FCC Test Report

(PART 24)

Report No.:	RF191008C34-3
FCC ID:	2AAFX-JDCGNUS3110
Test Model:	ROBOTIC MOWER CONNECTIVITY MODULE
Received Date:	Oct. 08, 2019
Test Date:	Nov. 21, 2019 ~ Feb. 13, 2020
Issued Date:	Feb. 24, 2020
Applicant:	Deere & Company
Address:	One John Deere Place, Moline, IL 61265
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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Release Control Record

Issue No.	Description	Date Issued
RF191008C34-3	Original Release	Feb. 24, 2020

1 Certificate of Conformity

Product:	Robotic Mower Connectivity Module
Brand:	John Deere
Test Model:	ROBOTIC MOWER CONNECTIVITY MODULE
Sample Status:	Production Unit
Applicant:	Deere & Company
Test Date:	Nov. 21, 2019 ~ Feb. 13, 2020
Standards:	FCC Part 24, Subpart E

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 : Lena Wang , **Date:** Feb. 24, 2020

Lena Wang / Specialist

Approved by : , **Date:** Feb. 24, 2020

Dylan Chiou / Senior Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 24 & Part 2			
FCC Clause	**Test Item**	**Result**	**Remarks**
2.1046 24.232	Effective Isotropic Radiated Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement.
2.1046 24.232(d)	Peak to Average Ratio	Pass	Meet the requirement of limit.
2.1055 24.235	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Occupied Bandwidth	Pass	Meet the requirement of limit.
24.238	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 24.238	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -3.7 dB at 41.64 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	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 15, 2019	Apr. 14, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jun. 12, 2019	Jun. 11, 2020
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Nov. 07, 2019	Nov. 06, 2020
Radio Communication Analyzer Anritsu	MT8820C	6201300640	Aug. 19, 2019	Aug. 18, 2020
Radio Communication Analyzer Anritsu	MT8821C	6261806803	Jan. 22, 2019	Jan. 21, 2020
			Jan. 18, 2020	Jan. 17, 2021
MXG Vector signal generator Agilent	N5182B	MY53050162	Jan. 16, 2019	Jan. 15, 2020
			Jan. 14, 2020	Jan. 13, 2021
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 25, 2018	Nov. 24, 2019
			Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 25, 2018	Nov. 24, 2019
			Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 25, 2018	Nov. 24, 2019
			Nov. 24, 2019	Nov. 23, 2020
Loop Antenna EMCI	EM-6879	269	Sep. 16, 2019	Sep. 15, 2020
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Jul. 11, 2019	Jul. 10, 2020
Preamplifier Agilent (Above 1GHz)	8449B	3008A02367	Feb. 19, 2019	Feb. 18, 2020
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	Jan. 19, 2019	Jan. 18, 2020
			Jan. 18, 2020	Jan. 17, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9- (250795/4)	Jul. 11, 2019	Jul. 10, 2020
RF signal cable Woken	8D-FB	Cable-CH9-01	Jul. 30, 2019	Jul. 29, 2020
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower &Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 03, 2019	Jun. 02, 2020
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	May 21, 2019	May 20, 2020

DC power supply, low-cost. 30V/5A, 150 W Keysight	U8002A	MY56330015	NA	NA

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 9.

3 General Information

3.1 General Description of EUT

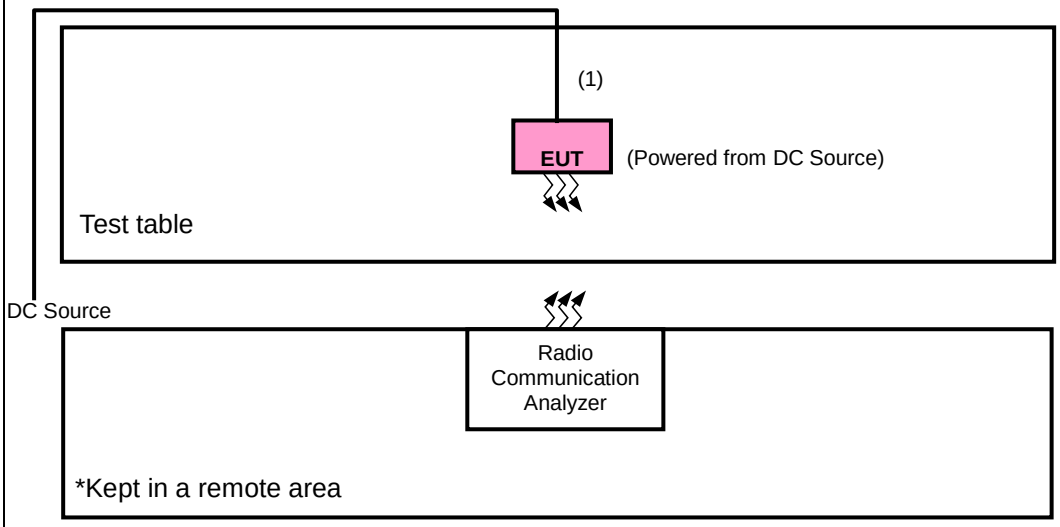
Product	Robotic Mower Connectivity Module		
Brand	John Deere		
Test Model	ROBOTIC MOWER CONNECTIVITY MODULE		
Status of EUT	Production Unit		
Power Supply Rating	18.5Vdc ~ 30 Vdc (DC Power Supply)		
Modulation Type	GSM/GPRS	GMSK	
	EDGE	GMSK, 8PSK	
	WCDMA	QPSK	
	LTE	QPSK, 16QAM	
Frequency Range	GSM/GPRS/EDGE	1850.2 ~ 1909.8 MHz	
	WCDMA	1852.4 ~ 1907.6 MHz	
	LTE Band 2 (Channel Bandwidth: 1.4 MHz)	1850.7 ~ 1909.3 MHz	
	LTE Band 2 (Channel Bandwidth: 3 MHz)	1851.5 ~ 1908.5 MHz	
	LTE Band 2 (Channel Bandwidth: 5 MHz)	1852.5 ~ 1907.5 MHz	
	LTE Band 2 (Channel Bandwidth: 10 MHz)	1855.0 ~ 1905.0 MHz	
	LTE Band 2 (Channel Bandwidth: 15 MHz)	1857.5 ~ 1902.5 MHz	
	LTE Band 2 (Channel Bandwidth: 20 MHz)	1860.0 ~ 1900.0 MHz	
Max. EIRP Power	GSM/GPRS	1819.701 mW (32.60 dBm)	
	EDGE	707.946 mW (28.50 dBm)	
	WCDMA	1000.000 mW (30.00 dBm)	
		QPSK	16QAM
	LTE Band 2 (Channel Bandwidth: 1.4 MHz)	346.737 mW (25.40 dBm)	281.838 mW (24.50 dBm)
	LTE Band 2 (Channel Bandwidth: 3 MHz)	354.813 mW (25.50 dBm)	295.121 mW (24.70 dBm)
	LTE Band 2 (Channel Bandwidth: 5 MHz)	338.844 mW (25.30 dBm)	281.838 mW (24.50 dBm)
	LTE Band 2 (Channel Bandwidth: 10 MHz)	363.078 mW (25.60 dBm)	--
Emission Designator	GSM/GPRS	247KGXW	
	EDGE	246KG7W	
	WCDMA	4M14F9W	
	LTE Band 2 (Channel Bandwidth: 1.4 MHz)	1M10G7D	
	LTE Band 2 (Channel Bandwidth: 3 MHz)	2M71G7D	
	LTE Band 2 (Channel Bandwidth: 5 MHz)	4M50D7W	
	LTE Band 2 (Channel Bandwidth: 10 MHz)	8M95G7D	
Antenna Type	Metal stamp Antenna with 3.75 dBi gain		
Accessory Device	N/A		
Data Cable Supplied	N/A		

Note:

1. 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.
2. The module doesn't support 10M-16QAM, 15M-QPSK/16QAM, 20M-QPSK/16QAM.

3.2 Configuration of System under Test

<Radiated Emission Test> & <E.I.R.P. Test>



3.2.1 Description of Support Units

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

No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	DC power supply	Keysight	U8002A	MY56330015	--
2.	Radio Communication Analyzer	Anritsu	MT8821C	6261806803	--

No.	Signal Cable Description Of The Above Support Units
1.	Cable: 2.1m

Note:

1. All power cords of the above support units are non-shielded (1.8m).

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	EIRP	Radiated Emission
GSM / EDGE	Y-plane	Y-plane
WCDMA	Y-plane	Y-plane
LTE Band 2	Y-plane	Y-plane

GSM

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	EIRP	512 to 810	512, 661, 810	GSM, EDGE
-	Modulation Characteristics	512 to 810	661	GSM, EDGE
-	Frequency Stability	512 to 810	512, 810	GSM, EDGE
-	Occupied Bandwidth	512 to 810	512, 661, 810	GSM, EDGE
-	Band Edge	512 to 810	512, 810	GSM, EDGE
-	Peak to Average Ratio	512 to 810	512, 661, 810	GSM, EDGE
-	Conducted Emission	512 to 810	512, 661, 810	GSM, EDGE
-	Radiated Emission	512 to 810	512, 661, 810	GSM

Note:
1. According ERP power test, pre-tested GSM, EDGE modulation type and found GSM was the worst.
2. For radiated emission test, pre-tested GSM, EDGE modulation type and found GSM was the worst, therefore chosen for the final test
3. For radiated emission below 1 GHz, choose the maximum EIRP power worst one channel for final test.

WCDMA

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	EIRP	9262 to 9538	9262, 9400, 9538	WCDMA
-	Modulation Characteristics	9262 to 9538	9400	WCDMA
-	Frequency Stability	9262 to 9538	9262, 9538	WCDMA
-	Occupied Bandwidth	9262 to 9538	9262, 9400, 9538	WCDMA
-	Band Edge	9262 to 9538	9262, 9538	WCDMA
-	Peak to Average Ratio	9262 to 9538	9262, 9400, 9538	WCDMA
-	Conducted Emission	9262 to 9538	9262, 9400, 9538	WCDMA
-	Radiated Emission	9262 to 9538	9262, 9400, 9538	WCDMA

Note: For radiated emission below 1 GHz, choose the maximum EIRP power worst one channel for final test.

LTE Band 2

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	18607 to 19193	18607, 18900, 19193	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10 MHz	QPSK	1 RB / 0 RB Offset
-	Modulation Characteristics	18625 to 19175	18900	5 MHZ	16QAM	25 RB / 0 RB Offset
		18650 to 19150		10 MHz	QPSK	100 RB / 0 RB Offset
-	Frequency Stability	18607 to 19193	18607, 19193	1.4 MHz	QPSK	1 RB / 0 RB Offset
		18615 to 19185	18615, 19185	3 MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18625, 19175	5 MHz	QPSK	1 RB / 0 RB Offset
		18650 to 19150	18650, 19150	10 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	18607 to 19193	18607, 18900, 19193	1.4 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3 MHz	QPSK, 16QAM	15 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10 MHz	QPSK	50 RB / 0 RB Offset
-	Peak to Average Ratio	18607 to 19193	18607, 18900, 19193	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10 MHz	QPSK	1 RB / 0 RB Offset
-	Band Edge	18607 to 19193	18607	1.4 MHz	QPSK	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			19193	1.4 MHz	QPSK	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		18615 to 19185	18615	3 MHz	QPSK	1 RB / 0 RB Offset
						15 RB / 0 RB Offset
			19185	3 MHz	QPSK	1 RB / 14 RB Offset
						15 RB / 0 RB Offset
		18625 to 19175	18625	5 MHz	QPSK	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			19175	5 MHz	QPSK	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		18650 to 19150	18650	10 MHz	QPSK	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			19150	10 MHz	QPSK	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
						100 RB / 0 RB Offset
-	Conducted Emission	18607 to 19193	18607, 18900, 19193	1.4 MHz	QPSK	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3 MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5 MHz	QPSK	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission	18607 to 19193	18607, 18900, 19193	1.4 MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5 MHz	QPSK	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	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.
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 emission below 1 GHz, choose the maximum EIRP power worst one channel for final test.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP	26 deg. C, 58 % RH	24 Vac	Han Wu
Modulation Characteristics	26 deg. C, 58 % RH	24 Vac	Vincent Huang
Frequency Stability	26 deg. C, 58 % RH	24 Vac	Vincent Huang
Occupied Bandwidth	26 deg. C, 58 % RH	24 Vac	Vincent Huang
Band Edge	26 deg. C, 58 % RH	24 Vac	Vincent Huang
Peak to Average Ratio	26 deg. C, 58 % RH	24 Vac	Vincent Huang
Conducted Emission	26 deg. C, 58 % RH	24 Vac	Vincent Huang
Radiated Emission	25 deg. C, 65 % RH	24 Vac	Greg Lin, Han Wu

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 24
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

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 2 watts e.i.r.p.

4.1.2 Test Procedures

EIRP / ERP Measurement:

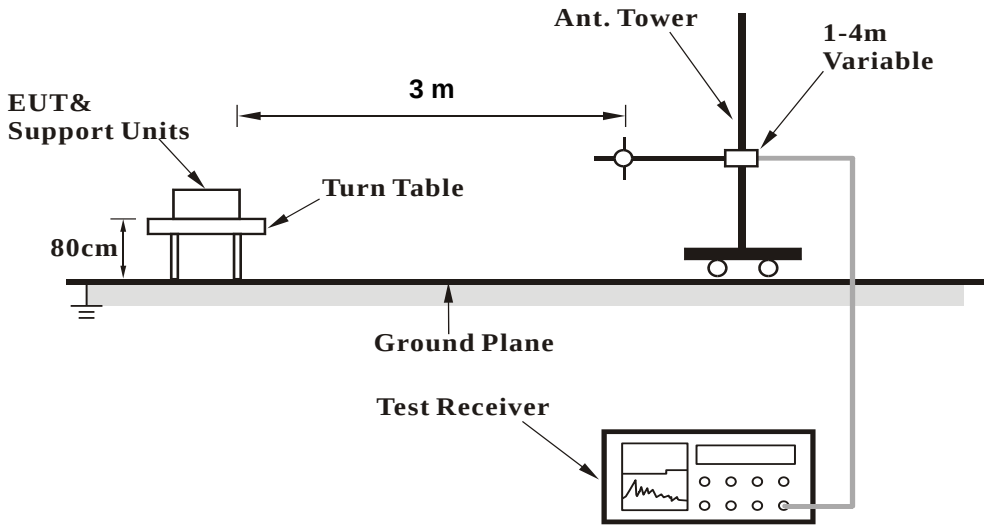
a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 1 MHz for GSM, GPRS & EDGE, 5 MHz for WCDMA and 20 MHz for LTE mode.
b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 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. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step b. Record the power level of S.G.
d. 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:

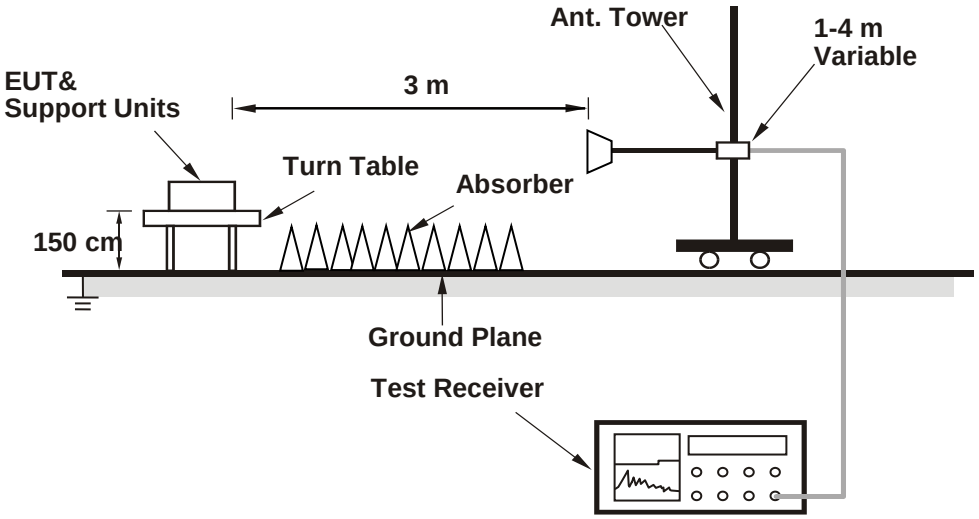
The EUT was set up for the maximum power with GSM, GPRS, EDGE, WCDMA, and LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

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	GSM1900		
Channel	512	661	810
Frequency (MHz)	1850.2	1880.0	1909.8
GSM (GMSK, 1Tx-slot)	30.31	30.14	29.68
EDGE (8PSK, 1Tx-slot)	25.34	25.23	25.31

Band	WCDMA II		
Channel	9262	9400	9538
Frequency (MHz)	1852.4	1880.0	1907.6
RMC 12.2K	23.25	23.27	23.22
HSDPA Subtest-1	22.28	22.37	22.31
HSDPA Subtest-2	21.95	21.94	21.92
HSDPA Subtest-3	21.45	21.56	21.50
HSDPA Subtest-4	21.11	21.12	21.11
HSUPA Subtest-1	22.26	22.27	22.28
HSUPA Subtest-2	20.28	20.38	20.47
HSUPA Subtest-3	21.32	21.33	21.33
HSUPA Subtest-4	20.35	20.35	20.41
HSUPA Subtest-5	22.13	22.12	22.14

