

FCC Test Report (Part 27)

Report No.: RF190507C02-10

FCC ID: MSQI01WDX

Test Model: ASUS_I01WDX

Received Date: May 07, 2019

Test Date: May 11 ~ May 20, 2019

Issued Date: May 29, 2019

Applicant: ASUSTek COMPUTER INC.

Address: 4F, No. 150, LI-TE Rd., PEITOU, TAIPEI 112, TAIWAN

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
(R.O.C.)

Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City
33383, TAIWAN (R.O.C.)

FCC Registration / 788550 / TW0003

Designation Number:



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specifically mentioned, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification. The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any government agency.

Table of Contents

Release Control Record	4
1 Certificate of Conformity	5
2 Summary of Test Results	6
2.1 Measurement Uncertainty.....	6
2.2 Test Site and Instruments.....	7
3 General Information	8
3.1 General Description of EUT.....	8
3.2 Configuration of System under Test.....	9
3.2.1 Description of Support Units.....	9
3.3 Test Mode Applicability and Tested Channel Detail.....	10
3.4 EUT Operating Conditions.....	13
3.5 General Description of Applied Standards.....	13
4 Test Types and Results	14
4.1 Output Power Measurement.....	14
4.1.1 Limits of Output Power Measurement.....	14
4.1.2 Test Procedures.....	14
4.1.3 Test Setup.....	15
4.1.4 Test Results.....	16
4.2 Modulation Characteristics Measurement.....	40
4.2.1 Limits of Modulation Characteristics.....	40
4.2.2 Test Procedure.....	40
4.2.3 Test Setup.....	40
4.2.4 Test Results.....	41
4.3 Frequency Stability Measurement.....	43
4.3.1 Limits of Frequency Stability Measurement.....	43
4.3.2 Test Procedure.....	43
4.3.3 Test Setup.....	43
4.3.4 Test Results.....	44
4.4 Occupied Bandwidth Measurement.....	50
4.4.1 Limits of Occupied Bandwidth Measurement.....	50
4.4.2 Test Procedure.....	50
4.4.3 Test Setup.....	50
4.4.4 Test Result.....	51
4.5 Channel Edge Measurement.....	57
4.5.1 Limits of Band Edge Measurement.....	57
4.5.2 Test Setup.....	57
4.5.3 Test Procedures.....	57
4.5.4 Test Results.....	58
4.6 Peak to Average Ratio.....	64
4.6.1 Limits of Peak to Average Ratio Measurement.....	64
4.6.2 Test Setup.....	64
4.6.3 Test Procedures.....	64
4.6.4 Test Results.....	65
4.7 Conducted Spurious Emissions.....	68
4.7.1 Limits of Conducted Spurious Emissions Measurement.....	68
4.7.2 Test Setup.....	68
4.7.3 Test Procedure.....	68
4.7.4 Test Results.....	69
4.8 Radiated Emission Measurement.....	75
4.8.1 Limits of Radiated Emission Measurement.....	75
4.8.2 Test Procedure.....	75
4.8.3 Deviation from Test Standard.....	75
4.8.4 Test Setup.....	76

4.8.5 Test Results	77
5 Pictures of Test Arrangements.....	91
Appendix – Information of the Testing Laboratories	92

Release Control Record

Issue No.	Description	Date Issued
RF190507C02-10	Original release	May 29, 2019

1 Certificate of Conformity

Product: ASUS Phone

Brand: ASUS

Test Model: ASUS_I01WDX

Sample Status: Identical Prototype

Applicant: ASUSTek COMPUTER INC.

Test Date: May 11 ~ May 20, 2019

Standards: FCC Part 27, Subpart C, H, F

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Pettie Chen , **Date:** May 29, 2019
Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** May 29, 2019
Bruce Chen / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2				
FCC Clause		Test Item	Result	Remarks
LTE B12	LTE B17			
2.1046 27.50 (c)(10)	2.1046 27.50 (c)(10)	Equivalent Isotropically Radiated Power	Pass	Meet the requirement of limit.
----	----	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1055 27.54	2.1055 27.54	Frequency Stability Stay with the authorized bands of operation	Pass	Meet the requirement of limit.
2.1049	2.1049	Emission Bandwidth	Pass	Meet the requirement of limit.
2.1051 27.53(g)	2.1051 27.53(g)	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 27.53(g)	2.1051 27.53(g)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1051 27.53(g)	2.1051 27.53(g)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -38.0dB at 30.00MHz.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (\pm)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.63 dB
	200MHz ~ 1000MHz	3.64 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Jan. 03, 2019	Jan. 02, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 25, 2018	Sep. 24, 2019
MXG Vector signal generator Agilent	N5182B	MY53050162	Jan. 16, 2019	Jan. 15, 2020
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Nov. 20, 2018	Nov. 19, 2019
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Nov. 21, 2018	Nov. 20, 2019
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Nov. 25, 2018	Nov. 24, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 25, 2018	Nov. 24, 2019
Loop Antenna TESEQ	HLA 6121	45745	Jun. 14, 2018	Jun. 13, 2019
Preamplifier Agilent (Below 1GHz)	8447D	2944A10631	Aug. 08, 2018	Aug. 07, 2019
Preamplifier KEYSIGHT (Above 1GHz)	83017A	MY53270295	Jul. 02, 2018	Jul. 01, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Aug. 08, 2018	Aug. 07, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Aug. 08, 2018	Aug. 07, 2019
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 04, 2018	Jun. 03, 2019
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	May 22, 2018	May 21, 2019

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 4.

3 General Information

3.1 General Description of EUT

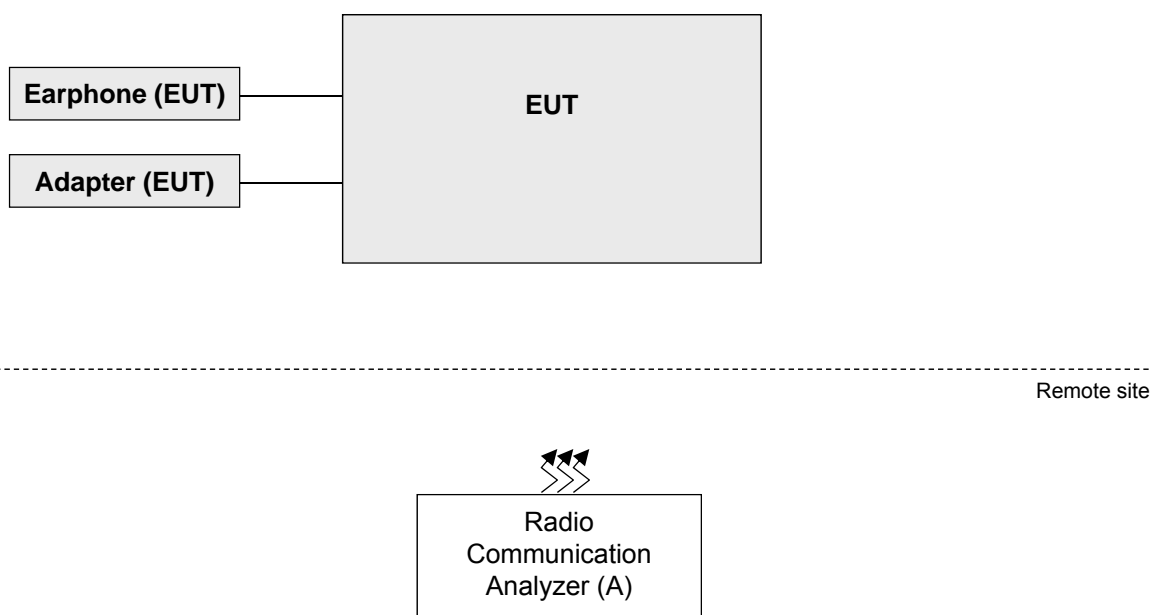
Product	ASUS Phone				
Brand	ASUS				
Test Model	ASUS_I01WDX				
Status of EUT	Identical Prototype				
Power Supply Rating	3.85 Vdc (Battery) 5 or 9 Vdc (Adapter) 5 Vdc (Host equipment)				
Modulation Type	QPSK, 16QAM, 64QAM				
Operating Frequency	LTE Band 12	Channel Bandwidth 1.4MHz	699.7MHz ~ 715.3MHz		
		Channel Bandwidth 3MHz	700.5MHz ~ 714.5MHz		
		Channel Bandwidth 5MHz	701.5MHz ~ 713.5MHz		
		Channel Bandwidth 10MHz	704.0MHz ~ 711.0MHz		
	LTE Band 17	Channel Bandwidth 5MHz	706.5MHz ~ 713.5MHz		
		Channel Bandwidth 10MHz	709.0MHz ~ 711.0MHz		
Max. ERP Power	LTE Band 12		QPSK	16QAM	64QAM
		Channel Bandwidth 1.4MHz	50.119mW (17.0dBm)	42.658mW (16.3dBm)	36.308mW (15.6dBm)
		Channel Bandwidth 3MHz	47.863mW (16.8dBm)	39.811mW (16.0dBm)	36.308mW (15.6dBm)
		Channel Bandwidth 5MHz	51.286mW (17.1dBm)	40.738mW (16.1dBm)	36.308mW (15.6dBm)
	LTE Band 17	Channel Bandwidth 10MHz	51.286mW (17.1dBm)	43.651mW (16.4dBm)	38.019mW (15.8dBm)
		Channel Bandwidth 5MHz	57.544mW (17.6dBm)	41.687mW (16.2dBm)	37.154mW (15.7dBm)
	LTE Band 17	Channel Bandwidth 10MHz	56.234mW (17.5dBm)	40.738mW (16.1dBm)	37.154mW (15.7dBm)
Emission Designator	LTE Band 12	Channel Bandwidth 1.4MHz	1M09G7D	1M09D7W	1M09D7W
		Channel Bandwidth 3MHz	2M70G7D	2M70D7W	2M70D7W
		Channel Bandwidth 5MHz	4M50G7D	4M50D7W	4M50D7W
		Channel Bandwidth 10MHz	8M99G7D	8M99D7W	8M99D7W
	LTE Band 17	Channel Bandwidth 5MHz	4M50G7D	4M50D7W	4M50D7W
		Channel Bandwidth 10MHz	8M99G7D	8M99D7W	8M98D7W
Antenna Type	Refer to Note as below				
Antenna Connector	Refer to Note as below				
Accessory Device	Refer to Note as below				
Cable Supplied	Refer to Note as below				

Note:

1. The EUT accessories list refers to EUT Photo.pdf.
2. The following antennas were provided to the EUT.

Ant. No.	Type	Connector	Gain (dBi)													
			GSM 850	GSM 1900	WCDMA B2	WCDMA B4	WCDMA B5	LTE B2	LTE B4	LTE B5	LTE B7	LTE B12	LTE B17	LTE B26	LTE B38	LTE B41
WWAN Antenna-0	PIFA	NA	-4.5	-2.6	-2.6	-1.9	-4.5	-2.5	-1.9	-4.5	-1.3	-6.7	-6.7	-4.4	-1.0	-1.0
WWAN Antenna-1	PIFA	NA	-3.4	-3.2	-3.2	-5.3	-3.4	-3.2	-5.3	-3.3	-4.7	-10	-10	-3.3	-5.7	-5.7

3.2 Configuration of System under Test



3.2.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Radio Communication Analyzer	Anritsu	MT8860C	1702001	NA	-

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as a communication partner to transfer data.

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports. The worst case was found when positioned on Z-plane. Following channel(s) was (were) selected for the final test as listed below.

LTE Band 12

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	23017 to 23173	23017(699.7MHz), 23095(707.5MHz), 23173(715.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		23025 to 23165	23025(700.5MHz), 23095(707.5MHz), 23165(714.5MHz)	3MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz), 23095(707.5MHz), 23155(713.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		23060 to 23130	23060(704.0MHz), 23095(707.5 MHz), 23130(711.0 MHz)	10MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	23035 to 23155	23095(707.5MHz)	5MHz	QPSK / 16QAM / 64QAM	25 RB / 0 RB Offset
-	Frequency Stability	23017 to 23173	23017(699.7MHz), 23173(715.3MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset
		23025 to 23165	23025(700.5MHz), 23165(714.5MHz)	3MHz	QPSK	1 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz), 23155(713.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		23060 to 23130	23060(704.0MHz), 23130(711.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset
-	Emission Bandwidth	23017 to 23173	23017(699.7MHz), 23095(707.5MHz), 23173(715.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	6 RB / 0 RB Offset
		23025 to 23165	23025(700.5MHz), 23095(707.5MHz), 23165(714.5MHz)	3MHz	QPSK / 16QAM / 64QAM	15 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz), 23095(707.5MHz), 23155(713.5MHz)	5MHz	QPSK / 16QAM / 64QAM	25 RB / 0 RB Offset
		23060 to 23130	23060(704.0MHz), 23095(707.5MHz), 23130(711.0MHz)	10MHz	QPSK / 16QAM / 64QAM	50 RB / 0 RB Offset
-	Band Edge	23017 to 23173	23017(699.7MHz), 23173(715.3MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset 1 RB / 5 RB Offset 6 RB / 0 RB Offset
		23025 to 23165	23025(700.5MHz), 23165(714.5MHz)	3MHz	QPSK	1 RB / 0 RB Offset 1 RB / 14 RB Offset 15 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz), 23155(713.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		23060 to 23130	23060(704.0MHz), 23130(711.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
-	Peak to Average Ratio	23017 to 23173	23017(699.7MHz), 23095(707.5MHz), 23173(715.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		23025 to 23165	23025(700.5MHz), 23095(707.5MHz), 23165(714.5MHz)	3MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz), 23095(707.5MHz), 23155(713.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		23060 to 23130	23060(704.0MHz), 23095(707.5MHz), 23130(711.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Conducted Emission	23017 to 23173	23017(699.7MHz), 23095(707.5MHz), 23173(715.3MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset
		23025 to 23165	23025(700.5MHz), 23095(707.5MHz), 23165(714.5MHz)	3MHz	QPSK	1 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz), 23095(707.5MHz), 23155(713.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		23060 to 23130	23060(704.0MHz), 23095(707.5MHz), 23130(711.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	23017 to 23173	23017(699.7MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	23017 to 23173	23017(699.7MHz), 23095(707.5MHz), 23173(715.3MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset
		23035 to 23155	23035(701.5MHz), 23095(707.5MHz), 23155(713.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		23060 to 23130	23060(704.0MHz), 23095(707.5MHz), 23130(711.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset

Note:

1. For radiated emission below 1GHz, low, mid and high channels were pre-tested in chamber with 1.4MHz mode. Low channel in each bandwidth was found to be the worst case and therefore had been chosen for all final tests.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the 5MHz & highest channel bandwidth for final test.
3. The conducted output power for QPSK and 16QAM measured value of QPSK is higher than 16QAM mode. Therefore, only Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK and 16QAM modes, the other test items were performed under QPSK mode only.

LTE Band 17

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	23755 to 23825	23755(706.5MHz), 23790(710.0MHz), 23825(713.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		23780 to 23800	23780(709.0MHz), 23790(710.0MHz), 23800(711.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	23755 to 23825	23790(710.0MHz)	5MHz	QPSK / 16QAM / 64QAM	25 RB / 0 RB Offset
-	Frequency Stability	23755 to 23825	23755(706.5MHz), 23825(713.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		23780 to 23800	23780(709.0MHz), 23800(711.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset
-	Emission Bandwidth	23755 to 23825	23755(706.5MHz), 23790(710.0MHz), 23825(713.5MHz)	5MHz	QPSK / 16QAM / 64QAM	25 RB / 0 RB Offset
		23780 to 23800	23780(709.0MHz), 23790(710.0MHz), 23800(711.0MHz)	10MHz	QPSK / 16QAM / 64QAM	50 RB / 0 RB Offset
-	Band Edge	23755 to 23825	23755(706.5MHz), 23825(713.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		23780 to 23800	23780(709.0MHz), 23800(711.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
-	Peak to Average Ratio	23755 to 23825	23755(706.5MHz), 23790(710.0MHz), 23825(713.5MHz)	5MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		23780 to 23800	23780(709.0MHz), 23790(710.0MHz), 23800(711.0MHz)	10MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
-	Conducted Emission	23755 to 23825	23755(706.5MHz), 23790(710.0MHz), 23825(713.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		23780 to 23800	23780(709.0MHz), 23790(710.0MHz), 23800(711.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	23755 to 23825	23825(713.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	23755 to 23825	23755(706.5MHz), 23790(710.0MHz), 23825(713.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		23780 to 23800	23780(709.0MHz), 23790(710.0MHz), 23800(711.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset

Note:

1. For radiated emission below 1GHz, low, mid and high channels were pre-tested in chamber with 5MHz mode. High channel in each bandwidth was found to be the worst case and therefore had been chosen for all final tests.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the 5MHz & highest channel bandwidth for final test.
3. The conducted output power for QPSK and 16QAM measured value of QPSK is higher than 16QAM mode. Therefore, only Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK and 16QAM modes, the other test items were performed under QPSK mode only.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
ERP	24deg. C, 66%RH	120Vac, 60Hz	Greg Lin
Modulation characteristics	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Frequency Stability	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Occupied Bandwidth	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Band Edge	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Peak To Average Ratio	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Conducted Emission	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Radiated Emission	24deg. C, 66%RH 24deg. C, 64%RH	120Vac, 60Hz	Greg Lin Match Tsui

3.4 EUT Operating Conditions

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

3.5 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2

FCC 47 CFR Part 27

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

Note: All test items have been performed and recorded as per the above standards.

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 3 watts e.r.p for LTE Band 12 & Band 17.

4.1.2 Test Procedures

EIRP / ERP Measurement:

- All measurements were done at low, middle and high operational frequency range. RBW and VBW is 10MHz for LTE mode.
- Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m(below or equal 1GHz) and/or 1.5m(above 1GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G
- EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15dBi.

Where:

$$\text{ERP/EIRP} = P_{\text{Meas}} + G_{\text{T}} - L_{\text{C}}$$

P_{Meas} : Measure transmitter output power.

G_{T} : Gain of the transmitting antenna.

L_{C} : signal attenuation in the connecting cable between the transmitter and antenna.

