



FCC RADIO TEST REPORT

FCC ID : PY7-16813Y
Equipment : GSM/WCDMA/LTE/5G Phone with BT, DTS/UNII
a/b/g/n/ac/ax, GPS, WPC and NFC
Brand Name : Sony
Applicant : Sony Corporation
1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan
Manufacturer : Sony Corporation
1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan
Standard : FCC 47 CFR Part 2, 22(H), 27

The product was received on Mar. 08, 2021 and testing was started from Mar. 16, 2021 and completed on Apr. 14, 2021. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)



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Appendix A. Test Results of Conducted Test

Appendix B. Test Results of ERP/EIRP and Radiated Test



History of this test report

Report No.	Version	Description	Issued Date
FG0D2217B	01	Initial issue of report	Apr. 09, 2021
FG0D2217B	02	1. Revising remark description 2. Revising Conducted Output Power and ERP/EIRP	Apr. 15, 2021
FG0D2217B	03	1. Revising remark description 2. Revising Emission Designator	Apr. 20, 2021



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Reporting only	-
	§22.913 (a)(2)	Effective Radiated Power (Band 5)	Pass	
	§27.50 (b)(10) §27.50 (c)(10)	Effective Radiated Power (Band 13) (Band 17)		
	§27.50 (h)(2)	Equivalent Isotropic Radiated Power (Band 7) (Band 41)		
	§27.50 (d)(4)	Equivalent Isotropic Radiated Power (Band 4)		
3.3	§27.50 (d)(5)	Peak-to-Average Ratio	Pass	-
3.4	§2.1049	Occupied Bandwidth	Reporting only	-
3.5	§2.1051 §22.917 (a) §27.53 (c)(2)(4) §27.53 (g) §27.53 (h)	Conducted Band Edge Measurement (Band 4) (Band 5) (Band 13) (Band 17)	Pass	-
	§2.1051 §27.53 (m)(4)	Conducted Band Edge Measurement (Band 7) (Band 41)		
3.6	§2.1051 §22.917 (a) §27.53 (c)(2) §27.53 (g) §27.53 (h)	Conducted Spurious Emission (Band 4) (Band 5) (Band 13) (Band 17)	Pass	-
	§2.1051 §27.53 (m)(4)	Conducted Spurious Emission (Band 7) (Band 41)		
3.7	§2.1055 §22.355 §27.54	Frequency Stability Temperature & Voltage	Pass	-



Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
4.2	§2.1053 §22.917 (a) §27.53 (c)(2) §27.53 (f) §27.53 (g) §27.53 (h)	Radiated Spurious Emission (Band 4) (Band 5) (Band 13) (Band 17)	Pass	Under limit 17.81 dB at 10684.000 MHz
	§2.1051 §27.53 (m)(4)	Radiated Spurious Emission (Band 7) (Band 41)		

Remark: This report includes Full test on new added LTE Band 17, radiated spurious emission test and output power verification test on all common bands. For other test results, please refer to FG0D2215B report for report data reuse.

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Wii Chang

Report Producer: Amy Chen



1 General Description

1.1 Product Feature of Equipment Under Test

GSM/WCDMA/LTE, Bluetooth, DTS/UNII a/b/g/n/ac/ax, NFC, FM Receiver, WPC/WPT, and GNSS.

Product Specification subjective to this standard	
Antenna Type	Loop Antenna
Antenna Gain	LTE Band 4: -2.02dBi LTE Band 5: -2.07dBi LTE Band 7: -2.02dBi LTE Band 13: -2.48dBi LTE Band 17: -4.76dBi LTE Band 41: -1.09dBi

Remark: The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

EUT Information List			
HW Version	SW Version	S/N	Performed Test Item
A	0.507	QV7200BJ6J	Conducted Measurement
	0.440	QV72002D6J	Radiated Spurious Emission

Accessory List	
AC Adapter	Model Name : XQZ-UC1
	S/N: 0020W51300095
Earphone	Model Name : STH40D
	S/N : N/A
USB Cable	Model Name : XQZ-UB1
	S/N : N/A
Wireless Charger	Model Name : F7U050
	S/N : 26S10EHC828473

Note:

- Above EUT list used are electrically identical per declared by manufacturer.
- Above the accessories list are used to exercise the EUT during test, and the serial number of each type of accessories is listed in each section of this report. .
- For other wireless features of this EUT, test report will be issued separately.

1.2 Modification of EUT

No modifications are made to the EUT during all test items.



1.3 Emission Designator

LTE Band 4		QPSK			16QAM			64QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
1.4	1710.7~1754.3	-	-	0.0650	-	-	0.0622	-	-	0.0614
3	1711.5~1753.5	-	-	0.0676	-	-	0.0634	-	-	0.0625
5	1712.5~1752.5	-	-	0.0667	-	-	0.0631	-	-	0.0615
10	1715.0~1750.0	-	-	0.0675	-	-	0.0646	-	-	0.0634
15	1717.5~1747.5	-	-	0.0675	-	-	0.0638	-	-	0.0622
20	1720.0~1745.0	-	-	0.0678	-	-	0.0652	-	-	0.0630
LTE Band 5		QPSK			16QAM			64QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)
1.4	824.7 ~ 848.3	-	-	0.0998	-	-	0.0855	-	-	0.0670
3	825.5 ~ 847.5	-	-	0.1019	-	-	0.0851	-	-	0.0668
5	826.5 ~ 846.5	-	-	0.1002	-	-	0.0871	-	-	0.0684
10	829.0 ~ 844.0	-	-	0.1021	-	-	0.0873	-	-	0.0675
LTE Band 7		QPSK			16QAM			64QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
5	2502.5 ~ 2567.5	-	-	0.0690	-	-	0.0655	-	-	0.0647
10	2505.0 ~ 2565.0	-	-	0.0703	-	-	0.0659	-	-	0.0640
15	2507.5 ~ 2562.5	-	-	0.0705	-	-	0.0665	-	-	0.0652
20	2510.0 ~ 2560.0	-	-	0.0713	-	-	0.0661	-	-	0.0650



LTE Band 13		QPSK			16QAM			64QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)
5	779.5 ~ 784.5	-	-	0.0935	-	-	0.0804	-	-	0.0637
10	782.0	-	-	0.0942	-	-	0.0805	-	-	0.0619
LTE Band 17		QPSK			16QAM			64QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)
5	706.5~713.5	4M52G7D	-	0.0561	4M52W7D	-	0.0483	4M48W7D	-	0.0371
10	709.0~711.0	8M99G7D	0.0265	0.0566	9M03W7D	-	0.0483	9M07W7D	-	0.0372
LTE Band 41		QPSK			16QAM			64QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
5	2498.5 ~ 2687.5	-	-	0.0738	-	-	0.0676	-	-	0.0668
10	2501.0 ~ 2685.0	-	-	0.0729	-	-	0.0659	-	-	0.0668
15	2503.5 ~ 2682.5	-	-	0.0726	-	-	0.0652	-	-	0.0659
20	2506.0 ~ 2680.0	-	-	0.0740	-	-	0.0653	-	-	0.0664



1.4 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan & Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	Sporton Site No.
	TH05-HY
Test Engineer	Sherry Wu
Temperature	22.7~23.8°C
Relative Humidity	55~56%

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	Sporton Site No.
	03CH15-HY (TAF Code: 3786)
Test Engineer	Jack Cheng, Lance Chiang, and Chuan Chu
Temperature	21.8~26.2°C
Relative Humidity	58.7~66.8%
Remark	The Radiated Spurious Emission Test item subcontracted to Sporton International Inc. Wensan Laboratory

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW1190 and TW0007



1.5 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ ANSI C63.26-2015
- ♦ ANSI / TIA-603-E
- ♦ FCC 47 CFR Part 2, 22(H), 27
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01.

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.
3. The TAF code is not including all the FCC KDB listed without accreditation.



2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y Plane for Band 7, 17, 41 ; Z Plane for Band 4, 5, 13 and WPC Charging Mode) were recorded in this report.

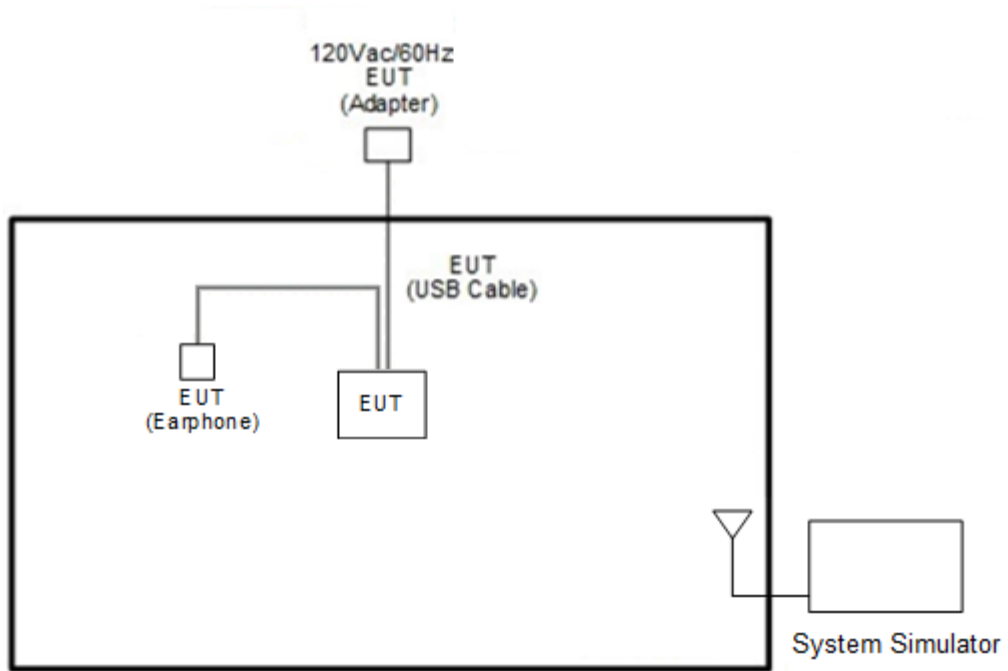
Test Items	Band	Bandwidth (MHz)						Modulation			RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
Max. Output Power	4	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	5	v	v	v	v	-	-	v	v	v	v	v	v	v	v	v
	7	-	-	v	v	v	v	v	v	v	v	v	v	v	v	v
	13	-	-	v	v	-	-	v	v	v	v	v	v	v	v	v
	17	-	-	v	v	-	-	v	v	v	v	v	v	v	v	v
	41	-	-	v	v	v	v	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	17	-	-		v	-	-	v	v	v			v		v	
26dB and 99% Bandwidth	17	-	-	v	v	-	-	v	v	v			v		v	
Conducted Band Edge	17	-	-	v	v	-	-	v	v	v	v		v	v		v
Conducted Spurious Emission	17	-	-	v	v	-	-	v			v			v	v	v
Frequency Stability	17	-	-		v	-	-	v					v		v	



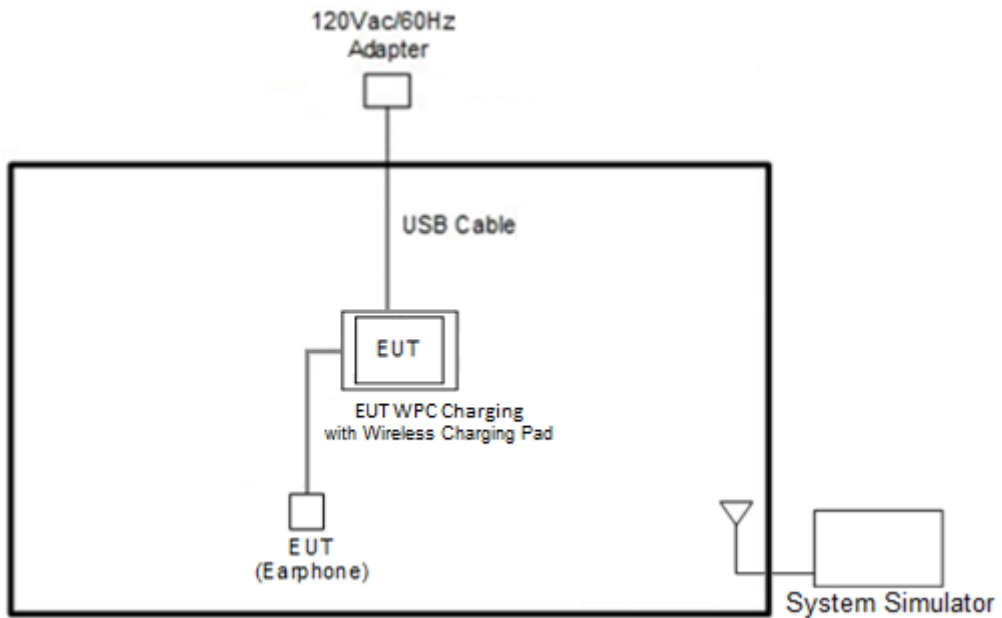
Test Items	Band	Bandwidth (MHz)						Modulation			RB #			Test Channel				
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H		
E.R.P / E.I.R.P	4	v	v	v	v	v	v	v	v	v	Max Power							
	5	v	v	v	v	-	-	v	v	v								
	7	-	-	v	v	v	v	v	v	v								
	13	-	-	v	v	-	-	v	v	v								
	17	-	-	v	v	-	-	v	v	v								
	41	-	-	v	v	v	v	v	v	v								
Radiated Spurious Emission	4	Worst Case													v	v	v	
	5	Worst Case													v	v	v	
	7	Worst Case													v	v	v	
	13	Worst Case													v	v	v	
	17	Worst Case													v	v	v	
	41	Worst Case													v	v	v	
Remark	<ol style="list-style-type: none"> 1. The mark "v " means that this configuration is chosen for testing 2. The mark "- " means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported. 4. We have evaluated simultaneous transmissions modes and determined no new significant emissions are observed. 																	

