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Wireless test report – 365560-1TRFWL

Applicant:

DAMM Cellular Systems A/S

Product type:

70 MHz band cellular base station

Model:

10520101

FCC ID: Z5W-10520101

IC Registration number: 10159A-10520101

Specifications:

- FCC Part 90, Subpart I
  Private land mobile radio services
- FCC Part 22, Subpart E
  Public mobile services, Paging and Radiotelephone Service
- RSS-119 Issue 12, May 2015
  Land Mobile and Fixed Equipment Operating in the Frequency Range 27.41–960 MHz

Date of issue: February 27, 2020

Yong Huang, Wireless/EMC Specialist
Tested by

Signature

Tom Tidwell, Director Nemko Direct for Telecom
Reviewed by

Signature

Nemko Canada Inc., a testing laboratory, is accredited by the Standards Council of Canada. The tests included in this report are within the scope of this accreditation

Test location

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Website:	www.nemko.com
Site number:	FCC: CA2041; ISED: 2040G-5 (3 m SAC)

Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.
This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko Canada's ISO/IEC 17025 accreditation.

Copyright notification

Table of contents

Section 1. Report summary

1.1 Applicant/Manufacturer

Company name:	DAMM Cellular Systems A/S
Address:	Møllegade 68, 6400 Sønderborg, Denmark

1.2 Test specifications

FCC Part 90, Subpart I	Private land mobile radio services
FCC Part 22, Subpart E	Public mobile services, Paging and Radiotelephone Service
RSS-119 Issue 12, May 2015	Land Mobile and Fixed Equipment Operating in the Frequency Range 27.41–960 MHz

1.3 Test methods

ANSI C63.26-2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
FCC Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations

1.4 Statement of compliance

In the configuration tested, the EUT was found compliant.

Testing was performed against all relevant requirements of the test standard except as noted in section 1.5 below. Results obtained indicate that the product under test complies in full with the requirements tested. The test results relate only to the items tested.

See "Summary of test results" for full details.

1.5 Exclusions

None.

1.6 Test report revision history

Revision #	Date of issue	Details of changes made to test report
TRF	February 27, 2020	Original report issued

Section 2. Summary of test results

2.1 FCC– Intentional Radiators, test results

Clause	Test description	Verdict
§90.205, §22.593, §2.1046	Transmitter output power	Pass
§2.1047	Modulation characteristics	Pass
§22.591, §2.1049	Occupied Bandwidth	Pass
§90.210, §22.359, §2.1051	Emission masks and spurious emissions	Pass
§90.213, §22.355, §2.1055	Frequency stability	Pass

2.2 RSS-119 Issue 12– Intentional Radiators, test results

Part	Test description	Verdict
5.3	Transmitter Frequency Stability	Pass
5.4	Transmitter Output Power	Pass
5.5	Channel Bandwidth, Authorized Bandwidth, Occupied Bandwidth and Spectrum Masks	Pass
5.8	Transmitter Unwanted Emissions	Pass

Section 3. Equipment under test (EUT) details

3.1 EUT information

Product name	70 MHz band cellular base station
Model	10520101
Serial number	20029058 (low channel) 20022148 (high channel)

3.2 Technical information

Operating band	72 to 76 MHz (USA and Canada)
Channel bandwidths	20 kHz
Modulation type	FM modulation
Emission designator	Analog voice, 2.5 kHz deviation: 16K0F3E, 11K0F3E, 6K00F3E
Power requirements	-48 V_{DC}
Antenna information	External Antenna with N connector. Antenna type preferred is Omnidirectional with 5.2 dBi max gain and an electrical down tilt of 6 degrees. Various types can be used.
Firmware/Software version	8.00 2019-05-17

3.3 Product description and theory of operation

Outdoor base station featuring multiple technologies in one single core-connected system: TETRA, DMR Tier III, TEDS and Analog.
During test EUT was set to continues transmit mode with test software OM, controlled with command provided by client.
Each BS422 can operate up to four different carriers simultaneously, independent of the selected radio technology, inside a defined band.
The different carriers may operate in different bandwidths depending of the selected technology.
The 72 to 76 MHz version of the BS422 is Analog only.

Section 4. Engineering considerations

4.1 Modifications incorporated in the EUT

The following modifications were performed by client: During conducted spurious emissions tests, to reduce intermodulation products in multi-carrier modes, the commands below had been applied in test software:
90/FACTORYUNLOCK
93/ATT/OUT/03.00

4.2 Technical judgment

None

4.3 Deviations from laboratory tests procedures

The following deviations were made: As per customer, EUT can be supplied by battery, the switch on voltage is between 45–47 V, and the switch off voltage is between 40–42 V. The maximum supply voltage is 59.9 V. Hence frequency stability was tested for input voltage −48 Vdc (STV), range from −55.2 Vdc (this is 115%STV) to −42 Vdc (this is 87.5%STV rather than 85%).

Section 5. Test equipment

5.1 Test equipment list

Table 5.1-1: *Equipment list*

Equipment	Manufacturer	Model no.	Asset no.	Cal cycle	Next cal.
3 m EMI test chamber	TDK	SAC-3	FA002532	2 year	January 10, 2020
Flush mount turntable	Sunol	FM2022	FA002550	—	NCR
Controller	Sunol	SC104V	FA002551	—	NCR
Antenna mast	Sunol	TLT2	FA002552	—	NCR
DC Power Supply	Sorensen	SGA80X125C-AAA	FA002738	—	NCR
Receiver/spectrum analyzer	Rohde & Schwarz	ESU 40	FA002071	1 year	December 6, 2019
Bilog antenna (20–2000 MHz)	Sunol	JB1	FA002517	1 year	January 3, 2020
Horn antenna (1–18 GHz)	EMCO	3115	FA001451	1 year	April 12, 2020
50 Ω coax cable	C.C.A.	None	FA002603	1 year	September 19, 2019
50 Ω coax cable	C.C.A.	None	FA002605	—	VOU
50 Ω coax cable	C.C.A.	None	FA002831	—	VOU
50 Ω coax cable	Huber + Suhner	None	FA002607	1 year	November 30, 2019
50 Ω coax cable	C.C.A.	None	FA002603	1 year	September 19, 2019
Environmental Chamber	Espec	EPX-4H	FA002736	1 year	May 28, 2020
Spectrum analyzer	Rohde & Schwarz	FSV 40	FA002731	1 year	September 30, 2019
Power sensor	Rohde & Schwarz	NRP18S	FA002730	1 year	September 26, 2019

Note: NCR - no calibration required

Section 6. Testing data

6.1 Transmitter power

6.1.1 Definitions and limits

FCC Part 90, Subpart I §90.205
((c) 72-76 MHz. The maximum effective radiated power (ERP) for stations operating on fixed frequencies is 300 watts. Stations operating on mobile-only frequencies are limited to one-watt transmitter output power.

