
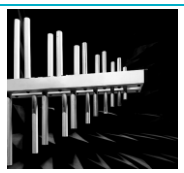
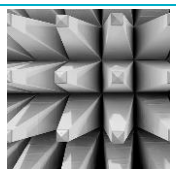

cetecom advanced

TEST REPORT

Test report no.: 1-6411-23-01-32_TR1-R02

ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-12047-01-00

Testing laboratory

cetecom advanced GmbH
Untertuerkheimer Strasse 6 – 10
66117 Saarbruecken / Germany
Phone: + 49 681 5 98 - 0
Fax: + 49 681 5 98 - 9075
Internet: https://cetecomadvanced.com
e-mail: mail@cetecomadvanced.com

Accredited Testing Laboratory:
The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2018-03) by the Deutsche Akkreditierungsstelle GmbH (DAkkS).
The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number:
D-PL-12047-01-00.
ISED Testing Laboratory Recognized Listing Number: DE0001
FCC designation number: DE0002

Applicant

Continental Automotive Technologies GmbH
Heinrich-Hertz-Str. 45
78052 Villingen-Schwenningen / GERMANY
Phone: +49 7721 67 0
Contact: Marion Grüner
e-mail: Marion.Gruener@continental-corporation.com

Manufacturer

Continental Automotive Technologies GmbH
Heinrich-Hertz-Str. 45
78052 Villingen-Schwenningen / GERMANY

Test standard/s

FCC - Title 47 CFR Part 22	FCC - Title 47 of the Code of Federal Regulations; Chapter I; Part 22 - Public mobile services
FCC - Title 47 CFR Part 24	FCC - Title 47 of the Code of Federal Regulations; Chapter I; Part 24 - Personal communications services
FCC - Title 47 CFR Part 27	FCC - Title 47 of the Code of Federal Regulations; Chapter I; Part 27 - Miscellaneous wireless communications services

For further applied test standards please refer to section 3 of this test report.

Test Item

Kind of test item:	**Connected Infotainment Box / ConneCtivity Unit 3**
Model name:	**CIBCCU3**
FCC ID:	**2AJW5CIBCCU3**
ISED certification number:	**21979-CIBCCU3**
Frequency:	LTE bands 2, 4, 5, 7, 12, 13, 17, 25, 26, 41, 66
Technology tested:	LTE
Antenna:	Integrated antenna
Power supply:	12.0 V DC by external power supply
Temperature range:	-30°C to +70°C

This test report is electronically signed and valid without handwritten signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

Test report authorized:

cn=Marco Bertolino, o=cetecom advanced GmbH, ou=BTL-230530, email=marco.bertolino@cetecomadvanced.com, c=DE
2025.07.09 10:22:29 +02'00'

Marco Bertolino
Supervisor Radio Services
Radio Labs

Test performed:

cn=Steffen Sonntag, o=cetecom advanced GmbH, ou=SON-240327, email=steffen.sonntag@cetecomadvanced.com, c=DE
2025.07.09 07:33:14 +02'00'

Steffen Sonntag
Testing Manager
Radio Labs

1 Table of contents

2 General information

2.1 Notes and disclaimer

The test results of this test report relate exclusively to the test item specified in this test report. cetecom advanced GmbH does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item.
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This test report replaces the test report with the number 1-6411-23-01-32_TR1-R01 and dated 2025-05-26.

2.2 Application details

Date of receipt of order:	2024-05-27
Date of receipt of test item:	2024-07-01
Start of test:*	2024-07-01
End of test:*	2025-04-28
Person(s) present during the test:	-/-

*Date of each measurement, if not shown in the plot, can be requested. Dates are stored in the measurement software.

2.3 Test laboratories sub-contracted

None

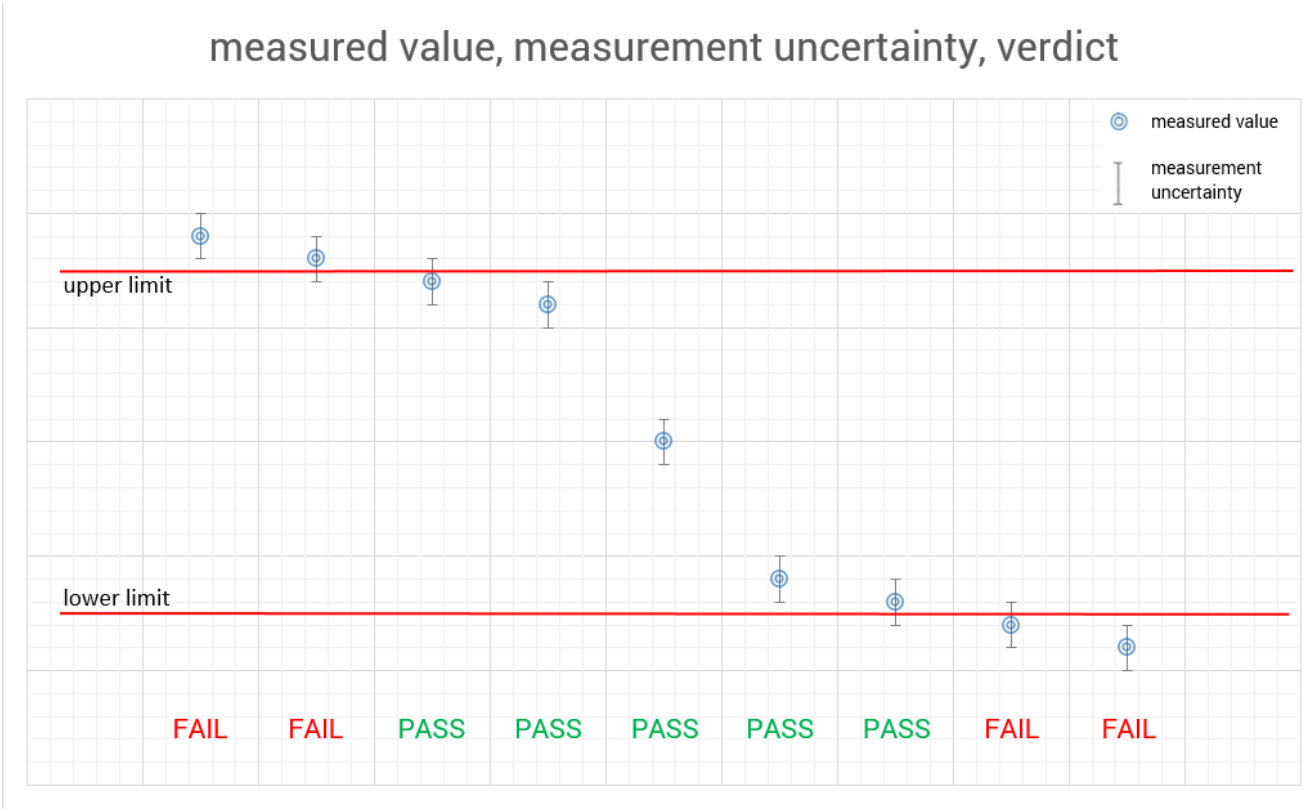
3 Test standard/s, references and accreditations

Test standard	Date	Description
FCC - Title 47 CFR Part 22	-/-	FCC - Title 47 of the Code of Federal Regulations; Chapter I; Part 22 - Public mobile services
FCC - Title 47 CFR Part 24	-/-	FCC - Title 47 of the Code of Federal Regulations; Chapter I; Part 24 - Personal communications services
FCC - Title 47 CFR Part 27	-/-	FCC - Title 47 of the Code of Federal Regulations; Chapter I; Part 27 - Miscellaneous wireless communications services
RSS - 132 Issue 4	January 2023	Spectrum Management and Telecommunications Radio Standards Specification - Cellular Telephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz
RSS - 133 Issue 7	July 2024	Spectrum Management and Telecommunications Policy - Radio Standards Specifications, 2 GHz Personal Communication Services
RSS - 139 Issue 4	September 2022	Advanced Wireless Services (AWS) Equipment Operating in the Bands 1710-1780 MHz and 2110-2180 MHz
RSS – 130 Issue 2	February 2019	Equipment Operating in the Frequency Bands 617-652 MHz, 663-698 MHz, 698-756 MHz and 777-787 MHz
RSS – 199 Issue 4	July 2023	Broadband Radio Service (BRS) Equipment Operating in the Band 2500-2690 MHz
FCC – Title 47 CFR Part 90	-/-	FCC - Title 47 of the Code of Federal Regulations; Chapter I; Part 90 - Private Land Mobile Radio Services

Guidance	Version	Description
ANSI C63.4-2014	-/-	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
ANSI C63.26-2015	-/-	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
Power Meas License Systems: KDB 971168 D01	v03r01	Measurement Guidance for Certification of Licensed Digital Transmitters

4 Reporting statements of conformity – decision rule

Only the measured values related to their corresponding limits will be used to decide whether the equipment under test meets the requirements of the test standards listed in chapter 3.
The measurement uncertainty is mentioned in this test report, see chapter 9, but is not taken into account - neither to the limits nor to the measurement results. Measurement results with a smaller margin to the corresponding limits than the measurement uncertainty have a potential risk of more than 5% that the decision might be wrong."



5 Test environment

Temperature	:	T_{nom} T_{max} T_{min}	+22 °C during room temperature tests No tests under extreme environmental conditions performed. No tests under extreme environmental conditions performed.
Relative humidity content	:		55 %
Barometric pressure	:		1021 hpa
Power supply	:	V_{nom} V_{max} V_{min}	12.0 V DC by external power supply No tests under extreme environmental conditions performed. No tests under extreme environmental conditions performed.

6 Test item

6.1 General description

Kind of test item	:	Connected Infotainment Box / ConneCtivity Unit 3
Model name	:	CIBCCU3
HMN	:	-/-
PMN	:	CIBCCU3
HVIN	:	CIBCCU3
FVIN	:	-/-
S/N serial number	:	Cond. 24312110005000000 (Sample 101) Rad. 24302050002000000 (Sample 57)
Hardware status	:	AAA2426310400
Software status	:	SP27
Frequency band	:	LTE bands 2, 4, 5, 7, 12, 13, 17, 25, 26, 41, 66
Type of radio transmission Use of frequency spectrum	: :	OFDM
Type of modulation	:	QPSK, 16 – QAM
Antenna	:	Integrated antenna
Power supply	:	12.0 V DC by external power supply
Temperature range	:	-30°C to +70°C

6.2 Additional information

The content of the following annexes is defined in the QA. It may be that not all of the listed annexes are necessary for this report, thus some values in between may be missing.

Test setup and EUT photos are included in test report: 1-6411-23-01-01_TR1-A101-R01
1-6411-23-01-01_TR1-A102-R01
1-6411-23-01-01_TR1-A103-R01

7 Description of the test setup

Typically, the calibrations of the test apparatus are commissioned to and performed by an accredited calibration laboratory. The calibration intervals are determined in accordance with the DIN EN ISO/IEC 17025. In addition to the external calibrations, the laboratory executes comparison measurements with other calibrated test systems or effective verifications. Weekly chamber inspections and range calibrations are performed. Where possible, RF generating and signaling equipment as well as measuring receivers and analyzers are connected to an external high-precision 10 MHz reference (GPS-based or rubidium frequency standard).

In order to simplify the identification of the equipment used at some special tests, some items of test equipment and ancillaries can be provided with an identifier or number in the equipment list below (Lab/Item).

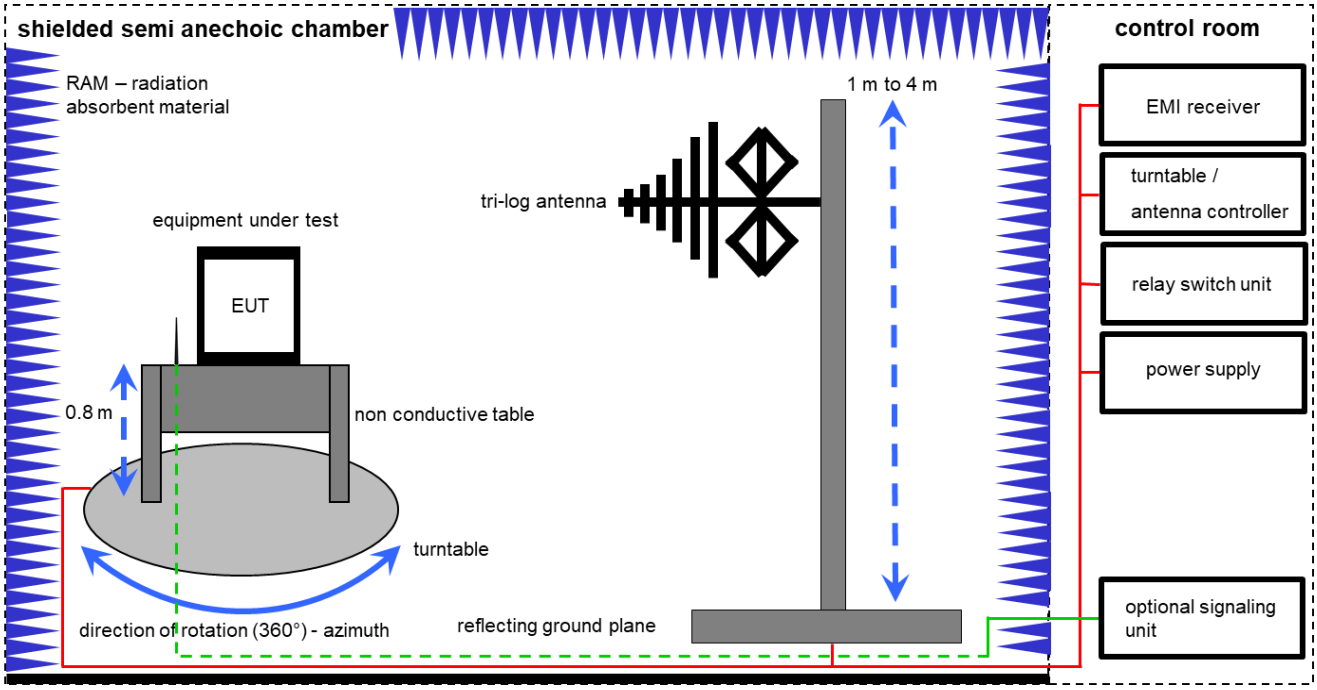
Each block diagram listed can contain several test setup configurations. All devices belonging to a test setup are identified with the same letter syntax. For example: Column Setup and all devices with an A.

Agenda: Kind of Calibration

k/cal	calibration / calibrated	EK	limited calibration
Ne/cnn	not required (k, ev, izw, zw not required)	zw	cyclical maintenance (external cyclical maintenance)
Ev/chk	periodic self verification	izw	internal cyclical maintenance
Ve	long-term stability recognized	g	blocked for accredited testing
vlkl!	Attention: extended calibration interval		
NK!	Attention: not calibrated	*)	next calibration ordered / currently in progress
cpu	check prior usage		

7.1 Shielded semi anechoic chamber

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 30 MHz to 1 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas are conform to specifications ANSI C63. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test setups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received. The wanted and unwanted emissions are received by spectrum analyzers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63.



Measurement distance: tri-log antenna 10 meter; EMC32 software version: 10.59.00

FS = UR + CL + AF
(FS-field strength; UR-voltage at the receiver; CL-loss of the cable; AF-antenna factor)

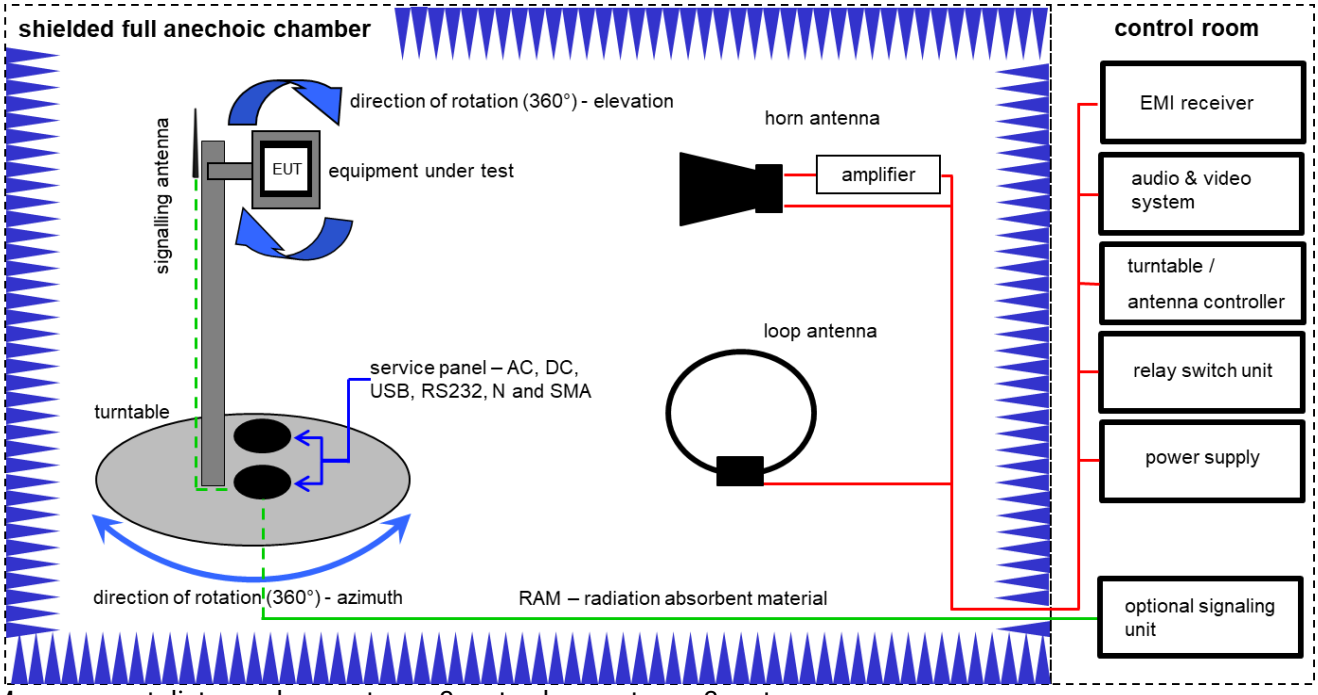
Example calculation:
FS [dBµV/m] = 12.35 [dBµV/m] + 1.90 [dB] + 16.80 [dB/m] = 31.05 [dBµV/m] (35.69 µV/m)

Equipment table:

No.	Setup	Equipment	Type	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1	A	Switch-Unit	Switch-Unit 3488A	Hewlett Packard	2719A14505	50160	cpu	-/-	-/-
2	A	Power Supply	Power Supply 6032A	Hewlett Packard	2920A04466	50161	cnn	-/-	-/-
3	A	Antenna Tower	Antenna Tower 2175	ETS-Lindgren Gmbh / Taufkirchen	64762	50279	cnn	-/-	-/-
4	A	Positioning Controller	Positioning Controller 2090	ETS-Lindgren Gmbh / Taufkirchen	64672	50280	cnn	-/-	-/-
5	A	Spectrum-Analyzer	Spectrum-Analyzer FSU26	Rohde & Schwarz Messgerätebau GmbH / Memmingen	200809	50308	cal	06.12.2023	31.12.2024
6	A	TRILOG Broadband Antenna	TRILOG Broadband Antenna VULB9163	Schwarzbeck Mess-Elektronik OHG / Schönau	1029	50403	cal	25.09.2023	30.09.2025
7	A	EMI Test Receiver	EMI Test Receiver ESR3	Rohde & Schwarz Messgerätebau GmbH / Memmingen	102587	50417	cal	06.12.2023	31.12.2024
8	A	Wideband Radio Communication Tester	CMW500	Rohde & Schwarz	170616	300006251	k	06.12.2023	31.12.2025

NOTE: These tests were performed before 31.12.2024

7.2 Shielded fully anechoic chamber



Measurement distance: horn antenna 3 meter; loop antenna 3 meter

OP = AV + D - G + CA
(OP-radiated output power; AV-analyzer value; D-free field attenuation of measurement distance; G-antenna gain+amplifier gain; CA-loss signal path)

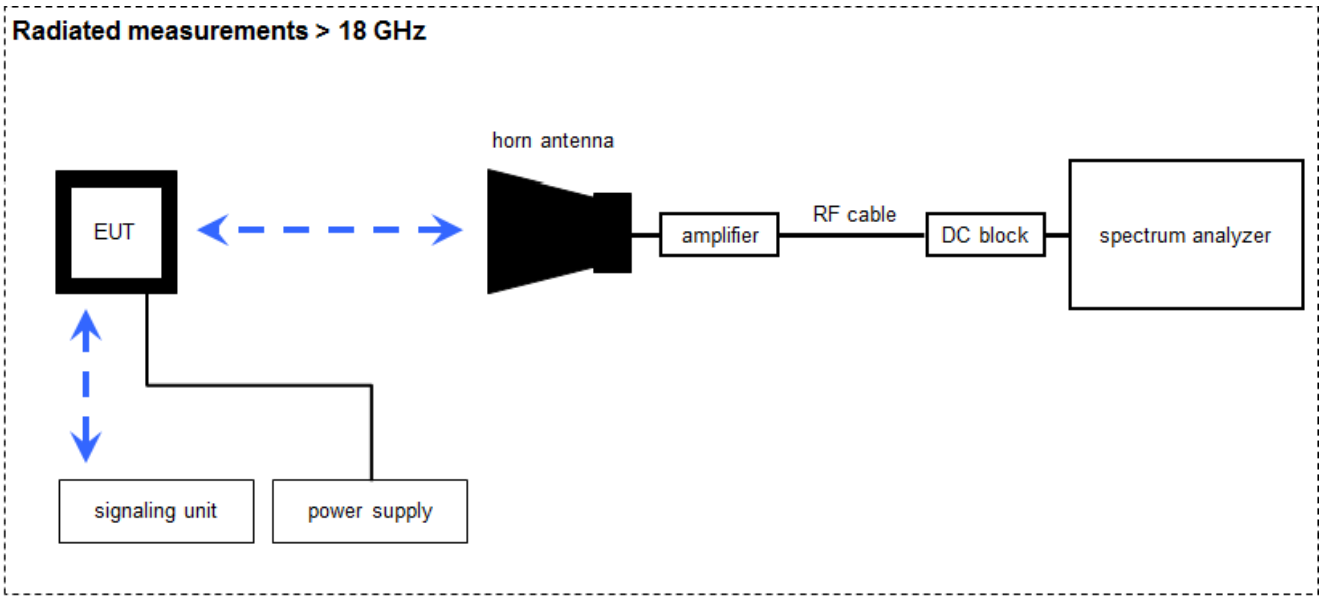
Example calculation:
OP [dBm] = -39.0 [dBm] + 57.0 [dB] - 12.0 [dBi] + (-36.0) [dB] = -30 [dBm] (1 µW)

Equipment table:

No.	Setup	Equipment	Type	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1	A, B, C, D	EMI Test Receiver	EMI Test Receiver ESR26	Rohde & Schwarz Messgerätebau GmbH / Memmingen	101376	40301	cal	15.01.2024	14.01.2025
2	A, B, C, D	EMI Test Receiver	EMI Test Receiver ESR26	Rohde & Schwarz Messgerätebau GmbH / Memmingen	101376	40301	cal	06.12.2024	06.12.2025
3	A, B, C	Double-Ridged Waveguide Horn Antenna	Double-Ridged Waveguide Horn Antenna 3115	EMCO Elektronik GmbH / Gilching	8812-3089	40344	cal	09.07.2024	09.07.2026
4	A, B, C	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	9107-3696	300001604	vlKl!	20.03.2023	19.03.2025
5	B, C	Highpass Filter	Highpass Filter WHK1.1/15G-10SS	Wainwright Instruments GmbH / Andechs	37	40362	cnn	-/-	-/-
6	B	Band Reject Filter	Band Reject Filter WRCG1850/1910-1835/1925-40/8SS	Wainwright Instruments GmbH / Andechs	23	40363	cnn	-/-	-/-
7	B, C	Highpass Filter	Highpass Filter WHKX7.0/18G-8SS	Wainwright Instruments GmbH / Andechs	18	40364	cpu	-/-	-/-
8	C	Band Reject Filter	Band Reject Filter WRCG1710/1755-1690/1775-90/14SS	Wainwright Instruments GmbH / Andechs	7	40368	cpu	-/-	-/-
9	B, C	Broadband Amplifier 0.5-18 GHz	Broadband Amplifier 0.5-18 GHz	MEC Import: CERNEX	22050	40374	cpu	-/-	-/-

			CBLU5184540						
10	A, B, C, D	4U RF Switch Platform	4U RF Switch Platform L4491A	Agilent Technologies Deutschland GmbH / Böblingen	MY50000032	40376	cnn	-/-	-/-
11	B, C	Highpass Filter	Highpass Filter WHKX2.6/18G-10SS	Wainwright Instruments GmbH / Andechs	12	40377	cnn	-/-	-/-
12	A, B, C, D	NEXIO EMV-Software	NEXIO EMV-Software BAT EMC V2022.0.32.0	MEC Import: Nexio		40383	cnn	-/-	-/-
13	A, B, C, D	Anechoic chamber	Anechoic chamber	MEC Import: TDK		40385	cnn	-/-	-/-
14	A, B, C, D	Power Supply	Power Supply HMP2020	Rohde & Schwarz Messgerätebau GmbH / Memmingen	120626	40410	cal	02.05.2023	31.05.2025
15	D	Active Loop Antenna	Active Loop Antenna 6502	EMCO Elektronik GmbH / Gilching	2210	50044	cal	02.08.2023	02.08.2025
16	A, B, C, D	Wideband Radio Communication Tester	CMW500	Rohde & Schwarz	170616	300006251	k	06.12.2023	31.12.2025

7.3 Radiated measurements > 18 GHz



Measurement distance: horn antenna 50 cm

OP = AV + D - G + CA
(OP-radiated output power; AV-analyzer value; D-free field attenuation of measurement distance; G-antenna gain+amplifier gain; CA-loss signal path)

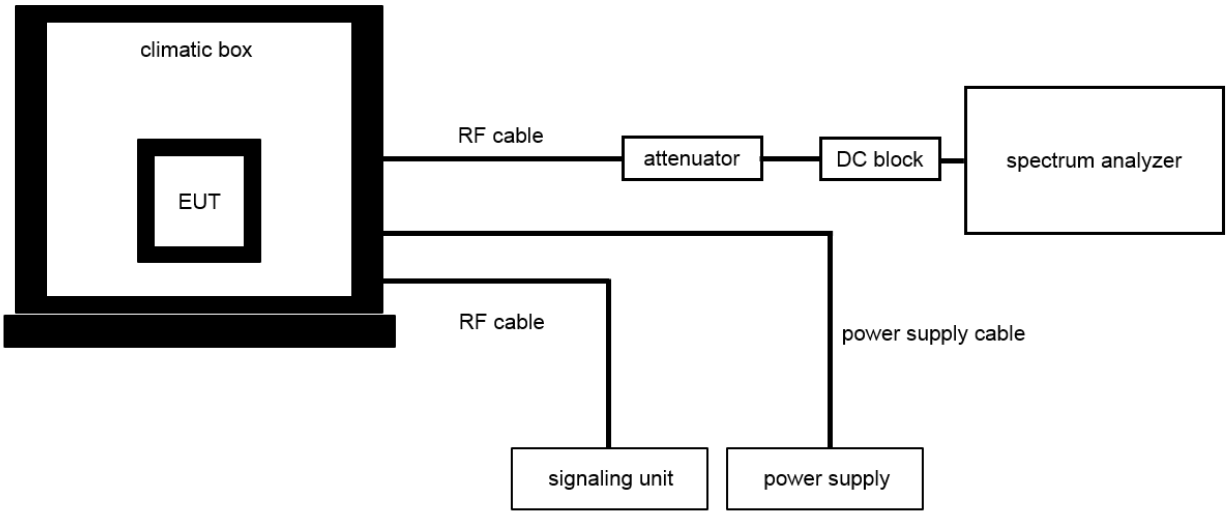
Example calculation:
OP [dBm] = -59.0 [dBm] + 44.0 [dB] - 20.0 [dBi] + 5.0 [dB] = -30 [dBm] (1 µW)

Equipment table:

No.	Setup	Equipment	Type	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1	A	Std. Gain Horn Antenna 18.0-26.5 GHz	638	Narda	01096	300000486	vIKI!	24.01.2024	23.01.2026
2	A	Broadband Low Noise Amplifier 18-50 GHz	CBL18503070-XX	CERNEX	19338	300004273	ev	-/-	-/-
3	A	Signal analyzer	Signal analyzer FSV30	Rohde & Schwarz Messgerätebau GmbH / Memmingen	1321.3008K30/ 103170	18373	cal	15.01.2025	15.01.2027
4	A	RF-Cable	ST18/SMAm/SMAm /48	Huber & Suhner	Batch no. 600918	400001182	ev	-/-	-/-
5	A	DC-Blocker 0.1-40 GHz	8141A	Inmet	-/-	400001185	ev	-/-	-/-
6	A	Wideband Radio Communication Tester	CMW500	Rohde & Schwarz	170616	300006251	k	06.12.2023	31.12.2025

7.4 Conducted measurements

Conducted measurements normal & extreme conditions



OP = AV + CA
(OP-output power; AV-analyzer value; CA-loss signal path)

Example calculation:
OP [dBm] = 6.0 [dBm] + 11.7 [dB] = 17.7 [dBm] (58.88 mW)

Equipment table:

No.	Setup	Equipment	Type	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1	A	Signal analyzer	FSV40	Rohde&Schwarz	101042	300004517	k	06.12.2023	31.12.2024
2	A	Teststand	Teststand Custom Sequence Editor	National Instruments GmbH		300004590	ne	-/-	-/-
3	A	RF-Cable	ST18/SMAm/SMAm /72	Huber & Suhner	Batch no. 699714	400001184	ev	-/-	-/-
4	A	DC-Blocker 0.1-40 GHz	8141A	Inmet		400001185	ev	-/-	-/-
5	A	RF-Cable	ST18/SMAm/SMAm /36	Huber & Suhner	Batch no. 601494	400001309	ev	-/-	-/-
6	A	Wideband Radio Communication Tester	CMW500	Rohde & Schwarz	170616	300006251	k	06.12.2023	31.12.2025

NOTE: These tests were performed before 31.12.2024

8 Sequence of testing

8.1 Sequence of testing radiated spurious 9 kHz to 30 MHz

Setup

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer.
- If the EUT is a tabletop system, it is placed on a table with 0.8 m height.
- If the EUT is a floor standing device, it is placed directly on the turn table.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C 63.4.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measurement distance is 3 m (see ANSI C 63.4) – see test details.
- EUT is set into operation.

