



**Test Report of the rescueME MOB1 to  
the requirements of RTCM SC11901  
Annex E**

**Test report №: TA0004-2**



## Summary of Test Conditions

RTCM Standard SC11901.1 (June 2012)  
Maritime Survivor Locating Devices (MSLD)  
Annex A: DSC type MSLD

**Frequencies of Operation**     *Unless otherwise stated.*  
AIS1 = 161.975MHz  
AIS2 = 162.025MHz

### Extreme Conditions

Upper Temperature = 55°C  
Lower Temperature = -20°C

Rated Voltage = 6.0V  
Upper Voltage = 6.6V  
Lower Voltage = 3.8V

### Dates of Test

Tested By

Stefan Kennedy  
Simon Nolan

Approved by

David Sheekey



**Clause E.7.1.1.1: Frequency Error**

**Date of test:** 05/12/2014 to 10/12/14

**Temperature:** 22.1°C

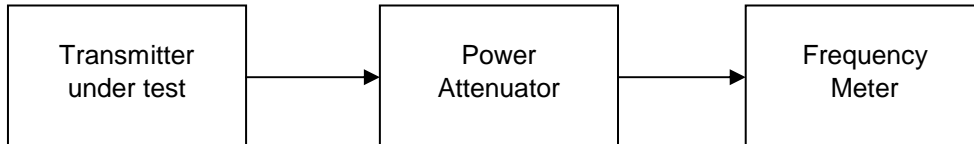
**Humidity:** 36.7%

**Method**

The frequency error of the transmitter is the difference between the measured carrier frequency in the absence of modulation and its required frequency.

The equipment was connected as illustrated below. The carrier frequency shall be measured in the absence of modulation.

The measurement was made under normal test conditions and extreme test conditions.



**Results**

Channel	Normal	-20°C		55°C		Error	Pass / Fail
		6.6V	3.8V	6.6V	3.8V		
AIS1	-20Hz	40Hz	41Hz	-150Hz	-150Hz	-150Hz	Pass
AIS2	-20Hz	40Hz	40Hz	-150Hz	-150Hz	-150Hz	Pass

**Limit**

The frequency error under normal conditions shall not exceed ±500 Hz, and under extreme test conditions shall not exceed ±1 kHz.

**Equipment used**

1, 2, 3, 5, 6, 22

## Additional tests in accordance with CFR47 part 2.1055

Temp (Deg C)	Supply (V)	Frequency Error (Hz)		
		AIS 1	AIS2	DSC
-20	6.6	50	40	40
-20	5.2	50	40	40
-20	3.8	40	40	40
-10	6.6	60	60	40
-10	5.2	60	60	40
-10	3.8	60	60	40
0	6.6	60	60	40
0	5.2	60	60	40
0	3.8	60	60	50
10	6.6	65	65	40
10	5.2	65	65	40
10	3.8	65	65	40
20	6.6	55	55	30
20	5.2	55	55	30
20	3.8	55	55	30
30	6.6	-70	-70	-80
30	5.2	-70	-70	-80
30	3.8	-70	-70	-80
40	6.6	-90	-90	-80
40	5.2	-90	-90	-80
40	3.8	-90	-90	-80
50	6.6	-135	-140	-130
50	5.2	-135	-140	-140
50	3.8	-135	-140	-140
55	6.6	-150	-150	-140
55	5.2	-150	-150	-140
55	3.8	-150	-150	-140

**Clause E.7.2: Conducted Power****Date of test:** 05/12/2014 to 10/12/14**Temperature:** 22.1°C **Humidity:** 36.7%**Method**

Connect the test unit to a power meter and record the conducted power at normal test conditions ( $P_{20}$ ). Repeat the test for extreme low and high temperatures and record the values obtained from these measurements ( $P_{-20}$  and  $P_{55}$ ).

Calculate the gain of the AU antenna using the following equation:

$$G = P_r - P_{20} - P_d$$

where

$G$  is the antenna gain (dB);

$P_r$  is the radiated power level as measured in E.7.3 (dBm);

$P_{20}$  is the conducted power level measured at normal test conditions (dBm);

$P_d$  is the power output difference given in E.6.2 (dB).

Hence  $G(\text{dB}) = 31.99 - 32 - 0 = 0.0\text{dB}$

**Results****Conducted Power (dBm)**

Channel	Normal	-20°C		55°C		$P_{\text{diff(max)}}$	Pass / Fail
		6.6V	3.8V	6.6V	3.8V		
AIS1	32.0dBm	32.2dBm	32.3dBm	31.8dBm	31.6dBm		
AIS1+G		32.2dBm	32.3dBm	31.8dBm	31.6dBm	31.6dB	Pass
AIS2	32.0dBm	32.1dBm	32.3dBm	31.8dBm	31.6dBm		
AIS2+G		32.1dBm	32.3dBm	31.8dBm	31.6dBm	31.6dB	Pass

**Limit**

The conducted power corrected for antenna gain shall be at least 27dBm

**Equipment used**

1, 2, 3, 5, 6, 22

**Clause E.7.3.3: Radiated Power****Date of test:** 1212/2014**Temperature:**

8.5°C

**Humidity:**

39.2%

**Method**

This test is only required to be performed at normal test conditions and shall use an AU whose battery has been ON for a minimum of 11 h. If the test exceeds 1h, the battery may be replaced by another which has been pre-conditioned with at least 11 h of ON time.

Measurement of the radiated signals shall be made at a point 5 m or more from the AU.

The ground plane should be resting on the ground. For an AU that floats autonomously the ground plane should be extended so that it completely encloses and presents a snug fit to the AU. For an AU that attaches to a life jacket or other buoyant device the AU shall be mounted on the buoyant device and deployed in a representative manner on the ground plane with its antenna base at a height of  $10 \pm 3$ cm.

The measurement antenna shall have vertical polarization mounted on a non-conducting support with its cable lying horizontally on the boom and run back to the supporting mast. The other end of the measurement antenna cable shall be connected to a measurement receiver located at the foot of the mast

The measurement shall be performed on a test site with a conductive ground plane of at least 3m diameter and the height of the measurement antenna shall be adjusted to obtain the maximum reading on the measurement receiver up to a maximum of 30° elevation.

Record the measured receive level at 4 different points in the azimuth plane by rotating the AU in steps of 90°. The minimum received level (PREC) shall be recorded and used to calculate the radiated power at the normal operating temperature using the following equation:

$$P_r = P_{REC} - G_{REC} + L_C + L_P$$

where

$P_r$  is the radiated power level from the AU (dBm);

$P_{REC}$  is the measured power level from the measurement receiver (dBm);

$G_{REC}$  is the antenna gain of the search antenna (dB);

$L_C$  is the receive system attenuator and cable loss (dB);

$L_P$  is the free space propagation loss (dB)

**Results**

Channel	Normal		Pass / Fail
162.050MHz	1.58W	5.0dB	Pass

**Limit**

The radiated power shall be at least 27dBm

**Equipment used**

3, 12

### Clause 7.3.1.4: Modulation spectrum slotted transmission

Date of test: 5/12/14

Temperature: 22.1°C Humidity: 36.7%

#### Method

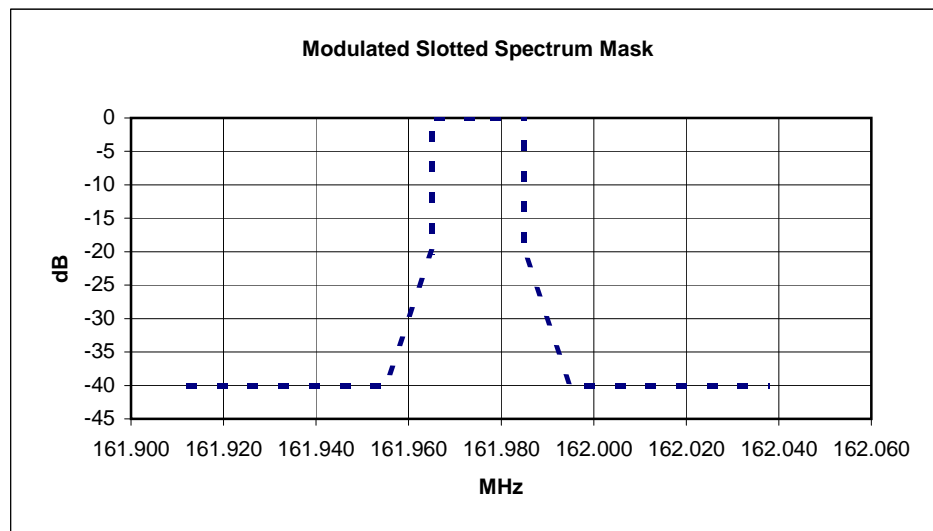
The transmitter shall be connected to an artificial antenna (see clause 6.4) with a means of measuring the power delivered to the load. The equipment shall be operated from the test power source (clause 6.7.2). Standard test signal number 3 (see clause 6.5.3) shall be used to modulate the transmitter in repeated packets.

The measurement shall be made under normal test conditions.

To determine the reference peak power and measure the emissions in the adjacent channels, the emission is suitably applied to the input of a spectrum analyser with the following preferred settings:

- Resolution bandwidth: 1 kHz;
- Video bandwidth: 3 kHz;
- Scan bandwidth: 150 kHz;
- Centre frequency: Carrier frequency AIS1 and AIS2;
- Detector type: Peak hold.

A sufficient number of sweeps shall be used and sufficient transmission packets measured to ensure that the emission profile is fully developed. A reference carrier power shall be calculated as being the maximum power within the frequency limits set in clause 8.1.3. The emission profile shall then be normalized so that the reference carrier power is set to 0 dBc. The result is compared to the mask given in figure 4.



#### Results

Pass - No emissions were above the limit line. Refer to annex B Plot 1 and Plot 2 for results.

#### Limit

The transmission shall remain within the mask specified.

#### Equipment used

3, 5, 6, 22



## Clause E.7.4 Transmitter transient behaviour (Frequency)

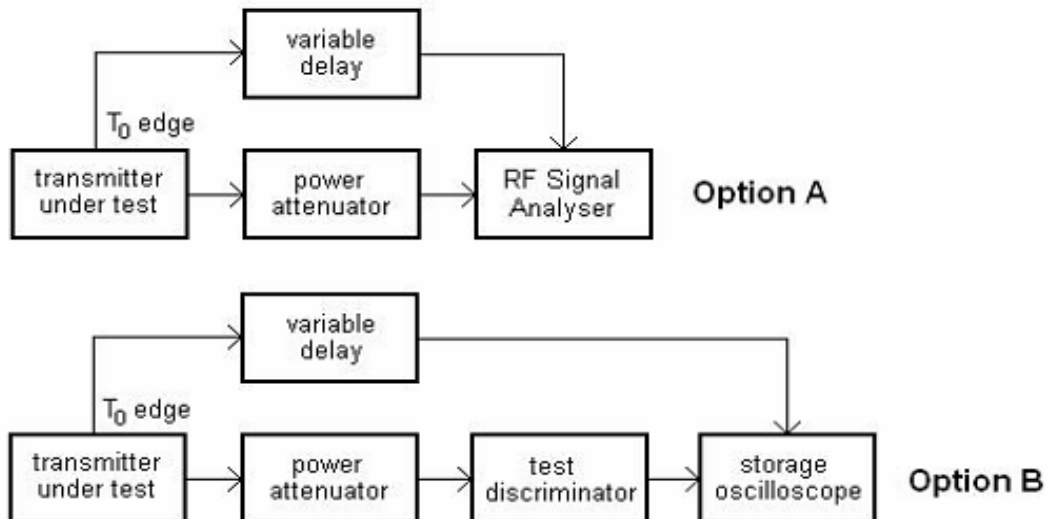
Date of test: 10/12/14

Temperature: 21.9°C Humidity: 33.9%

### Method

The measurement is made under normal and extreme conditions (see clauses 6.7 and 6.8) for frequency AIS1 and repeated for AIS2.

The transmitter shall be connected to an artificial antenna (see clause 6.4) comprising a power attenuator and a suitable measuring device either option A or option B of figure 6.



**Figure 6: Measurement arrangement for modulation accuracy**

NOTE: It is permissible to use data recovery filter between the test discriminator and the storage oscilloscope provided that it has a bandwidth of at least 100 KHz

The measuring device shall be synchronized to the nominal start time of the first preamble bit (TB), using the modified sample of the EUT submitted by the manufacturer (clause 6.5.4). Using test signal 2 the delay from the T0 timing edge provided by EUT (see clause 6.5.4) is adjusted until the centre position of the first data bit (bit 0) is determined as the trigger point TB. Holding these settings test signal 2 is replaced with test signal 1 to confirm that TB has been correctly determined.

The transmitter shall be modulated with test signal number 2.

The deviation from the carrier frequency shall be measured as a function of time.

The transmitter shall be modulated with test signal number 1.

The deviation from the carrier frequency shall be measured as a function of time.

### Results

In each case the training sequence started with a "0".

The peak frequency deviation measured at various points within the data frame complied with the limit table for both positive and negative modulation peaks.

Refer to annex D, plots 7 to 26 for results.

### Limit

Measurement interval from centre to centre of each bit	Test Signal 1		Test Signal 2	
	Normal	Extreme	Normal	Extreme
Bit 0 to bit 1	<3400 Hz			
Bit 2 to bit 3	2400 Hz $\pm$ 480 Hz			
Bit 4 to bit 31	2400 Hz $\pm$ 240 Hz	2400 Hz $\pm$ 480 Hz	2400 Hz $\pm$ 240 Hz	2400 Hz $\pm$ 480 Hz
Bit 32 to bit 199	1740 Hz $\pm$ 175 Hz	1740 Hz $\pm$ 350 Hz	2400 Hz $\pm$ 240 Hz	2400 Hz $\pm$ 480 Hz

**Equipment used**

1, 2, 3, 5, 6, 22

### Clause E.7.5: Transmitter transient behaviour (output power)

Date of test: 5/12/14

Temperature: 22.1°C Humidity: 36.7%

#### Method

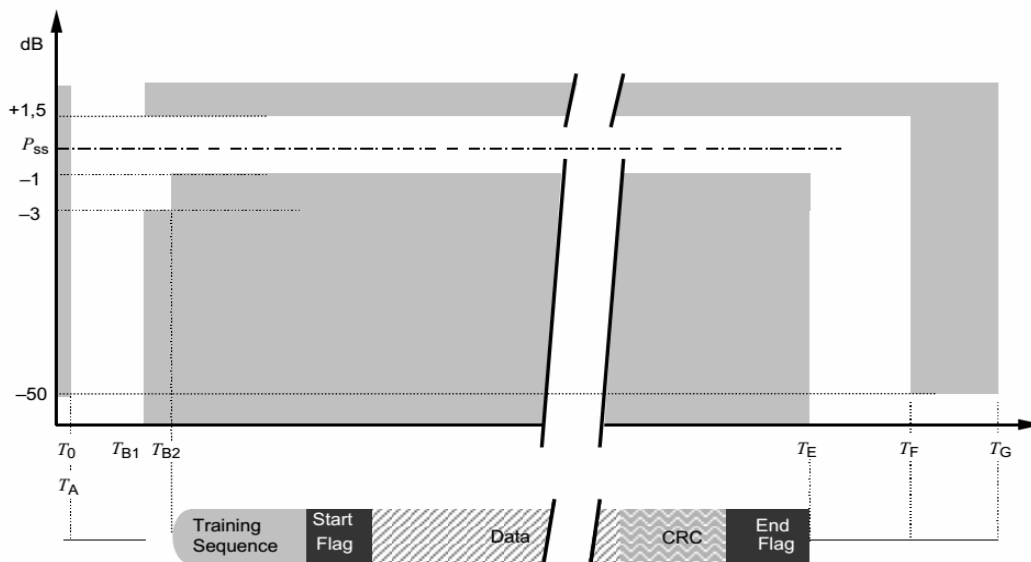
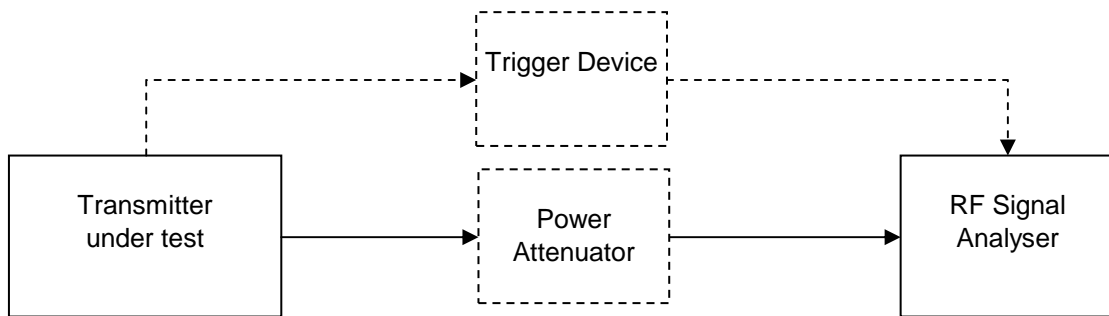
The measurement is made under normal conditions (see clause 6.7) for frequency AIS1 and repeated for AIS2.

The transmitter shall be connected to an artificial antenna (see clause 6.4). The measurement shall be carried out by transmitting test signal number 1.

A spectrum analyser shall be used to make the measurements with the following preferred settings:

- Resolution bandwidth: 1 MHz
- Video bandwidth: 1 MHz
- Scan bandwidth: zero span
- Centre frequency: Carrier frequency as measured in clause 8.1
- Detector type: sample detector [single sweep mode]

The spectrum analyser shall be synchronized to the nominal start time of the slot ( $T_0$ ), which is provided by a modified sample of the EUT submitted by the manufacturer (clause 6.5.4).



**Results****AIS 1**

Reference	Bits	Time (ms)	Power Watts	Power dB P <sub>SS</sub>	Pass / Fail
$T_0$	0	0	4.92E-06	<b>-54.95</b>	Pass
$T_0 - T_A$	0 to 6	0 to 0.625			
$T_B$	$T_{B1}$	6	1.469	<b>-0.20</b>	Pass
	$T_{B2}$	8	0.833	<b>0.00</b>	Pass
$T_E$ (includes 1 stuffing bit)	233	24.271	1.538	<b>0.00</b>	Pass
$T_F$ (includes 1 stuffing bit)	241	25.104	5.57E-06	<b>-54.41</b>	Pass
$T_G$	256	26.667	5.13E-06	<b>-54.77</b>	Pass

Refer to annex C Plot 3 and Plot 4 for results.

**AIS 2**

Reference	Bits	Time (ms)	Power Watts	Power dB P <sub>SS</sub>	Pass / Fail
$T_0$	0	0	4.34E-06	<b>-55.49</b>	Pass
$T_0 - T_A$	0 to 6	0 to 0.625			
$T_B$	$T_{B1}$	6	1.503	<b>-0.10</b>	Pass
	$T_{B2}$	8	0.833	<b>0.05</b>	Pass
$T_E$ (includes 1 stuffing bit)	233	24.271	1.556	<b>0.05</b>	Pass
$T_F$ (includes 1 stuffing bit)	241	25.104	6.24E-06	<b>-53.92</b>	Pass
$T_G$	256	26.667	5.13E-06	<b>-54.77</b>	Pass

Refer to annex C Plot 5 and Plot 6 for results.

The transmitter power remained within the required mask and within the timing requirements of the limit table.

**Limit**

Reference	Bits	Time (ms)	Definition
$T_0$	0	0	Start of transmission slot. Power should NOT exceed -50dB of P <sub>SS</sub> before $T_0$
$T_0 - T_A$	0 to 6	0 to 0.625	Power may exceed -50dB of P <sub>SS</sub> <sup>a</sup>
$T_B$	$T_{B1}$	6	Power shall be within +1.5dB or -3dB of P <sub>SS</sub> <sup>a</sup>
	$T_{B2}$	8	Power shall be within +1.5dB or -1dB of P <sub>SS</sub> <sup>a</sup>
$T_E$ (includes 1 stuffing bit)	233	24.271	Power shall remain within +1.5dB or -1dB of P <sub>SS</sub> during the period $T_{B2}$ to $T_E$ <sup>a</sup>
$T_F$ (includes 1 stuffing bit)	241	25.104	Power shall be -50dB of P <sub>SS</sub> and stay below this
$T_G$	256	26.667	Start of next transmission period
<sup>a</sup> There shall be no modulation of the RF after the termination of transmission ( $T_E$ ) until the power has reached zero and the next slot begins ( $T_0$ ).			

**Equipment used**

3, 5, 6, 22

## Clause E.7.6: Transmitter Spurious emissions

Date of test:

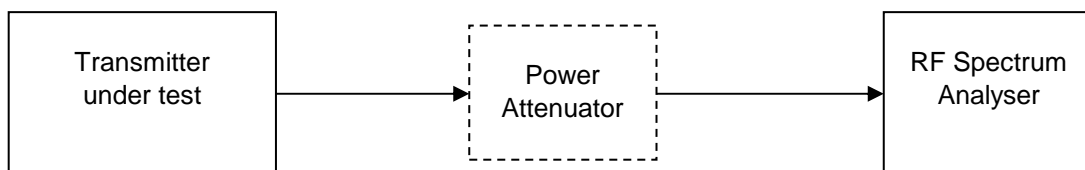
Temperature:

Humidity:

### Method

The measurements shall be made at the transmitter output at 50Ω using a receiver or a spectrum analyser with its bandwidth set to between 100 kHz and 120 kHz or its nearest setting thereto, over the following frequency bands:

108 MHz to 137 MHz, 156 MHz to 161,5 MHz, 406,0 MHz to 406,1 MHz and 1 525 MHz to 1 610 MHz.



### Results

Frequency	Level	Pass / Fail
323.95	-44.1dBm	Pass
485.925	-44.3dBm	Pass
647.9	-70.6dBm	Pass
809.875	-70.6dBm	Pass
971.85	-68.6dBm	Pass
1133.825	-66.5dBm	Pass
1295.8	-67.7dBm	Pass
1457.775	-72.1dBm	Pass
1619.75	-70.5dBm	Pass
1781.725	-73.6dBm	Pass
1943.7	-71.1dBm	Pass

### Limit

No signal level within these bands shall exceed 25 μW.

### Equipment used

### Uncertainty

### Clause E.8.1 Synchronization Accuracy

Date of test:

Temperature:

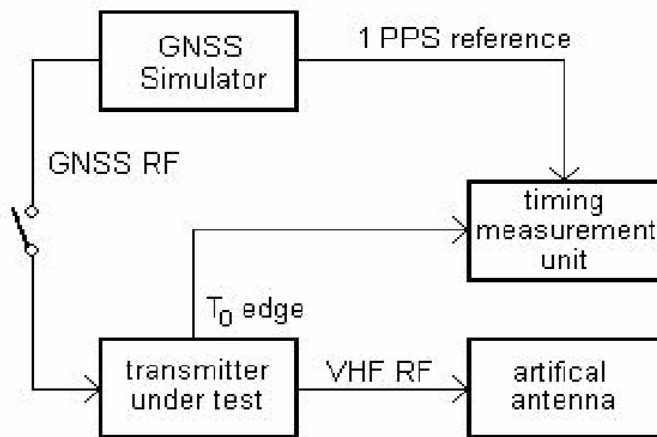
Humidity:

**Method**

The EUT shall be programmed with valid UTC parameters as described in the user documentation or shall be precondition so as to have downloaded valid UTC parameters before the start of the test.

The measurement is made under normal and extreme conditions (see clauses 6.8 and 6.9) for frequency AIS1 and repeated for AIS2.

The transmitter shall be connected to an artificial antenna (see clause 6.4). The EUT's GNSS receiver shall be connected to a GNSS simulator simulating more than 3 satellites and that additionally provides a UTC output and a 1 pps reference output with an accuracy of  $\pm 1 \mu\text{s}$  or better (figure 7).



