FCC Test Report

(PART 22)

Report No.:	RF200605C24-6 R1
FCC ID:	V65E7110
Test Model:	E7110
Received Date:	Jun. 29, 2020
Test Date:	Jul. 27 ~ Aug. 11, 2020
Issued Date:	Nov. 16, 2020
Applicant:	Kyocera Corporation ℅ Kyocera International, Inc.
Address:	8611 Balboa Avenue, San Diego, CA 92123
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number:	788550 / TW0003

Testing Laboratory
2021

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Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RF200605C24-6	Original Release	Oct. 16, 2020
RF200605C24-6 R1	Revise applicant, accessory information and add EDGE data	Nov. 16, 2020

1 Certificate of Conformity

Product:	Smart Phone
Brand:	Kyocera
Test Model:	E7110
Sample Status:	Identical Prototype
Applicant:	Kyocera Corporation ℅ Kyocera International, Inc.
Test Date:	Jul. 27 ~ Aug. 11, 2020
Standards:	FCC Part 22, Subpart H

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 : Gina Liu , **Date:** Nov. 16, 2020

Gina Liu / Specialist

Approved by : , **Date:** Nov. 16, 2020

Dylan Chiou / Senior Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 22 & Part 2			
FCC Clause	**Test Item**	**Result**	**Remarks**
2.1046 22.913 (a)	Effective Radiated Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement.
22.913 (d)	Peak to Average Ratio	Pass	Meet the requirement of limit.
2.1055 22.355	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Occupied Bandwidth	Pass	Meet the requirement of limit.
22.917	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 22.917	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 22.917	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -38.7 dB at 31.4 MHz.

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) (±)
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	30 MHz ~ 200 MHz	3.86 dB
	200 MHz ~ 1000 MHz	3.87 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.29 dB
	18 GHz ~ 40 GHz	2.29 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESR3	102579	Jul. 07, 2020	Jul. 06, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jun. 09, 2020	Jun. 08, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSW43	101582	Mar. 31, 2020	Mar. 30, 2021
Loop Antenna TESEQ	HLA 6121	45745	Jul. 06, 2020	Jul. 05, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Nov. 11, 2019	Nov. 10, 2020
HORN Antenna SCHWARZBECK	9120D	209	Nov. 24, 2019	Nov. 23, 2020
BILOG Antenna SCHWARZBECK	VULB9168	9168-161	Nov. 08, 2019	Nov. 07, 2020
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 20, 2019	Aug. 19, 2020
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Mar. 23, 2020	Mar. 22, 2021
RF Coaxial Cable WOKEN With 5dB PAD	8D-FB	Cable-CH3-01	Aug. 20, 2019	Aug. 19, 2020
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 20, 2019	Aug. 19, 2020
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM-SM- 8000	Cable-CH3-03 (309224+170907)	Aug. 20, 2019	Aug. 19, 2020
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Standard Temperature And Humidity Chamber GIANT FORCE	GTH-120-40-CP-AR	MAA1306-019	Sep. 10, 2019	Sep. 09, 2020
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	Jun 06, 2020	Jun 05, 2021
DC power supply Keysight	U8002A	MY56330015	NA	NA
Radio Communication Analyzer Anritsu	MT8820C	6201010284	Dec. 25, 2019	Dec. 24, 2020
Radio Communication Analyzer Anritsu	MT8821C	6261806803	Jan. 18, 2020	Jan. 17, 2021
MXG Vector signal generator Agilent	N5182B	MY53050430	Nov. 25, 2019	Nov. 24, 2020

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 3.

3 General Information

3.1 General Description of EUT

Product	Smart Phone	
Brand	Kyocera	
Test Model	E7110	
Status of EUT	Identical Prototype	
Power Supply Rating	3.85 Vdc (Battery) 5 Vdc / 9 Vdc / 12 Vdc (Adapter)	
Modulation Type	GSM/GPRS	GMSK
	EDGE	GMSK, 8PSK
	WCDMA	QPSK
	LTE	QPSK, 16QAM, 64QAM
Frequency Range	GSM/GPRS/EDGE	824.2 ~ 848.8 MHz
	WCDMA	826.4 ~ 846.6 MHz
	LTE 5 (Channel Bandwidth: 1.4 MHz)	824.7 ~ 848.3 MHz
	LTE 5 (Channel Bandwidth: 3 MHz)	825.5 ~ 847.5 MHz
	LTE 5 (Channel Bandwidth: 5 MHz)	826.5 ~ 846.5 MHz
	LTE 5 (Channel Bandwidth: 10 MHz)	829 ~ 844 MHz
Max. ERP Power	GSM/GPRS	831.764 mW (29.2 dBm)
	EDGE	208.930 mW (23.2 dBm)
	WCDMA	114.815 mW (20.6 dBm)
	LTE 5 (Channel Bandwidth: 1.4 MHz)	144.544 mW (21.6 dBm)
	LTE 5 (Channel Bandwidth: 3 MHz)	131.826 mW (21.2 dBm)
	LTE 5 (Channel Bandwidth: 5 MHz)	138.038 mW (21.4 dBm)
	LTE 5 (Channel Bandwidth: 10 MHz)	144.544 mW (21.6 dBm)
Emission Designator	GSM/GPRS	248KGXW
	EDGE	247KG7W
	WCDMA	4M17F9W
	LTE 5 (Channel Bandwidth: 1.4 MHz)	1M09D7W
	LTE 5 (Channel Bandwidth: 3 MHz)	2M70D7W
	LTE 5 (Channel Bandwidth: 5 MHz)	4M49D7W
	LTE 5 (Channel Bandwidth: 10 MHz)	8M96D7W
Antenna Type	Monopole Antenna with -3.0 dBi gain	
Accessory Device	Refer to Note as below	
Data Cable Supplied	Refer to Note as below	

Note:

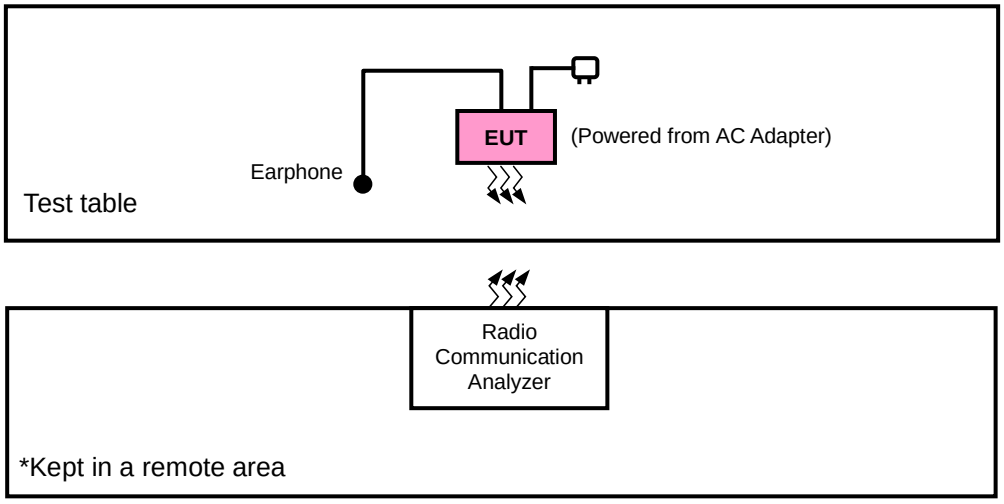
1. The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter	Kyocera	SCP-53ADT	I/P: 100-240 Vac, 50/60 Hz, 0.6 A O/P: 5 Vdc, 3 A; 9 Vdc, 3 A; 15 Vdc, 1.8 A; 20 Vdc, 1.35 A
USB Cable	Kyocera	SCP-27SDC	-

2. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

3. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

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.

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 as the table below. Following channel(s) was (were) selected for the final test as listed below:

Band	ERP	Radiated Emission
GSM	X-plane	X-axis
EDGE	X-plane	X-axis
WCDMA	X-plane	X-axis
LTE Band 5	X-plane	X-axis

GSM

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	ERP	128 to 251	128, 189, 251	GSM, EDGE
-	Modulation Characteristics	128 to 251	189	GSM, EDGE
-	Frequency Stability	128 to 251	128, 251	GSM, EDGE
-	Occupied Bandwidth	128 to 251	128, 189, 251	GSM, EDGE
-	Band Edge	128 to 251	128, 251	GSM, EDGE
-	Peak to Average Ratio	128 to 251	128, 189, 251	GSM, EDGE
-	Conducted Emission	128 to 251	128, 189, 251	GSM, EDGE
-	Radiated Emission	128 to 251	128, 189, 251	GSM, EDGE

Note: For radiated emissions below 1 GHz, select the worst radiated emission channel for final testing.

WCDMA

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	ERP	4132 to 4233	4132, 4182, 4233	WCDMA
-	Modulation Characteristics	4132 to 4233	4182	WCDMA
-	Frequency Stability	4132 to 4233	4132, 4233	WCDMA
-	Occupied Bandwidth	4132 to 4233	4132, 4182, 4233	WCDMA
-	Band Edge	4132 to 4233	4132, 4233	WCDMA
-	Peak to Average Ratio	4132 to 4233	4132, 4182, 4233	WCDMA
-	Conducted Emission	4132 to 4233	4132, 4182, 4233	WCDMA
-	Radiated Emission	4132 to 4233	4132, 4182, 4233	WCDMA

Note: For radiated emissions below 1 GHz, select the worst radiated emission channel for final testing.

LTE Band 5

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	ERP	20407 to 20643	20407, 20525, 20643	1.4 MHz	QPSK, 16QAM, 64QAM	3 RB / 0 RB Offset
		20415 to 20635	20415, 20525, 20635	3 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
-	Modulation Characteristics	20450 to 20600	20525	10 MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
-	Frequency Stability	20407 to 20643	20407, 20643	1.4 MHz	QPSK	6 RB / 0 RB Offset
		20415 to 20635	20415, 20635	3 MHz	QPSK	15 RB / 0 RB Offset
		20425 to 20625	20425, 20625	5 MHz	QPSK	25 RB / 0 RB Offset
		20450 to 20600	20450, 20600	10 MHz	QPSK	50 RB / 0 RB Offset
-	Occupied Bandwidth	20407 to 20643	20407, 20525, 20643	1.4 MHz	QPSK, 16QAM, 64QAM	6 RB / 0 RB Offset
		20415 to 20635	20415, 20525, 20635	3 MHz	QPSK, 16QAM, 64QAM	15 RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5 MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10 MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
-	Band Edge	20407 to 20643	20407	1.4MHz	QPSK	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			20643	1.4MHz	QPSK	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		20415 to 20635	20415	3 MHz	QPSK	1 RB / 0 RB Offset
						15 RB / 0 RB Offset
			20635	3 MHz	QPSK	1 RB / 14 RB Offset
						15 RB / 0 RB Offset
		20425 to 20625	20425	5 MHz	QPSK	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			20625	5 MHz	QPSK	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		20450 to 20600	20450	10 MHz	QPSK	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			20600	10 MHz	QPSK	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
-	Peak to Average Ratio	20407 to 20643	20407, 20525, 20643	1.4 MHz	QPSK, 16QAM, 64QAM	3 RB / 0 RB Offset
		20415 to 20635	20415, 20525, 20635	3 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Conducted Emission	20407 to 20643	20407, 20525, 20643	1.4 MHz	QPSK	3 RB / 0 RB Offset
		20415 to 20635	20415, 20525, 20635	3 MHz	QPSK	1 RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5 MHz	QPSK	1 RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission	20407 to 20643	20407, 20525, 20643	1.4 MHz	QPSK	3 RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5 MHz	QPSK	1 RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10 MHz	QPSK	1 RB / 0 RB Offset

Note:

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation. Therefore, only ERP, modulation characteristics, occupied bandwidth and peak to average ratio items had been tested under QPSK, 16QAM, 64QAM mode, the other items were performed under QPSK mode only.
2. For radiated emission above 1 GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5 MHz & highest channel bandwidth for final test.
3. For radiated emissions below 1 GHz, select the worst radiated emission channel for final testing.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
ERP	25 deg. C, 65 % RH	120 Vac, 60 Hz	Adair Peng
Modulation Characteristics	25 deg. C, 65 % RH	120 Vac, 60 Hz	Wayne Lin
Frequency Stability	25 deg. C, 65 % RH	3.85Vdc	Wayne Lin
Occupied Bandwidth	25 deg. C, 65 % RH	120 Vac, 60 Hz	Wayne Lin
Band Edge	25 deg. C, 65 % RH	120 Vac, 60 Hz	Wayne Lin
Peak to Average Ratio	25 deg. C, 65 % RH	120 Vac, 60 Hz	Wayne Lin
Conducted Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Wayne Lin
Radiated Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Noah Chang, Titan Hsu

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 and references

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

Test Standard:
FCC 47 CFR Part 2
FCC 47 CFR Part 22
ANSI 63.26-2015

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

References Test Guidance:
KDB 971168 D01 Power Meas License Digital Systems v03r01
ANSI/TIA/EIA-603-E 2016
3GPP TS 36.521-1 V16.3.0 (2019-12)

Note: All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 7 watts e.r.p.

4.1.2 Test Procedures

EIRP / ERP Measurement:

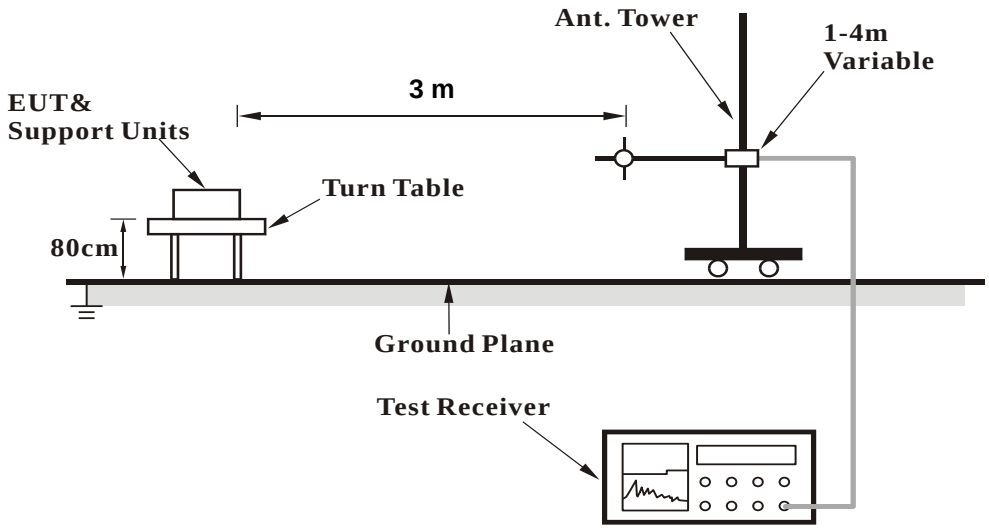
a. All measurements were done at low, middle and high operational frequency range. RBW is 1 MHz for GSM, GPRS & EDGE, and 5 MHz for WCDMA, and 5 MHz、10 MHz、15 MHz for LTE mode, VBW ≥ 3 x RBW.
b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) 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 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
c. 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 - 2.15 dB.

Conducted Power Measurement:

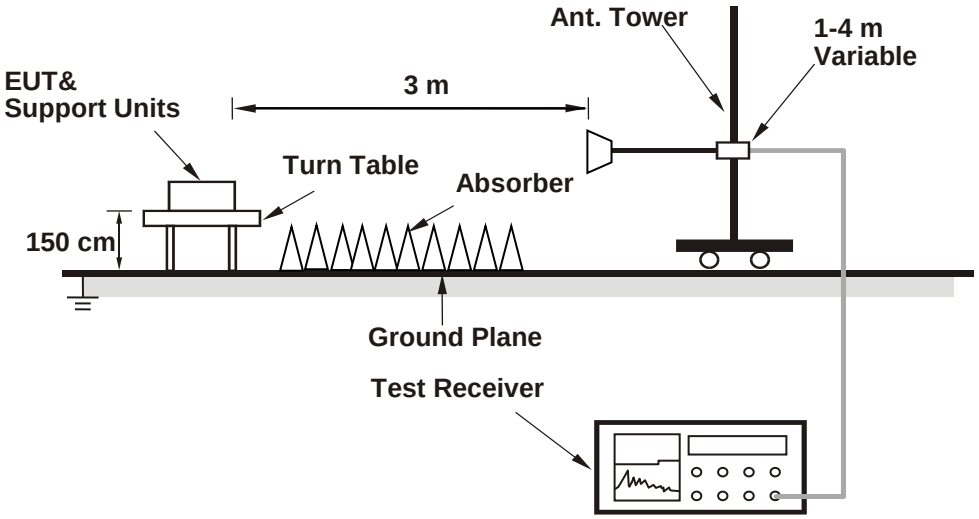
The EUT was set up for the maximum power with GSM, GPRS, EDGE, WCDMA, and LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

4.1.3 Test Setup

EIRP / ERP Measurement:
<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



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

Conducted Power Measurement:

4.1.4 Test Results

Conducted Output Power (dBm)

Band	GSM850		
Channel	128	189	251
Frequency (MHz)	824.2	836.4	848.8
GSM (GMSK, 1Tx-slot)	32.12	**32.47**	32.35
GPRS (GMSK, 1Tx-slot)	32.08	32.43	32.31
GPRS (GMSK, 2Tx-slot)	28.94	29.29	29.17
GPRS (GMSK, 3Tx-slot)	27.13	27.48	27.36
GPRS (GMSK, 4Tx-slot)	25.98	26.33	26.21
EDGE (8PSK, 1Tx-slot)	25.96	26.31	26.19
EDGE (8PSK, 2Tx-slot)	22.98	23.31	23.19
EDGE (8PSK, 3Tx-slot)	21.37	21.72	21.60
EDGE (8PSK, 4Tx-slot)	20.08	20.43	20.31

Band	WCDMA V		
Channel	4132	4182	4233
Frequency (MHz)	826.4	836.4	846.6
RMC 12.2K	23.33	23.51	**23.65**
HSDPA Subtest-1	22.31	22.53	22.68
HSDPA Subtest-2	22.29	22.56	22.69
HSDPA Subtest-3	21.77	22.14	22.19
HSDPA Subtest-4	21.74	22.15	22.20
HSUPA Subtest-1	22.26	22.29	22.41
HSUPA Subtest-2	20.28	20.27	20.39
HSUPA Subtest-3	21.28	21.27	21.46
HSUPA Subtest-4	20.31	20.28	20.44
HSUPA Subtest-5	22.20	22.30	22.40