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 18607	Mid Ch 18900	High Ch 19193		Low Ch 18607	Mid Ch 18900	High Ch 19193	
			1850.7 MHz	1880.0 MHz	1909.3 MHz		1850.7 MHz	1880.0 MHz	1909.3 MHz	
2 / 1.4M	1	0	21.98	23.14	23.46	0	20.92	22.08	22.43	1
	1	2	21.91	23.09	23.42	0	20.87	22.06	22.36	1
	1	5	21.87	23.02	23.35	0	20.78	22.01	22.29	1
	3	0	21.79	22.98	23.30	0	20.72	21.97	22.28	1
	3	1	21.71	22.93	23.22	0	20.70	21.88	22.13	1
	3	3	21.63	22.85	23.17	0	20.56	21.83	22.14	1
	6	0	20.79	22.01	22.47	1	19.70	20.94	21.46	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 18615	Mid Ch 18900	High Ch 19185		Low Ch 18615	Mid Ch 18900	High Ch 19185	
			1851.5 MHz	1880.0 MHz	1908.5 MHz		1851.5 MHz	1880.0 MHz	1908.5 MHz	
2 / 3M	1	0	22.06	23.21	23.59	0	21.03	22.14	22.56	1
	1	7	21.87	23.04	23.41	0	20.83	21.98	22.34	1
	1	14	21.80	22.94	23.38	0	20.71	21.91	22.29	1
	8	0	20.90	22.06	22.43	1	19.82	21.01	21.37	2
	8	3	20.73	21.85	22.13	1	19.65	20.81	21.08	2
	8	7	20.62	21.76	22.19	1	19.60	20.73	21.11	2
	15	0	20.80	22.09	22.42	1	19.73	21.05	21.33	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 18625	Mid Ch 18900	High Ch 19175		Low Ch 18625	Mid Ch 18900	High Ch 19175	
			1852.5 MHz	1880.0 MHz	1907.5 MHz		1852.5 MHz	1880.0 MHz	1907.5 MHz	
2 / 5M	1	0	22.08	23.27	23.65	0	21.01	22.22	22.61	1
	1	12	21.98	23.09	23.53	0	20.96	22.07	22.48	1
	1	24	21.68	22.99	23.43	0	20.65	21.96	22.40	1
	12	0	20.93	22.09	22.49	1	19.92	20.99	21.41	2
	12	6	20.79	21.86	22.35	1	19.74	20.83	21.34	2
	12	13	20.73	21.83	22.28	1	19.67	20.77	21.25	2
	25	0	20.92	22.17	22.44	1	19.86	21.13	21.39	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)
			Low Ch 18650	Mid Ch 18900	High Ch 19150	
			1855.0 MHz	1880.0 MHz	1905.0 MHz	
2 / 10M	1	0	22.20	23.34	23.68	0
	1	24	22.01	23.16	23.57	0
	1	49	21.85	22.99	23.34	0
	25	0	21.01	22.17	22.56	1
	25	12	20.79	22.00	22.33	1
	25	25	20.71	21.85	22.22	1
	50	0	21.01	22.21	22.42	1

EIRP Power (dBm)

GSM 1900

MODE	TX Channel 512						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	**1850.20 (PK)**	**-7.70**	**32.50**	**0.10**	**32.60**	**33.00**	**-0.40**
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1850.20 (PK)	-8.80	31.60	0.10	31.70	33.00	-1.30

MODE	TX Channel 661						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1880.00 (PK)	-9.80	30.70	0.00	30.70	33.00	-2.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1880.00 (PK)	-8.90	31.70	0.00	31.70	33.00	-1.30

MODE	TX Channel 810						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1909.80 (PK)	-10.30	30.30	-0.10	30.20	33.00	-2.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1909.80 (PK)	-8.90	31.90	-0.10	31.80	33.00	-1.20

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

EDGE 1900

MODE		TX Channel 512					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	**1850.20 (PK)**	**-11.80**	**28.40**	**0.10**	**28.50**	**33.00**	**-4.50**
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1850.20 (PK)	-12.60	27.80	0.10	27.90	33.00	-5.10

MODE		TX Channel 661					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1880.00 (PK)	-13.70	26.80	0.00	26.80	33.00	-6.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1880.00 (PK)	-12.90	27.70	0.00	27.70	33.00	-5.30

MODE		TX Channel 810					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1909.80 (PK)	-14.50	26.10	-0.10	26.00	33.00	-7.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1909.80 (PK)	-13.30	27.50	-0.10	27.40	33.00	-5.60

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

WCDMA Band II

MODE	TX Channel 9262						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1852.40 (PK)	-12.60	27.60	0.10	27.70	33.00	-5.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1852.40 (PK)	-13.40	27.00	0.10	27.10	33.00	-5.90

MODE	TX Channel 9400						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1880.00 (PK)	-13.10	27.40	0.00	27.40	33.00	-5.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	**1880.00 (PK)**	**-10.60**	**30.00**	**0.00**	**30.00**	**33.00**	**-3.00**

MODE	TX Channel 9538						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1907.60 (PK)	-13.30	27.40	-0.10	27.30	33.00	-5.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1907.60 (PK)	-12.30	28.50	-0.10	28.40	33.00	-4.60

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

Modulation Type: QPSK

LTE Band 2, Channel Bandwidth 1.4MHz

MODE	TX Channel 18607						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1850.70 (PK)	-14.90	25.30	0.10	25.40	33.00	-7.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1850.70 (PK)	-18.00	22.40	0.10	22.50	33.00	-10.50

MODE	TX Channel 18900						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1880.00 (PK)	-15.30	25.20	0.00	25.20	33.00	-7.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1880.00 (PK)	-18.10	22.50	0.00	22.50	33.00	-10.50

MODE	TX Channel 19193						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1909.30 (PK)	-15.30	25.40	-0.10	25.30	33.00	-7.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1909.30 (PK)	-18.20	22.60	-0.10	22.50	33.00	-10.50

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

LTE Band 2, Channel Bandwidth 3MHz

MODE		TX Channel 18615					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1851.50 (PK)	-14.80	25.40	0.10	25.50	33.00	-7.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1851.50 (PK)	-18.00	22.40	0.10	22.50	33.00	-10.50

MODE		TX Channel 18900					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1880.00 (PK)	-15.30	25.20	0.00	25.20	33.00	-7.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1880.00 (PK)	-18.50	22.10	0.00	22.10	33.00	-10.90

MODE		TX Channel 19185					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1908.50 (PK)	-15.30	25.40	-0.10	25.30	33.00	-7.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1908.50 (PK)	-18.30	22.50	-0.10	22.40	33.00	-10.60

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

LTE Band 2, Channel Bandwidth 5MHz

MODE	TX Channel 18625						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1852.50 (PK)	-15.00	25.20	0.10	25.30	33.00	-7.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1852.50 (PK)	-18.50	21.90	0.10	22.00	33.00	-11.00

MODE	TX Channel 18900						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1880.00 (PK)	-15.20	25.30	0.00	25.30	33.00	-7.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1880.00 (PK)	-18.00	22.60	0.00	22.60	33.00	-10.40

MODE	TX Channel 19175						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1907.50 (PK)	-15.40	25.30	-0.10	25.20	33.00	-7.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1907.50 (PK)	-18.30	22.50	-0.10	22.40	33.00	-10.60

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

LTE Band 2, Channel Bandwidth 10MHz

MODE	TX Channel 18650						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1855.00 (PK)	-15.30	25.00	0.00	25.00	33.00	-8.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1855.00 (PK)	-18.30	22.20	0.00	22.20	33.00	-10.80

MODE	TX Channel 18900						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	**1880.00 (PK)**	**-14.90**	**25.60**	**0.00**	**25.60**	**33.00**	**-7.40**
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1880.00 (PK)	-18.00	22.60	0.00	22.60	33.00	-10.40

MODE	TX Channel 19150						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1905.00 (PK)	-15.30	25.40	-0.10	25.30	33.00	-7.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1905.00 (PK)	-18.30	22.50	-0.10	22.40	33.00	-10.60

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

Modulation Type: 16QAM

LTE Band 2, Channel Bandwidth 1.4MHz

MODE		TX Channel 18607					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1850.70 (PK)	-16.10	24.10	0.10	24.20	33.00	-8.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1850.70 (PK)	-18.80	21.60	0.10	21.70	33.00	-11.30

MODE		TX Channel 18900					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1880.00 (PK)	-16.10	24.40	0.00	24.40	33.00	-8.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1880.00 (PK)	-18.90	21.70	0.00	21.70	33.00	-11.30

MODE		TX Channel 19193					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1909.30 (PK)	-16.10	24.60	-0.10	24.50	33.00	-8.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1909.30 (PK)	-19.20	21.60	-0.10	21.50	33.00	-11.50

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

LTE Band 2, Channel Bandwidth 3MHz

MODE		TX Channel 18615					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	**1851.50 (PK)**	**-15.60**	**24.60**	**0.10**	**24.70**	**33.00**	**-8.30**
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1851.50 (PK)	-19.20	21.20	0.10	21.30	33.00	-11.70

MODE		TX Channel 18900					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1880.00 (PK)	-16.10	24.40	0.00	24.40	33.00	-8.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1880.00 (PK)	-19.50	21.10	0.00	21.10	33.00	-11.90

MODE		TX Channel 19185					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1908.50 (PK)	-16.30	24.40	-0.10	24.30	33.00	-8.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	**FREQ. (MHz)**	**READING (dBm)**	**S.G POWER VALUE (dBm)**	**CORRECTION FACTOR (dB)**	**EIRP (dBm)**	**LIMIT (dBm)**	**MARGIN (dB)**
1	1908.50 (PK)	-19.10	21.70	-0.10	21.60	33.00	-11.40

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

LTE Band 2, Channel Bandwidth 5MHz

MODE		TX Channel 18625					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1852.50 (PK)	-15.80	24.40	0.10	24.50	33.00	-8.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1852.50 (PK)	-19.40	21.00	0.10	21.10	33.00	-11.90

MODE		TX Channel 18900					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1880.00 (PK)	-16.00	24.50	0.00	24.50	33.00	-8.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1880.00 (PK)	-18.80	21.80	0.00	21.80	33.00	-11.20

MODE		TX Channel 19175					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1907.50 (PK)	-16.30	24.40	-0.10	24.30	33.00	-8.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1907.50 (PK)	-19.10	21.70	-0.10	21.60	33.00	-11.40

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

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

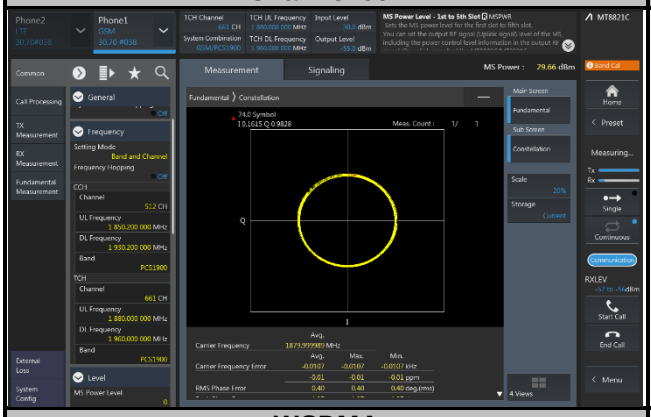
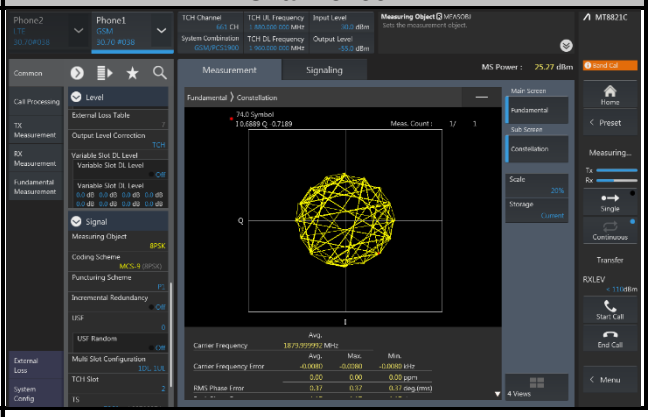
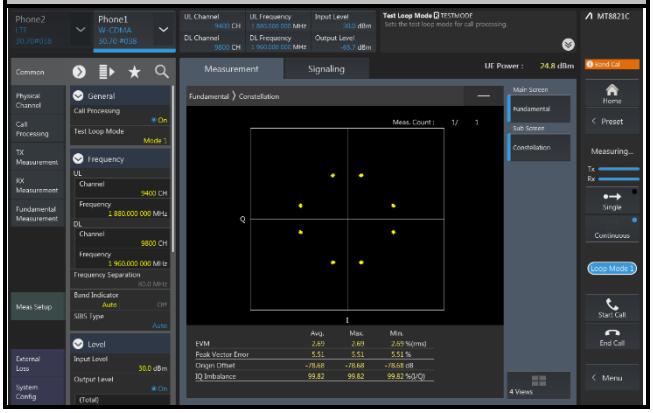
N/A

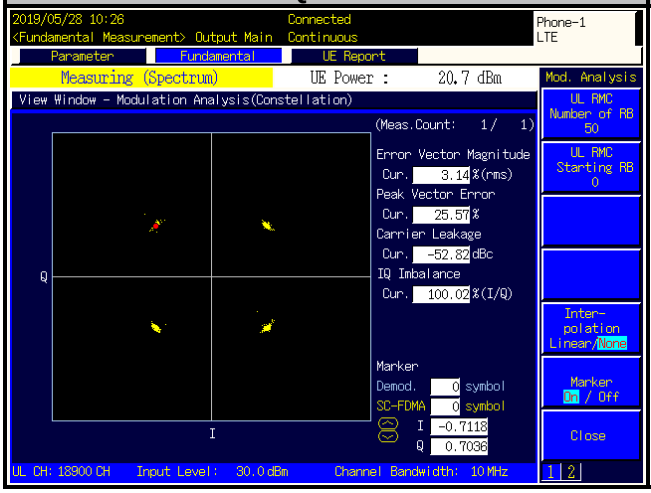
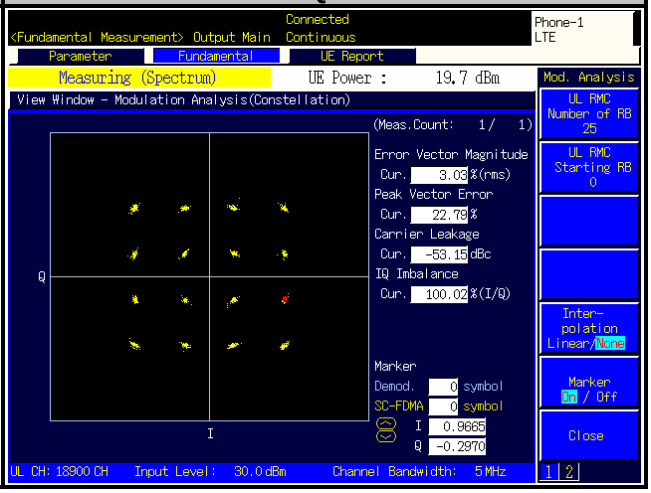
4.2.2 Test Setup

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 661	Channel 661
	
WCDMA	
Channel 9400	
	

Spectrum Plot of Measurement	
LTE Band 2	
Channel 18900	
QPSK	16QAM
	

4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

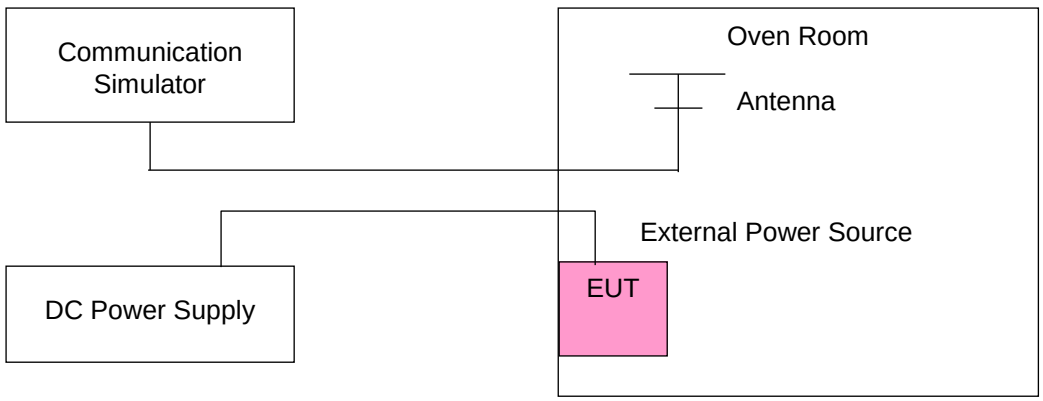
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

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

Frequency Error vs. Voltage

Voltage (Volts)	GSM			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
27.6	1850.200002	0.001	1909.800003	0.001
24.0	1850.200002	0.001	1909.800004	0.002
20.4	1850.200001	0.001	1909.800002	0.001

Note: The applicant defined the normal working voltage of the power supply is from 20.4 Vdc to 27.6 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	GSM			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1850.200002	0.001	1909.800004	0.002
-20	1850.200002	0.001	1909.800003	0.002
-10	1850.200003	0.001	1909.800003	0.002
0	1850.200002	0.001	1909.800004	0.002
10	1850.200001	0.001	1909.800003	0.001
20	1850.200002	0.001	1909.800001	0.001
30	1850.199996	-0.002	1909.799997	-0.001
40	1850.199996	-0.002	1909.799997	-0.002
50	1850.199997	-0.002	1909.799996	-0.002
60	1850.199996	-0.002	1909.799997	-0.002
70	1850.199997	-0.002	1909.799996	-0.002

Note:

1. The applicant declared that the normal operating temperature of the EUT is from -30˚C to 70˚C.
2. The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	EDGE			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
27.6	1850.200004	0.002	1909.800003	0.002
24.0	1850.200003	0.002	1909.800003	0.002
20.4	1850.200002	0.001	1909.800003	0.001

Note: The applicant defined the normal working voltage of the power supply is from 20.4 Vdc to 27.6 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	EDGE			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1850.200002	0.001	1909.800003	0.001
-20	1850.200003	0.002	1909.800002	0.001
-10	1850.200001	0.001	1909.800004	0.002
0	1850.200002	0.001	1909.800003	0.002
10	1850.200002	0.001	1909.800002	0.001
20	1850.200002	0.001	1909.800002	0.001
30	1850.199998	-0.001	1909.799996	-0.002
40	1850.199997	-0.002	1909.799996	-0.002
50	1850.199998	-0.001	1909.799997	-0.001
60	1850.199997	-0.001	1909.799999	-0.001
70	1850.199997	-0.002	1909.799997	-0.002

Note:

The applicant declared that the normal operating temperature of the EUT is from -30°C to 70°C.

The EUT would shut down automatically as below -30°C.

