FCC Test Report
(Part 22 – WCDMA B5, LTE B5/B26)

Report No.:	RFBCKT-WTW-P21031102-3
FCC ID:	HFSQTAD53
Test Model:	QTAD53
Received Date:	Mar. 31, 2021
Test Date:	Apr. 19 ~ May 21, 2021
Issued Date:	May 26, 2021
Applicant:	QUANTA COMPUTER INC
Address:	No. 211, Wenhua 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RFBCKT-WTW-P21031102-3	Original release	May 26, 2021

1 Certificate of Conformity

Product:	5G Hotspot
Brand:	T-Mobile
Test Model:	QTAD53
Sample Status:	Engineering sample
Applicant:	QUANTA COMPUTER INC
Test Date:	Apr. 19 ~ May 21, 2021
Standards:	FCC Part 22, Subpart H

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

Prepared by : _____ , **Date:** May 26, 2021

Polly Chien / Specialist

Approved by : _____ , **Date:** May 26, 2021

Bruce Chen / Senior Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 22 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 22.913 (a)	Effective radiated power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement
22.913 (d)	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1055 22.355	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Occupied Bandwidth	Pass	Meet the requirement of limit.
22.917	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 22.917	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 22.917	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -27.39dB at 730.34MHz.

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

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.86 dB
	200MHz ~1000MHz	3.87 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESR3	102579	Jul. 07, 2020	Jul. 06, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jun. 09, 2020	Jun. 08, 2021
MXG Vector signal generator Agilent	N5182B	MY53050430	Nov. 25, 2020	Nov. 24, 2021
Radio Communication Analyzer Anritsu	MT8821C	6261806803	Jan. 22, 2021	Jan. 21, 2022
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Nov. 04, 2020	Nov. 03, 2021
HORN Antenna SCHWARZBECK	9120D	209	Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 22, 2020	Nov. 21, 2021
Loop Antenna TESEQ	HLA 6121	45745	Jul. 06, 2020	Jul. 05, 2021
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 16, 2020	Aug. 15, 2021
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Mar. 22, 2021	Mar. 21, 2022
RF Coaxial Cable WOKEN With 5dB PAD	8D-FB	Cable-CH3-01	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM-S M-8000	Cable-CH3-03 (309224+170907)	Aug. 16, 2020	Aug. 15, 2021
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Standard Temperature And Humidity Chamber GIANT FORCE	GTH-120-40-CP-AR	MAA1306-019	Sep. 10, 2020	Sep. 09, 2021
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	Jun 06, 2020	Jun 05, 2021
DC power supply Keysight	U8002A	MY56330015	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 3.

3 General Information

3.1 General Description of EUT

Product	5G Hotspot				
Brand	T-Mobile				
Test Model	QTAD53				
Sample Status	Engineering sample				
Power Supply Rating	5Vdc / 9Vdc / 12Vdc (Adapter) 3.85Vdc (Battery)				
Modulation Type	WCDMA: BPSK, QPSK HSDPA: BPSK HSUPA: QPSK LTE: QPSK, 16QAM, 64QAM, 256QAM				
Operating Frequency	WCDMA Band 5	826.4MHz ~ 846.6MHz			
	LTE Band 5 (Channel Bandwidth 1.4MHz)	824.7MHz ~ 848.3MHz			
	LTE Band 5 (Channel Bandwidth 3MHz)	825.5MHz ~ 847.5MHz			
	LTE Band 5 (Channel Bandwidth 5MHz)	826.5MHz ~ 846.5MHz			
	LTE Band 5 (Channel Bandwidth 10MHz)	829.0MHz ~ 844.0MHz			
	LTE Band 26 (Channel Bandwidth 1.4MHz)	824.7MHz ~ 848.3MHz			
	LTE Band 26 (Channel Bandwidth 3MHz)	825.5MHz ~ 847.5MHz			
	LTE Band 26 (Channel Bandwidth 5MHz)	826.5MHz ~ 846.5MHz			
	LTE Band 26 (Channel Bandwidth 10MHz)	829.0MHz ~ 844.0MHz			
	LTE Band 26 (Channel Bandwidth 15MHz)	831.5MHz ~ 841.5MHz			
Max. ERP Power	WCDMA Band 5	139.637mW (21.45dBm)			
		QPSK	16QAM	64QAM	256QAM
	LTE Band 5 (Channel Bandwidth 1.4MHz)	148.594mW (21.72dBm)	124.451mW (20.95dBm)	93.972mW (19.73dBm)	45.814mW (16.61dBm)
	LTE Band 5 (Channel Bandwidth 3MHz)	149.279mW (21.74dBm)	124.738mW (20.96dBm)	93.325mW (19.70dBm)	46.132mW (16.64dBm)
	LTE Band 5 (Channel Bandwidth 5MHz)	148.936mW (21.73dBm)	126.183mW (21.01dBm)	93.972mW (19.73dBm)	46.026mW (16.63dBm)
	LTE Band 5 (Channel Bandwidth 10MHz)	151.008mW (21.79dBm)	127.057mW (21.04dBm)	94.624mW (19.76dBm)	46.559mW (16.68dBm)
	LTE Band 26 (Channel Bandwidth 1.4MHz)	148.594mW (21.72dBm)	124.451mW (20.95dBm)	93.972mW (19.73dBm)	45.814mW (16.61dBm)
	LTE Band 26 (Channel Bandwidth 3MHz)	158.489mW (22.00dBm)	127.644mW (21.06dBm)	99.541mW (19.98dBm)	50.466mW (17.03dBm)
	LTE Band 26 (Channel Bandwidth 5MHz)	159.588mW (22.03dBm)	127.644mW (21.06dBm)	100.000mW (20.00dBm)	51.050mW (17.08dBm)
	LTE Band 26 (Channel Bandwidth 10MHz)	159.221mW (22.02dBm)	126.765mW (21.03dBm)	99.312mW (19.97dBm)	51.050mW (17.08dBm)
	LTE Band 26 (Channel Bandwidth 15MHz)	160.694mW (22.06dBm)	160.694mW (22.06dBm)	100.000mW (20.00dBm)	51.168mW (17.09dBm)

Emission Designator	WCDMA Band 5	4M17F9W			
		QPSK	16QAM	64QAM	256QAM
	LTE Band 5 (Channel Bandwidth 1.4MHz)	1M09G7D	1M09D7W	1M09D7W	1M09D7W
	LTE Band 5 (Channel Bandwidth 3MHz)	2M70G7D	2M70D7W	2M70D7W	2M70D7W
	LTE Band 5 (Channel Bandwidth 5MHz)	4M49G7D	4M49D7W	4M49D7W	4M49D7W
	LTE Band 5 (Channel Bandwidth 10MHz)	8M96G7D	8M96D7W	8M96D7W	8M96D7W
	LTE Band 26 (Channel Bandwidth 1.4MHz)	1M09G7D	1M09D7W	1M09D7W	1M08D7W
	LTE Band 26 (Channel Bandwidth 3MHz)	2M70G7D	2M70D7W	2M70D7W	2M69D7W
	LTE Band 26 (Channel Bandwidth 5MHz)	4M49G7D	4M49D7W	4M49D7W	4M49D7W
	LTE Band 26 (Channel Bandwidth 10MHz)	8M99G7D	8M97D7W	8M97D7W	8M97D7W
	LTE Band 26 (Channel Bandwidth 15MHz)	13M5G7D	13M5D7W	13M5D7W	13M5D7W
Antenna Type	Refer to Note as below				
Antenna Connector	Refer to Note as below				
Accessory Device	Refer to Note as below				
Cable Supplied	Refer to Note as below				

Note:

1. The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter 1	TEN PAO INTERNATIONAL LTD.	S018BYU1200150	I/P: 100-240Vac, 50/60Hz, 600mA O/P: 5Vdc/9Vdc/12Vdc⎓3A/2A/1.5A
Adapter 2	Aohai Technology Co., Ltd	A138A-120150U-US2	I/P: 100-240V~50/60Hz, 0.5A O/P: 5Vdc, 2.5A/9Vdc, 2A/12Vdc, 1.5A
USB Cable	Electronics Taiwai Ltd.	DDEMU110079	0.95m shielded USB cable without core
Battery	VEKEN	141033	3.85Vdc, 6240mAh, 24.02Wh

2. There are two sources for EUT's main board and memory. Only the supplier is different and the rest of the specifications are the same.

Sample	Item	Brand	Model
A	PCB - Main	Unimicron Technology Corporation.	12VPL4024C for MODEM board,06VPL4028C for Main board
	Memory - Main	Nanya Technology Corporation	NM4888KSPAXAI-3E
B	PCB -Second	AKM Meadville	HI12C124A for MODEM board, HI06T221A for Main board
	Memory - Second	Jeju Semiconductor Corp.	JSFDDQ5QHAFGD-405

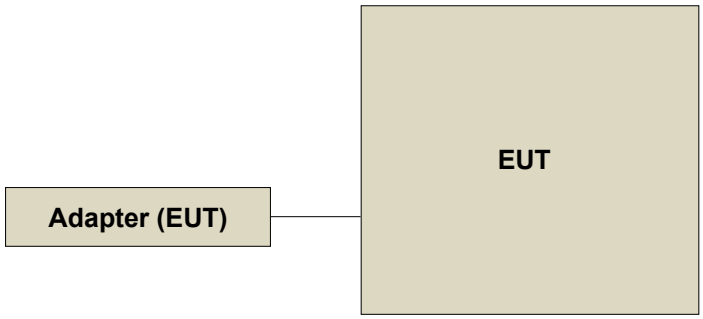
* After pre-tested, sample A was the worse and chosen for final test.

3. The following antennas were provided to the EUT.

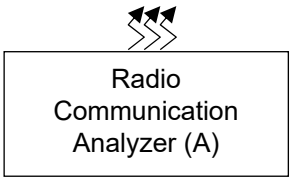
2G / 3G Band					
Ant. No.	Type	Connector	Gain (dBi)		
			WCDMA B5	LTE B5	LTE B26
0	PIFA	MUR	0.345671	0.345671	0.702007
1	PIFA	IPEX	-	-	-
2	PIFA	IPEX	-	-	-
3	PIFA	MUR	-	-	-
4	PIFA	IPEX	-	-	-

* There are diversity on WCDMA and LTE mode. ANT. No. 0 is chosen for final test.
* The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

3.2 Configuration of System under Test



Remote site



3.2.1 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Radio Communication Analyzer	Anritsu	MT8821C	6261806803	NA	-

Note:

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

3.3 Test Mode Applicability and Tested Channel Detail

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

Band	Radiated Emission
WCDMA Band 5	X-plane
LTE Band 5	X-plane
LTE Band 26	X-plane

WCDMA Band 5

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	ERP	4132 to 4233	4132 (826.4MHz), 4182 (836.4MHz), 4233 (846.6MHz)	WCDMA, HSDPA, HSUPA
-	Modulation Characteristics	4132 to 4233	4182 (836.4MHz)	WCDMA, HSDPA, HSUPA
-	Frequency Stability	4132 to 4233	4132 (826.4MHz), 4233 (846.6MHz)	WCDMA
-	Occupied Bandwidth	4132 to 4233	4132 (826.4MHz), 4182 (836.4MHz), 4233 (846.6MHz)	WCDMA, HSDPA, HSUPA
-	Band Edge	4132 to 4233	4132 (826.4MHz), 4233 (846.6MHz)	WCDMA, HSDPA, HSUPA
-	Peak To Average Ratio	4132 to 4233	4132 (826.4MHz), 4182 (836.4MHz), 4233 (846.6MHz)	WCDMA, HSDPA, HSUPA
-	Conducted Emission	4132 to 4233	4132 (826.4MHz), 4182 (836.4MHz), 4233 (846.6MHz)	WCDMA, HSDPA, HSUPA
-	Radiated Emission Below 1GHz	4132 to 4233	4182 (836.4MHz)	WCDMA
-	Radiated Emission Above 1GHz	4132 to 4233	4132 (826.4MHz), 4182 (836.4MHz), 4233 (846.6MHz)	WCDMA

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

LTE Band 5

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	20407 to 20643	20407 (824.7MHz), 20525 (836.5MHz), 20643 (848.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 2 RB Offset 1 RB / 5 RB Offset 3 RB / 0 RB Offset 3 RB / 1 RB Offset 3 RB / 3 RB Offset 6 RB / 0 RB Offset
		20415 to 20635	20415 (825.5MHz), 20525 (836.5MHz), 20635 (847.5MHz)	3MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 7 RB Offset 1 RB / 14 RB Offset 8 RB / 0 RB Offset 8 RB / 3 RB Offset 8 RB / 7 RB Offset 15 RB / 0 RB Offset
		20425 to 20625	20425 (826.5MHz), 20525 (836.5MHz), 20625 (846.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		20450 to 20600	20450 (829.0MHz), 20525 (836.5MHz), 20600 (844.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
-	Modulation Characteristics	20450 to 20600	20525 (836.5MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	50 RB / 0 RB Offset
-	Frequency Stability	20407 to 20643	20407 (824.7MHz), 20643 (848.3MHz)	1.4MHz	QPSK	6 RB / 0 RB Offset
		20415 to 20635	20415 (825.5MHz), 20635 (847.5MHz)	3MHz	QPSK	15 RB / 0 RB Offset
		20425 to 20625	20425 (826.5MHz), 20625 (846.5MHz)	5MHz	QPSK	25 RB / 0 RB Offset
		20450 to 20600	20450 (829.0MHz), 20600 (844.0MHz)	10MHz	QPSK	50 RB / 0 RB Offset
-	Occupied Bandwidth	20407 to 20643	20407 (824.7MHz), 20525 (836.5MHz), 20643 (848.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM / 256QAM	6 RB / 0RB Offset
		20415 to 20635	20415 (825.5MHz), 20525 (836.5MHz), 20635 (847.5MHz)	3MHz	QPSK / 16QAM / 64QAM / 256QAM	15 RB / 0RB Offset
		20425 to 20625	20425 (826.5MHz), 20525 (836.5MHz), 20625 (846.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	25RB / 0RB Offset
		20450 to 20600	20450 (829.0MHz), 20525 (836.5MHz), 20600 (844.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	50RB / 0RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Band Edge	20407 to 20643	20407 (824.7MHz), 20643 (848.3MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset 1 RB / 5 RB Offset 6 RB / 0 RB Offset
		20415 to 20635	20415 (825.5MHz), 20635 (847.5MHz)	3MHz	QPSK	1 RB / 0 RB Offset 1 RB / 14 RB Offset 15 RB / 0 RB Offset
		20425 to 20625	20425 (826.5MHz), 20625 (846.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		20450 to 20600	20450 (829.0MHz), 20600 (844.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
-	Peak to Average Ratio	20407 to 20643	20407 (824.7MHz), 20525 (836.5MHz), 20643 (848.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM / 256QAM	3 RB / 1 RB Offset
		20415 to 20635	20415 (825.5MHz), 20525 (836.5MHz), 20635 (847.5MHz)	3MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset
		20425 to 20625	20425 (826.5MHz), 20525 (836.5MHz), 20625 (846.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset
		20450 to 20600	20450 (829.0MHz), 20525 (836.5MHz), 20600 (844.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset
-	Conducted Emission	20407 to 20643	20407 (824.7MHz), 20525 (836.5MHz), 20643 (848.3MHz)	1.4MHz	QPSK	3 RB / 1 RB Offset
		20415 to 20635	20415 (825.5MHz), 20525 (836.5MHz), 20635 (847.5MHz)	3MHz	QPSK	1 RB / 0 RB Offset
		20425 to 20625	20425 (826.5MHz), 20525 (836.5MHz), 20625 (846.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		20450 to 20600	20450 (829.0MHz), 20525 (836.5MHz), 20600 (844.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Radiated Emission Below 1GHz	20450 to 20600	20600 (844.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	20407 to 20643	20407 (824.7MHz), 20525 (836.5MHz), 20643 (848.3MHz)	1.4MHz	QPSK	3 RB / 1 RB Offset
		20425 to 20625	20425 (826.5MHz), 20525 (836.5MHz), 20625 (846.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		20450 to 20600	20450 (829.0MHz), 20525 (836.5MHz), 20600 (844.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5MHz & highest channel bandwidth for final test.
3. The output power for QPSK, 16QAM, 64QAM and 256QAM, measured value of QPSK is higher than 16QAM, 64QAM and 256QAM mode. Therefore, only Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM, 64QAM and 256QAM modes, the other test items were performed under QPSK mode only.

LTE Band 26

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	ERP	26797 to 27033	26797 (824.7MHz), 26915 (836.5MHz), 27033 (848.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 2 RB Offset 1 RB / 5 RB Offset 3 RB / 0 RB Offset 3 RB / 1 RB Offset 3 RB / 3 RB Offset 6 RB / 0 RB Offset
		26805 to 27025	26805 (825.5MHz), 26915 (836.5MHz), 27025 (847.5MHz)	3MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 7 RB Offset 1 RB / 14 RB Offset 8 RB / 0 RB Offset 8 RB / 3 RB Offset 8 RB / 7 RB Offset 15 RB / 0 RB Offset
		26815 to 27015	26815 (826.5MHz), 26915 (836.5MHz), 27015 (846.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		26840 to 26990	26840 (829.0MHz), 26915 (836.5MHz), 26990 (844.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
		26865 to 26965	26865 (831.5MHz), 26915 (836.5MHz), 26965 (841.5MHz)	15MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 37 RB Offset 1 RB / 74 RB Offset 36 RB / 0 RB Offset 36 RB / 19 RB Offset 36 RB / 39 RB Offset 75 RB / 0 RB Offset
-	Modulation Characteristics	26865 to 26965	26915 (836.5MHz)	15MHz	QPSK / 16QAM / 64QAM / 256QAM	75 RB / 0 RB Offset
-	Frequency Stability	26797 to 27033	26797 (824.7MHz), 27033 (848.3MHz)	1.4MHz	QPSK	6 RB / 0 RB Offset
		26805 to 27025	26805 (825.5MHz), 27025 (847.5MHz)	3MHz	QPSK	15 RB / 0 RB Offset
		26815 to 27015	26815 (826.5MHz), 27015 (846.5MHz)	5MHz	QPSK	25 RB / 0 RB Offset
		26840 to 26990	26840 (829.0MHz), 26990 (844.0MHz)	10MHz	QPSK	50 RB / 0 RB Offset
		26865 to 26965	26865 (831.5MHz), 26965 (841.5MHz)	15MHz	QPSK	75 RB / 0 RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Occupied Bandwidth	26797 to 27033	26797 (824.7MHz), 26915 (836.5MHz), 27033 (848.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM / 256QAM	6 RB / 0 RB Offset
		26805 to 27025	26805 (825.5MHz), 26915 (836.5MHz), 27025 (847.5MHz)	3MHz	QPSK / 16QAM / 64QAM / 256QAM	15 RB / 0 RB Offset
		26815 to 27015	26815 (826.5MHz), 26915 (836.5MHz), 27015 (846.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	25 RB / 0 RB Offset
		26840 to 26990	26840 (829.0MHz), 26915 (836.5MHz), 26990 (844.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	50 RB / 0 RB Offset
		26865 to 26965	26865 (831.5MHz), 26915 (836.5MHz), 26965 (841.5MHz)	15MHz	QPSK / 16QAM / 64QAM / 256QAM	75 RB / 0 RB Offset
-	Band Edge	26797 to 27033	26797 (824.7MHz), 27033 (848.3MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset 1 RB / 5 RB Offset 6 RB / 0 RB Offset
		26805 to 27025	26805 (825.5MHz), 27025 (847.5MHz)	3MHz	QPSK	1 RB / 0 RB Offset 1 RB / 14 RB Offset 15 RB / 0 RB Offset
		26815 to 27015	26815 (826.5MHz), 27015 (846.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		26840 to 26990	26840 (829.0MHz), 26990 (844.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
		26865 to 26965	26865 (831.5MHz), 26965 (841.5MHz)	15MHz	QPSK	1 RB / 0 RB Offset 1 RB / 74 RB Offset 75 RB / 0 RB Offset
-	Peak to Average Ratio	26797 to 27033	26797 (824.7MHz), 26915 (836.5MHz), 27033 (848.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM / 256QAM	3 RB / 1 RB Offset
		26805 to 27025	26805 (825.5MHz), 26915 (836.5MHz), 27025 (847.5MHz)	3MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset
		26815 to 27015	26815 (826.5MHz), 26915 (836.5MHz), 27015 (846.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset
		26840 to 26990	26840 (829.0MHz), 26915 (836.5MHz), 26990 (844.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset
		26865 to 26965	26865 (831.5MHz), 26915 (836.5MHz), 26965 (841.5MHz)	15MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Conducted Emission	26797 to 27033	26797 (824.7MHz), 26915 (836.5MHz), 27033 (848.3MHz)	1.4MHz	QPSK	3 RB / 1 RB Offset
		26805 to 27025	26805 (825.5MHz), 26915 (836.5MHz), 27025 (847.5MHz)	3MHz	QPSK	1 RB / 0 RB Offset
		26815 to 27015	26815 (826.5MHz), 26915 (836.5MHz), 27015 (846.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		26840 to 26990	26840 (829.0MHz), 26915 (836.5MHz), 26990 (844.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset
		26865 to 26965	26865 (831.5MHz), 26915 (836.5MHz), 26965 (841.5MHz)	15MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Below 1GHz	26865 to 26965	27015 (846.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission Above 1GHz	26797 to 27033	26797 (824.7MHz), 26915 (836.5MHz), 27033 (848.3MHz)	1.4MHz	QPSK	3 RB / 1 RB Offset
		26815 to 27015	26815 (826.5MHz), 26915 (836.5MHz), 27015 (846.5MHz)	5MHz	QPSK	1 RB / 0 RB Offset
		26865 to 26965	26865 (831.5MHz), 26915 (836.5MHz), 26965 (841.5MHz)	15MHz	QPSK	1 RB / 0 RB Offset