**Figure 7: Measurement arrangement for synchronization accuracy**

- 1) Activate the EUT in active mode with GNSS signal enabled and record transmissions for 40 minutes. After 40 minutes inhibit the GNSS signal and continue to record transmissions for a further 20 minutes.
- 2) Operate the test facility on the EUT with GNSS signal enabled and record transmissions for 6 minutes.
- 3) Operate the test facility on the EUT with GNSS signal inhibited and record transmissions for 6 minutes.

Even	Odd	Even	Odd	Even	Odd	Even	Odd
26,667	13,333	293,333	280,000	560,000	546,667	826,667	813,333
53,333	40,000	320,000	306,667	586,667	573,333	853,333	840,000
80,000	66,667	346,667	333,333	613,333	600,000	880,000	866,667
106,667	93,333	373,333	360,000	640,000	626,667	906,667	893,333
133,333	120,000	400,000	386,667	666,667	653,333	933,333	920,000
160,000	146,667	426,667	413,333	693,333	680,000	960,000	946,667
186,667	173,333	453,333	440,000	720,000	706,667	986,667	973,333
213,333	200,000	480,000	466,667	746,667	733,333	-	-
240,000	226,667	506,667	493,333	773,333	760,000	-	-
266,667	253,333	533,333	520,000	800,000	786,667	-	-

The UTC output from the simulator is used by the timing measurement unit to determine when even or odd slot timing measurements apply. The time difference between a legitimate slot start and the measured T0 shall be compared to the limit of clause 8.7.2.

## Results

See Annex G for plots of synchronisation timing.

EUT transmits with valid position within 5 minutes and the maximum synchronisation error is less than  $\pm 312 \mu\text{s}$ . Transmission of GPS position indicated by green LED during transmission period.

See graphs for synchronisation timing after GPS removed.

No transmission were observed under the conditions of 8.7.2(3)

**Test Result: Passed.**

## Limit

Verify that in case 8.7.2 (1) and (2) the EUT transmits a valid position within 5 minutes and that all transmissions with a valid position have a synchronization error (including additive jitter) of less than  $\pm 312 \mu\text{s}$ .

Verify that in case 8.7.2 (1) Transmission synchronization error after 40 minutes may drift outside the limit of  $\pm 312 \mu\text{s}$ . The absolute maximum value of the synchronization error after 40 minutes shall be recorded in the test report.

Verify that in cases 8.7.2 (3) the EUT does not transmit at all.

## Equipment used

1, 2, 5, 6, 24, 25, 26, 27

## Clause E.8.2 Active mode tests

**Date of test:**

**Temperature:**

**Humidity:**

### Method

Activate the EUT in active mode and record transmissions for 40 minutes. Inhibit GNSS data and record transmissions for a further 20 minutes.

Record the activation time of the EUT.

For all transmitted messages record:

- transmission time (UTC);
- transmission slot;
- in-slot timing;
- transmission channel;
- message content.

The records will be evaluated in the following test items.

### Results

See Annex H for test data.

#### 9.1.3 Message content of Message 1 - Required results

For position reports transmitted after 5 minutes and before 40 minutes the following is required:

a) Message ID = 1.	Pass
b) Repeat indicator = 0.	Pass
c) User ID as configured in the EUT.	Pass
d) Navigational status = 14.	Pass
e) Rate of turn = default.	Pass
f) SOG = actual SOG from GNSS receiver.	Pass
g) Position accuracy = according to the RAIM result if provided, otherwise 0.	Pass
h) Position = actual position from internal GNSS receiver.	Pass
i) Position is updated at least once per minute, for each burst.	Pass
j) COG = actual COG from internal GNSS receiver.	Pass
k) True heading = default.	Pass
l) Time stamp = actual UTC second (0...59).	Pass
m) Verify correct indication according to manufacturer's documentation.	Pass

#### 9.1.4 Message content of Message 14 - Required results

The following is required:

a) Message ID = 14.	Pass
b) Repeat indicator = 0.	Pass
c) Source ID = as configured in the EUT.	Pass
d) Text = "MOB ACTIVE".	Pass



**9.1.5 Transmission schedule for Message 1 - Required results**

For position reports transmitted after 15 minutes and before 40 minutes the following applies:

a) Verify that the EUT has operated in sync mode 0 (UTC direct).	Pass
b) The EUT transmits one burst of messages once per minute.	Pass
c) The duration of a burst is 14 s.	Pass
d) A burst consists of 8 messages.	Pass
e) The transmissions in a burst are alternating between AIS1 and AIS2.	Pass
f) Consecutive messages are 75 slots apart and on the other channel.	Pass
g) The same set of slots is used in each burst for 8 minutes.	Pass
h) A new set of slots is randomly selected after 8 minutes.	Pass
i) The first slot of the new set of slots is within the interval of 1 minute $\pm$ 6 seconds from the first slot of the previous set of slots, that is the increment is randomly selected in the range 2 025 to 2 475 slots.	Pass
j) The manufacturer is to provide documentation on how the increment is selected randomly.	Pass

**9.1.6 Communication state of Message 1 - Required results**

For position reports transmitted after 5 minutes and before 40 minutes the following applies:

a) The SOTDMA communication state as defined for message 1 is used.	Pass
b) The sync state = 0.	Pass
c) The time-out starts with 7 for all messages of the first burst after a change in slots.	Pass
d) The time-out value is decremented by 1 for each frame.	Pass
e) The time-out value is reset to 7 after time-out = 0.	Pass
f) The sub message for time-out 3,5,7 = number of received stations (0).	Pass
g) The sub message for time-out 2,4,6 = slot number.	Pass
h) The sub message for time-out 1 = UTC hour and minute.	Pass
i) The sub message for time-out 0 = slot offset to the transmission slot in the next frame.	Pass

**9.1.7 Transmission schedule of Message 14 - Required results**

The following is required:

a) Message 14 is transmitted every 4 minutes.	Pass
b) The transmissions of Message 14 are alternating between AIS1 and AIS2.	Pass
c) Message 14 is transmitted in a Message 1 slot, replacing the Message 1, on the channel for which the Message 1 was scheduled.	Pass
d) Message 14 did not replace a Message 1 with a time-out value = 0.	Pass

**9.1.8 Transmission with lost GNSS - Required results**

For position reports transmitted after 45 minutes the following applies:

a) The EUT continues transmission.	Pass
b) The same transmission schedule is used as with GNSS data available.	Pass
c) Communication State Sync state = 3.	Pass
d) SOG = last valid SOG.	Pass
e) Position accuracy = low.	Pass
f) Position = last valid position.	Pass
g) COG = last valid COG.	Pass
h) Time stamp = 62.	Pass
i) RAIM-flag = 0.	Pass
j) Verify correct indication as per manufacturer's documentation.	Pass

**Equipment Used**

1, 2, 5, 6, 24, 25, 26, 27

**Clause 8.2.1.9 Test mode tests**

Date of test:

Temperature:

Humidity:

**E.8.2.1.9 Test Modes with GNSS data available****Method**

Activate the EUT in test mode with GNSS data available and record transmissions.

**Results**

The following is required:

a) The EUT starts transmission after valid GNSS data is available.	Pass
b) A single burst of 8 messages in the correct order and correctly populated as per clause B.2.	Pass
c) User ID as configured in the EUT.	Pass
d) Navigational status = 15 (not defined).	Pass
e) SOG = actual SOG from GNSS receiver.	Pass
f) Position accuracy = according to the RAIM result if provided, otherwise 0.	Pass
g) Position = actual position from internal GNSS receiver.	Pass
h) COG = actual COG from internal GNSS receiver.	Pass
i) Time stamp = actual UTC second (0...59).	Pass
j) The communication state time-out always = 0 with sub message = 0.	Pass
k) The transmission of Messages 1 and 14 stops after one burst of 8	Pass
l) The text message in Message 14 is "MOB TEST".	Pass
m) Verify correct indication as per manufacturer's documentation.	Pass

**E.2.1.14 Test mode tests without GNSS data available****Method****Results**

The following is required:

a) The EUT does not transmit within 5 minutes	Pass
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**Equipment Used**

1, 2, 5, 6, 24, 25, 26, 27

**Annex A: Radiated Power (ERP)  
(Clause 8.3)**

**Radiated Power. Set up as per RTCM 11901.1, Clause E.7.3.1.2**

Measured at 162MHz to avoid interfering with AIS1 and AIS2 Channels.

**Antenna Parameters**

Frequency (MHz)	162
$\lambda$ (m)	1.86
Dipole Length for 162MHz (m)	0.465
Antenna Factor (dB)	12.75
Antenna Gain	<b>1.66</b>

$$P_r = P_{REC} - G_{REC} + L_C + L_P$$

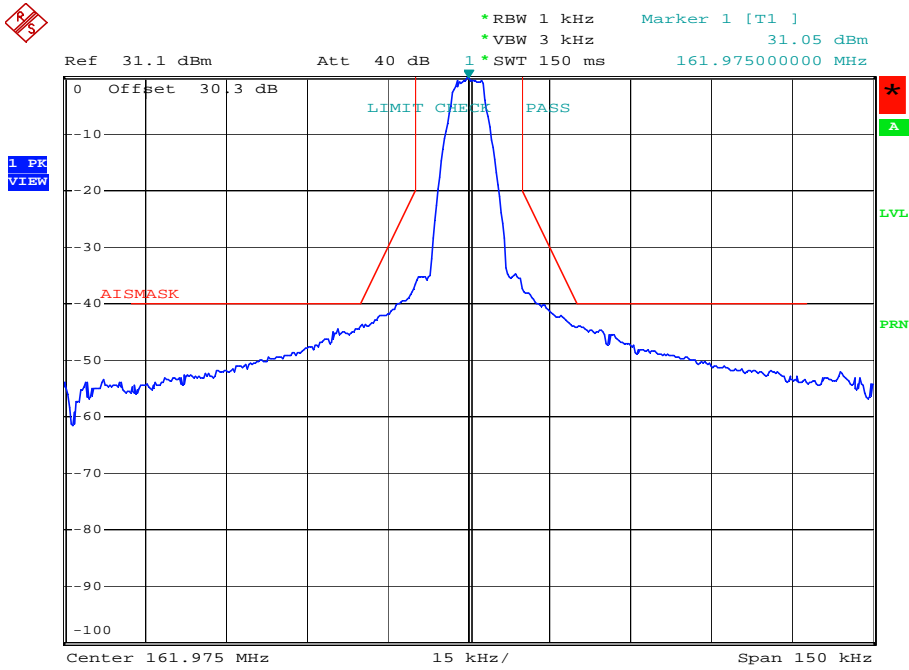
$$L_P = 10\text{Log}(4\pi r/\lambda)^2$$

- where;
- $P_r$  is the radiated power level from the AU (Alerting Unit)
  - $P_{REC}$  is the measured power level from spectrum analyser (dBm);
  - $G_{REC}$  is the antenna gain of search antenna (dB);
  - $L_C$  is the receive system attenuator and cable loss (dB);
  - $L_P$  is the free space propagation loss (dB).

Antenna Gain		RADIATED POWER EIRP (dBm))											
1.66		Elevation Angles (Degrees)											
Cable Loss		8		10		15		20		25		30	
2.13		5		5		5		5		5		5	
Plane Height (m)		0.81		0.99		1.44		1.92		2.44		2.99	
Range		5.05		5.08		5.18		5.33		5.52		5.78	
Antenna Height (m)		5.05		5.08		5.18		5.33		5.52		5.78	
Path Length		5.05		5.08		5.18		5.33		5.52		5.78	
Azimuth Angle (Degrees)	$P_{REC}$ (dBm)	EIRP (dBm)	$P_{REC}$ (dBm)	EIRP (dBm)	$P_{REC}$ (dBm)	EIRP (dBm)	PREC (dBm)	EIRP (dBm)	PREC (dBm)	EIRP (dBm)	PREC (dBm)	EIRP (dBm)	
0	0.86	31.99	0.69	31.87	0.26	31.61	-2.44	29.16	-4.17	27.73	-6.42	25.88	
30	1.01	32.14		31.18		31.35		31.60		31.90		32.30	
60	0.96	32.09		31.18		31.35		31.60		31.90		32.30	
90	1.39	32.52		31.18		31.35		31.60		31.90		32.30	
<b>Minimum Azimuth Level</b>		<b>31.99</b>		<b>31.18</b>		<b>31.35</b>		<b>29.16</b>		<b>27.73</b>		<b>25.88</b>	
<b>Maximum Elevation Level</b>		31.99 dBm		1.58 W									

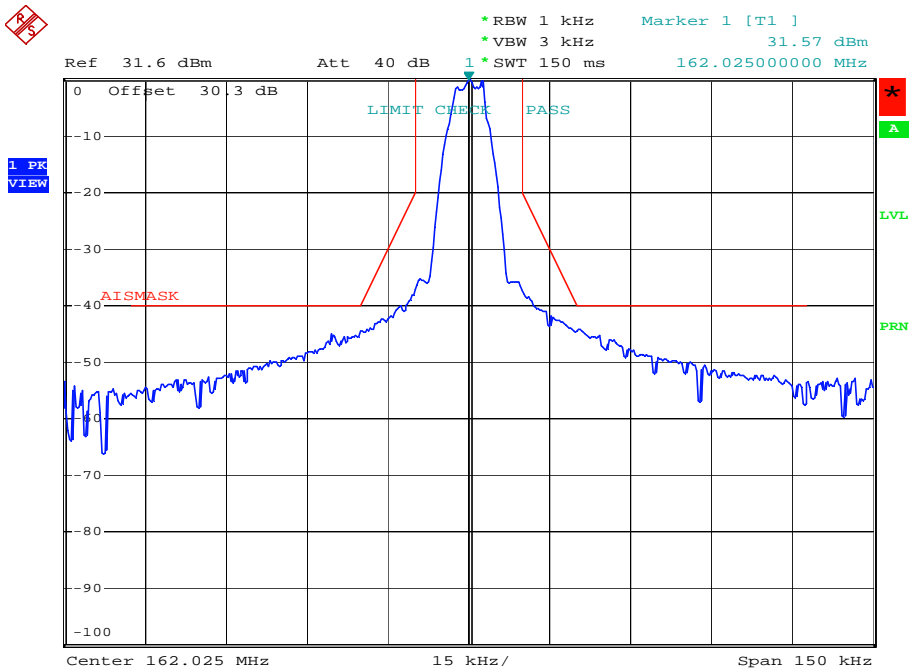
Table 1:AIS Transmitter EIRP results of height search

**Annex B: Transmitter spectrum mask result plots for AIS1 and AIS2 frequencies (Clause 8.4)**



Date: 5.DEC.2014 10:30:47

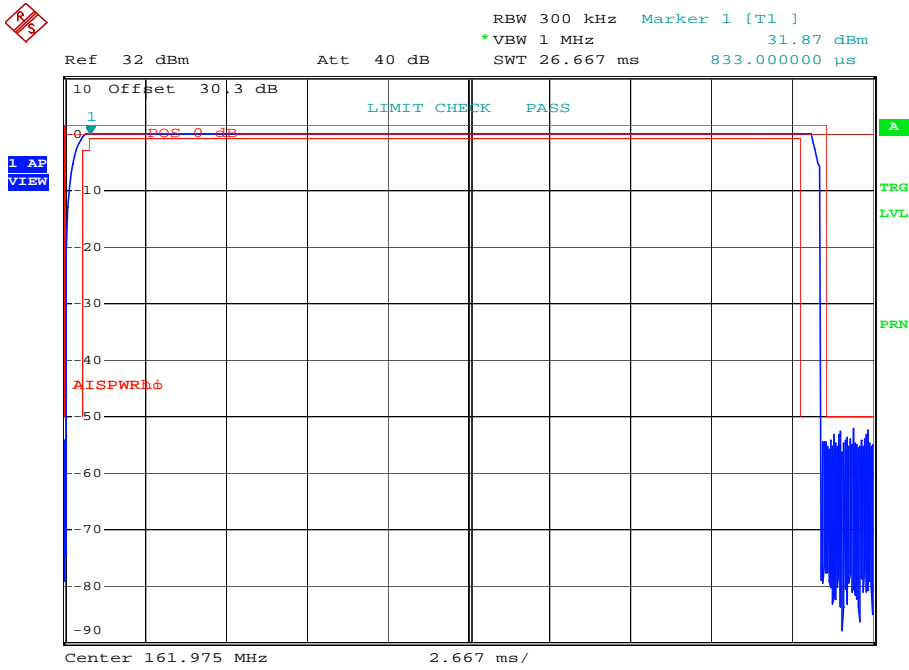
Plot 1: Transmitter spectrum mask at AIS1 frequency under normal conditions



Date: 5.DEC.2014 09:50:58

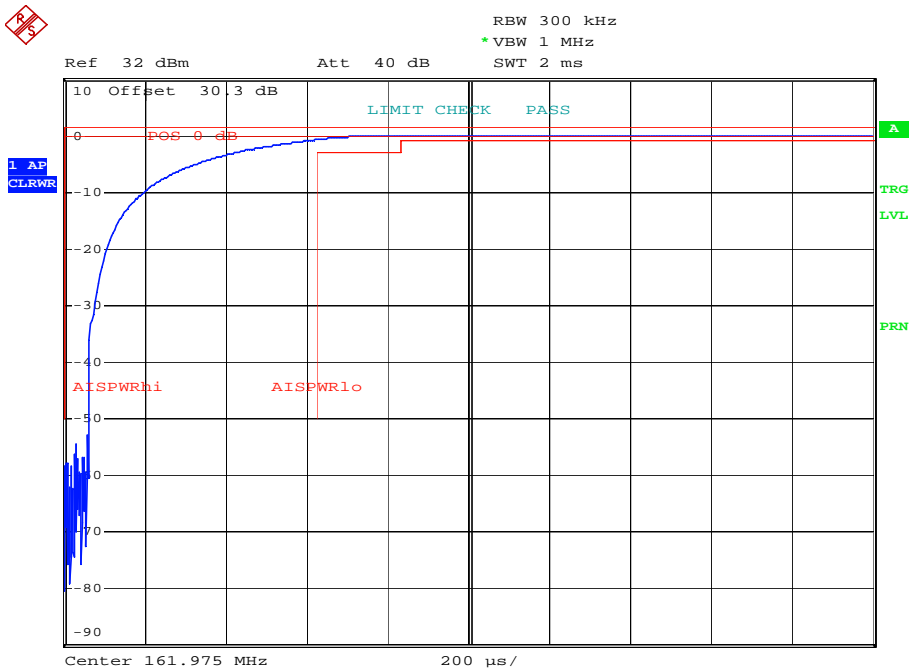
Plot 2: Transmitter spectrum mask at AIS2 frequency under normal conditions

**Annex C: Transmitter transient behaviour (output power) result plots for AIS1 and AIS2 frequencies (Clause 8.5)**



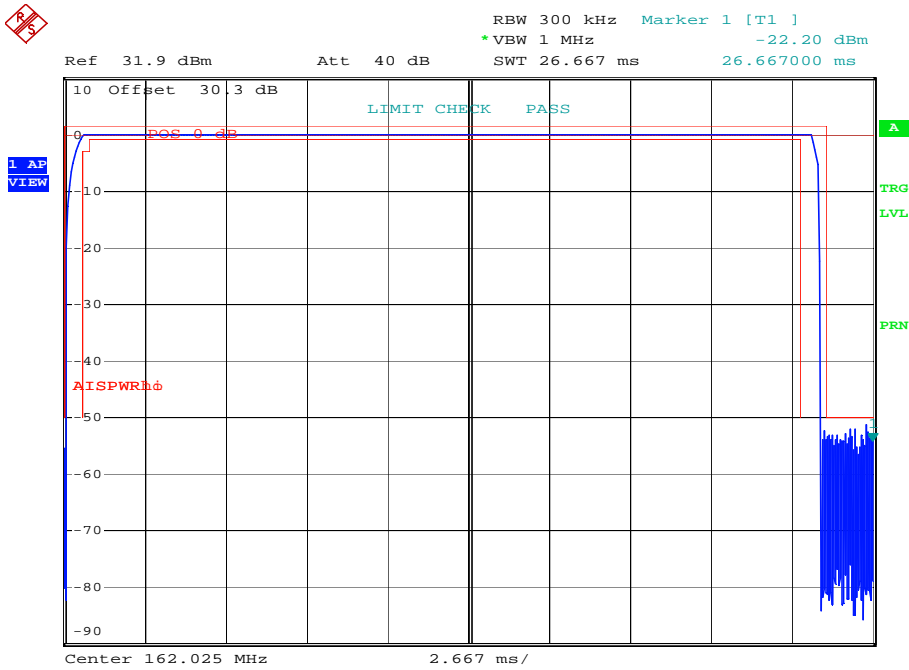
Date: 5.DEC.2014 11:24:31

Plot 3: Transmitter transient behaviour at AIS1 frequency under normal conditions



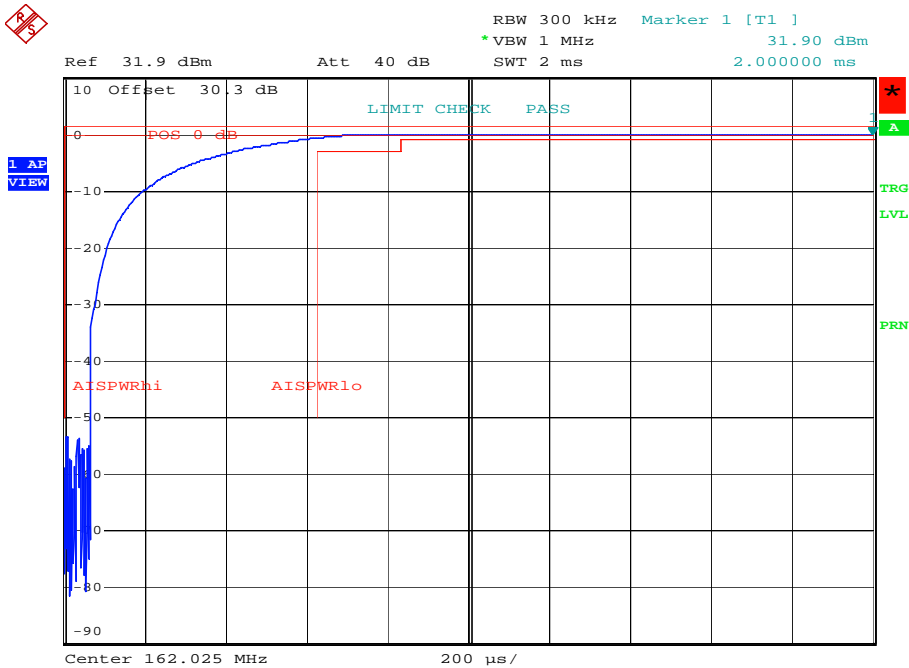
Date: 5.DEC.2014 12:24:15

Plot 4: Transmitter transient behaviour at AIS1 frequency under normal conditions  
 Close up showing first 2mS of ramp