Frequency Error vs. Voltage

Voltage (Volts)	WCDMA			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
27.6	1852.400002	0.001	1907.600003	0.001
24.0	1852.400001	0.001	1907.600002	0.001
20.4	1852.400003	0.002	1907.600003	0.001

Note: The applicant defined the normal working voltage of the power supply is from 20.4 Vdc to 27.6 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	WCDMA			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1852.400002	0.001	1907.600004	0.002
-20	1852.400003	0.002	1907.600003	0.001
-10	1852.400001	0.001	1907.600004	0.002
0	1852.400002	0.001	1907.600004	0.002
10	1852.400001	0.001	1907.600002	0.001
20	1852.400004	0.002	1907.600003	0.002
30	1852.399998	-0.001	1907.599999	-0.001
40	1852.399999	-0.001	1907.599998	-0.001
50	1852.399996	-0.002	1907.599997	-0.002
60	1852.399998	-0.001	1907.599999	-0.001
70	1852.399999	-0.001	1907.599998	-0.001

Note:

The applicant declared that the normal operating temperature of the EUT is from -30˚C to 70˚C.

The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 2			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
27.6	1850.700001	0.001	1909.300004	0.002
24.0	1850.700003	0.001	1909.300004	0.002
20.4	1850.700002	0.001	1909.300003	0.002

Note: The applicant defined the normal working voltage of the power supply is from 20.4 Vdc to 27.6 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 2			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1850.700002	0.001	1909.300003	0.001
-20	1850.700001	0.001	1909.300002	0.001
-10	1850.700003	0.002	1909.300001	0.001
0	1850.700002	0.001	1909.300003	0.002
10	1850.700003	0.001	1909.300001	0.001
20	1850.700002	0.001	1909.300002	0.001
30	1850.699996	-0.002	1909.299997	-0.002
40	1850.699998	-0.001	1909.299996	-0.002
50	1850.699997	-0.002	1909.299996	-0.002
60	1850.699999	-0.001	1909.299999	-0.001
70	1850.699998	-0.001	1909.299998	-0.001

Note:

The applicant declared that the normal operating temperature of the EUT is from -30˚C to 70˚C.

The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 2			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
27.6	1851.500002	0.001	1908.500002	0.001
24.0	1851.500002	0.001	1908.500003	0.001
20.4	1851.500002	0.001	1908.500003	0.002

Note: The applicant defined the normal working voltage of the power supply is from 20.4 Vdc to 27.6 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 2			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1851.500003	0.002	1908.500003	0.002
-20	1851.500002	0.001	1908.500002	0.001
-10	1851.500003	0.002	1908.500002	0.001
0	1851.500002	0.001	1908.500002	0.001
10	1851.500002	0.001	1908.500004	0.002
20	1851.500003	0.002	1908.500003	0.002
30	1851.499997	-0.002	1908.499998	-0.001
40	1851.499997	-0.002	1908.499996	-0.002
50	1851.499998	-0.001	1908.499999	-0.001
60	1851.499996	-0.002	1908.499997	-0.002
70	1851.499997	-0.002	1908.499998	-0.001

Note:

The applicant declared that the normal operating temperature of the EUT is from -30˚C to 70˚C.

The EUT would shut down automatically as below -30˚C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 2			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
27.6	1852.500001	0.001	1907.500004	0.002
24.0	1852.500001	0.001	1907.500001	0.001
20.4	1852.500002	0.001	1907.500003	0.002

Note: The applicant defined the normal working voltage of the power supply is from 20.4 Vdc to 27.6 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 2			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1852.500003	0.001	1907.500002	0.001
-20	1852.500003	0.002	1907.500001	0.001
-10	1852.500003	0.002	1907.500004	0.002
0	1852.500002	0.001	1907.500003	0.002
10	1852.500001	0.001	1907.500002	0.001
20	1852.500003	0.002	1907.500002	0.001
30	1852.499998	-0.001	1907.499996	-0.002
40	1852.499998	-0.001	1907.499997	-0.001
50	1852.499999	-0.001	1907.499997	-0.001
60	1852.499997	-0.002	1907.499999	-0.001
70	1852.499997	-0.002	1907.499997	-0.001

Note:

The applicant declared that the normal operating temperature of the EUT is from -30°C to 70°C.

The EUT would shut down automatically as below -30°C.

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 2			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
27.6	1855.000004	0.002	1905.000003	0.001
24.0	1855.000001	0.001	1905.000001	0.001
20.4	1855.000001	0.001	1905.000003	0.001

Note: The applicant defined the normal working voltage of the power supply is from 20.4 Vdc to 27.6 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 2			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1855.000002	0.001	1905.000004	0.002
-20	1855.000002	0.001	1905.000001	0.001
-10	1855.000002	0.001	1905.000003	0.002
0	1855.000002	0.001	1905.000004	0.002
10	1855.000003	0.002	1905.000004	0.002
20	1855.000001	0.001	1905.000003	0.002
30	1854.999997	-0.002	1904.999998	-0.001
40	1854.999999	-0.001	1904.999999	-0.001
50	1854.999997	-0.002	1904.999998	-0.001
60	1854.999999	-0.001	1904.999998	-0.001
70	1854.999999	-0.001	1904.999996	-0.002

Note:

The applicant declared that the normal operating temperature of the EUT is from -30°C to 70°C.

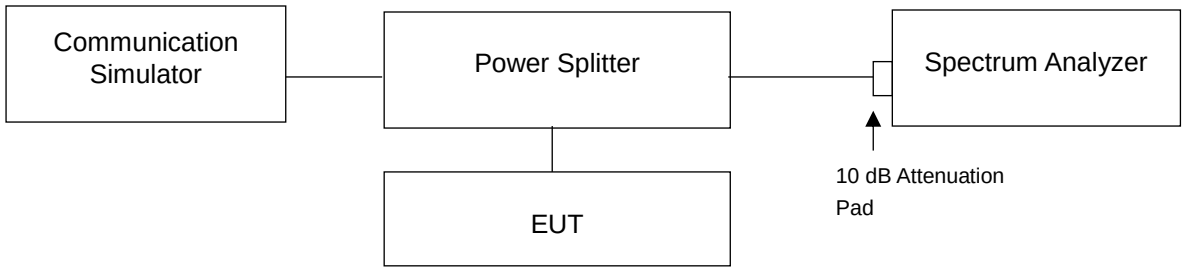
The EUT would shut down automatically as below -30°C.

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.

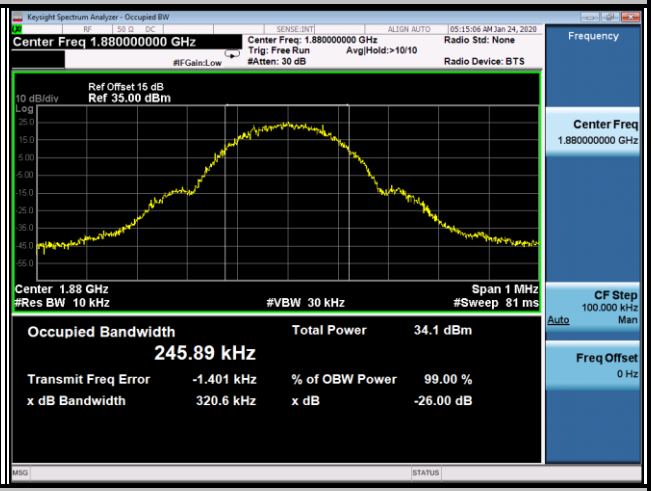
4.4.2 Test Setup



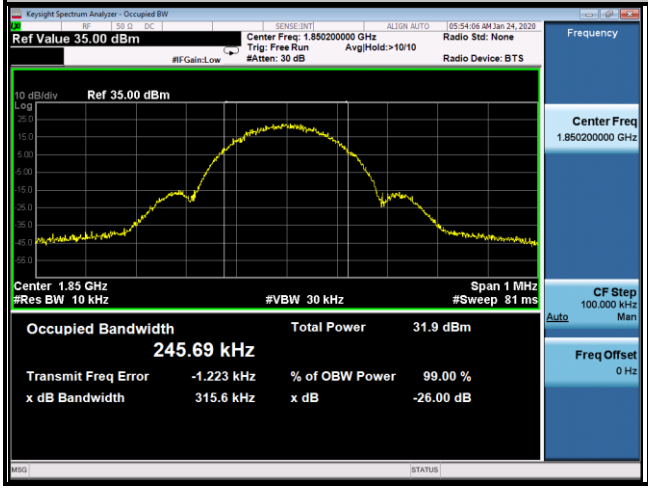
4.4.3 Test Result

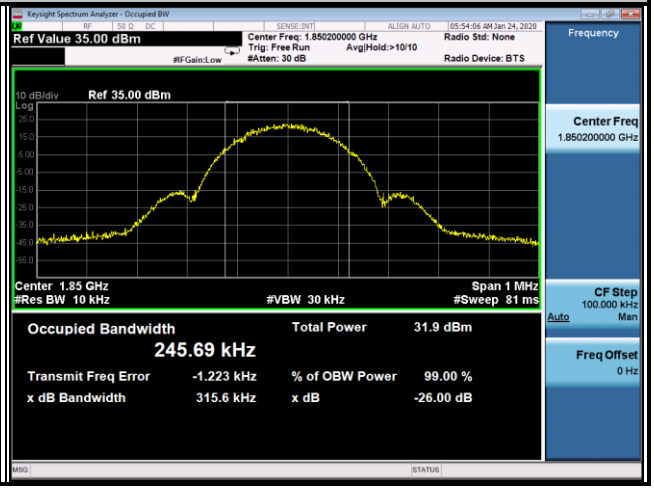
GSM				EDGE			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)	Channel	Frequency (MHz)	99 % Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
512	1850.2	243.74	316.00	512	1850.2	245.69	315.60
661	1880.0	245.89	320.60	661	1880.0	242.91	298.90
810	1909.8	246.65	315.30	810	1909.8	244.90	305.40

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



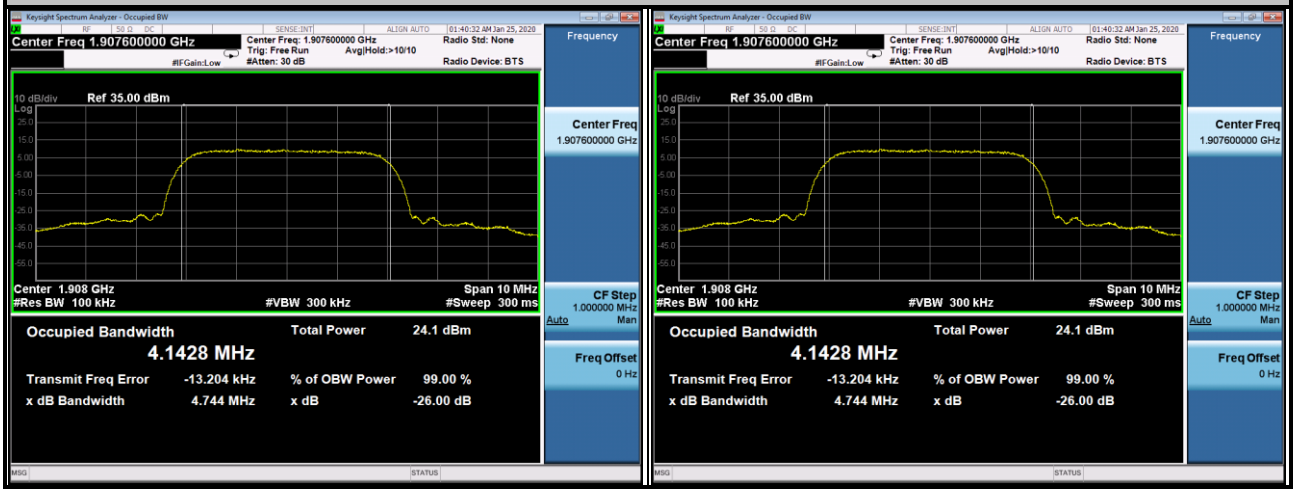
Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	26 dB Bandwidth
EDGE	



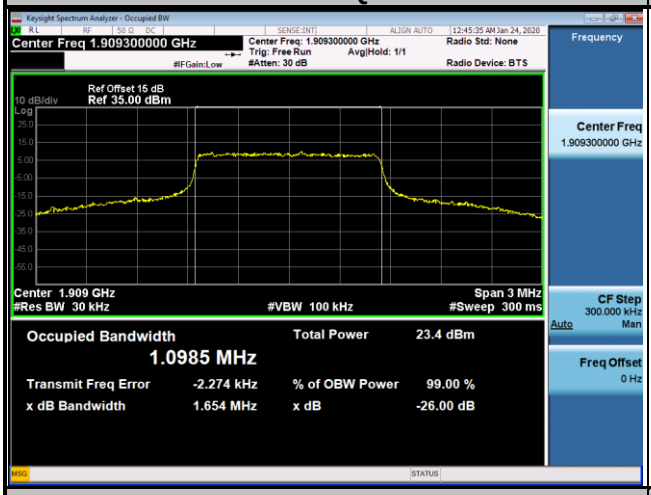


WCDMA			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
9262	1852.4	4.1427	4.7400
9400	1880.0	4.1376	4.7300
9538	1907.6	4.1428	4.7440

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



LTE Band 2					
Channel Bandwidth: 1.4 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
18607	1850.7	1.0880	1.0895	1.2540	1.2420
18900	1880.0	1.0879	1.0912	1.2530	1.2510
19193	1909.3	1.0985	1.0945	1.6540	1.3310
Channel Bandwidth: 3 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
18615	1851.5	2.6999	2.6960	2.9160	2.9310
18900	1880.0	2.7008	2.6980	2.9320	2.9290
19185	1908.5	2.7105	2.7002	3.3840	2.9630

Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	26 dB Bandwidth
1.4 MHz / QPSK	1.4 MHz / QPSK
	
3 MHz / QPSK	3 MHz / QPSK
	

LTE Band 2					
Channel Bandwidth: 5 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
18625	1852.5	4.4908	4.4906	4.822	4.817
18900	1880.0	4.4853	4.4910	4.805	4.807
19175	1907.5	4.4912	4.4953	4.823	4.861
Channel Bandwidth: 10 MHz					
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		26 dB Bandwidth (MHz)	
		QPSK		QPSK	
18650	1855.0	8.9503		9.520	
18900	1880.0	8.9536		9.492	
19150	1905.0	8.9307		9.499	

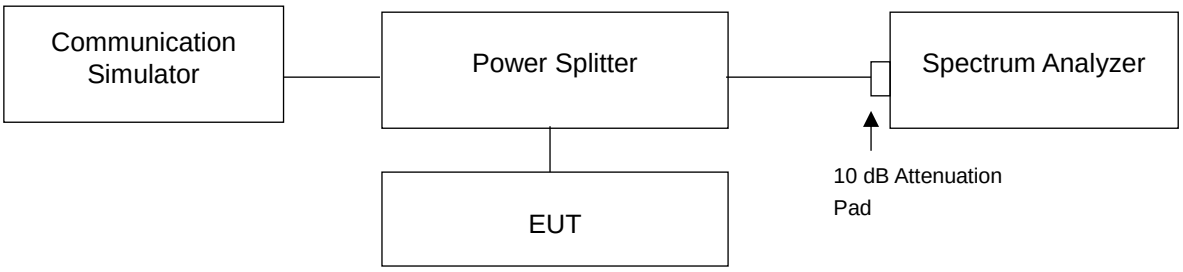
Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	26 dB Bandwidth
5 MHz / 16QAM	5 MHz / 16QAM
	
Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	26 dB Bandwidth
10 MHz / QPSK	10 MHz / QPSK
	

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.

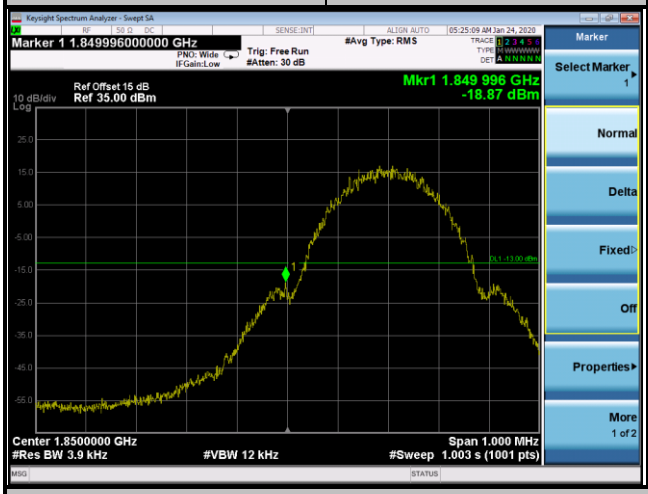
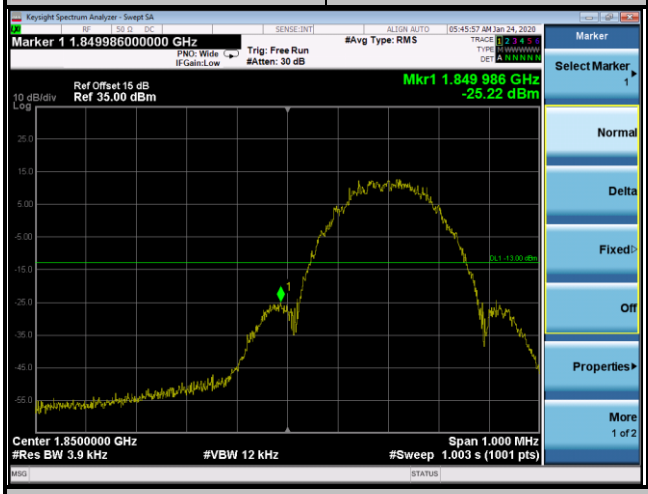
4.5.2 Test Setup

