

TEST REPORT

of

FCC Part 2 Subpart J, Part 22 Subpart C/H and Part 27 Subpart C

FCC ID: 2BO3LTLJLNIBN5E6

Equipment Under Test : Telematics
Model Name : TLJLNIBN5E6
Variant Model Name(s) : -
Applicant : LG Electronics Inc.
Manufacturer : LG Electronics Inc.
Date of Receipt : 2024.09.13
Date of Test(s) : 2024.10.21 ~ 2025.02.11
Date of Issue : 2025.04.23

In the configuration tested, the EUT complied with the standards specified above. This test report does not assure KOLAS accreditation.

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Tested by:



Ethan Lim

Technical
Manager:



Jinhyoung Cho

SGS Korea Co., Ltd. Gunpo Laboratory

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1. General Information

1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)

- 10-2, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
- 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807
- Designation number: KR0150

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1.2. Details of Applicant

Applicant : LG Electronics Inc.

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Contact Person : Kwon, Yong-deok

Phone No. : +82 10 4752 3957

1.3. Details of Manufacturer

Company : LG Electronics Inc.

Address : 128, Yeoui-daero, Yeongdeungpo-gu, Seoul, Republic of Korea, 07336

1.4. Description of EUT

Kind of Product	Telematics
Model Name	TLJLNIBN5E6
Serial Number	Conducted: 502VIVA000318 Radiated: 407VIVA000500
Power Supply	DC 12 V
Rated Power	LTE Band 5, 7, 41 : 23 dB m
Frequency Range	LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2 500 MHz ~ 2 570 MHz LTE Band 41: 2 496 MHz ~ 2 690 MHz
Modulation Technique	QPSK, 16QAM
Antenna Type	PIFA
Antenna Gain	824 MHz ~ 849 MHz: -1.12 dB i 2 500 MHz ~ 2 570 MHz: 1.31 dB i 2 496 MHz ~ 2 690 MHz: 1.31 dB i
H/W Version	REV.1.0
S/W Version	E2517

1.5. Test Equipment List

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Interval	Cal. Due
Spectrum Analyzer	R&S	FSV30	103453	Oct. 29, 2024	Annual	Oct. 29, 2025
Spectrum Analyzer	Agilent	N9020A	MY53421758	Sep. 10, 2024	Annual	Sep. 10, 2025
Spectrum Analyzer	Agilent	N9030A	US51350132	Nov. 29, 2024	Annual	Nov. 29, 2025
Signal Generator	R&S	SMA100B	106887	Oct. 11, 2024	Annual	Oct. 11, 2025
DC Power Supply	R&S	HMP2020	102133	Apr. 23, 2024	Annual	Apr. 23, 2025
Communication Analyzer	Anritsu	MT8821C	6262116711	Apr. 07, 2025	Annual	Apr. 07, 2026
Temperature Chamber	ESPEC CORP.	PL-2J	15004184	Jun. 03, 2024	Annual	Jun. 03, 2025
BRIDGE COUPLER	MARKI MICROWAVE INC	CBR16-0012	1542	May 13, 2024	Annual	May 13, 2025
Directional Coupler	KRYTAR	152613	122661	Feb. 24, 2025	Annual	Feb. 24, 2026
Low Pass Filter	Mini-Circuits	NLP-1200+	V 8979400903-1	May 17, 2024	Annual	May 17, 2025
High Pass Filter	Wainwright Instrument GmbH	WHKX10-900-1000-18000-40SS	7	Feb. 24, 2025	Annual	Feb. 24, 2026
High Pass Filter	Wainwright Instrument GmbH	WHKX3.0/18G-10SS	21	Jun. 07, 2024	Annual	Jun. 07, 2025
High Pass Filter	Wainwright Instrument GmbH	WHNX7.5/26.5G-6SS	11	Oct. 16, 2024	Annual	Oct. 16, 2025
Preamplifier	H.P.	8447F	2944A03909	Aug. 09, 2024	Annual	Aug. 09, 2025
Preamplifier	R&S	SCU 18F	101058	Feb. 27, 2025	Annual	Feb. 27, 2026
Preamplifier	R&S	SCU 18	102218	Mar. 08, 2024	Annual	Mar. 08, 2025
Preamplifier	MITEQ Inc.	JS44-18004000-35-8P	1546891	Oct. 14, 2024	Annual	Oct. 14, 2025
Test Receiver	R&S	ESU26	100109	Jan. 13, 2025	Annual	Jan. 13, 2026
Loop Antenna	Schwarzbeck Mess-Elektronik	FMZB 1519	1519-039	Mar. 25, 2025	Biennial	Mar. 25, 2027
Bilog Antenna	Schwarzbeck Mess-Elektronik	VULB 9163	01126	Mar. 05, 2025	Biennial	Mar. 05, 2027
Horn Antenna	R&S	HF906	100326	Feb. 24, 2025	Annual	Feb. 24, 2026
Horn Antenna	Schwarzbeck Mess-Elektronik	BBHA 9170	9170-540	Dec. 11, 2024	Annual	Dec. 11, 2025
Antenna Master	Innco systems GmbH	MA4640-XP-ET	MA4640/536/383 30516/L	N.C.R.	N/A	N.C.R.
Turn Table	Innco systems GmbH	DS 1200S	N/A	N.C.R.	N/A	N.C.R.
Controller	Innco systems GmbH	CONTROLLER CO3000-4P	CO3000/963/383 30516/L	N.C.R.	N/A	N.C.R.
Anechoic Chamber	SY Corporation	L × W × H (9.6 m × 6.4 m × 6.6 m)	N/A	N.C.R.	N/A	N.C.R.
Coaxial Cable	RADIAL	TESTPRO 3	182287	Apr. 11, 2025	Semi-Annual	Oct. 11, 2025
Coaxial Cable	RADIAL	TESTPRO 3	182288	Apr. 11, 2025	Semi-Annual	Oct. 11, 2025
Coaxial Cable	RADIAL	TESTPRO 3	182291	Apr. 11, 2025	Semi-Annual	Oct. 11, 2025
Coaxial Cable	SENSORVIEW	NMST-13A26-NMST-5 m	TPC2402190004	Apr. 08, 2025	Semi-Annual	Oct. 08, 2025
Coaxial Cable	SENSORVIEW	NMST-13A26-NMST-10 m	TPC2402190001	Apr. 08, 2025	Semi-Annual	Oct. 08, 2025

Note;

- For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.

1.6. Summary of Test Results

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 2, 22 and 27		
Section in FCC	Test Item(s)	Result
§22.913(a)(5) §27.50(h)(2)	E.R.P. / E.I.R.P.	Pass
§22.917(a) §27.53(m)(4)	Radiated Spurious Emission	Pass
§2.1046	Conducted Output Power	Pass
§2.1049	Occupied Bandwidth	Pass
§22.913(d) §27.50(d)(5)	Peak-Average Ratio	Pass
§22.917(a) §27.53(m)(4)	Spurious Emission at Antenna Terminal	Pass
§22.917(a) §27.53(m)(4)	Band Edge and Emission Mask	Pass
§2.1055 §22.355 §27.54	Frequency Stability	Pass

1.7. Sample Calculation for Offset

Where relevant, the following sample calculation is provided:

1.7.1. Conducted Test

Offset value (dB) = Directional Coupler (dB) + Cable loss (dB)

1.7.2. Radiation test

- E.I.R.P. (dB m) = Measured level (dB μ V) + Antenna factor (dB/m) + Cable loss (dB) + 20 Log D – 104.8;
where D is the measurement distance in meters.
- E.R.P. (dB m) = E.I.R.P. (dB m) - 2.15 (dB)

1.8. Worst Case Configuration and Mode

The worst-case is based on the conducted output power measurement investigation results. All testing was performed using QPSK, 16QAM modulations. However, the spurious radiated emission and spurious at antenna terminal were only performed on bandwidth and RB offset (with RB size 1) with the highest conducted power in QPSK.

The radiation test of the EUT was investigated in three orthogonal orientations X, Y, and Z, and the worst case data is reported.

1.10. Measurement Configuration

Test Items	Band	Test Channel			Bandwidth (MHz)						Modulation				RB #		
		Low	Mid	High	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full
Conducted Output Power	5	V	V	V	V	V	V	V			V	V	-	-	V	V	V
	7	V	V	V			V	V	V	V	V	V	-	-	V	V	V
	41	V	V	V			V	V	V	V	V	V	-	-	V	V	V
Frequency Stability	5	-	V	-	-	-	V	-			V	-	-	-	-	-	V
	7	-	V	-			V	-	-	-	V	-	-	-	-	-	V
	41	-	V	-			V	-	-	-	V	-	-	-	-	-	V
Occupied Bandwidth	5	V	V	V	V	V	V	V			V	V	-	-	-	-	V
	7	V	V	V			V	V	V	V	V	V	-	-	-	-	V
	41	V	V	V			V	V	V	V	V	V	-	-	-	-	V
Peak-to-Average Ratio	5	V	V	V	V	V	V	V			V	V	-	-	-	-	V
	7	V	V	V			V	V	V	V	V	V	-	-	-	-	V
	41	V	V	V			V	V	V	V	V	V	-	-	-	-	V
Band edge	5	V	-	V	V	V	V	V			V	V	-	-	V	-	V
	7	V	-	V			V	V	V	V	V	V	-	-	V	-	V
	41	V	-	V			V	V	V	V	V	V	-	-	V	-	V
Spurious at antenna terminal & Radiated Spurious Emission	5	V	V	V	worst case												
	7	V	V	V	worst case												
	41	V	V	V	worst case												

1.11. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty	
Conducted Output Power	1.43 dB	
Occupied Bandwidth	0.03 MHz	
Conducted Spurious Emissions	0.86 dB	
Peak to Average Ratio	0.65 dB	
Frequency Stability	110 Hz	
Radiated Emission, 9 kHz to 30 MHz	H	3.40 dB
	V	3.40 dB
Radiated Emission, below 1 GHz	H	4.60 dB
	V	5.00 dB
Radiated Emission, above 1 GHz	H	3.60 dB
	V	3.60 dB

All measurement uncertainty values are shown with a coverage factor of $k=2$ to indicate a 95 % level of confidence.

1.12. Test Report Revision

Revision	Report Number	Date of Issue	Description
0	F690501-RF-RTL005960	2025.04.23	Initial

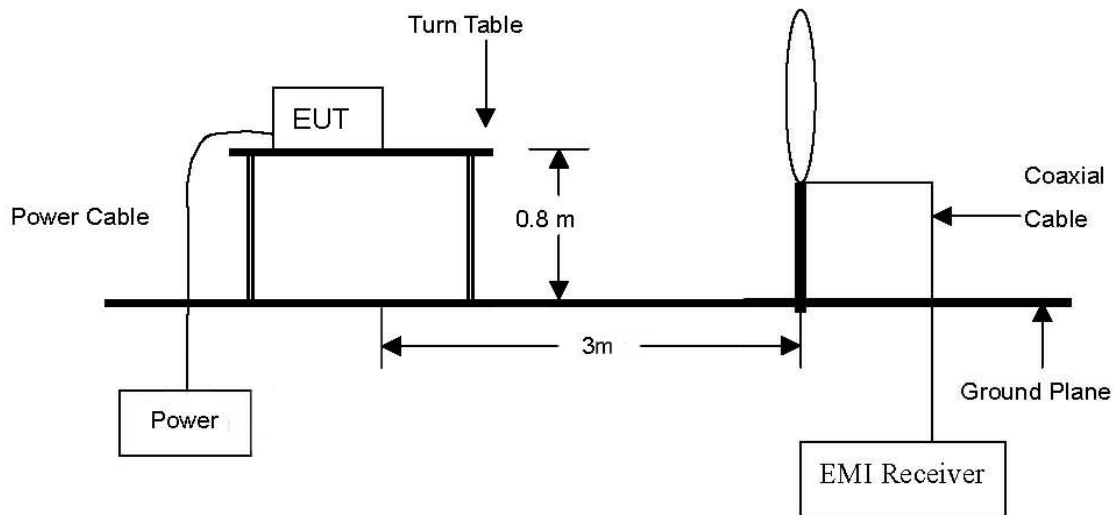
1.14. Emission Designator and Max Power

Band	Band width (MHz)	Modulation	Low Freq. (MHz)	Upper Freq. (MHz)	Conducted Average (dB m)	Ant. Gain (dB i)	E.R.P. / E.I.R.P. Average (dB m)	E.R.P. / E.I.R.P. Average (W)	Emission Designator
5	1.4	QPSK	824.7	848.3	23.25	-1.12	19.98	0.100	1M10G7D
		16QAM			22.19		18.92	0.078	1M10D7D
	3	QPSK	825.5	847.5	23.26		19.99	0.100	2M69G7D
		16QAM			22.19		18.92	0.078	2M69D7D
	5	QPSK	826.5	846.5	23.33		20.06	0.101	4M51G7D
		16QAM			22.22		18.95	0.079	4M50D7D
	10	QPSK	829.0	844.0	23.41		20.14	0.103	8M95G7D
		16QAM			22.25		18.98	0.079	8M95D7D
7	5	QPSK	2 502.5	2 567.5	22.99	1.31	24.30	0.269	4M52G7D
		16QAM			21.91		23.22	0.210	4M52D7D
	10	QPSK	2 505.0	2 565.0	23.28		24.59	0.288	8M93G7D
		16QAM			21.86		23.17	0.207	8M95D7D
	15	QPSK	2 507.5	2 562.5	23.13		24.44	0.278	13M5G7D
		16QAM			21.94		23.25	0.211	13M5D7D
	20	QPSK	2 510.0	2 560.0	23.56		24.87	0.307	17M9G7D
		16QAM			22.04		23.35	0.216	17M9D7D
41	5	QPSK	2 498.5	2 687.5	23.58	1.31	24.89	0.308	4M51G7D
		16QAM			22.69		24.00	0.251	4M52D7D
	10	QPSK	2 501.0	2 685.0	23.58		24.89	0.308	8M93G7D
		16QAM			22.56		23.87	0.244	8M95D7D
	15	QPSK	2 503.5	2 682.5	23.55		24.86	0.306	13M5G7D
		16QAM			22.57		23.88	0.244	13M5D7D
	20	QPSK	2 506.0	2 680.0	23.61		24.92	0.310	17M9G7D
		16QAM			22.59		23.90	0.245	17M9D7D

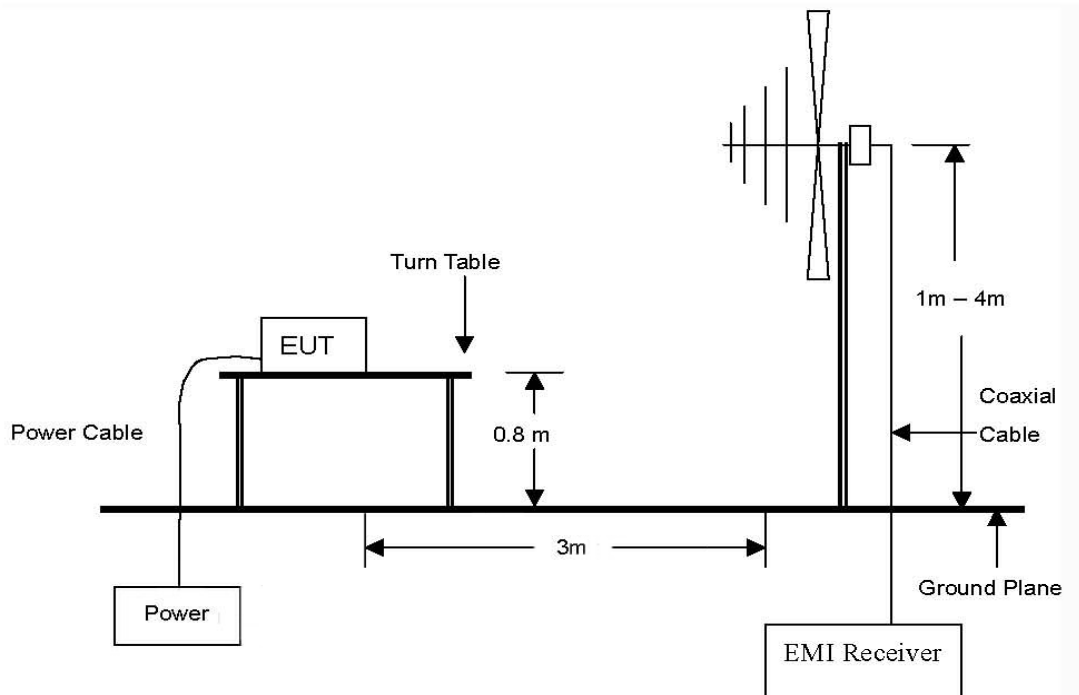
2. E.R.P. / E.I.R.P. & Radiated Spurious Emissions

2.1. Test setup

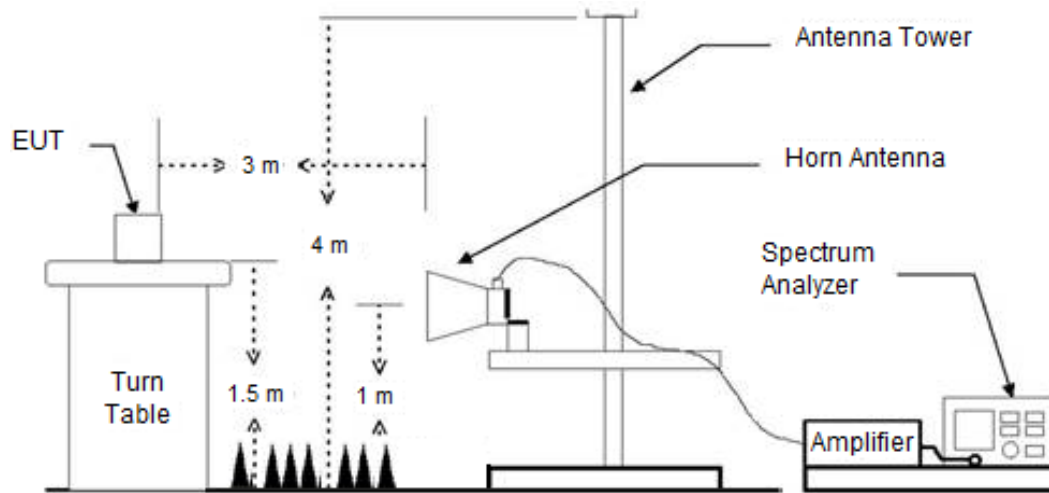
The diagram below shows the test setup that is utilized to make the measurements for emission from 9 kHz to 30 MHz.