2.2 Connection Diagram of Test System

<EUT With Accessory>



<WPC Charging Mode>





2.3 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	System Simulator	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Example :

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\ &= 4.2 + 10 = 14.2 \text{ (dB)} \end{aligned}$$



2.5 Frequency List of Low/Middle/High Channels

LTE Band 4 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	20050	20175	20300
	Frequency	1720	1732.5	1745
15	Channel	20025	20175	20325
	Frequency	1717.5	1732.5	1747.5
10	Channel	20000	20175	20350
	Frequency	1715	1732.5	1750
5	Channel	19975	20175	20375
	Frequency	1712.5	1732.5	1752.5
3	Channel	19965	20175	20385
	Frequency	1711.5	1732.5	1753.5
1.4	Channel	19957	20175	20393
	Frequency	1710.7	1732.5	1754.3

LTE Band 5 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	20450	20525	20600
	Frequency	829	836.5	844
5	Channel	20425	20525	20625
	Frequency	826.5	836.5	846.5
3	Channel	20415	20525	20635
	Frequency	825.5	836.5	847.5
1.4	Channel	20407	20525	20643
	Frequency	824.7	836.5	848.3

LTE Band 7 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	20850	21100	21350
	Frequency	2510	2535	2560
15	Channel	20825	21100	21375
	Frequency	2507.5	2535	2562.5
10	Channel	20800	21100	21400
	Frequency	2505	2535	2565
5	Channel	20775	21100	21425
	Frequency	2502.5	2535	2567.5



LTE Band 13 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	-	23230	-
	Frequency	-	782	-
5	Channel	23205	23230	23255
	Frequency	779.5	782	784.5

LTE Band 17 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	23780	23790	23800
	Frequency	709	710	711
5	Channel	23755	23790	23825
	Frequency	706.5	710	713.5

LTE Band 41 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	39750	40620	41490
	Frequency	2506.0	2593.0	2680.0
15	Channel	39725	40620	41515
	Frequency	2503.5	2593.0	2682.5
10	Channel	39700	40620	41540
	Frequency	2501.0	2593.0	2685.0
5	Channel	39675	40620	41565
	Frequency	2498.5	2593.0	2687.5

3 Conducted Test Items

3.1 Measuring Instruments

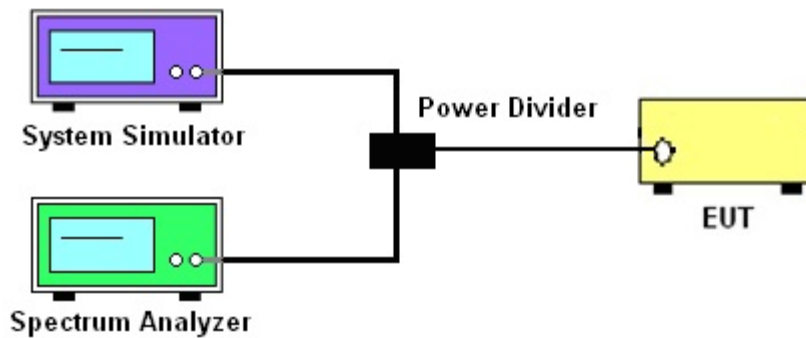
See list of measuring instruments of this test report.

3.1.1 Test Setup

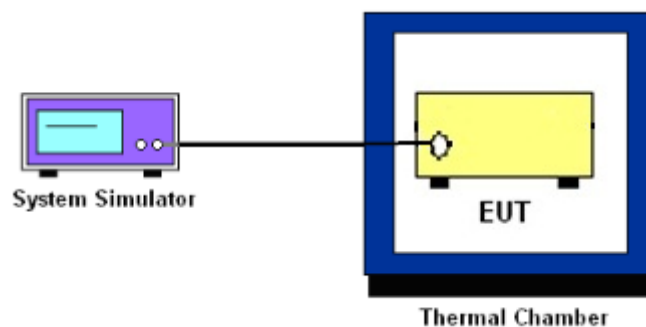
3.1.2 Conducted Output Power



3.1.3 Peak-to-Average Ratio, Occupied Bandwidth ,Conducted Band-Edge and Conducted Spurious Emission



3.1.4 Frequency Stability



3.1.5 Test Result of Conducted Test

Please refer to Appendix A.



3.2 Conducted Output Power and ERP/EIRP

3.2.1 Description of the Conducted Output Power Measurement and ERP/EIRP/EIRP Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 7 Watts for LTE Band 5

The ERP of mobile transmitters must not exceed 3 Watts for LTE Band 13 and Band 17

The EIRP of mobile transmitters must not exceed 2 Watts for LTE Band 7 and Band 41

The EIRP of mobile transmitters must not exceed 1 Watts for LTE Band 4

According to KDB 412172 D01 Power Approach,

$EIRP = PT + GT - LC$, $ERP = EIRP - 2.15$, where

PT = transmitter output power in dBm

GT = gain of the transmitting antenna in dBi

LC = signal attenuation in the connecting cable between the transmitter and antenna in Db

3.2.2 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through the system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.



3.3 Peak-to-Average Ratio

3.3.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. 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.

3.3.2 Test Procedures

The testing follows ANSI C63.26-2015 Section 5.2.6

1. The EUT was connected to spectrum and system simulator via a power divider.
2. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
3. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
4. Record the deviation as Peak to Average Ratio.



3.4 Occupied Bandwidth

3.4.1 Description of Occupied Bandwidth Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

3.4.2 Test Procedures

The testing follows ANSI C63.26-2015 Section 5.4.3 (26dB) and Section 5.4.4 (99OB)

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
3. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
4. Set the detection mode to peak, and the trace mode to max hold.
5. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace.
(this is the reference value)
6. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
7. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “-X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
8. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.



3.5 Conducted Band Edge

3.5.1 Description of Conducted Band Edge Measurement

27.53 (g)

For operations in the 600MHz band and 698-746 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power P(Watts) in a 100 kHz bandwidth. 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.

3.5.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The band edges of low and high channels for the highest RF powers were measured.
3. Set RBW $\geq 1\%$ EBW in the 1MHz band immediately outside and adjacent to the band edge.
4. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.
5. Set spectrum analyzer with RMS detector.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. Checked that all the results comply with the emission limit line.

The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)



3.6 Conducted Spurious Emission

3.6.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

3.6.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. The middle channel for the highest RF power within the transmitting frequency was measured.
4. The conducted spurious emission for the whole frequency range was taken.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
6. Set spectrum analyzer with RMS detector.
7. Taking the record of maximum spurious emission.
8. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
9. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)



3.7 Frequency Stability

3.7.1 Description of Frequency Stability Measurement

27.54

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

3.7.2 Test Procedures for Temperature Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C step up to 50°C . The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.7.3 Test Procedures for Voltage Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

1. The EUT was placed in a temperature chamber at $20\pm 5^{\circ}\text{C}$ and connected with the system simulator.
2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

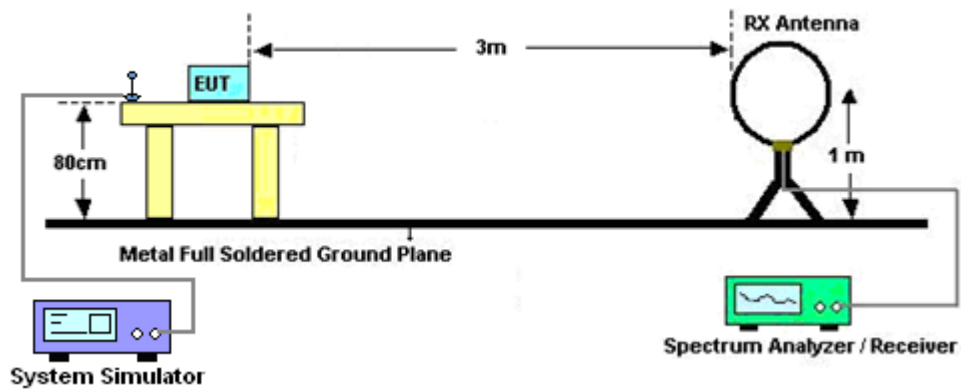
4 Radiated Test Items

4.1 Measuring Instruments

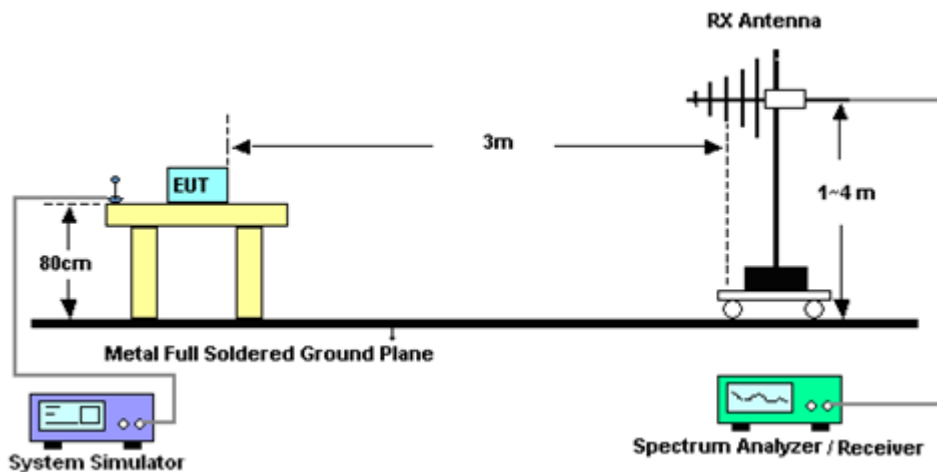
See list of measuring instruments of this test report.

4.1.1 Test Setup

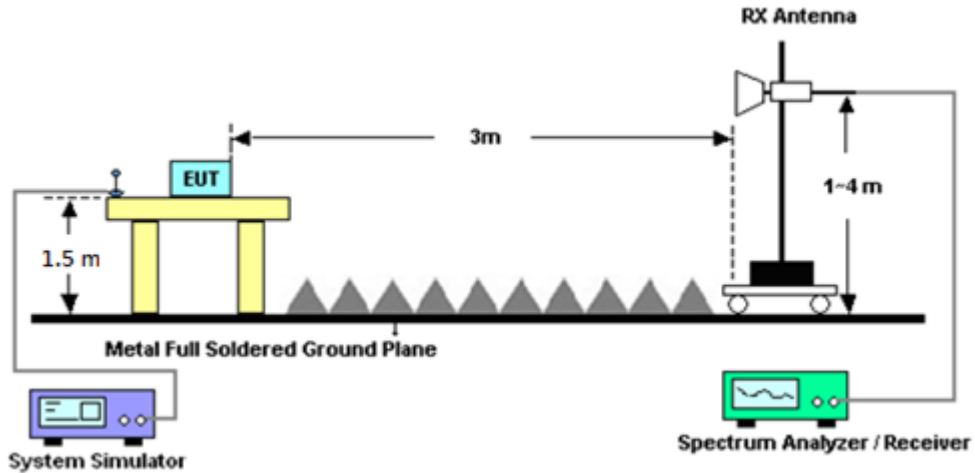
For radiated test below 30MHz



For radiated test from 30MHz to 1GHz



For radiated test above 1GHz



4.1.2 Test Result of Radiated Test

Please refer to Appendix B.

Note:

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.



4.2 Radiated Spurious Emission Measurement

4.2.1 Description of Radiated Spurious Emission Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA-603-E. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.2.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 7 and ANSI / TIA-603-E Section 2.2.12.

1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)

$EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$

$ERP \text{ (dBm)} = EIRP - 2.15$



5 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Jan. 04, 2021	Mar. 16, 2021~ Mar. 18, 2021	Jan. 03, 2022	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N -06	40103 & 07	30MHz~1GHz	Apr. 29, 2020	Mar. 16, 2021~ Mar. 18, 2021	Apr. 28, 2021	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1328	1GHz~18GHz	Nov. 23, 2020	Mar. 16, 2021~ Mar. 18, 2021	Nov. 22, 2021	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1212	1GHz~18GHz	May 20, 2020	Mar. 16, 2021~ Mar. 18, 2021	May 19, 2021	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	00993	18GHz~40GHz	Dec. 19, 2020	Mar. 16, 2021~ Mar. 18, 2021	Dec. 18, 2021	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170576	18GHz~40GHz	May 22, 2019	Mar. 16, 2021~ Mar. 18, 2021	May 21, 2021	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 25, 2020	Mar. 16, 2021~ Mar. 18, 2021	Mar. 24, 2021	Radiation (03CH12-HY)
Preamplifier	Keysight	83017A	MY57280120	1GHz~26.5GHz	Jul. 20, 2020	Mar. 16, 2021~ Mar. 18, 2021	Jul. 19, 2021	Radiation (03CH12-HY)
Preamplifier	E-INSTRUME NT TECH LTD.	ERA-100M-18 G-56-01-A70	EC1900249	1GHz-18GHz	Dec. 05, 2020	Mar. 16, 2021~ Mar. 18, 2021	Dec. 04, 2021	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 11, 2020	Mar. 16, 2021~ Mar. 18, 2021	Dec. 10, 2021	Radiation (03CH12-HY)
Spectrum Analyzer	Agilent	N9010A	MY53470118	10Hz~44GHz	Jan. 15, 2021	Mar. 16, 2021~ Mar. 18, 2021	Jan. 14, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz~30MHz	Mar. 11, 2021	Mar. 16, 2021~ Mar. 18, 2021	Mar. 10, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 11, 2020	Mar. 16, 2021~ Mar. 18, 2021	Dec. 10, 2021	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Feb. 22, 2021	Mar. 16, 2021~ Mar. 18, 2021	Feb. 21, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz~40GHz	Feb. 22, 2021	Mar. 16, 2021~ Mar. 18, 2021	Feb. 21, 2022	Radiation (03CH12-HY)
Filter	Wainwright	WLKS1200-12 SS	SN2	1.2GHz Low Pass Filter	Mar. 21, 2020	Mar. 16, 2021~ Mar. 18, 2021	Mar. 20, 2021	Radiation (03CH12-HY)
Filter	Wainwright	WHKX12-2700 -3000-18000-6 OST	SN2	3GHz High Pass Filter	Jul. 14, 2020	Mar. 16, 2021~ Mar. 18, 2021	Jul. 13, 2021	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Mar. 16, 2021~ Mar. 18, 2021	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Mar. 16, 2021~ Mar. 18, 2021	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Mar. 16, 2021~ Mar. 18, 2021	N/A	Radiation (03CH12-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Base Station (Measure)	Anritsu	MT8821C	62620025341	N/A	Oct. 06, 2020	Mar. 16, 2021~ Apr. 14, 2021	Oct. 05, 2021	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101397	10Hz~40GHz	Nov. 27, 2020	Mar. 16, 2021~ Apr. 14, 2021	Nov. 26, 2021	Conducted (TH05-HY)
Thermal Chamber	Ten Billion	TTH-D3SP	TBN-930701	N/A	Aug. 05, 2020	Mar. 16, 2021~ Apr. 14, 2021	Aug. 04, 2021	Conducted (TH05-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890094	1V~20V 0.5A~5A	Oct. 05, 2020	Mar. 16, 2021~ Apr. 14, 2021	Oct. 04, 2021	Conducted (TH05-HY)
Coupler	Warison	20dB 25W SMA Directional Coupler	#B	1-18GHz	Jan. 09, 2021	Mar. 16, 2021~ Apr. 14, 2021	Jan. 08, 2022	Conducted (TH05-HY)



6 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.07
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.21
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.80
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Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power & ERP / EIRP)

LTE Band 4 Maximum Average Power [dBm] (GT - LC = -2.02 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
20	1	0	QPSK	20.02	20.10	20.23	18.31	0.0678
20	1	49		19.97	20.01	20.10		
20	1	99		19.97	20.01	20.06		
20	50	0		20.18	20.30	20.33		
20	50	24		20.19	20.22	20.29		
20	50	50		20.05	20.18	20.29		
20	100	0		20.07	20.25	20.24		
20	1	0	16-QAM	19.95	19.94	20.16	18.14	0.0652
20	1	49		19.83	19.93	20.05		
20	1	99		19.84	19.91	19.97		
20	50	0		19.62	19.75	19.82		
20	50	24		19.60	19.66	19.80		
20	50	50		19.60	19.69	19.79		
20	100	0		19.65	19.71	19.78		
20	1	0	64-QAM	19.71	19.76	20.01	17.99	0.0630
20	1	49		19.70	19.80	19.87		
20	1	99		19.75	19.76	19.91		
20	50	0		19.66	19.76	19.91		
20	50	24		19.70	19.76	19.80		
20	50	50		19.62	19.75	19.78		
20	100	0		19.69	19.70	19.82		
Limit	EIRP < 1W			Result			Pass	