LTE Band 5																
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20450	20525	20600				Channel		20425	20525	20625	
		Frequency (MHz)		829.0	836.5	844.0				Frequency (MHz)		826.5	836.5	846.5	
10M	QPSK	1	0	24.80	24.90	**25.01**	0	5M	QPSK	1	0	24.76	24.90	24.99	0
		1	24	24.68	24.85	24.50	0			1	12	24.61	24.78	24.46	0
		1	49	24.77	24.81	24.65	0			1	24	24.68	24.81	24.64	0
		25	0	23.97	24.08	24.12	1			12	0	23.94	24.06	24.02	1
		25	12	23.92	24.03	23.86	1			12	6	23.89	23.97	23.79	1
		25	25	23.95	24.00	23.75	1			12	13	23.93	24.00	23.65	1
		50	0	23.95	23.96	24.05	1			25	0	23.92	23.93	23.97	1
	16QAM	1	0	24.12	24.15	24.19	1		16QAM	1	0	23.11	23.20	23.30	1
		1	24	24.16	24.17	23.77	1			1	12	23.11	23.35	22.70	1
		1	49	24.18	24.12	23.79	1			1	24	23.09	23.18	22.75	1
		25	0	22.91	23.02	23.16	2			12	0	21.85	22.02	22.07	2
		25	12	22.92	23.02	23.03	2			12	6	21.82	21.94	21.93	2
		25	25	22.98	23.07	22.96	2			12	13	21.96	22.01	21.91	2
		50	0	22.95	23.00	23.16	2			25	0	21.87	21.99	22.16	2
	64QAM	1	0	23.04	23.11	23.11	2		64QAM	1	0	22.99	23.04	23.33	2
		1	24	23.07	23.14	22.76	2			1	12	22.99	23.32	22.71	2
		1	49	23.16	23.20	22.73	2			1	24	23.16	23.15	22.65	2
		25	0	21.91	21.98	22.14	3			12	0	21.82	21.92	22.14	3
		25	12	21.82	21.99	22.02	3			12	6	21.80	21.92	21.99	3
		25	25	21.95	21.98	21.90	3			12	13	21.87	21.88	21.82	3
		50	0	21.88	21.95	22.08	3			25	0	21.88	21.87	22.06	3
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20415	20525	20635				Channel		20407	20525	20643	
		Frequency (MHz)		825.5	836.5	847.5				Frequency (MHz)		824.7	836.5	848.3	
3M	QPSK	1	0	24.74	24.66	24.95	0	1.4M	QPSK	1	0	24.71	24.86	24.91	0
		1	7	24.53	24.74	24.46	0			1	2	24.59	24.77	24.33	0
		1	14	24.56	24.79	24.47	0			1	5	24.60	24.90	24.42	0
		8	0	23.88	23.90	24.09	1			3	0	24.90	24.97	24.99	0
		8	3	23.72	23.82	23.75	1			3	1	24.81	24.87	24.68	0
		8	7	23.81	23.89	23.73	1			3	3	24.75	24.90	24.57	0
		15	0	23.92	23.78	23.92	1			6	0	23.81	23.77	23.87	1
	16QAM	1	0	24.01	24.03	24.11	1		16QAM	1	0	23.90	24.03	24.14	1
		1	7	24.07	24.17	23.70	1			1	2	24.15	24.15	23.53	1
		1	14	24.02	24.15	23.55	1			1	5	23.96	24.03	23.60	1
		8	0	22.74	22.82	22.96	2			3	0	23.74	23.86	24.00	1
		8	3	22.80	22.98	22.90	2			3	1	23.82	23.95	23.85	1
		8	7	22.84	22.97	22.85	2			3	3	23.81	23.87	23.82	1
		15	0	22.88	22.96	23.04	2			6	0	22.83	22.94	23.05	2
	64QAM	1	0	23.01	23.00	23.13	2		64QAM	1	0	22.95	22.93	22.94	2
		1	7	22.92	23.11	22.68	2			1	2	23.07	23.20	22.66	2
		1	14	22.97	23.06	22.54	2			1	5	23.05	22.99	22.57	2
		8	0	21.78	21.82	22.02	3			3	0	22.85	22.79	23.05	2
		8	3	21.66	21.84	21.85	3			3	1	22.66	22.89	22.79	2
		8	7	21.89	21.76	21.75	3			3	3	22.85	22.77	22.78	2
		15	0	21.82	21.78	21.89	3			6	0	21.75	21.81	21.92	3

ERP Power (dBm)

GSM 850

Mode		TX Channel 128, 189, 251					
Antenna Polarity & Test Distance : Horizontal at 3 m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.2	-3.6	28.8	0.0	28.8	38.5	-9.7
2	836.4	-3.4	29.0	0.2	29.2	38.5	-9.3
3	848.8	-3.9	27.7	0.5	28.2	38.5	-10.3
Antenna Polarity & Test Distance : Vertical at 3m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.2	-10.5	22.9	0.0	22.9	38.5	-15.6
2	836.4	-9.2	24.0	0.2	24.2	38.5	-14.3
3	848.8	-10.3	22.3	0.5	22.8	38.5	-15.7

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

EDGE 850

Mode		TX Channel 128, 189, 251					
Antenna Polarity & Test Distance : Horizontal at 3 m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.2	-9.8	22.6	0.0	22.6	38.5	-15.9
2	836.4	-9.4	23.0	0.2	23.2	38.5	-15.3
3	848.8	-10.0	21.6	0.5	22.1	38.5	-16.4
Antenna Polarity & Test Distance : Vertical at 3m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.2	-16.5	16.9	0.0	16.9	38.5	-21.6
2	836.4	-16.2	17.0	0.2	17.2	38.5	-21.3
3	848.8	-16.3	16.3	0.5	16.8	38.5	-21.7

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

WCDMA Band 5

Mode		TX Channel 4132, 4182, 4233					
Antenna Polarity & Test Distance : Horizontal at 3 m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.4	-12.1	20.1	0.0	20.1	38.5	-18.4
2	836.4	-12.0	20.4	0.2	20.6	38.5	-17.9
3	846.6	-11.8	20.0	0.4	20.4	38.5	-18.1
Antenna Polarity & Test Distance : Vertical at 3m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.4	-18.9	14.5	0.0	14.5	38.5	-24.0
2	836.4	-18.8	14.4	0.2	14.6	38.5	-23.9
3	846.6	-19.0	13.7	0.4	14.1	38.5	-24.4

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

Modulation Type: QPSK

LTE Band 5, Channel Bandwidth: 1.4MHz

Mode		TX Channel 20407, 20525, 20643					
Antenna Polarity & Test Distance : Horizontal at 3 m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.7	-11.2	21.1	0.0	21.1	38.5	-17.4
2	836.5	-11.2	21.1	0.2	21.3	38.5	-17.2
3	848.3	-10.5	21.1	0.5	21.6	38.5	-16.9
Antenna Polarity & Test Distance : Vertical at 3m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.7	-17.2	16.2	0.0	16.2	38.5	-22.3
2	836.5	-17.2	16.0	0.2	16.2	38.5	-22.3
3	848.3	-17.2	15.4	0.5	15.9	38.5	-22.6

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

LTE Band 5, Channel Bandwidth: 3MHz

Mode		TX Channel 20415, 20525, 20635					
Antenna Polarity & Test Distance : Horizontal at 3 m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	825.5	-11.6	20.7	0.0	20.7	38.5	-17.8
2	836.5	-11.3	21.0	0.2	21.2	38.5	-17.3
3	847.5	-11.0	20.7	0.4	21.1	38.5	-17.4
Antenna Polarity & Test Distance : Vertical at 3m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	825.5	-17.5	15.9	0.0	15.9	38.5	-22.6
2	836.5	-17.2	16.0	0.2	16.2	38.5	-22.3
3	847.5	-17.0	15.7	0.4	16.1	38.5	-22.4

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

LTE Band 5, Channel Bandwidth: 5MHz

Mode		TX Channel 20425, 20525, 20625					
Antenna Polarity & Test Distance : Horizontal at 3 m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.5	-10.9	21.4	0.0	21.4	38.5	-17.1
2	836.5	-11.6	20.7	0.2	20.9	38.5	-17.6
3	846.5	-10.9	20.8	0.4	21.2	38.5	-17.3
Antenna Polarity & Test Distance : Vertical at 3m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.5	-17.4	16.0	0.0	16.0	38.5	-22.5
2	836.5	-17.0	16.2	0.2	16.4	38.5	-22.1
3	846.5	-16.8	15.9	0.4	16.3	38.5	-22.2

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

LTE Band 5, Channel Bandwidth: 10MHz

Mode		TX Channel 20450, 20525, 20600					
Antenna Polarity & Test Distance : Horizontal at 3 m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	829.0	-11.2	21.2	0.1	21.3	38.5	-17.2
2	836.5	-10.9	21.4	0.2	21.6	38.5	-16.9
3	844.0	-11.4	20.7	0.4	21.1	38.5	-17.4
Antenna Polarity & Test Distance : Vertical at 3m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	829.0	-17.6	15.7	0.1	15.8	38.5	-22.7
2	836.5	-17.7	15.5	0.2	15.7	38.5	-22.8
3	844.0	-17.0	16.0	0.4	16.4	38.5	-22.1

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

Modulation Type: 16QAM

LTE Band 5, Channel Bandwidth: 1.4MHz

Mode		TX Channel 20407, 20525, 20643					
Antenna Polarity & Test Distance : Horizontal at 3 m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.7	-12.1	20.3	0.0	20.3	38.5	-18.2
2	836.5	-12.0	20.3	0.2	20.5	38.5	-18.0
3	848.3	-11.3	20.3	0.5	20.8	38.5	-17.7
Antenna Polarity & Test Distance : Vertical at 3m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.7	-18.2	15.1	0.0	15.1	38.5	-23.4
2	836.5	-18.2	15.0	0.2	15.2	38.5	-23.3
3	848.3	-17.6	15.0	0.5	15.5	38.5	-23.0

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

LTE Band 5, Channel Bandwidth: 3MHz

Mode		TX Channel 20415, 20525, 20635					
Antenna Polarity & Test Distance : Horizontal at 3 m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	825.5	-12.8	19.5	0.0	19.5	38.5	-19.0
2	836.5	-12.3	20.0	0.2	20.2	38.5	-18.3
3	847.5	-12.1	19.6	0.4	20.0	38.5	-18.5
Antenna Polarity & Test Distance : Vertical at 3m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	825.5	-18.0	15.4	0.0	15.4	38.5	-23.1
2	836.5	-18.6	14.6	0.2	14.8	38.5	-23.7
3	847.5	-17.9	14.8	0.4	15.2	38.5	-23.3

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

LTE Band 5, Channel Bandwidth: 5MHz

Mode		TX Channel 20425, 20525, 20625					
Antenna Polarity & Test Distance : Horizontal at 3 m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.5	-11.8	20.5	0.0	20.5	38.5	-18.0
2	836.5	-12.4	19.9	0.2	20.1	38.5	-18.4
3	846.5	-12.0	19.7	0.4	20.1	38.5	-18.4
Antenna Polarity & Test Distance : Vertical at 3m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.5	-18.5	14.9	0.0	14.9	38.5	-23.6
2	836.5	-18.7	14.5	0.2	14.7	38.5	-23.8
3	846.5	-17.5	15.2	0.4	15.6	38.5	-22.9

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

LTE Band 5, Channel Bandwidth: 10MHz

Mode		TX Channel 20450, 20525, 20600					
Antenna Polarity & Test Distance : Horizontal at 3 m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	829.0	-12.0	20.4	0.1	20.5	38.5	-18.0
2	836.5	-11.9	20.4	0.2	20.6	38.5	-17.9
3	844.0	-12.6	19.5	0.4	19.9	38.5	-18.6
Antenna Polarity & Test Distance : Vertical at 3m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	829.0	-18.7	14.6	0.1	14.7	38.5	-23.8
2	836.5	-18.2	14.9	0.2	15.1	38.5	-23.4
3	844.0	-18.0	15.0	0.4	15.4	38.5	-23.1

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

Modulation Type: 64QAM

LTE Band 5, Channel Bandwidth: 1.4MHz

Mode		TX Channel 20407, 20525, 20643					
Antenna Polarity & Test Distance : Horizontal at 3 m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.7	-12.7	19.7	0.0	19.7	38.5	-18.8
2	836.5	-12.6	19.7	0.2	19.9	38.5	-18.6
3	848.3	-11.8	19.8	0.5	20.3	38.5	-18.2
Antenna Polarity & Test Distance : Vertical at 3m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.7	-18.7	14.7	0.0	14.7	38.5	-23.8
2	836.5	-18.8	14.4	0.2	14.6	38.5	-23.9
3	848.3	-18.0	14.6	0.5	15.1	38.5	-23.4

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

LTE Band 5, Channel Bandwidth: 3MHz

Mode		TX Channel 20415, 20525, 20635					
Antenna Polarity & Test Distance : Horizontal at 3 m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	825.5	-13.2	19.0	0.0	19.0	38.5	-19.5
2	836.5	-12.8	19.5	0.2	19.7	38.5	-18.8
3	847.5	-12.8	19.0	0.4	19.4	38.5	-19.1
Antenna Polarity & Test Distance : Vertical at 3m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	825.5	-18.4	15.0	0.0	15.0	38.5	-23.5
2	836.5	-19.2	14.0	0.2	14.2	38.5	-24.3
3	847.5	-18.5	14.2	0.4	14.6	38.5	-23.9

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

LTE Band 5, Channel Bandwidth: 5MHz

Mode		TX Channel 20425, 20525, 20625					
Antenna Polarity & Test Distance : Horizontal at 3 m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.5	-12.1	20.1	0.0	20.1	38.5	-18.4
2	836.5	-12.8	19.5	0.2	19.7	38.5	-18.8
3	846.5	-12.4	19.3	0.4	19.7	38.5	-18.8
Antenna Polarity & Test Distance : Vertical at 3m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.5	-19.0	14.4	0.0	14.4	38.5	-24.1
2	836.5	-19.2	13.9	0.2	14.1	38.5	-24.4
3	846.5	-18.0	14.7	0.4	15.1	38.5	-23.4

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

LTE Band 5, Channel Bandwidth: 10MHz

Mode		TX Channel 20450, 20525, 20600					
Antenna Polarity & Test Distance : Horizontal at 3 m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	829.0	-12.6	19.8	0.1	19.9	38.5	-18.6
2	836.5	-12.5	19.8	0.2	20.0	38.5	-18.5
3	844.0	-13.2	18.9	0.4	19.3	38.5	-19.2
Antenna Polarity & Test Distance : Vertical at 3m							
No	Frequency (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	829.0	-19.2	14.0	0.1	14.1	38.5	-24.4
2	836.5	-18.6	14.6	0.2	14.8	38.5	-23.7
3	844.0	-18.6	14.4	0.4	14.8	38.5	-23.7

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

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

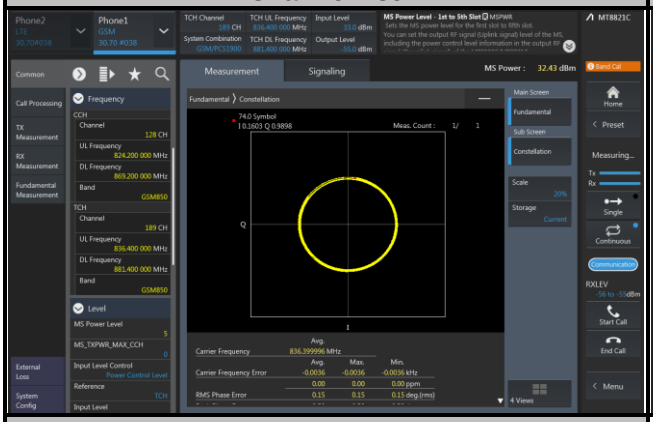
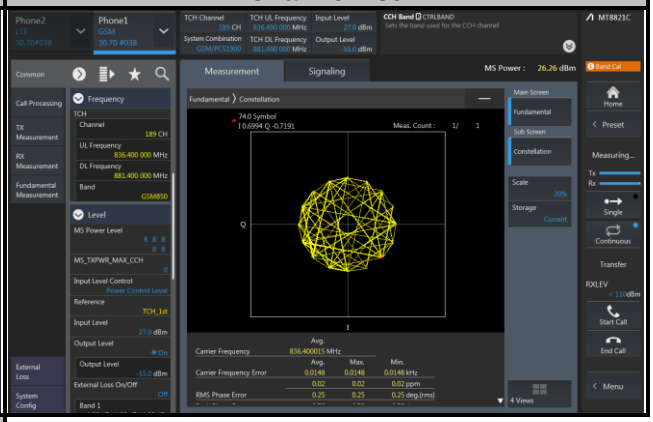
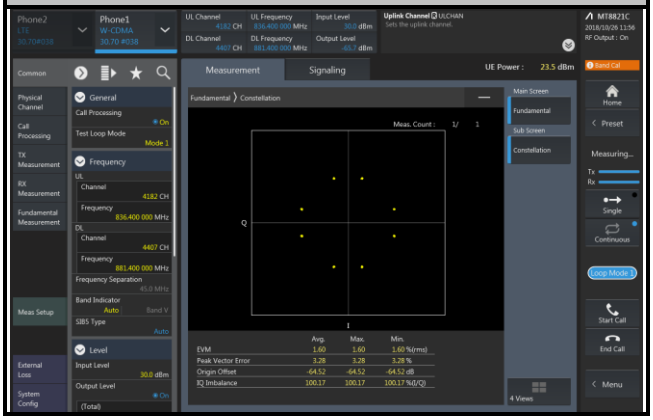
N/A

4.2.2 Test Setup

4.2.3 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.

4.2.4 Test Results

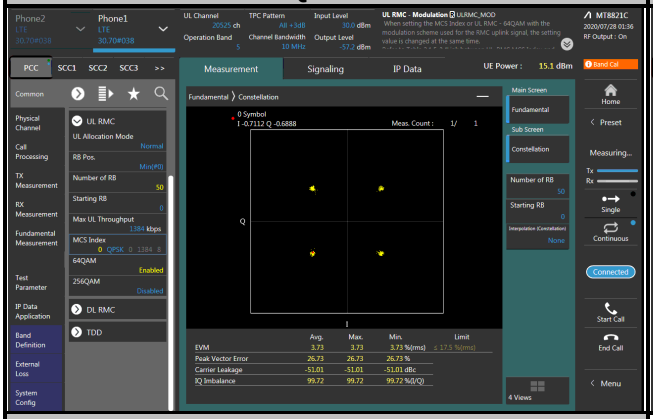
Spectrum Plot of Measurement	
GSM	**EDGE**
Channel 189	**Channel 189**
	
WCDMA	
Channel 4182	
	

Spectrum Plot of Measurement

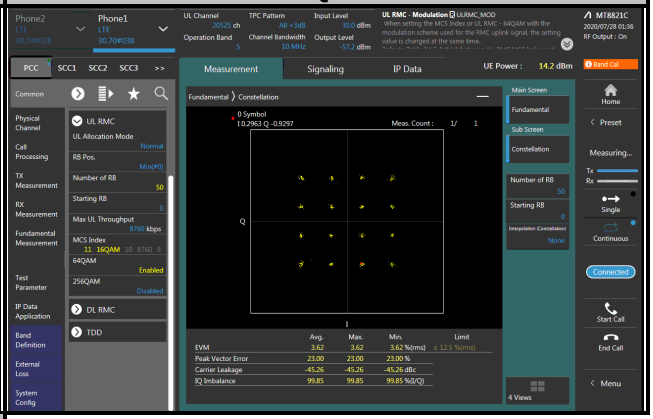
LTE Band 5

Channel 20525

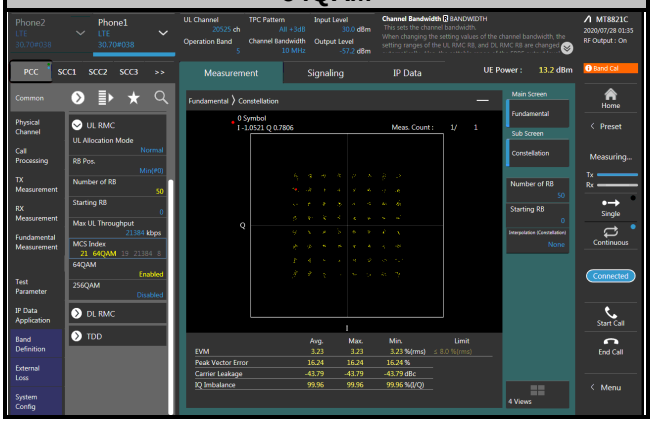
QPSK



16QAM



64QAM



4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

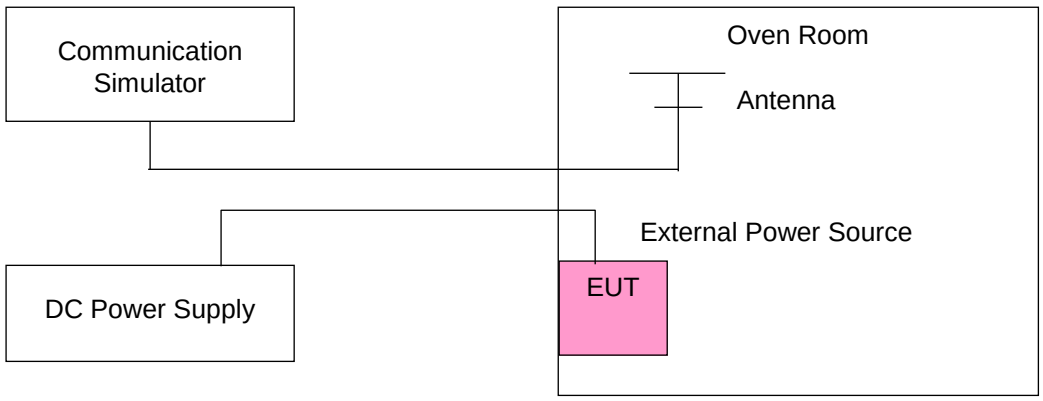
1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

