

FCC Test Report (PART 27)

Report No.: RF160818E07-5

FCC ID: G95TCA301

Test Model: TCA301TCH1

Series Model: TCA301TCH2, TCA301ROG1, TCA301COX2, TCA301BHN2,
TCA301CMP2, TCA301TWC2

Received Date: Aug. 18, 2016

Test Date: Sep. 04 to 13, 2016

Issued Date: Dec. 15, 2016

Applicant: Technicolor Connected Home USA LLC

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

Issue No.	Description	Date Issued
RF160818E07-5	Original release.	Dec. 15, 2016

1 Certificate of Conformity

Product: Integrated Device

Brand: Technicolor

Test Model: TCA301TCH1

Series Model: TCA301TCH2, TCA301ROG1, TCA301COX2, TCA301BHN2, TCA301CMP2,
TCA301TWC2

Sample Status: ENGINEERING SAMPLE

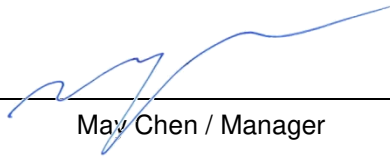
Applicant: Technicolor Connected Home USA LLC

Test Date: Sep. 04 to 13, 2016

Standards: FCC Part 27

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

Prepared by :  , **Date:** Dec. 15, 2016
Claire Kuan / Specialist

Approved by :  , **Date:** Dec. 15, 2016
May Chen / Manager

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(h)(2)	Equivalent Isotropically radiated power	PASS	Meet the requirement of limit.
---	Peak to Average Ratio	PASS	Meet the requirement of limit.
2.1055 27.54	Frequency Stability Stay with the authorized bands of operation	PASS	Meet the requirement of limit.
2.1049 27.53(m)(6)	Emission Bandwidth	PASS	Meet the requirement of limit.
2.1051 27.53(m)(4)(6)	Band Edge Measurements	PASS	Meet the requirement of limit.
2.1051 27.53(m)(4)(6)	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 27.53(m)(4)(6)	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -17.36dB at 17326MHz.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expended Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz – Chamber 4	5.19 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz – Chamber 3	3.40 dB
	1GHz ~ 6GHz – Chamber 4	3.43 dB
	6GHz ~ 18GHz – Chamber 3	3.73 dB
	1GHz ~ 6GHz – Chamber 4	3.49 dB
	18GHz ~ 40GHz – Chamber 3	4.11 dB
	1GHz ~ 6GHz – Chamber 4	4.11 dB

2.2 Test Site and Instruments

For ERP Power, EIRP Power and LTE (Band 4 and Band 17) Radiated Spurious Emissions above 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	Aug. 18, 2016	Aug. 17, 2017
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-05	May 07, 2016	May 06, 2017
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-156	Jan. 04, 2016	Jan. 03, 2017
RF Cable	8D	966-3-1 966-3-2 966-3-3	Apr. 02, 2016	Apr. 01, 2017
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Jan. 20, 2016	Jan. 19, 2017
Pre-Amplifier Agilent	8449B	3008A02465	Apr. 05, 2016	Apr. 04, 2017
RF Cable	EMC104-SM- SM-2000 EMC104-SM- SM-5000 EMC104-SM- SM-5000	150317 150321 150322	Mar. 30, 2016	Mar. 29, 2017
Spectrum Analyzer Keysight	N9030A	MY54490520	July 29, 2016	July 28, 2017
Pre-Amplifier EMCI	EMC184045	980143	Jan. 15, 2016	Jan. 14, 2017
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Jan. 08, 2016	Jan. 07, 2017
RF Cable	SUCOFLEX 102	36432/2 36441/2	Jan. 16, 2016	Jan. 15, 2017
Software	ADT_Radiated _V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Spectrum Analyzer R&S	FSP40	100060	May 11, 2016	May 10, 2017
Power meter Anritsu	ML2495A	1014008	May 05, 2016	May 04, 2017
Power sensor Anritsu	MA2411B	0917122	May 05, 2016	May 04, 2017

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 966 Chamber No. 3.
3. The FCC Site Registration No. is 147459
4. The CANADA Site Registration No. is 20331-1
5. Tested Date: Sep. 04 to 13, 2016

For other Radiated Spurious Emissions test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 20, 2016	July 19, 2017
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-01	Nov. 11, 2015	Nov. 10, 2016
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Jan. 04, 2016	Jan. 03, 2017
RF Cable	8D	966-4-1 966-4-2 966-4-3	Apr. 02, 2016	Apr. 01, 2017
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Jan. 19, 2016	Jan. 18, 2017
Pre-Amplifier Agilent	8449B	3008A01922	Sep. 19, 2015	Sep. 18, 2016
RF Cable	EMC104-SM- SM-2000 EMC104-SM- SM-5000 EMC104-SM- SM-5000	150318 150323 150324	Mar. 30, 2016	Mar. 29, 2017
Pre-Amplifier EMCI	EMC184045	980143	Jan. 15, 2016	Jan. 14, 2017
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Jan. 08, 2016	Jan. 07, 2017
RF Cable	SUCOFLEX 102	36432/2 36441/2	Jan. 16, 2016	Jan. 15, 2017
Software	ADT_Radiated _V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208410	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP02	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 966 Chamber No. 4.
3. The FCC Site Registration No. is 292998
4. The CANADA Site Registration No. is 20331-2
5. Tested Date: Sep. 10 to 13, 2016

For other test items:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSP40	100036	Jan. 27, 2016	Jan. 26, 2017
Spectrum Analyzer Keysight	N9030A	MY54490570	July 06, 2016	July 05, 2017
AC Power Source Exttech Electronics	6502	1140503	NA	NA
Temperature & Humidity Chamber TERCHY	MHU-225AU	911033	Dec. 03, 2015	Dec. 02, 2016
DC Power Supply GOOD WILL INSTRUMENT CO., LTD.	GPC - 3030D	7700087	NA	NA
ESG Vector signal generator Agilent	E4438C	Y45094468/00 5 506 602 UK6 UNJ	Dec. 01, 2015	Nov. 30, 2016
Power meter Anritsu	ML2495A	0824006	May 26, 2016	May 25, 2017
Power sensor Anritsu	MA2411B	0738172	May 26, 2016	May 25, 2017
Software	ADT_RF Test Software V6.6.5.4	NA	NA	NA
Digital Multimeter FLUKE	87III	73680266	Nov. 10, 2015	Nov. 09, 2016

- NOTE:**
1. The test was performed in Oven room 1.
 2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 3. Tested Date: Sep. 04, 2016

3 General Information

3.1 General Description of EUT

Product	Integrated Device			
Brand	Technicolor			
Test Model	TCA301TCH1			
Status of EUT	ENGINEERING SAMPLE			
Power Supply Rating	12Vdc from power adapter or 4Vdc from battery			
Modulation Type	QPSK, 16QAM			
Operating Frequency	WCDMA			1712.4MHz ~1752.6MHz
	LTE	Band 4	Channel Bandwidth: 1.4MHz	1710.7MHz ~1754.3MHz
			Channel Bandwidth: 3MHz	1711.5MHz ~1753.5MHz
			Channel Bandwidth: 5MHz	1712.5MHz ~1752.5MHz
			Channel Bandwidth: 10MHz	1715MHz ~1750MHz
			Channel Bandwidth: 15MHz	1717.5MHz ~1747.5MHz
			Channel Bandwidth: 20MHz	1720MHz ~1745MHz
		Band 17	Channel Bandwidth: 5MHz	706.5MHz ~713.5MHz
			Channel Bandwidth: 10MHz	709MHz ~711MHz
Max. EIRP Power	WCDMA			449.78mW
	LTE	Band 4	Channel Bandwidth: 1.4MHz	380.19mW
			Channel Bandwidth: 3MHz	364.75mW
			Channel Bandwidth: 5MHz	324.34mW
			Channel Bandwidth: 10MHz	338.84mW
			Channel Bandwidth: 15MHz	371.54mW
			Channel Bandwidth: 20MHz	389.05mW
	Max. ERP Power	Band 17	Channel Bandwidth: 5MHz	159.96mW
Channel Bandwidth: 10MHz			143.88mW	
Emission Designator	WCDMA			4M18G7D
	LTE	Band 4	Channel Bandwidth: 1.4MHz	QPSK: 1M09G7D 16QAM: 1M08D7W
			Channel Bandwidth: 3MHz	QPSK: 2M68G7D 16QAM: 2M68D7W
			Channel Bandwidth: 5MHz	QPSK: 4M50G7D 16QAM: 4M49D7W
			Channel Bandwidth: 10MHz	QPSK: 8M98G7D 16QAM: 8M92D7W
			Channel Bandwidth: 15MHz	QPSK: 13M5G7D 16QAM: 13M4D7W
			Channel Bandwidth: 20MHz	QPSK: 17M9G7D 16QAM: 17M9D7W
		Band 17	Channel Bandwidth: 5MHz	QPSK: 4M51G7D 16QAM: 4M49D7W
			Channel Bandwidth: 10MHz	QPSK: 8M94G7D 16QAM: 8M92D7W

Antenna Type	Refer to note as below
Antenna Connector	Refer to user's manual
Accessory Device	Adapter x1 Battery x1
HW Version	FGR
SW Version	i-control v.1.4.0

Note:

1. All models are listed as below.

Brand	Model	Difference
Technicolor	TCA301TCH1	For marketing.
	TCA301TCH2	
	TCA301ROG1	
	TCA301COX2	
	TCA301BHN2	
	TCA301CMP2	
	TCA301TWC2	

From the above models, model: **TCA301TCH1** was selected as representative model for the test and its data was recorded in this report.

2. There are WLAN, Bluetooth, Zigbee, Zigbee Thread and WWAN technology used for the EUT.

3. Simultaneously transmission condition.

Condition	Technology				
1	WLAN (2.4GHz)	Bluetooth	Zigbee	Zigbee Thread	WWAN (2G/3G/4G)
2	WLAN (5GHz)	Bluetooth	Zigbee	Zigbee Thread	WWAN (2G/3G/4G)

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.

4. The EUT power needs to be supplied from one power adapter or battery, the information is as below table:

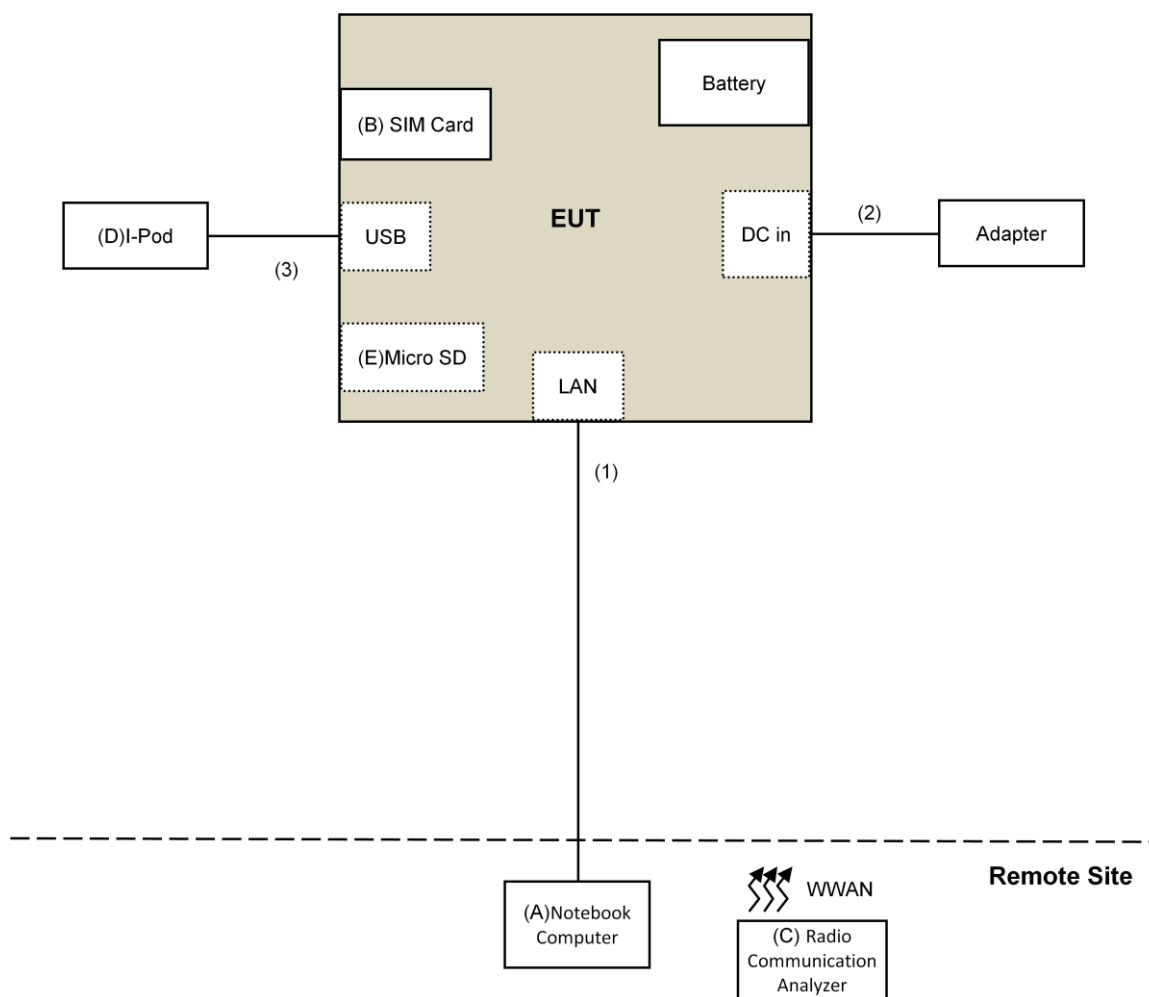
Adapter		
Brand	Model	Spec.
AcBel	WAF007	Input: 100-120Vac, 50/60Hz, 0.7A Output: 12V, 1.5A DC output cable (Unshielded, 3m)
Battery		
Brand	Model	Spec.
GETAC	U46P332.00	4V 3540mAh 14.16Wh.

5. The antennas provided to the EUT, please refer to the following table:

WLAN & BT Antenna Spec.					
Antenna No.	Transmitter Circuit	Gain(dBi) Including cable loss	Frequency range (MHz)	Antenna Type	Antenna Connector
WiFi 1 & BT	Chain (0)	2.29	2400~2500	FPCB	i-pex(MHF)
		3.36	5150~5250		
		3.66	5250~5350		
		3.77	5470~5725		
		3.36	5725~5850		
WiFi 2	Chain (1)	2.34	2400~2500	PCB	i-pex(MHF)
		3.62	5150~5250		
		3.55	5250~5350		
		2.86	5470~5725		
		2.99	5725~5850		
Zigbee Antenna Spec.					
Antenna No.		Gain(dBi) Including cable loss	Frequency range (MHz)	Antenna Type	Antenna Connector
Zigbee-A		2.33	2400~2500	PCB	i-pex(MHF)
Zigbee- Thread		2.5	2400~2500	PCB	i-pex(MHF)
WWAN Antenna Spec.					
Antenna No.		Gain(dBi) Including cable loss	Frequency range (MHz)	Antenna Type	Antenna Connector
WWAN 1		1.62	704~894	PCB	i-pex(MHF)
		2.36	1710~2170		
WWAN 2		0.63	704~894	FPCB	i-pex(MHF)
		1.66	1710~2170		

6. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 Configuration of System under Test



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.	Notebook Computer	HP	Pavilion 14-ab023TU	5CD5340WXZ	NA	Provided by Lab
B.	SIM Card	NA	NA	NA	NA	Provided by Lab
C.	Radio Communication Analyzer	Anritsu	MT8820C	6201127458	NA	Provided by Lab
D.	i-Pod	Apple	MD778TA/A	CC4JMFLOF4T1	NA	Provided by Lab
E.	Micro SD	NA	NA	NA	NA	Provided by Lab

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45 Cable	1	10	No	0	Provided by Lab
2.	DC Cable	1	3	No	0	Supplied by client
3.	USB Calbe	1	0.1	Yes	0	Provided by Lab

3.3 Test Mode Applicability and Tested Channel Detail

The EUT had been pre-tested on the positioned of each 2 axis. The worst case was found when positioned on **Y-plane**.

WCDMA Band 4

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
EIRP	1312 to 1513	1312, 1413, 1513	WCDMA
Frequency Stability	1312 to 1513	1413	WCDMA
Emission Bandwidth	1312 to 1513	1312, 1413, 1513	WCDMA
Peak to Average Ratio	1312 to 1513	1312, 1413, 1513	WCDMA
Band Edge	1312 to 1513	1312, 1513	WCDMA
Conducuted Emission	1312 to 1513	1413	WCDMA
Radiated Emission	1312 to 1513	1413	WCDMA

LTE Band 4

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	19965 to 20385	19965, 20175, 20385	3MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
	20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset
Frequency Stability	19957 to 20393	20175	1.4MHz	QPSK	1 RB / 0 RB Offset
	19965 to 20385	20175	3MHz	QPSK	1 RB / 0 RB Offset
	19975 to 20375	20175	5MHz	QPSK	1 RB / 0 RB Offset
	20000 to 20350	20175	10MHz	QPSK	1 RB / 0 RB Offset
	20025 to 20325	20175	15MHz	QPSK	1 RB / 0 RB Offset
	20050 to 20300	20175	20MHz	QPSK	1 RB / 0 RB Offset
Emission Bandwidth	19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK, 16QAM	6 RB / 0 RB Offset
	19965 to 20385	19965, 20175, 20385	3MHz	QPSK, 16QAM	15 RB / 0 RB Offset
	19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
	20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
	20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM	75 RB / 0 RB Offset
	20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM	100 RB / 0 RB Offset
Peak to Average Ratio	19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK	1 RB / 0 RB Offset
	19965 to 20385	19965, 20175, 20385	3MHz	QPSK	1 RB / 0 RB Offset
	19975 to 20375	19975, 20175, 20375	5MHz	QPSK	1 RB / 0 RB Offset
	20000 to 20350	20000, 20175, 20350	10MHz	QPSK	1 RB / 0 RB Offset
	20025 to 20325	20025, 20175, 20325	15MHz	QPSK	1 RB / 0 RB Offset
	20050 to 20300	20050, 20175, 20300	20MHz	QPSK	1 RB / 0 RB Offset
Band Edge	19957 to 20393	19957, 20393	1.4MHz	QPSK	1 RB / 0 RB Offset
					6 RB / 0 RB Offset
	19965 to 20385	19965, 20385	3MHz	QPSK	1 RB / 0 RB Offset
					15 RB / 0 RB Offset
	19975 to 20375	19975, 20393	5MHz	QPSK	1 RB / 0 RB Offset
					25 RB / 0 RB Offset
	20000 to 20350	20000, 20350	10MHz	QPSK	1 RB / 0 RB Offset
					50 RB / 0 RB Offset
	20025 to 20325	20025, 20325	15MHz	QPSK	1 RB / 0 RB Offset
					75 RB / 0 RB Offset
	20050 to 20300	20050, 20300	20MHz	QPSK	1 RB / 0 RB Offset
					100 RB / 0 RB Offset
Conducuted Emission	19957 to 20393	20175	1.4MHz	QPSK	1 RB / 0 RB Offset
	19965 to 20385	20175	3MHz	QPSK	1 RB / 0 RB Offset
	19975 to 20375	20175	5MHz	QPSK	1 RB / 0 RB Offset
	20000 to 20350	20175	10MHz	QPSK	1 RB / 0 RB Offset
	20025 to 20325	20175	15MHz	QPSK	1 RB / 0 RB Offset
	20050 to 20300	20175	20MHz	QPSK	1 RB / 0 RB Offset
Radiated Emission	19957 to 20393	20175	1.4MHz	QPSK	1 RB / 0 RB Offset
	19965 to 20385	20175	3MHz	QPSK	1 RB / 0 RB Offset
	19975 to 20375	20175	5MHz	QPSK	1 RB / 0 RB Offset
	20000 to 20350	20175	10MHz	QPSK	1 RB / 0 RB Offset
	20025 to 20325	20175	15MHz	QPSK	1 RB / 0 RB Offset
	20050 to 20300	20175	20MHz	QPSK	1 RB / 0 RB Offset

LTE Band 17

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
ERP	23755 to 23825	23755, 23790, 23825	5MHz	QPSK/16QAM	1 RB / 0 RB Offset
	23780 to 23800	23780, 23790, 23800	10MHz	QPSK/16QAM	1 RB / 0 RB Offset
Frequency Stability	23755 to 23825	23790	5MHz	QPSK	1 RB / 0 RB Offset
	23780 to 23800	23790	10MHz	QPSK	1 RB / 0 RB Offset
Emission Bandwidth	23755 to 23825	23755, 23790, 23825	5MHz	QPSK/16QAM	25 RB / 0 RB Offset
	23780 to 23800	23780, 23790, 23800	10MHz	QPSK/16QAM	50 RB / 0 RB Offset
Peak to Average Ratio	23755 to 23825	23755, 23790, 23825	5MHz	QPSK	1 RB / 0 RB Offset
	23780 to 23800	23780, 23790, 23800	10MHz	QPSK	1 RB / 0 RB Offset
Band Edge	23755 to 23825	23755, 23825	5MHz	QPSK	1 RB / 0 RB Offset
					25 RB / 0 RB Offset
	23780 to 23800	23780, 23800	10MHz	QPSK	1 RB / 0 RB Offset
					50 RB / 0 RB Offset
Conducuted Emission	23755 to 23825	23790	5MHz	QPSK	1 RB / 0 RB Offset
	23780 to 23800	23790	10MHz	QPSK	1 RB / 0 RB Offset
Radiated Emission	23755 to 23825	23790	5MHz	QPSK	1 RB / 0 RB Offset
	23780 to 23800	23790	10MHz	QPSK	1 RB / 0 RB Offset

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
Output Power	25deg. C, 63%RH	120Vac, 60Hz	Gary Cheng
Frequency Stability	25deg. C, 63%RH	120Vac, 60Hz	Gary Cheng
Emission Bandwidth	25deg. C, 63%RH	120Vac, 60Hz	Gary Cheng
Peak to Average Ratio	25deg. C, 63%RH	120Vac, 60Hz	Gary Cheng
Band Edge	25deg. C, 63%RH	120Vac, 60Hz	Gary Cheng
Conducted Emission	25deg. C, 63%RH	120Vac, 60Hz	Gary Cheng
Radiated Emission	25deg. C, 63%RH	120Vac, 60Hz	Andy Ho

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 27

KDB 971168 D01 Power Meas License Digital Systems v02r02

ANSI/TIA/EIA-603-D 2010

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 1 watt e.i.r.p.

