FCC Test Report
(Part 22)

Report No.: RF190130C26-6

FCC ID: 2ASPU-HERA51

Test Model: HERA51

Received Date: Jan. 30, 2019

Test Date: Feb. 13 ~ Mar. 05, 2019

Issued Date: Mar. 13, 2019

Applicant: mPLUS Technology Co., Ltd.

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

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

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

FCC Registration / Designation Number: 788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RF190130C26-6	Original release	Mar. 13, 2019

1 Certificate of Conformity

Product: mobile POS

Brand: mPLUS

Test Model: HERA51

Sample Status: Engineering sample

Applicant: mPLUS Technology Co., Ltd.

Test Date: Feb. 13 ~ Mar. 05, 2019

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:** Mar. 13, 2019
Polly Chien / Specialist

Approved by : _____ , **Date:** Mar. 13, 2019
Bruce Chen / 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
---	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 -23.9dB at 45.52MHz.

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	3.63 dB
	200MHz ~1000MHz	3.64 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Test Site and Instruments

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

Note:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 4.
3. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
4. The IC Site Registration No. is 7450F-4.

3 General Information

3.1 General Description of EUT

Product	mobile POS		
Brand	mPLUS		
Test Model	HERA51		
Sample Status	Engineering sample		
Power Supply Rating	5Vdc (adapter) 3.75Vdc (battery)		
Modulation Type	GSM, GPRS: GMSK EDGE: 8PSK CDMA: QPSK, OQPSK, HPSK WCDMA: BPSK, QPSK HSDPA: BPSK HSUPA: QPSK LTE: QPSK, 16QAM		
Operating Frequency	GSM/GPRS/EDGE	824.2~848.8MHz	
	CDMA	824.7~848.31MHz	
	WCDMA Band 5	826.4~846.6MHz	
	LTE Band 5 (Channel Bandwidth 1.4MHz)	824.7~848.3MHz	
	LTE Band 5 (Channel Bandwidth 3MHz)	825.5~847.5MHz	
	LTE Band 5 (Channel Bandwidth 5MHz)	826.5~846.5MHz	
	LTE Band 5 (Channel Bandwidth 10MHz)	829.0~844.0MHz	
	LTE Band 26 (Channel Bandwidth 1.4MHz)	824.7~848.3MHz	
	LTE Band 26 (Channel Bandwidth 3MHz)	825.5~847.5MHz	
	LTE Band 26 (Channel Bandwidth 5MHz)	826.5~846.5MHz	
	LTE Band 26 (Channel Bandwidth 10MHz)	829.0~844.0MHz	
	LTE Band 26 (Channel Bandwidth 15MHz)	831.5~841.5MHz	
Max. ERP Power	GSM/GPRS/EDGE	2089.296mW (33.2dBm)	
	CDMA	107.152mW (20.3dBm)	
	WCDMA Band 5	213.796mW (23.3dBm)	
		QPSK	16QAM
	LTE Band 5 (Channel Bandwidth 1.4MHz)	144.544mW (21.6dBm)	107.152mW (20.3dBm)
	LTE Band 5 (Channel Bandwidth 3MHz)	162.181mW (22.1dBm)	109.648mW (20.4dBm)
	LTE Band 5 (Channel Bandwidth 5MHz)	154.882mW (21.9dBm)	109.648mW (20.4dBm)
	LTE Band 5 (Channel Bandwidth 10MHz)	151.356mW (21.8dBm)	109.648mW (20.4dBm)
	LTE Band 26 (Channel Bandwidth 1.4MHz)	138.038mW (21.4dBm)	109.648mW (20.4dBm)
	LTE Band 26 (Channel Bandwidth 3MHz)	154.882mW (21.9dBm)	114.815mW (20.6dBm)
	LTE Band 26 (Channel Bandwidth 5MHz)	147.911mW (21.7dBm)	102.329mW (20.1dBm)
	LTE Band 26 (Channel Bandwidth 10MHz)	154.882mW (21.9dBm)	114.815mW (20.6dBm)
	LTE Band 26 (Channel Bandwidth 15MHz)	151.356mW (21.8dBm)	114.815mW (20.6dBm)

Emission Designator	GSM/GPRS/EDGE	260KGXW	
	CDMA	1M28F9W	
	WCDMA Band 5	4M13F9W	
		QPSK	16QAM
	LTE Band 5 (Channel Bandwidth 1.4MHz)	1M09G7D	1M09D7W
	LTE Band 5 (Channel Bandwidth 3MHz)	2M70G7D	2M70D7W
	LTE Band 5 (Channel Bandwidth 5MHz)	4M48G7D	4M49D7W
	LTE Band 5 (Channel Bandwidth 10MHz)	8M96G7D	8M97D7W
	LTE Band 26 (Channel Bandwidth 1.4MHz)	1M09G7D	1M09D7W
	LTE Band 26 (Channel Bandwidth 3MHz)	2M70G7D	2M69D7W
	LTE Band 26 (Channel Bandwidth 5MHz)	4M49G7D	4M48D7W
	LTE Band 26 (Channel Bandwidth 10MHz)	8M96G7D	8M96D7W
	LTE Band 26 (Channel Bandwidth 15MHz)	13M4G7D	13M4D7W
Antenna Type	Refer to Note		
Antenna Connector	Refer to Note		
Accessory Device	Refer to Note		
Cable Supplied	1.45m non-shielded snapon cable with one core		

Note:

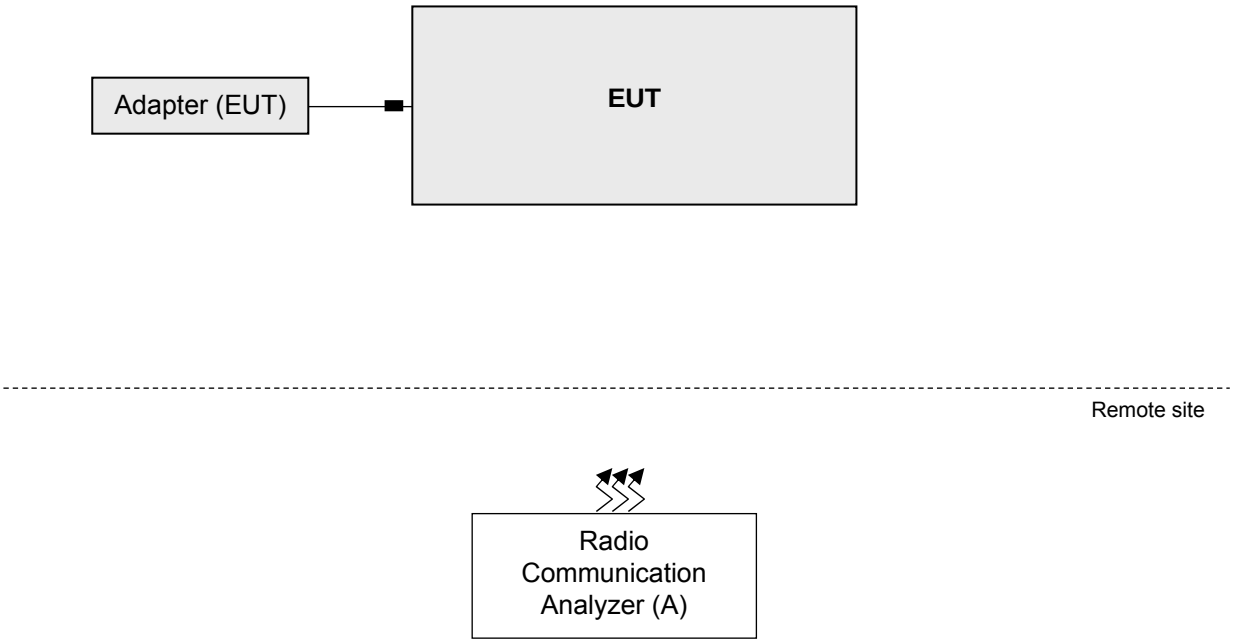
1. The EUT uses following antennas.

Antenna Type	Antenna Connector	Antenna Gain (dBi)		
		Ant.	Main (TX/RX)	Diversity (RX)
PIFA	Spring	GSM 850	2.9	-4.0
		CDMA BC0	2.9	-4.0
		WCDMA Band 5	2.9	-4.0
		LTE Band 5	2.9	-4.0
		LTE Band 26	2.9	-4.0

2. The EUT uses following accessory devices.

Component	Vendor	Model	Specification
Adapter	Sunny COMPUTER TECHNOLOGY CO.,LTD.	SYS1561-1005	I/P: 100-240Vac, 1.0A MAX, 50-60Hz O/P: +5Vdc, 2A, 10W MAX.
Battery	CIPHERLAB	BA-0115A3	Rating: 3.75Vdc, 5300mAh, 19.88Wh

3.2 Configuration of System under Test



3.2.1 Description of Support Units

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

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

Note:

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

3.3 Test Mode Applicability and Tested Channel Detail

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

GSM Mode

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	ERP	128 to 251	128(824.2MHz), 189(836.4MHz), 251(848.8MHz)	GSM
-	Modulation Characteristics	128 to 251	128(824.2MHz)	GSM, GPRS, EDGE
-	Frequency Stability	128 to 251	128(824.2MHz)	GSM, EDGE
-	Occupied Bandwidth	128 to 251	128(824.2MHz), 189(836.4MHz), 251(848.8MHz)	GSM, GPRS, EDGE
-	Band Edge	128 to 251	128(824.2MHz), 251(848.8MHz)	GSM, GPRS, EDGE
-	Peak To Average Ratio	128 to 251	128(824.2MHz), 189(836.4MHz), 251(848.8MHz)	GSM, GPRS, EDGE
-	Conducted Emission	128 to 251	128(824.2MHz), 189(836.4MHz), 251(848.8MHz)	GSM, GPRS, EDGE
-	Radiated Emission Below 1GHz	128 to 251	128(824.2MHz)	GSM
-	Radiated Emission Above 1GHz	128 to 251	128(824.2MHz), 189(836.4MHz), 251(848.8MHz)	GSM

CDMA Mode

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	ERP	1013 to 777	1013(824.7MHz), 384(836.52MHz), 777(848.31MHz)	RC3+SO55
-	Modulation Characteristics	1013 to 777	1013(824.7MHz)	RC1+SO03
-	Frequency Stability	1013 to 777	1013(824.7MHz), 777(848.31MHz)	RC3+SO55
-	Occupied Bandwidth	1013 to 777	1013(824.7MHz), 384(836.52MHz), 777(848.31MHz)	RC3+SO55
-	Band Edge	1013 to 777	1013(824.7MHz), 777(848.31MHz)	RC3+SO55
-	Peak To Average Ratio	1013 to 777	1013(824.7MHz), 384(836.52MHz), 777(848.31MHz)	RC3+SO55
-	Conducted Emission	1013 to 777	1013(824.7MHz), 384(836.52MHz), 777(848.31MHz)	RC3+SO55
-	Radiated Emission Below 1GHz	1013 to 777	1013(824.7MHz)	RC3+SO55
-	Radiated Emission Above 1GHz	1013 to 777	1013(824.7MHz), 384(836.52MHz), 777(848.31MHz)	RC3+SO55

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
-	Modulation Characteristics	4132 to 4233	4132 (826.4MHz)	WCDMA, HSDPA, HSUPA
-	Frequency Stability	4132 to 4233	4132 (826.4MHz)	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	4132 (826.4MHz)	WCDMA
-	Radiated Emission Above 1GHz	4132 to 4233	4132 (826.4MHz), 4182 (836.4MHz), 4233 (846.6MHz)	WCDMA

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	1 RB / 0 RB Offset
		20415 to 20635	20415(825.5MHz), 20525(836.5MHz), 20635(847.5MHz)	3MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		20425 to 20625	20425(826.5MHz), 20525(836.5MHz), 20625(846.5MHz)	5MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		20450 to 20600	20450(829.0MHz), 20525(836.5MHz), 20600(844.0MHz)	10MHz	QPSK / 16QAM	1 RB / 0 RB Offset
-	Modulation characteristics	20407 to 20643	20525(836.5MHz)	10MHz	QPSK / 16QAM	1 RB / 49 RB Offset
-	Frequency Stability	20407 to 20643	20407(824.7MHz), 20643(848.3MHz)	1.4MHz	QPSK	1 RB / 5 RB Offset
		20415 to 20635	20415(825.5MHz), 20635(847.5MHz)	3MHz	QPSK	1 RB / 14 RB Offset
		20425 to 20625	20425(826.5MHz), 20625(846.5MHz)	5MHz	QPSK	1 RB / 24 RB Offset
		20450 to 20600	20450(829.0MHz), 20600(844.0MHz)	10MHz	QPSK	1 RB / 49 RB Offset
-	Occupied Bandwidth	20407 to 20643	20407(824.7MHz), 20525(836.5MHz), 20643(848.3MHz)	1.4MHz	QPSK / 16QAM	5 RB / 0RB Offset
		20415 to 20635	20415(825.5MHz), 20525(836.5MHz), 20635(847.5MHz)	3MHz	QPSK / 16QAM	14 RB / 0RB Offset
		20425 to 20625	20425(826.5MHz), 20525(836.5MHz), 20625(846.5MHz)	5MHz	QPSK / 16QAM	24RB / 0RB Offset
		20450 to 20600	20450(829.0MHz), 20525(836.5MHz), 20600(844.0MHz)	10MHz	QPSK / 16QAM	49RB / 0RB Offset
-	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

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

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	1 RB / 5 RB Offset
		26805 to 27025	26805 (825.5MHz), 26915 (836.5MHz), 27025 (847.5MHz)	3MHz	QPSK / 16QAM	1 RB / 14 RB Offset
		26815 to 27015	26815 (826.5MHz), 26915 (836.5MHz), 27015 (846.5MHz)	5MHz	QPSK / 16QAM	1 RB / 24 RB Offset
		26840 to 26990	26840 (829MHz), 26915 (836.5MHz), 26990 (844MHz)	10MHz	QPSK / 16QAM	1 RB / 49 RB Offset
		26865 to 26965	26865 (831.5MHz), 26915 (836.5MHz), 26965 (841.5MHz)	15MHz	QPSK / 16QAM	1 RB / 74 RB Offset
-	Modulation Characteristics	26865 to 26965	26865 (831.5MHz)	15MHz	QPSK / 16QAM	1 RB / 74 RB Offset
-	Frequency Stability	26797 to 27033	26797 (824.7MHz), 27033 (848.3MHz)	1.4MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		26805 to 27025	26805 (825.5MHz), 27025 (847.5MHz)	3MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		26815 to 27015	26815 (826.5MHz), 27015 (846.5MHz)	5MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		26840 to 26990	26840 (829MHz), 26990 (844MHz)	10MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		26865 to 26965	26865 (831.5MHz), 26965 (841.5MHz)	15MHz	QPSK / 16QAM	1 RB / 0 RB Offset
-	Occupied Bandwidth	26797 to 27033	26797 (824.7MHz), 26915 (836.5MHz), 27033 (848.3MHz)	1.4MHz	QPSK / 16QAM	1 RB / 6 RB Offset
		26805 to 27025	26805 (825.5MHz), 26915 (836.5MHz), 27025 (847.5MHz)	3MHz	QPSK / 16QAM	1 RB / 15 RB Offset
		26815 to 27015	26815 (826.5MHz), 26915 (836.5MHz), 27015 (846.5MHz)	5MHz	QPSK / 16QAM	1 RB / 25 RB Offset
		26840 to 26990	26840 (829MHz), 26915 (836.5MHz), 26990 (844MHz)	10MHz	QPSK / 16QAM	1 RB / 50 RB Offset
		26865 to 26965	26865 (831.5MHz), 26915 (836.5MHz), 26965 (841.5MHz)	15MHz	QPSK / 16QAM	1 RB / 75 RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	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 (829MHz), 26990 (844MHz)	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	1 RB / 0 RB Offset
		26805 to 27025	26805 (825.5MHz), 26915 (836.5MHz), 27025 (847.5MHz)	3MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		26815 to 27015	26815 (826.5MHz), 26915 (836.5MHz), 27015 (846.5MHz)	5MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		26840 to 26990	26840 (829MHz), 26915 (836.5MHz), 26990 (844MHz)	10MHz	QPSK / 16QAM	1 RB / 0 RB Offset
		26865 to 26965	26865 (831.5MHz), 26915 (836.5MHz), 26965 (841.5MHz)	15MHz	QPSK / 16QAM	1 RB / 0 RB Offset
-	Conducted Emission	26797 to 27033	26797 (824.7MHz), 26915 (836.5MHz), 27033 (848.3MHz)	1.4MHz	QPSK	1 RB / 5 RB Offset
		26805 to 27025	26805 (825.5MHz), 26915 (836.5MHz), 27025 (847.5MHz)	3MHz	QPSK	1 RB / 14 RB Offset
		26815 to 27015	26815 (826.5MHz), 26915 (836.5MHz), 27015 (846.5MHz)	5MHz	QPSK	1 RB / 24 RB Offset
		26840 to 26990	26840 (829MHz), 26915 (836.5MHz), 26990 (844MHz)	10MHz	QPSK	1 RB / 49 RB Offset
		26865 to 26965	26865 (831.5MHz), 26915 (836.5MHz), 26965 (841.5MHz)	15MHz	QPSK	1 RB / 74 RB Offset

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
-	Radiated Emission Below 1GHz	26815 to 27015	26815 (826.5MHz)	5MHz	QPSK	1 RB / 24 RB Offset
-	Radiated Emission Above 1GHz	26797 to 27033	26797 (824.7MHz), 26915 (836.5MHz), 27033 (848.3MHz)	1.4MHz	QPSK	1 RB / 5 RB Offset
		26815 to 27015	26815 (826.5MHz), 26915 (836.5MHz), 27015 (846.5MHz)	5MHz	QPSK	1 RB / 14 RB Offset
		26865 to 26965	26865 (831.5MHz), 26915 (836.5MHz), 26965 (841.5MHz)	15MHz	QPSK	1 RB / 74 RB Offset

Note:
1. For radiated emission below 1GHz, low, mid and high channels were pre-tested in chamber. Low channel was the worst case for all final tests.
2. The conducted output power for QPSK and 16QAM, measured value of QPSK is higher than 16QAM mode. Therefore, Occupied bandwidth and Peak to average ratio items were tested under QPSK and 16QAM modes, and the other test items were tested under QPSK mode only.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
ERP	25deg. C, 70%RH 22deg. C, 66%RH	120Vac, 60Hz	Noah Chang, Greg Lin, Han Wu
Modulation Characteristics	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Frequency Stability	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Occupied Bandwidth	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Band Edge	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Peak To Average Ratio	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Conducted Emission	24deg. C, 64%RH	120Vac, 60Hz	James Yang
Radiated Emission	25deg. C, 70%RH 22deg. C, 66%RH	120Vac, 60Hz	Luis Lee Noah Chang, Han Wu

3.4 EUT Operating Conditions

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

3.5 General Description of Applied Standards

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 v03r01
ANSI/TIA/EIA-603-E 2016
ANSI 63.26-2015

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 1MHz for GSM, 5MHz for CDMA and WCDMA mode, 10MHz for LTE mode.

b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m(below or equal 1GHz) and/or 1.5m(above 1GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.

c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G

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

Where:

$ERP/EIRP = P_{Meas} + G_T - L_C$

P_{Meas} : Measure transmitter output power.
G_T : Gain of the transmitting antenna.
L_C : signal attenuation in the connecting cable between the transmitter and antenna.

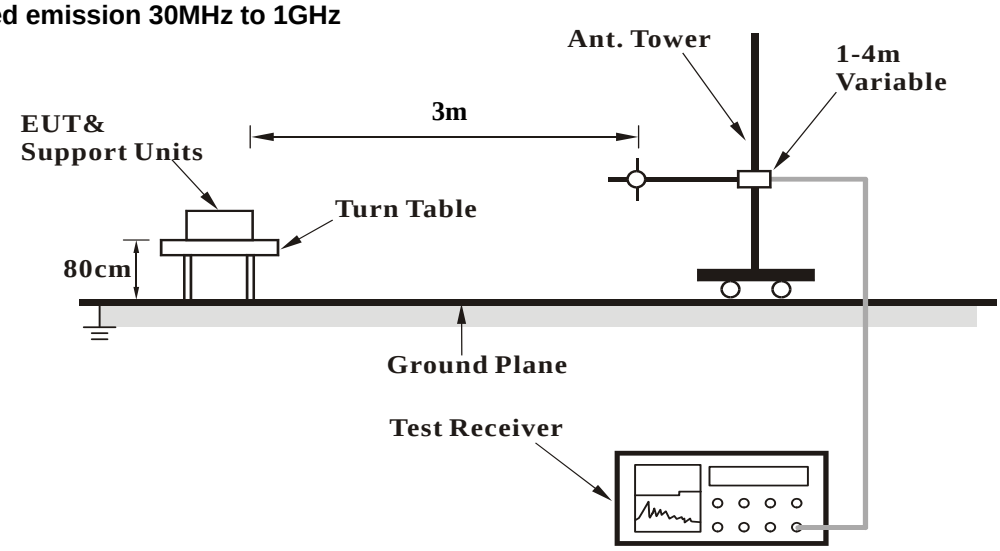
Conducted Power Measurement:

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

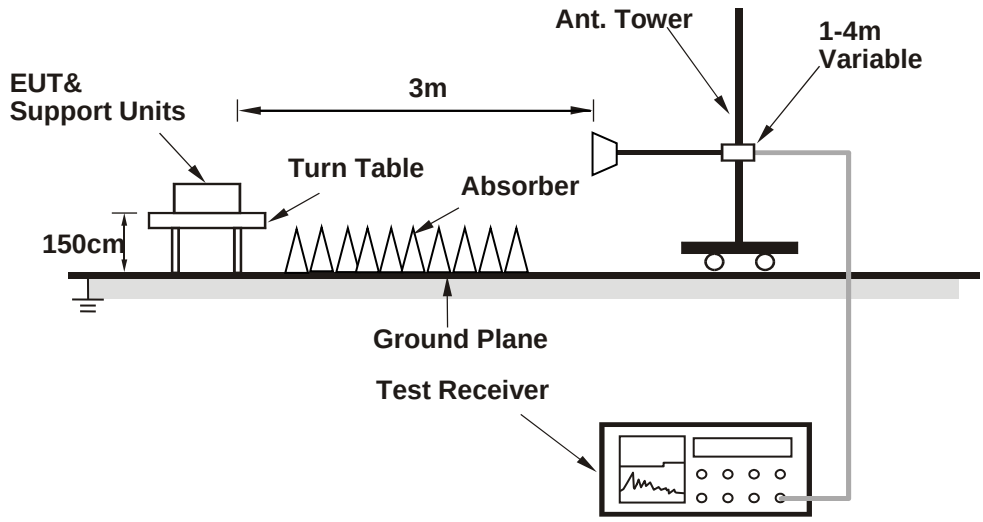
4.1.3 Test Setup

EIRP / ERP Measurement:

For radiated emission 30MHz to 1GHz



For radiated emission above 1GHz



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

Conducted Power Measurement:

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

4.1.4 Test Results

Conducted Output Power (dBm)

Band	GSM850		
Channel	128	189	251
Frequency	824.2	836.4	848.8
GSM	31.88	31.94	32.04
GPRS 1Tx Slot	31.86	31.92	32.02
GPRS 2Tx Slot	29.95	30.01	30.11
GPRS 3Tx Slot	28.62	28.68	28.78
GPRS 4Tx Slot	25.33	25.39	25.49
DTM 9 (GPRS)	30.01	30.07	30.17
DTM 11 (GPRS)	28.65	28.71	28.81
EDGE 1Tx Slot (MCS9)	25.36	25.42	25.52
EDGE 2Tx Slot (MCS9)	23.78	23.84	23.94
EDGE 3Tx Slot (MCS9)	22.20	22.26	22.36
EDGE 4Tx Slot (MCS9)	20.22	20.28	20.38
DTM 9 (EDGE)	25.32	25.38	25.48
DTM 11 (EDGE)	24.92	24.98	25.08

Band	CDMA2000 BC0		
Channel	1013	384	777
Frequency (MHz)	824.7	836.52	848.31
RC1+SO55	24.16	24.27	24.19
RC3+SO55	24.18	24.29	24.21
RC3+SO32(+ F-SCH)	23.86	23.97	23.89
RC3+SO32(+SCH)	23.59	23.70	23.62
RC1+SO3, 1/8 Rate	23.91	24.02	23.94
RTAP 153.6	24.02	24.13	24.05
RETAP 4096	23.82	23.93	23.85

Band	WCDMA Band V		
Channel	4132	4182	4233
Frequency (MHz)	826.4	836.4	846.6
RMC 12.2K	22.81	22.85	22.88
HSDPA Subtest-1	22.25	21.81	21.68
HSDPA Subtest-2	22.03	21.83	21.71
HSDPA Subtest-3	21.59	21.30	21.26
HSDPA Subtest-4	21.58	21.30	21.26
DC-HSDPA Subtest-1	22.22	21.78	21.65
DC-HSDPA Subtest-2	22.00	21.80	21.68
DC-HSDPA Subtest-3	21.56	21.27	21.23
DC-HSDPA Subtest-4	21.55	21.27	21.23
HSUPA Subtest-1	21.80	21.73	21.72
HSUPA Subtest-2	19.74	19.61	19.58
HSUPA Subtest-3	20.61	20.69	20.67
HSUPA Subtest-4	19.62	19.51	19.65
HSUPA Subtest-5	21.70	21.60	21.70

LTE Band 5								
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	Max. Tune-up (dBm)
		Channel		20450	20525	20600		
		Frequency (MHz)		829	836.5	844		
10M	QPSK	1	0	22.76	22.66	22.78	0	23.5
		1	24	22.81	22.71	22.83	0	23.5
		1	49	22.74	22.64	22.76	0	23.5
		25	0	21.73	21.63	21.75	1	22.5
		25	12	21.70	21.60	21.72	1	22.5
		25	25	21.68	21.58	21.70	1	22.5
		50	0	21.74	21.64	21.76	1	22.5
	16QAM	1	0	21.36	21.26	21.38	1	22.5
		1	24	21.62	21.52	21.64	1	22.5
		1	49	21.37	21.27	21.39	1	22.5
		25	0	20.89	20.79	20.91	2	21.5
		25	12	20.87	20.77	20.89	2	21.5
		25	25	21.01	20.91	21.03	2	21.5
		50	0	20.77	20.67	20.79	2	21.5
BW	MCS Index	Channel		20425	20525	20625	3GPP MPR	Max. Tune-up
		Frequency (MHz)		826.5	836.5	846.5		
5M	QPSK	1	0	22.69	22.66	22.77	0	23.5
		1	12	22.76	22.64	22.78	0	23.5
		1	24	22.64	22.57	22.69	0	23.5
		12	0	21.70	21.63	21.75	1	22.5
		12	6	21.69	21.54	21.69	1	22.5
		12	13	21.68	21.55	21.70	1	22.5
		25	0	21.66	21.57	21.74	1	22.5
	16QAM	1	0	21.32	21.21	21.29	1	22.5
		1	12	21.53	21.44	21.56	1	22.5
		1	24	21.33	21.24	21.31	1	22.5
		12	0	20.81	20.78	20.89	2	21.5
		12	6	20.78	20.73	20.82	2	21.5
		12	13	20.96	20.84	21.00	2	21.5
		25	0	20.76	20.60	20.70	2	21.5

LTE Band 5								
BW	MCS Index	Channel		20415	20525	20635	3GPP MPR	Max. Tune-up
		Frequency (MHz)		825.5	836.5	847.5		
3M	QPSK	1	0	22.67	22.55	22.68	0	23.5
		1	7	22.71	22.65	22.63	0	23.5
		1	14	22.58	22.61	22.53	0	23.5
		8	0	21.55	21.51	21.59	1	22.5
		8	3	21.62	21.55	21.63	1	22.5
		8	7	21.54	21.44	21.63	1	22.5
		15	0	21.64	21.61	21.75	1	22.5
	16QAM	1	0	21.27	21.22	21.30	1	22.5
		1	7	21.46	21.38	21.45	1	22.5
		1	14	21.33	21.16	21.21	1	22.5
		8	0	20.68	20.70	20.84	2	21.5
		8	3	20.84	20.73	20.80	2	21.5
		8	7	20.87	20.72	20.82	2	21.5
		15	0	20.68	20.56	20.73	2	21.5
BW	MCS Index	Channel		20407	20525	20643	3GPP MPR	Max. Tune-up
		Frequency (MHz)		824.7	836.5	848.3		
1.4M	QPSK	1	0	22.59	22.58	22.77	0	23.5
		1	2	22.64	22.63	22.69	0	23.5
		1	5	22.69	22.45	22.75	0	23.5
		3	0	22.56	22.42	22.65	0	23.5
		3	1	22.47	22.48	22.63	0	23.5
		3	3	22.59	22.50	22.54	0	23.5
		6	0	21.67	21.52	21.60	1	22.5
	16QAM	1	0	21.17	21.11	21.30	1	22.5
		1	2	21.43	21.47	21.56	1	22.5
		1	5	21.18	21.15	21.29	1	22.5
		3	0	21.66	21.62	21.74	1	22.5
		3	1	21.66	21.67	21.68	1	22.5
		3	3	21.90	21.79	21.80	1	22.5
		6	0	20.72	20.58	20.79	2	21.5

LTE Band 26								
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	Max. Tune-up (dBm)
		Channel		26865	26915	26965		
		Frequency (MHz)		831.5	836.5	841.5		
15M	QPSK	1	0	22.32	22.26	22.34	0	23.5
		1	37	22.73	22.67	22.75	0	23.5
		1	74	22.40	22.34	22.42	0	23.5
		36	0	21.32	21.26	21.34	1	22.5
		36	19	21.27	21.21	21.29	1	22.5
		36	39	21.35	21.29	21.37	1	22.5
		75	0	21.28	21.22	21.30	1	22.5
	16QAM	1	0	21.09	21.03	21.11	1	22.5
		1	37	21.12	21.06	21.14	1	22.5
		1	74	21.13	21.07	21.15	1	22.5
		36	0	20.17	20.11	20.19	2	21.5
		36	19	20.20	20.14	20.22	2	21.5
		36	39	20.17	20.11	20.19	2	21.5
		75	0	20.15	20.09	20.17	2	21.5
BW	MCS Index	Channel		26840	26915	26990	3GPP MPR	Max. Tune-up
		Frequency (MHz)		829	836.5	844		
10M	QPSK	1	0	22.28	22.18	22.25	0	23.5
		1	24	22.65	22.66	22.71	0	23.5
		1	49	22.32	22.27	22.34	0	23.5
		25	0	21.31	21.19	21.25	1	22.5
		25	12	21.22	21.19	21.20	1	22.5
		25	25	21.32	21.27	21.31	1	22.5
		50	0	21.21	21.15	21.29	1	22.5
	16QAM	1	0	21.01	20.93	21.08	1	22.5
		1	24	21.12	21.02	21.04	1	22.5
		1	49	21.05	21.06	21.07	1	22.5
		25	0	20.14	20.06	20.15	2	21.5
		25	12	20.15	20.13	20.17	2	21.5
		25	25	20.14	20.05	20.19	2	21.5
		50	0	20.09	20.09	20.16	2	21.5

LTE Band 26								
BW	MCS Index	Channel		26815	26915	27015	3GPP MPR	Max. Tune-up
		Frequency (MHz)		826.5	836.5	846.5		
5M	QPSK	1	0	22.17	22.14	22.18	0	23.5
		1	12	22.69	22.57	22.59	0	23.5
		1	24	22.21	22.28	22.22	0	23.5
		12	0	21.25	21.15	21.09	1	22.5
		12	6	21.02	21.00	21.19	1	22.5
		12	13	21.26	21.07	21.22	1	22.5
		25	0	21.12	21.05	21.16	1	22.5
	16QAM	1	0	21.04	20.92	21.10	1	22.5
		1	12	21.01	20.83	20.96	1	22.5
		1	24	21.03	20.85	20.95	1	22.5
		12	0	19.96	19.99	20.01	2	21.5
		12	6	20.06	20.05	20.08	2	21.5
		12	13	20.07	19.91	20.07	2	21.5
		25	0	19.95	19.99	19.99	2	21.5
BW	MCS Index	Channel		26805	26915	27025	3GPP MPR	Max. Tune-up
		Frequency (MHz)		825.5	836.5	847.5		
3M	QPSK	1	0	22.16	22.09	22.08	0	23.5
		1	7	22.59	22.52	22.59	0	23.5
		1	14	22.19	22.09	22.13	0	23.5
		8	0	21.13	21.16	21.05	1	22.5
		8	3	21.13	21.16	21.18	1	22.5
		8	7	21.23	21.12	21.14	1	22.5
		15	0	21.08	21.13	21.24	1	22.5
	16QAM	1	0	21.02	20.91	21.01	1	22.5
		1	7	20.91	21.02	20.96	1	22.5
		1	14	20.89	21.00	21.11	1	22.5
		8	0	20.09	19.99	20.04	2	21.5
		8	3	20.16	19.98	20.16	2	21.5
		8	7	20.00	20.01	20.08	2	21.5
		15	0	19.92	20.00	19.93	2	21.5

LTE Band 26								
BW	MCS Index	Channel		26797	26915	27033	3GPP MPR	Max. Tune-up
		Frequency (MHz)		824.7	836.5	848.3		
1.4M	QPSK	1	0	22.19	22.20	22.22	0	23.5
		1	2	22.68	22.56	22.58	0	23.5
		1	5	22.31	22.23	22.33	0	23.5
		3	0	22.24	22.04	22.12	0	23.5
		3	1	22.13	22.19	22.13	0	23.5
		3	3	22.16	22.23	22.25	0	23.5
		6	0	21.03	21.10	21.22	1	22.5
	16QAM	1	0	20.95	20.88	20.98	1	22.5
		1	2	20.88	20.98	20.94	1	22.5
		1	5	21.11	21.01	21.09	1	22.5
		3	0	21.09	21.10	21.03	1	22.5
		3	1	21.07	21.01	21.20	1	22.5
		3	3	20.99	20.94	21.00	1	22.5
		6	0	20.04	19.91	20.00	2	21.5

LTE Band 26_For 824-848MHz								
BW	MCS Index	Channel		26865	26915	26965	3GPP MPR	Max. Tune-up
		Frequency (MHz)		831.5	836.5	841.5		
15M	QPSK	1	0	22.26	22.16	22.34	0	23.5
		1	37	22.67	22.67	22.75	0	23.5
		1	74	22.34	22.32	22.42	0	23.5
		36	0	21.26	21.18	21.34	1	22.5
		36	19	21.21	21.12	21.29	1	22.5
		36	39	21.29	21.24	21.37	1	22.5
		75	0	21.22	21.14	21.30	1	22.5
	16QAM	1	0	21.03	20.99	21.11	1	22.5
		1	37	21.06	21.02	21.14	1	22.5
		1	74	21.07	21.07	21.15	1	22.5
		36	0	20.11	20.02	20.19	2	21.5
		36	19	20.14	20.05	20.22	2	21.5
		36	39	20.11	20.03	20.19	2	21.5
		75	0	20.09	20.00	20.17	2	21.5
BW	MCS Index	Channel		26840	26915	26990	3GPP MPR	Max. Tune-up
		Frequency (MHz)		829.0	836.5	844.0		
10M	QPSK	1	0	22.23	22.02	22.25	0	23.5
		1	24	22.65	22.63	22.71	0	23.5
		1	49	22.26	22.20	22.34	0	23.5
		25	0	21.17	21.14	21.25	1	22.5
		25	12	21.09	21.08	21.20	1	22.5
		25	25	21.19	21.22	21.31	1	22.5
		50	0	21.15	21.03	21.29	1	22.5
	16QAM	1	0	20.99	20.87	21.08	1	22.5
		1	24	21.03	20.99	21.04	1	22.5
		1	49	21.05	21.03	21.07	1	22.5
		25	0	20.01	19.88	20.15	2	21.5
		25	12	20.14	19.94	20.17	2	21.5
		25	25	20.03	19.97	20.19	2	21.5
		50	0	19.95	19.87	20.16	2	21.5

LTE Band 26_For 824-848MHz								
BW	MCS Index	Channel		26815	26915	27015	3GPP MPR	Max. Tune-up
		Frequency (MHz)		826.5	836.5	846.5		
5M	QPSK	1	0	22.14	21.99	22.18	0	23.5
		1	12	22.58	22.49	22.59	0	23.5
		1	24	22.12	22.09	22.22	0	23.5
		12	0	21.11	21.14	21.09	1	22.5
		12	6	21.01	21.03	21.19	1	22.5
		12	13	21.13	21.10	21.22	1	22.5
		25	0	21.14	20.97	21.16	1	22.5
	16QAM	1	0	20.86	20.72	21.10	1	22.5
		1	12	21.02	20.96	20.96	1	22.5
		1	24	20.94	20.97	20.95	1	22.5
		12	0	19.93	19.76	20.01	2	21.5
		12	6	19.99	19.82	20.08	2	21.5
		12	13	20.00	19.93	20.07	2	21.5
		25	0	19.90	19.78	19.99	2	21.5
BW	MCS Index	Channel		26805	26915	27025	3GPP MPR	Max. Tune-up
		Frequency (MHz)		825.5	836.5	847.5		
3M	QPSK	1	0	22.01	22.22	22.08	0	23.5
		1	7	22.60	22.61	22.59	0	23.5
		1	14	22.10	22.34	22.13	0	23.5
		8	0	21.03	21.14	21.05	1	22.5
		8	3	20.96	21.19	21.18	1	22.5
		8	7	21.14	21.18	21.14	1	22.5
		15	0	20.97	21.19	21.24	1	22.5
	16QAM	1	0	20.80	20.96	21.01	1	22.5
		1	7	20.88	20.96	20.96	1	22.5
		1	14	20.96	21.06	21.11	1	22.5
		8	0	19.74	20.15	20.04	2	21.5
		8	3	19.85	20.03	20.16	2	21.5
		8	7	19.93	20.11	20.08	2	21.5
		15	0	19.77	20.06	19.93	2	21.5

LTE Band 26_For 824-848MHz								
BW	MCS Index	Channel		26797	26915	27033	3GPP MPR	Max. Tune-up
		Frequency (MHz)		824.7	836.5	848.3		
1.4M	QPSK	1	0	21.97	22.22	22.22	0	23.5
		1	2	22.49	22.61	22.58	0	23.5
		1	5	22.08	22.26	22.33	0	23.5
		3	0	22.04	22.20	22.12	0	23.5
		3	1	21.98	22.07	22.13	0	23.5
		3	3	22.08	22.16	22.25	0	23.5
		6	0	20.96	21.25	21.22	1	22.5
	16QAM	1	0	20.79	21.04	20.98	1	22.5
		1	2	20.93	20.95	20.94	1	22.5
		1	5	20.97	20.98	21.09	1	22.5
		3	0	20.83	21.00	21.03	1	22.5
		3	1	20.82	21.04	21.20	1	22.5
		3	3	20.91	21.17	21.00	1	22.5
		6	0	19.77	20.01	20.00	2	21.5

ERP Power

GSM Mode

MODE		TX channel 128					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.20	-4.5	26.6	0.0	26.6	38.5	-11.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.20	1.1	33.1	0.0	33.1	38.5	-5.4

MODE		TX channel 189					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.40	-4.1	27.1	0.2	27.3	38.5	-11.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.40	1.2	33.0	0.2	**33.2**	38.5	-5.3

MODE		TX channel 251					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	848.80	-3.8	26.7	0.5	27.2	38.5	-11.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	848.80	0.8	32.1	0.5	32.6	38.5	-5.9

