

FCC Test Report (PART 22)

Report No.: RF160818E07-3

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

Address: 5030 Sugarloaf Parkway, Building 6, Lawrenceville, GA 30044

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

Lab Address: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,
Taiwan R.O.C.

Test Location (1): E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,
Taiwan R.O.C.

Test Location (2): No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin
Chu Hsien 307, Taiwan R.O.C.



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification. The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies

Table of Contents

Release Control Record	3
1 Certificate of Conformity	4
2 Summary of Test Results	5
2.1 Measurement Uncertainty	5
2.2 Test Site and Instruments	6
3 General Information	9
3.1 General Description of EUT	9
3.2 Configuration of System under Test	12
3.2.1 Description of Support Units	13
3.3 Test Mode Applicability and Tested Channel Detail	14
3.4 EUT Operating Conditions	16
3.5 General Description of Applied Standards	17
4 Test Types and Results	18
4.1 Output Power Measurement	18
4.1.1 Limits of Output Power Measurement	18
4.1.2 Test Procedures	18
4.1.3 Test Setup	19
4.1.4 Test Results	20
4.2 Frequency Stability Measurement	32
4.2.1 Limits of Frequency Stability Measurement	32
4.2.2 Test Procedure	32
4.2.3 Test Setup	32
4.2.4 Test Results	33
4.3 Occupied Bandwidth Measurement	35
4.3.1 Test Procedure	35
4.3.2 Test Setup	35
4.3.3 Test Result (-26dB Bandwidth)	36
4.3.4 Test Result (Occupied Bandwidth)	38
4.4 Band Edge Measurement	40
4.4.1 Limits of Band Edge Measurement	40
4.4.2 Test Setup	40
4.4.3 Test Procedures	40
4.4.4 Test Results	41
4.5 Peak to Average Ratio	46
4.5.1 Limits of Peak to Average Ratio Measurement	46
4.5.2 Test Setup	46
4.5.3 Test Procedures	46
4.5.4 Test Results	47
4.6 Conducted Spurious Emissions	49
4.6.1 Limits of Conducted Spurious Emissions Measurement	49
4.6.2 Test Setup	49
4.6.3 Test Procedure	49
4.6.4 Test Results	50
4.7 Radiated Emission Measurement	53
4.7.1 Limits of Radiated Emission Measurement	53
4.7.2 Test Procedure	53
4.7.3 Deviation from Test Standard	53
4.7.4 Test Setup	54
4.7.5 Test Results	55
5 Pictures of Test Arrangements	69
Appendix – Information on the Testing Laboratories	70

Release Control Record

Issue No.	Description	Date Issued
RF160818E07-3	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

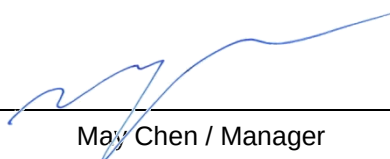
Applicant: Technicolor Connected Home USA LLC

Test Date: Sep. 04 to 13, 2016

Standards: FCC Part 22

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 22 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 22.913 (a)	Effective radiated power	PASS	Meet the requirement of limit.
---	Peak to Average Ratio	PASS	Meet the requirement of limit.
2.1055 22.355	Frequency Stability	PASS	Meet the requirement of limit.
2.1049	Occupied Bandwidth	PASS	Meet the requirement of limit.
22.917	Band Edge Measurements	PASS	Meet the requirement of limit.
2.1051 22.917	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 22.917	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -15.26dB at 2509.5MHz.

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 3	5.31 dB
	30MHz ~ 1GHz – Chamber 4	5.19 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz – Chamber 3	3.40 dB
	6GHz ~ 18GHz – Chamber 3	3.73 dB
	18GHz ~ 40GHz – Chamber 3	4.11 dB

2.2 Test Site and Instruments

For WCDMA & LTE Radiated Spurious Emissions below 1GHz 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
Software	ADT_Radiated _V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208410	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. Loop antenna was used for all emissions below 30 MHz
6. Tested Date: Sep. 10 to 13, 2016

For EIRP Power & other Radiated Spurious Emissions 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

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. 10 to 12, 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		
Series Model	TCA301TCH2, TCA301ROG1, TCA301COX2, TCA301BHN2, TCA301CMP2, TCA301TWC2		
Status of EUT	ENGINEERING SAMPLE		
Power Supply Rating	12Vdc from power adapter or 4Vdc from battery		
Modulation Type	GPRS		GMSK
	EDGE		8PSK
	WCDMA, HSDPA, HSUPA		BPSK
	LTE		QPSK,16QAM
Operating Frequency	GPRS, EDGE		824.2MHz ~848.8MHz
	WCDMA, HSDPA, HSUPA		826.4MHz ~846.6MHz
	LTE	Channel Bandwidth: 1.4MHz	824.7MHz ~848.3MHz
		Channel Bandwidth: 3MHz	825.5MHz ~847.5MHz
		Channel Bandwidth: 5MHz	826.5MHz ~846.5MHz
		Channel Bandwidth: 10MHz	829MHz ~844MHz
Max. ERP Power	GPRS		2275.10mW
	EDGE		2172.70mW
	WCDMA		205.12mW
	LTE	Channel Bandwidth: 1.4MHz	236.05mW
		Channel Bandwidth: 3MHz	228.56mW
		Channel Bandwidth: 5MHz	223.36mW
		Channel Bandwidth: 10MHz	215.28mW
Emission Designator	GPRS		240KGXW
	EDGE		240KG7W
	WCDMA		4M18F9W
	LTE	Channel Bandwidth: 1.4MHz	QPSK: 1M08G7D 16QAM: 1M09D7W
		Channel Bandwidth: 3MHz	QPSK: 2M68G7D 16QAM: 2M68D7W
		Channel Bandwidth: 5MHz	QPSK: 4M49G7D 16QAM: 4M49D7W
		Channel Bandwidth: 10MHz	QPSK: 8M98G7D 16QAM: 8M94D7W
Antenna Type	Please see Note		
Antenna Connector	Please see Note		
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:

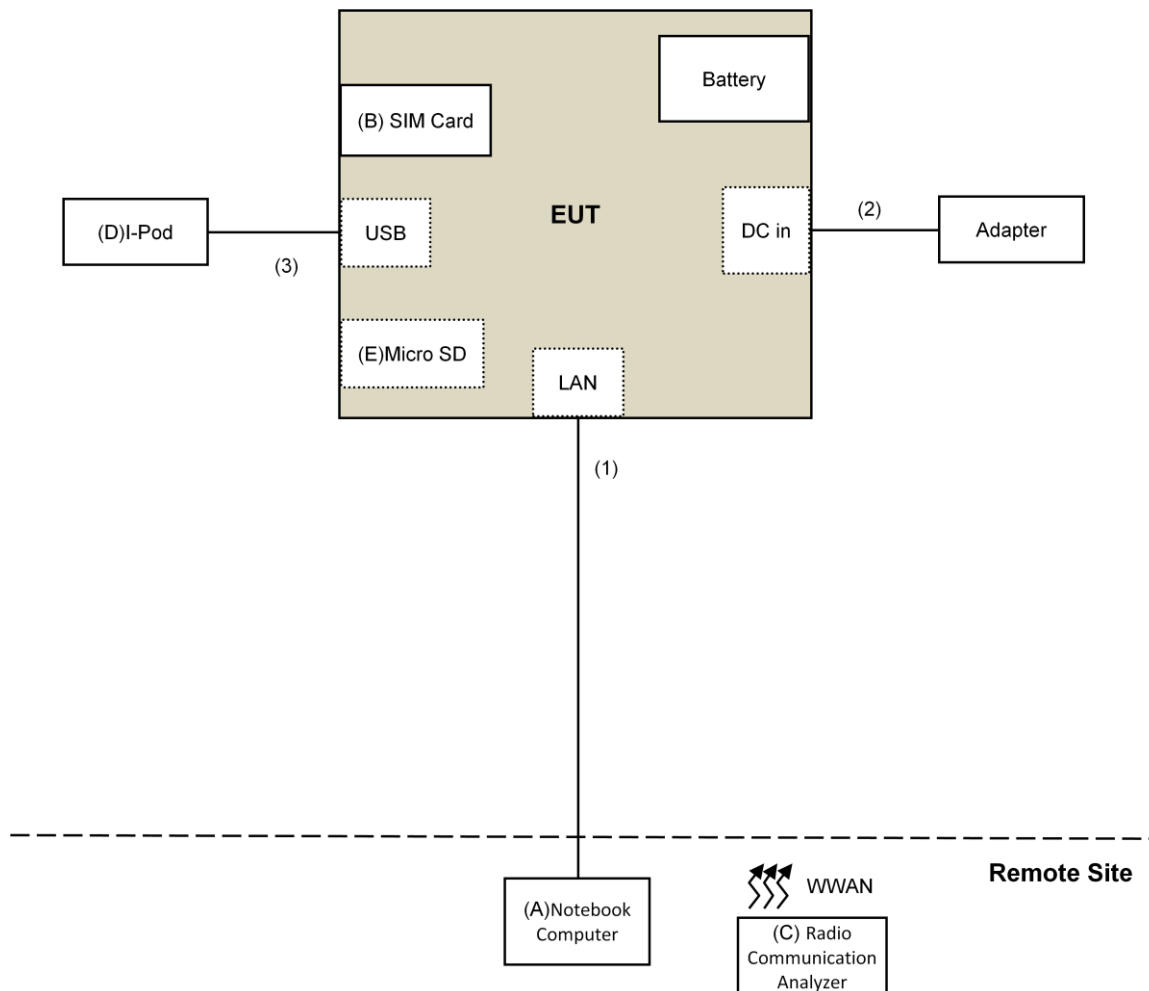
Adapter		
Brand	Model	Spec.
AcBel	WAF007	Input: 100-120Vac, 50/60Hz, 0.7A Output: 12V, 1.5A DC output cable (Unshielded, 3m)
Battery		
Brand	Model	Spec.
GETAC	U46P332.00	4V 3540mAh 14.16Wh.

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 was 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**.

GSM850 MODE

Test Item	Available Channel	Tested Channel	Mode
ERP	128 to 251	128, 189, 251	GPRS, EDGE
Frequency Stability	128 to 251	189	GPRS
Occupied Bandwidth	128 to 251	128, 189, 251	GPRS, EDGE
Peak to Average Ratio	128 to 251	128, 189, 251	GPRS, EDGE
Band Edge	128 to 251	128, 251	GPRS, EDGE
Conducted Emission	128 to 251	189	GPRS, EDGE
Radiated Emission Below 1GHz	128 to 251	189	GPRS, EDGE
Radiated Emission Above 1GHz	128 to 251	189	GPRS, EDGE

WCDMA V MODE

Test Item	Available Channel	Tested Channel	Mode
ERP	4132 to 4233	4132, 4182, 4233	WCDMA
Frequency Stability	4132 to 4233	4182	WCDMA
Occupied Bandwidth	4132 to 4233	4132, 4182, 4233	WCDMA
Peak to Average Ratio	4132 to 4233	4132, 4182, 4233	WCDMA
Band Edge	4132 to 4233	4132, 4233	WCDMA
Conducted Emission	4132 to 4233	4182	WCDMA
Radiated Emission Below 1GHz	4132 to 4233	4182	WCDMA
Radiated Emission Above 1GHz	4132 to 4233	4182	WCDMA

LTE Band 5

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
ERP	20407 to 20643	20407, 20525, 20643	1.4M	QPSK/16QAM	1RB / 0RB offset
	20415 to 20635	20415, 20525, 20635	3M	QPSK/16QAM	1RB / 0RB offset
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK/16QAM	1RB / 0RB offset
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK/16QAM	1RB / 0RB offset
Frequency Stability	20407 to 20643	20525	1.4M	QPSK	1RB / 0RB offset
	20415 to 20635	20525	3M	QPSK	1RB / 0RB offset
	20425 to 20625	20525	5MHz	QPSK	1RB / 0RB offset
	20450 to 20600	20525	10MHz	QPSK	1RB / 0RB offset
Occupied Bandwidth	20407 to 20643	20407, 20525, 20643	1.4M	QPSK/16QAM	6 RB / 0 RB offset
	20415 to 20635	20415, 20525, 20635	3M	QPSK/16QAM	15 RB / 0 RB offset
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK/16QAM	25 RB / 0 RB offset
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK/16QAM	50 RB / 0 RB offset
Peak to Average Ratio	20407 to 20643	20525	1.4M	QPSK	1RB / 0RB offset
	20415 to 20635	20525	3M	QPSK	1RB / 0RB offset
	20425 to 20625	20525	5MHz	QPSK	1RB / 0RB offset
	20450 to 20600	20525	10MHz	QPSK	1RB / 0RB offset
Band Edge	20407 to 20643	20407, 20643	1.4M	QPSK	1 RB / 0 RB offset
					6 RB / 0 RB offset
	20415 to 20635	20415, 20635	3M	QPSK	1 RB / 0 RB offset
					15 RB / 0 RB offset
	20425 to 20625	20425, 20625	5MHz	QPSK	1 RB / 0 RB offset
					25 RB / 0 RB offset
Conducuted Emission	20407 to 20643	20525	1.4M	QPSK	1RB / 0RB offset
	20415 to 20635	20525	3M	QPSK	1RB / 0RB offset
	20425 to 20625	20525	5MHz	QPSK	1RB / 0RB offset
	20450 to 20600	20525	10MHz	QPSK	1RB / 0RB offset
Radiated Emission	20407 to 20643	20525	1.4M	QPSK	1RB / 0RB offset
	20415 to 20635	20525	3M	QPSK	1RB / 0RB offset
	20425 to 20625	20525	5MHz	QPSK	1RB / 0RB offset
	20450 to 20600	20525	10MHz	QPSK	1RB / 0RB offset