Note:

1. For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.
2. For radiated emission above 1GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5MHz & highest channel bandwidth for final test.
3. The output power for QPSK, 16QAM, 64QAM and 256QAM, measured value of QPSK is higher than 16QAM, 64QAM and 256QAM mode. Therefore, only Modulation characteristics, occupied bandwidth and Peak to average ratio items had been tested under QPSK, 16QAM, 64QAM and 256QAM modes, the other test items were performed under QPSK mode only.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
ERP	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Modulation Characteristics	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Frequency Stability	25deg. C, 60%RH	3.85Vdc	James Yang
Occupied Bandwidth	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Band Edge	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Peak To Average Ratio	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Conducted Emission	25deg. C, 60%RH	120Vac, 60Hz	James Yang
Radiated Emission	25deg. C, 70%RH	120Vac, 60Hz	Edison Lee, Noah Chang

3.4 EUT Operating Conditions

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

3.5 General Description of Applied Standards and References

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

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 22

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

References Test Guidance:

KDB 971168 D01 Power Meas License Digital Systems v03r01

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

Conducted Power Measurement:

The EUT was set up for the maximum power with WCDMA, 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.

Maximum EIRP / ERP

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

$EIRP = P_{Meas} + G_T$

$ERP = P_{Meas} + G_T - 2.15$

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas}, e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

4.1.3 Test Setup

Conducted Power Measurement:

4.1.4 Test Results

Conducted Output Power (dBm)

Band	WCDMA V		
TX Channel	4132	4182	4233
Rx Channel	4357	4407	4458
Frequency	826.4	836.4	846.6
RMC 12.2K	23.14	23.20	**23.25**
HSDPA Subtest-1	22.12	22.16	22.11
HSDPA Subtest-2	22.10	22.10	22.05
HSDPA Subtest-3	21.66	21.63	21.67
HSDPA Subtest-4	21.62	21.63	21.61
DC-HSDPA Subtest-1	21.97	22.01	21.96
DC-HSDPA Subtest-2	21.95	21.95	21.90
DC-HSDPA Subtest-3	21.51	21.48	21.52
DC-HSDPA Subtest-4	21.47	21.48	21.46
HSUPA Subtest-1	23.10	23.00	22.80
HSUPA Subtest-2	20.54	20.51	20.54
HSUPA Subtest-3	21.57	21.57	21.43
HSUPA Subtest-4	19.96	20.16	20.13
HSUPA Subtest-5	23.15	23.07	22.86
HSPA+ Subtest-1	19.54	19.74	19.71

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20450	20525	20600
		Frequency (MHz)		829	836.5	844
10M	QPSK	1	0	23.59	23.51	23.56
		1	24	23.56	23.48	23.53
		1	49	23.53	23.45	23.50
		25	0	22.89	22.81	22.86
		25	12	22.79	22.71	22.76
		25	25	22.59	22.51	22.56
		50	0	22.48	22.40	22.45
10M	16QAM	1	0	22.84	22.76	22.81
		1	24	22.75	22.67	22.72
		1	49	22.73	22.65	22.70
		25	0	21.72	21.64	21.69
		25	12	21.68	21.60	21.65
		25	25	21.63	21.55	21.60
		50	0	21.54	21.46	21.51
10M	64QAM	1	0	21.56	21.48	21.53
		1	24	21.53	21.45	21.50
		1	49	21.51	21.43	21.48
		25	0	20.27	20.19	20.24
		25	12	20.25	20.17	20.22
		25	25	20.23	20.15	20.20
		50	0	20.22	20.14	20.19
10M	256QAM	1	0	18.48	18.40	18.45
		1	24	18.46	18.38	18.43
		1	49	18.43	18.35	18.40
		25	0	18.42	18.34	18.39
		25	12	18.41	18.33	18.38
		25	25	18.38	18.30	18.35
		50	0	18.36	18.28	18.33

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20425	20525	20625
		Frequency (MHz)		826.5	836.5	846.5
5M	QPSK	1	0	23.51	23.48	23.53
		1	12	23.50	23.38	23.48
		1	24	23.46	23.39	23.46
		12	0	22.79	22.78	22.82
		12	6	22.69	22.68	22.68
		12	13	22.53	22.44	22.56
		25	0	22.47	22.36	22.38
5M	16QAM	1	0	22.81	22.72	22.77
		1	12	22.72	22.67	22.71
		1	24	22.63	22.58	22.68
		12	0	21.72	21.56	21.59
		12	6	21.66	21.58	21.59
		12	13	21.53	21.51	21.56
		25	0	21.54	21.44	21.49
5M	64QAM	1	0	21.53	21.38	21.49
		1	12	21.50	21.44	21.47
		1	24	21.43	21.39	21.38
		12	0	20.24	20.10	20.16
		12	6	20.25	20.08	20.21
		12	13	20.19	20.12	20.10
		25	0	20.12	20.11	20.15
5M	256QAM	1	0	18.43	18.30	18.42
		1	12	18.42	18.28	18.37
		1	24	18.37	18.35	18.30
		12	0	18.40	18.26	18.39
		12	6	18.40	18.31	18.35
		12	13	18.33	18.29	18.35
		25	0	18.29	18.25	18.30

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20415	20525	20635
		Frequency (MHz)		825.5	836.5	847.5
3M	QPSK	1	0	23.54	23.43	23.49
		1	7	23.49	23.45	23.51
		1	14	23.43	23.44	23.48
		8	0	22.89	22.81	22.77
		8	3	22.78	22.64	22.67
		8	7	22.54	22.46	22.46
		15	0	22.41	22.30	22.41
3M	16QAM	1	0	22.75	22.76	22.72
		1	7	22.73	22.59	22.65
		1	14	22.63	22.63	22.60
		8	0	21.69	21.54	21.68
		8	3	21.61	21.50	21.62
		8	7	21.60	21.51	21.51
		15	0	21.47	21.38	21.49
3M	64QAM	1	0	21.47	21.48	21.46
		1	7	21.46	21.44	21.48
		1	14	21.50	21.40	21.43
		8	0	20.26	20.09	20.24
		8	3	20.23	20.17	20.17
		8	7	20.13	20.05	20.17
		15	0	20.21	20.09	20.13
3M	256QAM	1	0	18.44	18.34	18.44
		1	7	18.44	18.28	18.39
		1	14	18.34	18.30	18.38
		8	0	18.42	18.30	18.35
		8	3	18.33	18.29	18.34
		8	7	18.31	18.24	18.31
		15	0	18.32	18.22	18.27

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20407	20525	20643
		Frequency (MHz)		824.7	836.5	848.3
1.4M	QPSK	1	0	23.52	23.50	23.46
		1	2	23.51	23.43	23.46
		1	5	23.51	23.37	23.41
		3	0	22.88	22.81	22.77
		3	1	22.71	22.69	22.71
		3	3	22.54	22.41	22.46
		6	0	22.46	22.38	22.38
1.4M	16QAM	1	0	22.75	22.68	22.74
		1	2	22.70	22.60	22.62
		1	5	22.64	22.62	22.66
		3	0	21.62	21.61	21.69
		3	1	21.58	21.59	21.62
		3	3	21.61	21.53	21.52
		6	0	21.52	21.44	21.44
1.4M	64QAM	1	0	21.53	21.44	21.48
		1	2	21.46	21.43	21.41
		1	5	21.44	21.33	21.47
		3	0	20.25	20.14	20.24
		3	1	20.20	20.11	20.15
		3	3	20.17	20.10	20.15
		6	0	20.12	20.05	20.10
1.4M	256QAM	1	0	18.41	18.31	18.36
		1	2	18.40	18.29	18.39
		1	5	18.40	18.35	18.36
		3	0	18.35	18.30	18.29
		3	1	18.31	18.31	18.30
		3	3	18.37	18.24	18.29
		6	0	18.35	18.19	18.29

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26865	26915	26965
		Frequency (MHz)		831.5	836.5	841.5
15M	QPSK	1	0	23.49	23.43	23.51
		1	37	23.46	23.43	23.48
		1	74	23.43	23.33	23.45
		36	0	22.61	22.60	22.63
		36	19	22.56	22.48	22.58
		36	39	22.52	22.52	22.54
		75	0	22.45	22.41	22.47
15M	16QAM	1	0	22.51	22.46	22.53
		1	37	22.50	22.41	22.52
		1	74	22.45	22.35	22.47
		36	0	21.46	21.46	21.48
		36	19	21.44	21.36	21.46
		36	39	21.41	21.40	21.43
		75	0	21.38	21.33	21.40
15M	64QAM	1	0	21.43	21.41	21.45
		1	37	21.40	21.35	21.42
		1	74	21.38	21.31	21.40
		36	0	20.60	20.53	20.62
		36	19	20.58	20.57	20.60
		36	39	20.49	20.49	20.51
		75	0	20.48	20.39	20.50
15M	256QAM	1	0	18.52	18.47	18.54
		1	37	18.50	18.48	18.52
		1	74	18.48	18.46	18.50
		36	0	18.45	18.37	18.47
		36	19	18.43	18.38	18.45
		36	39	18.40	18.40	18.42
		75	0	18.38	18.28	18.40

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26840	26915	26990
		Frequency (MHz)		829	836.5	844
10M	QPSK	1	0	23.36	23.40	23.47
		1	24	23.33	23.39	23.45
		1	49	23.42	23.22	23.44
		25	0	22.60	22.45	22.61
		25	12	22.43	22.40	22.52
		25	25	22.47	22.38	22.48
		50	0	22.31	22.37	22.43
10M	16QAM	1	0	22.48	22.36	22.44
		1	24	22.37	22.29	22.45
		1	49	22.42	22.23	22.40
		25	0	21.36	21.43	21.46
		25	12	21.43	21.23	21.42
		25	25	21.40	21.39	21.38
		50	0	21.23	21.26	21.33
10M	64QAM	1	0	21.41	21.40	21.37
		1	24	21.33	21.22	21.42
		1	49	21.24	21.21	21.38
		25	0	20.46	20.46	20.52
		25	12	20.49	20.42	20.53
		25	25	20.36	20.42	20.44
		50	0	20.37	20.28	20.44
10M	256QAM	1	0	18.48	18.34	18.53
		1	24	18.47	18.46	18.47
		1	49	18.39	18.34	18.44
		25	0	18.36	18.35	18.47
		25	12	18.43	18.37	18.38
		25	25	18.32	18.34	18.32
		50	0	18.36	18.16	18.34

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26815	26915	27015
		Frequency (MHz)		826.5	836.5	846.5
5M	QPSK	1	0	23.32	23.28	23.45
		1	12	23.20	23.28	23.48
		1	24	23.35	23.16	23.35
		12	0	22.45	22.39	22.60
		12	6	22.40	22.26	22.51
		12	13	22.46	22.35	22.48
		25	0	22.20	22.26	22.42
5M	16QAM	1	0	22.38	22.23	22.51
		1	12	22.36	22.19	22.49
		1	24	22.28	22.08	22.40
		12	0	21.21	21.39	21.45
		12	6	21.40	21.19	21.36
		12	13	21.29	21.30	21.33
		25	0	21.11	21.21	21.31
5M	64QAM	1	0	21.32	21.26	21.45
		1	12	21.21	21.11	21.37
		1	24	21.19	21.10	21.32
		12	0	20.35	20.41	20.59
		12	6	20.35	20.29	20.57
		12	13	20.32	20.27	20.48
		25	0	20.25	20.18	20.42
5M	256QAM	1	0	18.40	18.28	18.53
		1	12	18.34	18.40	18.49
		1	24	18.27	18.33	18.42
		12	0	18.33	18.28	18.41
		12	6	18.43	18.23	18.43
		12	13	18.26	18.19	18.39
		25	0	18.22	18.08	18.36

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26805	26915	27025
		Frequency (MHz)		825.5	836.5	847.5
3M	QPSK	1	0	23.25	23.34	23.45
		1	7	23.38	23.44	23.44
		1	14	23.22	23.41	23.43
		8	0	22.32	22.51	22.61
		8	3	22.25	22.46	22.52
		8	7	22.35	22.42	22.50
		15	0	22.29	22.43	22.37
3M	16QAM	1	0	22.33	22.36	22.51
		1	7	22.14	22.31	22.43
		1	14	22.16	22.35	22.41
		8	0	21.34	21.45	21.45
		8	3	21.14	21.38	21.42
		8	7	21.38	21.24	21.40
		15	0	21.11	21.18	21.30
3M	64QAM	1	0	21.27	21.22	21.43
		1	7	21.07	21.32	21.38
		1	14	21.11	21.25	21.33
		8	0	20.46	20.46	20.62
		8	3	20.27	20.39	20.57
		8	7	20.40	20.36	20.46
		15	0	20.19	20.40	20.43
3M	256QAM	1	0	18.22	18.44	18.48
		1	7	18.41	18.43	18.48
		1	14	18.32	18.44	18.48
		8	0	18.34	18.46	18.42
		8	3	18.33	18.24	18.39
		8	7	18.28	18.17	18.36
		15	0	18.15	18.26	18.37

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26797	26915	27033
		Frequency (MHz)		824.7	836.5	848.3
1.4M	QPSK	1	0	23.32	23.38	23.46
		1	2	23.32	23.31	23.41
		1	5	23.14	23.32	23.42
		3	0	23.42	23.55	22.59
		3	1	23.39	23.46	22.51
		3	3	23.34	23.46	22.48
		6	0	22.33	22.34	22.40
1.4M	16QAM	1	0	22.22	22.38	22.46
		1	2	22.22	22.39	22.48
		1	5	22.15	22.25	22.46
		3	0	22.29	22.39	21.38
		3	1	22.12	22.38	21.42
		3	3	22.35	22.33	21.34
		6	0	21.14	21.25	21.34
1.4M	64QAM	1	0	21.39	21.34	21.39
		1	2	21.18	21.31	21.41
		1	5	21.15	21.30	21.38
		3	0	21.41	21.46	20.57
		3	1	21.35	21.51	20.52
		3	3	21.38	21.34	20.45
		6	0	20.28	20.41	20.40
1.4M	256QAM	1	0	18.32	18.41	18.53
		1	2	18.34	18.35	18.47
		1	5	18.27	18.44	18.43
		3	0	19.34	19.45	18.42
		3	1	19.28	19.32	18.42
		3	3	19.19	19.32	18.33
		6	0	18.06	18.29	18.30

ERP Power (dBm)

Band	WCDMA V		
TX Channel	4132	4182	4233
Rx Channel	4357	4407	4458
Frequency	826.4	836.4	846.6
RMC 12.2K	21.34	21.40	**21.45**
HSDPA Subtest-1	20.32	20.36	20.31
HSDPA Subtest-2	20.30	20.30	20.25
HSDPA Subtest-3	19.86	19.83	19.87
HSDPA Subtest-4	19.82	19.83	19.81
DC-HSDPA Subtest-1	20.17	20.21	20.16
DC-HSDPA Subtest-2	20.15	20.15	20.10
DC-HSDPA Subtest-3	19.71	19.68	19.72
DC-HSDPA Subtest-4	19.67	19.68	19.66
HSUPA Subtest-1	21.30	21.20	21.00
HSUPA Subtest-2	18.74	18.71	18.74
HSUPA Subtest-3	19.77	19.77	19.63
HSUPA Subtest-4	18.16	18.36	18.33
HSUPA Subtest-5	21.35	21.27	21.06
HSPA+ Subtest-1	17.74	17.94	17.91

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20450	20525	20600
		Frequency (MHz)		829	836.5	844
10M	QPSK	1	0	**21.79**	21.71	21.76
		1	24	21.76	21.68	21.73
		1	49	21.73	21.65	21.70
		25	0	21.09	21.01	21.06
		25	12	20.99	20.91	20.96
		25	25	20.79	20.71	20.76
		50	0	20.68	20.60	20.65
10M	16QAM	1	0	**21.04**	20.96	21.01
		1	24	20.95	20.87	20.92
		1	49	20.93	20.85	20.90
		25	0	19.92	19.84	19.89
		25	12	19.88	19.80	19.85
		25	25	19.83	19.75	19.80
		50	0	19.74	19.66	19.71
10M	64QAM	1	0	**19.76**	19.68	19.73
		1	24	19.73	19.65	19.70
		1	49	19.71	19.63	19.68
		25	0	18.47	18.39	18.44
		25	12	18.45	18.37	18.42
		25	25	18.43	18.35	18.40
		50	0	18.42	18.34	18.39
10M	256QAM	1	0	**16.68**	16.60	16.65
		1	24	16.66	16.58	16.63
		1	49	16.63	16.55	16.60
		25	0	16.62	16.54	16.59
		25	12	16.61	16.53	16.58
		25	25	16.58	16.50	16.55
		50	0	16.56	16.48	16.53

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20425	20525	20625
		Frequency (MHz)		826.5	836.5	846.5
5M	QPSK	1	0	21.71	21.68	**21.73**
		1	12	21.70	21.58	21.68
		1	24	21.66	21.59	21.66
		12	0	20.99	20.98	21.02
		12	6	20.89	20.88	20.88
		12	13	20.73	20.64	20.76
		25	0	20.67	20.56	20.58
5M	16QAM	1	0	**21.01**	20.92	20.97
		1	12	20.92	20.87	20.91
		1	24	20.83	20.78	20.88
		12	0	19.92	19.76	19.79
		12	6	19.86	19.78	19.79
		12	13	19.73	19.71	19.76
		25	0	19.74	19.64	19.69
5M	64QAM	1	0	**19.73**	19.58	19.69
		1	12	19.70	19.64	19.67
		1	24	19.63	19.59	19.58
		12	0	18.44	18.30	18.36
		12	6	18.45	18.28	18.41
		12	13	18.39	18.32	18.30
		25	0	18.32	18.31	18.35
5M	256QAM	1	0	**16.63**	16.50	16.62
		1	12	16.62	16.48	16.57
		1	24	16.57	16.55	16.50
		12	0	16.60	16.46	16.59
		12	6	16.60	16.51	16.55
		12	13	16.53	16.49	16.55
		25	0	16.49	16.45	16.50