4.1.2 Test Procedures

EIRP / ERP Measurement:

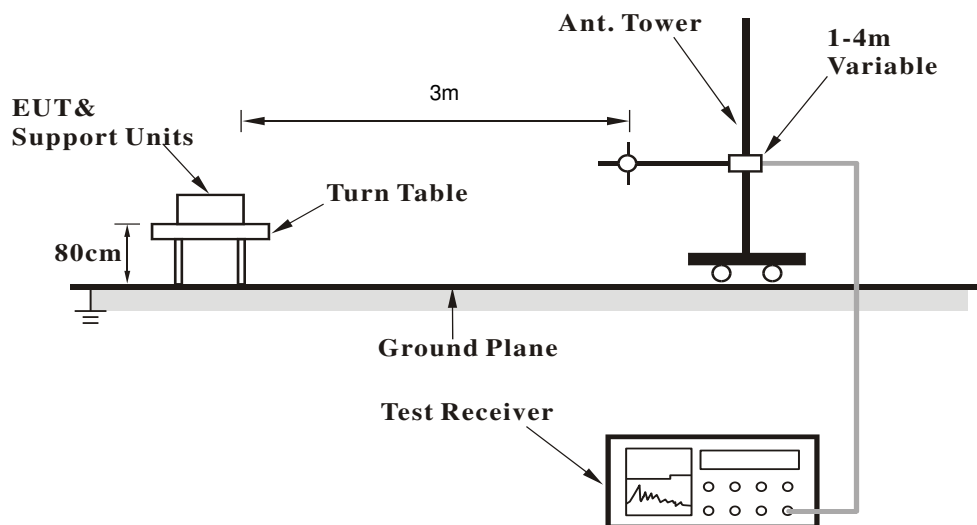
- a. All measurements were done at low, middle and high operational frequency range. Set the RBW $\geq$ OBW and VBW $\geq$ 3xRBW.
- b.
- c. Substitution method is used for EIRP measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees 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.
- d. The substitution 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
- e. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution}$. ERP power can be calculated form EIRP power by subtracting the gain of dipole, $ERP \text{ power} = EIPR \text{ power} - 2.15\text{dBi}$.

Conducted Power Measurement:

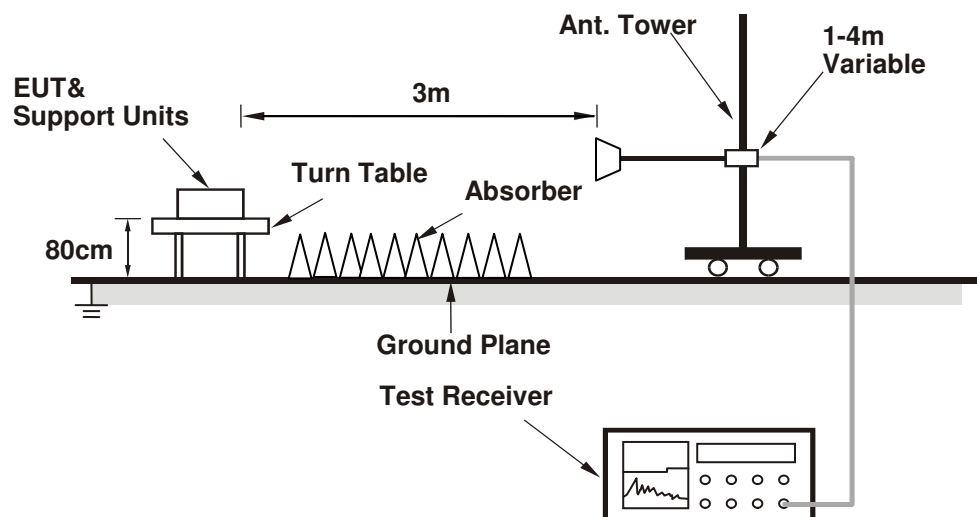
The EUT was set up for the maximum power with GPRS, EDGE, WCDMA & LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

Note: The worst case vertical or horizontal polarization have been investigated and reported in this report.

4.1.3 Test Setup ERP MEASUREMENT:



EIRP MEASUREMENT:



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

CONDUCTED POWER MEASUREMENT:



4.1.4 Test Results

CONDUCTED OUTPUT POWER (dBm)

Band	WCDMA Band 4		
Channel	1312	1413	1513
Frequency (MHz)	1712.40	1732.60	1752.60
RMC	23.30	23.50	24.00
HSDPA Subtest-1	23.70	23.50	23.20
HSDPA Subtest-2	23.86	23.80	23.77
HSDPA Subtest-3	23.00	23.10	23.50
HSDPA Subtest-4	23.70	23.60	23.79
HSUPA Subtest-1	23.90	23.60	23.92
HSUPA Subtest-2	23.90	23.90	23.86
HSUPA Subtest-3	23.86	23.90	23.70
HSUPA Subtest-4	23.70	23.40	23.60
HSUPA Subtest-5	23.62	23.80	23.70

LTE Band 4								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
1.4 MHz	QPSK	19957	1710.7	1	0	0	24	23.41
		20175	1732.5	1	0	0	24	23.29
		20393	1754.3	1	0	0	24	23.19
		19957	1710.7	1	2	0	24	23.34
		20175	1732.5	1	2	0	24	23.38
		20393	1754.3	1	2	0	24	23.15
		19957	1710.7	1	5	0	24	23.37
		20175	1732.5	1	5	0	24	23.41
		20393	1754.3	1	5	0	24	23.19
		19957	1710.7	3	0	0	24	23.46
		20175	1732.5	3	0	0	24	23.39
		20393	1754.3	3	0	0	24	23.25
		19957	1710.7	3	1	0	24	23.47
		20175	1732.5	3	1	0	24	23.45
		20393	1754.3	3	1	0	24	23.16
		19957	1710.7	3	3	0	24	23.44
		20175	1732.5	3	3	0	24	23.40
		20393	1754.3	3	3	0	24	23.14
		19957	1710.7	6	0	1	24	22.49
		20175	1732.5	6	0	1	24	22.51
		20393	1754.3	6	0	1	24	22.33

LTE Band 4								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
1.4 MHz	16QAM	19957	1710.7	1	0	1	24	22.59
		20175	1732.5	1	0	1	24	22.03
		20393	1754.3	1	0	1	24	22.15
		19957	1710.7	1	2	1	24	22.27
		20175	1732.5	1	2	1	24	22.16
		20393	1754.3	1	2	1	24	22.20
		19957	1710.7	1	5	1	24	22.41
		20175	1732.5	1	5	1	24	22.53
		20393	1754.3	1	5	1	24	22.32
		19957	1710.7	3	0	1	24	22.46
		20175	1732.5	3	0	1	24	22.39
		20393	1754.3	3	0	1	24	22.28
		19957	1710.7	3	1	1	24	22.51
		20175	1732.5	3	1	1	24	22.48
		20393	1754.3	3	1	1	24	22.29
		19957	1710.7	3	3	1	24	22.51
		20175	1732.5	3	3	1	24	22.50
		20393	1754.3	3	3	1	24	22.10
		19957	1710.7	6	0	2	24	21.51
		20175	1732.5	6	0	2	24	21.61
		20393	1754.3	6	0	2	24	21.38

LTE Band 4								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
3 MHz	QPSK	19965	1711.5	1	0	0	24	23.45
		20175	1732.5	1	0	0	24	23.26
		20385	1753.5	1	0	0	24	23.08
		19965	1711.5	1	7	0	24	23.35
		20175	1732.5	1	7	0	24	23.42
		20385	1753.5	1	7	0	24	23.29
		19965	1711.5	1	14	0	24	23.36
		20175	1732.5	1	14	0	24	23.34
		20385	1753.5	1	14	0	24	23.09
		19965	1711.5	8	0	1	24	22.50
		20175	1732.5	8	0	1	24	22.45
		20385	1753.5	8	0	1	24	22.28
		19965	1711.5	8	3	1	24	22.52
		20175	1732.5	8	3	1	24	22.47
		20385	1753.5	8	3	1	24	22.35
		19965	1711.5	8	7	1	24	22.47
		20175	1732.5	8	7	1	24	22.43
		20385	1753.5	8	7	1	24	22.30
		19965	1711.5	15	0	1	24	22.40
		20175	1732.5	15	0	1	24	22.48
		20385	1753.5	15	0	1	24	22.29

LTE Band 4								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
3 MHz	16QAM	19965	1711.5	1	0	1	24	22.57
		20175	1732.5	1	0	1	24	22.19
		20385	1753.5	1	0	1	24	22.17
		19965	1711.5	1	7	1	24	22.74
		20175	1732.5	1	7	1	24	22.61
		20385	1753.5	1	7	1	24	22.19
		19965	1711.5	1	14	1	24	22.17
		20175	1732.5	1	14	1	24	22.32
		20385	1753.5	1	14	1	24	22.27
		19965	1711.5	8	0	2	24	21.40
		20175	1732.5	8	0	2	24	21.39
		20385	1753.5	8	0	2	24	21.27
		19965	1711.5	8	3	2	24	21.31
		20175	1732.5	8	3	2	24	21.33
		20385	1753.5	8	3	2	24	20.81
		19965	1711.5	8	7	2	24	21.40
		20175	1732.5	8	7	2	24	21.36
		20385	1753.5	8	7	2	24	21.31
		19965	1711.5	15	0	2	24	21.51
		20175	1732.5	15	0	2	24	21.38
		20385	1753.5	15	0	2	24	21.19

LTE Band 4								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
5 MHz	QPSK	19975	1712.5	1	0	0	24	23.29
		20175	1732.5	1	0	0	24	23.46
		20375	1752.5	1	0	0	24	23.27
		19975	1712.5	1	12	0	24	23.41
		20175	1732.5	1	12	0	24	23.37
		20375	1752.5	1	12	0	24	23.24
		19975	1712.5	1	24	0	24	23.39
		20175	1732.5	1	24	0	24	23.58
		20375	1752.5	1	24	0	24	23.08
		19975	1712.5	12	0	1	24	22.37
		20175	1732.5	12	0	1	24	22.46
		20375	1752.5	12	0	1	24	22.25
		19975	1712.5	12	6	1	24	22.49
		20175	1732.5	12	6	1	24	22.48
		20375	1752.5	12	6	1	24	22.29
		19975	1712.5	12	13	1	24	22.43
		20175	1732.5	12	13	1	24	22.41
		20375	1752.5	12	13	1	24	22.23
		19975	1712.5	25	0	1	24	22.34
		20175	1732.5	25	0	1	24	22.34
		20375	1752.5	25	0	1	24	22.08

LTE Band 4								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
5 MHz	16QAM	19975	1712.5	1	0	1	24	22.36
		20175	1732.5	1	0	1	24	22.56
		20375	1752.5	1	0	1	24	22.52
		19975	1712.5	1	12	1	24	22.38
		20175	1732.5	1	12	1	24	22.08
		20375	1752.5	1	12	1	24	22.01
		19975	1712.5	1	24	1	24	22.36
		20175	1732.5	1	24	1	24	22.81
		20375	1752.5	1	24	1	24	22.34
		19975	1712.5	12	0	2	24	21.44
		20175	1732.5	12	0	2	24	21.44
		20375	1752.5	12	0	2	24	21.25
		19975	1712.5	12	6	2	24	21.46
		20175	1732.5	12	6	2	24	21.47
		20375	1752.5	12	6	2	24	21.25
		19975	1712.5	12	13	2	24	21.39
		20175	1732.5	12	13	2	24	21.41
		20375	1752.5	12	13	2	24	21.34
		19975	1712.5	25	0	2	24	21.27
		20175	1732.5	25	0	2	24	21.33
		20375	1752.5	25	0	2	24	21.11

LTE Band 4								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
10 MHz	QPSK	20000	1715	1	0	0	24	23.48
		20175	1732.5	1	0	0	24	23.30
		20350	1750	1	0	0	24	24.10
		20000	1715	1	24	0	24	23.44
		20175	1732.5	1	24	0	24	23.47
		20350	1750	1	24	0	24	23.24
		20000	1715	1	49	0	24	23.56
		20175	1732.5	1	49	0	24	23.51
		20350	1750	1	49	0	24	23.78
		20000	1715	25	0	1	24	22.38
		20175	1732.5	25	0	1	24	22.38
		20350	1750	25	0	1	24	22.15
		20000	1715	25	12	1	24	22.40
		20175	1732.5	25	12	1	24	22.36
		20350	1750	25	12	1	24	22.16
		20000	1715	25	25	1	24	22.40
		20175	1732.5	25	25	1	24	22.41
		20350	1750	25	25	1	24	22.19
		20000	1715	50	0	1	24	22.25
		20175	1732.5	50	0	1	24	22.22
		20350	1750	50	0	1	24	21.99

LTE Band 4								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
10 MHz	16QAM	20000	1715	1	0	1	24	22.36
		20175	1732.5	1	0	1	24	22.26
		20350	1750	1	0	1	24	22.47
		20000	1715	1	24	1	24	22.86
		20175	1732.5	1	24	1	24	22.45
		20350	1750	1	24	1	24	22.25
		20000	1715	1	49	1	24	22.42
		20175	1732.5	1	49	1	24	22.34
		20350	1750	1	49	1	24	22.24
		20000	1715	25	0	2	24	21.29
		20175	1732.5	25	0	2	24	21.27
		20350	1750	25	0	2	24	21.23
		20000	1715	25	12	2	24	21.39
		20175	1732.5	25	12	2	24	21.38
		20350	1750	25	12	2	24	21.12
		20000	1715	25	25	2	24	21.37
		20175	1732.5	25	25	2	24	21.20
		20350	1750	25	25	2	24	21.11
		20000	1715	50	0	2	24	21.18
		20175	1732.5	50	0	2	24	21.20
		20350	1750	50	0	2	24	20.95

LTE Band 4								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
15 MHz	QPSK	20025	1717.5	1	0	0	24	23.34
		20175	1732.5	1	0	0	24	23.68
		20325	1747.5	1	0	0	24	23.35
		20025	1717.5	1	37	0	24	23.45
		20175	1732.5	1	37	0	24	23.37
		20325	1747.5	1	37	0	24	23.26
		20025	1717.5	1	74	0	24	23.31
		20175	1732.5	1	74	0	24	23.38
		20325	1747.5	1	74	0	24	23.82
		20025	1717.5	36	0	1	24	22.32
		20175	1732.5	36	0	1	24	22.26
		20325	1747.5	36	0	1	24	22.32
		20025	1717.5	36	19	1	24	22.38
		20175	1732.5	36	19	1	24	22.28
		20325	1747.5	36	19	1	24	22.39
		20025	1717.5	36	39	1	24	22.42
		20175	1732.5	36	39	1	24	22.34
		20325	1747.5	36	39	1	24	22.02
		20025	1717.5	75	0	1	24	22.26
		20175	1732.5	75	0	1	24	22.21
		20325	1747.5	75	0	1	24	22.14

LTE Band 4								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
15 MHz	16QAM	20025	1717.5	1	0	1	24	22.41
		20175	1732.5	1	0	1	24	22.64
		20325	1747.5	1	0	1	24	22.30
		20025	1717.5	1	37	1	24	22.49
		20175	1732.5	1	37	1	24	22.30
		20325	1747.5	1	37	1	24	22.19
		20025	1717.5	1	74	1	24	22.69
		20175	1732.5	1	74	1	24	22.20
		20325	1747.5	1	74	1	24	21.90
		20025	1717.5	36	0	2	24	21.37
		20175	1732.5	36	0	2	24	21.19
		20325	1747.5	36	0	2	24	21.34
		20025	1717.5	36	19	2	24	21.36
		20175	1732.5	36	19	2	24	21.26
		20325	1747.5	36	19	2	24	21.27
		20025	1717.5	36	39	2	24	21.54
		20175	1732.5	36	39	2	24	21.19
		20325	1747.5	36	39	2	24	21.11
		20025	1717.5	75	0	2	24	21.09
		20175	1732.5	75	0	2	24	21.15
		20325	1747.5	75	0	2	24	21.09

LTE Band 4								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
20 MHz	QPSK	20050	1720	1	0	0	24	23.39
		20175	1732.5	1	0	0	24	23.19
		20300	1745	1	0	0	24	23.37
		20050	1720	1	50	0	24	23.61
		20175	1732.5	1	50	0	24	23.34
		20300	1745	1	50	0	24	23.21
		20050	1720	1	99	0	24	23.27
		20175	1732.5	1	99	0	24	23.24
		20300	1745	1	99	0	24	22.71
		20050	1720	50	0	1	24	22.25
		20175	1732.5	50	0	1	24	22.18
		20300	1745	50	0	1	24	22.23
		20050	1720	50	25	1	24	22.26
		20175	1732.5	50	25	1	24	22.18
		20300	1745	50	25	1	24	21.98
		20050	1720	50	50	1	24	22.22
		20175	1732.5	50	50	1	24	22.24
		20300	1745	50	50	1	24	22.05
		20050	1720	100	0	1	24	22.34
		20175	1732.5	100	0	1	24	22.15
		20300	1745	100	0	1	24	22.42

LTE Band 4								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
20 MHz	16QAM	20050	1720	1	0	1	24	22.67
		20175	1732.5	1	0	1	24	22.36
		20300	1745	1	0	1	24	22.73
		20050	1720	1	50	1	24	22.75
		20175	1732.5	1	50	1	24	22.42
		20300	1745	1	50	1	24	22.16
		20050	1720	1	99	1	24	22.20
		20175	1732.5	1	99	1	24	22.47
		20300	1745	1	99	1	24	22.18
		20050	1720	50	0	2	24	21.22
		20175	1732.5	50	0	2	24	21.16
		20300	1745	50	0	2	24	21.19
		20050	1720	50	25	2	24	21.27
		20175	1732.5	50	25	2	24	21.25
		20300	1745	50	25	2	24	20.92
		20050	1720	50	50	2	24	21.26
		20175	1732.5	50	50	2	24	21.11
		20300	1745	50	50	2	24	21.07
		20050	1720	100	0	2	24	21.25
		20175	1732.5	100	0	2	24	21.13
		20300	1745	100	0	2	24	21.43

LTE Band 17								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
5 MHz	QPSK	23755	706.5	1	0	0	24	23.13
		23790	710	1	0	0	24	23.17
		23825	713.5	1	0	0	24	23.30
		23755	706.5	1	12	0	24	23.33
		23790	710	1	12	0	24	23.48
		23825	713.5	1	12	0	24	23.36
		23755	706.5	1	24	0	24	23.47
		23790	710	1	24	0	24	23.25
		23825	713.5	1	24	0	24	23.13
		23755	706.5	12	0	1	24	22.27
		23790	710	12	0	1	24	22.34
		23825	713.5	12	0	1	24	22.35
		23755	706.5	12	6	1	24	22.40
		23790	710	12	6	1	24	22.37
		23825	713.5	12	6	1	24	22.29
		23755	706.5	12	13	1	24	22.43
		23790	710	12	13	1	24	22.46
		23825	713.5	12	13	1	24	22.10
		23755	706.5	25	0	1	24	22.28
		23790	710	25	0	1	24	22.31
		23825	713.5	25	0	1	24	22.17

LTE Band 17								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
5 MHz	16QAM	23755	706.5	1	0	1	24	22.34
		23790	710	1	0	1	24	22.03
		23825	713.5	1	0	1	24	22.18
		23755	706.5	1	12	1	24	22.60
		23790	710	1	12	1	24	22.60
		23825	713.5	1	12	1	24	22.34
		23755	706.5	1	24	1	24	22.23
		23790	710	1	24	1	24	22.37
		23825	713.5	1	24	1	24	22.29
		23755	706.5	12	0	2	24	21.33
		23790	710	12	0	2	24	21.32
		23825	713.5	12	0	2	24	21.39
		23755	706.5	12	6	2	24	21.31
		23790	710	12	6	2	24	21.42
		23825	713.5	12	6	2	24	21.29
		23755	706.5	12	13	2	24	21.48
		23790	710	12	13	2	24	21.38
		23825	713.5	12	13	2	24	21.04
		23755	706.5	25	0	2	24	21.18
		23790	710	25	0	2	24	21.18
		23825	713.5	25	0	2	24	21.11

LTE Band 17								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
10 MHz	QPSK	23780	709	1	0	0	24	23.34
		23790	710	1	0	0	24	23.13
		23800	711	1	0	0	24	23.22
		23780	709	1	24	0	24	23.44
		23790	710	1	24	0	24	23.32
		23800	711	1	24	0	24	23.15
		23780	709	1	49	0	24	23.25
		23790	710	1	49	0	24	23.12
		23800	711	1	49	0	24	23.14
		23780	709	25	0	1	24	22.27
		23790	710	25	0	1	24	22.23
		23800	711	25	0	1	24	22.24
		23780	709	25	12	1	24	22.28
		23790	710	25	12	1	24	22.21
		23800	711	25	12	1	24	22.34
		23780	709	25	25	1	24	22.41
		23790	710	25	25	1	24	22.32
		23800	711	25	25	1	24	22.17
		23780	709	50	0	1	24	22.10
		23790	710	50	0	1	24	22.12
		23800	711	50	0	1	24	22.05

LTE Band 17								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
10 MHz	16QAM	23780	709	1	0	1	24	22.35
		23790	710	1	0	1	24	22.44
		23800	711	1	0	1	24	22.20
		23780	709	1	24	1	24	22.36
		23790	710	1	24	1	24	22.43
		23800	711	1	24	1	24	22.58
		23780	709	1	49	1	24	21.96
		23790	710	1	49	1	24	22.52
		23800	711	1	49	1	24	22.00
		23780	709	25	0	2	24	21.19
		23790	710	25	0	2	24	21.16
		23800	711	25	0	2	24	21.15
		23780	709	25	12	2	24	21.21
		23790	710	25	12	2	24	21.12
		23800	711	25	12	2	24	21.22
		23780	709	25	25	2	24	21.35
		23790	710	25	25	2	24	21.32
		23800	711	25	25	2	24	21.22
		23780	709	50	0	2	24	21.12
		23790	710	50	0	2	24	21.08
		23800	711	50	0	2	24	21.05

EIRP POWER (dBm)**WCDMA**

Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)
1312	1712.4	H	18.92	6.38	25.30	338.84
1413	1732.6	H	19.85	6.42	26.27	423.64
1513	1752.6	H	20.08	6.45	26.53	449.78

QPSK

LTE Band 4

Channel Bandwidth: 1.4MHz / QPSK						
Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)
19957	1710.7	H	22.72	2.78	25.50	354.81
20175	1732.5	H	22.89	2.78	25.67	368.98
20393	1754.3	H	22.99	2.81	25.80	380.19
Channel Bandwidth: 3MHz / QPSK						
Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)
19965	1711.5	H	22.66	2.78	25.44	349.95
20175	1732.5	H	22.29	2.78	25.07	321.37
20385	1753.5	H	22.81	2.81	25.62	364.75
Channel Bandwidth: 5MHz / QPSK						
Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)
19975	1712.5	H	22.22	2.78	25.00	316.23
20175	1732.5	H	21.64	2.78	24.42	276.69
20375	1752.5	H	22.30	2.81	25.11	324.34
Channel Bandwidth: 10MHz / QPSK						
Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)
20000	1715	H	22.38	2.78	25.16	328.10
20175	1732.5	H	22.22	2.78	25.00	316.23
20350	1754.3	H	22.49	2.81	25.30	338.84
Channel Bandwidth: 15MHz / QPSK						
Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)
20025	1717.5	H	22.64	2.78	25.42	348.34
20175	1732.5	H	22.85	2.78	25.63	365.59
20325	1747.5	H	22.89	2.81	25.70	371.54
Channel Bandwidth: 20MHz / QPSK						
Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)
20050	1720	H	22.64	2.78	25.42	348.34
20175	1732.5	H	23.12	2.78	25.90	389.05
20300	1745	H	22.83	2.81	25.64	366.44

REMARKS: 1. EIPR Output Power (dBm) = SPA Reading (dBm) + Correction Factor (dB).

2. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss.

LTE Band 17

Channel Bandwidth: 5MHz / QPSK						
Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)
23755	706.5	H	19.09	2.78	21.87	153.82
23790	710	H	19.14	2.78	21.92	155.60
23825	713.5	H	19.23	2.81	22.04	159.96
Channel Bandwidth: 10MHz / QPSK						
Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)
23780	709	H	18.80	2.78	21.58	143.88
23790	710	H	18.63	2.78	21.41	138.36
23800	711	H	17.94	2.81	20.75	118.85

REMARKS: 1. EIPR Output Power (dBm) = SPA Reading (dBm) + Correction Factor (dB).
 2. ERP power = EIPR power - 2.15dBi.
 3. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss.

16QAM

LTE Band 4

Channel Bandwidth: 1.4MHz / 16QAM						
Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)
19957	1710.7	H	21.87	2.78	24.65	291.74
20175	1732.5	H	21.95	2.78	24.73	297.17
20393	1754.3	H	22.10	2.81	24.91	309.74
Channel Bandwidth: 3MHz / 16QAM						
Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)
19965	1711.5	H	21.75	2.78	24.53	283.79
20175	1732.5	H	21.36	2.78	24.14	259.42
20385	1753.5	H	21.92	2.81	24.73	297.17
Channel Bandwidth: 5MHz / 16QAM						
Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)
19975	1712.5	H	21.33	2.78	24.11	257.63
20175	1732.5	H	20.73	2.78	23.51	224.39
20375	1752.5	H	21.42	2.81	24.23	264.85
Channel Bandwidth: 10MHz / 16QAM						
Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)
20000	1715	H	21.47	2.78	24.25	266.07
20175	1732.5	H	21.34	2.78	24.12	258.23
20350	1754.3	H	21.61	2.81	24.42	276.69
Channel Bandwidth: 15MHz / 16QAM						
Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)
20025	1717.5	H	21.75	2.78	24.53	283.79
20175	1732.5	H	21.93	2.78	24.71	295.80
20325	1747.5	H	22.02	2.81	24.83	304.09
Channel Bandwidth: 20MHz / 16QAM						
Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)
20050	1720	H	21.73	2.78	24.51	282.49
20175	1732.5	H	22.21	2.78	24.99	315.50
20300	1745	H	21.92	2.81	24.73	297.17

REMARKS: 1. EIPR Output Power (dBm) = SPA Reading (dBm) + Correction Factor (dB).

2. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss.

LTE Band 17

Channel Bandwidth: 5MHz / 16QAM						
Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)
23755	706.5	H	20.37	2.78	23.15	206.54
23790	710	H	20.40	2.78	23.18	207.97
23825	713.5	H	20.45	2.81	23.26	211.84
Channel Bandwidth: 10MHz / 16QAM						
Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)
23780	709	H	20.05	2.78	22.83	191.87
23790	710	H	19.89	2.78	22.67	184.93
23800	711	H	19.17	2.81	21.98	157.76

REMARKS: 1. EIPR Output Power (dBm) = SPA Reading (dBm) + Correction Factor (dB).
 2. ERP power = EIPR power - 2.15dBi.
 3. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss.

4.2 Frequency Stability Measurement

4.2.1 Limits of Frequency Stability Measurement

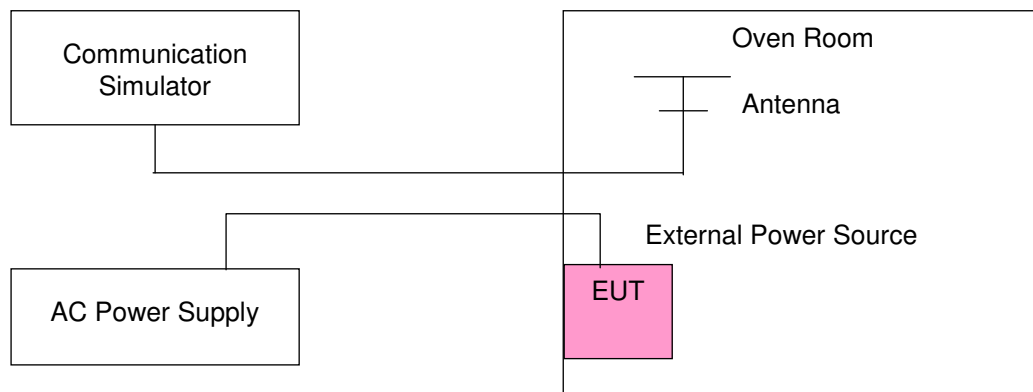
According to the FCC part 2.1055 shall be tested the frequency stability. The rule is defined that "The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

4.2.2 Test Procedure

- 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.
- EUT is connected the external power supply to control the AC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

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

4.2.3 Test Setup



4.2.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	Frequency Error (MHz)	Pass/Fail
	WCDMA	
102	1732.600009	Pass
138	1732.600008	Pass

TEMP. (°C)	Frequency Error (MHz)	Pass/Fail
	WCDMA	
75	1732.600021	Pass
70	1732.600020	Pass
60	1732.600016	Pass
50	1732.600014	Pass
40	1732.600010	Pass
30	1732.600009	Pass
20	1732.600008	Pass
10	1732.600011	Pass
0	1732.600012	Pass
-10	1732.600013	Pass
-20	1732.600014	Pass
-30	1732.600016	Pass

Frequency Error vs. Voltage

Voltage (Volts)	Frequency Error (MHz)						Pass/Fail
	LTE Band 4						
	1.4MHz	3MHz	5MHz	10MHz	15MHz	20MHz	
102	1732.500026	1732.500025	1732.500044	1732.500045	1732.500035	1732.500043	Pass
138	1732.500025	1732.500038	1732.500038	1732.500044	1732.500024	1732.500025	Pass

TEMP. (°C)	Frequency Error (MHz)						Pass/Fail
	LTE Band 4						
	1.4MHz	3MHz	5MHz	10MHz	15MHz	20MHz	
75	1732.500026	1732.500033	1732.500029	1732.500044	1732.500040	1732.500033	Pass
70	1732.500041	1732.500042	1732.500036	1732.500038	1732.500034	1732.500027	Pass
60	1732.500037	1732.500028	1732.500028	1732.500043	1732.500030	1732.500035	Pass
50	1732.500025	1732.500034	1732.500032	1732.500041	1732.500038	1732.500041	Pass
40	1732.500040	1732.500028	1732.500023	1732.500035	1732.500033	1732.500025	Pass
30	1732.500023	1732.500044	1732.500030	1732.500030	1732.500029	1732.500041	Pass
20	1732.500041	1732.500032	1732.500030	1732.500028	1732.500024	1732.500026	Pass
10	1732.500042	1732.500042	1732.500031	1732.500035	1732.500034	1732.500026	Pass
0	1732.500036	1732.500026	1732.500033	1732.500039	1732.500029	1732.500027	Pass
-10	1732.500037	1732.500033	1732.500035	1732.500031	1732.500025	1732.500022	Pass
-20	1732.500031	1732.500033	1732.500026	1732.500037	1732.500031	1732.500046	Pass
-30	1732.500039	1732.500028	1732.500028	1732.500029	1732.500038	1732.500038	Pass

Voltage (Volts)	Frequency Error (MHz)		Pass/Fail
	LTE Band 17		
	5MHz	10MHz	
102	710.000043	710.000044	Pass
138	710.000035	710.000042	Pass

TEMP. (°C)	Frequency Error (MHz)		Pass/Fail
	LTE Band 17		
	5MHz	10MHz	
75	710.000030	710.000043	Pass
70	710.000034	710.000039	Pass
60	710.000027	710.000042	Pass
50	710.000030	710.000041	Pass
40	710.000022	710.000035	Pass
30	710.000027	710.000029	Pass
20	710.000030	710.000028	Pass
10	710.000032	710.000035	Pass
0	710.000032	710.000040	Pass
-10	710.000033	710.000030	Pass
-20	710.000026	710.000039	Pass
-30	710.000026	710.000029	Pass

4.3 Emission Bandwidth Measurement

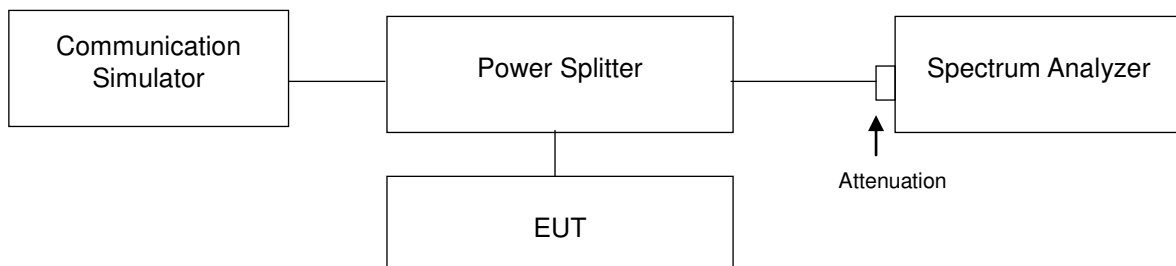
4.3.1 Limits of Emission Bandwidth Measurement

According to FCC 27.53(m)(6) specified that emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power.

4.3.2 Test Procedure

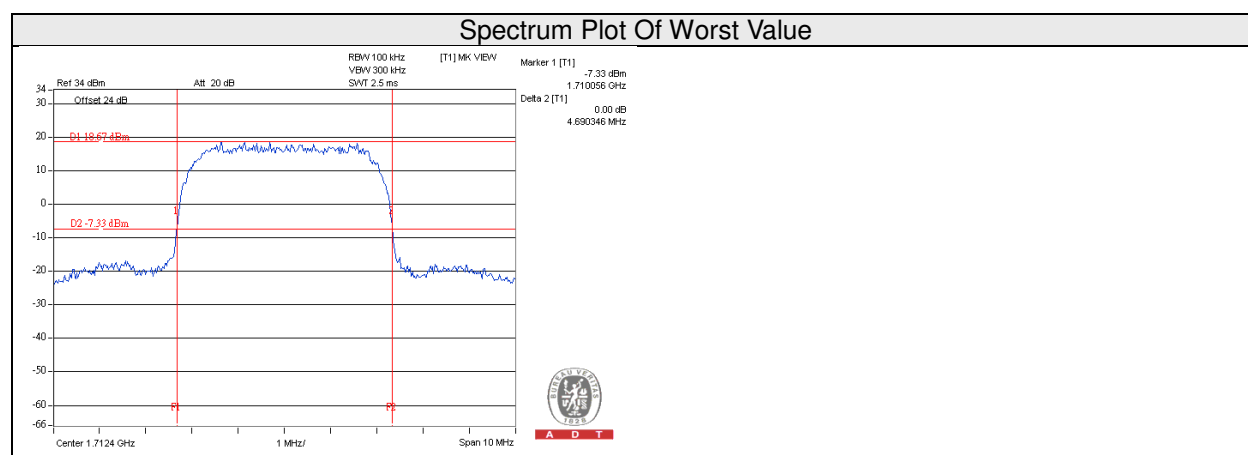
The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with $RBW \geq 1\% \times OBW$ and $VBW \geq 3 \times VBW$. The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

4.3.3 Test Setup



4.3.4 Test Result (-26dBc Bandwidth)

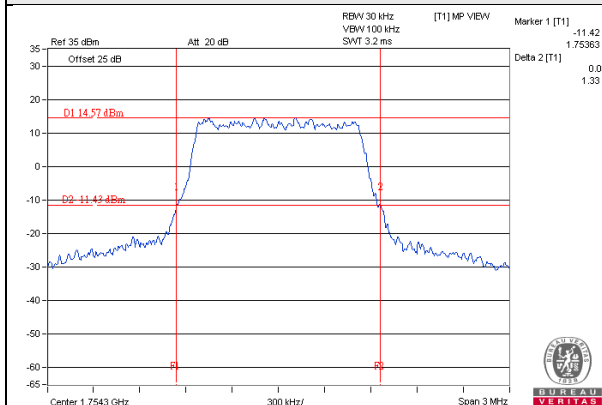
Channel	FREQ. (MHz)	-26dB Bandwidth (MHz)
		WCDMA
1312	1712.4	4.69
1413	1732.6	4.67
1513	1752.6	4.64



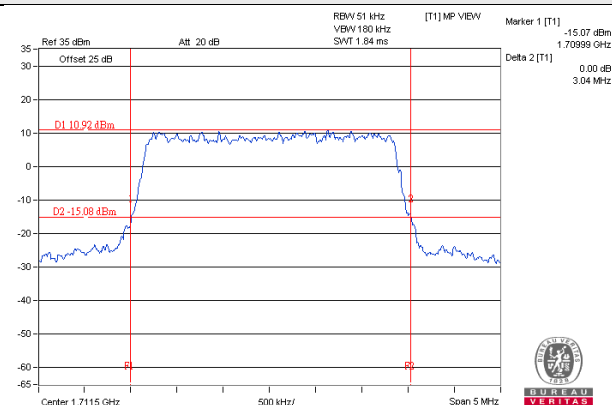
LTE Band 4							
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	-26dB Bandwidth (MHz)		Channel	FREQ. (MHz)	-26dB Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
19957	1710.7	1.31	1.3	19965	1711.5	2.89	3.04
20175	1732.5	1.3	1.31	20175	1732.5	2.97	3.01
20393	1754.3	1.3	1.33	20385	1753.5	2.88	3.03
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	-26dB Bandwidth (MHz)		Channel	FREQ. (MHz)	-26dB Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
19975	1712.5	5.03	5.08	20000	1715	9.7	9.8
20175	1732.5	4.95	4.97	20175	1732.5	9.65	9.83
20375	1752.5	5.06	4.98	20350	1750	9.72	9.9
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	-26dB Bandwidth (MHz)		Channel	FREQ. (MHz)	-26dB Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
20025	1717.5	14.6	14.85	20050	1720	19.19	19.88
20175	1732.5	14.61	14.84	20175	1732.5	19.28	19.83
20325	1747.5	14.64	14.9	20300	1745	19.11	19.96

Spectrum Plot Of Worst Value

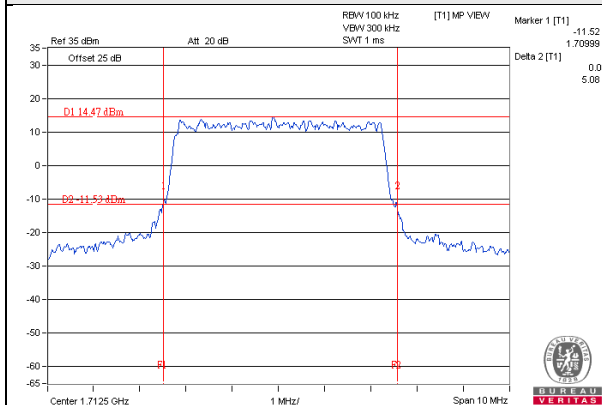
Channel Bandwidth: 1.4MHz



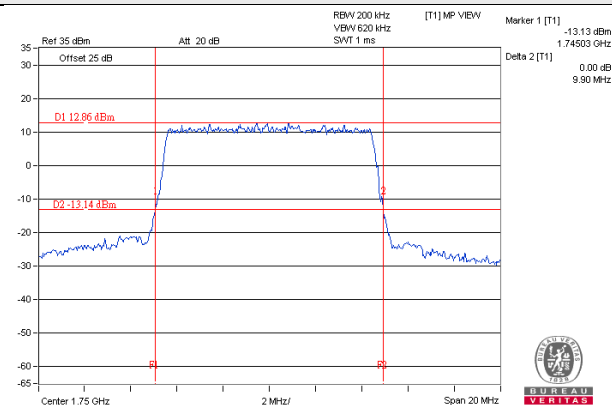
Channel Bandwidth: 3MHz



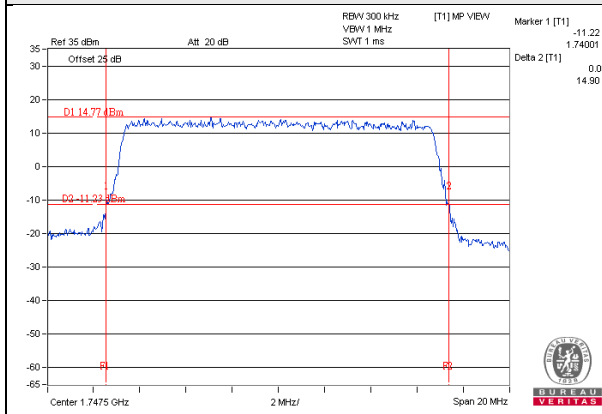
Channel Bandwidth: 5MHz



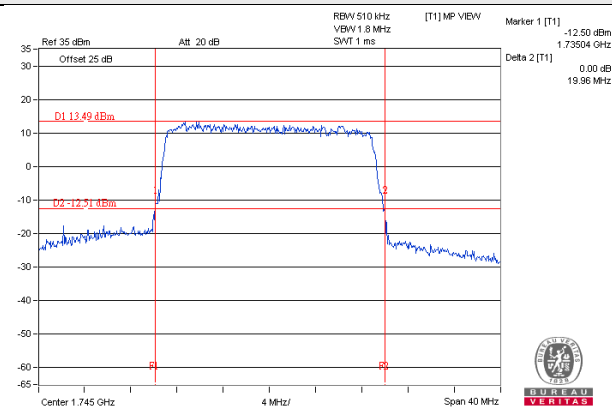
Channel Bandwidth: 10MHz



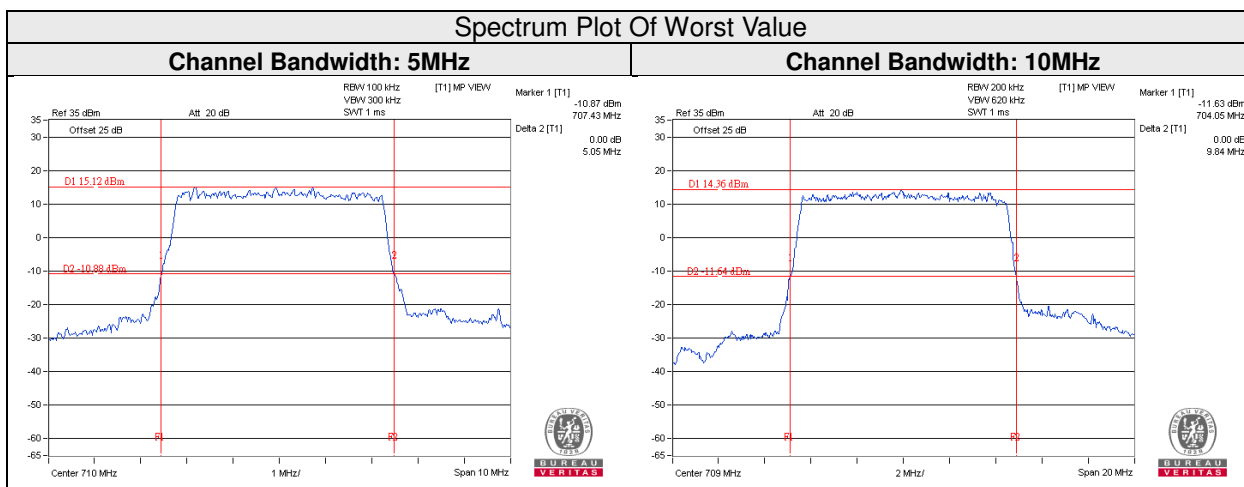
Channel Bandwidth: 15MHz



Channel Bandwidth: 20MHz

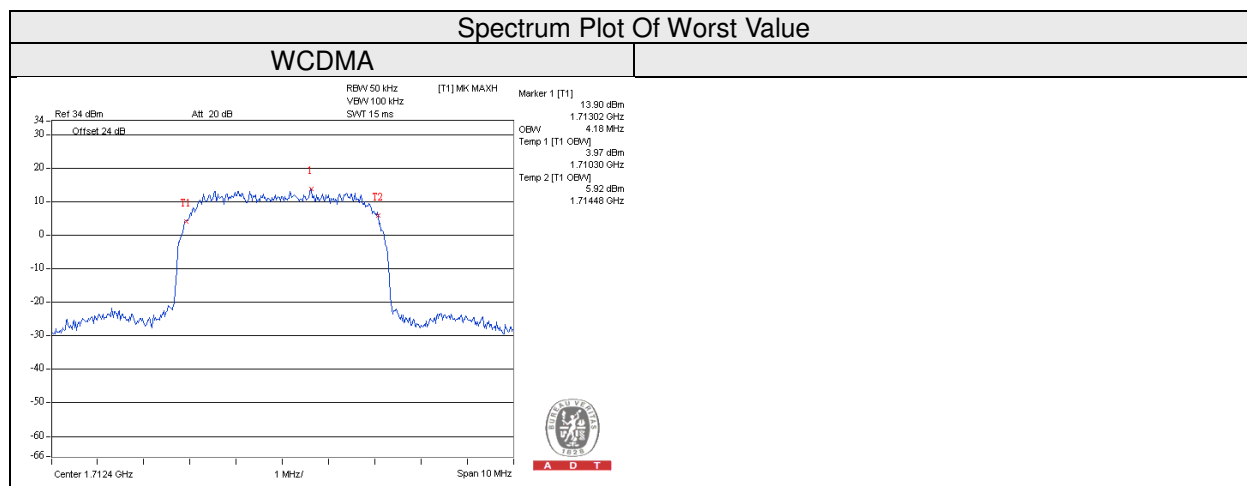


LTE Band 17							
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	-26dB Bandwidth (MHz)		Channel	FREQ. (MHz)	-26dB Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
23755	706.5	5.03	5.01	23780	709	9.66	9.84
23790	710	5.01	5.05	23790	710	9.63	9.81
23825	713.5	5.02	5.05	23800	711	9.6	9.77



