

Global View

site Laboratory satellite systems
 abbreviation NAU
 country Ukraine
 city Kiev
 comment Konin V., Shyshkov F. InsideGNSS, Jan-Feb 2015,
 P.50 - 54
 program Pegasus
 version 4.8.4
 date 17/04/2016

SBAS Messages

start: 05:00:36.129 13.04.2016 (week: 1892 sec: 277236.129)
end: 13:55:40.129 13.04.2016 (week: 1892 sec: 309340.129)
duration: 08:55:4.00001 ..

quality

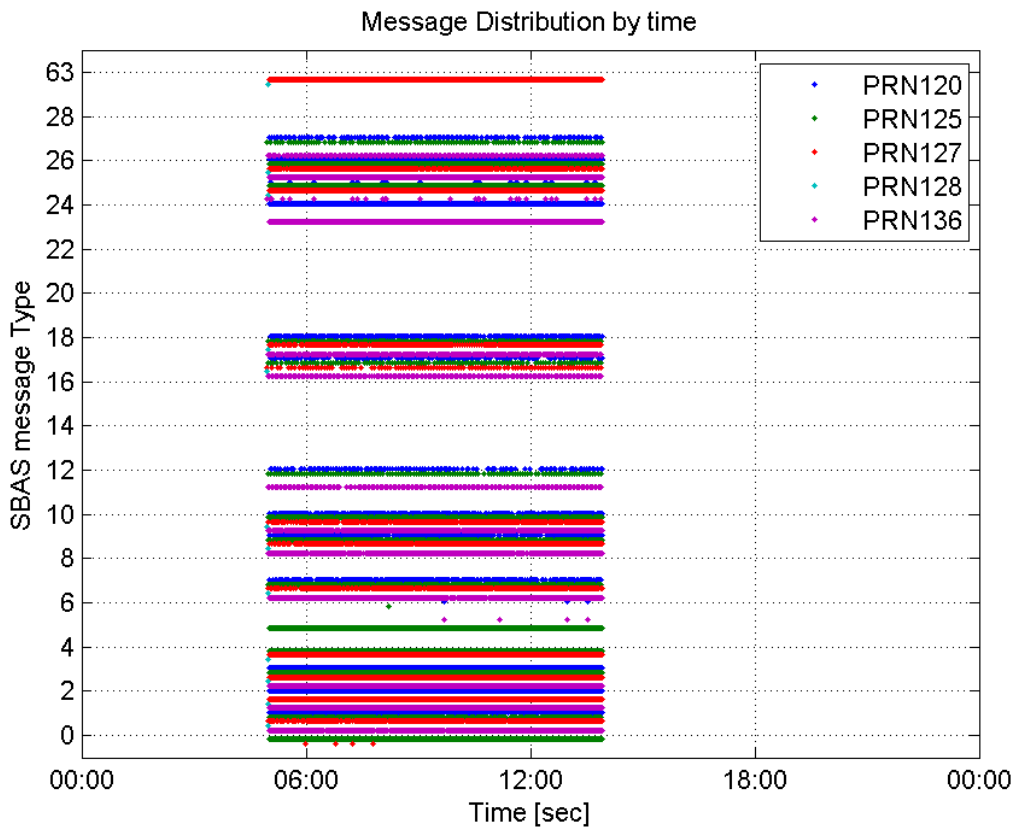
valid samples 108358
total samples 108358
number of SBAS PRNs 5

SBAS SIS Overview

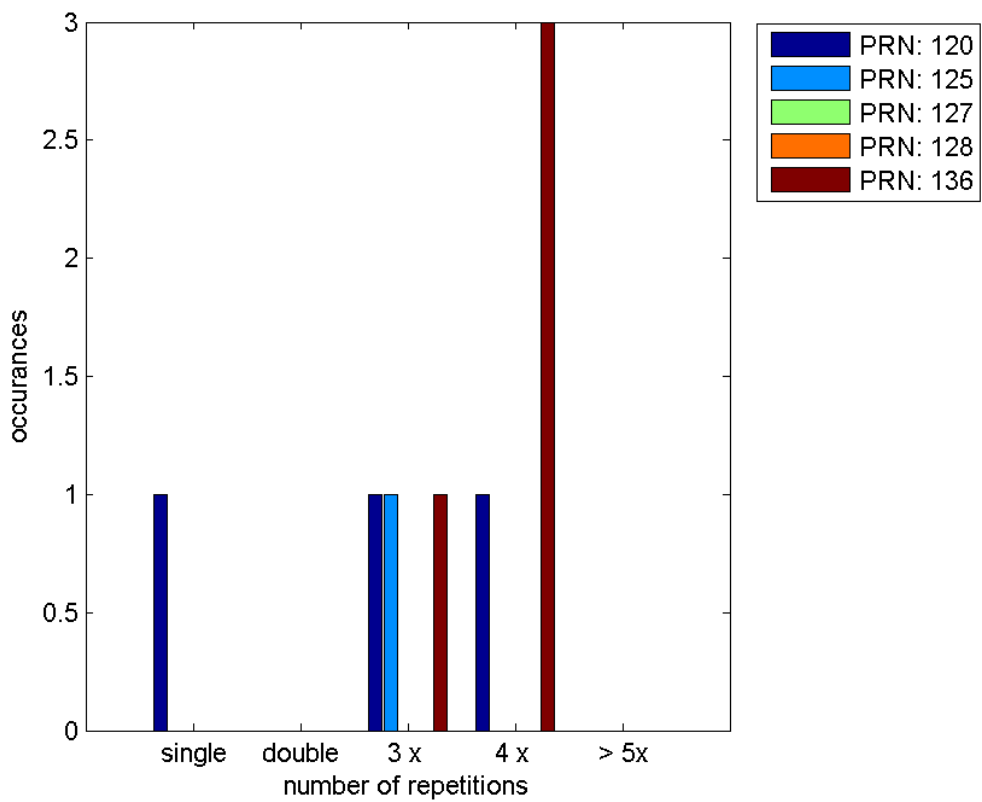
Message Type 6 repetitions :

	single	double	3 x	4 x	> 5x
PRN 120	1	0	1	1	0
PRN 125	0	0	1	0	0
PRN 127	0	0	0	0	0
PRN 128	0	0	0	0	0
PRN 136	0	0	1	3	0

Message Distribution by time:



Message Type 6 repetitions:



Broadcast SBAS Messages :

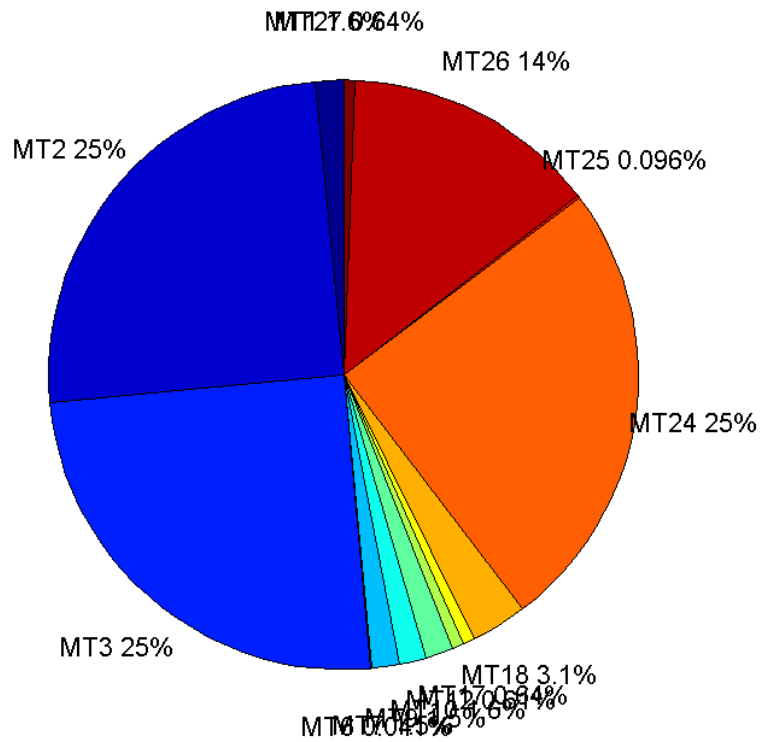
	number of messages	%
MT 0	0	0
MT 1	338	1.55074
MT 2	5435	24.9358
MT 3	5447	24.9908
MT 4	0	0
MT 5	0	0
MT 6	9	0.041292
MT 7	328	1.50486
MT 9	320	1.46816
MT 10	340	1.55992
MT 12	133	0.610204
MT 17	140	0.64232
MT 18	669	3.06937
MT 24	5432	24.922
MT 25	21	0.096348
MT 26	3045	13.9705
MT 27	139	0.637732
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	21796	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	322	94.9347	108	0	0
MT 2	4	40	5.90725	1823	47	164
MT 3	4	48	5.89405	1826	50	158
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	11779	1726.5	2	2	2
MT 7	64	512	97.63	101	4	18
MT 9	64	642	100.655	0	0	0
MT 10	64	579	94.528	93	4	14
MT 12	160	966	241.909	132	15	42
MT 17	156	1122	229.705	0	0	0
MT 18	4	452	47.8398	2	0	0
MT 24	4	36	5.91051	0	0	0
MT 25	29	5367	1559.8	0	0	0
MT 26	4	96	10.5457	0	0	0
MT						

27	156	643	231.37	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 125

Broadcast SBAS Messages :

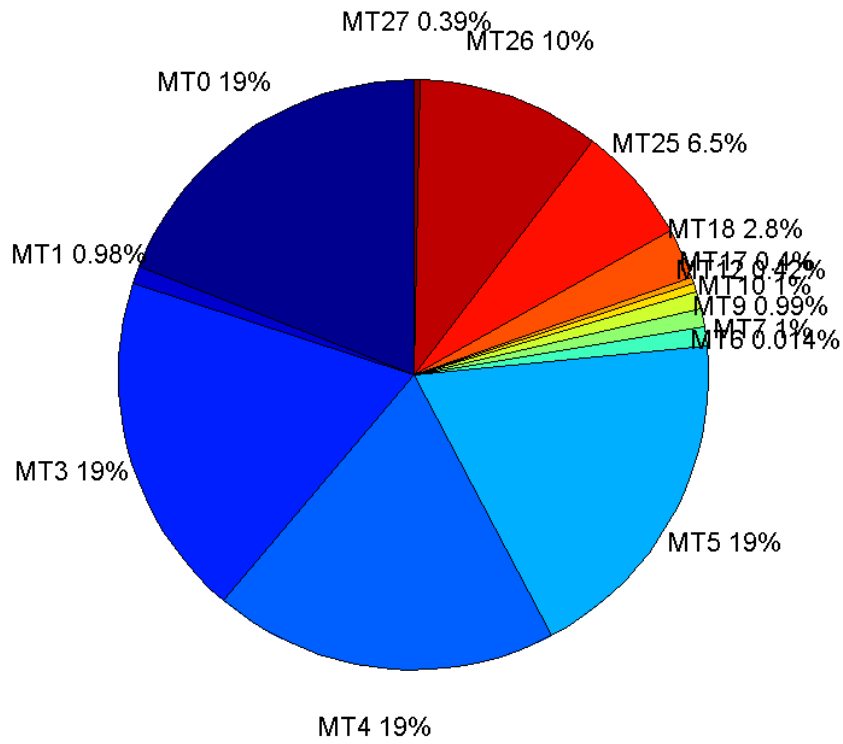
	number of messages	%
MT 0	5608	18.9992
MT 1	290	0.982485
MT 2	0	0
MT 3	5570	18.8705
MT 4	5580	18.9044
MT 5	5555	18.8197
MT 6	4	0.0135515
MT 7	295	0.999424
MT 9	293	0.992648
MT 10	294	0.996036
MT 12	124	0.420097
MT 17	117	0.396382

MT 18	813	2.75434
MT 24	0	0
MT 25	1910	6.47085
MT 26	2949	9.99085
MT 27	115	0.389606
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	29517	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	5	21	5.72481	416	0	0
MT 1	97	410	110.886	24	0	0
MT 2	--	--	--	--	--	--
MT 3	5	30	5.76369	426	8	61
MT 4	5	28	5.75444	423	10	54
MT 5	5	35	5.77998	451	7	54
MT 6	1	1	1	0	0	0
MT 7	96	404	108.673	21	1	1
MT 9	96	301	110.134	0	0	0
MT 10	97	302	109.765	25	0	1
MT 12	242	502	260.049	123	5	123
MT 17	240	752	275.75	0	0	0
MT 18	1	231	39.399	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	63	16.8135	0	0	0
MT 26	1	91	10.8908	0	0	0
MT 27	241	502	282.737	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 125:



SBAS SIS Analysis

PRN 127

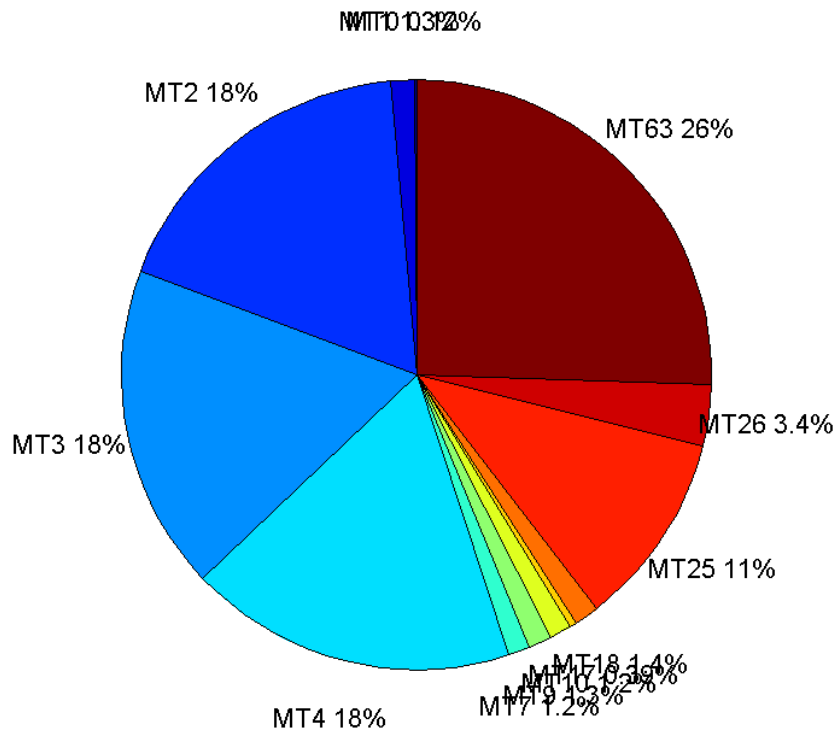
Broadcast SBAS Messages :

	number of messages	%
MT 0	33	0.121337
MT 1	341	1.25381
MT 2	4869	17.9027
MT 3	4847	17.8218
MT 4	4888	17.9726
MT 5	0	0
MT 6	0	0
MT 7	316	1.16189
MT 9	352	1.29426
MT 10	321	1.18028
MT 12	0	0
MT 17	107	0.393426
MT 18	369	1.35677
MT 24	0	0
MT 25	2899	10.6593
MT 26	912	3.35331
MT 27	0	0
MT 28	0	0
MT 62	0	0
MT 63	6943	25.5286
Total	27197	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	1	2831	202.125	3	0	0
MT 1	31	342	94.3824	25	0	0
MT 2	5	54	6.59408	355	21	79
MT 3	6	54	6.62464	363	28	90
MT 4	1	53	6.56906	339	25	82
MT 5	--	--	--	--	--	--
MT 6	--	--	--	--	--	--
MT 7	58	480	101.959	28	1	6
MT 9	60	492	91.4131	0	0	0
MT 10	34	421	100.472	26	2	3
MT 12	--	--	--	--	--	--
MT 17	234	1036	304.047	0	0	0
MT 18	1	449	86.9674	4	0	0
MT 24	--	--	--	--	--	--
MT 25	1	80	11.0797	0	0	0
MT 26	1	204	35.2316	0	0	0
MT 27	--	--	--	--	--	--
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	1	105	4.62374	0	0	0