Premeasurement*

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna height is 1 m.
- At each turntable position the analyzer sweeps with positive-peak detector to find the maximum of all emissions.

Final measurement

- Identified emissions during the pre-measurement are maximized by the software by rotating the turntable from 0° to 360°.
- Loop antenna is rotated about its vertical axis for maximum response at each azimuth about the EUT. (For certain applications, the loop antenna plane may also need to be positioned horizontally at the specified distance from the EUT)
- The final measurement is done in the position (turntable and elevation) causing the highest emissions with quasi-peak (as described in ANSI C 63.4).
- Final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. A plot with the graph of the premeasurement and the limit is stored.

*)Note: The sequence will be repeated three times with different EUT orientations.

8.2 Sequence of testing radiated spurious 30 MHz to 1 GHz

Setup

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer.
- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C 63.4.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measurement distance is 10 m or 3 m (see ANSI C 63.4) – see test details.
- EUT is set into operation.

Premeasurement

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna is polarized vertical and horizontal.
- The antenna height changes from 1 m to 3 m.
- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement

- The final measurement is performed for at least six highest peaks according to the requirements of the ANSI C63.4.
- Based on antenna and turntable positions at which the peak values are measured the software maximize the peaks by changing turntable position ± 45° and antenna height between 1 and 4 m.
- The final measurement is done with quasi-peak detector (as described in ANSI C 63.4).
- Final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit are recorded. A plot with the graph of the premeasurement with marked maximum final results and the limit is stored.

8.3 Sequence of testing radiated spurious 1 GHz to 18 GHz

Setup

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer.
- If the EUT is a tabletop system, a 2-axis positioner with 1.5 m height is used.
- If the EUT is a floor standing device, it is placed directly on the turn table.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C 63.4.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measurement distance is 3 m (see ANSI C 63.4) – see test details.
- EUT is set into operation.

Premeasurement

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna is polarized vertical and horizontal.
- The antenna height is 1.5 m.
- At each turntable position and antenna polarization the analyzer sweeps with positive peak detector to find the maximum of all emissions.

Final measurement

- The final measurement is performed for at least six highest peaks according to the requirements of the ANSI C63.4.
- Based on antenna and turntable positions at which the peak values are measured the software maximizes the peaks by rotating the turntable from 0° to 360°. This measurement is repeated for different EUT-table positions (0° to 150° in 30°-steps) and for both antenna polarizations.
- The final measurement is done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and RMS detector (as described in ANSI C 63.4).
- Final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit are recorded. A plot with the graph of the premeasurement with marked maximum final results and the limit is stored.

8.4 Sequence of testing radiated spurious above 18 GHz

Setup

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C 63.4.
- The AC power port of the EUT (if available) is connected to a power outlet.
- The measurement distance is as appropriate (e.g. 0.5 m).
- The EUT is set into operation.

Premeasurement

- The test antenna is handheld and moved carefully over the EUT to cover the EUT's whole sphere and different polarizations of the antenna.

Final measurement

- The final measurement is performed at the position and antenna orientation causing the highest emissions with Peak and RMS detector (as described in ANSI C 63.4).
- Final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit are recorded. A plot with the graph of the premeasurement and the limit is stored.

9 Measurement uncertainty

Measurement uncertainty		
Test case	**Uncertainty**	
Antenna gain	± 3 dB	
99 % bandwidth	± RBW	
-26 dB bandwidth	± RBW	
Frequency stability	10^{-6}	
Maximum output power conducted	± 1.56 dB	
Block edge compliance	± 1.56 dB	
Spurious emissions conducted	> 3.6 GHz	± 1.56 dB
	> 7 GHz	± 1.56 dB
	> 18 GHz	± 2.31 dB
	≥ 40 GHz	± 2.97 dB
Spurious emissions radiated below 30 MHz	± 3 dB	
Spurious emissions radiated 30 MHz to 1 GHz	± 3 dB	
Spurious emissions radiated 1 GHz to 12.75 GHz	± 3.7 dB	
Spurious emissions radiated above 12.75 GHz	± 4.5 dB	

10 Additional information and comments

Reference documents:	CIB-CCU3_Measurements_C0 sample_Information for homologation.pptx CIBCCU3_Homologation instructions.pdf
Special test descriptions:	None
Configuration descriptions:	None
EUT selection:	☐ Only one device available
	☐ Devices selected by the customer
	☒ Devices selected by the laboratory (Randomly)

11 Summary of measurement results

☐	No deviations from the technical specifications were ascertained
☐	There were deviations from the technical specifications ascertained
☒	This test report is only a partial test report. The content and verdict of the performed test cases are listed below.

TC identifier	Description	verdict	date	Remark
RF-Testing	FCC: CFR Part 2 & Part 22 ISED: RSS-Gen, Issue 5 & RSS 132, Issue 4	See table!	2025-07-08	-/-

11.1 Part 22/RSS-132: LTE bands 5

Test Case	temperature conditions	power source voltages	C	NC	NA	NP	Remark
RF Output Power	Nominal	Nominal	☒	☐	☐	☐	-/-
Frequency Stability	Extreme	Extreme	☐	☐	☐	☒	-/-
Spurious Emissions Radiated	Nominal	Nominal	☒	☐	☐	☐	-/-
Spurious Emissions Conducted	Nominal	Nominal	☐	☐	☐	☒	-/-
Block Edge Compliance	Nominal	Nominal	☐	☐	☐	☒	-/-
Occupied Bandwidth	Nominal	Nominal	☐	☐	☐	☒	-/-

Notes:

C	Compliant	**NC**	Not compliant	**NA**	Not applicable	**NP**	Not performed

11.2 Part 22/Part 90: LTE band 26

Test Case	temperature conditions	power source voltages	C	NC	NA	NP	Remark
RF Output Power	Nominal	Nominal	☒	☐	☐	☐	-/-
Frequency Stability	Extreme	Extreme	☐	☐	☐	☒	-/-
Spurious Emissions Radiated	Nominal	Nominal	☒	☐	☐	☐	-/-
Spurious Emissions Conducted	Nominal	Nominal	☐	☐	☐	☒	-/-
Block Edge Compliance	Nominal	Nominal	☐	☐	☐	☒	-/-
Occupied Bandwidth	Nominal	Nominal	☐	☐	☐	☒	-/-

Notes:

C	Compliant	**NC**	Not compliant	**NA**	Not applicable	**NP**	Not performed

12 RF measurements

12.1 Description of test setup

For the spurious measurements we use the substitution method according TIA/EIA 603.

12.2 Results LTE band 5

The EUT was set to transmit the maximum power.

12.2.1 RF output power

Description:

This paragraph contains conducted average power, ERP and Peak-to-Average Power Ratio measurements for the mobile station.

Measurement:

The mobile was set up for the maximum output power with pseudo random data modulation.

To determine the Peak-To-Average Power Ratio (PAPR) the measurement was performed with the Power Complementary Cumulative Distribution Function (CCDF).

Measurement parameters	
Detector:	Sample
AQT:	See plot
Resolution bandwidth:	1 MHz
Used equipment:	See chapter 7.1 setup A & 7.4 setup A
Measurement uncertainty:	see chapter 9
Measurement procedure:	FCC: § 2.1046 ISED: RSS-Gen, 6.12

Limits:

FCC	ISED
§ 22.913(a)(5) & (d)	RSS-132, 5.4
(a)(5) The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 W. (d) The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB.	The EIRP power for mobile equipment shall not exceed 11.5 W. The peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB […].
Power: **38.45 dBm ERP** PAPR: **13 dB**	

Results:

Output Power (conducted)						
Bandwidth (MHz)	**Channel No. / Frequency (MHz)**	**Resource block allocation**	**Average Output Power (dBm) QPSK**	**Peak to Average Ratio (dB)**	**Average Output Power (dBm) 16-QAM**	**Peak to Average Ratio (dB)**
1.4	20407 / 824.7	1 RB low	23.2	-/-	22.1	-/-
		1 RB high	23.2	-/-	22.2	-/-
		100% RB	22.2	-/-	21.4	-/-
	20525 / 836.5	1 RB low	23.2	-/-	22.5	-/-
		1 RB high	23.4	-/-	22.5	-/-
		100% RB	22.3	-/-	21.4	-/-
	20643 / 848.3	1 RB low	23.0	-/-	22.8	-/-
		1 RB high	23.1	-/-	22.1	-/-
		100% RB	22.2	-/-	21.2	-/-
3	20415 / 825.5	1 RB low	23.0	-/-	22.0	-/-
		1 RB high	23.4	-/-	22.1	-/-
		100% RB	22.2	-/-	21.2	-/-
	20525 / 836.5	1 RB low	23.2	-/-	22.5	-/-
		1 RB high	23.1	-/-	22.6	-/-
		100% RB	22.4	-/-	21.5	-/-
	20635 / 847.5	1 RB low	23.2	-/-	22.5	-/-
		1 RB high	22.9	-/-	22.2	-/-
		100% RB	22.1	-/-	21.2	-/-
5	20425 / 826.5	1 RB low	22.7	-/-	22.1	-/-
		1 RB high	23.0	-/-	22.0	-/-
		100% RB	22.2	-/-	21.0	-/-
	20525 / 836.5	1 RB low	22.9	-/-	22.2	-/-
		1 RB high	23.1	-/-	22.4	-/-
		100% RB	22.4	-/-	21.5	-/-
	20625 / 846.5	1 RB low	23.0	-/-	22.3	-/-
		1 RB high	22.7	-/-	22.1	-/-
		100% RB	22.3	-/-	21.5	-/-
10	20450 / 829.0	1 RB low	23.0	-/-	22.3	-/-
		1 RB high	23.6	-/-	22.3	-/-
		100% RB	22.3	-/-	21.4	-/-
	20525 / 836.5	1 RB low	23.1	-/-	22.6	-/-
		1 RB high	23.2	-/-	22.6	-/-
		100% RB	22.4	-/-	21.4	-/-
	20600 / 844.0	1 RB low	23.3	-/-	22.4	-/-
		1 RB high	23.0	-/-	22.0	-/-
		100% RB	22.3	-/-	21.1	-/-

The radiated output power is measured in the mode with the highest conducted output power.

Output Power (ERP)			
Bandwidth (MHz)	**Frequency (MHz)**	**Average Output Power (dBm) QPSK**	**Average Output Power (dBm) 16-QAM**
1.4	824.7	16.8	15.8
	836.5	17.0	16.1
	848.3	16.7	16.4
3	825.5	17.0	15.7
	836.5	16.7	16.2
	847.5	16.8	16.1
5	826.5	16.6	15.7
	836.5	16.7	16.0
	846.5	16.6	15.9
10	829.0	17.2	15.9
	836.5	16.8	16.2
	844.0	16.9	16.0

12.2.2 Spurious emissions radiated

Description:

The following steps outline the procedure used to measure the radiated emissions from the mobile station. The site is constructed in accordance with ANSI C63.4:2014 requirements and is recognized by the FCC to be in compliance for a 3 and a 10 meter site. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 844 MHz. Measurement made up to 9 GHz. The resolution bandwidth is set as outlined in Part 22.917. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to mid channel of the LTE band 5.

Measurement:

Measurement parameters	
Detector:	Peak
Sweep time:	2 s
Resolution bandwidth:	100 kHz
Video bandwidth:	300 kHz
Span:	100 MHz Steps
Trace mode:	Max Hold
Used equipment:	See chapter 7.1 setup A & 7.2 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure:	FCC: § 2.1053 ISED: RSS-Gen, 6.13

Limits:

FCC	ISED
§ 22.917(a) & (b)	RSS-132, 5.5
(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. (b)(1) In the spectrum below 1 GHz, instrumentation should employ a reference bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block, a RBW of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy, provided that the measured power is integrated over the full required reference bandwidth (i.e., 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. (b)(2) In the spectrum above 1 GHz, instrumentation should employ a reference bandwidth of 1 MHz.	i. In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10(P) (watts). ii. After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10(P) (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.
-13 dBm	

Results:

QPSK:

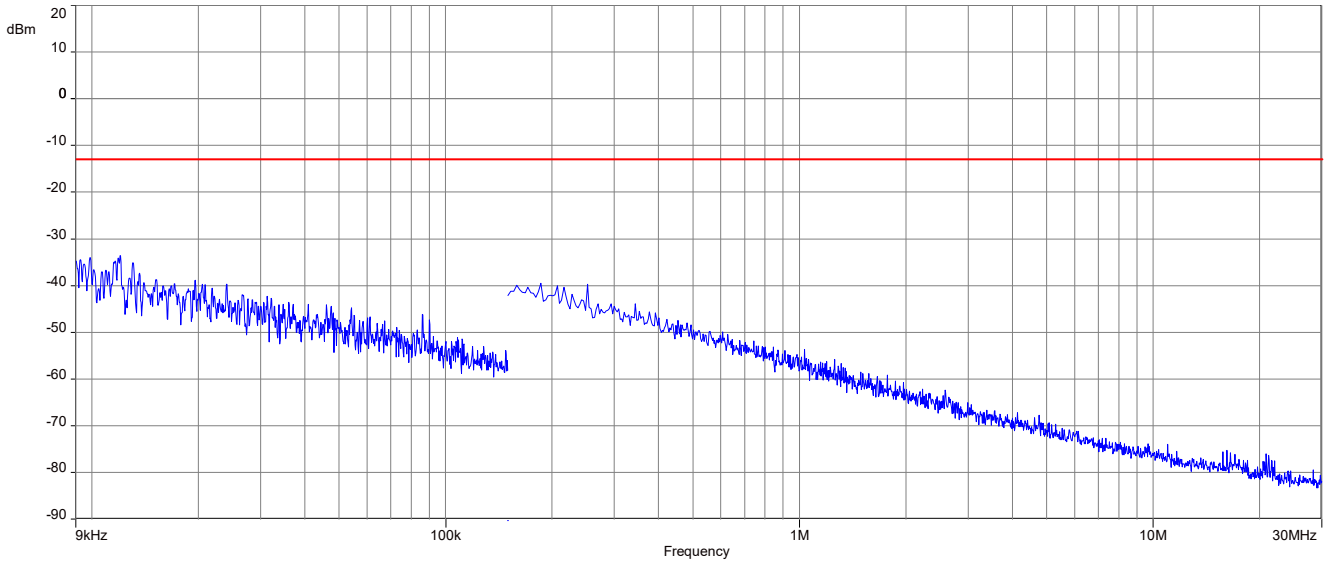
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

16-QAM:

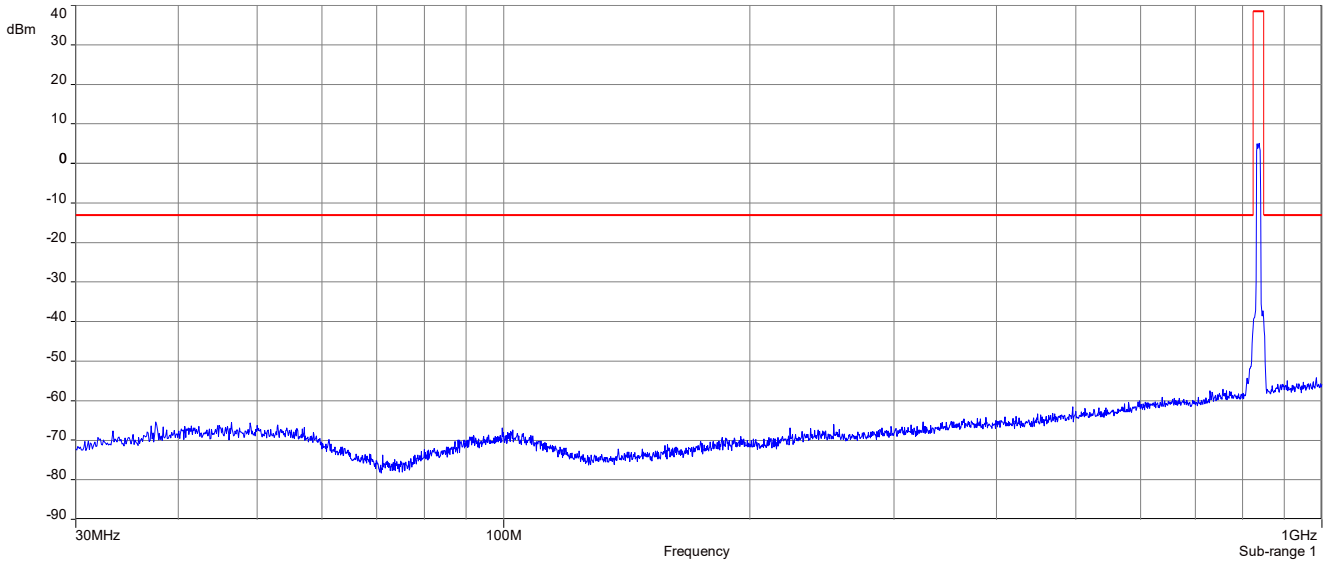
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

QPSK

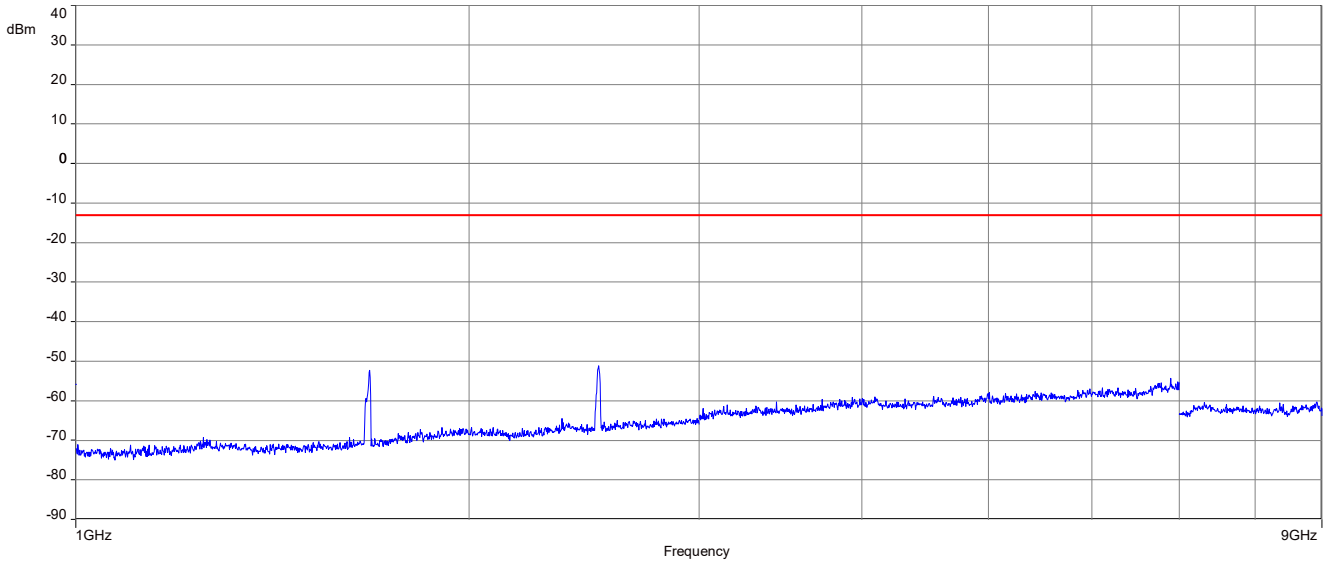
Plot 1: 9 kHz - 30 MHz, this plot represents the worst case for this frequency range for all supported LTE bands



Plot 2: Mid channel (30 MHz – 1 GHz)

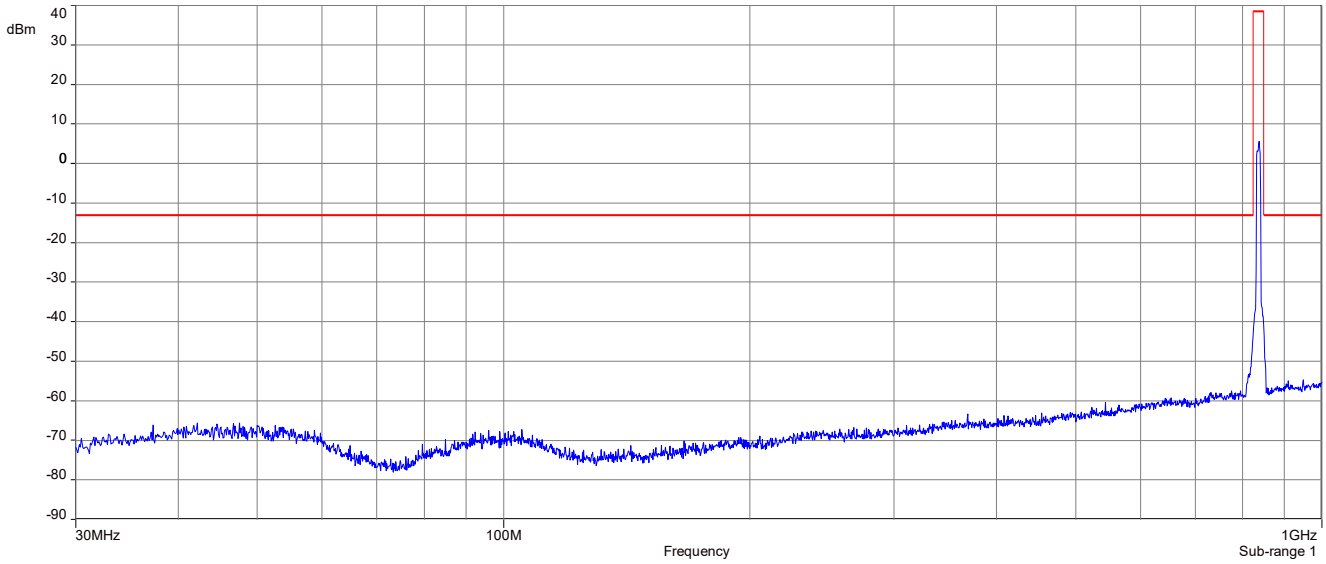


Plot 3: Mid channel (1 GHz – 9 GHz)

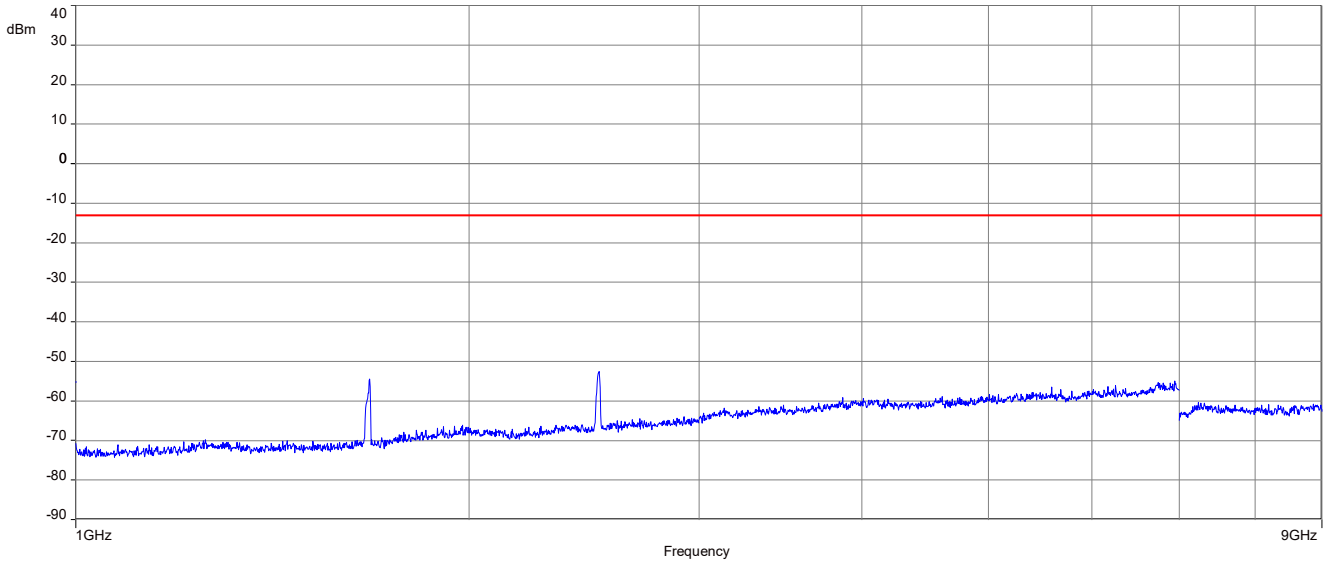


16-QAM

Plot 1: Mid channel (30 MHz – 1 GHz)



Plot 2: Mid channel (1 GHz – 9 GHz)



12.3 Results LTE band 26

The EUT was set to transmit the maximum power.

12.3.1 RF output power

Description:

This paragraph contains conducted average power, ERP and Peak-to-Average Power Ratio measurements for the mobile station.

Measurement:

The mobile was set up for the maximum output power with pseudo random data modulation.

To determine the Peak-To-Average Power Ratio (PAPR) the measurement was performed with the Power Complementary Cumulative Distribution Function (CCDF).

Measurement parameters	
Detector:	Sample
AQT:	See plot
Resolution bandwidth:	1 MHz
Used equipment:	See chapter 7.1 setup A & 7.4 setup A
Measurement uncertainty:	see chapter 9
Measurement procedure:	FCC: § 2.1046

Limits:

FCC	
§ 22.913(a)(5) & (d) 824 MHz to 849 MHz	§ 90.635 814 MHz to 824 MHz
(a)(5) The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 W. (d) The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB.	b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).
Power: **38.45 dBm ERP** PAPR: **13 dB**	Power: **50 ERP** PAPR: **-/-**

Results:

Output Power (conducted)						
Bandwidth (MHz)	**Channel No. / Frequency (MHz)**	**Resource block allocation**	**Average Output Power (dBm) QPSK**	**Peak to Average Ratio (dB)**	**Average Output Power (dBm) 16-QAM**	**Peak to Average Ratio (dB)**
1.4	26697 / 814.7	1 RB low	23.0	-/-	21.9	-/-
		1 RB high	23.0	-/-	21.9	-/-
		100% RB	22.0	-/-	21.1	-/-
	26865 / 831.5	1 RB low	23.2	-/-	22.4	-/-
		1 RB high	23.1	-/-	22.3	-/-
		100% RB	22.1	-/-	21.1	-/-
	27033 / 848.3	1 RB low	23.0	-/-	22.5	-/-
		1 RB high	22.9	-/-	22.1	-/-
		100% RB	22.2	-/-	21.1	-/-
3	26705 / 815.5	1 RB low	22.9	-/-	22.0	-/-
		1 RB high	23.1	-/-	22.0	-/-
		100% RB	22.0	-/-	21.2	-/-
	26865 / 831.5	1 RB low	23.1	-/-	22.3	-/-
		1 RB high	23.1	-/-	21.8	-/-
		100% RB	22.3	-/-	21.3	-/-
	27025 / 847.5	1 RB low	23.2	-/-	22.1	-/-
		1 RB high	22.9	-/-	21.9	-/-
		100% RB	22.7	-/-	21.1	-/-
5	26715 / 816.5	1 RB low	22.6	-/-	21.9	-/-
		1 RB high	23.0	-/-	21.9	-/-
		100% RB	22.1	-/-	21.0	-/-
	26865 / 831.5	1 RB low	22.7	-/-	22.0	-/-
		1 RB high	22.7	-/-	21.9	-/-
		100% RB	22.2	-/-	21.3	-/-
	27015 / 846.5	1 RB low	22.9	-/-	22.0	-/-
		1 RB high	22.7	-/-	22.1	-/-
		100% RB	22.1	-/-	21.2	-/-
10	26740 / 819.0	1 RB low	22.8	-/-	21.9	-/-
		1 RB high	23.1	-/-	21.9	-/-
		100% RB	22.0	-/-	21.1	-/-
	26865 / 831.5	1 RB low	22.9	-/-	22.2	-/-
		1 RB high	23.3	-/-	22.5	-/-
		100% RB	22.2	-/-	21.1	-/-
	26990 / 844.0	1 RB low	23.2	-/-	22.4	-/-
		1 RB high	22.9	-/-	22.1	-/-
		100% RB	22.3	-/-	21.2	-/-

15	26765 / 821.5	1 RB low	22.9	-/-	21.9	-/-
		1 RB high	23.1	-/-	22.1	-/-
		100% RB	22.1	-/-	21.1	-/-
	26865 / 831.5	1 RB low	23.0	-/-	22.3	-/-
		1 RB high	23.3	-/-	22.7	-/-
		100% RB	22.3	-/-	21.4	-/-
	26965 / 841.5	1 RB low	23.2	-/-	22.5	-/-
		1 RB high	22.9	-/-	22.3	-/-
		100% RB	22.3	-/-	21.2	-/-

The radiated output power is measured in the mode with the highest conducted output power.