4.3.5 Test Results (Occupied Bandwidth)

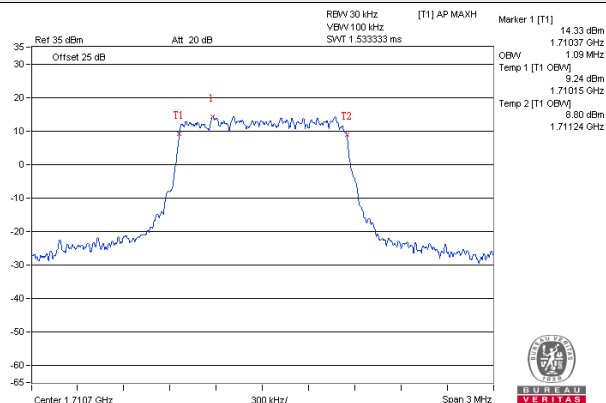
Channel	FREQ. (MHz)	99% Occupied Bandwidth (MHz)
		WCDMA
1312	1712.4	4.18
1413	1732.6	4.18
1513	1752.6	4.16



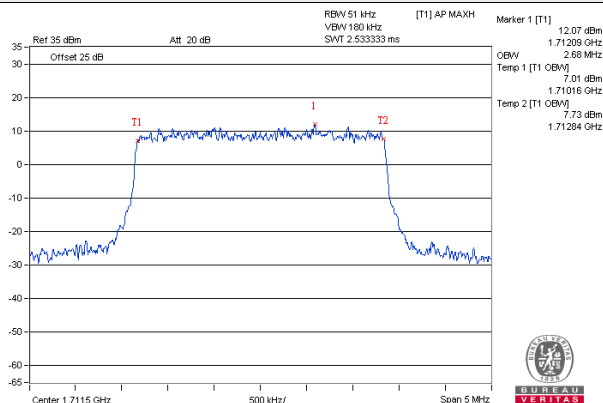
LTE Band 4							
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		Channel	FREQ. (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
19957	1710.7	1.09	1.08	19965	1711.5	2.68	2.68
20175	1732.5	1.08	1.08	20175	1732.5	2.68	2.67
20393	1754.3	1.08	1.08	20385	1753.5	2.68	2.67
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		Channel	FREQ. (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
19975	1712.5	4.49	4.49	20000	1715	8.94	8.92
20175	1732.5	4.49	4.49	20175	1732.5	8.98	8.92
20375	1752.5	4.5	4.49	20350	1750	8.92	8.92
Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		Channel	FREQ. (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
20025	1717.5	13.41	13.41	20050	1720	17.84	17.88
20175	1732.5	13.44	13.41	20175	1732.5	17.88	17.84
20325	1747.5	13.47	13.41	20300	1745	17.88	17.88

Spectrum Plot Of Worst Value

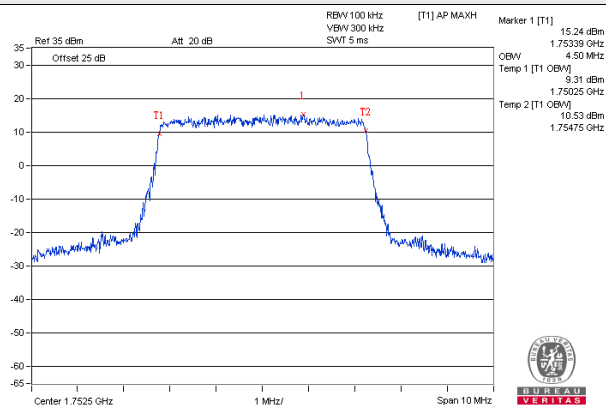
Channel Bandwidth: 1.4MHz



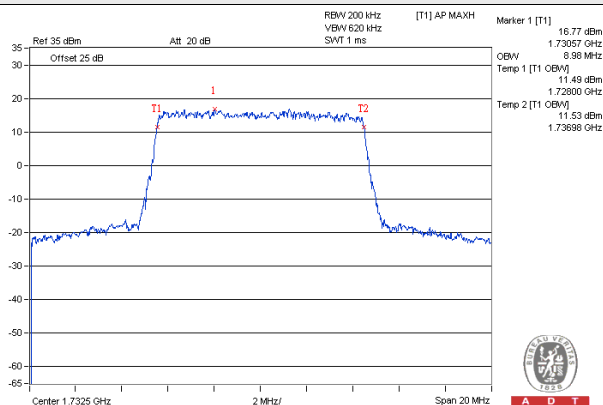
Channel Bandwidth: 3MHz



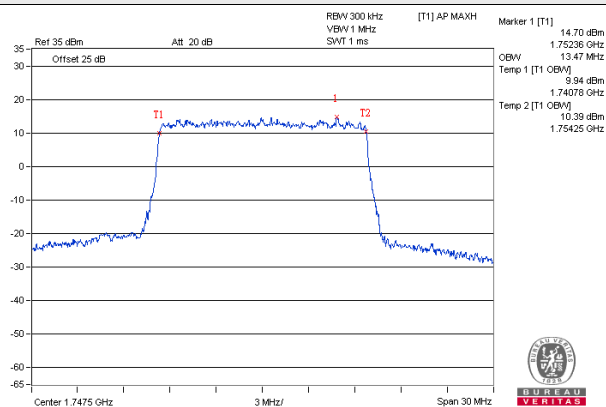
Channel Bandwidth: 5MHz



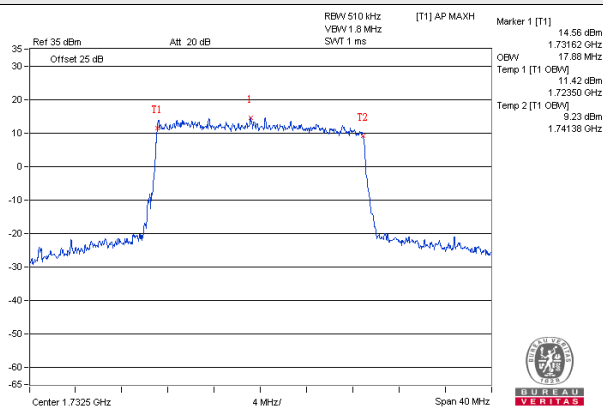
Channel Bandwidth: 10MHz



Channel Bandwidth: 15MHz



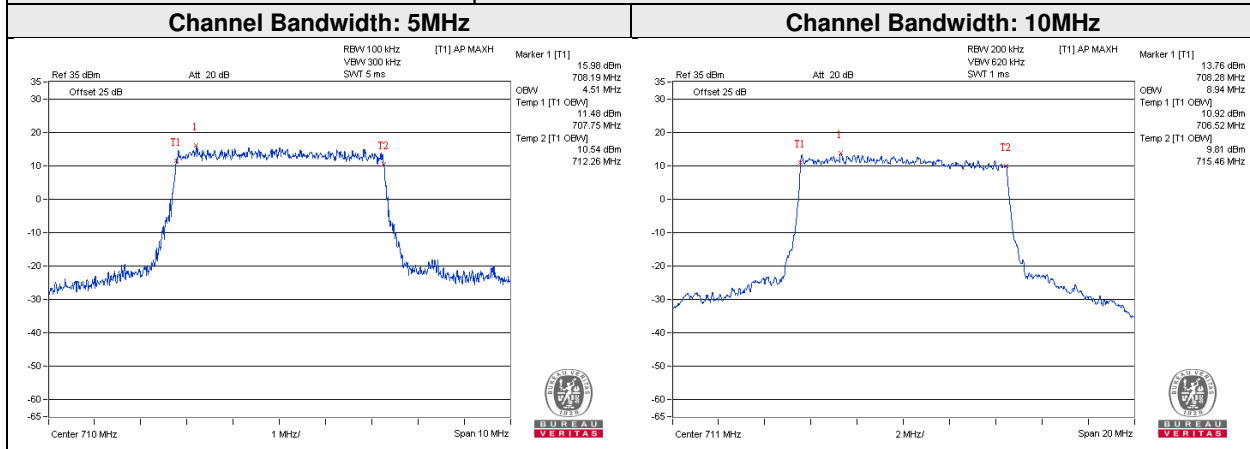
Channel Bandwidth: 20MHz



LTE Band 17

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		Channel	FREQ. (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
23755	706.5	4.49	4.49	23780	709	8.92	8.92
23790	710	4.51	4.48	23790	710	8.92	8.92
23825	713.5	4.49	4.49	23800	711	8.94	8.92

Spectrum Plot Of Worst Value

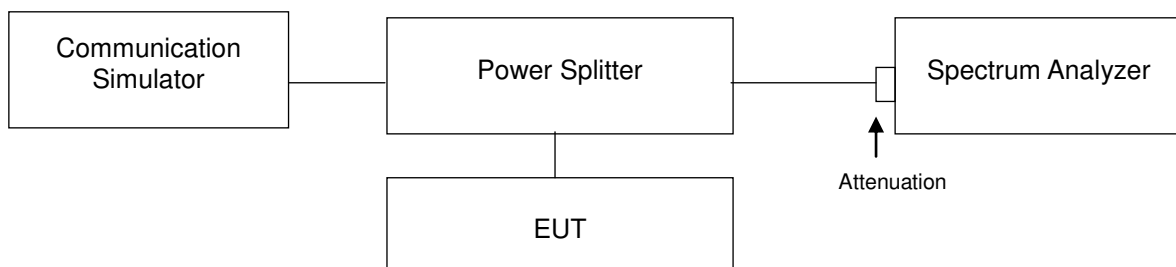


4.4 Band Edge Measurement

4.4.1 Limits of Band Edge Measurement

According to FCC 27.53(m)(4) specified that power of any emission outside of the channel edge must be attenuated below the transmitting power (P) by a factor shall be not less than $43 + 10 \log (P)$ dB at the channel edge, the limit of emission equal to -13dBm . And $55 + 10 \log (P)$ dB at 5.5 MHz from the channel edges, the limit of emission equal to -25dBm . In the 1MHz 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.

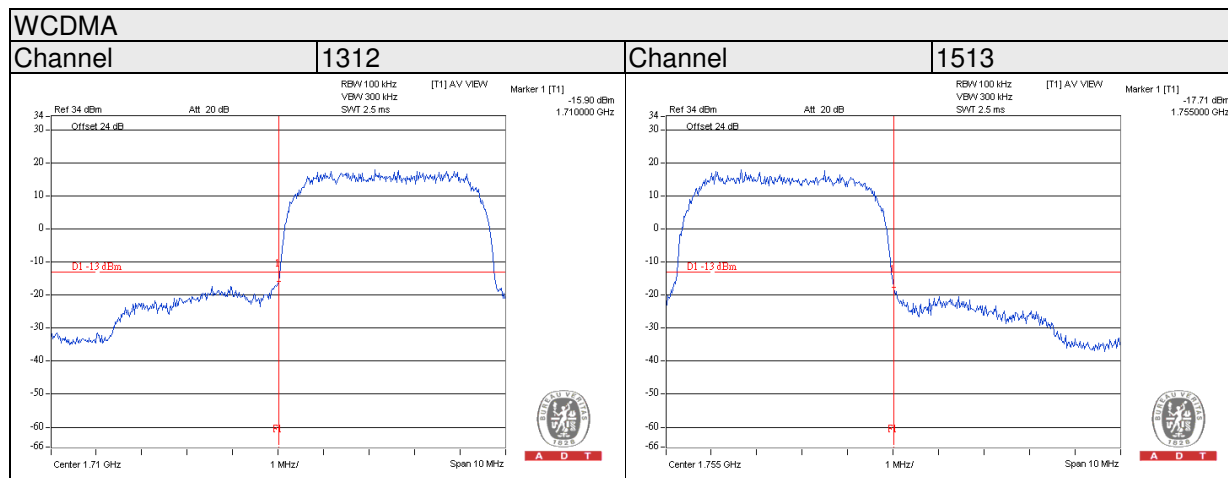
4.4.2 Test Setup



4.4.3 Test Procedures

- All measurements were done at low and high operational frequency range.
- The center frequency of spectrum is the band edge frequency and s RB of the spectrum is $>1\%$ emission bandwidth and VB of the spectrum is $\geq 3 \cdot \text{RB}$.
- Record the max trace plot into the test report.

4.4.4 Test Results



LTE Band 4

1.4MHz

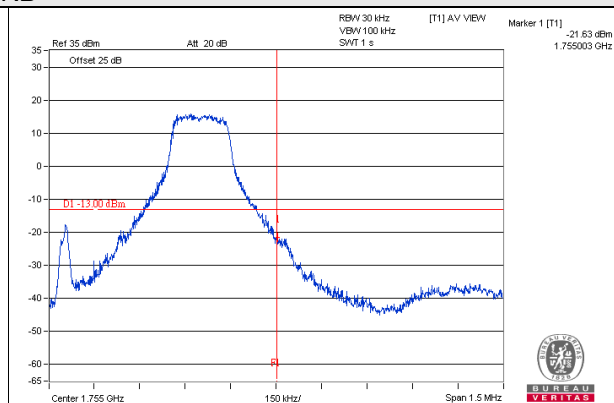
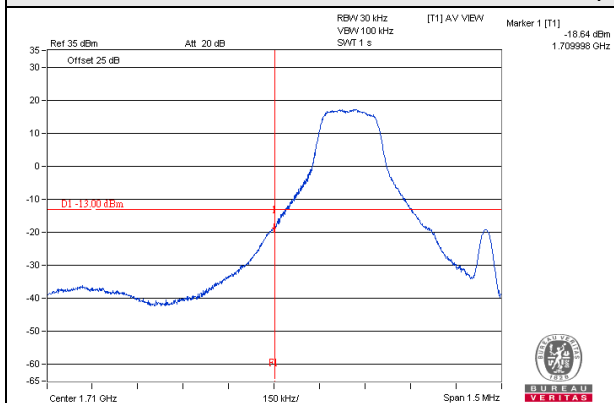
Channel

19957

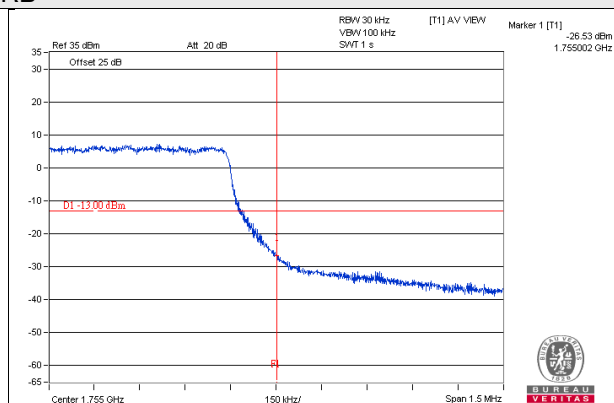
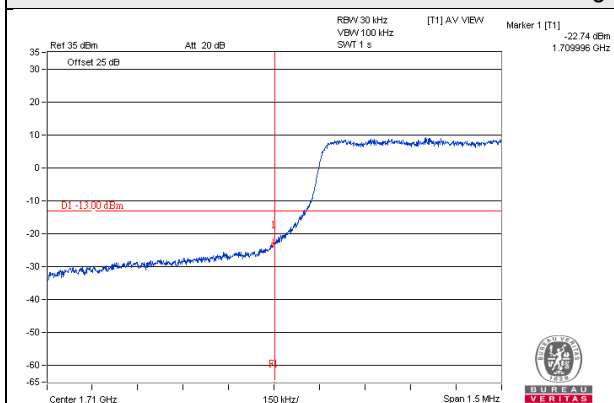
Channel

20393

1 RB

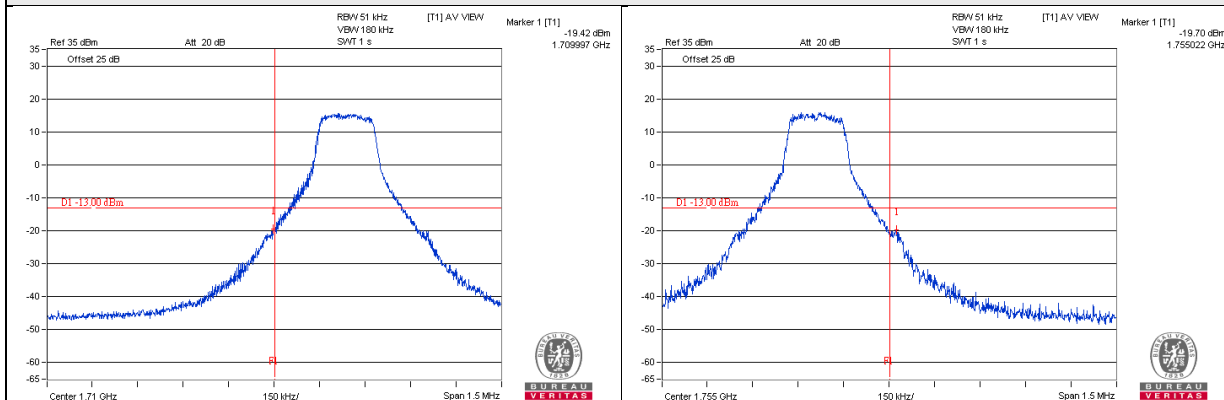


6 RB

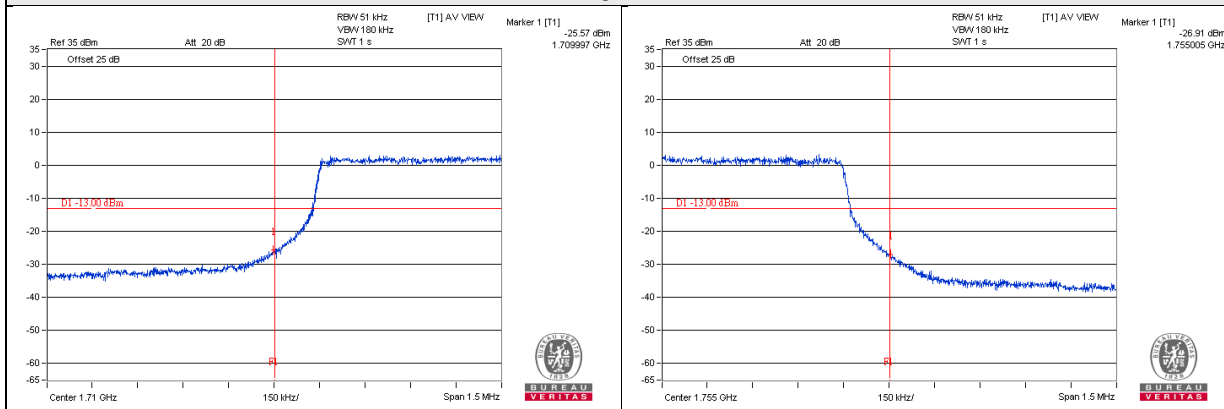


3MHz

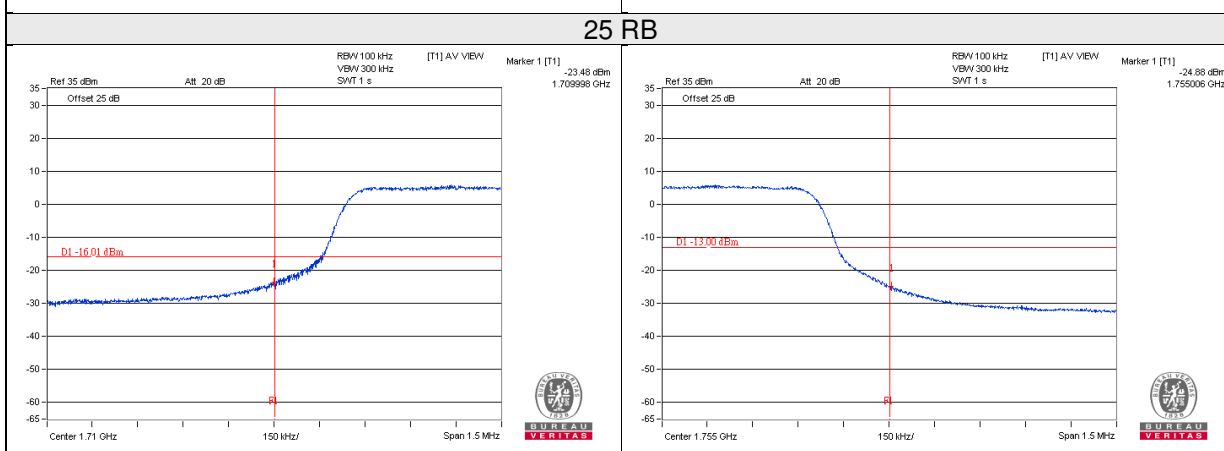
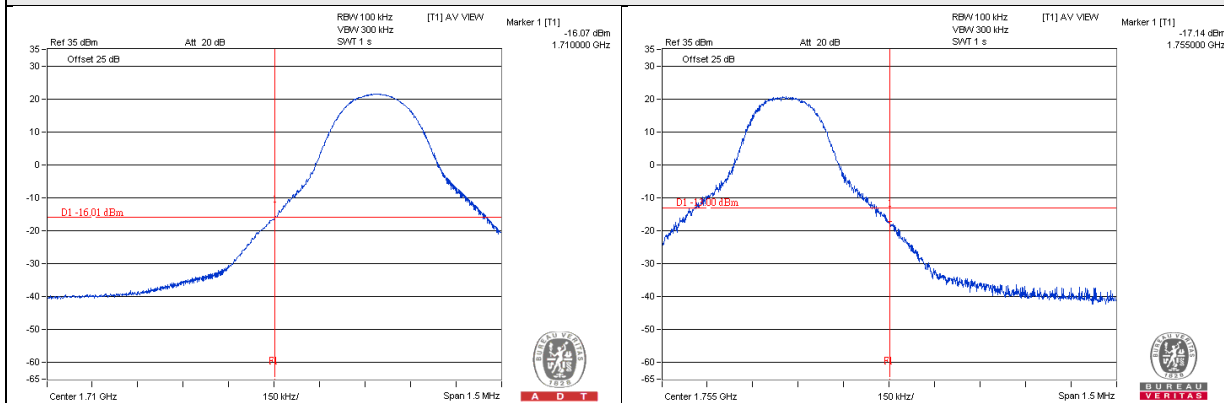
Channel	19965	Channel	20385
1 RB			