The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz Emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.



2.2. Limit

2.2.1. Limit of E.R.P. / E.I.R.P.

- §22.913(a)(5), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.
- §27.50(h)(2), Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

2.2.2. Limit of Radiated Spurious Emission

- §22.917(a), 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.
- §27.53(m)(4), for mobile digital stations, the attenuation factor shall be not less than $40 + 10\log_{10}(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10\log_{10}(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10\log_{10}(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10\log_{10}(P)$ dB on all frequencies between 2 490.5 MHz and 2 496 MHz and $55 + 10\log_{10}(P)$ dB at or below 2 490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2 495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

2.3. Test Procedure

2.3.1. E.R.P. or E.I.R.P. from conducted RF output power

According to subclause 5.2.5.5 of ANSI C63.26-2015 E.R.P. and E.I.R.P. are defined as the product of the power supplied to the antenna and its gain.

The relevant equation for determining the E.R.P. or E.I.R.P. from the conducted RF output power measured using the guidance provided above is:

$$\text{E.R.P. or E.I.R.P.} = P_{\text{Meas}} + G_T$$

where:

E.R.P. or E.I.R.P. = effective radiated power or equivalent isotropically radiated power, respectively
(expressed in the same units as P_{Meas} , typically dBW or dBm);

P_{Meas} = measured transmitter output power or PSD, in dBm or dBW;

G_T = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

2.3.2. Radiated Spurious Emissions

The test based on ANSI/TIA 603E: 2016 and ANSI C63.26-2015 and KDB 971168 D01 Power Meas License Digital Systems v03r01.

1. On a test site, the EUT shall be placed at 0.8 m or 1.5 m height on a turn table, and in the position close to normal use as declared by the applicant.
2. The test antenna shall be oriented initially for vertical polarization located 3 m from EUT to correspond to the fundamental frequency of the transmitter.
3. The output of the test antenna shall be connected to the measuring receiver and the peak detector is used for the measurement.
4. Radiated spurious emissions measurement method was set as follows:
RBW = 100 kHz for emissions below 1 GHz and 1 MHz for emissions above 1 GHz, VBW $\geq 3 \times$ RBW,
Detector = RMS, trace mode = max hold, per the guidelines of KDB 971168 D01 Power Meas License Digital Systems v03r01.
5. The transmitter shall be switched on, the measuring receiver shall be tuned to the frequency of the transmitter under test.
6. The test antenna shall be raised and lowered through the specified range of height until the maximum signal level is detected by the measuring receiver.
7. The transmitter shall be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
8. The test antenna shall be raised and lowered again through the specified range of height until the maximum signal level is detected by the measuring receiver.
9. The maximum signal level detected by the measuring receiver shall be noted.
10. In necessary, the input attenuator setting on the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
11. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
12. The measurement shall be repeated with the test antenna orientated for horizontal polarization.

2.4. Test results

Ambient temperature : (23 ± 1) °C
Relative humidity : 47 % R.H.

2.4.1. E.R.P. / E.I.R.P.

Band	Frequency (MHz)	Maximum Conducted Power (dB m)	Maximum Conducted Power (W)	Antenna Gain (dB i)	Maximum E.I.R.P. (dB m)	Maximum E.I.R.P. (W)	Maximum E.R.P. (dB m)	Maximum E.R.P. (W)	Limit
5	824 ~ 849	23.41	0.219	-1.12			20.14	0.103	7 W E.R.P.
7	2 500 ~ 2 570	23.56	0.227	1.31	24.87	0.307			2 W E.I.R.P.
41	2 496 ~ 2 690	23.61	0.230	1.31	24.92	0.310			2 W E.I.R.P.

Remark;

1. E.I.R.P. (dB m) = Maximum Conducted Power (dB m) + Antenna Gain (dB i)
2. E.R.P. (dB m) = E.I.R.P. (dB m) - 2.15 (dB); where E.R.P. and E.I.R.P. are expressed in consistent units.

2.4.2. Radiated spurious emissions

LTE band 5 (10 MHz – QPSK)

Frequency (MHz)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (829.0 MHz)									
1 658.19	59.31	H	25.95	-39.91	45.35	-97.41	-52.06	-13	39.06
1 658.39	57.38	V	25.95	-39.90	43.43	-97.41	-53.98	-13	40.98
2 487.42	47.65	H	28.35	-37.77	38.23	-97.41	-59.18	-13	46.18
2 487.38	44.09	V	28.35	-37.77	34.67	-97.41	-62.74	-13	49.74
Above 2 500.00	Not detected	–	–	–	–	–	–	–	–
Middle Channel (836.5 MHz)									
1 673.15	65.37	H	26.22	-39.85	51.74	-97.41	-45.67	-13	32.67
1 673.18	64.15	V	26.22	-39.85	50.52	-97.41	-46.89	-13	33.89
2 509.79	55.52	H	28.44	-37.85	46.11	-97.41	-51.30	-13	38.30
2 509.86	51.21	V	28.44	-37.85	41.80	-97.41	-55.61	-13	42.61
Above 2 600.00	Not detected	–	–	–	–	–	–	–	–
High Channel (844.0 MHz)									
1 688.14	64.57	H	26.49	-39.67	51.39	-97.41	-46.02	-13	33.02
1 688.29	61.73	V	26.49	-39.67	48.55	-97.41	-48.86	-13	35.86
2 532.14	51.41	H	28.53	-37.77	42.17	-97.41	-55.24	-13	42.24
2 532.33	47.92	V	28.53	-37.77	38.68	-97.41	-58.73	-13	45.73
Above 2 600.00	Not detected	–	–	–	–	–	–	–	–

LTE band 7 (20 MHz - QPSK)

Frequency (MHz)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (2 510.0 MHz)									
5 020.39	41.36	H	33.40	-31.48	43.28	-95.26	-51.98	-25	26.98
5 020.25	63.26	V	33.40	-31.48	65.18	-95.26	-30.08	-25	5.08
7 530.35	44.93	H	36.04	-28.11	52.86	-95.26	-42.40	-25	17.40
7 530.27	51.37	V	36.04	-28.12	59.29	-95.26	-35.97	-25	10.97
10 040.41	45.69	H	37.78	-24.90	58.57	-95.26	-36.69	-25	11.69
10 040.42	42.03	V	37.78	-24.90	54.91	-95.26	-40.35	-25	15.35
12 550.46	32.01	H	38.50	-22.78	47.73	-95.26	-47.53	-25	22.53
12 550.14	32.25	V	38.50	-22.79	47.96	-95.26	-47.30	-25	22.30
Above 12 600.00	Not detected	-	-	-	-	-	-	-	-
Middle Channel (2 535.0 MHz)									
5 070.04	41.23	H	33.44	-31.57	43.10	-95.26	-52.16	-25	27.16
5 070.01	63.22	V	33.44	-31.57	65.09	-95.26	-30.17	-25	5.17
7 605.22	45.98	H	36.00	-27.77	54.21	-95.26	-41.05	-25	16.05
7 605.17	41.00	V	36.00	-27.78	49.22	-95.26	-46.04	-25	21.04
10 140.33	45.59	H	37.72	-24.81	58.50	-95.26	-36.76	-25	11.76
10 140.43	44.37	V	37.72	-24.81	57.28	-95.26	-37.98	-25	12.98
12 675.33	30.74	H	38.75	-22.60	46.89	-95.26	-48.37	-25	23.37
12 675.64	43.81	V	38.75	-22.60	59.96	-95.26	-35.30	-25	10.30
Above 12 700.00	Not detected	-	-	-	-	-	-	-	-
High Channel (2 560.0 MHz)									
5 119.68	38.84	H	33.54	-31.78	40.60	-95.26	-54.67	-25	29.67
5 120.16	40.27	V	33.54	-31.77	42.04	-95.26	-53.22	-25	28.22
7 680.32	47.84	H	35.94	-27.92	55.86	-95.26	-39.40	-25	14.40
7 680.18	51.12	V	35.94	-27.93	59.13	-95.26	-36.13	-25	11.13
10 240.40	47.69	H	37.78	-24.58	60.89	-95.26	-34.37	-25	9.37
10 240.36	43.60	V	37.78	-24.58	56.80	-95.26	-38.46	-25	13.46
12 800.14	29.95	H	39.00	-22.43	46.52	-95.26	-48.74	-25	23.74
12 795.87	30.40	V	38.99	-22.28	47.11	-95.26	-48.15	-25	23.15
Above 12 800.00	Not detected	-	-	-	-	-	-	-	-

LTE band 41 (20 MHz – QPSK)

Frequency (MHz)	Measured Level (dBμV)	Ant. Pol.	AF (dB/m)	AMP+CL (dB)	E (dBμV/m)	CF (dB)	E.I.R.P. (dB m)	Limit (dB m)	Margin (dB)
Low Channel (2 506.0 MHz)									
5 012.40	42.10	H	33.40	-31.67	43.83	-95.26	-51.43	-25	26.43
5 012.08	40.91	V	33.40	-31.68	42.63	-95.26	-52.63	-25	27.63
7 518.27	48.87	H	36.06	-28.21	56.72	-95.26	-38.54	-25	13.54
7 518.12	50.22	V	36.06	-28.21	58.07	-95.26	-37.19	-25	12.19
10 024.16	45.17	H	37.75	-24.95	57.97	-95.26	-37.29	-25	12.29
10 024.35	43.21	V	37.75	-24.95	56.01	-95.26	-39.25	-25	14.25
Above 10 100.00	Not detected	–	–	–	–	–	–	–	–
Middle Channel (2 593.0 MHz)									
5 186.17	49.37	H	33.67	-31.57	51.47	-95.26	-43.79	-25	18.79
5 186.39	44.54	V	33.67	-31.56	46.65	-95.26	-48.61	-25	23.61
7 779.09	50.43	H	36.00	-27.25	59.18	-95.26	-36.08	-25	11.08
7 779.37	49.58	V	36.00	-27.24	58.34	-95.26	-36.92	-25	11.92
10 372.28	48.17	H	37.80	-24.93	61.04	-95.26	-34.22	-25	9.22
10 372.50	47.95	V	37.80	-24.94	60.81	-95.26	-34.45	-25	9.45
Above 10 400.00	Not detected	–	–	–	–	–	–	–	–
High Channel (2 680.0 MHz)									
5 360.21	46.92	H	34.02	-31.28	49.66	-95.26	-45.60	-25	20.60
5 360.14	46.66	V	34.02	-31.29	49.39	-95.26	-45.87	-25	20.87
8 040.28	48.81	H	36.20	-27.71	57.30	-95.26	-37.96	-25	12.96
8 040.18	41.94	V	36.20	-27.71	50.43	-95.26	-44.83	-25	19.83
10 720.35	42.46	H	38.04	-24.37	56.13	-95.26	-39.13	-25	14.13
10 720.32	41.74	V	38.04	-24.37	55.41	-95.26	-39.85	-25	14.85
Above 10 800.00	Not detected	–	–	–	–	–	–	–	–

Remark;

1. AF = Antenna Factor, CL = Cable Loss, CF = Conversion Factor.
2. E (dBμV/m) = Measured Level (dBμV) + Antenna Factor (dB/m) + AMP (dB) + Cable Loss (dB).
3. E.I.R.P. (dB m) = E (dBμV/m) + CF (dB).
4. E.R.P. (dB m) = E (dBμV/m) + CF (dB) - 2.15 (dB); where E.R.P. and E.I.R.P. are expressed in consistent units.
5. CF (dB) = 20 log D - 104.8; where D is the measurement distance in meters, According to KDB 971168 D01 v03r01 5.8.4.
6. The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

3. Conducted Output Power

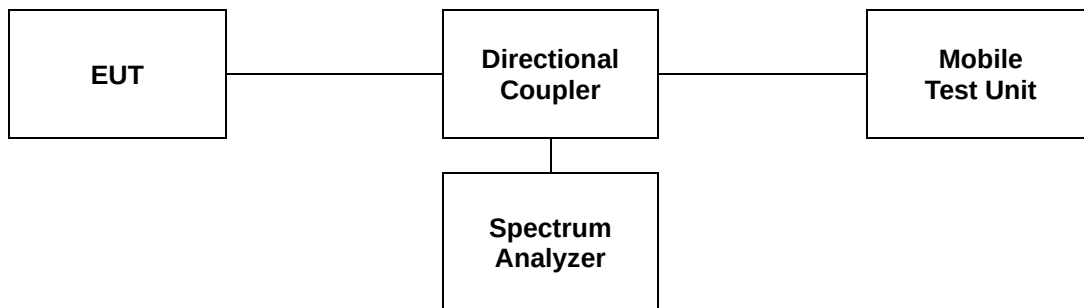
3.1. Limit

CFR 47, Section FCC §2.1046

3.2. Test Procedure

Output power shall be measured at the RF output terminals for all configurations.

1. The RF output of the transmitter was connected to the input of the mobile test unit in order to establish communication with the EUT.
2. The EUT was set up for the max. output power of each modulation by using mobile test unit parameters.
3. This EUT was tested under all configurations and the highest power was investigated and reported.



3.3. Test Result

Ambient temperature : (23 ± 1) °C
Relative humidity : 47 % R.H.

LTE Band 5											
Ant. Gain						-1.12 dB i					
Limit: 7W E.R.P											
BW (MHz)	Modulation	RB Size	RB Offset	Conducted Output Power							
				20407 (824.7 MHz)		20525 (836.5 MHz)		20643 (848.3 MHz)		E.R.P.	
				(dB m)	(W)	(dB m)	(W)	(dB m)	(W)	(dB m)	(W)
1.4	QPSK	1	0	23.02	0.200	23.09	0.204	23.02	0.200	19.98	0.100
		1	2	23.10	0.204	23.20	0.209	23.15	0.207		
		1	5	23.15	0.207	23.25	0.211	23.13	0.206		
		3	0	23.01	0.200	23.21	0.209	23.14	0.206		
		3	2	22.99	0.199	23.08	0.203	23.17	0.207		
		3	3	23.09	0.204	23.07	0.203	23.16	0.207		
		6	0	22.05	0.160	22.21	0.166	22.15	0.164		
	16QAM	1	0	22.12	0.163	22.01	0.159	21.92	0.156	18.92	0.078
		1	2	22.19	0.166	21.93	0.156	21.90	0.155		
		1	5	21.98	0.158	21.93	0.156	21.87	0.154		
		3	0	22.04	0.160	21.98	0.158	22.01	0.159		
		3	2	22.07	0.161	22.03	0.160	22.01	0.159		
		3	3	22.13	0.163	21.84	0.153	21.85	0.153		
		6	0	20.93	0.124	20.88	0.122	20.93	0.124		

LTE Band 5											
Ant. Gain						-1.12 dB i					
Limit: 7W E.R.P											
BW (MHz)	Modulation	RB Size	RB Offset	Conducted Output Power							
				20415 (825.5 MHz)		20525 (836.5 MHz)		20635 (847.5 MHz)		E.R.P.	
				(dB m)	(W)	(dB m)	(W)	(dB m)	(W)	(dB m)	(W)
3	QPSK	1	0	23.18	0.208	23.13	0.206	22.95	0.197	19.99	0.100
		1	7	23.16	0.207	23.26	0.212	22.99	0.199		
		1	14	23.04	0.201	23.19	0.208	23.12	0.205		
		8	0	22.07	0.161	22.14	0.164	22.08	0.161		
		8	4	22.12	0.163	22.13	0.163	22.08	0.161		
		8	7	22.09	0.162	22.04	0.160	22.08	0.161		
		15	0	22.07	0.161	22.08	0.161	22.07	0.161		
	16QAM	1	0	22.07	0.161	21.98	0.158	21.83	0.152	18.92	0.078
		1	7	22.18	0.165	22.14	0.164	22.02	0.159		
		1	14	22.19	0.166	21.92	0.156	21.89	0.155		
		8	0	21.12	0.129	21.06	0.128	21.02	0.126		
		8	4	21.06	0.128	20.91	0.123	21.16	0.131		
		8	7	21.36	0.137	21.16	0.131	21.01	0.126		
		15	0	20.98	0.125	21.04	0.127	21.03	0.127		