LTE Band 4 Maximum Average Power [dBm] (GT - LC = -2.02 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
15	1	0	QPSK	20.10	20.17	20.31	18.29	0.0675
15	1	37		19.93	20.03	20.09		
15	1	74		20.02	20.05	20.08		
15	36	0		20.01	20.30	20.31		
15	36	20		20.14	20.21	20.29		
15	36	39		20.03	20.20	20.30		
15	75	0		20.15	20.23	20.23		
15	1	0	16-QAM	19.86	19.93	20.07	18.05	0.0638
15	1	37		19.79	19.95	19.93		
15	1	74		19.85	19.90	19.96		
15	36	0		19.54	19.75	19.80		
15	36	20		19.55	19.74	19.79		
15	36	39		19.62	19.74	19.74		
15	75	0		19.60	19.65	19.72		
15	1	0	64-QAM	19.73	19.75	19.96	17.94	0.0622
15	1	37		19.71	19.82	19.86		
15	1	74		19.76	19.78	19.85		
15	36	0		19.63	19.77	19.85		
15	36	20		19.64	19.75	19.87		
15	36	39		19.60	19.78	19.81		
15	75	0		19.59	19.70	19.70		
Limit	EIRP < 1W			Result			Pass	



LTE Band 4 Maximum Average Power [dBm] (GT - LC = -2.02 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
10	1	0	QPSK	19.96	20.06	20.17	18.29	0.0675
10	1	25		19.88	20.07	20.20		
10	1	49		19.98	20.08	20.15		
10	25	0		20.07	20.22	20.25		
10	25	12		20.07	20.21	20.20		
10	25	25		20.05	20.27	20.31		
10	50	0		20.13	20.24	20.28		
10	1	0	16-QAM	19.87	19.99	20.03	18.10	0.0646
10	1	25		19.82	20.01	20.12		
10	1	49		19.87	19.97	20.05		
10	25	0		19.54	19.71	19.73		
10	25	12		19.63	19.74	19.85		
10	25	25		19.57	19.72	19.85		
10	50	0		19.66	19.74	19.75		
10	1	0	64-QAM	19.75	19.84	19.98	18.02	0.0634
10	1	25		19.74	20.01	20.04		
10	1	49		19.78	19.89	19.97		
10	25	0		19.58	19.74	19.77		
10	25	12		19.67	19.73	19.82		
10	25	25		19.58	19.86	19.92		
10	50	0		19.67	19.71	19.77		
Limit	EIRP < 1W			Result			Pass	



LTE Band 4 Maximum Average Power [dBm] (GT - LC = -2.02 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
5	1	0	QPSK	19.92	19.94	20.17	18.24	0.0667
5	1	12		19.92	20.12	20.22		
5	1	24		19.97	20.14	20.16		
5	12	0		20.00	20.10	20.26		
5	12	7		20.08	20.17	20.22		
5	12	13		19.95	20.19	20.25		
5	25	0		19.95	20.16	20.23		
5	1	0	16-QAM	19.75	19.83	19.99	18.00	0.0631
5	1	12		19.81	19.88	19.92		
5	1	24		19.77	19.96	20.02		
5	12	0		19.59	19.63	19.84		
5	12	7		19.54	19.75	19.80		
5	12	13		19.59	19.78	19.78		
5	25	0		19.52	19.68	19.73		
5	1	0	64-QAM	19.70	19.81	19.91	17.89	0.0615
5	1	12		19.73	19.89	19.88		
5	1	24		19.69	19.84	19.85		
5	12	0		19.61	19.75	19.80		
5	12	7		19.61	19.76	19.87		
5	12	13		19.54	19.80	19.81		
5	25	0		19.53	19.68	19.78		
Limit	EIRP < 1W			Result			Pass	



LTE Band 4 Maximum Average Power [dBm] (GT - LC = -2.02 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
3	1	0	QPSK	19.93	19.97	20.19	18.30	0.0676
3	1	8		19.96	20.15	20.16		
3	1	14		19.99	20.11	20.15		
3	8	0		20.01	20.09	20.20		
3	8	4		20.06	20.23	20.32		
3	8	7		20.00	20.26	20.31		
3	15	0		19.98	20.11	20.25		
3	1	0	16-QAM	19.80	19.87	20.04	18.02	0.0634
3	1	8		19.88	19.94	20.01		
3	1	14		19.82	19.96	20.01		
3	8	0		19.59	19.76	19.81		
3	8	4		19.64	19.75	19.85		
3	8	7		19.62	19.73	19.82		
3	15	0		19.63	19.68	19.76		
3	1	0	64-QAM	19.75	19.81	19.90	17.96	0.0625
3	1	8		19.73	19.95	19.92		
3	1	14		19.72	19.90	19.98		
3	8	0		19.59	19.70	19.77		
3	8	4		19.66	19.82	19.92		
3	8	7		19.59	19.73	19.89		
3	15	0		19.57	19.67	19.86		
Limit	EIRP < 1W			Result			Pass	



LTE Band 4 Maximum Average Power [dBm] (GT - LC = -2.02 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
1.4	1	0	QPSK	19.88	19.94	20.02	18.13	0.0650
1.4	1	3		19.93	20.10	20.12		
1.4	1	5		19.91	20.03	20.06		
1.4	3	0		19.85	20.04	20.13		
1.4	3	1		19.92	20.14	20.15		
1.4	3	3		19.90	20.02	20.15		
1.4	6	0		19.93	20.05	20.14		
1.4	1	0	16-QAM	19.71	19.77	19.92	17.94	0.0622
1.4	1	3		19.79	19.96	19.93		
1.4	1	5		19.67	19.92	19.90		
1.4	3	0		19.51	19.56	19.64		
1.4	3	1		19.52	19.73	19.76		
1.4	3	3		19.47	19.62	19.66		
1.4	6	0		19.57	19.61	19.71		
1.4	1	0	64-QAM	19.62	19.78	19.89	17.88	0.0614
1.4	1	3		19.66	19.90	19.85		
1.4	1	5		19.68	19.79	19.79		
1.4	3	0		19.55	19.70	19.83		
1.4	3	1		19.65	19.88	19.87		
1.4	3	3		19.69	19.81	19.81		
1.4	6	0		19.51	19.67	19.71		
Limit	EIRP < 1W			Result			Pass	



LTE Band 5 Maximum Average Power [dBm] (GT - LC = -2.07 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)
10	1	0	QPSK	24.31	24.21	24.23	20.09	0.1021
10	1	25		24.06	24.15	24.17		
10	1	49		24.18	24.21	24.15		
10	25	0		23.21	23.24	23.21		
10	25	12		23.31	23.29	23.21		
10	25	25		23.31	23.22	23.23		
10	50	0		23.32	23.27	23.28		
10	1	0	16-QAM	23.63	23.47	23.56	19.41	0.0873
10	1	25		23.56	23.51	23.56		
10	1	49		23.53	23.55	23.51		
10	25	0		22.18	22.24	22.22		
10	25	12		22.32	22.21	22.23		
10	25	25		22.29	22.31	22.28		
10	50	0		22.32	22.19	22.22		
10	1	0	64-QAM	22.51	22.37	22.43	18.29	0.0675
10	1	25		22.49	22.43	22.12		
10	1	49		22.11	21.47	21.63		
10	25	0		21.27	21.30	21.35		
10	25	12		21.33	21.22	21.24		
10	25	25		21.32	21.34	20.76		
10	50	0		21.25	21.29	21.24		
Limit	ERP < 7W			Result			Pass	



LTE Band 5 Maximum Average Power [dBm] (GT - LC = -2.07 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)
5	1	0	QPSK	24.21	24.21	24.23	20.01	0.1002
5	1	12		24.20	24.17	24.16		
5	1	24		24.11	24.22	24.08		
5	12	0		23.35	23.31	23.32		
5	12	7		23.32	23.32	23.21		
5	12	13		23.27	23.30	23.27		
5	25	0		23.30	23.19	23.23		
5	1	0	16-QAM	23.62	23.58	23.62	19.4	0.0871
5	1	12		23.58	23.51	23.45		
5	1	24		23.56	23.45	23.37		
5	12	0		22.32	22.32	22.34		
5	12	7		22.26	22.35	22.32		
5	12	13		22.20	22.26	22.28		
5	25	0		22.30	22.28	22.25		
5	1	0	64-QAM	22.57	22.41	22.07	18.35	0.0684
5	1	12		22.44	22.40	21.73		
5	1	24		22.44	21.70	21.46		
5	12	0		21.42	21.27	20.86		
5	12	7		21.29	21.29	20.68		
5	12	13		21.30	21.26	20.60		
5	25	0		21.28	21.33	20.71		
Limit	ERP < 7W			Result			Pass	



LTE Band 5 Maximum Average Power [dBm] (GT - LC = -2.07 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)
3	1	0	QPSK	24.23	24.15	24.16	20.08	0.1019
3	1	8		24.19	24.23	24.30		
3	1	14		24.02	24.03	24.12		
3	8	0		23.25	23.12	23.24		
3	8	4		23.25	23.25	23.32		
3	8	7		23.26	23.18	23.16		
3	15	0		23.27	23.30	23.14		
3	1	0	16-QAM	23.52	23.52	23.51	19.3	0.0851
3	1	8		23.51	23.51	23.39		
3	1	14		23.42	23.44	23.41		
3	8	0		22.35	22.35	22.29		
3	8	4		22.23	22.29	22.23		
3	8	7		22.30	22.30	22.22		
3	15	0		22.20	22.28	22.23		
3	1	0	64-QAM	22.47	22.19	21.62	18.25	0.0668
3	1	8		22.45	22.38	21.60		
3	1	14		22.40	22.00	21.34		
3	8	0		21.32	21.25	20.52		
3	8	4		21.28	21.22	20.52		
3	8	7		21.12	21.33	20.64		
3	15	0		21.20	21.24	20.51		
Limit	ERP < 7W			Result			Pass	



LTE Band 5 Maximum Average Power [dBm] (GT - LC = -2.07 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)
1.4	1	0	QPSK	24.17	24.11	24.11	19.99	0.0998
1.4	1	3		24.21	24.11	24.18		
1.4	1	5		24.06	24.10	24.02		
1.4	3	0		24.11	24.11	24.16		
1.4	3	1		24.17	24.13	24.17		
1.4	3	3		24.14	24.15	24.14		
1.4	6	0		23.23	23.16	23.14		
1.4	1	0	16-QAM	23.44	23.43	23.48	19.32	0.0855
1.4	1	3		23.49	23.54	23.52		
1.4	1	5		23.36	23.46	23.32		
1.4	3	0		23.25	23.15	23.16		
1.4	3	1		23.34	23.23	23.22		
1.4	3	3		23.19	23.19	23.14		
1.4	6	0		22.28	22.25	22.28		
1.4	1	0	64-QAM	22.45	22.33	21.73	18.26	0.0670
1.4	1	3		22.48	22.40	21.70		
1.4	1	5		22.37	22.36	21.61		
1.4	3	0		22.31	22.34	21.68		
1.4	3	1		22.41	22.31	21.87		
1.4	3	3		22.36	22.31	21.80		
1.4	6	0		21.30	21.22	20.70		
Limit	ERP < 7W			Result			Pass	



LTE Band 7 Maximum Average Power [dBm] (GT - LC = -2.02 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
20	1	0	QPSK	20.10	20.13	20.29	18.53	0.0713
20	1	49		20.18	20.19	20.40		
20	1	99		20.25	20.24	20.45		
20	50	0		20.21	20.22	20.40		
20	50	24		20.39	20.40	20.55		
20	50	50		20.37	20.37	20.48		
20	100	0		20.34	20.38	20.45		
20	1	0	16-QAM	20.04	19.97	20.14	18.20	0.0661
20	1	49		20.04	19.99	20.22		
20	1	99		20.10	20.18	20.21		
20	50	0		19.72	19.81	19.91		
20	50	24		19.84	19.88	19.99		
20	50	50		19.88	19.89	20.08		
20	100	0		19.86	19.85	19.96		
20	1	0	64-QAM	19.84	19.91	20.01	18.13	0.0650
20	1	49		19.90	19.86	20.03		
20	1	99		20.03	20.00	20.15		
20	50	0		19.74	19.80	19.88		
20	50	24		19.96	19.97	20.05		
20	50	50		19.96	19.88	20.04		
20	100	0		19.91	19.84	19.89		
Limit	EIRP < 2W			Result			Pass	



LTE Band 7 Maximum Average Power [dBm] (GT - LC = -2.02 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
15	1	0	QPSK	20.14	20.18	20.39	18.48	0.0705
15	1	37		20.20	20.18	20.41		
15	1	74		20.25	20.29	20.38		
15	36	0		20.26	20.32	20.48		
15	36	20		20.34	20.39	20.46		
15	36	39		20.36	20.40	20.50		
15	75	0		20.31	20.39	20.44		
15	1	0	16-QAM	20.01	20.02	20.20	18.23	0.0665
15	1	37		20.05	20.00	20.16		
15	1	74		20.12	20.10	20.25		
15	36	0		19.72	19.71	19.86		
15	36	20		19.79	19.87	19.95		
15	36	39		19.88	19.86	20.02		
15	75	0		19.79	19.82	19.91		
15	1	0	64-QAM	19.92	19.93	19.97	18.14	0.0652
15	1	37		19.89	19.93	20.16		
15	1	74		19.94	20.01	20.15		
15	36	0		19.79	19.80	19.99		
15	36	20		19.91	19.93	20.02		
15	36	39		19.89	19.90	20.03		
15	75	0		19.82	19.82	20.00		
Limit	EIRP < 2W			Result			Pass	



LTE Band 7 Maximum Average Power [dBm] (GT - LC = -2.02 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
10	1	0	QPSK	20.07	20.12	20.21	18.47	0.0703
10	1	25		20.13	20.11	20.29		
10	1	49		20.17	20.16	20.26		
10	25	0		20.30	20.19	20.42		
10	25	12		20.31	20.39	20.44		
10	25	25		20.30	20.34	20.49		
10	50	0		20.33	20.38	20.42		
10	1	0	16-QAM	19.96	20.00	20.21	18.19	0.0659
10	1	25		19.96	20.01	20.20		
10	1	49		20.07	20.02	20.21		
10	25	0		19.75	19.72	19.94		
10	25	12		19.77	19.84	19.88		
10	25	25		19.82	19.80	19.96		
10	50	0		19.81	19.90	19.94		
10	1	0	64-QAM	19.92	19.88	20.05	18.06	0.0640
10	1	25		19.90	19.98	20.08		
10	1	49		20.03	19.94	20.08		
10	25	0		19.81	19.75	19.90		
10	25	12		19.86	19.84	20.00		
10	25	25		19.78	19.83	19.99		
10	50	0		19.84	19.88	19.95		
Limit	EIRP < 2W			Result			Pass	



LTE Band 7 Maximum Average Power [dBm] (GT - LC = -2.02 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
5	1	0	QPSK	20.11	20.02	20.34	18.39	0.0690
5	1	12		20.17	20.17	20.32		
5	1	24		20.16	20.17	20.30		
5	12	0		20.22	20.22	20.36		
5	12	7		20.18	20.34	20.41		
5	12	13		20.29	20.35	20.37		
5	25	0		20.26	20.29	20.37		
5	1	0	16-QAM	19.87	19.88	20.14	18.16	0.0655
5	1	12		19.88	19.93	20.08		
5	1	24		19.97	19.97	20.18		
5	12	0		19.77	19.74	19.93		
5	12	7		19.68	19.75	20.02		
5	12	13		19.77	19.77	19.98		
5	25	0		19.72	19.76	19.94		
5	1	0	64-QAM	19.80	19.92	20.10	18.11	0.0647
5	1	12		19.87	19.94	20.04		
5	1	24		19.83	19.86	20.13		
5	12	0		19.83	19.76	20.00		
5	12	7		19.83	19.85	20.02		
5	12	13		19.77	19.89	20.06		
5	25	0		19.71	19.81	20.02		
Limit	EIRP < 2W			Result			Pass	