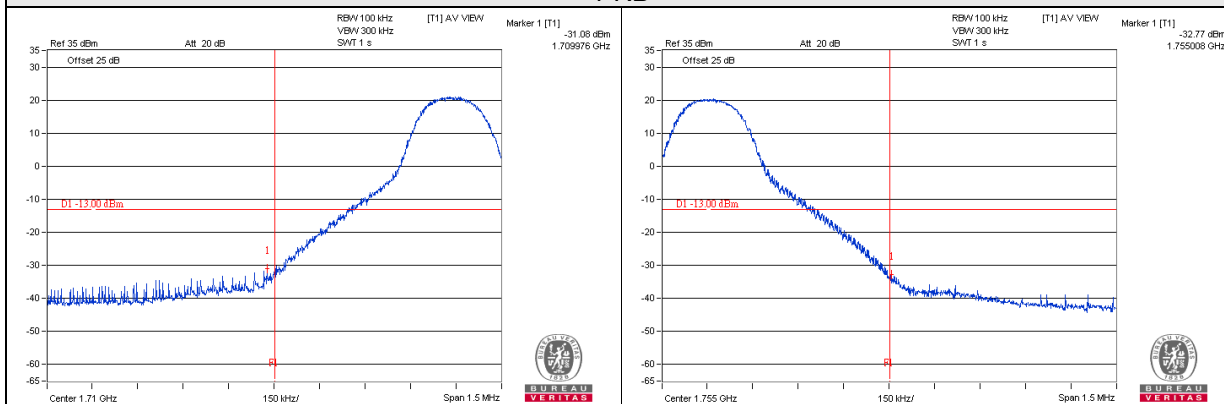
15 RB



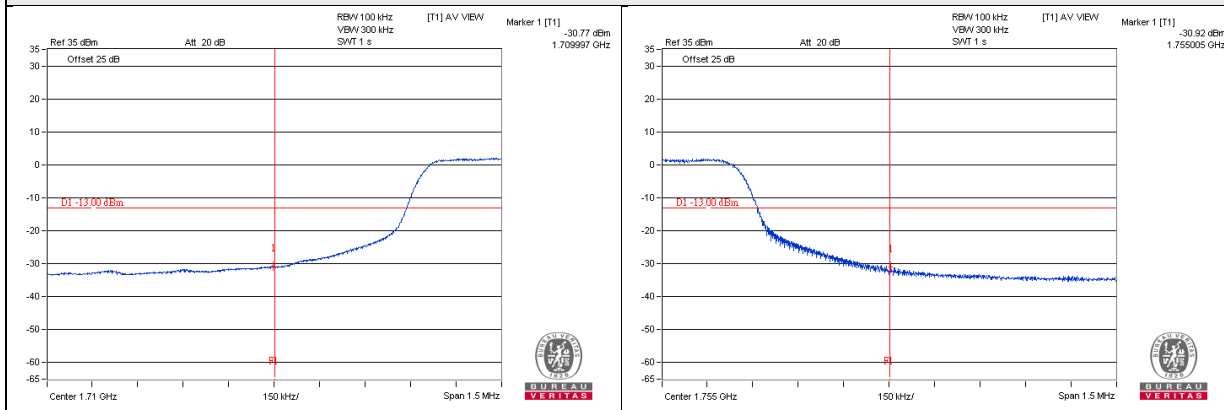
5MHz			
Channel	19975	Channel	20375
1 RB			



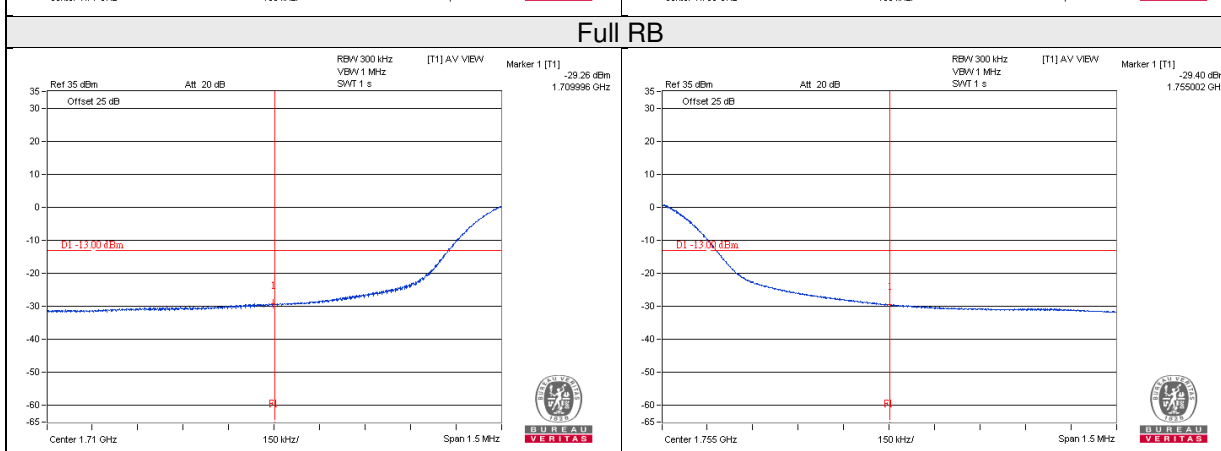
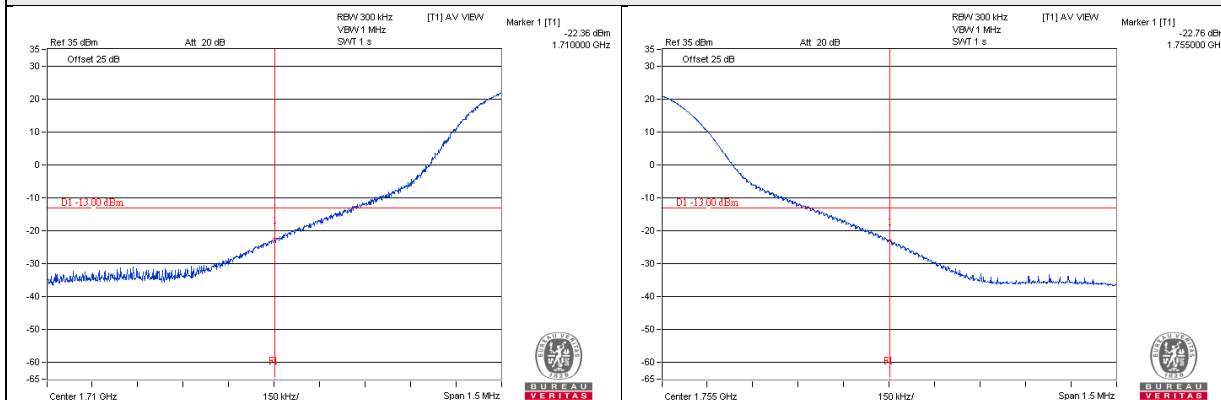
10MHz			
Channel	20000	Channel	20350
1 RB			



Full RB			
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15MHz			
Channel	20025	Channel	20325
1 RB			



20MHz

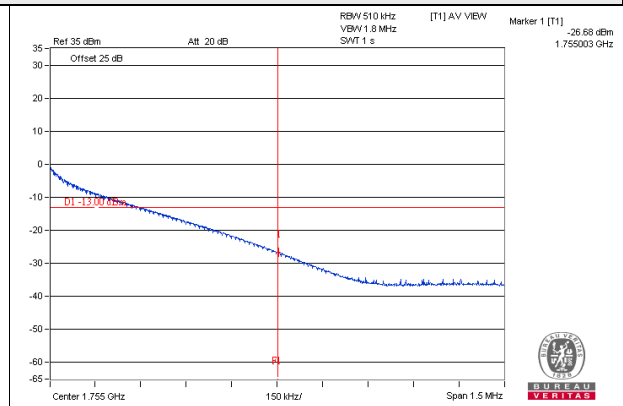
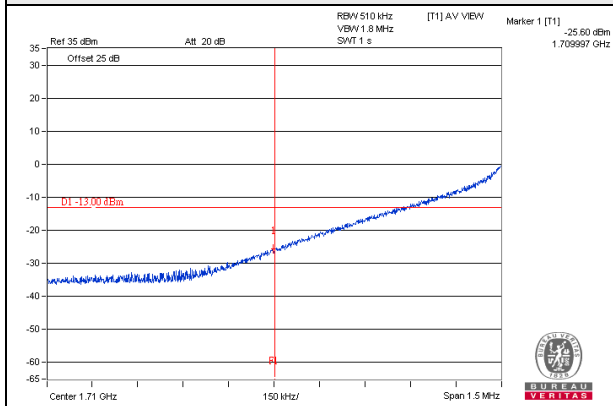
Channel

20050

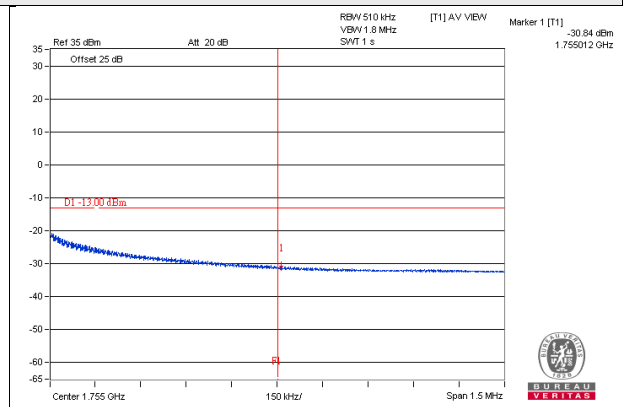
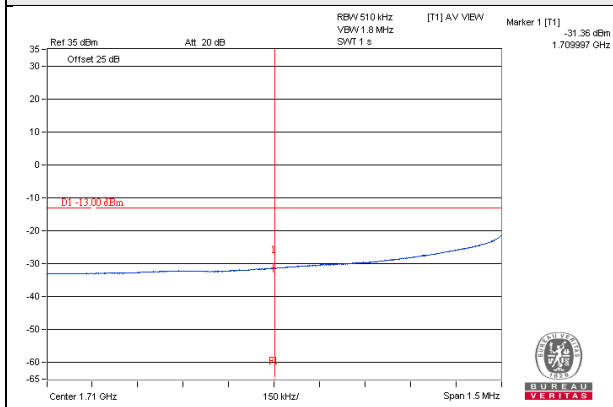
Channel

20300

1 RB



Full RB



LTE Band 17

5MHz

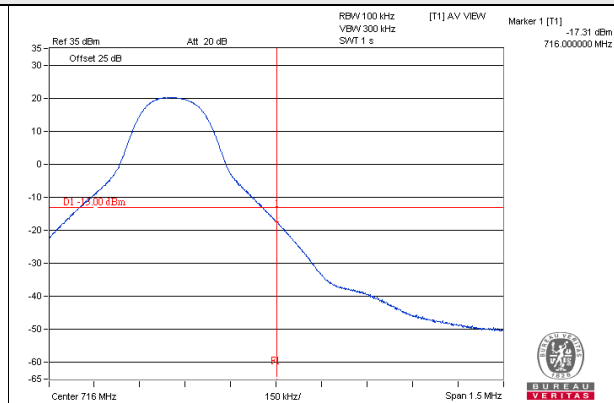
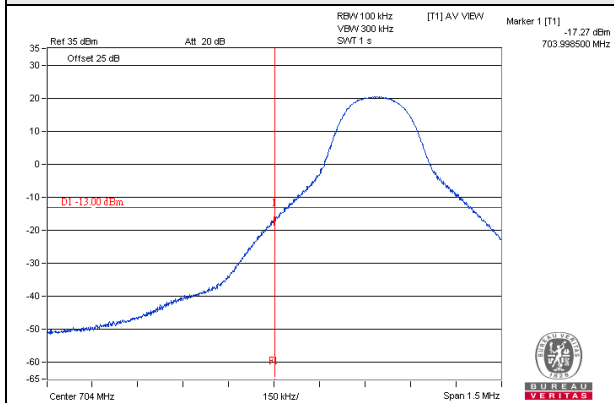
Channel

23755

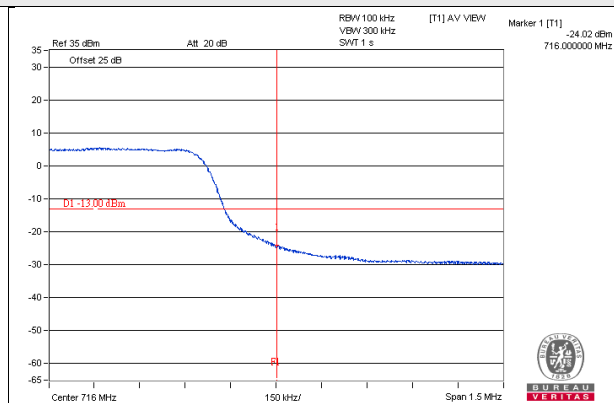
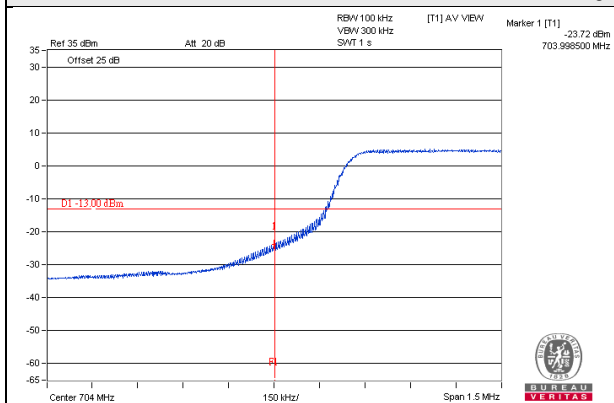
Channel

23825

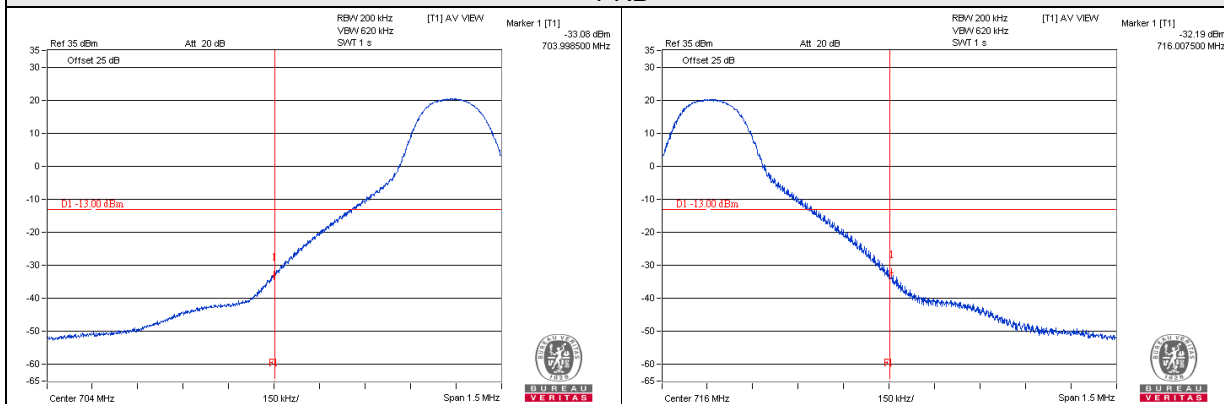
1 RB



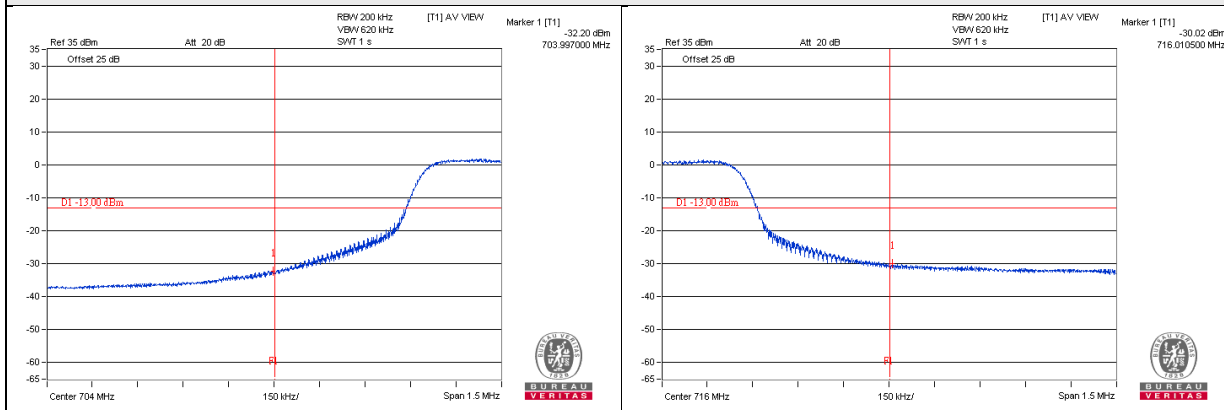
Full RB



10MHz			
Channel	23780	Channel	23800
1 RB			



Full RB

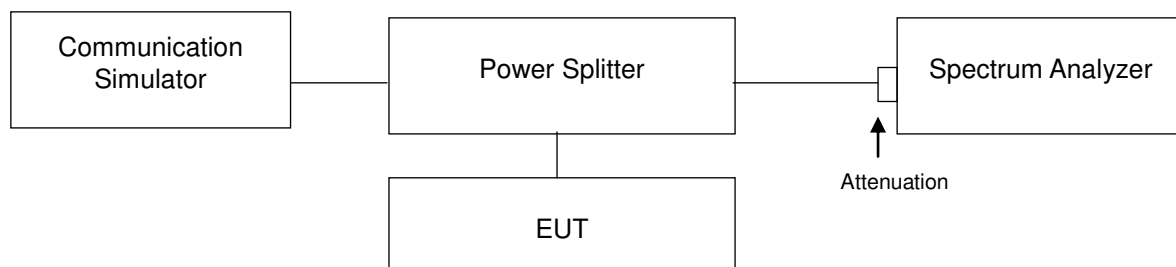


4.5 Peak to Average Ratio

4.5.1 Limits of Peak to Average Ratio Measurement

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

4.5.2 Test Setup

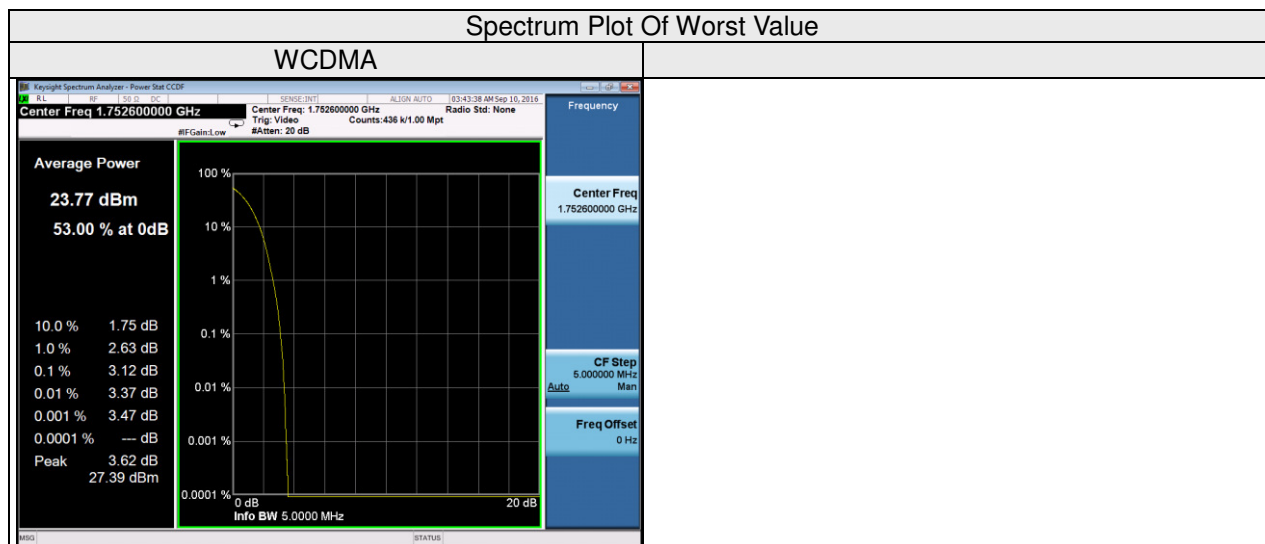


4.5.3 Test Procedures

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

4.5.4 Test Results

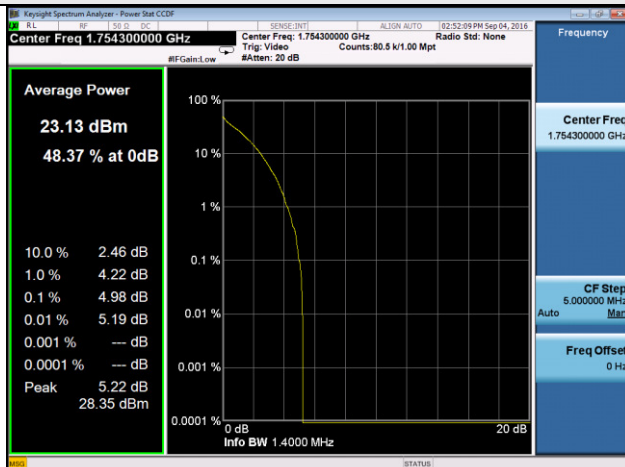
Channel	Freq. (MHz)	Peak to Average Ratio (dB)
		WCDMA
1312	1712.4	3.08
1413	1732.6	2.65
1513	1752.6	3.12



