FCC Test Report

(PART 22)

Report No.:	RF170726C31
FCC ID:	MSQZ01KDA
Test Model:	ASUS_Z01KDA / ASUS_Z01KS
Received Date:	Jul. 26, 2017
Test Date:	Aug. 12, 2017 ~ Aug. 18, 2017
Issued Date:	Oct. 12, 2017
Applicant:	ASUSTek COMPUTER INC.
Address:	4F, No. 150, LI-TE Rd., PEITOU, TAIPEI 112, TAIWAN
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C)
Test Location (1):	No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.
Test Location (2):	No.215, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan, R.O.C

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Release Control Record

Issue No.	Description	Date Issued
RF170726C31	Original Release	Oct. 12, 2017

1 Certificate of Conformity

Product:	ASUS Phone
Brand:	ASUS
Test Model:	ASUS_Z01KDA / ASUS_Z01KS
Sample Status:	Production Unit
Applicant:	ASUSTek COMPUTER INC.
Test Date:	Aug. 12, 2017 ~ Aug. 18, 2017
Standards:	FCC Part 22, Subpart H

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

Prepared by : _____ , **Date:** Oct. 12, 2017

Ivonne Wu / Supervisor

Approved by : _____ , **Date:** Oct. 12, 2017

David Huang / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 22 & Part 2			
FCC Clause	**Test Item**	**Result**	**Remarks**
2.1046 22.913 (a)	Effective Radiated Power	Pass	Meet the requirement of limit.
---	Peak to Average Ratio	Pass	Meet the requirement of limit.
2.1055 22.355	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Occupied Bandwidth	Pass	Meet the requirement of limit.
22.917	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 22.917	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 22.917	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -19.55 dB at 2494.50 MHz.

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	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	30 MHz ~ 200 MHz	2.0153 dB
	200 MHz ~1000 MHz	2.0224 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	1.0121 dB
	18 GHz ~ 40 GHz	1.1508 dB

2.2 Test Site and Instruments

Description & Manaufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent Technologies	N9038A	MY52260177	Jul. 05, 2017	Jul. 04, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 13, 2016	Dec. 12, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Dec. 16, 2016	Dec. 15, 2017
HORN Antenna ETS-Lindgren	3117	00143293	Dec. 29, 2016	Dec. 28, 2017
Double Ridge Guide Horn Antenna EMCO	3115	5619	Dec. 27, 2016	Dec. 26, 2017
BILOG Antenna SCHWARZBECK	VULB 9168	9168-153	Dec. 13, 2016	Dec. 12, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 14, 2016	Dec. 13, 2017
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 17, 2017	Apr. 16, 2018
MXG Vector signal generator Agilent	N5182B	MY53050430	Oct. 19, 2016	Oct. 18, 2017
Preamplifier Agilent	310N	187226	Jun. 23, 2017	Jun. 22, 2018
Preamplifier Agilent	83017A	MY39501357	Jun. 23, 2017	Jun. 22, 2018
Power Meter Anritsu	ML2495A	1232002	Sep. 08, 2016	Sep. 07, 2017
Power Sensor Anritsu	MA2411B	1207325	Sep. 08, 2016	Sep. 07, 2017
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(RFC-SMS-100-SMS-120+RFC-SMS-100-SMS-400)	Jun. 23, 2017	Jun. 22, 2018
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(RFC-SMS-100-SMS-24)	Jun. 23, 2017	Jun. 22, 2018
Software BV ADT	E3 8.130425b	NA	NA	NA
Antenna Tower MF	NA	NA	NA	NA
Turn Table MF	NA	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA
Communications Tester-Wireless Agilent	8960 Series 10	MY53201073	Jun. 28, 2017	Jun. 27, 2019
Radio Communication Analyzer Anritsu	MT8820C	6201010284	Nov. 30, 2016	Nov. 29, 2017

Note: 1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HsinTien Chamber 1.
3. The horn antenna and preamplifier (model: 83017A) are used only for the measurement of emission frequency above 1 GHz if tested.
4. The FCC Designation Number is TW0011. The number will be varied with the Lab location and scope as attached.
5. The IC Site Registration No. is IC7450I-1.

3 General Information

3.1 General Description of EUT

Product	ASUS Phone	
Brand	ASUS	
Test Model	ASUS_Z01KDA / ASUS_Z01KS	
SKU	Operator-3CA	
Status of EUT	Production Unit	
Power Supply Rating	5 Vdc or 9 Vdc (adapter) 3.85 Vdc (Li-ion battery)	
Modulation Type	GSM/GPRS	GMSK
	EDGE	GMSK, 8PSK
	WCDMA	QPSK
	LTE	QPSK, 16QAM
Frequency Range	GSM/GPRS/EDGE	824.2 ~ 848.8 MHz
	WCDMA	826.4 ~ 846.6 MHz
	LTE 5 (Channel Bandwidth: 1.4 MHz)	824.7 ~ 848.3 MHz
	LTE 5 (Channel Bandwidth: 3 MHz)	825.5 ~ 847.5 MHz
	LTE 5 (Channel Bandwidth: 5 MHz)	826.5 ~ 846.5 MHz
	LTE 5 (Channel Bandwidth: 10 MHz)	829 ~ 844 MHz
	LTE 26 (Channel Bandwidth: 1.4 MHz)	824.7 ~ 848.3 MHz
	LTE 26 (Channel Bandwidth: 3 MHz)	825.5 ~ 847.5 MHz
	LTE 26 (Channel Bandwidth: 5 MHz)	826.5 ~ 846.5 MHz
	LTE 26 (Channel Bandwidth: 10 MHz)	829 ~ 844 MHz
	LTE 26 (Channel Bandwidth: 15 MHz)	831.5 ~ 841.5 MHz
Max. ERP Power	GSM/GPRS	449.99 mW
	EDGE	113.50 mW
	WCDMA	45.19 mW
	LTE 5 (Channel Bandwidth: 1.4 MHz)	40.72 mW
	LTE 5 (Channel Bandwidth: 3 MHz)	40.66 mW
	LTE 5 (Channel Bandwidth: 5 MHz)	40.46 mW
	LTE 5 (Channel Bandwidth: 10 MHz)	40.85 mW
	LTE 26 (Channel Bandwidth: 1.4 MHz)	40.94 mW
	LTE 26 (Channel Bandwidth: 3 MHz)	41.59 mW
	LTE 26 (Channel Bandwidth: 5 MHz)	40.96 mW
	LTE 26 (Channel Bandwidth: 10 MHz)	41.59 mW
	LTE 26 (Channel Bandwidth: 15 MHz)	41.59 mW

Emission Designator	GSM/GPRS	245KGXW
	EDGE	245KG7W
	WCDMA	4M15F9W
	LTE 5 (Channel Bandwidth: 1.4 MHz)	1M09W7D
	LTE 5 (Channel Bandwidth: 3 MHz)	2M70G7D
	LTE 5 (Channel Bandwidth: 5 MHz)	4M50W7D
	LTE 5 (Channel Bandwidth: 10 MHz)	8M98G7D
	LTE 26 (Channel Bandwidth: 1.4 MHz)	1M09W7D
	LTE 26 (Channel Bandwidth: 3 MHz)	2M70G7D
	LTE 26 (Channel Bandwidth: 5 MHz)	4M50W7D
	LTE 26 (Channel Bandwidth: 10 MHz)	8M99W7D
	LTE 26 (Channel Bandwidth: 15 MHz)	13M5G7D
Antenna Type	Fixed Internal Antenna	
Accessory Device	Refer to Note as below	
Data Cable Supplied	Refer to Note as below	

Note:

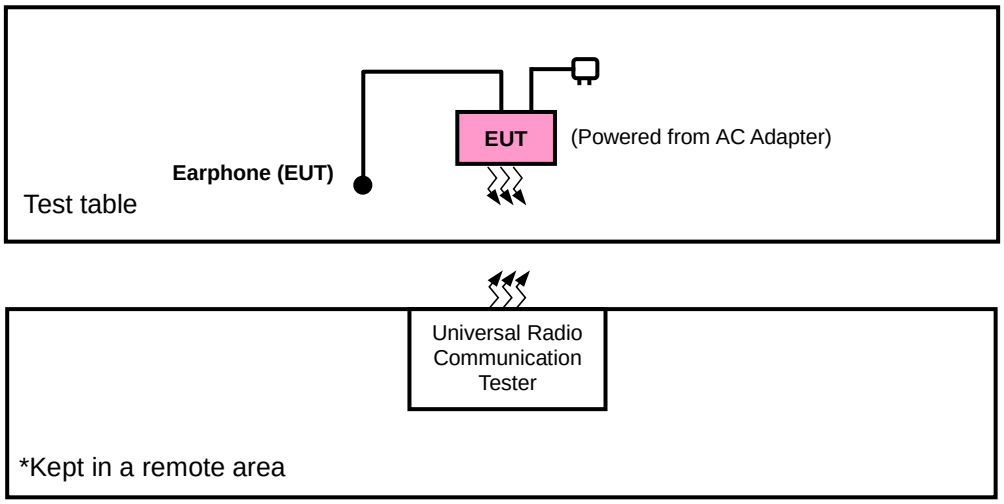
1. All models are listed as below.

Brand	Model	Difference
ASUS	ASUS_Z01KDA	Dual SIM
	ASUS_Z01KS	Single SIM

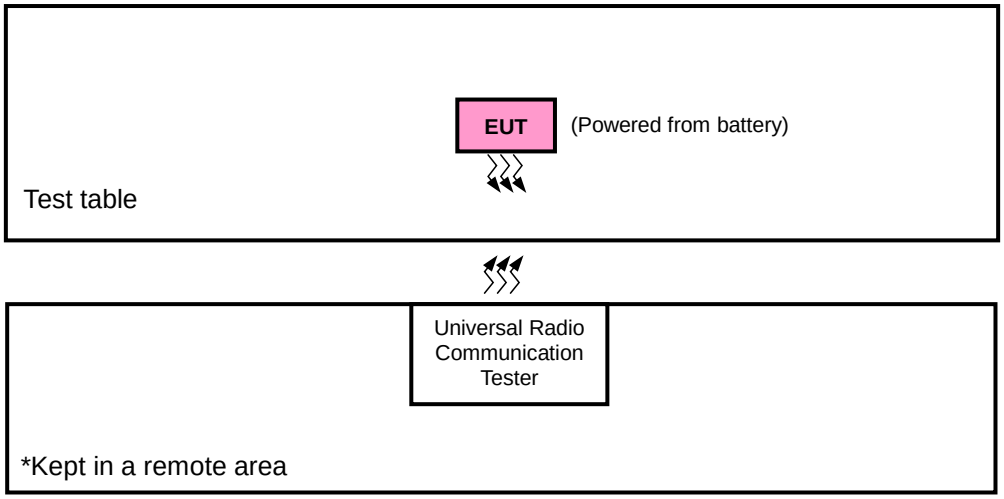
   * Since the difference doesn't affect the test result, only ASUS_Z01KDA was chosen for the final test.
2. The EUT's accessories list refers to Ext. Pho.
3. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Configuration of System under Test

<Radiated Emission Test>



<E.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.

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:

SIM	Band	ERP	Radiated Emission
1	GSM	Y-plane	Z-axis
	EDGE	Y-plane	Z-axis
	WCDMA	Y-plane	Z-axis
	LTE Band 5	Y-plane	Z-axis
	LTE Band 26	X-plane	Y-axis

GSM

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

WCDMA

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

LTE Band 5

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

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

LTE Band 26

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	ERP	26797 to 27033	26797, 26915, 27033	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26805 to 27025	26805, 26915, 27025	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26815 to 27015	26815, 26915, 27015	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26840 to 26990	26840, 26915, 26990	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26865 to 26965	26865, 26915, 26965	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Frequency Stability	26797 to 27033	26797, 27033	1.4 MHz	QPSK	1 RB / 0 RB Offset
		26805 to 27025	26805, 27025	3 MHz	QPSK	1 RB / 0 RB Offset
		26815 to 27015	26815, 27015	5 MHz	QPSK	1 RB / 0 RB Offset
		26840 to 26990	26840, 26990	10 MHz	QPSK	1 RB / 0 RB Offset
		26865 to 26965	26865, 26965	15 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	26797 to 27033	26797, 26915, 27033	1.4 MHz	QPSK, 16QAM	6 RB / 0 RB Offset
		26805 to 27025	26805, 26915, 27025	3 MHz	QPSK, 16QAM	15 RB / 0 RB Offset
		26815 to 27015	26815, 26915, 27015	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		26840 to 26990	26840, 26915, 26990	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		26865 to 26965	26865, 26915, 26965	15 MHz	QPSK, 16QAM	75 RB / 0 RB Offset
-	Band Edge	26797 to 27033	26797	1.4 MHz	QPSK	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			27033	1.4 MHz	QPSK	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		26805 to 27025	26805	3 MHz	QPSK	1 RB / 0 RB Offset
						15 RB / 0 RB Offset
			27025	3 MHz	QPSK	1 RB / 14 RB Offset
						15 RB / 0 RB Offset
		26815 to 27015	26815	5 MHz	QPSK	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			27015	5 MHz	QPSK	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		26840 to 26990	26840	10 MHz	QPSK	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			26990	10 MHz	QPSK	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
		26865 to 26965	26865	15 MHz	QPSK	1 RB / 0 RB Offset
						75 RB / 0 RB Offset
			26965	15 MHz	QPSK	1 RB / 74 RB Offset
						75 RB / 0 RB Offset
-	Peak to Average Ratio	26797 to 27033	26797, 26915, 27033	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26805 to 27025	26805, 26915, 27025	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26815 to 27015	26815, 26915, 27015	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26840 to 26990	26840, 26915, 26990	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		26865 to 26965	26865, 26915, 26965	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	Conducted Emission	26797 to 27033	26797, 26915, 27033	1.4 MHz	QPSK	1 RB / 0 RB Offset
		26805 to 27025	26805, 26915, 27025	3 MHz	QPSK	1 RB / 0 RB Offset
		26815 to 27015	26815, 26915, 27015	5 MHz	QPSK	1 RB / 0 RB Offset
		26840 to 26990	26840, 26915, 26990	10 MHz	QPSK	1 RB / 0 RB Offset
		26865 to 26965	26865, 26915, 26965	15 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission	26865 to 26965	26865, 26915, 26965	15 MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
ERP	25 deg. C, 65 % RH	3.85 Vdc	Charles Hsiao
Frequency Stability	25 deg. C, 65 % RH	3.85 Vdc	Wayne Lin
Occupied Bandwidth	25 deg. C, 65 % RH	3.85 Vdc	Wayne Lin
Band Edge	25 deg. C, 65 % RH	3.85 Vdc	Wayne Lin
Peak to Average Ratio	25 deg. C, 65 % RH	3.85 Vdc	Wayne Lin
Condcudeted Emission	25 deg. C, 65 % RH	3.85 Vdc	Wayne Lin
Radiated Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Charles Hsiao & Karl Lee & Harry Hsueh

3.4 EUT Operating Conditions

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

3.5 General Description of Applied Standards

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

FCC 47 CFR Part 2
FCC 47 CFR Part 22
KDB 971168 D01 Power Meas License Digital Systems v02r02
ANSI/TIA/EIA-603-D 2010

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

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

4.1.2 Test Procedures

EIRP / ERP Measurement:

a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 1 MHz for GSM, GPRS & EDGE, 5 MHz for WCDMA, and 10 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 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.

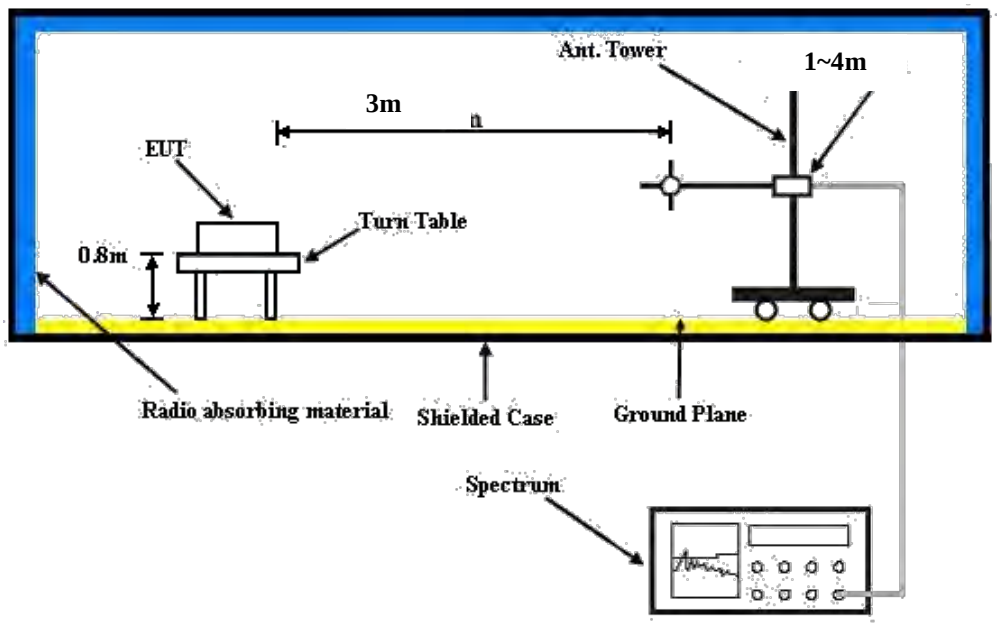
d. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15 dBi.

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.

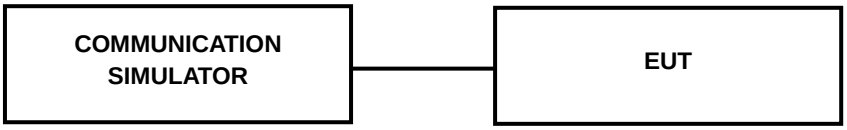
4.1.3 Test Setup

EIRP / ERP Measurement:



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

Conducted Power Measurement:



4.1.4 Test Results

Conducted Output Power (dBm)

Band	GSM850		
Channel	128	189	251
Frequency (MHz)	824.2	836.4	848.8
GSM (GMSK, 1Tx-slot)	32.10	32.13	32.07
GPRS (GMSK, 1Tx-slot)	32.04	32.07	32.01
GPRS (GMSK, 2Tx-slot)	31.95	31.98	31.92
EDGE (8PSK, 1Tx-slot)	26.62	26.65	26.59
EDGE (8PSK, 2Tx-slot)	26.40	26.43	26.37

Band	WCDMA V		
Channel	4132	4182	4233
Frequency (MHz)	826.4	836.4	846.6
RMC 12.2K	23.93	23.96	23.88
HSDPA Subtest-1	22.96	22.99	22.91
HSDPA Subtest-2	22.99	23.02	22.94
HSDPA Subtest-3	22.49	22.52	22.44
HSDPA Subtest-4	22.48	22.51	22.43
HSUPA Subtest-1	22.88	22.91	22.83
HSUPA Subtest-2	20.90	20.93	20.85
HSUPA Subtest-3	21.88	21.91	21.83
HSUPA Subtest-4	20.89	20.92	20.84
HSUPA Subtest-5	22.88	22.91	22.83

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 20407	Mid Ch 20525	High Ch 20643		Low Ch 20407	Mid Ch 20525	High Ch 20643	
			824.7 MHz	836.5 MHz	848.3 MHz		824.7 MHz	836.5 MHz	848.3 MHz	
5 / 1.4M	1	0	23.07	23.09	23.14	0	21.99	22.01	22.06	1
	1	2	23.03	23.05	23.10	0	21.95	21.97	22.02	1
	1	5	23.01	23.03	23.08	0	21.93	21.95	22.00	1
	3	0	22.11	22.13	22.18	0	21.03	21.05	21.10	1
	3	1	22.07	22.09	22.14	0	21.01	21.01	21.06	1
	3	3	22.10	22.12	22.17	0	21.02	21.04	21.09	1
	6	0	22.09	22.11	22.16	1	21.01	21.03	21.08	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 20415	Mid Ch 20525	High Ch 20635		Low Ch 20415	Mid Ch 20525	High Ch 20635	
			825.5 MHz	836.5 MHz	847.5 MHz		825.5 MHz	836.5 MHz	847.5 MHz	
5 / 3M	1	0	23.10	23.12	23.17	0	22.02	22.04	22.09	1
	1	7	23.06	23.08	23.13	0	21.98	22.00	22.05	1
	1	14	23.04	23.06	23.11	0	21.96	21.98	22.03	1
	8	0	22.14	22.16	22.21	1	21.06	21.08	21.13	2
	8	3	22.10	22.12	22.17	1	21.02	21.04	21.09	2
	8	7	22.13	22.15	22.20	1	21.05	21.07	21.12	2
	15	0	22.12	22.14	22.19	1	21.04	21.06	21.11	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 20425	Mid Ch 20525	High Ch 20625		Low Ch 20425	Mid Ch 20525	High Ch 20625	
			826.5 MHz	836.5 MHz	846.5 MHz		826.5 MHz	836.5 MHz	846.5 MHz	
5 / 5M	1	0	23.13	23.15	23.20	0	22.05	22.07	22.12	1
	1	12	23.09	23.11	23.16	0	22.01	22.03	22.08	1
	1	24	23.07	23.09	23.14	0	21.99	22.01	22.06	1
	12	0	22.17	22.19	22.24	1	21.09	21.11	21.16	2
	12	6	22.13	22.15	22.20	1	21.05	21.07	21.12	2
	12	13	22.16	22.18	22.23	1	21.08	21.10	21.15	2
	25	0	22.15	22.17	22.22	1	21.07	21.09	21.14	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 20450	Mid Ch 20525	High Ch 20600		Low Ch 20450	Mid Ch 20525	High Ch 20600	
			829.0 MHz	836.5 MHz	844.0 MHz		829.0 MHz	836.5 MHz	844.0 MHz	
5 / 10M	1	0	23.71	23.73	23.78	0	22.13	22.15	22.20	1
	1	24	23.67	23.69	23.74	0	22.09	22.11	22.16	1
	1	49	23.65	23.67	23.72	0	22.07	22.09	22.14	1
	25	0	22.75	22.77	22.82	1	21.17	21.19	21.24	2
	25	12	22.71	22.73	22.78	1	21.13	21.15	21.20	2
	25	25	22.74	22.76	22.81	1	21.16	21.18	21.23	2
	50	0	22.73	22.75	22.80	1	21.15	21.17	21.22	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 26797	Mid Ch 26915	High Ch 27033		Low Ch 26797	Mid Ch 26915	High Ch 27033	
			824.7 MHz	836.5 MHz	848.3 MHz		824.7 MHz	836.5 MHz	848.3 MHz	
26 / 1.4M	1	0	23.01	22.98	23.08	0	22.97	22.94	22.01	1
	1	2	22.89	22.86	22.96	0	22.85	22.82	21.89	1
	1	5	22.85	22.82	22.92	0	22.81	22.78	21.85	1
	3	0	22.02	21.99	22.09	0	21.98	21.95	21.07	1
	3	1	21.99	21.96	22.06	0	21.95	21.92	21.05	1
	3	3	21.91	21.88	22.01	0	21.87	21.84	21.02	1
	6	0	21.96	21.93	22.03	1	21.92	21.89	20.96	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 26805	Mid Ch 26915	High Ch 27025		Low Ch 26805	Mid Ch 26915	High Ch 27025	
			825.5 MHz	836.5 MHz	847.5 MHz		825.5 MHz	836.5 MHz	847.5 MHz	
26 / 3M	1	0	23.06	23.03	23.13	0	22.03	22.00	22.06	1
	1	7	22.94	22.91	23.01	0	21.91	21.88	21.94	1
	1	14	22.90	22.87	22.97	0	21.87	21.84	21.90	1
	8	0	22.07	22.04	22.14	1	21.04	21.01	21.07	2
	8	3	22.04	22.01	22.11	1	21.01	20.98	21.04	2
	8	7	21.96	21.93	22.03	1	20.93	20.90	20.96	2
	15	0	22.01	21.98	22.08	1	20.98	20.95	21.01	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 26815	Mid Ch 26915	High Ch 27015		Low Ch 26815	Mid Ch 26915	High Ch 27015	
			826.5 MHz	836.5 MHz	846.5 MHz		826.5 MHz	836.5 MHz	846.5 MHz	
26 / 5M	1	0	23.11	23.04	23.16	0	22.15	22.03	22.09	1
	1	12	22.99	22.92	23.04	0	22.03	21.91	21.97	1
	1	24	22.95	22.88	23.00	0	21.99	21.87	21.93	1
	12	0	22.12	22.05	22.17	1	21.16	21.04	21.10	2
	12	6	22.09	22.02	22.14	1	21.13	21.01	21.07	2
	12	13	22.01	21.94	22.06	1	21.05	20.93	20.99	2
	25	0	22.06	21.99	22.11	1	21.10	20.98	21.04	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 26840	Mid Ch 26915	High Ch 26990		Low Ch 26840	Mid Ch 26915	High Ch 26990	
			829.0 MHz	836.5 MHz	844.0 MHz		829.0 MHz	836.5 MHz	844.0 MHz	
26 / 10M	1	0	23.16	23.10	23.21	0	22.08	22.08	22.14	1
	1	24	23.04	22.98	23.09	0	21.96	21.96	22.02	1
	1	49	23.00	22.94	23.05	0	21.92	21.92	21.98	1
	25	0	22.17	22.11	22.22	1	21.09	21.09	21.15	2
	25	12	22.14	22.08	22.19	1	21.06	21.06	21.12	2
	25	25	22.06	22.00	22.11	1	20.98	20.98	21.04	2
	50	0	22.11	22.05	22.16	1	21.03	21.03	21.09	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low Ch 26865	Mid Ch 26915	High Ch 26965		Low Ch 26865	Mid Ch 26915	High Ch 26965	
			831.5 MHz	836.5 MHz	841.5 MHz		831.5 MHz	836.5 MHz	841.5 MHz	
26 / 15M	1	0	23.83	23.79	23.71	0	22.26	22.09	22.19	1
	1	37	23.71	23.67	23.59	0	22.14	21.97	22.07	1
	1	74	23.67	23.63	23.55	0	22.10	21.93	22.03	1
	36	0	22.84	22.80	22.72	1	21.27	21.10	21.20	2
	36	19	22.81	22.77	22.69	1	21.24	21.07	21.17	2
	36	39	22.73	22.69	22.61	1	21.16	20.99	21.09	2
	75	0	22.78	22.74	22.66	1	21.21	21.04	21.14	2

ERP Power (dBm)

GSM							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (mW)**	**Polarization (H/V)**
Y	128	824.2	-2.56	31.208	26.50	446.48	H
	189	836.4	-2.63	31.3	26.52	448.75	
	251	848.8	-2.54	31.222	26.53	449.99	
	128	824.2	-6.82	31.504	22.53	179.23	V
	189	836.4	-6.46	31.117	22.51	178.11	
	251	848.8	-7.30	31.922	22.47	176.69	

EDGE							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (mW)**	**Polarization (H/V)**
Y	128	824.2	-8.53	31.208	20.53	112.93	H
	189	836.4	-8.60	31.3	20.55	113.50	
	251	848.8	-8.56	31.222	20.51	112.51	
	128	824.2	-12.82	31.504	16.53	45.02	V
	189	836.4	-12.41	31.117	16.56	45.26	
	251	848.8	-13.23	31.922	16.54	45.10	

WCDMA							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (mW)**	**Polarization (H/V)**
Y	4132	826.4	-12.52	31.208	16.54	45.06	H
	4182	836.4	-12.60	31.3	16.55	45.19	
	4233	846.6	-12.57	31.222	16.50	44.69	
	4132	826.4	-16.81	31.504	12.54	17.96	V
	4182	836.4	-16.50	31.117	12.47	17.65	
	4233	846.6	-17.24	31.922	12.53	17.91	

LTE Band 5							
Channel Bandwidth: 1.4 MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Y	20407	824.7	-12.96	31.208	16.10	40.72	H
	20525	836.5	-13.12	31.3	16.03	40.09	
	20643	848.3	-12.99	31.222	16.08	40.57	
	20407	824.7	-17.26	31.504	12.09	16.20	V
	20525	836.5	-16.93	31.117	12.04	15.98	
	20643	848.3	-17.72	31.922	12.05	16.04	
Channel Bandwidth: 1.4 MHz / 16QAM							
Y	20407	824.7	-13.99	31.208	15.07	32.12	H
	20525	836.5	-14.12	31.3	15.03	31.84	
	20643	848.3	-14.05	31.222	15.02	31.78	
	20407	824.7	-18.26	31.504	11.09	12.86	V
	20525	836.5	-17.94	31.117	11.03	12.67	
	20643	848.3	-18.70	31.922	11.07	12.80	

LTE Band 5							
Channel Bandwidth: 3 MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Y	20415	825.5	-13.02	31.208	16.04	40.16	H
	20525	836.5	-13.07	31.3	16.08	40.55	
	20635	847.5	-12.98	31.222	16.09	40.66	
	20415	825.5	-17.26	31.504	12.09	16.20	V
	20525	836.5	-16.90	31.117	12.07	16.10	
	20635	847.5	-17.68	31.922	12.09	16.20	
Channel Bandwidth: 3 MHz / 16QAM							
Y	20415	825.5	-14.03	31.208	15.03	31.83	H
	20525	836.5	-14.08	31.3	15.07	32.14	
	20635	847.5	-14.04	31.222	15.03	31.86	
	20415	825.5	-18.33	31.504	11.02	12.66	V
	20525	836.5	-17.93	31.117	11.04	12.70	
	20635	847.5	-18.76	31.922	11.01	12.62	

LTE Band 5							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Y	20425	826.5	-13.03	31.208	16.03	40.07	H
	20525	836.5	-13.08	31.3	16.07	40.46	
	20625	846.5	-13.02	31.222	16.05	40.29	
	20425	826.5	-17.28	31.504	12.07	16.12	V
	20525	836.5	-16.93	31.117	12.04	15.98	
	20625	846.5	-17.72	31.922	12.05	16.04	
Channel Bandwidth: 5 MHz / 16QAM							
Y	20425	826.5	-14.02	31.208	15.04	31.90	H
	20525	836.5	-14.05	31.3	15.10	32.36	
	20625	846.5	-14.03	31.222	15.04	31.93	
	20425	826.5	-18.25	31.504	11.10	12.89	V
	20525	836.5	-17.96	31.117	11.01	12.61	
	20625	846.5	-18.71	31.922	11.06	12.77	

LTE Band 5							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Y	20450	829.0	-13.01	31.208	16.05	40.25	H
	20525	836.5	-13.05	31.3	16.10	40.74	
	20600	844.0	-12.96	31.222	16.11	40.85	
	20450	829.0	-17.32	31.504	12.03	15.97	V
	20525	836.5	-16.92	31.117	12.05	16.02	
	20600	844.0	-17.71	31.922	12.06	16.08	
Channel Bandwidth: 10 MHz / 16QAM							
Y	20450	829.0	-13.94	31.208	15.12	32.49	H
	20525	836.5	-14.12	31.3	15.03	31.84	
	20600	844.0	-14.02	31.222	15.05	32.00	
	20450	829.0	-18.26	31.504	11.09	12.86	V
	20525	836.5	-17.93	31.117	11.04	12.70	
	20600	844.0	-18.70	31.922	11.07	12.80	

LTE Band 26							
Channel Bandwidth: 1.4 MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
X	26797	824.7	-13.04	31.208	16.02	39.98	H
	26915	836.5	-13.06	31.3	16.09	40.64	
	27033	848.3	-12.95	31.222	16.12	40.94	
	26797	824.7	-17.32	31.504	12.03	15.97	V
	26915	836.5	-16.94	31.117	12.03	15.95	
	27033	848.3	-17.71	31.922	12.06	16.08	
Channel Bandwidth: 1.4 MHz / 16QAM							
X	26797	824.7	-14.01	31.208	15.05	31.97	H
	26915	836.5	-14.05	31.3	15.10	32.36	
	27033	848.3	-13.98	31.222	15.09	32.30	
	26797	824.7	-18.33	31.504	11.02	12.66	V
	26915	836.5	-17.92	31.117	11.05	12.73	
	27033	848.3	-18.64	31.922	11.13	12.98	

LTE Band 26							
Channel Bandwidth: 3 MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
X	26805	825.5	-12.98	31.208	16.08	40.53	H
	26915	836.5	-12.96	31.3	16.19	41.59	
	27025	847.5	-12.97	31.222	16.10	40.76	
	26805	825.5	-17.32	31.504	12.03	15.97	V
	26915	836.5	-16.95	31.117	12.02	15.91	
	27025	847.5	-17.65	31.922	12.12	16.30	
Channel Bandwidth: 3 MHz / 16QAM							
X	26805	825.5	-13.98	31.208	15.08	32.20	H
	26915	836.5	-14.07	31.3	15.08	32.21	
	27025	847.5	-14.03	31.222	15.04	31.93	
	26805	825.5	-18.35	31.504	11.00	12.60	V
	26915	836.5	-17.96	31.117	11.01	12.61	
	27025	847.5	-18.71	31.922	11.06	12.77	

LTE Band 26							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
X	26815	826.5	-13.05	31.208	16.01	39.88	H
	26915	836.5	-13.10	31.3	16.05	40.27	
	27015	846.5	-13.01	31.222	16.06	40.38	
	26815	826.5	-13.23	31.504	16.12	40.96	V
	26919	836.5	-12.92	31.117	16.05	40.24	
	27015	846.5	-13.75	31.922	16.02	40.01	
Channel Bandwidth: 5 MHz / 16QAM							
X	26815	826.5	-14.03	31.208	15.03	31.83	H
	26915	836.5	-14.08	31.3	15.07	32.14	
	27015	846.5	-13.97	31.222	15.10	32.37	
	26815	826.5	-18.33	31.504	11.02	12.66	V
	26919	836.5	-17.90	31.117	11.07	12.78	
	27015	846.5	-18.58	31.922	11.19	13.16	

LTE Band 26							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
X	26840	829.0	-12.92	31.208	16.14	41.10	H
	26915	836.5	-12.96	31.3	16.19	41.59	
	26990	844.0	-13.05	31.222	16.02	40.01	
	26840	829.0	-17.27	31.504	12.08	16.16	V
	26919	836.5	-16.93	31.117	12.04	15.98	
	26990	844.0	-17.70	31.922	12.07	16.11	
Channel Bandwidth: 10 MHz / 16QAM							
X	26840	829.0	-14.06	31.208	15.00	31.61	H
	26915	836.5	-14.02	31.3	15.13	32.58	
	26990	844.0	-14.03	31.222	15.04	31.93	
	26840	829.0	-18.27	31.504	11.08	12.84	V
	26919	836.5	-17.79	31.117	11.18	13.11	
	26990	844.0	-18.54	31.922	11.23	13.28	

LTE Band 26							
Channel Bandwidth: 15 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (mW)**	**Polarization (H/V)**
X	26865	831.5	-12.89	31.208	16.17	41.38	H
	26915	836.5	-12.96	31.3	16.19	41.59	
	26965	841.5	-12.99	31.222	16.08	40.57	
	26865	831.5	-17.30	31.504	12.05	16.05	V
	26915	836.5	-16.90	31.117	12.07	16.10	
	26965	841.5	-17.71	31.922	12.06	16.08	
Channel Bandwidth: 15 MHz / 16QAM							
X	26865	831.5	-13.96	31.208	15.10	32.34	H
	26915	836.5	-14.06	31.3	15.09	32.28	
	26965	841.5	-13.90	31.222	15.17	32.90	
	26865	831.5	-18.24	31.504	11.11	12.92	V
	26915	836.5	-17.84	31.117	11.13	12.96	
	26965	841.5	-18.75	31.922	11.02	12.65	

4.2 Frequency Stability Measurement

4.2.1 Limits of Frequency Stabiliity Measurement

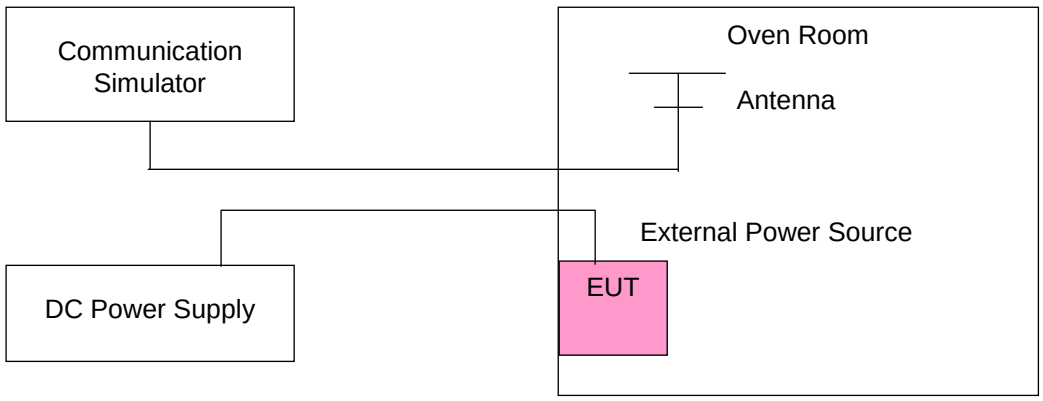
1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

4.2.2 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.