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

CDMA Mode

MODE		TX channel 1013					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.70	-13.6	17.5	0.0	17.5	38.5	-21.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.70	-11.8	20.1	0.0	20.1	38.5	-18.4

MODE		TX channel 384					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.52	-14.2	17.0	0.2	17.2	38.5	-21.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.52	-11.7	20.1	0.2	**20.3**	38.5	-18.2

MODE		TX channel 777					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	848.31	-13.2	17.3	0.5	17.8	38.5	-20.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	848.31	-12.1	19.3	0.5	19.8	38.5	-18.7

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

WCDMA Band 5

MODE		TX channel 4132					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.40	-14.2	16.9	0.0	16.9	38.5	-21.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.40	-9.1	22.8	0.0	22.8	38.5	-15.7

MODE		TX channel 4182					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.40	-14.1	17.1	0.2	17.3	38.5	-21.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.40	-8.9	22.9	0.2	23.1	38.5	-15.4

MODE		TX channel 4233					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	846.60	-13.2	17.2	0.4	17.6	38.5	-20.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	846.60	-8.3	22.9	0.4	**23.3**	38.5	-15.2

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

Modulation Type: QPSK

LTE Band 5, Channel Bandwidth: 1.4MHz

MODE		TX channel 20407					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.70	-18.4	9.2	3.9	13.1	38.5	-25.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.70	-10.6	17.7	3.9	**21.6**	38.5	-16.9

MODE		TX channel 20525					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-18.9	8.6	3.8	12.4	38.5	-26.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-10.5	17.6	3.8	21.4	38.5	-17.1

MODE		TX channel 20643					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	848.30	-18.7	9.0	3.4	12.4	38.5	-26.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	848.30	-10.3	17.8	3.4	21.2	38.5	-17.3

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

LTE Band 5, Channel Bandwidth: 3MHz

MODE		TX channel 20415					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	825.50	-18.9	8.7	3.9	12.6	38.5	-25.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	825.50	-10.1	18.2	3.9	**22.1**	38.5	-16.4

MODE		TX channel 20525					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-18.6	8.8	3.8	12.6	38.5	-25.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-10.5	17.6	3.8	21.4	38.5	-17.1

MODE		TX channel 20635					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	847.50	-18.5	9.1	3.4	12.5	38.5	-26.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	847.50	-10.7	17.5	3.4	20.9	38.5	-17.6

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

LTE Band 5, Channel Bandwidth: 5MHz

MODE		TX channel 20425					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.50	-18.9	8.7	3.9	12.6	38.5	-25.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.50	-10.4	18.0	3.9	**21.9**	38.5	-16.6

MODE		TX channel 20525					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-18.6	8.9	3.8	12.7	38.5	-25.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-10.2	17.9	3.8	21.7	38.5	-16.8

MODE		TX channel 20625					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	846.50	-18.3	9.3	3.4	12.7	38.5	-25.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	846.50	-10.3	17.9	3.4	21.3	38.5	-17.2

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

LTE Band 5, Channel Bandwidth: 10MHz

MODE	TX channel 20450						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	829.00	-18.8	8.9	3.9	12.8	38.5	-25.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	829.00	-10.3	17.9	3.9	**21.8**	38.5	-16.7

MODE	TX channel 20525						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-18.2	9.2	3.8	13.0	38.5	-25.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-10.4	17.7	3.8	21.5	38.5	-17.0

MODE	TX channel 20600						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	844.00	-18.4	9.1	3.7	12.8	38.5	-25.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	844.00	-10.5	17.9	3.7	21.6	38.5	-16.9

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

LTE Band 26, Channel Bandwidth 1.4MHz

MODE		TX channel 26797					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.70	-17.2	10.4	3.9	14.3	38.5	-24.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.70	-10.9	17.5	3.9	**21.4**	38.5	-17.1

MODE		TX channel 26915					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-17.4	10.1	3.8	13.9	38.5	-24.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-10.5	17.6	3.8	**21.4**	38.5	-17.1

MODE		TX channel 27033					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	848.30	-16.8	10.9	3.4	14.3	38.5	-24.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	848.30	-10.7	17.4	3.4	20.8	38.5	-17.7

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

LTE Band 26, Channel Bandwidth 3MHz

MODE		TX channel 26805					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	825.50	-16.9	10.7	3.9	14.6	38.5	-23.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	825.50	-10.4	18.0	3.9	**21.9**	38.5	-16.6

MODE		TX channel 26915					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-16.9	10.6	3.8	14.4	38.5	-24.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-10.5	17.6	3.8	21.4	38.5	-17.1

MODE		TX channel 27025					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	847.50	-17.0	10.6	3.4	14.0	38.5	-24.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	847.50	-10.2	18.0	3.4	21.4	38.5	-17.1

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

LTE Band 26, Channel Bandwidth 5MHz

MODE		TX channel 26815					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.50	-17.3	10.3	3.9	14.2	38.5	-24.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.50	-10.6	17.7	3.9	21.6	38.5	-16.9

MODE		TX channel 26915					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-17.2	10.2	3.8	14.0	38.5	-24.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-10.2	17.9	3.8	**21.7**	38.5	-16.8

MODE		TX channel 27015					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	846.50	-17.3	10.3	3.4	13.7	38.5	-24.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	846.50	-10.1	18.1	3.4	21.5	38.5	-17.0

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

LTE Band 26, Channel Bandwidth 10MHz

MODE		TX channel 26840					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	829.00	-17.3	10.4	3.9	14.3	38.5	-24.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	829.00	-10.3	17.9	3.9	21.8	38.5	-16.7

MODE		TX channel 26915					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-17.6	9.9	3.8	13.7	38.5	-24.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-10.5	17.6	3.8	21.4	38.5	-17.1

MODE		TX channel 26990					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	844.00	-17.4	10.1	3.7	13.8	38.5	-24.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	844.00	-10.2	18.2	3.7	**21.9**	38.5	-16.6

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

LTE Band 26, Channel Bandwidth 15MHz

MODE		TX channel 26865					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	831.50	-17.5	10.0	3.9	13.9	38.5	-24.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	831.50	-10.1	17.9	3.9	**21.8**	38.5	-16.7

MODE		TX channel 26915					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-17.4	10.1	3.8	13.9	38.5	-24.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-10.4	17.7	3.8	21.5	38.5	-17.0

MODE		TX channel 26965					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	841.50	-17.6	9.9	3.6	13.5	38.5	-25.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	841.50	-10.3	18.1	3.6	21.7	38.5	-16.8

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

Modulation Type: 16QAM

LTE Band 5, Channel Bandwidth: 1.4MHz

MODE		TX channel 20407					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.70	-20.0	7.6	3.9	11.5	38.5	-27.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.70	-11.9	16.4	3.9	**20.3**	38.5	-18.2

MODE		TX channel 20525					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-19.6	7.8	3.8	11.6	38.5	-26.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-11.6	16.5	3.8	**20.3**	38.5	-18.2

MODE		TX channel 20643					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	848.30	-19.6	8.1	3.4	11.5	38.5	-27.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	848.30	-11.2	16.9	3.4	**20.3**	38.5	-18.2

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

LTE Band 5, Channel Bandwidth: 3MHz

MODE		TX channel 20415					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	825.50	-19.7	7.9	3.9	11.8	38.5	-26.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	825.50	-11.9	16.5	3.9	**20.4**	38.5	-18.1

MODE		TX channel 20525					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-19.6	7.8	3.8	11.6	38.5	-26.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-11.6	16.5	3.8	20.3	38.5	-18.2

MODE		TX channel 20635					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	847.50	-19.5	8.1	3.4	11.5	38.5	-27.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	847.50	-11.7	16.5	3.4	19.9	38.5	-18.6

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

LTE Band 5, Channel Bandwidth: 5MHz

MODE		TX channel 20425					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.50	-19.7	7.9	3.9	11.8	38.5	-26.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.50	-11.9	16.4	3.9	20.3	38.5	-18.2

MODE		TX channel 20525					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-19.6	7.9	3.8	11.7	38.5	-26.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-11.8	16.3	3.8	20.1	38.5	-18.4

MODE		TX channel 20625					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	846.50	-19.4	8.2	3.4	11.6	38.5	-26.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	846.50	-11.2	17.0	3.4	**20.4**	38.5	-18.1

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

LTE Band 5, Channel Bandwidth: 10MHz

MODE		TX channel 20450					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	829.00	-20.1	7.6	3.9	11.5	38.5	-27.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	829.00	-12.1	16.1	3.9	20.0	38.5	-18.5

MODE		TX channel 20525					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-19.6	7.8	3.8	11.6	38.5	-26.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-12.0	16.1	3.8	19.9	38.5	-18.6

MODE		TX channel 20600					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	844.00	-19.4	8.1	3.7	11.8	38.5	-26.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	844.00	-11.7	16.7	3.7	**20.4**	38.5	-18.1

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

LTE Band 26, Channel Bandwidth 1.4MHz

MODE		TX channel 26797					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.70	-18.5	9.1	3.9	13.0	38.5	-25.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	824.70	-11.9	16.5	3.9	**20.4**	38.5	-18.1

MODE		TX channel 26915					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-18.1	9.3	3.8	13.1	38.5	-25.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-11.5	16.6	3.8	**20.4**	38.5	-18.1

MODE		TX channel 27033					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	848.30	-18.1	9.6	3.4	13.0	38.5	-25.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	848.30	-11.4	16.7	3.4	20.1	38.5	-18.4

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

LTE Band 26, Channel Bandwidth 3MHz

MODE		TX channel 26805					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	825.50	-18.6	9.0	3.9	12.9	38.5	-25.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	825.50	-11.9	16.5	3.9	20.4	38.5	-18.1

MODE		TX channel 26915					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-18.2	9.2	3.8	13.0	38.5	-25.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-11.2	16.8	3.8	**20.6**	38.5	-17.9

MODE		TX channel 27025					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	847.50	-17.7	9.9	3.4	13.3	38.5	-25.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	847.50	-11.0	17.2	3.4	**20.6**	38.5	-17.9

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

LTE Band 26, Channel Bandwidth 5MHz

MODE		TX channel 26815					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.50	-18.6	9.0	3.9	12.9	38.5	-25.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	826.50	-12.1	16.2	3.9	**20.1**	38.5	-18.4

MODE		TX channel 26915					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-18.4	9.0	3.8	12.8	38.5	-25.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-11.8	16.3	3.8	**20.1**	38.5	-18.4

MODE		TX channel 27015					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	846.50	-18.2	9.4	3.4	12.8	38.5	-25.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	846.50	-11.5	16.7	3.4	**20.1**	38.5	-18.4

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

LTE Band 26, Channel Bandwidth 10MHz

MODE		TX channel 26840					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	829.00	-18.3	9.4	3.9	13.3	38.5	-25.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	829.00	-11.5	16.7	3.9	**20.6**	38.5	-17.9

MODE		TX channel 26915					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-18.4	9.1	3.8	12.9	38.5	-25.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-11.8	16.3	3.8	20.1	38.5	-18.4

MODE		TX channel 26990					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	844.00	-18.1	9.5	3.7	13.2	38.5	-25.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	844.00	-11.5	16.9	3.7	**20.6**	38.5	-17.9

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

LTE Band 26, Channel Bandwidth 15MHz

MODE		TX channel 26865					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	831.50	-18.9	9.1	3.9	13.0	38.5	-25.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	831.50	-11.2	16.7	3.9	**20.6**	38.5	-17.9

MODE		TX channel 26915					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-18.1	9.3	3.8	13.1	38.5	-25.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	836.50	-11.8	16.3	3.8	20.1	38.5	-18.4

MODE		TX channel 26965					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	841.50	-18.2	9.3	3.6	12.9	38.5	-25.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	841.50	-11.4	17.0	3.6	**20.6**	38.5	-17.9

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

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

N/A

4.2.2 Test Procedure

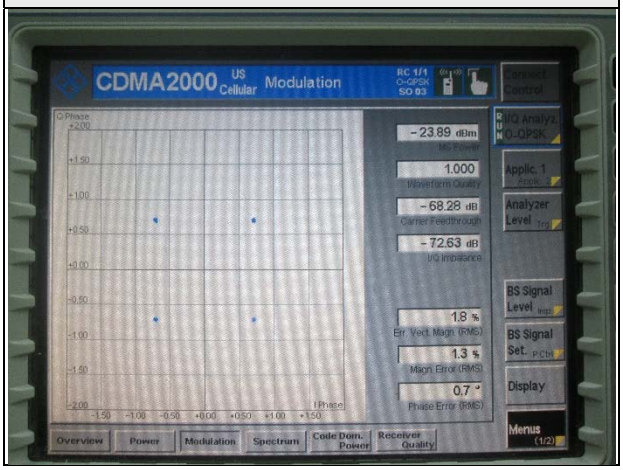
Connect the EUT to Communication Simulator via the antenna connector, The frequency band is set as EUT supported Modulation and Channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

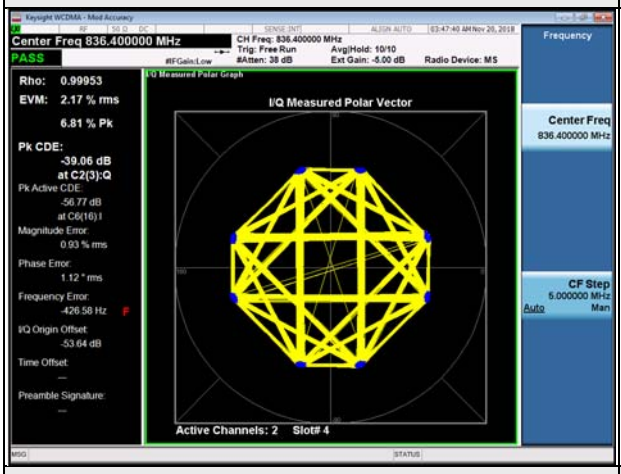
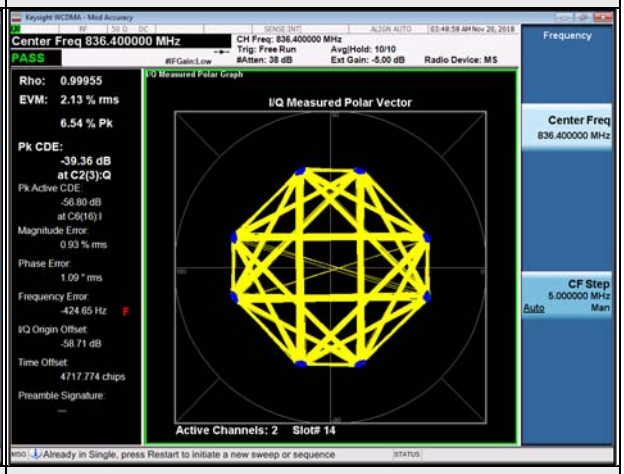
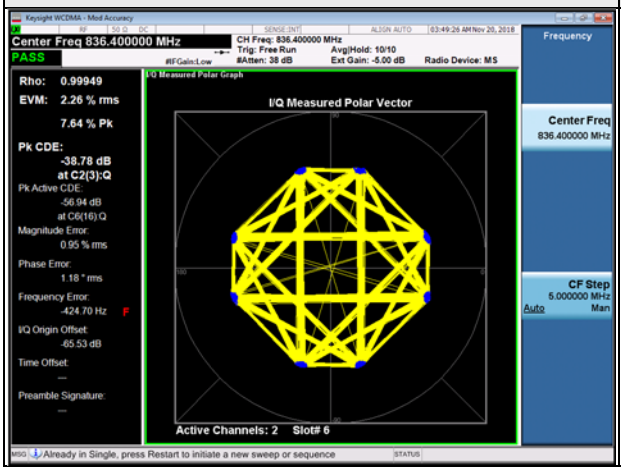
4.2.3 Test Setup

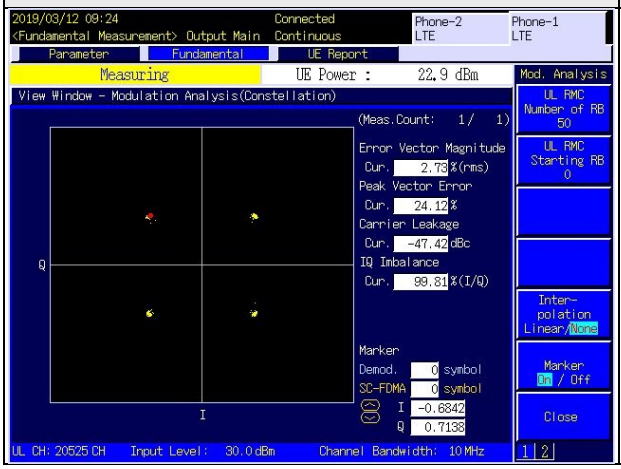
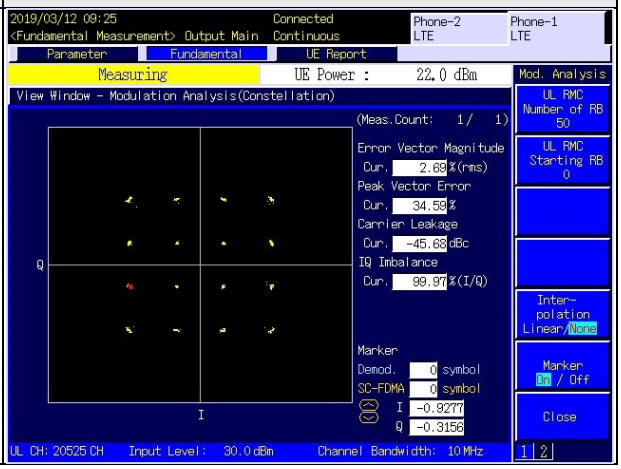
4.2.4 Test Results

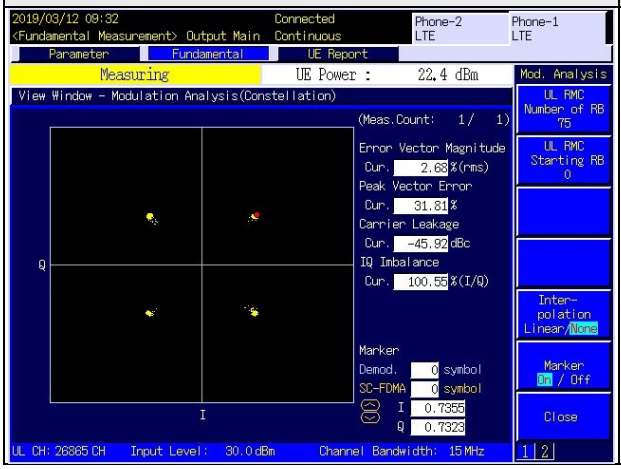
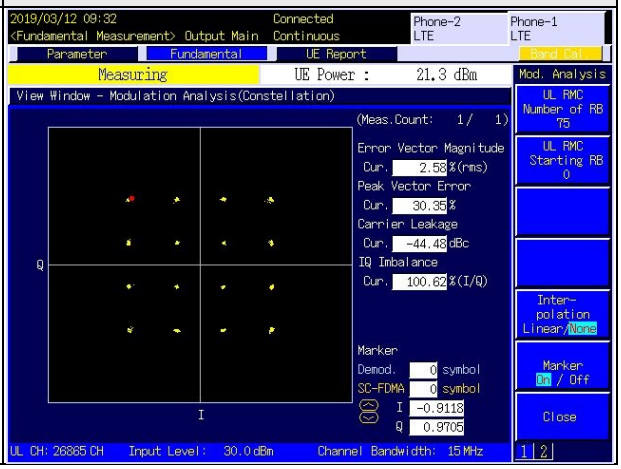
Spectrum Plot of Measurement Value	
Channel: 128 / Frequency (MHz): 824.2MHz	
GSM	GPRS
EDGE	

CDMA
Spectrum Plot of Measurement Value
Channel: 1013 / Frequency (MHz): 824.7MHz



WCDMA Band 5	
Spectrum Plot of Measurement Value	
Channel: 4132 / Frequency (MHz): 836.4MHz	
WCDMA	HSDPA
	
HSUPA	
	

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

LTE Band 26	
Spectrum Plot of Measurement Value	
Channel: 26865 / Frequency (MHz): 831.5MHz	
QPSK	16QAM
	

4.2.5 Limits of Frequency Stability Measurement

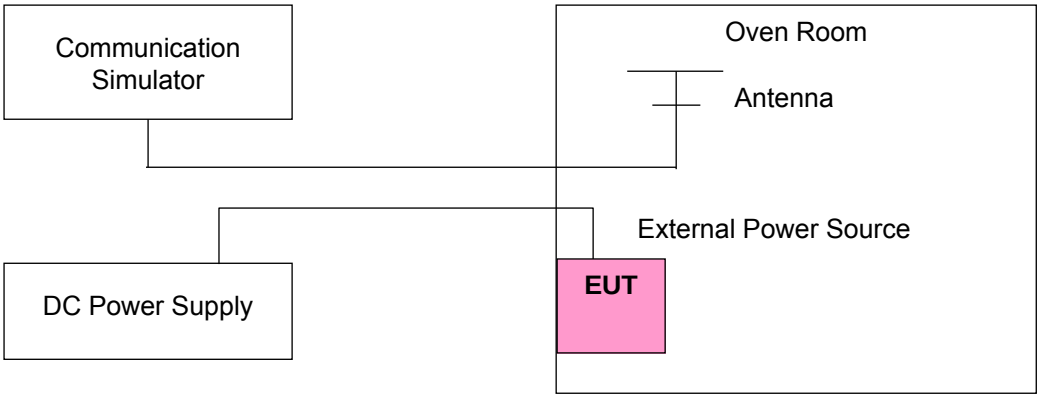
1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

4.2.6 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.

4.2.7 Test Setup



4.2.8 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	GSM 850			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.75	824.200001	0.001	848.800002	0.002
3.20	824.200003	0.004	848.800002	0.003
4.30	824.200002	0.002	848.800003	0.004

Note: The applicant defined the normal working voltage is from 3.20Vdc to 4.30Vdc.

Frequency Error vs. Temperature

Temp. (℃)	GSM 850			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	824.200003	0.004	848.800004	0.004
-20	824.200003	0.003	848.800003	0.003
-10	824.200003	0.004	848.800003	0.004
0	824.200003	0.004	848.800001	0.001
10	824.200003	0.003	848.800004	0.004
20	824.199997	-0.004	848.799997	-0.004
30	824.199997	-0.004	848.799998	-0.002
40	824.199997	-0.003	848.799997	-0.003
50	824.199996	-0.005	848.799997	-0.003
60	824.199996	-0.005	848.799997	-0.003

Frequency Error vs. Voltage

Voltage (Volts)	EDGE 850			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.75	824.200003	0.003	848.800003	0.003
3.20	824.200001	0.001	848.800003	0.004
4.30	824.200003	0.003	848.800003	0.004

Note: The applicant defined the normal working voltage is from 3.20Vdc to 4.30Vdc.

Frequency Error vs. Temperature

Temp. (℃)	EDGE 850			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	824.200003	0.004	848.800002	0.002
-20	824.200002	0.002	848.800002	0.002
-10	824.200002	0.003	848.800002	0.002
0	824.200003	0.004	848.800003	0.003
10	824.200003	0.003	848.800004	0.004
20	824.199996	-0.005	848.799998	-0.002
30	824.199999	-0.002	848.799999	-0.002
40	824.199997	-0.004	848.799997	-0.003
50	824.199998	-0.002	848.799998	-0.002
60	824.199997	-0.003	848.799998	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	CDMA			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.75	824.700002	0.002	848.310004	0.004
3.20	824.700003	0.004	848.310003	0.003
4.30	824.700001	0.002	848.310002	0.003

Note: The applicant defined the normal working voltage is from 3.20Vdc to 4.30Vdc.

Frequency Error vs. Temperature

Temp. (℃)	CDMA			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	824.700003	0.004	848.310004	0.005
-20	824.700002	0.003	848.310002	0.002
-10	824.700003	0.003	848.310002	0.002
0	824.700003	0.003	848.310002	0.002
10	824.700002	0.003	848.310001	0.001
20	824.699997	-0.004	848.309999	-0.002
30	824.699997	-0.003	848.309998	-0.003
40	824.699999	-0.002	848.309997	-0.004
50	824.699997	-0.004	848.309998	-0.003
60	824.699999	-0.002	848.309998	-0.003

Frequency Error vs. Voltage

Voltage (Volts)	WCDMA Band 5			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.75	826.400002	0.002	846.600002	0.002
3.20	826.400003	0.004	846.600004	0.004
4.30	826.400001	0.001	846.600003	0.003

Note: The applicant defined the normal working voltage is from 3.20Vdc to 4.30Vdc.

Frequency Error vs. Temperature

Temp. (℃)	WCDMA Band 5			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	826.400004	0.005	846.600004	0.004
-20	826.400003	0.004	846.600003	0.004
-10	826.400004	0.004	846.600004	0.004
0	826.400003	0.003	846.600002	0.002
10	826.400003	0.004	846.600001	0.002
20	826.399998	-0.002	846.599996	-0.005
30	826.399998	-0.003	846.599998	-0.002
40	826.399996	-0.005	846.599998	-0.002
50	826.399996	-0.005	846.599996	-0.004
60	826.399997	-0.004	846.599998	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 5			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.20	824.700002	0.003	848.300002	0.002
3.75	824.700004	0.005	848.300003	0.004
4.30	824.700004	0.004	848.300002	0.002

Note: The applicant defined the normal working voltage is from 3.20Vdc to 4.30Vdc.

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	824.700003	0.004	848.300002	0.003
-20	824.700002	0.002	848.300004	0.004
-10	824.700002	0.002	848.300001	0.001
0	824.700003	0.004	848.300003	0.003
10	824.700002	0.002	848.300002	0.002
20	824.699997	-0.003	848.299997	-0.004
30	824.699998	-0.002	848.299997	-0.004
40	824.699998	-0.003	848.299999	-0.002
50	824.699998	-0.003	848.299999	-0.002
60	824.699999	-0.001	848.299997	-0.003

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 5			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.75	825.500002	0.002	847.500003	0.003
3.20	825.500003	0.004	847.500004	0.005
4.30	825.500004	0.004	847.500003	0.004

Note: The applicant defined the normal working voltage is from 3.20Vdc to 4.30Vdc.

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	825.500001	0.001	847.500002	0.002
-20	825.500004	0.005	847.500003	0.003
-10	825.500002	0.002	847.500001	0.001
0	825.500003	0.004	847.500002	0.002
10	825.500003	0.004	847.500003	0.003
20	825.499998	-0.002	847.499999	-0.001
30	825.499996	-0.005	847.499998	-0.002
40	825.499998	-0.003	847.499998	-0.002
50	825.499998	-0.002	847.499998	-0.002
60	825.499999	-0.001	847.499999	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 5			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.75	826.500002	0.003	846.500002	0.002
3.20	826.500001	0.001	846.500004	0.005
4.30	826.500004	0.004	846.500002	0.003

Note: The applicant defined the normal working voltage is from 3.20Vdc to 4.30Vdc.

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	826.500002	0.002	846.500001	0.002
-20	826.500002	0.003	846.500004	0.005
-10	826.500003	0.003	846.500002	0.002
0	826.500004	0.004	846.500003	0.003
10	826.500003	0.004	846.500001	0.001
20	826.499998	-0.002	846.499998	-0.003
30	826.499998	-0.002	846.499997	-0.004
40	826.499996	-0.005	846.499999	-0.001
50	826.499997	-0.004	846.499998	-0.002
60	826.499997	-0.003	846.499999	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 5			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.75	829.000002	0.002	844.000003	0.003
3.20	829.000002	0.003	844.000004	0.005
4.30	829.000003	0.004	844.000002	0.003

Note: The applicant defined the normal working voltage is from 3.20Vdc to 4.30Vdc.

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	829.000004	0.005	844.000001	0.001
-20	829.000001	0.002	844.000003	0.004
-10	829.000002	0.003	844.000001	0.002
0	829.000003	0.004	844.000001	0.002
10	829.000003	0.003	844.000002	0.002
20	828.999997	-0.004	843.999998	-0.003
30	828.999996	-0.004	843.999998	-0.002
40	828.999997	-0.004	843.999999	-0.001
50	828.999997	-0.004	843.999998	-0.002
60	828.999998	-0.002	843.999997	-0.004

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 26			
	Channel Bandwidth: 1.4 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.75	824.700003	0.003	848.300000	0.003
3.20	824.700002	0.002	848.300000	0.003
4.30	824.700002	0.003	848.300000	0.005

Note: The applicant defined the normal working voltage is from 3.20Vdc to 4.30Vdc.

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	824.700001	0.001	848.300000	0.004
-20	824.700003	0.004	848.300000	0.004
-10	824.700002	0.002	848.300000	0.003
0	824.700001	0.002	848.300000	0.001
10	824.700003	0.004	848.300000	0.002
20	824.699998	-0.002	848.300000	-0.004
30	824.699998	-0.003	848.300000	-0.003
40	824.699999	-0.002	848.300000	-0.004
50	824.699998	-0.003	848.300000	-0.002
60	824.699996	-0.004	848.300000	-0.003

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 26			
	Channel Bandwidth: 3 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.75	825.500002	0.003	847.500000	0.001
3.20	825.500002	0.003	847.500000	0.002
4.30	825.500002	0.002	847.500000	0.003

Note: The applicant defined the normal working voltage is from 3.20Vdc to 4.30Vdc.

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	847.500000	0.004
-20	825.500002	0.002	847.500000	0.004
-10	825.500001	0.001	847.500000	0.003
0	825.500002	0.002	847.500000	0.002
10	825.500002	0.002	847.500000	0.004
20	825.499998	-0.003	847.500000	-0.004
30	825.499996	-0.004	847.500000	-0.005
40	825.499997	-0.003	847.500000	-0.001
50	825.499996	-0.005	847.500000	-0.003
60	825.499998	-0.003	847.500000	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 26			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.75	826.500003	0.003	846.500002	0.003
3.20	826.500003	0.004	846.500004	0.005
4.30	826.500002	0.003	846.500003	0.004

Note: The applicant defined the normal working voltage is from 3.20Vdc to 4.30Vdc.

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	826.500002	0.003	846.500002	0.002
-20	826.500001	0.002	846.500002	0.002
-10	826.500004	0.004	846.500002	0.002
0	826.500002	0.002	846.500003	0.003
10	826.500003	0.004	846.500004	0.005
20	826.499996	-0.004	846.499996	-0.005
30	826.499997	-0.004	846.499996	-0.004
40	826.499997	-0.004	846.499998	-0.002
50	826.499996	-0.005	846.499997	-0.003
60	826.499998	-0.002	846.499996	-0.004

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 26			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.75	829.000002	0.003	844.000002	0.002
3.20	829.000002	0.002	844.000001	0.002
4.30	829.000003	0.003	844.000002	0.002

Note: The applicant defined the normal working voltage is from 3.20Vdc to 4.30Vdc.

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	829.000001	0.002	844.000003	0.004
-20	829.000003	0.004	844.000004	0.004
-10	829.000002	0.002	844.000004	0.005
0	829.000004	0.005	844.000004	0.004
10	829.000002	0.002	844.000003	0.004
20	828.999998	-0.002	843.999996	-0.004
30	828.999997	-0.004	843.999997	-0.003
40	828.999997	-0.003	843.999997	-0.004
50	828.999999	-0.002	843.999999	-0.001
60	828.999999	-0.002	843.999999	-0.002

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 26			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.75	831.500004	0.004	841.500004	0.005
3.20	831.500003	0.003	841.500001	0.001
4.30	831.500001	0.002	841.500004	0.004

Note: The applicant defined the normal working voltage is from 3.20Vdc to 4.30Vdc.

Frequency Error vs. Temperature

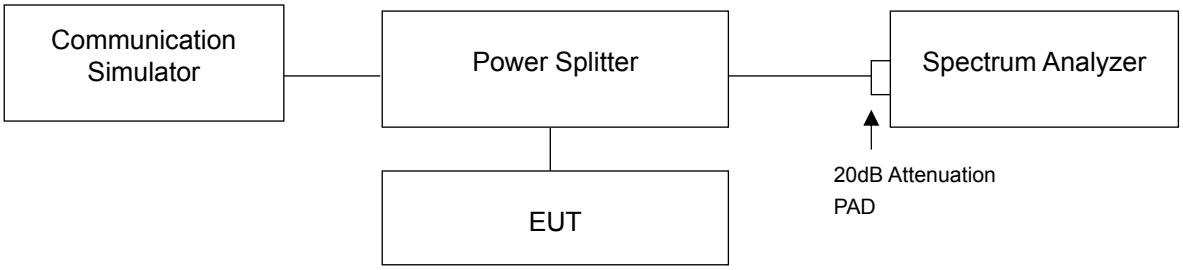
Temp. (℃)	LTE Band 26			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	831.500004	0.004	841.500002	0.002
-20	831.500004	0.004	841.500004	0.005
-10	831.500002	0.002	841.500003	0.004
0	831.500002	0.002	841.500003	0.004
10	831.500003	0.004	841.500003	0.004
20	831.499998	-0.003	841.499996	-0.004
30	831.499998	-0.002	841.499999	-0.001
40	831.499998	-0.002	841.499996	-0.004
50	831.499997	-0.003	841.499999	-0.002
60	831.499999	-0.002	841.499997	-0.003

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



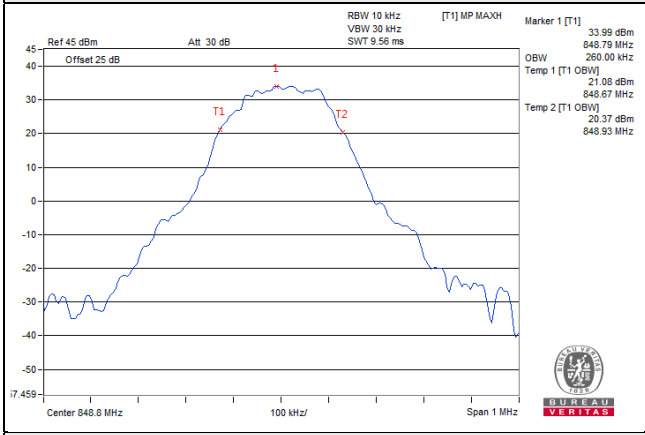
4.3.3 Test Result

Occupied Bandwidth

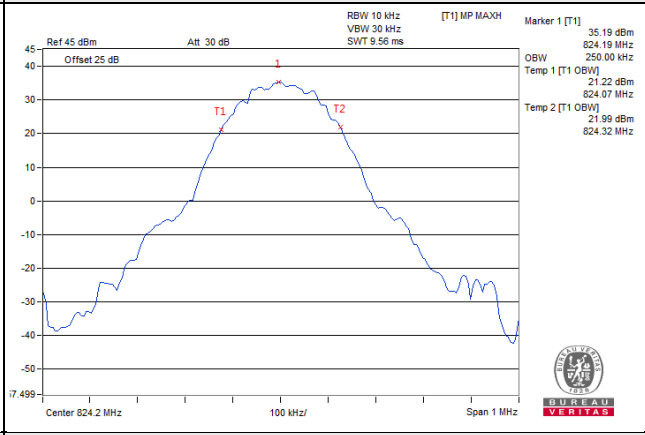
Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)		
		GSM	GPRS	EDGE
128	824.2	250	250	250
189	836.4	260	250	250
251	848.8	260	250	250

Spectrum Plot of Worst Value

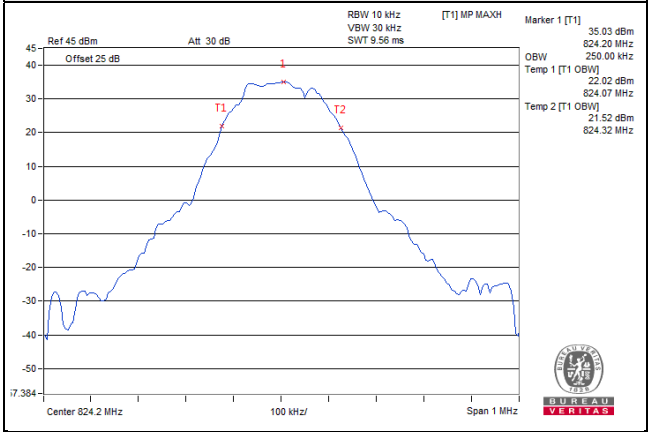
GSM



GPRS

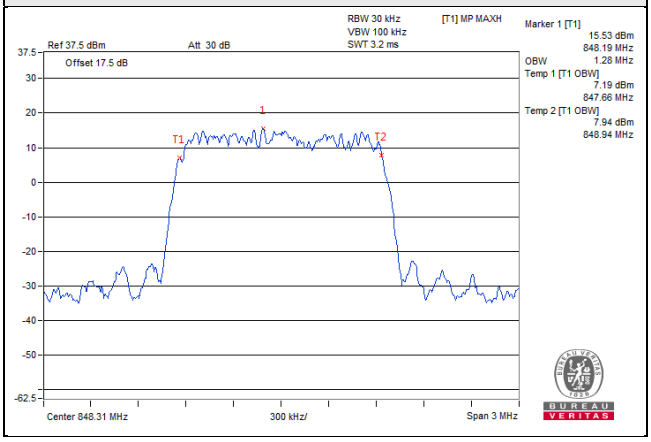


EDGE



Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
		CDMA
1013	824.70	1.27
384	836.52	1.27
777	848.31	1.28

Spectrum Plot of Worst Value
CDMA

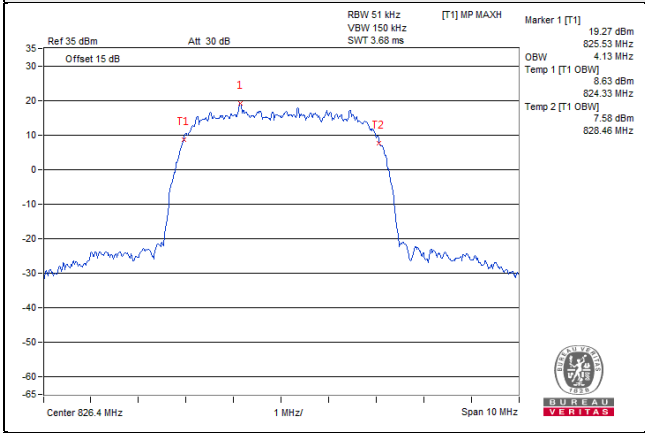


WCDMA Band 5

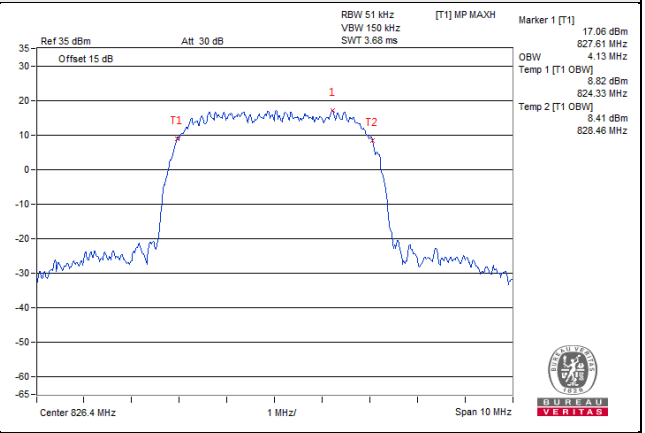
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		
		WCDMA	HSDPA	HSUPA
4132	826.4	4.13	4.13	4.13
4182	836.4	4.13	4.11	4.13
4233	846.6	4.13	4.13	4.11