LTE Band 13 Maximum Average Power [dBm] (GT - LC = -2.48 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)
10	1	0	QPSK		24.24		19.74	0.0942
10	1	25			24.37			
10	1	49			24.29			
10	25	0			23.32			
10	25	12			23.37			
10	25	25			23.38			
10	50	0			23.37			
10	1	0	16-QAM	-	23.52	-	19.06	0.0805
10	1	25			23.65			
10	1	49			23.69			
10	25	0			22.27			
10	25	12			22.43			
10	25	25			22.36			
10	50	0			22.32			
10	1	0	64-QAM		21.54		17.92	0.0619
10	1	25			22.55			
10	1	49			22.20			
10	25	0			20.22			
10	25	12			21.21			
10	25	25			21.51			
10	50	0			21.18			
Limit	ERP < 3W			Result			Pass	



LTE Band 13 Maximum Average Power [dBm] (GT - LC = -2.48 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)
5	1	0	QPSK	24.19	24.16	24.27	19.71	0.0935
5	1	12		24.24	24.27	24.32		
5	1	24		24.34	24.24	24.28		
5	12	0		23.27	23.43	23.36		
5	12	7		23.00	23.41	23.34		
5	12	13		23.43	23.40	23.36		
5	25	0		23.34	23.29	23.37		
5	1	0	16-QAM	23.17	23.61	23.61	19.05	0.0804
5	1	12		23.54	23.65	23.61		
5	1	24		23.63	23.68	23.68		
5	12	0		22.13	22.46	22.43		
5	12	7		22.08	22.46	22.33		
5	12	13		22.39	22.45	22.40		
5	25	0		22.25	22.45	22.38		
5	1	0	64-QAM	21.07	21.38	22.60	18.04	0.0637
5	1	12		21.40	22.61	22.62		
5	1	24		22.67	22.59	22.08		
5	12	0		20.13	20.68	21.49		
5	12	7		20.13	21.43	21.38		
5	12	13		20.56	21.49	20.97		
5	25	0		20.21	21.12	21.34		
Limit	ERP < 3W			Result			Pass	



LTE Band 17 Maximum Average Power [dBm] (GT - LC = -4.76 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)
10	1	0	QPSK	24.30	24.22	24.20	17.53	0.0566
10	1	25		24.33	24.33	24.30		
10	1	49		24.36	24.44	24.40		
10	25	0		23.27	23.34	23.31		
10	25	12		23.44	23.35	23.42		
10	25	25		23.47	23.47	23.48		
10	50	0		23.46	23.42	23.44		
10	1	0	16-QAM	23.66	23.65	23.68	16.84	0.0483
10	1	25		23.66	23.68	23.71		
10	1	49		23.72	23.75	23.66		
10	25	0		22.31	22.34	22.29		
10	25	12		22.38	22.39	22.41		
10	25	25		22.45	22.51	22.42		
10	50	0		22.47	22.41	22.32		
10	1	0	64-QAM	22.09	22.45	22.53	15.7	0.0372
10	1	25		22.59	22.61	22.43		
10	1	49		21.92	21.89	21.90		
10	25	0		21.25	21.44	21.43		
10	25	12		21.44	21.42	21.38		
10	25	25		21.40	21.11	20.90		
10	50	0		21.35	21.35	21.28		
Limit	ERP < 3W			Result			Pass	



LTE Band 17 Maximum Average Power [dBm] (GT - LC = -4.76 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)
5	1	0	QPSK	24.35	24.26	24.34	17.49	0.0561
5	1	12		24.37	24.35	24.33		
5	1	24		24.37	24.40	24.36		
5	12	0		23.40	23.34	23.34		
5	12	7		23.49	23.46	23.44		
5	12	13		23.48	23.47	23.45		
5	25	0		23.45	23.43	23.39		
5	1	0	16-QAM	23.69	23.64	23.55	16.84	0.0483
5	1	12		23.64	23.60	23.58		
5	1	24		23.72	23.75	23.65		
5	12	0		22.43	22.35	22.46		
5	12	7		22.50	22.47	22.52		
5	12	13		22.41	22.43	22.44		
5	25	0		22.46	22.39	22.45		
5	1	0	64-QAM	21.87	22.54	22.02	15.69	0.0371
5	1	12		22.41	22.60	21.93		
5	1	24		22.39	22.14	21.75		
5	12	0		20.89	21.42	20.93		
5	12	7		21.42	21.50	20.63		
5	12	13		21.53	21.31	20.46		
5	25	0		21.20	21.38	20.68		
Limit	ERP < 3W			Result			Pass	



LTE Band 41 Maximum Average Power [dBm] (GT - LC = -1.09 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
20	1	0	QPSK	19.17	19.66	19.49	18.69	0.0740
20	1	49		19.06	19.50	19.36		
20	1	99		19.10	19.64	19.37		
20	50	0		19.17	19.65	19.45		
20	50	24		19.28	19.65	19.47		
20	50	50		19.24	19.78	19.49		
20	100	0		19.28	19.73	19.46		
20	1	0	16-QAM	18.70	19.09	19.10	18.15	0.0653
20	1	49		18.70	19.14	18.93		
20	1	99		18.72	19.24	18.95		
20	50	0		18.73	19.17	18.99		
20	50	24		18.79	19.24	19.01		
20	50	50		18.79	19.24	19.04		
20	100	0		18.82	19.21	19.03		
20	1	0	64-QAM	18.43	18.86	18.66	18.22	0.0664
20	1	49		18.37	18.87	18.72		
20	1	99		18.33	19.00	18.64		
20	50	0		18.77	19.16	19.01		
20	50	24		18.80	19.31	19.02		
20	50	50		18.75	19.19	19.05		
20	100	0		18.84	19.25	19.06		
Limit	EIRP < 2W			Result			Pass	



LTE Band 41 Maximum Average Power [dBm] (GT - LC = -1.09 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
15	1	0	QPSK	19.11	19.48	19.40	18.61	0.0726
15	1	37		19.08	19.45	19.41		
15	1	74		19.12	19.62	19.47		
15	36	0		19.19	19.63	19.50		
15	36	20		19.28	19.66	19.46		
15	36	39		19.30	19.70	19.53		
15	75	0		19.33	19.67	19.49		
15	1	0	16-QAM	18.75	19.16	18.99	18.14	0.0652
15	1	37		18.65	19.05	18.93		
15	1	74		18.75	19.21	19.02		
15	36	0		18.66	19.10	18.98		
15	36	20		18.74	19.14	18.97		
15	36	39		18.64	19.23	19.00		
15	75	0		18.83	19.21	19.04		
15	1	0	64-QAM	18.42	18.87	18.72	18.19	0.0659
15	1	37		18.44	18.88	18.69		
15	1	74		18.45	19.01	18.66		
15	36	0		18.70	19.18	18.99		
15	36	20		18.77	19.27	18.95		
15	36	39		18.72	19.28	19.08		
15	75	0		18.79	19.21	18.95		
Limit	EIRP < 2W			Result			Pass	



LTE Band 41 Maximum Average Power [dBm] (GT - LC = -1.09 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
10	1	0	QPSK	19.23	19.62	19.43	18.63	0.0729
10	1	25		19.17	19.60	19.54		
10	1	49		19.23	19.61	19.47		
10	25	0		19.35	19.62	19.53		
10	25	12		19.36	19.69	19.61		
10	25	25		19.26	19.72	19.53		
10	50	0		19.28	19.69	19.53		
10	1	0	16-QAM	18.83	19.20	19.13	18.19	0.0659
10	1	25		18.83	19.19	19.07		
10	1	49		18.81	19.20	19.08		
10	25	0		18.77	19.19	19.00		
10	25	12		18.86	19.25	19.11		
10	25	25		18.77	19.25	19.09		
10	50	0		18.79	19.28	19.08		
10	1	0	64-QAM	18.55	18.84	18.76	18.25	0.0668
10	1	25		18.54	18.93	18.74		
10	1	49		18.51	18.91	18.65		
10	25	0		18.90	19.24	19.08		
10	25	12		18.86	19.28	19.19		
10	25	25		18.88	19.34	19.12		
10	50	0		18.85	19.31	19.00		
Limit	EIRP < 2W			Result			Pass	



LTE Band 41 Maximum Average Power [dBm] (GT - LC = -1.09 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
5	1	0	QPSK	19.13	19.50	19.47	18.68	0.0738
5	1	12		19.22	19.64	19.44		
5	1	24		19.11	19.58	19.36		
5	12	0		19.33	19.72	19.60		
5	12	7		19.31	19.71	19.66		
5	12	13		19.26	19.72	19.61		
5	25	0		19.32	19.77	19.55		
5	1	0	16-QAM	18.90	19.22	19.16	18.30	0.0676
5	1	12		18.90	19.39	19.32		
5	1	24		18.79	19.29	19.17		
5	12	0		18.78	19.17	19.08		
5	12	7		18.87	19.27	19.04		
5	12	13		18.83	19.26	19.07		
5	25	0		18.83	19.28	19.06		
5	1	0	64-QAM	18.56	18.88	18.77	18.25	0.0668
5	1	12		18.50	18.92	18.82		
5	1	24		18.51	19.00	18.82		
5	12	0		18.87	19.21	19.09		
5	12	7		18.83	19.22	19.12		
5	12	13		18.84	19.21	19.13		
5	25	0		18.88	19.34	19.19		
Limit	EIRP < 2W			Result			Pass	



LTE Band 17

Peak-to-Average Ratio

Mode	LTE Band 17 / 10MHz				
Mod.	QPSK	16QAM	64QAM	256QAM	Limit: 13dB
RB Size	Full RB	Full RB	Full RB	Full RB	Result
Middle CH	4.81	5.80	6.38	-	PASS



LTE Band 17 / 10MHz / QPSK	LTE Band 17 / 10MHz / 16QAM																																														
Middle Channel / Full RB	Middle Channel / Full RB																																														
<table border="1"> <thead> <tr> <th colspan="7">Complementary Cumulative Distribution Function</th> <th>Samples: 130000</th> </tr> <tr> <th>Mean</th> <th>Peak</th> <th>Crest</th> <th>10%</th> <th>1%</th> <th>0.1%</th> <th>0.01%</th> </tr> </thead> <tbody> <tr> <td>Trace 1</td> <td>22.42 dBm</td> <td>27.74 dBm</td> <td>5.31 dB</td> <td>2.32 dB</td> <td>4.14 dB</td> <td>4.91 dB</td> <td>5.13 dB</td> </tr> </tbody> </table> <p>Date: 17 MAR 2021 11:59:55</p>	Complementary Cumulative Distribution Function							Samples: 130000	Mean	Peak	Crest	10%	1%	0.1%	0.01%	Trace 1	22.42 dBm	27.74 dBm	5.31 dB	2.32 dB	4.14 dB	4.91 dB	5.13 dB	<table border="1"> <thead> <tr> <th colspan="7">Complementary Cumulative Distribution Function</th> <th>Samples: 130000</th> </tr> <tr> <th>Mean</th> <th>Peak</th> <th>Crest</th> <th>10%</th> <th>1%</th> <th>0.1%</th> <th>0.01%</th> </tr> </thead> <tbody> <tr> <td>Trace 1</td> <td>21.42 dBm</td> <td>27.74 dBm</td> <td>6.32 dB</td> <td>2.96 dB</td> <td>4.90 dB</td> <td>5.80 dB</td> <td>6.14 dB</td> </tr> </tbody> </table> <p>Date: 17 MAR 2021 11:59:31</p>	Complementary Cumulative Distribution Function							Samples: 130000	Mean	Peak	Crest	10%	1%	0.1%	0.01%	Trace 1	21.42 dBm	27.74 dBm	6.32 dB	2.96 dB	4.90 dB	5.80 dB	6.14 dB
Complementary Cumulative Distribution Function							Samples: 130000																																								
Mean	Peak	Crest	10%	1%	0.1%	0.01%																																									
Trace 1	22.42 dBm	27.74 dBm	5.31 dB	2.32 dB	4.14 dB	4.91 dB	5.13 dB																																								
Complementary Cumulative Distribution Function							Samples: 130000																																								
Mean	Peak	Crest	10%	1%	0.1%	0.01%																																									
Trace 1	21.42 dBm	27.74 dBm	6.32 dB	2.96 dB	4.90 dB	5.80 dB	6.14 dB																																								
LTE Band 17 / 10MHz / 64QAM	N/A																																														
Middle Channel / Full RB	N/A																																														
<table border="1"> <thead> <tr> <th colspan="7">Complementary Cumulative Distribution Function</th> <th>Samples: 130000</th> </tr> <tr> <th>Mean</th> <th>Peak</th> <th>Crest</th> <th>10%</th> <th>1%</th> <th>0.1%</th> <th>0.01%</th> </tr> </thead> <tbody> <tr> <td>Trace 1</td> <td>20.60 dBm</td> <td>28.58 dBm</td> <td>7.97 dB</td> <td>3.01 dB</td> <td>5.13 dB</td> <td>6.38 dB</td> <td>7.51 dB</td> </tr> </tbody> </table> <p>Date: 17 MAR 2021 12:00:20</p>	Complementary Cumulative Distribution Function							Samples: 130000	Mean	Peak	Crest	10%	1%	0.1%	0.01%	Trace 1	20.60 dBm	28.58 dBm	7.97 dB	3.01 dB	5.13 dB	6.38 dB	7.51 dB	N/A																							
Complementary Cumulative Distribution Function							Samples: 130000																																								
Mean	Peak	Crest	10%	1%	0.1%	0.01%																																									
Trace 1	20.60 dBm	28.58 dBm	7.97 dB	3.01 dB	5.13 dB	6.38 dB	7.51 dB																																								



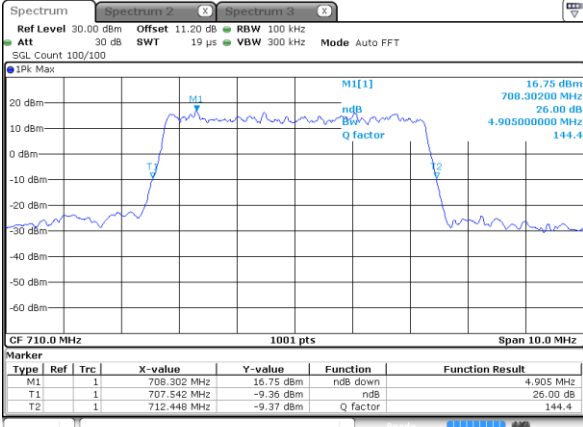
26dB Bandwidth

Mode	LTE Band 17 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	-	-	-	-	4.91	4.92	9.87	9.71	-	-	-	-
Mode	LTE Band 17 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM
Middle CH	-	-	-	-	4.86	-	9.71	-	-	-	-	-