4.2.3 Test Setup



4.2.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	GSM				Limit (ppm)
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	824.200001	0.001	848.800004	0.004	2.5
3.27	824.200004	0.005	848.800001	0.001	2.5
4.43	824.200003	0.003	848.800002	0.002	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	GSM				Limit (ppm)
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	824.200003	0.003	848.800004	0.005	2.5
-20	824.200004	0.005	848.800001	0.001	2.5
-10	824.200003	0.003	848.800002	0.003	2.5
0	824.200002	0.002	848.800001	0.002	2.5
10	824.200002	0.002	848.800002	0.002	2.5
20	824.199998	-0.002	848.799998	-0.003	2.5
30	824.199997	-0.003	848.799999	-0.001	2.5
40	824.199996	-0.005	848.799999	-0.002	2.5
50	824.199998	-0.002	848.799998	-0.003	2.5
55	824.199999	-0.002	848.799997	-0.003	2.5

Frequency Error vs. Voltage

Voltage (Volts)	EDGE				Limit (ppm)
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	824.200001	0.002	848.800003	0.002	2.5
3.27	824.200002	0.003	848.800001	0.001	2.5
4.43	824.200004	0.005	848.800002	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	EDGE				Limit (ppm)
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	824.200003	0.003	848.800002	0.001	2.5
-20	824.200003	0.004	848.800001	0.001	2.5
-10	824.200001	0.002	848.800001	0.001	2.5
0	824.200003	0.003	848.800004	0.002	2.5
10	824.200002	0.003	848.800002	0.001	2.5
20	824.199997	-0.003	848.799997	-0.001	2.5
30	824.199999	-0.001	848.799998	-0.001	2.5
40	824.199999	-0.001	848.799996	-0.002	2.5
50	824.199998	-0.002	848.799996	-0.002	2.5
55	824.199997	-0.004	848.799997	-0.002	2.5

Frequency Error vs. Voltage

Voltage (Volts)	WCDMA				Limit (ppm)
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	826.400002	0.003	846.600004	0.004	2.5
3.27	826.400004	0.004	846.600004	0.004	2.5
4.43	826.400003	0.003	846.600002	0.002	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	WCDMA				Limit (ppm)
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	826.400002	0.003	846.600004	0.004	2.5
-20	826.400003	0.004	846.600002	0.002	2.5
-10	826.400002	0.003	846.600001	0.002	2.5
0	826.400004	0.004	846.600004	0.005	2.5
10	826.400002	0.002	846.600004	0.004	2.5
20	826.399999	-0.001	846.599998	-0.003	2.5
30	826.399997	-0.004	846.599997	-0.003	2.5
40	826.399999	-0.002	846.599998	-0.002	2.5
50	826.399996	-0.005	846.599996	-0.004	2.5
55	826.399997	-0.004	846.599998	-0.003	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 5				Limit (ppm)
	Channel Bandwidth: 1.4 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	824.700004	0.005	848.300001	0.001	2.5
3.27	824.700003	0.004	848.300003	0.004	2.5
4.43	824.700003	0.004	848.300003	0.003	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 5				Limit (ppm)
	Channel Bandwidth: 1.4 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	824.700001	0.002	848.300001	0.002	2.5
-20	824.700002	0.003	848.300004	0.004	2.5
-10	824.700002	0.002	848.300004	0.005	2.5
0	824.700002	0.003	848.300001	0.002	2.5
10	824.700003	0.004	848.300002	0.002	2.5
20	824.699998	-0.003	848.299997	-0.004	2.5
30	824.699998	-0.002	848.299998	-0.003	2.5
40	824.699996	-0.004	848.299998	-0.002	2.5
50	824.699996	-0.004	848.299997	-0.004	2.5
55	824.699998	-0.002	848.299999	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 5				Limit (ppm)
	Channel Bandwidth: 3 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	825.500001	0.001	847.500002	0.002	2.5
3.27	825.500003	0.004	847.500003	0.004	2.5
4.43	825.500003	0.004	847.500001	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 5				Limit (ppm)
	Channel Bandwidth: 3 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	825.500003	0.003	847.500004	0.005	2.5
-20	825.500002	0.003	847.500002	0.002	2.5
-10	825.500002	0.002	847.500002	0.003	2.5
0	825.500001	0.001	847.500001	0.001	2.5
10	825.500001	0.002	847.500002	0.002	2.5
20	825.499997	-0.004	847.499997	-0.004	2.5
30	825.499997	-0.004	847.499997	-0.004	2.5
40	825.499997	-0.004	847.499997	-0.004	2.5
50	825.499997	-0.004	847.499998	-0.002	2.5
55	825.499997	-0.004	847.499998	-0.002	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 5				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	826.500002	0.003	846.500002	0.003	2.5
3.27	826.500004	0.004	846.500003	0.004	2.5
4.43	826.500004	0.004	846.500003	0.003	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 5				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	826.500001	0.001	846.500002	0.002	2.5
-20	826.500003	0.003	846.500003	0.003	2.5
-10	826.500002	0.002	846.500001	0.001	2.5
0	826.500002	0.003	846.500002	0.002	2.5
10	826.500004	0.004	846.500001	0.002	2.5
20	826.499999	-0.001	846.499998	-0.002	2.5
30	826.499999	-0.002	846.499997	-0.003	2.5
40	826.499998	-0.002	846.499998	-0.002	2.5
50	826.499999	-0.001	846.499997	-0.003	2.5
55	826.499998	-0.003	846.499999	-0.002	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 5				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	829.000002	0.003	844.000003	0.003	2.5
3.27	829.000002	0.002	844.000002	0.002	2.5
4.43	829.000003	0.003	844.000002	0.002	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 5				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	829.000003	0.003	844.000003	0.004	2.5
-20	829.000001	0.001	844.000002	0.003	2.5
-10	829.000003	0.003	844.000003	0.003	2.5
0	829.000003	0.004	844.000004	0.005	2.5
10	829.000002	0.003	844.000002	0.002	2.5
20	828.999997	-0.004	843.999997	-0.003	2.5
30	828.999996	-0.005	843.999997	-0.004	2.5
40	828.999998	-0.003	843.999998	-0.002	2.5
50	828.999998	-0.003	843.999997	-0.004	2.5
55	828.999999	-0.002	843.999998	-0.002	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 26				Limit (ppm)
	Channel Bandwidth: 1.4 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	824.700001	0.001	848.300001	0.002	2.5
3.27	824.700002	0.002	848.300004	0.004	2.5
4.43	824.700002	0.002	848.300002	0.003	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 26				Limit (ppm)
	Channel Bandwidth: 1.4 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	824.700004	0.005	848.300003	0.003	2.5
-20	824.700002	0.002	848.300002	0.002	2.5
-10	824.700003	0.003	848.300001	0.002	2.5
0	824.700003	0.004	848.300002	0.002	2.5
10	824.700001	0.001	848.300001	0.002	2.5
20	824.699996	-0.005	848.299997	-0.004	2.5
30	824.699998	-0.003	848.299998	-0.003	2.5
40	824.699999	-0.002	848.299998	-0.003	2.5
50	824.699999	-0.001	848.299998	-0.002	2.5
55	824.699998	-0.003	848.299997	-0.003	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 26				Limit (ppm)
	Channel Bandwidth: 3 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	825.500001	0.001	847.500004	0.004	2.5
3.27	825.500002	0.003	847.500003	0.003	2.5
4.43	825.500002	0.003	847.500003	0.004	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 26				Limit (ppm)
	Channel Bandwidth: 3 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	825.500004	0.005	847.500003	0.003	2.5
-20	825.500003	0.003	847.500003	0.004	2.5
-10	825.500001	0.001	847.500003	0.003	2.5
0	825.500002	0.002	847.500002	0.002	2.5
10	825.500001	0.001	847.500001	0.001	2.5
20	825.499998	-0.003	847.499996	-0.004	2.5
30	825.499998	-0.003	847.499999	-0.001	2.5
40	825.499996	-0.004	847.499998	-0.002	2.5
50	825.499996	-0.004	847.499998	-0.003	2.5
55	825.499996	-0.005	847.499998	-0.002	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 26				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	826.500001	0.001	846.500003	0.004	2.5
3.27	826.500001	0.002	846.500002	0.002	2.5
4.43	826.500001	0.002	846.500003	0.004	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 26				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	826.500004	0.004	846.500003	0.003	2.5
-20	826.500003	0.004	846.500003	0.004	2.5
-10	826.500002	0.002	846.500001	0.001	2.5
0	826.500001	0.002	846.500003	0.004	2.5
10	826.500003	0.003	846.500004	0.005	2.5
20	826.499998	-0.003	846.499999	-0.002	2.5
30	826.499999	-0.001	846.499998	-0.003	2.5
40	826.499997	-0.003	846.499997	-0.004	2.5
50	826.499996	-0.004	846.499998	-0.002	2.5
55	826.499998	-0.002	846.499999	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 26				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	829.000003	0.003	844.000002	0.002	2.5
3.27	829.000002	0.003	844.000002	0.003	2.5
4.43	829.000002	0.002	844.000001	0.002	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 26				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	829.000003	0.003	844.000003	0.003	2.5
-20	829.000001	0.002	844.000003	0.004	2.5
-10	829.000001	0.001	844.000002	0.002	2.5
0	829.000001	0.002	844.000001	0.001	2.5
10	829.000003	0.004	844.000003	0.004	2.5
20	828.999998	-0.002	843.999998	-0.003	2.5
30	828.999997	-0.004	843.999998	-0.002	2.5
40	828.999998	-0.002	843.999997	-0.004	2.5
50	828.999997	-0.004	843.999999	-0.002	2.5
55	828.999998	-0.003	843.999996	-0.005	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 26				Limit (ppm)
	Channel Bandwidth: 15 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	831.500004	0.005	841.500003	0.003	2.5
3.27	831.500002	0.002	841.500003	0.004	2.5
4.43	831.500004	0.004	841.500003	0.004	2.5

Note: The applicant defined the normal working voltage of the battery is from 3.27 Vdc to 4.43 Vdc.

Frequency Error vs. Temperature

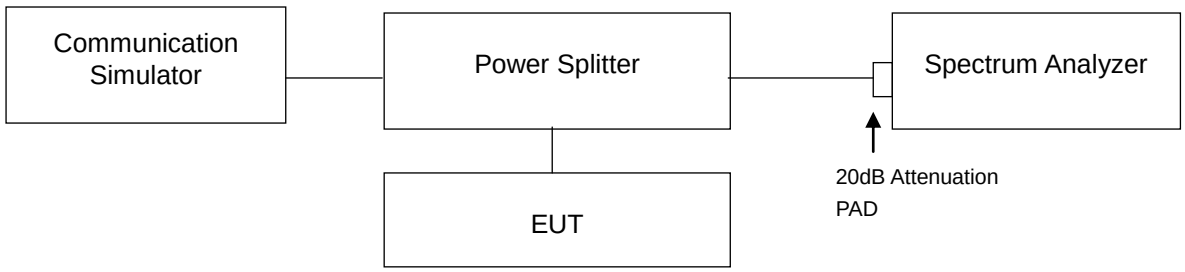
Temp. (℃)	LTE Band 26				Limit (ppm)
	Channel Bandwidth: 15 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	831.500003	0.004	841.500002	0.002	2.5
-20	831.500001	0.002	841.500003	0.004	2.5
-10	831.500003	0.004	841.500004	0.004	2.5
0	831.500003	0.004	841.500001	0.001	2.5
10	831.500003	0.004	841.500003	0.003	2.5
20	831.499998	-0.002	841.499996	-0.005	2.5
30	831.499998	-0.002	841.499997	-0.004	2.5
40	831.499999	-0.001	841.499996	-0.004	2.5
50	831.499997	-0.003	841.499997	-0.004	2.5
55	831.499996	-0.005	841.499999	-0.001	2.5

4.3 Occupied Bandwidth Measurement

4.3.1 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.

4.3.2 Test Setup

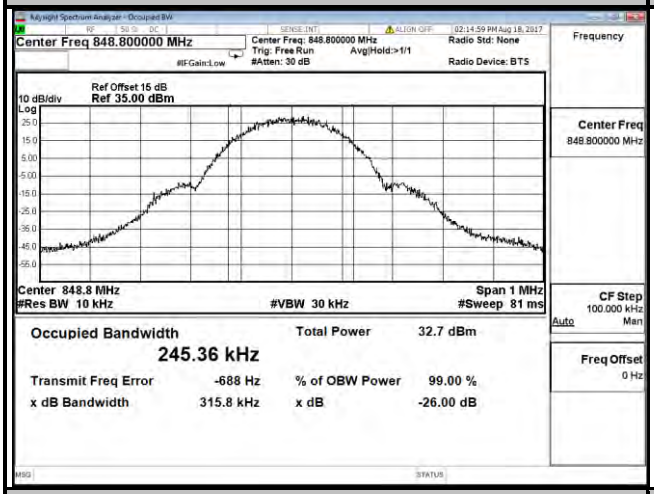


4.3.3 Test Result

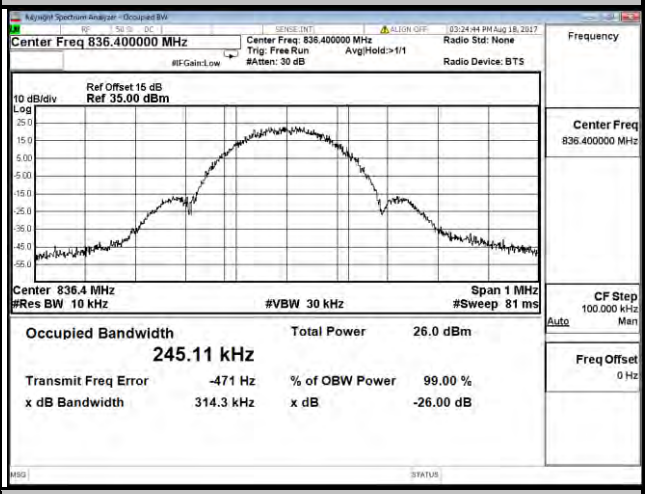
Channel	Frequency (MHz)	99 % Occupied Bandwidth (kHz)		Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)
		GSM	EDGE			WCDMA
128	824.2	245.09	244.68	4132	826.4	4.1489
189	836.4	245.24	245.11	4182	836.4	4.1506
251	848.8	245.36	243.18	4233	846.6	4.1503

Spectrum Plot of Worst Value

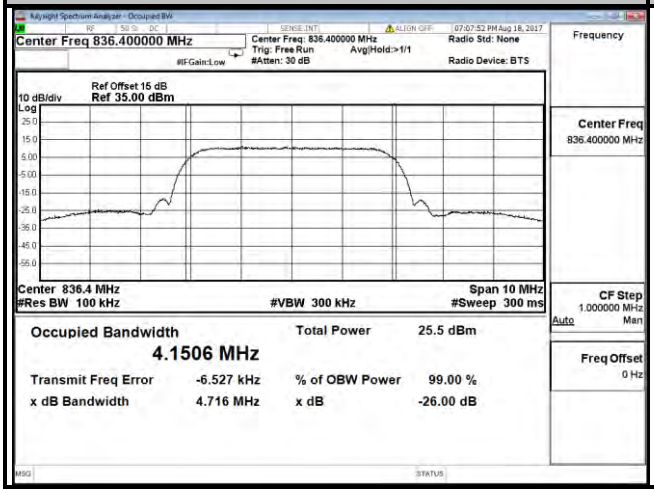
GSM



EDGE



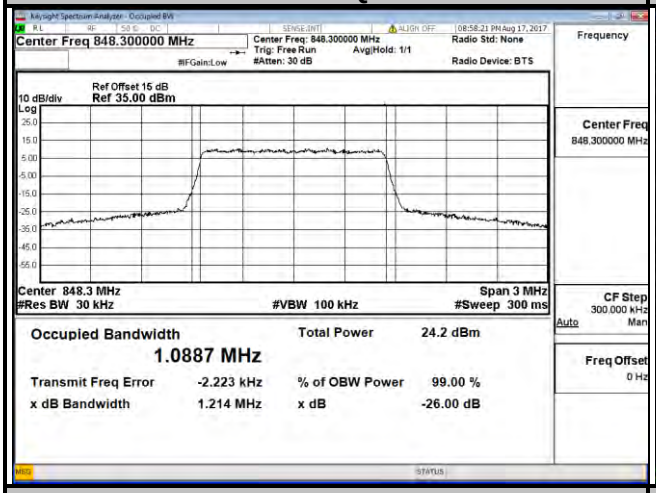
WCDMA



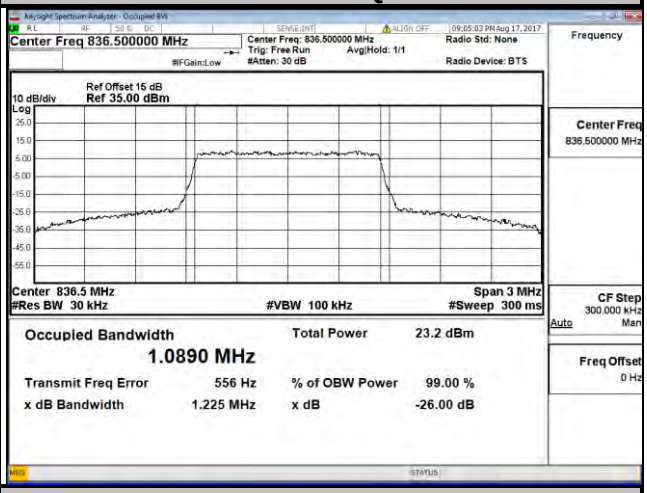
LTE Band 5							
Channel Bandwidth: 1.4 MHz				Channel Bandwidth: 3 MHz			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
20407	824.7	1.0876	1.0866	20415	825.5	2.7021	2.7010
20525	836.5	1.0882	1.0890	20525	836.5	2.7046	2.7007
20643	848.3	1.0887	1.0883	20635	847.5	2.7027	2.6986

Spectrum Plot of Worst Value

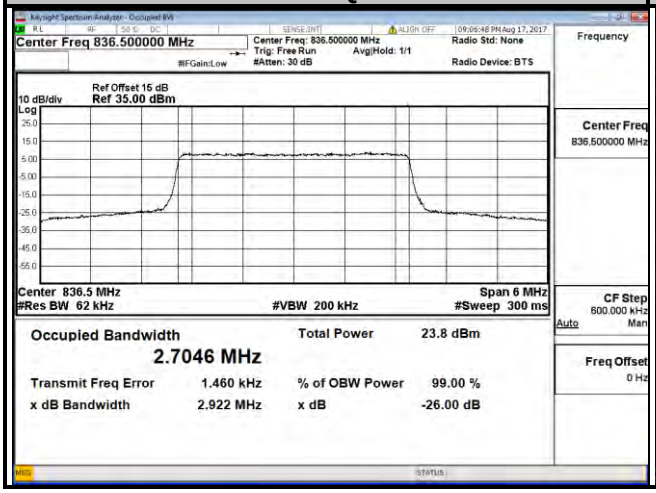
1.4 MHz / QPSK



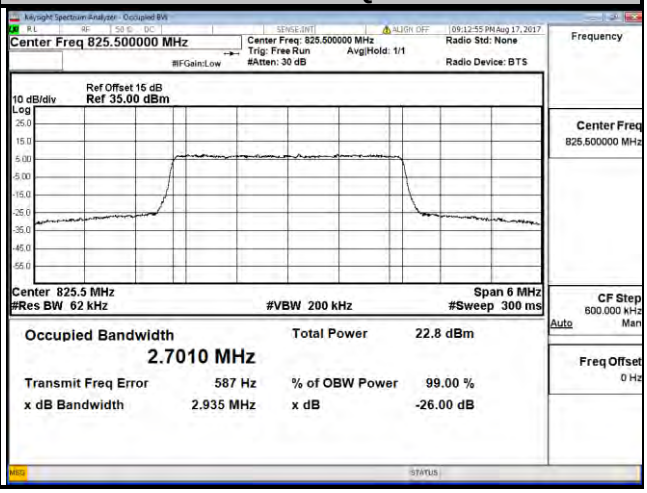
1.4 MHz / 16QAM



3 MHz / QPSK



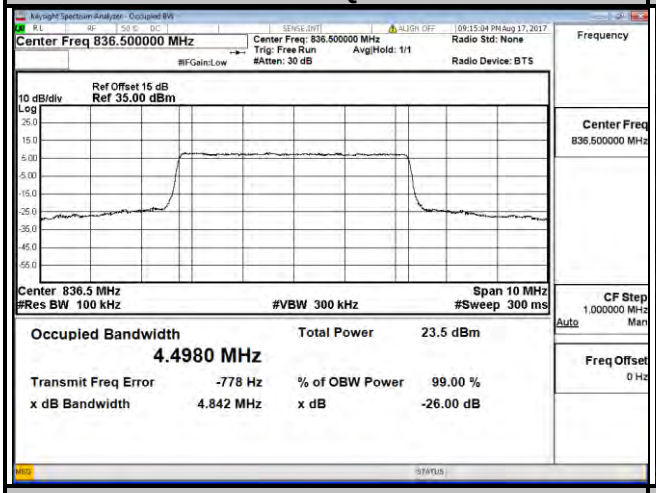
3 MHz / 16QAM



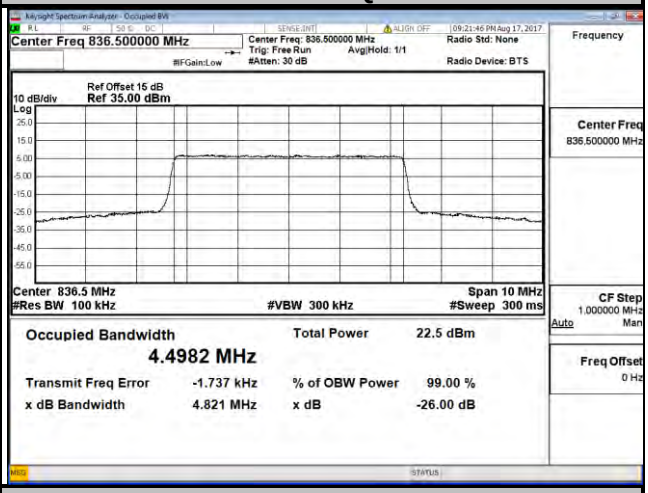
LTE Band 5							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
20425	826.5	4.4932	4.4981	20450	829.0	8.9735	8.9716
20525	836.5	4.4980	4.4982	20525	836.5	8.9838	8.9790
20625	846.5	4.4930	4.4945	20600	844.0	8.9541	8.9586

Spectrum Plot of Worst Value

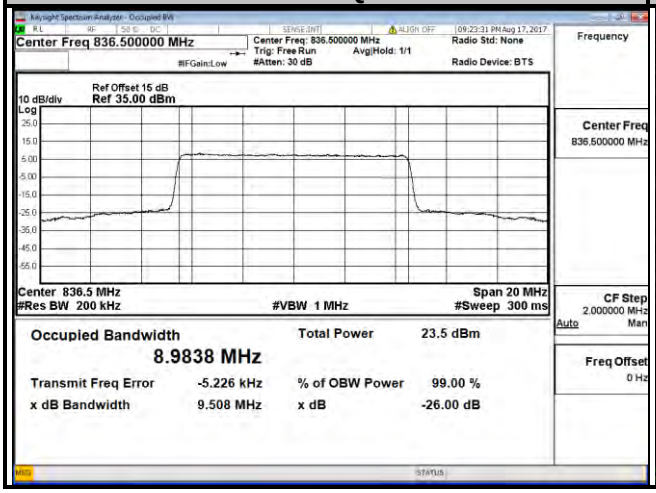
5 MHz / QPSK



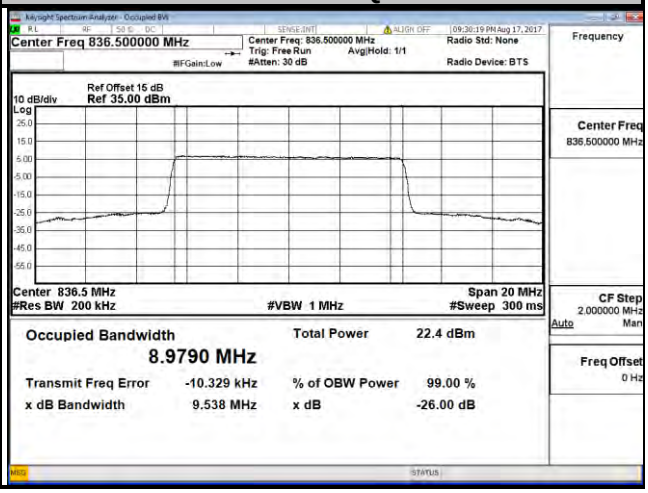
5 MHz / 16QAM



10 MHz / QPSK



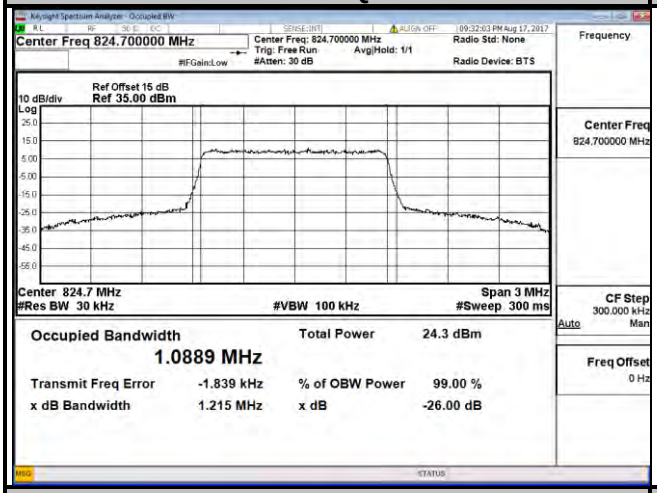
10 MHz / 16QAM



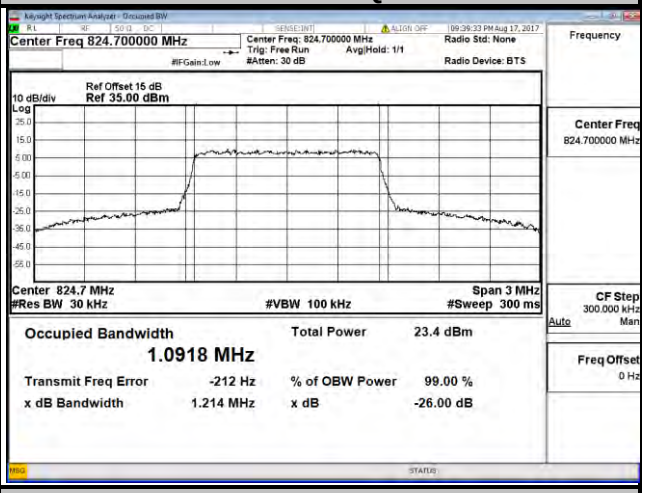
LTE Band 26							
Channel Bandwidth: 1.4 MHz				Channel Bandwidth: 3 MHz			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
26797	824.7	1.0899	1.0918	26805	825.5	2.7017	2.6980
26915	836.5	1.0890	1.0909	26915	836.5	2.7041	2.7002
27033	848.3	1.0842	1.0900	27025	847.5	2.7024	2.7003

Spectrum Plot of Worst Value

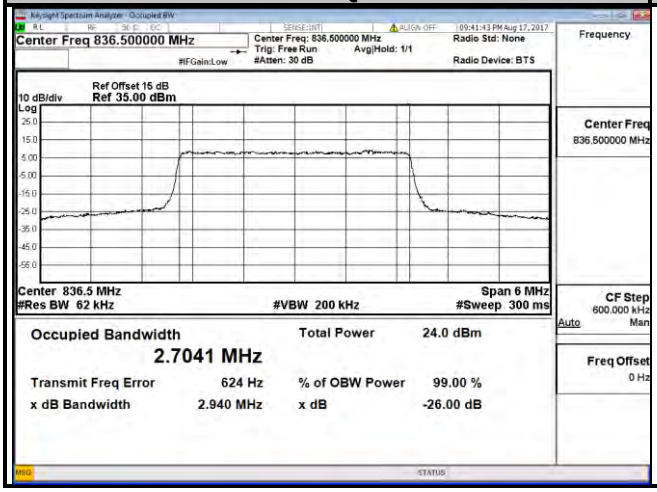
1.4 MHz / QPSK



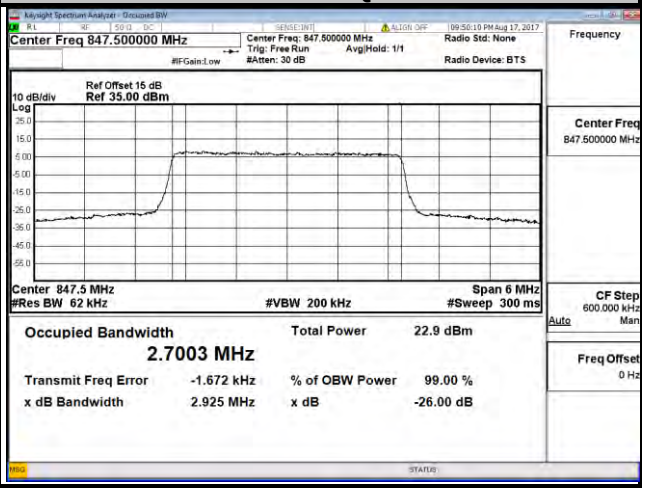
1.4 MHz / 16QAM



3 MHz / QPSK



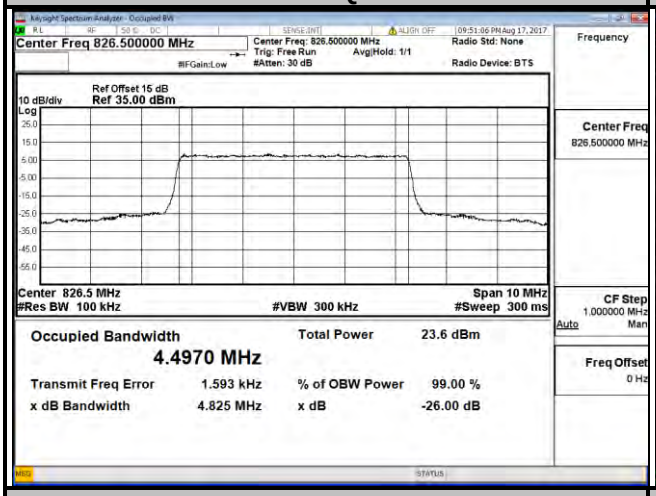
3 MHz / 16QAM



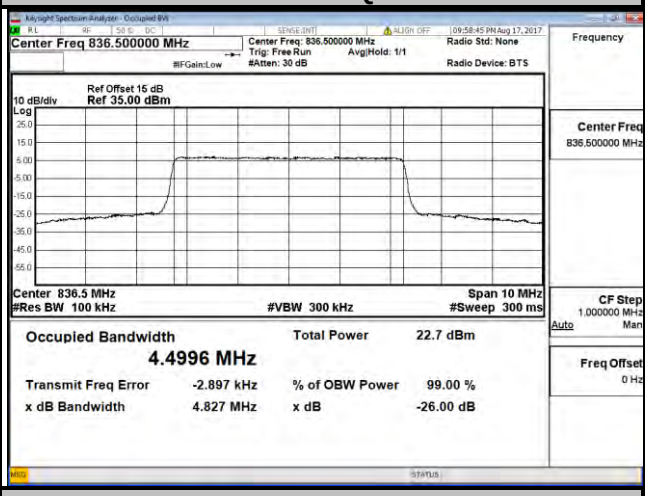
LTE Band 26							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
26815	826.5	4.4970	4.4967	26840	829.0	8.9712	8.9794
26915	836.5	4.4964	4.4996	26915	836.5	8.9820	8.9869
27015	846.5	4.4928	4.4927	26990	844.0	8.9569	8.9590

