

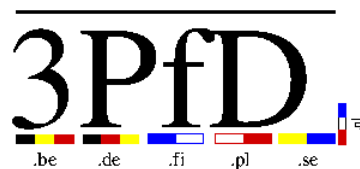
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# RINEX Observation Analysis

**3PfD**

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**May 4, 2021**

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## 1 Experiment basic information

### • Operators

- Pascal De Kimpe
- Avag Tsaturyan

### • Location / Date

- RMA LAB H local 50/14
- 14 December 2020

### • Short description of Experiment

- Set-up
  - \* RFI jamming on GAL E1 PRS code with 64QAM & CST signals wide bandwidth
  - \* preservation of Galileo E6 PRS
  - \* Jammer is VST generator from M3systems and Recorder with Stella Software
  - \* Laboratory setup using Directionnal coupleur and Splitter Amplifier
- Receivers used
  - \* AsteRx SB
  - \* TURP
  - \* P3RS2

### • Log files

AsteRX_SB TURP	H50_14DEC14JammingQAM64_0000.sbf BEGP349(K L O).20_.sbf
P3RS2	P3RS-2_RX_R_20203491039_15M_00U_MO.rnx
	P3RS-2_RX_R_20203491054_15M_00U_MO.rnx
	P3RS-2_RX_R_20203491409_15M_00U_MO.rnx
	P3RS-2_RX_R_20203491424_15M_00U_MO.rnx

## 2 Experiment set-up

### Set-up of OS RFI jamming

Parameter	Value
- targeted navigation signal	- PRS E1A
	- GPS C/A @ L1
	- Galileo OS E1BC
- targeted frequency	L1/E1 @ 1575.42 MHz
- targeted bandwidth	40 MHz
- power of targeted signal(s)	$\pm$ (-127) dBm
<b>Preserved navigation service</b>	
- preserved navigation service	- Galileo PRS (single or dual band)
- preserved navigation signals	- PRS E6A
<b>Receivers</b>	
	TUR-P, P3RS2, AsteRx_SB
- start status	Warm using live signals (PNT & Ephemeris ok)
- logging frequency	1 Hz
- troposphere model	Saastamoinen
- ionosphere model	Klobuchar
<b>Jamming scenario</b>	
- jamming signal	CST @ L1 sweep time $\pm 100\mu s$ , BW 40 MHz, increase power
- interference power	[-100 : 3 : -77 : 2 : -59 : 1 : -40] dBm
- interference timing	[ 20 : 10 : 10]
- RFI Start Time	14:10:01
- RFI Scenario file	CST-jamming.csv
<b>Location</b>	
- RMA Antenna	50.8440152778N / 4.3929283333E / 151.39179

Parameter	Value
<b>Metrics</b>	
- Carrier-to-Noise	L1-C/A, Gal OS, Gal PRS E1 / E6
- number of satellites	in PNT fix
- loss of (first) satellites	time & duration
- loss of PNT	time & duration
- reacquisition of (first) satellites	time & duration
- reacquisition of PNT	time & duration
- AGC (automatic gain control)	if available
- PNT accuracy	log vs time
- recovery time or SINR level	time needed during or after scenario

### 3 Analysis of RINEX Observation file

#### 3.1 Script details

##### 3.1.1 Program information

Script : rnxobs\_tabular.py

Run at : 04/05/2021 15:57

Run by : A. Muls

Royal Military Academy

##### 3.1.2 Parameters

RINEX root directory : /home/amuls/RxTURP/RFI/CST/rnx/20349

RINEX observation file : P3RS04BEL\_R\_20203490000\_01D\_00U\_MO.rnx

RINEX version : 3.05

Marker : P3RS04BEL

Year/day-of-year : 2020/349

### 3.1.3 Observation header information

First epoch : 2020/12/14 14:00:00

Last epoch : 2020/12/14 14:29:59

Interval : 1.0

GNSS : E (Galileo)

: G (GPS NavSTAR)

Frequencies E : 1, 6

Frequencies G : 1

Observable types : S (Pseudorange)

: C (SNR)

: D (Doppler)

: L (Carrier)

### 3.1.4 Logged observables

Observable types E : C1A, C1B, C6A, D1A, D1B, D6A, L1A, L1B, L6A, S1A  
S1B, S6A

Observable types G : C1C, D1C, L1C, S1C

## 3.2 Analysis of observation statistics for Galileo

statistics observation file : P3RS04BEL\_R\_20203490000\_01D\_00U\_MO\_E.obsstat

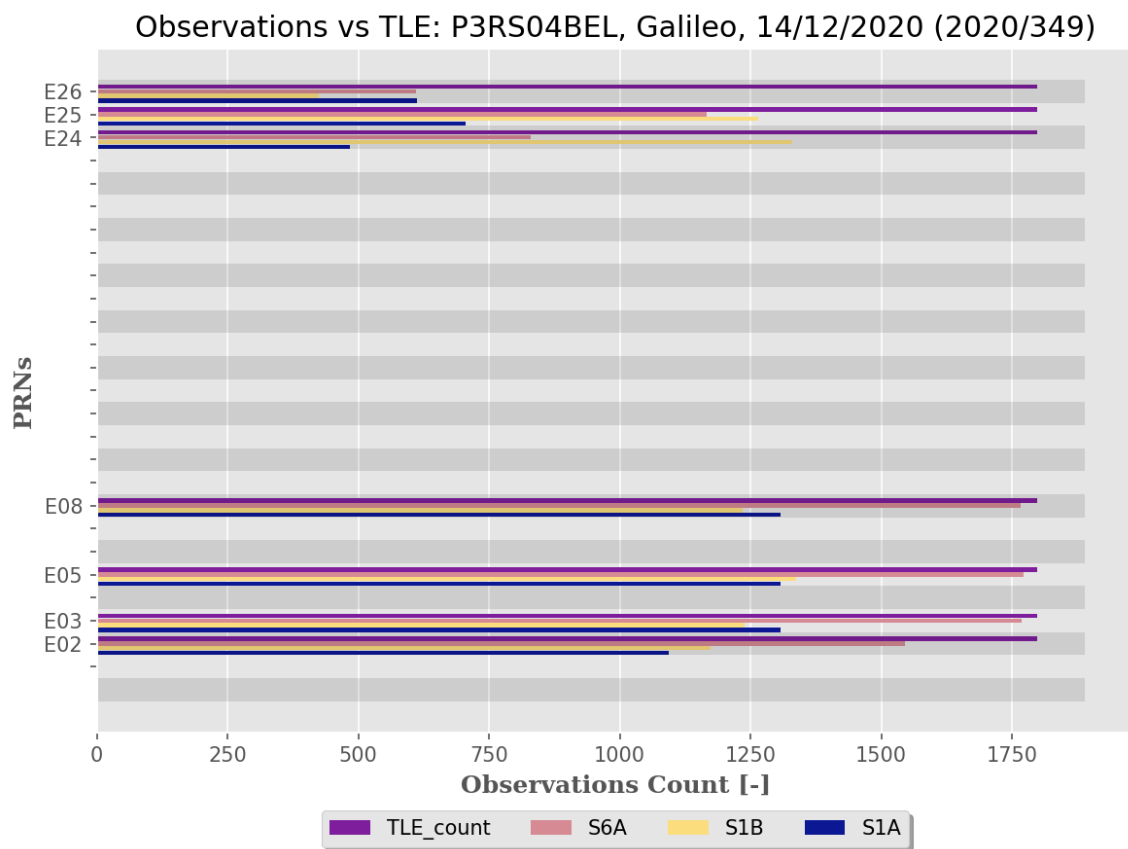
navigation signals : E1A, E1B, E6A

### 3.2.1 Observables count per navigation signal

The following table represents the number of observations made for each examined navigation signal. The percentages per navigation signal are calculated by dividing by the number of observations obtained from Two Line Elements (TLE) at the recorded interval. The last column represents the number of observations possible during the observed time interval.

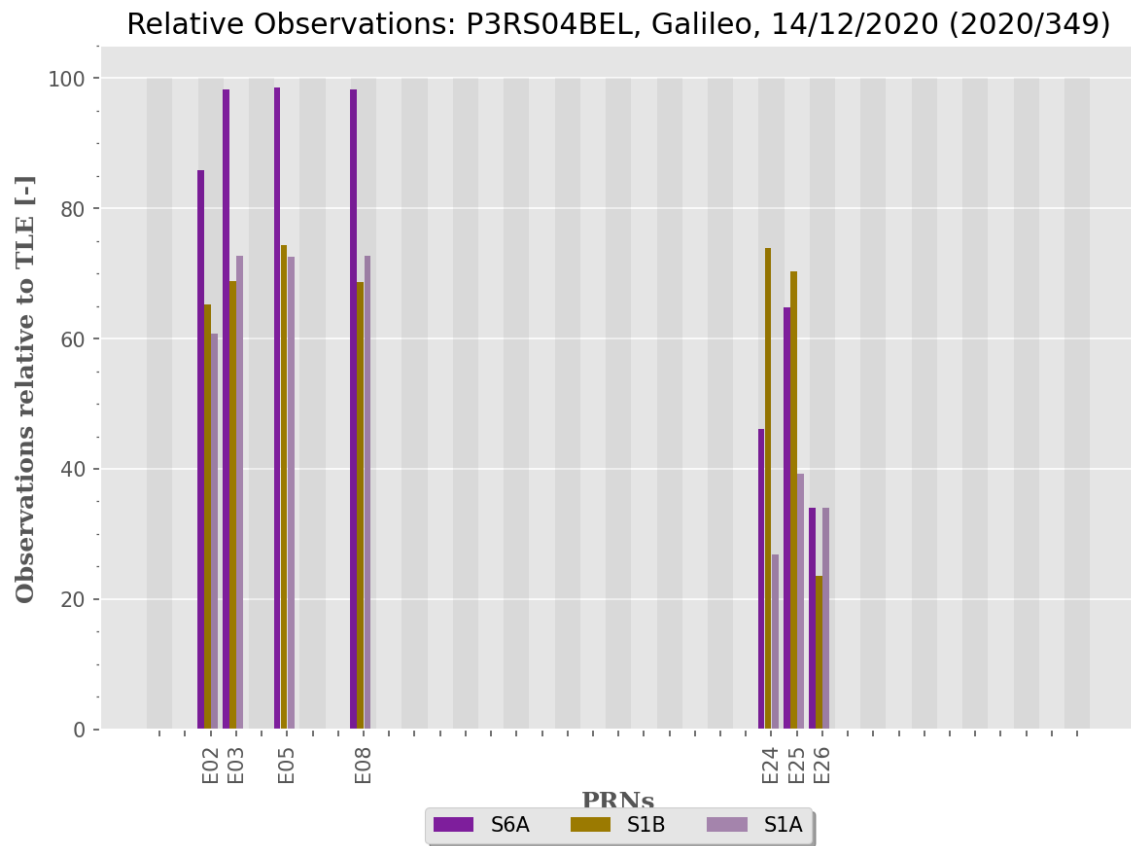
PRN	E1A		E1B		E6A		TLE_count
E02	1093	60.8%	1173	65.2%	1545	85.9%	1799.0
E03	1308	72.7%	1239	68.9%	1769	98.3%	1799.0
E05	1307	72.7%	1337	74.3%	1773	98.6%	1799.0
E08	1308	72.7%	1235	68.6%	1767	98.2%	1799.0
E24	484	26.9%	1329	73.9%	830	46.1%	1799.0
E25	706	39.2%	1265	70.3%	1167	64.9%	1799.0
E26	612	34.0%	424	23.6%	611	34.0%	1799.0

Figure 1 represents the absolute count of observables for each navigation signal set out against the maximum possible observations obtained from the TLEs. The relative observation count is represented in Figure 2.



**Figure 1:** Observables overview for GNSS Galileo





**Figure 2:** Relative observation count per navigation signal for GNSS Galileo

### 3.3 Analysis of observation statistics for GPS NavSTAR

statistics observation file : P3RS04BEL\_R\_20203490000\_01D\_00U\_MO\_G.obsstat

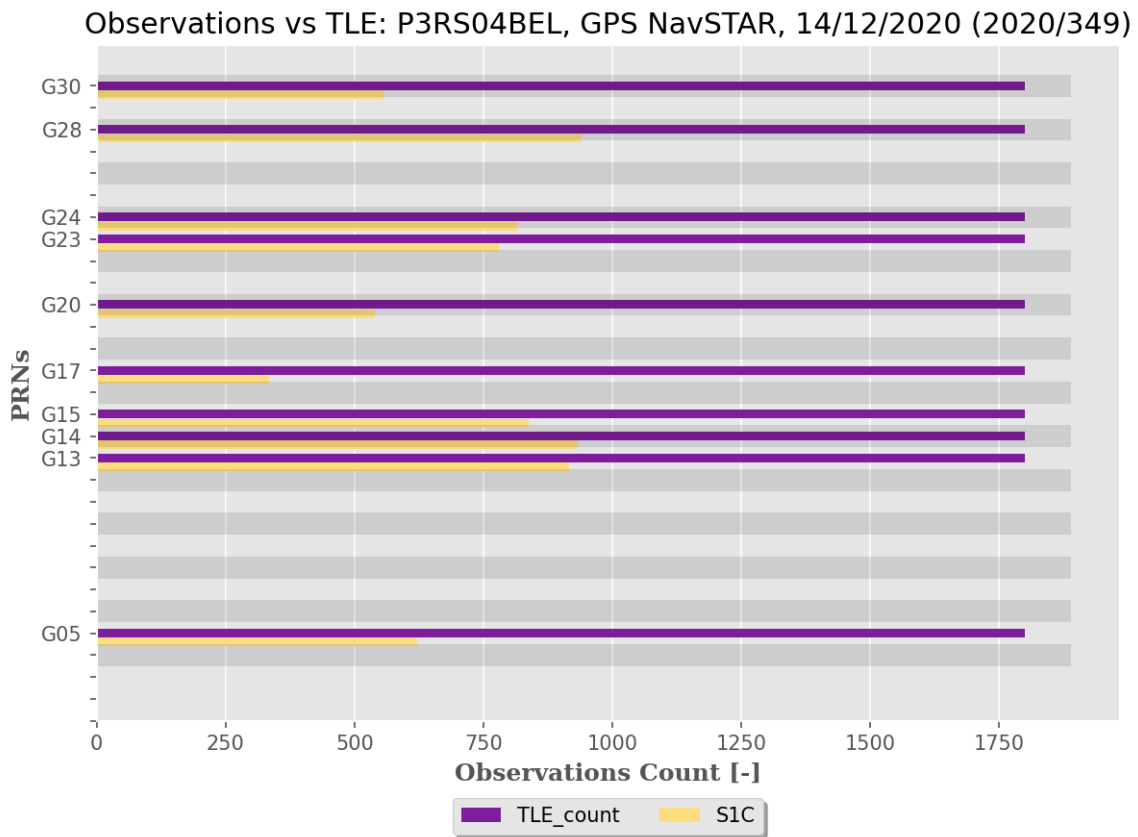
navigation signals : G1C

#### 3.3.1 Observables count per navigation signal

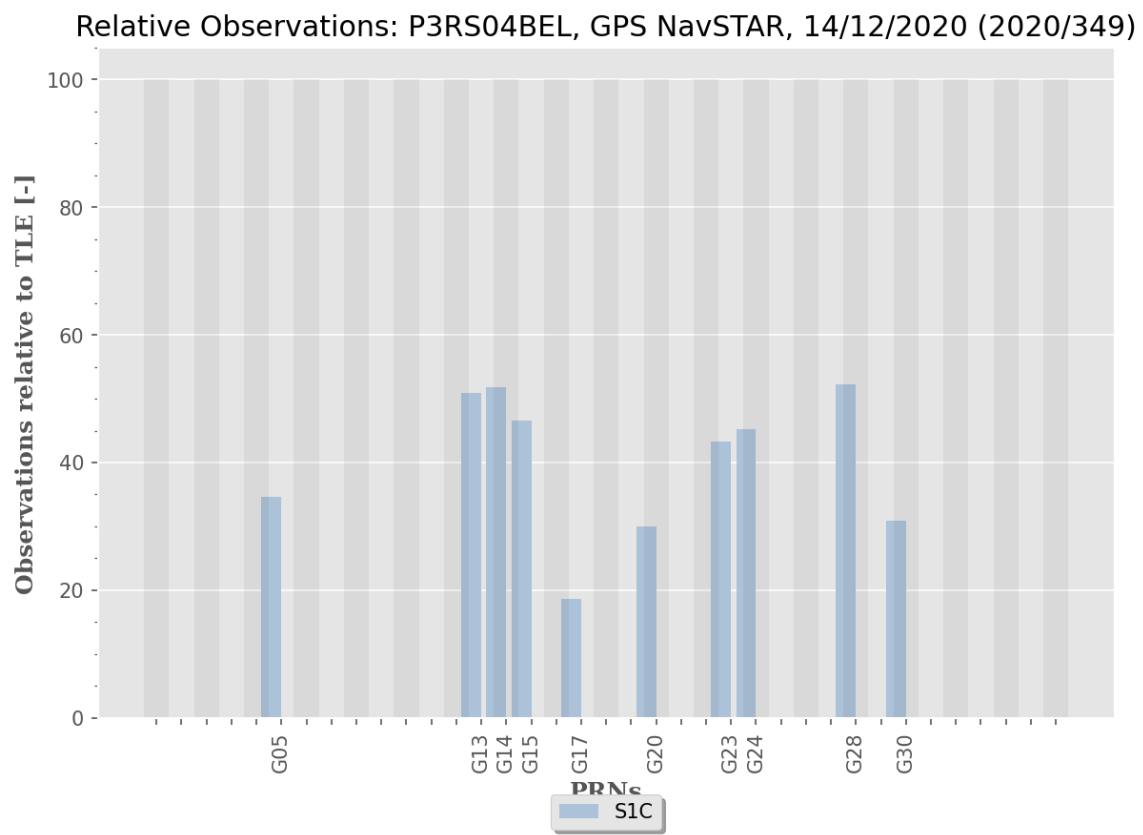
The following table represents the number of observations made for each examined navigation signal. The percentages per navigation signal are calculated by dividing by the number of observations obtained from Two Line Elements (TLE) at the recorded interval. The last column represents the number of observations possible during the observed time interval.

PRN	G1C		TLE_count
G05	622	34.6%	1799.0
G13	916	50.9%	1799.0
G14	933	51.9%	1799.0
G15	838	46.6%	1799.0
G17	334	18.6%	1799.0
G20	539	30.0%	1799.0
G23	780	43.4%	1799.0
G24	815	45.3%	1799.0
G28	941	52.3%	1799.0
G30	556	30.9%	1799.0

Figure 3 represents the absolute count of observables for each navigation signal set out against the maximum possible observations obtained from the TLEs. The relative observation count is represented in Figure 4.



**Figure 3:** Observables overview for GNSS GPS NavSTAR



**Figure 4:** Relative observation count per navigation signal for GNSS GPS NavSTAR

### 3.4 Detailed analysis of observation types per navigation signal for Galileo

Observation tabular file : P3RS04BEL\_R\_20203490000\_01D\_00U\_MO\_E.obstab

Examined satellites : E02, E03, E05, E08, E24, E25, E26

Examined navigation signals : 6A, 1A

Examined observables : S1A, S6A

#### 3.4.1 TLE time spans

The table below represents the calculated rise and set times within the observation time span for a PRN based on the TLEs. When a culmination is within this interval, it is represented in the table.

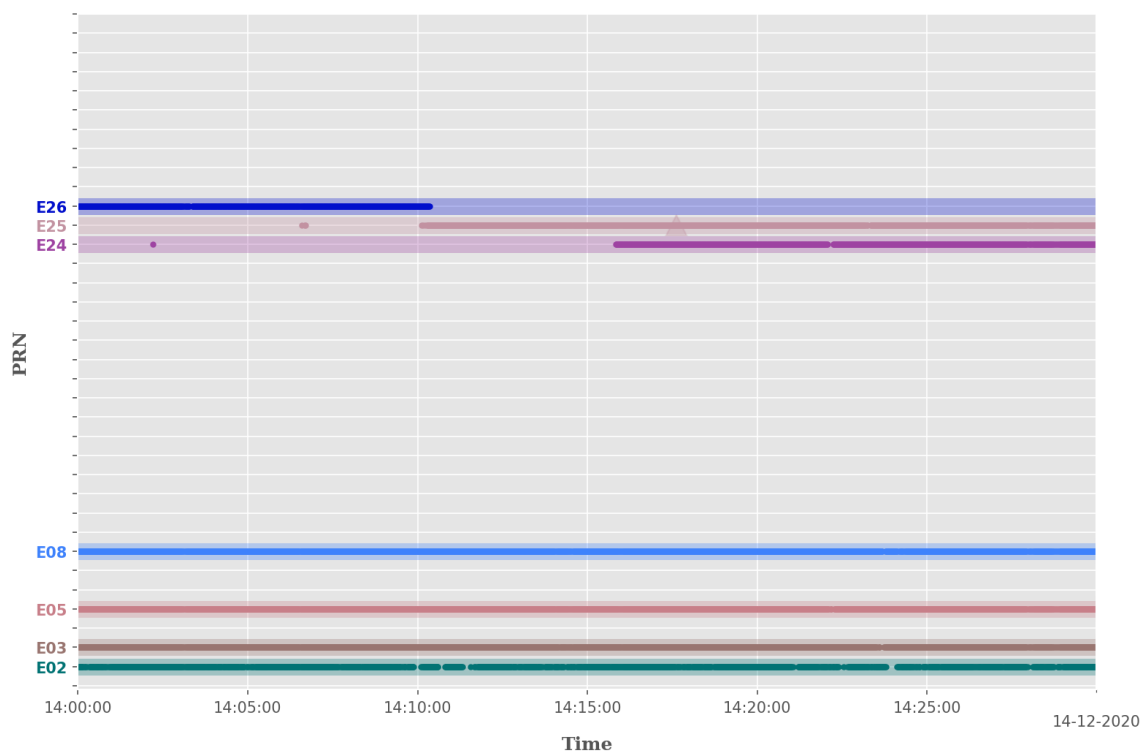
PRN	tle_rise	tle_set	tle_cul	tle_arc_count
E02	14:00:00	14:29:59		1799.0
E03	14:00:00	14:29:59		1799.0
E05	14:00:00	14:29:59		1799.0
E08	14:00:00	14:29:59		1799.0
E24	14:00:00	14:29:59		1799.0
E25	14:00:00	14:29:59	14:17:37	1799.0
E26	14:00:00	14:29:59		1799.0

#### 3.4.2 Navigation signals analysis for Galileo

## Analysis of navigation signal E6A

- Figure 5 represents the observed time span for navigation signal E6A set out against the maximum time span calculated from the Two Line Elements (TLE). If present, the culmination point for a satellite is represented by a triangle. The time span from TLEs is represented by the lighter area while the real observations are represented by the dark super-imposed areas.

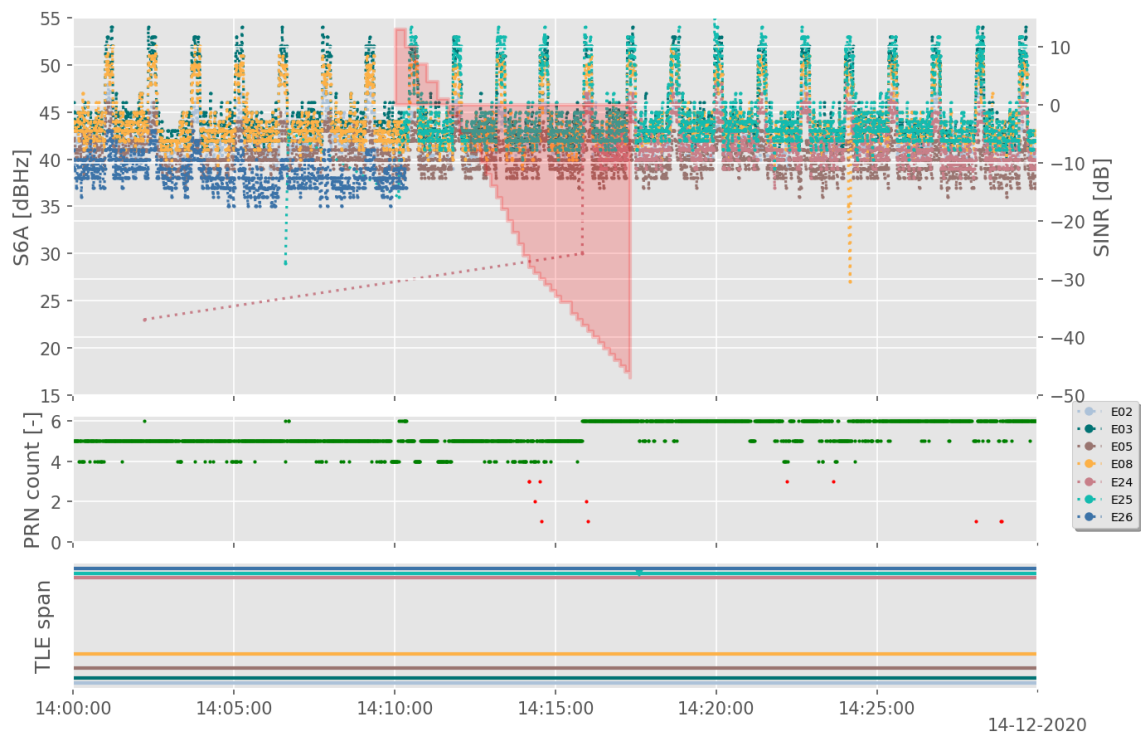
P3RS04BEL - E6A - 14/12/2020 (2020/349 - Obs vs TLE)



**Figure 5:** Navigation signal E6A versus TLE time span

- Figure 6 displays the evolution of observation type S6A. The upper plot represents the variation of the observation type while the middle plot (if available) displays the variation of this observable between 2 consecutive epochs. The bottom plot displays the TLE time spans for the satellites.

P3RS04BEL: S6A for E6A @ 14/12/2020 (2020/349)

**Figure 6:** Navigation signal S6A evolution

The table below reports the loss and reacquisition of PNT for observable S6A.

Navigation signal 6A					
DATE_TIME	event	type	duration	reacq	
2020-12-14 14:14:08.980085500	Loss	PNT	3.0	2020-12-14 14:14:11.980085500	
2020-12-14 14:14:20.980085500	Loss	PNT	2.0	2020-12-14 14:14:22.980085500	
2020-12-14 14:14:29.980085500	Loss	PNT	2.0	2020-12-14 14:14:31.980085500	
2020-12-14 14:14:31.980085500	Loss	PNT	2.0	2020-12-14 14:14:33.980085500	
2020-12-14 14:15:55.980085500	Loss	PNT	2.0	2020-12-14 14:15:57.980085500	
2020-12-14 14:15:58.980085500	Loss	PNT	2.0	2020-12-14 14:16:00.980085500	
2020-12-14 14:22:10.980085500	Loss	PNT	2.0	2020-12-14 14:22:12.980085500	
2020-12-14 14:23:36.980085500	Loss	PNT	2.0	2020-12-14 14:23:38.980085500	
2020-12-14 14:28:03.980085500	Loss	PNT	3.0	2020-12-14 14:28:06.980085500	
2020-12-14 14:28:49.980085500	Loss	PNT	2.0	2020-12-14 14:28:51.980085500	

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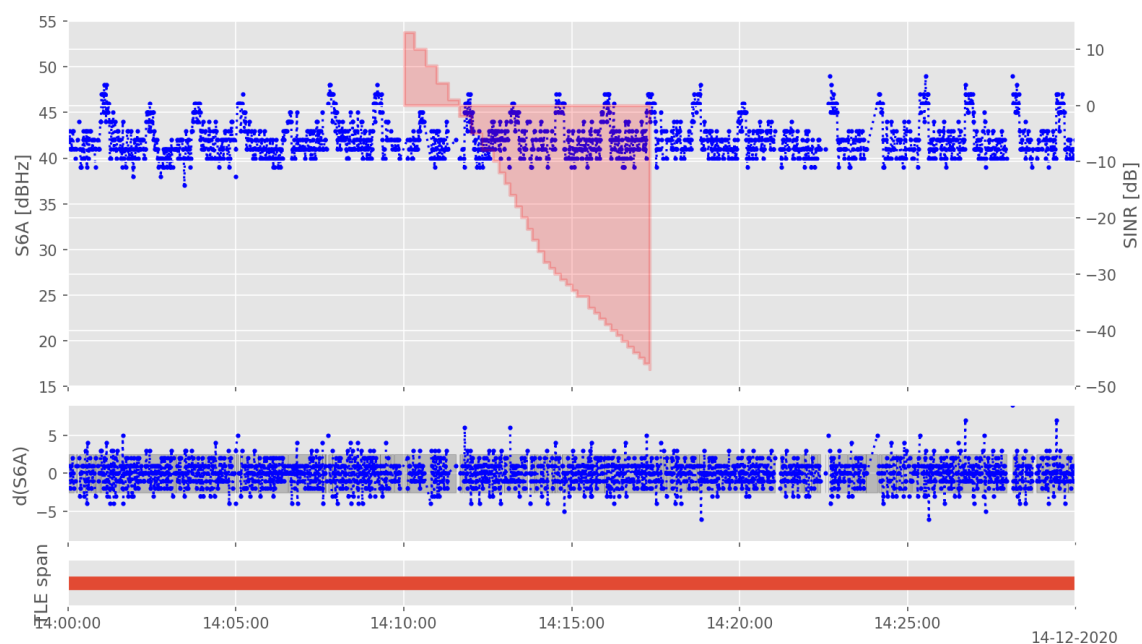
## Navigation signal 6A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:28:51.980085500	Loss	PNT	2.0	2020-12-14 14:28:53.980085500

## 3. Analysis of navigation signal E6A for each observed satellite.

ewline The following plots display the same information as described above per satellite. Each plot is accompanied by a table displaying the time of loss of lock and reacquisition of the satellite when such events are detected.