Spectrum Plot of Worst Value

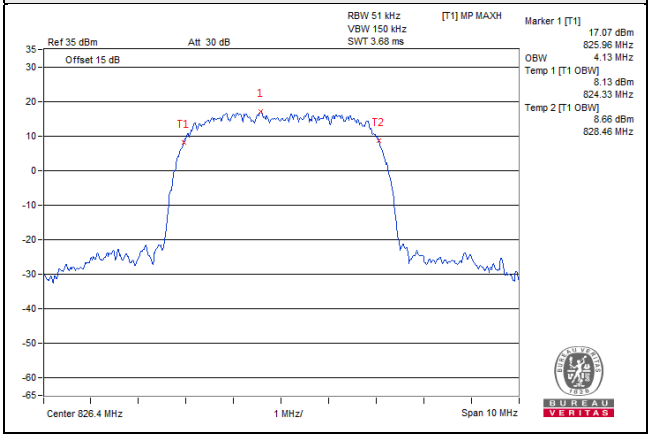
WCDMA



HSDPA



HSUPA

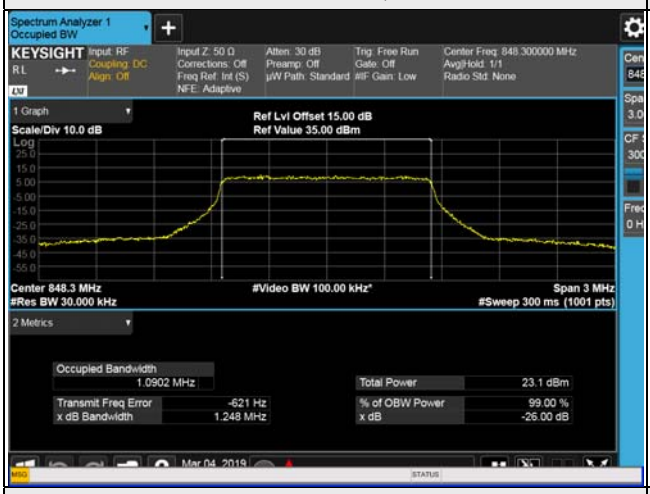
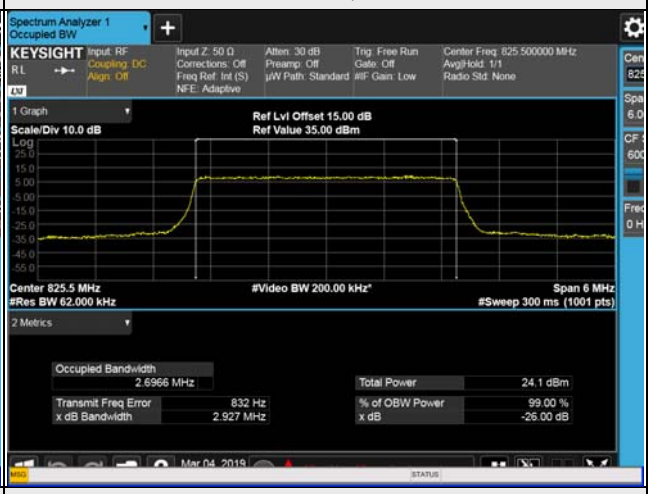


LTE Band 5, Channel Bandwidth 1.4MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM
20407	824.7	1.09	1.09
20525	836.5	1.09	1.09
20643	848.3	1.09	1.09

LTE Band 5, Channel Bandwidth 3MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM
20415	825.5	2.70	2.70
20525	836.5	2.70	2.69
20635	847.5	2.70	2.69

LTE Band 5, Channel Bandwidth 5MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM
20425	826.5	4.48	4.49
20525	836.5	4.48	4.48
20625	846.5	4.48	4.48

LTE Band 5, Channel Bandwidth 10MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM
20450	829.0	8.96	8.97
20525	836.5	8.94	8.94
20600	844.0	8.95	8.95

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

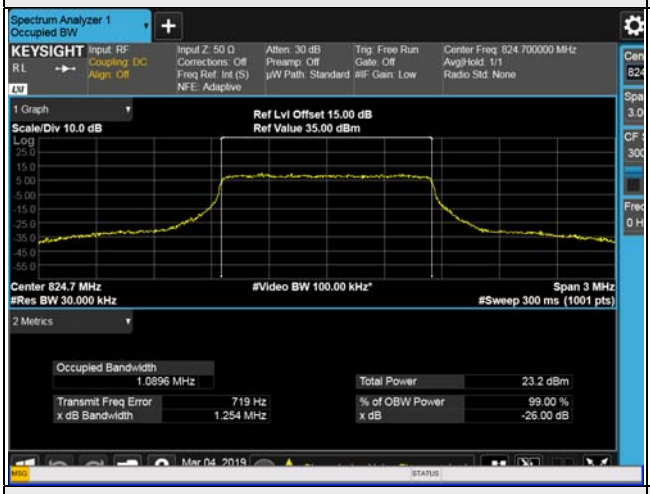
LTE Band 26, Channel Bandwidth 1.4MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM
26797	824.7	1.09	1.09
26915	836.5	1.09	1.09
27033	848.3	1.09	1.09

LTE Band 26, Channel Bandwidth 3MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM
26805	825.5	2.70	2.69
26915	836.5	2.70	2.69
27025	847.5	2.70	2.69

LTE Band 26, Channel Bandwidth 5MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM
26815	826.5	4.49	4.48
26915	836.5	4.48	4.48
27015	846.5	4.48	4.48

LTE Band 26, Channel Bandwidth 10MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM
26840	829.0	8.96	8.96
26915	836.5	8.94	8.94
26990	844.0	8.95	8.96

LTE Band 26, Channel Bandwidth 15MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM
26865	831.5	13.44	13.43
26915	836.5	13.40	13.39
26965	841.5	13.42	13.40

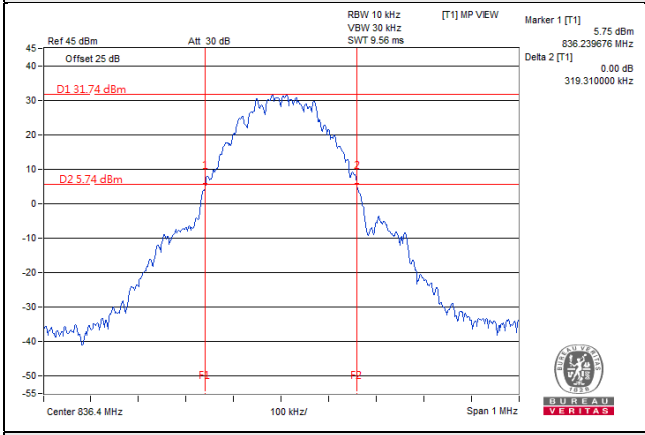
Spectrum Plot of Worst Value	
1.4MHz / 16QAM	3MHz / QPSK
	
5MHz / QPSK	10MHz / 16QAM
15MHz / QPSK	

26dB Bandwidth

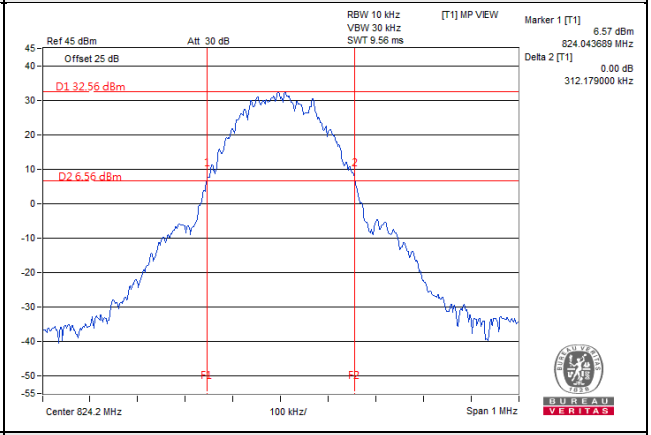
Channel	Frequency (MHz)	26dB Bandwidth (kHz)		
		GSM	GPRS	EDGE
128	824.2	311	312	302
189	836.4	319	311	309
251	848.8	309	309	314

Spectrum Plot of Worst Value

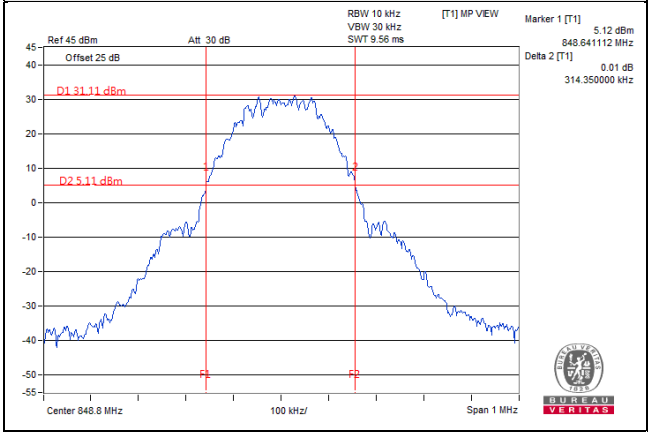
GSM



GPRS

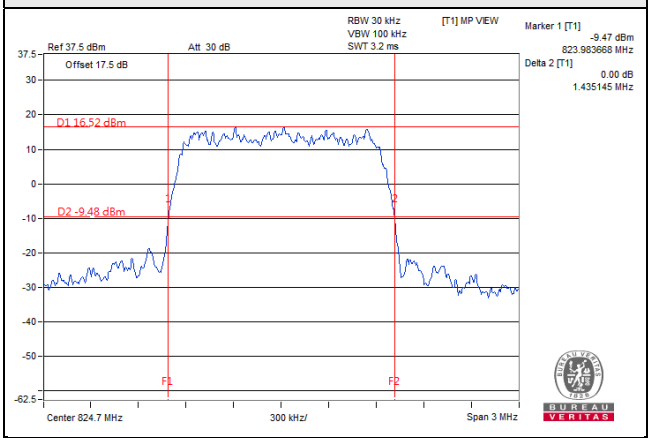


EDGE



Channel	Frequency (MHz)	26dB Bandwidth (MHz)
		CDMA
1013	824.70	1.435
384	836.52	1.431
777	848.31	1.428

Spectrum Plot of Worst Value
CDMA

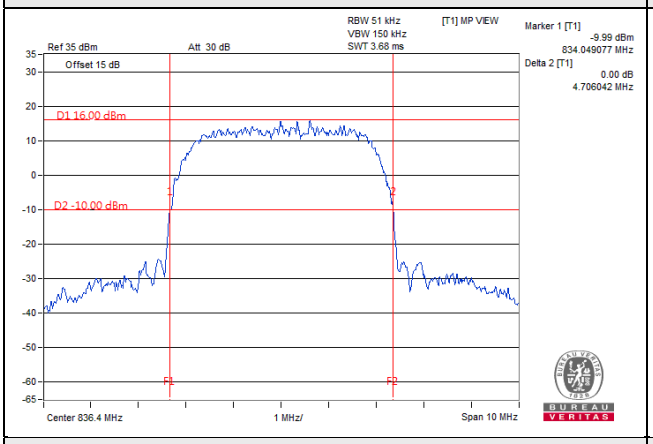


WCDMA Band 5

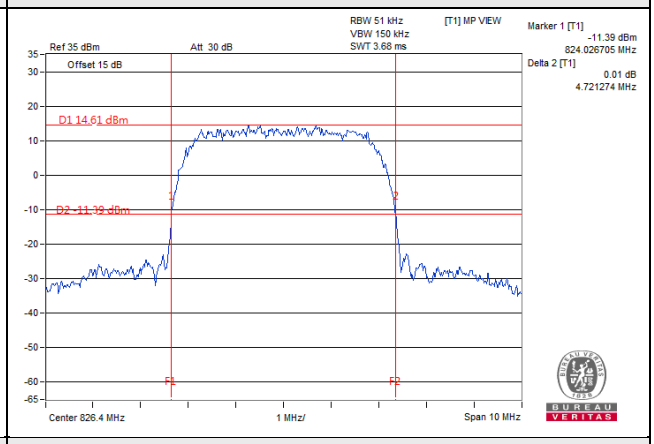
Channel	Frequency (MHz)	26dB Bandwidth (MHz)		
		WCDMA	HSDPA	HSUPA
4132	826.4	4.704	4.721	4.679
4182	836.6	4.706	4.715	4.674
4233	846.6	4.685	4.712	4.698

Spectrum Plot of Worst Value

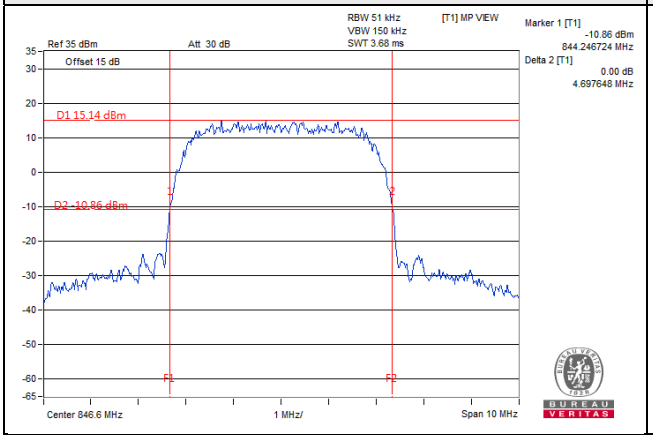
WCDMA



HSDPA



HSUPA

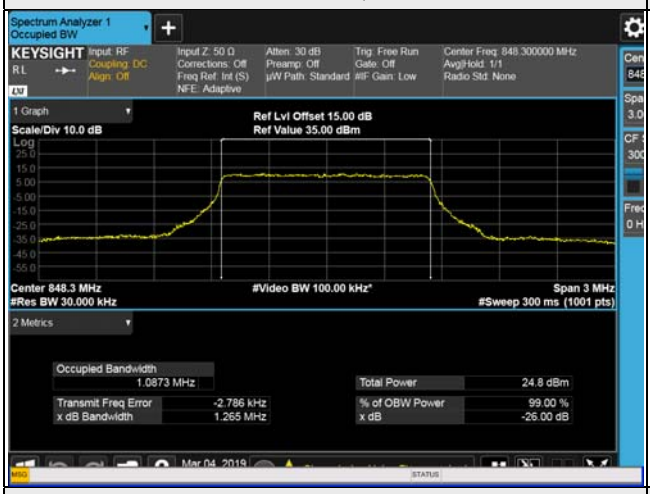


LTE Band 5, Channel Bandwidth 1.4MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
		QPSK	16QAM
20407	824.7	1.26	1.26
20525	836.5	1.25	1.26
20643	848.3	1.27	1.25

LTE Band 5, Channel Bandwidth 3MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
		QPSK	16QAM
20415	825.5	2.93	2.93
20525	836.5	2.92	2.92
20635	847.5	2.92	2.92

LTE Band 5, Channel Bandwidth 5MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
		QPSK	16QAM
20425	826.5	4.79	4.83
20525	836.5	4.79	4.79
20625	846.5	4.81	4.80

LTE Band 5, Channel Bandwidth 10MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
		QPSK	16QAM
20450	829.0	9.54	9.53
20525	836.5	9.50	9.50
20600	844.0	9.52	9.52

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

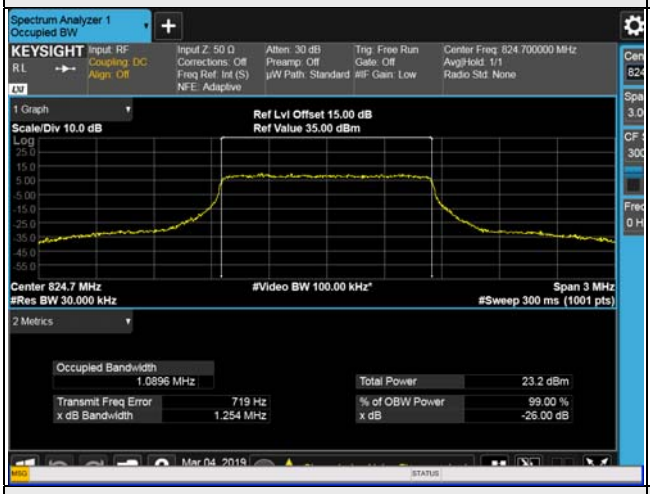
LTE Band 26, Channel Bandwidth 1.4MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
		QPSK	16QAM
26797	824.7	1.26	1.25
26915	836.5	1.26	1.26
27033	848.3	1.26	1.26

LTE Band 26, Channel Bandwidth 3MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
		QPSK	16QAM
26805	825.5	2.93	2.93
26915	836.5	2.91	2.92
27025	847.5	2.92	2.92

LTE Band 26, Channel Bandwidth 5MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
		QPSK	16QAM
26815	826.5	4.84	4.81
26915	836.5	4.79	4.80
27015	846.5	4.81	4.80

LTE Band 26, Channel Bandwidth 10MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
		QPSK	16QAM
26840	829.0	9.54	9.53
26915	836.5	9.50	9.51
26990	844.0	9.52	9.52

LTE Band 26, Channel Bandwidth 15MHz			
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
		QPSK	16QAM
26865	831.5	14.25	14.23
26915	836.5	14.22	14.20
26965	841.5	14.23	14.22

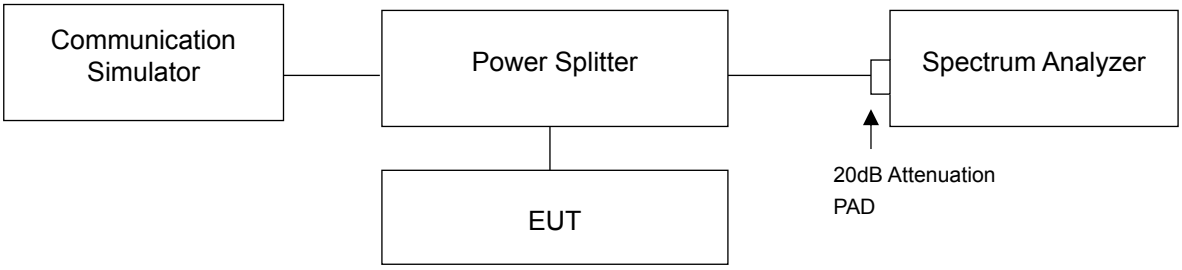
Spectrum Plot of Worst Value	
1.4MHz / 16QAM	3MHz / 16QAM
	
5MHz / QPSK	10MHz / QPSK
15MHz / QPSK	

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.

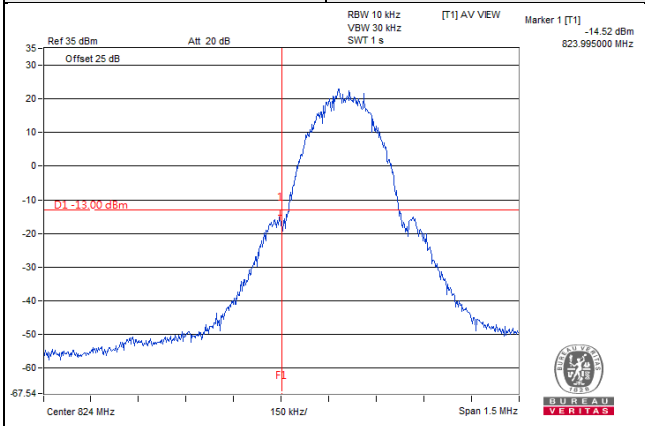
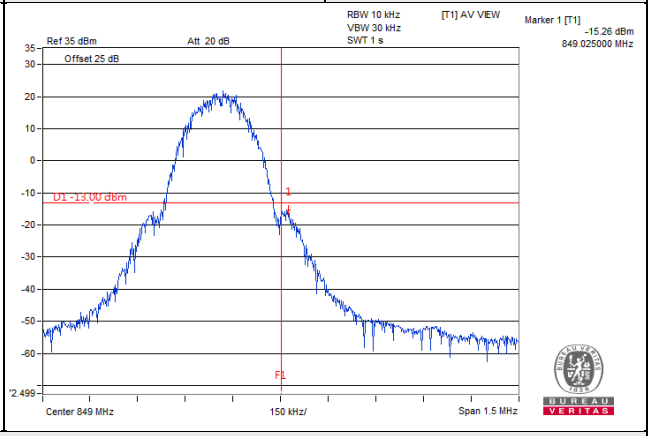
4.4.2 Test Setup

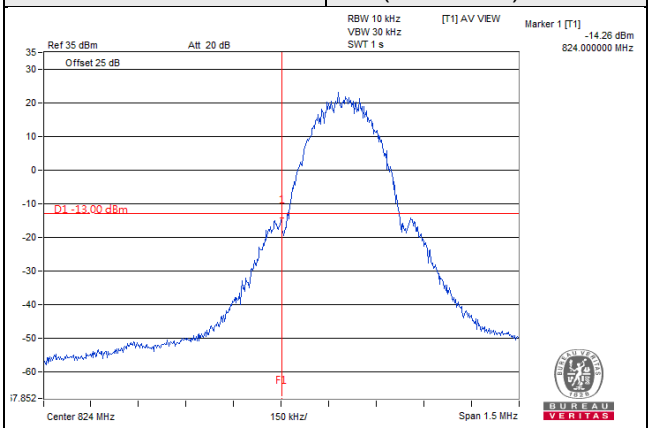
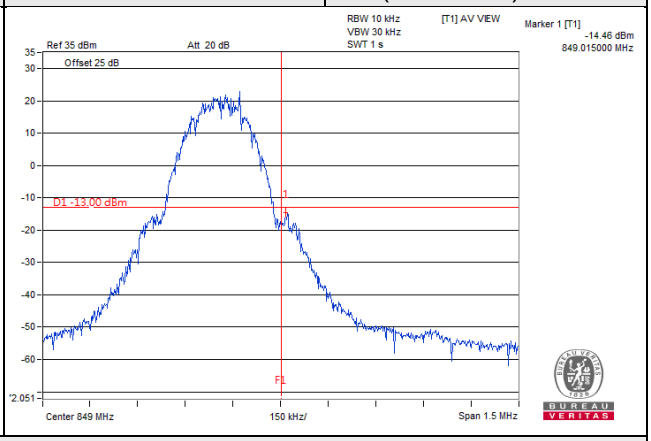


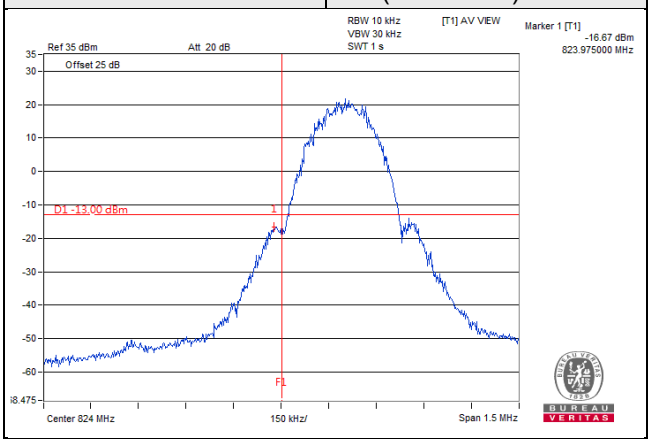
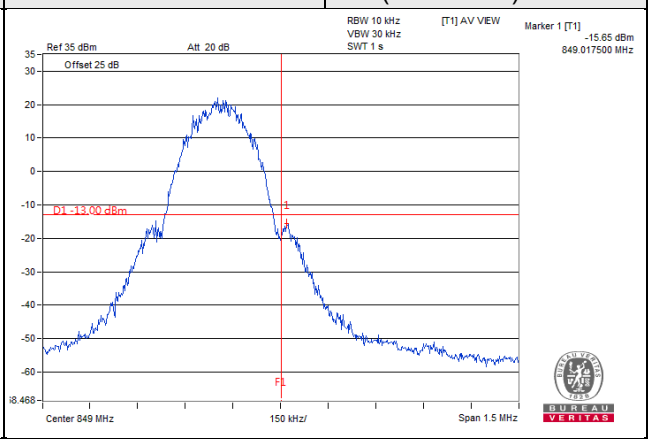
4.4.3 Test Procedures

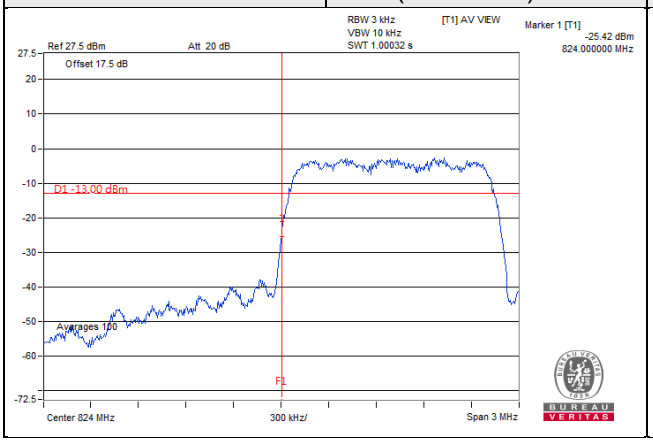
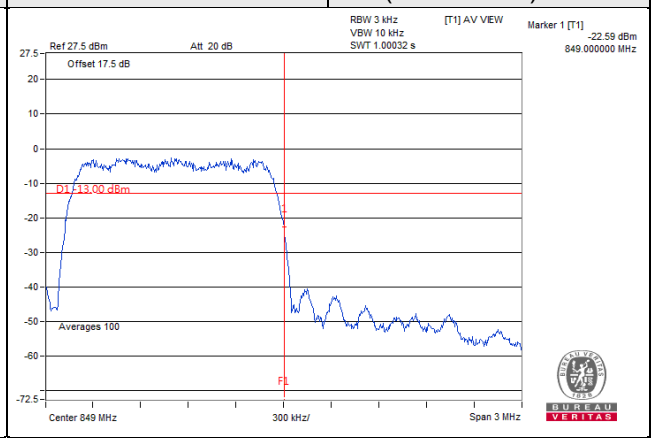
a. All measurements were done at low and high operational frequency range.
b. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 10kHz and VB of the spectrum is 30kHz (GSM / GPRS / EDGE).
c. The center frequency of spectrum is the band edge frequency and span is 3MHz. RB of the spectrum is 3kHz and VB of the spectrum is 10kHz (CDMA).
d. The center frequency of spectrum is the band edge frequency and span is 10MHz. RB of the spectrum is 51kHz and VB of the spectrum is 150kHz (WCDMA / HSDPA / HSUPA).
e. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 15kHz and VB of the spectrum is 51kHz (LTE Channel Bandwidth 1.4MHz).
f. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 30kHz and VB of the spectrum is 100kHz (LTE Channel Bandwidth 3MHz).
g. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 62kHz and VB of the spectrum is 200kHz (LTE Channel Bandwidth 5MHz).
h. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (LTE Channel Bandwidth 10MHz).
i. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 150kHz and VB of the spectrum is 470kHz (LTE Channel Bandwidth 15MHz).
j. Record the max trace plot into the test report.

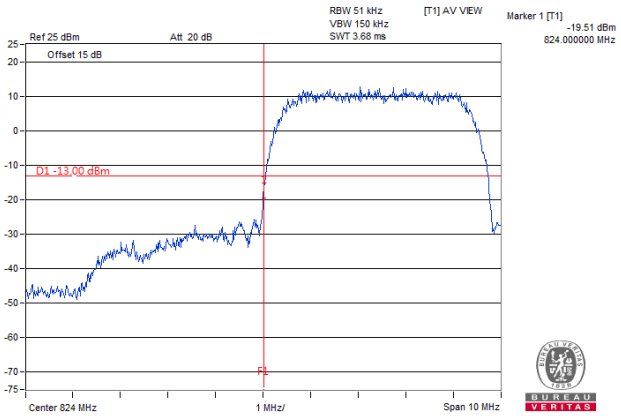
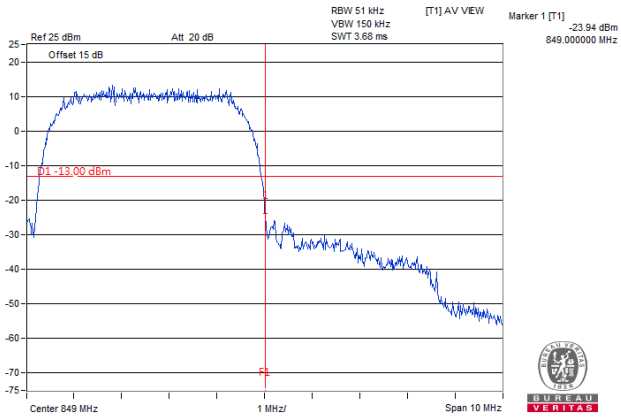
4.4.4 Test Results

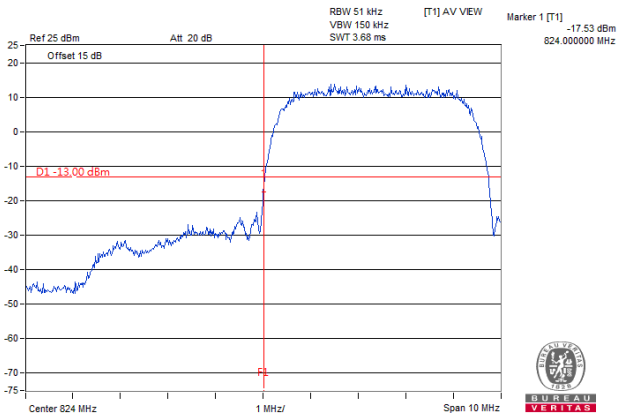
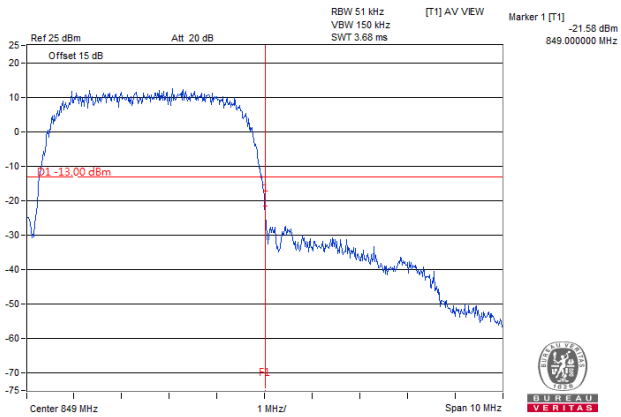
GSM			
Channel	128 (824.2MHz)	Channel	251 (848.8MHz)
			

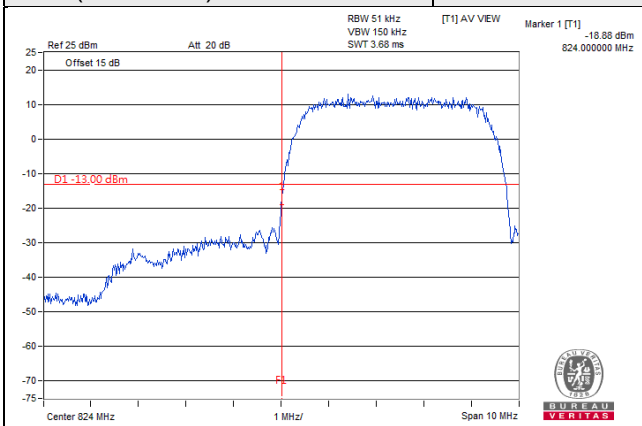
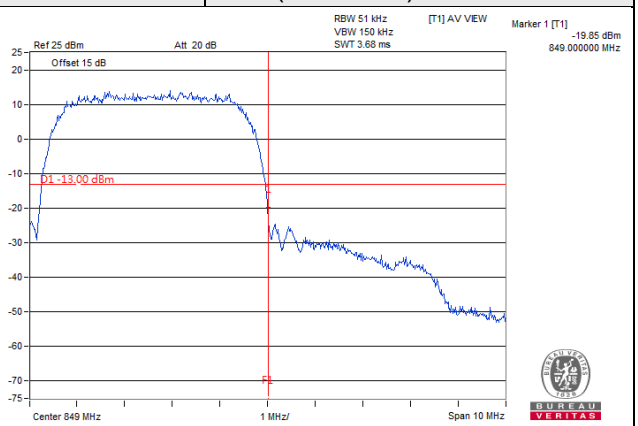
GPRS			
Channel	128 (824.2MHz)	Channel	251 (848.8MHz)
			

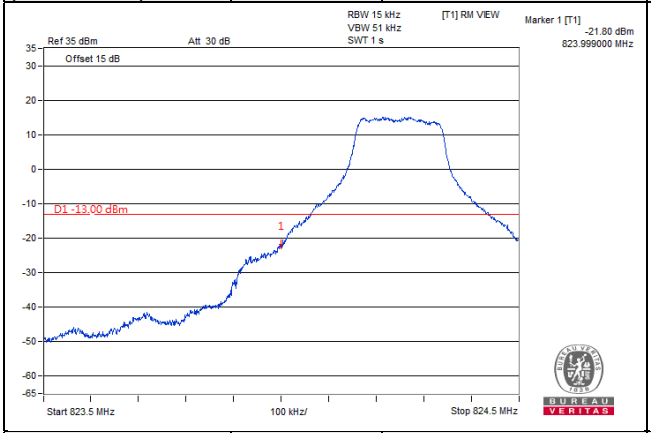
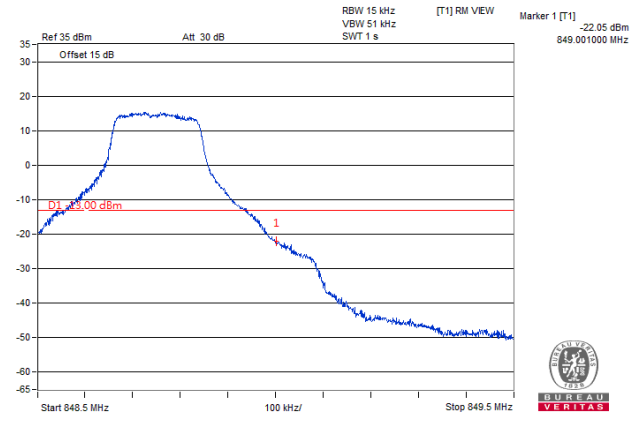
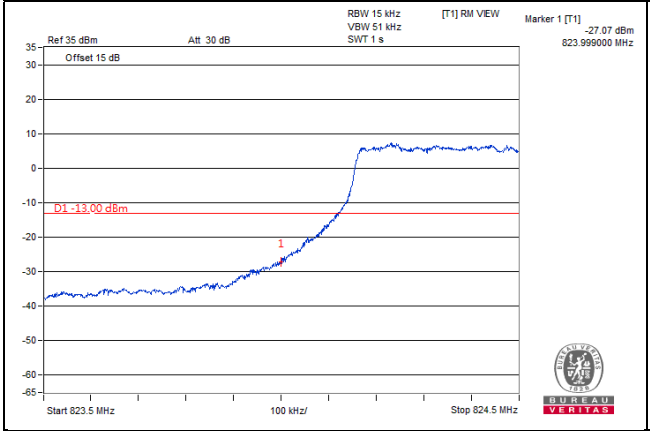
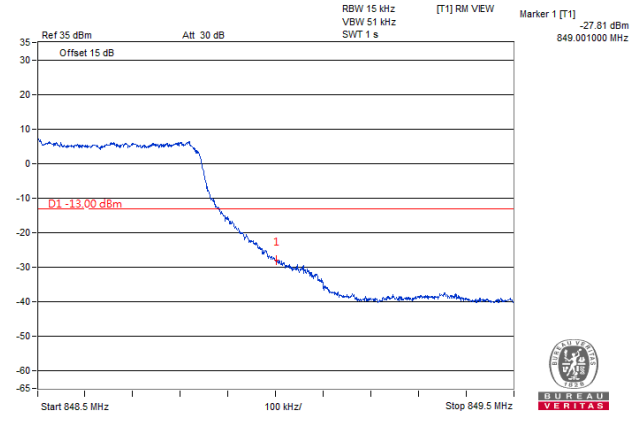
EDGE			
Channel	128 (824.2MHz)	Channel	251 (848.8MHz)
			

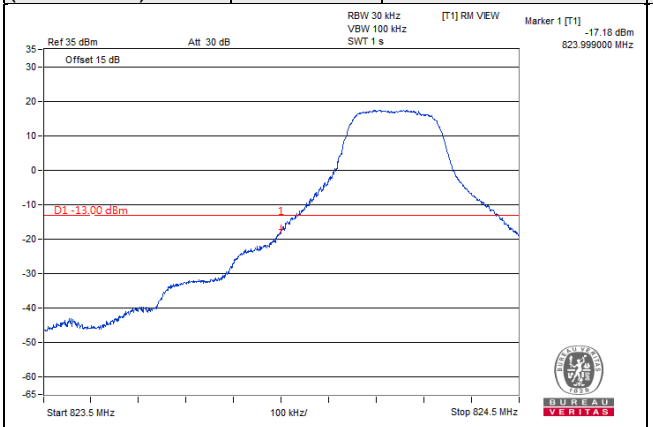
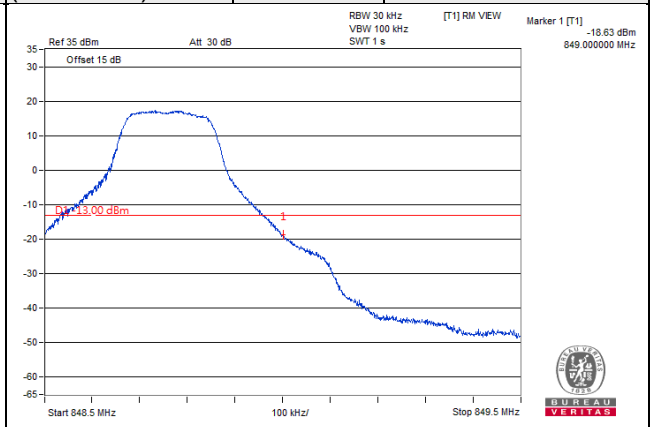
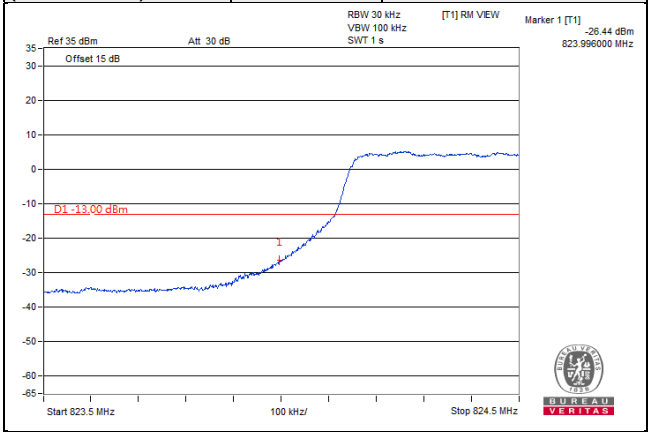
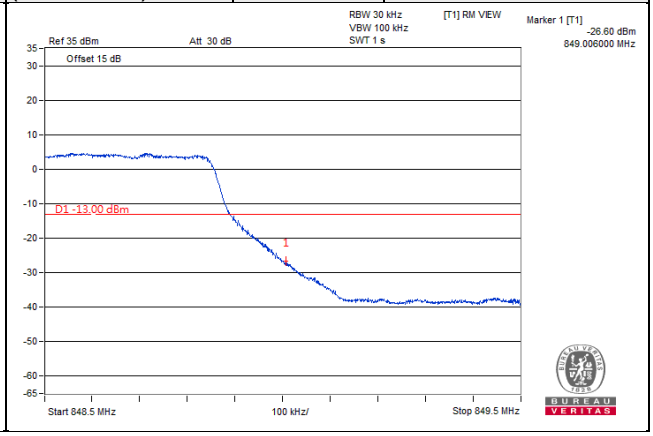
CDMA			
Channel	1013 (824.7MHz)	Channel	777 (848.31MHz)
			