Output Power (ERP)			
Bandwidth (MHz)	**Frequency (MHz)**	**Average Output Power (dBm) QPSK**	**Average Output Power (dBm) 16-QAM**
1.4	814.7	16.3	15.2
	831.5	16.5	15.7
	848.3	16.3	15.8
3	815.5	16.4	15.3
	831.5	16.4	15.6
	847.5	16.5	15.4
5	816.5	16.3	15.2
	831.5	16.0	15.3
	846.5	16.0	15.4
10	819.0	16.4	15.2
	831.5	16.6	15.8
	844.0	16.5	15.7
15	821.5	16.4	15.4
	831.5	16.6	16.0
	841.5	16.5	15.8

12.3.2 Spurious emissions radiated

Description:

The following steps outline the procedure used to measure the radiated emissions from the mobile station. The site is constructed in accordance with ANSI C63.4:2014 requirements and is recognized by the FCC to be in compliance for a 3 and a 10 meter site. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 844 MHz. Measurement made up to 9 GHz. The resolution bandwidth is set as outlined in Part 22.917. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to mid channel of the LTE band 26.

Measurement:

Measurement parameters	
Detector:	Peak
Sweep time:	2 s
Resolution bandwidth:	100 kHz
Video bandwidth:	300 kHz
Span:	100 MHz Steps
Trace mode:	Max Hold
Used equipment:	See chapter 7.1 setup A & 7.2 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure:	FCC: § 2.1053

Limits:

FCC	
§ 22.917(a) & (b)	§ 90.691 (a)(2)
(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. (b)(1) In the spectrum below 1 GHz, instrumentation should employ a reference bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block, a RBW of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy, provided that the measured power is integrated over the full required reference bandwidth (i.e., 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. (b)(2) In the spectrum above 1 GHz, instrumentation should employ a reference bandwidth of 1 MHz.	For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.
-13 dBm	

Results:

QPSK:

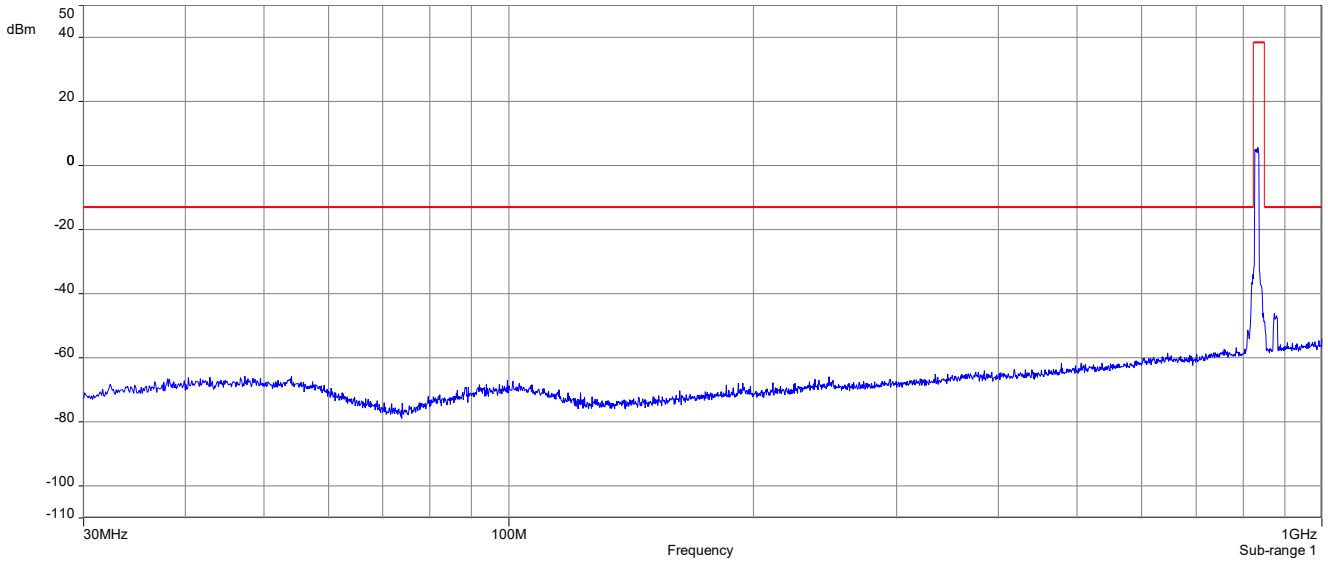
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

16-QAM:

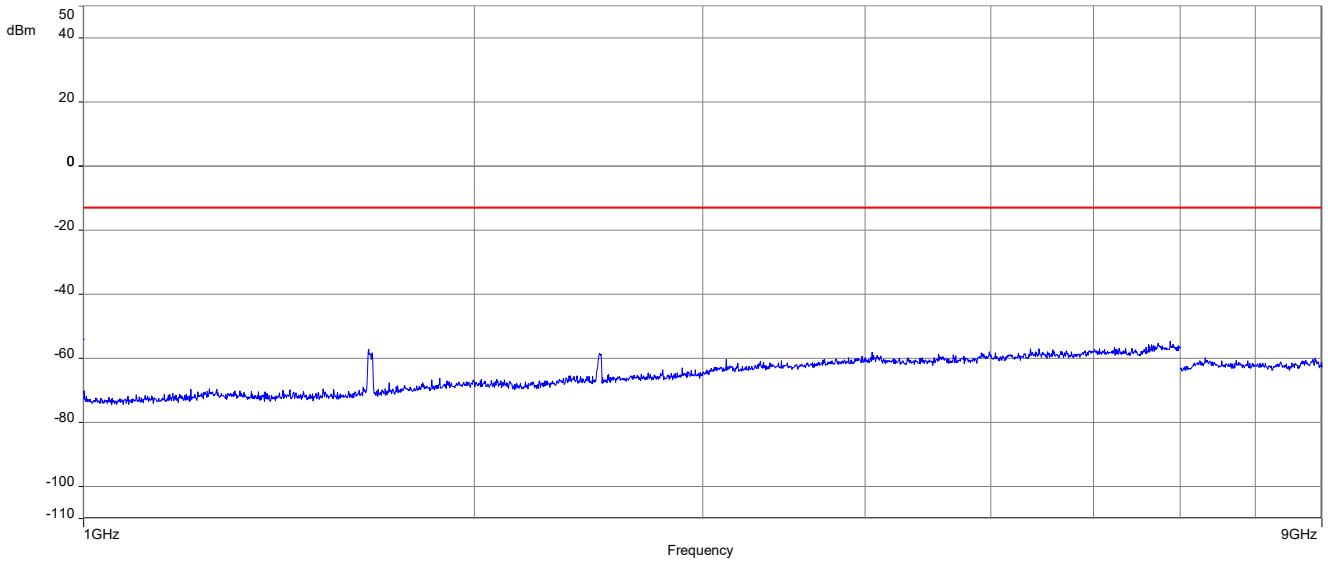
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

QPSK

Plot 1: Mid channel (30 MHz – 1 GHz)

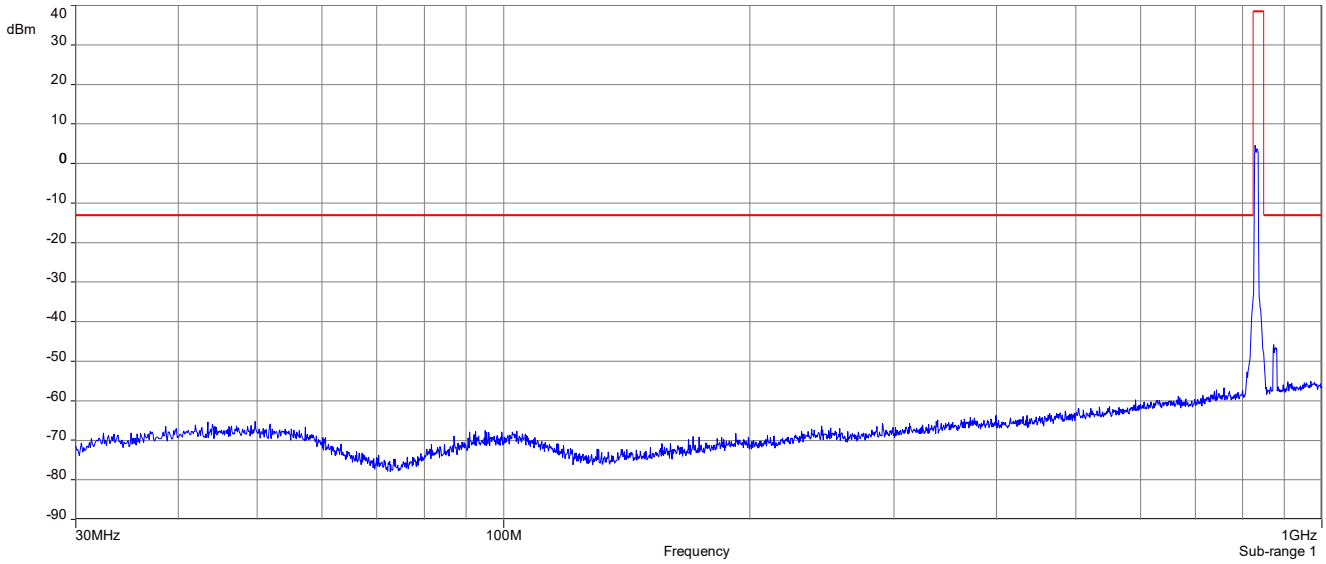


Plot 2: Mid channel (1 GHz – 9 GHz)

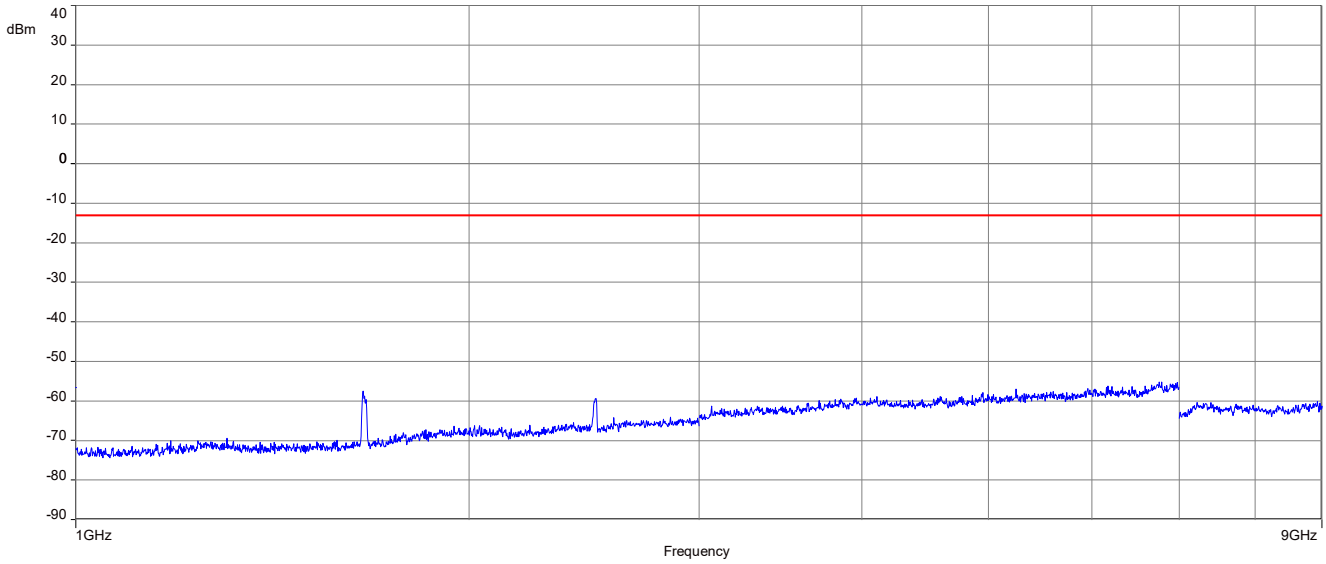


16-QAM

Plot 1: Mid channel (30 MHz – 1 GHz)



Plot 2: Mid channel (1 GHz – 9 GHz)



13 Summary of measurement results

☒	No deviations from the technical specifications were ascertained
☐	There were deviations from the technical specifications ascertained
☐	This test report is only a partial test report. The content and verdict of the performed test cases are listed below.

TC identifier	Description	verdict	date	Remark
RF-Testing	FCC: CFR Part 2 & Part 24 ISED: RSS-Gen, Issue 5 RSS 133, Issue 7 & SRSP-510, Issue 5	See table!	2025-07-08	-/-

13.1 Part 24/RSS-133: LTE band 2

Test Case	temperature conditions	power source voltages	C	NC	NA	NP	Remark
RF Output Power	Nominal	Nominal	☒	☐	☐	☐	-/-
Frequency Stability	Extreme	Extreme	☐	☐	☐	☒	-/-
Spurious Emissions Radiated	Nominal	Nominal	☒	☐	☐	☐	-/-
Spurious Emissions Conducted	Nominal	Nominal	☐	☐	☐	☒	-/-
Block Edge Compliance	Nominal	Nominal	☐	☐	☐	☒	-/-
Occupied Bandwidth	Nominal	Nominal	☐	☐	☐	☒	-/-

Notes:

C	Compliant	**NC**	Not compliant	**NA**	Not applicable	**NP**	Not performed

13.2 Part 24/RSS-133: LTE band 25

Test Case	temperature conditions	power source voltages	C	NC	NA	NP	Remark
RF Output Power	Nominal	Nominal	☒	☐	☐	☐	-/-
Frequency Stability	Extreme	Extreme	☐	☐	☐	☒	-/-
Spurious Emissions Radiated	Nominal	Nominal	☒	☐	☐	☐	-/-
Spurious Emissions Conducted	Nominal	Nominal	☐	☐	☐	☒	-/-
Block Edge Compliance	Nominal	Nominal	☐	☐	☐	☒	-/-
Occupied Bandwidth	Nominal	Nominal	☐	☐	☐	☒	-/-

Notes:

C	Compliant	**NC**	Not compliant	**NA**	Not applicable	**NP**	Not performed

14 RF measurements

14.1 Description of test setup

For the spurious measurements we use the substitution method according TIA/EIA 603.

14.2 Results LTE band 2

The EUT was set to transmit the maximum power.

14.2.1 RF output power

Description:

This paragraph contains average power, peak output power and EIRP measurements for the mobile station. In all cases, the peak output power is within the required mask (this mask is specified in the JTC standards, TIA PN3389 Vol. 1 Chap 7, and is no FCC requirement).

Measurement:

The mobile was set up for the maximum output power with pseudo random data modulation.

To determine the Peak-To-Average Power Ratio (PAPR) the measurement was performed with the Power Complementary Cumulative Distribution Function (CCDF).

Measurement parameters	
Detector:	Sample
AQT:	See plot
Resolution bandwidth:	1 MHz
Used equipment:	See chapter 7.2 setup C & 7.4 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure:	FCC: § 2.1046 ISED: RSS-Gen, 6.12

Limits:

FCC	ISED
$ 24.232(c)	RSS-133, 6.4 (referring to: SRSP-510, Issue 5)
(c) Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications. (d) 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.	SRSP-510, 5.1: Mobile stations and hand-held portables are limited to 2 watts maximum e.i.r.p. RSS-133, 6.4: In addition, the transmitter's peak-to-average power ratio (PAPR) shall not exceed 13 dB for more than 0.1% of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.
Power: **33 dBm EIRP** PAPR: **13 dB**	

Results:

Output Power (conducted)						
Bandwidth (MHz)	**Channel No. / Frequency (MHz)**	**Resource block allocation**	**Average Output Power (dBm) QPSK**	**Peak to Average Ratio (dB)**	**Average Output Power (dBm) 16-QAM**	**Peak to Average Ratio (dB)**
1.4	18607 / 1850.7	1 RB low	22.5	-/-	21.8	-/-
		1 RB high	22.7	-/-	21.5	-/-
		100% RB	21.5	-/-	20.5	-/-
	18900 / 1880.0	1 RB low	22.5	-/-	21.6	-/-
		1 RB high	22.6	-/-	21.6	-/-
		100% RB	21.5	-/-	20.3	-/-
	19193 / 1909.3	1 RB low	22.4	-/-	21.3	-/-
		1 RB high	22.3	-/-	21.4	-/-
		100% RB	21.6	-/-	20.2	-/-
3	18615 / 1851.5	1 RB low	22.3	-/-	21.3	-/-
		1 RB high	22.5	-/-	21.3	-/-
		100% RB	21.4	-/-	20.3	-/-
	18900 / 1880.0	1 RB low	22.2	-/-	21.5	-/-
		1 RB high	22.6	-/-	21.9	-/-
		100% RB	21.5	-/-	20.5	-/-
	19185 / 1908.5	1 RB low	22.4	-/-	21.8	-/-
		1 RB high	22.4	-/-	21.4	-/-
		100% RB	21.5	-/-	20.7	-/-
5	18625 / 1852.5	1 RB low	22.2	-/-	21.5	-/-
		1 RB high	22.3	-/-	21.0	-/-
		100% RB	21.5	-/-	20.2	-/-
	18900 / 1880.0	1 RB low	22.0	-/-	21.4	-/-
		1 RB high	22.2	-/-	21.4	-/-
		100% RB	21.4	-/-	20.5	-/-
	19175 / 1907.5	1 RB low	22.2	-/-	21.1	-/-
		1 RB high	22.3	-/-	21.6	-/-
		100% RB	21.5	-/-	20.4	-/-

10	18650 / 1855.0	1 RB low	22.5	-/-	21.3	-/-
		1 RB high	22.8	-/-	21.5	-/-
		100% RB	21.5	-/-	20.4	-/-
	18900 / 1880.0	1 RB low	22.3	-/-	21.6	-/-
		1 RB high	22.5	-/-	21.7	-/-
		100% RB	21.4	-/-	20.2	-/-
	19150 / 1905.0	1 RB low	22.5	-/-	21.8	-/-
		1 RB high	22.5	-/-	21.6	-/-
		100% RB	21.6	-/-	20.6	-/-
15	18675 / 1857.5	1 RB low	22.4	-/-	21.3	-/-
		1 RB high	22.3	-/-	21.6	-/-
		100% RB	21.5	-/-	20.3	-/-
	18900 / 1880.0	1 RB low	22.2	-/-	21.6	-/-
		1 RB high	22.3	-/-	21.6	-/-
		100% RB	21.5	-/-	20.4	-/-
	19125 / 1902.5	1 RB low	22.1	-/-	21.5	-/-
		1 RB high	22.3	-/-	21.5	-/-
		100% RB	21.4	-/-	20.5	-/-
20	18700 / 1860.0	1 RB low	22.6	-/-	21.5	-/-
		1 RB high	21.8	-/-	21.0	-/-
		100% RB	21.3	-/-	20.3	-/-
	18900 / 1880.0	1 RB low	22.2	-/-	21.4	-/-
		1 RB high	22.3	-/-	21.6	-/-
		100% RB	21.4	-/-	20.3	-/-
	19100 / 1900.0	1 RB low	22.0	-/-	21.5	-/-
		1 RB high	22.4	-/-	21.5	-/-
		100% RB	21.4	-/-	20.5	-/-

The radiated output power is measured in the mode with the highest conducted output power.

Output Power (EIRP)			
Bandwidth (MHz)	**Frequency (MHz)**	**Average Output Power (dBm) QPSK**	**Average Output Power (dBm) 16-QAM**
1.4	1850.7	23.6	23.0
	1880.0	23.8	22.8
	1909.3	23.6	22.6
3	1851.5	23.7	22.5
	1880.0	23.8	23.1
	1908.5	23.6	23.0
5	1852.5	23.5	22.7
	1880.0	23.4	22.6
	1907.5	23.5	22.8
10	1855.0	24.0	22.7
	1880.0	23.7	22.9
	1905.0	23.7	23.0
15	1857.5	23.5	22.8
	1880.0	23.5	22.8
	1902.5	23.5	22.7
20	1860.0	23.8	22.7
	1880.0	23.5	22.8
	1900.0	23.6	22.7

14.2.2 Spurious emissions radiated

Description:

The following steps outline the procedure used to measure the radiated emissions from the mobile station. The site is constructed in accordance with ANSI C63.4:2014 requirements and is recognized by the FCC to be in compliance for a 3 and a 10 meter site. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment. The resolution bandwidth is set as outlined in Part 24.238. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to mid channel of the LTE band 2.

Measurement:

Measurement parameters	
Detector:	Peak
Resolution bandwidth:	1 MHz
Video bandwidth:	3 MHz
Span:	100 MHz Steps
Trace mode:	Max Hold
Used equipment:	See chapter 7.1 setup A & 7.2 setup B
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1053 ISED: RSS-Gen, 6.13

Limits:

FCC	ISED
§ 24.238 (a) & (b)	RSS-133, 6.5
(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**. (b) Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. 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. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.	In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least **43 + 10 log(P)** (watts). After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least **43 + 10 log(P)** (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.
-13 dBm	

Results:

QPSK:

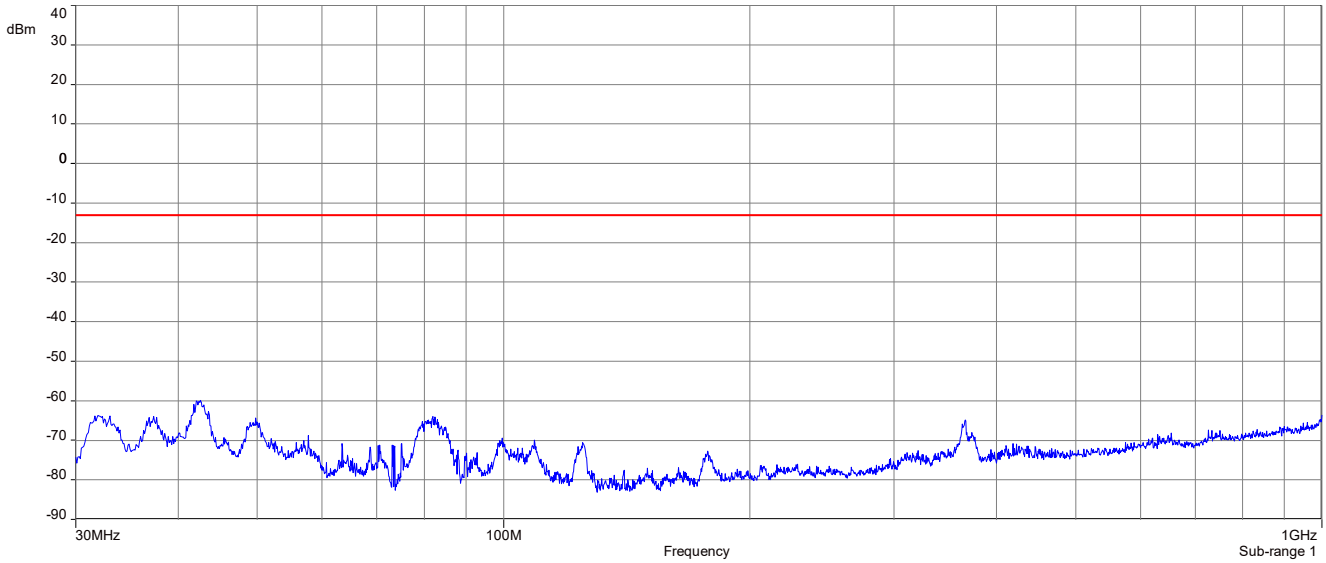
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

16-QAM:

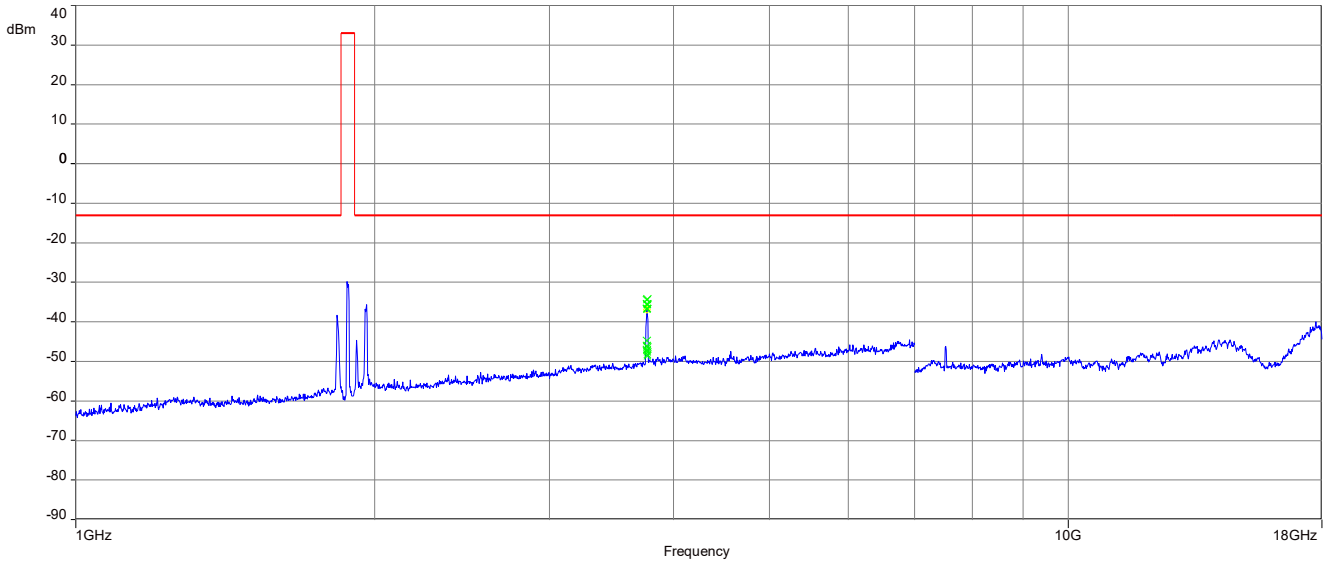
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

QPSK

Plot 1: Mid channel (30 MHz – 1 GHz)

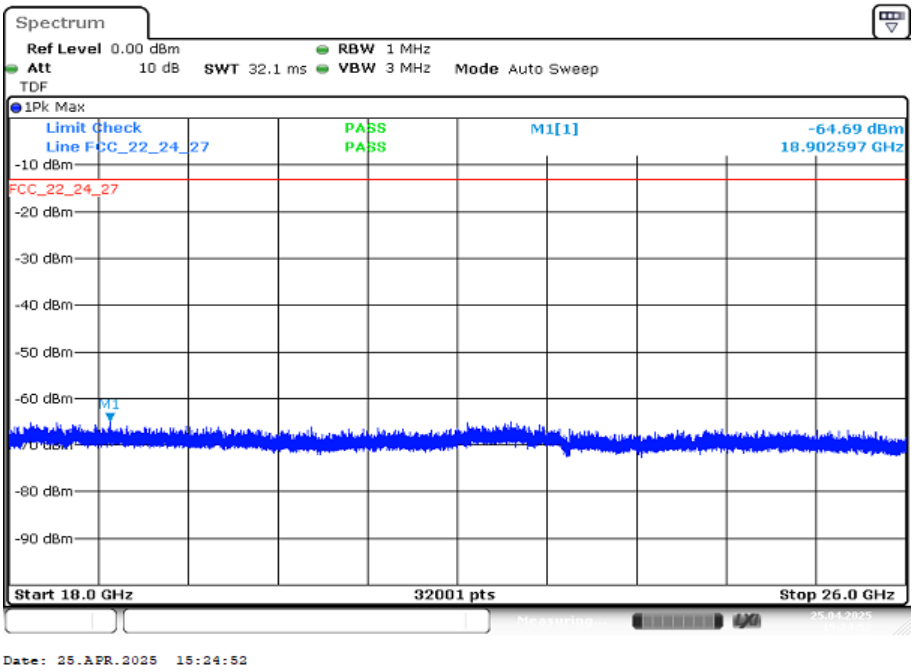


Plot 2: Mid channel (1 GHz – 18 GHz)



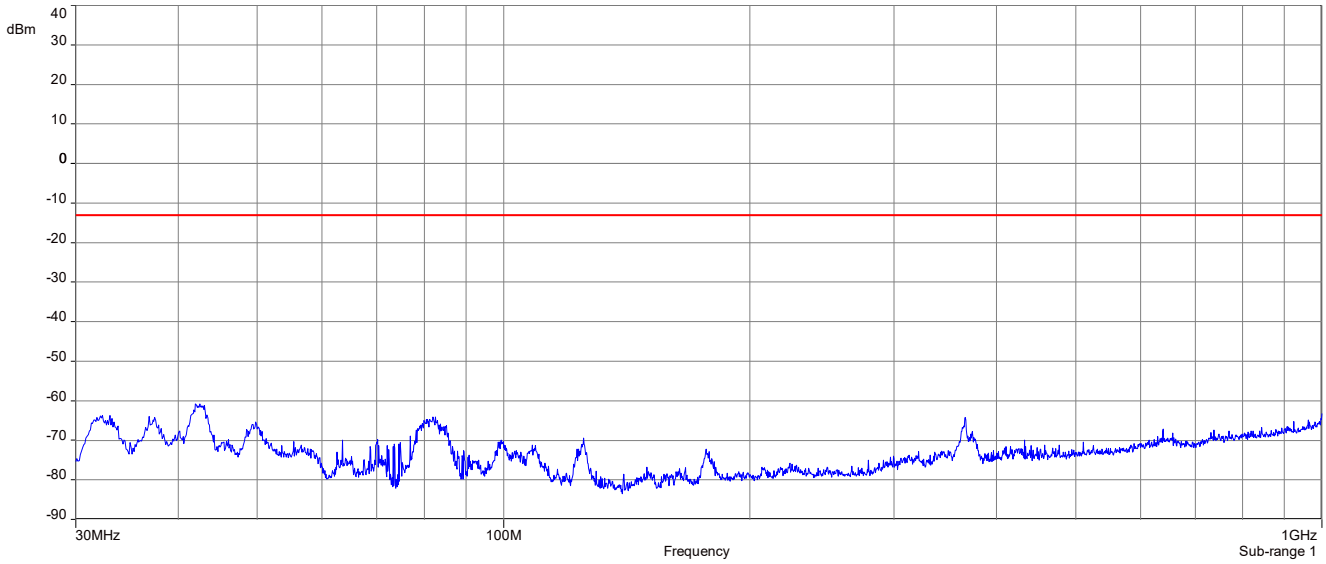
Carrier notched with 1.9 GHz rejection filter

Plot 3: Mid channel (18 GHz – 26 GHz), valid for both modulations

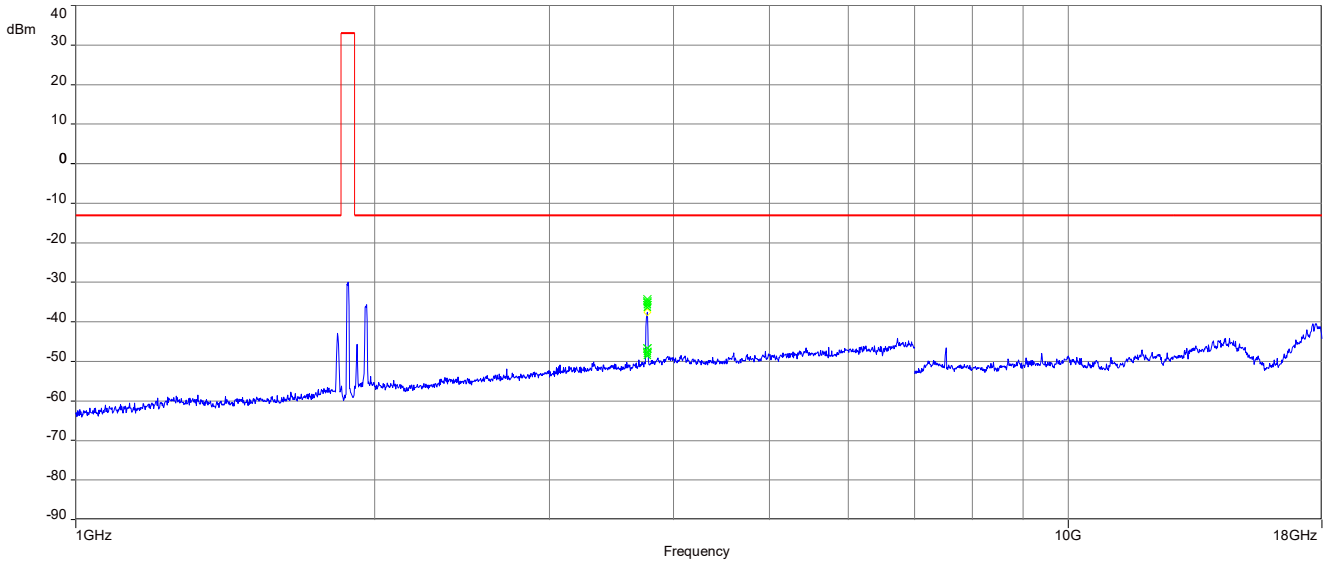


16-QAM

Plot 1: Mid channel (30 MHz – 1 GHz)



Plot 2: Mid channel (1 GHz – 18 GHz)



Carrier notched with 1.9 GHz rejection filter

14.3 Results LTE band 25

The EUT was set to transmit the maximum power.