P3RS04BEL: S6A for E02 @ 14/12/2020 (2020/349)



## Navigation signal 6A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:00:08.980085500	Loss	E02	2.0	2020-12-14 14:00:10.980085500
2020-12-14 14:00:10.980085500	Loss	E02	2.0	2020-12-14 14:00:12.980085500
2020-12-14 14:00:13.980085500	Loss	E02	3.0	2020-12-14 14:00:16.980085500
2020-12-14 14:00:16.980085500	Loss	E02	3.0	2020-12-14 14:00:19.980085500
2020-12-14 14:00:28.980085500	Loss	E02	2.0	2020-12-14 14:00:30.980085500
2020-12-14 14:00:38.980085500	Loss	E02	2.0	2020-12-14 14:00:40.980085500
2020-12-14 14:00:43.980085500	Loss	E02	2.0	2020-12-14 14:00:45.980085500

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## Navigation signal 6A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:00:46.980085500	Loss	E02	2.0	2020-12-14 14:00:48.980085500
2020-12-14 14:00:49.980085500	Loss	E02	3.0	2020-12-14 14:00:52.980085500
2020-12-14 14:00:52.980085500	Loss	E02	2.0	2020-12-14 14:00:54.980085500
2020-12-14 14:00:55.980085500	Loss	E02	2.0	2020-12-14 14:00:57.980085500
2020-12-14 14:01:28.980085500	Loss	E02	2.0	2020-12-14 14:01:30.980085500
2020-12-14 14:03:04.980085500	Loss	E02	2.0	2020-12-14 14:03:06.980085500
2020-12-14 14:03:06.980085500	Loss	E02	2.0	2020-12-14 14:03:08.980085500
2020-12-14 14:03:09.980085500	Loss	E02	2.0	2020-12-14 14:03:11.980085500
2020-12-14 14:03:45.980085500	Loss	E02	2.0	2020-12-14 14:03:47.980085500
2020-12-14 14:04:03.980085500	Loss	E02	2.0	2020-12-14 14:04:05.980085500
2020-12-14 14:04:13.980085500	Loss	E02	2.0	2020-12-14 14:04:15.980085500
2020-12-14 14:04:19.980085500	Loss	E02	2.0	2020-12-14 14:04:21.980085500
2020-12-14 14:04:43.980085500	Loss	E02	2.0	2020-12-14 14:04:45.980085500
2020-12-14 14:04:53.980085500	Loss	E02	3.0	2020-12-14 14:04:56.980085500
2020-12-14 14:04:56.980085500	Loss	E02	2.0	2020-12-14 14:04:58.980085500
2020-12-14 14:04:59.980085500	Loss	E02	3.0	2020-12-14 14:05:02.980085500
2020-12-14 14:05:02.980085500	Loss	E02	2.0	2020-12-14 14:05:04.980085500
2020-12-14 14:05:04.980085500	Loss	E02	2.0	2020-12-14 14:05:06.980085500
2020-12-14 14:05:08.980085500	Loss	E02	2.0	2020-12-14 14:05:10.980085500
2020-12-14 14:05:10.980085500	Loss	E02	2.0	2020-12-14 14:05:12.980085500
2020-12-14 14:05:36.980085500	Loss	E02	2.0	2020-12-14 14:05:38.980085500
2020-12-14 14:06:30.980085500	Loss	E02	2.0	2020-12-14 14:06:32.980085500
2020-12-14 14:07:31.980085500	Loss	E02	2.0	2020-12-14 14:07:33.980085500
2020-12-14 14:07:36.980085500	Loss	E02	2.0	2020-12-14 14:07:38.980085500
2020-12-14 14:07:39.980085500	Loss	E02	2.0	2020-12-14 14:07:41.980085500
2020-12-14 14:07:41.980085500	Loss	E02	3.0	2020-12-14 14:07:44.980085500
2020-12-14 14:07:49.980085500	Loss	E02	2.0	2020-12-14 14:07:51.980085500
2020-12-14 14:08:18.980085500	Loss	E02	2.0	2020-12-14 14:08:20.980085500
2020-12-14 14:08:22.980085500	Loss	E02	2.0	2020-12-14 14:08:24.980085500
2020-12-14 14:08:32.980085500	Loss	E02	2.0	2020-12-14 14:08:34.980085500

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Navigation signal 6A				
DATE_TIME	event	type	duration	reacq
2020-12-14 14:09:14.980085500	Loss	E02	2.0	2020-12-14 14:09:16.980085500
2020-12-14 14:09:24.980085500	Loss	E02	2.0	2020-12-14 14:09:26.980085500
2020-12-14 14:09:29.980085500	Loss	E02	2.0	2020-12-14 14:09:31.980085500
2020-12-14 14:09:32.980085500	Loss	E02	3.0	2020-12-14 14:09:35.980085500
2020-12-14 14:09:38.980085500	Loss	E02	3.0	2020-12-14 14:09:41.980085500
2020-12-14 14:09:52.980085500	Loss	E02	13.0	2020-12-14 14:10:05.980085500
2020-12-14 14:10:06.980085500	Loss	E02	2.0	2020-12-14 14:10:08.980085500
2020-12-14 14:10:35.980085500	Loss	E02	12.0	2020-12-14 14:10:47.980085500
2020-12-14 14:11:18.980085500	Loss	E02	14.0	2020-12-14 14:11:32.980085500
2020-12-14 14:11:32.980085500	Loss	E02	7.0	2020-12-14 14:11:39.980085500
2020-12-14 14:11:40.980085500	Loss	E02	3.0	2020-12-14 14:11:43.980085500
2020-12-14 14:11:43.980085500	Loss	E02	2.0	2020-12-14 14:11:45.980085500
2020-12-14 14:12:45.980085500	Loss	E02	2.0	2020-12-14 14:12:47.980085500
2020-12-14 14:12:53.980085500	Loss	E02	3.0	2020-12-14 14:12:56.980085500
2020-12-14 14:12:56.980085500	Loss	E02	2.0	2020-12-14 14:12:58.980085500
2020-12-14 14:13:03.980085500	Loss	E02	2.0	2020-12-14 14:13:05.980085500
2020-12-14 14:13:06.980085500	Loss	E02	2.0	2020-12-14 14:13:08.980085500
2020-12-14 14:13:29.980085500	Loss	E02	2.0	2020-12-14 14:13:31.980085500
2020-12-14 14:13:37.980085500	Loss	E02	3.0	2020-12-14 14:13:40.980085500
2020-12-14 14:13:40.980085500	Loss	E02	4.0	2020-12-14 14:13:44.980085500
2020-12-14 14:13:50.980085500	Loss	E02	2.0	2020-12-14 14:13:52.980085500
2020-12-14 14:13:53.980085500	Loss	E02	2.0	2020-12-14 14:13:55.980085500
2020-12-14 14:13:56.980085500	Loss	E02	3.0	2020-12-14 14:13:59.980085500
2020-12-14 14:13:59.980085500	Loss	E02	2.0	2020-12-14 14:14:01.980085500
2020-12-14 14:14:08.980085500	Loss	E02	3.0	2020-12-14 14:14:11.980085500
2020-12-14 14:14:12.980085500	Loss	E02	2.0	2020-12-14 14:14:14.980085500
2020-12-14 14:14:17.980085500	Loss	E02	6.0	2020-12-14 14:14:23.980085500
2020-12-14 14:14:25.980085500	Loss	E02	3.0	2020-12-14 14:14:28.980085500
2020-12-14 14:14:31.980085500	Loss	E02	2.0	2020-12-14 14:14:33.980085500
2020-12-14 14:14:36.980085500	Loss	E02	3.0	2020-12-14 14:14:39.980085500

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## Navigation signal 6A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:14:39.980085500	Loss	E02	2.0	2020-12-14 14:14:41.980085500
2020-12-14 14:14:49.980085500	Loss	E02	2.0	2020-12-14 14:14:51.980085500
2020-12-14 14:15:38.980085500	Loss	E02	2.0	2020-12-14 14:15:40.980085500
2020-12-14 14:15:55.980085500	Loss	E02	2.0	2020-12-14 14:15:57.980085500
2020-12-14 14:15:58.980085500	Loss	E02	2.0	2020-12-14 14:16:00.980085500
2020-12-14 14:17:34.980085500	Loss	E02	3.0	2020-12-14 14:17:37.980085500
2020-12-14 14:17:40.980085500	Loss	E02	2.0	2020-12-14 14:17:42.980085500
2020-12-14 14:17:43.980085500	Loss	E02	4.0	2020-12-14 14:17:47.980085500
2020-12-14 14:17:51.980085500	Loss	E02	3.0	2020-12-14 14:17:54.980085500
2020-12-14 14:18:01.980085500	Loss	E02	3.0	2020-12-14 14:18:04.980085500
2020-12-14 14:18:21.980085500	Loss	E02	2.0	2020-12-14 14:18:23.980085500
2020-12-14 14:18:23.980085500	Loss	E02	2.0	2020-12-14 14:18:25.980085500
2020-12-14 14:18:38.980085500	Loss	E02	4.0	2020-12-14 14:18:42.980085500
2020-12-14 14:18:44.980085500	Loss	E02	2.0	2020-12-14 14:18:46.980085500
2020-12-14 14:21:00.980085500	Loss	E02	2.0	2020-12-14 14:21:02.980085500
2020-12-14 14:21:02.980085500	Loss	E02	9.0	2020-12-14 14:21:11.980085500
2020-12-14 14:21:46.980085500	Loss	E02	2.0	2020-12-14 14:21:48.980085500
2020-12-14 14:21:48.980085500	Loss	E02	2.0	2020-12-14 14:21:50.980085500
2020-12-14 14:21:51.980085500	Loss	E02	2.0	2020-12-14 14:21:53.980085500
2020-12-14 14:22:02.980085500	Loss	E02	2.0	2020-12-14 14:22:04.980085500
2020-12-14 14:22:04.980085500	Loss	E02	2.0	2020-12-14 14:22:06.980085500
2020-12-14 14:22:09.980085500	Loss	E02	3.0	2020-12-14 14:22:12.980085500
2020-12-14 14:22:15.980085500	Loss	E02	2.0	2020-12-14 14:22:17.980085500
2020-12-14 14:22:21.980085500	Loss	E02	2.0	2020-12-14 14:22:23.980085500
2020-12-14 14:22:23.980085500	Loss	E02	9.0	2020-12-14 14:22:32.980085500
2020-12-14 14:22:32.980085500	Loss	E02	6.0	2020-12-14 14:22:38.980085500
2020-12-14 14:22:38.980085500	Loss	E02	2.0	2020-12-14 14:22:40.980085500
2020-12-14 14:23:09.980085500	Loss	E02	2.0	2020-12-14 14:23:11.980085500
2020-12-14 14:23:16.980085500	Loss	E02	3.0	2020-12-14 14:23:19.980085500
2020-12-14 14:23:22.980085500	Loss	E02	2.0	2020-12-14 14:23:24.980085500

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Navigation signal 6A				
DATE_TIME	event	type	duration	reacq
2020-12-14 14:23:26.980085500	Loss	E02	2.0	2020-12-14 14:23:28.980085500
2020-12-14 14:23:36.980085500	Loss	E02	2.0	2020-12-14 14:23:38.980085500
2020-12-14 14:23:42.980085500	Loss	E02	2.0	2020-12-14 14:23:44.980085500
2020-12-14 14:23:46.980085500	Loss	E02	19.0	2020-12-14 14:24:05.980085500
2020-12-14 14:24:05.980085500	Loss	E02	2.0	2020-12-14 14:24:07.980085500
2020-12-14 14:24:10.980085500	Loss	E02	2.0	2020-12-14 14:24:12.980085500
2020-12-14 14:24:17.980085500	Loss	E02	2.0	2020-12-14 14:24:19.980085500
2020-12-14 14:24:24.980085500	Loss	E02	2.0	2020-12-14 14:24:26.980085500
2020-12-14 14:24:30.980085500	Loss	E02	2.0	2020-12-14 14:24:32.980085500
2020-12-14 14:24:35.980085500	Loss	E02	3.0	2020-12-14 14:24:38.980085500
2020-12-14 14:24:39.980085500	Loss	E02	2.0	2020-12-14 14:24:41.980085500
2020-12-14 14:24:42.980085500	Loss	E02	2.0	2020-12-14 14:24:44.980085500
2020-12-14 14:24:46.980085500	Loss	E02	5.0	2020-12-14 14:24:51.980085500
2020-12-14 14:24:57.980085500	Loss	E02	3.0	2020-12-14 14:25:00.980085500
2020-12-14 14:25:00.980085500	Loss	E02	2.0	2020-12-14 14:25:02.980085500
2020-12-14 14:25:04.980085500	Loss	E02	2.0	2020-12-14 14:25:06.980085500
2020-12-14 14:25:19.980085500	Loss	E02	2.0	2020-12-14 14:25:21.980085500
2020-12-14 14:25:21.980085500	Loss	E02	2.0	2020-12-14 14:25:23.980085500
2020-12-14 14:26:21.980085500	Loss	E02	2.0	2020-12-14 14:26:23.980085500
2020-12-14 14:26:24.980085500	Loss	E02	2.0	2020-12-14 14:26:26.980085500
2020-12-14 14:26:27.980085500	Loss	E02	2.0	2020-12-14 14:26:29.980085500
2020-12-14 14:26:34.980085500	Loss	E02	2.0	2020-12-14 14:26:36.980085500
2020-12-14 14:27:11.980085500	Loss	E02	2.0	2020-12-14 14:27:13.980085500
2020-12-14 14:27:13.980085500	Loss	E02	2.0	2020-12-14 14:27:15.980085500
2020-12-14 14:27:54.980085500	Loss	E02	2.0	2020-12-14 14:27:56.980085500
2020-12-14 14:27:56.980085500	Loss	E02	10.0	2020-12-14 14:28:06.980085500
2020-12-14 14:28:08.980085500	Loss	E02	2.0	2020-12-14 14:28:10.980085500
2020-12-14 14:28:15.980085500	Loss	E02	2.0	2020-12-14 14:28:17.980085500
2020-12-14 14:28:24.980085500	Loss	E02	2.0	2020-12-14 14:28:26.980085500
2020-12-14 14:28:26.980085500	Loss	E02	2.0	2020-12-14 14:28:28.980085500

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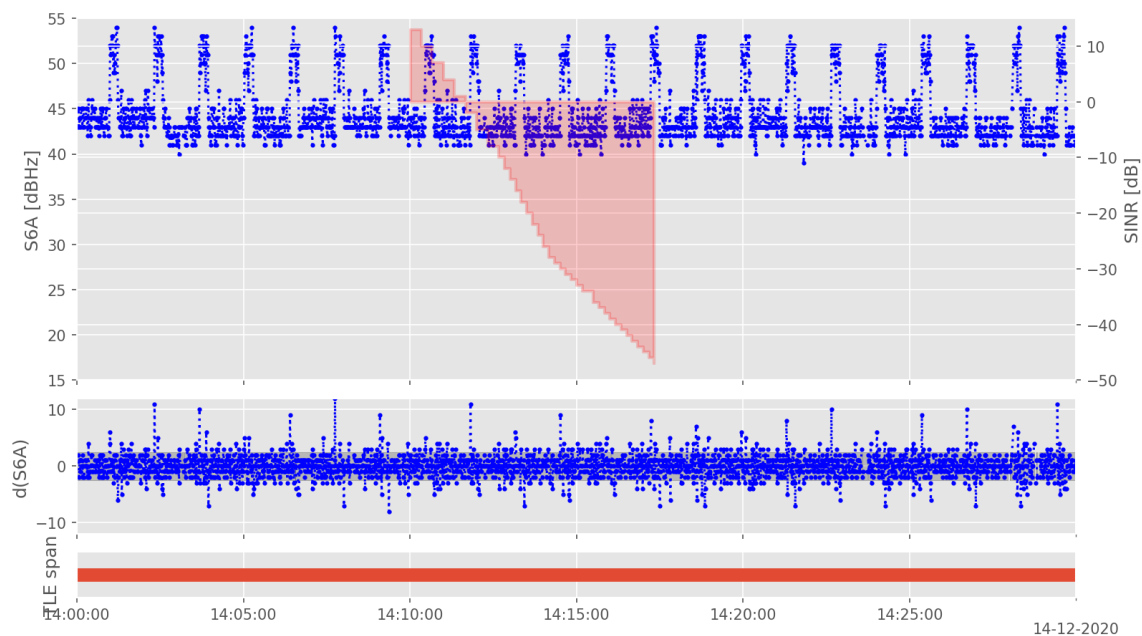
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## Navigation signal 6A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:28:41.980085500	Loss	E02	2.0	2020-12-14 14:28:43.980085500
2020-12-14 14:28:43.980085500	Loss	E02	6.0	2020-12-14 14:28:49.980085500
2020-12-14 14:28:54.980085500	Loss	E02	4.0	2020-12-14 14:28:58.980085500
2020-12-14 14:28:59.980085500	Loss	E02	2.0	2020-12-14 14:29:01.980085500
2020-12-14 14:29:09.980085500	Loss	E02	2.0	2020-12-14 14:29:11.980085500
2020-12-14 14:29:43.980085500	Loss	E02	2.0	2020-12-14 14:29:45.980085500

P3RS04BEL: S6A for E03 @ 14/12/2020 (2020/349)



## Navigation signal 6A

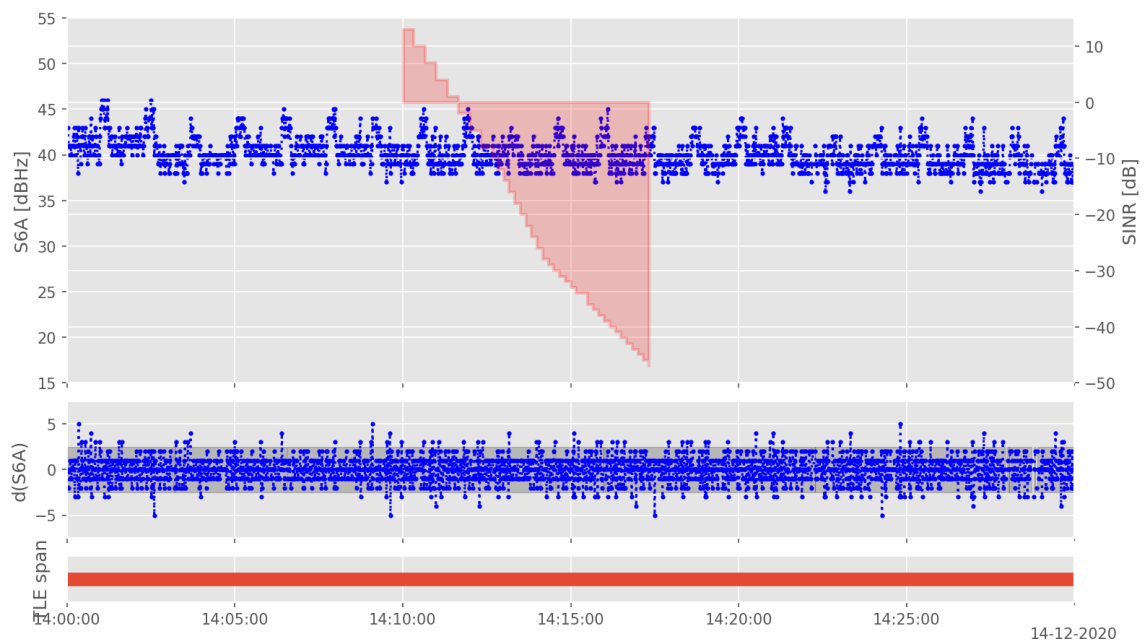
DATE_TIME	event	type	duration	reacq
2020-12-14 14:03:04.980085500	Loss	E03	2.0	2020-12-14 14:03:06.980085500
2020-12-14 14:03:06.980085500	Loss	E03	2.0	2020-12-14 14:03:08.980085500
2020-12-14 14:03:09.980085500	Loss	E03	2.0	2020-12-14 14:03:11.980085500
2020-12-14 14:06:30.980085500	Loss	E03	2.0	2020-12-14 14:06:32.980085500
2020-12-14 14:14:08.980085500	Loss	E03	3.0	2020-12-14 14:14:11.980085500

Continued on Next Page

## Navigation signal 6A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:14:20.980085500	Loss	E03	2.0	2020-12-14 14:14:22.980085500
2020-12-14 14:14:25.980085500	Loss	E03	2.0	2020-12-14 14:14:27.980085500
2020-12-14 14:14:31.980085500	Loss	E03	2.0	2020-12-14 14:14:33.980085500
2020-12-14 14:15:58.980085500	Loss	E03	2.0	2020-12-14 14:16:00.980085500
2020-12-14 14:23:30.980085500	Loss	E03	3.0	2020-12-14 14:23:33.980085500
2020-12-14 14:23:35.980085500	Loss	E03	8.0	2020-12-14 14:23:43.980085500
2020-12-14 14:27:54.980085500	Loss	E03	2.0	2020-12-14 14:27:56.980085500
2020-12-14 14:27:56.980085500	Loss	E03	3.0	2020-12-14 14:27:59.980085500
2020-12-14 14:28:00.980085500	Loss	E03	2.0	2020-12-14 14:28:02.980085500
2020-12-14 14:28:03.980085500	Loss	E03	3.0	2020-12-14 14:28:06.980085500
2020-12-14 14:28:41.980085500	Loss	E03	2.0	2020-12-14 14:28:43.980085500
2020-12-14 14:28:43.980085500	Loss	E03	3.0	2020-12-14 14:28:46.980085500
2020-12-14 14:28:47.980085500	Loss	E03	2.0	2020-12-14 14:28:49.980085500
2020-12-14 14:28:49.980085500	Loss	E03	2.0	2020-12-14 14:28:51.980085500
2020-12-14 14:28:51.980085500	Loss	E03	2.0	2020-12-14 14:28:53.980085500

P3RS04BEL: S6A for E05 @ 14/12/2020 (2020/349)

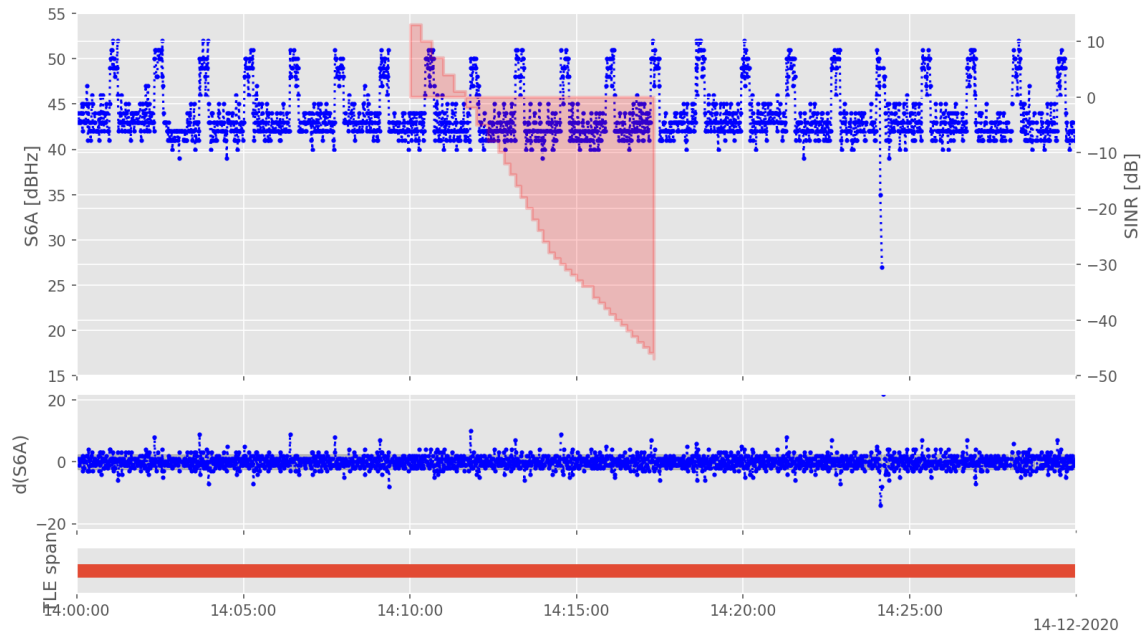


## Navigation signal 6A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:03:04.980085500	Loss	E05	2.0	2020-12-14 14:03:06.980085500
2020-12-14 14:03:06.980085500	Loss	E05	2.0	2020-12-14 14:03:08.980085500
2020-12-14 14:03:09.980085500	Loss	E05	2.0	2020-12-14 14:03:11.980085500
2020-12-14 14:06:30.980085500	Loss	E05	2.0	2020-12-14 14:06:32.980085500
2020-12-14 14:09:51.980085500	Loss	E05	2.0	2020-12-14 14:09:53.980085500
2020-12-14 14:14:02.980085500	Loss	E05	2.0	2020-12-14 14:14:04.980085500
2020-12-14 14:14:25.980085500	Loss	E05	2.0	2020-12-14 14:14:27.980085500
2020-12-14 14:14:29.980085500	Loss	E05	2.0	2020-12-14 14:14:31.980085500
2020-12-14 14:15:55.980085500	Loss	E05	2.0	2020-12-14 14:15:57.980085500
2020-12-14 14:15:58.980085500	Loss	E05	2.0	2020-12-14 14:16:00.980085500
2020-12-14 14:22:05.980085500	Loss	E05	3.0	2020-12-14 14:22:08.980085500
2020-12-14 14:22:10.980085500	Loss	E05	5.0	2020-12-14 14:22:15.980085500
2020-12-14 14:27:54.980085500	Loss	E05	2.0	2020-12-14 14:27:56.980085500
2020-12-14 14:27:56.980085500	Loss	E05	3.0	2020-12-14 14:27:59.980085500
2020-12-14 14:28:00.980085500	Loss	E05	2.0	2020-12-14 14:28:02.980085500
2020-12-14 14:28:04.980085500	Loss	E05	2.0	2020-12-14 14:28:06.980085500
2020-12-14 14:28:41.980085500	Loss	E05	2.0	2020-12-14 14:28:43.980085500
2020-12-14 14:28:43.980085500	Loss	E05	3.0	2020-12-14 14:28:46.980085500
2020-12-14 14:28:47.980085500	Loss	E05	2.0	2020-12-14 14:28:49.980085500
2020-12-14 14:28:49.980085500	Loss	E05	2.0	2020-12-14 14:28:51.980085500
2020-12-14 14:28:51.980085500	Loss	E05	2.0	2020-12-14 14:28:53.980085500



P3RS04BEL: S6A for E08 @ 14/12/2020 (2020/349)



## Navigation signal 6A

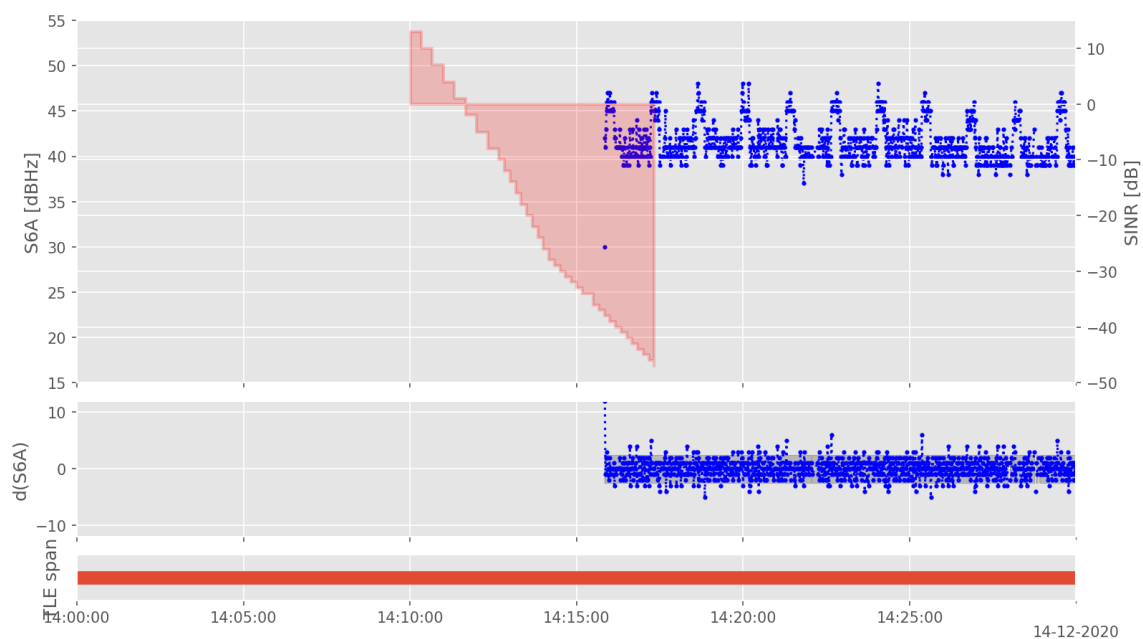
DATE_TIME	event	type	duration	reacq
2020-12-14 14:03:04.980085500	Loss	E08	2.0	2020-12-14 14:03:06.980085500
2020-12-14 14:03:06.980085500	Loss	E08	2.0	2020-12-14 14:03:08.980085500
2020-12-14 14:03:09.980085500	Loss	E08	2.0	2020-12-14 14:03:11.980085500
2020-12-14 14:06:30.980085500	Loss	E08	2.0	2020-12-14 14:06:32.980085500
2020-12-14 14:14:01.980085500	Loss	E08	2.0	2020-12-14 14:14:03.980085500
2020-12-14 14:14:03.980085500	Loss	E08	2.0	2020-12-14 14:14:05.980085500
2020-12-14 14:14:25.980085500	Loss	E08	2.0	2020-12-14 14:14:27.980085500
2020-12-14 14:14:29.980085500	Loss	E08	2.0	2020-12-14 14:14:31.980085500
2020-12-14 14:14:31.980085500	Loss	E08	2.0	2020-12-14 14:14:33.980085500
2020-12-14 14:15:55.980085500	Loss	E08	2.0	2020-12-14 14:15:57.980085500
2020-12-14 14:15:58.980085500	Loss	E08	2.0	2020-12-14 14:16:00.980085500
2020-12-14 14:23:36.980085500	Loss	E08	2.0	2020-12-14 14:23:38.980085500
2020-12-14 14:23:40.980085500	Loss	E08	5.0	2020-12-14 14:23:45.980085500
2020-12-14 14:24:06.980085500	Loss	E08	3.0	2020-12-14 14:24:09.980085500

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## Navigation signal 6A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:24:09.980085500	Loss	E08	2.0	2020-12-14 14:24:11.980085500
2020-12-14 14:24:16.980085500	Loss	E08	3.0	2020-12-14 14:24:19.980085500
2020-12-14 14:27:54.980085500	Loss	E08	2.0	2020-12-14 14:27:56.980085500
2020-12-14 14:27:56.980085500	Loss	E08	3.0	2020-12-14 14:27:59.980085500
2020-12-14 14:28:00.980085500	Loss	E08	2.0	2020-12-14 14:28:02.980085500
2020-12-14 14:28:03.980085500	Loss	E08	3.0	2020-12-14 14:28:06.980085500
2020-12-14 14:28:41.980085500	Loss	E08	2.0	2020-12-14 14:28:43.980085500
2020-12-14 14:28:43.980085500	Loss	E08	3.0	2020-12-14 14:28:46.980085500
2020-12-14 14:28:47.980085500	Loss	E08	2.0	2020-12-14 14:28:49.980085500
2020-12-14 14:28:49.980085500	Loss	E08	2.0	2020-12-14 14:28:51.980085500
2020-12-14 14:28:51.980085500	Loss	E08	2.0	2020-12-14 14:28:53.980085500