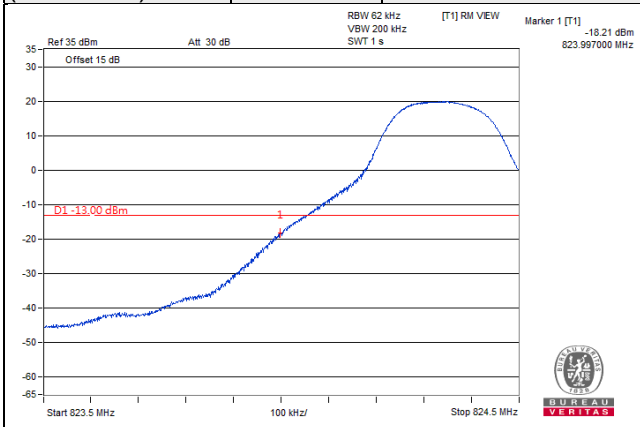
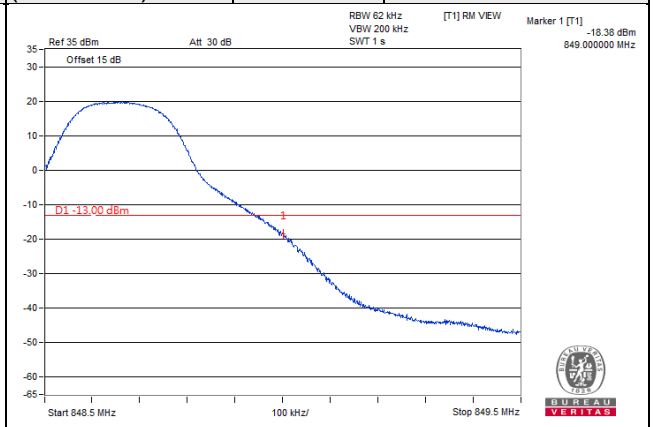
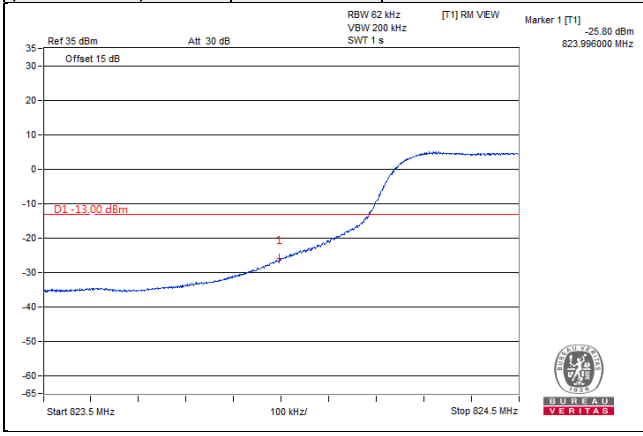
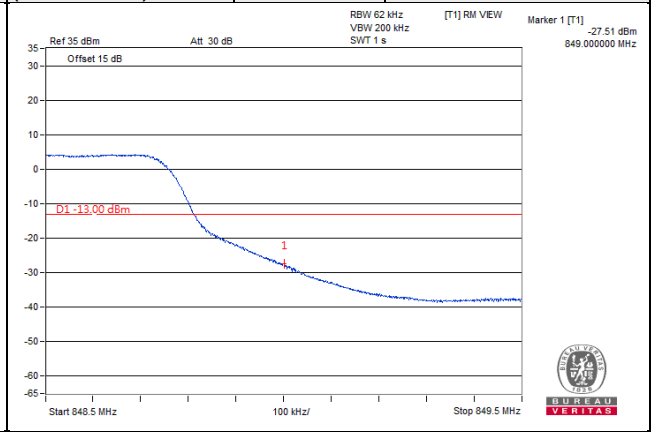
WCDMA			
Channel	4132 (826.4MHz)	Channel	4233 (846.6MHz)
			

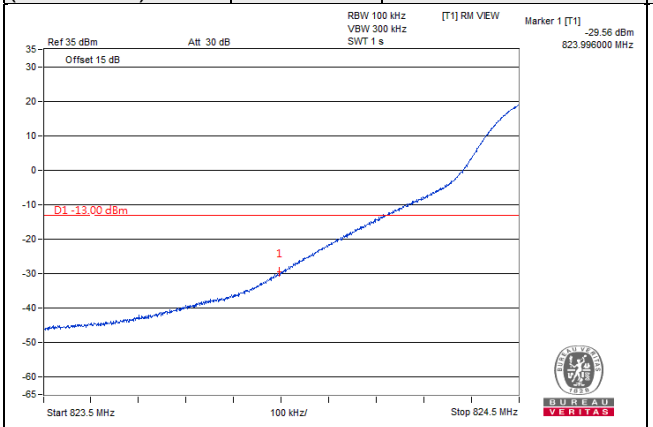
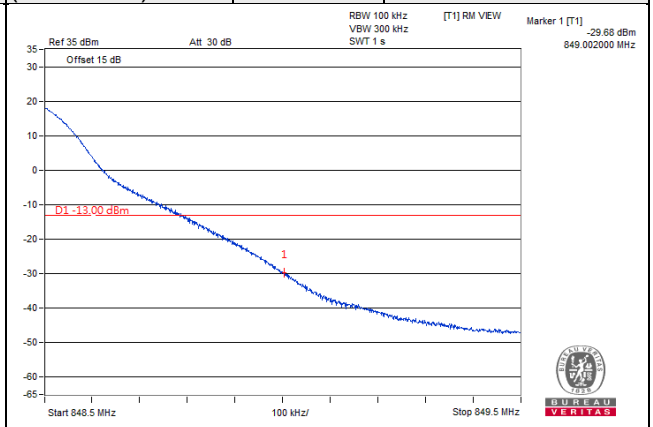
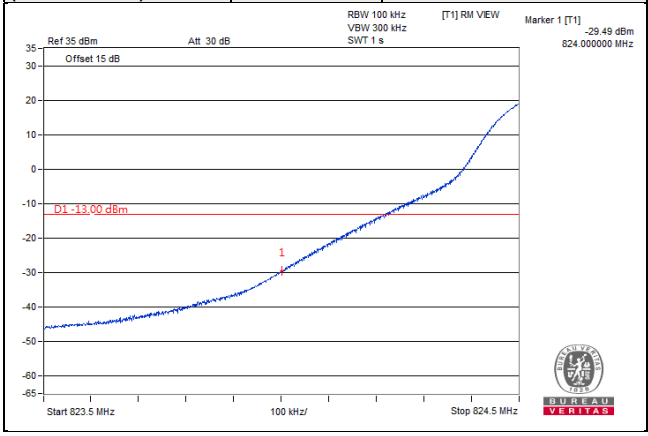
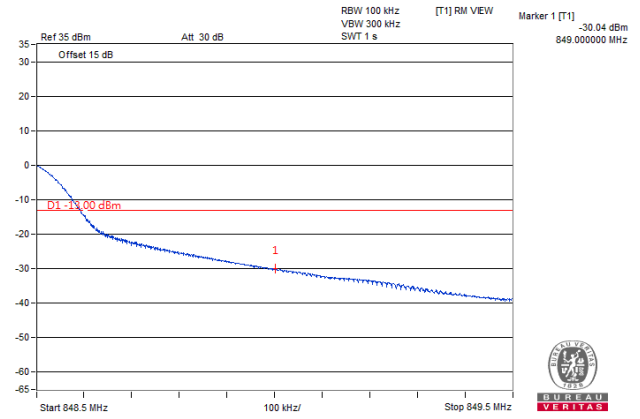
HSDPA			
Channel	4132 (826.4MHz)	Channel	4233 (846.6MHz)
			

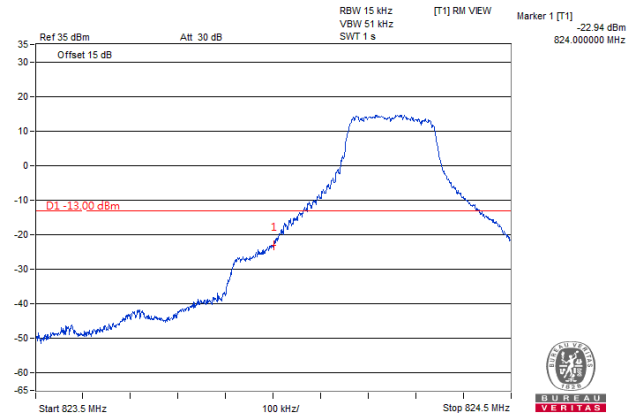
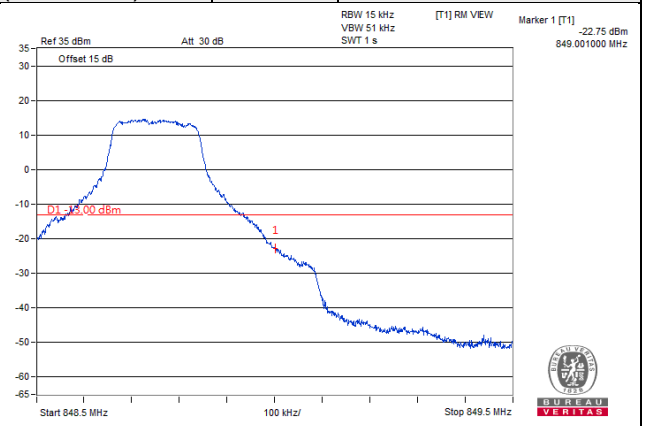
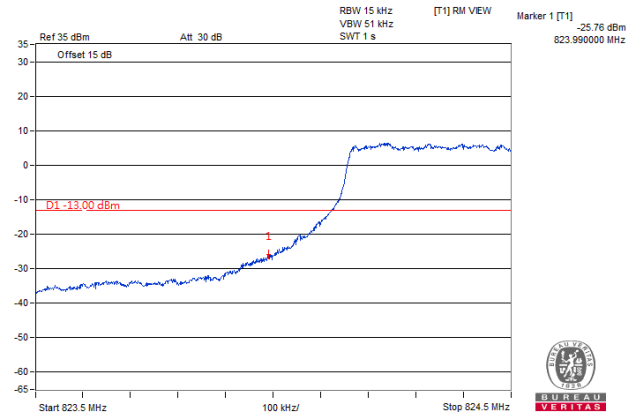
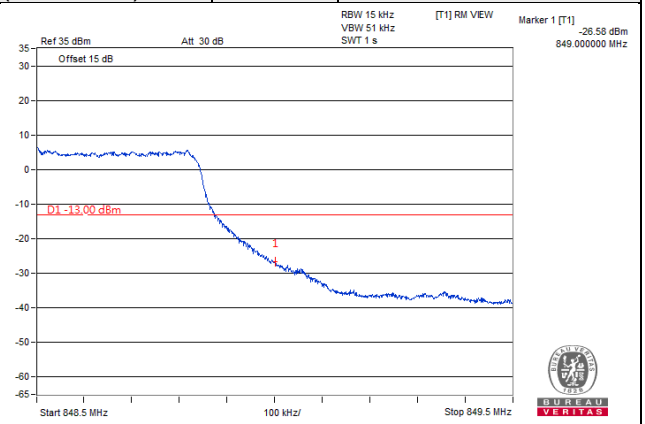
HSUPA		
4132 (826.4MHz)	Channel	4233 (846.6MHz)
		

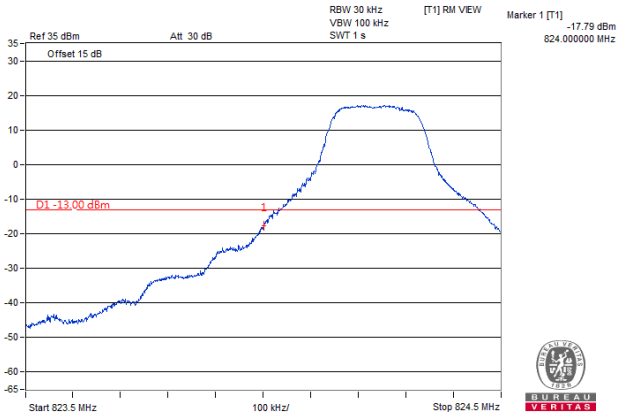
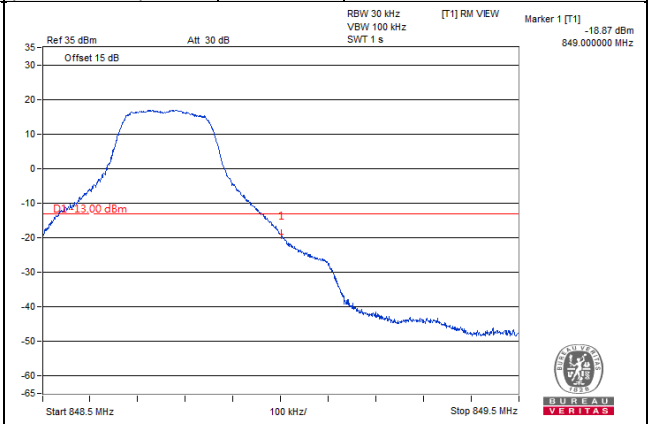
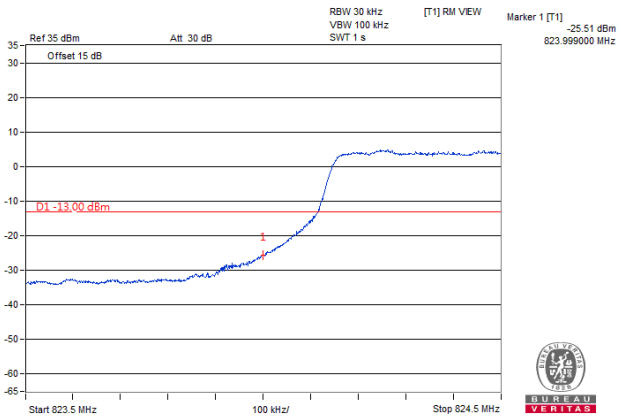
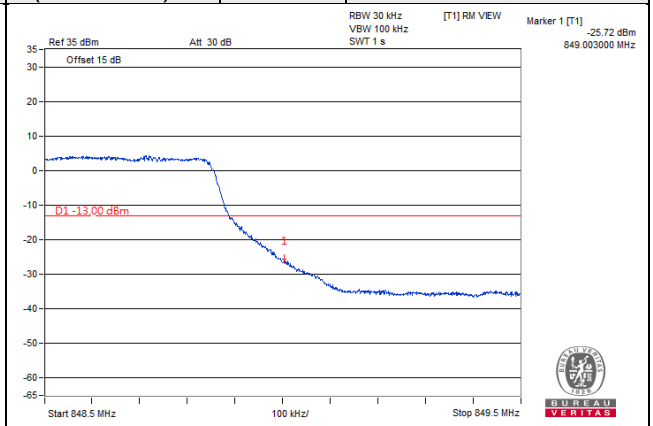
LTE Band 5, Channel Bandwidth 1.4MHz					
Channel 20407 (824.7MHz)	QPSK	1 RB / 0 RB Offset	Channel 20643 (848.3MHz)	QPSK	1 RB / 5 RB Offset
					
Channel 20407 (824.7MHz)	QPSK	6 RB / 0 RB Offset	Channel 20643 (848.3MHz)	QPSK	6 RB / 0 RB Offset
					

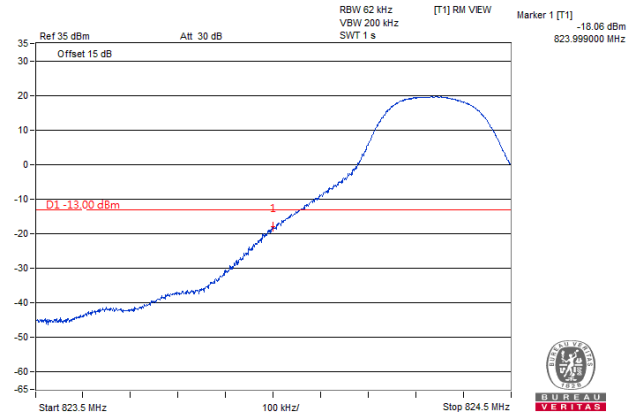
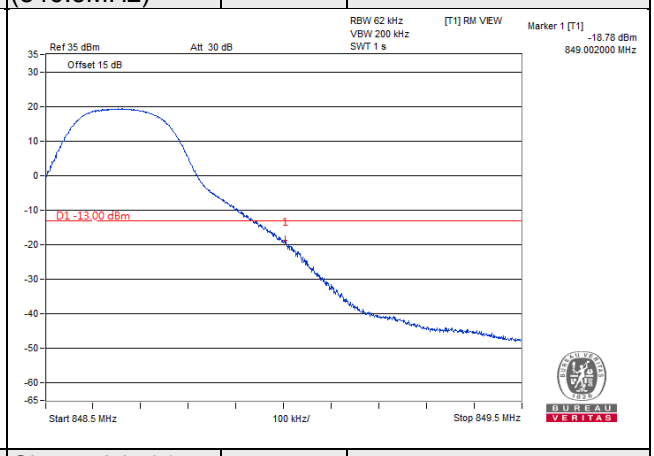
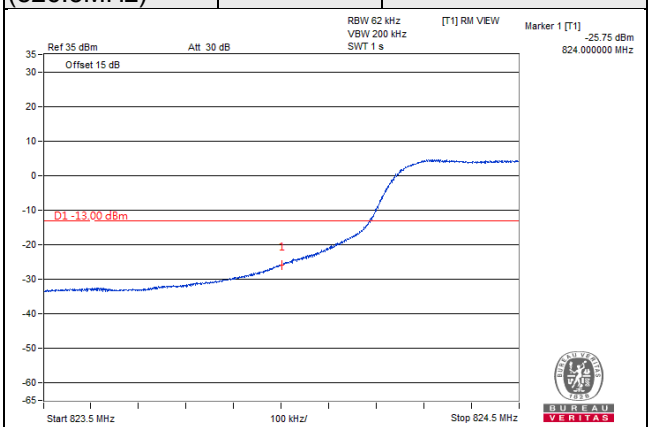
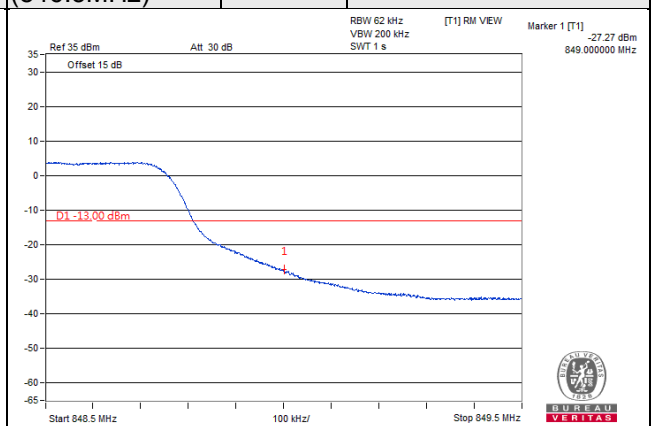
LTE Band 5, Channel Bandwidth 3MHz					
Channel 20415 (825.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 20635 (847.5MHz)	QPSK	1 RB / 14 RB Offset
					
Channel 20415 (825.5MHz)	QPSK	15 RB / 0 RB Offset	Channel 20635 (847.5MHz)	QPSK	15 RB / 0 RB Offset
					

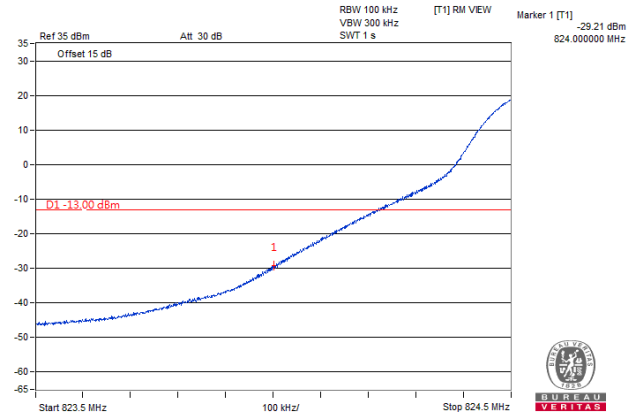
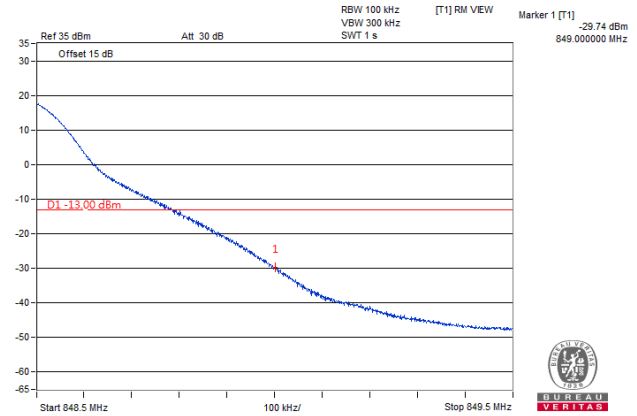
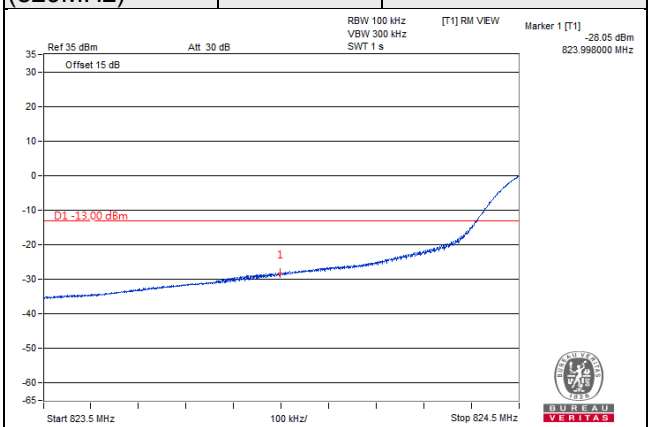
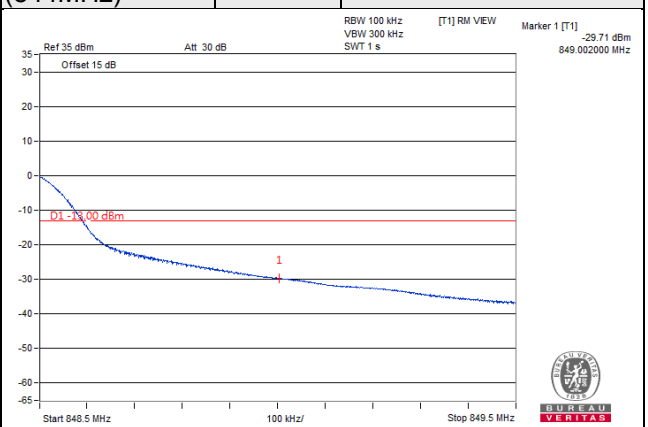
LTE Band 5, Channel Bandwidth 5MHz					
Channel 20425 (826.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 20625 (846.5MHz)	QPSK	1 RB / 24 RB Offset
					
Channel 20425 (826.5MHz)	QPSK	25 RB / 0 RB Offset	Channel 20625 (846.5MHz)	QPSK	25 RB / 0 RB Offset
					

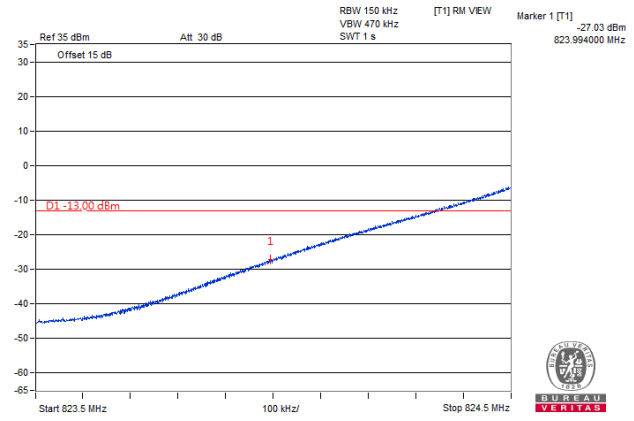
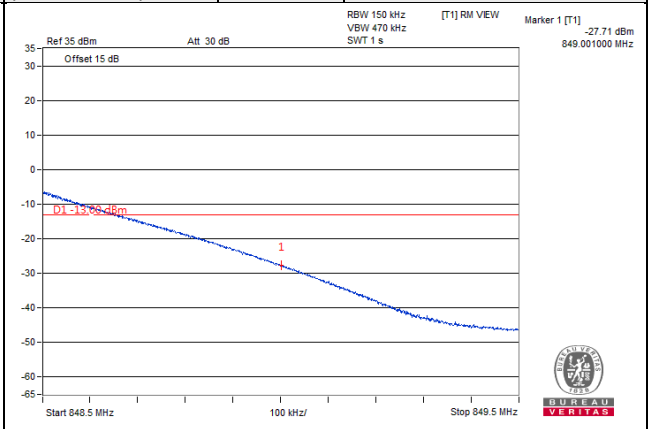
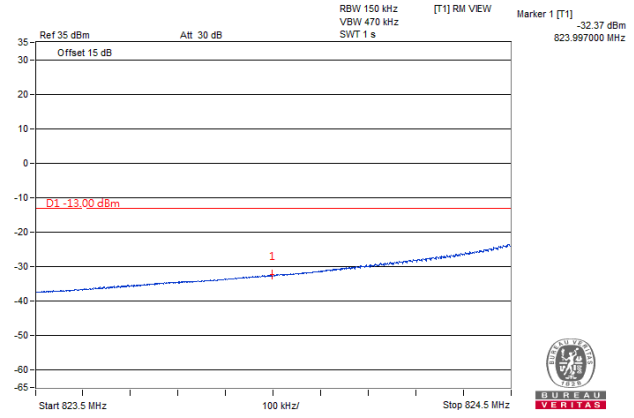
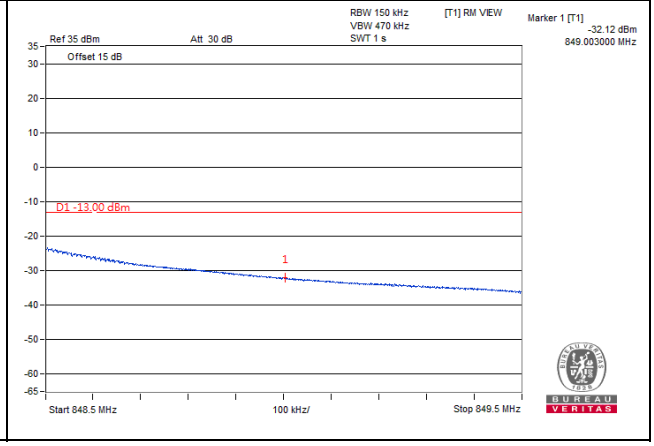
LTE Band 5, Channel Bandwidth 10MHz					
Channel 20450 (829.0MHz)	QPSK	1 RB / 0 RB Offset	Channel 20600 (844.0MHz)	QPSK	1 RB / 49 RB Offset
					
Channel 20450 (829.0MHz)	QPSK	50 RB / 0 RB Offset	Channel 20600 (844.0MHz)	QPSK	50 RB / 0 RB Offset
					

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 M(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 (829MHz)	QPSK	1 RB / 0 RB Offset	Channel 26990 (844MHz)	QPSK	1 RB / 49 RB Offset
					
Channel 26840 (829MHz)	QPSK	50 RB / 0 RB Offset	Channel 26990 (844MHz)	QPSK	50 RB / 0 RB Offset
					

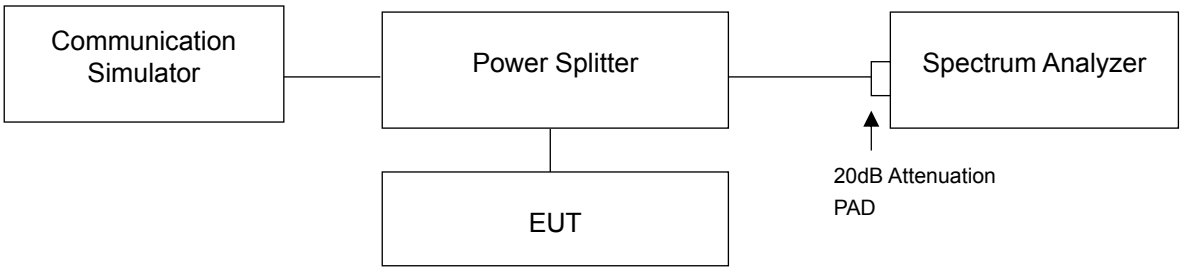
LTE Band 26, Channel Bandwidth 15MHz					
Channel 26915 (831.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 26965 (841.5MHz)	QPSK	1 RB / 74 RB Offset
					
Channel 26915 (831.5MHz)	QPSK	75 RB / 0 RB Offset	Channel 26965 (841.5MHz)	QPSK	75 RB / 0 RB Offset
					

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

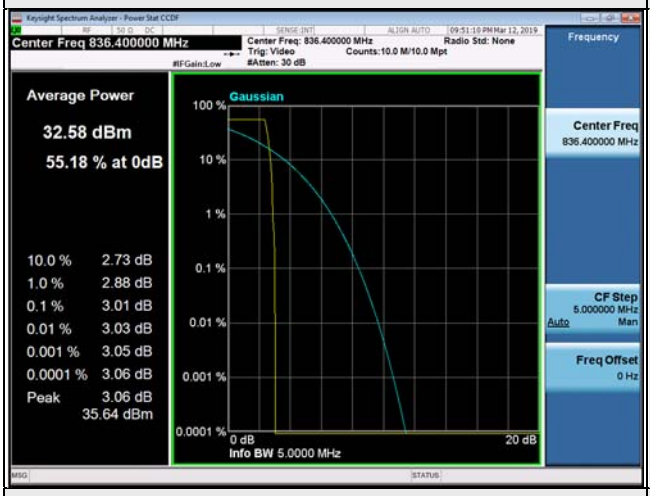
a. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
b. Set the number of counts to a value that stabilizes the measured CCDF curve;
c. Record the maximum PAPR level associated with a probability of 0.1%.

4.5.4 Test Results

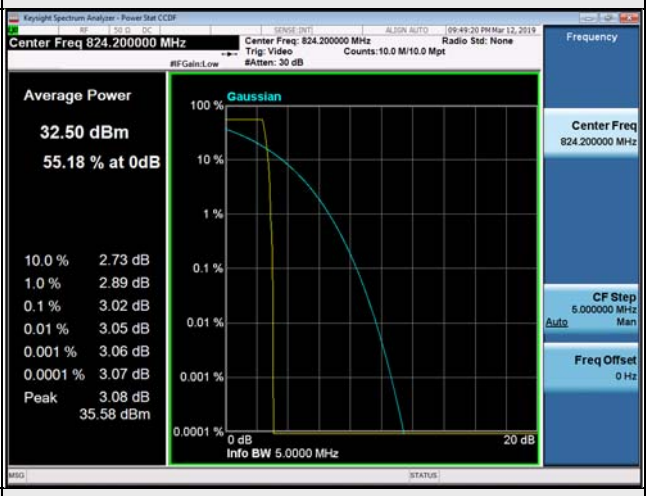
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		GSM	GPRS	EDGE
128	824.2	3.00	3.02	3.00
189	836.4	3.01	3.01	3.00
251	848.8	3.00	3.00	3.00

Spectrum Plot of Worst Value

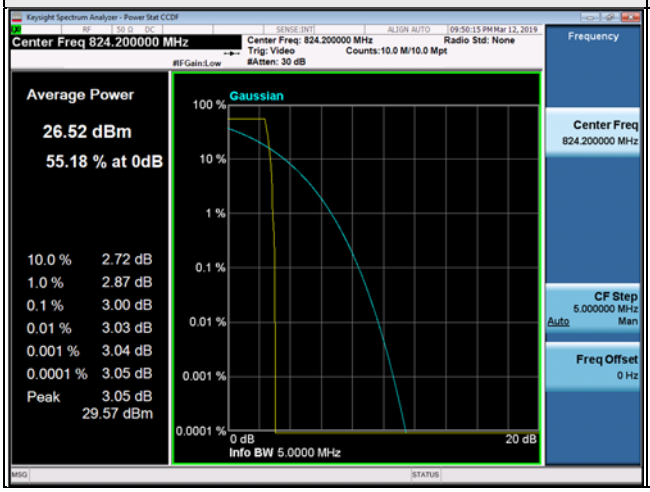
GSM



GPRS

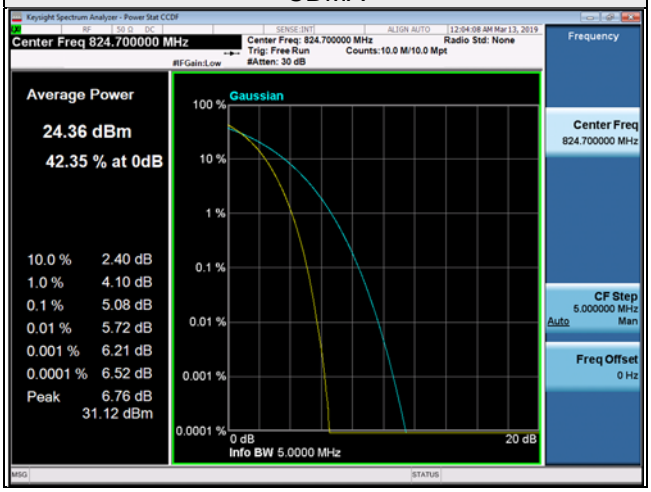


EDGE



Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		CDMA
1013	824.70	5.08
384	836.52	5.07
777	848.31	5.01

CDMA

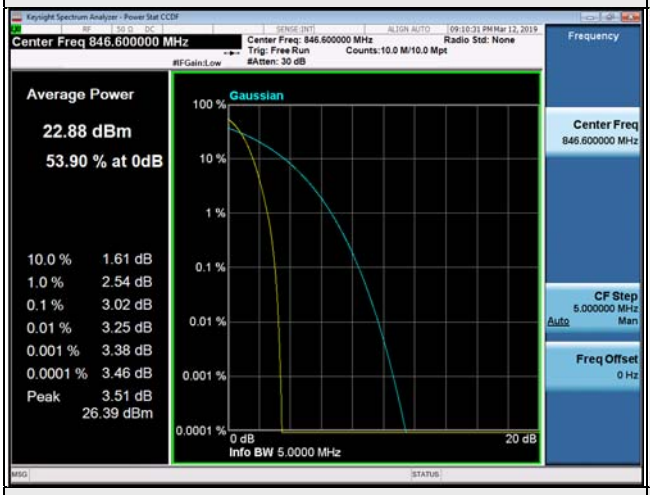


WCDMA Band 5

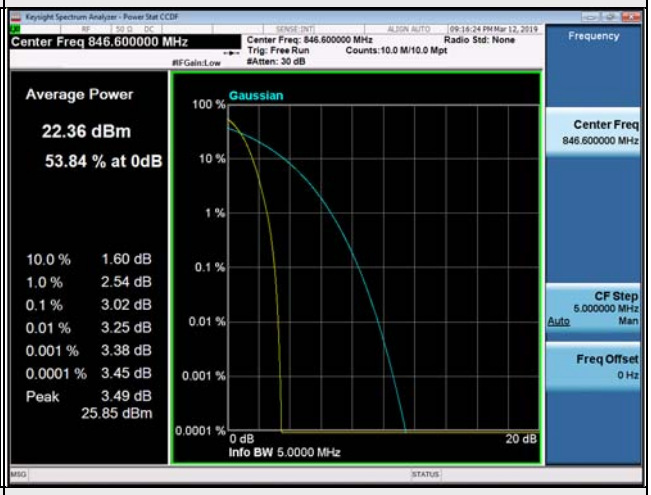
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		WCDMA	HSDPA	HSUPA
4132	826.4	3.01	3.00	3.00
4182	836.6	3.00	2.99	2.99
4233	846.6	3.02	3.02	3.02

Spectrum Plot of Worst Value

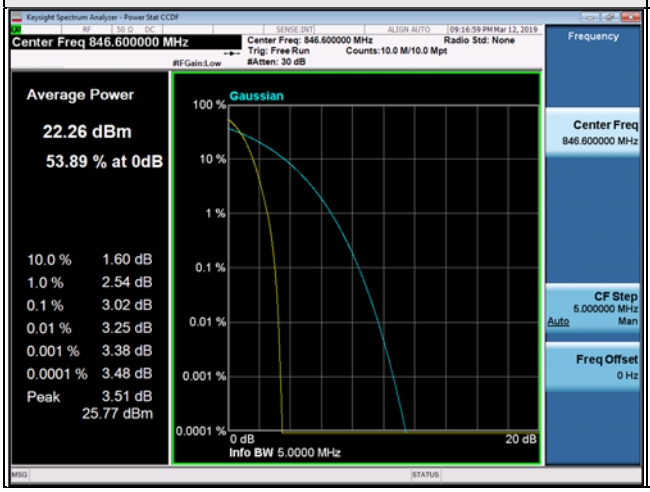
WCDMA



HSDPA



HSUPA

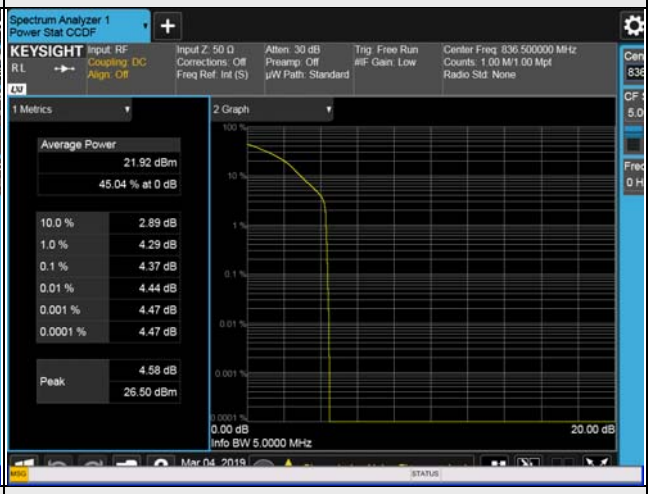


LTE Band 5, Channel Bandwidth 1.4MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
20407	824.7	3.64	4.33
20525	836.5	3.66	4.38
20643	848.3	3.50	4.31

LTE Band 5, Channel Bandwidth 3MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
20415	825.5	3.64	4.34
20525	836.5	3.65	4.37
20635	847.5	3.60	4.36

LTE Band 5, Channel Bandwidth 5MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
20425	826.5	3.54	4.22
20525	836.5	3.58	4.34
20625	846.5	3.58	4.31

LTE Band 5, Channel Bandwidth 10MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
20450	829.0	3.53	4.27
20525	836.5	3.58	4.29
20600	844.0	3.51	4.27

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

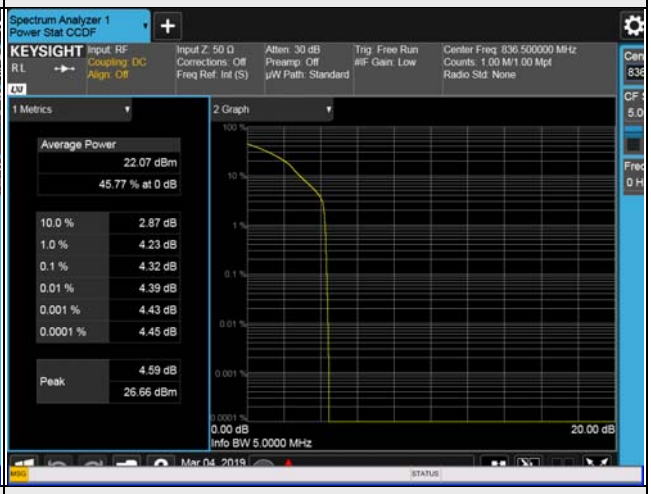
LTE Band 26, Channel Bandwidth 1.4MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
26797	824.7	3.50	4.24
26915	836.5	3.53	4.26
27033	848.3	3.45	4.20

LTE Band 26, Channel Bandwidth 3MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
26805	825.5	3.52	4.22
26915	836.5	3.58	4.32
27025	847.5	3.53	4.28

LTE Band 26, Channel Bandwidth 5MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
26815	826.5	3.45	4.20
26915	836.5	3.51	4.28
27015	846.5	3.50	4.24

LTE Band 26, Channel Bandwidth 10MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
26840	829.0	3.45	4.16
26915	836.5	3.51	4.24
26990	844.0	3.44	4.20

LTE Band 26, Channel Bandwidth 15MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
26865	831.5	3.43	4.16
26915	836.5	3.46	4.20
26965	841.5	3.48	4.22

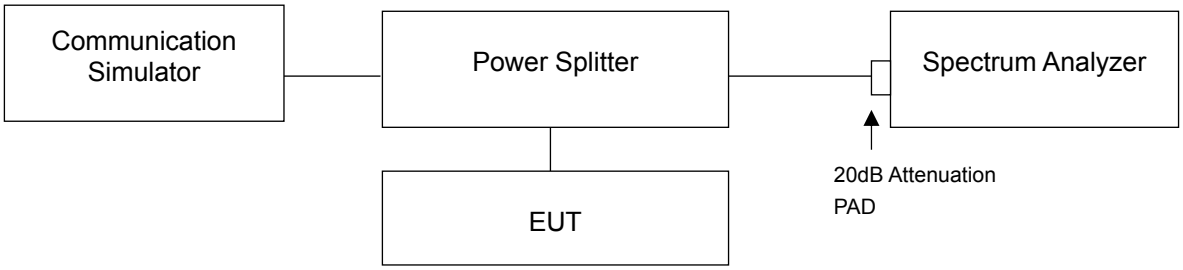
Spectrum Plot of Worst Value	
1.4MHz / 16QAM	3MHz / 16QAM
	
5MHz / 16QAM	10MHz / 16QAM
15MHz / 16QAM	

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 –13dBm.