Spectrum Plot of Worst Value

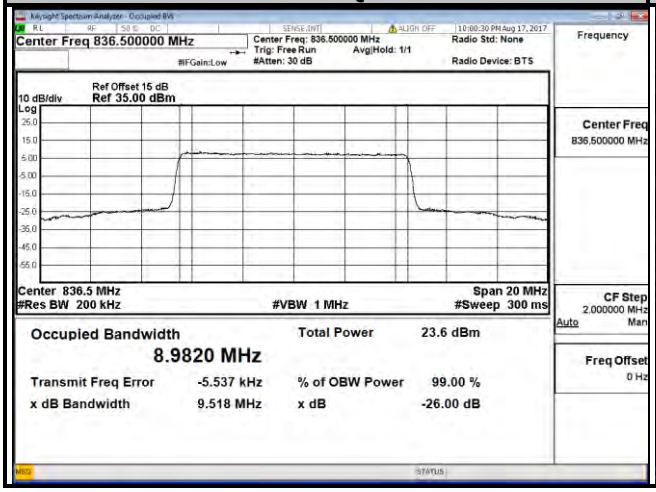
5 MHz / QPSK



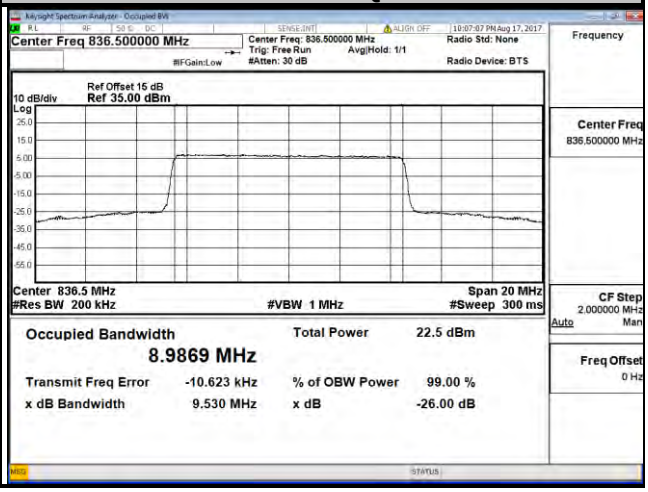
5 MHz / 16QAM



10 MHz / QPSK

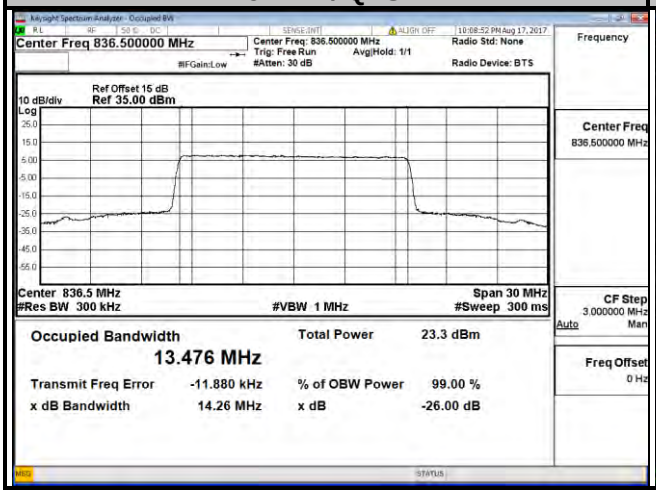


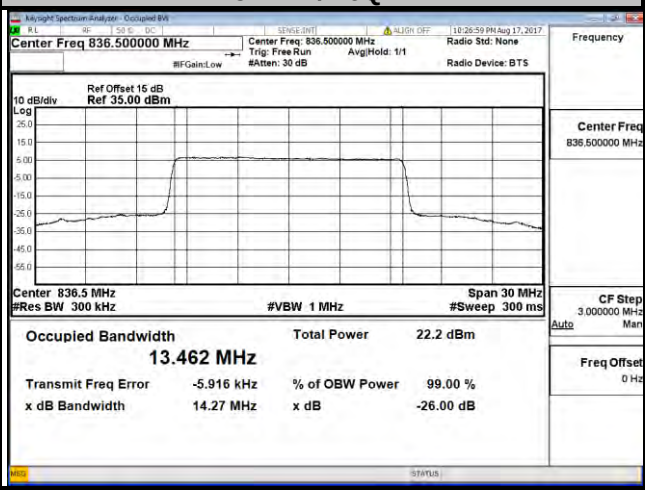
10 MHz / 16QAM



LTE Band 26			
Channel Bandwidth: 15 MHz			
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)	
		QPSK	16QAM
26865	831.5	13.452	13.439
26915	836.5	13.476	13.462
26965	841.5	13.445	13.436

Spectrum Plot of Worst Value	
15 MHz / QPSK	15 MHz / 16QAM



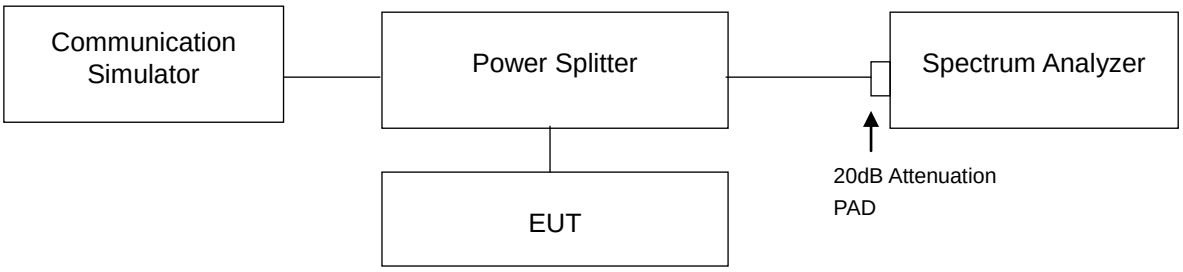


4.4 Band Edge Measurement

4.4.1 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.

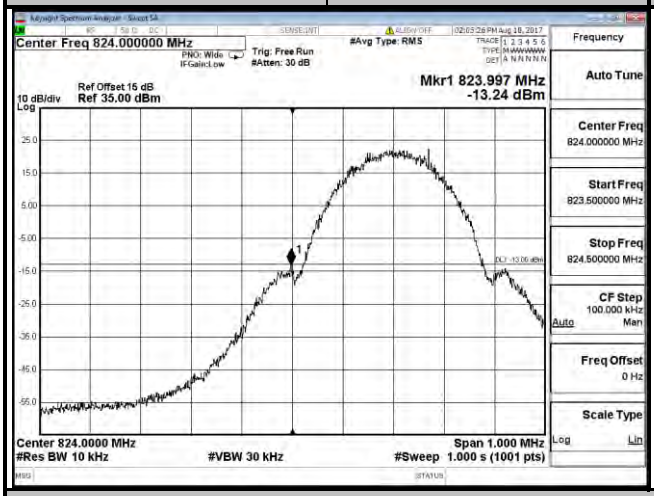
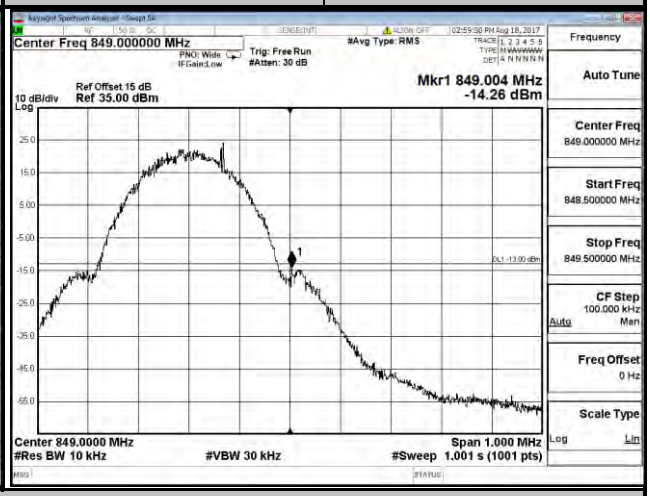
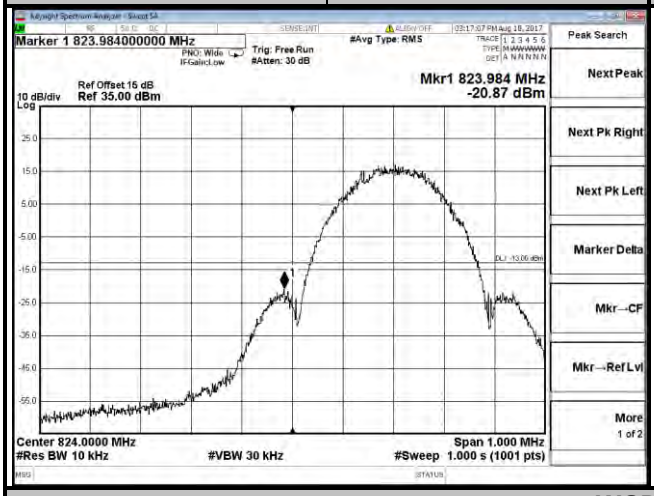
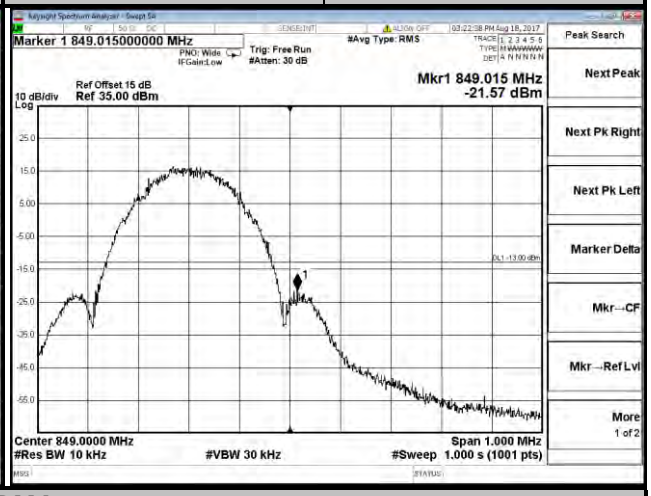
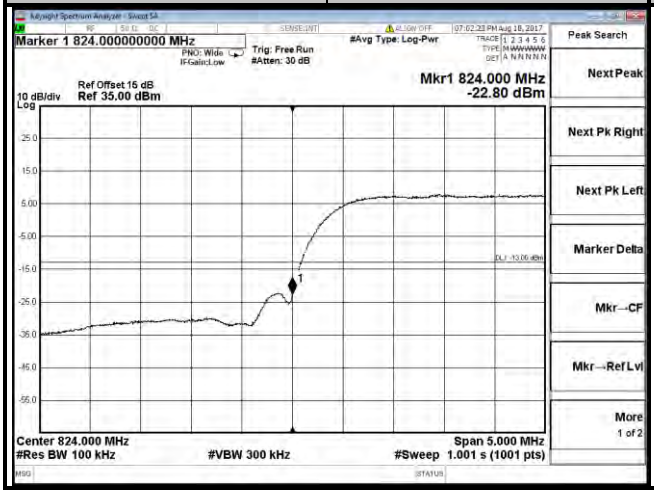
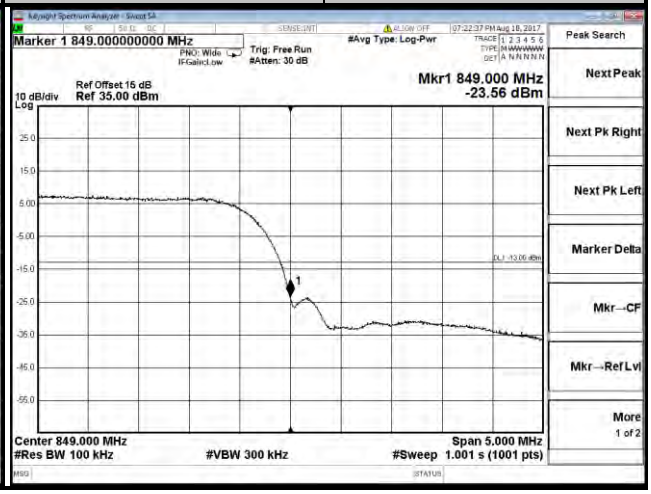
4.4.2 Test Setup

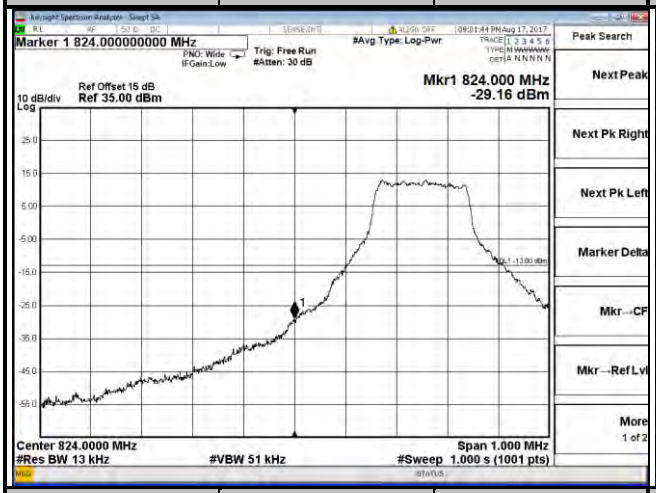
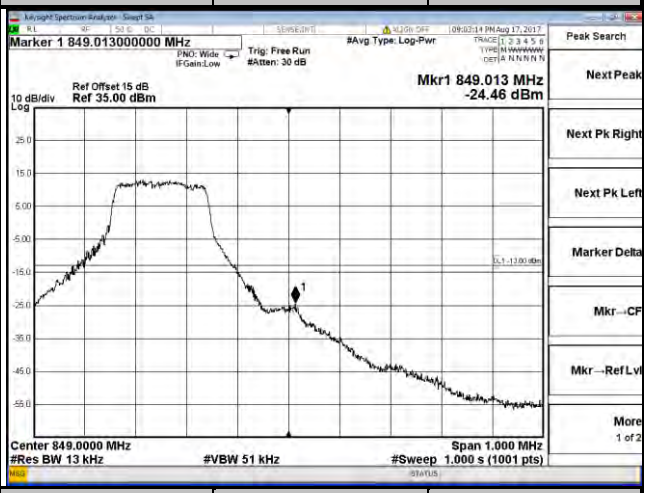
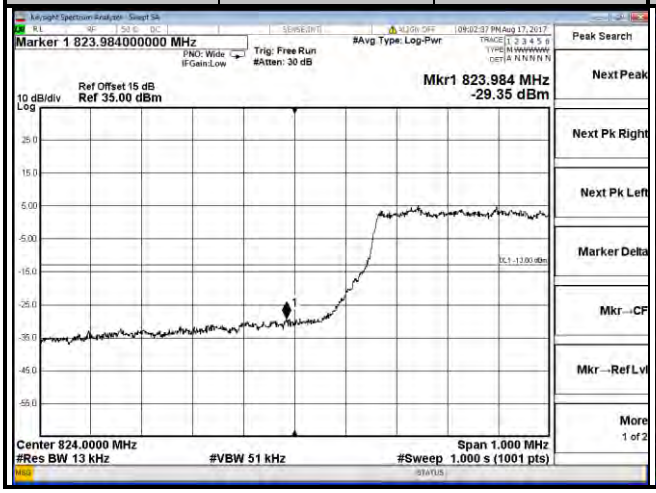
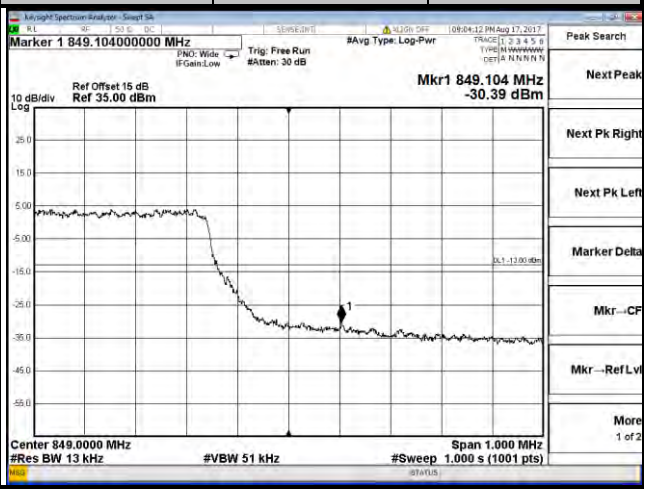


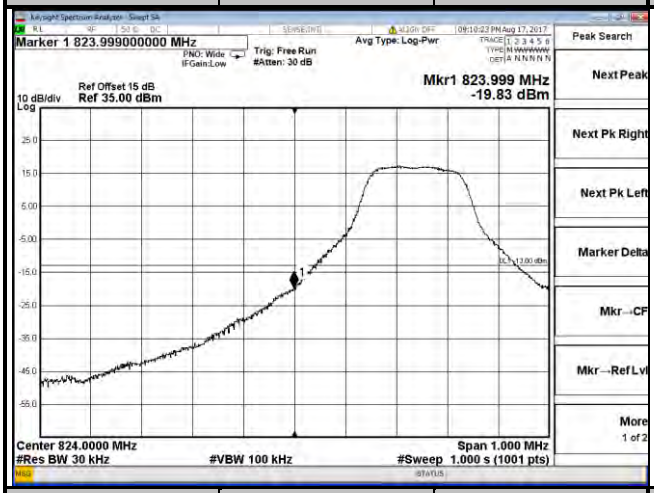
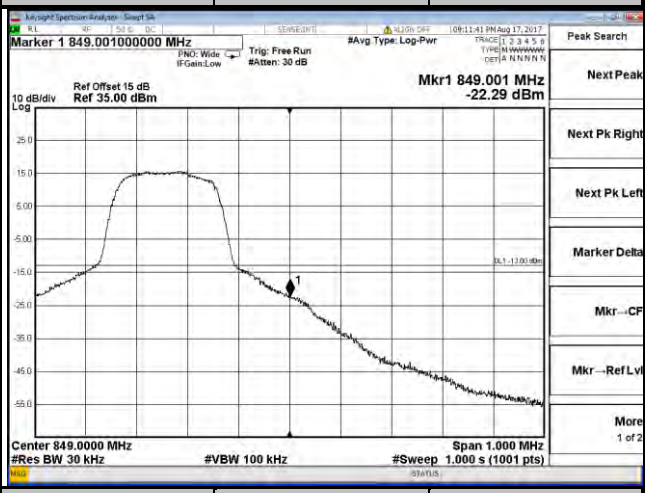
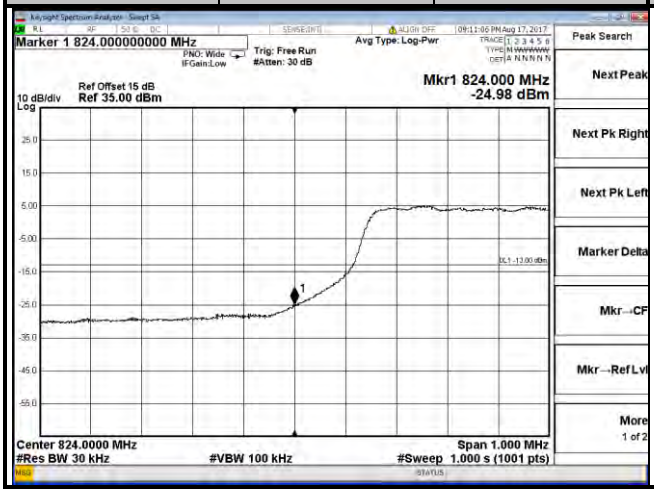
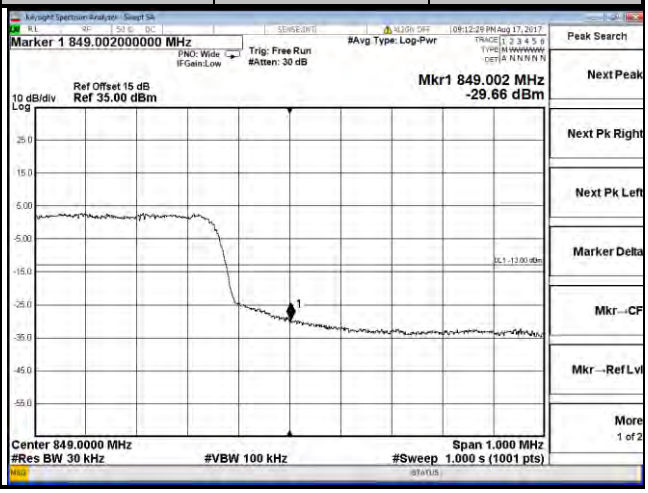
4.4.3 Test Procedures

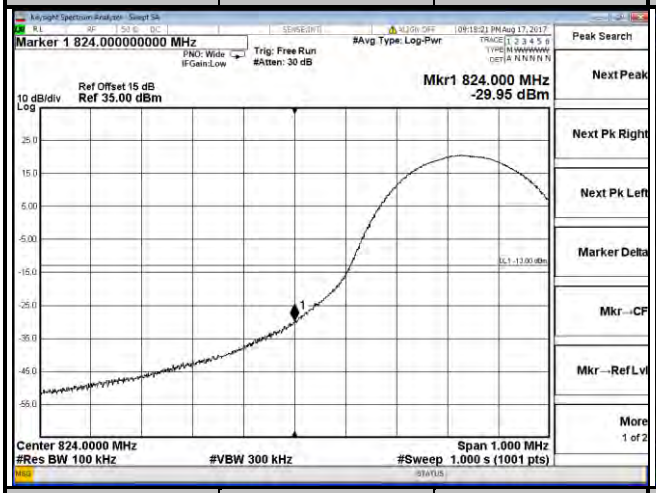
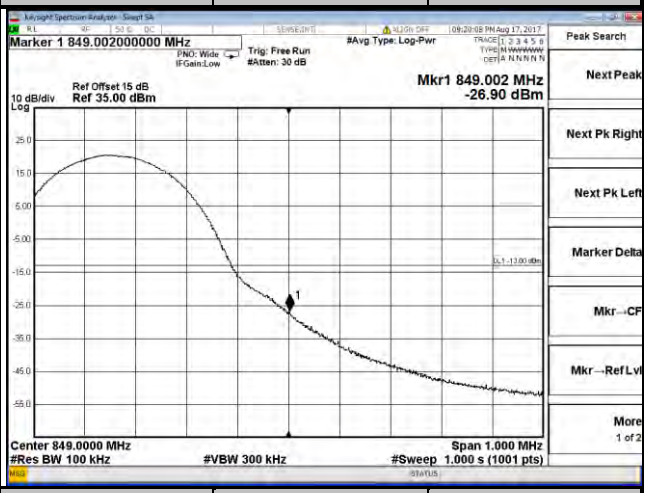
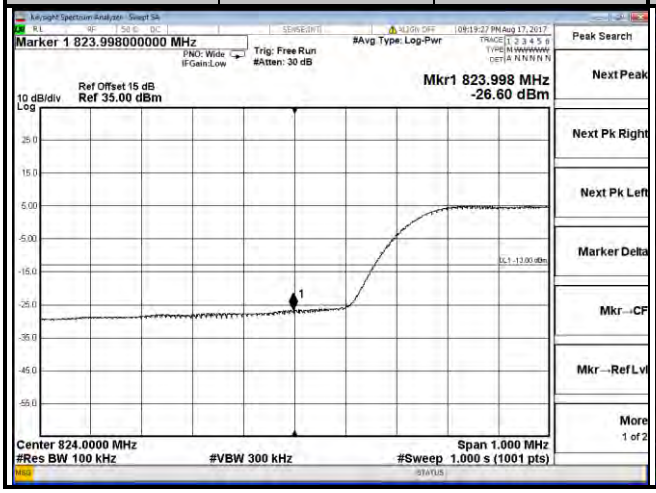
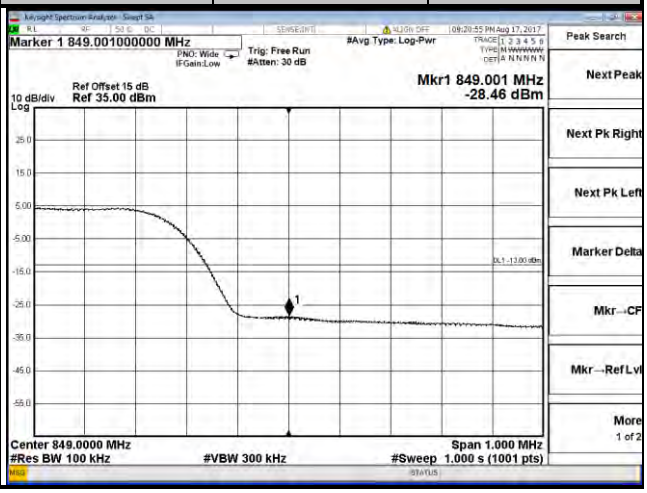
a. All measurements were done at low and high operational frequency range.
b. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 10 kHz and VB of the spectrum is 30 kHz (GSM/GPRS/EDGE).
c. The center frequency of spectrum is the band edge frequency and span is 5 MHz. RB of the spectrum is 100 kHz and VB of the spectrum is 300 kHz (WCDMA).
d. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 13 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 100 kHz and VB of the spectrum is 300 kHz (LTE Bandwidth 5 MHz/10 MHz).
g. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 150 kHz and VB of the spectrum is 470 kHz (LTE Bandwidth 15 MHz).
h. Record the max trace plot into the test report.

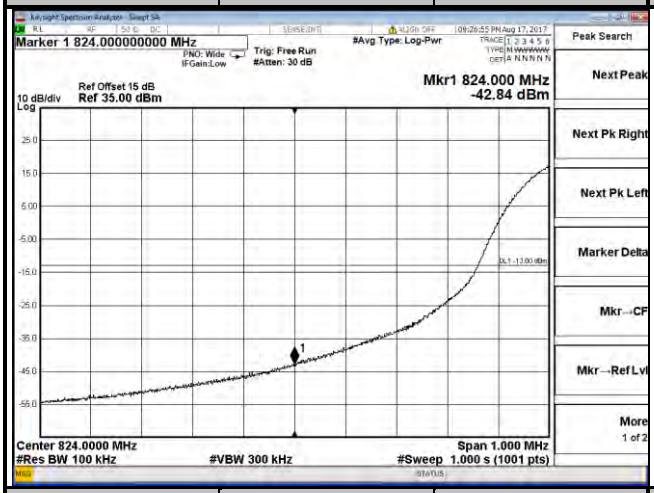
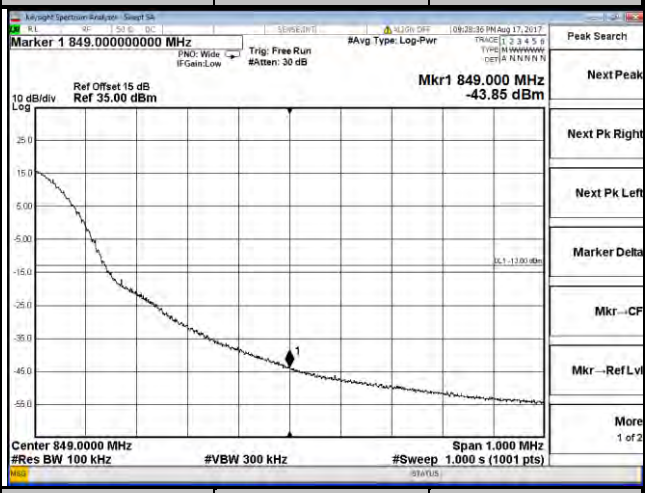
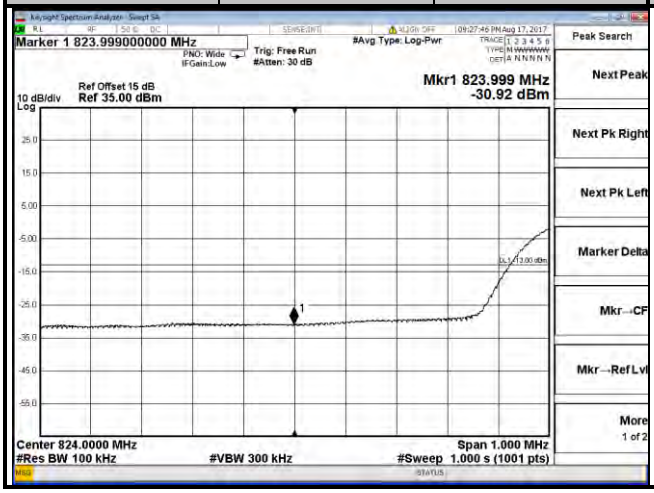
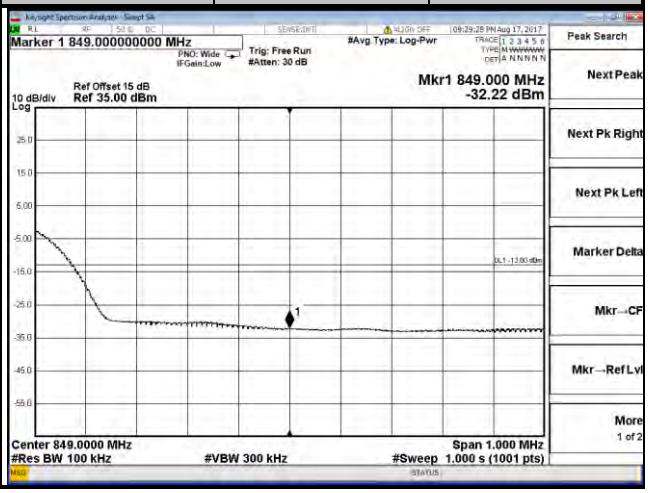
4.4.4 Test Results

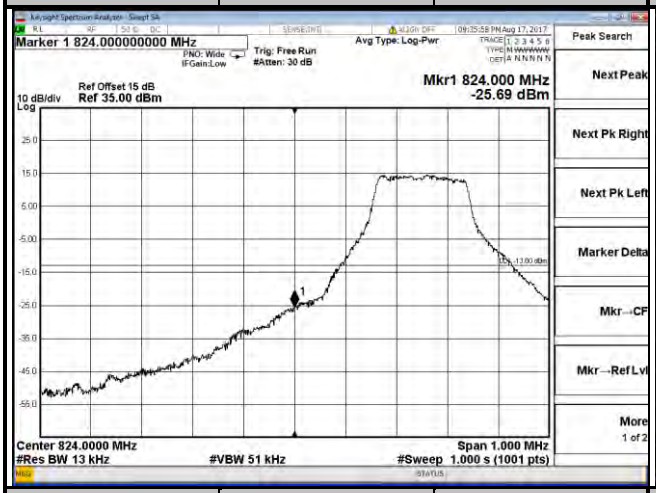
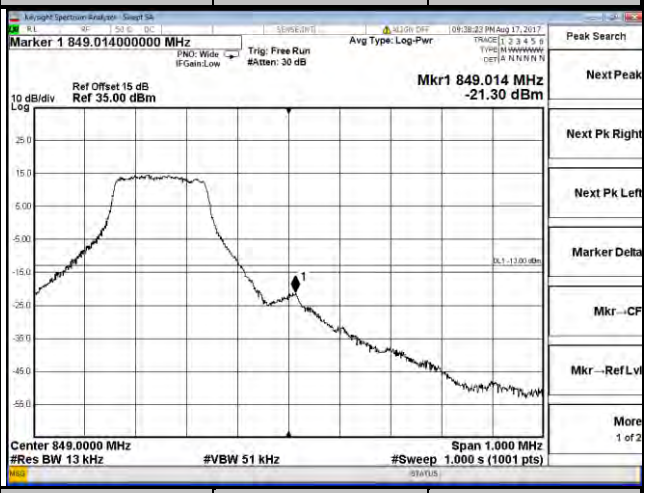
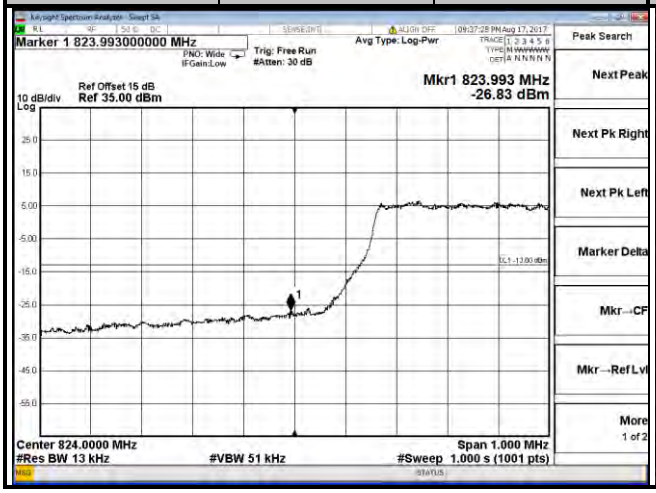
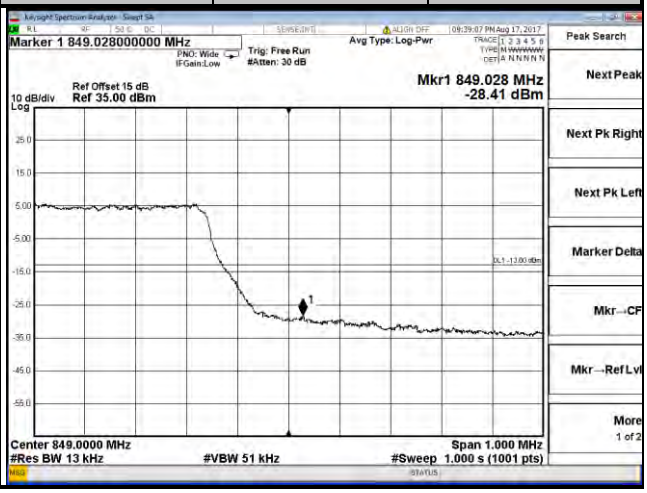
GSM			
Channel	128	Channel	251
			