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
ERP	25deg. C, 63%RH	120Vac, 60Hz	Gary Cheng
Frequency Stability	25deg. C, 63%RH	120Vac, 60Hz	Gary Cheng
Occupied Bandwidth	25deg. C, 63%RH	120Vac, 60Hz	Gary Cheng
Band Edge	25deg. C, 63%RH	120Vac, 60Hz	Gary Cheng
Peak to Average Ratio	25deg. C, 63%RH	120Vac, 60Hz	Gary Cheng
Conducuted Emission	25deg. C, 63%RH	120Vac, 60Hz	Gary Cheng
Radiated Emission Below 1GHz	25deg. C, 63%RH	120Vac, 60Hz	Andy Ho
Radiated Emission Above 1GHz	25deg. C, 63%RH	120Vac, 60Hz	Andy Ho

3.4 EUT Operating Conditions

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

3.5 General Description of Applied Standards

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

FCC 47 CFR Part 2

FCC 47 CFR Part 22

KDB 971168 D01 Power Meas License Digital Systems v02r02

ANSI/TIA/EIA-603-D 2010

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

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

4.1.2 Test Procedures

EIRP / ERP Measurement:

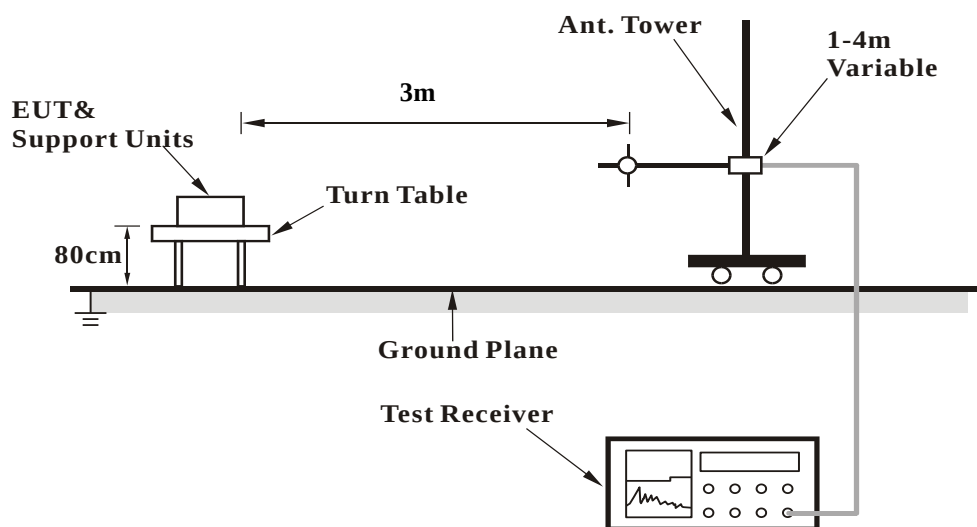
- a. All measurements were done at low, middle and high operational frequency range. Set the $RBW \geq OBW$ and $VBW \geq 3 \times RBW$.
- b. Substitution method is used for EIRP measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees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

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/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	GSM850		
Channel	128	189	251
Frequency (MHz)	824.2	836.4	848.8
GPRS 8	30.90	31.10	30.70
GPRS 10	32.10	31.90	31.70
GPRS 11	31.80	31.90	30.30
GPRS 12	31.70	31.80	30.50
EDGE 8 (MCS9)	30.80	31.10	31.50
EDGE 10 (MCS9)	30.30	30.60	31.30
EDGE 11 (MCS9)	31.60	31.50	31.10
EDGE 12 (MCS9)	31.53	31.44	31.40

Band	WCDMA V		
Channel	4132	4182	4233
Frequency (MHz)	826.4	836.4	846.6
RMC	23.60	23.52	23.10
HSDPA Subtest-1	23.30	23.40	23.30
HSDPA Subtest-2	23.30	23.60	23.10
HSDPA Subtest-3	23.20	23.30	23.40
HSDPA Subtest-4	23.90	23.44	23.60
HSUPA Subtest-1	23.10	23.50	23.30
HSUPA Subtest-2	23.60	23.80	23.30
HSUPA Subtest-3	23.90	23.62	23.60
HSUPA Subtest-4	23.62	23.74	23.55
HSUPA Subtest-5	23.60	23.56	23.42

LTE Band 5								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
1.4 MHz	QPSK	20407	824.7	1	0	0	24	23.16
		20525	836.5	1	0	0	24	23.25
		20643	848.3	1	0	0	24	23.25
		20407	824.7	1	2	0	24	23.26
		20525	836.5	1	2	0	24	23.23
		20643	848.3	1	2	0	24	23.18
		20407	824.7	1	5	0	24	23.18
		20525	836.5	1	5	0	24	23.19
		20643	848.3	1	5	0	24	22.86
		20407	824.7	3	0	0	24	23.22
		20525	836.5	3	0	0	24	23.33
		20643	848.3	3	0	0	24	22.85
		20407	824.7	3	1	0	24	23.19
		20525	836.5	3	1	0	24	23.38
		20643	848.3	3	1	0	24	22.87
		20407	824.7	3	3	0	24	23.07
		20525	836.5	3	3	0	24	23.32
		20643	848.3	3	3	0	24	22.85
		20407	824.7	6	0	1	24	22.15
		20525	836.5	6	0	1	24	22.37
		20643	848.3	6	0	1	24	21.94

LTE Band 5								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
1.4 MHz	16QAM	20407	824.7	1	0	1	24	22.15
		20525	836.5	1	0	1	24	22.12
		20643	848.3	1	0	1	24	21.87
		20407	824.7	1	2	1	24	22.40
		20525	836.5	1	2	1	24	22.50
		20643	848.3	1	2	1	24	22.21
		20407	824.7	1	5	1	24	22.03
		20525	836.5	1	5	1	24	22.57
		20643	848.3	1	5	1	24	22.17
		20407	824.7	3	0	1	24	22.33
		20525	836.5	3	0	1	24	22.39
		20643	848.3	3	0	1	24	21.90
		20407	824.7	3	1	1	24	22.11
		20525	836.5	3	1	1	24	22.29
		20643	848.3	3	1	1	24	22.14
		20407	824.7	3	3	1	24	22.30
		20525	836.5	3	3	1	24	22.35
		20643	848.3	3	3	1	24	21.85
		20407	824.7	6	0	2	24	21.32
		20525	836.5	6	0	2	24	21.30
		20643	848.3	6	0	2	24	20.99

LTE Band 5								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
3 MHz	QPSK	20415	825.5	1	0	0	24	23.20
		20525	836.5	1	0	0	24	23.15
		20635	847.5	1	0	0	24	22.97
		20415	825.5	1	7	0	24	23.09
		20525	836.5	1	7	0	24	23.28
		20635	847.5	1	7	0	24	22.93
		20415	825.5	1	14	0	24	22.96
		20525	836.5	1	14	0	24	23.21
		20635	847.5	1	14	0	24	22.89
		20415	825.5	8	0	1	24	22.23
		20525	836.5	8	0	1	24	22.22
		20635	847.5	8	0	1	24	22.05
		20415	825.5	8	3	1	24	22.13
		20525	836.5	8	3	1	24	22.34
		20635	847.5	8	3	1	24	22.00
		20415	825.5	8	7	1	24	22.14
		20525	836.5	8	7	1	24	22.33
		20635	847.5	8	7	1	24	22.03
		20415	825.5	15	0	1	24	22.12
		20525	836.5	15	0	1	24	22.24
		20635	847.5	15	0	1	24	22.04

LTE Band 5								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
3 MHz	16QAM	20415	825.5	1	0	1	24	22.31
		20525	836.5	1	0	1	24	22.16
		20635	847.5	1	0	1	24	21.59
		20415	825.5	1	7	1	24	22.40
		20525	836.5	1	7	1	24	22.29
		20635	847.5	1	7	1	24	22.19
		20415	825.5	1	14	1	24	21.56
		20525	836.5	1	14	1	24	22.09
		20635	847.5	1	14	1	24	21.85
		20415	825.5	8	0	2	24	21.13
		20525	836.5	8	0	2	24	21.03
		20635	847.5	8	0	2	24	20.94
		20415	825.5	8	3	2	24	21.20
		20525	836.5	8	3	2	24	21.28
		20635	847.5	8	3	2	24	21.07
		20415	825.5	8	7	2	24	21.06
		20525	836.5	8	7	2	24	21.22
		20635	847.5	8	7	2	24	20.91
		20415	825.5	15	0	2	24	21.06
		20525	836.5	15	0	2	24	21.17
		20635	847.5	15	0	2	24	20.94

LTE Band 5								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
5 MHz	QPSK	20425	826.5	1	0	0	24	23.44
		20525	836.5	1	0	0	24	23.77
		20625	846.5	1	0	0	24	23.66
		20425	826.5	1	12	0	24	23.46
		20525	836.5	1	12	0	24	23.69
		20625	846.5	1	12	0	24	23.43
		20425	826.5	1	24	0	24	23.62
		20525	836.5	1	24	0	24	23.46
		20625	846.5	1	24	0	24	23.52
		20425	826.5	12	0	1	24	22.53
		20525	836.5	12	0	1	24	22.62
		20625	846.5	12	0	1	24	22.43
		20425	826.5	12	6	1	24	22.62
		20525	836.5	12	6	1	24	22.54
		20625	846.5	12	6	1	24	22.52
		20425	826.5	12	13	1	24	22.43
		20525	836.5	12	13	1	24	22.82
		20625	846.5	12	13	1	24	22.77
		20425	826.5	25	0	1	24	22.53
		20525	836.5	25	0	1	24	22.67
		20625	846.5	25	0	1	24	22.46

LTE Band 5								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
5 MHz	16QAM	20425	826.5	1	0	1	24	22.43
		20525	836.5	1	0	1	24	22.92
		20625	846.5	1	0	1	24	22.91
		20425	826.5	1	12	1	24	22.20
		20525	836.5	1	12	1	24	23.12
		20625	846.5	1	12	1	24	22.20
		20425	826.5	1	24	1	24	22.43
		20525	836.5	1	24	1	24	22.62
		20625	846.5	1	24	1	24	22.69
		20425	826.5	12	0	2	24	21.46
		20525	836.5	12	0	2	24	21.92
		20625	846.5	12	0	2	24	21.69
		20425	826.5	12	6	2	24	21.54
		20525	836.5	12	6	2	24	21.86
		20625	846.5	12	6	2	24	21.57
		20425	826.5	12	13	2	24	21.62
		20525	836.5	12	13	2	24	21.79
		20625	846.5	12	13	2	24	21.91
		20425	826.5	25	0	2	24	21.62
		20525	836.5	25	0	2	24	21.62
		20625	846.5	25	0	2	24	21.62

LTE Band 5								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
10 MHz	QPSK	20450	829	1	0	0	24	23.6
		20525	836.5	1	0	0	24	24.12
		20600	844	1	0	0	24	23.44
		20450	829	1	24	0	24	23.4
		20525	836.5	1	24	0	24	24.4
		20600	844	1	24	0	24	23.52
		20450	829	1	49	0	24	23.7
		20525	836.5	1	49	0	24	23.5
		20600	844	1	49	0	24	23.16
		20450	829	25	0	1	24	22.5
		20525	836.5	25	0	1	24	23.1
		20600	844	25	0	1	24	22.30
		20450	829	25	12	1	24	22.8
		20525	836.5	25	12	1	24	23
		20600	844	25	12	1	24	22.54
		20450	829	25	25	1	24	23.3
		20525	836.5	25	25	1	24	23.3
		20600	844	25	25	1	24	22.72
		20450	829	50	0	1	24	22.5
		20525	836.5	50	0	1	24	23.32
		20600	844	50	0	1	24	22.54

LTE Band 5								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
10 MHz	16QAM	20450	829	1	0	1	24	23.4
		20525	836.5	1	0	1	24	23.1
		20600	844	1	0	1	24	22.33
		20450	829	1	24	1	24	22.8
		20525	836.5	1	24	1	24	23.44
		20600	844	1	24	1	24	22.44
		20450	829	1	49	1	24	22.7
		20525	836.5	1	49	1	24	22.9
		20600	844	1	49	1	24	22.39
		20450	829	25	0	2	24	21.85
		20525	836.5	25	0	2	24	21.74
		20600	844	25	0	2	24	21.60
		20450	829	25	12	2	24	21.88
		20525	836.5	25	12	2	24	21.53
		20600	844	25	12	2	24	21.22
		20450	829	25	25	2	24	22.22
		20525	836.5	25	25	2	24	22.46
		20600	844	25	25	2	24	21.53
		20450	829	50	0	2	24	21.45
		20525	836.5	50	0	2	24	21.77
		20600	844	50	0	2	24	21.42

ERP POWER (dBm)

GPRS

Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)
128	824.2	H	32.27	1.30	33.57	2275.10
189	836.4	H	31.45	1.17	32.62	1828.10
251	848.8	H	31.58	1.04	32.62	1828.10

EDGE

Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)
128	824.2	H	31.87	1.30	33.17	2074.91
189	836.4	H	32.20	1.17	33.37	2172.70
251	848.8	H	31.98	1.04	33.02	2004.47

WCDMA

Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)
4132	826.4	H	21.68	1.27	22.95	197.24
4182	836.4	H	21.95	1.17	23.12	205.12
4233	846.6	H	21.54	1.07	22.61	182.39

QPSK

LTE Band 5 (1.4MHz)

Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)
20407	824.7	H	23.16	2.72	25.88	387.26
20525	836.5	H	22.29	2.78	25.07	321.37
20643	848.3	H	22.87	2.83	25.70	371.54

LTE Band 5 (3MHz)

Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)
20415	825.5	H	23.02	2.72	25.74	374.97
20525	836.5	H	22.29	2.78	25.07	321.37
20635	847.5	H	22.79	2.83	25.62	364.75

LTE Band 5 (5MHz)

Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)
20425	826.5	H	22.91	2.73	25.64	366.44
20525	836.5	H	22.58	2.78	25.36	343.56
20625	846.5	H	22.67	2.82	25.49	354.00

LTE Band 5 (10MHz)

Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)
20450	829	H	22.74	2.74	25.48	353.18
20525	836.5	H	22.41	2.78	25.19	330.37
2600	844	H	22.63	2.81	25.44	349.95