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LTE Band 5											
Ant. Gain						-1.12 dB i					
Limit: 7W E.R.P											
BW (MHz)	Modulation	RB Size	RB Offset	Conducted Output Power							
				20425 (826.5 MHz)		20525 (836.5 MHz)		20625 (846.5 MHz)		E.R.P.	
				(dB m)	(W)	(dB m)	(W)	(dB m)	(W)	(dB m)	(W)
5	QPSK	1	0	23.13	0.206	23.08	0.203	22.90	0.195	20.06	0.101
		1	12	23.11	0.205	23.17	0.207	22.96	0.198		
		1	24	23.33	0.215	23.11	0.205	22.95	0.197		
		12	0	22.04	0.160	22.00	0.158	22.00	0.158		
		12	6	22.12	0.163	22.04	0.160	22.01	0.159		
		12	13	22.26	0.168	22.03	0.160	22.04	0.160		
	16QAM	25	0	22.08	0.161	22.12	0.163	22.04	0.160	18.95	0.079
		1	0	22.00	0.158	21.82	0.152	22.01	0.159		
		1	12	21.93	0.156	22.11	0.163	22.04	0.160		
		1	24	22.22	0.167	21.97	0.157	21.92	0.156		
		12	0	21.02	0.126	21.05	0.127	21.07	0.128		
		12	6	21.24	0.133	21.07	0.128	20.98	0.125		
		12	13	21.07	0.128	21.17	0.131	20.91	0.123		
		25	0	20.96	0.125	21.00	0.126	21.08	0.128		

LTE Band 5											
Ant. Gain						-1.12 dB i					
Limit: 7W E.R.P											
BW (MHz)	Modulation	RB Size	RB Offset	Conducted Output Power							
				20450 (829.0 MHz)		20525 (836.5 MHz)		20600 (844.0 MHz)		E.R.P.	
				(dB m)	(W)	(dB m)	(W)	(dB m)	(W)	(dB m)	(W)
10	QPSK	1	0	23.18	0.208	23.23	0.210	23.17	0.207	20.14	0.103
		1	25	23.41	0.219	23.33	0.215	23.13	0.206		
		1	49	23.37	0.217	23.36	0.217	23.03	0.201		
		25	0	22.16	0.164	22.21	0.166	22.15	0.164		
		25	12	22.31	0.170	22.07	0.161	21.96	0.157		
		25	25	22.29	0.169	22.02	0.159	22.02	0.159		
	50	0	22.17	0.165	22.17	0.165	22.01	0.159	18.98	0.079	
	16QAM	1	0	22.14	0.164	21.91	0.155	21.77			0.150
		1	25	22.25	0.168	22.00	0.158	21.90			0.155
		1	49	22.00	0.158	21.96	0.157	22.25			0.168
		25	0	21.10	0.129	21.14	0.130	21.14			0.130
		25	12	21.11	0.129	21.43	0.139	20.90			0.123
		25	25	21.17	0.131	21.02	0.126	20.98			0.125
	50	0	21.27	0.134	21.14	0.130	20.96	0.125			

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LTE Band 7											
Ant. Gain						1.31 dB i					
Limit: 2W E.I.R.P											
BW (MHz)	Modulation	RB Size	RB Offset	Conducted Output Power							
				20775 (2 502.5 MHz)		21100 (2 535.0 MHz)		21425 (2 567.5 MHz)		E.I.R.P.	
				(dB m)	(W)	(dB m)	(W)	(dB m)	(W)	(dB m)	(W)
5	QPSK	1	0	22.82	0.191	22.88	0.194	22.85	0.193	24.30	0.269
		1	12	22.91	0.195	22.99	0.199	22.83	0.192		
		1	24	22.80	0.191	22.95	0.197	22.95	0.197		
		12	0	21.80	0.151	21.73	0.149	21.72	0.149		
		12	6	21.84	0.153	21.86	0.153	21.73	0.149		
		12	13	21.82	0.152	21.85	0.153	21.69	0.148		
		25	0	21.78	0.151	21.90	0.155	21.75	0.150		
	16QAM	1	0	21.86	0.153	21.60	0.145	21.63	0.146	23.22	0.210
		1	12	21.91	0.155	21.68	0.147	21.84	0.153		
		1	24	21.85	0.153	21.49	0.141	21.66	0.147		
		12	0	20.89	0.123	20.80	0.120	20.63	0.116		
		12	6	20.76	0.119	20.79	0.120	20.77	0.119		
		12	13	20.85	0.122	21.05	0.127	20.70	0.117		
		25	0	20.88	0.122	20.85	0.122	20.81	0.121		

LTE Band 7											
Ant. Gain						1.31 dB i					
Limit: 2W E.I.R.P											
BW (MHz)	Modulation	RB Size	RB Offset	Conducted Output Power							
				20800 (2 505.0 MHz)		21100 (2 535.0 MHz)		21400 (2 565.0 MHz)		E.I.R.P.	
				(dB m)	(W)	(dB m)	(W)	(dB m)	(W)	(dB m)	(W)
10	QPSK	1	0	23.05	0.202	22.98	0.199	23.15	0.207	24.59	0.288
		1	25	23.23	0.210	23.28	0.213	23.16	0.207		
		1	49	22.87	0.194	23.05	0.202	23.10	0.204		
		25	0	21.75	0.150	21.86	0.153	21.92	0.156		
		25	12	21.82	0.152	21.91	0.155	21.78	0.151		
		25	25	21.74	0.149	21.88	0.154	21.78	0.151		
		50	0	21.77	0.150	21.88	0.154	21.82	0.152		
	16QAM	1	0	21.67	0.147	21.84	0.153	21.84	0.153	23.17	0.207
		1	25	21.86	0.153	21.83	0.152	21.79	0.151		
		1	49	21.65	0.146	21.76	0.150	21.84	0.153		
		25	0	20.81	0.121	20.94	0.124	20.84	0.121		
		25	12	20.86	0.122	20.98	0.125	20.78	0.120		
		25	25	20.89	0.123	20.95	0.124	20.89	0.123		
		50	0	20.91	0.123	20.93	0.124	20.84	0.121		

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LTE Band 7											
Ant. Gain						1.31 dB i					
Limit: 2W E.I.R.P											
BW (MHz)	Modulation	RB Size	RB Offset	Conducted Output Power							
				20825 (2 507.5 MHz)		21100 (2 535.0 MHz)		21375 (2 562.5 MHz)		E.I.R.P.	
				(dB m)	(W)	(dB m)	(W)	(dB m)	(W)	(dB m)	(W)
15	QPSK	1	0	23.07	0.203	23.11	0.205	23.13	0.206	24.44	0.278
		1	36	23.00	0.200	23.09	0.204	22.84	0.192		
		1	74	22.87	0.194	23.12	0.205	22.88	0.194		
		36	0	21.82	0.152	21.85	0.153	21.93	0.156		
		36	18	21.79	0.151	21.94	0.156	21.80	0.151		
		36	37	21.70	0.148	21.84	0.153	21.84	0.153		
		75	0	21.77	0.150	21.94	0.156	21.82	0.152		
	16QAM	1	0	21.78	0.151	21.84	0.153	21.94	0.156	23.25	0.211
		1	36	21.71	0.148	21.75	0.150	21.61	0.145		
		1	74	21.77	0.150	21.77	0.150	21.56	0.143		
		36	0	20.97	0.125	21.01	0.126	20.91	0.123		
		36	18	20.84	0.121	20.99	0.126	20.80	0.120		
		36	37	20.74	0.119	20.91	0.123	20.87	0.122		
		75	0	20.82	0.121	20.90	0.123	20.87	0.122		

LTE Band 7											
Ant. Gain						1.31 dB i					
Limit: 2W E.I.R.P											
BW (MHz)	Modulation	RB Size	RB Offset	Conducted Output Power							
				20850 (2 510.0 MHz)		21100 (2 535.0 MHz)		21350 (2 560.0 MHz)		E.I.R.P.	
				(dB m)	(W)	(dB m)	(W)	(dB m)	(W)	(dB m)	(W)
20	QPSK	1	0	23.05	0.202	22.98	0.199	23.08	0.203	24.87	0.307
		1	50	23.24	0.211	23.56	0.227	23.25	0.211		
		1	99	22.76	0.189	22.99	0.199	22.81	0.191		
		50	0	21.87	0.154	21.87	0.154	21.86	0.153		
		50	25	21.72	0.149	21.88	0.154	21.73	0.149		
		50	50	21.67	0.147	21.92	0.156	21.74	0.149		
		100	0	21.74	0.149	21.92	0.156	21.81	0.152		
	16QAM	1	0	21.90	0.155	21.78	0.151	21.73	0.149	23.35	0.216
		1	50	22.04	0.160	22.02	0.159	21.64	0.146		
		1	99	21.78	0.151	21.79	0.151	21.65	0.146		
		50	0	20.90	0.123	20.93	0.124	20.95	0.124		
		50	25	20.86	0.122	20.82	0.121	20.90	0.123		
		50	50	20.83	0.121	20.99	0.126	20.76	0.119		
		100	0	20.81	0.121	20.98	0.125	20.86	0.122		

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LTE Band 41											
Ant. Gain						1.31 dB i					
Limit: 2W E.I.R.P											
BW (MHz)	Modulation	RB Size	RB Offset	Conducted Output Power							
				39675 (2 498.5 MHz)		40620 (2 593.0 MHz)		41565 (2 687.5 MHz)		E.I.R.P.	
				(dB m)	(W)	(dB m)	(W)	(dB m)	(W)	(dB m)	(W)
5	QPSK	1	0	23.11	0.205	23.31	0.214	23.19	0.208	24.89	0.308
		1	12	23.44	0.221	23.58	0.228	23.14	0.206		
		1	24	23.19	0.208	23.37	0.217	23.18	0.208		
		12	0	22.33	0.171	22.42	0.175	22.51	0.178		
		12	6	22.31	0.170	22.51	0.178	22.48	0.177		
		12	13	22.40	0.174	22.44	0.175	22.36	0.172		
		25	0	22.30	0.170	22.55	0.180	22.41	0.174		
	16QAM	1	0	22.28	0.169	22.39	0.173	22.38	0.173	24.00	0.251
		1	12	22.48	0.177	22.69	0.186	22.37	0.173		
		1	24	21.79	0.151	22.39	0.173	22.32	0.171		
		12	0	21.29	0.135	21.80	0.151	21.75	0.150		
		12	6	21.32	0.136	21.82	0.152	21.83	0.152		
		12	13	21.44	0.139	21.73	0.149	21.55	0.143		
		25	0	21.40	0.138	21.64	0.146	21.65	0.146		

LTE Band 41											
Ant. Gain						1.31 dB i					
Limit: 2W E.I.R.P											
BW (MHz)	Modulation	RB Size	RB Offset	Conducted Output Power							
				39700 (2 501.0 MHz)		40620 (2 593.0 MHz)		41540 (2 685.0 MHz)		E.I.R.P.	
				(dB m)	(W)	(dB m)	(W)	(dB m)	(W)	(dB m)	(W)
10	QPSK	1	0	23.22	0.210	23.58	0.228	23.25	0.211	24.89	0.308
		1	25	23.27	0.212	23.44	0.221	23.12	0.205		
		1	49	23.33	0.215	23.55	0.226	23.24	0.211		
		25	0	22.38	0.173	22.54	0.179	22.43	0.175		
		25	12	22.20	0.166	22.55	0.180	22.45	0.176		
		25	25	22.37	0.173	22.56	0.180	22.35	0.172		
		50	0	22.28	0.169	22.48	0.177	22.45	0.176		
	16QAM	1	0	22.32	0.171	22.43	0.175	22.47	0.177	23.87	0.244
		1	25	22.30	0.170	22.52	0.179	22.46	0.176		
		1	49	22.46	0.176	22.56	0.180	22.43	0.175		
		25	0	21.24	0.133	21.56	0.143	21.39	0.138		
		25	12	21.41	0.138	21.41	0.138	21.39	0.138		
		25	25	21.37	0.137	21.27	0.134	21.40	0.138		
		50	0	21.33	0.136	21.60	0.145	21.35	0.136		

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LTE Band 41											
Ant. Gain						1.31 dB i					
Limit: 2W E.I.R.P											
BW (MHz)	Modulation	RB Size	RB Offset	Conducted Output Power							
				39725 (2 503.5 MHz)		40620 (2 593.0 MHz)		41515 (2 682.5 MHz)		E.I.R.P.	
				(dB m)	(W)	(dB m)	(W)	(dB m)	(W)	(dB m)	(W)
15	QPSK	1	0	23.02	0.200	23.48	0.223	23.35	0.216	24.86	0.306
		1	36	23.02	0.200	23.47	0.222	23.36	0.217		
		1	74	23.07	0.203	23.55	0.226	23.19	0.208		
		36	0	22.11	0.163	22.53	0.179	22.44	0.175		
		36	18	22.12	0.163	22.52	0.179	22.50	0.178		
		36	37	22.24	0.167	22.56	0.180	22.41	0.174		
		75	0	22.30	0.170	22.50	0.178	22.48	0.177		
	16QAM	1	0	21.99	0.158	22.47	0.177	22.45	0.176	23.88	0.244
		1	36	22.21	0.166	22.57	0.181	22.36	0.172		
		1	74	22.27	0.169	22.51	0.178	22.39	0.173		
		36	0	21.17	0.131	21.42	0.139	21.38	0.137		
		36	18	21.24	0.133	21.32	0.136	21.45	0.140		
		36	37	21.33	0.136	21.62	0.145	21.36	0.137		
		75	0	21.28	0.134	21.67	0.147	21.41	0.138		

LTE Band 41											
Ant. Gain						1.31 dB i					
Limit: 2W E.I.R.P											
BW (MHz)	Modulation	RB Size	RB Offset	Conducted Output Power							
				39750 (2 506.0 MHz)		40620 (2 593.0 MHz)		41490 (2 680.0 MHz)		E.I.R.P.	
				(dB m)	(W)	(dB m)	(W)	(dB m)	(W)	(dB m)	(W)
20	QPSK	1	0	23.11	0.205	23.38	0.218	23.24	0.211	24.92	0.310
		1	50	23.12	0.205	23.61	0.230	23.42	0.220		
		1	99	22.98	0.199	23.53	0.225	23.19	0.208		
		50	0	22.19	0.166	22.56	0.180	22.35	0.172		
		50	25	22.16	0.164	22.53	0.179	22.42	0.175		
		50	13	22.12	0.163	22.60	0.182	22.31	0.170		
		100	0	22.22	0.167	22.55	0.180	22.33	0.171		
	16QAM	1	0	22.12	0.163	22.37	0.173	22.34	0.171	23.90	0.245
		1	50	22.12	0.163	22.56	0.180	22.48	0.177		
		1	99	22.15	0.164	22.58	0.181	22.59	0.182		
		50	0	21.29	0.135	21.49	0.141	21.27	0.134		
		50	25	21.32	0.136	21.36	0.137	21.40	0.138		
		50	50	21.19	0.132	21.54	0.143	21.28	0.134		
		100	0	21.28	0.134	21.66	0.147	21.37	0.137		

4. Occupied Bandwidth

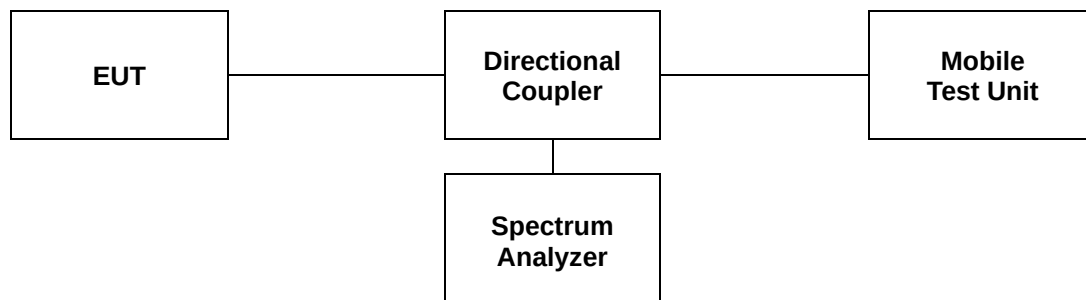
4.1. Limit

CFR 47, Section FCC §2.1049.

4.2. Test Procedure

The test follows section 5.4.4 of ANSI C63.26-2015.

- a. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation. products including the emission skirts (typically a span of $1.5 \times \text{OBW}$ is sufficient).
- b. The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1 % to 5 % of the anticipated OBW, and the VBW shall be set $\geq 3 \times \text{RBW}$.
- c. Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.
- d. Set the detection mode to peak, and the trace mode to max-hold.
- e. If the instrument does not have a 99 % OBW function, recover the trace data points and sum directly in linear power terms. Place the recovered amplitude data points, beginning at the lowest frequency, in a running sum until 0.5 % of the total is reached. Record that frequency as the lower OBW frequency. Repeat the process until 99.5 % of the total is reached and record that frequency as the upper OBW frequency. The 99 % power OBW can be determined by computing the difference these two frequencies.
- f. The OBW shall be reported and plot(s) of the measuring instrument display shall be provided with the test report. The frequency and amplitude axis and scale shall be clearly labeled. Tabular data can be reported in addition to the plot(s).