EDGE			
Channel	**128**	**Channel**	**251**
			
WCDMA			
Channel	**4132**	**Channel**	**4233**
			

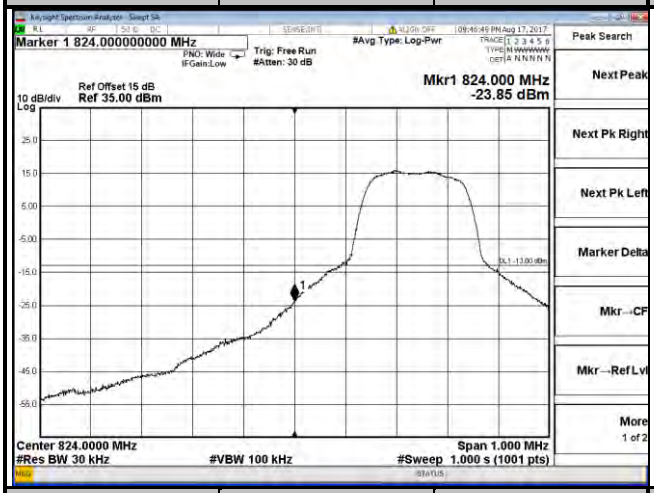
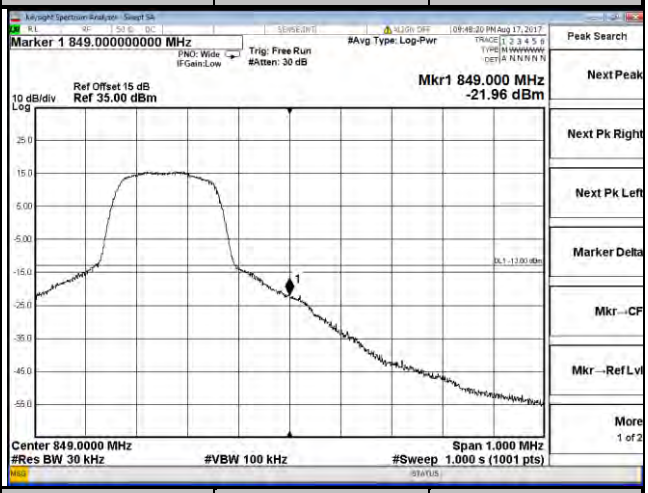
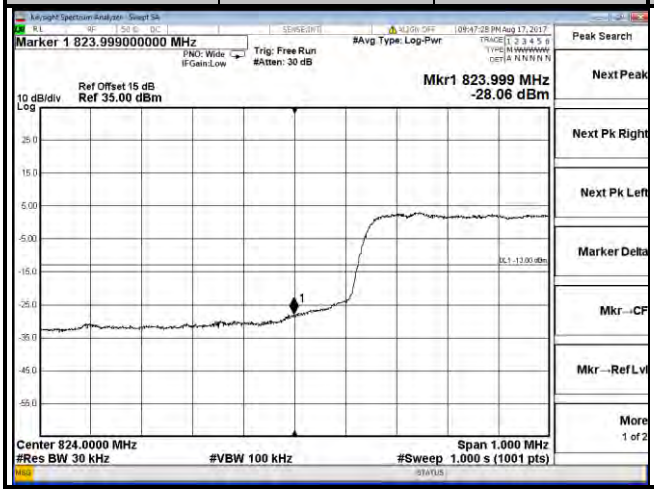
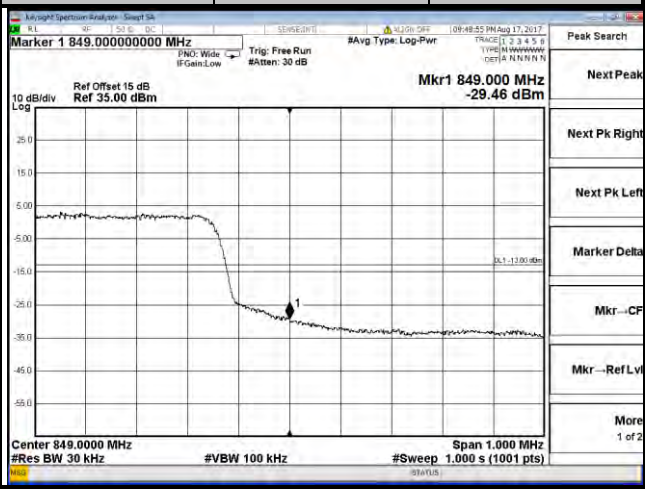
LTE Band 5					
Channel Bandwidth: 1.4 MHz					
Channel	20407	1 RB	Channel	20643	1 RB
					
Channel	20407	6 RB	Channel	20643	6 RB
					

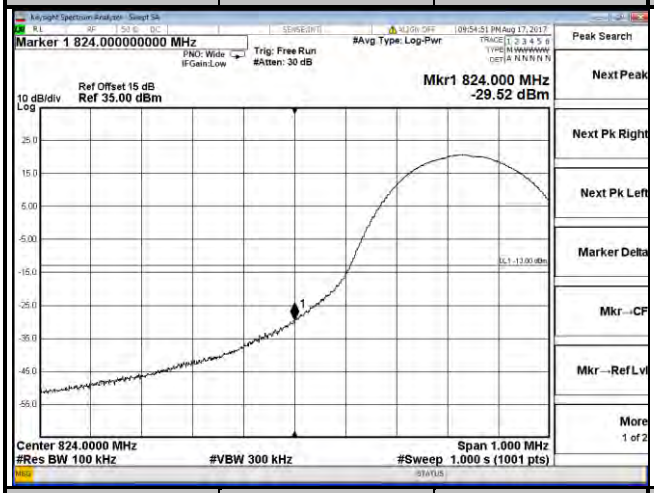
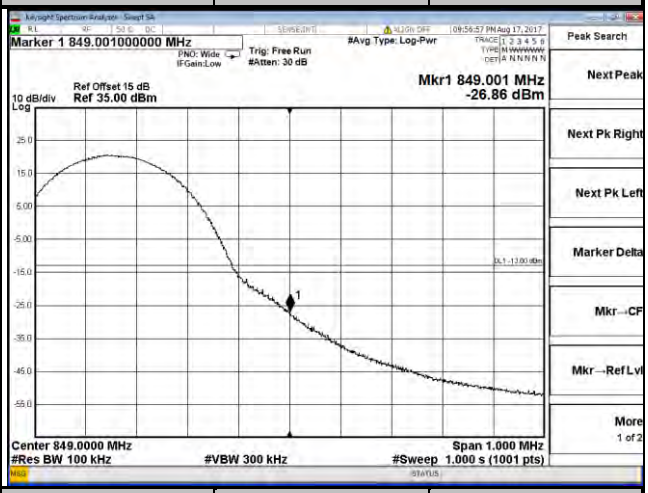
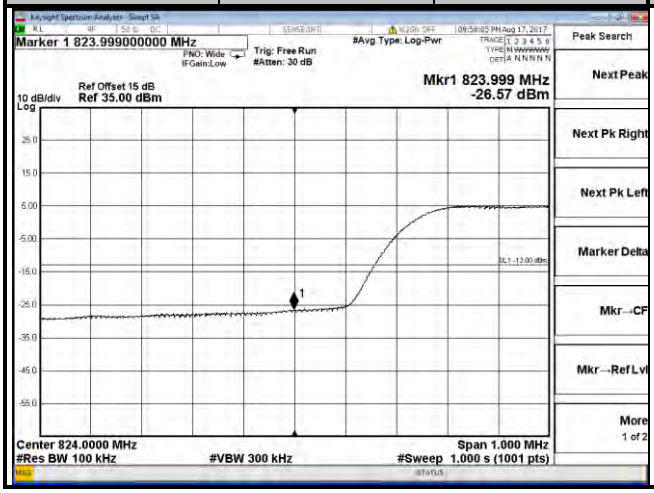
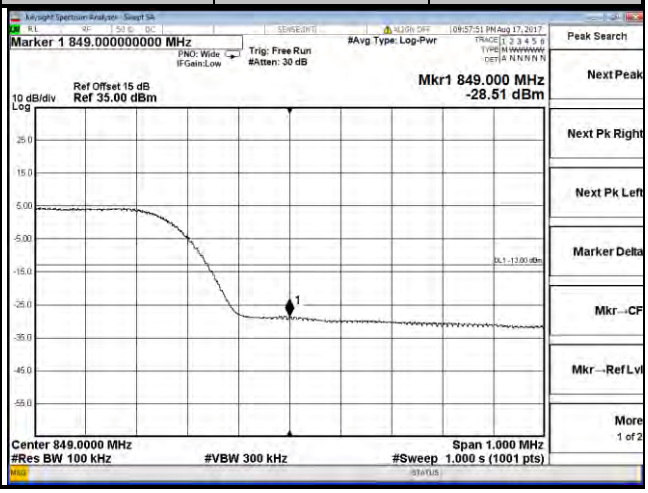
LTE Band 5					
Channel Bandwidth: 3 MHz					
Channel	20415	1 RB	Channel	20635	1 RB
					
Channel	20415	15 RB	Channel	20635	15 RB
					

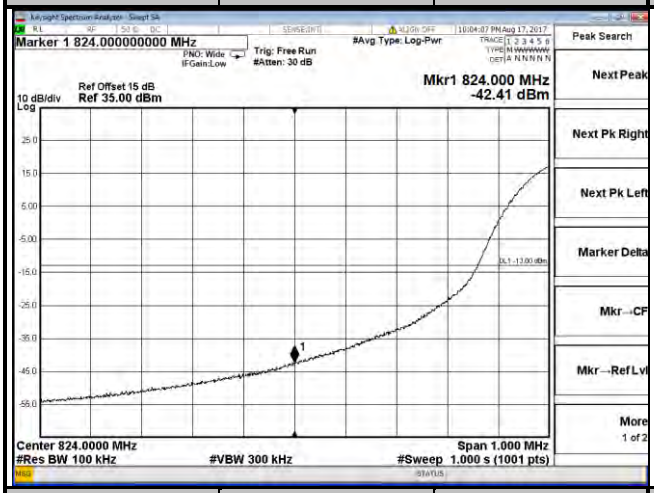
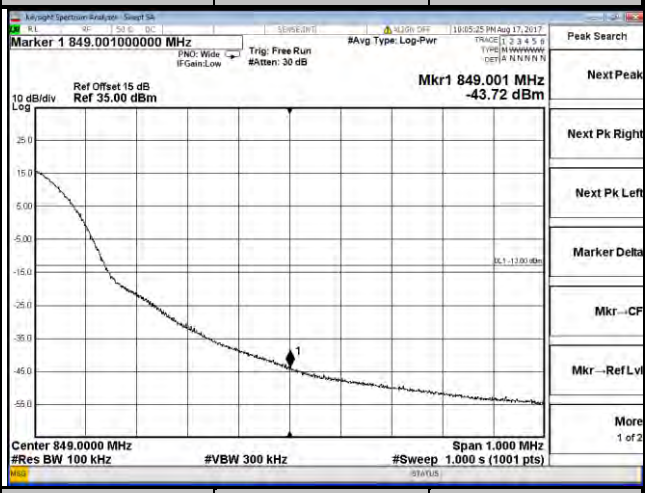
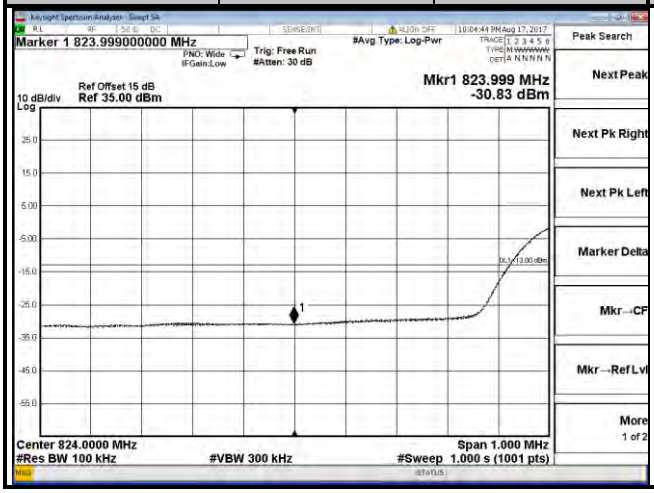
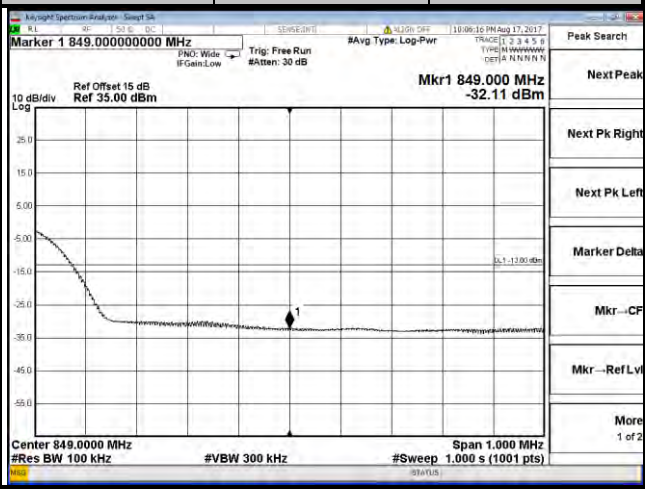
LTE Band 5					
Channel Bandwidth: 5 MHz					
Channel	20425	1 RB	Channel	20625	1 RB
					
Channel	20425	25 RB	Channel	20625	25 RB
					

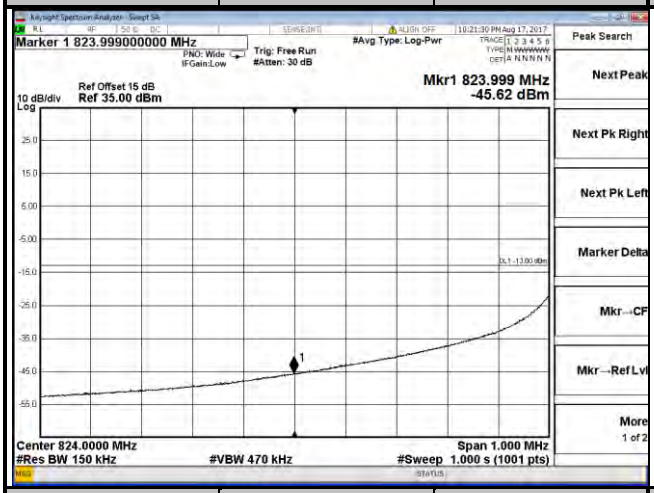
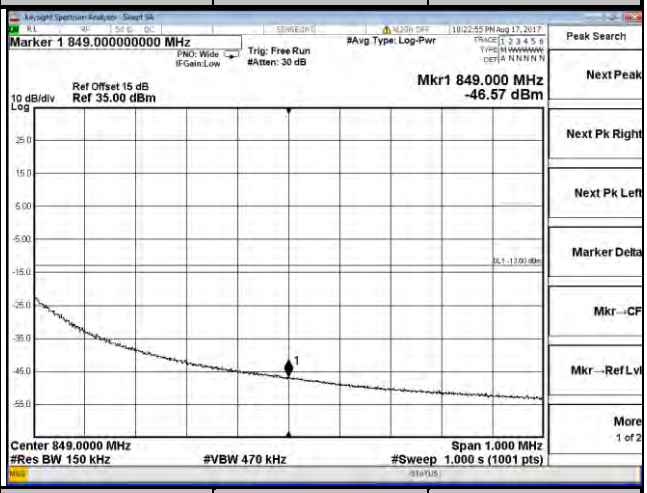
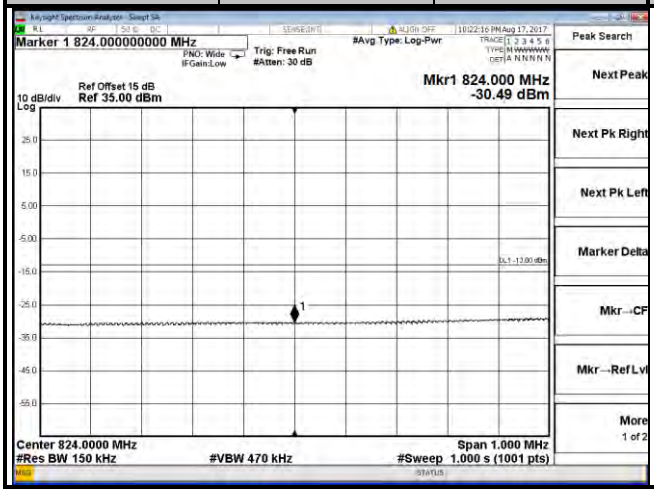
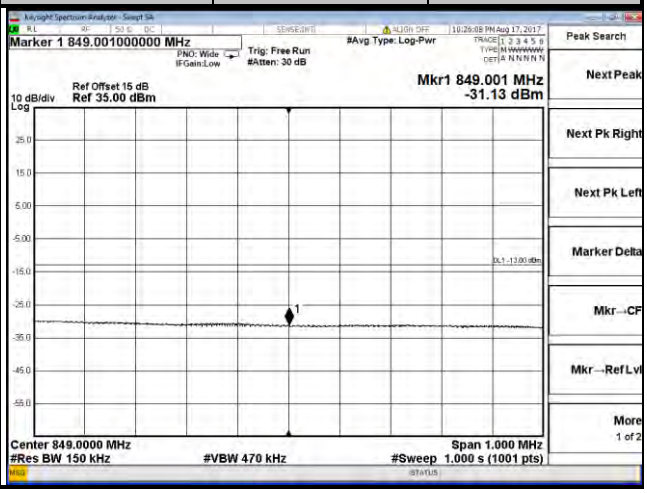
LTE Band 5					
Channel Bandwidth: 10 MHz					
Channel	20450	1 RB	Channel	20600	1 RB
					
Channel	20450	50 RB	Channel	20600	50 RB
					

LTE Band 26					
Channel Bandwidth: 1.4 MHz					
Channel	26797	1 RB	Channel	27033	1 RB
					
Channel	26797	6 RB	Channel	27033	6 RB
					

LTE Band 26					
Channel Bandwidth: 3 MHz					
Channel	26805	1 RB	Channel	27025	1 RB
					
Channel	26805	15 RB	Channel	27025	6 RB
					

LTE Band 26					
Channel Bandwidth: 5 MHz					
Channel	26815	1 RB	Channel	27015	1 RB
					
Channel	26815	25 RB	Channel	27015	25 RB
					

LTE Band 26					
Channel Bandwidth: 10 MHz					
Channel	26840	1 RB	Channel	26990	1 RB
					
Channel	26840	50 RB	Channel	26990	50 RB
					

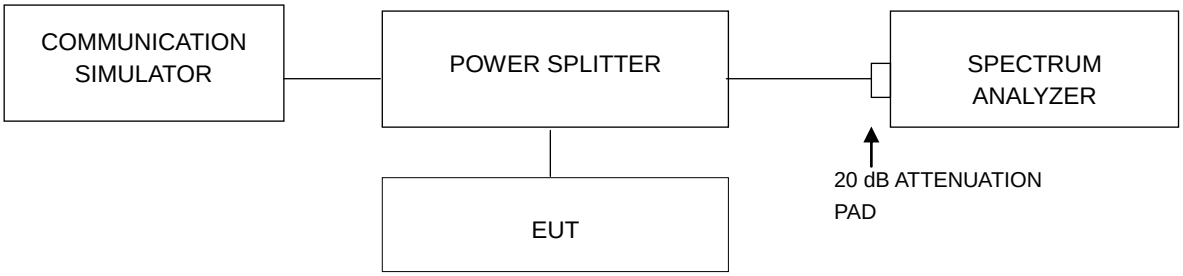
LTE Band 26					
Channel Bandwidth: 15 MHz					
Channel	26865	1 RB	Channel	26965	1 RB
					
Channel	26865	75 RB	Channel	26965	75 RB
					

4.5 Peak to Average Ratio

4.5.1 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.

4.5.2 Test Setup



4.5.3 Test Procedures

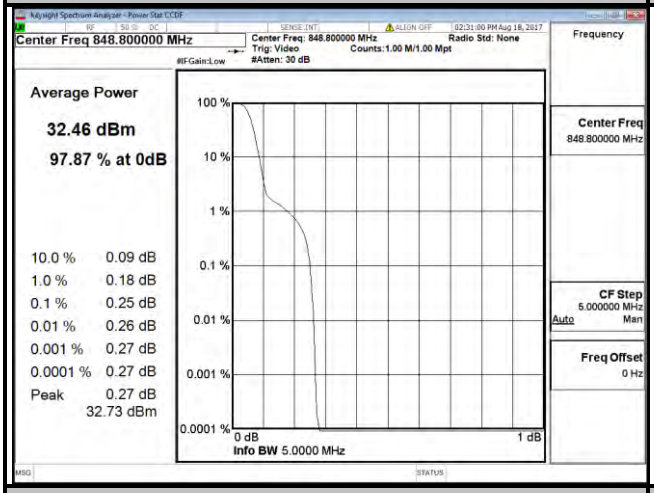
1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1 %.

4.5.4 Test Results

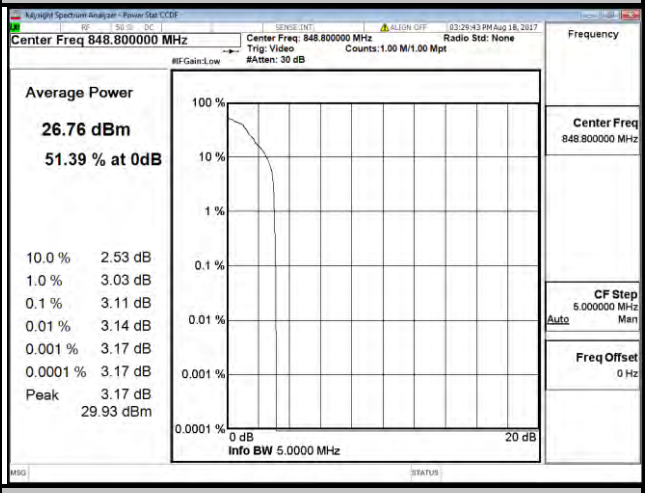
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)
		GSM	EDGE			WCDMA
128	824.2	0.25	3.08	4132	826.4	3.27
189	836.4	0.24	3.11	4182	836.4	3.31
251	848.8	0.25	3.11	4233	846.6	3.18

Spectrum Plot of Worst Value

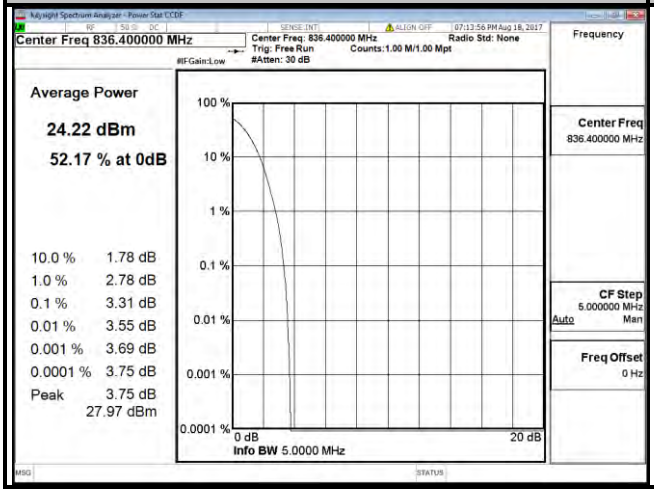
GSM



EDGE



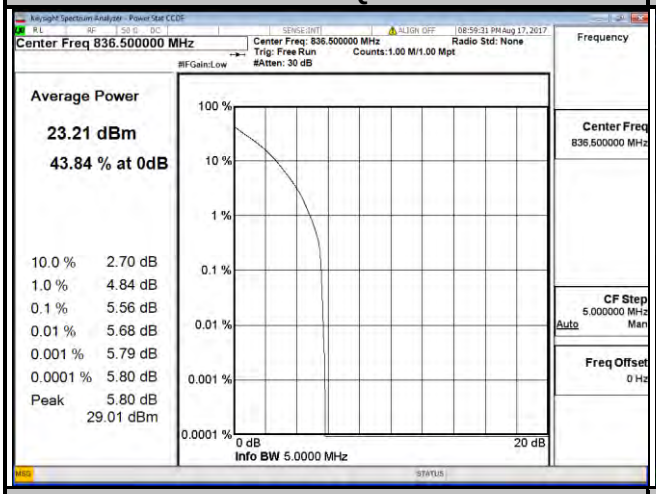
WCDMA



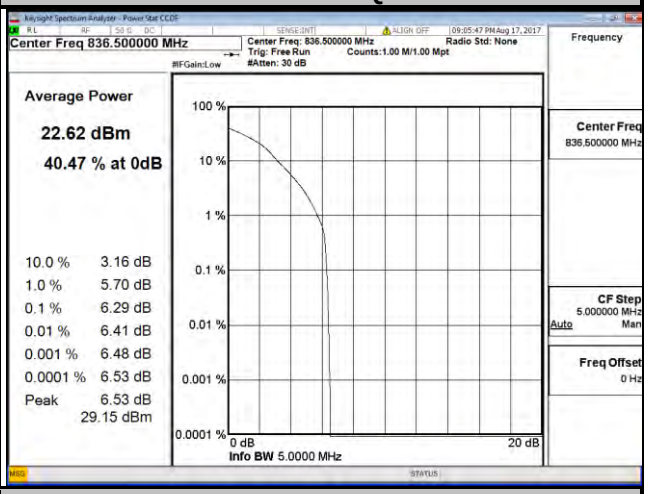
LTE Band 5							
Channel Bandwidth: 1.4 MHz				Channel Bandwidth: 3 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20407	824.7	5.49	6.26	20415	825.5	5.39	6.20
20525	836.5	5.56	6.29	20525	836.5	5.41	6.22
20643	848.3	4.49	5.25	20635	847.5	4.49	5.29

Spectrum Plot of Worst Value

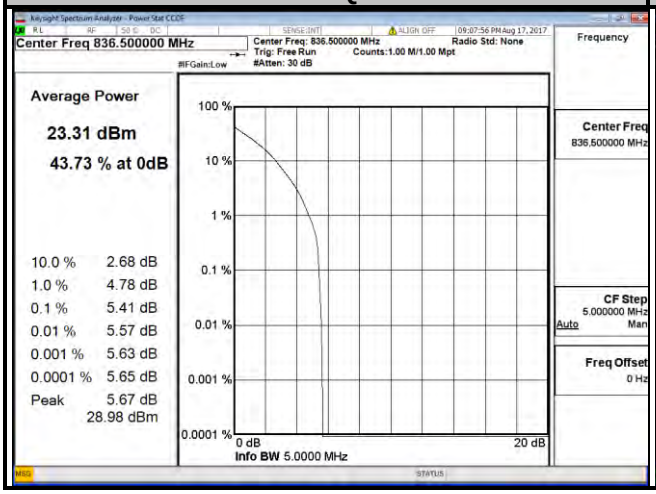
1.4 MHz / QPSK



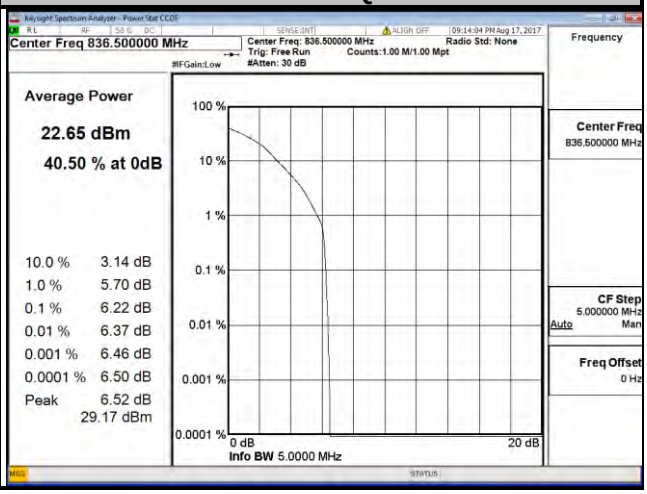
1.4 MHz / 16QAM



3 MHz / QPSK



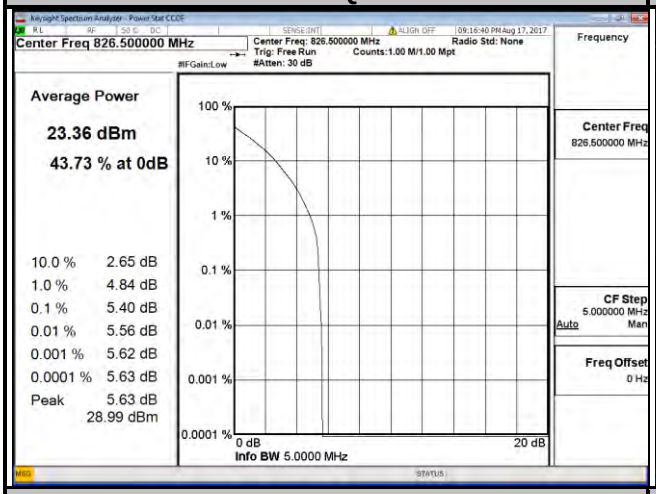
3 MHz / 16QAM



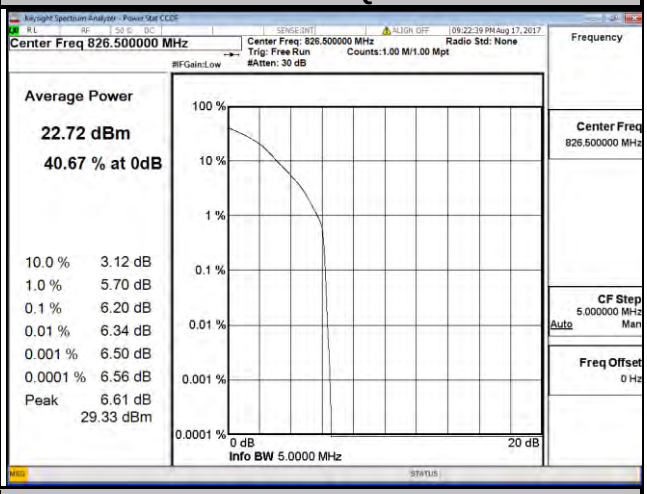
LTE Band 5							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
20425	826.5	5.40	6.20	20450	829.0	5.35	6.17
20525	836.5	5.39	6.14	20525	836.5	5.28	6.11
20625	846.5	4.70	5.50	20600	844.0	5.18	6.06

Spectrum Plot of Worst Value

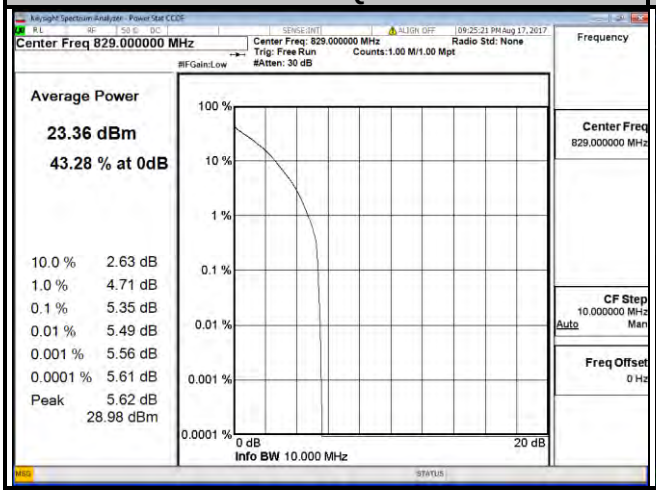
5 MHz / QPSK



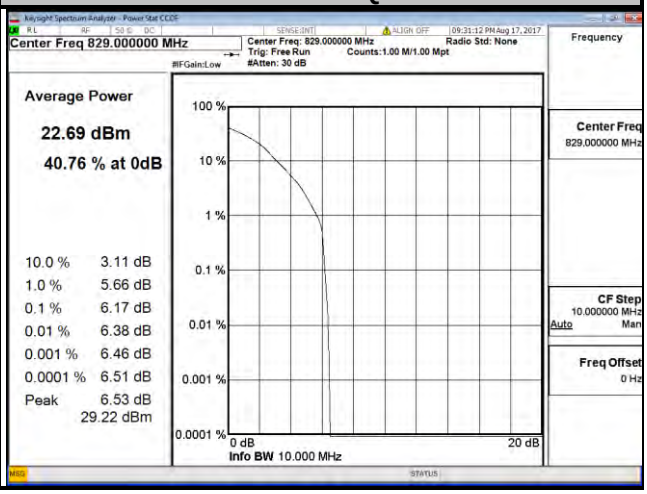
5 MHz / 16QAM



10 MHz / QPSK



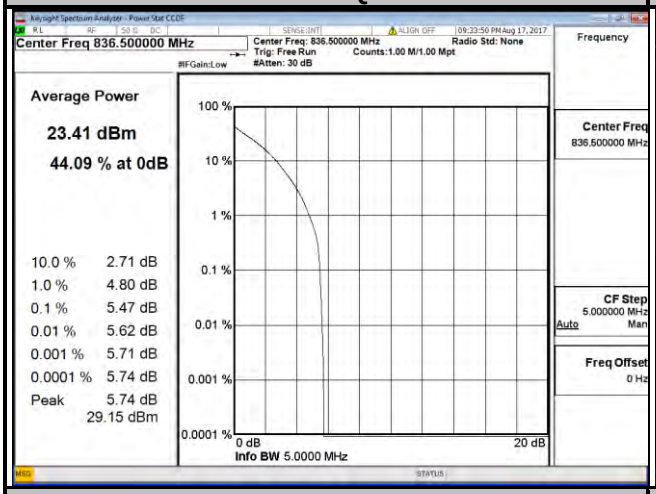
10 MHz / 16QAM



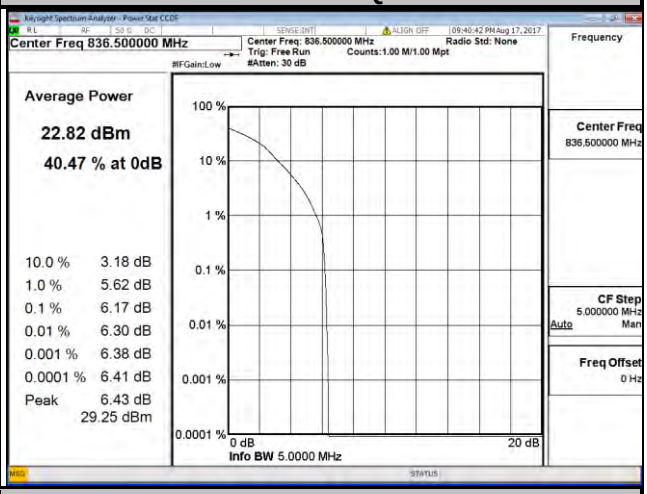
LTE Band 26							
Channel Bandwidth: 1.4 MHz				Channel Bandwidth: 3 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
26797	824.7	5.38	6.17	26805	825.5	5.31	6.09
26915	836.5	5.47	6.17	26915	836.5	5.39	6.17
27033	848.3	4.45	5.22	27025	847.5	4.49	5.34