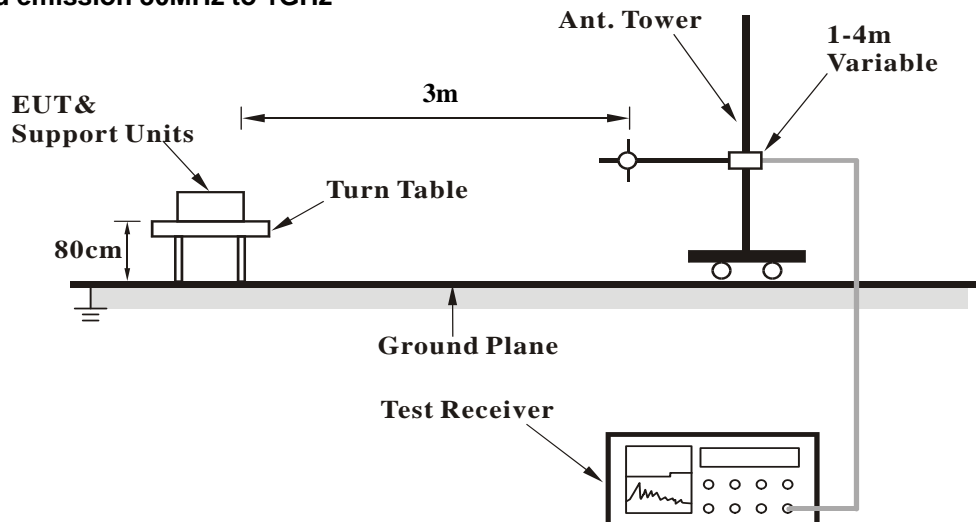
Conducted Power Measurement:

The EUT was set up for the maximum power with LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

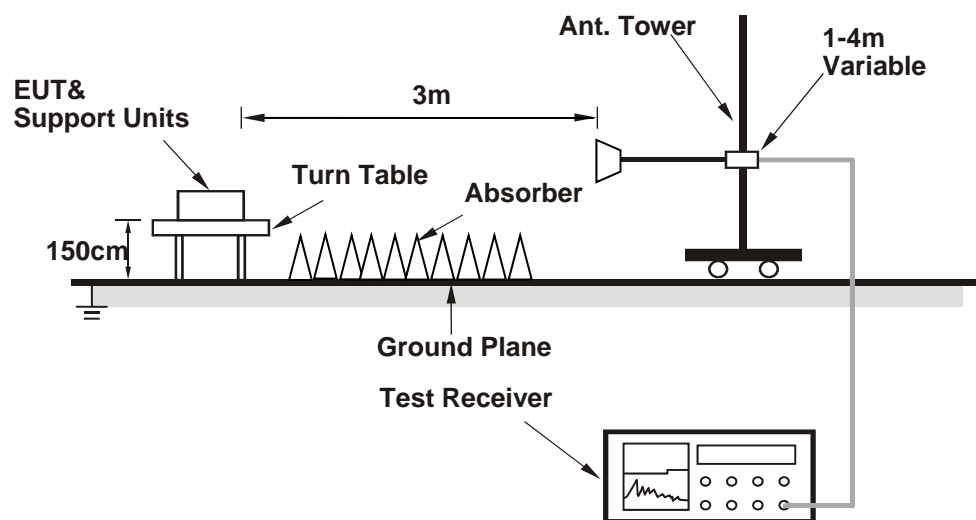
4.1.3 Test Setup

EIRP / ERP Measurement:

For radiated emission 30MHz to 1GHz

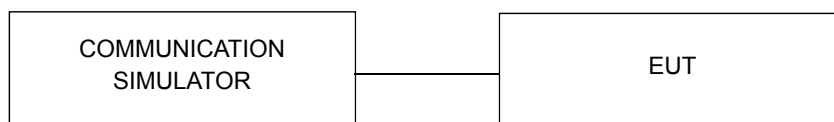


For radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

Conducted Power Measurement:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.4 Test Results

Conducted Output Power (dBm)

LTE Band 12								
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	Max. Tune-up (dBm)
		Channel		23017	23095	23173		
		Frequency (MHz)		699.7	707.5	715.3		
1.4M	QPSK	1	0	22.75	22.70	22.66	0	23
		1	2	22.68	22.63	22.59	0	23
		1	5	22.63	22.58	22.54	0	23
		3	0	22.71	22.66	22.62	0	23
		3	1	22.66	22.61	22.57	0	23
		3	3	22.63	22.58	22.54	0	23
	16QAM	6	0	21.87	21.82	21.78	1	22
		1	0	21.72	21.67	21.63	1	22
		1	2	21.65	21.60	21.56	1	22
		1	5	21.60	21.55	21.51	1	22
		3	0	21.69	21.64	21.60	1	22
		3	1	21.64	21.59	21.55	1	22
	64QAM	3	3	21.61	21.56	21.52	1	22
		6	0	20.84	20.79	20.75	2	21
		1	0	20.71	20.66	20.62	2	21
		1	2	20.64	20.59	20.55	2	21
		1	5	20.59	20.54	20.50	2	21
		3	0	20.70	20.65	20.61	2	21
		3	1	20.65	20.60	20.56	2	21
	3	3	20.62	20.57	20.53	2	21	
			6	0	19.83	19.78	19.74	3

LTE Band 12								
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	Max. Tune-up (dBm)
		Channel		23025	23095	23165		
		Frequency (MHz)		700.5	707.5	714.5		
3M	QPSK	1	0	22.77	22.72	22.68	0	23
		1	7	22.70	22.65	22.61	0	23
		1	14	22.65	22.60	22.56	0	23
		8	0	21.91	21.86	21.82	1	22
		8	3	21.86	21.81	21.77	1	22
		8	7	21.83	21.78	21.74	1	22
		15	0	21.89	21.84	21.80	1	22
	16QAM	1	0	21.74	21.69	21.65	1	22
		1	7	21.67	21.62	21.58	1	22
		1	14	21.62	21.57	21.53	1	22
		8	0	20.88	20.83	20.79	2	21
		8	3	20.83	20.78	20.74	2	21
		8	7	20.80	20.75	20.71	2	21
		15	0	20.86	20.81	20.77	2	21
	64QAM	1	0	20.73	20.68	20.64	2	21
		1	7	20.66	20.61	20.57	2	21
		1	14	20.61	20.56	20.52	2	21
		8	0	19.87	19.82	19.78	3	20
		8	3	19.82	19.77	19.73	3	20
		8	7	19.79	19.74	19.70	3	20
		15	0	19.85	19.80	19.76	3	20

LTE Band 12								
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	Max. Tune-up (dBm)
		Channel		23035	23095	23155		
		Frequency (MHz)		701.5	707.5	713.5		
5M	QPSK	1	0	22.80	22.75	22.71	0	23
		1	12	22.73	22.68	22.64	0	23
		1	24	22.68	22.63	22.59	0	23
		12	0	21.94	21.89	21.85	1	22
		12	6	21.89	21.84	21.80	1	22
		12	13	21.86	21.81	21.77	1	22
		25	0	21.92	21.87	21.83	1	22
	16QAM	1	0	21.77	21.72	21.68	1	22
		1	12	21.70	21.65	21.61	1	22
		1	24	21.65	21.60	21.56	1	22
		12	0	20.91	20.86	20.82	2	21
		12	6	20.86	20.81	20.77	2	21
		12	13	20.83	20.78	20.74	2	21
		25	0	20.89	20.84	20.80	2	21
	64QAM	1	0	20.76	20.71	20.67	2	21
		1	12	20.69	20.64	20.60	2	21
		1	24	20.64	20.59	20.55	2	21
		12	0	19.90	19.85	19.81	3	20
		12	6	19.85	19.80	19.76	3	20
		12	13	19.82	19.77	19.73	3	20
		25	0	19.88	19.83	19.79	3	20

LTE Band 12								
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	Max. Tune-up (dBm)
		Channel		23060	23095	23130		
		Frequency (MHz)		704	707.5	711		
10M	QPSK	1	0	22.85	22.80	22.76	0	23
		1	24	22.78	22.73	22.69	0	23
		1	49	22.73	22.68	22.64	0	23
		25	0	21.99	21.94	21.90	1	22
		25	12	21.94	21.89	21.85	1	22
		25	25	21.91	21.86	21.82	1	22
		50	0	21.97	21.92	21.88	1	22
	16QAM	1	0	21.82	21.77	21.73	1	22
		1	24	21.75	21.70	21.66	1	22
		1	49	21.70	21.65	21.61	1	22
		25	0	20.96	20.91	20.87	2	21
		25	12	20.91	20.86	20.82	2	21
		25	25	20.88	20.83	20.79	2	21
		50	0	20.94	20.89	20.85	2	21
	64QAM	1	0	20.81	20.76	20.72	2	21
		1	24	20.74	20.69	20.65	2	21
		1	49	20.69	20.64	20.60	2	21
		25	0	19.95	19.90	19.86	3	20
		25	12	19.90	19.85	19.81	3	20
		25	25	19.87	19.82	19.78	3	20
		50	0	19.93	19.88	19.84	3	20

LTE Band 17								
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	Max. Tune-up (dBm)
		Channel		23755	23790	23825		
		Frequency (MHz)		706.5	710	713.5		
5M	QPSK	1	0	23.31	23.33	23.29	0	23.5
		1	12	23.20	23.22	23.18	0	23.5
		1	24	23.18	23.20	23.16	0	23.5
		12	0	22.29	22.31	22.27	1	22.5
		12	6	22.21	22.23	22.19	1	22.5
		12	13	22.20	22.22	22.18	1	22.5
		25	0	22.17	22.19	22.15	1	22.5
	16QAM	1	0	22.28	22.30	22.26	1	22.5
		1	12	22.17	22.19	22.15	1	22.5
		1	24	22.15	22.17	22.13	1	22.5
		12	0	21.26	21.28	21.24	2	21.5
		12	6	21.18	21.20	21.16	2	21.5
		12	13	21.17	21.19	21.15	2	21.5
		25	0	21.14	21.16	21.12	2	21.5
	64QAM	1	0	21.27	21.29	21.25	2	21.5
		1	12	21.16	21.18	21.14	2	21.5
		1	24	21.14	21.16	21.12	2	21.5
		12	0	20.25	20.27	20.23	3	20.5
		12	6	20.17	20.19	20.15	3	20.5
		12	13	20.16	20.18	20.14	3	20.5
		25	0	20.13	20.15	20.11	3	20.5

LTE Band 17								
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	Max. Tune-up (dBm)
		Channel		23780	23790	23800		
		Frequency (MHz)		709	710	711		
10M	QPSK	1	0	23.37	23.39	23.35	0	23.5
		1	24	23.26	23.28	23.24	0	23.5
		1	49	23.24	23.26	23.22	0	23.5
		25	0	22.35	22.37	22.33	1	22.5
		25	12	22.27	22.29	22.25	1	22.5
		25	25	22.26	22.28	22.24	1	22.5
		50	0	22.23	22.25	22.21	1	22.5
	16QAM	1	0	22.34	22.36	22.32	1	22.5
		1	24	22.23	22.25	22.21	1	22.5
		1	49	22.21	22.23	22.19	1	22.5
		25	0	21.32	21.34	21.30	2	21.5
		25	12	21.24	21.26	21.22	2	21.5
		25	25	21.23	21.25	21.21	2	21.5
		50	0	21.20	21.22	21.18	2	21.5
	64QAM	1	0	21.33	21.35	21.31	2	21.5
		1	24	21.22	21.24	21.20	2	21.5
		1	49	21.20	21.22	21.18	2	21.5
		25	0	20.31	20.33	20.29	3	20.5
		25	12	20.23	20.25	20.21	3	20.5
		25	25	20.22	20.24	20.20	3	20.5
		50	0	20.19	20.21	20.17	3	20.5

EIRP Power

Modulation Type: QPSK

LTE Band 12, Channel Bandwidth: 1.4MHz

MODE		TX channel 23017					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	699.70	-17.3	7.2	3.5	10.7	34.8	-24.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	699.70	-14.0	13.5	3.5	17.0	34.8	-17.8

MODE		TX channel 23095					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-17.9	6.9	3.5	10.4	34.8	-24.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-14.6	13.1	3.5	16.6	34.8	-18.2

MODE		TX channel 23173					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	715.30	-17.9	7.1	3.5	10.6	34.8	-24.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	715.30	-14.7	12.9	3.5	16.4	34.8	-18.4

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 12, Channel Bandwidth: 3MHz

MODE		TX channel 23025					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	700.50	-17.5	7.0	3.5	10.5	34.8	-24.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	700.50	-14.5	13.1	3.5	16.6	34.8	-18.2

MODE		TX channel 23095					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-17.6	7.2	3.5	10.7	34.8	-24.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-14.6	13.1	3.5	16.6	34.8	-18.2

MODE		TX channel 23165					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	714.50	-17.6	7.4	3.5	10.9	34.8	-23.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	714.50	-14.3	13.3	3.5	16.8	34.8	-18.0

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 12, Channel Bandwidth: 5MHz

MODE		TX channel 23035					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	701.50	-18.0	6.6	3.4	10.0	34.8	-24.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	701.50	-14.2	13.5	3.4	16.9	34.8	-17.9

MODE		TX channel 23095					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-17.9	6.9	3.5	10.4	34.8	-24.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-14.1	13.6	3.5	17.1	34.8	-17.7

MODE		TX channel 23155					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	713.50	-17.6	7.4	3.5	10.9	34.8	-23.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	713.50	-14.4	13.4	3.5	16.9	34.8	-17.9

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 12, Channel Bandwidth: 10MHz

MODE		TX channel 23060					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	704.00	-17.7	7.0	3.5	10.5	34.8	-24.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	704.00	-14.5	13.1	3.5	16.6	34.8	-18.2

MODE		TX channel 23095					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-17.8	7.0	3.5	10.5	34.8	-24.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-14.1	13.6	3.5	17.1	34.8	-17.7

MODE		TX channel 23130					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	711.00	-17.5	7.5	3.5	11.0	34.8	-23.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	711.00	-14.0	13.6	3.5	17.1	34.8	-17.7

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 17, Channel Bandwidth: 5MHz

MODE		TX channel 23755					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	706.50	-14.3	10.4	3.5	13.9	34.8	-20.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	706.50	-14.2	13.4	3.5	16.9	34.8	-17.9

MODE		TX channel 23790					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	710.00	-14.7	10.2	3.5	13.7	34.8	-21.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	710.00	-14.0	13.6	3.5	17.1	34.8	-17.7

MODE		TX channel 23825					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	713.50	-14.5	10.5	3.5	14.0	34.8	-20.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	713.50	-13.6	14.1	3.5	17.6	34.8	-17.2

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 17, Channel Bandwidth: 10MHz

MODE		TX channel 23780					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	709.00	-14.7	10.1	3.5	13.6	34.8	-21.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	709.00	-14.0	13.6	3.5	17.1	34.8	-17.7

MODE		TX channel 23790					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	710.00	-14.3	10.6	3.5	14.1	34.8	-20.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	710.00	-13.8	13.8	3.5	17.3	34.8	-17.5

MODE		TX channel 23800					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	711.00	-14.4	10.6	3.5	14.1	34.8	-20.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	711.00	-13.6	14.0	3.5	17.5	34.8	-17.3

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Modulation Type: 16QAM

LTE Band 12, Channel Bandwidth: 1.4MHz

MODE		TX channel 23017					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	699.70	-18.1	6.4	3.5	9.9	34.8	-24.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	699.70	-14.7	12.8	3.5	16.3	34.8	-18.5

MODE		TX channel 23095					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-18.6	6.1	3.5	9.6	34.8	-25.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-15.3	12.4	3.5	15.9	34.8	-18.9

MODE		TX channel 23173					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	715.30	-18.5	6.5	3.5	10.0	34.8	-24.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	715.30	-15.3	12.3	3.5	15.8	34.8	-19.0

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 12, Channel Bandwidth: 3MHz

MODE		TX channel 23025					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	700.50	-18.2	6.3	3.5	9.8	34.8	-25.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	700.50	-15.2	12.4	3.5	15.9	34.8	-18.9

MODE		TX channel 23095					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-18.2	6.5	3.5	10.0	34.8	-24.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-15.3	12.4	3.5	15.9	34.8	-18.9

MODE		TX channel 23165					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	714.50	-18.4	6.6	3.5	10.1	34.8	-24.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	714.50	-15.1	12.5	3.5	16.0	34.8	-18.8

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 12, Channel Bandwidth: 5MHz

MODE		TX channel 23035					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	701.50	-18.6	6.0	3.4	9.4	34.8	-25.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	701.50	-15.0	12.7	3.4	16.1	34.8	-18.7

MODE		TX channel 23095					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-18.6	6.2	3.5	9.7	34.8	-25.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-15.1	12.6	3.5	16.1	34.8	-18.7

MODE		TX channel 23155					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	713.50	-18.5	6.5	3.5	10.0	34.8	-24.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	713.50	-15.1	12.6	3.5	16.1	34.8	-18.7

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 12, Channel Bandwidth: 10MHz

MODE		TX channel 23060					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	704.00	-18.6	6.1	3.5	9.6	34.8	-25.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	704.00	-15.5	12.1	3.5	15.6	34.8	-19.2

MODE		TX channel 23095					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-18.6	6.2	3.5	9.7	34.8	-25.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-14.9	12.9	3.5	16.4	34.8	-18.4

MODE		TX channel 23130					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	711.00	-18.3	6.7	3.5	10.2	34.8	-24.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	711.00	-14.8	12.8	3.5	16.3	34.8	-18.5

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 17, Channel Bandwidth: 5MHz

MODE		TX channel 23755					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	706.50	-15.2	9.6	3.5	13.1	34.8	-21.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	706.50	-14.9	12.7	3.5	16.2	34.8	-18.6

MODE		TX channel 23790					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	710.00	-15.4	9.5	3.5	13.0	34.8	-21.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	710.00	-15.1	12.5	3.5	16.0	34.8	-18.8

MODE		TX channel 23825					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	713.50	-15.5	9.5	3.5	13.0	34.8	-21.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	713.50	-15.1	12.6	3.5	16.1	34.8	-18.7

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 17, Channel Bandwidth: 10MHz

MODE		TX channel 23780					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	709.00	-15.4	9.3	3.5	12.8	34.8	-22.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	709.00	-15.2	12.4	3.5	15.9	34.8	-18.9

MODE		TX channel 23790					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	710.00	-15.3	9.6	3.5	13.1	34.8	-21.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	710.00	-15.0	12.6	3.5	16.1	34.8	-18.7

MODE		TX channel 23800					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	711.00	-15.5	9.5	3.5	13.0	34.8	-21.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	711.00	-15.2	12.4	3.5	15.9	34.8	-18.9

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Modulation Type: 64QAM

LTE Band 12, Channel Bandwidth: 1.4MHz

MODE		TX channel 23017					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	699.70	-18.5	6.0	3.5	9.5	34.8	-25.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	699.70	-15.4	12.1	3.5	15.6	34.8	-19.2

MODE		TX channel 23095					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-19.1	5.6	3.5	9.1	34.8	-25.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-15.8	11.9	3.5	15.4	34.8	-19.4

MODE		TX channel 23173					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	715.30	-18.9	6.1	3.5	9.6	34.8	-25.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	715.30	-15.7	11.9	3.5	15.4	34.8	-19.4

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 12, Channel Bandwidth: 3MHz