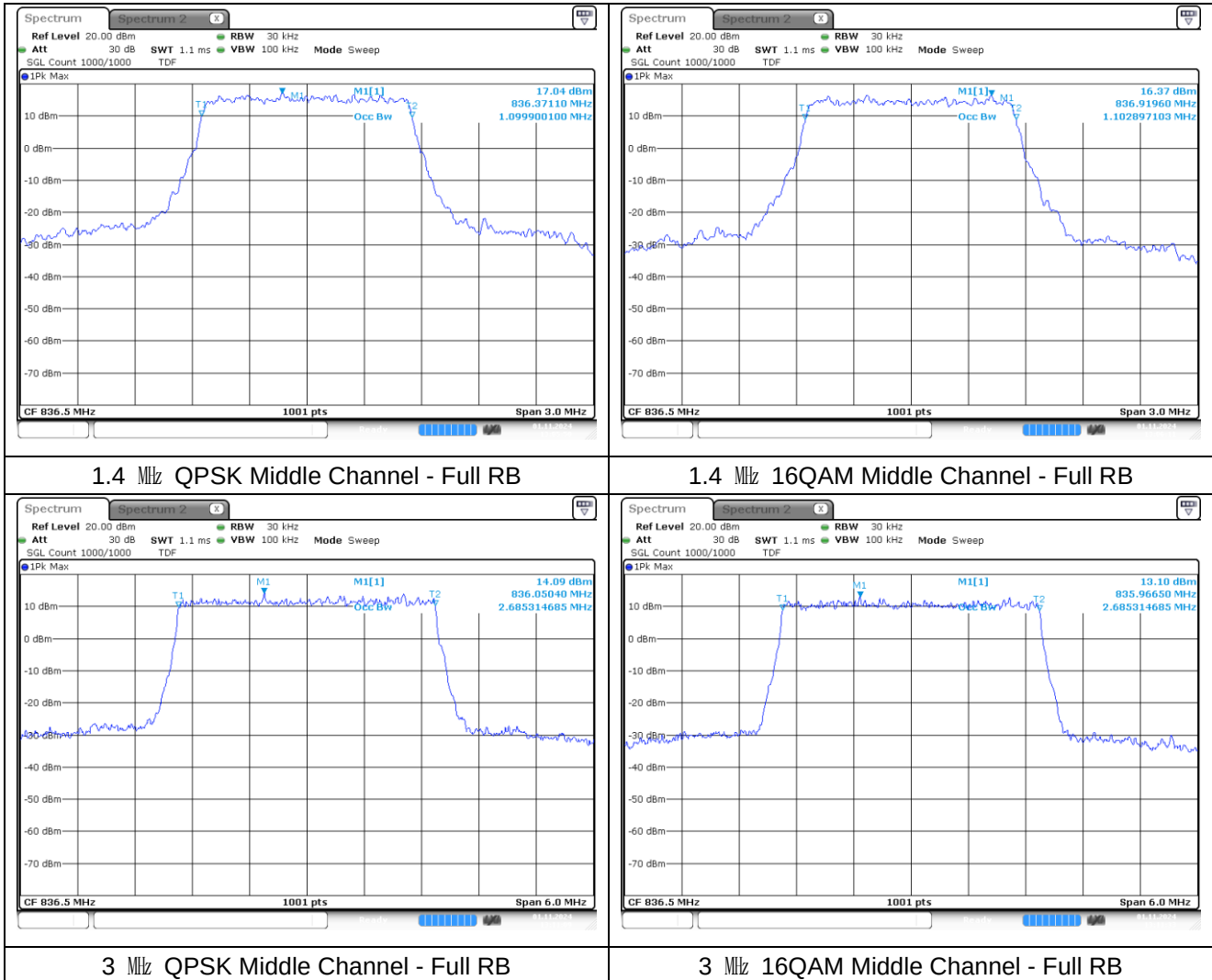
4.3 Test Results

Ambient temperature : (23 ± 1) °C
 Relative humidity : 47 % R.H.

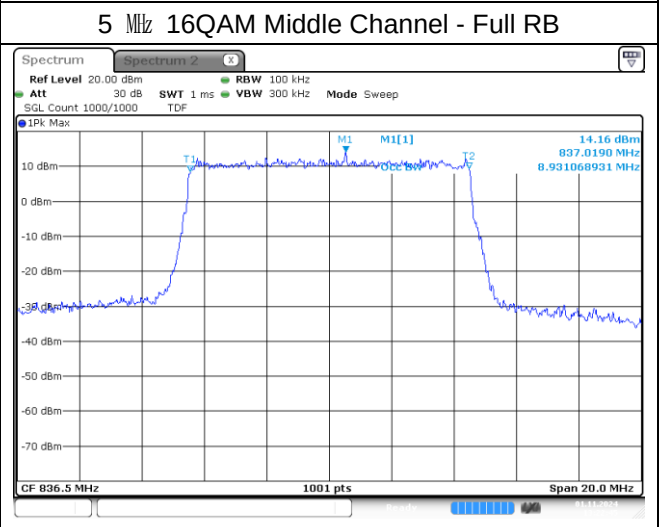
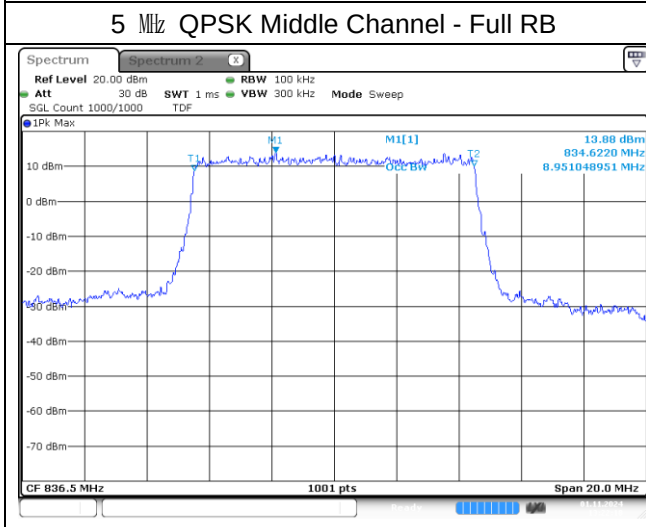
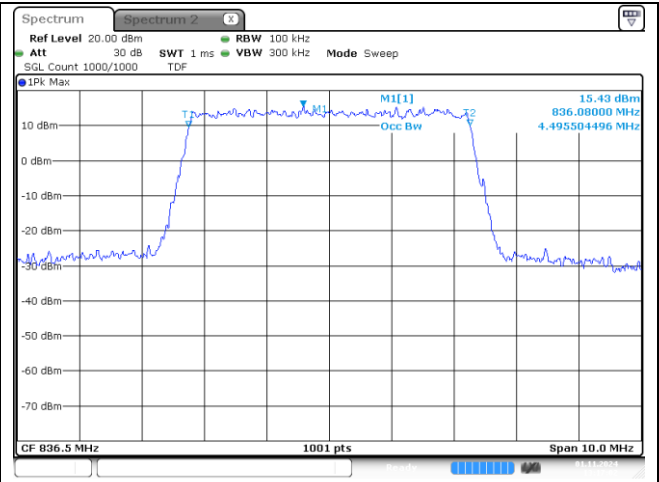
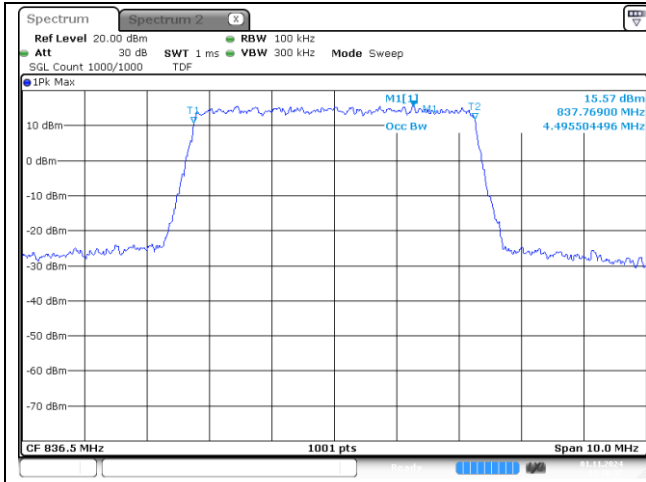
Band	Bandwidth (MHz)	Frequency (MHz)	Occupied Bandwidth (MHz)	
			QPSK	16QAM
5	1.4	824.7	1.100	1.094
		836.5	1.100	1.103
		848.3	1.094	1.100
	3	825.5	2.685	2.685
		836.5	2.685	2.685
		847.5	2.685	2.685
	5	826.5	4.496	4.486
		836.5	4.496	4.496
		846.5	4.505	4.496
	10	829.0	8.911	8.951
		836.5	8.951	8.931
		844.0	8.931	8.931
7	5	2 502.5	4.496	4.505
		2 535.0	4.515	4.515
		2 567.5	4.505	4.505
	10	2 505.0	8.931	8.931
		2 535.0	8.911	8.951
		2 565.0	8.931	8.931
	15	2 507.5	13.457	13.457
		2 535.0	13.487	13.457
		2 562.5	13.457	13.487
	20	2 510.0	17.862	17.862
		2 535.0	17.862	17.862
		2 560.0	17.902	17.862
41	5	2 498.5	4.505	4.496
		2 593.0	4.496	4.515
		2 687.5	4.505	4.515
	10	2 501.0	8.931	8.931
		2 593.0	8.911	8.931
		2 685.0	8.911	8.951
	15	2 503.5	13.487	13.457
		2 593.0	13.457	13.427
		2 682.5	13.487	13.457
	20	2 506.0	17.822	17.862
		2 593.0	17.822	17.782
		2 680.0	17.862	17.902