14.3.1 RF output power

Description:

This paragraph contains average power, peak output power and EIRP measurements for the mobile station. In all cases, the peak output power is within the required mask (this mask is specified in the JTC standards, TIA PN3389 Vol. 1 Chap 7, and is no FCC requirement).

Measurement:

The mobile was set up for the maximum output power with pseudo random data modulation.

To determine the Peak-To-Average Power Ratio (PAPR) the measurement was performed with the Power Complementary Cumulative Distribution Function (CCDF).

Measurement parameters	
Detector:	Sample
AQT:	See plot
Resolution bandwidth:	1 MHz
Used equipment:	See chapter 7.2 setup C & 7.4 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure:	FCC: § 2.1046 ISED: RSS-Gen, 6.12

Limits:

FCC	ISED
$ 24.232(c)	RSS-133, 6.4 (referring to: SRSP-510, Issue 5)
(c) Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications. (d) 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.	SRSP-510, 5.1: Mobile stations and hand-held portables are limited to 2 watts maximum e.i.r.p. RSS-133, 6.4: In addition, the transmitter's peak-to-average power ratio (PAPR) shall not exceed 13 dB for more than 0.1% of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.
Power: **33 dBm EIRP** PAPR: **13 dB**	

Results:

Output Power (conducted)						
Bandwidth (MHz)	**Channel No. / Frequency (MHz)**	**Resource block allocation**	**Average Output Power (dBm) QPSK**	**Peak to Average Ratio (dB)**	**Average Output Power (dBm) 16-QAM**	**Peak to Average Ratio (dB)**
1.4	26047 / 1850.7	1 RB low	21.7	-/-	20.9	-/-
		1 RB high	22.1	-/-	20.9	-/-
		100% RB	20.8	-/-	19.9	-/-
	26365 / 1882.5	1 RB low	22.1	-/-	21.1	-/-
		1 RB high	21.9	-/-	21.2	-/-
		100% RB	21.0	-/-	20.1	-/-
	26683 / 1914.3	1 RB low	21.7	-/-	21.0	-/-
		1 RB high	21.7	-/-	20.7	-/-
		100% RB	20.9	-/-	19.7	-/-
3	26055 / 1851.5	1 RB low	21.7	-/-	20.9	-/-
		1 RB high	22.1	-/-	20.9	-/-
		100% RB	21.0	-/-	20.3	-/-
	26365 / 1882.5	1 RB low	22.1	-/-	21.1	-/-
		1 RB high	22.0	-/-	21.1	-/-
		100% RB	21.1	-/-	20.1	-/-
	26675 / 1913.5	1 RB low	22.1	-/-	21.0	-/-
		1 RB high	21.8	-/-	20.8	-/-
		100% RB	20.9	-/-	20.0	-/-
5	26065 / 1852.5	1 RB low	21.3	-/-	20.9	-/-
		1 RB high	21.8	-/-	20.5	-/-
		100% RB	20.9	-/-	19.7	-/-
	26365 / 1882.5	1 RB low	21.7	-/-	21.0	-/-
		1 RB high	21.6	-/-	21.0	-/-
		100% RB	21.1	-/-	19.9	-/-
	26665 / 1912.5	1 RB low	21.7	-/-	20.8	-/-
		1 RB high	21.5	-/-	20.9	-/-
		100% RB	21.0	-/-	20.2	-/-

10	26090 / 1855.0	1 RB low	22.0	-/-	20.7	-/-
		1 RB high	21.9	-/-	20.9	-/-
		100% RB	21.0	-/-	20.0	-/-
	26365 / 1882.5	1 RB low	22.0	-/-	21.3	-/-
		1 RB high	21.8	-/-	21.2	-/-
		100% RB	21.0	-/-	20.0	-/-
	26640 / 1910.0	1 RB low	22.0	-/-	21.1	-/-
		1 RB high	21.7	-/-	20.8	-/-
		100% RB	21.1	-/-	20.1	-/-
15	26115 / 1857.5	1 RB low	22.0	-/-	20.6	-/-
		1 RB high	21.9	-/-	21.3	-/-
		100% RB	21.0	-/-	20.0	-/-
	26365 / 1882.5	1 RB low	22.1	-/-	21.2	-/-
		1 RB high	21.9	-/-	21.1	-/-
		100% RB	21.0	-/-	20.2	-/-
	26615 / 1907.5	1 RB low	21.8	-/-	21.3	-/-
		1 RB high	21.8	-/-	21.0	-/-
		100% RB	21.0	-/-	20.2	-/-
20	26140 / 1860.0	1 RB low	21.9	-/-	20.5	-/-
		1 RB high	21.5	-/-	20.5	-/-
		100% RB	21.0	-/-	20.0	-/-
	26365 / 1882.5	1 RB low	22.0	-/-	21.1	-/-
		1 RB high	21.9	-/-	21.2	-/-
		100% RB	21.1	-/-	20.2	-/-
	26590 / 1905.0	1 RB low	21.8	-/-	21.1	-/-
		1 RB high	22.0	-/-	21.0	-/-
		100% RB	21.1	-/-	20.1	-/-

The radiated output power is measured in the mode with the highest conducted output power.

Output Power (EIRP)			
Bandwidth (MHz)	**Frequency (MHz)**	**Average Output Power (dBm) QPSK**	**Average Output Power (dBm) 16-QAM**
1.4	1850.7	23.7	22.5
	1882.5	23.7	22.8
	1914.3	23.3	22.6
3	1851.5	23.7	22.5
	1882.5	23.7	22.7
	1913.5	23.7	22.6
5	1852.5	23.4	22.5
	1882.5	23.3	22.6
	1912.5	23.3	22.5
10	1855.0	23.6	22.5
	1882.5	23.6	22.9
	1910.0	23.6	22.7
15	1857.5	23.6	22.9
	1882.5	23.7	22.8
	1907.5	23.4	22.9
20	1860.0	23.5	22.1
	1882.5	23.6	22.8
	1905.0	23.6	22.7

14.3.2 Spurious emissions radiated

Description:

The following steps outline the procedure used to measure the radiated emissions from the mobile station. The site is constructed in accordance with ANSI C63.4:2014 requirements and is recognized by the FCC to be in compliance for a 3 and a 10 meter site. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment. The resolution bandwidth is set as outlined in Part 24.238. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to mid channel of the LTE band 25.

Measurement:

Measurement parameters	
Detector:	Peak
Resolution bandwidth:	1 MHz
Video bandwidth:	3 MHz
Span:	100 MHz Steps
Trace mode:	Max Hold
Used equipment:	See chapter 7.1 setup A & 7.2 setup B
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1053 ISED: RSS-Gen, 6.13

Limits:

FCC	ISED
§ 24.238 (a) & (b)	RSS-133, 6.5
(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**. (b) Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. 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. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.	In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least **43 + 10 log(P)** (watts). After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least **43 + 10 log(P)** (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.
-13 dBm	

Results:

QPSK:

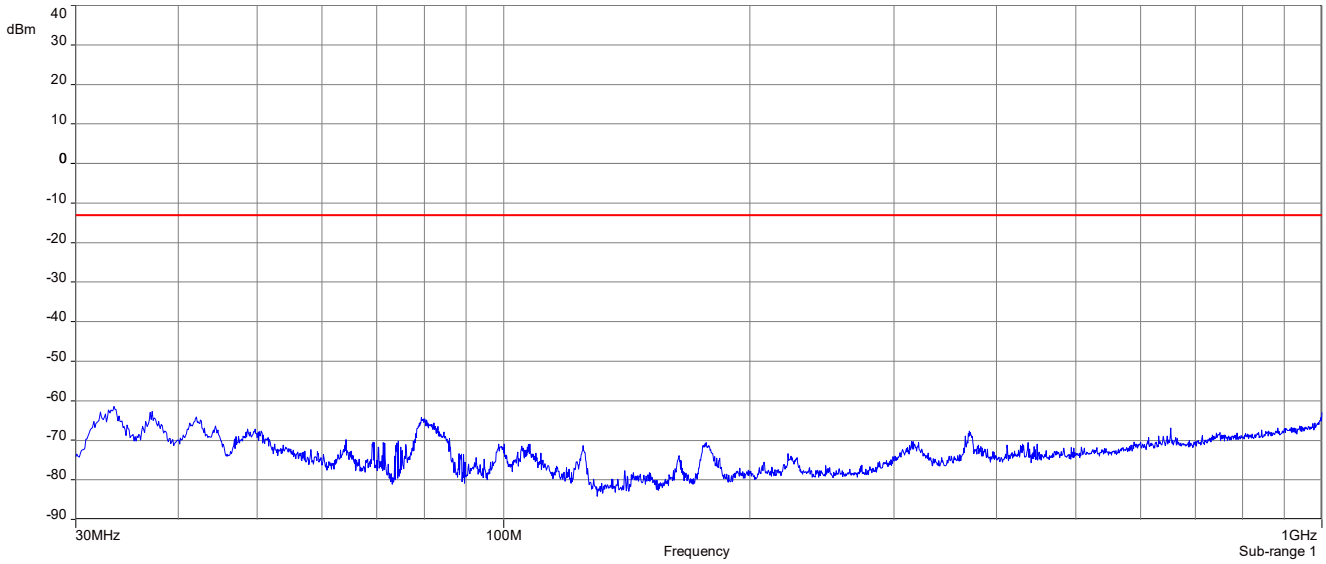
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

16-QAM:

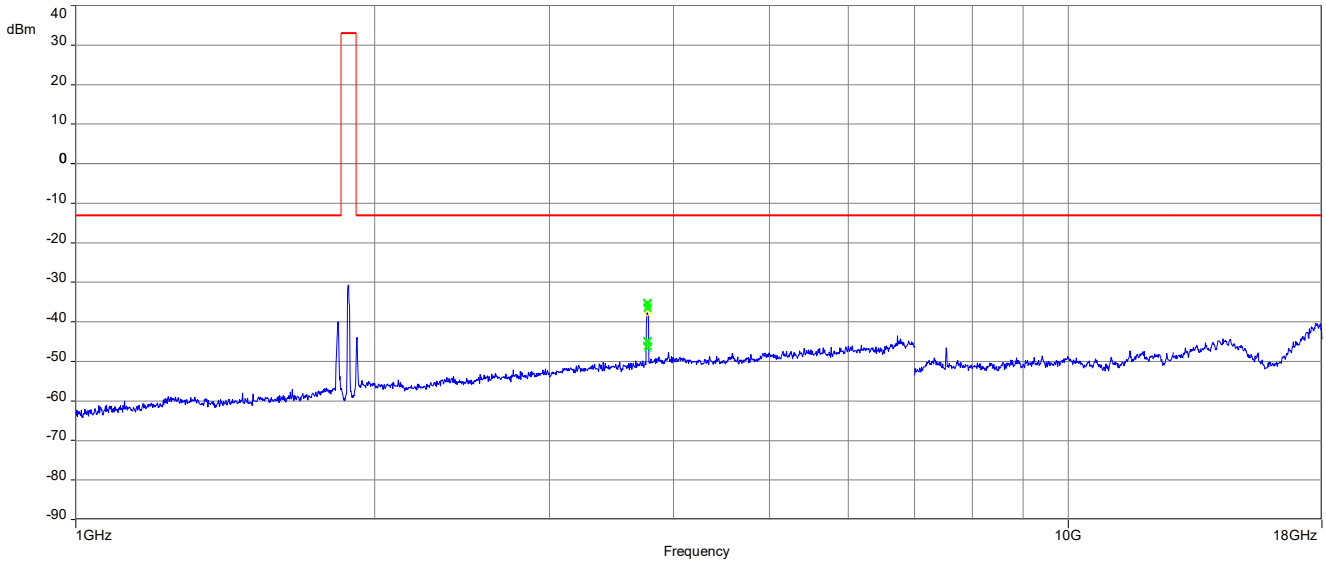
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

QPSK

Plot 1: Mid channel (30 MHz – 1 GHz)

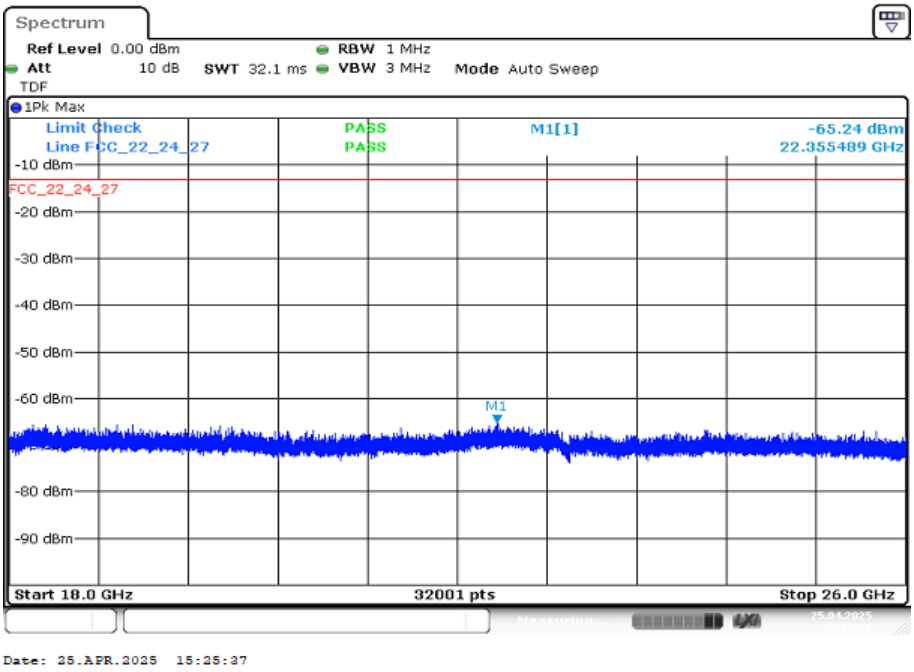


Plot 2: Mid channel (1 GHz – 18 GHz)



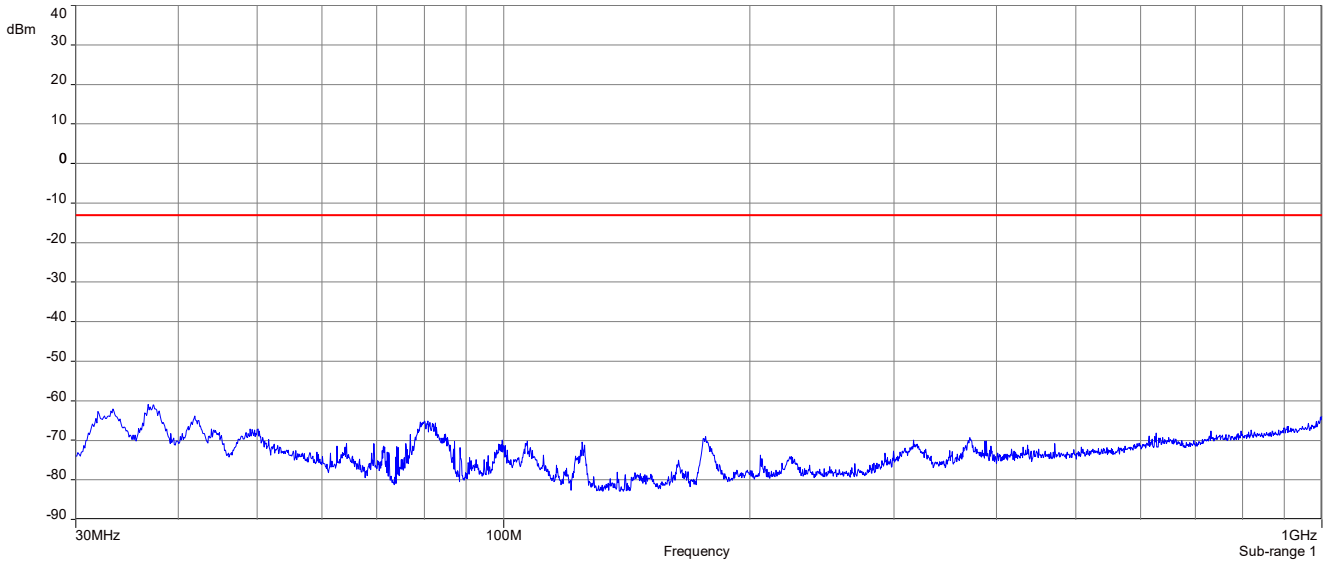
Carrier notched with 1.9 GHz rejection filter

Plot 3: Mid channel (18 GHz – 26 GHz), valid for both modulations

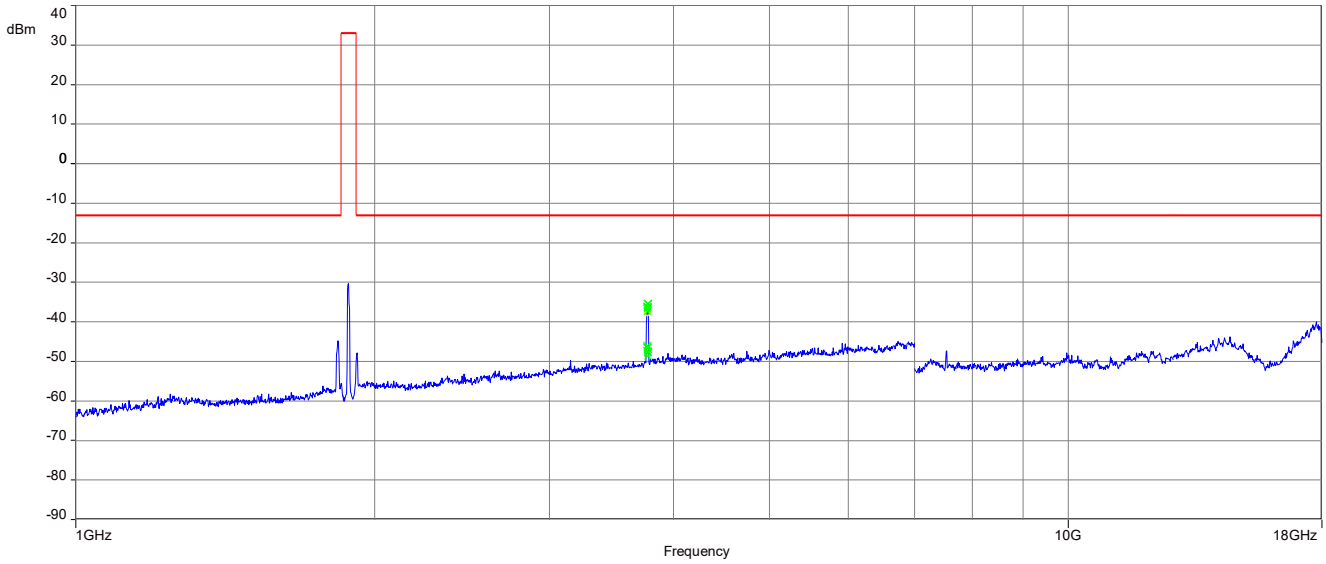


16-QAM

Plot 1: Mid channel (30 MHz – 1 GHz)



Plot 2: Mid channel (1 GHz – 18 GHz)



Carrier notched with 1.9 GHz rejection filter

15 Summary of measurement results

☒	No deviations from the technical specifications were ascertained
☐	There were deviations from the technical specifications ascertained
☐	This test report is only a partial test report. The content and verdict of the performed test cases are listed below.

TC identifier	Description	verdict	date	Remark
RF-Testing	FCC: CFR Part 2 & Part 27 ISED: RSS-Gen, Issue 5 RSS-130, Issue 2 (LTE Bands 12, 13, 17) RSS-139, Issue 4 (LTE Bands 4 and 66) RSS-199, Issue 4 (LTE Bands 7 and 41)	See table!	2025-07-08	-/-

15.1 Part 27/RSS-139: LTE band 4

Test Case	temperature conditions	power source voltages	C	NC	NA	NP	Remark
RF Output Power	Nominal	Nominal	☒	☐	☐	☐	-/-
Frequency Stability	Extreme	Extreme	☐	☐	☐	☒	-/-
Spurious Emissions Radiated	Nominal	Nominal	☒	☐	☐	☐	-/-
Spurious Emissions Conducted	Nominal	Nominal	☐	☐	☐	☒	-/-
Block Edge Compliance	Nominal	Nominal	☐	☐	☐	☒	-/-
Occupied Bandwidth	Nominal	Nominal	☐	☐	☐	☒	-/-

Notes:

C	Compliant	**NC**	Not compliant	**NA**	Not applicable	**NP**	Not performed

15.2 Part 27/RSS-199: LTE band 7

Test Case	temperature conditions	power source voltages	C	NC	NA	NP	Remark
RF Output Power	Nominal	Nominal	☒	☐	☐	☐	-/-
Frequency Stability	Extreme	Extreme	☐	☐	☐	☒	-/-
Spurious Emissions Radiated	Nominal	Nominal	☒	☐	☐	☐	-/-
Spurious Emissions Conducted	Nominal	Nominal	☐	☐	☐	☒	-/-
Block Edge Compliance	Nominal	Nominal	☐	☐	☐	☒	-/-
Occupied Bandwidth	Nominal	Nominal	☐	☐	☐	☒	-/-

Notes:

C	Compliant	NC	Not compliant	NA	Not applicable	NP	Not performed

15.3 Part 27/RSS-130: LTE band 12

Test Case	temperature conditions	power source voltages	C	NC	NA	NP	Remark
RF Output Power	Nominal	Nominal	☒	☐	☐	☐	-/-
Frequency Stability	Extreme	Extreme	☐	☐	☐	☒	-/-
Spurious Emissions Radiated	Nominal	Nominal	☒	☐	☐	☐	-/-
Spurious Emissions Conducted	Nominal	Nominal	☐	☐	☐	☒	-/-
Block Edge Compliance	Nominal	Nominal	☐	☐	☐	☒	-/-
Occupied Bandwidth	Nominal	Nominal	☐	☐	☐	☒	-/-

Notes:

C	Compliant	NC	Not compliant	NA	Not applicable	NP	Not performed

15.4 Part 27/RSS-130: LTE band 13

Test Case	temperature conditions	power source voltages	C	NC	NA	NP	Remark
RF Output Power	Nominal	Nominal	☒	☐	☐	☐	-/-
Frequency Stability	Extreme	Extreme	☐	☐	☐	☒	-/-
Spurious Emissions Radiated	Nominal	Nominal	☒	☐	☐	☐	-/-
Spurious Emissions Conducted	Nominal	Nominal	☐	☐	☐	☒	-/-
Block Edge Compliance	Nominal	Nominal	☐	☐	☐	☒	-/-
Occupied Bandwidth	Nominal	Nominal	☐	☐	☐	☒	-/-

Notes:

C	Compliant	NC	Not compliant	NA	Not applicable	NP	Not performed

15.5 Part 27/RSS-130: LTE band 17

Test Case	temperature conditions	power source voltages	C	NC	NA	NP	Remark
RF Output Power	Nominal	Nominal	☒	☐	☐	☐	-/-
Frequency Stability	Extreme	Extreme	☐	☐	☐	☒	-/-
Spurious Emissions Radiated	Nominal	Nominal	☒	☐	☐	☐	-/-
Spurious Emissions Conducted	Nominal	Nominal	☐	☐	☐	☒	-/-
Block Edge Compliance	Nominal	Nominal	☐	☐	☐	☒	-/-
Occupied Bandwidth	Nominal	Nominal	☐	☐	☐	☒	-/-

Notes:

C	Compliant	NC	Not compliant	NA	Not applicable	NP	Not performed

15.6 Part 27/RSS-199: LTE band 41

Test Case	temperature conditions	power source voltages	C	NC	NA	NP	Remark
RF Output Power	Nominal	Nominal	☒	☐	☐	☐	-/-
Frequency Stability	Extreme	Extreme	☐	☐	☐	☒	-/-
Spurious Emissions Radiated	Nominal	Nominal	☒	☐	☐	☐	-/-
Spurious Emissions Conducted	Nominal	Nominal	☐	☐	☐	☒	-/-
Block Edge Compliance	Nominal	Nominal	☐	☐	☐	☒	-/-
Occupied Bandwidth	Nominal	Nominal	☐	☐	☐	☒	-/-

Notes:

C	Compliant	NC	Not compliant	NA	Not applicable	NP	Not performed

15.7 Part 27/RSS-139: LTE band 66

Test Case	temperature conditions	power source voltages	C	NC	NA	NP	Remark
RF Output Power	Nominal	Nominal	☒	☐	☐	☐	-/-
Frequency Stability	Extreme	Extreme	☐	☐	☐	☒	-/-
Spurious Emissions Radiated	Nominal	Nominal	☒	☐	☐	☐	-/-
Spurious Emissions Conducted	Nominal	Nominal	☐	☐	☐	☒	-/-
Block Edge Compliance	Nominal	Nominal	☐	☐	☐	☒	-/-
Occupied Bandwidth	Nominal	Nominal	☐	☐	☐	☒	-/-

Notes:

C	Compliant	NC	Not compliant	NA	Not applicable	NP	Not performed

16 RF measurements

16.1 Description of test setup

For the spurious measurements we use the substitution method according TIA/EIA 603.

16.2 Results LTE band 4

The EUT was set to transmit the maximum power.

16.2.1 RF output power

Description:

This paragraph contains average power, peak output power and EIRP measurements for the mobile station. In all cases, the peak output power is within the required mask (this mask is specified in the JTC standards, TIA PN3389 Vol. 1 Chap 7, and is no FCC requirement).

Measurement:

The mobile was set up for the maximum output power with pseudo random data modulation.

To determine the Peak-To-Average Power Ratio (PAPR) the measurement was performed with the Power Complementary Cumulative Distribution Function (CCDF).

