

### Shenzhen Huatongwei International Inspection Co., Ltd.

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# **FCC REPORT**

Report Reference No.....:: TRE1706012301 R/C..... 78481

FCC ID.....:: ZSW-30-042

Applicant's name.....: b mobile HK Limited

Flat 18; 14/F Block 1; Golden Industrial Building;16-26 KwaiTak Address.....:

Street; Kwai Chung; New Territories; Hong Kong.

Manufacturer..... b mobile HK Limited

Flat 18; 14/F Block 1; Golden Industrial Building;16-26 KwaiTak Address....:

Street; Kwai Chung; New Territories; Hong Kong.

Test item description .....: **Mobile Phone** 

Trade Mark .....: **Bmobile** 

Model/Type reference..... AX1045e

Listed Model(s) .....:

FCC Part 22: PUBLIC MOBILE SERVICES Standard .....::

FCC Part 24:PERSONAL COMMUNICATIONS SERVICES

Date of receipt of test sample..... Jun.15, 2017

Jun.16, 2017- Jun.28, 2017 Date of testing.....

Date of issue..... Jun.29, 2017

Result....: **Pass** 

Compiled by

( position+printedname+signature)...: File administrators Candy Liu

Candy Liu, Supervised by (position+printedname+signature)....: Project Engineer Lion Cai

Approved by

(position+printedname+signature)....: Manager Hans Hu

Testing Laboratory Name .....: Shenzhen Huatongwei International Inspection Co., Ltd.

Address....: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao,

Gongming, Shenzhen, China

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Report No.: TRE1706012301 Page: 2 of 60 Issued: 2017-06-29

# **Contents**

<u>1.</u>	TEST STANDARDS AND REPORT VERSION	3
1.1.	Applicable Standards	3
1.2.	Report version	3
<u>2.</u>	TEST DESCRIPTION	4
<u>3.</u>	SUMMARY	5
3.1.	Client Information	5
3.2.	Product Description	5
3.3.	Operation state	6
3.4.	EUT configuration	6
3.5.	Modifications	6
<u>4.</u>	TEST ENVIRONMENT	7
4.1.	Address of the test laboratory	7
4.2.	Test Facility	7
4.3.	Equipments Used during the Test	8
4.4.	Environmental conditions	9
4.5.	Statement of the measurement uncertainty	9
<u>5.</u>	TEST CONDITIONS AND RESULTS	10
5.1.	Conducted Output Power	10
5.2.	99% & -26 dB Occupied Bandwidth	12
5.3.	Conducted Spurious Emissions	22
5.4.	Band Edge	27
5.5.	ERP and EIRP	37
5.6.	Radiated Spurious Emission	40
5.7.	Frequency stability V.S. Temperature measurement	46
5.8.	Frequency stability V.S. Voltagemeasurement	48
5.9.	Peak-Average Ratio	50
<u>6.</u>	TEST SETUP PHOTOS OF THE EUT	53
<u>7.</u>	EXTERNAL AND INTERNAL PHOTOS OF THE EUT	54

Report No.: TRE1706012301 Page: 3 of 60 Issued: 2017-06-29

# 1. Test standards and Report version

### 1.1. Applicable Standards

The tests were performed according to following standards:

FCC Part 22: PRIVATE LAND MOBILE RADIO SERVICES.

FCC Part 24: PUBLIC MOBILE SERVICES

<u>TIA/EIA 603 D June 2010:</u>Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

FCC Part 2: FREQUENCY ALLOCA-TIONS AND RADIO TREATY MAT-TERS; GENERAL RULES AND REGULATIONS

<u>971168 D01 Power Meas License Digital Systems v02r02:</u>provides a methodology for fully characterizing the fundamental power of wideband (> 1 MHz) digitally modulated RF signals acceptable to the FCC for demonstrating compliance for licensed transmitters.

### 1.2. Report version

Version No.	Date of issue	Description
00	Jun.29, 2017	Original

Report No.: TRE1706012301 Page: 4 of 60 Issued: 2017-06-29

# 2. Test Description

Test Item	Section in CFR 47	Result
	Part 2.1046	
RF Output Power	Part 22.913(a)	Pass
	Part 24.232(c)	
	Part 2.1049	
99% & -26 dB Occupied Bandwidth	Part 22.917(b)	Pass
	Part 24.238(b)	
	Part 2.1051	
Conducted Spurious Emissions	Part 22.917	Pass
F Output Power  2% & -26 dB Occupied Bandwidth  20 onducted Spurious Emissions  and Edge  RP and EIRP  adiated Spurious Emissions  requency stability vs. temperature  requency stability vs. voltage	Part 24.238	
	Part 2.1051	
Band Edge	Part 22.917	Pass
	Part 24.238	
EDD and EIDD	Part 22.913(a)	Pass
F Output Power  9% & -26 dB Occupied Bandwidth  onducted Spurious Emissions  and Edge  RP and EIRP  adiated Spurious Emissions  requency stability vs. temperature  requency stability vs. voltage	Part 24.232(b)	Pass
	Part 2.1053	
Radiated Spurious Emissions	Part 22.917	Pass
	Part 24.238	
	Part 2.1055(a)(1)(b)	
Frequency stability vs. temperature	Part 22.255	Pass
	Part 24.235	
	Part 2.1055(d)(1)(2)	
Frequency stability vs. voltage	Part 22.255	Pass
	Part 24.235	
Peak-Average Ratio	Part 24.232	Pass

Note: The measurement uncertainty is not included in the test result.

Report No.: TRE1706012301 Page: 5 of 60 Issued: 2017-06-29

# 3. **SUMMARY**

# 3.1. Client Information

Applicant:	b mobile HK Limited
Address:	Flat 18; 14/F Block 1; Golden Industrial Building;16-26 KwaiTak Street; Kwai Chung; New Territories; Hong Kong.
Manufacturer:	b mobile HK Limited
Address:	Flat 18; 14/F Block 1; Golden Industrial Building;16-26 KwaiTak Street; Kwai Chung; New Territories; Hong Kong.

# 3.2. Product Description

Name of EUT:	Mobile Phone	
Trade Mark:	Bmobile	
Model No.:	AX1045e	
Listed Model(s):	-	
IMEI:	358048076001541	
Power supply:	DC 3.7V From internal battery	
Adapter information:	Input:100-240Va.c., 50-60Hz, 0.2A Output: 5Vd.c.,1A	
2G:		
Support Network:	GSM, GPRS, EGPRS	
Support Band:	GSM850, PCS1900	
Modulation:	GSM/GPRS/EGPRS: GMSK	
Transmit Frequency:	GSM850: 824.20MHz-848.80MHz PCS1900: 1850.20MHz-1909.80MHz	
Receive Frequency:	GSM850: 869.20MHz-893.80MHz PCS1900: 1930.20MHz-1989.80MHz	
GPRS Class:	12	
EGPRS Class:	12	
Antenna type:	Integral Antenna	
Antenna gain:	GSM850:-0.6dBi PCS1900:-0.5dBi	
Hardware version:	V01	
Software version:	Bmobile_AX1045e_TIGO_BO_V001	
3G:		
Operation Band:	FDD Band II and FDD Band V	
Power Class:	Power Class 3	
Modilation Type:	QPSK/16QAM/64QAM/HSUPA/HSDPA	
DC-HSUPA Release Version:	Not Supported	
Antenna type:	Integral Antenna	
Antenna gain:	Band II: -0.5dBi, Band V: -0.6dBi	

Report No.: TRE1706012301 Page: 6 of 60 Issued: 2017-06-29

# 3.3. Operation state

## > Test frequency list

GSM850		PCS	PCS1900		
Channel	Frequency (MHz)	Channel	Frequency (MHz)		
128	824.20	512	1850.20		
190	836.60	661	1880.00		
251	848.80	810	1909.80		

FDD Band II		FDD B	D Band V		
Channel	Frequency (MHz)	Channel	Frequency (MHz)		
9262	1852.4	4132	826.40		
9400	1880.0	4183	836.60		
9538	1907.6	4233	846.60		

### Test mode

#### For RF test items

The EUT has been tested under typical operating condition. The Applicant providessoftware to control the EUT for staying in continous transmitting and receiving mode for testing.

## 3.4. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- supplied by the manufacturer
- supplied by the lab

	Length (m):	/
	Shield:	/
	Detachable :	/
	Manufacturer:	/
	Model No.:	/

## 3.5. Modifications

No modifications were implemented to meet testing criteria.

Report No.: TRE1706012301 Page: 7 of 60 Issued: 2017-06-29

# 4. TEST ENVIRONMENT

### 4.1. Address of the test laboratory

Laboratory: Shenzhen Huatongwei International Inspection Co., Ltd.

Address: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China

Phone: 86-755-26748019 Fax: 86-755-26748089

## 4.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories, Date of Registration: February 28, 2015. Valid time is until February 27, 2018.

#### A2LA-Lab Cert. No. 3902.01

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing. Valid time is until March 31, 2017.

### FCC-Registration No.: 317478

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 317478, Renewal date Jul. 18, 2014, valid time is until Jul. 18, 2017.

#### IC-Registration No.: 5377B

Two 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377B on Dec.03, 2014, valid time is until Dec. 03, 2017.

### ACA

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

Report No.: TRE1706012301 Page: 8 of 60 Issued: 2017-06-29

# 4.3. Equipments Used during the Test

Output Power(Conducted) &Occupied Bandwidth&Emission Bandwidth&Band Edge Compliance&Conducted Spurious Emission					
No.	Equipment	Manufacturer	Model No.	SerialNo.	Last Cal.
1	UNIVERSAL RADIO COMMUNICATION	Rohde&Schwarz	CMU200	112012	2016/11/13
2	Spectrum Analyzer	Rohde&Schwarz	FSU26	201141	2016/11/13
3	Splitter	Mini-Circuit	ZAPD-4	400059	2016/11/13

Freque	Frequency Stability					
No.	Equipment	Manufacturer	Model No.	SerialNo.	Last Cal.	
1	UNIVERSAL RADIO COMMUNICATION	Rohde&Schwarz	CMU200	112012	2016/11/13	
2	Spectrum Analyzer	Rohde&Schwarz	FSU26	201141	2016/11/13	
3	Climate Chamber	ESPEC	EL-10KA	05107008	2016/11/13	
4	Splitter	Mini-Circuit	ZAPD-4	400059	2016/11/13	

Output	Power (Radiated) & Radiate	d Spurious Emission			
No.	Equipment	Manufacturer	Model No.	SerialNo.	Last Cal.
1	UNIVERSAL RADIO COMMUNICATION	Rohde&Schwarz	CMU200	112012	2016/11/13
2	Spectrum Analyzer	Rohde&Schwarz	FSU26	201141	2016/11/13
3	HORNANTENNA	ShwarzBeck	9120D	1012	2016/11/13
4	HORNANTENNA	ShwarzBeck	9120D	1011	2016/11/13
5	Ultra-Broadband Antenna	ShwarzBeck	VULB9163	538	2016/11/13
6	Ultra-Broadband Antenna	ShwarzBeck	VULB9163	539	2016/11/13
7	TURNTABLE	MATURO	TT2.0		N/A
8	ANTENNA MAST	MATURO	TAM-4.0-P		N/A
9	EMI Test Software	Audix	E3	N/A	N/A
10	EMI Test Receiver	Rohde&Schwarz	ESIB 26	100009	2016/11/13
11	RF Test Panel	Rohde&Schwarz	TS / RSP	335015/0017	2016/11/13
12	High pass filter	Compliance Direction systems	BSU-6	34202	2016/11/13
13	Splitter	Mini-Circuit	ZAPD-4	400059	2016/11/13
14	Horn Antenna	SCHWARZBECK	BBHA9170	25841	2016/11/13
15	Horn Antenna	SCHWARZBECK	BBHA9170	25842	2016/11/13
16	Preamplifier	ShwarzBeck	BBV 9718	BBV 9718	2016/11/13
17	Broadband Preamplifier	ShwarzBeck	BBV743	9743-0079	2016/11/13
18	Signal Generator	Rohde&Schwarz	SMF100A	101932	2016/11/13
19	Amplifer	Compliance Direction systems	PAP1-4060	120	2016/11/13
20	TURNTABLE	ETS	2088	2149	2016/11/13
21	ANTENNA MAST	ETS	2075	2346	2016/11/13
22	HORNANTENNA	Rohde&Schwarz	HF906	100068	2016/11/13
23	HORNANTENNA	Rohde&Schwarz	HF906	100039	2016/11/13

The calibration interval was one year.