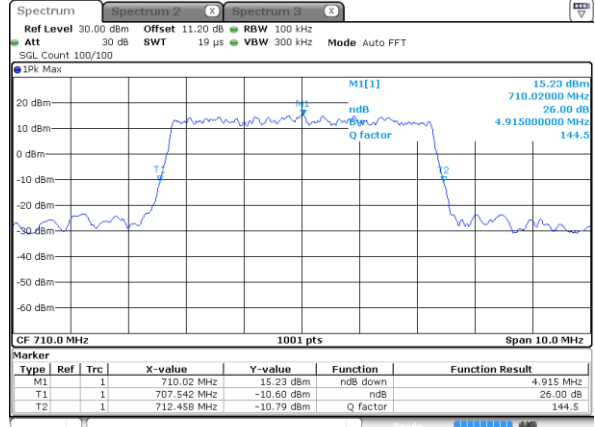
LTE Band 17

Middle Channel / 5MHz / QPSK



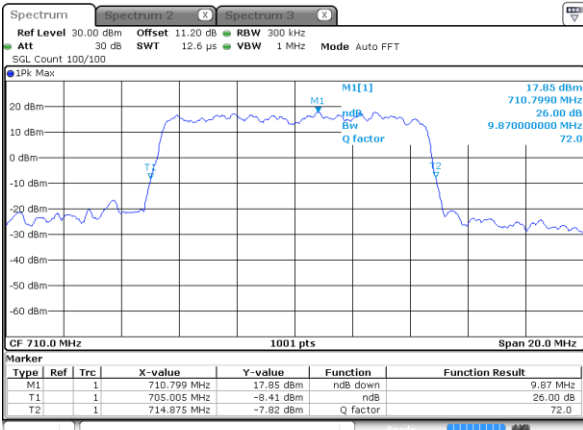
Date: 17 MAR 2021 11:23:17

Middle Channel / 5MHz / 16QAM



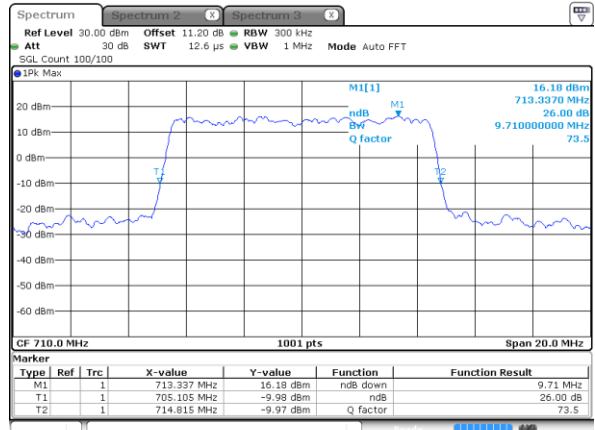
Date: 17 MAR 2021 11:23:38

Middle Channel / 10MHz / QPSK



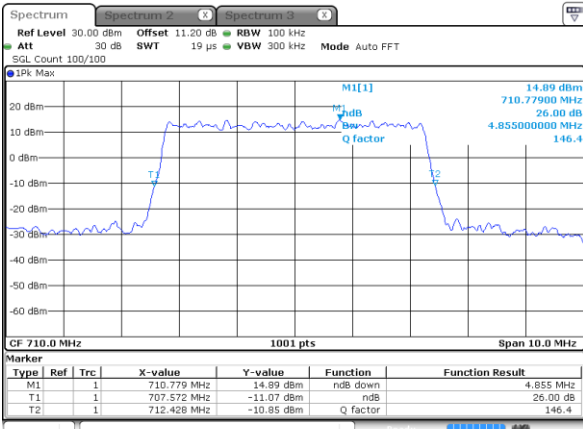
Date: 17 MAR 2021 11:37:47

Middle Channel / 10MHz / 16QAM



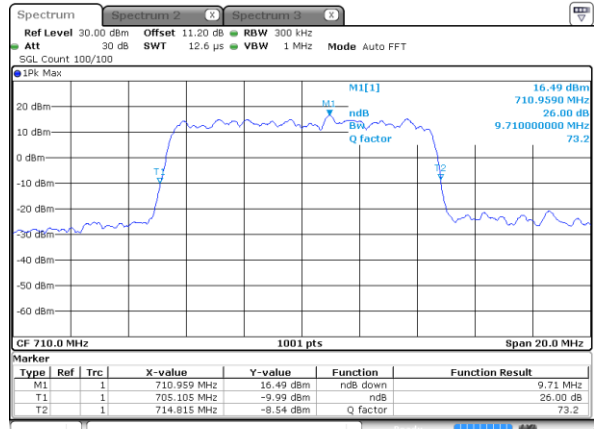
Date: 17 MAR 2021 11:38:08

Middle Channel / 5MHz / 64QAM



Date: 17 MAR 2021 11:48:20

Middle Channel / 10MHz / 64QAM



Date: 17 MAR 2021 11:56:54



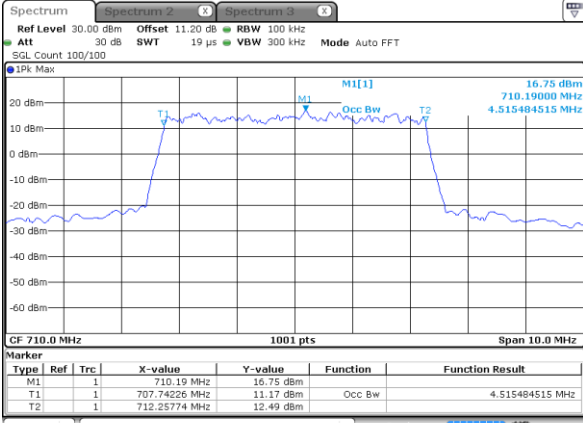
Occupied Bandwidth

Mode	LTE Band 17 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	-	-	-	-	4.52	4.52	8.99	9.03	-	-	-	-
Mode	LTE Band 17 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM
Middle CH	-	-	-	-	4.48	-	9.07	-	-	-	-	-



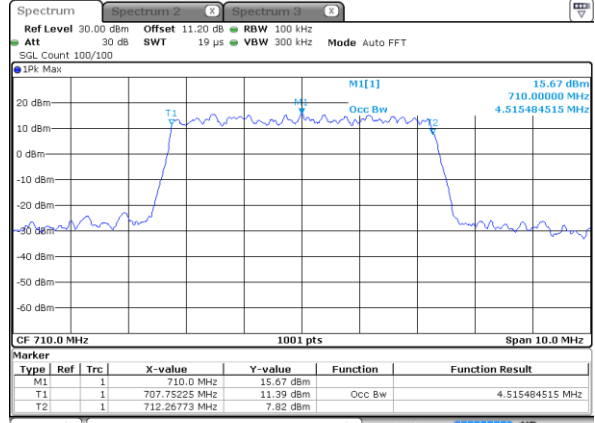
LTE Band 17

Middle Channel / 5MHz / QPSK



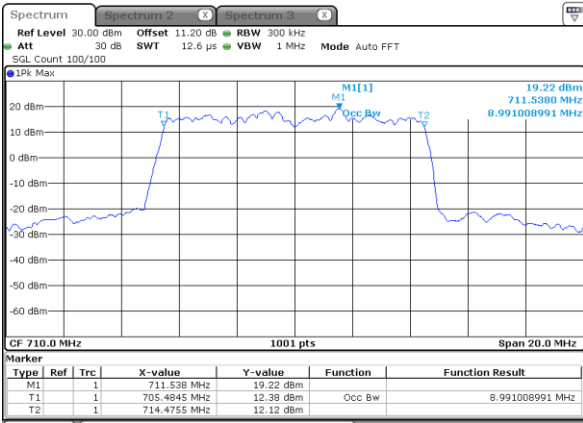
Date: 17.MAR.2021 11:22:32

Middle Channel / 5MHz / 16QAM



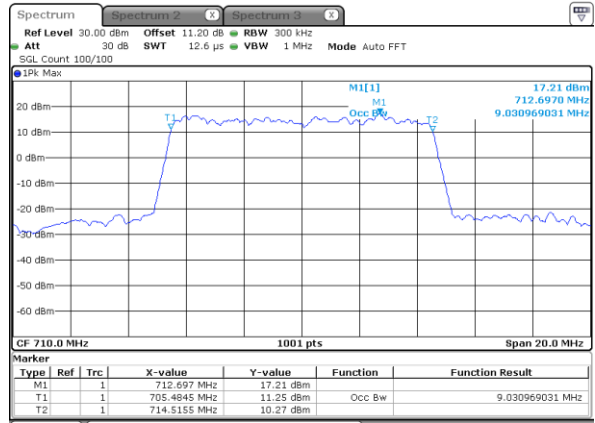
Date: 17.MAR.2021 11:22:55

Middle Channel / 10MHz / QPSK



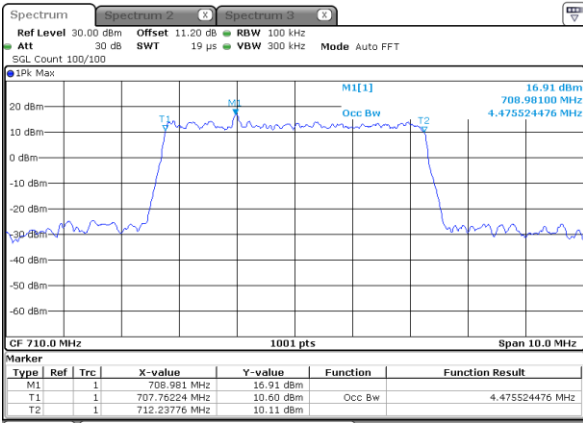
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Middle Channel / 10MHz / 16QAM