Date: 5.DEC.2014 12:37:24

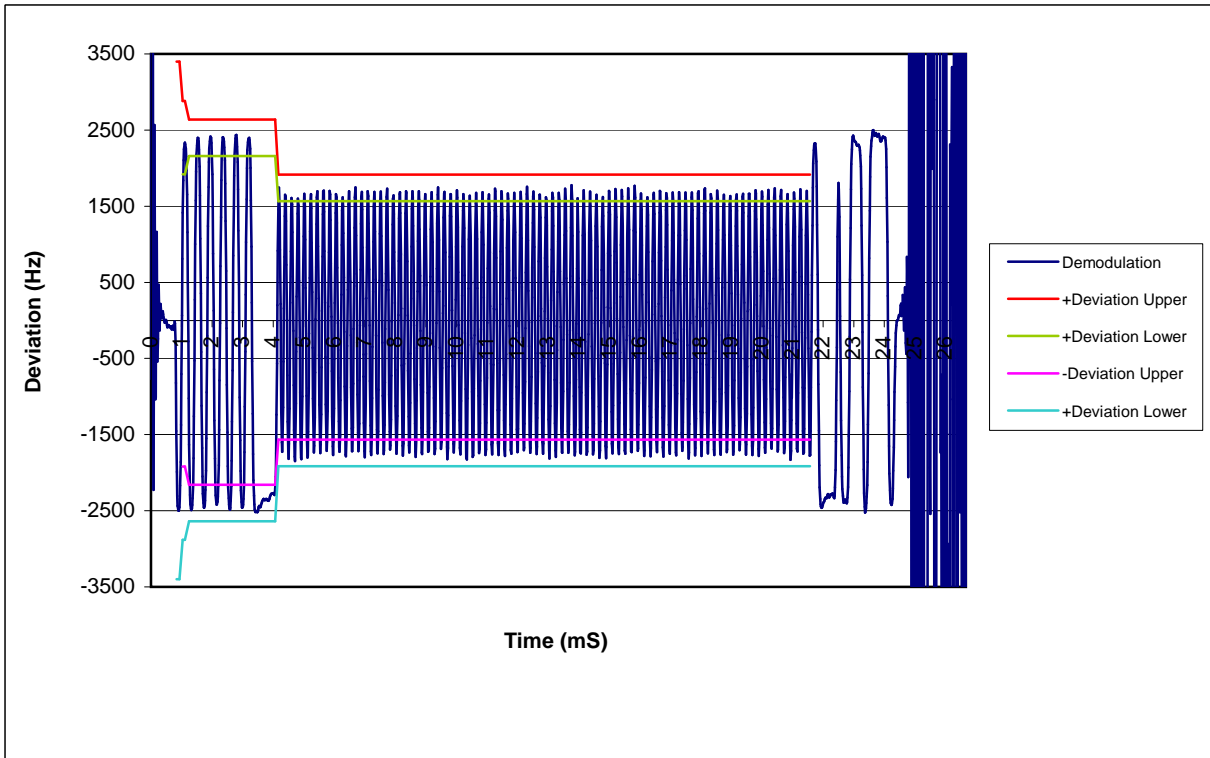
Plot 5: Transmitter transient behaviour at AIS2 frequency under normal conditions



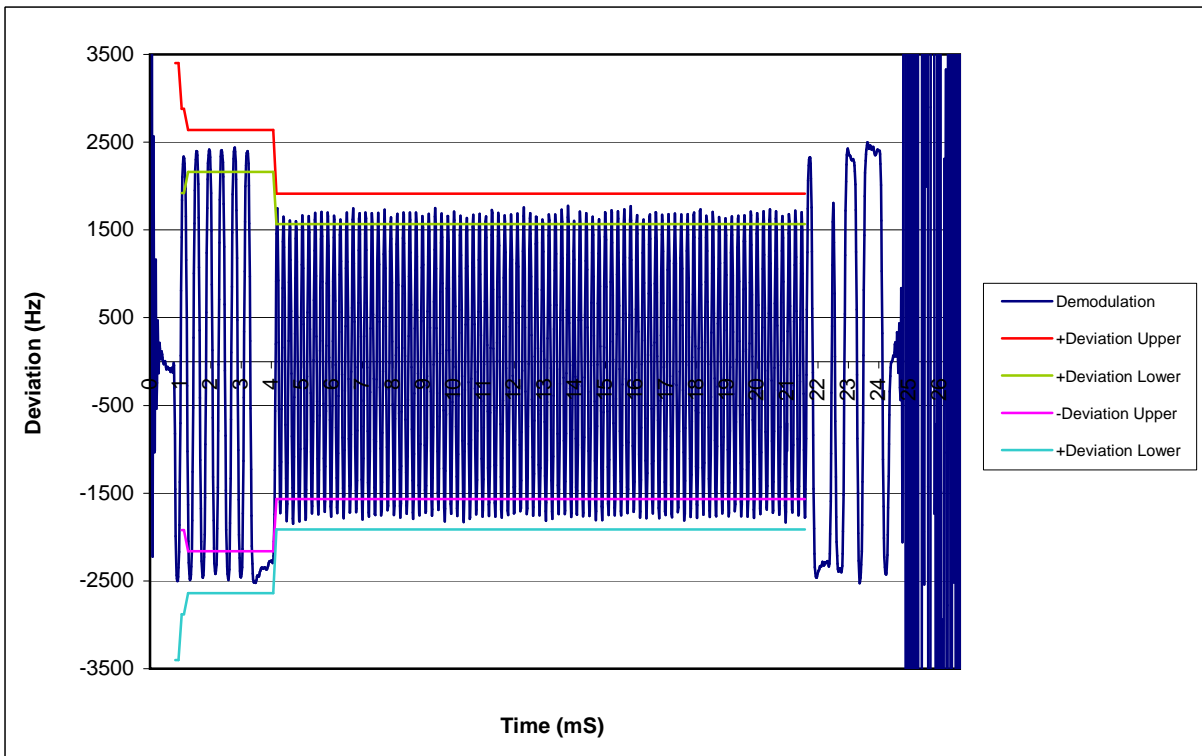
Date: 5.DEC.2014 12:38:37

Plot 6: Transmitter transient behaviour at AIS2 frequency under normal conditions  
 Close up showing first 2mS of ramp

**Annex D: Transmitter transient behaviour (frequency deviation) result plots for AIS1 and AIS2 frequencies (Clause 8.6)**

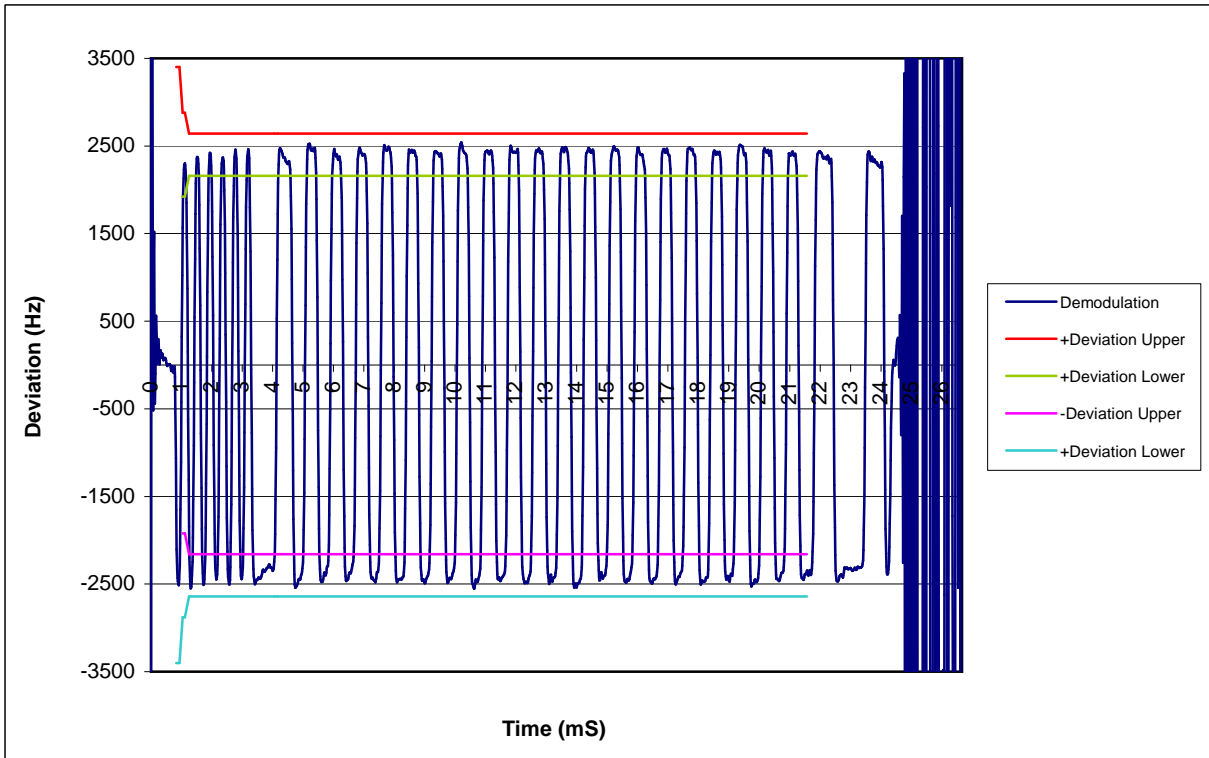


Plot 7: Transmitter transient behaviour (frequency deviation) at AIS1 frequency, test signal No.1, normal conditions

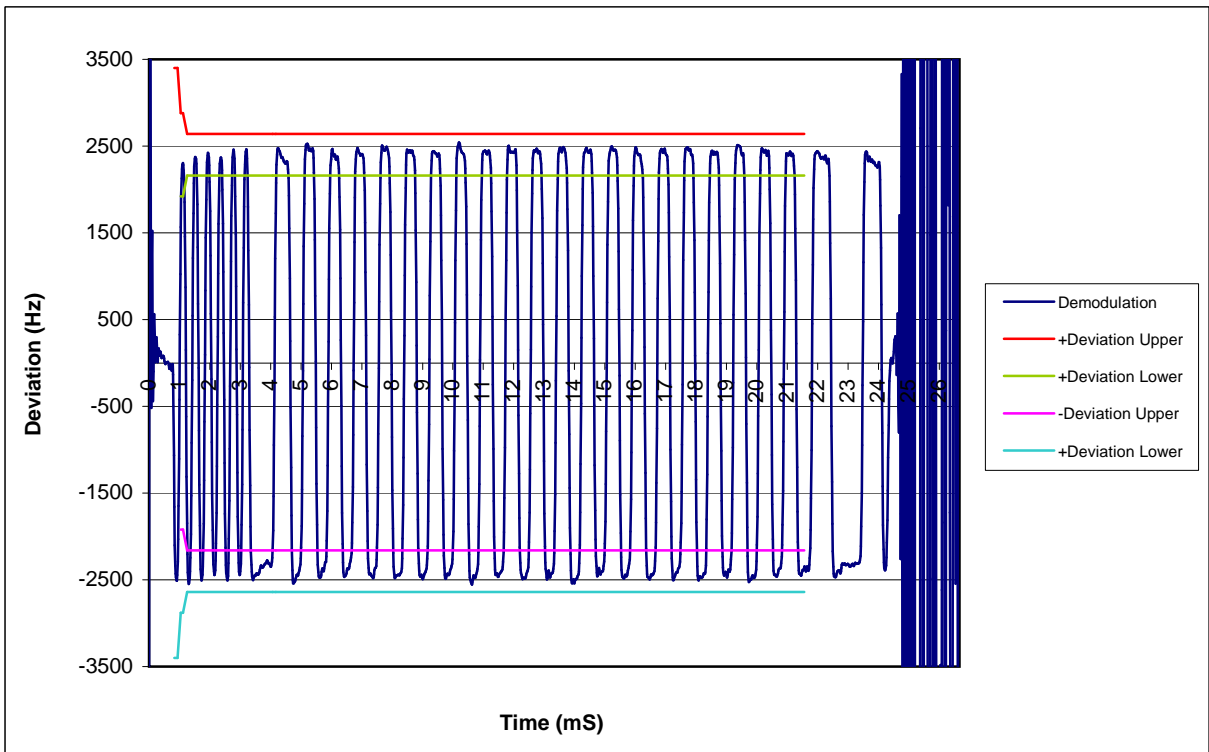


Plot 8: Transmitter transient behaviour (frequency deviation) at AIS2 frequency, test signal No.1, normal conditions

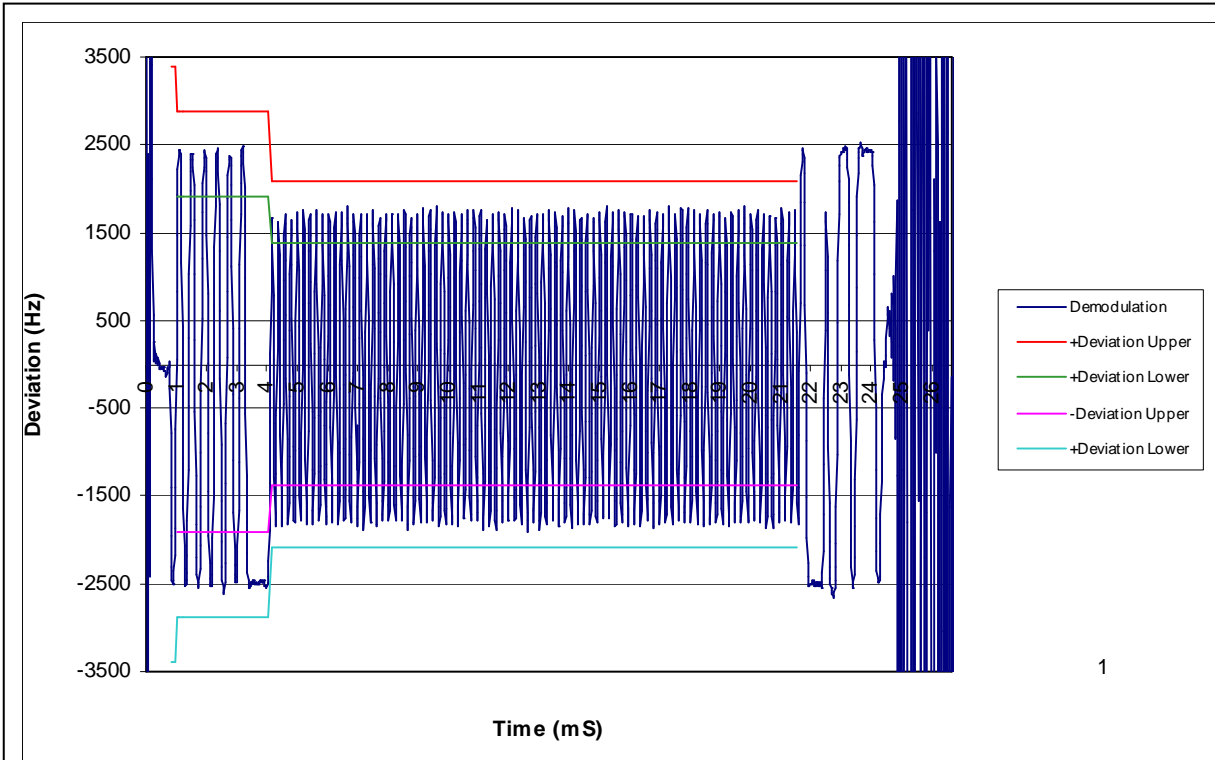




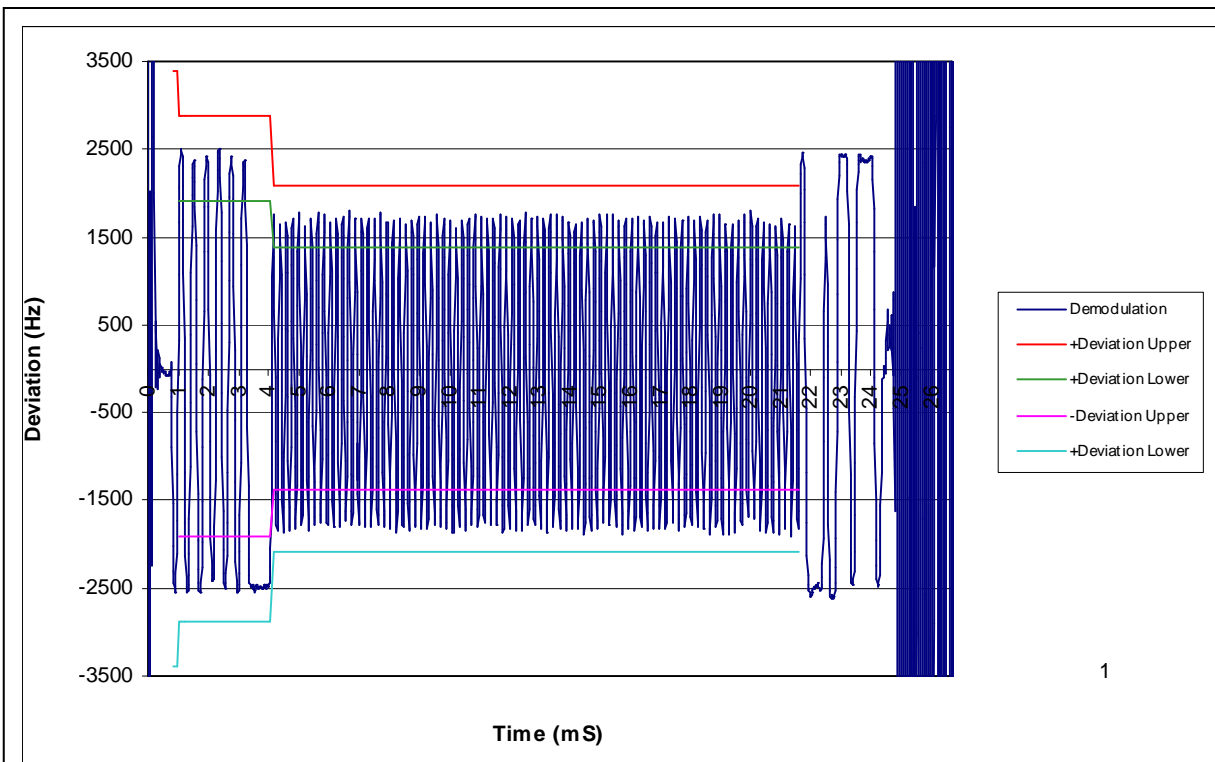
Plot 9: Transmitter transient behaviour (frequency deviation) at AIS1 frequency, test signal No.2, normal conditions



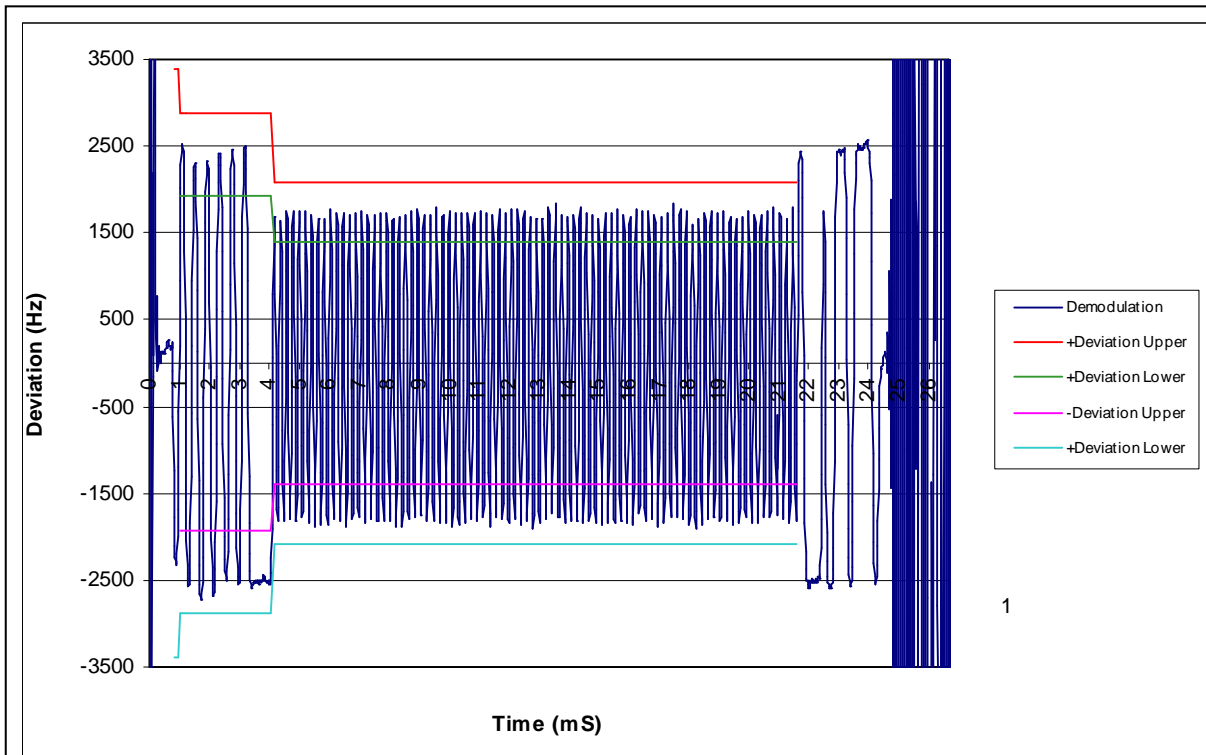
Plot 10: Transmitter transient behaviour (frequency deviation) at AIS2 frequency, test signal No.2, normal conditions



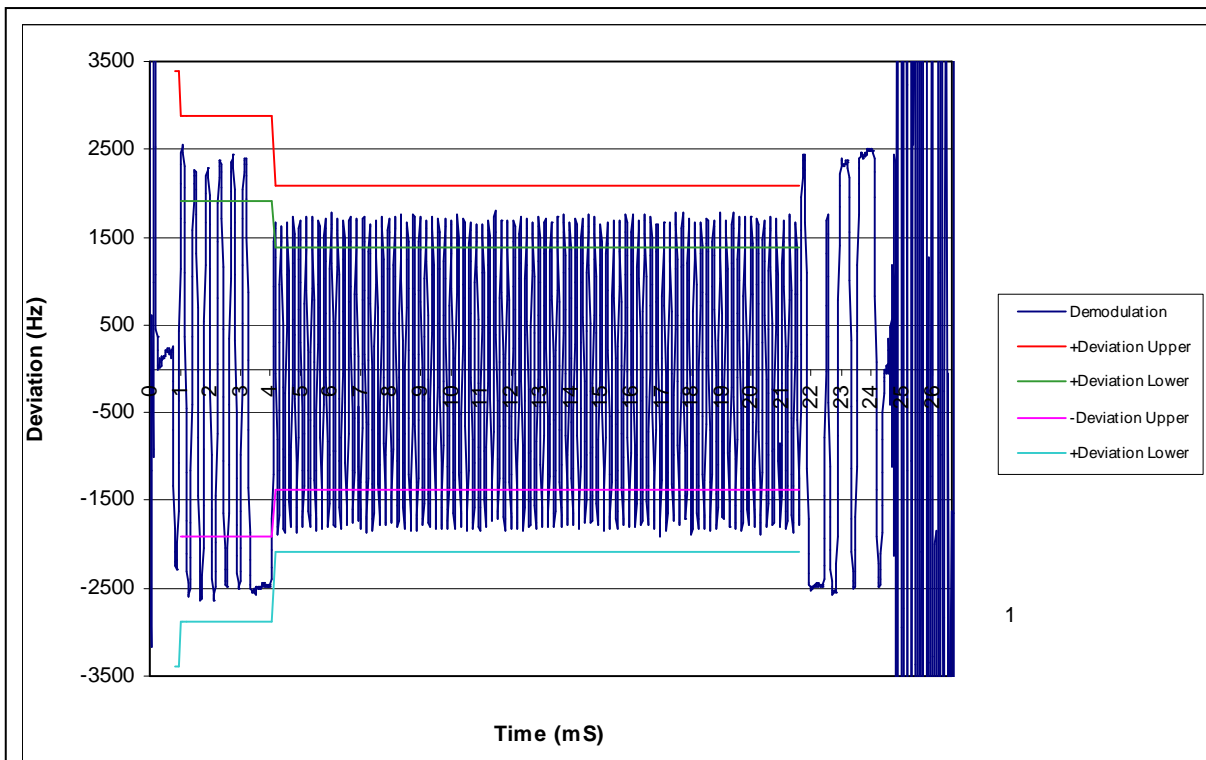
Plot 11: Transmitter transient behaviour (frequency deviation) at AIS1 frequency, test signal No.1, Lower Extreme, -20 deg C, 3.8V



