



Shenzhen CTA Testing Technology Co., Ltd.

Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China

TEST REPORT

FCC Part 22 Subpart H / Part 24 Subpart E

Report Reference No.....: CTA22071900703

FCC ID.....: 2ARW6-S11

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Eric Wang

Date of issue.....: July 22, 2022

Testing Laboratory Name: Shenzhen CTA Testing Technology Co., Ltd.

Address: Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China

Applicant's name: Shenzhen HTL Electronics Co., Ltd

Address: 1Rd No.3 Building A 4/F Bantian, Shangxue Science Park, Longgang District, Shenzhen, China

Test specification

FCC CFR Title 47 Part 2, Part 22H, Part 24E

Standard: ANSI/TIA-603-E-2016

KDB 971168 D01

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Test item description: Children's mobile phone

Trade Mark: N/A

Manufacturer: Shenzhen HTL Electronics Co., Ltd

Model/Type reference.....: S11

Listed Models: S10

Modulation: GMSK, 8PSK, QPSK

Frequency.....: GSM850, PCS1900, UMTS Band II, UMTS Band V

Rating: DC 3.7V from battery; Charging input: 5V---2A

Result.....: **PASS**

Shenzhen CTA Testing Technology Co., Ltd.

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TEST REPORT

Equipment under Test : Children's mobile phone

Model /Type : S11

Listed Models : S10

Applicant : **Shenzhen HTL Electronics Co., Ltd**

Address : 1Rd No.3 Building A 4/F Bantian, Shangxue Science Park, Longgang District, Shenzhen, China

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Address : 1Rd No.3 Building A 4/F Bantian, Shangxue Science Park, Longgang District, Shenzhen, China

Test Result:	PASS
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1 TEST STANDARDS

The tests were performed according to following standards:

[FCC Part 2: FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS](#)

[FCC Part 22 Subpart H: PRIVATE LAND MOBILE RADIO SERVICES.](#)

[FCC Part 24 Subpart E: PUBLIC MOBILE SERVICES](#)

[ANSI/TIA-603-E-2016: Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.](#)

[ANSI C63.26:2015: American National Standard of procedures for compliance testing of transmitters used in licensed radio services.](#)

[ANSI C63.10-2013 Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz](#)

[FCC KDB971168D01 Power Meas License Digital Systems](#)

2 SUMMARY

2.1 General Remarks

Date of receipt of test sample	:	July 05, 2022
Testing commenced on	:	July 06, 2022
Testing concluded on	:	July 17, 2022

2.2 Product Description

Product Name:	Children's mobile phone
Model/Type reference:	S11
Power supply:	DC 3.7V from battery
Hardware version:	HY397 V-1.2
Software version:	V1.0
GSM	
Operation Band:	GSM850, PCS1900
Supported Type:	GSM/GPRS/EGPRS
Power Class:	GSM850:Power Class 4 PCS1900:Power Class 1
Modulation Type:	GMSK for GPRS, 8-PSK for EGPRS
GSM Release Version	R6
GPRS Multislot Class	12
EGPRS Multislot Class	12
Antenna Type:	FPC antenna
Antenna Gain:	-0.5 dB for GSM850 Band; 1.2dBi for PCS1900 Band
WCDMA	
Operation Band:	FDD Band II, FDD Band V
Power Class:	Power Class 3
Modulation Type:	QPSK for HSUPA/HSDPA
WCDMA Release Version:	Rel-R8
HSDPA Category:	Category 14
HSUPA Category:	Category 6
Antenna type:	FPC antenna
Antenna Gain:	-0.5 dBi for WCDMA Band V; 1.2dBi for WCDMA Band II

Note: Antenna gain is provided by the manufacturer.

2.3 Equipment Under Test

Power supply system utilised

Power supply voltage	:	<input type="radio"/> 230V / 50 Hz	<input type="radio"/> 120V / 60Hz
		<input type="radio"/> 12 V DC	<input type="radio"/> 24 V DC
		<input checked="" type="radio"/> Other (specified in blank below)	

DC 3.7V from battery

2.4 Short description of the Equipment under Test (EUT)

This is a Children's mobile phone.