- Test plots

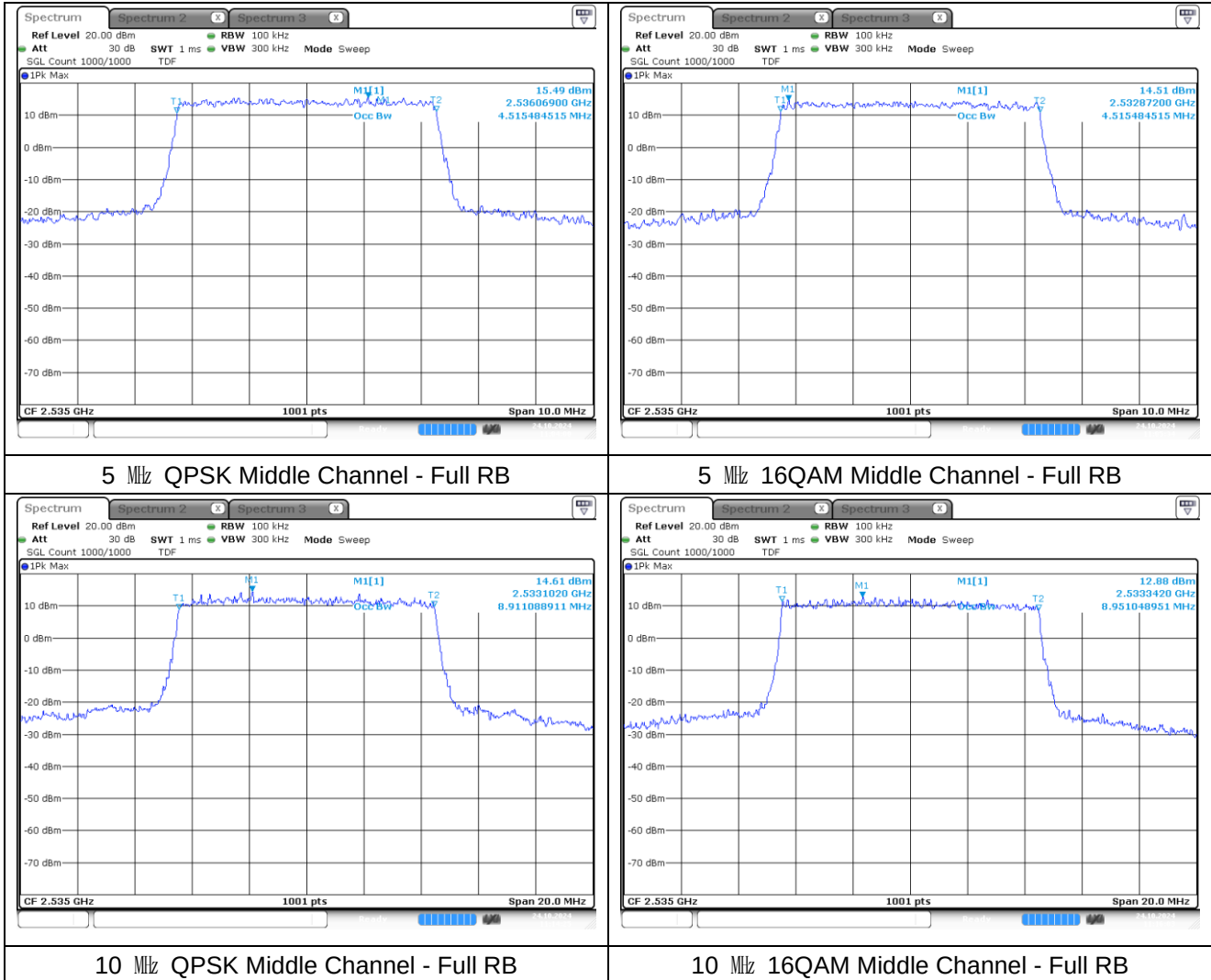
LTE band 5



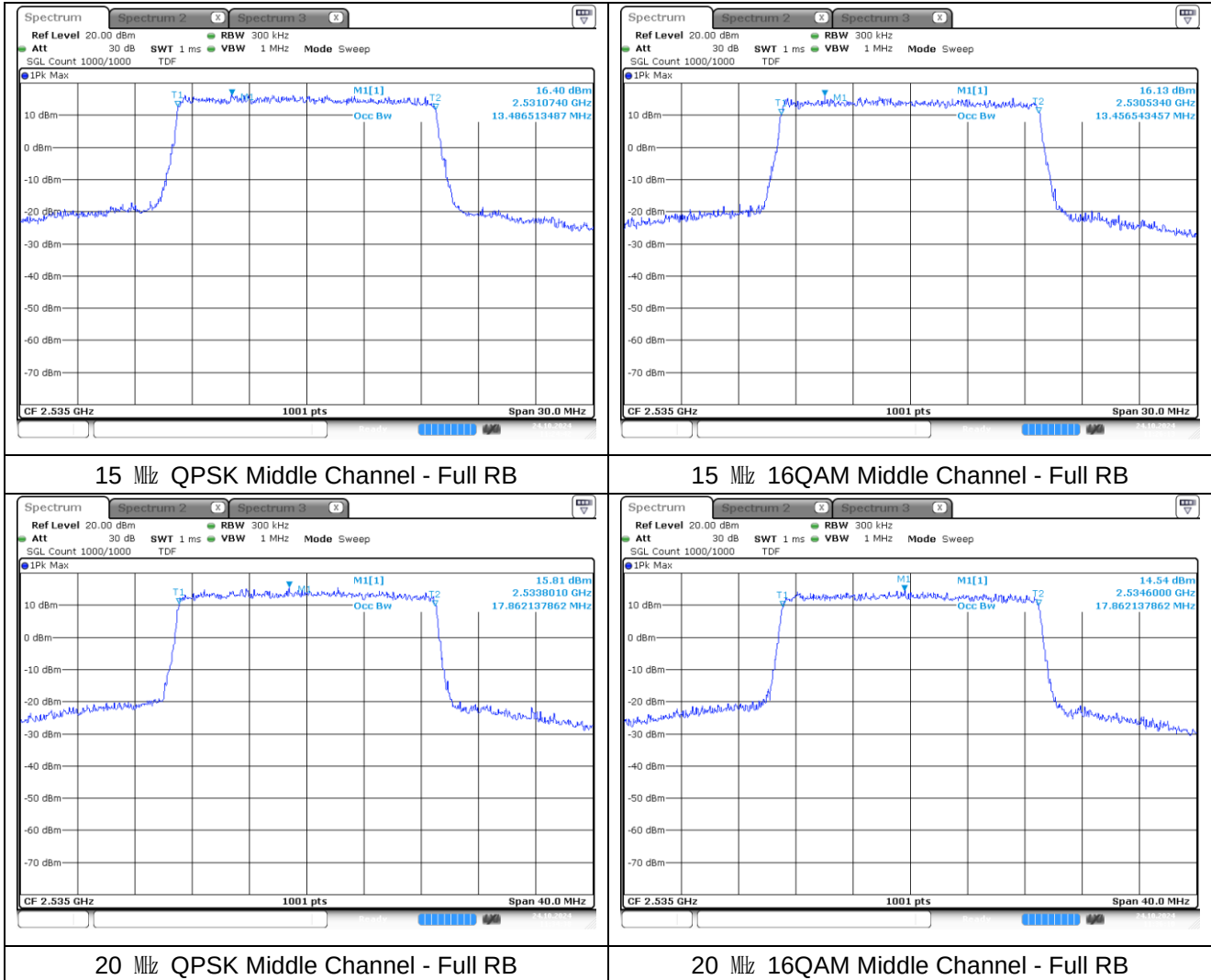
LTE band 5



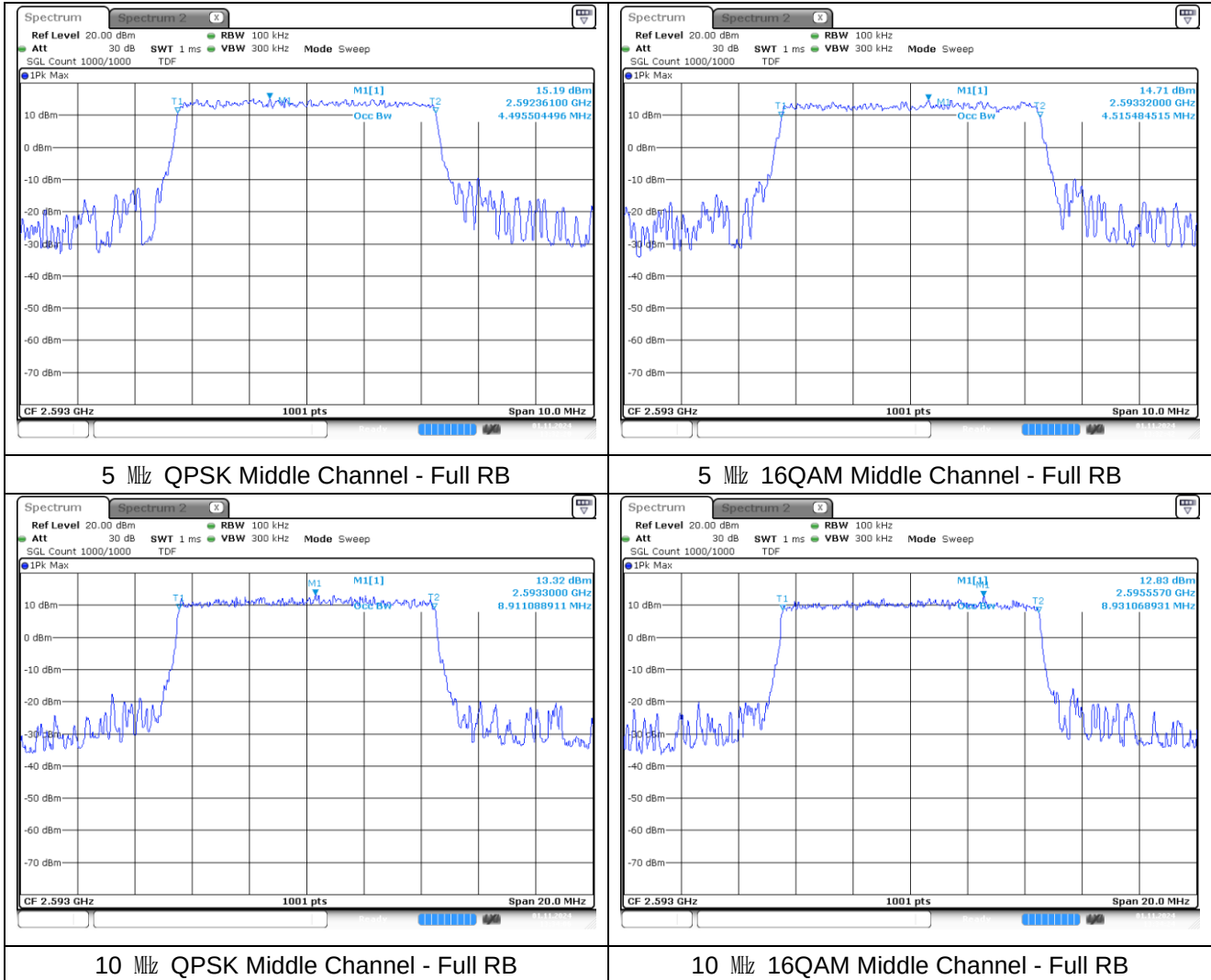
LTE band 7



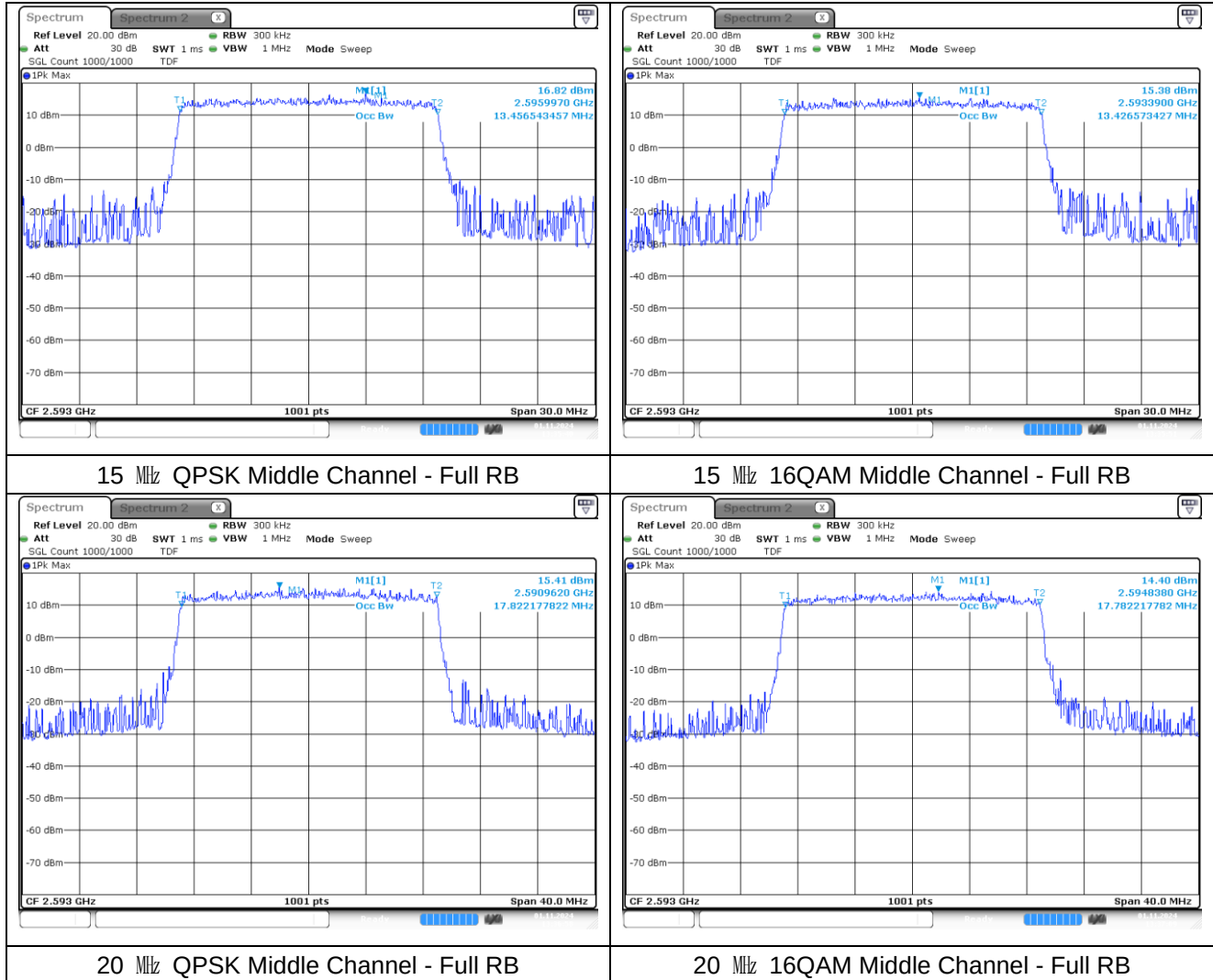
LTE band 7



LTE band 41



LTE band 41



5. Peak-Average Ratio

5.1. Limit

- §22.913(d) measurement of the ERP of Cellular base transmitters and repeaters must be made using an average power measurement technique. The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB.

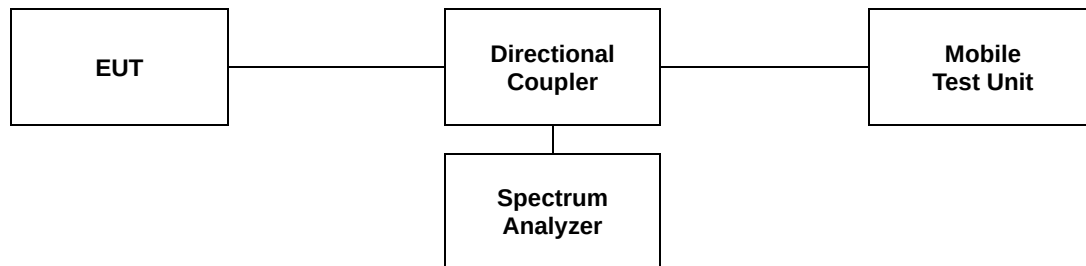
- §27.50(d)(5), power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (d)(6) of this section. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

5.2. Test Procedure

The test follows section 5.2.3.4 of ANSI C63.26-2015.

See instrumentation-specific application literature for further guidance regarding use of the CCDF capability. The following guidelines are offered for performing a CCDF measurement.

- a. Set resolution/measurement bandwidth $\geq$ OBW or specified reference bandwidth.
- b. Set the number of counts to a value that stabilizes the measured CCDF curve.
- c. Set the measurement interval as follows:
 - 1) For continuous transmissions, set to greater of $[10 \times (\text{number of points in sweep}) \times (\text{transmission symbol period})]$ or 1 ms.
 - 2) For burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize. Set the measurement interval to a time that is less than or equal to the burst duration.
 - 3) If there are several carriers in a single antenna port, the peak power shall be determined for each individual carrier (by disabling the other carriers while measuring the required carrier) and the total peak power calculated from the sum of the individual carrier peak powers.
- d. Record the maximum PAPR level associated with a probability of 0.1 %.
- e. The peak power level is calculated from the sum of the PAPR value from step d) to the measured average power.



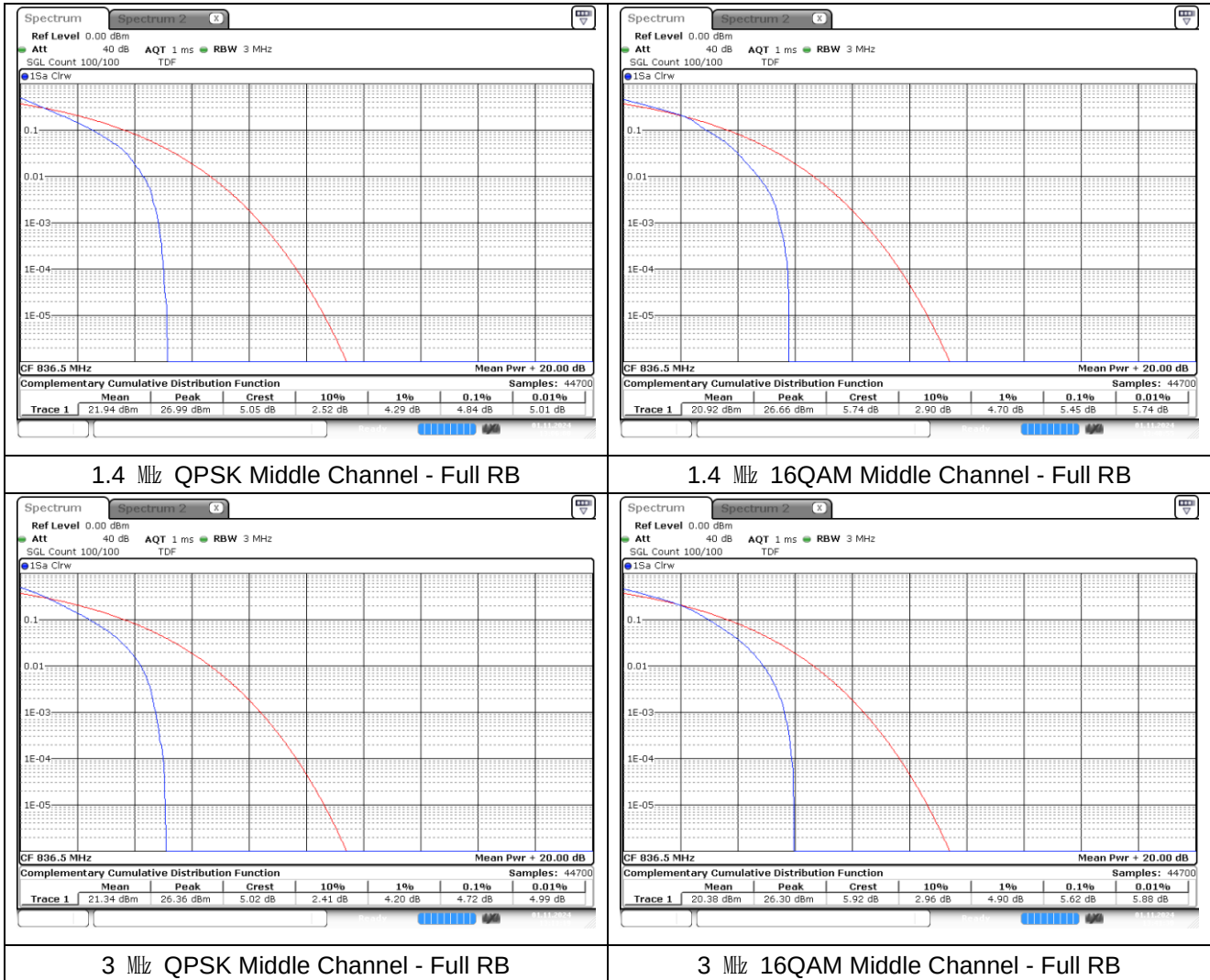
5.3 Test Results

Ambient temperature : (23 ± 1) °C
Relative humidity : 47 % R.H.

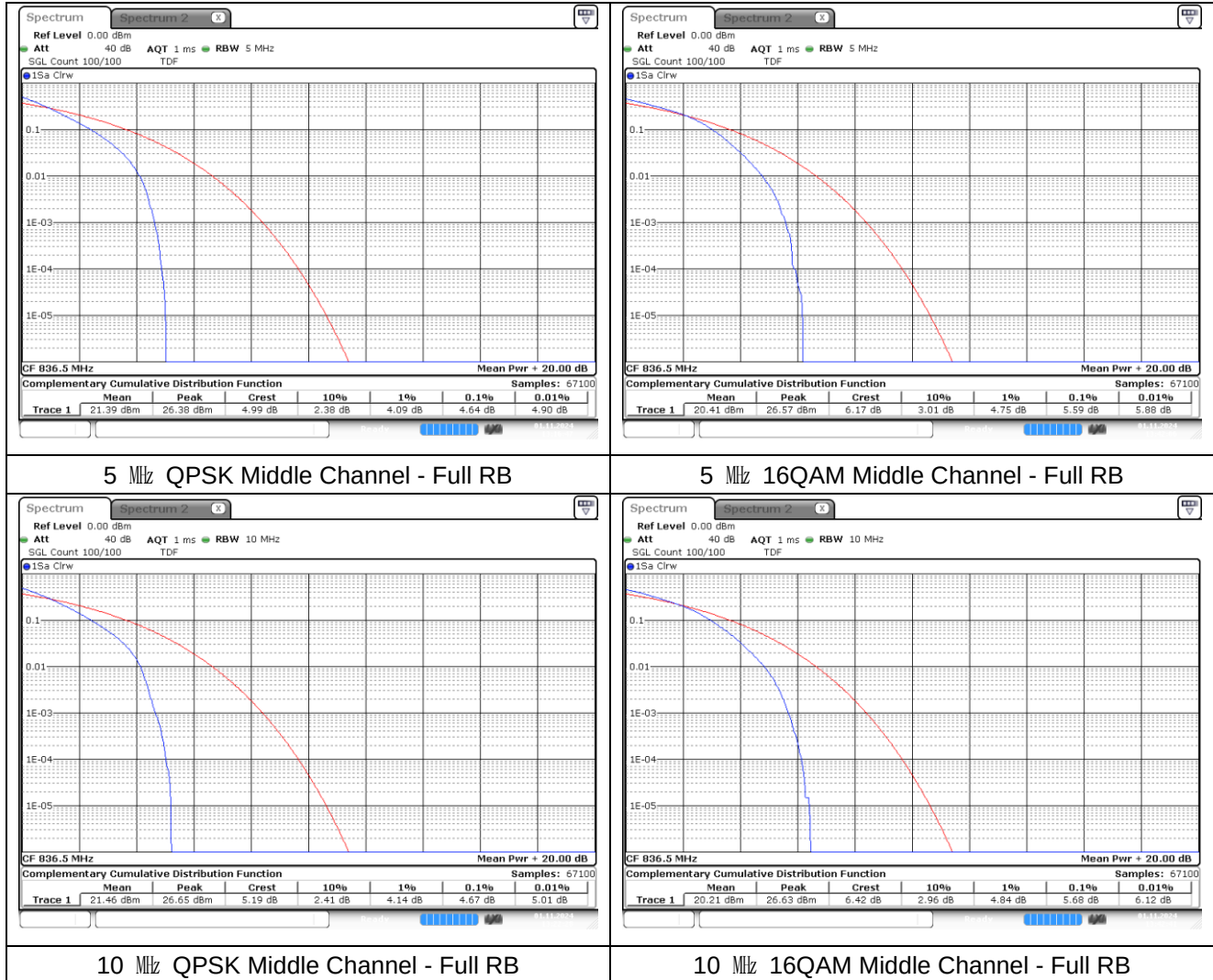
Band	Bandwidth (MHz)	Frequency (MHz)	PAR (dB)	
			QPSK	16QAM
5	1.4	824.7	4.84	5.71
		836.5	4.84	5.45
		848.3	5.01	5.77
	3	825.5	4.75	5.71
		836.5	4.72	5.62
		847.5	4.84	5.83
	5	826.5	4.64	5.62
		836.5	4.64	5.59
		846.5	4.78	5.83
	10	829.0	4.61	5.57
		836.5	4.67	5.68
		844.0	4.81	5.77
7	5	2 502.5	4.75	5.54
		2 535.0	4.61	5.54
		2 567.5	4.49	5.19
	10	2 505.0	4.78	5.45
		2 535.0	4.70	5.59
		2 565.0	4.52	5.22
	15	2 507.5	4.84	5.51
		2 535.0	4.67	5.48
		2 562.5	4.67	5.28
	20	2 510.0	4.84	5.51
		2 535.0	4.41	5.45
		2 560.0	4.75	5.39
41	5	2 498.5	4.61	5.62
		2 593.0	4.84	5.88
		2 687.5	4.96	6.14
	10	2 501.0	4.58	5.57
		2 593.0	5.01	5.91
		2 685.0	5.25	6.35
	15	2 503.5	4.81	5.68
		2 593.0	5.07	6.06
		2 682.5	5.36	6.41
	20	2 506.0	4.78	5.65
		2 593.0	4.90	5.86
		2 680.0	5.16	6.23