4.3.2 Test Procedure

a. 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.
b. 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.
c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5 ℃ 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

Voltage (Volts)	GSM				Limit (ppm)
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	824.200003	0.004	848.800001	0.001	2.5
3.2	824.200003	0.003	848.800002	0.003	2.5
4.2	824.200004	0.005	848.800004	0.005	2.5

Note: The applicant defined the normal working voltage is from 3.2 Vdc to 4.2 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	GSM				Limit (ppm)
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-20	824.200003	0.004	848.800004	0.005	2.5
-10	824.199997	-0.004	848.799999	-0.001	2.5
0	824.199997	-0.004	848.799997	-0.004	2.5
10	824.199998	-0.002	848.799999	-0.002	2.5
20	824.199997	-0.004	848.799999	-0.001	2.5
30	824.199996	-0.004	848.799998	-0.003	2.5
40	824.199998	-0.002	848.799998	-0.002	2.5
50	824.199998	-0.003	848.799997	-0.004	2.5
60	824.199996	-0.005	848.799999	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	EDGE				Limit (ppm)
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	824.200003	0.004	848.800003	0.003	2.5
3.2	824.200001	0.001	848.800002	0.003	2.5
4.2	824.200003	0.003	848.800001	0.001	2.5

Note: The applicant defined the normal working voltage is from 3.2 Vdc to 4.2 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	EDGE				Limit (ppm)
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-20	824.200003	0.003	848.800002	0.002	2.5
-10	824.199996	-0.004	848.799999	-0.001	2.5
0	824.199997	-0.004	848.799998	-0.002	2.5
10	824.199999	-0.001	848.799997	-0.004	2.5
20	824.199998	-0.002	848.799997	-0.004	2.5
30	824.199998	-0.002	848.799998	-0.002	2.5
40	824.199996	-0.005	848.799997	-0.003	2.5
50	824.199996	-0.005	848.799996	-0.004	2.5
60	824.199998	-0.002	848.799998	-0.003	2.5

Frequency Error vs. Voltage

Voltage (Volts)	WCDMA				Limit (ppm)
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	826.400003	0.004	846.600001	0.001	2.5
3.2	826.400004	0.004	846.600002	0.002	2.5
4.2	826.400003	0.004	846.600003	0.004	2.5

Note: The applicant defined the normal working voltage is from 3.2 Vdc to 4.2 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	WCDMA				Limit (ppm)
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-20	826.400003	0.004	846.600003	0.004	2.5
-10	826.399996	-0.005	846.599998	-0.002	2.5
0	826.399997	-0.003	846.599998	-0.002	2.5
10	826.399998	-0.002	846.599998	-0.002	2.5
20	826.399998	-0.002	846.599998	-0.002	2.5
30	826.399997	-0.004	846.599998	-0.003	2.5
40	826.399998	-0.003	846.599996	-0.004	2.5
50	826.399997	-0.004	846.599997	-0.004	2.5
60	826.399999	-0.002	846.599998	-0.002	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 5				Limit (ppm)
	Channel Bandwidth: 1.4 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	824.700003	0.004	848.299999	-0.001	2.5
3.2	824.700002	0.002	848.299997	-0.003	2.5
4.2	824.700002	0.002	848.299997	-0.003	2.5

Note: The applicant defined the normal working voltage is from 3.2 Vdc to 4.2 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 5				Limit (ppm)
	Channel Bandwidth: 1.4 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-20	824.700001	0.002	848.300004	0.005	2.5
-10	824.699998	-0.002	848.300002	0.002	2.5
0	824.699996	-0.004	848.300001	0.002	2.5
10	824.699996	-0.004	848.300002	0.002	2.5
20	824.699997	-0.004	848.299997	-0.004	2.5
30	824.699996	-0.004	848.299999	-0.002	2.5
40	824.699999	-0.002	848.299998	-0.002	2.5
50	824.699999	-0.002	848.299997	-0.004	2.5
60	824.699999	-0.001	848.299999	-0.002	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 5				Limit (ppm)
	Channel Bandwidth: 3 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	825.500002	0.002	847.499998	-0.003	2.5
3.2	825.500004	0.005	847.499999	-0.002	2.5
4.2	825.500002	0.002	847.499998	-0.003	2.5

Note: The applicant defined the normal working voltage is from 3.2 Vdc to 4.2 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 5				Limit (ppm)
	Channel Bandwidth: 3 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-20	825.500002	0.002	847.500003	0.003	2.5
-10	825.499997	-0.003	847.500003	0.004	2.5
0	825.499999	-0.002	847.500002	0.003	2.5
10	825.499999	-0.002	847.500003	0.004	2.5
20	825.499998	-0.002	847.499997	-0.003	2.5
30	825.499997	-0.003	847.499996	-0.004	2.5
40	825.499996	-0.005	847.499997	-0.004	2.5
50	825.499998	-0.002	847.499997	-0.004	2.5
60	825.499997	-0.004	847.499999	-0.002	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 5				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	826.500003	0.004	846.499996	-0.004	2.5
3.2	826.500001	0.001	846.499998	-0.002	2.5
4.2	826.500002	0.002	846.499997	-0.004	2.5

Note: The applicant defined the normal working voltage is from 3.2 Vdc to 4.2 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 5				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-20	826.500003	0.004	846.500002	0.002	2.5
-10	826.499999	-0.001	846.500002	0.002	2.5
0	826.499996	-0.005	846.500002	0.002	2.5
10	826.499999	-0.001	846.500002	0.002	2.5
20	826.499999	-0.002	846.499999	-0.002	2.5
30	826.499996	-0.004	846.499998	-0.002	2.5
40	826.499998	-0.002	846.499998	-0.002	2.5
50	826.499996	-0.005	846.499996	-0.004	2.5
60	826.499998	-0.003	846.499997	-0.004	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 5				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.8	829.000002	0.003	843.999999	-0.001	2.5
3.2	829.000004	0.004	843.999998	-0.002	2.5
4.2	829.000003	0.004	843.999998	-0.002	2.5

Note: The applicant defined the normal working voltage is from 3.2 Vdc to 4.2 Vdc.

Frequency Error vs. Temperature

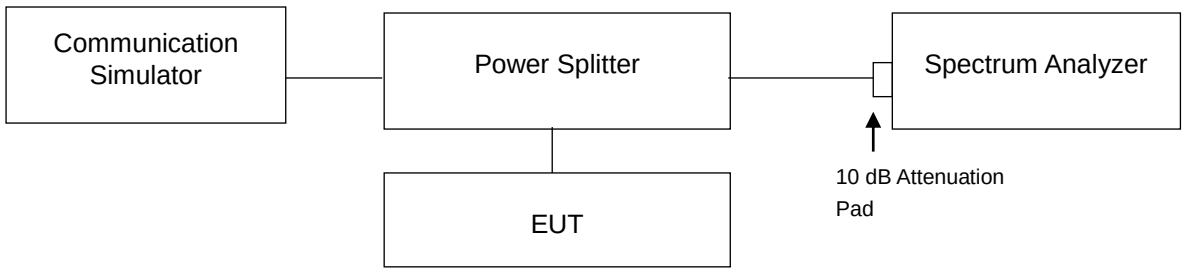
Temp. (℃)	LTE Band 5				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-20	829.000004	0.004	844.000002	0.003	2.5
-10	828.999996	-0.004	844.000004	0.005	2.5
0	828.999997	-0.003	844.000004	0.004	2.5
10	828.999999	-0.002	844.000001	0.002	2.5
20	828.999996	-0.004	843.999999	-0.002	2.5
30	828.999998	-0.003	843.999998	-0.002	2.5
40	828.999998	-0.003	843.999997	-0.004	2.5
50	828.999998	-0.002	843.999997	-0.004	2.5
60	828.999998	-0.003	843.999997	-0.004	2.5

4.4 Occupied Bandwidth Measurement

4.4.1 Test Procedure

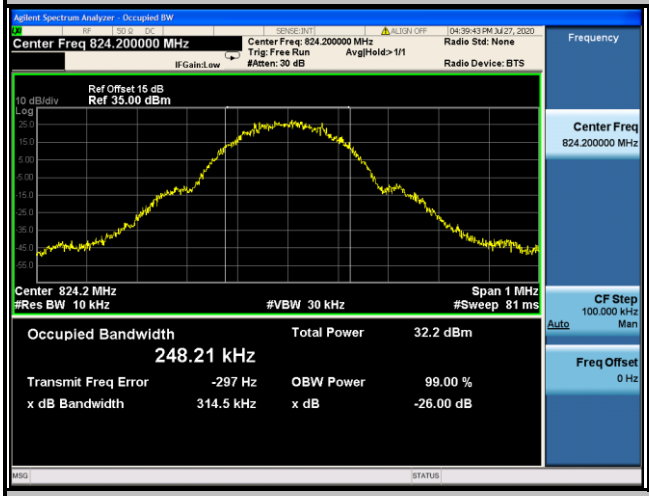
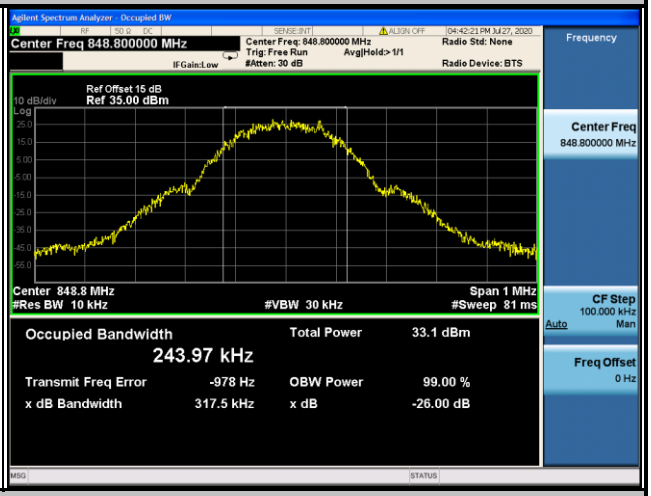
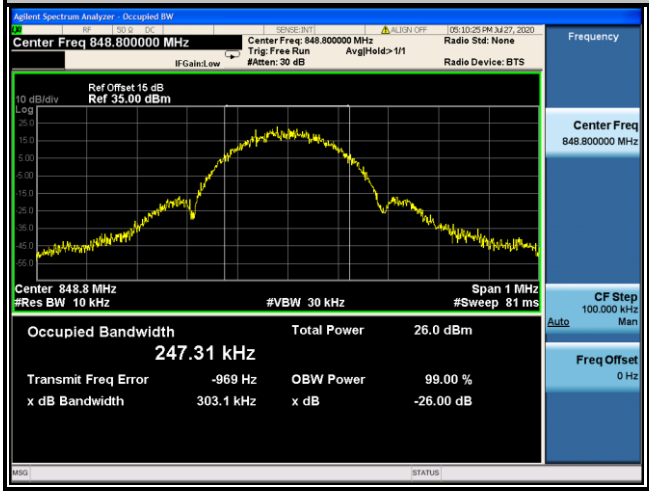
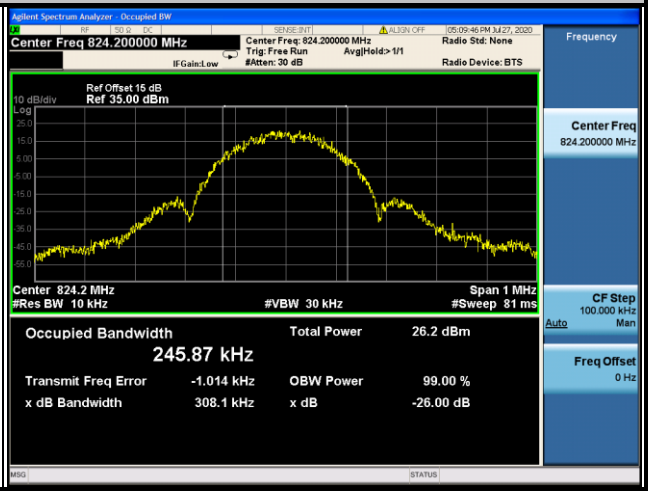
The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

4.4.2 Test Setup



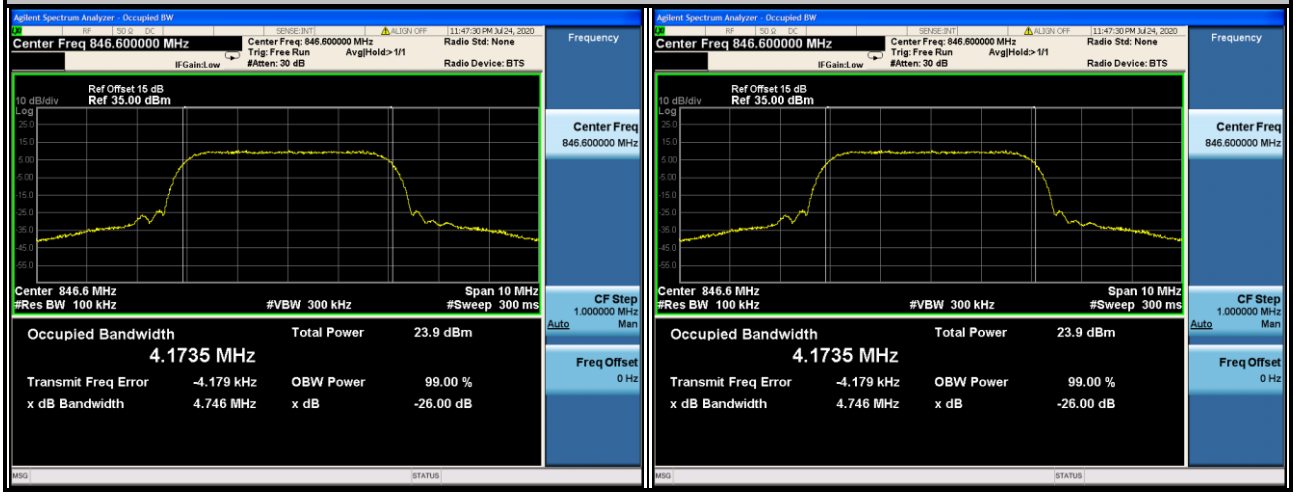
4.4.3 Test Result

GSM				EDGE			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)	Channel	Frequency (MHz)	99 % Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
128	824.2	248.21	314.50	128	824.2	245.87	308.10
189	836.4	247.67	317.20	189	836.4	246.16	308.00
251	848.8	243.97	317.50	251	848.8	247.31	303.10

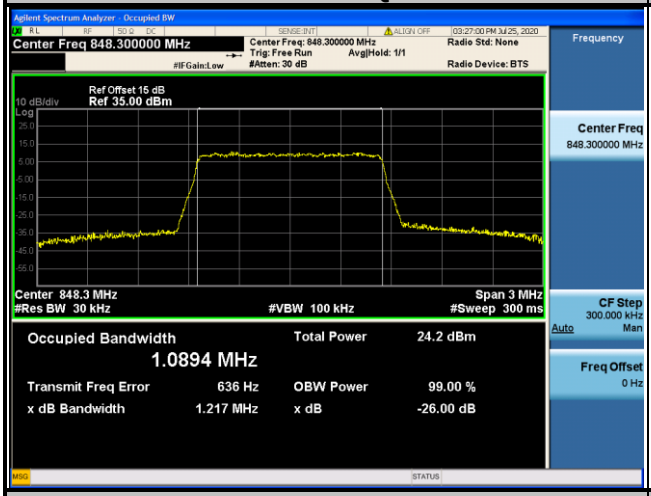
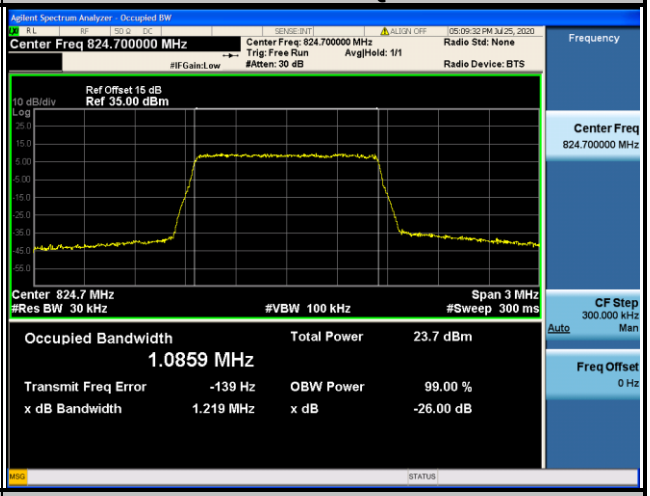
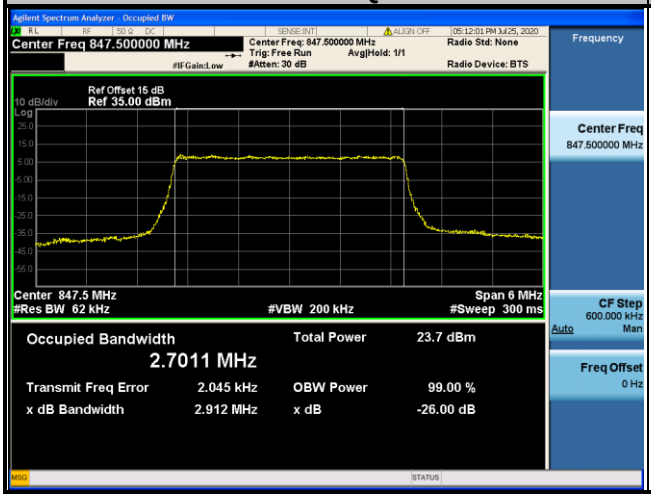
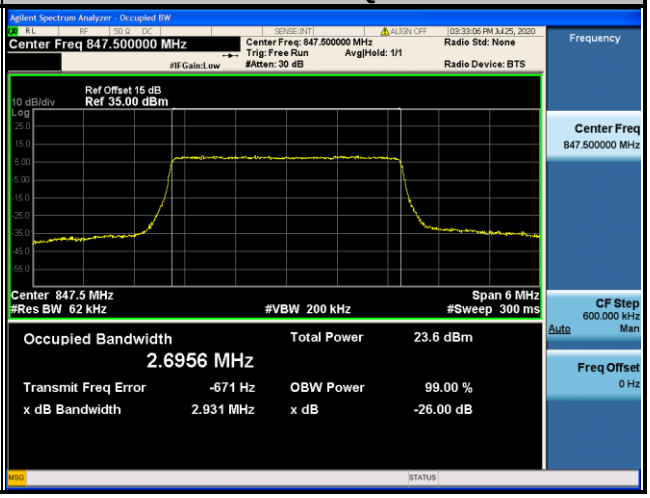
Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	26 dB Bandwidth
GSM	
	
EDGE	
	

WCDMA			
Channel	**Frequency (MHz)**	**99 % Occupied Bandwidth (MHz)**	**26 dB Bandwidth (MHz)**
4132	826.4	4.1593	4.741
4182	836.4	4.1644	4.745
4233	846.6	4.1735	4.746