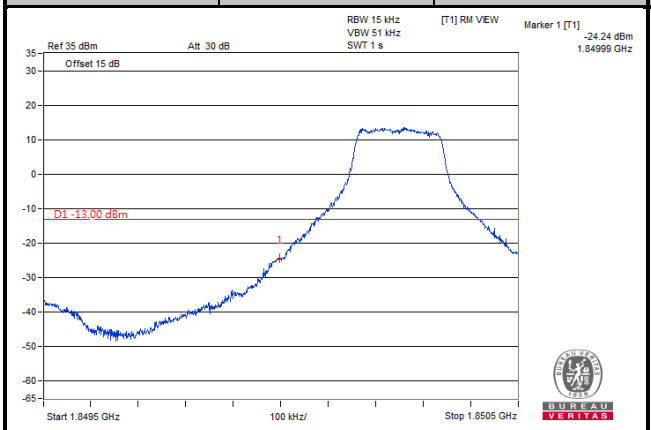
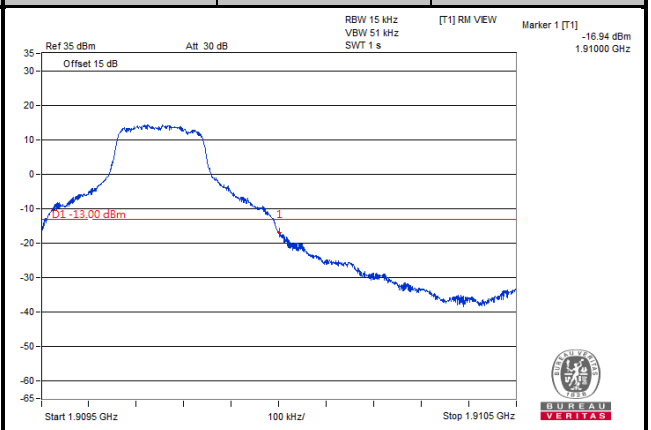
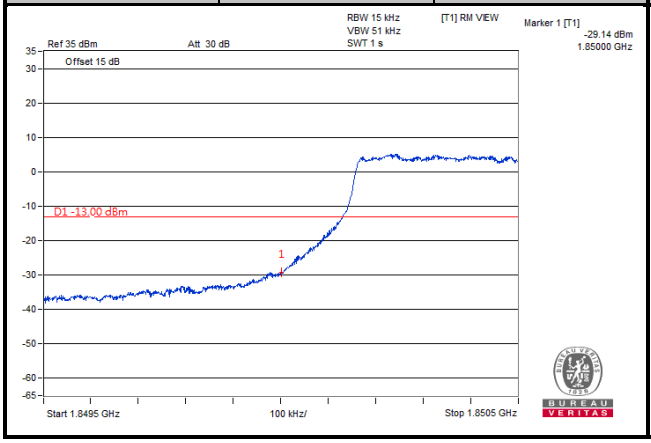
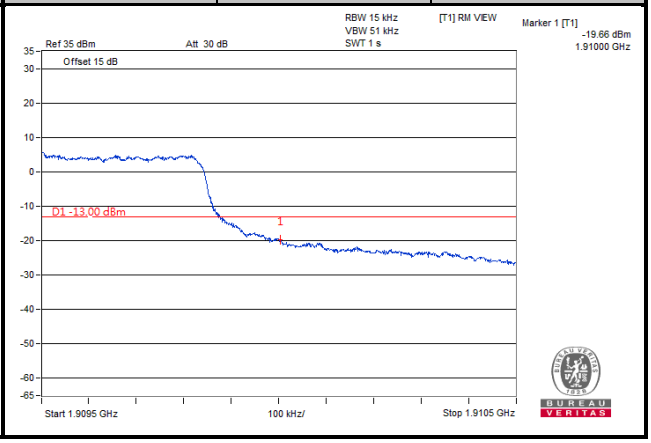


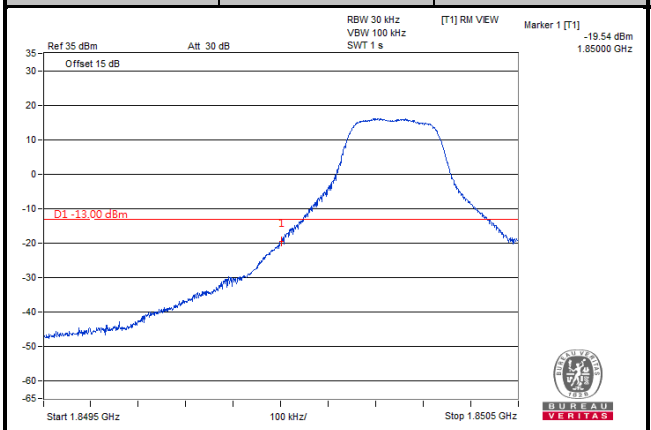
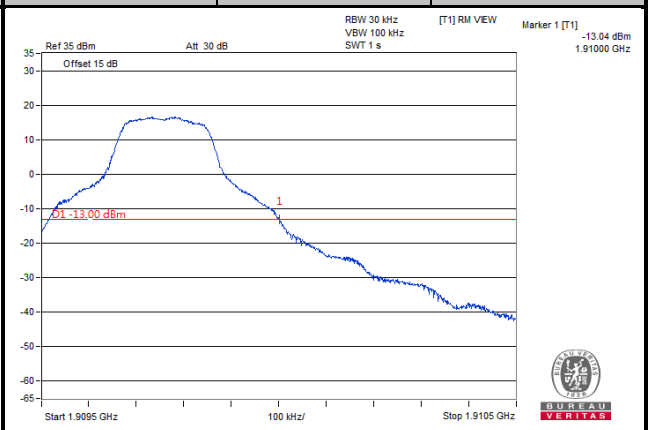
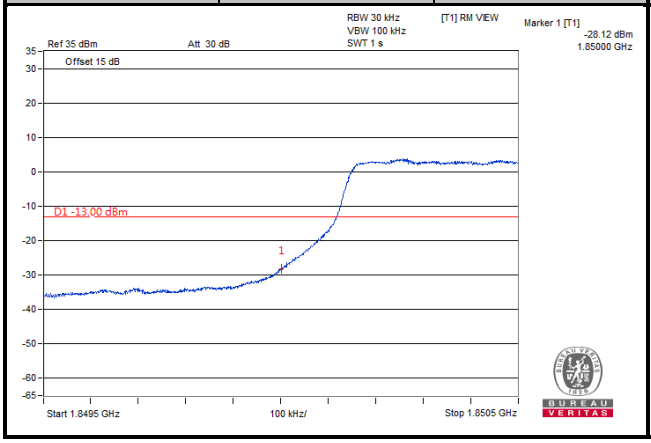
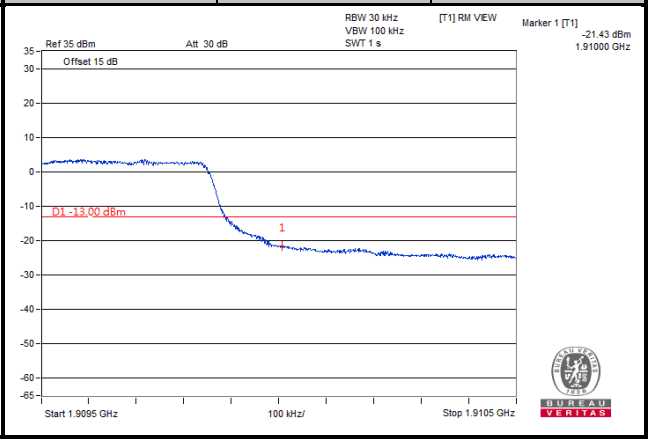
4.5.3 Test Procedures

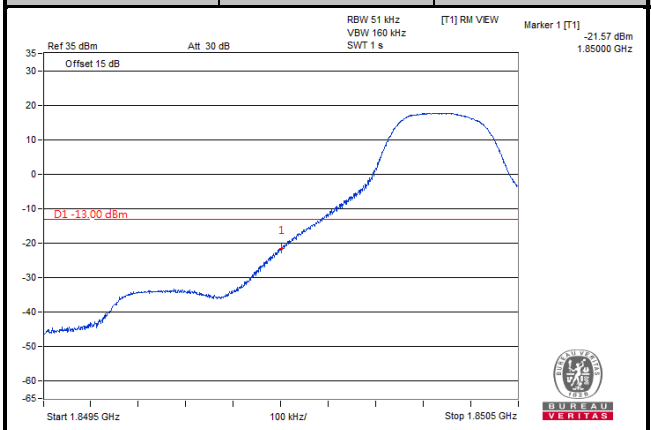
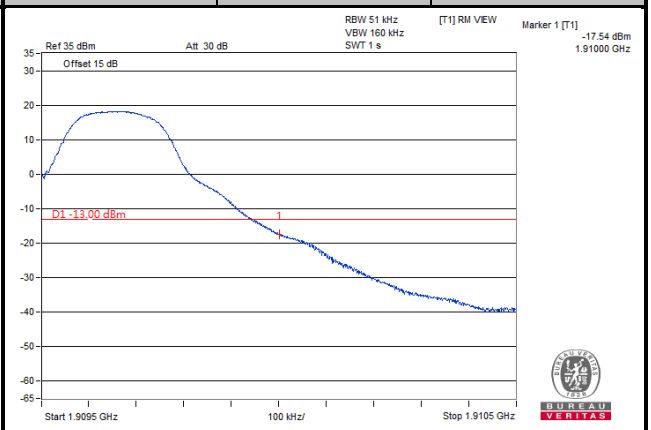
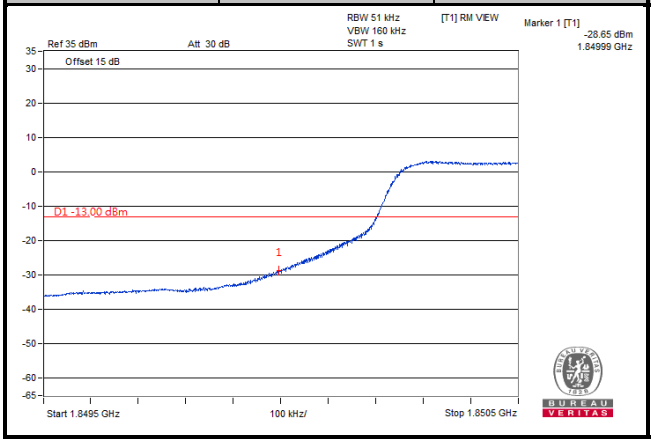
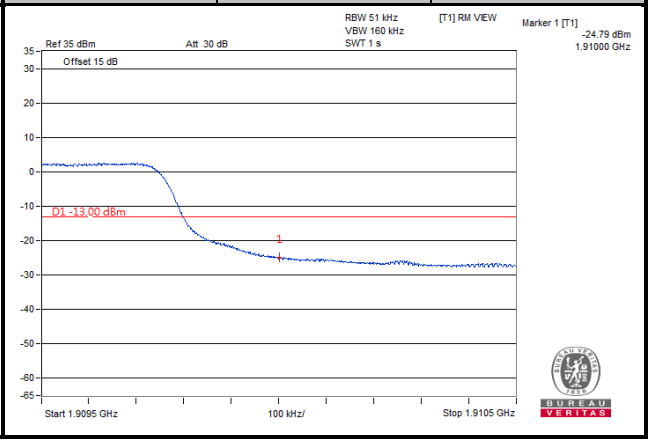
a. All measurements were done at low and high operational frequency range.
b. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 3.9 kHz and VB of the spectrum is 12 kHz (GSM/GPRS/EDGE).
c. The center frequency of spectrum is the band edge frequency and 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. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 150 kHz and VB of the spectrum is 470 kHz (LTE Bandwidth 15 MHz).
i. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 200 kHz and VB of the spectrum is 1 MHz (LTE Bandwidth 20 MHz).
j. Record the max trace plot into the test report.

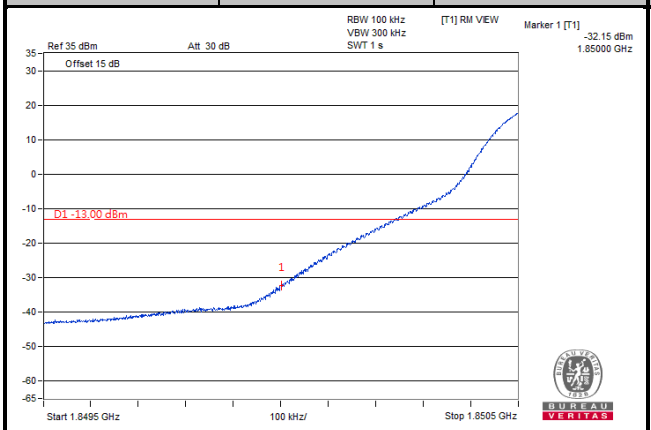
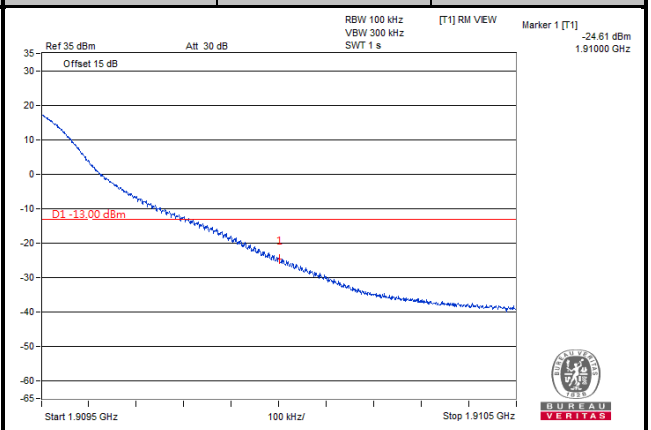
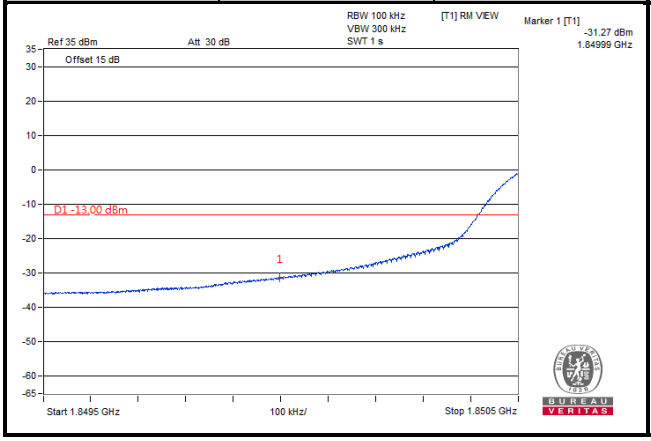
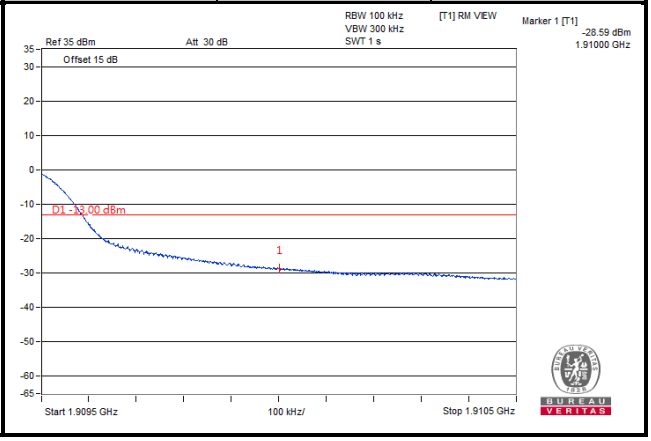
4.5.4 Test Results

GSM			
Channel	512	Channel	810
			
EDGE			
Channel	512	Channel	810
			
WCDMA			
Channel	9262	Channel	9538
			

LTE Band 2					
Channel Bandwidth: 1.4 MHz					
Channel	18607	1 RB	Channel	19193	1 RB
					
Channel	18607	6 RB	Channel	19193	6 RB
					

LTE Band 2					
Channel Bandwidth: 3 MHz					
Channel	18615	1 RB	Channel	19185	1 RB
					
Channel	18615	15 RB	Channel	19185	15 RB
					

LTE Band 2					
Channel Bandwidth: 5 MHz					
Channel	18625	1 RB	Channel	19175	1 RB
					
Channel	18625	25 RB	Channel	19175	25 RB
					

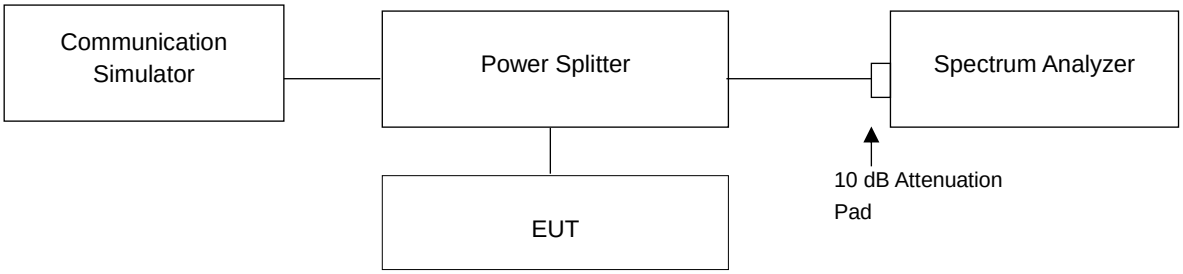
LTE Band 2					
Channel Bandwidth: 10 MHz					
Channel	18650	1 RB	Channel	19150	1 RB
					
Channel	18650	50 RB	Channel	19150	50 RB
					

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

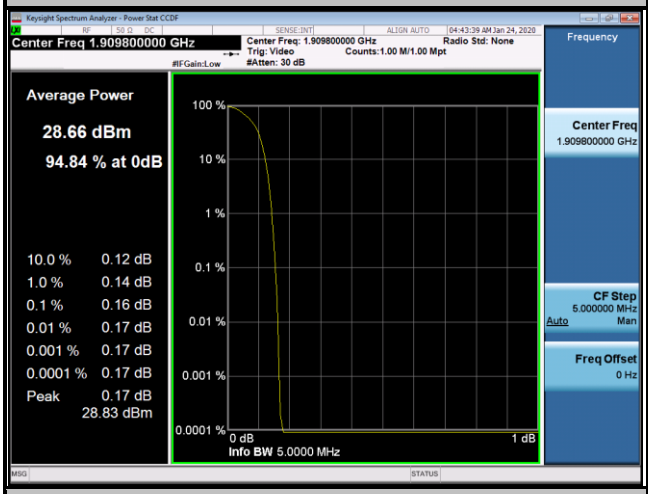
1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1 %.