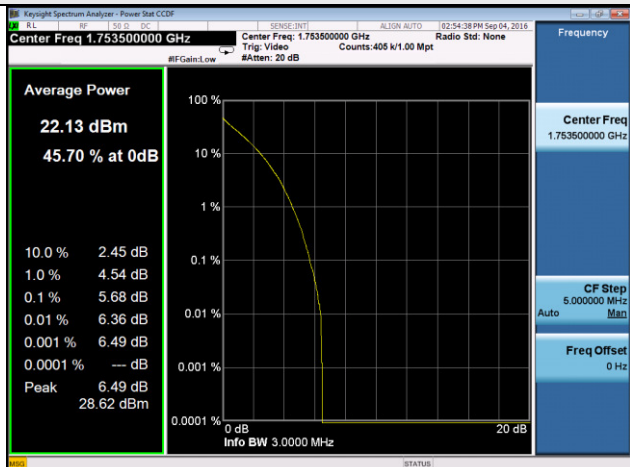
LTE Band 4					
Channel Bandwidth: 1.4MHz			Channel Bandwidth: 3MHz		
Channel	Frequency (MHz)	Peak to Average Ratio (dB)	Channel	Freq. (MHz)	Peak to Average Ratio (dB)
		LTE 1.4MHz			LTE 3MHz
19957	1710.7	4.88	19965	1711.5	5.45
20175	1732.5	3.63	20175	1732.5	5.16
20393	1754.3	4.98	20385	1753.5	5.68
Channel Bandwidth: 5MHz			Channel Bandwidth: 10MHz		
Channel	Frequency (MHz)	Peak to Average Ratio (dB)	Channel	Freq. (MHz)	Peak to Average Ratio (dB)
		LTE 5MHz			LTE 10MHz
19975	1712.5	5.43	20000	1715	5.57
20175	1732.5	5.09	20175	1732.5	5.19
20375	1752.5	5.53	20350	1750	5.53
Channel Bandwidth: 15MHz			Channel Bandwidth: 20MHz		
Channel	Frequency (MHz)	Peak to Average Ratio (dB)	Channel	Freq. (MHz)	Peak to Average Ratio (dB)
		LTE 5MHz			LTE 10MHz
20025	1717.5	5.18	20050	1720	5.96
20175	1732.5	5.18	20175	1732.5	5.93
20325	1747.5	5.2	20300	1745	6.07

Spectrum Plot Of Worst Value

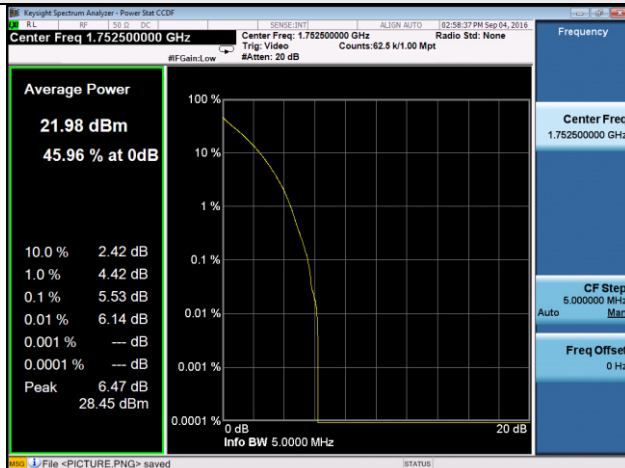
Channel Bandwidth: 1.4MHz



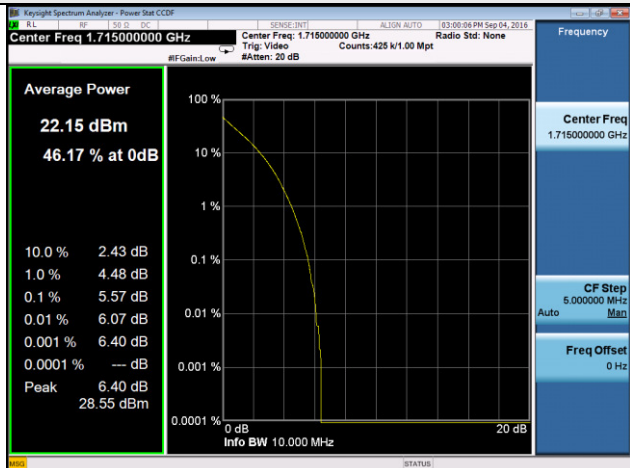
Channel Bandwidth: 3MHz



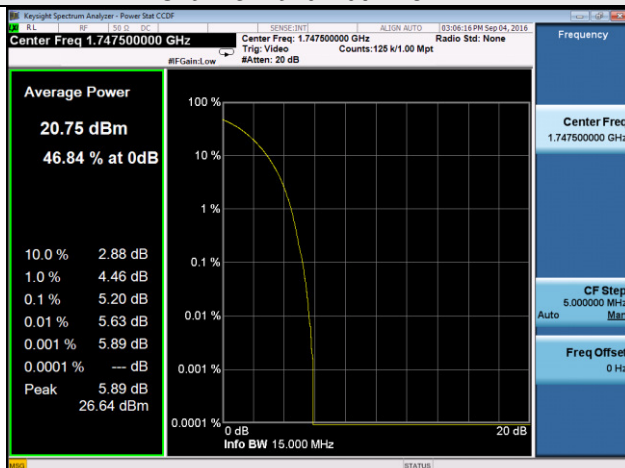
Channel Bandwidth: 5MHz



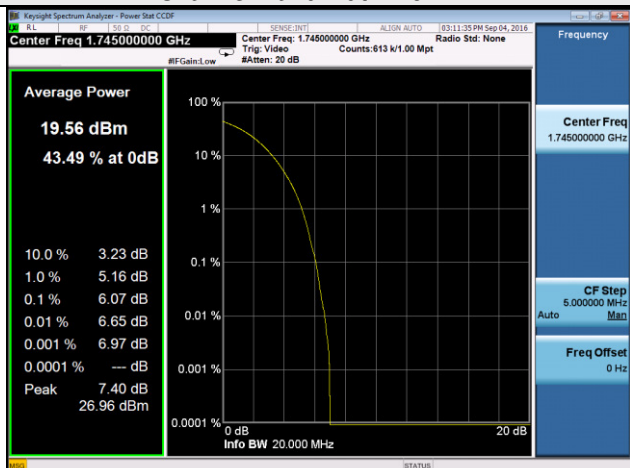
Channel Bandwidth: 10MHz



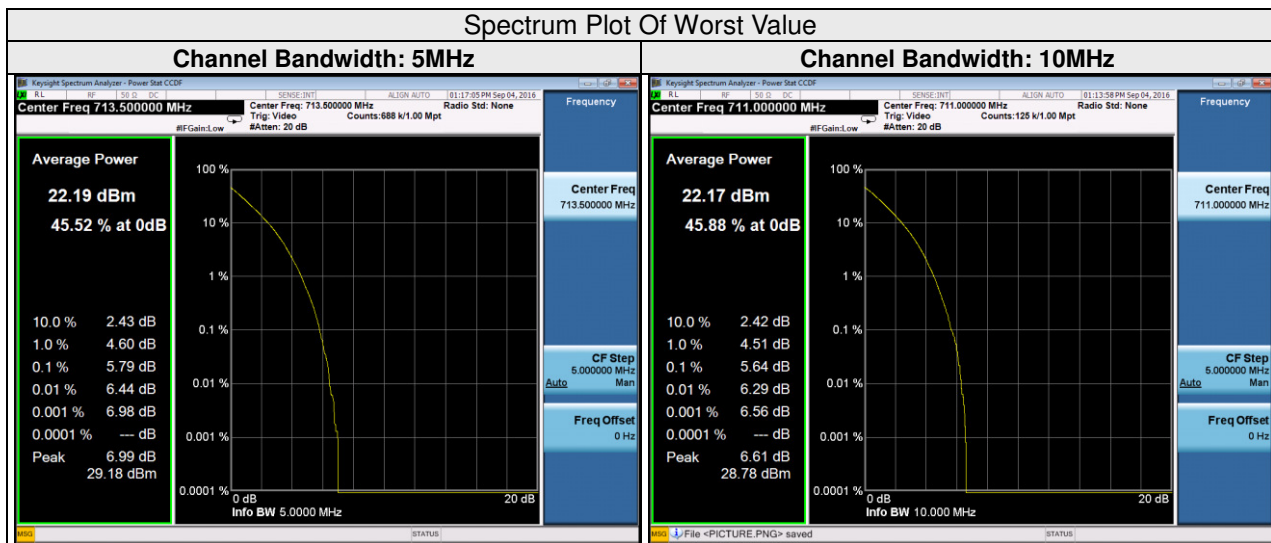
Channel Bandwidth: 15MHz



Channel Bandwidth: 20MHz



LTE Band 4					
Channel Bandwidth: 5MHz			Channel Bandwidth: 10MHz		
Channel	Frequency (MHz)	Peak to Average Ratio (dB)	Channel	Freq. (MHz)	Peak to Average Ratio (dB)
		LTE 5MHz			LTE 10MHz
23755	706.5	5.55	23780	709	5.55
23790	710	5.64	23790	710	5.63
23825	713.5	5.79	23800	711	5.64

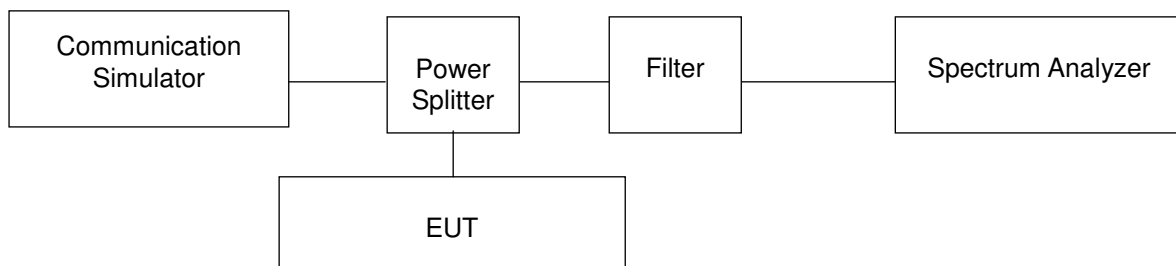


4.6 Conducted Spurious Emissions

4.6.1 Limits of Conducted Spurious Emissions Measurement

In the FCC 27.53(m)(4), On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log (P)$ dB. The emission limit equal to -13dBm .

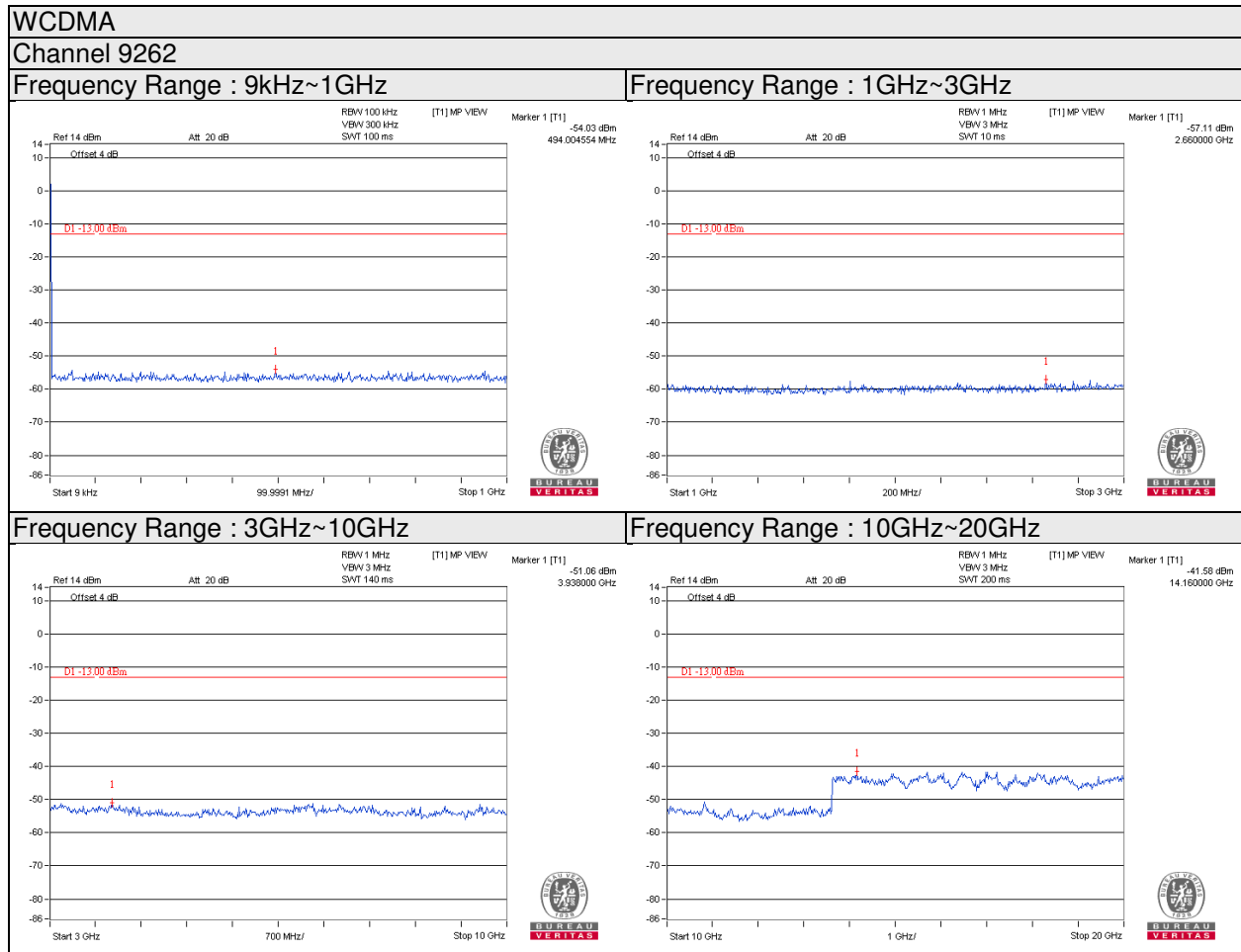
4.6.2 Test Setup



4.6.3 Test Procedure

- All measurements were done at 3 channels: low, middle and high operational frequency range.
- When the spectrum scanned from 9kHz to 20GHz, the spectrum set RB = 100kHz, VB = 300kHz for Frequency Range: 9kHz~1GHz and RB = 1MHz, VB = 3MHz for Frequency Range: 1GHz~20GHz.

4.6.4 Test Results

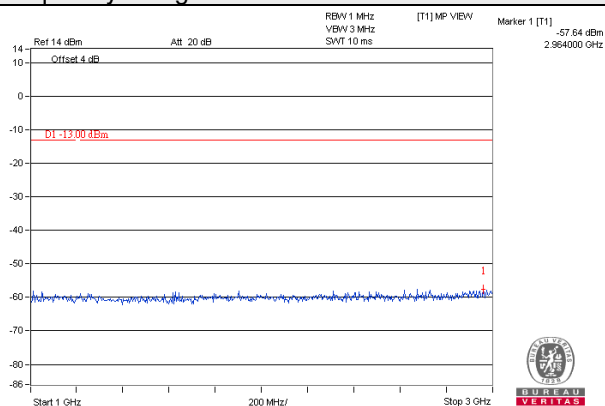
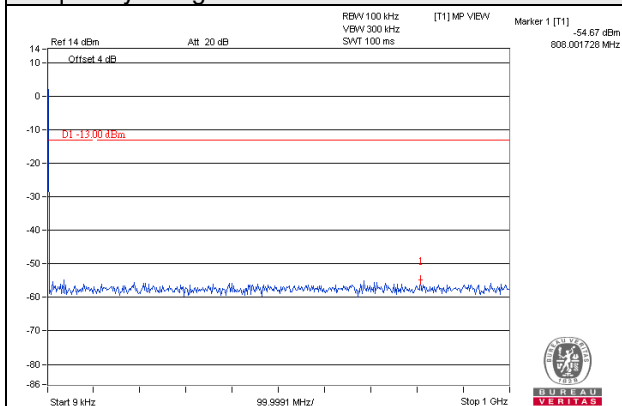


WCDMA

Channel 9538

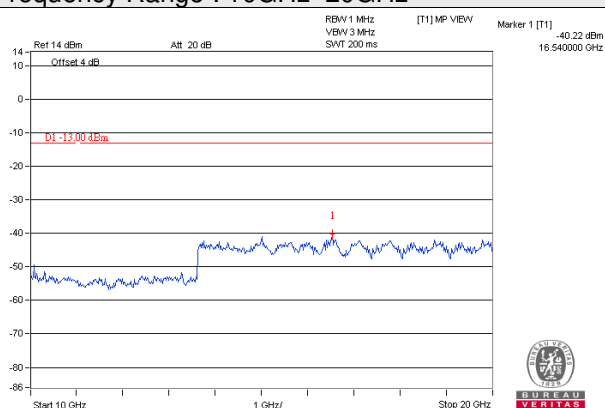
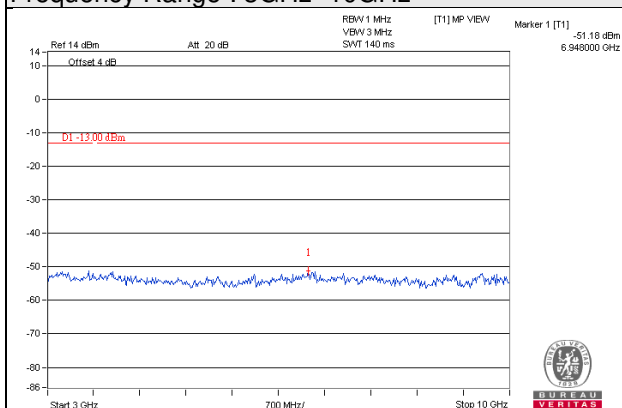
Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~3GHz



Frequency Range : 3GHz~10GHz

Frequency Range : 10GHz~20GHz

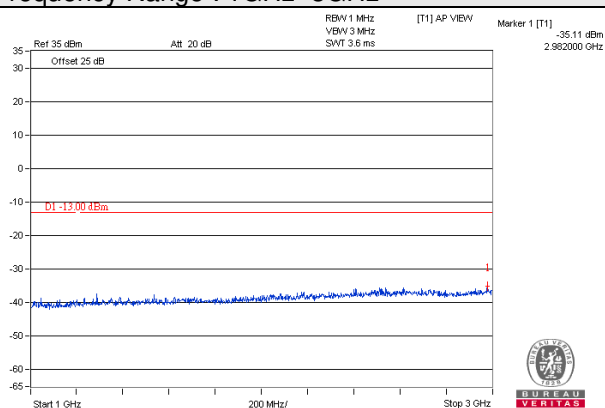
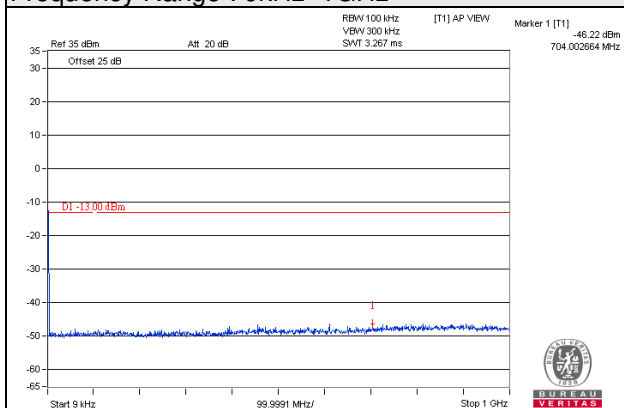


LTE Band 4

Channel Bandwidth: 1.4MHz

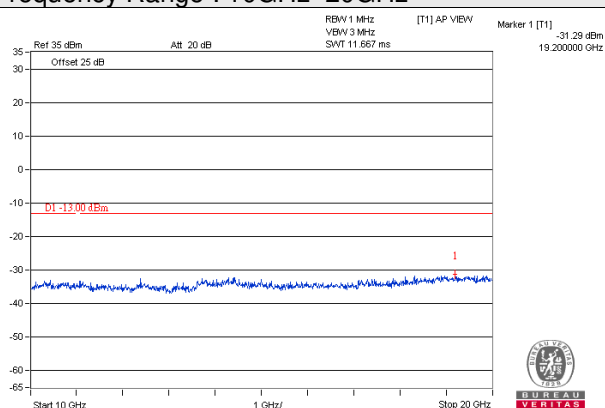
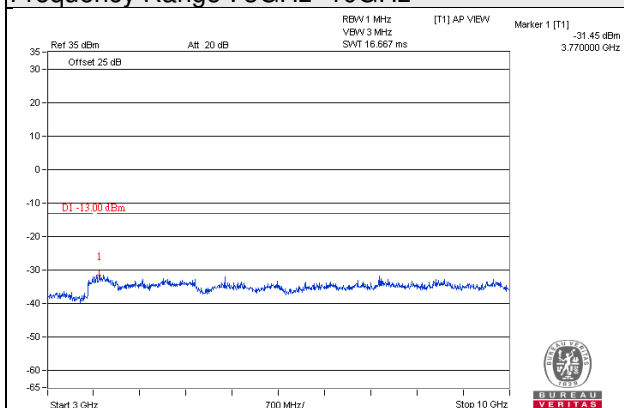
Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~3GHz

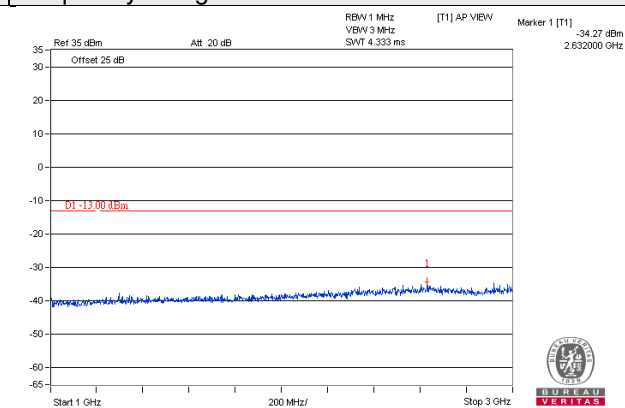
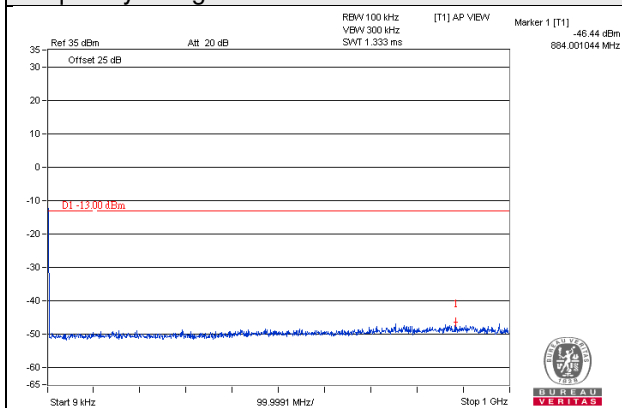