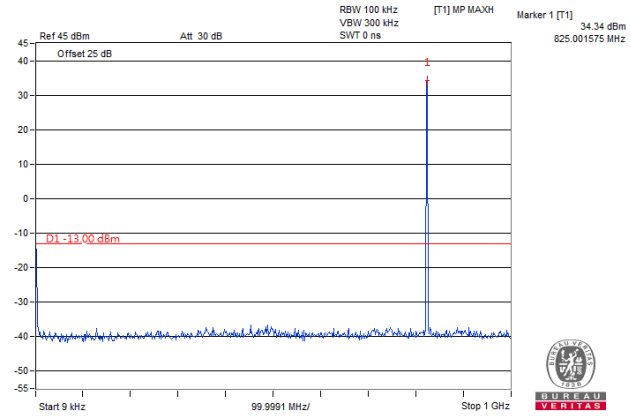
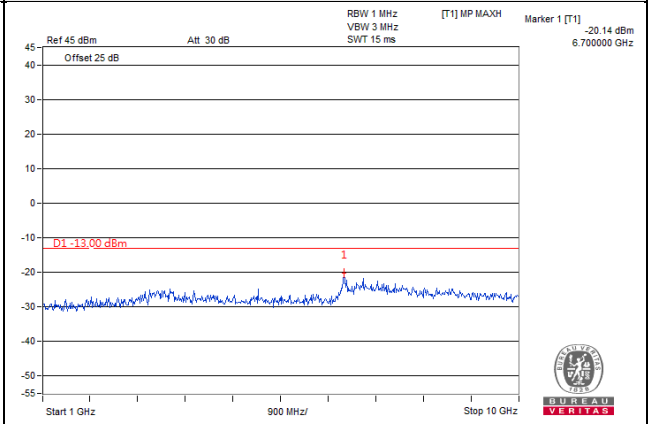
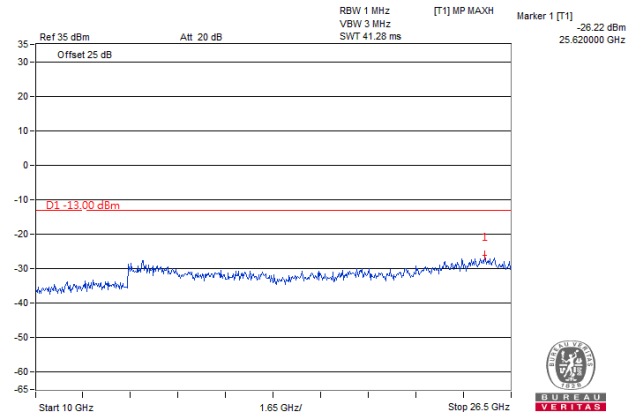
4.6.2 Test Setup

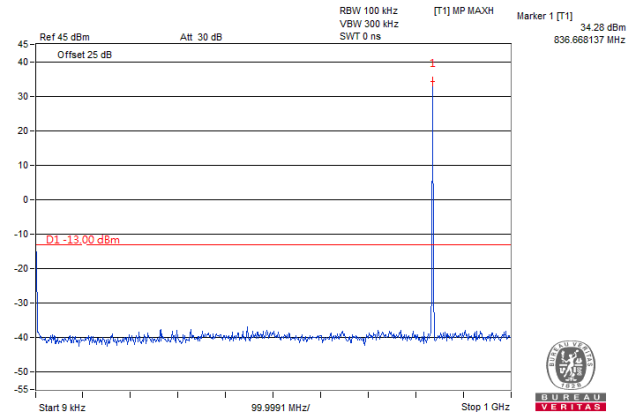
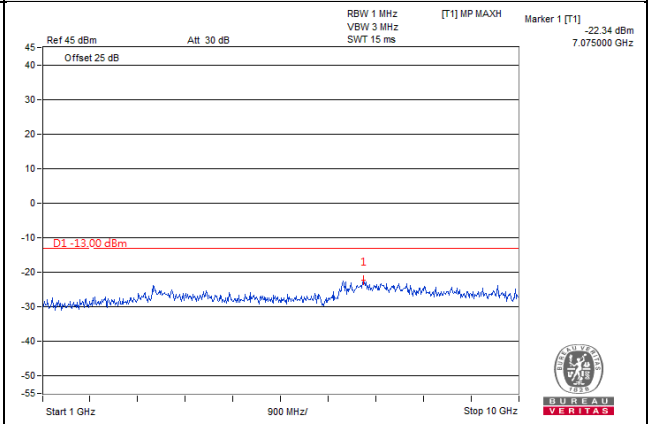
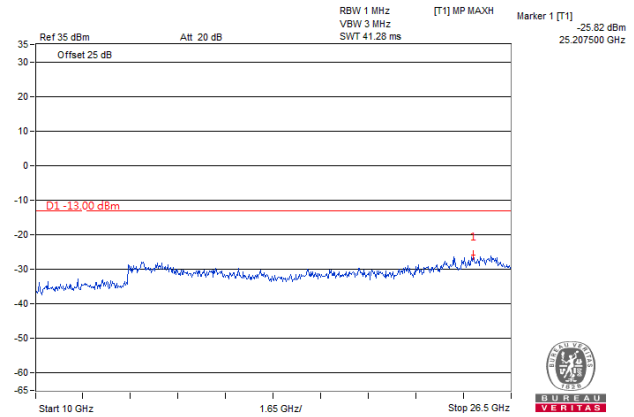


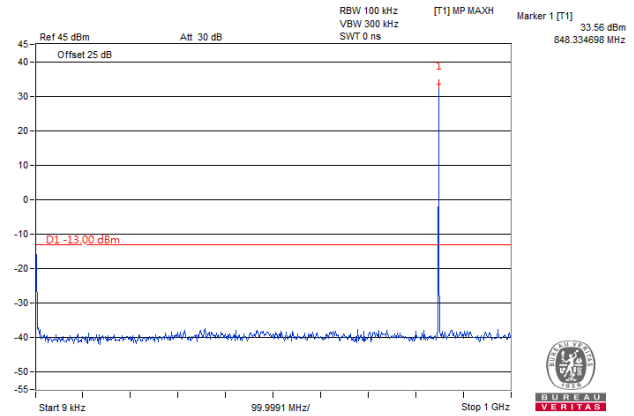
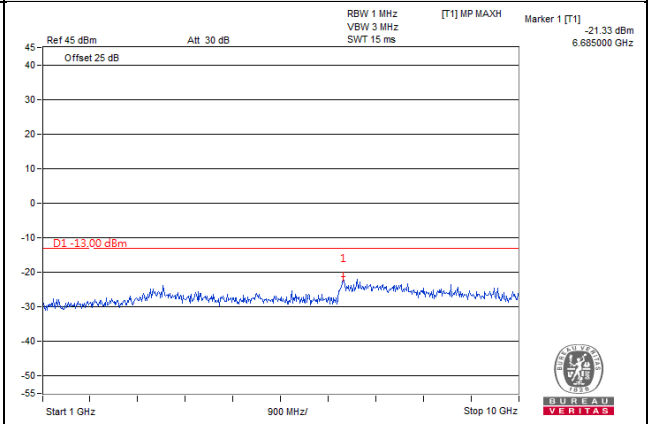
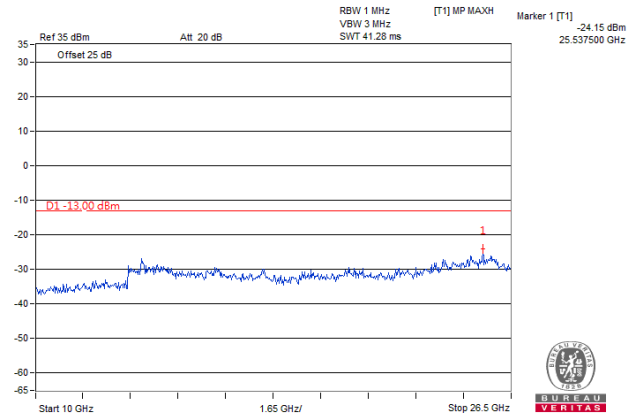
4.6.3 Test Procedure

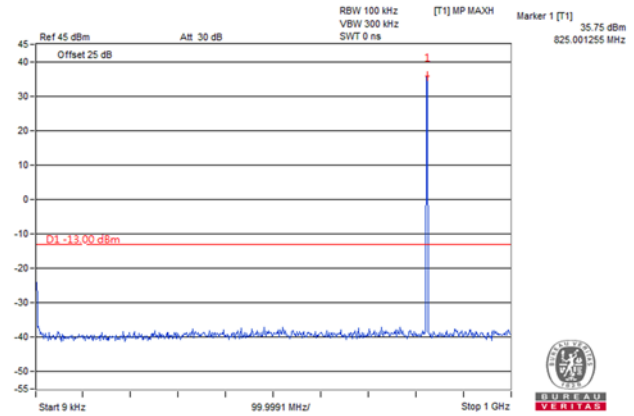
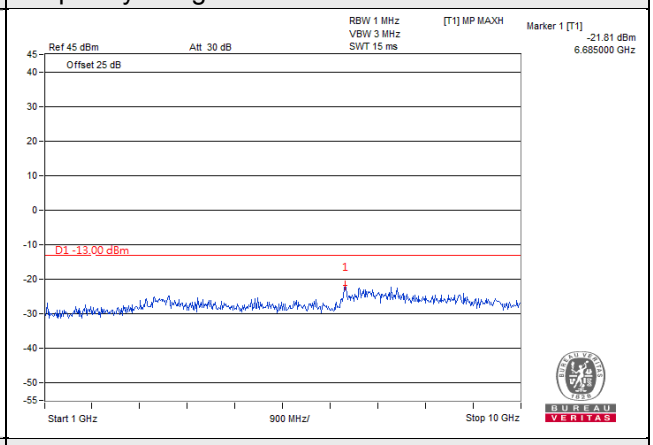
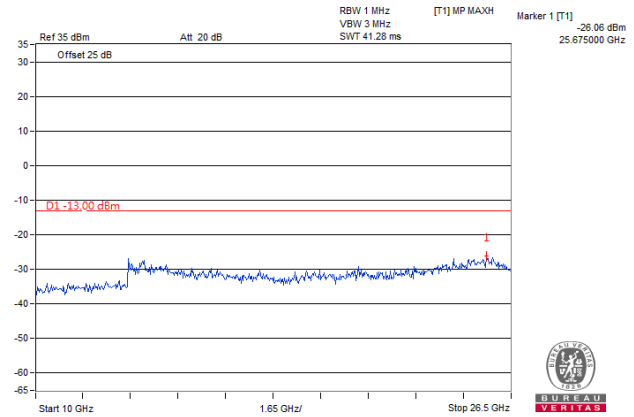
a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
b. Measuring frequency range is from 9 kHz to 1GHz. 20dB attenuation pad is connected with spectrum. RBW=100kHz and VBW=300kHz is used for conducted emission measurement.
c. Measuring frequency range is from 1GHz to 27GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

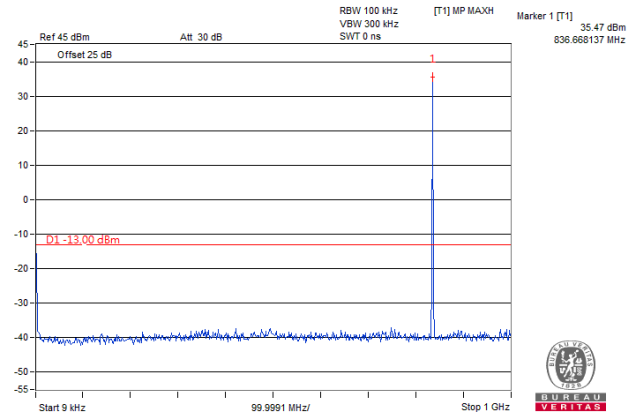
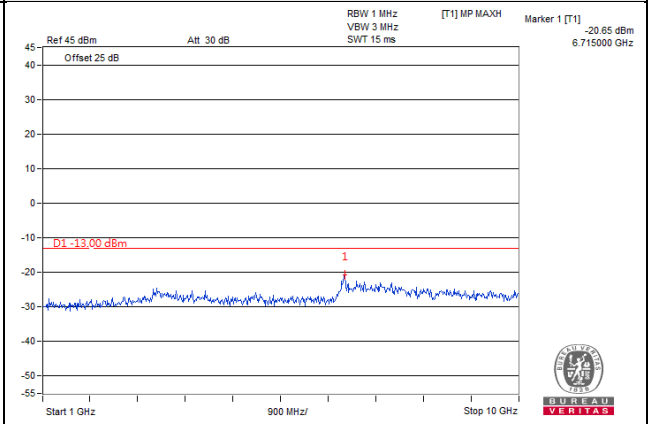
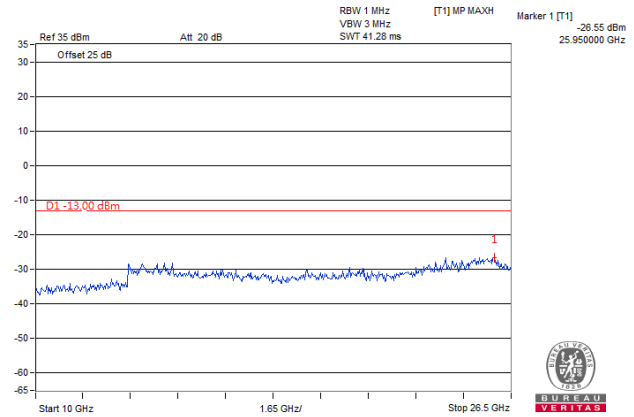
4.6.4 Test Results

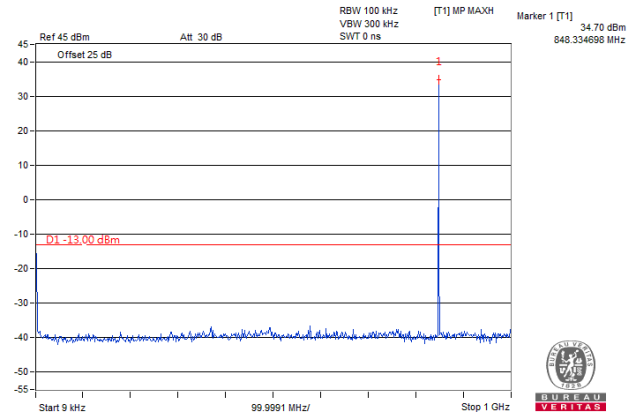
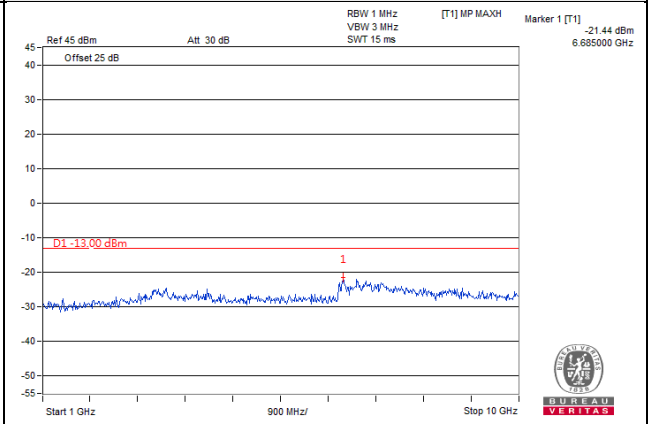
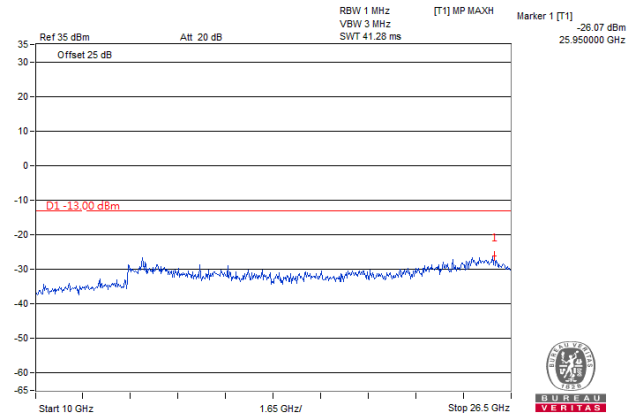
GSM	
Channel 128 (824.2MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

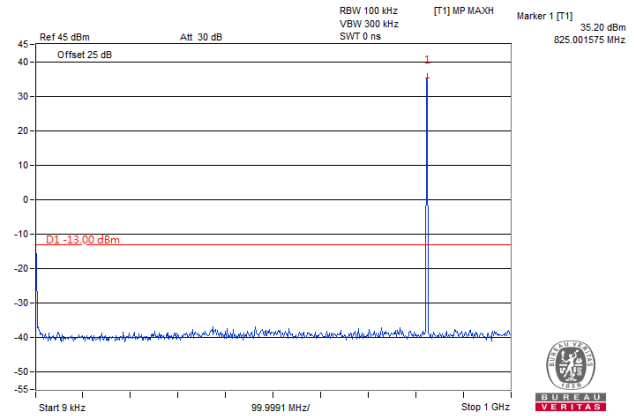
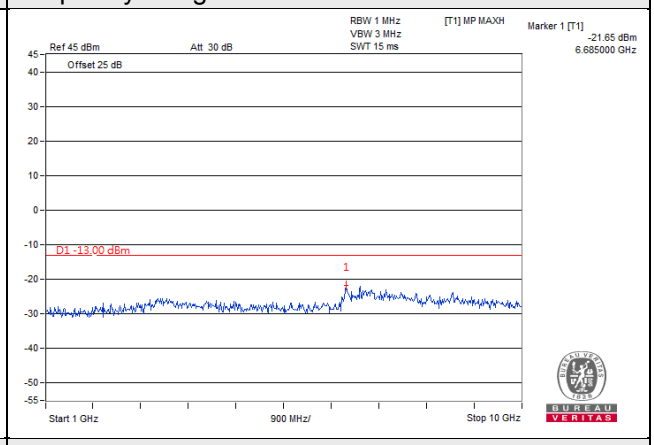
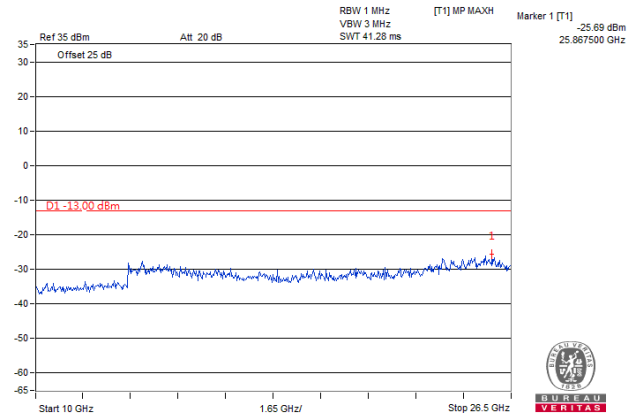
GSM	
Channel 189 (836.4MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

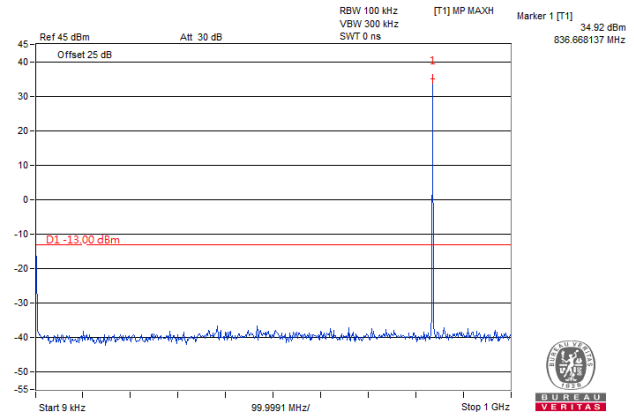
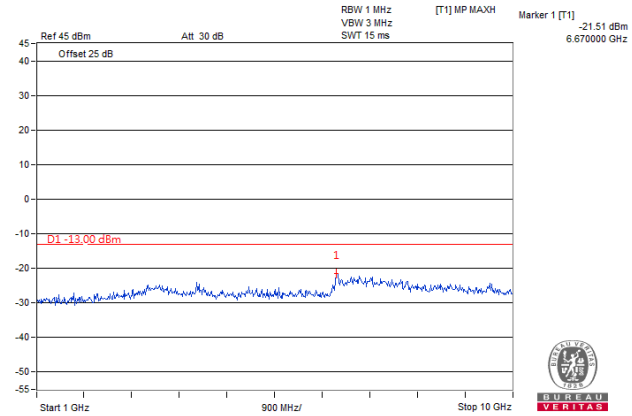
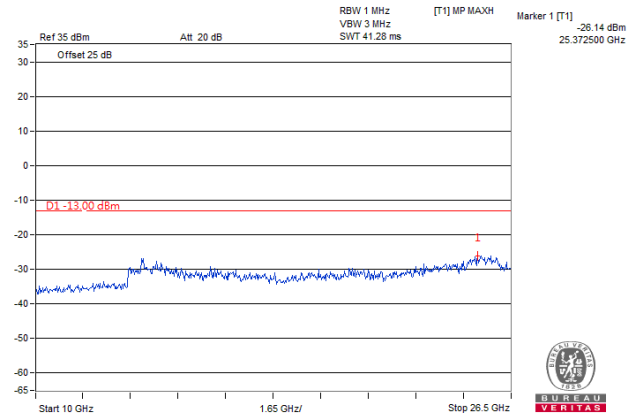
GSM	
Channel 251 (848.8MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

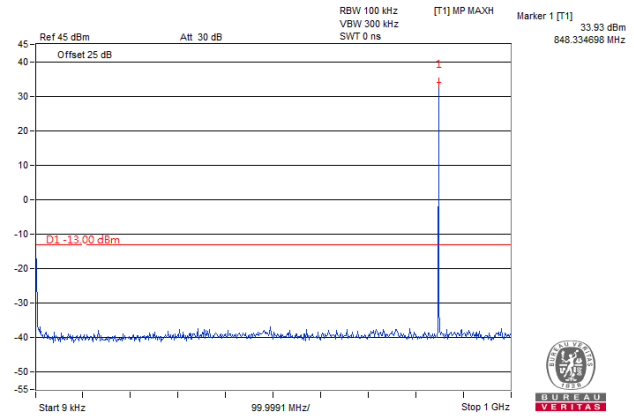
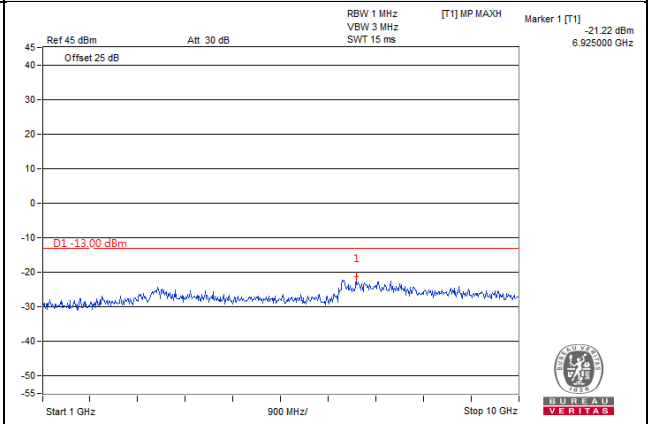
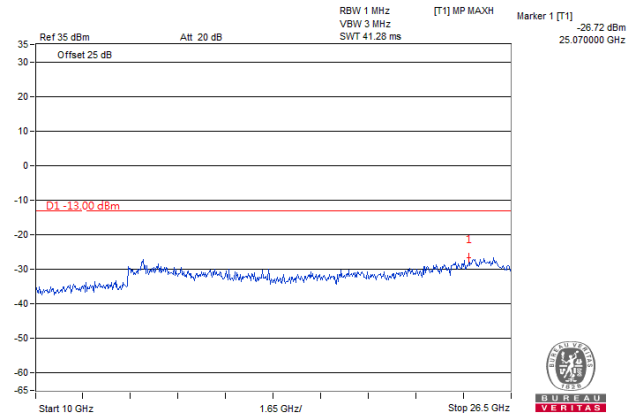
GPRS	
Channel 128 (824.2MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

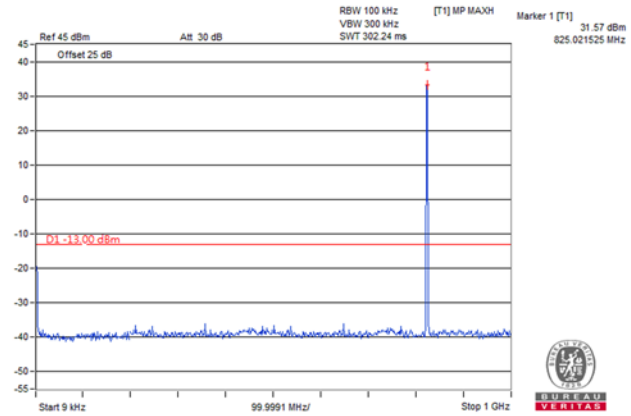
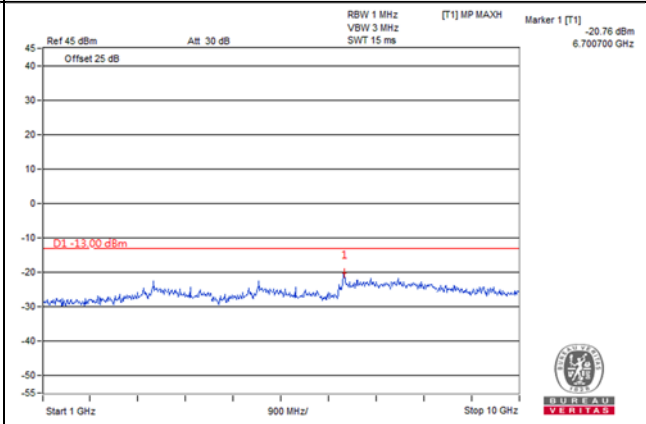
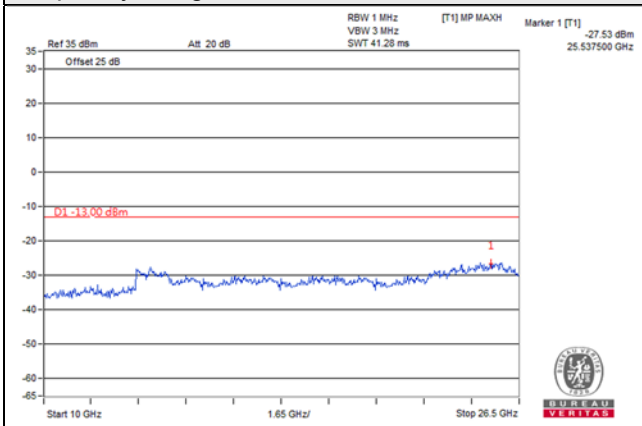
GPRS	
Channel 189 (836.4MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

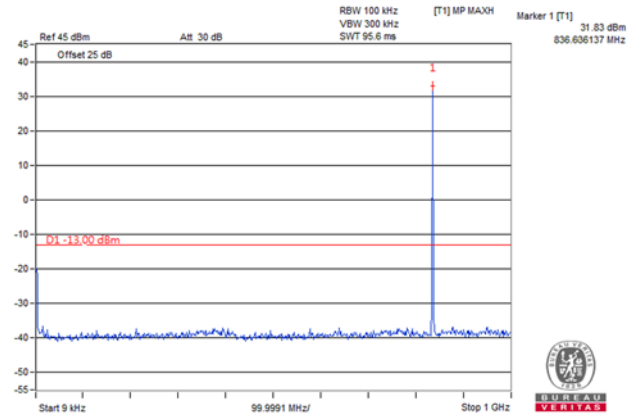
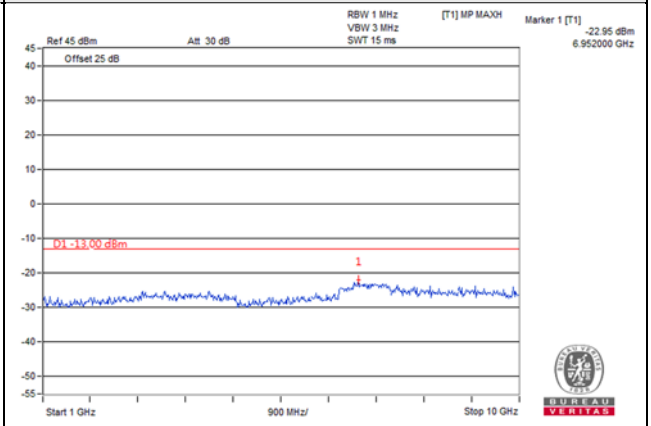
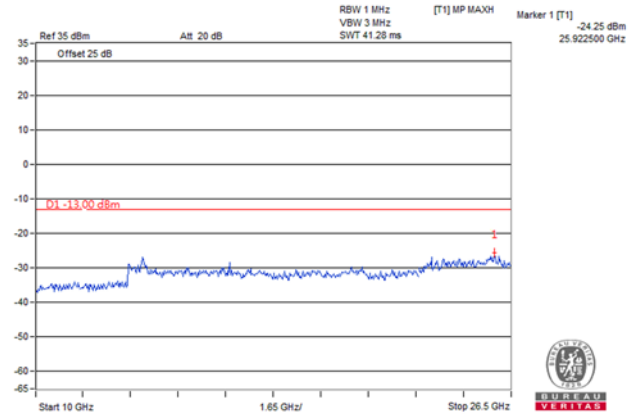
GPRS	
Channel 251 (848.8MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

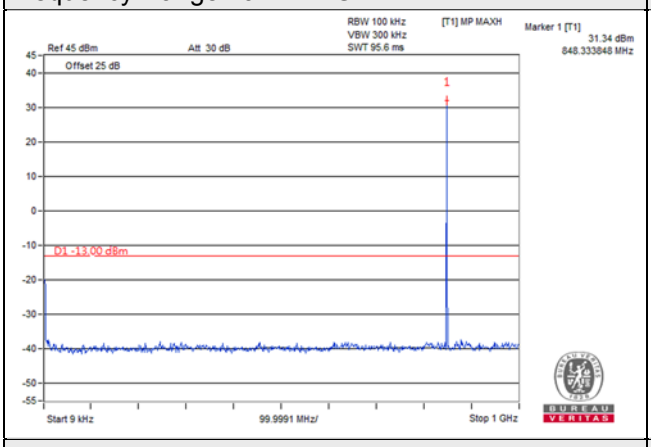
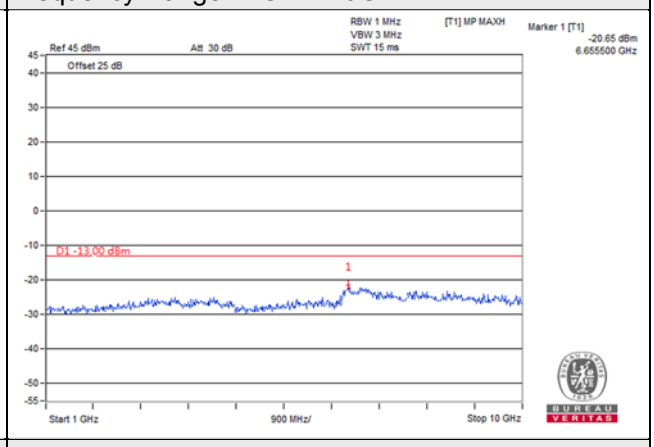
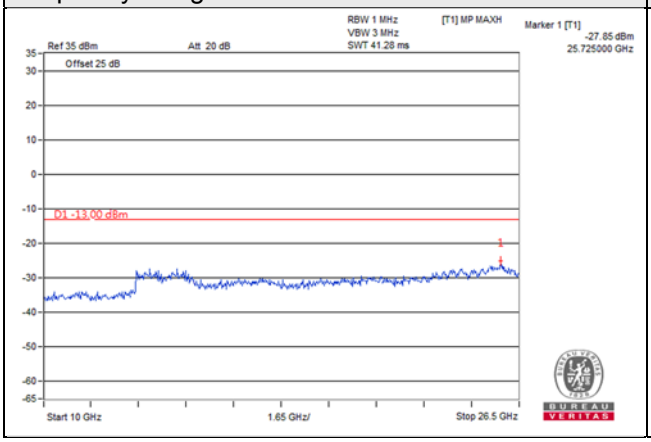
EDGE	
Channel 128 (824.2MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

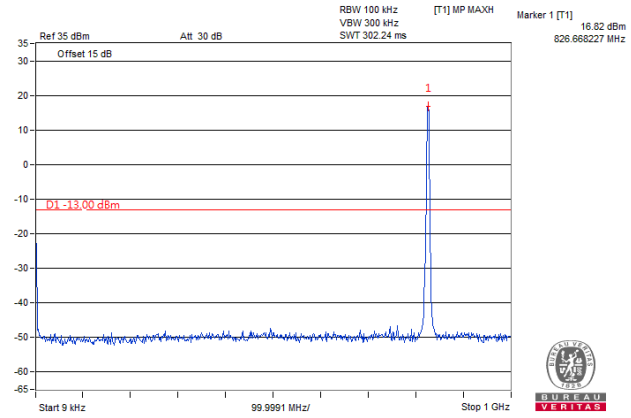
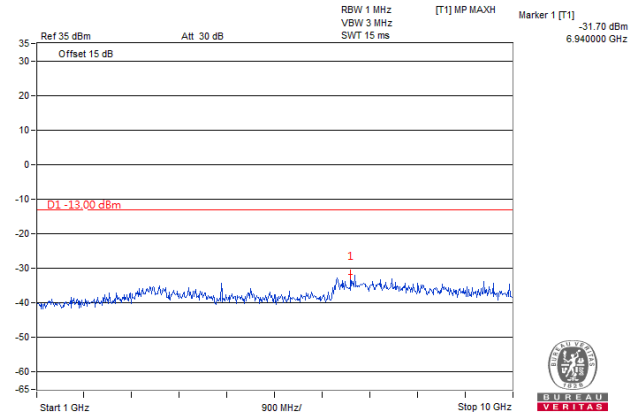
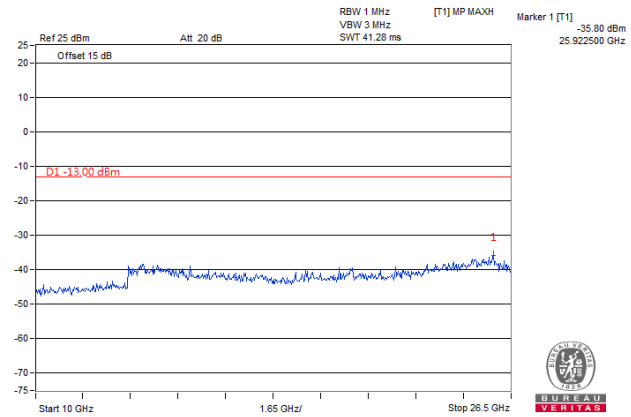
EDGE	
Channel 189 (836.4MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

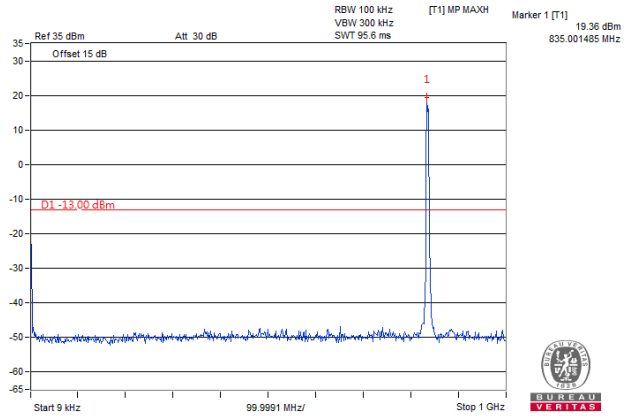
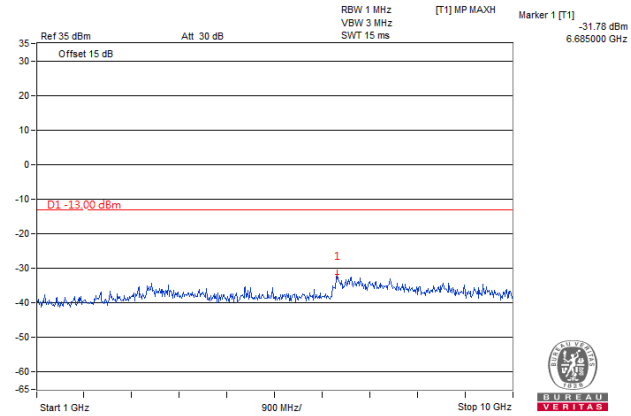
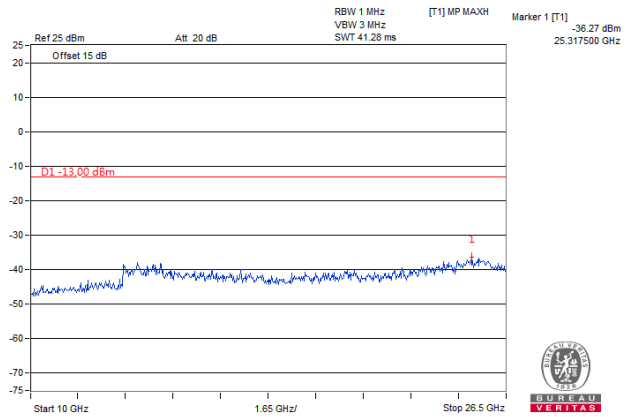
EDGE	
Channel 251 (848.8MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