Report No.: TRE1706012301 Page: 9 of 60 Issued: 2017-06-29

### 4.4. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature/Tnor:	15~35°C
lative Humidity	30~60 %
Air Pressure	950-1050 hPa

## 4.5. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01"Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1"and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

Test Items	MeasurementUncertainty	Notes
Frequency stability	25 Hz	(1)
Transmitter power conducted	0.57 dB	(1)
Transmitter power Radiated	2.20 dB	(1)
Conducted spurious emission 9KHz-12.75 GHz	1.60 dB	(1)
Conducted Emission 9KHz-30MHz	3.39 dB	(1)
Radiated Emission 30~1000MHz	4.24 dB	(1)
Radiated Emissio 1~18GHz	5.16 dB	(1)
Radiated Emissio 18-40GHz	5.54 dB	(1)
Occupied Bandwidth		(1)
Emission Mask		(1)
Modulation Characteristic		(1)
Transmitter Frequency Behavior		(1)

<sup>(1)</sup> This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

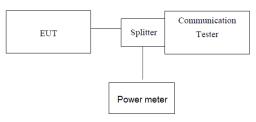
Report No.: TRE1706012301 Page: 10 of 60 Issued: 2017-06-29

# 5. TEST CONDITIONS AND RESULTS

# 5.1. Conducted Output Power

LIMIT N/A

### **TEST CONFIGURATION**



Note: Measurement setup for testing on Antenna connector

### **TEST PROCEDURE**

- 1. The transmitter output port was connected to base station.
- 2. The RF output of EUT was connected to the power meter by RF cable and attenuator, the path loss was compensated to the results for each measurement.
- 3. Set EUT at maximum power through base station.
- 4. Select lowest, middle, and highest channels for each band and different modulation.
- 5. Measure the maximum burst average power.

#### **TEST MODE:**

Please refer to the clause 3.3

### **TEST RESULTS**

 Report No.: TRE1706012301 Page: 11 of 60 Issued: 2017-06-29

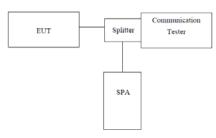
EUT Mode	Channel	Frequency (MHz)	Power (dBm)
	128	824.20	33.62
GSM 850 (GMSK)	190	836.60	33.61
(GWOT)	251	848.80	33.71
GPRS850 (GMSK,1Slot)	128	824.20	33.58
	190	836.60	33.43
	251	848.80	33.72
EGPRS850 (GMSK,1Slot)	128	824.20	33.58
	190	836.60	33.52
(GIVION, 10101)	251	848.80	33.59
	512	1850.20	30.42
PCS1900 (GMSK)	661	1880.00	30.43
	810	1909.80	30.46
	512	1850.20	30.35
GPRS1900 (GMSK,1Slot)	661	1880.00	30.41
(OWOR, rolot)	810	1909.80	30.33
50000000	512	1850.20	30.26
EGPRS1900 (GMSK,1Slot)	661	1880.00	30.21
(GIVION, 10101)	810	1909.80	30.32
	9262	1852.40	21.35
WCDMA Band II	9400	1880.00	21.18
	9538	1907.60	21.64
	4132	826.40	21.37
WCDMA Band V	4183	836.60	21.68
	4233	846.60	21.61

Report No.: TRE1706012301 Page: 12 of 60 Issued: 2017-06-29

# 5.2. 99% & -26 dB Occupied Bandwidth

LIMIT N/A

### **TEST CONFIGURATION**



Note: Measurement setup for testing on Antenna connector

### **TEST PROCEDURE**

- 1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer
- 2. RBWwas set to about 1% of emission BW, VBW= 3 times RBW.
- 3. -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

### **TEST MODE:**

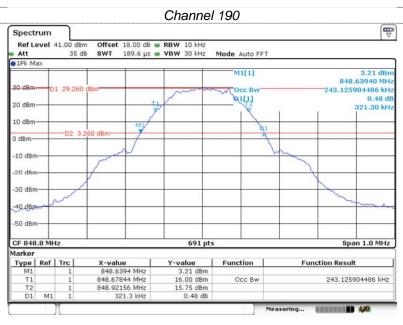
Please refer to the clause 3.3

### **TEST RESULTS**

 Report No.: TRE1706012301 Page: 13 of 60 Issued: 2017-06-29

EUT Mode	Channel	Frequency (MHz)	99% Occupy bandwidth (KHz)	-26dB bandwidth (KHz)
	128	824.20	243.16	322.70
GSM 850 (GMSK)	190	836.60	241.68	321.30
(Giviert)	251	848.80	243.16	321.30
	128	824.20	243.12	322.70
GPRS850 (GMSK,1Slot)	190	836.60	241.68	321.30
(Giviert, relet)	251	848.80	243.13	321.30
5000000	128	824.20	244.57	318.40
EGPRS850 (GMSK,1Slot)	190	836.60	244.57	315.50
(GIVIOIX, TOIOI)	251	848.80	247.47	316.90
	512	1850.20	243.13	319.80
PCS1900 (GMSK)	661	1880.00	243.13	319.80
	810	1909.80	244.57	324.20
	512	1850.20	244.57	318.40
GPRS1900 (GMSK,1Slot)	661	1880.00	244.57	321.30
(Giviert, relet)	810	1909.80	244.57	316.90
	512	1850.20	243.13	315.50
EGPRS1900 (GMSK,1Slot)	661	1880.00	244.57	319.80
(Giviert, relet)	810	1909.80	243.13	315.50
	9262	1852.40	4211.29	4891.00
WCDMA Band II	9400	1880.00	4225.76	4949.00
	9538	1907.60	4225.76	4920.00
	4132	826.40	4182.34	4880.00
WCDMA Band V	4183	836.60	4225.76	4863.00
	4233	846.60	4211.29	4877.00

Report No.: TRE1706012301 Page: 14 of 60 Issued: 2017-06-29 GSM850 For GMSK Moudlation Spectrum Ref Level 41.00 dBm Offset 18.00 dB - RBW 10 kHz 189.6 µs • VBW 30 kHz Mode Auto FFT Att 35 dB 824.03790 MH 243.125904486 kH B1[1] 0.31 di 322.70 kHz 10 dBm -10 dB -30 dBm 49 dB 691 pts Span 1.0 MHz Y-value 3.29 dBm 16.03 dBm 16.65 dBm 0.31 dB X-value 824.0379 MHz 824.07844 MHz 824.32156 MHz 322.7 kHz Type | Ref | Trc | Function **Function Result** 243.125904486 kHz 440 Channel 128 Spectrum Offset 18.00 dB • RBW 10 kHz SWT 189.6 µs • VBW 30 kHz Ref Level 41.00 dBm Att 35 dB 1Pk Max 2.96 dBm 836.43790 MHz 41.678726483 kHz M1[1] OILL 0.84 dt 20 dBn 321.30 kHz 0 dBn 40.dB0 CF 836.6 MHz 691 pts Span 1.0 MHz Type | Ref | Trc | X-value 836.4379 MHz 836.47988 MHz 836.72156 MHz Y-value 2.96 dBm 16.28 dBm 16.11 dBm Function **Function Result** 241.678726483 kHz Occ Bw 321.3 kHz 0.84 dB Channel 190 Spectrum Offset 18,00 dB • RBW 10 kHz SWT 189.6 µs • VBW 30 kHz Ref Level 41.00 dBm ● 1Pk Ma 243.125904486 kHz 0.48 dB 321.30 kHz 01[1]



Channel 251

Report No.: TRE1706012301 Page: 15 of 60 Issued: 2017-06-29 GPRS850 For GMSK Moudlation Spectrum Offset 18,00 dB • RBW 10 kHz SWT 189.6 µs • VBW 30 kHz Ref Level 41.00 dBm Mode Auto FFT Att 35 dB 824.03790 MHz 243.125904486 kHz B1[1] 0.31 dE 322.70 kHz 10 dBn -10 dB 40 dB CF 824.2 MHz 691 pts Span 1.0 MHz Marker Y-value 3.29 dBm 16.03 dBm 16.65 dBm 0.31 dB X-value 824.0379 MHz 824.07844 MHz 824.32156 MHz 322.7 kHz Type | Ref | Trc Function **Function Result** 243.125904486 kHz Channel 128 Spectrum Ref Level 41.00 dBm Offset 18.00 dB • RBW 10 kHz SWT 189.6 µs • VBW 30 kHz Att 35 dB ● 1Pk Max 2.96 dBm 836.43790 MHz 41.678726483 kHz M1[1] 0.84 dB 321.30 kHz أثائه 20 dBm D2 3.24 0 dBr CF 836.6 MHz Span 1.0 MHz 691 pts Type | Ref | Trc | X-value 836.4379 MHz 836.47988 MHz 836.72156 MHz Y-value 2.96 dBm 16.28 dBm 16.11 dBm Function **Function Result** 241.678726483 kHz Occ Bw 321.3 kHz 0.84 dB Channel 190 Spectrum Offset 18.00 dB • RBW 10 kHz SWT 189.6 µs • VBW 30 kHz Ref Level 41.00 dBm 35 d8 ● 1Pk Ma 848.63940 MH 243.125904486 kH 01[1] 0.48 dE 321.30 kHz 20 dBm -10 dB -20 de -50 dBn