Spectrum Plot of Worst Value

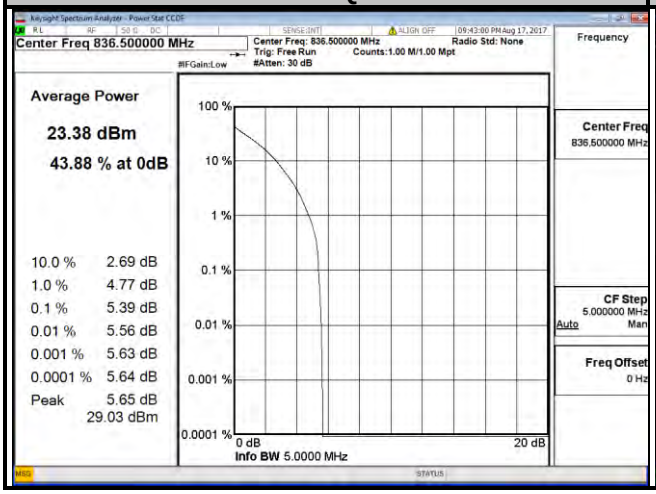
1.4 MHz / QPSK



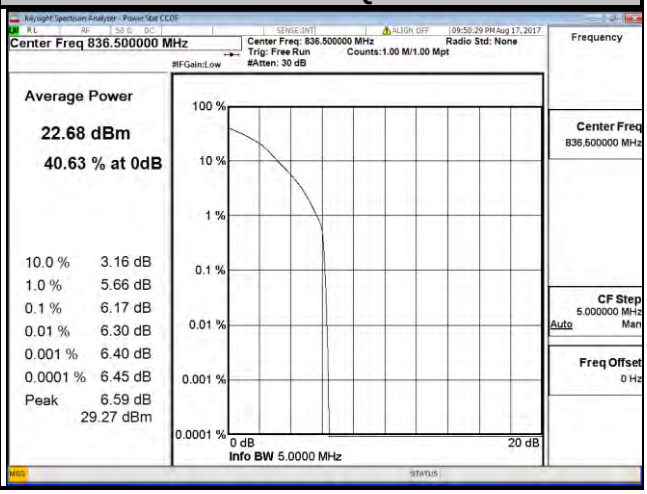
1.4 MHz / 16QAM



3 MHz / QPSK



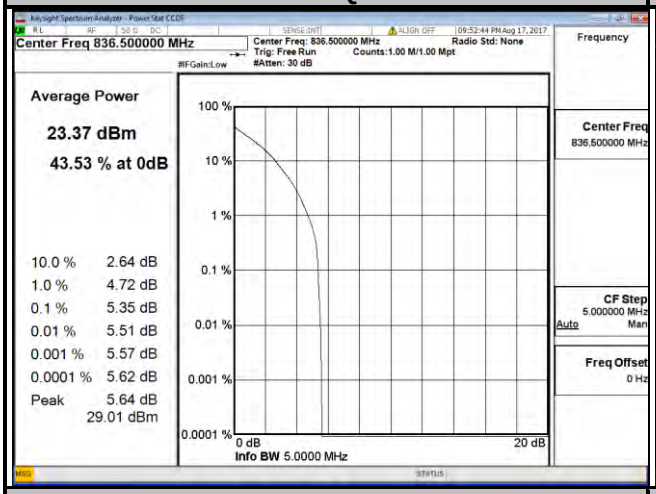
3 MHz / 16QAM



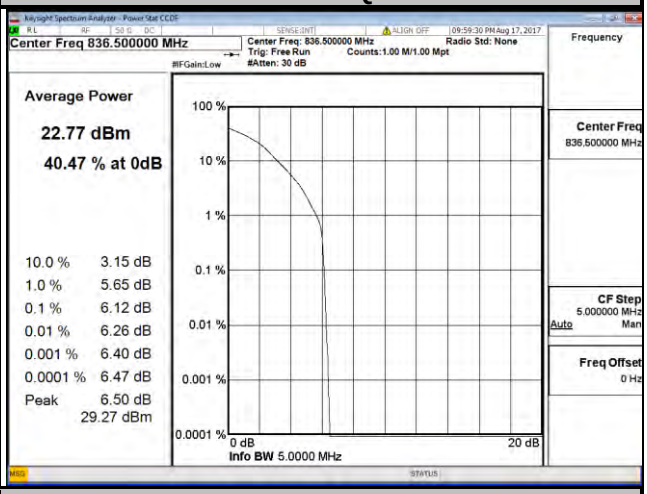
LTE Band 26							
Channel Bandwidth: 5 MHz				Channel Bandwidth: 10 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
26815	826.5	5.30	6.10	26840	829.0	5.28	6.12
26915	836.5	5.35	6.12	26915	836.5	5.25	6.10
27015	846.5	4.63	5.49	26990	844.0	5.16	6.00

Spectrum Plot of Worst Value

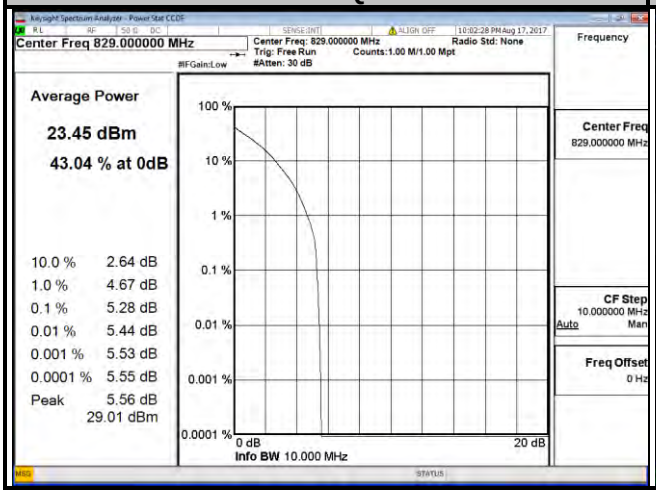
5 MHz / QPSK



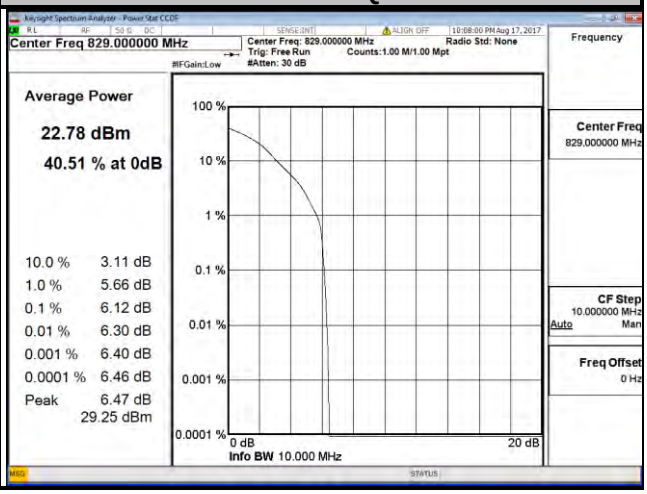
5 MHz / 16QAM



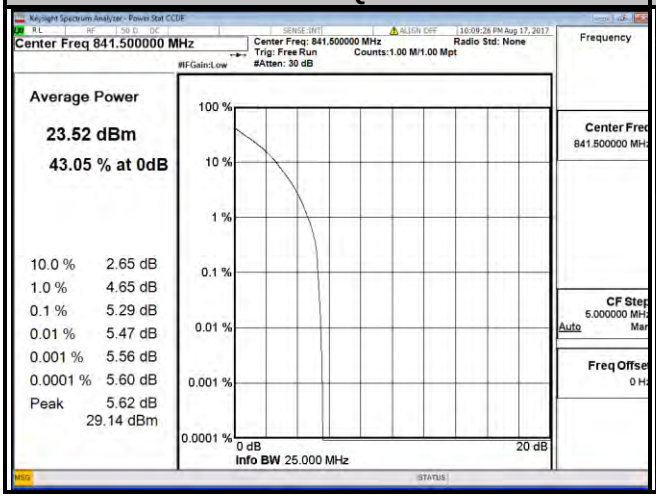
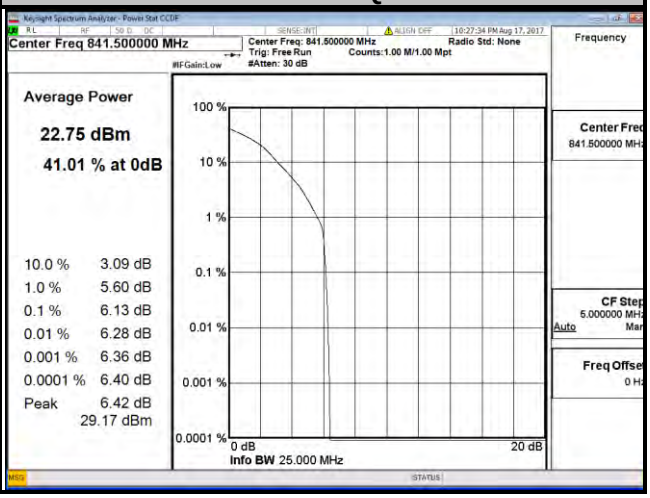
10 MHz / QPSK



10 MHz / 16QAM



LTE Band 26			
Channel Bandwidth: 15 MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM
26865	831.5	5.27	6.10
26915	836.5	5.16	6.00
26965	841.5	5.29	6.13

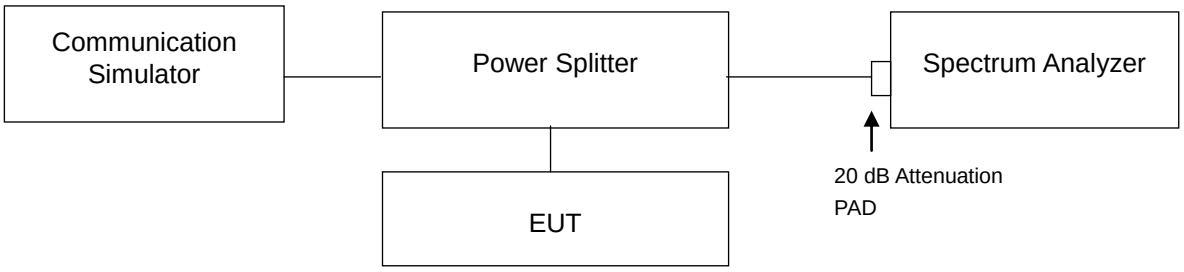
Spectrum Plot of Worst Value	
15 MHz / QPSK	15 MHz / 16QAM
	

4.6 Conducted Spurious Emissions

4.6.1 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.

4.6.2 Test Setup

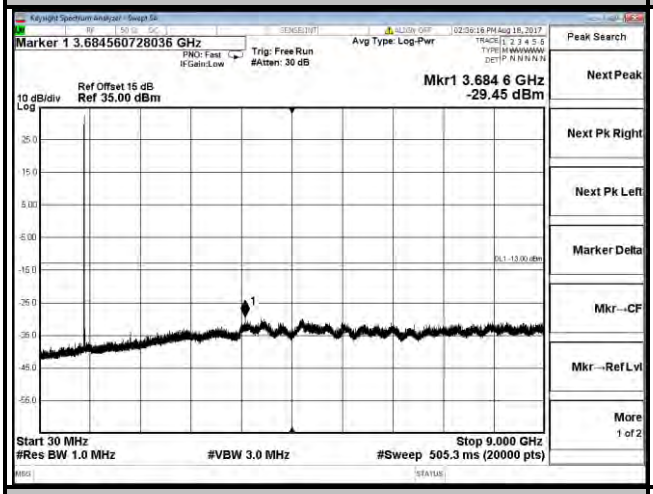
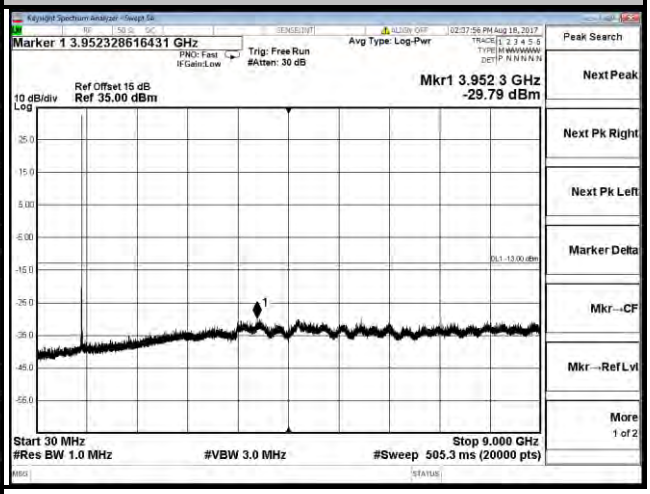
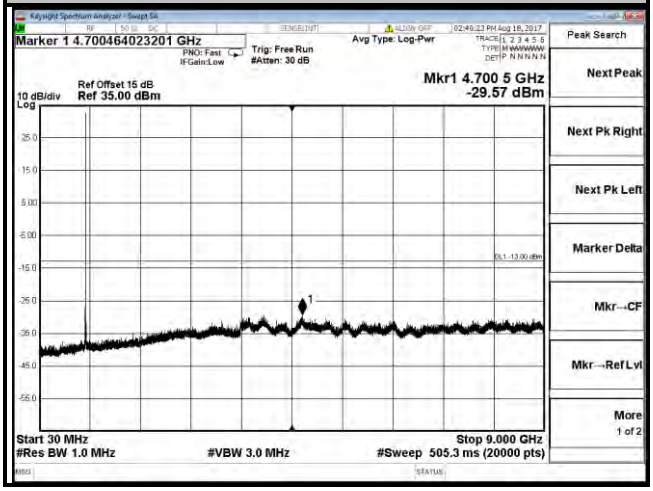


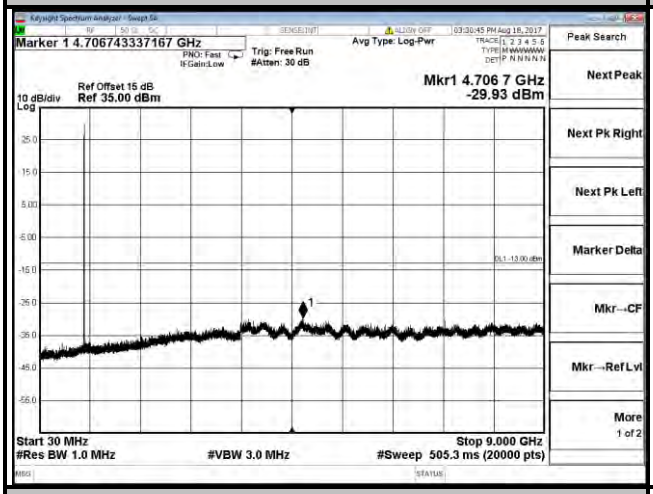
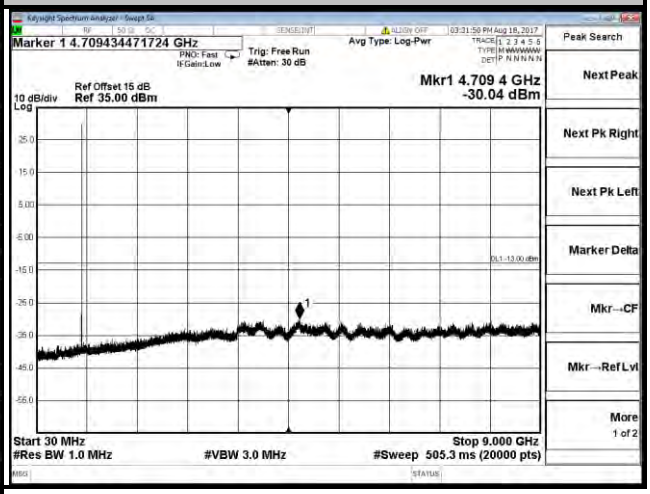
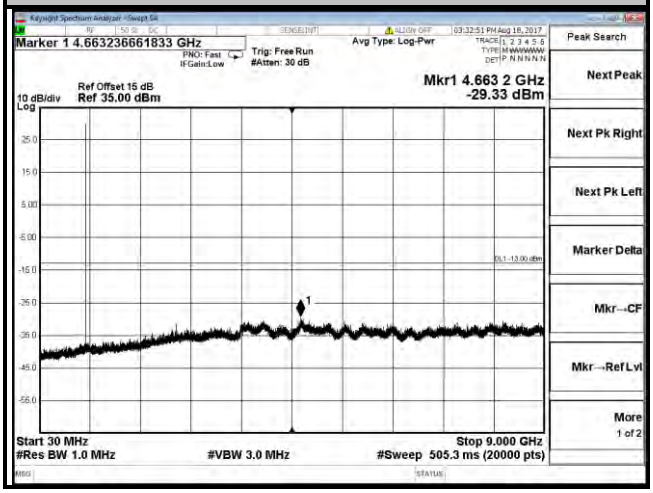
4.6.3 Test Procedure

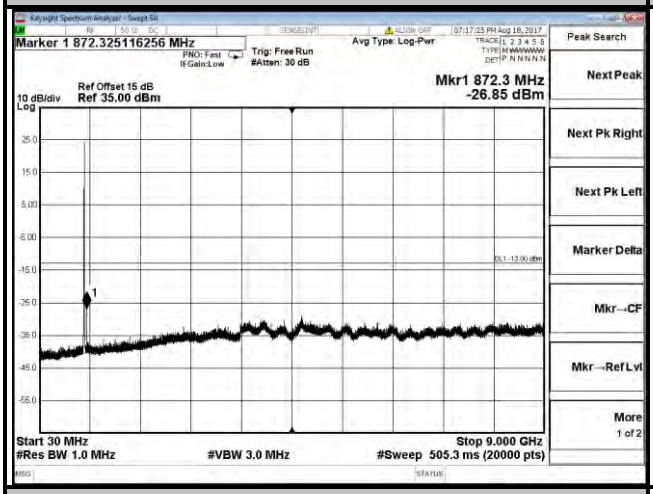
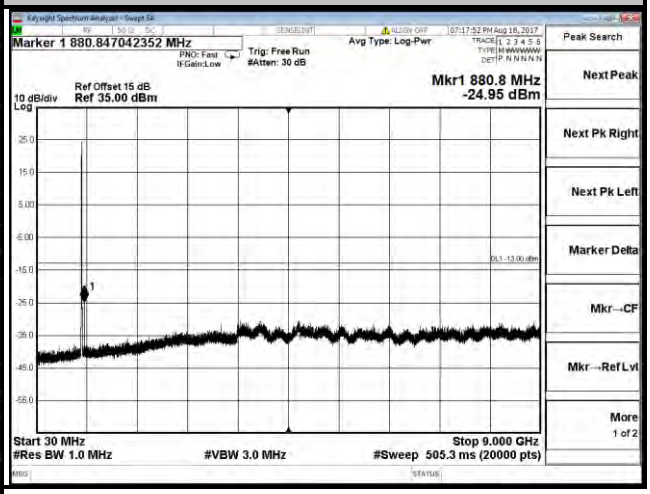
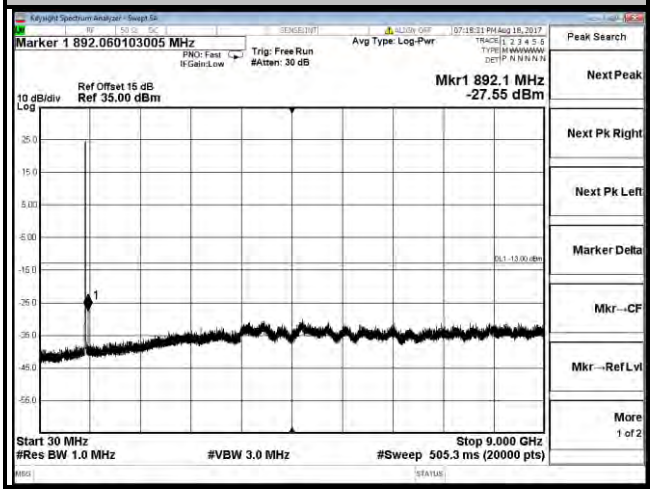
a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.

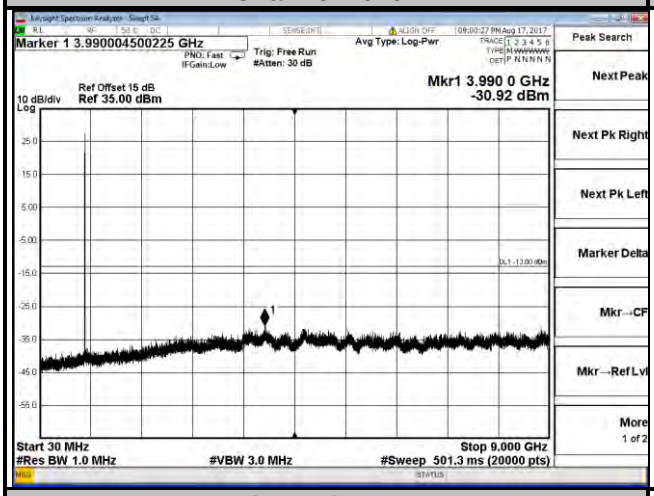
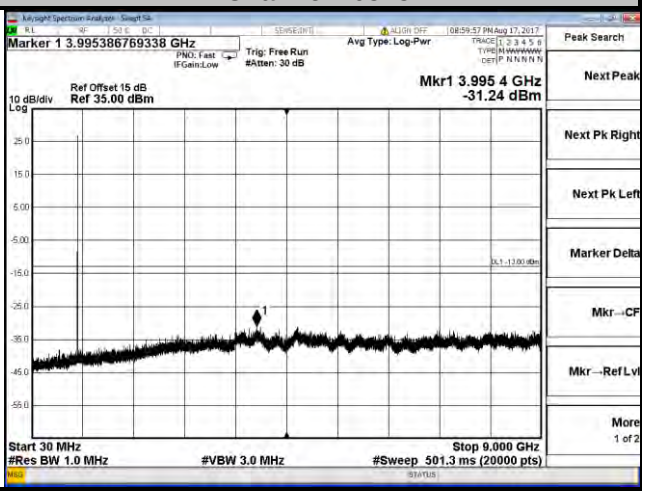
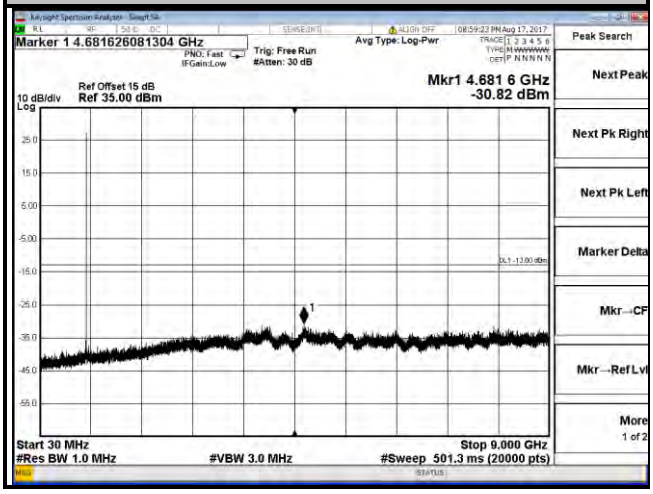
b. Measuring frequency range is from 9 kHz to 9 GHz. 20 dB attenuation pad is connected with spectrum. RBW=1 MHz and VBW=3 MHz is used for conducted emission measurement.

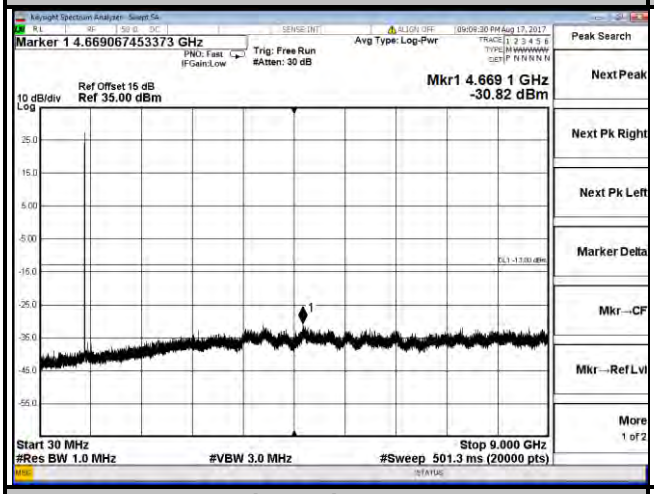
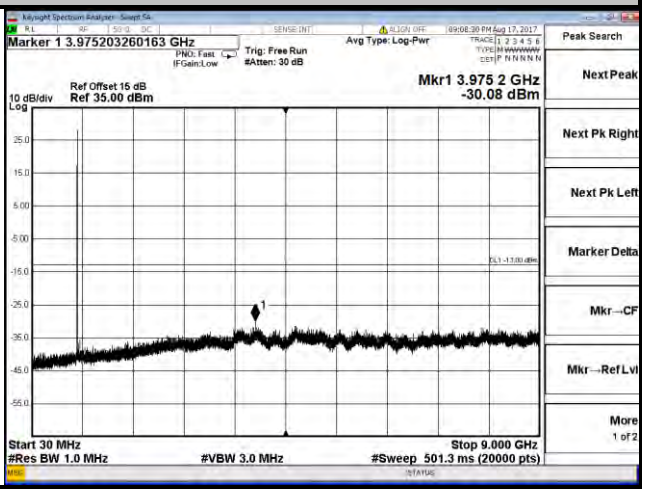
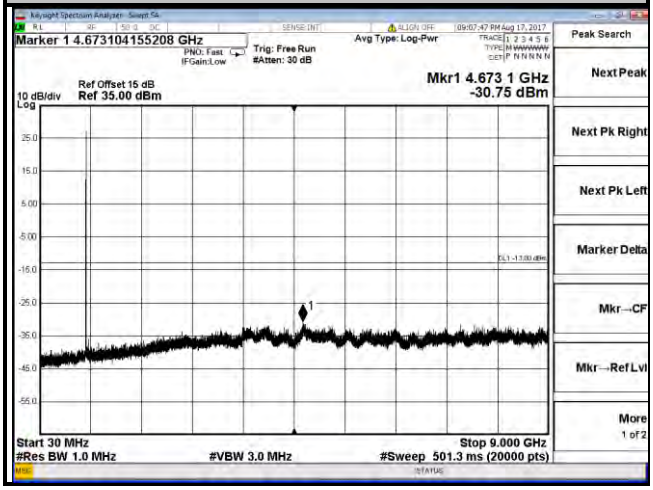
4.6.4 Test Results

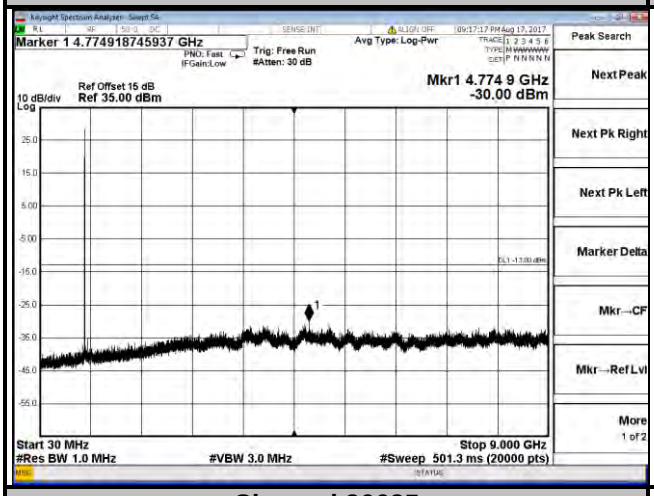
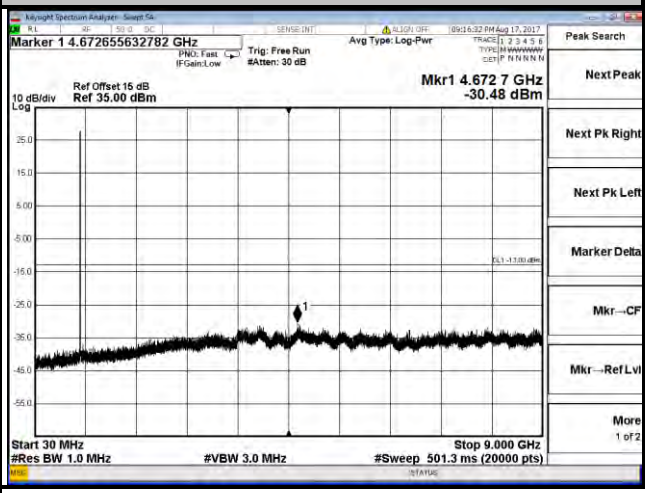
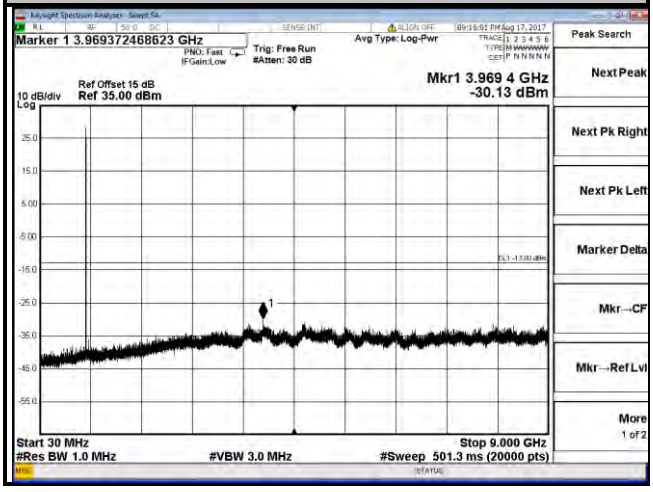
GSM	
Channel 128	Channel 189
	
Channel 251	
	

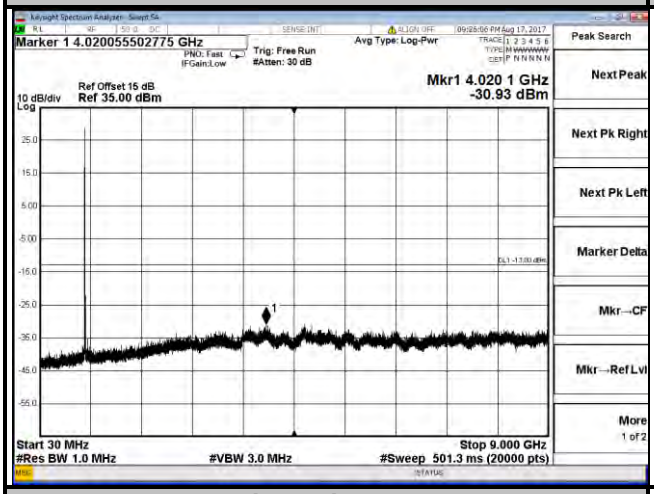
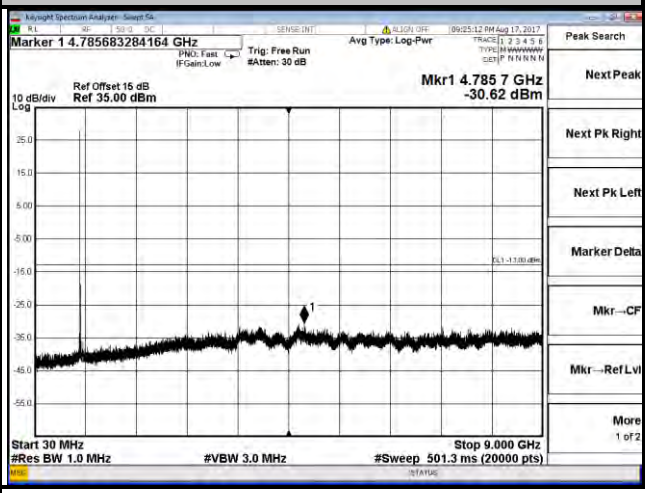
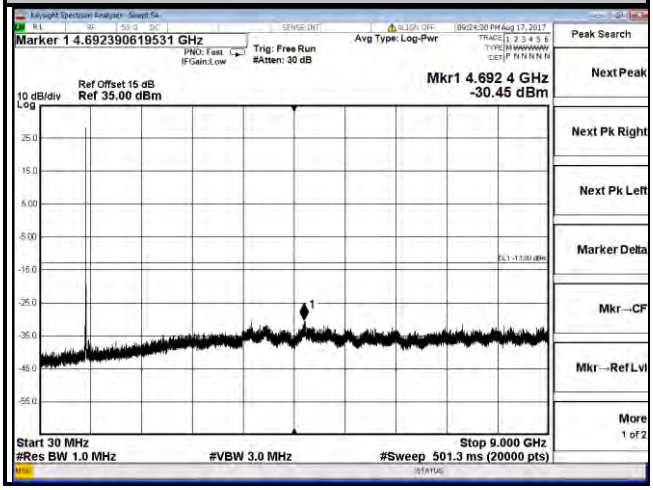
EDGE	
Channel 128	Channel 189
	