- REMARKS:** 1. EIRP 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 5 (1.4MHz)

Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)
20407	824.7	H	22.20	2.72	24.92	310.46
20525	836.5	H	21.34	2.78	24.12	258.23
20643	848.3	H	22.01	2.83	24.84	304.79

LTE Band 5 (3MHz)

Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)
20415	825.5	H	22.12	2.72	24.84	304.79
20525	836.5	H	21.39	2.78	24.17	261.22
20635	847.5	H	21.90	2.83	24.73	297.17

LTE Band 5 (5MHz)

Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)
20425	826.5	H	22.05	2.73	24.78	300.61
20525	836.5	H	21.65	2.78	24.43	277.33
20625	846.5	H	21.72	2.82	24.54	284.45

LTE Band 5 (10MHz)

Channel	Frequency (MHz)	Antenna Polarization	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)
20450	829	H	21.80	2.74	24.54	284.45
20525	836.5	H	21.46	2.78	24.24	265.46
2600	844	H	21.70	2.81	24.51	282.49

REMARKS: 1. EIRP 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

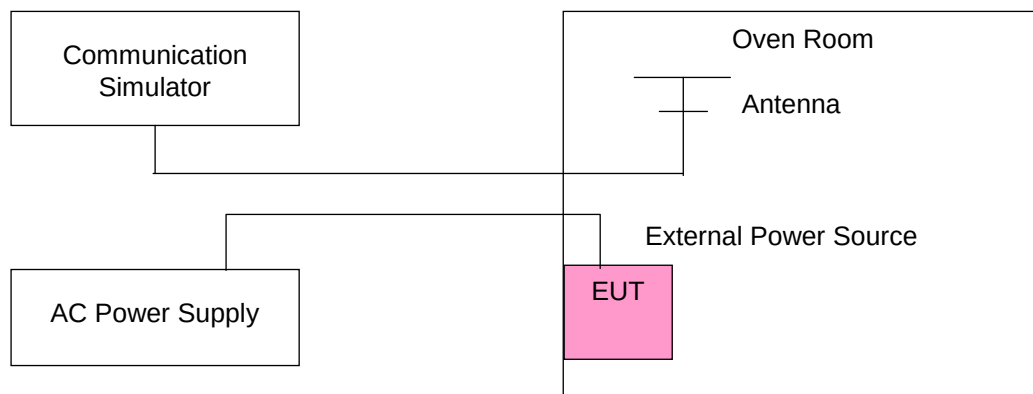
1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

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 ± 0.5 °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 (ppm)		Limit (ppm)
	GPRS	WCDMA	
102	0.012	0.011	2.5
138	0.011	0.010	2.5

Frequency Error vs. Temperature.

TEMP. (°C)	Frequency Error (ppm)		Limit (ppm)
	GPRS	WCDMA	
75	0.041	0.027	2.5
70	0.037	0.025	2.5
60	0.037	0.020	2.5
50	0.031	0.018	2.5
40	0.026	0.011	2.5
30	0.025	0.011	2.5
20	0.024	0.010	2.5
10	0.026	0.011	2.5
0	0.027	0.016	2.5
-10	0.027	0.016	2.5
-20	0.035	0.017	2.5
-30	0.033	0.019	2.5

Voltage (Volts)	Frequency Error (ppm)				Limit (ppm)
	LTE				
	1.4MHz	3MHz	5MHz	10MHz	
102	0.032	0.039	0.041	0.042	2.5
138	0.038	0.032	0.045	0.027	2.5

Frequency Error vs. Temperature.

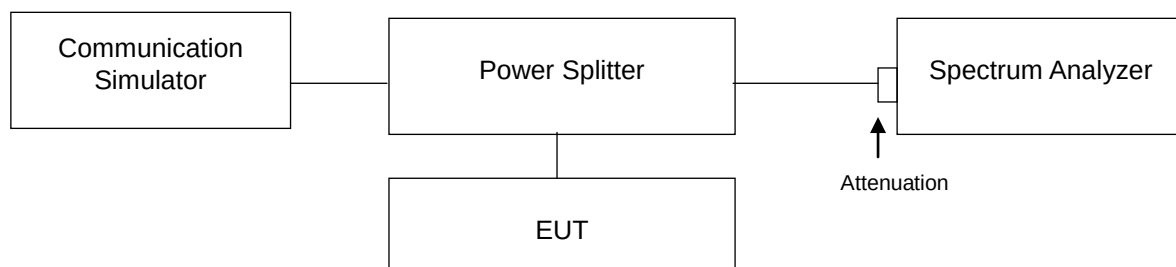
TEMP. (°C)	Frequency Error (ppm)				Limit (ppm)
	LTE				
	1.4MHz	3MHz	5MHz	10MHz	
75	0.033	0.041	0.039	0.042	2.5
70	0.038	0.032	0.044	0.027	2.5
60	0.033	0.039	0.039	0.041	2.5
50	0.037	0.033	0.045	0.027	2.5
40	0.032	0.039	0.039	0.043	2.5
30	0.037	0.032	0.045	0.027	2.5
20	0.032	0.039	0.039	0.042	2.5
10	0.037	0.033	0.047	0.027	2.5
0	0.032	0.039	0.041	0.041	2.5
-10	0.038	0.032	0.047	0.029	2.5
-20	0.032	0.039	0.042	0.041	2.5
-30	0.037	0.032	0.047	0.026	2.5

4.3 Occupied Bandwidth Measurement

4.3.1 Test Procedure

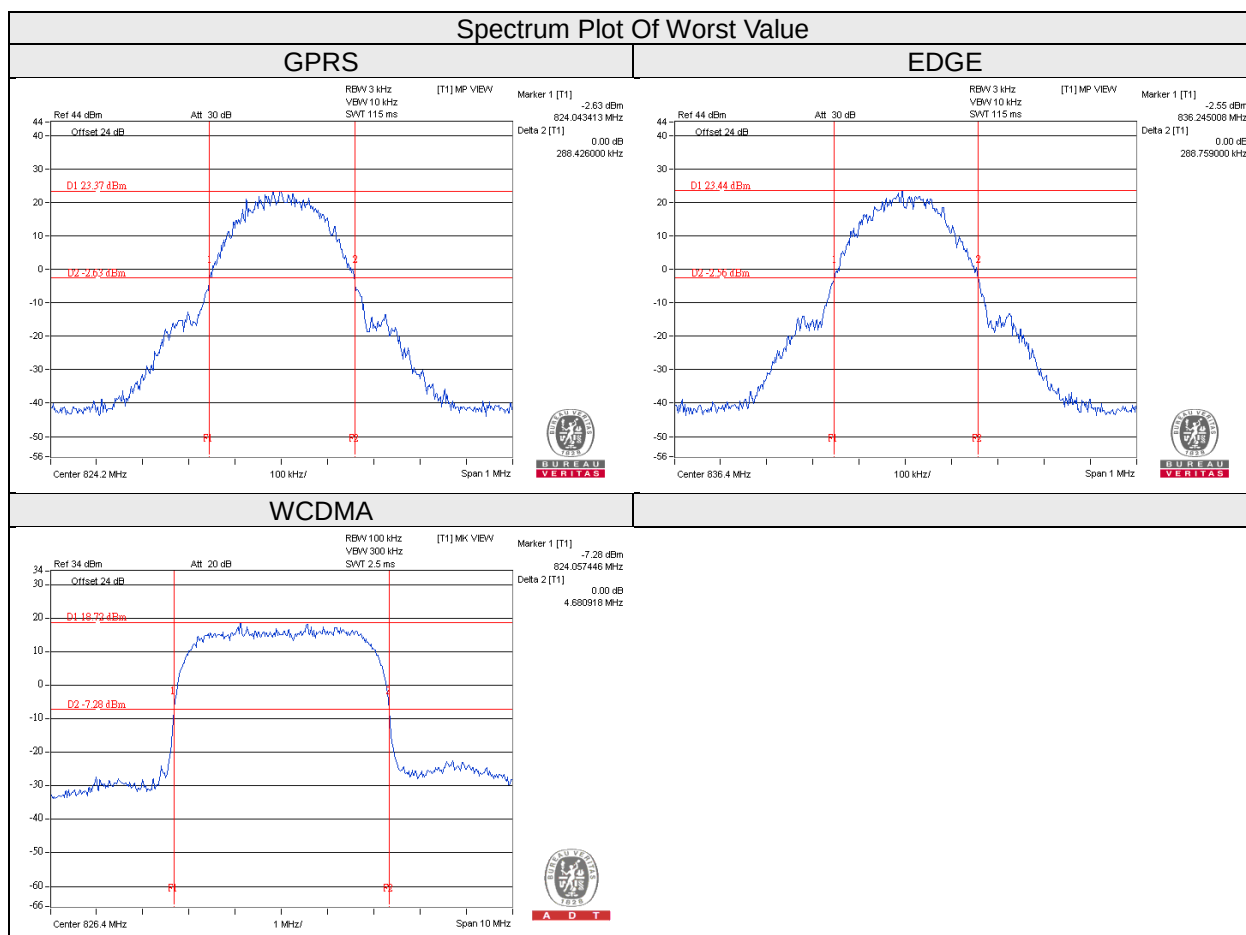
All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

4.3.2 Test Setup

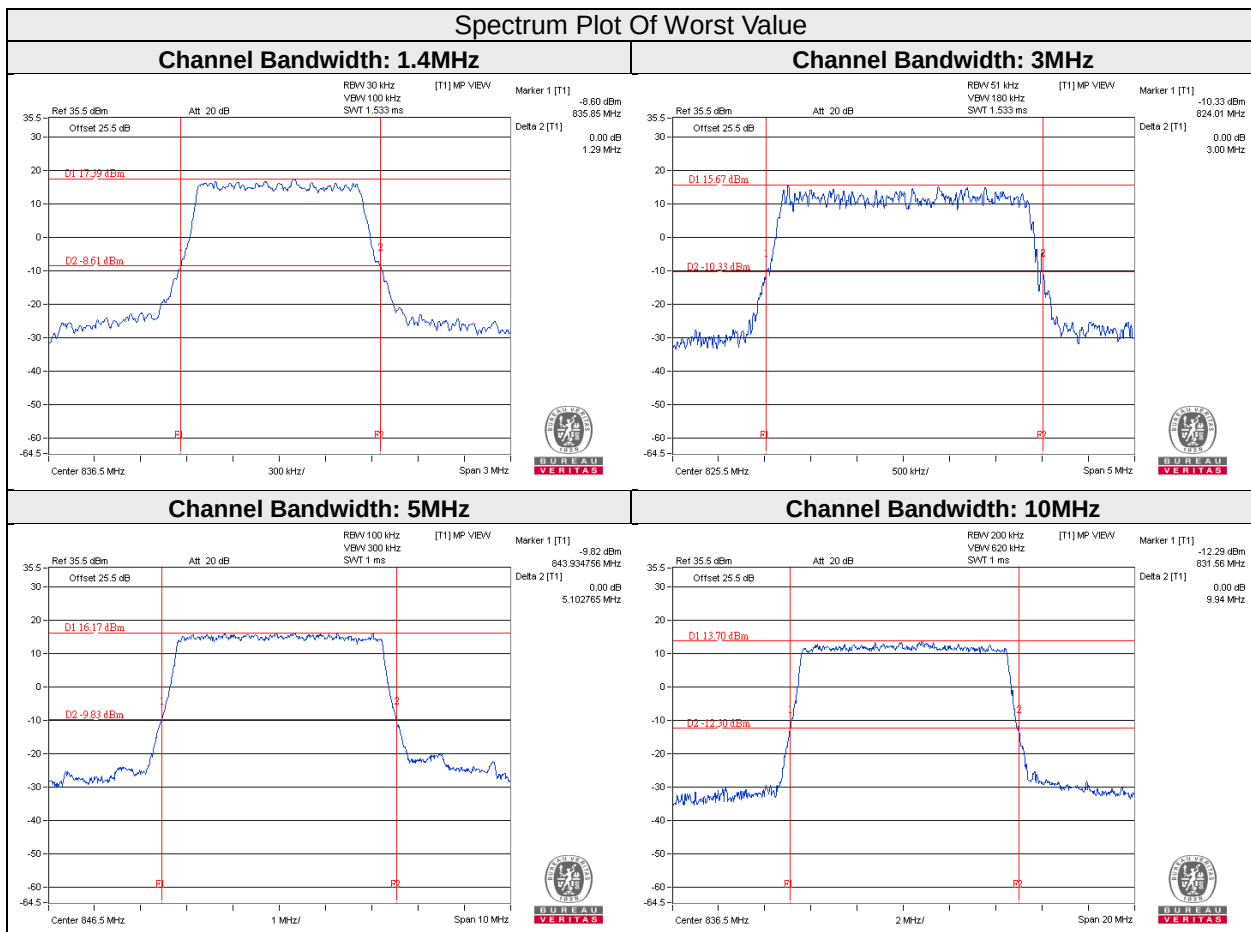


4.3.3 Test Result (-26dB Bandwidth)

Channel	Frequency (MHz)	-26dB Bandwidth (kHz)		Channel	FREQ. (MHz)	-26dB Bandwidth (MHz)
		GPRS	EDGE			WCDMA
128	824.2	288	287	4132	826.4	4.68
189	836.4	288	288	4182	836.4	4.67
251	848.8	287	288	4233	846.6	4.66