FCC Part 22, §22.593 Effective radiated power limits.
The effective radiated power of fixed stations operating on the channels listed in §22.591 must not exceed 150 Watts. The equivalent isotropically radiated power of existing fixed microwave stations (2110-2130 and 2160-2180 MHz) licensed under this part (pursuant to former rules) must not exceed the applicable limits set forth in §101.113 of this chapter.

RSS-119, Issue 12
5.4 Transmitter Output Power
The output power shall be within ±1 dB of the manufacturer's rated power listed in the equipment specifications.
The transmitter output power limits set forth in Table 2 will come into force upon the publication of Issue 12 of this standard and will apply to newly certified equipment.

Table 2 —Transmitter Output Power

Frequency Bands (MHz)	**Transmitter Output Power (W)**	
	Base/Fixed Equipment	**Mobile Equipment**
72–76	No limit	1

6.1.2 Test summary

Test start date:	June 14, 2019
Test engineer:	Yong Huang

6.1.3 Observations settings and special notes

Two Samples were provided by client.
Sample 1 Tx was configured on low band
Sample 2 Tx was configured on high band
Client specified rated power 50 W.
Tests were performed with power meter.

6.1.1 Test data

Table 6.1-1: *Transmitter Output power results*

Freq. (MHz)	Modulation	Rated Output Power, dBm	Conducted Output Power, dBm	Limit, ±dB	Margin, dB
72.02	16K0F3E	47.0	47.4	1	0.6
75.98	16K0F3E	47.0	47.4	1	0.6

Table 6.1-2: *Transmitter ERP results for Part 90*

Freq. (MHz)	Modulation	Conducted Output Power, dBm	Antenna Max Peak Gain, dBd	ERP, dBm	Part 90 ERP Limit (dBm)	Margin, dB
72.02	16K0F3E	47.4	3.05	50.45	54.77	4.32
75.98	16K0F3E	47.4	3.05	50.45	54.77	4.32

Table 6.1-3: *Transmitter ERP results for Part 22*

Freq. (MHz)	Modulation	Conducted Output Power, dBm	Antenna Max Peak Gain, dBd	ERP, dBm	Part 22 ERP Limit (dBm)	Margin, dB
72.02	16K0F3E	47.4	3.05	50.45	51.76	1.31
75.98	16K0F3E	47.4	3.05	50.45	51.76	1.31

Notes: The output power shall be within ±1 dB of the manufacturer's rated power
ERP = P + GT - LC
P = conducted output power, in dBm
GT = gain of Tx antenna, in dBd (ERP)
LC = signal loss in the cable connecting EUT and Tx antenna, in dB
dBd = dBi - 2.15, ERP = EIRP - 2.15, EIRP = ERP + 2.15

6.2 FCC 2.1047 Modulation characteristic

6.2.1 Definitions and limits

FCC §2.1047 Measurements required: Modulation characteristics.

(a) Voice modulated communication equipment. A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be submitted. For equipment required to have an audio low-pass filter, a curve showing the frequency response of the filter, or of all circuitry installed between the modulation limiter and the modulated stage shall be submitted.

(b) Equipment which employs modulation limiting. A curve or family of curves showing the percentage of modulation versus the modulation input voltage shall be supplied. The information submitted shall be sufficient to show modulation limiting capability throughout the range of modulating frequencies and input modulating signal levels employed

6.2.2 Test summary

Test date	July 11, 2019
Test engineer	Kevin Rose and Yong Huang

6.2.3 Observations, settings and special notes

Receiver setting:

Detector mode	Peak
Demodulation bandwidth	25 kHz
Trace mode	Max Hold

6.2.4 Test data

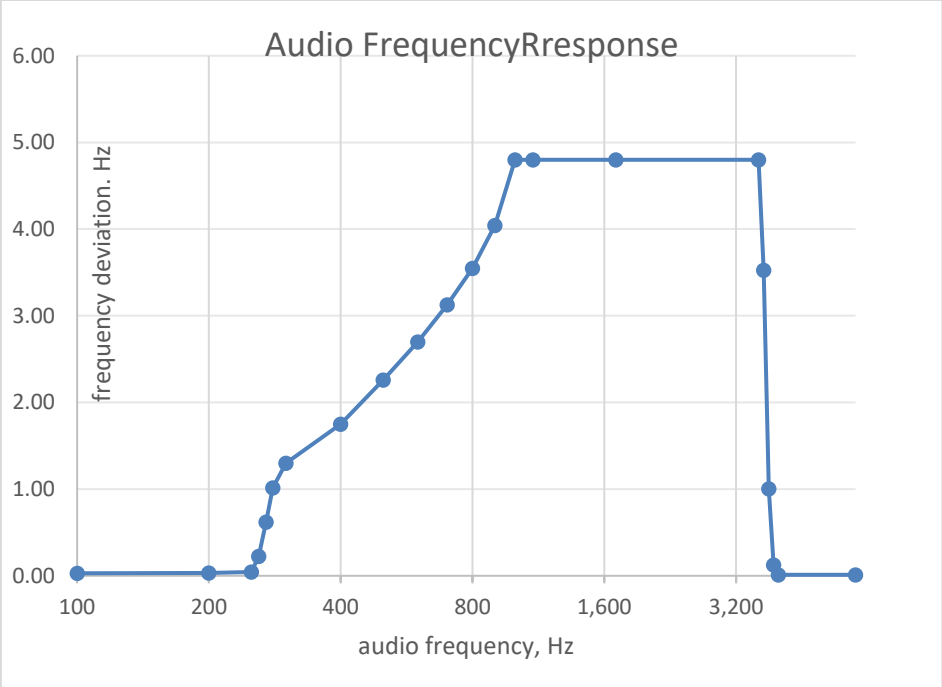


Figure 6.2-1: Audio Frequency Response

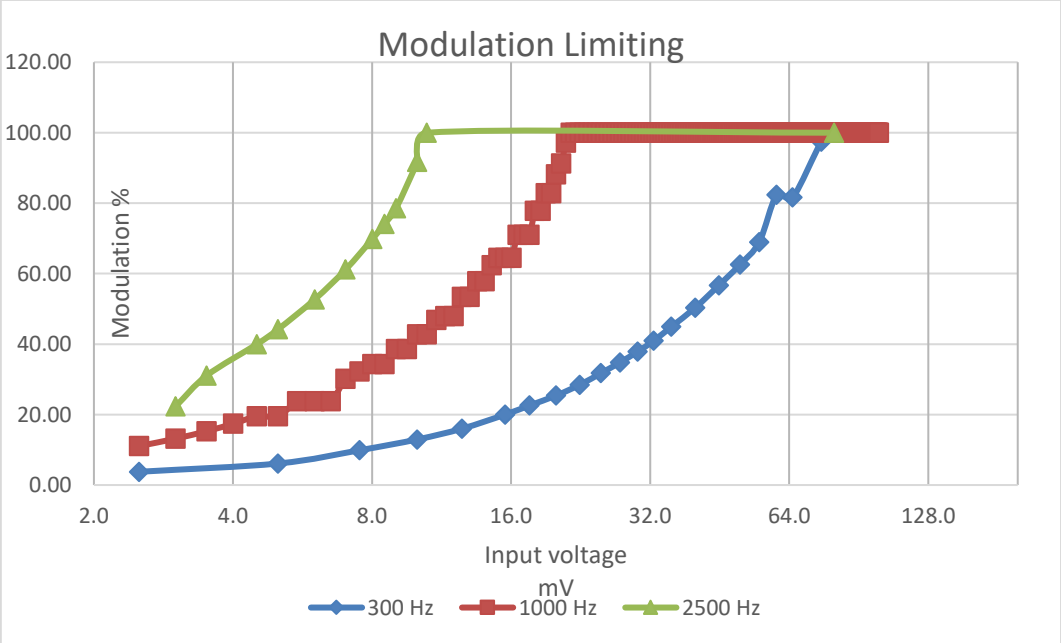


Figure 6.2-2: Modulation Limiting

6.3 FCC 22.591(a) and RSS-119 5.5, Occupied bandwidth

6.3.1 Definitions and limits

FCC § 22.591 Channels for point-to-point operation.
The following channels are allocated for assignment to fixed transmitters that support other transmitters that provide public mobile service. Unless otherwise indicated, all channels have a bandwidth of 20 kHz and are designated by their center frequencies in Megahertz.
(a) The 72-76 MHz channels may be used in point-to-multipoint configurations. The 72-76 MHz channels are also allocated for assignment in the Private Radio Services (see part 90 of this chapter).

RSS-119
5.5 Channel Bandwidth, Authorized Bandwidth, Occupied Bandwidth and Spectrum Masks
For the purpose of this document, channel bandwidth is the channel width in which the equipment is designed to operate.
The maximum permissible occupied bandwidth shall not exceed the authorized bandwidth specified in Table 3 for the equipment's frequency band. The authorized bandwidth is defined as the maximum width of the band of frequencies used to derive spectrum masks and is not necessarily equivalent to the bandwidth found on radio and spectrum licences.
The channel bandwidths, authorized bandwidths and spectrum masks are given in Table 3 for equipment having an output power greater than 120 mW. For equipment with an output power that does not exceed 120 mW, Section 5.10 applies.

Table 3 — Channel Bandwidths, Authorized Bandwidths and Spectrum Masks

Frequency Band (MHz)	Related SRSP for Channeling Plan and ERP	Channel Bandwidth (kHz)	Authorized Bandwidth (kHz)	Spectrum Masks for Equipment with Audio Filter	Spectrum Masks for Equipment Without Audio Filter
72–76	N/A	20	20	B	C

5.5.1 For the band 72-76 MHz, the channel carriers for fixed and mobile stations are given in tables 4(a) and 4(b) respectively. It is to be noted that 0.75 W licence-exempt radios (see RSS- 210, Licence-exempt Radio Apparatus (All Frequency Banks): Category I Equipment) are permitted interstitially, 10 kHz offset to tables 4(a) and 4(b) frequencies, in the bands 72.01-72.99 MHz and 75.41-75.99 MHz.

6.3.2 Test summary

Test date	June 7, 2019
Test engineer	Yong Huang

6.3.3 Observations, settings and special notes

Spectrum Analyzer setting

Detector mode	Peak
Resolution bandwidth	100 and 300 Hz
Video bandwidth	More than RBW × 3
Trace mode	Max Hold

6.3.4 Test data

Table 6.3-1: *Occupied Bandwidth test results*

Freq. (MHz)	Modulation	99% Occupied Bandwidth, kHz	Limit, kHz	Margin, kHz
72.02	16K0F3E	12.22	20	7.78
72.02	11K0F3E	6.58	20	13.42
72.02	6K00F3E	4.07	20	15.93