Measurement parameters	
Detector:	Sample
AQT:	See plot
Resolution bandwidth:	1 MHz
Used equipment:	See chapter 7.4 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1046 ISED: RSS-Gen, 6.12

Limits:

FCC	ISED
§ 27.50(d)(4) & (5)	RSS-139, 6.5
(4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. (5) 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.	The equivalent isotropically radiated power (e.i.r.p.) for mobile and portable transmitters shall not exceed one watt. In addition, the peak to average power ratio (PAPR) of the equipment shall not exceed 13 dB for more than 0.1% of the time, using a signal that corresponds to the highest PAPR during periods of continuous transmission.
Power: **33 dBm EIRP** PAPR: **13 dB**	

Results:

Output Power (conducted)						
Bandwidth (MHz)	**Channel No. / Frequency (MHz)**	**Resource block allocation**	**Average Output Power (dBm) QPSK**	**Peak to Average Ratio (dB)**	**Average Output Power (dBm) 16-QAM**	**Peak to Average Ratio (dB)**
1.4	19957 / 1710.7	1 RB low	22.2	-/-	21.3	-/-
		1 RB high	22.5	-/-	21.4	-/-
		100% RB	21.6	-/-	20.5	-/-
	20175 / 1732.5	1 RB low	22.2	-/-	21.3	-/-
		1 RB high	22.1	-/-	21.7	-/-
		100% RB	21.3	-/-	20.3	-/-
	20393 / 1754.3	1 RB low	22.3	-/-	21.6	-/-
		1 RB high	22.2	-/-	21.4	-/-
		100% RB	21.5	-/-	20.2	-/-
3	19965 / 1711.5	1 RB low	22.4	-/-	21.4	-/-
		1 RB high	22.8	-/-	21.4	-/-
		100% RB	21.6	-/-	20.5	-/-
	20175 / 1732.5	1 RB low	22.0	-/-	20.9	-/-
		1 RB high	22.0	-/-	21.4	-/-
		100% RB	21.4	-/-	20.5	-/-
	20385 / 1753.5	1 RB low	22.6	-/-	21.6	-/-
		1 RB high	22.1	-/-	20.9	-/-
		100% RB	21.7	-/-	20.7	-/-
5	19975 / 1712.5	1 RB low	22.1	-/-	21.0	-/-
		1 RB high	22.3	-/-	21.0	-/-
		100% RB	21.5	-/-	20.5	-/-
	20175 / 1732.5	1 RB low	21.9	-/-	21.2	-/-
		1 RB high	21.9	-/-	21.3	-/-
		100% RB	21.3	-/-	20.5	-/-
	20375 / 1752.5	1 RB low	22.6	-/-	21.7	-/-
		1 RB high	22.2	-/-	21.4	-/-
		100% RB	21.7	-/-	20.9	-/-

10	20000 / 1715.0	1 RB low	22.4	-/-	21.6	-/-
		1 RB high	22.8	-/-	21.5	-/-
		100% RB	21.5	-/-	20.5	-/-
	20175 / 1732.5	1 RB low	22.3	-/-	21.6	-/-
		1 RB high	22.1	-/-	21.4	-/-
		100% RB	21.3	-/-	20.2	-/-
	20350 / 1750.0	1 RB low	22.7	-/-	21.8	-/-
		1 RB high	22.6	-/-	21.6	-/-
		100% RB	21.9	-/-	20.7	-/-
15	20025 / 1717.5	1 RB low	22.5	-/-	21.1	-/-
		1 RB high	22.7	-/-	21.8	-/-
		100% RB	21.5	-/-	20.7	-/-
	20175 / 1732.5	1 RB low	22.3	-/-	21.6	-/-
		1 RB high	22.1	-/-	21.4	-/-
		100% RB	21.4	-/-	20.4	-/-
	20325 / 1747.5	1 RB low	22.3	-/-	21.3	-/-
		1 RB high	22.5	-/-	21.6	-/-
		100% RB	21.8	-/-	20.9	-/-
20	20050 / 1720.0	1 RB low	22.5	-/-	21.5	-/-
		1 RB high	22.2	-/-	21.3	-/-
		100% RB	21.5	-/-	20.6	-/-
	20175 / 1732.5	1 RB low	22.3	-/-	21.7	-/-
		1 RB high	22.5	-/-	21.2	-/-
		100% RB	21.4	-/-	20.5	-/-
	20300 / 1745.0	1 RB low	22.4	-/-	21.8	-/-
		1 RB high	22.8	-/-	22.0	-/-
		100% RB	21.7	-/-	20.5	-/-

The radiated output power is measured in the mode with the highest conducted output power.

Output Power (EIRP)			
Bandwidth (MHz)	**Frequency (MHz)**	**Average Output Power (dBm) QPSK**	**Average Output Power (dBm) 16-QAM**
1.4	1710.7	23.9	22.8
	1732.5	23.6	23.1
	1754.3	23.7	23.0
3	1711.5	24.2	22.8
	1732.5	23.4	22.8
	1753.5	24.0	23.0
5	1712.5	23.7	22.4
	1732.5	23.3	22.7
	1752.5	24.0	23.1
10	1715.0	24.2	23.0
	1732.5	23.5	23.0
	1750.0	24.1	23.2
15	1717.5	24.1	22.5
	1732.5	23.7	23.0
	1747.5	23.9	23.0
20	1720.0	23.9	22.9
	1732.5	23.9	23.1
	1745.0	24.2	23.4

16.2.2 Spurious emissions radiated

Description:

The following steps outline the procedure used to measure the radiated emissions from the mobile station. The site is constructed in accordance with ANSI C63.4:2014 requirements and is recognized by the FCC to be in compliance for a 3 and a 10 meter site. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 1750 MHz. Measurement made up to 18 GHz. The resolution bandwidth is set as outlined in Part 27.53. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to mid channel of the LTE band 4.

Measurement:

Measurement parameters	
Detector:	Peak
Resolution bandwidth:	1 MHz
Video bandwidth:	3 MHz
Span:	100 MHz Steps
Trace mode:	Max Hold
Used equipment:	See chapter 7.2 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1053 ISED: RSS-Gen, 6.13

Limits:

FCC	ISED
§ 27.53(h)(1) & (3)	RSS-139, 6.6
(1) Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB. (3) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's 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 points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.	i. In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 log10 (P) (watts) dB. ii. After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 log10 (P) (watts) dB.
-13 dBm	

Results:

QPSK

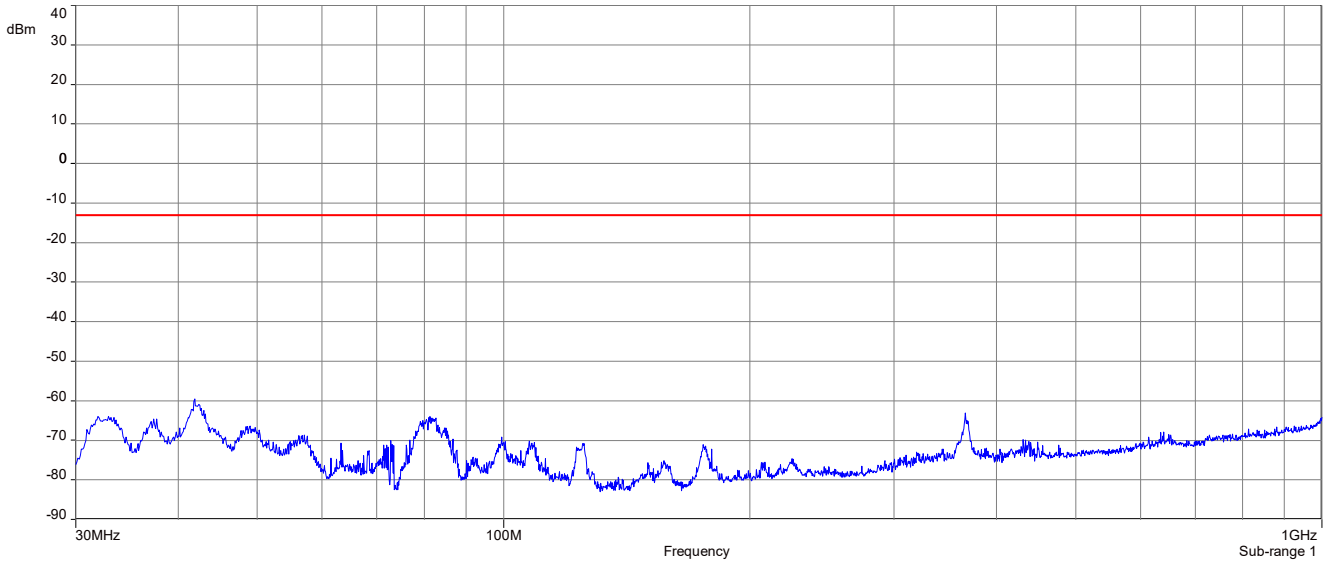
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

16-QAM

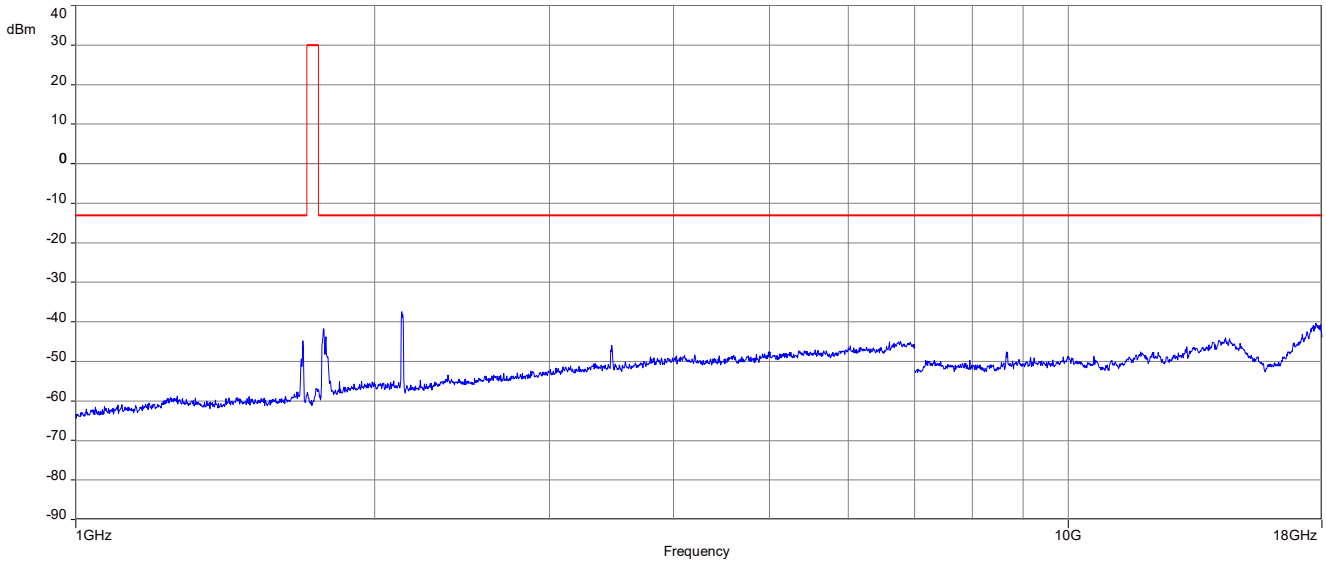
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

QPSK

Plot 1: Middle channel, 30 MHz to 1GHz

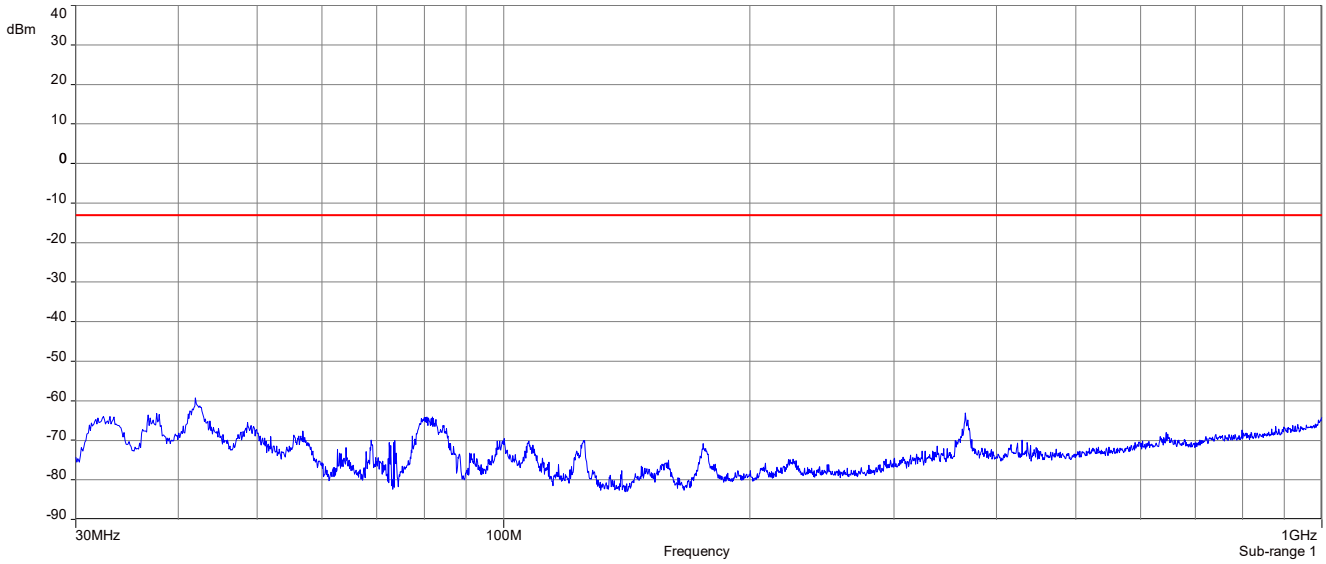


Plot 2: Middle channel, 1 GHz to 18GHz

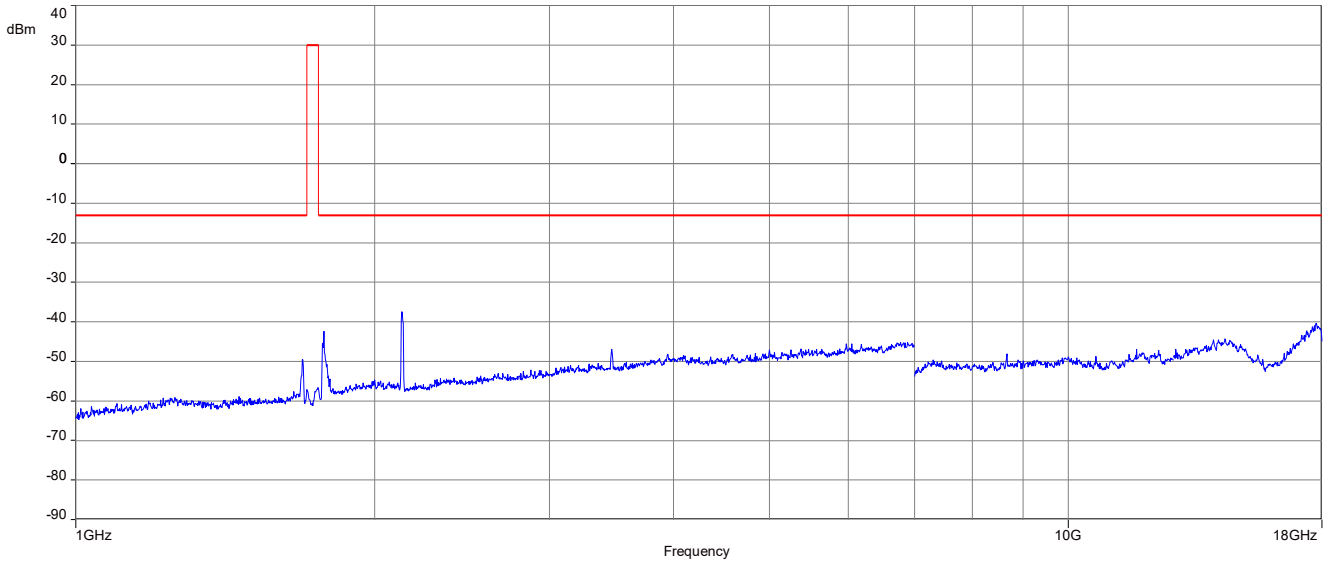


16-QAM

Plot 1: Middle channel, 30 MHz to 1 GHz



Plot 2: Middle channel, 1 GHz to 18 GHz



16.3 Results LTE – Band 7

The EUT was set to transmit the maximum power.

16.3.1 RF output power

Description:

This paragraph contains average power, peak output power and EIRP measurements for the mobile station. In all cases, the peak output power is within the required mask (this mask is specified in the JTC standards, TIA PN3389 Vol. 1 Chap 7, and is no FCC requirement).

Measurement:

The mobile was set up for the maximum output power with pseudo random data modulation.

To determine the Peak-To-Average Power Ratio (PAPR) the measurement was performed with the Power Complementary Cumulative Distribution Function (CCDF).

Measurement parameters	
Detector:	Sample
AQT:	See plot
Resolution bandwidth:	1 MHz
Used equipment:	See chapter 7.4 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1046 ISED: RSS-Gen, 6.12

Limits:

FCC	ISED
§ 27.50(h)(2)	RSS-199, 5.5
Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power	Subscriber equipment other than fixed subscriber equipment shall not exceed an e.i.r.p of 2W per channel bandwidth. In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.
Power: **33 dBm EIRP** PAPR: **13 dB (Only ISED)**	

Results:

Output Power (conducted)						
Bandwidth (MHz)	**Frequency (MHz)**	**Resource block allocation**	**Average Output Power (dBm) QPSK**	**Peak to Average Ratio (dB)**	**Average Output Power (dBm) 16-QAM**	**Peak to Average Ratio (dB)**
5	20775 / 2502.5	1 RB low	22.3	-/-	21.6	-/-
		1 RB high	22.5	-/-	21.7	-/-
		50% RB mid	21.7	-/-	20.9	-/-
		100% RB	21.7	-/-	20.5	-/-
	21100 / 2535	1 RB low	22.6	-/-	21.5	-/-
		1 RB high	22.7	-/-	22.0	-/-
		50% RB mid	22.0	-/-	21.0	-/-
		100% RB	21.9	-/-	21.1	-/-
	21425 / 2567.5	1 RB low	22.8	-/-	21.8	-/-
		1 RB high	22.4	-/-	22.0	-/-
		50% RB mid	22.0	-/-	21.3	-/-
		100% RB	22.0	-/-	21.2	-/-
10	20800 / 2505	1 RB low	22.4	-/-	21.8	-/-
		1 RB high	23.0	-/-	21.5	-/-
		50% RB mid	21.8	-/-	20.9	-/-
		100% RB	21.7	-/-	20.7	-/-
	21100 / 2535	1 RB low	22.7	-/-	22.0	-/-
		1 RB high	22.8	-/-	22.0	-/-
		50% RB mid	22.0	-/-	21.0	-/-
		100% RB	21.9	-/-	20.9	-/-
	21400 / 2565	1 RB low	22.9	-/-	22.2	-/-
		1 RB high	22.7	-/-	22.0	-/-
		50% RB mid	22.1	-/-	21.1	-/-
		100% RB	22.1	-/-	20.9	-/-
15	20825 / 2507.5	1 RB low	22.5	-/-	21.6	-/-
		1 RB high	22.9	-/-	22.0	-/-
		50% RB mid	21.7	-/-	20.8	-/-
		100% RB	21.7	-/-	20.7	-/-
	21100 / 2535	1 RB low	22.9	-/-	22.2	-/-
		1 RB high	22.6	-/-	21.9	-/-
		50% RB mid	22.0	-/-	21.1	-/-
		100% RB	21.9	-/-	21.1	-/-
	21375 / 2562.5	1 RB low	22.8	-/-	22.0	-/-
		1 RB high	22.7	-/-	21.6	-/-
		50% RB mid	22.1	-/-	21.2	-/-
		100% RB	22.1	-/-	21.1	-/-

20	20850 / 2510	1 RB low	22.5	-/-	21.7	-/-
		1 RB high	22.5	-/-	21.4	-/-
		50% RB mid	21.9	-/-	20.9	-/-
		100% RB	21.8	-/-	20.8	-/-
	21100 / 2535	1 RB low	22.8	-/-	22.1	-/-
		1 RB high	22.3	-/-	21.9	-/-
		50% RB mid	22.0	-/-	21.0	-/-
		100% RB	21.9	-/-	20.9	-/-
	21350 / 2560	1 RB low	22.7	-/-	22.0	-/-
		1 RB high	22.7	-/-	22.0	-/-
		50% RB mid	22.0	-/-	20.9	-/-
		100% RB	22.0	-/-	21.1	-/-

The radiated output power is measured in the mode with the highest conducted output power.

Output Power (EIRP)			
Bandwidth (MHz)	**Frequency (MHz)**	**Average Output Power (dBm) QPSK**	**Average Output Power (dBm) 16-QAM**
5	2502.5	26.6	25.8
	2535.0	26.8	26.1
	25.67.5	26.9	26.1
10	2505.0	27.1	25.9
	2535.0	26.9	26.1
	2565.0	27.0	26.3
15	2507.5	27.0	26.1
	2535.0	27.0	26.3
	2562.5	26.9	26.1
20	2510.0	26.6	25.8
	2535.0	26.9	26.2
	2560.0	26.8	26.1

16.3.2 Spurious emissions radiated

Description:

The following steps outline the procedure used to measure the radiated emissions from the mobile station. The site is constructed in accordance with ANSI C63.4:2014 requirements and is recognized by the FCC to be in compliance for a 3 and a 10 meter site. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 2570 MHz. Measured up to 40 GHz (depends on the transmitter channel). The resolution bandwidth is set as outlined in Part 27.53. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to mid channel of the LTE band 7.

Measurement:

Measurement parameters	
Detector	Peak
Video bandwidth	Below 1 GHz: 100 kHz Above 1 GHz: 1 MHz
Resolution bandwidth	Below 1 GHz: 100 kHz Above 1 GHz: 1 MHz
Span	100 MHz Steps
Trace mode	Max Hold
Setup	See chapter 7.1 - A; 7.2 - A&C
Measurement uncertainty	See chapter 9

Limits:

<table>
<tr><th>FCC</th><th>ISED</th></tr>
<tr><td>§ 27.53(m) (4)</td><td>RSS-199, 5.6</td></tr>
<tr><td>For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (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 that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 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.</td><td>Table 5:
<table><tr><th>Offset from the edge of the frequency block or frequency block group (MHz)</th><th>Unwanted emission limits</th></tr><tr><td>0-1</td><td>-10 dBm/(2% of OB*)</td></tr><tr><td>1-5</td><td>-10 dBm/MHz</td></tr><tr><td>5-X**</td><td>-13 dBm/MHz</td></tr><tr><td>≥ X</td><td>-25 dBm/MHz</td></tr></table>
In addition to complying with the limits in table 5, subscriber equipment other than fixed subscriber equipment shall not exceed -13 dBm/MHz on all frequencies between 2490.5 MHz and 2496 MHz, and -25 dBm/MHz at or below 2490.5 MHz.</td></tr>
<tr><td colspan="2">-25 dBm</td></tr>
</table>

QPSK

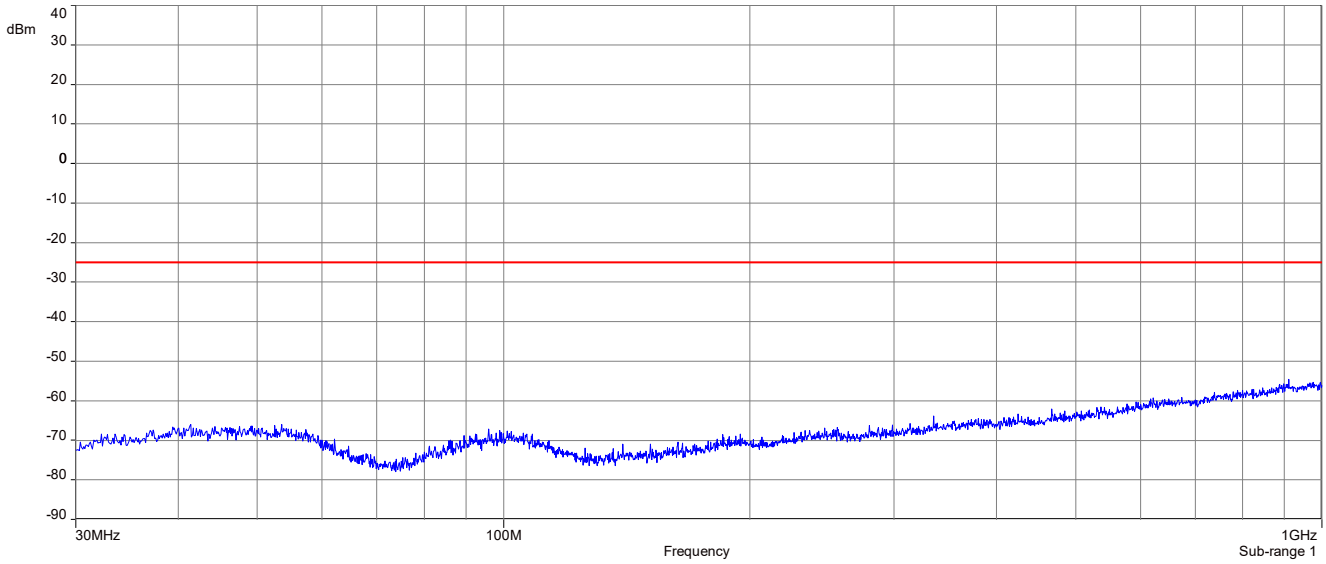
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

16-QAM

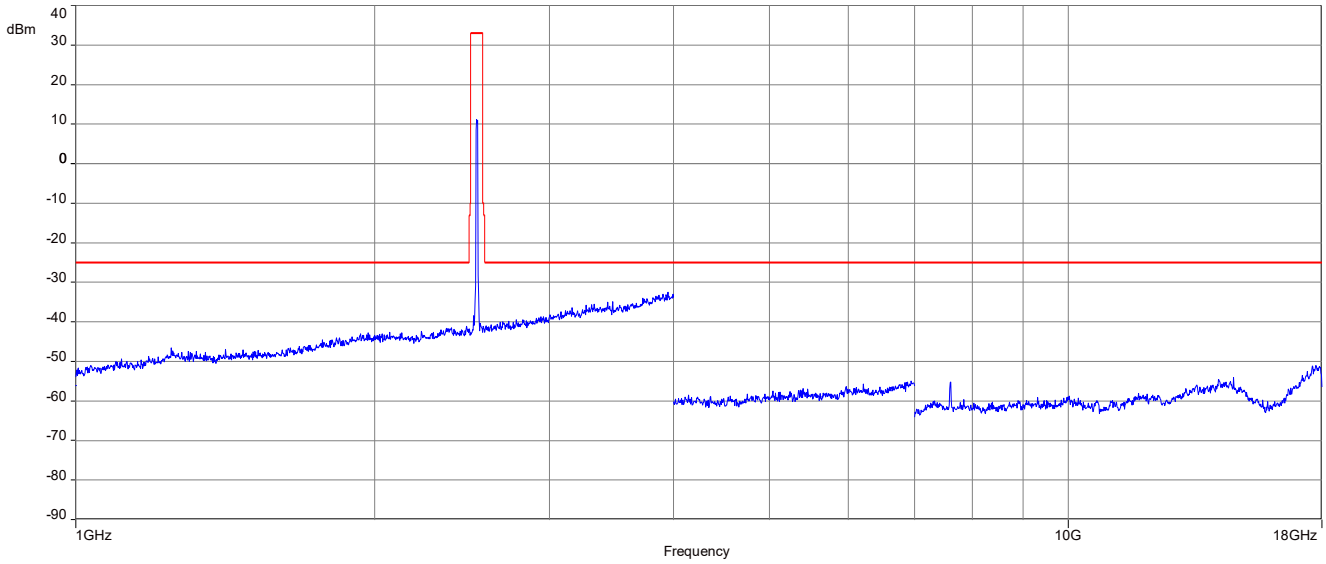
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