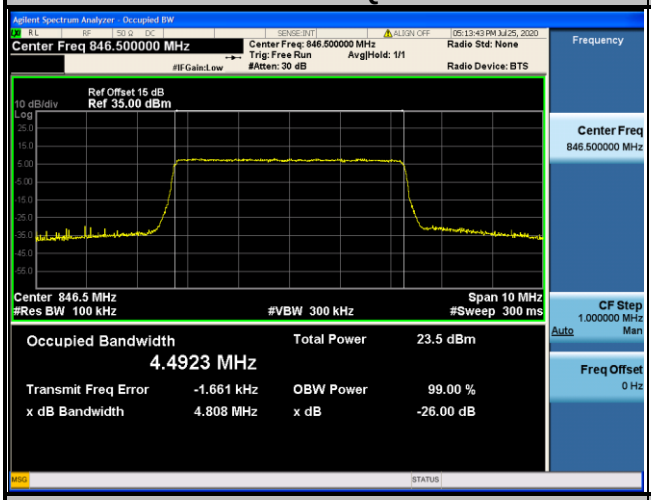
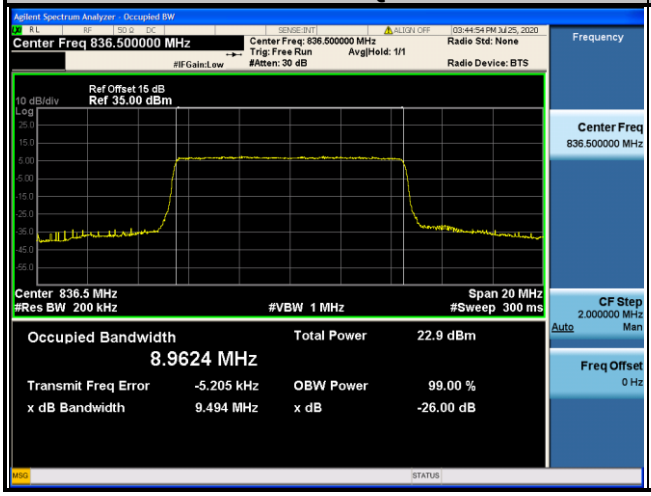
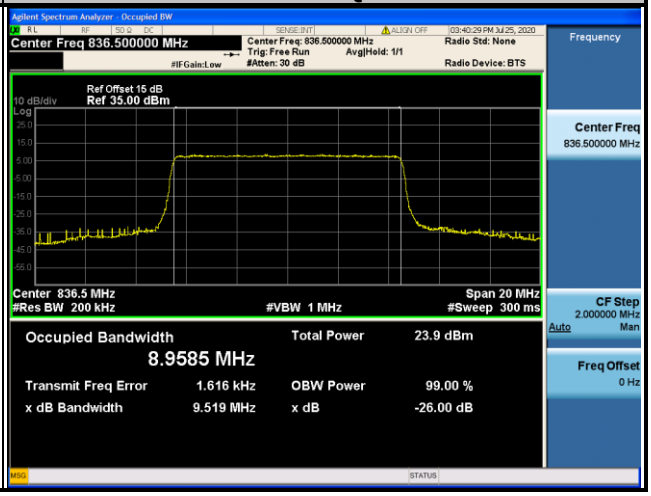
Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	**26 dB Bandwidth**
WCDMA	



LTE Band 5							
Channel Bandwidth: 1.4 MHz							
Channel	**Frequency (MHz)**	**99 % Occupied Bandwidth (MHz)**			**26 dB Bandwidth (MHz)**		
		QPSK	**16QAM**	**64QAM**	**QPSK**	**16QAM**	**64QAM**
20407	824.7	1.0860	1.0868	1.0859	1.214	1.216	1.219
20525	836.5	1.0868	1.0889	1.0861	1.216	1.213	1.211
20643	848.3	1.0867	1.0894	1.0860	1.213	1.217	1.210
Channel Bandwidth: 3 MHz							
Channel	**Frequency (MHz)**	**99 % Occupied Bandwidth (MHz)**			**26 dB Bandwidth (MHz)**		
		QPSK	**16QAM**	**64QAM**	**QPSK**	**16QAM**	**64QAM**
20415	825.5	2.6963	2.6949	2.7009	2.907	2.923	2.919
20525	836.5	2.6967	2.6945	2.6998	2.913	2.924	2.924
20635	847.5	2.6992	2.6956	2.7011	2.920	2.931	2.912

Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	**26 dB Bandwidth**
1.4 MHz / 16QAM	**1.4 MHz / 64QAM**
	
3 MHz / 64QAM	**3 MHz / 16QAM**
	

LTE Band 5							
Channel Bandwidth: 5 MHz							
Channel	**Frequency (MHz)**	**99 % Occupied Bandwidth (MHz)**			**26 dB Bandwidth (MHz)**		
		QPSK	**16QAM**	**64QAM**	**QPSK**	**16QAM**	**64QAM**
20425	826.5	4.4860	4.4876	4.4846	4.801	4.783	4.797
20525	836.5	4.4870	4.4885	4.4893	4.785	4.798	4.796
20625	846.5	4.4898	4.4920	4.4923	4.803	4.806	4.808
Channel Bandwidth: 10 MHz							
Channel	**Frequency (MHz)**	**99 % Occupied Bandwidth (MHz)**			**26 dB Bandwidth (MHz)**		
		QPSK	**16QAM**	**64QAM**	**QPSK**	**16QAM**	**64QAM**
20450	829.0	8.9477	8.9509	8.9483	9.487	9.497	9.503
20525	836.5	8.9585	8.9624	8.9579	9.519	9.494	9.497
20600	844.0	8.9552	8.9548	8.9574	9.495	9.497	9.504

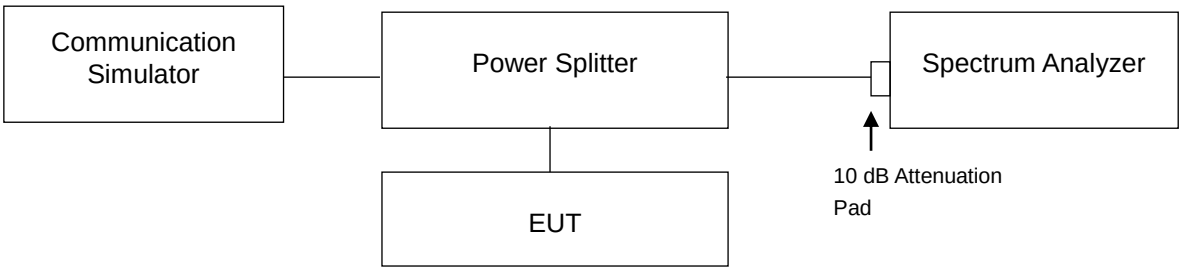
Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	**26 dB Bandwidth**
5 MHz / 64QAM	**5 MHz / 64QAM**
	
10 MHz / 16QAM	**10 MHz / QPSK**
	

4.5 Band Edge Measurement

4.5.1 Limits of Band Edge Measurement

Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

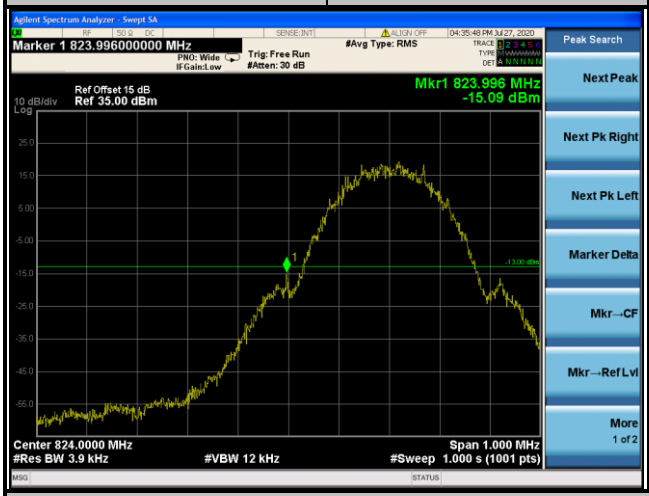
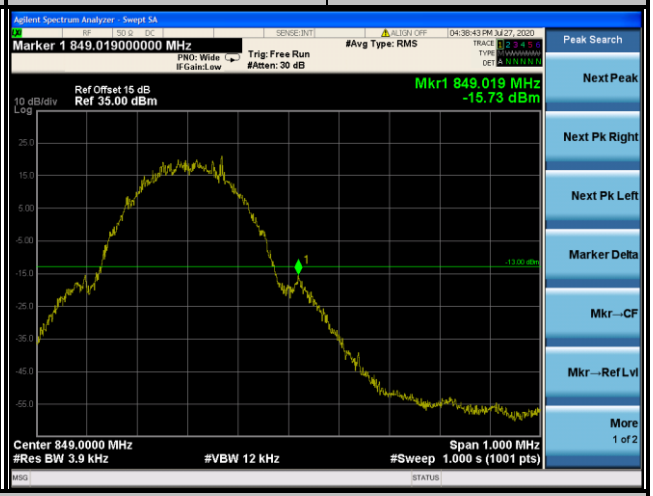
4.5.2 Test Setup

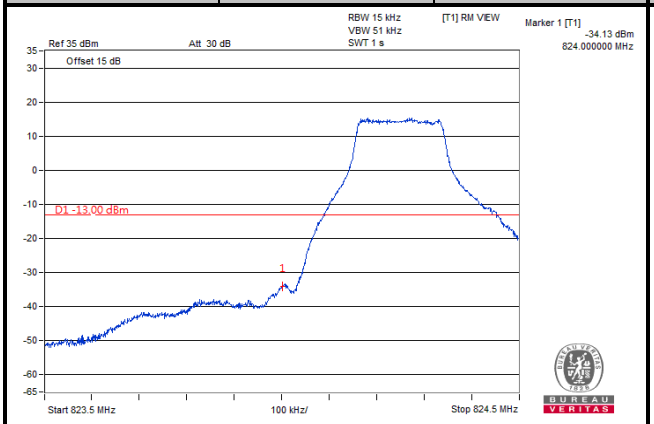
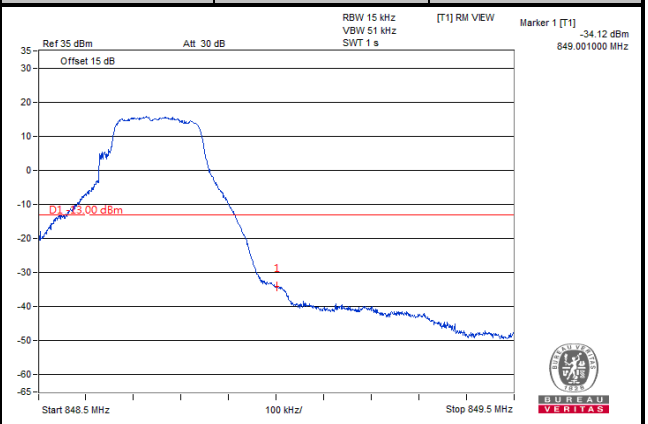
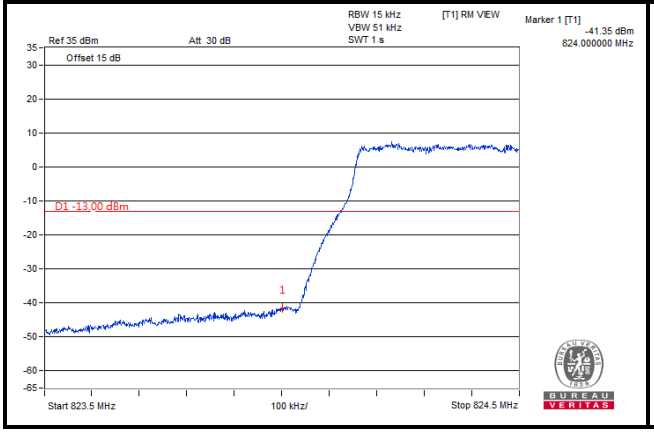
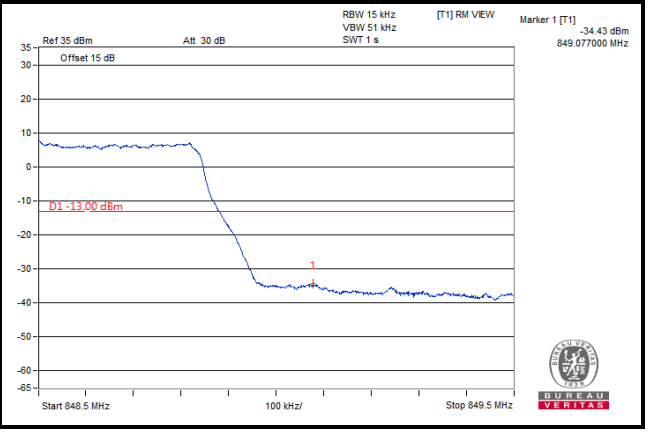


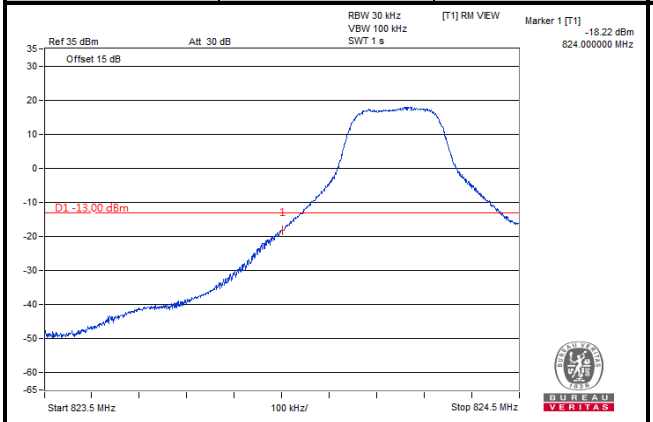
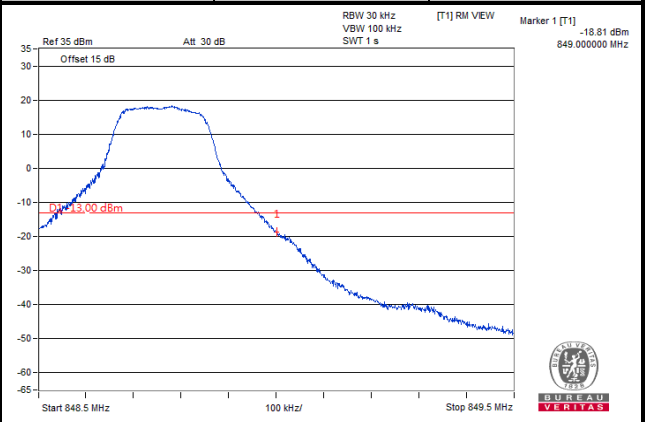
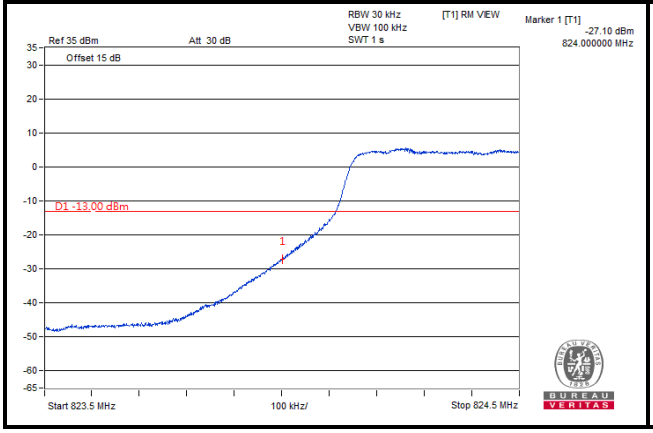
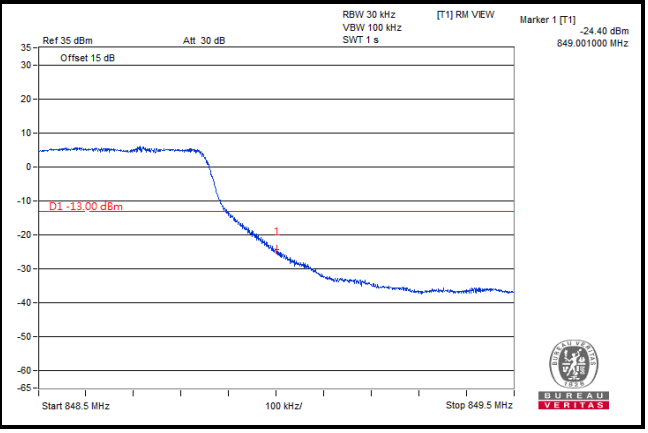
4.5.3 Test Procedures

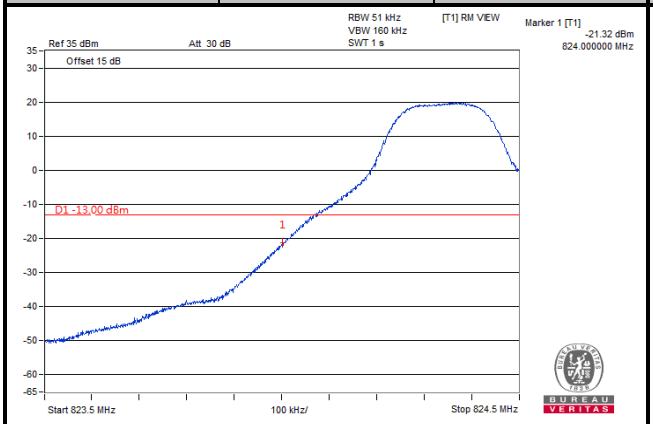
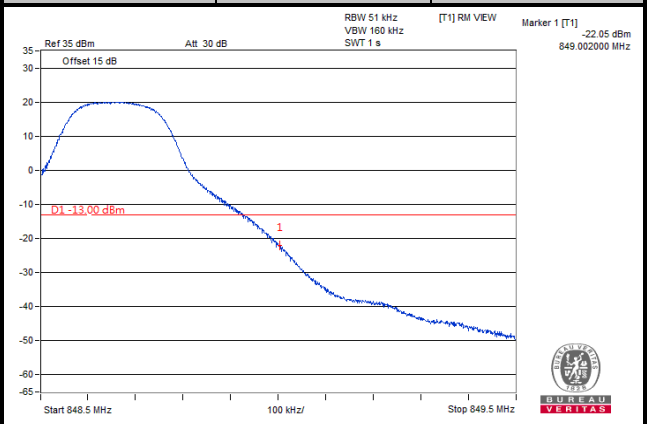
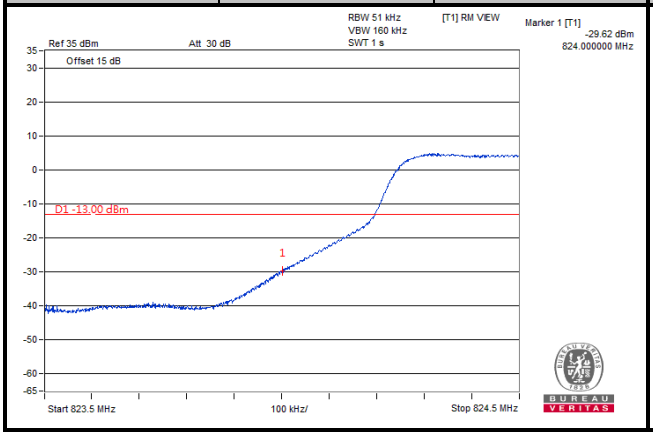
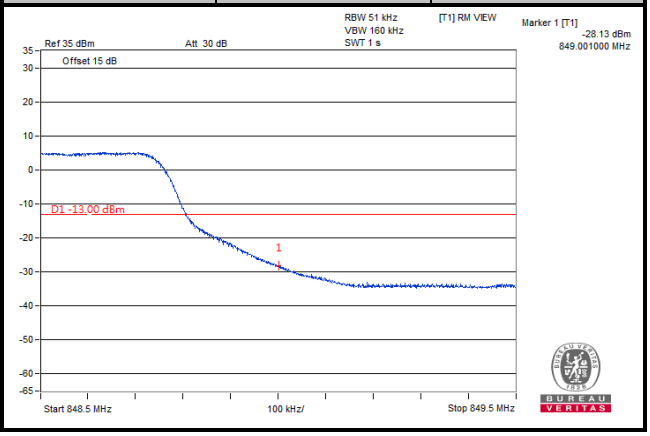
a. All measurements were done at low and high operational frequency range.
b. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 3.9 kHz and VB of the spectrum is 12 kHz (GSM/GPRS/EDGE).
c. The center frequency of spectrum is the band edge frequency and span is 5 MHz. RB of the spectrum is 51 kHz and VB of the spectrum is 160 kHz (WCDMA).
d. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 15 kHz and VB of the spectrum is 51 kHz (LTE Bandwidth 1.4 MHz).
e. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 30 kHz and VB of the spectrum is 100 kHz (LTE Bandwidth 3 MHz).
f. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 51 kHz and VB of the spectrum is 160 kHz (LTE Bandwidth 5 MHz).
g. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 100 kHz and VB of the spectrum is 300 kHz (LTE Bandwidth 10 MHz).
h. Record the max trace plot into the test report.