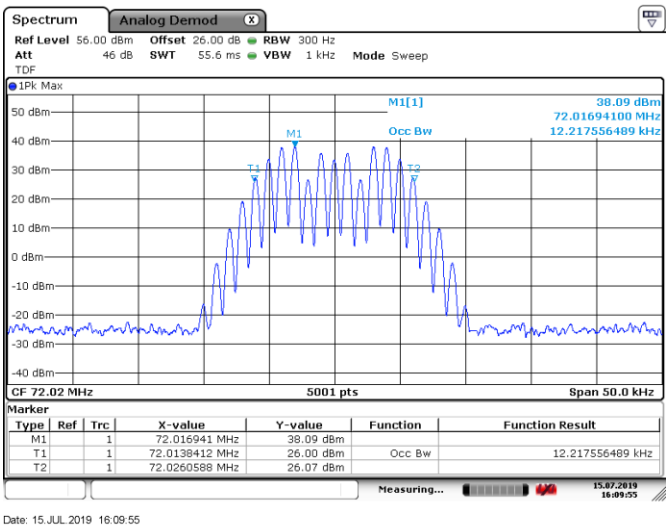


Figure 6.3-1: *Occupied Bandwidth, Tx @Low channel 50W 16K0F3E modulation*

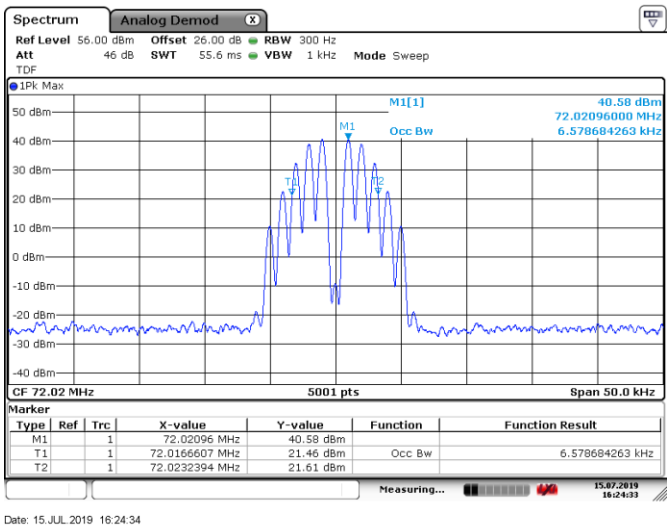


Figure 6.3-2: *Occupied Bandwidth, Tx @High channel 50W 11K0F3E modulation*

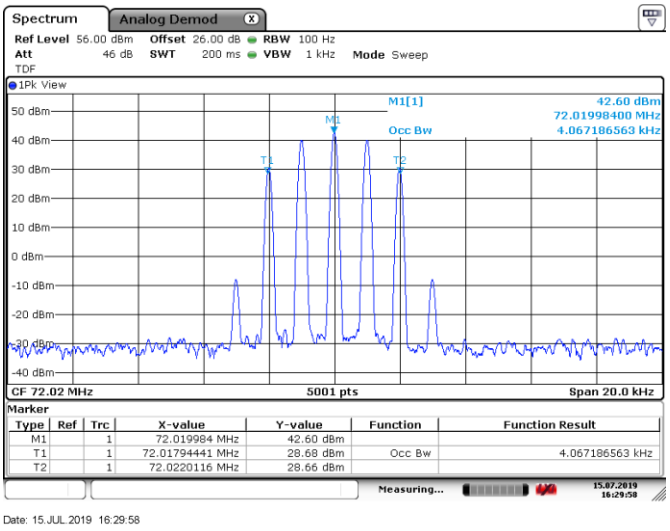


Figure 6.3-3: *Occupied Bandwidth, Tx @Low channel 50W 6K0F3E modulation*

6.4 FCC 90.210, 22.359 and RSS-119 Emission limits, emission mask

6.4.1 Definitions and limits

FCC §90.210
(b) Emission Mask B. For transmitters that are equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:
(1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.
(2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.
(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.

§22.359
Emission limitations**.**
The rules in this section govern the spectral characteristics of emissions in the Public Mobile Services, except for the Air-Ground Radiotelephone Service (see §22.861, instead) and the Cellular Radiotelephone Service (see §22.917, instead).
(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

RSS-119
5.5 Channel Bandwidth, Authorized Bandwidth, Occupied Bandwidth and Spectrum Masks
For the purpose of this document, channel bandwidth is the channel width in which the equipment is designed to operate.
The maximum permissible occupied bandwidth shall not exceed the authorized bandwidth specified in Table 3 for the equipment's frequency band. The authorized bandwidth is defined as the maximum width of the band of frequencies used to derive spectrum masks and is not necessarily equivalent to the bandwidth found on radio and spectrum licences.
The channel bandwidths, authorized bandwidths and spectrum masks are given in Table 3 for equipment having an output power greater than 120 mW. For equipment with an output power that does not exceed 120 mW, Section 5.10 applies.

Table 3 — Channel Bandwidths, Authorized Bandwidths and Spectrum Masks

Frequency Band (MHz)	Related SRSP for Channeling Plan and ERP	Channel Bandwidth (kHz)	Authorized Bandwidth (kHz)	Spectrum Masks for Equipment with Audio Filter	Spectrum Masks for Equipment Without Audio Filter
72–76	N/A	20	20	B	C

5.5.1 For the band 72-76 MHz, the channel carriers for fixed and mobile stations are given in tables 4(a) and 4(b) respectively. It is to be noted that 0.75 W licence-exempt radios (see RSS- 210, Licence-exempt Radio Apparatus (All Frequency Banks): Category I Equipment) are permitted interstitially, 10 kHz offset to tables 4(a) and 4(b) frequencies, in the bands 72.01-72.99 MHz and 75.41-75.99 MHz.

5.8 Transmitter Unwanted Emissions
The spectrum plots of the unwanted emissions shall comply with the masks specified in Table 3.
Descriptions of these permissible emission masks are given in the sections that follow.
The term displacement frequency, fd, used in these sections refers to the difference between the channel frequency and the emission component frequency expressed in kilohertz, and p is the transmitter output power in Watts.

5.8.1 Emission Mask B for Transmitters Equipped with an Audio Low-Pass Filter
The power of any emission shall be attenuated below the transmitter output power P (dBW) as specified in Table 5.

Table 5 — Emission Mask B

Displacement Frequency, fd (kHz)	Minimum Attenuation (dB)	Resolution Bandwidth (Hz)
10 < fd ≤ 20	25	300
20 < fd ≤ 50	35	300
fd > 50	43 + 10 log10(p)	Specified in Section 4.2.1

6.4.2 Test summary

Test date	June 7, 2019
Test engineer	Yong Huang

6.4.3 Observations, settings and special notes

Spectrum Analyzer setting

Detector mode	Peak
Resolution bandwidth	100
Video bandwidth	More than RBW × 3
Trace mode	Max Hold