- Test plots

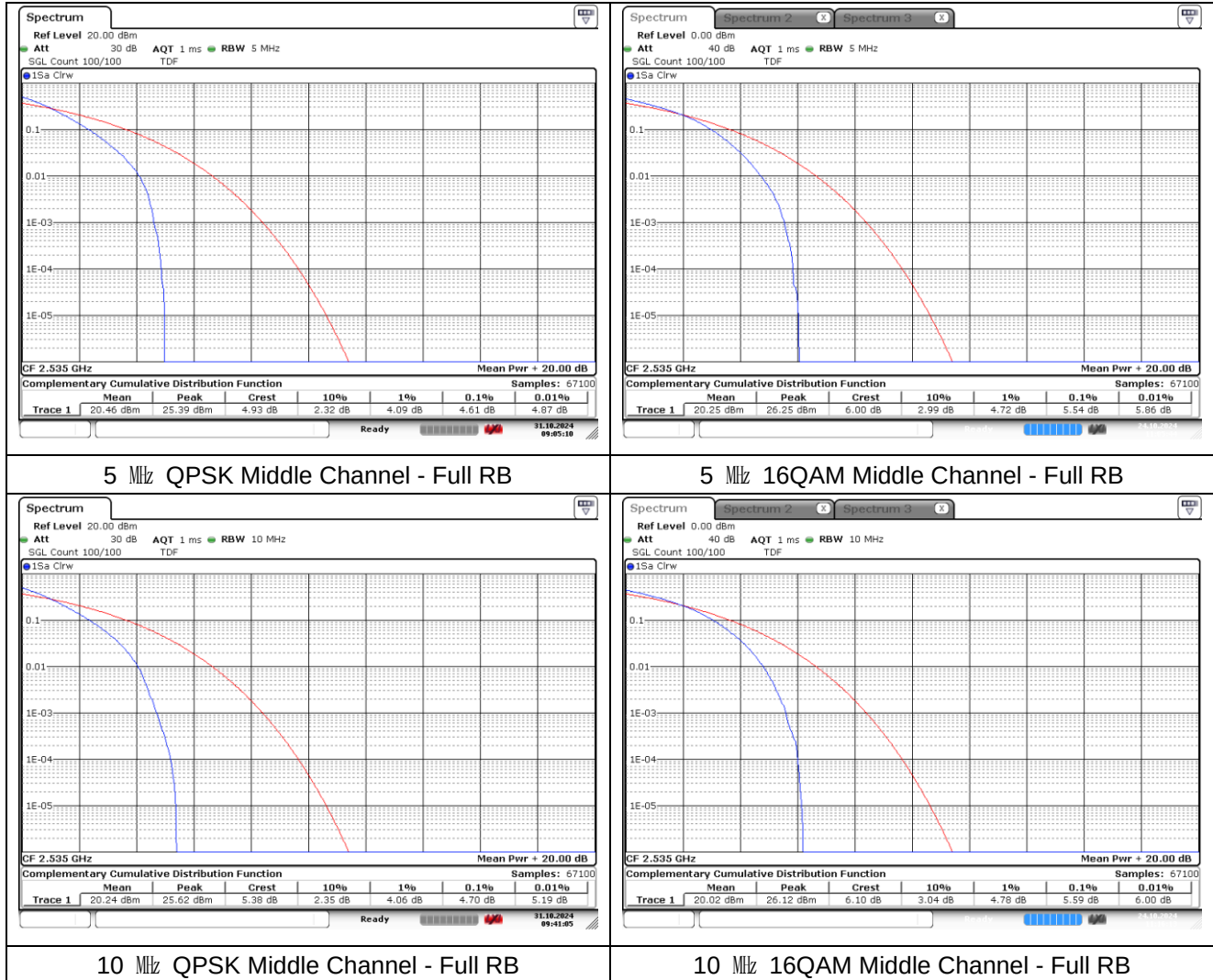
LTE band 5



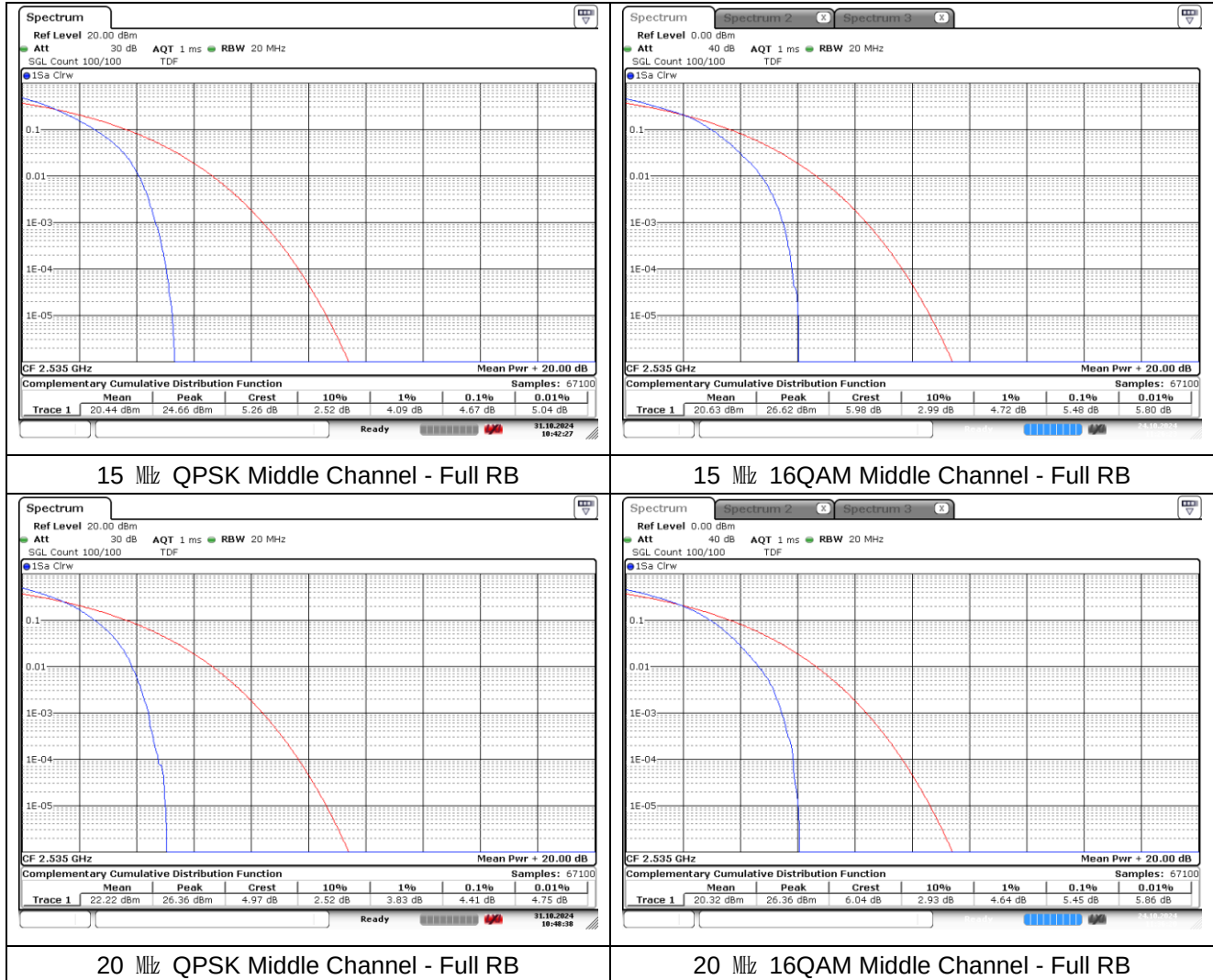
LTE band 5



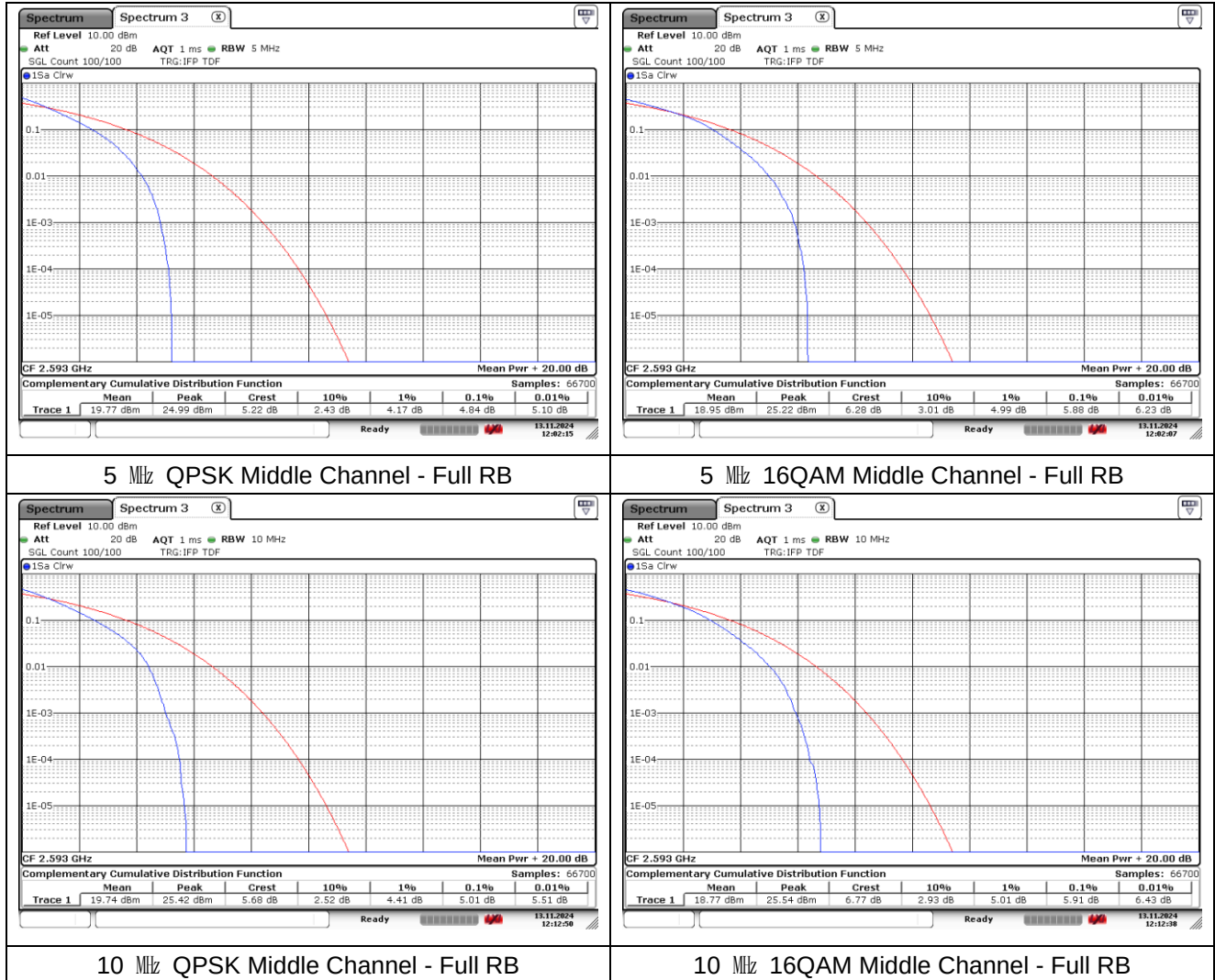
LTE band 7



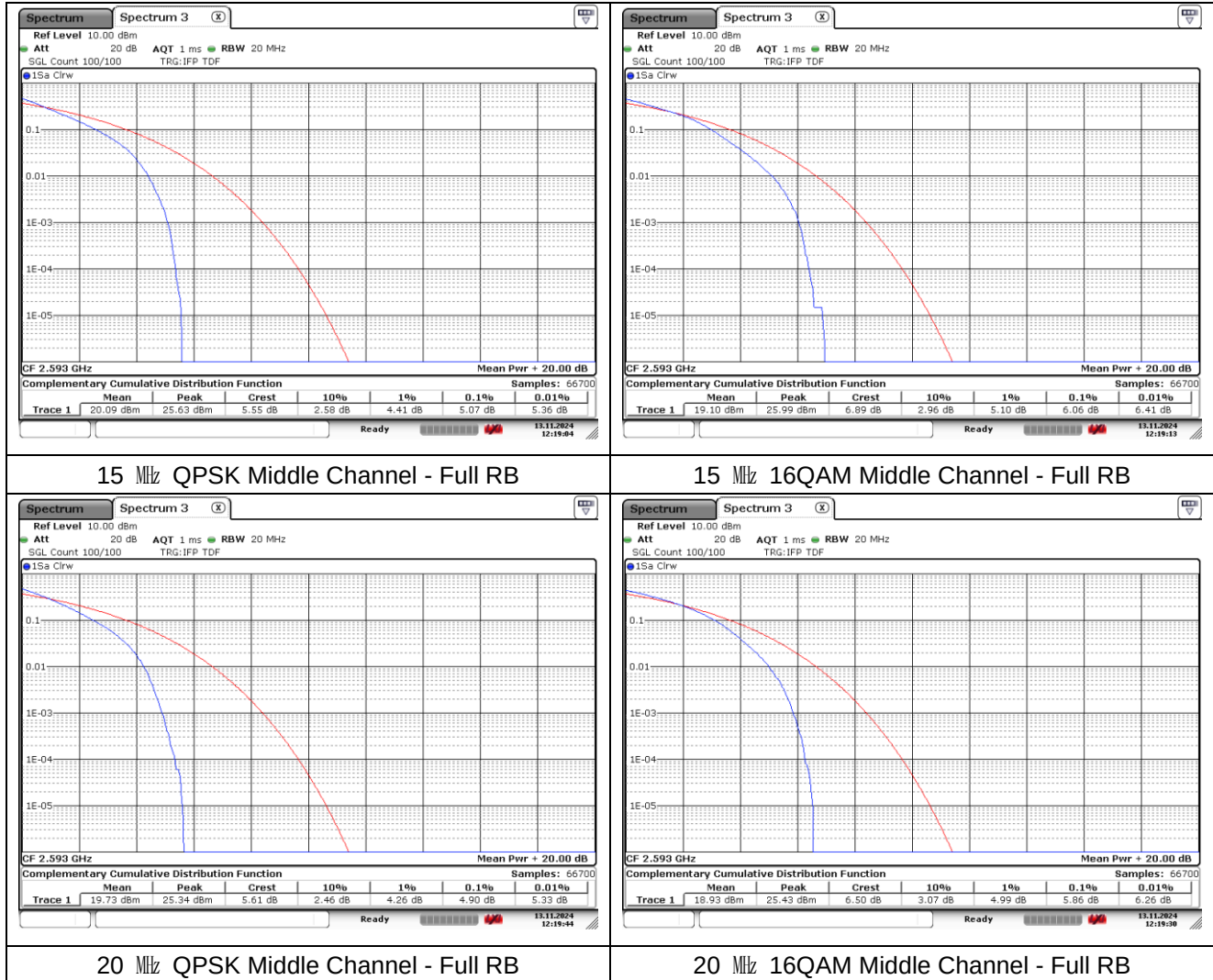
LTE band 7



LTE band 41



LTE band 41



6. Spurious Emissions at Antenna Terminal

6.1. Limit

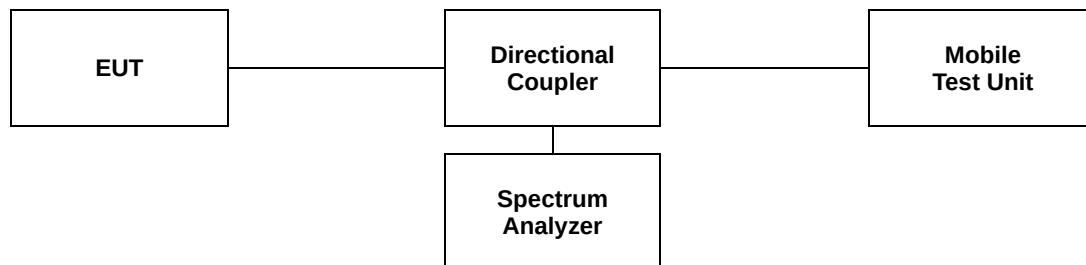
- §22.917(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.