For more details, refer to the user's manual of the EUT.

2.5 Description of Test Modes and Test Frequency

The EUT has been tested under typical operating condition. The CMW500 used to control the EUT staying in continuous transmitting and receiving mode for testing. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

Test Frequency:

GSM 850		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 Band V	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
9262	1852.4	4132	826.40
9400	1880.0	4182	836.60
9538	1907.6	4233	846.60

Test Modes:

The test mode(s) are selected according to relevant radio technology specifications.

Test Mode	Test Modes Description
Mode 1	GSM system, GSM, GMSK modulation
Mode 2	GSM system, GPRS, GMSK modulation
Mode 3	GSM system, EDGE, 8PSK modulation
Mode 4	WCDMA system, QPSK modulation
Mode 5	HSDPA system, QPSK modulation
Mode 6	HSUPA system, QPSK modulation

Note:

- As GPRS and GSM with the same emission designator, test result recorded in this report at the worst case Mode 1 only after exploratory scan.
- As HSDPA and HSUPA with the same emission designator, test result recorded in this report at the worst case Mode 4 with RCM 12.2Kbps only after exploratory scan.

2.6 Special Accessories

Follow auxiliary equipment(s) test with EUT that provided by the manufacturer or laboratory is listed as follow:

Description	Manufacturer	Model	Technical Parameters	Certificate	Provided by
AC-DC Adapter	MOSO	EP-TA20CBC	Input:AC100-240V-50/60Hz, 0.5A Output:DC 5V,2A	FCC	Laboratory
/	/	/	/	/	/
/	/	/	/	/	/
/	/	/	/	/	/

2.7 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for the device filing to comply with Section 15.247 of the Part 22 and Part 24 Rules.

2.8 Modifications

No modifications were implemented to meet testing criteria.

3 TEST ENVIRONMENT

3.1 Address of the test laboratory

Shenzhen CTA Testing Technology Co., Ltd.

Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China

3.2 Test Facility

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

FCC-Registration No.: 517856 Designation Number: CN1318

Shenzhen CTA Testing Technology Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA-Lab Cert. No.: 6534.01

Shenzhen CTA Testing Technology Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010.

3.3 Environmental conditions

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

Radiated Emission:

Temperature:	24 ° C
Humidity:	46 %
Atmospheric pressure:	950-1050mbar

AC Power Conducted Emission:

Temperature:	25 ° C
Humidity:	47 %
Atmospheric pressure:	950-1050mbar

Conducted testing:

Temperature:	24 ° C
Humidity:	46 %
Atmospheric pressure:	950-1050mbar

3.4 Summary of measurement results

Test Item	Section in CFR 47	Result
RF Output Power	Part 2.1046 Part 22.913 (a)(2) Part 24.232 (c)	Pass
Peak-to-Average Ratio	Part 24.232 (d)	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 22.917	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 22.917 (a) Part 24.238 (a)	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 22.917 (a) Part 24.238 (a)	Pass
Out of band emission, Band Edge	Part 22.917 (a) Part 24.238 (a)	Pass
Frequency stability	Part 2.1055 Part 22.355 Part 24.235	Pass