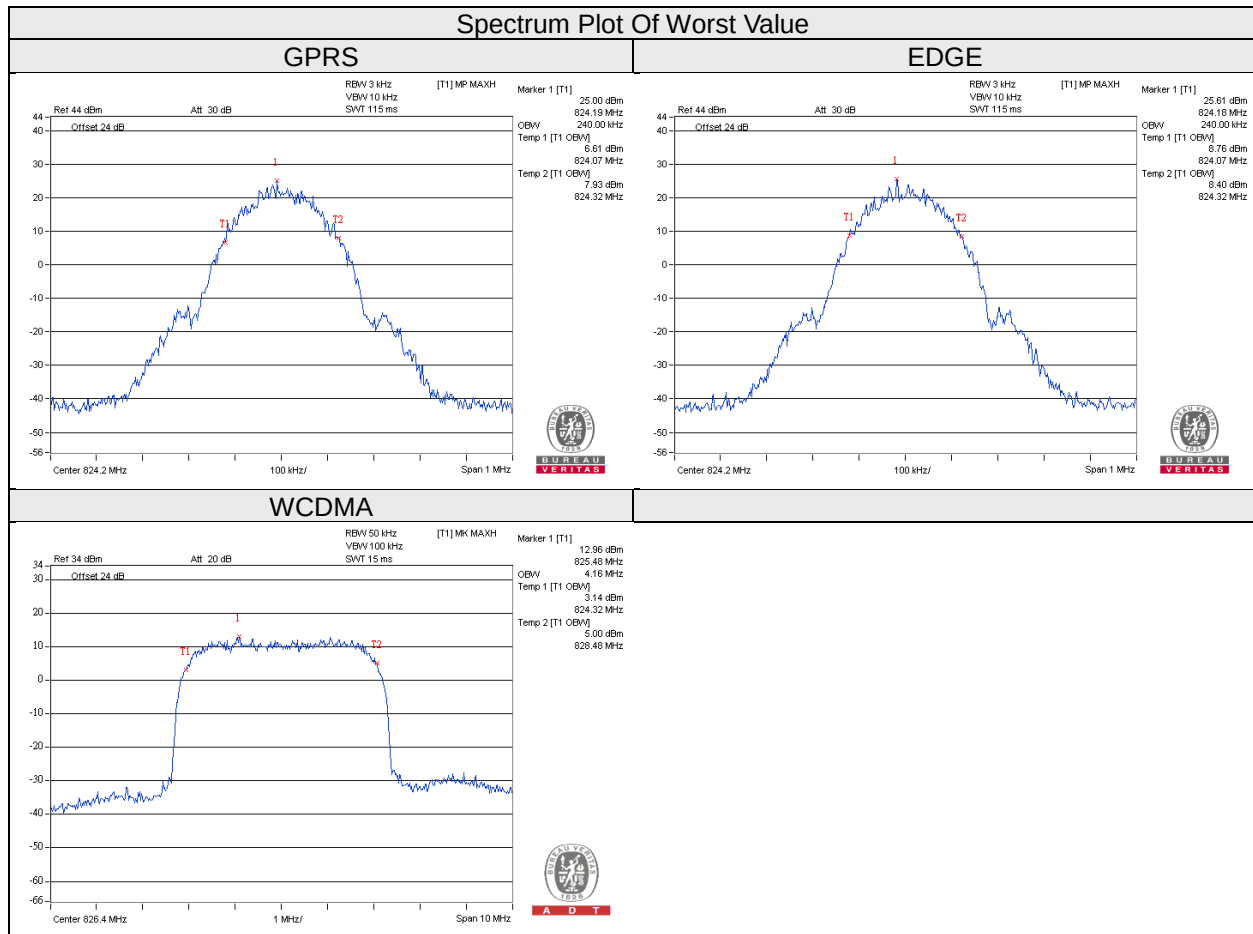


LTE							
Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	-26dB Bandwidth (MHz)		Channel	FREQ. (MHz)	-26dB Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
20407	824.7	1.25	1.3	20415	825.5	3	3
20525	836.5	1.27	1.29	20525	836.5	2.91	2.98
20643	848.3	1.28	1.27	20635	847.5	2.92	2.93
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	-26dB Bandwidth (MHz)		Channel	FREQ. (MHz)	-26dB Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
20425	826.5	4.95	4.95	20450	829	9.61	9.86
20525	836.5	4.95	5	20525	836.5	9.63	9.94
20625	846.5	5.1	4.98	20600	844	9.66	9.81

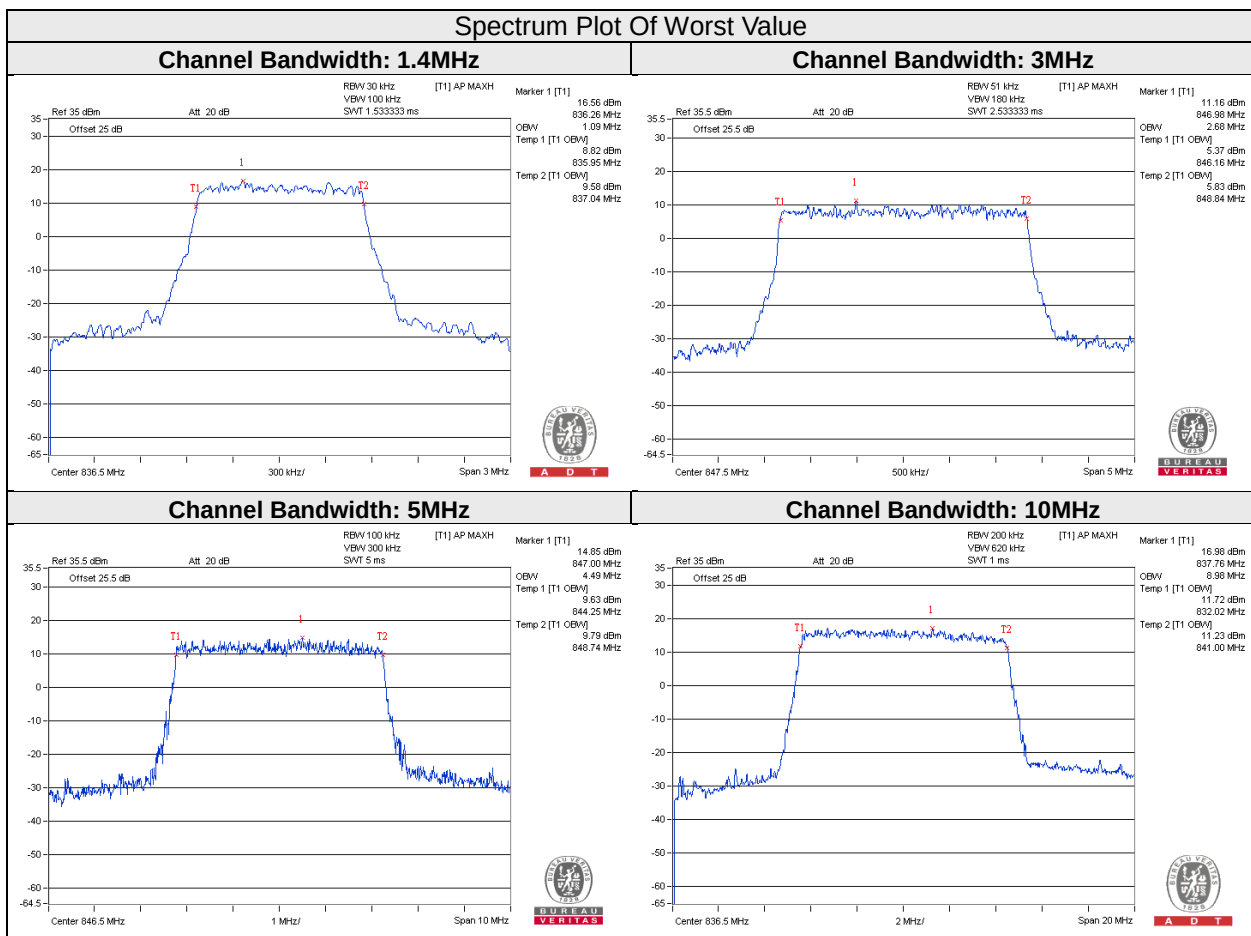


4.3.4 Test Result (Occupied Bandwidth)

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)		Channel	FREQ. (MHz)	99% Occupied Bandwidth (MHz)
		GPRS	EDGE			WCDMA
128	824.2	240	240	4132	826.4	4.16
189	836.4	240	240	4182	836.4	4.16
251	848.8	240	240	4233	846.6	4.18



LTE							
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
20407	824.7	1.08	1.08	20415	825.5	2.68	2.67
20525	836.5	1.08	1.09	20525	836.5	2.67	2.67
20643	848.3	1.08	1.08	20635	847.5	2.68	2.68
Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		Channel	FREQ. (MHz)	99% Occupied Bandwidth (MHz)	
		QPSK	16QAM			QPSK	16QAM
20425	826.5	4.48	4.48	20450	829	8.94	8.94
20525	836.5	4.49	4.49	20525	836.5	8.98	8.92
20625	846.5	4.49	4.49	20600	844	8.92	8.92

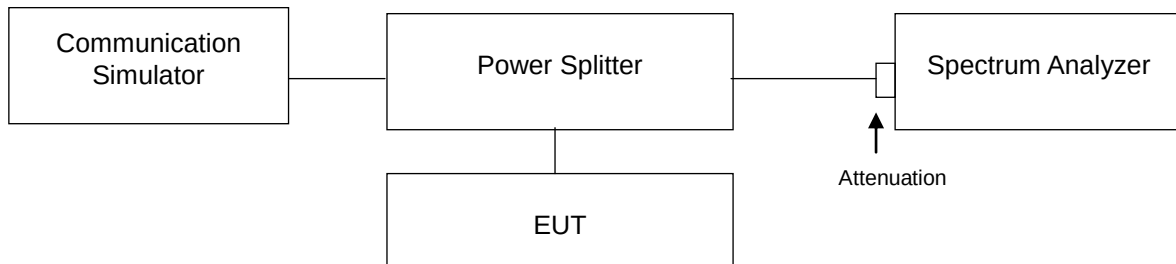


4.4 Band Edge Measurement

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.