691 pts

Channel 251

Occ Bw

Y-value 3.21 dBm 16.00 dBm 15.75 dBm 0.48 dB

X-value 848.6394 MHz 848.67844 MHz 848.92156 MHz 321.3 kHz

CF 848.8 MHz

M1

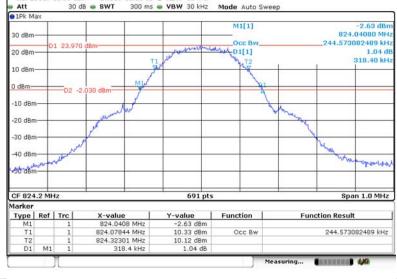
Marker

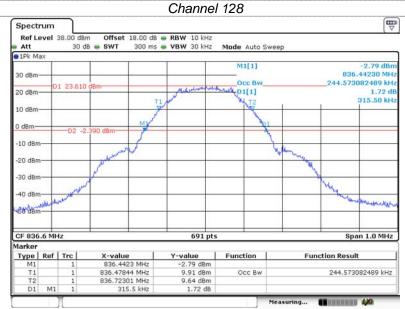


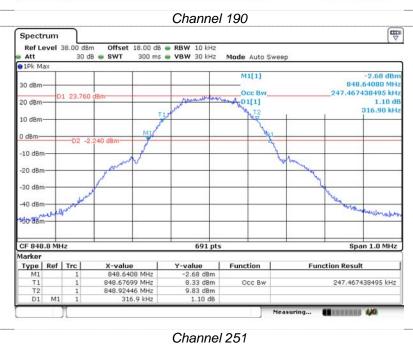
**Function Result** 

243.125904486 kHz

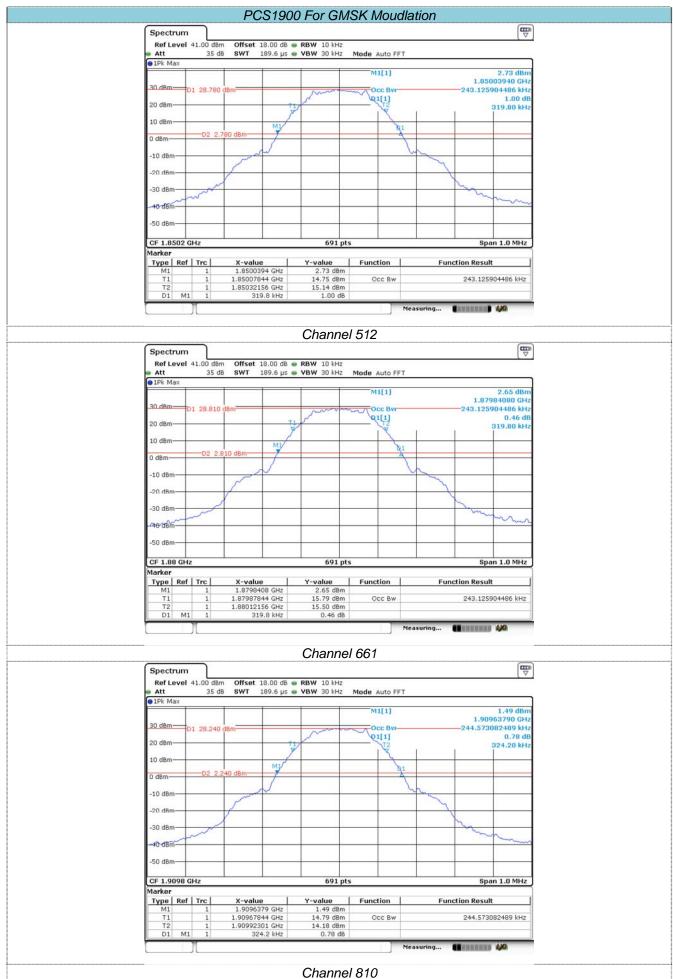
Report No.: TRE1706012301 Page: 16 of 60 Issued: 2017-06-29 EGPRS850 For GMSK Moudlation Spectrum Offset 18.00 dB • RBW 10 kHz SWT 300 ms • VBW 30 kHz Ref Level 38.00 dBm 30 dB . SWT Mode Auto Swee Att 824.04080 MHz 4.573082489 kHz 20 dBm D1[1] 1.04 dE



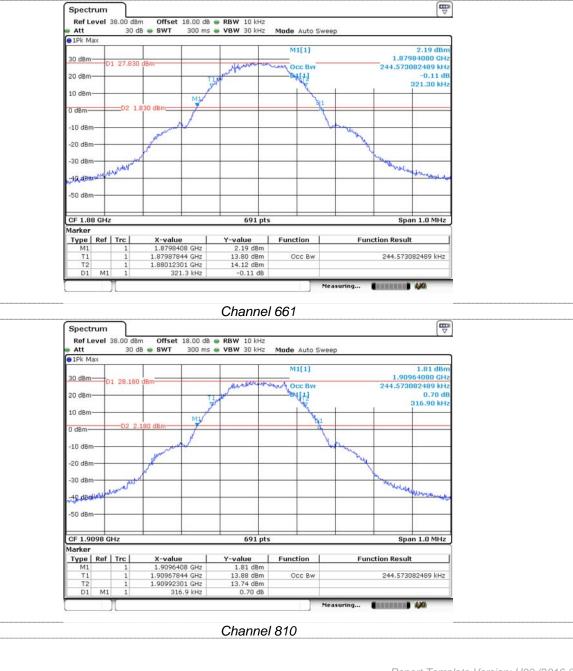




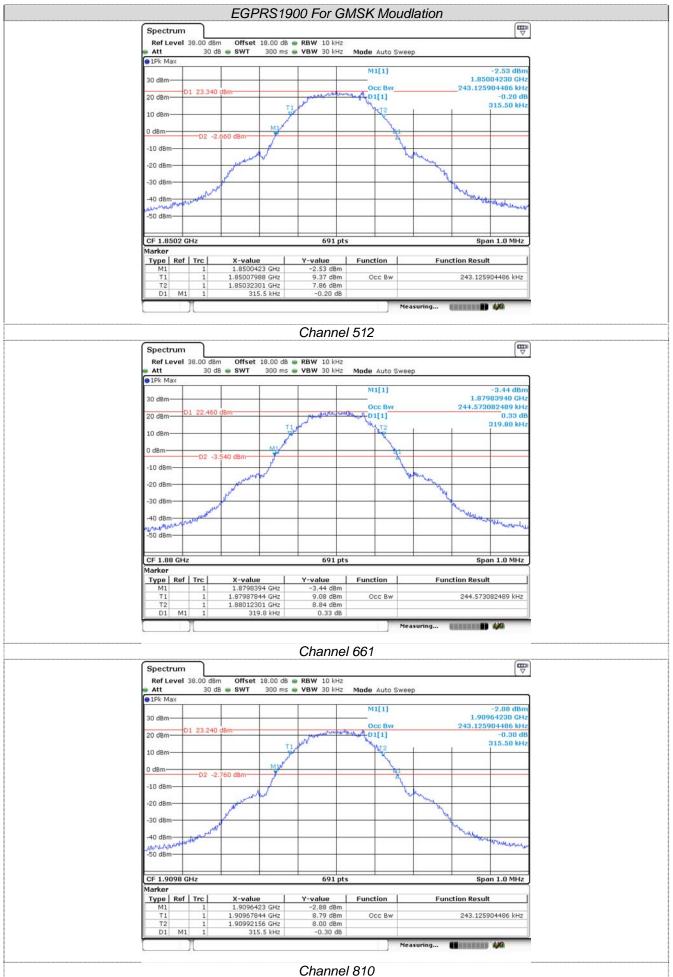
Report No.: TRE1706012301 Page: 17 of 60 Issued: 2017-06-29



Report No.: TRE1706012301 Page: 18 of 60 Issued: 2017-06-29 GPRS1900 For GMSK Moudlation Spectrum Offset 18.00 dB • RBW 10 kHz SWT 300 ms • VBW 30 kHz Ref Level 38.00 dBm 30 d8 . SWT Mode Auto Swee Att 2.01 dB 1.85004080 GH 244.573082489 kH 30 dBm-DILES OCC BW 20 dBm 0.37 dt 318.40 kHz -10 dB -50 dBr CF 1.8502 GHz 691 pts Span 1.0 MHz Y-value 2.01 dBm 14.16 dBm 14.32 dBm 0.37 dB X-value 1.8500408 GHz 1.85007844 GHz 1.85032301 GHz 318.4 kHz Function Type | Ref | Trc **Function Result** 244.573082489 kHz Channel 512 Spectrum Ref Level 38.00 dBm Offset 18.00 dB • RBW 10 kHz SWT 300 ms • VBW 30 kHz Att 30 dB 👄 SWT 1Pk Max 2.19 dBm 1.87984080 GHz 244.573082489 kHz M1[1] 30 dBn 321.30 kHz 10 dBn -10 dB -30 dBn WHI. -50 dB Span 1.0 MHz CF 1.88 GHz 691 pts X-value 1.8798408 GHz 1.87987844 GHz 1.88012301 GHz 321.3 kHz Y-value 2.19 dBm 13.80 dBm 14.12 dBm Type | Ref | Trc Function **Function Result** 244.573082489 kHz Occ Bw -0.11 dB Channel 661 Spectrum Offset 18.00 dB • RBW 10 kHz SWT 300 ms • VBW 30 kHz Ref Level 38.00 dBm 30 d8 👄 SWT Mode Auto Swee ● 1Pk Ma: M1[1] 30 dBm D1 28.180 0.70 dt 316.90 kH



 Report No.:
 TRE1706012301
 Page: 19 of 60
 Issued: 2017-06-29



Report No.: TRE1706012301 Page: 20 of 60 Issued: 2017-06-29 WCDMA Band II Spectrum Offset 18.00 dB • RBW 100 kHz SWT 37.9 µs • VBW 300 kHz Ref Level 35.00 dBm Att 30 dB Mode Auto FFT -8.17 dBr 30 dBm 1.8499400 GH; 4.211287988 MH; 20 dBm D1 18.320 0.67 dE W DILLY 4.8910 MHz 0 dBm -20 dBr -40 dBr CF 1.8524 GHz 691 pts Span 10.0 MHz Marker X-value 1.84994 GHz 1.8502871 GHz 1.8544984 GHz 4.891 MHz Y-value -8.17 dBm 8.59 dBm 8.28 dBm 0.67 dB Function Type | Ref | Trc **Function Result** 4.211287988 MHz Measuring... Channel 9262 Spectrum Offset 18,00 dB • RBW 100 kHz SWT 37.9 µs • VBW 300 kHz Ref Level 35.00 dBm Att 30 dB 1Pk Max M1[1] 1.8775110 GH 4.225759768 MHz 20 dBm-D1 18.610 LIM 0.61 dE 4.9490 MHz -D2 -7 390 dBn -10 dBn -20 dBn -30 dB -50 dBn -60 dBm CF 1.88 GHz 691 pts Span 10.0 MHz Type | Ref | Trc | X-value 1.877511 GHz 1.8778726 GHz 1.8820984 GHz Y-value -7.88 dBm 7.97 dBm 8.05 dBm Function **Function Result** 4.225759768 MHz Occ Bw 0.61 dB Channel 9400 Spectrum Ref Level 35.00 dBm 30 dB Mode Auto FFT 1Pk Max -8.51 dBm 1.9051110 GHz 30 dBm 4.225759768 MHz 1.53 de D1 18.840 4.9200 MHz 10 dBn -10 dB -30 dBr -50 dBr CF 1.9076 GHz 691 pts Span 10.0 MHz

Marker

M1

X-value 1.905111 GHz 1.9054582 GHz 1.9096839 GHz 4.92 MHz

Y-value -8.51 dBm 8.39 dBm 8.25 dBm

Channel 9538

Function

Occ Bw

**Function Result** 

4.225759768 MHz

Report No.: TRE1706012301 Page: 21 of 60 Issued: 2017-06-29 WCDMA Band V Spectrum Offset 18.00 dB • RBW 100 kHz SWT 37.9 µs • VBW 300 kHz Ref Level 35.00 dBm Att 30 dB Mode Auto FFT 8.26 dB 30 dBm 823.9400 MHz 4.182344428 MHz 20 dBm D1 18.280 MULL 0.21 dE 4.8770 MHz 0 dBm -20 dB -40 dBr CF 826.4 MHz 691 pts Span 10.0 MHz Marker Y-value -8.26 dBm 8.17 dBm 7.89 dBm 0.21 dB X-value 823.94 MHz 824.2871 MHz 828.4695 MHz 4.877 MHz Function Type | Ref | Trc **Function Result** 4.182344428 MHz 1111111 III 4/6 Channel 4132 Spectrum Offset 18,00 dB • RBW 100 kHz SWT 37.9 µs • VBW 300 kHz Ref Level 35.00 dBm Att 30 dB 1Pk Max M1[1] 834.1690 MHz 4.225759768 MHz 20 dBm D1 17.850 HILL -0.07 dE 4.8630 MHz -30 dBr -50 dBn -60 dBm CF 836.6 MHz 691 pts Span 10.0 MHz X-value 834.169 MHz 834.5016 MHz 838.7274 MHz 4.863 MHz Type | Ref | Trc | Y-value -8.30 dBm 8.23 dBm 8.26 dBm Function **Function Result** 4.225759768 MHz Occ Bw 0.07 dB Channel 4183 Spectrum Ref Level 35.00 dBm 30 dB Mode Auto FFT 1Pk Max -8.45 dBn 844.1250 MH 30 dBm 4.211287988 MH D1 18.470 01[1] 4.8770 MHz 10 dBn -10 dB -20 dB -30 dBr -50 dBr CF 846.6 MHz 691 pts Span 10.0 MHz

Marker

M1

X-value 844.125 MHz 844.4437 MHz 848.655 MHz 4.877 MHz Y-value -8.45 dBm 7.72 dBm 8.08 dBm

Channel 4233

Function

Occ Bw

**Function Result** 

4.211287988 MHz

Report No.: TRE1706012301 Page: 22 of 60 Issued: 2017-06-29

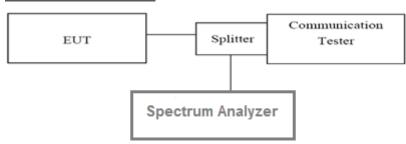
## 5.3. Conducted Spurious Emissions

### **LIMIT**

Part 24.238 and Part 22.917 specify that 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 specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

### **TEST CONFIGURATION**



### **TEST PROCEDURE**

- 1. The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.
- The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficientscans were taken to show the out of band Emissions if any up to 10th harmonic.
- 3. For the out of band: Set the RBW= 1MHz, VBW = 3MHz, Start=30MHz, Stop= 10th harmonic.