Message Distribution PRN 127:



SBAS SIS Analysis

PRN 128

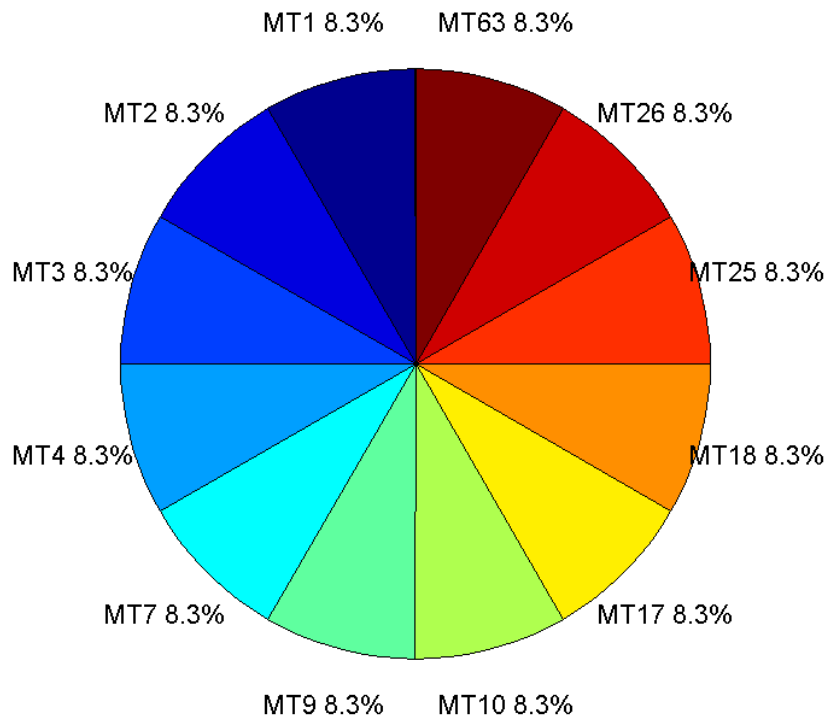
Broadcast SBAS Messages :

	number of messages	%
MT 0	0	0
MT 1	1	8.33333
MT 2	1	8.33333
MT 3	1	8.33333
MT 4	1	8.33333
MT 5	0	0
MT 6	0	0
MT 7	1	8.33333
MT 9	1	8.33333
MT 10	1	8.33333
MT 12	0	0
MT 17	1	8.33333
MT 18	1	8.33333
MT 24	0	0
MT 25	1	8.33333
MT 26	1	8.33333
MT 27	0	0
MT 28	0	0
MT 62	0	0
MT 63	1	8.33333
Total	12	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	--	--	--	--	--	--
MT 2	--	--	--	--	--	--
MT 3	--	--	--	--	--	--
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	--	--	--	--	--	--
MT 7	--	--	--	--	--	--
MT 9	--	--	--	--	--	--
MT 10	--	--	--	--	--	--
MT 12	--	--	--	--	--	--
MT 17	--	--	--	--	--	--
MT 18	--	--	--	--	--	--
MT 24	--	--	--	--	--	--
MT 25	--	--	--	--	--	--
MT 26	--	--	--	--	--	--
MT 27	--	--	--	--	--	--
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 128:



SBAS SIS Analysis

PRN 136

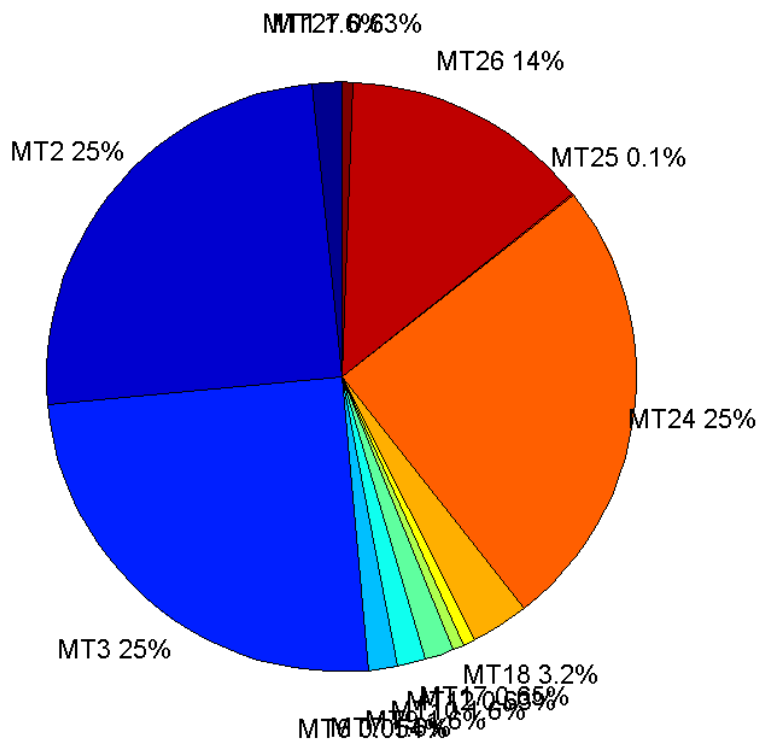
Broadcast SBAS Messages :

	number of messages	%
MT 0	0	0
MT 1	467	1.56522
MT 2	7432	24.9095
MT 3	7447	24.9598
MT 4	0	0
MT 5	0	0
MT 6	16	0.0536265
MT 7	471	1.57863
MT 9	463	1.55182
MT 10	467	1.56522
MT 12	187	0.62676
MT 17	193	0.64687
MT 18	942	3.15726
MT 24	7443	24.9464
MT 25	31	0.103901
MT 26	4089	13.7049
MT 27	188	0.630111
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	29836	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	192	68.9378	31	0	0
MT 2	4	24	4.31974	502	2	14
MT 3	4	20	4.31144	498	4	10
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	6484	921	3	3	3
MT 7	64	135	68.2234	29	0	0
MT 9	64	256	69.5519	0	0	0
MT 10	64	194	68.9378	31	0	0
MT 12	156	640	172.543	186	1	12
MT 17	156	324	167.151	0	0	0
MT 18	4	148	34.1052	0	0	0
MT 24	4	20	4.31336	0	0	0
MT 25	29	3710	1071.1	0	0	0
MT 26	4	44	7.85054	0	0	0
MT 27	156	481	172.476	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 136:



Parameters

System

Name	Section	Value
Name	System	Convertor
Version	System	4.3
Inputfile	System	D:/PegasusDateJob/job/2016_04_13EGNOS615/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2016_04_13EGNOS615/02_Convertor/02_Convertor

Configuration

Name	Section	Value
Receiver	Configuration	Novatel OEM4
Leap_Seconds	Configuration	17
Correction_mode	Configuration	SBAS MODE 0/2
Dual_Frequency	Configuration	no

Position Domain

start: 05:00:39.25 13.04.2016 (week: 1892 sec: 277239.25)
end: 13:55:41 13.04.2016 (week: 1892 sec: 309341)
duration: 08:55:03 ..

quality

valid samples 106055
total samples 107242

Event tables

Position discontinuity events type too many (83)
APV-I discontinuity events type too many (125)
APV-35m discontinuity events type too many (126)
LPV-200 discontinuity events type too many (126)
CAT-I discontinuity events type all

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	282199	1.5561	9.27101	0.167845	0.0418937	15.145	0.00276617
max normVer	301747	1.29714	10.3104	0.125808	2.18546	15.3014	0.142827
max HPE	299311	40.4669	767.982	0.0526925	55.9039	938.048	0.059596
max VPE	299311	40.4669	767.982	0.0526925	55.9039	938.048	0.059596
min HPL	283391	1.04133	8.35903	0.124575	0.549591	12.3784	0.0443992
min VPL	277683	1.24749	9.5758	0.130275	0.341354	11.4669	0.0297686

CAT-I discontinuity events :

#	Epoch	duration	stable period
1	277659	8.75	3.5
2	277671	2.5	3.25
3	277675	0.25	2
4	277678	3.25	2.75

First Glance analysis

Duration 32103
Number of Samples 107242
Number of invalid sample 1187
Number of no position solution samples 8181
Number of missing sample -10933
Logging Loss -11.352
Processing Loss 1.1068
Number of Misleading Information 0
Data gaps 54
Discontinuities 391

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
97874	77400	73919	52	73919

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.61495	1.52026	1.51616	1.35816	1.51616
HPEscale 95%	NaN	4.95172	4.97955	5.67858	4.97955
VPE 95%	2.00113	1.6639	1.6534	0.422499	1.6534
VPEscale 95%	NaN	4.17902	2.9501	0.429303	2.9501

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m

Signal in Space	0.922861	0.72981	0.696987	0.000490312	0.696987
measurements	0.912646	0.721732	0.689273	0.000484885	0.689273
Operational	3.04875	2.41099	2.30256	0.00161979	2.30256

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	341	507	551	4	551
Long	102	181	206	2	206
Independent	83	125	126	0	126
P(disc.)	0.0127204	0.0242248	0.0255685	0	0.0255685
P(slide)	0.0489124	0.087219	0.0922496	0.221154	0.0922496

Integrity events :

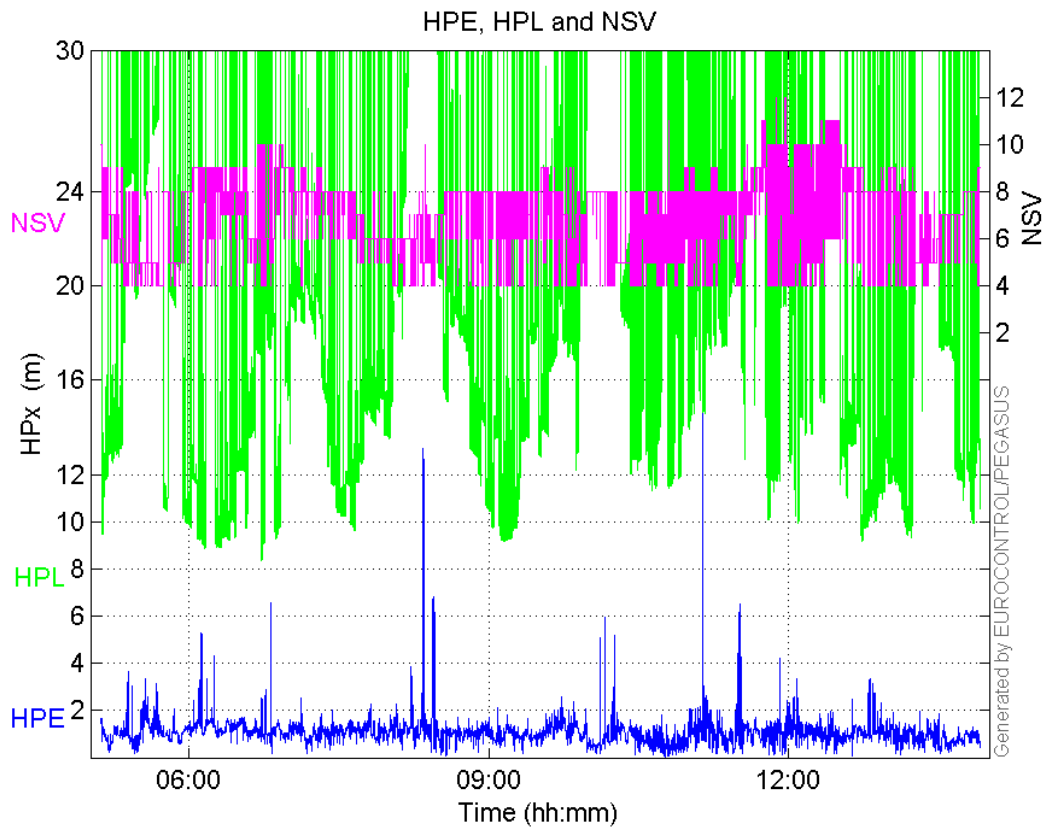
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
Total	0	0	0	0	0
Horizontal	0	0	0	0	0
Vertical	0	0	0	0	0

Performance Summary :

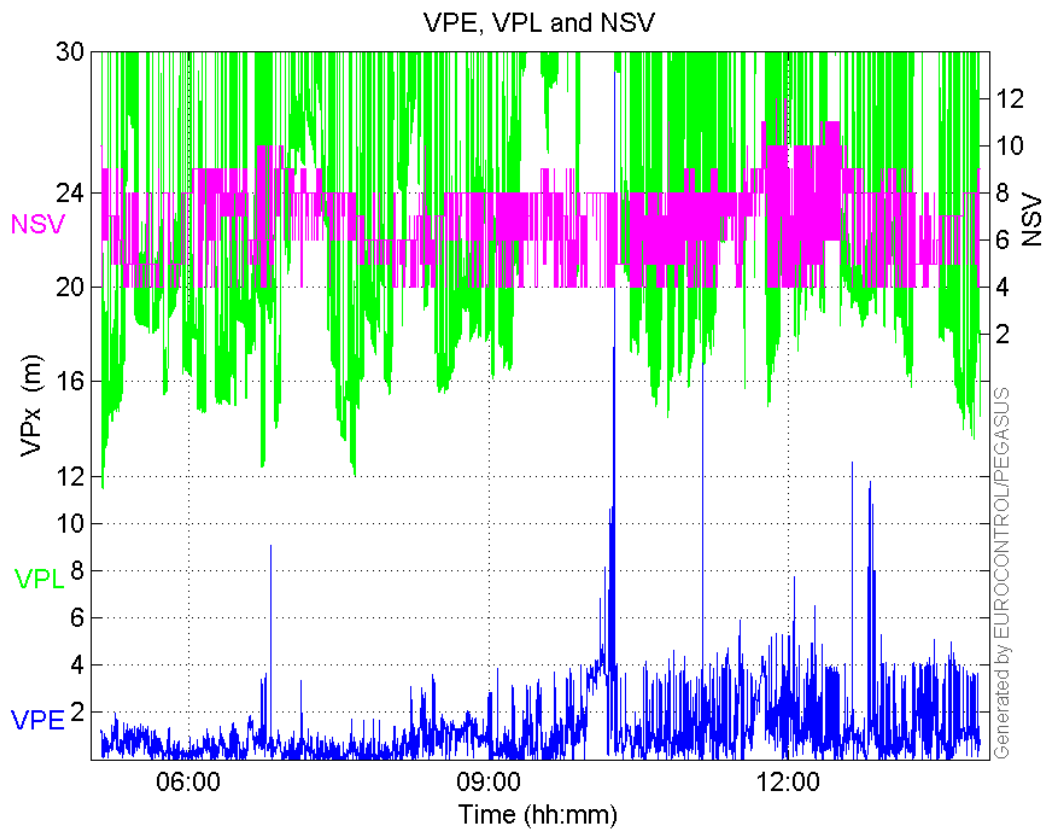
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	97874	77400	73919	52	73919
SIS Availability	0.922861	0.72981	0.696987	0.000490312	0.696987
Local Availability	0.912646	0.721732	0.689273	0.000484885	0.689273
Operational Availability	3.04875	2.41099	2.30256	0.00161979	2.30256
HPE 95%	1.61495	1.52026	1.51616	1.35816	1.51616
HPEScale 95%	NaN	4.95172	4.97955	5.67858	4.97955
VPE 95%	2.00113	1.6639	1.6534	0.422499	1.6534
VPEscale 95%	NaN	4.17902	2.9501	0.429303	2.9501
All Discontinuity Events	341	507	551	4	551
Long Discontinuity Events	102	181	206	2	206
Independent Discontinuity Events	83	125	126	0	126
P(discontinuity)	0.0127204	0.0242248	0.0255685	0	0.0255685
P(sliding window)	0.0489124	0.087219	0.0922496	0.221154	0.0922496
All Integrity Events	0	0	0	0	0
Horizontal Integrity Events	0	0	0	0	0
Vertical Integrity Events	0	0	0	0	0