Results: QPSK with 10 MHz channel bandwidth

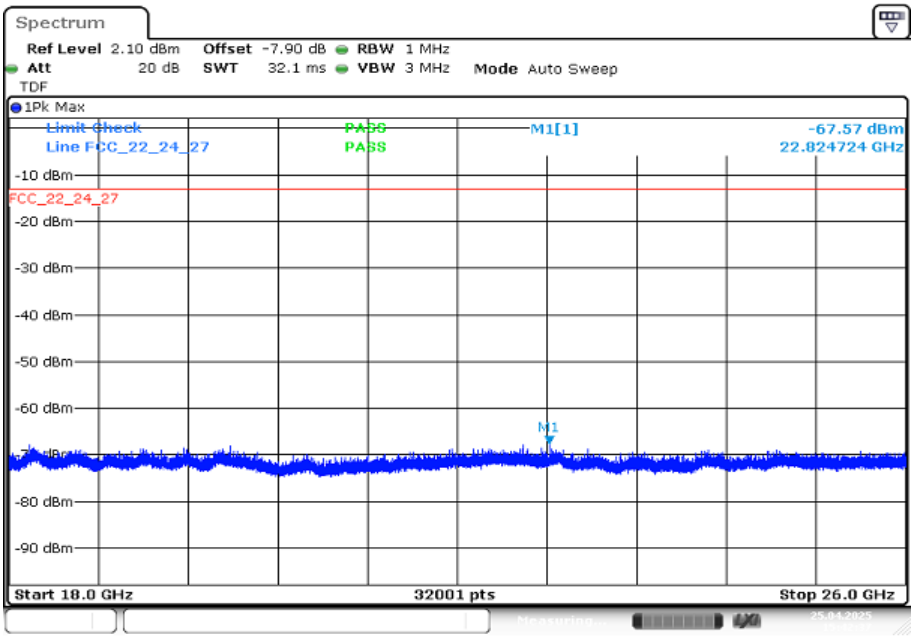
Plot 1: Middle channel, 30 MHz to 1 GHz



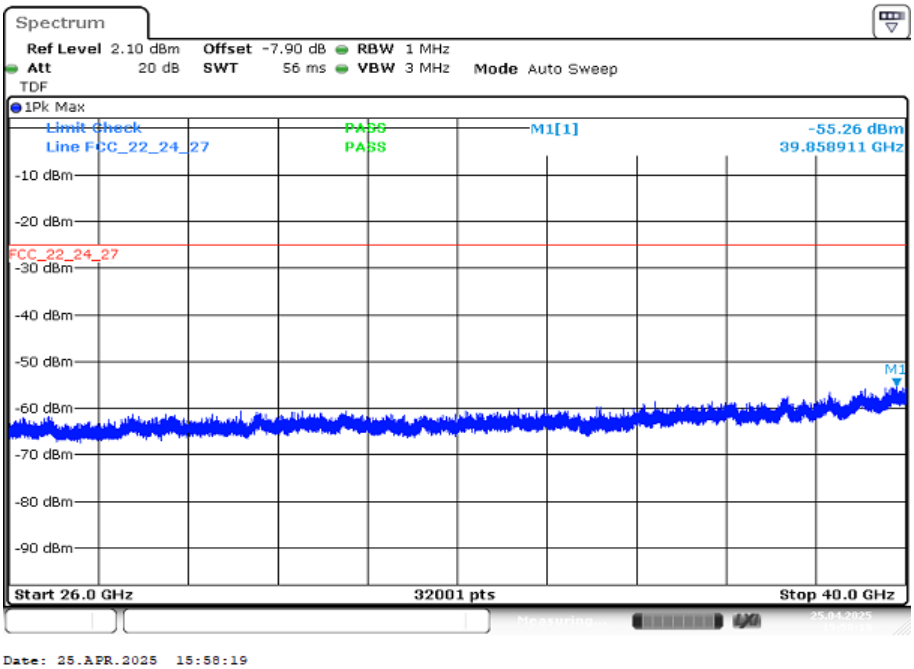
Plot 2: Middle channel, 1 GHz to 18 GHz



Plot 3: Middle channel, 18 GHz to 26 GHz, valid for both modulations

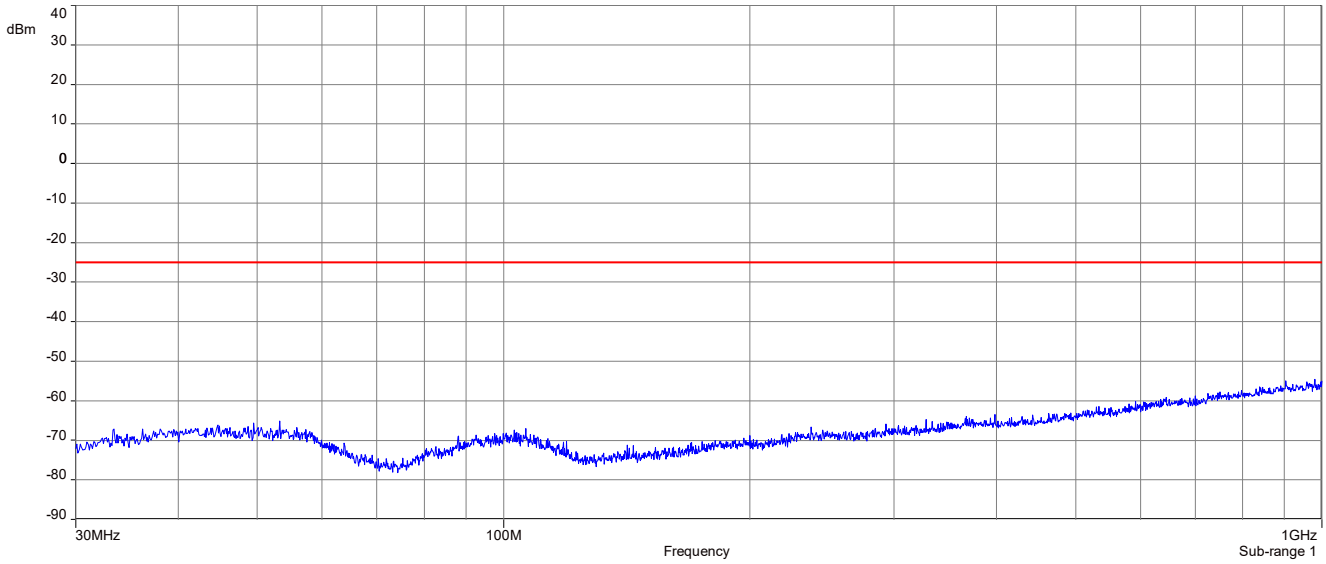


Plot 4: Middle channel, 26 GHz to 40 GHz, valid for both modulations

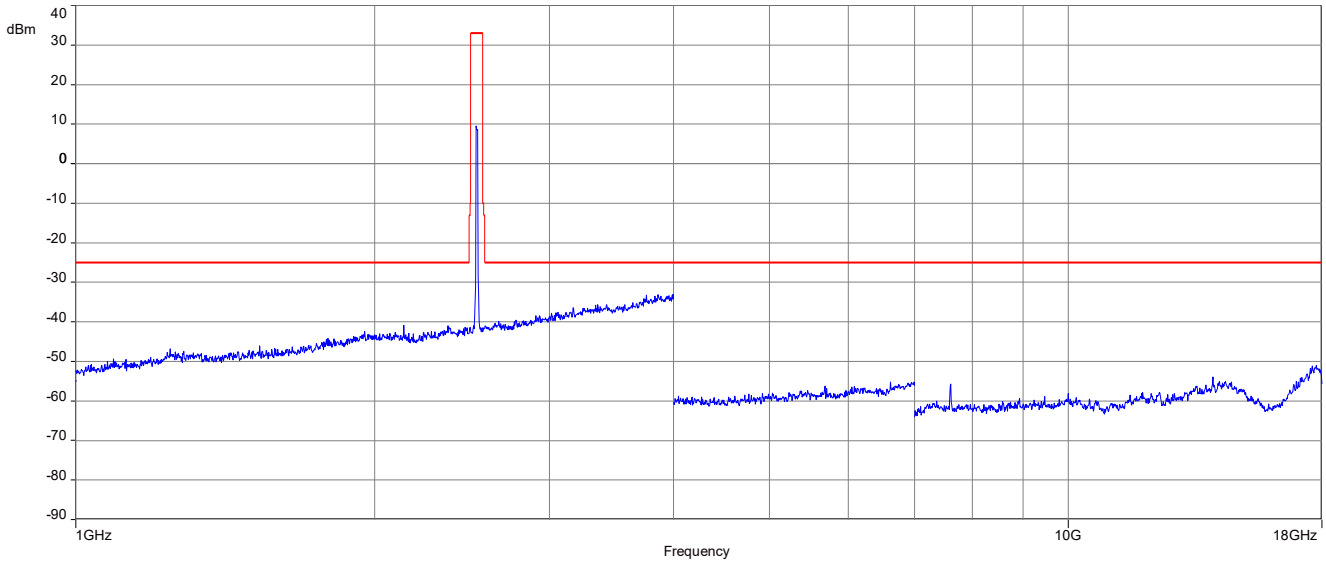


Results: 16-QAM with 10 MHz channel bandwidth

Plot 1: Middle channel, 30 MHz to 1 GHz



Plot 2: Middle channel, 1 GHz to 18 GHz



16.4 Results LTE band 12

The EUT was set to transmit the maximum power.

16.4.1 RF output power

Description:

This paragraph contains average power, peak output power and EIRP measurements for the mobile station. In all cases, the peak output power is within the required mask (this mask is specified in the JTC standards, TIA PN3389 Vol. 1 Chap 7, and is no FCC requirement).

Measurement:

The mobile was set up for the maximum output power with pseudo random data modulation.

To determine the Peak-To-Average Power Ratio (PAPR) the measurement was performed with the Power Complementary Cumulative Distribution Function (CCDF).

Measurement parameters	
Detector:	Sample
AQT:	See plot
Resolution bandwidth:	1 MHz
Used equipment:	See chapter 7.2 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1046 ISED: RSS-Gen, 6.12

Limits:

FCC	ISED
47 CFR 27.50(c)(9)	RSS-130, 4.6.1 & 4.6.3
Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.	4.6.1: The transmitter output power shall be measured in terms of average power. In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission. 4.6.3: The e.r.p. shall not exceed 30 watts for mobile equipment and outdoor fixed subscriber equipment. The e.r.p. shall not exceed 3 watts for portable equipment and indoor fixed subscriber equipment.
Power: **34.77 dBm ERP** PAPR: **13 dB** (ISED only)	

Results:

Output Power (conducted)						
Bandwidth (MHz)	**Channel No. / Frequency (MHz)**	**Resource block allocation**	**Average Output Power (dBm) QPSK**	**Peak to Average Ratio (dB)**	**Average Output Power (dBm) 16-QAM**	**Peak to Average Ratio (dB)**
1.4	23017 / 699.7	1 RB low	23.1	-/-	22.2	-/-
		1 RB high	23.1	-/-	22.2	-/-
		100% RB	22.3	-/-	21.1	-/-
	23095 / 707.5	1 RB low	23.2	-/-	22.6	-/-
		1 RB high	23.2	-/-	22.5	-/-
		100% RB	22.3	-/-	21.2	-/-
	23173 / 715.3	1 RB low	23.4	-/-	22.9	-/-
		1 RB high	23.4	-/-	22.5	-/-
		100% RB	22.5	-/-	21.2	-/-
3	23025 / 700.5	1 RB low	23.1	-/-	22.1	-/-
		1 RB high	23.4	-/-	22.3	-/-
		100% RB	22.3	-/-	21.2	-/-
	23095 / 707.5	1 RB low	23.3	-/-	22.4	-/-
		1 RB high	23.3	-/-	22.5	-/-
		100% RB	22.4	-/-	21.6	-/-
	23165 / 714.5	1 RB low	23.6	-/-	22.6	-/-
		1 RB high	23.4	-/-	22.4	-/-
		100% RB	22.5	-/-	21.5	-/-
5	23035 / 701.5	1 RB low	22.7	-/-	22.0	-/-
		1 RB high	23.2	-/-	22.0	-/-
		100% RB	22.3	-/-	21.2	-/-
	23095 / 707.5	1 RB low	22.8	-/-	22.0	-/-
		1 RB high	23.0	-/-	22.4	-/-
		100% RB	22.3	-/-	21.4	-/-
	23155 / 713.5	1 RB low	23.4	-/-	22.3	-/-
		1 RB high	23.1	-/-	22.4	-/-
		100% RB	22.4	-/-	21.3	-/-
10	23060 / 704.0	1 RB low	22.9	-/-	22.0	-/-
		1 RB high	23.5	-/-	22.2	-/-
		100% RB	22.3	-/-	21.3	-/-
	23095 / 707.5	1 RB low	23.0	-/-	22.3	-/-
		1 RB high	23.1	-/-	22.5	-/-
		100% RB	22.4	-/-	21.4	-/-
	23130 / 711.0	1 RB low	23.4	-/-	22.6	-/-
		1 RB high	23.3	-/-	22.3	-/-
		100% RB	22.4	-/-	21.3	-/-

The radiated output power is measured in the mode with the highest conducted output power.

Output Power (ERP)			
Bandwidth (MHz)	**Frequency (MHz)**	**Average Output Power (dBm) QPSK**	**Average Output Power (dBm) 16-QAM**
1.4	699.7	17.2	16.3
	707.5	17.3	16.7
	715.3	17.5	17.0
3	700.5	17.5	16.4
	707.5	17.4	16.6
	714.5	17.7	16.7
5	701.5	17.3	16.1
	707.5	17.1	16.5
	713.5	17.5	16.5
10	704.0	17.6	16.1
	707.5	17.2	16.6
	711.0	17.5	16.7

16.4.2 Spurious emissions radiated

Description:

The following steps outline the procedure used to measure the radiated emissions from the mobile station. The site is constructed in accordance with ANSI C63.4:2014 requirements and is recognized by the FCC to be in compliance for a 3 and a 10 meter site. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 711 MHz. Measured up to 8 GHz. The resolution bandwidth is set as outlined in Part 27.53. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to mid channel of the LTE band 12.

Measurement:

Measurement parameters	
Detector:	Peak
Resolution bandwidth:	1 MHz
Video bandwidth:	3 MHz
Span:	100 MHz Steps
Trace mode:	Max Hold
Used equipment:	See chapter 7.2 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1053 ISED: RSS-Gen, 6.13

Limits:

FCC	ISED
§ 27.53(g)	RSS-130, 4.7.1
For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.	The unwanted emissions in any 100 kHz bandwidth on any frequency outside the low frequency edge and the high frequency edge of each frequency block range(s), shall be attenuated below the transmitter power, P (dBW), by at least 43 + 10 log10 p (watts), dB. However, in the 100 kHz band immediately outside of the equipment's frequency block range, a resolution bandwidth of 30 kHz may be employed.
-13 dBm	

Results:

QPSK

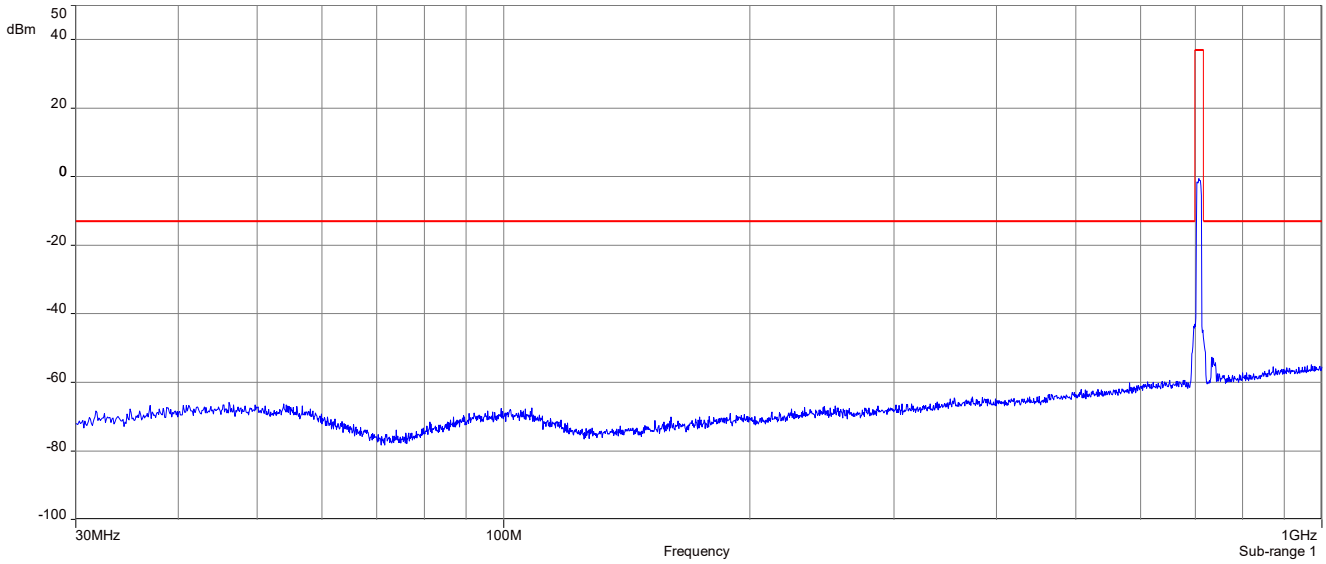
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

16-QAM

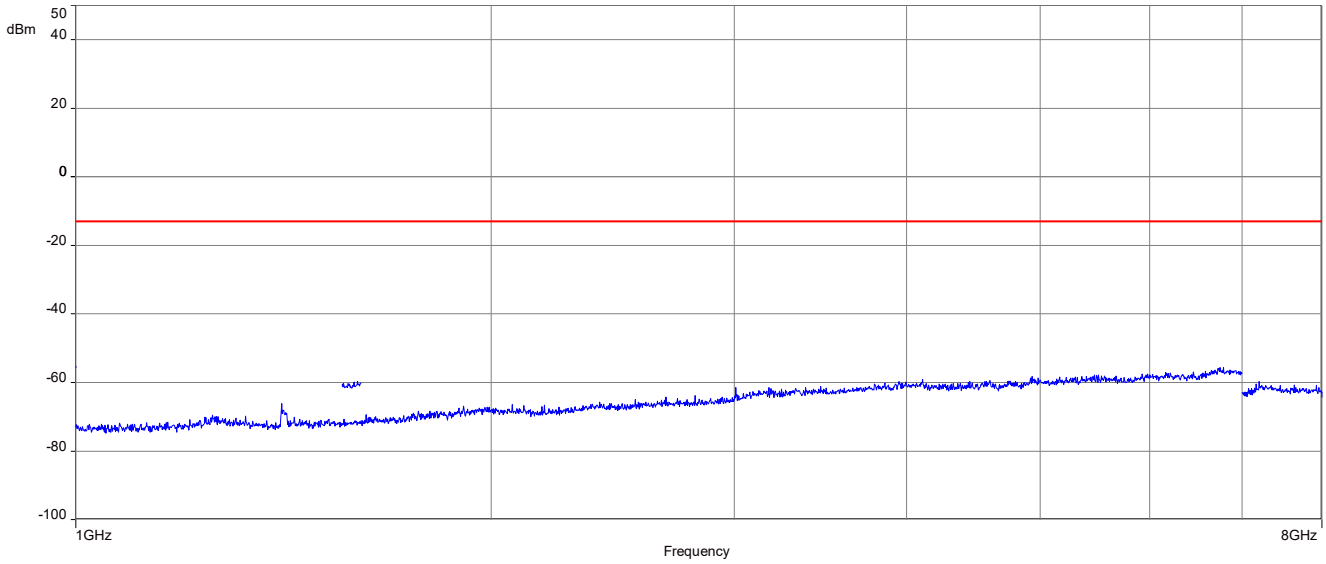
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

QPSK

Plot 1: Middle channel, 30 MHz to 1 GHz

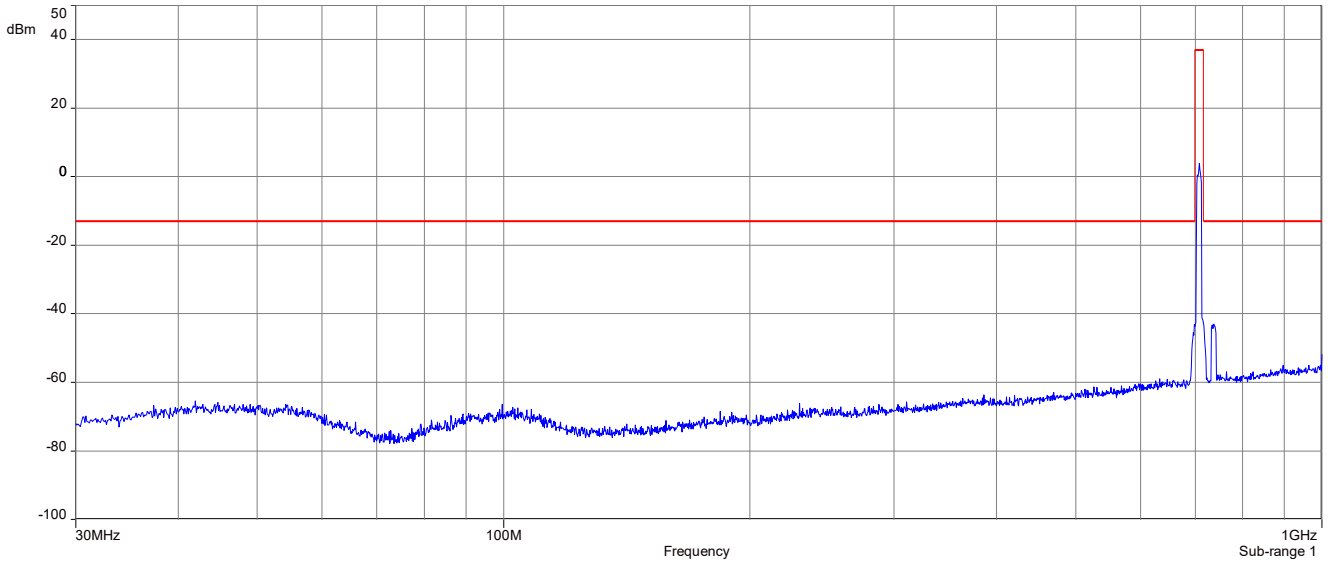


Plot 2: Middle channel, 1 GHz to 8 GHz

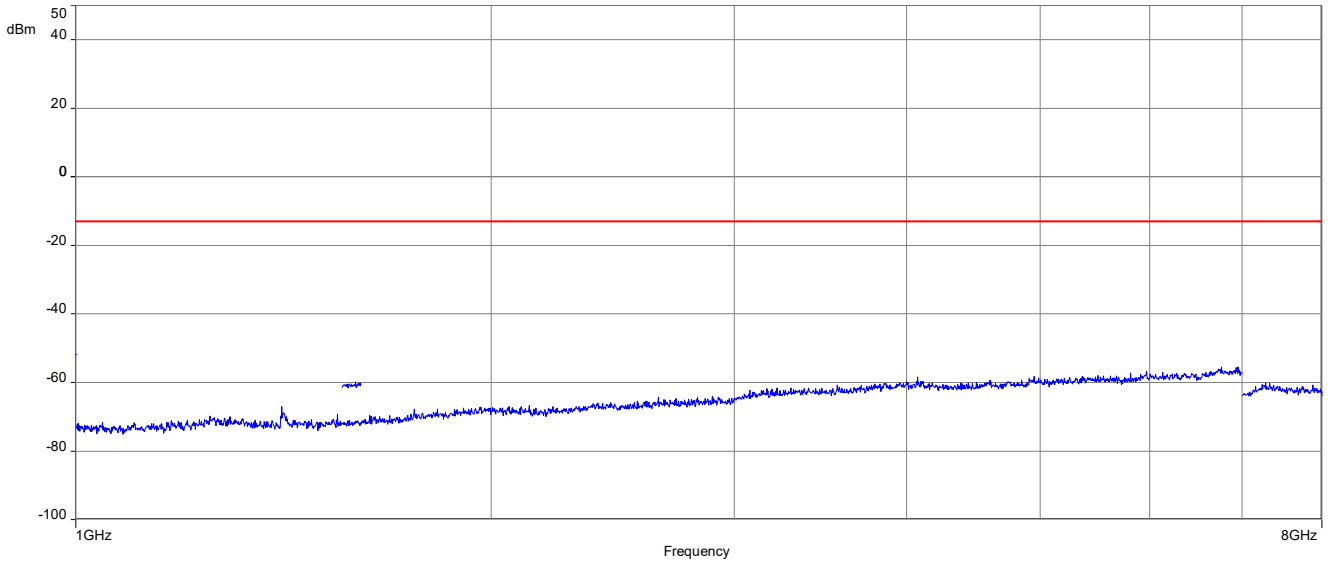


16-QAM

Plot 1: Middle channel, 30 MHz to 1 GHz



Plot 2: Middle channel, 1 GHz to 8 GHz



16.5 Results LTE band 13

The EUT was set to transmit the maximum power.

16.5.1 RF output power

Description:

This paragraph contains average power, peak output power and EIRP measurements for the mobile station. In all cases, the peak output power is within the required mask (this mask is specified in the JTC standards, TIA PN3389 Vol. 1 Chap 7, and is no FCC requirement).

Measurement:

The mobile was set up for the maximum output power with pseudo random data modulation.

To determine the Peak-To-Average Power Ratio (PAPR) the measurement was performed with the Power Complementary Cumulative Distribution Function (CCDF).

Measurement parameters	
Detector:	Sample
AQT:	See plot
Resolution bandwidth:	1 MHz
Used equipment:	See chapter 7.4 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1046 ISED: RSS-Gen, 6.12

Limits:

FCC	ISED
§ 27.50(b)(10)	RSS-130, 4.6.1 & 4.6.3
Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.	4.6.1: The transmitter output power shall be measured in terms of average power. In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission. 4.6.3: The e.r.p. shall not exceed 30 watts for mobile equipment and outdoor fixed subscriber equipment. The e.r.p. shall not exceed 3 watts for portable equipment and indoor fixed subscriber equipment.
Power: **34.77 dBm ERP** PAPR: **13 dB** (ISED only)	

Results:

Output Power (conducted)						
Bandwidth (MHz)	**Channel No. / Frequency (MHz)**	**Resource block allocation**	**Average Output Power (dBm) QPSK**	**Peak to Average Ratio (dB)**	**Average Output Power (dBm) 16-QAM**	**Peak to Average Ratio (dB)**
5	23205 / 779.5	1 RB low	23.1	-/-	22.5	-/-
		1 RB high	23.3	-/-	22.3	-/-
		100% RB	22.5	-/-	21.5	-/-
	23230 / 782	1 RB low	23.1	-/-	22.5	-/-
		1 RB high	23.2	-/-	22.7	-/-
		100% RB	22.5	-/-	21.6	-/-
	23255 / 784.5	1 RB low	23.3	-/-	22.4	-/-
		1 RB high	23.3	-/-	22.8	-/-
		100% RB	22.7	-/-	21.8	-/-
10	23230 / 782	1 RB low	23.7	-/-	22.5	-/-
		1 RB high	23.9	-/-	22.6	-/-
		100% RB	22.6	-/-	21.6	-/-

The radiated output power is measured in the mode with the highest conducted output power.

Output Power (ERP)			
Bandwidth (MHz)	**Frequency (MHz)**	**Average Output Power (dBm) QPSK**	**Average Output Power (dBm) 16-QAM**
5	779.5	17.0	16.2
	782.0	16.9	16.4
	784.5	17.0	16.5
10	782.0	17.6	16.3

16.5.2 Spurious emissions radiated

Description:

The following steps outline the procedure used to measure the radiated emissions from the mobile station. The site is constructed in accordance with ANSI C63.4:2014 requirements and is recognized by the FCC to be in compliance for a 3 and a 10 meter site. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 782 MHz. Measured up to 8 GHz. The resolution bandwidth is set as outlined in Part 27.53. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to mid channel of the LTE band 13.

Measurement:

Measurement parameters	
Detector:	Peak / RMS
Resolution bandwidth:	1 MHz
Video bandwidth:	3 MHz
Trace mode:	Max Hold
Used equipment:	See chapter 7.2 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1053 ISED: RSS-Gen, 6.13

Limits:

FCC	ISED
$ 27.53(c) + (f)	RSS-130, 4.7.1
(c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following: (c)(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB. For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.	The unwanted emissions in any 100 kHz bandwidth on any frequency outside the low frequency edge and the high frequency edge of each frequency block range(s), shall be attenuated below the transmitter power, P (dBW), by at least 43 + 10 log10 p (watts), dB. However, in the 100 kHz band immediately outside of the equipment's frequency block range, a resolution bandwidth of 30 kHz may be employed. The e.i.r.p. in the band 1559-1610 MHz shall not exceed −70 dBW/MHz for wideband signal and −80 dBW for discrete emission with bandwidth less than 700 Hz.
-13 dBm **-40 dBm**	

Results:

QPSK

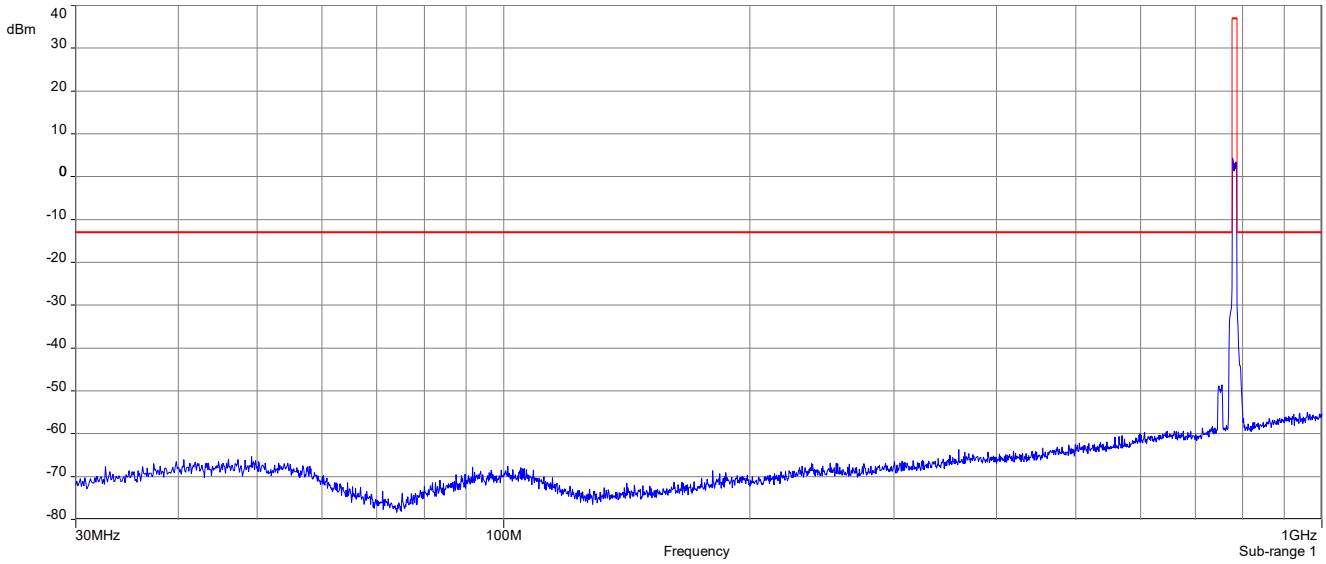
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
		1564 MHz	-56.5		

16-QAM

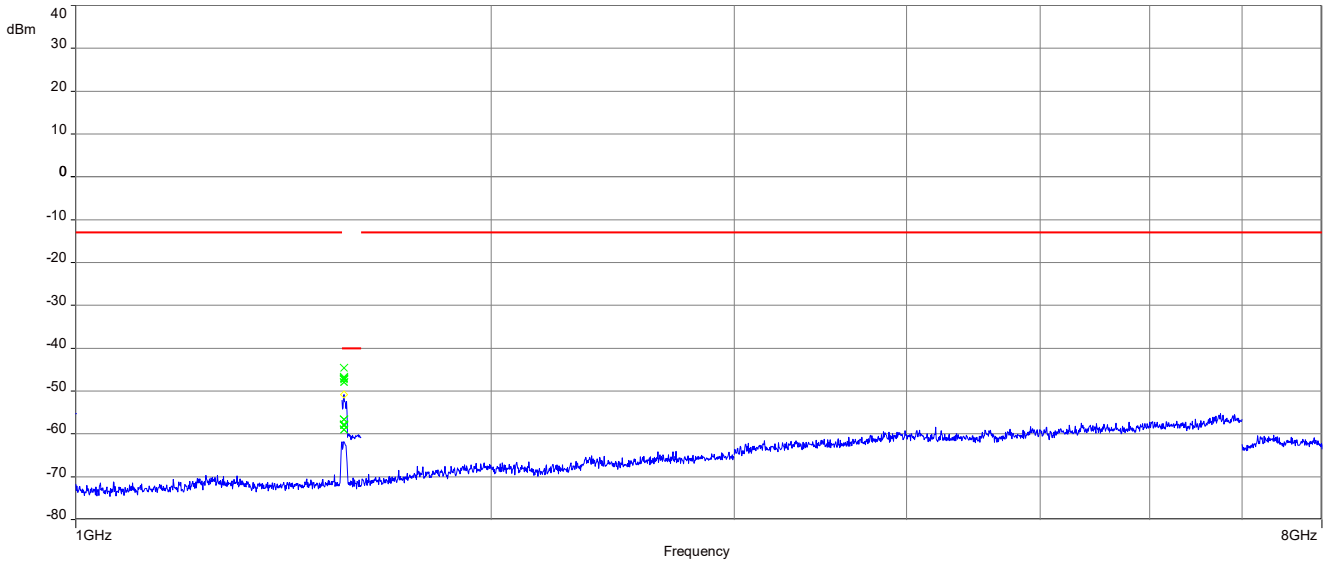
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
		1564 MHz	-55.7		