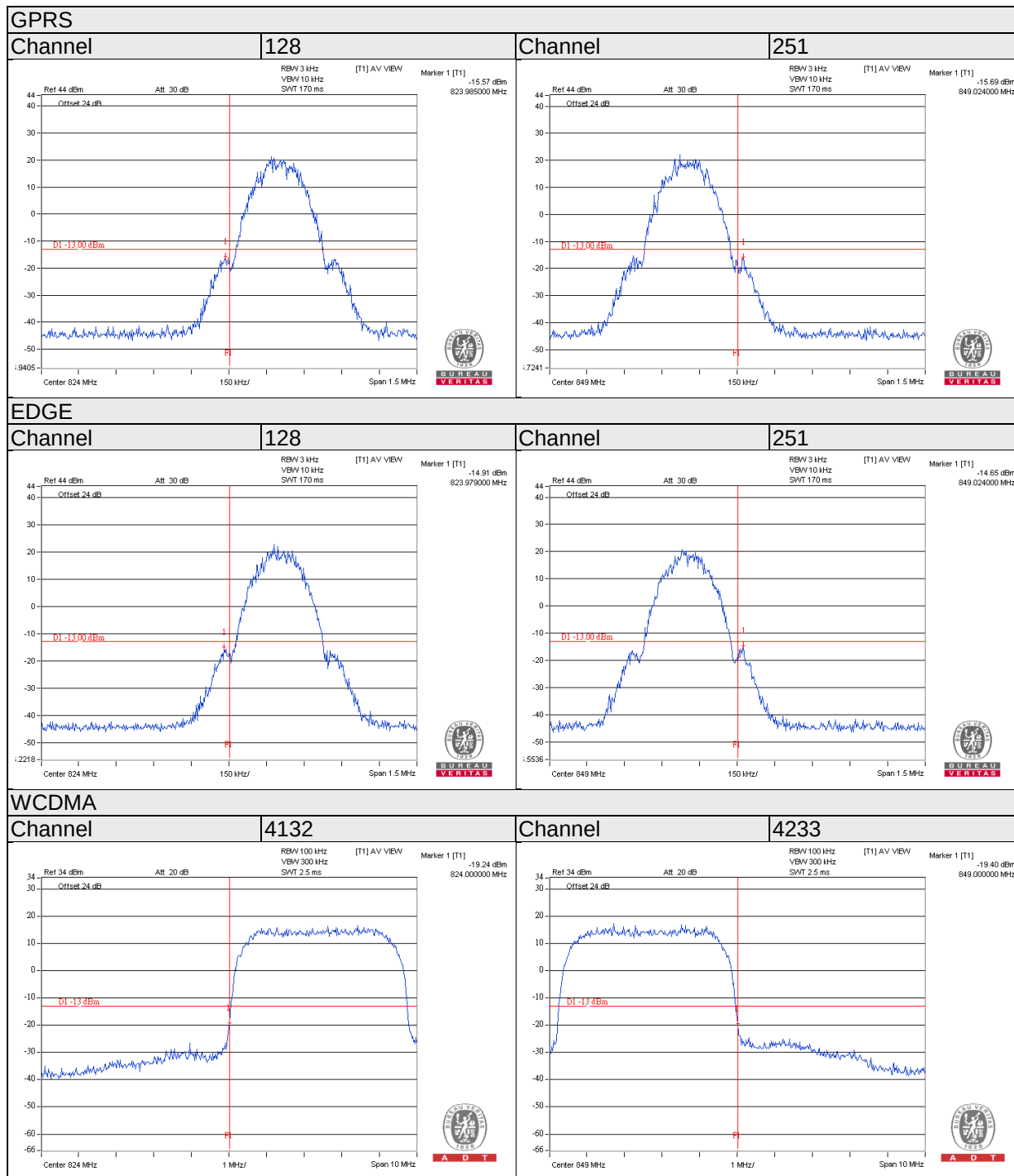
4.4.2 Test Setup



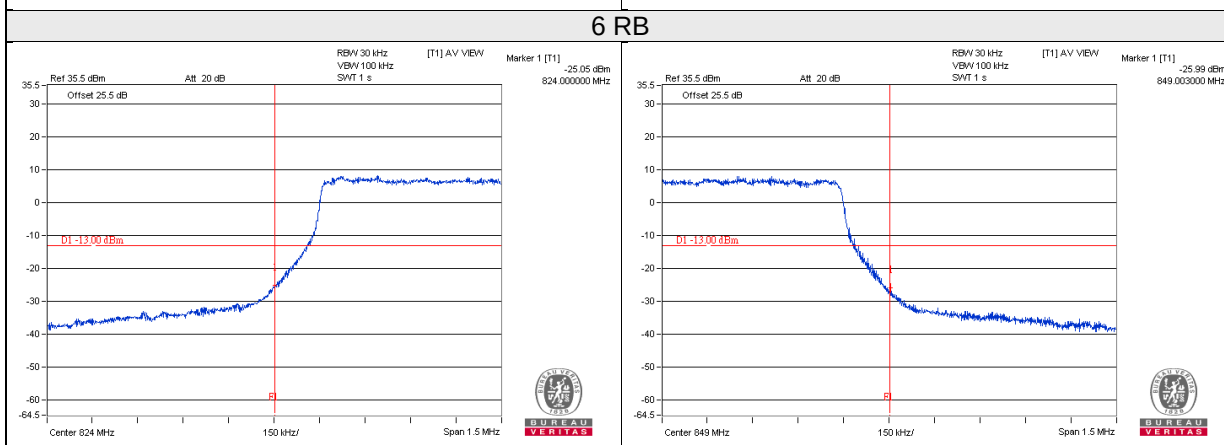
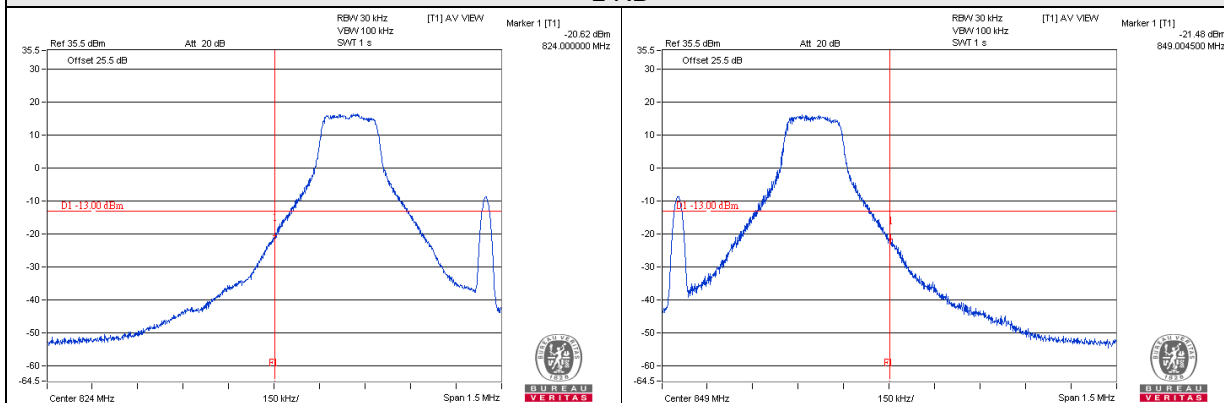
4.4.3 Test Procedures

- 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 $\geq 3 \cdot RB$.
- Record the max trace plot into the test report.

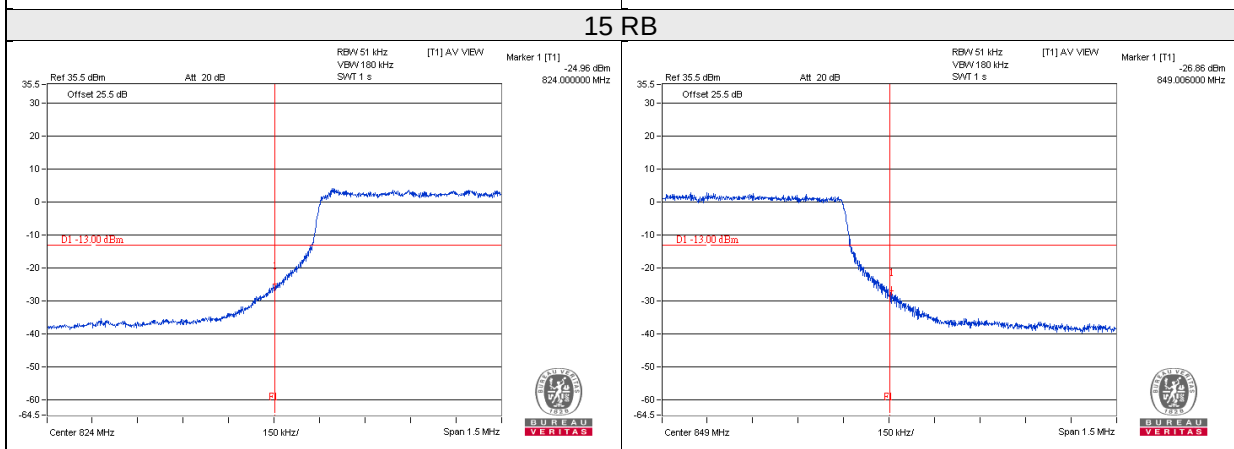
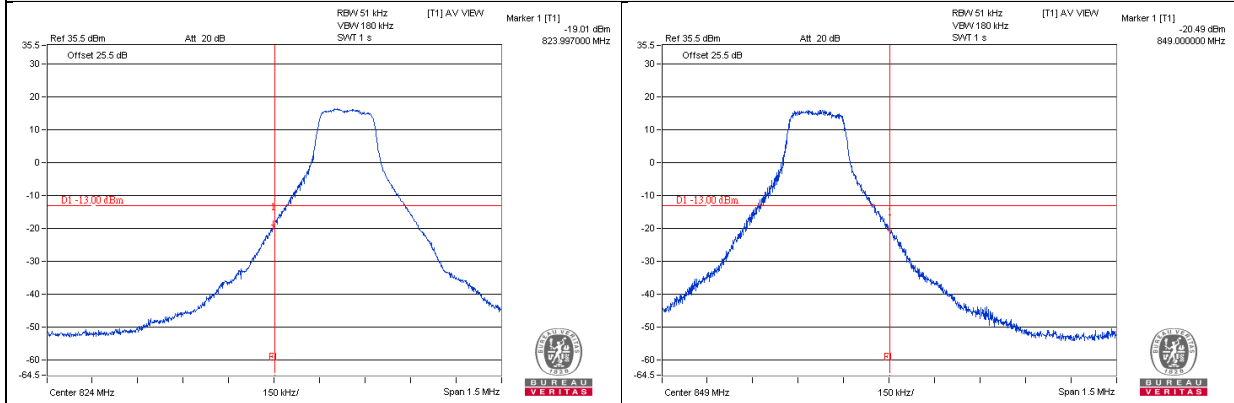
4.4.4 Test Results



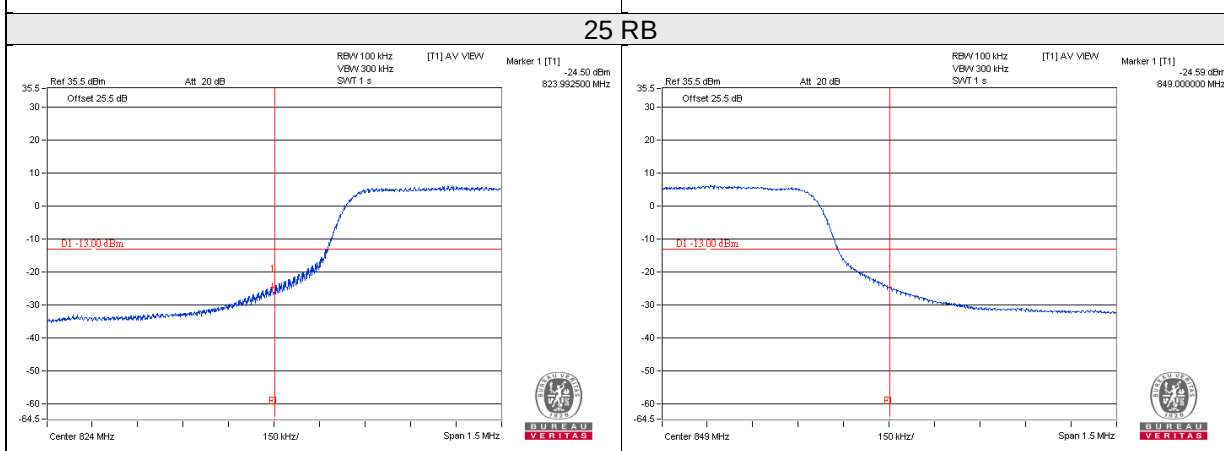
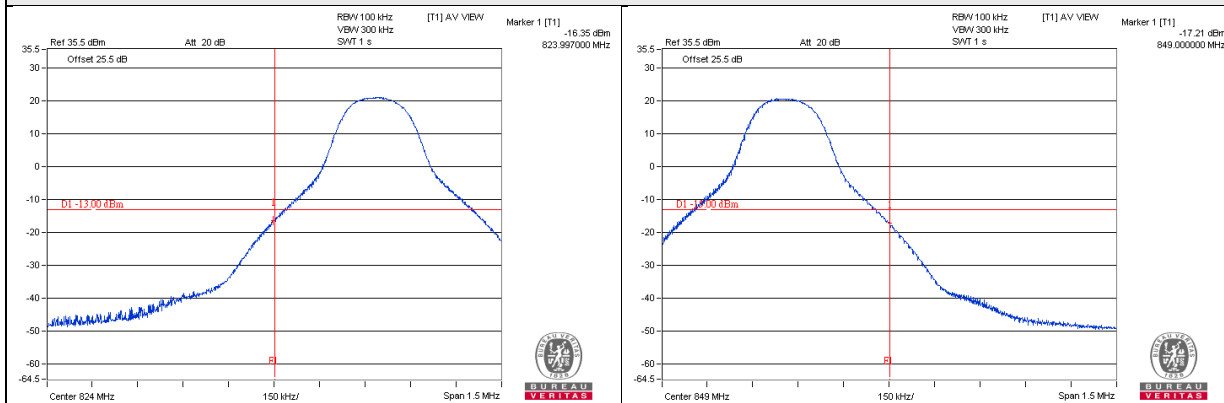
LTE			
1.4MHz			
Channel	20407	Channel	20643
1 RB			



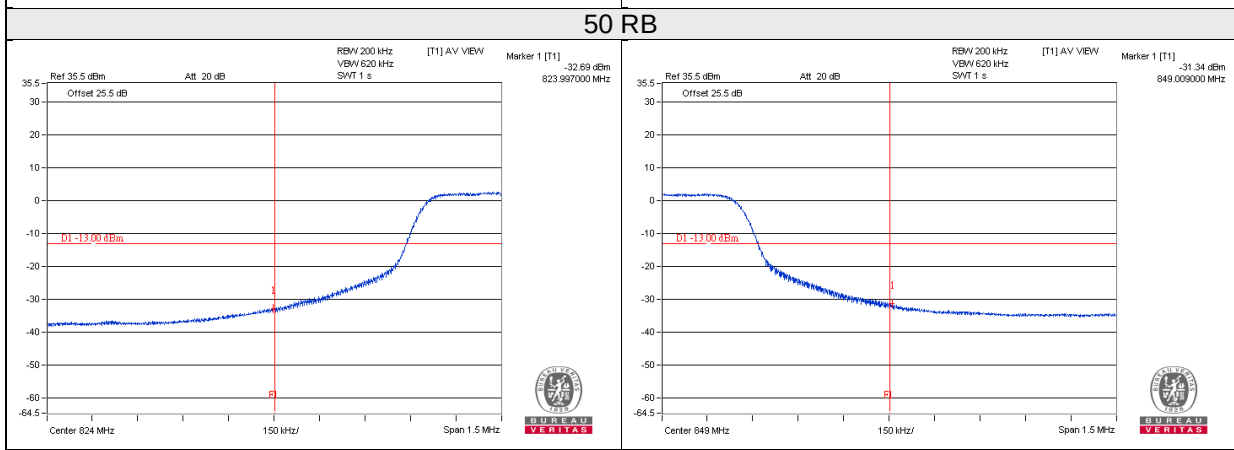
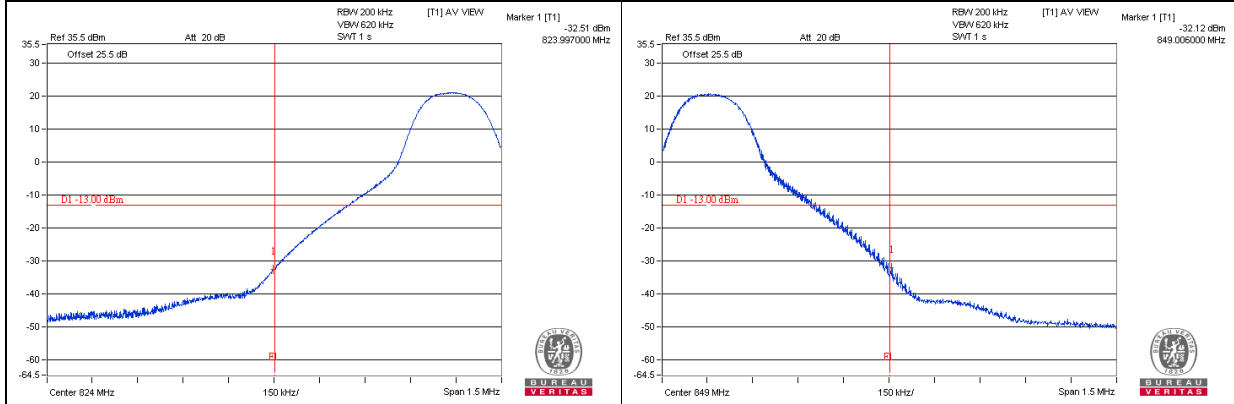
3MHz			
Channel	20415	Channel	20635
1 RB			



