico from 10:47 GMT until 12:56 GMT on 12/21; (4) LPV200 service coverage of CONUS from 20:27 GMT until 23:30 GMT on 12/20 and from 10:47 GMT until 12:37 GMT on 12/21; (5) LPV200 service coverage of Alaska from 11:28 GMT until 12:18 GMT and 15:13 GMT until 15:30 GMT on 12/20; and (6) LPV200 service coverage of Canada from 17:53 GMT until 23:35 GMT on 12/20. The elevated GIVE values also caused moderate degradation of: (1) LPV service coverage of Alaska from 11:33 GMT until 12:16 GMT and 15:25 GMT until 15:29 GMT on 12/20; (2) LPV200 service coverage of Alaska from 12:20 GMT until 12:55 GMT on 12/21; and (3) LPV200 service coverage of Canada, extending the daily outages throughout the day, especially at 02:15 GMT and 11:40 GMT. The elevated GIVE values also caused minor degradation of LPV service coverage in Canada from 11:40 GMT until 11:50 GMT. Please see plot(s): LPV_12/20/2015 LPV200_12/20/2015 Cov_vs_Time_Alaska_12/20/2015 Cov_vs_Time_Canada_12/20/2015 Cov_vs_Time_Conus_12/20/2015
12/31/2015	1/1/2016	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV200_CONUS, LPV200_Alaska, LPV200_Canada	Geomagnetic activity (Kp = 6) disturbed the ionosphere causing elevated GIVE values. This resulted in moderate degradation of: (1) LPV200 service coverage in Alaska from 12:17 GMT until 12:48 GMT on 12/31 and 00:07 GMT until 00:40 GMT on 1/1; (2) LPV200 service coverage in Canada from 21:52 until 23:55 GMT on 12/31 and 00:01 GMT until 00:20 GMT, 01:22 GMT until 01:45 GMT, and 02:10 GMT until 02:20 GMT on 1/1; and (3) LPV200 service coverage in CONUS (north central region) from 23:36 GMT until 23:42 GMT on 12/31. The elevated GIVE values also resulted in minor degradation of LPV200 service coverage in CONUS from 00:05 GMT until 00:15

Start Date	End Date	Location/ Satellite	Service Affected	Event Description
				GMT on 1/1. Please see plot(s): LPV200_12/31/2015 Cov_vs_Time_Alaska_12/31/2015 Cov_vs_Time_Canada_12/31/2015

Table 1-6 WAAS Upgrades

Start Date	End Date	Location	Event Description
10/05/2015	10/05/2015	Paumalu (HDH)	SSM-44: This system support modification (SSM) upgrades Ring 2 of the WAAS Terrestrial Communications Subsystem (TCS) and the WAAS Reference Stations, Master Stations, and Uplink Stations. This upgrade supports the transition to WAAS dual frequency operations. Paumalu master station upgrade.
10/07/2015	10/07/2015	Littleton (APA)	SSM-44: This system support modification (SSM) upgrades Ring 2 of the WAAS Terrestrial Communications Subsystem (TCS) and the WAAS Reference Stations, Master Stations, and Uplink Stations. This upgrade supports the transition to WAAS dual frequency operations. Littleton master station upgrade.
10/07/2015	10/07/2015	Atlanta (ZTL1), Atlanta (ZTL2), Atlanta (ZTL3)	SSM-44: This system support modification (SSM) upgrades Ring 2 of the WAAS Terrestrial Communications Subsystem (TCS) and the WAAS Reference Stations and Master Stations. This upgrade supports the transition to WAAS dual frequency operations. ZTL WAAS reference receivers and router were upgraded.
10/08/2015	10/08/2015	Santa Paula (SZP)	SSM-44: This system support modification (SSM) upgrades Ring 2 of the WAAS Terrestrial Communications Subsystem (TCS) and the WAAS Reference Stations, Master Stations, and Uplink Stations. This upgrade supports the transition to WAAS dual frequency operations. Santa Paula master station upgrade.
10/09/2015	10/09/2015	Woodbine (QWE)	SSM-44: This system support modification (SSM) upgrades Ring 2 of the WAAS Terrestrial Communications Subsystem (TCS) and the WAAS Reference Stations, Master Stations, and Uplink Stations. This upgrade supports the transition to WAAS dual frequency operations.

Start Date	End Date	Location	Event Description
			Woodbine master station upgrade.
10/20/2015	10/20/2015	Dallas (ZFW1), Dallas (ZFW2), Dallas (ZFW3)	SSM-44: This system support modification (SSM) upgrades Ring 2 of the WAAS Terrestrial Communications Subsystem (TCS) and the WAAS Reference Stations and Master Stations. This upgrade supports the transition to WAAS dual frequency operations. ZFW WAAS reference receivers and router were upgraded.
10/27/2015	10/27/2015	Albuquerque (ZAB1), Albuquerque (ZAB2), Albuquerque (ZAB3)	SSM-44: This system support modification (SSM) upgrades Ring 2 of the WAAS Terrestrial Communications Subsystem (TCS) and the WAAS Reference Stations and Master Stations. This upgrade supports the transition to WAAS dual frequency operations. ZAB WAAS reference receivers and router were upgraded.
11/03/2015	11/03/2015	Kansas City (ZKC1), Kansas City (ZKC2), Kansas City (ZKC3)	SSM-44: This system support modification (SSM) upgrades Ring 2 of the WAAS Terrestrial Communications Subsystem (TCS) and the WAAS Reference Stations and Master Stations. This upgrade supports the transition to WAAS dual frequency operations. ZKC WAAS reference receivers and router were upgraded.
11/10/2015	11/10/2015	Memphis (ZME1), Memphis (ZME2), Memphis (ZME3)	SSM-44: This system support modification (SSM) upgrades Ring 2 of the WAAS Terrestrial Communications Subsystem (TCS) and the WAAS Reference Stations and Master Stations. This upgrade supports the transition to WAAS dual frequency operations. ZME WAAS reference receivers and router were upgraded.
11/12/2015	11/12/2015	Jacksonville (ZJX1), Jacksonville (ZJX2), Jacksonville (ZJX3)	SSM-44: This system support modification (SSM) upgrades Ring 2 of the WAAS Terrestrial Communications Subsystem (TCS) and the WAAS Reference Stations and Master Stations. This upgrade supports the transition to WAAS dual frequency operations. ZJX WAAS reference receivers and router were upgraded.

Start Date	End Date	Location	Event Description
11/18/2015	11/18/2015	New York (ZNY1), New York (ZNY2), New York (ZNY3)	SSM-44: This system support modification (SSM) upgrades Ring 2 of the WAAS Terrestrial Communications Subsystem (TCS) and the WAAS Reference Stations and Master Stations. This upgrade supports the transition to WAAS dual frequency operations. ZNY WAAS reference receivers and router were upgraded.
11/18/2015	11/18/2015	San Juan (ZSU1), San Juan (ZSU2), San Juan (ZSU3)	SSM-44: This system support modification (SSM) upgrades Ring 2 of the WAAS Terrestrial Communications Subsystem (TCS) and the WAAS Reference Stations and Master Stations. This upgrade supports the transition to WAAS dual frequency operations. ZSU WAAS reference receivers and router were upgraded on November 18th; the upgrade caused moderate degradation of the LPV200 service coverage in southeast CONUS (southern Florida) from around 16:44 GMT to 17:15 GMT.
12/02/2015	12/02/2015	Miami (ZMA1), Miami (ZMA2), Miami (ZMA3)	SSM-44: This system support modification (SSM) upgrades Ring 2 of the WAAS Terrestrial Communications Subsystem (TCS) and the WAAS Reference Stations and Master Stations. This upgrade supports the transition to WAAS dual frequency operations. ZMA WAAS reference receivers and router were upgraded.
12/08/2015	12/08/2015	Juneau (JNU1), Juneau (JNU2), Juneau (JNU3)	SSM-44: This system support modification (SSM) upgrades Ring 2 of the WAAS Terrestrial Communications Subsystem (TCS) and the WAAS Reference Stations and Master Stations. This upgrade supports the transition to WAAS dual frequency operations. JNU WAAS reference receivers and router were upgraded.
12/15/2015	12/15/2015	Houston (ZHU1), Houston (ZHU2), Houston (ZHU3)	SSM-44: This system support modification (SSM) upgrades Ring 2 of the WAAS Terrestrial Communications Subsystem (TCS) and the WAAS Reference Stations and Master Stations. This upgrade supports the transition to WAAS dual frequency operations. ZHU WAAS reference receivers and router were upgraded.

Table 1-7 GUS Switchovers

Start Date	End Date	GUS Switch	Location/ Satellite	Service Affected	Event Description
9/30/2015	10/1/2015	Manual	GEO138, Woodbine (QWE)	LPV200_Alaska, LPV200_Canada	The uplink for the CRE GEO, PRN-138 switched from the Woodbine uplink site to the Brewster uplink site at 06:01 GMT. This caused a 4-second outage of the CRE broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN-138. This caused the UDRE for CRE to be elevated. The elevated UDRE for CRE caused moderate degradation of LPV200 service coverage in Canada, extending the daily outages at 07:30 GMT, 08:40 GMT, 16:00 GMT, 17:25 GMT, 20:50 GMT, and 22:00 GMT on 9/30. The elevated UDRE for CRE also caused minor degradation of: (1) LPV200 service coverage in Alaska from about 20:40 GMT until 21:00 GMT on 9/30; and (2) LPV200 service coverage in Canada, extending the daily outages at 07:40 GMT for 25 minutes on 10/1. Please see plot(s): LPV200_9/30/2015 LPV200_10/1/2015
10/5/2015	10/5/2015	Manual	GEO135, Littleton (APA)	LPV_Alaska, LPV200_Alaska, LPV200_Canada	The uplink for the CRW GEO, PRN-135 switched from the Littleton uplink site to the Napa uplink site at 03:17 GMT. This caused a 4 second outage of the CRW broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN-135. This also caused the UDRE for CRW to be elevated. The elevated UDRE for CRW caused moderate degradation of LPV200 service coverage in Alaska, extending the normal daily outages at 06:03 GMT, 09:12 GMT, 13:07 GMT, 17:38 GMT, and 20:20 GMT. The elevated UDRE also caused minor degradation of: (1) LPV service coverage in Alaska from 20:24 GMT until 20:44 GMT; and (2) LPV200 service coverage in Canada from 17:42 GMT until 17:50 GMT and 20:30 GMT until 20:45 GMT. Please see plot(s): LPV_10/5/2015 LPV200_10/5/2015
10/8/2015	10/8/2015	Manual	GEO133, Santa Paula (SZP)	None	The uplink for the AMR GEO, PRN-133 switched from the Santa Paula uplink site to the Paumalu uplink site at 06:00 GMT. This caused a 4 second outage of the AMR broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN-133.
10/16/2015	10/16/2015	Manual	GEO133, Paumalu (HDH)	None	The uplink for the AMR GEO, PRN-133 switched from the Paumalu uplink site to the Santa Paula uplink site at 08:00 GMT. This caused a 4 second outage of the AMR broadcast and also caused the WAAS carrier

Start Date	End Date	GUS Switch	Location/ Satellite	Service Affected	Event Description
					smoothing algorithm to reinitialize for PRN-133.
10/27/2015	10/27/2015	Manual	GEO138, Brewster (BRE-B)	LPV200_Alaska, LPV200_Canada	The uplink for the CRE GEO, PRN-138 switched from the Brewster uplink site to the Woodbine uplink site at 08:00 GMT. This caused a 4 second outage of the CRE broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN-138. This caused the UDRE for CRE to be elevated. The elevated UDRE for CRE caused moderate degradation of LPV200 service coverage in Canada, extending the daily outages at 14:25 GMT, 13:05 GMT, 18:55 GMT, 21:00 GMT, and 21:20 GMT on 10/27. The elevated UDRE for CRE also caused minor degradation of: (1) LPV200 service coverage in Alaska from about 18:50 GMT until 19:05 GMT on 10/27; and (2) LPV200 service coverage in Canada from 05:48 GMT until 06:05 GMT on 10/28. TOW 201625-201630. Please see plot(s): LPV200_10/27/2015
10/28/2015	10/29/2015	Manual	GEO138, Woodbine (QWE)	LPV200_Alaska, LPV200_Canada	The uplink for the CRE GEO, PRN-138 switched from the Woodbine uplink site to the Brewster uplink site at 23:13 GMT. This caused a 4 second outage of the CRE broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN-138. This caused the UDRE for CRE to be elevated. The elevated UDRE for CRE caused moderate degradation of: (1) LPV200 service coverage in Canada, extending the daily outages at 06:00 GMT, 14:15 GMT, 15:43 GMT, 18:42 GMT, and 20:45 GMT on 10/29; and (2) LPV200 service coverage in Alaska from about 18:40 GMT until 19:00 GMT. TOW 342821-342826. Please see plot(s): LPV200_10/29/2015
10/30/2015	10/30/2015	Manual	GEO138, Brewster (BRE-B)	LPV_Canada, LPV200_Alaska, LPV200_Canada	The uplink for the CRE GEO, PRN-138 switched from the Brewster uplink site to the Woodbine uplink site at 08:00 GMT. This caused a 4 second outage of the CRE broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN-138. This caused the UDRE for CRE to be elevated. The elevated UDRE for CRE caused moderate degradation of: (1) LPV200 service coverage in Alaska from 18:38 GMT until 19:00 GMT on 10/30; (2) LPV200 service coverage in Canada, extending the daily outages at 14:10 GMT, 15:00 GMT, 15:55 GMT, 16:17 GMT, 18:41 GMT, and 20:50 GMT on 10/30; and (3) LPV200 service coverage in Canada from 15:10 GMT until 15:30 GMT and 16:30 until 18:10 GMT on 10/31. The elevated UDRE for

Start Date	End Date	GUS Switch	Location/ Satellite	Service Affected	Event Description
					CRE also caused minor degradation of LPV service coverage in Canada from about 16:57 GMT until 17:15 GMT on 10/30. TOW 460857-460862. Please see plot(s): LPV_10/30/2015 LPV200_10/30/2015 Cov_vs_Time_Canada_10/30/2015
11/11/2015	11/11/2015	Manual	GEO138, Woodbine (QWE)	LPV_Canada, LPV200_Alaska, LPV200_Canada	The uplink for the CRE GEO, PRN-138 switched from the Woodbine uplink site to the Brewster uplink site at 08:50 GMT. This caused a 4 second outage of the CRE broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN-138. This also caused the UDRE for CRE to be elevated. The elevated UDRE for CRE caused moderate degradation of LPV200 service coverage in Canada, extending the daily outages at 14:00 GMT, 15:00 GMT, 18:00 GMT, and 20:00 GMT. The elevated UDRE also caused minor degradation of: (1) LPV200 service coverage in Alaska from about 17:48 GMT until 18:10 GMT; (2) LPV service coverage in northeastern Canada (since the decommission of PRN4) from 23:27 GMT until 23:38 GMT; and (3) LPV200 service coverage in Canada at 14:00 GMT and from 14:30 GMT until 14:40 GMT on 11/12. Please see plot(s): LPV_11/11/2015 LPV200_11/11/2015
11/28/2015	11/28/2015	Faulted	GEO133, Santa Paula (SZP)	None	The uplink for the AMR GEO, PRN-133 switched from the Santa Paula uplink site to the Paumalu uplink site at 02:32 GMT. This caused a 14 second outage of the AMR broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN-133.
12/7/2015	12/8/2015	Manual	GEO135, Napa (APC)	LPV_Alaska, LPV200_Alaska, LPV200_Canada	The uplink for the CRW GEO, PRN-135 switched from the Napa uplink site to the Littleton uplink site at 08:01 GMT. This caused a 4 second outage of the CRW broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN-135. This also caused the UDRE for CRW to be elevated. The elevated UDRE for CRW resulted in moderate degradation of: (1) LPV200 service coverage in Alaska from 08:51 GMT until 09:01 GMT, 10:51 GMT until 11:11 GMT, 12:57 GMT until 13:50 GMT, and 16:02 GMT until 16:30 GMT on 12/7; (2) LPV200 service coverage in Alaska from 01:37 GMT until 02:00 GMT, 08:50 GMT until 09:00 GMT, 16:01 GMT until 16:20 GMT; and 21:00 GMT until 21:04 GMT on 12/8; (3) LPV200 service coverage in Canada from 12:58 GMT until 13:18 GMT,

Start Date	End Date	GUS Switch	Location/ Satellite	Service Affected	Event Description
					16:00 GMT until 16:30 GMT and 19:11 GMT until 19:25 GMT on 12/7; and (4) LPV200 service coverage in Canada from 00:29 GMT until 00:50 GMT, 02:57 GMT until 03:20 GMT, 15:55 GMT until 16:25 GMT and 18:30 GMT until 18:40 GMT . The elevated UDRE for CRW also resulted minor degradation of LPV service coverage in Alaska from 16:01 GMT until 16:30 GMT on 12/7 and 12/8. Please see plot(s): LPV200_12/7/2015 Cov_vs_Time_Alaska_12/7/2015 LPV200_12/8/2015
12/9/2015	12/10/2015	Manual	GEO135, Littleton (APA)	LPV_Alaska, LPV200_CONUS, LPV200_Alaska, LPV200_Canada	The uplink for the CRW GEO, PRN-135 switched from the Littleton uplink site to the Napa uplink site at 00:46 GMT. This caused a 4 second outage of the CRW broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN135. This also caused the UDRE for CRW to be elevated. The elevated UDRE for CRW resulted in moderate degradation of: (1) LPV200 service coverage in Alaska from 01:34 GMT until 01:55 GMT, 04:43 GMT until 04:53 GMT, 13:13 GMT until 13:28 GMT and 16:06 GMT until 16:20 GMT on 12/9; (2) LPV200 service coverage in Alaska from 01:30 GMT until 01:50 GMT, 08:40 GMT until 08:50 GMT, and 13:07 GMT until 13:40 GMT on 12/10; (3) LPV200 service coverage in Canada from 15:45 GMT until 16:25 GMT on 12/9; and (4) LPV200 Service coverage in Canada from 02:50 GMT until 03:10 GMT, 04:24 GMT until 04:44 GMT, and 09:07 GMT until 09:30 GMT on 12/10. The elevate UDRE for CRW also resulted in minor degradation of: (1) LPV service coverage in Alaska from 16:06 GMT until 16:25 GMT on 12/9; and (2) LPV200 service coverage in southern CONUS (OKC and Dallas region) from 01:47 GMT until 01:50 GMT on 12/9. Please see plot(s): LPV200_12/9/2015 Cov_vs_Time_Alaska_12/9/2015 LPV200_12/10/2015
12/10/2015	12/10/2015	Manual	GEO133, Paumalu (HDH)	None	The uplink for the AMR GEO, PRN-133 switched from the Paumalu uplink site to the Santa Paula uplink site at 05:21 GMT. This caused a 4 second outage of the AMR broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN133. TOW 364921-364926.
12/16/2015	12/17/2015	Manual	GEO135, NAPA (APC)	LPV_Alaska, LPV200_CONUS, LPV200_Alaska, LPV200_Canada	The uplink for the CRW GEO, PRN-135 switched from the NAPA uplink site to the Littleton uplink site at 08:00 GMT. This caused a 4 second outage of the CRW broadcast and

Start Date	End Date	GUS Switch	Location/ Satellite	Service Affected	Event Description
					also caused the WAAS carrier smoothing algorithm to reinitialize for PRN135. This also caused the UDRE for CRW to be elevated. The elevated UDRE for CRW caused moderate degradation of: (1) LPV200 service coverage in Alaska from 08:12 GMT until 08:22 GMT, 10:30 GMT until 10:35 GMT, 12:23 GMT until 13:20 GMT, and 15:10 GMT until 15:20 GMT on 12/16; and (2) LPV200 service coverage in Canada, extending the normal service outages throughout the day on 12/16. The elevated UDRE for CRW also caused minor degradation of: (1) LPV service coverage in Alaska from 15:28 GMT until 15:55 GMT on 12/16; (2) LPV service coverage in Alaska from 15:25 GMT until 15:47 GMT on 12/17; (3) LPV200 service coverage in southwestern CONUS from 13:52 GMT until 14:02 GMT and 14:10 GMT until 14:20 GMT, along with PRN21 SV Alert and Puerto Vallarta communication outage on 12/16; (4) LPV200 service coverage in southwestern CONUS from 13:48 GMT until 13:56 GMT and at 01:10 GMT in central CONUS (less than 1 minute) on 12/17; and (5) LPV200 service coverage in Alaska from 08:12 GMT until 08:22 GMT, 12:30 GMT until 13:10 GMT on 12/17. Please see plot(s): LPV_12/16/2015 LPV200_12/16/2015 Cov_vs_Time_Alaska_12/16/2015

1.2 Report Overview

Section 2 documents the LPV and NPA performance observed for the indicated receiver locations (see Table 1-2 and Table 1-3). The 95% accuracy index and the maximum inaccuracy for the reporting period are tabulated. The daily 95% accuracy index is plotted for each receiver. Histograms of the vertical and horizontal error distribution using the data from all the evaluated receivers are provided.

Section 3 summarizes the WAAS instantaneous availability performance, at each receiver, for three operational service levels during the reporting period. Daily availability is also plotted for each receiver evaluated. The number of outages and outage rate for each site is reported.

Section 4 provides geographic plots of the availability of the WAAS services rolled up for the quarter. Plots of the percent of the CONUS and Alaska service areas covered by various levels of service availability are provided.

Section 5 summarizes HMI analysis for the reporting period and presents a safety margin index for each receiver. This section also includes update rates of WAAS messages transmitted from CRE, CRW, and AMR.

Section 6 provides the UDRE and GIVE bounding percentage and the 95% index of the range and ionospheric accuracy for each satellite tracked by the WAAS receiver at 12 locations.

Section 7 provides the GEO ranging performance for CRE and CRW.

Section 8 provides WAAS LPV availability and outages at selected airports.

Section 9 provides the assessment of WAAS CNMP bounding for the 114 WAAS receivers.

Section 10 provides the surveyed positions of all WREs and the difference between the WRE survey positions in the current operational software and the survey positions in this report.

Section 11 provides the daily and quarterly average of SQM PRN type biases and PRN biases.

2.0 WAAS POSITION ACCURACY

Navigation error data, collected from WAAS and NSTB reference stations, was processed to determine position accuracy at each location. This was accomplished by utilizing the GPS/WAAS position solution tool to compute a RTCA DO-229D weighted least squares user navigation solution, and WAAS horizontal and vertical protection levels (HPL & VPL), once every second. The user position calculated for each receiver was compared to the surveyed position of the antenna to assess position error associated with the WAAS SIS over time. The position errors were analyzed and statistics were generated for the operational service levels shown in Table 1-1.

Table 2-1 shows PA horizontal and vertical position accuracy maintained for 95% of the time at LP, LPV and LNAV/VNAV operational service levels for the quarter. The table also includes 95% SPS accuracy for certain locations. Note that WAAS accuracy statistics presented are compiled only when all WAAS corrections (fast, long term, and ionospheric) for at least 4 satellites are available. This is referred to as PA navigation mode. The percentage of time that PA navigation mode was supported by WAAS at each receiver is also shown in Table 2-1. During this reporting period, the maximum 95% CONUS horizontal and vertical LPV errors were 1.379 meters and 1.635 meters at Atlantic City and Houston, respectively. The minimum 95% CONUS horizontal and vertical LPV errors were 0.683 meters and 0.858 meters at Kansas City and Seattle, respectively.

A user is considered to be in NPA navigation mode if only WAAS fast and long term corrections are available to a user (i.e. no ionospheric corrections). Table 2-2 shows NPA horizontal position accuracy for 95% and 99.999% of the time. The table also shows the maximum NPA horizontal position error for the quarter. The maximum 95% and 99.999% NPA horizontal errors were 5.074 meters and 13.491 meters at Honolulu and San Juan, respectively. The minimum 95% and 99.999% horizontal errors were 1.263 meters and 2.850 meters at Albuquerque and Seattle, respectively.

Table 2-3 shows the maximum LPV error statistics. The column marked ‘Horizontal Error’ shows the maximum position errors while the calculated HPL meets the LPV service level defined in Table 1-1. The column marked ‘Vertical Error’ shows the maximum position errors while the calculated VPL meets the LPV service level. The columns marked ‘Horizontal Error/HPL’ and ‘Vertical Error/VPL’ show the ratio of position error to protection level at the time the maximum error occurred. The columns marked ‘Horizontal Maximum Ratio’ and ‘Vertical Maximum Ratio’ show the maximum position error to protection level ratio for the quarter. During this reporting period, the maximum horizontal and vertical LPV errors were 4.139 meters and 7.713 meters at Atlantic City and Barrow, respectively.

Figures 2-1 to 2-3 show the daily LPV 95% horizontal accuracy at the PA evaluation sites for the reporting period. Figures 2-4 to 2-6 show the daily LPV 95% vertical accuracy. Noteworthy increases in the 95% PA position errors over multiple evaluation sites due to geomagnetic activity in Figures 2-1 to 2-6 are listed below.

- On 10/3/15 and 10/4/2015, position errors in CONUS and Mexico were elevated. The maximum 95% horizontal and vertical LPV errors were 1.445 meters and 3.054 meters at Grand Forks and Mexico City, respectively. The Kp index range was from 4 to 5 during these days.
- On 10/7/15, position errors in CONUS, Alaska, and Mexico were elevated. The maximum 95% horizontal and vertical LPV errors were 2.014 meters and 3.028 meters at Miami and San Jose Del Cabo, respectively. The Kp index was 7 during this day.

- On 11/3/15 and 11/4/15, position errors in CONUS, Alaska and Canada were elevated. The maximum 95% horizontal and vertical LPV errors were 1.782 meters and 2.523 meters at Goose Bay and Anchorage, respectively. The Kp index was 5 on both days.
- On 11/7/15, position errors in CONUS and Canada were elevated. The maximum 95% horizontal and vertical LPV errors were 1.601 meters and 2.446 meters at Atlantic City and Iqaluit, respectively. The Kp index was 6 during this day.
- On 11/18/15 and 11/19/15, position errors in Alaska were elevated. The maximum 95% horizontal and vertical LPV errors were 1.304 meters and 2.396 meters at Barrow, respectively. The Kp index range was from 4 to 5 during these days.
- On 11/29/15 to 11/30/15, position errors in CONUS, Alaska, Canada, and Mexico were elevated. The maximum 95% horizontal and vertical LPV errors were 1.670 meters and 3.349 meters at Atlantic City and Mexico City, respectively. The Kp index was 4 to 5 during these days.
- On 12/20/15, position errors in CONUS, Alaska, Canada, and Mexico were elevated. The maximum 95% horizontal and vertical LPV errors were 2.090 meters and 2.820 meters at Atlantic City and Mexico City, respectively. The Kp index was 6 during this day.
- On 12/31/15, position errors in CONUS, Alaska, Canada, and Mexico were elevated. The maximum 95% horizontal and vertical LPV errors were 2.053 meters and 2.692 meters at Arcata and Mexico City, respectively. The Kp index was 6 during this day.

Figures 2-7 to 2-8 show the daily NPA 95% horizontal accuracy at the NPA evaluation sites for the reporting period. The increases in 95% NPA position errors on 10/1/15 to 10/2/15, 10/7/15, 10/18/15, 11/3/15, 11/7/15, 11/30/15, 12/6/15, 12/11/15, 12/20/15, and 12/31/15 were due to geomagnetic activity.

Figure 2-9 through Figure 2-12 show the distributions of the vertical and horizontal errors at all 38 WAAS receiver locations combined in triangle charts and 2-D histogram plots for the quarter. The triangle charts in Figure 2-9 and Figure 2-10 show the distributions of vertical position errors (VPE) versus vertical protection levels (VPL) and horizontal position errors (HPE) versus horizontal protection levels (HPL). The horizontal axis is the position error and the vertical axis is the WAAS protection level. Lower protection levels equate to better availability. The diagonal line shows the point where error equals protection level. Above and to the left of the diagonal line in the chart, errors are bounded (WAAS is providing integrity in the position domain); below and to the right, errors are not bounded (HMI could be present). The 2-D histogram plots in Figure 2-11 and Figure 2-12 show the distributions of horizontal and vertical position errors and normalized position errors. The blue trace shows the distributions of the actual horizontal and vertical errors. The horizontal axis is the position errors and the vertical axis is the total count of data samples (log scale) in each 0.1-meter bin. The magenta trace show the distributions of the actual horizontal and vertical errors normalized by one-sigma value of the protection level; horizontal - (HPL/6.0) and vertical - (VPL/5.33). The horizontal axis is the standard units and vertical axis is the observed distribution of normalized errors data samples in each 0.1-sigma bin. Narrowness of the normalized error distributions shows very good observed safety performance.

Table 2-1 PA 95% Horizontal and Vertical Accuracy

Location	Horizontal (HAL=40m) (Meters)	Horizontal (HAL=556m) (Meters)	Vertical (VAL=50m) (Meters)	Percentage in PA mode (%)	SPS Accuracy	
					95% Horizontal (Meters)	95% Vertical (Meters)
Arcata	1.333	1.333	1.196	100	*	*
Atlantic City	1.379	1.380	1.615	100		
Grand Forks	1.217	1.219	1.366	100	*	*
Oklahoma City	0.896	0.896	1.245	100	*	*
Albuquerque	0.730	0.730	0.945	100	1.977	4.876
Anchorage	0.675	0.675	1.294	100	*	*
Atlanta	0.828	0.828	1.219	100	2.281	4.735
Barrow	0.687	0.687	1.527	99.99956	*	*
Bethel	0.638	0.638	1.129	99.99979	1.817	5.762
Billings	0.772	0.772	0.960	99.99981	1.953	4.703
Boston	0.841	0.844	1.055	100	2.302	4.244
Chicago	0.925	0.927	0.942	100	*	*
Cleveland	0.957	0.959	1.053	100	2.400	4.437
Cold Bay	0.691	0.691	1.105	100	*	*
Dallas	0.777	0.777	1.413	100	*	*
Denver	0.747	0.747	0.864	100	*	*
Fairbanks	0.685	0.685	1.290	99.99999	1.768	5.610
Gander	0.896	0.896	1.208	100	*	*
Goose Bay	0.840	0.841	1.103	100	*	*
Houston	0.865	0.865	1.635	100	2.248	5.253
Iqaluit	1.076	1.078	1.623	100	*	*
Jacksonville	0.867	0.867	1.411	100	*	*
Juneau	0.691	0.691	1.155	99.99954	*	*
Kansas City	0.683	0.683	1.005	100	2.194	4.788
Kotzebue	0.697	0.697	1.370	99.99975	1.792	5.681
Los Angeles	0.878	0.878	1.151	100	1.934	5.536
Memphis	0.783	0.783	1.211	100	*	*
Merida	0.821	0.823	1.600	100	*	*
Mexico City	0.747	0.748	2.485	99.99787	*	*
Miami	0.982	0.982	1.525	100	2.216	4.909
Minneapolis	0.799	0.801	1.037	100	2.178	4.609
New York	0.890	0.891	1.053	100	*	*
Oakland	0.698	0.698	1.090	100	1.931	5.565
Puerto Vallarta	0.794	0.794	1.577	100	*	*
Salt Lake City	0.687	0.687	0.877	100	1.981	4.989
San Jose Del Cabo	0.866	0.866	1.845	100	*	*
Seattle	0.790	0.790	0.858	100	1.785	5.151
Washington DC	0.897	0.898	1.187	100	2.422	4.508
Winnipeg	0.714	0.716	1.211	100	*	*

* = SPS Data not processed.

Table 2-2 NPA 95% and 99.999% Horizontal Accuracy

Location	95% Horizontal (meters)	99.999% Horizontal (meters)	Percentage in NPA mode (%)	Maximum Horizontal Error
Albuquerque	1.263	5.643	100	5.839
Anchorage	1.560	3.480	100	3.779
Atlanta	1.512	7.824	100	8.017
Barrow	1.533	3.928	100	4.029
Bethel	1.508	3.194	100	3.358
Billings	1.549	3.074	100	3.322
Boston	1.760	6.853	100	7.042
Cleveland	1.652	6.426	100	6.609
Cold Bay	1.382	4.045	100	4.193
Fairbanks	1.639	3.815	100	6.100
Gander	1.680	5.885	100	6.024
Honolulu	5.074	11.555	100	11.726
Houston	1.681	7.773	100	7.990
Iqaluit	1.999	4.231	100	4.429
Juneau	1.420	3.248	99.998	4.426
Kansas City	1.338	5.873	100	6.112
Kotzebue	1.508	3.717	100	4.349
Los Angeles	1.581	5.529	100	5.722
Merida	1.604	7.267	100	7.800
Miami	1.616	7.157	100	7.299
Minneapolis	1.545	5.482	100	5.727
Oakland	1.303	3.740	100	3.896
Salt Lake City	1.370	3.503	100	3.708
San Jose Del Cabo	1.575	6.957	100	7.180
San Juan	2.523	13.491	100	13.655
Seattle	1.426	2.850	100	3.056
Tapachula	2.452	9.650	100	9.794
Washington DC	1.798	6.509	100	6.711

Table 2-3 Maximum LPV Error Statistics

Location	Horizontal Error (m)	Horizontal Error HPL	Horizontal Maximum Ratio	Vertical Error (m)	Vertical Error VPL	Vertical Maximum Ratio
Arcata	2.999	0.222	0.232	3.661	0.121	0.176
Atlantic City	4.139	0.113	0.241	7.076	0.161	0.216
Grand Forks	3.001	0.096	0.213	5.568	0.132	0.186
Oklahoma City	2.116	0.217	0.217	4.435	0.116	0.177
Albuquerque	2.527	0.241	0.246	2.362	0.127	0.155
Anchorage	2.174	0.087	0.178	3.772	0.175	0.192
Atlanta	2.463	0.216	0.216	3.371	0.171	0.190
Barrow	3.317	0.090	0.156	7.713	0.213	0.213
Bethel	2.686	0.111	0.148	3.684	0.152	0.152
Billings	1.757	0.172	0.183	2.491	0.152	0.152
Boston	3.155	0.149	0.185	4.861	0.175	0.175
Chicago	2.385	0.255	0.255	5.134	0.152	0.221
Cleveland	4.037	0.139	0.268	6.720	0.197	0.242
Cold Bay	1.815	0.100	0.100	2.775	0.081	0.119
Dallas	2.767	0.197	0.231	3.104	0.177	0.199
Denver	1.866	0.206	0.206	2.471	0.110	0.163
Fairbanks	3.374	0.216	0.216	6.887	0.146	0.288
Gander	2.822	0.106	0.131	4.414	0.098	0.127
Goose Bay	3.852	0.143	0.169	4.500	0.156	0.159
Houston	2.694	0.219	0.228	4.069	0.217	0.221
Iqaluit	3.096	0.103	0.188	4.958	0.122	0.184
Jacksonville	2.421	0.198	0.198	3.957	0.208	0.208
Juneau	2.037	0.152	0.154	3.948	0.192	0.198
Kansas City	2.755	0.100	0.232	2.883	0.158	0.170
Kotzebue	3.291	0.107	0.154	5.433	0.156	0.217
Los Angeles	2.051	0.191	0.191	2.965	0.113	0.152
Memphis	2.741	0.245	0.245	2.603	0.130	0.200
Merida	3.955	0.127	0.169	3.937	0.094	0.162
Mexico City	3.541	0.108	0.123	5.641	0.171	0.185
Miami	2.879	0.234	0.249	3.412	0.130	0.167
Minneapolis	3.243	0.219	0.220	3.884	0.193	0.193
New York	3.598	0.109	0.185	6.722	0.136	0.149
Oakland	1.755	0.149	0.159	2.947	0.116	0.139
Puerto Vallarta	2.977	0.090	0.110	4.367	0.128	0.138
Salt Lake City	1.785	0.175	0.175	2.466	0.119	0.151
San Jose Del Cabo	2.322	0.082	0.137	6.705	0.171	0.184
Seattle	1.925	0.172	0.186	2.396	0.153	0.153
Washington DC	2.524	0.063	0.192	5.117	0.116	0.165
Winnipeg	3.048	0.077	0.157	4.149	0.196	0.198

Figure 2-1 LPV 95% Horizontal Accuracy

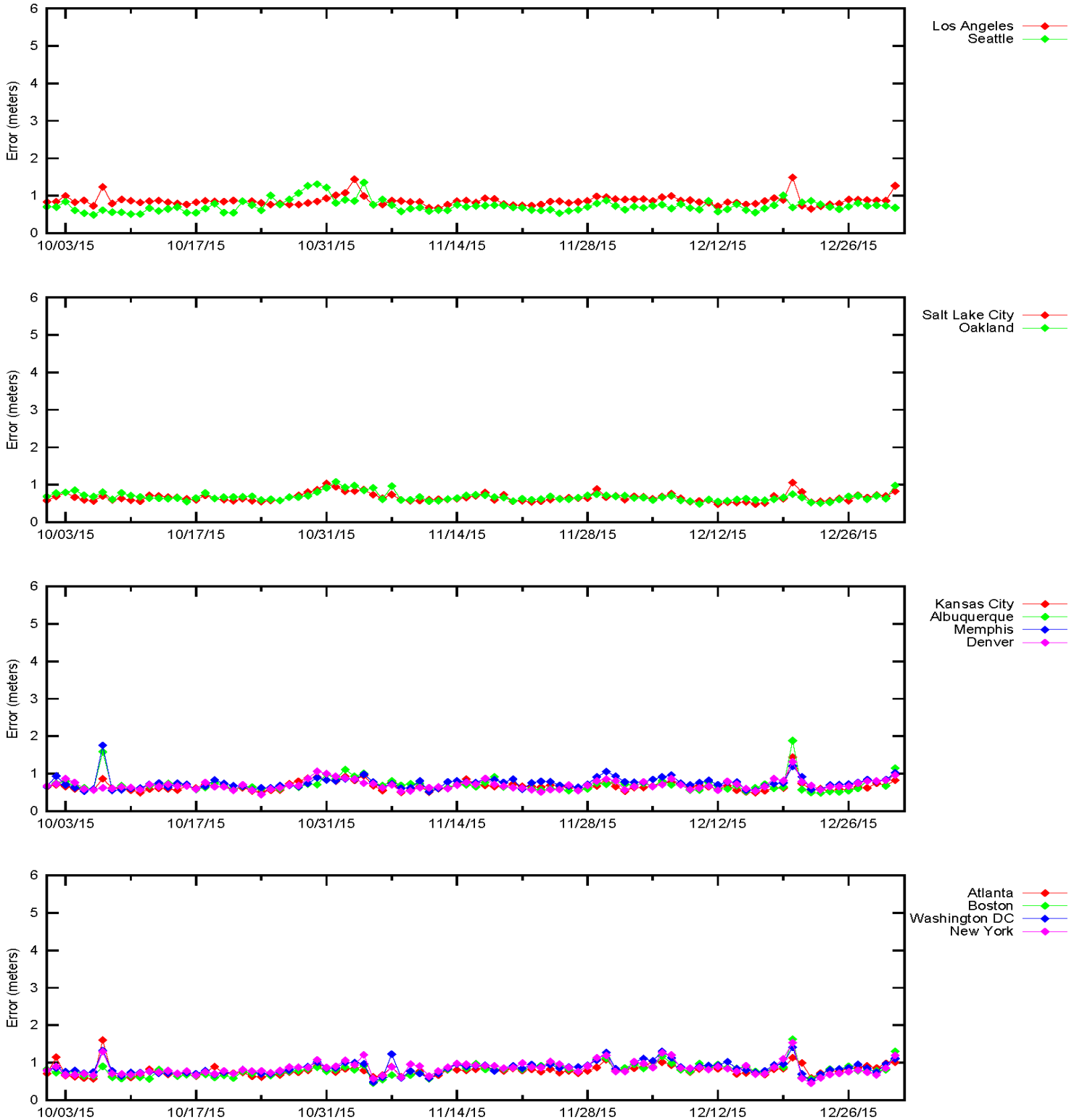


Figure 2-2 LPV 95% Horizontal Accuracy

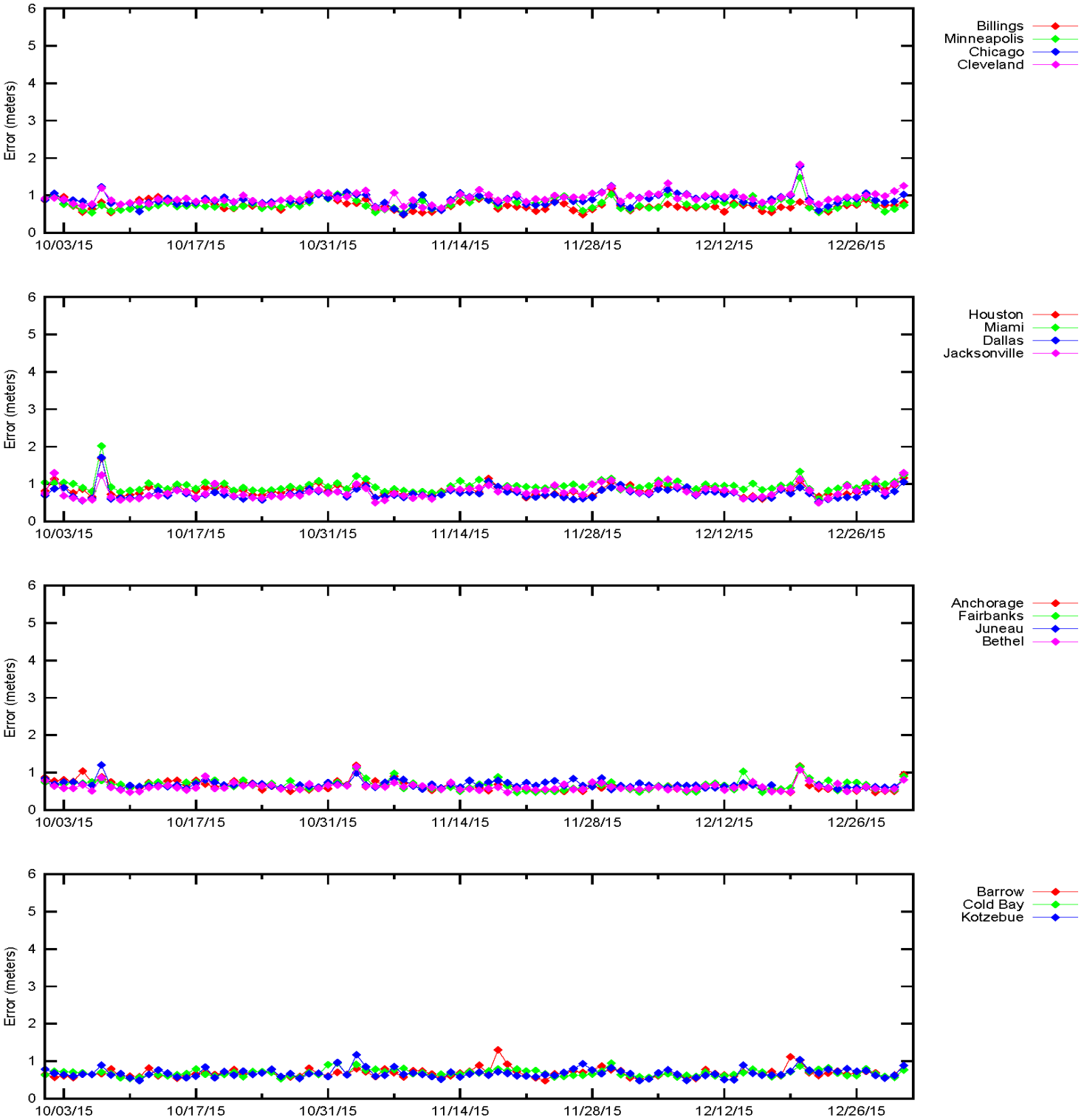


Figure 2-3 LPV 95% Horizontal Accuracy

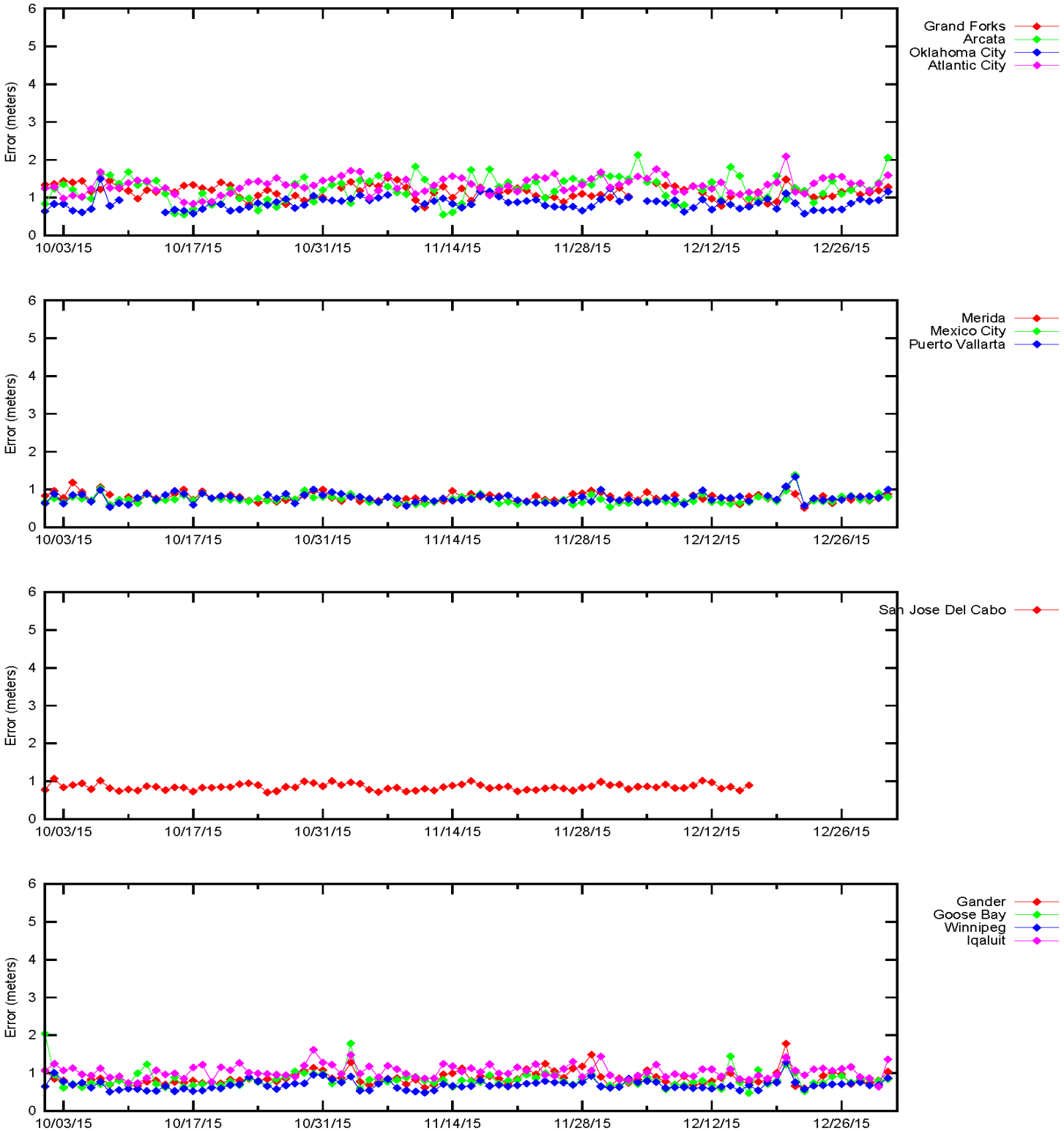


Figure 2-4 LPV 95% Vertical Accuracy

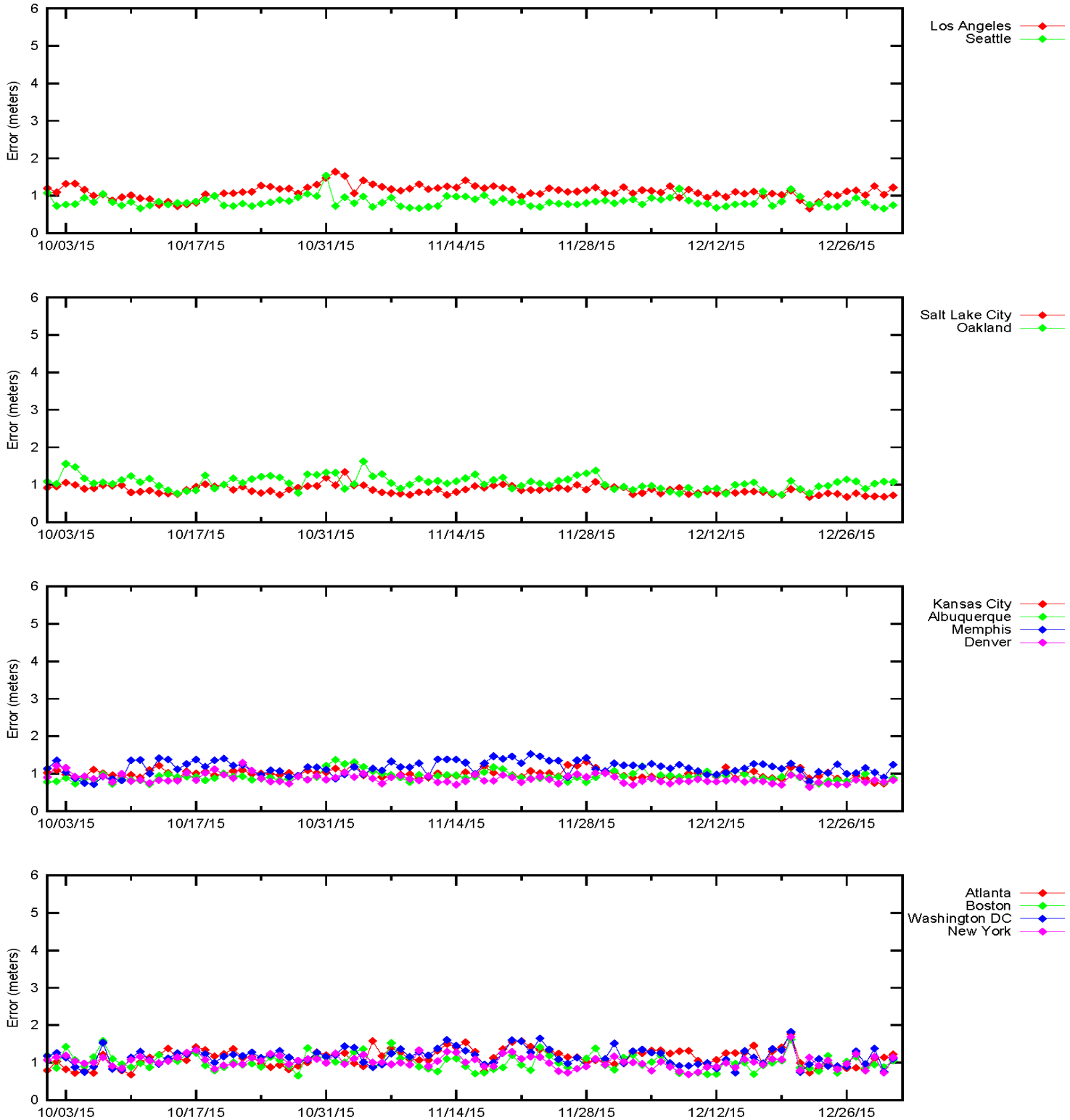


Figure 2-5 LPV 95% Vertical Accuracy

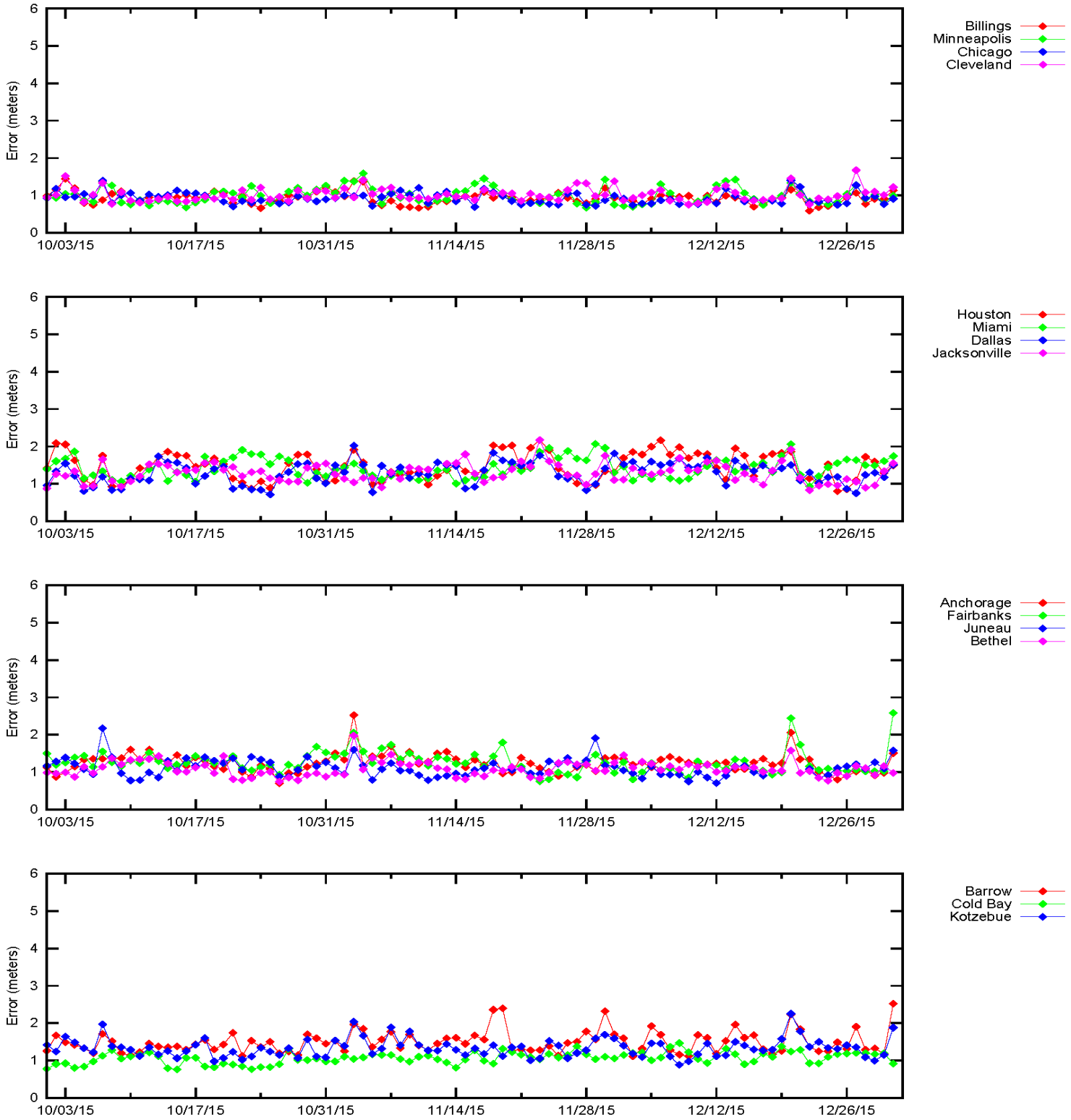


Figure 2-6 LPV 95% Vertical Accuracy

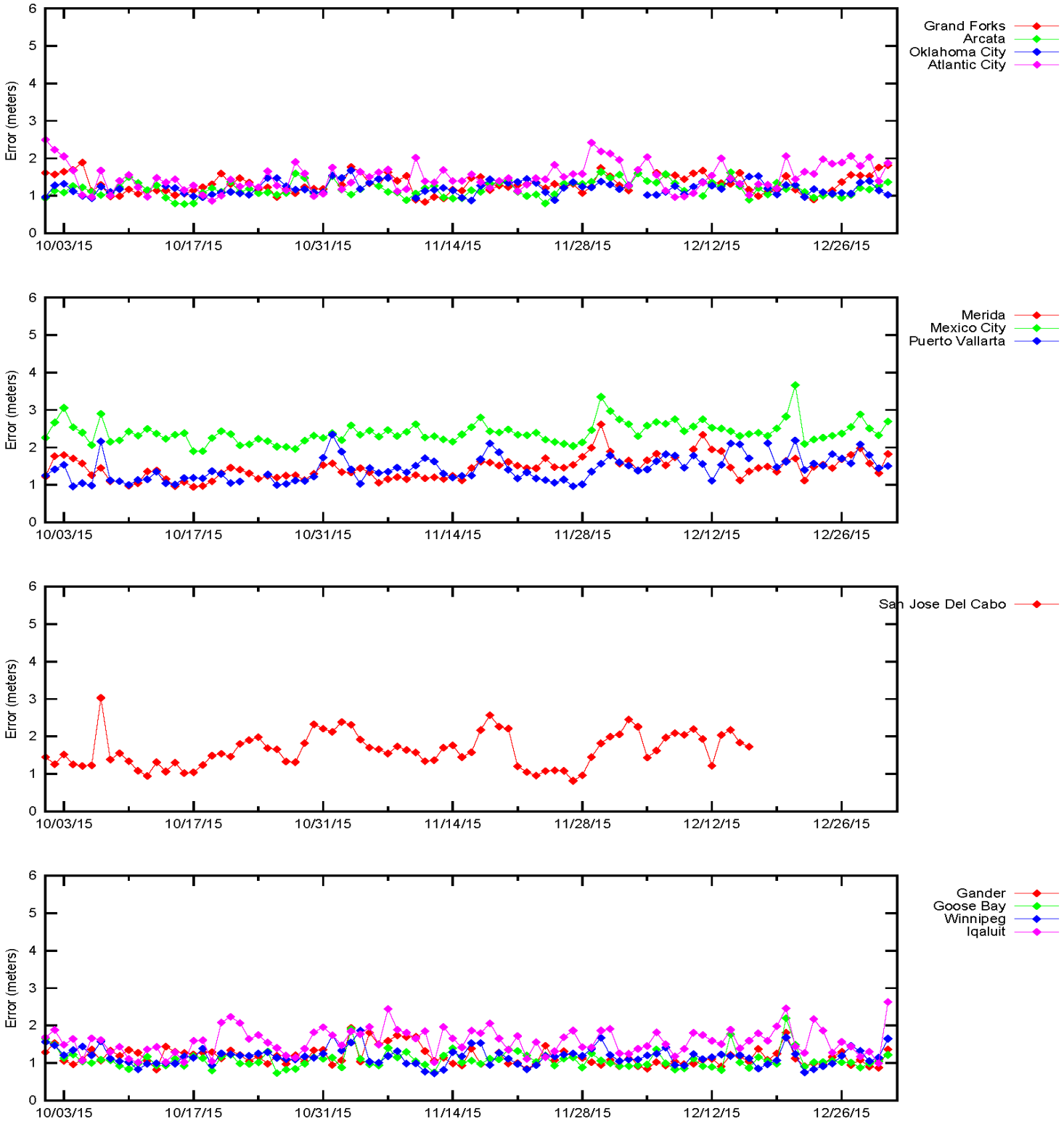


Figure 2-7 NPA 95% Horizontal Accuracy

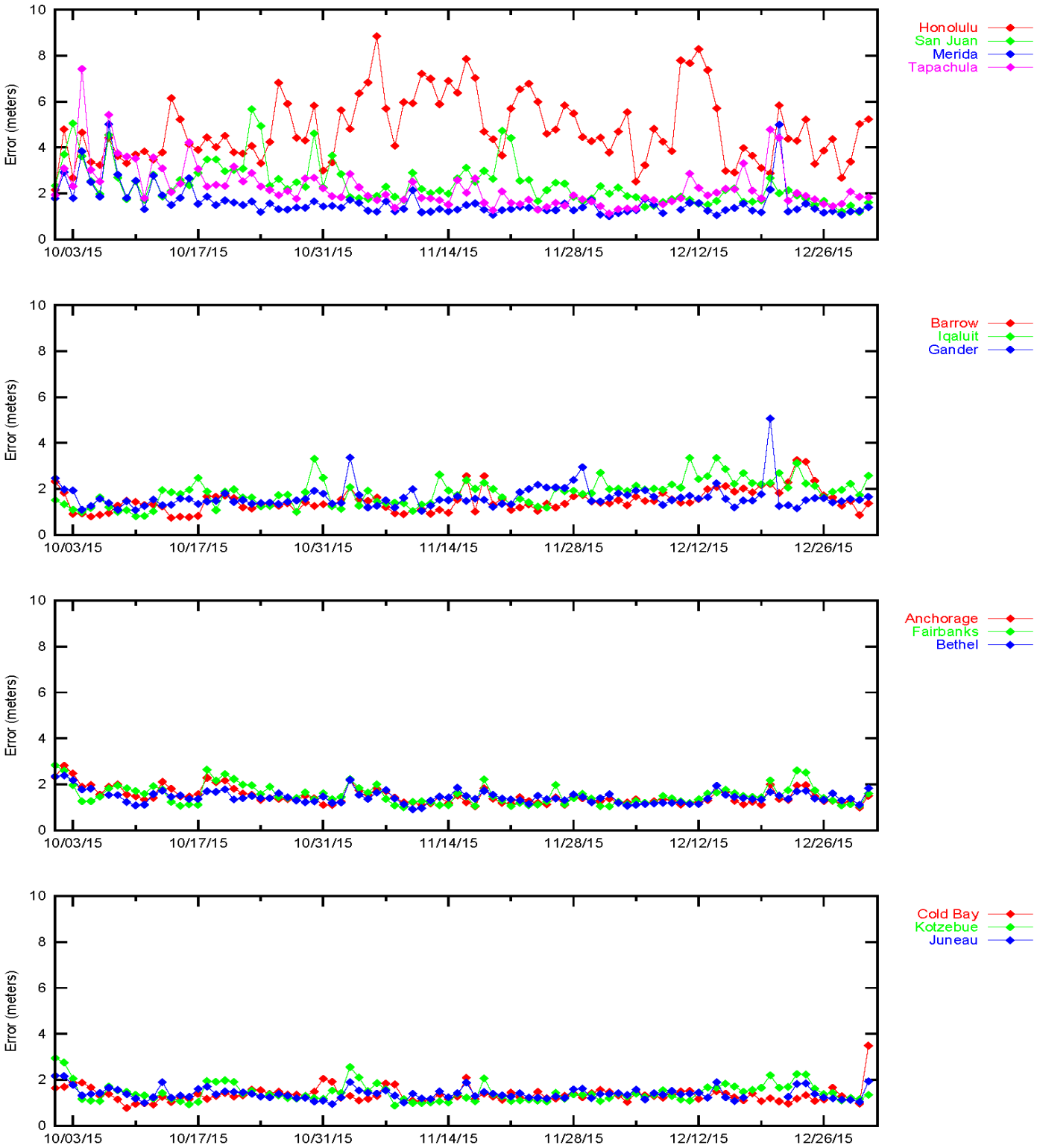


Figure 2-8 NPA 95% Horizontal Accuracy

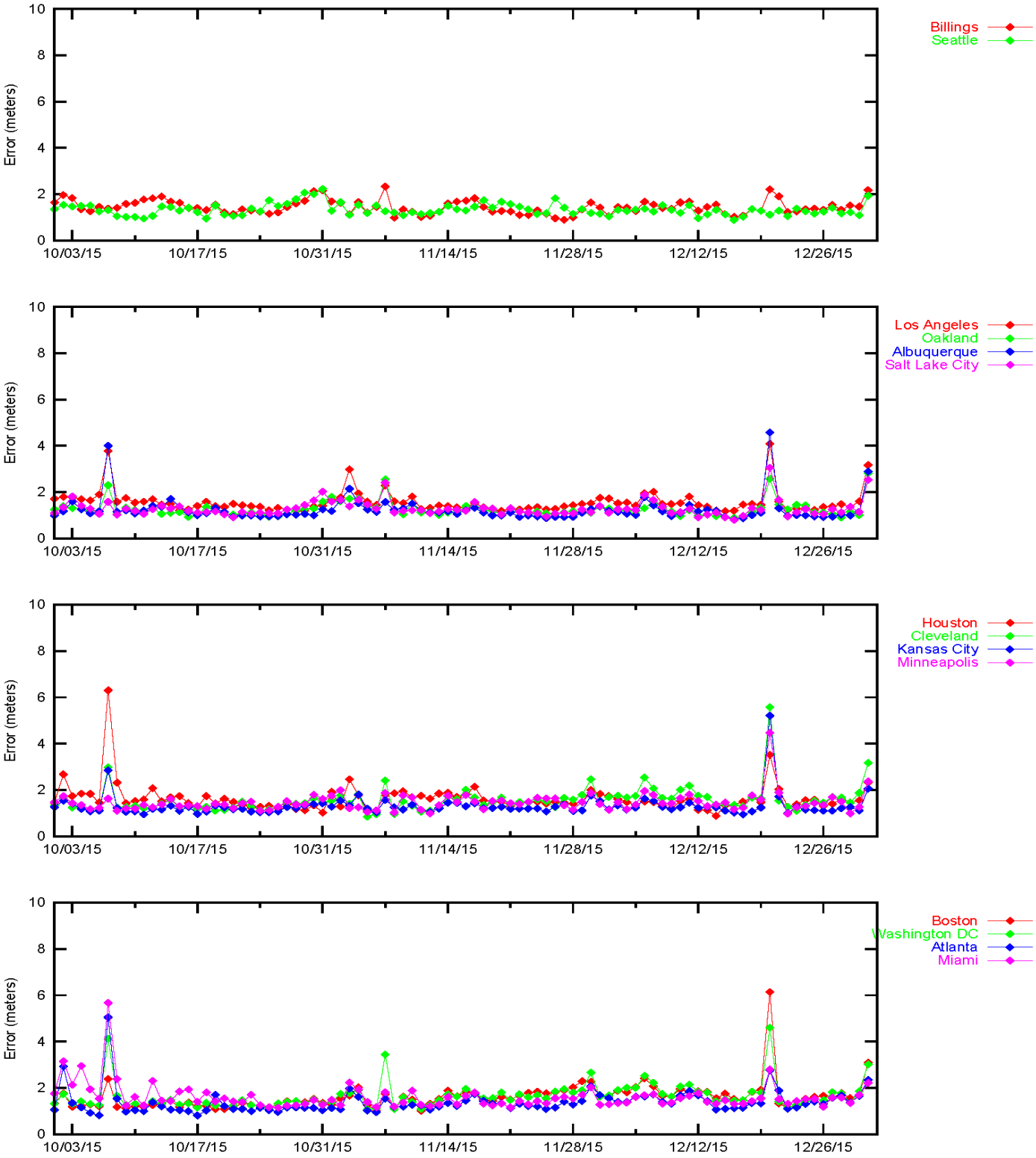


Figure 2-9 LPV Horizontal Error Bounding Triangle Chart

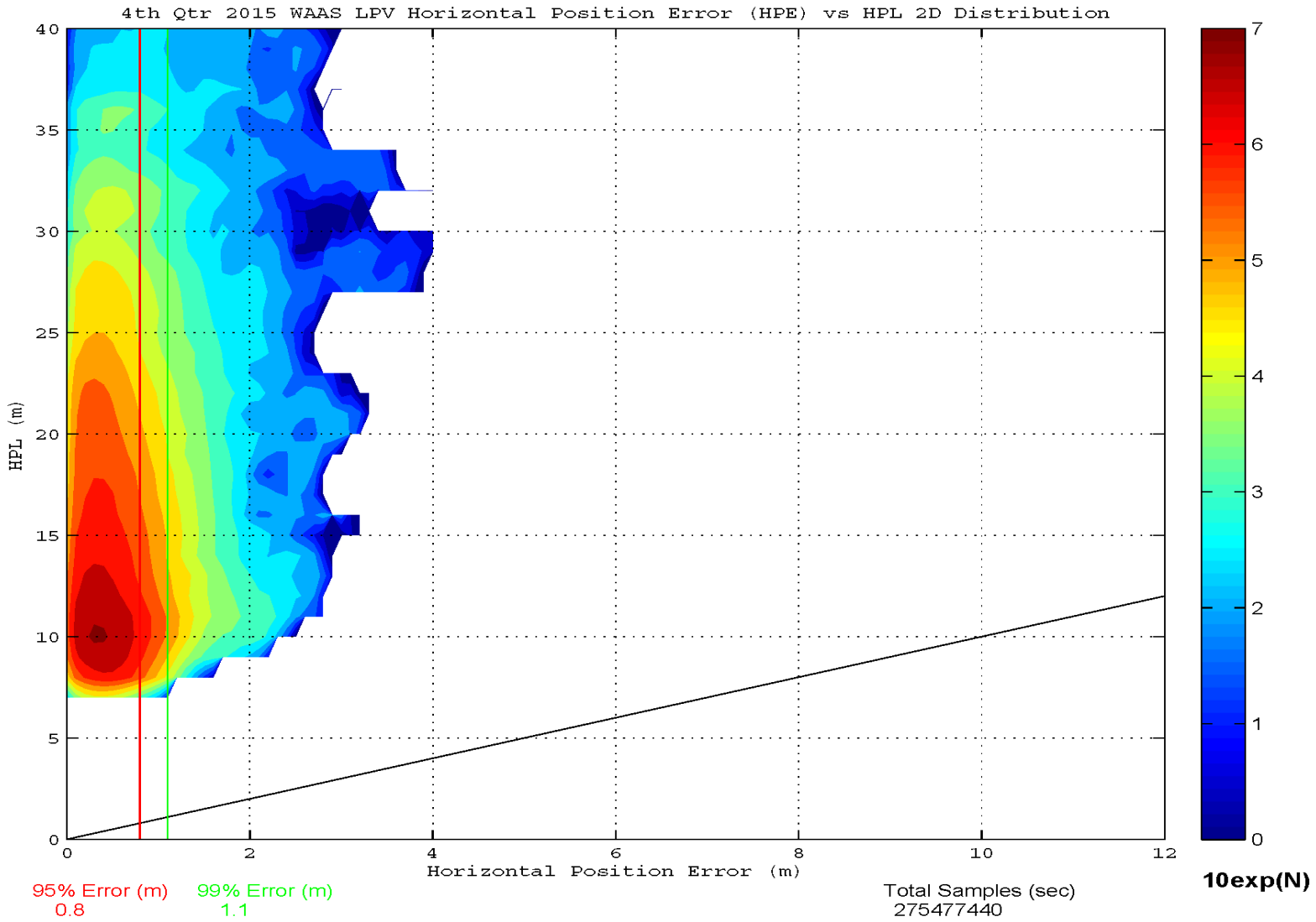


Figure 2-10 LPV Vertical Error Bounding Triangle Chart

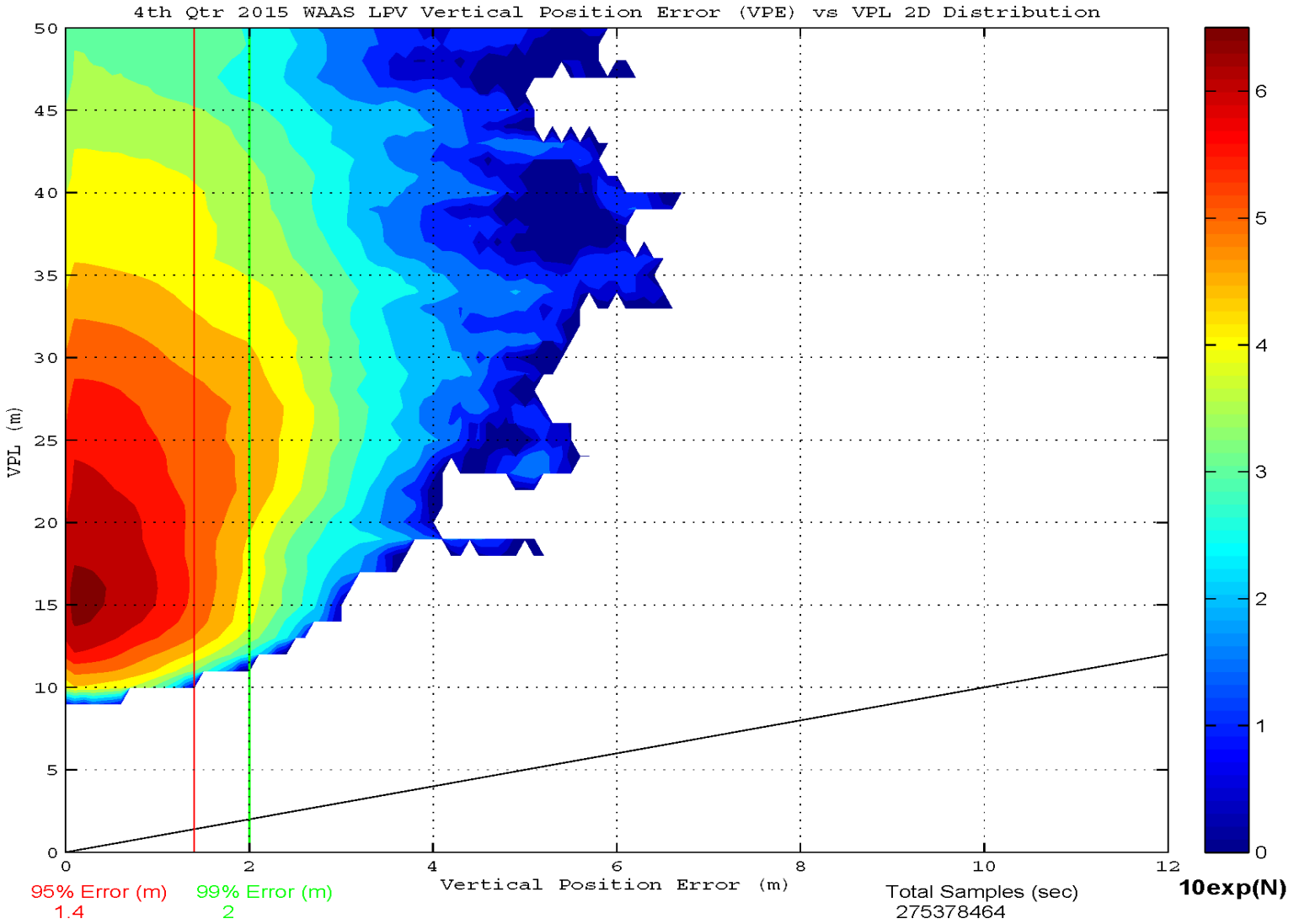


Figure 2-11 LPV 2-D Horizontal Error Distribution Histogram

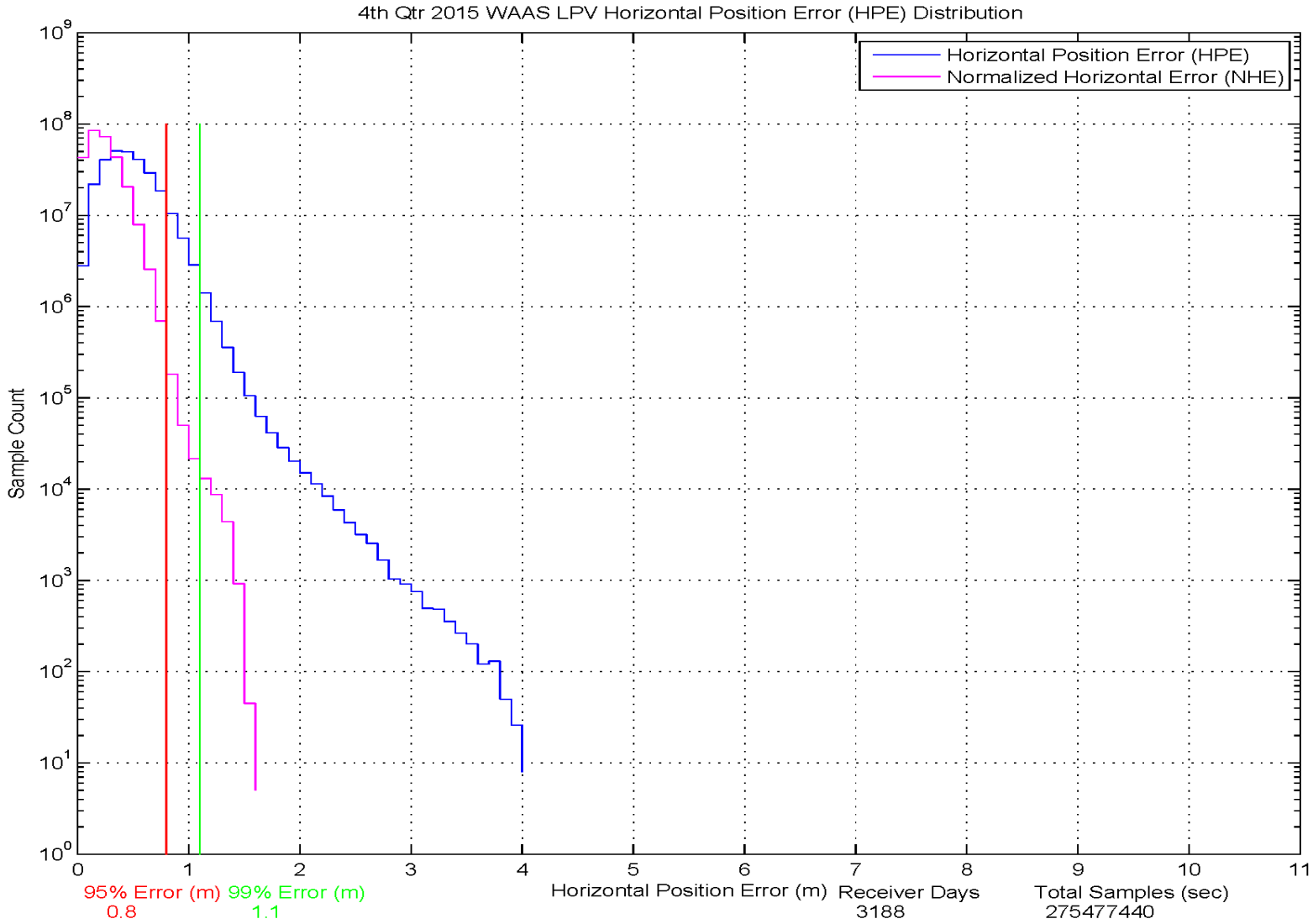
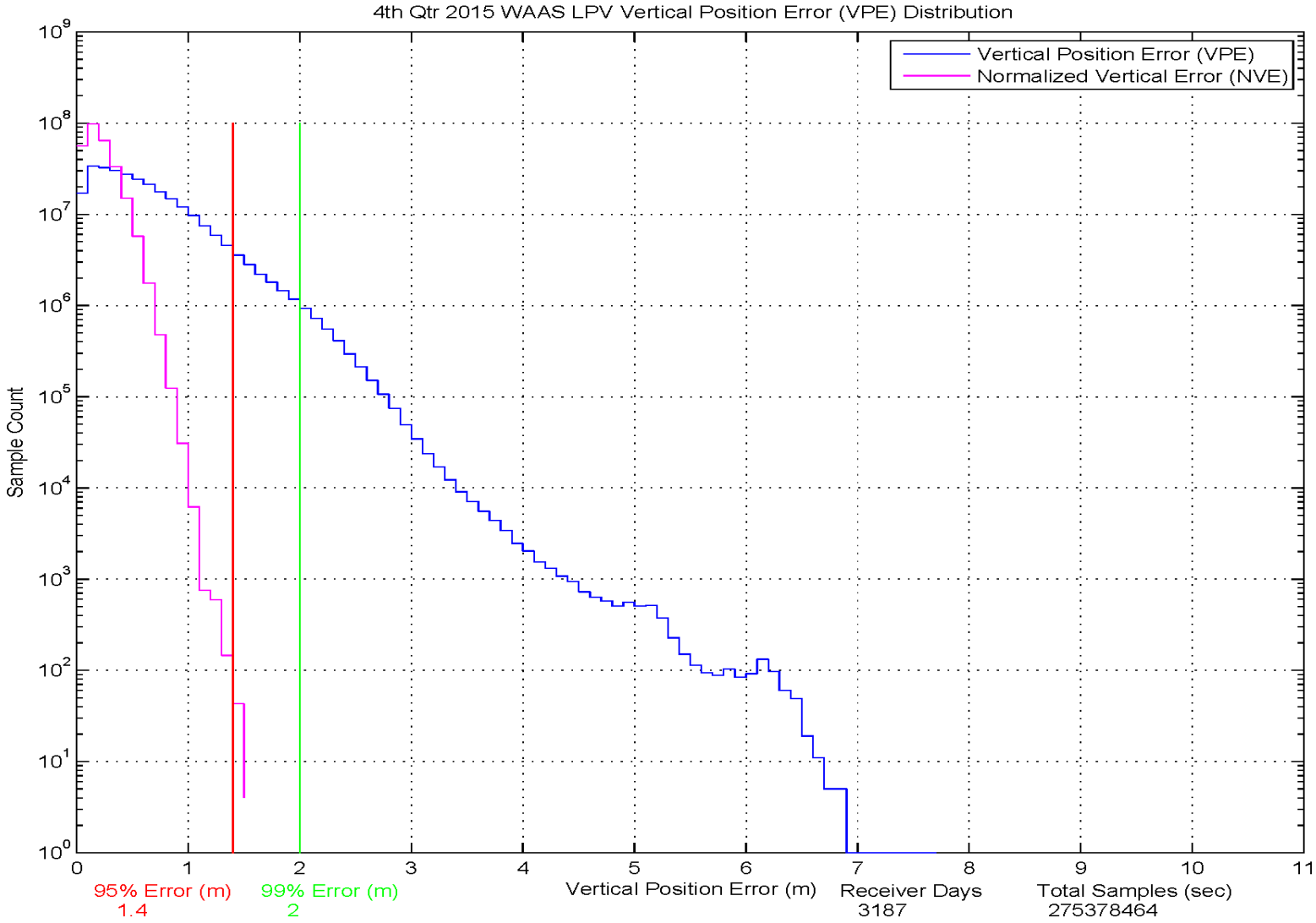


Figure 2-12 LPV 2-D Vertical Error Distribution Histogram



3.0 AVAILABILITY

The WAAS availability evaluation documents the percentage of time that the WAAS provided service for the operational service levels defined in Table 1-1. RTCA DO-229D Vertical and Horizontal Protection Levels were computed for each receiver being evaluated. Table 3-1 shows the protection levels that were maintained for 99% of the time for each receiver location for the quarter. The table also included the percentage in PA mode as described in Section 2.0.