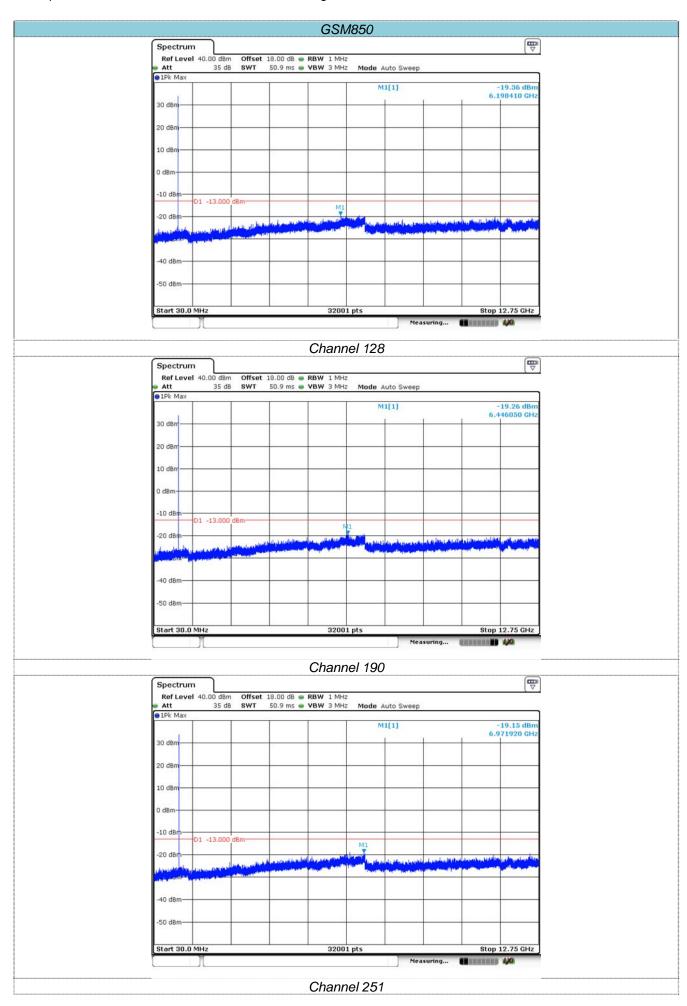
### **TEST MODE:**

Please refer to the clause 3.3

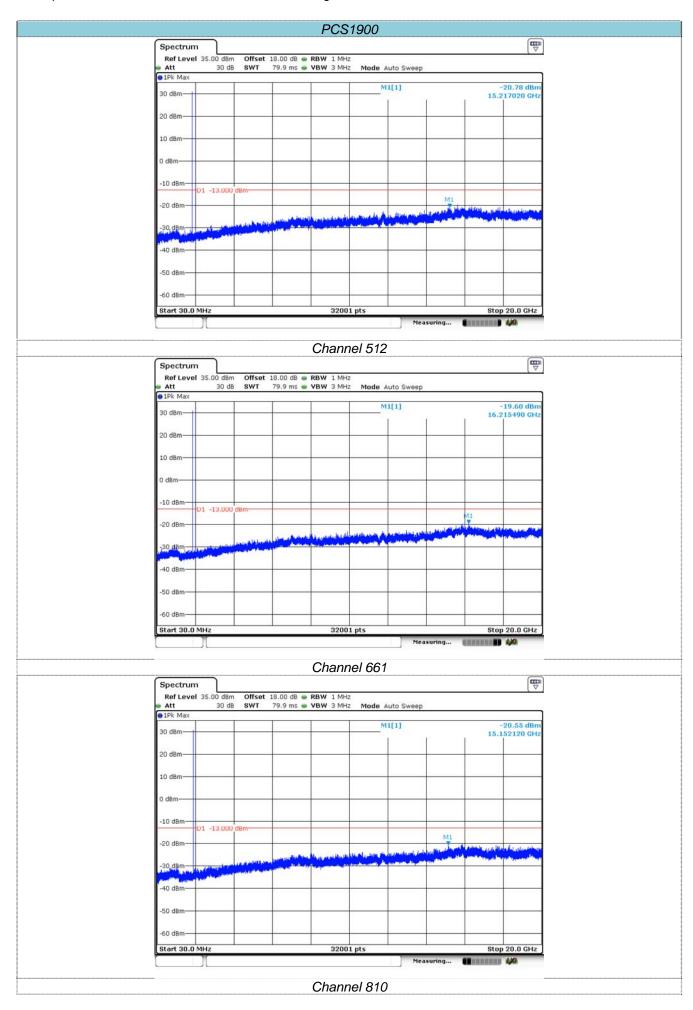
### **TEST RESULTS**

Note: Worst case at GSM850/PCS1900

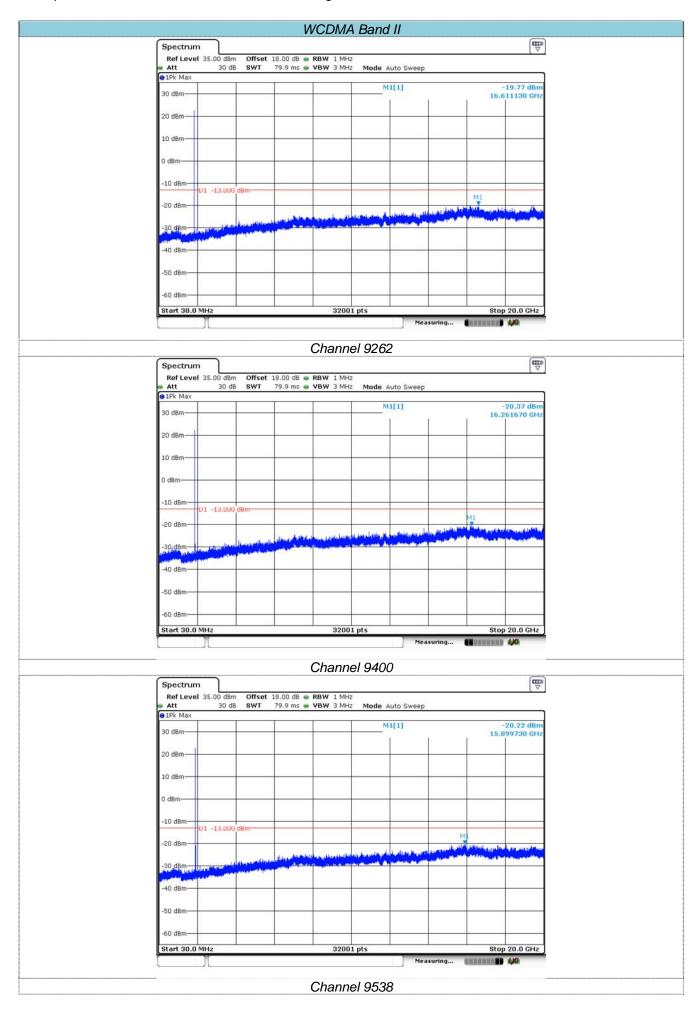
Report No.: TRE1706012301 Page: 23 of 60 Issued: 2017-06-29



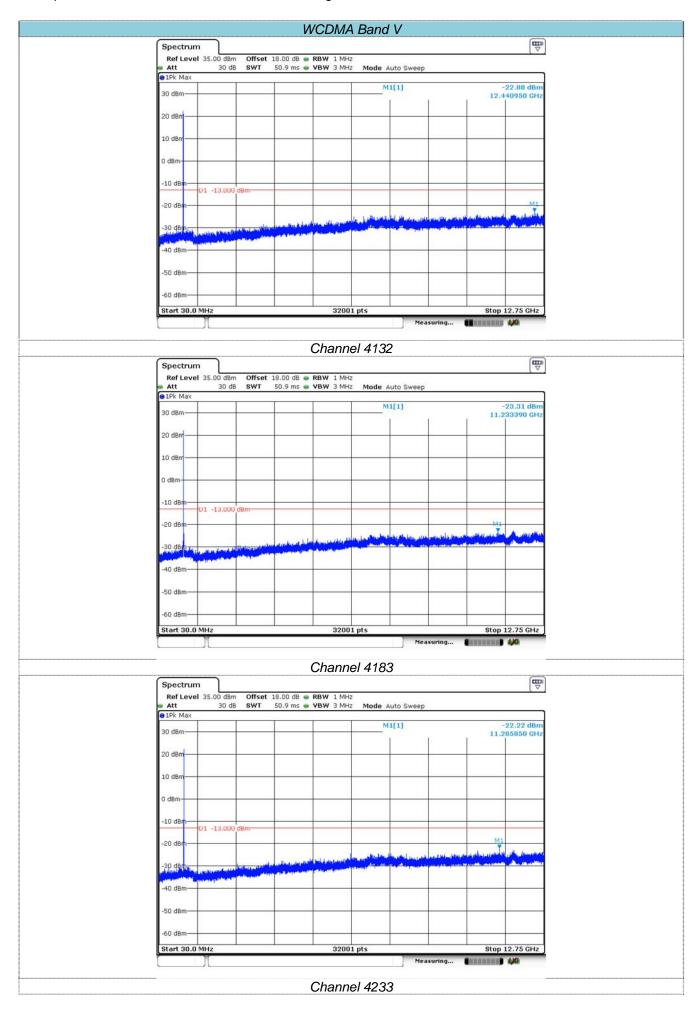
Report No.: TRE1706012301 Page: 24 of 60 Issued: 2017-06-29



Report No.: TRE1706012301 Page: 25 of 60 Issued: 2017-06-29



Report No.: TRE1706012301 Page: 26 of 60 Issued: 2017-06-29



Report No.: TRE1706012301 Page: 27 of 60 Issued: 2017-06-29

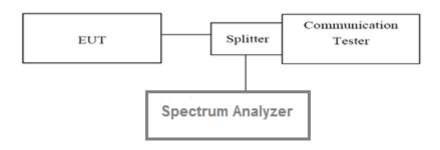
## 5.4. Band Edge

### **LIMIT**

Part 24.238 and Part 22.917 specify that 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 specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

### **TEST CONFIGURATION**



### **TEST PROCEDURE**

- 1. The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.
- 2. For the bandedge: 2G:Set the RBW=3KHz, VBW = 10KHz, Sweep time= Auto

3G: Set the RBW=100KHz, VBW = 300KHz, Sweep time= Auto

### **TEST MODE:**

Please refer to the clause 3.3

### **TEST RESULTS**

 Report No.: TRE1706012301 Page: 28 of 60 Issued: 2017-06-29

GSM850						
Channel	Frequency	Measureme	nt Results	Limit	Verdict	
Number	(MHz)	Frequency(MHz)	Values(dBm)	(dBm)	verdict	
128	824.2	824	-16.53	-13.00	Pass	
251	848.8	849	-14.83	-13.00	Pass	

GPRS850						
Channel	Frequency	Measureme	nt Results	Limit	Verdict	
Number	(MHz)	Frequency(MHz)	Values(dBm)	(dBm)	Verdict	
128	824.2	824	-16.53	-13.00	Pass	
251	848.8	849	-14.83	-13.00	Pass	

EGPRS850					
Channel	Frequency	Measureme	nt Results	Limit	Verdict
Number	(MHz)	Frequency(MHz)	Values(dBm)	(dBm)	verdict
128	824.2	824	-20.94	-13.00	Pass
251	848.8	849	-18.66	-13.00	Pass

PCS1900						
Channel Frequency Measurement Results				Limit	Verdict	
Number	(MHz)	Frequency(MHz) Values(dBm) (d		(dBm)	verdict	
512	1850.2	1850	-14.54	-13.00	Pass	
810	1909.8	1910	-18.41	-13.00	Pass	