Channel 251	
	

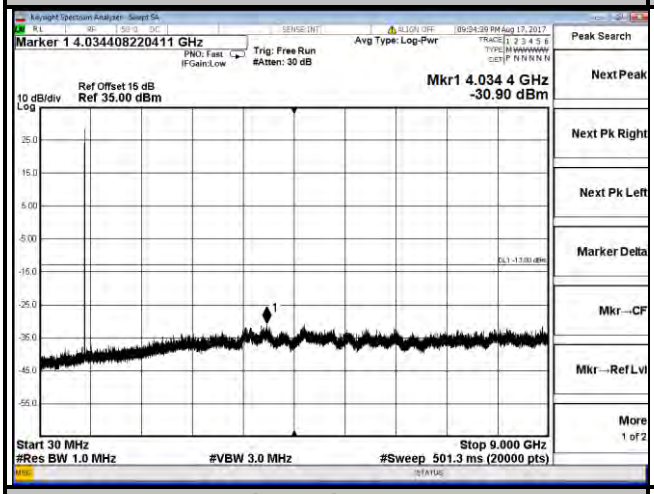
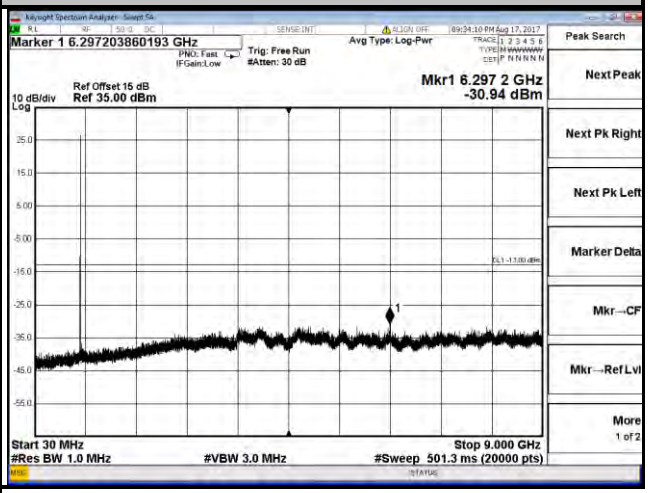
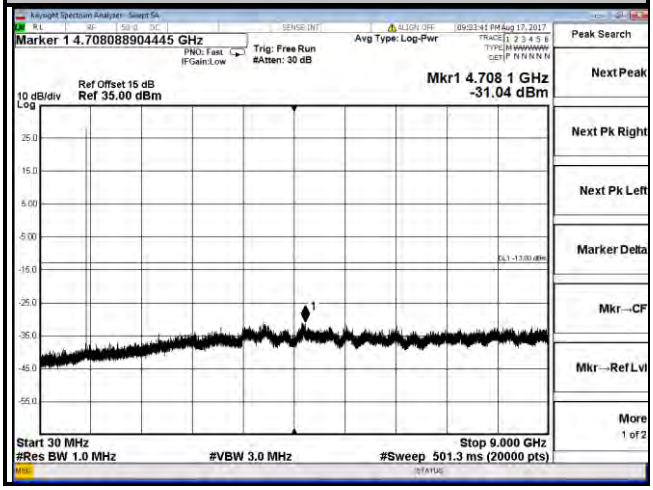
WCDMA	
Channel 4132	Channel 4182
	
Channel 4233	
	

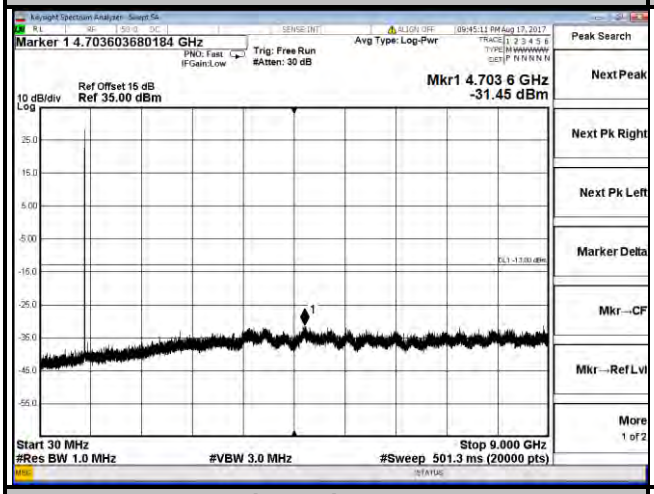
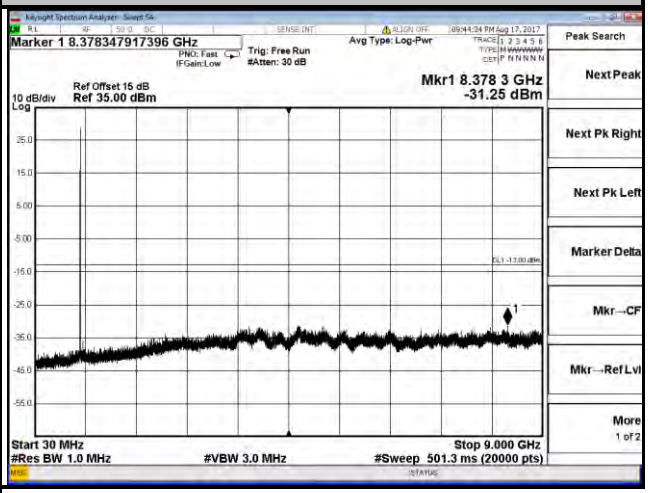
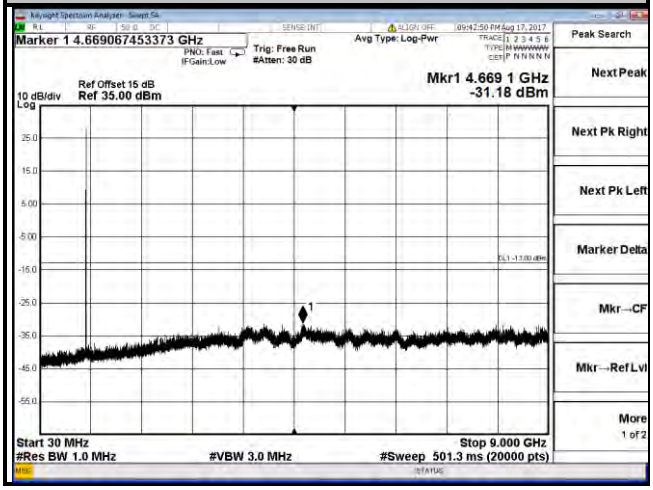
LTE Band 5	
Channel Bandwidth: 1.4 MHz	
Channel 20407	Channel 20525
	
Channel 20643	
	

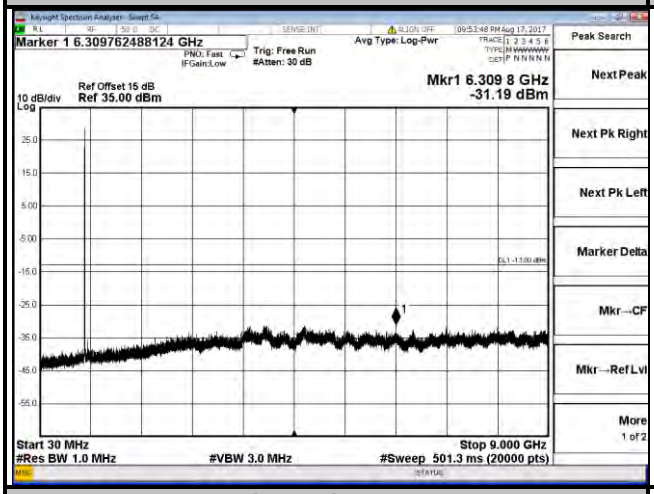
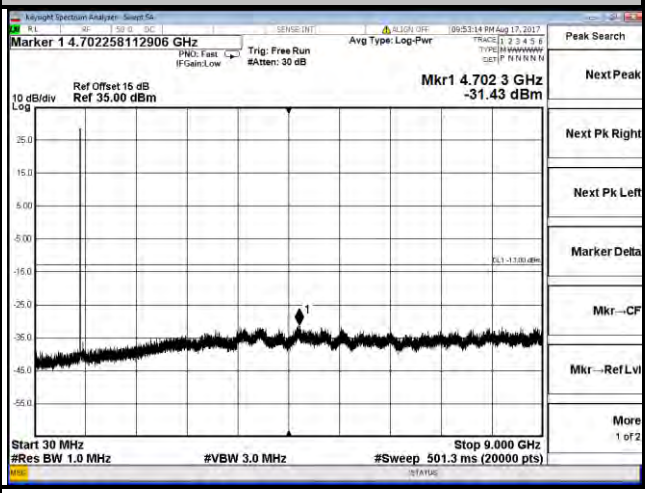
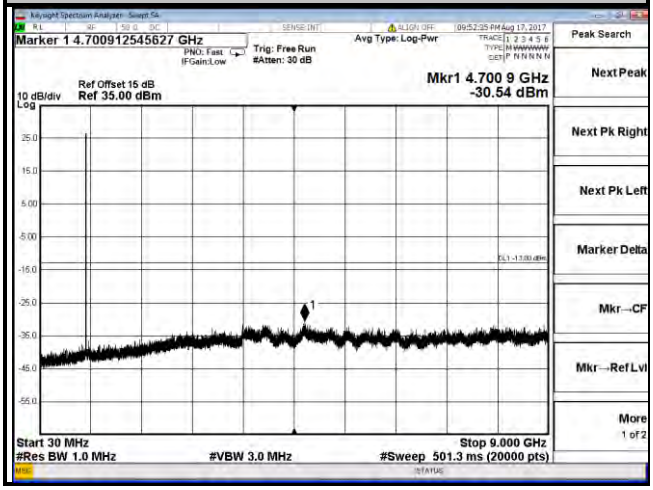
LTE Band 5	
Channel Bandwidth: 3 MHz	
Channel 20415	Channel 20525
	
Channel 20635	
	

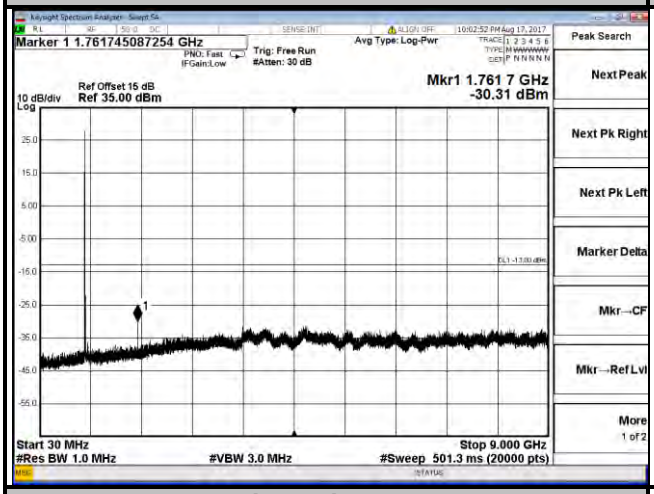
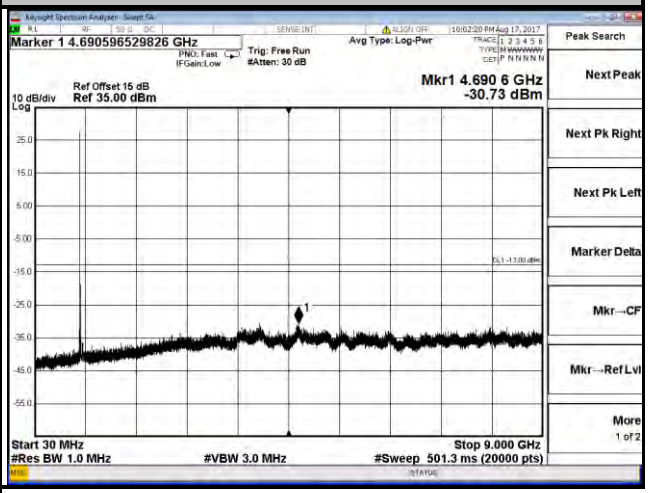
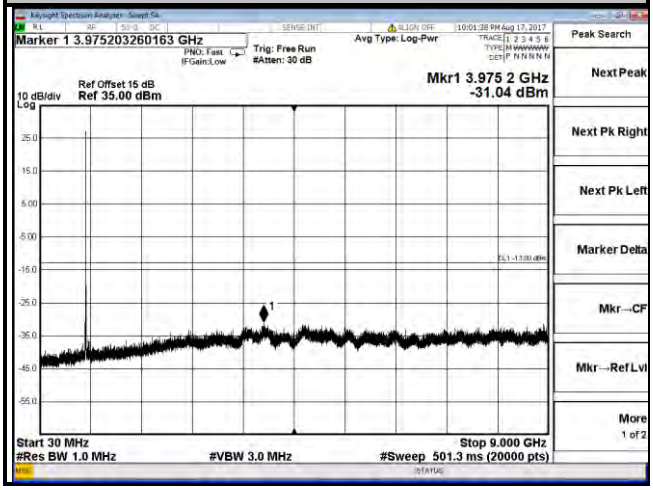
LTE Band 5	
Channel Bandwidth: 5 MHz	
Channel 20425	Channel 20525
	
Channel 20625	
	

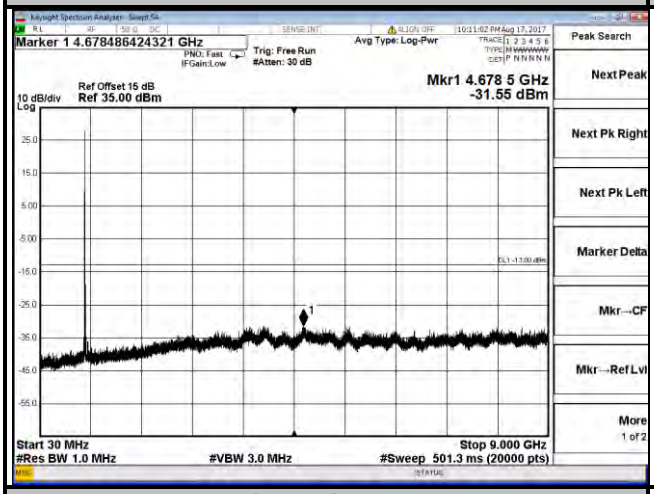
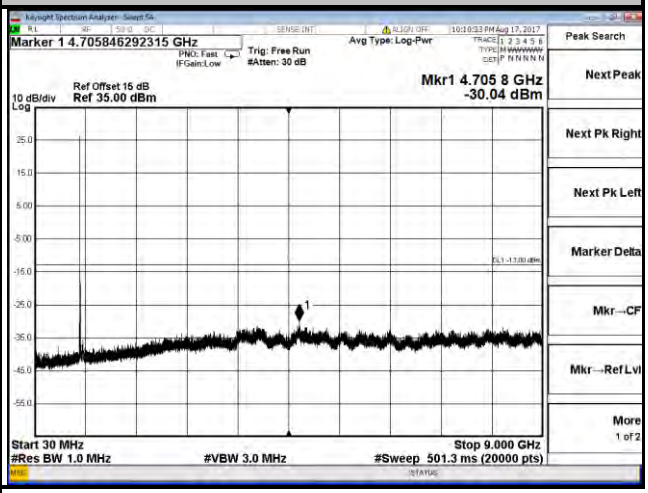
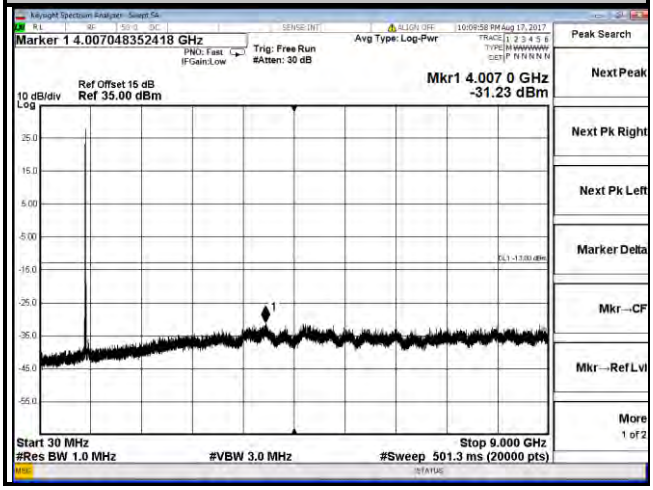
LTE Band 5	
Channel Bandwidth: 10 MHz	
Channel 20450	Channel 20525
	
Channel 20600	
	

LTE Band 26	
Channel Bandwidth: 1.4 MHz	
Channel 26797	Channel 26915
	
Channel 27033	
	

LTE Band 26	
Channel Bandwidth: 3 MHz	
Channel 26805	Channel 26915
	
Channel 27025	
	

LTE Band 26	
Channel Bandwidth: 5 MHz	
Channel 26815	Channel 26915
	
Channel 27015	
	

LTE Band 26	
Channel Bandwidth: 10 MHz	
Channel 26840	Channel 26915
	
Channel 26990	
	

LTE Band 26	
Channel Bandwidth: 15 MHz	
Channel 26865	Channel 26915
	
Channel 26965	
	

4.7 Radiated Emission Measurement

4.7.1 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.

4.7.2 Test Procedure

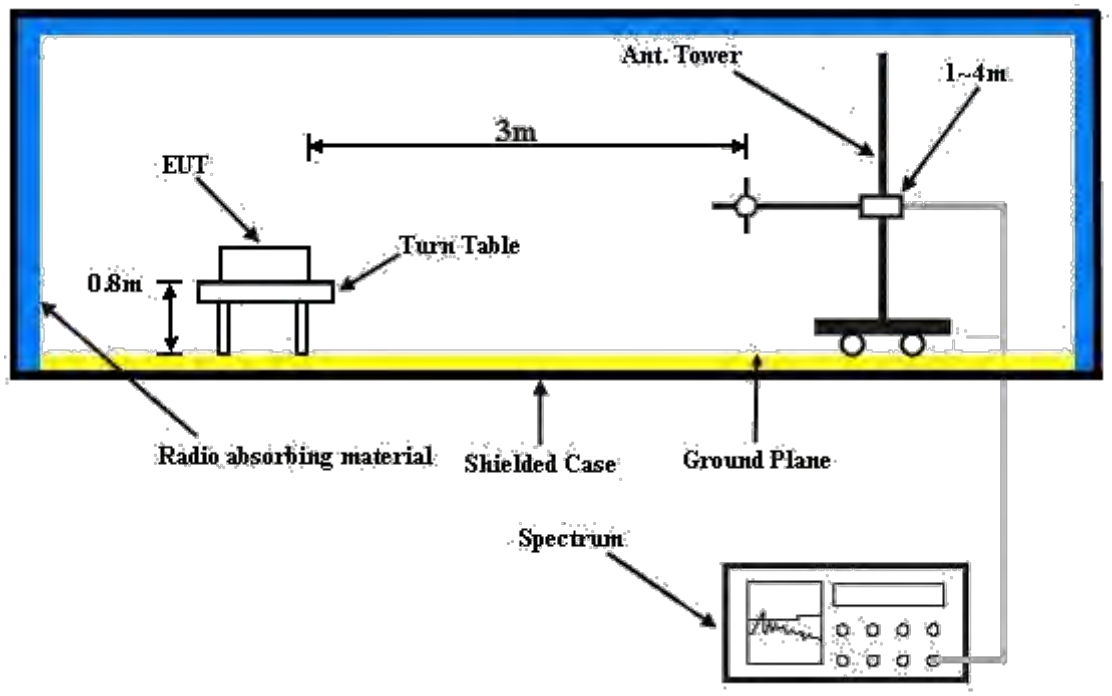
a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 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.P.R power - 2.15 dBi.

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

4.7.3 Deviation from Test Standard

No deviation.

4.7.4 Test Setup



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

4.7.5 Test Results

GSM:

Low Channel

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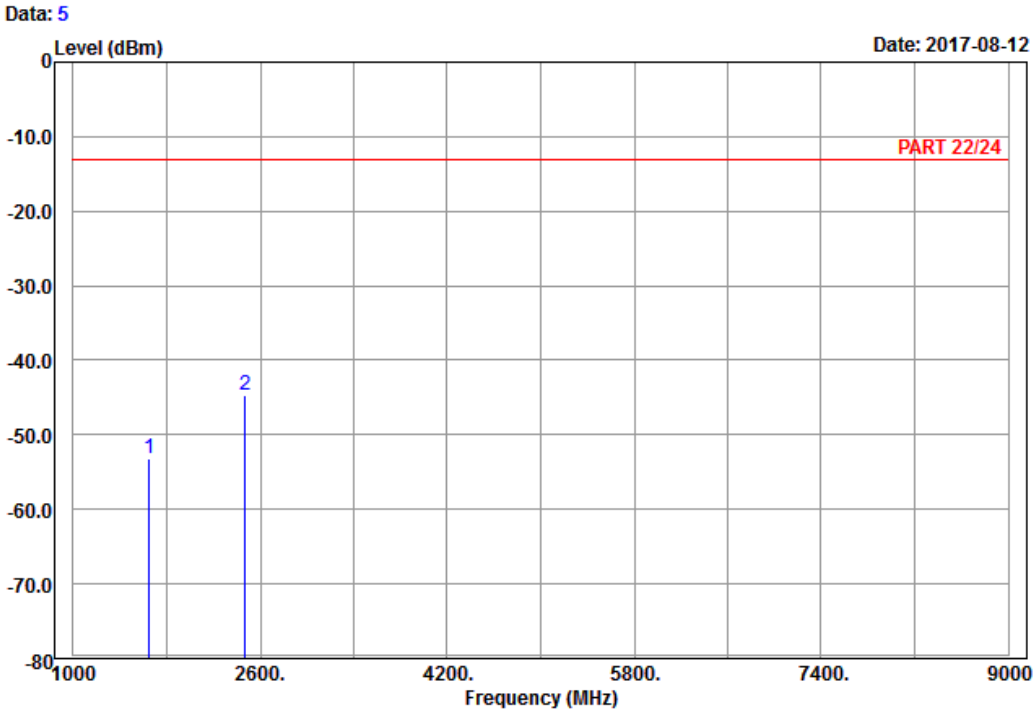
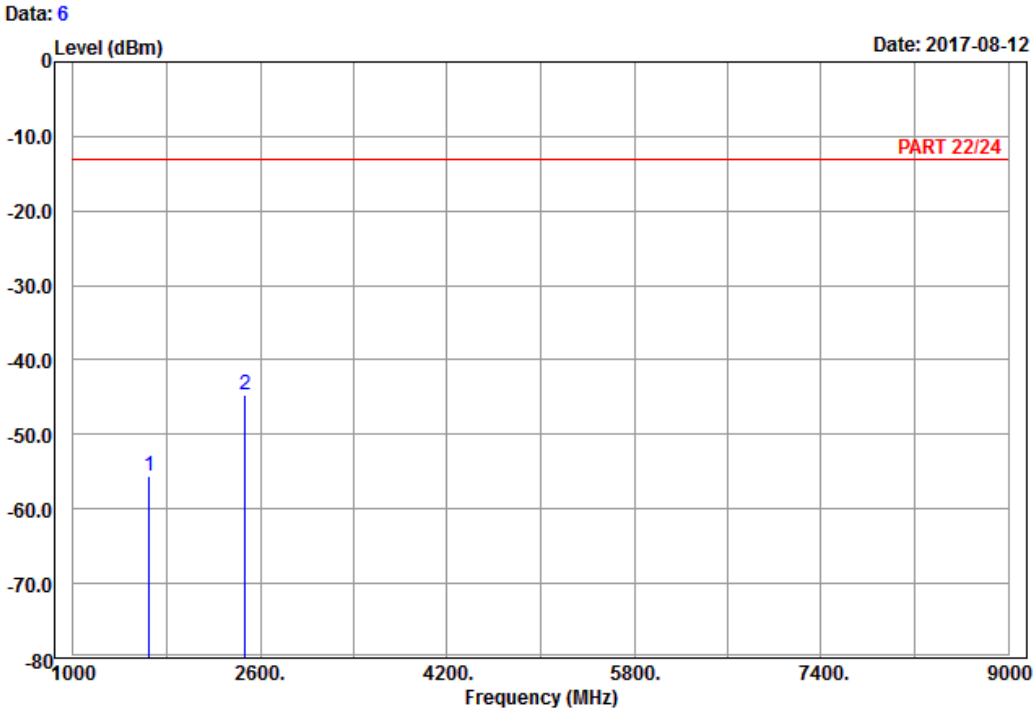


Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : GSM 850_Link_CH128
Tested by: Charles Hsiao

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	1648.40	-53.20	-60.93	-13.00	-40.20	7.73	Peak
2 pp	2472.60	-44.60	-55.63	-13.00	-31.60	11.03	Peak



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : GSM 850_Link_CH128
Tested by: Charles Hsiao

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	1648.40	-55.50	-63.23	-13.00	-42.50	7.73	Peak
2 pp	2472.60	-44.61	-55.64	-13.00	-31.61	11.03	Peak

Middle Channel

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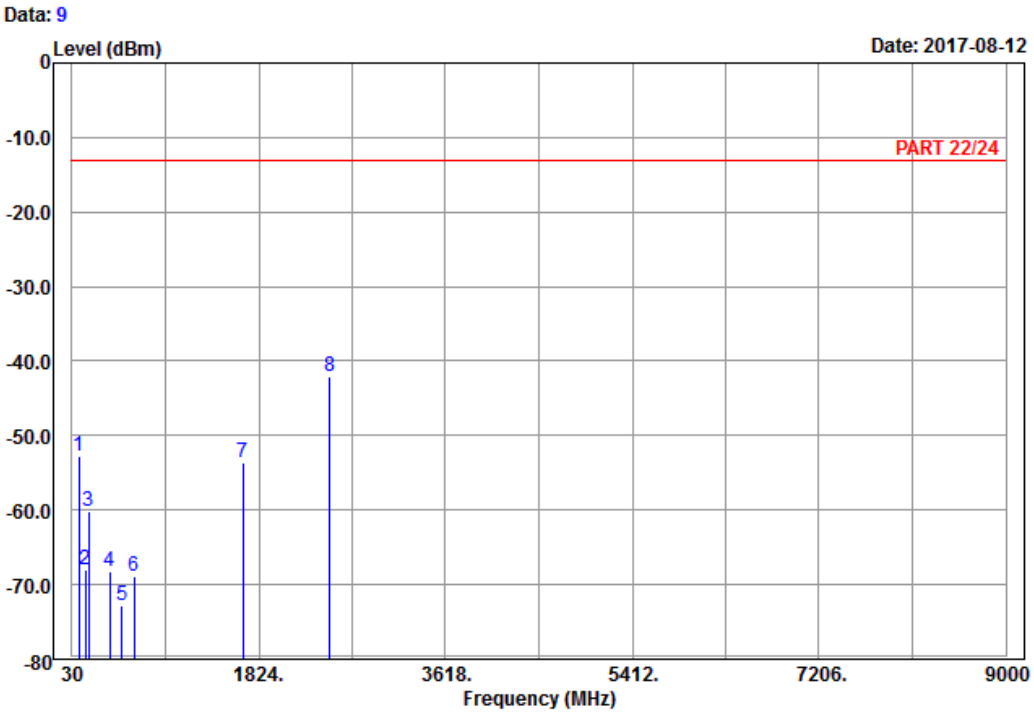
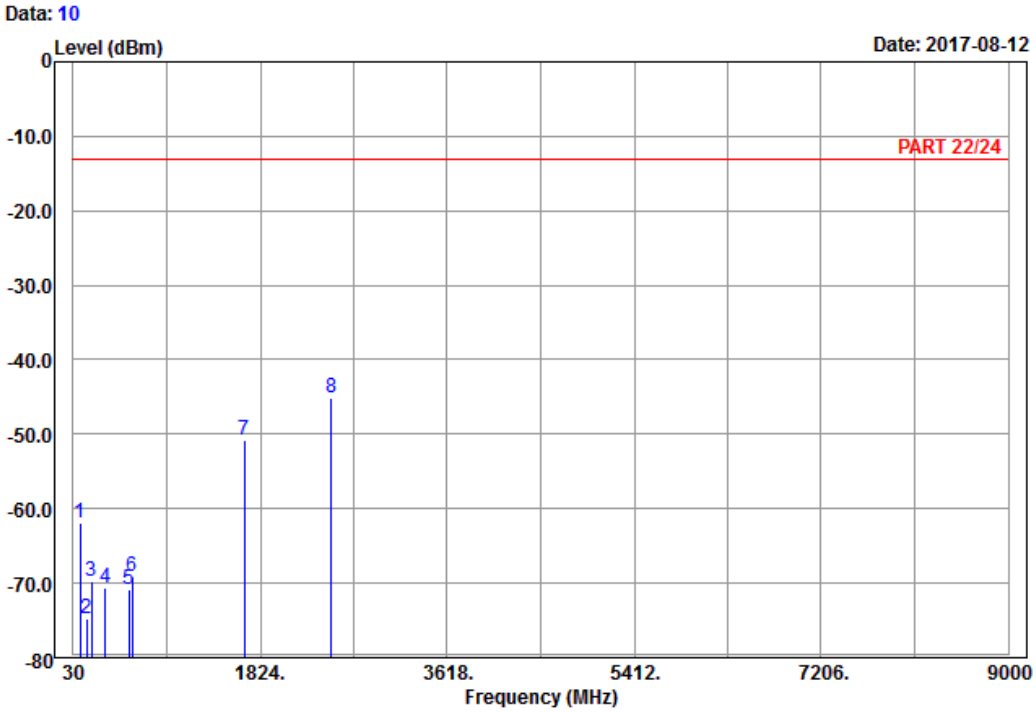


Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : GSM 850_Link_CH189
Tested by: Charles Hsiao

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	95.61	-52.71	-42.37	-13.00	-39.71	-10.34	Peak
2	157.98	-67.97	-60.25	-13.00	-54.97	-7.72	Peak
3	189.03	-60.10	-54.38	-13.00	-47.10	-5.72	Peak
4	395.20	-68.17	-65.17	-13.00	-55.17	-3.00	Peak
5	513.50	-72.87	-68.51	-13.00	-59.87	-4.36	Peak
6	623.40	-68.82	-68.98	-13.00	-55.82	0.16	Peak
7	1672.80	-53.54	-61.45	-13.00	-40.54	7.91	Peak
8 pp	2509.20	-42.01	-53.29	-13.00	-29.01	11.28	Peak



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : GSM 850_Link_CH189
Tested by: Charles Hsiao

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	96.15	-61.85	-51.51	-13.00	-48.85	-10.34	Peak
2	159.06	-74.69	-66.99	-13.00	-61.69	-7.70	Peak
3	202.53	-69.66	-63.52	-13.00	-56.66	-6.14	Peak
4	342.00	-70.59	-65.12	-13.00	-57.59	-5.47	Peak
5	562.50	-70.88	-69.74	-13.00	-57.88	-1.14	Peak
6	597.50	-69.11	-69.42	-13.00	-56.11	0.31	Peak
7	1672.80	-50.83	-58.74	-13.00	-37.83	7.91	Peak
8 pp	2509.20	-45.22	-56.50	-13.00	-32.22	11.28	Peak