4.6.4 Test Results

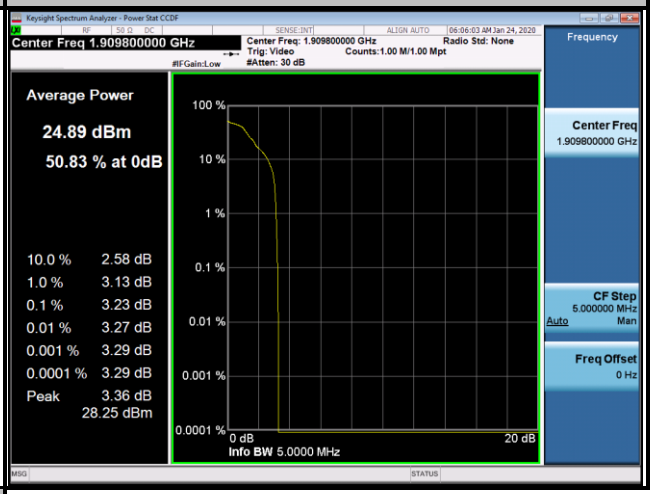
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)
		GSM	EDGE			WCDMA
512	1850.2	0.13	3.22	9262	1852.4	3.01
661	1880.0	0.13	3.22	9400	1880.0	3.05
810	1909.8	0.16	3.23	9538	1907.6	2.75

Spectrum Plot of Worst Value

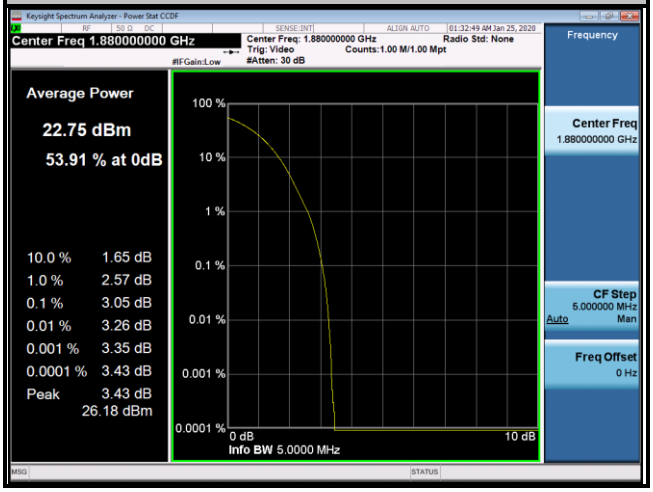
GSM



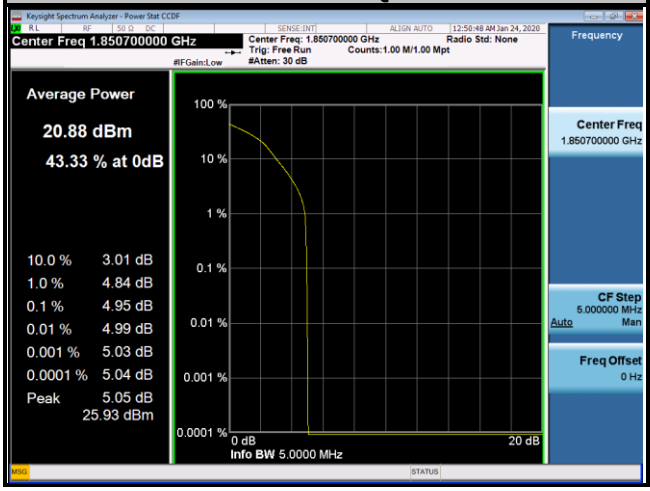
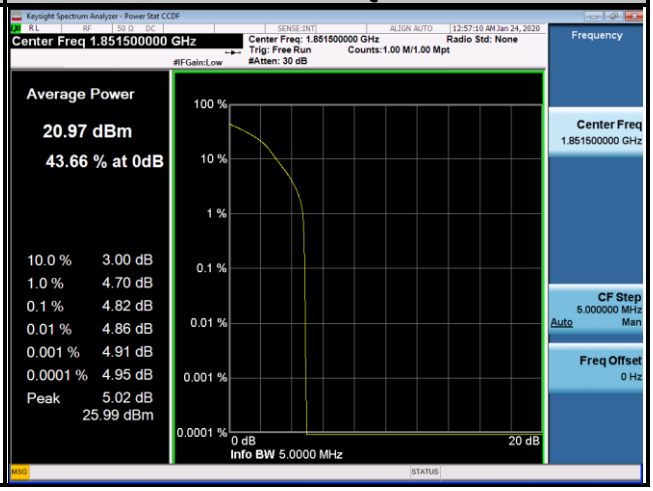
EDGE



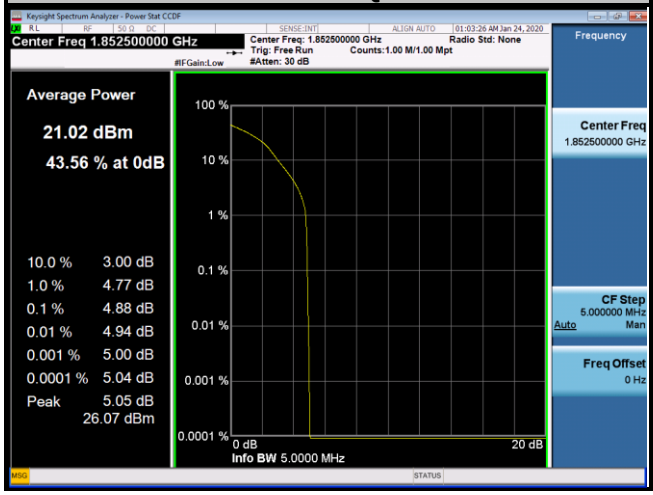
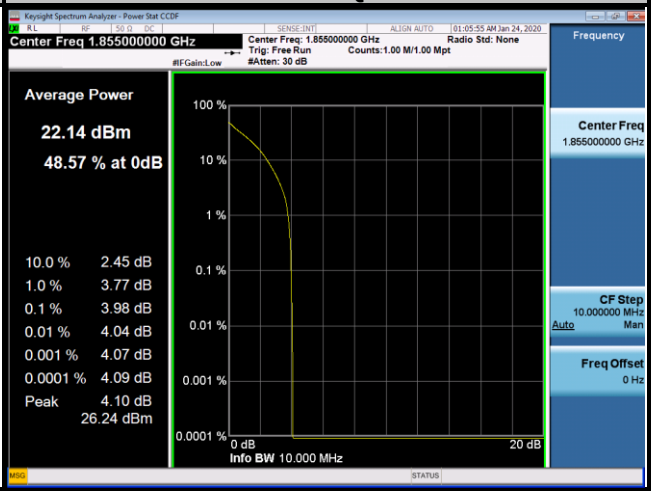
WCDMA



LTE Band 2							
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			QPSK	16QAM
18607	1850.7	3.96	4.95	18615	1851.5	4.06	4.82
18900	1880.0	3.41	4.47	18900	1880.0	3.46	4.37
19193	1909.3	1.79	3.02	19185	1908.5	2.15	3.31

Spectrum Plot of Worst Value	
1.4 MHz / 16QAM	3 MHz / 16QAM
	

LTE Band 2						
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			QPSK
18625	1852.5	4.07	4.88	18650	1855.0	3.98
18900	1880.0	3.47	4.49	18900	1880.0	3.68
19175	1907.5	2.89	4.11	19150	1905.0	3.81

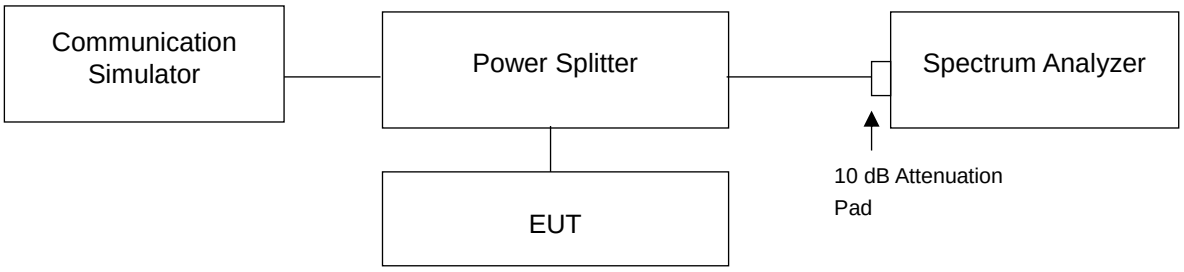
Spectrum Plot of Worst Value	
5 MHz / 16QAM	10 MHz / QPSK
	

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.

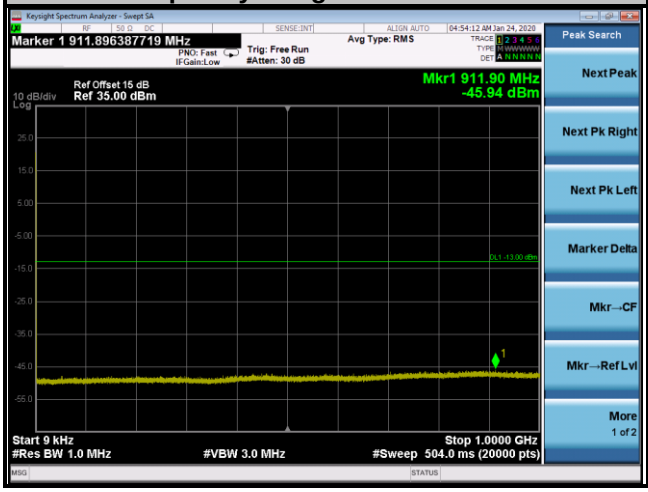
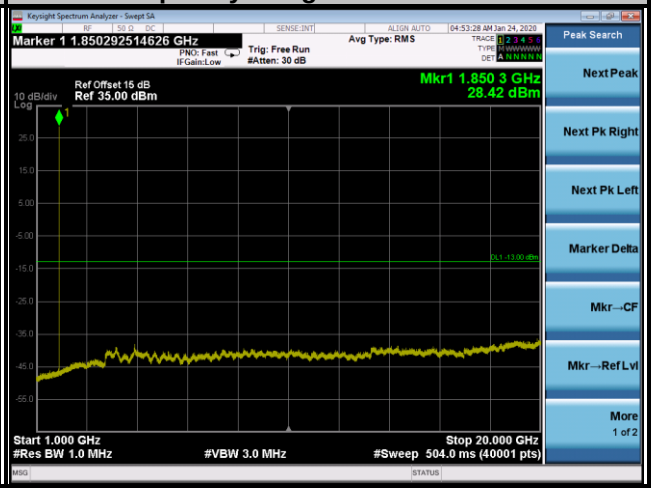
4.7.2 Test Setup



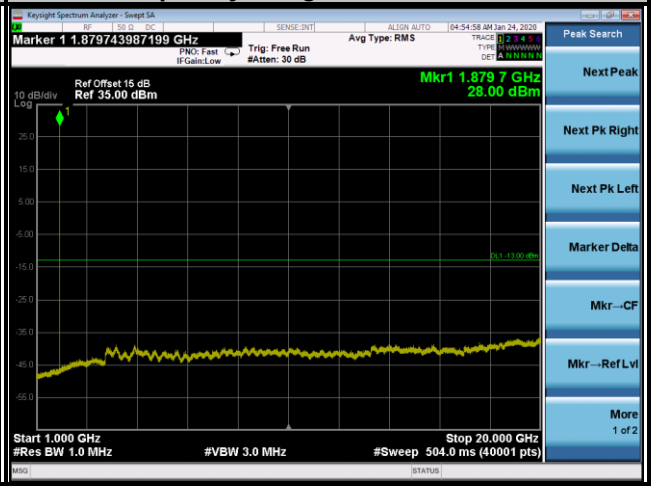
4.7.3 Test Procedure

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 20 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 1 MHz and VBW = 3 MHz is used for conducted emission measurement.

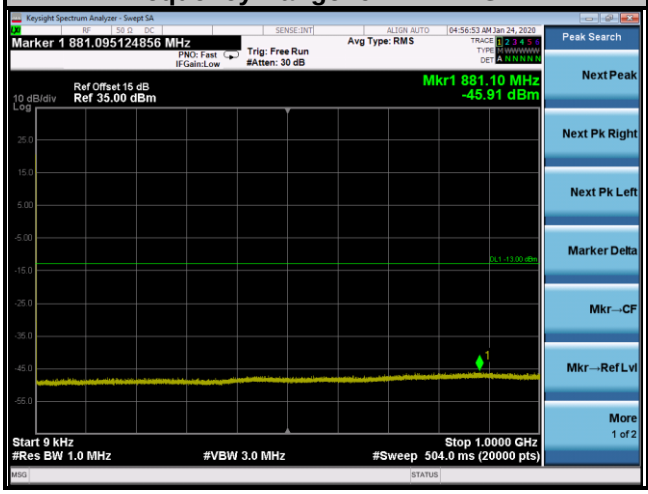
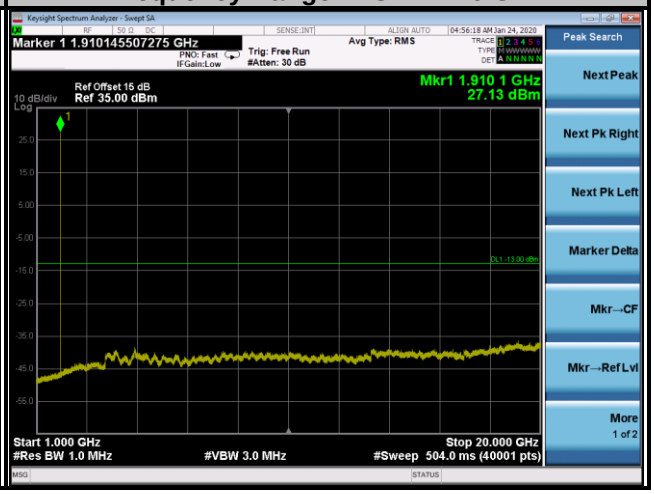
4.7.4 Test Results

GSM	
Channel 512	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

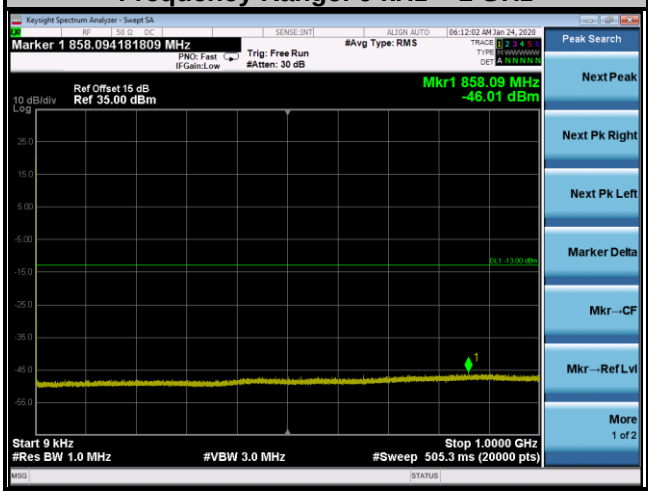
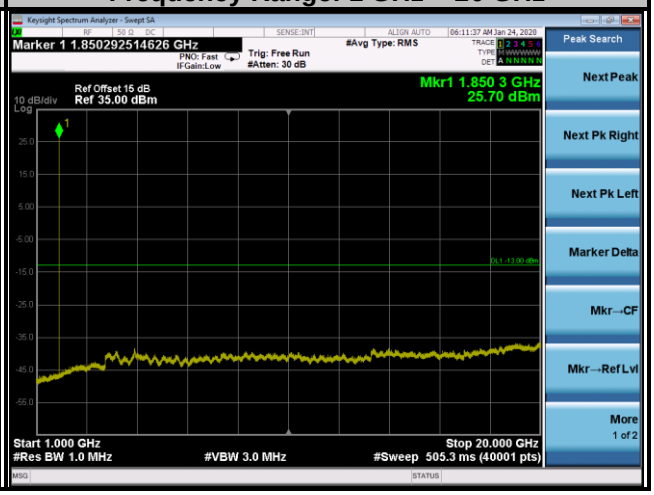
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

GSM	
Channel 661	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

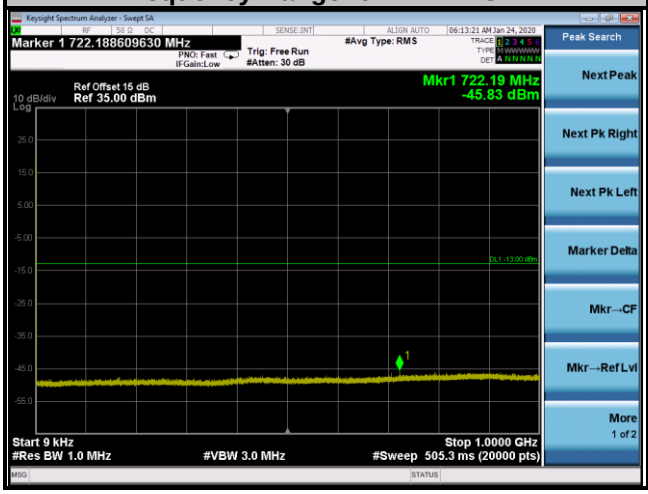
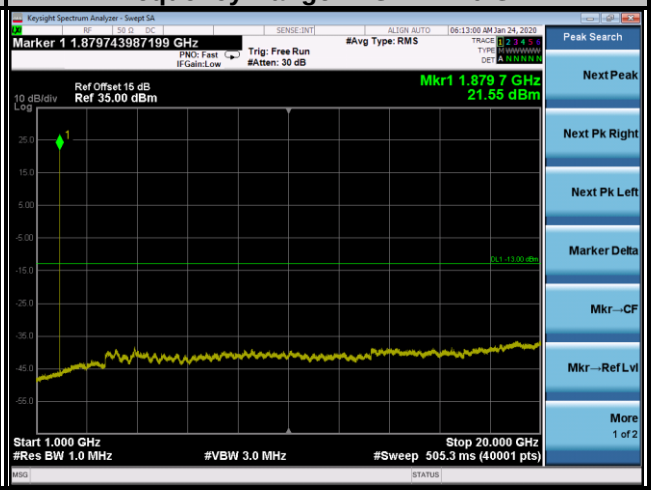
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