- §27.53(m)(4), for mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log_{10} (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log_{10} (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log_{10} (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log_{10} (P)$ dB on all frequencies between 2 490.5 MHz and 2 496 MHz and $55 + 10 \log_{10} (P)$ dB at or below 2 490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2 495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

6.2. Test Procedure

The test follows section 5.7 of ANSI C63.26-2015.

1. Start frequency was set to 9 kHz and stop frequency was set to at least 10* the fundamental frequency.
2. Detector = RMS.
3. Trace mode = Max hold.
4. Sweep time = Auto couple.
5. The trace was allowed to stabilize.
6. Please see notes below for RBW and VBW settings.
7. For plots showing conducted spurious emissions from 9 kHz to 27 GHz, all path loss of wide frequency range was investigated and compensated to spectrum analyzer as TDF function.



Note;

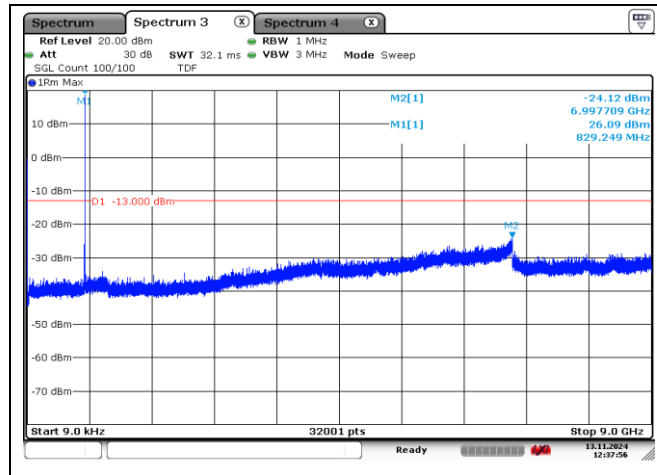
Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and frequencies greater than 1 GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two point, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

6.3. Test Results

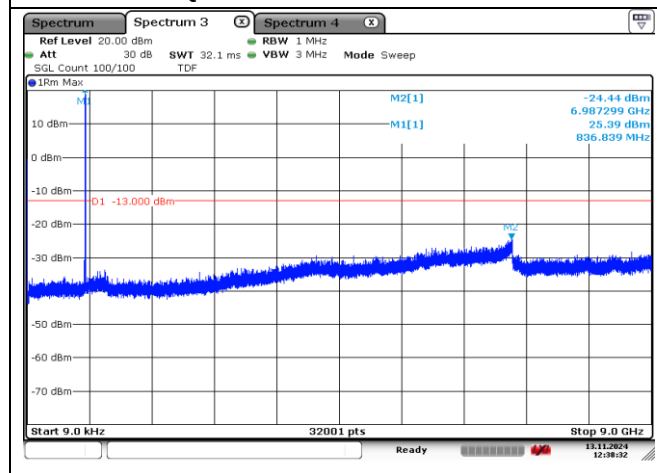
Ambient temperature : (23 ± 1) °C
 Relative humidity : 47 % R.H.

- Test plots

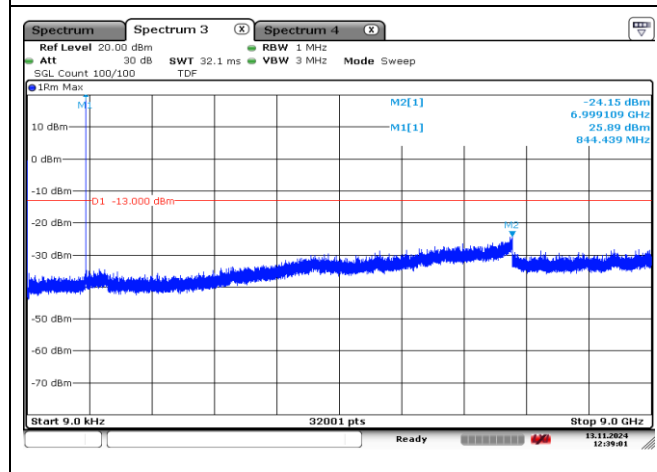
LTE band 5 (10 MHz)



QPSK Low Channel - 1 RB

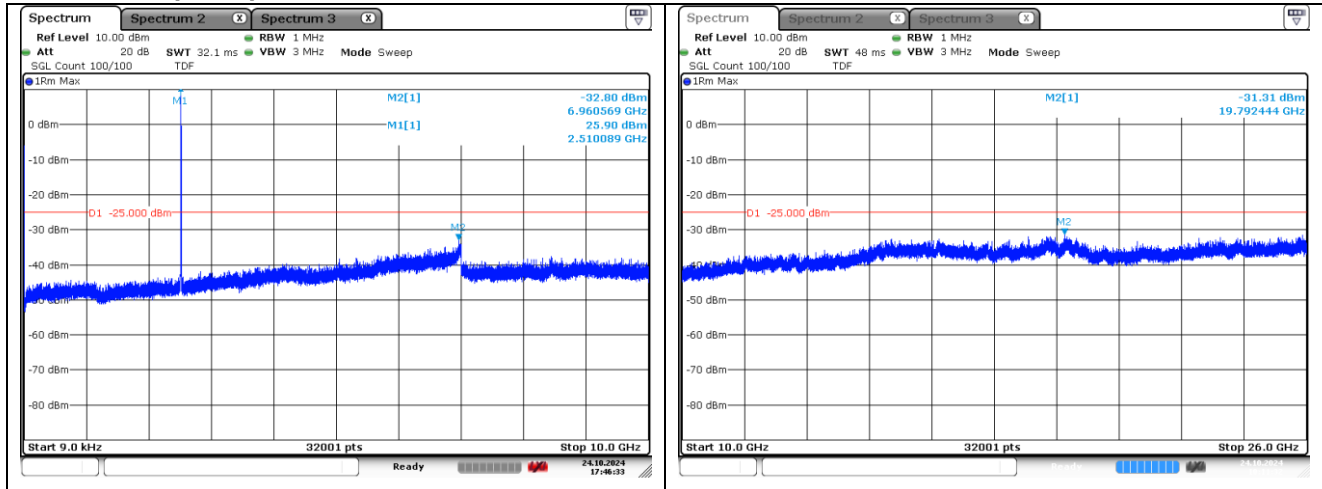


QPSK Middle Channel - 1 RB

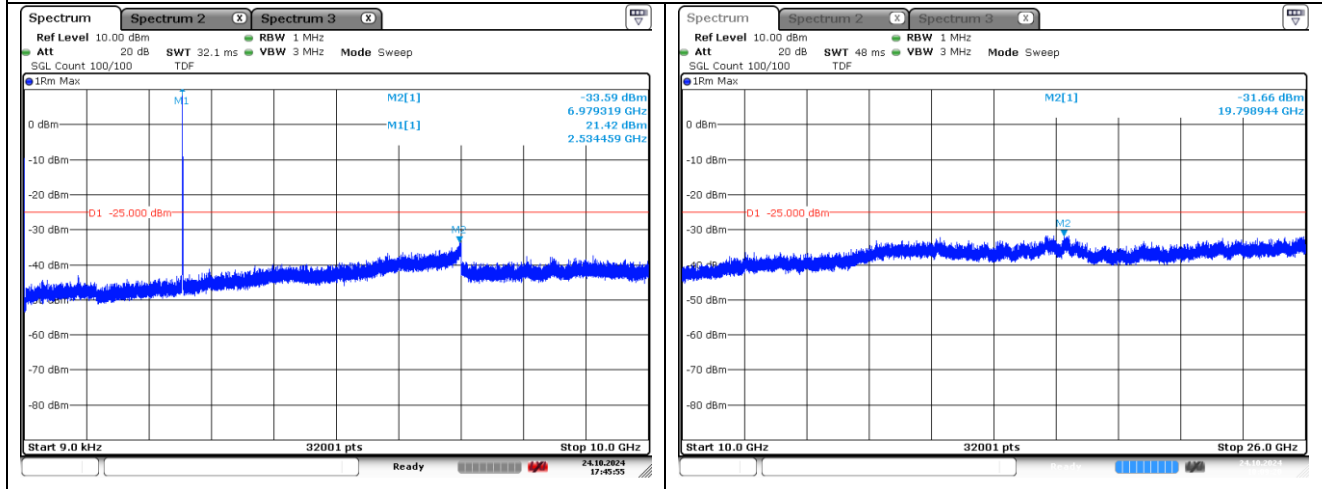


QPSK High Channel - 1 RB

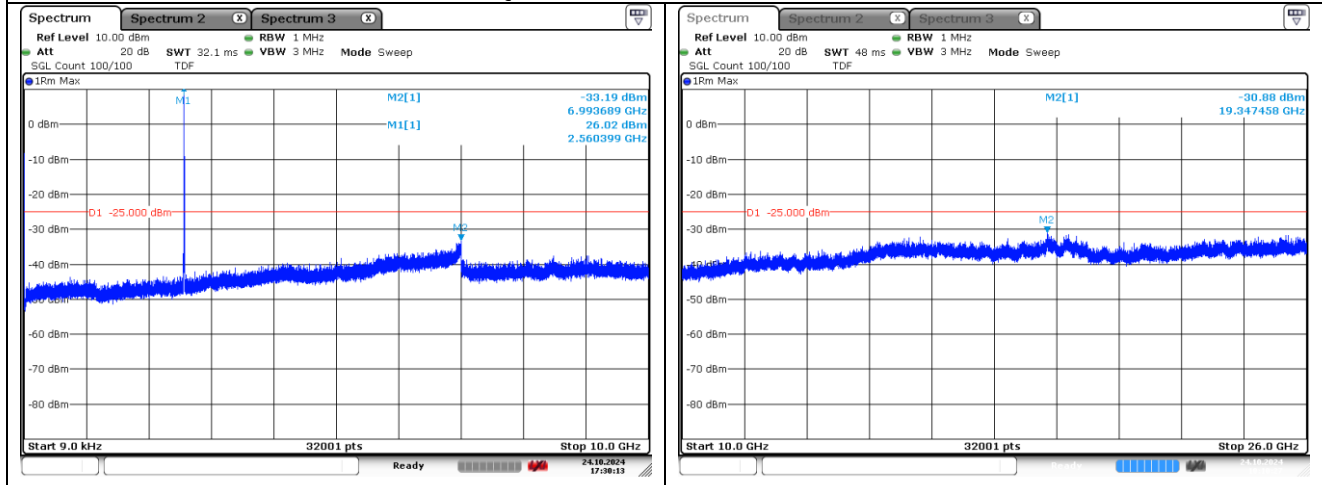
LTE band 7 (20 MHz)



QPSK Low Channel - 1 RB

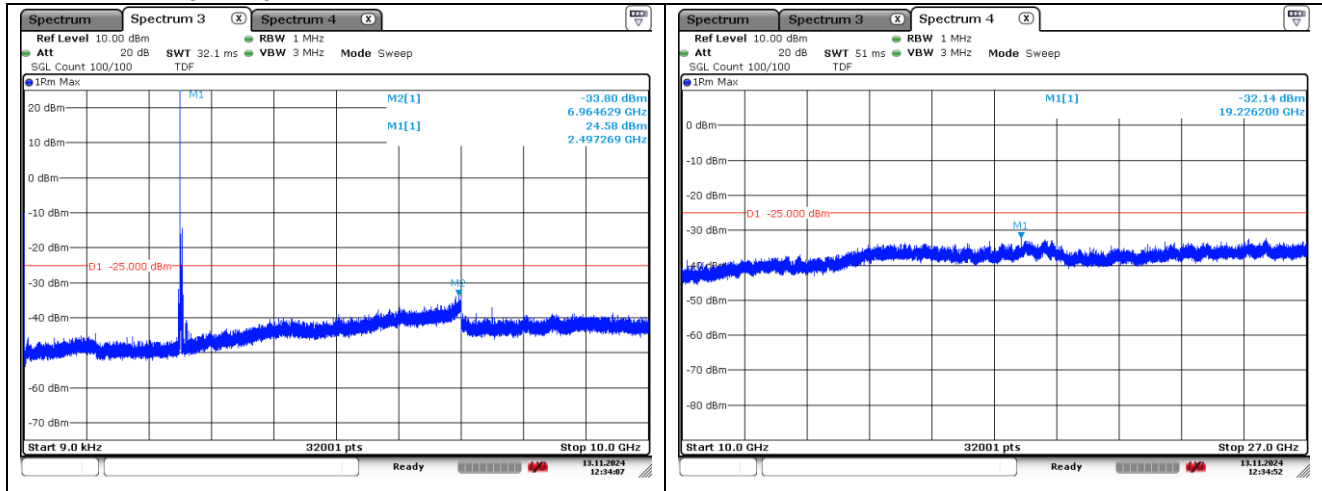


QPSK Middle Channel- 1 RB

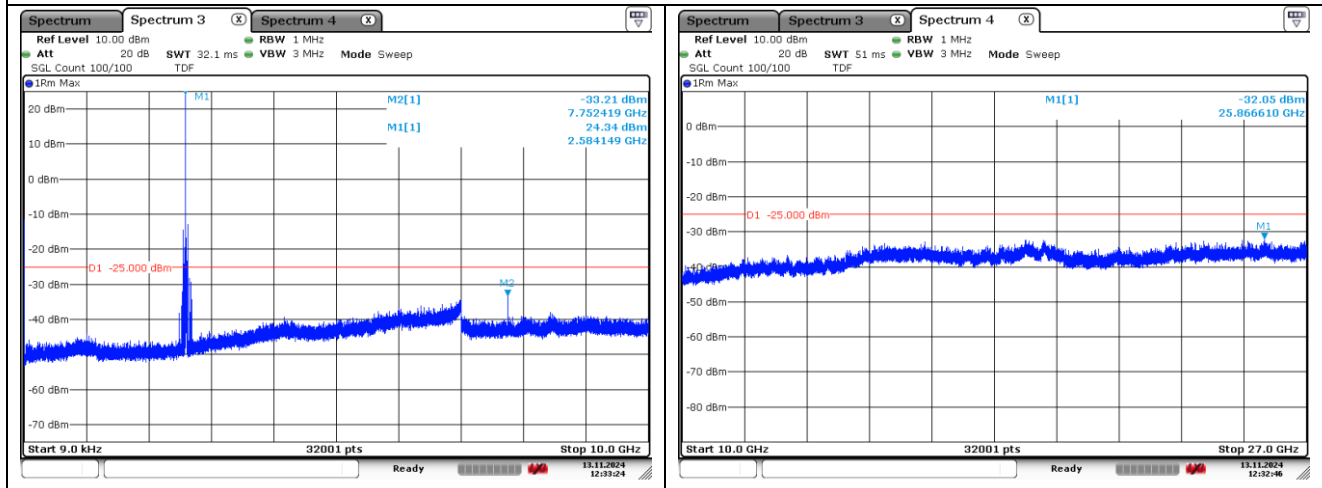


QPSK High Channel - 1 RB

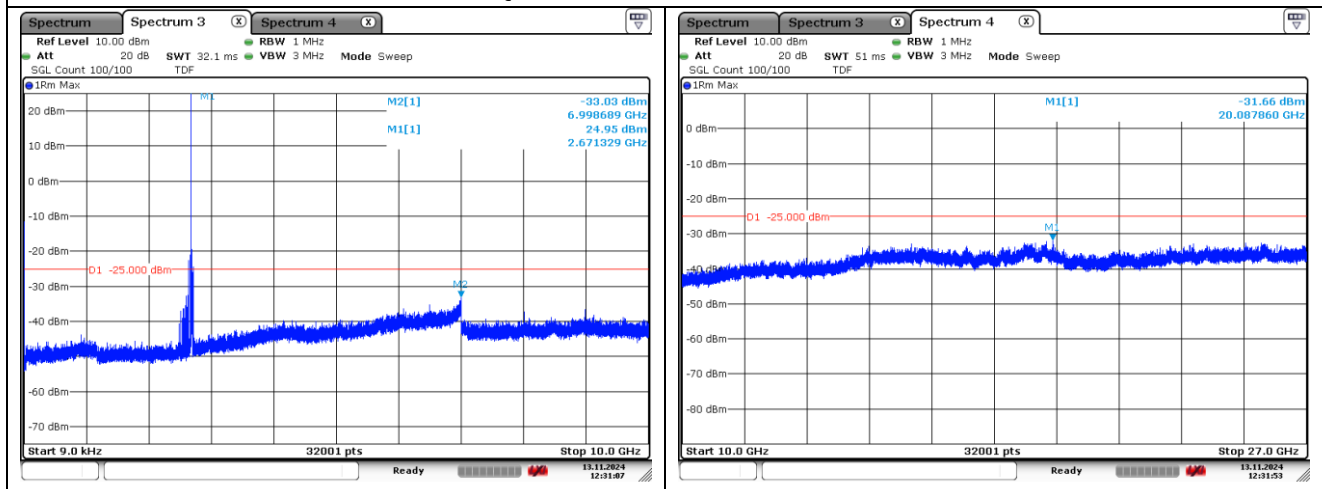
LTE band 41 (20 MHz)



QPSK Low Channel - 1 RB



QPSK Middle Channel- 1 RB



QPSK High Channel - 1 RB

7. Band Edge and Emission Mask

7.1. Limit

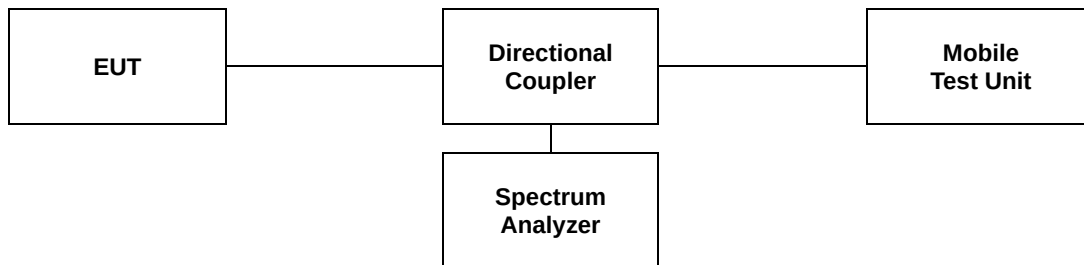
- §22.917(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.