5MHz			
Channel	20425	Channel	20625
1 RB			



10MHz			
Channel	20450	Channel	20600
1 RB			

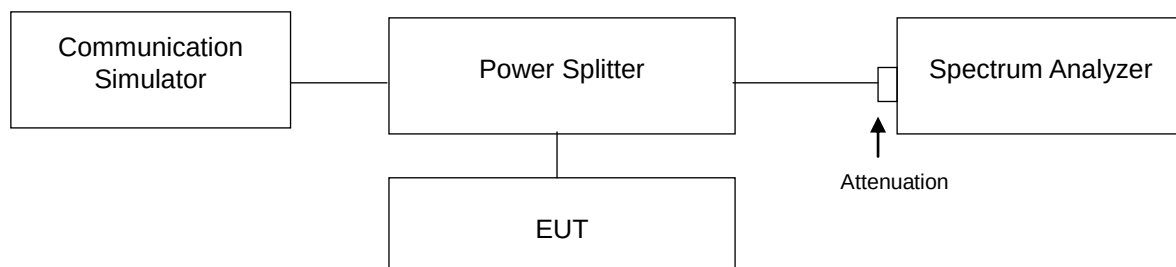


4.5 Peak to Average Ratio

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

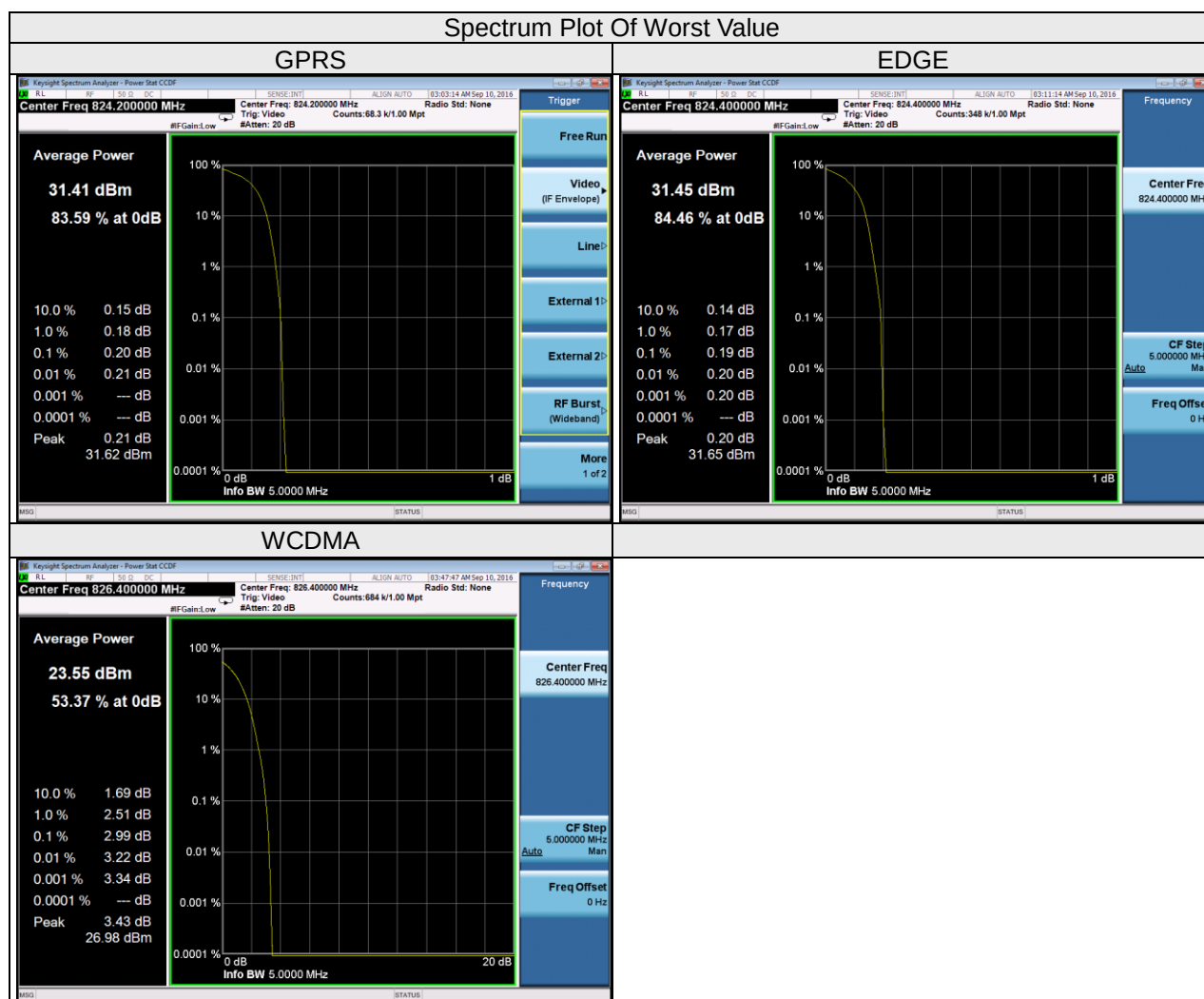


4.5.3 Test Procedures

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%.

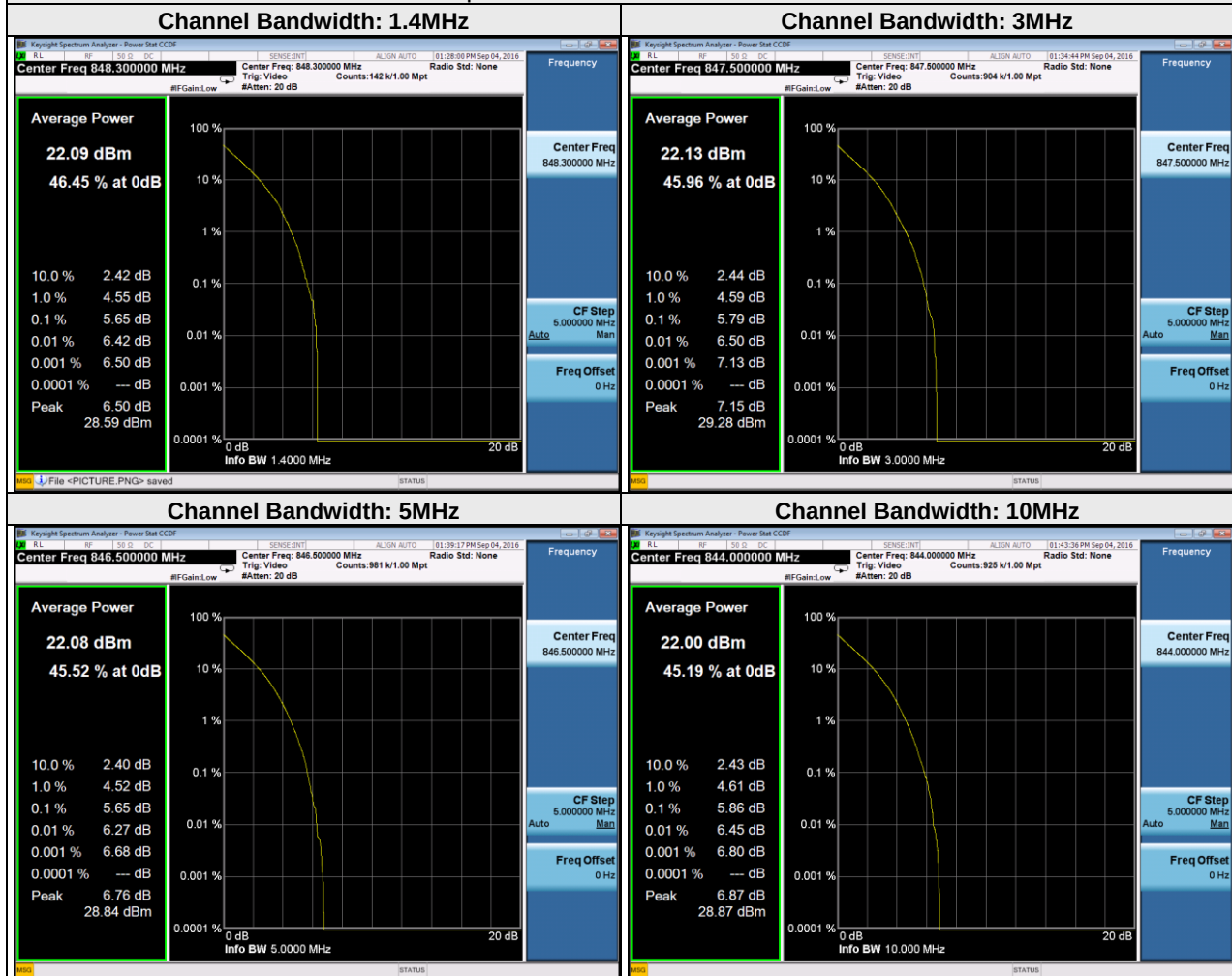
4.5.4 Test Results

Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Freq. (MHz)	Peak to Average Ratio (dB)
		GPRS	EDGE			WCDMA
128	824.2	0.2	0.19	4132	826.4	2.99
189	836.4	0.19	0.19	4182	836.4	2.77
251	848.8	0.2	0.19	4233	846.6	2.97



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
20407	824.7	5.56	20415	825.5	5.72
20525	836.5	5.5	20525	836.5	5.68
20643	848.3	5.65	20635	847.5	5.79
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
20425	826.5	5.56	20450	829	5.77
20525	836.5	5.61	20525	836.5	5.71
20625	846.5	5.65	20600	844	5.86

Spectrum Plot Of Worst Value

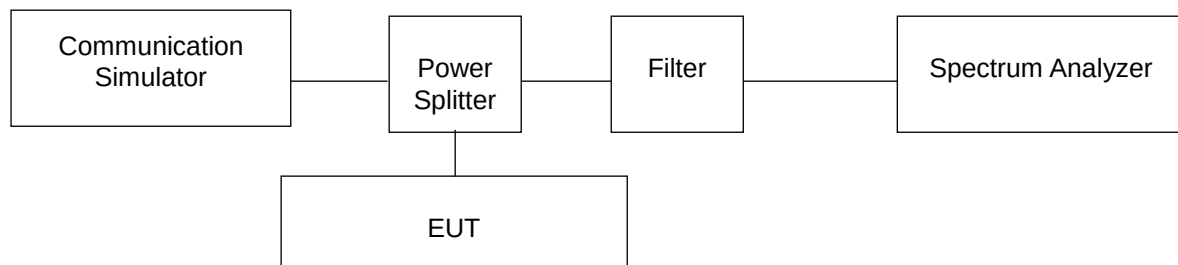


4.6 Conducted Spurious Emissions

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. All measurements were done at low, middle and high operational frequency range.
- b. Measuring frequency range is from 9 kHz to 10GHz. RBW:100 kHz if the measuring frequency range is at or below 1 GHz and 1 MHz if the measuring frequency range is above 1 GHz .VBW=3*RBW is used for measurement.

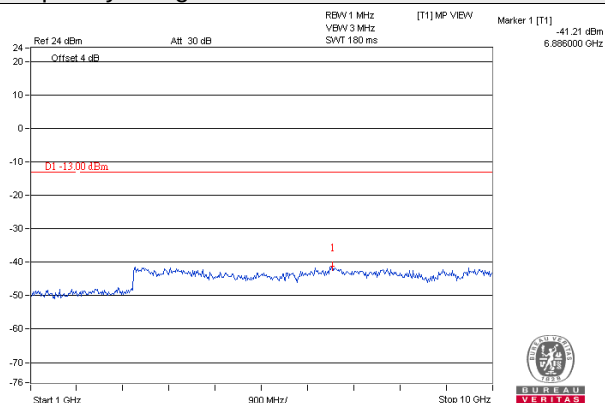
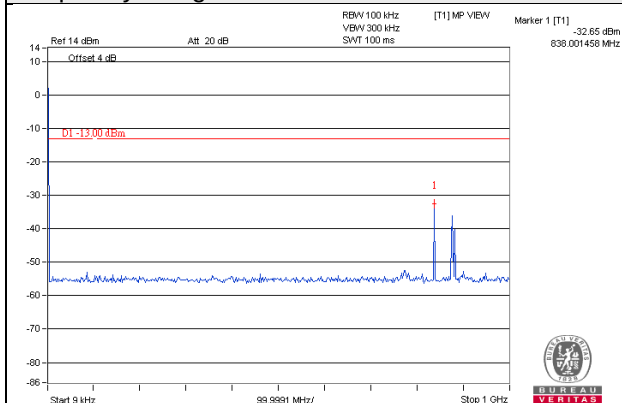
4.6.4 Test Results

GPFS

Channel 189

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz

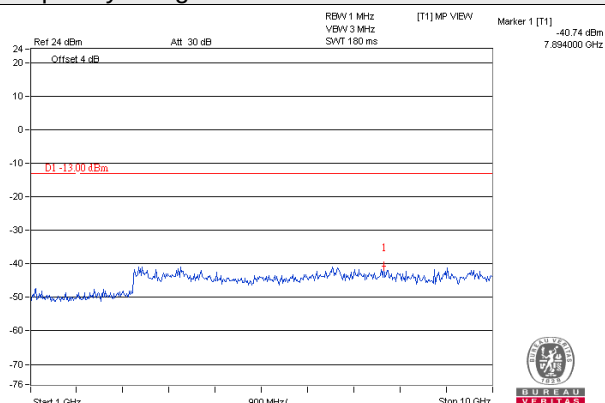
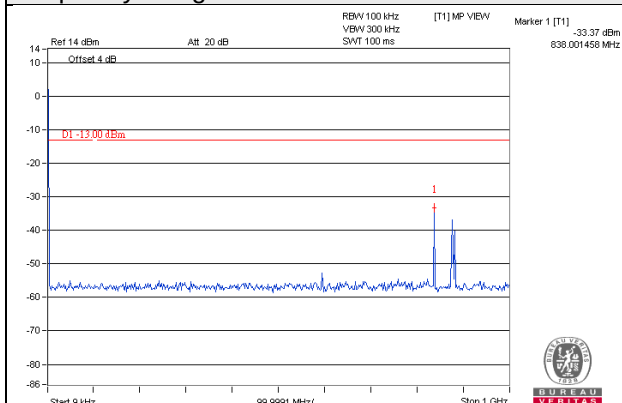