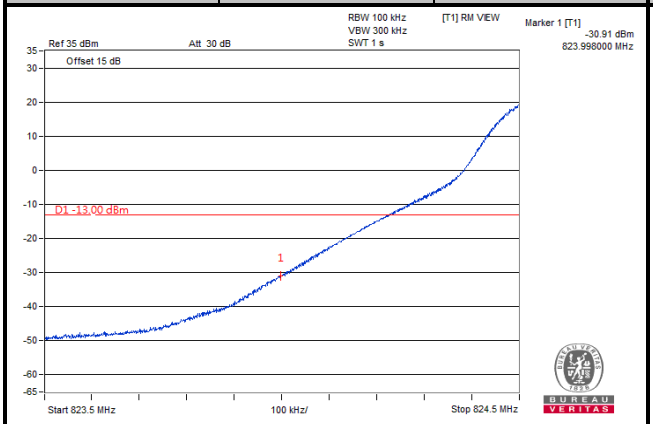
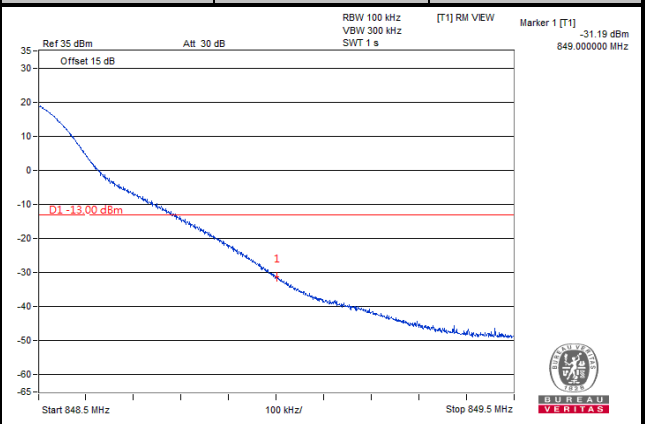
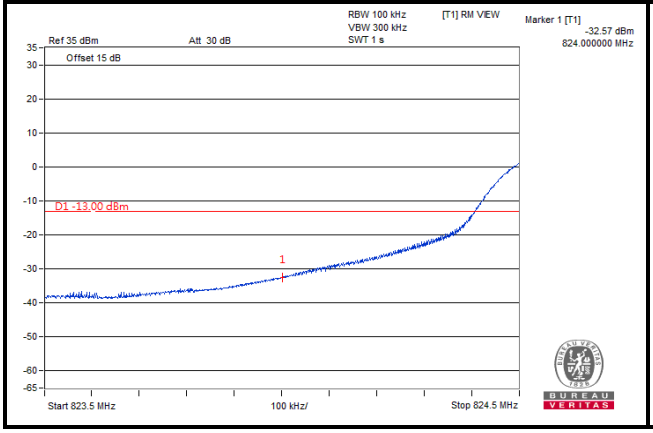
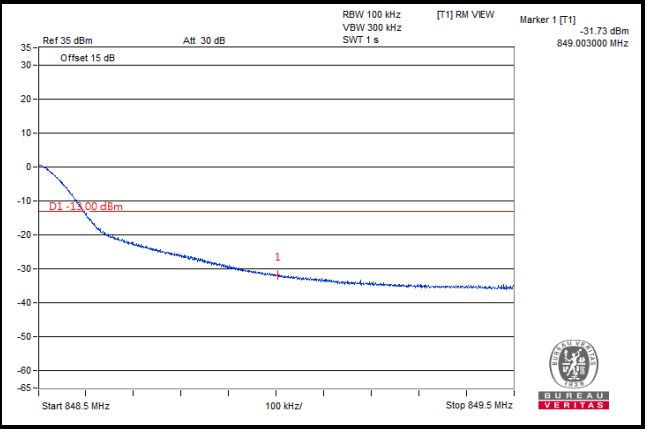
4.5.4 Test Results

GSM			
Channel	128	Channel	251
			
EDGE			
Channel	128	Channel	251
			
WCDMA			
Channel	4132	Channel	4233
			

LTE Band 5					
Channel Bandwidth: 1.4 MHz					
Channel	20407	1 RB	Channel	20643	1 RB
					
Channel	20407	6 RB	Channel	20643	6 RB
					

LTE Band 5					
Channel Bandwidth: 3 MHz					
Channel	20415	1 RB	Channel	20635	1 RB
					
Channel	20415	15 RB	Channel	20635	15 RB
					

LTE Band 5					
Channel Bandwidth: 5 MHz					
Channel	20425	1 RB	Channel	20625	1 RB
					
Channel	20425	25 RB	Channel	20625	25 RB
					

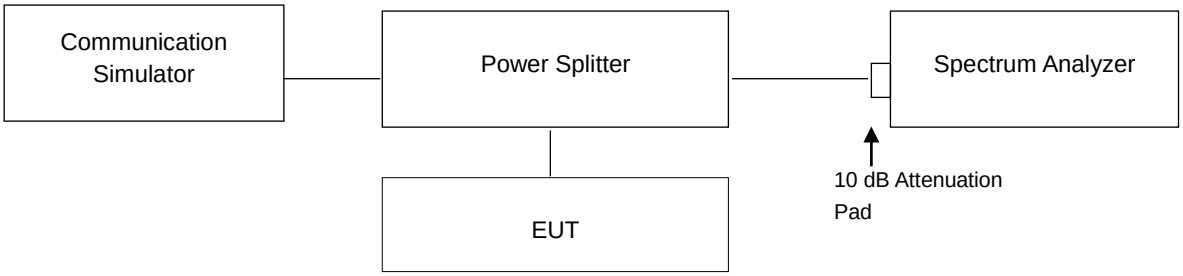
LTE Band 5					
Channel Bandwidth: 10 MHz					
Channel	20450	1 RB	Channel	20600	1 RB
					
Channel	20450	50 RB	Channel	20600	50 RB
					

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

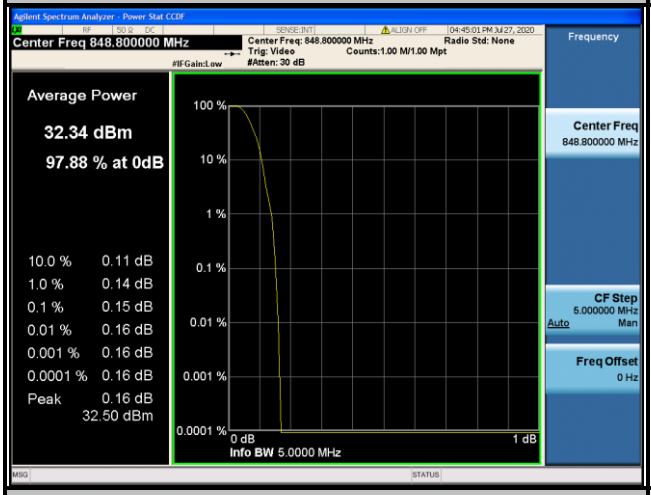
1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1 %.

4.6.4 Test Results

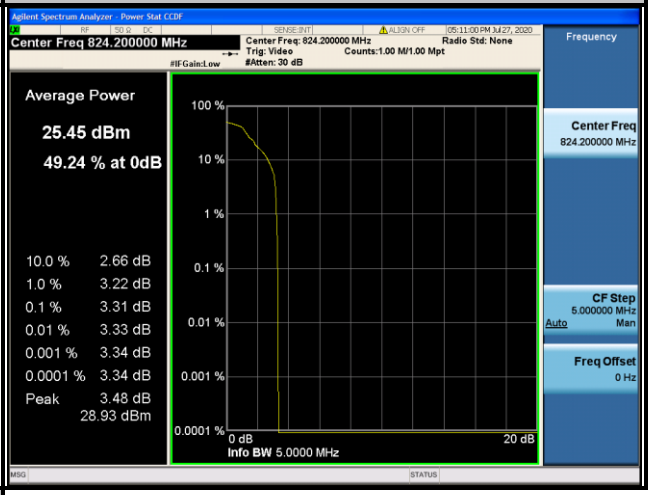
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)
		GSM	EDGE			WCDMA
128	824.2	0.13	3.31	4132	826.4	2.86
189	836.4	0.14	3.25	4182	836.4	2.81
251	848.8	0.15	3.25	4233	846.6	2.84

Spectrum Plot of Worst Value

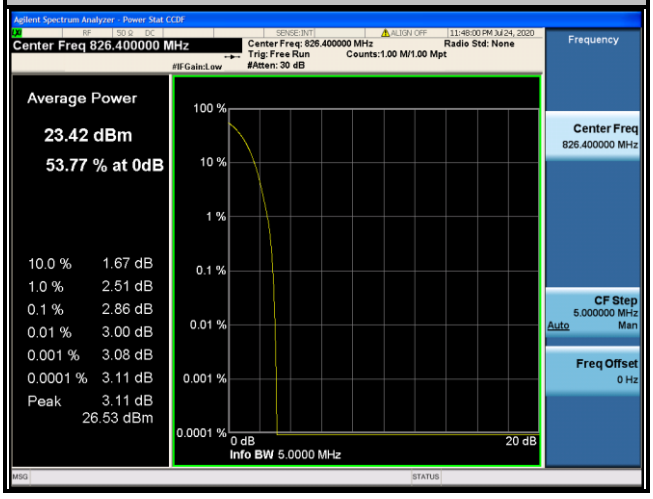
GSM



EDGE

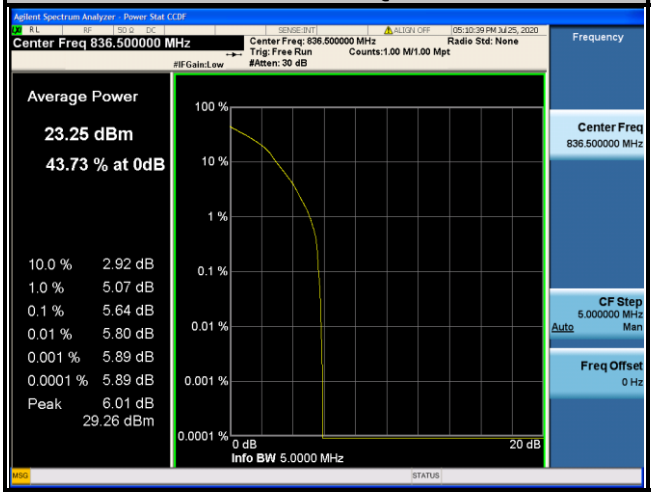


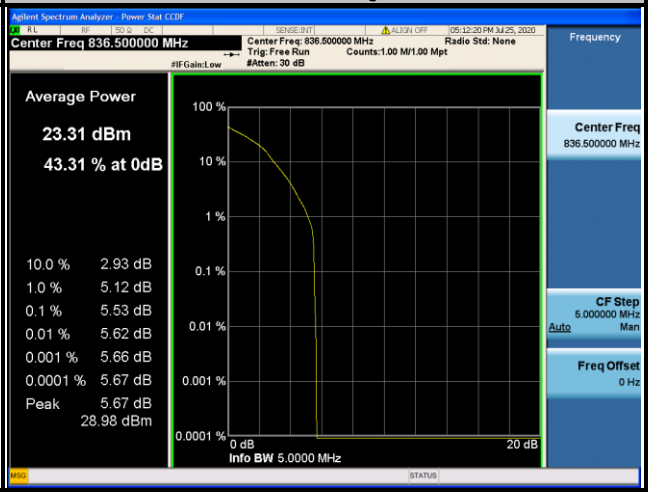
WCDMA



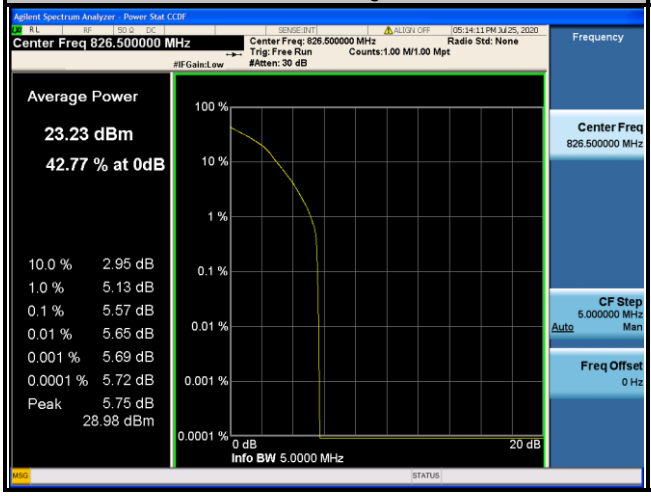
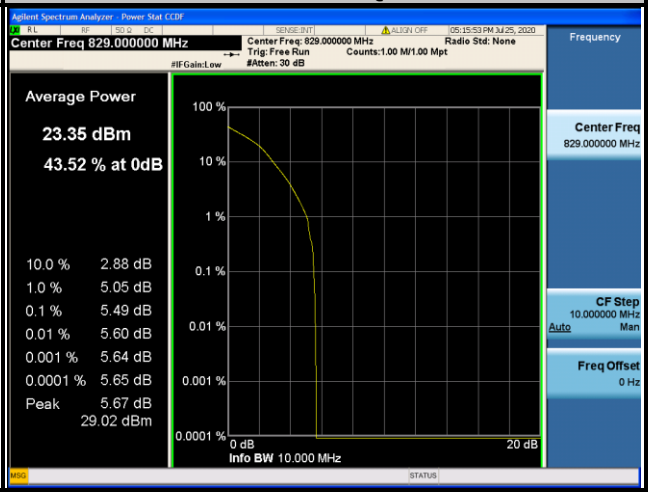
LTE Band 5									
Channel Bandwidth: 1.4 MHz					Channel Bandwidth: 3 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
20407	824.7	3.82	5.47	5.49	20415	825.5	3.51	5.31	5.44
20525	836.5	3.83	5.53	5.64	20525	836.5	3.55	5.39	5.53
20643	848.3	3.83	4.83	4.82	20635	847.5	3.53	4.31	4.26

Spectrum Plot of Worst Value	
1.4 MHz / 64QAM	3 MHz / 64QAM





LTE Band 5									
Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
Channel	Frequency (MHz)	Peak to Average Ratio (dB)			Channel	Frequency (MHz)	Peak to Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
20425	826.5	3.56	5.33	5.57	20450	829.0	3.54	5.28	5.49
20525	836.5	3.63	5.40	5.41	20525	836.5	3.56	5.26	5.39
20625	846.5	3.57	4.36	4.35	20600	844.0	3.67	5.22	5.39

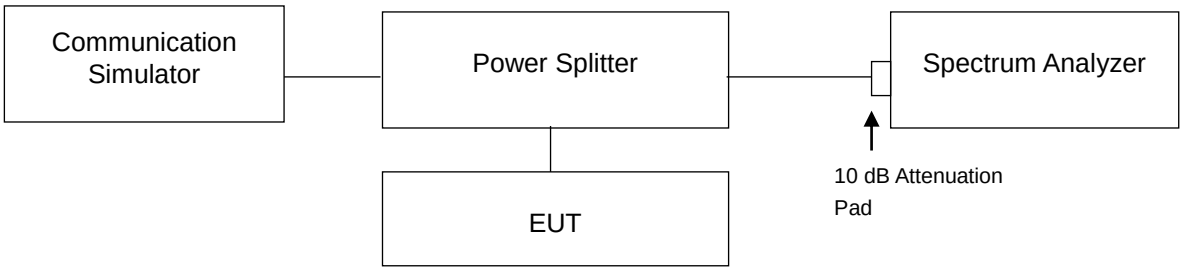
Spectrum Plot of Worst Value	
5 MHz / 64QAM	10 MHz / 64QAM
	

4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to -13 dBm.

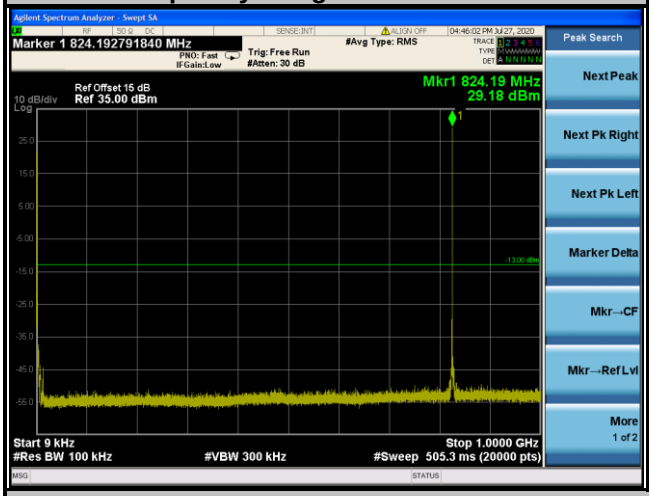
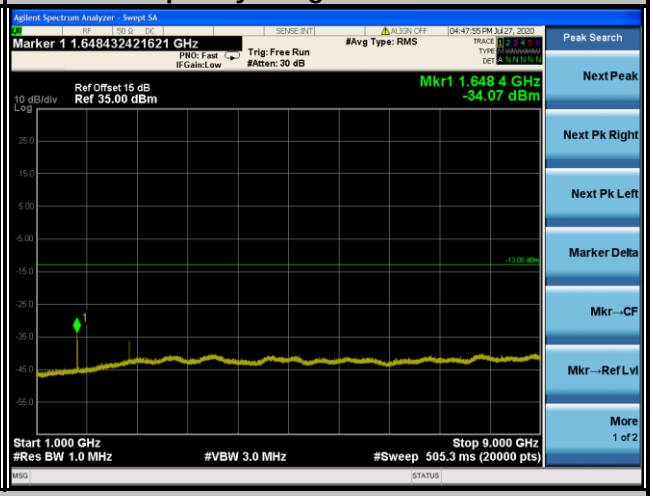
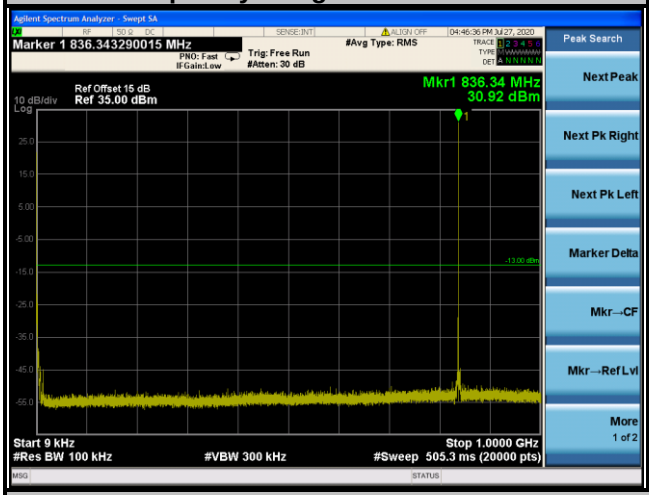
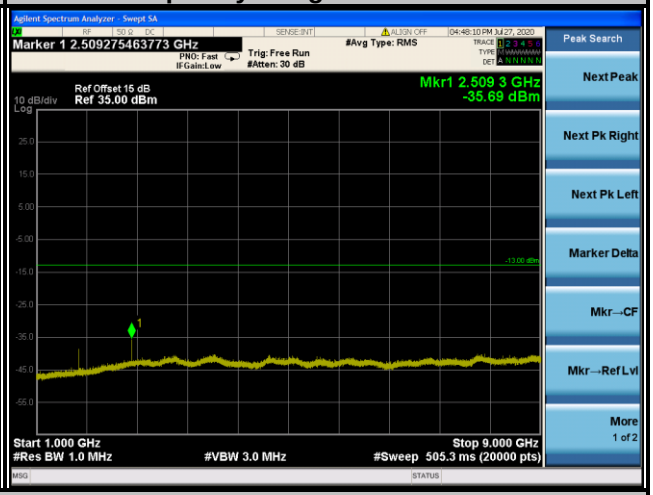
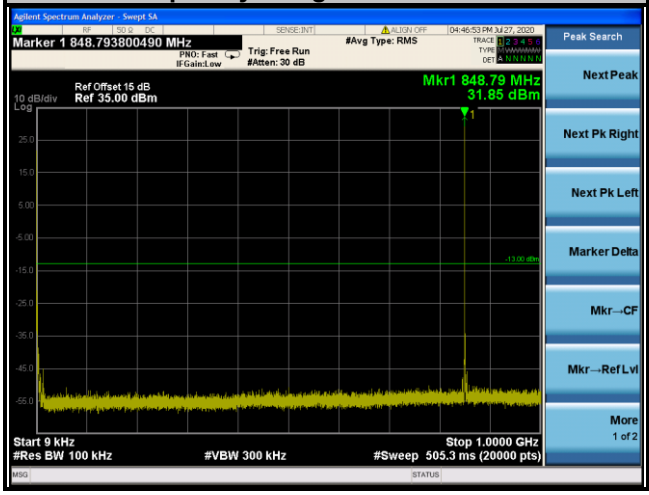
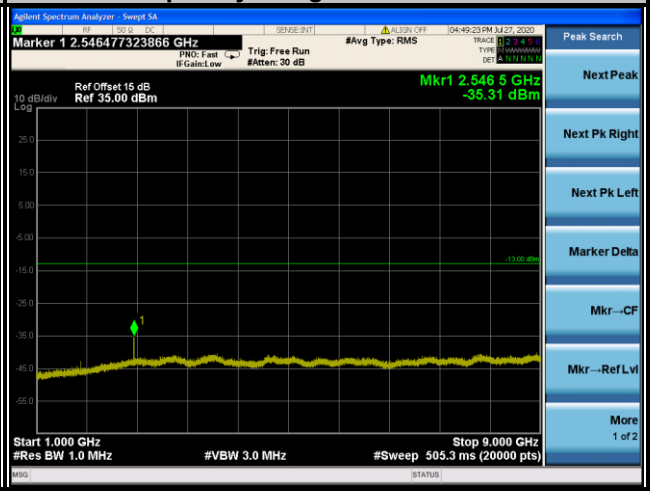
4.7.2 Test Setup