3.5 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 CTA Testing Technology 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 CTA Testing Technology Co., Ltd.:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.06 dB	(1)
Radiated Emission	1~18GHz	5.14 dB	(1)
Radiated Emission	18-40GHz	5.38 dB	(1)
Conducted Disturbance	0.15~30MHz	2.14 dB	(1)
Conducted Power	9KHz~18GHz	0.61 dB	(1)
Spurious RF Conducted Emission	9KHz~40GHz	1.22 dB	(1)
Band Edge Compliance of RF Emission	9KHz~40GHz	1.22 dB	(1)
Occupied Bandwidth	9KHz~40GHz	-	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.6 Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	Equipment No.	Calibration Date	Calibration Due Date
LISN	R&S	ENV216	CTA-308	2021/08/06	2022/08/05
LISN	R&S	ENV216	CTA-314	2021/08/06	2022/08/05
EMI Test Receiver	R&S	ESPI	CTA-307	2021/08/06	2022/08/05
EMI Test Receiver	R&S	ESCI	CTA-306	2021/08/06	2022/08/05
Spectrum Analyzer	Agilent	N9020A	CTA-301	2021/08/06	2022/08/05
Spectrum Analyzer	R&S	FSP	CTA-337	2021/08/06	2022/08/05
Vector Signal generator	Agilent	N5182A	CTA-305	2021/08/06	2022/08/05
Analog Signal Generator	R&S	SML03	CTA-304	2021/08/06	2022/08/05
Universal Radio Communication	CMW500	R&S	CTA-302	2021/08/06	2022/08/05
Temperature and humidity meter	Chigo	ZG-7020	CTA-326	2021/08/06	2022/08/05
Ultra-Broadband Antenna	Schwarzbeck	VULB9163	CTA-310	2021/08/07	2022/08/06
Horn Antenna	Schwarzbeck	BBHA 9120D	CTA-309	2021/08/07	2022/08/06
Loop Antenna	Zhinan	ZN30900C	CTA-311	2021/08/07	2022/08/06
Horn Antenna	Beijing Hangwei Dayang	OBH100400	CTA-336	2021/08/06	2022/08/05
Amplifier	Schwarzbeck	BBV 9745	CTA-312	2021/08/06	2022/08/05
Amplifier	Taiwan chengyi	EMC051845B	CTA-313	2021/08/06	2022/08/05
Directional coupler	NARDA	4226-10	CTA-303	2021/08/06	2022/08/05
High-Pass Filter	XingBo	XBLBQ-GTA18	CTA-402	2021/08/06	2022/08/05
High-Pass Filter	XingBo	XBLBQ-GTA27	CTA-403	2021/08/06	2022/08/05
Automated filter bank	Tonscend	JS0806-F	CTA-404	2021/08/06	2022/08/05
Power Sensor	Agilent	U2021XA	CTA-405	2021/08/06	2022/08/05
Amplifier	Schwarzbeck	BBV9719	CTA-406	2021/08/06	2022/08/05