For this reporting period, the maximum 99% CONUS HPL and VPL are 16.96 meters and 32.382 meters at Boston and Arcata, respectively. The minimum 99% CONUS HPL and VPL are 10.816 at 19.119 meters, both at Kansas City. The maximum 99% Alaska HPL and VPL are 26.874 meters and 41.451 meters at Cold Bay and Barrow, respectively. The minimum 99% Alaska HPL and VPL are 14.107 meters and 22.523 meters, both at Juneau.

Availability of LP, LPV and LPV200 service are evaluated by monitoring the WAAS protection levels at receiver locations throughout the test period. If both the vertical and horizontal protection levels are not greater than their respective alert limits (VAL and HAL) then the service is available. If either of the protection levels exceeds the required alert limit then the operational service at that location is considered unavailable and an outage in service is recorded with its duration. The operational service is not considered available again until the protection levels are both within the alert limits for at least 15 minutes. Although this will reduce operational service availability minimally, it substantially reduces the number of service outages and prevents excessive switching in and out of service availability. The percent of time that LP, LPV, and LPV200 service is available using the 15-minute window criteria is presented in Table 3-2. The LP, LPV, and LPV200 service outages and associated outage rate for the reporting period is presented in Table 3-4. The outage rate is the percent of approaches that theoretically would be interrupted by a loss of operational service once the approach had started. Figure 3-1 through Figure 3-6 show the daily availability of LPV and LPV200 service levels. Figure 3-7 through Figure 3-12 show the daily interruptions of LPV and LPV200 service levels for the evaluation period.

Availability of NPA service is evaluated by monitoring the WAAS horizontal protection level at receiver locations throughout the test period. If the horizontal protection level is not greater than the horizontal alert limit (HAL = 556m) then the service is available. If the horizontal protection level exceeds the required alert level or if WAAS navigation message is not received then the NPA service at that location is considered unavailable and an outage in service is recorded with its duration. The NPA service is not considered available again until the horizontal protection level is within the alert limit for at least 15 minutes. The percent of time that NPA service is available using the 15-minute window criteria is presented in Table 3-3. The NPA service outages and associated outage rate for this period is presented in Table 3-5. The outage rate is the percent of NPA approaches that theoretically would be interrupted by a loss of operational service once the approach had started.

The availability decreases for this quarter were due to satellite outages, geomagnetic activity, communication outages, RFI, and elevated UDRE and GIVE values. Noteworthy events that affected availability are listed below.

- On October 5, elevated UDREs on CRW GEO reduced LPV availability in Alaska and LPV200 availability in Alaska and Canada
- On October 20, a NANU on PRN 23 caused LPV outages in Alaska and LPV200 outages in Alaska, Canada, and CONUS. See DR, "DR 129 WAAS set PRN 23 to Not Monitored Following the Conclusion of NANU 2015086".
- On November 3-4, geomagnetic activity caused elevated GIVE values, which reduced LPV availability in Canada and LPV200 availability in Alaska and Canada
- On November 13, local RFI at Goose Bay caused a reduction and eventual loss of SV tracking. LP, LPV, and LPV200 outages occurred at Goose Bay from 10:44 GMT to 10:45 GMT.
- On November 18, geomagnetic activity caused elevated GIVE values, which reduced LPV200 availability in Alaska and Canada
- On December 7 and December 16-17, elevated UDREs on CRW GEO caused reduced LPV availability in Alaska and LPV200 availability in Alaska and Canada
- On December 9, elevated UDREs on CRW GEO caused reduced LPV availability in Alaska and LPV200 availability in Alaska, Canada, and CONUS

- On December 14-15, geomagnetic activity caused elevated GIVE values, which reduced LPV200 availability in Alaska
- On December 20, LPV and LPV200 availability were affected in CONUS, Alaska, and Canada.
- On December 31, geomagnetic activity caused elevated GIVEs which reduced LPV200 CONUS, Alaska and Canada availability.

Table 3-1 99% Protection Level

Location	99% HPL (meters)	99% VPL (meters)	Percentage in PA mode (%)
Arcata	16.301	32.382	100
Atlantic City	15.494	22.788	100
Grand Forks	14.279	22.633	100
Oklahoma City	11.147	22.734	100
Albuquerque	11.161	21.219	100
Anchorage	14.141	24.833	100
Atlanta	12.823	22.567	100
Barrow	17.276	41.451	99.999560
Bethel	17.295	28.774	99.999790
Billings	12.349	22.069	99.999810
Boston	16.967	21.451	100
Chicago	12.125	20.710	100
Cleveland	15.759	22.315	100
Cold Bay	26.874	38.616	100
Dallas	11.524	19.263	100
Denver	10.838	20.500	100
Fairbanks	14.124	25.450	99.999990
Gander	27.737	37.765	100
Goose Bay	23.083	27.919	100
Houston	11.636	20.683	100
Iqaluit	31.804	43.592	100
Jacksonville	13.612	23.460	100
Juneau	14.107	22.523	99.999540
Kansas City	10.816	19.119	100
Kotzebue	17.192	36.260	99.999750
Los Angeles	15.138	30.449	100
Memphis	11.584	19.941	100
Merida	23.072	38.617	100
Mexico City	26.751	41.079	99.997870
Miami	16.019	26.431	100
Minneapolis	12.638	20.961	100
New York	16.024	21.467	100
Oakland	16.175	32.252	100
Puerto Vallarta	30.592	49.344	100
Salt Lake City	11.336	21.818	100
San Jose Del Cabo	25.170	41.253	100
Seattle	13.041	22.350	100
Washington DC	15.087	22.981	100
Winnipeg	15.826	21.915	100

Table 3-2 PA Availability (15-minute window)

Location	LP WAAS Availability (%)	LPV WAAS Availability (%)	LPV200 WAAS Availability (%)
Arcata	100	100	99.98
Atlantic City	99.97	99.97	99.89
Grand Forks	99.87	99.87	99.86
Oklahoma City	100	100	99.99
Albuquerque	100	100	100
Anchorage	99.99	99.97	99.94
Atlanta	100	100	100
Barrow	99.97	99.84	96.82
Bethel	100	100	99.94
Billings	100	99.99	99.95
Boston	99.91	99.9	99.87
Chicago	99.92	99.92	99.89
Cleveland	99.92	99.92	99.9
Cold Bay	100	99.98	95.75
Dallas	100	100	100
Denver	100	100	100
Fairbanks	99.99	99.97	99.91
Gander	99.96	99.91	96.71
Goose Bay	99.95	99.94	99.84
Houston	100	100	100
Iqaluit	99.94	99.81	89.69
Jacksonville	100	100	100
Juneau	100	100	100
Kansas City	100	100	100
Kotzebue	99.99	99.93	98.13
Los Angeles	100	100	100
Memphis	100	100	100
Merida	99.9	99.9	97.67
Mexico City	99.91	99.73	95.02
Miami	99.95	99.95	99.93
Minneapolis	99.9	99.89	99.89
New York	99.95	99.94	99.87
Oakland	100	100	99.97
Puerto Vallarta	99.99	98.89	90.2
Salt Lake City	100	100	100
San Jose Del Cabo	100	99.93	93.09
Seattle	100	100	100
Washington DC	99.95	99.94	99.93
Winnipeg	99.88	99.87	99.87

Table 3-3 NPA Availability (15-minute window)

Location	NPA Availability (%) (Excluding RAIM/FDE)
Albuquerque	100
Anchorage	100
Atlanta	100
Barrow	100
Bethel	100
Billings	100
Boston	100
Cleveland	100
Cold Bay	100
Fairbanks	100
Gander	100
Honolulu	100
Houston	100
Iqaluit	100
Juneau	99.998367
Kansas City	100
Kotzebue	100
Los Angeles	100
Merida	100
Miami	100
Minneapolis	100
Oakland	100
Salt Lake City	100
San Jose Del Cabo	100
San Juan	100
Seattle	100
Tapachula	100
Washington DC	100

Table 3-4 LPV and LPV200 Outage Rate (Per 150 sec approach)

Location	LP Outages	LP Outage Rates	LPV Outages	LPV Outage Rates	LPV200 Outages	LPV200 Outage Rates
Arcata	0	0	0	0	15	0.000291
Atlantic City	3	0.000057	3	0.000057	3	0.000057
Grand Forks	1	0.00002	2	0.000039	4	0.000079
Oklahoma City	0	0	0	0	4	0.000082
Albuquerque	0	0	0	0	0	0
Anchorage	1	0.000019	2	0.000038	6	0.000113
Atlanta	0	0	0	0	0	0
Barrow	3	0.000057	19	0.000359	206	0.004019
Bethel	1	0.000019	1	0.000019	6	0.000113
Billings	1	0.000019	2	0.000038	3	0.000057
Boston	2	0.000038	2	0.000038	1	0.000019
Chicago	1	0.000019	1	0.000019	1	0.000019
Cleveland	1	0.000019	1	0.000019	2	0.000038
Cold Bay	0	0	1	0.000019	469	0.009249
Dallas	0	0	0	0	3	0.000057
Denver	0	0	0	0	0	0
Fairbanks	3	0.000057	6	0.000113	14	0.000265
Gander	2	0.000038	4	0.000076	267	0.005213
Goose Bay	3	0.000057	4	0.000076	8	0.000151
Houston	0	0	0	0	0	0
Iqaluit	9	0.00017	39	0.000738	668	0.014065
Jacksonville	0	0	0	0	0	0
Juneau	1	0.00002	1	0.00002	2	0.00004
Kansas City	0	0	0	0	0	0
Kotzebue	2	0.000038	12	0.000227	138	0.002656
Los Angeles	0	0	0	0	0	0
Memphis	0	0	0	0	0	0
Merida	1	0.000019	1	0.000019	179	0.003505
Mexico City	4	0.000076	57	0.001079	636	0.012638
Miami	1	0.000019	1	0.000019	2	0.000038
Minneapolis	1	0.000019	1	0.000019	1	0.000019
New York	3	0.000057	4	0.000076	1	0.000019
Oakland	0	0	0	0	14	0.000265
Puerto Vallarta	3	0.000058	142	0.002776	487	0.010438
Salt Lake City	0	0	0	0	0	0
San Jose Del Cabo	0	0	8	0.000181	299	0.007269
Seattle	0	0	0	0	0	0
Washington DC	2	0.000038	1	0.000019	2	0.000038
Winnipeg	1	0.000019	1	0.000019	2	0.000038

Table 3-5 NPA Outage Rates (Excluding FD/FDE)

Location	NPA Outages	NPA Outage Rate
Albuquerque	0	0
Anchorage	0	0
Atlanta	0	0
Barrow	0	0
Bethel	0	0
Billings	0	0
Boston	0	0
Cleveland	0	0
Cold Bay	0	0
Fairbanks	0	0
Gander	0	0
Honolulu	0	0
Houston	0	0
Iqaluit	0	0
Juneau	1	0.00002
Kansas City	0	0
Kotzebue	0	0
Los Angeles	0	0
Merida	0	0
Miami	0	0
Minneapolis	0	0
Oakland	0	0
Salt Lake City	0	0
San Jose Del Cabo	0	0
San Juan	0	0
Seattle	0	0
Tapachula	0	0
Washington DC	0	0

Figure 3-1 LPV Instantaneous Availability

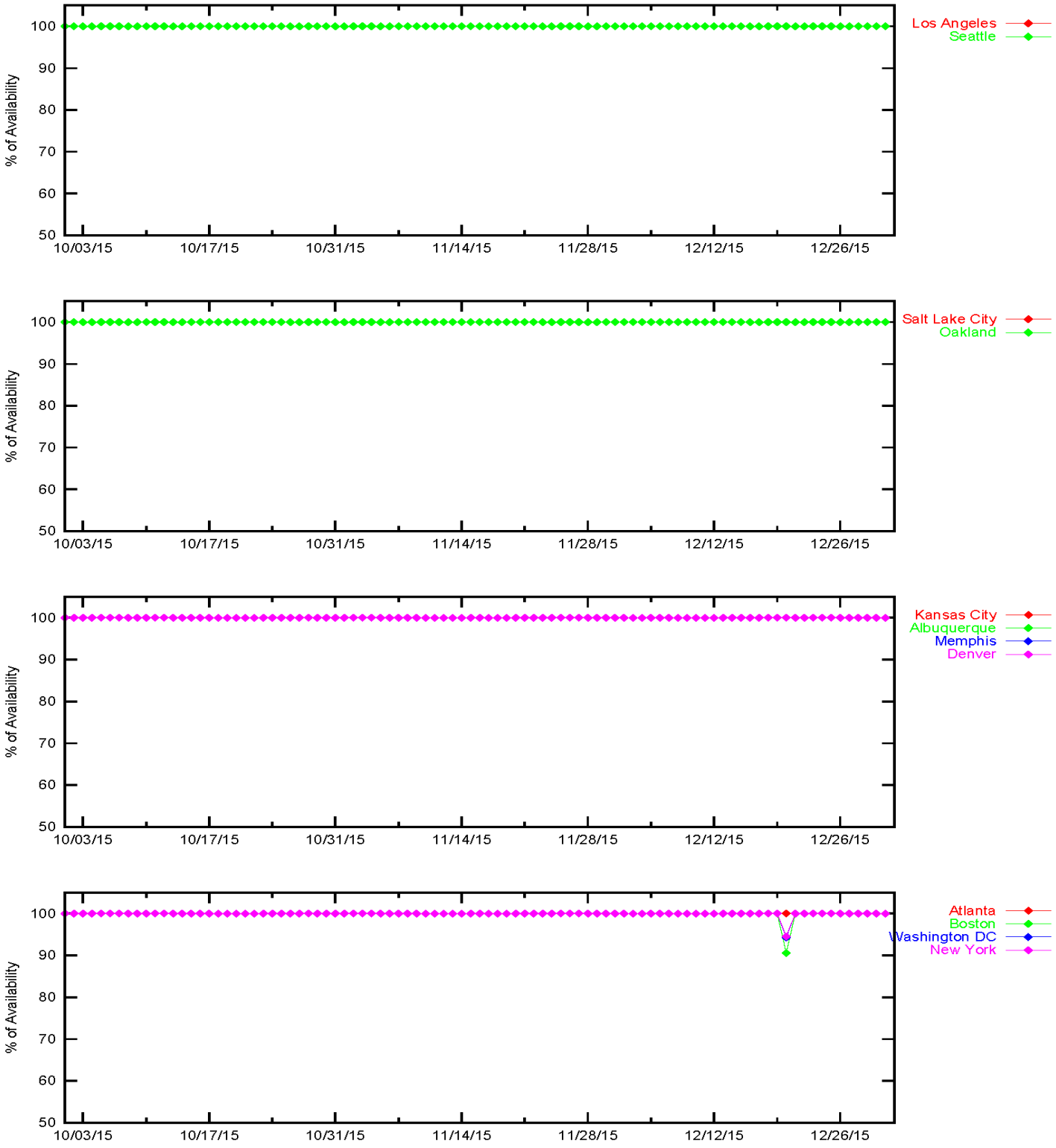


Figure 3-2 LPV Instantaneous Availability

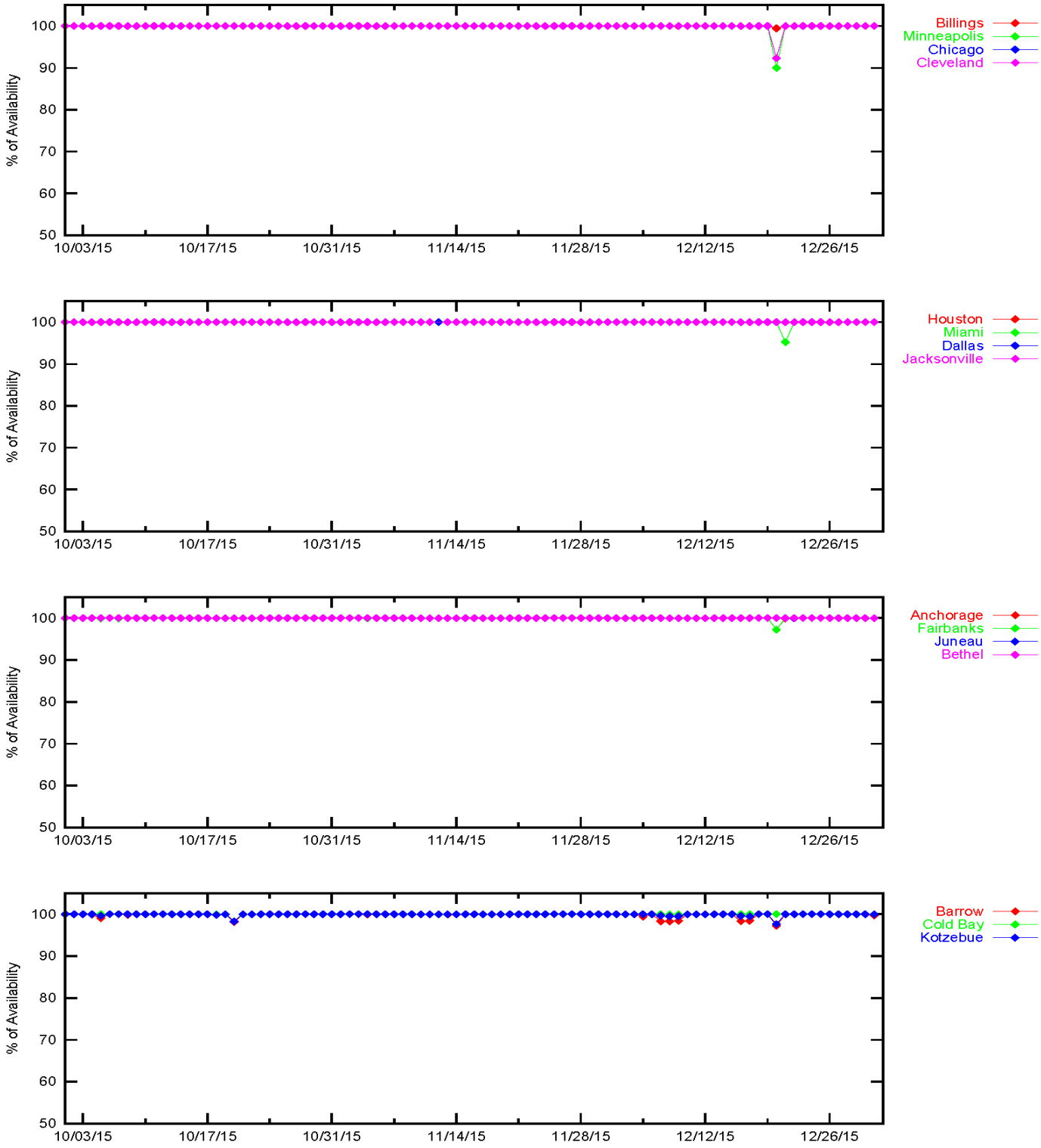


Figure 3-3 LPV Instantaneous Availability

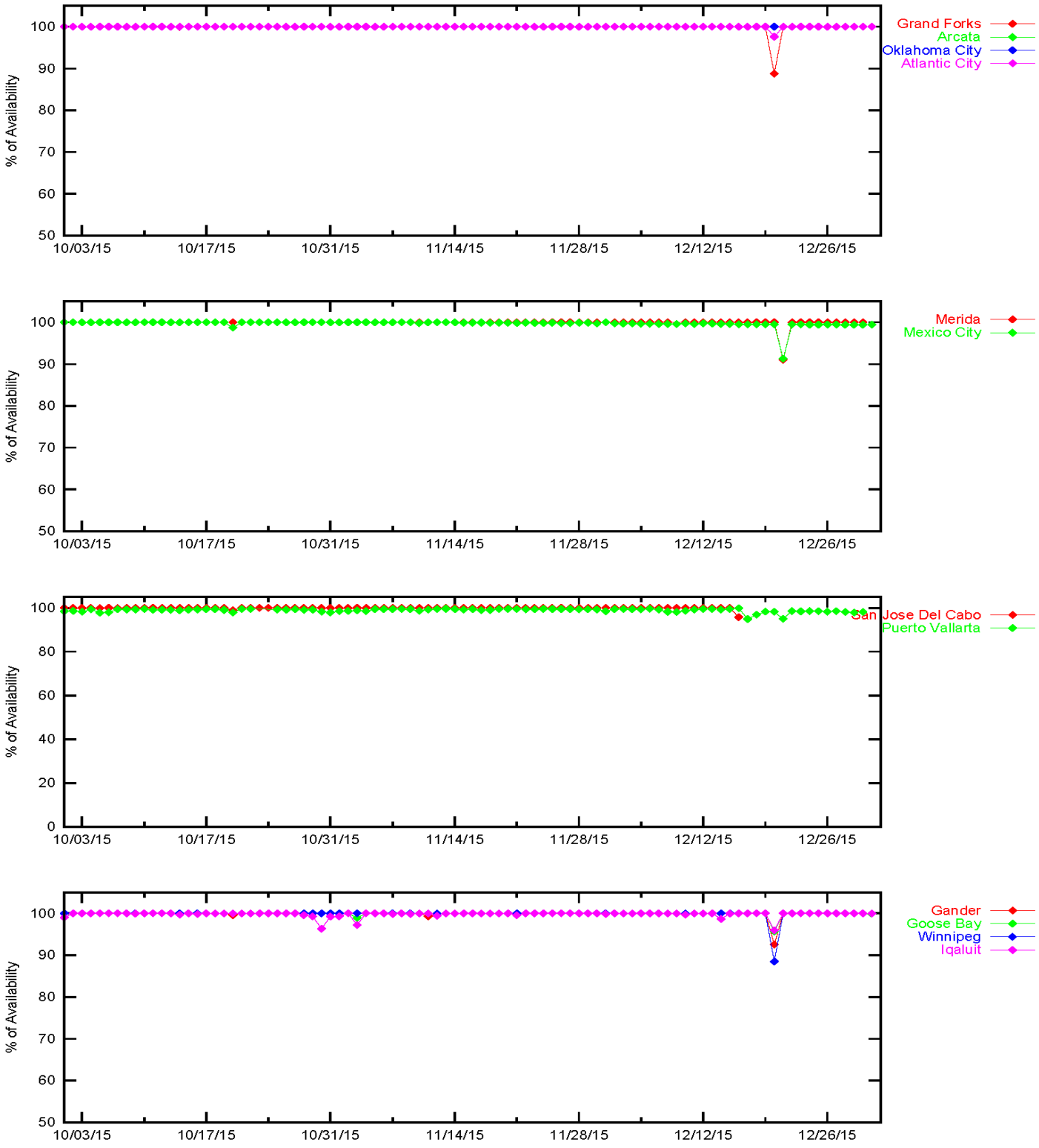


Figure 3-4 LPV200 Instantaneous Availability

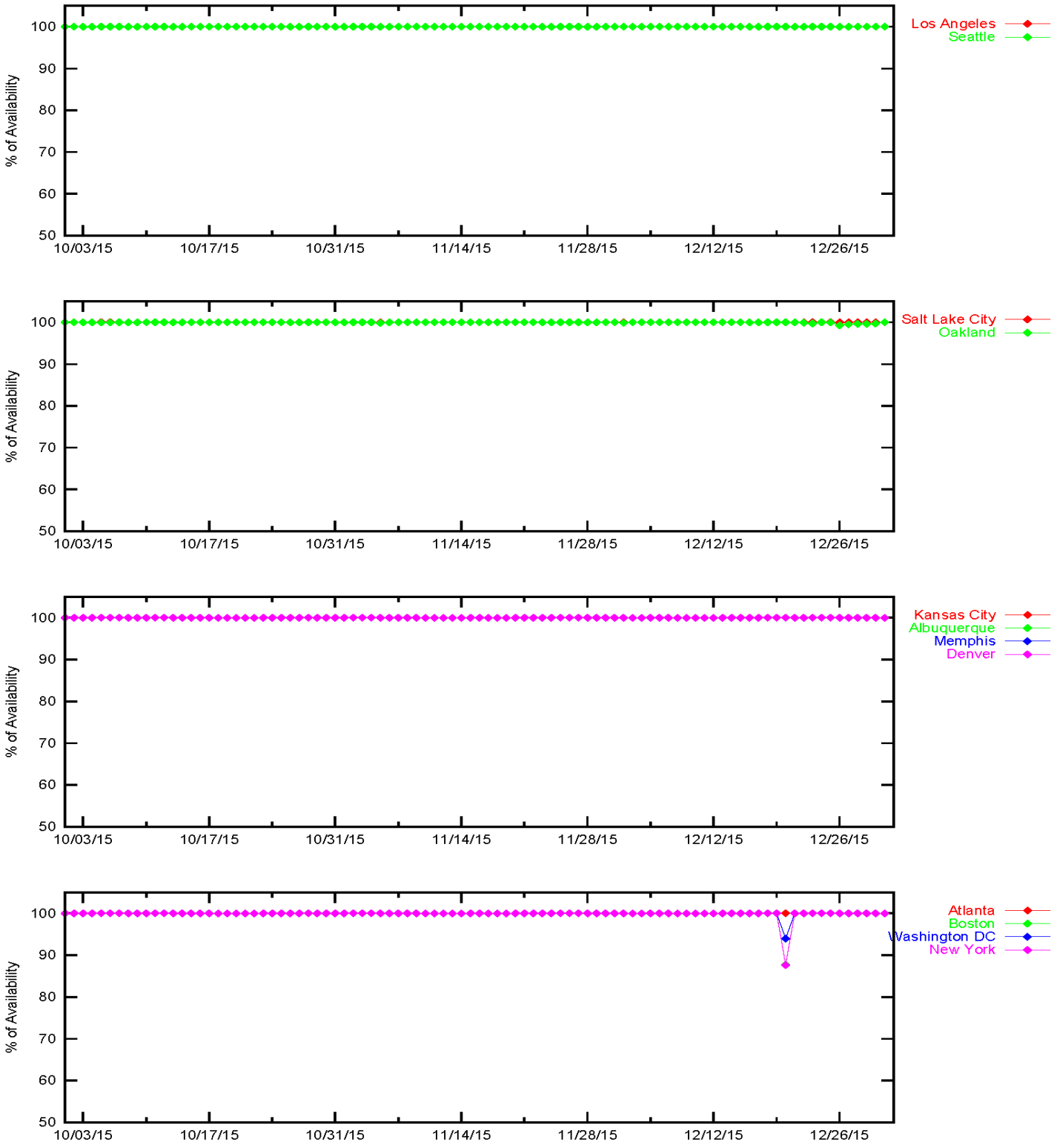


Figure 3-5 LPV200 Instantaneous Availability

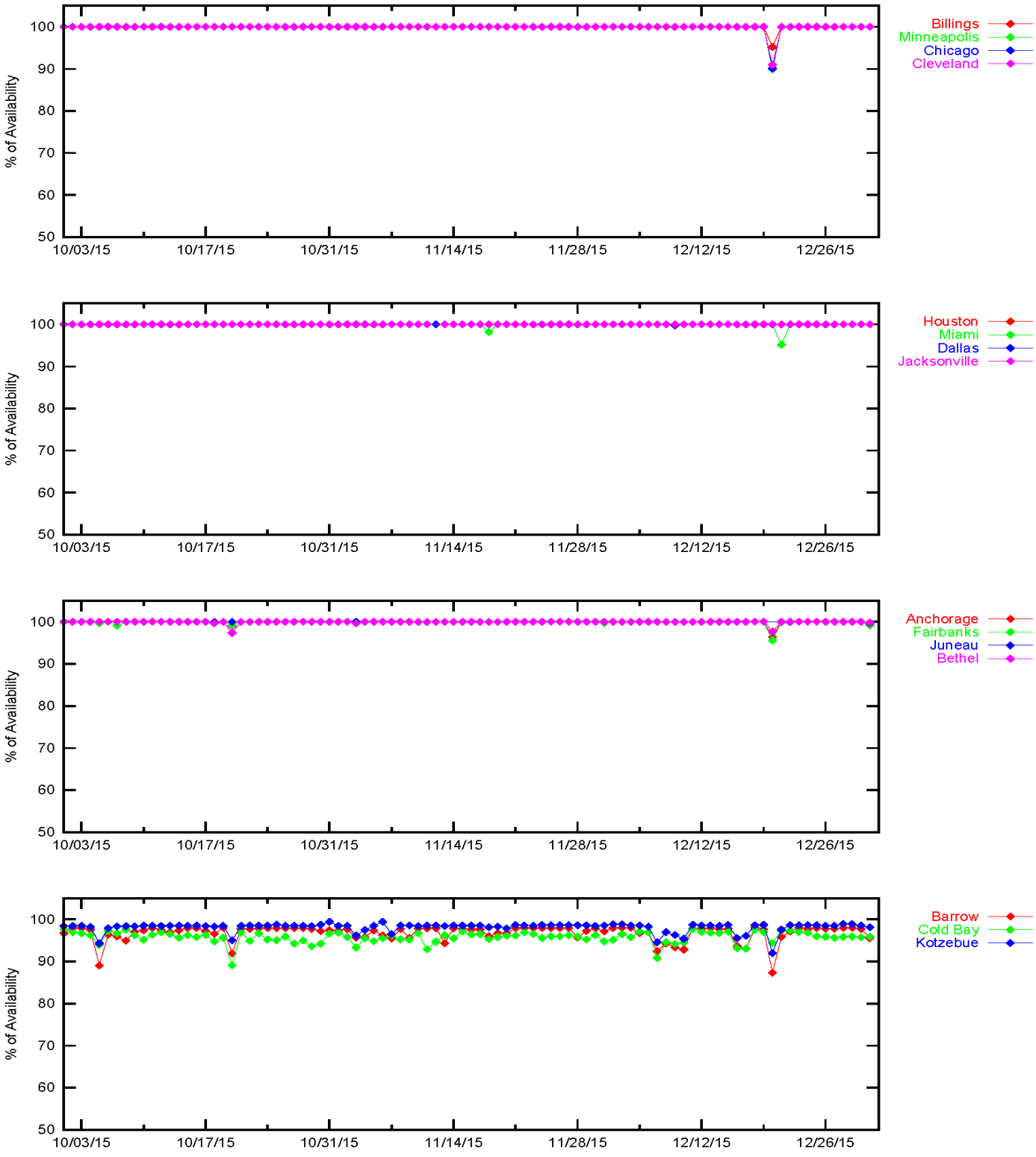


Figure 3-6 LPV200 Instantaneous Availability

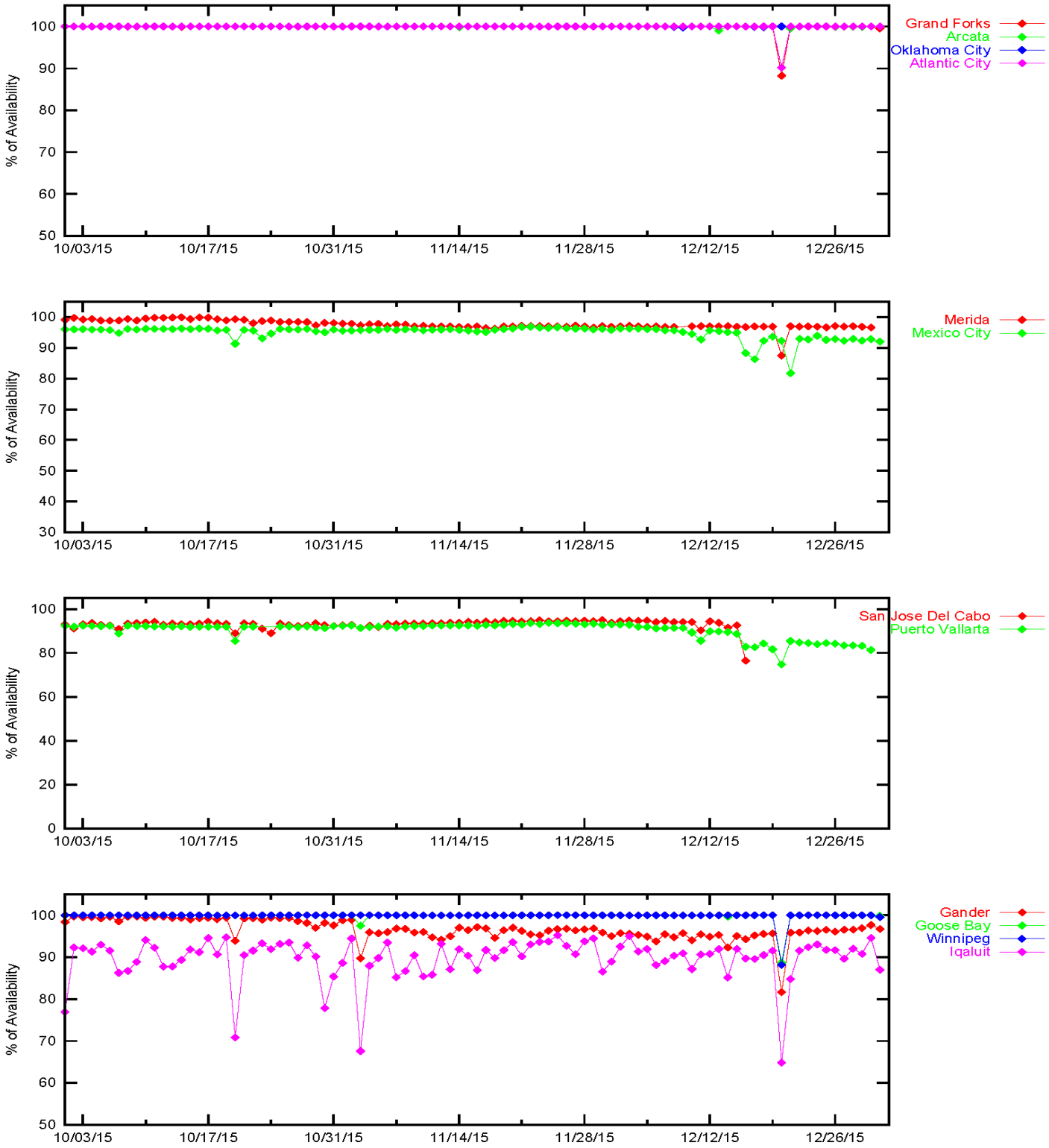


Figure 3-7 LPV Outages

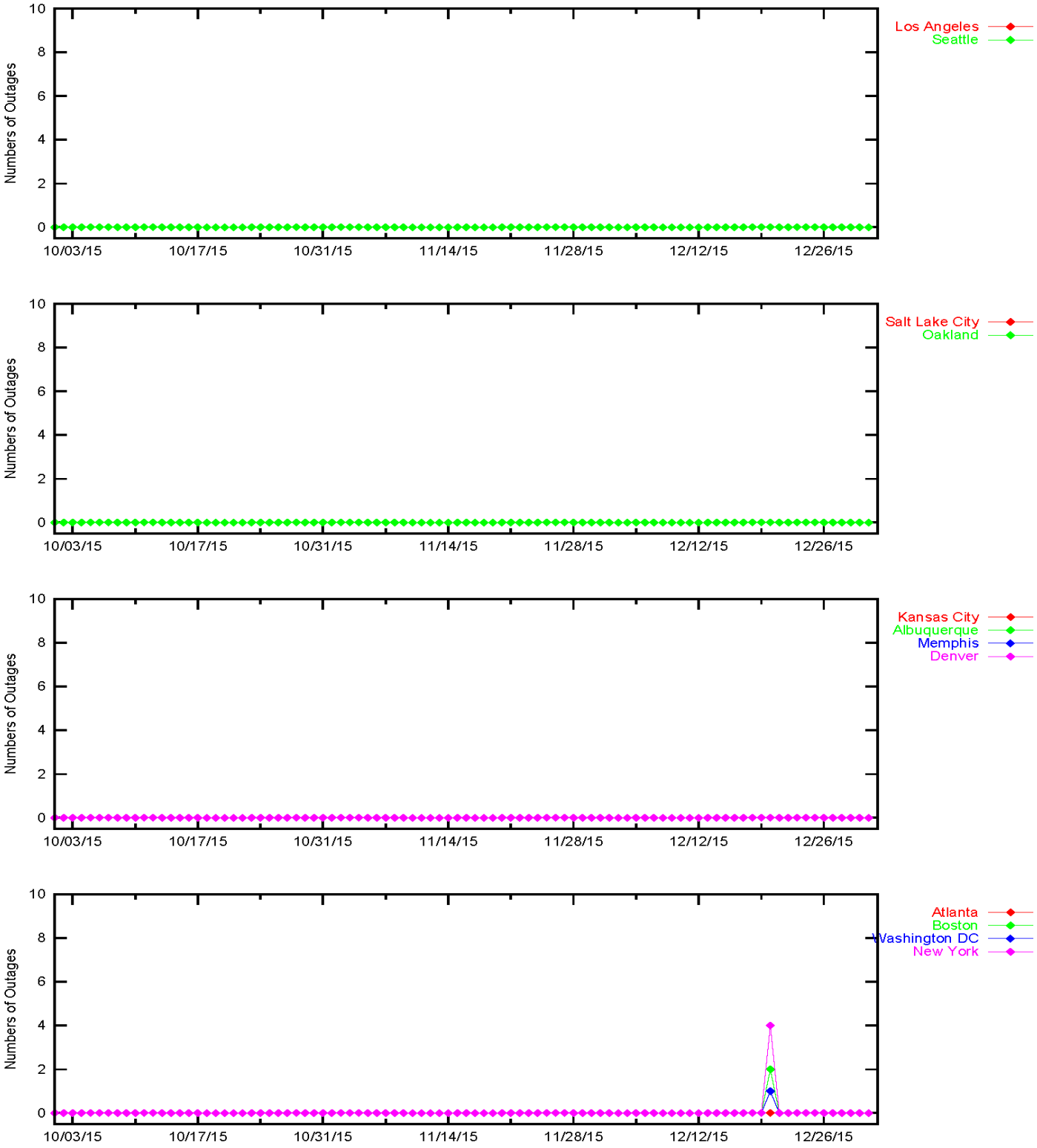


Figure 3-8 LPV Outages

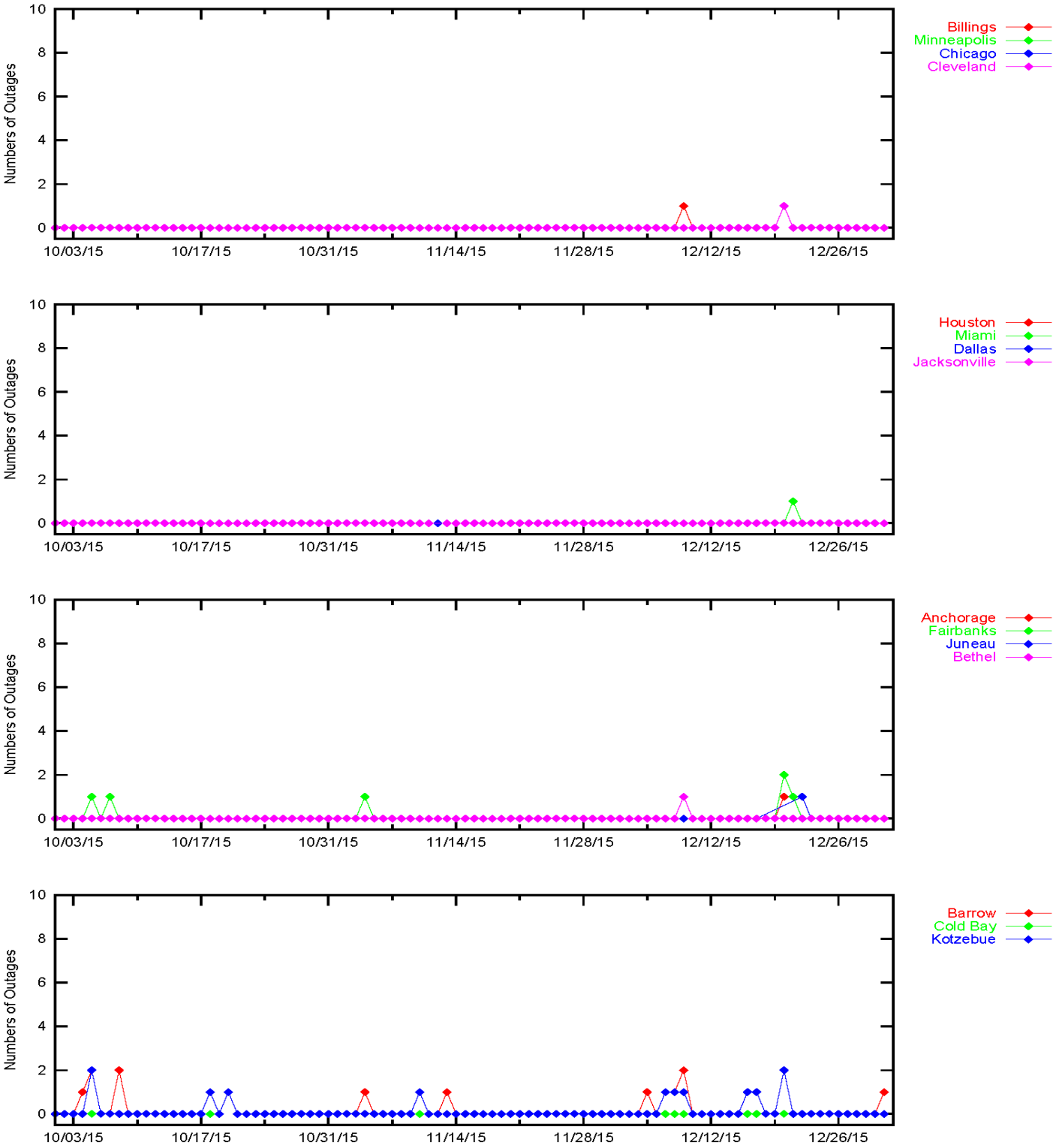


Figure 3-9 LPV Outages

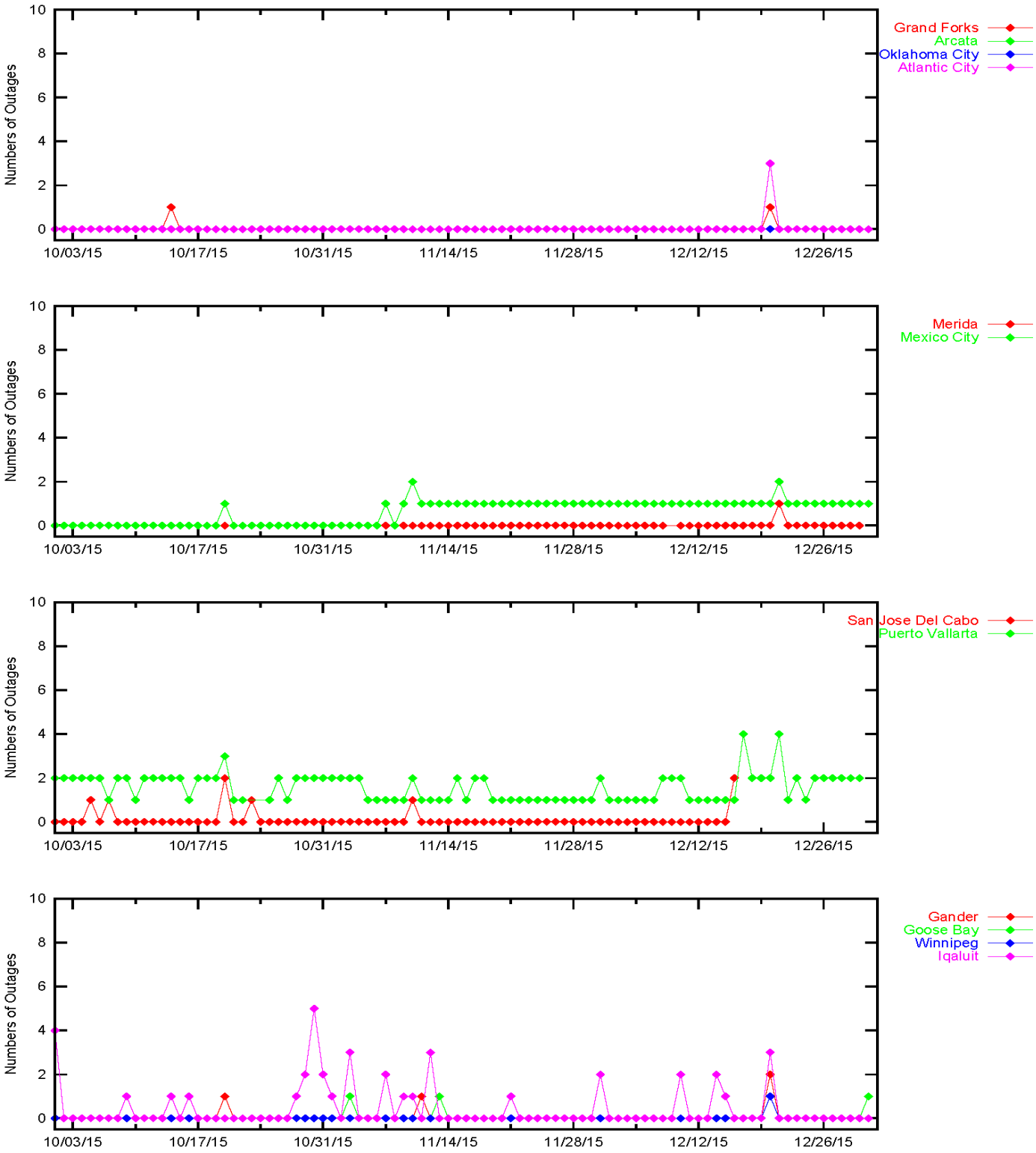


Figure 3-10 LPV200 Outages

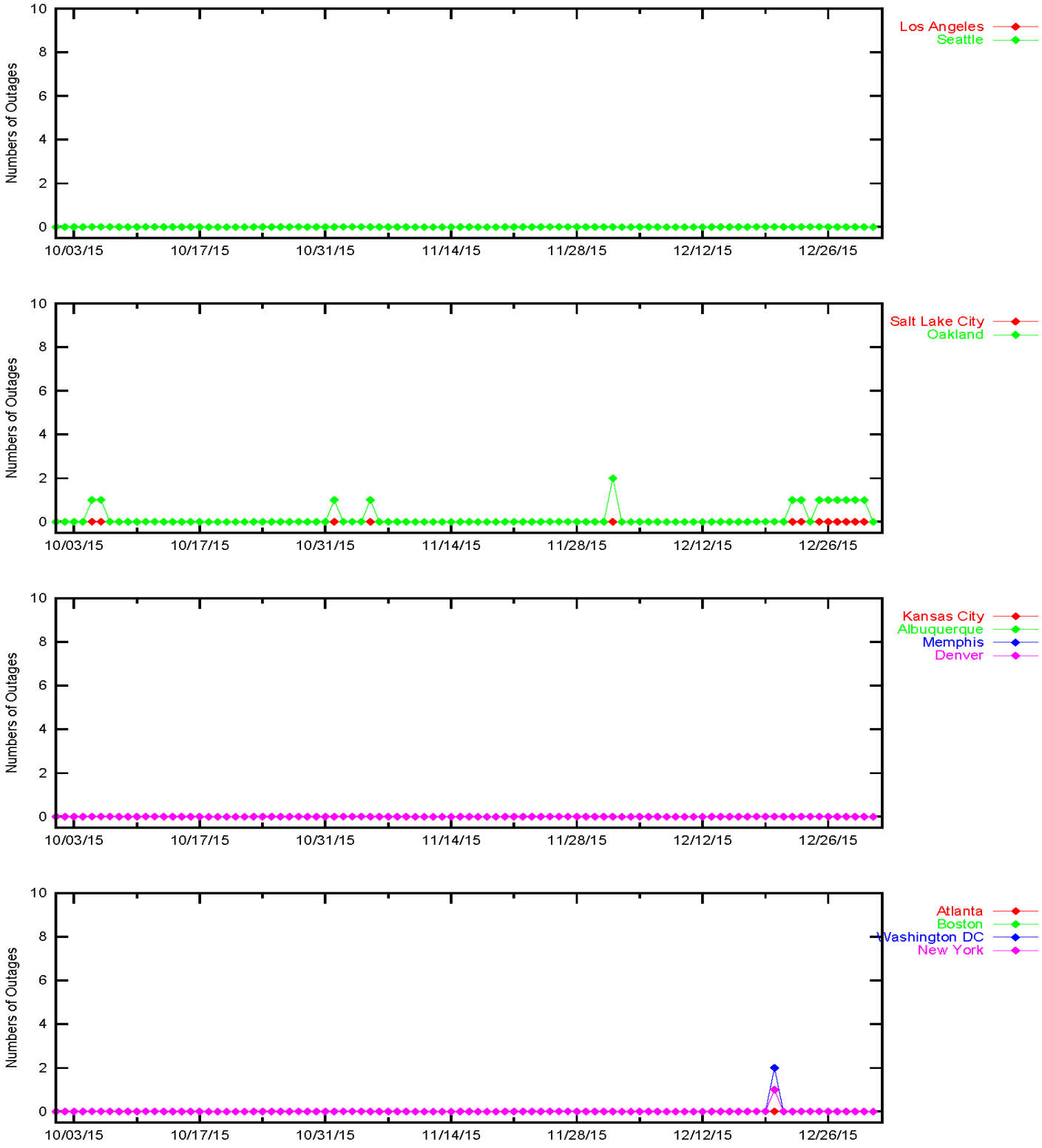


Figure 3-11 LPV200 Outages

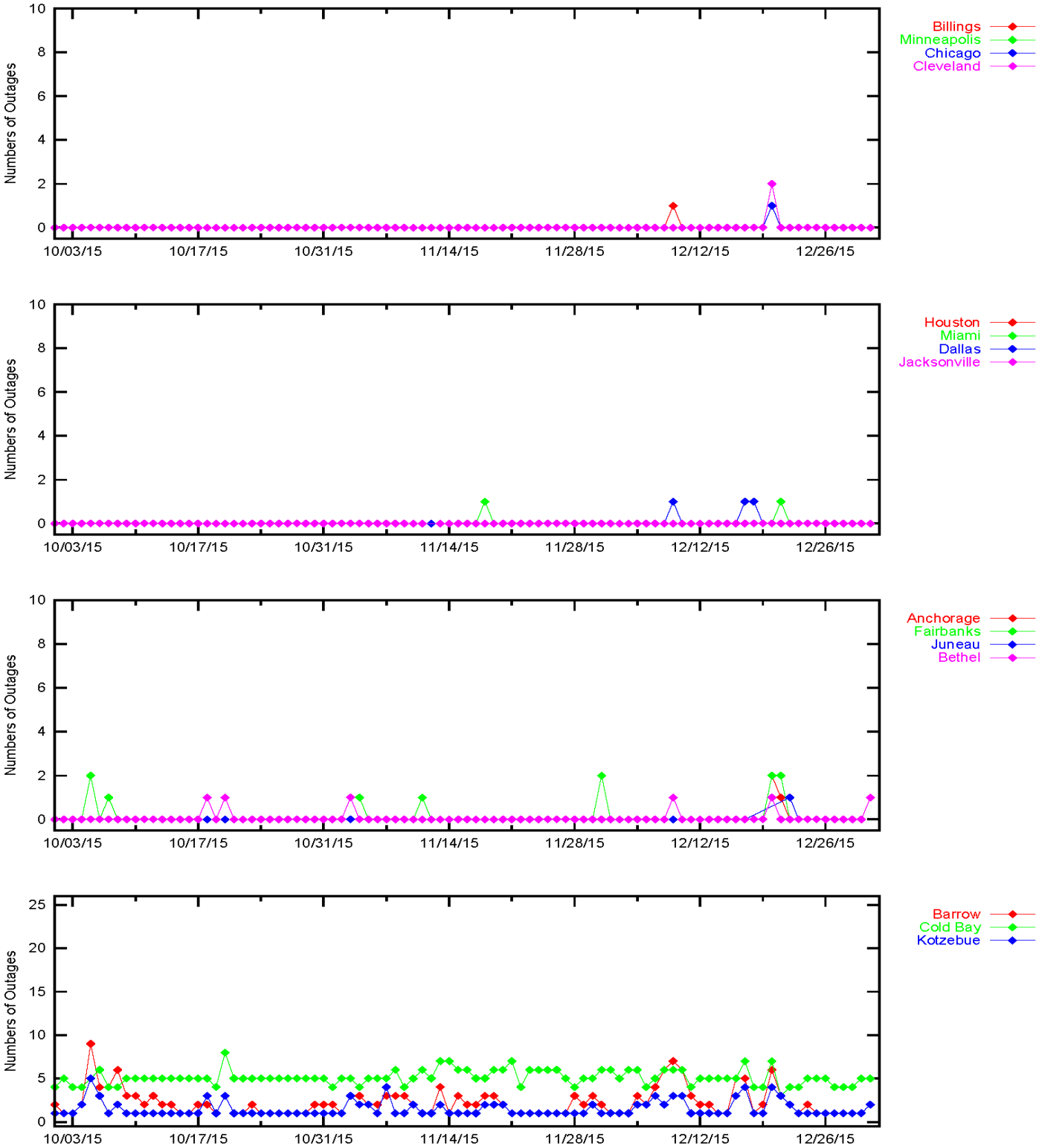
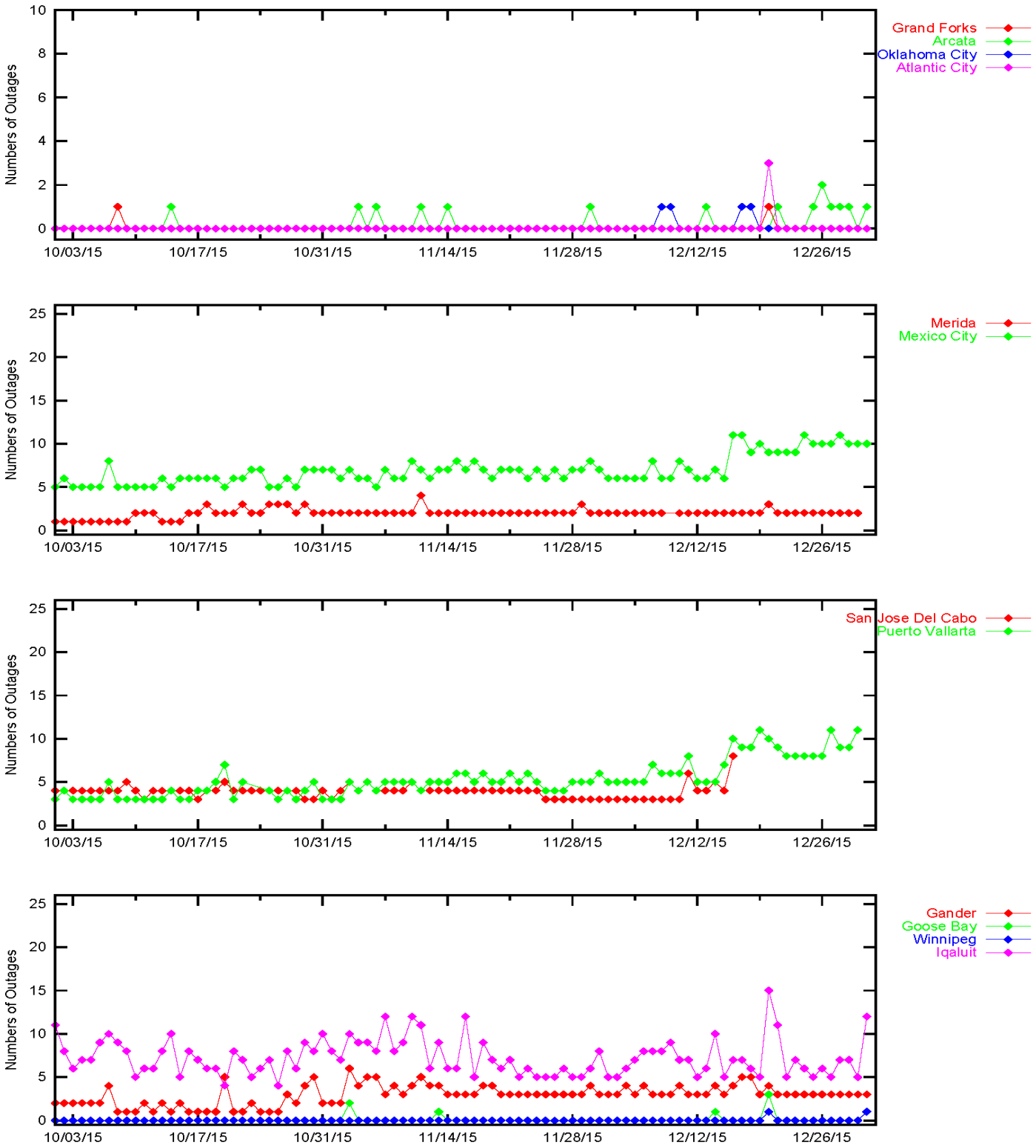


Figure 3-12 LPV200 Outages



4.0 COVERAGE

The WAAS coverage area evaluation estimates the percent of service volume where WAAS provided service for the operational service levels defined in Table 1-1. The WAAS message and the GPS/GEO satellite status are used to determine WAAS availability across North America. For PA coverage, protection levels were calculated at 30-second intervals at one degree spacing over the PA service volume, while NPA coverage were calculated at 30-second intervals at five degree spacing over the NPA service volume.

Daily analysis for PA was conducted for LP, LPV and LPV200 service levels. The PA coverage plots provide 100, 99.9, 99, 98, and 95% availability contours. Figure 4-1 shows the rollup LP North America coverage. Figure 4-2 shows the rollup LPV North America coverage. Figure 4-3 shows the rollup LPV200 North America coverage. Figure 4-6 shows the daily LPV and LPV200 CONUS coverage, and
Figure 4-7 shows the daily LPV Alaska coverage at 99% availability and ionosphere Kp index values for this quarter. Figure 4-8 shows the daily LPV and LPV200 Canada coverage at 99% availability and ionosphere Kp index values for this quarter. See Appendix B for coverage plots of 98% LP and LPV availability contour, and 99% LPV200 availability contour. Kp quantifies the disturbance in the earth's magnetic field and is an indicator of solar storms causing geomagnetic disturbances that can cause the ionosphere to become unpredictable. WAAS increases GIVE values making PA service unavailable when WAAS detects that the ionosphere is disturbed.

Daily analysis for NPA was conducted for RNP 0.1 and RNP 0.3 service levels based on a 100% availability requirement. The NPA coverage plots provide 100, 99.9, and 99% availability contours. Figure 4-4 shows the rollup RNP 0.1 coverage and Figure 4-5 shows the rollup RNP 0.3 coverage for the quarter. Figure 4-9 shows the daily RNP coverage at 100% availability and ionosphere Kp index values for this quarter.

The coverage decreases for this quarter were due to satellite outages, geomagnetic activity, communication outages, and elevated UDRE and GIVE values. Noteworthy events that affected coverage are listed below

- On October 5, elevated UDREs on CRW GEO reduced LPV coverage in Alaska and LPV-200 coverage in Alaska and Canada.
- On October 20, a NANU on PRN-23 caused LPV outages in Alaska and LPV-200 outages in Alaska, Canada, and CONUS. See DR, "DR 129 WAAS set PRN 23 to Not Monitored Following the Conclusion of NANU 2015086".
- On November 3-4, geomagnetic activity caused elevated GIVE values, which reduced LPV coverage in Canada and LPV-200 coverage in Alaska and Canada.
- On November 4, RNP 0.1 coverage dropped near Hawaii due to PRN-8 being set to Not Monitored, which raised the protection levels above 185 m.
- On November 18, geomagnetic activity caused elevated GIVE values, which reduced LPV-200 coverage in Alaska and Canada.
- On December 7 and December 16-17, elevated UDREs on CRW GEO caused reduced LPV coverage in Alaska and LPV-200 coverage in Alaska and Canada.
- On December 9, elevated UDREs on CRW GEO caused reduced LPV coverage in Alaska and LPV-200 coverage in Alaska, Canada, and CONUS.
- On December 14-15, geomagnetic activity caused elevated GIVE values, which reduced LPV-200 coverage in Alaska.
- On December 20, LPV and LPV-200 coverage were affected in CONUS, Alaska, and Canada.
- On December 31, geomagnetic activity caused elevated GIVEs which reduced LPV-200 CONUS, Alaska and Canada coverage.