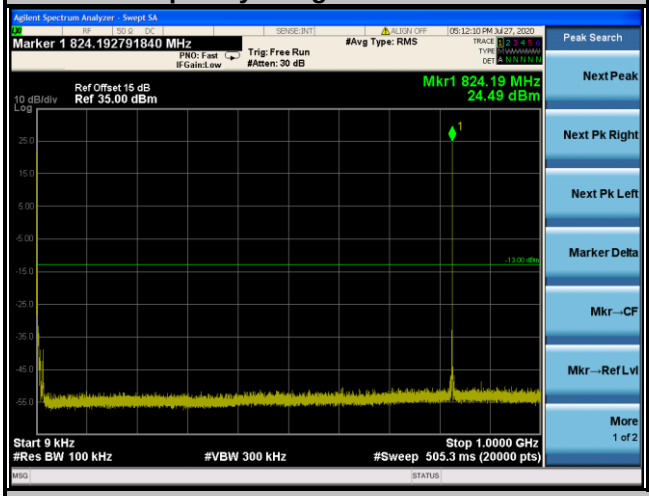
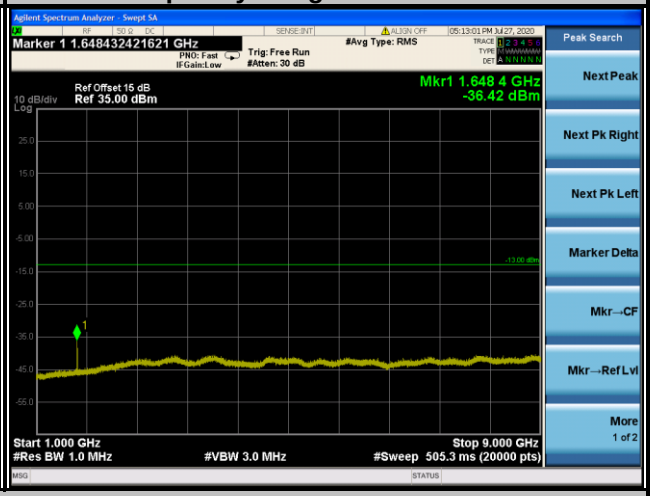
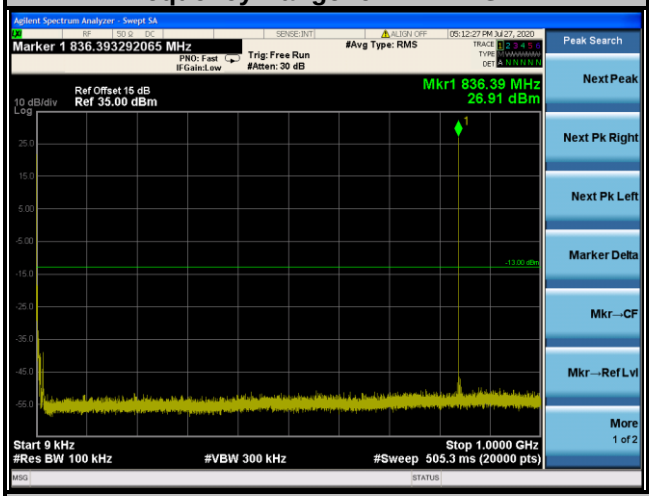
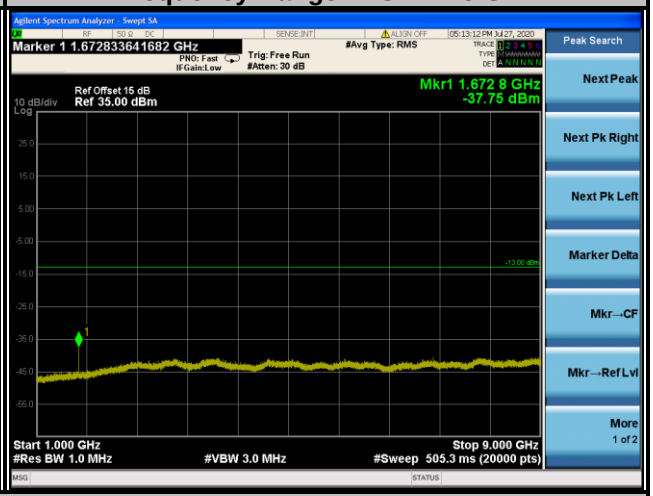
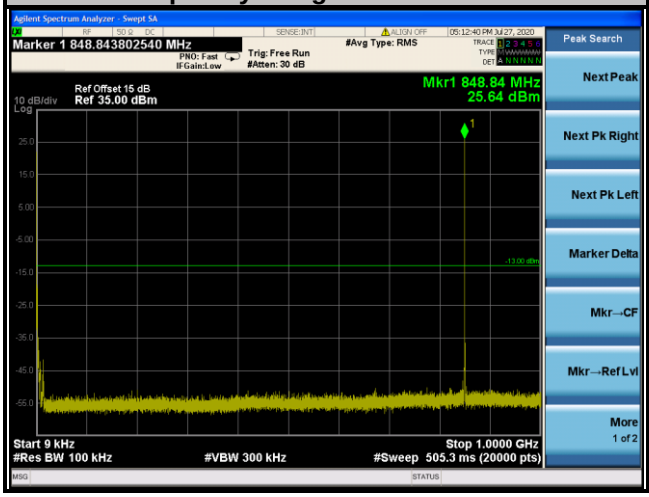
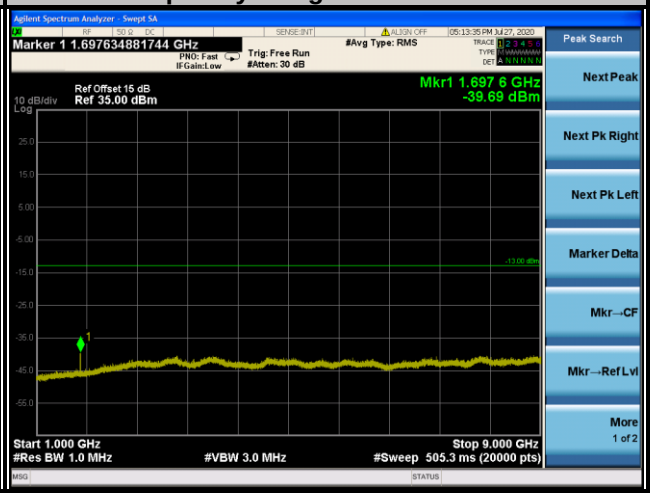
4.7.3 Test Procedure

a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
b. Measuring frequency range is from 9 kHz to 1 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 1 MHz and VBW = 3 MHz is used for conducted emission measurement.
c. Measuring frequency range is from 1 GHz to 9 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 1 MHz and VBW = 3 MHz is used for conducted emission measurement.

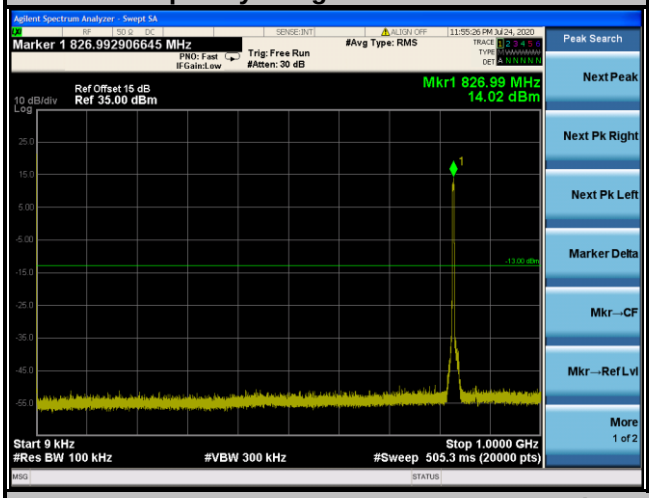
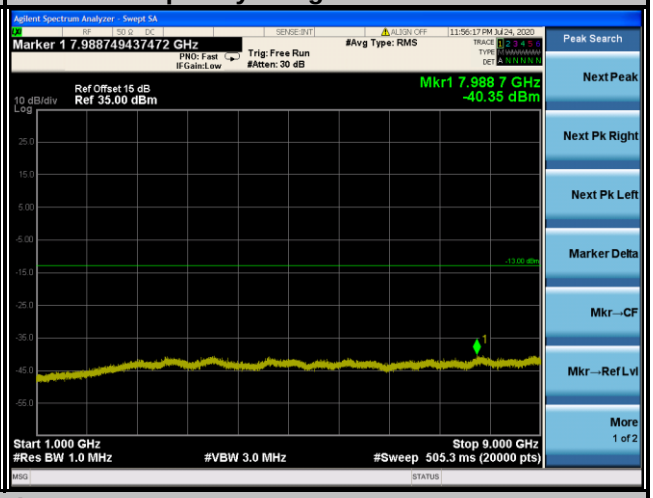
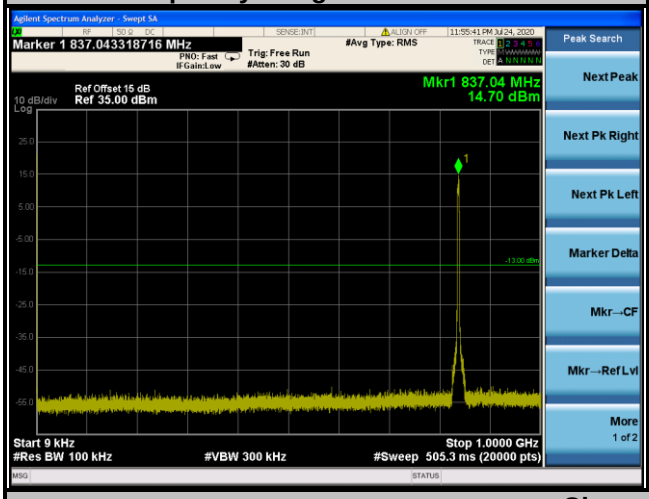
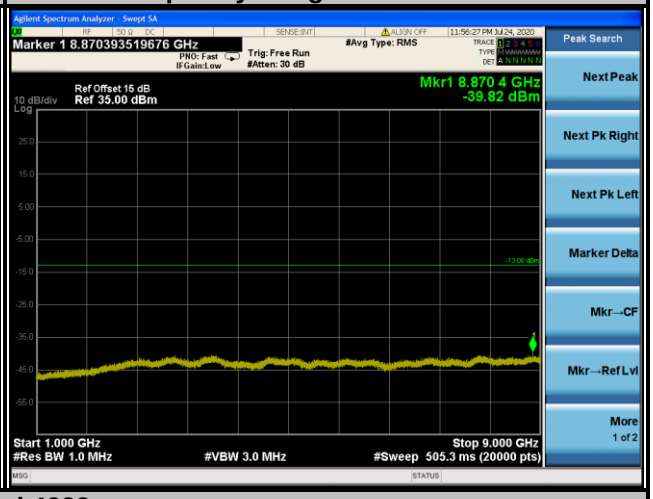
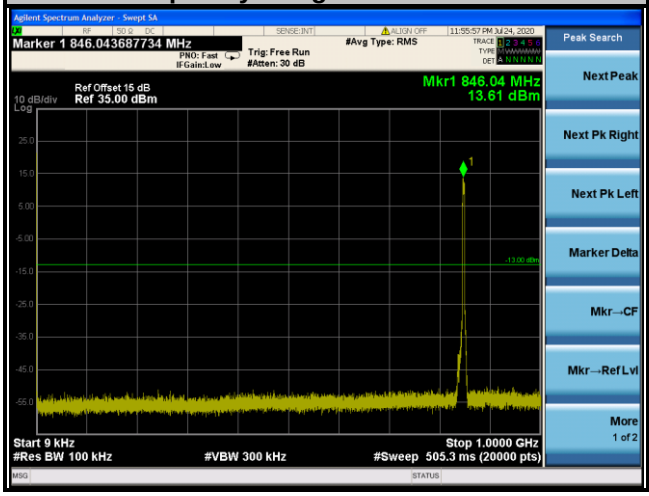
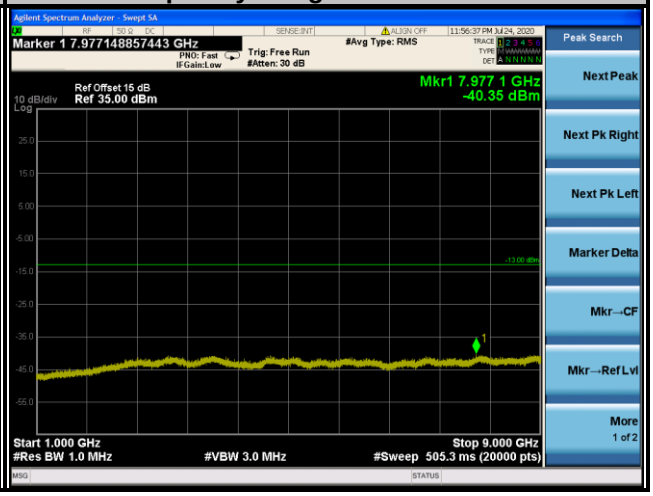
4.7.4 Test Results

GSM	
Channel 128	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 9 GHz
	
Channel 189	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 9 GHz
	
Channel 251	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 9 GHz
	

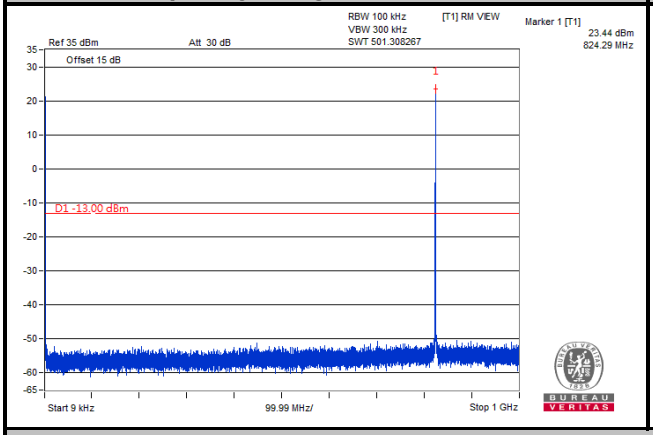
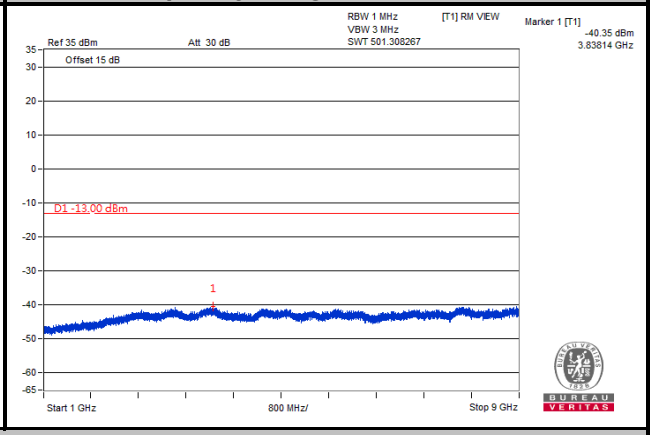
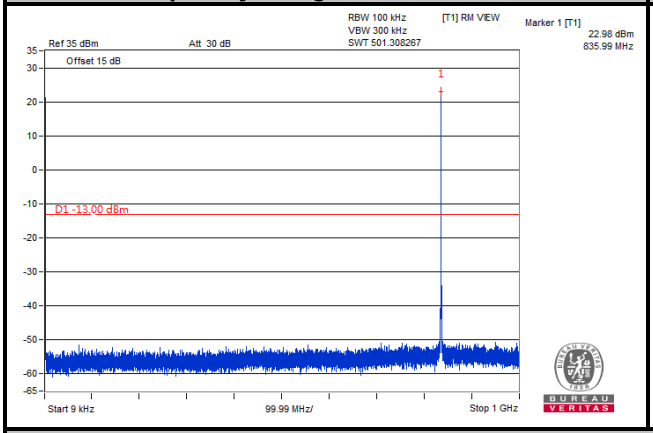
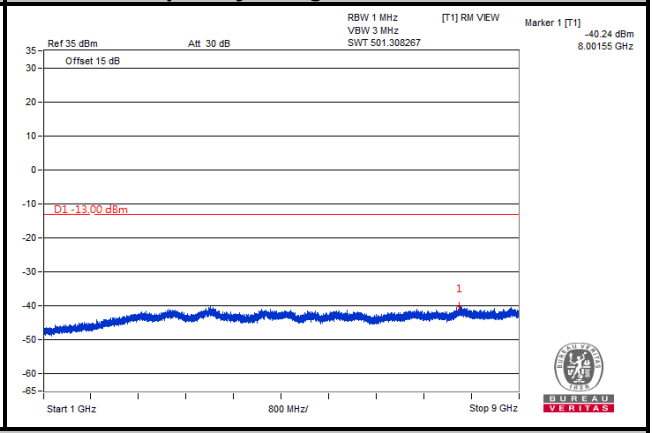
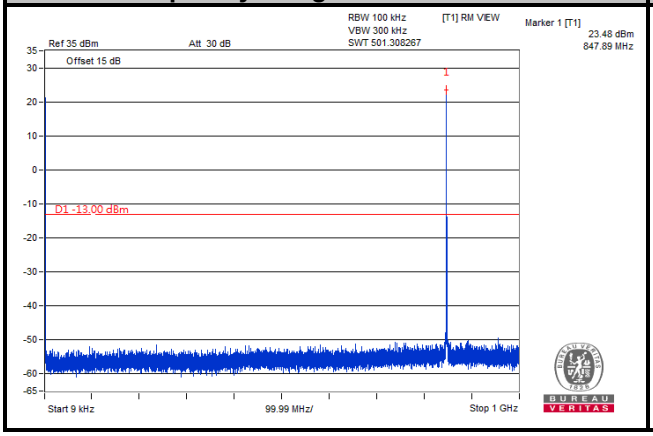
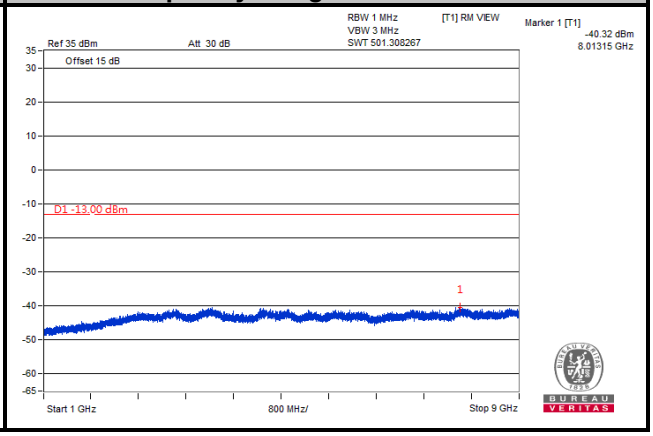
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