Frequency Range : 3GHz~10GHz

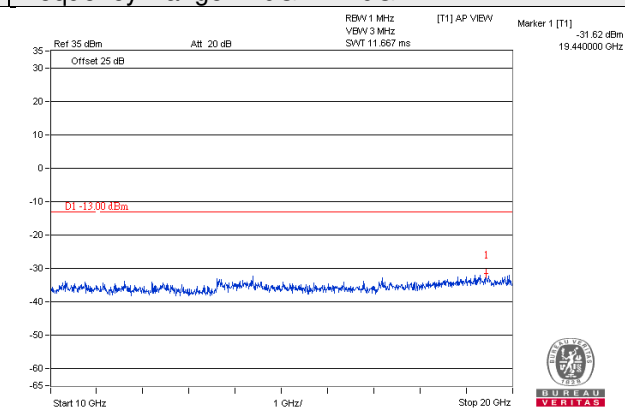
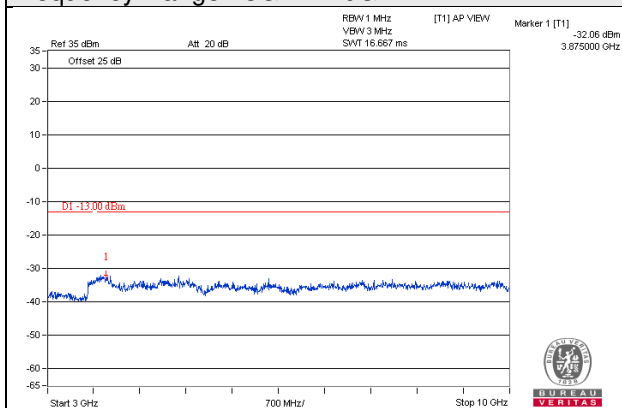
Frequency Range : 10GHz~20GHz



Channel Bandwidth: 3MHz	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~3GHz

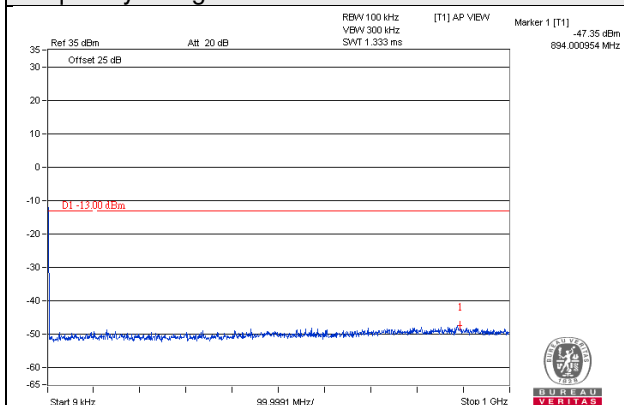


Frequency Range : 3GHz~10GHz	Frequency Range : 10GHz~20GHz
-------------------------------------	--------------------------------------

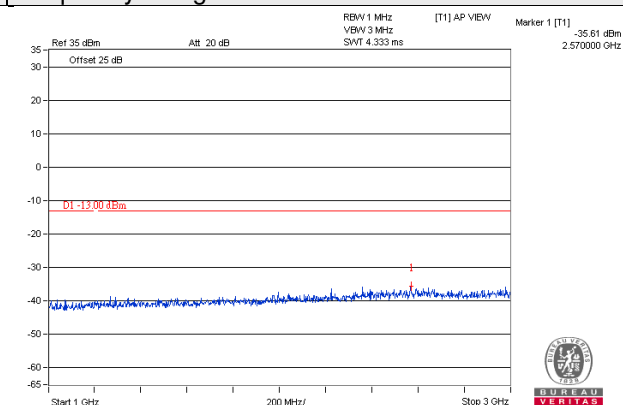


Channel Bandwidth: 5MHz

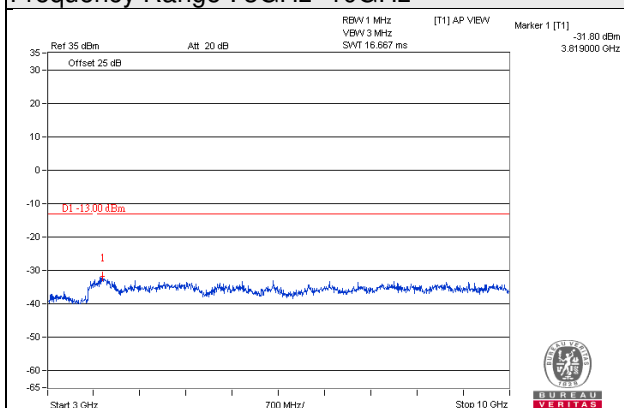
Frequency Range : 9kHz~1GHz



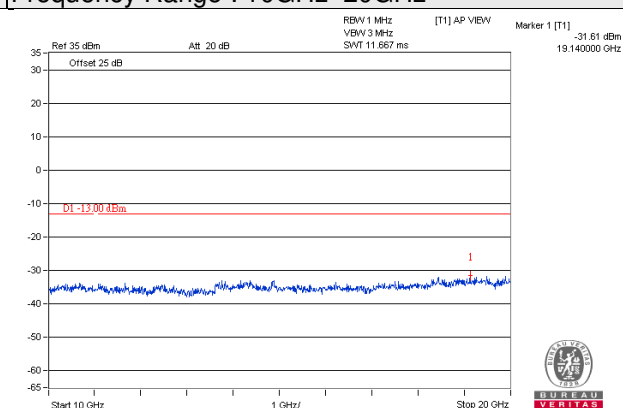
Frequency Range : 1GHz~3GHz



Frequency Range : 3GHz~10GHz



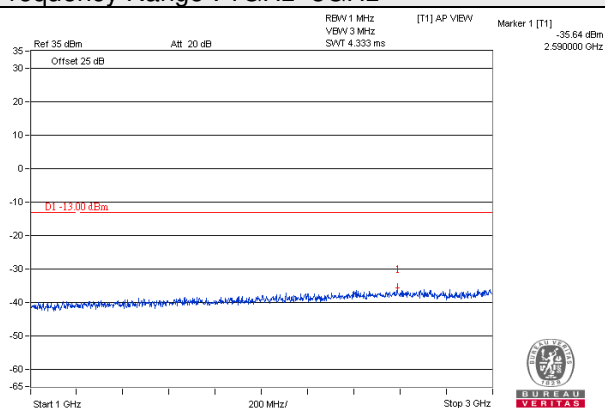
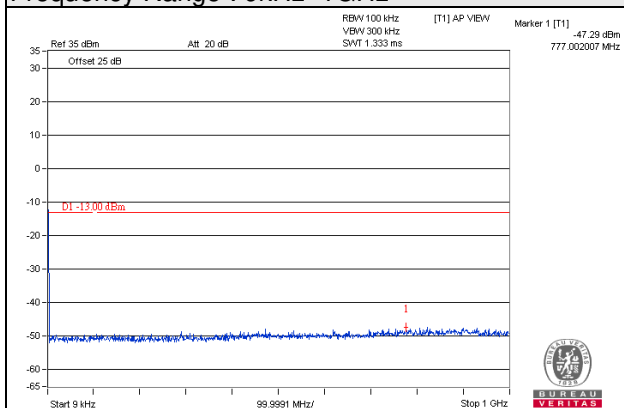
Frequency Range : 10GHz~20GHz



Channel Bandwidth: 10MHz

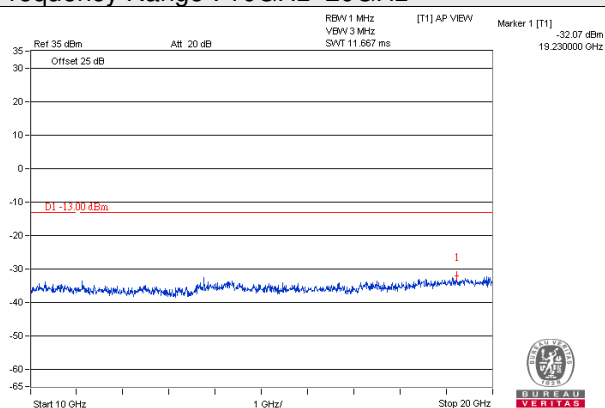
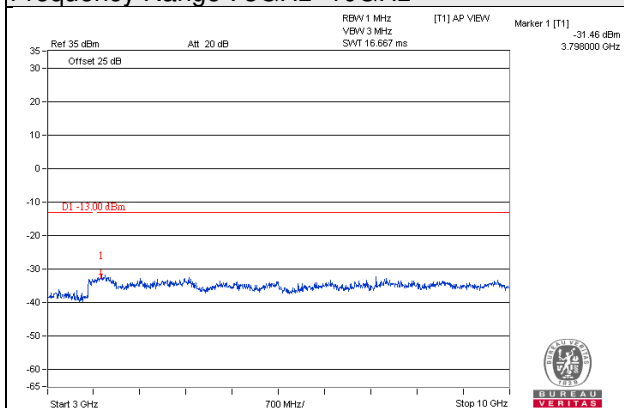
Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~3GHz



Frequency Range : 3GHz~10GHz

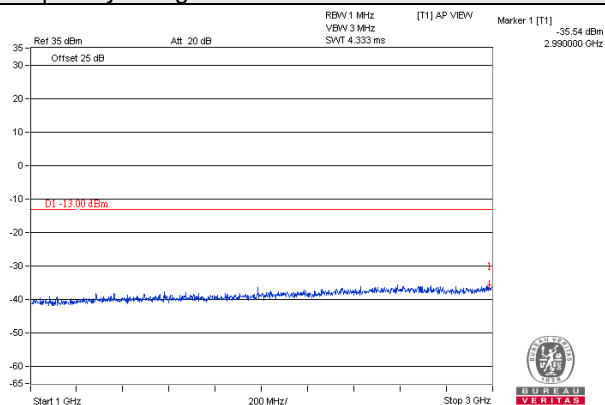
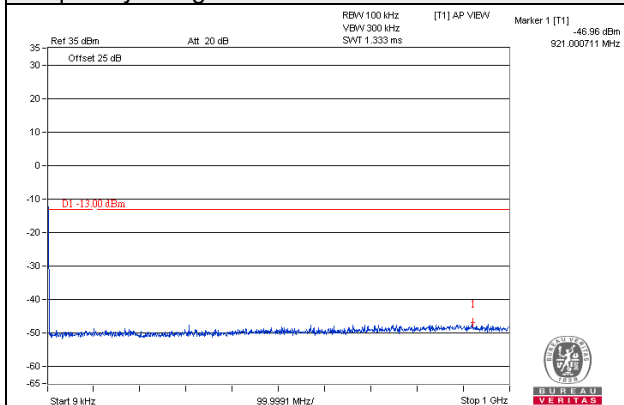
Frequency Range : 10GHz~20GHz



Channel Bandwidth: 15MHz

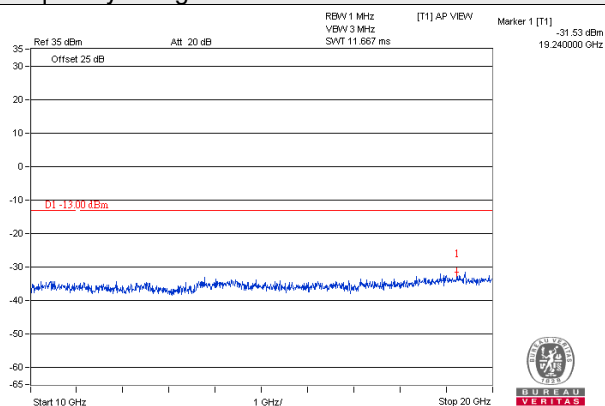
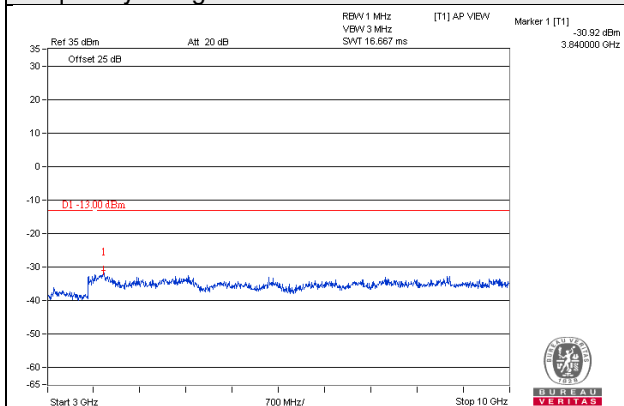
Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~3GHz



Frequency Range : 3GHz~10GHz

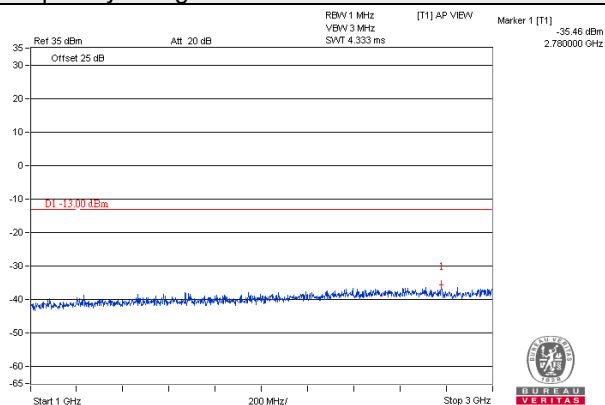
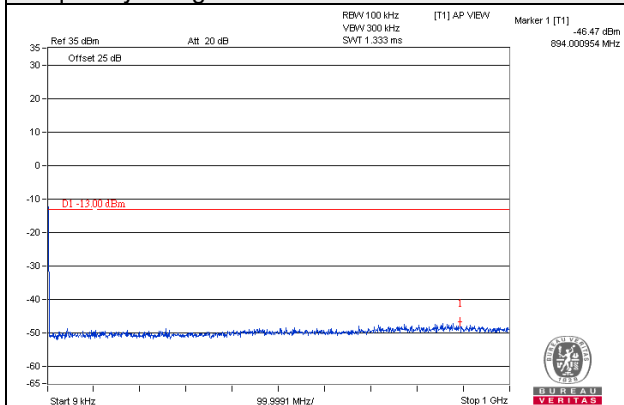
Frequency Range : 10GHz~20GHz



Channel Bandwidth: 20MHz

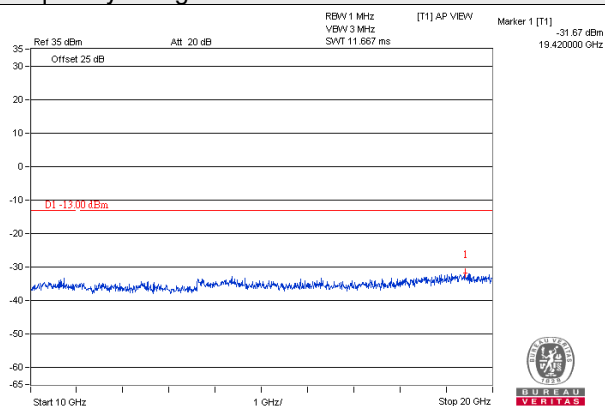
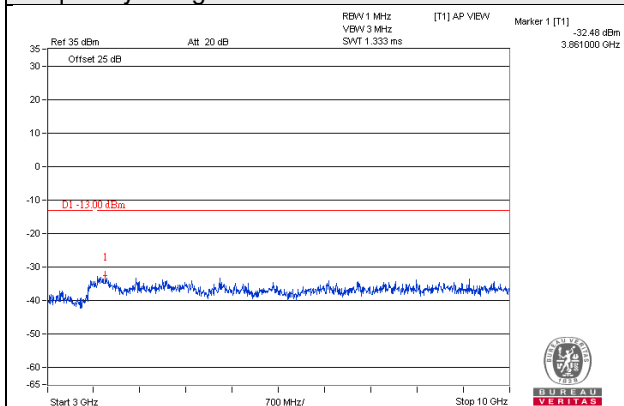
Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~3GHz



Frequency Range : 3GHz~10GHz

Frequency Range : 10GHz~20GHz

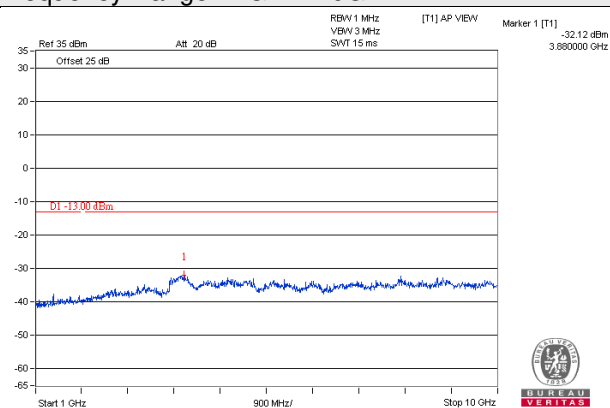
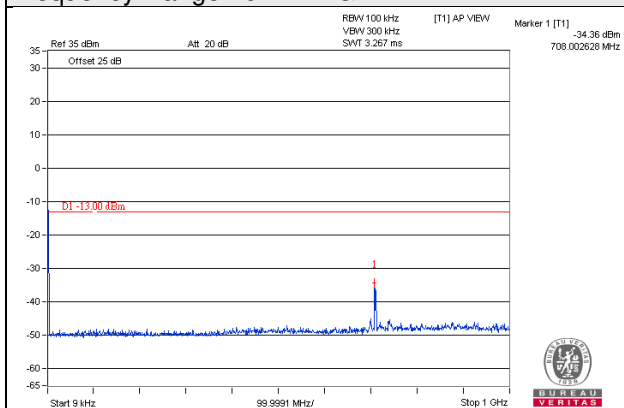


Band 17

Channel Bandwidth: 5MHz

Frequency Range : 9kHz~1GHz

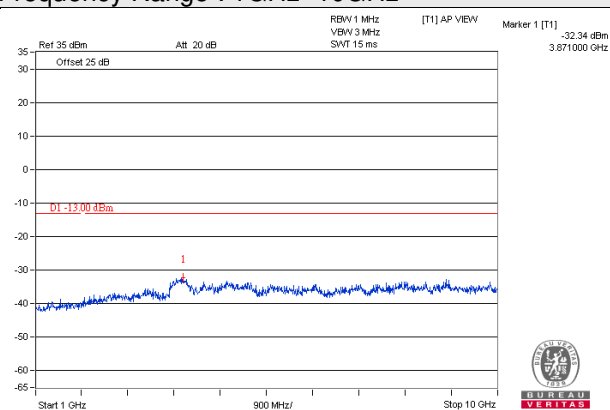
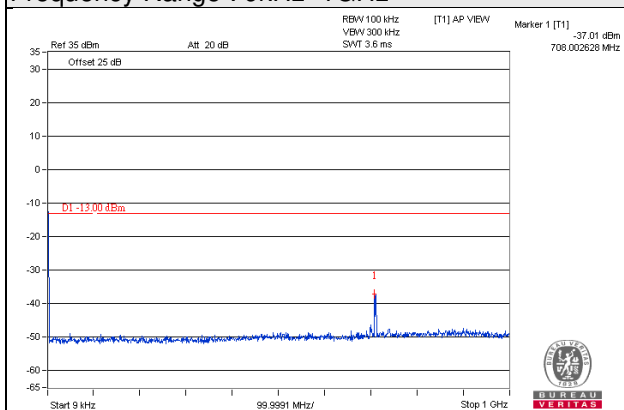
Frequency Range : 1GHz~10GHz



Channel Bandwidth: 10MHz

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



4.7 Radiated Emission Measurement

4.7.1 Limits of Radiated Emission Measurement

In the FCC 27.53(m) (4), On any frequency outside a licensee's frequency block, The power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log (P)$ dB. The emission limit equal to -13dBm .

4.7.2 Test Procedure

- a. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high channel of operational frequency range.)
- b. Substitution method is used for EIRP 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.
- c. The substitution 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. $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution antenna}.$

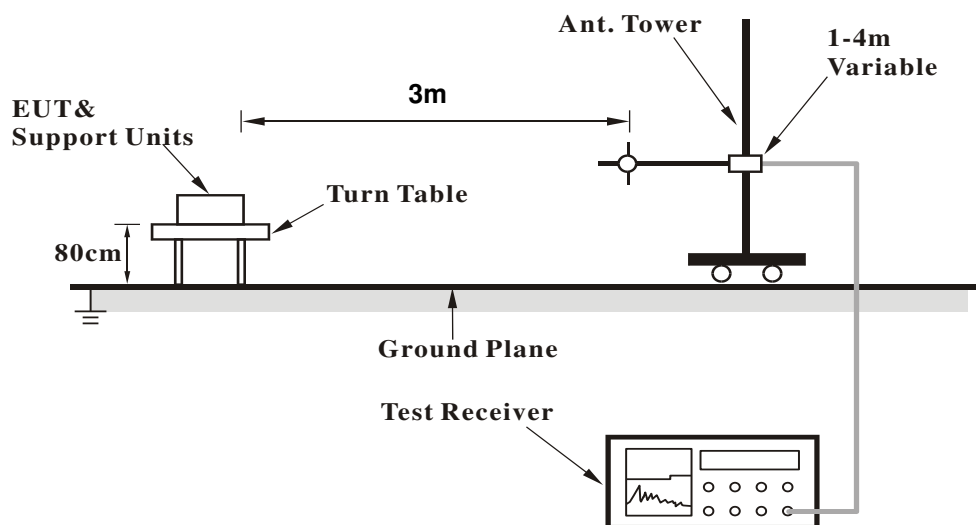
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.7.3 Deviation from Test Standard

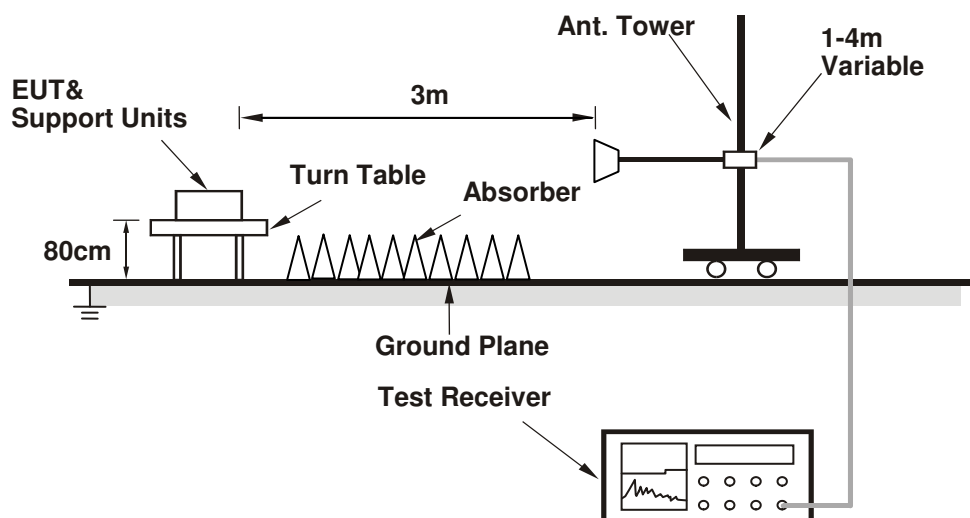
No deviation.