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20415	20525	20635
		Frequency (MHz)		825.5	836.5	847.5
3M	QPSK	1	0	**21.74**	21.63	21.69
		1	7	21.69	21.65	21.71
		1	14	21.63	21.64	21.68
		8	0	21.09	21.01	20.97
		8	3	20.98	20.84	20.87
		8	7	20.74	20.66	20.66
		15	0	20.61	20.50	20.61
3M	16QAM	1	0	20.95	**20.96**	20.92
		1	7	20.93	20.79	20.85
		1	14	20.83	20.83	20.80
		8	0	19.89	19.74	19.88
		8	3	19.81	19.70	19.82
		8	7	19.80	19.71	19.71
		15	0	19.67	19.58	19.69
3M	64QAM	1	0	19.67	19.68	19.66
		1	7	19.66	19.64	19.68
		1	14	**19.70**	19.60	19.63
		8	0	18.46	18.29	18.44
		8	3	18.43	18.37	18.37
		8	7	18.33	18.25	18.37
		15	0	18.41	18.29	18.33
3M	256QAM	1	0	**16.64**	16.54	**16.64**
		1	7	**16.64**	16.48	16.59
		1	14	16.54	16.50	16.58
		8	0	16.62	16.50	16.55
		8	3	16.53	16.49	16.54
		8	7	16.51	16.44	16.51
		15	0	16.52	16.42	16.47

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20407	20525	20643
		Frequency (MHz)		824.7	836.5	848.3
1.4M	QPSK	1	0	**21.72**	21.70	21.66
		1	2	21.71	21.63	21.66
		1	5	21.71	21.57	21.61
		3	0	21.08	21.01	20.97
		3	1	20.91	20.89	20.91
		3	3	20.74	20.61	20.66
		6	0	20.66	20.58	20.58
1.4M	16QAM	1	0	**20.95**	20.88	20.94
		1	2	20.90	20.80	20.82
		1	5	20.84	20.82	20.86
		3	0	19.82	19.81	19.89
		3	1	19.78	19.79	19.82
		3	3	19.81	19.73	19.72
		6	0	19.72	19.64	19.64
1.4M	64QAM	1	0	**19.73**	19.64	19.68
		1	2	19.66	19.63	19.61
		1	5	19.64	19.53	19.67
		3	0	18.45	18.34	18.44
		3	1	18.40	18.31	18.35
		3	3	18.37	18.30	18.35
		6	0	18.32	18.25	18.30
1.4M	256QAM	1	0	**16.61**	16.51	16.56
		1	2	16.60	16.49	16.59
		1	5	16.60	16.55	16.56
		3	0	16.55	16.50	16.49
		3	1	16.51	16.51	16.50
		3	3	16.57	16.44	16.49
		6	0	16.55	16.39	16.49

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26865	26915	26965
		Frequency (MHz)		831.5	836.5	841.5
15M	QPSK	1	0	22.04	21.98	**22.06**
		1	37	22.01	21.98	22.03
		1	74	21.98	21.88	22.00
		36	0	21.16	21.15	21.18
		36	19	21.11	21.03	21.13
		36	39	21.07	21.07	21.09
		75	0	21.00	20.96	21.02
15M	16QAM	1	0	21.06	21.01	**22.06**
		1	37	21.05	20.96	21.07
		1	74	21.00	20.90	21.02
		36	0	20.01	20.01	20.03
		36	19	19.99	19.91	20.01
		36	39	19.96	19.95	19.98
		75	0	19.93	19.88	19.95
15M	64QAM	1	0	19.98	19.96	**20.00**
		1	37	19.95	19.90	19.97
		1	74	19.93	19.86	19.95
		36	0	19.15	19.08	19.17
		36	19	19.13	19.12	19.15
		36	39	19.04	19.04	19.06
		75	0	19.03	18.94	19.05
15M	256QAM	1	0	17.07	17.02	**17.09**
		1	37	17.05	17.03	17.07
		1	74	17.03	17.01	17.05
		36	0	17.00	16.92	17.02
		36	19	16.98	16.93	17.00
		36	39	16.95	16.95	16.97
		75	0	16.93	16.83	16.95

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26840	26915	26990
		Frequency (MHz)		829	836.5	844
10M	QPSK	1	0	21.91	21.95	**22.02**
		1	24	21.88	21.94	22.00
		1	49	21.97	21.77	21.99
		25	0	21.15	21.00	21.16
		25	12	20.98	20.95	21.07
		25	25	21.02	20.93	21.03
		50	0	20.86	20.92	20.98
10M	16QAM	1	0	**21.03**	20.91	20.99
		1	24	20.92	20.84	21.00
		1	49	20.97	20.78	20.95
		25	0	19.91	19.98	20.01
		25	12	19.98	19.78	19.97
		25	25	19.95	19.94	19.93
		50	0	19.78	19.81	19.88
10M	64QAM	1	0	19.96	19.95	19.92
		1	24	19.88	19.77	**19.97**
		1	49	19.79	19.76	19.93
		25	0	19.01	19.01	19.07
		25	12	19.04	18.97	19.08
		25	25	18.91	18.97	18.99
		50	0	18.92	18.83	18.99
10M	256QAM	1	0	17.03	16.89	**17.08**
		1	24	17.02	17.01	17.02
		1	49	16.94	16.89	16.99
		25	0	16.91	16.90	17.02
		25	12	16.98	16.92	16.93
		25	25	16.87	16.89	16.87
		50	0	16.91	16.71	16.89

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26815	26915	27015
		Frequency (MHz)		826.5	836.5	846.5
5M	QPSK	1	0	21.87	21.48	22.00
		1	12	21.75	21.48	**22.03**
		1	24	21.90	21.36	21.90
		12	0	21.00	20.59	21.15
		12	6	20.95	20.46	21.06
		12	13	21.01	20.55	21.03
		25	0	20.75	20.46	20.97
5M	16QAM	1	0	20.93	20.43	**21.06**
		1	12	20.91	20.39	21.04
		1	24	20.83	20.28	20.95
		12	0	19.76	19.59	20.00
		12	6	19.95	19.39	19.91
		12	13	19.84	19.50	19.88
		25	0	19.66	19.41	19.86
5M	64QAM	1	0	19.87	19.46	**20.00**
		1	12	19.76	19.31	19.92
		1	24	19.74	19.30	19.87
		12	0	18.90	18.61	19.14
		12	6	18.90	18.49	19.12
		12	13	18.87	18.47	19.03
		25	0	18.80	18.38	18.97
5M	256QAM	1	0	16.95	16.48	**17.08**
		1	12	16.89	16.60	17.04
		1	24	16.82	16.53	16.97
		12	0	16.88	16.48	16.96
		12	6	16.98	16.43	16.98
		12	13	16.81	16.39	16.94
		25	0	16.77	16.28	16.91

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26805	26915	27025
		Frequency (MHz)		825.5	836.5	847.5
3M	QPSK	1	0	21.80	21.54	**22.00**
		1	7	21.93	21.64	21.99
		1	14	21.77	21.61	21.98
		8	0	20.87	20.71	21.16
		8	3	20.80	20.66	21.07
		8	7	20.90	20.62	21.05
		15	0	20.84	20.63	20.92
3M	16QAM	1	0	20.88	20.56	**21.06**
		1	7	20.69	20.51	20.98
		1	14	20.71	20.55	20.96
		8	0	19.89	19.65	20.00
		8	3	19.69	19.58	19.97
		8	7	19.93	19.44	19.95
		15	0	19.66	19.38	19.85
3M	64QAM	1	0	19.82	19.42	**19.98**
		1	7	19.62	19.52	19.93
		1	14	19.66	19.45	19.88
		8	0	19.01	18.66	19.17
		8	3	18.82	18.59	19.12
		8	7	18.95	18.56	19.01
		15	0	18.74	18.60	18.98
3M	256QAM	1	0	16.77	16.64	**17.03**
		1	7	16.96	16.63	**17.03**
		1	14	16.87	16.64	**17.03**
		8	0	16.89	16.66	16.97
		8	3	16.88	16.44	16.94
		8	7	16.83	16.37	16.91
		15	0	16.70	16.46	16.92

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26797	26915	27033
		Frequency (MHz)		824.7	836.5	848.3
1.4M	QPSK	1	0	21.87	21.58	**22.01**
		1	2	21.87	21.51	21.96
		1	5	21.69	21.52	21.97
		3	0	21.97	21.75	21.14
		3	1	21.94	21.66	21.06
		3	3	21.89	21.66	21.03
		6	0	20.88	20.54	20.95
1.4M	16QAM	1	0	20.77	20.58	21.01
		1	2	20.77	20.59	**21.03**
		1	5	20.70	20.45	21.01
		3	0	20.84	20.59	19.93
		3	1	20.67	20.58	19.97
		3	3	20.90	20.53	19.89
		6	0	19.69	19.45	19.89
1.4M	64QAM	1	0	19.94	19.54	19.94
		1	2	19.73	19.51	**19.96**
		1	5	19.70	19.50	19.93
		3	0	**19.96**	19.66	19.12
		3	1	19.90	19.71	19.07
		3	3	19.93	19.54	19.00
		6	0	18.83	18.61	18.95
1.4M	256QAM	1	0	16.87	16.61	17.08
		1	2	16.89	16.55	17.02
		1	5	16.82	16.64	16.98
		3	0	**17.89**	17.65	16.97
		3	1	17.83	17.52	16.97
		3	3	17.74	17.52	16.88
		6	0	16.61	16.49	16.85

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

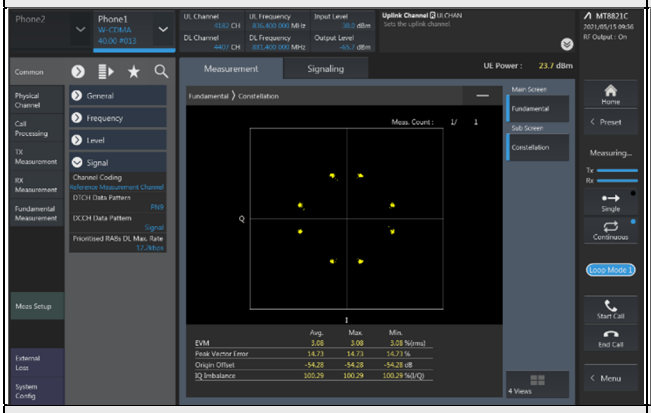
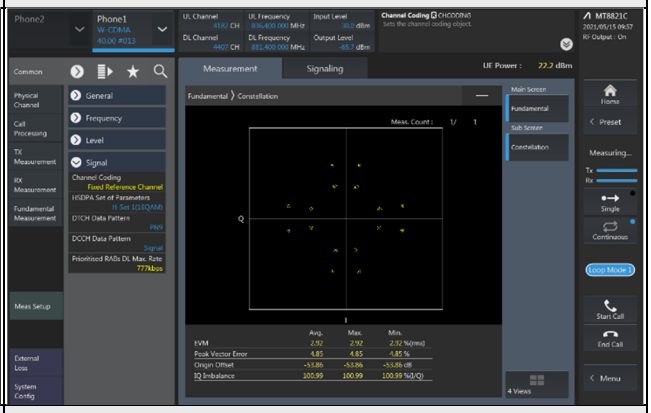
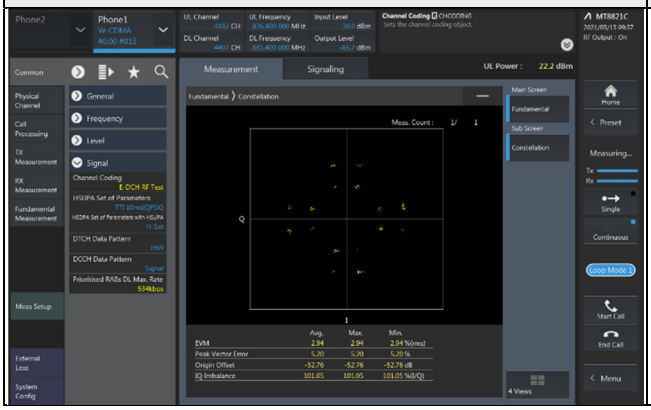
N/A

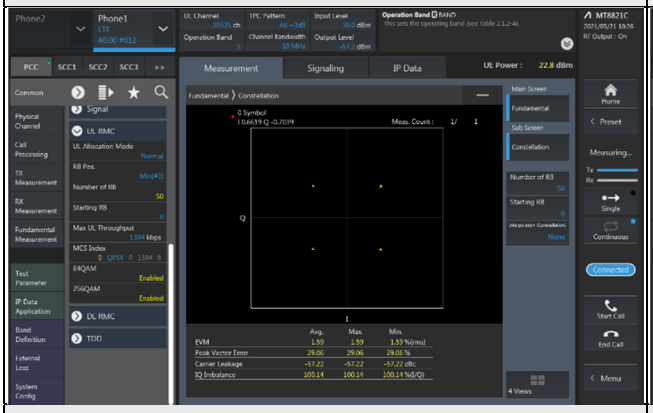
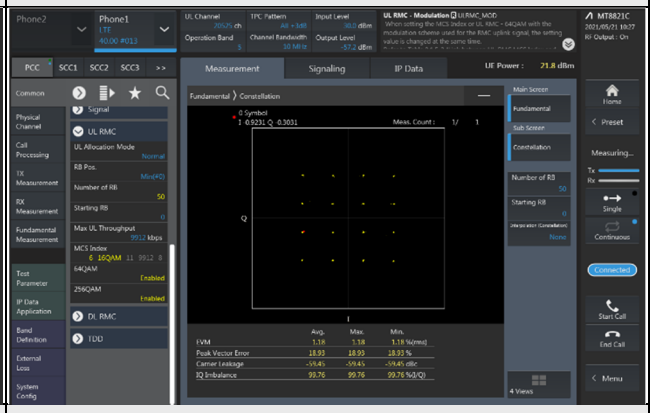
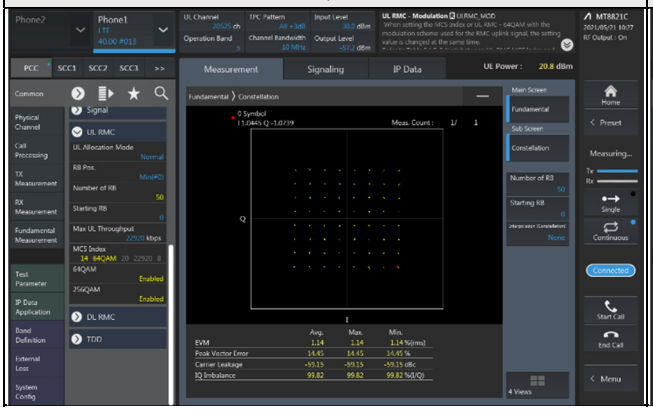
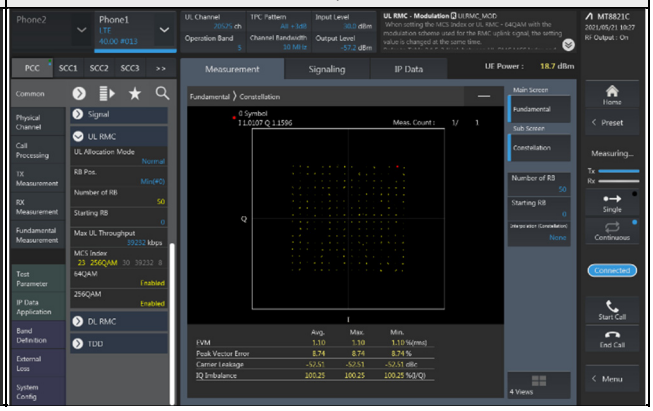
4.2.2 Test Procedure

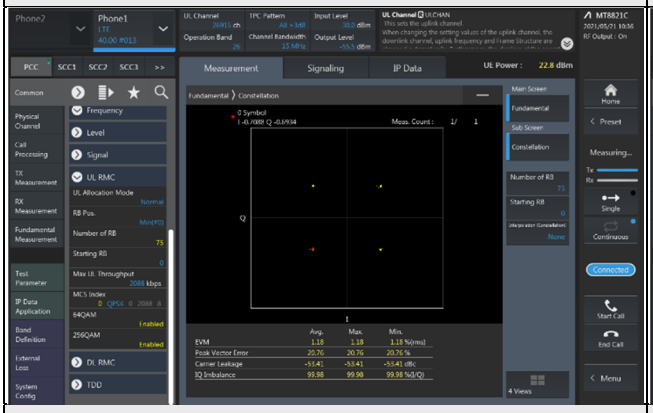
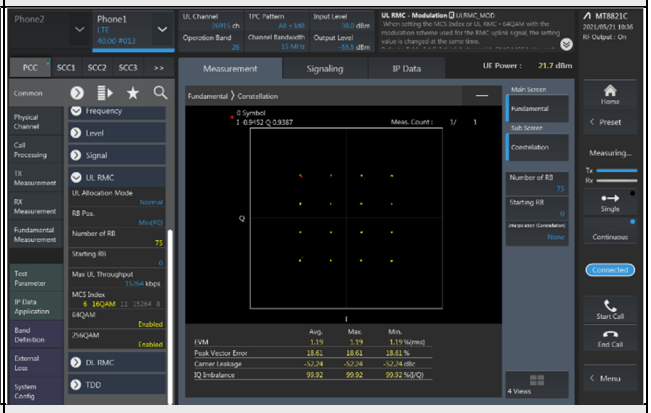
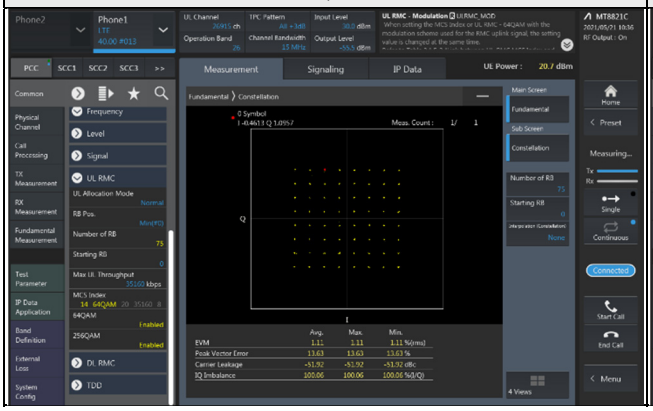
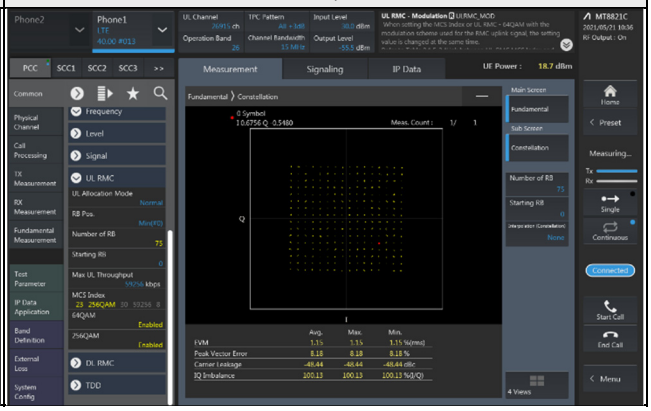
Connect the EUT to Communication Simulator via the antenna connector, The frequency band is set as EUT supported Modulation and Channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

4.2.3 Test Setup

4.2.4 Test Results

WCDMA Band 5	
Spectrum Plot of Measurement Value	
Channel: 4182 / Frequency (MHz): 836.4MHz	
WCDMA	HSDPA
	
HSUPA	
	

LTE Band 5	
Spectrum Plot of Measurement Value	
Channel: 20525 / Frequency (MHz): 836.5MHz	
QPSK	16QAM
	
64QAM	256QAM
	

LTE Band 26	
Spectrum Plot of Measurement Value	
Channel: 26915 / Frequency (MHz): 836.5MHz	
QPSK	16QAM
	
64QAM	256QAM
	

4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

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

4.3.2 Test Procedure

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

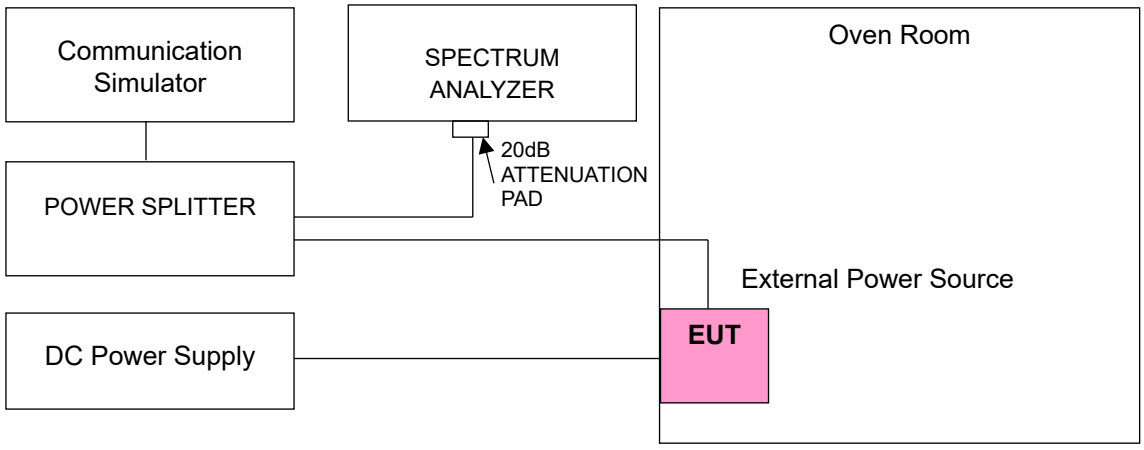
Note: The frequency error was recorded frequency error from the communication simulator.