4 TEST CONDITIONS AND RESULTS

4.1 Output Power

LIMIT

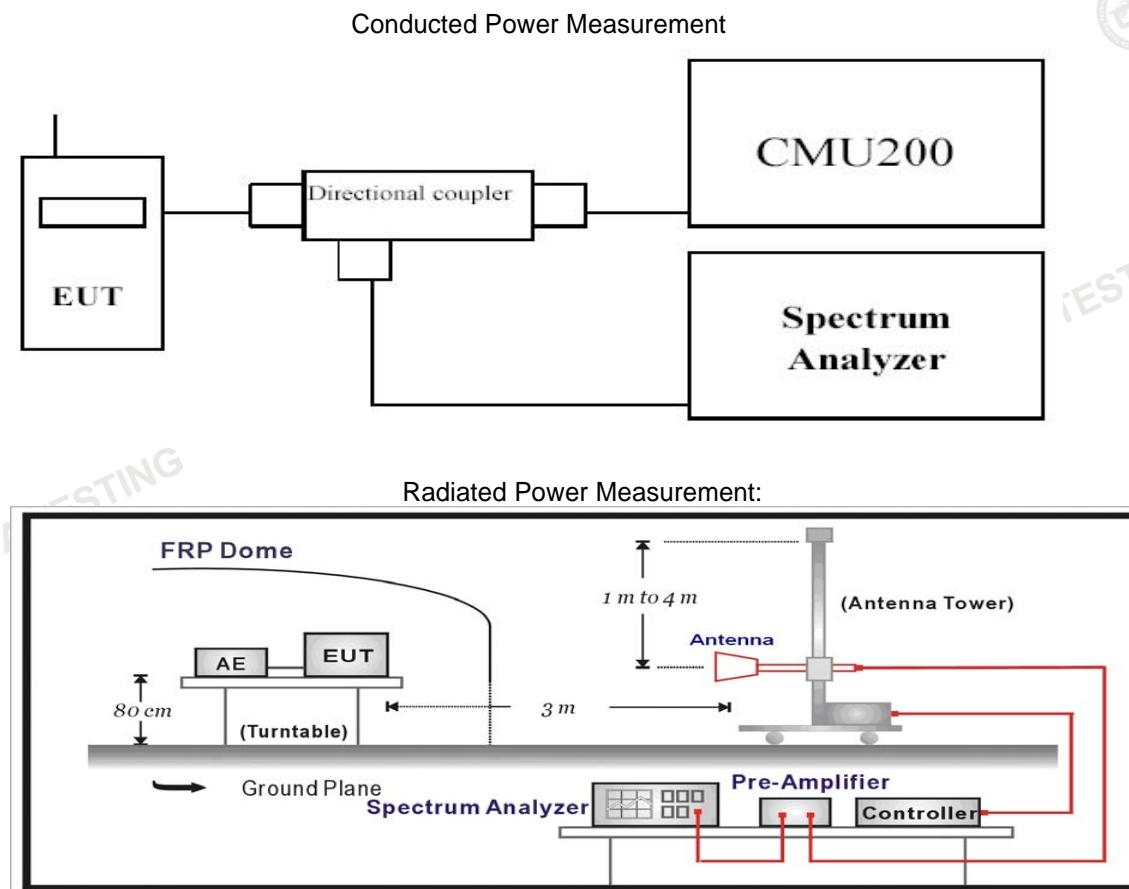
GSM850/WCDMA Band V: 7W

PCS1900/WCDMA Band II: 2W

WCDMA Band IV: 1W

The Peak-to-Average Ratio (PAR) of the transmission may not exceed 13 dB.

TEST CONFIGURATION



TEST PROCEDURE

The EUT was setup according to EIA/TIA 603E

Conducted Power Measurement:

- Place the EUT on a bench and set it in transmitting mode.
- Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMW500 by a Directional Couple.
- EUT Communicate with CMW500 then selects a channel for testing.
- Add a correction factor to the display of spectrum, and then test.

Radiated Power Measurement:

- The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.
- The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter
- The output of the test antenna shall be connected to the measuring receiver.
- The transmitter shall be switched on and the measuring receiver shall be tuned to the frequency of the transmitter under test.

- e) The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
- f) The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- g) The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
- h) The maximum signal level detected by the measuring receiver shall be noted.
- i) The transmitter shall be replaced by a substitution antenna.
- j) The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
- k) The substitution antenna shall be connected to a calibrated signal generator.
- l) If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- m) The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
- n) The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
- o) The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
- p) The measure of the effective radiated power is the larger of the two levels recorded at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.

TEST RESULTS**Conducted Measurement:**

Mode	Txslot	Burst Average Power (dBm)		
		128	190	251
GSM		33.01	33.24	33.15
GPRS 850 (GMSK)	1Txslot	32.98	33.15	33.05
	2Txslot	32.27	32.48	32.38
	3Txslot	31.03	31.24	31.15
	4Txslot	30.47	30.68	30.60
EGPRS 850 (8PSK)	1 Txslot	29.98	29.82	29.73
	2Txslot	29.24	29.11	29.00
	3Txslot	27.68	27.53	27.40
	4Txslot	26.73	26.55	26.39
Mode	Txslot	Burst Average Power (dBm)		
		512	661	810
GSM		30.69	30.69	30.96
GPRS 1900 (GMSK)	1Txslot	30.68	30.65	30.90
	2Txslot	29.80	29.80	30.05
	3Txslot	28.37	28.38	28.62
	4Txslot	27.85	27.86	28.09
EGPRS 1900 (8PSK)	1 Txslot	27.02	27.12	27.46
	2Txslot	26.72	26.84	27.21
	3Txslot	26.02	26.20	26.60
	4Txslot	25.58	25.79	26.23