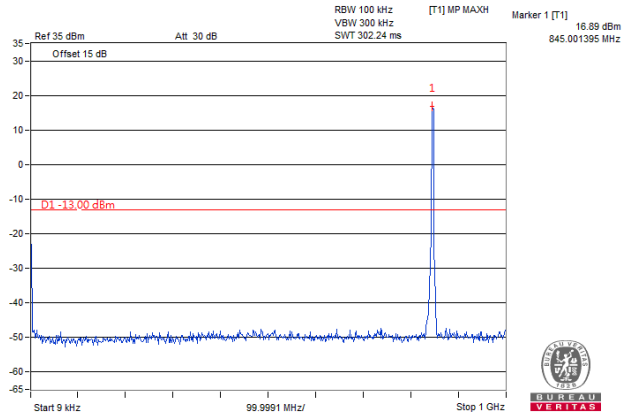
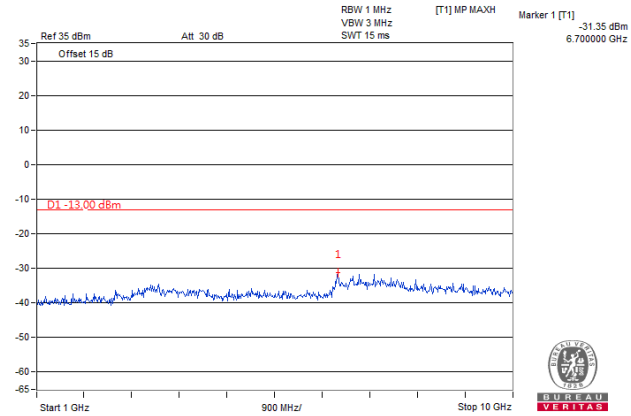
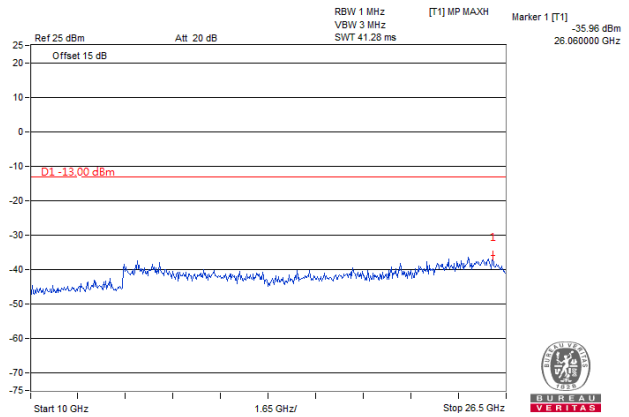
CDMA	
Channel 1013 (824.7MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

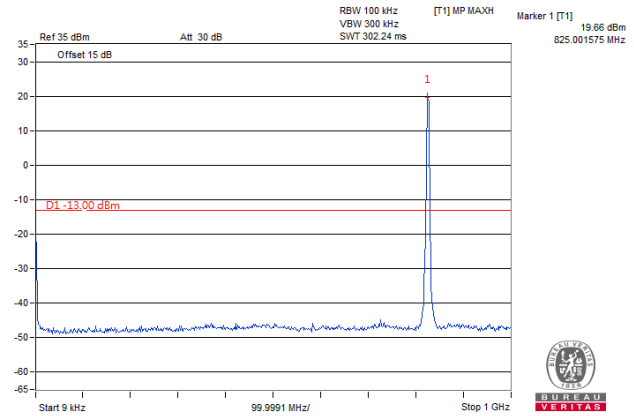
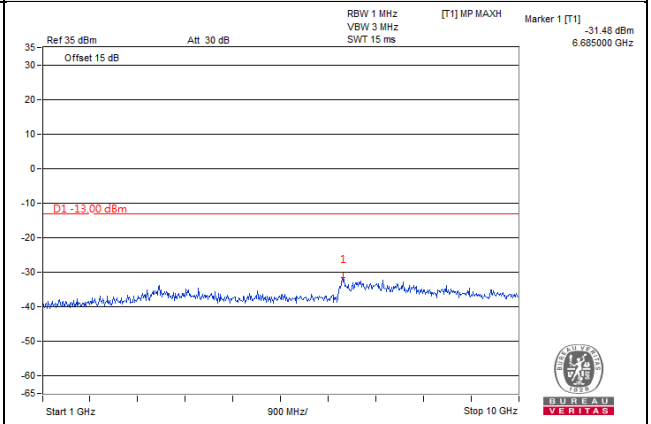
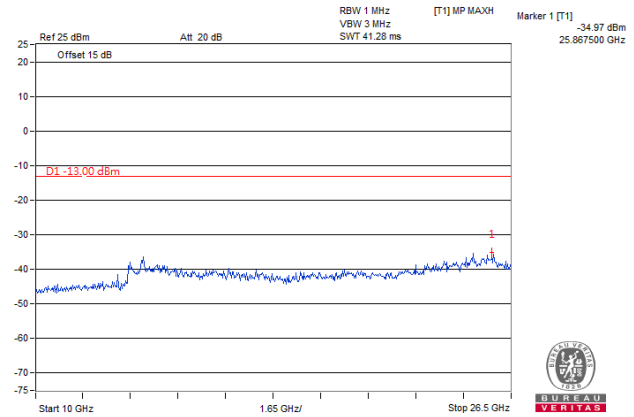
CDMA	
Channel 384 (836.52MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

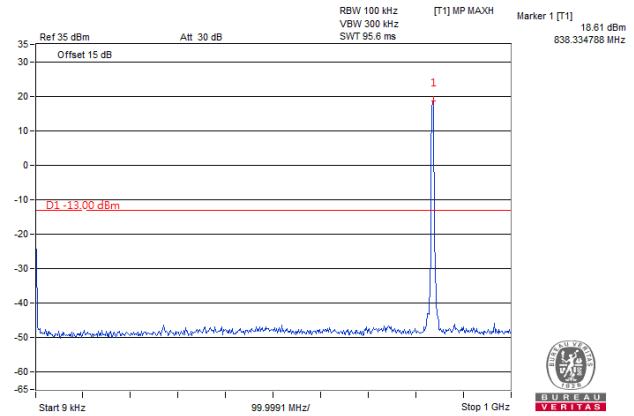
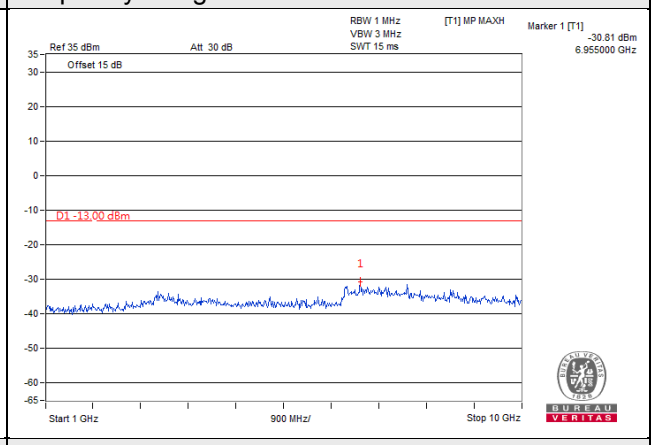
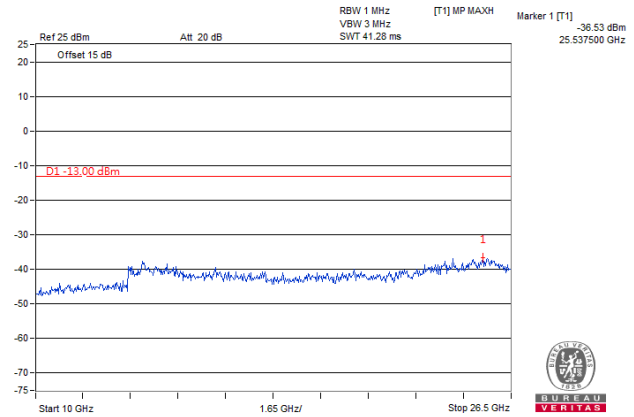
CDMA	
Channel 777 (848.31MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

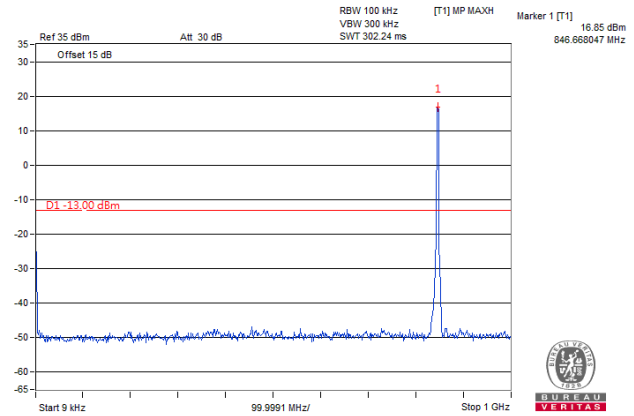
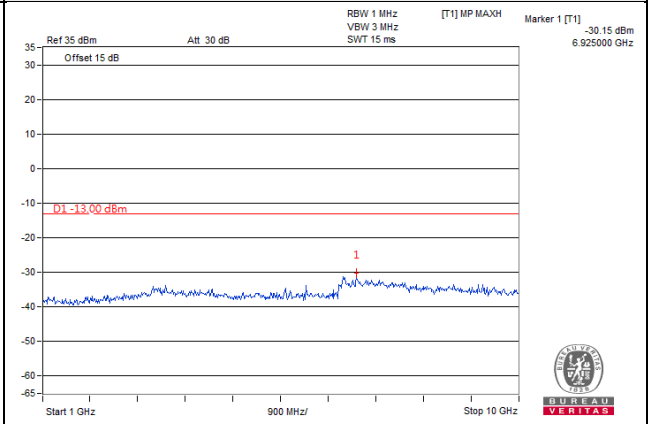
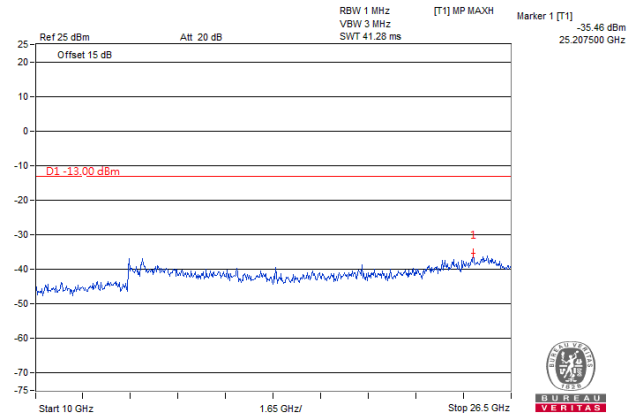
WCDMA	
Channel 4132 (826.4MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

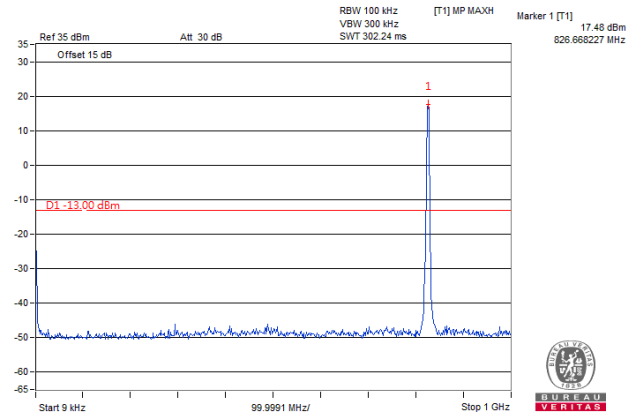
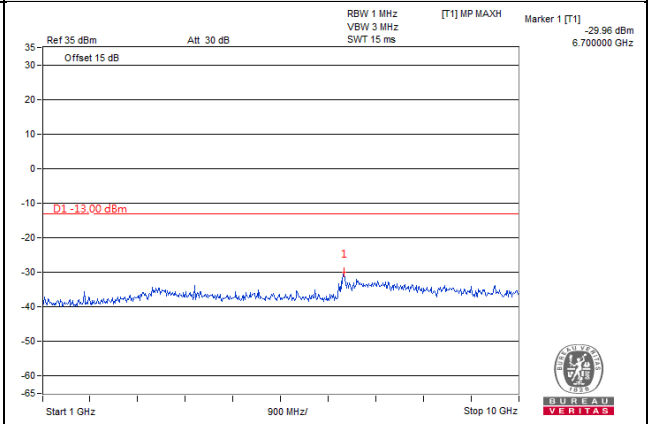
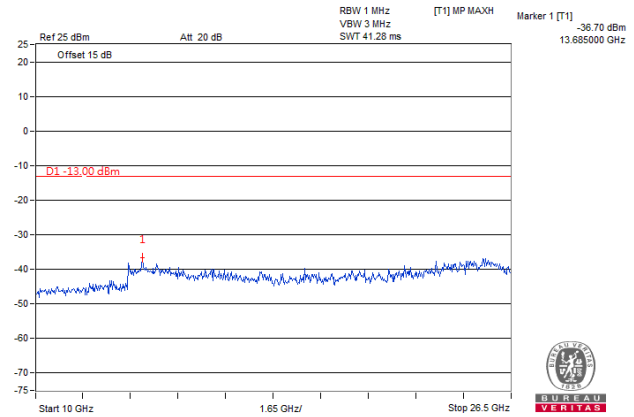
WCDMA	
Channel 4182 (836.4MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

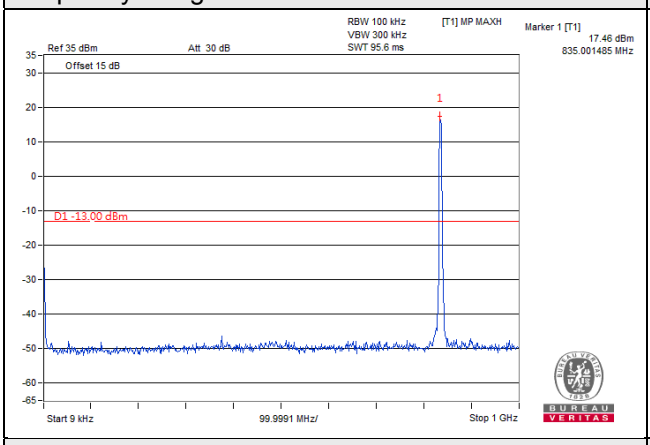
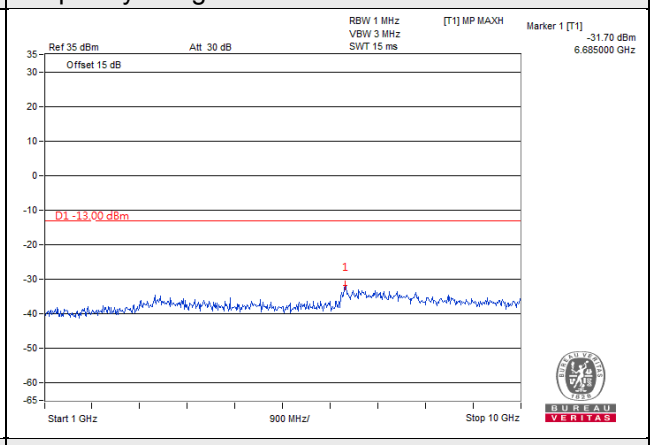
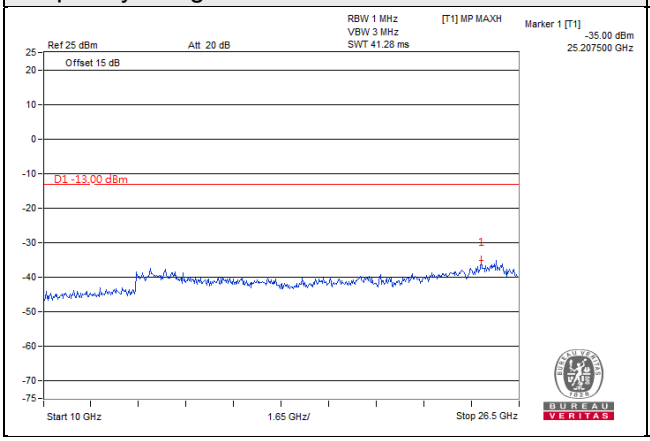
WCDMA	
Channel 4233 (846.6MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

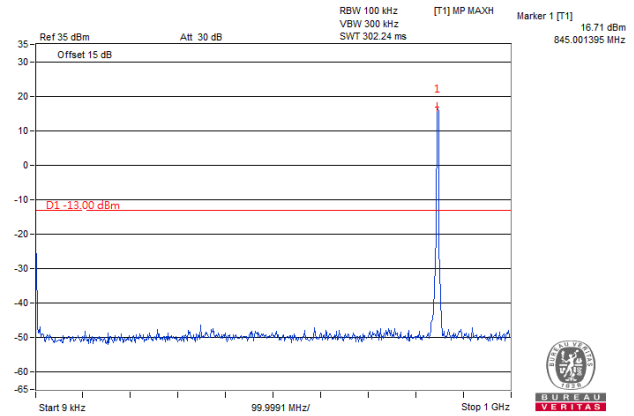
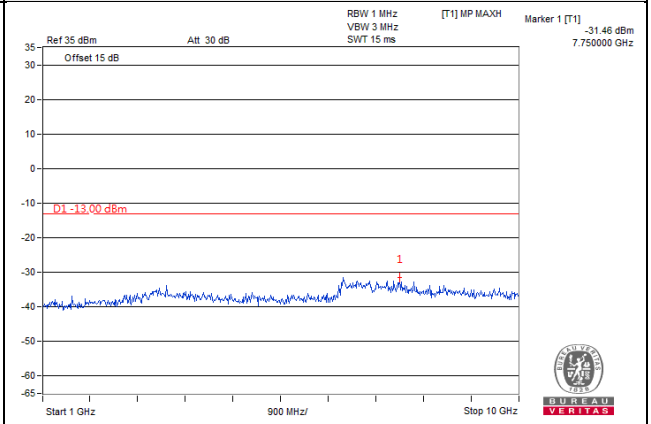
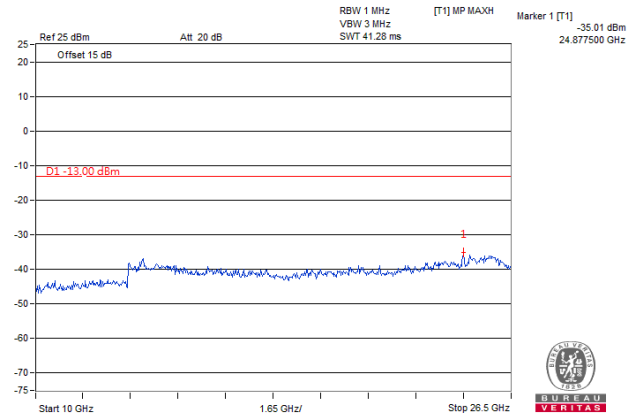
HSDPA	
Channel 4132 (826.4MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

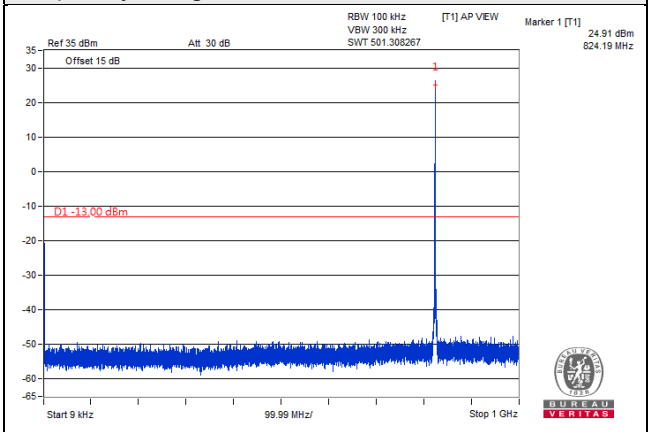
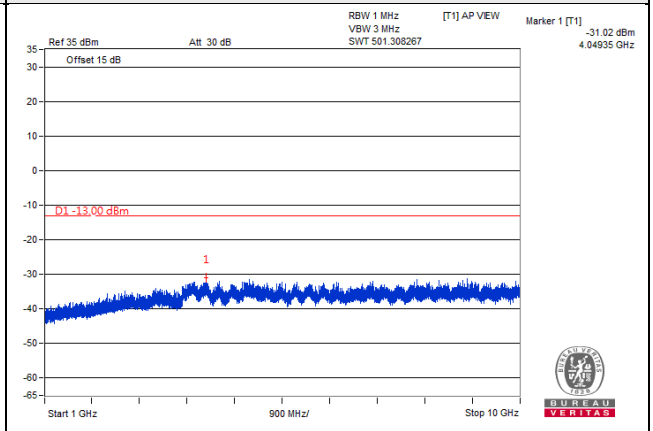
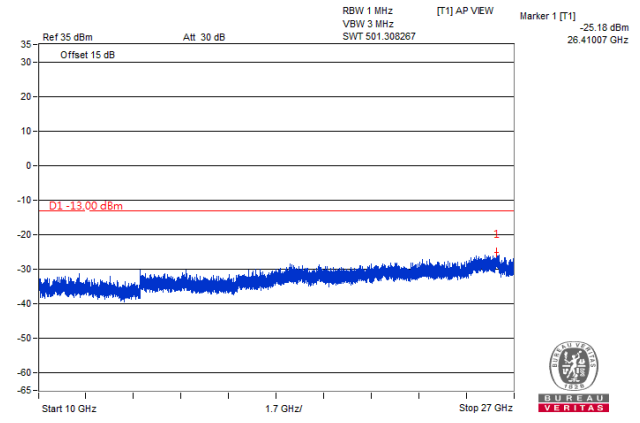
HSDPA	
Channel 4182 (836.4MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

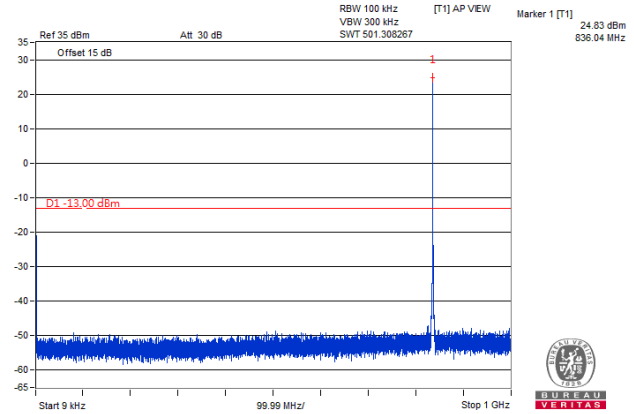
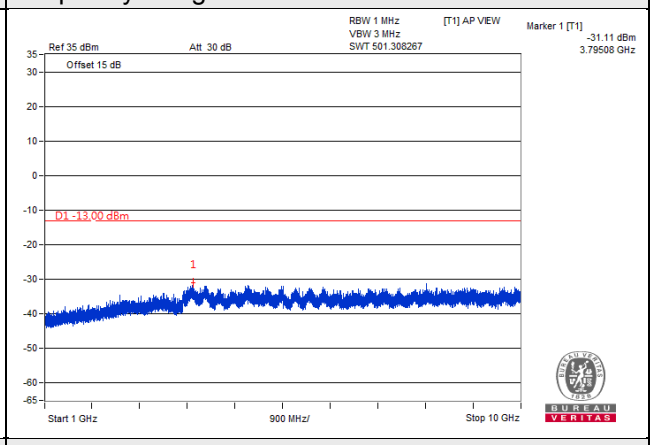
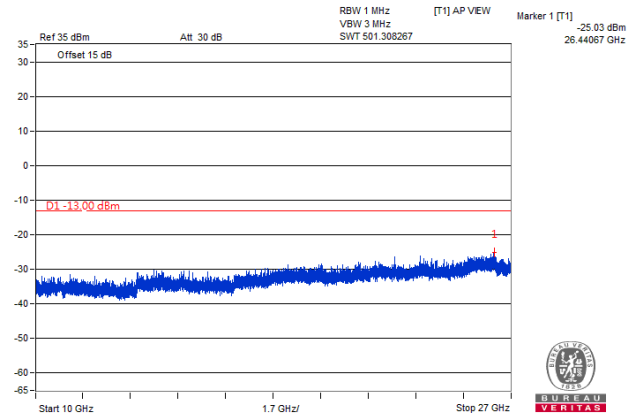
HSDPA	
Channel 4233 (846.6MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

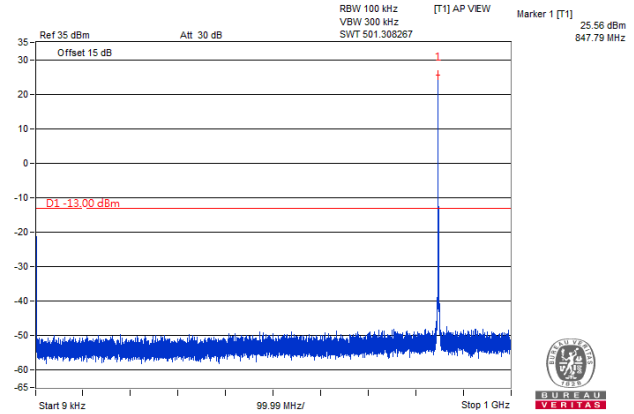
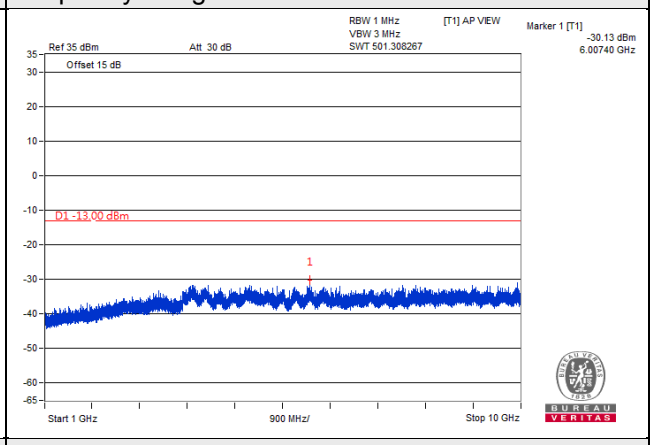
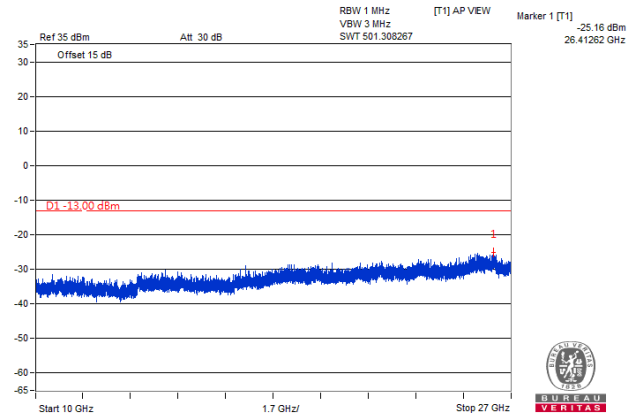
HSUPA	
Channel 4132 (826.4MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

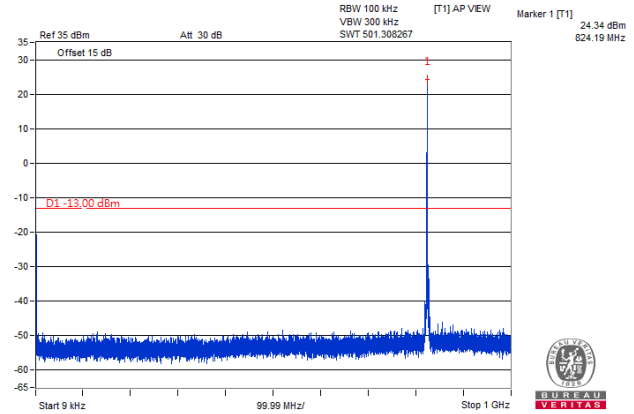
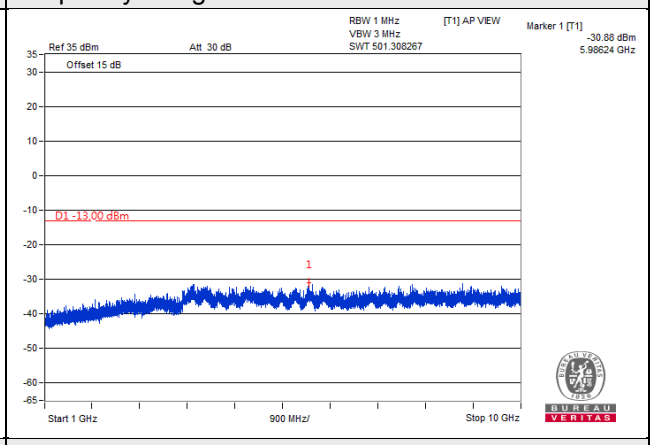
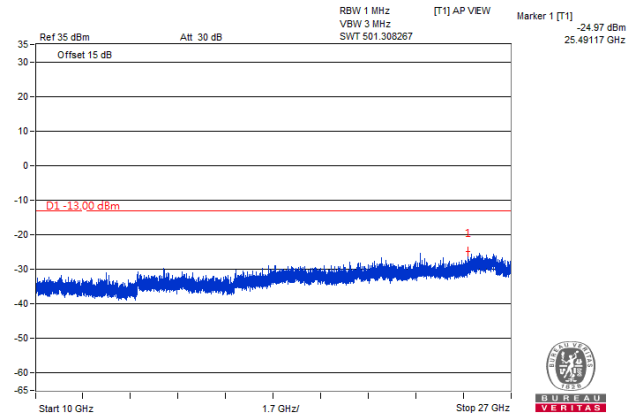
HSUPA	
Channel 4182 (836.4MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

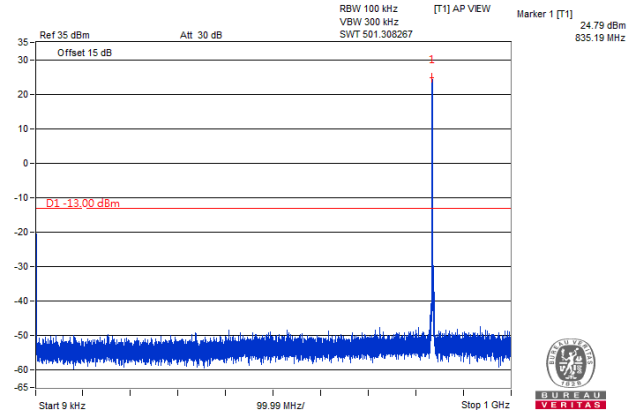
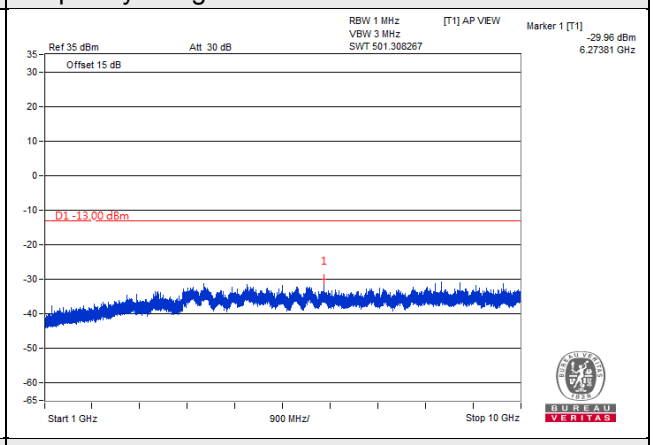
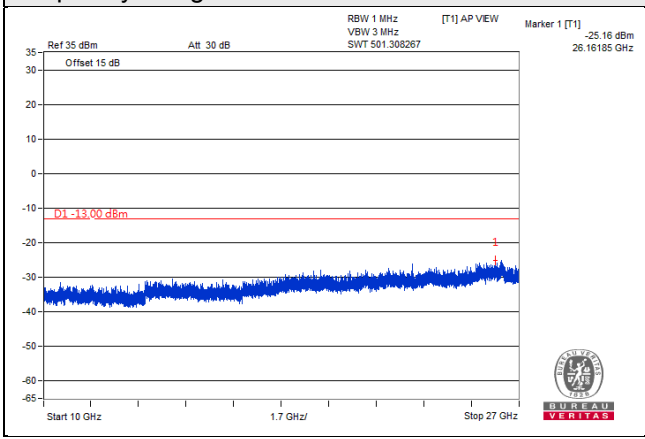
HSUPA	
Channel 4233 (846.6MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~26.5GHz	
	

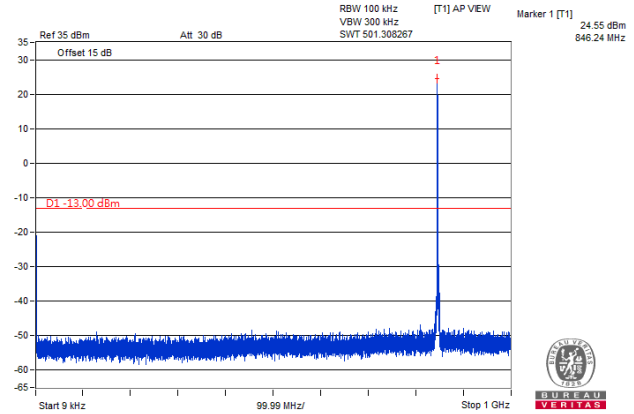
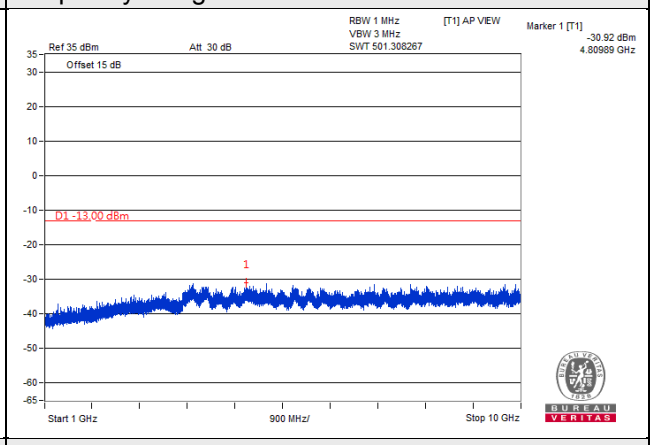
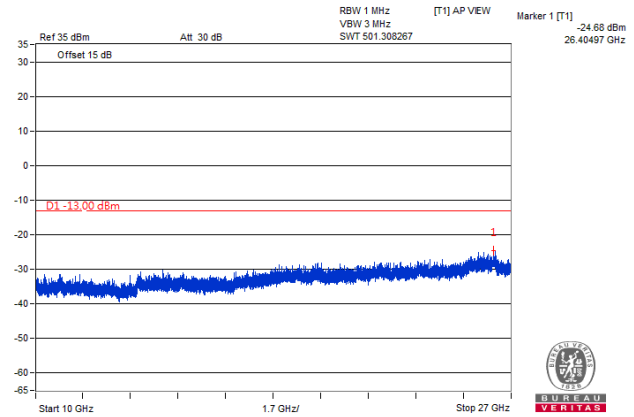
LTE Band 5, Channel Bandwidth 1.4MHz	
Channel 20407 (824.7MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

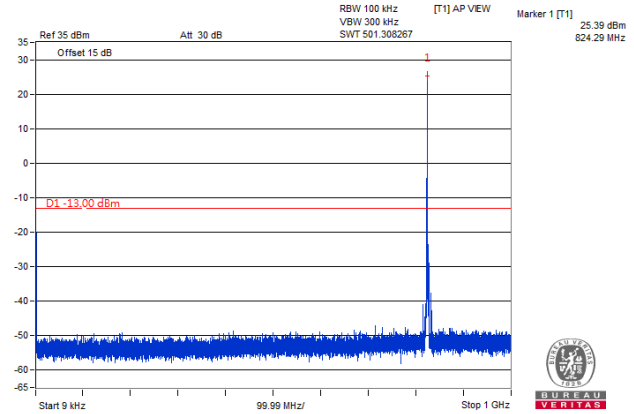
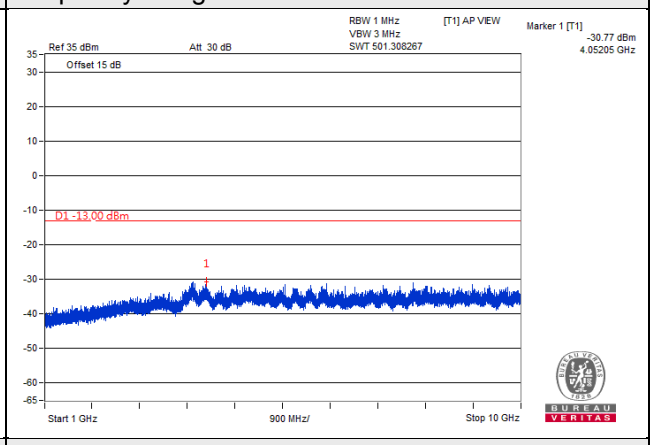
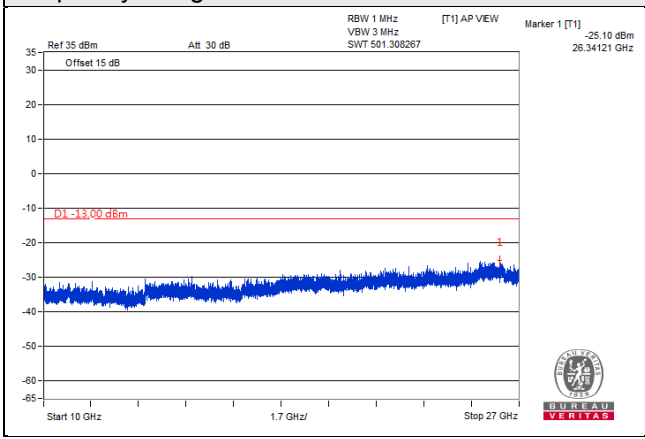
LTE Band 5, Channel Bandwidth 1.4MHz	
Channel 20525 (836.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

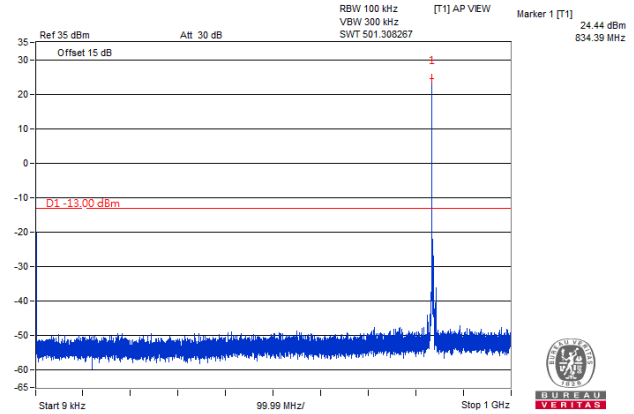
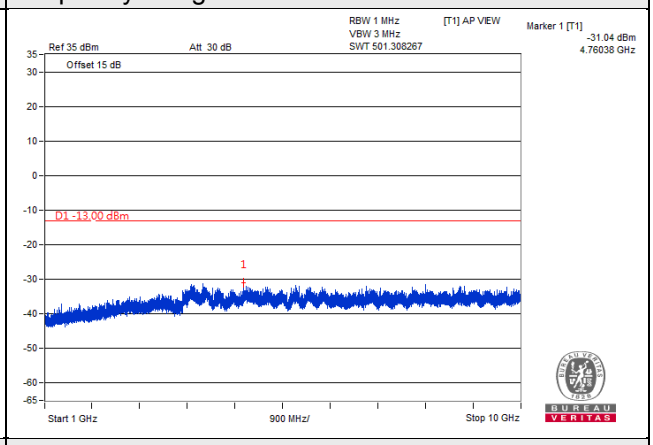
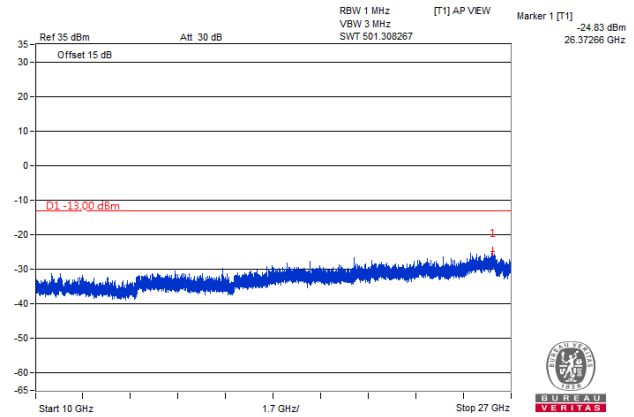
LTE Band 5, Channel Bandwidth 1.4MHz	
Channel 20643 (848.3MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