6.4.4 Test data

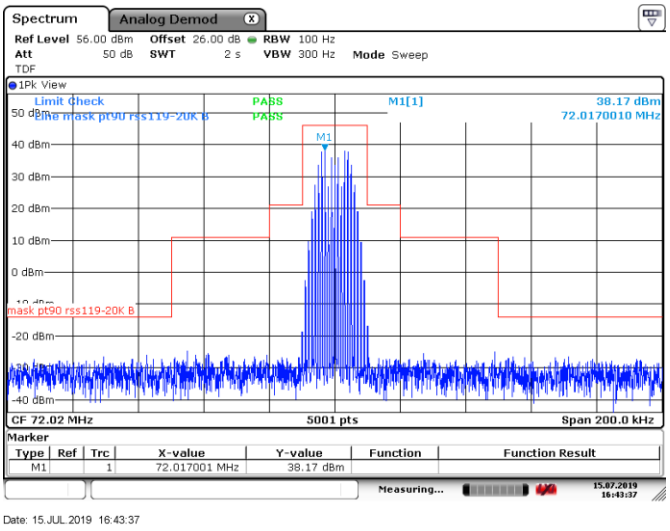


Figure 6.4-1: *Mask b, Tx @Low channel 50W 16K0F3E modulation*

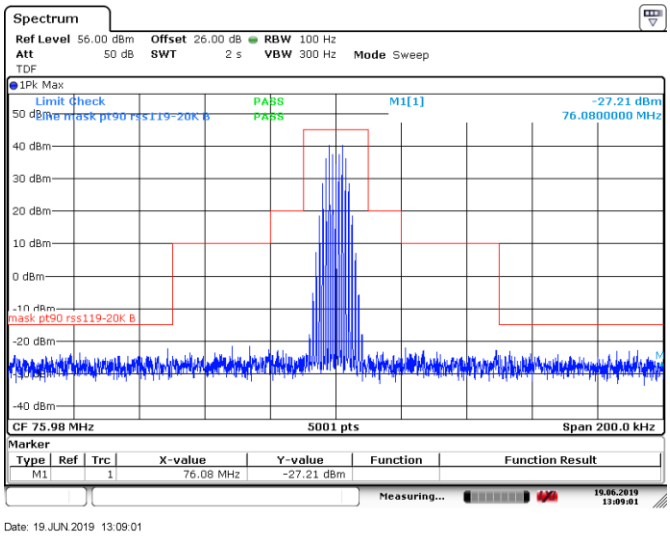


Figure 6.4-2: *Mask b, Tx @High channel 50W 16K0F3E modulation*

6.5 FCC 90.210(a), 22.359 and RSS-119 5.8 Emission limits, conducted method

6.5.1 Definitions and limits

FCC §90.210
(b) Emission Mask B. For transmitters that are equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:
(1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.
(2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.
(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.

§22.359
Emission limitations**.**
The rules in this section govern the spectral characteristics of emissions in the Public Mobile Services, except for the Air-Ground Radiotelephone Service (see §22.861, instead) and the Cellular Radiotelephone Service (see §22.917, instead).
(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

RSS-119
5.8 Transmitter Unwanted Emissions
The spectrum plots of the unwanted emissions shall comply with the masks specified in Table 3.
Descriptions of these permissible emission masks are given in the sections that follow.
The term displacement frequency, fd, used in these sections refers to the difference between the channel frequency and the emission component frequency expressed in kilohertz, and p is the transmitter output power in Watts.

5.8.1 Emission Mask B for Transmitters Equipped with an Audio Low-Pass Filter
The power of any emission shall be attenuated below the transmitter output power P (dBW) as specified in Table 5.

Table 5 — Emission Mask B

Displacement Frequency, fd (kHz)	Minimum Attenuation (dB)	Resolution Bandwidth (Hz)
10 < fd ≤ 20	25	300
20 < fd ≤ 50	35	300
fd > 50	43 + 10 log10(p)	Specified in Section 4.2.1

6.5.2 Test summary

Test date	June 7, 2019
Test engineer	Yong Huang

6.5.3 Observations, settings and special notes

The spectrum was searched from 30 MHz to the 10th harmonic.
Spectrum Analyzer's setting:

Detector mode	Peak
Resolution bandwidth	100 kHz below 1 GHz/1 MHz above 1 GHz
Video bandwidth	RBW × 3
Trace mode	Max Hold

6.5.4 Test data

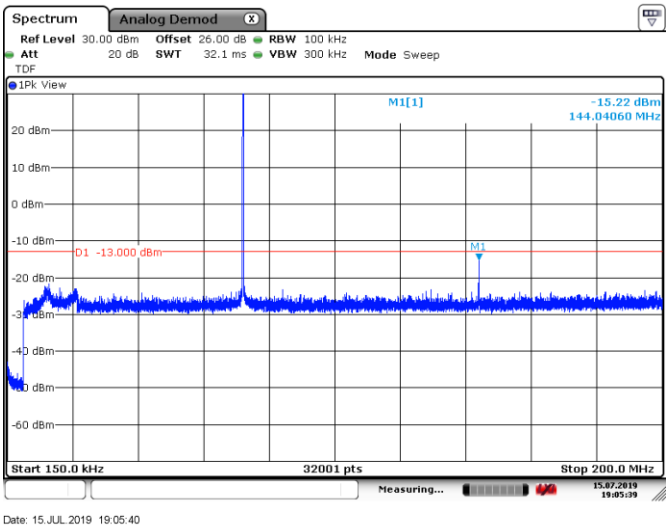


Figure 6.5-1: *Conducted Spurious Emissions below 200 MHz, Tx @Low channel 50W 16K0F3E modulation*

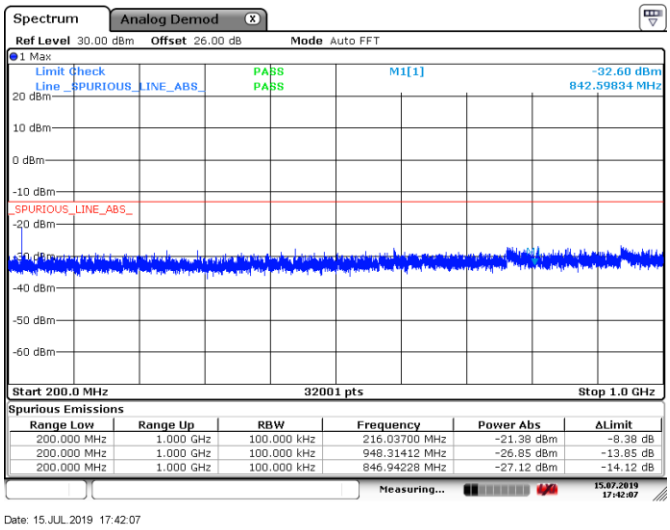


Figure 6.5-2: *Conducted Spurious Emissions 200 MHz to 1 GHz, Tx @Low channel 50W 16K0F3E modulation*

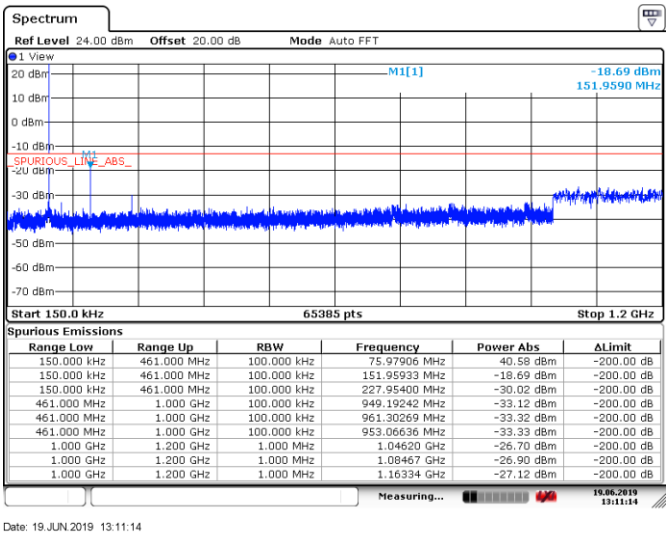


Figure 6.5-3: *Conducted Spurious Emissions, Tx @High channel 50W 16K0F3E modulation*