EDGE

Channel 189

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz

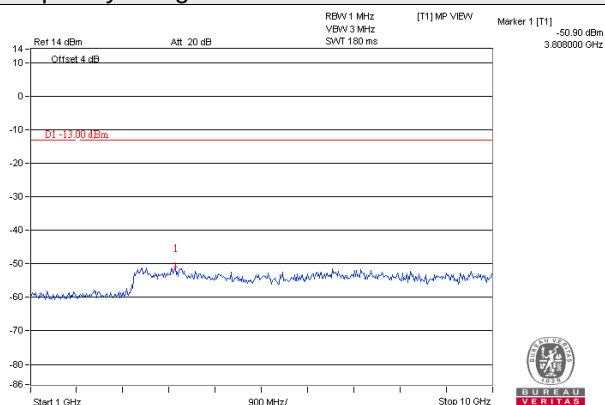
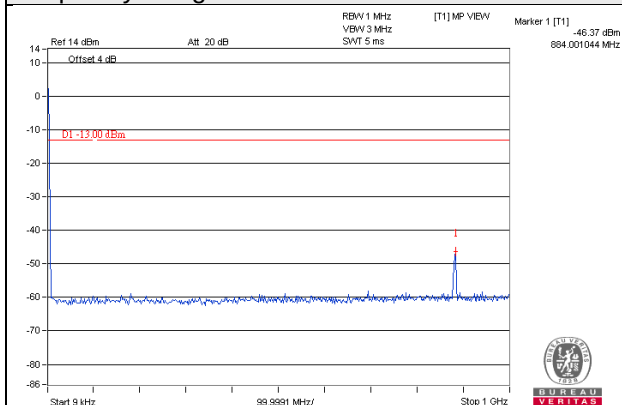


WCDMA

Channel 4182

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz

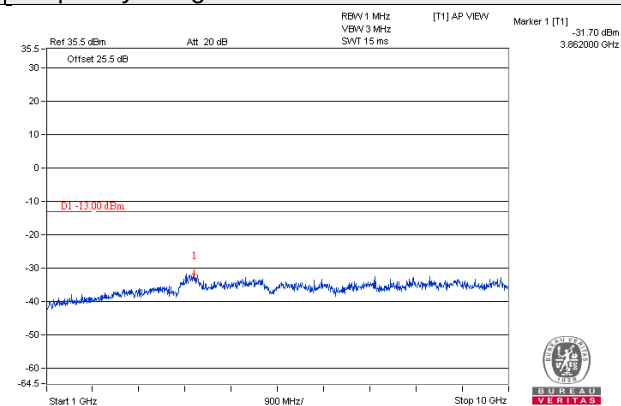
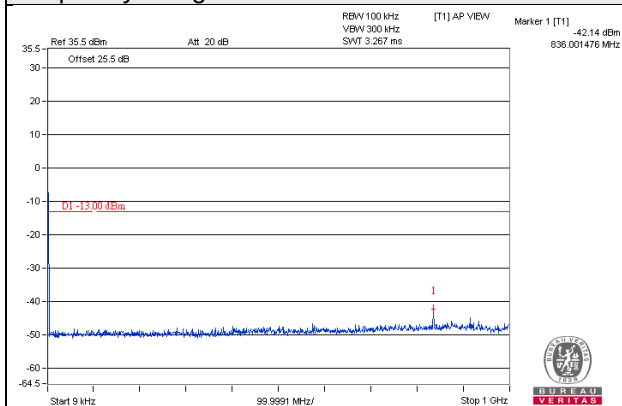


LTE 1.4MHz

Channel 20525

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz

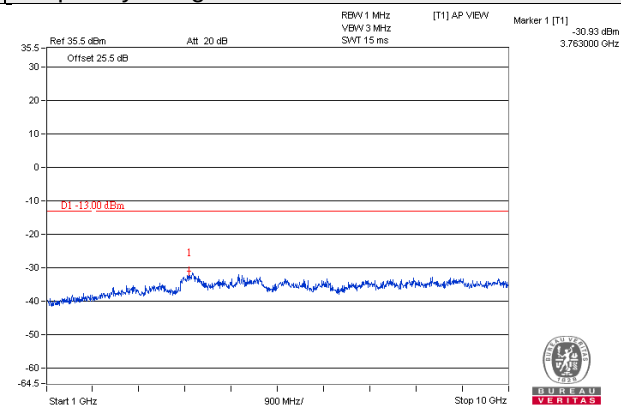
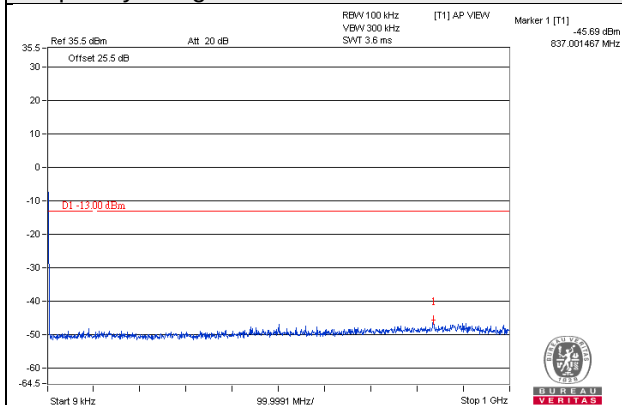


LTE 3MHz

Channel 20525

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz

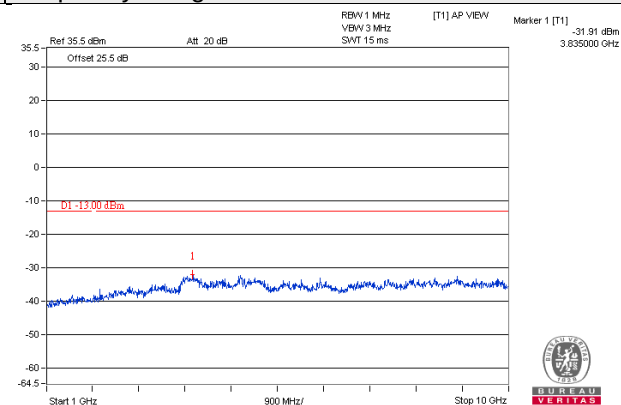
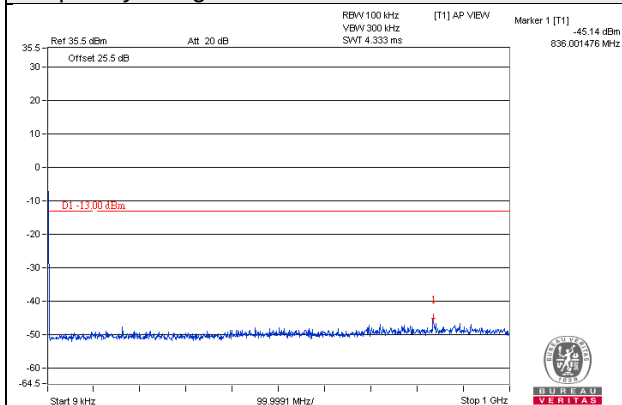


LTE 5MHz

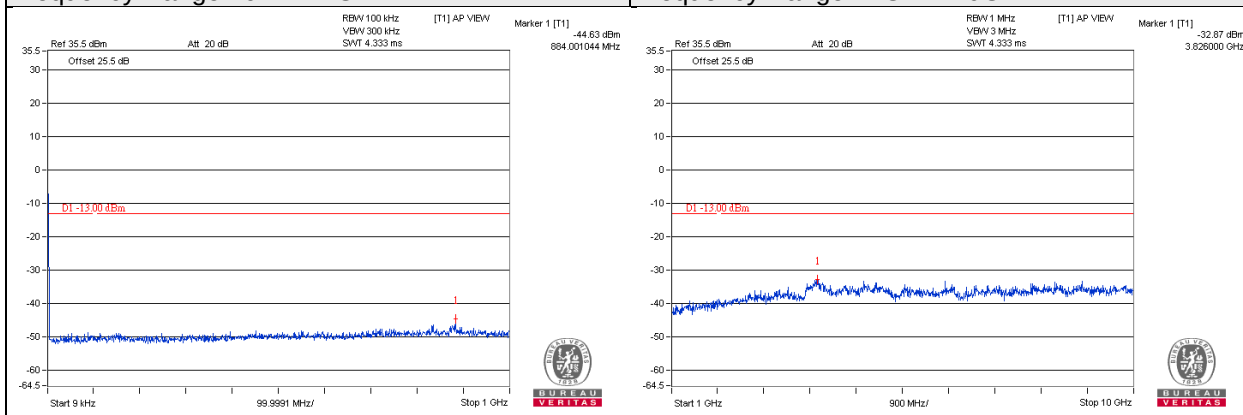
Channel 20525

Frequency Range : 9kHz~1GHz

Frequency Range : 1GHz~10GHz



LTE 10MHz	
Channel 20525	
Frequency Range : 9kHz~1GHz	Frequency Range : 1GHz~10GHz



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

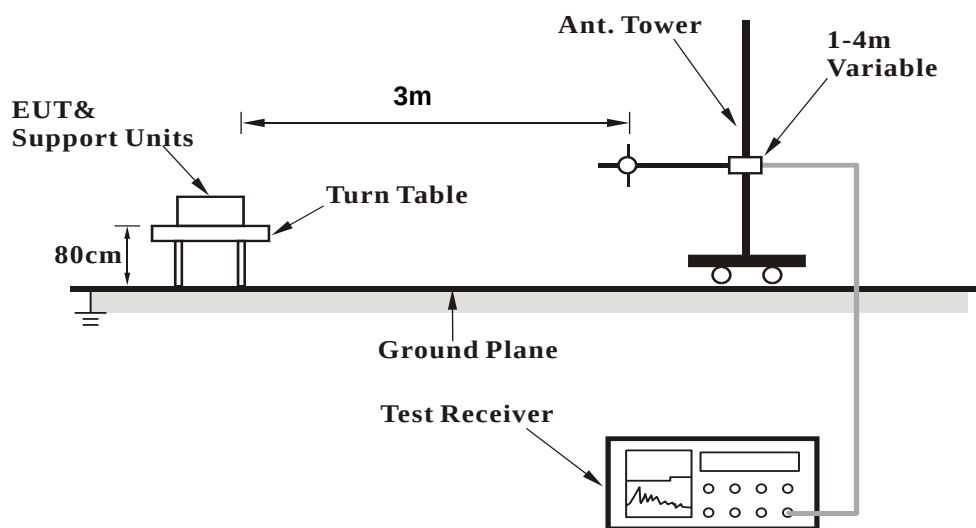
- a. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high channel of operational frequency range.)
- b. Substitution method is used for EIRP measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table 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 100kHz/300kHz.

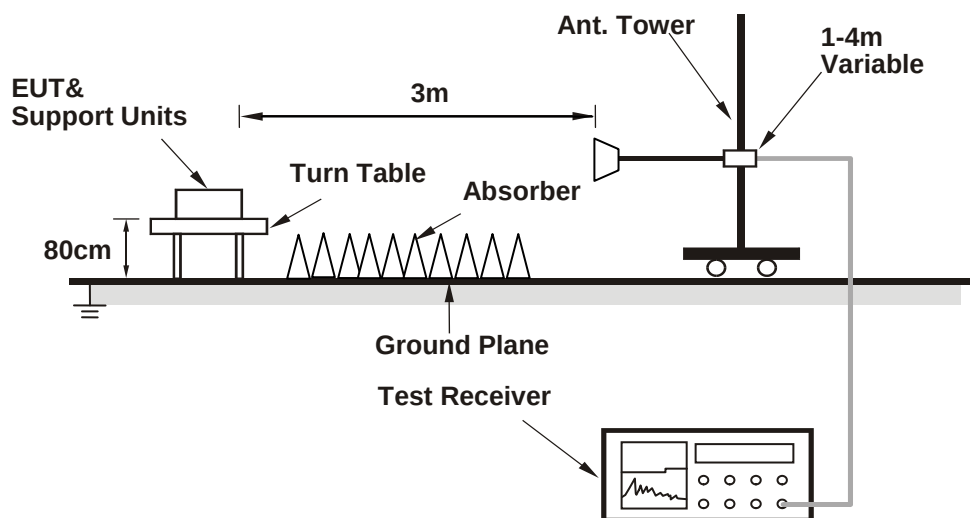
4.7.3 Deviation from Test Standard

No deviation.

4.7.4 Test Setup For Below 1GHz



For Above 1GHz:



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

4.7.5 Test Results

BELOW 1GHz

GPRS:

Mode	TX channel 189	Frequency Range	Below 1000 MHz
------	----------------	-----------------	----------------

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	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 (dBm)	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).