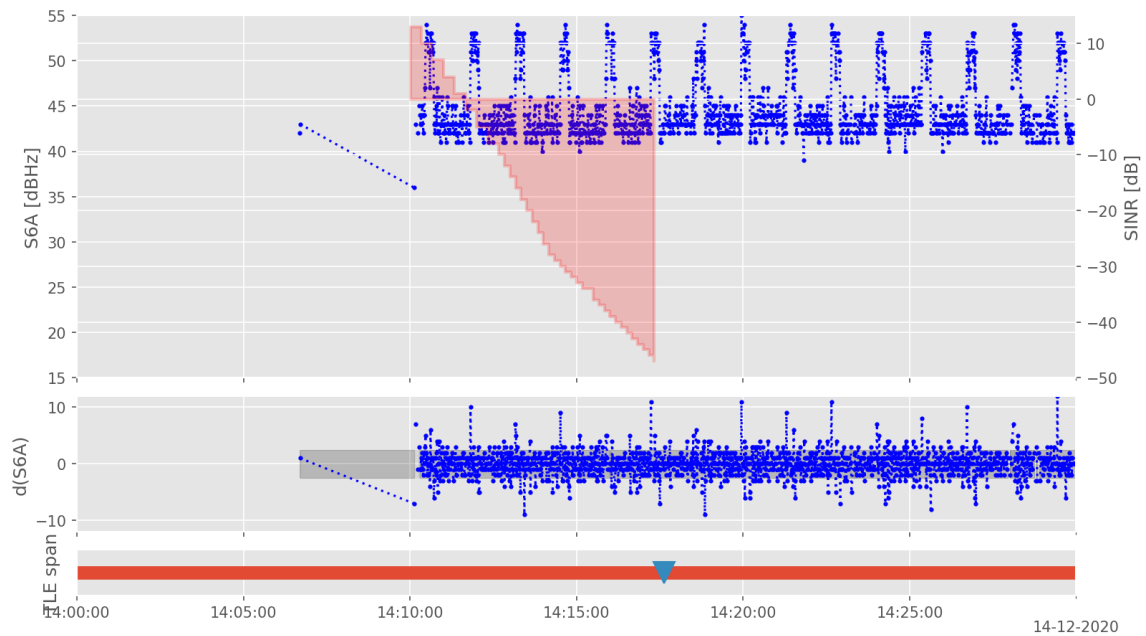
P3RS04BEL: S6A for E24 @ 14/12/2020 (2020/349)



## Navigation signal 6A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:02:11.980085500	Loss	E24	818.0	2020-12-14 14:15:49.980085500
2020-12-14 14:21:59.980085500	Loss	E24	2.0	2020-12-14 14:22:01.980085500
2020-12-14 14:22:03.980085500	Loss	E24	10.0	2020-12-14 14:22:13.980085500
2020-12-14 14:27:54.980085500	Loss	E24	2.0	2020-12-14 14:27:56.980085500
2020-12-14 14:27:56.980085500	Loss	E24	3.0	2020-12-14 14:27:59.980085500
2020-12-14 14:28:00.980085500	Loss	E24	2.0	2020-12-14 14:28:02.980085500
2020-12-14 14:28:03.980085500	Loss	E24	3.0	2020-12-14 14:28:06.980085500
2020-12-14 14:28:41.980085500	Loss	E24	2.0	2020-12-14 14:28:43.980085500
2020-12-14 14:28:43.980085500	Loss	E24	3.0	2020-12-14 14:28:46.980085500
2020-12-14 14:28:47.980085500	Loss	E24	2.0	2020-12-14 14:28:49.980085500
2020-12-14 14:28:49.980085500	Loss	E24	2.0	2020-12-14 14:28:51.980085500
2020-12-14 14:28:51.980085500	Loss	E24	2.0	2020-12-14 14:28:53.980085500

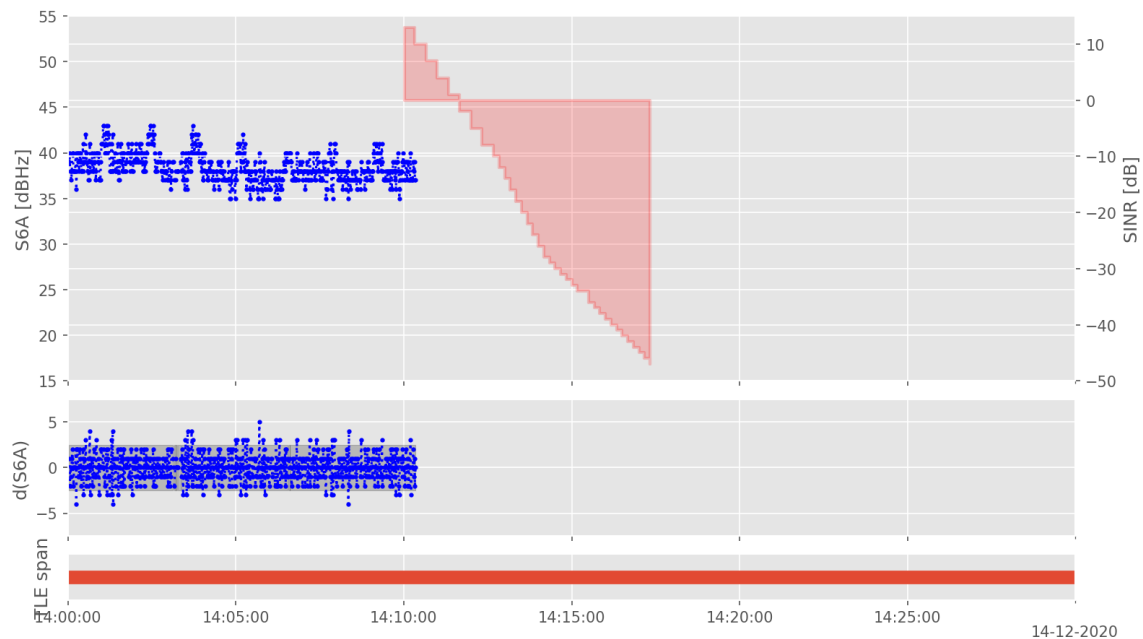
P3RS04BEL: S6A for E25 @ 14/12/2020 (2020/349)



## Navigation signal 6A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:06:35.980085500	Loss	E25	5.0	2020-12-14 14:06:40.980085500
2020-12-14 14:06:41.980085500	Loss	E25	205.0	2020-12-14 14:10:06.980085500
2020-12-14 14:10:06.980085500	Loss	E25	3.0	2020-12-14 14:10:09.980085500
2020-12-14 14:10:09.980085500	Loss	E25	4.0	2020-12-14 14:10:13.980085500
2020-12-14 14:10:13.980085500	Loss	E25	3.0	2020-12-14 14:10:16.980085500
2020-12-14 14:14:20.980085500	Loss	E25	2.0	2020-12-14 14:14:22.980085500
2020-12-14 14:14:25.980085500	Loss	E25	2.0	2020-12-14 14:14:27.980085500
2020-12-14 14:14:31.980085500	Loss	E25	2.0	2020-12-14 14:14:33.980085500
2020-12-14 14:15:55.980085500	Loss	E25	2.0	2020-12-14 14:15:57.980085500
2020-12-14 14:15:58.980085500	Loss	E25	2.0	2020-12-14 14:16:00.980085500
2020-12-14 14:23:09.980085500	Loss	E25	3.0	2020-12-14 14:23:12.980085500
2020-12-14 14:23:14.980085500	Loss	E25	5.0	2020-12-14 14:23:19.980085500
2020-12-14 14:27:54.980085500	Loss	E25	2.0	2020-12-14 14:27:56.980085500
2020-12-14 14:27:56.980085500	Loss	E25	3.0	2020-12-14 14:27:59.980085500
2020-12-14 14:28:00.980085500	Loss	E25	2.0	2020-12-14 14:28:02.980085500
2020-12-14 14:28:03.980085500	Loss	E25	3.0	2020-12-14 14:28:06.980085500
2020-12-14 14:28:41.980085500	Loss	E25	2.0	2020-12-14 14:28:43.980085500
2020-12-14 14:28:43.980085500	Loss	E25	3.0	2020-12-14 14:28:46.980085500
2020-12-14 14:28:47.980085500	Loss	E25	2.0	2020-12-14 14:28:49.980085500
2020-12-14 14:28:49.980085500	Loss	E25	2.0	2020-12-14 14:28:51.980085500
2020-12-14 14:28:51.980085500	Loss	E25	2.0	2020-12-14 14:28:53.980085500

P3RS04BEL: S6A for E26 @ 14/12/2020 (2020/349)



## Navigation signal 6A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:03:04.980085500	Loss	E26	2.0	2020-12-14 14:03:06.980085500
2020-12-14 14:03:06.980085500	Loss	E26	2.0	2020-12-14 14:03:08.980085500
2020-12-14 14:03:09.980085500	Loss	E26	2.0	2020-12-14 14:03:11.980085500
2020-12-14 14:03:12.980085500	Loss	E26	2.0	2020-12-14 14:03:14.980085500
2020-12-14 14:03:16.980085500	Loss	E26	5.0	2020-12-14 14:03:21.980085500
2020-12-14 14:06:30.980085500	Loss	E26	2.0	2020-12-14 14:06:32.980085500
2020-12-14 14:06:33.980085500	Loss	E26	2.0	2020-12-14 14:06:35.980085500

## 4. Chronological overview of detected events for navigation signal E6A

## Navigation signal 6A

DATE_TIME	event	type	duration
2020-12-14 14:00:08.980085500	Loss	E02	2.0
2020-12-14 14:00:10.980085500	Reacquisition	E02	nan
2020-12-14 14:00:10.980085500	Loss	E02	2.0

Continued on Next Page

## Navigation signal 6A

DATE_TIME	event	type	duration
2020-12-14 14:00:12.980085500	Reacquisition	E02	nan
2020-12-14 14:00:13.980085500	Loss	E02	3.0
2020-12-14 14:00:16.980085500	Reacquisition	E02	nan
2020-12-14 14:00:16.980085500	Loss	E02	3.0
2020-12-14 14:00:19.980085500	Reacquisition	E02	nan
2020-12-14 14:00:28.980085500	Loss	E02	2.0
2020-12-14 14:00:30.980085500	Reacquisition	E02	nan
2020-12-14 14:00:38.980085500	Loss	E02	2.0
2020-12-14 14:00:40.980085500	Reacquisition	E02	nan
2020-12-14 14:00:43.980085500	Loss	E02	2.0
2020-12-14 14:00:45.980085500	Reacquisition	E02	nan
2020-12-14 14:00:46.980085500	Loss	E02	2.0
2020-12-14 14:00:48.980085500	Reacquisition	E02	nan
2020-12-14 14:00:49.980085500	Loss	E02	3.0
2020-12-14 14:00:52.980085500	Loss	E02	2.0
2020-12-14 14:00:52.980085500	Reacquisition	E02	nan
2020-12-14 14:00:54.980085500	Reacquisition	E02	nan
2020-12-14 14:00:55.980085500	Loss	E02	2.0
2020-12-14 14:00:57.980085500	Reacquisition	E02	nan
2020-12-14 14:01:28.980085500	Loss	E02	2.0
2020-12-14 14:01:30.980085500	Reacquisition	E02	nan
2020-12-14 14:02:11.980085500	Loss	E24	818.0
2020-12-14 14:03:04.980085500	Loss	E08	2.0
2020-12-14 14:03:04.980085500	Loss	E02	2.0
2020-12-14 14:03:04.980085500	Loss	E05	2.0
2020-12-14 14:03:04.980085500	Loss	E03	2.0
2020-12-14 14:03:04.980085500	Loss	E26	2.0
2020-12-14 14:03:06.980085500	Loss	E26	2.0
2020-12-14 14:03:06.980085500	Loss	E05	2.0
2020-12-14 14:03:06.980085500	Reacquisition	E02	nan

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DATE_TIME	event	type	duration
2020-12-14 14:03:06.980085500	Reacquisition	E26	nan
2020-12-14 14:03:06.980085500	Loss	E02	2.0
2020-12-14 14:03:06.980085500	Loss	E03	2.0
2020-12-14 14:03:06.980085500	Loss	E08	2.0
2020-12-14 14:03:06.980085500	Reacquisition	E08	nan
2020-12-14 14:03:06.980085500	Reacquisition	E03	nan
2020-12-14 14:03:06.980085500	Reacquisition	E05	nan
2020-12-14 14:03:08.980085500	Reacquisition	E03	nan
2020-12-14 14:03:08.980085500	Reacquisition	E05	nan
2020-12-14 14:03:08.980085500	Reacquisition	E08	nan
2020-12-14 14:03:08.980085500	Reacquisition	E26	nan
2020-12-14 14:03:08.980085500	Reacquisition	E02	nan
2020-12-14 14:03:09.980085500	Loss	E02	2.0
2020-12-14 14:03:09.980085500	Loss	E26	2.0
2020-12-14 14:03:09.980085500	Loss	E03	2.0
2020-12-14 14:03:09.980085500	Loss	E08	2.0
2020-12-14 14:03:09.980085500	Loss	E05	2.0
2020-12-14 14:03:11.980085500	Reacquisition	E26	nan
2020-12-14 14:03:11.980085500	Reacquisition	E08	nan
2020-12-14 14:03:11.980085500	Reacquisition	E02	nan
2020-12-14 14:03:11.980085500	Reacquisition	E05	nan
2020-12-14 14:03:11.980085500	Reacquisition	E03	nan
2020-12-14 14:03:12.980085500	Loss	E26	2.0
2020-12-14 14:03:14.980085500	Reacquisition	E26	nan
2020-12-14 14:03:16.980085500	Loss	E26	5.0
2020-12-14 14:03:21.980085500	Reacquisition	E26	nan
2020-12-14 14:03:45.980085500	Loss	E02	2.0
2020-12-14 14:03:47.980085500	Reacquisition	E02	nan
2020-12-14 14:04:03.980085500	Loss	E02	2.0
2020-12-14 14:04:05.980085500	Reacquisition	E02	nan

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## Navigation signal 6A

DATE_TIME	event	type	duration
2020-12-14 14:04:13.980085500	Loss	E02	2.0
2020-12-14 14:04:15.980085500	Reacquisition	E02	nan
2020-12-14 14:04:19.980085500	Loss	E02	2.0
2020-12-14 14:04:21.980085500	Reacquisition	E02	nan
2020-12-14 14:04:43.980085500	Loss	E02	2.0
2020-12-14 14:04:45.980085500	Reacquisition	E02	nan
2020-12-14 14:04:53.980085500	Loss	E02	3.0
2020-12-14 14:04:56.980085500	Loss	E02	2.0
2020-12-14 14:04:56.980085500	Reacquisition	E02	nan
2020-12-14 14:04:58.980085500	Reacquisition	E02	nan
2020-12-14 14:04:59.980085500	Loss	E02	3.0
2020-12-14 14:05:02.980085500	Loss	E02	2.0
2020-12-14 14:05:02.980085500	Reacquisition	E02	nan
2020-12-14 14:05:04.980085500	Loss	E02	2.0
2020-12-14 14:05:04.980085500	Reacquisition	E02	nan
2020-12-14 14:05:06.980085500	Reacquisition	E02	nan
2020-12-14 14:05:08.980085500	Loss	E02	2.0
2020-12-14 14:05:10.980085500	Loss	E02	2.0
2020-12-14 14:05:10.980085500	Reacquisition	E02	nan
2020-12-14 14:05:12.980085500	Reacquisition	E02	nan
2020-12-14 14:05:36.980085500	Loss	E02	2.0
2020-12-14 14:05:38.980085500	Reacquisition	E02	nan
2020-12-14 14:06:30.980085500	Loss	E08	2.0
2020-12-14 14:06:30.980085500	Loss	E26	2.0
2020-12-14 14:06:30.980085500	Loss	E03	2.0
2020-12-14 14:06:30.980085500	Loss	E02	2.0
2020-12-14 14:06:30.980085500	Loss	E05	2.0
2020-12-14 14:06:32.980085500	Reacquisition	E05	nan
2020-12-14 14:06:32.980085500	Reacquisition	E02	nan
2020-12-14 14:06:32.980085500	Reacquisition	E26	nan

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DATE_TIME	event	type	duration
2020-12-14 14:06:32.980085500	Reacquisition	E03	nan
2020-12-14 14:06:32.980085500	Reacquisition	E08	nan
2020-12-14 14:06:33.980085500	Loss	E26	2.0
2020-12-14 14:06:35.980085500	Reacquisition	E26	nan
2020-12-14 14:06:35.980085500	Loss	E25	5.0
2020-12-14 14:06:40.980085500	Reacquisition	E25	nan
2020-12-14 14:06:41.980085500	Loss	E25	205.0
2020-12-14 14:07:31.980085500	Loss	E02	2.0
2020-12-14 14:07:33.980085500	Reacquisition	E02	nan
2020-12-14 14:07:36.980085500	Loss	E02	2.0
2020-12-14 14:07:38.980085500	Reacquisition	E02	nan
2020-12-14 14:07:39.980085500	Loss	E02	2.0
2020-12-14 14:07:41.980085500	Loss	E02	3.0
2020-12-14 14:07:41.980085500	Reacquisition	E02	nan
2020-12-14 14:07:44.980085500	Reacquisition	E02	nan
2020-12-14 14:07:49.980085500	Loss	E02	2.0
2020-12-14 14:07:51.980085500	Reacquisition	E02	nan
2020-12-14 14:08:18.980085500	Loss	E02	2.0
2020-12-14 14:08:20.980085500	Reacquisition	E02	nan
2020-12-14 14:08:22.980085500	Loss	E02	2.0
2020-12-14 14:08:24.980085500	Reacquisition	E02	nan
2020-12-14 14:08:32.980085500	Loss	E02	2.0
2020-12-14 14:08:34.980085500	Reacquisition	E02	nan
2020-12-14 14:09:14.980085500	Loss	E02	2.0
2020-12-14 14:09:16.980085500	Reacquisition	E02	nan
2020-12-14 14:09:24.980085500	Loss	E02	2.0
2020-12-14 14:09:26.980085500	Reacquisition	E02	nan
2020-12-14 14:09:29.980085500	Loss	E02	2.0
2020-12-14 14:09:31.980085500	Reacquisition	E02	nan
2020-12-14 14:09:32.980085500	Loss	E02	3.0

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DATE_TIME	event	type	duration
2020-12-14 14:09:35.980085500	Reacquisition	E02	nan
2020-12-14 14:09:38.980085500	Loss	E02	3.0
2020-12-14 14:09:41.980085500	Reacquisition	E02	nan
2020-12-14 14:09:51.980085500	Loss	E05	2.0
2020-12-14 14:09:52.980085500	Loss	E02	13.0
2020-12-14 14:09:53.980085500	Reacquisition	E05	nan
2020-12-14 14:10:05.980085500	Reacquisition	E02	nan
2020-12-14 14:10:06.980085500	Reacquisition	E25	nan
2020-12-14 14:10:06.980085500	Loss	E25	3.0
2020-12-14 14:10:06.980085500	Loss	E02	2.0
2020-12-14 14:10:08.980085500	Reacquisition	E02	nan
2020-12-14 14:10:09.980085500	Reacquisition	E25	nan
2020-12-14 14:10:09.980085500	Loss	E25	4.0
2020-12-14 14:10:13.980085500	Loss	E25	3.0
2020-12-14 14:10:13.980085500	Reacquisition	E25	nan
2020-12-14 14:10:16.980085500	Reacquisition	E25	nan
2020-12-14 14:10:35.980085500	Loss	E02	12.0
2020-12-14 14:10:47.980085500	Reacquisition	E02	nan
2020-12-14 14:11:18.980085500	Loss	E02	14.0
2020-12-14 14:11:32.980085500	Loss	E02	7.0
2020-12-14 14:11:32.980085500	Reacquisition	E02	nan
2020-12-14 14:11:39.980085500	Reacquisition	E02	nan
2020-12-14 14:11:40.980085500	Loss	E02	3.0
2020-12-14 14:11:43.980085500	Reacquisition	E02	nan
2020-12-14 14:11:43.980085500	Loss	E02	2.0
2020-12-14 14:11:45.980085500	Reacquisition	E02	nan
2020-12-14 14:12:45.980085500	Loss	E02	2.0
2020-12-14 14:12:47.980085500	Reacquisition	E02	nan
2020-12-14 14:12:53.980085500	Loss	E02	3.0
2020-12-14 14:12:56.980085500	Reacquisition	E02	nan

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DATE_TIME	event	type	duration
2020-12-14 14:12:56.980085500	Loss	E02	2.0
2020-12-14 14:12:58.980085500	Reacquisition	E02	nan
2020-12-14 14:13:03.980085500	Loss	E02	2.0
2020-12-14 14:13:05.980085500	Reacquisition	E02	nan
2020-12-14 14:13:06.980085500	Loss	E02	2.0
2020-12-14 14:13:08.980085500	Reacquisition	E02	nan
2020-12-14 14:13:29.980085500	Loss	E02	2.0
2020-12-14 14:13:31.980085500	Reacquisition	E02	nan
2020-12-14 14:13:37.980085500	Loss	E02	3.0
2020-12-14 14:13:40.980085500	Reacquisition	E02	nan
2020-12-14 14:13:40.980085500	Loss	E02	4.0
2020-12-14 14:13:44.980085500	Reacquisition	E02	nan
2020-12-14 14:13:50.980085500	Loss	E02	2.0
2020-12-14 14:13:52.980085500	Reacquisition	E02	nan
2020-12-14 14:13:53.980085500	Loss	E02	2.0
2020-12-14 14:13:55.980085500	Reacquisition	E02	nan
2020-12-14 14:13:56.980085500	Loss	E02	3.0
2020-12-14 14:13:59.980085500	Reacquisition	E02	nan
2020-12-14 14:13:59.980085500	Loss	E02	2.0
2020-12-14 14:14:01.980085500	Reacquisition	E02	nan
2020-12-14 14:14:01.980085500	Loss	E08	2.0
2020-12-14 14:14:02.980085500	Loss	E05	2.0
2020-12-14 14:14:03.980085500	Loss	E08	2.0
2020-12-14 14:14:03.980085500	Reacquisition	E08	nan
2020-12-14 14:14:04.980085500	Reacquisition	E05	nan
2020-12-14 14:14:05.980085500	Reacquisition	E08	nan
2020-12-14 14:14:08.980085500	Loss	E03	3.0
2020-12-14 14:14:08.980085500	Loss	PNT	3.0
2020-12-14 14:14:08.980085500	Loss	E02	3.0
2020-12-14 14:14:11.980085500	Reacquisition	E03	nan

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DATE_TIME	event	type	duration
2020-12-14 14:14:11.980085500	Reacquisition	PNT	nan
2020-12-14 14:14:11.980085500	Reacquisition	E02	nan
2020-12-14 14:14:12.980085500	Loss	E02	2.0
2020-12-14 14:14:14.980085500	Reacquisition	E02	nan
2020-12-14 14:14:17.980085500	Loss	E02	6.0
2020-12-14 14:14:20.980085500	Loss	PNT	2.0
2020-12-14 14:14:20.980085500	Loss	E25	2.0
2020-12-14 14:14:20.980085500	Loss	E03	2.0
2020-12-14 14:14:22.980085500	Reacquisition	E03	nan
2020-12-14 14:14:22.980085500	Reacquisition	E25	nan
2020-12-14 14:14:22.980085500	Reacquisition	PNT	nan
2020-12-14 14:14:23.980085500	Reacquisition	E02	nan
2020-12-14 14:14:25.980085500	Loss	E08	2.0
2020-12-14 14:14:25.980085500	Loss	E03	2.0
2020-12-14 14:14:25.980085500	Loss	E25	2.0
2020-12-14 14:14:25.980085500	Loss	E05	2.0
2020-12-14 14:14:25.980085500	Loss	E02	3.0
2020-12-14 14:14:27.980085500	Reacquisition	E03	nan
2020-12-14 14:14:27.980085500	Reacquisition	E05	nan
2020-12-14 14:14:27.980085500	Reacquisition	E25	nan
2020-12-14 14:14:27.980085500	Reacquisition	E08	nan
2020-12-14 14:14:28.980085500	Reacquisition	E02	nan
2020-12-14 14:14:29.980085500	Loss	E05	2.0
2020-12-14 14:14:29.980085500	Loss	PNT	2.0
2020-12-14 14:14:29.980085500	Loss	E08	2.0
2020-12-14 14:14:31.980085500	Reacquisition	PNT	nan
2020-12-14 14:14:31.980085500	Loss	PNT	2.0
2020-12-14 14:14:31.980085500	Loss	E08	2.0
2020-12-14 14:14:31.980085500	Reacquisition	E05	nan
2020-12-14 14:14:31.980085500	Reacquisition	E08	nan

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DATE_TIME	event	type	duration
2020-12-14 14:14:31.980085500	Loss	E03	2.0
2020-12-14 14:14:31.980085500	Loss	E25	2.0
2020-12-14 14:14:31.980085500	Loss	E02	2.0
2020-12-14 14:14:33.980085500	Reacquisition	PNT	nan
2020-12-14 14:14:33.980085500	Reacquisition	E25	nan
2020-12-14 14:14:33.980085500	Reacquisition	E08	nan
2020-12-14 14:14:33.980085500	Reacquisition	E03	nan
2020-12-14 14:14:33.980085500	Reacquisition	E02	nan
2020-12-14 14:14:36.980085500	Loss	E02	3.0
2020-12-14 14:14:39.980085500	Loss	E02	2.0
2020-12-14 14:14:39.980085500	Reacquisition	E02	nan
2020-12-14 14:14:41.980085500	Reacquisition	E02	nan
2020-12-14 14:14:49.980085500	Loss	E02	2.0
2020-12-14 14:14:51.980085500	Reacquisition	E02	nan
2020-12-14 14:15:38.980085500	Loss	E02	2.0
2020-12-14 14:15:40.980085500	Reacquisition	E02	nan
2020-12-14 14:15:49.980085500	Reacquisition	E24	nan
2020-12-14 14:15:55.980085500	Loss	E05	2.0
2020-12-14 14:15:55.980085500	Loss	E02	2.0
2020-12-14 14:15:55.980085500	Loss	E08	2.0
2020-12-14 14:15:55.980085500	Loss	E25	2.0
2020-12-14 14:15:55.980085500	Loss	PNT	2.0
2020-12-14 14:15:57.980085500	Reacquisition	E25	nan
2020-12-14 14:15:57.980085500	Reacquisition	E08	nan
2020-12-14 14:15:57.980085500	Reacquisition	E05	nan
2020-12-14 14:15:57.980085500	Reacquisition	E02	nan
2020-12-14 14:15:57.980085500	Reacquisition	PNT	nan
2020-12-14 14:15:58.980085500	Loss	E02	2.0
2020-12-14 14:15:58.980085500	Loss	E25	2.0
2020-12-14 14:15:58.980085500	Loss	E03	2.0

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DATE_TIME	event	type	duration
2020-12-14 14:15:58.980085500	Loss	E05	2.0
2020-12-14 14:15:58.980085500	Loss	PNT	2.0
2020-12-14 14:15:58.980085500	Loss	E08	2.0
2020-12-14 14:16:00.980085500	Reacquisition	E03	nan
2020-12-14 14:16:00.980085500	Reacquisition	E08	nan
2020-12-14 14:16:00.980085500	Reacquisition	E05	nan
2020-12-14 14:16:00.980085500	Reacquisition	PNT	nan
2020-12-14 14:16:00.980085500	Reacquisition	E02	nan
2020-12-14 14:16:00.980085500	Reacquisition	E25	nan
2020-12-14 14:17:34.980085500	Loss	E02	3.0
2020-12-14 14:17:37.980085500	Reacquisition	E02	nan
2020-12-14 14:17:40.980085500	Loss	E02	2.0
2020-12-14 14:17:42.980085500	Reacquisition	E02	nan
2020-12-14 14:17:43.980085500	Loss	E02	4.0
2020-12-14 14:17:47.980085500	Reacquisition	E02	nan
2020-12-14 14:17:51.980085500	Loss	E02	3.0
2020-12-14 14:17:54.980085500	Reacquisition	E02	nan
2020-12-14 14:18:01.980085500	Loss	E02	3.0
2020-12-14 14:18:04.980085500	Reacquisition	E02	nan
2020-12-14 14:18:21.980085500	Loss	E02	2.0
2020-12-14 14:18:23.980085500	Loss	E02	2.0
2020-12-14 14:18:23.980085500	Reacquisition	E02	nan
2020-12-14 14:18:25.980085500	Reacquisition	E02	nan
2020-12-14 14:18:38.980085500	Loss	E02	4.0
2020-12-14 14:18:42.980085500	Reacquisition	E02	nan
2020-12-14 14:18:44.980085500	Loss	E02	2.0
2020-12-14 14:18:46.980085500	Reacquisition	E02	nan
2020-12-14 14:21:00.980085500	Loss	E02	2.0
2020-12-14 14:21:02.980085500	Loss	E02	9.0
2020-12-14 14:21:02.980085500	Reacquisition	E02	nan

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DATE_TIME	event	type	duration
2020-12-14 14:21:11.980085500	Reacquisition	E02	nan
2020-12-14 14:21:46.980085500	Loss	E02	2.0
2020-12-14 14:21:48.980085500	Reacquisition	E02	nan
2020-12-14 14:21:48.980085500	Loss	E02	2.0
2020-12-14 14:21:50.980085500	Reacquisition	E02	nan
2020-12-14 14:21:51.980085500	Loss	E02	2.0
2020-12-14 14:21:53.980085500	Reacquisition	E02	nan
2020-12-14 14:21:59.980085500	Loss	E24	2.0
2020-12-14 14:22:01.980085500	Reacquisition	E24	nan
2020-12-14 14:22:02.980085500	Loss	E02	2.0
2020-12-14 14:22:03.980085500	Loss	E24	10.0
2020-12-14 14:22:04.980085500	Loss	E02	2.0
2020-12-14 14:22:04.980085500	Reacquisition	E02	nan
2020-12-14 14:22:05.980085500	Loss	E05	3.0
2020-12-14 14:22:06.980085500	Reacquisition	E02	nan
2020-12-14 14:22:08.980085500	Reacquisition	E05	nan
2020-12-14 14:22:09.980085500	Loss	E02	3.0
2020-12-14 14:22:10.980085500	Loss	PNT	2.0
2020-12-14 14:22:10.980085500	Loss	E05	5.0
2020-12-14 14:22:12.980085500	Reacquisition	E02	nan
2020-12-14 14:22:12.980085500	Reacquisition	PNT	nan
2020-12-14 14:22:13.980085500	Reacquisition	E24	nan
2020-12-14 14:22:15.980085500	Loss	E02	2.0
2020-12-14 14:22:15.980085500	Reacquisition	E05	nan
2020-12-14 14:22:17.980085500	Reacquisition	E02	nan
2020-12-14 14:22:21.980085500	Loss	E02	2.0
2020-12-14 14:22:23.980085500	Loss	E02	9.0
2020-12-14 14:22:23.980085500	Reacquisition	E02	nan
2020-12-14 14:22:32.980085500	Reacquisition	E02	nan
2020-12-14 14:22:32.980085500	Loss	E02	6.0