Time Series

HPE, HPL and NSV:

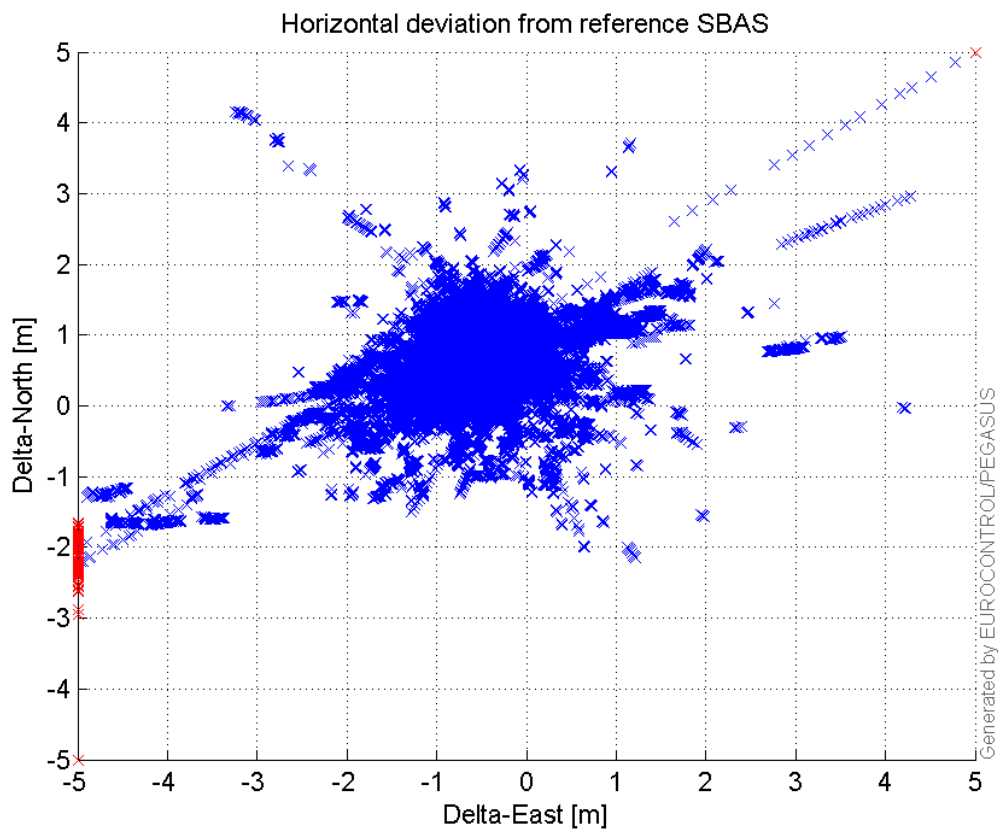


VPE, VPL and NSV:



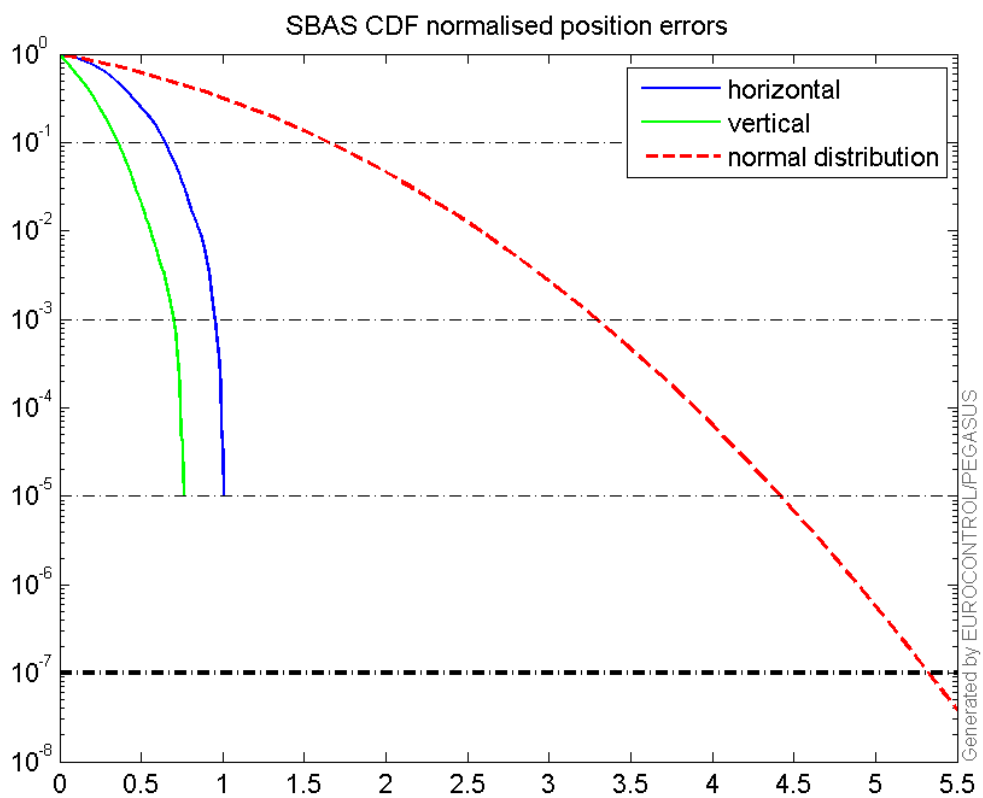
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

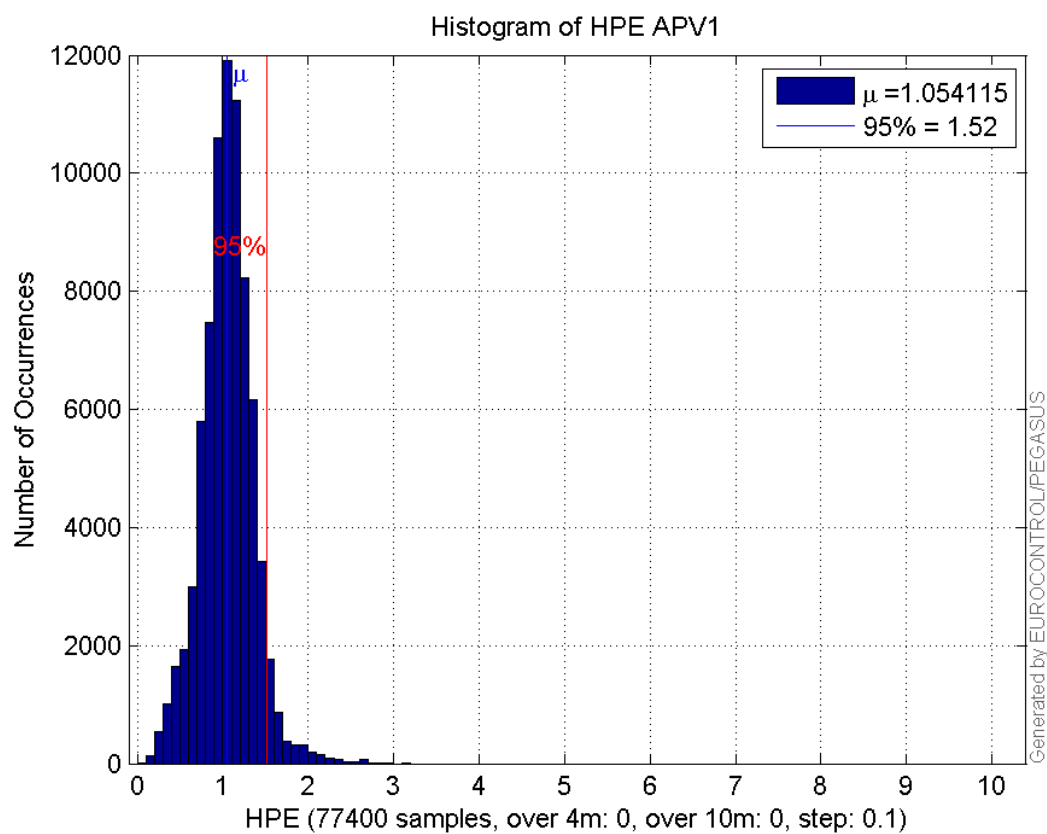
number	77400
sum	81588.508
sum2	93355.63
prctile95	1.5202574
prctile99	1.970564
number	77400
sum	55442.673
sum2	60440.575
prctile95	1.6638977
prctile99	2.2286407
number	77400
sum	1273176.7
sum2	23600629
prctile95	28.9591
prctile99	35.16625
number	77400
sum	1657773.3
sum2	38228575
prctile95	34.42755
prctile99	40.98875
number	77400
sum	5486.8666
sum2	455.10912
prctile95	0.12379294
prctile99	0.14550286
number	77400
sum	2711.0125
sum2	146.10709
prctile95	0.083580399
prctile99	0.10745156
number	73919
sum	78053.184
sum2	89419.916
prctile95	1.5161608
prctile99	1.9594684
number	73919
sum	51906.986
sum2	55720.679
prctile95	1.6534044
prctile99	2.1960156
number	73919
sum	1195886.2
sum2	21766436
prctile95	27.81952
prctile99	35.05791
number	73919
sum	1523199.9
sum2	32981611
prctile95	29.96509
prctile99	33.85305
number	73919
sum	5320.6234
sum2	446.38033

prctile95 0.12448886
prctile99 0.14601724
number 73919
sum 2619.9294
sum2 143.03194
prctile95 0.084288611
prctile99 0.10842798

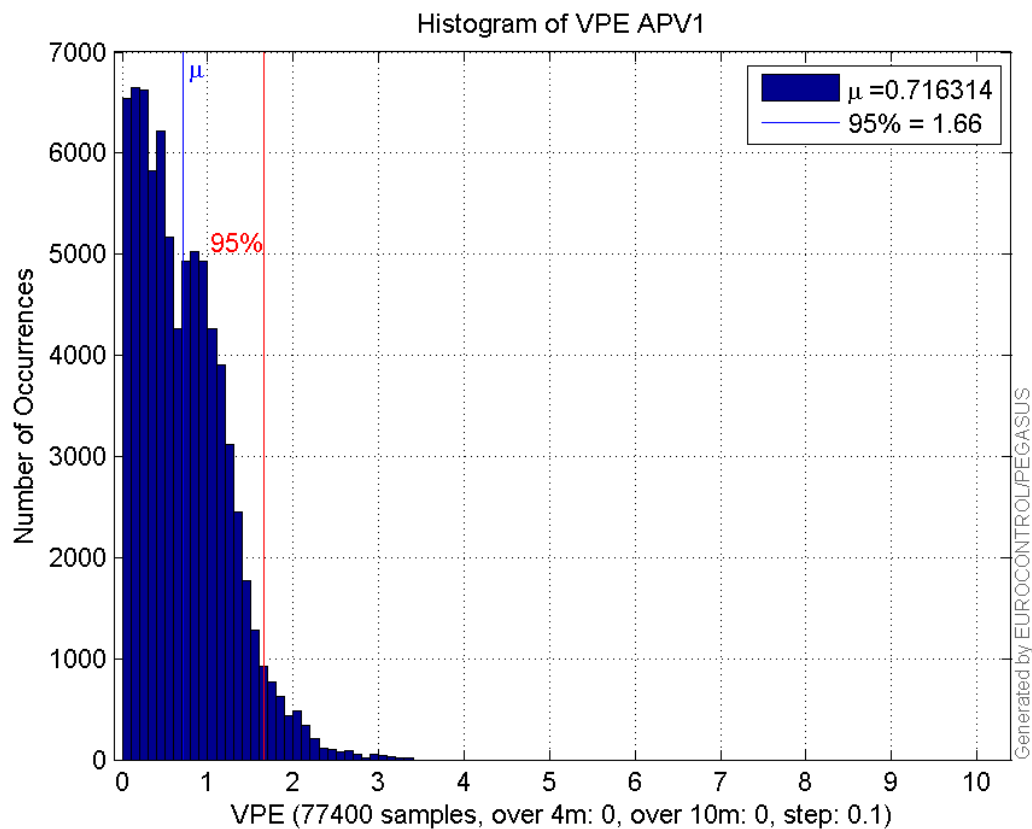
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.05412	0.308201	1.05686	1.52026	1.97056	1.09825
HPL	16.4493	5.85989	15.0748	28.9591	35.1662	17.4619
VPE	0.716314	0.517479	0.638689	1.6639	2.22864	0.883678
VPL	21.4183	5.93025	19.6613	34.4275	40.9888	22.2241