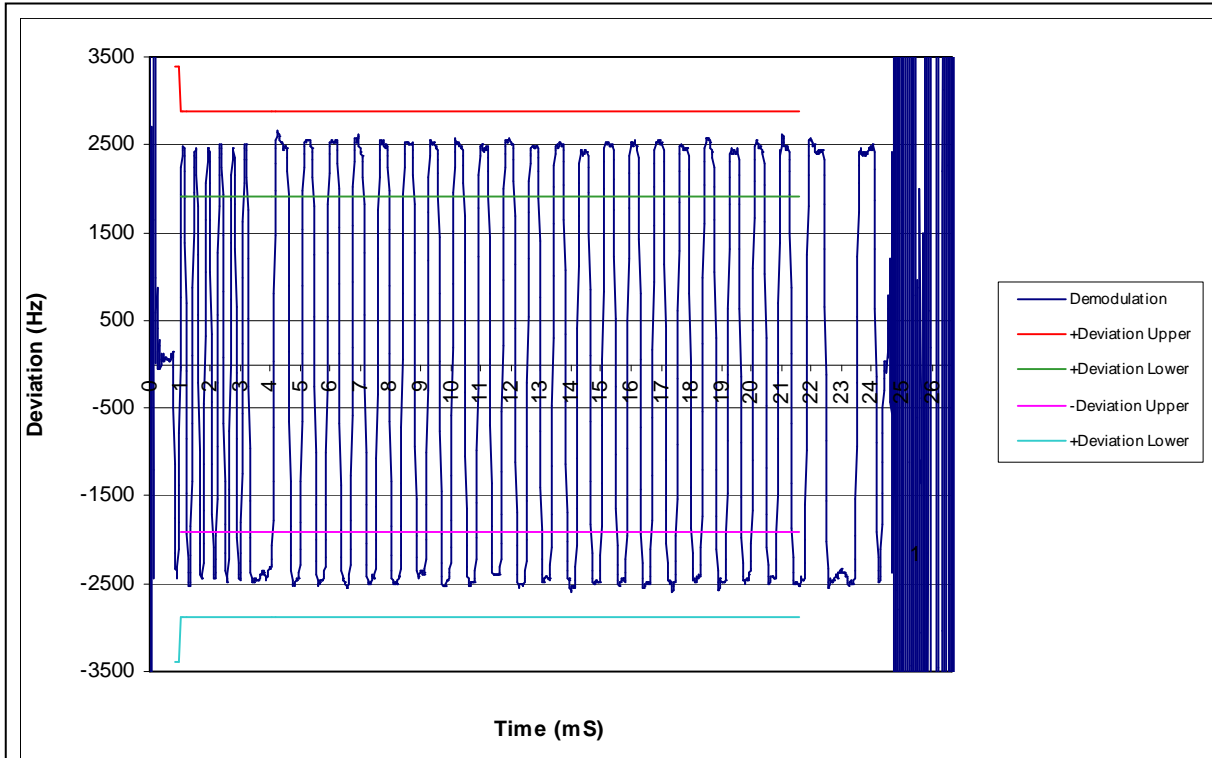
Plot 12: Transmitter transient behaviour (frequency deviation) at AIS2 frequency, test signal No.1, Lower Extreme, -20 deg C, 3.8V



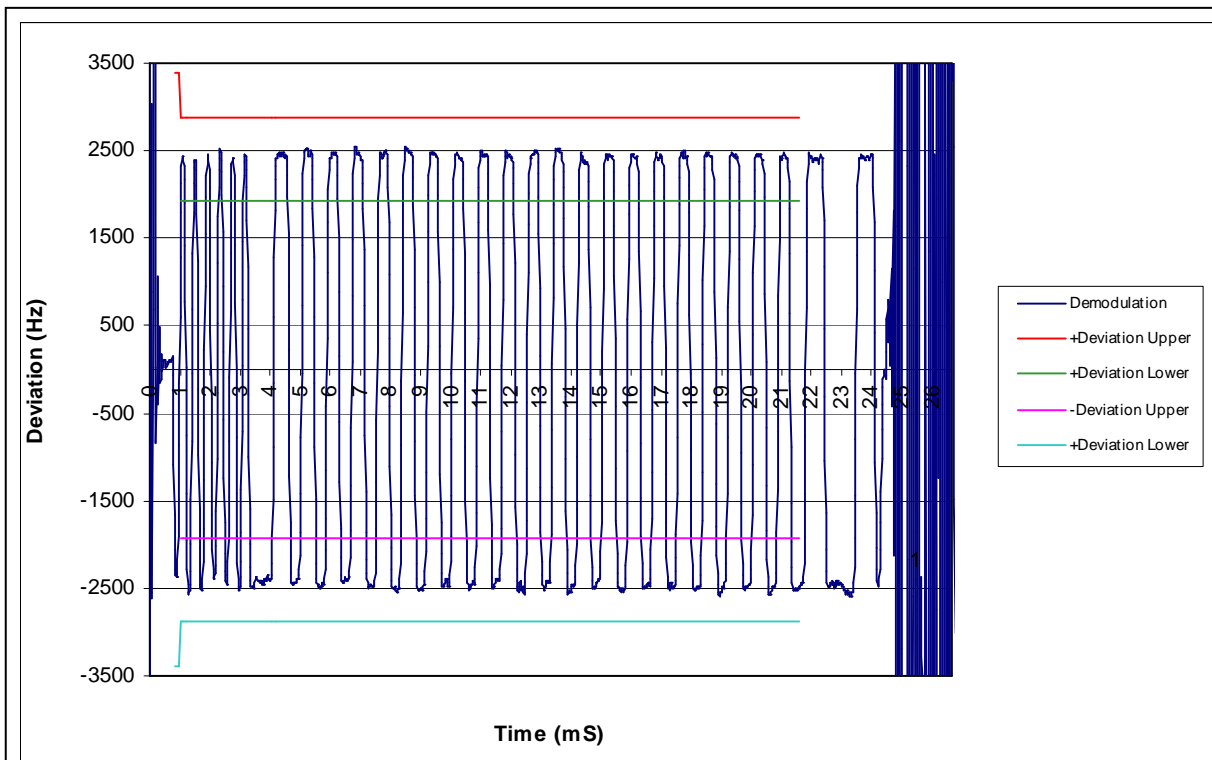
Plot 13: Transmitter transient behaviour (frequency deviation) at AIS1 frequency, test signal No.1, Lower Extreme, -20 deg C, 6.6V



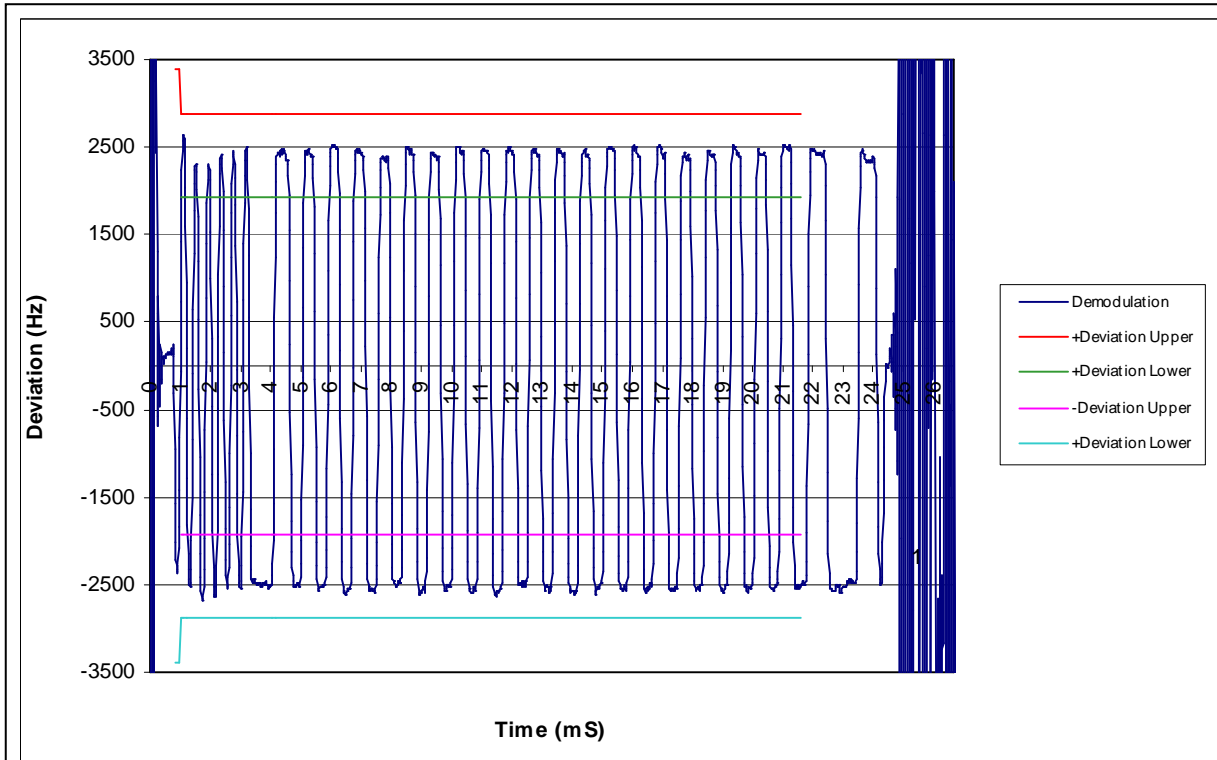
Plot 14: Transmitter transient behaviour (frequency deviation) at AIS2 frequency, test signal No.1, Lower Extreme, -20 deg C, 6.6V



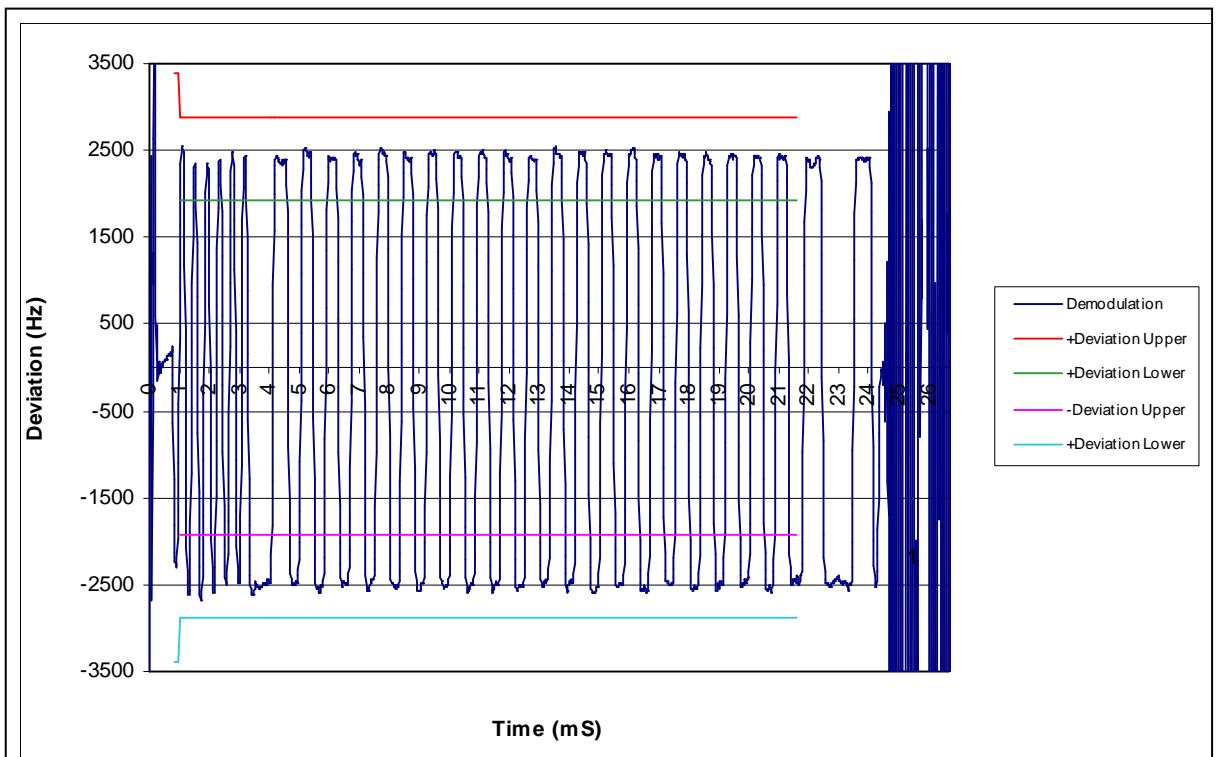
Plot 15: Transmitter transient behaviour (frequency deviation) at AIS1 frequency, test signal No.2, Lower Extreme, -20 deg C, 3.8V



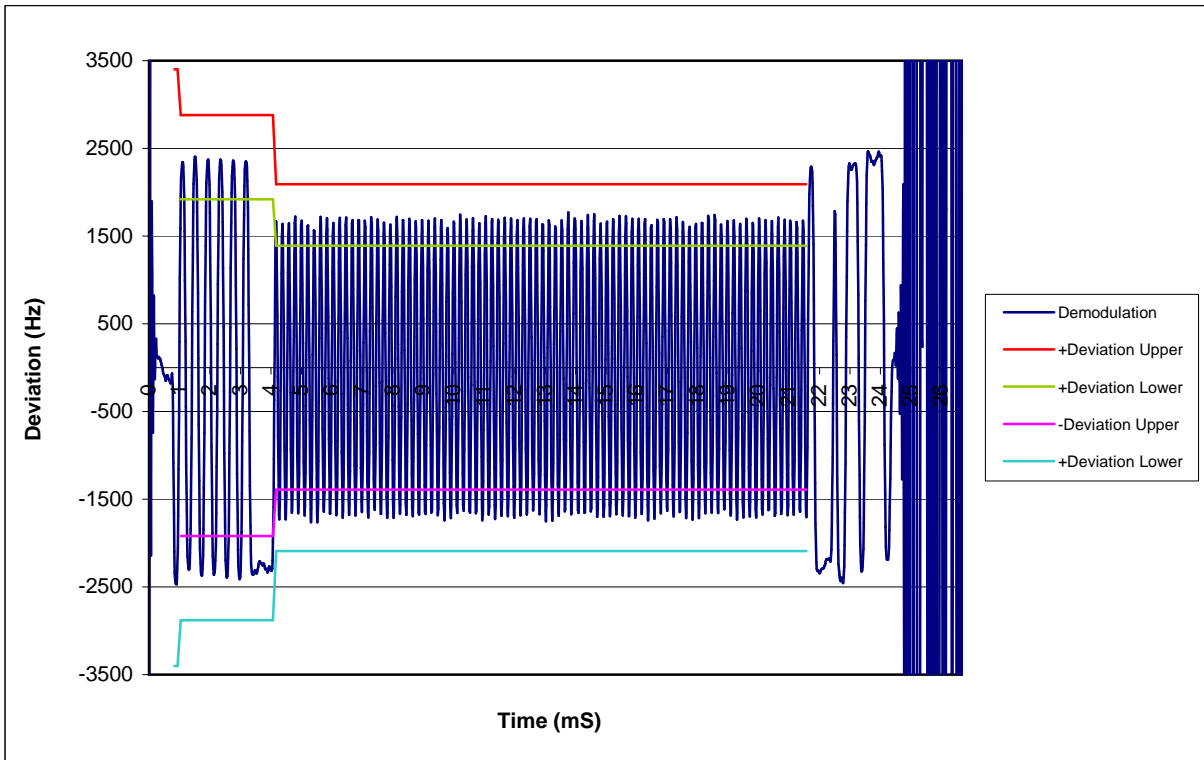
Plot 16: Transmitter transient behaviour (frequency deviation) at AIS2 frequency, test signal No.2, Lower Extreme, -20 deg C, 3.8V



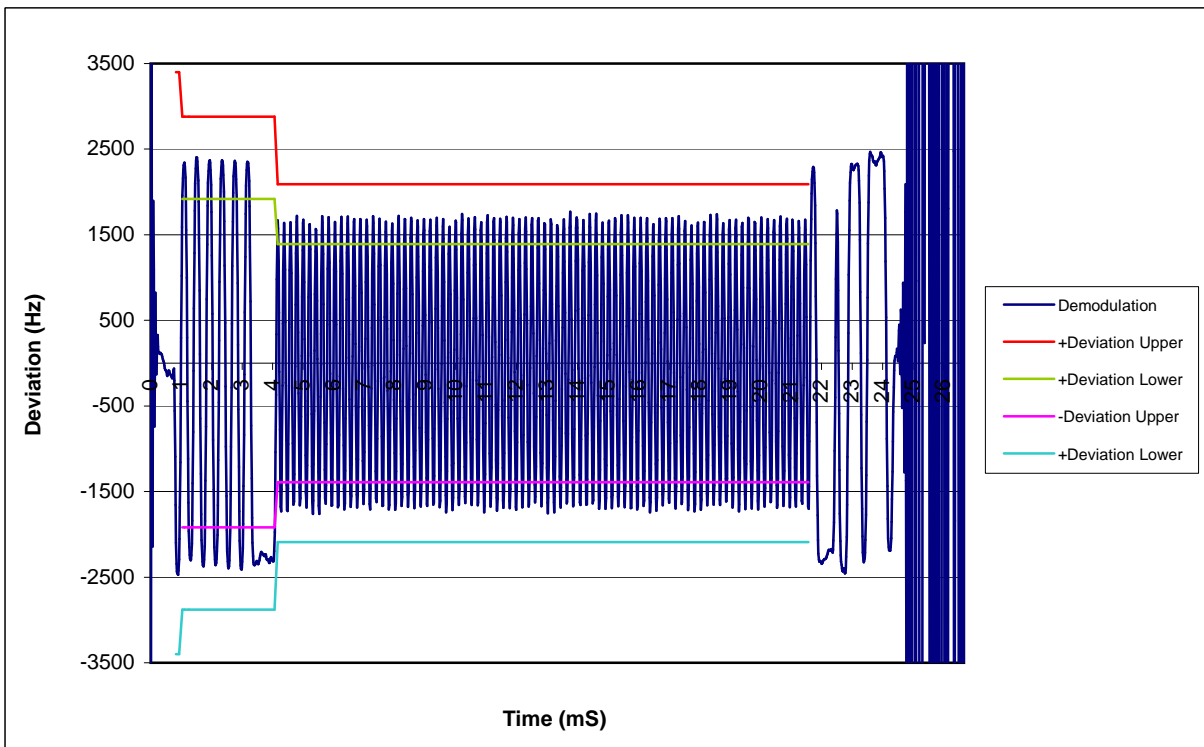
Plot 17: Transmitter transient behaviour (frequency deviation) at AIS1 frequency, test signal No.2, Lower Extreme, -20 deg C, 6.6V



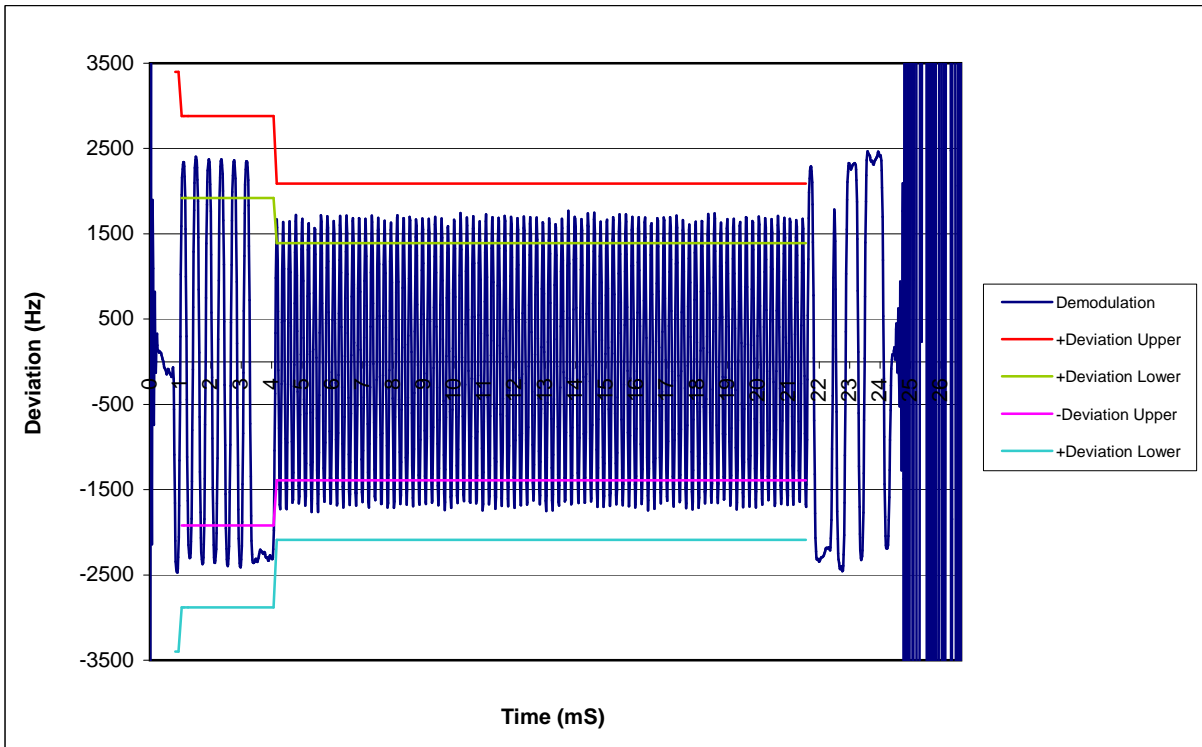
Plot 18: Transmitter transient behaviour (frequency deviation) at AIS2 frequency, test signal No.2, Lower Extreme, -20 deg C, 6.6V



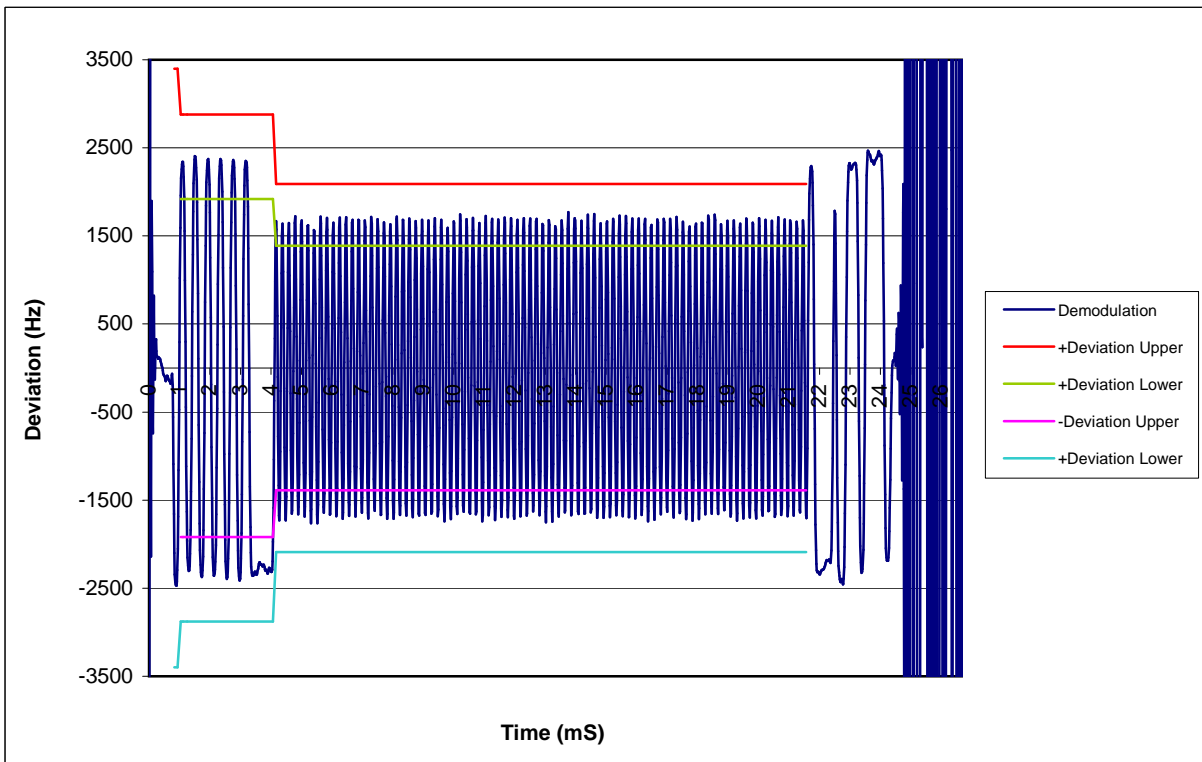
Plot 19: Transmitter transient behaviour (frequency deviation) at AIS1 frequency, test signal No.1, Upper Extreme, 55 deg C, 3.8V