GSM	
Channel 810	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

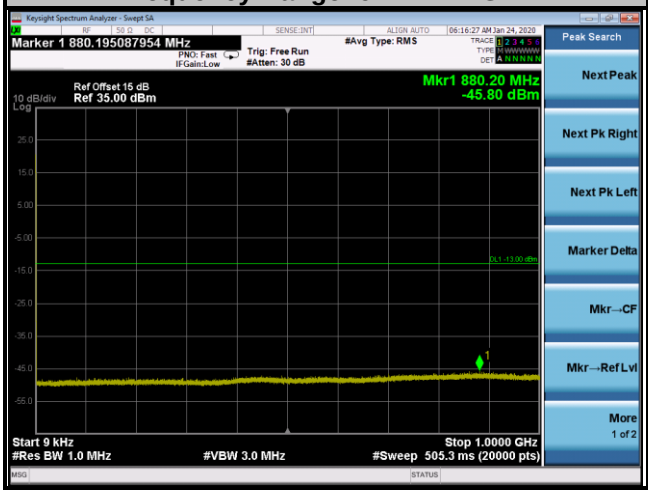
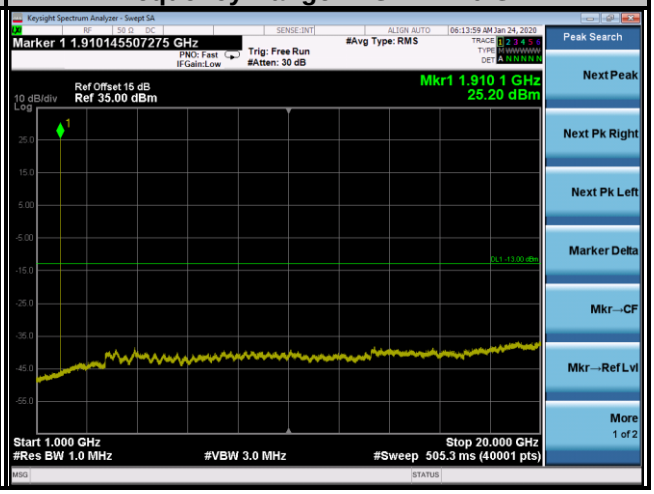
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

EDGE	
Channel 512	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

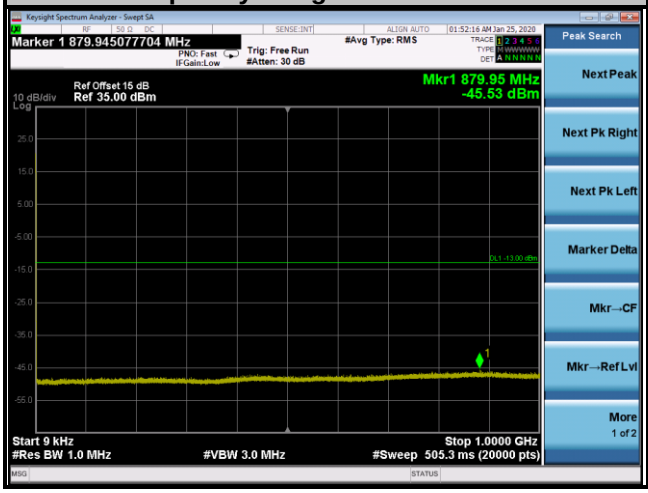
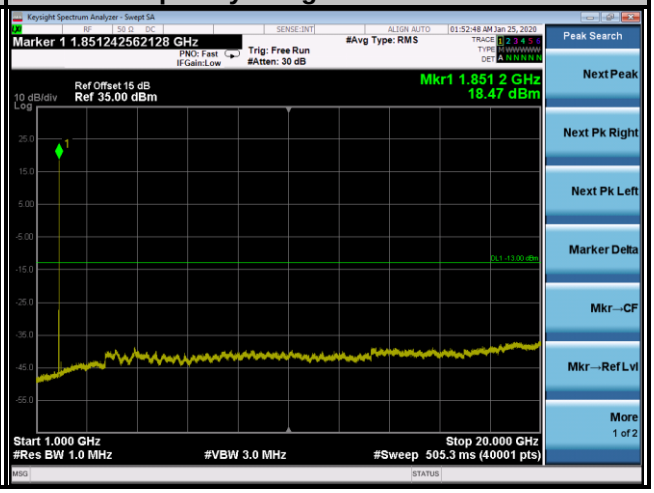
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

EDGE	
Channel 661	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

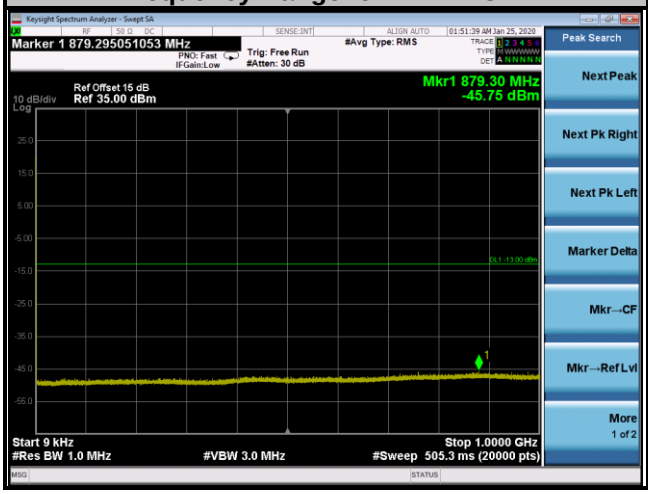
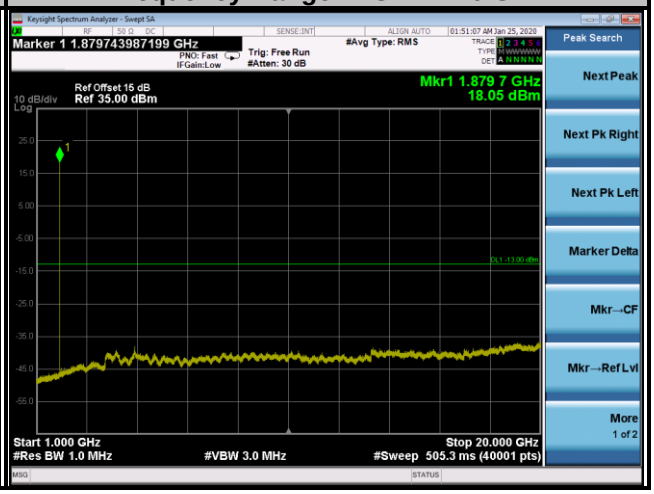
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

EDGE	
Channel 810	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

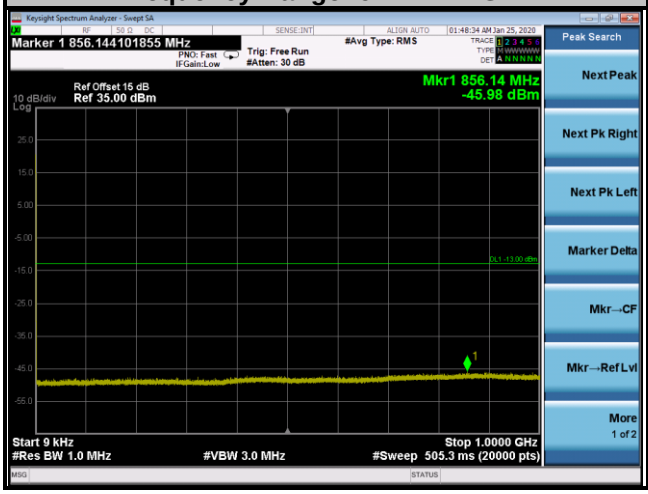
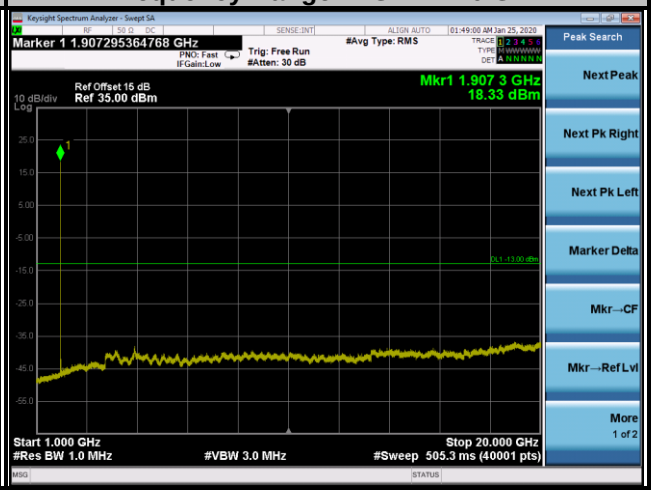
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

WCDMA	
Channel 9262	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

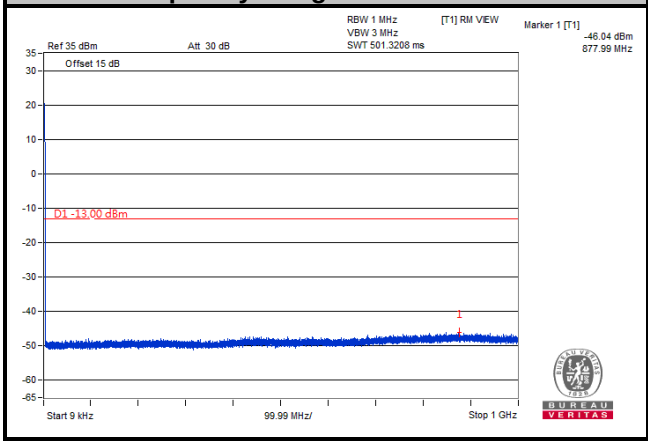
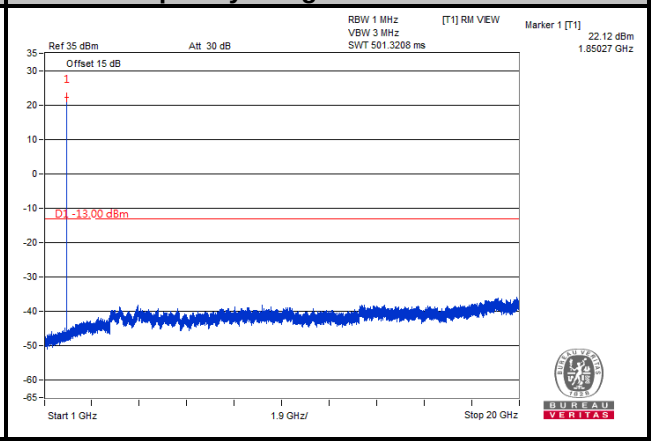
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

WCDMA	
Channel 9400	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

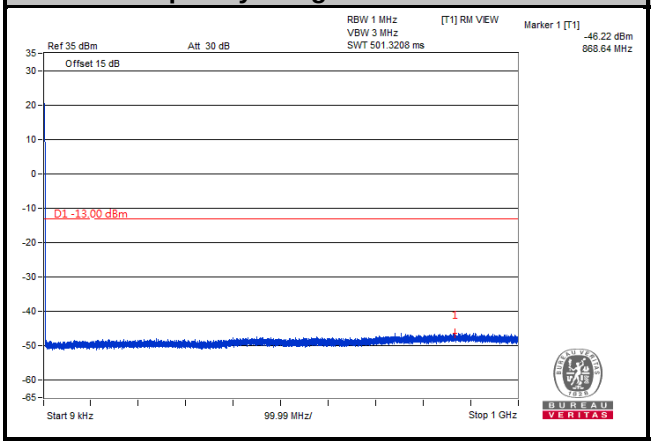
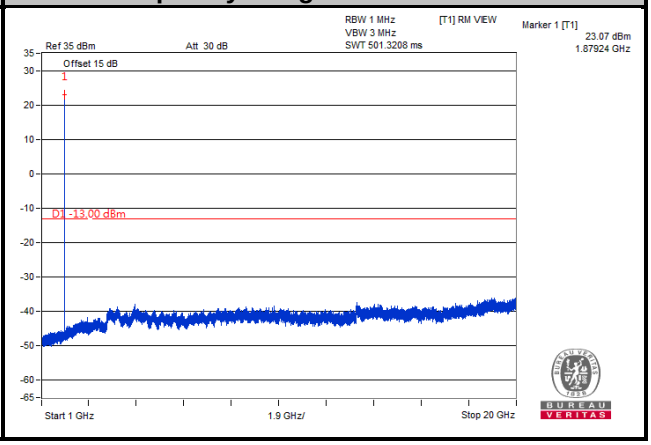
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

WCDMA	
Channel 9538	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

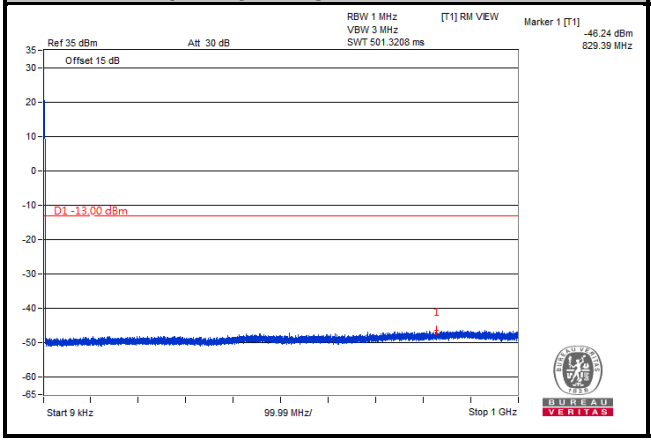
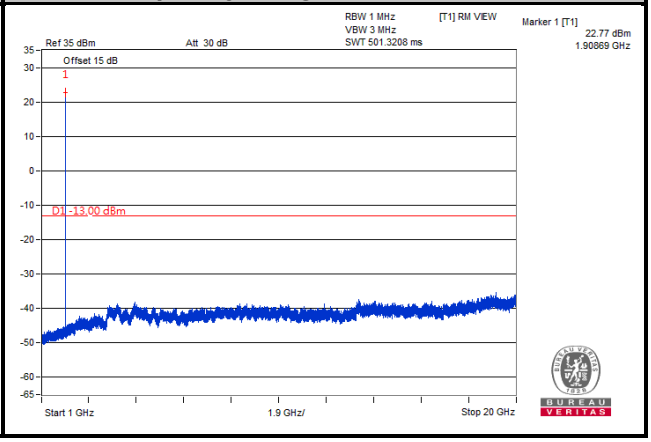
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 2	
Channel Bandwidth: 1.4 MHz	
Channel 18607	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

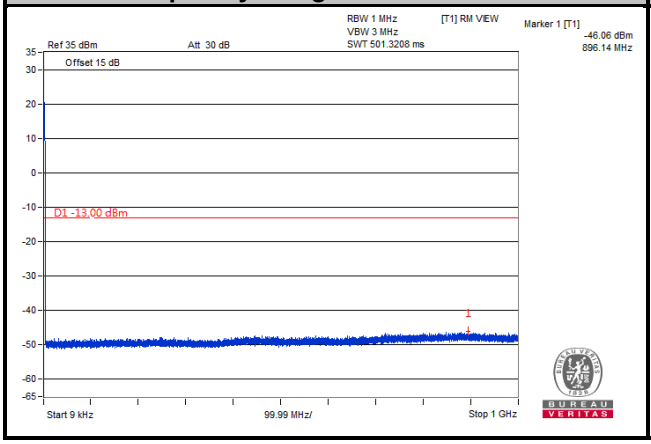
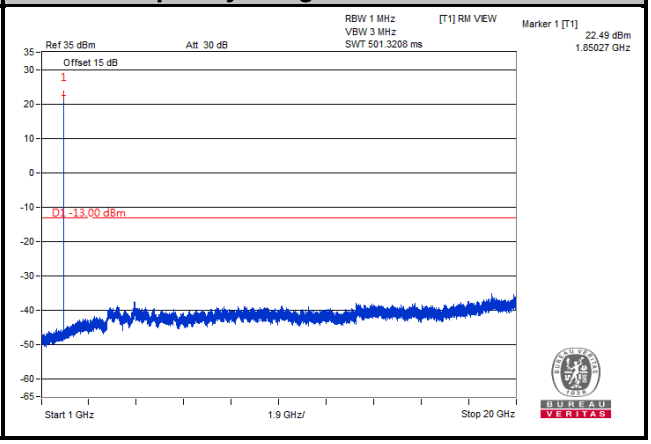
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 2	
Channel Bandwidth: 1.4 MHz	
Channel 18900	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

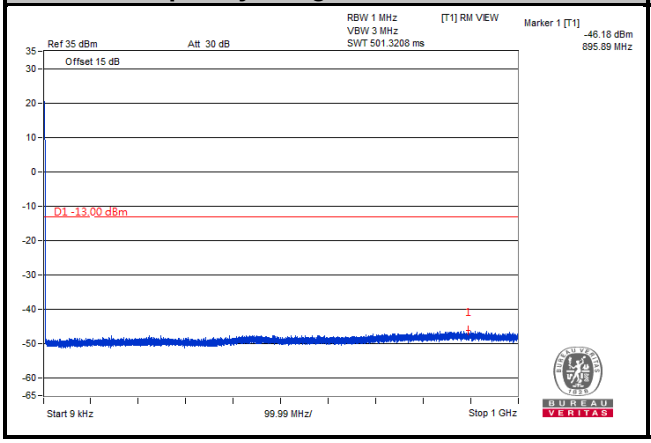
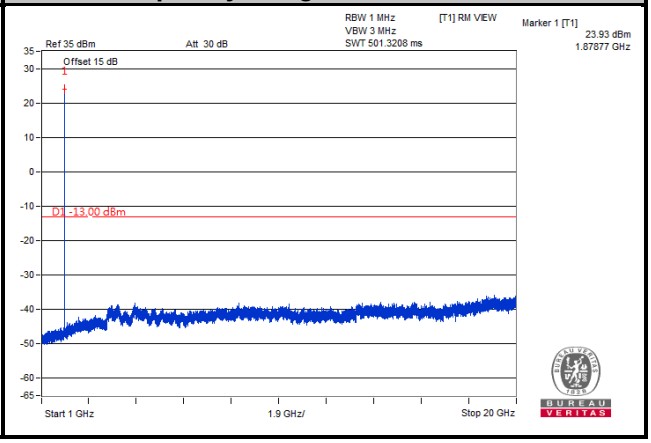
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 2	
Channel Bandwidth: 1.4 MHz	
Channel 19193	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