QPSK

Plot 1: Middle channel, 30 MHz to 1 GHz

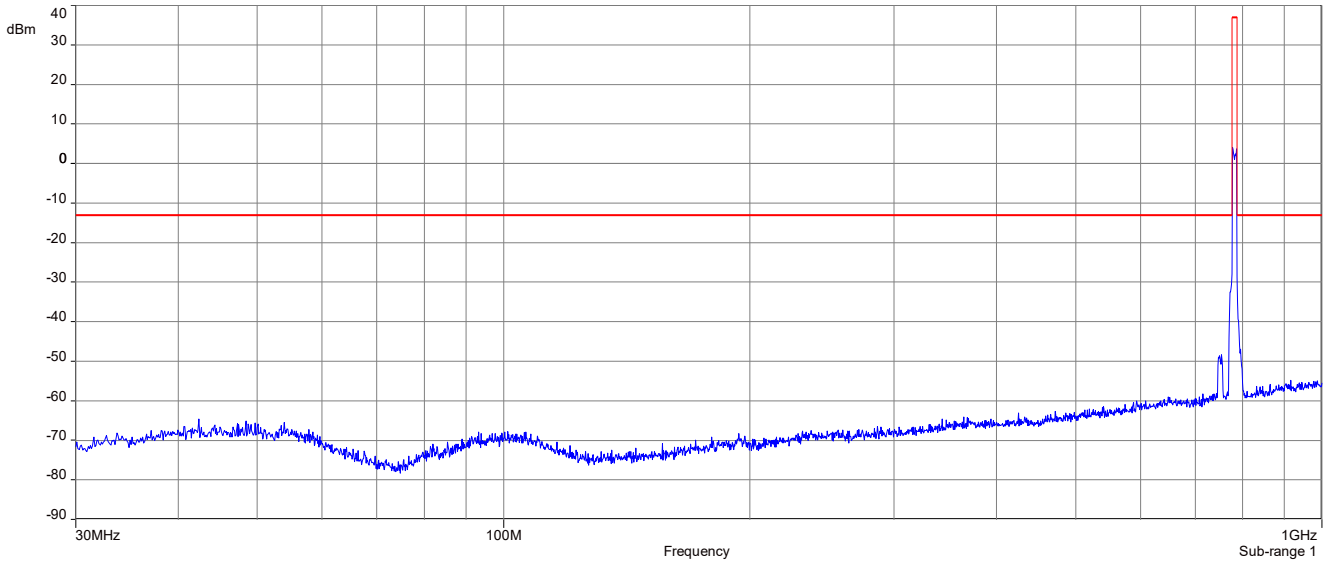


Plot 2: Middle channel, 1 MHz to 8 GHz

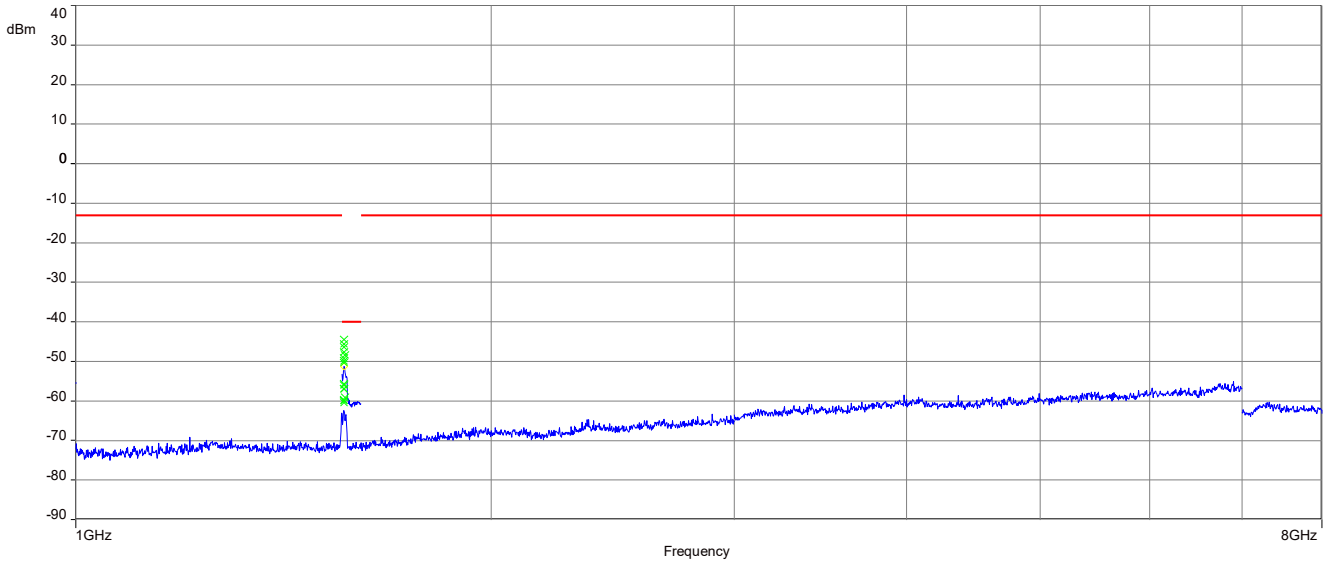


16-QAM

Plot 1: Middle channel, 30 MHz to 1 GHz



Plot 2: Middle channel, 1 MHz to 8 GHz



16.6 Results LTE band 17

The EUT was set to transmit the maximum power.

16.6.1 RF output power

Description:

This paragraph contains average power, peak output power and EIRP measurements for the mobile station. In all cases, the peak output power is within the required mask (this mask is specified in the JTC standards, TIA PN3389 Vol. 1 Chap 7, and is no FCC requirement).

Measurement:

The mobile was set up for the maximum output power with pseudo random data modulation.

To determine the Peak-To-Average Power Ratio (PAPR) the measurement was performed with the Power Complementary Cumulative Distribution Function (CCDF).

Measurement parameters	
Detector:	Sample
AQT:	See plot
Resolution bandwidth:	1 MHz
Used equipment:	See chapter 7.2 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1046 ISED: RSS-Gen, 6.12

Limits:

FCC	ISED
47 CFR 27.50(c)(9)	RSS-130, 4.6.1 & 4.6.3
Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.	4.6.1: The transmitter output power shall be measured in terms of average power. In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission. 4.6.3: The e.r.p. shall not exceed 30 watts for mobile equipment and outdoor fixed subscriber equipment. The e.r.p. shall not exceed 3 watts for portable equipment and indoor fixed subscriber equipment.
Power: **34.77 dBm ERP** PAPR: **13 dB** (ISED only)	

Results:

Output Power (conducted)						
Bandwidth (MHz)	**Channel No. / Frequency (MHz)**	**Resource block allocation**	**Average Output Power (dBm) QPSK**	**Peak to Average Ratio (dB)**	**Average Output Power (dBm) 16-QAM**	**Peak to Average Ratio (dB)**
5	23755 / 706.5	1 RB low	22.9	-/-	22.2	-/-
		1 RB high	23.1	-/-	22.3	-/-
		100% RB	22.2	-/-	21.1	-/-
	23790 / 710.0	1 RB low	22.8	-/-	22.1	-/-
		1 RB high	22.9	-/-	22.2	-/-
		100% RB	22.2	-/-	21.2	-/-
	23825 / 713.5	1 RB low	23.1	-/-	22.1	-/-
		1 RB high	22.9	-/-	22.3	-/-
		100% RB	22.3	-/-	21.2	-/-
10	23780 / 709	1 RB low	23.1	-/-	22.4	-/-
		1 RB high	23.6	-/-	22.4	-/-
		100% RB	22.3	-/-	21.3	-/-
	23790 / 710	1 RB low	23.1	-/-	22.3	-/-
		1 RB high	23.3	-/-	22.2	-/-
		100% RB	22.2	-/-	21.3	-/-
	23800 / 711	1 RB low	23.1	-/-	22.3	-/-
		1 RB high	23.1	-/-	22.2	-/-
		100% RB	22.2	-/-	22.2	-/-

The radiated output power is measured in the mode with the highest conducted output power.

Output Power (ERP)			
Bandwidth (MHz)	**Frequency (MHz)**	**Average Output Power (dBm) QPSK**	**Average Output Power (dBm) 16-QAM**
5	706.5	16.7	15.9
	710.0	16.5	15.8
	713.5	16.7	15.9
10	709.0	17.2	16.0
	710.0	16.9	15.9
	711.0	16.7	15.9

16.6.2 Spurious emissions radiated

Description:

The following steps outline the procedure used to measure the radiated emissions from the mobile station. The site is constructed in accordance with ANSI C63.4:2014 requirements and is recognized by the FCC to be in compliance for a 3 and a 10 meter site. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 716 MHz. Measured up to 8 GHz. The resolution bandwidth is set as outlined in Part 27.53. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to mid channel of the LTE band 17.

Measurement:

Measurement parameters	
Detector:	Peak
Resolution bandwidth:	1 MHz
Video bandwidth:	3 MHz
Span:	100 MHz Steps
Trace mode:	Max Hold
Used equipment:	See chapter 7.2 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1053 ISED: RSS-Gen, 6.13

Limits:

FCC	ISED
§ 27.53(g)	RSS-130, 4.7.1
For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.	The unwanted emissions in any 100 kHz bandwidth on any frequency outside the low frequency edge and the high frequency edge of each frequency block range(s), shall be attenuated below the transmitter power, P (dBW), by at least 43 + 10 log10 p (watts), dB. However, in the 100 kHz band immediately outside of the equipment's frequency block range, a resolution bandwidth of 30 kHz may be employed.
-13 dBm	

Results:

QPSK

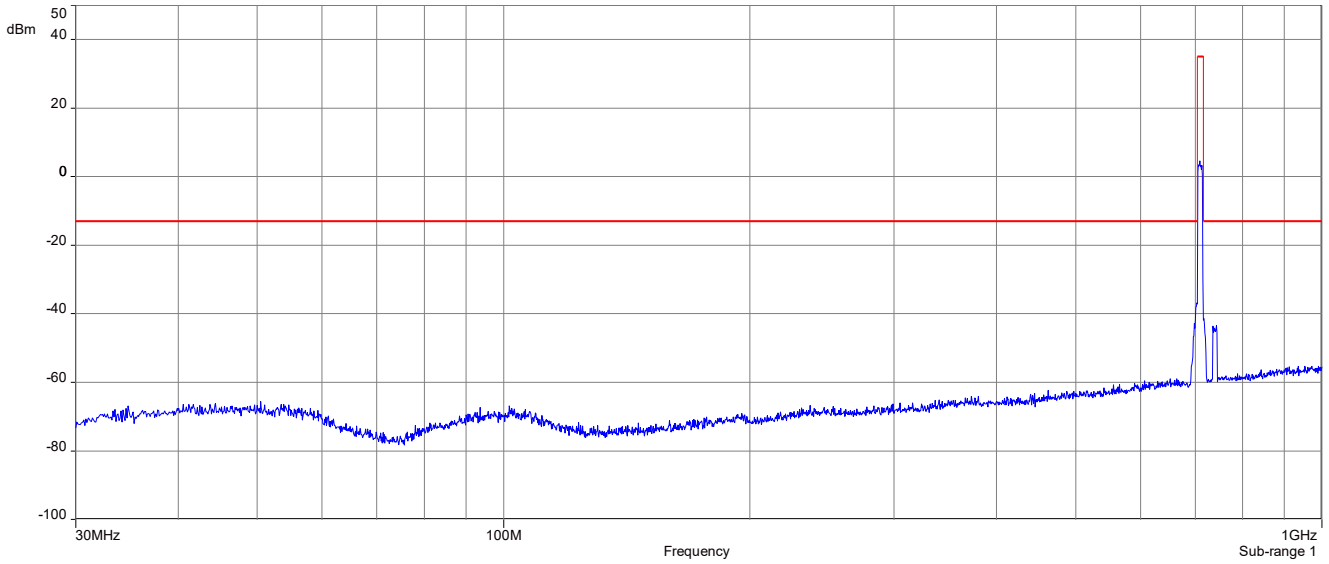
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

16-QAM

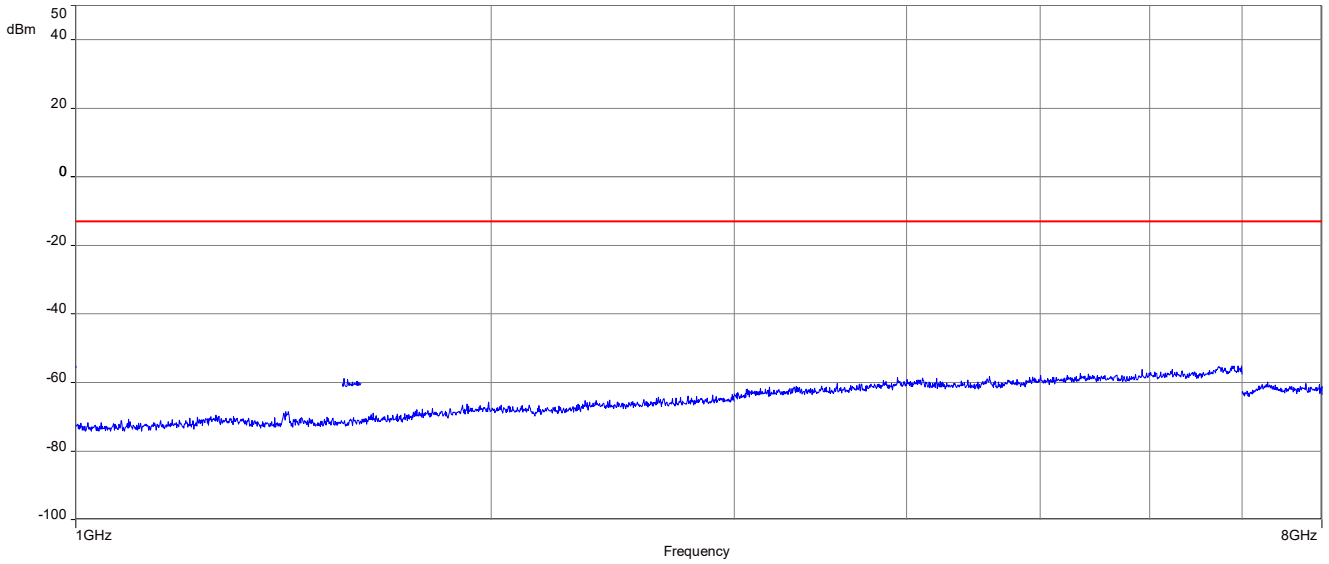
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

QPSK

Plot 1: Middle channel, 30 MHz to 1 GHz

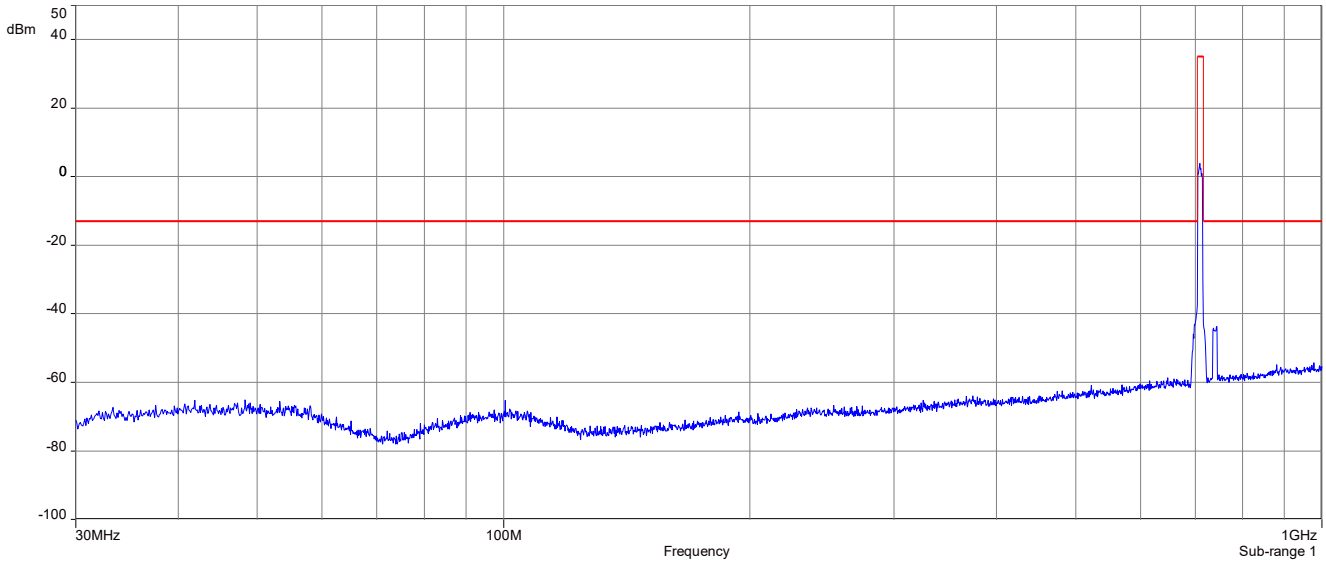


Plot 2: Middle channel, 1 GHz to 8 GHz

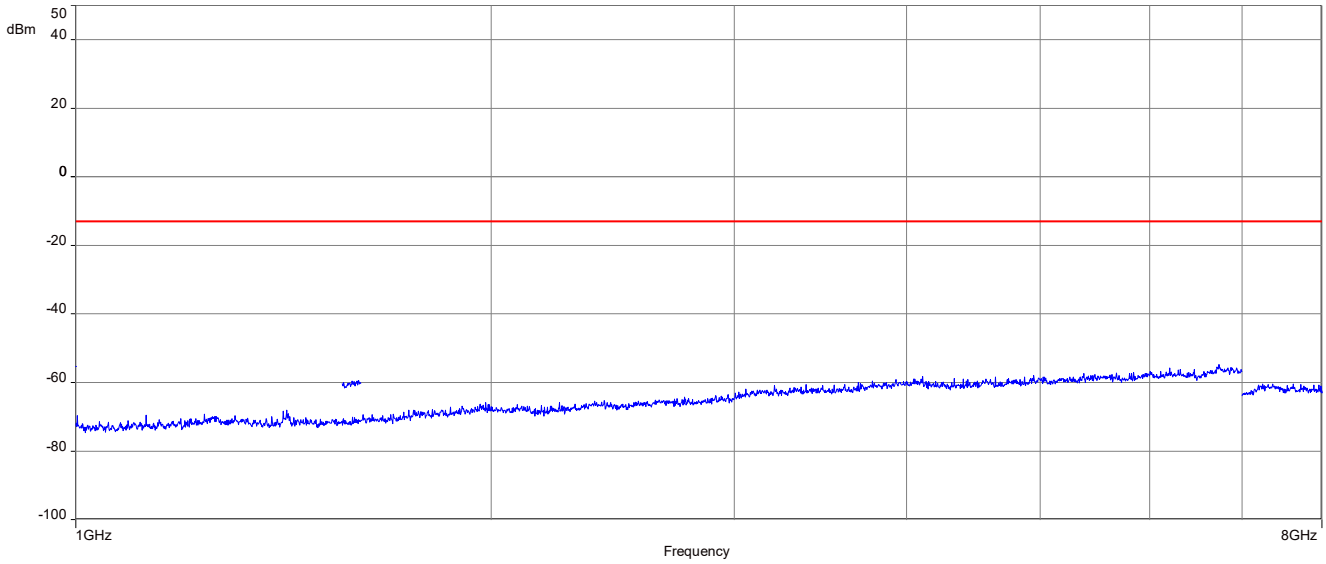


16-QAM

Plot 1: Middle channel, 30 MHz to 1 GHz



Plot 2: Middle channel, 1 GHz to 8 GHz



16.7 Results LTE – Band 41

The EUT was set to transmit the maximum power.

16.7.1 RF output power

Description:

This paragraph contains average power, peak output power and EIRP measurements for the mobile station. In all cases, the peak output power is within the required mask (this mask is specified in the JTC standards, TIA PN3389 Vol. 1 Chap 7, and is no FCC requirement).

Measurement:

The mobile was set up for the maximum output power with pseudo random data modulation.

To determine the Peak-To-Average Power Ratio (PAPR) the measurement was performed with the Power Complementary Cumulative Distribution Function (CCDF).

Measurement parameters	
Detector:	Sample
AQT:	See plot
Resolution bandwidth:	1 MHz
Used equipment:	See chapter 7.4 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1046 ISED: RSS-Gen, 6.12

Limits:

FCC	ISED
§ 27.50(h)(2)	RSS-199, 5.5
Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power	Subscriber equipment other than fixed subscriber equipment shall not exceed an e.i.r.p of 2W per channel bandwidth. In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.
Power: **33 dBm EIRP** PAPR: **13 dB (Only ISED)**	

Results:

Output Power (conducted)						
Bandwidth (MHz)	**Frequency (MHz)**	**Resource block allocation**	**Average Output Power (dBm) QPSK**	**Peak to Average Ratio (dB)**	**Average Output Power (dBm) 16-QAM**	**Peak to Average Ratio (dB)**
5	39675 / 2498.5	1 RB low	22.0	-/-	20.4	-/-
		1 RB high	22.2	-/-	21.3	-/-
		50% RB mid	21.5	-/-	20.3	-/-
		100% RB	21.4	-/-	20.2	-/-
	40620 / 2593.0	1 RB low	22.2	-/-	21.3	-/-
		1 RB high	22.3	-/-	21.5	-/-
		50% RB mid	21.7	-/-	20.3	-/-
		100% RB	21.6	-/-	20.6	-/-
	41565 / 2687.5	1 RB low	22.0	-/-	21.2	-/-
		1 RB high	21.9	-/-	20.3	-/-
		50% RB mid	21.3	-/-	20.1	-/-
		100% RB	21.4	-/-	20.4	-/-
10	39700 / 2501.0	1 RB low	22.4	-/-	21.9	-/-
		1 RB high	22.8	-/-	22.2	-/-
		50% RB mid	21.6	-/-	20.5	-/-
		100% RB	21.4	-/-	20.4	-/-
	40620 / 2593.0	1 RB low	22.5	-/-	21.1	-/-
		1 RB high	22.6	-/-	21.3	-/-
		50% RB mid	21.6	-/-	20.5	-/-
		100% RB	21.6	-/-	20.7	-/-
	41540 / 2685.0	1 RB low	22.5	-/-	21.0	-/-
		1 RB high	22.5	-/-	22.0	-/-
		50% RB mid	21.5	-/-	20.3	-/-
		100% RB	21.4	-/-	20.6	-/-
15	39725 / 2503.5	1 RB low	22.4	-/-	22.0	-/-
		1 RB high	22.7	-/-	21.6	-/-
		50% RB mid	21.2	-/-	20.5	-/-
		100% RB	21.4	-/-	20.5	-/-
	40620 / 2593.0	1 RB low	22.5	-/-	21.3	-/-
		1 RB high	22.7	-/-	21.5	-/-
		50% RB mid	21.7	-/-	20.7	-/-
		100% RB	21.6	-/-	20.7	-/-
	41515 / 2682.5	1 RB low	22.2	-/-	20.8	-/-
		1 RB high	22.5	-/-	21.9	-/-
		50% RB mid	21.5	-/-	20.7	-/-
		100% RB	21.2	-/-	20.5	-/-

20	39750 / 2506.0	1 RB low	22.7	-/-	21.1	-/-
		1 RB high	22.3	-/-	22.1	-/-
		50% RB mid	21.5	-/-	20.6	-/-
		100% RB	21.3	-/-	20.7	-/-
	40620 / 2593.0	1 RB low	23.0	-/-	20.3	-/-
		1 RB high	22.9	-/-	20.4	-/-
		50% RB mid	21.7	-/-	20.8	-/-
		100% RB	21.7	-/-	20.5	-/-
	41490 / 2680.0	1 RB low	22.1	-/-	20.1	-/-
		1 RB high	22.5	-/-	21.3	-/-
		50% RB mid	21.4	-/-	20.3	-/-
		100% RB	21.4	-/-	20.5	-/-

The radiated output power is measured in the mode with the highest conducted output power.

Output Power (EIRP)			
Bandwidth (MHz)	**Frequency (MHz)**	**Average Output Power (dBm) QPSK**	**Average Output Power (dBm) 16-QAM**
5	2498.5	24.3	23.4
	2593.0	24.4	23.6
	2687.5	24.1	23.3
10	2501.0	24.5	24.3
	2593.0	24.7	23.4
	2685.0	24.6	24.1
15	2503.5	24.8	24.1
	2593.0	24.8	23.6
	2682.5	24.6	24.0
20	2506.0	24.8	24.2
	2593.0	25.1	22.9
	2680.0	24.6	23.4

16.7.2 Spurious emissions radiated

Description:

The following steps outline the procedure used to measure the radiated emissions from the mobile station. The site is constructed in accordance with ANSI C63.4:2014 requirements and is recognized by the FCC to be in compliance for a 3 and a 10 meter site. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 2687.5 MHz. Measured up to 40 GHz (depends on the transmitter channel). The resolution bandwidth is set as outlined in Part 27.53. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to mid channel of the LTE band 41.