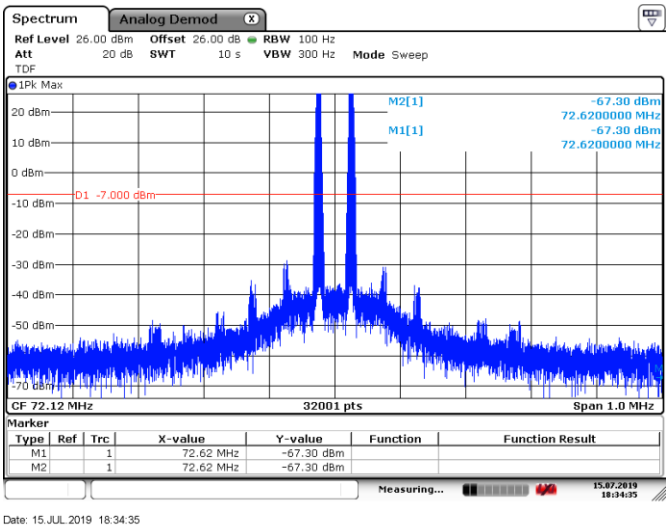


Figure 6.5-4: *Conducted Spurious Emissions from inter-modulation products, Tx @low channel 2X15W 16K0F3E modulation*

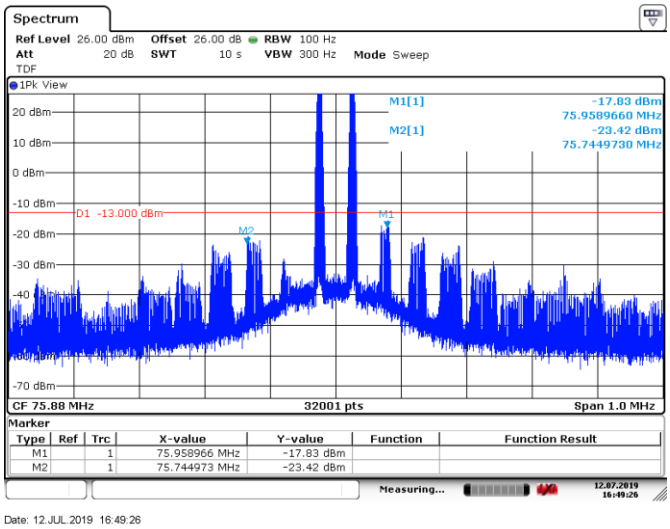


Figure 6.5-5: *Conducted Spurious Emissions from inter-modulation products, Tx @high channel 2X15W 16K0F3E modulation*

6.6 FCC 90.210, 22.359 and RSS-119 5.8, Emission limits, radiated method

6.6.1 Definitions and limits

FCC §90.210
(b) Emission Mask B. For transmitters that are equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:
(1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.
(2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.
(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.

§22.359
Emission limitations**.**
The rules in this section govern the spectral characteristics of emissions in the Public Mobile Services, except for the Air-Ground Radiotelephone Service (see §22.861, instead) and the Cellular Radiotelephone Service (see §22.917, instead).
(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

RSS-119
5.8 Transmitter Unwanted Emissions
The spectrum plots of the unwanted emissions shall comply with the masks specified in Table 3.
Descriptions of these permissible emission masks are given in the sections that follow.
The term displacement frequency, fd, used in these sections refers to the difference between the channel frequency and the emission component frequency expressed in kilohertz, and p is the transmitter output power in Watts.

5.8.1 Emission Mask B for Transmitters Equipped with an Audio Low-Pass Filter
The power of any emission shall be attenuated below the transmitter output power P (dBW) as specified in Table 5.

Table 5 — Emission Mask B

Displacement Frequency, fd (kHz)	Minimum Attenuation (dB)	Resolution Bandwidth (Hz)
10 < fd ≤ 20	25	300
20 < fd ≤ 50	35	300
fd > 50	43 + 10 log10(p)	Specified in Section 4.2.1

6.6.2 Test summary

Test date	June 7, 2019
Test engineer	Yong Huang

6.6.3 Observations, settings and special notes

The spectrum was searched from 30 MHz to the 10th harmonic or 1 GHz whichever is higher.
Spectrum Analyzer's setting:

Detector mode	Peak
Resolution bandwidth	100 kHz below 1 GHz
Video bandwidth	RBW × 3
Trace mode	Max Hold