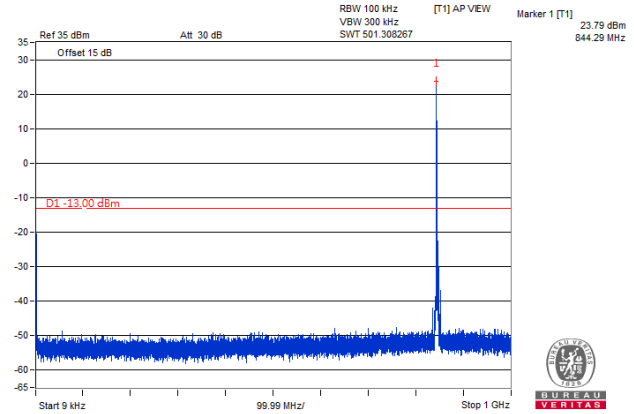
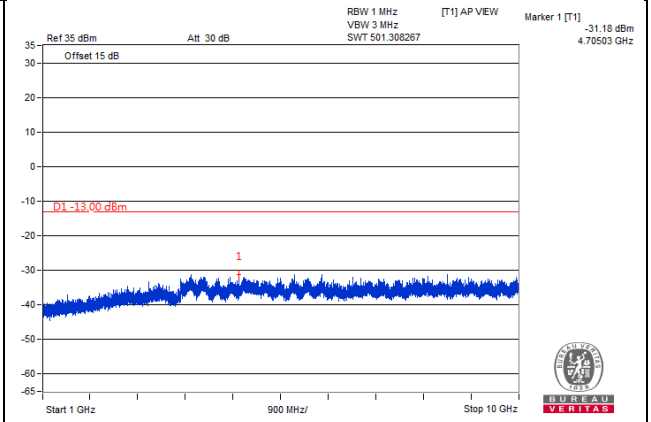
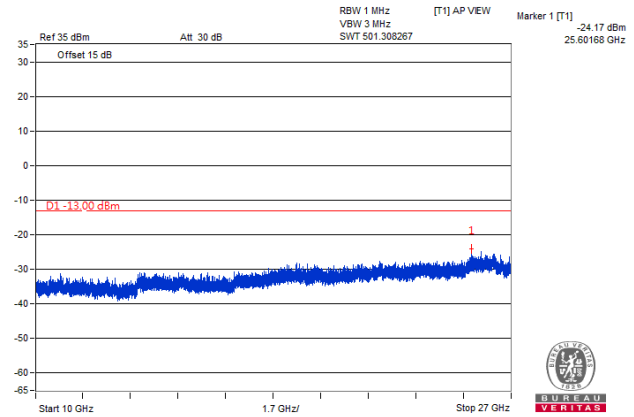
LTE Band 5, Channel Bandwidth 3MHz	
Channel 20415 (825.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

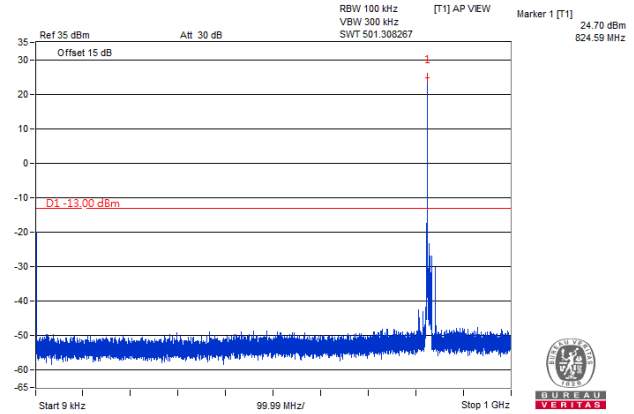
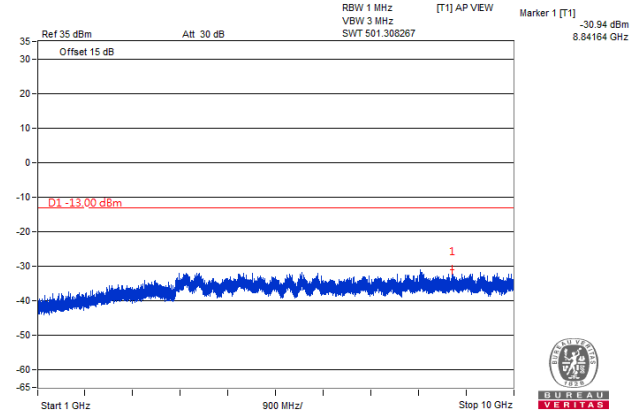
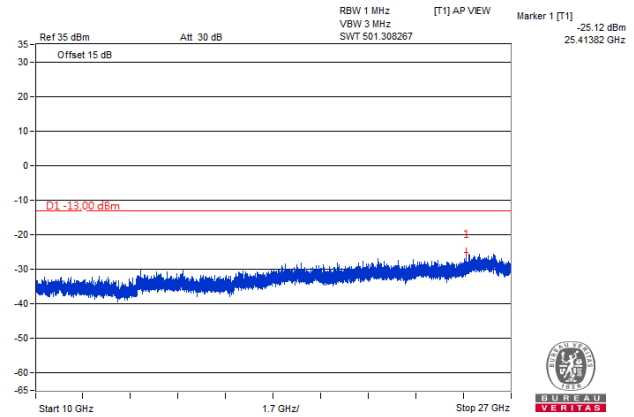
LTE Band 5, Channel Bandwidth 3MHz	
Channel 20525 (836.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

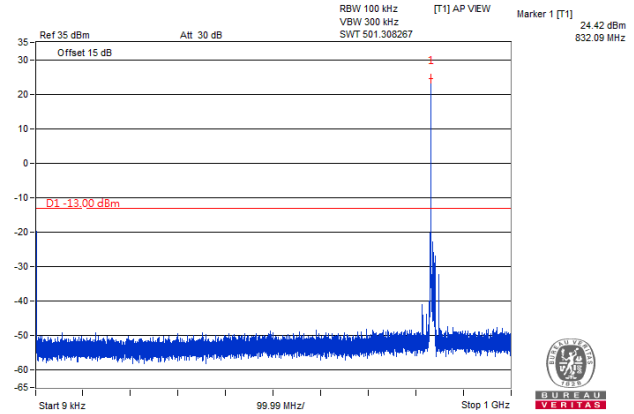
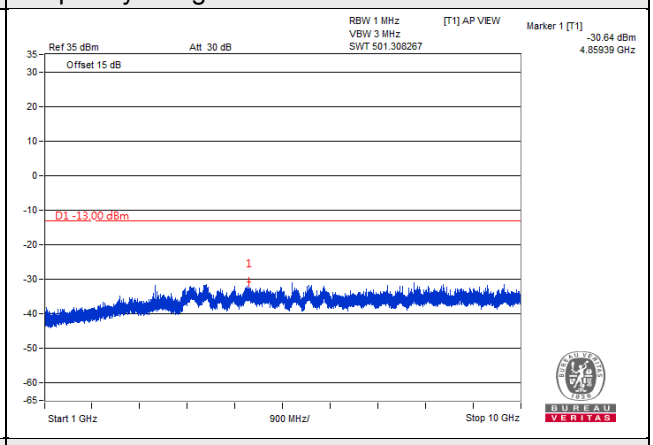
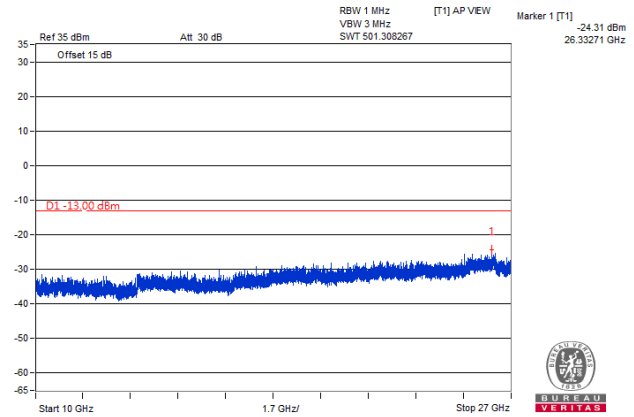
LTE Band 5, Channel Bandwidth 3MHz	
Channel 20635 (847.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

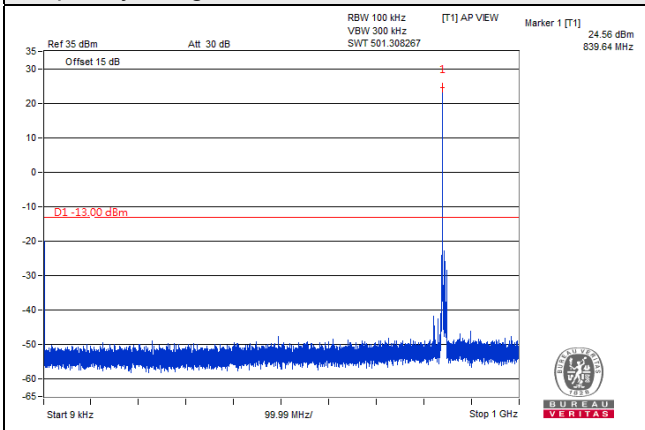
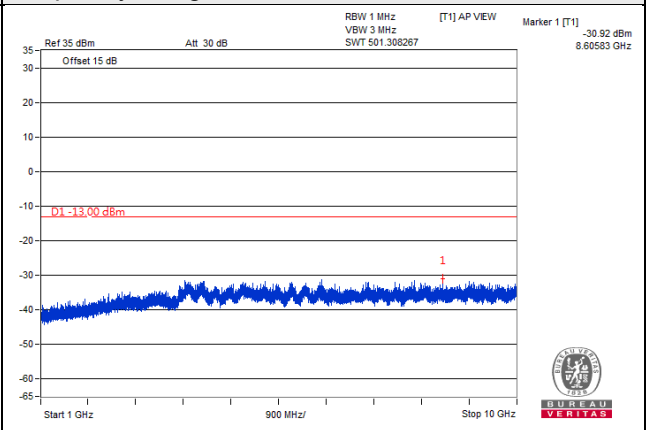
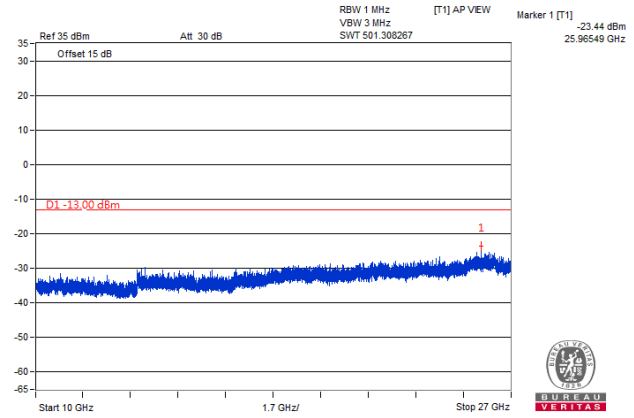
LTE Band 5, Channel Bandwidth 5MHz	
Channel 20425 (826.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

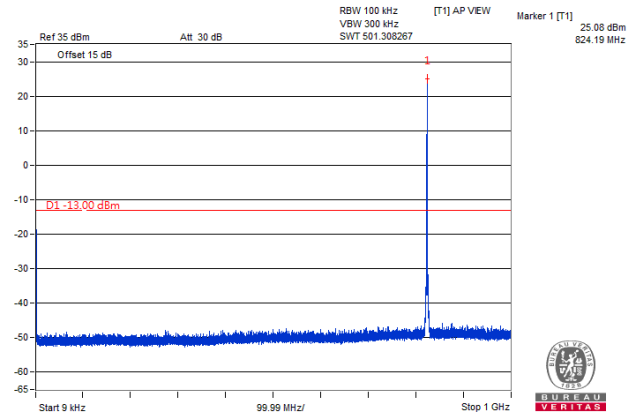
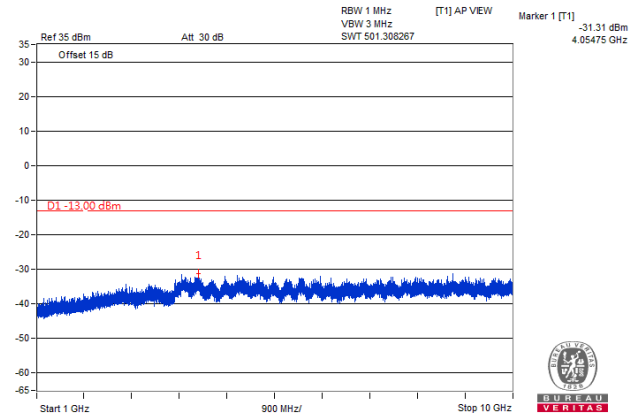
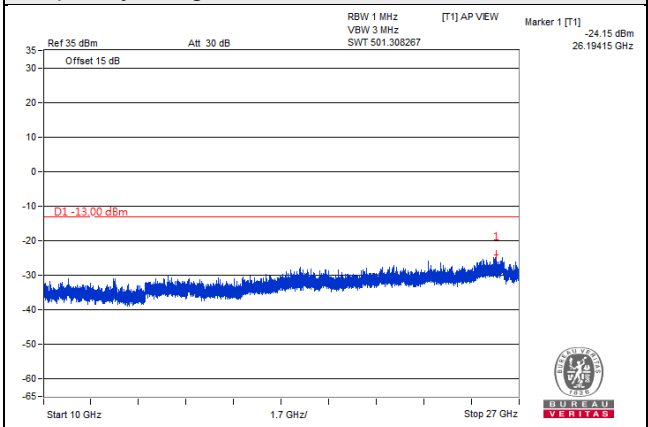
LTE Band 5, Channel Bandwidth 5MHz	
Channel 20525 (836.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

LTE Band 5, Channel Bandwidth 5MHz	
Channel 20625 (846.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

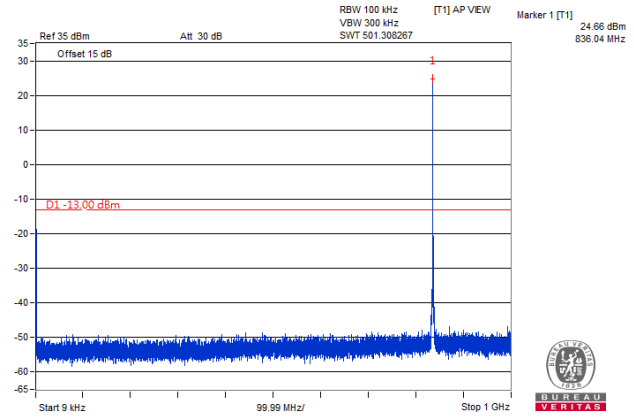
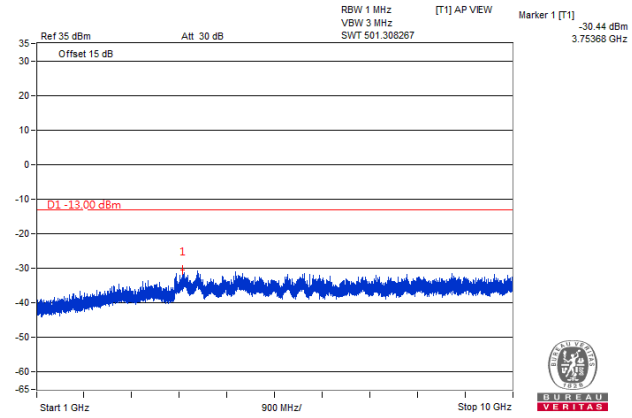
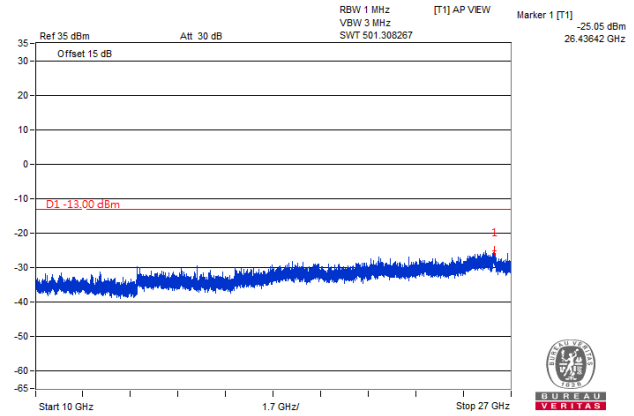
LTE Band 5, Channel Bandwidth 10MHz	
Channel 20450 (829.0MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

LTE Band 5, Channel Bandwidth 10MHz	
Channel 20525 (836.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

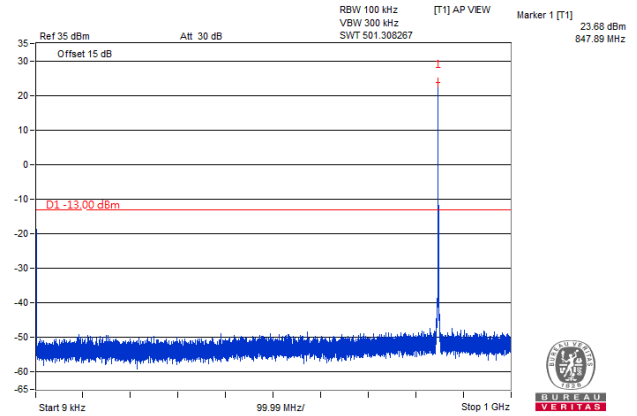
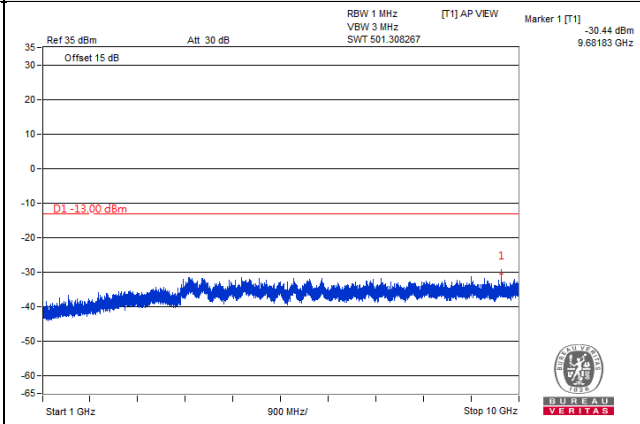
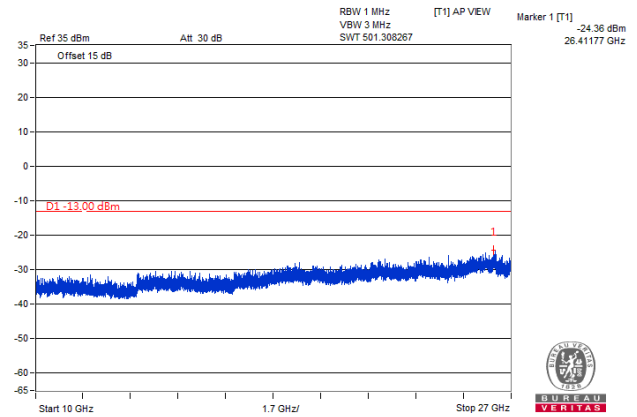
LTE Band 5, Channel Bandwidth 10MHz	
Channel 20600 (844.0MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

LTE Band 26, Channel Bandwidth 1.4MHz	
Channel 26797 (824.7MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

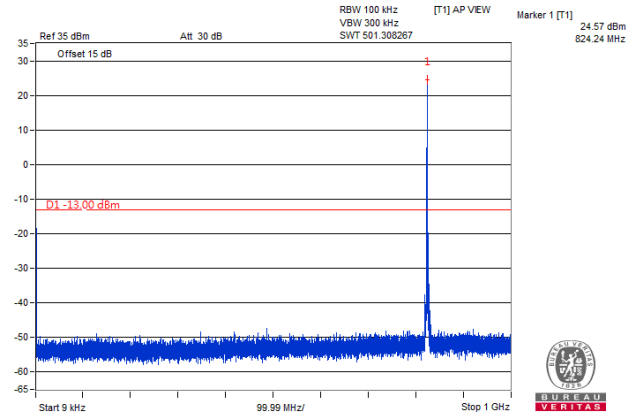
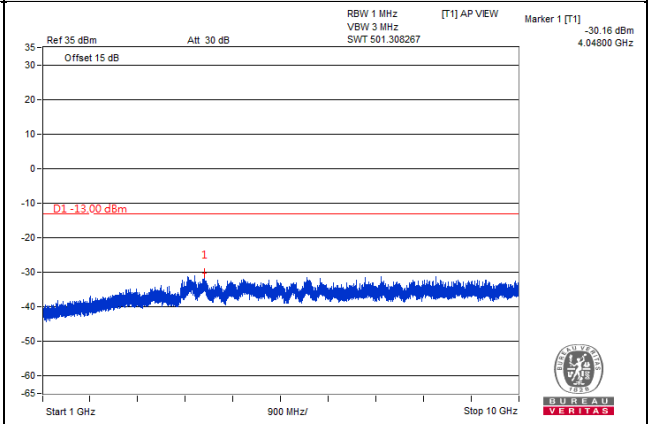
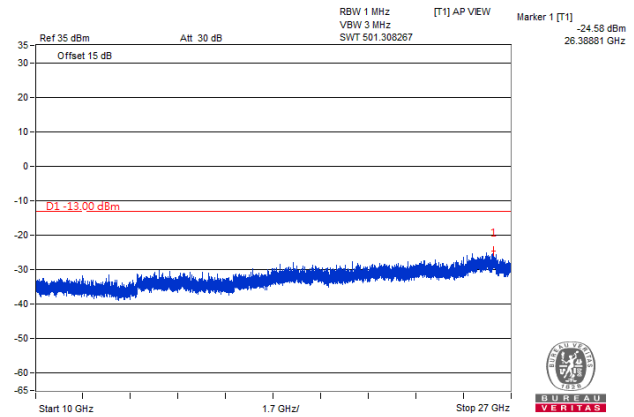
*The 9kHz signal over the limit is from Spectrum.

LTE Band 26, Channel Bandwidth 1.4MHz	
Channel 26915 (836.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

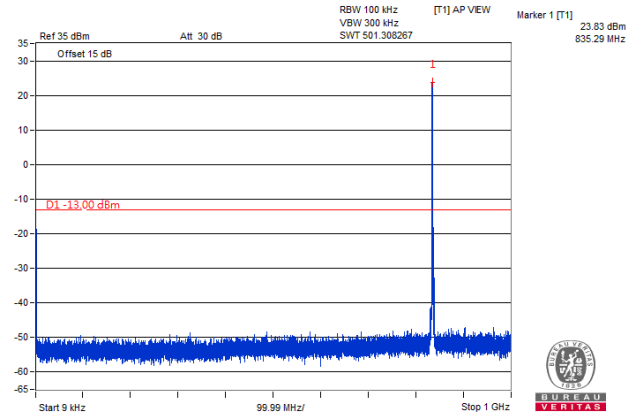
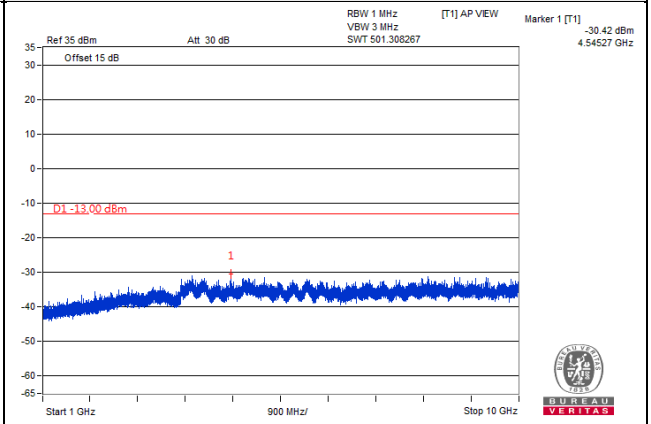
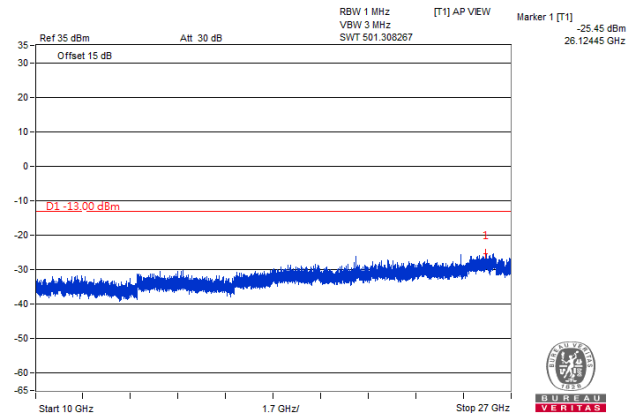
*The 9kHz signal over the limit is from Spectrum.

LTE Band 26, Channel Bandwidth 1.4MHz	
Channel 27033 (848.3MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

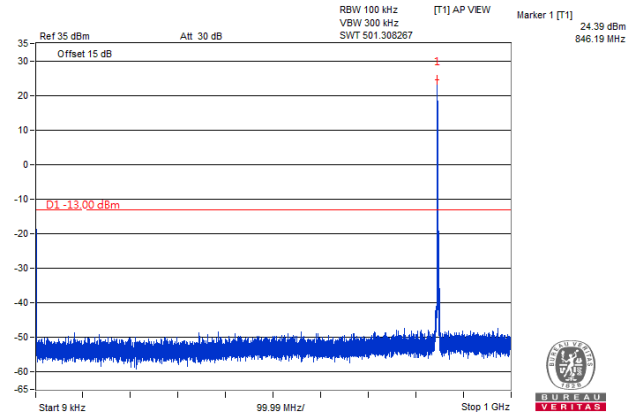
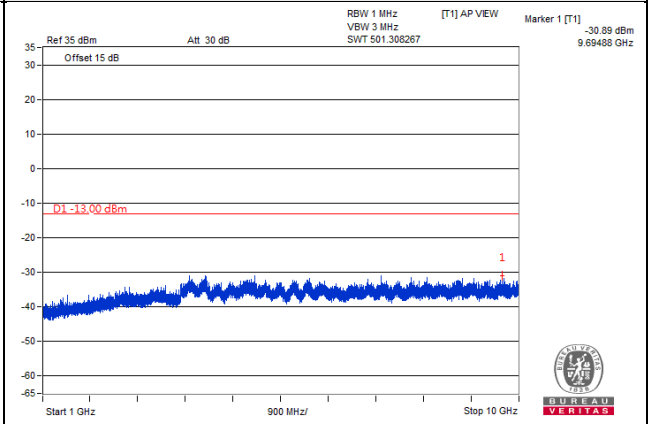
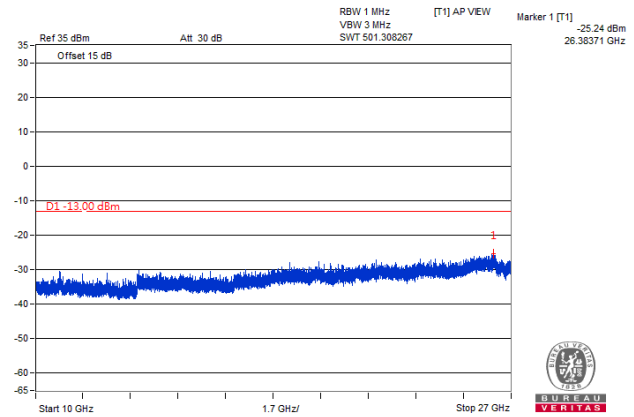
*The 9kHz signal over the limit is from Spectrum.

LTE Band 26, Channel Bandwidth 3MHz	
Channel 26805 (825.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

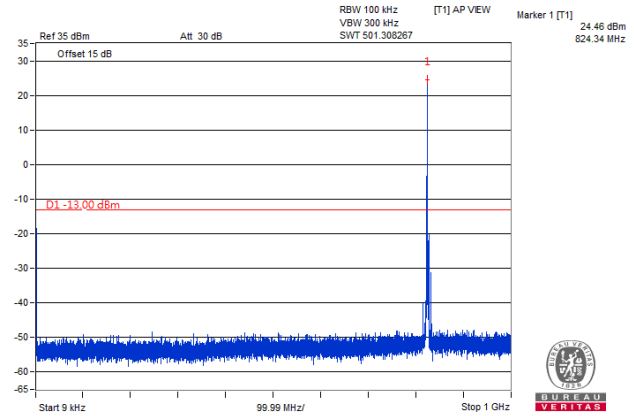
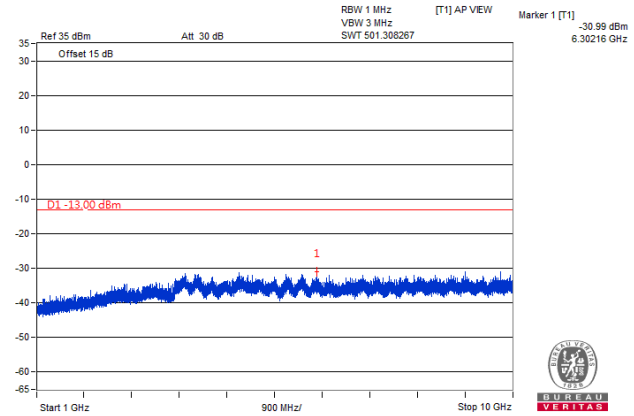
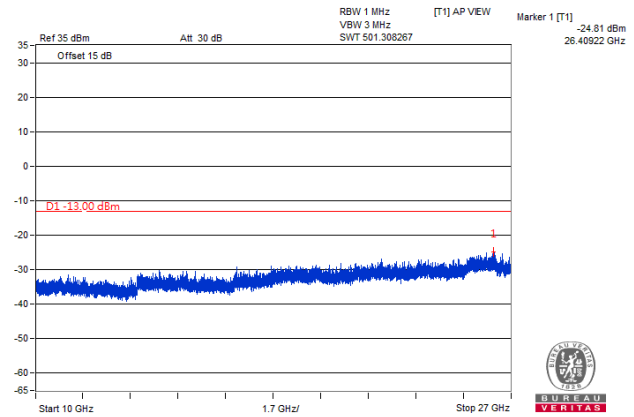
*The 9kHz signal over the limit is from Spectrum.

LTE Band 26, Channel Bandwidth 3MHz	
Channel 26915 (836.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

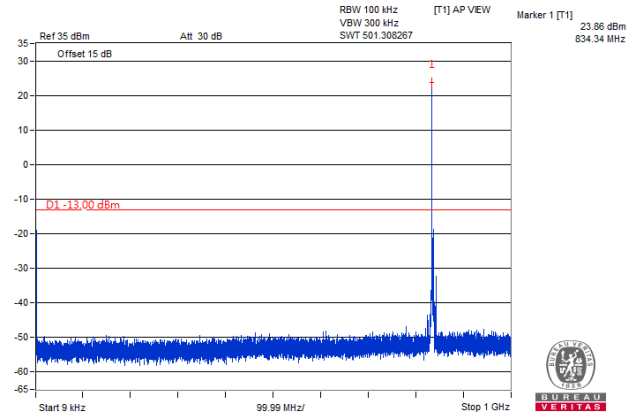
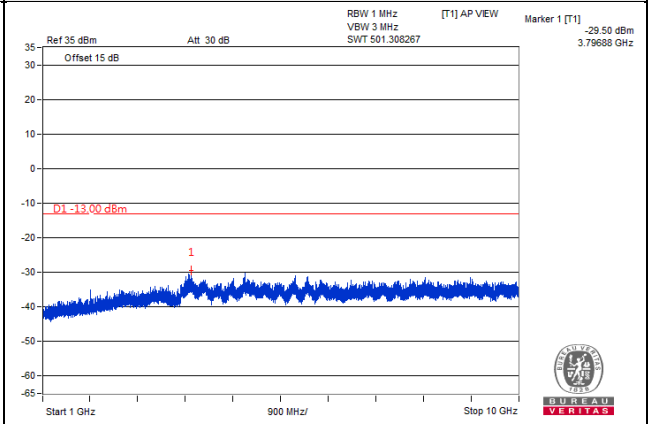
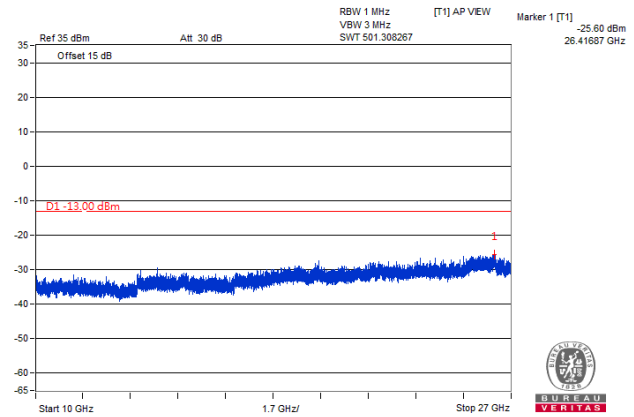
*The 9kHz signal over the limit is from Spectrum.

LTE Band 26, Channel Bandwidth 3MHz	
Channel 27025 (847.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

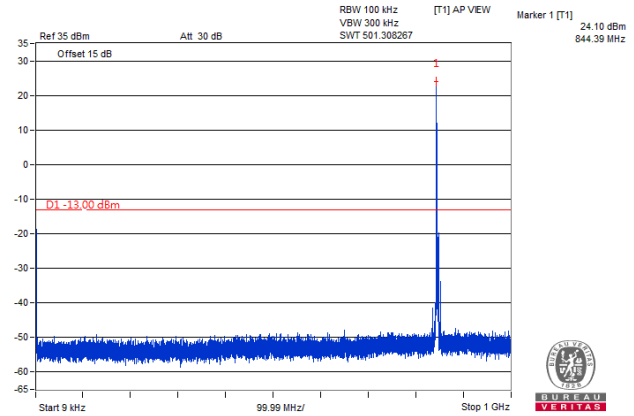
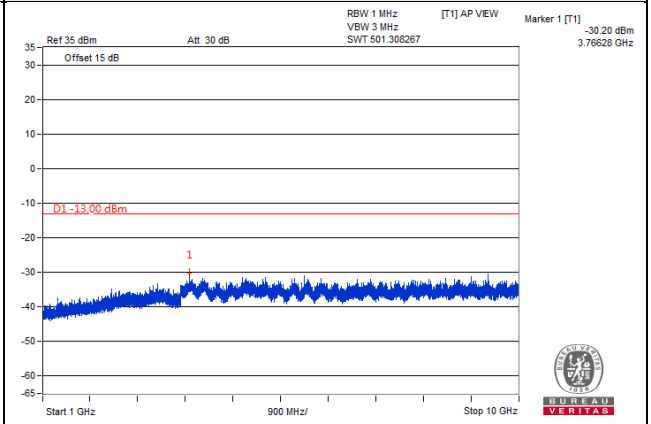
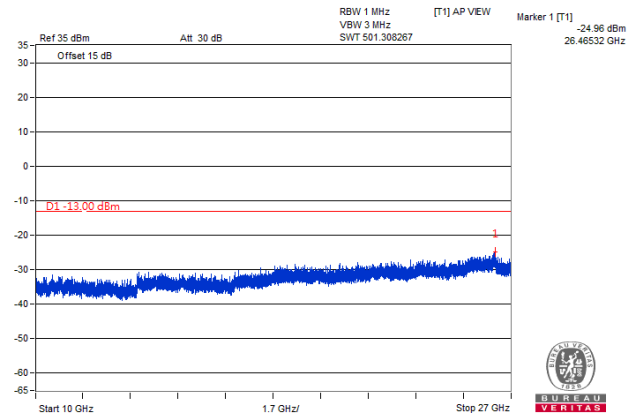
*The 9kHz signal over the limit is from Spectrum.

LTE Band 26, Channel Bandwidth 5MHz	
Channel 26815 (826.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

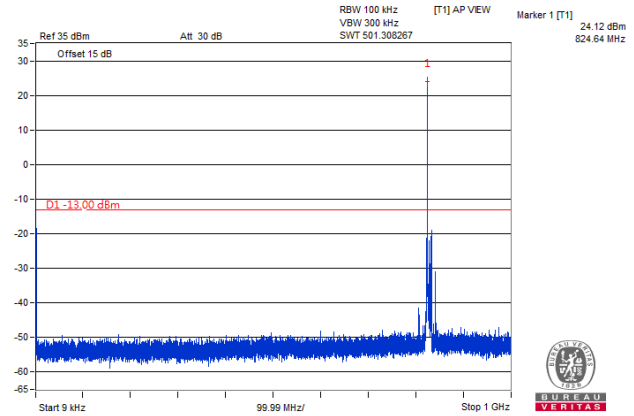
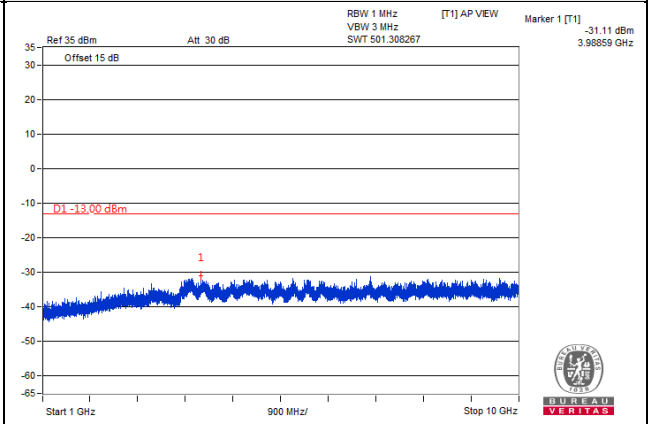
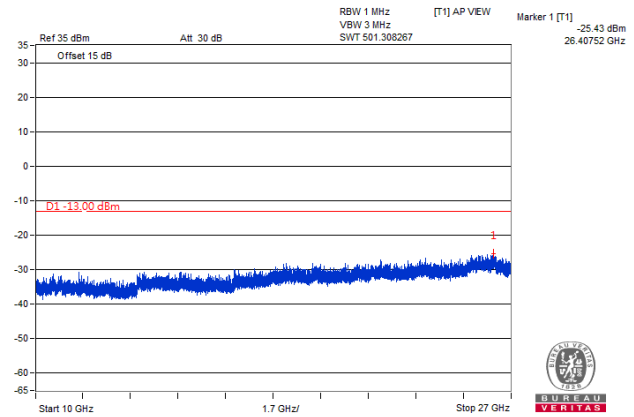
*The 9kHz signal over the limit is from Spectrum.