4.3.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Radio Communication Analyzer Anritsu	MT8821C	6261806803	Jan. 22, 2021	Jan. 21, 2022
Temperature & Humidity Chamber TERCHY	HRM-120RF	931022	Dec. 24, 2020	Dec. 23, 2021
Digital Multimeter Fluke	87-III	70360742	Jun. 23, 2020	Jun. 22, 2021
DC Power Supply Topward	6306A	727263	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.3.4 Test Setup



4.3.5 Test Results

Frequency Error vs. Voltage

Voltage (Vdc)	WCDMA Band 5			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.43	826.400002	0.002	846.600001	0.002
3.85	826.400002	0.002	846.600003	0.004
3.28	826.400002	0.003	846.600003	0.003

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

Temp. (℃)	WCDMA Band 5			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	826.400003	0.003	846.600004	0.005
-20	826.400003	0.004	846.600002	0.002
-10	826.400001	0.002	846.600003	0.004
0	826.400003	0.004	846.600003	0.003
10	826.399998	-0.003	846.599999	-0.002
20	826.399997	-0.004	846.599999	-0.002
30	826.399998	-0.002	846.599997	-0.004
40	826.399999	-0.001	846.599997	-0.004
50	826.399997	-0.004	846.599996	-0.004

Frequency Error vs. Voltage

Voltage (Vdc)	LTE Band 5			
	Channel Bandwidth 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.43	824.700001	0.001	848.300002	0.002
3.85	824.700001	0.001	848.300002	0.003
3.28	824.700003	0.004	848.300001	0.001

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 5			
	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	0.004
-20	824.700003	0.003	848.300001	0.001
-10	824.700004	0.004	848.300002	0.002
0	824.700001	0.002	848.300003	0.003
10	824.699999	-0.001	848.299997	-0.003
20	824.699998	-0.002	848.299998	-0.002
30	824.699997	-0.003	848.299997	-0.004
40	824.699998	-0.002	848.299997	-0.003
50	824.699998	-0.002	848.299997	-0.003

Frequency Error vs. Voltage

Voltage (Vdc)	LTE Band 5			
	Channel Bandwidth 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.43	825.500004	0.004	847.500004	0.004
3.85	825.500003	0.004	847.500001	0.002
3.28	825.500003	0.004	847.500004	0.004

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 5			
	Channel Bandwidth 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	825.500002	0.003	847.500001	0.002
-20	825.500003	0.003	847.500002	0.002
-10	825.500003	0.003	847.500003	0.004
0	825.500004	0.004	847.500002	0.002
10	825.499997	-0.004	847.499997	-0.004
20	825.499997	-0.004	847.499999	-0.001
30	825.499996	-0.004	847.499999	-0.002
40	825.499999	-0.001	847.499999	-0.001
50	825.499996	-0.005	847.499998	-0.002

Frequency Error vs. Voltage

Voltage (Vdc)	LTE Band 5			
	Channel Bandwidth 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.43	826.500004	0.005	846.500004	0.004
3.85	826.500001	0.002	846.500004	0.004
3.28	826.500003	0.004	846.500003	0.004

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 5			
	Channel Bandwidth 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	826.500003	0.003	846.500001	0.001
-20	826.500004	0.005	846.500003	0.004
-10	826.500003	0.004	846.500001	0.001
0	826.500003	0.004	846.500004	0.005
10	826.499999	-0.002	846.499997	-0.003
20	826.499998	-0.002	846.499997	-0.003
30	826.499998	-0.003	846.499997	-0.004
40	826.499999	-0.002	846.499999	-0.002
50	826.499998	-0.003	846.499999	-0.001

Frequency Error vs. Voltage

Voltage (Vdc)	LTE Band 5			
	Channel Bandwidth 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.43	829.000004	0.004	844.000003	0.003
3.85	829.000001	0.002	844.000003	0.003
3.28	829.000004	0.005	844.000003	0.004

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 5			
	Channel Bandwidth 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	829.000002	0.003	844.000003	0.004
-20	829.000001	0.001	844.000003	0.004
-10	829.000003	0.003	844.000004	0.004
0	829.000003	0.004	844.000002	0.002
10	828.999998	-0.003	843.999998	-0.003
20	828.999998	-0.003	843.999999	-0.001
30	828.999999	-0.002	843.999998	-0.002
40	828.999996	-0.005	843.999996	-0.005
50	828.999996	-0.005	843.999999	-0.001

Frequency Error vs. Voltage

Voltage (Vdc)	LTE Band 26			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.43	824.700001	0.001	848.300003	0.004
3.85	824.700003	0.004	848.300004	0.004
3.28	824.700003	0.004	848.300002	0.002

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 26			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	824.700002	0.002	848.300004	0.004
-20	824.700004	0.005	848.300003	0.004
-10	824.700003	0.004	848.300004	0.004
0	824.700001	0.002	848.300003	0.004
10	824.699998	-0.003	848.299999	-0.002
20	824.699997	-0.004	848.299996	-0.004
30	824.699997	-0.004	848.299996	-0.005
40	824.699998	-0.003	848.299998	-0.003
50	824.699997	-0.004	848.299996	-0.004

Frequency Error vs. Voltage

Voltage (Vdc)	LTE Band 26			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.43	825.500004	0.004	847.500004	0.004
3.85	825.500004	0.004	847.500003	0.004
3.28	825.500002	0.002	847.500002	0.002

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 26			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	825.500003	0.003	847.500002	0.003
-20	825.500002	0.002	847.500002	0.002
-10	825.500004	0.004	847.500003	0.004
0	825.500001	0.002	847.500001	0.002
10	825.499999	-0.002	847.499998	-0.002
20	825.499999	-0.001	847.499999	-0.001
30	825.499999	-0.002	847.499997	-0.004
40	825.499998	-0.002	847.499998	-0.003
50	825.499998	-0.003	847.499997	-0.003

Frequency Error vs. Voltage

Voltage (Vdc)	LTE Band 26			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.43	826.500004	0.004	846.500002	0.003
3.85	826.500002	0.002	846.500004	0.005
3.28	826.500002	0.002	846.500002	0.002

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 26			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	826.500003	0.003	846.500002	0.003
-20	826.500003	0.004	846.500002	0.003
-10	826.500004	0.005	846.500003	0.003
0	826.500003	0.004	846.500003	0.004
10	826.499997	-0.004	846.499997	-0.004
20	826.499999	-0.002	846.499998	-0.002
30	826.499996	-0.004	846.499997	-0.003
40	826.499997	-0.004	846.499997	-0.003
50	826.499997	-0.004	846.499996	-0.004

Frequency Error vs. Voltage

Voltage (Vdc)	LTE Band 26			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.43	829.000004	0.005	844.000002	0.002
3.85	829.000002	0.003	844.000004	0.004
3.28	829.000001	0.001	844.000002	0.003

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 26			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	829.000002	0.002	844.000001	0.001
-20	829.000001	0.002	844.000001	0.001
-10	829.000002	0.002	844.000003	0.003
0	829.000001	0.002	844.000002	0.002
10	828.999998	-0.002	843.999997	-0.004
20	828.999999	-0.001	843.999998	-0.002
30	828.999997	-0.003	843.999998	-0.002
40	828.999997	-0.004	843.999996	-0.005
50	828.999998	-0.002	843.999999	-0.001

Frequency Error vs. Voltage

Voltage (Vdc)	LTE Band 26			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
4.43	831.500001	0.002	841.500003	0.004
3.85	831.500003	0.003	841.500002	0.002
3.28	831.500002	0.002	841.500003	0.004

Note: The applicant defined the normal working voltage is from 3.28Vdc to 4.43Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 26			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	831.500001	0.001	841.500001	0.002
-20	831.500001	0.002	841.500004	0.005
-10	831.500003	0.004	841.500003	0.004
0	831.500002	0.002	841.500003	0.004
10	831.499998	-0.003	841.499998	-0.003
20	831.499998	-0.003	841.499997	-0.004
30	831.499997	-0.003	841.499999	-0.002
40	831.499998	-0.002	841.499997	-0.003
50	831.499999	-0.001	841.499996	-0.005

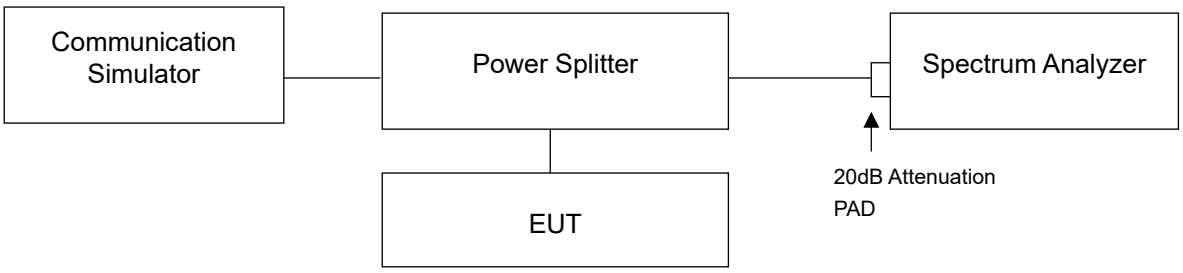
4.4 Occupied Bandwidth Measurement

4.4.1 Test Procedure

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Measurement method, please refer to section 5.4.4 of ANSI C63.26. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

For the 26dBc bandwidth measurement method, please refer to section 5.4.3 of ANSI C63.26.

4.4.2 Test Setup



4.4.3 Test Result

Occupied Bandwidth

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		WCDMA	HSDPA	HSUPA
4132	826.4	4.17	4.16	4.16
4182	836.4	4.17	4.16	4.16
4233	846.6	4.15	4.14	4.14

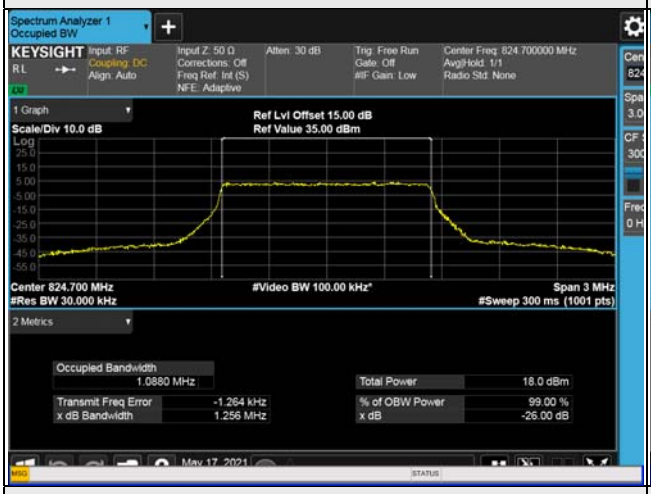
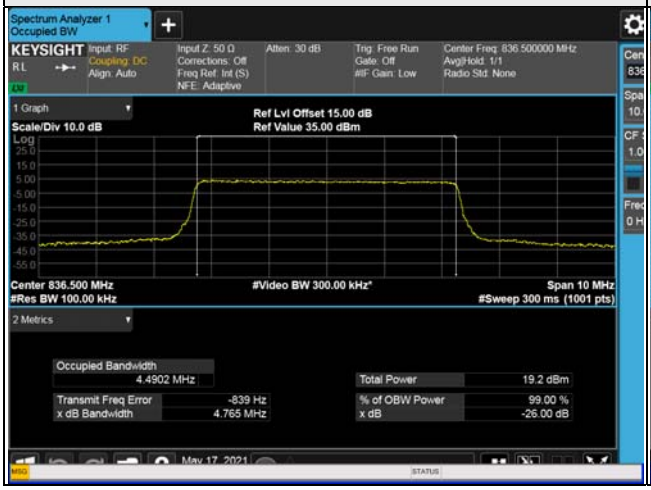
Spectrum Plot of Worst Value

WCDMA

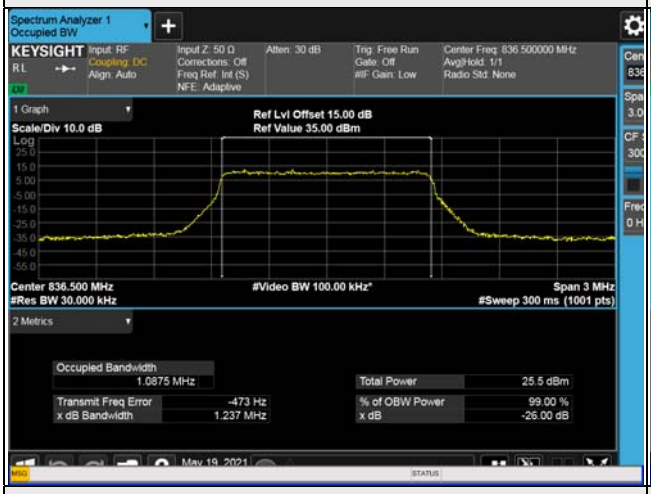
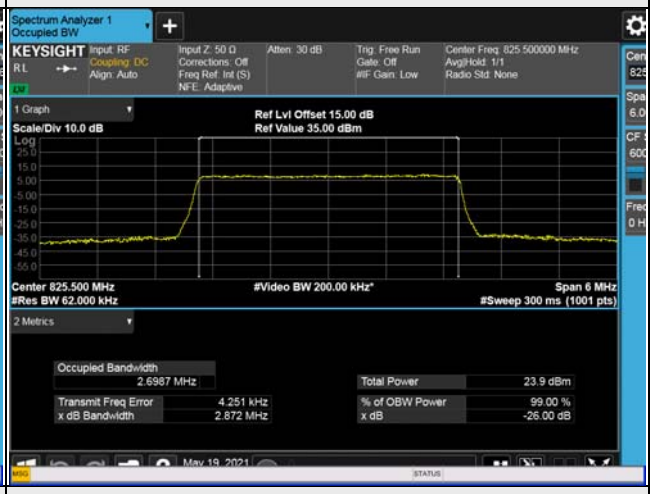
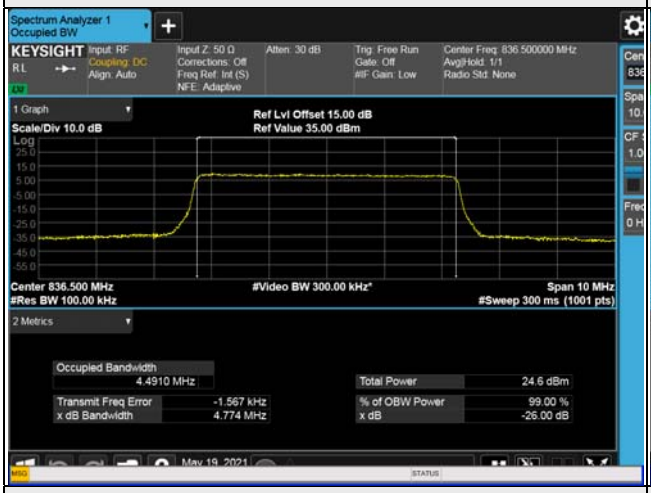
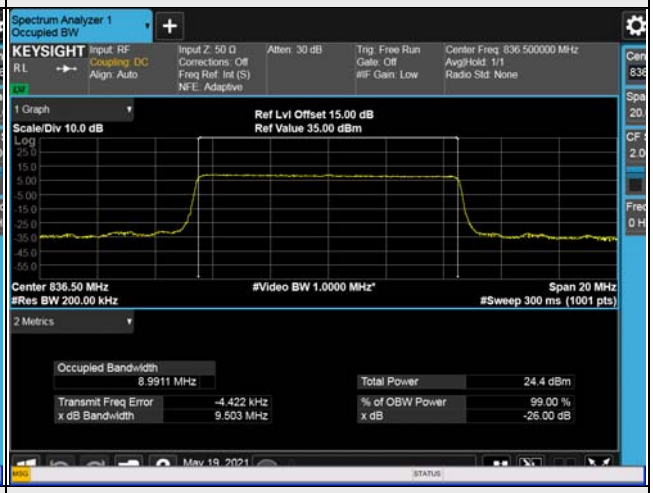
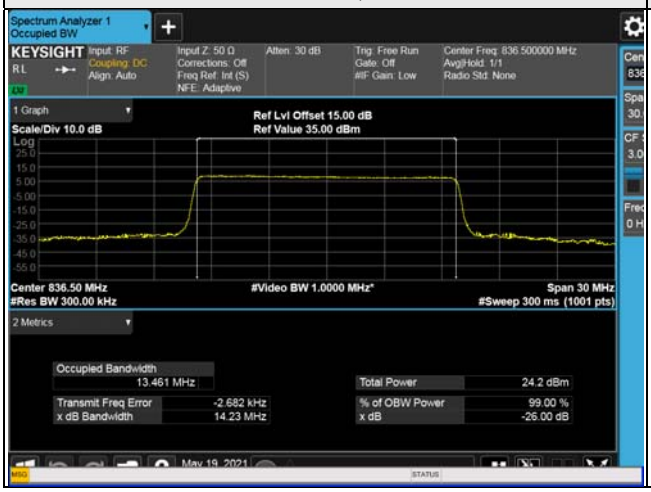
HSDPA

HSUPA

LTE Band 5, Channel Bandwidth 1.4MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
20407	824.7	1.09	1.09	1.09	1.09
20525	836.5	1.09	1.09	1.09	1.08
20643	848.3	1.09	1.09	1.09	1.09
LTE Band 5, Channel Bandwidth 3MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
20415	825.5	2.70	2.70	2.70	2.69
20525	836.5	2.70	2.70	2.70	2.70
20635	847.5	2.70	2.70	2.70	2.69
LTE Band 5, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
20425	826.5	4.49	4.49	4.48	4.49
20525	836.5	4.49	4.49	4.49	4.49
20625	846.5	4.48	4.48	4.48	4.48
LTE Band 5, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
20450	829.0	8.96	8.95	8.96	8.96
20525	836.5	8.96	8.96	8.95	8.96
20600	844.0	8.95	8.94	8.95	8.95