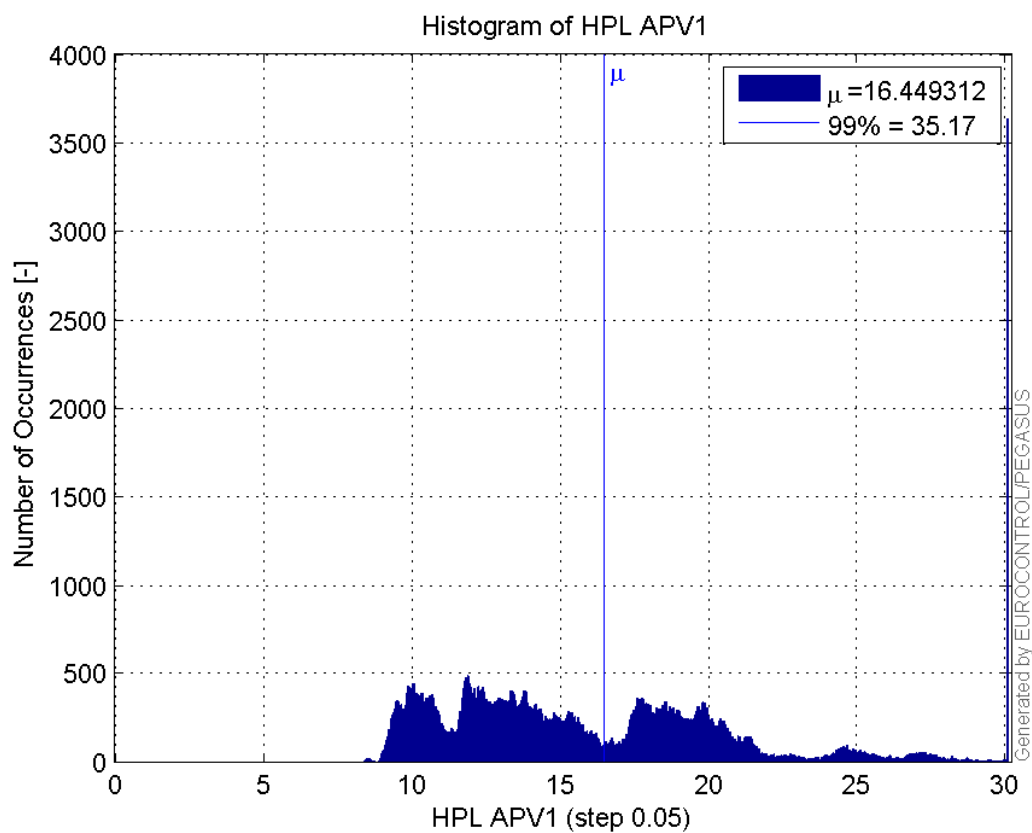
Histogram of HPE APV1:



Histogram of VPE APV1:

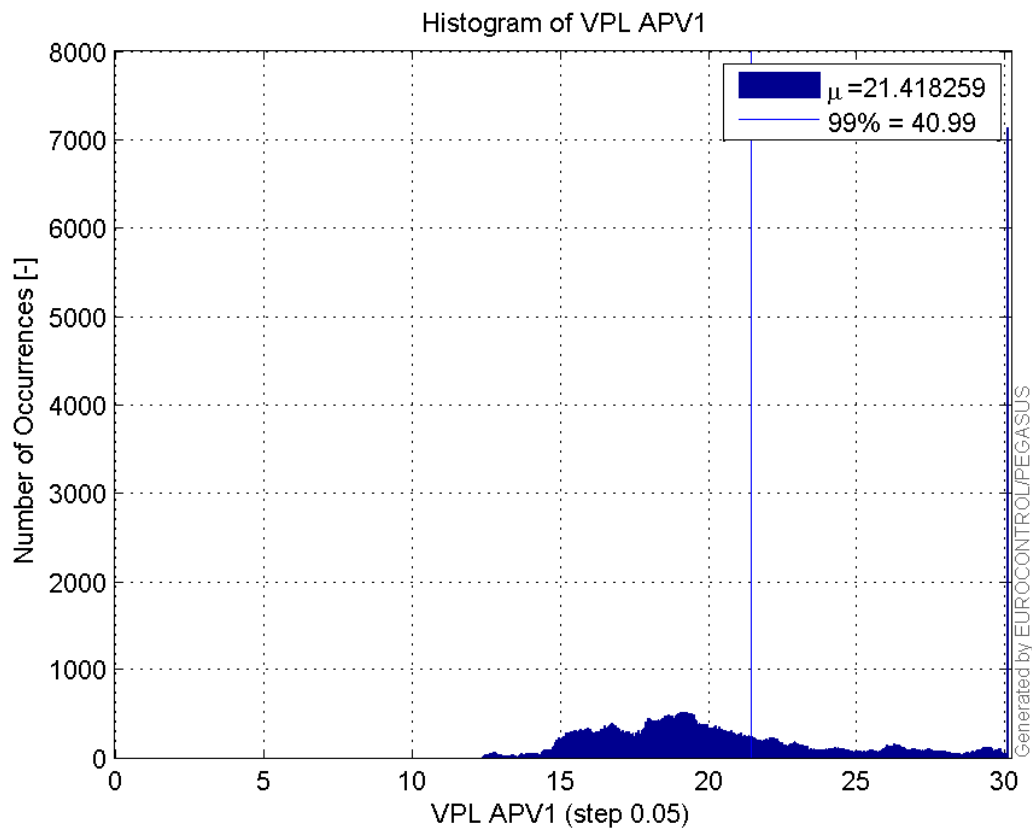


Histogram of HPL APV1:

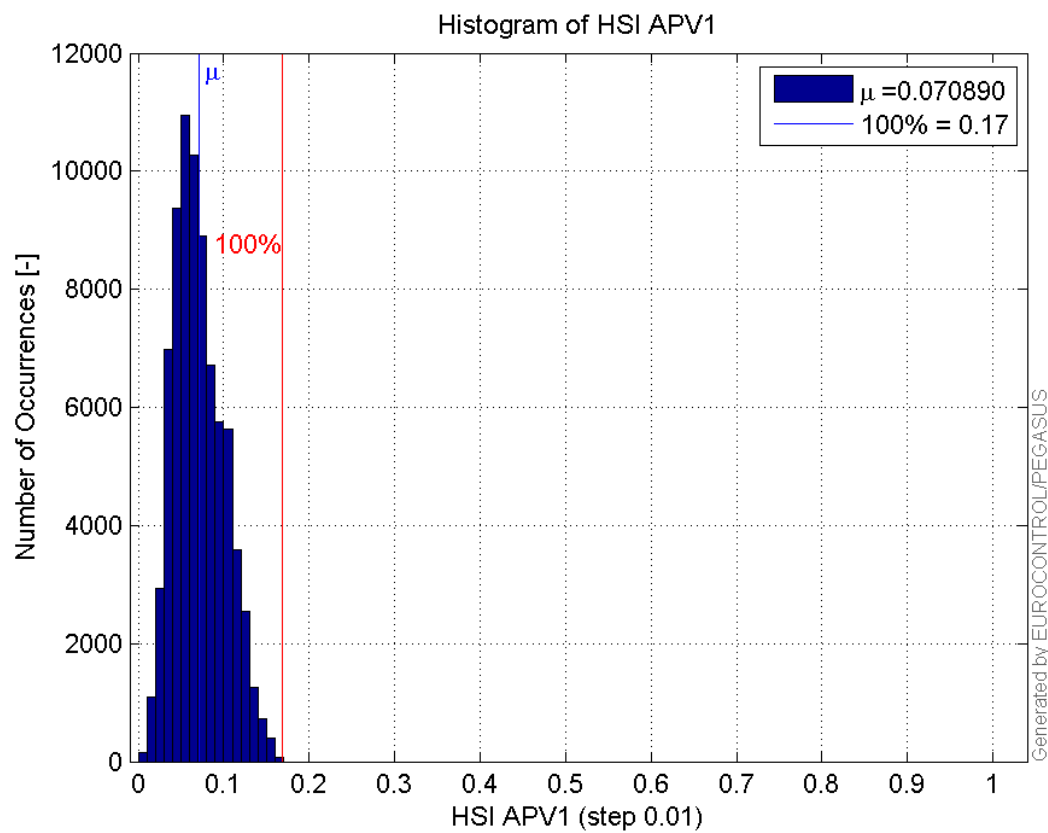


9

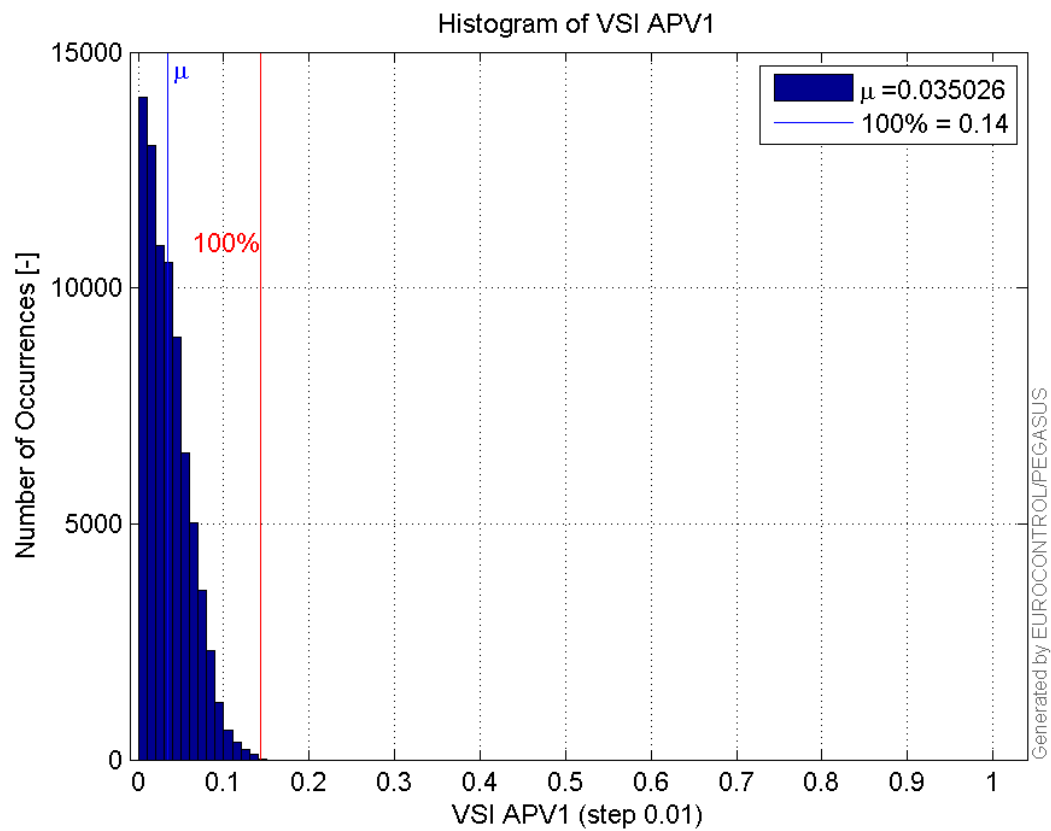
Histogram of VPL APV1:



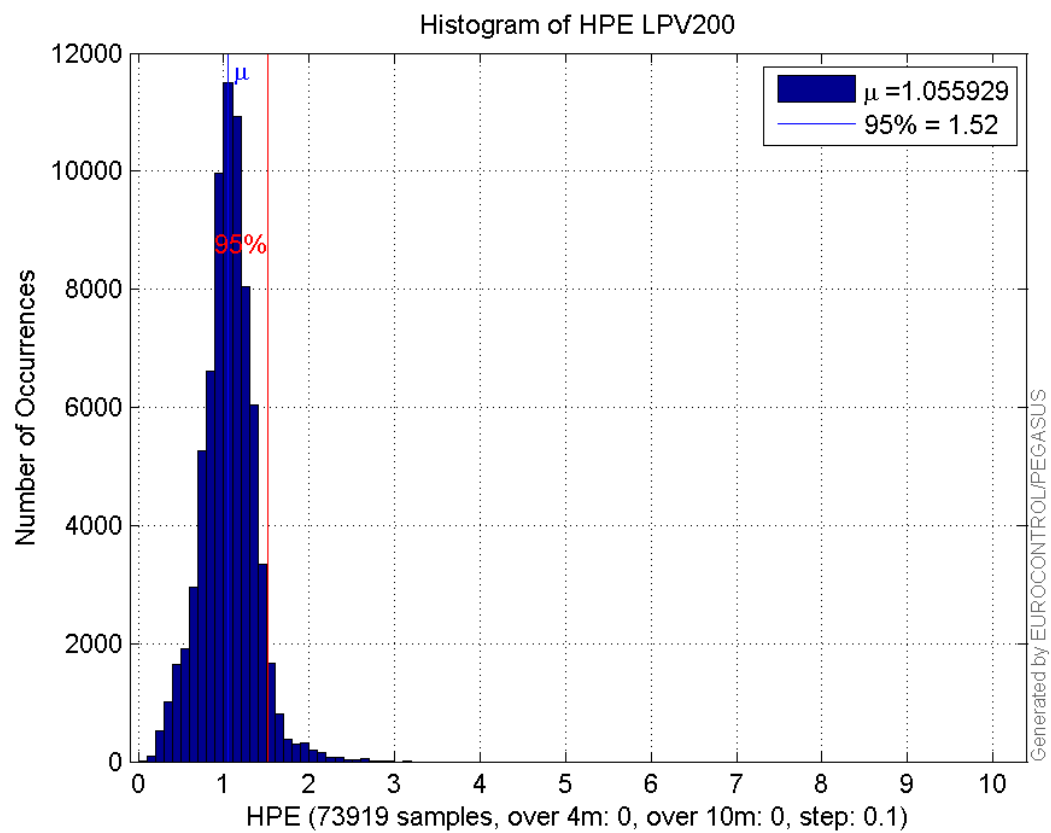
Histogram of HSI APV1:



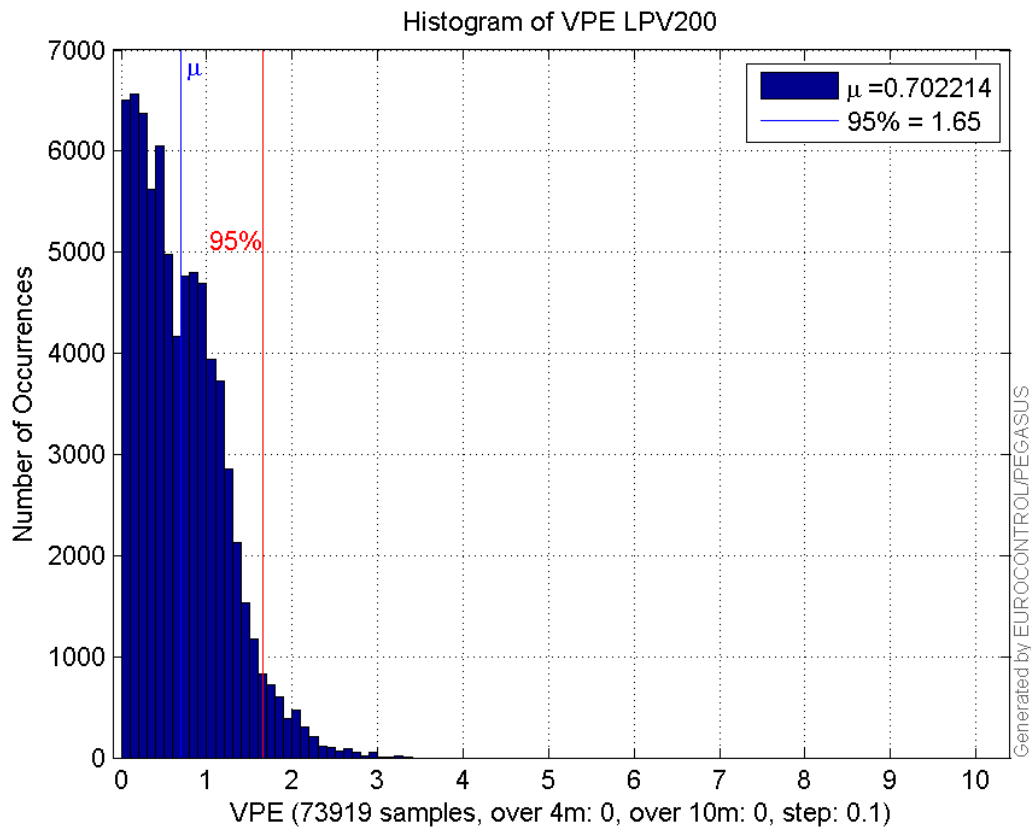
Histogram of VSI APV1:



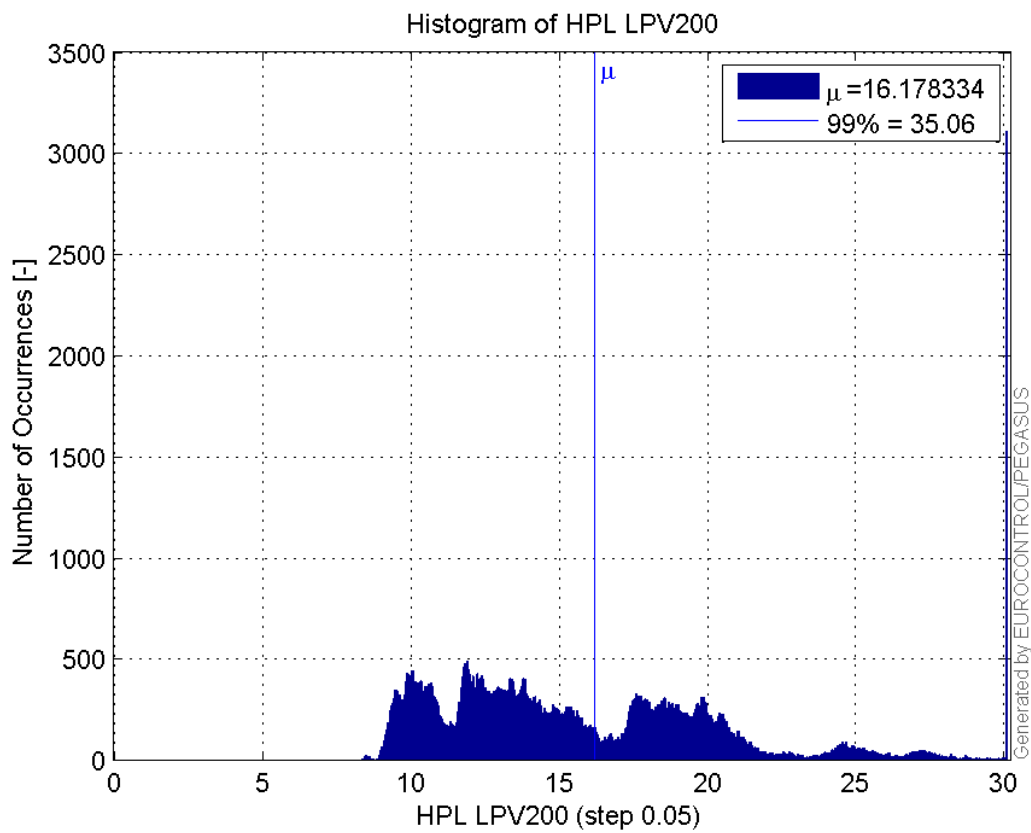
Histogram of HPE LPV200:



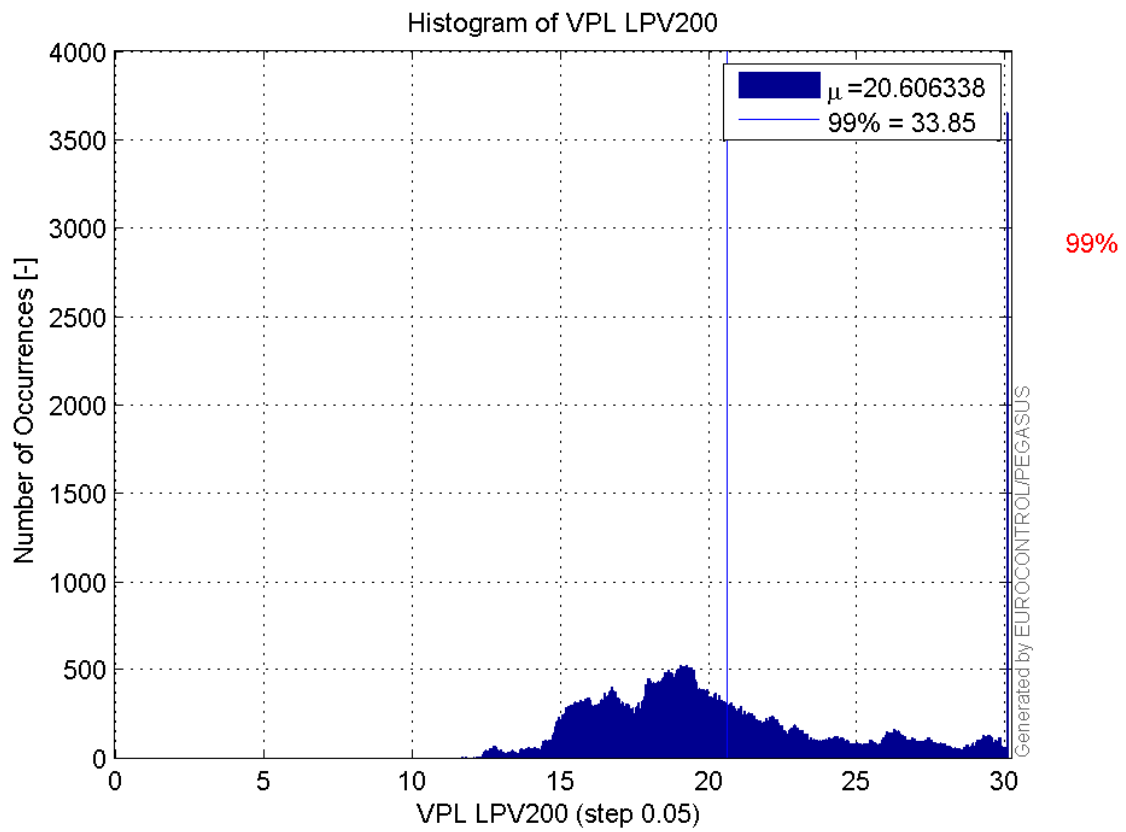
Histogram of VPE LPV200:



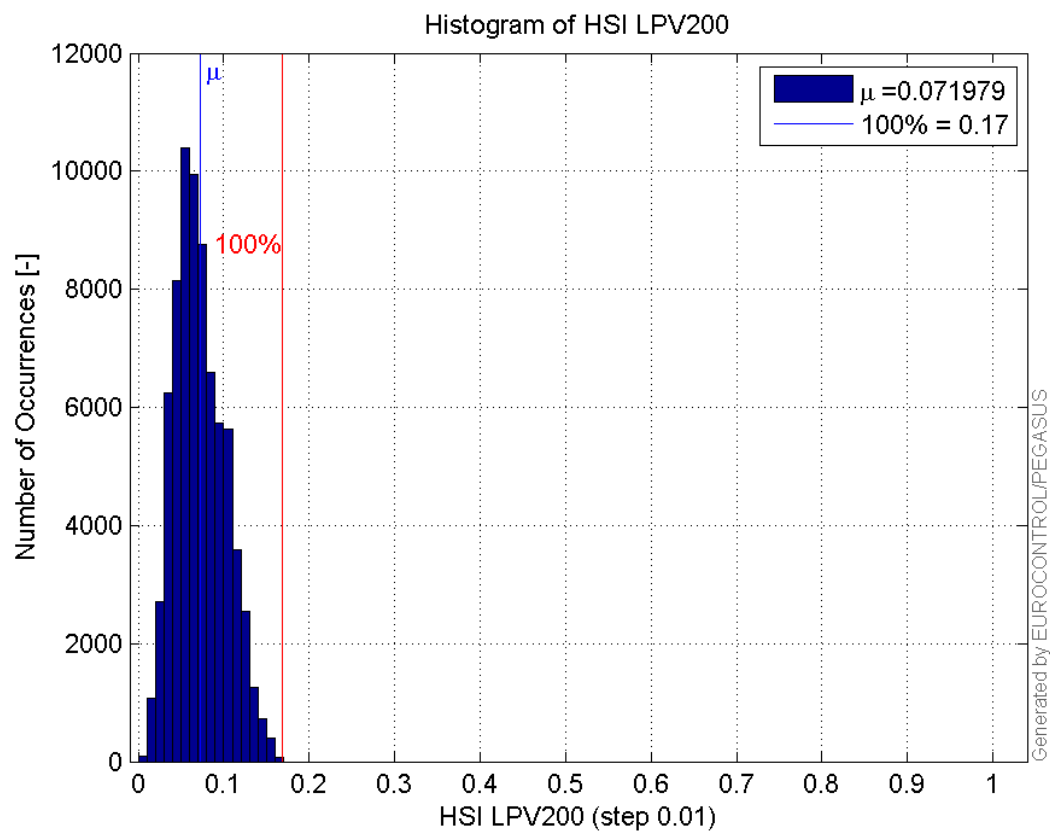
Histogram of HPL LPV200:



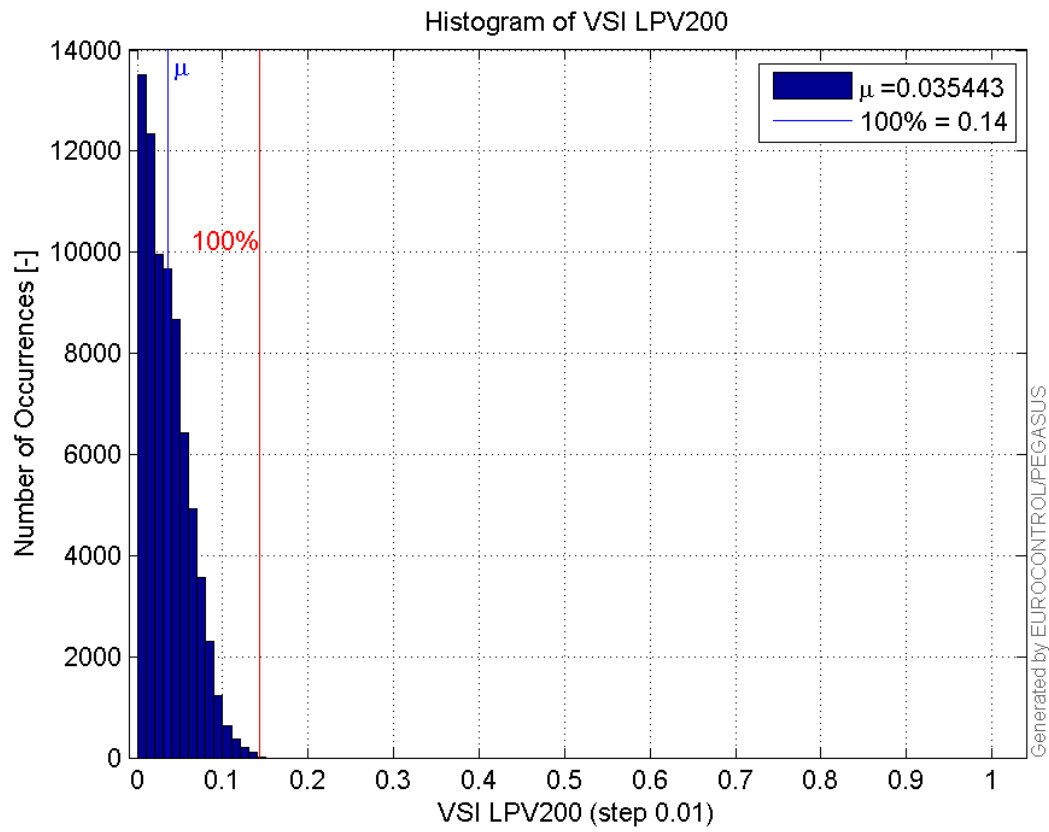
Histogram of VPL LPV200:



Histogram of HSI LPV200:

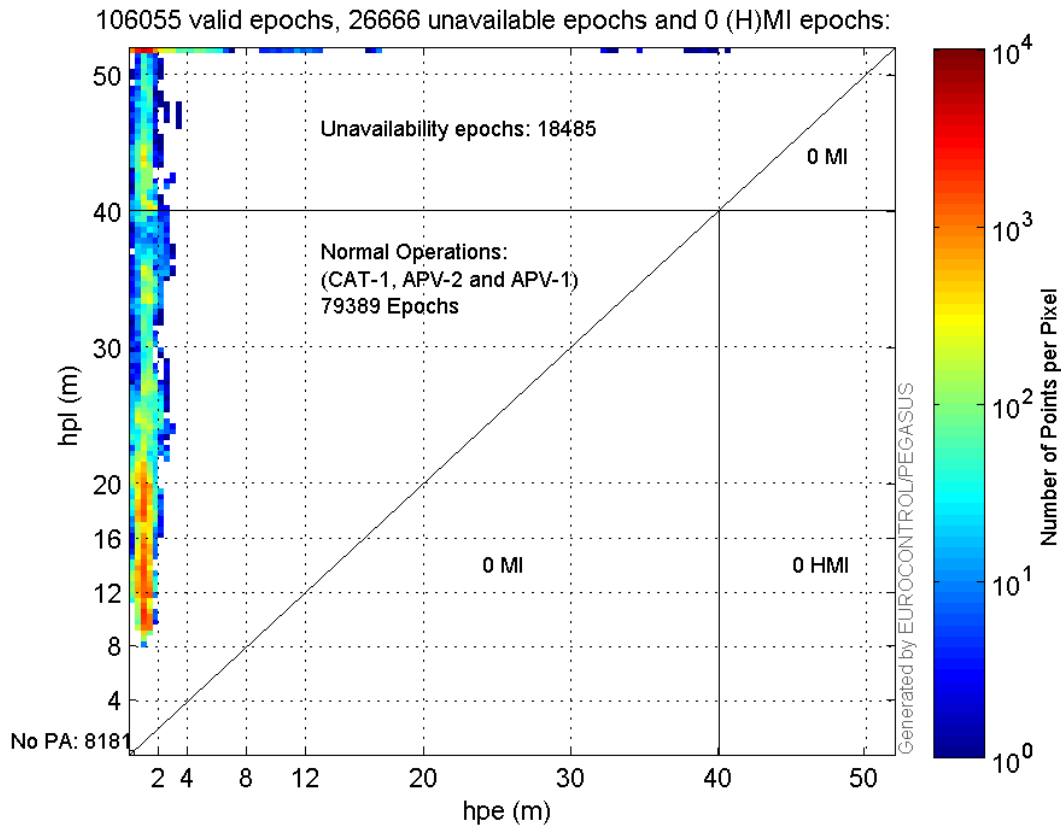


Histogram of VSI LPV200:



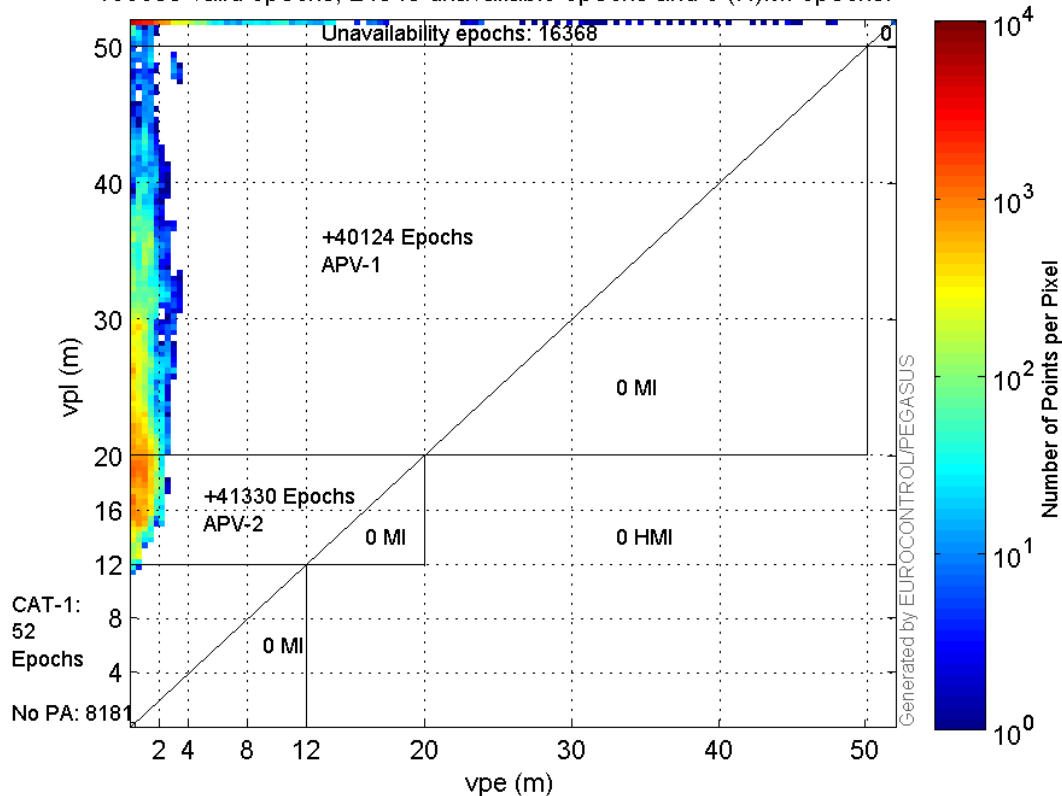
Stanford Plots

Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:

106055 valid epochs, 24549 unavailable epochs and 0 (H)MI epochs:



Parameters

system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.4.0
input_prefix	system	D:/PegasusDateJob/job/2016_04_13EGNOS615/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2016_04_13EGNOS615/03_GNSS_Solution/03_GNSS_Solution_sol

settings

Name	Section	Value
ref_lat	settings	50.439
ref_lon	settings	30.4297
ref_alt	settings	215.271
smoothing	settings	yes
smoothing_constant	settings	100
smoothing_max_gap	settings	10
smoothing_max_divergence	settings	3
min_elevation	settings	5
aad_model	settings	a
output_range_file	settings	yes
sbas_prn	settings	120
gnss_mode	settings	sbas

results

Name	Section	Value
init_lat	results	50.439

init_lon	results	30.4297
init_alt	results	222.4975
mi_numbers	results	0

Range Domain

start: 05:00:39.25 13.04.2016 (week: 1892 sec: 277239.25)
end: 13:55:41 13.04.2016 (week: 1892 sec: 309341)
duration: 08:55:03 ..

quality

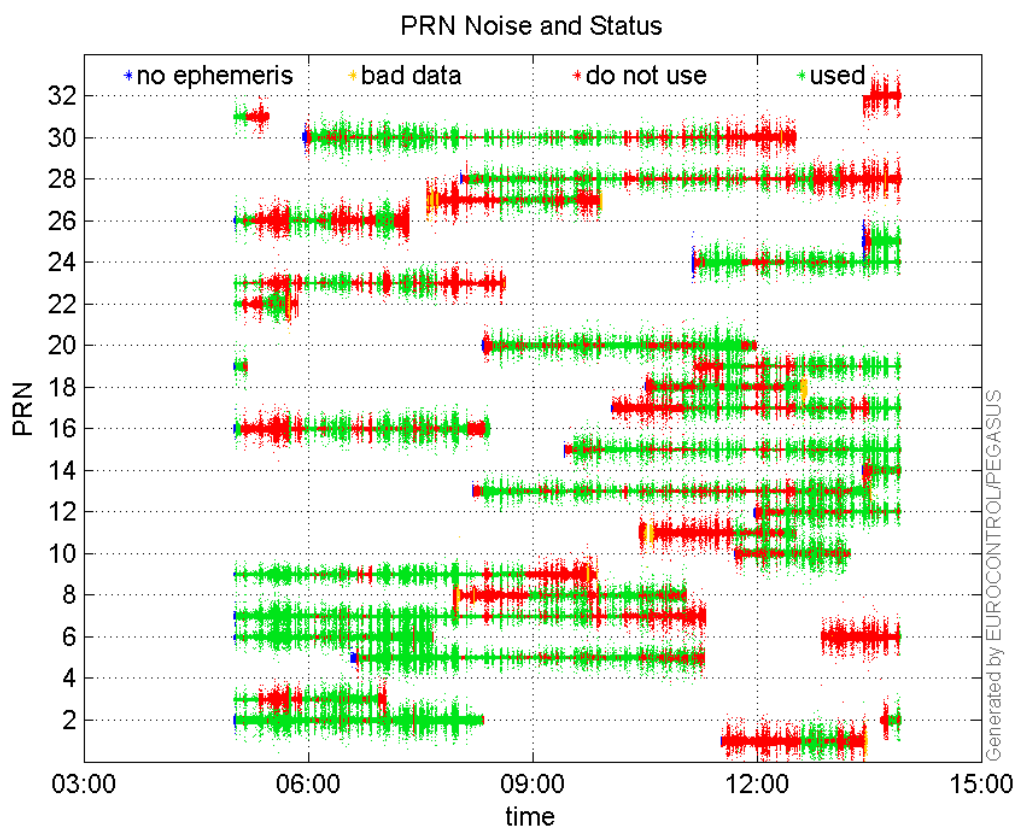
valid samples 107242
total samples 107242

PRN overview

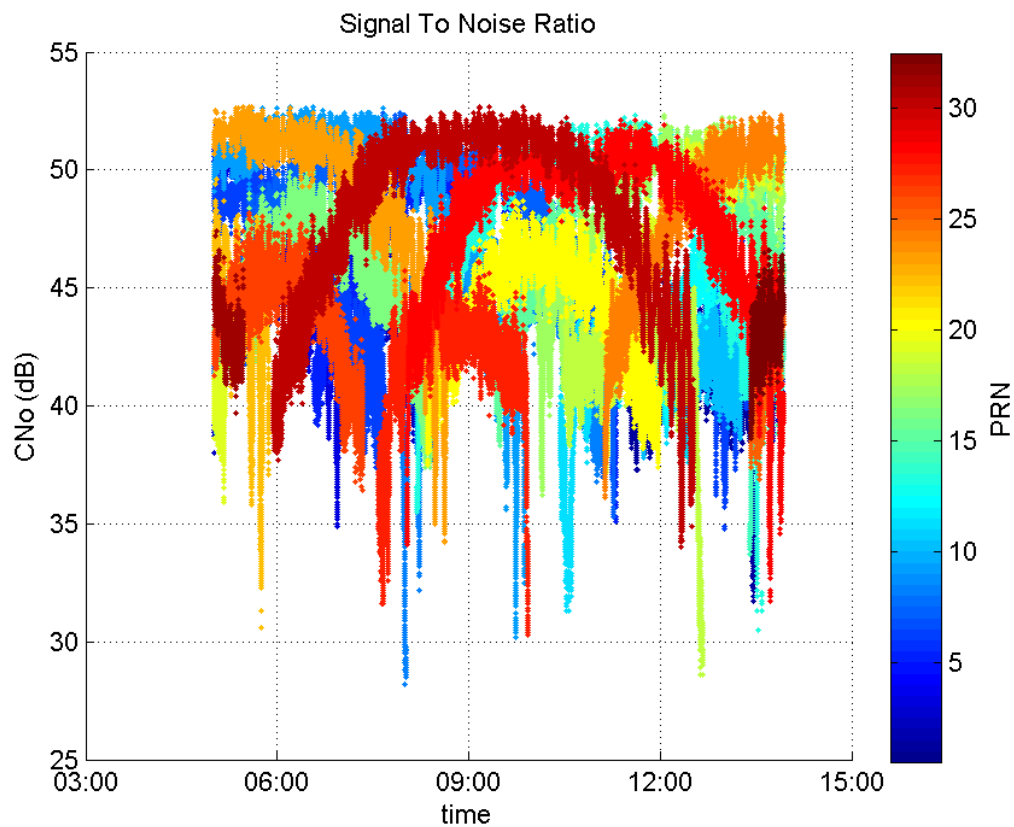
Number of Visible GPS Satellites 29
Number of Visible SBAS Satellites 4

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



range errors

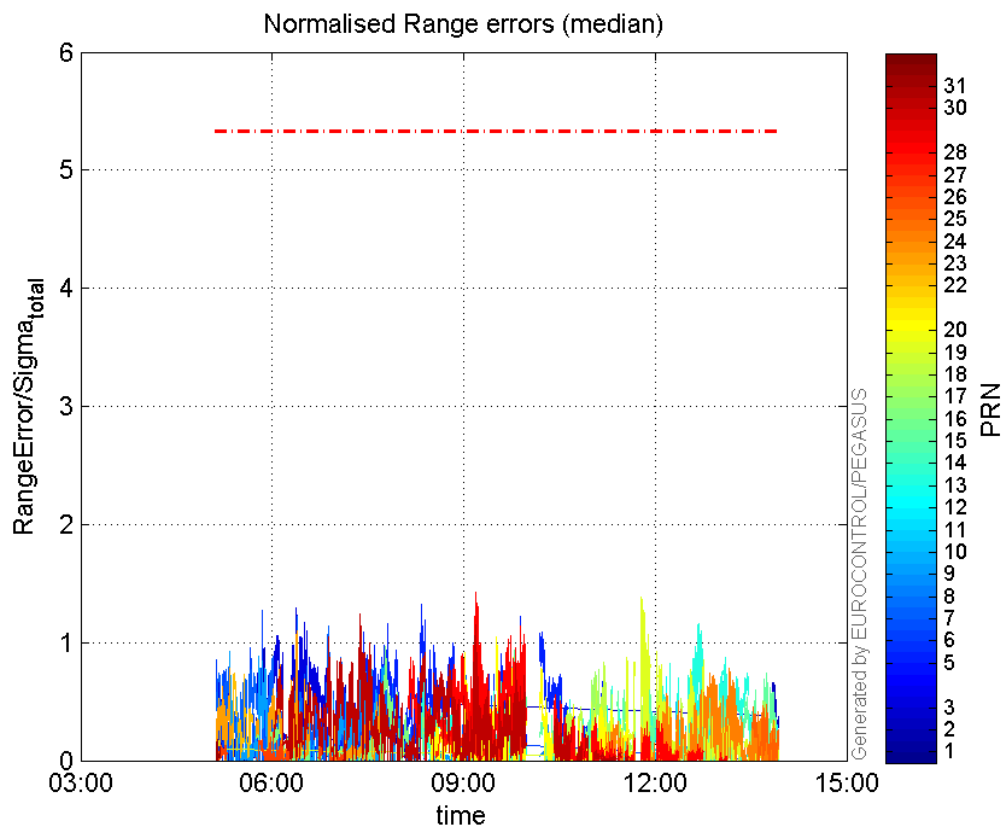
Number of Overbounding Norm Errors 0

Max Norm Errors :