EDGE:

Mode	TX channel 189	Frequency Range	Below 1000 MHz
------	----------------	-----------------	----------------

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	30.02	29.40	-41.87	-14.89	-56.76	-25	-31.76
2	135	35.30	-60.07	-1.46	-61.54	-25	-36.54
3	208.04	29.90	-65.57	4.24	-61.33	-25	-36.33
4	479.98	27.40	-68.36	3.04	-65.32	-25	-40.32
5	600.17	28.10	-66.52	1.79	-64.73	-25	-39.73
6	995.39	31.40	-64.63	0.59	-64.04	-25	-39.04
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	34.33	36.80	-36.03	-13.84	-49.87	-25	-24.87
2	81.02	30.30	-63.64	-1.72	-65.36	-25	-40.36
3	135	29.90	-65.47	-1.46	-66.94	-25	-41.94
4	189.01	31.30	-63.26	3.16	-60.10	-25	-35.10
5	208.31	32.60	-62.86	4.23	-58.63	-25	-33.63
6	928.66	28.90	-69.51	0.41	-69.10	-25	-44.10

Remarks:

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

WCDMA:

Mode	TX channel 4182	Frequency Range	Below 1000 MHz
------	-----------------	-----------------	----------------

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	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 (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	34.3	36.40	-36.42	-13.85	-50.27	-25	-25.27
2	81	31.60	-62.34	-1.72	-64.06	-25	-39.06
3	135	31.20	-64.17	-1.46	-65.64	-25	-40.64
4	189	29.70	-64.86	3.16	-61.70	-25	-36.70
5	208.31	31.10	-64.36	4.23	-60.13	-25	-35.13
6	928.66	32.30	-66.59	0.23	-66.36	-25	-41.36

Remarks:

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

LTE:

1.4 MHz

Mode	TX channel 20525	Frequency Range	Below 1000 MHz
------	------------------	-----------------	----------------

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	30.02	33.20	-38.07	-14.89	-52.96	-25	-27.96
2	135	37.30	-58.07	-1.46	-59.54	-25	-34.54
3	208.06	33.50	-61.97	4.24	-57.73	-25	-32.73
4	479.9	32.10	-63.66	3.04	-60.62	-25	-35.62
5	600.15	33.40	-61.22	1.79	-59.43	-25	-34.43
6	995.39	37.50	-59.13	0.57	-58.56	-25	-33.56

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	34.3	36.40	-36.42	-13.85	-50.27	-25	-25.27
2	81.2	32.20	-61.70	-1.71	-63.41	-25	-38.41
3	135	32.30	-63.07	-1.46	-64.54	-25	-39.54
4	189	31.40	-63.16	3.16	-60.00	-25	-35.00
5	208.35	33.50	-61.96	4.23	-57.73	-25	-32.73
6	928.65	31.20	-67.69	0.23	-67.46	-25	-42.46

Remarks:

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

3 MHz

Mode	TX channel 20525	Frequency Range	Below 1000 MHz
------	------------------	-----------------	----------------

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	30.01	34.10	-37.16	-14.90	-52.06	-25	-27.06
2	135	36.20	-59.17	-1.46	-60.64	-25	-35.64
3	208.06	35.10	-60.37	4.24	-56.13	-25	-31.13
4	479.9	30.40	-65.36	3.04	-62.32	-25	-37.32
5	600.15	35.10	-59.52	1.79	-57.73	-25	-32.73
6	995.39	36.40	-60.23	0.57	-59.66	-25	-34.66
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	34.2	36.20	-36.62	-13.85	-50.47	-25	-25.47
2	81.2	33.10	-60.80	-1.71	-62.51	-25	-37.51
3	135	32.40	-62.97	-1.46	-64.44	-25	-39.44
4	189	32.30	-62.26	3.16	-59.10	-25	-34.10
5	208.4	33.10	-62.36	4.23	-58.13	-25	-33.13
6	928.5	33.60	-65.30	0.23	-65.07	-25	-40.07

Remarks:

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

5 MHz

Mode	TX channel 20525	Frequency Range	Below 1000 MHz
------	------------------	-----------------	----------------

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	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 (dBm)	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).

10 MHz

Mode	TX channel 20525	Frequency Range	Below 1000 MHz
------	------------------	-----------------	----------------

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	30.01	35.30	-35.96	-14.90	-50.86	-25	-25.86
2	135	36.40	-58.97	-1.46	-60.44	-25	-35.44
3	208	35.20	-60.27	4.24	-56.03	-25	-31.03
4	480.1	36.10	-59.66	3.04	-56.62	-25	-31.62
5	600.2	33.40	-61.22	1.79	-59.43	-25	-34.43
6	995.42	42.30	-53.73	0.59	-53.14	-25	-28.14
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	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).

ABOVE 1GHz

GPRS:

Mode	TX channel 189	Frequency Range	Above 1000MHz
------	----------------	-----------------	---------------

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1672.8	48.00	-54.63	6.31	-48.32	-13	-35.32
2	2509.2	54.70	-43.82	6.66	-37.16	-13	-24.16
3	3345.6	39.23	-63.78	7.63	-56.15	-13	-43.15
4	4182	45.38	-59.46	7.44	-52.02	-13	-39.02
5	5018.4	42.09	-62.17	7.01	-55.16	-13	-42.16
6	5854.8	42.22	-62.16	6.87	-55.29	-13	-42.29
7	6691.2	45.1	-58.22	5.56	-52.66	-13	-39.66
8	7527.6	46.12	-56.50	4.52	-51.98	-13	-38.98
9	8364	48.67	-53.95	4.18	-49.77	-13	-36.77
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1672.8	49.6	-53.03	6.31	-46.72	-13	-33.72
2	2509.2	50.3	-48.22	6.66	-41.56	-13	-28.56
3	3345.6	39.5	-63.51	7.63	-55.88	-13	-42.88
4	4182	42.9	-61.94	7.44	-54.50	-13	-41.50
5	5018.4	43.1	-61.16	7.01	-54.15	-13	-41.15
6	5854.8	44.5	-59.88	6.87	-53.01	-13	-40.01
7	6691.2	46.3	-57.02	5.56	-51.46	-13	-38.46
8	7527.6	48	-54.62	4.52	-50.10	-13	-37.10
9	8364	46.79	-55.83	4.18	-51.65	-13	-38.65

Remarks:

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

EDGE:

Mode	TX channel 189	Frequency Range	Above 1000MHz
------	----------------	-----------------	---------------

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1672.8	48.87	-53.76	6.31	-47.45	-13	-34.45
2	2509.2	55.49	-43.03	6.66	-36.37	-13	-23.37
3	3345.6	38.68	-64.33	7.63	-56.70	-13	-43.70
4	4182	44.79	-60.05	7.44	-52.61	-13	-39.61
5	5018.4	41.4	-62.86	7.01	-55.85	-13	-42.85
6	5854.8	42.9	-61.48	6.87	-54.61	-13	-41.61
7	6691.2	44.83	-58.49	5.56	-52.93	-13	-39.93
8	7527.6	46.7	-55.92	4.52	-51.40	-13	-38.40
9	8364	48.8	-53.82	4.18	-49.64	-13	-36.64
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1672.8	50.17	-52.46	6.31	-46.15	-13	-33.15
2	2509.2	50.58	-47.94	6.66	-41.28	-13	-28.28
3	3345.6	38.98	-64.03	7.63	-56.40	-13	-43.40
4	4182	42.82	-62.02	7.44	-54.58	-13	-41.58
5	5018.4	42.1	-62.16	7.01	-55.15	-13	-42.15
6	5854.8	45.31	-59.07	6.87	-52.20	-13	-39.20
7	6691.2	45.59	-57.73	5.56	-52.17	-13	-39.17
8	7527.6	48.37	-54.25	4.52	-49.73	-13	-36.73
9	8364	47.19	-55.43	4.18	-51.25	-13	-38.25

Remarks:

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

WCDMA:

Mode	TX channel 4182	Frequency Range	Above 1000MHz
------	-----------------	-----------------	---------------

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1672.8	48.74	-53.89	6.31	-47.58	-13	-34.58
2	2509.2	55.06	-43.46	6.66	-36.80	-13	-23.80
3	3345.6	40.06	-62.95	7.63	-55.32	-13	-42.32
4	4182	45.06	-59.78	7.44	-52.34	-13	-39.34
5	5018.4	41.86	-62.40	7.01	-55.39	-13	-42.39
6	5854.8	42.26	-62.12	6.87	-55.25	-13	-42.25
7	6691.2	44.54	-58.78	5.56	-53.22	-13	-40.22
8	7527.6	46.14	-56.48	4.52	-51.96	-13	-38.96
9	8364	48.44	-54.18	4.18	-50.00	-13	-37.00
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1672.8	49.03	-53.60	6.31	-47.29	-13	-34.29
2	2509.2	50.32	-48.20	6.66	-41.54	-13	-28.54
3	3345.6	39.37	-63.64	7.63	-56.01	-13	-43.01
4	4182	42.34	-62.50	7.44	-55.06	-13	-42.06
5	5018.4	43.15	-61.11	7.01	-54.10	-13	-41.10
6	5854.8	43.71	-60.67	6.87	-53.80	-13	-40.80
7	6691.2	46.83	-56.49	5.56	-50.93	-13	-37.93
8	7527.6	48.68	-53.94	4.52	-49.42	-13	-36.42
9	8364	46.34	-56.28	4.18	-52.10	-13	-39.10

Remarks:

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

LTE:
1.4MHz

Mode	TX channel 20525	Frequency Range	Above 1000MHz
------	------------------	-----------------	---------------

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1673	60.80	-41.83	6.31	-35.52	-13	-22.52
2	2509.5	63.60	-34.92	6.66	-28.26	-13	-15.26
3	3346	39.07	-63.94	7.63	-56.31	-13	-43.31
4	4182.5	38.67	-66.17	7.44	-58.73	-13	-45.73
5	5019	40.86	-63.40	7.01	-56.39	-13	-43.39
6	5855.5	40.85	-63.53	6.87	-56.66	-13	-43.66
7	6692	44.41	-58.92	5.56	-53.36	-13	-40.36
8	7528.5	46.28	-56.34	4.52	-51.82	-13	-38.82
9	8365	44.56	-58.06	4.18	-53.88	-13	-40.88
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1673	55.2	-47.43	6.31	-41.12	-13	-28.12
2	2509.5	58	-40.52	6.66	-33.86	-13	-20.86
3	3346	38.6	-64.41	7.63	-56.78	-13	-43.78
4	4182.5	40.6	-64.24	7.44	-56.80	-13	-43.80
5	5019	39.16	-65.10	7.01	-58.09	-13	-45.09
6	5855.5	41.01	-63.37	6.87	-56.50	-13	-43.50
7	6692	43.92	-59.41	5.56	-53.85	-13	-40.85
8	7528.5	43.61	-59.01	4.52	-54.49	-13	-41.49
9	8365	46.25	-56.37	4.18	-52.19	-13	-39.19

Remarks:

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

3MHz

Mode	TX channel 20525	Frequency Range	Above 1000MHz
------	------------------	-----------------	---------------

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1673	58.30	-44.33	6.31	-38.02	-13	-25.02
2	2509.5	62.10	-36.42	6.66	-29.76	-13	-16.76
3	3346	39.39	-63.62	7.63	-55.99	-13	-42.99
4	4182.5	39.43	-65.41	7.44	-57.97	-13	-44.97
5	5019	41.36	-62.90	7.01	-55.89	-13	-42.89
6	5855.5	41.06	-63.32	6.87	-56.45	-13	-43.45
7	6692	43.83	-59.50	5.56	-53.94	-13	-40.94
8	7528.5	46.47	-56.15	4.52	-51.63	-13	-38.63
9	8365	44.14	-58.48	4.18	-54.30	-13	-41.30
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1673	54.7	-47.93	6.31	-41.62	-13	-28.62
2	2509.5	57.2	-41.32	6.66	-34.66	-13	-21.66
3	3346	38.92	-64.09	7.63	-56.46	-13	-43.46
4	4182.5	40.85	-63.99	7.44	-56.55	-13	-43.55
5	5019	38.83	-65.43	7.01	-58.42	-13	-45.42
6	5855.5	40.27	-64.11	6.87	-57.24	-13	-44.24
7	6692	43.26	-60.07	5.56	-54.51	-13	-41.51
8	7528.5	44.18	-58.44	4.52	-53.92	-13	-40.92
9	8365	46.32	-56.30	4.18	-52.12	-13	-39.12

Remarks:

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

5MHz

Mode	TX channel 20525	Frequency Range	Above 1000MHz
------	------------------	-----------------	---------------

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1673	57.20	-45.43	6.31	-39.12	-13	-26.12
2	2509.5	60.40	-38.12	6.66	-31.46	-13	-18.46
3	3346	39.71	-63.30	7.63	-55.67	-13	-42.67
4	4182.5	38.52	-66.32	7.44	-58.88	-13	-45.88
5	5019	41.54	-62.72	7.01	-55.71	-13	-42.71
6	5855.5	41.13	-63.25	6.87	-56.38	-13	-43.38
7	6692	43.67	-59.66	5.56	-54.10	-13	-41.10
8	7528.5	46.07	-56.55	4.52	-52.03	-13	-39.03
9	8365	44.85	-57.77	4.18	-53.59	-13	-40.59
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1673	53.6	-49.03	6.31	-42.72	-13	-29.72
2	2509.5	56.1	-42.42	6.66	-35.76	-13	-22.76
3	3346	38.93	-64.08	7.63	-56.45	-13	-43.45
4	4182.5	40.61	-64.23	7.44	-56.79	-13	-43.79
5	5019	38.93	-65.33	7.01	-58.32	-13	-45.32
6	5855.5	39.74	-64.64	6.87	-57.77	-13	-44.77
7	6692	43.45	-59.88	5.56	-54.32	-13	-41.32
8	7528.5	44.85	-57.77	4.52	-53.25	-13	-40.25
9	8365	45.35	-57.27	4.18	-53.09	-13	-40.09

Remarks:

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

10MHz

Mode	TX channel 20525	Frequency Range	Above 1000MHz
------	------------------	-----------------	---------------

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1673	56.93	-45.70	6.31	-39.39	-13	-26.39
2	2509.5	61.02	-37.50	6.66	-30.84	-13	-17.84
3	3346	40.49	-62.52	7.63	-54.89	-13	-41.89
4	4182.5	39.14	-65.70	7.44	-58.26	-13	-45.26
5	5019	41.99	-62.27	7.01	-55.26	-13	-42.26
6	5855.5	42.12	-62.26	6.87	-55.39	-13	-42.39
7	6692	44.32	-59.01	5.56	-53.45	-13	-40.45
8	7528.5	46.91	-55.71	4.52	-51.19	-13	-38.19
9	8365	44.81	-57.81	4.18	-53.63	-13	-40.63
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Emission Value (dBm)	Limit (dBm)	Margin (dB)
1	1673	52.68	-49.95	6.31	-43.64	-13	-30.64
2	2509.5	55.48	-43.04	6.66	-36.38	-13	-23.38
3	3346	38.45	-64.56	7.63	-56.93	-13	-43.93
4	4182.5	41.28	-63.56	7.44	-56.12	-13	-43.12
5	5019	39.47	-64.79	7.01	-57.78	-13	-44.78
6	5855.5	39.37	-65.01	6.87	-58.14	-13	-45.14
7	6692	43.22	-60.11	5.56	-54.55	-13	-41.55
8	7528.5	44.31	-58.31	4.52	-53.79	-13	-40.79
9	8365	45.92	-56.70	4.18	-52.52	-13	-39.52

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.

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

Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

--- END ---