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DATE_TIME	event	type	duration
2020-12-14 14:22:38.980085500	Loss	E02	2.0
2020-12-14 14:22:38.980085500	Reacquisition	E02	nan
2020-12-14 14:22:40.980085500	Reacquisition	E02	nan
2020-12-14 14:23:09.980085500	Loss	E25	3.0
2020-12-14 14:23:09.980085500	Loss	E02	2.0
2020-12-14 14:23:11.980085500	Reacquisition	E02	nan
2020-12-14 14:23:12.980085500	Reacquisition	E25	nan
2020-12-14 14:23:14.980085500	Loss	E25	5.0
2020-12-14 14:23:16.980085500	Loss	E02	3.0
2020-12-14 14:23:19.980085500	Reacquisition	E02	nan
2020-12-14 14:23:19.980085500	Reacquisition	E25	nan
2020-12-14 14:23:22.980085500	Loss	E02	2.0
2020-12-14 14:23:24.980085500	Reacquisition	E02	nan
2020-12-14 14:23:26.980085500	Loss	E02	2.0
2020-12-14 14:23:28.980085500	Reacquisition	E02	nan
2020-12-14 14:23:30.980085500	Loss	E03	3.0
2020-12-14 14:23:33.980085500	Reacquisition	E03	nan
2020-12-14 14:23:35.980085500	Loss	E03	8.0
2020-12-14 14:23:36.980085500	Loss	E08	2.0
2020-12-14 14:23:36.980085500	Loss	PNT	2.0
2020-12-14 14:23:36.980085500	Loss	E02	2.0
2020-12-14 14:23:38.980085500	Reacquisition	PNT	nan
2020-12-14 14:23:38.980085500	Reacquisition	E02	nan
2020-12-14 14:23:38.980085500	Reacquisition	E08	nan
2020-12-14 14:23:40.980085500	Loss	E08	5.0
2020-12-14 14:23:42.980085500	Loss	E02	2.0
2020-12-14 14:23:43.980085500	Reacquisition	E03	nan
2020-12-14 14:23:44.980085500	Reacquisition	E02	nan
2020-12-14 14:23:45.980085500	Reacquisition	E08	nan
2020-12-14 14:23:46.980085500	Loss	E02	19.0

Continued on Next Page



## Navigation signal 6A

DATE_TIME	event	type	duration
2020-12-14 14:24:05.980085500	Reacquisition	E02	nan
2020-12-14 14:24:05.980085500	Loss	E02	2.0
2020-12-14 14:24:06.980085500	Loss	E08	3.0
2020-12-14 14:24:07.980085500	Reacquisition	E02	nan
2020-12-14 14:24:09.980085500	Reacquisition	E08	nan
2020-12-14 14:24:09.980085500	Loss	E08	2.0
2020-12-14 14:24:10.980085500	Loss	E02	2.0
2020-12-14 14:24:11.980085500	Reacquisition	E08	nan
2020-12-14 14:24:12.980085500	Reacquisition	E02	nan
2020-12-14 14:24:16.980085500	Loss	E08	3.0
2020-12-14 14:24:17.980085500	Loss	E02	2.0
2020-12-14 14:24:19.980085500	Reacquisition	E02	nan
2020-12-14 14:24:19.980085500	Reacquisition	E08	nan
2020-12-14 14:24:24.980085500	Loss	E02	2.0
2020-12-14 14:24:26.980085500	Reacquisition	E02	nan
2020-12-14 14:24:30.980085500	Loss	E02	2.0
2020-12-14 14:24:32.980085500	Reacquisition	E02	nan
2020-12-14 14:24:35.980085500	Loss	E02	3.0
2020-12-14 14:24:38.980085500	Reacquisition	E02	nan
2020-12-14 14:24:39.980085500	Loss	E02	2.0
2020-12-14 14:24:41.980085500	Reacquisition	E02	nan
2020-12-14 14:24:42.980085500	Loss	E02	2.0
2020-12-14 14:24:44.980085500	Reacquisition	E02	nan
2020-12-14 14:24:46.980085500	Loss	E02	5.0
2020-12-14 14:24:51.980085500	Reacquisition	E02	nan
2020-12-14 14:24:57.980085500	Loss	E02	3.0
2020-12-14 14:25:00.980085500	Reacquisition	E02	nan
2020-12-14 14:25:00.980085500	Loss	E02	2.0
2020-12-14 14:25:02.980085500	Reacquisition	E02	nan
2020-12-14 14:25:04.980085500	Loss	E02	2.0

Continued on Next Page

## Navigation signal 6A

DATE_TIME	event	type	duration
2020-12-14 14:25:06.980085500	Reacquisition	E02	nan
2020-12-14 14:25:19.980085500	Loss	E02	2.0
2020-12-14 14:25:21.980085500	Loss	E02	2.0
2020-12-14 14:25:21.980085500	Reacquisition	E02	nan
2020-12-14 14:25:23.980085500	Reacquisition	E02	nan
2020-12-14 14:26:21.980085500	Loss	E02	2.0
2020-12-14 14:26:23.980085500	Reacquisition	E02	nan
2020-12-14 14:26:24.980085500	Loss	E02	2.0
2020-12-14 14:26:26.980085500	Reacquisition	E02	nan
2020-12-14 14:26:27.980085500	Loss	E02	2.0
2020-12-14 14:26:29.980085500	Reacquisition	E02	nan
2020-12-14 14:26:34.980085500	Loss	E02	2.0
2020-12-14 14:26:36.980085500	Reacquisition	E02	nan
2020-12-14 14:27:11.980085500	Loss	E02	2.0
2020-12-14 14:27:13.980085500	Reacquisition	E02	nan
2020-12-14 14:27:13.980085500	Loss	E02	2.0
2020-12-14 14:27:15.980085500	Reacquisition	E02	nan
2020-12-14 14:27:54.980085500	Loss	E24	2.0
2020-12-14 14:27:54.980085500	Loss	E25	2.0
2020-12-14 14:27:54.980085500	Loss	E08	2.0
2020-12-14 14:27:54.980085500	Loss	E05	2.0
2020-12-14 14:27:54.980085500	Loss	E03	2.0
2020-12-14 14:27:54.980085500	Loss	E02	2.0
2020-12-14 14:27:56.980085500	Reacquisition	E02	nan
2020-12-14 14:27:56.980085500	Loss	E03	3.0
2020-12-14 14:27:56.980085500	Loss	E02	10.0
2020-12-14 14:27:56.980085500	Reacquisition	E24	nan
2020-12-14 14:27:56.980085500	Reacquisition	E03	nan
2020-12-14 14:27:56.980085500	Loss	E24	3.0
2020-12-14 14:27:56.980085500	Reacquisition	E25	nan

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## Navigation signal 6A

DATE_TIME	event	type	duration
2020-12-14 14:27:56.980085500	Reacquisition	E08	nan
2020-12-14 14:27:56.980085500	Loss	E05	3.0
2020-12-14 14:27:56.980085500	Reacquisition	E05	nan
2020-12-14 14:27:56.980085500	Loss	E25	3.0
2020-12-14 14:27:56.980085500	Loss	E08	3.0
2020-12-14 14:27:59.980085500	Reacquisition	E25	nan
2020-12-14 14:27:59.980085500	Reacquisition	E05	nan
2020-12-14 14:27:59.980085500	Reacquisition	E24	nan
2020-12-14 14:27:59.980085500	Reacquisition	E03	nan
2020-12-14 14:27:59.980085500	Reacquisition	E08	nan
2020-12-14 14:28:00.980085500	Loss	E03	2.0
2020-12-14 14:28:00.980085500	Loss	E25	2.0
2020-12-14 14:28:00.980085500	Loss	E08	2.0
2020-12-14 14:28:00.980085500	Loss	E05	2.0
2020-12-14 14:28:00.980085500	Loss	E24	2.0
2020-12-14 14:28:02.980085500	Reacquisition	E24	nan
2020-12-14 14:28:02.980085500	Reacquisition	E03	nan
2020-12-14 14:28:02.980085500	Reacquisition	E25	nan
2020-12-14 14:28:02.980085500	Reacquisition	E08	nan
2020-12-14 14:28:02.980085500	Reacquisition	E05	nan
2020-12-14 14:28:03.980085500	Loss	E08	3.0
2020-12-14 14:28:03.980085500	Loss	E03	3.0
2020-12-14 14:28:03.980085500	Loss	PNT	3.0
2020-12-14 14:28:03.980085500	Loss	E24	3.0
2020-12-14 14:28:03.980085500	Loss	E25	3.0
2020-12-14 14:28:04.980085500	Loss	E05	2.0
2020-12-14 14:28:06.980085500	Reacquisition	PNT	nan
2020-12-14 14:28:06.980085500	Reacquisition	E02	nan
2020-12-14 14:28:06.980085500	Reacquisition	E05	nan
2020-12-14 14:28:06.980085500	Reacquisition	E03	nan

Continued on Next Page

## Navigation signal 6A

DATE_TIME	event	type	duration
2020-12-14 14:28:06.980085500	Reacquisition	E24	nan
2020-12-14 14:28:06.980085500	Reacquisition	E25	nan
2020-12-14 14:28:06.980085500	Reacquisition	E08	nan
2020-12-14 14:28:08.980085500	Loss	E02	2.0
2020-12-14 14:28:10.980085500	Reacquisition	E02	nan
2020-12-14 14:28:15.980085500	Loss	E02	2.0
2020-12-14 14:28:17.980085500	Reacquisition	E02	nan
2020-12-14 14:28:24.980085500	Loss	E02	2.0
2020-12-14 14:28:26.980085500	Reacquisition	E02	nan
2020-12-14 14:28:26.980085500	Loss	E02	2.0
2020-12-14 14:28:28.980085500	Reacquisition	E02	nan
2020-12-14 14:28:41.980085500	Loss	E03	2.0
2020-12-14 14:28:41.980085500	Loss	E25	2.0
2020-12-14 14:28:41.980085500	Loss	E02	2.0
2020-12-14 14:28:41.980085500	Loss	E05	2.0
2020-12-14 14:28:41.980085500	Loss	E08	2.0
2020-12-14 14:28:41.980085500	Loss	E24	2.0
2020-12-14 14:28:43.980085500	Reacquisition	E03	nan
2020-12-14 14:28:43.980085500	Reacquisition	E08	nan
2020-12-14 14:28:43.980085500	Reacquisition	E05	nan
2020-12-14 14:28:43.980085500	Loss	E08	3.0
2020-12-14 14:28:43.980085500	Loss	E03	3.0
2020-12-14 14:28:43.980085500	Reacquisition	E24	nan
2020-12-14 14:28:43.980085500	Reacquisition	E02	nan
2020-12-14 14:28:43.980085500	Loss	E05	3.0
2020-12-14 14:28:43.980085500	Loss	E24	3.0
2020-12-14 14:28:43.980085500	Loss	E25	3.0
2020-12-14 14:28:43.980085500	Loss	E02	6.0
2020-12-14 14:28:43.980085500	Reacquisition	E25	nan
2020-12-14 14:28:46.980085500	Reacquisition	E25	nan

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## Navigation signal 6A

DATE_TIME	event	type	duration
2020-12-14 14:28:46.980085500	Reacquisition	E03	nan
2020-12-14 14:28:46.980085500	Reacquisition	E08	nan
2020-12-14 14:28:46.980085500	Reacquisition	E05	nan
2020-12-14 14:28:46.980085500	Reacquisition	E24	nan
2020-12-14 14:28:47.980085500	Loss	E25	2.0
2020-12-14 14:28:47.980085500	Loss	E24	2.0
2020-12-14 14:28:47.980085500	Loss	E08	2.0
2020-12-14 14:28:47.980085500	Loss	E05	2.0
2020-12-14 14:28:47.980085500	Loss	E03	2.0
2020-12-14 14:28:49.980085500	Loss	E03	2.0
2020-12-14 14:28:49.980085500	Reacquisition	E05	nan
2020-12-14 14:28:49.980085500	Loss	E08	2.0
2020-12-14 14:28:49.980085500	Loss	E05	2.0
2020-12-14 14:28:49.980085500	Reacquisition	E02	nan
2020-12-14 14:28:49.980085500	Reacquisition	E08	nan
2020-12-14 14:28:49.980085500	Reacquisition	E03	nan
2020-12-14 14:28:49.980085500	Loss	E24	2.0
2020-12-14 14:28:49.980085500	Loss	E25	2.0
2020-12-14 14:28:49.980085500	Reacquisition	E25	nan
2020-12-14 14:28:49.980085500	Loss	PNT	2.0
2020-12-14 14:28:49.980085500	Reacquisition	E24	nan
2020-12-14 14:28:51.980085500	Loss	PNT	2.0
2020-12-14 14:28:51.980085500	Reacquisition	E25	nan
2020-12-14 14:28:51.980085500	Reacquisition	E05	nan
2020-12-14 14:28:51.980085500	Loss	E24	2.0
2020-12-14 14:28:51.980085500	Reacquisition	E03	nan
2020-12-14 14:28:51.980085500	Reacquisition	E08	nan
2020-12-14 14:28:51.980085500	Reacquisition	E24	nan
2020-12-14 14:28:51.980085500	Loss	E08	2.0
2020-12-14 14:28:51.980085500	Loss	E03	2.0

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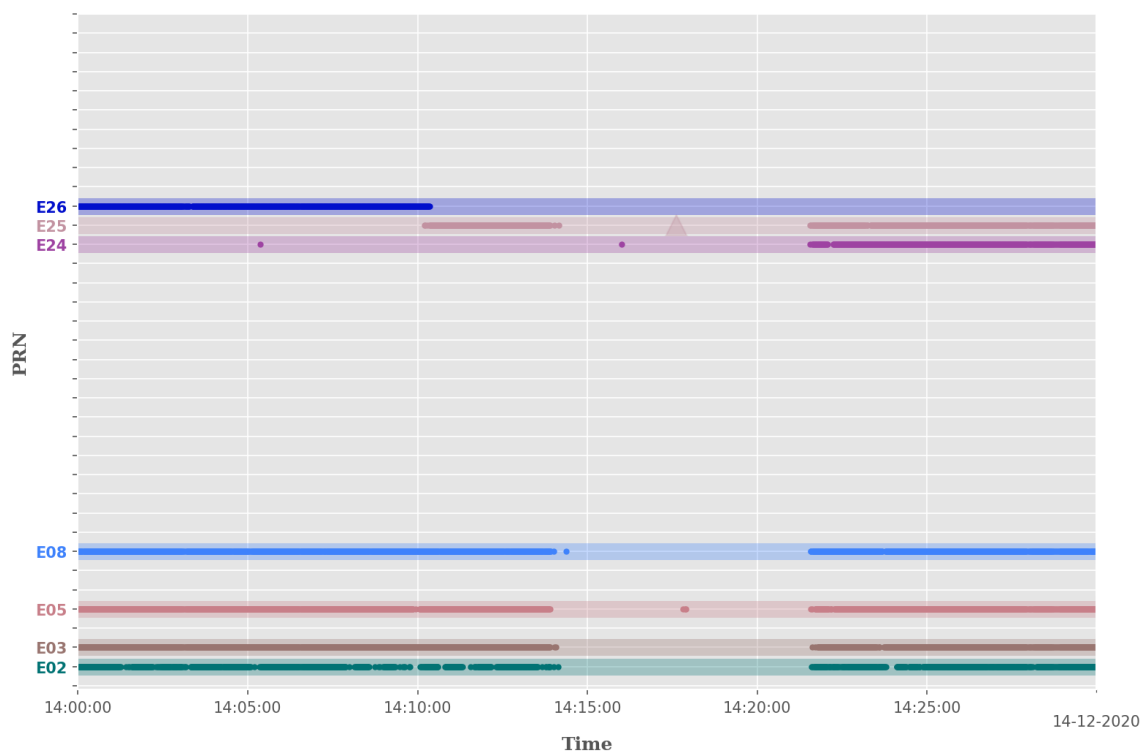
## Navigation signal 6A

DATE_TIME	event	type	duration
2020-12-14 14:28:51.980085500	Loss	E05	2.0
2020-12-14 14:28:51.980085500	Reacquisition	PNT	nan
2020-12-14 14:28:51.980085500	Loss	E25	2.0
2020-12-14 14:28:53.980085500	Reacquisition	E24	nan
2020-12-14 14:28:53.980085500	Reacquisition	E05	nan
2020-12-14 14:28:53.980085500	Reacquisition	E08	nan
2020-12-14 14:28:53.980085500	Reacquisition	E03	nan
2020-12-14 14:28:53.980085500	Reacquisition	PNT	nan
2020-12-14 14:28:53.980085500	Reacquisition	E25	nan
2020-12-14 14:28:54.980085500	Loss	E02	4.0
2020-12-14 14:28:58.980085500	Reacquisition	E02	nan
2020-12-14 14:28:59.980085500	Loss	E02	2.0
2020-12-14 14:29:01.980085500	Reacquisition	E02	nan
2020-12-14 14:29:09.980085500	Loss	E02	2.0
2020-12-14 14:29:11.980085500	Reacquisition	E02	nan
2020-12-14 14:29:43.980085500	Loss	E02	2.0
2020-12-14 14:29:45.980085500	Reacquisition	E02	nan

## Analysis of navigation signal E1A

- Figure 7 represents the observed time span for navigation signal E1A set out against the maximum time span calculated from the Two Line Elements (TLE). If present, the culmination point for a satellite is represented by a triangle. The time span from TLEs is represented by the lighter area while the real observations are represented by the dark super-imposed areas.

P3RS04BEL - E1A - 14/12/2020 (2020/349 - Obs vs TLE)

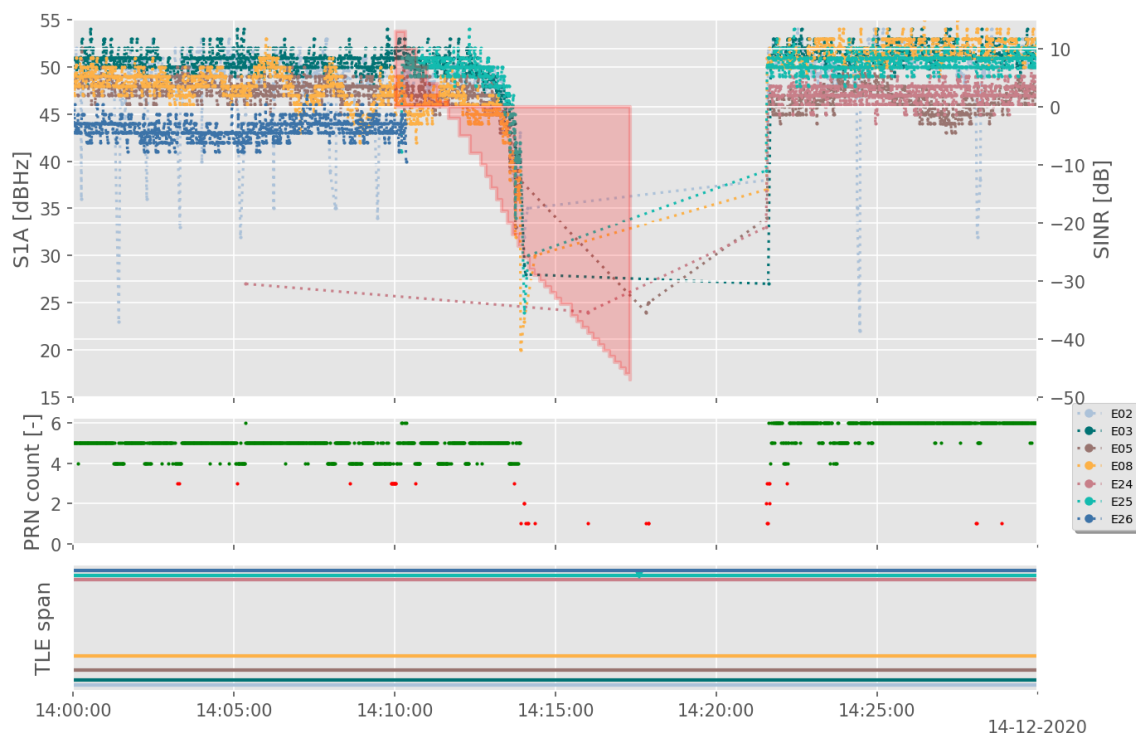


**Figure 7:** Navigation signal E1A versus TLE time span

- Figure 8 displays the evolution of observation type S1A. The upper plot represents the variation of the observation type while the middle plot (if available) displays the variation of this observable between 2 consecutive epochs. The bottom plot displays the TLE time spans for the satellites.



P3RS04BEL: S1A for E1A @ 14/12/2020 (2020/349)

**Figure 8:** Navigation signal S1A evolution

The table below reports the loss and reacquisition of PNT for observable S1A.

Navigation signal 1A				
DATE_TIME	event	type	duration	reacq
2020-12-14 14:03:12.980085500	Loss	PNT	2.0	2020-12-14 14:03:14.980085500
2020-12-14 14:03:16.980085500	Loss	PNT	2.0	2020-12-14 14:03:18.980085500
2020-12-14 14:05:04.980085500	Loss	PNT	2.0	2020-12-14 14:05:06.980085500
2020-12-14 14:08:34.980085500	Loss	PNT	2.0	2020-12-14 14:08:36.980085500
2020-12-14 14:09:51.980085500	Loss	PNT	5.0	2020-12-14 14:09:56.980085500
2020-12-14 14:09:56.980085500	Loss	PNT	6.0	2020-12-14 14:10:02.980085500
2020-12-14 14:10:36.980085500	Loss	PNT	2.0	2020-12-14 14:10:38.980085500
2020-12-14 14:13:41.980085500	Loss	PNT	2.0	2020-12-14 14:13:43.980085500
2020-12-14 14:13:53.980085500	Loss	PNT	463.0	2020-12-14 14:21:36.980085500
2020-12-14 14:21:36.980085500	Loss	PNT	4.0	2020-12-14 14:21:40.980085500

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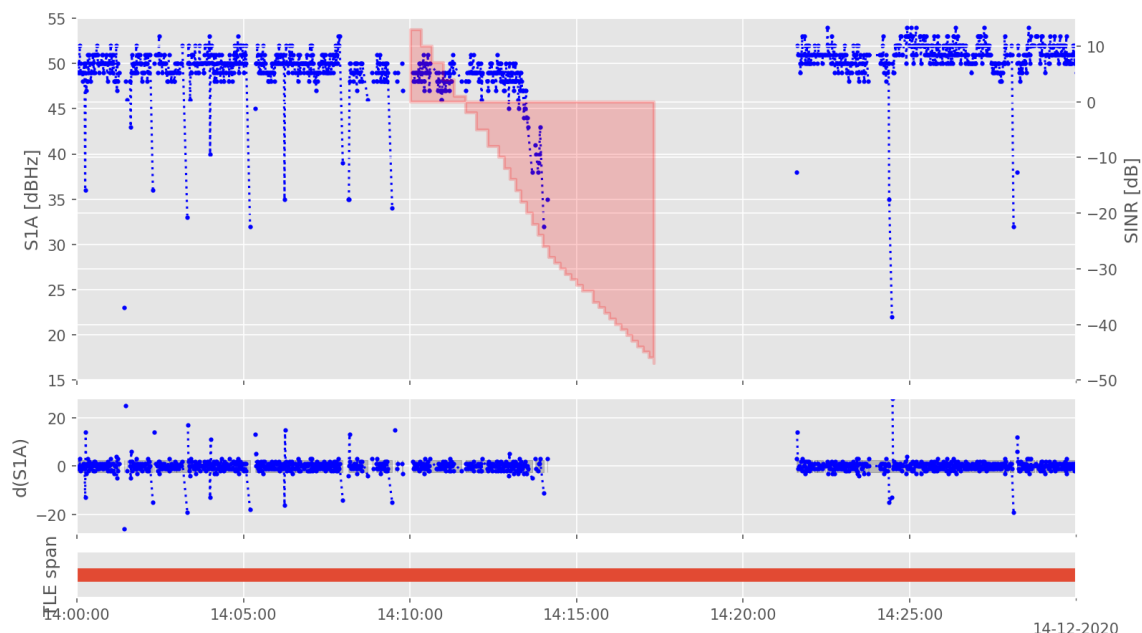
## Navigation signal 1A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:22:10.980085500	Loss	PNT	2.0	2020-12-14 14:22:12.980085500
2020-12-14 14:28:03.980085500	Loss	PNT	3.0	2020-12-14 14:28:06.980085500
2020-12-14 14:28:51.980085500	Loss	PNT	2.0	2020-12-14 14:28:53.980085500

## 3. Analysis of navigation signal E1A for each observed satellite.

ewline The following plots display the same information as described above per satellite. Each plot is accompanied by a table displaying the time of loss of lock and reacquisition of the satellite when such events are detected.

P3RS04BEL: S1A for E02 @ 14/12/2020 (2020/349)



## Navigation signal 1A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:01:13.980085500	Loss	E02	2.0	2020-12-14 14:01:15.980085500
2020-12-14 14:01:15.980085500	Loss	E02	9.0	2020-12-14 14:01:24.980085500
2020-12-14 14:01:24.980085500	Loss	E02	3.0	2020-12-14 14:01:27.980085500
2020-12-14 14:01:27.980085500	Loss	E02	3.0	2020-12-14 14:01:30.980085500
2020-12-14 14:01:30.980085500	Loss	E02	4.0	2020-12-14 14:01:34.980085500

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Navigation signal 1A				
DATE_TIME	event	type	duration	reacq
2020-12-14 14:02:11.980085500	Loss	E02	5.0	2020-12-14 14:02:16.980085500
2020-12-14 14:02:16.980085500	Loss	E02	3.0	2020-12-14 14:02:19.980085500
2020-12-14 14:02:19.980085500	Loss	E02	2.0	2020-12-14 14:02:21.980085500
2020-12-14 14:02:21.980085500	Loss	E02	2.0	2020-12-14 14:02:23.980085500
2020-12-14 14:02:23.980085500	Loss	E02	2.0	2020-12-14 14:02:25.980085500
2020-12-14 14:02:43.980085500	Loss	E02	2.0	2020-12-14 14:02:45.980085500
2020-12-14 14:02:56.980085500	Loss	E02	2.0	2020-12-14 14:02:58.980085500
2020-12-14 14:03:03.980085500	Loss	E02	3.0	2020-12-14 14:03:06.980085500
2020-12-14 14:03:06.980085500	Loss	E02	2.0	2020-12-14 14:03:08.980085500
2020-12-14 14:03:09.980085500	Loss	E02	9.0	2020-12-14 14:03:18.980085500
2020-12-14 14:04:13.980085500	Loss	E02	2.0	2020-12-14 14:04:15.980085500
2020-12-14 14:05:04.980085500	Loss	E02	7.0	2020-12-14 14:05:11.980085500
2020-12-14 14:05:11.980085500	Loss	E02	9.0	2020-12-14 14:05:20.980085500
2020-12-14 14:06:30.980085500	Loss	E02	2.0	2020-12-14 14:06:32.980085500
2020-12-14 14:06:33.980085500	Loss	E02	2.0	2020-12-14 14:06:35.980085500
2020-12-14 14:07:52.980085500	Loss	E02	6.0	2020-12-14 14:07:58.980085500
2020-12-14 14:07:58.980085500	Loss	E02	10.0	2020-12-14 14:08:08.980085500
2020-12-14 14:08:33.980085500	Loss	E02	10.0	2020-12-14 14:08:43.980085500
2020-12-14 14:08:43.980085500	Loss	E02	7.0	2020-12-14 14:08:50.980085500
2020-12-14 14:08:50.980085500	Loss	E02	3.0	2020-12-14 14:08:53.980085500
2020-12-14 14:08:53.980085500	Loss	E02	5.0	2020-12-14 14:08:58.980085500
2020-12-14 14:09:19.980085500	Loss	E02	8.0	2020-12-14 14:09:27.980085500
2020-12-14 14:09:27.980085500	Loss	E02	5.0	2020-12-14 14:09:32.980085500
2020-12-14 14:09:32.980085500	Loss	E02	3.0	2020-12-14 14:09:35.980085500
2020-12-14 14:09:35.980085500	Loss	E02	2.0	2020-12-14 14:09:37.980085500
2020-12-14 14:09:37.980085500	Loss	E02	7.0	2020-12-14 14:09:44.980085500
2020-12-14 14:09:44.980085500	Loss	E02	2.0	2020-12-14 14:09:46.980085500
2020-12-14 14:09:46.980085500	Loss	E02	18.0	2020-12-14 14:10:04.980085500
2020-12-14 14:10:06.980085500	Loss	E02	2.0	2020-12-14 14:10:08.980085500
2020-12-14 14:10:09.980085500	Loss	E02	2.0	2020-12-14 14:10:11.980085500