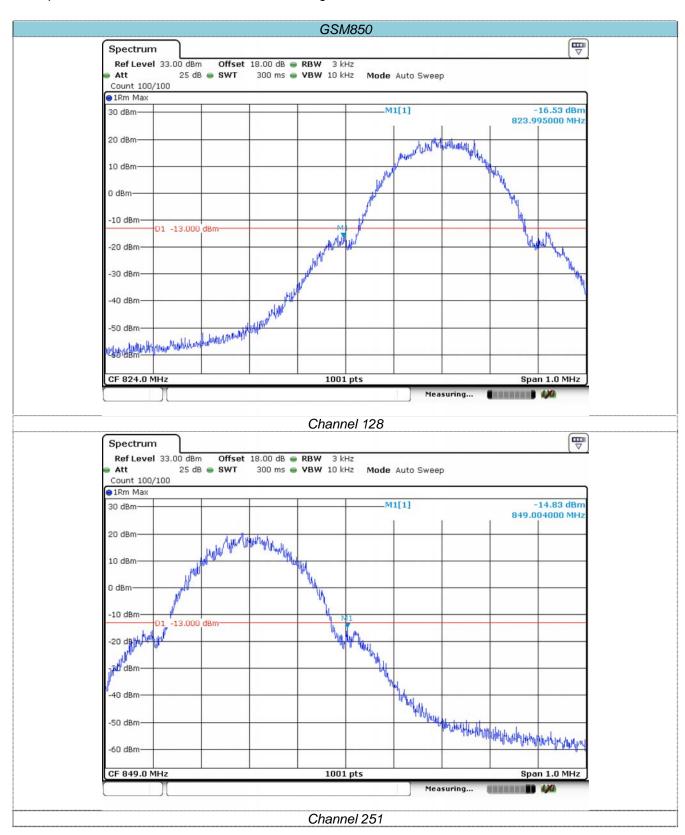
GPRS1900						
Channel	Channel Frequency Measurement Results				Verdict	
Number	(MHz)	Frequency(MHz) Values(dBm) (dBm)		(dBm)	verdict	
512	1850.2	1850	-17.09	-13.00	Pass	
810	1909.8	1910	-17.93	-13.00	Pass	

EGPRS1900					
Channel	Frequency	Measureme	Limit	Verdict	
Number	(MHz)	Frequency(MHz)	Frequency(MHz) Values(dBm)		verdict
512	1850.2	1850	-22.26	-13.00	Pass
810	1909.8	1910	-22.88	-13.00	Pass

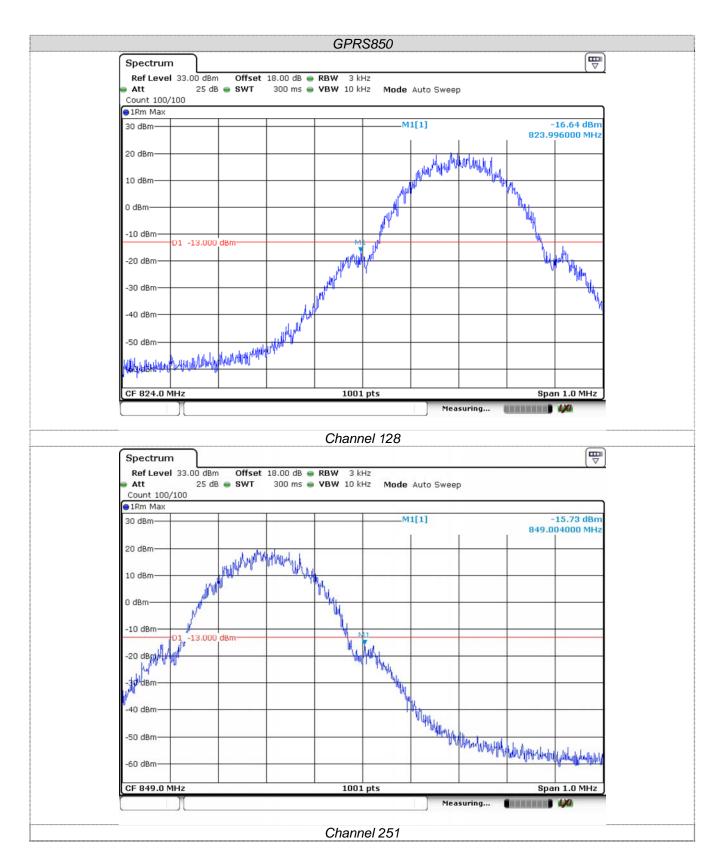
WCDMA Band II						
Channel Frequency Measurement Results Limit Verdict						
Number	(MHz)	Frequency(MHz)	Values(dBm)	(dBm)	verdict	
9262	1852.4	1850	-13.71	-13.00	Pass	
9538	1907.6	1910	-15.14	-13.00	Pass	

WCDMA Band V						
Channel Frequency Measurement Results Limit					Verdict	
Number	(MHz)	Frequency(MHz) Values(dBm)		(dBm)	verdict	
4132	826.4	824	-13.98	-13.00	Pass	
4233	846.6	849	-16.20	-13.00	Pass	

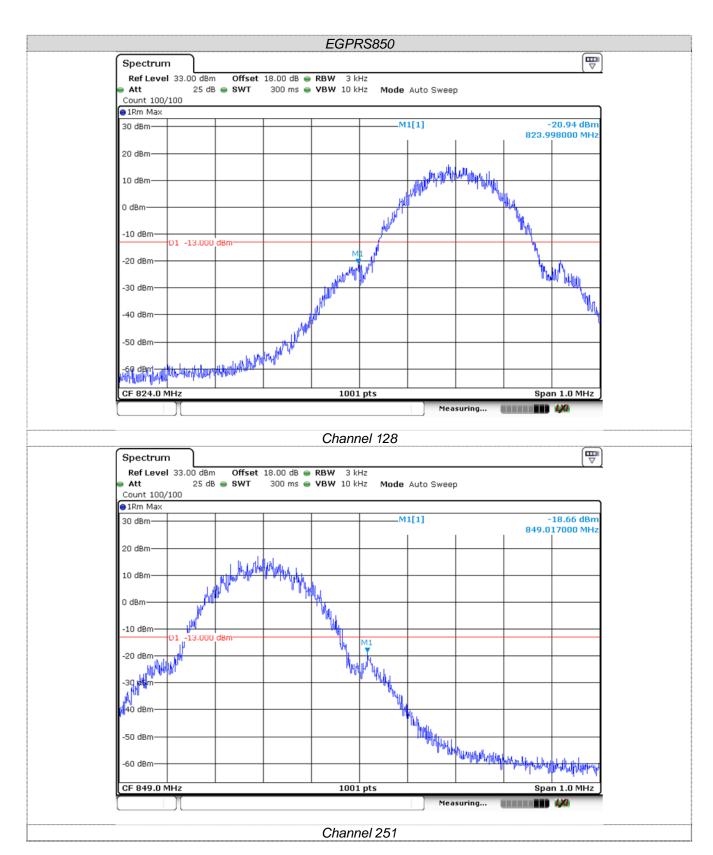
Report No.: TRE1706012301 Page: 29 of 60 Issued: 2017-06-29



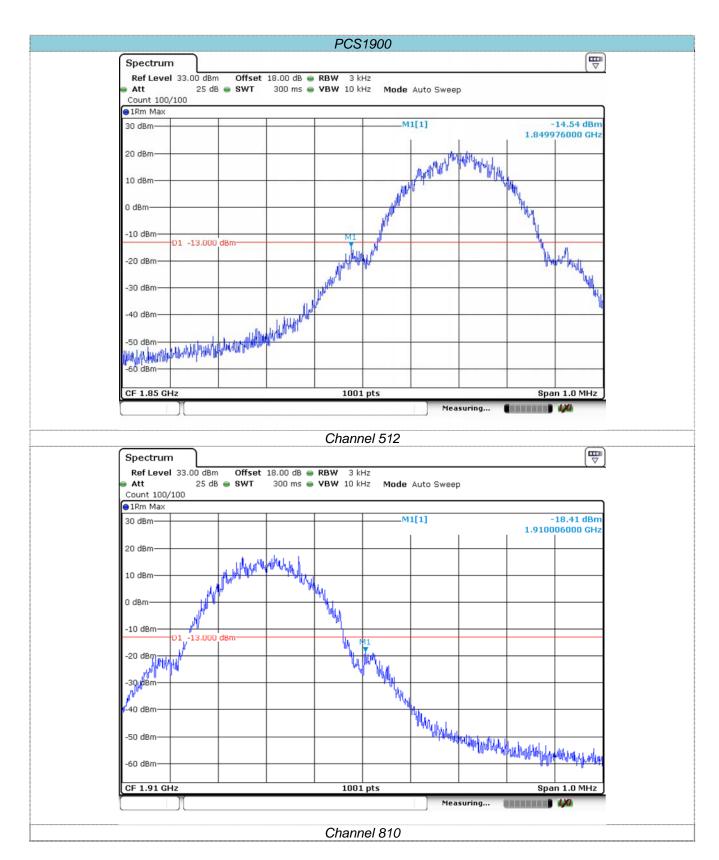
Report No.: TRE1706012301 Page: 30 of 60 Issued: 2017-06-29



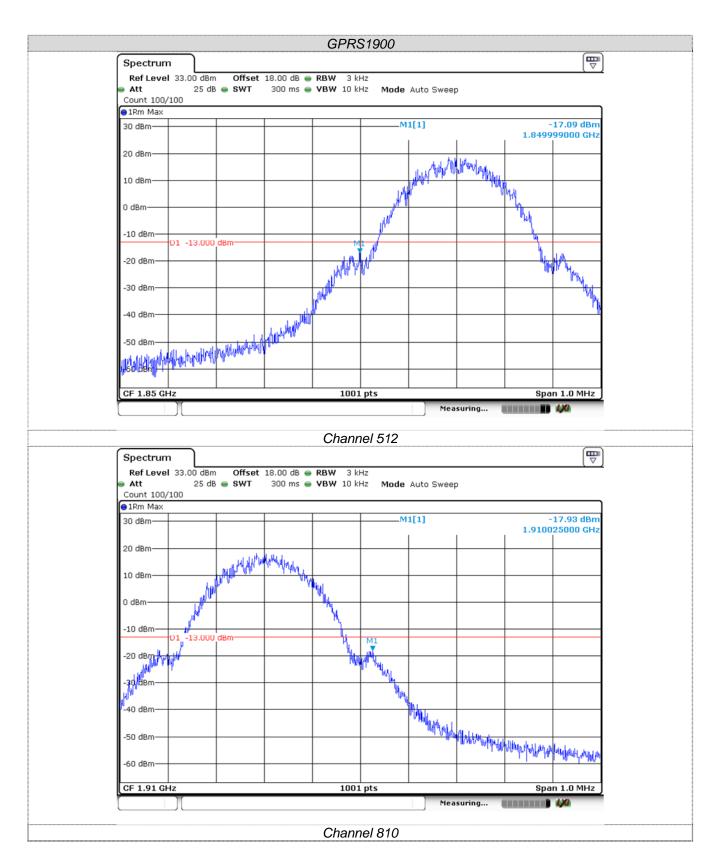
Report No.: TRE1706012301 Page: 31 of 60 Issued: 2017-06-29