- §27.53(m)(4), for mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log_{10}(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log_{10}(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log_{10}(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log_{10}(P)$ dB on all frequencies between 2 490.5 MHz and 2 496 MHz and $55 + 10 \log_{10}(P)$ dB at or below 2 490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2 495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

7.2. Test Procedure

The test follows section 5.7 of ANSI C63.26-2015.

- a. Span was set large enough so as to capture all out of band emissions near the band edge.
- b. $RBW \geq 1\%$ of OBW
- c. $VBW \geq 3 \times RBW$.
- d. Detector = RMS.
- e. Trace mode = Average.
- f. Sweep time = Auto.
- g. The trace was allowed to stabilize.
- h. All path loss of frequency range was investigated and compensated to spectrum analyzer as TDF function.

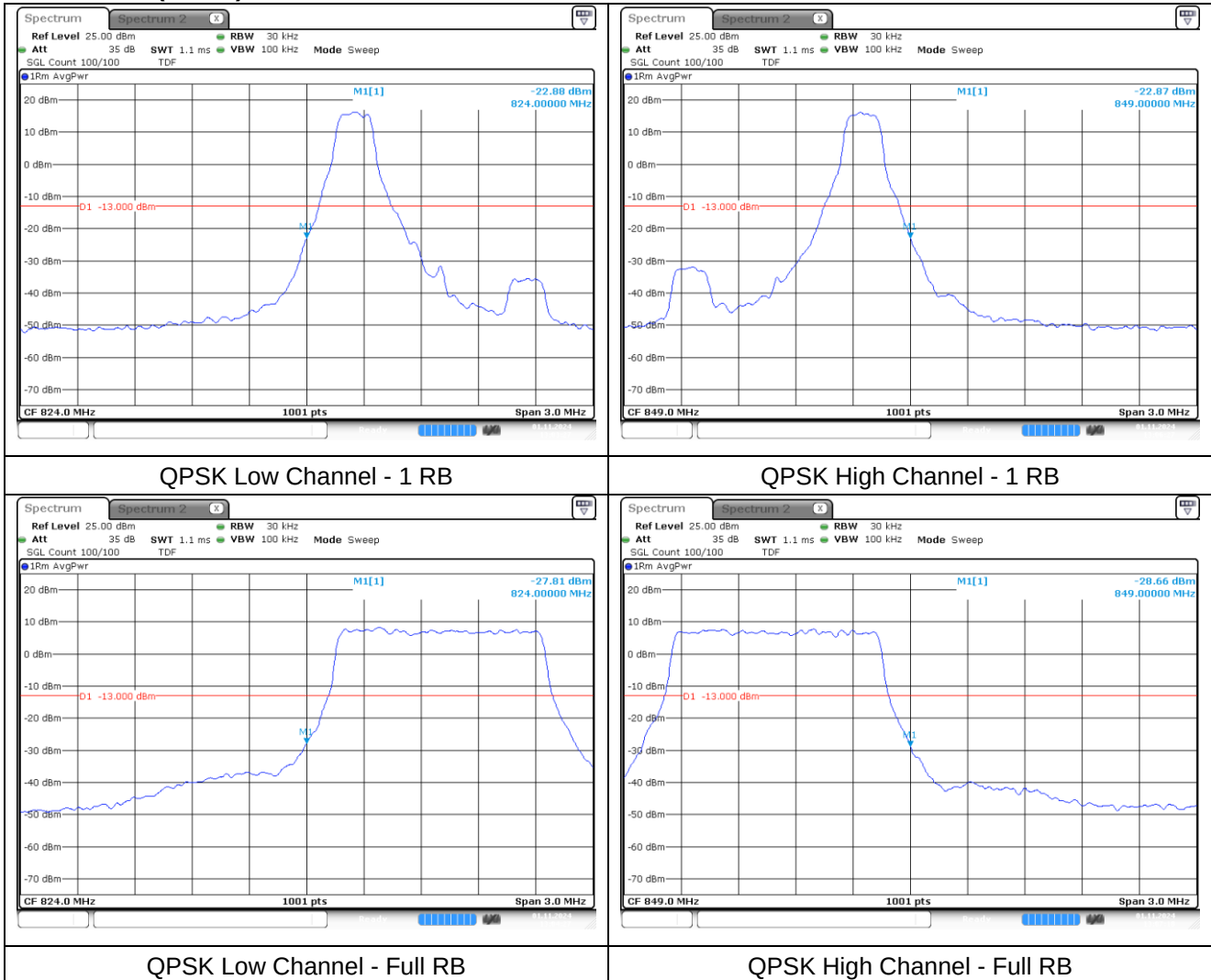


7.3. Test Results

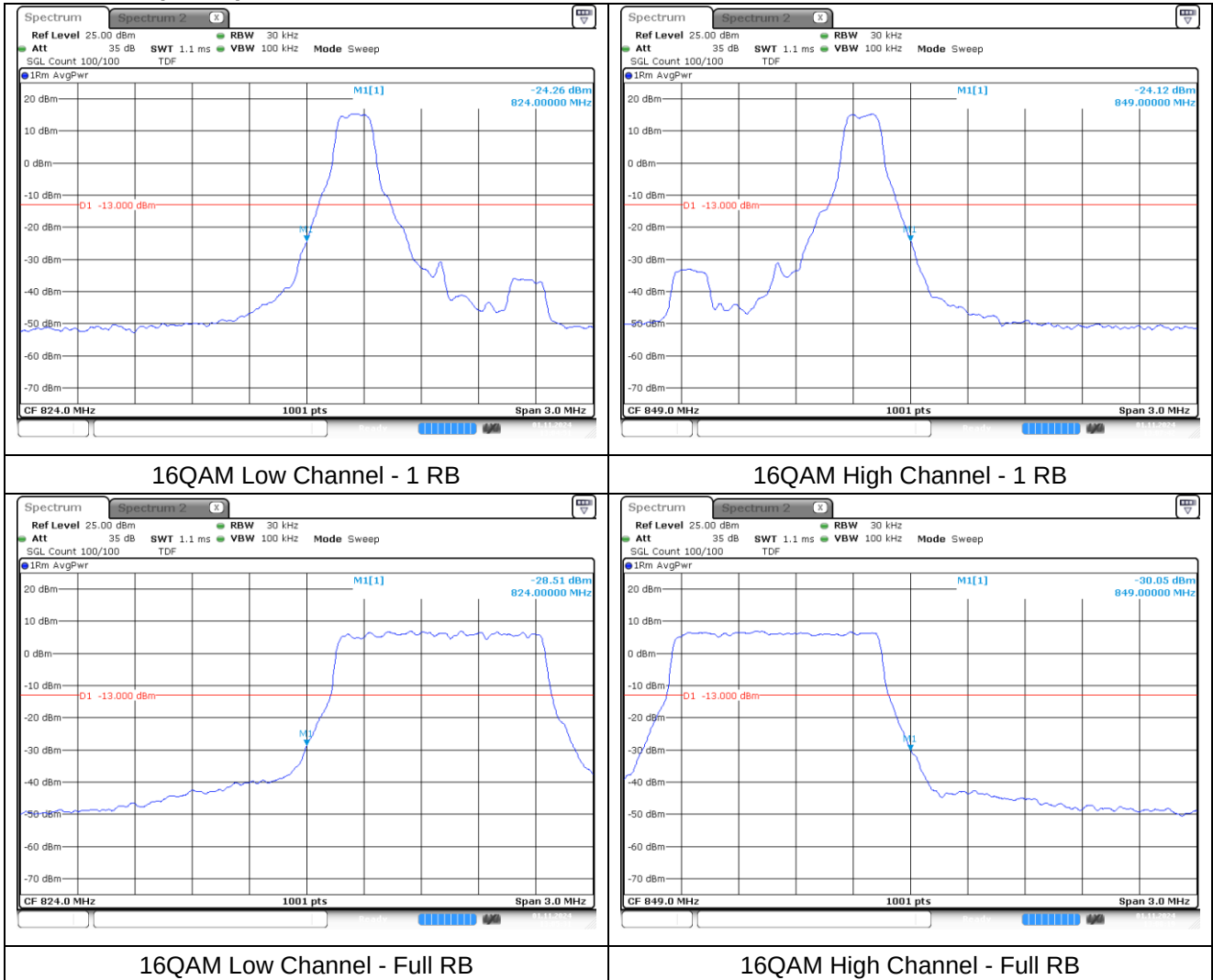
Ambient temperature : (23 ± 1) °C
 Relative humidity : 47 % R.H.

- Test plots

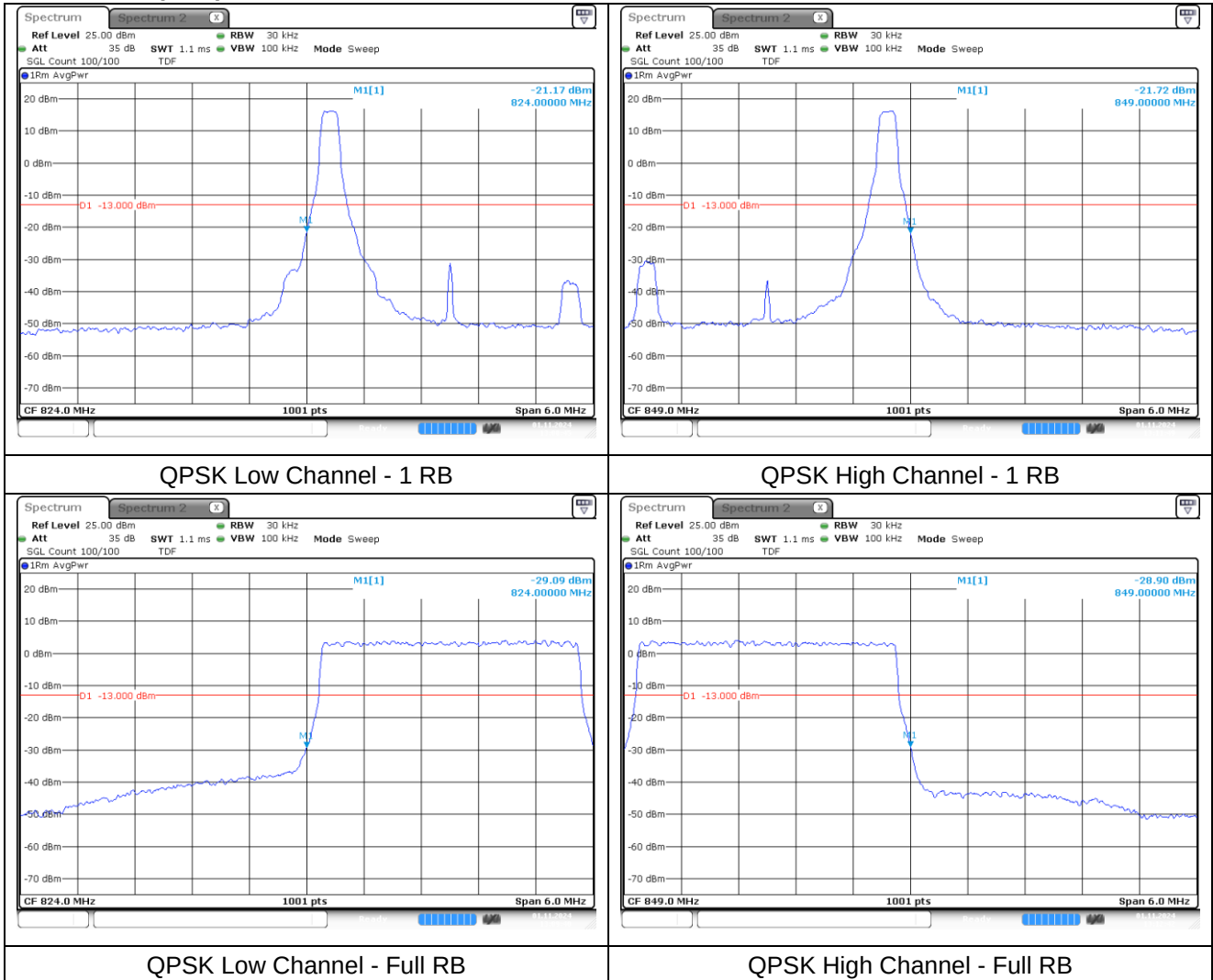
LTE band 5 (1.4 MHz)



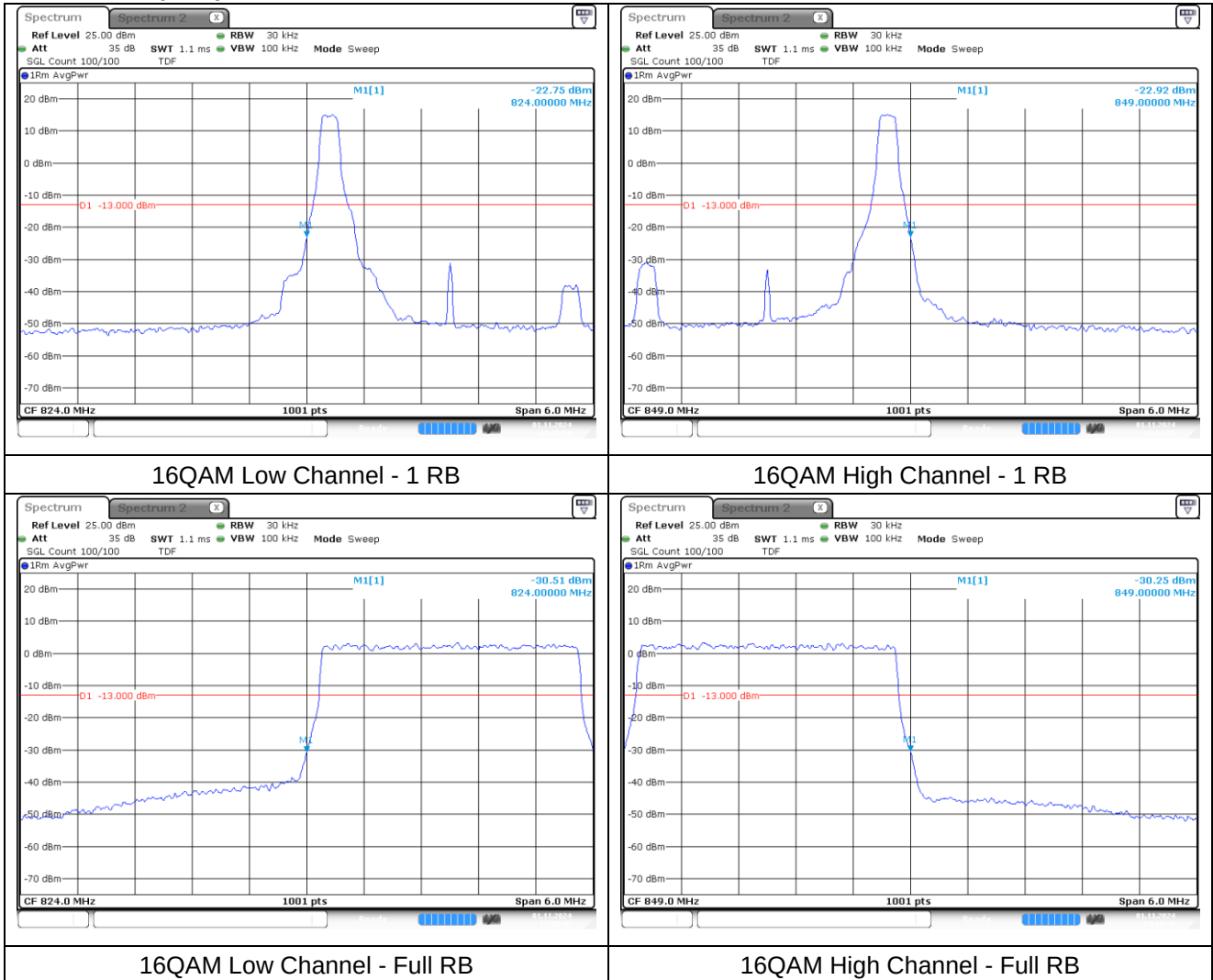
LTE band 5 (1.4 MHz)



LTE band 5 (3 MHz)



LTE band 5 (3 MHz)



LTE band 5 (5 MHz)