Measurement:

Measurement parameters	
Detector	Peak
Video bandwidth	Below 1 GHz: 100 kHz Above 1 GHz: 1 MHz
Resolution bandwidth	Below 1 GHz: 100 kHz Above 1 GHz: 1 MHz
Span	100 MHz Steps
Trace mode	Max Hold
Setup	See chapter 7.1 - A; 7.2 - A&C
Measurement uncertainty	See chapter 9

Limits:

FCC	ISED
§ 27.53(m) (4)	RSS-199, 5.6
For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (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 that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 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.	Table 5: **Offset from the edge of the frequency block or frequency block group (MHz)** / **Unwanted emission limits** 0-1 / -10 dBm/(2% of OB*) 1-5 / -10 dBm/MHz 5-X** / -13 dBm/MHz ≥ X / -25 dBm/MHz In addition to complying with the limits in table 5, subscriber equipment other than fixed subscriber equipment shall not exceed -13 dBm/MHz on all frequencies between 2490.5 MHz and 2496 MHz, and -25 dBm/MHz at or below 2490.5 MHz.
-25 dBm	

QPSK

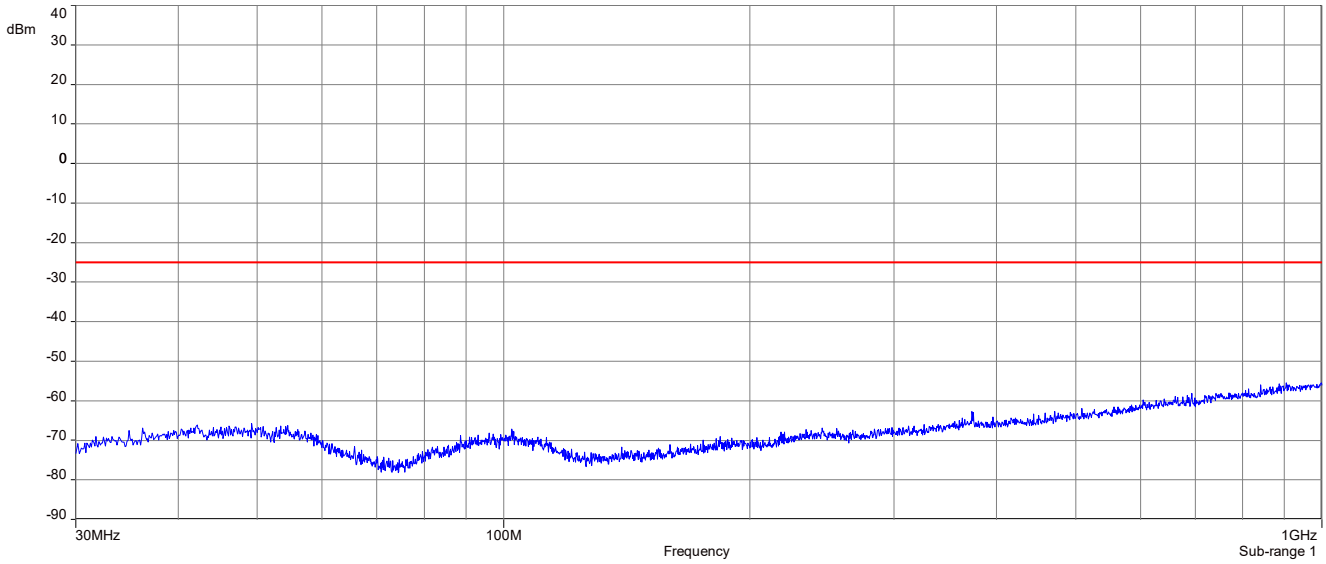
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

16-QAM

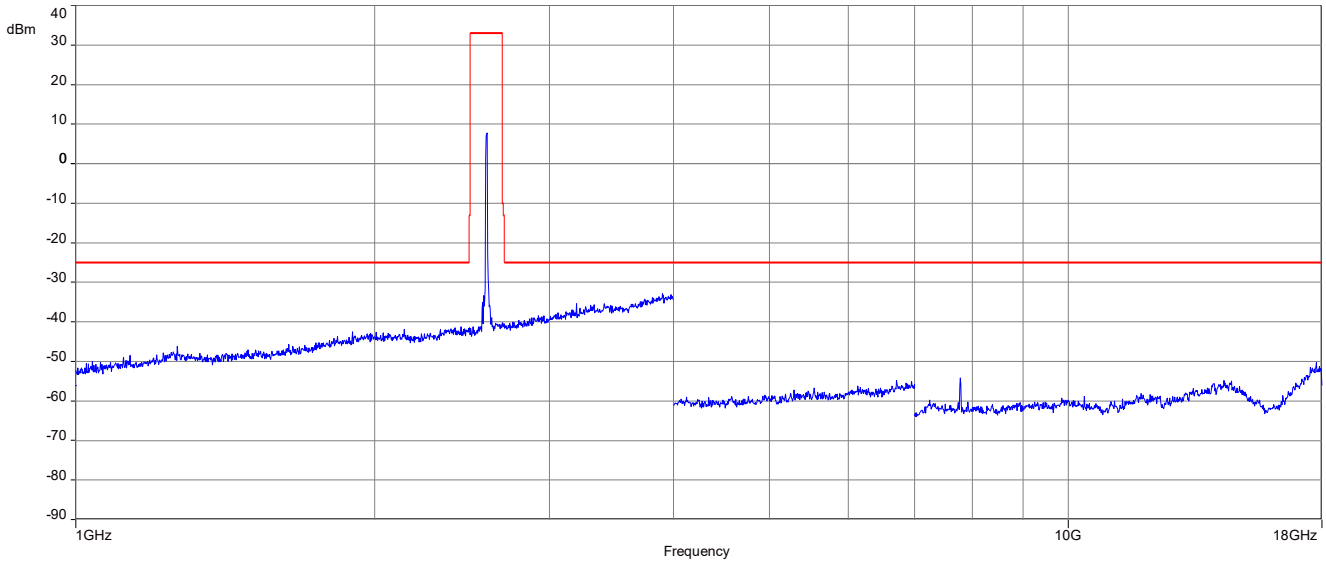
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

Results: QPSK with 10 MHz channel bandwidth

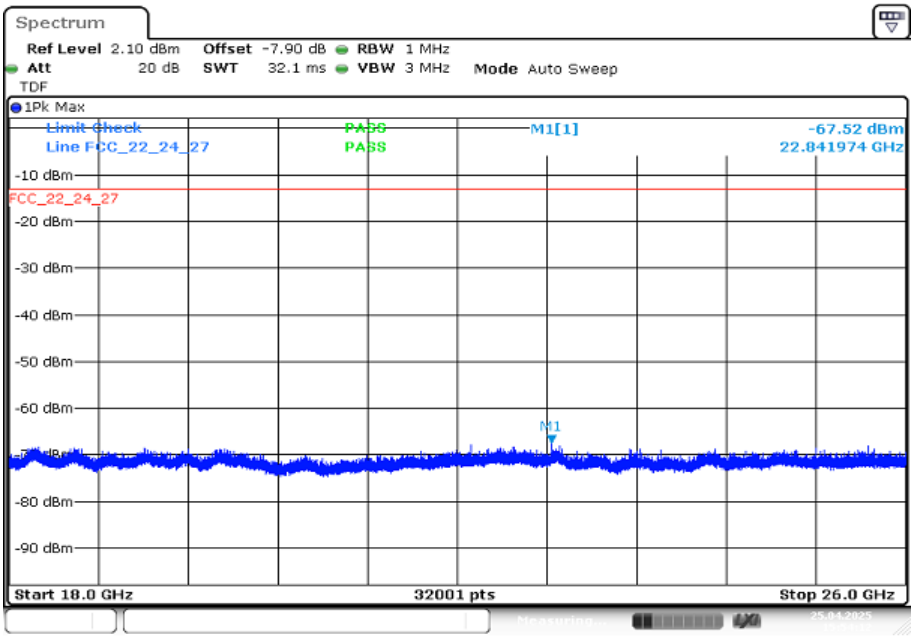
Plot 1: Middle channel, 30 MHz to 1 GHz



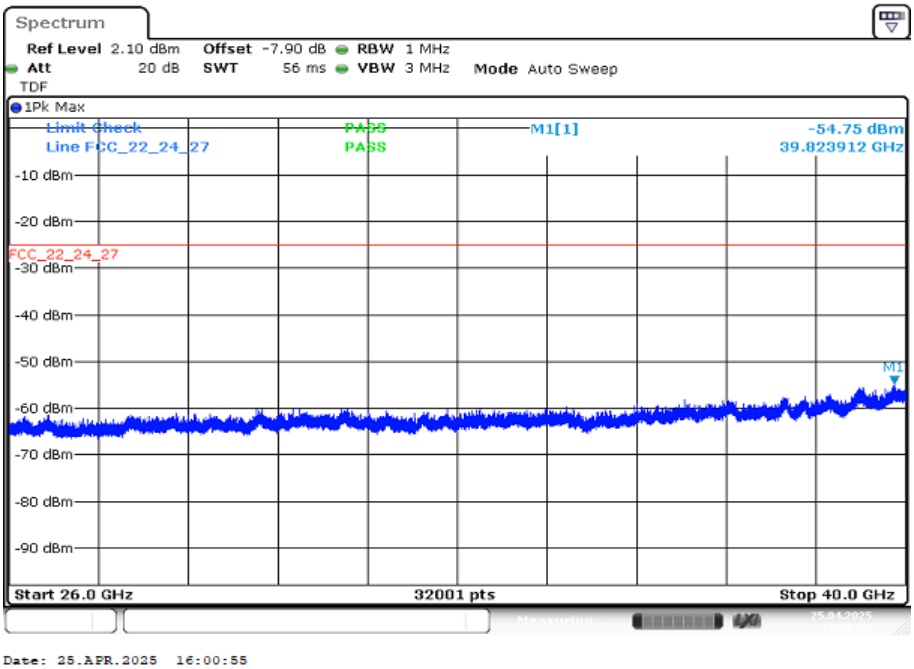
Plot 2: Middle channel, 1 GHz to 18 GHz



Plot 3: Middle channel, 18 GHz to 26 GHz, valid for both modulations

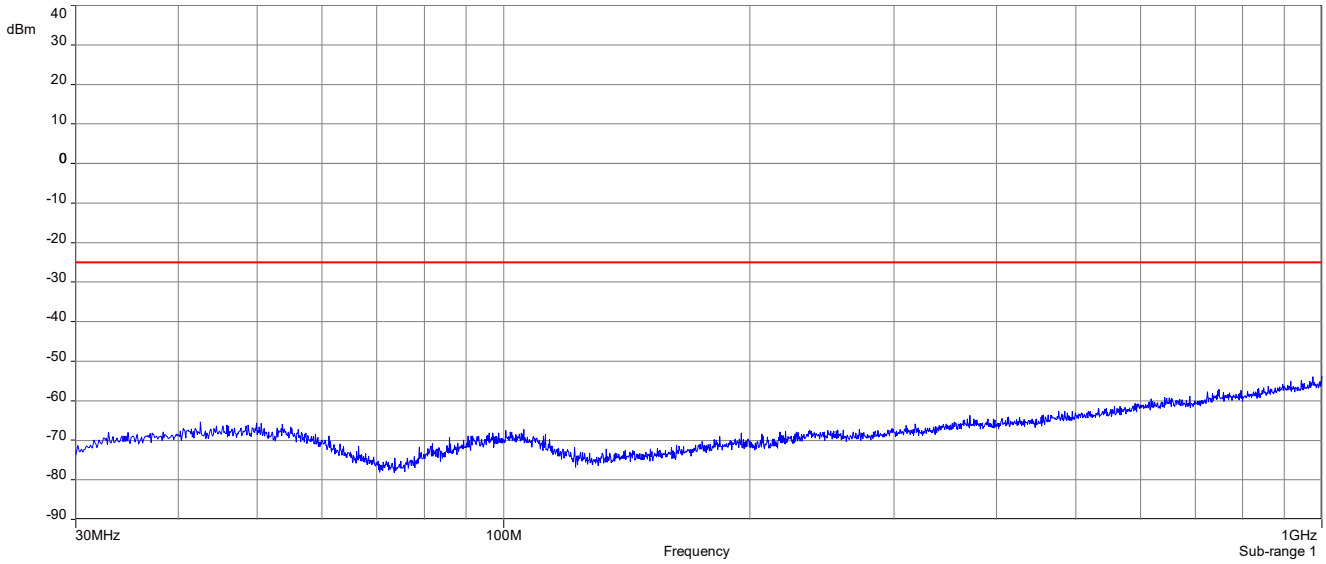


Plot 4: Middle channel, 26 GHz to 40 GHz, valid for both modulations

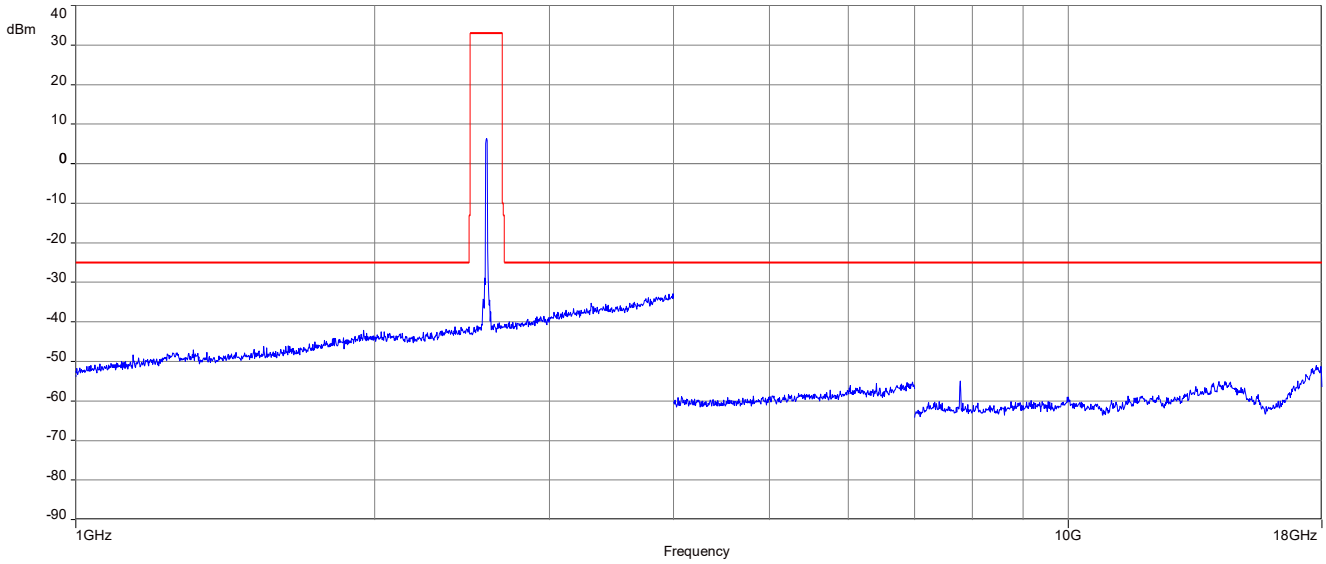


Results: 16-QAM with 10 MHz channel bandwidth

Plot 1: Middle channel, 30 MHz to 1 GHz



Plot 2: Middle channel, 1 GHz to 18 GHz



16.8 Results LTE band 66

The EUT was set to transmit the maximum power.

16.8.1 RF output power

Description:

This paragraph contains average power, peak output power and EIRP measurements for the mobile station. In all cases, the peak output power is within the required mask (this mask is specified in the JTC standards, TIA PN3389 Vol. 1 Chap 7, and is no FCC requirement).

Measurement:

The mobile was set up for the maximum output power with pseudo random data modulation.

To determine the Peak-To-Average Power Ratio (PAPR) the measurement was performed with the Power Complementary Cumulative Distribution Function (CCDF).

Measurement parameters	
Detector:	Sample
AQT:	See plot
Resolution bandwidth:	1 MHz
Used equipment:	See chapter 7.4 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1046 ISED: RSS-Gen, 6.12

Limits:

FCC	ISED
§ 27.50(d)(4) & (5)	RSS-139, 6.5
(4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. (5) 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.	The equivalent isotropically radiated power (e.i.r.p.) for mobile and portable transmitters shall not exceed one watt. In addition, the peak to average power ratio (PAPR) of the equipment shall not exceed 13 dB for more than 0.1% of the time, using a signal that corresponds to the highest PAPR during periods of continuous transmission.
Power: **33 dBm EIRP** PAPR: **13 dB**	

Results:

Output Power (conducted)						
Bandwidth (MHz)	**Frequency (MHz)**	**Resource block allocation**	**Average Output Power (dBm) QPSK**	**Peak to Average Ratio (dB)**	**Average Output Power (dBm) 16-QAM**	**Peak to Average Ratio (dB)**
1.4	1710.7	1 RB low	22.4	-/-	21.3	-/-
		1 RB high	22.6	-/-	21.5	-/-
		100% RB	21.4	-/-	20.6	-/-
	1745.0	1 RB low	22.7	-/-	21.8	-/-
		1 RB high	22.7	-/-	21.9	-/-
		100% RB	21.7	-/-	20.6	-/-
	1779.3	1 RB low	22.1	-/-	21.3	-/-
		1 RB high	22.2	-/-	21.2	-/-
		100% RB	21.3	-/-	20.2	-/-
3	1711.5	1 RB low	22.3	-/-	21.3	-/-
		1 RB high	22.8	-/-	21.3	-/-
		100% RB	21.5	-/-	20.5	-/-
	1745.0	1 RB low	22.5	-/-	21.7	-/-
		1 RB high	22.6	-/-	21.7	-/-
		100% RB	21.7	-/-	20.6	-/-
	1778.5	1 RB low	22.3	-/-	21.2	-/-
		1 RB high	22.2	-/-	21.3	-/-
		100% RB	21.2	-/-	20.3	-/-
5	1712.5	1 RB low	22.1	-/-	21.3	-/-
		1 RB high	22.5	-/-	20.9	-/-
		100% RB	21.5	-/-	20.5	-/-
	1745.0	1 RB low	22.2	-/-	21.5	-/-
		1 RB high	22.6	-/-	21.8	-/-
		100% RB	21.7	-/-	20.6	-/-
	1777.5	1 RB low	21.8	-/-	20.5	-/-
		1 RB high	21.8	-/-	21.2	-/-
		100% RB	21.2	-/-	20.1	-/-

10	1715.0	1 RB low	22.5	-/-	21.7	-/-
		1 RB high	22.8	-/-	21.3	-/-
		100% RB	21.4	-/-	20.4	-/-
	1745.0	1 RB low	22.6	-/-	21.9	-/-
		1 RB high	22.6	-/-	22.0	-/-
		100% RB	21.7	-/-	20.7	-/-
	1775.0	1 RB low	21.7	-/-	20.8	-/-
		1 RB high	22.0	-/-	21.4	-/-
		100% RB	21.0	-/-	19.9	-/-
15	1717.5	1 RB low	22.6	-/-	21.6	-/-
		1 RB high	22.8	-/-	21.7	-/-
		100% RB	21.5	-/-	20.5	-/-
	1745.0	1 RB low	22.6	-/-	21.7	-/-
		1 RB high	22.7	-/-	21.8	-/-
		100% RB	21.7	-/-	20.7	-/-
	1772.5	1 RB low	21.7	-/-	21.0	-/-
		1 RB high	22.0	-/-	21.4	-/-
		100% RB	20.9	-/-	19.8	-/-
20	1720.0	1 RB low	22.4	-/-	21.4	-/-
		1 RB high	22.1	-/-	21.3	-/-
		100% RB	21.5	-/-	20.6	-/-
	1745.0	1 RB low	22.8	-/-	21.6	-/-
		1 RB high	23.0	-/-	21.9	-/-
		100% RB	21.7	-/-	20.6	-/-
	1770.0	1 RB low	21.9	-/-	21.2	-/-
		1 RB high	22.1	-/-	21.3	-/-
		100% RB	20.8	-/-	19.9	-/-

The radiated output power is measured in the mode with the highest conducted output power.

Output Power (EIRP)			
Bandwidth (MHz)	**Frequency (MHz)**	**Average Output Power (dBm) QPSK**	**Average Output Power (dBm) 16-QAM**
1.4	1710.7	24.5	23.4
	1745.0	24.6	23.8
	1779.3	24.1	23.2
3	1711.5	24.7	23.2
	1745.0	24.5	23.6
	1778.5	24.1	23.2
5	1712.5	24.4	23.2
	1745.0	24.5	23.7
	1777.5	23.7	23.1
10	1715.0	24.7	23.6
	1745.0	24.5	23.9
	1775.0	23.9	23.3
15	1717.5	24.7	23.6
	1745.0	24.6	23.7
	1772.5	23.9	23.3
20	1720.0	24.3	23.3
	1745.0	24.9	23.8
	1770.0	24.0	23.2

16.8.2 Spurious emissions radiated

Description:

The following steps outline the procedure used to measure the radiated emissions from the mobile station. The site is constructed in accordance with ANSI C63.4:2014 requirements and is recognized by the FCC to be in compliance for a 3 and a 10 meter site. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 1780 MHz. Measurement made up to 18 GHz. The resolution bandwidth is set as outlined in Part 27.53. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to mid channel of the LTE band 66.

Measurement:

Measurement parameters	
Detector:	Peak
Resolution bandwidth:	1 MHz
Video bandwidth:	3 MHz
Span:	100 MHz Steps
Trace mode:	Max Hold
Used equipment:	See chapter 7.2 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1053 ISED: RSS-Gen, 6.13

Limits:

FCC	ISED
§ 27.53(h)(1) & (3)	RSS-139, 6.6
(1) Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB. (3) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's 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 points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.	i. In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 log10 (P) (watts) dB. ii. After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 log10 (P) (watts) dB.
-13 dBm	

Results:

QPSK

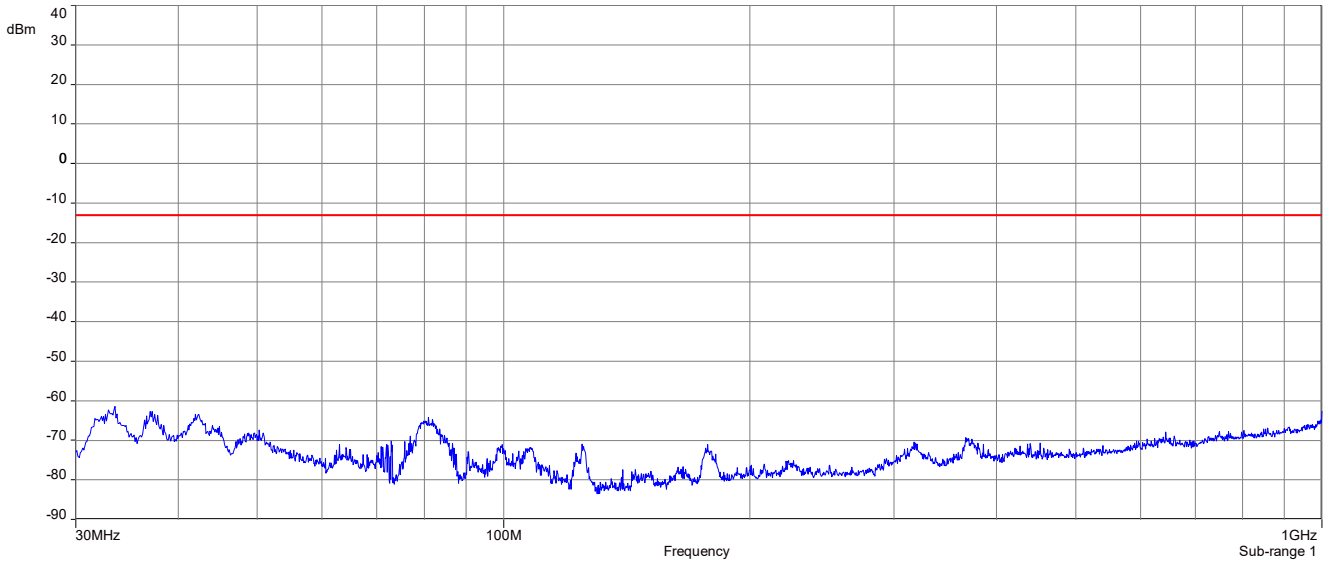
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

16-QAM

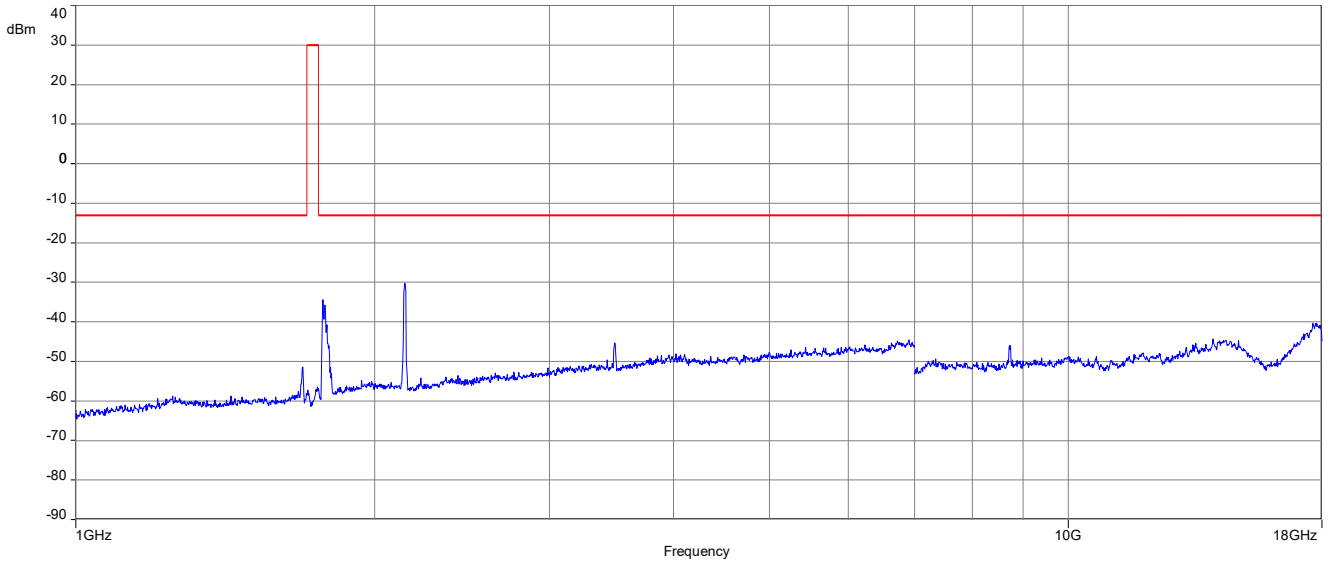
Spurious Emission Level					
Lowest channel		**Middle channel**		**Highest channel**	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		-/-		-/-	

QPSK

Plot 1: Middle channel, 30 MHz to 1GHz

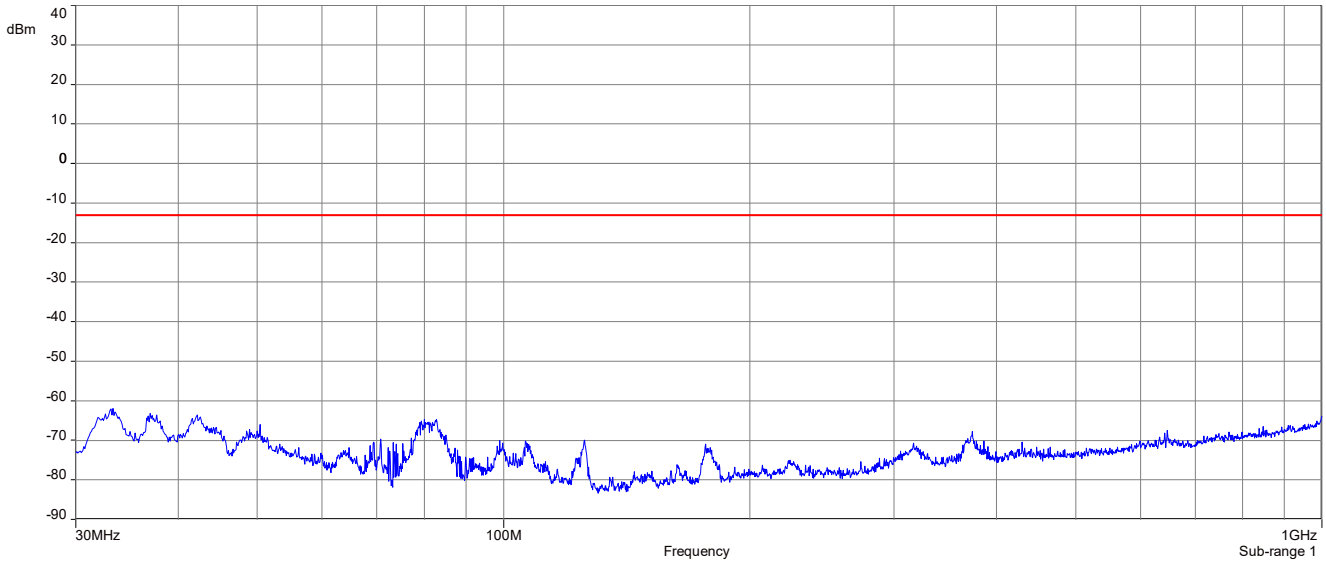


Plot 2: Middle channel, 1 GHz to 18GHz

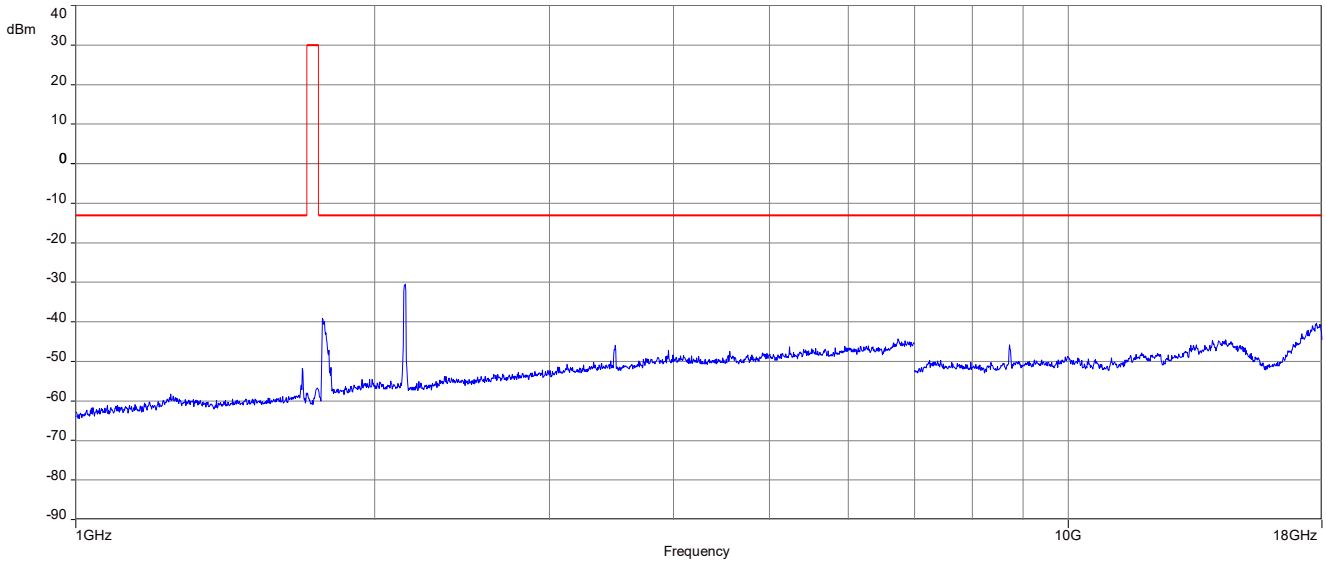


16-QAM

Plot 1: Middle channel, 30 MHz to 1 GHz



Plot 2: Middle channel, 1 GHz to 18 GHz



17 Observations

No observations except those reported with the single test cases have been made.

18 Glossary

AVG	Average
C	Compliant
C/N_0	Carrier to noise-density ratio, expressed in dB-Hz
CAC	Channel availability check
CW	Clean wave
DC	Duty cycle
DFS	Dynamic frequency selection
DSSS	Dynamic sequence spread spectrum
DUT	Device under test
EN	European Standard
ETSI	European Telecommunications Standards Institute
EMC	Electromagnetic Compatibility
EUT	Equipment under test
FCC	Federal Communications Commission
FCC ID	Company Identifier at FCC
FHSS	Frequency hopping spread spectrum
FVIN	Firmware version identification number
GNSS	Global Navigation Satellite System
GUE	GNSS User Equipment
HMN	Host marketing name
HVIN	Hardware version identification number
HW	Hardware
IC	Industry Canada
Inv. No.	Inventory number
MC	Modulated carrier
NA	Not applicable
NC	Not compliant
NOP	Non occupancy period
NP	Not performed
OBW	Occupied bandwidth
OC	Operating channel
OCW	Operating channel bandwidth
OFDM	Orthogonal frequency division multiplexing
OOB	Out of band
OP	Occupancy period
PER	Packet error rate
PMN	Product marketing name
PP	Positive peak
QP	Quasi peak
RLAN	Radio local area network
S/N or SN	Serial number
SW	Software
UUT	Unit under test
WLAN	Wireless local area network

19 Document history

Version	Applied changes	Date of release
R01	Initial release	2025-05-26
R02	Serial number of the radiated sample corrected	2025-07-08

################################ END OF TEST REPORT ################################