MODE		TX channel 23025					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	700.50	-18.6	5.9	3.5	9.4	34.8	-25.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	700.50	-15.6	12.0	3.5	15.5	34.8	-19.3

MODE		TX channel 23095					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-18.6	6.2	3.5	9.7	34.8	-25.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-15.7	12.1	3.5	15.6	34.8	-19.2

MODE		TX channel 23165					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	714.50	-18.8	6.2	3.5	9.7	34.8	-25.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	714.50	-15.5	12.1	3.5	15.6	34.8	-19.2

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 12, Channel Bandwidth: 5MHz

MODE		TX channel 23035					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	701.50	-19.1	5.5	3.4	8.9	34.8	-25.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	701.50	-15.6	12.1	3.4	15.5	34.8	-19.3

MODE		TX channel 23095					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-19.1	5.7	3.5	9.2	34.8	-25.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-15.7	12.1	3.5	15.6	34.8	-19.2

MODE		TX channel 23155					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	713.50	-19.2	5.8	3.5	9.3	34.8	-25.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	713.50	-15.9	11.8	3.5	15.3	34.8	-19.5

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 12, Channel Bandwidth: 10MHz

MODE		TX channel 23060					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	704.00	-19.0	5.7	3.5	9.2	34.8	-25.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	704.00	-15.9	11.7	3.5	15.2	34.8	-19.6

MODE		TX channel 23095					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-19.1	5.6	3.5	9.1	34.8	-25.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	707.50	-15.4	12.3	3.5	15.8	34.8	-19.0

MODE		TX channel 23130					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	711.00	-18.8	6.2	3.5	9.7	34.8	-25.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	711.00	-15.4	12.2	3.5	15.7	34.8	-19.1

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 17, Channel Bandwidth: 5MHz

MODE		TX channel 23755					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	706.50	-15.7	9.1	3.5	12.6	34.8	-22.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	706.50	-15.4	12.2	3.5	15.7	34.8	-19.1

MODE		TX channel 23790					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	710.00	-15.9	9.0	3.5	12.5	34.8	-22.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	710.00	-15.6	12.0	3.5	15.5	34.8	-19.3

MODE		TX channel 23825					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	713.50	-16.0	9.0	3.5	12.5	34.8	-22.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	713.50	-15.6	12.2	3.5	15.7	34.8	-19.1

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 17, Channel Bandwidth: 10MHz

MODE		TX channel 23780					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	709.00	-15.8	8.9	3.5	12.4	34.8	-22.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	709.00	-15.5	12.1	3.5	15.6	34.8	-19.2

MODE		TX channel 23790					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	710.00	-15.7	9.2	3.5	12.7	34.8	-22.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	710.00	-15.5	12.1	3.5	15.6	34.8	-19.2

MODE		TX channel 23800					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	711.00	-15.7	9.3	3.5	12.8	34.8	-22.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	711.00	-15.4	12.2	3.5	15.7	34.8	-19.1

Note: ERP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

4.2 Modulation Characteristics Measurement

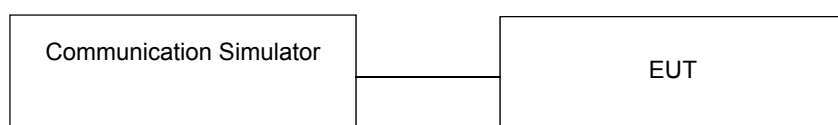
4.2.1 Limits of Modulation Characteristics

N/A

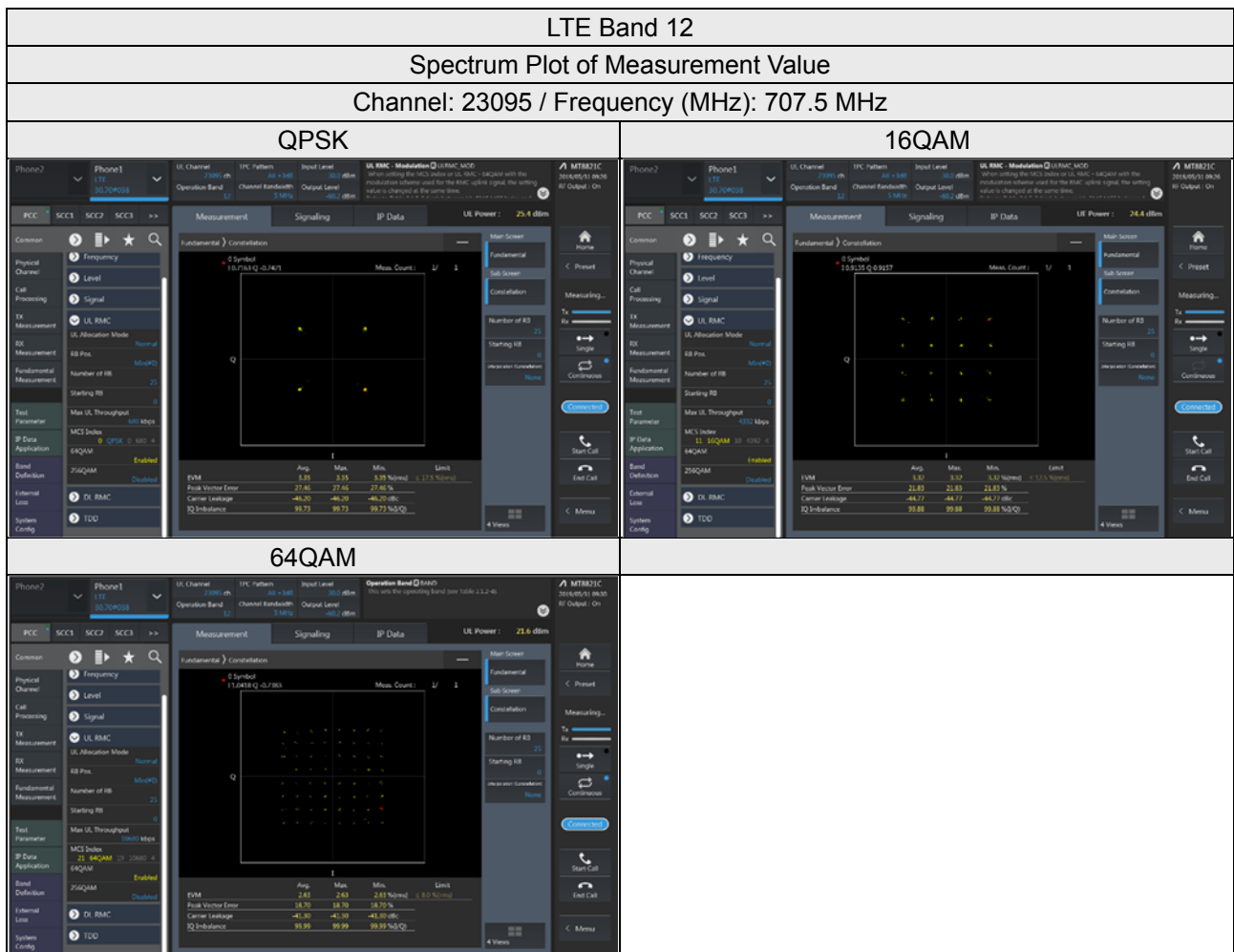
4.2.2 Test Procedure

Connect the EUT to Communication Simulator via the antenna connector, The frequency band is set as EUT supported Modulation and Channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

4.2.3 Test Setup



4.2.4 Test Results

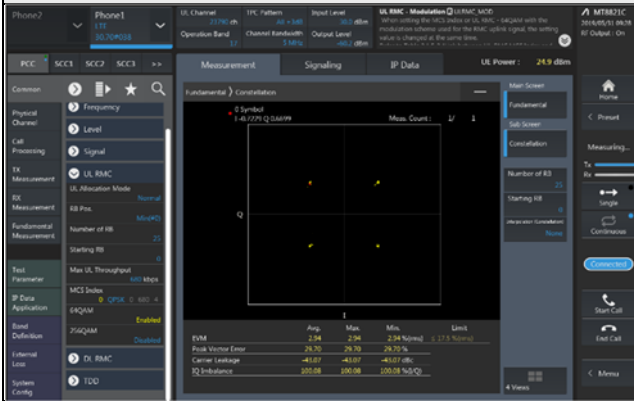


LTE Band 17

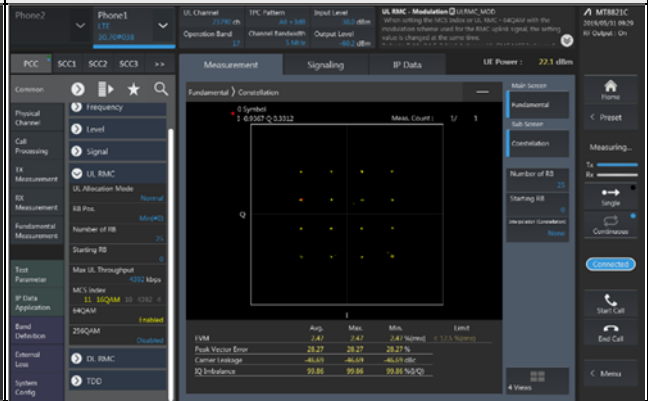
Spectrum Plot of Measurement Value

Channel: 23790 / Frequency (MHz): 710.0MHz

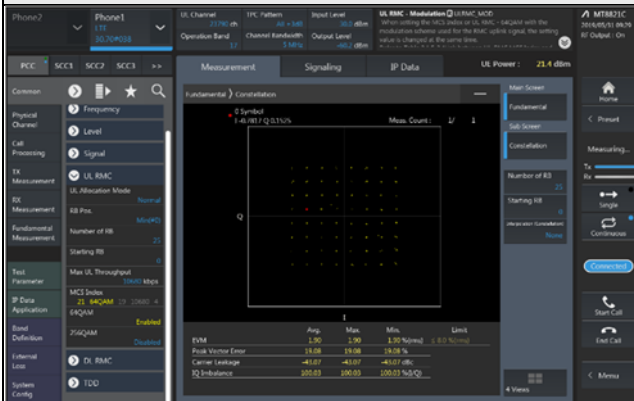
QPSK



16QAM



64QAM



4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

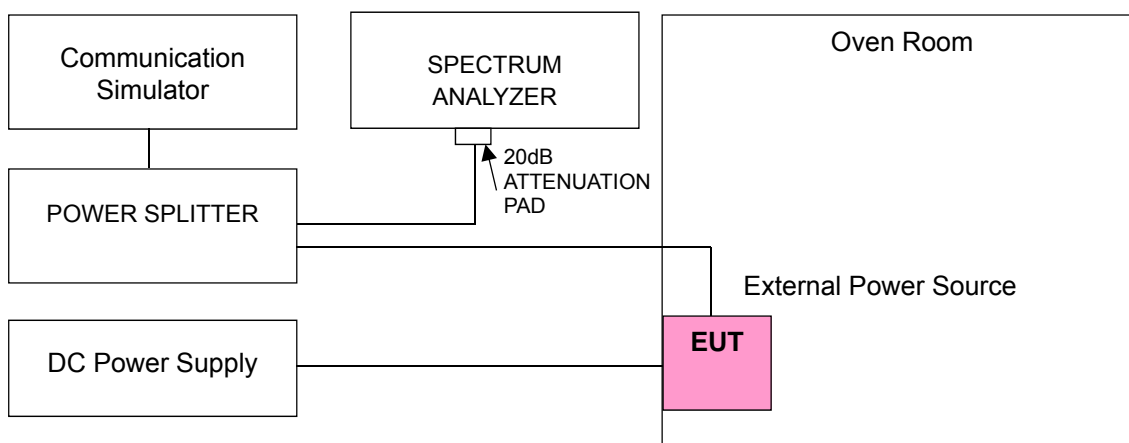
According to the FCC part 2.1055 shall be tested the frequency stability. The rule is defined that "The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with specification of EUT $-30^{\circ}\text{C} \sim 50^{\circ}\text{C}$.

4.3.2 Test Procedure

- Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

Note: The frequency error was recorded frequency error from the communication simulator.

4.3.3 Test Setup



4.3.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.2725	699.700003	0.004	715.300002	0.002
3.85	699.700001	0.002	715.300004	0.006
4.4275	699.700001	0.002	715.300003	0.004

Note: The applicant defined the normal working voltage is from 3.2725Vdc to 4.4275Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 12			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	699.700001	0.002	715.300003	0.004
-20	699.700002	0.003	715.300002	0.003
-10	699.700002	0.002	715.300003	0.005
0	699.700001	0.002	715.300002	0.003
10	699.700001	0.002	715.300003	0.004
20	699.699997	-0.004	715.299996	-0.005
30	699.699998	-0.002	715.299997	-0.004
40	699.699999	-0.002	715.299999	-0.002
50	699.699997	-0.005	715.299997	-0.004
55	699.699998	-0.003	715.299997	-0.004

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.2725	700.500003	0.004	714.500003	0.004
3.85	700.500002	0.002	714.500004	0.005
4.4275	700.500003	0.004	714.500003	0.004

Note: The applicant defined the normal working voltage is from 3.2725Vdc to 4.4275Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 12			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	700.500002	0.003	714.500002	0.002
-20	700.500004	0.005	714.500002	0.003
-10	700.500003	0.005	714.500003	0.005
0	700.500002	0.003	714.500002	0.003
10	700.500004	0.006	714.500002	0.003
20	700.499999	-0.001	714.499998	-0.003
30	700.499996	-0.005	714.499999	-0.002
40	700.499996	-0.005	714.499996	-0.005
50	700.499997	-0.005	714.499997	-0.004
55	700.499997	-0.004	714.499998	-0.003

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.2725	701.500004	0.005	713.500002	0.003
3.85	701.500003	0.005	713.500001	0.002
4.4275	701.500003	0.004	713.500002	0.003

Note: The applicant defined the normal working voltage is from 3.2725Vdc to 4.4275Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 12			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	701.500003	0.005	713.500002	0.002
-20	701.500003	0.005	713.500003	0.005
-10	701.500004	0.006	713.500003	0.004
0	701.500002	0.003	713.500004	0.006
10	701.500001	0.002	713.500003	0.004
20	701.499998	-0.004	713.499998	-0.003
30	701.499998	-0.002	713.499998	-0.003
40	701.499996	-0.006	713.499998	-0.002
50	701.499998	-0.002	713.499998	-0.002
55	701.499999	-0.002	713.499996	-0.005

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 12			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.2725	704.000004	0.005	711.000003	0.004
3.85	704.000001	0.002	711.000002	0.003
4.4275	704.000003	0.004	711.000002	0.003

Note: The applicant defined the normal working voltage is from 3.2725Vdc to 4.4275Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 12			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	704.000004	0.006	711.000001	0.002
-20	704.000003	0.004	711.000002	0.003
-10	704.000003	0.004	711.000002	0.003
0	704.000004	0.005	711.000003	0.004
10	704.000003	0.005	711.000003	0.004
20	703.999999	-0.002	710.999996	-0.005
30	703.999997	-0.005	710.999998	-0.003
40	703.999997	-0.004	710.999998	-0.003
50	703.999998	-0.003	710.999999	-0.002
55	703.999999	-0.002	710.999997	-0.005

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 17			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.2725	706.500003	0.004	713.500002	0.002
3.85	706.500001	0.001	713.500003	0.005
4.4275	706.500004	0.005	713.500003	0.004

Note: The applicant defined the normal working voltage is from 3.2725Vdc to 4.4275Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 17			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	706.500002	0.002	713.500003	0.004
-20	706.500002	0.003	713.500003	0.005
-10	706.500002	0.003	713.500004	0.005
0	706.500002	0.003	713.500001	0.002
10	706.500003	0.005	713.500003	0.004
20	706.499997	-0.004	713.499999	-0.002
30	706.499996	-0.005	713.499998	-0.003
40	706.499997	-0.004	713.499999	-0.002
50	706.499997	-0.004	713.499998	-0.002
55	706.499997	-0.004	713.499998	-0.003

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 17			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.2725	709.000003	0.005	711.000002	0.002
3.85	709.000001	0.002	711.000003	0.005
4.4275	709.000002	0.002	711.000002	0.003

Note: The applicant defined the normal working voltage is from 3.2725Vdc to 4.4275Vdc.

Frequency Error vs. Temperature

Temp. (°C)	LTE Band 17			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	709.000002	0.003	711.000003	0.004
-20	709.000003	0.004	711.000001	0.002
-10	709.000003	0.004	711.000004	0.005
0	709.000003	0.004	711.000004	0.006
10	709.000003	0.005	711.000002	0.003
20	708.999997	-0.004	710.999996	-0.005
30	708.999997	-0.005	710.999999	-0.002
40	708.999997	-0.005	710.999998	-0.003
50	708.999998	-0.003	710.999997	-0.004
55	708.999996	-0.005	710.999997	-0.004

4.4 Occupied Bandwidth Measurement

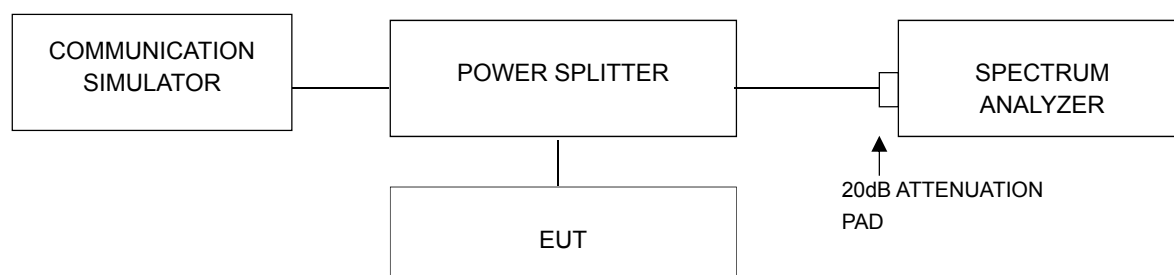
4.4.1 Limits of Occupied Bandwidth Measurement

According to ANSI 63.26 section 5.4.3 specified that 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 26dB below the transmitter power.