Figure 4-1 LP North America Coverage for the Quarter

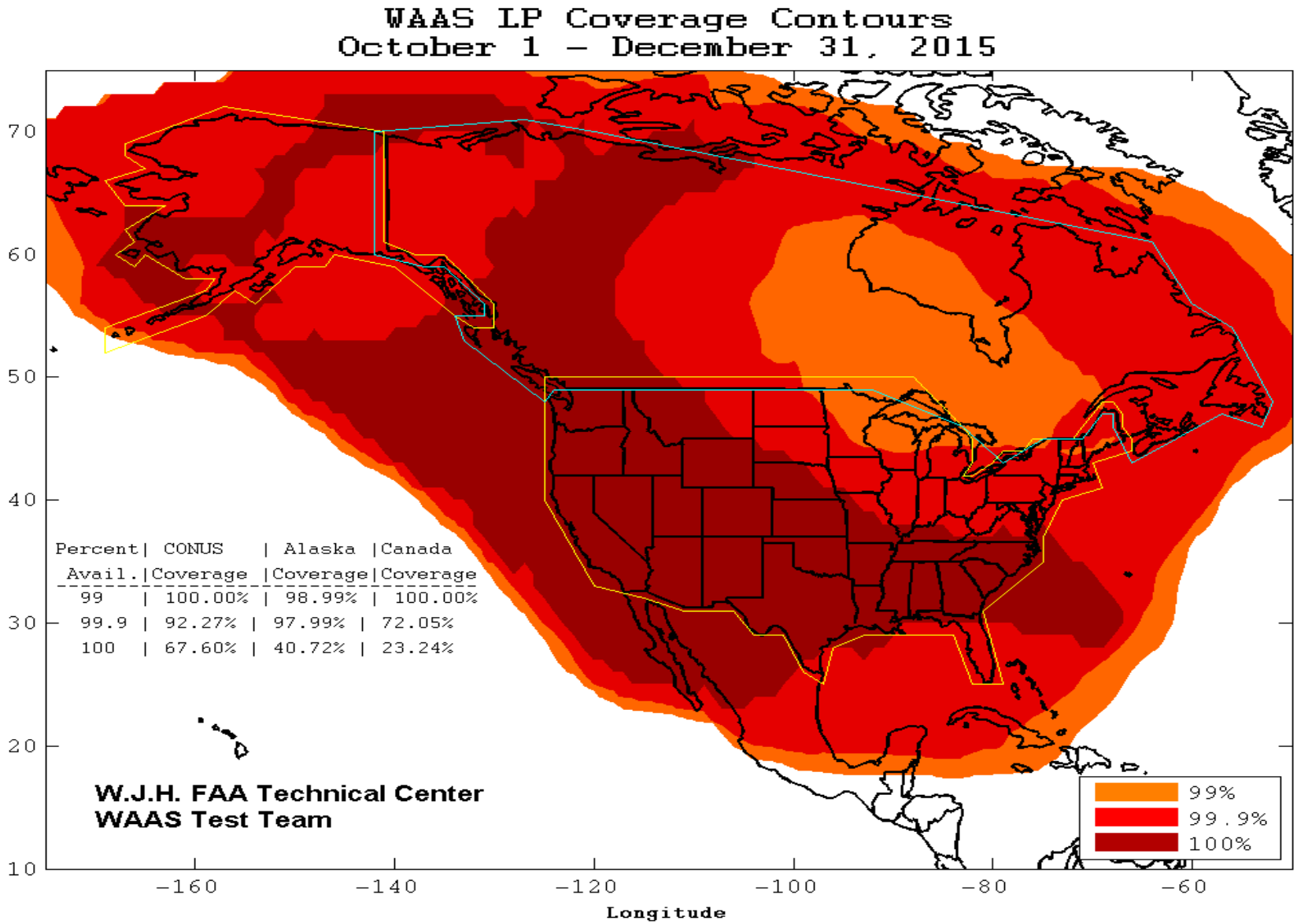


Figure 4-2 LPV North America Coverage for the Quarter

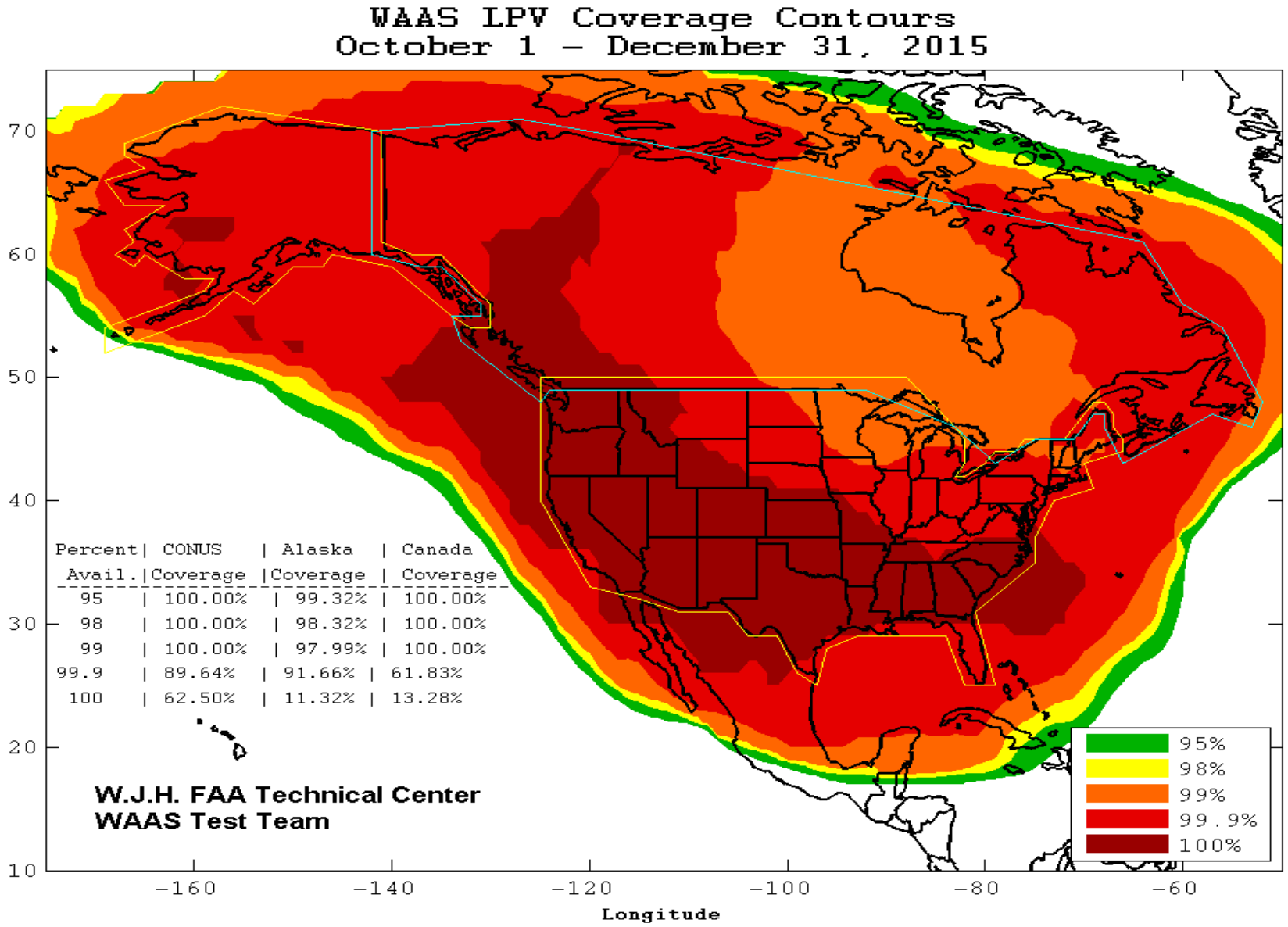


Figure 4-3 LPV200 North America Coverage for the Quarter

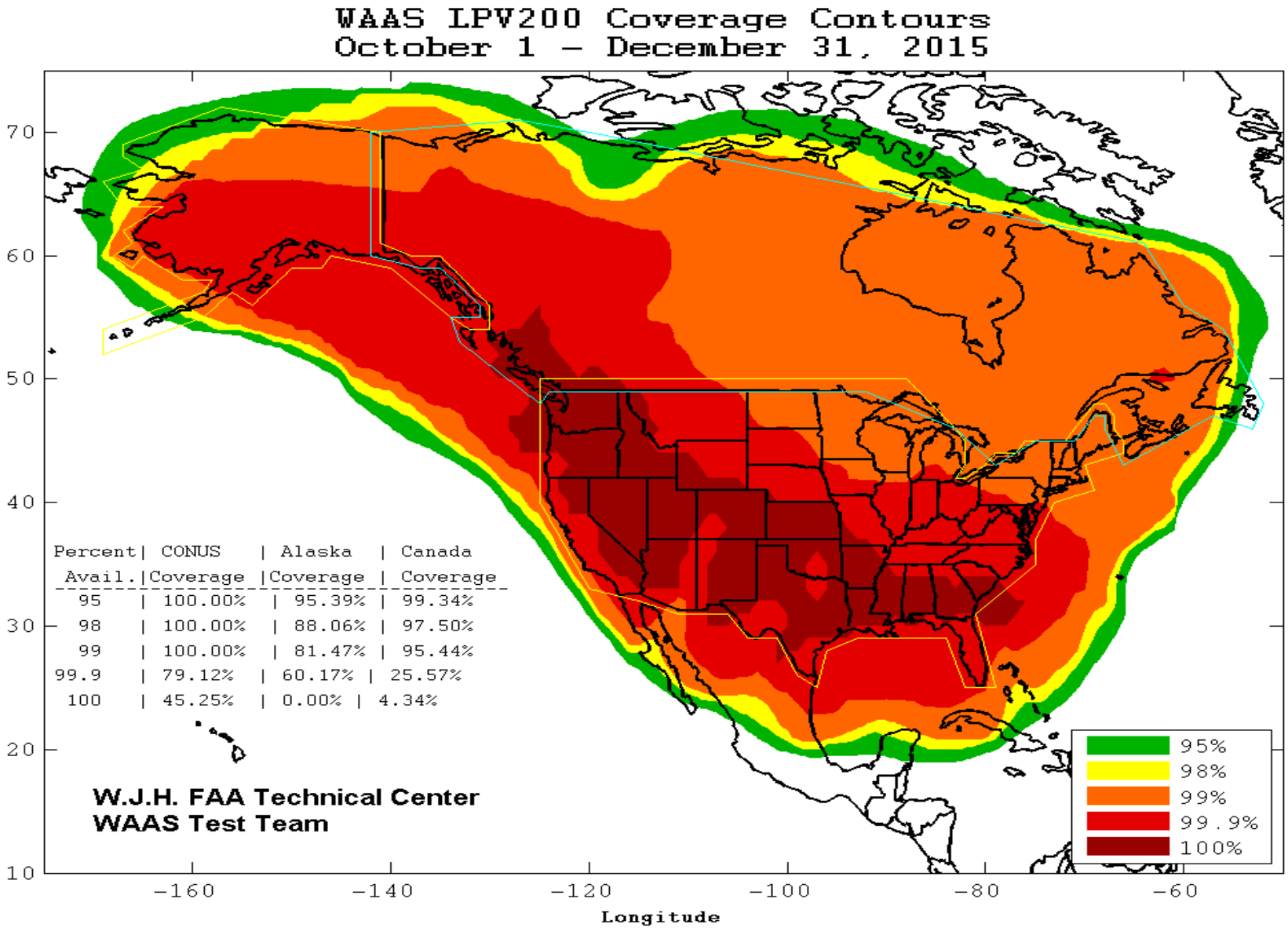


Figure 4-4 RNP 0.1 Coverage for the Quarter

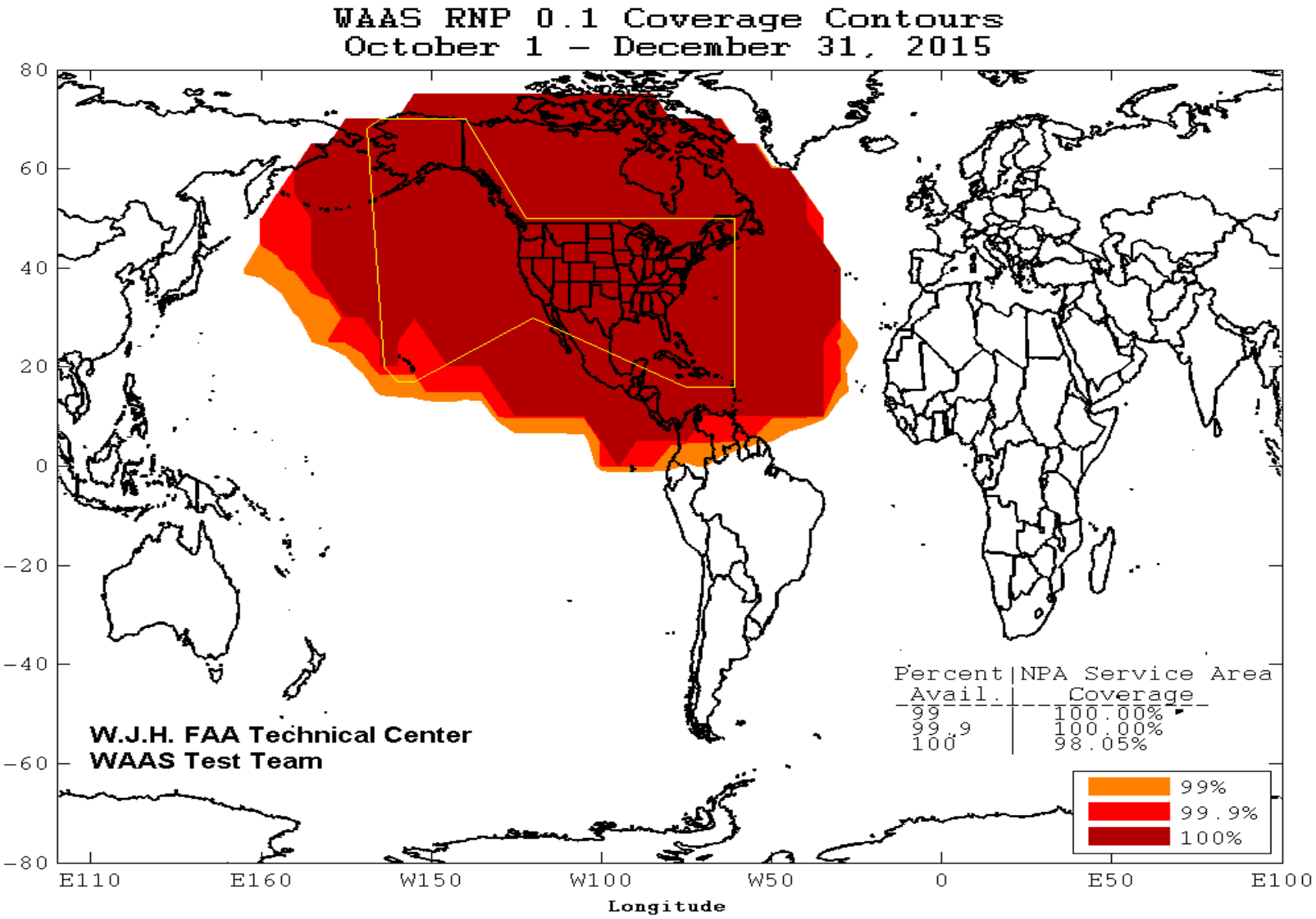


Figure 4-5 RNP 0.3 Coverage for the Quarter

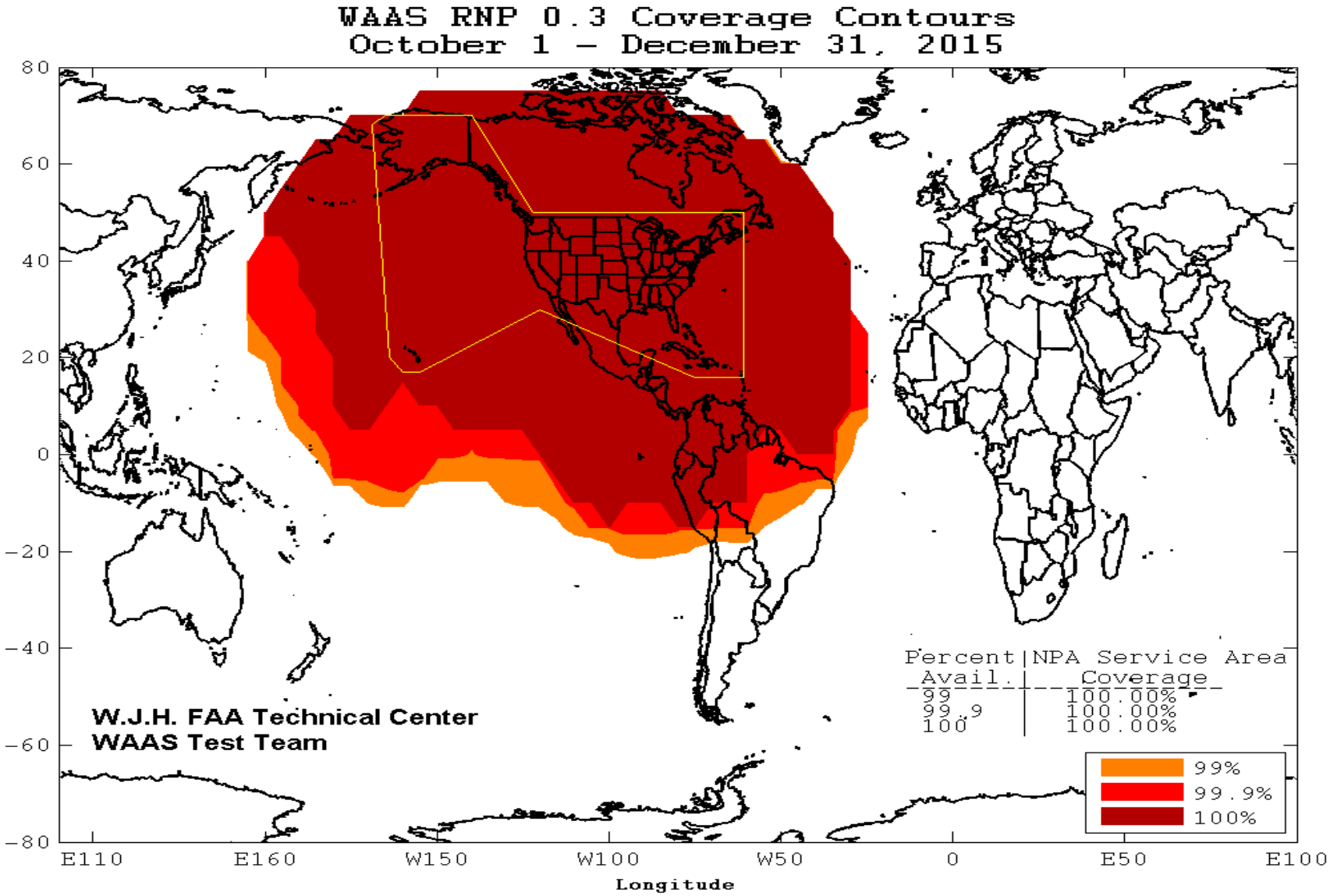


Figure 4-6 Daily LPV and LPV200 CONUS Coverage

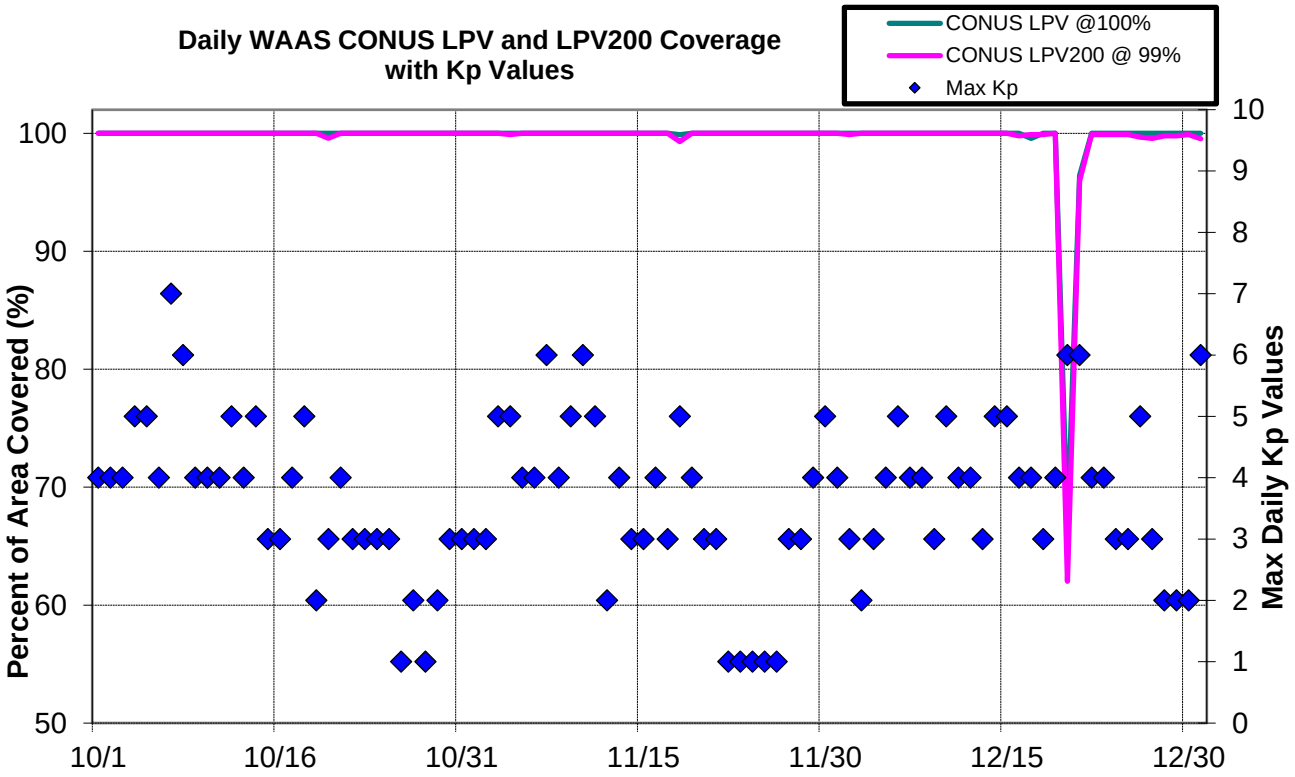


Figure 4-7 Daily LPV and LPV200 Alaska Coverage

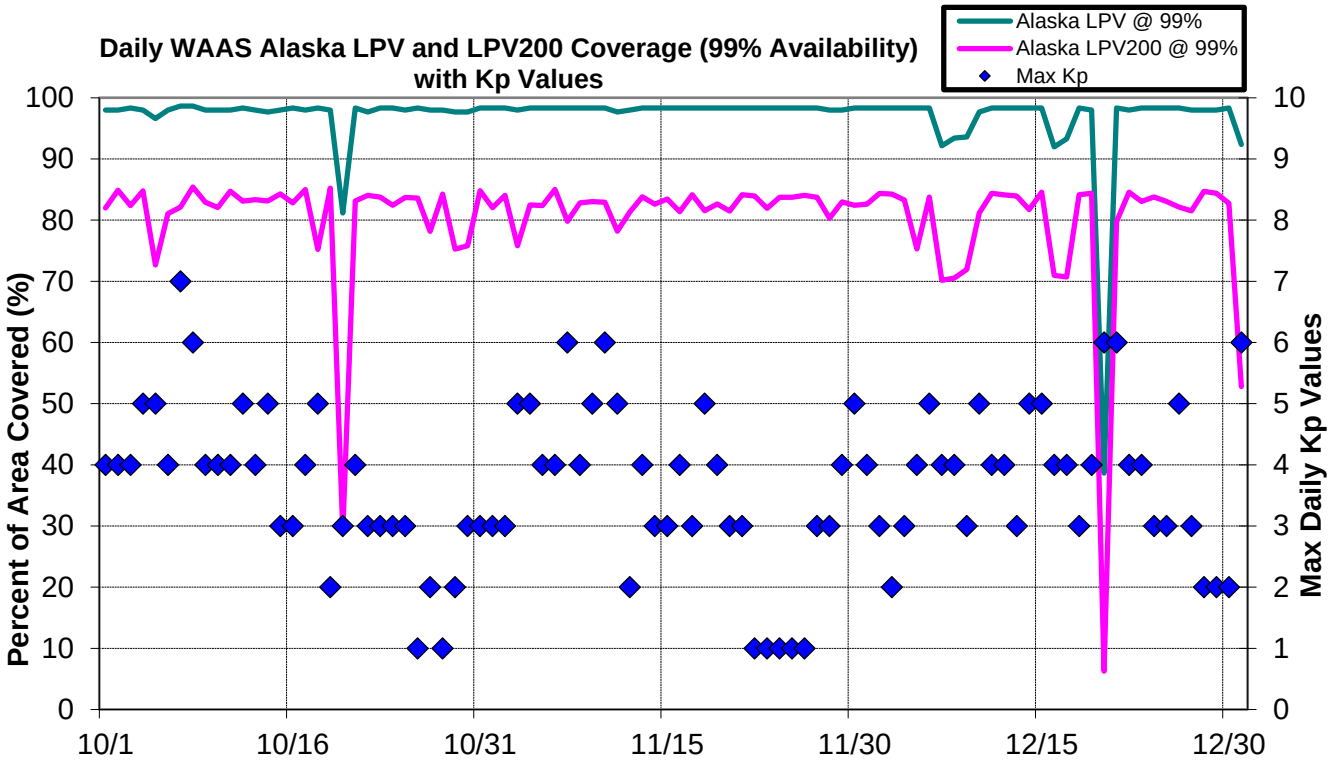


Figure 4-8 Daily LPV and LPV200 Canada Coverage

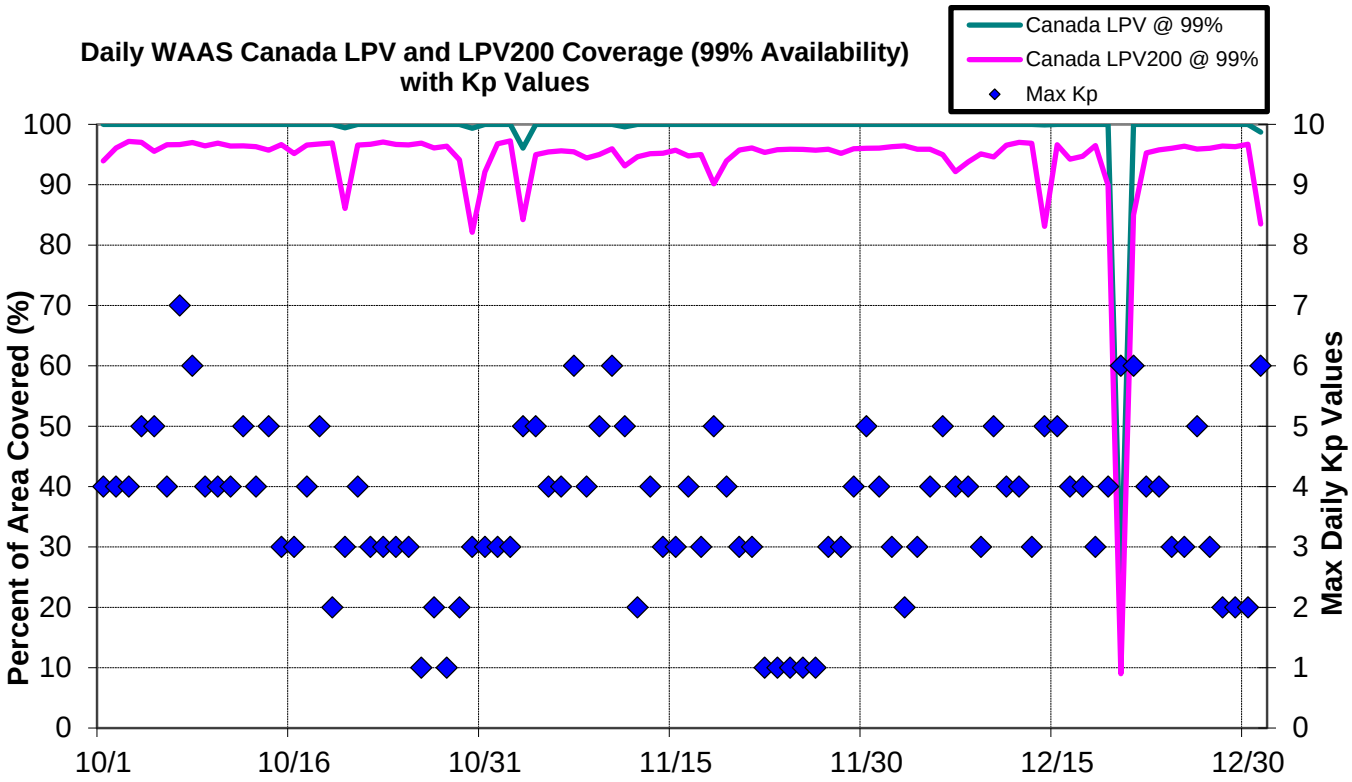
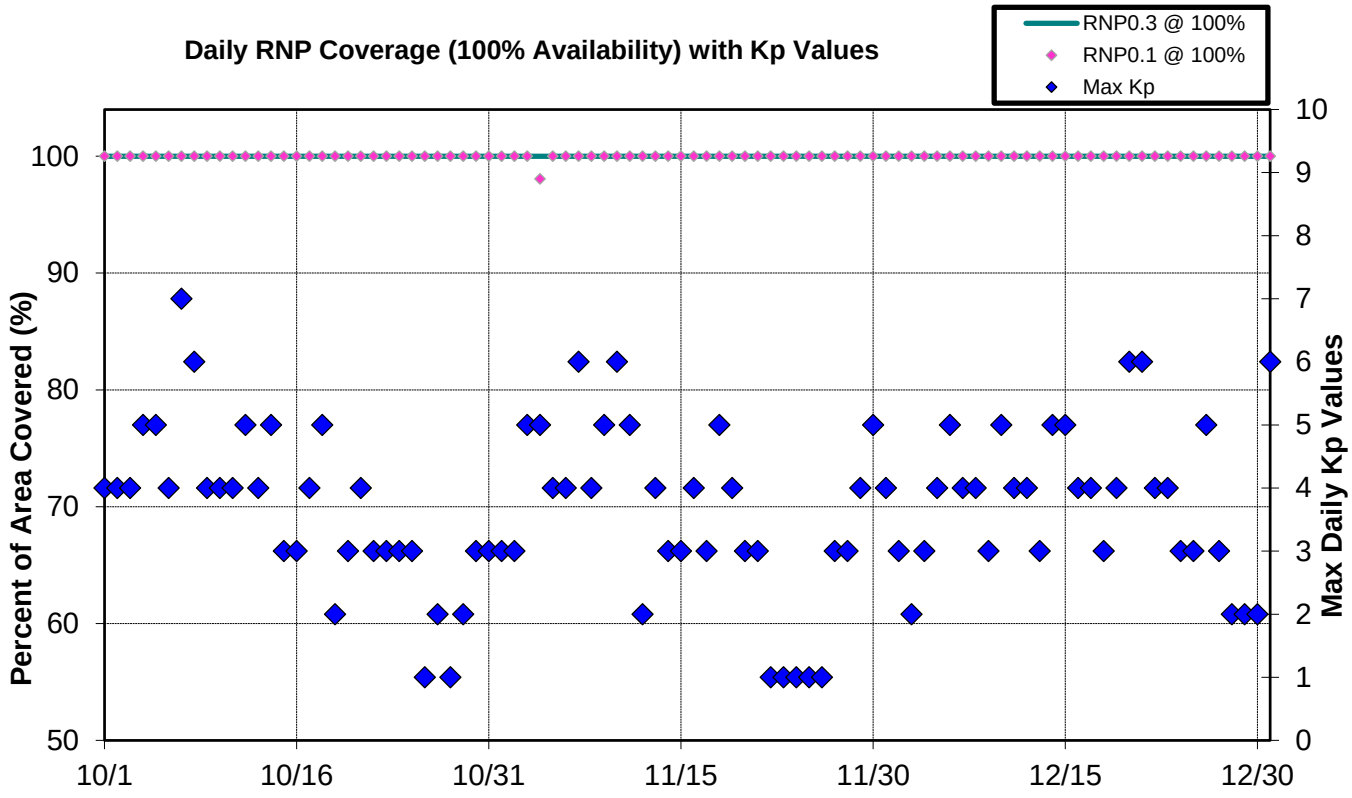


Figure 4-9 Daily RNP Coverage



5.0 INTEGRITY

5.1 HMI Analysis

Analysis of integrity includes the identification and evaluation of HMI (hazardously misleading information), as well as the generation of a safety index to illustrate the margin of safety that WAAS protection levels are providing. The safety index is a metric that shows how well the protection levels are bounding the maximum observed error when LPV service is available. The horizontal and vertical safety margin index is the ratio of HPL/Horizontal Position Error and VPL/Vertical Position Error, respectively, at the time the maximum position error occurred. A detailed description of the methodology for computing HPL, VPL, and position errors is given in Section 2.0.

A computed safety margin index of greater than one indicates safe bounding of the greatest observed error, less than one indicates that the maximum error was not bounded, and a result equal to one means that the maximum position error was equal to the protection level. An HMI event occurs if the position error exceeds the protection level in the vertical or horizontal dimensions at any time and 6.2 seconds or more passes before this event is corrected by WAAS.

Table 5-1 lists the safety margin index and the number of HMI events. For this evaluation period, the lowest safety margin index is 3.92 at Chicago. There were no HMI events. Since WAAS was made available to the public in August 2000 there has not been an HMI event. WAAS was commissioned by the FAA for safety of life services in July 2003.

Table 5-1 Minimum Safety Margin Index and HMI Statistics

Location	Safety Index		Number of HMIs
	Horizontal	Vertical	
Arcata	4.5	8.27	0
Atlantic City	8.81	6.22	0
Grand Forks	10.38	7.57	0
Oklahoma City	4.61	8.59	0
Albuquerque	4.15	7.9	0
Anchorage	11.52	5.71	0
Atlanta	4.64	5.84	0
Barrow	11.08	4.7	0
Bethel	9.01	6.57	0
Billings	5.82	6.57	0
Boston	6.7	5.72	0
Chicago	3.92	6.59	0
Cleveland	7.19	5.08	0
Cold Bay	9.96	12.31	0
Dallas	5.08	5.66	0
Denver	4.86	9.06	0
Fairbanks	4.62	6.84	0
Gander	9.43	10.2	0
Goose Bay	7	6.39	0
Houston	4.56	4.61	0
Iqaluit	9.74	8.16	0
Jacksonville	5.06	4.81	0
Juneau	6.6	5.2	0
Kansas City	10	6.34	0
Kotzebue	9.37	6.43	0
Los Angeles	5.25	8.84	0
Memphis	4.08	7.68	0
Merida	7.87	10.64	0
Mexico City	9.23	5.86	0
Miami	4.27	7.7	0
Minneapolis	4.57	5.18	0
New York	9.17	7.34	0
Oakland	6.73	8.64	0
Puerto Vallarta	11.16	7.84	0
Salt Lake City	5.71	8.41	0
San Jose Del Cabo	12.18	5.84	0
Seattle	5.8	6.54	0
Washington DC	15.77	8.65	0
Winnipeg	12.96	5.1	0

5.2 Broadcast Alerts

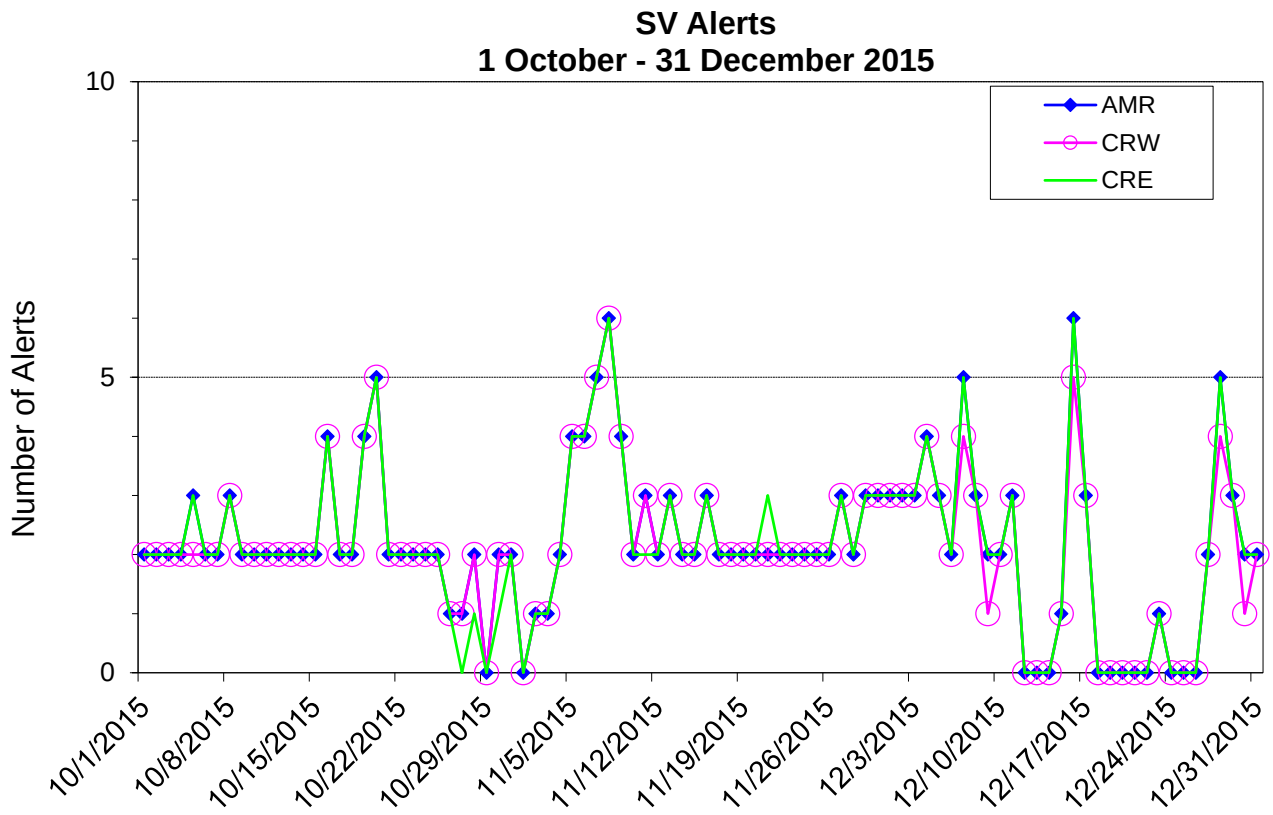
The WAAS transmits alert messages to protect the users if the active WAAS corrections are no longer bound by the User Differential Range Errors (UDREs). Alerts increase the UDRE for one or more PRNs, which can reduce the weighting of the satellite in the navigation solution, or completely exclude the satellite from the navigation solution. An increase in UDRE's after an alert effectively increases the user protection levels (HPL and VPL), which affects the availability. Additionally, if an alert message sequence lasts for more than 12 seconds, WAAS fast corrections can time out, causing a loss of continuity. Table 5-2 shows the total number of alerts and the average number of alerts per day.

Figure 5-1 shows the number of SV alerts that occurred daily during the reporting period. Often the number of alerts on one GEO is the same as the number of alerts on the other GEO. Therefore, lines tend to overlap in most points on this plot.

Table 5-2 WAAS SV Alert

Message Type	Number of Alerts			Average Alerts Per Day		
	AMR	CRW	CRE	AMR	CRW	CRE
2	152	152	153	1.6522	1.6522	1.6630
3	19	19	19	0.2065	0.2065	0.2065
4	16	12	12	0.1739	0.1304	0.1304
5	0	0	0	0.0000	0.0000	0.0000
6	0	0	0	0.0000	0.0000	0.0000
24	0	0	0	0.0000	0.0000	0.0000
26	0	0	0	0.0000	0.0000	0.0000
Total Alerts	187	183	184	2.0326	1.9891	2.0000
Days in Service	92	92	92			

Figure 5-1 SV Daily Alert Trend



5.3 Availability of WAAS Messages (CRE, CRW, and AMR)

For an accurate and current user position to be calculated, the content of the WAAS message must be broadcast and received within precise time specifications. This aspect of the WAAS is critical to maintaining continuity requirements. Each message type in the WAAS SIS has a specific timeout interval and an expected worst case broadcast interval. Table 5-3 lists the maximum intervals at which each message must broadcast to meet system requirements.

GUS switchovers or broadcast WAAS alerts can interrupt the normal broadcast message stream. If these events occur at a time when the maximum interval of a specific message is approaching, that message may be delayed, resulting in its late transmittal.

Late messages statistics reported during the quarter were mainly caused by GEO SIS outages, GUS switchovers and SV alerts except message type 7 and 10. Occasionally, message type 7 and 10 were late and they were not caused by GEO SIS outages, GUS switchovers or SV alerts. The lateness of type 7 and type 10 messages has little or no impact on user performance and safety.

Table 5-4 through Table 5-8 show fast correction, long correction, ephemeris covariance, ionosphere correction, and ionospheric mask message rates statistics broadcasted on AMR GEO. Table 5-9 through Table 5-13 show message rates statistics broadcasted on CRW GEO. Table 5-14 through Table 5-18 show message rates statistics on CRE GEO.

Table 5-3 Update Rates for WAAS Messages

Data	**Associated Message Types**	**Maximum Update Interval** (seconds)	**En Route, Terminal, NPA Timeout** (seconds)	**Precision Approach Timeout** (seconds)
WAAS in Test Mode	0	6	N/A	N/A
PRN Mask	1	60	None	None
UDREI	2-6, 24	6	18	12
Fast Corrections	2-5, 24	See Table A-8 in RTCA DO-229C	See Table A-8 in RTCA DO-229C	See Table A-8 in RTCA DO-229C
Long Term Corrections	24, 25	120	360	240
GEO Nav. Data	9	120	360	240
Fast Correction Degradation	7	120	360	240
Weighting Factors	8	120	240	240
Degradation Parameters	10	120	360	240
Ionospheric Grid Mask	18	300	None	None
Ionospheric Corrections	26	300	600	600
UTC Timing Data	12	300	None	None
Almanac Data	17	300	None	None

Table 5-4 WAAS Fast Correction and Degradation Message Rates – AMR

Message Type	**On Time**	**Late**	**Max Late Length (seconds)**
1	104596	0	0
2	1325162	49	24
3	1324778	44	18
4	1324763	42	18
7	97899	5	127
9	93142	2	185
10	97861	11	156
17	31498	0	0

Table 5-5 WAAS Long Correction Message Rates (Type 24 and 25) – AMR

SV	On Time	Late	Max Late Length (seconds)
1	49468	1	144
2	47584	1	184
3	48291	3	166
4	17890	0	0
5	47945	0	0
6	47962	0	0
7	47285	3	258
8	48957	3	186
9	47659	4	181
10	11836	0	0
11	49476	1	138
12	47529	1	137
13	49145	1	166
14	47632	0	0
15	48323	0	0
16	48017	4	170
17	47643	0	0
18	47231	0	0
19	47684	0	0
20	47220	0	0
21	47861	3	174
22	45896	1	151
23	46973	3	186
24	49362	0	0
25	49254	1	143
26	48628	3	247
27	49250	4	176
28	48224	1	166
29	47479	0	0
30	47337	1	175
31	48346	3	168
32	47503	0	0

Table 5-6 WAAS Ephemeris Covariance Message Rates (Type 28) – AMR

SV	On Time	Late	Max Late Length (seconds)
1	40631	0	0
2	39130	0	0
3	39702	2	208
4	14697	0	0
5	39313	3	212
6	39352	0	0
7	38795	2	212
8	40193	2	212
9	39128	1	208
10	9715	0	0
11	40584	0	0
12	39065	0	0
13	40359	1	130
14	39127	0	0
15	39656	0	0
16	39427	3	208
17	39119	0	0
18	38728	0	0
19	39135	0	0
20	38758	0	0
21	39340	3	208
22	37684	0	0
23	38587	3	208
24	40605	0	0
25	40422	0	0
26	39913	4	208
27	40450	2	313
28	39594	0	0
29	39074	2	208
30	38897	3	212
31	39651	2	313
32	38993	0	0
135	76292	1	208
138	76274	1	208
1	40631	0	0

Table 5-7 WAAS Ionospheric Correction Message Rates (Type 26) – AMR

Band	Block	On Time	Late	Max Late Length (seconds)
0	0	27590	5	576
0	1	27605	3	576
0	2	27596	4	305
1	0	27590	5	576
1	1	27607	3	305
1	2	27588	6	576
1	3	27595	1	301
1	4	27590	3	306
2	0	27599	4	576
2	1	27600	4	304
2	2	27601	4	304
2	3	27582	4	576
2	4	27600	0	0
3	0	27596	1	306
3	1	27600	3	576
3	2	27612	4	304
9	0	27595	5	305
9	1	27594	2	305
9	2	27600	4	576
9	3	27597	3	577
9	4	27604	1	306
9	5	27593	4	305
9	6	27590	1	301

Table 5-8 WAAS Ionospheric Mask Message Rates (Type 18) – AMR

Band	On Time	Late	Max Late Length (seconds)
0	35801	1	432
1	35754	0	0
2	35796	1	449
3	35790	2	463
9	35732	2	401

Table 5-9 WAAS Fast Correction and Degradation Message Rates – CRW

Message Type	On Time	Late	Max Late Length (seconds)
1	100882	0	0
2	1325210	26	14
3	1324816	25	14
4	1324810	18	10
7	94449	8	128
9	93144	1	163
10	94591	6	127
17	31168	0	0

Table 5-10 WAAS Long Correction Message Rates (Type 24 and 25) - CRW

SV	On Time	Late	Max Late Length (seconds)
1	49464	0	0
2	47584	0	0
3	48293	1	177
4	17891	0	0
5	47940	0	0
6	47965	0	0
7	47283	0	0
8	48965	0	0
9	47671	0	0
10	11838	0	0
11	49484	0	0
12	47533	0	0
13	49144	0	0
14	47634	1	178
15	48329	0	0
16	48028	0	0
17	47653	0	0
18	47218	1	177
19	47691	0	0
20	47224	0	0
21	47862	0	0
22	45898	0	0
23	46981	0	0
24	49367	0	0
25	49262	0	0
26	48629	0	0
27	49261	0	0
28	48220	0	0
29	47482	0	0
30	47338	0	0
31	48353	0	0
32	47507	0	0

Table 5-11 WAAS Ephemeris Covariance Message Rates (Type 28) – CRW

SV	On Time	Late	Max Late Length (seconds)
1	40622	0	0
2	39117	0	0
3	39705	0	0
4	14692	0	0
5	39315	0	0
6	39347	1	204
7	38797	0	0
8	40201	0	0
9	39140	0	0
10	9717	0	0
11	40594	1	160
12	39053	0	0
13	40372	1	209
14	39131	0	0
15	39653	1	206
16	39426	0	0
17	39106	2	206
18	38741	0	0
19	39146	0	0
20	38763	0	0
21	39337	2	197
22	37698	0	0
23	38595	1	121
24	40593	1	210
25	40421	0	0
26	39942	0	0
27	40478	0	0
28	39607	1	128
29	39068	0	0
30	38897	0	0
31	39664	0	0
32	38967	0	0
135	76314	1	4273
138	76277	1	4256

Table 5-12 WAAS Ionospheric Correction Message Rates (Type 26) – CRW

Band	Block	On Time	Late	Max Late Length (seconds)
0	0	27606	3	307
0	1	27607	2	304
0	2	27589	0	0
1	0	27603	6	305
1	1	27595	2	301
1	2	27599	2	305
1	3	27597	1	301
1	4	27590	4	304
2	0	27599	7	307
2	1	27597	1	301
2	2	27600	1	301
2	3	27592	5	301
2	4	27609	4	307
3	0	27591	5	580
3	1	27593	4	306
3	2	27600	1	305
9	0	27601	0	0
9	1	27606	3	305
9	2	27596	1	304
9	3	27597	0	0
9	4	27600	1	305
9	5	27598	7	313
9	6	27593	4	311

Table 5-13 WAAS Ionospheric Mask Message Rates (Type 18) – CRW

Band	On Time	Late	Max Late Length (seconds)
0	35360	0	0
1	35360	0	0
2	35334	0	0
3	35320	0	0
9	35306	0	0

Table 5-14 WAAS Fast Correction and Degradation Message Rates – CRE

Message Type	On Time	Late	Max Late Length (seconds)
1	99836	1	126
2	1325215	25	14
3	1324817	25	13
4	1324804	22	10
7	93852	6	138
9	93142	2	170
10	93819	3	148
17	31094	0	0

Table 5-15 WAAS Long Correction Message Rates (Type 24 and 25) – CRE

SV	On Time	Late	Max Late Length (seconds)
1	49466	1	180
2	47585	0	0
3	48298	1	172
4	17890	0	0
5	47941	0	0
6	47959	0	0
7	47290	0	0
8	48968	0	0
9	47672	0	0
10	11838	0	0
11	49463	0	0
12	47530	0	0
13	49143	0	0
14	47633	0	0
15	48320	1	152
16	48026	0	0
17	47645	0	0
18	47221	1	172
19	47693	0	0
20	47236	0	0
21	47861	0	0
22	45901	0	0
23	46976	0	0
24	49364	0	0
25	49257	0	0
26	48636	0	0
27	49261	0	0
28	48219	0	0
29	47487	0	0
30	47344	0	0
31	48335	0	0
32	47504	0	0

Table 5-16 WAAS Ephemeris Covariance Message Rates (Type 28) – CRE

SV	On Time	Late	Max Late Length (seconds)
1	40631	0	0
2	39122	0	0
3	39708	0	0
4	14694	2	205
5	39317	0	0
6	39352	0	0
7	38799	0	0
8	40201	0	0
9	39136	0	0
10	9717	0	0
11	40586	2	160
12	39059	0	0
13	40366	0	0
14	39129	0	0
15	39660	0	0
16	39441	0	0
17	39127	0	0
18	38738	0	0
19	39139	0	0
20	38756	0	0
21	39344	0	0
22	37689	0	0
23	38601	1	121
24	40605	0	0
25	40422	0	0
26	39928	0	0
27	40462	0	0
28	39589	3	205
29	39077	0	0
30	38898	0	0
31	39649	0	0
32	38994	0	0
135	76290	2	4296
138	76272	1	4294

Table 5-17 WAAS Ionospheric Correction Message Rates (Type 26) – CRE

Band	Block	On Time	Late	Max Late Length (seconds)
0	0	27597	4	306
0	1	27596	1	302
0	2	27612	2	306
1	0	27590	4	307
1	1	27602	0	0
1	2	27593	1	301
1	3	27613	1	301
1	4	27599	3	305
2	0	27592	2	304
2	1	27604	2	301
2	2	27608	2	301
2	3	27597	1	301
2	4	27601	1	305
3	0	27603	3	305
3	1	27601	1	301
3	2	27593	5	306
9	0	27609	5	304
9	1	27596	2	304
9	2	27589	1	301
9	3	27603	2	301
9	4	27609	0	0
9	5	27593	0	0
9	6	27592	1	301

Table 5-18 WAAS Ionospheric Mask Message Rates (Type 18) – CRE

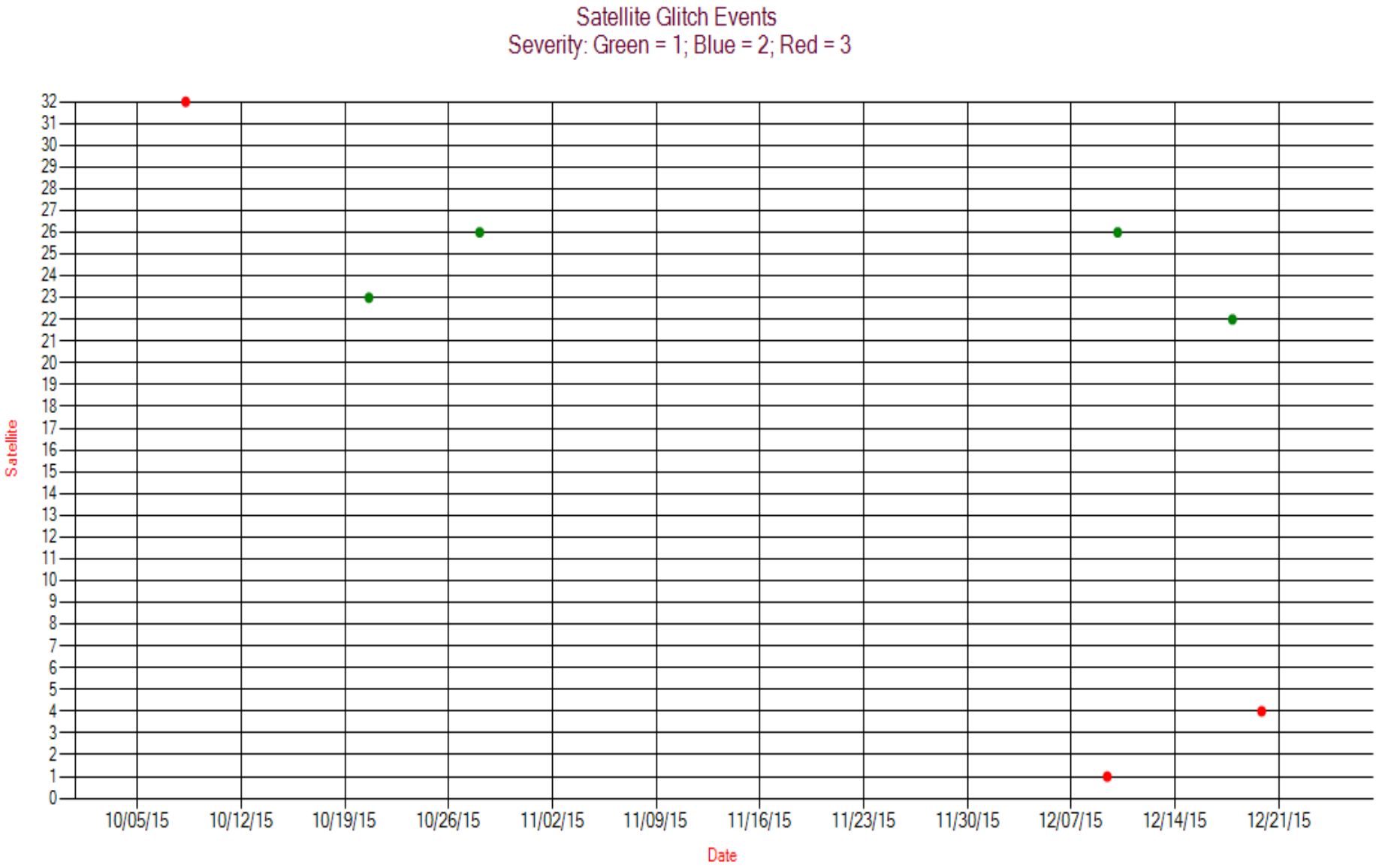
Band	On Time	Late	Max Late Length (seconds)
0	35159	0	0
1	35178	1	417
2	35167	0	0
3	35144	0	0
9	35148	0	0

5.4 Satellite Glitches

The GPS satellites occasionally have periods of signal carrier stability ‘glitches’ of varying magnitude. These are short degradations in the signal that in severe cases cause WAAS to lose track or cycle slip for some or all of the WAAS receivers. The more severe glitches will cause the WAAS reported UDRE spike to ‘Not Monitor’ and result in an alert.

Figure 5-2 shows the satellite glitches visible to WAAS for the quarter. Glitches are categorized into three severity levels. Severity one glitches cause a significant number of the receivers to simultaneously have bad subframe parity, but not all receivers. Severity two glitches cause all of the receivers to report bad subframe parity data and some receivers to also have cycle slips and or lose tracking of L2 and or L1. Severity three glitches cause all of the receivers to lose track of both L1 and L2 data. Note, the tool that performs this Satellite Glitch Analysis also reports times when more than 14 GPS satellites are in view for some of the WAAS reference stations. The NovAtel WAAS G2 receiver is only capable of tracking 14 GPS satellites at a given time; GPS users may also experience this condition.

Figure 5-2 SV Glitch Trend



6.0 SV RANGE ACCURACY

Range accuracy evaluation computes the probability that the WAAS User Differential Range Error (UDRE) and Grid Ionospheric Vertical Error (GIVE) statistically bound 99.9% of the range residuals for each satellite tracked by the receiver. A UDRE is broadcast by the WAAS for each satellite that is monitored by the system and the 99.9% bound (3.29 sigma) of the residual error on a pseudorange after application of fast and long-term corrections is checked. The pseudorange residual error is determined by taking the difference between the raw pseudorange and a calculated reference range. The reference range is equal to the true range between the corrected satellite position and surveyed user antenna plus all corrections (WAAS Fast Clock, WAAS Long-Term Clock, WAAS Ionospheric delay, Tropospheric delay, Receiver Clock Bias, and Multipath). Since the true ionospheric delay and multipath error are not precisely known, the estimated variance in these error sources are added to the UDRE before comparing it to the residual error.

GPS satellite range residual errors were calculated for twelve WAAS receivers during the quarter. Table 6-1 and Table 6-2 show the range error 95% index and 99.9% bounding statistics for each SV at the selected locations. Figure 6-1 and Figure 6-2 show the 95% range error for each SV as measured by the WAAS receivers at the Chicago reference station.

A GIVE is broadcast by the WAAS for each IGP that is monitored by the system and the 99.9% bound of the ionospheric error is checked. The WAAS broadcasts the ionospheric model using IGP's at predefined geographic locations. Each IGP contains the vertical ionospheric delay and the error in that delay in the form of the GIVE. The ionospheric error is determined by taking the difference between the WAAS vertical ionospheric delay interpolated from the IGP's and GPS dual frequency measurement at that GPS satellite.

GPS satellite ionospheric errors were calculated for twelve WAAS receivers during the quarter. Table 6-3 and Table 6-4 show the ionospheric error 95% index and 99.9% bounding statistics for each SV at the selected locations. Figure 6-3 and Figure 6-4 show the 95% ionospheric error for each SV as measured by the WAAS receiver at the Chicago reference station.

The WAAS range error and Ionospheric error data processing was updated the week of November 15 2015 to compensate for GPS satellites inter-signal bias (ISB) between L1 C/A and L1P. The L1 C/A code inter-signal correction (ISC) for each GPS satellite was estimated offline and then used in the navigation processing to provide a more accurate evaluation of WAAS satellite and ionospheric corrections. The new GPS block IIF satellites exhibited larger ISB's than the GPS block IIR satellites and step a change in their daily 95% error can be seen in Figure 6-1 to 6-4 after the software update.

Satellite range errors were bounded at least 99.9% of the time by UDRE with exception of PRN-1, PRN-3, PRN-6, and PRN-26. These are Block IIF satellites. Block IIF satellites experience reduced bounding due to the difference between L1 C/A and L1P satellite delays. Other unbounded errors (i.e., errors bounded less than 100% of the time) were due to geomagnetic activity, noise, and/or multipath.

Table 6-1 Range Error 95% Index and 99.9% Bounding

Site →	Billings		Albuquerque		Boston		Washington DC		Houston		Kansas City	
SV ↓	95% Range Error (m)	99.9% Bounding (%)	95% Range Error (m)	99.9% Bounding (%)	95% Range Error (m)	99.9% Bounding (%)	95% Range Error (m)	99.9% Bounding (%)	95% Range Error (m)	99.9% Bounding (%)	95% Range Error (m)	99.9% Bounding (%)
1*	2.927	100	2.846	100	3.229	100	2.596	100	2.822	99.9673	2.837	100
2	1.761	100	2.643	100	2.521	100	2.743	99.9811	3.395	99.9476	2.122	100
3*	3.011	99.9527	2.491	100	2.645	100	2.459	100	2.965	100	2.475	100
4	1.760	100	1.535	100	1.539	100	1.381	100	1.592	100	1.808	100
5	1.731	100	1.446	100	1.133	100	1.248	100	1.355	100	1.622	100
6*	3.246	99.9911	3.392	99.9747	2.680	100	2.758	100	3.425	99.9381	4.345	97.5725
7	1.162	100	1.113	100	1.090	100	0.978	100	1.565	100	1.140	100
8*	2.694	100	2.207	100	2.892	100	2.047	100	2.207	100	2.306	100
9*	2.456	100	2.230	100	2.210	100	1.664	100	1.901	100	2.089	100
10	2.289	100	1.079	100	1.646	100	1.426	100	1.215	100	1.219	100
11	0.931	100	1.721	100	1.026	100	1.620	100	1.355	100	1.260	100
12	1.318	100	1.301	100	1.344	100	1.459	100	1.430	100	1.129	100
13	1.407	100	1.535	100	1.030	100	1.227	100	1.349	100	1.101	100
14	1.719	100	1.153	100	0.946	100	1.961	99.9999	1.435	100	1.326	100
15	1.542	100	1.419	100	1.037	100	1.314	100	1.386	100	1.262	100
16	2.043	100	1.469	100	0.931	100	1.498	100	1.585	100	1.286	100
17	2.258	100	1.100	100	1.732	100	0.901	100	1.853	100	1.931	100
18	1.106	100	1.707	100	1.546	100	2.129	99.9801	1.922	100	1.886	100
19	2.350	100	2.818	100	2.176	100	2.910	100	3.002	100	2.879	100
20	1.386	100	1.504	100	1.710	100	1.844	100	2.105	100	1.542	100
21	1.108	100	1.428	100	1.782	100	2.065	100	1.746	100	1.655	100
22	2.108	100	2.709	100	2.311	100	3.078	100	2.824	100	2.621	99.9864
23	1.355	100	2.300	100	2.041	100	2.457	100	2.744	99.9998	2.007	100
24*	2.453	100	2.642	100	2.484	100	2.239	100	2.705	100	2.412	100
25*	2.359	100	2.237	100	2.081	100	1.543	100	2.329	100	2.201	100
26*	2.801	100	2.484	100	2.802	99.9941	2.090	100	2.539	100	2.578	100
27*	2.084	100	1.763	100	2.226	100	1.476	100	1.751	100	1.788	100
28	0.801	100	1.548	100	1.291	100	1.318	100	1.629	100	1.607	100
29	1.658	100	1.500	100	1.172	100	1.050	100	1.213	100	1.283	100
30*	2.935	100	1.995	100	2.110	100	1.771	100	1.945	100	2.198	99.9960
31	0.977	100	1.349	100	0.910	100	1.537	100	1.402	100	1.400	100
32	0.821	100	1.232	100	0.988	100	1.316	100	1.693	100	1.314	100
135	1.946	100	1.622	100	2.940	100	2.061	100	2.321	100	1.761	100
138	1.288	100	1.291	100	1.384	100	1.720	100	1.657	100	1.787	100

***Note: Reduced range bounding on Block IIF space vehicles is due to the difference between L1 C/A and L1P satellite signal delays.**

Table 6-2 Range Error 95% Index and 99.9% Bounding

Site →	Los Angeles		Salt Lake City		Miami		Minneapolis		Atlanta		Juneau	
SV ↓	95% Range Error (m)	99.9% Bounding (%)	95% Range Error (m)	99.9% Bounding (%)	95% Range Error (m)	99.9% Bounding (%)	95% Range Error (m)	99.9% Bounding (%)	95% Range Error (m)	99.9% Bounding (%)	95% Range Error (m)	99.9% Bounding (%)
1*	2.219	100	3.405	99.9511	2.783	100	3.101	100	2.665	99.9986	2.965	100
2	2.672	100	2.229	100	2.171	100	2.120	100	2.429	99.9999	1.666	100
3*	2.235	100	3.461	99.9933	2.752	100	2.686	100	2.727	100	2.917	100
4	1.483	100	1.746	100	1.661	100	1.836	100	1.259	100	2.142	100
5	1.188	100	1.437	100	1.419	100	1.567	100	1.083	100	1.958	100
6*	2.673	100	3.474	99.9852	3.646	100	3.107	99.7790	2.950	99.9951	3.817	99.9946
7	1.007	100	1.501	100	1.872	100	1.567	100	1.068	100	2.077	100
8*	1.715	100	2.667	100	2.330	100	2.762	100	2.176	100	2.987	100
9*	1.523	100	2.388	100	2.179	100	2.457	100	2.035	100	2.651	100
10	1.023	100	1.849	100	1.449	100	1.818	100	1.309	100	1.879	100
11	1.942	100	0.951	100	1.228	100	1.044	100	1.826	100	0.944	100
12	1.009	100	1.172	100	1.287	100	1.393	100	1.074	100	1.371	100
13	0.932	100	1.117	100	1.046	100	1.140	100	0.994	100	1.460	100
14	1.152	100	0.922	100	1.318	100	0.918	100	1.469	100	1.000	100
15	1.518	100	1.434	100	1.005	100	1.816	100	1.066	100	1.800	100
16	1.549	100	0.944	100	1.623	100	1.401	100	1.416	100	0.903	100
17	1.318	100	1.352	100	1.534	100	1.090	100	1.217	100	1.302	100
18	1.602	100	1.271	100	1.637	100	1.347	100	1.974	100	1.025	100
19	3.208	100	1.840	100	2.626	99.9334	2.161	100	2.914	100	1.698	100
20	1.478	100	1.196	100	1.436	100	1.177	100	1.413	100	1.109	100
21	1.352	100	0.865	100	1.579	100	1.341	100	1.632	100	0.928	100
22	2.664	100	1.958	100	2.564	99.9997	2.354	100	2.861	100	2.045	100
23	2.424	100	1.405	100	2.214	100	1.295	100	2.310	100	1.431	100
24*	2.011	100	2.865	99.9999	2.221	100	2.733	100	2.085	100	3.504	100
25*	1.426	100	2.353	99.9977	1.849	100	1.941	100	1.619	100	2.411	100
26*	2.297	100	2.746	100	2.279	100	3.103	99.9998	2.081	100	3.076	100.0000
27*	1.565	100	1.872	100	1.909	100	2.373	100	1.482	100	2.159	100
28	1.632	100	1.256	100	1.908	100	1.059	100	1.395	100	1.316	100
29	0.932	100	1.699	100	1.271	100	1.602	100	1.151	100	1.574	100
30*	1.554	100	2.301	100	2.142	100	2.657	100	1.885	100	2.691	100
31	1.189	100	0.941	100	1.999	100	0.882	100	1.598	100	1.220	100
32	1.464	100	0.864	100	1.253	100	0.899	100	1.689	99.9999	0.955	100
135	1.612	100	1.668	100	1.684	100	2.312	100	1.944	100	1.453	100
138	2.744	100	1.609	100	2.092	100	1.819	100	1.461	100	1.881	100

***Note: Reduced range bounding on Block IIF space vehicles is due to the difference between L1 C/A and L1P satellite signal delays.**

Table 6-3 Ionospheric Error 95% Index and 99.9% Sigma Bounding

Site →	Billings		Albuquerque		Boston		Washington DC		Houston		Kansas City	
SV ↓	95% Iono Error (m)	99.9% Bounding (%)	95% Iono Error (m)	99.9% Bounding (%)	95% Iono Error (m)	99.9% Bounding (%)	95% Iono Error (m)	99.9% Bounding (%)	95% Iono Error (m)	99.9% Bounding (%)	95% Iono Error (m)	99.9% Bounding (%)
1	1.678	100	1.634	100	2.098	100	1.511	100	1.736	100	1.772	100
2	1.302	100	1.790	100	1.586	100	1.926	100	2.097	100	1.507	100
3	2.198	100	1.990	100	1.649	100	1.451	100	1.653	100	1.539	100
4	0.881	100	0.820	100	0.752	100	0.565	100	0.585	100	0.833	100
5	0.929	100	0.843	100	1.090	100	0.612	100	1.069	100	1.160	100
6	2.513	100	2.553	100	2.338	100	2.285	100	2.835	100	3.240	100
7	0.681	100	0.735	100	0.694	100	0.554	100	0.795	100	0.789	100
8	1.604	100	1.399	100	1.915	100	1.350	100	1.648	100	1.655	100
9	1.778	100	1.800	100	1.433	100	1.097	100	1.327	100	1.438	100
10	1.043	100	0.652	100	0.715	100	0.918	100	0.627	100	0.870	100
11	0.325	100	0.731	100	0.448	100	0.609	100	0.631	100	0.627	100
12	0.637	100	0.580	100	0.700	100	0.454	100	0.601	100	0.456	100
13	0.502	100	0.662	100	0.566	100	0.492	100	0.602	100	0.512	100
14	0.950	100	0.724	100	0.486	100	0.728	100	0.665	100	0.588	100
15	0.686	100	0.780	100	0.836	100	0.573	100	1.013	100	0.793	100
16	0.837	100	0.791	100	0.411	100	0.880	100	0.857	100	0.673	100
17	1.398	100	0.757	100	1.101	100	0.518	100	0.781	100	0.899	100
18	0.660	100	0.999	100	0.674	100	1.083	100	0.889	100	0.844	100
19	1.516	100	1.776	100	1.519	100	2.003	100	1.756	100	1.837	100
20	0.659	100	1.029	100	0.791	100	0.976	100	0.919	100	0.742	100
21	0.733	100	1.061	100	0.810	100	1.279	100	0.892	100	0.901	100
22	1.617	100	1.999	100	1.449	100	2.020	100	2.028	100	1.724	100
23	1.090	100	1.708	100	1.378	100	1.818	100	1.776	100	1.344	100
24	1.448	100	1.433	100	1.719	100	1.188	100	1.558	100	1.381	100
25	1.295	100	1.277	100	1.261	100	0.863	100	1.133	100	1.153	100
26	1.690	100	1.579	100	1.920	100	1.507	100	2.321	100	1.900	100
27	1.067	100	0.957	100	1.401	100	0.785	100	0.994	100	1.127	100
28	0.490	100	0.913	100	0.395	100	0.731	100	0.537	100	0.786	100
29	0.833	100	0.772	100	0.567	100	0.429	100	0.745	100	0.614	100
30	1.803	100	1.558	100	1.397	100	1.179	100	1.437	100	1.610	100
31	0.495	100	0.697	100	0.557	100	0.598	100	0.845	100	0.883	100
32	0.498	100	0.647	100	0.453	100	0.710	100	0.730	100	0.675	100

Table 6-4 Ionospheric Error 95% Index and 99.9% Bounding

Site →	Los Angeles		Salt Lake City		Miami		Minneapolis		Atlanta		Juneau	
SV ↓	95% Iono Error (m)	99.9% Bounding (%)	95% Iono Error (m)	99.9% Bounding (%)	95% Iono Error (m)	99.9% Bounding (%)	95% Iono Error (m)	99.9% Bounding (%)	95% Iono Error (m)	99.9% Bounding (%)	95% Iono Error (m)	99.9% Bounding (%)
1	1.614	100	1.907	100	1.928	100	1.973	100	1.583	100	1.997	100
2	1.798	100	1.524	100	1.371	100	1.424	100	1.762	100	1.131	100
3	1.548	100	2.457	100	1.768	100	1.792	100	1.602	100	2.003	100
4	0.613	100	0.835	100	0.930	100	1.086	100	0.489	100	1.136	100
5	0.746	100	0.925	100	0.939	100	0.835	100	0.582	100	1.032	100
6	2.084	100	2.762	99.9875	2.773	100	2.503	100	2.160	100	2.801	100
7	0.362	100	0.795	100	1.105	100	0.714	100	0.664	100	0.823	100
8	1.274	100	1.594	100	1.830	100	1.741	100	1.397	100	1.938	100
9	1.078	100	1.773	100	1.518	100	1.632	100	1.381	100	1.707	100
10	0.589	100	0.836	100	0.644	100	0.934	100	0.656	100	0.905	100
11	0.845	100	0.328	100	0.363	100	0.452	100	0.803	100	0.349	100
12	0.309	100	0.606	100	0.562	100	0.598	100	0.485	100	0.640	100
13	0.418	100	0.466	100	0.550	100	0.485	100	0.480	100	0.540	100
14	0.626	100	0.447	100	0.552	100	0.349	100	0.601	100	0.512	100
15	0.760	100	0.686	100	0.868	100	0.857	100	0.605	100	0.931	100
16	0.940	100	0.431	100	0.557	100	0.665	100	0.787	100	0.454	100
17	0.641	100	0.734	100	0.824	100	0.556	100	0.545	100	0.707	100
18	0.980	100	0.609	100	0.633	100	0.626	100	1.183	100	0.591	100
19	2.132	100	1.326	100	1.455	100	1.563	100	1.823	100	1.304	100
20	0.927	100	0.454	100	0.647	100	0.547	100	0.768	100	0.651	100
21	0.937	100	0.541	100	0.795	100	0.814	100	1.078	100	0.546	100
22	1.919	100	1.282	100	1.567	100	1.667	100	2.010	100	1.434	100
23	1.512	100	1.102	100	1.357	100	1.101	100	1.771	100	1.042	100
24	1.359	100	1.518	100	1.702	100	1.749	100	1.367	100	1.973	100
25	0.871	100	1.392	100	1.257	100	1.167	100	0.895	100	1.469	100
26	1.575	100	1.692	100	2.089	100	1.991	100	1.518	100	2.103	100
27	0.945	100	1.060	100	1.483	100	1.328	100	0.894	100	1.266	100
28	0.723	100	0.497	100	1.052	100	0.456	100	0.934	100	0.441	100
29	0.374	100	0.851	100	0.621	100	0.685	100	0.652	100	0.807	100
30	1.180	100	1.691	100	1.677	100	1.675	100	1.281	100	1.664	100
31	0.595	100	0.599	100	0.644	100	0.483	100	0.667	100	0.561	100
32	0.671	100	0.518	100	0.542	100	0.440	100	0.906	100	0.509	100

Figure 6-1 95% Range Error (PRN-1 – PRN-16) – Chicago

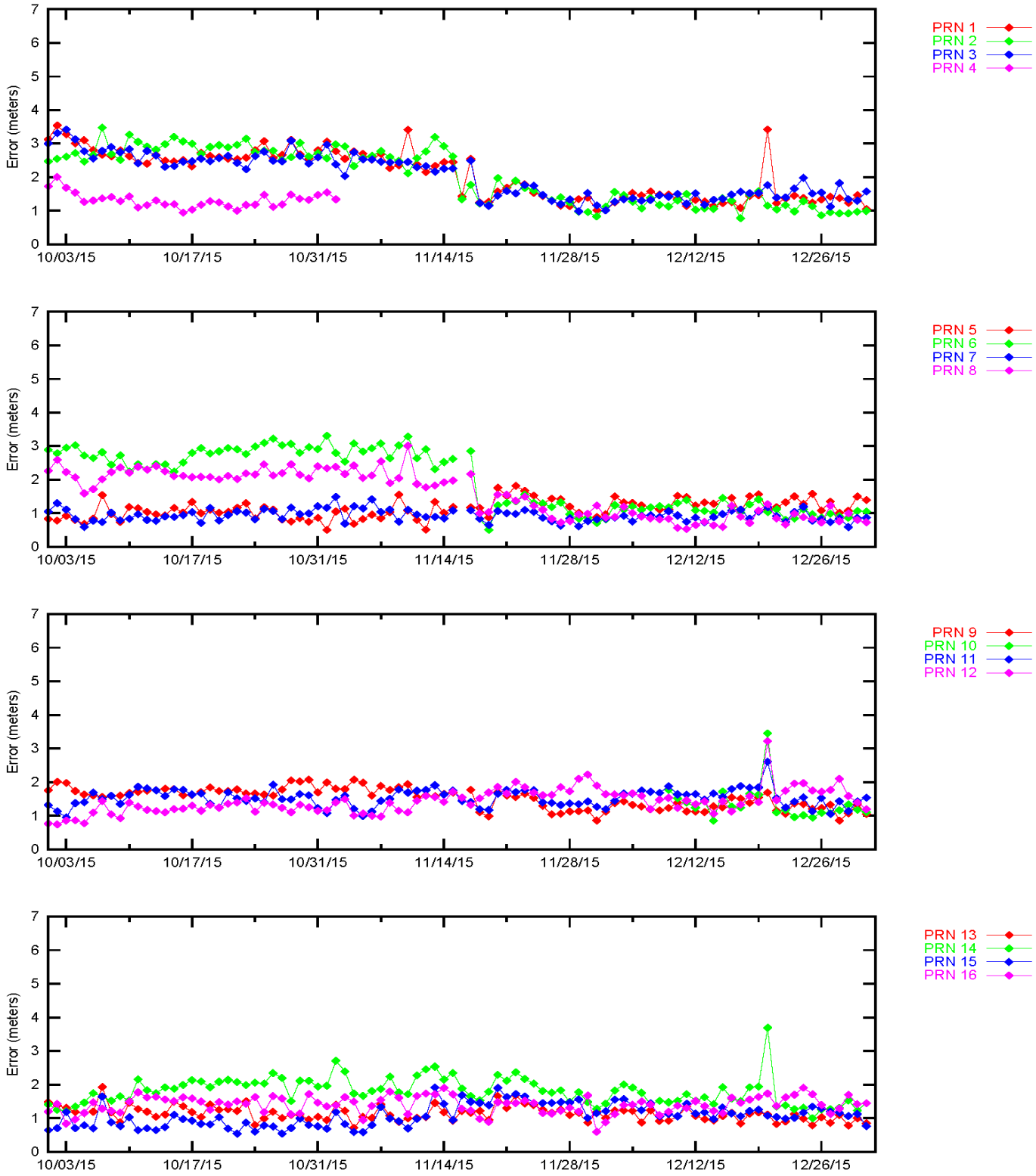


Figure 6-2 95% Range Error (PRN-17 – PRN-32) – Chicago

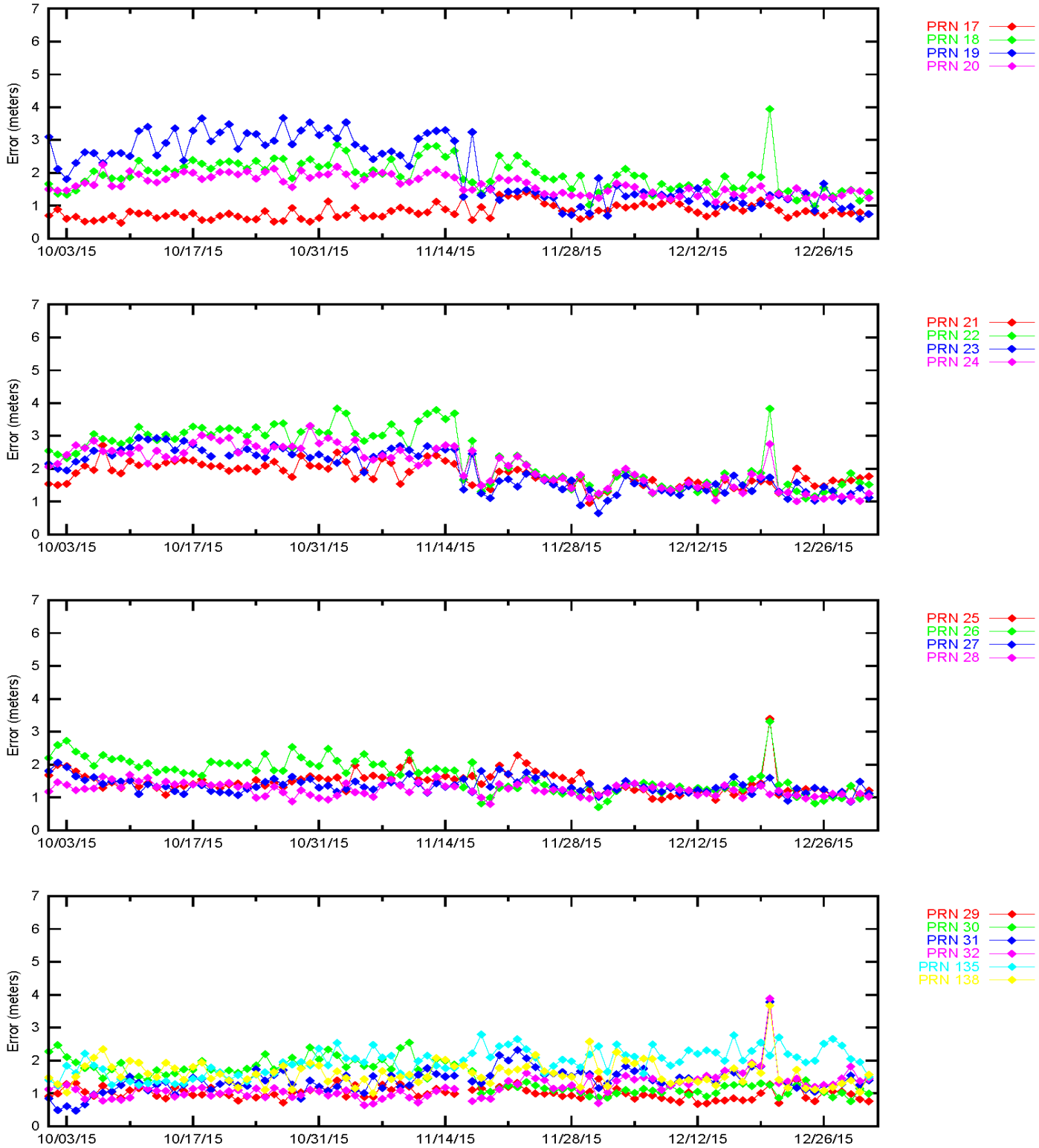


Figure 6-3 95% Ionospheric Error (PRN-1 – PRN-16) – Chicago

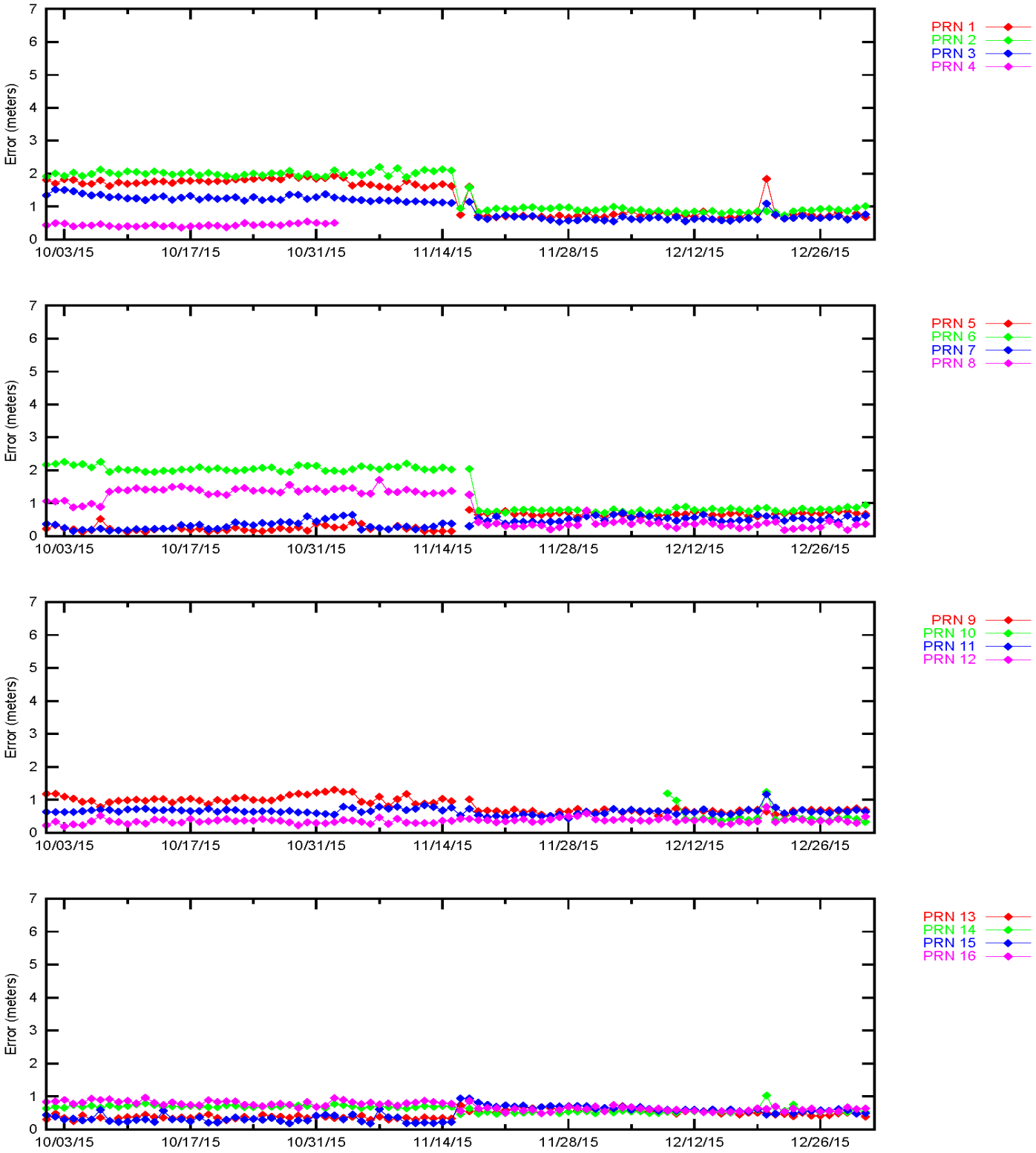
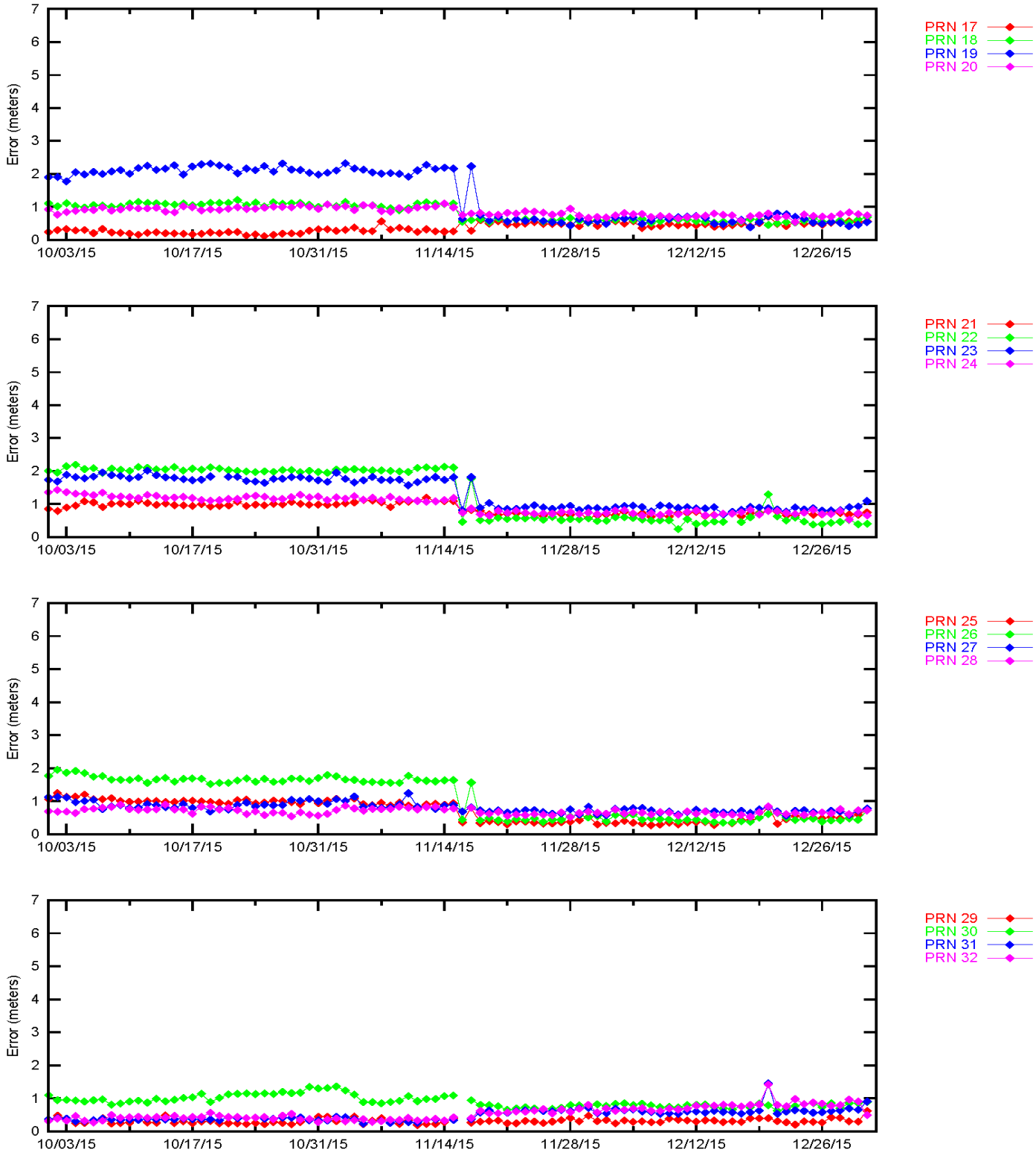


Figure 6-4 95% Ionospheric Error (PRN-17 - PRN-32) – Chicago



7.0 GEO RANGING PERFORMANCE

The WAAS GEO navigation messages provide corrections and UDRE values for each satellite. The GEO ranging availability from each GEO navigation message source was evaluated separately to determine the quality of service provided.