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Navigation signal 1A				
DATE_TIME	event	type	duration	reacq
2020-12-14 14:10:35.980085500	Loss	E02	12.0	2020-12-14 14:10:47.980085500
2020-12-14 14:11:18.980085500	Loss	E02	14.0	2020-12-14 14:11:32.980085500
2020-12-14 14:11:32.980085500	Loss	E02	7.0	2020-12-14 14:11:39.980085500
2020-12-14 14:11:40.980085500	Loss	E02	2.0	2020-12-14 14:11:42.980085500
2020-12-14 14:11:43.980085500	Loss	E02	2.0	2020-12-14 14:11:45.980085500
2020-12-14 14:12:09.980085500	Loss	E02	9.0	2020-12-14 14:12:18.980085500
2020-12-14 14:13:31.980085500	Loss	E02	8.0	2020-12-14 14:13:39.980085500
2020-12-14 14:13:39.980085500	Loss	E02	6.0	2020-12-14 14:13:45.980085500
2020-12-14 14:13:46.980085500	Loss	E02	4.0	2020-12-14 14:13:50.980085500
2020-12-14 14:13:53.980085500	Loss	E02	7.0	2020-12-14 14:14:00.980085500
2020-12-14 14:14:00.980085500	Loss	E02	7.0	2020-12-14 14:14:07.980085500
2020-12-14 14:14:07.980085500	Loss	E02	448.0	2020-12-14 14:21:35.980085500
2020-12-14 14:21:36.980085500	Loss	E02	2.0	2020-12-14 14:21:38.980085500
2020-12-14 14:21:38.980085500	Loss	E02	2.0	2020-12-14 14:21:40.980085500
2020-12-14 14:21:46.980085500	Loss	E02	2.0	2020-12-14 14:21:48.980085500
2020-12-14 14:22:02.980085500	Loss	E02	2.0	2020-12-14 14:22:04.980085500
2020-12-14 14:22:04.980085500	Loss	E02	2.0	2020-12-14 14:22:06.980085500
2020-12-14 14:22:09.980085500	Loss	E02	3.0	2020-12-14 14:22:12.980085500
2020-12-14 14:22:17.980085500	Loss	E02	2.0	2020-12-14 14:22:19.980085500
2020-12-14 14:22:21.980085500	Loss	E02	2.0	2020-12-14 14:22:23.980085500
2020-12-14 14:22:23.980085500	Loss	E02	2.0	2020-12-14 14:22:25.980085500
2020-12-14 14:22:25.980085500	Loss	E02	2.0	2020-12-14 14:22:27.980085500
2020-12-14 14:22:27.980085500	Loss	E02	2.0	2020-12-14 14:22:29.980085500
2020-12-14 14:22:35.980085500	Loss	E02	2.0	2020-12-14 14:22:37.980085500
2020-12-14 14:23:30.980085500	Loss	E02	2.0	2020-12-14 14:23:32.980085500
2020-12-14 14:23:42.980085500	Loss	E02	2.0	2020-12-14 14:23:44.980085500
2020-12-14 14:23:46.980085500	Loss	E02	19.0	2020-12-14 14:24:05.980085500
2020-12-14 14:24:17.980085500	Loss	E02	2.0	2020-12-14 14:24:19.980085500
2020-12-14 14:24:22.980085500	Loss	E02	5.0	2020-12-14 14:24:27.980085500
2020-12-14 14:24:42.980085500	Loss	E02	2.0	2020-12-14 14:24:44.980085500

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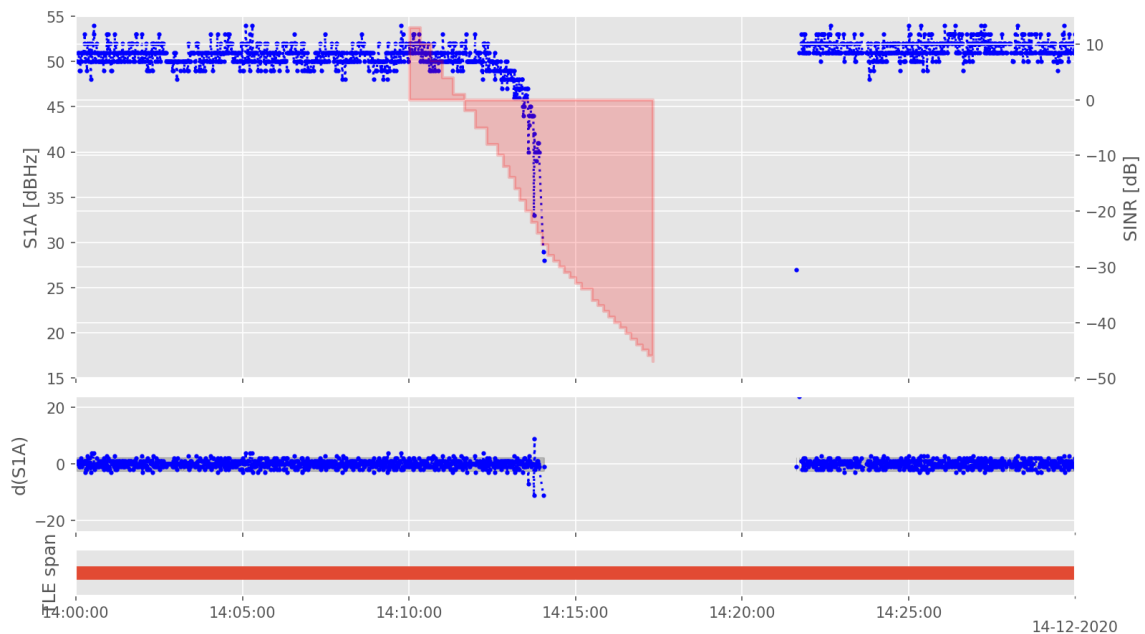
Continued on Next Page

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## Navigation signal 1A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:24:46.980085500	Loss	E02	5.0	2020-12-14 14:24:51.980085500
2020-12-14 14:26:45.980085500	Loss	E02	2.0	2020-12-14 14:26:47.980085500
2020-12-14 14:26:47.980085500	Loss	E02	2.0	2020-12-14 14:26:49.980085500
2020-12-14 14:26:58.980085500	Loss	E02	2.0	2020-12-14 14:27:00.980085500
2020-12-14 14:27:34.980085500	Loss	E02	2.0	2020-12-14 14:27:36.980085500
2020-12-14 14:27:54.980085500	Loss	E02	2.0	2020-12-14 14:27:56.980085500
2020-12-14 14:27:56.980085500	Loss	E02	3.0	2020-12-14 14:27:59.980085500
2020-12-14 14:28:00.980085500	Loss	E02	2.0	2020-12-14 14:28:02.980085500
2020-12-14 14:28:03.980085500	Loss	E02	3.0	2020-12-14 14:28:06.980085500
2020-12-14 14:28:06.980085500	Loss	E02	6.0	2020-12-14 14:28:12.980085500
2020-12-14 14:28:41.980085500	Loss	E02	2.0	2020-12-14 14:28:43.980085500
2020-12-14 14:28:43.980085500	Loss	E02	3.0	2020-12-14 14:28:46.980085500
2020-12-14 14:28:47.980085500	Loss	E02	2.0	2020-12-14 14:28:49.980085500
2020-12-14 14:28:49.980085500	Loss	E02	2.0	2020-12-14 14:28:51.980085500

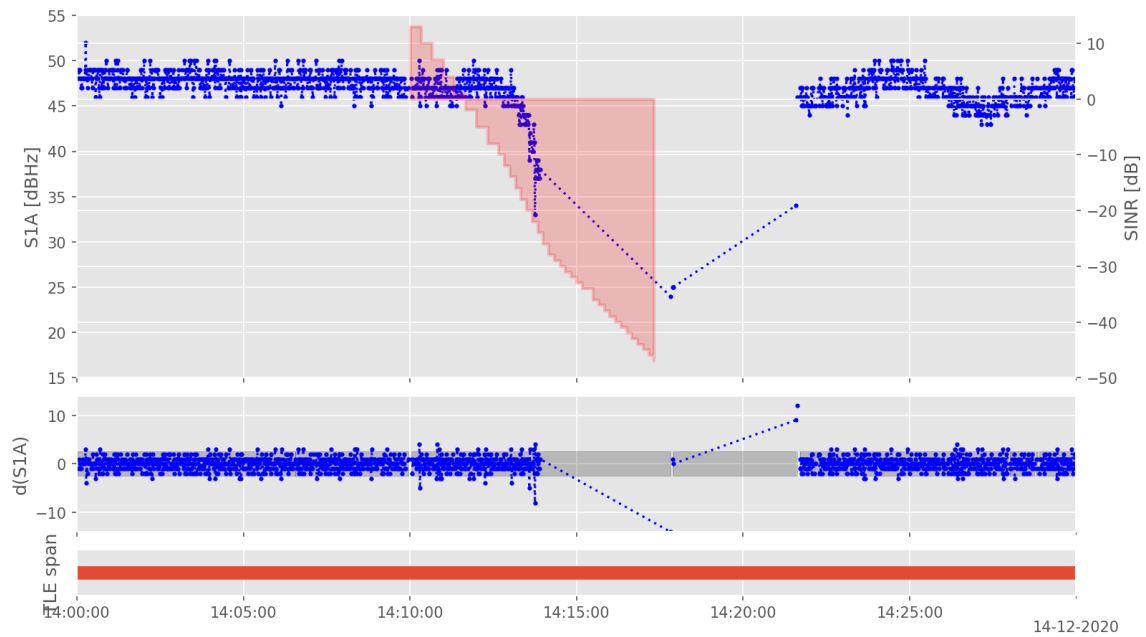
P3RS04BEL: S1A for E03 @ 14/12/2020 (2020/349)



## Navigation signal 1A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:03:04.980085500	Loss	E03	2.0	2020-12-14 14:03:06.980085500
2020-12-14 14:03:06.980085500	Loss	E03	2.0	2020-12-14 14:03:08.980085500
2020-12-14 14:03:09.980085500	Loss	E03	2.0	2020-12-14 14:03:11.980085500
2020-12-14 14:06:30.980085500	Loss	E03	2.0	2020-12-14 14:06:32.980085500
2020-12-14 14:13:53.980085500	Loss	E03	8.0	2020-12-14 14:14:01.980085500
2020-12-14 14:14:01.980085500	Loss	E03	2.0	2020-12-14 14:14:03.980085500
2020-12-14 14:14:03.980085500	Loss	E03	453.0	2020-12-14 14:21:36.980085500
2020-12-14 14:21:36.980085500	Loss	E03	5.0	2020-12-14 14:21:41.980085500
2020-12-14 14:21:41.980085500	Loss	E03	4.0	2020-12-14 14:21:45.980085500
2020-12-14 14:23:30.980085500	Loss	E03	3.0	2020-12-14 14:23:33.980085500
2020-12-14 14:23:35.980085500	Loss	E03	8.0	2020-12-14 14:23:43.980085500
2020-12-14 14:27:54.980085500	Loss	E03	2.0	2020-12-14 14:27:56.980085500
2020-12-14 14:27:56.980085500	Loss	E03	3.0	2020-12-14 14:27:59.980085500
2020-12-14 14:28:00.980085500	Loss	E03	2.0	2020-12-14 14:28:02.980085500
2020-12-14 14:28:03.980085500	Loss	E03	3.0	2020-12-14 14:28:06.980085500
2020-12-14 14:28:41.980085500	Loss	E03	2.0	2020-12-14 14:28:43.980085500
2020-12-14 14:28:43.980085500	Loss	E03	3.0	2020-12-14 14:28:46.980085500
2020-12-14 14:28:47.980085500	Loss	E03	2.0	2020-12-14 14:28:49.980085500
2020-12-14 14:28:49.980085500	Loss	E03	2.0	2020-12-14 14:28:51.980085500
2020-12-14 14:28:51.980085500	Loss	E03	2.0	2020-12-14 14:28:53.980085500

P3RS04BEL: S1A for E05 @ 14/12/2020 (2020/349)



## Navigation signal 1A

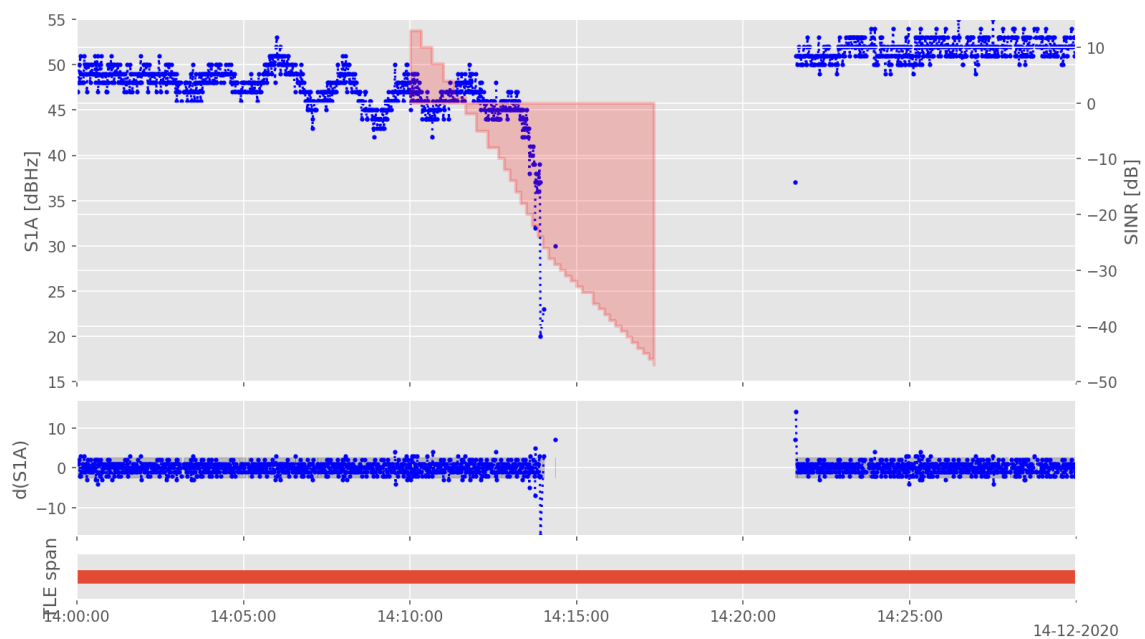
DATE_TIME	event	type	duration	reacq
2020-12-14 14:03:04.980085500	Loss	E05	2.0	2020-12-14 14:03:06.980085500
2020-12-14 14:03:06.980085500	Loss	E05	2.0	2020-12-14 14:03:08.980085500
2020-12-14 14:03:09.980085500	Loss	E05	2.0	2020-12-14 14:03:11.980085500
2020-12-14 14:06:30.980085500	Loss	E05	2.0	2020-12-14 14:06:32.980085500
2020-12-14 14:09:51.980085500	Loss	E05	5.0	2020-12-14 14:09:56.980085500
2020-12-14 14:09:56.980085500	Loss	E05	6.0	2020-12-14 14:10:02.980085500
2020-12-14 14:13:53.980085500	Loss	E05	235.0	2020-12-14 14:17:48.980085500
2020-12-14 14:17:48.980085500	Loss	E05	4.0	2020-12-14 14:17:52.980085500
2020-12-14 14:17:53.980085500	Loss	E05	221.0	2020-12-14 14:21:34.980085500
2020-12-14 14:21:34.980085500	Loss	E05	2.0	2020-12-14 14:21:36.980085500
2020-12-14 14:21:36.980085500	Loss	E05	5.0	2020-12-14 14:21:41.980085500
2020-12-14 14:22:05.980085500	Loss	E05	3.0	2020-12-14 14:22:08.980085500
2020-12-14 14:22:10.980085500	Loss	E05	5.0	2020-12-14 14:22:15.980085500
2020-12-14 14:27:54.980085500	Loss	E05	2.0	2020-12-14 14:27:56.980085500

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## Navigation signal 1A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:27:56.980085500	Loss	E05	3.0	2020-12-14 14:27:59.980085500
2020-12-14 14:28:00.980085500	Loss	E05	2.0	2020-12-14 14:28:02.980085500
2020-12-14 14:28:03.980085500	Loss	E05	3.0	2020-12-14 14:28:06.980085500
2020-12-14 14:28:41.980085500	Loss	E05	2.0	2020-12-14 14:28:43.980085500
2020-12-14 14:28:43.980085500	Loss	E05	3.0	2020-12-14 14:28:46.980085500
2020-12-14 14:28:47.980085500	Loss	E05	2.0	2020-12-14 14:28:49.980085500
2020-12-14 14:28:49.980085500	Loss	E05	2.0	2020-12-14 14:28:51.980085500
2020-12-14 14:28:51.980085500	Loss	E05	2.0	2020-12-14 14:28:53.980085500

P3RS04BEL: S1A for E08 @ 14/12/2020 (2020/349)



## Navigation signal 1A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:00:07.980085500	Loss	E08	2.0	2020-12-14 14:00:09.980085500
2020-12-14 14:03:04.980085500	Loss	E08	2.0	2020-12-14 14:03:06.980085500
2020-12-14 14:03:06.980085500	Loss	E08	2.0	2020-12-14 14:03:08.980085500

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Navigation signal 1A				
DATE_TIME	event	type	duration	reacq
2020-12-14 14:03:08.980085500	Loss	E08	3.0	2020-12-14 14:03:11.980085500
2020-12-14 14:04:31.980085500	Loss	E08	2.0	2020-12-14 14:04:33.980085500
2020-12-14 14:04:49.980085500	Loss	E08	2.0	2020-12-14 14:04:51.980085500
2020-12-14 14:05:00.980085500	Loss	E08	2.0	2020-12-14 14:05:02.980085500
2020-12-14 14:05:02.980085500	Loss	E08	2.0	2020-12-14 14:05:04.980085500
2020-12-14 14:05:04.980085500	Loss	E08	2.0	2020-12-14 14:05:06.980085500
2020-12-14 14:06:30.980085500	Loss	E08	2.0	2020-12-14 14:06:32.980085500
2020-12-14 14:07:10.980085500	Loss	E08	2.0	2020-12-14 14:07:12.980085500
2020-12-14 14:07:16.980085500	Loss	E08	2.0	2020-12-14 14:07:18.980085500
2020-12-14 14:08:34.980085500	Loss	E08	2.0	2020-12-14 14:08:36.980085500
2020-12-14 14:10:36.980085500	Loss	E08	2.0	2020-12-14 14:10:38.980085500
2020-12-14 14:12:31.980085500	Loss	E08	2.0	2020-12-14 14:12:33.980085500
2020-12-14 14:12:41.980085500	Loss	E08	2.0	2020-12-14 14:12:43.980085500
2020-12-14 14:13:41.980085500	Loss	E08	2.0	2020-12-14 14:13:43.980085500
2020-12-14 14:13:54.980085500	Loss	E08	6.0	2020-12-14 14:14:00.980085500
2020-12-14 14:14:00.980085500	Loss	E08	21.0	2020-12-14 14:14:21.980085500
2020-12-14 14:14:21.980085500	Loss	E08	432.0	2020-12-14 14:21:33.980085500
2020-12-14 14:21:34.980085500	Loss	E08	2.0	2020-12-14 14:21:36.980085500
2020-12-14 14:23:36.980085500	Loss	E08	2.0	2020-12-14 14:23:38.980085500
2020-12-14 14:23:40.980085500	Loss	E08	5.0	2020-12-14 14:23:45.980085500
2020-12-14 14:27:54.980085500	Loss	E08	2.0	2020-12-14 14:27:56.980085500
2020-12-14 14:27:56.980085500	Loss	E08	3.0	2020-12-14 14:27:59.980085500
2020-12-14 14:28:00.980085500	Loss	E08	2.0	2020-12-14 14:28:02.980085500
2020-12-14 14:28:41.980085500	Loss	E08	2.0	2020-12-14 14:28:43.980085500
2020-12-14 14:28:43.980085500	Loss	E08	3.0	2020-12-14 14:28:46.980085500
2020-12-14 14:28:47.980085500	Loss	E08	2.0	2020-12-14 14:28:49.980085500
2020-12-14 14:28:49.980085500	Loss	E08	2.0	2020-12-14 14:28:51.980085500
2020-12-14 14:28:51.980085500	Loss	E08	2.0	2020-12-14 14:28:53.980085500
2020-12-14 14:29:43.980085500	Loss	E08	2.0	2020-12-14 14:29:45.980085500

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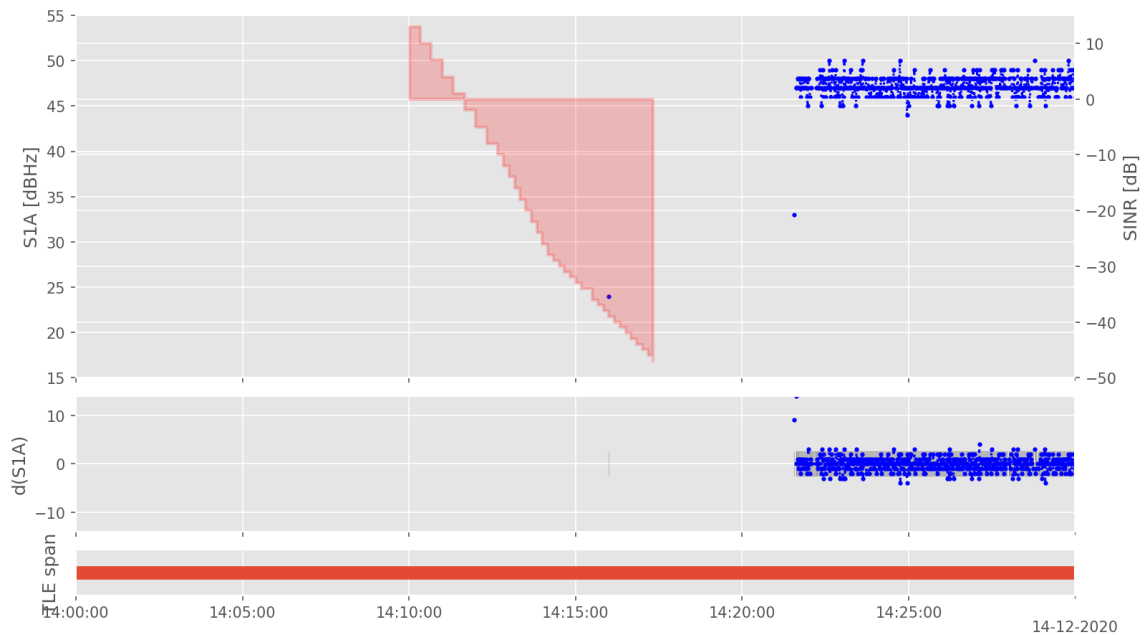
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## Navigation signal 1A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:29:46.980085500	Loss	E08	2.0	2020-12-14 14:29:48.980085500

P3RS04BEL: S1A for E24 @ 14/12/2020 (2020/349)



## Navigation signal 1A

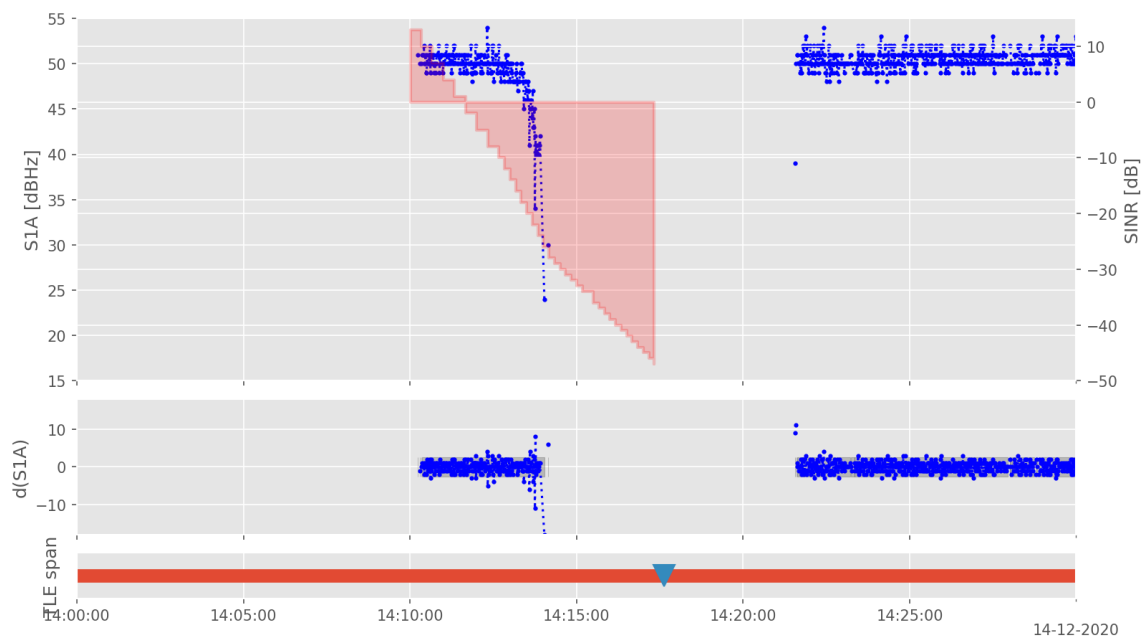
DATE_TIME	event	type	duration	reacq
2020-12-14 14:05:21.980085500	Loss	E24	638.0	2020-12-14 14:15:59.980085500
2020-12-14 14:15:59.980085500	Loss	E24	333.0	2020-12-14 14:21:32.980085500
2020-12-14 14:21:32.980085500	Loss	E24	4.0	2020-12-14 14:21:36.980085500
2020-12-14 14:21:37.980085500	Loss	E24	2.0	2020-12-14 14:21:39.980085500
2020-12-14 14:21:59.980085500	Loss	E24	2.0	2020-12-14 14:22:01.980085500
2020-12-14 14:22:03.980085500	Loss	E24	10.0	2020-12-14 14:22:13.980085500
2020-12-14 14:27:54.980085500	Loss	E24	2.0	2020-12-14 14:27:56.980085500
2020-12-14 14:27:56.980085500	Loss	E24	3.0	2020-12-14 14:27:59.980085500
2020-12-14 14:28:00.980085500	Loss	E24	2.0	2020-12-14 14:28:02.980085500
2020-12-14 14:28:03.980085500	Loss	E24	3.0	2020-12-14 14:28:06.980085500

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## Navigation signal 1A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:28:41.980085500	Loss	E24	2.0	2020-12-14 14:28:43.980085500
2020-12-14 14:28:43.980085500	Loss	E24	3.0	2020-12-14 14:28:46.980085500
2020-12-14 14:28:47.980085500	Loss	E24	2.0	2020-12-14 14:28:49.980085500
2020-12-14 14:28:49.980085500	Loss	E24	2.0	2020-12-14 14:28:51.980085500
2020-12-14 14:28:51.980085500	Loss	E24	2.0	2020-12-14 14:28:53.980085500

P3RS04BEL: S1A for E25 @ 14/12/2020 (2020/349)



## Navigation signal 1A

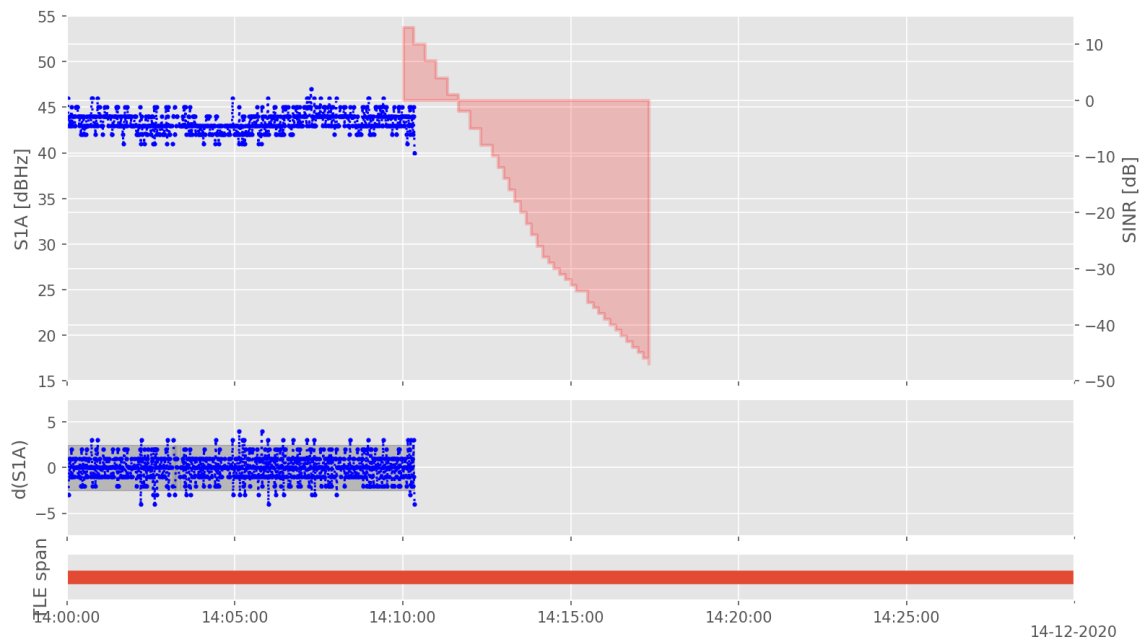
DATE_TIME	event	type	duration	reacq
2020-12-14 14:10:11.980085500	Loss	E25	2.0	2020-12-14 14:10:13.980085500
2020-12-14 14:10:13.980085500	Loss	E25	4.0	2020-12-14 14:10:17.980085500
2020-12-14 14:10:17.980085500	Loss	E25	3.0	2020-12-14 14:10:20.980085500
2020-12-14 14:13:53.980085500	Loss	E25	8.0	2020-12-14 14:14:01.980085500
2020-12-14 14:14:01.980085500	Loss	E25	7.0	2020-12-14 14:14:08.980085500
2020-12-14 14:14:08.980085500	Loss	E25	444.0	2020-12-14 14:21:32.980085500

Continued on Next Page

## Navigation signal 1A

DATE_TIME	event	type	duration	reacq
2020-12-14 14:21:32.980085500	Loss	E25	2.0	2020-12-14 14:21:34.980085500
2020-12-14 14:21:34.980085500	Loss	E25	2.0	2020-12-14 14:21:36.980085500
2020-12-14 14:21:37.980085500	Loss	E25	2.0	2020-12-14 14:21:39.980085500
2020-12-14 14:23:09.980085500	Loss	E25	3.0	2020-12-14 14:23:12.980085500
2020-12-14 14:23:14.980085500	Loss	E25	5.0	2020-12-14 14:23:19.980085500
2020-12-14 14:27:54.980085500	Loss	E25	2.0	2020-12-14 14:27:56.980085500
2020-12-14 14:27:56.980085500	Loss	E25	3.0	2020-12-14 14:27:59.980085500
2020-12-14 14:28:00.980085500	Loss	E25	2.0	2020-12-14 14:28:02.980085500
2020-12-14 14:28:03.980085500	Loss	E25	3.0	2020-12-14 14:28:06.980085500
2020-12-14 14:28:41.980085500	Loss	E25	2.0	2020-12-14 14:28:43.980085500
2020-12-14 14:28:43.980085500	Loss	E25	3.0	2020-12-14 14:28:46.980085500
2020-12-14 14:28:47.980085500	Loss	E25	2.0	2020-12-14 14:28:49.980085500
2020-12-14 14:28:49.980085500	Loss	E25	2.0	2020-12-14 14:28:51.980085500
2020-12-14 14:28:51.980085500	Loss	E25	2.0	2020-12-14 14:28:53.980085500

P3RS04BEL: S1A for E26 @ 14/12/2020 (2020/349)