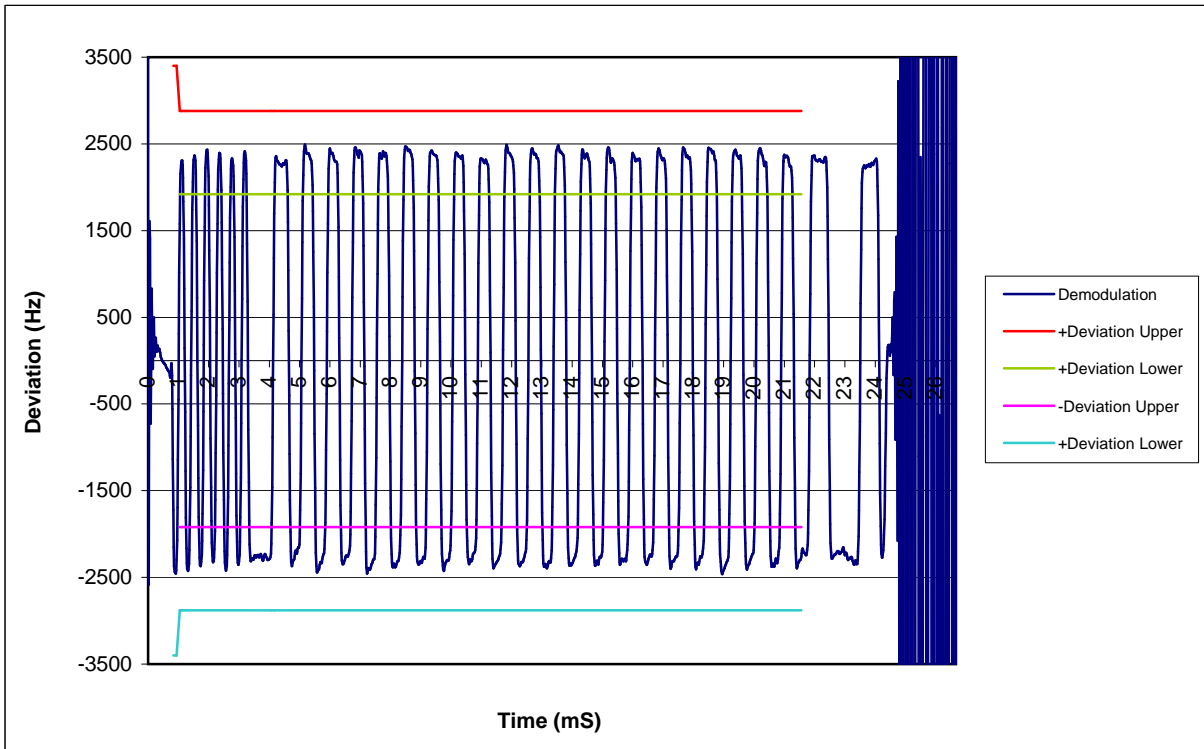
Plot 20: Transmitter transient behaviour (frequency deviation) at AIS2 frequency, test signal No.1, Upper Extreme, 55 deg C, 3.8V



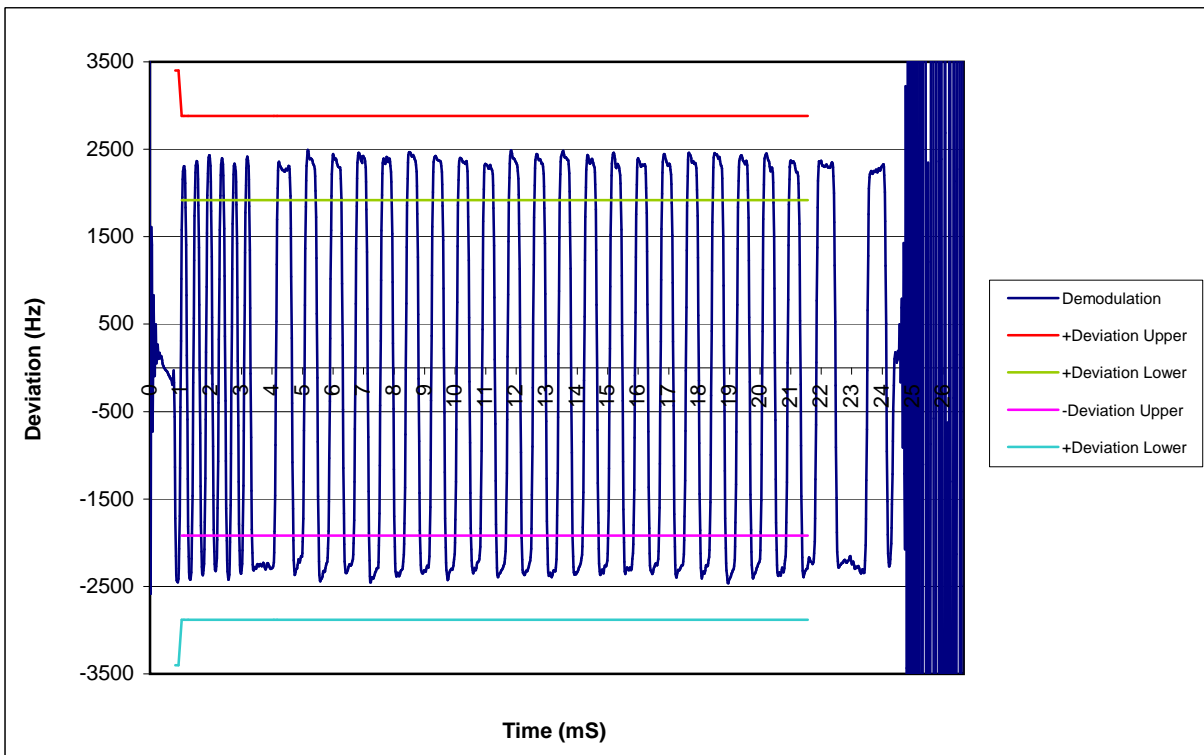
Plot 21: Transmitter transient behaviour (frequency deviation) at AIS1 frequency, test signal No.1, Upper Extreme, 55 deg C, 6.6V



Plot 22: Transmitter transient behaviour (frequency deviation) at AIS2 frequency, test signal No.1, Upper Extreme, 55 deg C, 6.6V

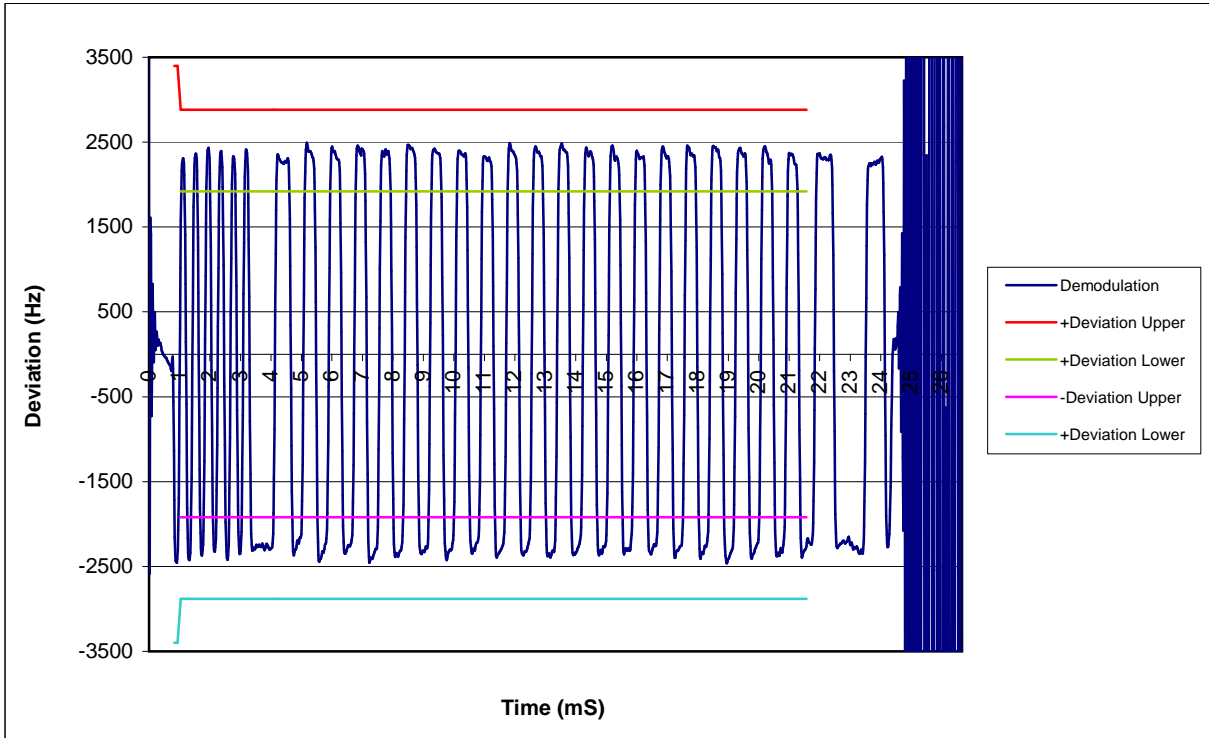


Plot 23: Transmitter transient behaviour (frequency deviation) at AIS1 frequency, test signal No.2, Upper Extreme, 55 deg C, 3.8V

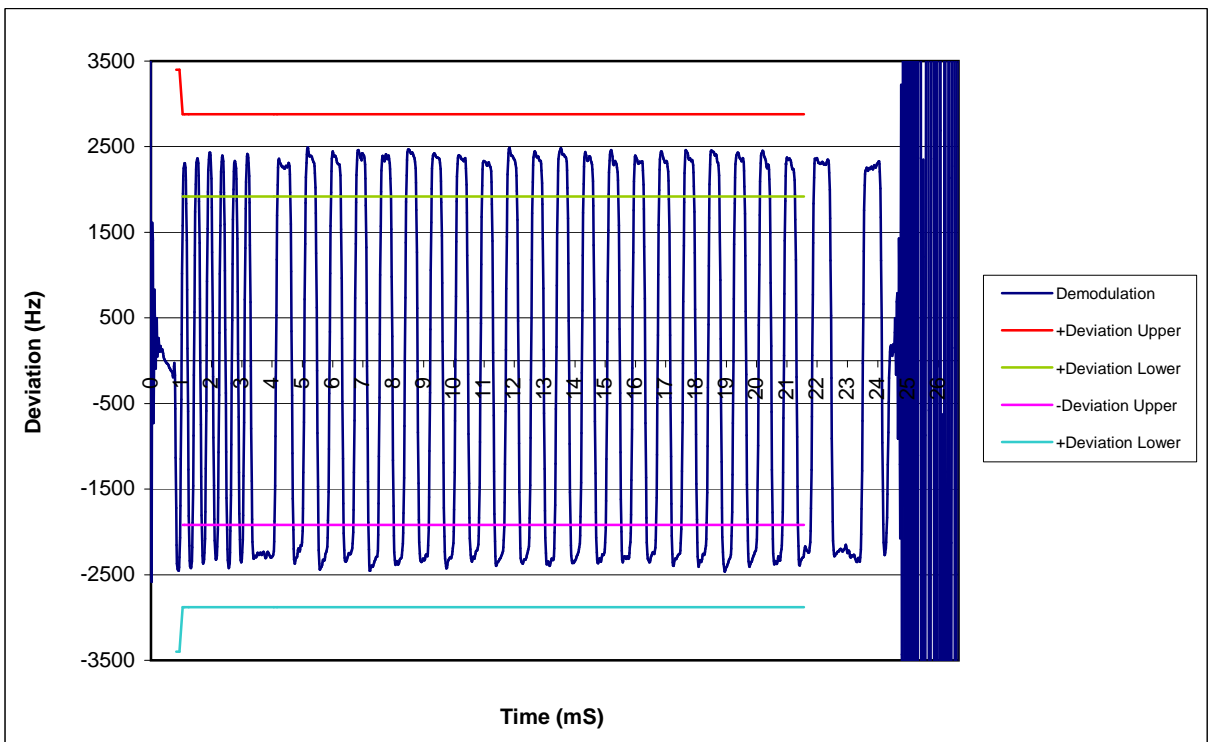


Plot 24: Transmitter transient behaviour (frequency deviation) at AIS2 frequency, test signal No.2, Upper Extreme, 55 deg C, 3.8V



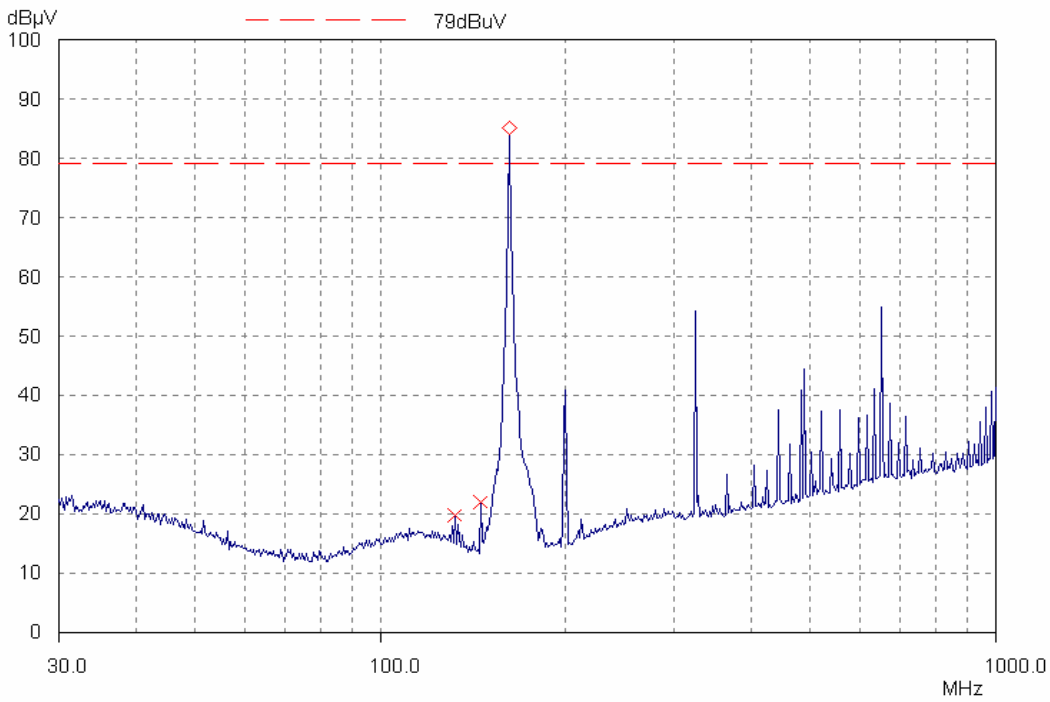


Plot 25: Transmitter transient behaviour (frequency deviation) at AIS1 frequency, test signal No.2, Upper Extreme, 55 deg C, 6.6V

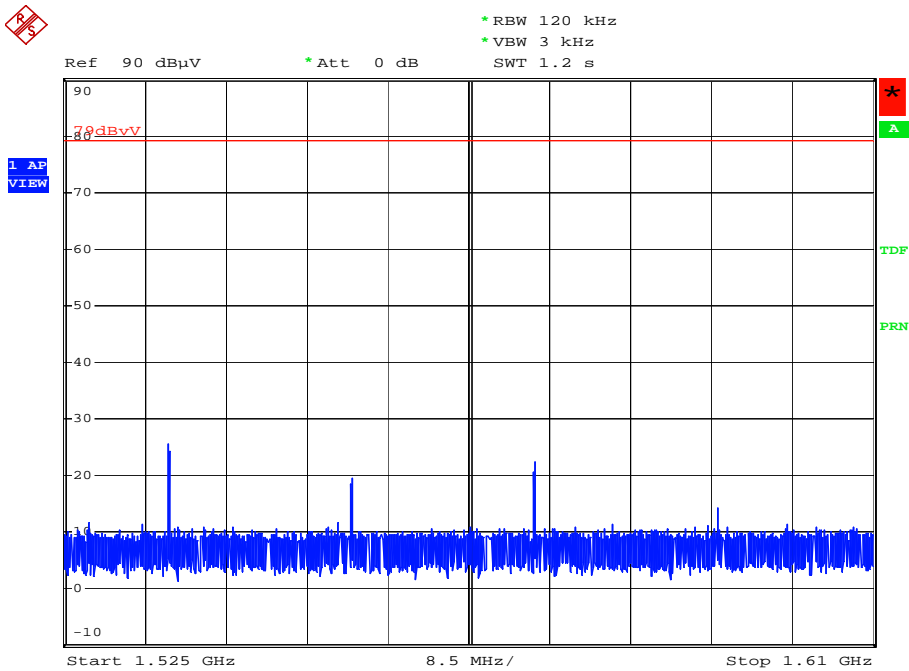


Plot 26: Transmitter transient behaviour (frequency deviation) at AIS2 frequency, test signal No.2, Upper Extreme, 55 deg C, 6.6V

Annex E: Spurious Emissions (Clause 8.8)

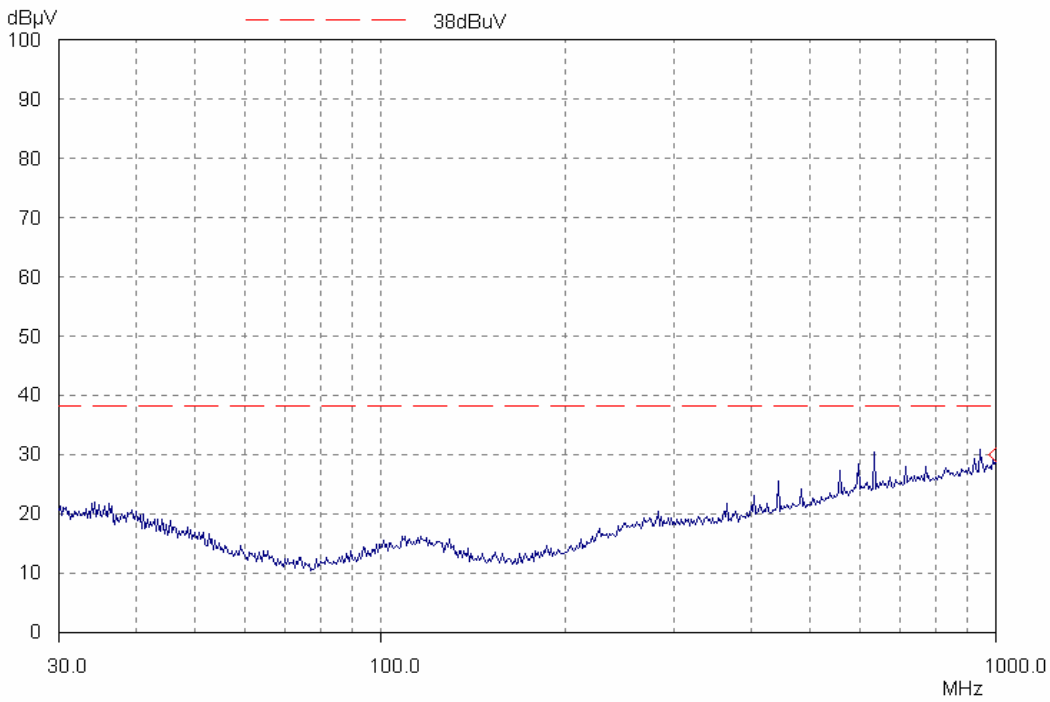


Plot 27: Radiated spurious emissions search scan in TX Mode 30.0MHz to 1.0GHz

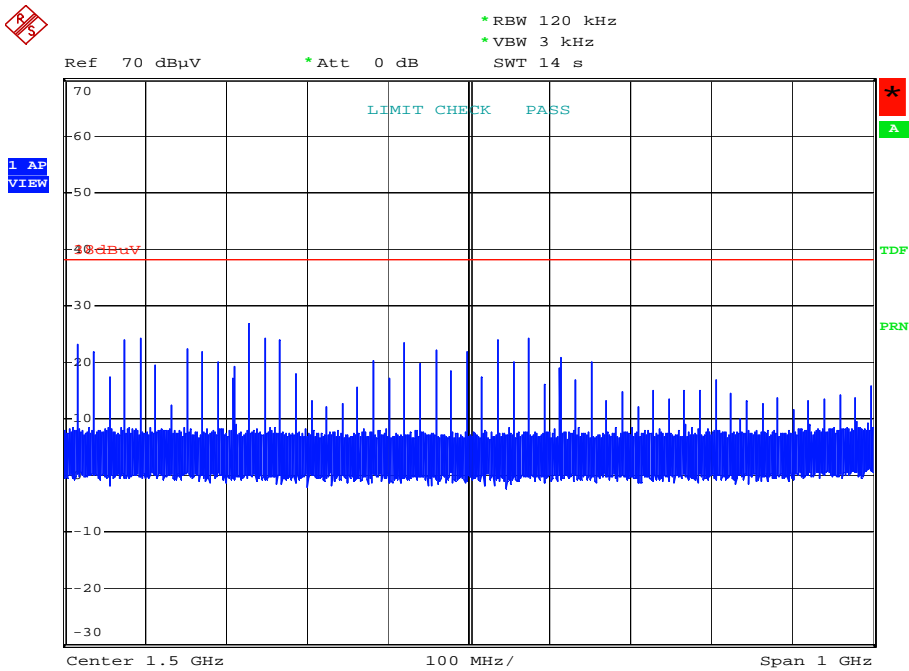


Date: 1.JAN.2000 19:13:36

Plot 28 : Radiated spurious emissions search scan in TX Mode 1.525GHz to 1.610GHz



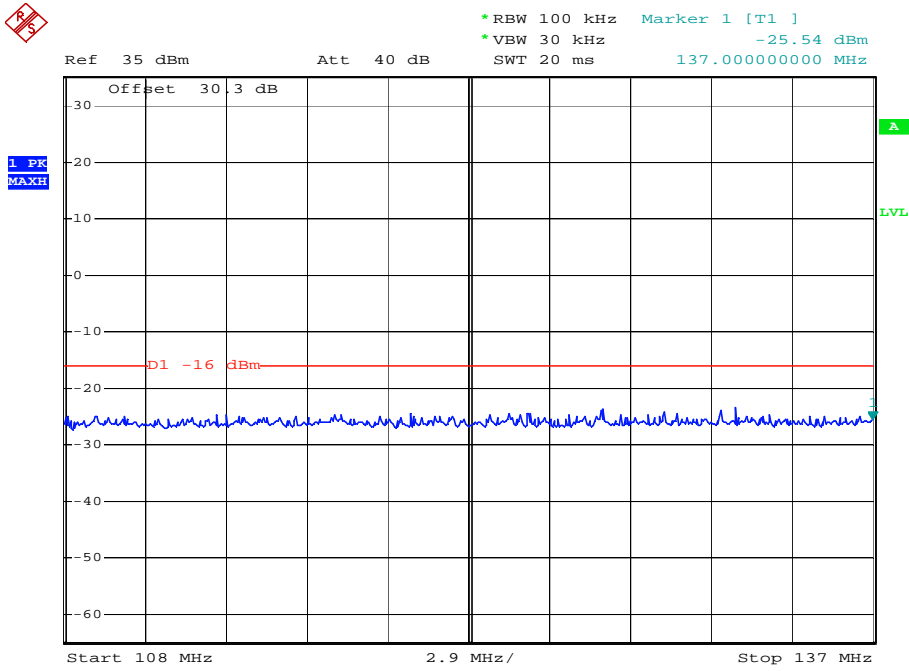
Plot 29: Radiated spurious emissions search scan in STBY Mode 30.0MHz to 1.0GHz