Spectrum Plot of Worst Value	
1.4MHz / 64QAM	3MHz / QPSK
	
5MHz / QPSK	10MHz / QPSK
	

LTE Band 26, Channel Bandwidth 1.4MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
26797	824.7	1.09	1.09	1.09	1.08
26915	836.5	1.09	1.09	1.09	1.08
27033	848.3	1.09	1.09	1.09	1.08
LTE Band 26, Channel Bandwidth 3MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
26805	825.5	2.70	2.70	2.70	2.69
26915	836.5	2.70	2.70	2.70	2.69
27025	847.5	2.70	2.70	2.69	2.69
LTE Band 26, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
26815	826.5	4.49	4.49	4.49	4.49
26915	836.5	4.49	4.49	4.49	4.49
27015	846.5	4.48	4.48	4.48	4.47
LTE Band 26, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
26840	829.0	8.98	8.96	8.96	8.96
26915	836.5	8.99	8.97	8.97	8.97
26990	844.0	8.95	8.94	8.94	8.95
LTE Band 26, Channel Bandwidth 15MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
26865	831.5	13.43	13.43	13.42	13.42
26915	836.5	13.46	13.45	13.45	13.45
26965	841.5	13.43	13.43	13.43	13.43

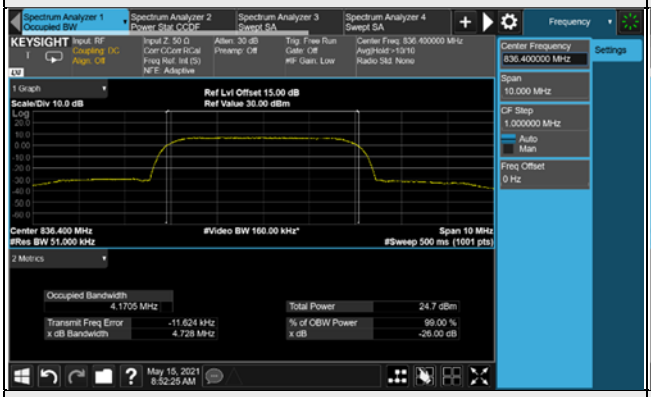
Spectrum Plot of Worst Value	
1.4MHz / QPSK	3MHz / 16QAM
	
5MHz / QPSK	10MHz / QPSK
	
15MHz / QPSK	
	

26dB Bandwidth

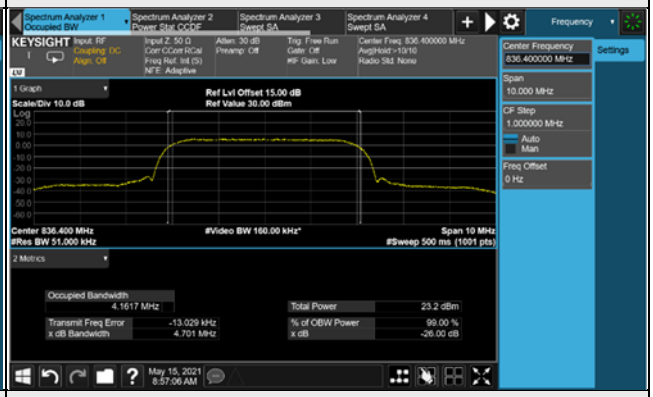
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		WCDMA	HSDPA	HSUPA
4132	826.4	4.72	4.70	4.70
4182	836.4	4.73	4.70	4.70
4233	846.6	4.72	4.69	4.68

Spectrum Plot of Worst Value

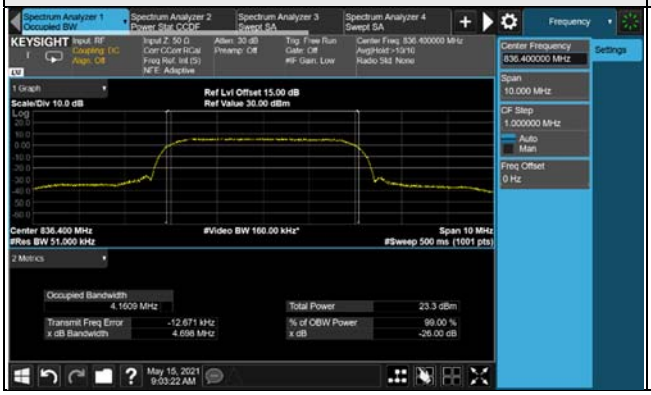
WCDMA



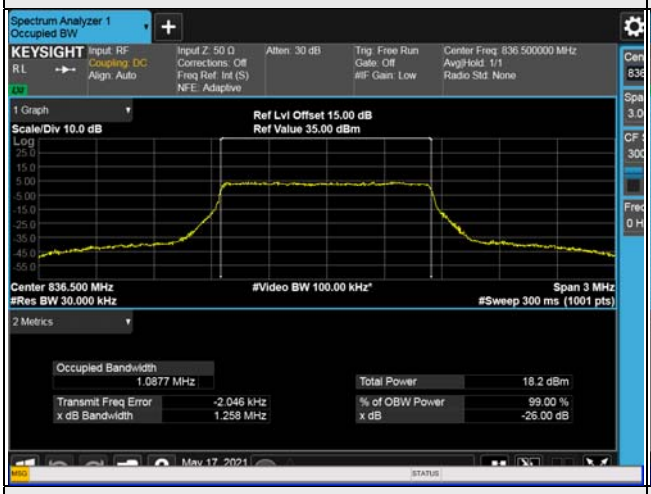
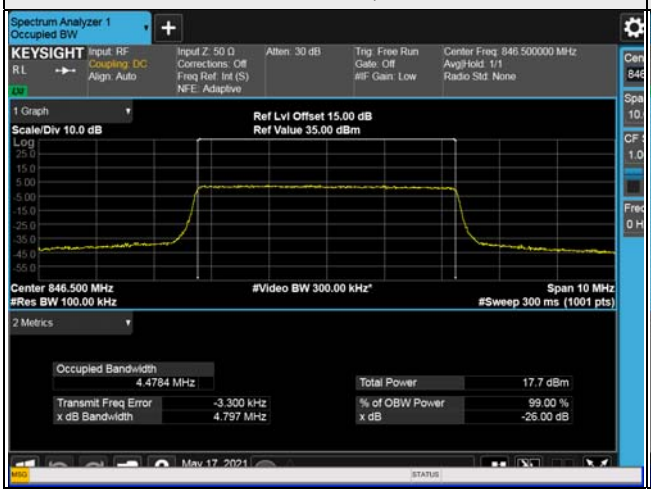
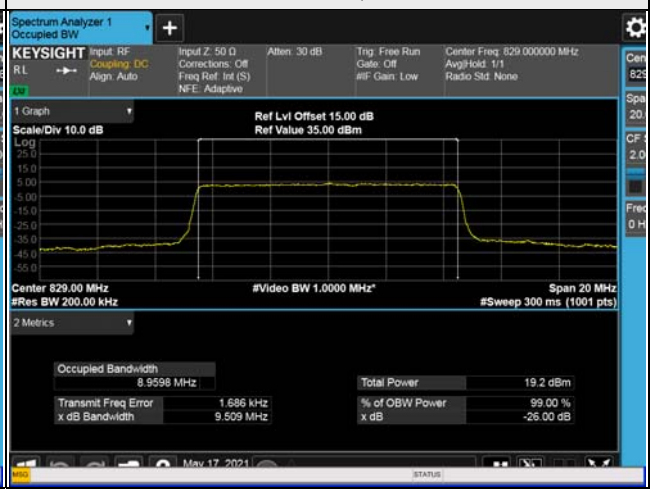
HSDPA



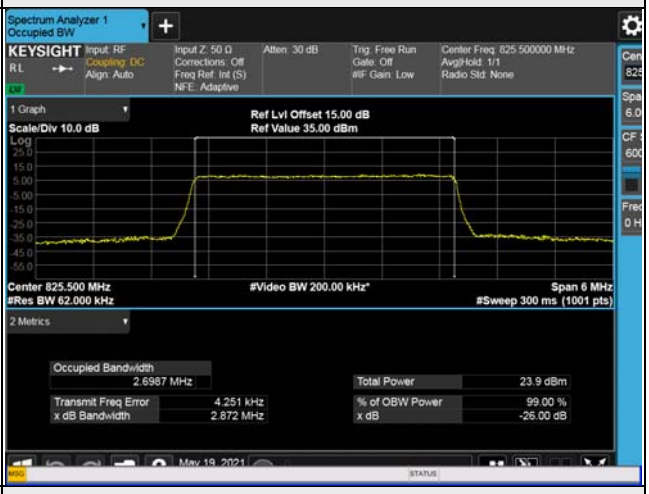
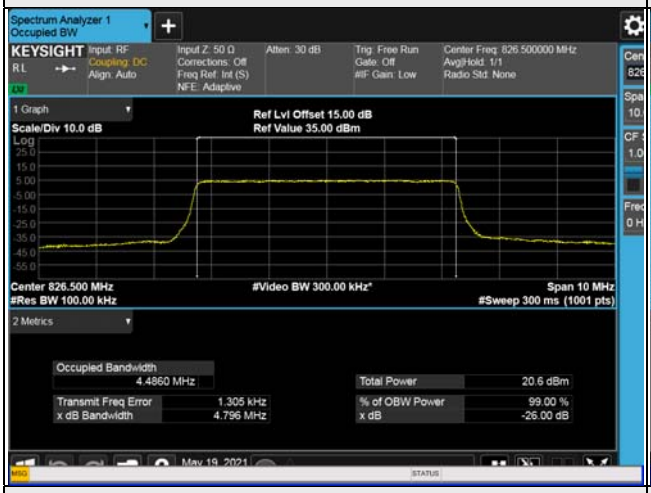
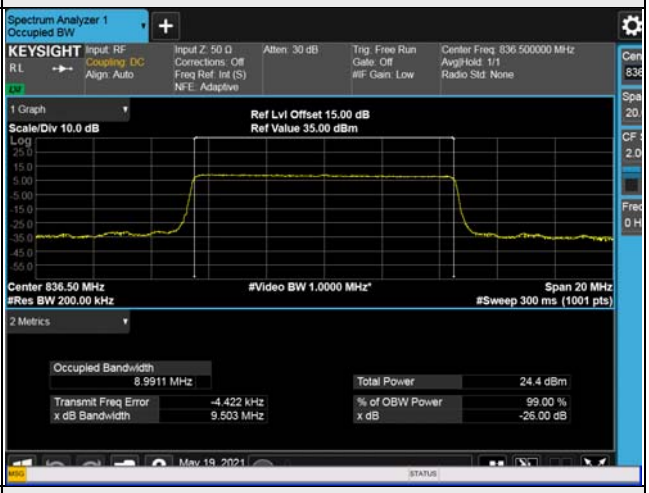
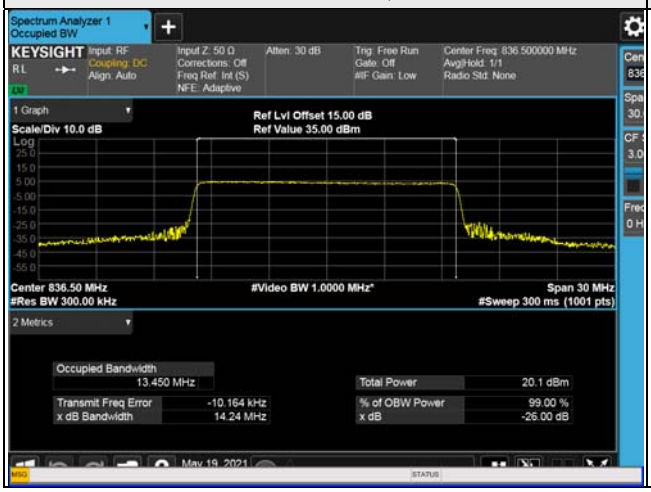
HSUPA



LTE Band 5, Channel Bandwidth 1.4MHz					
Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
20407	824.7	1.24	1.25	1.26	1.24
20525	836.5	1.24	1.25	1.26	1.21
20643	848.3	1.24	1.25	1.25	1.24
LTE Band 5, Channel Bandwidth 3MHz					
Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
20415	825.5	2.89	2.87	2.88	2.88
20525	836.5	2.88	2.88	2.88	2.87
20635	847.5	2.88	2.87	2.87	2.87
LTE Band 5, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
20425	826.5	4.79	4.77	4.77	4.76
20525	836.5	4.77	4.79	4.77	4.76
20625	846.5	4.75	4.80	4.77	4.77
LTE Band 5, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
20450	829.0	9.51	9.49	9.49	9.47
20525	836.5	9.51	9.51	9.49	9.50
20600	844.0	9.50	9.47	9.49	9.48

Spectrum Plot of Worst Value	
1.4MHz / 64QAM	3MHz / QPSK
	
5MHz / 16QAM	10MHz / QPSK
	

LTE Band 26, Channel Bandwidth 1.4MHz					
Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
26797	824.7	1.25	1.24	1.25	1.23
26915	836.5	1.24	1.25	1.26	1.23
27033	848.3	1.23	1.24	1.24	1.25
LTE Band 26, Channel Bandwidth 3MHz					
Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
26805	825.5	2.89	2.87	2.87	2.88
26915	836.5	2.88	2.87	2.87	2.88
27025	847.5	2.88	2.87	2.87	2.87
LTE Band 26, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
26815	826.5	4.79	4.78	4.79	4.80
26915	836.5	4.77	4.78	4.78	4.76
27015	846.5	4.76	4.76	4.77	4.76
LTE Band 26, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
26840	829.0	9.50	9.49	9.49	9.49
26915	836.5	9.50	9.50	9.48	9.50
26990	844.0	9.48	9.49	9.48	9.49
LTE Band 26, Channel Bandwidth 15MHz					
Channel	Frequency (MHz)	26dB Bandwidth (MHz)			
		QPSK	16QAM	64QAM	256QAM
26865	831.5	14.22	14.22	14.23	14.23
26915	836.5	14.23	14.21	14.23	14.24
26965	841.5	14.22	14.21	14.23	14.20

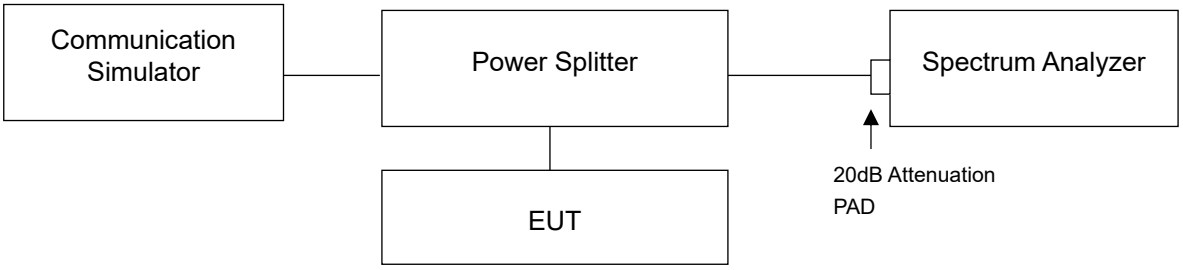
Spectrum Plot of Worst Value	
1.4MHz / QPSK	3MHz / QPSK
	
5MHz / 256QAM	10MHz / QPSK
	
15MHz / 256QAM	
	

4.5 Band Edge Measurement

4.5.1 Limits of Band Edge Measurement

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

4.5.2 Test Setup

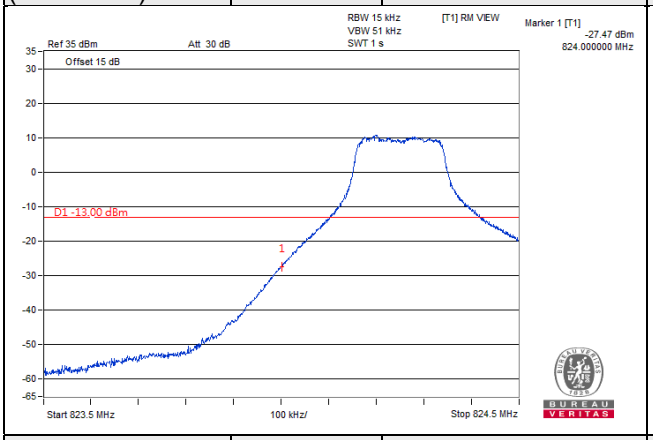
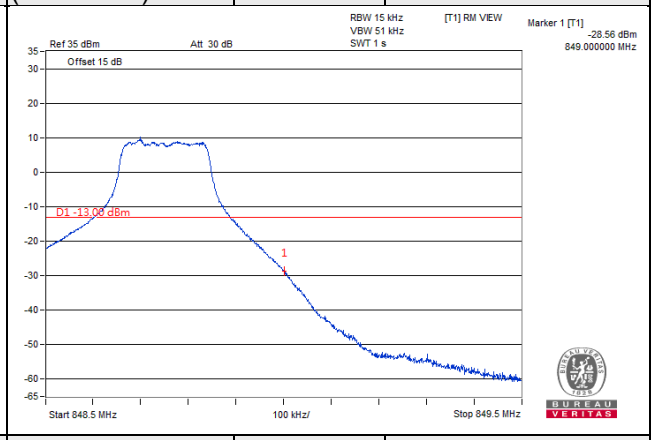
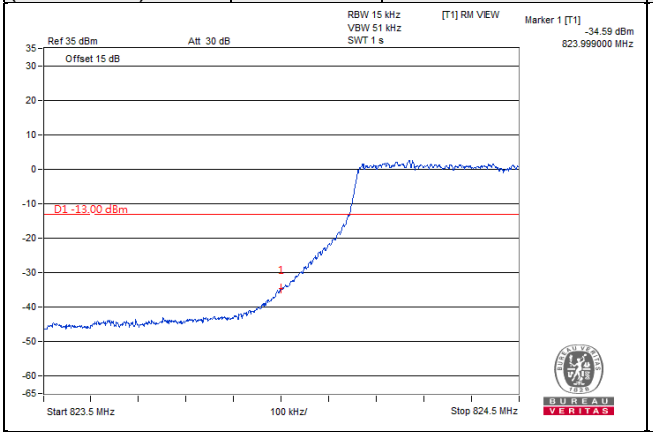
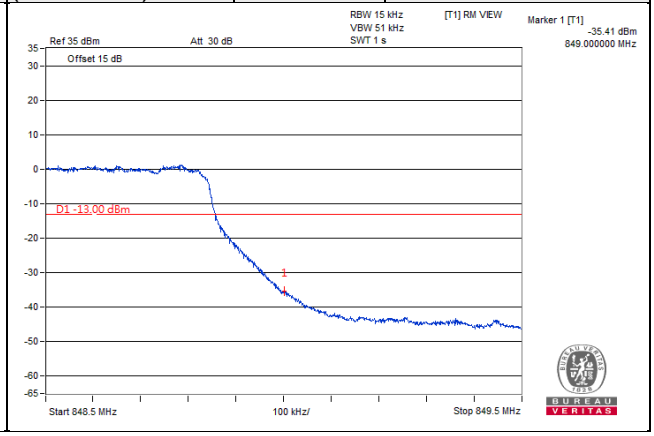