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Navigation signal 1A				
DATE_TIME	event	type	duration	reacq
2020-12-14 14:03:04.980085500	Loss	E26	2.0	2020-12-14 14:03:06.980085500
2020-12-14 14:03:06.980085500	Loss	E26	2.0	2020-12-14 14:03:08.980085500
2020-12-14 14:03:09.980085500	Loss	E26	2.0	2020-12-14 14:03:11.980085500
2020-12-14 14:03:12.980085500	Loss	E26	2.0	2020-12-14 14:03:14.980085500
2020-12-14 14:03:16.980085500	Loss	E26	5.0	2020-12-14 14:03:21.980085500
2020-12-14 14:06:30.980085500	Loss	E26	2.0	2020-12-14 14:06:32.980085500

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#### 4. Chronological overview of detected events for navigation signal E1A

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Navigation signal 1A				
DATE_TIME	event	type	duration	
2020-12-14 14:00:07.980085500	Loss	E08	2.0	
2020-12-14 14:00:09.980085500	Reacquisition	E08	nan	
2020-12-14 14:01:13.980085500	Loss	E02	2.0	
2020-12-14 14:01:15.980085500	Loss	E02	9.0	
2020-12-14 14:01:15.980085500	Reacquisition	E02	nan	
2020-12-14 14:01:24.980085500	Loss	E02	3.0	
2020-12-14 14:01:24.980085500	Reacquisition	E02	nan	
2020-12-14 14:01:27.980085500	Loss	E02	3.0	
2020-12-14 14:01:27.980085500	Reacquisition	E02	nan	
2020-12-14 14:01:30.980085500	Reacquisition	E02	nan	
2020-12-14 14:01:30.980085500	Loss	E02	4.0	
2020-12-14 14:01:34.980085500	Reacquisition	E02	nan	
2020-12-14 14:02:11.980085500	Loss	E02	5.0	
2020-12-14 14:02:16.980085500	Loss	E02	3.0	
2020-12-14 14:02:16.980085500	Reacquisition	E02	nan	
2020-12-14 14:02:19.980085500	Loss	E02	2.0	
2020-12-14 14:02:19.980085500	Reacquisition	E02	nan	
2020-12-14 14:02:21.980085500	Reacquisition	E02	nan	
2020-12-14 14:02:21.980085500	Loss	E02	2.0	

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Continued on Next Page

## Navigation signal 1A

DATE_TIME	event	type	duration
2020-12-14 14:02:23.980085500	Loss	E02	2.0
2020-12-14 14:02:23.980085500	Reacquisition	E02	nan
2020-12-14 14:02:25.980085500	Reacquisition	E02	nan
2020-12-14 14:02:43.980085500	Loss	E02	2.0
2020-12-14 14:02:45.980085500	Reacquisition	E02	nan
2020-12-14 14:02:56.980085500	Loss	E02	2.0
2020-12-14 14:02:58.980085500	Reacquisition	E02	nan
2020-12-14 14:03:03.980085500	Loss	E02	3.0
2020-12-14 14:03:04.980085500	Loss	E05	2.0
2020-12-14 14:03:04.980085500	Loss	E08	2.0
2020-12-14 14:03:04.980085500	Loss	E03	2.0
2020-12-14 14:03:04.980085500	Loss	E26	2.0
2020-12-14 14:03:06.980085500	Loss	E08	2.0
2020-12-14 14:03:06.980085500	Reacquisition	E05	nan
2020-12-14 14:03:06.980085500	Loss	E05	2.0
2020-12-14 14:03:06.980085500	Reacquisition	E26	nan
2020-12-14 14:03:06.980085500	Loss	E02	2.0
2020-12-14 14:03:06.980085500	Loss	E26	2.0
2020-12-14 14:03:06.980085500	Reacquisition	E03	nan
2020-12-14 14:03:06.980085500	Reacquisition	E08	nan
2020-12-14 14:03:06.980085500	Loss	E03	2.0
2020-12-14 14:03:06.980085500	Reacquisition	E02	nan
2020-12-14 14:03:08.980085500	Loss	E08	3.0
2020-12-14 14:03:08.980085500	Reacquisition	E05	nan
2020-12-14 14:03:08.980085500	Reacquisition	E08	nan
2020-12-14 14:03:08.980085500	Reacquisition	E02	nan
2020-12-14 14:03:08.980085500	Reacquisition	E03	nan
2020-12-14 14:03:08.980085500	Reacquisition	E26	nan
2020-12-14 14:03:09.980085500	Loss	E05	2.0
2020-12-14 14:03:09.980085500	Loss	E03	2.0

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## Navigation signal 1A

DATE_TIME	event	type	duration
2020-12-14 14:03:09.980085500	Loss	E02	9.0
2020-12-14 14:03:09.980085500	Loss	E26	2.0
2020-12-14 14:03:11.980085500	Reacquisition	E03	nan
2020-12-14 14:03:11.980085500	Reacquisition	E26	nan
2020-12-14 14:03:11.980085500	Reacquisition	E05	nan
2020-12-14 14:03:11.980085500	Reacquisition	E08	nan
2020-12-14 14:03:12.980085500	Loss	PNT	2.0
2020-12-14 14:03:12.980085500	Loss	E26	2.0
2020-12-14 14:03:14.980085500	Reacquisition	E26	nan
2020-12-14 14:03:14.980085500	Reacquisition	PNT	nan
2020-12-14 14:03:16.980085500	Loss	PNT	2.0
2020-12-14 14:03:16.980085500	Loss	E26	5.0
2020-12-14 14:03:18.980085500	Reacquisition	E02	nan
2020-12-14 14:03:18.980085500	Reacquisition	PNT	nan
2020-12-14 14:03:21.980085500	Reacquisition	E26	nan
2020-12-14 14:04:13.980085500	Loss	E02	2.0
2020-12-14 14:04:15.980085500	Reacquisition	E02	nan
2020-12-14 14:04:31.980085500	Loss	E08	2.0
2020-12-14 14:04:33.980085500	Reacquisition	E08	nan
2020-12-14 14:04:49.980085500	Loss	E08	2.0
2020-12-14 14:04:51.980085500	Reacquisition	E08	nan
2020-12-14 14:05:00.980085500	Loss	E08	2.0
2020-12-14 14:05:02.980085500	Reacquisition	E08	nan
2020-12-14 14:05:02.980085500	Loss	E08	2.0
2020-12-14 14:05:04.980085500	Loss	E08	2.0
2020-12-14 14:05:04.980085500	Loss	PNT	2.0
2020-12-14 14:05:04.980085500	Reacquisition	E08	nan
2020-12-14 14:05:04.980085500	Loss	E02	7.0
2020-12-14 14:05:06.980085500	Reacquisition	PNT	nan
2020-12-14 14:05:06.980085500	Reacquisition	E08	nan

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## Navigation signal 1A

DATE_TIME	event	type	duration
2020-12-14 14:05:11.980085500	Reacquisition	E02	nan
2020-12-14 14:05:11.980085500	Loss	E02	9.0
2020-12-14 14:05:20.980085500	Reacquisition	E02	nan
2020-12-14 14:05:21.980085500	Loss	E24	638.0
2020-12-14 14:06:30.980085500	Loss	E03	2.0
2020-12-14 14:06:30.980085500	Loss	E02	2.0
2020-12-14 14:06:30.980085500	Loss	E08	2.0
2020-12-14 14:06:30.980085500	Loss	E05	2.0
2020-12-14 14:06:30.980085500	Loss	E26	2.0
2020-12-14 14:06:32.980085500	Reacquisition	E02	nan
2020-12-14 14:06:32.980085500	Reacquisition	E08	nan
2020-12-14 14:06:32.980085500	Reacquisition	E05	nan
2020-12-14 14:06:32.980085500	Reacquisition	E03	nan
2020-12-14 14:06:32.980085500	Reacquisition	E26	nan
2020-12-14 14:06:33.980085500	Loss	E02	2.0
2020-12-14 14:06:35.980085500	Reacquisition	E02	nan
2020-12-14 14:07:10.980085500	Loss	E08	2.0
2020-12-14 14:07:12.980085500	Reacquisition	E08	nan
2020-12-14 14:07:16.980085500	Loss	E08	2.0
2020-12-14 14:07:18.980085500	Reacquisition	E08	nan
2020-12-14 14:07:52.980085500	Loss	E02	6.0
2020-12-14 14:07:58.980085500	Reacquisition	E02	nan
2020-12-14 14:07:58.980085500	Loss	E02	10.0
2020-12-14 14:08:08.980085500	Reacquisition	E02	nan
2020-12-14 14:08:33.980085500	Loss	E02	10.0
2020-12-14 14:08:34.980085500	Loss	PNT	2.0
2020-12-14 14:08:34.980085500	Loss	E08	2.0
2020-12-14 14:08:36.980085500	Reacquisition	E08	nan
2020-12-14 14:08:36.980085500	Reacquisition	PNT	nan
2020-12-14 14:08:43.980085500	Loss	E02	7.0

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## Navigation signal 1A

DATE_TIME	event	type	duration
2020-12-14 14:08:43.980085500	Reacquisition	E02	nan
2020-12-14 14:08:50.980085500	Loss	E02	3.0
2020-12-14 14:08:50.980085500	Reacquisition	E02	nan
2020-12-14 14:08:53.980085500	Reacquisition	E02	nan
2020-12-14 14:08:53.980085500	Loss	E02	5.0
2020-12-14 14:08:58.980085500	Reacquisition	E02	nan
2020-12-14 14:09:19.980085500	Loss	E02	8.0
2020-12-14 14:09:27.980085500	Reacquisition	E02	nan
2020-12-14 14:09:27.980085500	Loss	E02	5.0
2020-12-14 14:09:32.980085500	Reacquisition	E02	nan
2020-12-14 14:09:32.980085500	Loss	E02	3.0
2020-12-14 14:09:35.980085500	Loss	E02	2.0
2020-12-14 14:09:35.980085500	Reacquisition	E02	nan
2020-12-14 14:09:37.980085500	Reacquisition	E02	nan
2020-12-14 14:09:37.980085500	Loss	E02	7.0
2020-12-14 14:09:44.980085500	Loss	E02	2.0
2020-12-14 14:09:44.980085500	Reacquisition	E02	nan
2020-12-14 14:09:46.980085500	Loss	E02	18.0
2020-12-14 14:09:46.980085500	Reacquisition	E02	nan
2020-12-14 14:09:51.980085500	Loss	PNT	5.0
2020-12-14 14:09:51.980085500	Loss	E05	5.0
2020-12-14 14:09:56.980085500	Loss	E05	6.0
2020-12-14 14:09:56.980085500	Reacquisition	E05	nan
2020-12-14 14:09:56.980085500	Loss	PNT	6.0
2020-12-14 14:09:56.980085500	Reacquisition	PNT	nan
2020-12-14 14:10:02.980085500	Reacquisition	E05	nan
2020-12-14 14:10:02.980085500	Reacquisition	PNT	nan
2020-12-14 14:10:04.980085500	Reacquisition	E02	nan
2020-12-14 14:10:06.980085500	Loss	E02	2.0
2020-12-14 14:10:08.980085500	Reacquisition	E02	nan

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## Navigation signal 1A

DATE_TIME	event	type	duration
2020-12-14 14:10:09.980085500	Loss	E02	2.0
2020-12-14 14:10:11.980085500	Reacquisition	E02	nan
2020-12-14 14:10:11.980085500	Loss	E25	2.0
2020-12-14 14:10:13.980085500	Loss	E25	4.0
2020-12-14 14:10:13.980085500	Reacquisition	E25	nan
2020-12-14 14:10:17.980085500	Loss	E25	3.0
2020-12-14 14:10:17.980085500	Reacquisition	E25	nan
2020-12-14 14:10:20.980085500	Reacquisition	E25	nan
2020-12-14 14:10:35.980085500	Loss	E02	12.0
2020-12-14 14:10:36.980085500	Loss	E08	2.0
2020-12-14 14:10:36.980085500	Loss	PNT	2.0
2020-12-14 14:10:38.980085500	Reacquisition	E08	nan
2020-12-14 14:10:38.980085500	Reacquisition	PNT	nan
2020-12-14 14:10:47.980085500	Reacquisition	E02	nan
2020-12-14 14:11:18.980085500	Loss	E02	14.0
2020-12-14 14:11:32.980085500	Reacquisition	E02	nan
2020-12-14 14:11:32.980085500	Loss	E02	7.0
2020-12-14 14:11:39.980085500	Reacquisition	E02	nan
2020-12-14 14:11:40.980085500	Loss	E02	2.0
2020-12-14 14:11:42.980085500	Reacquisition	E02	nan
2020-12-14 14:11:43.980085500	Loss	E02	2.0
2020-12-14 14:11:45.980085500	Reacquisition	E02	nan
2020-12-14 14:12:09.980085500	Loss	E02	9.0
2020-12-14 14:12:18.980085500	Reacquisition	E02	nan
2020-12-14 14:12:31.980085500	Loss	E08	2.0
2020-12-14 14:12:33.980085500	Reacquisition	E08	nan
2020-12-14 14:12:41.980085500	Loss	E08	2.0
2020-12-14 14:12:43.980085500	Reacquisition	E08	nan
2020-12-14 14:13:31.980085500	Loss	E02	8.0
2020-12-14 14:13:39.980085500	Loss	E02	6.0

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## Navigation signal 1A

DATE_TIME	event	type	duration
2020-12-14 14:13:39.980085500	Reacquisition	E02	nan
2020-12-14 14:13:41.980085500	Loss	PNT	2.0
2020-12-14 14:13:41.980085500	Loss	E08	2.0
2020-12-14 14:13:43.980085500	Reacquisition	PNT	nan
2020-12-14 14:13:43.980085500	Reacquisition	E08	nan
2020-12-14 14:13:45.980085500	Reacquisition	E02	nan
2020-12-14 14:13:46.980085500	Loss	E02	4.0
2020-12-14 14:13:50.980085500	Reacquisition	E02	nan
2020-12-14 14:13:53.980085500	Loss	PNT	463.0
2020-12-14 14:13:53.980085500	Loss	E25	8.0
2020-12-14 14:13:53.980085500	Loss	E03	8.0
2020-12-14 14:13:53.980085500	Loss	E05	235.0
2020-12-14 14:13:53.980085500	Loss	E02	7.0
2020-12-14 14:13:54.980085500	Loss	E08	6.0
2020-12-14 14:14:00.980085500	Loss	E08	21.0
2020-12-14 14:14:00.980085500	Loss	E02	7.0
2020-12-14 14:14:00.980085500	Reacquisition	E08	nan
2020-12-14 14:14:00.980085500	Reacquisition	E02	nan
2020-12-14 14:14:01.980085500	Reacquisition	E03	nan
2020-12-14 14:14:01.980085500	Loss	E03	2.0
2020-12-14 14:14:01.980085500	Reacquisition	E25	nan
2020-12-14 14:14:01.980085500	Loss	E25	7.0
2020-12-14 14:14:03.980085500	Reacquisition	E03	nan
2020-12-14 14:14:03.980085500	Loss	E03	453.0
2020-12-14 14:14:07.980085500	Reacquisition	E02	nan
2020-12-14 14:14:07.980085500	Loss	E02	448.0
2020-12-14 14:14:08.980085500	Loss	E25	444.0
2020-12-14 14:14:08.980085500	Reacquisition	E25	nan
2020-12-14 14:14:21.980085500	Loss	E08	432.0
2020-12-14 14:14:21.980085500	Reacquisition	E08	nan

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DATE_TIME	event	type	duration
2020-12-14 14:15:59.980085500	Reacquisition	E24	nan
2020-12-14 14:15:59.980085500	Loss	E24	333.0
2020-12-14 14:17:48.980085500	Reacquisition	E05	nan
2020-12-14 14:17:48.980085500	Loss	E05	4.0
2020-12-14 14:17:52.980085500	Reacquisition	E05	nan
2020-12-14 14:17:53.980085500	Loss	E05	221.0
2020-12-14 14:21:32.980085500	Reacquisition	E24	nan
2020-12-14 14:21:32.980085500	Loss	E24	4.0
2020-12-14 14:21:32.980085500	Loss	E25	2.0
2020-12-14 14:21:32.980085500	Reacquisition	E25	nan
2020-12-14 14:21:33.980085500	Reacquisition	E08	nan
2020-12-14 14:21:34.980085500	Loss	E25	2.0
2020-12-14 14:21:34.980085500	Loss	E05	2.0
2020-12-14 14:21:34.980085500	Loss	E08	2.0
2020-12-14 14:21:34.980085500	Reacquisition	E05	nan
2020-12-14 14:21:34.980085500	Reacquisition	E25	nan
2020-12-14 14:21:35.980085500	Reacquisition	E02	nan
2020-12-14 14:21:36.980085500	Reacquisition	E03	nan
2020-12-14 14:21:36.980085500	Loss	PNT	4.0
2020-12-14 14:21:36.980085500	Loss	E02	2.0
2020-12-14 14:21:36.980085500	Reacquisition	E24	nan
2020-12-14 14:21:36.980085500	Loss	E05	5.0
2020-12-14 14:21:36.980085500	Reacquisition	PNT	nan
2020-12-14 14:21:36.980085500	Reacquisition	E08	nan
2020-12-14 14:21:36.980085500	Reacquisition	E05	nan
2020-12-14 14:21:36.980085500	Loss	E03	5.0
2020-12-14 14:21:36.980085500	Reacquisition	E25	nan
2020-12-14 14:21:37.980085500	Loss	E24	2.0
2020-12-14 14:21:37.980085500	Loss	E25	2.0
2020-12-14 14:21:38.980085500	Reacquisition	E02	nan

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## Navigation signal 1A

DATE_TIME	event	type	duration
2020-12-14 14:21:38.980085500	Loss	E02	2.0
2020-12-14 14:21:39.980085500	Reacquisition	E25	nan
2020-12-14 14:21:39.980085500	Reacquisition	E24	nan
2020-12-14 14:21:40.980085500	Reacquisition	PNT	nan
2020-12-14 14:21:40.980085500	Reacquisition	E02	nan
2020-12-14 14:21:41.980085500	Reacquisition	E03	nan
2020-12-14 14:21:41.980085500	Reacquisition	E05	nan
2020-12-14 14:21:41.980085500	Loss	E03	4.0
2020-12-14 14:21:45.980085500	Reacquisition	E03	nan
2020-12-14 14:21:46.980085500	Loss	E02	2.0
2020-12-14 14:21:48.980085500	Reacquisition	E02	nan
2020-12-14 14:21:59.980085500	Loss	E24	2.0
2020-12-14 14:22:01.980085500	Reacquisition	E24	nan
2020-12-14 14:22:02.980085500	Loss	E02	2.0
2020-12-14 14:22:03.980085500	Loss	E24	10.0
2020-12-14 14:22:04.980085500	Reacquisition	E02	nan
2020-12-14 14:22:04.980085500	Loss	E02	2.0
2020-12-14 14:22:05.980085500	Loss	E05	3.0
2020-12-14 14:22:06.980085500	Reacquisition	E02	nan
2020-12-14 14:22:08.980085500	Reacquisition	E05	nan
2020-12-14 14:22:09.980085500	Loss	E02	3.0
2020-12-14 14:22:10.980085500	Loss	E05	5.0
2020-12-14 14:22:10.980085500	Loss	PNT	2.0
2020-12-14 14:22:12.980085500	Reacquisition	PNT	nan
2020-12-14 14:22:12.980085500	Reacquisition	E02	nan
2020-12-14 14:22:13.980085500	Reacquisition	E24	nan
2020-12-14 14:22:15.980085500	Reacquisition	E05	nan
2020-12-14 14:22:17.980085500	Loss	E02	2.0
2020-12-14 14:22:19.980085500	Reacquisition	E02	nan
2020-12-14 14:22:21.980085500	Loss	E02	2.0

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DATE_TIME	event	type	duration
2020-12-14 14:22:23.980085500	Loss	E02	2.0
2020-12-14 14:22:23.980085500	Reacquisition	E02	nan
2020-12-14 14:22:25.980085500	Reacquisition	E02	nan
2020-12-14 14:22:25.980085500	Loss	E02	2.0
2020-12-14 14:22:27.980085500	Reacquisition	E02	nan
2020-12-14 14:22:27.980085500	Loss	E02	2.0
2020-12-14 14:22:29.980085500	Reacquisition	E02	nan
2020-12-14 14:22:35.980085500	Loss	E02	2.0
2020-12-14 14:22:37.980085500	Reacquisition	E02	nan
2020-12-14 14:23:09.980085500	Loss	E25	3.0
2020-12-14 14:23:12.980085500	Reacquisition	E25	nan
2020-12-14 14:23:14.980085500	Loss	E25	5.0
2020-12-14 14:23:19.980085500	Reacquisition	E25	nan
2020-12-14 14:23:30.980085500	Loss	E02	2.0
2020-12-14 14:23:30.980085500	Loss	E03	3.0
2020-12-14 14:23:32.980085500	Reacquisition	E02	nan
2020-12-14 14:23:33.980085500	Reacquisition	E03	nan
2020-12-14 14:23:35.980085500	Loss	E03	8.0
2020-12-14 14:23:36.980085500	Loss	E08	2.0
2020-12-14 14:23:38.980085500	Reacquisition	E08	nan
2020-12-14 14:23:40.980085500	Loss	E08	5.0
2020-12-14 14:23:42.980085500	Loss	E02	2.0
2020-12-14 14:23:43.980085500	Reacquisition	E03	nan
2020-12-14 14:23:44.980085500	Reacquisition	E02	nan
2020-12-14 14:23:45.980085500	Reacquisition	E08	nan
2020-12-14 14:23:46.980085500	Loss	E02	19.0
2020-12-14 14:24:05.980085500	Reacquisition	E02	nan
2020-12-14 14:24:17.980085500	Loss	E02	2.0
2020-12-14 14:24:19.980085500	Reacquisition	E02	nan
2020-12-14 14:24:22.980085500	Loss	E02	5.0

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DATE_TIME	event	type	duration
2020-12-14 14:24:27.980085500	Reacquisition	E02	nan
2020-12-14 14:24:42.980085500	Loss	E02	2.0
2020-12-14 14:24:44.980085500	Reacquisition	E02	nan
2020-12-14 14:24:46.980085500	Loss	E02	5.0
2020-12-14 14:24:51.980085500	Reacquisition	E02	nan
2020-12-14 14:26:45.980085500	Loss	E02	2.0
2020-12-14 14:26:47.980085500	Loss	E02	2.0
2020-12-14 14:26:47.980085500	Reacquisition	E02	nan
2020-12-14 14:26:49.980085500	Reacquisition	E02	nan
2020-12-14 14:26:58.980085500	Loss	E02	2.0
2020-12-14 14:27:00.980085500	Reacquisition	E02	nan
2020-12-14 14:27:34.980085500	Loss	E02	2.0
2020-12-14 14:27:36.980085500	Reacquisition	E02	nan
2020-12-14 14:27:54.980085500	Loss	E03	2.0
2020-12-14 14:27:54.980085500	Loss	E24	2.0
2020-12-14 14:27:54.980085500	Loss	E08	2.0
2020-12-14 14:27:54.980085500	Loss	E25	2.0
2020-12-14 14:27:54.980085500	Loss	E05	2.0
2020-12-14 14:27:54.980085500	Loss	E02	2.0
2020-12-14 14:27:56.980085500	Reacquisition	E02	nan
2020-12-14 14:27:56.980085500	Loss	E25	3.0
2020-12-14 14:27:56.980085500	Loss	E05	3.0
2020-12-14 14:27:56.980085500	Reacquisition	E03	nan
2020-12-14 14:27:56.980085500	Loss	E03	3.0
2020-12-14 14:27:56.980085500	Reacquisition	E25	nan
2020-12-14 14:27:56.980085500	Reacquisition	E08	nan
2020-12-14 14:27:56.980085500	Loss	E24	3.0
2020-12-14 14:27:56.980085500	Reacquisition	E05	nan
2020-12-14 14:27:56.980085500	Reacquisition	E24	nan
2020-12-14 14:27:56.980085500	Loss	E02	3.0

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## Navigation signal 1A

DATE_TIME	event	type	duration
2020-12-14 14:27:56.980085500	Loss	E08	3.0
2020-12-14 14:27:59.980085500	Reacquisition	E05	nan
2020-12-14 14:27:59.980085500	Reacquisition	E25	nan
2020-12-14 14:27:59.980085500	Reacquisition	E02	nan
2020-12-14 14:27:59.980085500	Reacquisition	E08	nan
2020-12-14 14:27:59.980085500	Reacquisition	E24	nan
2020-12-14 14:27:59.980085500	Reacquisition	E03	nan
2020-12-14 14:28:00.980085500	Loss	E08	2.0
2020-12-14 14:28:00.980085500	Loss	E02	2.0
2020-12-14 14:28:00.980085500	Loss	E25	2.0
2020-12-14 14:28:00.980085500	Loss	E24	2.0
2020-12-14 14:28:00.980085500	Loss	E05	2.0
2020-12-14 14:28:00.980085500	Loss	E03	2.0
2020-12-14 14:28:02.980085500	Reacquisition	E02	nan
2020-12-14 14:28:02.980085500	Reacquisition	E03	nan
2020-12-14 14:28:02.980085500	Reacquisition	E25	nan
2020-12-14 14:28:02.980085500	Reacquisition	E08	nan
2020-12-14 14:28:02.980085500	Reacquisition	E24	nan
2020-12-14 14:28:02.980085500	Reacquisition	E05	nan
2020-12-14 14:28:03.980085500	Loss	PNT	3.0
2020-12-14 14:28:03.980085500	Loss	E25	3.0
2020-12-14 14:28:03.980085500	Loss	E24	3.0
2020-12-14 14:28:03.980085500	Loss	E02	3.0
2020-12-14 14:28:03.980085500	Loss	E05	3.0
2020-12-14 14:28:03.980085500	Loss	E03	3.0
2020-12-14 14:28:06.980085500	Reacquisition	E24	nan
2020-12-14 14:28:06.980085500	Loss	E02	6.0
2020-12-14 14:28:06.980085500	Reacquisition	E02	nan
2020-12-14 14:28:06.980085500	Reacquisition	PNT	nan
2020-12-14 14:28:06.980085500	Reacquisition	E05	nan

Continued on Next Page



## Navigation signal 1A

DATE_TIME	event	type	duration
2020-12-14 14:28:06.980085500	Reacquisition	E03	nan
2020-12-14 14:28:06.980085500	Reacquisition	E25	nan
2020-12-14 14:28:12.980085500	Reacquisition	E02	nan
2020-12-14 14:28:41.980085500	Loss	E08	2.0
2020-12-14 14:28:41.980085500	Loss	E03	2.0
2020-12-14 14:28:41.980085500	Loss	E25	2.0
2020-12-14 14:28:41.980085500	Loss	E24	2.0
2020-12-14 14:28:41.980085500	Loss	E02	2.0
2020-12-14 14:28:41.980085500	Loss	E05	2.0
2020-12-14 14:28:43.980085500	Loss	E25	3.0
2020-12-14 14:28:43.980085500	Loss	E02	3.0
2020-12-14 14:28:43.980085500	Reacquisition	E25	nan
2020-12-14 14:28:43.980085500	Reacquisition	E03	nan
2020-12-14 14:28:43.980085500	Loss	E03	3.0
2020-12-14 14:28:43.980085500	Loss	E08	3.0
2020-12-14 14:28:43.980085500	Loss	E05	3.0
2020-12-14 14:28:43.980085500	Loss	E24	3.0
2020-12-14 14:28:43.980085500	Reacquisition	E08	nan
2020-12-14 14:28:43.980085500	Reacquisition	E05	nan
2020-12-14 14:28:43.980085500	Reacquisition	E02	nan
2020-12-14 14:28:43.980085500	Reacquisition	E24	nan
2020-12-14 14:28:46.980085500	Reacquisition	E08	nan
2020-12-14 14:28:46.980085500	Reacquisition	E24	nan
2020-12-14 14:28:46.980085500	Reacquisition	E02	nan
2020-12-14 14:28:46.980085500	Reacquisition	E05	nan
2020-12-14 14:28:46.980085500	Reacquisition	E25	nan
2020-12-14 14:28:46.980085500	Reacquisition	E03	nan
2020-12-14 14:28:47.980085500	Loss	E03	2.0
2020-12-14 14:28:47.980085500	Loss	E24	2.0
2020-12-14 14:28:47.980085500	Loss	E05	2.0

Continued on Next Page

## Navigation signal 1A

DATE_TIME	event	type	duration
2020-12-14 14:28:47.980085500	Loss	E25	2.0
2020-12-14 14:28:47.980085500	Loss	E08	2.0
2020-12-14 14:28:47.980085500	Loss	E02	2.0
2020-12-14 14:28:49.980085500	Reacquisition	E05	nan
2020-12-14 14:28:49.980085500	Reacquisition	E25	nan
2020-12-14 14:28:49.980085500	Loss	E08	2.0
2020-12-14 14:28:49.980085500	Reacquisition	E08	nan
2020-12-14 14:28:49.980085500	Reacquisition	E02	nan
2020-12-14 14:28:49.980085500	Loss	E03	2.0
2020-12-14 14:28:49.980085500	Loss	E05	2.0
2020-12-14 14:28:49.980085500	Loss	E02	2.0
2020-12-14 14:28:49.980085500	Reacquisition	E24	nan
2020-12-14 14:28:49.980085500	Loss	E24	2.0
2020-12-14 14:28:49.980085500	Loss	E25	2.0
2020-12-14 14:28:49.980085500	Reacquisition	E03	nan
2020-12-14 14:28:51.980085500	Reacquisition	E08	nan
2020-12-14 14:28:51.980085500	Loss	E08	2.0
2020-12-14 14:28:51.980085500	Loss	E24	2.0
2020-12-14 14:28:51.980085500	Reacquisition	E24	nan
2020-12-14 14:28:51.980085500	Reacquisition	E03	nan
2020-12-14 14:28:51.980085500	Reacquisition	E05	nan
2020-12-14 14:28:51.980085500	Reacquisition	E02	nan
2020-12-14 14:28:51.980085500	Loss	E05	2.0
2020-12-14 14:28:51.980085500	Reacquisition	E25	nan
2020-12-14 14:28:51.980085500	Loss	PNT	2.0
2020-12-14 14:28:51.980085500	Loss	E25	2.0
2020-12-14 14:28:51.980085500	Loss	E03	2.0
2020-12-14 14:28:53.980085500	Reacquisition	PNT	nan
2020-12-14 14:28:53.980085500	Reacquisition	E03	nan
2020-12-14 14:28:53.980085500	Reacquisition	E25	nan

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**Navigation signal 1A**

<b>DATE_TIME</b>	<b>event</b>	<b>type</b>	<b>duration</b>
2020-12-14 14:28:53.980085500	Reacquisition	E08	nan
2020-12-14 14:28:53.980085500	Reacquisition	E24	nan
2020-12-14 14:28:53.980085500	Reacquisition	E05	nan
2020-12-14 14:29:43.980085500	Loss	E08	2.0
2020-12-14 14:29:45.980085500	Reacquisition	E08	nan
2020-12-14 14:29:46.980085500	Loss	E08	2.0
2020-12-14 14:29:48.980085500	Reacquisition	E08	nan

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### 3.5 Detailed analysis of observation types per navigation signal for GPS NavSTAR

Observation tabular file : P3RS04BEL\_R\_20203490000\_01D\_00U\_MO\_G.obstab

Examined satellites : G05, G13, G14, G15, G17, G20, G23, G24, G28, G30

Examined navigation signals : 1C

Examined observables : S1C

#### 3.5.1 TLE time spans

The table below represents the calculated rise and set times within the observation time span for a PRN based on the TLEs. When a culmination is within this interval, it is represented in the table.