Date: 1.JAN.2000 17:58:09

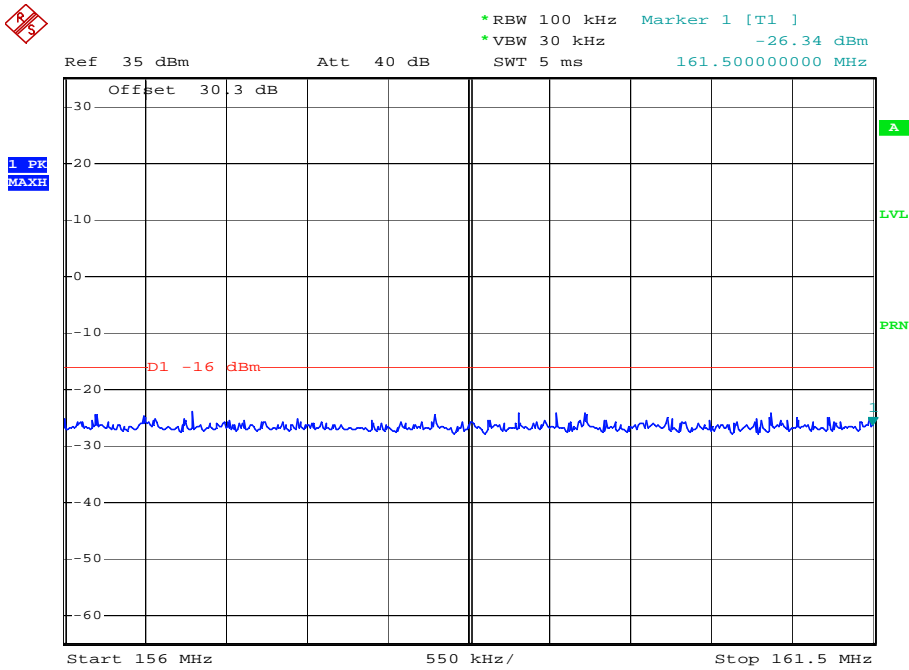
Plot 30: Radiated spurious emissions search scan in STBY Mode 1.0GHz to 2.0GHz

**Annex F: Spurious emissions from the transmitter**  
**RTCM 11901.1 Clause E.7.6**



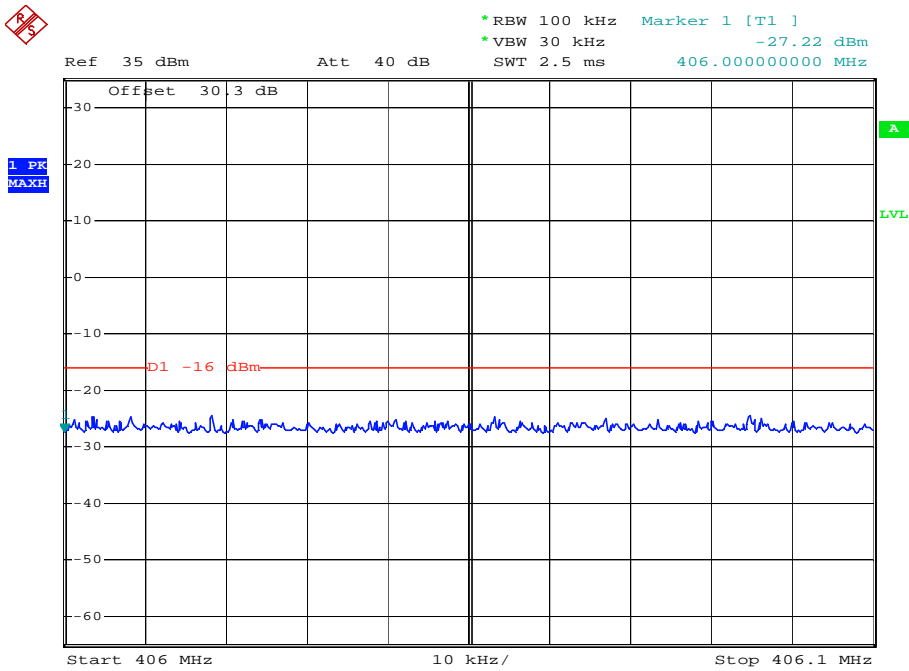
Date: 9.DEC.2014 15:33:43

Plot 31: Spurious emissions from the transmitter at AIS 1 frequency 108MHz to 137MHz



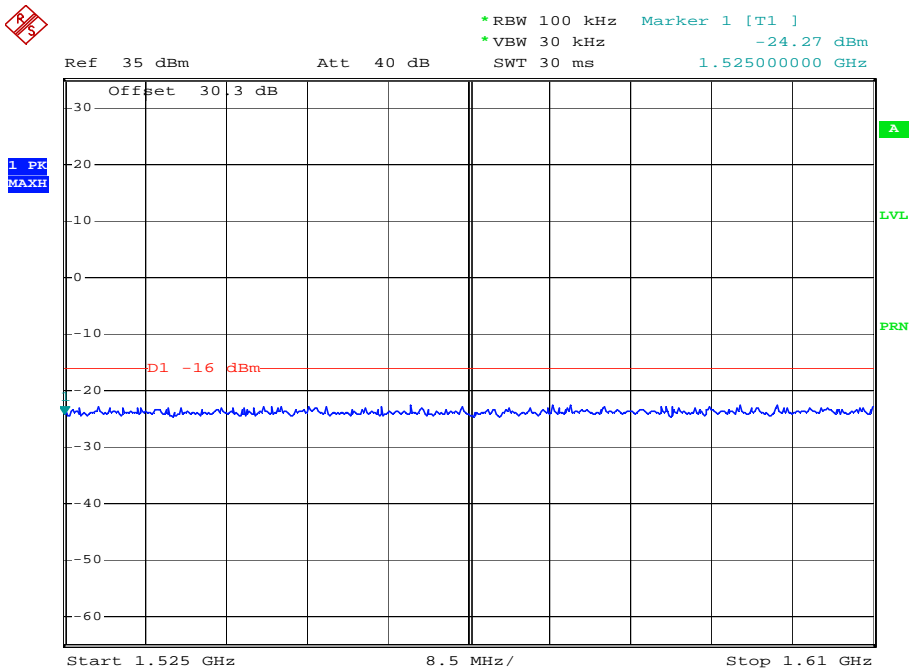
Date: 9.DEC.2014 15:59:41

Plot 32: Spurious emissions from the transmitter at AIS 1 frequency 156MHz to 161.5MHz



Date: 9.DEC.2014 15:34:34

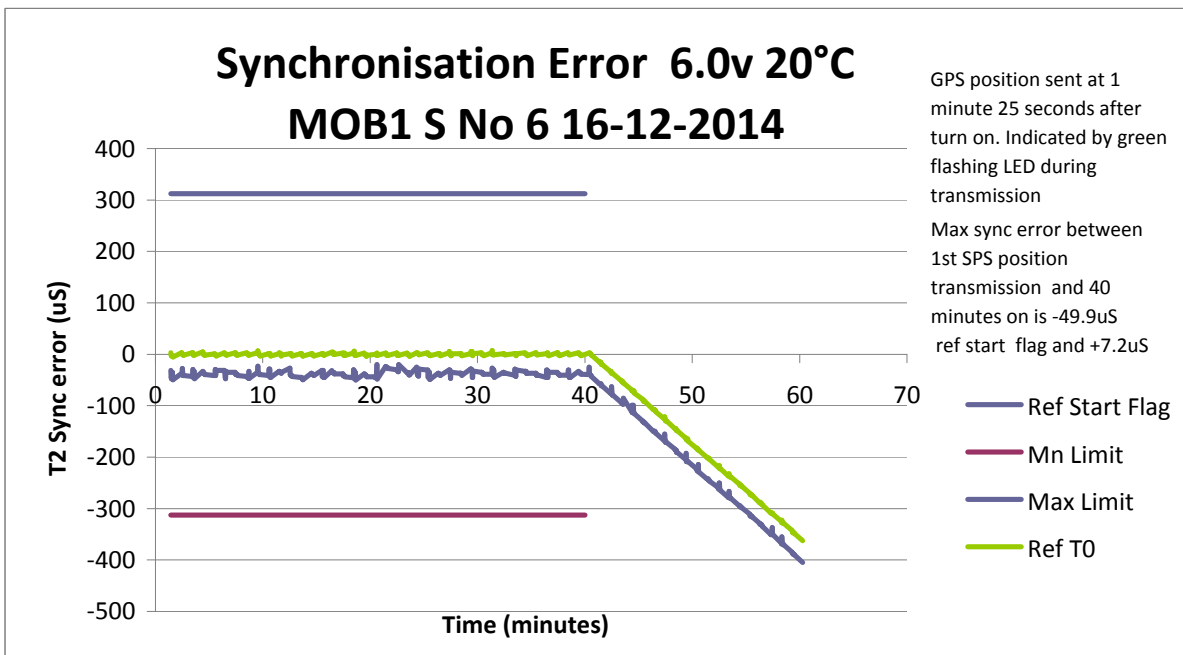
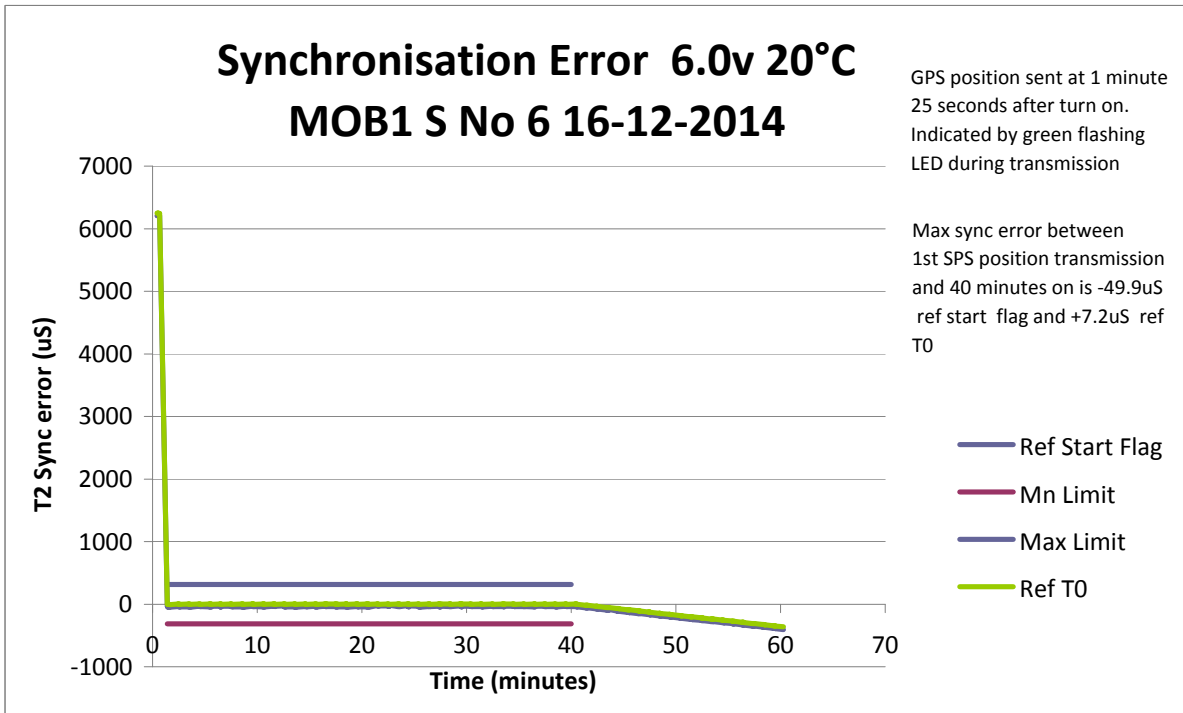
Plot 33: Spurious emissions from the transmitter at AIS 1 frequency 406MHz to 406.1MHz



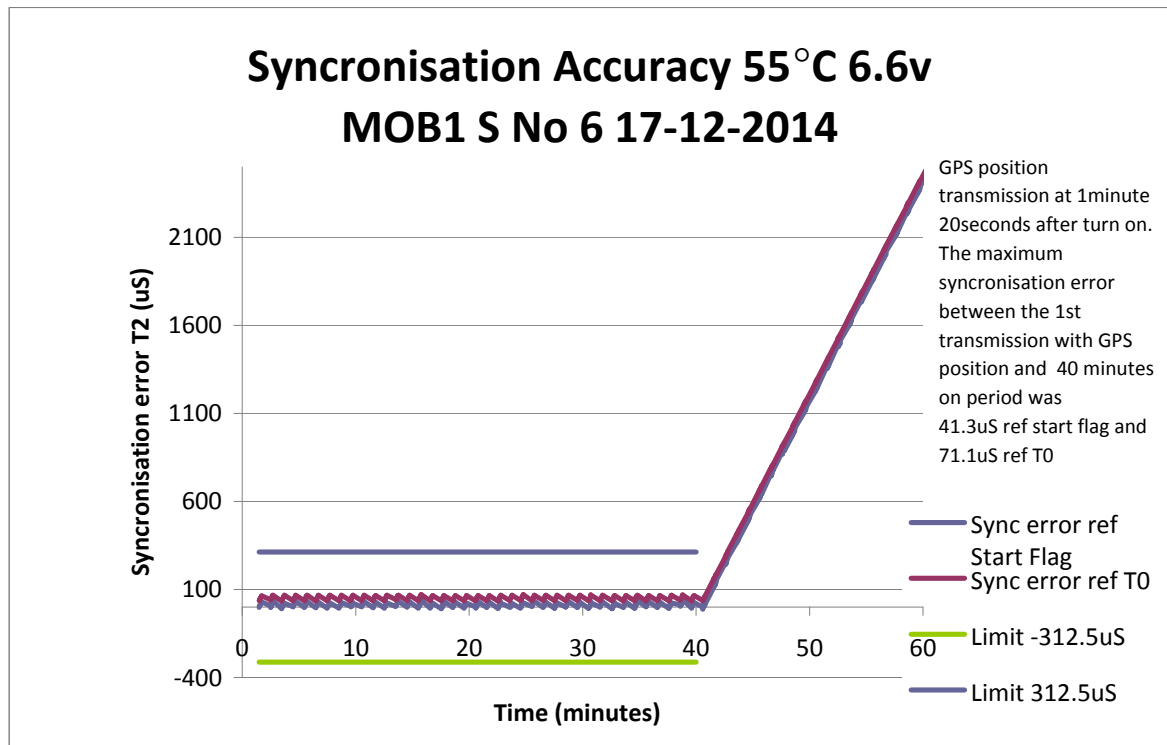
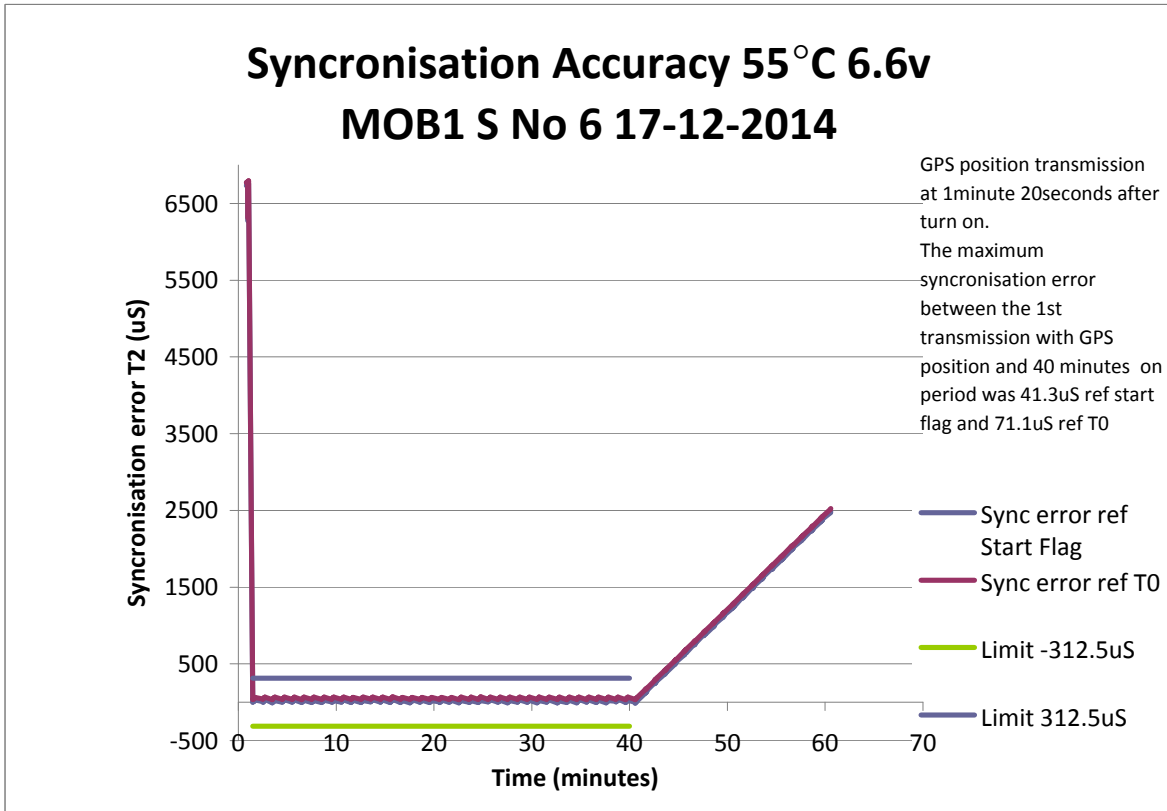
Date: 9.DEC.2014 15:58:55

Plot 34: Spurious emissions from the transmitter at AIS 1 frequency 1525MHz to 1610MHz

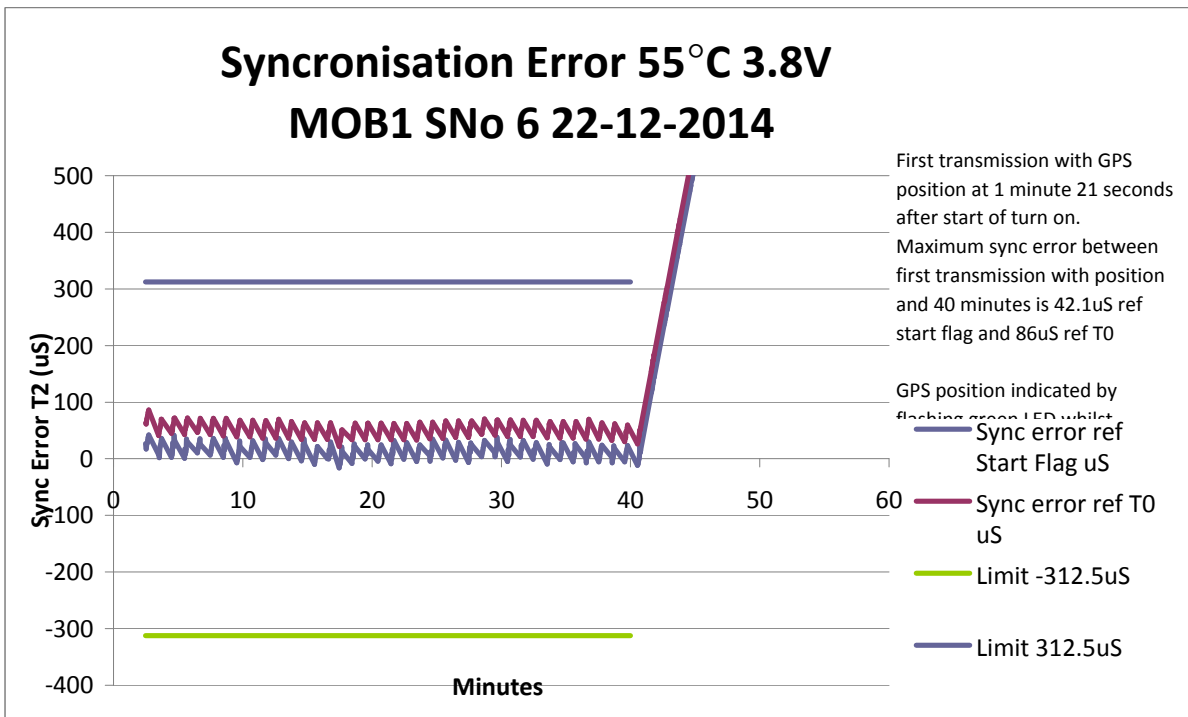
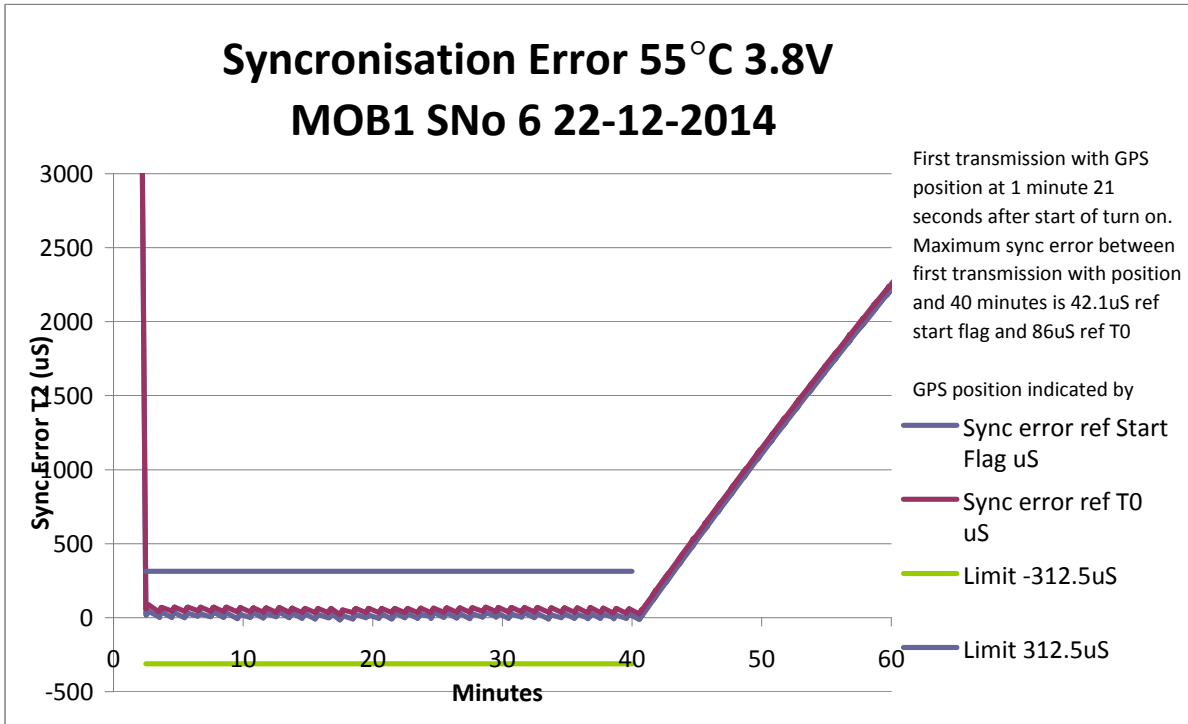
### Synchronisation Accuracy at 20°C and Nominal Voltage