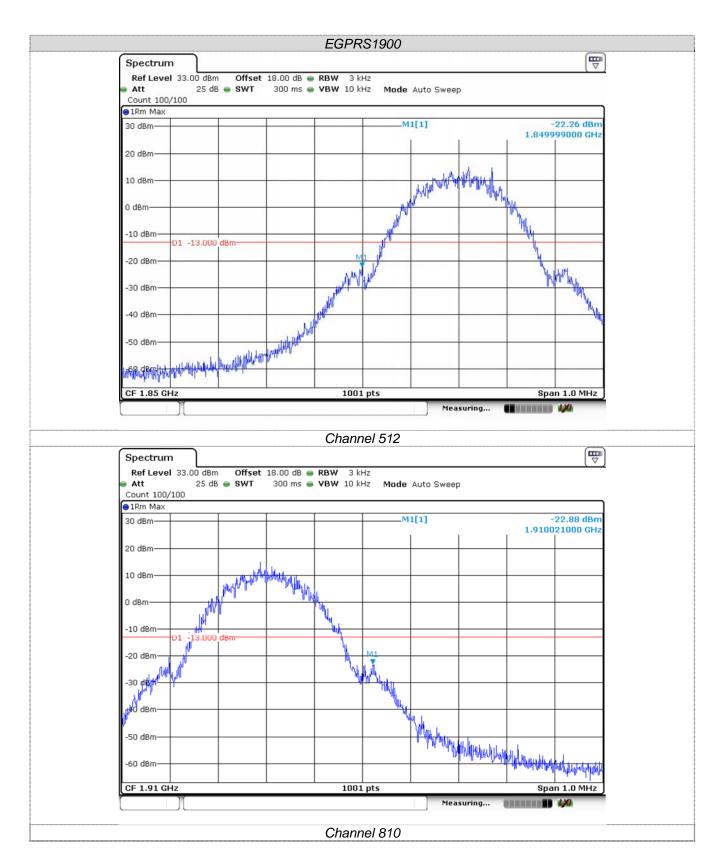
Report No.: TRE1706012301 Page: 32 of 60 Issued: 2017-06-29



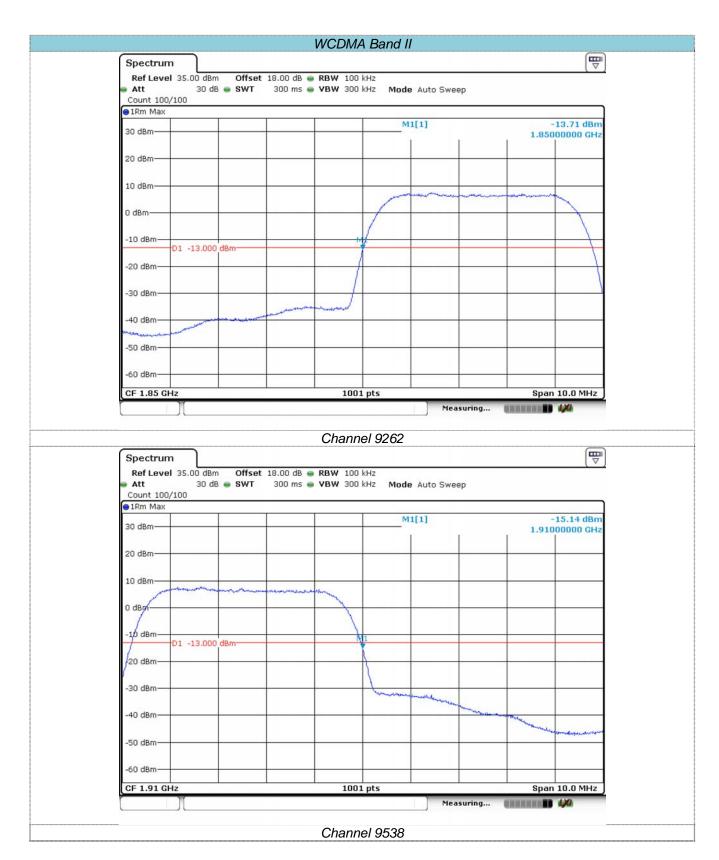
Report No.: TRE1706012301 Page: 33 of 60 Issued: 2017-06-29



Report No.: TRE1706012301 Page: 34 of 60 Issued: 2017-06-29



Report No.: TRE1706012301 Page: 35 of 60 Issued: 2017-06-29



Report No.: TRE1706012301 Page: 36 of 60 Issued: 2017-06-29



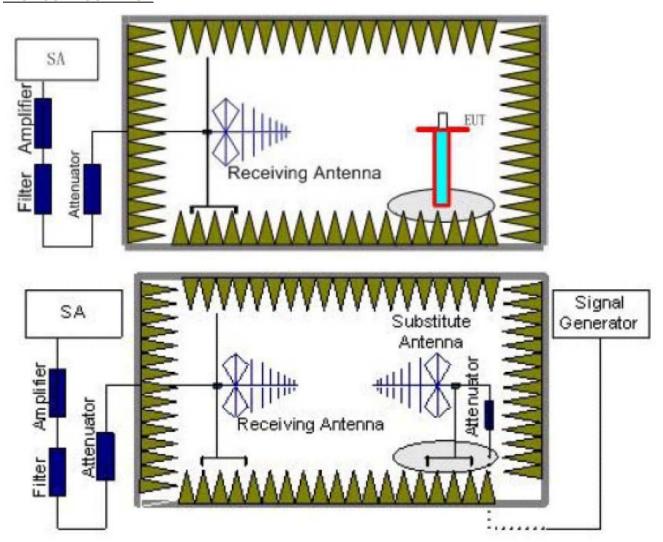
Report No.: TRE1706012301 Page: 37 of 60 Issued: 2017-06-29

#### 5.5. ERP and EIRP

#### **LIMIT**

GSM850/WCDMA Band V: 7W ERP PCS1900/WCDMA Band II: 2W EIRP

#### **TEST CONFIGURATION**



#### **TEST PROCEDURE**

- 1. EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.0m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
- 2. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
- 3. The EUT is then put into continuously transmitting mode at its maximum power level during the test.Set Test Receiver or Spectrum RBW=1MHz,VBW=3MHz for above 1GHz and RBW=100kHz,VBW=300kHz for 30MHz to 1GHz,, And the maximum value of the receiver should be recorded as (Pr).
- 4. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the

Report No.: TRE1706012301 Page: 38 of 60 Issued: 2017-06-29

frequency band of interest isconnected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

- 5. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (PcI) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
- 6. The measurement results are obtained as described below: Power(EIRP)=PMea- PAg - Pcl + Ga We used SMF100A micowave signal generator which signal level can up to 33dBm,so we not used power Amplifier for substituation test; The measurement results are amend as described below: Power(EIRP)=PMea- Pcl + Ga
- 7. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.

ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.

#### TEST MODE:

Please refer to the clause 3.3

## **TEST RESULTS**

Mode	Channel	Antenna Pol.	ERP	Limit (dBm)	Result
	100	V	32.45		
	128	Н	27.78		
COMOTO	400	V	32.74	20.45	Door
GSM850	190	Н	27.85	38.45	Pass
	251	V	32.66		
	251	Н	27.65		
	128	V	32.43	38.45	Pass
		Н	27.27		
GPRS850	190	V	32.68		
GFK3630		Н	27.52		rass
	251	V	32.46		
		Н	27.57		
	128	V	31.63		
	120	Н	27.34		
EGPRS850	190	V	32.25	38.45	Pass
EGFR3030	190	Н	27.46	38.45	газэ
	251	V	32.38		
	251	Н	27.36		

Report No.: TRE1706012301 Page: 39 of 60 Issued: 2017-06-29

Mode	Channel	Antenna Pol.	EIRP	Limit (dBm)	Result
	540	V	28.74		
	512	Н	25.64		
DCC1000	661	V	28.5	22.00	Door
PCS1900	001	Н	25.63	33.00	Pass
	810	V	28.66		
	610	Н	25.45		
	512	V	28.39		Pass
		Н	25.58	33.00	
GPRS1900	661	V	28.25		
GPK31900		Н	25.49		
	810	V	28.36		
		Н	24.85		
	512	V	27.88		
	012	Н	24.63		
EGPRS1900	661	V	28.25	33.00	Pass
	001	Н	25.33	33.00	F 455
	910	V	28.74		
	810	Н	25.32		

Mode	Channel	Antenna Pol.	EIRP	Limit (dBm)	Result
WCDMA Band II	9262	V	19.52	33.00	Pass
		Н	17.63		
	9400 9538	V	19.88		
		Н	17.52		
		V	19.67		
		Н	17.58		

Mode	Channel	Antenna Pol.	ERP	Limit (dBm)	Result
WODMA David V	4132	V	19.88	38.45	Pass
		Н	17.55		
	4183	V	19.86		
WCDMA Band V		Н	17.64		
	4233	V	19.52		
		Н	17.68		

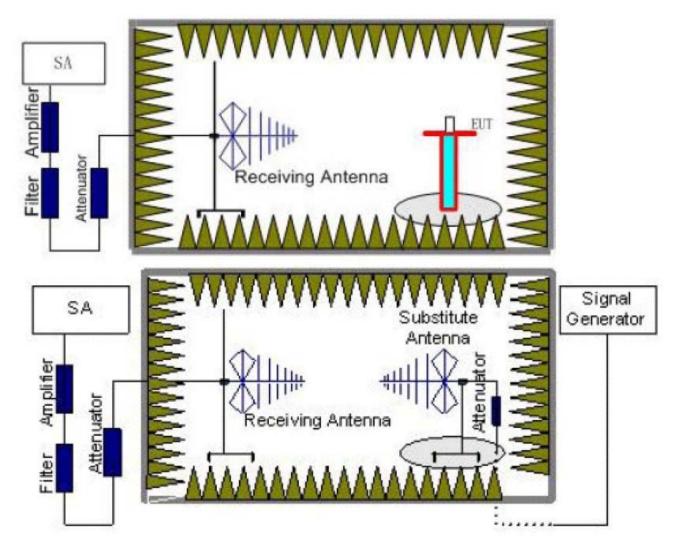
Report No.: TRE1706012301 Page: 40 of 60 Issued: 2017-06-29

# 5.6. Radiated Spurious Emission

**LIMIT** 

-13dBm

#### **TEST CONFIGURATION**



#### **TEST RESULTS**

- 1. EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.0m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
- 2. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
- 3. The EUT is then put into continuously transmitting mode at its maximum power level during the test.Set Test Receiver or Spectrum RBW=1MHz,VBW=3MHz for above 1GHz and RBW=100kHz,VBW=300kHz for 30MHz to 1GHz, And the maximum value of the receiver should be recorded as (Pr).
- 4. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest isconnected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the

Report No.: TRE1706012301 Page: 41 of 60 Issued: 2017-06-29

substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

- 5. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (PcI) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
- 6. The measurement results are obtained as described below:

Power(EIRP)=PMea- PAg - Pcl + Ga

We used SMF100A micowave signal generator which signal level can up to 33dBm,so we not used power Amplifier for substituation test; The measurement results are amend as described below: Power(EIRP)=PMea- Pcl + Ga

7. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.

ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.

<b>TEST MODE</b>
------------------

Please refer to the clause 3.3

#### **TEST RESULTS**

Note: Worst case at GSM850/PCS1900

Report No.: TRE1706012301 Page: 42 of 60 Issued: 2017-06-29

		GS	M850		
Channel	Frequency Spurious Emission		Limit (dRm)	Result	
Channel	(MHz)	Polarization	Level (dBm)	Limit (dBm)	Result
	65.95	Vertical	-65.41		
	200.36	V	-63.78		
	1648.51	V	-43.25	12.00	Pass
	2472.57	V	-43.25	-13.00	Pass
	4359.43	V	-54.80		
128	9567.58	V	-45.83		
128	104.17	Horizontal	-66.87		
	319.84	Н	-65.34		
	1648.51	Н	-41.75	42.00	Dese
	2472.57	Н	-44.78	-13.00	Pass
	6094.28	Н	-49.29		
	9512.24	Н	-45.23		
	70.26	Vertical	-64.83		
	182.21	V	-54.96		
	1672.22	V	-41.68	12.00	Dana
	2510.89	V	-48.32	-13.00	Pass
	3343.25	V	-51.10		
400	4119.70	V	-50.19		
190	80.02	Horizontal	-70.88		
	182.21	Н	-56.82		
	1674.06	Н	-40.12	-13.00	Door
	2491.65	Н	-49.53		Pass
	4119.70	Н	-50.19		
	8039.36	Н	-45.85		
	68.31	Vertical	-66.54		
	182.21	V	-57.72		
	1698.14	V	-46.11	12.00	Door
	2547.01	V	-46.53	-13.00	Pass
	4025.21	V	-55.93		
251	9567.58	V	-44.73		
251	103.44	Horizontal	-69.15		
	182.21	Н	-57.10		
	1320.42	Н	-55.54	12.00	Page
	1698.14	Н	-48.83	-13.00	Pass
	3392.09	Н	-54.14		
	4119.70	Н	-50.98		

- The emission behaviour belongs to narrowband spurious emission.