6.6.4 Test data

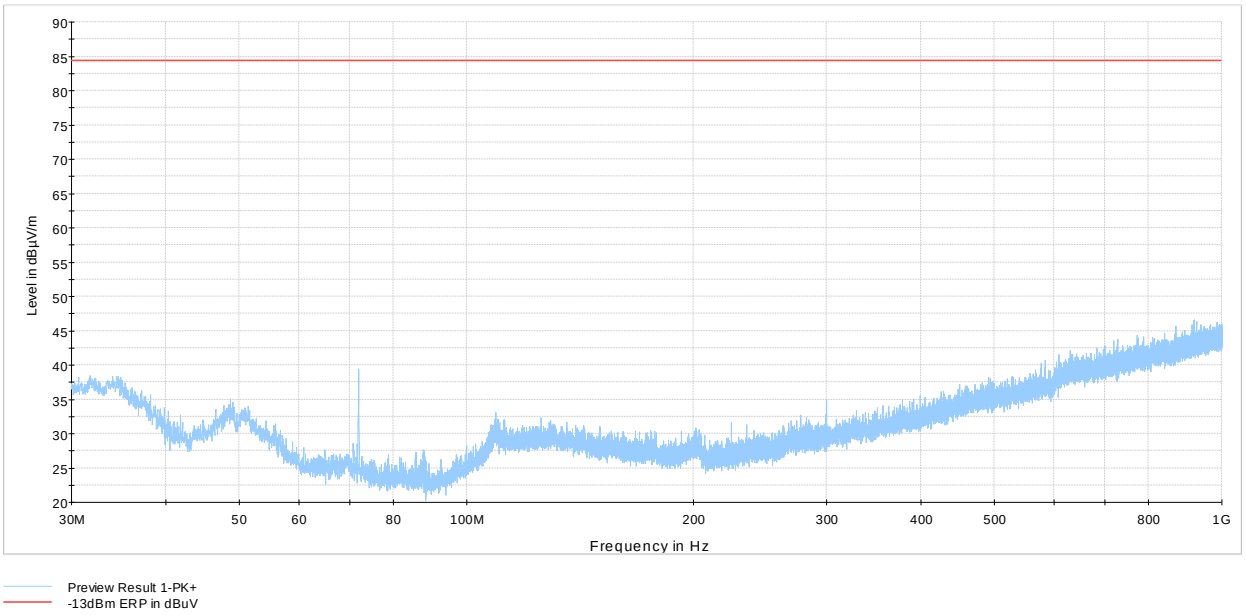


Figure 6.6-1: *Cabinet Radiated Spurious Emissions, Tx @low channel 50W 16K0F3E modulation*

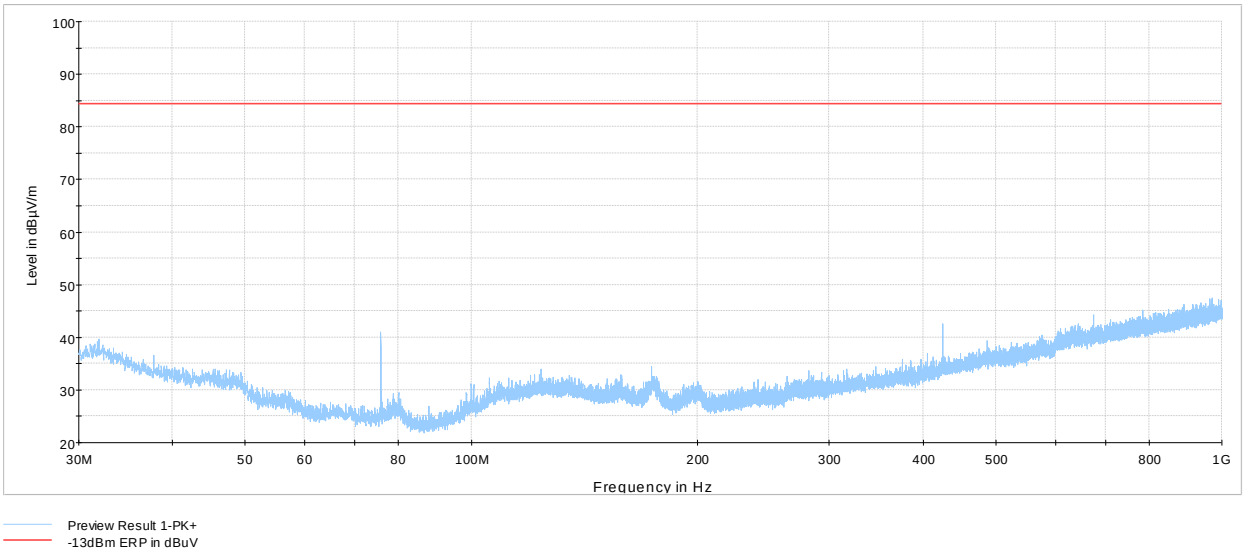


Figure 6.6-2: *Cabinet Radiated Spurious Emissions, Tx @high channel 50W 16K0F3E modulation*

6.7 FCC 90.213(a), 22.355 and RSS-119 5.3 Frequency stability

6.7.1 Definitions and limits

FCC§90.213(a):
(a) Unless noted elsewhere, transmitters used in the services governed by this part must have a minimum frequency stability as specified in the following table:

Table 6.7-1: *Minimum frequency stability*

Frequency range (MHz)	Fixed and base stations (±ppm)	Mobile stations (±ppm)	
		Over 2 watts output power	2 watts or less output power
72-76	5		50

§22.355 Frequency tolerance.
Except as otherwise provided in this part, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table C-1 of this section.

Table C-1—Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency range (MHz)	Base, fixed (ppm)	Mobile >3 watts (ppm)	Mobile ≤3 watts (ppm)
50 to 450	5.0	5.0	50.0

RSS-119, 5.3 Transmitter Frequency Stability
The carrier frequency shall not depart from the reference frequency more than the values given in Table 1. For transmitters that have an output power of less than 120 mW, the frequency stability shall comply with the limits listed in Table 1 or, alternatively, with the conditions in Section 5.10.

For fixed and base station equipment, in lieu of meeting the frequency stability limit specified in Table 1, the test report can show that the frequency stability is met by demonstrating that the unwanted emission limits, related to the equipment's nominal carrier frequency measured under normal operation, are met when the equipment is tested at the temperature and supply voltage variations specified for the frequency stability measurement in RSS-Gen.

Table 1 — Transmitter Frequency Stability

Frequency Band (MHz)	Channel Bandwidth (kHz)	Frequency Stability (ppm)		
		Base/Fixed	Mobile Station	
			Output Power >2 W	Output Power ≤2 W
72-76	20	5	20	50

6.7.2 Test summary

Test date	June 7, 2019
Test engineer	Yong Huang

6.7.3 Observations, settings and special notes

Test was performed on supply voltage variations as per client rated, no frequency deviation was observed.