Table 7-1 shows the GEO PA and NPA ranging availability. The table also shows the percentage of time that the GEO UDRE was set to "Not Monitored" and "Do Not Use". Figure 7-1 and Figure 7-2 show the trend of CRW GEO PA and CRE GEO PA ranging availability, respectively. Figure 7-3 shows the trend of AMR GEO NPA ranging availability.

The reductions in CRW GEO PA and CRE GEO PA ranging availability shown in Figure 7-1 and Figure 7-2 were due to GUS switchovers. Refer to Table 1-7 for detailed information on the GUS switchovers for this reporting period. Figure 7-3 shows AMR GEO NPA ranging was unavailable for this quarter. On July 18 and until further notice, the UDRE for AMR was set to "Not Monitored". This setting means that users can still use WAAS corrections from PRN-133 but that satellite cannot be used by WAAS users for ranging.

Table 7-1 GEO Ranging Availability

GEO Source	GEO	PA (%)	NPA (%)	Not Monitored (%)	Do Not Use (%)
AMR 133	CRW	98.88	0.90	0.21	0.00
AMR 133	CRE	98.90	0.82	0.23	0.05
AMR 133	AMR	0.00	0.00	99.96	0.03
CRW 135	CRW	98.89	0.90	0.21	0.00
CRW 135	CRE	98.90	0.82	0.23	0.05
CRW 135	AMR	0.00	0.00	99.96	0.04
CRE 138	CRW	98.89	0.90	0.21	0.00
CRE 138	CRE	98.90	0.82	0.23	0.05
CRE 138	AMR	0.00	0.00	99.96	0.03

Figure 7-1 Daily PA CRW GEO Ranging Availability Trend

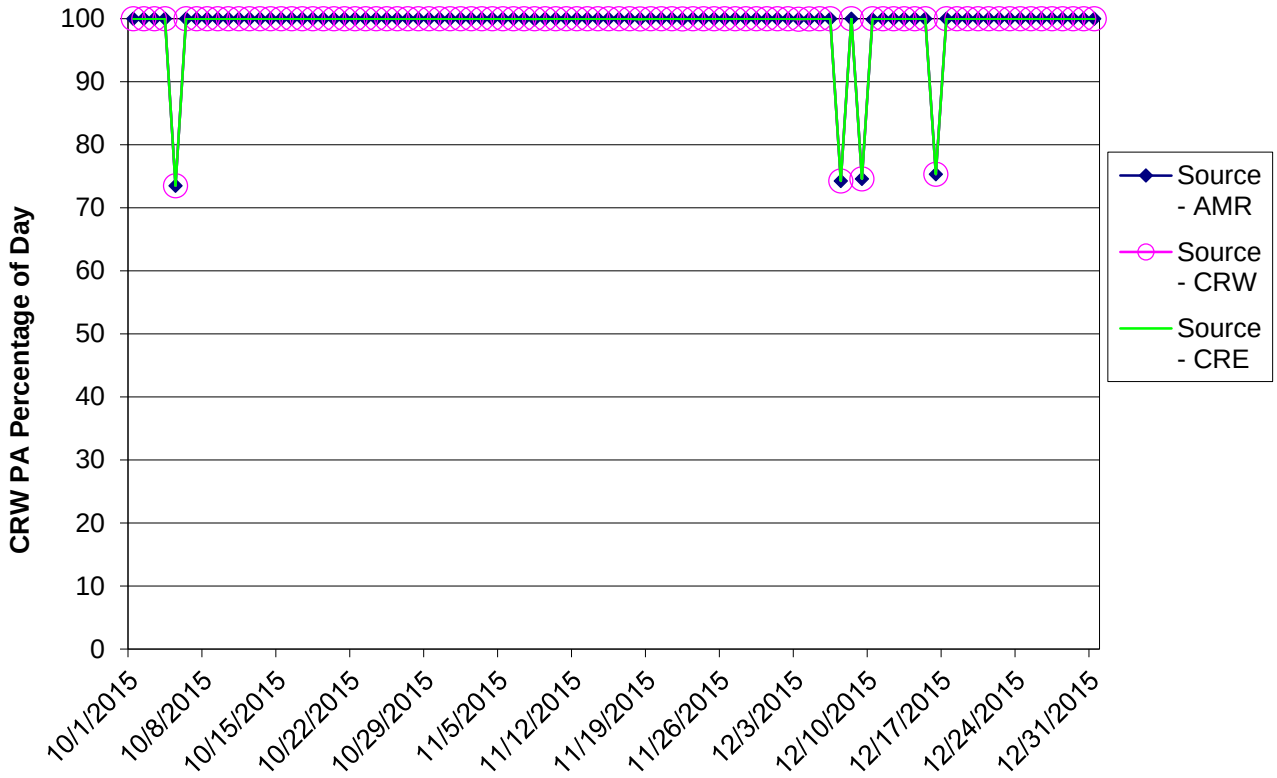


Figure 7-2 Daily PA CRE GEO Ranging Availability Trend

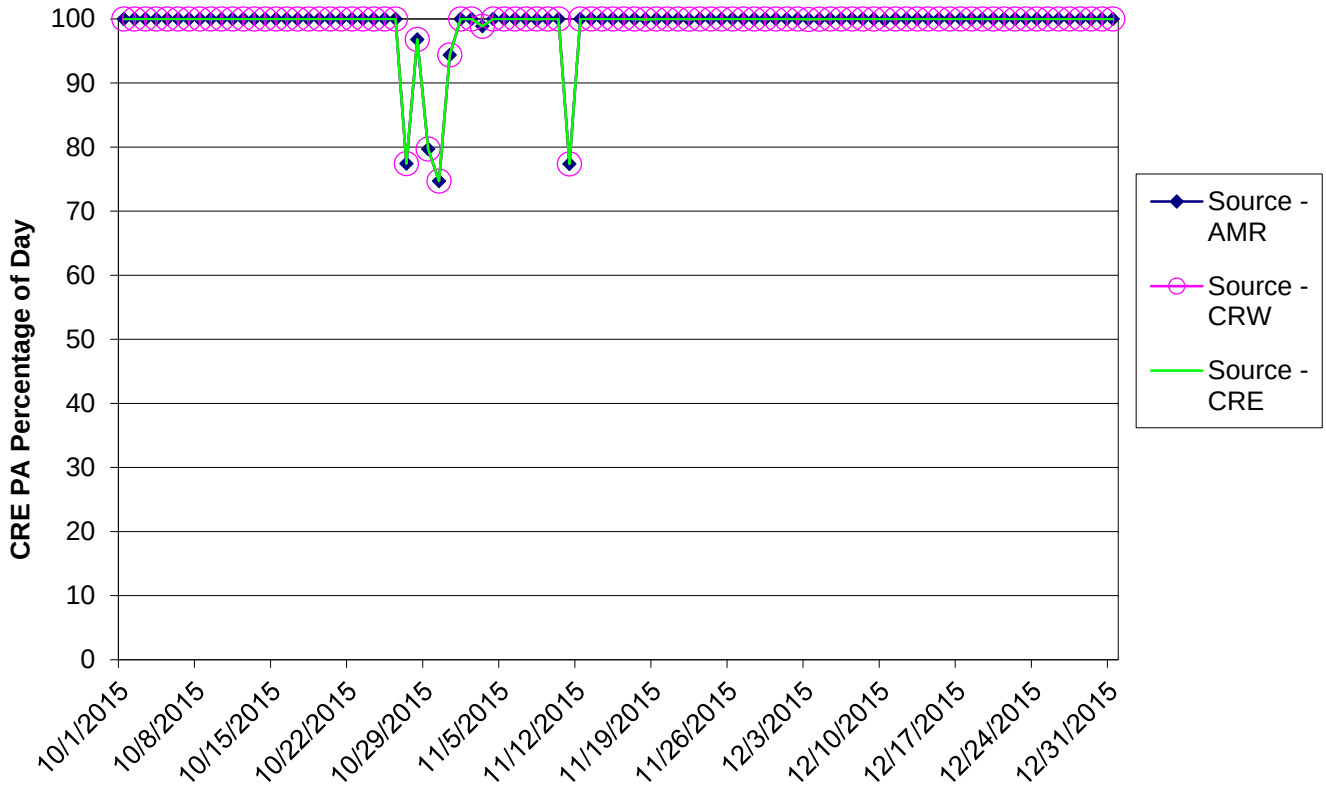
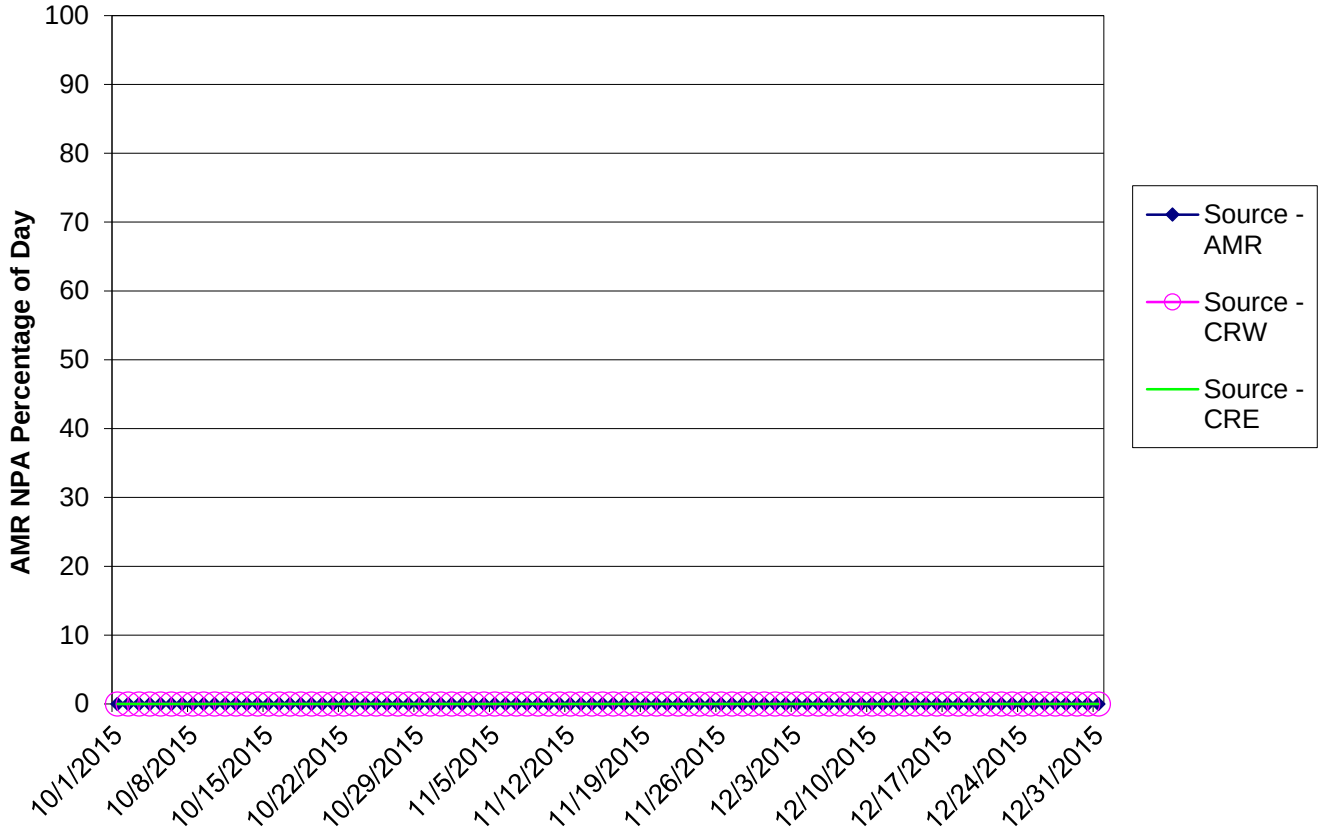


Figure 7-3 Daily NPA AMR GEO Ranging Availability Trend



8.0 WAAS AIRPORT AVAILABILITY

The WAAS airport availability evaluation determines the number and length LPV service outages at selected airports from the transmitted WAAS navigation message. The navigation messages transmitted from all GEO satellites are processed simultaneously, and WAAS protection levels (VPL and HPL) are computed at each airport once every 30 second in accordance with the RTCA DO-229D. Once the protection levels have been produced at each airport an LPV service evaluation is conducted to identify outages in service (i.e. when protection levels exceed alert limits). WAAS LPV service is available for a user when the vertical protection level (VPL) is less than or equal to vertical alert limit (VAL) of 50 meters and the horizontal protection level (HPL) is less than or equal to horizontal alert limit (HAL) of 40 meters. If both conditions are met at a specified airport location then WAAS LPV service is available at that airport. If either one of the conditions are not met at a specified airport location then WAAS LPV service at that airport is unavailable and an outage in LPV service is recorded with its duration. When the LPV service becomes unavailable it is not considered available again until protection levels are below or equal to alert limits for at least 15 minutes. Although this will reduce LPV service availability minimally, it substantially reduces the number of service outages and prevents excessive switching in and out of service availability. Similar service analysis is completed for LP and LPV200 services in accordance with HAL and VAL shown in Table 1-1. The number of WAAS LPV service outages and the availability at selected airports in the US and Canada for this evaluation period of WAAS operation is presented in Table 8-1. Figure 8-1 through Figure 8-6 provide the graphical representation of the LP, LPV and LPV200 availability and outage counts at airports in the US and Canada that have published GPS RNAV Instrument Approach Procedures (IAPs). These results are depicted geographically on an interactive web page at http://www.nstb.tc.faa.gov/AirportOutages/ .

The interactive web page can be accessed by entering the web address into an Internet browser and selecting the current quarter from the drop-down menu on the upper left corner and clicking “Submit Request”. The WAAS LPV airport layer will appear providing color coded availability results as shown in Figure 8-1 and Figure 8-2. Rolling over any airport with the cursor displays the LPV availability and number of LPV outages for the reporting period. The “WAAS Layer” menu in the upper right of the display allows the user to select WAAS LP or LPV200 availability and the number of outage results as shown in Figure 8-3 through Figure 8-6. The user can review WAAS availability performance for US airports with GPS RNAV IAPs by selecting “Show all Airports”, or limit airports displayed to those with approved LPV approaches as provided in Table 8-1.

Table 8-1 WAAS LP, LPV, and LPV200 Outages and Availability

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
CAL4	FORT MACKAY / ALBIAN AERODROME	AB	LPV	2	99.9392	1	99.9241	3	99.8989
CEV3	VEGREVILLE	AB	LPV	2	99.9921	1	99.9170	3	99.9072
CYEG	EDMONTON / JOSEPHBURG	AB	LPV	1	99.9943	2	99.9426	1	99.9098
CYXD	EDMONTON CITY CTR	AB	LPV	1	99.9943	2	99.9426	1	99.9098
2C7	SHAKTOOLIK	AK	LPV	1	99.9951	2	99.9894	6	99.9355
6A8	ALLAKAKET	AK	LP	0	100	2	99.9891	18	99.8649
7KA	TATITLEK	AK	LP	1	99.9841	2	99.9623	3	99.9381
9A3	CHUATHBALUK	AK	LPV	0	100	0	100	4	99.9645
AKN	KING SALMON	AK	LPV	1	99.9996	2	99.9785	8	99.9223
AKW	KLAWOCK	AK	LP	0	100	1	99.9985	1	99.9853
ANC	TED STEVENS ANCHORAGE INTL	AK	LPV200	1	99.9966	1	99.9702	3	99.9445
AQH	QUINHAGAK	AK	LPV	0	100	0	100	8	99.9570
AQT	NUIQSUT	AK	LPV	1	99.9966	1	99.9789	93	99.3780
BET	BETHEL	AK	LPV200	0	100	0	100	5	99.9381

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
BRW	WILEY POST-WILL ROGERS MEMORIA	AK	LPV	2	99.9872	10	99.8513	180	97.0580
CDB	COLD BAY	AK	LPV200	0	100	1	99.9819	473	96.2662
CDV	MERLE K (MUDHOLE) SMITH	AK	LPV	2	99.9808	2	99.9506	3	99.9392
CEM	CENTRAL	AK	LP	1	99.9977	2	99.9860	17	99.9053
CLP	CLARKS POINT	AK	LPV	1	99.9985	1	99.9985	12	99.9513
CXF	COLDFOOT	AK	LP	0	100	3	99.9898	18	99.8260
D76	ROBERT/BOB/CURTIS MEMORIAL	AK	LPV	1	99.9970	8	99.9430	119	98.5639
DLG	DILLINGHAM	AK	LPV	1	99.9989	2	99.9981	13	99.9528
ELI	ELIM	AK	LPV	1	99.9940	2	99.9875	22	99.9155
ENA	KENAI MUNICIPAL	AK	LPV200	1	99.9966	1	99.9702	3	99.9472
ENM	EMMONAK	AK	LPV	0	100	2	99.9989	8	99.9275
FAI	FAIRBANKS INTL	AK	LPV200	1	99.9996	2	99.9853	5	99.9479
GAL	EDWARD G PITKA SR	AK	LPV	1	99.9947	1	99.9947	6	99.9370
GAM	GAMBELL	AK	LPV	3	99.9879	88	99.7660	493	92.9087
GKN	GULKANA	AK	LPV	1	99.9902	2	99.9641	4	99.9396
GST	GUSTAVUS	AK	LP	2	99.9951	1	99.9751	2	99.9683
HLA	HUSLIA	AK	LPV	1	99.9966	2	99.9732	10	99.9079
HOM	HOMER	AK	LPV	1	99.9864	1	99.9653	3	99.9468
HPB	HOOPER BAY	AK	LP	0	100	1	99.9970	26	99.8834
ILI	ILIAMNA	AK	LPV	0	100	2	99.9683	4	99.9313
IYS	WASILLA	AK	LPV	1	99.9977	1	99.9702	3	99.9468
KAL	KALTAG	AK	LPV	1	99.9951	2	99.9909	3	99.94000
KSM	ST MARY'S	AK	LPV200	0	100	0	100	5	99.9340
KTN	KETCHIKAN INTL	AK	LPV	0	100	0	100	1	99.9853
KTS	BREVIG MISSION	AK	LPV	1	99.9989	9	99.9411	153	98.0427
KWT	KWETHLUK	AK	LPV	0	100	0	100	5	99.9423
KYU	KOYUKUK	AK	LPV	1	99.9943	2	99.9940	9	99.9385
MCG	MC GRATH	AK	LP	0	100	1	99.9992	3	99.9513
MDM	MARSHALL DON HUNTER SR	AK	LP	0	100	0	100	5	99.9396
MDO	MIDDLETON ISLAND	AK	LP	1	99.9796	2	99.9566	3	99.9404
OME	NOME	AK	LPV	0	100	9	99.9555	131	98.5028
OOK	TOKSOOK BAY	AK	LP	0	100	1	99.9966	29	99.8879
ORT	NORTHWAY	AK	LP	2	99.9838	2	99.9438	2	99.9423
OTZ	RALPH WIEN MEMORIAL	AK	LPV	1	99.9936	8	99.9309	127	98.2779
PAQ	PALMER MUNICIPAL	AK	LP	1	99.9977	1	99.9702	4	99.9468
PHO	POINT HOPE	AK	LPV	1	99.9864	11	99.8917	239	96.6893
RBY	RUBY	AK	LPV	1	99.9951	3	99.9906	5	99.9336
SCC	DEADHORSE	AK	LPV	0	100	2	99.9913	101	99.2852
SCM	SCAMMON BAY	AK	LP	0	100	1	99.9970	11	99.9185
SHG	SHUNGNAK	AK	LP	1	99.9970	2	99.9664	21	99.8505
SHX	SHAGELUK	AK	LPV	0	100	0	100	4	99.9543
SIT	SITKA ROCKY GUTIERREZ	AK	LP	1	99.9940	1	99.9751	2	99.9698

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
SMK	ST MICHAEL	AK	LPV	0	100	2	99.9966	6	99.9306
SXQ	SOLDOTNA	AK	LP	1	99.9947	1	99.9702	3	99.9475
UNK	UNALAKLEET	AK	LP	1	99.9970	2	99.9932	4	99.9366
WLK	SELAWIK	AK	LPV	1	99.9970	1	99.9751	15	99.8781
WMO	WHITE MOUNTAIN	AK	LP	1	99.9947	1	99.9747	90	99.8581
WNA	NAPAKIAK	AK	LPV	0	100	0	100	5	99.9377
YAK	YAKUTAT	AK	LPV200	1	99.9694	2	99.9509	2	99.9441
06A	MOTON FIELD MUNICIPAL	AL	LPV	0	100	0	100	0	100
0J6	HEADLAND MUNICIPAL	AL	LPV	0	100	0	100	0	100
0R1	ATMORE MUNICIPAL	AL	LP	0	100	0	100	0	100
11A	CLAYTON MUNICIPAL	AL	LPV	0	100	0	100	0	100
12J	BREWTON MUNICIPAL	AL	LPV	0	100	0	100	0	100
1M4	POSEY FIELD	AL	LPV	0	100	0	100	0	100
1R8	BAY MINETTE MUNICIPAL	AL	LPV	0	100	0	100	0	100
2R5	ST ELMO	AL	LPV	0	100	0	100	0	100
33J	GENEVA MUNICIPAL	AL	LP	0	100	0	100	0	100
3M8	NORTH PICKENS	AL	LP	0	100	0	100	0	100
4A9	ISBELL FIELD	AL	LPV	0	100	0	100	0	100
5R1	ROY WILCOX	AL	LP	0	100	0	100	0	100
5R4	FOLEY MUNICIPAL	AL	LPV	0	100	0	100	0	100
71J	BLACKWELL FIELD	AL	LPV	0	100	0	100	0	100
79J	SOUTH ALABAMA RGNL AT BILL BEN	AL	LPV	0	100	0	100	0	100
8A0	ALBERTVILLE RGNL-THOMAS J BRUM	AL	LPV	0	100	0	100	0	100
9A4	COURTLAND	AL	LPV200	0	100	0	100	1	99.9996
A08	VAIDEN FIELD	AL	LPV	0	100	0	100	0	100
ALX	THOMAS C RUSSELL FLD	AL	LPV	0	100	0	100	0	100
ANB	ANNISTON RGNL	AL	LPV	0	100	0	100	0	100
ASN	TALLADEGA MUNICIPAL	AL	LPV200	0	100	0	100	0	100
AUO	AUBURN UNIVERSITY RGNL	AL	LPV200	0	100	0	100	0	100
BFM	MOBILE DOWNTOWN	AL	LPV200	0	100	0	100	0	100
BHM	BIRMINGHAM-SHUTTLESWORTH INTL	AL	LPV200	0	100	0	100	0	100
CMD	CULLMAN RGNL-FOLSOM FIELD	AL	LPV	0	100	0	100	0	100
CQF	H L SONNY CALLAHAN	AL	LPV200	0	100	0	100	0	100
DCU	PRYOR FIELD RGNL	AL	LPV200	0	100	0	100	0	100
DHN	DOTHAN RGNL	AL	LPV200	0	100	0	100	0	100
EDN	ENTERPRISE MUNICIPAL	AL	LPV	0	100	0	100	0	100
EET	SHELBY COUNTY	AL	LPV	0	100	0	100	0	100
EKY	BESSEMER	AL	LPV	0	100	0	100	0	100
EUF	WEEDON FIELD	AL	LPV	0	100	0	100	0	100
GAD	NORTHEAST ALABAMA RGNL	AL	LPV200	0	100	0	100	0	100

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
GZH	MIDDLETON FIELD	AL	LP	0	100	0	100	0	100
HAB	MARION COUNTY-RANKIN FITE	AL	LPV	0	100	0	100	0	100
HSV	HUNTSVILLE INTL-CARL T JONES F	AL	LPV200	0	100	0	100	0	100
JFX	WALKER COUNTY-BEVILL FIELD	AL	LPV	0	100	0	100	0	100
JKA	JACK EDWARDS	AL	LPV200	0	100	0	100	0	100
M95	RICHARD ARTHUR FIELD	AL	LPV	0	100	0	100	0	100
MDQ	HUNTSVILLE EXECUTIVE AIRPORT T	AL	LPV200	0	100	0	100	1	99.9962
MGM	MONTGOMERY RGNL (DANNELLY FIEL	AL	LPV200	0	100	0	100	0	100
MOB	MOBILE RGNL	AL	LPV200	0	100	0	100	0	100
MSL	NORTHWEST ALABAMA RGNL	AL	LPV200	0	100	0	100	1	99.9962
PLR	ST CLAIR COUNTY	AL	LPV	0	100	0	100	0	100
PYP	CENTRE-PIEDMONT-CHEROKEE COUNT	AL	LPV	0	100	0	100	0	100
SCD	MERKEL FIELD SYLACAUGA MUNICIPAL	AL	LPV	0	100	0	100	0	100
SEM	CRAIG FIELD	AL	LPV200	0	100	0	100	0	100
TCL	TUSCALOOSA RGNL	AL	LPV	0	100	0	100	0	100
TOI	TROY MUNICIPAL AIRPORT AT N KENNETH	AL	LPV	0	100	0	100	0	100
0M0	BILLY FREE MUNICIPAL	AR	LPV	0	100	0	100	0	100
42A	MELBOURNE MUNICIPAL - JOHN E MILLER	AR	LP	0	100	0	100	0	100
4M3	CARLISLE MUNICIPAL	AR	LPV	0	100	0	100	0	100
6M7	MARIANNA/LEE COUNTY-STEVE EDWA	AR	LPV	0	100	0	100	0	100
7M1	MC GEHEE MUNICIPAL	AR	LP	0	100	0	100	0	100
ADF	DEXTER B FLORENCE MEMORIAL FIE	AR	LPV	0	100	0	100	0	100
ARG	WALNUT RIDGE RGNL	AR	LPV200	0	100	0	100	0	100
ASG	SPRINGDALE MUNICIPAL	AR	LPV	0	100	0	100	0	100
AWM	WEST MEMPHIS MUNICIPAL	AR	LPV200	0	100	0	100	0	100
BPK	BAXTER COUNTY	AR	LPV	0	100	0	100	0	100
BVX	BATESVILLE RGNL	AR	LPV	0	100	0	100	0	100
BYH	ARKANSAS INTL	AR	LPV200	0	100	0	100	1	99.9996
CDH	HARRELL FIELD	AR	LPV	0	100	0	100	0	100
CXW	CANTRELL FLD	AR	LPV	0	100	0	100	0	100
DRP	DELTA RGNL	AR	LPV	0	100	0	100	0	100
ELD	SOUTH ARKANSAS RGNL AT GOODWIN	AR	LPV	0	100	0	100	0	100
FSM	FORT SMITH RGNL	AR	LPV200	0	100	0	100	0	100

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
FYV	DRAKE FIELD	AR	LPV	0	100	0	100	0	100
H34	HUNTSVILLE MUNICIPAL	AR	LPV	0	100	0	100	0	100
HRO	BOONE COUNTY	AR	LPV	0	100	0	100	0	100
JBR	JONESBORO MUNICIPAL	AR	LPV200	0	100	0	100	0	100
LIT	BILL AND HILLARY CLINTON NATIO	AR	LPV200	0	100	0	100	0	100
M18	HOPE MUNICIPAL	AR	LP	0	100	0	100	0	100
M19	NEWPORT MUNICIPAL	AR	LPV	0	100	0	100	0	100
M77	HOWARD COUNTY	AR	LP	0	100	0	100	0	100
MXA	MANILA MUNICIPAL	AR	LPV	0	100	0	100	0	100
ORK	NORTH LITTLE ROCK MUNICIPAL	AR	LPV	0	100	0	100	0	100
PBF	GRIDER FIELD	AR	LPV	0	100	0	100	0	100
ROG	ROGERS MUNICIPAL-CARTER FIELD	AR	LPV	0	100	0	100	0	100
RUE	RUSSELLVILLE RGNL	AR	LPV	0	100	0	100	0	100
SGT	STUTTGART MUNICIPAL	AR	LPV	0	100	0	100	0	100
SLG	SMITH FIELD	AR	LPV	0	100	0	100	0	100
SRC	SEARCY MUNICIPAL	AR	LPV	0	100	0	100	0	100
SUZ	SALINE COUNTY RGNL	AR	LPV	0	100	0	100	0	100
TXK	TEXARKANA RGNL-WEBB FIELD	AR	LPV	0	100	0	100	0	100
VBT	BENTONVILLE MUNICIPAL/LOUISE M THAD	AR	LPV	0	100	0	100	0	100
XNA	NORTHWEST ARKANSAS RGNL	AR	LPV200	0	100	0	100	0	100
AVQ	MARANA RGNL	AZ	LP	0	100	0	100	19	99.9419
DVT	PHOENIX DEER VALLEY	AZ	LPV	0	100	0	100	0	100
FFZ	FALCON FLD	AZ	LP	0	100	0	100	0	100
FHU	SIERRA VISTA MUNICIPAL-LIBBY AAF	AZ	LPV200	0	100	0	100	22	99.8939
FLG	FLAGSTAFF PULLIAM	AZ	LPV	0	100	0	100	0	100
GEU	GLENDALE MUNICIPAL	AZ	LPV	0	100	0	100	0	100
HII	LAKE HAVASU CITY	AZ	LPV	0	100	0	100	0	100
IFP	LAUGHLIN/BULLHEAD INTL	AZ	LPV	0	100	0	100	0	100
IGM	KINGMAN	AZ	LPV	0	100	0	100	0	100
IWA	PHOENIX-MESA GATEWAY	AZ	LPV200	0	100	0	100	0	100
JTC	SPRINGERVILLE MUNICIPAL	AZ	LP	0	100	0	100	1	99.9989
P20	AVI SUQUILLA	AZ	LPV	0	100	0	100	0	100
P33	COCHISE COUNTY	AZ	LPV	0	100	0	100	16	99.9287
PGA	PAGE MUNICIPAL	AZ	LPV	0	100	0	100	0	100
PHX	PHOENIX SKY HARBOR INTL	AZ	LPV	0	100	0	100	0	100
PRC	ERNEST A LOVE FIELD	AZ	LPV200	0	100	0	100	0	100
RQE	WINDOW ROCK	AZ	LP	0	100	0	100	2	99.9985
SAD	SAFFORD RGNL	AZ	LPV	0	100	0	100	4	99.9887

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
SJN	ST JOHNS INDUSTRIAL AIR PARK	AZ	LP	0	100	0	100	1	99.9951
SOW	SHOW LOW RGNL	AZ	LPV	0	100	0	100	2	99.9951
TUS	TUCSON INTL	AZ	LPV	0	100	0	100	21	99.8577
CYBL	CAMPBELL RIVER	BC	LPV	0	100	0	100	0	100
CYCD	NANAIMO	BC	LPV	0	100	0	100	0	100
CYVR	VANCOUVER INTL	BC	LPV	0	100	0	100	0	100
CYXS	PRINCE GEORGE	BC	LPV	0	100	0	100	1	99.9966
CYYJ	VICTORIA INTL	BC	LPV	0	100	0	100	0	100
CZBB	VANCOUVER / BOUNDARY BAY	BC	LPV	0	100	0	100	0	100
AAT	ALTURAS MUNICIPAL	CA	LPV	0	100	0	100	0	100
ACV	ARCATA	CA	LPV200	0	100	0	100	15	99.9925
APC	NAPA COUNTY	CA	LPV	0	100	0	100	6	99.9962
APV	APPLE VALLEY	CA	LPV	0	100	0	100	0	100
AUN	AUBURN MUNICIPAL	CA	LPV	0	100	0	100	0	100
BFL	MEADOWS FIELD	CA	LPV200	0	100	0	100	0	100
BLH	BLYTHE	CA	LP	0	100	0	100	0	100
C83	BYRON	CA	LPV	0	100	0	100	7	99.9845
CCB	CABLE	CA	LP	0	100	0	100	0	100
CCR	BUCHANAN FIELD	CA	LPV	0	100	0	100	6	99.9909
CEC	JACK MC NAMARA FIELD	CA	LPV200	0	100	0	100	2	99.9970
CIC	CHICO MUNICIPAL	CA	LPV	0	100	0	100	0	100
CMA	CAMARILLO	CA	LPV	0	100	0	100	9	99.9857
CNO	CHINO	CA	LPV	0	100	0	100	0	100
CRQ	MC CLELLAN-PALOMAR	CA	LPV	0	100	0	100	6	99.9936
CVH	HOLLISTER MUNICIPAL	CA	LPV	0	100	0	100	14	99.9566
DAG	BARSTOW-DAGGETT	CA	LPV	0	100	0	100	0	100
DWA	YOLO COUNTY	CA	LPV	0	100	0	100	0	100
F70	FRENCH VALLEY	CA	LPV	0	100	0	100	1	99.9996
FAT	FRESNO YOSEMITE INTL	CA	LPV200	0	100	0	100	5	99.9947
HAF	HALF MOON BAY	CA	LPV	0	100	0	100	56	99.9083
HHR	JACK NORTHROP FIELD/HAWTHORNE	CA	LPV	0	100	0	100	6	99.9906
HWD	HAYWARD EXECUTIVE	CA	LPV	0	100	0	100	13	99.9713
L35	BIG BEAR CITY	CA	LP	0	100	0	100	0	100
LAX	LOS ANGELES INTL	CA	LPV	0	100	0	100	7	99.9902
LGB	LONG BEACH /DAUGHERTY FIELD/	CA	LPV	0	100	0	100	5	99.9913
LHM	LINCOLN RGNL/KARL HARDER FIELD	CA	LPV200	0	100	0	100	0	100
LLR	LITTLE RIVER	CA	LP	0	100	0	100	84	99.8868
LSN	LOS BANOS MUNICIPAL	CA	LPV	0	100	0	100	10	99.9698
LVK	LIVERMORE MUNICIPAL	CA	LPV	0	100	0	100	10	99.9789
MAE	MADERA MUNICIPAL	CA	LPV	0	100	0	100	8	99.9909

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
MCE	MERCED RGNL/MACREADY FIELD	CA	LPV	0	100	0	100	8	99.9830
MER	CASTLE	CA	LPV200	0	100	0	100	9	99.9849
MHR	SACRAMENTO MATHER	CA	LPV200	0	100	0	100	0	100
MIT	SHAFTER-MINTER FIELD	CA	LPV	0	100	0	100	0	100
MOD	MODESTO CITY-CO-HARRY SHAM FLD	CA	LPV	0	100	0	100	8	99.9841
MRY	MONTEREY RGNL	CA	LPV	0	100	0	100	27	99.9215
MYF	MONTGOMERY FIELD	CA	LPV200	0	100	0	100	6	99.9883
MYV	YUBA COUNTY	CA	LPV200	0	100	0	100	0	100
O02	NERVINO	CA	LPV	0	100	0	100	0	100
O27	OAKDALE	CA	LPV	0	100	0	100	8	99.9891
O69	PETALUMA MUNICIPAL	CA	LPV	0	100	0	100	18	99.9860
O88	RIO VISTA MUNICIPAL	CA	LP	0	100	0	100	2	99.9992
OAK	METROPOLITAN OAKLAND INTL	CA	LPV200	0	100	0	100	13	99.9713
ONT	ONTARIO INTL	CA	LPV	0	100	0	100	0	100
OVE	OROVILLE MUNICIPAL	CA	LPV	0	100	0	100	0	100
OXR	OXNARD	CA	LPV	0	100	0	100	13	99.9808
PMD	PALMDALE USAF PLANT 42	CA	LPV200	0	100	0	100	0	100
POC	BRACKETT FIELD	CA	LPV	0	100	0	100	0	100
PRB	PASO ROBLES MUNICIPAL	CA	LPV200	0	100	0	100	28	99.9317
PVF	PLACERVILLE	CA	LPV	0	100	0	100	0	100
RAL	RIVERSIDE MUNICIPAL	CA	LPV	0	100	0	100	0	100
RBL	RED BLUFF MUNICIPAL	CA	LPV	0	100	0	100	0	100
RDD	REDDING MUNICIPAL	CA	LPV	0	100	0	100	0	100
RHV	REID-HILLVIEW OF SANTA CLARA C	CA	LPV	0	100	0	100	15	99.9641
SAC	SACRAMENTO EXECUTIVE	CA	LPV	0	100	0	100	0	100
SAN	SAN DIEGO INTL	CA	LPV	0	100	0	100	6	99.9875
SBA	SANTA BARBARA MUNICIPAL	CA	LPV	0	100	1	99.9974	32	99.9423
SBP	SAN LUIS COUNTY RGNL	CA	LPV200	0	100	1	99.9992	36	99.8966
SCK	STOCKTON METROPOLITAN	CA	LPV	0	100	0	100	7	99.9906
SDM	BROWN FIELD MUNICIPAL	CA	LPV200	0	100	0	100	4	99.9928
SEE	GILLESPIE FIELD	CA	LP	0	100	0	100	3	99.9955
SFO	SAN FRANCISCO INTL	CA	LPV200	0	100	0	100	31	99.9502
SJC	NORMAN Y MINETA SAN JOSE INTL	CA	LPV200	0	100	0	100	15	99.9611
SMF	SACRAMENTO INTL	CA	LPV200	0	100	0	100	0	100
SMX	SANTA MARIA PUB/CAPT G ALLAN H	CA	LPV200	0	100	1	99.9974	41	99.8864
SNA	JOHN WAYNE AIRPORT-ORANGE COUN	CA	LPV200	0	100	0	100	6	99.9913
SNS	SALINAS MUNICIPAL	CA	LPV200	0	100	0	100	21	99.94000

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
STS	CHARLES M SCHULZ - SONOMA COUN	CA	LPV200	0	100	0	100	21	99.9811
TCY	TRACY MUNICIPAL	CA	LPV	0	100	0	100	7	99.9823
TNP	TWENTYNINE PALMS	CA	LP	0	100	0	100	0	100
TOA	ZAMPERINI FIELD	CA	LPV	0	100	0	100	9	99.9891
TRK	TRUCKEE-TAHOE	CA	LP	0	100	0	100	0	100
VCB	NUT TREE	CA	LPV	0	100	0	100	1	99.9996
VCV	SOUTHERN CALIFORNIA LOGISTICS	CA	LPV	0	100	0	100	0	100
VIS	VISALIA MUNICIPAL	CA	LPV200	0	100	0	100	0	100
WJF	GENERAL WM J FOX AIRFIELD	CA	LPV	0	100	0	100	0	100
WLW	WILLOWS-GLENN COUNTY	CA	LPV	0	100	0	100	0	100
WVI	WATSONVILLE MUNICIPAL	CA	LPV	0	100	0	100	19	99.9472
1V6	FREMONT COUNTY	CO	LPV	0	100	0	100	0	100
4V1	SPANISH PEAKS AIRFIELD	CO	LPV	0	100	0	100	0	100
AEJ	CENTRAL COLORADO RGNL	CO	LP	0	100	0	100	0	100
ALS	SAN LUIS VALLEY RGNL/BERGMAN F	CO	LPV200	0	100	0	100	0	100
APA	CENTENNIAL	CO	LPV200	0	100	0	100	0	100
BJC	ROCKY MOUNTAIN METROPOLITAN	CO	LPV200	0	100	0	100	0	100
CEZ	CORTEZ MUNICIPAL	CO	LPV	0	100	0	100	1	99.9981
COS	CITY OF COLORADO SPRINGS MUNICIPAL	CO	LPV200	0	100	0	100	0	100
DEN	DENVER INTL	CO	LPV200	0	100	0	100	0	100
DRO	DURANGO-LA PLATA COUNTY	CO	LPV200	0	100	0	100	1	99.9985
FMM	FORT MORGAN MUNICIPAL	CO	LP	0	100	0	100	0	100
FNL	FORT COLLINS-LOVELAND MUNICIPAL	CO	LPV200	0	100	0	100	0	100
FTG	FRONT RANGE	CO	LPV200	0	100	0	100	0	100
GJT	GRAND JUNCTION REGIONAL	CO	LPV200	0	100	0	100	0	100
GXY	GREELEY-WELD COUNTY	CO	LPV200	0	100	0	100	0	100
HDN	YAMPA VALLEY	CO	LPV	0	100	0	100	0	100
ITR	KIT CARSON COUNTY	CO	LPV	0	100	0	100	0	100
LAA	LAMAR MUNICIPAL	CO	LPV	0	100	0	100	0	100
LHX	LA JUNTA MUNICIPAL	CO	LPV	0	100	0	100	0	100
LMO	VANCE BRAND	CO	LPV	0	100	0	100	0	100
MTJ	MONTROSE RGNL	CO	LPV	0	100	0	100	1	99.9985
PUB	PUEBLO MEMORIAL	CO	LPV200	0	100	0	100	0	100
RIL	GARFIELD COUNTY RGNL	CO	LPV	0	100	0	100	0	100
STK	STERLING MUNICIPAL	CO	LPV	0	100	0	100	0	100
TEX	TELLURIDE RGNL	CO	LP	0	100	0	100	1	99.9977

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
4B8	ROBERTSON FIELD	CT	LP	3	99.9453	3	99.9177	1	99.8664
BDL	BRADLEY INTL	CT	LPV200	2	99.9245	2	99.8966	1	99.8664
GON	GROTON-NEW LONDON	CT	LPV	2	99.9298	2	99.9072	1	99.8664
HVN	TWEED-NEW HAVEN	CT	LPV	3	99.9479	3	99.9309	1	99.8664
IJD	WINDHAM	CT	LP	2	99.9287	2	99.8909	1	99.8664
MMK	MERIDEN MARKHAM MUNICIPAL	CT	LP	3	99.9441	2	99.9181	1	99.8664
OXC	WATERBURY-OXFORD	CT	LPV	3	99.9434	3	99.9351	1	99.8664
DCA	RONALD REAGAN WASHINGTON NATIO	DC	LPV	3	99.9774	2	99.9506	1	99.9192
HEF	MANASSAS RGNL/HARRY P DAVIS FI	DC	LPV	3	99.9762	1	99.9389	2	99.9351
IAD	WASHINGTON DULLES INTL	DC	LPV200	3	99.9717	1	99.9389	2	99.9355
33N	DELAWARE AIRPARK	DE	LP	3	99.9891	4	99.9826	3	99.9196
EVY	SUMMIT	DE	LPV	3	99.9732	3	99.9672	3	99.9022
GED	SUSSEX COUNTY	DE	LPV	0	100	1	99.9974	4	99.9275
ILG	NEW CASTLE	DE	LPV	3	99.9698	2	99.9543	3	99.8951
1J0	TRI-COUNTY	FL	LP	0	100	0	100	0	100
24J	SUWANNEE COUNTY	FL	LPV	0	100	0	100	0	100
28J	PALATKA MUNICIPAL - LT KAY LARKIN F	FL	LPV	0	100	0	100	1	99.9962
40J	PERRY-FOLEY	FL	LPV	0	100	0	100	1	99.9996
54J	DEFUNIAK SPRINGS	FL	LP	0	100	0	100	0	100
AAF	APALACHICOLA RGNL-CLEVE RANDOL	FL	LPV	0	100	0	100	1	99.9985
APF	NAPLES MUNICIPAL	FL	LPV	1	99.9430	1	99.9430	2	99.9298
AVO	AVON PARK EXECUTIVE	FL	LPV	1	99.9528	1	99.9528	1	99.9524
BCT	BOCA RATON	FL	LPV	1	99.9551	1	99.9487	2	99.9328
BKV	BROOKSVILLE-TAMPA BAY RGNL	FL	LPV	1	99.9596	1	99.9596	1	99.9585
BOW	BARTOW MUNICIPAL	FL	LPV	1	99.9547	1	99.9547	1	99.9536
CEW	BOB SIKES	FL	LPV	0	100	0	100	0	100
CGC	CRYSTAL RIVER-CAPTAIN TOM DAVI	FL	LP	1	99.9649	1	99.9649	1	99.9641
CHN	WAUCHULA MUNICIPAL	FL	LP	1	99.9528	1	99.9528	1	99.9528
COI	MERRITT ISLAND	FL	LPV	1	99.9604	1	99.9604	1	99.9528
CRG	JACKSONVILLE EXECUTIVE AT CRAI	FL	LPV200	0	100	0	100	1	99.9974
CTY	CROSS CITY	FL	LPV	0	100	0	100	1	99.9970
DAB	DAYTONA BEACH INTL	FL	LPV200	1	99.9804	1	99.9804	1	99.9691
DED	DELAND MUNICIPAL-SIDNEY H TAYLOR FI	FL	LPV	1	99.9687	1	99.9687	1	99.9668
DTS	DESTIN EXECUTIVE	FL	LPV	0	100	0	100	0	100
ECP	NORTHWEST FLORIDA BEACHES INTL	FL	LPV200	0	100	0	100	0	100

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
EVB	NEW SMYRNA BEACH MUNICIPAL	FL	LPV	1	99.9691	1	99.9691	1	99.9668
EYW	KEY WEST INTL	FL	LPV	1	99.9370	1	99.9370	3	99.9049
F45	NORTH PALM BEACH COUNTY GENERA	FL	LPV	1	99.9558	1	99.9498	2	99.9434
FHB	FERNANDINA BEACH MUNICIPAL	FL	LPV	0	100	0	100	1	99.9996
FIN	FLAGLER COUNTY	FL	LPV	0	100	0	100	1	99.9947
FLL	FORT LAUDERDALE/HOLLYWOOD INTL	FL	LPV	1	99.9540	1	99.9483	2	99.9287
FMY	PAGE FIELD	FL	LPV	1	99.9445	1	99.9445	1	99.9351
FPR	ST LUCIE COUNTY INTL	FL	LPV	1	99.9566	1	99.9566	1	99.9509
FXE	FORT LAUDERDALE EXECUTIVE	FL	LPV200	1	99.9543	1	99.9487	2	99.9306
GIF	WINTER HAVEN'S GILBERT	FL	LPV	1	99.9589	1	99.9589	1	99.9536
GNV	GAINESVILLE RGNL	FL	LPV	0	100	0	100	1	99.9970
HEG	HERLONG RECREATIONAL	FL	LPV	0	100	0	100	1	99.9977
IMM	IMMOKALEE RGNL	FL	LPV	1	99.9475	1	99.9475	2	99.9430
ISM	KISSIMMEE GATEWAY	FL	LPV200	1	99.9604	1	99.9604	1	99.9536
JAX	JACKSONVILLE INTL	FL	LPV200	0	100	0	100	1	99.9981
LAL	LAKELAND LINDER RGNL	FL	LPV200	1	99.9581	1	99.9581	1	99.9540
LCQ	LAKE CITY GATEWAY	FL	LPV	0	100	0	100	1	99.9981
LEE	LEESBURG INTL	FL	LPV	1	99.9641	1	99.9641	1	99.9626
LNA	PALM BEACH COUNTY PARK	FL	LP	1	99.9555	1	99.9490	2	99.9392
MCO	ORLANDO INTL	FL	LPV200	1	99.9604	1	99.9604	1	99.9540
MIA	MIAMI INTL	FL	LPV200	1	99.9532	1	99.9479	2	99.9207
MKY	MARCO ISLAND	FL	LPV	1	99.9434	1	99.9434	2	99.9245
MLB	MELBOURNE INTL	FL	LPV200	1	99.9574	1	99.9574	1	99.9524
MTH	THE FLORIDA KEYS MARATHON	FL	LPV	1	99.9457	1	99.9457	3	99.9038
OBE	OKEECHOBEE COUNTY	FL	LPV	1	99.9540	1	99.9513	1	99.9513
OCF	OCALA INTL-JIM TAYLOR FIELD	FL	LPV200	1	99.9732	1	99.9732	1	99.9706
OMN	ORMOND BEACH MUNICIPAL	FL	LPV	0	100	0	100	1	99.9917
OPF	OPA-LOCKA EXECUTIVE	FL	LPV200	1	99.9532	1	99.9483	2	99.9253
ORL	EXECUTIVE	FL	LPV200	1	99.9604	1	99.9604	1	99.9577
PBI	PALM BEACH INTL	FL	LPV200	1	99.9558	1	99.9494	2	99.94000
PCM	PLANT CITY	FL	LPV	1	99.9581	1	99.9581	1	99.9540
PGD	PUNTA GORDA	FL	LPV200	1	99.9453	1	99.9453	1	99.9453
PHK	PALM BEACH CO GLADES	FL	LPV	1	99.9536	1	99.9502	2	99.9449
PIE	ST PETE-CLEARWATER INTL	FL	LPV200	1	99.9581	1	99.9581	1	99.9543
PMP	POMPANO BEACH AIRPARK	FL	LPV	1	99.9543	1	99.9487	2	99.9313
PNS	PENSACOLA INTL	FL	LPV200	0	100	0	100	0	100

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
RSW	SOUTHWEST FLORIDA INTL	FL	LPV	1	99.9449	1	99.9449	1	99.9351
SEF	SEBRING RGNL	FL	LPV	1	99.9524	1	99.9524	1	99.9521
SFB	ORLANDO SANFORD INTL	FL	LPV200	1	99.9638	1	99.9638	1	99.9615
SGJ	NORTHEAST FLORIDA RGNL	FL	LPV	0	100	0	100	1	99.9966
SRQ	SARASOTA/BRADENTON INTL	FL	LPV200	1	99.9479	1	99.9479	1	99.9479
SUA	WITHAM FIELD	FL	LPV	1	99.9562	1	99.9502	1	99.9502
TIX	SPACE COAST RGNL	FL	LPV200	1	99.9604	1	99.9604	1	99.9566
TLH	TALLAHASSEE INTL	FL	LPV200	0	100	0	100	0	100
TMB	MIAMI EXECUTIVE	FL	LPV200	1	99.9524	1	99.9479	2	99.92000
TNT	DADE-COLLIER TRAINING AND TRAN	FL	LPV200	1	99.9506	1	99.9487	2	99.9317
TPA	TAMPA INTL	FL	LPV200	1	99.9581	1	99.9581	1	99.9543
TPF	PETER O KNIGHT	FL	LP	1	99.9581	1	99.9581	1	99.9543
TTS	NASA SHUTTLE LANDING FACILITY	FL	LPV200	1	99.9615	1	99.9615	1	99.9577
VDF	TAMPA EXECUTIVE	FL	LPV	1	99.9581	1	99.9581	1	99.9543
VNC	VENICE MUNICIPAL	FL	LP	1	99.9445	1	99.9445	1	99.9351
VQQ	CECIL	FL	LPV200	0	100	0	100	1	99.9977
VRB	VERO BEACH MUNICIPAL	FL	LPV200	1	99.9566	1	99.9566	1	99.9513
X07	LAKE WALES MUNICIPAL	FL	LP	1	99.9543	1	99.9543	1	99.9532
X14	LA BELLE MUNICIPAL	FL	LPV	1	99.9487	1	99.9487	1	99.9487
X23	UMATILLA MUNICIPAL	FL	LP	1	99.9679	1	99.9679	1	99.9664
X26	SEBASTIAN MUNICIPAL	FL	LP	1	99.9566	1	99.9566	1	99.9517
X35	MARION COUNTY	FL	LP	1	99.9672	1	99.9672	1	99.9668
X50	MASSEY RANCH AIRPARK	FL	LP	1	99.9687	1	99.9687	1	99.9664
X51	HOMESTEAD GENERAL AVIATION	FL	LPV	1	99.9517	1	99.9479	3	99.9196
ZPH	ZEPHYRHILLS MUNICIPAL	FL	LPV	1	99.9589	1	99.9589	1	99.9543
09J	JEKYLL ISLAND	GA	LPV200	0	100	0	100	0	100
15J	COOK COUNTY	GA	LPV	0	100	0	100	0	100
17J	DONALSONVILLE MUNICIPAL	GA	LPV	0	100	0	100	0	100
18A	FRANKLIN COUNTY	GA	LPV	0	100	0	100	0	100
19A	JACKSON COUNTY	GA	LPV	0	100	0	100	1	99.9996
2J5	MILLEN	GA	LPV	0	100	0	100	0	100
3J7	GREENE COUNTY RGNL	GA	LPV	0	100	0	100	0	100
48A	COCHRAN	GA	LPV	0	100	0	100	0	100
4A4	POLK COUNTY AIRPORT-CORNELIUS	GA	LPV	0	100	0	100	0	100
4J1	BRANTLEY COUNTY	GA	LPV	0	100	0	100	0	100
4J5	QUITMAN BROOKS COUNTY	GA	LP	0	100	0	100	0	100
52A	MADISON MUNICIPAL	GA	LP	0	100	0	100	0	100
6A1	BUTLER MUNICIPAL	GA	LPV	0	100	0	100	0	100
6A2	GRIFFIN-SPALDING COUNTY	GA	LPV	0	100	0	100	0	100

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
70J	CAIRO-GRADY COUNTY	GA	LPV	0	100	0	100	0	100
ABY	SOUTHWEST GEORGIA RGNL	GA	LPV200	0	100	0	100	0	100
ACJ	JIMMY CARTER RGNL	GA	LPV	0	100	0	100	0	100
AGS	AUGUSTA RGNL AT BUSH FIELD	GA	LPV200	0	100	0	100	0	100
AHN	ATHENS/BEN EPPS	GA	LPV	0	100	0	100	0	100
AJR	HABERSHAM COUNTY	GA	LPV	0	100	0	100	0	100
AMG	BACON COUNTY	GA	LPV	0	100	0	100	0	100
ATL	HARTSFIELD - JACKSON ATLANTA I	GA	LPV200	0	100	0	100	0	100
AYS	WAYCROSS-WARE COUNTY	GA	LPV200	0	100	0	100	0	100
BGE	DECATUR COUNTY INDUSTRIAL AIR	GA	LPV200	0	100	0	100	0	100
BHC	BAXLEY MUNICIPAL	GA	LPV	0	100	0	100	0	100
BIJ	EARLY COUNTY	GA	LPV	0	100	0	100	0	100
BQK	BRUNSWICK GOLDEN ISLES	GA	LPV200	0	100	0	100	0	100
CCO	NEWNAN COWETA COUNTY	GA	LPV	0	100	0	100	0	100
CKF	CRISP COUNTY-CORDELE	GA	LPV	0	100	0	100	0	100
CNI	CHEROKEE COUNTY	GA	LPV	0	100	0	100	1	99.9989
CSG	COLUMBUS	GA	LPV	0	100	0	100	0	100
CTJ	WEST GEORGIA RGNL - O V GRAY F	GA	LPV	0	100	0	100	0	100
CVC	COVINGTON MUNICIPAL	GA	LPV	0	100	0	100	0	100
CWV	CLAXTON-EVANS COUNTY	GA	LPV	0	100	0	100	0	100
CXU	CAMILLA-MITCHELL COUNTY	GA	LPV	0	100	0	100	0	100
CZL	TOM B DAVID FLD	GA	LPV	0	100	0	100	1	99.9985
D73	MONROE-WALTON COUNTY	GA	LP	0	100	0	100	0	100
DNN	DALTON MUNICIPAL	GA	LPV	0	100	0	100	1	99.9860
DQH	DOUGLAS MUNICIPAL	GA	LPV200	0	100	0	100	0	100
EBA	ELBERT COUNTY-PATZ FIELD	GA	LP	0	100	0	100	0	100
EZM	HEART OF GEORGIA RGNL	GA	LPV200	0	100	0	100	0	100
FFC	ATLANTA RGNL FALCON FIELD	GA	LPV200	0	100	0	100	0	100
FTY	FULTON COUNTY AIRPORT-BROWN FI	GA	LPV	0	100	0	100	0	100
FZG	FITZGERALD MUNICIPAL	GA	LPV	0	100	0	100	0	100
GVL	LEE GILMER MEMORIAL	GA	LPV	0	100	0	100	1	99.9996
HOE	HOMERVILLE	GA	LPV	0	100	0	100	0	100
HQU	THOMSON-MCDUFFIE COUNTY	GA	LPV	0	100	0	100	0	100
IIY	WASHINGTON-WILKES COUNTY	GA	LPV	0	100	0	100	0	100
JES	JESUP-WAYNE COUNTY	GA	LPV	0	100	0	100	0	100
JYL	PLANTATION ARPK	GA	LPV	0	100	0	100	0	100

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
JZP	PICKENS COUNTY	GA	LPV	0	100	0	100	1	99.9992
LGC	LAGRANGE-CALLAWAY	GA	LPV200	0	100	0	100	0	100
LZU	GWINNETT COUNTY - BRISCOE FIEL	GA	LPV200	0	100	0	100	0	100
MAC	MACON DOWNTOWN	GA	LP	0	100	0	100	0	100
MCN	MIDDLE GEORGIA RGNL	GA	LPV200	0	100	0	100	0	100
MGR	MOULTRIE MUNICIPAL	GA	LPV200	0	100	0	100	0	100
MLJ	BALDWIN COUNTY	GA	LPV	0	100	0	100	0	100
MQW	TELFAIR-WHEELER	GA	LPV	0	100	0	100	0	100
OKZ	KAOLIN FIELD	GA	LPV	0	100	0	100	0	100
OPN	THOMASTON-UPSON COUNTY	GA	LPV200	0	100	0	100	0	100
PIM	HARRIS COUNTY	GA	LPV	0	100	0	100	0	100
PUJ	PAULDING NORTHWEST ATLANTA	GA	LPV200	0	100	0	100	0	100
PXE	PERRY-HOUSTON COUNTY	GA	LPV	0	100	0	100	0	100
RMG	RICHARD B RUSSELL REGIONAL - J	GA	LPV	0	100	0	100	1	99.9996
RVJ	SWINTON SMITH FLD AT REIDSVILL	GA	LP	0	100	0	100	0	100
RYY	COBB COUNTY-MC COLLUM FIELD	GA	LPV200	0	100	0	100	0	100
SAV	SAVANNAH/HILTON HEAD INTL	GA	LPV200	0	100	0	100	0	100
SBO	EAST GEORGIA REGIONAL	GA	LPV	0	100	0	100	0	100
TBR	STATESBORO-BULLOCH COUNTY	GA	LPV	0	100	0	100	0	100
TMA	HENRY TIFT MYERS	GA	LPV	0	100	0	100	0	100
TOC	TOCCOA RG LETOURNEAU FIELD	GA	LPV	0	100	0	100	0	100
TVI	THOMASVILLE RGNL	GA	LPV	0	100	0	100	0	100
VDI	VIDALIA RGNL	GA	LPV200	0	100	0	100	0	100
VLD	VALDOSTA RGNL	GA	LPV	0	100	0	100	0	100
VPC	CARTERSVILLE	GA	LPV	0	100	0	100	0	100
WDR	BARROW COUNTY	GA	LPV	0	100	0	100	0	100
4C8	ALBIA MUNICIPAL	IA	LPV	1	99.9524	1	99.9524	2	99.9370
AIO	ATLANTIC MUNICIPAL	IA	LPV	1	99.9921	1	99.9921	2	99.9389
ALO	WATERLOO RGNL	IA	LPV	1	99.9215	1	99.9026	1	99.8898
AMW	AMES MUNICIPAL	IA	LPV	1	99.9302	1	99.9302	1	99.90000
AWG	WASHINGTON MUNICIPAL	IA	LPV200	1	99.9340	1	99.9340	1	99.8939
BNW	BOONE MUNICIPAL	IA	LPV	1	99.9302	1	99.9302	1	99.90000
BRL	SOUTHEAST IOWA RGNL	IA	LPV200	1	99.9385	1	99.9385	1	99.9351
CBF	COUNCIL BLUFFS MUNICIPAL	IA	LPV200	0	100	0	100	2	99.9532
CID	THE EASTERN IOWA	IA	LPV200	1	99.9238	1	99.9238	1	99.8921
CIN	ARTHUR N NEU	IA	LPV	2	99.9487	1	99.9340	1	99.9019

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
CKP	CHEROKEE COUNTY RGNL	IA	LPV	2	99.9558	1	99.9090	1	99.9011
CSQ	CRESTON MUNICIPAL	IA	LPV	0	100	0	100	2	99.9551
CWI	CLINTON MUNICIPAL	IA	LPV200	1	99.9196	1	99.9196	1	99.8924
DBQ	DUBUQUE RGNL	IA	LPV200	1	99.9207	1	99.9068	1	99.8898
DEH	DECORAH MUNICIPAL	IA	LPV	1	99.9170	1	99.8939	1	99.8898
DNS	DENISON MUNICIPAL	IA	LPV	1	99.9747	1	99.9747	1	99.9026
DSM	DES MOINES INTL	IA	LPV	2	99.9551	2	99.9551	2	99.9166
DVN	DAVENPORT MUNICIPAL	IA	LPV200	1	99.9230	1	99.9230	1	99.8928
EAG	EAGLE GROVE MUNICIPAL	IA	LPV	1	99.9264	1	99.9072	1	99.8996
EBS	WEBSTER CITY MUNICIPAL	IA	LPV	1	99.9264	1	99.9139	1	99.8992
EFW	JEFFERSON MUNICIPAL	IA	LPV	1	99.9332	1	99.9332	1	99.9011
EOK	KEOKUK MUNICIPAL	IA	LPV	1	99.9498	1	99.9498	1	99.9460
EST	ESTHERVILLE MUNICIPAL	IA	LPV	1	99.9219	1	99.9022	1	99.8996
FFL	FAIRFIELD MUNICIPAL	IA	LPV	1	99.9445	1	99.9445	2	99.9245
FOD	FORT DODGE RGNL	IA	LPV200	1	99.9264	1	99.9117	1	99.90000
FXY	FOREST CITY MUNICIPAL	IA	LPV	1	99.9223	1	99.8996	1	99.8898
GCT	GUTHRIE COUNTY RGNL	IA	LPV	1	99.9551	1	99.9551	2	99.9143
GGI	GRINNELL RGNL	IA	LPV	1	99.9302	1	99.9302	1	99.8921
HPT	HAMPTON MUNICIPAL	IA	LPV	1	99.9238	1	99.9030	1	99.8898
I75	OSCEOLA MUNICIPAL	IA	LPV	1	99.9660	1	99.9660	2	99.9434
ICL	SCHENCK FIELD	IA	LPV	0	100	0	100	1	99.9785
IFA	IOWA FALLS MUNICIPAL	IA	LPV	1	99.9238	1	99.9102	1	99.8898
IIB	INDEPENDENCE MUNICIPAL	IA	LP	1	99.9211	1	99.9075	1	99.8898
IKV	ANKENY RGNL	IA	LPV	1	99.9336	1	99.9336	1	99.90000
IOW	IOWA CITY MUNICIPAL	IA	LPV	1	99.9253	1	99.9253	1	99.8924
LRJ	LE MARS MUNICIPAL	IA	LPV	1	99.9641	1	99.9147	1	99.9026
MCW	MASON CITY MUNICIPAL	IA	LPV200	1	99.9230	1	99.8992	1	99.8898
MIW	MARSHALLTOWN MUNICIPAL	IA	LPV	1	99.9230	1	99.9132	1	99.8898
MPZ	MOUNT PLEASANT MUNICIPAL	IA	LPV	1	99.9438	1	99.9438	2	99.9283
MUT	MUSCATINE MUNICIPAL	IA	LPV200	1	99.9283	1	99.9283	1	99.8939
MXO	MONTICELLO RGNL	IA	LP	1	99.9215	1	99.9094	1	99.8898
OOA	OSKALOOSA MUNICIPAL	IA	LPV	1	99.9453	1	99.9453	2	99.9132
OQW	MAQUOKETA MUNICIPAL	IA	LPV	1	99.9204	1	99.9204	1	99.8898
OTM	OTTUMWA RGNL	IA	LPV	1	99.9521	1	99.9521	2	99.9204
OXV	KNOXVILLE MUNICIPAL	IA	LPV	1	99.9540	1	99.9540	2	99.9106
PEA	PELLA MUNICIPAL	IA	LPV	1	99.9366	1	99.9366	1	99.8939
POH	POCAHONTAS MUNICIPAL	IA	LPV	1	99.9264	1	99.9075	1	99.9007
PRO	PERRY MUNICIPAL	IA	LPV200	1	99.9336	1	99.9336	1	99.9007
RDK	RED OAK MUNICIPAL	IA	LPV	0	100	0	100	2	99.9630
SDA	SHENANDOAH MUNICIPAL	IA	LPV	0	100	0	100	1	99.9785
SHL	SHELDON MUNICIPAL	IA	LPV	2	99.9521	1	99.9079	1	99.9011
SKI	SAC CITY MUNICIPAL	IA	LPV	2	99.9479	1	99.9143	1	99.9015

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
SLB	STORM LAKE MUNICIPAL	IA	LPV	2	99.9551	2	99.9245	1	99.9007
SPW	SPENCER MUNICIPAL	IA	LPV200	1	99.9268	1	99.9060	1	99.9007
SUX	SIOUX GATEWAY/COL BUD DAY FIEL	IA	LPV200	2	99.9781	4	99.9660	1	99.9053
TNU	NEWTON MUNICIPAL	IA	LPV	1	99.9306	1	99.9306	1	99.8921
TVK	CENTERVILLE MUNICIPAL	IA	LPV	1	99.9547	1	99.9547	1	99.9524
TZT	BELLE PLAINE MUNICIPAL	IA	LPV	1	99.9253	1	99.9253	1	99.8917
VTI	VINTON VETERANS MEMORIAL ARPK	IA	LPV	1	99.9215	1	99.9106	1	99.8898
BOI	BOISE AIR TERMINAL/GOWEN FLD	ID	LPV	0	100	0	100	0	100
COE	COEUR D'ALENE - PAPPY BOYINGTO	ID	LPV200	0	100	0	100	0	100
DIJ	DRIGGS-REED MEMORIAL	ID	LP	0	100	0	100	0	100
EUL	CALDWELL INDUSTRIAL	ID	LPV	0	100	0	100	0	100
GNG	GOODING MUNICIPAL	ID	LPV	0	100	0	100	0	100
IDA	IDAHO FALLS RGNL	ID	LPV200	0	100	0	100	0	100
JER	JEROME COUNTY	ID	LPV	0	100	0	100	0	100
LWS	LEWISTON-NEZ PERCE COUNTY	ID	LPV200	0	100	0	100	0	100
MAN	NAMPA MUNICIPAL	ID	LPV	0	100	0	100	0	100
MYL	MC CALL MUNICIPAL	ID	LPV	0	100	0	100	0	100
PIH	POCATELLO RGNL	ID	LPV200	0	100	0	100	0	100
TWF	JOSLIN FIELD - MAGIC VALLEY RG	ID	LPV200	0	100	0	100	0	100
U76	MOUNTAIN HOME MUNICIPAL	ID	LPV	0	100	0	100	0	100
1H2	EFFINGHAM COUNTY MEMORIAL	IL	LPV	1	99.9634	1	99.9634	2	99.9302
3LF	LITCHFIELD MUNICIPAL	IL	LPV	2	99.9815	1	99.9619	1	99.9460
3MY	MOUNT HAWLEY AUXILIARY	IL	LP	1	99.9343	1	99.9343	1	99.9170
AJG	MOUNT CARMEL MUNICIPAL	IL	LPV	1	99.9706	1	99.9706	2	99.9343
ALN	ST LOUIS RGNL	IL	LPV200	2	99.9951	1	99.9706	1	99.9460
ARR	AURORA MUNICIPAL	IL	LPV200	1	99.9170	1	99.9170	1	99.8924
BLV	SCOTT AFB/MIDAMERICA	IL	LPV200	0	100	2	99.9872	1	99.9460
BMI	CENTRAL IL RGNL ARPT AT BLOOMI	IL	LPV	1	99.9351	1	99.9351	1	99.9170
C15	PEKIN MUNICIPAL	IL	LPV	1	99.9355	1	99.9355	1	99.9170
C73	DIXON MUNICIPAL-CHARLES R WALGREEN	IL	LPV	1	99.9181	1	99.9181	1	99.8924
C75	MARSHALL COUNTY	IL	LP	1	99.9207	1	99.9177	2	99.9147
CIR	CAIRO RGNL	IL	LP	0	100	0	100	1	99.9792
CMI	UNIVERSITY OF ILLINOIS-WILLARD	IL	LPV200	1	99.9351	1	99.9351	1	99.9170

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
CPS	ST LOUIS DOWNTOWN	IL	LPV200	0	100	2	99.9902	1	99.9460
CTK	INGERSOLL	IL	LPV	1	99.9362	1	99.9362	1	99.92000
CUL	CARMI MUNICIPAL	IL	LP	0	100	1	99.9943	1	99.9460
DEC	DECATUR	IL	LPV200	2	99.9479	1	99.9351	1	99.9170
DKB	DE KALB TAYLOR MUNICIPAL	IL	LPV	1	99.9170	1	99.9170	1	99.8924
DNV	VERMILION REGIONAL	IL	LPV	1	99.9351	1	99.9351	1	99.9170
DPA	DUPAGE	IL	LPV200	1	99.9170	1	99.9170	1	99.8924
ENL	CENTRALIA MUNICIPAL	IL	LPV	1	99.9989	1	99.9721	1	99.9460
EZI	KEWANEE MUNICIPAL	IL	LPV	1	99.9223	1	99.9223	1	99.8951
FEP	ALBERTUS	IL	LPV	1	99.9185	1	99.9185	1	99.8898
FOA	FLORA MUNICIPAL	IL	LPV	2	99.9823	1	99.9687	1	99.9351
GBG	GALESBURG MUNICIPAL	IL	LPV200	1	99.9373	1	99.9373	1	99.9022
HSB	HARRISBURG-RALEIGH	IL	LPV	0	100	0	100	1	99.9691
I63	MOUNT STERLING MUNICIPAL	IL	LPV	2	99.9611	1	99.9483	1	99.9460
IGQ	LANSING MUNICIPAL	IL	LPV	1	99.9170	1	99.9170	2	99.9083
IKK	GREATER KANKAKEE	IL	LPV200	1	99.9170	1	99.9170	2	99.9166
LOT	LEWIS UNIVERSITY	IL	LPV200	1	99.9170	1	99.9170	1	99.8932
LWV	LAWRENCEVILLE-VINCENNES INTL	IL	LPV200	1	99.9645	1	99.9645	2	99.9324
MDW	CHICAGO MIDWAY INTL	IL	LPV	1	99.9170	1	99.9170	1	99.8932
MLI	QUAD CITY INTL	IL	LPV200	1	99.9234	1	99.9234	1	99.8939
MQB	MACOMB MUNICIPAL	IL	LPV200	1	99.9373	1	99.9373	1	99.9351
MTO	COLES COUNTY MEMORIAL	IL	LPV	1	99.9351	1	99.9351	1	99.9170
MVN	MOUNT VERNON	IL	LPV	0	100	1	99.9736	1	99.9460
MWA	WILLIAMSON COUNTY RGNL	IL	LPV200	0	100	0	100	1	99.9687
OLY	OLNEY-NOBLE	IL	LPV	1	99.9641	1	99.9641	2	99.9343
ORD	CHICAGO O'HARE INTL	IL	LPV200	1	99.9170	1	99.9170	1	99.8913
PIA	GENERAL DOWNING - PEORIA INTL	IL	LPV	1	99.9358	1	99.9358	1	99.9170
PJY	PINCKNEYVILLE-DU QUOIN	IL	LPV	0	100	0	100	1	99.9653
PNT	PONTIAC MUNICIPAL	IL	LPV	1	99.9177	1	99.9170	1	99.9170
PWK	CHICAGO EXECUTIVE	IL	LPV	1	99.9170	1	99.9170	1	99.8909
RFD	CHICAGO/ROCKFORD INTL	IL	LPV200	1	99.9177	1	99.9177	1	99.8917
RPJ	ROCHELLE MUNICIPAL AIRPORT-KORITZ F	IL	LPV200	1	99.9173	1	99.9173	1	99.8924
RSV	CRAWFORD CO	IL	LPV	2	99.96000	2	99.96000	2	99.9290
SAR	SPARTA COMMUNICIPALTY-HUNTER FIELD	IL	LPV	0	100	1	99.9989	1	99.9460
SFY	TRI-TOWNSHIP	IL	LP	1	99.9196	1	99.9196	1	99.8898
SLO	SALEM-LECKRONE	IL	LPV200	2	99.9936	1	99.9721	1	99.9460
SPI	ABRAHAM LINCOLN CAPITAL	IL	LPV	2	99.9479	1	99.9351	1	99.9177