  The emission levels of not record in the report are very lower than the limit and not show in test report. 2.

Report No.: TRE1706012301 Page: 43 of 60 Issued: 2017-06-29

		PCS	S1900		
Channel	Frequency	Spurious	Emission	Limit (dDm)	Result
Channel	(MHz)	Polarization	Level (dBm)	Limit (dBm)	Result
	71.00	Vertical	-65.89		
	259.91	V	-53.55		
	1478.62	V	-54.23	-13.00	Dage
	2060.37	V	-51.32	-13.00	Pass
	3700.48	V	-48.86		
F40	5554.08	V	-44.90		
512	114.55	Horizontal	-73.04		
	182.21	Н	-60.64		
	1196.11	Н	-51.07	40.00	Dana
	2060.37	Н	-52.08	-13.00	Pass
	3700.48	Н	-46.97		
	6834.07	Н	-49.68		
	259.91	Vertical	-58.10		
	414.90	V	-64.11		
	1747.34	V	-39.85	42.00	Door
	2060.37	V	-49.50	-13.00	Pass
	3759.98	V	-50.94		
004	6677.32	V	-50.07		
661	103.81	Horizontal	-69.51		
	312.06	Н	-65.01		Pass
	1337.94	Н	-54.47	42.00	
	2242.25	Н	-52.04	-13.00	
	3759.98	Н	-51.62		
	5643.40	Н	-45.89		
	182.21	Vertical	-53.68		
	480.93	V	-70.82		
	1407.29	V	-53.97	42.00	Door
	2586.49	V	-44.44	-13.00	Pass
	3820.45	V	-46.64		
910	3820.45	V	-46.64		
810	5826.36	Horizontal	-50.99		
	5826.36	Н	-50.99		
	103.11	Н	-69.85	42.00	Dees
	260.29	Н	-64.31	-13.00	Pass
	522.06	Н	-63.15		
	1514.67	Н	-53.37		

- The emission behaviour belongs to narrowband spurious emission.

  The emission levels of not record in the report are very lower than the limit and not show in test report. 2.

Report No.: TRE1706012301 Page: 44 of 60 Issued: 2017-06-29

WCDMA Band II							
Channal	Channel Frequency Spurious Emission		Limit (dDm)	Daguilt			
Channel	(MHz)	Polarization	Level (dBm)	Limit (dBm)	Result		
	70.76	Vertical	-64.73				
	414.90	V	-59.63				
	1468.90	V	-54.36	-13.00	Door		
	1933.18	V	-41.68	-13.00	Pass		
	3700.48	V	-49.62				
0000	5554.08	V	-50.56				
9262	78.63	Horizontal	-69.58				
	184.14	Н	-65.72				
	1745.42	Н	-40.33	40.00	Dana		
	2058.11	Н	-50.63	-13.00	Pass		
	3700.48	Н	-50.00				
	5562.15	Н	-49.87				
	36.15	Vertical	-62.95				
	200.36	V	-66.22				
	2008.96	V	-51.86	40.00	Davis		
	2580.81	V	-46.49	-13.00	Pass		
	3759.98	V	-49.01				
0.400	4113.73	V	-52.16				
9400	80.87	Horizontal	-71.98				
	378.65	Н	-64.63		Pass		
	1960.99	Н	-44.29	42.00			
	2580.81	Н	-45.51	-13.00			
	3759.98	Н	-49.07				
	6657.98	Н	-49.76				
	70.01	Vertical	-67.72				
	200.36	V	-62.46				
	1766.64	V	-52.48	42.00	Dese		
	2325.03	V	-50.71	-13.00	Pass		
	5725.84	V	-46.76				
0530	8963.12	V	-44.97				
9538	71.76	Horizontal	-64.73				
	300.22	Н	-64.03				
	1154.79	Н	-55.50	12.00	Door		
	1909.96	Н	-49.52	-13.00	Pass		
	3831.54	Н	-55.50				
	5725.84	Н	-46.76				

- 1. The emission behaviour belongs to narrowband spurious emission.
- 2. The emission levels of not record in the report are very lower than the limit and not show in test report.

Report No.: TRE1706012301 Page: 45 of 60 Issued: 2017-06-29

			A Band V		
Channel	Frequency	Spurious	1	Limit (dBm)	Result
	(MHz)	Polarization	Level (dBm)	,	
4132	66.42	Vertical	-68.39		
	143.46	V	-66.47		
	1756.97	V	-38.04	-13.00	Pass
	2519.18	V	-45.25	-13.00	1 455
	5054.44	V	-51.96		
	8556.66	V	-45.04		
4132	143.46	Horizontal	-62.10		
	245.69	Н	-66.01		
	1384.29	Н	-54.87	12.00	Door
	2580.81	Н	-46.94	-13.00	Pass
	3522.44	Н	-55.89		
	6843.99	Н	-48.94		
	67.83	Vertical	-65.11		
	200.36	V	-59.73		Door
	1408.84	V	-53.95	40.00	
	1670.38	V	-52.19	-13.00	Pass
	5759.15	V	-52.38		
	7981.27	V	-47.18		
4183	184.14	Horizontal	-65.45		
	378.65	Н	-63.07		Pass
	1197.42	Н	-52.38		
	1670.38	Н	-53.44	-13.00	
	5759.15	Н	-52.38		
	8770.25	Н	-45.73		
	80.02	Vertical	-70.70		
	266.39	V	-66.13		
	1701.87	V	-53.31		_
	2229.97	V	-58.74	-13.00	Pass
	5442.45	V	-52.04		
1005	9041.46	V	-44.49		
4233	143.46	Horizontal	-63.41		
	414.90	Н	-68.83		
	1357.19	Н	-61.18		_
	1764.70	Н	-48.22	-13.00	Pass
	5098.61	Н	-52.75		
	8180.49	Н	-45.77		

- 1.
- The emission behaviour belongs to narrowband spurious emission.

  The emission levels of not record in the report are very lower than the limit and not show in test report. 2.

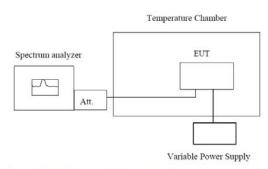
Report No.: TRE1706012301 Page: 46 of 60 Issued: 2017-06-29

# 5.7. Frequency stability V.S. Temperature measurement

### **LIMIT**

2.5ppm

#### **TEST CONFIGURATION**



Note: Measurement setup for testing on Antenna connector

#### TEST PROCEDURE

- 1. The equipment under test was connected to an external DC power supply and input rated voltage.
- 2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators.
- 3. The EUT was placed inside the temperature chamber.
- 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°Coperating frequency as reference frequency.
- 5. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency.
- 6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

#### **TEST MODE:**

Please refer to the clause 3.3

#### **TEST RESULTS**

Note: Worst case at GSM850/PCS1900/WCDMA B2/B5 mid channel

Report No.: TRE1706012301 Page: 47 of 60 Issued: 2017-06-29

Reference Frequency: GSM850 Middle channel=190 channel=836.6MHz							
Power supplied	Temperature (°C)	Frequer	ncy error	Limit (nnm)	Result		
(Vdc)	remperature ( C)	Hz	ppm	Limit (ppm)	Result		
	-30	17	0.020				
	-20	18	0.022				
	-10	16	0.019				
	0	18	0.022				
3.70	10	17	0.020	2.50	Pass		
	20	18	0.022				
	30	19	0.023				
	40	16	0.019				
	50	15	0.018				
Refe	erence Frequency: Po	CS1900 Middle ch	annel=661 chanr	nel=1880MHz			
Power supplied	Temperature (°C)	Frequency error		Limit (ppm)	Result		
(Vdc)	remperature ( C)	Hz	ppm	сини (ррии)	Result		
	-30	18	0.010				
	-20	19	0.010				
	-10	15	0.008				
	0	16	0.009				
3.70	10	18	0.010	2.50	Pass		
	20	15	0.008				
	30	18	0.010				
	40	17	0.009				
	50	19	0.010				

Referen	Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880MHz						
Power supplied	Temperature (°C)	Frequer	ncy error	Limit (ppm)	Result		
(Vdc)	remperature ( C)	Hz	ppm	Limit (ppin)	Result		
	-30	8	0.004				
	-20	7	0.004				
	-10	9	0.005				
	0	10	0.005				
3.70	10	8	0.004	2.50	Pass		
	20	9	0.005				
	30	9	0.005				
	40	8	0.004				
	50	7	0.004				
Referen	ce Frequency: WCDN	MA Band VMiddle	channel=4183 ch	annel=836.6MH	Z		
Power supplied	Temperature (°C)	Frequency error		Limit (nnm)	Result		
(Vdc)	Temperature ( C)	Hz	ppm	Limit (ppm)	Result		
	-30	5	0.006				
	-20	6	0.007				
	-10	7	0.008				
	0	5	0.006				
3.70	10	8	0.010	2.50	Pass		
	20	6	0.007				
	30	9	0.011	1			
	40	6	0.007	]			
	50	8	0.010	7			

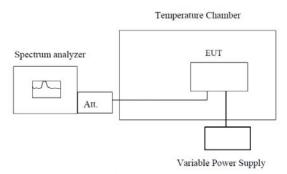
Report No.: TRE1706012301 Page: 48 of 60 Issued: 2017-06-29

# 5.8. Frequency stability V.S. Voltagemeasurement

#### **LIMIT**

2.5ppm

#### **TEST CONFIGURATION**



Note: Measurement setup for testing on Antenna connector

#### **TEST PROCEDURE**

- 1. Set chamber temperature to 25°C. Use a variable DC power source topower the EUT and set the voltage to rated voltage.
- 2. Set the spectrum analyzer RBW lowenough to obtain the desired frequency resolution and recorded the frequency.
- 3. Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, recordthe maximum frequency change.

#### **TEST MODE:**

Please refer to the clause 3.3

#### **TEST RESULTS**

Note: Worst case at GSM850/PCS1900/WCDMA B2/B5 mid channel

Report No.: TRE1706012301 Page: 49 of 60 Issued: 2017-06-29

Reference	e Frequency: GSM85	0 (GSM link) Midd	lle channel=190 d	channel=836.6Ml	
Temperature (°C)	Power supplied	Frequer	ncy error	Limit (nnm)	Result
remperature ( C)	(Vdc)	Hz	ppm	Limit (ppm)	Result
	4.20	17	0.020		
25	3.70	15	0.018	2.50	Pass
	3.50	19	0.023		
Reference	Frequency: PCS190	00 (GSM link) Mid	dle channel=661	channel=1880Ml	Hz
Temperature (°C)	Power supplied	Frequer	ncy error	Limit (ppm)	Result
remperature ( C)	(Vdc)	Hz	ppm	Limit (ppm)	Kesuit
	4.20	18	0.010	2.50	
25	3.70	19	0.010		Pass
	3.50	18	0.010		
Referen	ce Frequency: WCDN	MA Band II Middle	channel=9400 ch	nannel=1880MH	Z
Temperature (°C)	Power supplied	Frequer	ncy error	Limit (ppm)	
remperature ( C)	(Vdc)	Hz	ppm	ppm Result	
	4.20	8	0.004		
25	3.70	9	0.005	2.50	Pass
	3.50	10	0.005		
Referen	ce Frequency: WCDN	MA Band VMiddle	channel=4183 ch	annel=836.6MH	Z
Temperature (°C)	Power supplied	Frequer	ncy error	Limit (ppm)	Result
remperature ( C)	(Vdc)	Hz	ppm	сини (ррии)	Nesuit
	4.20	5	0.006	]	
25	3.70	6	0.007	2.50	Pass
	3.50	8	0.010		