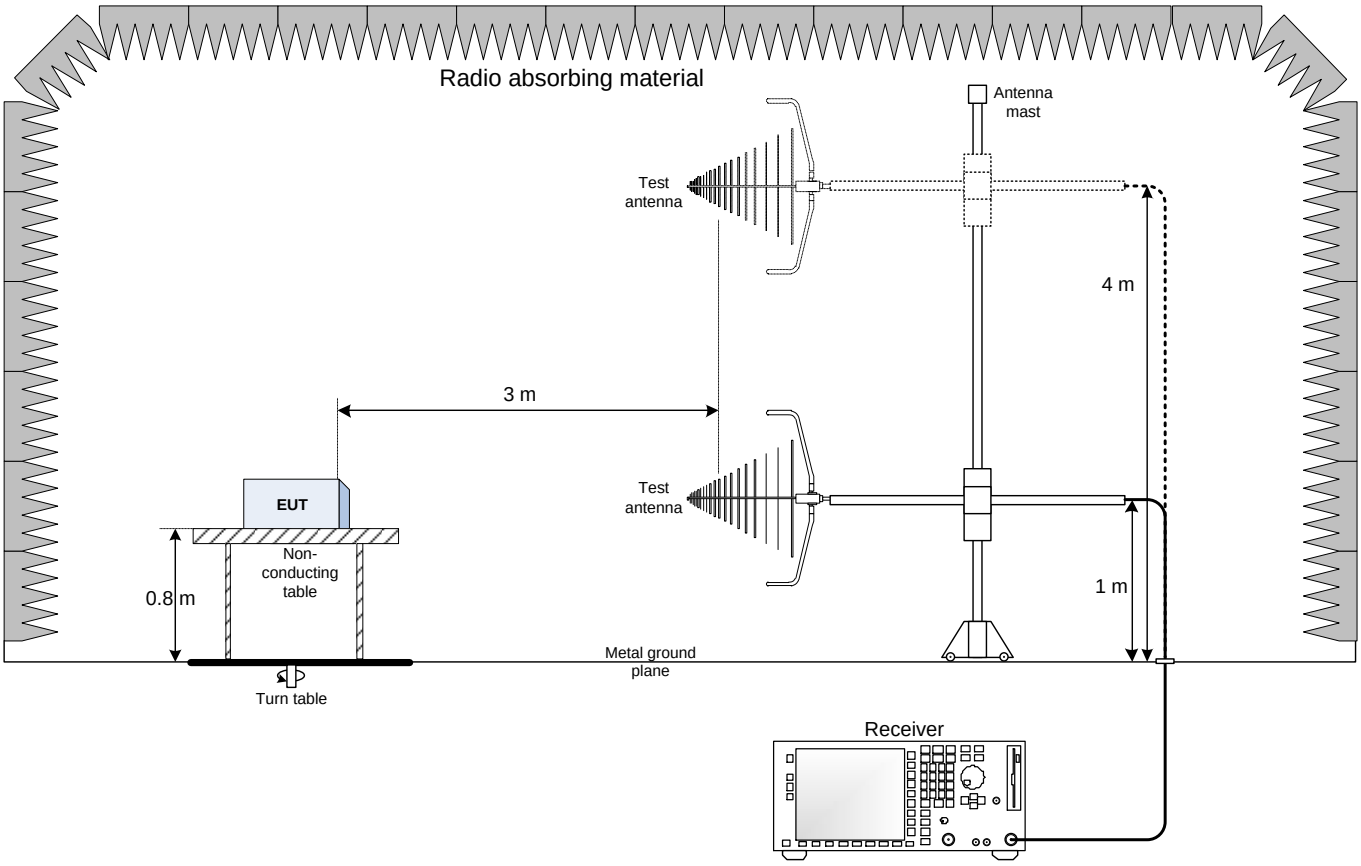
6.7.4 Test Results

Table 6.7-2: *Frequency drift measurement results*

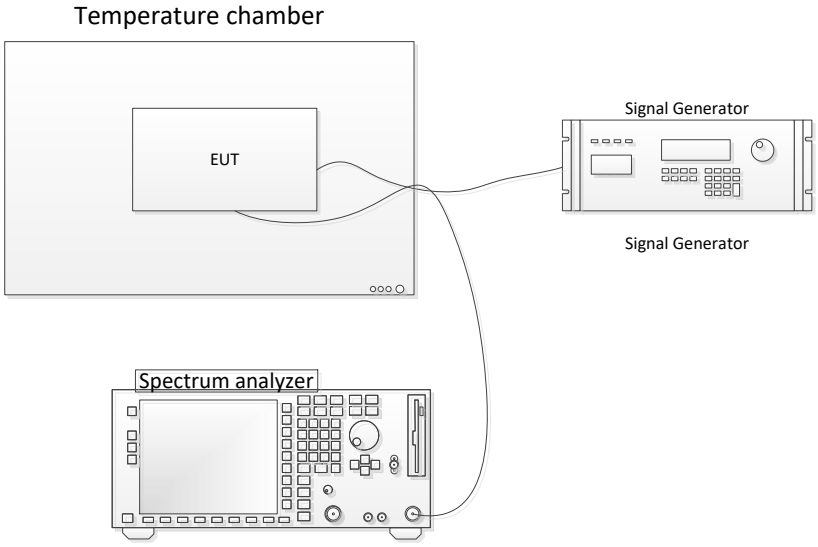
Test conditions	Frequency, Hz	Drift, Hz	Drift, ppm	Limit ±ppm	Margin, ±ppm
+50 °C, Nominal	75979998.8	10.0	0.13	5	4.87
+40 °C, Nominal	75979996.9	8.1	0.11	5	4.89
+30 °C, Nominal	75979993.4	4.6	0.06	5	4.94
+20 °C, 87.5%	75979988.8	0	0	5	5
+20 °C, Nominal	75979988.8	Reference	Reference	Reference	Reference
+20 °C, 115%	75979988.8	0	0	5	5
+10 °C, Nominal	75979985.9	-2.9	-0.04	5	5.04
0 °C, Nominal	75979982.5	-6.3	-0.08	5	5.08
−10 °C, Nominal	75979981.3	-7.5	-0.10	5	5.10
−20 °C, Nominal	75979987.2	-1.6	-0.02	5	5.02
−30 °C, Nominal	75979988.1	-0.7	-0.01	5	5.01

Section 7. Block diagrams of test set-ups

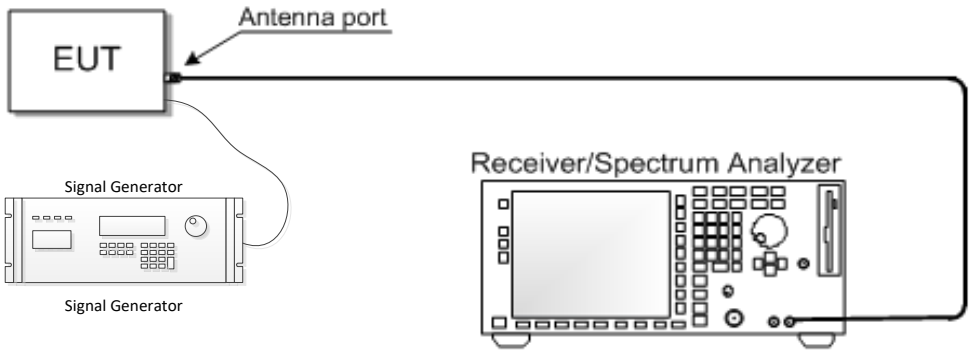
7.1 Radiated emissions set-up



7.2 Frequency stability set-up



7.3 conducted method set-up



(End of report)