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
SQI	WHITESIDE CO ARPT-JOS H BITTOR	IL	LPV	1	99.9185	1	99.9185	1	99.8928
UGN	WAUKEGAN RGNL	IL	LPV	1	99.9170	1	99.9170	1	99.8834
UIN	QUINCY RGNL-BALDWIN FIELD	IL	LPV200	1	99.9619	1	99.9487	1	99.9460
2R2	HENDRICKS COUNTY-GORDON GRAHAM	IN	LPV	1	99.9351	1	99.9351	1	99.9170
4I7	PUTNAM COUNTY	IN	LPV	1	99.9351	1	99.9351	1	99.9170
AID	ANDERSON MUNICIPAL-DARLINGTON FIELD	IN	LPV	1	99.9170	1	99.9170	1	99.9170
ASW	WARSAW MUNICIPAL	IN	LPV	1	99.9170	1	99.9170	1	99.9170
BAK	COLUMBUS MUNICIPAL	IN	LPV	1	99.9351	1	99.9351	1	99.9170
BFR	VIRGIL I GRISSOM MUNICIPAL	IN	LP	2	99.9468	2	99.9468	2	99.9298
BMG	MONROE COUNTY	IN	LPV200	1	99.9351	1	99.9351	1	99.9170
C62	KENDALLVILLE MUNICIPAL	IN	LPV	1	99.9170	1	99.9170	2	99.9158
CEV	METTEL FIELD	IN	LPV	2	99.9321	1	99.9170	1	99.9170
DCY	DAVIESS COUNTY	IN	LPV	2	99.9687	2	99.9687	2	99.9321
EKM	ELKHART MUNICIPAL	IN	LPV	1	99.9170	1	99.9170	2	99.9155
EVV	EVANSVILLE RGNL	IN	LPV200	0	100	1	99.9925	1	99.9358
EYE	EAGLE CREEK AIRPARK	IN	LPV	1	99.9351	1	99.9351	1	99.9170
FKR	FRANKFORT MUNICIPAL	IN	LPV	1	99.9351	1	99.9351	1	99.9170
FRH	FRENCH LICK MUNICIPAL	IN	LPV	2	99.9891	2	99.9724	2	99.9340
FWA	FORT WAYNE INTL	IN	LPV200	1	99.9170	1	99.9170	1	99.9170
GEZ	SHELBYVILLE MUNICIPAL	IN	LPV	1	99.9351	1	99.9351	1	99.9170
GGP	LOGANSPORT/CASS COUNTY	IN	LPV200	1	99.9170	1	99.9170	1	99.9170
GSH	GOSHEN MUNICIPAL	IN	LPV	1	99.9170	1	99.9170	2	99.9162
GWB	DE KALB COUNTY	IN	LPV	1	99.9170	1	99.9170	2	99.9162
GYY	GARY/CHICAGO INTL	IN	LPV200	1	99.9170	1	99.9170	2	99.9083
HFY	GREENWOOD MUNICIPAL	IN	LPV	1	99.9351	1	99.9351	1	99.9170
HNB	HUNTINGBURG	IN	LPV	0	100	1	99.9747	1	99.9351
HUF	TERRE HAUTE INTL-HULMAN FIELD	IN	LPV200	1	99.9351	1	99.9351	1	99.9170
I22	RANDOLPH COUNTY	IN	LPV	1	99.9170	1	99.9170	1	99.9170
IMS	MADISON MUNICIPAL	IN	LPV	1	99.9619	1	99.9438	2	99.9298
IND	INDIANAPOLIS INTL	IN	LPV200	1	99.9351	1	99.9351	1	99.9170
JVY	CLARK RGNL	IN	LPV200	2	99.9958	2	99.9717	2	99.9343
LAF	PURDUE UNIVERSITY	IN	LPV	1	99.9351	1	99.9351	1	99.9170
MCX	WHITE COUNTY	IN	LP	1	99.9283	1	99.9170	1	99.9170
MIE	DELAWARE COUNTY RGNL	IN	LPV	1	99.9170	1	99.9170	1	99.9170
MQJ	INDIANAPOLIS RGNL	IN	LPV200	1	99.9351	2	99.9332	1	99.9170
MZZ	MARION MUNICIPAL	IN	LPV	1	99.9170	1	99.9170	1	99.9170
OKK	KOKOMO MUNICIPAL	IN	LPV200	1	99.9170	1	99.9170	1	99.9170
OVO	NORTH VERNON	IN	LPV	1	99.9479	1	99.9351	1	99.9170

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
OXI	STARKE COUNTY	IN	LPV	1	99.9170	1	99.9170	2	99.9158
PLD	PORTLAND MUNICIPAL	IN	LPV	1	99.9170	1	99.9170	1	99.9170
PPO	LA PORTE MUNICIPAL	IN	LPV	1	99.9170	1	99.9170	2	99.9155
RCR	FULTON COUNTY	IN	LPV	1	99.9170	1	99.9170	1	99.9170
RID	RICHMOND MUNICIPAL	IN	LPV200	1	99.9173	1	99.9170	1	99.9170
RZL	JASPER COUNTY	IN	LPV	1	99.9170	1	99.9170	1	99.9170
SBN	SOUTH BEND INTL	IN	LPV	1	99.9170	1	99.9170	2	99.9155
SER	FREEMAN MUNICIPAL	IN	LPV	1	99.9438	1	99.9351	2	99.9287
SIV	SULLIVAN COUNTY	IN	LPV	1	99.9351	1	99.9351	1	99.9170
SMD	SMITH FIELD	IN	LPV	1	99.9170	1	99.9170	2	99.9166
TEL	PERRY COUNTY MUNICIPAL	IN	LP	0	100	1	99.9909	1	99.9362
TYQ	INDIANAPOLIS EXECUTIVE	IN	LPV	1	99.9351	2	99.9336	1	99.9170
UWL	NEW CASTLE-HENRY CO MUNICIPAL	IN	LPV	1	99.9170	1	99.9170	1	99.9170
VPZ	PORTER COUNTY RGNL	IN	LPV	1	99.9170	1	99.9170	2	99.9158
3AU	AUGUSTA MUNICIPAL	KS	LP	0	100	0	100	0	100
3K3	SYRACUSE-HAMILTON COUNTY MUNICIPAL	KS	LPV	0	100	0	100	0	100
5K2	TRIBUNE MUNICIPAL	KS	LPV	0	100	0	100	0	100
AAO	COLONEL JAMES JABARA	KS	LPV	0	100	0	100	0	100
ADT	ATWOOD-RAWLINS COUNTY CITY-COU	KS	LPV	0	100	0	100	0	100
ANY	ANTHONY MUNICIPAL	KS	LPV	0	100	0	100	0	100
BEC	BEECH FACTORY	KS	LPV	0	100	0	100	0	100
CBK	SHALZ FIELD	KS	LPV	0	100	0	100	0	100
CNK	BLOSSER MUNICIPAL	KS	LP	0	100	0	100	0	100
DDC	DODGE CITY RGNL	KS	LPV	0	100	0	100	0	100
EGT	WELLINGTON MUNICIPAL	KS	LPV	0	100	0	100	0	100
EHA	ELKHART-MORTON COUNTY	KS	LPV	0	100	0	100	0	100
EMP	EMPORIA MUNICIPAL	KS	LPV	0	100	0	100	0	100
EQA	EL DORADO/CAPTAIN JACK THOMAS	KS	LPV200	0	100	0	100	0	100
EWK	NEWTON-CITY-COUNTY	KS	LPV	0	100	0	100	0	100
FOE	FORBES FIELD	KS	LPV	0	100	0	100	0	100
FSK	FORT SCOTT MUNICIPAL	KS	LPV	0	100	0	100	0	100
GBD	GREAT BEND MUNICIPAL	KS	LPV200	0	100	0	100	0	100
GCK	GARDEN CITY RGNL	KS	LPV	0	100	0	100	0	100
GLD	RENNER FLD /GOODLAND MUNICIPAL/	KS	LPV200	0	100	0	100	0	100
HLC	HILL CITY MUNICIPAL	KS	LPV	0	100	0	100	0	100
HQG	HUGOTON MUNICIPAL	KS	LPV	0	100	0	100	0	100
HRU	HERINGTON RGNL	KS	LPV	0	100	0	100	0	100
HUT	HUTCHINSON MUNICIPAL	KS	LPV	0	100	0	100	0	100
HYS	HAYS RGNL	KS	LPV200	0	100	0	100	0	100

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
ICT	WICHITA DWIGHT D EISENHOWER NA	KS	LPV200	0	100	0	100	0	100
IDP	INDEPENDENCE MUNICIPAL	KS	LPV	0	100	0	100	0	100
IXD	NEW CENTURY AIRCENTER	KS	LPV	0	100	0	100	0	100
K38	WASHINGTON COUNTY VETERAN'S ME	KS	LPV	0	100	0	100	0	100
K78	ABILENE MUNICIPAL	KS	LPV	0	100	0	100	0	100
K81	MIAMI COUNTY	KS	LPV	0	100	0	100	0	100
K82	SMITH CENTER MUNICIPAL	KS	LPV200	0	100	0	100	0	100
K88	ALLEN COUNTY	KS	LPV	0	100	0	100	0	100
LBL	LIBERAL MID-AMERICA RGNL	KS	LPV200	0	100	0	100	0	100
LQR	LARNED-PAWNEE COUNTY	KS	LPV	0	100	0	100	0	100
LWC	LAWRENCE MUNICIPAL	KS	LPV200	0	100	0	100	0	100
MHK	MANHATTAN RGNL	KS	LPV200	0	100	0	100	0	100
MPR	MC PHERSON	KS	LPV	0	100	0	100	0	100
MYZ	MARYSVILLE MUNICIPAL	KS	LPV	0	100	0	100	0	100
NRN	NORTON MUNICIPAL	KS	LPV	0	100	0	100	0	100
OEL	OAKLEY MUNICIPAL	KS	LPV	0	100	0	100	0	100
OJC	JOHNSON COUNTY EXECUTIVE	KS	LPV	0	100	0	100	0	100
OWI	OTTAWA MUNICIPAL	KS	LPV	0	100	0	100	0	100
PPF	TRI-CITY	KS	LPV	0	100	0	100	0	100
PTS	ATKINSON MUNICIPAL	KS	LPV	0	100	0	100	0	100
PTT	PRATT RGNL	KS	LPV	0	100	0	100	0	100
RCP	ROOKS COUNTY RGNL	KS	LPV	0	100	0	100	0	100
RPB	BELLEVILLE MUNICIPAL	KS	LPV	0	100	0	100	0	100
RSL	RUSSELL MUNICIPAL	KS	LPV	0	100	0	100	0	100
SLN	SALINA RGNL	KS	LPV	0	100	0	100	0	100
TOP	PHILIP BILLARD MUNICIPAL	KS	LPV200	0	100	0	100	0	100
TQK	SCOTT CITY MUNICIPAL	KS	LPV	0	100	0	100	0	100
UKL	COFFEY COUNTY	KS	LPV	0	100	0	100	0	100
ULS	ULYSSES	KS	LPV	0	100	0	100	0	100
WLD	STROTHER FIELD	KS	LPV	0	100	0	100	0	100
0I8	CYNTHIANA-HARRISON COUNTY	KY	LP	1	99.9932	2	99.9698	1	99.9170
18I	MC CREARY COUNTY	KY	LP	0	100	1	99.9943	1	99.9792
27K	GEORGETOWN SCOTT COUNTY - MARS	KY	LPV200	1	99.9951	2	99.9728	1	99.9170
2I0	MADISONVILLE MUNICIPAL	KY	LPV	0	100	0	100	1	99.9717
2M0	PRINCETON-CALDWELL COUNTY	KY	LPV	0	100	0	100	1	99.9804
4M7	RUSSELLVILLE-LOGAN COUNTY	KY	LPV	0	100	0	100	1	99.9804

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
5M9	MARION-CRITTENDEN COUNTY	KY	LPV	0	100	0	100	1	99.9713
6I2	LEBANON-SPRINGFIELD	KY	LP	0	100	1	99.9917	2	99.9623
AAS	TAYLOR COUNTY	KY	LPV	0	100	1	99.9909	2	99.9743
BRY	SAMUELS FIELD	KY	LPV	0	100	1	99.9917	2	99.9611
BWG	BOWLING GREEN-WARREN COUNTY RG	KY	LPV200	0	100	1	99.9981	1	99.9804
BYL	WILLIAMSBURG-WHITLEY COUNTY	KY	LPV	0	100	1	99.9947	2	99.9774
CEY	KYLE-OAKLEY FIELD	KY	LPV	0	100	0	100	1	99.9815
CPF	WENDELL H FORD	KY	LPV200	0	100	1	99.9981	2	99.9430
CVG	CINCINNATI/NORTHERN KENTUCKY I	KY	LPV200	1	99.9641	2	99.9309	1	99.9170
DVK	STUART POWELL FIELD	KY	LPV	0	100	1	99.9917	3	99.9566
DWU	ASHLAND RGNL	KY	LP	2	99.9781	3	99.9521	1	99.9170
EHR	HENDERSON CITY-COUNTY	KY	LPV	0	100	0	100	1	99.9698
EKQ	WAYNE COUNTY	KY	LPV	0	100	1	99.9902	1	99.9804
EKX	ADDINGTON FIELD	KY	LPV	0	100	1	99.9947	2	99.9619
FFT	CAPITAL CITY	KY	LPV	1	99.9974	2	99.9808	1	99.9170
FGX	FLEMING-MASON	KY	LPV	1	99.9785	3	99.9547	1	99.9170
GLW	GLASGOW MUNICIPAL	KY	LPV	0	100	1	99.9932	1	99.98000
HVC	HOPKINSVILLE-CHRISTIAN COUNTY	KY	LPV	0	100	0	100	1	99.9804
I39	MADISON	KY	LPV200	0	100	1	99.9925	2	99.9415
IOB	MOUNT STERLING-MONTGOMERY COUN	KY	LPV	1	99.9970	2	99.9777	1	99.9170
JQD	OHIO COUNTY	KY	LPV	0	100	0	100	1	99.9721
K24	RUSSELL COUNTY	KY	LPV	0	100	1	99.9906	1	99.98000
K62	GENE SNYDER	KY	LP	1	99.9675	1	99.9438	1	99.9170
KY8	HANCOCK CO-RON LEWIS FIELD	KY	LPV	0	100	1	99.9906	2	99.9566
LEX	BLUE GRASS	KY	LPV	1	99.9992	2	99.9815	1	99.9177
LOU	BOWMAN FIELD	KY	LPV	0	100	2	99.9740	1	99.9351
LOZ	LONDON-CORBIN ARPT-MAGEE FIELD	KY	LPV	0	100	1	99.9917	3	99.9668
M21	MUHLENBERG COUNTY	KY	LP	0	100	0	100	1	99.9792
M25	MAYFIELD GRAVES COUNTY	KY	LPV	0	100	0	100	1	99.9811
OWB	OWENSBORO-DAVIESS COUNTY	KY	LPV200	0	100	0	100	2	99.9683
PAH	BARKLEY RGNL	KY	LPV	0	100	0	100	1	99.9804
SDF	LOUISVILLE INTL-STANDIFORD FIE	KY	LPV200	0	100	2	99.9751	1	99.9351
SJS	BIG SANDY RGNL	KY	LPV	0	100	2	99.9940	2	99.9389
SME	LAKE CUMBERLAND RGNL	KY	LPV	0	100	1	99.9909	3	99.9762

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
SYM	MOREHEAD-ROWAN COUNTY CLYDE A	KY	LPV200	1	99.9936	2	99.9732	1	99.9170
TWT	STURGIS MUNICIPAL	KY	LPV	0	100	0	100	1	99.9698
TZV	TOMPKINSVILLE-MONROE COUNTY	KY	LPV	0	100	1	99.9932	1	99.9841
1L0	ST JOHN THE BAPTIST PARISH	LA	LPV	0	100	0	100	0	100
3R4	HART	LA	LPV	0	100	0	100	0	100
3R7	JENNINGS	LA	LPV	0	100	0	100	0	100
5R8	DE QUINCY INDUSTRIAL AIRPARK	LA	LPV	0	100	0	100	0	100
ACP	ALLEN PARISH	LA	LPV	0	100	0	100	0	100
AEX	ALEXANDRIA INTL	LA	LPV200	0	100	0	100	0	100
ARA	ACADIANA RGNL	LA	LPV	0	100	0	100	0	100
BQP	MOREHOUSE MEMORIAL	LA	LPV	0	100	0	100	0	100
BTR	BATON ROUGE METROPOLITAN` RYAN	LA	LPV200	0	100	0	100	0	100
BXA	GEORGE R CARR MEMORIAL AIR FLD	LA	LPV	0	100	0	100	0	100
CWF	CHENNAULT INTL	LA	LPV200	0	100	0	100	0	100
DTN	SHREVEPORT DOWNTOWN	LA	LPV	0	100	0	100	0	100
ESF	ESLER RGNL	LA	LPV200	0	100	0	100	0	100
F88	JONESBORO	LA	LP	0	100	0	100	0	100
GAO	SOUTH LAFOURCHE LEONARD MILLER	LA	LPV200	0	100	0	100	1	99.9943
HDC	HAMMOND NORTHSHORE RGNL	LA	LPV200	0	100	0	100	0	100
HUM	HOUMA-TERREBONNE	LA	LPV200	0	100	0	100	1	99.9985
HZR	FALSE RIVER RGNL	LA	LPV	0	100	0	100	0	100
IER	NATCHITOCHES RGNL	LA	LPV	0	100	0	100	0	100
IYA	ABBEVILLE CHRIS CRUSTA MEMORIA	LA	LPV	0	100	0	100	0	100
L38	LOUISIANA RGNL	LA	LPV	0	100	0	100	0	100
L39	LEESVILLE	LA	LPV	0	100	0	100	0	100
LCH	LAKE CHARLES RGNL	LA	LPV200	0	100	0	100	0	100
LFT	LAFAYETTE RGNL/PAUL FOURNET FI	LA	LPV	0	100	0	100	0	100
M79	JOHN H HOOKS JR MEMORIAL	LA	LPV	0	100	0	100	0	100
MLU	MONROE RGNL	LA	LPV200	0	100	0	100	0	100
MSY	LOUIS ARMSTRONG NEW ORLEANS IN	LA	LPV200	0	100	0	100	0	100
NEW	LAKEFRONT	LA	LPV	0	100	0	100	0	100
OPL	ST LANDRY PARISH-AHART FIELD	LA	LPV	0	100	0	100	0	100

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
PTN	HARRY P WILLIAMS MEMORIAL	LA	LPV200	0	100	0	100	0	100
RSN	RUSTON RGNL	LA	LPV	0	100	0	100	0	100
SHV	SHREVEPORT RGNL	LA	LPV200	0	100	0	100	0	100
SPH	SPRINGHILL	LA	LPV	0	100	0	100	0	100
TVR	VICKSBURG TALLULAH RGNL	LA	LPV	0	100	0	100	0	100
UXL	SOUTHLAND FIELD	LA	LPV	0	100	0	100	0	100
3B0	SOUTHBRIDGE MUNICIPAL	MA	LPV	2	99.9249	2	99.8939	1	99.8664
ACK	NANTUCKET MEMORIAL	MA	LPV200	2	99.9272	2	99.9124	1	99.8660
BAF	WESTFIELD-BARNES RGNL	MA	LPV	2	99.9147	2	99.8958	1	99.8664
BED	LAURENCE G HANSCOM FLD	MA	LPV200	2	99.9189	2	99.8955	1	99.8660
BOS	GENERAL EDWARD LAWRENCE LOGAN	MA	LPV200	2	99.9181	2	99.9034	1	99.8660
BVY	BEVERLY MUNICIPAL	MA	LPV	2	99.9132	2	99.9019	1	99.8660
EWB	NEW BEDFORD RGNL	MA	LPV200	2	99.9287	2	99.8924	1	99.8660
GBR	WALTER J KOLADZA	MA	LP	3	99.9238	2	99.8973	1	99.8664
GHG	MARSHFIELD MUNICIPAL - GEORGE HARLO	MA	LPV	2	99.9287	2	99.9015	1	99.8660
HYA	BARNSTABLE MUNICIPAL-BOARDMAN/POLAN	MA	LPV200	2	99.9283	3	99.9079	1	99.8660
LWM	LAWRENCE MUNICIPAL	MA	LPV200	2	99.9128	2	99.8989	1	99.8660
MVY	MARTHA'S VINEYARD	MA	LPV200	2	99.9287	2	99.9124	1	99.8660
ORE	ORANGE MUNICIPAL	MA	LPV	2	99.9090	2	99.8981	1	99.8664
ORH	WORCESTER RGNL	MA	LPV200	2	99.9181	2	99.8955	1	99.8664
OWD	NORWOOD MEMORIAL	MA	LPV	2	99.9249	2	99.8981	1	99.8660
PSF	PITTSFIELD MUNICIPAL	MA	LPV	3	99.9230	2	99.8973	1	99.8664
PYM	PLYMOUTH MUNICIPAL	MA	LPV200	2	99.9287	2	99.8955	1	99.8660
2G4	GARRETT COUNTY	MD	LPV	1	99.9389	1	99.9389	1	99.9230
2W5	MARYLAND	MD	LP	2	99.9819	2	99.9683	2	99.9351
2W6	ST MARY'S COUNTY RGNL	MD	LPV	1	99.9951	1	99.9951	1	99.9389
BWI	BALTIMORE/WASHINGTON INTL THUR	MD	LPV200	3	99.9747	2	99.9524	3	99.9211
CBE	GREATER CUMBERLAND RGNL	MD	LP	1	99.9389	1	99.9389	3	99.9351
DMW	CARROLL COUNTY RGNL/JACK B POA	MD	LPV200	2	99.9521	1	99.9389	3	99.9155
ESN	EASTON/NEWNAM FIELD	MD	LPV	3	99.9921	3	99.9868	3	99.92000
FDK	FREDERICK MUNICIPAL	MD	LPV	2	99.9509	1	99.9389	4	99.9260
GAI	MONTGOMERY COUNTY AIRPARK	MD	LPV	3	99.9664	1	99.9389	3	99.9219
HGR	HAGERSTOWN RGNL-RICHARD A HENS	MD	LPV200	2	99.9506	1	99.9389	3	99.9151
MTN	MARTIN STATE	MD	LPV	3	99.9747	2	99.9540	3	99.9155
OXB	OCEAN CITY MUNICIPAL	MD	LPV	0	100	0	100	3	99.9347

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
SBY	SALISBURY-OCEAN CITY WICOMICO	MD	LPV200	0	100	0	100	2	99.9294
1B0	DEXTER RGNL	ME	LP	1	99.9022	1	99.9022	2	99.8879
81B	OXFORD COUNTY RGNL	ME	LP	2	99.9015	2	99.9015	3	99.8841
AUG	AUGUSTA STATE	ME	LPV200	1	99.9022	1	99.9022	2	99.8879
BGR	BANGOR INTL	ME	LPV	2	99.9004	2	99.9004	3	99.8841
BHB	HANCOCK COUNTY-BAR HARBOR	ME	LPV200	2	99.9004	2	99.9004	3	99.8826
BST	BELFAST MUNICIPAL	ME	LPV	2	99.9004	2	99.9004	2	99.8834
BXM	BRUNSWICK EXECUTIVE	ME	LPV	2	99.9004	2	99.9004	2	99.8702
FVE	NORTHERN AROOSTOOK RGNL	ME	LPV	1	99.8989	1	99.8989	3	99.8770
HUL	HOULTON INTL	ME	LP	1	99.9022	1	99.9022	3	99.8755
IZG	EASTERN SLOPES RGNL	ME	LPV	2	99.90000	2	99.90000	2	99.8702
LEW	AUBURN/LEWISTON MUNICIPAL	ME	LPV200	2	99.9004	2	99.9004	3	99.8830
LRG	LINCOLN RGNL	ME	LP	2	99.9004	2	99.9004	3	99.8822
MLT	MILLINOCKET MUNICIPAL	ME	LPV	1	99.9022	1	99.9022	3	99.8826
PQI	NORTHERN MAINE RGNL ARPT AT PR	ME	LPV200	1	99.9022	1	99.9022	3	99.8758
PWM	PORTLAND INTL JETPORT	ME	LPV200	2	99.9004	2	99.9004	2	99.8702
RKD	KNOX COUNTY RGNL	ME	LPV	2	99.9004	2	99.9004	2	99.8834
SFM	SANFORD SEACOAST RGNL	ME	LPV200	2	99.9004	2	99.9004	1	99.8554
WVL	WATERVILLE ROBERT LAFLEUR	ME	LPV200	1	99.9022	1	99.9022	2	99.8879
48D	CLARE MUNICIPAL	MI	LP	1	99.9170	1	99.9170	2	99.8917
4D0	ABRAMS MUNICIPAL	MI	LP	1	99.9170	1	99.9170	2	99.9022
6Y1	BOIS BLANC ISLAND	MI	LP	1	99.8702	1	99.8702	1	99.8630
77G	MARLETTE	MI	LPV	1	99.9170	1	99.9170	2	99.8955
9D9	HASTINGS	MI	LPV	1	99.9170	1	99.9170	2	99.9022
ACB	ANTRIM COUNTY	MI	LPV	1	99.8705	1	99.8705	1	99.8664
ADG	LENAWEE COUNTY	MI	LPV	1	99.9170	1	99.9170	2	99.9041
AMN	GRATIOT COMMUNICIPALTY	MI	LPV	1	99.9170	1	99.9170	2	99.8924
ANJ	SAULT STE MARIE MUNICIPAL/SANDERSON	MI	LPV	1	99.8702	1	99.8702	1	99.8592
APN	ALPENA COUNTY RGNL	MI	LPV	1	99.8683	1	99.8683	1	99.8611
ARB	ANN ARBOR MUNICIPAL	MI	LPV	1	99.9170	1	99.9170	2	99.9026
AZO	KALAMAZOO/BATTLE CREEK INTL	MI	LPV	1	99.9170	1	99.9170	2	99.9124
BAX	HURON COUNTY MEMORIAL	MI	LPV	1	99.9170	1	99.9170	2	99.8951
BEH	SOUTHWEST MICHIGAN RGNL	MI	LPV200	1	99.9170	1	99.9170	2	99.9132
BIV	WEST MICHIGAN RGNL	MI	LPV	1	99.9170	1	99.9170	2	99.9007
BTL	W K KELLOGG	MI	LPV200	1	99.9170	1	99.9170	2	99.9098
CAD	WEXFORD COUNTY	MI	LPV200	2	99.9064	2	99.9064	1	99.8683

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
CIU	CHIPPEWA COUNTY INTL	MI	LPV	1	99.8702	1	99.8702	1	99.8588
CMX	HOUGHTON COUNTY MEMORIAL	MI	LPV	1	99.8755	1	99.8755	2	99.8690
CVX	CHARLEVOIX MUNICIPAL	MI	LPV	1	99.8702	1	99.8702	1	99.8630
D95	DUPONT-LAPEER	MI	LP	1	99.9170	1	99.9170	2	99.8955
DET	COLEMAN A YOUNG MUNICIPAL	MI	LPV	1	99.9170	1	99.9170	2	99.8955
DTW	DETROIT METROPOLITAN WAYNE COU	MI	LPV200	1	99.9170	1	99.9170	2	99.9026
ERY	LUCE COUNTY	MI	LPV	1	99.8770	1	99.8770	2	99.8551
ESC	DELTA COUNTY	MI	LPV200	1	99.8755	1	99.8755	2	99.8645
FFX	FREMONT MUNICIPAL	MI	LPV	1	99.9170	1	99.9170	2	99.8921
FNT	BISHOP INTL	MI	LPV200	1	99.9170	1	99.9170	2	99.8951
GDW	GLADWIN ZETTEL MEMORIAL	MI	LP	2	99.9136	2	99.9136	2	99.8883
GLR	GAYLORD RGNL	MI	LPV	1	99.8702	1	99.8702	1	99.8664
GRR	GERALD R FORD INTL	MI	LPV200	1	99.9170	1	99.9170	2	99.9011
HTL	ROSCOMMON COUNTY - BLODGETT ME	MI	LP	2	99.9030	2	99.9030	1	99.8668
HYX	SAGINAW COUNTY H W BROWNE	MI	LPV	1	99.9170	1	99.9170	2	99.8921
IKW	JACK BARSTOW	MI	LPV	1	99.9170	1	99.9170	2	99.8917
IMT	FORD	MI	LPV	1	99.8792	1	99.8792	1	99.8755
IRS	KIRSCH MUNICIPAL	MI	LPV	1	99.9170	1	99.9170	2	99.9151
ISQ	SCHOOLCRAFT COUNTY	MI	LP	1	99.8770	1	99.8770	2	99.86000
IWD	GOGEBIC-IRON COUNTY	MI	LPV200	1	99.8826	1	99.8792	1	99.8717
JXN	JACKSON COUNTY-REYNOLDS FIELD	MI	LPV200	1	99.9170	1	99.9170	2	99.9053
JYM	HILLSDALE MUNICIPAL	MI	LPV	1	99.9170	1	99.9170	2	99.9098
LAN	CAPITAL REGION INTL	MI	LPV200	1	99.9170	1	99.9170	2	99.9022
LDM	MASON COUNTY	MI	LPV	2	99.9075	2	99.9075	1	99.8709
MBL	MANISTEE CO-BLACKER	MI	LPV200	1	99.8856	1	99.8856	1	99.8709
MBS	MBS INTL	MI	LPV200	1	99.9170	1	99.9170	2	99.8917
MCD	MACKINAC ISLAND	MI	LPV	1	99.8702	1	99.8702	1	99.8592
MKG	MUSKEGON COUNTY	MI	LPV200	1	99.9170	1	99.9170	2	99.8875
MNM	MENOMINEE-MARINETTE TWIN COUNT	MI	LPV200	1	99.8826	1	99.8826	1	99.8755
MOP	MOUNT PLEASANT MUNICIPAL	MI	LPV	1	99.9170	1	99.9170	2	99.8917
N98	BOYNE CITY MUNICIPAL	MI	LP	1	99.8702	1	99.8702	1	99.8630
OEB	BRANCH COUNTY MEMORIAL	MI	LPV	1	99.9170	1	99.9170	2	99.9136
OSC	OSCODA-WURTSMITH	MI	LPV200	2	99.8924	2	99.8924	1	99.8664
OZW	LIVINGSTON COUNTY SPENCER J HA	MI	LPV200	1	99.9170	1	99.9170	2	99.9022
PHN	ST CLAIR COUNTY INTL	MI	LPV200	1	99.9170	1	99.9170	2	99.8943

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
PLN	PELLSTON RGNL AIRPORT OF EMMET	MI	LPV200	1	99.8702	1	99.8702	1	99.8630
PTK	OAKLAND COUNTY INTL	MI	LPV200	1	99.9170	1	99.9170	2	99.8955
RMY	BROOKS FIELD	MI	LP	1	99.9170	1	99.9170	2	99.9075
RNP	OWOSSO COMMUNICIPALTY	MI	LPV	1	99.9170	1	99.9170	2	99.8939
RQB	ROBEN-HOOD	MI	LPV200	1	99.9170	1	99.9170	2	99.8917
SAW	SAWYER INTL	MI	LPV200	1	99.8755	1	99.8755	2	99.8687
SLH	CHEBOYGAN COUNTY	MI	LPV	1	99.8698	1	99.8698	1	99.8626
TEW	MASON JEWETT FIELD	MI	LP	1	99.9170	1	99.9170	2	99.9026
TTF	CUSTER	MI	LPV	1	99.9170	1	99.9170	2	99.9026
TVC	CHERRY CAPITAL	MI	LPV200	1	99.8781	1	99.8781	1	99.8671
YIP	WILLOW RUN	MI	LPV	1	99.9170	1	99.9170	2	99.9026
16D	PERHAM MUNICIPAL	MN	LPV	1	99.8928	1	99.8898	1	99.8860
3N8	MAHNOMEN COUNTY	MN	LPV	1	99.8928	1	99.8898	1	99.8717
ACQ	WASECA MUNICIPAL	MN	LPV	1	99.9034	1	99.8924	1	99.8898
ADC	WADENA MUNICIPAL	MN	LPV	1	99.8921	1	99.8898	1	99.8868
AEL	ALBERT LEA MUNICIPAL	MN	LPV	1	99.9147	1	99.8989	1	99.8898
AIT	AITKIN MUNICIPAL-STEVE KURTZ FIELD	MN	LPV	1	99.8898	1	99.8898	1	99.8785
ANE	ANOKA COUNTY-BLAINE ARPT(JANES	MN	LPV	1	99.8936	1	99.8905	1	99.8856
AUM	AUSTIN MUNICIPAL	MN	LPV200	1	99.9094	1	99.8936	1	99.8898
AXN	CHANDLER FIELD	MN	LPV	1	99.8936	1	99.8898	1	99.8898
BBB	BENSON MUNICIPAL	MN	LPV	1	99.9041	1	99.8973	1	99.8898
BDE	BAUDETTE INTL	MN	LPV	1	99.8766	1	99.8728	2	99.8687
BDH	WILLMAR MUNICIPAL-JOHN L RICE FIELD	MN	LPV200	1	99.9041	1	99.8973	1	99.8898
BJI	BEMIDJI RGNL	MN	LPV200	1	99.8898	1	99.8879	1	99.8755
BRD	BRAINERD LAKES RGNL	MN	LPV200	1	99.8898	1	99.8898	1	99.8830
CBG	CAMBRIDGE MUNICIPAL	MN	LPV	1	99.8898	1	99.8898	1	99.8849
CKC	GRAND MARAIS/COOK COUNTY	MN	LPV	1	99.8762	1	99.8751	1	99.8717
CKN	CROOKSTON MUNICIPAL KIRKWOOD FLD	MN	LPV	1	99.8928	1	99.88000	1	99.8743
CNB	MYERS FIELD	MN	LPV	1	99.9079	1	99.9011	1	99.8898
COQ	CLOQUET CARLTON COUNTY	MN	LPV	1	99.8856	1	99.8834	1	99.8762
CQM	COOK MUNICIPAL	MN	LP	1	99.8807	1	99.8804	1	99.8736
D39	SAUK CENTRE MUNICIPAL	MN	LPV	1	99.8981	1	99.8951	1	99.8894
D42	SPRINGFIELD MUNICIPAL	MN	LP	1	99.9106	1	99.8996	1	99.8898
DLH	DULUTH INTL	MN	LPV200	1	99.8822	1	99.8811	1	99.8755
DTL	DETROIT LAKES-WETHING FIELD	MN	LPV	1	99.8928	1	99.8898	1	99.8841
DVP	SLAYTON MUNICIPAL	MN	LP	1	99.9117	1	99.9015	1	99.8898
DXX	LAC QUI PARLE COUNTY	MN	LPV200	1	99.9049	1	99.8992	1	99.8898

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
ELO	ELY MUNICIPAL	MN	LPV200	1	99.8785	1	99.8781	1	99.8739
ETH	WHEATON MUNICIPAL	MN	LP	1	99.8966	1	99.8917	1	99.8898
EVM	EVELETH-VIRGINIA MUNICIPAL	MN	LPV	1	99.8804	1	99.88000	1	99.8755
FBL	FARIBAULT MUNICIPAL	MN	LPV	1	99.8989	1	99.8921	1	99.8898
FCM	FLYING CLOUD	MN	LPV200	1	99.8977	1	99.8909	1	99.8898
FFM	FERGUS FALLS MUNICIPAL-EINAR MICKEL	MN	LPV200	1	99.8966	1	99.8905	1	99.8890
FKA	FILLMORE COUNTY	MN	LPV	1	99.9075	1	99.8932	1	99.8898
FOZ	BIGFORK MUNICIPAL	MN	LP	1	99.8853	1	99.8819	1	99.8736
FRM	FAIRMONT MUNICIPAL	MN	LPV	1	99.9181	1	99.9007	1	99.8898
FSE	FOSSTON MUNICIPAL	MN	LP	1	99.8921	1	99.8894	1	99.8717
GHW	GLENWOOD MUNICIPAL	MN	LPV	1	99.9022	1	99.8973	1	99.8898
GPZ	GRAND RAPIDS/ITASCA CO-GORDON	MN	LPV	1	99.8868	1	99.8860	1	99.8758
GYL	GLENCOE MUNICIPAL	MN	LPV	1	99.8981	1	99.8913	1	99.8898
HCD	HUTCHINSON MUNICIPAL-BUTLER FIELD	MN	LPV	1	99.8985	1	99.8917	1	99.8898
HCO	HALLOCK MUNICIPAL	MN	LPV	1	99.8788	1	99.8788	2	99.8694
HIB	RANGE RGNL	MN	LPV200	1	99.8841	1	99.8804	1	99.8755
INL	FALLS INTL-EINARSON FIELD	MN	LPV	1	99.8822	1	99.8792	2	99.8687
JKJ	MOORHEAD MUNICIPAL	MN	LPV	1	99.8966	1	99.8913	1	99.8845
LJF	LITCHFIELD MUNICIPAL	MN	LPV	1	99.8996	1	99.8932	1	99.8898
LVN	AIRLAKE	MN	LPV200	1	99.8981	1	99.8913	1	99.8898
LXL	LITTLE FALLS/MORRISON COUNTY-L	MN	LPV	1	99.8909	1	99.8898	1	99.8864
LYV	QUENTIN AANENSON FIELD	MN	LPV200	2	99.9426	1	99.9049	1	99.8996
MGG	MAPLE LAKE MUNICIPAL	MN	LP	1	99.8951	1	99.8902	1	99.8894
MJQ	JACKSON MUNICIPAL	MN	LPV	1	99.9185	1	99.9007	1	99.8898
MKT	MANKATO RGNL	MN	LPV200	1	99.9030	1	99.8921	1	99.8898
MML	SOUTHWEST MINNESOTA RGNL MARSH	MN	LPV200	1	99.9109	1	99.9007	1	99.8898
MOX	MORRIS MUNICIPAL - CHARLIE SCHMIDT	MN	LPV	1	99.8966	1	99.8905	1	99.8898
MSP	MINNEAPOLIS-ST PAUL INTL/WOLD-	MN	LPV200	1	99.8977	1	99.8909	1	99.8890
MVE	MONTEVIDEO-CHIPPEWA COUNTY	MN	LPV	1	99.9045	1	99.8981	1	99.8898
MZH	MOOSE LAKE CARLTON COUNTY	MN	LPV	1	99.8883	1	99.8883	1	99.8766
ONA	WINONA MUNICIPAL-MAX CONRAD FLD	MN	LPV	1	99.8992	1	99.8924	1	99.8898
ORB	ORR RGNL	MN	LP	1	99.8807	1	99.8792	1	99.8732
OTG	WORTHINGTON MUNICIPAL	MN	LPV200	1	99.9196	1	99.9022	1	99.8898
OWA	OWATONNA DEGNER RGNL	MN	LPV200	1	99.9034	1	99.8924	1	99.8898

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
PEX	PAYNESVILLE MUNICIPAL	MN	LPV200	1	99.8992	1	99.8943	1	99.8898
PKD	PARK RAPIDS MUNICIPAL-KONSHOK FIELD	MN	LPV200	1	99.8905	1	99.8898	1	99.8796
PQN	PIPESTONE MUNICIPAL	MN	LPV200	1	99.9151	1	99.9034	1	99.8989
RGK	RED WING RGNL	MN	LPV200	1	99.8943	1	99.8917	1	99.8898
ROS	RUSH CITY RGNL	MN	LPV	1	99.8898	1	99.8898	1	99.8811
ROX	ROSEAU MUNICIPAL/RUDY BILLBERG FIEL	MN	LPV	1	99.8770	1	99.8758	2	99.8683
RRT	WARROAD INTL MEMORIAL	MN	LPV	1	99.8766	1	99.8739	2	99.8679
RST	ROCHESTER INTL	MN	LPV200	1	99.9038	1	99.8928	1	99.8898
RWF	REDWOOD FALLS MUNICIPAL	MN	LPV	1	99.9083	1	99.8985	1	99.8898
SAZ	STAPLES MUNICIPAL	MN	LPV	1	99.8905	1	99.8898	1	99.8864
SGS	SOUTH ST PAUL MUNICIPAL-RICHARD E F	MN	LP	1	99.8939	1	99.8909	1	99.8860
STC	ST CLOUD RGNL	MN	LPV200	1	99.8928	1	99.8898	1	99.8875
STP	ST PAUL DOWNTOWN HOLMAN FLD	MN	LPV	1	99.8939	1	99.8909	1	99.8860
TOB	DODGE CENTER	MN	LPV	1	99.9034	1	99.8924	1	99.8898
TVF	THIEF RIVER FALLS RGNL	MN	LPV	1	99.8796	1	99.8796	2	99.8698
TWM	RICHARD B HELGESON	MN	LPV	1	99.8796	1	99.8792	1	99.8743
ULM	NEW ULM MUNICIPAL	MN	LPV200	1	99.9094	1	99.8985	1	99.8898
VVV	ORTONVILLE MUNICIPAL-MARTINSON FIEL	MN	LP	1	99.9045	1	99.8992	1	99.8898
Y49	WALKER MUNICIPAL	MN	LP	1	99.8898	1	99.8894	1	99.8758
Y63	ELBOW LAKE MUNICIPAL - PRIDE OF THE	MN	LPV	1	99.8966	1	99.8905	1	99.8898
03D	MEMPHIS MEMORIAL	MO	LPV	1	99.9513	1	99.9513	1	99.9460
1H0	CREVE COEUR	MO	LPV	0	100	1	99.9894	1	99.9464
1MO	MOUNTAIN GROVE MEMORIAL	MO	LP	0	100	0	100	0	100
2H2	JERRY SUMNERS SR AURORA MUNICIPAL	MO	LP	0	100	0	100	0	100
6M6	LEWIS COUNTY RGNL	MO	LPV	1	99.9623	1	99.9498	1	99.9460
8WC	WASHINGTON COUNTY	MO	LPV	0	100	0	100	1	99.9653
94K	CASSVILLE MUNICIPAL	MO	LPV	0	100	0	100	0	100
AIZ	LEE C FINE MEMORIAL	MO	LPV	0	100	0	100	1	99.9732
BBG	BRANSON	MO	LPV200	0	100	0	100	0	100
BUM	BUTLER MEMORIAL	MO	LPV	0	100	0	100	0	100
CGI	CAPE GIRARDEAU RGNL	MO	LPV200	0	100	0	100	1	99.9698
CHT	CHILLICOTHE MUNICIPAL	MO	LPV	0	100	0	100	1	99.9728
COU	COLUMBIA RGNL	MO	LPV	0	100	0	100	1	99.9498
DMO	SEDALIA RGNL	MO	LPV	0	100	0	100	1	99.9747
DXE	DEXTER MUNICIPAL	MO	LPV	0	100	0	100	1	99.9811
EIW	COUNTY MEMORIAL	MO	LPV	0	100	0	100	1	99.9815

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
EOS	NEOSHO HUGH ROBINSON	MO	LPV	0	100	0	100	0	100
EVU	NORTHWEST MISSOURI RGNL	MO	LPV	0	100	0	100	1	99.9887
EZZ	CAMERON MEMORIAL	MO	LPV	0	100	0	100	1	99.9883
FAM	FARMINGTON RGNL	MO	LPV	0	100	0	100	1	99.9672
FTT	ELTON HENSLEY MEMORIAL	MO	LPV	0	100	0	100	1	99.9494
FWB	BRANSON WEST MUNICIPAL - EMERSON FI	MO	LPV200	0	100	0	100	0	100
FYG	WASHINGTON RGNL	MO	LPV	0	100	0	100	1	99.9472
GLY	CLINTON RGNL	MO	LPV	0	100	0	100	0	100
GPH	MIDWEST NATIONAL AIR CENTER	MO	LPV	0	100	0	100	1	99.9996
H79	ELDON MODEL AIRPARK	MO	LP	0	100	0	100	1	99.9691
H88	A PAUL VANCE FREDERICKTOWN RGN	MO	LPV	0	100	0	100	1	99.9687
HAE	HANNIBAL RGNL	MO	LPV	2	99.9792	1	99.9626	1	99.9460
HFJ	MONETT RGNL	MO	LPV	0	100	0	100	0	100
HIG	HIGGINSVILLE INDUSTRIAL MUNICIPAL	MO	LPV	0	100	0	100	1	99.9891
IRK	KIRKSVILLE RGNL	MO	LPV200	2	99.9668	2	99.9668	1	99.9513
JEF	JEFFERSON CITY MEMORIAL	MO	LPV	0	100	0	100	1	99.9638
JLN	JOPLIN RGNL	MO	LPV	0	100	0	100	0	100
K02	PERRYVILLE MUNICIPAL	MO	LPV	0	100	0	100	1	99.9660
K15	GRAND GLAIZE-OSAGE BEACH	MO	LP	0	100	0	100	1	99.9755
K57	GOULD PETERSON MUNICIPAL	MO	LPV	0	100	0	100	1	99.9891
K89	MACON-FOWER MEMORIAL	MO	LPV	1	99.9853	1	99.9853	1	99.9509
LLU	LAMAR MUNICIPAL	MO	LPV	0	100	0	100	0	100
LRY	LAWRENCE SMITH MEMORIAL	MO	LPV	0	100	0	100	0	100
LXT	LEE'S SUMMIT MUNICIPAL	MO	LPV	0	100	0	100	0	100
M05	CARUTHERSVILLE MEMORIAL	MO	LPV	0	100	0	100	1	99.9841
M12	STEELE MUNICIPAL	MO	LPV	0	100	0	100	2	99.9985
M17	BOLIVAR MUNICIPAL	MO	LPV	0	100	0	100	0	100
M48	HOUSTON MEMORIAL	MO	LPV	0	100	0	100	2	99.9898
MAW	MALDEN RGNL	MO	LPV	0	100	0	100	1	99.9815
MBY	OMAR N BRADLEY	MO	LPV	0	100	0	100	1	99.9509
MCI	KANSAS CITY INTL	MO	LPV200	0	100	0	100	0	100
MHL	MARSHALL MEMORIAL MUNICIPAL	MO	LPV	0	100	0	100	1	99.9724
MKC	CHARLES B WHEELER DOWNTOWN	MO	LPV200	0	100	0	100	0	100
MNF	MOUNTAIN VIEW	MO	LP	0	100	0	100	1	99.9947
MO3	STOCKTON MUNICIPAL	MO	LP	0	100	0	100	0	100

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
MO8	NORTH CENTRAL MISSOURI RGNL	MO	LPV	0	100	0	100	1	99.9521
MYJ	MEXICO MEMORIAL	MO	LPV	1	99.9974	1	99.9974	1	99.9494
NVD	NEVADA MUNICIPAL	MO	LPV200	0	100	0	100	0	100
OZS	CAMDENTON MEMORIAL-LAKE RGNL	MO	LPV	0	100	0	100	1	99.9781
PLK	M GRAHAM CLARK DOWNTOWN	MO	LPV200	0	100	0	100	0	100
POF	POPLAR BLUFF MUNICIPAL	MO	LPV	0	100	0	100	1	99.9811
RAW	WARSAW MUNICIPAL	MO	LPV200	0	100	0	100	0	100
RCM	SKYHAVEN	MO	LPV	0	100	0	100	0	100
SGF	SPRINGFIELD-BRANSON NATIONAL	MO	LPV200	0	100	0	100	0	100
SIK	SIKESTON MEMORIAL MUNICIPAL	MO	LPV	0	100	0	100	1	99.9804
STJ	ROSECRANS MEMORIAL	MO	LPV200	0	100	0	100	0	100
STL	LAMBERT-ST LOUIS INTL	MO	LPV200	0	100	2	99.9857	1	99.9464
SUS	SPIRIT OF ST LOUIS	MO	LPV200	0	100	1	99.9955	1	99.9468
TBN	WAYNESVILLE-ST ROBERT RGNL FOR	MO	LPV	0	100	0	100	1	99.9762
TKX	KENNETT MEMORIAL	MO	LPV	0	100	0	100	1	99.9849
TRX	TRENTON MUNICIPAL	MO	LPV	0	100	0	100	1	99.96000
UBX	CUBA MUNICIPAL	MO	LPV	0	100	0	100	1	99.9638
UNO	WEST PLAINS RGNL	MO	LPV	0	100	0	100	0	100
UUV	SULLIVAN RGNL	MO	LPV	0	100	0	100	1	99.9634
VER	JESSE VIERTEL MEMORIAL	MO	LPV	0	100	0	100	1	99.9679
VIH	ROLLA NATIONAL	MO	LPV200	0	100	0	100	1	99.9638
0R0	COLUMBIA-MARION COUNTY	MS	LPV	0	100	0	100	0	100
17M	MAGEE MUNICIPAL	MS	LP	0	100	0	100	0	100
5A4	OKOLONA MUNICIPAL-RICHARD STOVALL F	MS	LPV	0	100	0	100	0	100
5A6	WINONA-MONTGOMERY COUNTY	MS	LP	0	100	0	100	0	100
87I	YAZOO COUNTY	MS	LPV	0	100	0	100	0	100
8M1	BOONEVILLE/BALDWYN	MS	LPV	0	100	0	100	0	100
CKM	FLETCHER FIELD	MS	LPV	0	100	0	100	0	100
CRX	ROSCOE TURNER	MS	LPV200	0	100	0	100	1	99.9989
GLH	GREENVILLE MID-DELTA	MS	LPV200	0	100	0	100	0	100
GNF	GRENADA MUNICIPAL	MS	LPV200	0	100	0	100	0	100
GPT	GULFPORT-BILOXI INTL	MS	LPV200	0	100	0	100	0	100
GTR	GOLDEN TRIANGLE RGNL	MS	LPV200	0	100	0	100	0	100
GWO	GREENWOOD-LEFLORE	MS	LPV	0	100	0	100	0	100
HBG	HATTIESBURG BOBBY L CHAIN MUNICIPAL	MS	LPV200	0	100	0	100	0	100

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
HEZ	HARDY-ANDERS FIELD NATCHEZ-ADA	MS	LPV200	0	100	0	100	0	100
HKS	HAWKINS FIELD	MS	LPV	0	100	0	100	0	100
HSA	STENNIS INTL	MS	LPV200	0	100	0	100	0	100
IDL	INDIANOLA MUNICIPAL	MS	LPV	0	100	0	100	0	100
JAN	JACKSON-MEDGAR WILEY EVERS INT	MS	LPV200	0	100	0	100	0	100
JVW	JOHN BELL WILLIAMS	MS	LPV200	0	100	0	100	0	100
LMS	LOUISVILLE WINSTON COUNTY	MS	LPV	0	100	0	100	0	100
LUL	HESLER-NOBLE FIELD	MS	LPV	0	100	0	100	0	100
M40	MONROE COUNTY	MS	LPV	0	100	0	100	0	100
M43	PRENTISS-JEFFERSON DAVIS COUNT	MS	LPV	0	100	0	100	0	100
MBO	BRUCE CAMPBELL FIELD	MS	LP	0	100	0	100	0	100
MCB	MC COMB/PIKE COUNTY/JOHN E LEW	MS	LPV	0	100	0	100	0	100
MEI	KEY FIELD	MS	LPV200	0	100	0	100	0	100
MJD	PICAYUNE MUNICIPAL	MS	LPV	0	100	0	100	0	100
MMS	SELFS	MS	LPV	0	100	0	100	0	100
MPE	PHILADELPHIA MUNICIPAL	MS	LPV	0	100	0	100	0	100
OLV	OLIVE BRANCH	MS	LPV200	0	100	0	100	0	100
PIB	HATTIESBURG-LAUREL RGNL	MS	LPV200	0	100	0	100	0	100
PMU	PANOLA COUNTY	MS	LPV	0	100	0	100	0	100
PQL	TRENT LOTT INTL	MS	LPV200	0	100	0	100	0	100
RNV	CLEVELAND MUNICIPAL	MS	LPV	0	100	0	100	0	100
STF	GEORGE M BRYAN	MS	LPV200	0	100	0	100	0	100
TUP	TUPELO RGNL	MS	LPV200	0	100	0	100	0	100
UOX	UNIVERSITY-OXFORD	MS	LPV	0	100	0	100	0	100
UTA	TUNICA MUNICIPAL	MS	LPV200	0	100	0	100	0	100
VKS	VICKSBURG MUNICIPAL	MS	LP	0	100	0	100	0	100
1S3	TILLITT FIELD	MT	LPV	1	99.9974	2	99.9490	1	99.9283
4U6	CIRCLE TOWN COUNTY	MT	LPV	2	99.9713	1	99.9275	1	99.9204
6S8	LAUREL MUNICIPAL	MT	LPV	0	100	1	99.9951	2	99.9562
7S0	RONAN	MT	LPV	0	100	0	100	0	100
BHK	BAKER MUNICIPAL	MT	LPV	2	99.9657	1	99.9340	1	99.9181
BIL	BILLINGS LOGAN INTL	MT	LPV200	0	100	1	99.9936	2	99.9487
BTM	BERT MOONEY	MT	LPV	0	100	0	100	1	99.9943
BZN	BOZEMAN YELLOWSTONE INTL	MT	LPV	0	100	1	99.9992	1	99.9826
CTB	CUT BANK INTL	MT	LPV200	0	100	0	100	1	99.9826
DLN	DILLON	MT	LPV	0	100	0	100	1	99.9992
EKS	ENNIS - BIG SKY	MT	LPV	0	100	0	100	1	99.9977

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
GDV	DAWSON COMMUNICIPALTY	MT	LPV	2	99.9585	1	99.9321	1	99.9189
GGW	WOKAL FIELD/GLASGOW INTL	MT	LPV200	2	99.9679	1	99.9253	1	99.9211
GPI	GLACIER PARK INTL	MT	LPV	0	100	0	100	0	100
GTF	GREAT FALLS INTL	MT	LPV200	0	100	0	100	1	99.9641
HLN	HELENA RGNL	MT	LPV	0	100	0	100	1	99.9830
HVR	HAVRE CITY-COUNTY	MT	LPV	0	100	1	99.9834	2	99.9328
LVM	MISSION FIELD	MT	LP	0	100	1	99.9977	1	99.9826
LWT	LEWISTOWN MUNICIPAL	MT	LPV200	0	100	1	99.9940	1	99.9411
M75	MALTA	MT	LP	2	99.9909	2	99.9509	1	99.9215
MLS	FRANK WILEY FIELD	MT	LPV	1	99.9906	2	99.9449	1	99.9211
MSO	MISSOULA INTL	MT	LPV	0	100	0	100	0	100
OLF	L M CLAYTON	MT	LPV200	3	99.9528	1	99.9260	1	99.9181
PO1	POPLAR MUNICIPAL	MT	LPV200	1	99.9260	1	99.9260	1	99.9098
PWD	SHER-WOOD	MT	LPV200	1	99.9185	1	99.9185	2	99.8955
RPX	ROUNDUP	MT	LPV	0	100	1	99.9781	1	99.9309
SBX	SHELBY	MT	LPV	0	100	0	100	1	99.9724
SDY	SIDNEY-RICHLAND MUNICIPAL	MT	LPV	1	99.9192	1	99.9181	1	99.9034
WYS	YELLOWSTONE	MT	LPV200	0	100	0	100	1	99.9966
CYCL	CHARLO	NB	LPV	1	99.9317	2	99.9117	3	99.8758
CYQM	MONCTON INTL	NB	LPV	1	99.9423	1	99.9336	3	99.8705
43A	MONTGOMERY COUNTY	NC	LP	0	100	0	100	1	99.9887
ACZ	HENDERSON FIELD	NC	LPV	0	100	0	100	1	99.9849
AFP	ANSON COUNTY -JEFF CLOUD FIE	NC	LPV	0	100	0	100	1	99.9887
AKH	GASTONIA MUNICIPAL	NC	LPV	0	100	0	100	1	99.9845
ASJ	TRI-COUNTY	NC	LPV	0	100	0	100	2	99.9789
AVL	ASHEVILLE RGNL	NC	LPV	0	100	0	100	1	99.9838
BUY	BURLINGTON-ALAMANCE RGNL	NC	LPV	0	100	0	100	2	99.9868
CLT	CHARLOTTE/DOUGLAS INTL	NC	LPV200	0	100	0	100	1	99.9845
CTZ	CLINTON-SAMPSON COUNTY	NC	LPV200	0	100	0	100	1	99.9849
DPL	DUPLIN CO	NC	LPV200	0	100	0	100	1	99.9849
ECG	ELIZABETH CITY CG AIR STATION/	NC	LPV	0	100	0	100	3	99.9792
EDE	NORTHEASTERN RGNL	NC	LPV200	0	100	0	100	2	99.9834
EHO	SHELBY-CLEVELAND COUNTY RGNL	NC	LPV	0	100	0	100	1	99.9841
EQY	CHARLOTTE-MONROE EXECUTIVE	NC	LPV	0	100	0	100	1	99.9849
EWN	COASTAL CAROLINA REGIONAL	NC	LPV	0	100	0	100	1	99.9849
EXX	DAVIDSON COUNTY	NC	LPV	0	100	0	100	1	99.9841

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
EYF	CURTIS L BROWN JR FIELD	NC	LPV200	0	100	0	100	1	99.9996
FAY	FAYETTEVILLE RGNL/GRANNIS FIEL	NC	LPV200	0	100	0	100	1	99.9860
FQD	RUTHERFORD CO - MARCHMAN FIELD	NC	LPV	0	100	0	100	1	99.9838
GSO	PIEDMONT TRIAD INTL	NC	LPV200	0	100	0	100	2	99.9815
GWW	WAYNE EXECUTIVE JETPORT	NC	LPV200	0	100	0	100	1	99.9849
HKY	HICKORY RGNL	NC	LPV200	0	100	0	100	1	99.9838
HNZ	HENDERSON-OXFORD	NC	LPV	0	100	0	100	2	99.9774
HRJ	HARNETT RGNL JETPORT	NC	LPV	0	100	0	100	1	99.9860
ILM	WILMINGTON INTL	NC	LPV200	0	100	0	100	1	99.9875
INT	SMITH REYNOLDS	NC	LPV200	0	100	0	100	2	99.9808
IPJ	LINCOLNTON-LINCOLN COUNTY RGNL	NC	LPV	0	100	0	100	1	99.9838
ISO	KINSTON RGNL JETPORT AT STALLI	NC	LPV200	0	100	0	100	1	99.9849
IXA	HALIFAX-NORTHAMPTON RGNL	NC	LPV200	0	100	0	100	2	99.9785
JNX	JOHNSTON REGIONAL	NC	LPV	0	100	0	100	1	99.9849
JQF	CONCORD RGNL	NC	LPV	0	100	0	100	1	99.9845
LBT	LUMBERTON RGNL	NC	LPV	0	100	0	100	0	100
LHZ	TRIANGLE NORTH EXECUTIVE	NC	LPV200	0	100	0	100	1	99.9849
MCZ	MARTIN COUNTY	NC	LPV	0	100	0	100	1	99.9841
MEB	LAURINBURG-MAXTON	NC	LPV200	0	100	0	100	0	100
MQI	DARE COUNTY RGNL	NC	LPV	0	100	0	100	1	99.9823
MRH	MICHAEL J SMITH FIELD	NC	LP	0	100	0	100	1	99.9849
MRN	FOOTHILLS REGIONAL	NC	LPV200	0	100	0	100	1	99.9838
MWK	MOUNT AIRY/SURRY COUNTY	NC	LPV	0	100	0	100	2	99.9743
OAJ	ALBERT J ELLIS	NC	LPV200	0	100	0	100	1	99.9849
OCW	WARREN FIELD	NC	LPV	0	100	0	100	1	99.9849
ONX	CURRITUCK COUNTY RGNL	NC	LPV	0	100	0	100	3	99.9770
PGV	PITT-GREENVILLE	NC	LPV	0	100	0	100	1	99.9849
PMZ	PLYMOUTH MUNICIPAL	NC	LP	0	100	0	100	1	99.9838
RCZ	RICHMOND COUNTY	NC	LPV	0	100	0	100	0	100
RDU	RALEIGH-DURHAM INTL	NC	LPV200	0	100	0	100	1	99.9860
RUQ	ROWAN COUNTY	NC	LPV200	0	100	0	100	1	99.9841
RWI	ROCKY MOUNT-WILSON RGNL	NC	LPV	0	100	0	100	1	99.9849
SCR	SILER CITY MUNICIPAL	NC	LPV	0	100	0	100	1	99.9887
SOP	MOORE COUNTY	NC	LPV200	0	100	0	100	1	99.9981
SUT	CAPE FEAR RGNL JETPORT/HOWIE F	NC	LPV	0	100	0	100	1	99.9996
SVH	STATESVILLE RGNL	NC	LPV200	0	100	0	100	1	99.9838

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
TDF	PERSON COUNTY	NC	LPV200	0	100	0	100	2	99.9913
TTA	RALEIGH EXEC JETPORT AT SANFOR	NC	LPV200	0	100	0	100	1	99.9981
VUJ	STANLY COUNTY	NC	LPV200	0	100	0	100	1	99.9849
W40	MOUNT OLIVE MUNICIPAL	NC	LPV	0	100	0	100	1	99.9849
ZEF	ELKIN MUNICIPAL	NC	LP	0	100	0	100	2	99.9777
06D	ROLLA MUNICIPAL	ND	LPV	1	99.8807	1	99.8807	1	99.8807
2C8	CAVALIER MUNICIPAL	ND	LPV	1	99.8788	1	99.8788	2	99.8709
3H4	HILLSBORO MUNICIPAL	ND	LPV	1	99.8966	1	99.8921	1	99.8758
46D	CARRINGTON MUNICIPAL	ND	LPV	1	99.9034	1	99.8894	1	99.8807
51D	EDGELEY MUNICIPAL	ND	LPV	1	99.9098	1	99.9087	1	99.8838
5N8	CASSELTON ROBERT MILLER RGNL	ND	LPV	1	99.8966	1	99.8924	1	99.8875
7L2	LINTON MUNICIPAL	ND	LPV	1	99.9211	1	99.9170	1	99.8943
9D7	CANDO MUNICIPAL	ND	LPV	2	99.8924	1	99.8807	1	99.8807
BAC	BARNES COUNTY MUNICIPAL	ND	LPV	1	99.8966	1	99.8939	1	99.8811
BIS	BISMARCK MUNICIPAL	ND	LPV200	1	99.9196	1	99.9155	1	99.8868
BWP	HARRY STERN	ND	LPV	1	99.8966	1	99.8917	1	99.8898
D09	BOTTINEAU MUNICIPAL	ND	LPV	2	99.9030	2	99.8989	1	99.8807
D55	ROBERTSON FIELD	ND	LPV	2	99.8932	1	99.8807	2	99.8758
D60	TIOGA MUNICIPAL	ND	LPV	1	99.9102	1	99.9060	1	99.8845
DIK	DICKINSON - THEODORE ROOSEVELT	ND	LPV200	1	99.9264	1	99.9211	1	99.8887
DVL	DEVILS LAKE RGNL	ND	LPV200	2	99.8973	1	99.8807	1	99.8807
FAR	HECTOR INTL	ND	LPV200	1	99.8966	1	99.8917	1	99.8838
GAF	HUTSON FIELD	ND	LPV	1	99.8788	1	99.8788	2	99.8717
GFK	GRAND FORKS INTL	ND	LPV	2	99.8921	1	99.8796	1	99.8739
GWR	GWINNER-ROGER MELROE FIELD	ND	LPV200	1	99.8966	1	99.8936	1	99.8898
HZE	MERCER COUNTY RGNL	ND	LPV	1	99.9170	1	99.9064	1	99.8849
ISN	SLOULIN FLD INTL	ND	LPV200	1	99.9102	1	99.9090	1	99.8845
JMS	JAMESTOWN RGNL	ND	LPV200	1	99.9045	1	99.9030	1	99.8826
K74	ROBERT ODEGAARD FIELD	ND	LP	1	99.8966	1	99.8921	1	99.8887
MOT	MINOT INTL	ND	LPV	1	99.9060	1	99.9034	1	99.8845
RUG	RUGBY MUNICIPAL	ND	LP	2	99.9026	2	99.8985	1	99.8807
S25	WATFORD CITY MUNICIPAL	ND	LPV	1	99.9102	1	99.9094	1	99.8845
Y19	MANDAN MUNICIPAL	ND	LPV	1	99.9196	1	99.9155	1	99.8860
07K	CENTRAL CITY MUNICIPAL - LARRY REIN	NE	LPV	0	100	0	100	2	99.9698
08K	HARVARD STATE	NE	LPV	0	100	0	100	1	99.9879
0B4	HARTINGTON MUNICIPAL/ BUD BECKER FL	NE	LPV	2	99.9860	3	99.9607	1	99.9068
0C4	PENDER MUNICIPAL	NE	LPV	1	99.9909	2	99.9906	1	99.9075
0G3	TECUMSEH MUNICIPAL	NE	LPV	0	100	0	100	1	99.9962

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
0V3	PIONEER VILLAGE FIELD	NE	LPV	0	100	0	100	1	99.9981
12K	SUPERIOR MUNICIPAL	NE	LPV	0	100	0	100	0	100
47V	CURTIS MUNICIPAL	NE	LPV	0	100	0	100	0	100
4D9	ALMA MUNICIPAL	NE	LPV	0	100	0	100	0	100
4V9	ANTELOPE COUNTY	NE	LPV	0	100	1	99.9974	1	99.9117
6K3	CREIGHTON MUNICIPAL	NE	LPV	1	99.9977	3	99.9717	1	99.9090
7V7	RED CLOUD MUNICIPAL	NE	LPV	0	100	0	100	0	100
8V2	STUART-ATKINSON MUNICIPAL	NE	LPV	0	100	2	99.9826	1	99.9192
93Y	DAVID CITY MUNICIPAL	NE	LPV	0	100	0	100	2	99.9623
9V5	MODISETT	NE	LPV	0	100	2	99.9951	2	99.9551
AFK	NEBRASKA CITY MUNICIPAL	NE	LPV	0	100	0	100	1	99.9834
AHQ	WAHOO MUNICIPAL	NE	LPV	0	100	0	100	2	99.9581
AIA	ALLIANCE MUNICIPAL	NE	LPV200	0	100	0	100	2	99.9777
ANW	AINSWORTH RGNL	NE	LPV200	0	100	2	99.9819	1	99.9215
AUH	AURORA MUNICIPAL - AL POTTER FIELD	NE	LPV	0	100	0	100	1	99.9830
BBW	BROKEN BOW MUNICIPAL/KEITH GLAZE FL	NE	LPV	0	100	0	100	3	99.9694
BFF	WESTERN NEBRASKA RGNL/WILLIAM	NE	LPV	0	100	0	100	2	99.9902
BIE	BEATRICE MUNICIPAL	NE	LPV200	0	100	0	100	0	100
BUB	CRAM FIELD	NE	LPV	0	100	1	99.9977	2	99.9464
BVN	ALBION MUNICIPAL	NE	LPV	0	100	1	99.9989	2	99.9460
CDR	CHADRON MUNICIPAL	NE	LPV200	0	100	1	99.9985	2	99.9758
CEK	CRETE MUNICIPAL	NE	LPV	0	100	0	100	1	99.9845
CZD	COZAD MUNICIPAL	NE	LPV	0	100	0	100	2	99.9928
EAR	KEARNEY RGNL	NE	LPV200	0	100	0	100	1	99.9898
FBY	FAIRBURY MUNICIPAL	NE	LPV	0	100	0	100	0	100
FET	FREMONT MUNICIPAL	NE	LPV	0	100	0	100	2	99.9464
FMZ	FAIRMONT STATE AIRFIELD	NE	LPV	0	100	0	100	1	99.9868
FNB	BRENNER FIELD	NE	LPV	0	100	0	100	0	100
GGF	GRANT MUNICIPAL	NE	LPV	0	100	0	100	0	100
GRI	CENTRAL NEBRASKA RGNL	NE	LPV	0	100	0	100	2	99.9785
GRN	GORDON MUNICIPAL	NE	LPV	0	100	2	99.9875	2	99.9513
HDE	BREWSTER FIELD	NE	LPV	0	100	0	100	0	100
HSI	HASTINGS MUNICIPAL	NE	LPV	0	100	0	100	1	99.9943
IBM	KIMBALL MUNICIPAL/ROBERT E ARRAJ FI	NE	LPV	0	100	0	100	0	100
IML	IMPERIAL MUNICIPAL	NE	LPV	0	100	0	100	0	100
JYR	YORK MUNICIPAL	NE	LPV	0	100	0	100	1	99.9826
LBF	NORTH PLATTE RGNL AIRPORT LEE	NE	LPV200	0	100	0	100	2	99.9894

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
LCG	WAYNE MUNICIPAL/ STAN MORRIS FLD	NE	LPV	1	99.9917	3	99.9902	1	99.9079
LNK	LINCOLN	NE	LPV	0	100	0	100	2	99.9781
LXN	JIM KELLY FIELD	NE	LPV	0	100	0	100	1	99.9955
MCK	MC COOK BEN NELSON RGNL	NE	LPV	0	100	0	100	0	100
MLE	MILLARD	NE	LPV	0	100	0	100	2	99.9581
ODX	EVELYN SHARP FIELD	NE	LPV	0	100	1	99.9992	2	99.9475
OFK	NORFOLK RGNL/KARL STEFAN MEMOR	NE	LPV	1	99.9966	2	99.9955	2	99.9385
OGA	SEARLE FIELD	NE	LPV	0	100	0	100	1	99.9936
OKS	GARDEN COUNTY	NE	LPV	0	100	0	100	1	99.9909
OLU	COLUMBUS MUNICIPAL	NE	LPV	0	100	0	100	2	99.9570
OMA	EPPLEY AIRFIELD	NE	LPV200	0	100	0	100	2	99.9483
ONL	THE O'NEILL MUNICIPAL-JOHN L BAKER	NE	LPV	0	100	2	99.9841	1	99.9121
PMV	PLATTSMOUTH MUNICIPAL	NE	LPV	0	100	0	100	2	99.9672
RBE	ROCK COUNTY	NE	LPV	0	100	2	99.9815	1	99.9207
SCB	SCRIBNER STATE	NE	LPV	1	99.9985	1	99.9985	2	99.9419
SNY	SIDNEY MUNICIPAL/LLOYD W CARR FIELD	NE	LPV	0	100	0	100	0	100
SWT	SEWARD MUNICIPAL	NE	LPV	0	100	0	100	1	99.9815
TIF	THOMAS COUNTY	NE	LPV	0	100	1	99.9958	3	99.9649
VTN	MILLER FIELD	NE	LPV	0	100	2	99.9792	1	99.9226
ASH	BOIRE FIELD	NH	LPV200	2	99.9128	2	99.8989	1	99.8664
CON	CONCORD MUNICIPAL	NH	LPV	2	99.9022	2	99.8992	1	99.8554
DAW	SKYHAVEN	NH	LPV	2	99.9079	2	99.9004	1	99.8554
EEN	DILLANT-HOPKINS	NH	LPV	2	99.9041	2	99.8989	1	99.8664
HIE	MOUNT WASHINGTON RGNL	NH	LPV	1	99.9022	1	99.9022	3	99.8841
LCI	LACONIA MUNICIPAL	NH	LPV	2	99.8996	2	99.8996	1	99.8554
LEB	LEBANON MUNICIPAL	NH	LPV	2	99.8981	2	99.8981	1	99.8554
MHT	MANCHESTER	NH	LPV200	2	99.9117	2	99.8992	1	99.8660
PSM	PORTSMOUTH INTL AT PEASE	NH	LPV200	2	99.9079	2	99.8992	1	99.8551
47N	CENTRAL JERSEY RGNL	NJ	LP	2	99.9392	2	99.9392	1	99.8664
4N1	GREENWOOD LAKE	NJ	LP	2	99.9321	2	99.9313	1	99.8664
ACY	ATLANTIC CITY INTL	NJ	LPV200	3	99.9823	3	99.9823	3	99.8947
CDW	ESSEX COUNTY	NJ	LPV	2	99.9324	2	99.9324	1	99.8664
EWR	NEWARK LIBERTY INTL	NJ	LPV	3	99.9498	3	99.9475	1	99.8664
MIV	MILLVILLE MUNICIPAL	NJ	LPV200	3	99.9781	3	99.9781	3	99.8951
MJX	OCEAN COUNTY	NJ	LPV	2	99.9638	2	99.96000	2	99.8781
MMU	MORRISTOWN MUNICIPAL	NJ	LPV200	2	99.9358	2	99.9358	1	99.8664
N14	FLYING W	NJ	LPV	2	99.9585	2	99.9547	2	99.8788
N40	SKY MANOR	NJ	LP	2	99.9358	2	99.9358	1	99.8664
TEB	TETERBORO	NJ	LPV	3	99.9475	3	99.9464	1	99.8664

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
TTN	TRENTON MERCER	NJ	LPV200	2	99.9415	2	99.9415	1	99.8664
VAY	SOUTH JERSEY RGNL	NJ	LP	2	99.9581	2	99.9543	2	99.8788
WWD	CAPE MAY COUNTY	NJ	LPV	1	99.9875	1	99.9875	3	99.8966
CYDF	DEER LAKE	NL	LPV	1	99.9638	2	99.9373	73	99.2003
ATS	ARTESIA MUNICIPAL	NM	LPV	0	100	0	100	0	100
CAO	CLAYTON MUNICIPAL ARPK	NM	LPV	0	100	0	100	0	100
CNM	CAVERN CITY AIR TRML	NM	LPV200	0	100	0	100	0	100
CVN	CLOVIS MUNICIPAL	NM	LPV	0	100	0	100	0	100
DMN	DEMING MUNICIPAL	NM	LPV	0	100	0	100	0	100
E06	LEA COUNTY-ZIP FRANKLIN MEMORI	NM	LPV	0	100	0	100	0	100
FMN	FOUR CORNERS RGNL	NM	LPV200	0	100	0	100	1	99.9981
HOB	LEA COUNTY RGNL	NM	LPV	0	100	0	100	0	100
LAM	LOS ALAMOS	NM	LP	0	100	0	100	0	100
LRU	LAS CRUCES INTL	NM	LPV	0	100	0	100	0	100
ONM	SOCORRO MUNICIPAL	NM	LP	0	100	0	100	0	100
ROW	ROSWELL INTL AIR CENTER	NM	LPV	0	100	0	100	0	100
SRR	SIERRA BLANCA RGNL	NM	LPV200	0	100	0	100	0	100
SVC	GRANT COUNTY	NM	LPV	0	100	0	100	0	100
CYHZ	HALIFAX / STANFIELD INTL	NS	LPV	2	99.9355	2	99.9272	2	99.8717
CYEV	INUVIK	NT	LPV	1	99.9992	2	99.9868	43	99.8075
05U	EUREKA	NV	LP	0	100	0	100	0	100
CXP	CARSON	NV	LP	0	100	0	100	0	100
ELY	ELY ARPT /YELLAND FLD/	NV	LPV	0	100	0	100	0	100
LAS	MC CARRAN INTL	NV	LPV	0	100	0	100	0	100
RNO	RENO/TAHOE INTL	NV	LPV	0	100	0	100	0	100
RTS	RENO/STEAD	NV	LPV	0	100	0	100	0	100
TPH	TONOPAH	NV	LP	0	100	0	100	0	100
WMC	WINNEMUCCA MUNICIPAL	NV	LPV	0	100	0	100	0	100
06N	RANDALL	NY	LP	2	99.9321	2	99.9290	1	99.8664
0G7	FINGER LAKES RGNL	NY	LPV	2	99.9207	2	99.9053	1	99.8660
1B1	COLUMBIA COUNTY	NY	LPV	3	99.9241	3	99.9106	1	99.8683
20N	KINGSTON-ULSTER	NY	LPV	3	99.94000	3	99.9166	1	99.8690
44N	SKY ACRES	NY	LPV	3	99.9392	3	99.9355	1	99.8694
4B6	TICONDEROGA MUNICIPAL	NY	LPV	2	99.8992	2	99.8992	2	99.8792
5B2	SARATOGA COUNTY	NY	LPV	2	99.9041	1	99.8841	1	99.8671
5G0	LE ROY	NY	LP	2	99.9151	2	99.9151	1	99.8664
9G0	BUFFALO AIRFIELD	NY	LP	2	99.9173	2	99.9079	1	99.8664
9G3	AKRON	NY	LP	2	99.9192	2	99.9094	1	99.8721
ALB	ALBANY INTL	NY	LPV200	3	99.9192	2	99.8962	1	99.8675
ART	WATERTOWN INTL	NY	LPV200	2	99.8939	2	99.8939	1	99.8626
BGM	GREATER BINGHAMTON/EDWIN A LIN	NY	LPV200	2	99.9294	2	99.9151	1	99.8660
BUF	BUFFALO NIAGARA INTL	NY	LPV200	2	99.9177	2	99.9079	1	99.8664