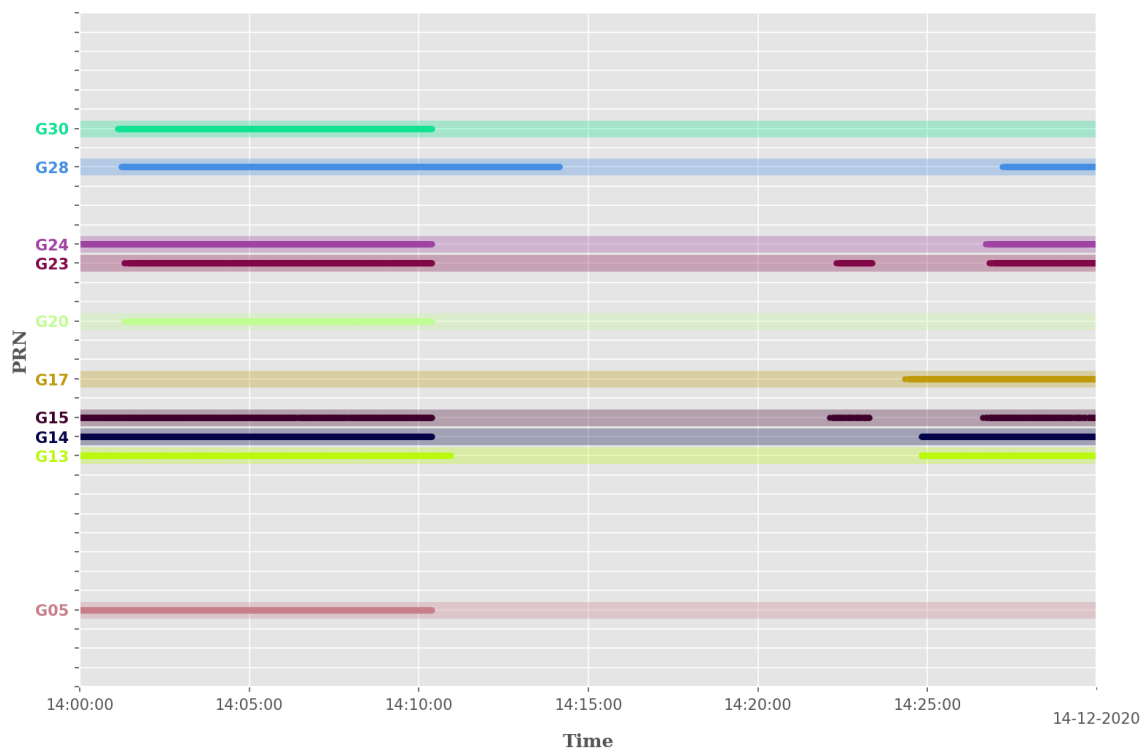
PRN	tle_rise	tle_set	tle_cul	tle_arc_count
G13	14:00:00	14:29:59		1799.0
G14	14:00:00	14:29:59		1799.0
G15	14:00:00	14:29:59		1799.0
G24	14:00:00	14:29:59		1799.0
G05	14:00:00	14:29:59		1799.0
G30	14:00:00	14:29:59		1799.0
G28	14:00:00	14:29:59		1799.0
G20	14:00:00	14:29:59		1799.0
G23	14:00:00	14:29:59		1799.0
G17	14:00:00	14:29:59		1799.0

#### 3.5.2 Navigation signals analysis for GPS NavSTAR

## Analysis of navigation signal G1C

- Figure 9 represents the observed time span for navigation signal G1C set out against the maximum time span calculated from the Two Line Elements (TLE). If present, the culmination point for a satellite is represented by a triangle. The time span from TLEs is represented by the lighter area while the real observations are represented by the dark super-imposed areas.

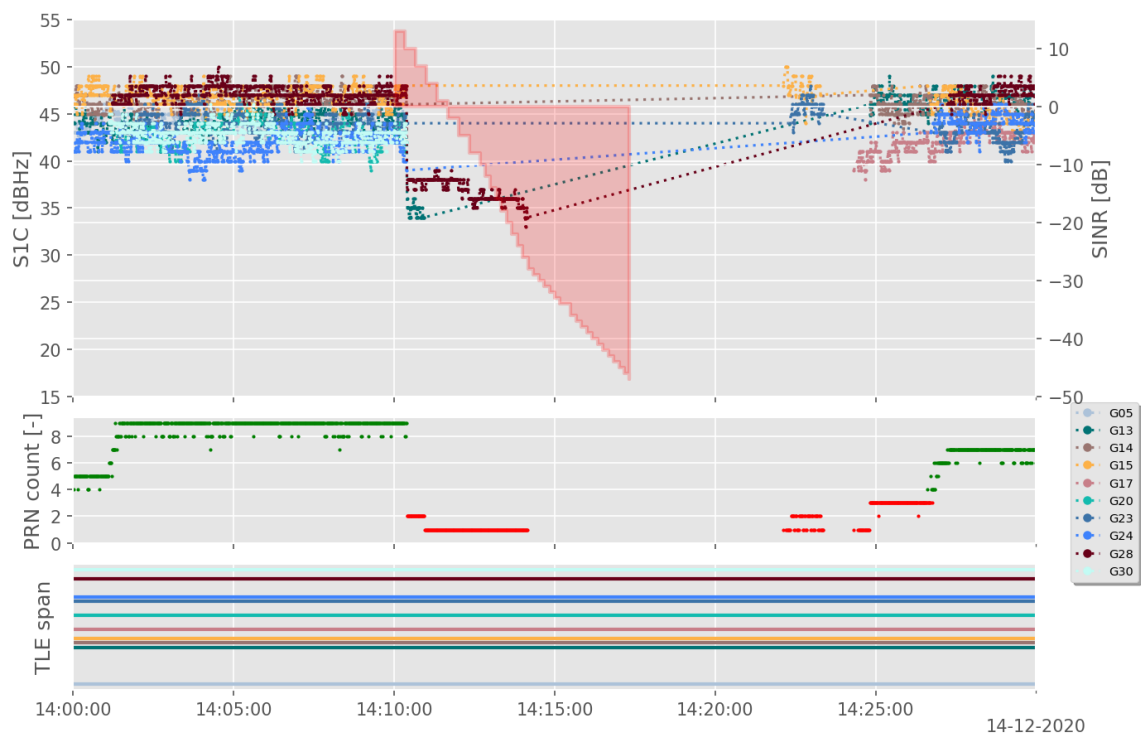
P3RS04BEL - G1C - 14/12/2020 (2020/349 - Obs vs TLE)



**Figure 9:** Navigation signal G1C versus TLE time span

- Figure 10 displays the evolution of observation type S1C. The upper plot represents the variation of the observation type while the middle plot (if available) displays the variation of this observable between 2 consecutive epochs. The bottom plot displays the TLE time spans for the satellites.

P3RS04BEL: S1C for G1C @ 14/12/2020 (2020/349)

**Figure 10:** Navigation signal S1C evolution

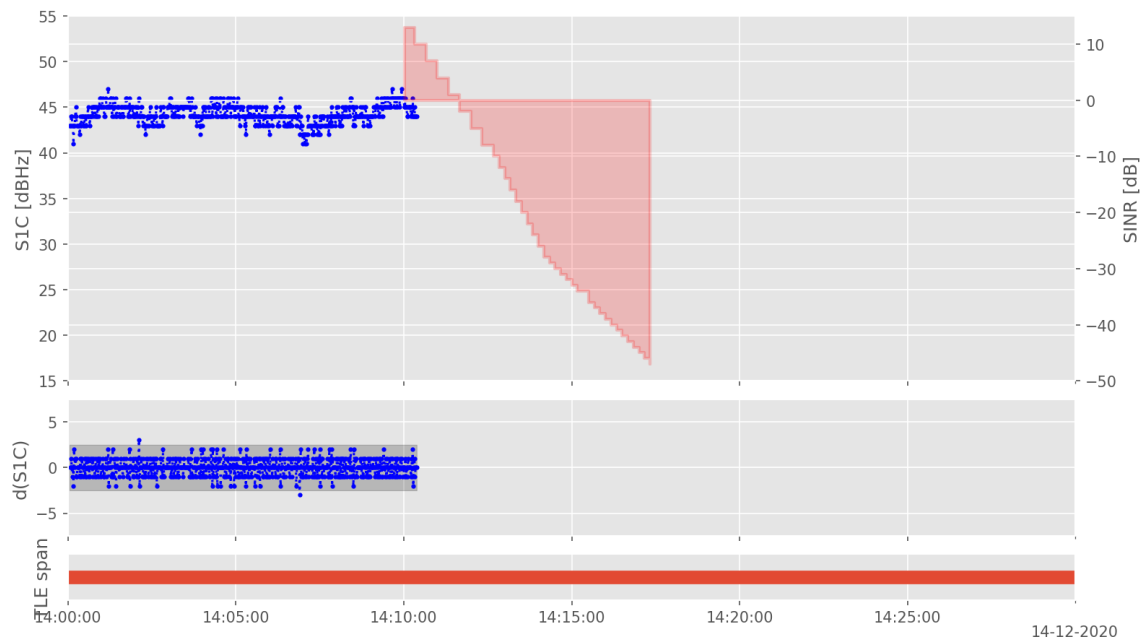
The table below reports the loss and reacquisition of PNT for observable S1C.

Navigation signal 1C				
DATE_TIME	event	type	duration	reacq
2020-12-14 14:10:22.980085500	Loss	PNT	974.0	2020-12-14 14:26:36.980085500
2020-12-14 14:26:36.980085500	Loss	PNT	6.0	2020-12-14 14:26:42.980085500
2020-12-14 14:26:43.980085500	Loss	PNT	2.0	2020-12-14 14:26:45.980085500

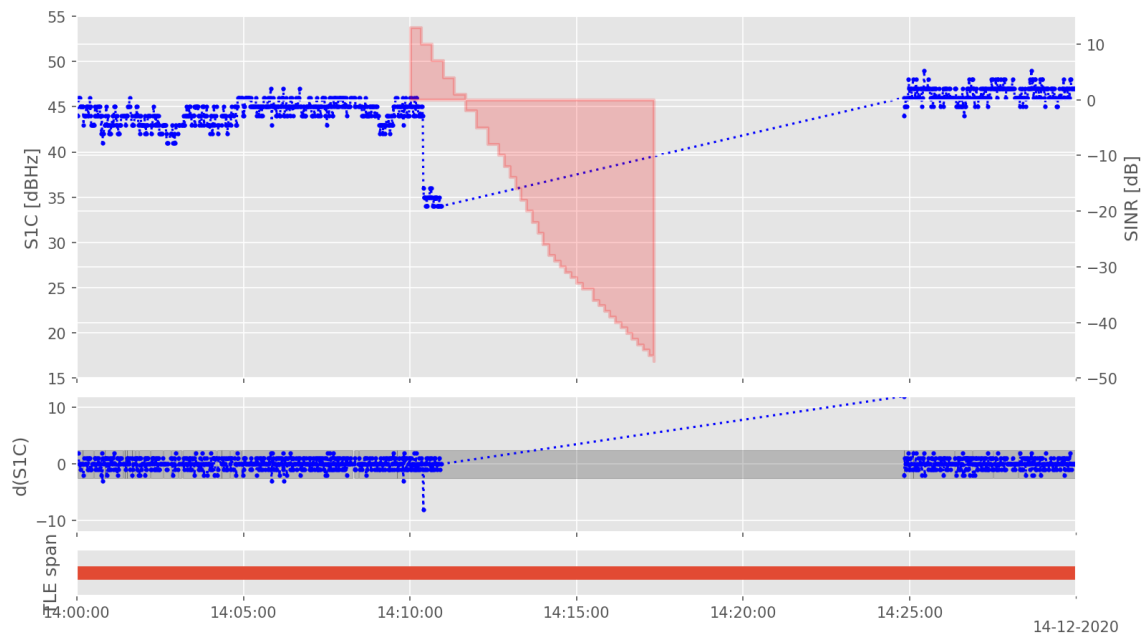
### 3. Analysis of navigation signal G1C for each observed satellite.

ewline The following plots display the same information as described above per satellite. Each plot is accompanied by a table displaying the time of loss of lock and reacquisition of the satellite when such events are detected.

P3RS04BEL: S1C for G05 @ 14/12/2020 (2020/349)



P3RS04BEL: S1C for G13 @ 14/12/2020 (2020/349)





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Navigation signal 1C				
DATE_TIME	event	type	duration	reacq
2020-12-14 14:00:07.980085500	Loss	G13	2.0	2020-12-14 14:00:09.980085500
2020-12-14 14:00:27.980085500	Loss	G13	2.0	2020-12-14 14:00:29.980085500
2020-12-14 14:00:47.980085500	Loss	G13	2.0	2020-12-14 14:00:49.980085500
2020-12-14 14:01:19.980085500	Loss	G13	3.0	2020-12-14 14:01:22.980085500
2020-12-14 14:01:23.980085500	Loss	G13	2.0	2020-12-14 14:01:25.980085500
2020-12-14 14:01:27.980085500	Loss	G13	2.0	2020-12-14 14:01:29.980085500
2020-12-14 14:01:35.980085500	Loss	G13	3.0	2020-12-14 14:01:38.980085500
2020-12-14 14:01:41.980085500	Loss	G13	3.0	2020-12-14 14:01:44.980085500
2020-12-14 14:01:48.980085500	Loss	G13	2.0	2020-12-14 14:01:50.980085500
2020-12-14 14:02:09.980085500	Loss	G13	2.0	2020-12-14 14:02:11.980085500
2020-12-14 14:02:32.980085500	Loss	G13	2.0	2020-12-14 14:02:34.980085500
2020-12-14 14:02:43.980085500	Loss	G13	5.0	2020-12-14 14:02:48.980085500
2020-12-14 14:02:57.980085500	Loss	G13	4.0	2020-12-14 14:03:01.980085500
2020-12-14 14:03:04.980085500	Loss	G13	3.0	2020-12-14 14:03:07.980085500
2020-12-14 14:03:07.980085500	Loss	G13	2.0	2020-12-14 14:03:09.980085500
2020-12-14 14:03:27.980085500	Loss	G13	2.0	2020-12-14 14:03:29.980085500
2020-12-14 14:03:43.980085500	Loss	G13	2.0	2020-12-14 14:03:45.980085500
2020-12-14 14:04:07.980085500	Loss	G13	2.0	2020-12-14 14:04:09.980085500
2020-12-14 14:04:09.980085500	Loss	G13	2.0	2020-12-14 14:04:11.980085500
2020-12-14 14:04:14.980085500	Loss	G13	5.0	2020-12-14 14:04:19.980085500
2020-12-14 14:04:31.980085500	Loss	G13	3.0	2020-12-14 14:04:34.980085500
2020-12-14 14:04:38.980085500	Loss	G13	3.0	2020-12-14 14:04:41.980085500
2020-12-14 14:04:41.980085500	Loss	G13	2.0	2020-12-14 14:04:43.980085500
2020-12-14 14:04:52.980085500	Loss	G13	3.0	2020-12-14 14:04:55.980085500
2020-12-14 14:08:13.980085500	Loss	G13	3.0	2020-12-14 14:08:16.980085500
2020-12-14 14:08:16.980085500	Loss	G13	2.0	2020-12-14 14:08:18.980085500
2020-12-14 14:08:21.980085500	Loss	G13	5.0	2020-12-14 14:08:26.980085500
2020-12-14 14:09:33.980085500	Loss	G13	2.0	2020-12-14 14:09:35.980085500
2020-12-14 14:10:55.980085500	Loss	G13	833.0	2020-12-14 14:24:48.980085500

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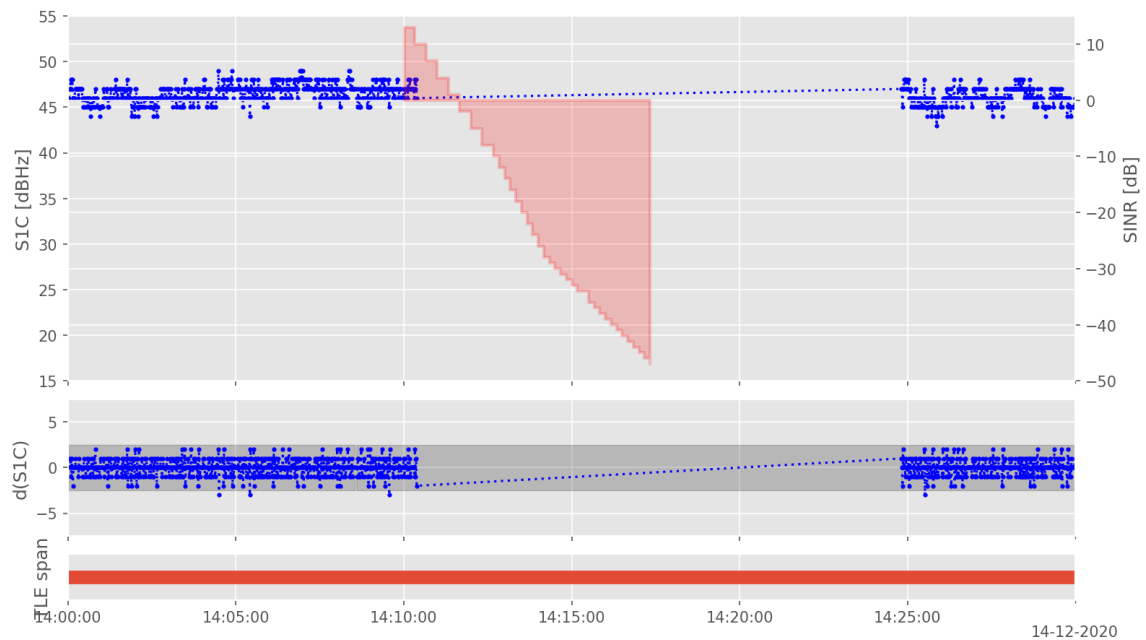
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## Navigation signal 1C

DATE_TIME	event	type	duration	reacq
2020-12-14 14:25:03.980085500	Loss	G13	2.0	2020-12-14 14:25:05.980085500
2020-12-14 14:26:17.980085500	Loss	G13	2.0	2020-12-14 14:26:19.980085500
2020-12-14 14:26:49.980085500	Loss	G13	2.0	2020-12-14 14:26:51.980085500
2020-12-14 14:27:27.980085500	Loss	G13	2.0	2020-12-14 14:27:29.980085500
2020-12-14 14:28:12.980085500	Loss	G13	2.0	2020-12-14 14:28:14.980085500

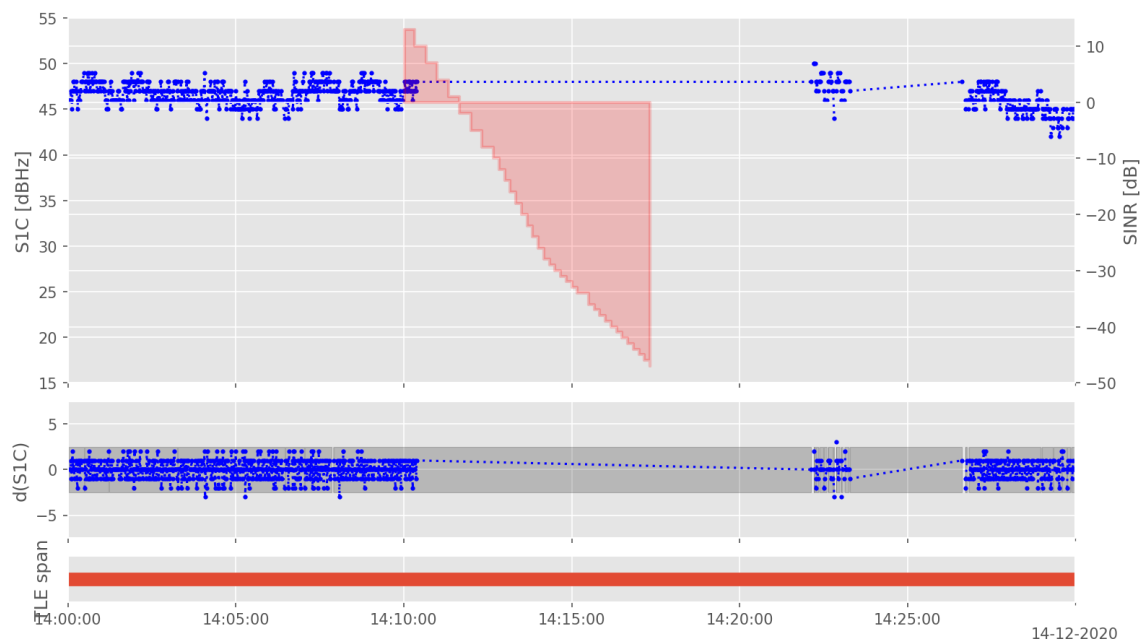
P3RS04BEL: S1C for G14 @ 14/12/2020 (2020/349)



## Navigation signal 1C

DATE_TIME	event	type	duration	reacq
2020-12-14 14:08:30.980085500	Loss	G14	2.0	2020-12-14 14:08:32.980085500
2020-12-14 14:08:32.980085500	Loss	G14	2.0	2020-12-14 14:08:34.980085500
2020-12-14 14:10:22.980085500	Loss	G14	866.0	2020-12-14 14:24:48.980085500

P3RS04BEL: S1C for G15 @ 14/12/2020 (2020/349)



## Navigation signal 1C

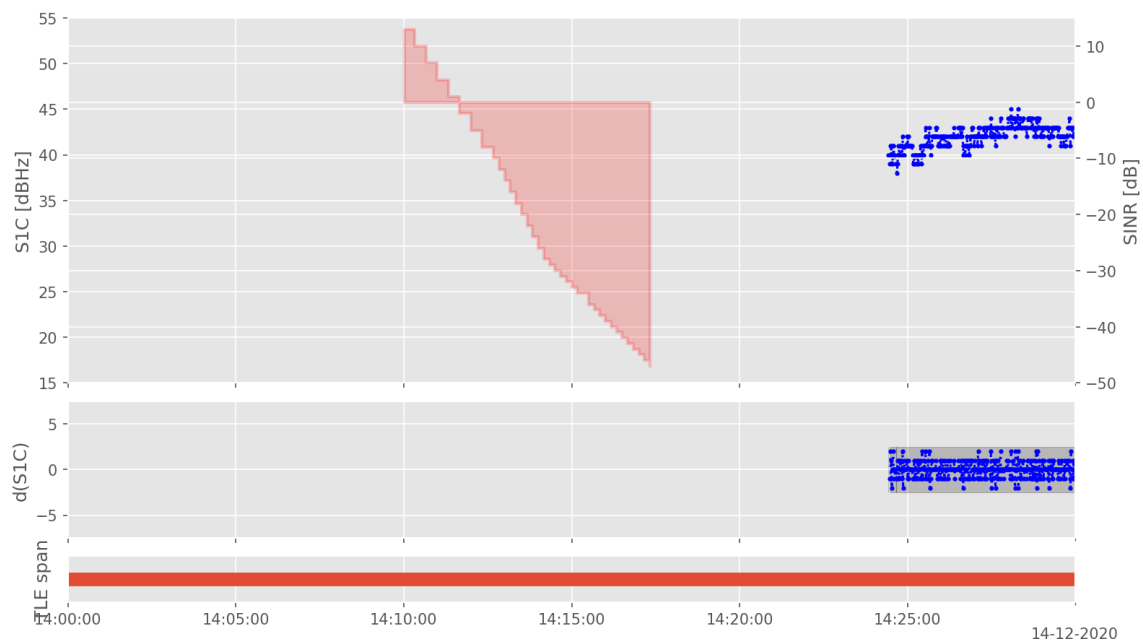
DATE_TIME	event	type	duration	reacq
2020-12-14 14:00:25.980085500	Loss	G15	3.0	2020-12-14 14:00:28.980085500
2020-12-14 14:01:10.980085500	Loss	G15	2.0	2020-12-14 14:01:12.980085500
2020-12-14 14:03:12.980085500	Loss	G15	2.0	2020-12-14 14:03:14.980085500
2020-12-14 14:06:22.980085500	Loss	G15	4.0	2020-12-14 14:06:26.980085500
2020-12-14 14:06:59.980085500	Loss	G15	2.0	2020-12-14 14:07:01.980085500
2020-12-14 14:07:48.980085500	Loss	G15	2.0	2020-12-14 14:07:50.980085500
2020-12-14 14:07:50.980085500	Loss	G15	3.0	2020-12-14 14:07:53.980085500
2020-12-14 14:10:22.980085500	Loss	G15	704.0	2020-12-14 14:22:06.980085500
2020-12-14 14:22:06.980085500	Loss	G15	5.0	2020-12-14 14:22:11.980085500
2020-12-14 14:22:12.980085500	Loss	G15	2.0	2020-12-14 14:22:14.980085500
2020-12-14 14:22:17.980085500	Loss	G15	2.0	2020-12-14 14:22:19.980085500
2020-12-14 14:22:19.980085500	Loss	G15	2.0	2020-12-14 14:22:21.980085500
2020-12-14 14:22:26.980085500	Loss	G15	3.0	2020-12-14 14:22:29.980085500
2020-12-14 14:22:31.980085500	Loss	G15	4.0	2020-12-14 14:22:35.980085500

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## Navigation signal 1C

DATE_TIME	event	type	duration	reacq
2020-12-14 14:22:35.980085500	Loss	G15	2.0	2020-12-14 14:22:37.980085500
2020-12-14 14:22:42.980085500	Loss	G15	3.0	2020-12-14 14:22:45.980085500
2020-12-14 14:22:46.980085500	Loss	G15	2.0	2020-12-14 14:22:48.980085500
2020-12-14 14:22:48.980085500	Loss	G15	3.0	2020-12-14 14:22:51.980085500
2020-12-14 14:22:56.980085500	Loss	G15	2.0	2020-12-14 14:22:58.980085500
2020-12-14 14:22:58.980085500	Loss	G15	2.0	2020-12-14 14:23:00.980085500
2020-12-14 14:23:01.980085500	Loss	G15	2.0	2020-12-14 14:23:03.980085500
2020-12-14 14:23:03.980085500	Loss	G15	3.0	2020-12-14 14:23:06.980085500
2020-12-14 14:23:10.980085500	Loss	G15	3.0	2020-12-14 14:23:13.980085500
2020-12-14 14:23:13.980085500	Loss	G15	2.0	2020-12-14 14:23:15.980085500
2020-12-14 14:23:16.980085500	Loss	G15	200.0	2020-12-14 14:26:36.980085500
2020-12-14 14:26:36.980085500	Loss	G15	6.0	2020-12-14 14:26:42.980085500
2020-12-14 14:26:43.980085500	Loss	G15	2.0	2020-12-14 14:26:45.980085500
2020-12-14 14:26:45.980085500	Loss	G15	3.0	2020-12-14 14:26:48.980085500
2020-12-14 14:28:54.980085500	Loss	G15	2.0	2020-12-14 14:28:56.980085500
2020-12-14 14:28:56.980085500	Loss	G15	2.0	2020-12-14 14:28:58.980085500
2020-12-14 14:29:15.980085500	Loss	G15	4.0	2020-12-14 14:29:19.980085500
2020-12-14 14:29:30.980085500	Loss	G15	4.0	2020-12-14 14:29:34.980085500
2020-12-14 14:29:38.980085500	Loss	G15	5.0	2020-12-14 14:29:43.980085500
2020-12-14 14:29:47.980085500	Loss	G15	2.0	2020-12-14 14:29:49.980085500
2020-12-14 14:29:49.980085500	Loss	G15	2.0	2020-12-14 14:29:51.980085500

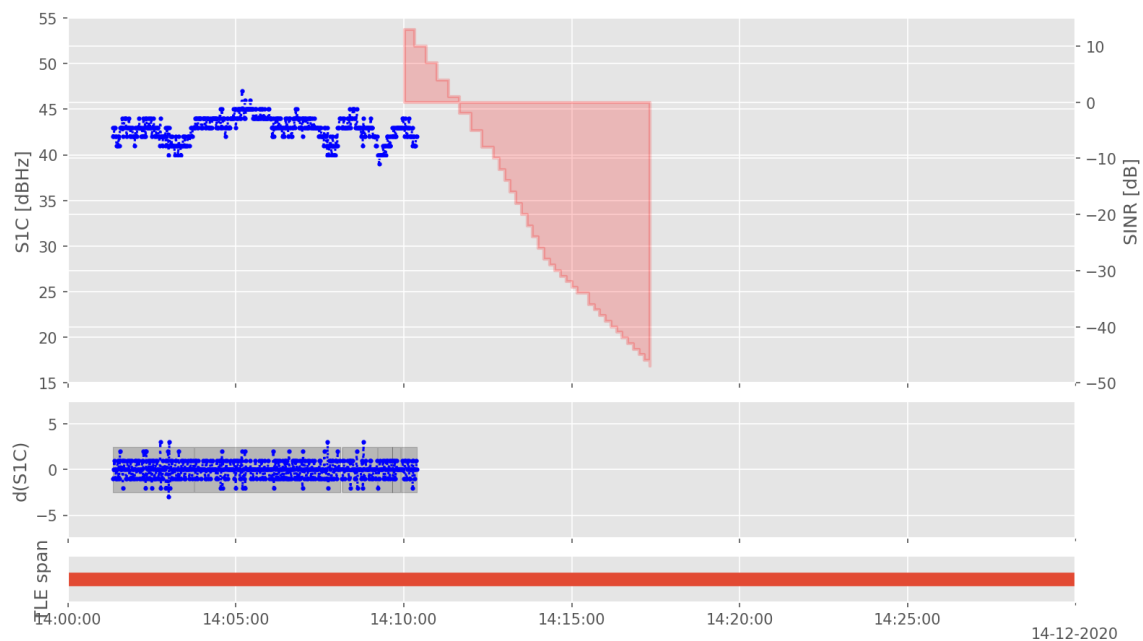
P3RS04BEL: S1C for G17 @ 14/12/2020 (2020/349)