EDGE	
Channel 128	
Frequency Range: 9 kHz ~ 1 GHz	**Frequency Range: 1 GHz ~ 9 GHz**
	
Channel 189	
Frequency Range: 9 kHz ~ 1 GHz	**Frequency Range: 1 GHz ~ 9 GHz**
	
Channel 251	
Frequency Range: 9 kHz ~ 1 GHz	**Frequency Range: 1 GHz ~ 9 GHz**
	

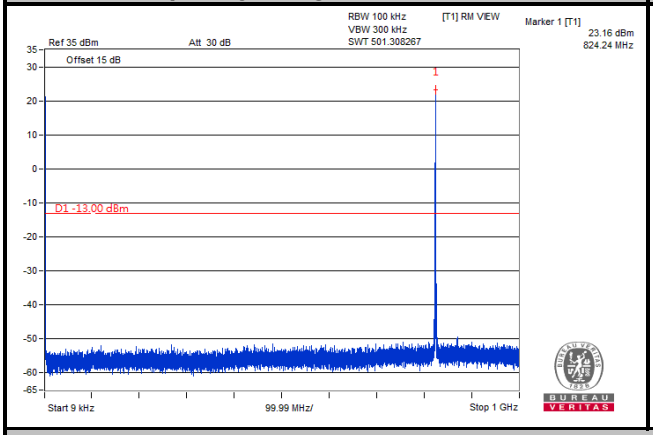
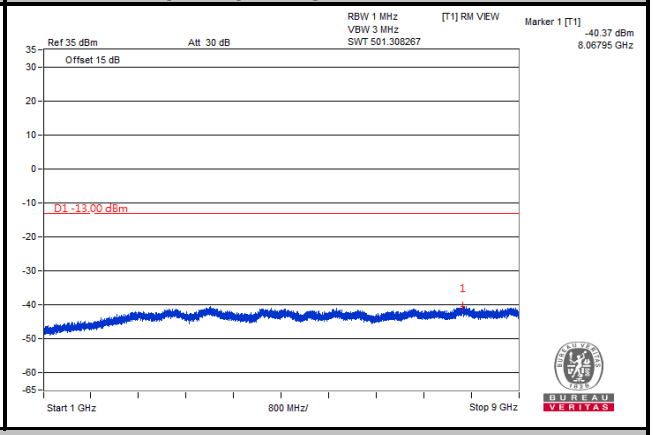
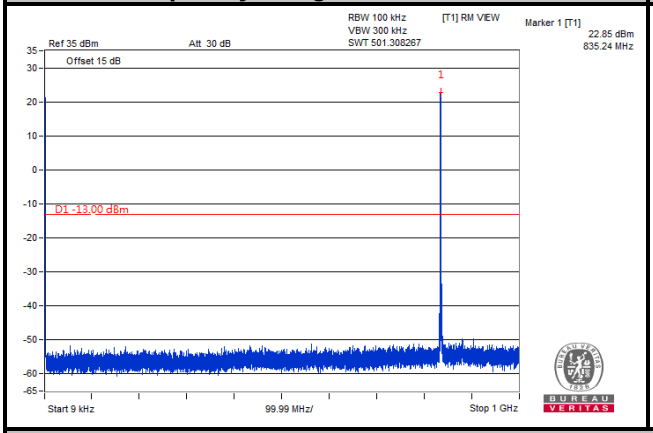
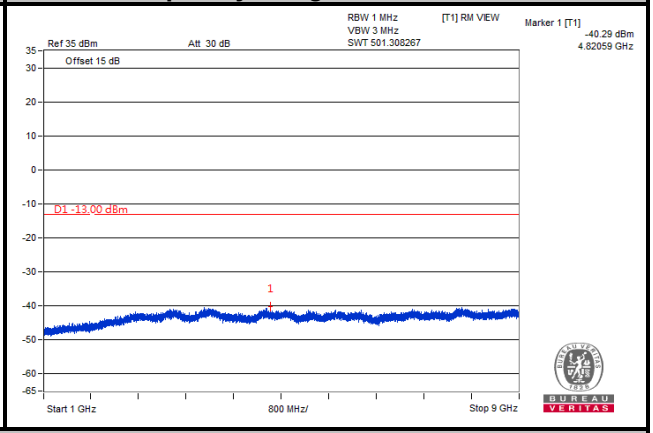
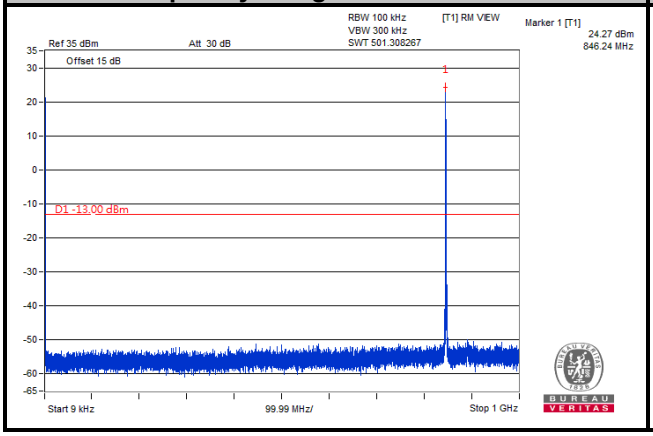
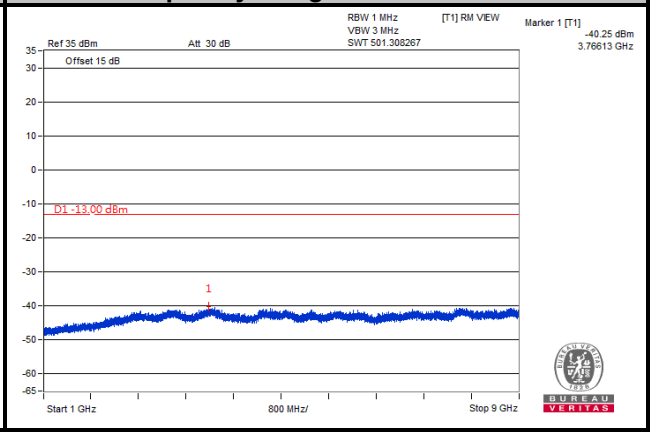
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

WCDMA	
Channel 4132	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 9 GHz
	
Channel 4182	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 9 GHz
	
Channel 4233	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 9 GHz
	

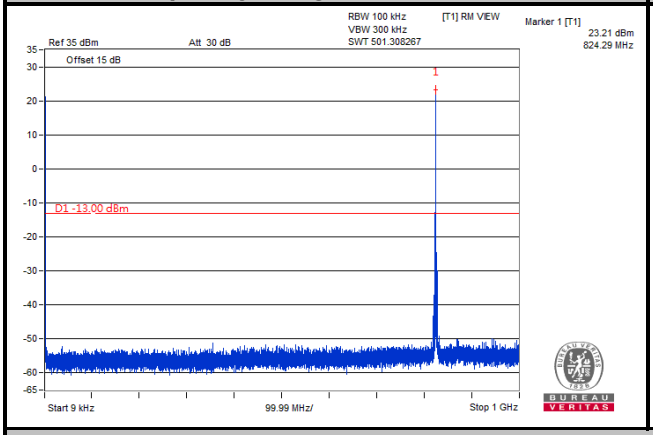
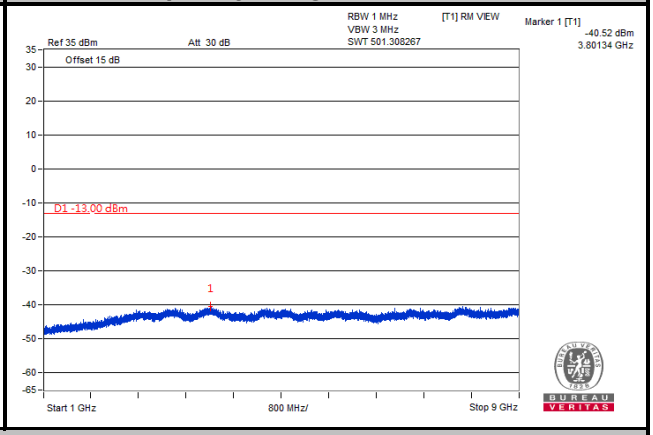
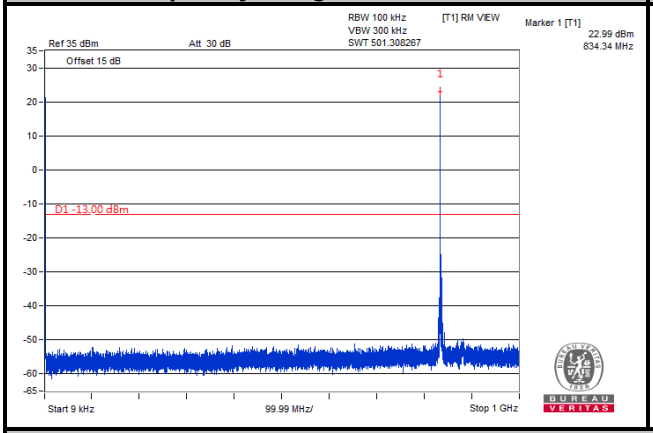
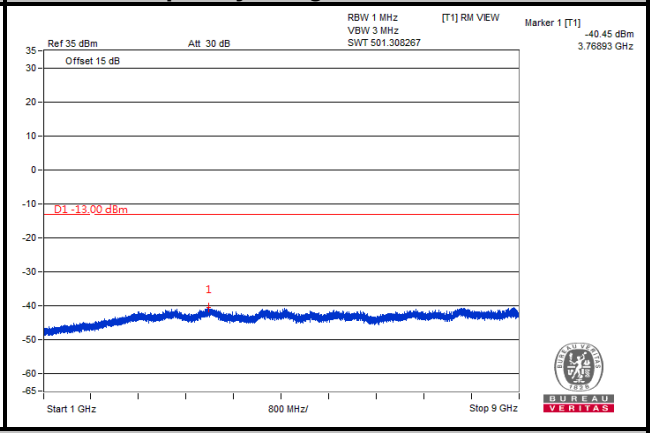
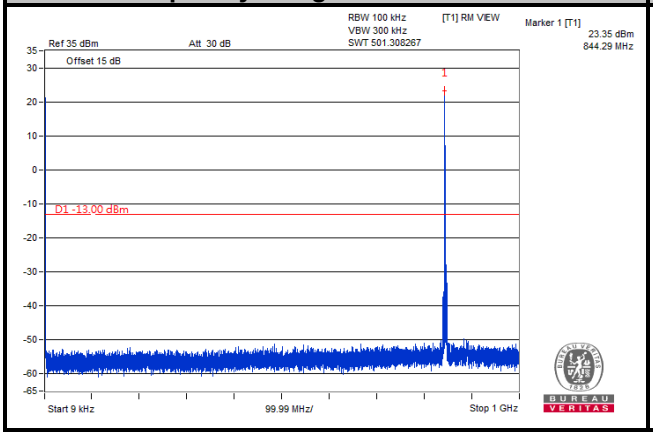
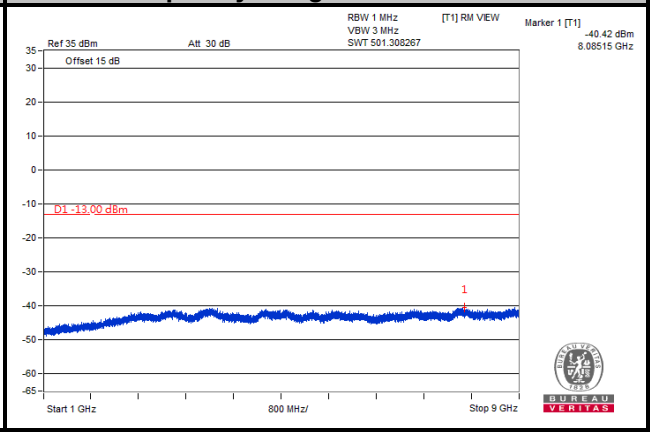
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 5	
Channel Bandwidth: 1.4 MHz	
Channel 20407	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 9 GHz
	
Channel 20525	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 9 GHz
	
Channel 20643	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 9 GHz
	

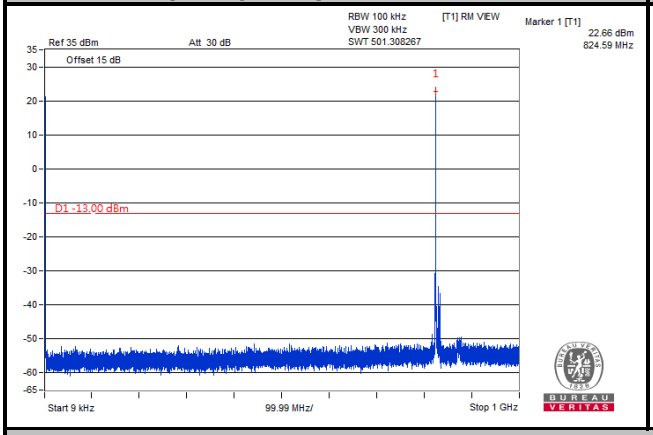
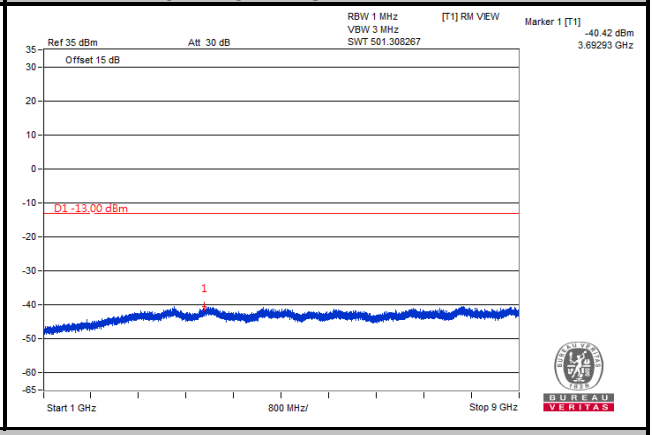
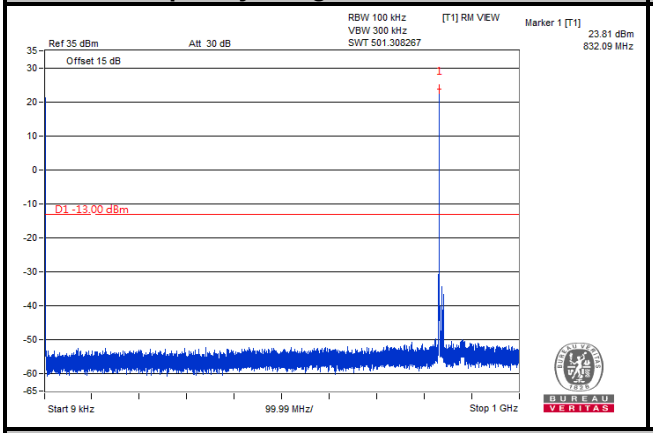
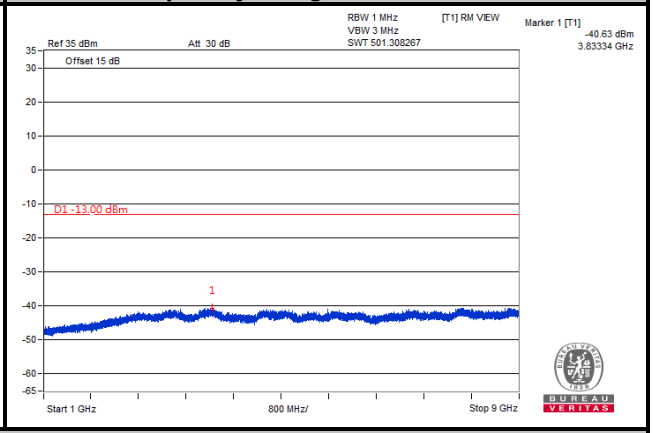
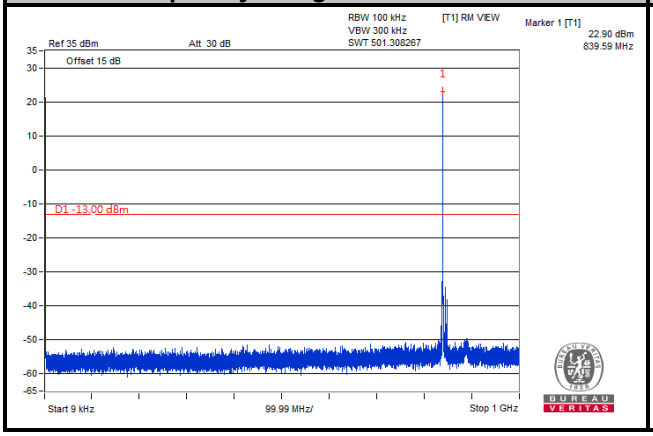
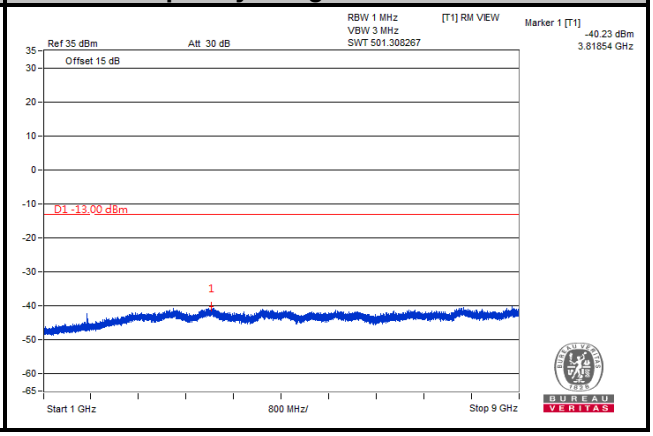
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 5	
Channel Bandwidth: 3 MHz	
Channel 20415	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 9 GHz
	
Channel 20525	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 9 GHz
	
Channel 20635	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 9 GHz
	

Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 5	
Channel Bandwidth: 5 MHz	
Channel 20425	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 9 GHz
	
Channel 20525	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 9 GHz
	
Channel 20625	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 9 GHz
	

Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 5	
Channel Bandwidth: 10 MHz	
Channel 20450	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 9 GHz
	
Channel 20525	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 9 GHz
	
Channel 20600	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 9 GHz
	

Note: The signal over the limit in 9 kHz is from spectrum analyzer.

4.8 Radiated Emission Measurement

4.8.1 Limits of Radiated Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit is equal to -13 dBm.

4.8.2 Test Procedure

a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) 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 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
b. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
c. 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 - 2.15 dB.