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
D38	CANANDAIGUA	NY	LPV	2	99.9177	2	99.9049	1	99.8660
DKK	CHAUTAUQUA COUNTY/DUNKIRK	NY	LP	2	99.9166	2	99.9166	2	99.8785
ELM	ELMIRA/CORNING RGNL	NY	LPV200	2	99.9238	2	99.9238	1	99.8660
ELZ	WELLSVILLE MUNICIPAL ARPT`TARANTINE	NY	LPV	2	99.9290	2	99.9181	1	99.8664
FOK	FRANCIS S GABRESKI	NY	LPV200	3	99.9498	3	99.9287	1	99.8660
FRG	REPUBLIC	NY	LPV200	3	99.9524	4	99.9411	1	99.8660
FZY	OSWEGO COUNTY	NY	LPV	2	99.9136	2	99.9019	1	99.8675
GFL	FLOYD BENNETT MEMORIAL	NY	LPV	2	99.9007	2	99.8962	2	99.8796
GVQ	GENESEE COUNTY	NY	LPV200	2	99.9117	2	99.9117	1	99.8664
HPN	WESTCHESTER COUNTY	NY	LPV	3	99.9483	4	99.9407	1	99.8660
HTF	HORNELL MUNICIPAL	NY	LPV	2	99.9189	2	99.9189	1	99.8664
HTO	EAST HAMPTON	NY	LPV	3	99.9468	3	99.9260	1	99.8664
HWV	BROOKHAVEN	NY	LPV	3	99.9502	3	99.9298	1	99.8660
IAG	NIAGARA FALLS INTL	NY	LPV	2	99.9173	2	99.9072	1	99.8664
ISP	LONG ISLAND MAC ARTHUR	NY	LPV200	3	99.9521	4	99.9373	1	99.8660
ITH	ITHACA TOMPKINS RGNL	NY	LPV	2	99.9249	2	99.9102	1	99.8660
JFK	JOHN F KENNEDY INTL	NY	LPV200	3	99.9517	3	99.9457	1	99.8660
JHW	CHAUTAUQUA COUNTY/JAMESTOWN	NY	LPV200	1	99.9219	2	99.9211	2	99.8804
K09	PISECO	NY	LP	2	99.9038	2	99.8992	1	99.8732
LGA	LAGUARDIA	NY	LPV	3	99.9517	3	99.9449	1	99.8660
MAL	MALONE-DUFORT	NY	LPV	1	99.8807	1	99.8807	1	99.8698
MGJ	ORANGE COUNTY	NY	LPV	2	99.9324	2	99.9290	1	99.8664
MSS	MASSENA INTL-RICHARDS FIELD	NY	LPV	1	99.8807	1	99.8807	1	99.8588
MSV	SULLIVAN COUNTY INTL	NY	LPV	2	99.9279	2	99.9268	1	99.8664
N23	SIDNEY MUNICIPAL	NY	LP	2	99.9268	2	99.9083	1	99.8690
N66	ONEONTA MUNICIPAL	NY	LPV	2	99.9151	2	99.9030	1	99.8683
NY0	FULTON COUNTY	NY	LPV	2	99.9072	2	99.9007	1	99.8702
OGS	OGDENSBURG INTL	NY	LPV	1	99.8770	1	99.8770	1	99.8626
OLE	CATTARAUGUS COUNTY-OLEAN	NY	LPV	2	99.9275	2	99.9143	1	99.8687
PBG	PLATTSBURGH INTL	NY	LPV	1	99.9022	1	99.9022	1	99.8698
PEO	PENN YAN	NY	LPV	2	99.92000	2	99.9072	1	99.8660
POU	DUTCHESS COUNTY	NY	LPV	3	99.9423	3	99.9389	1	99.8694
RME	GRIFFISS INTL	NY	LPV200	2	99.9090	2	99.9030	1	99.8671
ROC	GREATER ROCHESTER INTL	NY	LPV200	2	99.9151	2	99.9151	1	99.8664
SCH	SCHENECTADY COUNTY	NY	LPV200	3	99.9207	3	99.9132	1	99.8671
SDC	WILLIAMSON-SODUS	NY	LPV	2	99.9139	2	99.8989	1	99.8679
SLK	ADIRONDACK RGNL	NY	LPV200	1	99.8845	1	99.8845	1	99.8770
SWF	STEWART INTL	NY	LPV200	2	99.9290	2	99.9256	1	99.8660
SYR	SYRACUSE HANCOCK INTL	NY	LPV200	2	99.9185	2	99.9053	1	99.8679

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
VGC	HAMILTON MUNICIPAL	NY	LPV	2	99.9173	2	99.9034	1	99.8679
0G6	WILLIAMS COUNTY	OH	LPV	1	99.9170	1	99.9170	2	99.9158
10G	HOLMES COUNTY	OH	LP	1	99.9192	1	99.9170	1	99.9170
16G	SENECA COUNTY	OH	LPV	1	99.9170	1	99.9170	2	99.9026
1G0	WOOD COUNTY	OH	LPV	1	99.9170	1	99.9170	2	99.9072
1G3	KENT STATE UNIV	OH	LPV	1	99.9185	1	99.9173	2	99.9026
4G5	MONROE COUNTY	OH	LP	1	99.9385	2	99.9309	1	99.9170
4I3	KNOX COUNTY	OH	LPV200	1	99.9196	1	99.9170	1	99.9170
5A1	NORWALK-HURON COUNTY	OH	LP	1	99.9170	1	99.9170	2	99.9026
6G5	BARNESVILLE-BRADFIELD	OH	LP	1	99.9256	1	99.9185	1	99.9170
7G8	GEAUGA COUNTY	OH	LP	1	99.9226	1	99.9181	2	99.8883
AKR	AKRON FULTON INTL	OH	LP	1	99.9185	1	99.9173	2	99.9026
AOH	LIMA ALLEN COUNTY	OH	LPV200	1	99.9170	1	99.9170	1	99.9170
AXV	NEIL ARMSTRONG	OH	LPV	1	99.9170	1	99.9170	1	99.9170
BJJ	WAYNE COUNTY	OH	LPV	1	99.9170	1	99.9170	2	99.9079
BKL	BURKE LAKEFRONT	OH	LPV	1	99.9170	1	99.9170	2	99.8962
CAK	AKRON-CANTON RGNL	OH	LPV200	1	99.9207	1	99.9173	2	99.9075
CDI	CAMBRIDGE MUNICIPAL	OH	LP	1	99.9256	1	99.9173	1	99.9170
CGF	CUYAHOGA COUNTY	OH	LPV	1	99.9170	1	99.9170	2	99.8883
CLE	CLEVELAND-HOPKINS INTL	OH	LPV200	1	99.9170	1	99.9170	2	99.8955
CMH	PORT COLUMBUS INTL	OH	LPV200	1	99.9256	1	99.9170	1	99.9170
CQA	LAKEFIELD	OH	LPV	1	99.9170	1	99.9170	1	99.9170
DAY	JAMES M COX DAYTON INTL	OH	LPV200	1	99.9207	1	99.9170	1	99.9170
DLZ	DELAWARE MUNICIPAL - JIM MOORE FIEL	OH	LPV	1	99.9189	1	99.9170	1	99.9170
EDJ	BELLEFONTAINE RGNL	OH	LPV	1	99.9177	1	99.9170	1	99.9170
EOP	PIKE COUNTY	OH	LP	2	99.9509	1	99.9170	1	99.9170
FDY	FINDLAY	OH	LPV	1	99.9170	1	99.9170	1	99.9170
FZI	FOSTORIA METROPOLITAN	OH	LPV	1	99.9170	1	99.9170	2	99.9030
GQQ	GALION MUNICIPAL	OH	LP	1	99.9170	1	99.9170	1	99.9170
HAO	BUTLER CO RGNL-HOGAN FIELD	OH	LPV	2	99.9634	1	99.9170	1	99.9170
HOC	HIGHLAND COUNTY	OH	LP	1	99.9453	1	99.9170	1	99.9170
HZY	NORTHEAST OHIO RGNL	OH	LPV	1	99.9223	1	99.9189	2	99.8883
I19	GREENE COUNTY-LEWIS A JACKSON	OH	LPV	1	99.9389	1	99.9170	1	99.9170
I66	CLINTON FIELD	OH	LPV	1	99.9389	1	99.9170	1	99.9170
I68	WARREN COUNTY/JOHN LANE FIELD	OH	LPV	1	99.9426	1	99.9170	1	99.9170
I69	CLERMONT COUNTY	OH	LP	1	99.9664	2	99.9294	1	99.9170
I74	GRIMES FIELD	OH	LPV	1	99.9204	1	99.9170	1	99.9170
ILN	WILMINGTON AIR PARK	OH	LPV200	1	99.9389	1	99.9170	1	99.9170
LCK	RICKENBACKER INTL	OH	LPV200	1	99.9256	1	99.9170	1	99.9170
LHQ	FAIRFIELD COUNTY	OH	LPV200	1	99.9256	1	99.9170	1	99.9170

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
LNN	WILLOUGHBY LOST NATION MUNICIPAL	OH	LPV	1	99.9173	1	99.9173	2	99.8883
LPR	LORAIN COUNTY RGNL	OH	LPV200	1	99.9170	1	99.9170	2	99.9022
LUK	CINCINNATI MUNICIPAL AIRPORT LUNKEN	OH	LPV	1	99.9649	2	99.9294	1	99.9170
MFD	MANSFIELD LAHM RGNL	OH	LPV200	1	99.9170	1	99.9170	2	99.9090
MGY	DAYTON-WRIGHT BROTHERS	OH	LPV	1	99.9389	1	99.9170	1	99.9170
MNN	MARION MUNICIPAL	OH	LPV	1	99.9170	1	99.9170	1	99.9170
MRT	UNION COUNTY	OH	LP	1	99.9192	1	99.9170	1	99.9170
MWO	MIDDLETOWN REGIONAL/HOOK FIELD	OH	LPV	1	99.9389	1	99.9170	1	99.9170
OSU	OHIO STATE UNIVERSITY	OH	LPV200	1	99.9223	1	99.9170	1	99.9170
OWX	PUTNAM COUNTY	OH	LPV	1	99.9170	1	99.9170	1	99.9170
OXD	MIAMI UNIVERSITY	OH	LPV	3	99.9574	1	99.9170	1	99.9170
PCW	ERIE-OTTAWA INTL	OH	LPV	1	99.9170	1	99.9170	2	99.9026
PHD	HARRY CLEVER FIELD	OH	LP	1	99.9249	1	99.9177	2	99.9166
PMH	GREATER PORTSMOUTH RGNL	OH	LPV	1	99.9604	2	99.9347	1	99.9170
POV	PORTAGE COUNTY	OH	LPV	1	99.9226	1	99.9177	2	99.8973
RZT	ROSS COUNTY	OH	LPV	1	99.9389	1	99.9170	1	99.9170
S24	SANDUSKY COUNTY RGNL	OH	LPV	1	99.9170	1	99.9170	2	99.9026
SCA	SIDNEY MUNICIPAL	OH	LPV	1	99.9181	1	99.9170	1	99.9170
SGH	SPRINGFIELD-BECKLEY MUNICIPAL	OH	LPV200	1	99.9238	1	99.9170	1	99.9170
TDZ	TOLEDO EXECUTIVE	OH	LP	1	99.9170	1	99.9170	2	99.9026
TOL	TOLEDO EXPRESS	OH	LPV200	1	99.9170	1	99.9170	2	99.9053
TSO	CARROLL COUNTY-TOLSON	OH	LP	1	99.9245	1	99.9185	2	99.9132
TZR	BOLTON FIELD	OH	LPV200	1	99.9256	1	99.9170	1	99.9170
UNI	OHIO UNIVERSITY	OH	LPV200	1	99.9389	1	99.9170	1	99.9170
USE	FULTON COUNTY	OH	LPV	1	99.9170	1	99.9170	2	99.9102
UYF	MADISON COUNTY	OH	LPV	1	99.9256	1	99.9170	1	99.9170
YNG	YOUNGSTOWN-WARREN RGNL	OH	LPV	1	99.9230	1	99.9189	2	99.8883
1F0	ARDMORE DOWNTOWN EXECUTIVE	OK	LP	0	100	0	100	2	99.9989
1O4	THOMAS MUNICIPAL	OK	LPV	0	100	0	100	0	100
80F	ANTLERS MUNICIPAL	OK	LPV	0	100	0	100	0	100
ADH	ADA MUNICIPAL	OK	LPV	0	100	0	100	2	99.9992
ADM	ARDMORE MUNICIPAL	OK	LPV200	0	100	0	100	2	99.9992
AVK	ALVA RGNL	OK	LPV	0	100	0	100	0	100
AXS	ALTUS/QUARTZ MOUNTAIN RGNL	OK	LPV	0	100	0	100	0	100
BKN	BLACKWELL-TONKAWA MUNICIPAL	OK	LPV	0	100	0	100	0	100
BVO	BARTLESVILLE MUNICIPAL	OK	LPV	0	100	0	100	0	100

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
CHK	CHICKASHA MUNICIPAL	OK	LPV200	0	100	0	100	0	100
CLK	CLINTON RGNL	OK	LPV200	0	100	0	100	0	100
CSM	CLINTON-SHERMAN	OK	LPV200	0	100	0	100	0	100
DUA	DURANT RGNL - EAKER FIELD	OK	LPV	0	100	0	100	0	100
DUC	HALLIBURTON FIELD	OK	LPV	0	100	0	100	0	100
ELK	ELK CITY RGNL BUSINESS	OK	LPV	0	100	0	100	0	100
F22	PERRY MUNICIPAL	OK	LPV	0	100	0	100	0	100
FDR	FREDERICK RGNL	OK	LPV200	0	100	0	100	0	100
GCM	CLAREMORE RGNL	OK	LPV	0	100	0	100	0	100
GMJ	GROVE MUNICIPAL	OK	LPV	0	100	0	100	0	100
GOK	GUTHRIE-EDMOND RGNL	OK	LPV	0	100	0	100	2	99.9992
GUY	GUYMON MUNICIPAL	OK	LPV	0	100	0	100	0	100
GZL	STIGLER RGNL	OK	LPV	0	100	0	100	0	100
HBR	HOBART RGNL	OK	LPV	0	100	0	100	0	100
HSD	SUNDANCE AIRPARK	OK	LPV	0	100	0	100	4	99.9985
MKO	DAVIS FIELD	OK	LPV	0	100	0	100	0	100
MLC	MC ALESTER RGNL	OK	LPV	0	100	0	100	0	100
OJA	THOMAS P STAFFORD	OK	LPV	0	100	0	100	0	100
OKC	WILL ROGERS WORLD	OK	LPV200	0	100	0	100	4	99.9985
OKM	OKMULGEE RGNL	OK	LPV	0	100	0	100	0	100
OUN	UNIVERSITY OF OKLAHOMA WESTHEI	OK	LPV200	0	100	0	100	3	99.9989
OWP	WILLIAM R POGUE MUNICIPAL	OK	LPV	0	100	0	100	0	100
PNC	PONCA CITY RGNL	OK	LPV	0	100	0	100	0	100
PVJ	PAULS VALLEY MUNICIPAL	OK	LPV200	0	100	0	100	2	99.9992
PWA	WILEY POST	OK	LPV200	0	100	0	100	3	99.9989
RCE	CLARENCE E PAGE MUNICIPAL	OK	LPV	0	100	0	100	3	99.9989
RVS	RICHARD LLOYD JONES JR	OK	LPV	0	100	0	100	0	100
SNL	SHAWNEE RGNL	OK	LPV200	0	100	0	100	1	99.9996
SWO	STILLWATER RGNL	OK	LPV200	0	100	0	100	0	100
TQH	TAHLEQUAH MUNICIPAL	OK	LPV	0	100	0	100	0	100
TUL	TULSA INTL	OK	LPV200	0	100	0	100	0	100
WDG	ENID WOODRING RGNL	OK	LPV200	0	100	0	100	1	99.9996
WWR	WEST WOODWARD	OK	LPV	0	100	0	100	0	100
CNS7	KINCARDINE	ON	LPV	2	99.8989	2	99.8989	1	99.8554
CYHD	DRYDEN REGIONAL	ON	LPV	1	99.8721	1	99.8717	2	99.8479
CYKF	KITCHENER / WATERLOO	ON	LPV	2	99.9128	2	99.9128	2	99.88000
CYOW	OTTAWA / MACDONALDCARTIER INTL	ON	LPV	1	99.8864	1	99.8758	1	99.8668
CYQT	THUNDER BAY	ON	LPV	1	99.8717	1	99.8717	2	99.8687
CYTS	TIMMINS / VICTOR M POWER	ON	LPV	1	99.8641	1	99.8596	1	99.8494
CYXL	SIOUX LOOKOUT	ON	LPV	1	99.8717	1	99.8717	2	99.8468

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
AST	ASTORIA RGNL	OR	LPV	0	100	0	100	0	100
BDN	BEND MUNICIPAL	OR	LPV	0	100	0	100	0	100
BKE	BAKER CITY MUNICIPAL	OR	LPV	0	100	0	100	0	100
CVO	CORVALLIS MUNICIPAL	OR	LPV200	0	100	0	100	0	100
EUG	MAHLON SWEET FIELD	OR	LPV200	0	100	0	100	0	100
GCD	GRANT CO RGNL/OGILVIE FIELD	OR	LPV	0	100	0	100	0	100
HIO	PORTLAND-HILLSBORO	OR	LPV200	0	100	0	100	0	100
LGD	LA GRANDE/UNION COUNTY	OR	LPV	0	100	0	100	0	100
LKV	LAKE COUNTY	OR	LPV	0	100	0	100	0	100
LMT	KLAMATH FALLS	OR	LPV	0	100	0	100	0	100
MMV	MC MINNVILLE MUNICIPAL	OR	LPV	0	100	0	100	0	100
ONO	ONTARIO MUNICIPAL	OR	LPV	0	100	0	100	0	100
OTH	SOUTHWEST OREGON RGNL	OR	LPV	0	100	0	100	0	100
PDT	EASTERN OREGON RGNL AT PENDLET	OR	LPV200	0	100	0	100	0	100
PDX	PORTLAND INTL	OR	LPV200	0	100	0	100	0	100
RDM	ROBERTS FIELD	OR	LPV200	0	100	0	100	0	100
S33	MADRAS MUNICIPALCIPAL	OR	LPV	0	100	0	100	0	100
S39	PRINEVILLE	OR	LP	0	100	0	100	0	100
SLE	MCNARY FLD	OR	LPV200	0	100	0	100	0	100
SPB	SCAPPOOSE INDUSTRIAL AIRPARK	OR	LPV	0	100	0	100	0	100
UAO	AURORA STATE	OR	LPV	0	100	0	100	0	100
22N	JAKE ARNER MEMORIAL	PA	LP	1	99.9389	1	99.9389	1	99.8664
29D	GROVE CITY	PA	LP	1	99.9230	1	99.9204	2	99.8883
2G9	SOMERSET COUNTY	PA	LPV	1	99.9389	1	99.9389	2	99.9026
8G2	CORRY-LAWRENCE	PA	LPV	1	99.9215	1	99.9215	2	99.8811
8N8	DANVILLE	PA	LP	1	99.9389	2	99.9385	1	99.8664
9D4	DECK	PA	LPV	1	99.9389	1	99.9389	2	99.8838
ABE	LEHIGH VALLEY INTL	PA	LPV200	2	99.9385	2	99.9385	1	99.8664
AFJ	WASHINGTON COUNTY	PA	LPV200	1	99.9385	2	99.9347	1	99.9170
AGC	ALLEGHENY COUNTY	PA	LPV200	1	99.9351	2	99.9347	2	99.9098
AOO	ALTOONA-BLAIR COUNTY	PA	LPV	1	99.9389	1	99.9389	3	99.9087
AVP	WILKES-BARRE/SCRANTON INTL	PA	LPV200	2	99.9298	2	99.9298	1	99.8664
AXQ	CLARION COUNTY	PA	LPV	1	99.9313	1	99.9313	2	99.8811
BFD	BRADFORD RGNL	PA	LPV	1	99.9313	1	99.9313	2	99.8792
BTP	BUTLER COUNTY/K W SCHOLTER FIE	PA	LPV	1	99.9313	1	99.9219	2	99.8996
BVI	BEAVER COUNTY	PA	LPV	1	99.9241	1	99.92000	2	99.9026
CXY	CAPITAL CITY	PA	LPV	1	99.9389	1	99.9389	2	99.8849
DUJ	DUBOIS RGNL	PA	LPV200	1	99.9351	1	99.9351	2	99.8811
ERI	ERIE INTL/TOM RIDGE FIELD	PA	LPV	1	99.9215	1	99.9196	2	99.8841
FIG	CLEARFIELD-LAWRENCE	PA	LPV	1	99.9351	1	99.9351	2	99.8822

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
FKL	VENANGO RGNL	PA	LPV	1	99.9226	1	99.9219	2	99.8849
FWQ	ROSTRAVER	PA	LPV	1	99.9389	1	99.9389	2	99.9143
GKJ	PORT MEADVILLE	PA	LP	1	99.9223	1	99.92000	2	99.8849
HMZ	BEDFORD COUNTY	PA	LPV	1	99.9389	1	99.9389	3	99.9128
IPT	WILLIAMSPORT RGNL	PA	LPV	1	99.9389	2	99.9385	1	99.8664
JST	JOHN MURTHA JOHNSTOWN-CAMBRIA	PA	LPV200	1	99.9389	1	99.9389	3	99.9128
LBE	ARNOLD PALMER RGNL	PA	LPV	1	99.9389	1	99.9389	2	99.9007
LNS	LANCASTER	PA	LPV200	1	99.9389	1	99.9389	2	99.8849
LOM	WINGS FIELD	PA	LPV	1	99.9389	1	99.9389	2	99.8804
MDT	HARRISBURG INTL	PA	LPV	1	99.9389	1	99.9389	2	99.8849
MPO	POCONO MOUNTAINS MUNICIPAL	PA	LPV	2	99.9302	2	99.9302	1	99.8664
MQS	CHESTER COUNTY G O CARLSON	PA	LPV	1	99.9389	1	99.9389	2	99.8811
N38	WELLSBORO JOHNSTON	PA	LP	2	99.9317	2	99.9245	1	99.8664
N79	NORTHUMBERLAND COUNTY	PA	LPV	1	99.9389	1	99.9389	2	99.8785
N96	BELLEFONTE	PA	LPV	1	99.9389	1	99.9389	2	99.8811
OQN	BRANDYWINE	PA	LP	1	99.9389	1	99.9389	2	99.8811
OYM	ST MARYS MUNICIPAL	PA	LPV	1	99.9351	1	99.9351	2	99.8819
PHL	PHILADELPHIA INTL	PA	LPV	3	99.9683	3	99.9645	2	99.8811
PIT	PITTSBURGH INTL	PA	LPV200	1	99.9313	1	99.9207	2	99.9090
PNE	NORTHEAST PHILADELPHIA	PA	LPV	2	99.9506	2	99.9506	2	99.8788
PSB	MID-STATE	PA	LPV	1	99.9389	1	99.9389	2	99.8811
PTW	HERITAGE FIELD	PA	LPV	1	99.9389	1	99.9389	2	99.8804
RDG	READING RGNL/CARL A SPAATZ FIE	PA	LPV	1	99.9389	1	99.9389	2	99.8811
RVL	MIFFLIN COUNTY	PA	LPV	1	99.9389	1	99.9389	3	99.8966
THV	YORK	PA	LP	2	99.9509	1	99.9389	2	99.8872
UCP	NEW CASTLE MUNICIPAL	PA	LPV	1	99.9234	1	99.9196	2	99.8989
UKT	QUAKERTOWN	PA	LP	1	99.9389	1	99.9389	2	99.8785
UNV	UNIVERSITY PARK	PA	LPV200	1	99.9389	1	99.9389	2	99.8811
VVS	JOSEPH A HARDY CONNELLSVILLE	PA	LPV	1	99.9389	1	99.9389	1	99.9219
WAY	GREENE COUNTY	PA	LPV	1	99.9389	2	99.9385	1	99.9181
WBW	WILKES-BARRE WYOMING VALLEY	PA	LPV	2	99.9294	2	99.9294	1	99.8664
XLL	ALLENTOWN QUEEN CITY MUNICIPAL	PA	LP	2	99.9385	2	99.9385	1	99.8664
ZER	SCHUYLKILL COUNTY /JOE ZERBEY/	PA	LPV200	1	99.9389	1	99.9389	2	99.8807
CPN8	OPINACA	QC	LPV	1	99.8785	1	99.8638	2	99.8120
CSR3	VICTORIAVILLE	QC	LPV	1	99.9022	1	99.9022	2	99.8853
CTP9	KATTINIQ / DONALDSON	QC	LPV	3	99.9709	4	99.9373	27	99.7309

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
CYEY	AMOS	QC	LPV	1	99.8694	1	99.8694	1	99.8411
CYHU	MONTREAL / STHUBERT	QC	LPV	1	99.9022	1	99.9022	2	99.8834
CYIF	STAUGUSTIN	QC	LPV	2	99.9641	3	99.9336	8	99.8532
CYMX	MONTREAL (MIRABEL INTL)	QC	LPV	1	99.8845	1	99.8845	1	99.8736
CYQB	QUEBEC / JEAN LESAGE INTL	QC	LPV	1	99.9022	1	99.9022	2	99.8819
CYRI	RIVIEREDULOUP	QC	LPV	1	99.8989	1	99.8989	2	99.8811
CYRQ	TROISRIVIERES	QC	LPV	1	99.9022	1	99.9022	1	99.8694
CYVB	BONAVENTURE	QC	LPV	1	99.9317	1	99.9223	3	99.8683
CYVP	KUUJJUAQ	QC	LPV	2	99.9543	3	99.9204	13	99.7853
CYYY	MONTJOLI	QC	LPV	2	99.9132	1	99.8913	4	99.8747
BID	BLOCK ISLAND STATE	RI	LPV	2	99.9313	2	99.9151	1	99.8660
OQU	QUONSET STATE	RI	LPV	2	99.9287	3	99.9109	1	99.8660
PVD	THEODORE FRANCIS GREEN STATE	RI	LPV200	2	99.9287	2	99.8890	1	99.8660
SFZ	NORTH CENTRAL STATE	RI	LPV	2	99.9287	2	99.8875	1	99.8660
35A	UNION COUNTY` TROY SHELTON FIE	SC	LP	0	100	0	100	1	99.9932
6J0	LEXINGTON COUNTY AT PELION	SC	LPV	0	100	0	100	0	100
AIK	AIKEN MUNICIPAL	SC	LPV200	0	100	0	100	0	100
AND	ANDERSON RGNL	SC	LPV200	0	100	0	100	0	100
AQX	ALLENDALE COUNTY	SC	LPV	0	100	0	100	0	100
ARW	BEAUFORT COUNTY	SC	LPV200	0	100	0	100	0	100
BBP	MARLBORO COUNTY JETPORT - H E	SC	LPV	0	100	0	100	0	100
BNL	BARNWELL RGNL	SC	LPV	0	100	0	100	0	100
CAE	COLUMBIA METROPOLITAN	SC	LPV200	0	100	0	100	0	100
CDN	WOODWARD FIELD	SC	LPV	0	100	0	100	1	99.9996
CEU	OCONEE COUNTY RGNL	SC	LPV200	0	100	0	100	1	99.9917
CHS	CHARLESTON AFB/INTL	SC	LPV200	0	100	0	100	0	100
CQW	CHERAW MUNICIPAL/LYNCH BELLINGER FI	SC	LPV	0	100	0	100	0	100
CRE	GRAND STRAND	SC	LPV200	0	100	0	100	0	100
DCM	CHESTER CATAWBA RGNL	SC	LPV	0	100	0	100	1	99.9902
DYB	SUMMERVILLE	SC	LPV200	0	100	0	100	0	100
FDW	FAIRFIELD COUNTY	SC	LPV	0	100	0	100	0	100
FLO	FLORENCE RGNL	SC	LPV	0	100	0	100	0	100
GGE	GEORGETOWN COUNTY	SC	LPV	0	100	0	100	0	100
GMU	GREENVILLE DOWNTOWN	SC	LPV200	0	100	0	100	1	99.9841
GSP	GREENVILLE SPARTANBURG INTL	SC	LPV200	0	100	0	100	1	99.9841
GYH	DONALDSON FIELD	SC	LPV	0	100	0	100	1	99.9887
HYW	CONWAY-HORRY COUNTY	SC	LPV	0	100	0	100	0	100

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
JZI	CHARLESTON EXECUTIVE	SC	LPV200	0	100	0	100	0	100
LKR	LANCASTER COUNTY-MC WHIRTER FI	SC	LPV200	0	100	0	100	1	99.9940
LQK	PICKENS COUNTY	SC	LPV	0	100	0	100	1	99.9864
LRO	MT PLEASANT RGNL-FAISON FIELD	SC	LPV	0	100	0	100	0	100
LUX	LAURENS COUNTY	SC	LPV	0	100	0	100	0	100
MAO	MARION COUNTY	SC	LPV	0	100	0	100	0	100
MKS	BERKELEY COUNTY	SC	LPV	0	100	0	100	0	100
MYR	MYRTLE BEACH INTL	SC	LPV200	0	100	0	100	0	100
OGB	ORANGEBURG MUNICIPAL	SC	LPV200	0	100	0	100	0	100
RBW	LOWCOUNTRY RGNL	SC	LPV	0	100	0	100	0	100
SMS	SUMTER	SC	LPV200	0	100	0	100	0	100
SPA	SPARTANBURG DOWNTOWN MEMORIAL	SC	LPV200	0	100	0	100	1	99.9841
UDG	DARLINGTON COUNTY JETPORT	SC	LPV	0	100	0	100	0	100
UZA	ROCK HILL/YORK CO/BRYANT FIELD	SC	LPV200	0	100	0	100	1	99.9849
0D8	GETTYSBURG MUNICIPAL	SD	LP	1	99.9211	1	99.9192	1	99.9090
49B	STURGIS MUNICIPAL	SD	LPV	0	100	2	99.9653	1	99.9275
8V3	PARKSTON MUNICIPAL	SD	LPV	1	99.9672	1	99.9204	1	99.9083
9D1	GREGORY MUNICIPAL - FLYNN FLD	SD	LPV	0	100	2	99.9615	1	99.9124
ABR	ABERDEEN RGNL	SD	LPV200	1	99.9102	1	99.9090	1	99.8992
AGZ	WAGNER MUNICIPAL	SD	LPV	1	99.9996	3	99.9604	1	99.9090
ATY	WATERTOWN RGNL	SD	LPV200	1	99.9079	1	99.9041	1	99.8973
BKX	BROOKINGS RGNL	SD	LPV200	1	99.9117	1	99.9038	1	99.8981
EFC	BELLE FOURCHE MUNICIPAL	SD	LPV	0	100	2	99.9626	1	99.9260
FSD	JOE FOSS FIELD	SD	LPV200	1	99.9638	1	99.9079	1	99.9030
HON	HURON RGNL	SD	LPV200	1	99.9139	1	99.9094	1	99.9083
HSR	HOT SPRINGS MUNICIPAL	SD	LP	0	100	2	99.9864	2	99.9623
ICR	WINNER RGNL	SD	LPV	0	100	2	99.9619	1	99.9211
LEM	LEMMON MUNICIPAL	SD	LPV	1	99.9256	1	99.9219	1	99.8962
MBG	MOBRIDGE MUNICIPAL	SD	LPV	1	99.9211	1	99.9196	1	99.8958
MDS	MADISON MUNICIPAL	SD	LPV	1	99.9155	1	99.9064	1	99.8992
MHE	MITCHELL MUNICIPAL	SD	LPV	1	99.9581	1	99.9170	1	99.9083
MKA	MILLER MUNICIPAL	SD	LPV	1	99.9136	1	99.9098	1	99.9098
PHP	PHILIP	SD	LPV	0	100	2	99.9589	1	99.9136
PIR	PIERRE RGNL	SD	LPV	2	99.9532	1	99.9219	1	99.9124
RAP	RAPID CITY RGNL	SD	LPV200	0	100	2	99.9683	1	99.9272
SPF	BLACK HILLS-CLYDE ICE FIELD	SD	LPV	0	100	2	99.9657	1	99.9313
VMR	HAROLD DAVIDSON FIELD	SD	LPV	2	99.9781	3	99.9528	1	99.9041

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
YKN	CHAN GURNEY MUNICIPAL	SD	LPV200	2	99.9811	3	99.9460	1	99.9053
CKQ8	MCARTHUR RIVER	SK	LPV	1	99.8992	1	99.8973	6	99.8407
CYKJ	KEY LAKE	SK	LPV	1	99.8992	1	99.8992	6	99.8475
0A3	SMITHVILLE MUNICIPAL	TN	LPV	0	100	0	100	1	99.9872
0M3	JOHN A BAKER FLD	TN	LP	0	100	0	100	1	99.9962
0M4	BENTON COUNTY	TN	LPV	0	100	0	100	1	99.9853
0M5	HUMPHREYS COUNTY	TN	LP	0	100	0	100	1	99.9841
1A3	MARTIN CAMPBELL FIELD	TN	LP	0	100	0	100	1	99.9838
1M5	PORTLAND MUNICIPAL	TN	LPV	0	100	0	100	1	99.9830
2A0	MARK ANTON	TN	LPV	0	100	0	100	1	99.9853
2M2	LAWRENCEBURG-LAWRENCE COUNTY	TN	LPV	0	100	0	100	1	99.9962
2M8	CHARLES W BAKER	TN	LPV	0	100	0	100	0	100
3A2	NEW TAZEWELL MUNICIPAL	TN	LP	0	100	1	99.9981	1	99.9792
3M7	LAFAYETTE MUNICIPAL	TN	LPV	0	100	1	99.9970	1	99.9857
8A3	LIVINGSTON MUNICIPAL	TN	LP	0	100	1	99.9928	1	99.9823
BGF	WINCHESTER MUNICIPAL	TN	LPV	0	100	0	100	1	99.9894
BNA	NASHVILLE INTL	TN	LPV200	0	100	0	100	1	99.9841
CHA	LOVELL FIELD	TN	LPV200	0	100	0	100	1	99.9864
CKV	OUTLAW FIELD	TN	LPV	0	100	0	100	1	99.9819
CSV	CROSSVILLE MEMORIAL-WHITSON FI	TN	LPV200	0	100	1	99.9992	1	99.9826
DYR	DYERSBURG RGNL	TN	LPV	0	100	0	100	1	99.9868
FYE	FAYETTE COUNTY	TN	LPV	0	100	0	100	0	100
FYM	FAYETTEVILLE MUNICIPAL	TN	LPV	0	100	0	100	1	99.9962
GCY	GREENEVILLE-GREENE COUNTY MUNICIPAL	TN	LPV	0	100	0	100	1	99.9826
GKT	GATLINBURG-PIGEON FORGE	TN	LPV	0	100	0	100	1	99.9838
GZS	ABERNATHY FIELD	TN	LPV	0	100	0	100	1	99.9962
HZD	CARROLL COUNTY	TN	LPV	0	100	0	100	1	99.9841
JAU	CAMPBELL COUNTY	TN	LP	0	100	1	99.9977	1	99.9792
JWN	JOHN C TUNE	TN	LPV	0	100	0	100	1	99.9841
LUG	ELLINGTON	TN	LPV	0	100	0	100	1	99.9962
M01	GENERAL DEWITT SPAIN	TN	LPV	0	100	0	100	0	100
M08	WILLIAM L WHITEHURST FIELD	TN	LP	0	100	0	100	1	99.9996
M33	SUMNER COUNTY RGNL	TN	LPV	0	100	0	100	1	99.9853
M54	LEBANON MUNICIPAL	TN	LPV	0	100	0	100	1	99.9849
M91	SPRINGFIELD ROBERTSON COUNTY	TN	LPV	0	100	0	100	1	99.9830
MBT	MURFREESBORO MUNICIPAL	TN	LPV	0	100	0	100	1	99.9868
MEM	MEMPHIS INTL	TN	LPV200	0	100	0	100	0	100
MKL	MC KELLAR-SIPES RGNL	TN	LPV200	0	100	0	100	1	99.9989

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
MMI	MCMINN COUNTY	TN	LPV	0	100	0	100	1	99.9838
MNV	MONROE COUNTY	TN	LPV	0	100	0	100	1	99.9838
MOR	MOORE-MURRELL	TN	LPV	0	100	1	99.9996	1	99.9826
MQY	SMYRNA	TN	LPV200	0	100	0	100	1	99.9845
MRC	MAURY COUNTY	TN	LPV	0	100	0	100	1	99.9962
NQA	MILLINGTON RGNL JETPORT	TN	LPV200	0	100	0	100	0	100
PHT	HENRY COUNTY	TN	LPV200	0	100	0	100	1	99.9830
PVE	BEECH RIVER RGNL	TN	LPV	0	100	0	100	1	99.9989
RKW	ROCKWOOD MUNICIPAL	TN	LPV	0	100	0	100	1	99.9815
RNC	WARREN COUNTY MEMORIAL	TN	LPV	0	100	0	100	1	99.9868
RZR	CLEVELAND RGNL JETPORT	TN	LPV200	0	100	0	100	1	99.9845
SCX	SCOTT MUNICIPAL	TN	LPV	0	100	1	99.9936	1	99.98000
SNH	SAVANNAH-HARDIN COUNTY	TN	LPV	0	100	0	100	1	99.9989
SRB	UPPER CUMBERLAND RGNL	TN	LPV200	0	100	1	99.9985	1	99.9845
SYI	BOMAR FIELD-SHELBYVILLE MUNICIPAL	TN	LPV	0	100	0	100	1	99.9906
SZY	ROBERT SIBLEY	TN	LPV	0	100	0	100	1	99.9989
THA	TULLAHOMA RGNL ARPT/WM NORTHER	TN	LPV	0	100	0	100	1	99.9898
TRI	TRI-CITIES RGNL TN/VA	TN	LPV200	0	100	0	100	2	99.9766
TYS	MC GHEE TYSON	TN	LPV200	0	100	0	100	1	99.9838
UCY	EVERETT-STEWART RGNL	TN	LPV200	0	100	0	100	1	99.9826
11R	BRENHAM MUNICIPAL	TX	LPV	0	100	0	100	0	100
2F5	LAMESA MUNICIPAL	TX	LP	0	100	0	100	0	100
2R9	KARNES COUNTY	TX	LP	0	100	0	100	0	100
3R9	LAKEWAY AIRPARK	TX	LP	0	100	0	100	0	100
3T5	FAYETTE RGNL AIR CENTER	TX	LPV	0	100	0	100	0	100
45R	HAWTHORNE FIELD	TX	LP	0	100	0	100	0	100
50R	LOCKHART MUNICIPAL	TX	LPV	0	100	0	100	0	100
5C1	BOERNE STAGE FIELD	TX	LP	0	100	0	100	0	100
5T9	MAVERICK COUNTY MEMORIAL INTL	TX	LPV	0	100	0	100	0	100
60R	NAVASOTA MUNICIPAL	TX	LPV	0	100	0	100	0	100
6R3	CLEVELAND MUNICIPAL	TX	LPV	0	100	0	100	0	100
77F	WINTERS MUNICIPAL	TX	LP	0	100	0	100	0	100
8F3	CROSBYTON MUNICIPAL	TX	LP	0	100	0	100	0	100
ABI	ABILENE RGNL	TX	LPV200	0	100	0	100	0	100
ACT	WACO RGNL	TX	LPV200	0	100	0	100	0	100
ADS	ADDISON	TX	LPV	0	100	0	100	1	99.9996
AFW	FORT WORTH ALLIANCE	TX	LPV200	0	100	0	100	2	99.9992
ALI	ALICE INTL	TX	LPV	0	100	0	100	2	99.9626
AMA	RICK HUSBAND AMARILLO INTL	TX	LPV200	0	100	0	100	0	100

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
ARM	WHARTON RGNL	TX	LPV	0	100	0	100	0	100
ASL	HARRISON COUNTY	TX	LPV	0	100	0	100	0	100
AUS	AUSTIN-BERGSTROM INTL	TX	LPV200	0	100	0	100	0	100
AXH	HOUSTON-SOUTHWEST	TX	LPV	0	100	0	100	0	100
BAZ	NEW BRAUNFELS RGNL	TX	LPV	0	100	0	100	0	100
BBD	CURTIS FIELD	TX	LPV	0	100	0	100	0	100
BKD	STEPHENS COUNTY	TX	LP	0	100	0	100	0	100
BPG	BIG SPRING MC MAHON-WRINKLE	TX	LPV200	0	100	0	100	0	100
BPT	JACK BROOKS RGNL	TX	LPV200	0	100	0	100	0	100
BRO	BROWNSVILLE/SOUTH PADRE ISLAND	TX	LPV200	1	99.9774	1	99.9679	1	99.9173
BWD	BROWNWOOD RGNL	TX	LPV	0	100	0	100	0	100
BYY	BAY CITY MUNICIPAL	TX	LPV	0	100	0	100	0	100
CDS	CHILDRESS MUNICIPAL	TX	LPV200	0	100	0	100	0	100
CFD	COULTER FIELD	TX	LPV	0	100	0	100	0	100
CLL	EASTERWOOD FIELD	TX	LPV200	0	100	0	100	0	100
CNW	TSTC WACO	TX	LPV200	0	100	0	100	0	100
COM	COLEMAN MUNICIPAL	TX	LPV	0	100	0	100	0	100
COT	COTULLA-LA SALLE COUNTY	TX	LPV	0	100	0	100	0	100
CPT	CLEBURNE RGNL	TX	LPV	0	100	0	100	0	100
CRP	CORPUS CHRISTI INTL	TX	LPV200	0	100	0	100	2	99.9611
CXO	LONE STAR EXECUTIVE	TX	LPV200	0	100	0	100	0	100
CZT	DIMMIT COUNTY	TX	LPV	0	100	0	100	0	100
DAL	DALLAS LOVE FIELD	TX	LPV200	0	100	0	100	1	99.9996
DFW	DALLAS/FORT WORTH INTL	TX	LPV200	0	100	0	100	3	99.9989
DHT	DALHART MUNICIPAL	TX	LPV	0	100	0	100	0	100
DKR	HOUSTON COUNTY	TX	LP	0	100	0	100	0	100
DRT	DEL RIO INTL	TX	LPV	0	100	0	100	0	100
DTO	DENTON MUNICIPAL	TX	LPV200	0	100	0	100	2	99.9989
DUX	MOORE COUNTY	TX	LPV200	0	100	0	100	0	100
DWH	DAVID WAYNE HOOKS MEMORIAL	TX	LPV	0	100	0	100	0	100
E01	ROY HURD MEMORIAL	TX	LP	0	100	0	100	0	100
E11	ANDREWS COUNTY	TX	LPV	0	100	0	100	0	100
E19	GRUVER MUNICIPAL	TX	LP	0	100	0	100	0	100
E30	BRUCE FIELD	TX	LPV	0	100	0	100	0	100
E38	ALPINE-CASPARIS MUNICIPAL	TX	LP	0	100	0	100	1	99.9981
EBG	SOUTH TEXAS INTL AT EDINBURG	TX	LPV	1	99.9887	1	99.9789	2	99.9407
EDC	AUSTIN EXECUTIVE	TX	LPV200	0	100	0	100	0	100
EFD	ELLINGTON	TX	LPV200	0	100	0	100	0	100
ELA	EAGLE LAKE	TX	LP	0	100	0	100	0	100

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
ELP	EL PASO INTL	TX	LP	0	100	0	100	0	100
ERV	KERRVILLE MUNICIPAL/LOUIS SCHREINER	TX	LPV	0	100	0	100	0	100
ETN	EASTLAND MUNICIPAL	TX	LP	0	100	0	100	0	100
F00	JONES FIELD	TX	LPV	0	100	0	100	0	100
F05	WILBARGER COUNTY	TX	LPV	0	100	0	100	0	100
F98	YOAKUM COUNTY	TX	LPV	0	100	0	100	0	100
FST	FORT STOCKTON-PECOS COUNTY	TX	LPV	0	100	0	100	1	99.9985
FTW	FORT WORTH MEACHAM INTL	TX	LPV200	0	100	0	100	2	99.9992
FWS	FORT WORTH SPINKS	TX	LPV200	0	100	0	100	1	99.9996
GDJ	GRANBURY RGNL	TX	LPV	0	100	0	100	0	100
GGG	EAST TEXAS RGNL	TX	LPV	0	100	0	100	0	100
GKY	ARLINGTON MUNICIPAL	TX	LPV200	0	100	0	100	2	99.9992
GLE	GAINESVILLE MUNICIPAL	TX	LPV	0	100	0	100	2	99.9985
GLS	SCHOLES INTL AT GALVESTON	TX	LPV200	0	100	0	100	0	100
GNC	GAINES COUNTY	TX	LPV	0	100	0	100	0	100
GRK	ROBERT GRAY AAF	TX	LPV200	0	100	0	100	0	100
GVT	MAJORS	TX	LPV200	0	100	0	100	0	100
GYI	NORTH TEXAS RGNL/PERRIN FIELD	TX	LPV200	0	100	0	100	1	99.9996
HBV	JIM HOGG COUNTY	TX	LPV	0	100	0	100	1	99.9891
HDO	SOUTH TEXAS RGNL AT HONDO	TX	LPV	0	100	0	100	0	100
HHF	HEMPHILL COUNTY	TX	LPV	0	100	0	100	0	100
HOU	WILLIAM P HOBBY	TX	LPV200	0	100	0	100	0	100
HQZ	MESQUITE METRO	TX	LPV	0	100	0	100	2	99.9992
HRL	VALLEY INTL	TX	LPV200	1	99.9823	1	99.9766	2	99.9362
HRX	HEREFORD MUNICIPAL	TX	LPV200	0	100	0	100	0	100
HYI	SAN MARCOS MUNICIPAL	TX	LPV200	0	100	0	100	0	100
IAH	GEORGE BUSH INTERCONTINENTAL/H	TX	LPV200	0	100	0	100	0	100
IKG	KLEBERG COUNTY	TX	LPV	0	100	0	100	2	99.9585
INJ	HILLSBORO MUNICIPAL	TX	LPV	0	100	0	100	0	100
INK	WINKLER COUNTY	TX	LPV200	0	100	0	100	0	100
IWS	WEST HOUSTON	TX	LP	0	100	0	100	0	100
JAS	JASPER COUNTY-BELL FIELD	TX	LPV	0	100	0	100	0	100
JSO	CHEROKEE COUNTY	TX	LPV200	0	100	0	100	0	100
JWY	MID-WAY RGNL	TX	LPV200	0	100	0	100	1	99.9992
JXI	FOX STEPHENS FIELD - GILMER MU	TX	LP	0	100	0	100	0	100

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
LBB	LUBBOCK PRESTON SMITH INTL	TX	LPV200	0	100	0	100	0	100
LBX	TEXAS GULF COAST RGNL	TX	LPV	0	100	0	100	0	100
LFK	ANGELINA COUNTY	TX	LPV	0	100	0	100	0	100
LHB	HEARNE MUNICIPAL	TX	LPV200	0	100	0	100	0	100
LIU	LITTLEFIELD TAYLOR BROWN MUNICIPAL	TX	LPV	0	100	0	100	0	100
LLN	LEVELLAND MUNICIPAL	TX	LPV	0	100	0	100	0	100
LNC	LANCASTER RGNL	TX	LPV200	0	100	0	100	0	100
LRD	LAREDO INTL	TX	LPV200	0	100	0	100	1	99.9977
LUD	DECATUR MUNICIPAL	TX	LPV	0	100	0	100	0	100
LVJ	PEARLAND RGNL	TX	LPV	0	100	0	100	0	100
LXY	MEXIA-LIMESTONE CO	TX	LP	0	100	0	100	0	100
MAF	MIDLAND INTL	TX	LPV200	0	100	0	100	0	100
MDD	MIDLAND AIRPARK	TX	LPV	0	100	0	100	0	100
MFE	MC ALLEN MILLER INTL	TX	LPV	1	99.9841	1	99.9789	2	99.94000
MKN	COMANCHE COUNTY-CITY	TX	LPV	0	100	0	100	0	100
MNZ	HAMILTON MUNICIPAL	TX	LPV	0	100	0	100	0	100
OCH	A L MANGHAM JR RGNL	TX	LPV200	0	100	0	100	0	100
ODO	ODESSA-SCHLEMEYER FIELD	TX	LPV200	0	100	0	100	0	100
ONY	OLNEY MUNICIPAL	TX	LPV	0	100	0	100	0	100
ORG	ORANGE COUNTY	TX	LPV	0	100	0	100	0	100
PEQ	PECOS MUNICIPAL	TX	LPV200	0	100	0	100	0	100
PIL	PORT ISABEL-CAMERON COUNTY	TX	LPV	1	99.9804	1	99.9679	2	99.9294
PKV	CALHOUN COUNTY	TX	LPV	0	100	0	100	0	100
PPA	PERRY LEFORS FIELD	TX	LPV	0	100	0	100	0	100
PRX	COX FIELD	TX	LPV	0	100	0	100	0	100
PSX	PALACIOS MUNICIPAL	TX	LPV	0	100	0	100	0	100
PVW	HALE COUNTY	TX	LPV	0	100	0	100	0	100
PWG	MC GREGOR EXECUTIVE	TX	LPV	0	100	0	100	0	100
PYX	PERRYTON OCHILTREE COUNTY	TX	LPV	0	100	0	100	0	100
RAS	MUSTANG BEACH	TX	LPV	0	100	0	100	2	99.9596
RBD	DALLAS EXECUTIVE	TX	LPV	0	100	0	100	2	99.9992
RBO	NUECES COUNTY	TX	LP	0	100	0	100	2	99.9619
RKP	ARANSAS CO	TX	LPV	0	100	0	100	2	99.9641
RYW	LAGO VISTA TX - RUSTY ALLEN	TX	LP	0	100	0	100	0	100
SAT	SAN ANTONIO INTL	TX	LPV200	0	100	0	100	0	100
SGR	SUGAR LAND RGNL	TX	LPV200	0	100	0	100	0	100
SJT	SAN ANGELO RGNL/MATHIS FIELD	TX	LPV	0	100	0	100	0	100

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
SLR	SULPHUR SPRINGS MUNICIPAL	TX	LPV200	0	100	0	100	0	100
SNK	WINSTON FIELD	TX	LPV200	0	100	0	100	0	100
SWI	SHERMAN MUNICIPAL	TX	LP	0	100	0	100	1	99.9996
SWW	AVENGER FIELD	TX	LPV	0	100	0	100	0	100
T23	ALBANY MUNICIPAL	TX	LPV	0	100	0	100	0	100
T41	LA PORTE MUNICIPAL	TX	LPV	0	100	0	100	0	100
T59	WHEELER MUNICIPAL	TX	LP	0	100	0	100	0	100
T74	TAYLOR MUNICIPAL	TX	LPV	0	100	0	100	0	100
T78	LIBERTY MUNICIPAL	TX	LP	0	100	0	100	0	100
T82	GILLESPIE COUNTY	TX	LPV	0	100	0	100	0	100
TDW	TRADEWIND	TX	LPV	0	100	0	100	0	100
TFP	MCCAMPBELL-PORTER	TX	LPV	0	100	0	100	2	99.9619
TKI	COLLIN COUNTY RGNL AT MC KINNE	TX	LPV200	0	100	0	100	0	100
TME	HOUSTON EXECUTIVE	TX	LPV	0	100	0	100	0	100
TPL	DRAUGHON-MILLER CENTRAL TEXAS	TX	LPV200	0	100	0	100	0	100
TRL	TERRELL MUNICIPAL	TX	LPV	0	100	0	100	0	100
TYR	TYLER POUNDS RGNL	TX	LPV200	0	100	0	100	0	100
UTS	HUNTSVILLE MUNICIPAL	TX	LPV	0	100	0	100	0	100
VCT	VICTORIA RGNL	TX	LPV200	0	100	0	100	0	100
XBP	BRIDGEPORT MUNICIPAL	TX	LPV	0	100	0	100	0	100
BCE	BRYCE CANYON	UT	LPV	0	100	0	100	0	100
BDG	BLANDING MUNICIPAL	UT	LPV	0	100	0	100	0	100
BMC	BRIGHAM CITY	UT	LP	0	100	0	100	0	100
DTA	DELTA MUNICIPAL	UT	LP	0	100	0	100	0	100
ENV	WENDOVER	UT	LPV	0	100	0	100	0	100
FOM	FILLMORE MUNICIPAL	UT	LPV	0	100	0	100	0	100
LGU	LOGAN-CACHE	UT	LPV	0	100	0	100	0	100
OGD	OGDEN-HINCKLEY	UT	LPV	0	100	0	100	0	100
PUC	CARBON COUNTY RGNL/BUCK DAVIS	UT	LP	0	100	0	100	0	100
PVU	PROVO MUNICIPAL	UT	LPV200	0	100	0	100	0	100
RIF	RICHFIELD MUNICIPAL	UT	LP	0	100	0	100	0	100
SGU	ST GEORGE MUNICIPAL	UT	LPV	0	100	0	100	0	100
SLC	SALT LAKE CITY INTL	UT	LPV200	0	100	0	100	0	100
TVY	BOLINDER FIELD-TOOELE VALLEY	UT	LPV200	0	100	0	100	0	100
U14	NEPHI MUNICIPAL	UT	LPV	0	100	0	100	0	100
U55	PANGUITCH MUNICIPAL	UT	LPV200	0	100	0	100	0	100
VEL	VERNAL RGNL	UT	LP	0	100	0	100	0	100
0V4	BROOKNEAL/CAMPBELL COUNTY	VA	LPV	0	100	0	100	2	99.9509
0VG	LEE COUNTY	VA	LPV	0	100	1	99.9985	2	99.9740

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
AVC	MECKLENBURG-BRUNSWICK RGNL	VA	LPV	0	100	0	100	2	99.9641
BCB	VIRGINIA TECH/MONTGOMERY EXECU	VA	LPV	0	100	0	100	2	99.9445
BKT	ALLEN C PERKINSON BLACKSTONE A	VA	LPV	0	100	0	100	2	99.9404
CHO	CHARLOTTESVILLE-ALBEMARLE	VA	LPV200	1	99.9996	1	99.9751	2	99.9377
CJR	CULPEPER RGNL	VA	LPV	1	99.9826	1	99.9528	2	99.9355
CPK	CHESAPEAKE RGNL	VA	LPV200	0	100	0	100	3	99.9683
DAN	DANVILLE RGNL	VA	LPV200	0	100	0	100	2	99.9713
EMV	EMPORIA-GREENSVILLE RGNL	VA	LPV200	0	100	0	100	2	99.9558
FCI	RICHMOND EXECUTIVE-CHESTERFIEL	VA	LPV	0	100	0	100	2	99.9377
FKN	FRANKLIN MUNICIPAL-JOHN BEVERLY ROS	VA	LPV	0	100	0	100	2	99.9562
FVX	FARMVILLE RGNL	VA	LPV	0	100	0	100	1	99.9256
FYJ	MIDDLE PENINSULA RGNL	VA	LPV	0	100	0	100	2	99.9385
HLX	TWIN COUNTY	VA	LPV	0	100	0	100	2	99.9660
HSP	INGALLS FIELD	VA	LPV	1	99.9981	2	99.9724	1	99.9256
HWY	WARRENTON-FAUQUIER	VA	LPV200	2	99.9796	1	99.9528	2	99.9343
JFZ	TAZEWELL COUNTY	VA	LPV	0	100	1	99.9996	2	99.9558
JYO	LEESBURG EXECUTIVE	VA	LPV	3	99.9657	1	99.9389	2	99.9355
LKU	LOUISA COUNTY/FREEMAN FIELD	VA	LPV	1	99.9985	1	99.9755	2	99.9385
LNP	LONESOME PINE	VA	LPV	0	100	1	99.9989	2	99.9566
LUA	LURAY CAVERNS	VA	LP	2	99.9804	2	99.9524	2	99.9351
LYH	LYNCHBURG RGNL/PRESTON GLENN F	VA	LPV	0	100	0	100	2	99.9513
MFV	ACCOMACK COUNTY	VA	LPV	0	100	0	100	2	99.9366
MKJ	MOUNTAIN EMPIRE	VA	LPV	0	100	0	100	2	99.9615
MTV	BLUE RIDGE	VA	LPV	0	100	0	100	2	99.9672
OFP	HANOVER COUNTY MUNICIPAL	VA	LPV	0	100	0	100	2	99.9385
OKV	WINCHESTER RGNL	VA	LPV200	2	99.9509	1	99.9389	2	99.9336
ORF	NORFOLK INTL	VA	LPV200	0	100	0	100	3	99.9574
PHF	NEWPORT NEWS/WILLIAMSBURG INTL	VA	LPV200	0	100	0	100	3	99.9540
PSK	NEW RIVER VALLEY	VA	LPV200	0	100	0	100	2	99.9457
PTB	DINWIDDIE COUNTY	VA	LPV	0	100	0	100	1	99.9256
PVG	HAMPTON ROADS EXECUTIVE	VA	LPV200	0	100	0	100	3	99.9581
RIC	RICHMOND INTL	VA	LPV200	0	100	0	100	2	99.9377
RMN	STAFFORD RGNL	VA	LPV	1	99.9860	1	99.9604	1	99.9389

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
ROA	ROANOKE RGNL/WOODRUM FIELD	VA	LPV	0	100	0	100	1	99.9256
SFQ	SUFFOLK EXECUTIVE	VA	LPV	0	100	0	100	2	99.9562
SHD	SHENANDOAH VALLEY RGNL	VA	LPV200	0	100	2	99.9589	2	99.9377
VJI	VIRGINIA HIGHLANDS	VA	LPV	0	100	0	100	2	99.9728
W78	WILLIAM M TUCK	VA	LPV	0	100	0	100	2	99.9645
W96	NEW KENT COUNTY	VA	LP	0	100	0	100	2	99.9385
WAL	WALLOPS FLIGHT FACILITY	VA	LPV	0	100	0	100	2	99.9389
XSA	TAPPAHANNOCK-ESSEX COUNTY	VA	LPV	0	100	0	100	2	99.9385
BTV	BURLINGTON INTL	VT	LPV200	1	99.9022	1	99.9022	3	99.8845
FSO	FRANKLIN COUNTY STATE	VT	LPV	1	99.9022	1	99.9022	2	99.8845
MPV	EDWARD F KNAPP STATE	VT	LPV	2	99.8992	2	99.8992	2	99.8702
MVL	MORRISVILLE-STOWE STATE	VT	LP	2	99.9004	2	99.9004	2	99.8845
RUT	RUTLAND - SOUTHERN VERMONT RGN	VT	LPV	2	99.8992	2	99.8970	1	99.8664
ALW	WALLA WALLA RGNL	WA	LPV200	0	100	0	100	0	100
AWO	ARLINGTON MUNICIPAL	WA	LPV200	0	100	0	100	0	100
BLI	BELLINGHAM INTL	WA	LPV200	0	100	0	100	0	100
BVS	SKAGIT RGNL	WA	LPV	0	100	0	100	0	100
CLM	WILLIAM R FAIRCHILD INTL	WA	LPV	0	100	0	100	0	100
CLS	CHEHALIS-CENTRALIA	WA	LPV	0	100	0	100	0	100
DEW	DEER PARK	WA	LPV	0	100	0	100	0	100
EPH	EPHRATA MUNICIPAL	WA	LPV	0	100	0	100	0	100
FHR	FRIDAY HARBOR	WA	LPV	0	100	0	100	0	100
GEG	SPOKANE INTL	WA	LPV200	0	100	0	100	0	100
HQM	BOWERMAN	WA	LPV200	0	100	0	100	0	100
MWH	GRANT CO INTL	WA	LPV200	0	100	0	100	0	100
OLM	OLYMPIA RGNL	WA	LPV	0	100	0	100	0	100
ORS	ORCAS ISLAND	WA	LP	0	100	0	100	0	100
PAE	SNOHOMISH COUNTY (PAINE FLD)	WA	LPV200	0	100	0	100	0	100
PSC	TRI-CITIES	WA	LPV200	0	100	0	100	0	100
PWT	BREMERTON NATIONAL	WA	LPV200	0	100	0	100	0	100
RLD	RICHLAND	WA	LPV	0	100	0	100	0	100
RNT	RENTON MUNICIPAL	WA	LPV	0	100	0	100	0	100
SEA	SEATTLE-TACOMA INTL	WA	LPV200	0	100	0	100	0	100
SFF	FELTS FIELD	WA	LPV	0	100	0	100	0	100
SHN	SANDERSON FIELD	WA	LPV	0	100	0	100	0	100
TDO	ED CARLSON MEMORIAL FIELD - SO	WA	LPV	0	100	0	100	0	100
TIW	TACOMA NARROWS	WA	LPV	0	100	0	100	0	100

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
YKM	YAKIMA AIR TERMINAL/MCALLISTER	WA	LPV200	0	100	0	100	0	100
3T3	BOYCEVILLE MUNICIPAL	WI	LPV	1	99.8898	1	99.8898	1	99.88000
57C	EAST TROY MUNICIPAL	WI	LPV	1	99.9170	1	99.9170	1	99.8807
82C	MAUSTON-NEW LISBON UNION	WI	LP	1	99.9034	1	99.8898	1	99.8830
8D1	NEW HOLSTEIN MUNICIPAL	WI	LPV	1	99.8917	1	99.8917	1	99.8758
AHH	AMERY MUNICIPAL	WI	LP	1	99.8898	1	99.8898	1	99.8804
AIG	LANGLADE COUNTY	WI	LPV	1	99.8830	1	99.8830	1	99.8755
ARV	LAKELAND/NOBLE F LEE MEMORIAL	WI	LPV	1	99.8826	1	99.8792	1	99.8755
ASX	JOHN F KENNEDY MEMORIAL	WI	LPV	1	99.8830	1	99.8796	1	99.8728
ATW	OUTAGAMIE COUNTY RGNL	WI	LPV200	1	99.8898	1	99.8898	1	99.8755
AUW	WAUSAU DOWNTOWN	WI	LPV200	1	99.8830	1	99.8830	1	99.8773
BCK	BLACK RIVER FALLS AREA	WI	LPV	1	99.8917	1	99.8898	1	99.8826
BUU	BURLINGTON MUNICIPAL	WI	LP	1	99.9170	1	99.9170	1	99.8807
C29	MIDDLETON MUNICIPAL - MOREY FIELD	WI	LPV	1	99.9192	1	99.8992	1	99.8830
C35	REEDSBURG MUNICIPAL	WI	LP	1	99.9136	1	99.8898	1	99.8830
CLI	CLINTONVILLE MUNICIPAL	WI	LPV	1	99.8830	1	99.8830	1	99.8755
CMY	SPARTA/FORT MC COY	WI	LPV	1	99.9015	1	99.8898	1	99.8830
CWA	CENTRAL WISCONSIN	WI	LPV200	1	99.8860	1	99.8860	1	99.8788
DLL	BARABOO WISCONSIN DELLS	WI	LPV	1	99.9143	1	99.8898	1	99.8830
EAU	CHIPPEWA VALLEY RGNL	WI	LPV200	1	99.8898	1	99.8898	1	99.8796
EGV	EAGLE RIVER UNION	WI	LPV	1	99.8826	1	99.8826	1	99.8755
ENW	KENOSHA RGNL	WI	LPV200	1	99.9170	1	99.9170	1	99.88000
ETB	WEST BEND MUNICIPAL	WI	LPV	1	99.9170	1	99.9106	1	99.8807
EZS	SHAWANO MUNICIPAL	WI	LPV	1	99.8830	1	99.8830	1	99.8755
FLD	FOND DU LAC COUNTY	WI	LPV	1	99.9090	1	99.8917	1	99.8788
GRB	AUSTIN STRAUBEL INTL	WI	LPV200	1	99.8830	1	99.8830	1	99.8755
GTG	GRANTSBURG MUNICIPAL	WI	LP	1	99.8898	1	99.8898	1	99.88000
HXF	HARTFORD MUNICIPAL	WI	LPV	1	99.9173	1	99.9056	1	99.8807
HYR	SAWYER COUNTY	WI	LPV	1	99.8838	1	99.8838	1	99.8781
ISW	ALEXANDER FIELD SOUTH WOOD COU	WI	LPV	1	99.8898	1	99.8898	1	99.8792
JVL	SOUTHERN WISCONSIN RGNL	WI	LPV200	1	99.9181	1	99.9181	1	99.8834
LNR	TRI-COUNTY RGNL	WI	LPV	1	99.9204	1	99.8932	1	99.8830
LSE	LA CROSSE RGNL	WI	LPV	1	99.9038	1	99.8928	1	99.8898
LUM	MENOMONIE MUNICIPAL-SCORE FIELD	WI	LPV	1	99.8898	1	99.8898	1	99.8804
MDZ	TAYLOR COUNTY	WI	LPV	1	99.8838	1	99.8838	1	99.8792
MFI	MARSHFIELD MUNICIPAL	WI	LPV	1	99.8898	1	99.8898	1	99.8792

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
MKE	GENERAL MITCHELL INTL	WI	LPV200	1	99.9170	1	99.9170	1	99.88000
MRJ	IOWA COUNTY	WI	LPV200	1	99.9204	1	99.8985	1	99.8898
MSN	DANE COUNTY RGNL-TRUAX FIELD	WI	LPV200	1	99.9189	1	99.9004	1	99.8830
MTW	MANITOWOC COUNTY	WI	LPV200	1	99.8879	1	99.8879	1	99.8683
MWC	LAWRENCE J TIMMERMAN	WI	LPV	1	99.9170	1	99.9170	1	99.8804
OCQ	OCONTO-J DOUGLAS BAKE MUNICIPAL	WI	LP	1	99.8826	1	99.8826	1	99.8755
OEO	L O SIMENSTAD MUNICIPAL	WI	LPV200	1	99.8898	1	99.8898	1	99.8811
OSH	WITTMAN RGNL	WI	LPV200	1	99.8917	1	99.8917	1	99.8762
OVS	BOSCOBEL	WI	LPV	1	99.9211	1	99.8939	1	99.8898
PBH	PRICE COUNTY	WI	LPV	1	99.8830	1	99.8796	1	99.8770
PCZ	WAUPACA MUNICIPAL	WI	LPV	1	99.8898	1	99.8898	1	99.8762
PVB	PLATTEVILLE MUNICIPAL	WI	LPV	1	99.9204	1	99.9038	1	99.8898
RAC	JOHN H BATTEN	WI	LPV	1	99.9170	1	99.9170	1	99.88000
RCX	RUSK COUNTY	WI	LPV	1	99.8841	1	99.8841	1	99.8792
RHI	RHINELANDER-ONEIDA COUNTY	WI	LPV200	1	99.8826	1	99.8826	1	99.8755
RNH	NEW RICHMOND RGNL	WI	LPV	1	99.8898	1	99.8898	1	99.8811
RPD	RICE LAKE RGNL - CARL'S FIELD	WI	LPV	1	99.8898	1	99.8898	1	99.8792
RRL	MERRILL MUNICIPAL	WI	LPV	1	99.8830	1	99.8830	1	99.8766
SBM	SHEBOYGAN COUNTY MEMORIAL	WI	LPV200	1	99.9102	1	99.8917	1	99.8713
STE	STEVENS POINT MUNICIPAL	WI	LPV200	1	99.8898	1	99.8898	1	99.8788
SUE	DOOR COUNTY CHERRYLAND	WI	LPV	1	99.8807	1	99.8807	1	99.8683
SUW	RICHARD I BONG	WI	LP	1	99.8841	1	99.8819	1	99.8751
TKV	TOMAHAWK RGNL	WI	LP	1	99.8830	1	99.8830	1	99.8762
UES	WAUKESHA COUNTY	WI	LPV200	1	99.9170	1	99.9170	1	99.8807
UNU	DODGE COUNTY	WI	LPV	1	99.9181	1	99.9019	1	99.8826
VIQ	NEILLSVILLE MUNICIPAL	WI	LPV	1	99.8898	1	99.8898	1	99.8792
Y50	WAUTOMA MUNICIPAL	WI	LP	1	99.8898	1	99.8898	1	99.8796
Y55	CRANDON/STEVE CONWAY MUNICIPAL	WI	LPV	1	99.8826	1	99.8826	1	99.8755
3I2	MASON COUNTY	WV	LPV	2	99.96000	1	99.9230	1	99.9170
6L4	LOGAN COUNTY	WV	LPV	0	100	4	99.9940	2	99.9366
BKW	RALEIGH COUNTY MEMORIAL	WV	LPV200	0	100	1	99.9789	2	99.9355
BLF	MERCER COUNTY	WV	LPV	0	100	0	100	2	99.9392
CKB	NORTH CENTRAL WEST VIRGINIA	WV	LPV200	1	99.9389	2	99.9385	1	99.9207
CRW	YEAGER	WV	LPV200	1	99.9894	2	99.9502	1	99.9181
HLG	WHEELING OHIO CO	WV	LPV200	1	99.9351	1	99.9196	1	99.9170
HTS	TRI-STATE/MILTON J FERGUSON FI	WV	LPV200	1	99.9902	3	99.9657	1	99.9170

Airport Id	Airport Name	State/ Provence	Service	LP Outages	LP Avail	LPV Outages	LPV Avail	LPV 200 Outages	LPV 200 Avail
I18	JACKSON COUNTY	WV	LPV200	2	99.9513	1	99.9234	1	99.9170
LWB	GREENBRIER VALLEY	WV	LPV	0	100	2	99.9740	1	99.9211
MGW	MORGANTOWN MUNICIPAL-WALTER L BILL	WV	LPV200	1	99.9389	1	99.9389	1	99.9207
MRB	EASTERN WV RGNL/SHEPHERD FLD	WV	LPV	1	99.9389	1	99.9389	2	99.9306
PKB	MID-OHIO VALLEY RGNL	WV	LPV	1	99.9389	2	99.9298	1	99.9170
SXL	SUMMERSVILLE	WV	LP	1	99.9902	2	99.9517	1	99.92000
USW	BOGGS FIELD	WV	LPV	1	99.9528	1	99.9256	1	99.9170
W22	UPSHUR COUNTY RGNL	WV	LPV	1	99.9389	2	99.9377	1	99.9207
W99	GRANT COUNTY	WV	LP	1	99.9389	1	99.9389	2	99.9385
BYG	JOHNSON COUNTY	WY	LPV	0	100	1	99.9996	2	99.9634
COD	YELLOWSTONE RGNL	WY	LPV	0	100	0	100	1	99.9887
CPR	CASPER/NATRONA COUNTY INTL	WY	LPV	0	100	0	100	1	99.9943
CYS	CHEYENNE RGNL/JERRY OLSON FIEL	WY	LPV	0	100	0	100	0	100
DGW	CONVERSE COUNTY	WY	LPV200	0	100	0	100	1	99.9943
ECS	MONDELL FIELD	WY	LPV	0	100	2	99.9811	1	99.9430
EMM	KEMMERER MUNICIPAL	WY	LPV	0	100	0	100	0	100
EVW	EVANSTON-UINTA COUNTY BURNS FI	WY	LPV	0	100	0	100	0	100
FBR	FORT BRIDGER	WY	LP	0	100	0	100	0	100
GCC	GILLETTE-CAMPBELL COUNTY	WY	LPV	0	100	2	99.9834	2	99.9641
GEY	SOUTH BIG HORN COUNTY	WY	LP	0	100	0	100	2	99.9683
GUR	CAMP GUERNSEY	WY	LP	0	100	0	100	1	99.9940
JAC	JACKSON HOLE	WY	LPV200	0	100	0	100	0	100
LAR	LARAMIE RGNL	WY	LPV	0	100	0	100	0	100
PNA	RALPH WENZ FIELD	WY	LPV	0	100	0	100	0	100
POY	POWELL MUNICIPAL	WY	LPV	0	100	0	100	2	99.9834
RIW	RIVERTON RGNL	WY	LPV200	0	100	0	100	0	100
RKS	ROCK SPRINGS-SWEETWATER COUNTY	WY	LPV200	0	100	0	100	0	100
RWL	RAWLINS MUNICIPAL/HARVEY FIELD	WY	LPV	0	100	0	100	0	100
SAA	SHIVELY FIELD	WY	LPV	0	100	0	100	0	100
SHR	SHERIDAN COUNTY	WY	LPV	0	100	1	99.9875	2	99.9566
U68	NORTH BIG HORN COUNTY	WY	LPV	0	100	0	100	3	99.9774
WRL	WORLAND MUNICIPAL	WY	LPV	0	100	0	100	1	99.9917
CYQH	WATSON LAKE	YT	LPV	0	100	0	100	3	99.9770
CYXY	WHITEHORSE / ERIK NIELSEN INTL	YT	LPV	2	99.9951	1	99.9713	2	99.9475

Figure 8-1 WAAS LP Availability at Airports in the US and Canada with GPS RNAV IAPs