High Channel

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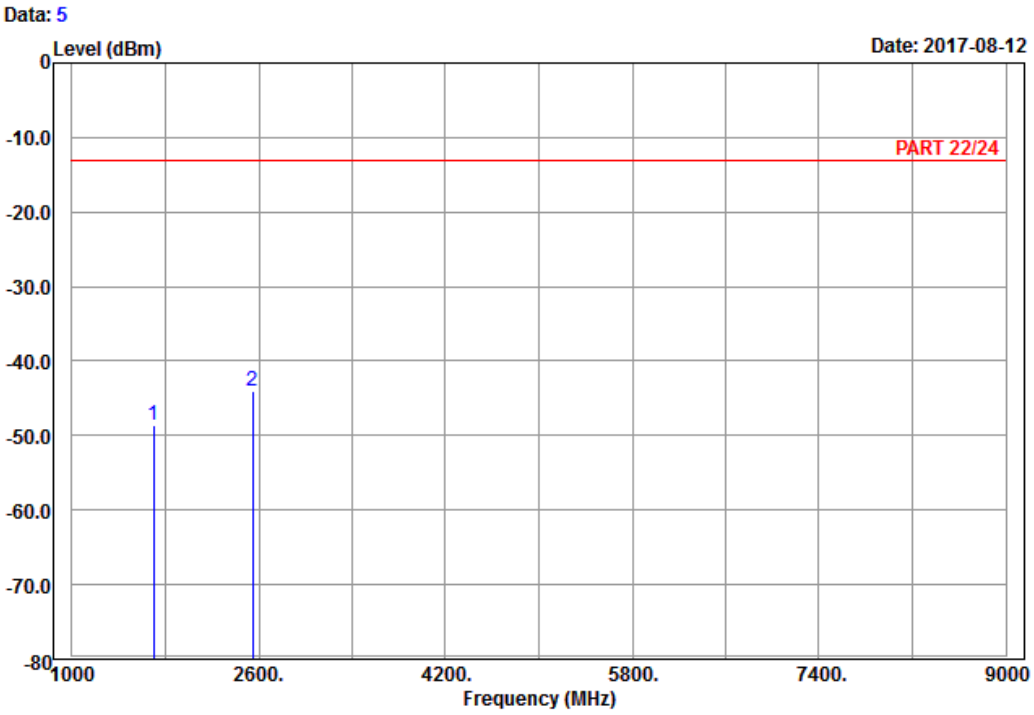
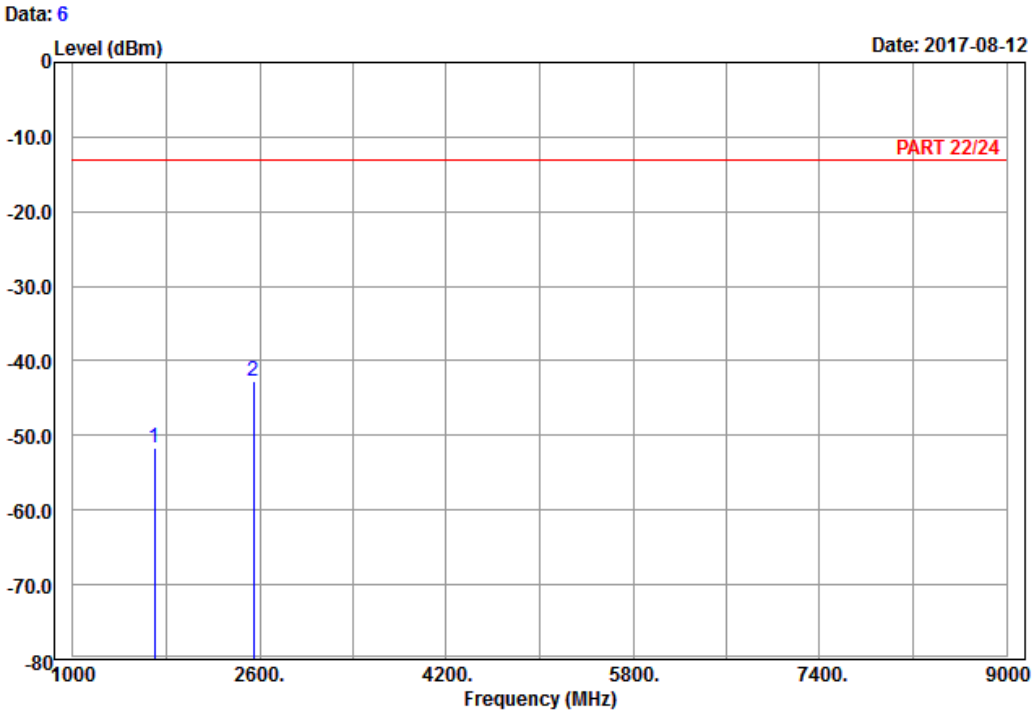


Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : GSM 850_Link_CH251
Tested by: Charles Hsiao

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	1697.60	-48.55	-56.69	-13.00	-35.55	8.14	Peak
2 pp	2546.40	-44.12	-55.59	-13.00	-31.12	11.47	Peak



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : GSM 850_Link_CH251
Tested by: Charles Hsiao

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	1697.60	-51.77	-59.91	-13.00	-38.77	8.14	Peak
2 pp	2546.40	-42.79	-54.26	-13.00	-29.79	11.47	Peak

EDGE:

Low Channel

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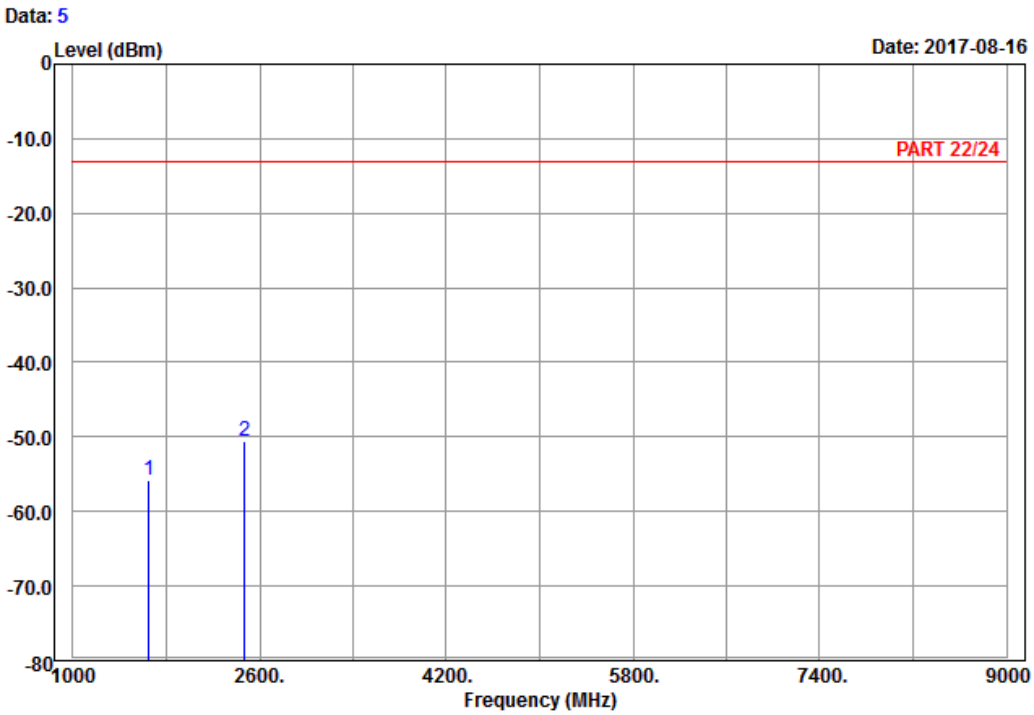
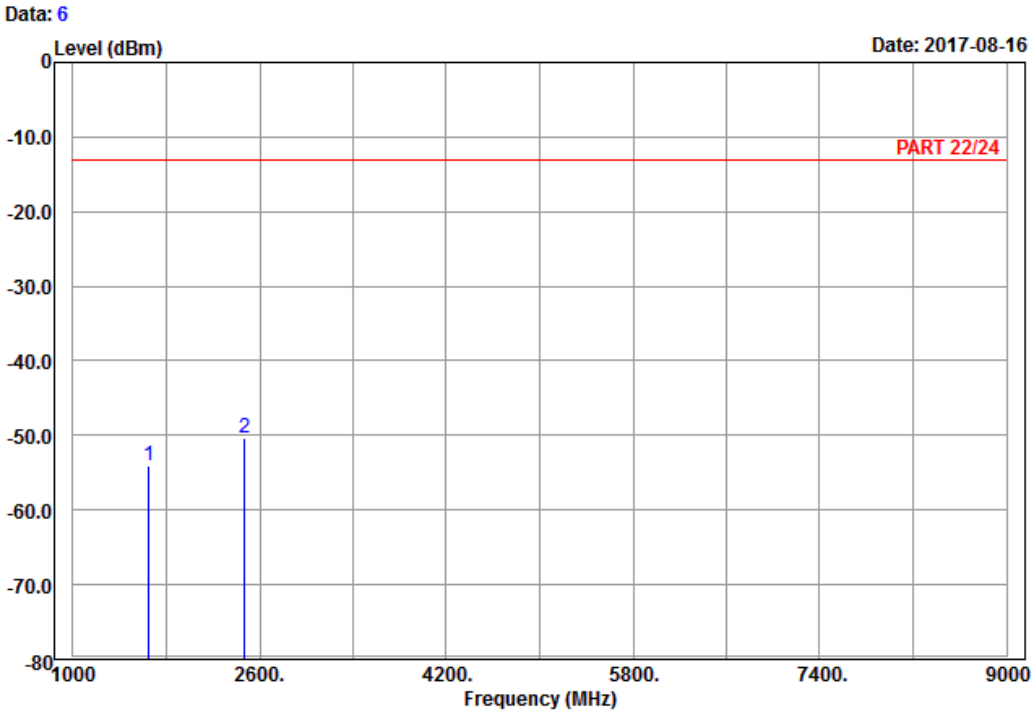



```
Site      : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark    : EDGE 850_Link_CH128
Tested by: Charles Hsiao
                        Read  Limit   Over
           Freq  Level  Level   Line  Limit Factor Remark
          _______ ______ ______ ______ ______ ______ ________
                MHz    dBm    dBm    dBm     dB     dB

  1     1648.40 -55.77 -63.50 -13.00 -42.77   7.73 Peak
  2 pp  2472.60 -50.49 -61.52 -13.00 -37.49  11.03 Peak
```

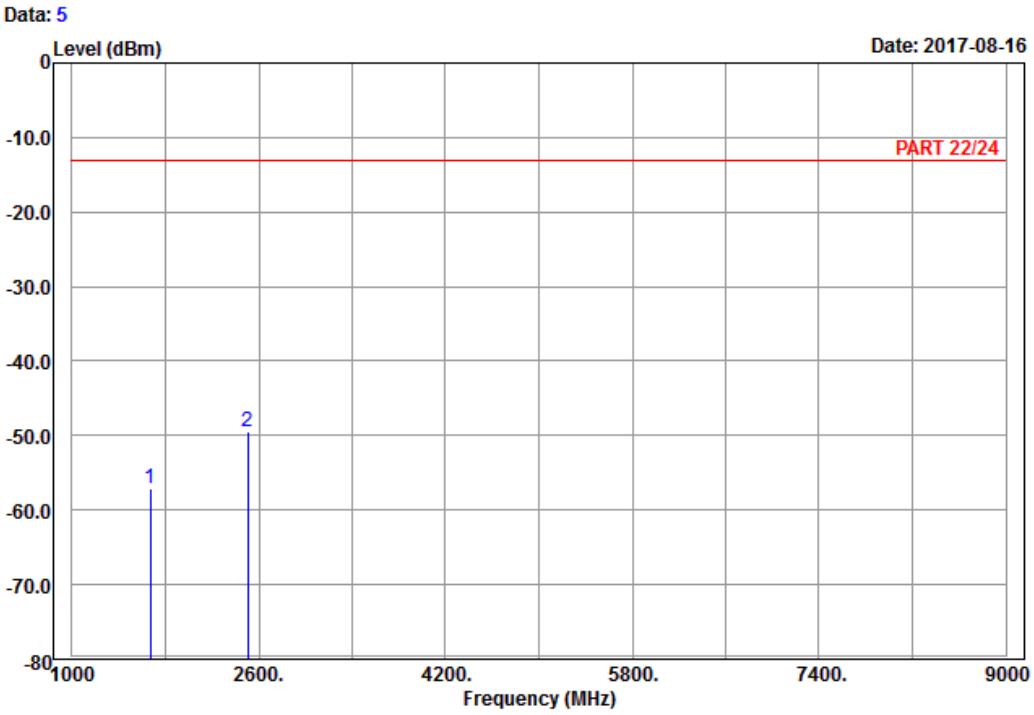


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : EDGE 850_Link_CH128
Tested by: Charles Hsiao

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	1648.40	-54.05	-61.78	-13.00	-41.05	7.73	Peak
2 pp	2472.60	-50.25	-61.28	-13.00	-37.25	11.03	Peak

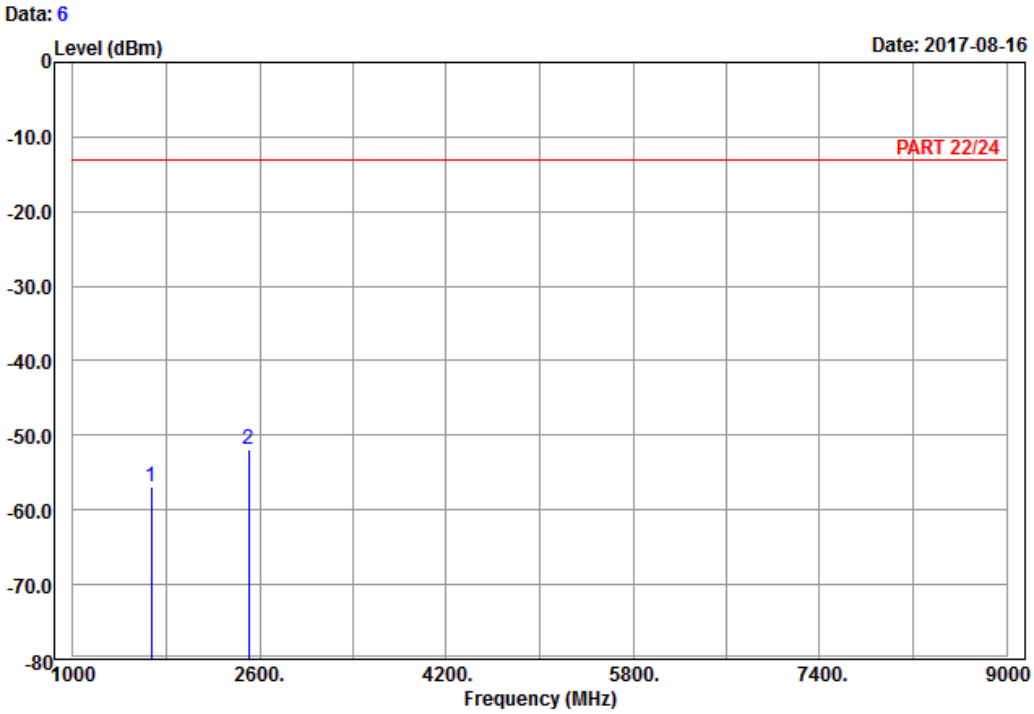
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : EDGE 850_Link_CH189
Tested by: Charles Hsiao

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	1672.80	-57.12	-65.03	-13.00	-44.12	7.91	Peak
2 pp	2509.20	-49.45	-60.73	-13.00	-36.45	11.28	Peak

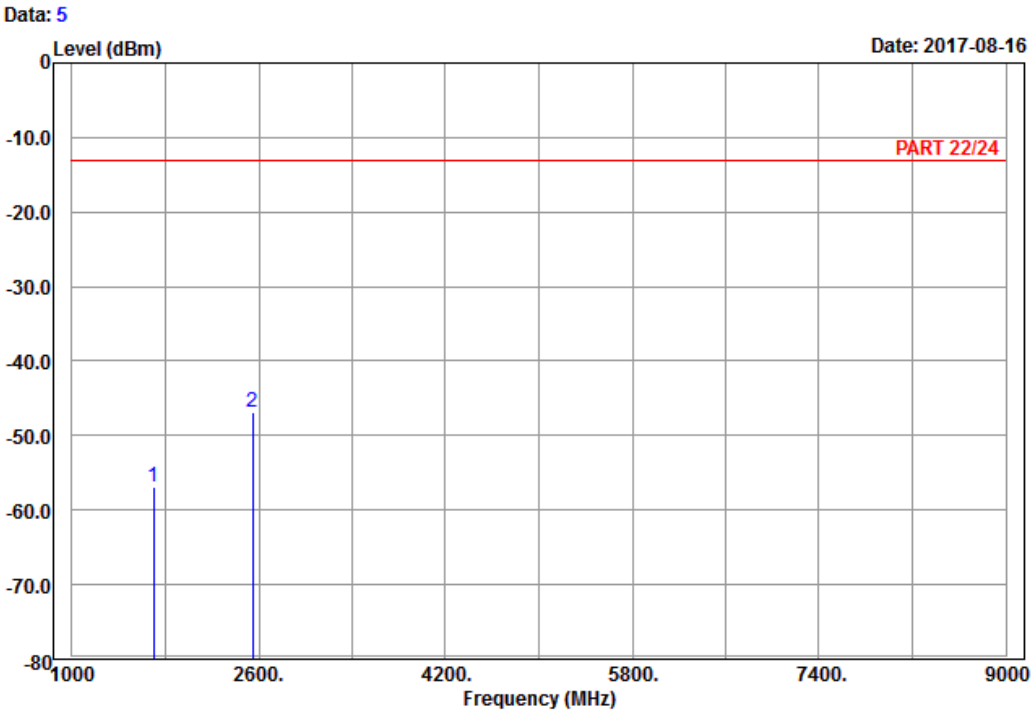


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : EDGE 850_Link_CH189
Tested by: Charles Hsiao

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	1672.80	-56.93	-64.84	-13.00	-43.93	7.91	Peak
2 pp	2509.20	-51.90	-63.18	-13.00	-38.90	11.28	Peak

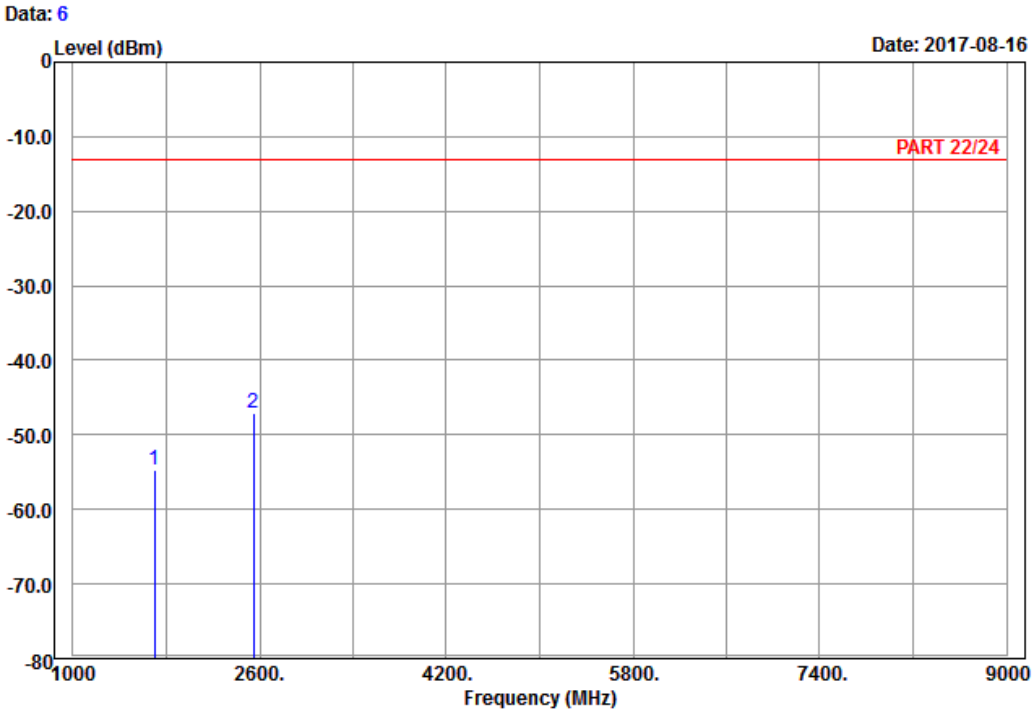
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : EDGE 850_Link_CH251
Tested by: Charles Hsiao

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	1697.60	-56.85	-64.99	-13.00	-43.85	8.14	Peak
2 pp	2546.40	-46.79	-58.26	-13.00	-33.79	11.47	Peak



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : EDGE 850_Link_CH251
Tested by: Charles Hsiao

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	1697.60	-54.72	-62.86	-13.00	-41.72	8.14	Peak
2 pp	2546.40	-47.07	-58.54	-13.00	-34.07	11.47	Peak

WCDMA:

Low Channel

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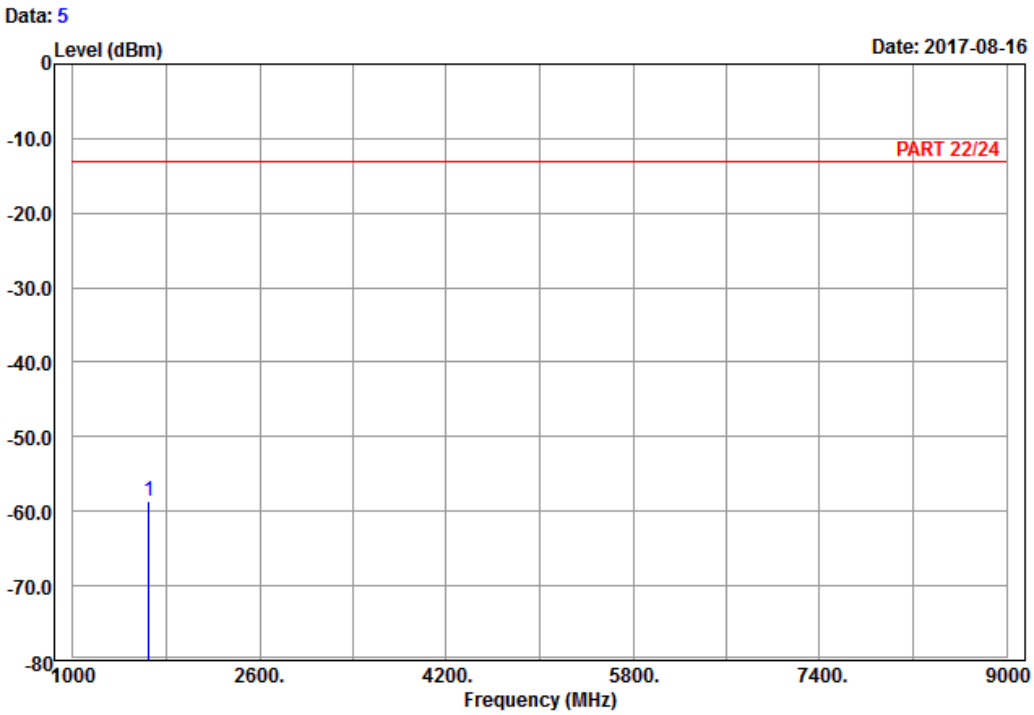
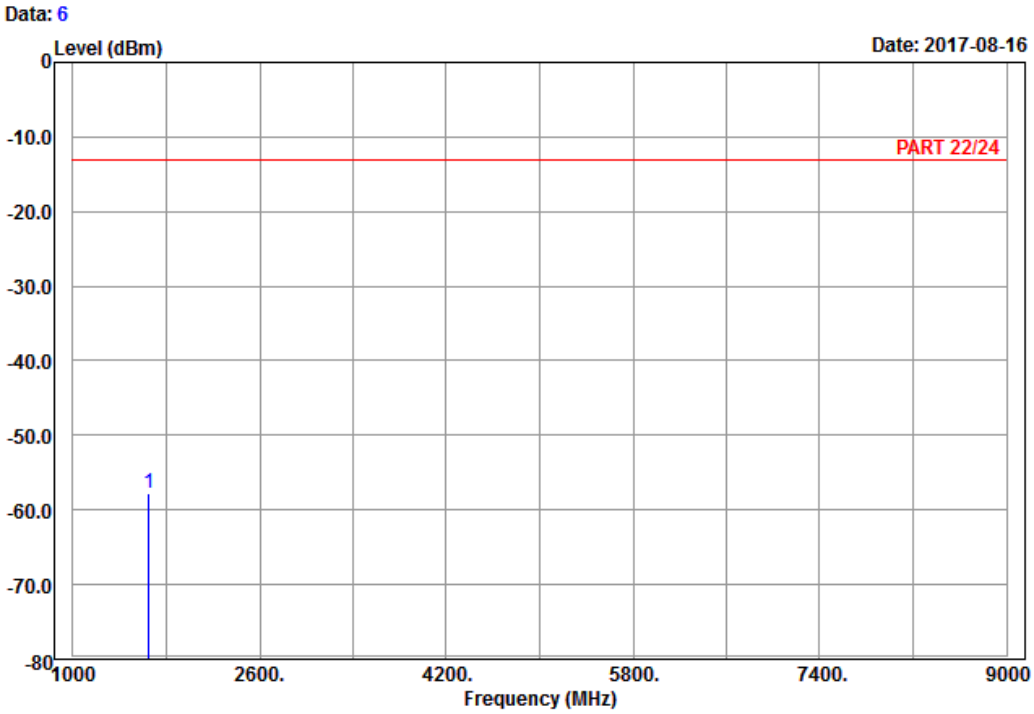



```
Site      : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark    : Band V_Link_CH4132
Tested by: Harry Hsueh
                        Read  Limit   Over
           Freq  Level  Level   Line  Limit Factor Remark
          _______ _____ _____ _____ _____ _____ _________
                MHz   dBm   dBm   dBm    dB    dB

  1 pp  1648.40 -58.59 -66.32 -13.00 -45.59  7.73 Peak
```

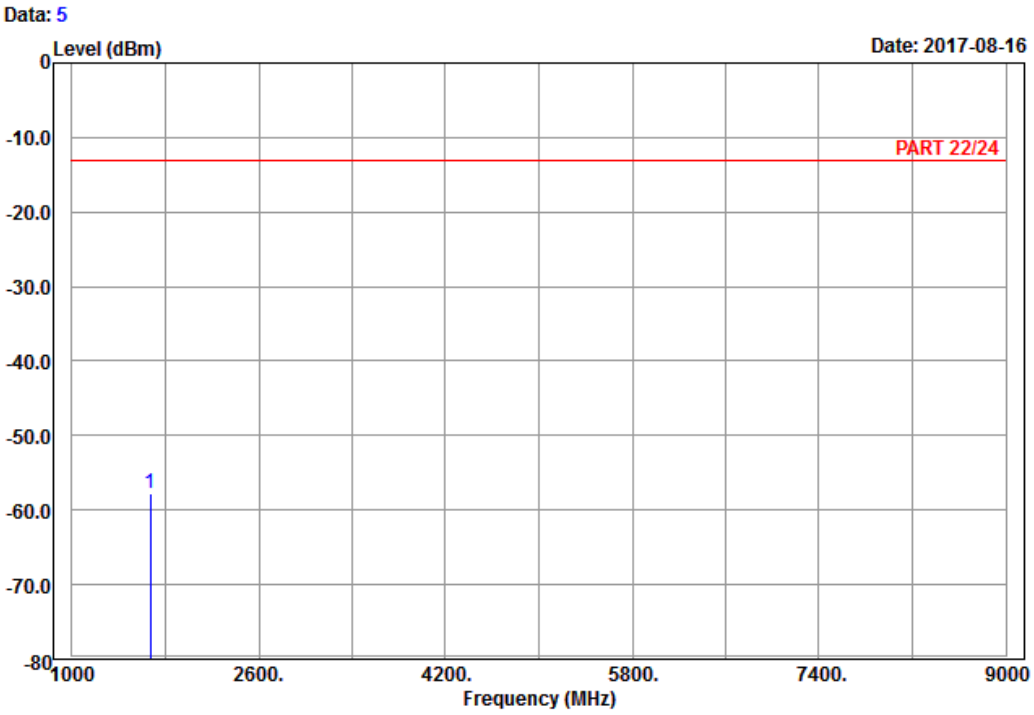


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : Band V_Link_CH4132
Tested by: Harry Hsueh

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1648.40	-57.81	-65.54	-13.00	-44.81	7.73	Peak

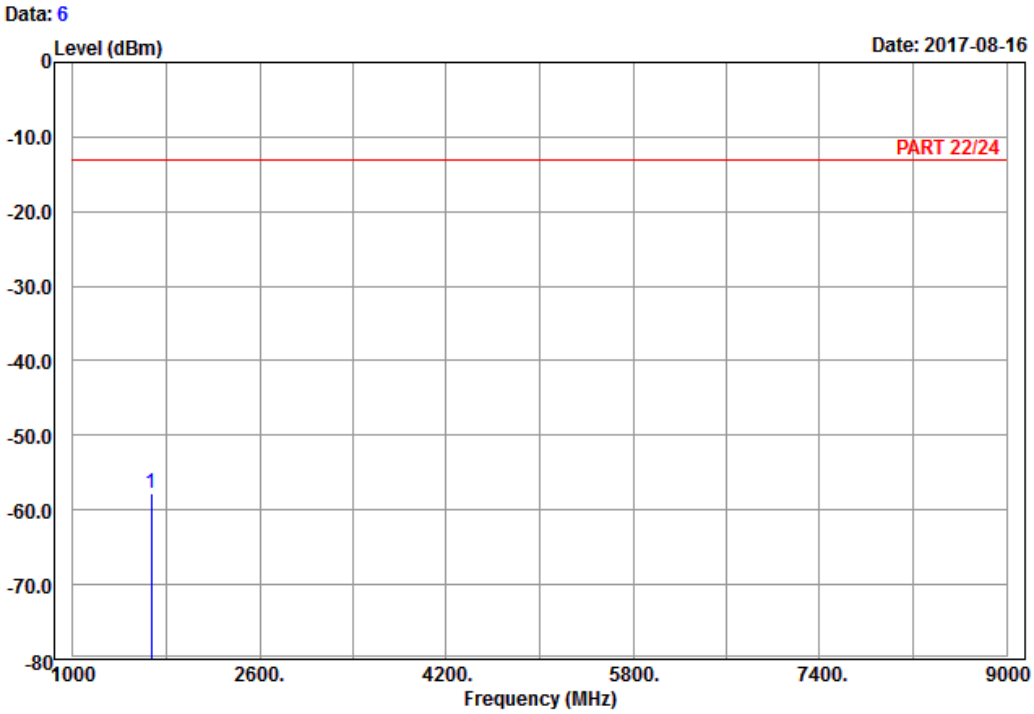
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : Band V_Link_CH4182
Tested by: Harry Hsueh

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1672.80	-57.87	-65.78	-13.00	-44.87	7.91	Peak

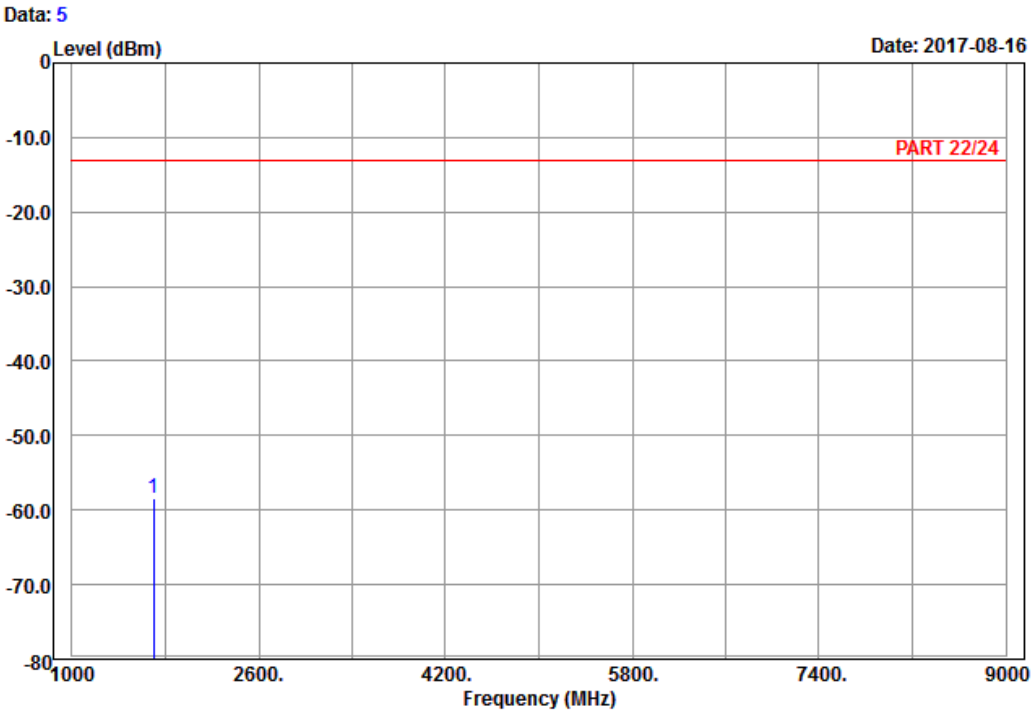


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : Band V_Link_CH4182
Tested by: Harry Hsueh

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1672.80	-57.74	-65.65	-13.00	-44.74	7.91	Peak

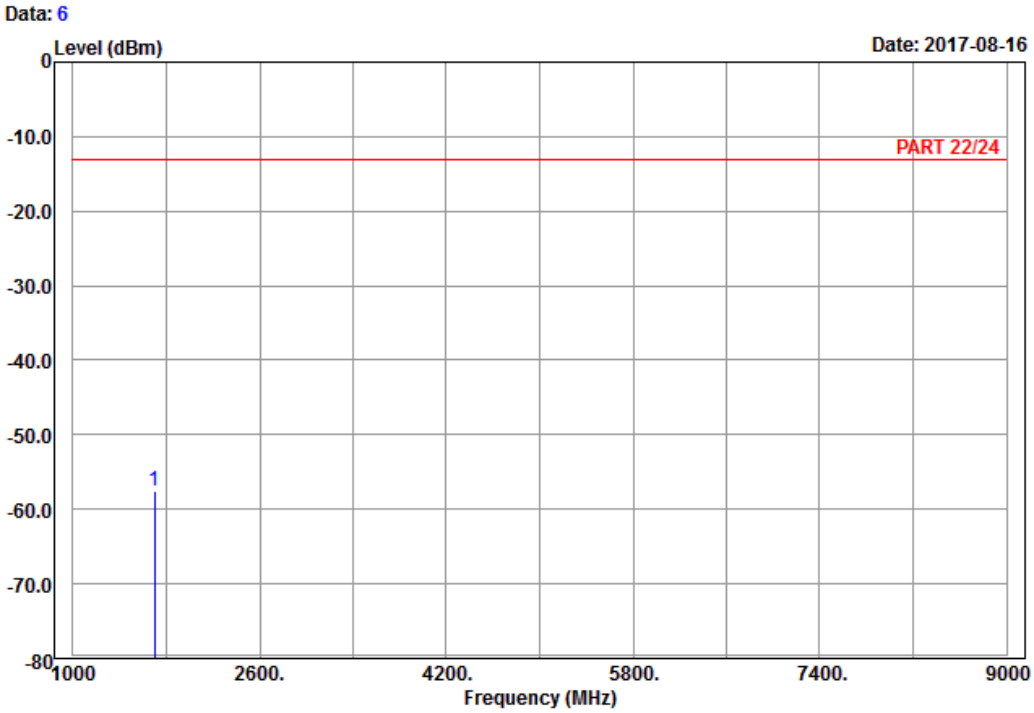
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : Band V_Link_CH4233
Tested by: Harry Hsueh