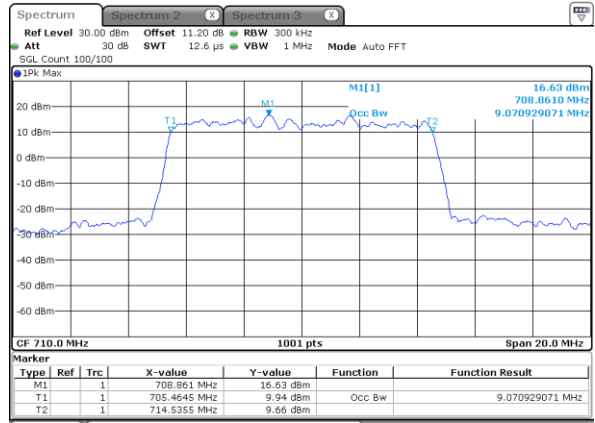
Date: 17.MAR.2021 11:37:24

Middle Channel / 5MHz / 64QAM



Date: 17.MAR.2021 11:47:57

Middle Channel / 10MHz / 64QAM



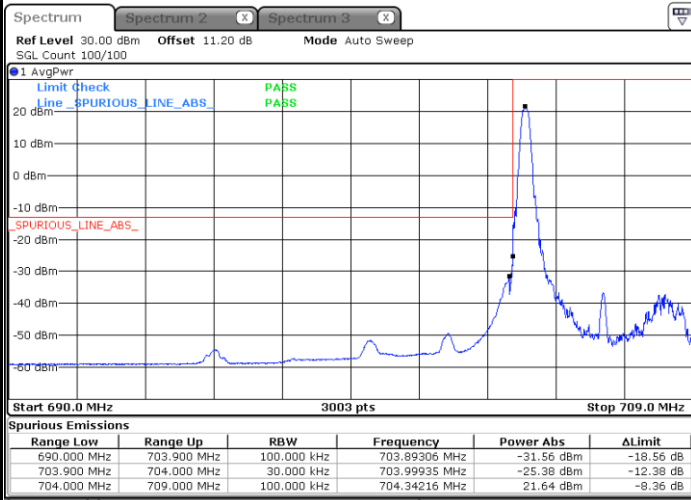
Date: 17.MAR.2021 11:56:32



Conducted Band Edge

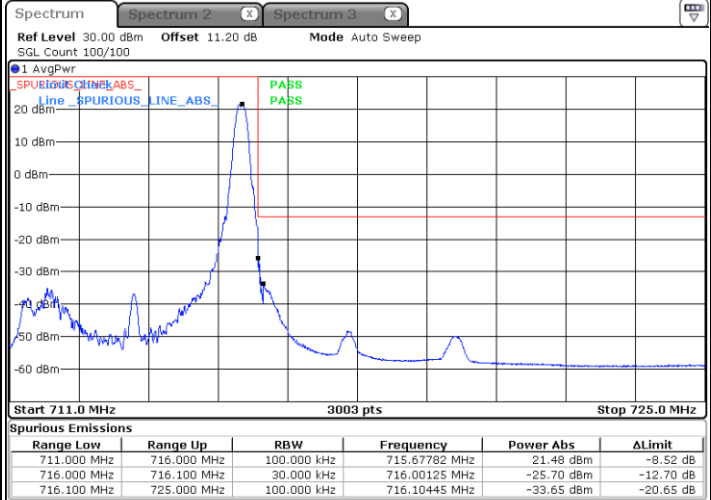
LTE Band 17 / 5MHz / QPSK

Lowest Band Edge / 1 RB



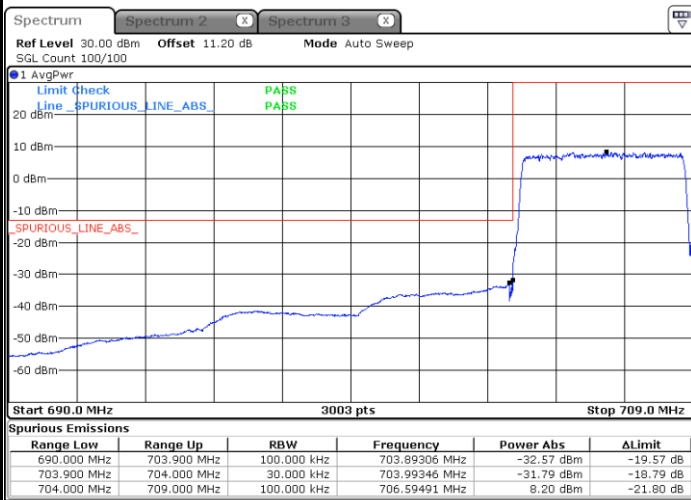
Date: 17.MAR.2021 11:17:25

Highest Band Edge / 1 RB



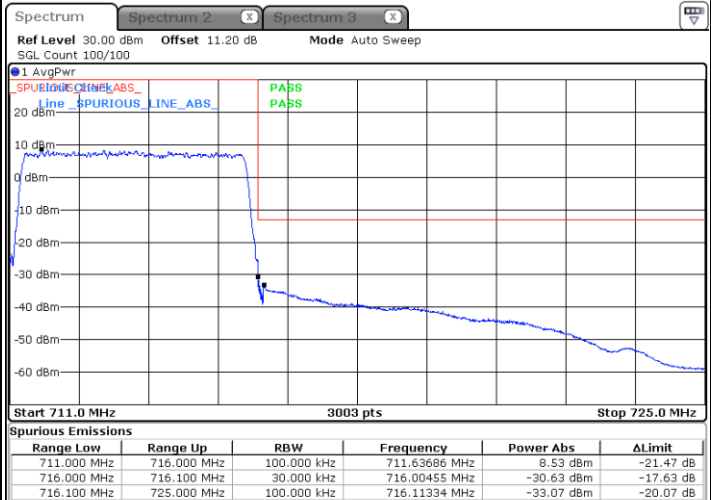
Date: 17.MAR.2021 11:26:05

Lowest Band Edge / Full RB



Date: 17.MAR.2021 11:19:40

Highest Band Edge / Full RB

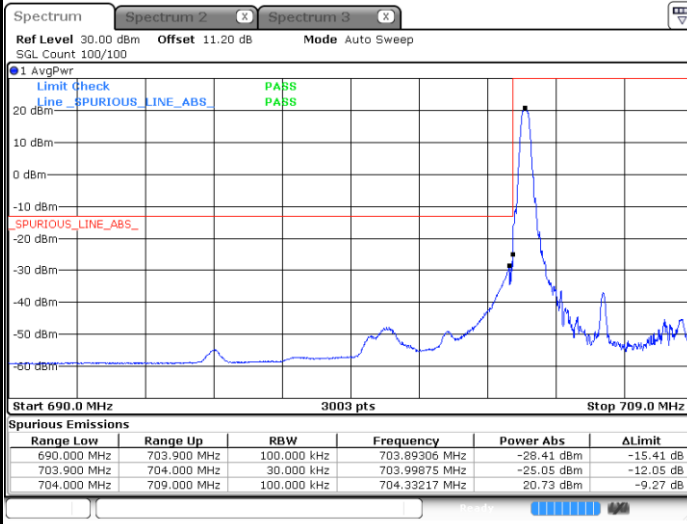


Date: 17.MAR.2021 11:28:19

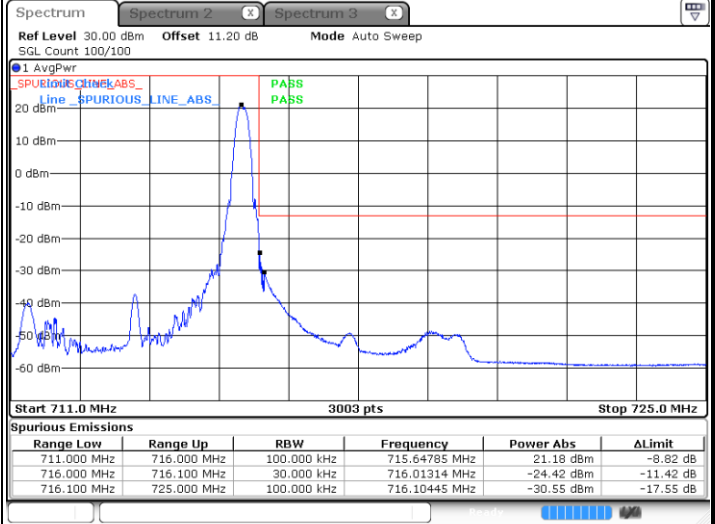


LTE Band 17 / 5MHz / 16QAM

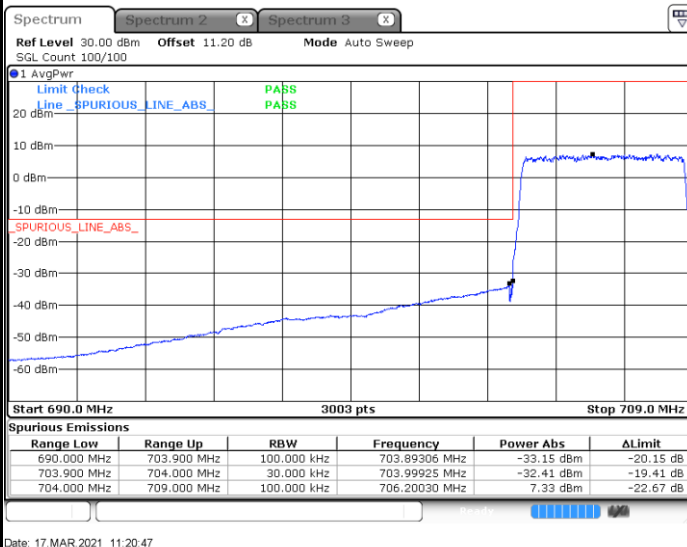
Lowest Band Edge / 1 RB



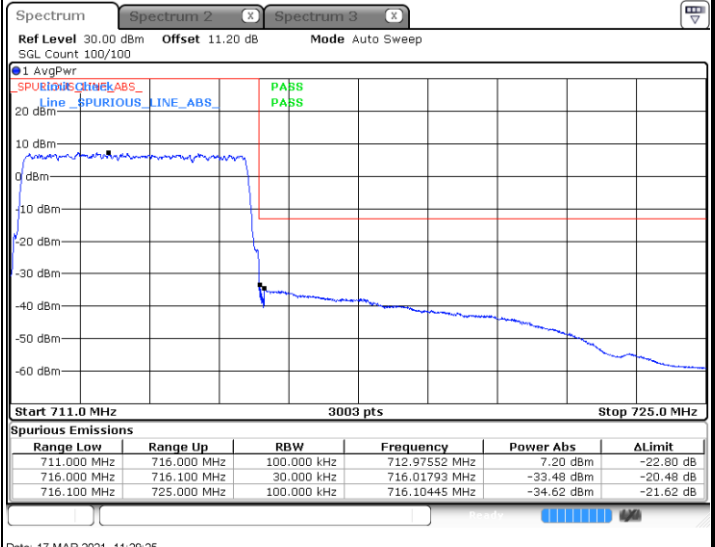
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