4.4.2 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with RBW = 30kHz and VBW = 100kHz (Channel Bandwidth: 1.4MHz), RBW = 62kHz and VBW = 200kHz (Channel Bandwidth: 3MHz), RBW = 100kHz and VBW = 300kHz (Channel Bandwidth: 5MHz) and RBW = 200kHz and VBW = 1MHz (Channel Bandwidth: 10MHz) for LTE Band 12; RBW = 100kHz and VBW = 300kHz (Channel Bandwidth: 5MHz), RBW = 200kHz and VBW = 1MHz (Channel Bandwidth: 10MHz) for LTE Band 17. The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

4.4.3 Test Setup



4.4.4 Test Result

Occupied Bandwidth

LTE Band 12

LTE Band 12, Channel Bandwidth 1.4MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23017	699.7	1.09	1.09	1.09
23095	707.5	1.09	1.09	1.09
23173	715.3	1.09	1.09	1.09
LTE Band 12, Channel Bandwidth 3MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23025	700.5	2.70	2.70	2.71
23095	707.5	2.70	2.69	2.70
23165	714.5	2.70	2.70	2.70
LTE Band 12, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23035	701.5	4.49	4.50	4.50
23095	707.5	4.48	4.48	4.48
23155	713.5	4.50	4.50	4.50
LTE Band 12, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23060	704.0	8.94	8.95	8.95
23095	707.5	8.92	8.92	8.91
23130	711.0	8.99	8.99	8.99

Spectrum Plot of Worst Value

1.4MHz / 16QAM



3MHz / 64QAM



5MHz / 16QAM

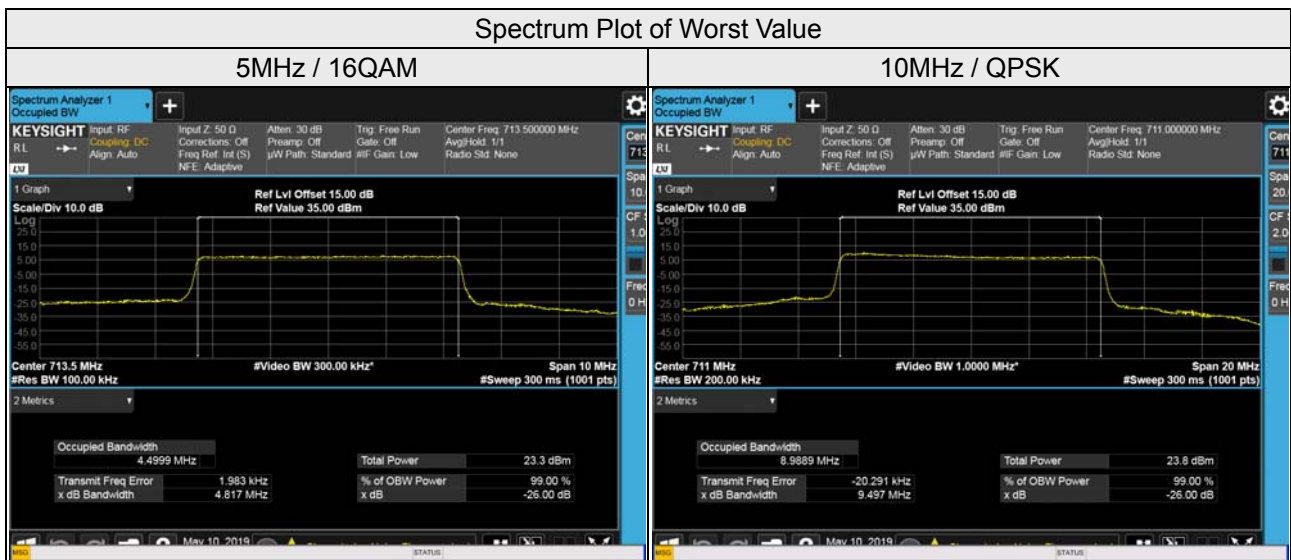


10MHz / QPSK



LTE Band 17

LTE Band 17, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23755	706.5	4.48	4.48	4.48
23790	710.0	4.49	4.49	4.49
23825	713.5	4.50	4.50	4.50
LTE Band 17, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23780	709.0	8.95	8.95	8.94
23790	710.0	8.97	8.97	8.96
23800	711.0	8.99	8.99	8.98



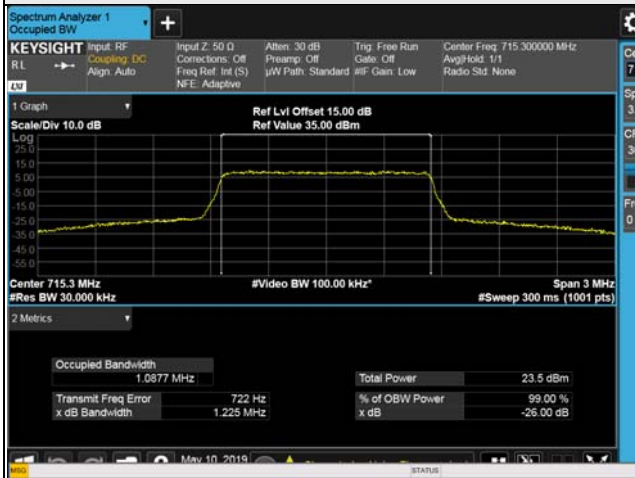
26dB Bandwidth

LTE Band 12

LTE Band 12, Channel Bandwidth 1.4MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23017	699.7	1.21	1.22	1.22
23095	707.5	1.22	1.21	1.22
23173	715.3	1.22	1.22	1.23
LTE Band 12, Channel Bandwidth 3MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23025	700.5	2.92	2.95	2.92
23095	707.5	2.92	2.91	2.93
23165	714.5	2.92	2.93	2.92
LTE Band 12, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23035	701.5	4.82	4.81	4.83
23095	707.5	4.77	4.78	4.79
23155	713.5	4.82	4.83	4.82
LTE Band 12, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23060	704.0	9.49	9.48	9.46
23095	707.5	9.47	9.48	9.47
23130	711.0	9.51	9.51	9.54

Spectrum Plot of Worst Value

1.4MHz / 64QAM



3MHz / 16QAM



5MHz / 64QAM

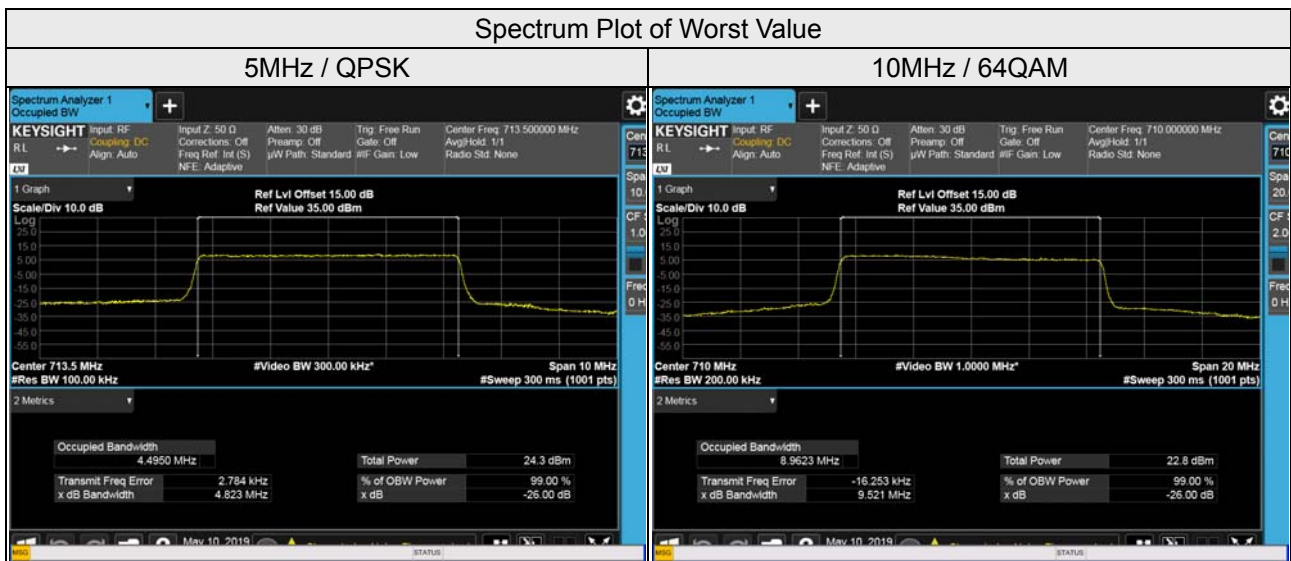


10MHz / 64QAM



LTE Band 17

LTE Band 17, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23755	706.5	4.78	4.78	4.78
23790	710.0	4.80	4.79	4.80
23825	713.5	4.82	4.82	4.81
LTE Band 17, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		QPSK	16QAM	64QAM
23780	709.0	9.49	9.48	9.48
23790	710.0	9.49	9.49	9.52
23800	711.0	9.50	9.51	9.52



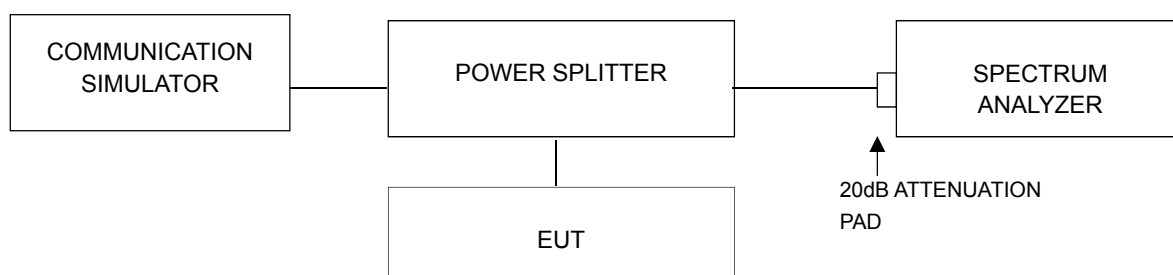
4.5 Channel Edge Measurement

4.5.1 Limits of Band Edge Measurement

For LTE Band 12, 17

According to FCC 27.53(g) 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.

4.5.2 Test Setup



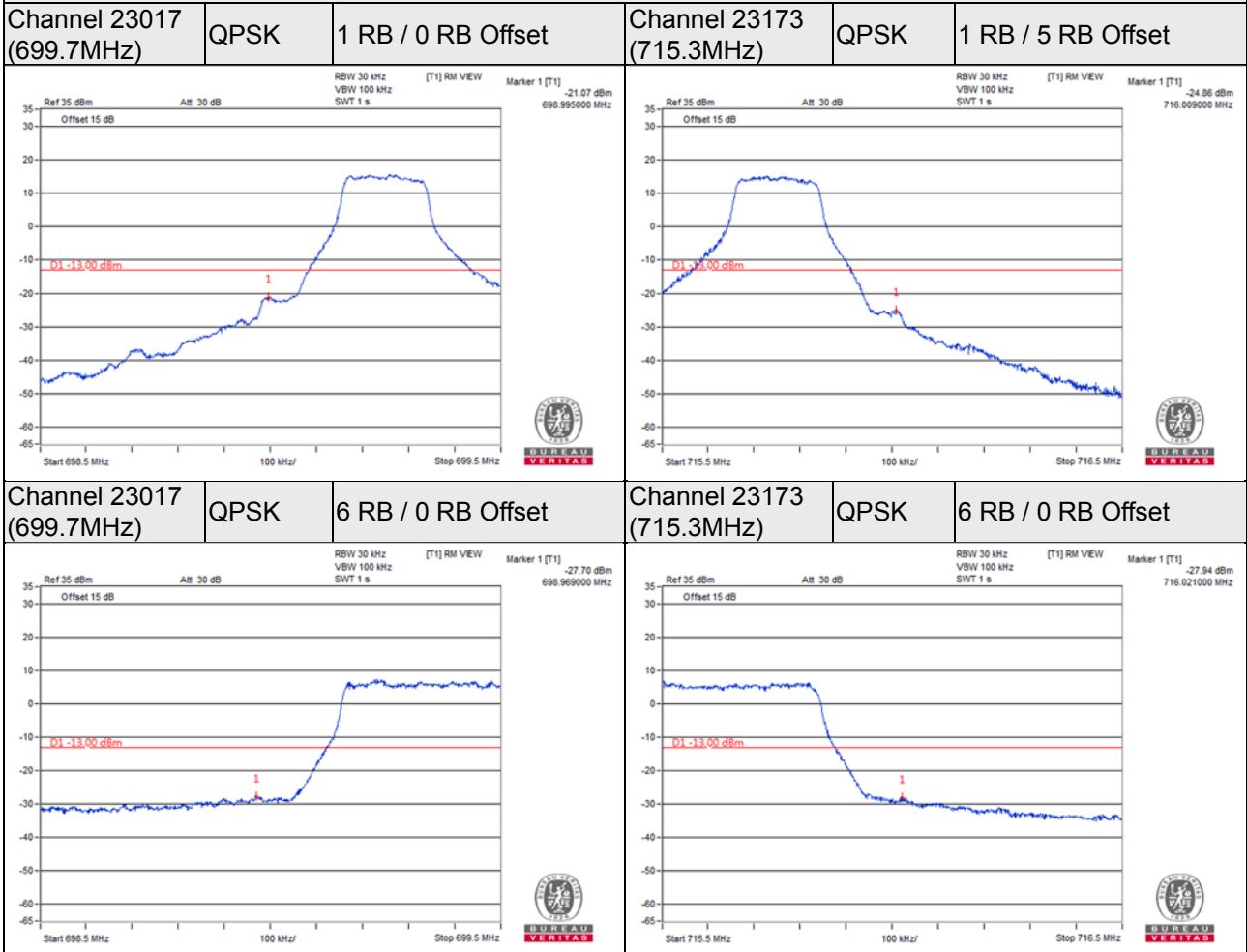
4.5.3 Test Procedures

- The EUT was set up for the rated peak power. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels: low, middle and high operational frequency range.
- The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 30kHz and VB of the spectrum is 100kHz (LTE Channel Bandwidth 1.4MHz/3MHz).
- The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 62kHz and VB of the spectrum is 200kHz (LTE Channel Bandwidth 5MHz).
- The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (LTE Channel Bandwidth 10MHz).
- Record the max trace plot into the test report.

4.5.4 Test Results

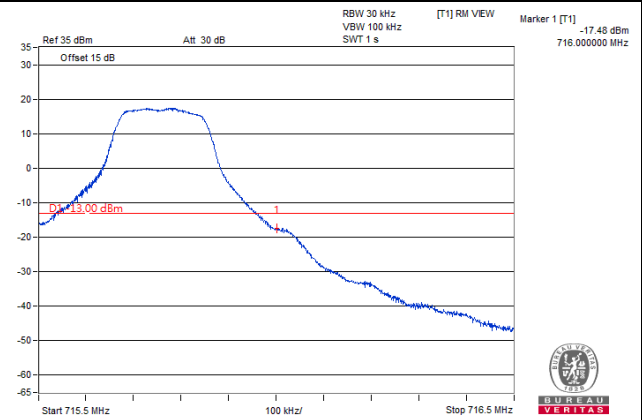
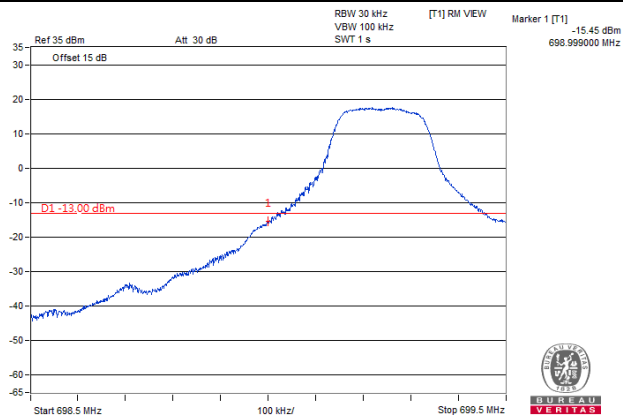
LTE Band 12

Channel Bandwidth: 1.4MHz

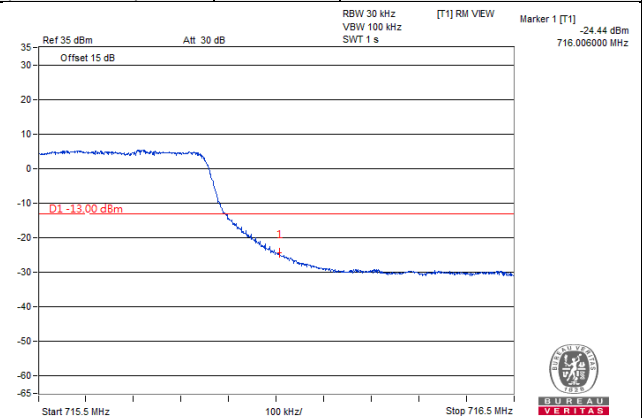
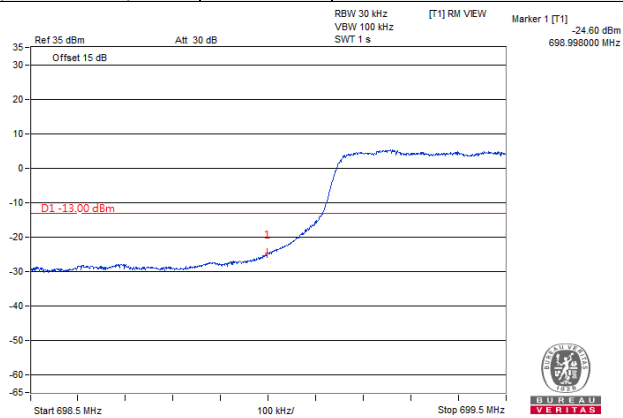


Channel Bandwidth: 3MHz

Channel 23025 (700.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 23165 (714.5MHz)	QPSK	1 RB / 14RB Offset
-----------------------------	------	--------------------	-----------------------------	------	--------------------

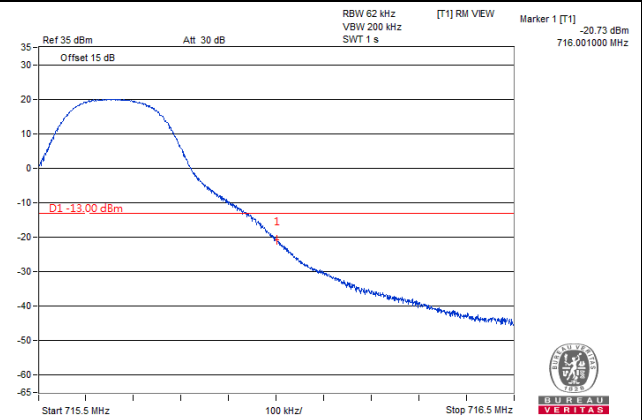
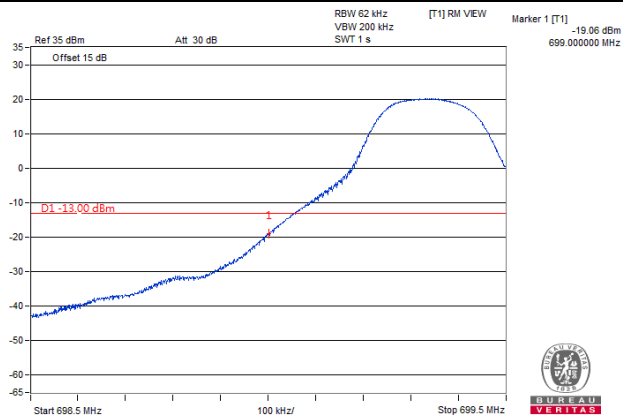