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1697.60	-58.44	-66.58	-13.00	-45.44	8.14	Peak

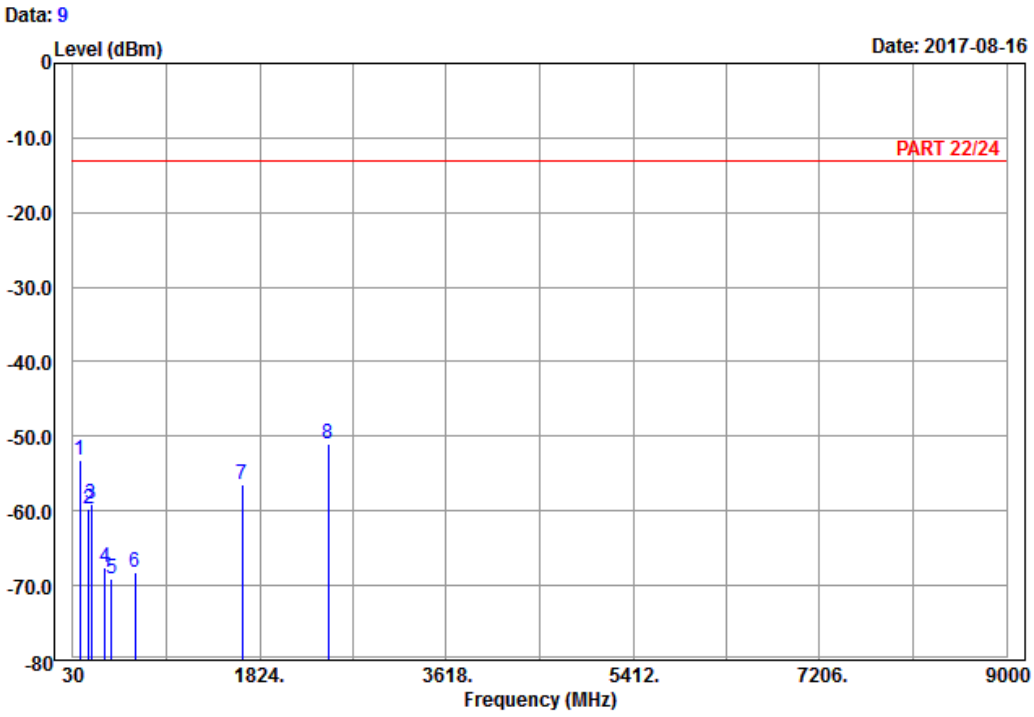


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : Band V_Link_CH4233
Tested by: Harry Hsueh

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	1697.60	-57.47	-65.61	-13.00	-44.47	8.14	Peak

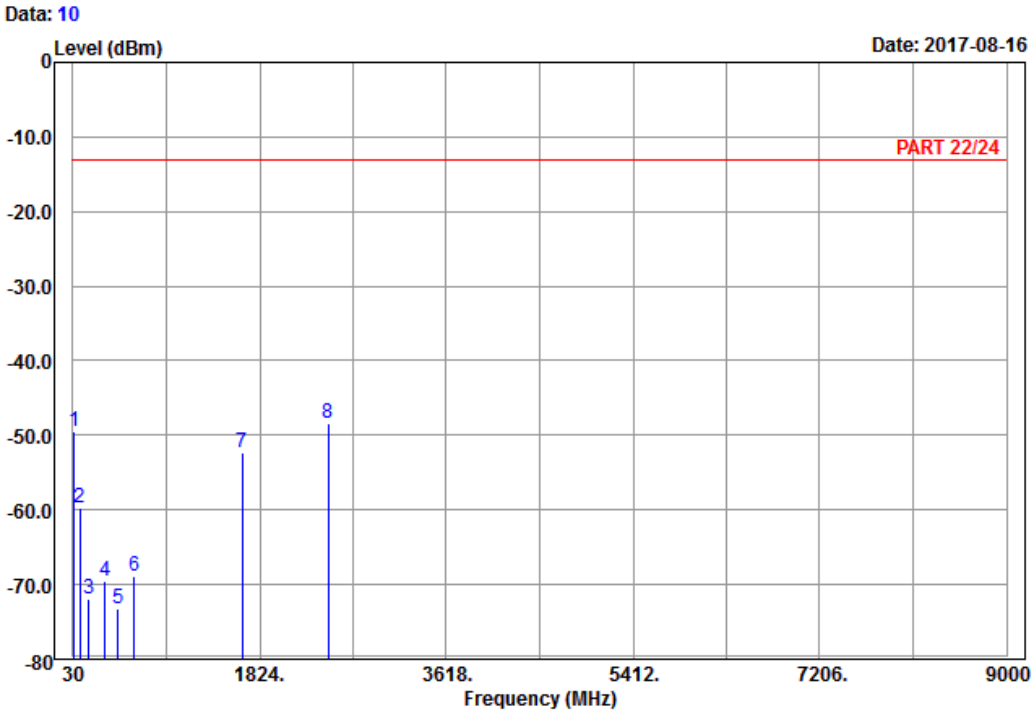
LTE Band 5
Channel Bandwidth: 10 MHz / QPSK
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 5_Link_CH20450
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	96.15	-53.17	-42.83	-13.00	-40.17	-10.34	Peak
2	180.93	-59.77	-54.18	-13.00	-46.77	-5.59	Peak
3	203.07	-59.00	-52.86	-13.00	-46.00	-6.14	Peak
4	338.50	-67.57	-62.06	-13.00	-54.57	-5.51	Peak
5	397.30	-69.01	-66.17	-13.00	-56.01	-2.84	Peak
6	624.80	-68.29	-68.44	-13.00	-55.29	0.15	Peak
7	1658.00	-56.37	-64.28	-13.00	-43.37	7.91	Peak
8 pp	2487.00	-50.97	-62.01	-13.00	-37.97	11.04	Peak

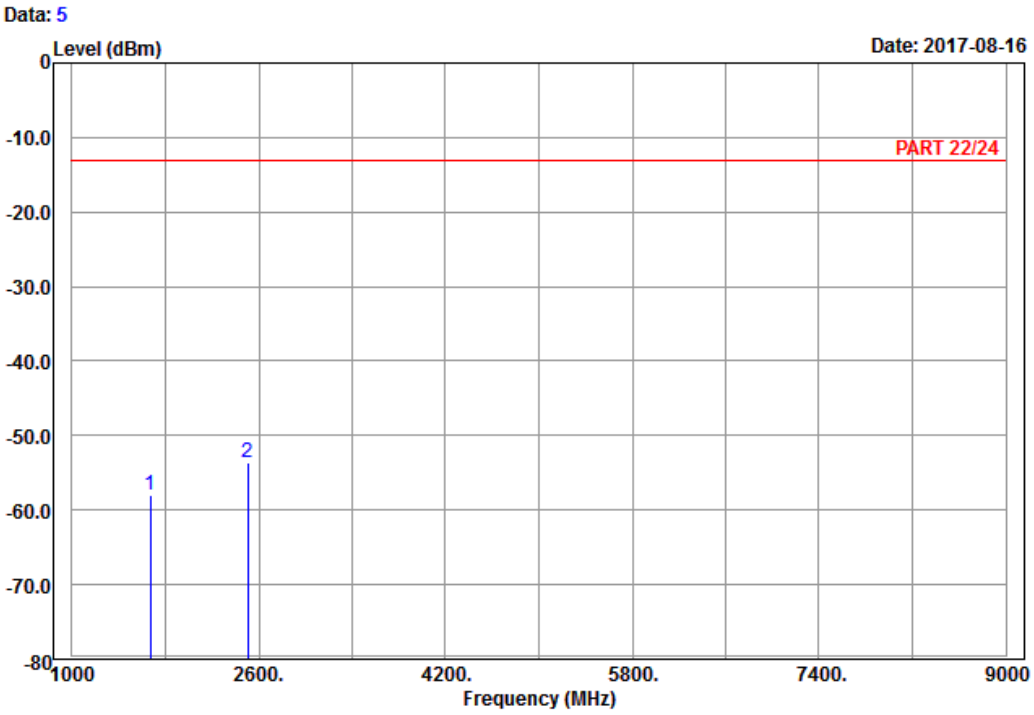


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 5_Link_CH20450
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	40.53	-49.48	-39.68	-13.00	-36.48	-9.80	Peak
2	97.23	-59.66	-49.37	-13.00	-46.66	-10.29	Peak
3	179.31	-71.90	-66.22	-13.00	-58.90	-5.68	Peak
4	336.40	-69.56	-64.03	-13.00	-56.56	-5.53	Peak
5	459.60	-73.23	-69.11	-13.00	-60.23	-4.12	Peak
6	620.60	-68.89	-69.09	-13.00	-55.89	0.20	Peak
7	1658.00	-52.40	-60.31	-13.00	-39.40	7.91	Peak
8 pp	2487.00	-48.29	-59.33	-13.00	-35.29	11.04	Peak

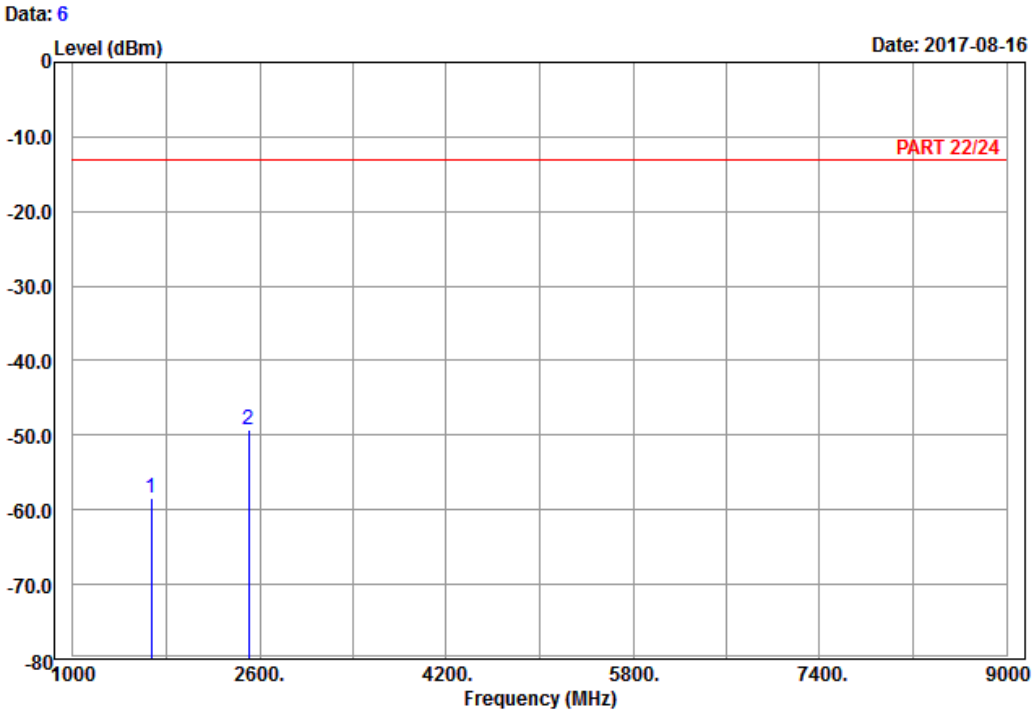
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 5_Link_CH20525
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	1673.00	-58.01	-65.92	-13.00	-45.01	7.91	Peak
2 pp	2509.50	-53.56	-64.84	-13.00	-40.56	11.28	Peak

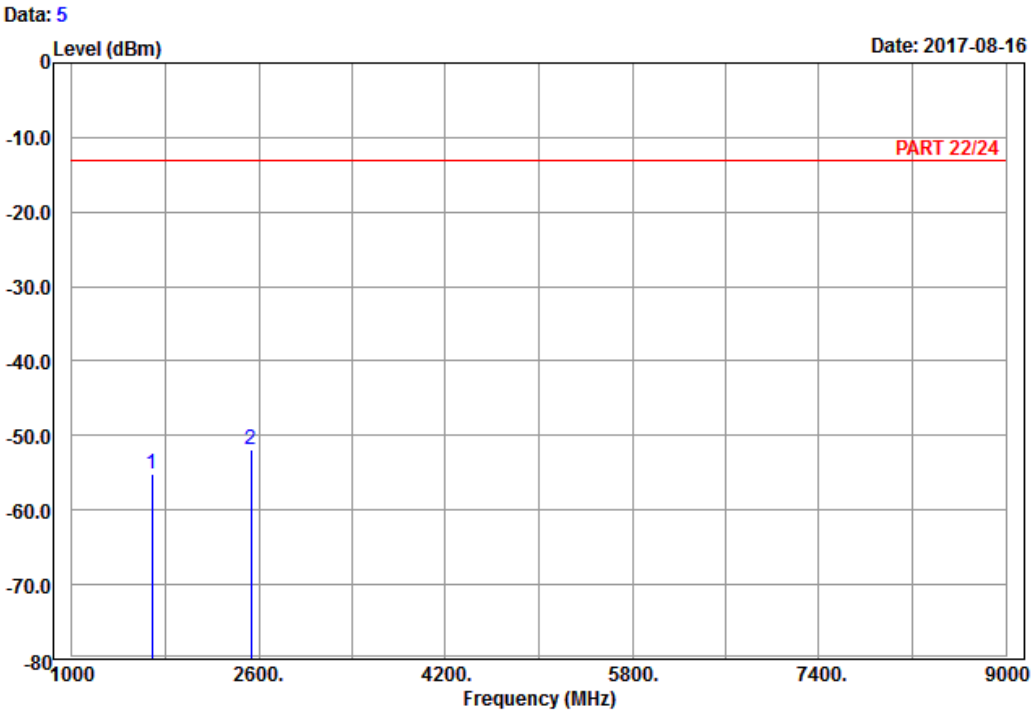


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 5_Link_CH20525
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	1673.00	-58.33	-66.24	-13.00	-45.33	7.91	Peak
2 pp	2509.50	-49.18	-60.46	-13.00	-36.18	11.28	Peak

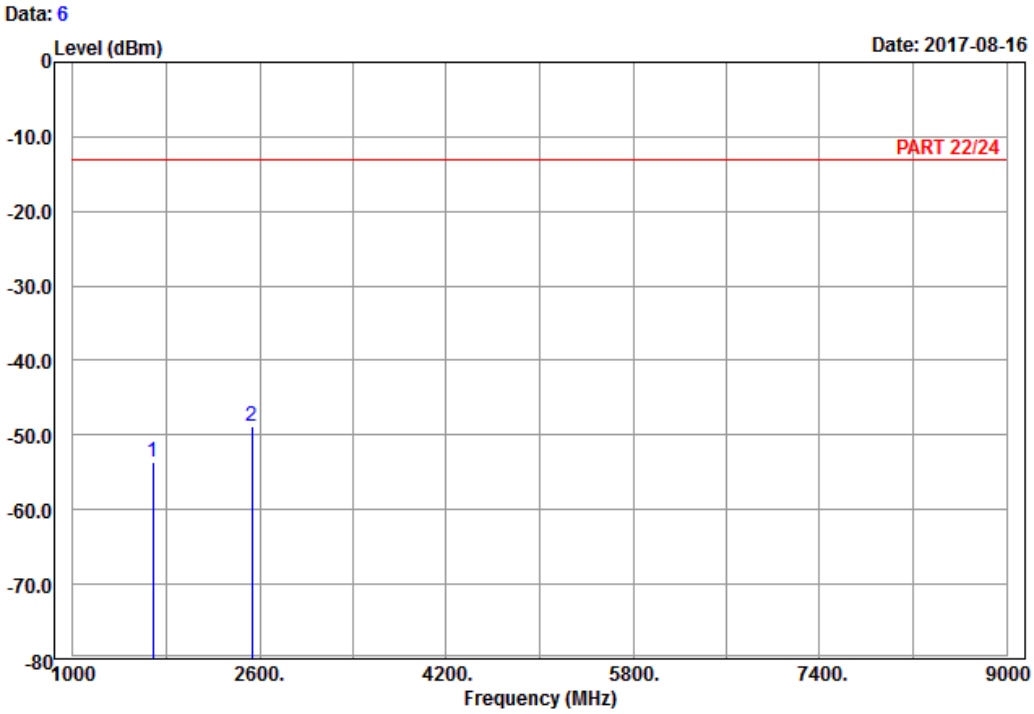
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 5_Link_CH20600
Tested by: Harry Hsueh

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	1688.00	-55.14	-63.16	-13.00	-42.14	8.02	Peak
2 pp	2532.00	-51.79	-63.17	-13.00	-38.79	11.38	Peak

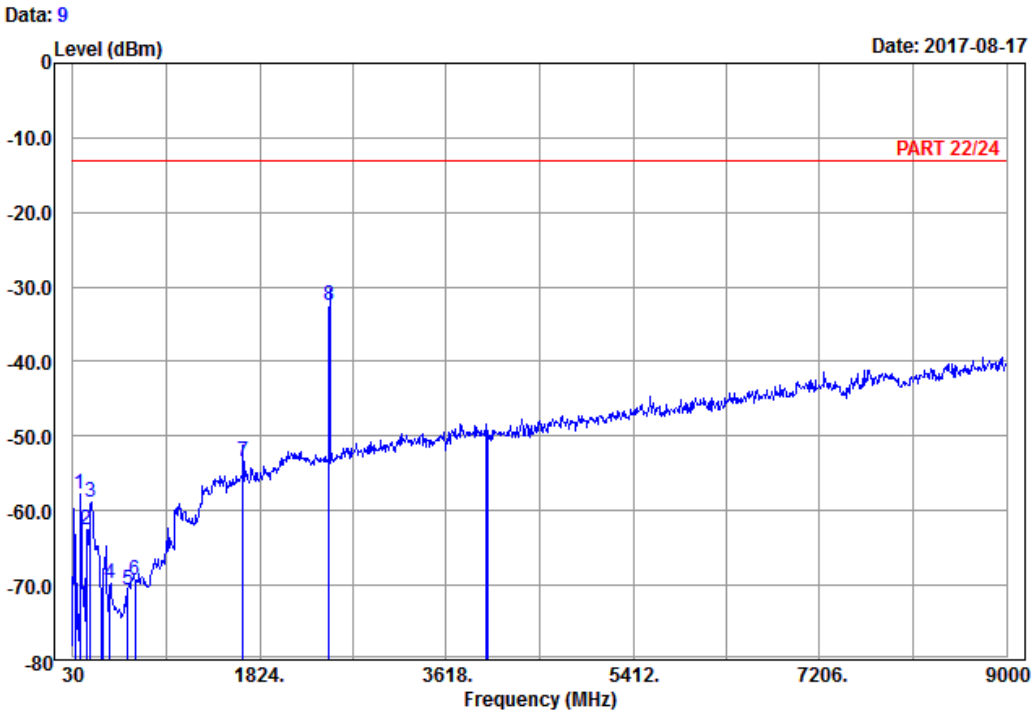


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 5_Link_CH20600
Tested by: Harry Hsueh

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	1688.00	-53.59	-61.61	-13.00	-40.59	8.02	Peak
2 pp	2532.00	-48.79	-60.17	-13.00	-35.79	11.38	Peak

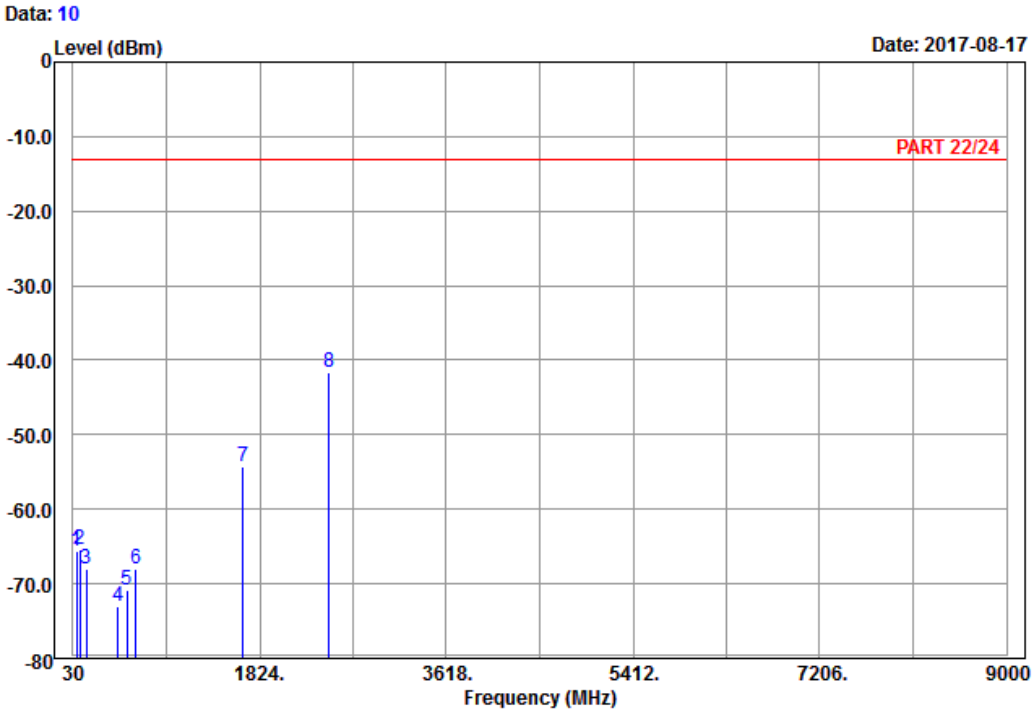
LTE Band 26
Channel Bandwidth: 15 MHz / QPSK
Low Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 26_Link_CH26865
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	97.23	-57.76	-47.47	-13.00	-44.76	-10.29	Peak
2	159.33	-62.65	-54.95	-13.00	-49.65	-7.70	Peak
3	200.64	-58.92	-52.75	-13.00	-45.92	-6.17	Peak
4	385.40	-69.65	-66.13	-13.00	-56.65	-3.52	Peak
5	554.10	-70.54	-69.04	-13.00	-57.54	-1.50	Peak
6	624.80	-69.40	-69.55	-13.00	-56.40	0.15	Peak
7	1663.00	-53.40	-61.31	-13.00	-40.40	7.91	Peak
8 pp	2494.50	-32.55	-43.59	-13.00	-19.55	11.04	Peak

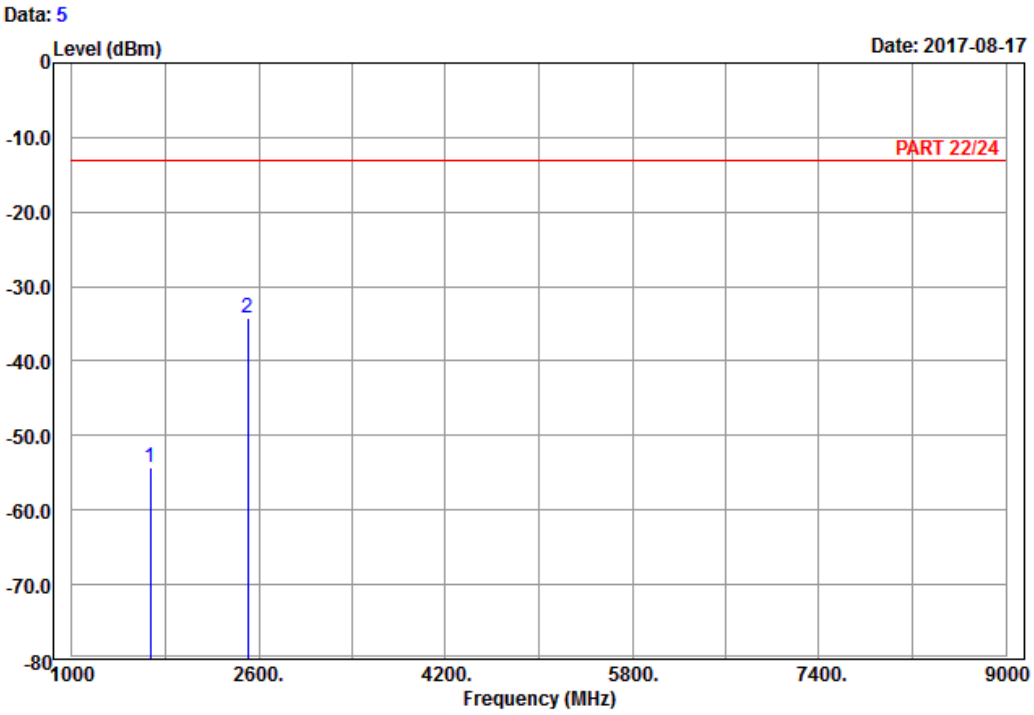


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 26_Link_CH26865
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	62.67	-65.60	-51.95	-13.00	-52.60	-13.65	Peak
2	96.69	-65.50	-55.21	-13.00	-52.50	-10.29	Peak
3	155.28	-67.91	-60.10	-13.00	-54.91	-7.81	Peak
4	461.70	-73.01	-68.83	-13.00	-60.01	-4.18	Peak
5	545.70	-70.83	-68.88	-13.00	-57.83	-1.95	Peak
6	631.10	-68.03	-68.10	-13.00	-55.03	0.07	Peak
7	1663.00	-54.23	-62.14	-13.00	-41.23	7.91	Peak
8 pp	2494.50	-41.57	-52.61	-13.00	-28.57	11.04	Peak

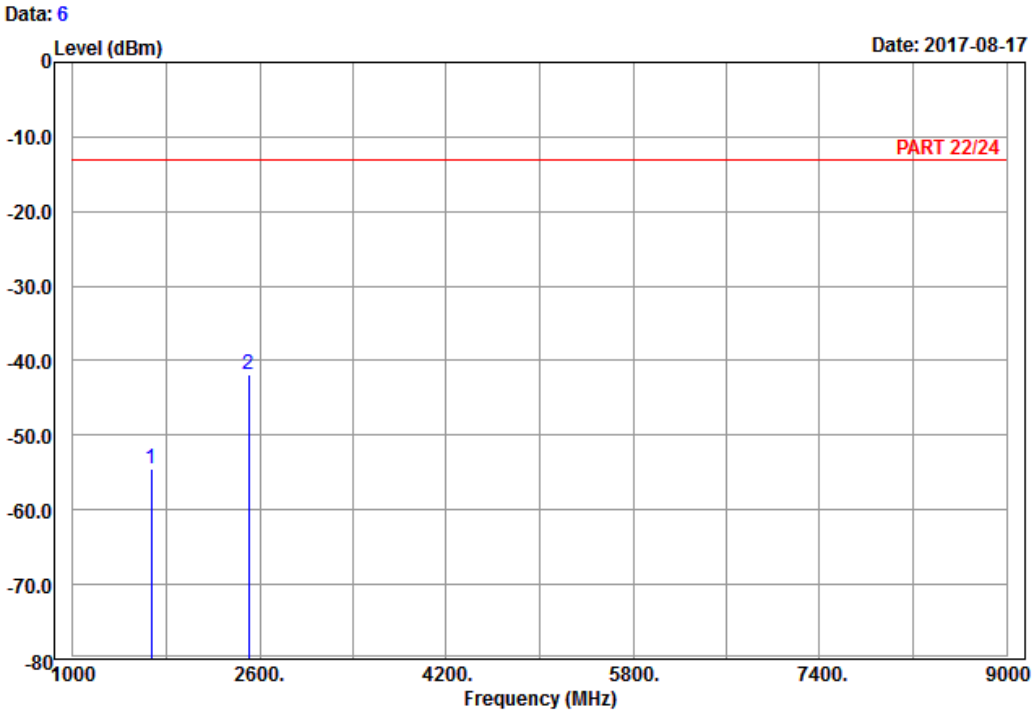
Middle Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 26_Link_CH26915
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	1673.00	-54.22	-62.13	-13.00	-41.22	7.91	Peak
2 pp	2509.50	-34.25	-45.53	-13.00	-21.25	11.28	Peak

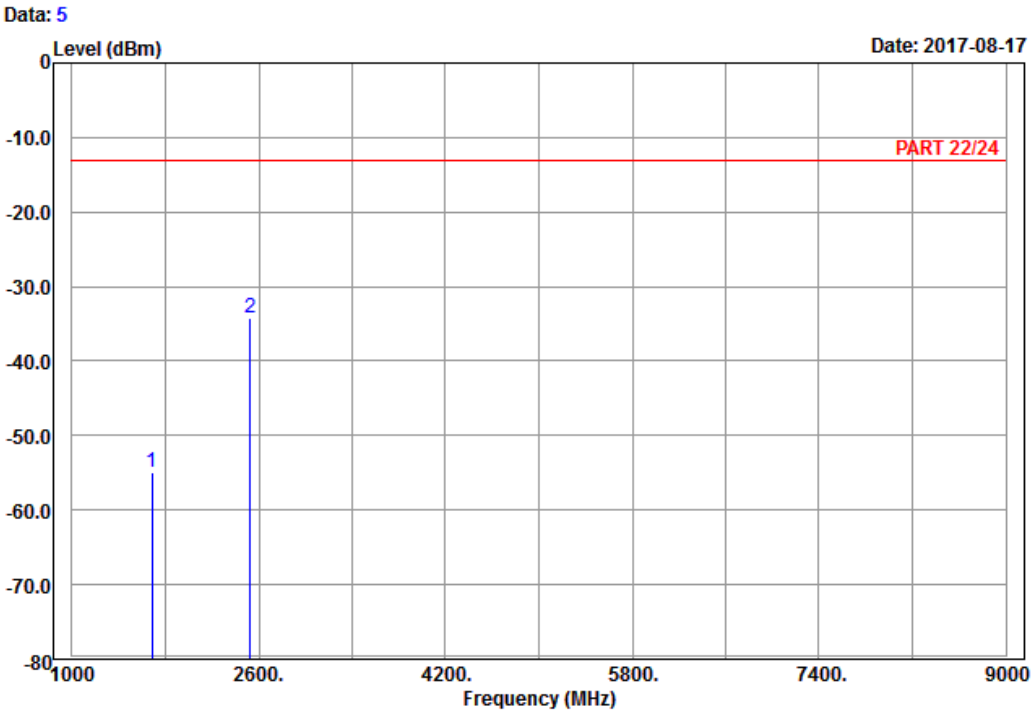


Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 26_Link_CH26915
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	1673.00	-54.60	-62.51	-13.00	-41.60	7.91	Peak
2 pp	2509.50	-41.79	-53.07	-13.00	-28.79	11.28	Peak

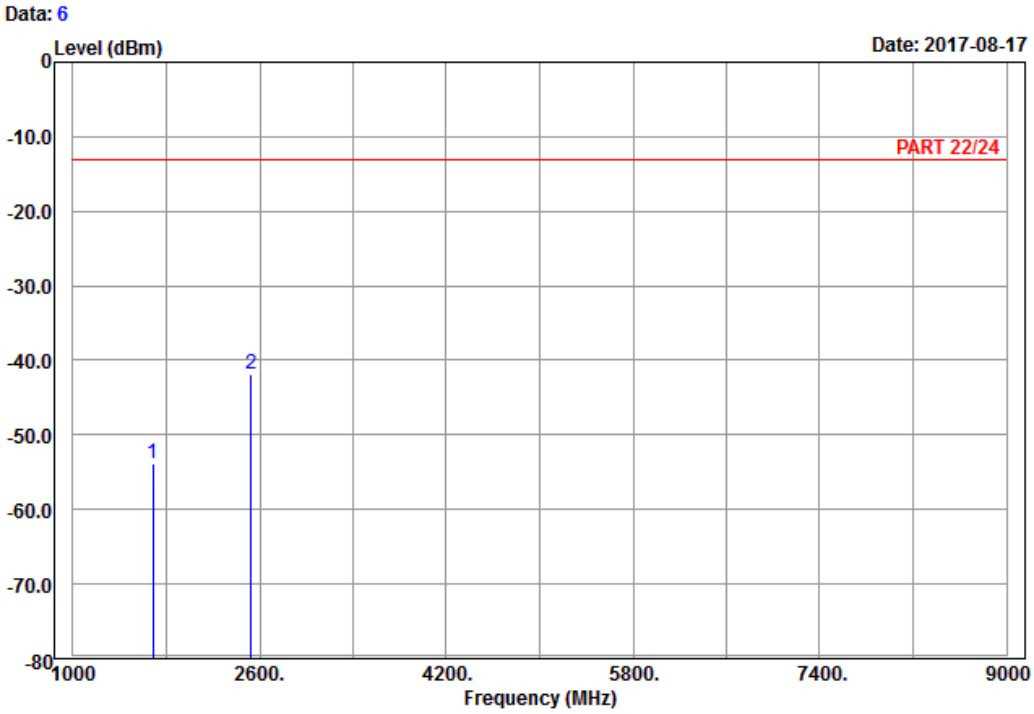
High Channel

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : LTE_Band 26_Link_CH26965
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	1683.00	-54.88	-62.90	-13.00	-41.88	8.02	Peak
2 pp	2524.50	-34.23	-45.61	-13.00	-21.23	11.38	Peak



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : LTE_Band 26_Link_CH26965
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	1683.00	-53.78	-61.80	-13.00	-40.78	8.02	Peak
2 pp	2524.50	-41.92	-53.30	-13.00	-28.92	11.38	Peak

5 Pictures of Test Arrangements

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

Appendix – Information on 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.

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

Linko EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
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Web Site: www.bureauveritas-adt.com

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

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