### Synchronisation Accuracy at 55°C and High Voltage

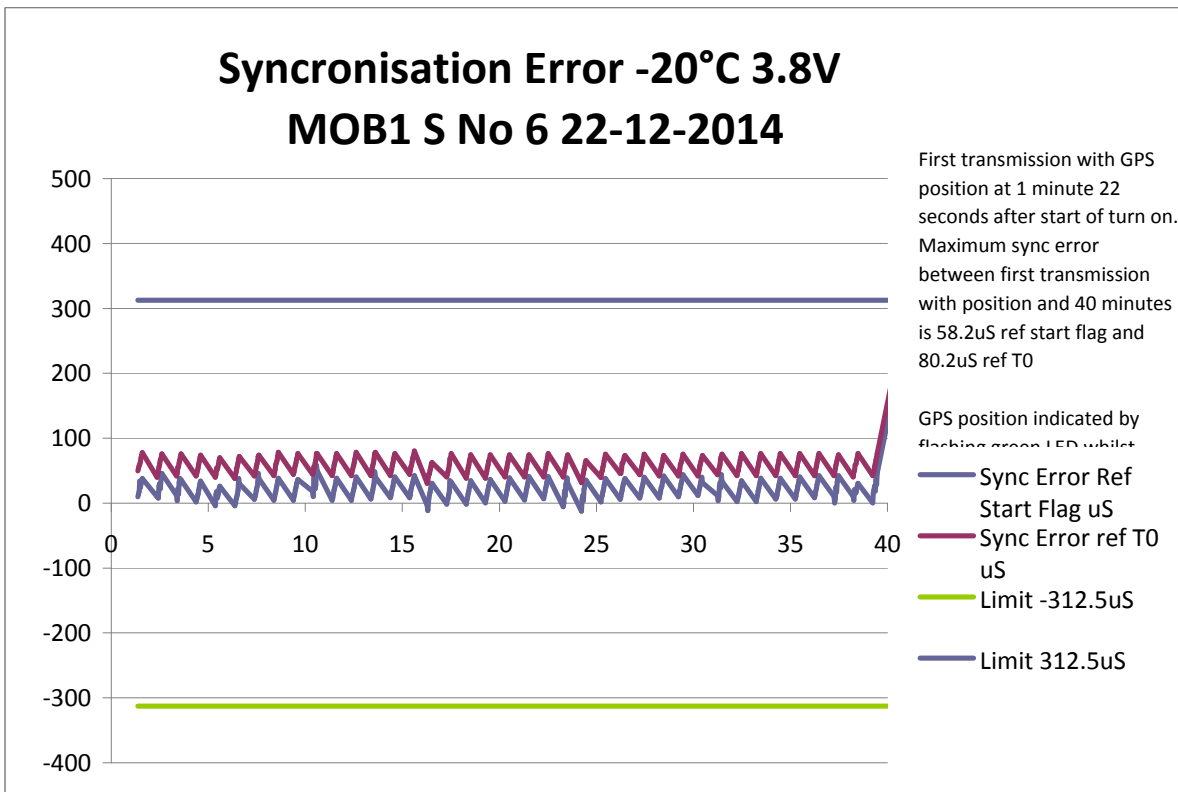
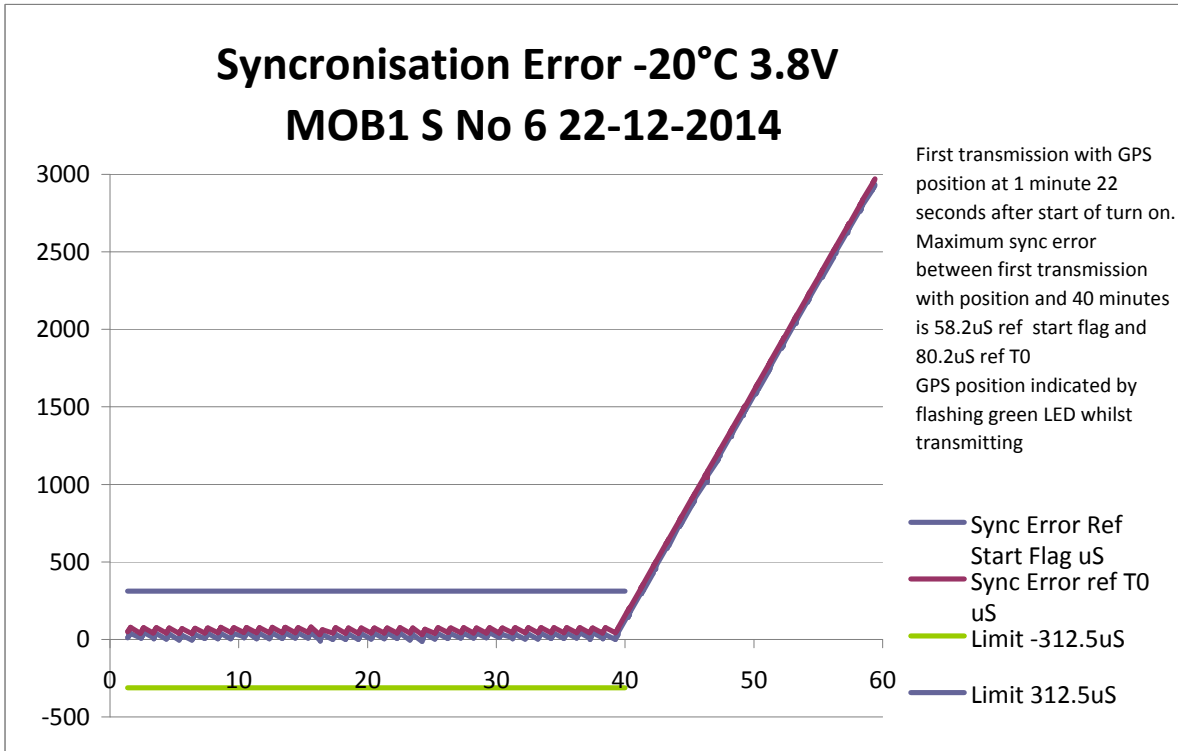


### Synchronisation Accuracy at 55°C and Low Voltage

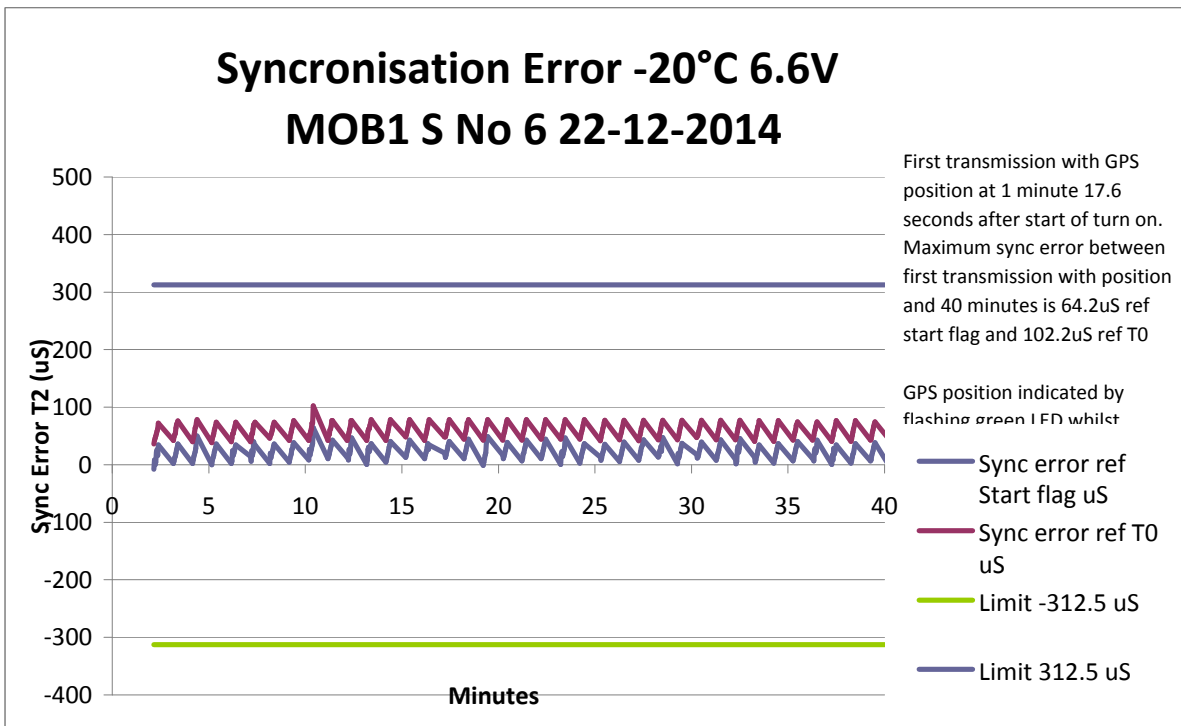
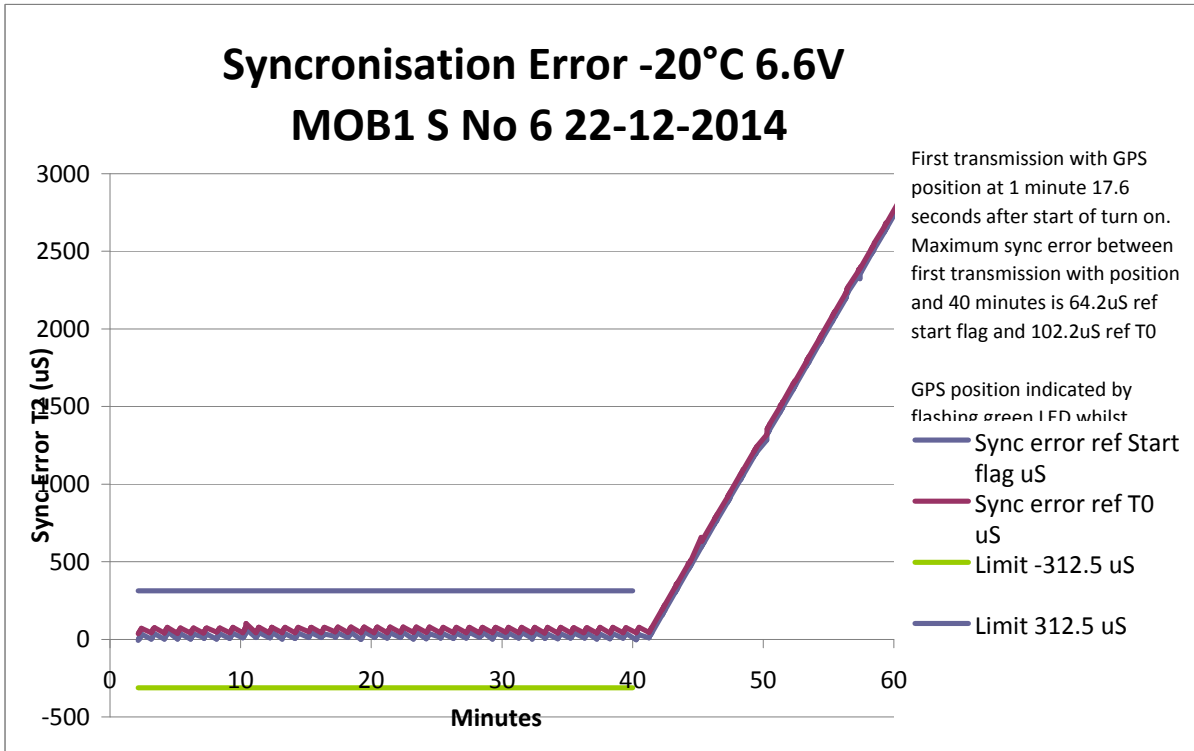




### Synchronisation Accuracy at -20°C and Low Voltage



### Synchronisation Accuracy at -20C and High Voltage



VDL testing data.

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.3 &amp; 9.1.4

**Message Type >5 min Transmissions time < 40 min**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
13:24:20	1	1	1	1	1	1	1	1
13:25:21	1	1	1	1	1	1	1	1
13:26:21	1	1	1	1	1	1	1	1
13:27:26	1	1	1	1	14	14	1	1
13:28:26	1	1	1	1	1	1	1	1
13:29:26	1	1	1	1	1	1	1	1
13:30:26	1	1	1	1	1	1	1	1
13:31:26	1	1	1	1	14	14	1	1
13:32:26	1	1	1	1	1	1	1	1
13:33:26	1	1	1	1	1	1	1	1
13:34:26	1	1	1	1	1	1	1	1
13:35:21	1	1	1	1	14	14	1	1
13:36:21	1	1	1	1	1	1	1	1
13:37:21	1	1	1	1	1	1	1	1
13:38:21	1	1	1	1	1	1	1	1
13:39:21	1	1	1	1	14	14	1	1
13:40:21	1	1	1	1	1	1	1	1
13:41:21	1	1	1	1	1	1	1	1
13:42:21	1	1	1	1	1	1	1	1
13:43:15	1	1	1	1	14	14	1	1
13:44:15	1	1	1	1	1	1	1	1
13:45:16	1	1	1	1	1	1	1	1
13:46:15	1	1	1	1	1	1	1	1
13:47:15	1	1	1	1	14	14	1	1
13:48:15	1	1	1	1	1	1	1	1
13:49:15	1	1	1	1	1	1	1	1
13:50:15	1	1	1	1	1	1	1	1
13:51:19	1	1	1	1	14	14	1	1
13:52:20	1	1	1	1	1	1	1	1
13:53:19	1	1	1	1	1	1	1	1
13:54:20	1	1	1	1	1	1	1	1
13:55:19	1	1	1	1	14	14	1	1
13:56:19	1	1	1	1	1	1	1	1
13:57:19	1	1	1	1	1	1	1	1
13:58:19	1	1	1	1	1	1	1	1

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.3 &amp; 9.1.4

**Repeat Indicator >5 min Transmissions time < 40 min**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
13:24:20	0	0	0	0	0	0	0	0
13:25:21	0	0	0	0	0	0	0	0
13:26:21	0	0	0	0	0	0	0	0
13:27:26	0	0	0	0	0	0	0	0
13:28:26	0	0	0	0	0	0	0	0
13:29:26	0	0	0	0	0	0	0	0
13:30:26	0	0	0	0	0	0	0	0
13:31:26	0	0	0	0	0	0	0	0
13:32:26	0	0	0	0	0	0	0	0
13:33:26	0	0	0	0	0	0	0	0
13:34:26	0	0	0	0	0	0	0	0
13:35:21	0	0	0	0	0	0	0	0
13:36:21	0	0	0	0	0	0	0	0
13:37:21	0	0	0	0	0	0	0	0
13:38:21	0	0	0	0	0	0	0	0
13:39:21	0	0	0	0	0	0	0	0
13:40:21	0	0	0	0	0	0	0	0
13:41:21	0	0	0	0	0	0	0	0
13:42:21	0	0	0	0	0	0	0	0
13:43:15	0	0	0	0	0	0	0	0
13:44:15	0	0	0	0	0	0	0	0
13:45:16	0	0	0	0	0	0	0	0
13:46:15	0	0	0	0	0	0	0	0
13:47:15	0	0	0	0	0	0	0	0
13:48:15	0	0	0	0	0	0	0	0
13:49:15	0	0	0	0	0	0	0	0
13:50:15	0	0	0	0	0	0	0	0
13:51:19	0	0	0	0	0	0	0	0
13:52:20	0	0	0	0	0	0	0	0
13:53:19	0	0	0	0	0	0	0	0
13:54:20	0	0	0	0	0	0	0	0
13:55:19	0	0	0	0	0	0	0	0
13:56:19	0	0	0	0	0	0	0	0
13:57:19	0	0	0	0	0	0	0	0
13:58:19	0	0	0	0	0	0	0	0

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.3 &amp; 9.1.4

**ID >5 min Transmissions time < 40 min**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
13:24:20	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:25:21	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:26:21	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:27:26	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:28:26	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:29:26	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:30:26	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:31:26	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:32:26	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:33:26	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:34:26	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:35:21	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:36:21	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:37:21	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:38:21	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:39:21	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:40:21	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:41:21	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:42:21	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:43:15	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:44:15	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:45:16	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:46:15	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:47:15	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:48:15	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:49:15	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:50:15	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:51:19	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:52:20	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:53:19	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:54:20	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:55:19	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:56:19	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:57:19	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
13:58:19	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.3

**Navigational Status >5 min Transmissions time < 40 min**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
13:24:20	14	14	14	14	14	14	14	14
13:25:21	14	14	14	14	14	14	14	14
13:26:21	14	14	14	14	14	14	14	14
13:27:26	14	14	14	14			14	14
13:28:26	14	14	14	14	14	14	14	14
13:29:26	14	14	14	14	14	14	14	14
13:30:26	14	14	14	14	14	14	14	14
13:31:26	14	14	14	14			14	14
13:32:26	14	14	14	14	14	14	14	14
13:33:26	14	14	14	14	14	14	14	14
13:34:26	14	14	14	14	14	14	14	14
13:35:21	14	14	14	14			14	14
13:36:21	14	14	14	14	14	14	14	14
13:37:21	14	14	14	14	14	14	14	14
13:38:21	14	14	14	14	14	14	14	14
13:39:21	14	14	14	14			14	14
13:40:21	14	14	14	14	14	14	14	14
13:41:21	14	14	14	14	14	14	14	14
13:42:21	14	14	14	14	14	14	14	14
13:43:15	14	14	14	14			14	14
13:44:15	14	14	14	14	14	14	14	14
13:45:16	14	14	14	14	14	14	14	14
13:46:15	14	14	14	14	14	14	14	14
13:47:15	14	14	14	14			14	14
13:48:15	14	14	14	14	14	14	14	14
13:49:15	14	14	14	14	14	14	14	14
13:50:15	14	14	14	14	14	14	14	14
13:51:19	14	14	14	14			14	14
13:52:20	14	14	14	14	14	14	14	14
13:53:19	14	14	14	14	14	14	14	14
13:54:20	14	14	14	14	14	14	14	14
13:55:19	14	14	14	14			14	14
13:56:19	14	14	14	14	14	14	14	14
13:57:19	14	14	14	14	14	14	14	14
13:58:19	14	14	14	14	14	14	14	14

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.3

**Rate of Turn >5 min Transmissions time < 40 min**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
13:24:20	-128	-128	-128	-128	-128	-128	-128	-128
13:25:21	-128	-128	-128	-128	-128	-128	-128	-128
13:26:21	-128	-128	-128	-128	-128	-128	-128	-128
13:27:26	-128	-128	-128	-128			-128	-128
13:28:26	-128	-128	-128	-128	-128	-128	-128	-128
13:29:26	-128	-128	-128	-128	-128	-128	-128	-128
13:30:26	-128	-128	-128	-128	-128	-128	-128	-128
13:31:26	-128	-128	-128	-128			-128	-128
13:32:26	-128	-128	-128	-128	-128	-128	-128	-128
13:33:26	-128	-128	-128	-128	-128	-128	-128	-128
13:34:26	-128	-128	-128	-128	-128	-128	-128	-128
13:35:21	-128	-128	-128	-128			-128	-128
13:36:21	-128	-128	-128	-128	-128	-128	-128	-128
13:37:21	-128	-128	-128	-128	-128	-128	-128	-128
13:38:21	-128	-128	-128	-128	-128	-128	-128	-128
13:39:21	-128	-128	-128	-128			-128	-128
13:40:21	-128	-128	-128	-128	-128	-128	-128	-128
13:41:21	-128	-128	-128	-128	-128	-128	-128	-128
13:42:21	-128	-128	-128	-128	-128	-128	-128	-128
13:43:15	-128	-128	-128	-128			-128	-128
13:44:15	-128	-128	-128	-128	-128	-128	-128	-128
13:45:16	-128	-128	-128	-128	-128	-128	-128	-128
13:46:15	-128	-128	-128	-128	-128	-128	-128	-128
13:47:15	-128	-128	-128	-128			-128	-128
13:48:15	-128	-128	-128	-128	-128	-128	-128	-128
13:49:15	-128	-128	-128	-128	-128	-128	-128	-128
13:50:15	-128	-128	-128	-128	-128	-128	-128	-128
13:51:19	-128	-128	-128	-128			-128	-128
13:52:20	-128	-128	-128	-128	-128	-128	-128	-128
13:53:19	-128	-128	-128	-128	-128	-128	-128	-128
13:54:20	-128	-128	-128	-128	-128	-128	-128	-128
13:55:19	-128	-128	-128	-128			-128	-128
13:56:19	-128	-128	-128	-128	-128	-128	-128	-128
13:57:19	-128	-128	-128	-128	-128	-128	-128	-128
13:58:19	-128	-128	-128	-128	-128	-128	-128	-128

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.3

**SOG >5 min Transmissions time < 40 min**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
13:24:20	0	0	0	0	0	0	0	0
13:25:21	0	0	0	0	0	0	0	0
13:26:21	0	0	0	0	0	0	0	0
13:27:26	0	0	0	0			0	0
13:28:26	0	0	0	0	0	0	0	0
13:29:26	0	0	0	0	0	0	0	0
13:30:26	0	0	0	0	0	0	0	0
13:31:26	0	0	0	0			0	0
13:32:26	0	0	0	0	0	0	0	0
13:33:26	0	0	0	0	0	0	0	0
13:34:26	0	0	0	0	0	0	0	0
13:35:21	0	0	0	0			0	0
13:36:21	0	0	0	0	0	0	0	0
13:37:21	0	0	0	0	0	0	0	0
13:38:21	0	0	0	0	0	0	0	0
13:39:21	0	0	0	0			0	0
13:40:21	0	0	0	0	0	0	0	0
13:41:21	0	0	0	0	0	0	0	0
13:42:21	0	0	0	0	0	0	0	0
13:43:15	0	0	0	0			0	0
13:44:15	0	0	0	0	0	0	0	0
13:45:16	0	0	0	0	0	0	0	0
13:46:15	0	0	0	0	0	0	0	0
13:47:15	0	0	0	0			0	0
13:48:15	0	0	0	0	0	0	0	0
13:49:15	0	0	0	0	0	0	0	0
13:50:15	0	0	0	0	0	0	0	0
13:51:19	0	0	0	0			0	0
13:52:20	0	0	0	0	0	0	0	0
13:53:19	0	0	0	0	0	0	0	0
13:54:20	0	0	0	0	0	0	0	0
13:55:19	0	0	0	0			0	0
13:56:19	0	0	0	0	0	0	0	0
13:57:19	0	0	0	0	0	0	0	0
13:58:19	0	0	0	0	0	0	0	0



MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.3

**Position Accuracy >5 min Transmissions time < 40 min**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
13:24:20	0	0	0	0	0	0	0	0
13:25:21	0	0	0	0	0	0	0	0
13:26:21	0	0	0	0	0	0	0	0
13:27:26	0	0	0	0			0	0
13:28:26	0	0	0	0	0	0	0	0
13:29:26	0	0	0	0	0	0	0	0
13:30:26	0	0	0	0	0	0	0	0
13:31:26	0	0	0	0			0	0
13:32:26	0	0	0	0	0	0	0	0
13:33:26	0	0	0	0	0	0	0	0
13:34:26	0	0	0	0	0	0	0	0
13:35:21	0	0	0	0			0	0
13:36:21	0	0	0	0	0	0	0	0
13:37:21	0	0	0	0	0	0	0	0
13:38:21	0	0	0	0	0	0	0	0
13:39:21	0	0	0	0			0	0
13:40:21	0	0	0	0	0	0	0	0
13:41:21	0	0	0	0	0	0	0	0
13:42:21	0	0	0	0	0	0	0	0
13:43:15	0	0	0	0			0	0
13:44:15	0	0	0	0	0	0	0	0
13:45:16	0	0	0	0	0	0	0	0
13:46:15	0	0	0	0	0	0	0	0
13:47:15	0	0	0	0			0	0
13:48:15	0	0	0	0	0	0	0	0
13:49:15	0	0	0	0	0	0	0	0
13:50:15	0	0	0	0	0	0	0	0
13:51:19	0	0	0	0			0	0
13:52:20	0	0	0	0	0	0	0	0
13:53:19	0	0	0	0	0	0	0	0
13:54:20	0	0	0	0	0	0	0	0
13:55:19	0	0	0	0			0	0
13:56:19	0	0	0	0	0	0	0	0
13:57:19	0	0	0	0	0	0	0	0
13:58:19	0	0	0	0	0	0	0	0