## Navigation signal 1C

DATE_TIME	event	type	duration	reacq
2020-12-14 14:24:18.980085500	Loss	G17	7.0	2020-12-14 14:24:25.980085500
2020-12-14 14:24:25.980085500	Loss	G17	2.0	2020-12-14 14:24:27.980085500
2020-12-14 14:24:36.980085500	Loss	G17	2.0	2020-12-14 14:24:38.980085500

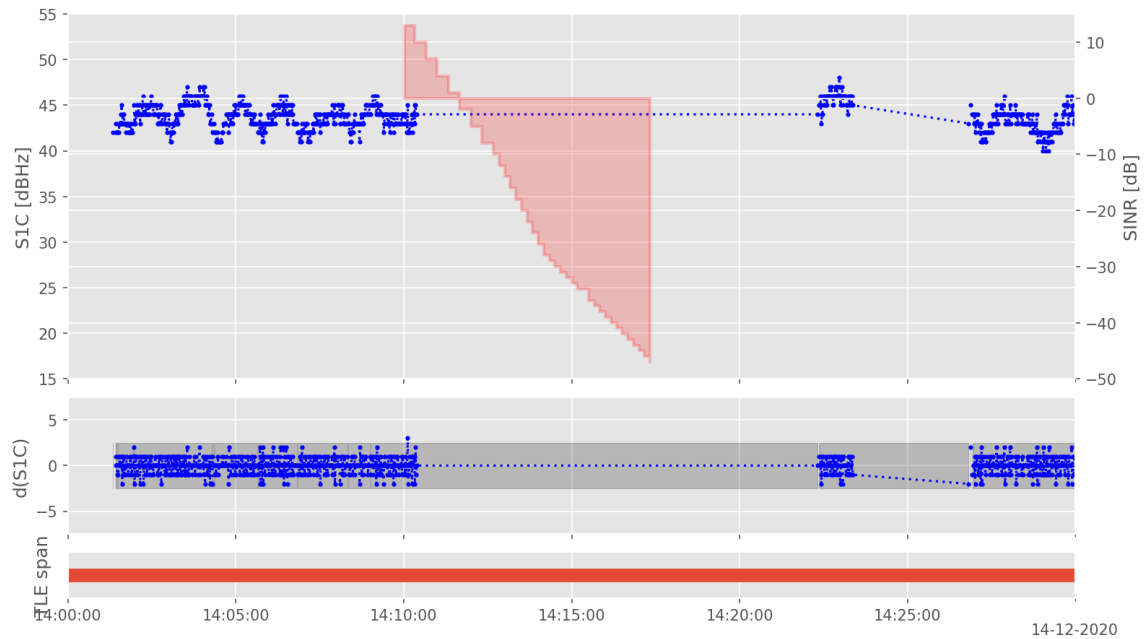
P3RS04BEL: S1C for G20 @ 14/12/2020 (2020/349)



## Navigation signal 1C

DATE_TIME	event	type	duration	reacq
2020-12-14 14:03:42.980085500	Loss	G20	2.0	2020-12-14 14:03:44.980085500
2020-12-14 14:08:04.980085500	Loss	G20	2.0	2020-12-14 14:08:06.980085500
2020-12-14 14:08:06.980085500	Loss	G20	2.0	2020-12-14 14:08:08.980085500
2020-12-14 14:09:10.980085500	Loss	G20	2.0	2020-12-14 14:09:12.980085500
2020-12-14 14:09:36.980085500	Loss	G20	2.0	2020-12-14 14:09:38.980085500
2020-12-14 14:09:51.980085500	Loss	G20	2.0	2020-12-14 14:09:53.980085500

P3RS04BEL: S1C for G23 @ 14/12/2020 (2020/349)



## Navigation signal 1C

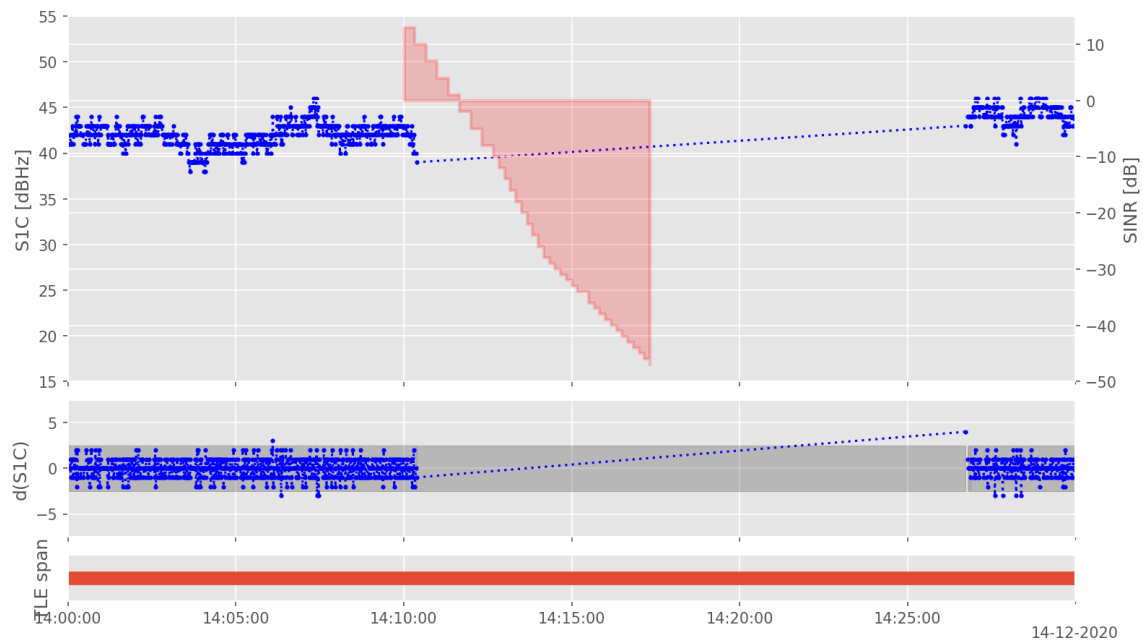
DATE_TIME	event	type	duration	reacq
2020-12-14 14:01:18.980085500	Loss	G23	2.0	2020-12-14 14:01:20.980085500
2020-12-14 14:01:20.980085500	Loss	G23	4.0	2020-12-14 14:01:24.980085500
2020-12-14 14:01:25.980085500	Loss	G23	2.0	2020-12-14 14:01:27.980085500
2020-12-14 14:01:54.980085500	Loss	G23	2.0	2020-12-14 14:01:56.980085500
2020-12-14 14:04:14.980085500	Loss	G23	2.0	2020-12-14 14:04:16.980085500
2020-12-14 14:04:18.980085500	Loss	G23	2.0	2020-12-14 14:04:20.980085500
2020-12-14 14:05:35.980085500	Loss	G23	2.0	2020-12-14 14:05:37.980085500
2020-12-14 14:06:46.980085500	Loss	G23	2.0	2020-12-14 14:06:48.980085500
2020-12-14 14:08:17.980085500	Loss	G23	2.0	2020-12-14 14:08:19.980085500
2020-12-14 14:08:56.980085500	Loss	G23	3.0	2020-12-14 14:08:59.980085500
2020-12-14 14:10:22.980085500	Loss	G23	716.0	2020-12-14 14:22:18.980085500
2020-12-14 14:22:18.980085500	Loss	G23	3.0	2020-12-14 14:22:21.980085500
2020-12-14 14:23:21.980085500	Loss	G23	207.0	2020-12-14 14:26:48.980085500
2020-12-14 14:26:48.980085500	Loss	G23	3.0	2020-12-14 14:26:51.980085500

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## Navigation signal 1C

DATE_TIME	event	type	duration	reacq
2020-12-14 14:26:51.980085500	Loss	G23	3.0	2020-12-14 14:26:54.980085500
2020-12-14 14:26:54.980085500	Loss	G23	2.0	2020-12-14 14:26:56.980085500
2020-12-14 14:28:52.980085500	Loss	G23	2.0	2020-12-14 14:28:54.980085500

P3RS04BEL: S1C for G24 @ 14/12/2020 (2020/349)

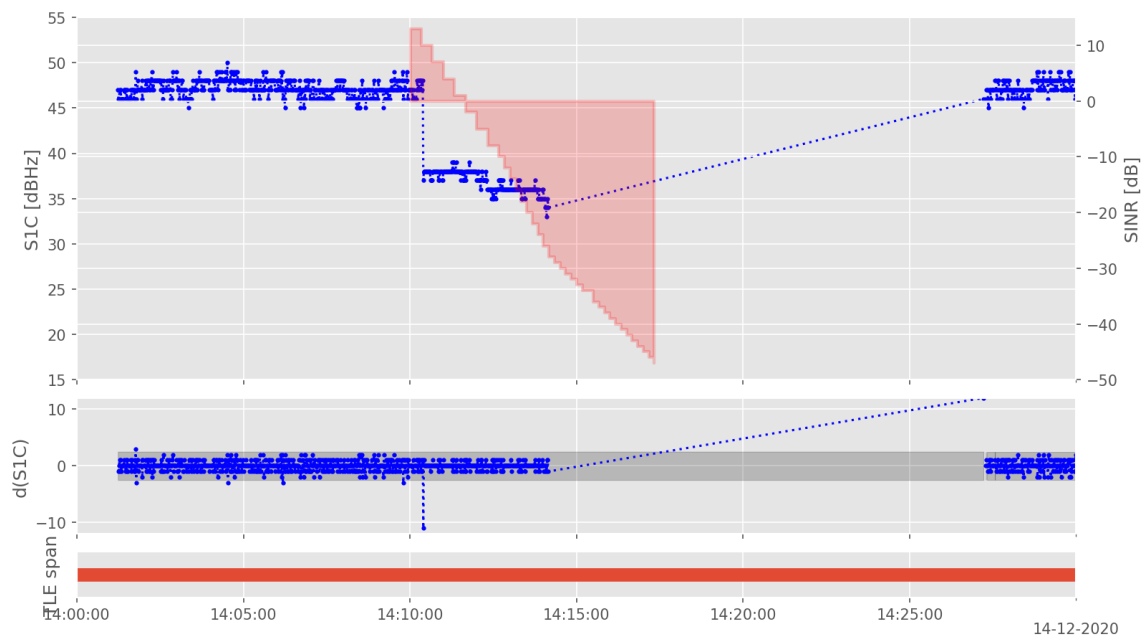


## Navigation signal 1C

DATE_TIME	event	type	duration	reacq
2020-12-14 14:10:18.980085500	Loss	G24	3.0	2020-12-14 14:10:21.980085500
2020-12-14 14:10:22.980085500	Loss	G24	980.0	2020-12-14 14:26:42.980085500
2020-12-14 14:26:42.980085500	Loss	G24	4.0	2020-12-14 14:26:46.980085500
2020-12-14 14:26:48.980085500	Loss	G24	2.0	2020-12-14 14:26:50.980085500



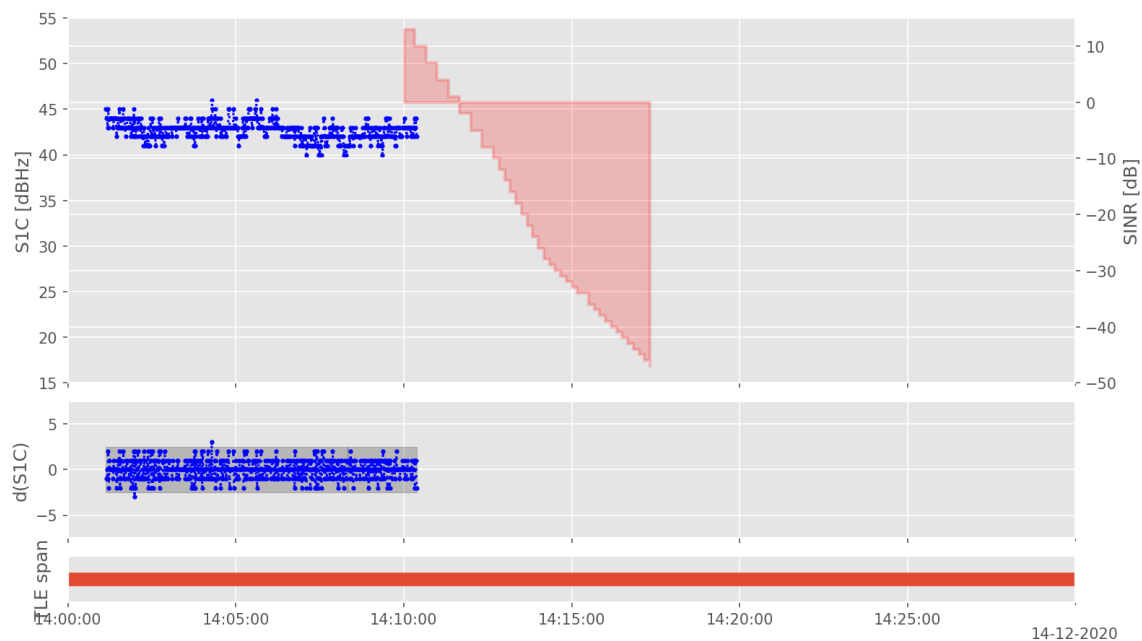
P3RS04BEL: S1C for G28 @ 14/12/2020 (2020/349)



## Navigation signal 1C

DATE_TIME	event	type	duration	reacq
2020-12-14 14:14:08.980085500	Loss	G28	784.0	2020-12-14 14:27:12.980085500
2020-12-14 14:27:12.980085500	Loss	G28	3.0	2020-12-14 14:27:15.980085500
2020-12-14 14:27:15.980085500	Loss	G28	2.0	2020-12-14 14:27:17.980085500
2020-12-14 14:27:30.980085500	Loss	G28	2.0	2020-12-14 14:27:32.980085500

P3RS04BEL: S1C for G30 @ 14/12/2020 (2020/349)



## Navigation signal 1C

DATE_TIME	event	type	duration	reacq
2020-12-14 14:08:16.980085500	Loss	G30	2.0	2020-12-14 14:08:18.980085500

## 4. Chronological overview of detected events for navigation signal G1C

## Navigation signal 1C

DATE_TIME	event	type	duration
2020-12-14 14:00:07.980085500	Loss	G13	2.0
2020-12-14 14:00:09.980085500	Reacquisition	G13	nan
2020-12-14 14:00:25.980085500	Loss	G15	3.0
2020-12-14 14:00:27.980085500	Loss	G13	2.0
2020-12-14 14:00:28.980085500	Reacquisition	G15	nan
2020-12-14 14:00:29.980085500	Reacquisition	G13	nan
2020-12-14 14:00:47.980085500	Loss	G13	2.0
2020-12-14 14:00:49.980085500	Reacquisition	G13	nan
2020-12-14 14:01:10.980085500	Loss	G15	2.0

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## Navigation signal 1C

DATE_TIME	event	type	duration
2020-12-14 14:01:12.980085500	Reacquisition	G15	nan
2020-12-14 14:01:18.980085500	Loss	G23	2.0
2020-12-14 14:01:19.980085500	Loss	G13	3.0
2020-12-14 14:01:20.980085500	Reacquisition	G23	nan
2020-12-14 14:01:20.980085500	Loss	G23	4.0
2020-12-14 14:01:22.980085500	Reacquisition	G13	nan
2020-12-14 14:01:23.980085500	Loss	G13	2.0
2020-12-14 14:01:24.980085500	Reacquisition	G23	nan
2020-12-14 14:01:25.980085500	Reacquisition	G13	nan
2020-12-14 14:01:25.980085500	Loss	G23	2.0
2020-12-14 14:01:27.980085500	Reacquisition	G23	nan
2020-12-14 14:01:27.980085500	Loss	G13	2.0
2020-12-14 14:01:29.980085500	Reacquisition	G13	nan
2020-12-14 14:01:35.980085500	Loss	G13	3.0
2020-12-14 14:01:38.980085500	Reacquisition	G13	nan
2020-12-14 14:01:41.980085500	Loss	G13	3.0
2020-12-14 14:01:44.980085500	Reacquisition	G13	nan
2020-12-14 14:01:48.980085500	Loss	G13	2.0
2020-12-14 14:01:50.980085500	Reacquisition	G13	nan
2020-12-14 14:01:54.980085500	Loss	G23	2.0
2020-12-14 14:01:56.980085500	Reacquisition	G23	nan
2020-12-14 14:02:09.980085500	Loss	G13	2.0
2020-12-14 14:02:11.980085500	Reacquisition	G13	nan
2020-12-14 14:02:32.980085500	Loss	G13	2.0
2020-12-14 14:02:34.980085500	Reacquisition	G13	nan
2020-12-14 14:02:43.980085500	Loss	G13	5.0
2020-12-14 14:02:48.980085500	Reacquisition	G13	nan
2020-12-14 14:02:57.980085500	Loss	G13	4.0
2020-12-14 14:03:01.980085500	Reacquisition	G13	nan
2020-12-14 14:03:04.980085500	Loss	G13	3.0

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## Navigation signal 1C

DATE_TIME	event	type	duration
2020-12-14 14:03:07.980085500	Reacquisition	G13	nan
2020-12-14 14:03:07.980085500	Loss	G13	2.0
2020-12-14 14:03:09.980085500	Reacquisition	G13	nan
2020-12-14 14:03:12.980085500	Loss	G15	2.0
2020-12-14 14:03:14.980085500	Reacquisition	G15	nan
2020-12-14 14:03:27.980085500	Loss	G13	2.0
2020-12-14 14:03:29.980085500	Reacquisition	G13	nan
2020-12-14 14:03:42.980085500	Loss	G20	2.0
2020-12-14 14:03:43.980085500	Loss	G13	2.0
2020-12-14 14:03:44.980085500	Reacquisition	G20	nan
2020-12-14 14:03:45.980085500	Reacquisition	G13	nan
2020-12-14 14:04:07.980085500	Loss	G13	2.0
2020-12-14 14:04:09.980085500	Loss	G13	2.0
2020-12-14 14:04:09.980085500	Reacquisition	G13	nan
2020-12-14 14:04:11.980085500	Reacquisition	G13	nan
2020-12-14 14:04:14.980085500	Loss	G13	5.0
2020-12-14 14:04:14.980085500	Loss	G23	2.0
2020-12-14 14:04:16.980085500	Reacquisition	G23	nan
2020-12-14 14:04:18.980085500	Loss	G23	2.0
2020-12-14 14:04:19.980085500	Reacquisition	G13	nan
2020-12-14 14:04:20.980085500	Reacquisition	G23	nan
2020-12-14 14:04:31.980085500	Loss	G13	3.0
2020-12-14 14:04:34.980085500	Reacquisition	G13	nan
2020-12-14 14:04:38.980085500	Loss	G13	3.0
2020-12-14 14:04:41.980085500	Reacquisition	G13	nan
2020-12-14 14:04:41.980085500	Loss	G13	2.0
2020-12-14 14:04:43.980085500	Reacquisition	G13	nan
2020-12-14 14:04:52.980085500	Loss	G13	3.0
2020-12-14 14:04:55.980085500	Reacquisition	G13	nan
2020-12-14 14:05:35.980085500	Loss	G23	2.0

Continued on Next Page

## Navigation signal 1C

DATE_TIME	event	type	duration
2020-12-14 14:05:37.980085500	Reacquisition	G23	nan
2020-12-14 14:06:22.980085500	Loss	G15	4.0
2020-12-14 14:06:26.980085500	Reacquisition	G15	nan
2020-12-14 14:06:46.980085500	Loss	G23	2.0
2020-12-14 14:06:48.980085500	Reacquisition	G23	nan
2020-12-14 14:06:59.980085500	Loss	G15	2.0
2020-12-14 14:07:01.980085500	Reacquisition	G15	nan
2020-12-14 14:07:48.980085500	Loss	G15	2.0
2020-12-14 14:07:50.980085500	Reacquisition	G15	nan
2020-12-14 14:07:50.980085500	Loss	G15	3.0
2020-12-14 14:07:53.980085500	Reacquisition	G15	nan
2020-12-14 14:08:04.980085500	Loss	G20	2.0
2020-12-14 14:08:06.980085500	Loss	G20	2.0
2020-12-14 14:08:06.980085500	Reacquisition	G20	nan
2020-12-14 14:08:08.980085500	Reacquisition	G20	nan
2020-12-14 14:08:13.980085500	Loss	G13	3.0
2020-12-14 14:08:16.980085500	Reacquisition	G13	nan
2020-12-14 14:08:16.980085500	Loss	G13	2.0
2020-12-14 14:08:16.980085500	Loss	G30	2.0
2020-12-14 14:08:17.980085500	Loss	G23	2.0
2020-12-14 14:08:18.980085500	Reacquisition	G30	nan
2020-12-14 14:08:18.980085500	Reacquisition	G13	nan
2020-12-14 14:08:19.980085500	Reacquisition	G23	nan
2020-12-14 14:08:21.980085500	Loss	G13	5.0
2020-12-14 14:08:26.980085500	Reacquisition	G13	nan
2020-12-14 14:08:30.980085500	Loss	G14	2.0
2020-12-14 14:08:32.980085500	Reacquisition	G14	nan
2020-12-14 14:08:32.980085500	Loss	G14	2.0
2020-12-14 14:08:34.980085500	Reacquisition	G14	nan
2020-12-14 14:08:56.980085500	Loss	G23	3.0

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## Navigation signal 1C

DATE_TIME	event	type	duration
2020-12-14 14:08:59.980085500	Reacquisition	G23	nan
2020-12-14 14:09:10.980085500	Loss	G20	2.0
2020-12-14 14:09:12.980085500	Reacquisition	G20	nan
2020-12-14 14:09:33.980085500	Loss	G13	2.0
2020-12-14 14:09:35.980085500	Reacquisition	G13	nan
2020-12-14 14:09:36.980085500	Loss	G20	2.0
2020-12-14 14:09:38.980085500	Reacquisition	G20	nan
2020-12-14 14:09:51.980085500	Loss	G20	2.0
2020-12-14 14:09:53.980085500	Reacquisition	G20	nan
2020-12-14 14:10:18.980085500	Loss	G24	3.0
2020-12-14 14:10:21.980085500	Reacquisition	G24	nan
2020-12-14 14:10:22.980085500	Loss	G23	716.0
2020-12-14 14:10:22.980085500	Loss	G24	980.0
2020-12-14 14:10:22.980085500	Loss	PNT	974.0
2020-12-14 14:10:22.980085500	Loss	G14	866.0
2020-12-14 14:10:22.980085500	Loss	G15	704.0
2020-12-14 14:10:55.980085500	Loss	G13	833.0
2020-12-14 14:14:08.980085500	Loss	G28	784.0
2020-12-14 14:22:06.980085500	Reacquisition	G15	nan
2020-12-14 14:22:06.980085500	Loss	G15	5.0
2020-12-14 14:22:11.980085500	Reacquisition	G15	nan
2020-12-14 14:22:12.980085500	Loss	G15	2.0
2020-12-14 14:22:14.980085500	Reacquisition	G15	nan
2020-12-14 14:22:17.980085500	Loss	G15	2.0
2020-12-14 14:22:18.980085500	Reacquisition	G23	nan
2020-12-14 14:22:18.980085500	Loss	G23	3.0
2020-12-14 14:22:19.980085500	Loss	G15	2.0
2020-12-14 14:22:19.980085500	Reacquisition	G15	nan
2020-12-14 14:22:21.980085500	Reacquisition	G23	nan
2020-12-14 14:22:21.980085500	Reacquisition	G15	nan

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## Navigation signal 1C

DATE_TIME	event	type	duration
2020-12-14 14:22:26.980085500	Loss	G15	3.0
2020-12-14 14:22:29.980085500	Reacquisition	G15	nan
2020-12-14 14:22:31.980085500	Loss	G15	4.0
2020-12-14 14:22:35.980085500	Loss	G15	2.0
2020-12-14 14:22:35.980085500	Reacquisition	G15	nan
2020-12-14 14:22:37.980085500	Reacquisition	G15	nan
2020-12-14 14:22:42.980085500	Loss	G15	3.0
2020-12-14 14:22:45.980085500	Reacquisition	G15	nan
2020-12-14 14:22:46.980085500	Loss	G15	2.0
2020-12-14 14:22:48.980085500	Loss	G15	3.0
2020-12-14 14:22:48.980085500	Reacquisition	G15	nan
2020-12-14 14:22:51.980085500	Reacquisition	G15	nan
2020-12-14 14:22:56.980085500	Loss	G15	2.0
2020-12-14 14:22:58.980085500	Reacquisition	G15	nan
2020-12-14 14:22:58.980085500	Loss	G15	2.0
2020-12-14 14:23:00.980085500	Reacquisition	G15	nan
2020-12-14 14:23:01.980085500	Loss	G15	2.0
2020-12-14 14:23:03.980085500	Reacquisition	G15	nan
2020-12-14 14:23:03.980085500	Loss	G15	3.0
2020-12-14 14:23:06.980085500	Reacquisition	G15	nan
2020-12-14 14:23:10.980085500	Loss	G15	3.0
2020-12-14 14:23:13.980085500	Loss	G15	2.0
2020-12-14 14:23:13.980085500	Reacquisition	G15	nan
2020-12-14 14:23:15.980085500	Reacquisition	G15	nan
2020-12-14 14:23:16.980085500	Loss	G15	200.0
2020-12-14 14:23:21.980085500	Loss	G23	207.0
2020-12-14 14:24:18.980085500	Loss	G17	7.0
2020-12-14 14:24:25.980085500	Loss	G17	2.0
2020-12-14 14:24:25.980085500	Reacquisition	G17	nan
2020-12-14 14:24:27.980085500	Reacquisition	G17	nan

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## Navigation signal 1C

DATE_TIME	event	type	duration
2020-12-14 14:24:36.980085500	Loss	G17	2.0
2020-12-14 14:24:38.980085500	Reacquisition	G17	nan
2020-12-14 14:24:48.980085500	Reacquisition	G13	nan
2020-12-14 14:24:48.980085500	Reacquisition	G14	nan
2020-12-14 14:25:03.980085500	Loss	G13	2.0
2020-12-14 14:25:05.980085500	Reacquisition	G13	nan
2020-12-14 14:26:17.980085500	Loss	G13	2.0
2020-12-14 14:26:19.980085500	Reacquisition	G13	nan
2020-12-14 14:26:36.980085500	Reacquisition	PNT	nan
2020-12-14 14:26:36.980085500	Loss	G15	6.0
2020-12-14 14:26:36.980085500	Loss	PNT	6.0
2020-12-14 14:26:36.980085500	Reacquisition	G15	nan
2020-12-14 14:26:42.980085500	Reacquisition	G15	nan
2020-12-14 14:26:42.980085500	Loss	G24	4.0
2020-12-14 14:26:42.980085500	Reacquisition	PNT	nan
2020-12-14 14:26:42.980085500	Reacquisition	G24	nan
2020-12-14 14:26:43.980085500	Loss	G15	2.0
2020-12-14 14:26:43.980085500	Loss	PNT	2.0
2020-12-14 14:26:45.980085500	Reacquisition	PNT	nan
2020-12-14 14:26:45.980085500	Loss	G15	3.0
2020-12-14 14:26:45.980085500	Reacquisition	G15	nan
2020-12-14 14:26:46.980085500	Reacquisition	G24	nan
2020-12-14 14:26:48.980085500	Loss	G24	2.0
2020-12-14 14:26:48.980085500	Reacquisition	G15	nan
2020-12-14 14:26:48.980085500	Reacquisition	G23	nan
2020-12-14 14:26:48.980085500	Loss	G23	3.0
2020-12-14 14:26:49.980085500	Loss	G13	2.0
2020-12-14 14:26:50.980085500	Reacquisition	G24	nan
2020-12-14 14:26:51.980085500	Loss	G23	3.0
2020-12-14 14:26:51.980085500	Reacquisition	G23	nan

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## Navigation signal 1C

DATE_TIME	event	type	duration
2020-12-14 14:26:51.980085500	Reacquisition	G13	nan
2020-12-14 14:26:54.980085500	Reacquisition	G23	nan
2020-12-14 14:26:54.980085500	Loss	G23	2.0
2020-12-14 14:26:56.980085500	Reacquisition	G23	nan
2020-12-14 14:27:12.980085500	Loss	G28	3.0
2020-12-14 14:27:12.980085500	Reacquisition	G28	nan
2020-12-14 14:27:15.980085500	Loss	G28	2.0
2020-12-14 14:27:15.980085500	Reacquisition	G28	nan
2020-12-14 14:27:17.980085500	Reacquisition	G28	nan
2020-12-14 14:27:27.980085500	Loss	G13	2.0
2020-12-14 14:27:29.980085500	Reacquisition	G13	nan
2020-12-14 14:27:30.980085500	Loss	G28	2.0
2020-12-14 14:27:32.980085500	Reacquisition	G28	nan
2020-12-14 14:28:12.980085500	Loss	G13	2.0
2020-12-14 14:28:14.980085500	Reacquisition	G13	nan
2020-12-14 14:28:52.980085500	Loss	G23	2.0
2020-12-14 14:28:54.980085500	Loss	G15	2.0
2020-12-14 14:28:54.980085500	Reacquisition	G23	nan
2020-12-14 14:28:56.980085500	Loss	G15	2.0
2020-12-14 14:28:56.980085500	Reacquisition	G15	nan
2020-12-14 14:28:58.980085500	Reacquisition	G15	nan
2020-12-14 14:29:15.980085500	Loss	G15	4.0
2020-12-14 14:29:19.980085500	Reacquisition	G15	nan
2020-12-14 14:29:30.980085500	Loss	G15	4.0
2020-12-14 14:29:34.980085500	Reacquisition	G15	nan
2020-12-14 14:29:38.980085500	Loss	G15	5.0
2020-12-14 14:29:43.980085500	Reacquisition	G15	nan
2020-12-14 14:29:47.980085500	Loss	G15	2.0
2020-12-14 14:29:49.980085500	Reacquisition	G15	nan
2020-12-14 14:29:49.980085500	Loss	G15	2.0

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[Navigation signal 1C](#)

DATE_TIME	event	type	duration
2020-12-14 14:29:51.980085500	Reacquisition	G15	nan

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