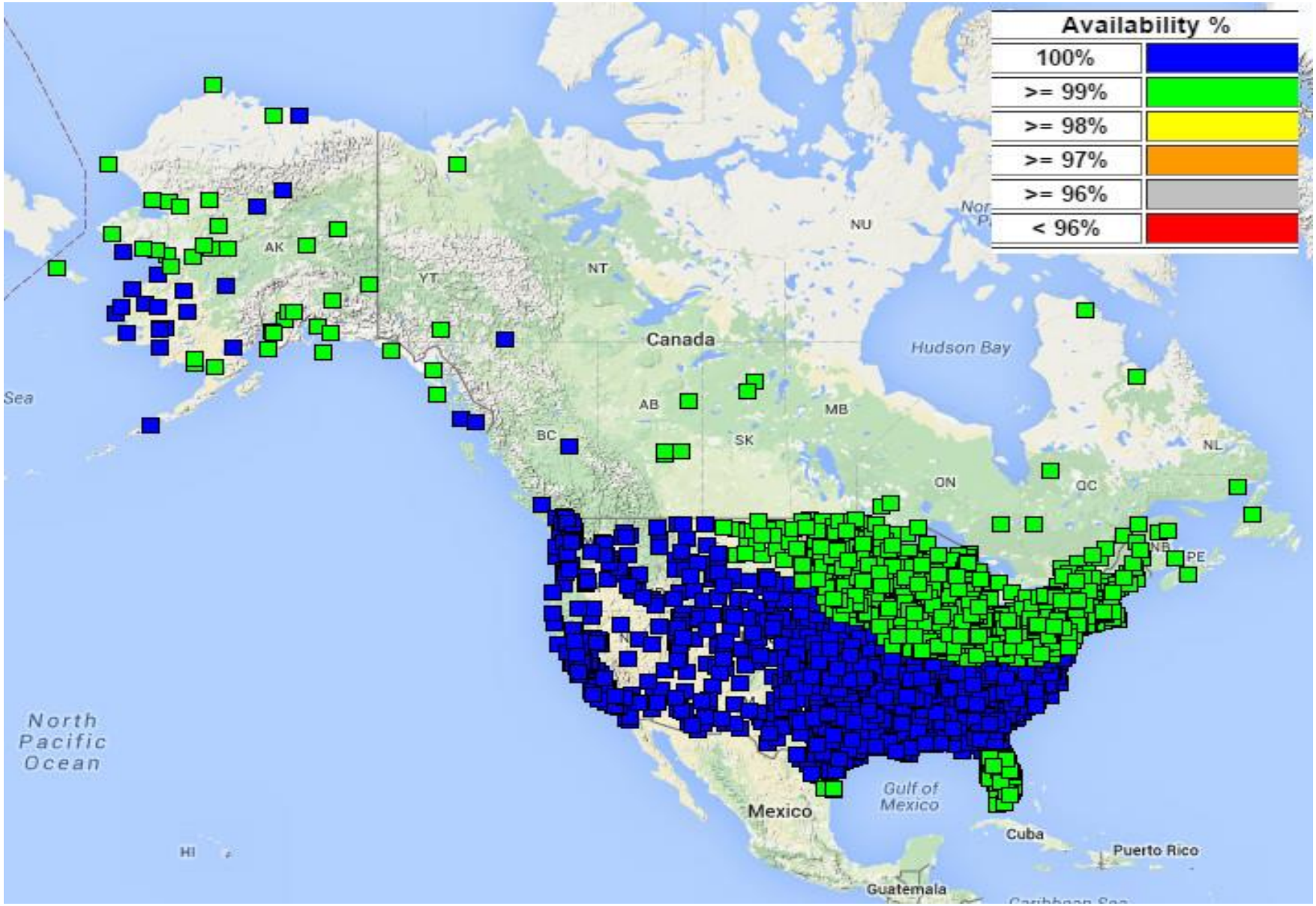


Figure 8-2 WAAS LP Outages at Airports in the US and Canada with GPS RNAV IAPs

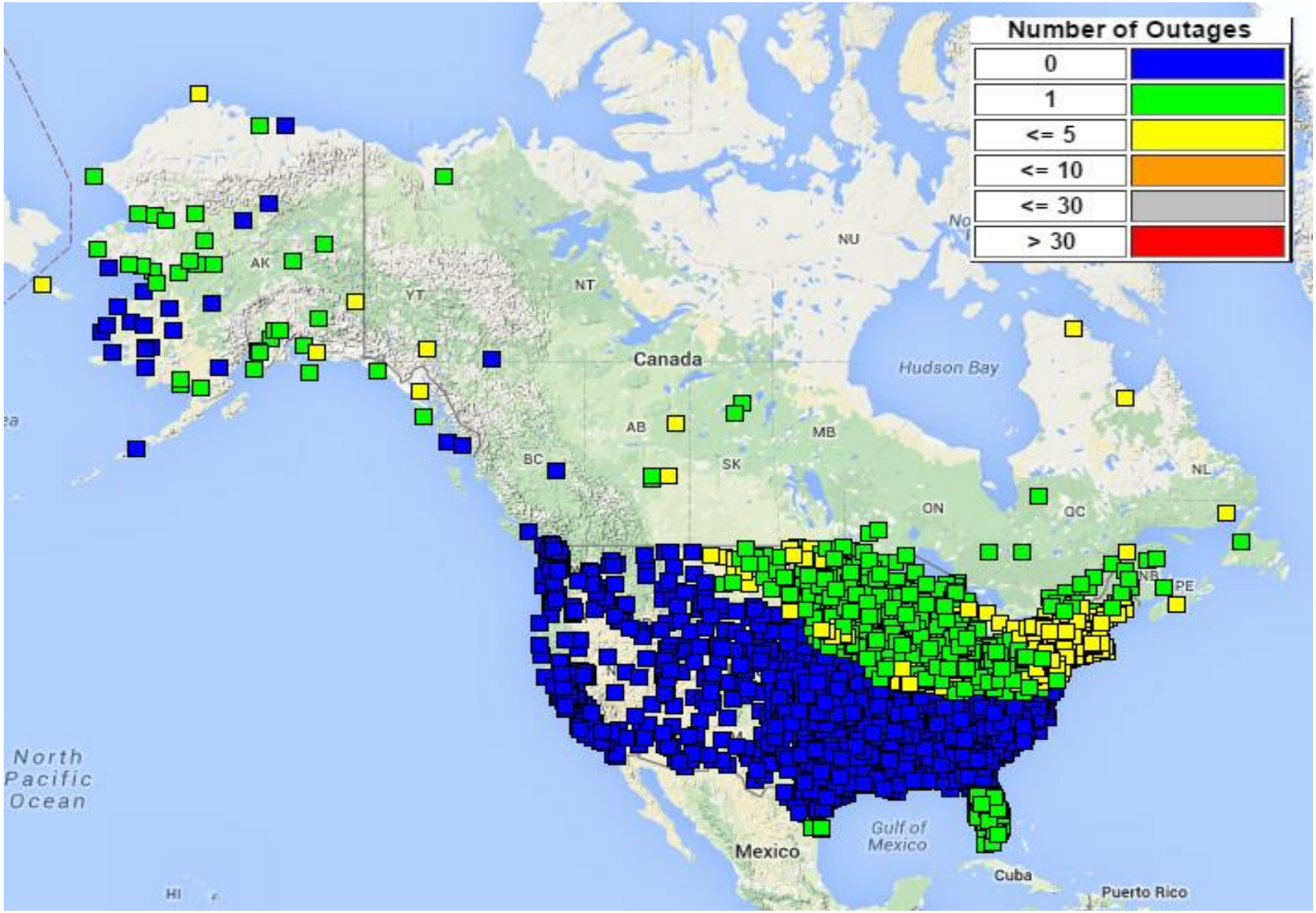


Figure 8-3 WAAS LPV Availability Airports in the US and Canada with GPS RNAV IAPs

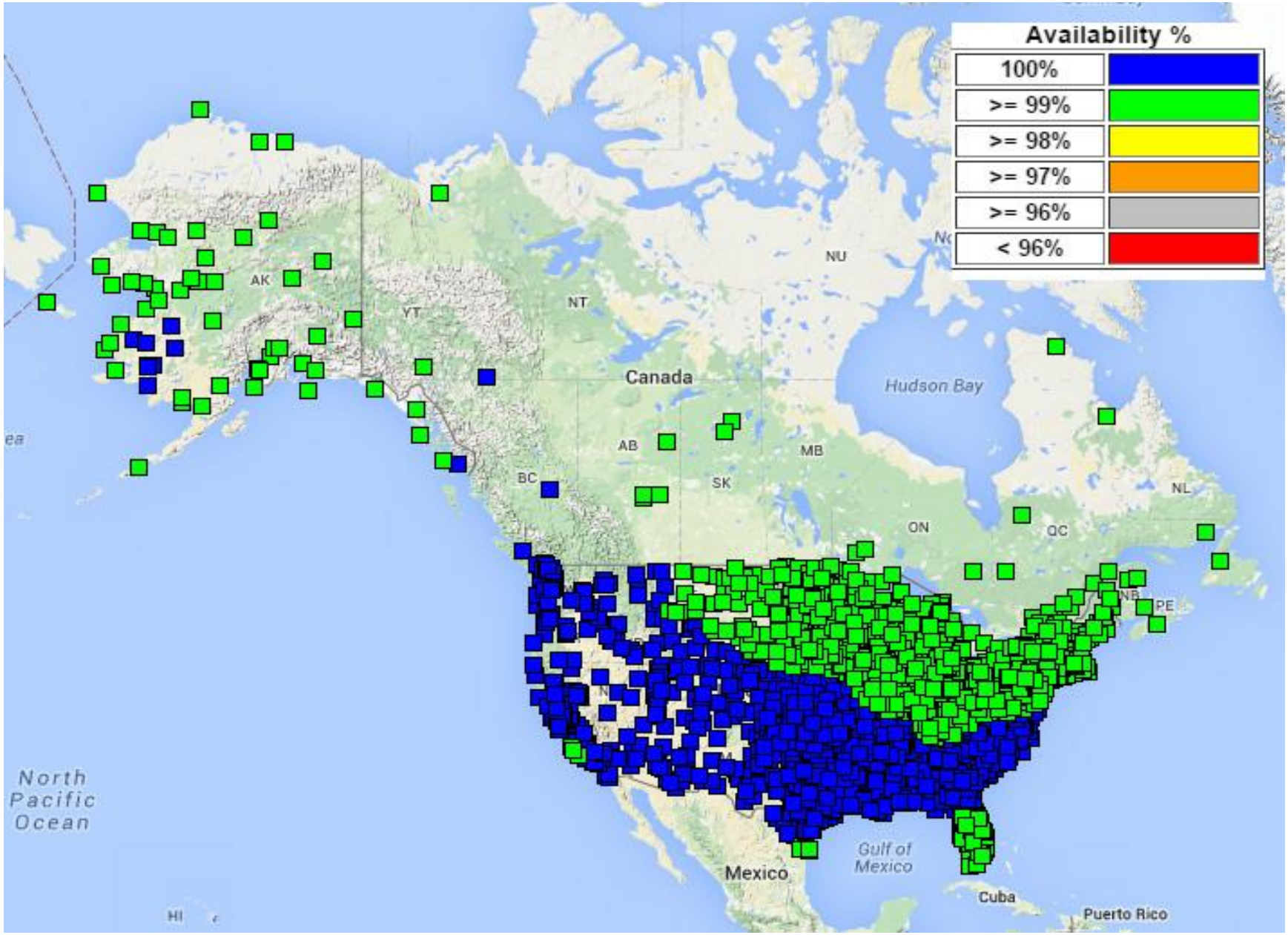


Figure 8-4 WAAS LPV Outages at Airports in the US and Canada with GPS RNAV IAPs

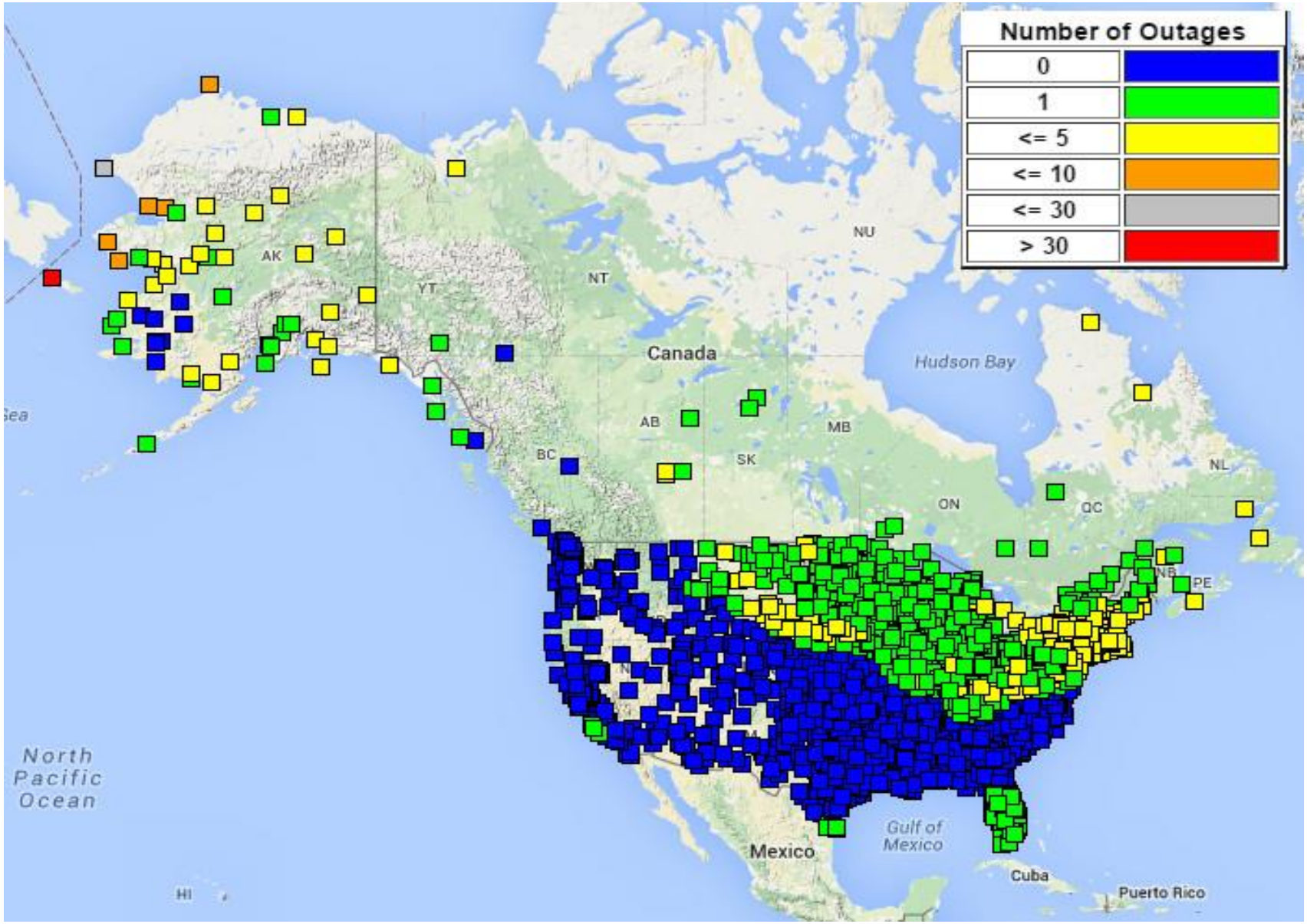


Figure 8-5 WAAS LPV200 Availability at Airports in the US and Canada with GPS RNAV IAPs

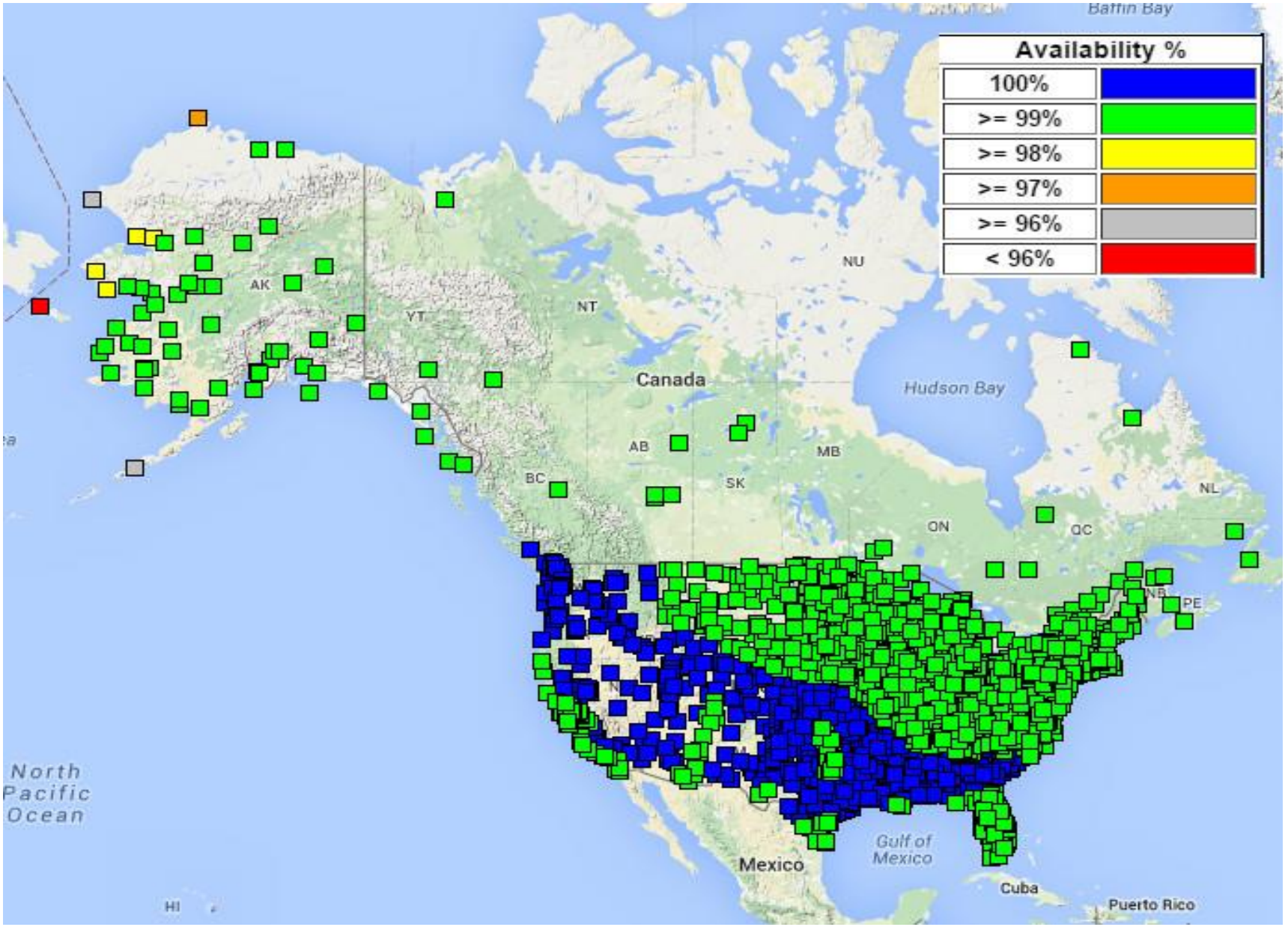
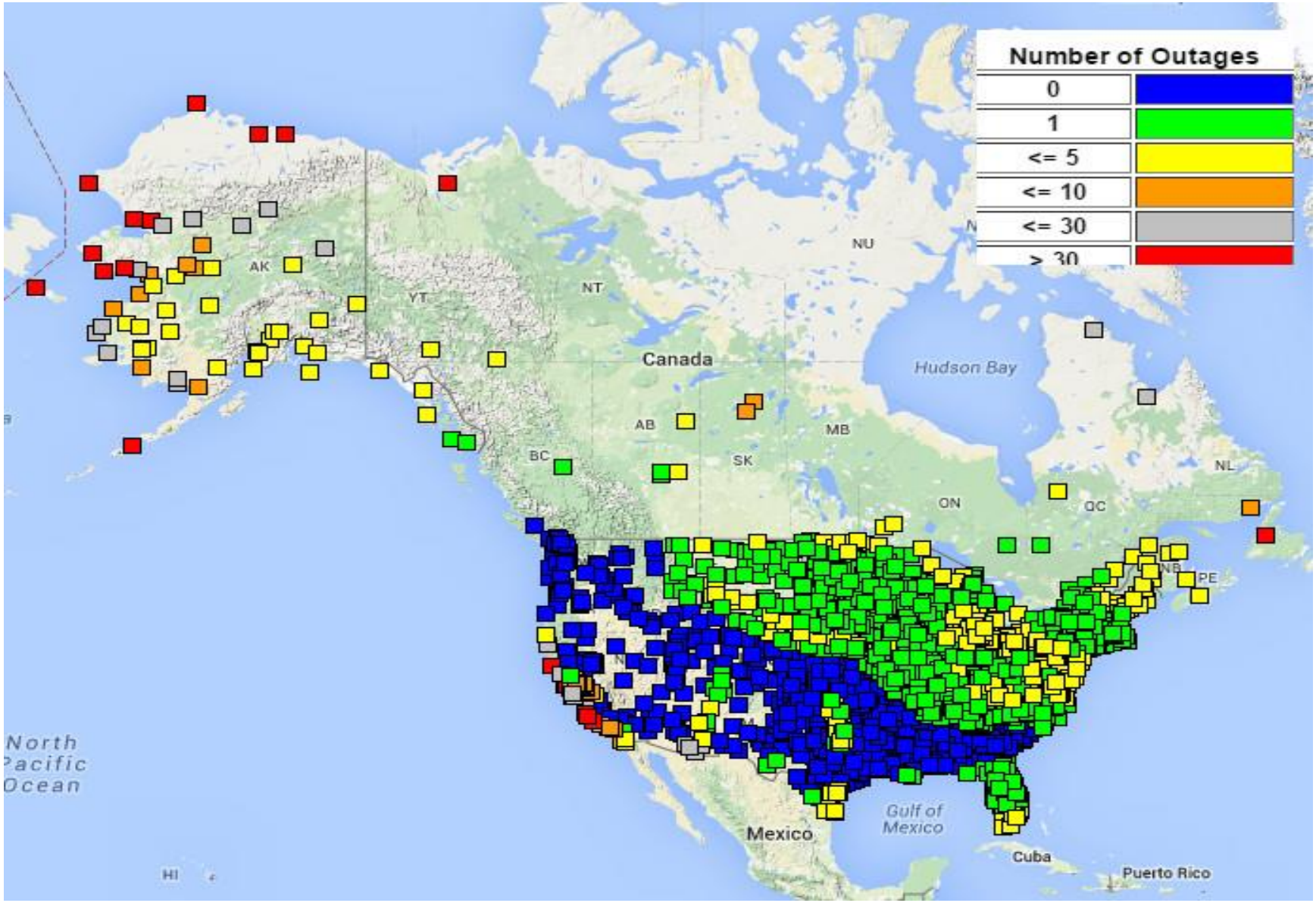


Figure 8-6 WAAS LPV200 Outages at Airports in the US and Canada with GPS RNAV IAPs



9.0 WAAS CODE NOISE AND MULTIPATH (CNMP) BOUNDING ANALYSIS

The purpose of the WAAS Code Noise and Multipath (CNMP) Bounding Analysis is to evaluate the performance of the CNMP algorithm and identify any undetected anomalous events in order to limit exposure to faulted receivers and persistent large multipath errors. The identification of undetected anomalous events ensures that the probability of more than one WRS producing persistent unbounded measurement errors is negligible. This off-line analysis is critical in ensuring that CNMP bounding is not invalidated by changes in WRE environmental conditions.

The operational CNMP functionality resides in the WAAS safety processor. The CNMP algorithm estimates, and corrects for, observed code noise and multipath and then provides confidence estimates for residual error in multipath-corrected pseudorange measurements. These confidence terms provide a conservative Gaussian overbound of the true error distribution and are used by integrity monitors in the weighting of the measurements.

For the off-line analysis summarized in this section, the measurement data is post-processed to estimate the carrier phase ambiguity for each entire arc of measurements for each satellite pass. The ambiguity estimate is used to level the carrier measurement. The leveled carrier is then used as a multipath-free truth estimate. The WAAS real-time CNMP smoothing algorithm is then applied to the original measurements. The difference between the smoothed measurements and the multipath-free truth estimates is the observed residual error. Only arcs with continuous carrier phase greater in length than 7200 seconds are utilized for this analysis to minimize the impacts of non-zero mean multipath biasing the truth estimates. The WAAS dual frequency cycle slip detector algorithm is used to detect any discontinuities in the carrier phase.

Statistics are calculated on how well Gaussian distributions with 0.1 multiples of the CNMP standard deviation bound the observed residual error. Those statistics are then compared to a theoretical Gaussian distribution and an extensive set of plots are generated and manually reviewed. Table 9-1 recaps the results of this analysis for the last 12 months. The plot shows color-coded performance for all three threads of WAAS reference equipment at each WAAS reference station. The color coding represents four levels of performance based on the magnitude and probability distribution of the residual error and the bounding performance of the CNMP algorithm.

Table 9-1 CNMP Bounding Statistics

WAAS Site	WRE	Jan 15	Feb 15	Mar 15	Apr 15	May 15	Jun 15	Jul 15	Aug 15	Sep 15	Oct 15	Nov 15	Dec 15
Albuquerque	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Anchorage	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Atlanta	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Barrow	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Bethel	A	●	●	●	●	●	●	●	●	●	–	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Billings	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Boston	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Chicago	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Cleveland	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Cold Bay	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Dallas	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Denver	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Fairbanks	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Gander	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Goose Bay	A	●	●	●	●	●	●	–	–	–	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Honolulu	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Houston	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Iqaluit	A	●	–	●	●	●	–	●	●	●	●	–	●
	B	●	–	●	●	●	–	●	●	●	●	–	●
	C	●	–	●	●	●	–	●	●	●	●	–	●
Jacksonville	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●

- ● **Excellent** - 3.29σ bounded 100%
- ● **Good** - 4σ bounded 100%
- ● **Fair** - 4σ bounded 100% with one worst satellite excluded (Requires manual review if symptoms repeat from month to month)
- ● **Poor** – Requires manual review
- – No data available

WAAS Site	WRE	Jan 15	Feb 15	Mar 15	Apr 15	May 15	Jun 15	Jul 15	Aug 15	Sep 15	Oct 15	Nov 15	Dec 15
Juneau	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Kansas City	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Kotzebue	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Los Angeles	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Memphis	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Merida	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Mexico City	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Miami	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Minneapolis	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
New York	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Oakland	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Puerto Vallarta	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	–	–	●	●	●
Salt Lake City	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
San Jose Del Cabo	A	●	–	●	●	●	–	●	–	●	●	–	●
	B	●	–	●	●	●	–	●	–	●	●	–	●
	C	●	–	●	●	●	–	●	–	●	●	●	●
San Juan	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Seattle	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Tapachula	A	●	●	●	●	●	–	–	●	●	●	–	●
	B	●	–	●	–	–	–	–	–	●	●	–	●
	C	●	●	●	●	●	–	–	●	●	●	–	●
Washington, DC	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●
Winnipeg	A	●	●	●	●	●	●	●	●	●	●	●	●
	B	●	●	●	●	●	●	●	●	●	●	●	●
	C	●	●	●	●	●	●	●	●	●	●	●	●

● **Excellent** - 3.29σ bounded 100%
● **Good** - 4σ bounded 100%
● **Fair** - 4σ bounded 100% with one worst satellite excluded (Requires manual review if symptoms repeat from month to month)
● **Poor** – Requires manual review
– No data available

10.0 WAAS REFERENCE STATION SURVEY VALIDATION

Antenna L1 phase center position surveys were performed for all the WAAS Reference Station antennas except MTP2 using 24 hour sets of data from 00:00 on 12/29/15 to 23:59:30 on 12/29/15.

Duplicate surveys were performed using both the National Geodetic Survey (NGS) Online Positioning User Service (OPUS) and the Canadian Spatial Reference System (CSRS) Precise Point Positioning (PPP) service. The IGS08 reference frame is used for the OPUS solutions. A value of -0.4445 meters was used for the antenna reference point (ARP) to antenna phase center (APC) offset for the MicroPulse MPL-WAAS-2225W WAAS antennas in the processing.

The overall RMS quality metrics reported by OPUS were all <= 2.5 cm. The CSRS surveys' RSSs of the reported ECEF sigmas for the 12/29/15 data set were all <= 10 mm. The OPUS and CSRS surveys for the 12/29/15 data set agreed to an average of 1.3 cm. with a standard deviation of 7 mm. The maximum of difference was 4.5 cm. for thread 3 at Houston, TX. Thread A at Houston and Thread B at Juneau were also outliers at 3.5 cm.

The OPUS positions were compared to the positions in the currently fielded WAAS software Build W7.113c which was fielded starting in September 2015. The OPUS surveys agree with the Build W7.113c positions to better or equal than 10 cm for all sites. The maximum was 9.6 cm at Mexico City thread B (MMX1). For Build W7.113c the maximum differences were at Mexico City (9.6 cm) and Honolulu (4.5 cm). The antenna positions are interpolated forward in time. Build W7.113c positions are just after to the beginning of the interpolation useable period.

Table 10-1 lists the WAAS antenna L1 phase center positions as of 12/29/15 using the OPUS data. MSD1 was omitted from the antenna survey section because it was not operational for most of the quarter. Figures 10-1 to 10-3 show the RSS of the ECEF differences between the 12/29/15 OPUS survey antenna phase center locations and the locations in the Build W7.113c software. Each reference station has three independent strings of WAAS receiving equipment (WRE). A surveyed antenna phase center location is required for each WRE. All three strings of a reference station are shown in the three figures. For example, BET1 identifies the RSS of the ECEF deltas for the Bethel WRE string 1(A). The next two bars in the chart are Bethel string 2(B) and Bethel string 3(C). Figures 10-4 to 10-6 show the OPUS surveys overall RMS quality indications.

The "take action" threshold established by the WAAS Integrity Performance Panel (WIPP) is 25 cm for Mexico City and 10 cm for the remaining sites. The large MMX allowance is required because of the rapid subsidence in Mexico City (approximately 28 to 30 cm / year).

Figures 10-7 to 10-9 show the RSS of the ECEF difference between the positions obtained from OPUS and the positions obtained from CSRS. Note that that OPUS positions are in IGS08 and the CSRS positions are in ITRF-2008. Figures 10-10 to 10-12 show the RSS of the ECEF sigma's survey qualities reported by CSRS.

Figures 10-13 to 10-15 show the RSS of the ECEF differences between the 12/29/15 OPUS survey antenna phase center locations and the locations in the Build W7.113c software.

Table 10-1 WAAS Antenna Positions (OPUS IGS08) as of 9/30//15

WRE	X(m)	Y(m)	Z(m)	Latitude	Longitude	H(m)
BET1	-2965385.094	-972576.619	5543892.862	60.78791496	-161.8417253	52.173
BET2	-2965385.863	-972580.342	5543891.806	60.78789553	-161.8416648	52.175
BET3	-2965388.430	-972577.473	5543890.937	60.78787962	-161.8417295	52.170
BIL1	-1416445.915	-4223577.017	4550862.135	45.80370667	-108.5397235	1112.239
BIL2	-1416449.994	-4223574.869	4550862.857	45.80371597	-108.539782	1112.241
BIL3	-1416441.611	-4223574.264	4550865.990	45.8037565	-108.5396823	1112.229
BRW1	-1886758.968	-809058.660	6018494.466	71.28276455	-156.7899253	15.575
BRW2	-1886756.389	-809055.917	6018495.655	71.28279727	-156.7899673	15.593
BRW3	-1886755.288	-809059.689	6018495.474	71.28279272	-156.7898585	15.574
CDB1	-3484099.084	-1084748.781	5213678.594	55.19237374	-162.7064049	49.685
CDB2	-3484105.721	-1084741.580	5213675.647	55.19232768	-162.7065438	49.661
CDB3	-3484112.007	-1084734.810	5213672.903	55.19228419	-162.7066746	49.685
FAI1	-2304741.852	-1448715.291	5748843.647	64.80962953	-147.8473411	149.918
FAI2	-2304741.382	-1448706.480	5748846.041	64.80967996	-147.8474929	149.919
FAI3	-2304732.851	-1448707.406	5748849.180	64.80974656	-147.8473808	149.896
HNL1	-5508637.126	-2234493.092	2303722.307	21.31299143	-157.9208296	24.657
HNL2	-5508656.293	-2234483.418	2303687.064	21.31264853	-157.9209854	25.007
HNL3	-5508647.700	-2234497.345	2303694.157	21.31271716	-157.9208299	25.043
JNU1	-2354254.955	-2388549.661	5407043.110	58.3625742	-134.5857077	16.124
JNU2	-2354252.871	-2388565.774	5407036.946	58.36246864	-134.5854891	16.128
JNU3	-2354239.646	-2388568.621	5407041.408	58.36254511	-134.585294	16.121
MMD1	35070.399	-5959686.667	2264365.775	20.93190933	-89.66284089	29.122
MMD2	35065.476	-5959687.036	2264364.991	20.93190162	-89.66288824	29.160
MMD3	35065.129	-5959685.243	2264369.639	20.93194663	-89.66289147	29.144
MMX1	-948700.979	-5943934.687	2109212.401	19.43165372	-99.0683899	2234.620
MMX2	-948696.548	-5943934.514	2109214.814	19.43167688	-99.06834851	2234.603
MMX3	-948705.407	-5943934.870	2109209.985	19.43163051	-99.06843125	2234.645
MPR1	-1570142.239	-5759530.602	2238184.764	20.67900338	-105.2492034	10.983
MPR2	-1570139.412	-5759530.111	2238188.812	20.67904147	-105.2491784	11.274
MPR3	-1570143.520	-5759527.986	2238190.579	20.6790595	-105.2492219	10.991
MSD1						
MSD2	-1979521.464	-5523225.277	2493100.473	23.16038493	-109.7176568	104.266
MSD3	-1979525.903	-5523222.010	2493104.130	23.16042089	-109.7177083	104.254
MTP1	-254854.371	-6162909.151	1617805.076	14.79136612	-92.36799935	54.931
MTP2	-254850.755	-6162910.185	1617801.641	14.79133407	-92.36796539	54.908
MTP3	-254855.529	-6162910.288	1617800.113	14.79132002	-92.36800966	54.808
OTZ1	-2396056.071	-750356.179	5843502.497	66.88733166	-162.6113729	10.889
OTZ2	-2396052.898	-750354.350	5843504.018	66.88736649	-162.6113911	10.885
OTZ3	-2396052.880	-750358.288	5843503.528	66.88735521	-162.6113052	10.890
YFB1	1035381.396	-2634289.647	5696539.555	63.73149068	-68.54318444	10.035
YFB2	1035372.188	-2634296.059	5696538.192	63.73146436	-68.54340539	9.963
YFB3	1035366.100	-2634306.821	5696534.415	63.73138671	-68.54359978	10.023
YQX1	2430424.583	-3419640.403	4788223.837	48.96649018	-54.59763281	146.868
YQX2	2430432.547	-3419639.058	4788220.790	48.96644833	-54.59753352	146.879
YQX3	2430440.446	-3419637.692	4788217.792	48.96640715	-54.59743478	146.891
YWG1	-520164.428	-4083475.949	4855843.032	49.90057419	-97.25939833	222.104

WRE	X(m)	Y(m)	Z(m)	Latitude	Longitude	H(m)
YWG2	-520150.560	-4083468.889	4855850.426	49.90067722	-97.25921926	222.121
YWG3	-520152.431	-4083478.010	4855842.605	49.90056808	-97.25922906	222.118
YYR1	1885341.376	-3321428.369	5091171.681	53.30864736	-60.41946899	37.857
YYR2	1885344.339	-3321419.888	5091176.093	53.30871365	-60.41936753	37.862
YYR3	1885340.056	-3321413.075	5091182.095	53.30880379	-60.41937295	37.871
ZAB1	-1488636.877	-5003946.534	3654557.694	35.17357527	-106.5673502	1620.121
ZAB2	-1488631.538	-5003948.222	3654557.673	35.17357462	-106.5672887	1620.187
ZAB3	-1488632.318	-5003950.809	3654553.823	35.17353223	-106.5672888	1620.178
ZAN1	-2659536.691	-1549114.767	5567750.742	61.22920144	-149.7802514	80.699
ZAN2	-2659548.452	-1549110.809	5567746.263	61.22911783	-149.7804252	80.706
ZAN3	-2659541.399	-1549106.683	5567750.733	61.22920141	-149.7804255	80.691
ZAU1	138704.080	-4761244.139	4227763.930	41.78265806	-88.33133712	195.884
ZAU2	138704.339	-4761248.756	4227758.767	41.78259567	-88.33133562	195.891
ZAU3	138711.048	-4761248.491	4227758.848	41.78259663	-88.33125486	195.893
ZBW1	1490299.182	-4448983.172	4306010.502	42.73572061	-71.48042631	39.110
ZBW2	1490304.292	-4448981.164	4306010.849	42.73572462	-71.48035935	39.139
ZBW3	1490306.001	-4448984.788	4306006.539	42.73567181	-71.48035362	39.137
ZDC1	1069125.723	-4839598.987	4001126.518	39.10159602	-77.54274698	80.064
ZDC2	1069128.127	-4839603.617	4001120.308	39.10152398	-77.54273139	80.058
ZDC3	1069124.019	-4839602.711	4001122.513	39.10154946	-77.5427755	80.074
ZDV1	-1273628.642	-4711375.567	4094890.098	40.18730318	-105.1272247	1541.348
ZDV2	-1273622.943	-4711377.081	4094890.112	40.18730342	-105.1271555	1541.337
ZDV3	-1273624.957	-4711380.281	4094885.828	40.18725296	-105.1271685	1541.334
ZFW1	-659983.221	-5324060.762	3438276.459	32.83064969	-97.06647204	155.602
ZFW2	-659988.487	-5324063.316	3438271.461	32.83059627	-97.0665245	155.566
ZFW3	-659983.519	-5324063.843	3438271.673	32.8305983	-97.06647116	155.607
ZHU1	-513864.496	-5506451.703	3166720.469	29.96189632	-95.33142653	10.847
ZHU2	-513867.136	-5506455.086	3166714.296	29.9618318	-95.33145051	10.895
ZHU3	-513873.421	-5506457.751	3166708.716	29.9617736	-95.33151277	10.913
ZJX1	772646.418	-5434462.202	3237231.752	30.69885968	-81.9081854	2.149
ZJX2	772649.745	-5434463.751	3237228.350	30.69882408	-81.90815329	2.133
ZJX3	772645.681	-5434466.184	3237225.245	30.69879154	-81.90819886	2.128
ZKC1	-415247.549	-4954556.388	3982161.105	38.88015932	-94.7908342	305.892
ZKC2	-415231.159	-4954557.726	3982161.177	38.88016003	-94.7906447	305.910
ZKC3	-415237.276	-4954561.070	3982155.975	38.88010182	-94.79071173	305.636
ZLA1	-2474409.984	-4637294.606	3602183.551	34.60351851	-118.0838961	763.509
ZLA2	-2474404.702	-4637297.400	3602183.554	34.60351864	-118.0838309	763.493
ZLA3	-2474411.317	-4637297.079	3602179.575	34.60347463	-118.0838962	763.563
ZLC1	-1808273.247	-4486410.820	4145303.006	40.78604314	-111.9521779	1287.431
ZLC2	-1808274.648	-4486414.431	4145298.513	40.78598974	-111.9521773	1287.429
ZLC3	-1808270.435	-4486416.135	4145298.508	40.78598967	-111.9521235	1287.430
ZMA1	966042.275	-5662999.819	2761581.504	25.82461227	-80.31919004	-7.593
ZMA2	966029.301	-5662999.118	2761585.991	25.82466002	-80.31931641	-8.224
ZMA3	966037.378	-5662997.955	2761586.348	25.82466209	-80.31923506	-7.878
ZME1	4070.860	-5226189.292	3644028.426	35.06739416	-89.95537034	68.601
ZME2	4070.888	-5226186.742	3644032.534	35.06743767	-89.95537001	68.874
ZME3	4064.697	-5226186.616	3644032.696	35.06743954	-89.95543788	68.860

WRE	X(m)	Y(m)	Z(m)	Latitude	Longitude	H(m)
ZMP1	-249978.423	-4539297.503	4458955.051	44.63746323	-93.152086	262.658
ZMP2	-249972.620	-4539297.838	4458955.046	44.63746309	-93.15201275	262.665
ZMP3	-249973.718	-4539302.116	4458950.576	44.63740709	-93.1520236	262.607
ZNY1	1406144.595	-4627343.989	4144322.066	40.78432868	-73.09716616	6.450
ZNY2	1406146.391	-4627347.020	4144317.286	40.78427596	-73.09715624	5.919
ZNY3	1406140.834	-4627348.678	4144317.319	40.78427636	-73.09722494	5.919
ZOA1	-2684436.921	-4293337.356	3865351.888	37.54305414	-122.0159486	-3.499
ZOA2	-2684433.914	-4293341.431	3865349.460	37.54302658	-122.0158953	-3.503
ZOA3	-2684438.288	-4293342.317	3865345.605	37.54298218	-122.0159319	-3.417
ZOB1	650770.145	-4754715.666	4187420.753	41.29715454	-82.20644518	223.675
ZOB2	650777.824	-4754714.843	4187422.772	41.29716685	-82.20635301	225.177
ZOB3	650776.158	-4754719.665	4187414.978	41.29708708	-82.20638053	223.453
ZSE1	-2308930.292	-3668169.681	4663526.467	47.28699309	-122.188373	82.102
ZSE2	-2308934.680	-3668175.219	4663520.060	47.28690758	-122.1883831	82.160
ZSE3	-2308935.740	-3668179.496	4663516.118	47.28685588	-122.1883649	82.101
ZSU1	2462589.459	-5529372.123	2003724.507	18.43133602	-65.9934766	-28.078
ZSU2	2462587.529	-5529377.486	2003712.215	18.43121891	-65.99351394	-28.061
ZSU3	2462594.153	-5529375.220	2003710.132	18.43119927	-65.99344794	-28.127
ZTL1	529840.368	-5305248.810	3489342.857	33.37968866	-84.29672639	261.136
ZTL2	529846.744	-5305247.964	3489343.141	33.37969183	-84.2966573	261.118
ZTL3	529847.429	-5305251.403	3489337.906	33.37963511	-84.29665365	261.152

Figure 10-1 Build W7.012 Antenna Positions Deltas from 9/30//15 OPUS Survey

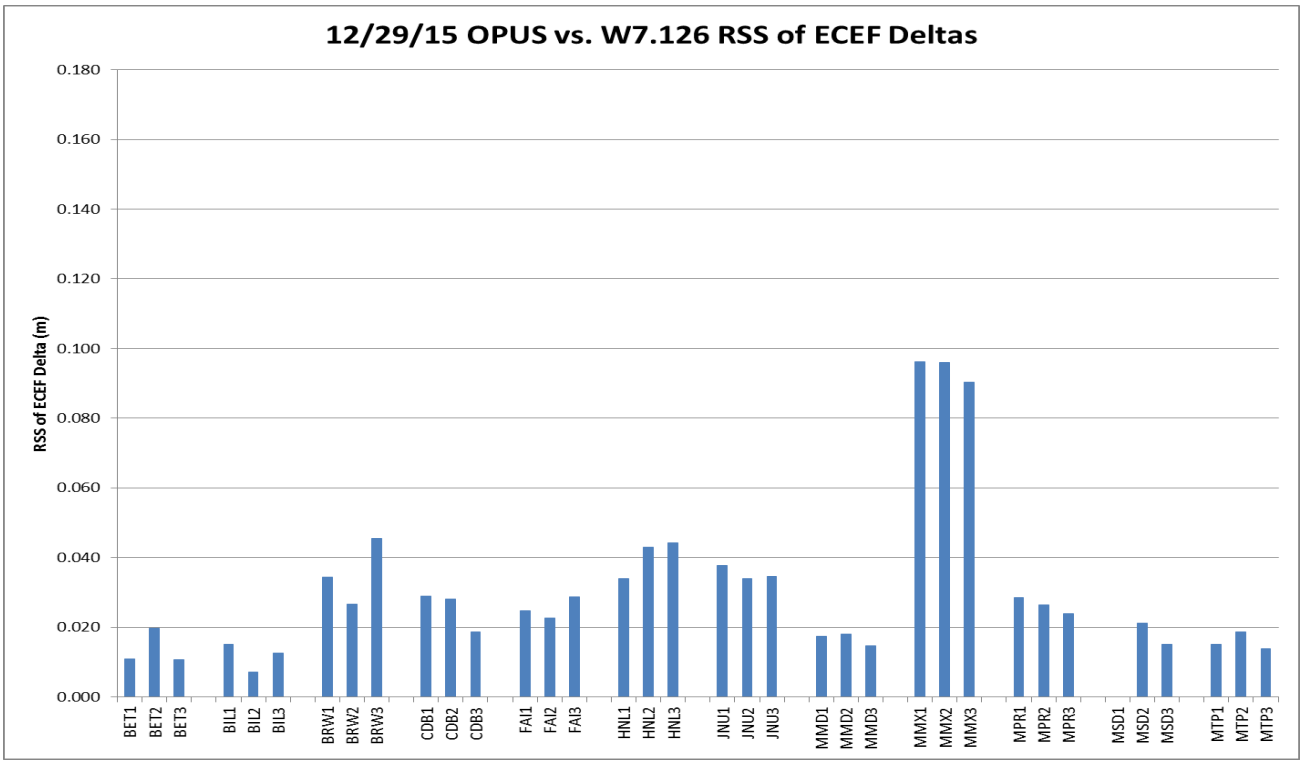


Figure 10-2 Build W7.012 Antenna Positions Deltas from 9/30/15 OPUS Survey

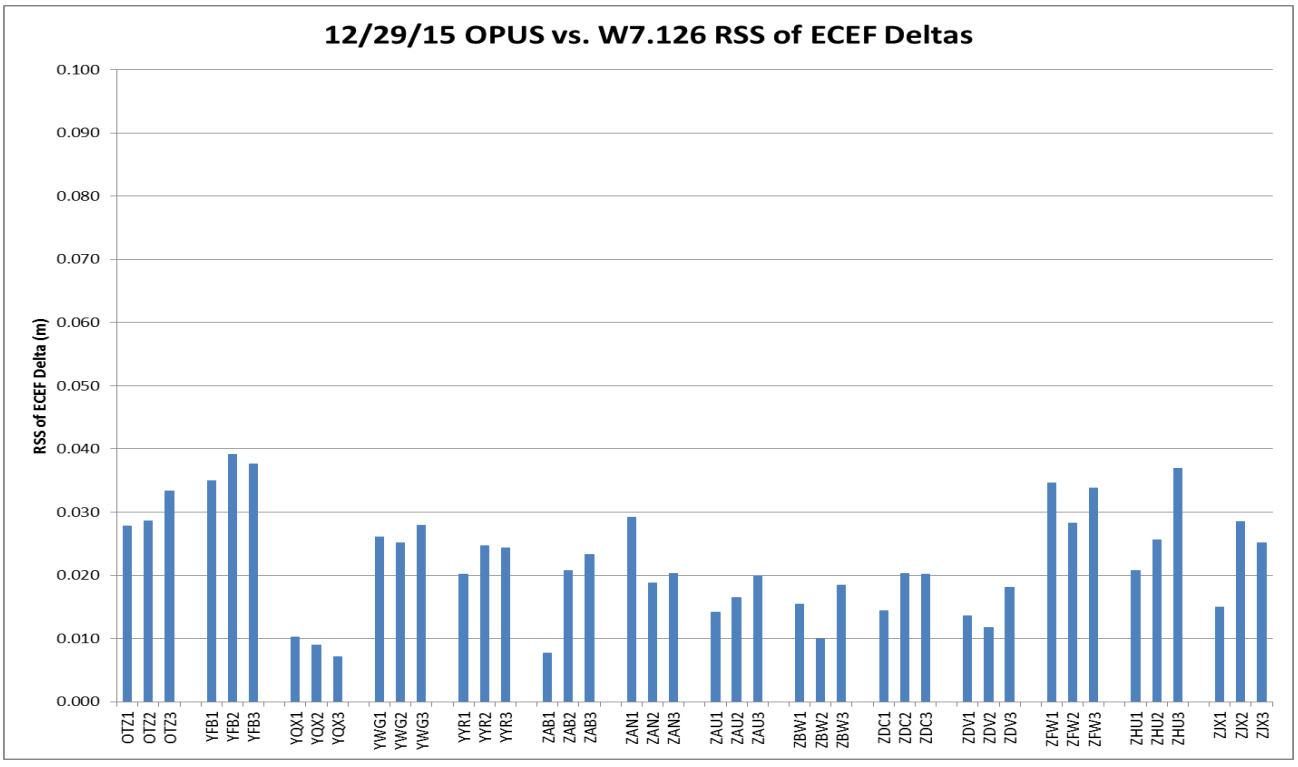


Figure 10-3 Build W7.012 Antenna Positions Deltas from 9/30/15 OPUS Survey

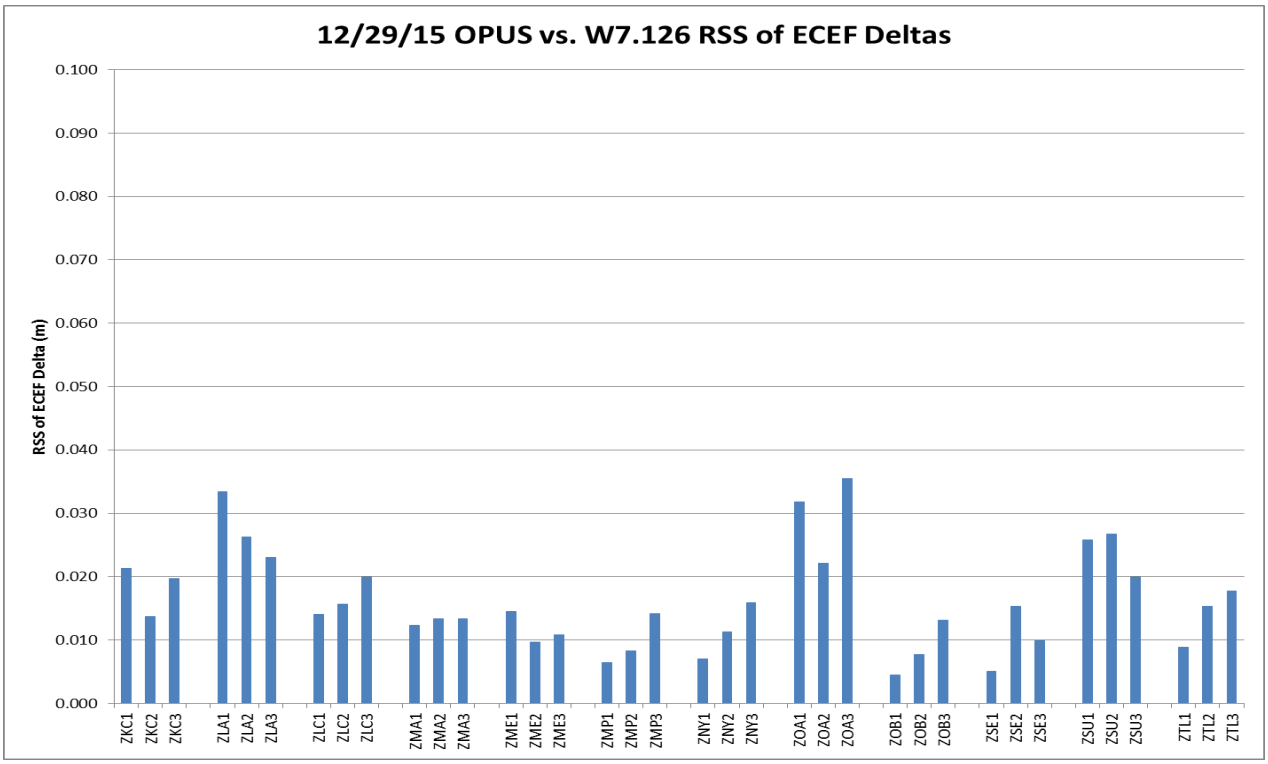


Figure 10-4 9/30/15 OPUS Survey Overall RMS Qualities

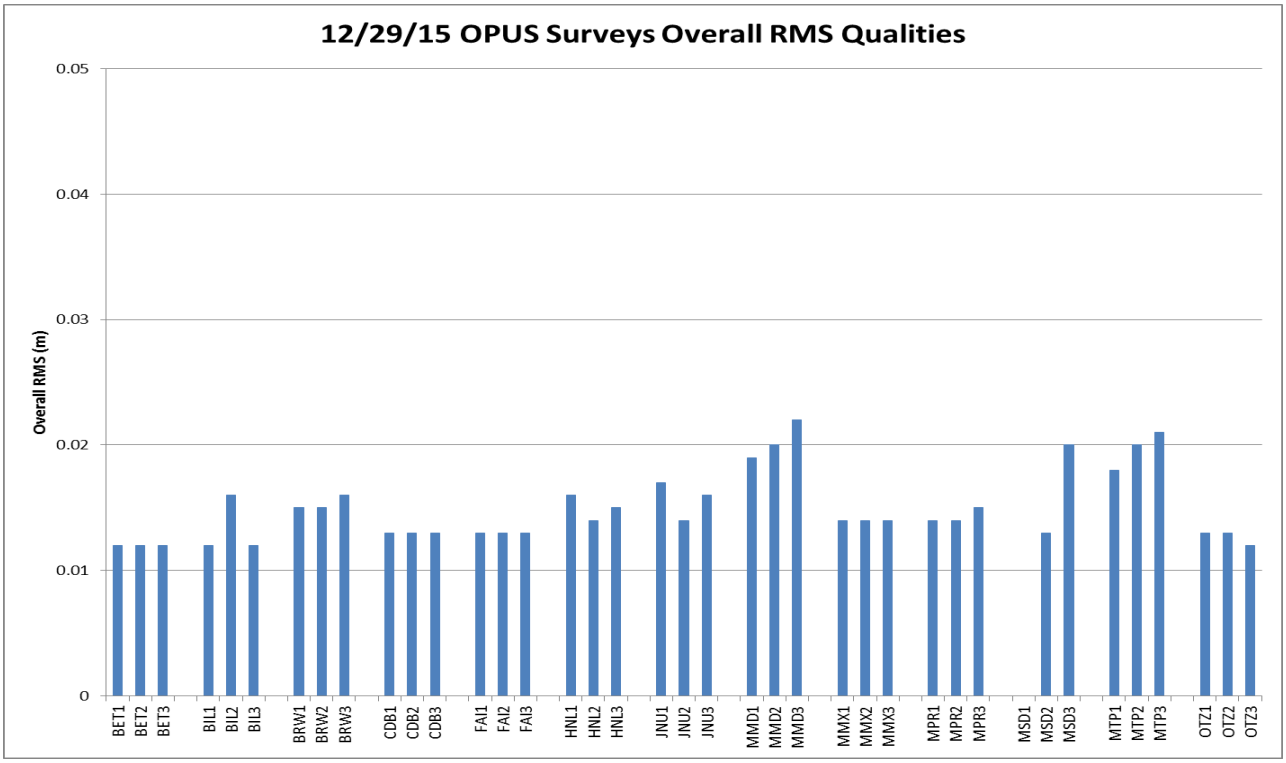


Figure 10-5 9/30/15 OPUS Survey Overall RMS Qualities

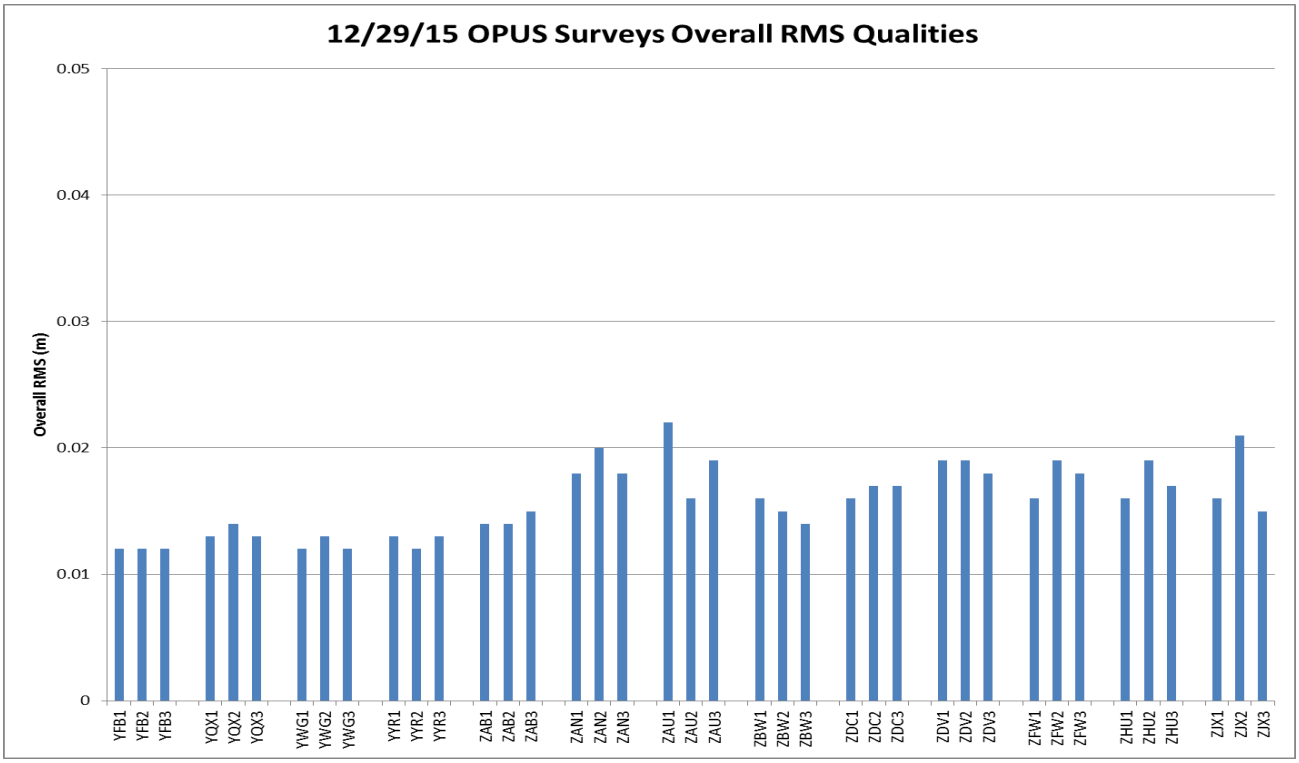


Figure 10-6 9/30/15 OPUS Survey Overall RMS Qualities

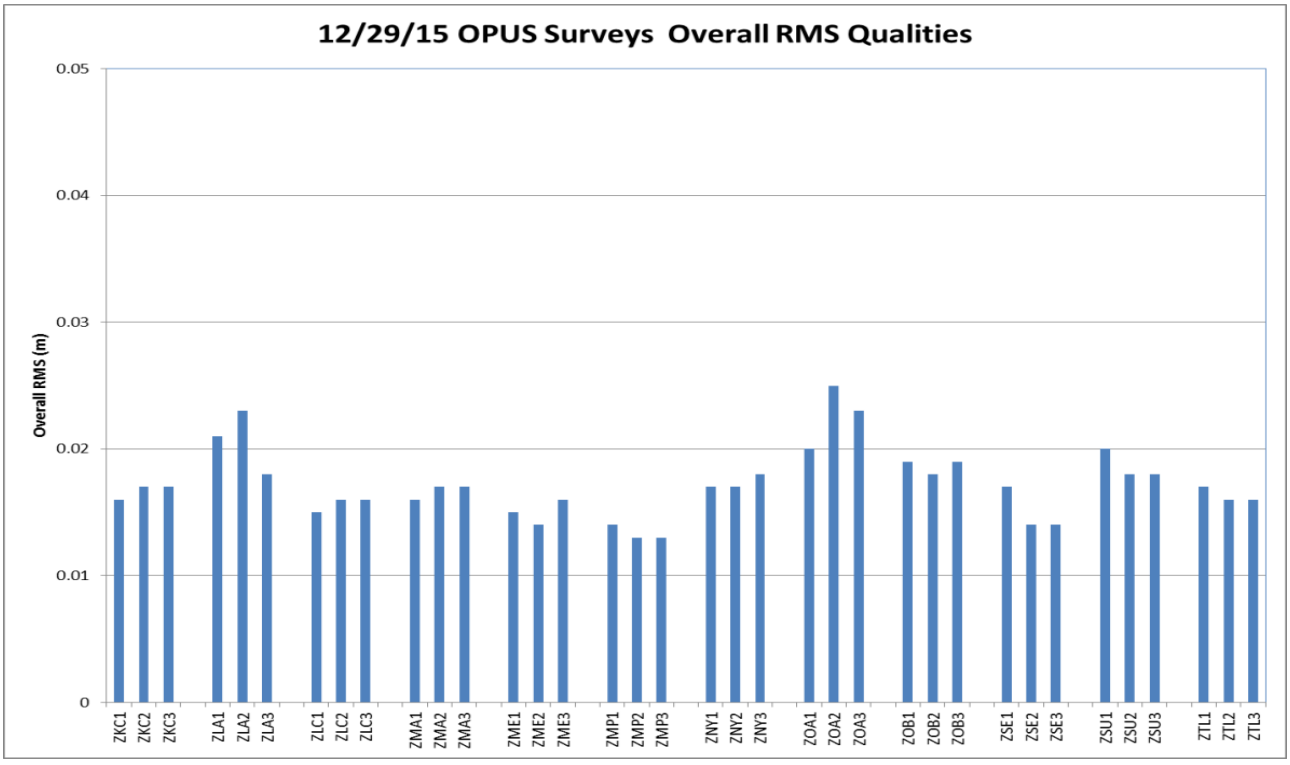


Figure 10-7 9/30/15 OPUS vs. CSRS RSS ECEF Deltas

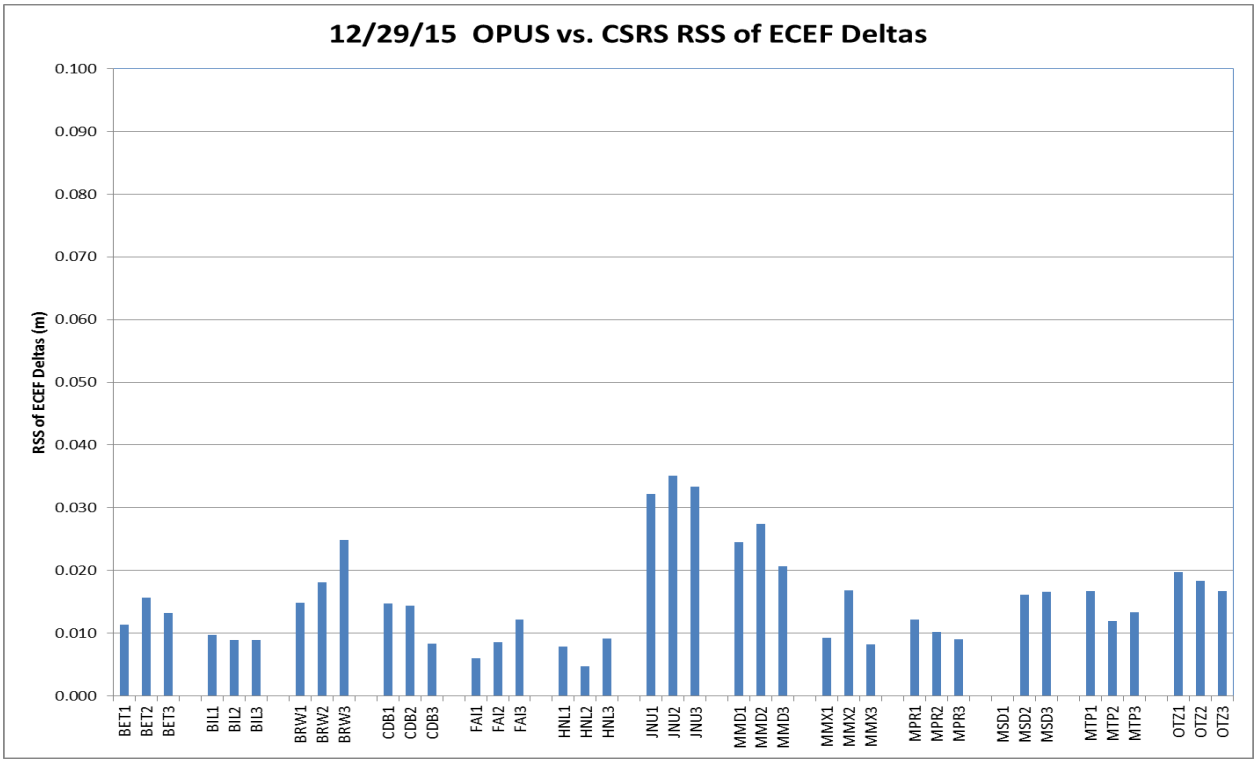


Figure 10-8 9/30/15 OPUS vs. CSRS RSS ECEF Deltas

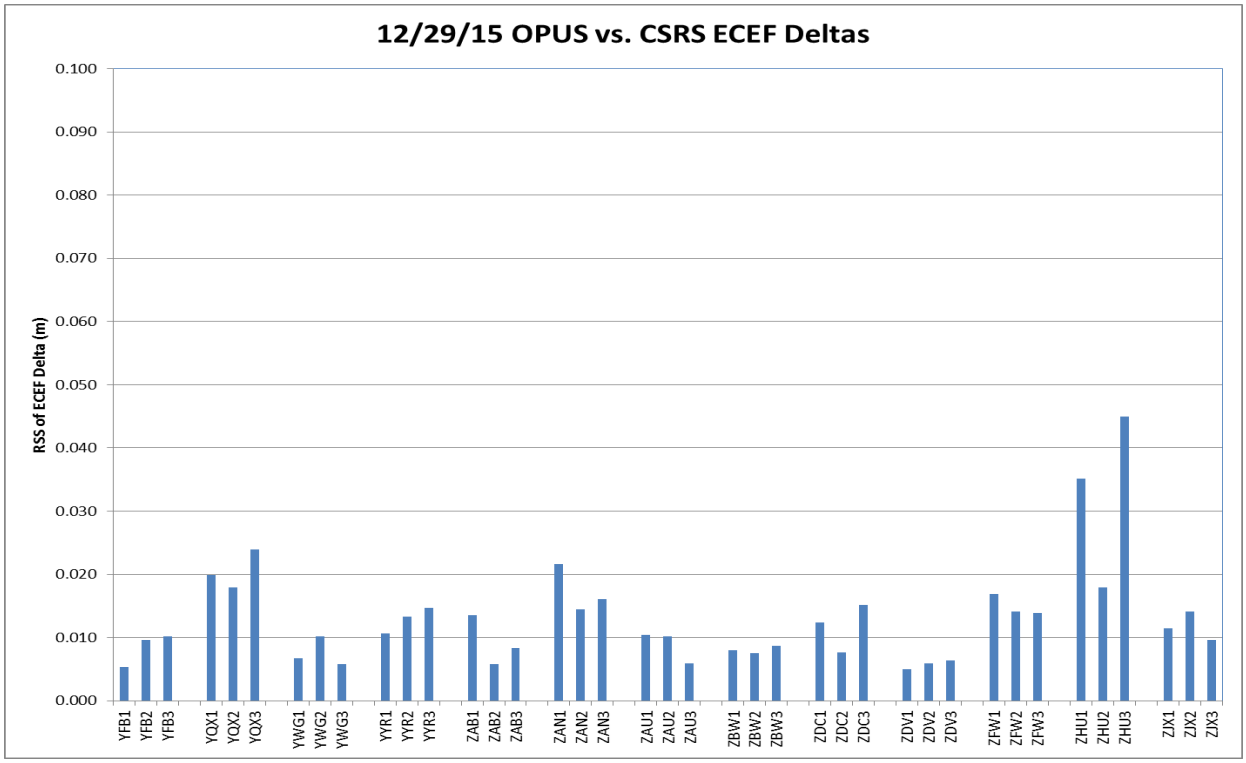


Figure 10-9 9/30/15 OPUS vs. CSRS RSS ECEF Deltas

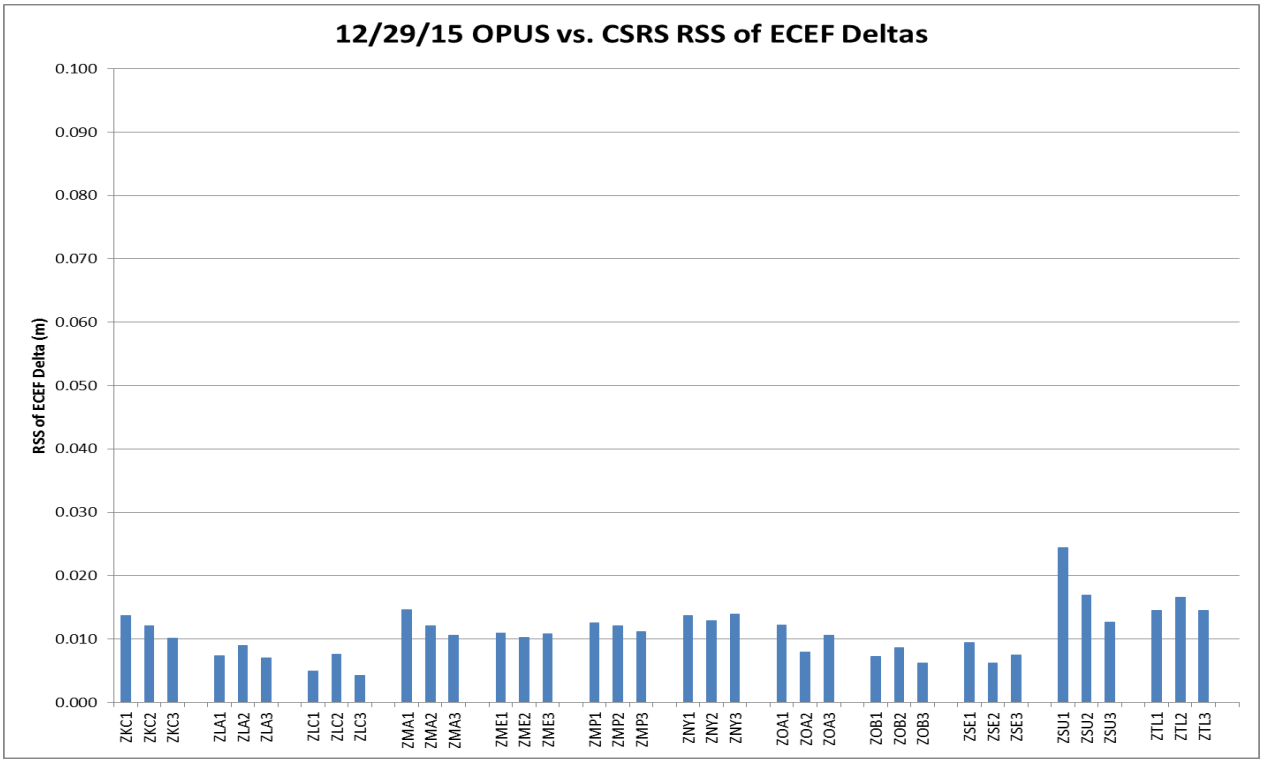


Figure 10-10 9/30/15 CSRS Survey Qualities

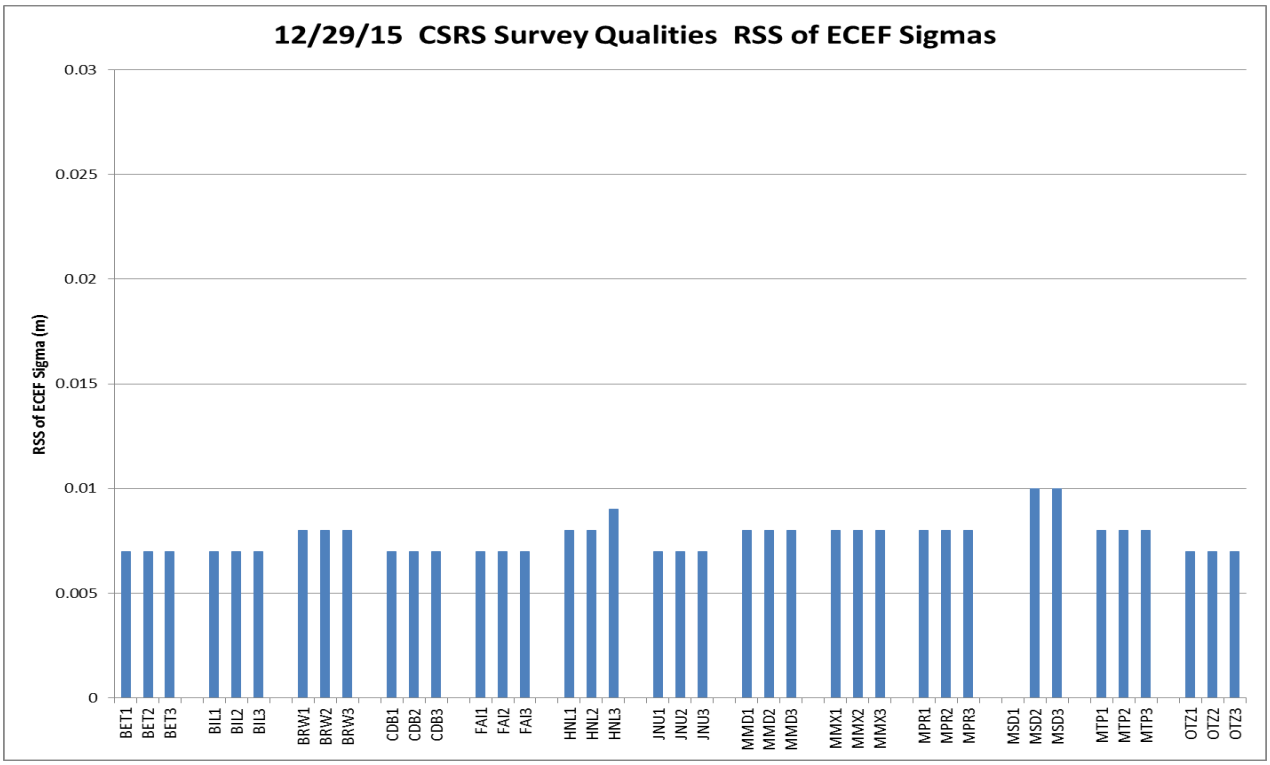


Figure 10-11 9/30/15 CSRS Survey Qualities

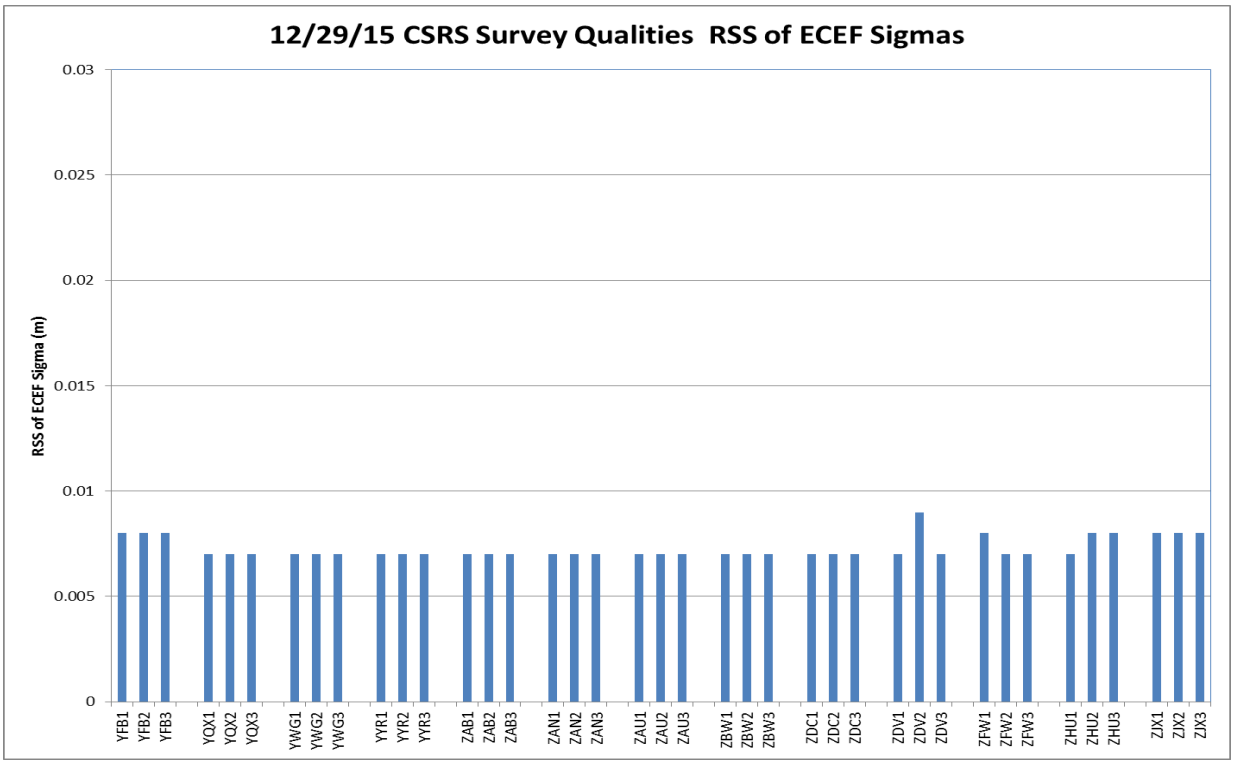
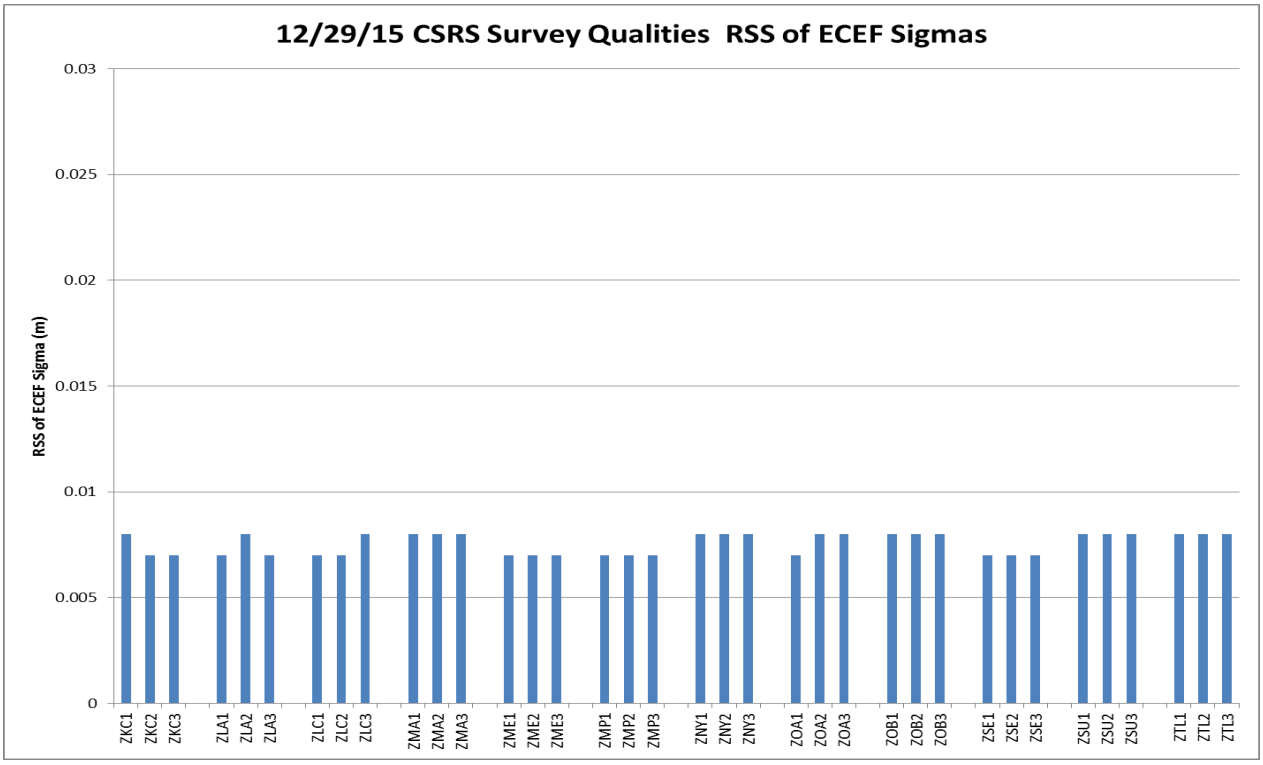


Figure 10-12 9/30/15 CSRS Survey Qualities



11.0 SIGNAL QUALITY MONITOR (SQM)

The Signal Quality Monitor (SQM) is designed to detect signal deformations that originate in the GPS or GEO satellites and ensures that the UDRE values are sufficiently inflated to protect given the monitor's current observations. SQM processes various correlator spacing measurements produced by the reference station receivers to form four detection metrics for each receiver and calculates statistics based on the observed performance against "ideal" signal correlation peaks. This results in an estimate of the overall deformation per satellite. The deformation level calculated is then compared against threshold values, which includes the acceptable error levels per UDRE value. If the estimated deformation exceeds threshold, the monitor trips for the given satellite and the UDRE value is set to 'Don't Use'. The monitor depends on the entire ground network in order to ensure that the satellite is the source of any problem detected rather than a localized affect. Currently all 114 receivers are being used in the SQM computations.