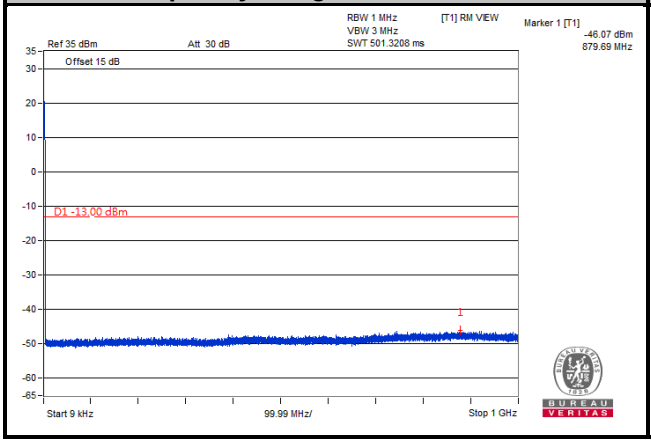
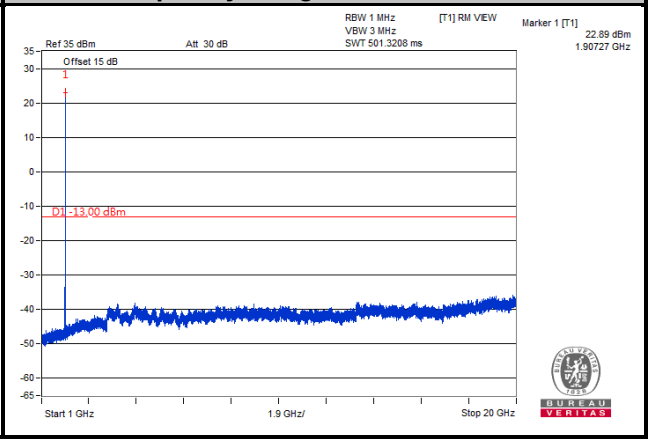
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 2	
Channel Bandwidth: 3 MHz	
Channel 18615	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

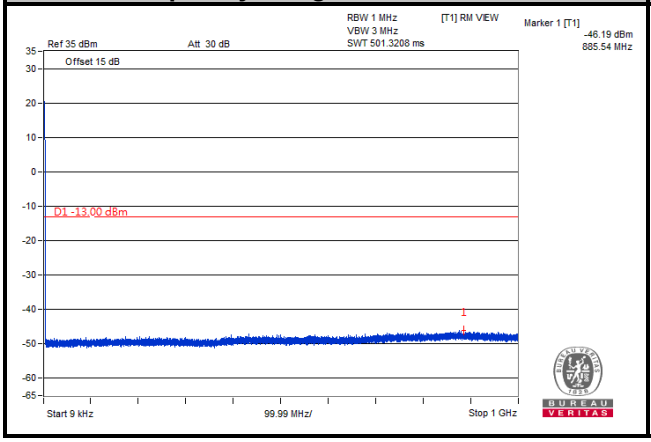
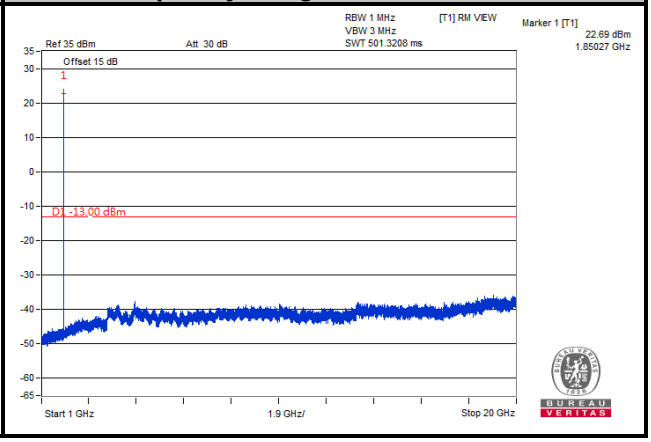
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 2	
Channel Bandwidth: 3 MHz	
Channel 18900	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

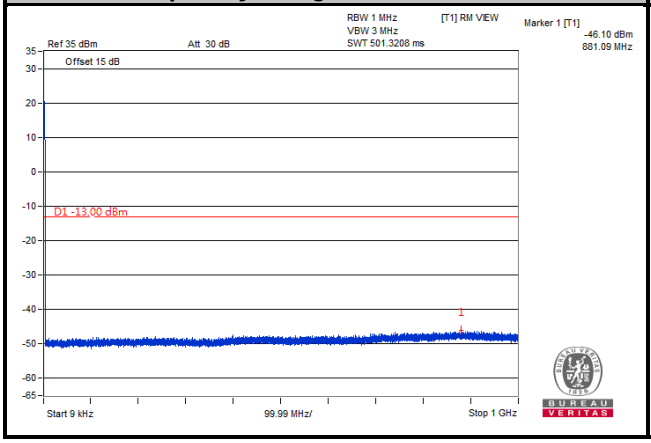
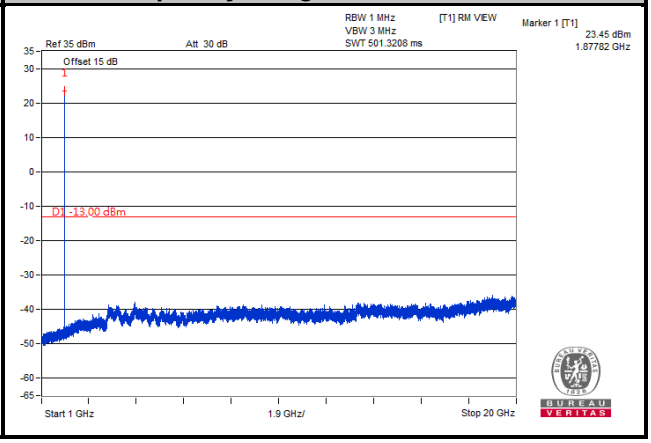
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 2	
Channel Bandwidth: 3 MHz	
Channel 19185	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

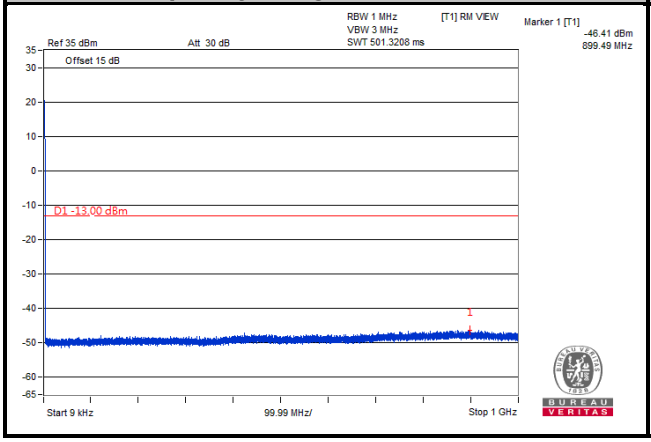
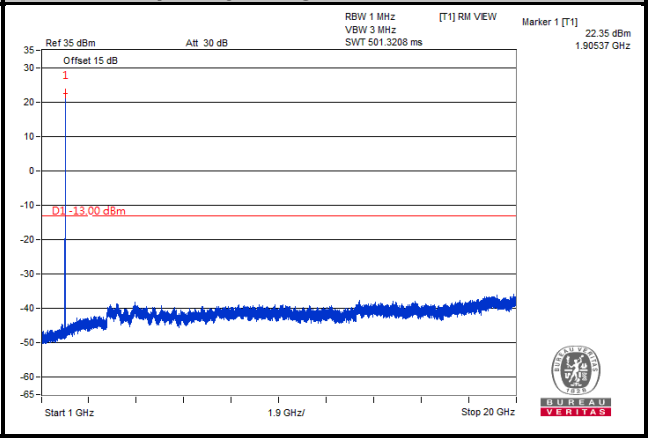
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 2	
Channel Bandwidth: 5 MHz	
Channel 18625	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

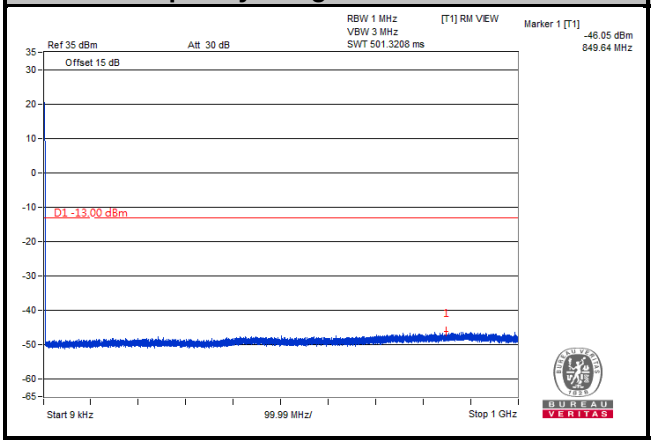
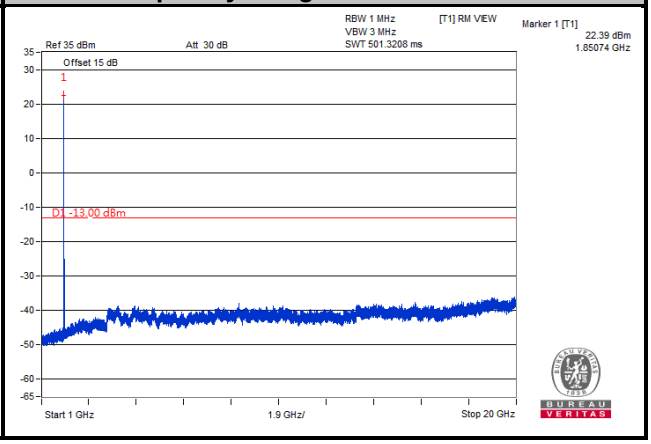
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 2	
Channel Bandwidth: 5 MHz	
Channel 18900	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

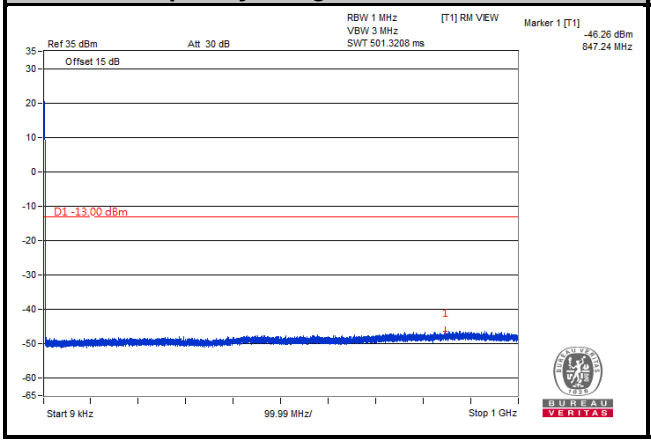
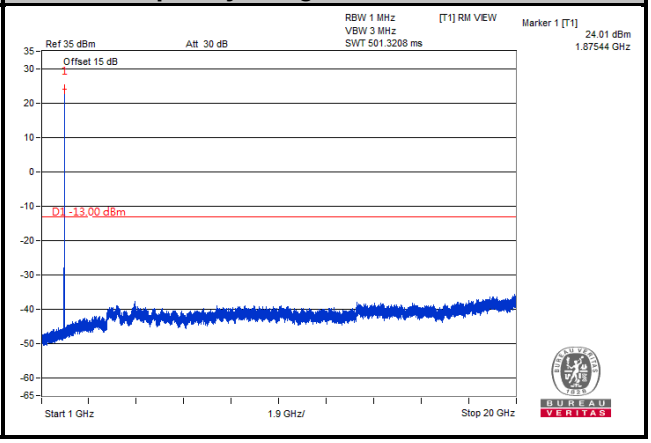
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 2	
Channel Bandwidth: 5 MHz	
Channel 19175	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

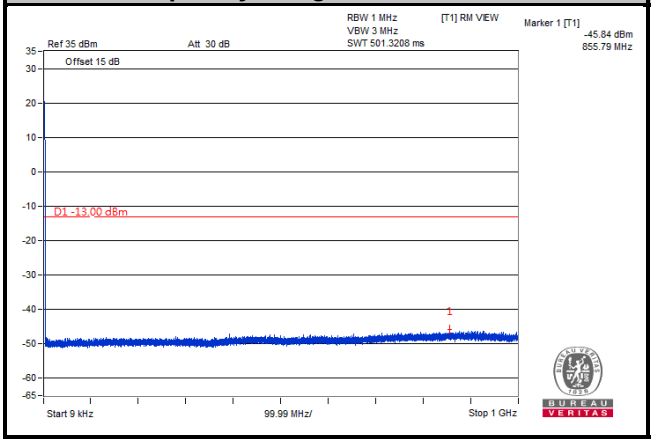
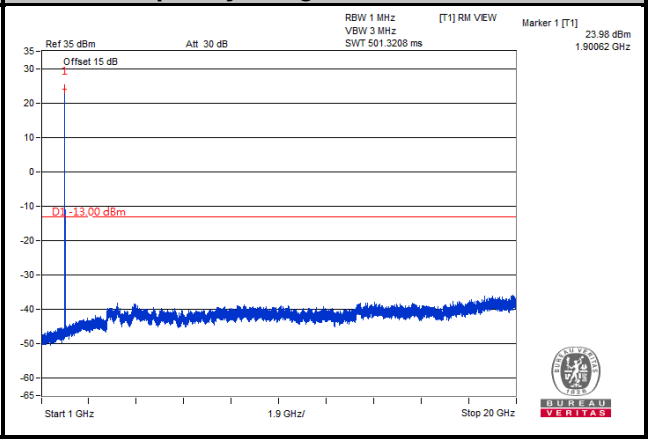
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

LTE Band 2	
Channel Bandwidth: 10 MHz	
Channel 18650	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

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

LTE Band 2	
Channel Bandwidth: 10 MHz	
Channel 18900	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

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

LTE Band 2	
Channel Bandwidth: 10 MHz	
Channel 19150	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 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. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step a. Record the power level of S.G.
c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
d. 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.

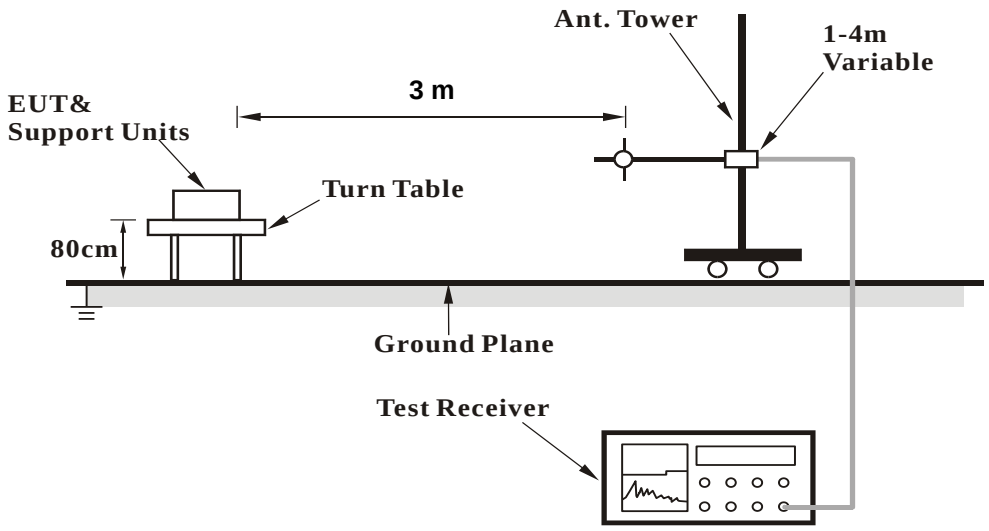
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.

4.8.3 Deviation from Test Standard

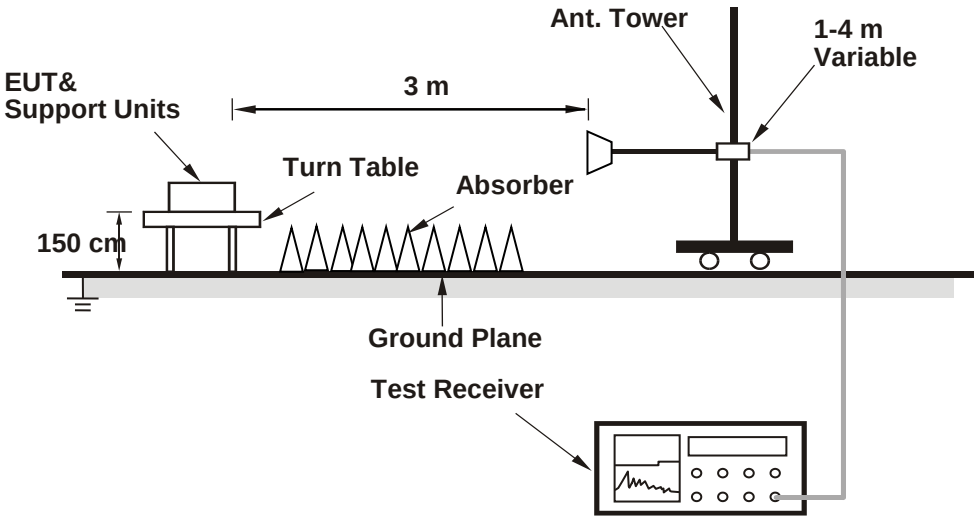
No deviation.