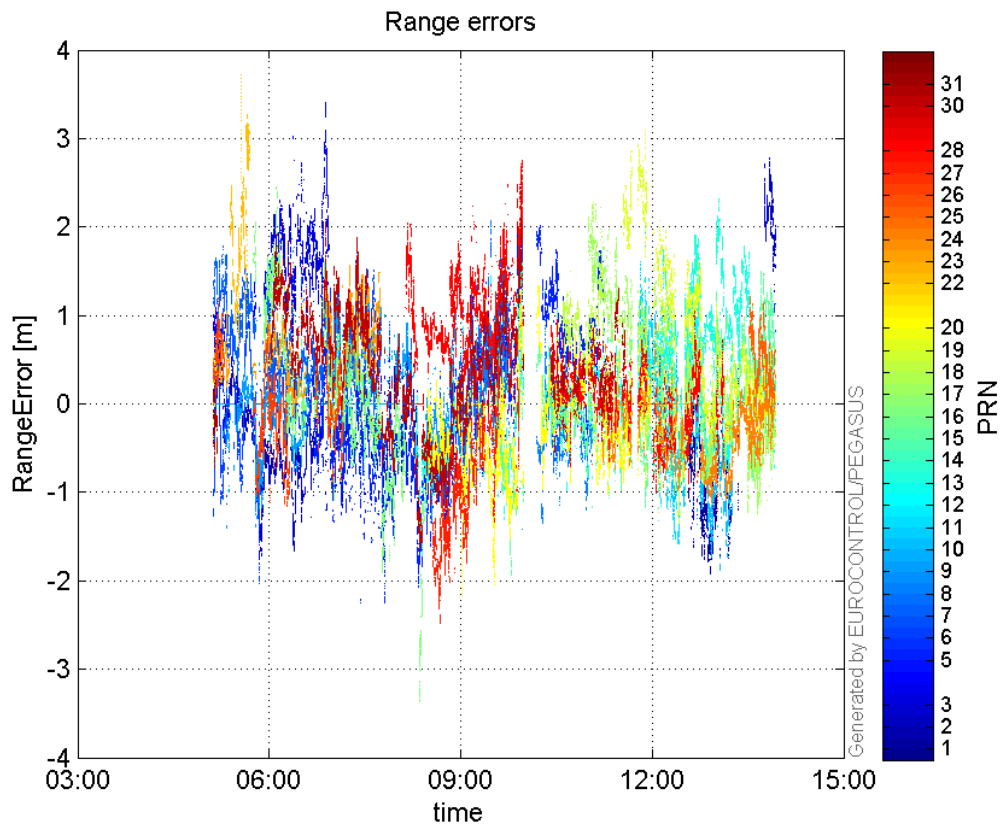
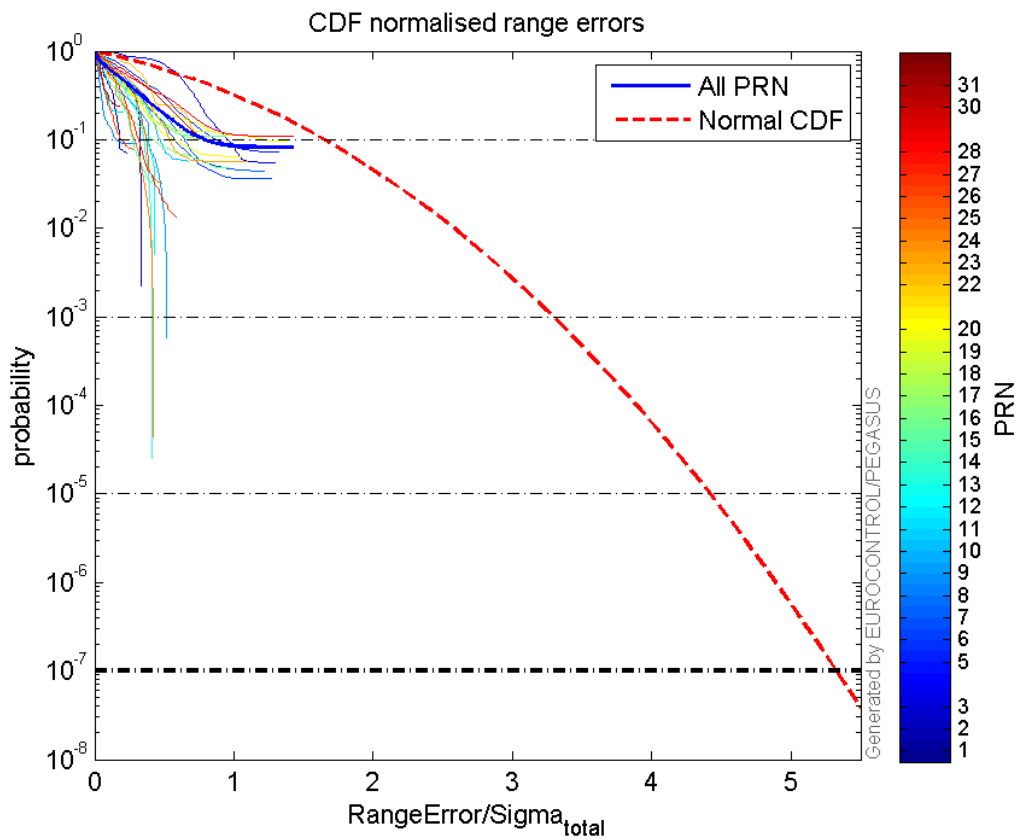
GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1892	306681	1	0.2292	-1.73905	7.58747
1892	280240	2	0.971328	-1.70775	1.75816
1892	282172	3	1.29172	3.00005	2.32251
1892	289193	5	1.324	-2.07789	1.5694
1892	280243	6	1.27239	-2.0245	1.5911
1892	282212	7	1.21994	1.77195	1.45249
1892	296380	8	0.300758	1.29145	4.29399
1892	285727	9	0.998232	1.39892	1.4014
1892	306205	10	0.672659	-1.81675	2.70085
1892	302037	11	0.203147	2.00491	9.86923
1892	303031	12	0.712023	1.72673	2.42511
1892	304834	13	1.15659	1.90274	1.64513
1892	308710	14	0.407225	1.04822	2.57406
1892	294459	15	0.934297	-1.89364	2.0268
1892	287189	16	0.963787	-1.90185	1.97331
1892	299229	17	0.772314	2.25887	2.92481
1892	299471	18	0.828689	1.93915	2.34002
1892	301619	19	1.38313	2.89792	2.09519
1892	293458	20	1.04943	-1.85525	1.76787
1892	278647	22	0.741838	2.47028	3.32994
1892	282212	23	1.09442	1.55405	1.41998
1892	306588	24	0.786642	-1.08305	1.3768

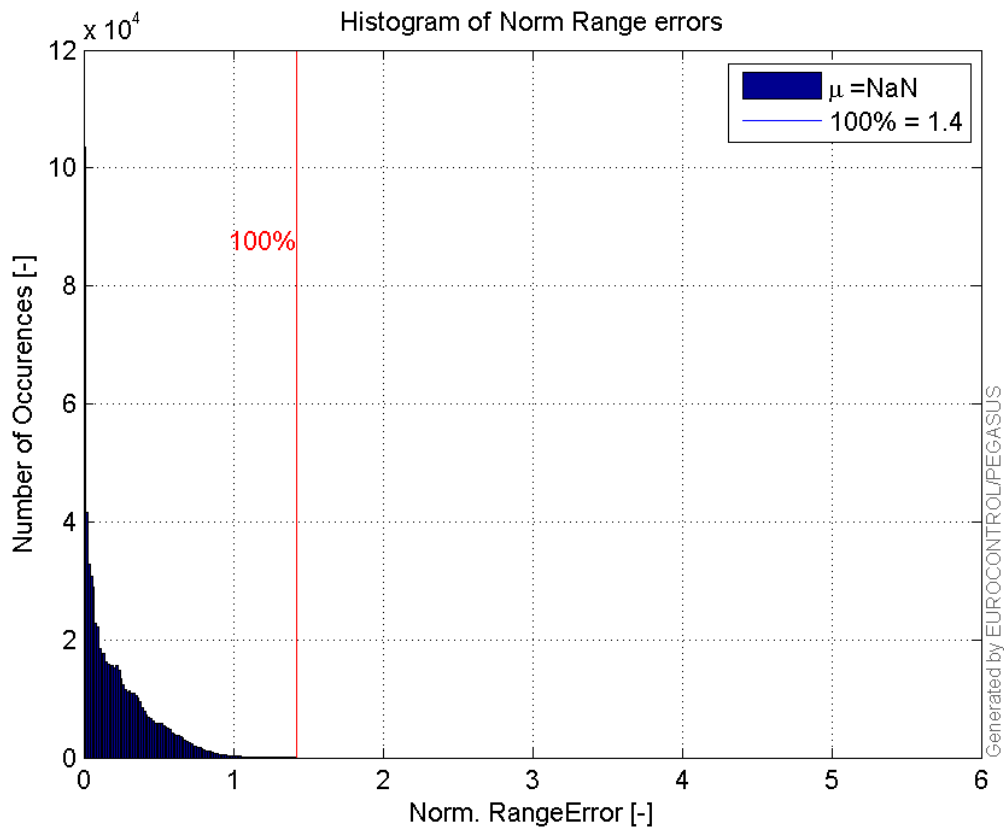
1892	308710	25	0.476855	1.13987	2.3904
1892	281822	26	0.269282	-1.15645	4.29457
1892	291788	27	0.580319	-1.62674	2.80318
1892	292267	28	1.42393	2.22865	1.56514
1892	285768	30	1.23748	1.87444	1.51473
1892	277701	31	0.177492	-0.723867	4.07831

Normalised Range errors (median):

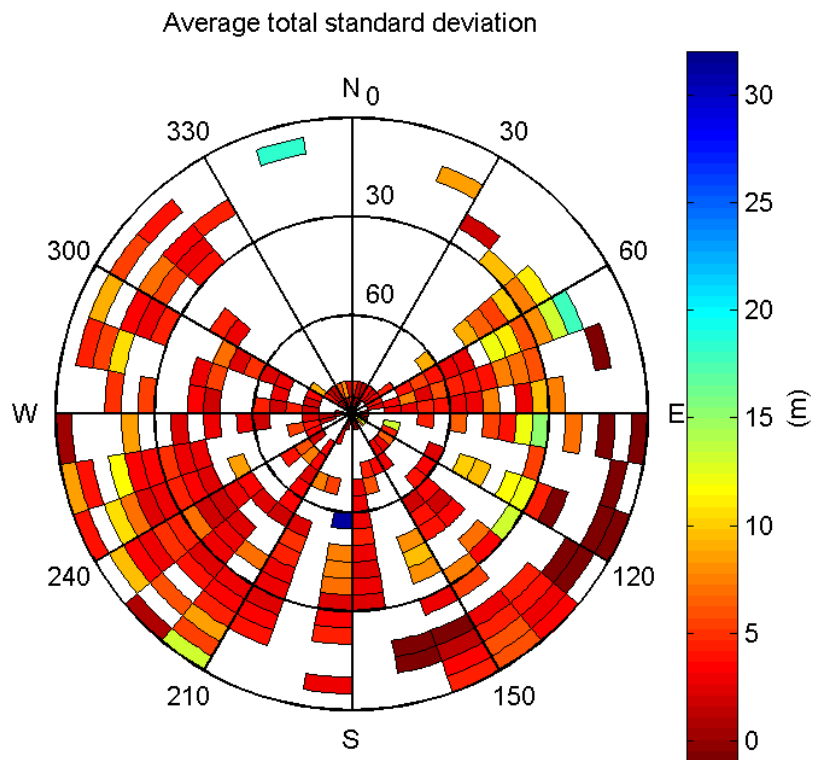


Range errors:

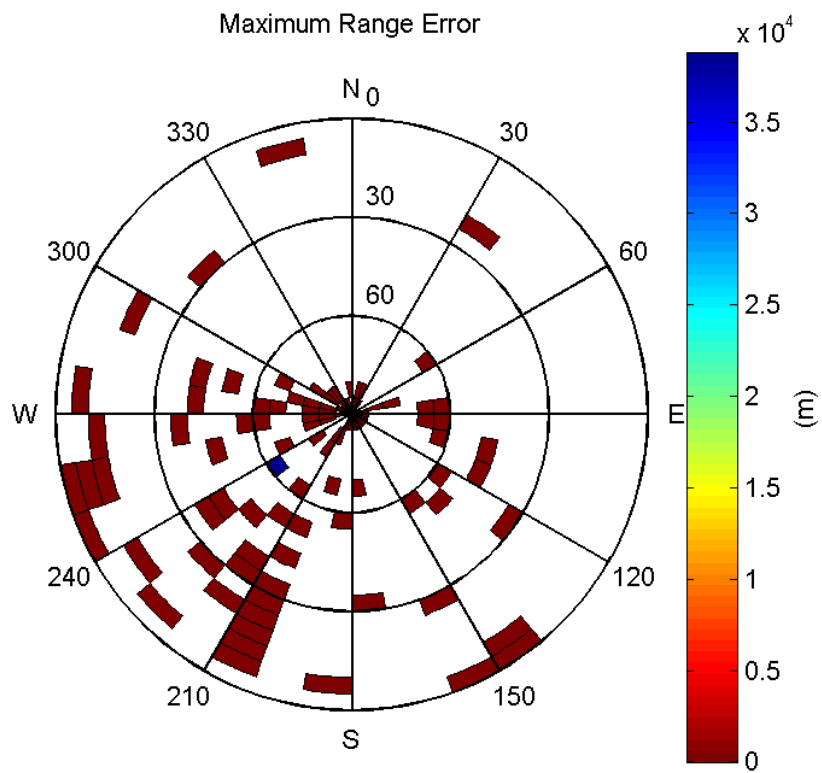
**CDF normalised range errors:****Histogram of Norm Range errors:**



Sigma Sky Plot:

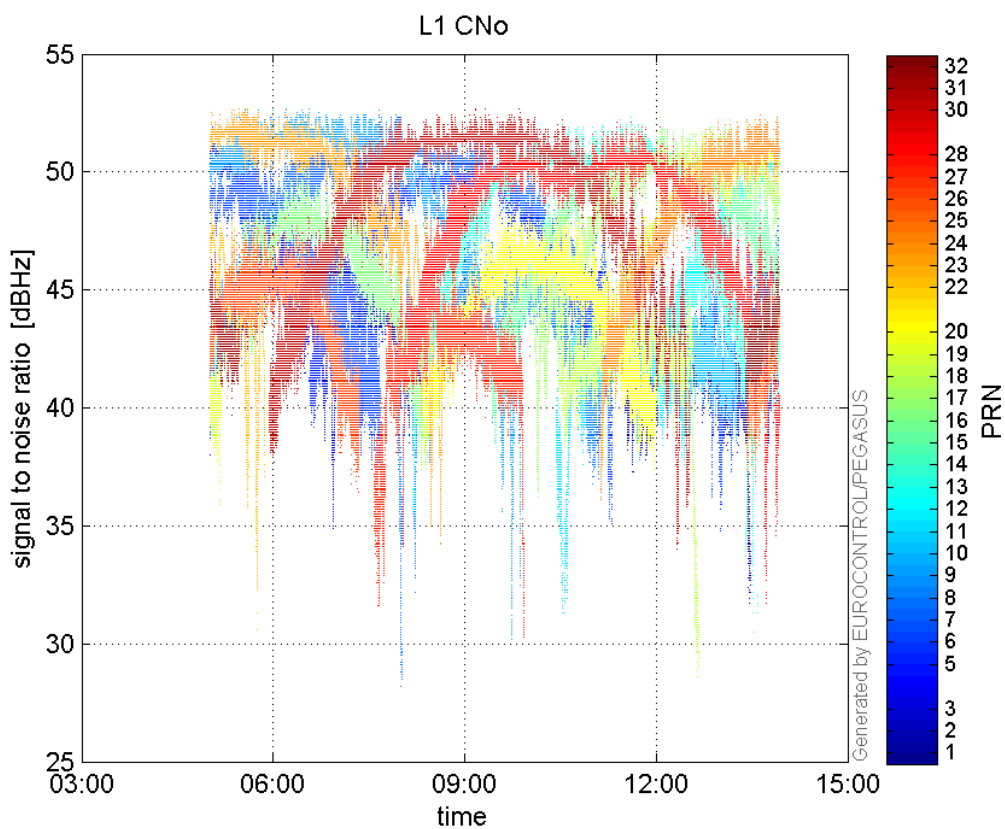


Norm Error Sky Plot:

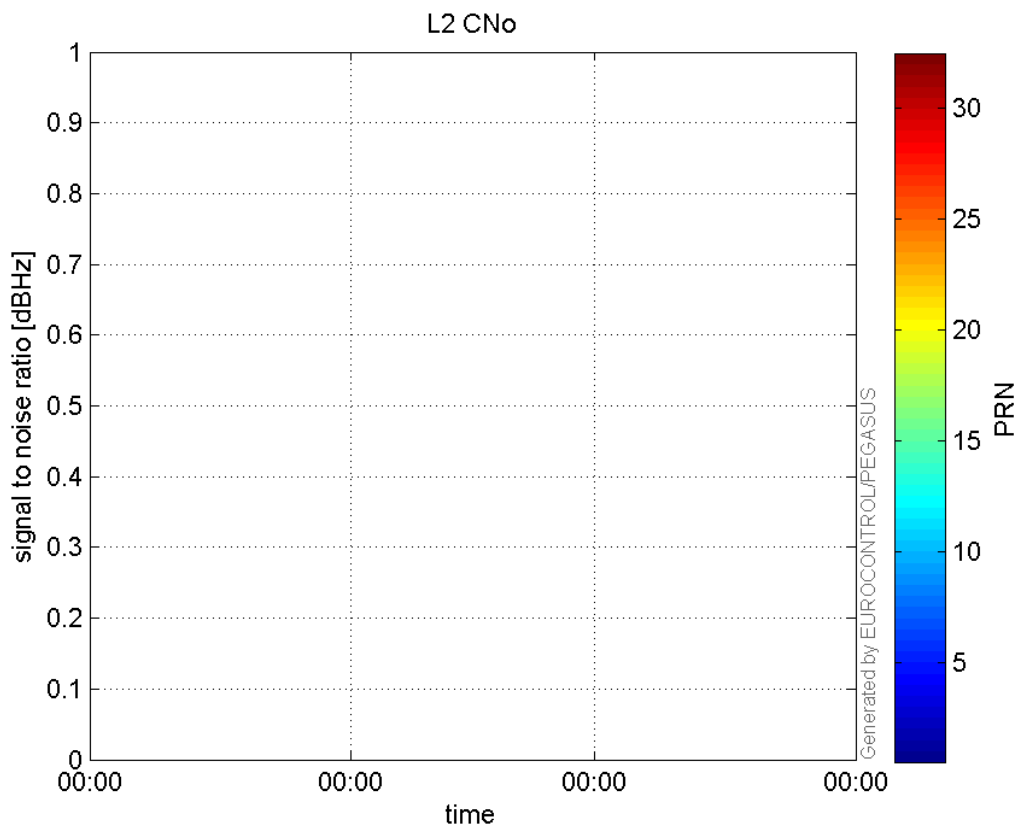


signal quality

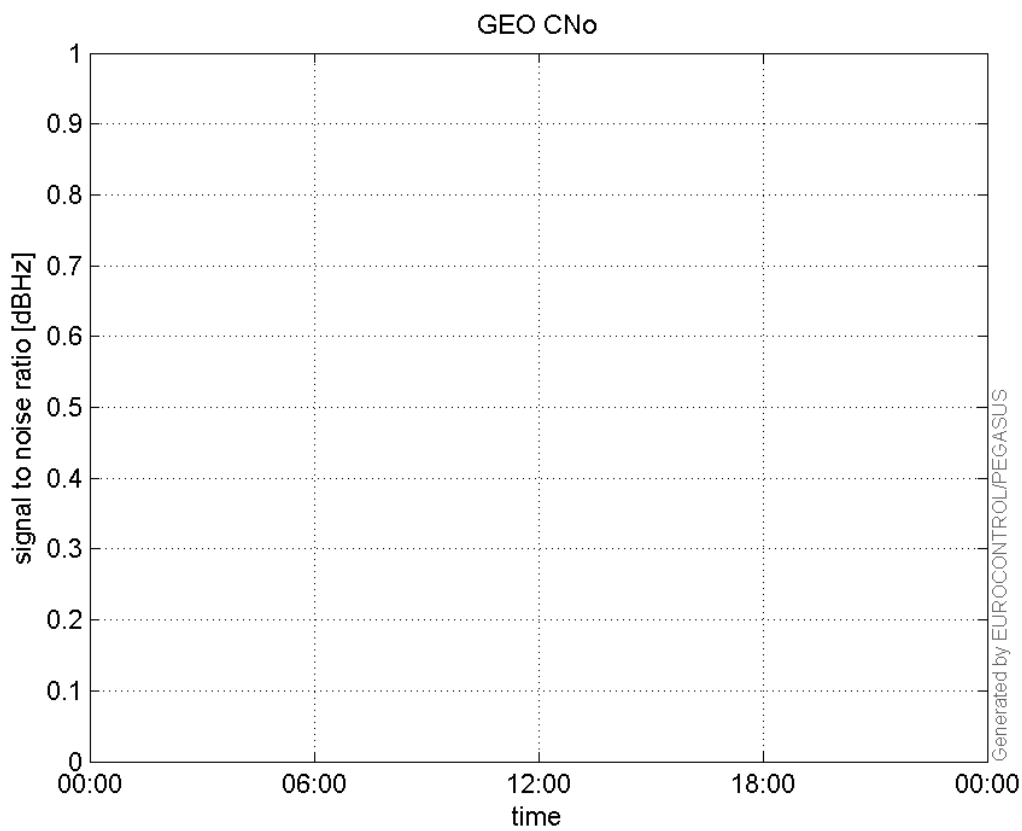
L1 CNo:



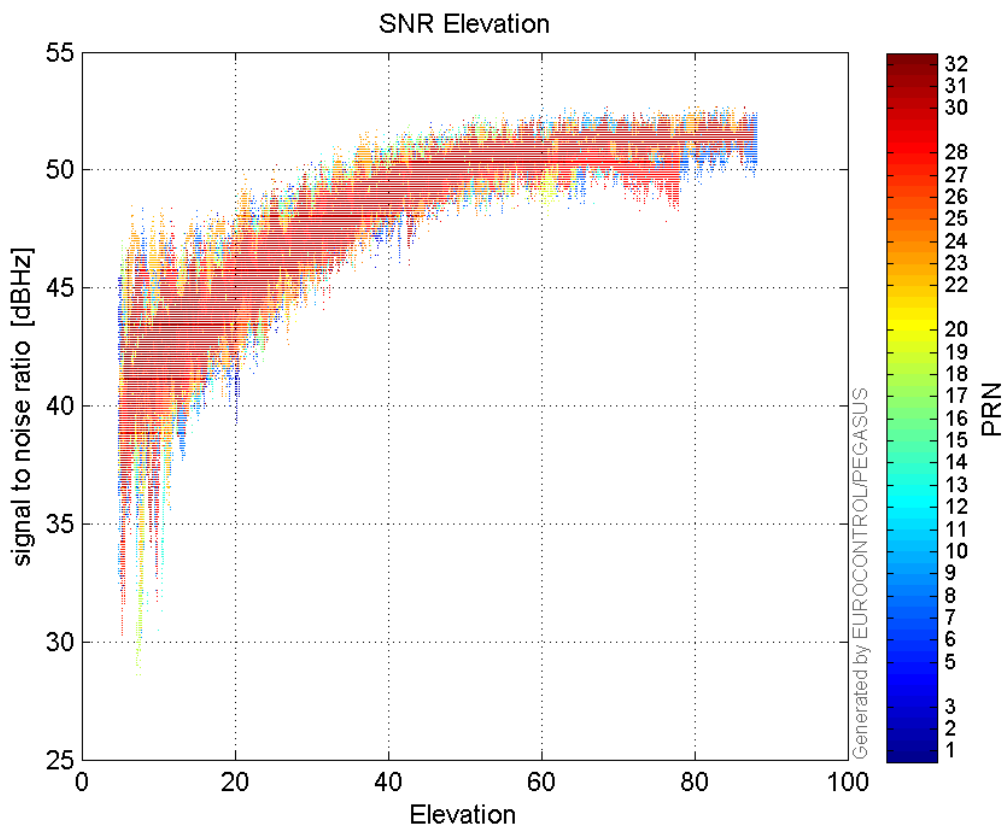
L2 CNo:



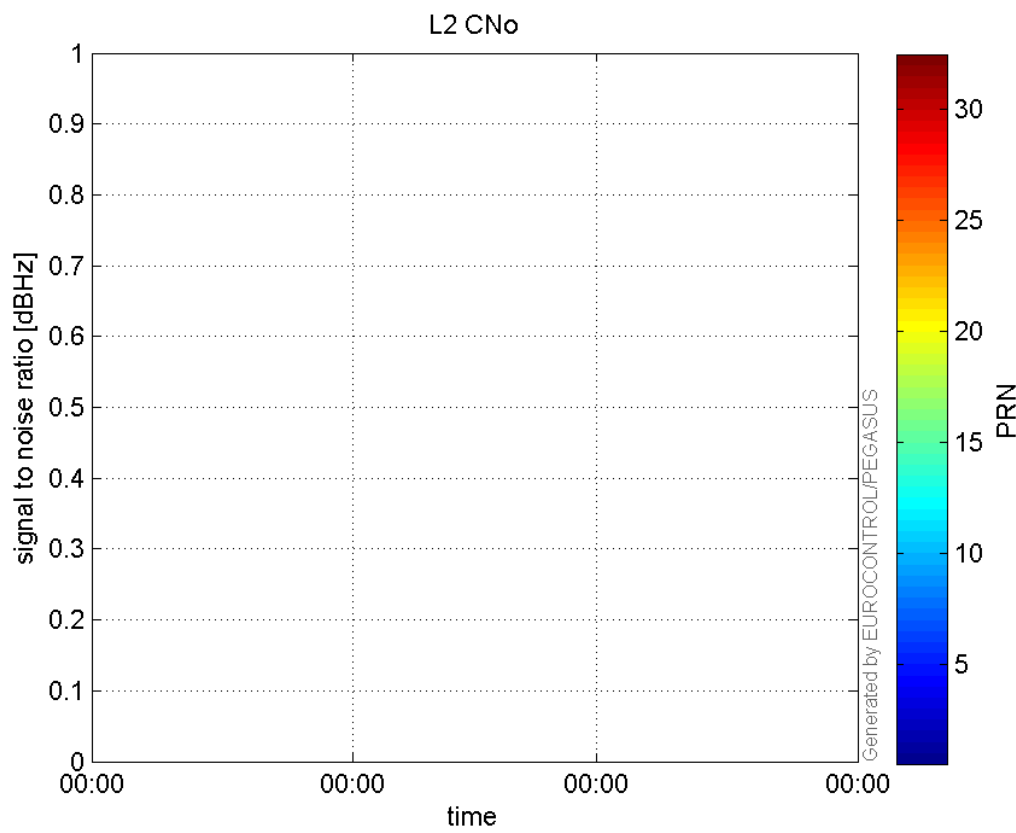
GEO CNo:



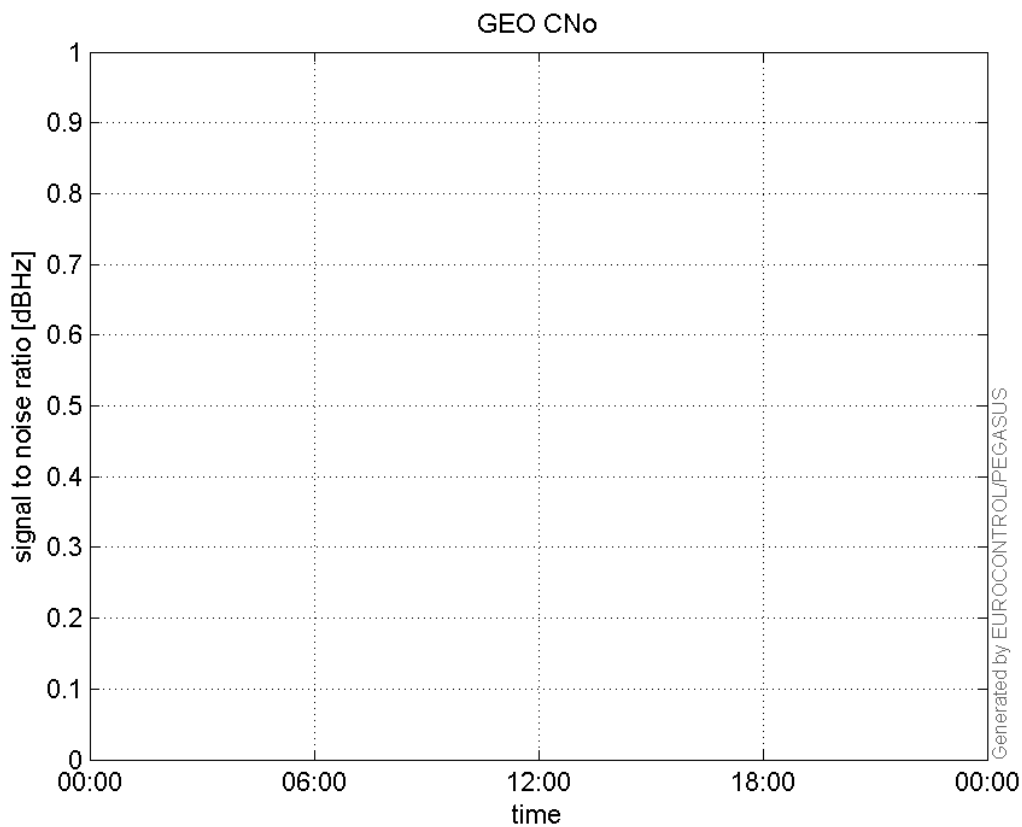
SNR Elevation:



L2 CNo:

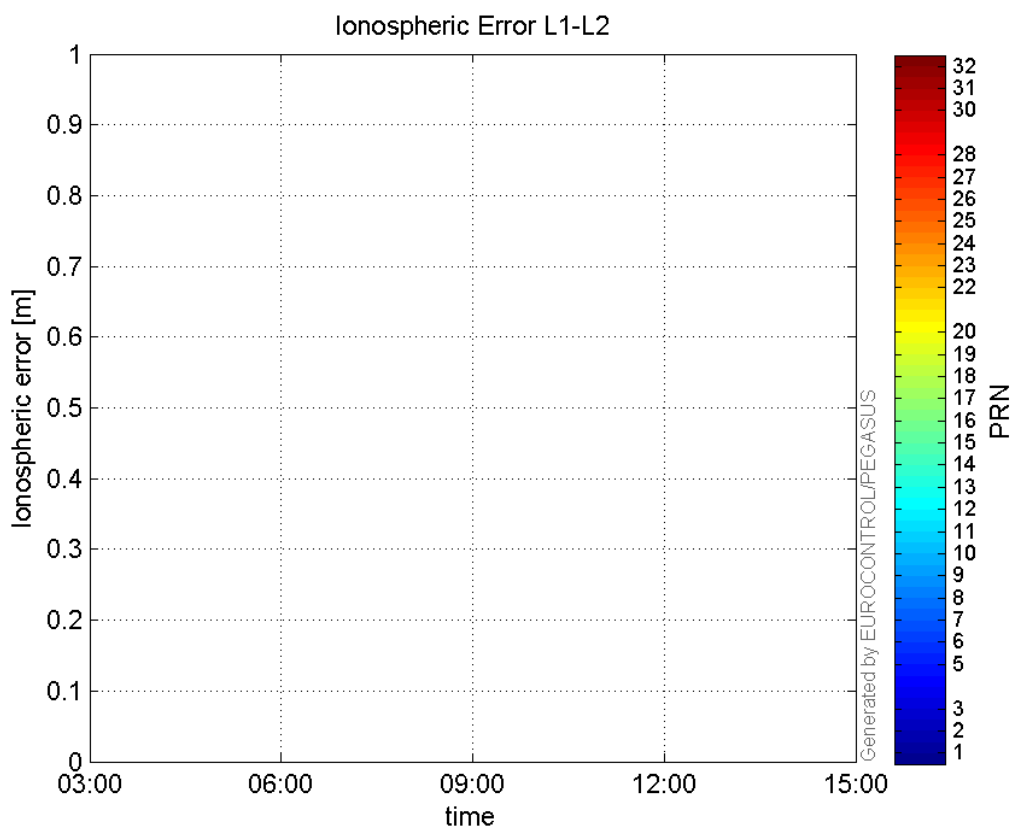


GEO CNo:



dual frequency

Ionospheric Error L1-L2:



Parameters

system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.4.0
input_prefix	system	D:/PegasusDateJob/job/2016_04_13EGNOS615/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2016_04_13EGNOS615/03_GNSS_Solution/03_GNSS_Solution_sol

settings

Name	Section	Value
ref_lat	settings	50.439
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gnss_mode	settings	sbas

results

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mi_numbers	results	0