WAAS SQM offline monitoring effort includes the monitoring of the PRN type biases, trips, and the estimated deformation for each satellite that will be referred to as PRN bias in this report.

11.1 Alpha Metrics

The alpha metrics values are pre-determined by offline integrity analysis and are defined as constants in the SQM algorithm. These values remained unchanged for this reporting period and are listed in Table 11-1. Currently there are 4 sets of alpha metrics in the WAAS SQM algorithm that form four detection metrics for each receiver channel. For this report, the four detection metrics will be referred to as: DM1, DM2, DM3, and DM4.

Table 11-1 Alpha Metrics

Correlator Spacing	DM1	DM2	DM3	DM4
-0.1	0	0.43407318	0	-0.36110353
-0.075	0	0.48570652	-0.0058771682	-0.74860302
-0.05	-0.4071265	-0.69931105	-0.011382325	0.23726003
-0.025	1	-0.010099034	0.00037033029	-0.0076011735
0	0	0	0	0
0.025	-0.25	0.13317879	0.99991788	-0.062414070
0.05	1.008525	-0.22851782	0	0.25177272
0.075	0	0.10209042	0	0.42875623
0.1	0	0.078436452	0	0.41602138

11.2 Type Bias

PRN Type biases are evaluated as part of the WAAS SQM offline monitoring effort. Depending on the PRN number of any given satellite, it can be classified into three categories of correlation function shapes: skinny (Type 0), nominal (Type 1), and broad (Type 2). Wideband geostationary satellites are considered a different type (Type 3). PRN-type estimates are computed at each epoch and daily averages are computed for each type, for four detection metrics.

For this reporting period, geostationary satellites type biases are not evaluated. Table 11-2 shows the rollup average for the quarter. Table 11-3 shows the rollup average since January 1, 2008. Figure 11-1 shows the daily average for the four detection metrics for the quarter. The shifts in the type biases in Figure 11-1 were due to SQM data from G2 and G3 receivers, with 42 G3 receivers at the end of the quarter.

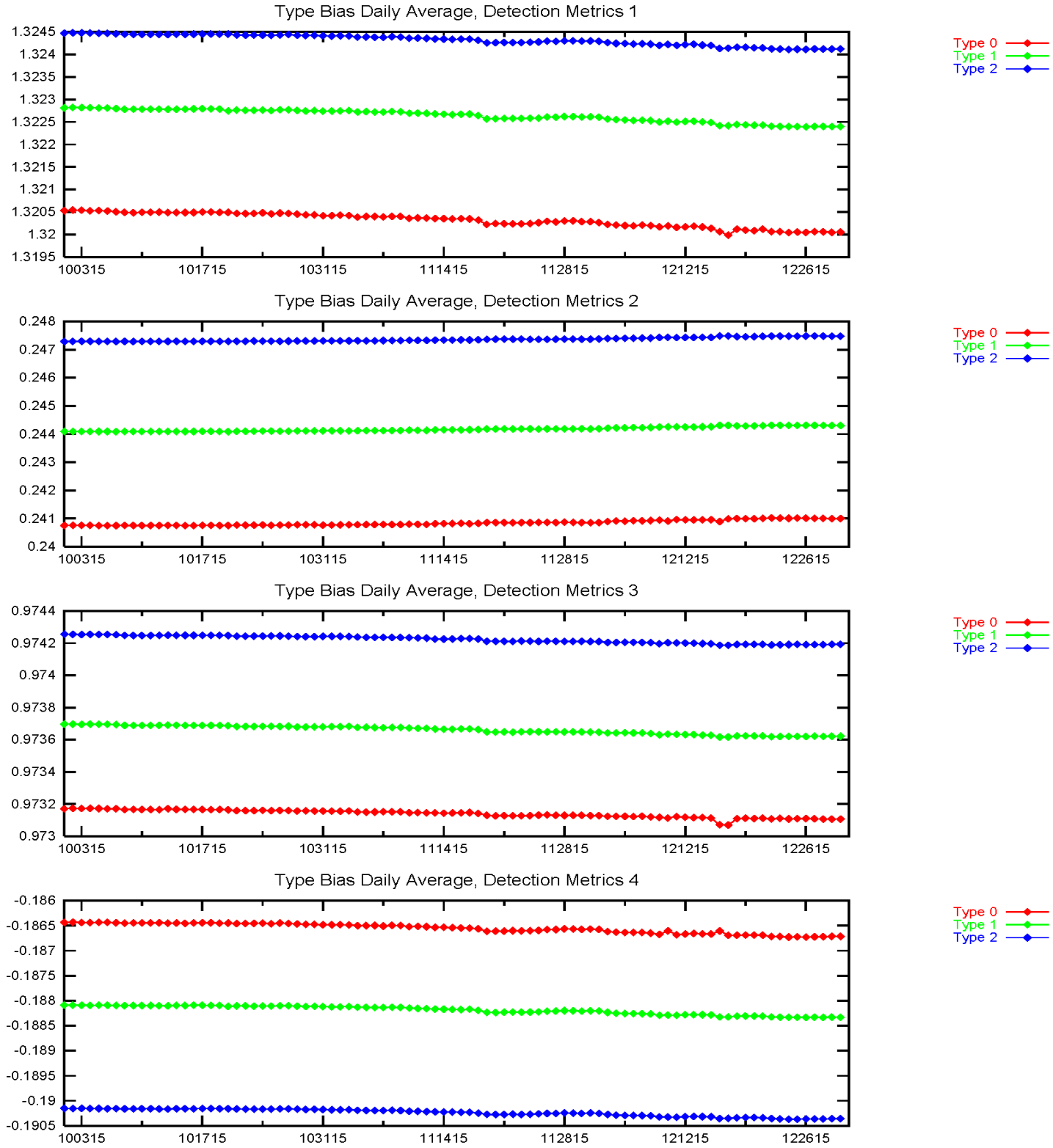
Table 11-2 Type Bias Average for the Quarter

Detection Metric	Type 0	Type 1	Type 2
DM 1	1.320320	1.322640	1.324320
DM 2	0.240845	0.244172	0.247359
DM 3	0.973140	0.973661	0.974224
DM 4	-0.186554	-0.188189	-0.190237

Table 11-3 Type Bias Average Since January 1, 2008

Detection Metric	Type 0	Type 1	Type 2
DM 1	1.320850	1.322860	1.324560
DM 2	0.240844	0.244089	0.247273
DM 3	0.973179	0.973706	0.974272
DM 4	-0.186267	-0.188070	-0.190114

Figure 11-1 Type Bias Average Trend



11.3 PRN Bias

PRN biases are evaluated as part of the WAAS SQM offline monitoring effort. PRN bias is the overall estimated deformation per satellite across receivers. Detection metrics are adjusted for inter-receiver bias, corrected for PRN type bias, and combined across receivers for each satellite. Relying on the assertion that the majority of the SV signals are healthy and normal, detection metrics are normalized over all the satellites on orbit resulting in an overall PRN bias for each satellite. PRN biases are collected at each epoch and daily averages are computed for each satellite, for four detection metrics.

Table 11-4 and Figure 11-2 show the rollup PRN bias average for the quarter. The maximum average for DM1 for this quarter is PRN-23 at 0.0010484. The maximum average for DM2 is PRN-11 at 0.0002293. The maximum average for DM3 is PRN-21 at 0.0001813 and the maximum average for DM4 is PRN-23 at 0.0004238.

In Figure 11-3 to 11-10, the PRN biases on DM1 and DM2 show slight increases for most satellites. The increases were due to the combination of SQM data from G2 and G3 receivers, more noticeable beginning November 14 with 27 G3 receivers in the field; there were 42 G3 receivers at the end of the quarter. Small increases on PRN-3 on December 17 were due to a NANU that set the satellite to unusable. PRN-22 were unusable on December 10 and from December 15 to December 17. Small increases on PRN-23 on October 19 were due to a NANU that set the satellite to unusable. PRN 4 went offline on November 3 and remained offline to the end of the quarter. PRN-10 (SVN-73) was usable on December 9.

Table 11-4 PRN Bias Average for the Quarter

PRN	SVN	DM1	DM2	DM3	DM4
1	63	0.0001780	0.0000956	0.0000691	0.0000992
2	61	0.0005657	0.0001328	0.0000849	0.0001233
3	69	0.0001437	0.0000668	0.0000686	0.0000972
4	34	0.0001838	0.0000521	0.0000609	0.0001392
5	50	0.0001410	0.0001113	0.0000611	0.0001293
6	67	0.0002513	0.0002123	0.0001394	0.0001493
7	48	0.0001513	0.0000670	0.0000341	0.0001501
8	72	0.0004416	0.0001375	0.0000334	0.0001575
9	39	0.0002022	0.0000864	0.0000864	0.0003570
10	73	0.0001906	0.0001104	0.0000918	0.0001938
11	46	0.0010101	0.0002293	0.0000689	0.0002607
12	58	0.0001694	0.0000854	0.0000947	0.0000886
13	43	0.0005483	0.0000571	0.0000623	0.0001799
14	41	0.0007210	0.0001411	0.0001136	0.0001167
15	55	0.0001585	0.0000675	0.0000241	0.0001679
16	56	0.0001420	0.0000641	0.0001325	0.0003105
17	53	0.0001879	0.0000744	0.0000441	0.0001194
18	54	0.0007118	0.0001428	0.0000483	0.0002433
19	59	0.0004973	0.0002001	0.0000548	0.0001012
20	51	0.0001518	0.0000598	0.0000325	0.0001481
21	45	0.0004122	0.0001256	0.0001813	0.0000930
22	47	0.0003693	0.0000721	0.0001000	0.0003534
23	60	0.0010484	0.0002059	0.0000395	0.0004238
24	65	0.0002174	0.0000597	0.0000323	0.0001096
25	62	0.0003191	0.0001773	0.0000744	0.0001360
26	71	0.0002591	0.0001091	0.0000591	0.0001263
27	66	0.0005922	0.0001759	0.0000542	0.0002771
28	44	0.0003103	0.0000628	0.0000327	0.0000997
29	57	0.0003061	0.0000788	0.0000972	0.0002988
30	64	0.0002288	0.0000677	0.0000456	0.0001428
31	52	0.0003585	0.0001415	0.0000359	0.0002475
32	23	0.0001769	0.0000941	0.0000954	0.0001002

Figure 11-2 PRN Bias Average for the Quarter

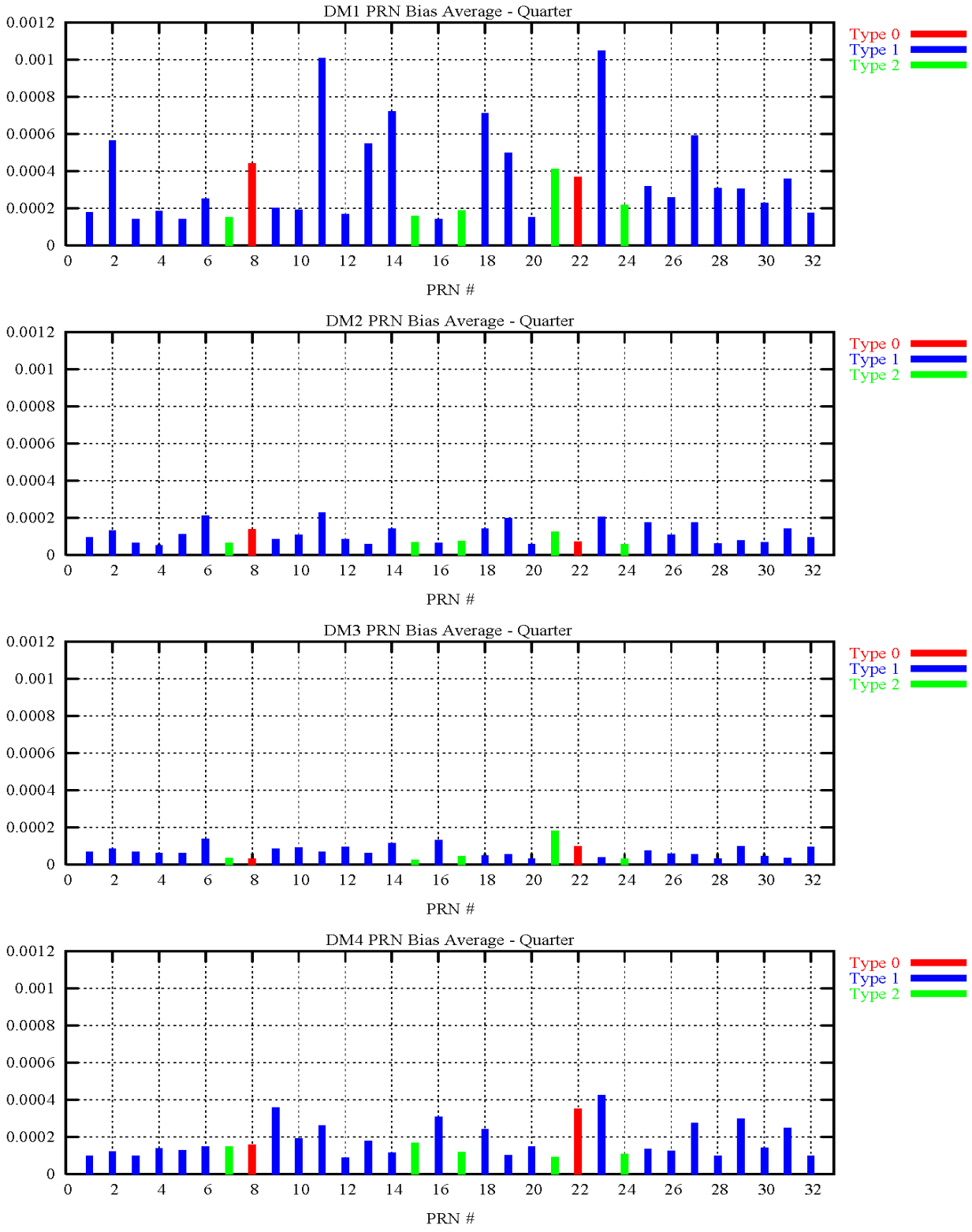


Figure 11-3 PRN Bias Average Trend (PRN-1 – PRN-4)

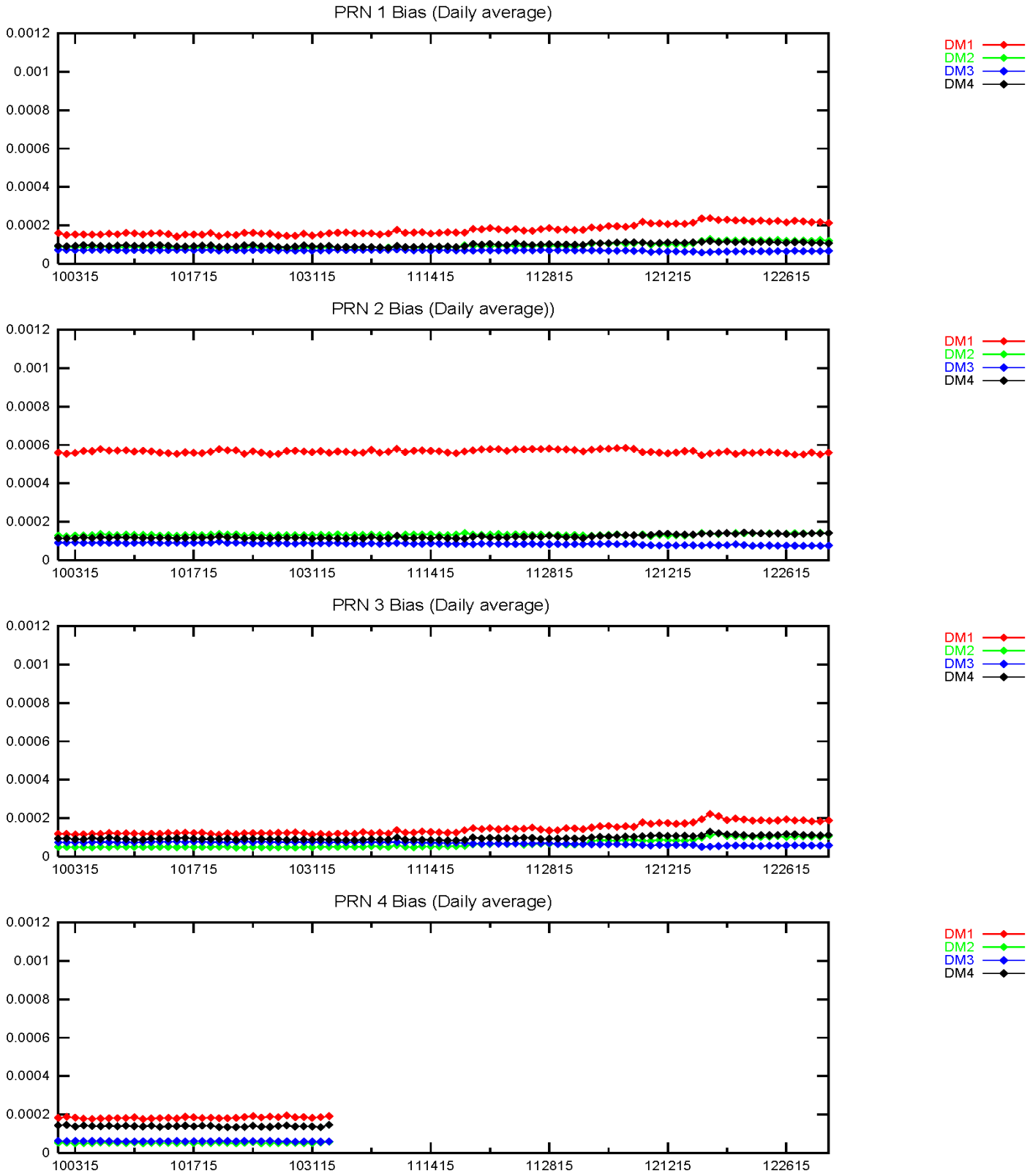


Figure 11-4 PRN Bias Average Trend (PRN-5 – PRN-8)

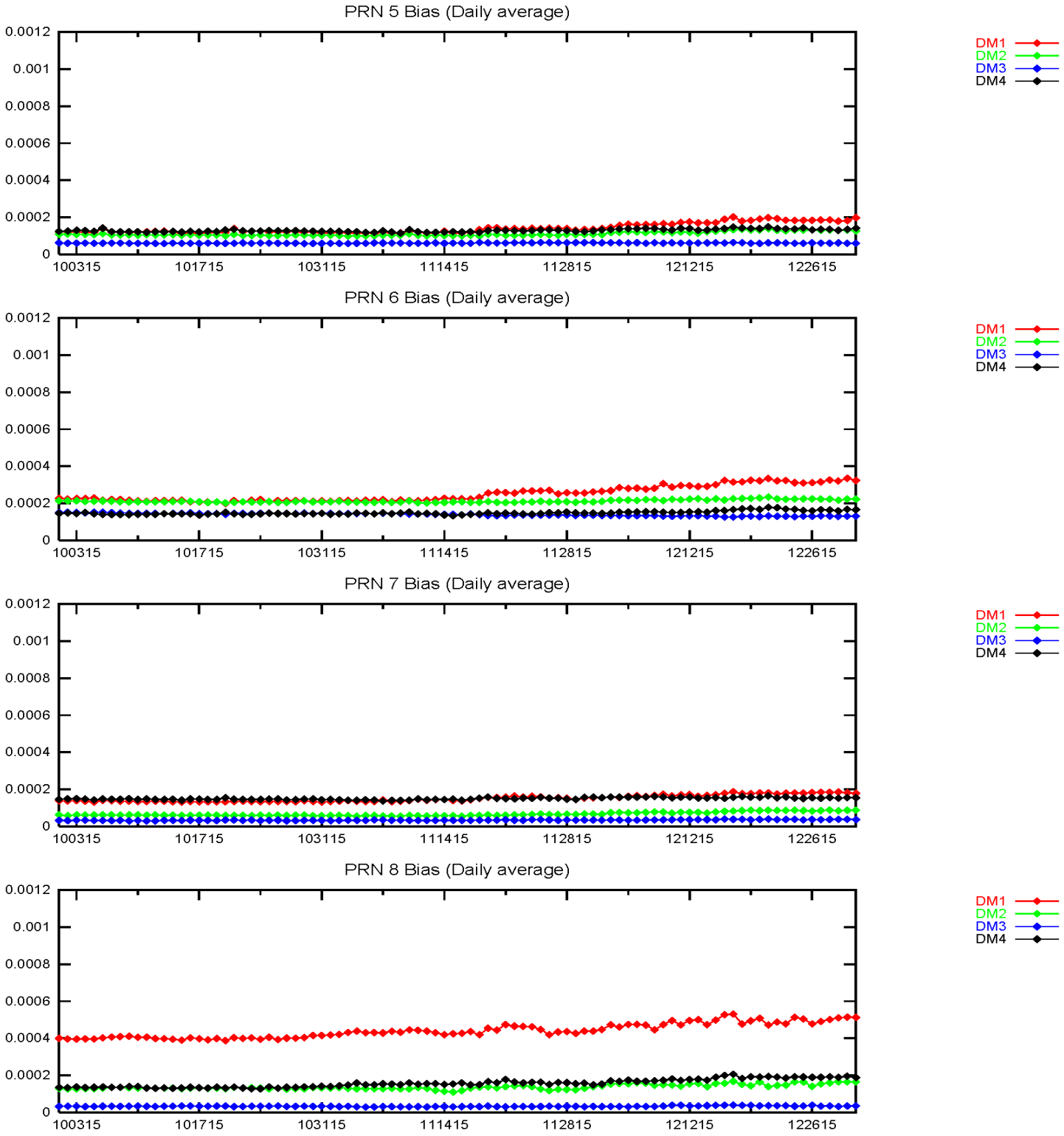


Figure 11-5 PRN Bias Average Trend (PRN-9 – PRN-12)

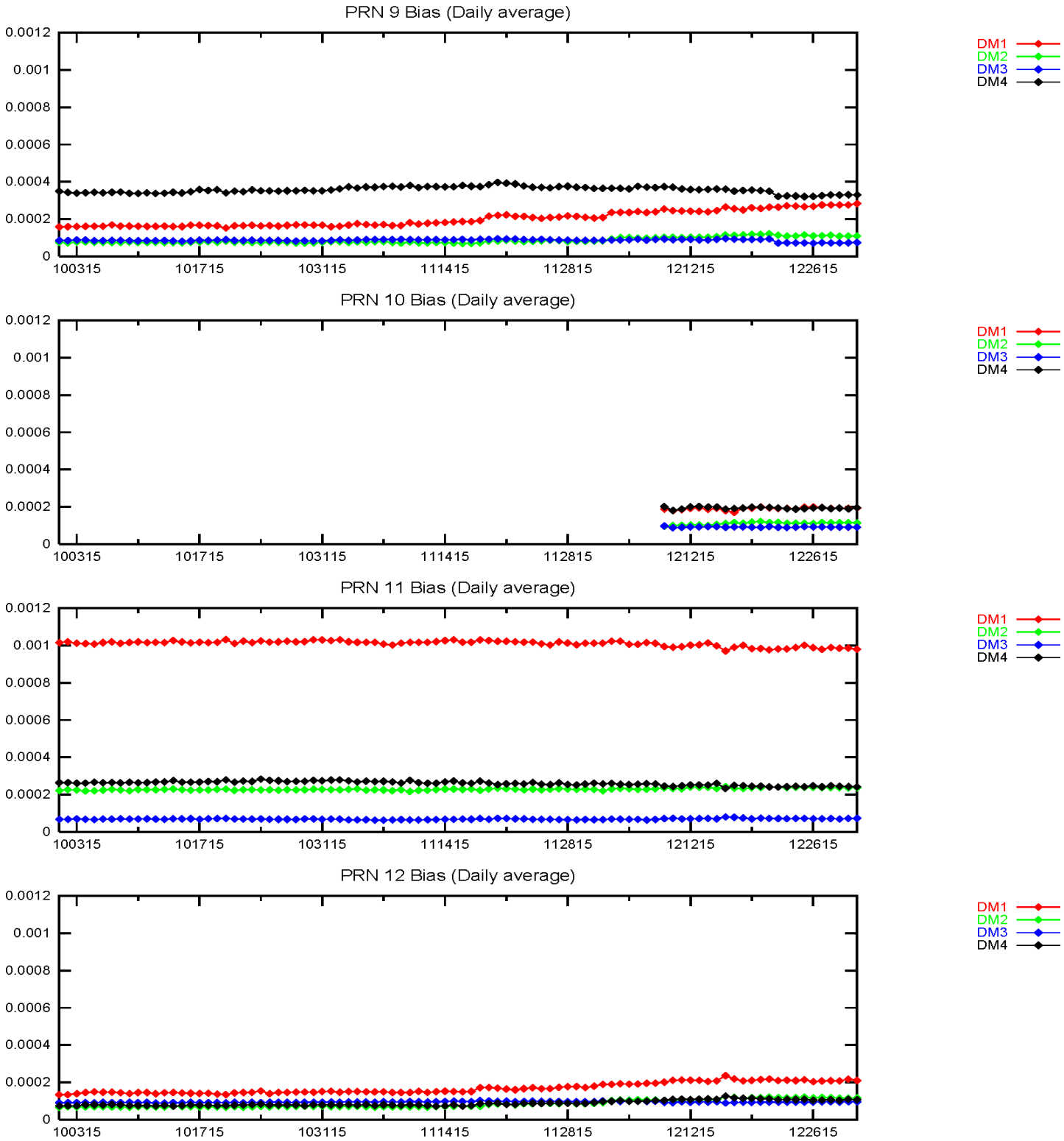


Figure 11-6 PRN Bias Average Trend (PRN-13 – PRN-16)

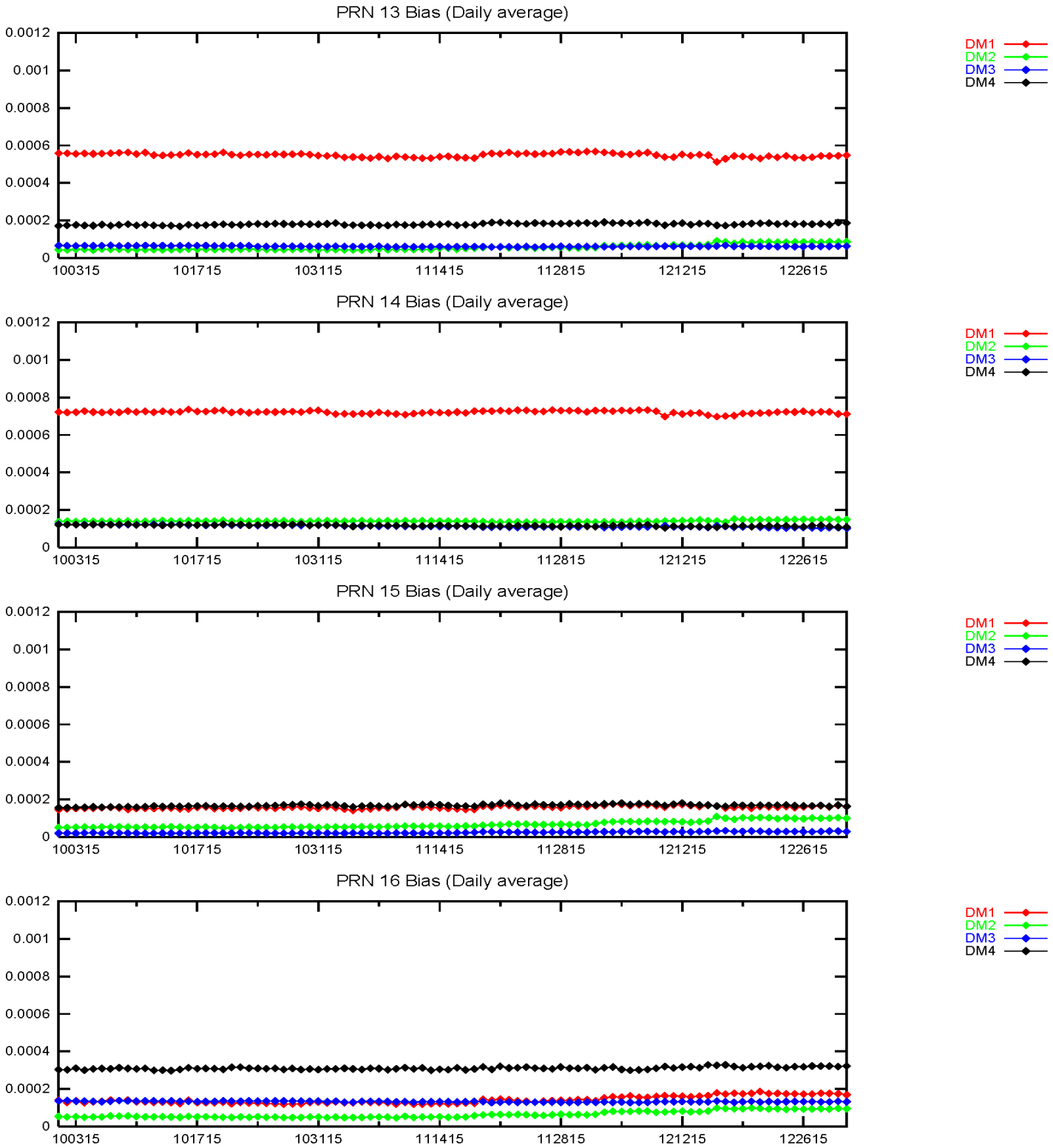


Figure 11-7 PRN Bias Average Trend (PRN-17 – PRN-20)

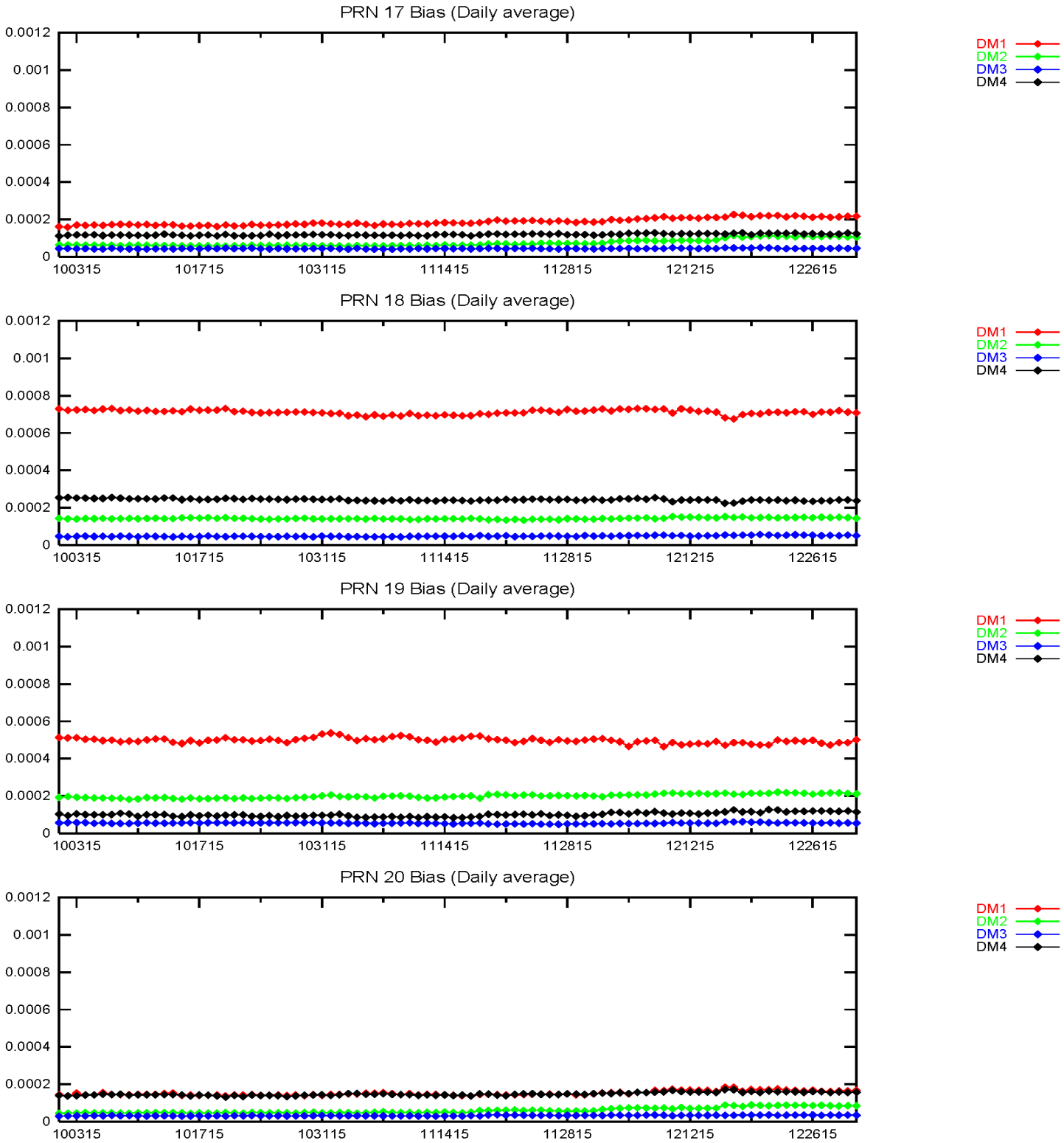


Figure 11-8 PRN Bias Average Trend (PRN-21 – PRN-24)

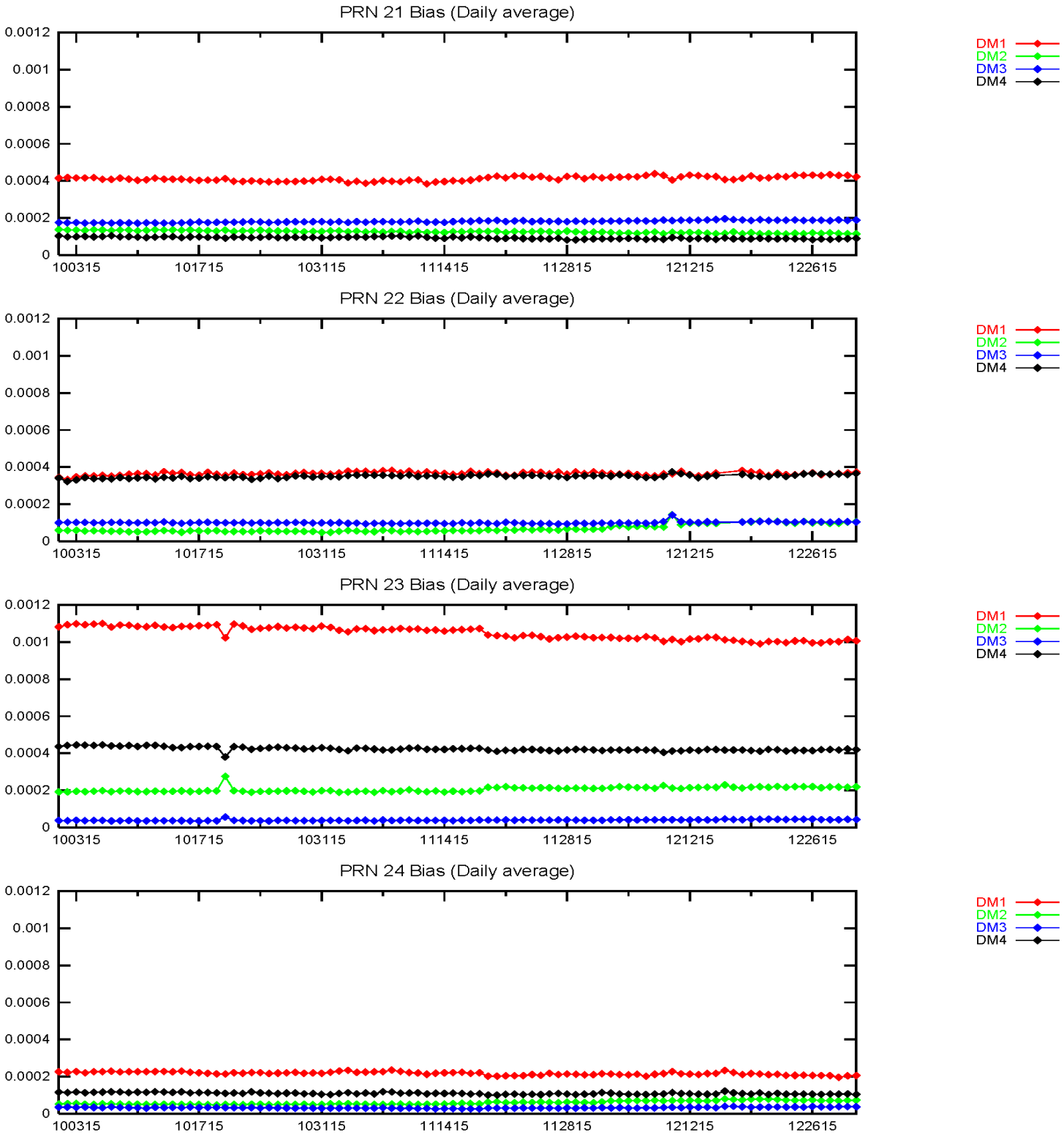


Figure 11-9 PRN Bias Average Trend (PRN-25 – PRN-28)

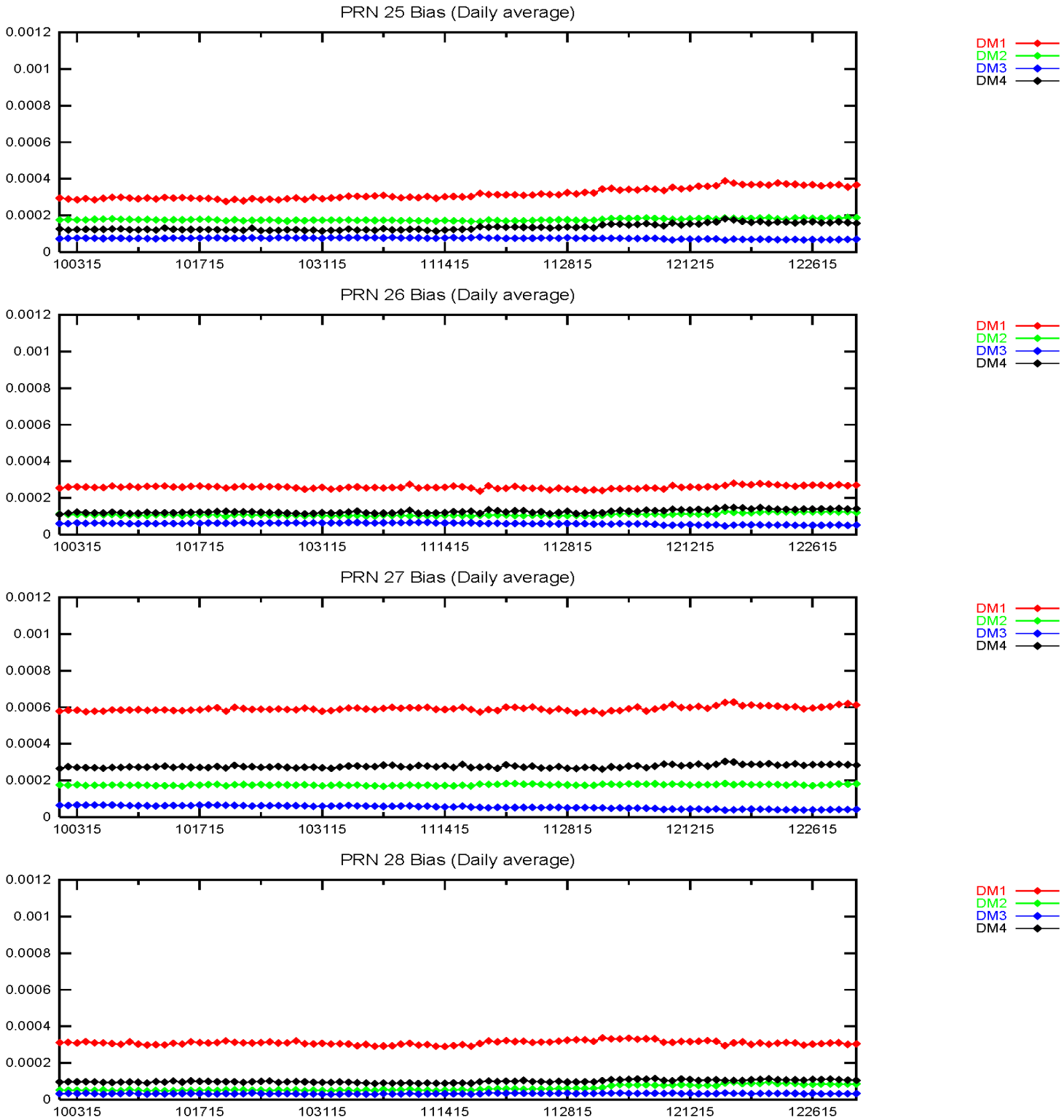
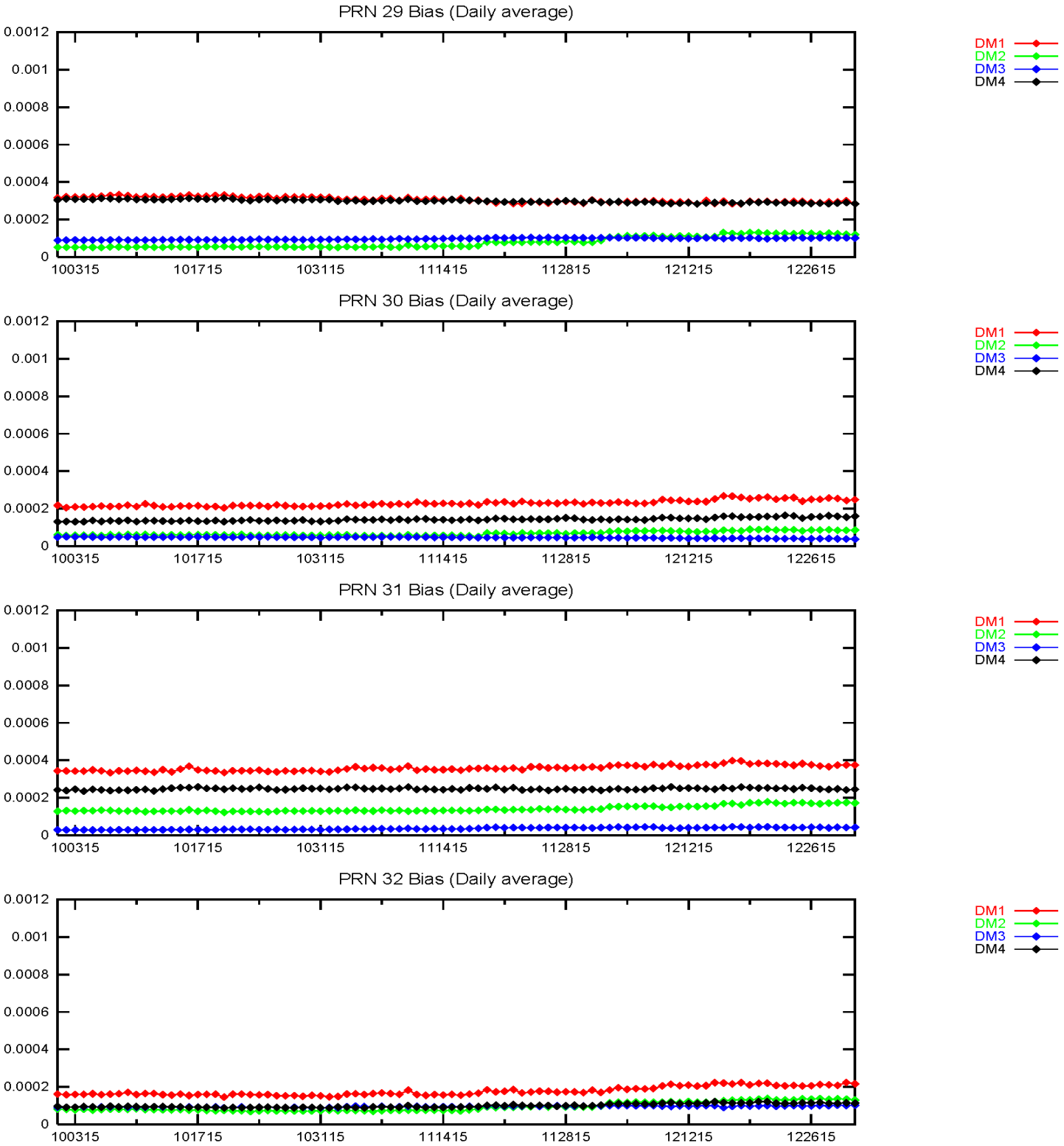


Figure 11-10 PRN Bias Average Trend (PRN-29 – PRN-32)



11.4 SQM Trips

SQM trip occurs when the estimated deformation exceeds threshold. There were no SQM trips for this quarter.

Appendix A: Glossary

General Terms and Definitions

Alert. An alert is an indication provided by the GPS/WAAS equipment to inform the user when the positioning performance achieved by the equipment does not meet the integrity requirements.

Availability. The availability of a navigation system is the ability of the system to provide the required function and performance at the initiation of the intended operation. Availability is an indication of the ability of the system to provide usable service within the specified coverage area.

C&V. The Correction and Verification Subsystem.

CONUS. Continental United States.

Continuity. The continuity of a system is the ability of the total system (comprising all elements necessary to maintain aircraft position within the defined airspace) to perform its function without interruption during the intended operation. More specifically, continuity is the probability that the specified system performance will be maintained for the duration of a phase of operation, presuming that the system was available at the beginning of that phase of operation.

Coverage. The coverage provided by a radio navigation system is that surface area or space volume in which the signals are adequate to permit the user to determine position to a specified level of accuracy. Coverage is influenced by system geometry, signal power levels, receiver sensitivity, atmospheric noise conditions, and other factors that affect signal availability.

Dilution of Precision (DOP). The magnifying effect on GPS position error induced by mapping GPS ranging errors into position through the position solution. The DOP may be represented in any user local coordinate desired. Examples are HDOP for local horizontal, VDOP for local vertical, PDOP for all three coordinates, and TDOP for time.

DR. Discrepancy Report

Fault Detection and Exclusion (FDE). Fault detection and exclusion is a receiver processing scheme that autonomously provides integrity monitoring for the position solution, using redundant range measurements. The FDE consists of two distinct parts: fault detection and fault exclusion. The fault detection part detects the presence of an unacceptably large position error for a given mode of flight. Upon the detection, fault exclusion follows and excludes the source of the unacceptably large position error, thereby allowing navigation to return to normal performance without an interruption in service.

GEO. Geostationary Satellite.

Global Positioning System (GPS). A space-based positioning, velocity, and time system composed of space, control, and user segments. The space segment, when fully operational, will be composed of 24 satellites in six orbital planes. The control segment consists of five monitor stations, three ground antennas, and a master control station. The user segment consists of antennas and receiver-processors that provide positioning, velocity, and precise timing to the user.

Grid Ionospheric Vertical Error (GIVE). GIVEs indicate the accuracy of ionospheric vertical delay correction at a geographically defined ionospheric grid point (IGP). WAAS transmits one GIVE for each IGP in the mask.

Hazardous Misleading Information (HMI). Hazardous misleading information is any position data, that is output, that has an error larger than the current protection level (HPL/VPL), without any indication of the error (e.g., alert message sequence).

Horizontal Alert Limit (HAL). The Horizontal Alert Limit (HAL) is the radius of a circle in the horizontal plane (the local plane tangent to the WGS-84 ellipsoid), with its center being at the true position, which describes the region that is

required to contain the indicated horizontal position with a probability of $1\text{-}10^{-7}$ per flight hour, for a particular navigation mode, assuming the probability of a GPS satellite integrity failure being included in the position solution is less than or equal to 10^{-4} per hour.

Horizontal Protection Level (HPL). The Horizontal Protection Level is the radius of a circle in the horizontal plane (the plane tangent to the WGS-84 ellipsoid), with its center being at the true position, which describes the region that is assured to contain the indicated horizontal position. It is based upon the error estimates provided by WAAS.

IGS. International GPS Service.

Ionospheric Grid Point (IGP). IGP is a geographically defined point for which the WAAS provides the vertical ionospheric delay.

LNAV. Lateral Navigation.

LP. Localizer Performance. LP is a WAAS operational service level with a HAL equal to 40 meters.

LPV. Localizer Performance with Vertical Guidance. LPV is a WAAS operational service level with a HAL equal to 40 meters and a VAL equal to 50 meters.

LPV200. Localizer Performance with Vertical Guidance to 200 ft decision height. LPV200 is a WAAS operational service level with a HAL equal to 40 meters and a VAL equal to 35 meters.

MOPS. Minimum Operational Performance Standards.

NANU. Notice Advisory to Navstar Users. NANU is an advisory message to inform users of a change in the GPS constellation. These messages inform users in advance of planned maintenance and also notify users of unscheduled outages.

Navigation Message. Message structure designed to carry navigation data.

Non-Precision Approach (NPA) Navigation Mode. The Non-Precision Approach navigation mode refers to the navigation solution operating with a minimum of four satellites with fast and long term WAAS corrections (no WAAS ionospheric corrections) available.

Position Solution. The use of ranging signal measurements and navigation data from at least four satellites to solve for three position coordinates and a time offset.

Precision Approach (PA) Navigation Mode. The Precision Approach navigation mode refers to the navigation solution operating with a minimum of four satellites with all WAAS corrections (fast, long term, and ionospheric) available.

RFI. Radio Frequency Interference.

Selective Availability. Protection technique employed by the DOD to deny full system accuracy to unauthorized users.

S**ignal Quality Monitor (SQM)**. SQM monitors correlator measurements to detect signal deformations that originate in the GPS or GEO satellites and ensures that the UDREs are sufficiently inflated to protect given the monitor's current observations.

Standard Positioning Service (SPS). Three-dimensional position and time determination capability provided to a user equipped with a minimum capability GPS SPS receiver in accordance with GPS national policy and the performance specifications.

SV. Space Vehicle.

User Differential Range Error (UDRE). UDRE's indicate the accuracy of combined fast and slow error corrections. WAAS transmits one UDRE for each satellite in the mask.

Vertical Alert Limit (VAL). The Vertical Alert Limit is half the length of a segment on the vertical axis (perpendicular to the horizontal plane of WGS-84 ellipsoid), with its center being at the true position, which describes the region that is required to contain the indicated vertical position with a probability of $1\text{-}10^{-7}$ per flight hour, for a particular navigation mode, assuming the probability of a GPS satellite integrity failure being included in the position solution is less than or equal to 10^{-4} per hour.

Vertical Protection Level (VPL). The Vertical Protection Level is half the length of a segment on the vertical axis (perpendicular to the horizontal plane of WGS-84 ellipsoid), with its center being at the true position, which describes the region that is assured to contain the indicated vertical position. It is based upon the error estimates provided by WAAS.

VNAV. Vertical Navigation.

Wide Area Augmentation System (WAAS). The WAAS is made up of an integrity reference monitoring network, processing facilities, geostationary satellites, and control facilities. Wide area reference stations and integrity monitors are widely dispersed data collection sites that contain GPS/WAAS ranging receivers that monitor all signals from the GPS, as well as the WAAS geostationary satellites. The reference stations collect measurements from the GPS and WAAS satellites so that differential corrections, ionospheric delay information, GPS/WAAS accuracy, WAAS network time, GPS time, and UTC can be determined. The wide area reference station and integrity monitor data are forwarded to the central data processing sites. These sites process the data in order to determine differential corrections, ionospheric delay information, and GPS/WAAS accuracy, as well as verify residual error bounds for each monitored satellite. The central data processing sites also generate navigation messages for the geostationary satellites and WAAS messages. This information is modulated on the GPS-like signal and broadcast to the users from geostationary satellites.

Appendix B: Additional Coverage Plots

This section includes coverage plots with 99% LPV200 availability contour, 98% LPV availability contours, and 98% LP availability contours for the quarter. Figure B.1 shows CONUS coverage with 98% LP availability contour. Figure B.2 shows Alaska coverage with 98% LP availability contour. Figure B.3 shows CONUS coverage with 98% LPV availability contour. Figure B.4 shows Alaska coverage with 98% LPV availability contour. Figure B.5 shows CONUS coverage with 99% LPV200 availability contour. Figure B.6 shows Alaska coverage with 99% LPV200 availability contour.

Figure B-1 98% CONUS LP Availability Contour

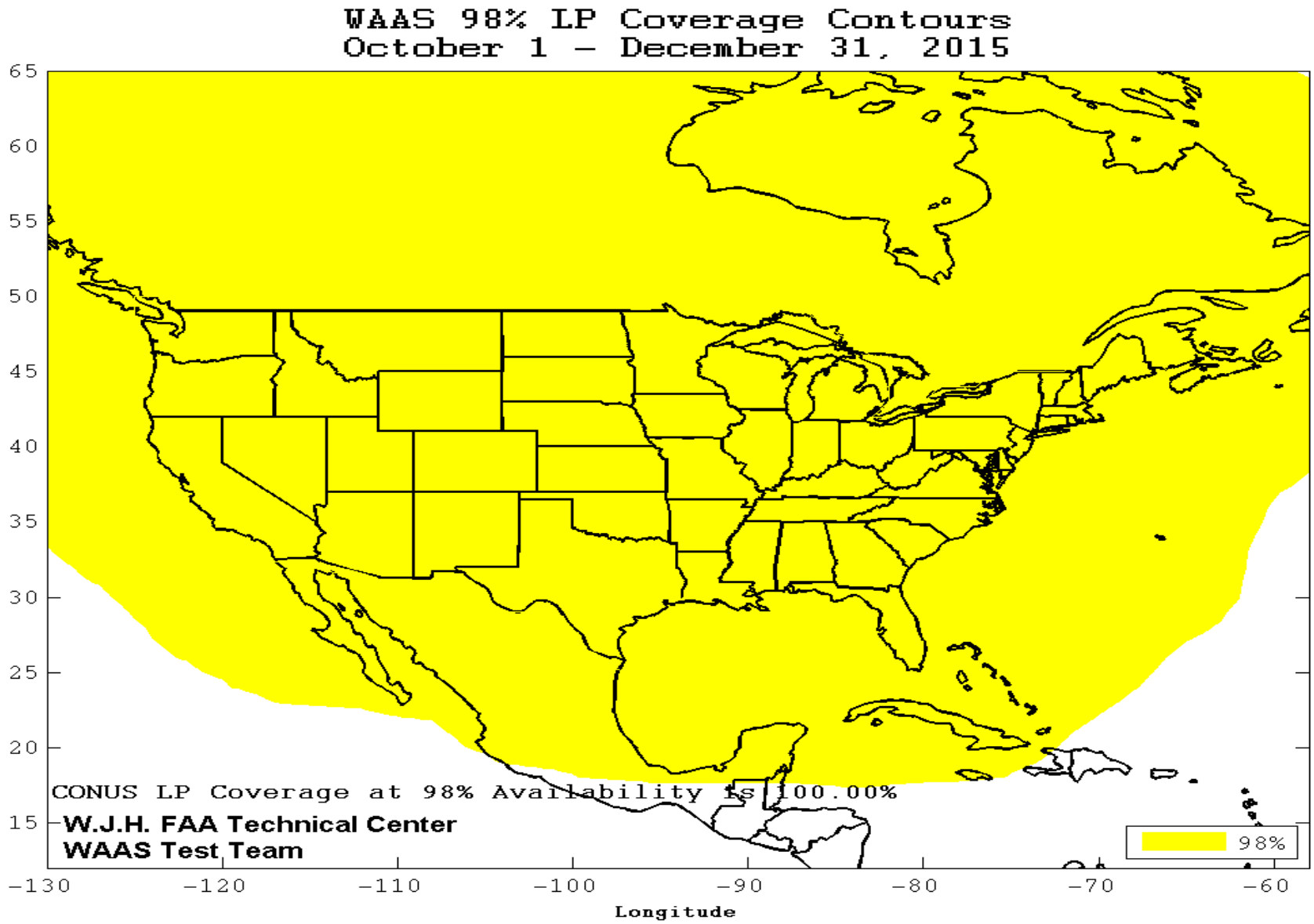


Figure B-2 98% Alaska LP Availability Contour

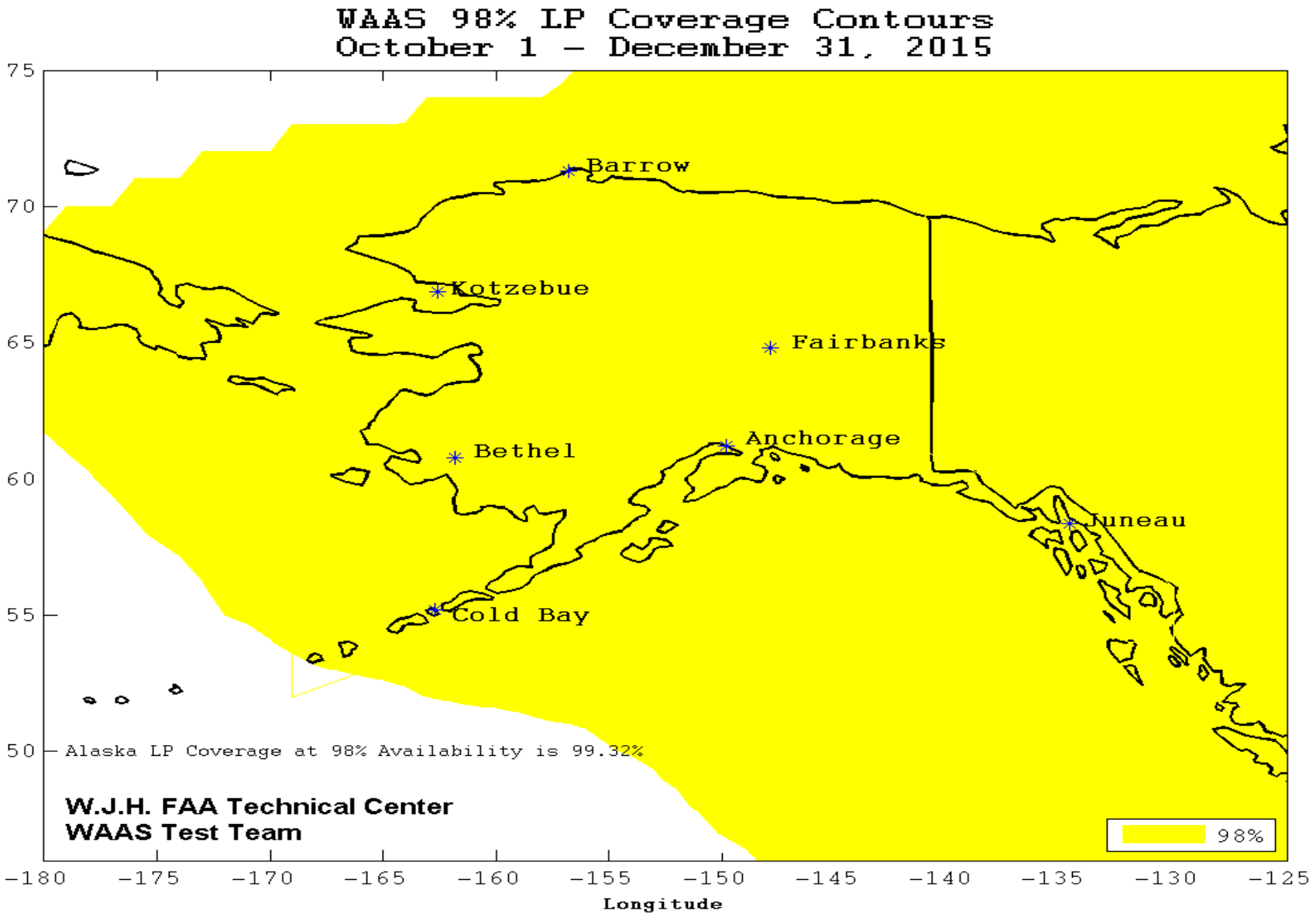


Figure B-3 98% CONUS LPV Availability Contour

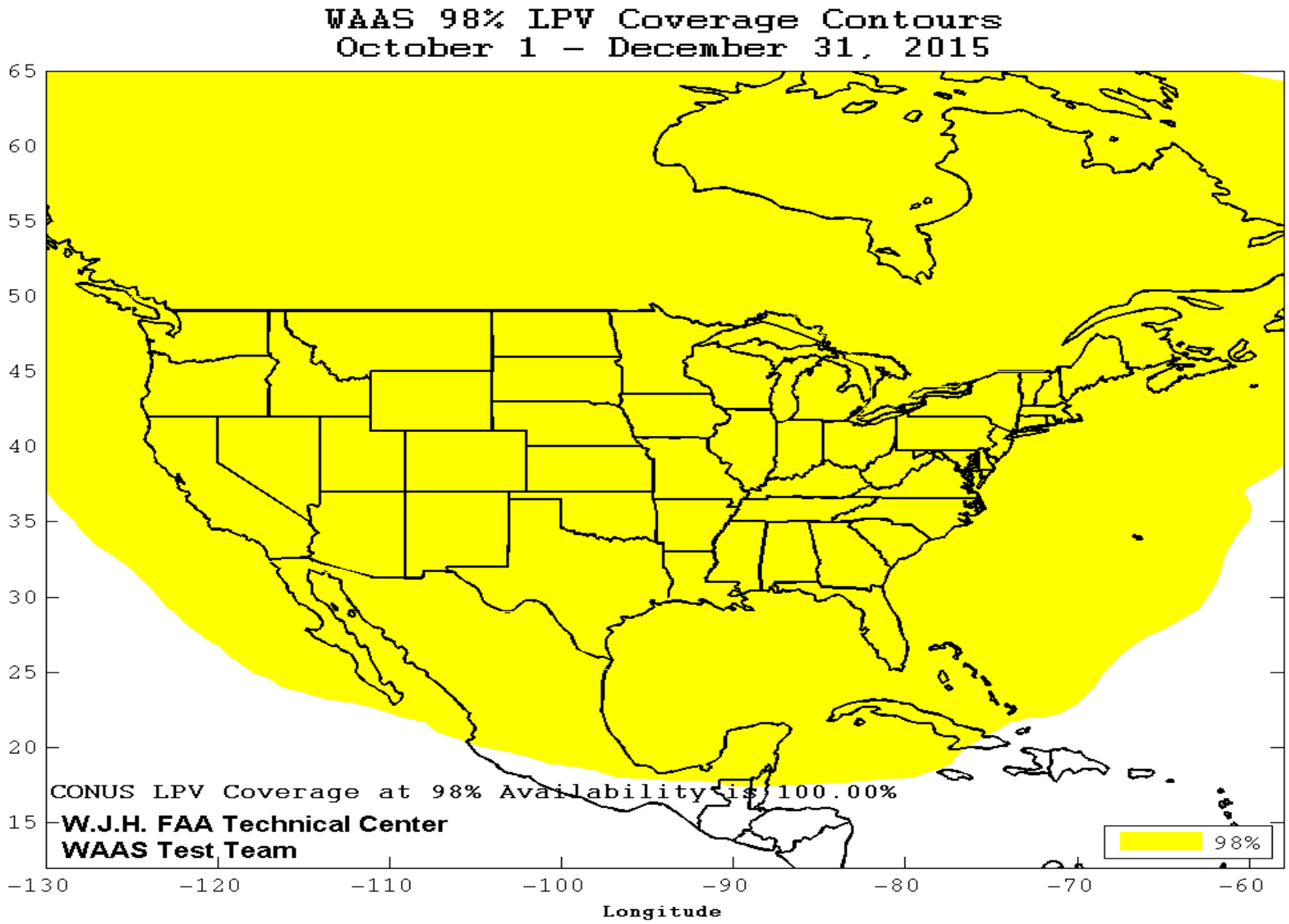


Figure B-4 98% Alaska LPV Availability Contour

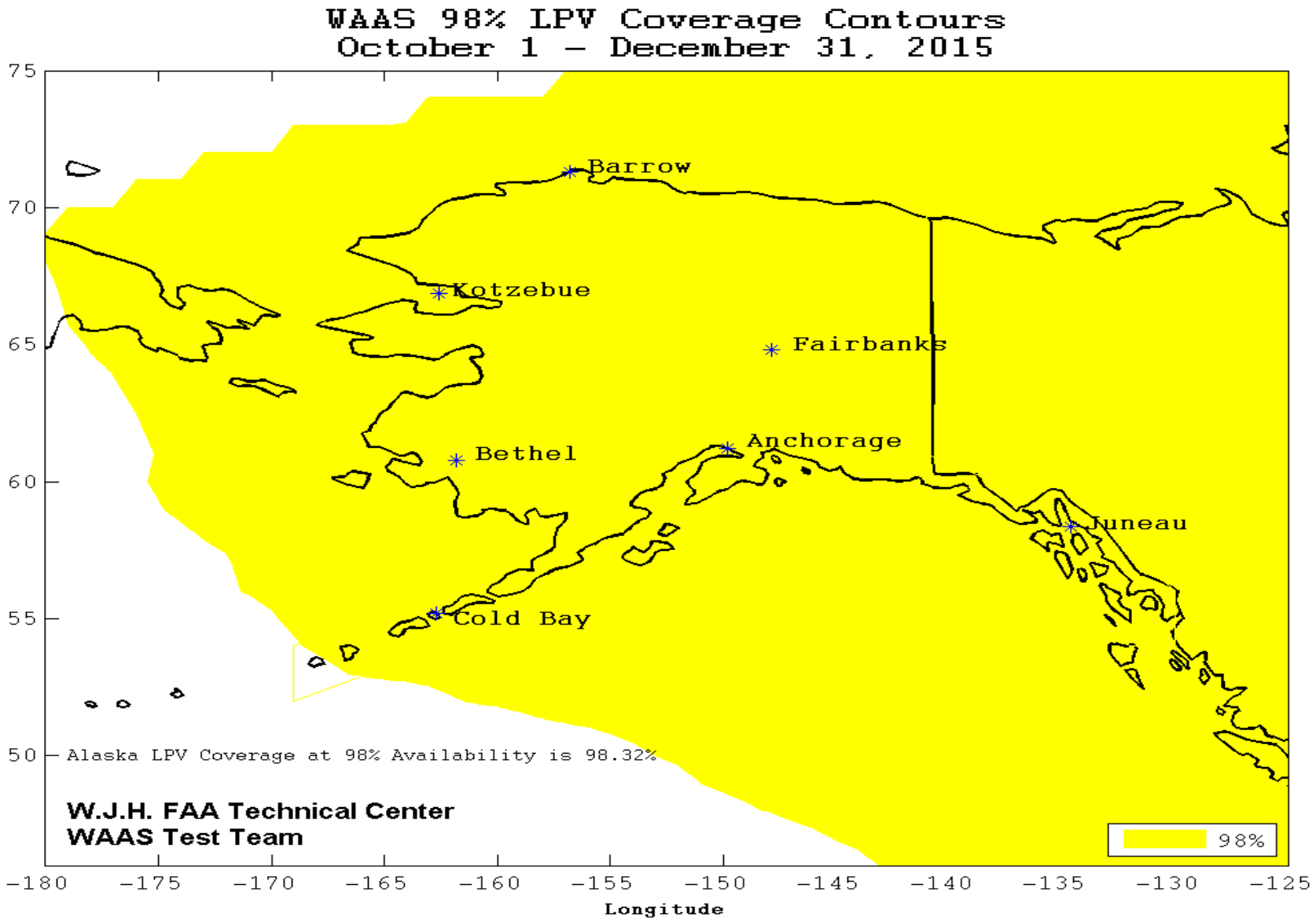


Figure B-5 99% CONUS LPV200 Availability Contour

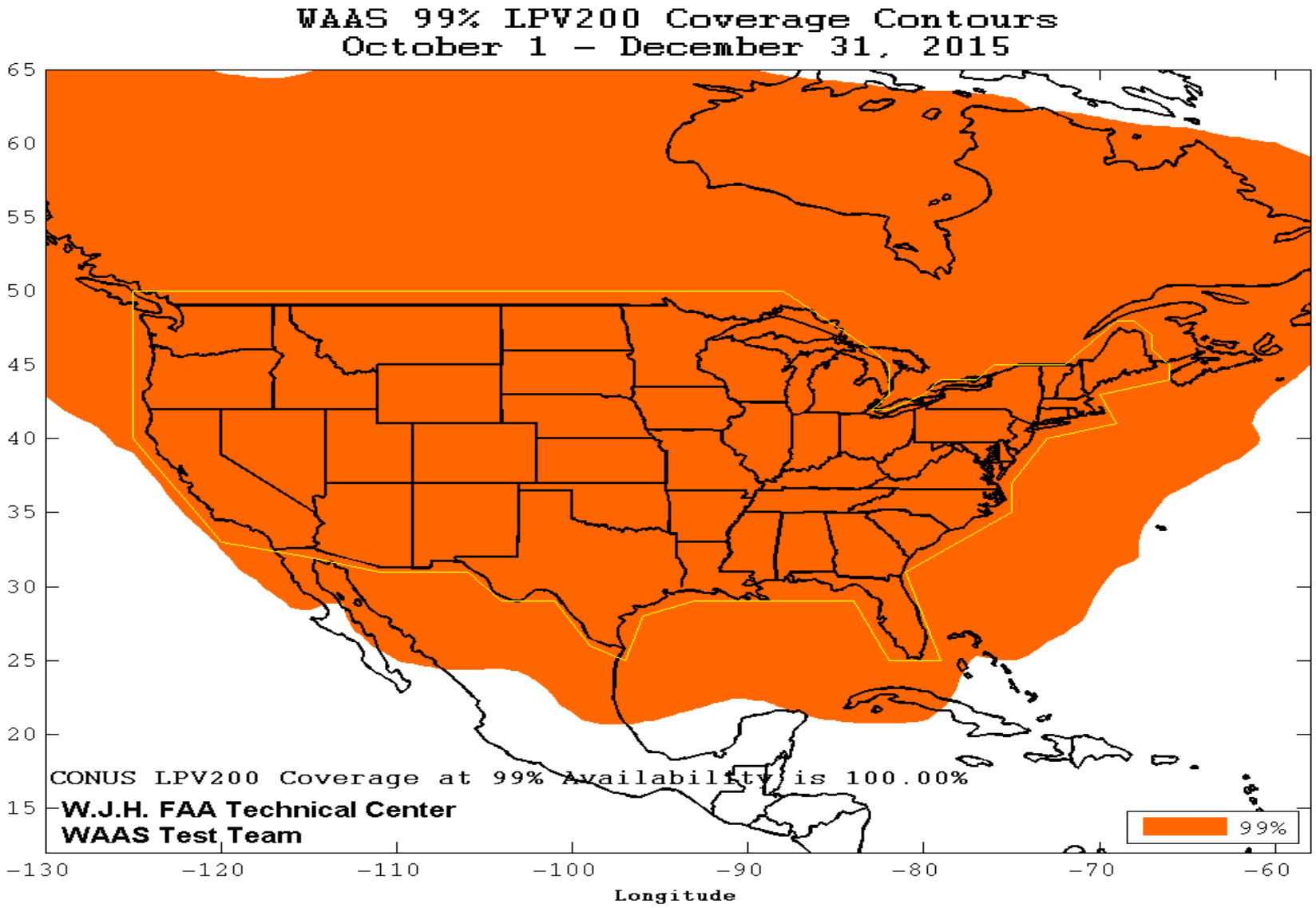


Figure B-6 99% Alaska LPV200 Availability Contour