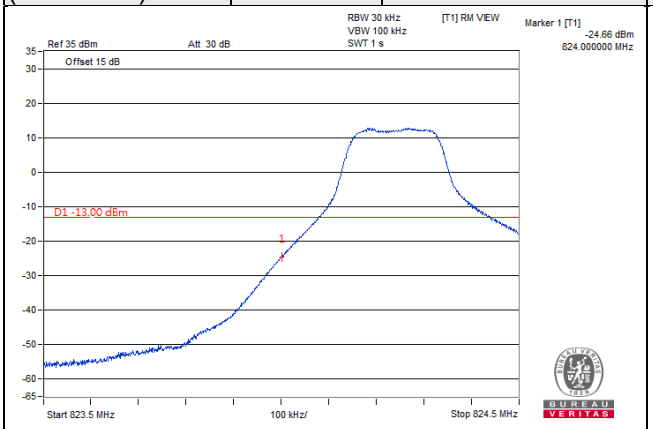
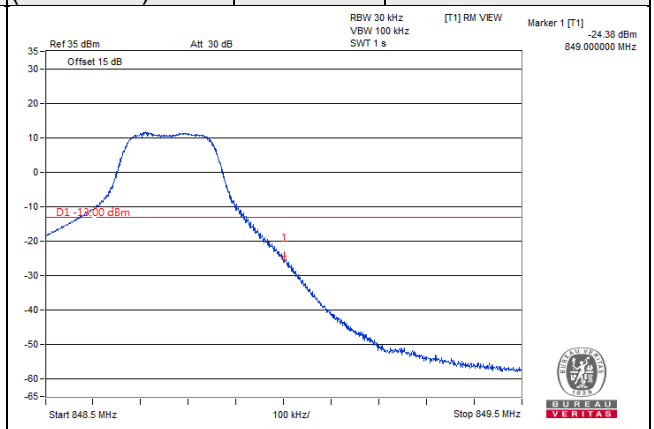
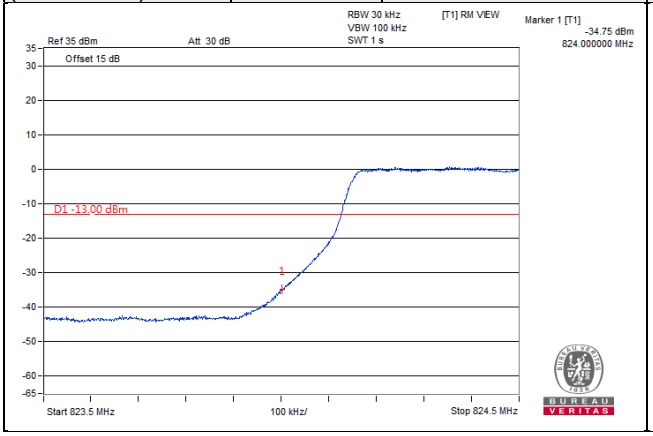
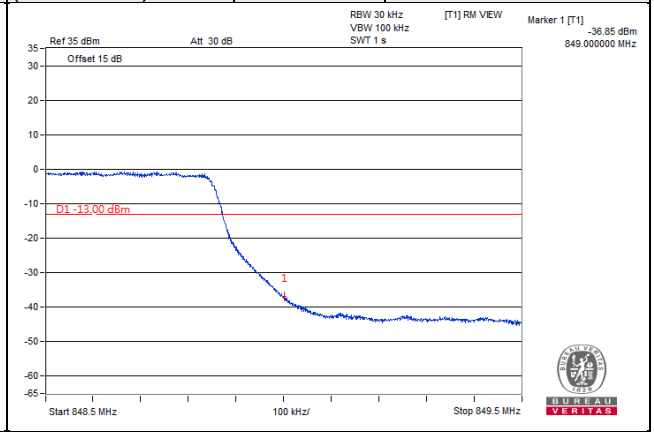
4.5.3 Test Procedures

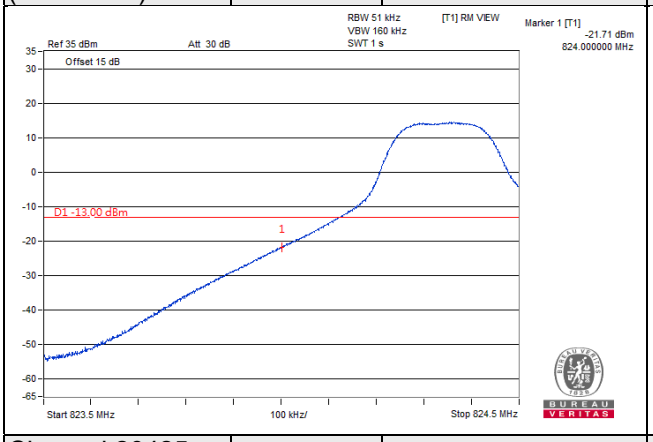
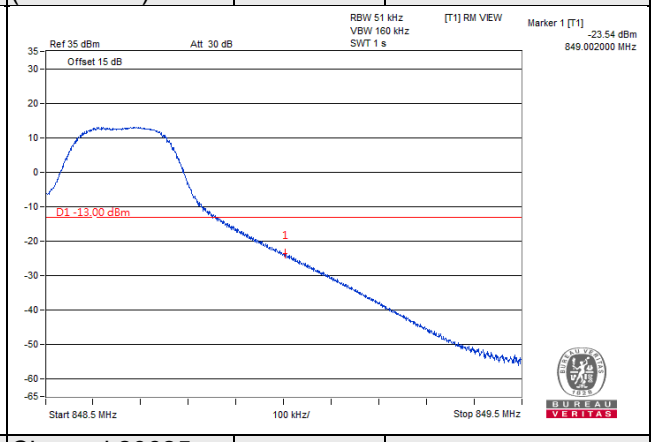
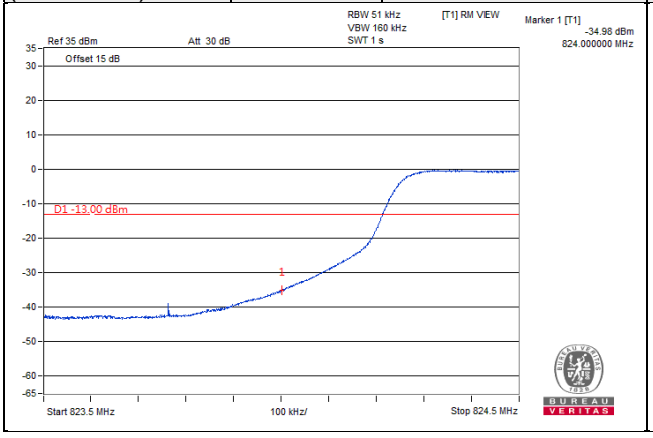
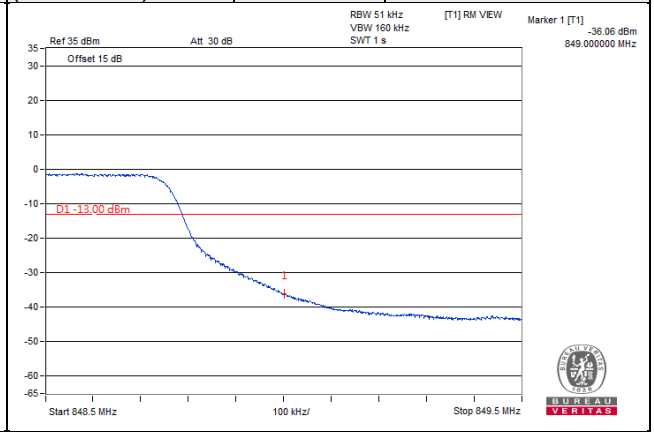
a. All measurements were done at low and high operational frequency range.
b. The center frequency of spectrum is the band edge frequency and span is 2MHz. RB of the spectrum is 51kHz and VB of the spectrum is 160kHz (WCDMA / HSDPA / HSUPA).
c. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 15kHz and VB of the spectrum is 51kHz (LTE Channel Bandwidth 1.4MHz).
d. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 30kHz and VB of the spectrum is 100kHz (LTE Channel Bandwidth 3MHz).
e. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 51kHz and VB of the spectrum is 160kHz (LTE Channel Bandwidth 5MHz).
f. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (LTE Channel Bandwidth 10MHz).
g. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 150kHz and VB of the spectrum is 470kHz (LTE Channel Bandwidth 15MHz).
h. Record the max trace plot into the test report.

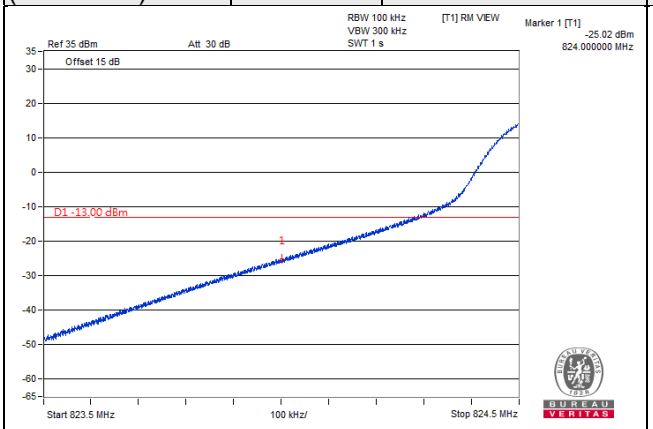
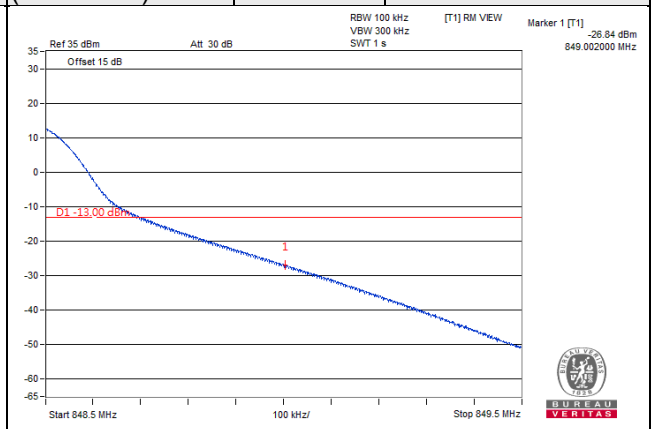
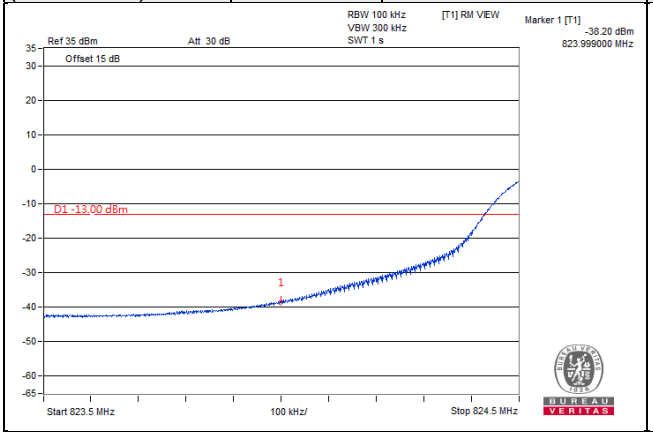
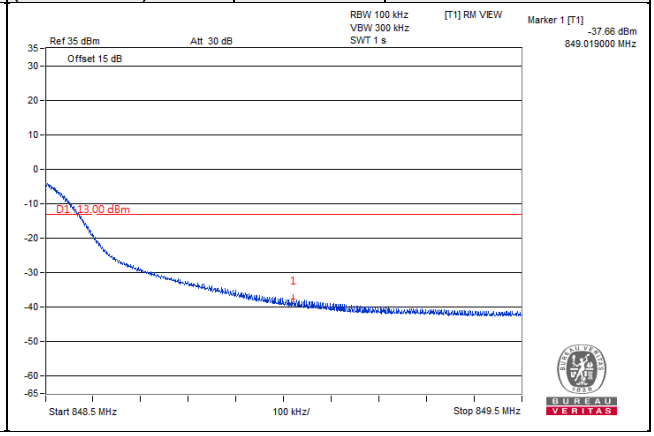
4.5.4 Test Results

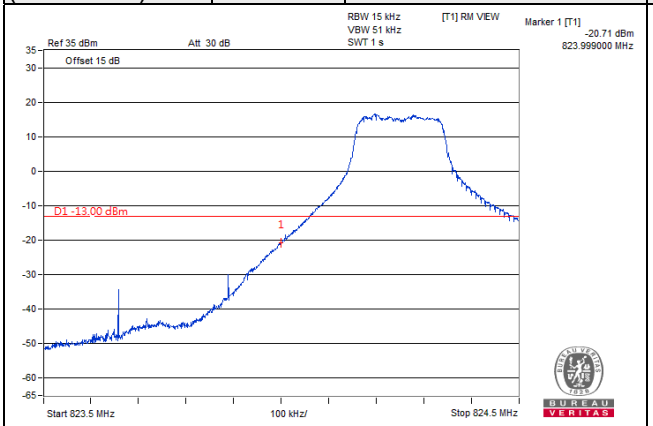
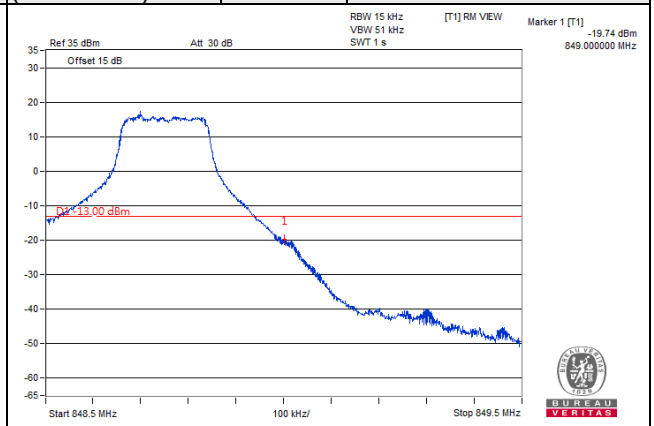
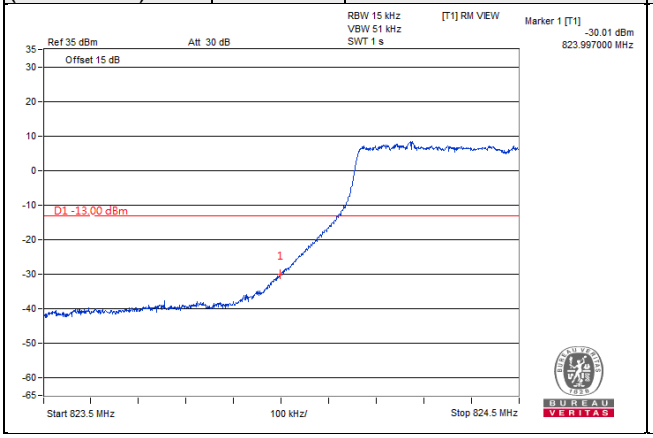
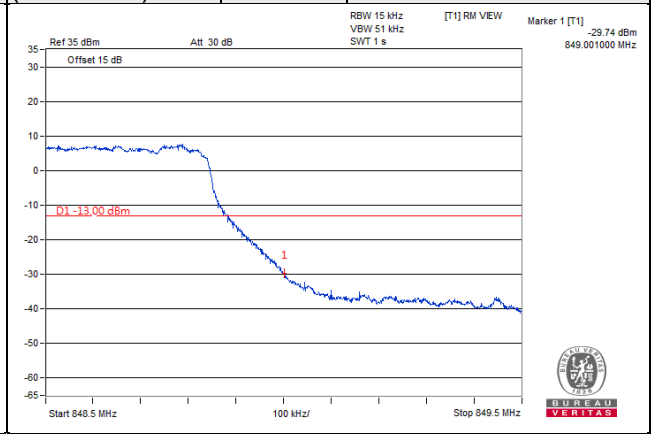
WCDMA			
Channel	4132 (826.4MHz)	Channel	4233 (846.6MHz)
			
HSDPA			
Channel	4132 (826.4MHz)	Channel	4233 (846.6MHz)
			
HSUPA			
Channel	4132 (826.4MHz)	Channel	4233 (846.6MHz)
			

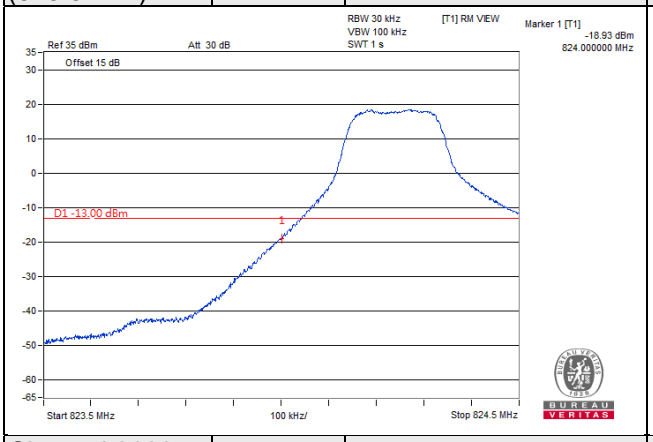
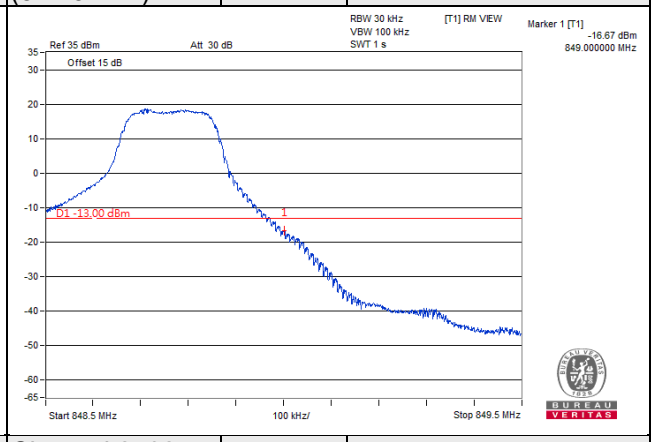
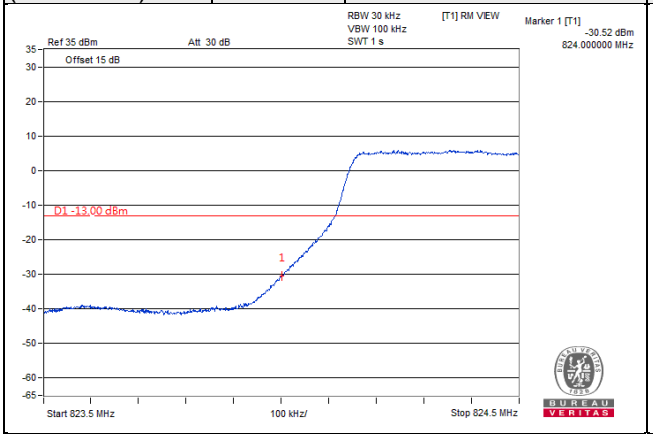
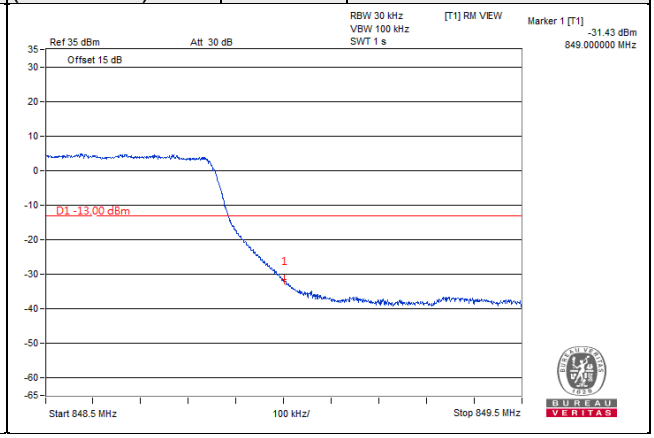
LTE Band 5, Channel Bandwidth 1.4MHz					
Channel 20407 (824.7MHz)	QPSK	1 RB / 0 RB Offset	Channel 20643 (848.3MHz)	QPSK	1 RB / 5 RB Offset
					
Channel 20407 (824.7MHz)	QPSK	6 RB / 0 RB Offset	Channel 20643 (848.3MHz)	QPSK	6 RB / 0 RB Offset
					