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

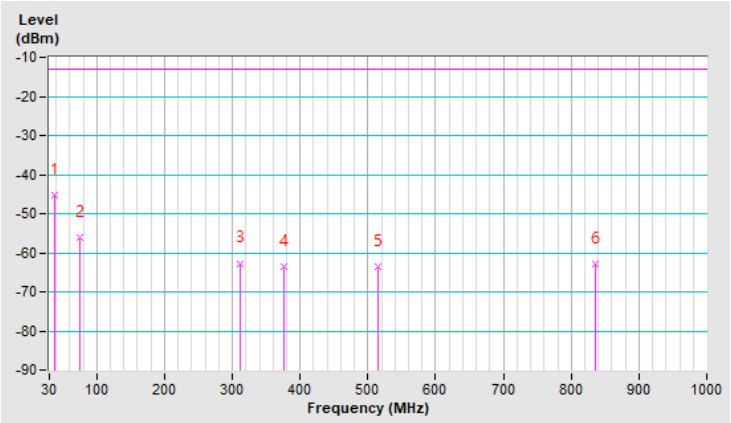
GSM1900:

Mode	TX channel 512 (1850.20MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	37.76	-48.7	-30.7	-14.7	-45.4	-13.0	-32.4
2	75.59	-50.4	-56.4	0.2	-56.2	-13.0	-43.2
3	312.27	-58.6	-66.7	4.0	-62.7	-13.0	-49.7
4	375.32	-61.9	-67.4	3.7	-63.7	-13.0	-50.7
5	515.97	-63.6	-67.3	3.9	-63.4	-13.0	-50.4
6	836.07	-69.9	-66.8	3.8	-63.0	-13.0	-50.0

Remarks:

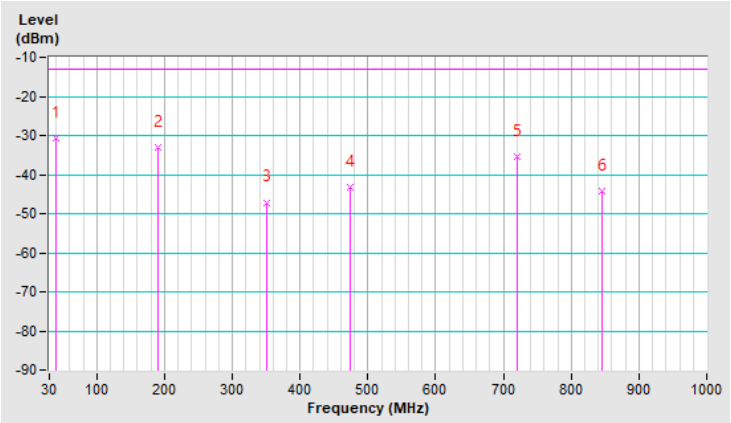
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Mode	TX channel 512 (1850.20MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	39.70	-21.0	-16.9	-13.7	-30.6	-13.0	-17.6
2	190.05	-30.9	-30.2	-2.8	-33.0	-13.0	-20.0
3	350.10	-46.6	-51.0	3.9	-47.1	-13.0	-34.1
4	473.29	-42.9	-46.7	3.6	-43.1	-13.0	-30.1
5	719.67	-41.5	-39.0	3.6	-35.4	-13.0	-22.4
6	844.80	-51.4	-47.8	3.6	-44.2	-13.0	-31.2

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

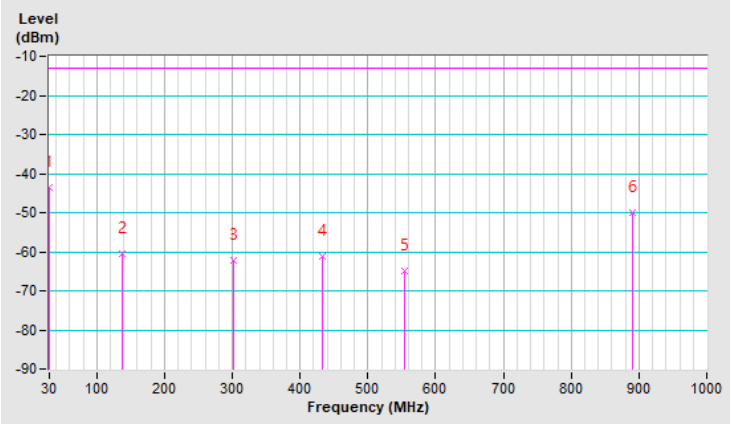


WCDMA Band 2:

Mode	TX channel 9400 (1880.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-47.6	-24.2	-19.4	-43.6	-13.0	-30.6
2	136.70	-54.5	-57.3	-3.2	-60.5	-13.0	-47.5
3	302.57	-57.8	-66.0	3.7	-62.3	-13.0	-49.3
4	433.52	-61.0	-64.8	3.5	-61.3	-13.0	-48.3
5	553.80	-65.3	-68.6	3.7	-64.9	-13.0	-51.9
6	891.36	-57.4	-53.6	3.5	-50.1	-13.0	-37.1

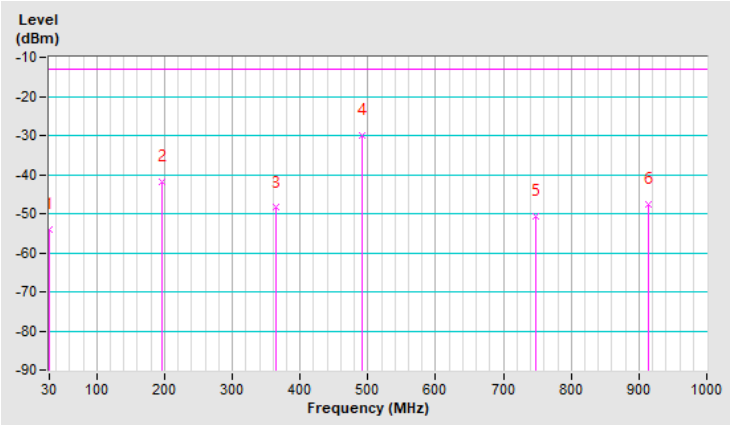
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Mode	TX channel 9400 (1880.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-44.0	-34.5	-19.4	-53.9	-13.0	-40.9
2	195.87	-41.0	-39.4	-2.5	-41.9	-13.0	-28.9
3	364.65	-48.2	-52.4	3.9	-48.5	-13.0	-35.5
4	491.72	-29.8	-33.6	3.7	-29.9	-13.0	-16.9
5	747.80	-57.7	-54.5	3.7	-50.8	-13.0	-37.8
6	913.67	-55.9	-51.1	3.5	-47.6	-13.0	-34.6

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



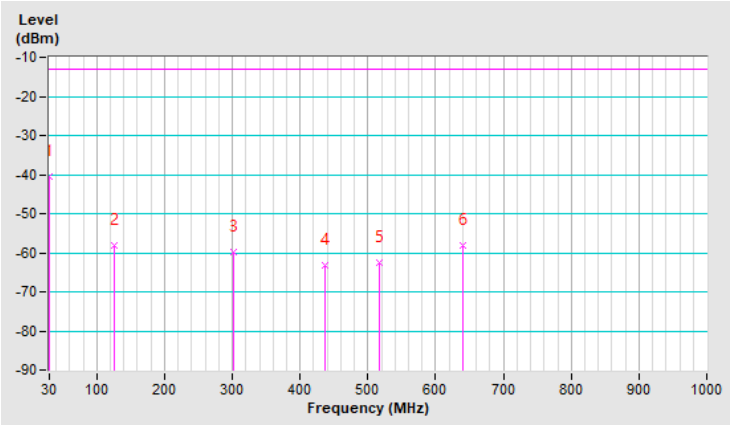
LTE Band 2

Channel Bandwidth: 1.4 MHz / QPSK

Mode	TX channel 18607 (1850.70MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.0	-44.4	-21.0	-19.4	-40.4	-13.0	-27.4
2	125.1	-51.0	-54.8	-3.2	-58.0	-13.0	-45.0
3	302.6	-55.4	-63.6	3.7	-59.9	-13.0	-46.9
4	436.4	-63.0	-66.9	3.6	-63.3	-13.0	-50.3
5	517.9	-62.7	-66.3	3.8	-62.5	-13.0	-49.5
6	641.1	-60.3	-61.8	3.6	-58.2	-13.0	-45.2

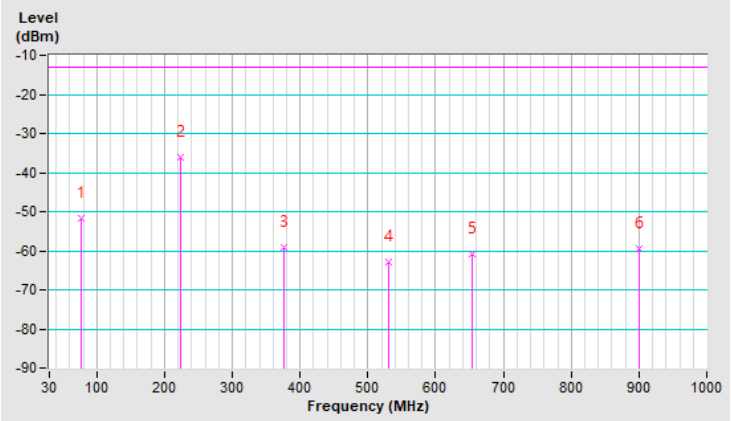
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Mode	TX channel 18607 (1850.70MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	77.53	-46.1	-52.1	0.5	-51.6	-13.0	-38.6
2	223.03	-31.9	-34.1	-2.0	-36.1	-13.0	-23.1
3	376.29	-58.8	-62.9	3.7	-59.2	-13.0	-46.2
4	531.49	-63.9	-66.8	4.0	-62.8	-13.0	-49.8
5	654.68	-66.3	-64.3	3.6	-60.7	-13.0	-47.7
6	900.09	-67.8	-63.0	3.5	-59.5	-13.0	-46.5

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

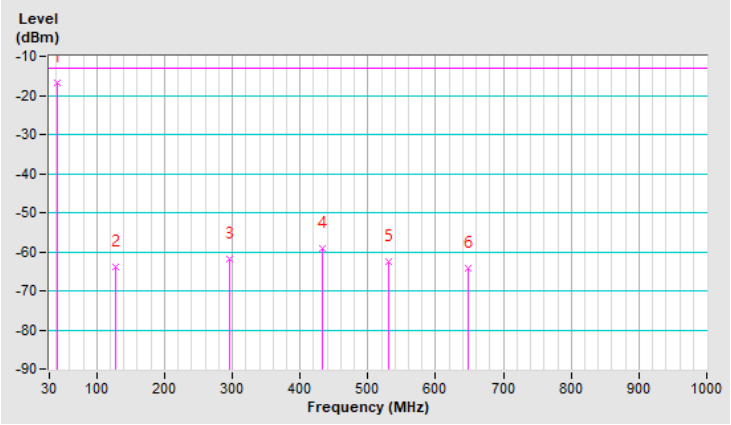


Channel Bandwidth: 5 MHz / QPSK

Mode	TX channel 18625 (1852.50MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	41.64	-18.8	-4.4	-12.3	-16.7	-13.0	-3.7
2	127.97	-57.8	-60.7	-3.2	-63.9	-13.0	-50.9
3	295.78	-58.9	-60.0	-1.8	-61.8	-13.0	-48.8
4	433.52	-59.0	-62.8	3.5	-59.3	-13.0	-46.3
5	531.49	-63.0	-66.6	4.0	-62.6	-13.0	-49.6
6	647.89	-66.2	-67.8	3.7	-64.1	-13.0	-51.1

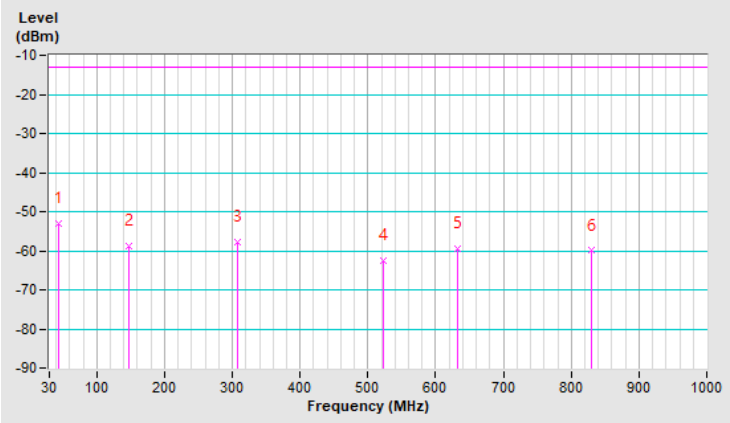
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Mode	TX channel 18625 (1852.50MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	12Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	44.55	-44.5	-42.0	-10.9	-52.9	-13.0	-39.9
2	147.37	-56.8	-56.0	-2.9	-58.9	-13.0	-45.9
3	308.39	-58.0	-61.8	3.9	-57.9	-13.0	-44.9
4	523.73	-63.0	-66.2	3.8	-62.4	-13.0	-49.4
5	631.40	-64.3	-63.0	3.6	-59.4	-13.0	-46.4
6	829.28	-67.4	-63.9	3.9	-60.0	-13.0	-47.0

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

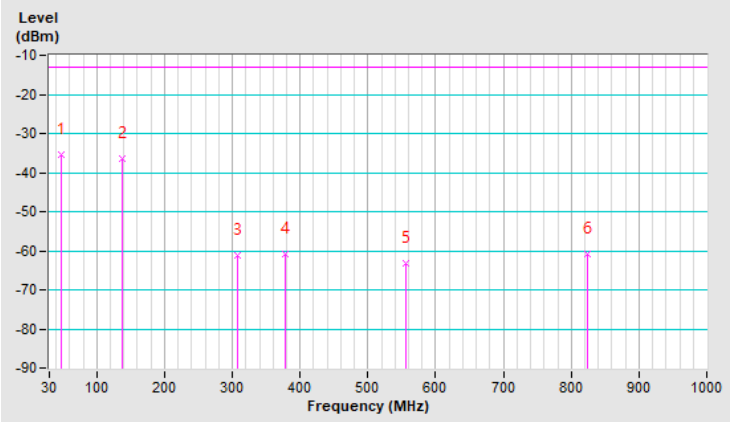


Channel Bandwidth: 10 MHz / QPSK

Mode	TX channel 18900 (1880.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	47.46	-35.7	-26.3	-9.2	-35.5	-13.0	-22.5
2	136.70	-30.5	-33.3	-3.2	-36.5	-13.0	-23.5
3	308.39	-57.1	-65.2	3.9	-61.3	-13.0	-48.3
4	377.26	-59.2	-64.5	3.6	-60.9	-13.0	-47.9
5	556.71	-63.7	-66.9	3.7	-63.2	-13.0	-50.2
6	823.46	-67.5	-64.7	3.9	-60.8	-13.0	-47.8

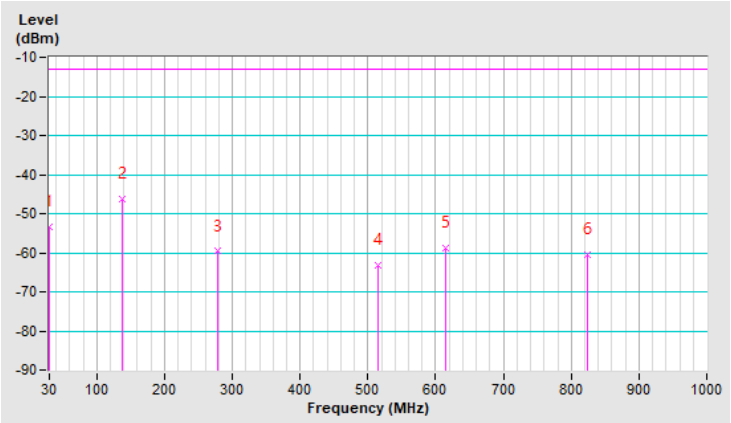
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Mode	TX channel 18900 (1880.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-43.6	-34.1	-19.4	-53.5	-13.0	-40.5
2	136.70	-43.1	-43.1	-3.2	-46.3	-13.0	-33.3
3	278.32	-63.0	-58.1	-1.6	-59.7	-13.0	-46.7
4	514.03	-63.4	-67.0	3.8	-63.2	-13.0	-50.2
5	614.91	-63.6	-62.5	3.7	-58.8	-13.0	-45.8
6	823.46	-68.0	-64.4	3.9	-60.5	-13.0	-47.5

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



Above 1GHz

GSM1900:

Mode	TX channel 512 (1850.2MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	**3700.40**	**-53.6**	**-45.1**	**1.4**	**-43.7**	**-13.0**	**-30.7**
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3700.40	-53.8	-45.6	1.4	-44.2	-13.0	-31.2

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

Mode	TX channel 661 (1880.0MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-54.4	-45.9	1.3	-44.6	-13.0	-31.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-54.0	-45.7	1.3	-44.4	-13.0	-31.4

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

Mode	TX channel 810 (1909.8MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3819.60	-54.8	-46.5	1.4	-45.1	-13.0	-32.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3819.60	-53.5	-45.3	1.4	-43.9	-13.0	-30.9

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

WCDMA Band 2:

Mode	TX channel 9262 (1852.4MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	**3704.80**	**-59.8**	**-51.3**	**1.4**	**-49.9**	**-13.0**	**-36.9**
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3704.80	-61.3	-53.1	1.4	-51.7	-13.0	-38.7

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

Mode	TX channel 9400 (1880.0MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-61.0	-52.5	1.3	-51.2	-13.0	-38.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-61.6	-53.3	1.3	-52.0	-13.0	-39.0

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

Mode	TX channel 9538 (1907.6MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3815.20	-60.9	-52.6	1.4	-51.2	-13.0	-38.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3815.20	-61.6	-53.4	1.4	-52.0	-13.0	-39.0

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

LTE Band 2

Channel Bandwidth: 1.4 MHz / QPSK

Mode	TX channel 18607 (1850.70MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3701.40	-64.6	-56.1	1.4	-354.7	-13.0	-41.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	**3701.40**	**-62.5**	**-54.3**	**1.4**	**-52.9**	**-13.0**	**-39.9**

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

Mode	TX channel 18900 (1880.00MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-65.3	-56.8	1.3	-55.5	-13	-42.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-63.0	-54.7	1.3	-53.4	-13.0	-40.4

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

Mode	TX channel 19193 (1909.30MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3818.60	-65.6	-57.3	1.4	-55.9	-13.0	-42.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3818.60	-63.5	-55.3	1.4	-53.9	-13.0	-40.9

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

Channel Bandwidth: 5 MHz / QPSK

Mode	TX channel 18625 (1852.50MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3705.00	-64.5	-56.0	1.4	-54.6	-13.0	-41.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3705.00	-62.8	-54.6	1.4	-53.2	-13.0	-40.2

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

Mode	TX channel 18900 (1880.00MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-64.5	-56	1.3	-54.7	-13.0	-41.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-63.1	-54.8	1.3	-53.5	-13.0	-40.5

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

Mode	TX channel 19175 (1907.50MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3815.00	-64.6	-56.3	1.4	-54.9	-13.0	-41.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3815.00	-63.4	-55.2	1.4	-53.8	-13.0	-40.8

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

Channel Bandwidth: 10 MHz / QPSK

Mode	TX channel 18650 (1855.00MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3710.00	-64.5	-56.0	1.4	-54.6	-13.0	-41.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3710.00	-63.0	-54.8	1.4	-53.4	-13.0	-40.4

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

Mode	TX channel 18900 (1880.00MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-64.6	-56.1	1.3	-54.8	-13.0	-41.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3760.00	-63.4	-55.1	1.3	-53.8	-13.0	-40.5

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

Mode	TX channel 19150 (1905.00MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	24Vdc
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3810.00	-64.7	-56.3	1.3	-55.0	-13.0	-42.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3810.00	-63.6	-55.3	1.3	-54.0	-13.0	-41.0

Remarks:
1. EIRP (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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