Channel 23025 (700.5MHz)	QPSK	15 RB / 0 RB Offset	Channel 23165 (714.5MHz)	QPSK	15 RB / 0 RB Offset
-----------------------------	------	---------------------	-----------------------------	------	---------------------

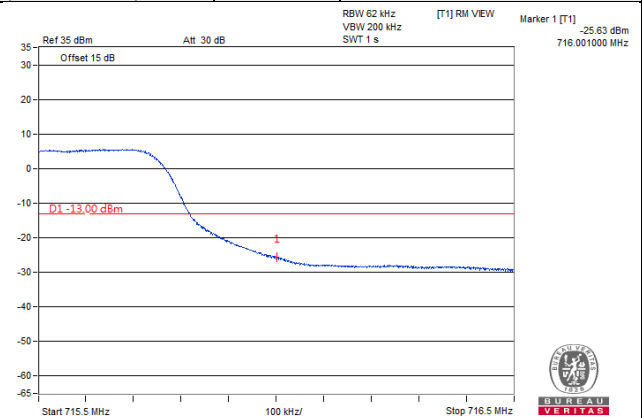
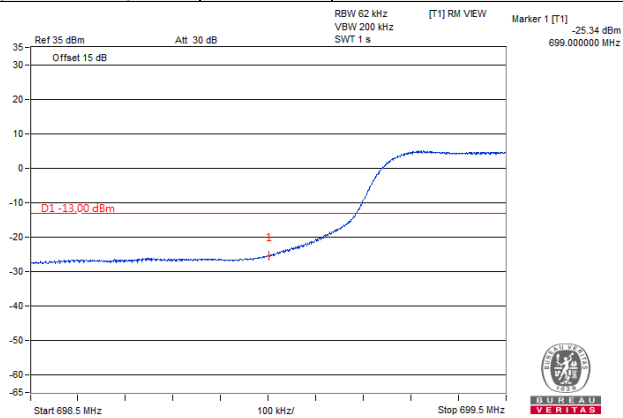


Channel Bandwidth: 5MHz

Channel 23035 (701.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 23155 (713.5MHz)	QPSK	1 RB / 24RB Offset
-------------------------------------	-------------	---------------------------	-------------------------------------	-------------	---------------------------

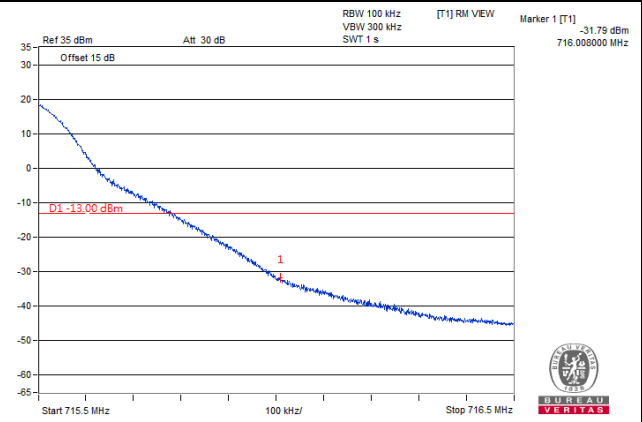
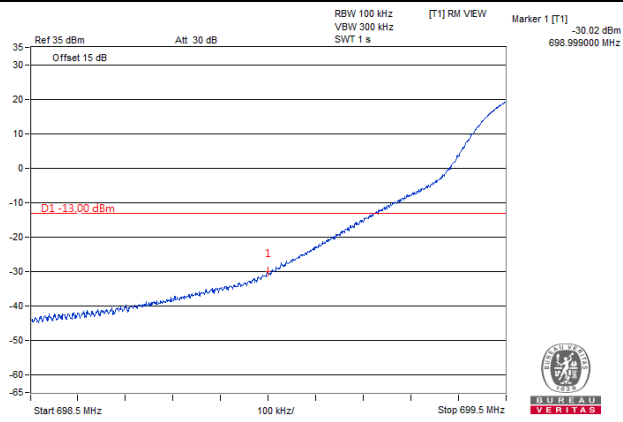


Channel 23035 (701.5MHz)	QPSK	25 RB / 0 RB Offset	Channel 23155 (713.5MHz)	QPSK	25 RB / 0 RB Offset
-------------------------------------	-------------	----------------------------	-------------------------------------	-------------	----------------------------

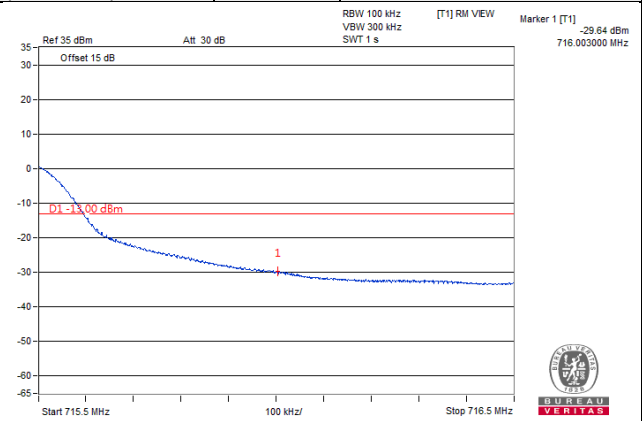
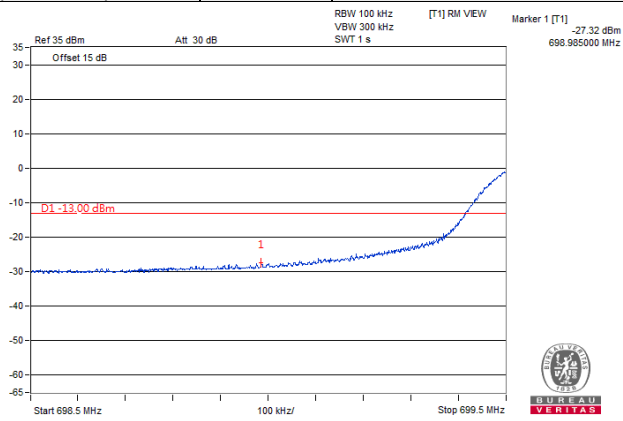


Channel Bandwidth: 10MHz

Channel 23060 (704MHz)	QPSK	1 RB / 0 RB Offset	Channel 23130 (711MHz)	QPSK	1 RB / 24RB Offset
-----------------------------------	-------------	---------------------------	-----------------------------------	-------------	---------------------------



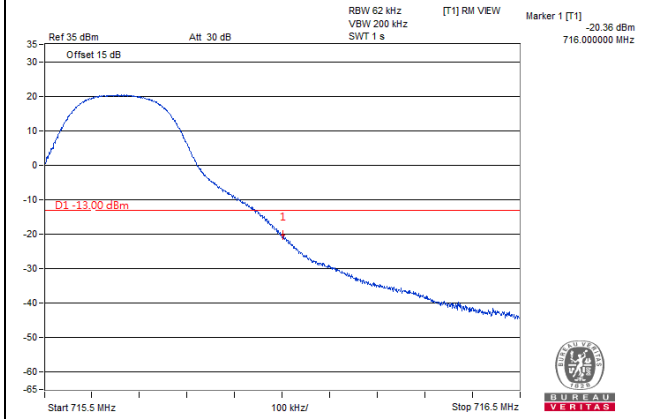
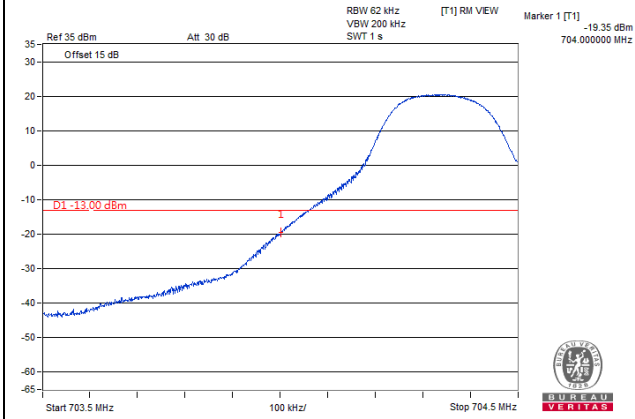
Channel 23060 (704MHz)	QPSK	50 RB / 0 RB Offset	Channel 23130 (711MHz)	QPSK	25 RB / 0 RB Offset
-----------------------------------	-------------	----------------------------	-----------------------------------	-------------	----------------------------



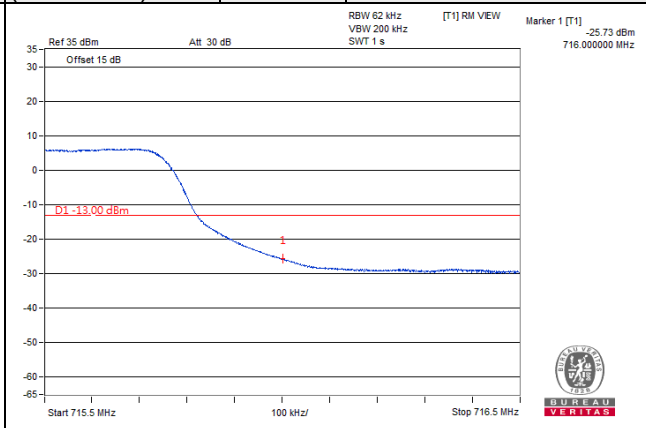
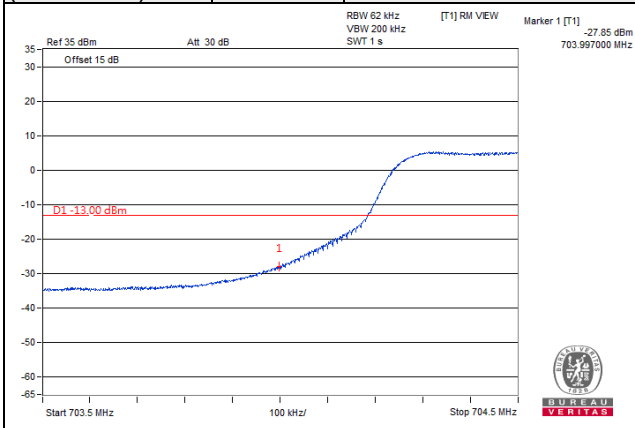
LTE Band 17

Channel Bandwidth: 5MHz

Channel 23755 (706.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 23825 (713.5MHz)	QPSK	1 RB / 24 RB Offset
-----------------------------	------	--------------------	-----------------------------	------	---------------------

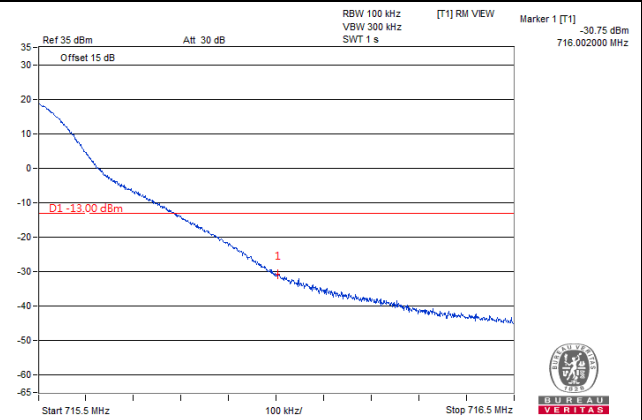
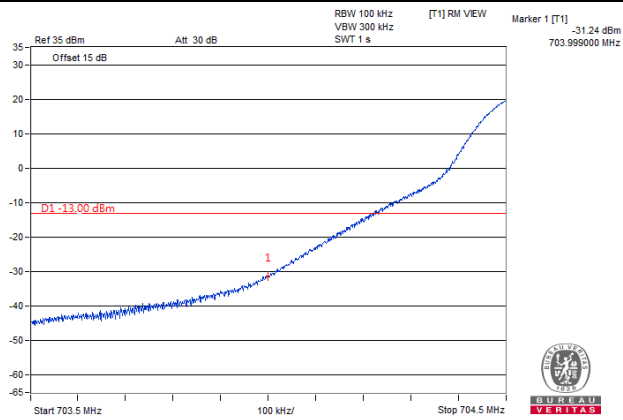


Channel 23755 (706.5MHz)	QPSK	25 RB / 0 RB Offset	Channel 23825 (713.5MHz)	QPSK	25 RB / 0 RB Offset
-----------------------------	------	---------------------	-----------------------------	------	---------------------

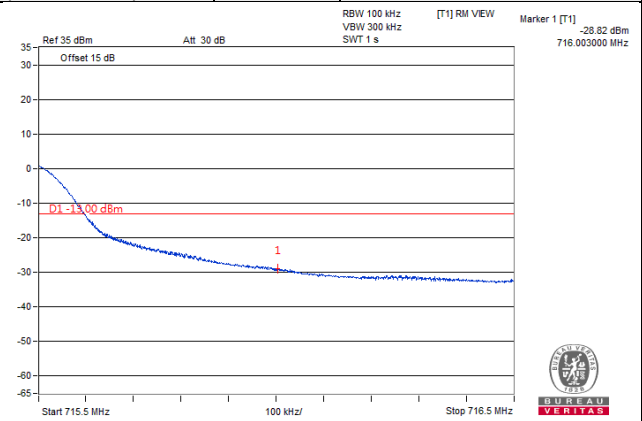
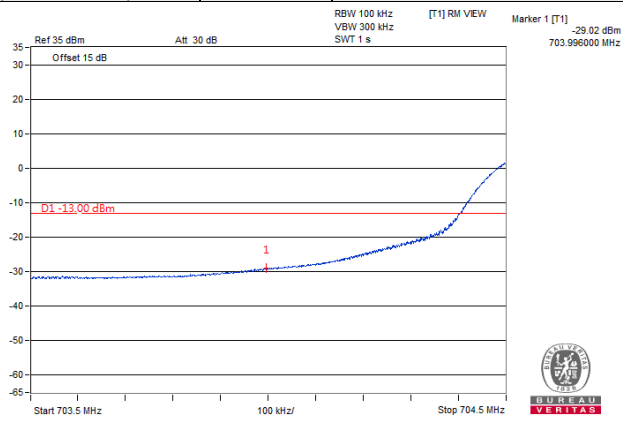


Channel Bandwidth: 10MHz

Channel 23780 (709.0MHz)	QPSK	1 RB / 0 RB Offset	Channel 23800 (711.0MHz)	QPSK	1 RB / 49 RB Offset
-----------------------------	------	--------------------	-----------------------------	------	---------------------



Channel 23780 (709.0MHz)	QPSK	50 RB / 0 RB Offset	Channel 23800 (711.0MHz)	QPSK	50 RB / 0 RB Offset
-----------------------------	------	---------------------	-----------------------------	------	---------------------

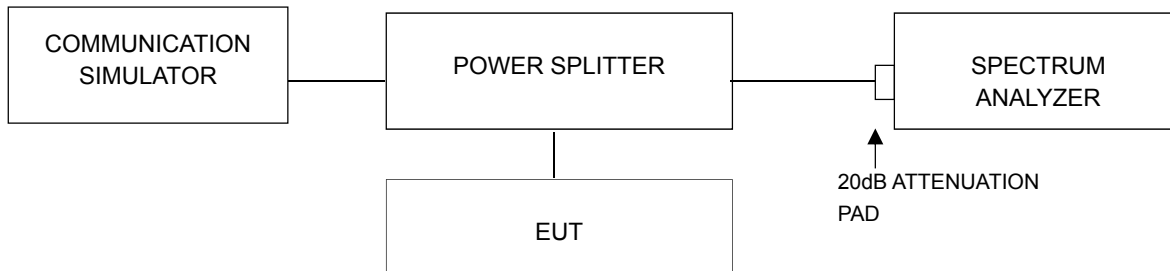


4.6 Peak to Average Ratio

4.6.1 Limits of Peak to Average Ratio Measurement

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

4.6.2 Test Setup



4.6.3 Test Procedures

- Set resolution/measurement bandwidth \geq signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Record the maximum PAPR level associated with a probability of 0.1%.