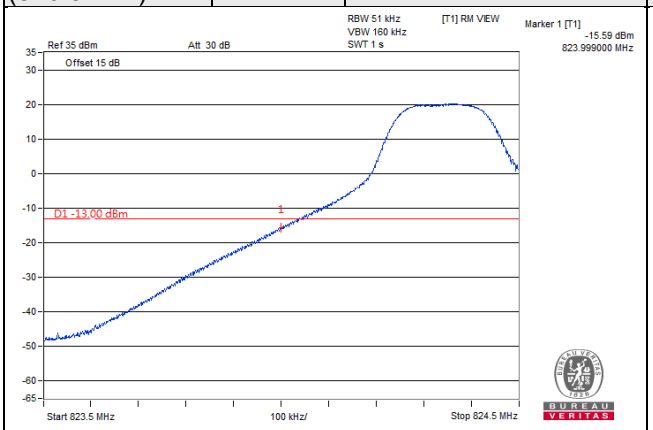
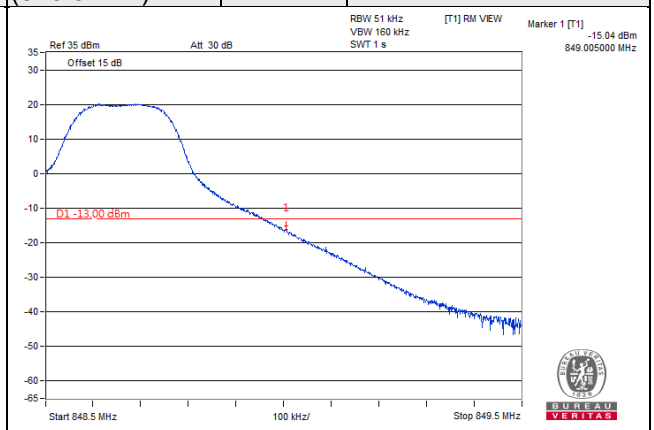
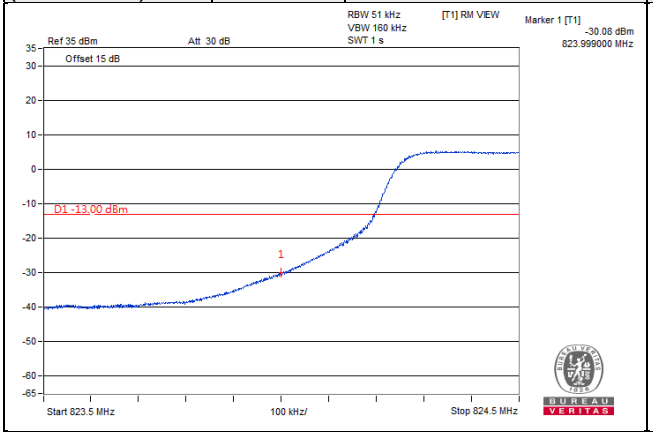
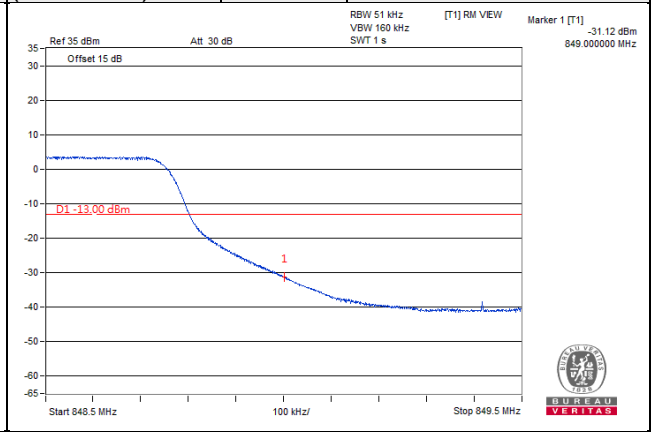
LTE Band 5, Channel Bandwidth 3MHz					
Channel 20415 (825.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 20635 (847.5MHz)	QPSK	1 RB / 14 RB Offset
					
Channel 20415 (825.5MHz)	QPSK	15 RB / 0 RB Offset	Channel 20635 (847.5MHz)	QPSK	15 RB / 0 RB Offset
					

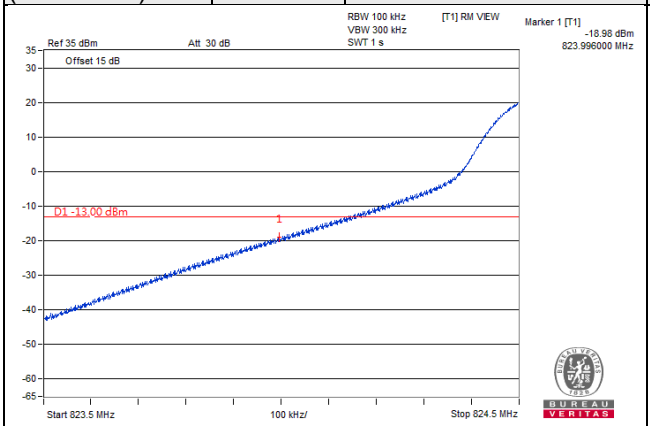
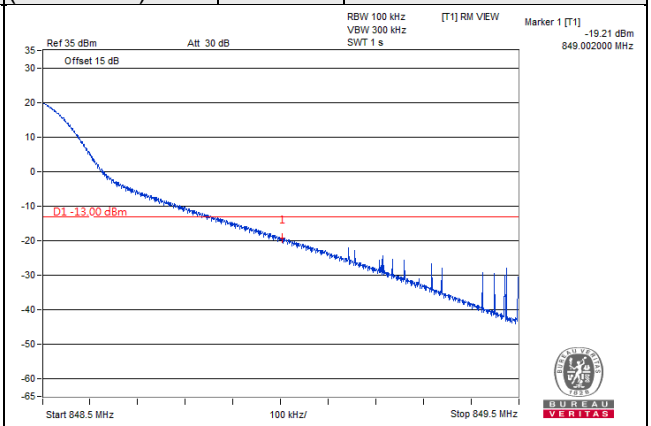
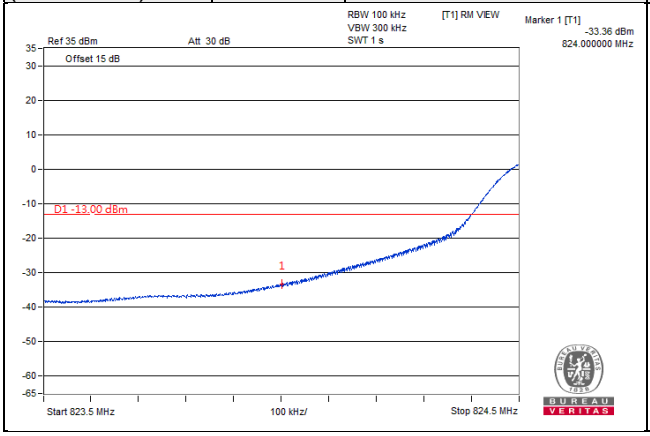
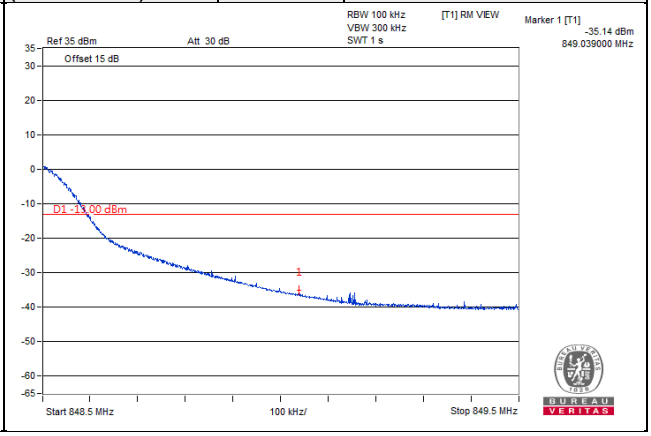
LTE Band 5, Channel Bandwidth 5MHz					
Channel 20425 (826.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 20625 (846.5MHz)	QPSK	1 RB / 24 RB Offset
					
Channel 20425 (826.5MHz)	QPSK	25 RB / 0 RB Offset	Channel 20625 (846.5MHz)	QPSK	25 RB / 0 RB Offset
					

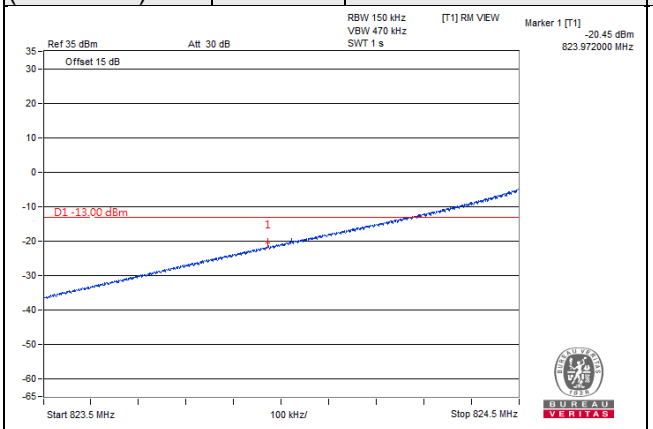
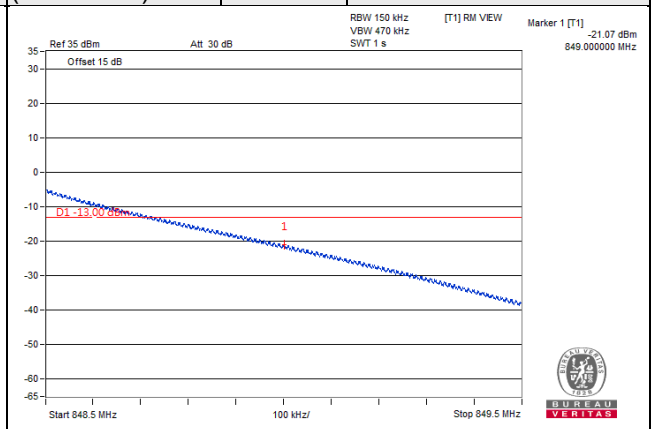
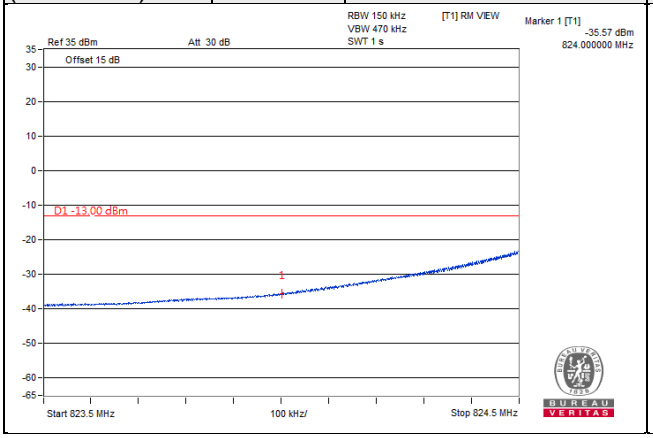
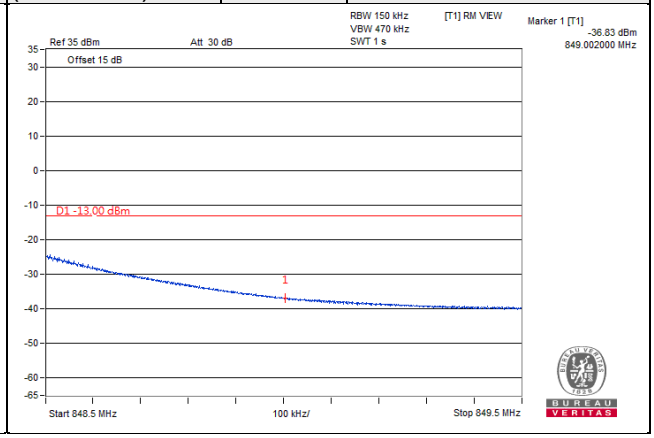
LTE Band 5, Channel Bandwidth 10MHz					
Channel 20450 (829.0MHz)	QPSK	1 RB / 0 RB Offset	Channel 20600 (844.0MHz)	QPSK	1 RB / 49 RB Offset
					
Channel 20450 (829.0MHz)	QPSK	50 RB / 0 RB Offset	Channel 20600 (844.0MHz)	QPSK	50 RB / 0 RB Offset
					

LTE Band 26, Channel Bandwidth 1.4MHz					
Channel 26797 (824.7MHz)	QPSK	1 RB / 0 RB Offset	Channel 27033 (848.3MHz)	QPSK	1 RB / 5 RB Offset
					
Channel 26797 (824.7MHz)	QPSK	6 RB / 0 RB Offset	Channel 27033 (848.3MHz)	QPSK	6 RB / 0 RB Offset
					

LTE Band 26, Channel Bandwidth 3MHz					
Channel 26805 (825.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 27025 (847.5MHz)	QPSK	1 RB / 14 RB Offset
					
Channel 26805 (825.5MHz)	QPSK	15 RB / 0 RB Offset	Channel 27025 (847.5MHz)	QPSK	15 RB / 0 RB Offset
					

LTE Band 26, Channel Bandwidth 5MHz					
Channel 26815 (826.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 27015 (846.5MHz)	QPSK	1 RB / 24 RB Offset
					
Channel 26815 (826.5MHz)	QPSK	25 RB / 0 RB Offset	Channel 27015 (846.5MHz)	QPSK	25 RB / 0 RB Offset
					

LTE Band 26, Channel Bandwidth 10MHz					
Channel 26840 (829.0MHz)	QPSK	1 RB / 0 RB Offset	Channel 26990 (844.0MHz)	QPSK	1 RB / 49 RB Offset
					
Channel 26840 (829.0MHz)	QPSK	50 RB / 0 RB Offset	Channel 26990 (844.0MHz)	QPSK	50 RB / 0 RB Offset
					

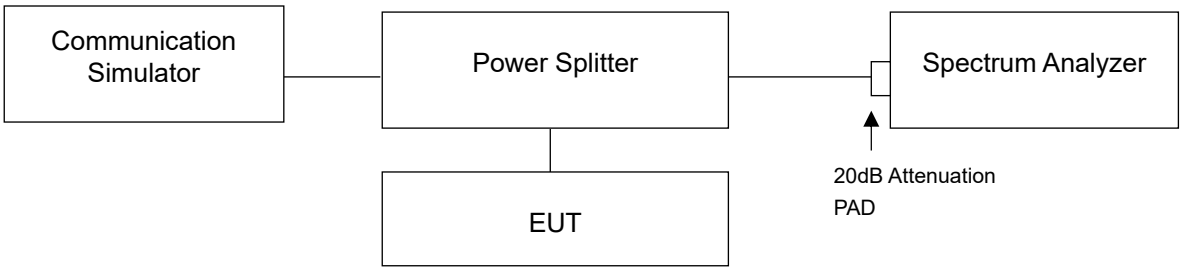
LTE Band 26, Channel Bandwidth 15MHz					
Channel 26865 (831.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 26965 (841.5MHz)	QPSK	1 RB / 74 RB Offset
					
Channel 26865 (831.5MHz)	QPSK	75 RB / 0 RB Offset	Channel 26965 (841.5MHz)	QPSK	75 RB / 0 RB Offset
					

4.6 Peak to Average Ratio

4.6.1 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

4.6.2 Test Setup

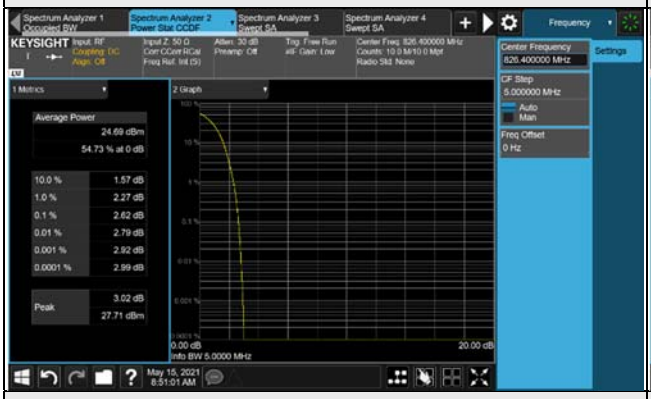
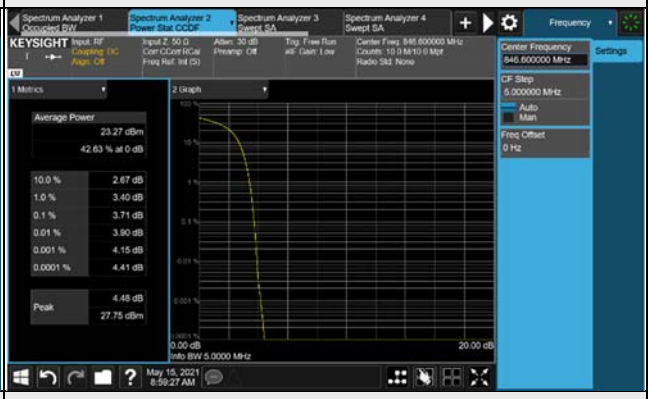
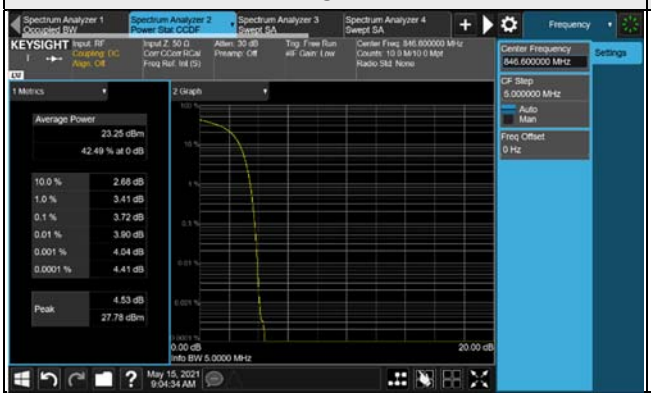


4.6.3 Test Procedures

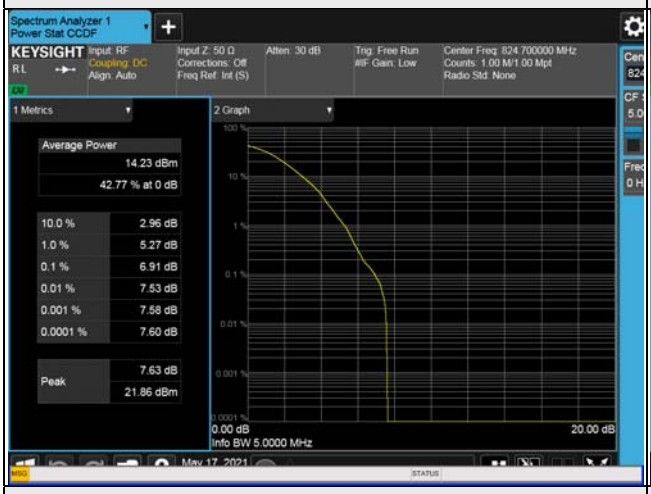
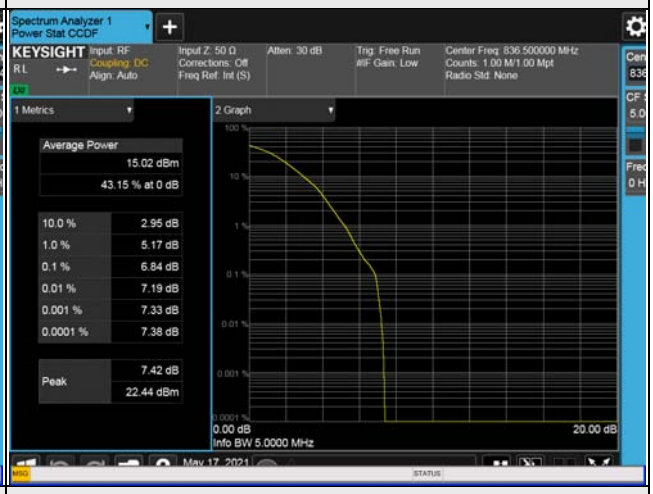
a. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
b. Set the number of counts to a value that stabilizes the measured CCDF curve;
c. Record the maximum PAPR level associated with a probability of 0.1%.