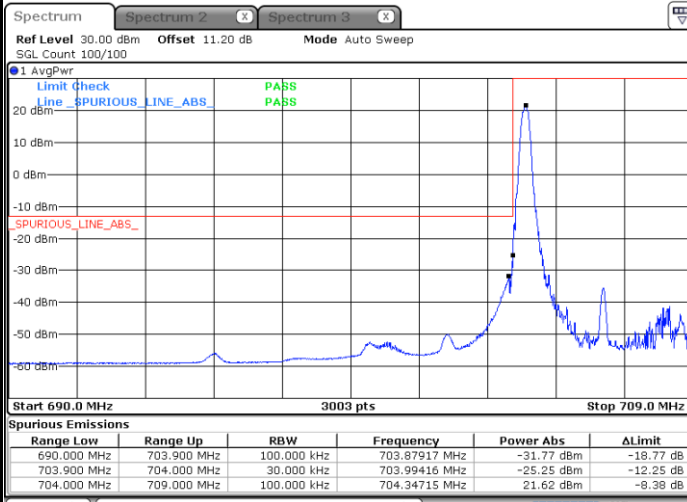
Highest Band Edge / Full RB





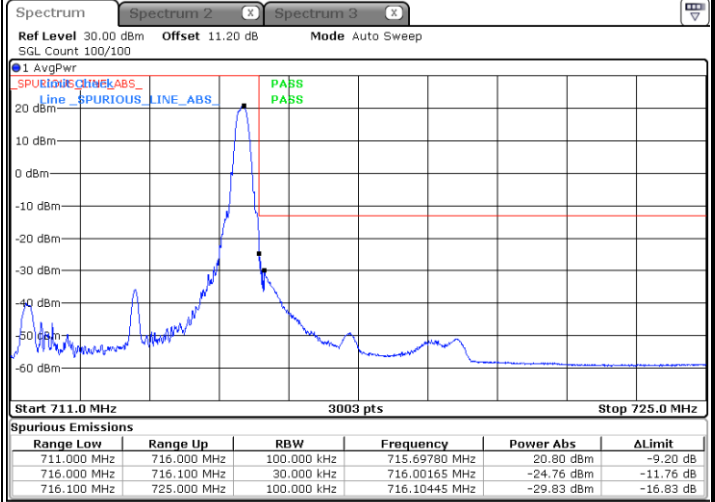
LTE Band 17 / 5MHz / 64QAM

Lowest Band Edge / 1 RB



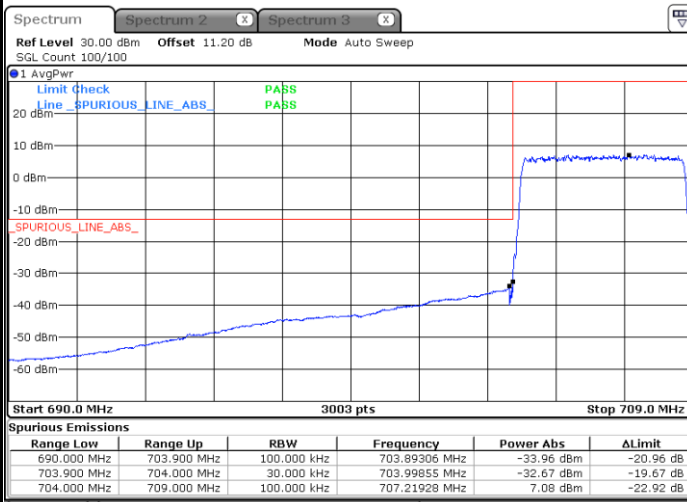
Date: 17.MAR.2021 11:46:27

Highest Band Edge / 1 RB



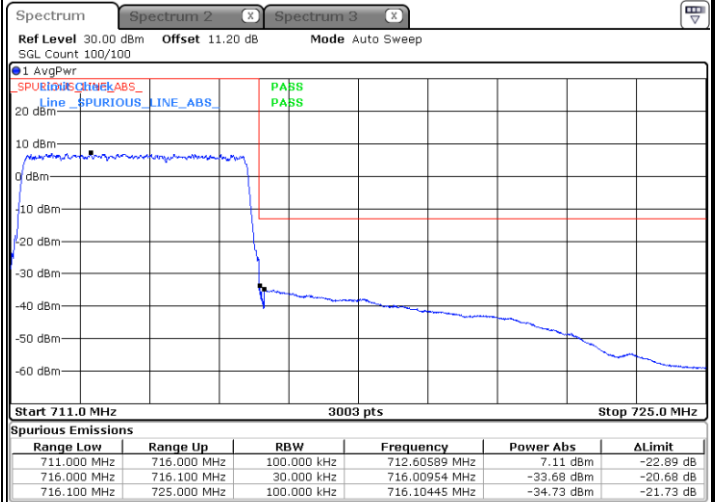
Date: 17.MAR.2021 11:49:26

Lowest Band Edge / Full RB



Date: 17.MAR.2021 11:47:35

Highest Band Edge / Full RB

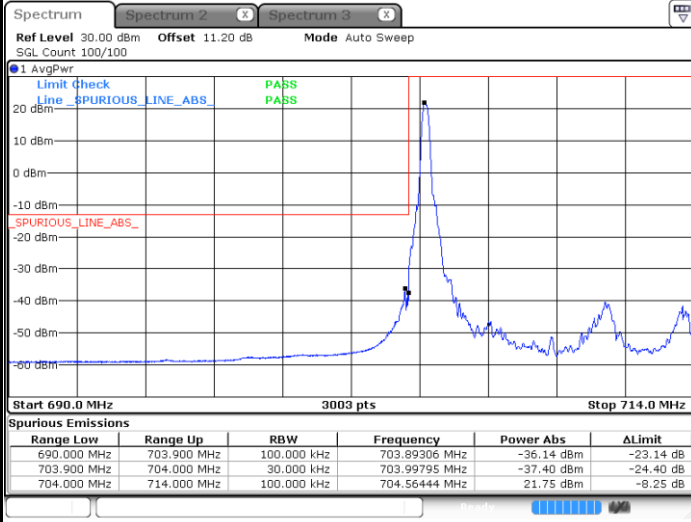


Date: 17.MAR.2021 11:50:33



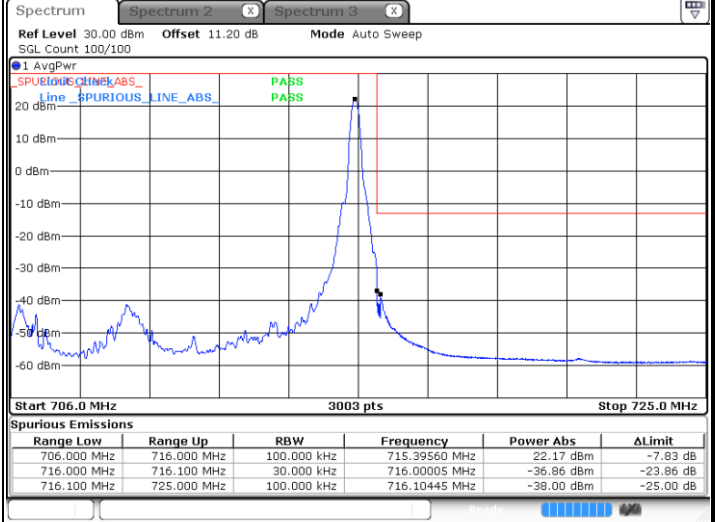
LTE Band 17 / 10MHz / QPSK

Lowest Band Edge / 1 RB



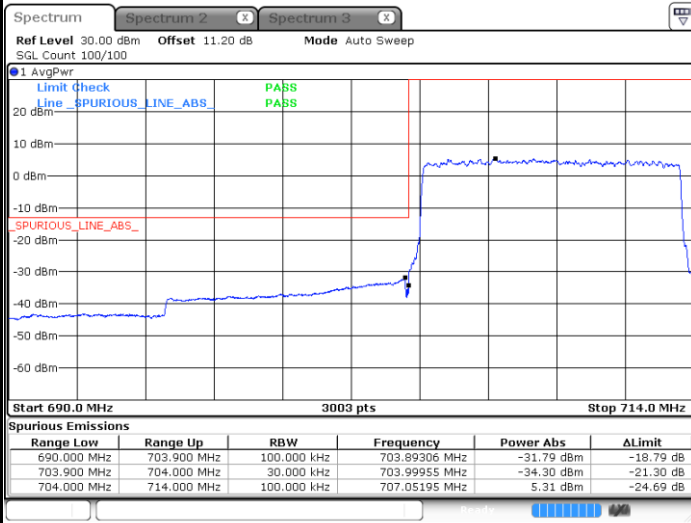
Date: 17.MAR.2021 11:31:55

Highest Band Edge / 1 RB



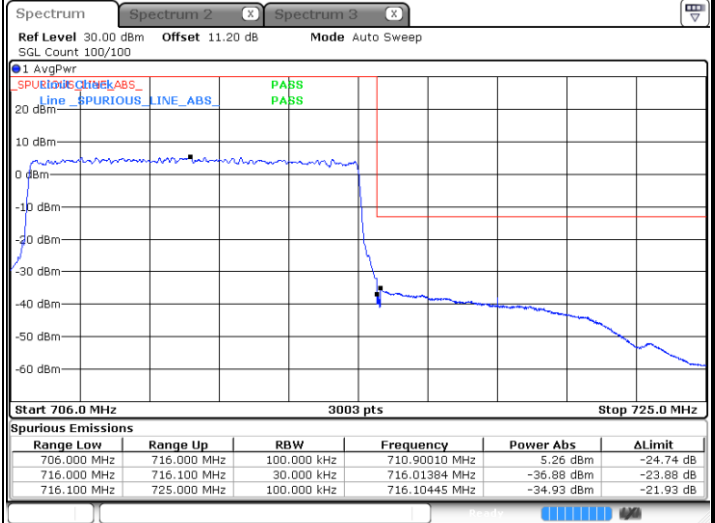
Date: 17.MAR.2021 11:40:35

Lowest Band Edge / Full RB



Date: 17.MAR.2021 11:34:10

Highest Band Edge / Full RB

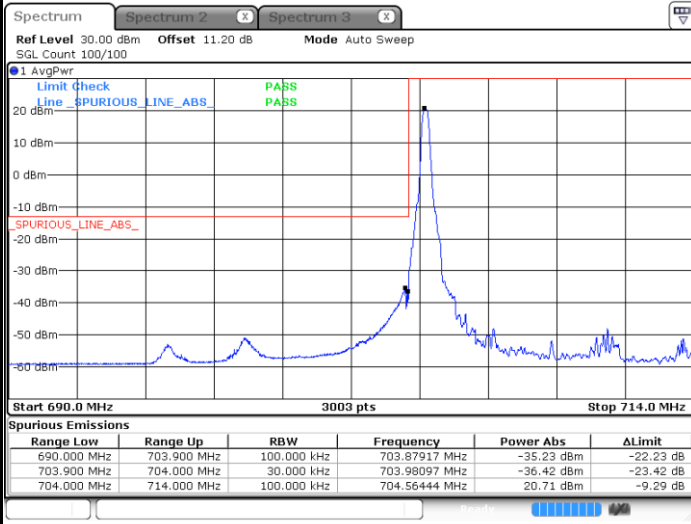


Date: 17.MAR.2021 11:42:50



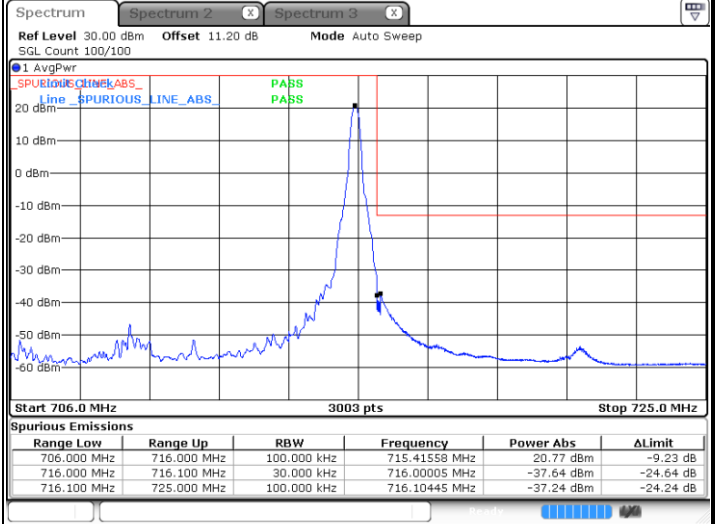
LTE Band 17 / 10MHz / 16QAM

Lowest Band Edge / 1 RB



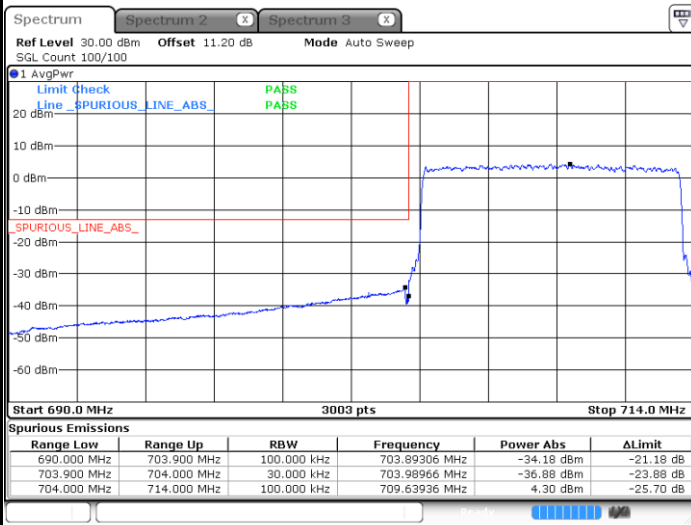
Date: 17.MAR.2021 11:33:02

Highest Band Edge / 1 RB



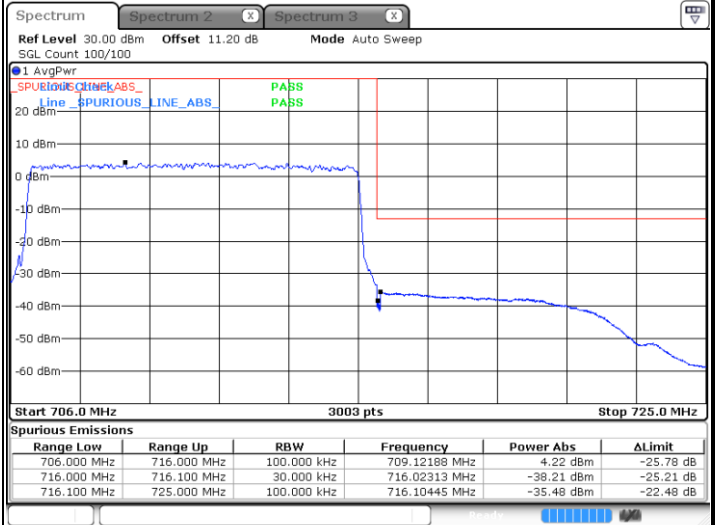
Date: 17.MAR.2021 11:41:42

Lowest Band Edge / Full RB



Date: 17.MAR.2021 11:35:17

Highest Band Edge / Full RB

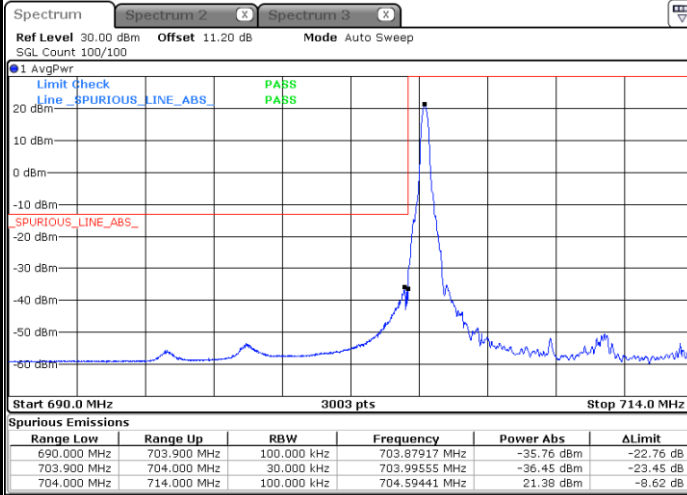


Date: 17.MAR.2021 11:43:57



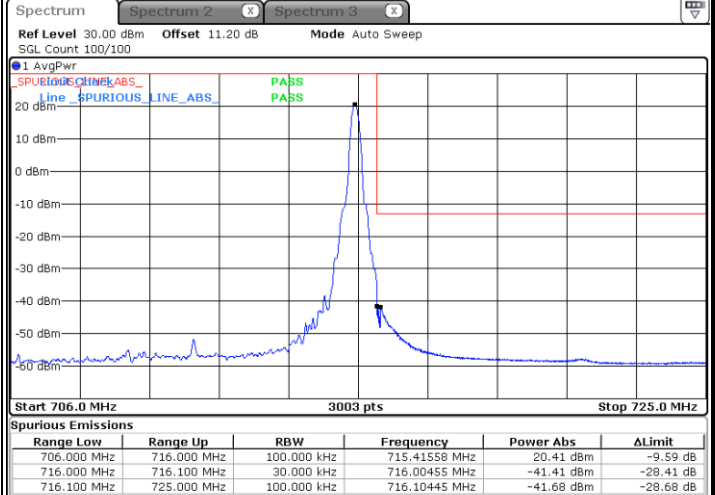
LTE Band 17 / 10MHz / 64QAM

Lowest Band Edge / 1 RB



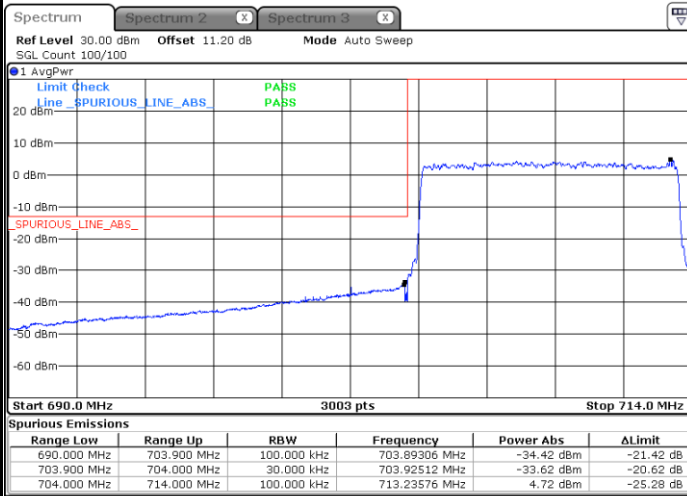
Date: 17.MAR.2021 11:51:41

Highest Band Edge / 1 RB



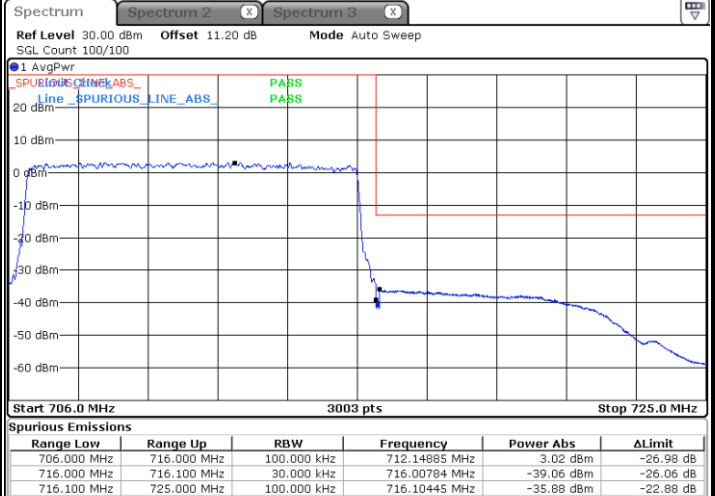
Date: 17.MAR.2021 11:58:00

Lowest Band Edge / Full RB



Date: 17.MAR.2021 11:52:48

Highest Band Edge / Full RB



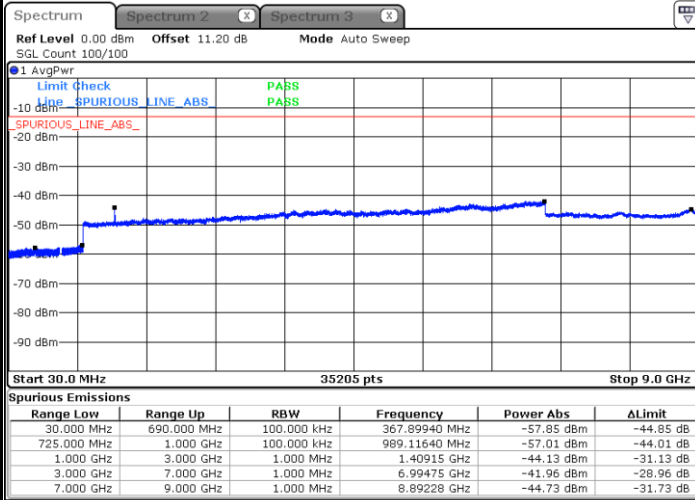
Date: 17.MAR.2021 11:59:07



Conducted Spurious Emission

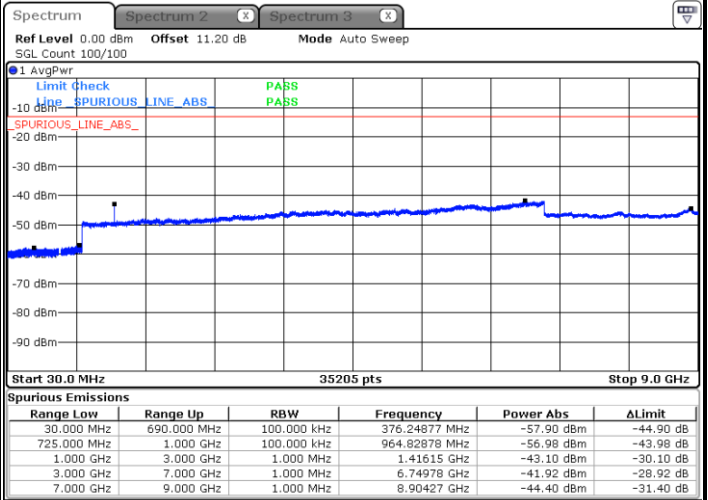
LTE Band 17 / 5MHz

Lowest Channel / QPSK



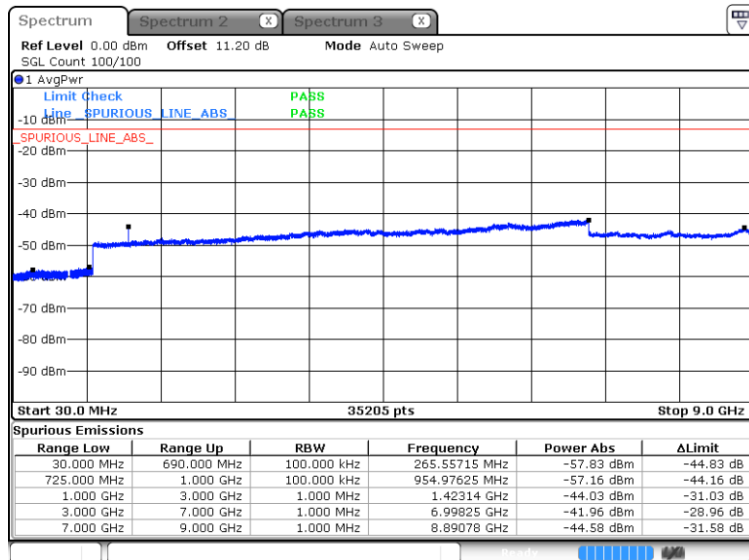
Date: 17.MAR.2021 11:22:09

Middle Channel / QPSK



Date: 17.MAR.2021 11:24:58

Highest Channel / QPSK

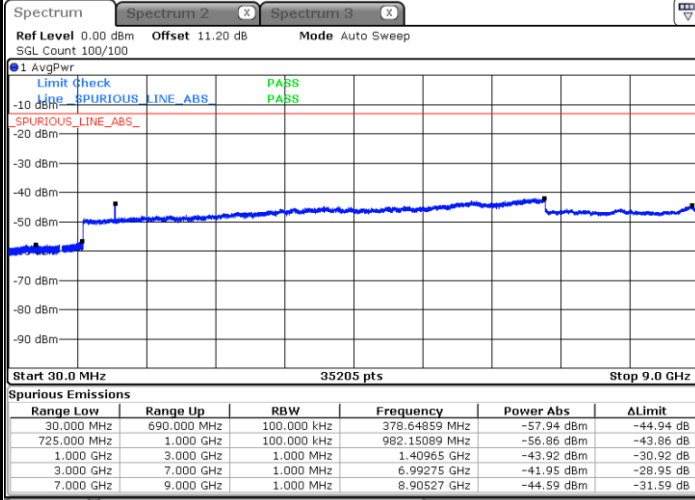


Date: 17.MAR.2021 11:30:47



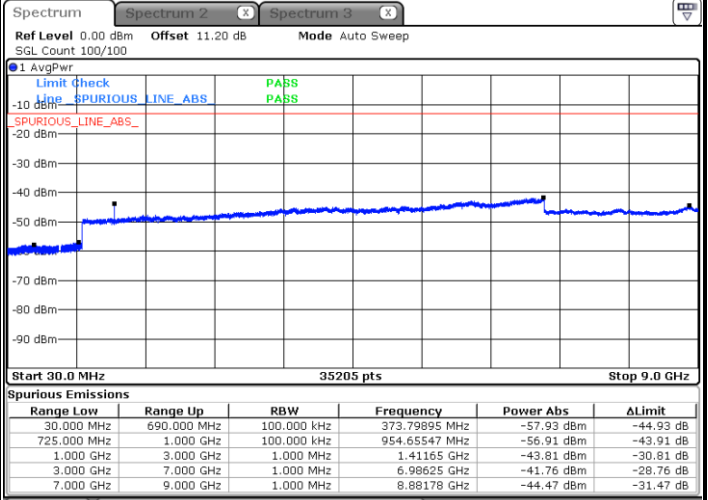
LTE Band 17 / 10MHz

Lowest Channel / QPSK



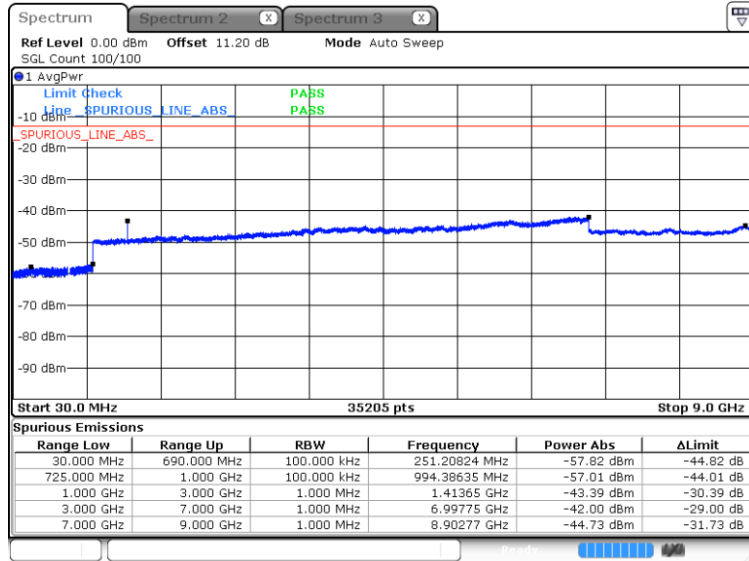
Date: 17.MAR.2021 11:36:38

Middle Channel / QPSK



Date: 17.MAR.2021 11:39:28

Highest Channel / QPSK



Date: 17.MAR.2021 11:45:19



Frequency Stability

Test Conditions		LTE Band 17 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0265	PASS
40	Normal Voltage	0.0034	
30	Normal Voltage	0.0159	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0204	
0	Normal Voltage	0.0206	
-10	Normal Voltage	0.0039	
-20	Normal Voltage	0.0138	
-30	Normal Voltage	0.0252	
20	Maximum Voltage	0.0175	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0192	

Note:

- 1. Normal Voltage =3.87 V. ; Battery End Point (BEP) =3.67 V. ; Maximum Voltage =4.26 V.
- 2. The frequency fundamental emissions stay within the authorized frequency block.



Appendix B. Test Results of Radiated Test

LTE Band 4

LTE Band 4 / 20MHz / QPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3422	-57.05	-13	-44.05	-72.99	-68.02	1.35	12.31	H
	5133	-52.23	-13	-39.23	-74.18	-63.37	1.64	12.79	H
	6844	-48.43	-13	-35.43	-73.8	-58.81	1.74	12.12	H
									H
									H
									H
	3422	-56.52	-13	-43.52	-72.88	-67.49	1.35	12.31	V
	5133	-52.44	-13	-39.44	-74.14	-63.58	1.64	12.79	V
	6844	-49.10	-13	-36.10	-74.08	-59.48	1.74	12.12	V
									V
									V
									V
Middle	3447	-56.37	-13	-43.37	-72.56	-67.39	1.35	12.37	H
	5170	-52.13	-13	-39.13	-74.08	-63.31	1.65	12.84	H
	6894	-47.98	-13	-34.98	-73.61	-58.29	1.73	12.05	H
									H
									H
									H
	3447	-56.11	-13	-43.11	-72.69	-67.13	1.35	12.37	V
	5170	-52.46	-13	-39.46	-74.2	-63.64	1.65	12.84	V
	6894	-48.86	-13	-35.86	-74.06	-59.17	1.73	12.05	V
									V
									V
									V



Highest	3472	-56.41	-13	-43.41	-72.83	-67.49	1.35	12.43	H
	5208	-52.59	-13	-39.59	-74.55	-63.82	1.66	12.89	H
	6944	-47.71	-13	-34.71	-73.59	-57.96	1.73	11.98	H
									H
									H
									H
	3472	-55.71	-13	-42.71	-72.51	-66.79	1.35	12.43	V
	5208	-52.42	-13	-39.42	-74.21	-63.65	1.66	12.89	V
	6944	-47.81	-13	-34.81	-73.23	-58.06	1.73	11.98	V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 5

LTE Band 5 / 10MHz / QPSK									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1648	-63.13	-13	-50.13	-71.55	-64.89	0.98	4.89	H
	2472	-59.09	-13	-46.09	-72.54	-60.97	1.28	5.32	H
	3296	-57.60	-13	-44.60	-72.93	-61.01	1.54	7.10	H
									H
									H
									H
	1648	-63.54	-13	-50.54	-71.43	-65.30	0.98	4.89	V
	2472	-58.84	-13	-45.84	-72.44	-60.72	1.28	5.32	V
	3296	-56.76	-13	-43.76	-72.56	-60.17	1.54	7.10	V
									V
									V
									V
Middle	1664	-63.26	-13	-50.26	-71.73	-64.97	0.98	4.84	H
	2496	-59.16	-13	-46.16	-72.65	-61.11	1.29	5.39	H
	3328	-57.55	-13	-44.55	-72.81	-61.09	1.55	7.24	H
									H
									H
									H
	1664	-63.34	-13	-50.34	-71.22	-65.05	0.98	4.84	V
	2496	-58.28	-13	-45.28	-71.98	-60.23	1.29	5.39	V
	3328	-56.90	-13	-43.90	-72.62	-60.44	1.55	7.24	V
									V
									V
									V



Highest	1680	-62.80	-13	-49.80	-71.31	-64.45	0.99	4.80	H
	2520	-59.06	-13	-46.06	-72.56	-61.03	1.30	5.42	H
	3360	-57.54	-13	-44.54	-72.73	-61.21	1.56	7.38	H
									H
									H
									H
	1680	-63.50	-13	-50.50	-71.36	-65.15	0.99	4.80	V
	2520	-58.80	-13	-45.80	-72.47	-60.77	1.30	5.42	V
	3360	-56.94	-13	-43.94	-72.57	-60.61	1.56	7.38	V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 7

LTE Band 7 / 20MHz / QPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	5002	-51.49	-25	-26.49	-73.91	-62.48	1.61	12.60	H
	7503	-47.38	-25	-22.38	-73.73	-56.49	1.99	11.10	H
	10004	-44.22	-25	-19.22	-73.78	-53.12	2.40	11.30	H
									H
									H