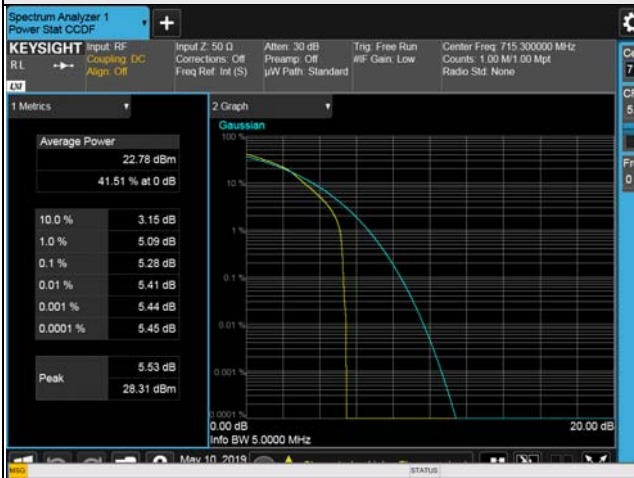
4.6.4 Test Results

LTE Band 12

LTE Band 12, Channel Bandwidth 1.4MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
23017	699.7	3.45	4.63	4.58
23095	707.5	3.48	4.76	4.74
23173	715.3	3.93	5.28	5.22
LTE Band 12, Channel Bandwidth 3MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
23025	700.5	3.30	4.55	4.61
23095	707.5	3.34	4.74	4.78
23165	714.5	3.80	5.27	5.31
LTE Band 12, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
23035	701.5	3.33	4.56	4.56
23095	707.5	3.50	4.92	5.00
23155	713.5	3.61	5.02	5.06
LTE Band 12, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
23060	704.0	3.56	4.56	4.66
23095	707.5	3.85	5.28	5.33
23130	711.0	3.35	4.71	4.74

Spectrum Plot of Worst Value

1.4MHz / 16QAM



3MHz / 64QAM



5MHz / 64QAM



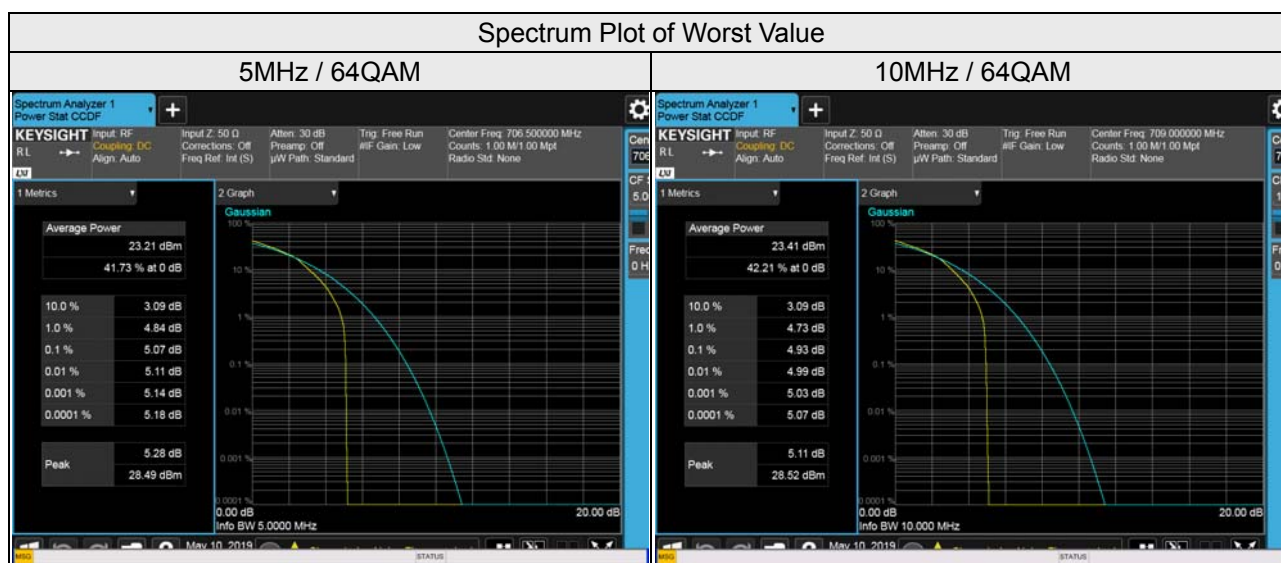
10MHz / 64QAM



LTE Band 17

LTE Band 17, Channel Bandwidth 5MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
23755	706.5	3.59	4.96	5.07
23790	710.0	3.02	4.32	4.39
23825	713.5	3.45	4.77	4.87

LTE Band 17, Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM
23780	709.0	3.53	4.84	4.93
23790	710.0	3.33	4.56	4.71
23800	711.0	3.13	4.40	4.46

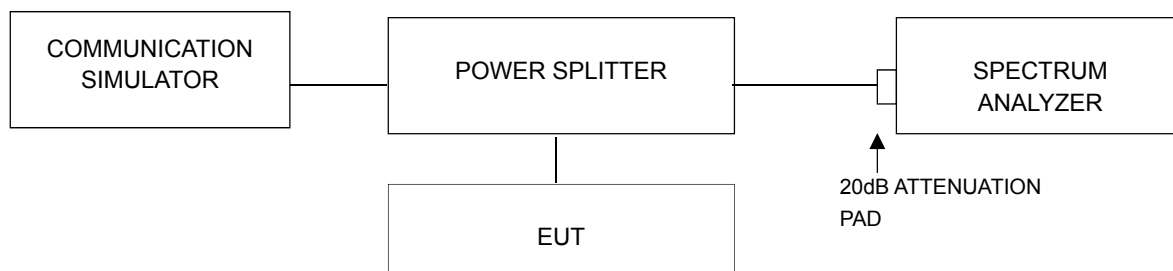


4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

According to FCC 27.53(g) 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.

4.7.2 Test Setup



4.7.3 Test Procedure

- All measurements were done at 3 channels: low, middle and high operational frequency range.
- When the spectrum scanned from 9kHz to 10GHz, it shall be connected to the attenuator with the carried frequency.

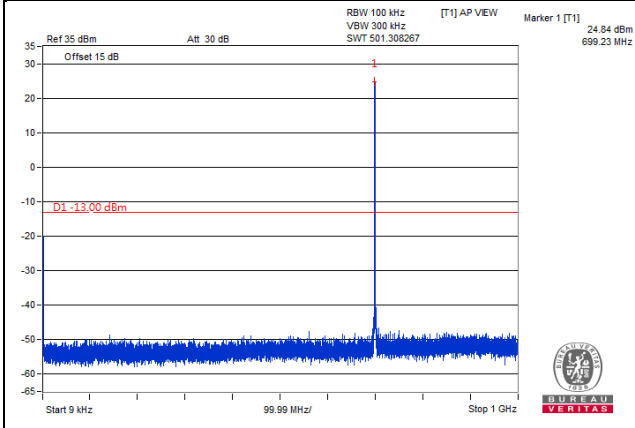
4.7.4 Test Results

LTE Band 12

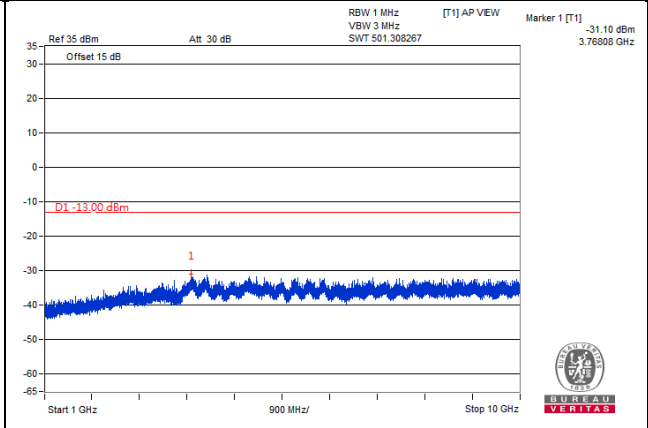
Channel Band width: 1.4MHz

Channel 23017 (699.7MHz)

Frequency Range : 9kHz~1GHz



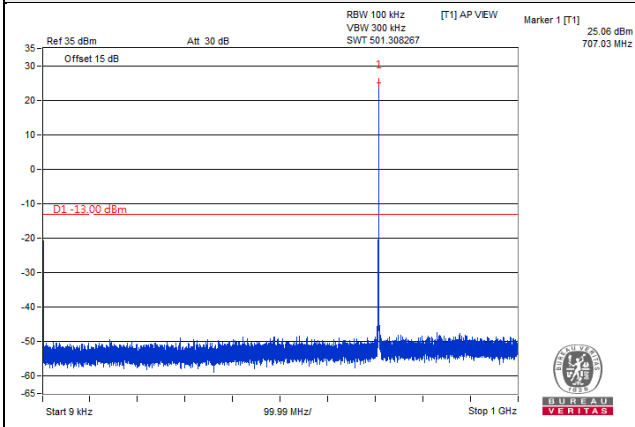
Frequency Range : 1GHz~10GHz



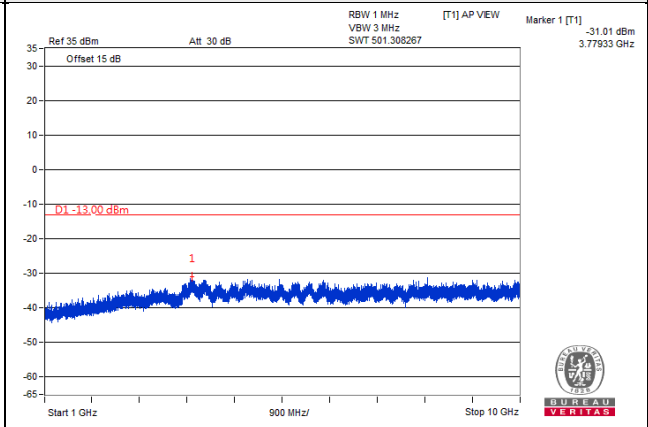
Channel Band width: 1.4MHz

Channel 23095 (707.5MHz)

Frequency Range : 9kHz~1GHz



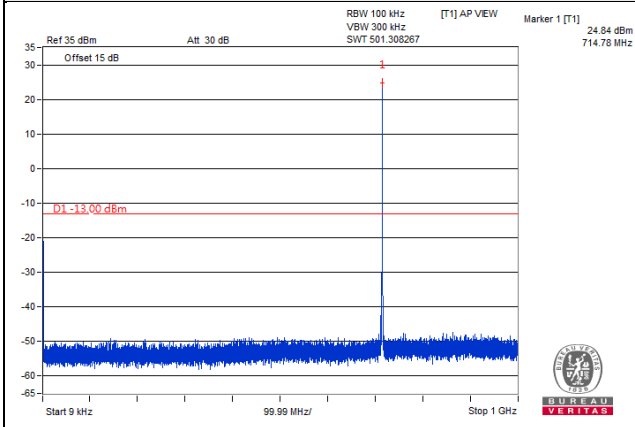
Frequency Range : 1GHz~10GHz



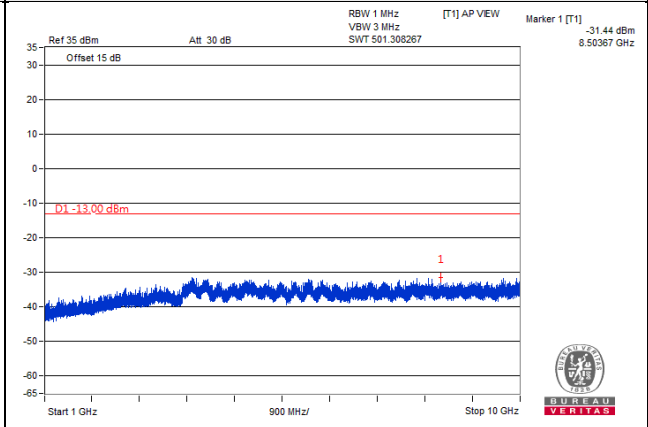
Channel Band width: 1.4MHz

Channel 23173 (715.3MHz)

Frequency Range : 9kHz~1GHz



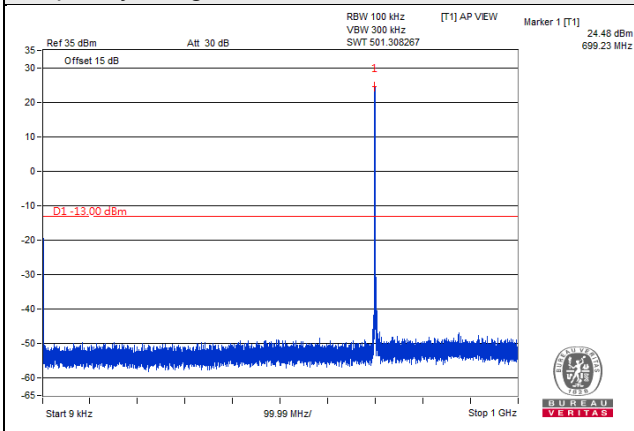
Frequency Range : 1GHz~10GHz



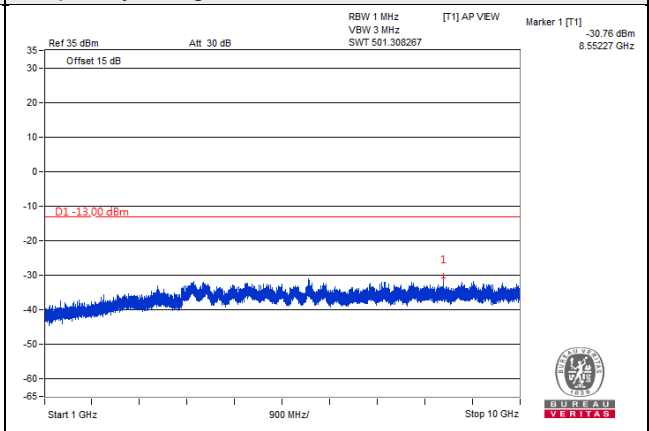
Channel Band width: 3MHz

Channel 23025 (700.5MHz)

Frequency Range : 9kHz~1GHz



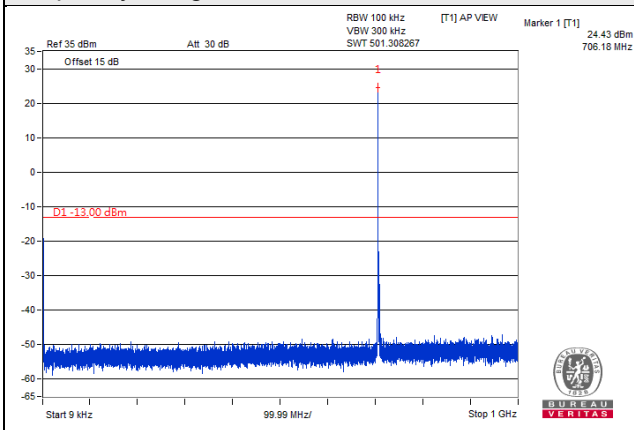
Frequency Range : 1GHz~10GHz



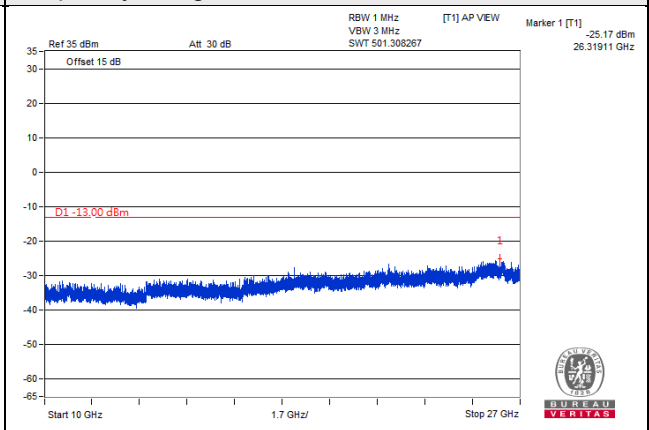
Channel Band width: 3MHz

Channel 23095 (707.5MHz)

Frequency Range : 9kHz~1GHz



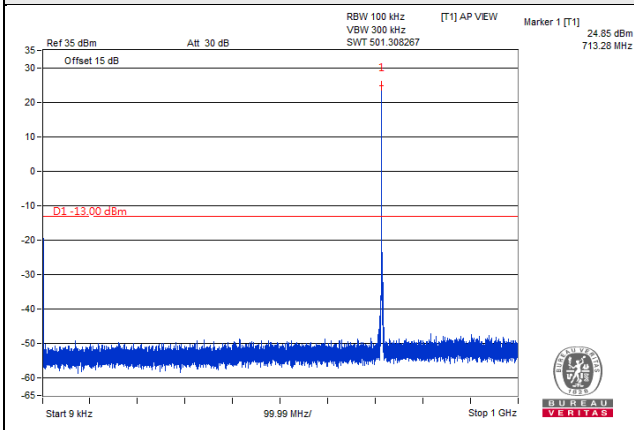
Frequency Range : 1GHz~10GHz



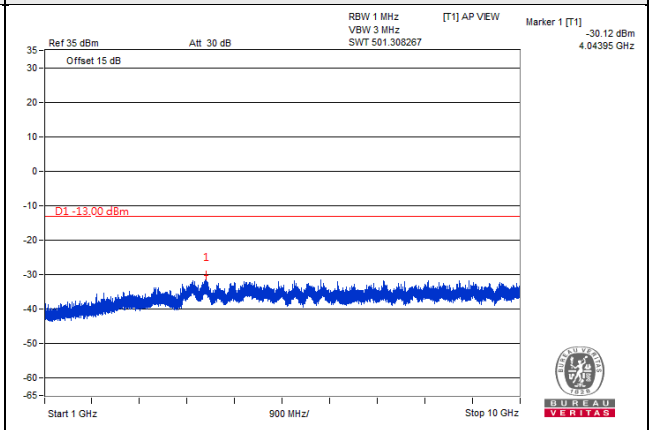
Channel Band width: 3MHz

Channel 23165 (714.5MHz)

Frequency Range : 9kHz~1GHz



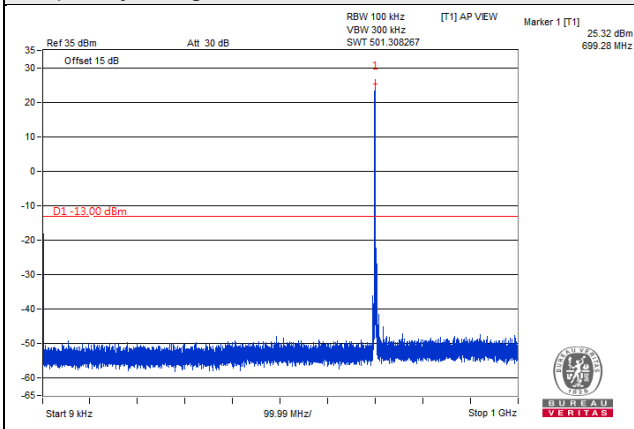
Frequency Range : 1GHz~10GHz



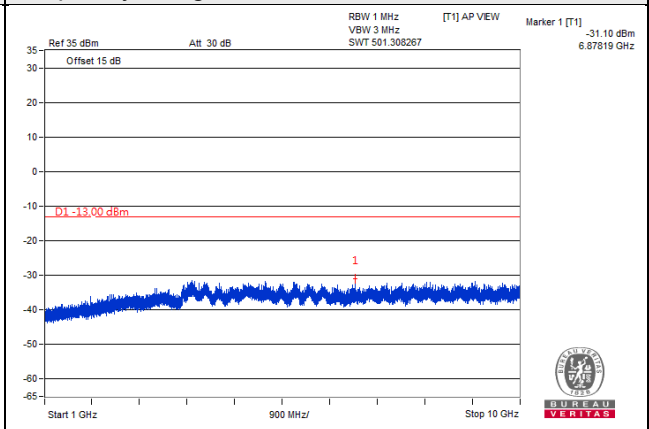
Channel Band width: 5MHz

Channel 23035 (701.5MHz)

Frequency Range : 9kHz~1GHz



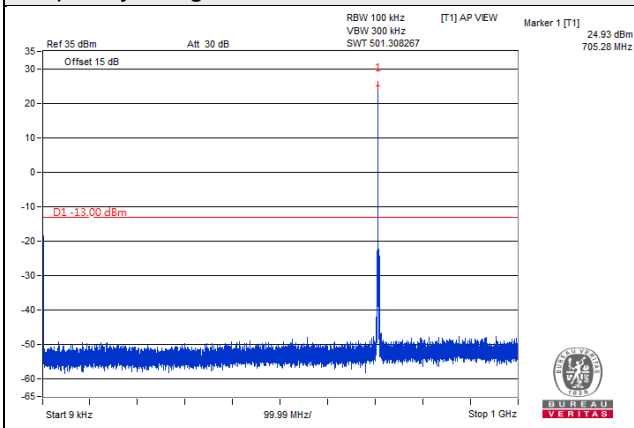
Frequency Range : 1GHz~10GHz



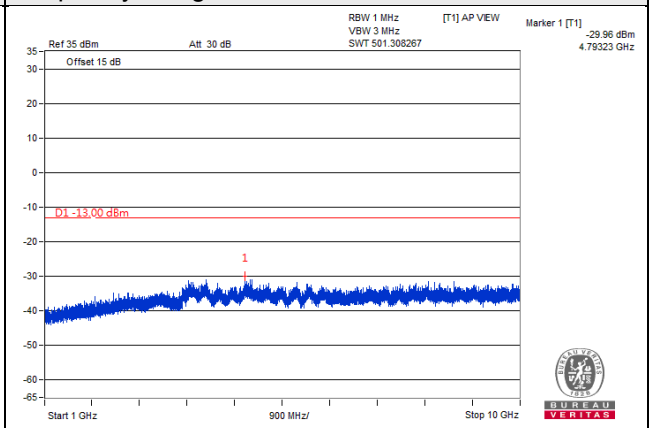
Channel Band width: 5MHz

Channel 23095 (707.5MHz)