4.7.4 Test Setup

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.7.5 Test Results

Below 1GHz

WCDMA:

Test Frequency	1732.6 MHz	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	30.02	31.40	-39.87	-14.89	-54.76	-25	-29.76
2	135	36.40	-58.97	-1.46	-60.44	-25	-35.44
3	208.06	32.60	-62.87	4.24	-58.63	-25	-33.63
4	479.97	31.10	-64.66	3.04	-61.62	-25	-36.62
5	600.15	31.30	-63.32	1.79	-61.53	-25	-36.53
6	995.39	35.30	-60.73	0.59	-60.14	-25	-35.14
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	34.31	36.70	-36.12	-13.85	-49.97	-25	-24.97
2	81.21	31.20	-62.70	-1.71	-64.41	-25	-39.41
3	135	30.90	-64.47	-1.46	-65.94	-25	-40.94
4	189	33.20	-61.36	3.16	-58.20	-25	-33.20
5	208.35	31.60	-63.86	4.23	-59.63	-25	-34.63
6	928.65	29.00	-69.89	0.23	-69.66	-25	-44.66

Remarks:

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

LTE Band 4:

Channel Bandwidth: 1.4MHz

Test Frequency	1732.5MHz	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	30.02	34.10	-37.17	-14.89	-52.06	-25	-27.06
2	135	35.40	-59.97	-1.46	-61.44	-25	-36.44
3	208.06	33.60	-61.87	4.24	-57.63	-25	-32.63
4	479.97	35.30	-60.46	3.04	-57.42	-25	-32.42
5	600.15	33.50	-61.12	1.79	-59.33	-25	-34.33
6	995.39	41.10	-54.93	0.59	-54.34	-25	-29.34
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	34.31	36.20	-36.62	-13.85	-50.47	-25	-25.47
2	81.21	31.60	-62.30	-1.71	-64.01	-25	-39.01
3	135	34.50	-60.87	-1.46	-62.34	-25	-37.34
4	189	33.20	-61.36	3.16	-58.20	-25	-33.20
5	208.35	34.20	-61.26	4.23	-57.03	-25	-32.03
6	928.65	33.10	-65.79	0.23	-65.56	-25	-40.56

Remarks:

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

Channel Bandwidth: 3MHz

Test Frequency	1732.5MHz	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	30.03	31.60	-39.67	-14.89	-54.56	-25	-29.56
2	135	35.40	-59.97	-1.46	-61.44	-25	-36.44
3	208.04	31.60	-63.87	4.24	-59.63	-25	-34.63
4	479.98	31.30	-64.46	3.04	-61.42	-25	-36.42
5	600.17	30.20	-64.42	1.79	-62.63	-25	-37.63
6	995.39	35.30	-60.73	0.59	-60.14	-25	-35.14
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	34.32	36.90	-35.92	-13.85	-49.77	-25	-24.77
2	81.2	30.60	-63.30	-1.71	-65.01	-25	-40.01
3	135	30.50	-64.87	-1.46	-66.34	-25	-41.34
4	189	32.60	-61.96	3.16	-58.80	-25	-33.80
5	208.31	32.50	-62.96	4.23	-58.73	-25	-33.73
6	928.65	29.10	-69.31	0.41	-68.91	-25	-43.91

Remarks:

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

Channel Bandwidth: 5MHz

Test Frequency	1732.5MHz	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	30.02	32.30	-38.97	-14.89	-53.86	-25	-28.86
2	135	35.70	-59.67	-1.46	-61.14	-25	-36.14
3	208.05	32.10	-63.37	4.24	-59.13	-25	-34.13
4	479.95	33.10	-62.66	3.04	-59.62	-25	-34.62
5	600.14	30.40	-64.22	1.79	-62.43	-25	-37.43
6	995.38	38.60	-57.43	0.59	-56.84	-25	-31.84
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	34.32	36.90	-35.92	-13.85	-49.77	-25	-24.77
2	81.2	30.60	-63.30	-1.71	-65.01	-25	-40.01
3	135	30.50	-64.87	-1.46	-66.34	-25	-41.34
4	189	32.60	-61.96	3.16	-58.80	-25	-33.80
5	208.31	32.50	-62.96	4.23	-58.73	-25	-33.73
6	928.65	29.10	-69.31	0.41	-68.91	-25	-43.91

Remarks:

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

Channel Bandwidth: 10MHz

Test Frequency	1732.5MHz	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	30.02	30.60	-40.67	-14.89	-55.56	-25	-30.56
2	135	36.30	-59.07	-1.46	-60.54	-25	-35.54
3	208.05	30.00	-65.47	4.24	-61.23	-25	-36.23
4	479.95	34.30	-61.46	3.04	-58.42	-25	-33.42
5	600.14	32.30	-62.32	1.79	-60.53	-25	-35.53
6	995.38	39.60	-56.43	0.59	-55.84	-25	-30.84
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	34.31	36.10	-36.72	-13.85	-50.57	-25	-25.57
2	81.02	30.60	-63.34	-1.72	-65.06	-25	-40.06
3	135	30.40	-64.97	-1.46	-66.44	-25	-41.44
4	189	30.30	-64.26	3.16	-61.10	-25	-36.10
5	208.31	32.30	-63.16	4.23	-58.93	-25	-33.93
6	928.66	30.10	-68.31	0.41	-67.90	-25	-42.90

Remarks:

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

Channel Bandwidth: 15MHz

Test Frequency	1732.5MHz	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	30.02	31.40	-39.87	-14.89	-54.76	-25	-29.76
2	135	36.40	-58.97	-1.46	-60.44	-25	-35.44
3	208.06	32.60	-62.87	4.24	-58.63	-25	-33.63
4	479.97	31.10	-64.66	3.04	-61.62	-25	-36.62
5	600.15	31.30	-63.32	1.79	-61.53	-25	-36.53
6	995.39	35.30	-60.73	0.59	-60.14	-25	-35.14
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	34.31	36.30	-36.52	-13.85	-50.37	-25	-25.37
2	81.21	31.10	-62.80	-1.71	-64.51	-25	-39.51
3	135.02	31.40	-63.97	-1.46	-65.43	-25	-40.43
4	189	32.80	-61.76	3.16	-58.60	-25	-33.60
5	208.35	31.40	-64.06	4.23	-59.83	-25	-34.83
6	928.64	30.30	-68.59	0.23	-68.36	-25	-43.36

Remarks:

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

Channel Bandwidth: 20MHz

Test Frequency	1732.5MHz	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	30.01	34.20	-37.06	-14.90	-51.96	-25	-26.96
2	135	36.90	-58.47	-1.46	-59.94	-25	-34.94
3	208	36.40	-59.07	4.24	-54.83	-25	-29.83
4	480.1	36.20	-59.56	3.04	-56.52	-25	-31.52
5	600.2	30.40	-64.22	1.79	-62.43	-25	-37.43
6	995.42	42.10	-53.93	0.59	-53.34	-25	-28.34
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	34.31	36.10	-36.72	-13.85	-50.57	-25	-25.57
2	81.02	30.60	-63.34	-1.72	-65.06	-25	-40.06
3	135	30.40	-64.97	-1.46	-66.44	-25	-41.44
4	189	30.30	-64.26	3.16	-61.10	-25	-36.10
5	208.31	32.30	-63.16	4.23	-58.93	-25	-33.93
6	928.66	30.10	-68.31	0.41	-67.90	-25	-42.90

Remarks:

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

LTE Band 17:

Channel Bandwidth: 5MHz

Test Frequency	710MHz	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	30.03	31.30	-39.97	-14.89	-54.86	-25	-29.86
2	135	35.20	-60.17	-1.46	-61.64	-25	-36.64
3	208.04	31.70	-63.77	4.24	-59.53	-25	-34.53
4	479.98	28.70	-67.06	3.04	-64.02	-25	-39.02
5	600.17	31.20	-63.42	1.79	-61.63	-25	-36.63
6	995.39	35.20	-60.83	0.59	-60.24	-25	-35.24
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	34.3	35.60	-37.22	-13.85	-51.07	-25	-26.07
2	81.2	34.60	-59.30	-1.71	-61.01	-25	-36.01
3	135	35.70	-59.67	-1.46	-61.14	-25	-36.14
4	189	33.90	-60.66	3.16	-57.50	-25	-32.50
5	208.4	35.80	-59.66	4.23	-55.43	-25	-30.43
6	928.5	36.20	-62.70	0.23	-62.47	-25	-37.47

Remarks:

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

Channel Bandwidth: 10MHz

Test Frequency	710MHz	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	30.03	31.60	-39.67	-14.89	-54.56	-25	-29.56
2	135	35.50	-59.87	-1.46	-61.34	-25	-36.34
3	208.04	32.10	-63.37	4.24	-59.13	-25	-34.13
4	479.98	29.30	-66.46	3.04	-63.42	-25	-38.42
5	600.17	29.10	-65.52	1.79	-63.73	-25	-38.73
6	995.39	33.50	-62.53	0.59	-61.94	-25	-36.94
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	34.3	35.80	-37.02	-13.85	-50.87	-25	-25.87
2	81.2	33.60	-60.30	-1.71	-62.01	-25	-37.01
3	135	36.20	-59.17	-1.46	-60.64	-25	-35.64
4	189	32.10	-62.46	3.16	-59.30	-25	-34.30
5	208.4	36.40	-59.06	4.23	-54.83	-25	-29.83
6	928.5	35.80	-63.10	0.23	-62.87	-25	-37.87

Remarks:

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

ABOVE 1GHz

WCDMA:

Test Frequency	1732.6 MHz	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	3465.2	40.54	-62.62	7.80	-54.82	-13	-41.82
2	5197.8	44.05	-60.48	7.05	-53.42	-13	-40.42
3	6930.4	44.20	-58.12	5.10	-53.01	-13	-40.01
4	8663	49.54	-53.17	4.23	-48.94	-13	-35.94
5	10395.6	52.27	-49.73	3.67	-46.06	-13	-33.06
6	12128.2	53.04	-48.44	4.38	-44.06	-13	-31.06
7	13860.8	54.82	-44.83	2.46	-42.37	-13	-29.37
8	15593.4	55.77	-41.58	3.70	-37.88	-13	-24.88
9	17326	61.78	-35.57	3.70	-31.87	-13	-18.87
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	3465.2	39.03	-64.13	7.80	-56.33	-13	-43.33
2	5197.8	42.55	-61.98	7.05	-54.92	-13	-41.92
3	6930.4	45.61	-56.71	5.10	-51.60	-13	-38.60
4	8663	52.98	-49.73	4.23	-45.50	-13	-32.50
5	10395.6	50.83	-51.17	3.67	-47.50	-13	-34.50
6	12128.2	51.44	-50.04	4.38	-45.66	-13	-32.66
7	13860.8	55.07	-44.58	2.46	-42.12	-13	-29.12
8	15593.4	58.98	-38.37	3.70	-34.67	-13	-21.67
9	17326	63.29	-34.06	3.70	-30.36	-13	-17.36

Remarks:

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

LTE Band 4:

Channel Bandwidth: 1.4MHz

Test Frequency	1732.5 MHz	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	3465	33.38	-69.78	7.80	-61.98	-13	-48.98
2	5197.5	43.16	-61.37	7.05	-54.31	-13	-41.31
3	6930	41.88	-60.44	5.10	-55.33	-13	-42.33
4	8662.5	40.74	-61.97	4.23	-57.74	-13	-44.74
5	10395	43.21	-59.03	3.67	-55.36	-13	-42.36
6	12127.5	44.12	-57.36	4.38	-52.98	-13	-39.98
7	13860	44.63	-55.02	2.47	-52.56	-13	-39.56
8	15592.5	44.77	-52.58	3.70	-48.88	-13	-35.88
9	17325	45.19	-52.16	3.70	-48.46	-13	-35.46
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	3465	40.05	-63.11	7.80	-55.31	-13	-42.31
2	5197.5	44.18	-60.35	7.05	-53.29	-13	-40.29
3	6930	40.07	-62.25	5.10	-57.14	-13	-44.14
4	8662.5	40.19	-62.52	4.23	-58.29	-13	-45.29
5	10395	42.2	-60.04	3.67	-56.37	-13	-43.37
6	12127.5	43.19	-58.29	4.38	-53.91	-13	-40.91
7	13860	42.58	-57.07	2.47	-54.61	-13	-41.61
8	15592.5	42.86	-54.49	3.70	-50.79	-13	-37.79
9	17325	45.46	-51.89	3.70	-48.19	-13	-35.19

Remarks:

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

Channel Bandwidth: 3MHz

Test Frequency	1732.5 MHz	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	3465	32.65	-70.51	7.80	-62.71	-13	-49.71
2	5197.5	42.50	-62.03	7.05	-54.97	-13	-41.97
3	6930	41.36	-60.96	5.10	-55.85	-13	-42.85
4	8662.5	41.1	-61.61	4.23	-57.38	-13	-44.38
5	10395	44.19	-58.05	3.67	-54.38	-13	-41.38
6	12127.5	44.53	-56.95	4.38	-52.57	-13	-39.57
7	13860	44.34	-55.31	2.47	-52.85	-13	-39.85
8	15592.5	44.72	-52.63	3.70	-48.93	-13	-35.93
9	17325	44.45	-52.90	3.70	-49.20	-13	-36.20
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	3465	40.52	-62.64	7.80	-54.84	-13	-41.84
2	5197.5	43.38	-61.15	7.05	-54.09	-13	-41.09
3	6930	39.9	-62.42	5.10	-57.31	-13	-44.31
4	8662.5	40.74	-61.97	4.23	-57.74	-13	-44.74
5	10395	42.33	-59.91	3.67	-56.24	-13	-43.24
6	12127.5	42.91	-58.57	4.38	-54.19	-13	-41.19
7	13860	43.15	-56.50	2.47	-54.04	-13	-41.04
8	15592.5	42.27	-55.08	3.70	-51.38	-13	-38.38
9	17325	45.78	-51.57	3.70	-47.87	-13	-34.87

Remarks:

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

Channel Bandwidth: 5MHz

Test Frequency	1732.5 MHz	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	3465	32.22	-70.94	7.80	-63.14	-13	-50.14
2	5197.5	42.98	-61.55	7.05	-54.49	-13	-41.49
3	6930	40.41	-61.91	5.10	-56.80	-13	-43.80
4	8662.5	40.97	-61.74	4.23	-57.51	-13	-44.51
5	10395	44.61	-57.63	3.67	-53.96	-13	-40.96
6	12127.5	43.72	-57.76	4.38	-53.38	-13	-40.38
7	13860	43.52	-56.13	2.47	-53.67	-13	-40.67
8	15592.5	45.46	-51.89	3.70	-48.19	-13	-35.19
9	17325	43.83	-53.52	3.70	-49.82	-13	-36.82
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	3465	39.57	-63.59	7.80	-55.79	-13	-42.79
2	5197.5	42.92	-61.61	7.05	-54.55	-13	-41.55
3	6930	40.14	-62.18	5.10	-57.07	-13	-44.07
4	8662.5	40.21	-62.50	4.23	-58.27	-13	-45.27
5	10395	42.8	-59.44	3.67	-55.77	-13	-42.77
6	12127.5	43.31	-58.17	4.38	-53.79	-13	-40.79
7	13860	42.9	-56.75	2.47	-54.29	-13	-41.29
8	15592.5	43.23	-54.12	3.70	-50.42	-13	-37.42
9	17325	45.67	-51.68	3.70	-47.98	-13	-34.98

Remarks:

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

Channel Bandwidth: 10MHz

Test Frequency	1732.5 MHz	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	3465	31.35	23.55	7.80	31.35	-13	-44.35
2	5197.5	42.06	35.01	7.05	42.06	-13	-55.06
3	6930	41.19	36.09	5.10	41.19	-13	-54.19
4	8662.5	41.4	37.17	4.23	41.40	-13	-54.40
5	10395	44.7	41.03	3.67	44.70	-13	-57.70
6	12127.5	43.12	38.74	4.38	43.12	-13	-56.12
7	13860	43.57	41.10	2.47	43.57	-13	-56.57
8	15592.5	45.87	42.17	3.70	45.87	-13	-58.87
9	17325	44.25	40.55	3.70	44.25	-13	-57.25
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	3465	39.12	-64.04	7.80	-56.24	-13	-43.24
2	5197.5	41.99	-62.54	7.05	-55.48	-13	-42.48
3	6930	40.75	-61.57	5.10	-56.46	-13	-43.46
4	8662.5	40.94	-61.77	4.23	-57.54	-13	-44.54
5	10395	42.74	-59.50	3.67	-55.83	-13	-42.83
6	12127.5	43.09	-58.39	4.38	-54.01	-13	-41.01
7	13860	43.2	-56.45	2.47	-53.99	-13	-40.99
8	15592.5	42.49	-54.86	3.70	-51.16	-13	-38.16
9	17325	45.1	-52.25	3.70	-48.55	-13	-35.55

Remarks:

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

Channel Bandwidth: 15MHz

Test Frequency	1732.5 MHz	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	3465	30.98	-72.18	7.80	-64.38	-13	-51.38
2	5197.5	42.19	-62.34	7.05	-55.28	-13	-42.28
3	6930	41.83	-60.49	5.10	-55.38	-13	-42.38
4	8662.5	41.76	-60.95	4.23	-56.72	-13	-43.72
5	10395	44.12	-58.12	3.67	-54.45	-13	-41.45
6	12127.5	42.37	-59.11	4.38	-54.73	-13	-41.73
7	13860	43.54	-56.11	2.47	-53.65	-13	-40.65
8	15592.5	45.1	-52.25	3.70	-48.55	-13	-35.55
9	17325	44.3	-53.05	3.70	-49.35	-13	-36.35
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	3465	39.67	-63.49	7.80	-55.69	-13	-42.69
2	5197.5	42.29	-62.24	7.05	-55.18	-13	-42.18
3	6930	40.65	-61.67	5.10	-56.56	-13	-43.56
4	8662.5	41.82	-60.89	4.23	-56.66	-13	-43.66
5	10395	42.05	-60.19	3.67	-56.52	-13	-43.52
6	12127.5	42.85	-58.63	4.38	-54.25	-13	-41.25
7	13860	42.33	-57.32	2.47	-54.86	-13	-41.86
8	15592.5	41.75	-55.60	3.70	-51.90	-13	-38.90
9	17325	46.07	-51.28	3.70	-47.58	-13	-34.58

Remarks:

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

Channel Bandwidth: 20MHz

Test Frequency	1732.5 MHz	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	3465	30.76	-72.40	7.80	-64.60	-13	-51.60
2	5197.5	43.11	-61.42	7.05	-54.36	-13	-41.36
3	6930	42.19	-60.13	5.10	-55.02	-13	-42.02
4	8662.5	42.53	-60.18	4.23	-55.95	-13	-42.95
5	10395	44.18	-58.06	3.67	-54.39	-13	-41.39
6	12127.5	42.08	-59.40	4.38	-55.02	-13	-42.02
7	13860	44.48	-55.17	2.47	-52.71	-13	-39.71
8	15592.5	46.08	-51.27	3.70	-47.57	-13	-34.57
9	17325	43.61	-53.74	3.70	-50.04	-13	-37.04
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	3465	39.25	-63.91	7.80	-56.11	-13	-43.11
2	5197.5	41.95	-62.58	7.05	-55.52	-13	-42.52
3	6930	41.11	-61.21	5.10	-56.10	-13	-43.10
4	8662.5	42.33	-60.38	4.23	-56.15	-13	-43.15
5	10395	41.68	-60.56	3.67	-56.89	-13	-43.89
6	12127.5	43.7	-57.78	4.38	-53.40	-13	-40.40
7	13860	42.48	-57.17	2.47	-54.71	-13	-41.71
8	15592.5	42.39	-54.96	3.70	-51.26	-13	-38.26
9	17325	45.74	-51.61	3.70	-47.91	-13	-34.91

Remarks:

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

LTE Band 17:

Channel Bandwidth: 5MHz

Test Frequency	710 MHz	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1420	35.60	-68.29	5.85	-62.44	-13	-49.44
2	2130	44.30	-56.03	6.83	-49.20	-13	-36.20
3	2840	37.95	-64.44	6.90	-57.54	-13	-44.54
4	3550	39.76	-63.62	7.82	-55.81	-13	-42.81
5	4260	38.05	-66.61	7.45	-59.16	-13	-46.16
6	4970	39.95	-64.24	7.00	-57.23	-13	-44.23
7	5680	41.29	-63.39	6.99	-56.39	-13	-43.39
8	6390	42.01	-62.60	6.14	-56.46	-13	-43.46
9	7100	43.99	-60.62	6.14	-54.48	-13	-41.48
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1420	35	-68.89	5.85	-63.04	-13	-50.04
2	2130	48.3	-52.03	6.83	-45.20	-13	-32.20
3	2840	38.4	-63.99	6.90	-57.09	-13	-44.09
4	3550	40.1	-63.28	7.82	-55.47	-13	-42.47
5	4260	38.9	-65.76	7.45	-58.31	-13	-45.31
6	4970	39.2	-64.99	7.00	-57.98	-13	-44.98
7	5680	40.7	-63.98	6.99	-56.98	-13	-43.98
8	6390	42.3	-62.31	6.14	-56.17	-13	-43.17
9	7100	44	-60.61	6.14	-54.47	-13	-41.47

Remarks:

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

Channel Bandwidth: 10MHz

Test Frequency	710 MHz	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1420	34.67	-69.22	5.85	-63.37	-13	-50.37
2	2130	43.41	-56.92	6.83	-50.09	-13	-37.09
3	2840	38.64	-63.75	6.90	-56.85	-13	-43.85
4	3550	40.72	-62.66	7.82	-54.85	-13	-41.85
5	4260	37.64	-67.02	7.45	-59.57	-13	-46.57
6	4970	40.24	-63.95	7.00	-56.94	-13	-43.94
7	5680	41.29	-63.39	6.99	-56.39	-13	-43.39
8	6390	41.91	-62.70	6.14	-56.56	-13	-43.56
9	7100	43.21	-60.93	6.11	-54.82	-13	-41.82
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBuV/m)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1420	34.5	-69.39	5.85	-63.54	-13	-50.54
2	2130	48.03	-52.30	6.83	-45.47	-13	-32.47
3	2840	38.89	-63.50	6.90	-56.60	-13	-43.60
4	3550	40.79	-62.59	7.82	-54.78	-13	-41.78
5	4260	39.24	-65.42	7.45	-57.97	-13	-44.97
6	4970	39.83	-64.36	7.00	-57.35	-13	-44.35
7	5680	40.53	-64.15	6.99	-57.15	-13	-44.15
8	6390	41.41	-63.20	6.14	-57.06	-13	-44.06
9	7100	43.99	-60.15	6.11	-54.04	-13	-41.04

Remarks:

1. Emission Value (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 on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are 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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