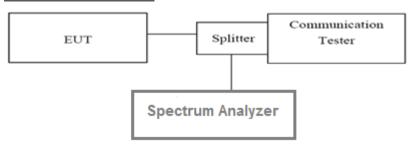
Report No.: TRE1706012301 Page: 50 of 60 Issued: 2017-06-29

## 5.9. Peak-Average Ratio

**LIMIT** 

13dB

#### **TEST CONFIGURATION**



#### **TEST PROCEDURE**

According with KDB 971168

- 1. The signal analyzer's CCDF measurement profile is enabled
- 2. Frequency = carrier center frequency
- 3. Measurement BW > Emission bandwidth of signal
- 4. The signal analyzer was set to collect one million samples to generate the CCDF curve
- 5. The measurement interval was set depending on the type of signal analyzed. Forcontinuous signals (>98% duty cycle), the measurement interval was set to 1ms. For bursttransmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that issynced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

#### **TEST MODE:**

Please refer to the clause 3.3

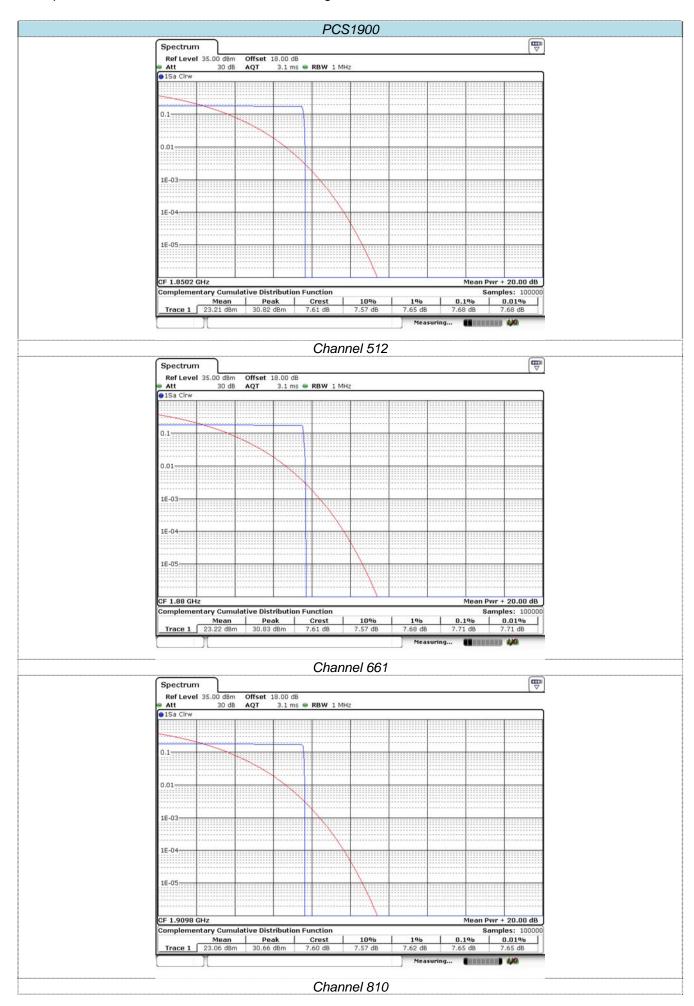
#### **TEST RESULTS**

Note: Worst case PCS1900, WCDMA BAND1900

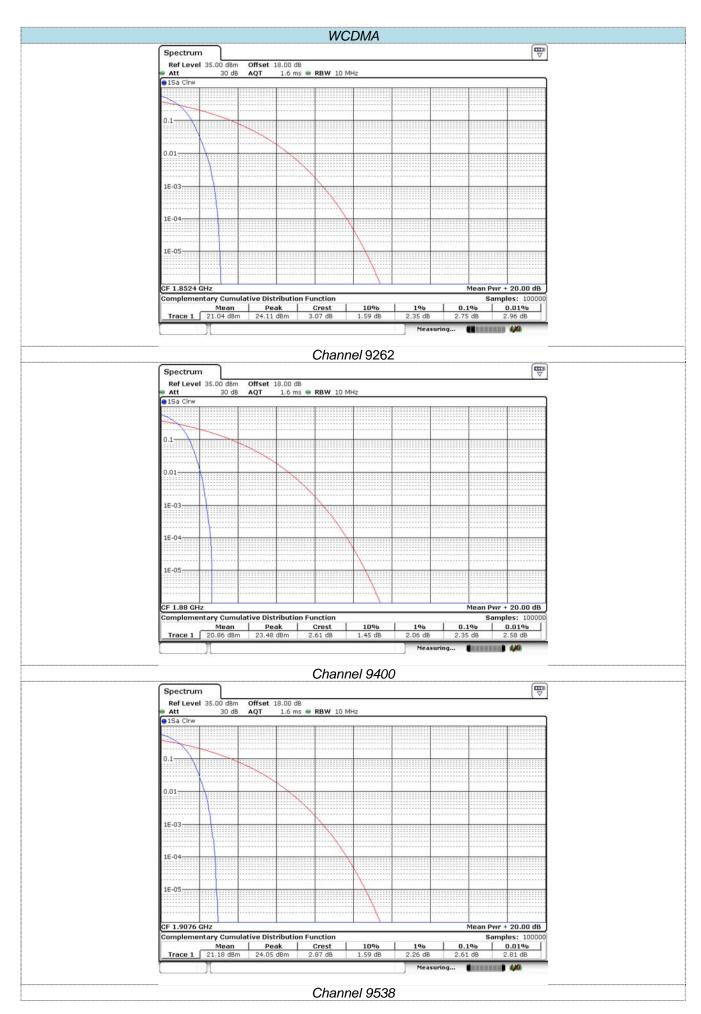
Band	Channel	Frequency(MHz)	PAR	Limit(dB)	Result
PCS1900	512	1850.2	7.68	13.00	Pass
	661	1880.0	7.71	13.00	Pass
	810	1909.8	7.65	13.00	Pass

Band	Channel	Frequency(MHz)	PAR	Limit(dB)	Result
WCDMA BAND II	9262	1852.4	2.75	13.00	Pass
	9400	1880.0	2.35	13.00	Pass
	9538	1907.6	2.61	13.00	Pass

Report No.: TRE1706012301 Page: 51 of 60 Issued: 2017-06-29



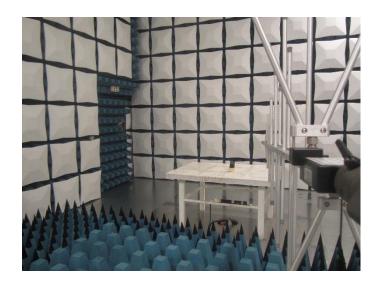
Report No.: TRE1706012301 Page: 52 of 60 Issued: 2017-06-29

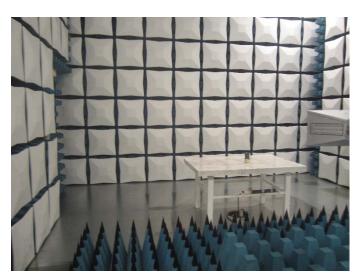


Report No.: TRE1706012301 Page: 53 of 60 Issued: 2017-06-29

# 6. Test Setup Photos of the EUT

Radiated emission:

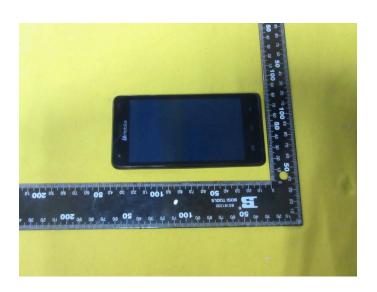




Report No.: TRE1706012301 Page: 54 of 60 Issued: 2017-06-29

# 7. External and Internal Photos of the EUT

# **External photos of the EUT**







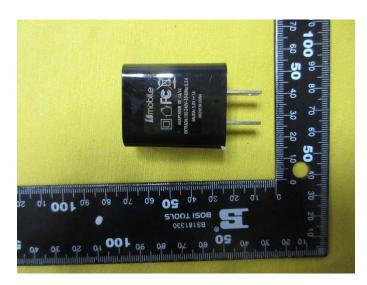
Report No.: TRE1706012301 Page: 55 of 60 Issued: 2017-06-29







Report No.: TRE1706012301 Page: 56 of 60 Issued: 2017-06-29



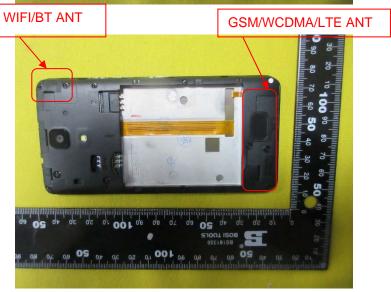


Report No.: TRE1706012301 Page: 57 of 60 Issued: 2017-06-29

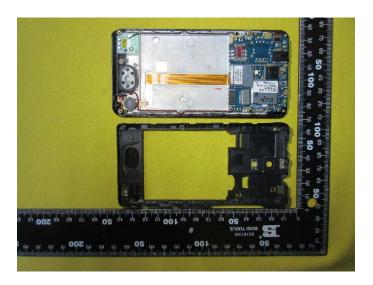
# **Internal photos of the EUT**

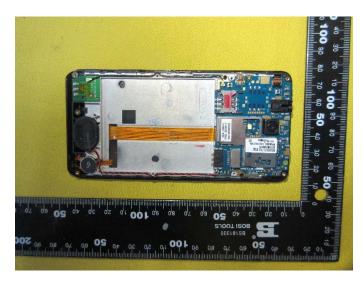


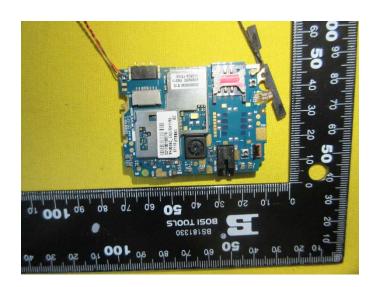




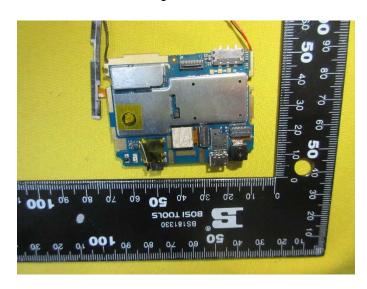
Report No.: TRE1706012301 Page: 58 of 60 Issued: 2017-06-29

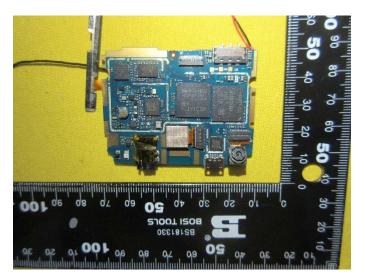


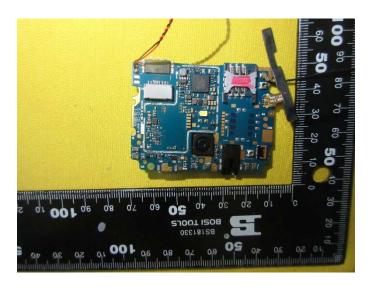


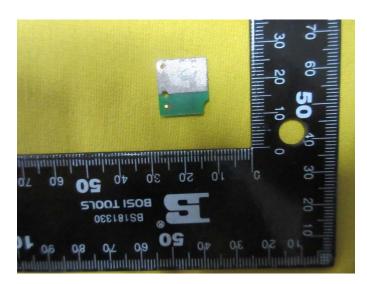


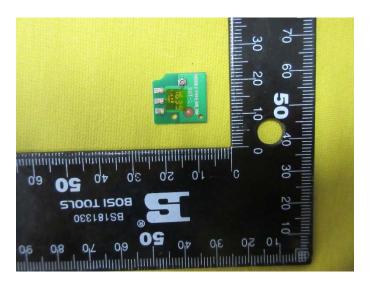
Report No.: TRE1706012301 Page: 59 of 60 Issued: 2017-06-29











-----End of Report-----