Frequency Range : 9kHz~1GHz



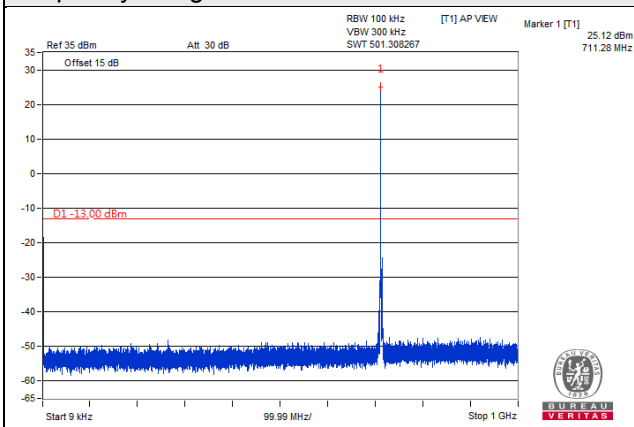
Frequency Range : 1GHz~10GHz



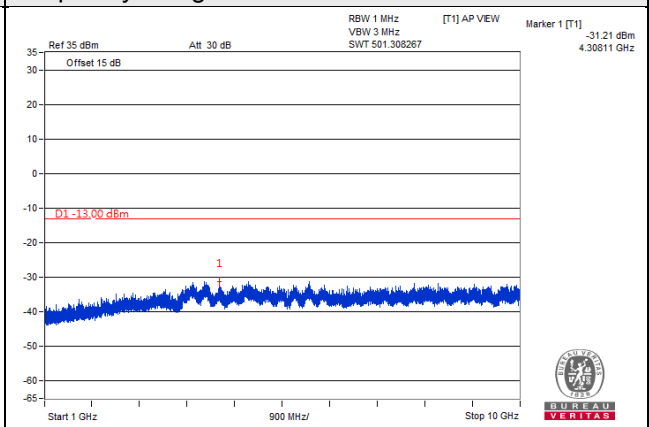
Channel Band width: 5MHz

Channel 23155 (713.5MHz)

Frequency Range : 9kHz~1GHz



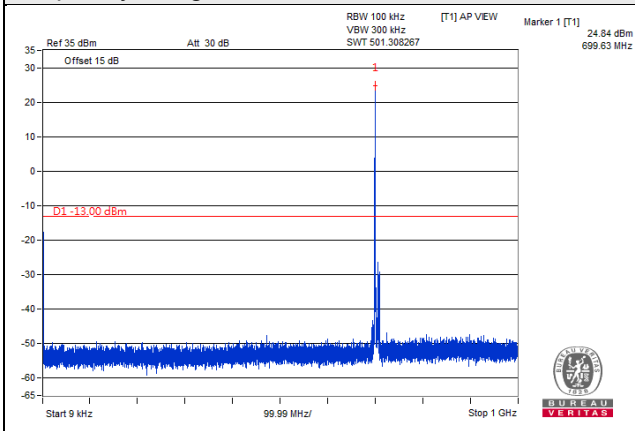
Frequency Range : 1GHz~10GHz



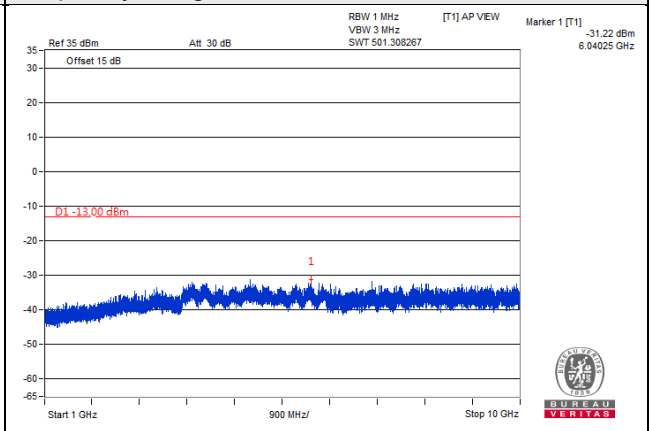
Channel Band width: 10MHz

Channel 23060 (704MHz)

Frequency Range : 9kHz~1GHz



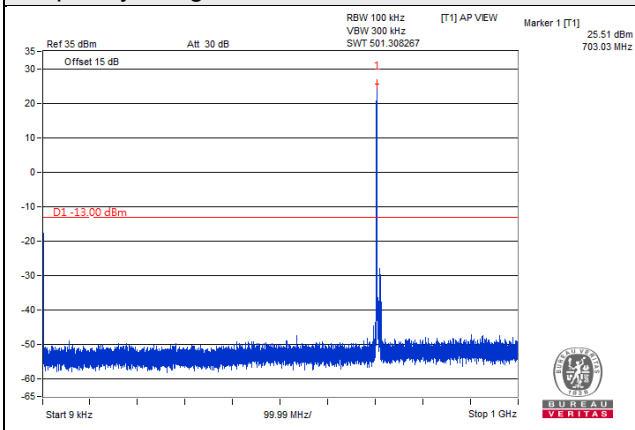
Frequency Range : 1GHz~10GHz



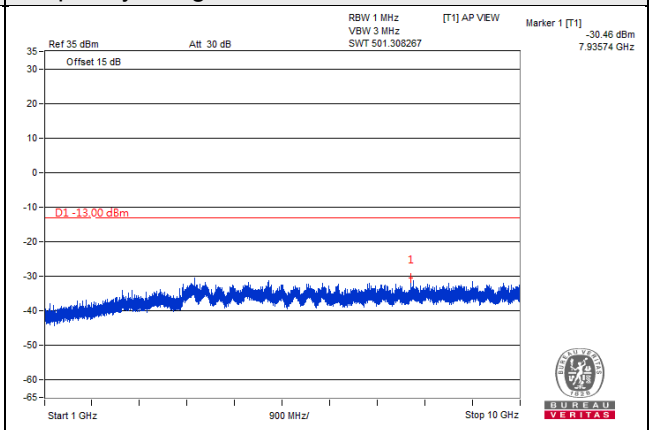
Channel Band width: 10MHz

Channel 23095 (707.5MHz)

Frequency Range : 9kHz~1GHz



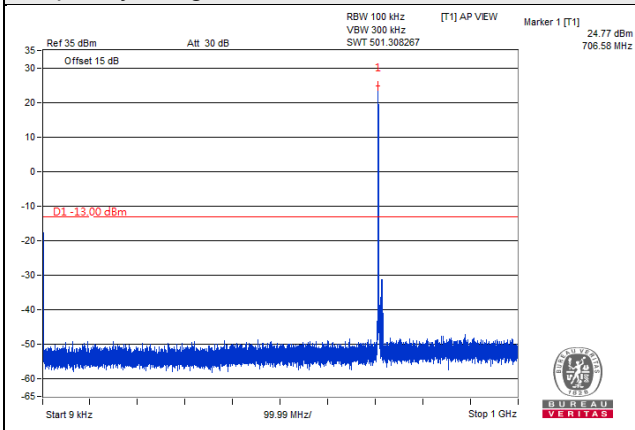
Frequency Range : 1GHz~10GHz



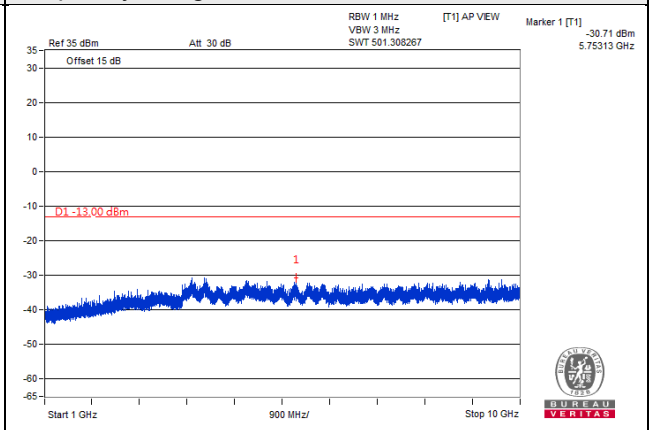
Channel Band width: 10MHz

Channel 23130 (711MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz

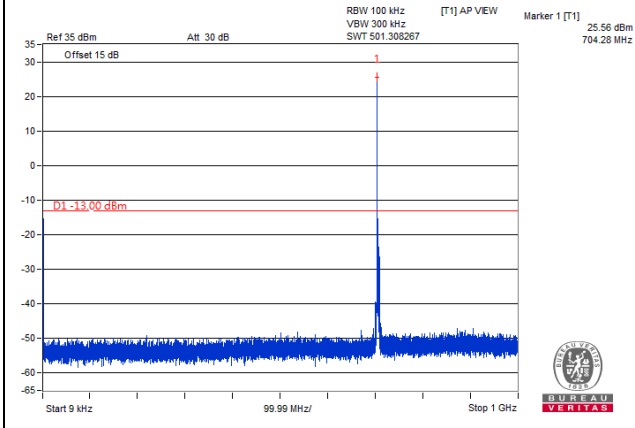


LTE Band 17

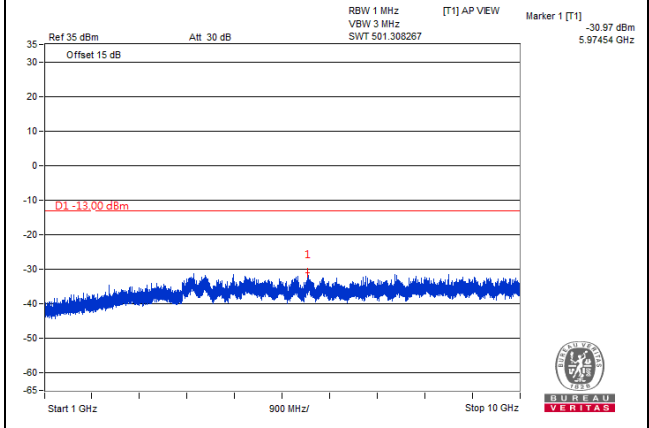
Channel Bandwidth: 5MHz

Channel 23775 (706.5MHz)

Frequency Range : 9kHz~1GHz



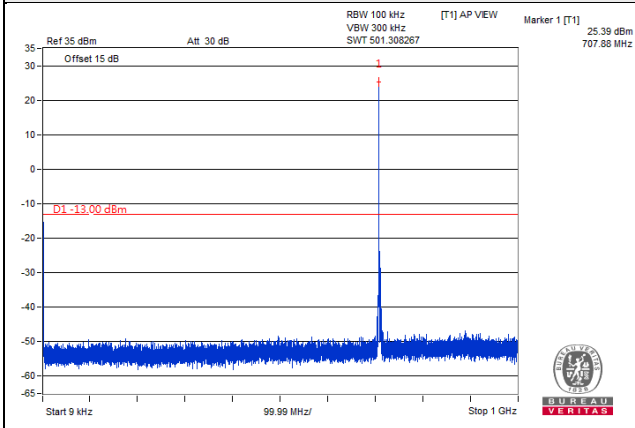
Frequency Range : 1GHz~10GHz



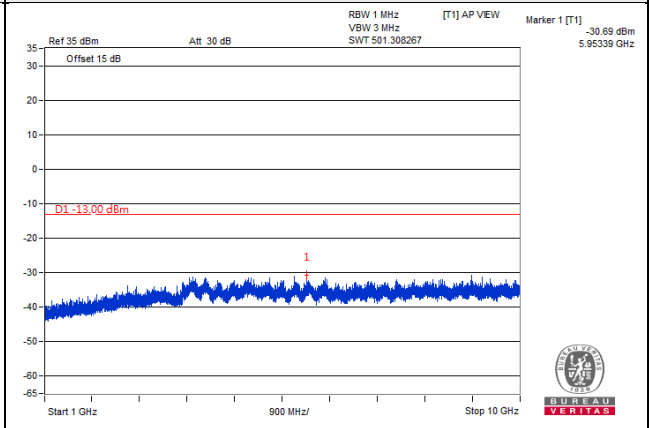
Channel Bandwidth: 5MHz

Channel 23790 (710.0MHz)

Frequency Range : 9kHz~1GHz



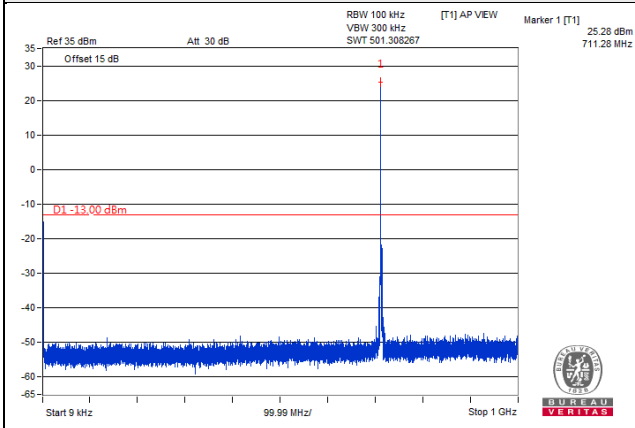
Frequency Range : 1GHz~10GHz



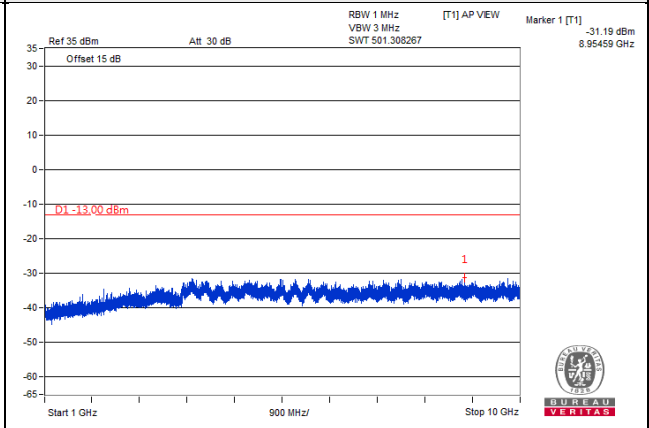
Channel Bandwidth: 5MHz

Channel 23825 (713.5MHz)

Frequency Range : 9kHz~1GHz



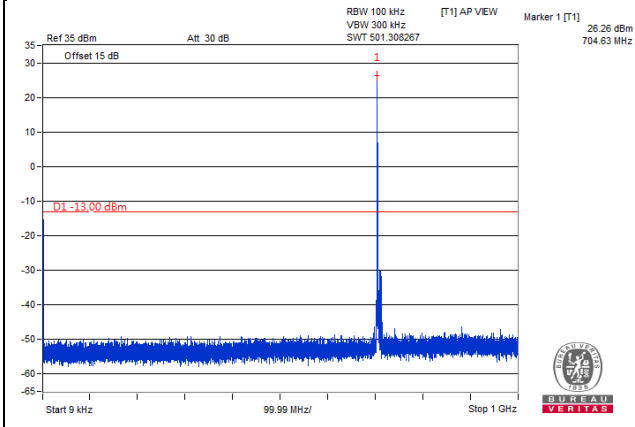
Frequency Range : 1GHz~10GHz



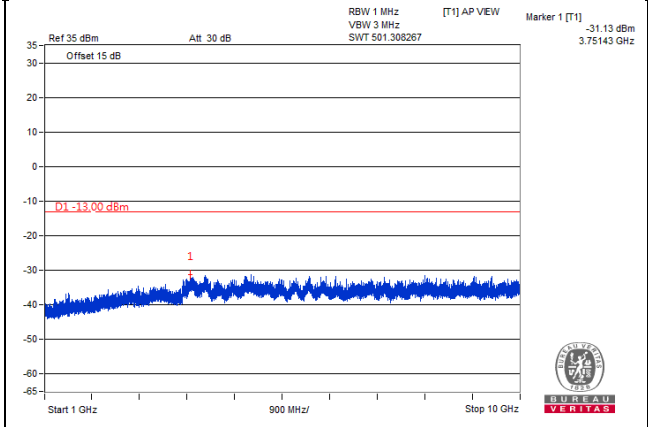
Channel Bandwidth: 10MHz

Channel 23780 (709.0MHz)

Frequency Range : 9kHz~1GHz



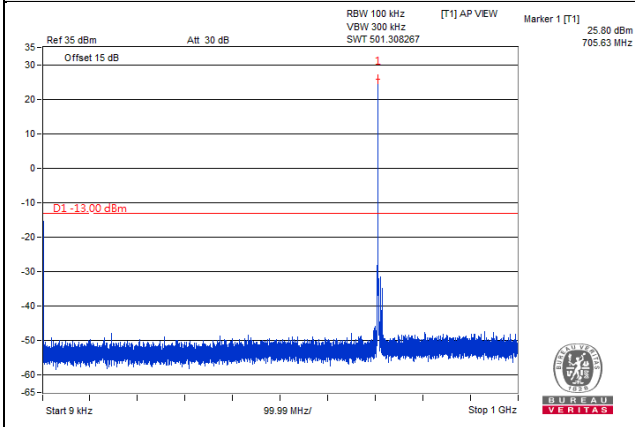
Frequency Range : 1GHz~10GHz



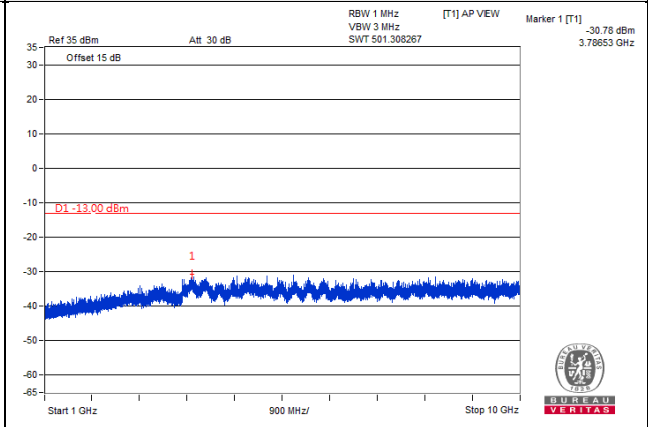
Channel Bandwidth: 10MHz

Channel 23790 (710.0MHz)

Frequency Range : 9kHz~1GHz



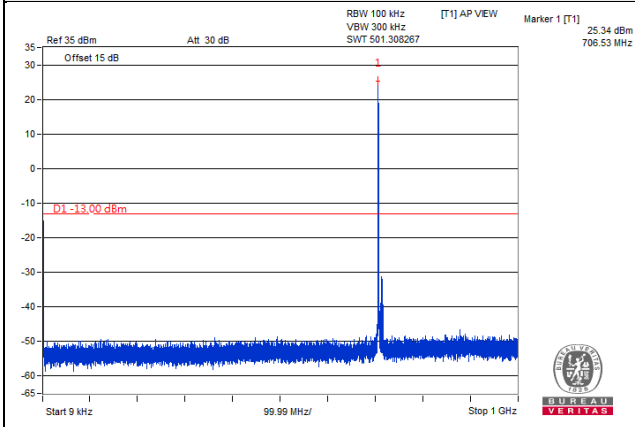
Frequency Range : 1GHz~10GHz



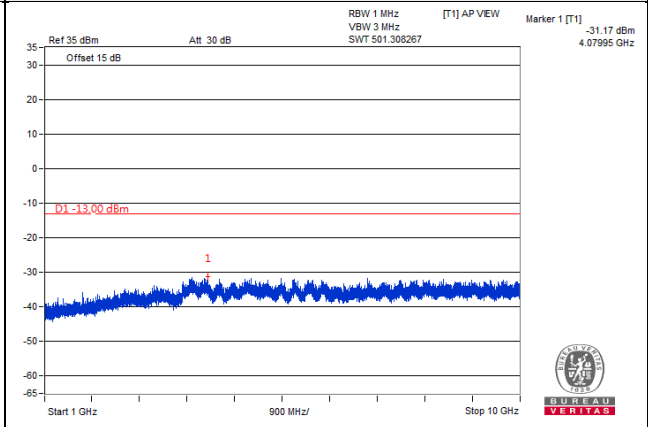
Channel Bandwidth: 10MHz

Channel 23800 (711.0MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



4.8 Radiated Emission Measurement

4.8.1 Limits of Radiated Emission Measurement

For LTE Band 12, 17

According to FCC 27.53(g) 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.