LTE Band 26, Channel Bandwidth 5MHz	
Channel 26915 (836.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

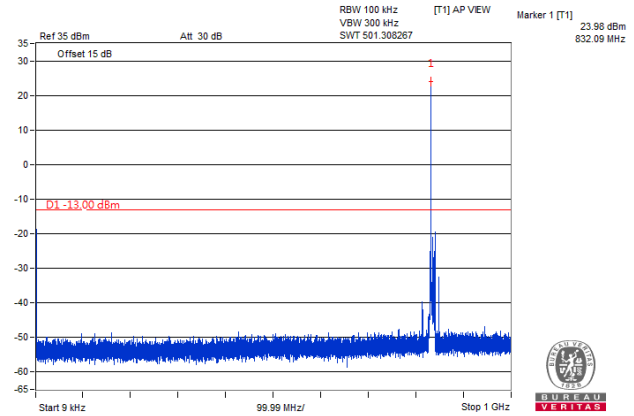
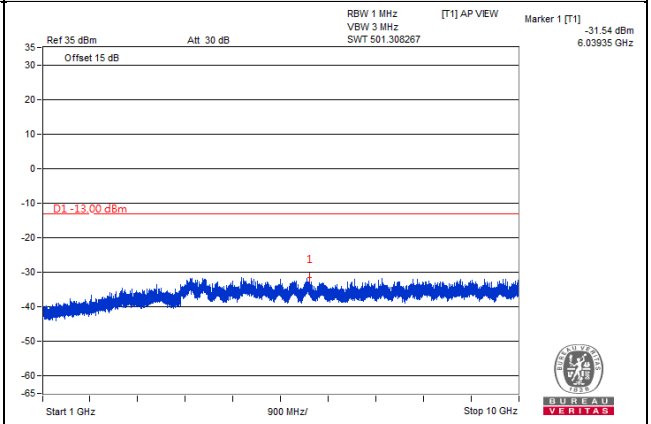
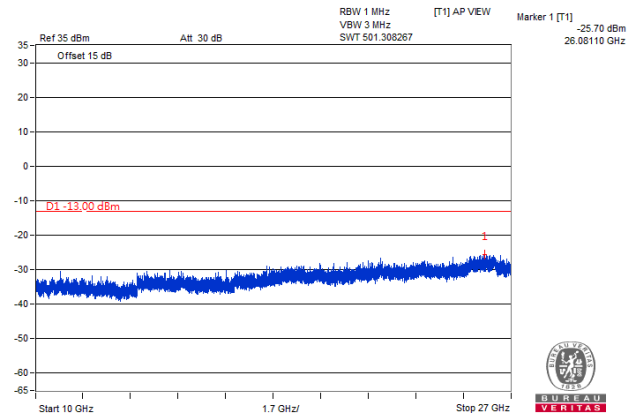
*The 9kHz signal over the limit is from Spectrum.

LTE Band 26, Channel Bandwidth 5MHz	
Channel 27015 (846.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

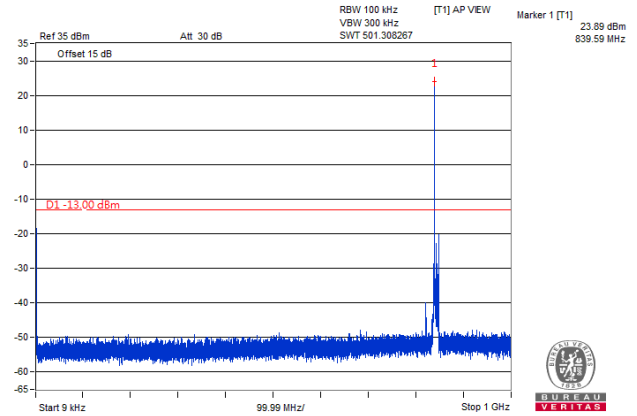
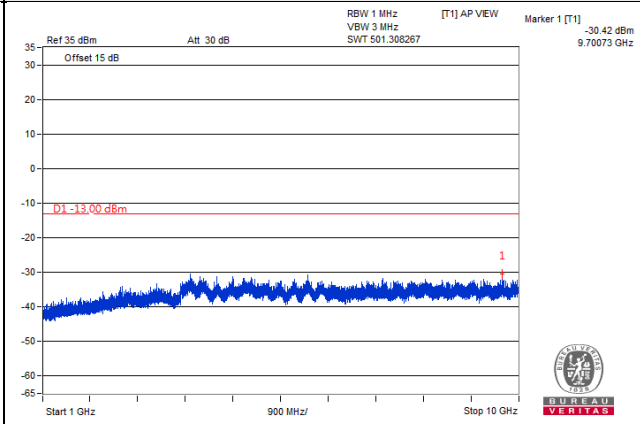
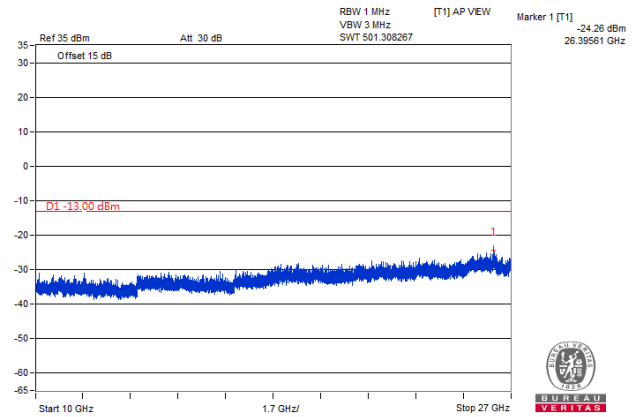
*The 9kHz signal over the limit is from Spectrum.

LTE Band 26, Channel Bandwidth 10MHz	
Channel 26840 (829MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

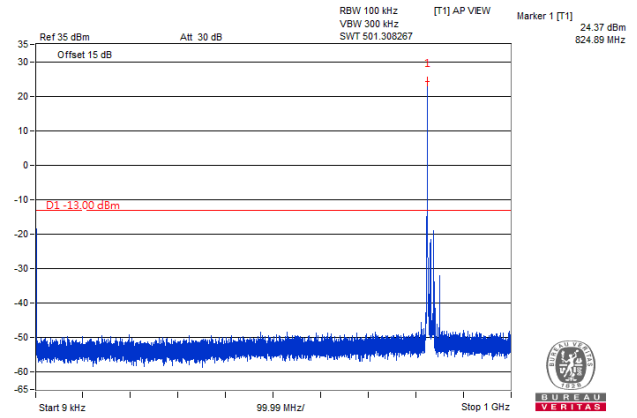
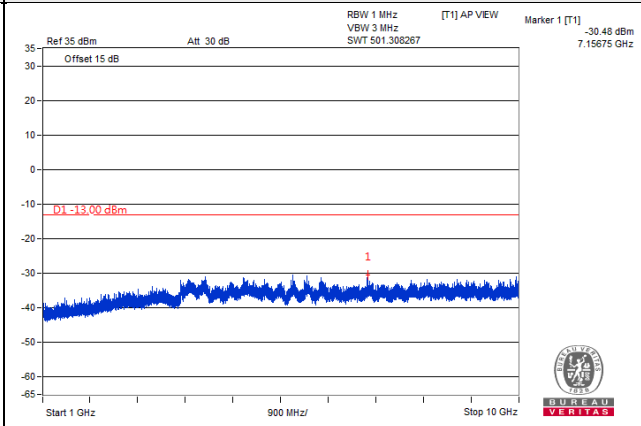
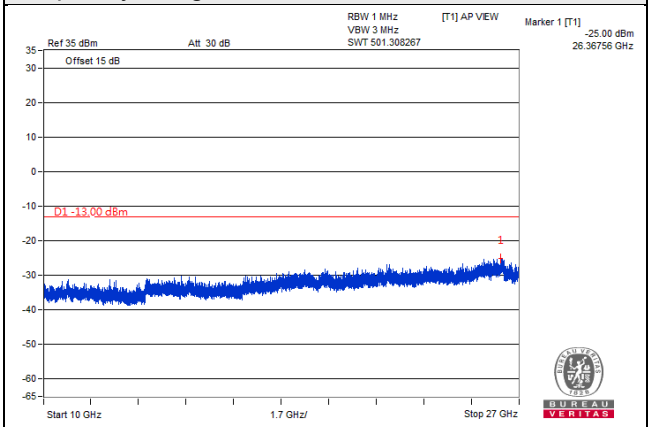
*The 9kHz signal over the limit is from Spectrum.

LTE Band 26, Channel Bandwidth 10MHz	
Channel 26915 (836.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

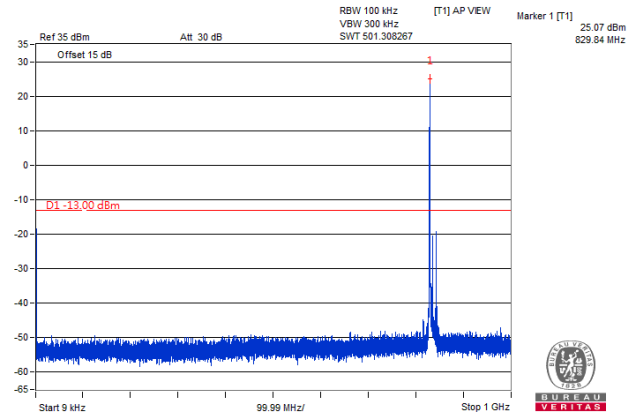
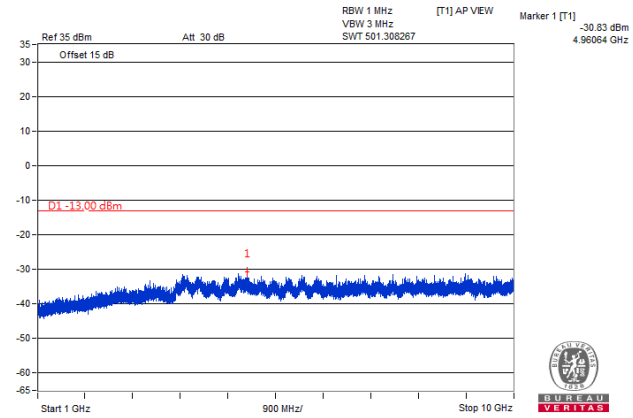
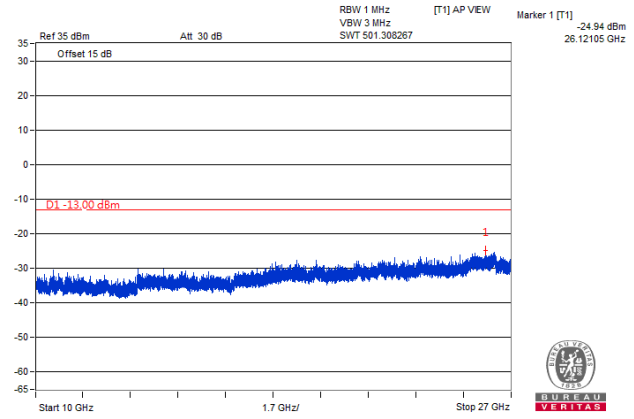
*The 9kHz signal over the limit is from Spectrum.

LTE Band 26, Channel Bandwidth 10MHz	
Channel 26990 (844MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

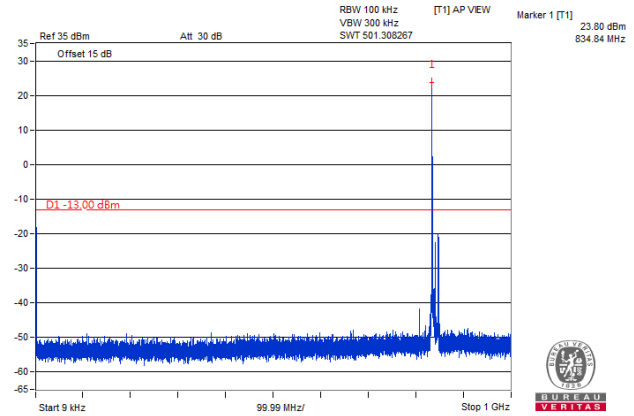
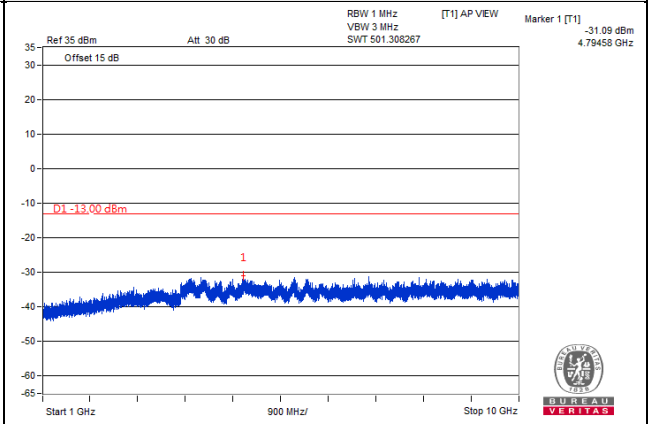
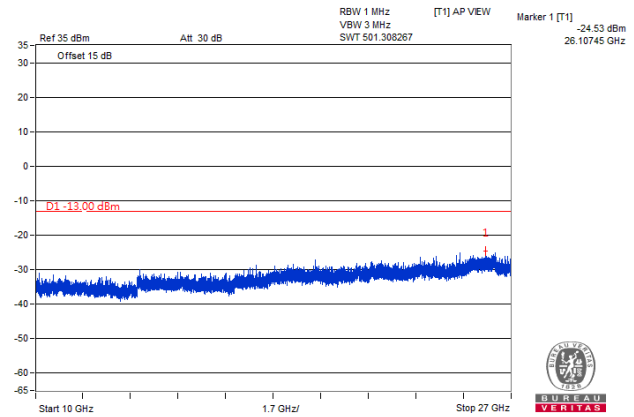
*The 9kHz signal over the limit is from Spectrum.

LTE Band 26, Channel Bandwidth 15MHz	
Channel 26865 (831.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

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

LTE Band 26, Channel Bandwidth 15MHz	
Channel 26915 (836.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

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

LTE Band 26, Channel Bandwidth 15MHz	
Channel 26965 (841.5MHz)	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz
	
Frequency Range : 10GHz~27GHz	
	

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

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 equal to –13dBm.

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 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step a. Record the power level of S.G
c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15dBi.

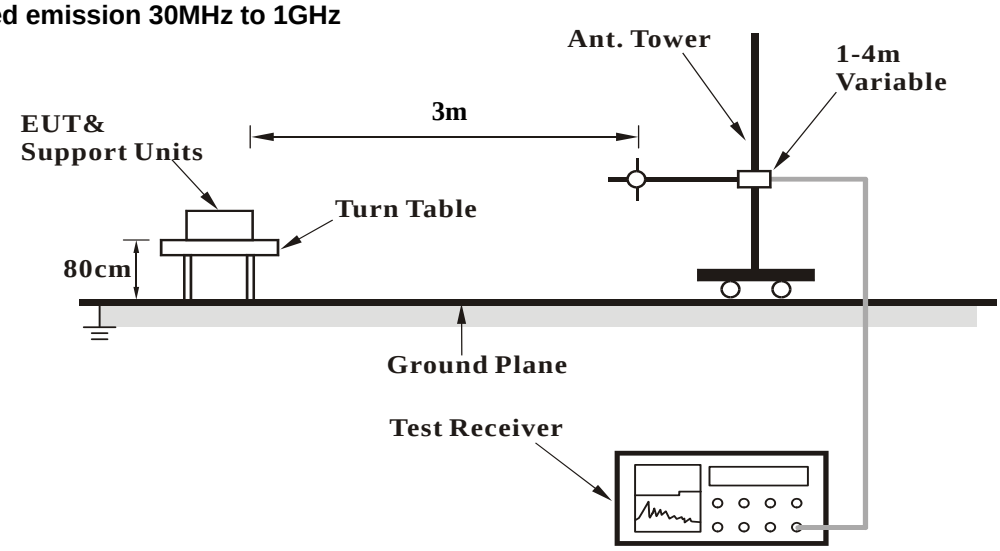
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.7.3 Deviation from Test Standard

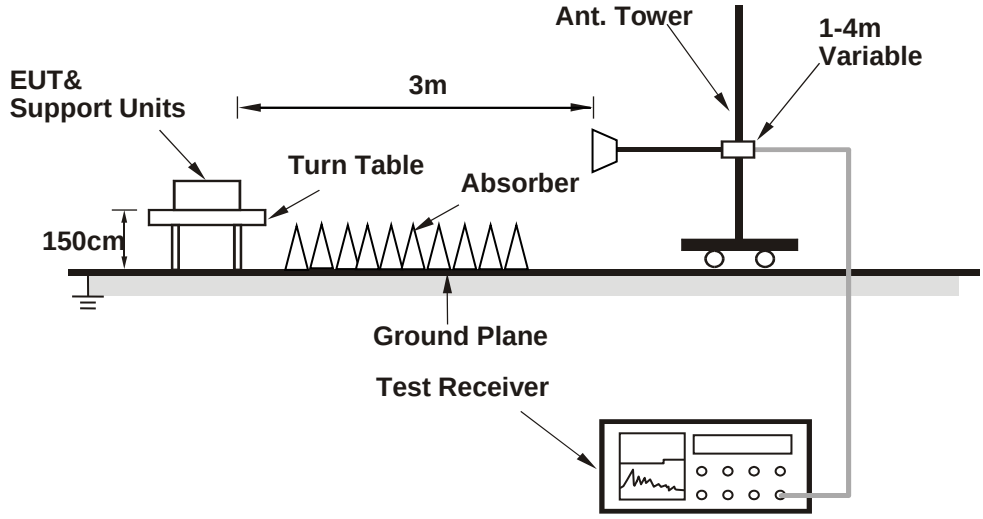
No deviation.

4.7.4 Test Setup

For radiated emission 30MHz to 1GHz



For radiated emission above 1GHz



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

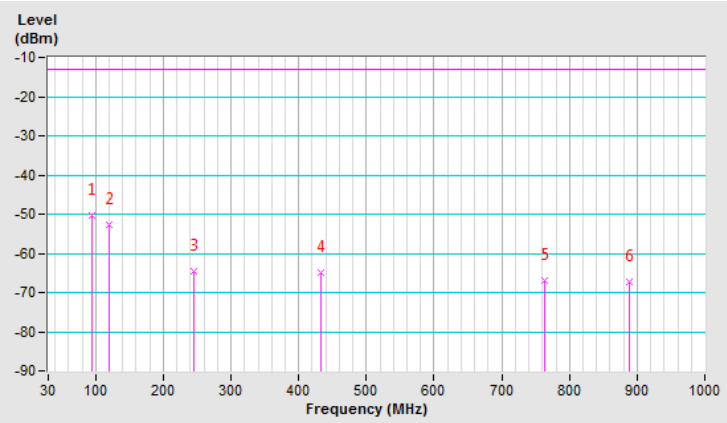
4.7.5 Test Results

Below 1GHz
GSM Mode

Mode	TX channel 128 (824.2MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Luis Lee		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	94.02	-40.5	-51.4	1.0	-50.4	-13.0	-37.4
2	119.24	-43.0	-52.8	0.1	-52.7	-13.0	-39.7
3	245.34	-54.5	-70.0	5.4	-64.6	-13.0	-51.6
4	433.52	-61.5	-70.2	5.2	-65.0	-13.0	-52.0
5	763.32	-69.2	-71.5	4.5	-67.0	-13.0	-54.0
6	889.42	-71.5	-71.1	3.9	-67.2	-13.0	-54.2

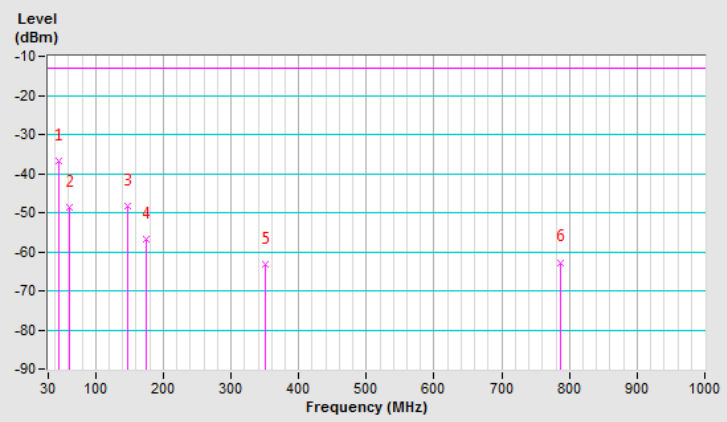
Remarks:
1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Mode	TX channel 128 (824.2MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Luis Lee		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	**45.52**	**-28.3**	**-26.9**	**-10.0**	**-36.9**	**-13.0**	**-23.9**
2	61.04	-39.1	-41.2	-7.3	-48.5	-13.0	-35.5
3	146.40	-43.9	-48.0	-0.2	-48.2	-13.0	-35.2
4	175.50	-54.1	-59.0	2.3	-56.7	-13.0	-43.7
5	350.10	-59.6	-68.4	5.2	-63.2	-13.0	-50.2
6	786.60	-66.8	-66.9	4.2	-62.7	-13.0	-49.7

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

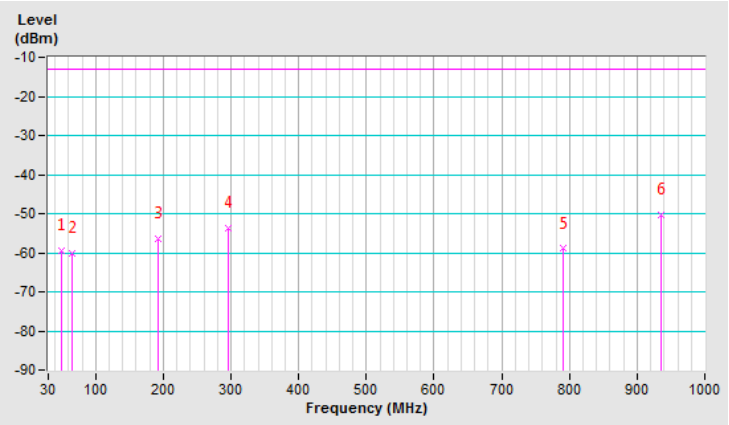


CDMA Mode

Mode	TX channel 1013 (824.7MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Luis Lee		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	49.40	-57.6	-50.3	-9.3	-59.6	-13.0	-46.6
2	64.92	-52.0	-53.8	-6.3	-60.1	-13.0	-47.1
3	192.96	-45.1	-60.9	4.6	-56.3	-13.0	-43.3
4	295.78	-48.0	-58.9	5.1	-53.8	-13.0	-40.8
5	790.48	-62.2	-63.1	4.1	-59.0	-13.0	-46.0
6	935.98	-55.1	-54.1	3.9	-50.2	-13.0	-37.2

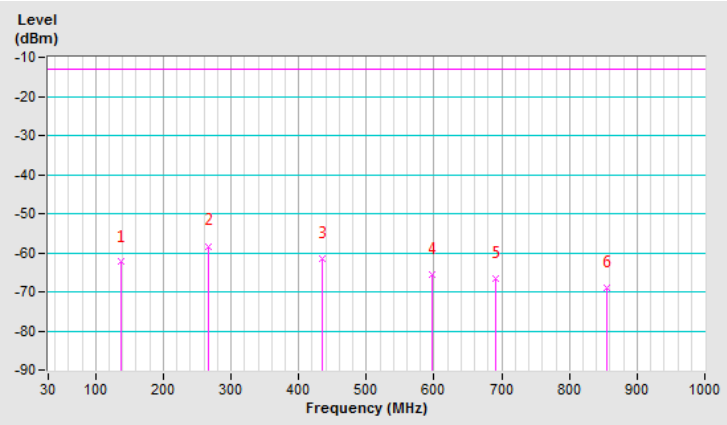
Remarks:
1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Mode	TX channel 1013 (824.7MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Luis Lee		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	136.70	-56.0	-62.1	-0.3	-62.4	-13.0	-49.4
2	266.68	-59.1	-63.6	5.3	-58.3	-13.0	-45.3
3	435.46	-57.9	-66.7	5.2	-61.5	-13.0	-48.5
4	596.48	-66.8	-70.0	4.4	-65.6	-13.0	-52.6
5	691.54	-69.3	-71.8	5.2	-66.6	-13.0	-53.6
6	854.50	-73.1	-72.8	3.9	-68.9	-13.0	-55.9

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

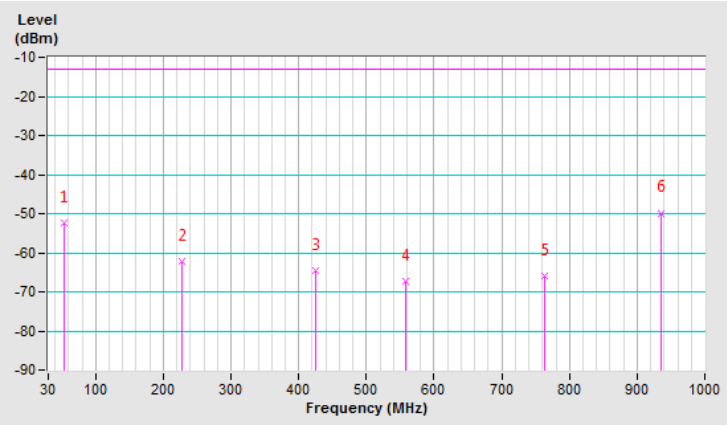


WCDMA Band 5

Mode	TX channel 4132 (826.4MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Luis Lee		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	53.28	-48.5	-43.8	-8.5	-52.3	-13.0	-39.3
2	227.88	-51.6	-67.6	5.4	-62.2	-13.0	-49.2
3	425.76	-60.9	-69.7	5.2	-64.5	-13.0	-51.5
4	557.68	-64.7	-72.1	4.7	-67.4	-13.0	-54.4
5	763.32	-68.0	-70.3	4.5	-65.8	-13.0	-52.8
6	935.98	-54.6	-53.7	3.9	-49.8	-13.0	-36.8

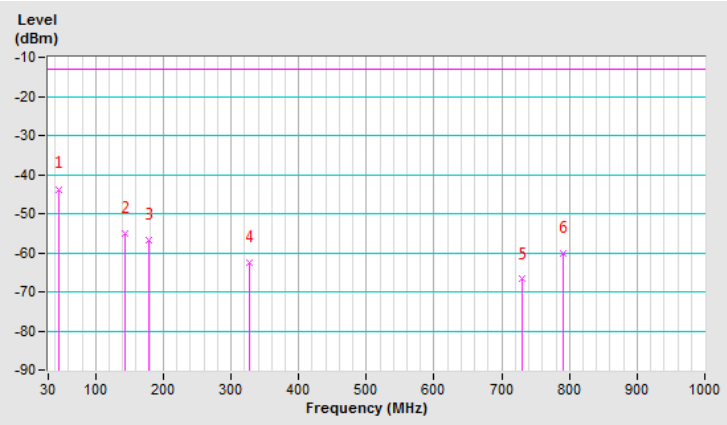
Remarks:
1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Mode	TX channel 4132 (826.4MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Luis Lee		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	45.52	-35.2	-33.7	-10.0	-43.7	-13.0	-30.7
2	142.52	-49.9	-54.8	-0.3	-55.1	-13.0	-42.1
3	179.38	-53.4	-59.6	2.8	-56.8	-13.0	-43.8
4	326.82	-59.2	-67.6	5.2	-62.4	-13.0	-49.4
5	730.34	-70.3	-71.7	4.9	-66.8	-13.0	-53.8
6	790.48	-64.4	-64.3	4.1	-60.2	-13.0	-47.2

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

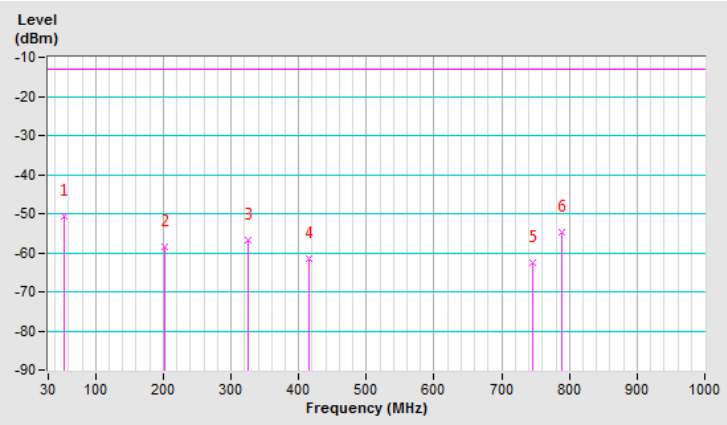


LTE Band 5, Channel Bandwidth: 5MHz

Mode	TX channel 20425 (826.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Luis Lee		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	53.28	-47.0	-42.3	-8.5	-50.8	-13.0	-37.8
2	202.66	-47.9	-64.0	5.4	-58.6	-13.0	-45.6
3	324.88	-50.8	-62.0	5.2	-56.8	-13.0	-43.8
4	416.06	-58.4	-66.8	5.2	-61.6	-13.0	-48.6
5	745.86	-63.9	-67.1	4.7	-62.4	-13.0	-49.4
6	788.54	-58.1	-59.0	4.1	-54.9	-13.0	-41.9

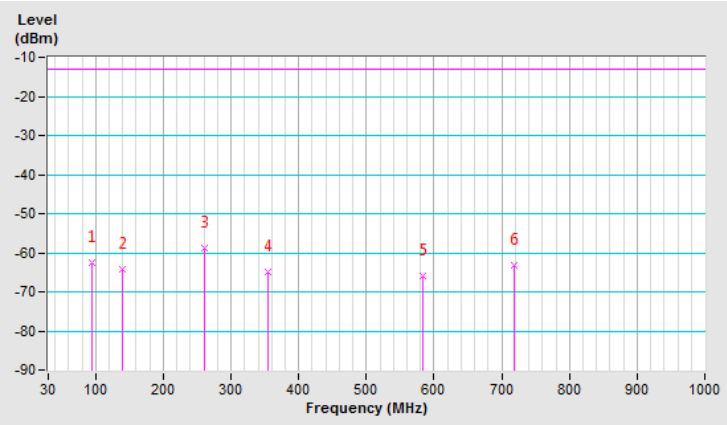
Remarks:
1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Mode	TX channel 20425 (826.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Luis Lee		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	94.02	-55.0	-63.4	1.0	-62.4	-13.0	-49.4
2	138.64	-58.0	-63.9	-0.3	-64.2	-13.0	-51.2
3	260.86	-58.2	-64.1	5.3	-58.8	-13.0	-45.8
4	353.98	-61.3	-70.0	5.2	-64.8	-13.0	-51.8
5	582.90	-66.4	-70.4	4.5	-65.9	-13.0	-52.9
6	718.70	-66.8	-68.2	5.0	-63.2	-13.0	-50.2

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

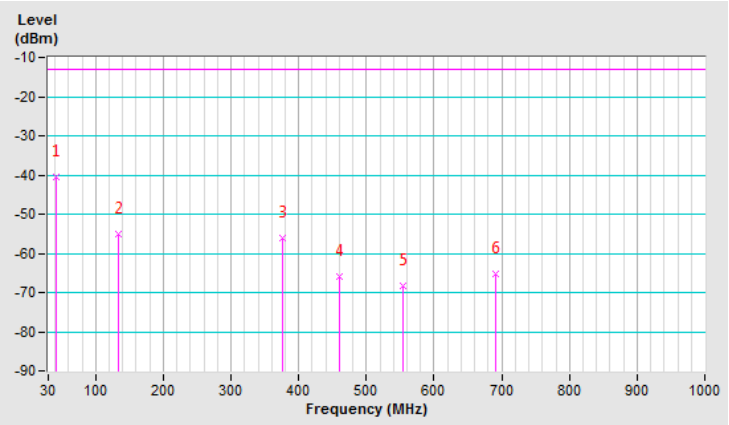


LTE Band 26, Channel Bandwidth 5MHz

Mode	TX channel 26815 (826.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Luis Lee		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	41.64	-41.2	-29.8	-10.6	-40.4	-13.0	-27.4
2	132.82	-46.1	-55.1	-0.1	-55.2	-13.0	-42.2
3	375.32	-52.1	-61.3	5.3	-56.0	-13.0	-43.0
4	460.68	-62.7	-70.9	5.0	-65.9	-13.0	-52.9
5	553.80	-65.5	-73.0	4.7	-68.3	-13.0	-55.3
6	691.54	-64.8	-70.3	5.2	-65.1	-13.0	-52.1

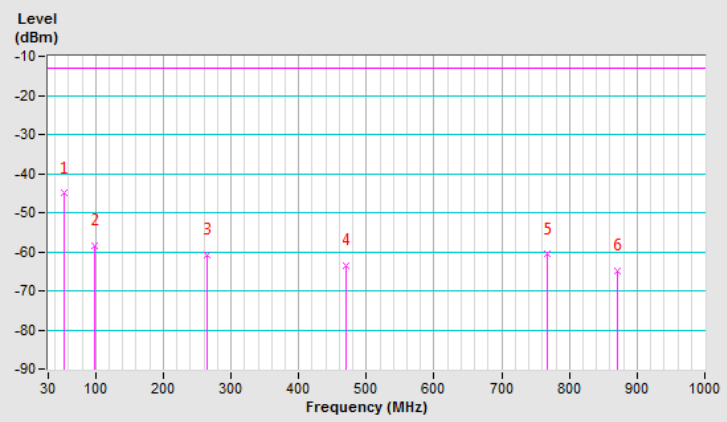
Remarks:
1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Mode	TX channel 26815 (826.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Luis Lee		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	53.28	-36.5	-36.6	-8.5	-45.1	-13.0	-32.1
2	97.90	-50.9	-59.6	1.0	-58.6	-13.0	-45.6
3	264.74	-61.2	-66.1	5.3	-60.8	-13.0	-47.8
4	470.38	-60.6	-68.4	5.0	-63.4	-13.0	-50.4
5	767.20	-64.7	-65.1	4.4	-60.7	-13.0	-47.7
6	870.02	-69.1	-68.8	3.9	-64.9	-13.0	-51.9

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



Above 1GHz
GSM Mode

Mode	TX channel 128 (824.2MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Luis Lee		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1648.40	-55.4	-55.6	5.5	-50.1	-13.0	-37.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1648.40	-49.7	-46.7	5.5	-41.2	-13.0	-28.2

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

Mode	TX channel 189 (836.4MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Luis Lee		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1672.80	-54.2	-54.5	5.5	-49.0	-13.0	-36.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1672.80	-49.8	-46.9	5.5	-41.4	-13.0	-28.4

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

Mode	TX channel 251 (848.8MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Luis Lee		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1697.60	-54.5	-54.9	5.6	-49.3	-13.0	-36.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1697.60	-49.5	-46.6	5.6	-41.0	-13.0	-28.0

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

CDMA Mode

Mode	TX channel 1013 (824.7MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1649.40	-59.4	-62.6	5.5	-57.1	-13.0	-44.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1649.40	-58.6	-59.7	5.5	-54.2	-13.0	-41.2

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

Mode	TX channel 384 (836.52MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1673.04	-59.2	-62.3	5.5	-56.8	-13.0	-43.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1673.04	-59.2	-60.0	5.5	-54.5	-13.0	-41.5

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

Mode	TX channel 777 848.31MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1696.62	-59.5	-62.3	5.6	-56.7	-13.0	-43.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1696.62	-59.2	-59.7	5.6	-54.1	-13.0	-41.1

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

WCDMA Band 5

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

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1652.80	-56.5	-59.7	5.5	-54.2	-13.0	-41.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1652.80	-56.0	-57.0	5.5	-51.5	-13.0	-38.5

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

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

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1672.80	-57.0	-60.0	5.5	-54.5	-13.0	-41.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1672.80	-56.2	-57.0	5.5	-51.5	-13.0	-38.5

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

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

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1693.20	-57.5	-60.4	5.6	-54.8	-13.0	-41.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1693.20	-57.0	-57.6	5.6	-52.0	-13.0	-39.0

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

LTE Band 5, Channel Bandwidth: 1.4MHz

Mode	TX channel 20407 (824.7MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1649.40	-53.1	-45.4	0.9	-44.5	-13.0	-31.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1649.40	-52.4	-45.2	0.9	-44.3	-13.0	-31.3

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

Mode	TX channel 20525 (836.5MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1673.00	-53.5	-45.9	0.8	-45.1	-13.0	-32.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1673.00	-51.9	-44.5	0.8	-43.7	-13.0	-30.7

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

Mode	TX channel 20643 (848.3MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1696.60	-53.2	-45.7	0.7	-45.0	-13.0	-32.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1696.60	-51.8	-44.5	0.7	-43.8	-13.0	-30.8

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

LTE Band 5, Channel Bandwidth: 5MHz

Mode	TX channel 20425 (826.5MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1653.00	-53.4	-45.7	0.9	-44.8	-13.0	-31.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1653.00	-51.9	-44.6	0.9	-43.7	-13.0	-30.7

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

Mode	TX channel 20525 (836.5MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1673.00	-52.8	-45.2	0.8	-44.4	-13.0	-31.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1673.00	-51.8	-44.4	0.8	-43.6	-13.0	-30.6

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

Mode	TX channel 20625 (846.5MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1693.00	-52.6	-45.1	0.7	-44.4	-13.0	-31.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1693.00	-52.2	-44.9	0.7	-44.2	-13.0	-31.2

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

LTE Band 5, Channel Bandwidth: 10MHz

Mode	TX channel 20450 (829.0MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1658.00	-53.1	-45.5	0.9	-44.6	-13.0	-31.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1658.00	-52.2	-45.0	0.9	-44.1	-13.0	-31.1

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

Mode	TX channel 20525 (836.5MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1673.00	-52.8	-45.2	0.8	-44.4	-13.0	-31.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1673.00	-52.0	-44.7	0.8	-43.9	-13.0	-30.9

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

Mode	TX channel 20600 (844.0MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1688.00	-53.1	-45.5	0.7	-44.8	-13.0	-31.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1688.00	-52.3	-45.0	0.7	-44.3	-13.0	-31.3

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

LTE Band 26, Channel Bandwidth 1.4MHz

Mode	TX channel 26797 (824.7MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1649.40	-55.5	-58.7	5.5	-53.2	-13.0	-40.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1649.40	-55.6	-56.7	5.5	-51.2	-13.0	-38.2

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

Mode	TX channel 26915 (836.5MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1673.00	-55.9	-58.9	5.5	-53.4	-13.0	-40.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1673.00	-56.0	-56.7	5.5	-51.2	-13.0	-38.2

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

Mode	TX channel 27033 (848.3MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1696.60	-55.8	-58.6	5.6	-53.0	-13.0	-40.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1696.60	-56.0	-56.6	5.6	-51.0	-13.0	-38.0

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

LTE Band 26, Channel Bandwidth 5MHz

Mode	TX channel 26815 (826.5MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1653.00	-55.8	-59.0	5.5	-53.5	-13.0	-40.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1653.00	-56.2	-57.2	5.5	-51.7	-13.0	-38.7

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

Mode	TX channel 26915 (836.5MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1673.00	-56.2	-59.3	5.5	-53.8	-13.0	-40.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1673.00	-56.0	-56.8	5.5	-51.3	-13.0	-38.3

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

Mode	TX channel 27015 (846.5MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1693.00	-56.5	-59.4	5.5	-53.9	-13.0	-40.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1693.00	-56.8	-57.3	5.5	-51.8	-13.0	-38.8

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

LTE Band 26, Channel Bandwidth 15MHz

Mode	TX channel 26865 (831.5MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1663.00	-55.5	-58.7	5.6	-53.1	-13.0	-40.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1663.00	-55.8	-56.8	5.6	-51.2	-13.0	-38.2

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

Mode	TX channel 26915 (836.5MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1673.00	-55.8	-58.8	5.5	-53.3	-13.0	-40.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1673.00	-56.4	-57.1	5.5	-51.6	-13.0	-38.6

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

Mode	TX channel 26965 (841.5MHz)	Frequency Range	1GH~10GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1683.00	-55.6	-58.5	5.5	-53.0	-13.0	-40.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1683.00	-56.4	-57.0	5.5	-51.5	-13.0	-38.5

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

5 Pictures of Test Arrangements

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

Appendix – Information of the Testing Laboratories

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

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

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