NOTE:

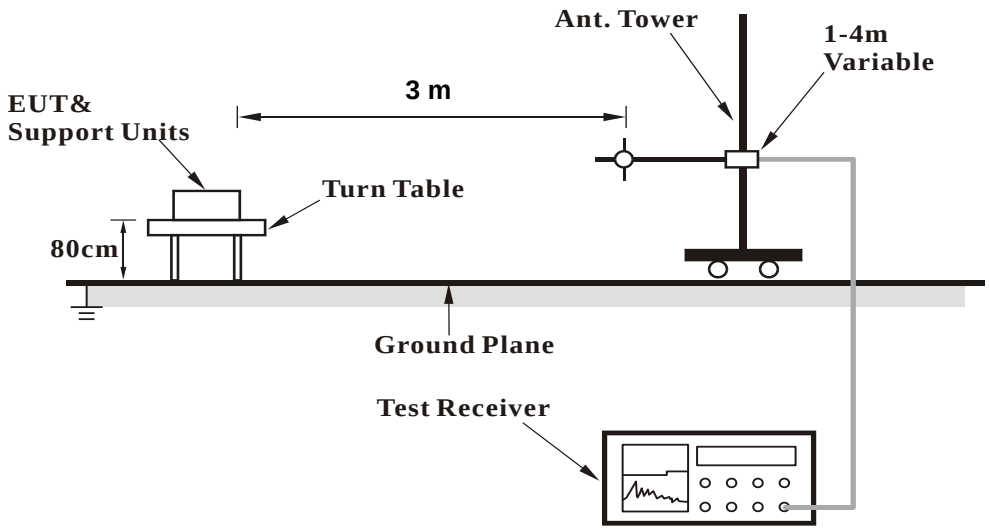
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
   The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.8.3 Deviation from Test Standard

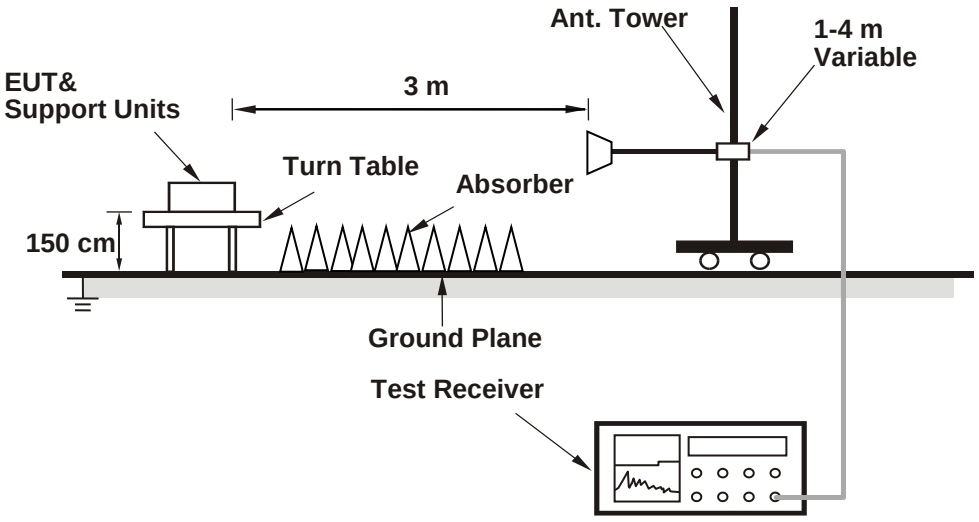
No deviation.

4.8.4 Test Setup

<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



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

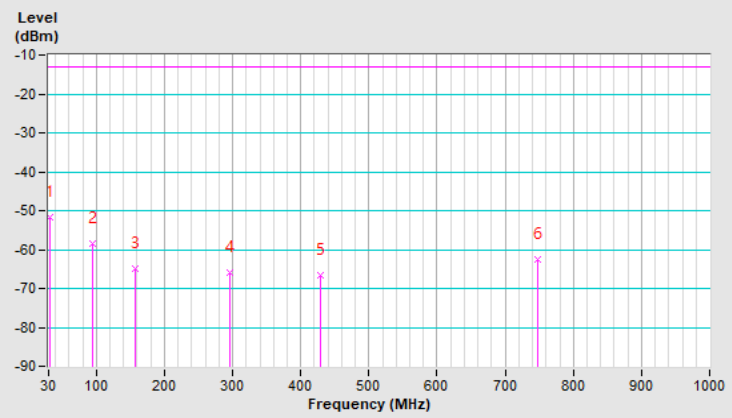
4.8.5 Test Results

Below 1GHz
GSM 850

Mode	TX channel 251 (848.8MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Titan Hsu		

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	**31.4**	**-52.2**	**-39.7**	**-12.0**	**-51.7**	**-13.0**	**-38.7**
2	94.7	-47.2	-59.4	1.0	-58.4	-13.0	-45.4
3	157.9	-57.8	-65.2	0.3	-64.9	-13.0	-51.9
4	295.7	-61.4	-71.1	5.1	-66.0	-13.0	-53.0
5	429.3	-64.2	-71.7	5.2	-66.5	-13.0	-53.5
6	748.4	-64.8	-67.4	4.7	-62.7	-13.0	-49.7

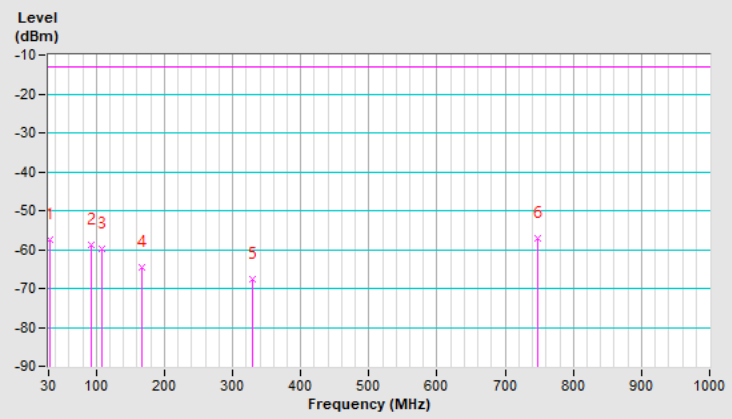
Remarks:
1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).



Mode	TX channel 251 (848.8MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Titan Hsu		

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	31.4	-47.4	-45.3	-12.0	-57.3	-13.0	-44.3
2	93.3	-50.2	-60.0	1.1	-58.9	-13.0	-45.9
3	108.7	-49.7	-60.2	0.5	-59.7	-13.0	-46.7
4	167.8	-60.0	-65.8	1.3	-64.5	-13.0	-51.5
5	329.4	-65.3	-72.7	5.2	-67.5	-13.0	-54.5
6	747.0	-62.4	-61.9	4.7	-57.2	-13.0	-44.2

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

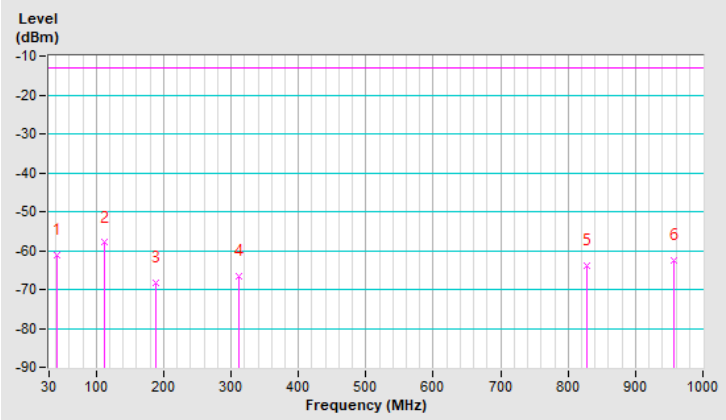


EDGE850

Mode	TX channel 189 (836.4MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Titan Hsu		

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	41.25	-62.3	-50.6	-10.7	-61.3	-13.0	-48.3
2	111.54	-47.5	-58.4	0.4	-58.0	-13.0	-45.0
3	188.86	-57.8	-72.5	4.1	-68.4	-13.0	-55.4
4	311.16	-60.8	-71.8	5.1	-66.7	-13.0	-53.7
5	828.49	-69.2	-68.0	4.0	-64.0	-13.0	-51.0
6	957.83	-69.3	-66.3	3.9	-62.4	-13.0	-49.4

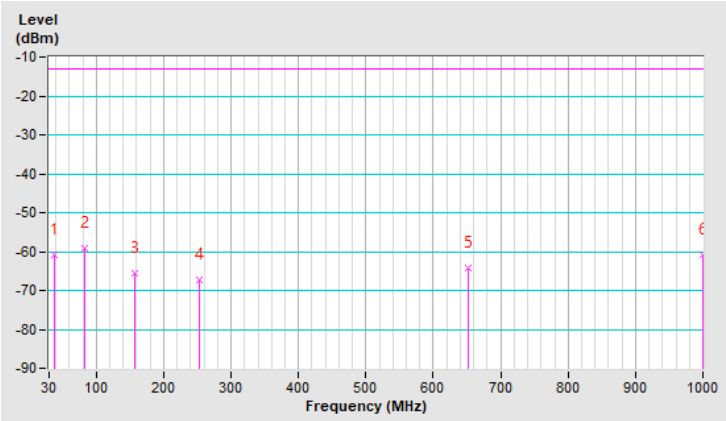
Remarks:
1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).



Mode	TX channel 189 (836.4MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Titan Hsu		

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	38.43	-49.2	-49.6	-11.1	-60.7	-13.0	-47.7
2	83.42	-51.9	-58.6	-0.7	-59.3	-13.0	-46.3
3	156.52	-61.2	-65.8	0.2	-65.6	-13.0	-52.6
4	252.12	-66.7	-72.8	5.4	-67.4	-13.0	-54.4
5	652.77	-68.4	-69.0	4.8	-64.2	-13.0	-51.2
6	1000.00	-69.5	-64.9	4.0	-60.9	-13.0	-47.9

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

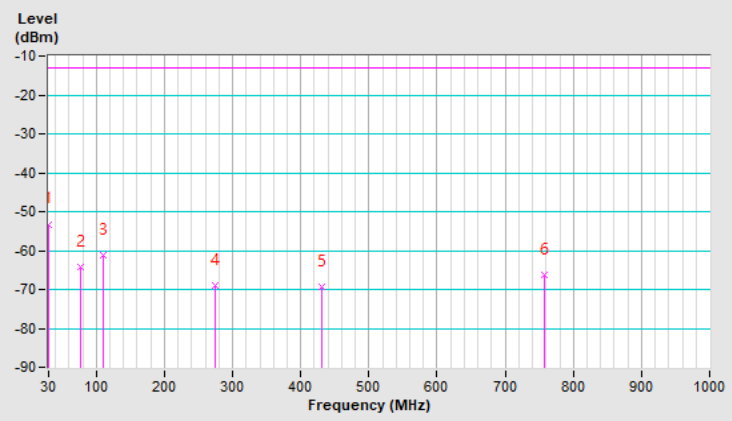


WCDMA Band 5

Mode	TX channel 4132 (826.4MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Adair Peng		

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	30.0	-54.1	-41.0	-12.2	-53.2	-13.0	-40.2
2	77.8	-56.2	-61.9	-2.3	-64.2	-13.0	-51.2
3	110.1	-50.4	-61.7	0.4	-61.3	-13.0	-48.3
4	274.6	-62.8	-74.2	5.3	-68.9	-13.0	-55.9
5	430.7	-67.2	-74.6	5.2	-69.4	-13.0	-56.4
6	758.2	-68.8	-70.9	4.6	-66.3	-13.0	-53.3

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

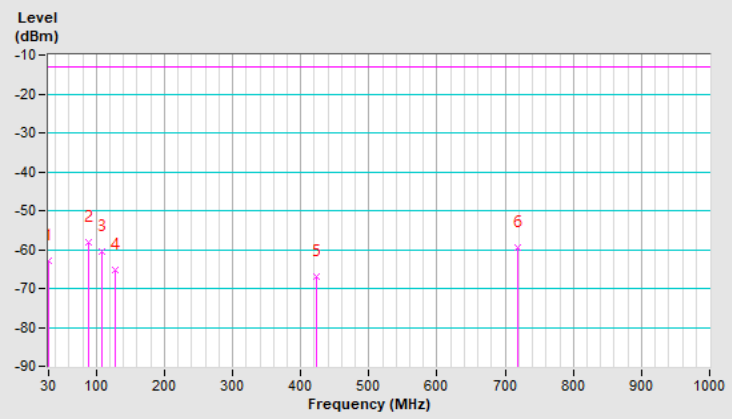


Mode	TX channel 4132 (826.4MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Adair Peng		

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	30.0	-52.3	-50.6	-12.2	-62.8	-13.0	-49.8
2	89.0	-49.9	-59.1	0.9	-58.2	-13.0	-45.2
3	108.7	-50.3	-60.9	0.5	-60.4	-13.0	-47.4
4	127.0	-57.2	-65.2	0.0	-65.2	-13.0	-52.2
5	423.6	-64.8	-72.0	5.2	-66.8	-13.0	-53.8
6	718.8	-64.2	-64.5	5.0	-59.5	-13.0	-46.5

Remarks:

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

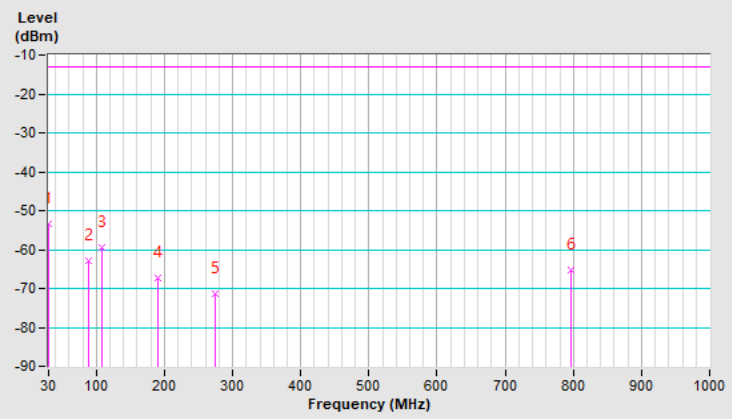


LTE Band 5, Channel Bandwidth: 10MHz

Mode	TX channel 20525 (836.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Adair Peng		

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	30.0	-54.4	-41.3	-12.2	-53.5	-13.0	-40.5
2	89.0	-52.5	-63.8	0.9	-62.9	-13.0	-49.9
3	108.7	-48.9	-60.1	0.5	-59.6	-13.0	-46.6
4	190.3	-56.6	-71.5	4.2	-67.3	-13.0	-54.3
5	274.6	-65.2	-76.7	5.3	-71.4	-13.0	-58.4
6	796.2	-69.5	-69.2	4.1	-65.1	-13.0	-52.1

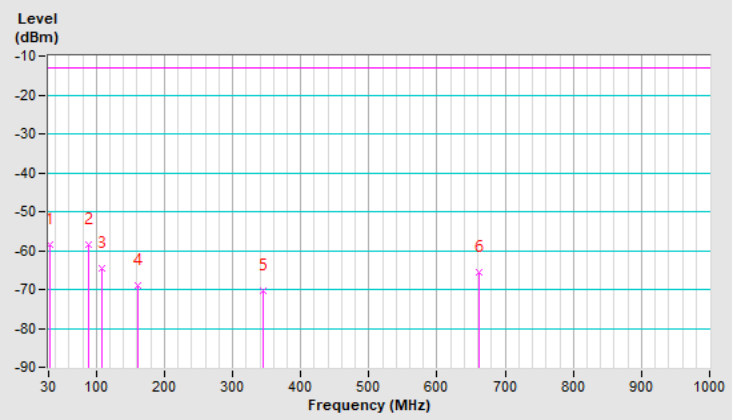
Remarks:
1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - Cable Loss (dB).



Mode	TX channel 20525 (836.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Adair Peng		

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	31.4	-48.6	-46.5	-12.0	-58.5	-13.0	-45.5
2	89.0	-50.2	-59.5	0.9	-58.6	-13.0	-45.6
3	108.7	-54.5	-65.0	0.5	-64.5	-13.0	-51.5
4	160.7	-64.6	-69.6	0.5	-69.1	-13.0	-56.1
5	344.9	-67.8	-75.7	5.2	-70.5	-13.0	-57.5
6	662.6	-69.5	-70.4	4.9	-65.5	-13.0	-52.5

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



Above 1GHz

GSM850

Mode	TX channel 128 (824.2MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

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	1648.40 (PK)	-62.4	-65.6	5.5	-60.1	-13.0	-47.1
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	1648.40 (PK)	-63.5	-64.6	5.5	-59.1	-13.0	-46.1

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 189 (836.4MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

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	1672.80 (PK)	-62.1	-65.1	5.5	-59.6	-13.0	-46.6
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	1672.80 (PK)	-63.2	-64.0	5.5	-58.5	-13.0	-45.5

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 251 (848.8MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

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	1697.60 (PK)	-61.9	-64.7	5.6	-59.1	-13.0	-46.1
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	1697.60 (PK)	-63.2	-63.8	5.6	-58.2	-13.0	-45.2

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

EDGE850

Mode	TX channel 128 (824.2MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

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	1648.40 (PK)	-65.4	-68.6	5.5	-63.1	-13.0	-50.1
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	1648.40 (PK)	-66.5	-67.7	5.5	-62.2	-13.0	-49.2

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 189 (836.4MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

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	1672.80 (PK)	-65.0	-68.1	5.5	-62.6	-13.0	-49.6
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	1672.80 (PK)	-66.0	-66.8	5.5	-61.3	-13.0	-48.3

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 251 (848.8MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

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	1697.60 (PK)	-64.8	-67.6	5.6	-62.0	-13.0	-49.0
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	1697.60 (PK)	-66.5	-67.1	5.6	-61.5	-13.0	-48.5

Remarks:

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

WCDMA Band 5

Mode	TX channel 4132 (826.4MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

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	1652.80 (PK)	-65.2	-68.5	5.5	-63.0	-13.0	-50.0
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	1652.80 (PK)	-64.0	-65.0	5.5	-59.5	-13.0	-46.5

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 4182 (836.4MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

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	1672.80 (PK)	-66.0	-69.0	5.5	-63.5	-13.0	-50.5
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	1672.80 (PK)	-65.8	-66.5	5.5	-61.0	-13.0	-48.0

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 4233 (846.6MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

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	1693.20 (PK)	-65.5	-68.4	5.6	-62.8	-13.0	-49.8
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	1693.20 (PK)	-65.8	-66.4	5.6	-60.8	-13.0	-47.8

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

LTE Band 5, Channel Bandwidth: 1.4MHz

Mode	TX channel 20407 (824.7MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

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	1649.40 (PK)	-66.8	-70.0	5.5	-64.5	-13.0	-51.5
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	1649.40 (PK)	-70.5	-71.7	5.5	-66.2	-13.0	-53.2

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 20525 (836.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

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	1673.00 (PK)	-66.2	-69.3	5.5	-63.8	-13.0	-50.8
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	1673.00 (PK)	-70.0	-70.7	5.5	-65.2	-13.0	-52.2

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 20643 (848.3MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

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	1696.60 (PK)	-67.0	-69.8	5.6	-64.2	-13.0	-51.2
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	1696.60 (PK)	-70.5	-71.1	5.6	-65.5	-13.0	-52.5

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

LTE Band 5, Channel Bandwidth: 5MHz

Mode	TX channel 20425 (826.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

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	1653.00 (PK)	-66.2	-69.5	5.5	-64.0	-13.0	-51.0
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	1653.00 (PK)	-71.0	-72.0	5.5	-66.5	-13.0	-53.5

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 20525 (836.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

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	1673.00 (PK)	-67.2	-70.3	5.5	-64.8	-13.0	-51.8
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	1673.00 (PK)	-70.5	-71.3	5.5	-65.8	-13.0	-52.8

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 20625 (846.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

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	1693.00 (PK)	-66.2	-69.1	5.6	-63.5	-13.0	-50.5
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	1693.00 (PK)	-69.8	-70.4	5.6	-64.8	-13.0	-51.8

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

LTE Band 5, Channel Bandwidth: 10MHz

Mode	TX channel 20450 (829.0MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

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	1658.00 (PK)	-66.9	-70.1	5.5	-64.6	-13.0	-51.6
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	1658.00 (PK)	-70.8	-71.7	5.5	-66.2	-13.0	-53.2

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 20525 (836.5MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

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	1673.00 (PK)	-65.2	-68.3	5.5	-62.8	-13.0	-49.8
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	1673.00 (PK)	-70.5	-71.3	5.5	-65.8	-13.0	-52.8

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 20600 (844.0MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

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	1688.00 (PK)	-65.8	-68.6	5.5	-63.1	-13.0	-50.1
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	1688.00 (PK)	-69.8	-70.3	5.5	-64.8	-13.0	-51.8

Remarks:
1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) - 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 according to ISO/IEC 17025.

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

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