4.8.2 Test Procedure

- a. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high channel of operational frequency range.)
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- c. The substitution antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G
- d. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution antenna}$.

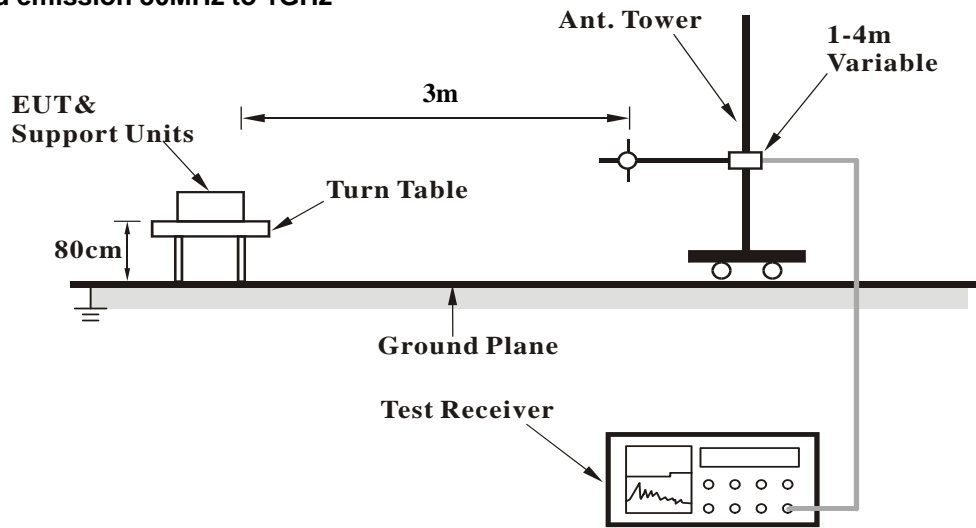
Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.8.3 Deviation from Test Standard

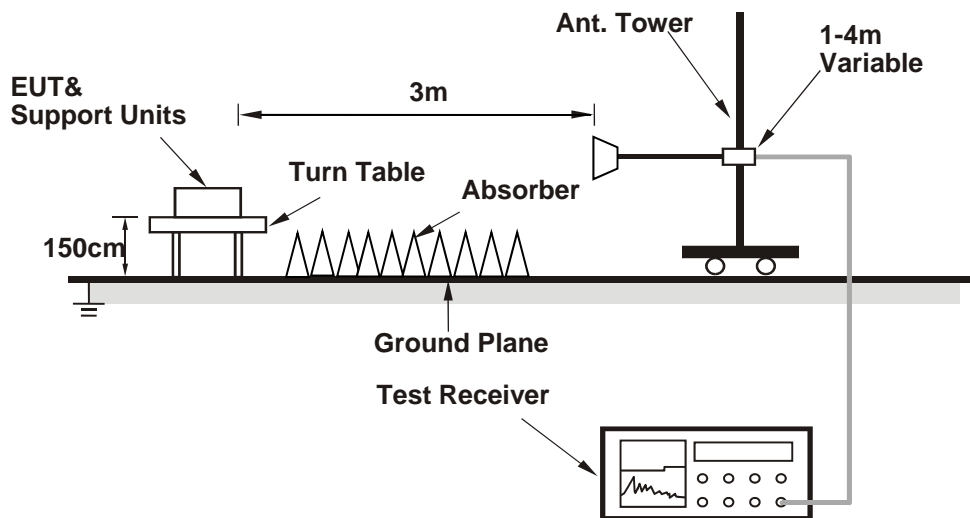
No deviation.

4.8.4 Test Setup

For radiated emission 30MHz to 1GHz



For radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.8.5 Test Results

Below 1GHz

LTE Band 12, Channel Bandwidth: 1.4MHz

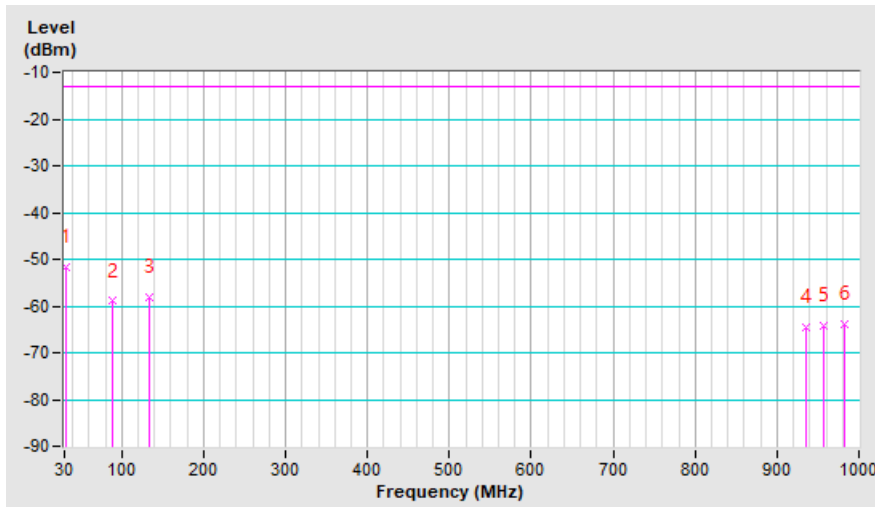
Mode	TX channel 23017 (699.7MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 64%RH	Input Power	120Vac, 60Hz
Tested By	Match Tsui		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	31.94	-53.0	-50.8	-0.9	-51.7	-13.0	-38.7
2	88.20	-49.2	-57.5	-1.5	-59.0	-13.0	-46.0
3	132.82	-50.0	-56.5	-1.8	-58.3	-13.0	-45.3
4	935.98	-70.8	-61.0	-3.7	-64.7	-13.0	-51.7
5	956.35	-70.6	-60.6	-3.7	-64.3	-13.0	-51.3
6	982.54	-70.5	-59.9	-3.9	-63.8	-13.0	-50.8

Remarks:

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).

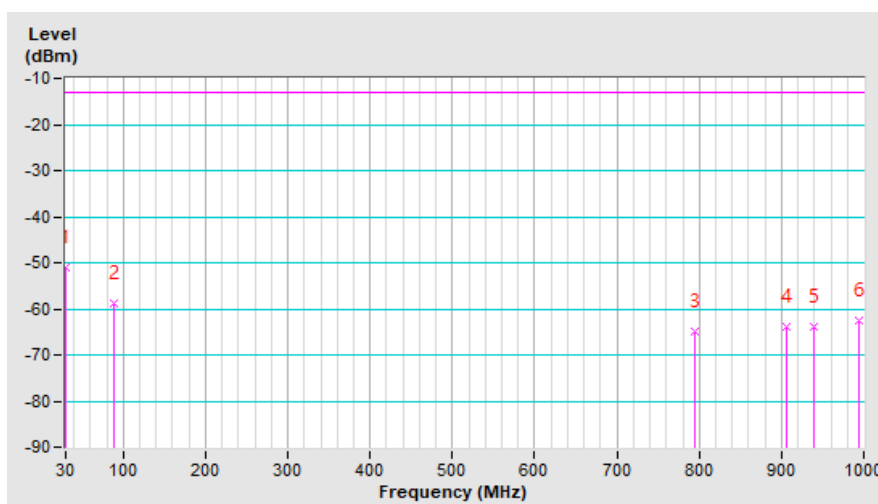


Mode	TX channel 23017 (699.7MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 64%RH	Input Power	120Vac, 60Hz
Tested By	Match Tsui		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-39.0	-50.2	-0.8	-51.0	-13.0	-38.0
2	88.20	-50.2	-57.3	-1.5	-58.8	-13.0	-45.8
3	794.36	-69.7	-61.6	-3.4	-65.0	-13.0	-52.0
4	906.88	-70.2	-60.3	-3.7	-64.0	-13.0	-51.0
5	938.89	-70.6	-60.1	-3.7	-63.8	-13.0	-50.8
6	994.18	-70.5	-58.5	-4.0	-62.5	-13.0	-49.5

Remarks:

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).



LTE Band 17, Channel Bandwidth: 5MHz

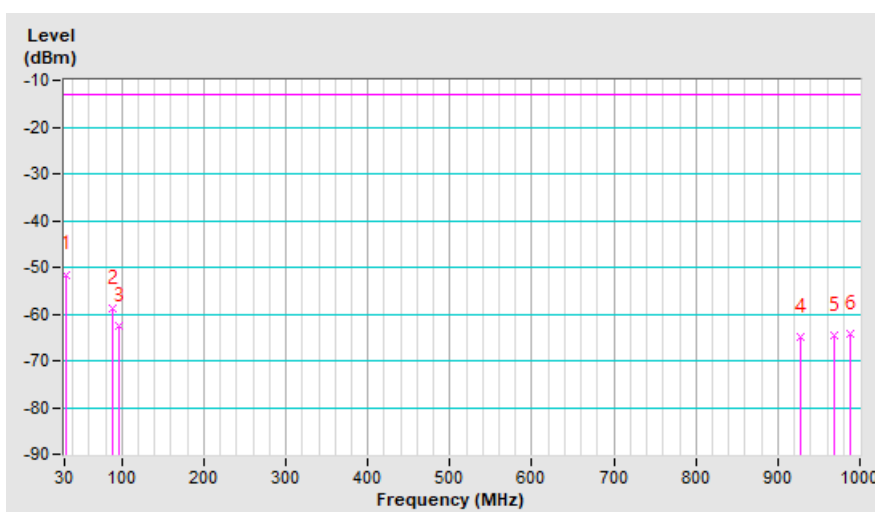
Mode	TX channel 23825 (713.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 64%RH	Input Power	120Vac, 60Hz
Tested By	Match Tsui		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	31.94	-52.8	-50.6	-0.9	-51.5	-13.0	-38.5
2	88.20	-49.1	-57.4	-1.5	-58.9	-13.0	-45.9
3	95.96	-51.2	-60.9	-1.6	-62.5	-13.0	-49.5
4	928.22	-70.8	-61.1	-3.7	-64.8	-13.0	-51.8
5	967.99	-70.9	-60.8	-3.8	-64.6	-13.0	-51.6
6	987.39	-71.0	-60.4	-3.9	-64.3	-13.0	-51.3

Remarks:

- ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
- Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).

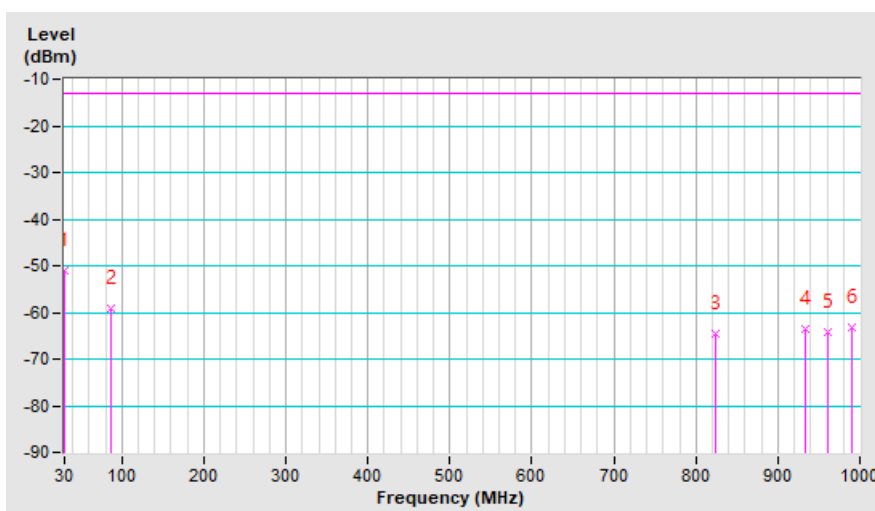


Mode	TX channel 23825 (713.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 64%RH	Input Power	120Vac, 60Hz
Tested By	Match Tsui		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-39.0	-50.2	-0.8	-51.0	-13.0	-38.0
2	86.26	-51.2	-57.8	-1.5	-59.3	-13.0	-46.3
3	823.46	-69.9	-61.2	-3.4	-64.6	-13.0	-51.6
4	934.04	-70.5	-60.0	-3.7	-63.7	-13.0	-50.7
5	961.20	-71.1	-60.3	-3.8	-64.1	-13.0	-51.1
6	989.33	-70.7	-59.1	-4.0	-63.1	-13.0	-50.1

Remarks:

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).



Above 1GHz

LTE Band 12, Channel Bandwidth: 1.4MHz

Mode	TX channel 23017 (699.7MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	24deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1399.40	-62.1	-55.9	0.9	-55.0	-13.0	-42.0

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1399.40	-59.8	-54.7	0.9	-53.8	-13.0	-40.8

Remarks:

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).

Mode	TX channel 23095 (707.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	24deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-62.8	-56.2	0.9	-55.3	-13.0	-42.3

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-60.1	-54.8	0.9	-53.9	-13.0	-40.9

Remarks:

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).

Mode	TX channel 23173 (715.3MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	24deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1430.60	-62.8	-56.0	1.0	-55.0	-13.0	-42.0

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1430.60	-59.8	-54.2	1.0	-53.2	-13.0	-40.2

Remarks:

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).

LTE Band 12, Channel Bandwidth: 5MHz

Mode	TX channel 23035 (701.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	24deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1403.00	-62.4	-56.0	0.9	-55.1	-13.0	-42.1

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1403.00	-60.0	-54.9	0.9	-54.0	-13.0	-41.0

Remarks:

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).

Mode	TX channel 23095 (707.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	24deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-62.2	-55.7	0.9	-54.8	-13.0	-41.8

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-61.0	-55.7	0.9	-54.8	-13.0	-41.8

Remarks:

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).

Mode	TX channel 23155 (713.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	24deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1427.00	-62.6	-56.0	1.0	-55.0	-13.0	-42.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1427.00	-59.9	-54.4	1.0	-53.4	-13.0	-40.4

Remarks:

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).

LTE Band 12, Channel Bandwidth: 10MHz

Mode	TX channel 23060 (704MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	24deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1408.00	-63.0	-56.5	0.9	-55.6	-13.0	-42.6

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1408.00	-59.8	-54.5	0.9	-53.6	-13.0	-40.6

Remarks:

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).

Mode	TX channel 23095 (707.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	24deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-62.5	-56.0	0.9	-55.1	-13.0	-42.1

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-59.6	-54.3	0.9	-53.4	-13.0	-40.4

Remarks:

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).

Mode	TX channel 23130 (711MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	24deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1422.00	-62.3	-55.8	1.0	-54.8	-13.0	-41.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1422.00	-60.2	-54.8	1.0	-53.8	-13.0	-40.8

Remarks:

1. $ERP (dBm) = S.G \text{ Value (dBm)} + \text{Correction Factor (dB)}$.
2. $\text{Correction Factor (dB)} = \text{Substitution Antenna Gain (dB)} - \text{Cable Loss (dB)}$.

LTE Band 17, Channel Bandwidth: 5MHz

Mode	TX channel 23755 (706.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	24deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1413.00	-63.4	-56.9	0.9	-56.0	-13.0	-43.0

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1413.00	-60.9	-55.5	0.9	-54.6	-13.0	-41.6

Remarks:

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).

Mode	TX channel 23790 (710.0MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	24deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1420.00	-63.4	-56.8	0.9	-55.9	-13.0	-42.9

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1420.00	-61.1	-55.7	0.9	-54.8	-13.0	-41.8

Remarks:

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).

Mode	TX channel 23825 (713.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	24deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1427.00	-63.4	-56.7	1.0	-55.7	-13.0	-42.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1427.00	-60.9	-55.4	1.0	-54.4	-13.0	-41.4

Remarks:

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).

LTE Band 17, Channel Bandwidth: 10MHz

Mode	TX channel 23780 (709.0MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	24deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1418.00	-63.5	-57.0	0.9	-56.1	-13.0	-43.1

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1418.00	-61.4	-55.9	0.9	-55.0	-13.0	-42.0

Remarks:

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).

Mode	TX channel 23790 (710.0MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	24deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1420.00	-63.8	-57.1	0.9	-56.2	-13.0	-43.2

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1420.00	-61.2	-55.8	0.9	-54.9	-13.0	-41.9

Remarks:

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).

Mode	TX channel 23800 (711.0MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	24deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1422.00	-63.2	-56.7	1.0	-55.7	-13.0	-42.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1422.00	-61.0	-55.5	1.0	-54.5	-13.0	-41.5

Remarks:

1. $ERP (dBm) = S.G \text{ Value (dBm)} + \text{Correction Factor (dB)}$.
2. $\text{Correction Factor (dB)} = \text{Substitution Antenna Gain (dB)} - \text{Cable Loss (dB)}$.

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Lin Kou EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

--- END ---