									H
	5002	-52.43	-25	-27.43	-74	-63.42	1.61	12.60	V
	7503	-47.25	-25	-22.25	-73.57	-56.36	1.99	11.10	V
	10004	-43.43	-25	-18.43	-73.78	-52.33	2.40	11.30	V
									V
									V
									V
Middle	5052	-51.45	-25	-26.45	-73.45	-62.50	1.62	12.67	H
	7578	-47.82	-25	-22.82	-73.78	-56.93	2.00	11.12	H
	10104	-43.84	-25	-18.84	-73.65	-52.66	2.40	11.22	H
									H
									H
									H
	5052	-52.45	-25	-27.45	-73.98	-63.50	1.62	12.67	V
	7578	-47.89	-25	-22.89	-73.81	-57.00	2.00	11.12	V
	10104	-42.91	-25	-17.91	-73.3	-51.73	2.40	11.22	V
									V
									V
									V



Highest	5100	-51.77	-25	-26.77	-73.74	-62.87	1.64	12.74	H
	7656	-47.44	-25	-22.44	-73.31	-56.56	2.01	11.13	H
	10206	-43.60	-25	-18.60	-73.67	-52.34	2.40	11.14	H
									H
									H
									H
	5100	-52.30	-25	-27.30	-73.97	-63.40	1.64	12.74	V
	7656	-47.50	-25	-22.50	-73.25	-56.62	2.01	11.13	V
	10206	-43.33	-25	-18.33	-73.75	-52.07	2.40	11.14	V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 13

LTE Band 13 / 5MHz / QPSK									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1555	-62.53	-13	-49.53	-71.15	-67.80	0.89	8.31	H
	2332	-58.25	-13	-45.25	-71.95	-65.45	1.11	10.46	H
	3109	-57.22	-13	-44.22	-72.58	-65.34	1.29	11.56	H
									H
									H
									H
	1555	-62.72	-13	-49.72	-70.66	-67.99	0.89	8.31	V
	2332	-58.69	-13	-45.69	-71.94	-65.89	1.11	10.46	V
	3109	-57.21	-13	-44.21	-72.91	-65.33	1.29	11.56	V
									V
									V
									V
Middle	1560	-62.62	-42.15	-20.47	-71.21	-67.91	0.89	8.33	H
	2336	-58.31	-13	-45.31	-71.97	-65.52	1.11	10.47	H
	3120	-57.41	-13	-44.41	-72.80	-65.56	1.29	11.59	H
									H
									H
									H
	1560	-62.67	-42.15	-20.52	-70.62	-67.96	0.89	8.33	V
	2336	-58.60	-13	-45.60	-71.85	-65.81	1.11	10.47	V
	3120	-56.75	-13	-43.75	-72.50	-64.90	1.29	11.59	V
									V
									V
									V



Highest	1565	-62.72	-42.15	-20.57	-71.27	-68.02	0.89	8.35	H
	2347	-58.63	-13	-45.63	-72.26	-65.85	1.12	10.49	H
	3129	-57.30	-13	-44.30	-72.71	-65.47	1.29	11.61	H
									H
									H
									H
	1565	-63.19	-42.15	-21.04	-71.13	-68.49	0.89	8.35	V
	2347	-58.59	-13	-45.59	-71.86	-65.81	1.12	10.49	V
	3129	-56.85	-13	-43.85	-72.63	-65.02	1.29	11.61	V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 13 / 10MHz / QPSK									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1555	-62.72	-13	-49.72	-70.66	-67.99	0.89	8.31	H
	2332	-58.69	-13	-45.69	-71.94	-65.89	1.11	10.46	H
	3109	-57.21	-13	-44.21	-72.91	-65.33	1.29	11.56	H
									H
									H
									H
	1555	-63.24	-13	-50.24	-71.18	-68.51	0.89	8.31	V
	2333	-58.96	-13	-45.96	-72.21	-66.16	1.11	10.47	V
	3110	-56.96	-13	-43.96	-72.67	-65.08	1.29	11.56	V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 17

LTE Band 17 / 10MHz / QPSK									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1408	-59.68	-13	-46.68	-69.09	-64.36	0.85	7.68	H
	2112	-59.34	-13	-46.34	-72.19	-66.28	1.06	10.16	H
	2816	-57.43	-13	-44.43	-71.78	-65.13	1.23	11.08	H
									H
									H
									H
	1408	-61.83	-13	-48.83	-70.02	-66.51	0.85	7.68	V
	2112	-60.23	-13	-47.23	-71.96	-67.17	1.06	10.16	V
	2816	-57.78	-13	-44.78	-72.09	-65.48	1.23	11.08	V
									V
									V
									V
Middle	1411	-59.25	-13	-46.25	-68.66	-63.94	0.85	7.69	H
	2117	-58.42	-13	-45.42	-71.32	-65.37	1.07	10.16	H
	2822	-57.86	-13	-44.86	-72.23	-65.57	1.23	11.09	H
									H
									H
									H
	1411	-60.50	-13	-47.50	-68.69	-65.19	0.85	7.69	V
	2117	-59.71	-13	-46.71	-71.48	-66.66	1.07	10.16	V
	2822	-57.53	-13	-44.53	-71.86	-65.24	1.23	11.09	V
									V
									V
									V



Highest	1413	-60.84	-13	-47.84	-70.25	-65.54	0.85	7.70	H
	2120	-58.52	-13	-45.52	-71.47	-65.47	1.07	10.17	H
	2826	-57.63	-13	-44.63	-72.01	-65.34	1.23	11.09	H
									H
									H
									H
	1413	-61.75	-13	-48.75	-69.94	-66.45	0.85	7.70	V
	2120	-60.27	-13	-47.27	-72.09	-67.22	1.07	10.17	V
	2826	-57.97	-13	-44.97	-72.32	-65.68	1.23	11.09	V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 41

LTE Band 41 / 20MHz / QPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	4988	-52.06	-25	-27.06	-74.07	-63.06	1.61	12.60	H
	7491	-46.91	-25	-21.91	-73.31	-56.04	1.99	11.11	H
	9988	-44.32	-25	-19.32	-73.91	-53.23	2.40	11.30	H
									H
									H
									H
	4988	-52.64	-25	-27.64	-74.19	-63.64	1.61	12.60	V
	7491	-47.38	-25	-22.38	-73.74	-56.51	1.99	11.11	V
	9988	-43.49	-25	-18.49	-73.84	-52.40	2.40	11.30	V
									V
									V
									V
Middle	5168	-52.45	-25	-27.45	-74.4	-63.63	1.65	12.84	H
	7752	-47.85	-25	-22.85	-73.76	-56.98	2.03	11.15	H
	10336	-43.24	-25	-18.24	-73.64	-51.88	2.39	11.03	H
									H
									H
									H
	5168	-52.47	-25	-27.47	-74.21	-63.65	1.65	12.84	V
	7752	-47.95	-25	-22.95	-73.62	-57.08	2.03	11.15	V
	10336	-43.36	-25	-18.36	-73.83	-52.00	2.39	11.03	V
									V
									V
									V



Highest	5342	-51.72	-25	-26.72	-74.15	-63.10	1.70	13.08	H
	8013	-46.34	-25	-21.34	-73.5	-55.51	2.06	11.23	H
	10684	-42.90	-25	-17.90	-73.77	-51.31	2.49	10.90	H
									H
									H
									H
	5342	-52.78	-25	-27.78	-74.86	-64.16	1.70	13.08	V
	8013	-46.39	-25	-21.39	-73.44	-55.56	2.06	11.23	V
	10684	-43.39	-25	-18.39	-74.01	-51.80	2.49	10.90	V
									V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



<WPC Mode>

LTE Band 41

LTE Band 41 / 20MHz / QPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Highest	5342	-52.44	-25	-27.44	-74.87	-63.82	1.70	13.08	H
	8013	-46.56	-25	-21.56	-73.7	-55.73	2.06	11.23	H
	10684	-42.81	-25	-17.81	-73.68	-51.22	2.49	10.90	H
									H
									H
									H
									H
	5342	-52.44	-25	-27.44	-74.52	-63.82	1.70	13.08	V
	8013	-46.74	-25	-21.74	-73.79	-55.91	2.06	11.23	V
	10684	-43.18	-25	-18.18	-73.8	-51.59	2.49	10.90	V
									V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

————THE END————