13:55:19	1.390288 / 51.36418	1.390288 / 51.36418	1.390288 / 51.36418	1.390288 / 51.36418			1.390288 / 51.36418	1.390288 / 51.36418
13:56:19	1.390288 / 51.36419	1.390288 / 51.36419	1.390288 / 51.36419	1.390288 / 51.36419	1.390288 / 51.36419	1.390288 / 51.36419	1.390288 / 51.36419	1.390288 / 51.36419
13:57:19	1.390288 / 51.36419	1.390288 / 51.36419	1.390288 / 51.36419	1.390288 / 51.36419	1.390288 / 51.36419	1.390288 / 51.36419	1.390288 / 51.36419	1.390288 / 51.36419
13:58:19	1.390288 / 51.36419	1.390288 / 51.36419	1.390288 / 51.36419	1.390288 / 51.36419	1.390288 / 51.36419	1.390288 / 51.36419	1.390288 / 51.36419	1.390288 / 51.36419

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.3

**COG >5 min Transmissions time < 40 min**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
13:24:20	188	188	188	188	188	188	188	188
13:25:21	188	188	188	188	188	188	188	188
13:26:21	188	188	188	188	188	188	188	188
13:27:26	188	188	188	188			188	188
13:28:26	188	188	188	188	188	188	188	188
13:29:26	188	188	188	188	188	188	188	188
13:30:26	188	188	188	188	188	188	188	188
13:31:26	188	188	188	188			188	188
13:32:26	188	188	188	188	188	188	188	188
13:33:26	188	188	188	188	188	188	188	188
13:34:26	188	188	188	188	188	188	188	188
13:35:21	188	188	188	188			188	188
13:36:21	188	188	188	188	188	188	188	188
13:37:21	188	188	188	188	188	188	188	188
13:38:21	188	188	188	188	188	188	188	188
13:39:21	188	188	188	188			188	188
13:40:21	188	188	188	188	188	188	188	188
13:41:21	188	188	188	188	188	188	188	188
13:42:21	188	188	188	188	188	188	188	188
13:43:15	188	188	188	188			188	188
13:44:15	188	188	188	188	188	188	188	188
13:45:16	188	188	188	188	188	188	188	188
13:46:15	188	188	188	188	188	188	188	188
13:47:15	188	188	188	188			188	188
13:48:15	188	188	188	188	188	188	188	188
13:49:15	188	188	188	188	188	188	188	188
13:50:15	188	188	188	188	188	188	188	188
13:51:19	188	188	188	188			188	188
13:52:20	188	188	188	188	188	188	188	188
13:53:19	188	188	188	188	188	188	188	188
13:54:20	188	188	188	188	188	188	188	188
13:55:19	188	188	188	188			188	188

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.3

**HDG >5 min Transmissions time < 40 min**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
13:24:20	511	511	511	511	511	511	511	511
13:25:21	511	511	511	511	511	511	511	511
13:26:21	511	511	511	511	511	511	511	511
13:27:26	511	511	511	511			511	511
13:28:26	511	511	511	511	511	511	511	511
13:29:26	511	511	511	511	511	511	511	511
13:30:26	511	511	511	511	511	511	511	511
13:31:26	511	511	511	511			511	511
13:32:26	511	511	511	511	511	511	511	511
13:33:26	511	511	511	511	511	511	511	511
13:34:26	511	511	511	511	511	511	511	511
13:35:21	511	511	511	511			511	511
13:36:21	511	511	511	511	511	511	511	511
13:37:21	511	511	511	511	511	511	511	511
13:38:21	511	511	511	511	511	511	511	511
13:39:21	511	511	511	511			511	511
13:40:21	511	511	511	511	511	511	511	511
13:41:21	511	511	511	511	511	511	511	511
13:42:21	511	511	511	511	511	511	511	511
13:43:15	511	511	511	511			511	511
13:44:15	511	511	511	511	511	511	511	511
13:45:16	511	511	511	511	511	511	511	511
13:46:15	511	511	511	511	511	511	511	511
13:47:15	511	511	511	511			511	511
13:48:15	511	511	511	511	511	511	511	511
13:49:15	511	511	511	511	511	511	511	511
13:50:15	511	511	511	511	511	511	511	511
13:51:19	511	511	511	511			511	511
13:52:20	511	511	511	511	511	511	511	511
13:53:19	511	511	511	511	511	511	511	511
13:54:20	511	511	511	511	511	511	511	511
13:55:19	511	511	511	511			511	511
13:56:19	511	511	511	511	511	511	511	511
13:57:19	511	511	511	511	511	511	511	511
13:58:19	511	511	511	511	511	511	511	511

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.3

**Time stamp >5 min Transmissions time < 40 min**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
13:24:20	20	20	20	20	20	20	20	20
13:25:21	20	20	20	20	20	20	20	20
13:26:21	20	20	20	20	20	20	20	20
13:27:26	25	25	25	25			25	25
13:28:26	25	25	25	25	25	25	25	25
13:29:26	25	25	25	25	25	25	25	25
13:30:26	25	25	25	25	25	25	25	25
13:31:26	25	25	25	25			25	25
13:32:26	25	25	25	25	25	25	25	25
13:33:26	25	25	25	25	25	25	25	25
13:34:26	25	25	25	25	25	25	25	25
13:35:21	20	21	21	21			21	21
13:36:21	20	21	21	21	21	21	21	21
13:37:21	20	21	21	21	21	21	21	21
13:38:21	20	21	21	21	21	21	21	21
13:39:21	21	21	21	21			21	21
13:40:21	21	21	21	21	21	21	21	21
13:41:21	20	21	21	21	21	21	21	21
13:42:21	21	21	21	21	21	21	21	21
13:43:15	15	15	15	15			15	15
13:44:15	15	15	15	15	15	15	15	15
13:45:16	15	15	15	15	15	15	15	15
13:46:15	15	15	15	15	15	15	15	15
13:47:15	15	15	15	15			15	15
13:48:15	15	15	15	15	15	15	15	15
13:49:15	15	15	15	15	15	15	15	15
13:50:15	15	15	15	15	15	15	15	15
13:51:19	19	19	19	19			19	19
13:52:20	19	19	19	19	19	19	19	19
13:53:19	19	19	19	19	19	19	19	19
13:54:20	19	19	19	19	19	19	19	19
13:55:19	19	19	19	19			19	19
13:56:19	19	19	19	19	19	19	19	19
13:57:19	19	19	19	19	19	19	19	19
13:58:19	19	19	19	19	19	19	19	19

Note rounding difference between Timestamp and recorded time are timing differences between PC clock that was recording the AIS data and actual UTC time

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.4

**Text for Message 14 >5 min Transmissions time < 40 min**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
13:27:26					MOB ACTIVE	MOB ACTIVE		
13:31:26					MOB ACTIVE	MOB ACTIVE		
13:35:21					MOB ACTIVE	MOB ACTIVE		
13:39:21					MOB ACTIVE	MOB ACTIVE		
13:43:15					MOB ACTIVE	MOB ACTIVE		
13:47:15					MOB ACTIVE	MOB ACTIVE		
13:51:19					MOB ACTIVE	MOB ACTIVE		
13:55:19					MOB ACTIVE	MOB ACTIVE		

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.5

**AIS Channels >15 min Transmissions time < 40 min**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
13:34:26	A	B	A	B	A	B	A	B
13:35:21	A	B	A	B			A	B
13:36:21	A	B	A	B	A	B	A	B
13:37:21	A	B	A	B	A	B	A	B
13:38:21	A	B	A	B	A	B	A	B
13:39:21	A	B	A	B			A	B
13:40:21	A	B	A	B	A	B	A	B
13:41:21	A	B	A	B	A	B	A	B
13:42:21	A	B	A	B	A	B	A	B
13:43:15	A	B	A	B			A	B
13:44:15	A	B	A	B	A	B	A	B
13:45:16	A	B	A	B	A	B	A	B
13:46:15	A	B	A	B	A	B	A	B
13:47:15	A	B	A	B			A	B
13:48:15	A	B	A	B	A	B	A	B
13:49:15	A	B	A	B	A	B	A	B
13:50:15	A	B	A	B	A	B	A	B
13:51:19	A	B	A	B			A	B
13:52:20	A	B	A	B	A	B	A	B
13:53:19	A	B	A	B	A	B	A	B
13:54:20	A	B	A	B	A	B	A	B
13:55:19	A	B	A	B			A	B
13:56:19	A	B	A	B	A	B	A	B
13:57:19	A	B	A	B	A	B	A	B
13:58:19	A	B	A	B	A	B	A	B



MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.6

**AIS sync state >5 min Transmissions time < 40 min**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
13:24:20	0	0	0	0	0	0	0	0
13:25:21	0	0	0	0	0	0	0	0
13:26:21	0	0	0	0	0	0	0	0
13:27:26	0	0	0	0			0	0
13:28:26	0	0	0	0	0	0	0	0
13:29:26	0	0	0	0	0	0	0	0
13:30:26	0	0	0	0	0	0	0	0
13:31:26	0	0	0	0			0	0
13:32:26	0	0	0	0	0	0	0	0
13:33:26	0	0	0	0	0	0	0	0
13:34:26	0	0	0	0	0	0	0	0
13:35:21	0	0	0	0			0	0
13:36:21	0	0	0	0	0	0	0	0
13:37:21	0	0	0	0	0	0	0	0
13:38:21	0	0	0	0	0	0	0	0
13:39:21	0	0	0	0			0	0
13:40:21	0	0	0	0	0	0	0	0
13:41:21	0	0	0	0	0	0	0	0
13:42:21	0	0	0	0	0	0	0	0
13:43:15	0	0	0	0			0	0
13:44:15	0	0	0	0	0	0	0	0
13:45:16	0	0	0	0	0	0	0	0
13:46:15	0	0	0	0	0	0	0	0
13:47:15	0	0	0	0			0	0
13:48:15	0	0	0	0	0	0	0	0
13:49:15	0	0	0	0	0	0	0	0
13:50:15	0	0	0	0	0	0	0	0
13:51:19	0	0	0	0			0	0
13:52:20	0	0	0	0	0	0	0	0
13:53:19	0	0	0	0	0	0	0	0
13:54:20	0	0	0	0	0	0	0	0
13:55:19	0	0	0	0			0	0
13:56:19	0	0	0	0	0	0	0	0
13:57:19	0	0	0	0	0	0	0	0
13:58:19	0	0	0	0	0	0	0	0

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.6

**AIS Sub Message >5 min Transmissions time < 40 min**

Frame Time (m)	Slot timeout	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
13:24:20	2	781	856	931	1006	1081	1156	1231	1306
13:25:21	1	13:45	13:46	13:46	13:46	13:46	13:46	13:46	13:46
13:26:21	0	2458	2458	2458	2458	2458	2458	2458	2458
13:27:26	7	0	0	0	0			0	0
13:28:26	6	989	1064	1139	1214	1289	1364	1439	1514
13:29:26	5	0	0	0	0	0	0	0	0
13:30:26	4	989	1064	1139	1214	1289	1364	1439	1514
13:31:26	3	0	0	0	0			0	0
13:32:26	2	989	1064	1139	1214	1289	1364	1439	1514
13:33:26	1	13:53	13:54	13:54	13:54	13:54	13:54	13:54	13:54
13:34:26	0	2072	2072	2072	2072	2072	2072	2072	2072
13:35:21	7	0	0	0	0			0	0
13:36:21	6	811	886	961	1036	1111	1186	1261	1336
13:37:21	5	0	0	0	0	0	0	0	0
13:38:21	4	811	886	961	1036	1111	1186	1261	1336
13:39:21	3	0	0	0	0			0	0
13:40:21	2	811	886	961	1036	1111	1186	1261	1336
13:41:21	1	13:01	13:02	13:02	13:02	13:02	13:02	13:02	13:02
13:42:21	0	2034	2034	2034	2034	2034	2034	2034	2034
13:43:15	7	0	0	0	0			0	0
13:44:15	6	595	670	745	820	895	970	1045	1120
13:45:16	5	0	0	0	0	0	0	0	0
13:46:15	4	595	670	745	820	895	970	1045	1120
13:47:15	3	0	0	0	0			0	0
13:48:15	2	595	670	745	820	895	970	1045	1120
13:49:15	1	13:09	13:10	13:10	13:10	13:10	13:10	13:10	13:10
13:50:15	0	2408	2408	2408	2408	2408	2408	2408	2408
13:51:19	7	0	0	0	0			0	00:00
13:52:20	6	753	828	903	978	1053	1128	1203	1278
13:53:19	5	0	0	0	0	0	0	0	00:00
13:54:20	4	753	828	903	978	1053	1128	1203	1278
13:55:19	3	0	0	0	0			0	0
13:56:19	2	753	828	903	978	1053	1128	1203	1278
13:57:19	1	13:17	13:18	13:18	13:18	13:18	13:18	13:18	13:18
13:58:19	0	2142	2142	2142	2142	2142	2142	2142	2142

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.8

**Message Type >45 min Transmissions time**

Frame Time (m)	1st msg	1	1	1	14	14	1	1
14:04:16	1	1	1	1	1	1	1	1
14:05:16	1	1	1	1	1	1	1	1
14:06:16	1	1	1	1	1	1	1	1
14:07:18	1	1	1	1	14	14	1	1
14:08:16	1	1	1	1	1	1	1	1
14:09:16	1	1	1	1	1	1	1	1
14:10:16	1	1	1	1	1	1	1	1
14:11:17	1	1	1	1	14	14	1	1
14:12:16	1	1	1	1	1	1	1	1
14:13:17	1	1	1	1	1	1	1	1
14:14:17	1	1	1	1	1	1	1	1
14:15:11	1	1	1	1	14	14	1	1
14:16:13	1	1	1	1	1	1	1	1
14:17:11	1	1	1	1	1	1	1	1
14:18:12	1	1	1	1	1	1	1	1
14:19:11	1	1	1	1	14	14	1	1

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.8

**ID >45 min Transmissions time**

Frame Time (m)	1st msg	9.72E+08	9.72E+08	9.72E+08	9.72E+08	9.72E+08	9.72E+08	9.72E+08
14:04:16	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
14:05:16	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
14:06:16	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
14:07:18	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
14:08:16	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
14:09:16	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
14:10:16	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
14:11:17	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
14:12:16	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
14:13:17	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
14:14:17	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
14:15:11	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
14:16:13	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
14:17:11	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
14:18:12	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002
14:19:11	972000002	972000002	972000002	972000002	972000002	972000002	972000002	972000002

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.8

**SOG >45 min Transmissions time**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
14:04:16	0	0	0	0	0	0	0	0
14:05:16	0	0	0	0	0	0	0	0
14:06:16	0	0	0	0	0	0	0	0
14:07:18	0	0	0	0			0	0
14:08:16	0	0	0	0	0	0	0	0
14:09:16	0	0	0	0	0	0	0	0
14:10:16	0	0	0	0	0	0	0	0
14:11:17	0	0	0	0				0
14:12:16	0	0	0	0	0	0	0	0
14:13:17	0	0	0	0	0	0	0	0
14:14:17	0	0	0	0	0	0	0	0
14:15:11	0	0	0	0			0	0
14:16:13	0	0	0	0	0	0	0	0
14:17:11	0	0	0	0	0	0	0	0
14:18:12	0	0	0	0	0	0	0	0
14:19:11	0	0	0	0			0	0

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.8

**Position Accuracy >45 min Transmissions time**

Frame	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
Time (m)								
14:04:16	0	0	0	0	0	0	0	0
14:05:16	0	0	0	0	0	0	0	0
14:06:16	0	0	0	0	0	0	0	0
14:07:18	0	0	0	0			0	0
14:08:16	0	0	0	0	0	0	0	0
14:09:16	0	0	0	0	0	0	0	0
14:10:16	0	0	0	0	0	0	0	0
14:11:17	0	0	0	0			0	0
14:12:16	0	0	0	0	0	0	0	0
14:13:17	0	0	0	0	0	0	0	0
14:14:17	0	0	0	0	0	0	0	0
14:15:11	0	0	0	0			0	0
14:16:13	0	0	0	0	0	0	0	0
14:17:11	0	0	0	0	0	0	0	0
14:18:12	0	0	0	0	0	0	0	0
14:19:11	0	0	0	0			0	0

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.8

**Position Lat/Lon >5 min Transmissions time < 40 min**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
14:04:16	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419
14:05:16	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419
14:06:16	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419
14:07:18	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419			1.390293 / 51.36419	1.390293 / 51.36419
14:08:16	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419
14:09:16	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419
14:10:16	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419
14:11:17	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419			1.390293 / 51.36419	1.390293 / 51.36419
14:12:16	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419
14:13:17	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419
14:14:17	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419
14:15:11	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419			1.390293 / 51.36419	1.390293 / 51.36419
14:16:13	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419
14:17:11	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419
14:18:12	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419
14:19:11	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419	1.390293 / 51.36419			1.390293 / 51.36419	1.390293 / 51.36419

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.8

**COG >5 min Transmissions time < 40 min**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
14:04:16	188	188	188	188	188	188	188	188
14:05:16	188	188	188	188	188	188	188	188
14:06:16	188	188	188	188	188	188	188	188
14:07:18	188	188	188	188			188	188
14:08:16	188	188	188	188	188	188	188	188
14:09:16	188	188	188	188	188	188	188	188
14:10:16	188	188	188	188	188	188	188	188
14:11:17	188	188	188	188			188	188
14:12:16	188	188	188	188	188	188	188	188
14:13:17	188	188	188	188	188	188	188	188
14:14:17	188	188	188	188	188	188	188	188
14:15:11	188	188	188	188			188	188
14:16:13	188	188	188	188	188	188	188	188
14:17:11	188	188	188	188	188	188	188	188
14:18:12	188	188	188	188	188	188	188	188
14:19:11	188	188	188	188			188	188



MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.8

**Time stamp >45 min Transmissions time**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
14:04:16	63	63	63	63	63	63	63	63
14:05:16	63	63	63	63	63	63	63	63
14:06:16	63	63	63	63	63	63	63	63
14:07:18	63	63	63	63			63	63
14:08:16	63	63	63	63	63	63	63	63
14:09:16	63	63	63	63	63	63	63	63
14:10:16	63	63	63	63	63	63	63	63
14:11:17	63	63	63	63			63	63
14:12:16	63	63	63	63	63	63	63	63
14:13:17	63	63	63	63	63	63	63	63
14:14:17	63	63	63	63	63	63	63	63
14:15:11	63	63	63	63			63	63
14:16:13	63	63	63	63	63	63	63	63
14:17:11	63	63	63	63	63	63	63	63
14:18:12	63	63	63	63	63	63	63	63
14:19:11	63	63	63	63			63	63

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.8

**Text for Message 14 >45 min Transmissions time**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
14:07:18					MOB ACTIVE	MOB ACTIVE		
14:11:17					MOB ACTIVE	MOB ACTIVE		
14:15:11					MOB ACTIVE	MOB ACTIVE		
14:19:11					MOB ACTIVE	MOB ACTIVE		

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.8

**AIS Channels >45 min Transmissions time**

Frame Time (m)	1st msg	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg
14:04:16	A	B	A	B	A	B	A	B
14:05:16	A	B	A	B	A	B	A	B
14:06:16	A	B	A	B	A	B	A	B
14:07:18	A	B	A	B	A	B	A	B
14:08:16	A	B	A	B	A	B	A	B
14:09:16	A	B	A	B	A	B	A	B
14:10:16	A	B	A	B	A	B	A	B
14:11:17	A	B	A	B	A	B	A	B
14:12:16	A	B	A	B	A	B	A	B
14:13:17	A	B	A	B	A	B	A	B
14:14:17	A	B	A	B	A	B	A	B
14:15:11	A	B	A	B	A	B	A	B
14:16:13	A	B	A	B	A	B	A	B
14:17:11	A	B	A	B	A	B	A	B
14:18:12	A	B	A	B	A	B	A	B
14:19:11	A	B	A	B	A	B	A	B

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.8

**AIS sync state >45 min Transmissions time**

Frame Time (m)	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
14:04:16	3	3	3	3	3	3	3	3
14:05:16	3	3	3	3	3	3	3	3
14:06:16	3	3	3	3	3	3	3	3
14:07:18	3	3	3	3			3	3
14:08:16	3	3	3	3	3	3	3	3
14:09:16	3	3	3	3	3	3	3	3
14:10:16	3	3	3	3	3	3	3	3
14:11:17	3	3	3	3			3	3
14:12:16	3	3	3	3	3	3	3	3
14:13:17	3	3	3	3	3	3	3	3
14:14:17	3	3	3	3	3	3	3	3
14:15:11	3	3	3	3			3	3
14:16:13	3	3	3	3	3	3	3	3
14:17:11	3	3	3	3	3	3	3	3
14:18:12	3	3	3	3	3	3	3	3
14:19:11	3	3	3	3			3	3

MOB1 16-12-2014 20°C at 6.0v supply ETSI EN 303-098 9.1.8

**AIS Sub Message >45 min Transmissions time**

Frame Time (m)	Slot timeout	1st msg	2nd msg	3rd msg	4th msg	5th msg	6th msg	7th msg	8th msg
14:04:16	2	00:00	720	795	870	945	1020	1095	1170
14:05:16	1	13:20	13:20	13:20	13:20	13:20	13:20	13:20	13:20
14:06:16	0	2264	2264	2264	2264	2264	2264	2264	2264
14:07:18	7	0	0	0	0			0	0
14:08:16	6	659	734	809	884	959	1034	1109	1184
14:09:16	5	0	0	0	0	0	0	0	0
14:10:16	4	659	734	809	884	959	1034	1109	1184
14:11:17	3	0	0	0	0			0	0
14:12:16	2	659	734	809	884	959	1034	1109	1184
14:13:17	1	13:20	13:20	13:20	13:20	13:20	13:20	13:20	13:20
14:14:17	0	2062	2062	2062	2062	2062	2062	2062	2062
14:15:11	7	0	0	0	0			0	0
14:16:13	6	471	546	621	696	771	846	921	996
14:17:11	5	0	0	0	0	0	0	0	0
14:18:12	4	471	546	621	696	771	846	921	996
14:19:11	3	0	0	0	0			0	0

No	Item	Description	Serial No	Cal Date
1	BS-125-40	Environmental Chamber	A2420	-
2	Fluke 52	Thermometer	4340437	17/02/2014
3	R&S FSP	Spectrum Analyser	100404	17/02/2014
4	R&S CMTA54	Radio Communication Analyser	825852004	17/02/2014
5	TTI TS3031S	Power Supply	079055	14/02/2013
6	Fluke 73	Multimeter	41330839	17/02/2014
7	Racal-Dana 1991	Universal Frequency Counter	8691	17/02/2014
8	IFR 2023B	Low Noise Signal Generator	202301052	17/02/2014
9	Chauvin Arnoux CA43	Fieldmeter	5398Z	
10	R&S HF906	Horn Antenna	100287	31/07/2014
11	ARA LPB-2513	Bi-Log Antenna	1156	01/08/2014
12	Schwarzbeck VHA9103	VHF Dipole Antenna	7320	05/08/2014
13	Schwarzbeck UHA9105	UHF Dipole Antenna	7326	04/08/2014
14	R&S ESVS10	EMI Test Reciever	837948013	17/02/2014
15	IFI SMX100	RF Power Amplifer 0.01MHz to 1GHz	9551P	-
16	IFI S41-50	RF Power Amplifer 0.8GHz to 4.2GHz	J031-0505	-
17	V23 modem	DSC Modem (In house)	-	-
18	Sine Qua Non	AIS Installation Test Set	010201 0121	-
19	Sailor RT5022	DSC Radio	05726755	-
20	MPE (C1162-D1)	Anechoic Chamber	C1162-D1	-
21	Reseda PC	PC Running ESXS K1/CIS9941 Software	980724SK1747	-
22	Spinner BN 74 53 85	25W 30dB Attenuator	13960	-
23		Bandstop Filter 8MHz		
24	Saleae BN745388	Logic Analyser	3456045A	
25	SRT	AIS Receiver		
26	Quectel GPS	GPS reference receiver	MPMP22B18N4000010	
27	Lecroy 9361C	Oscilloscope	10163	17/02/14
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