4.6.4 Test Results

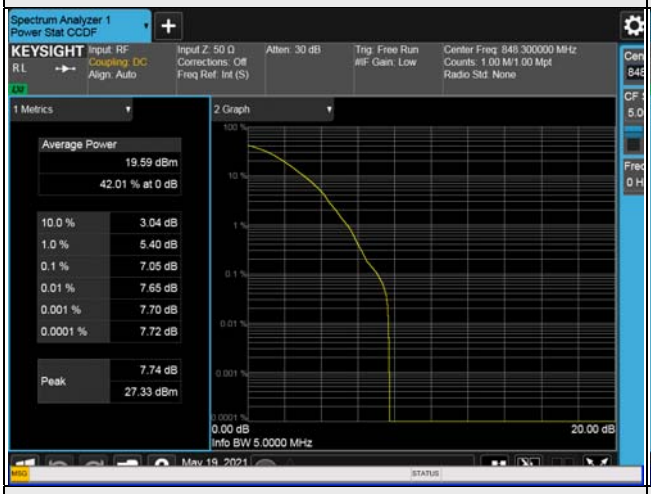
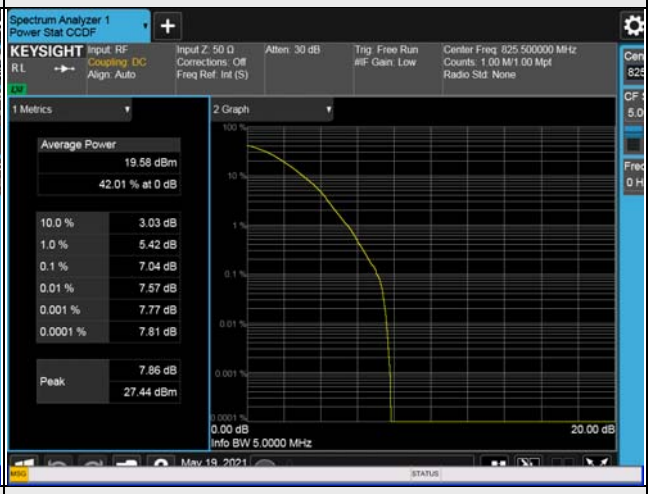
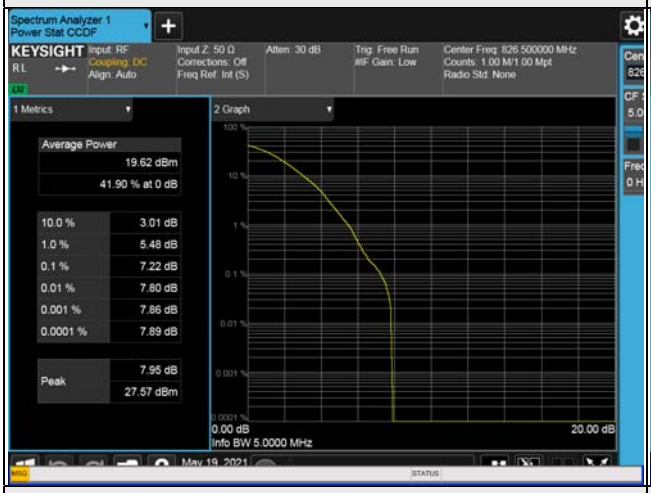
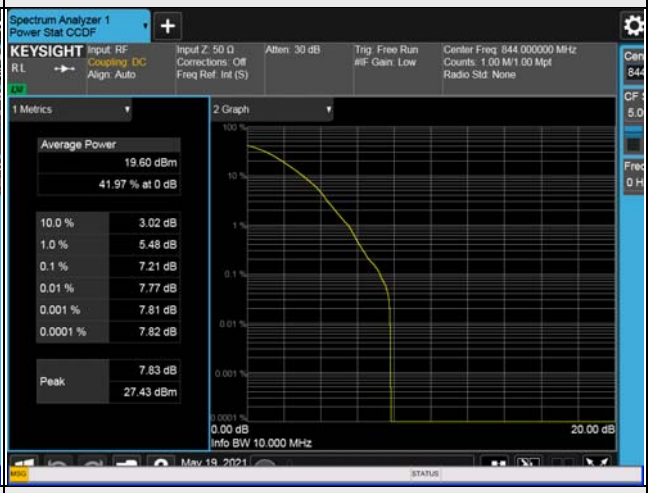
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		WCDMA	HSDPA	HSUPA
4132	826.4	2.62	3.61	3.62
4182	836.4	2.52	3.57	3.56
4233	846.6	2.57	3.71	3.72

Spectrum Plot of Worst Value	
WCDMA	HSDPA
	
HSUPA	
	

LTE Band 5, Channel Bandwidth 1.4MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
20407	824.7	5.69	6.50	6.64	6.91
20525	836.5	5.60	6.42	6.54	6.68
20643	848.3	5.65	6.50	6.63	6.78
LTE Band 5, Channel Bandwidth 3MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
20415	825.5	5.66	6.55	6.64	6.72
20525	836.5	5.47	6.35	6.44	6.84
20635	847.5	5.58	6.44	6.50	6.64
LTE Band 5, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
20425	826.5	5.60	6.53	6.66	6.78
20525	836.5	5.51	6.33	6.49	6.75
20625	846.5	5.63	6.48	6.60	6.93
LTE Band 5, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
20450	829.0	5.63	6.53	6.68	6.99
20525	836.5	5.51	6.34	6.57	6.71
20600	844.0	5.66	6.49	6.57	6.90

Spectrum Plot of Worst Value	
1.4MHz / 256QAM	3MHz / 256QAM
	
5MHz / 256QAM	10MHz / 256QAM
	

LTE Band 26, Channel Bandwidth 1.4MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
26797	824.7	4.86	5.73	6.37	7.03
26915	836.5	4.63	5.49	6.11	7.02
27033	848.3	4.71	5.53	6.15	7.05
LTE Band 26, Channel Bandwidth 3MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
26805	825.5	4.84	5.87	6.38	7.04
26915	836.5	4.62	5.49	6.12	6.62
27025	847.5	4.53	5.58	6.02	6.99
LTE Band 26, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
26815	826.5	4.87	5.75	6.34	7.22
26915	836.5	4.68	5.50	6.02	6.68
27015	846.5	4.82	5.63	6.26	6.97
LTE Band 26, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
26840	829.0	4.86	5.77	6.33	7.16
26915	836.5	4.64	5.53	6.03	6.83
26990	844.0	4.96	5.80	6.45	7.21
LTE Band 26, Channel Bandwidth 15MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
26865	831.5	4.88	5.71	6.24	7.17
26915	836.5	4.77	5.61	6.26	6.91
26965	841.5	4.68	5.50	5.82	6.87

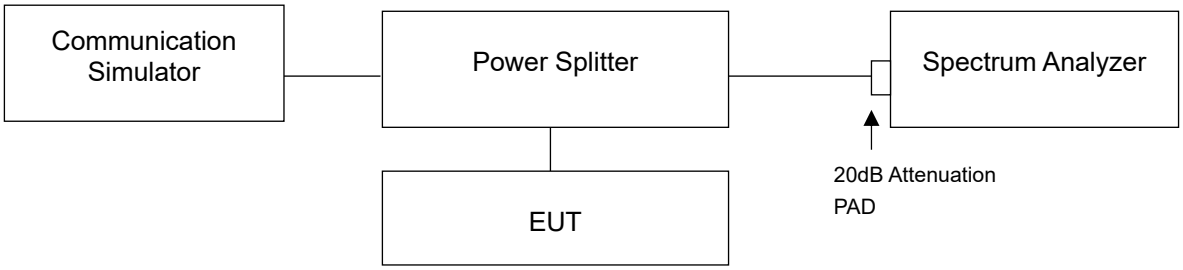
Spectrum Plot of Worst Value	
1.4MHz / 256QAM	3MHz / 256QAM
	
5MHz / 256QAM	10MHz / 256QAM
	
15MHz / 256QAM	
	

4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

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

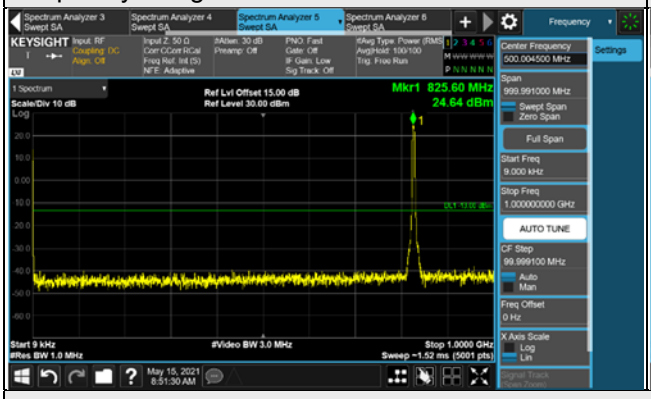
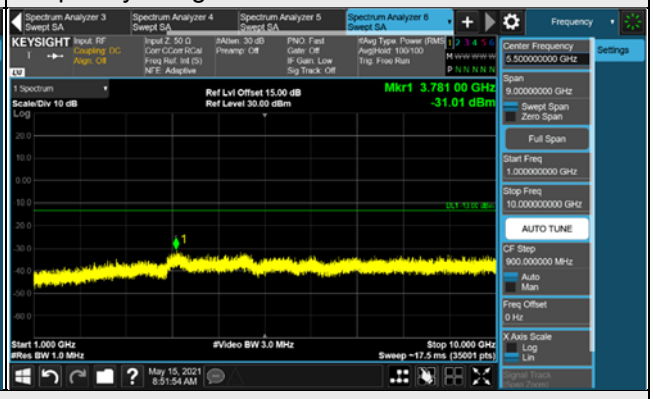
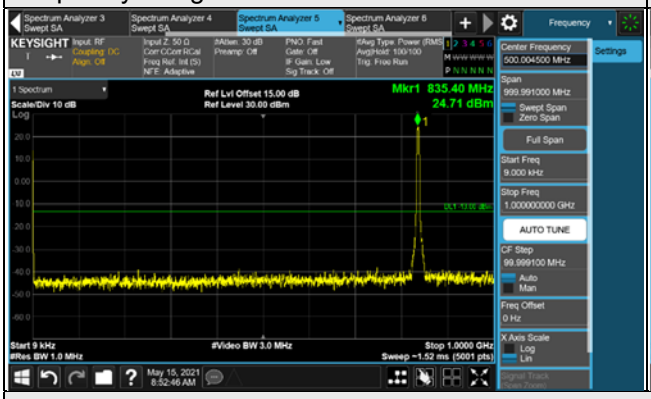
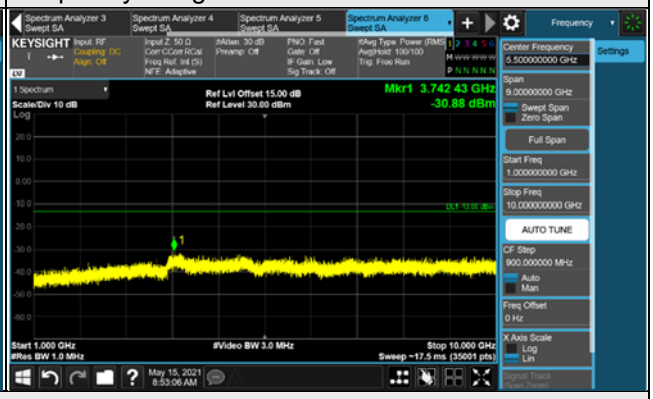
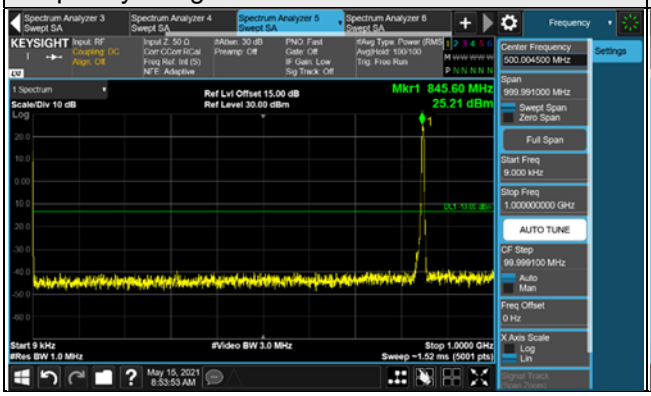
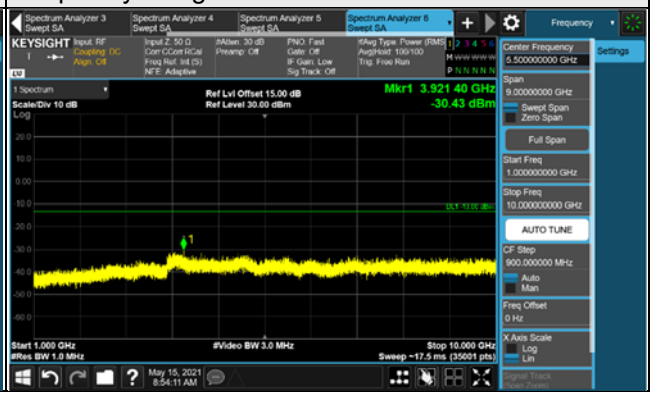
4.7.2 Test Setup



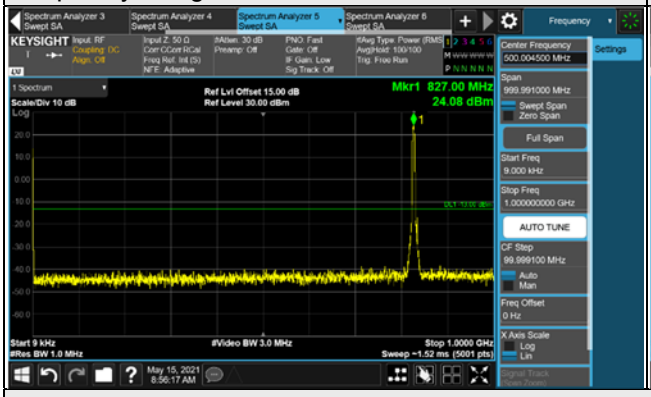
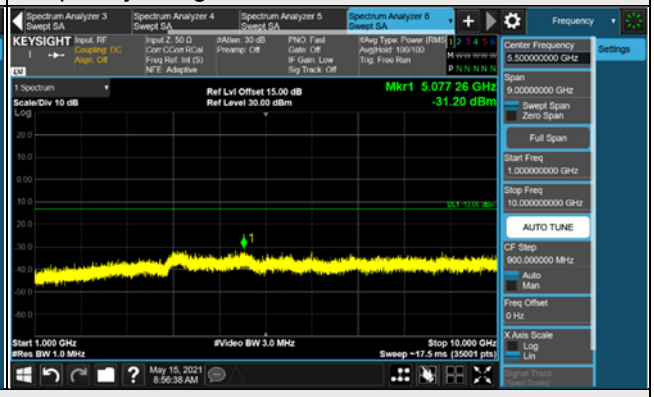
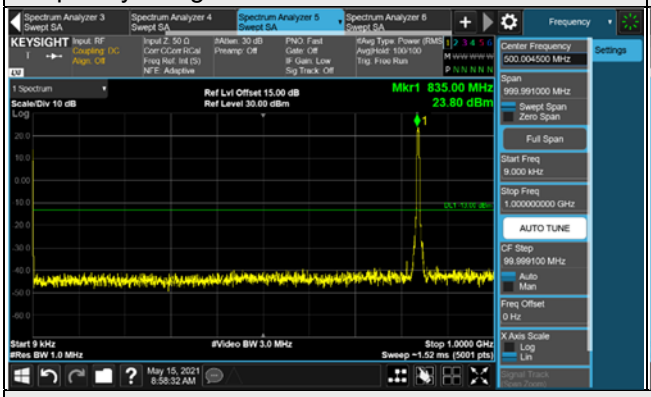
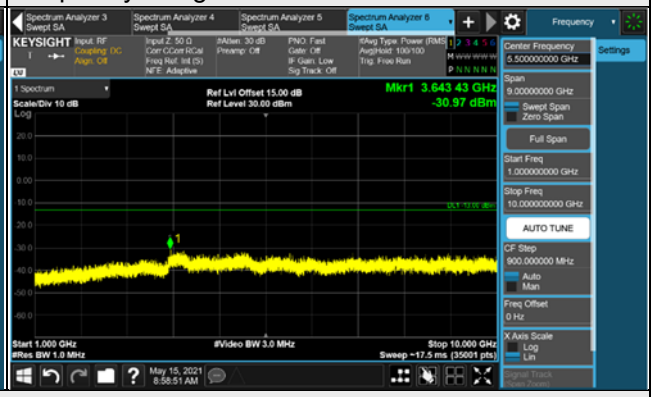
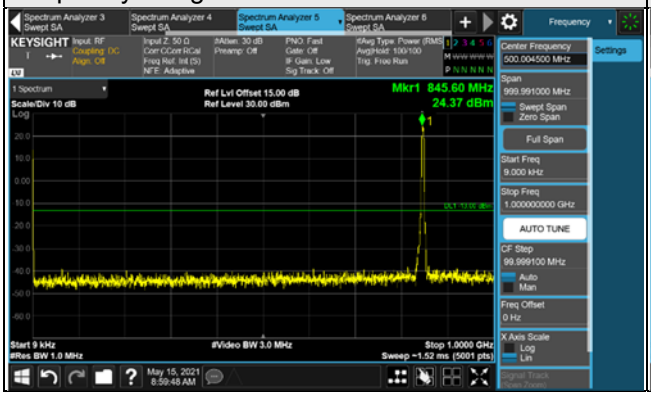
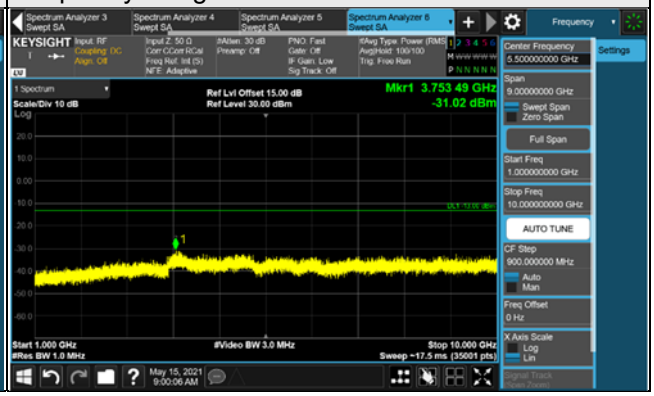
4.7.3 Test Procedure

a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
b. Measuring frequency range is from 9kHz to 10GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz are used for WCDMA band conducted emission measurement.
c. Measuring frequency range is from 9kHz to 9GHz. 20dB attenuation pad is connected with spectrum. RBW=100kHz and VBW=300kHz for 9kHz to 1GHz and RBW=1MHz and VBW=3MHz for 1 GHz to 9GHz are used for LTE band conducted emission measurement.

4.7.4 Test Results

WCDMA	
Channel 4132 (826.4MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 10GHz
	
Channel 4182 (836.4MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 10GHz
	
Channel 4233 (846.6MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 10GHz
	

*The 9kHz signal over the limit is from Spectrum.

HSDPA	
Channel 4132 (826.4MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 10GHz
	
Channel 4182 (836.4MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 10GHz
	
Channel 4233 (846.6MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 10GHz
	

*The 9kHz signal over the limit is from Spectrum.