Item	Band	FDD Band II result (dBm)			FDD Band V result (dBm)		
		Test Channel			Test Channel		
		ARFCN	9262	9400	9538	4132	4183
AMR	12.2kbps AMR	23.51	26.64	23.64	23.60	23.41	23.35
RMC	12.2kbps RMC	23.62	23.68	23.73	23.66	23.46	23.40
HSDPA	Sub - Test 1	21.64	21.72	21.77	22.71	22.51	22.44
	Sub - Test 2	21.13	21.16	21.27	22.18	21.99	21.94
	Sub - Test 3	21.11	21.20	21.29	22.19	21.95	21.94
	Sub - Test 4	21.10	21.17	21.29	22.19	21.97	21.93
HSUPA	Sub - Test 1	19.65	19.71	19.76	20.68	20.47	20.41
	Sub - Test 2	20.10	20.18	20.24	21.19	20.99	20.93
	Sub - Test 3	20.62	20.71	20.75	21.71	21.52	21.44
	Sub - Test 4	19.65	19.68	19.77	20.71	20.52	20.45
	Sub - Test 5	21.64	21.75	21.78	22.73	22.53	22.46

Radiated Measurement:

Note: 1. The field strength of radiation emission was measured in the following position: EUT stand-up position (Zaxis), lie-down position (X, Y axis). The data show in this report only with the worst case setup. After exploratory measurement the worst case of Z axis was reported.

Note: 2. We test the H direction and V direction and V direction is worse.

GSM850

Channel	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	Correction (dB)	P _{Ag} (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
128	-9.26	2.42	8.45	2.15	36.82	31.44	38.45	7.01	V
190	-9.10	2.46	8.45	2.15	36.82	31.56	38.45	6.89	V
251	-9.13	2.53	8.36	2.15	36.82	31.37	38.45	7.08	V

GPRS850

Channel	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	Correction (dB)	P _{Ag} (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
128	-9.72	2.42	8.45	2.15	36.82	30.98	38.45	7.47	V
190	-9.64	2.46	8.45	2.15	36.82	31.02	38.45	7.43	V
251	-9.63	2.53	8.36	2.15	36.82	30.87	38.45	7.58	V

EGPRS850

Channel	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	Correction (dB)	P _{Ag} (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
128	-15.28	2.42	8.45	2.15	36.82	25.42	38.45	13.03	V
190	-15.01	2.46	8.45	2.15	36.82	25.65	38.45	12.80	V
251	-15.11	2.53	8.36	2.15	36.82	25.39	38.45	13.06	V

PCS1900

Channel	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
512	-11.65	3.41	10.24	33.60	28.78	33.01	4.23	V
661	-11.24	3.49	10.24	33.60	29.11	33.01	3.90	V
810	-11.83	3.55	10.23	33.60	28.45	33.01	4.56	V

GPRS1900

Channel	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
512	-12.41	3.41	10.24	33.60	28.02	33.01	4.99	V
661	-11.93	3.49	10.24	33.60	28.42	33.01	4.59	V
810	-12.09	3.55	10.23	33.60	28.19	33.01	4.82	V

EGPRS1900

Channel	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
512	-17.18	3.41	10.24	33.60	23.25	33.01	9.76	V
661	-16.91	3.49	10.24	33.60	23.44	33.01	9.57	V
810	-16.92	3.55	10.23	33.60	23.36	33.01	9.65	V

WCDMA BAND II

Channel	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
9262	-19.19	3.41	10.24	33.60	21.24	33.01	11.77	V
9400	-18.81	3.49	10.24	33.60	21.54	33.01	11.47	V
9538	-18.92	3.55	10.23	33.60	21.36	33.01	11.65	V

WCDMA BAND V

Channel	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	Correction (dB)	P _{Ag} (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4132	-19.49	2.42	8.45	2.15	36.82	21.21	38.45	17.24	V
4183	-19.12	2.46	8.45	2.15	36.82	21.54	38.45	16.91	V
4233	-19.15	2.53	8.36	2.15	36.82	21.35	38.45	17.10	V

Remark:

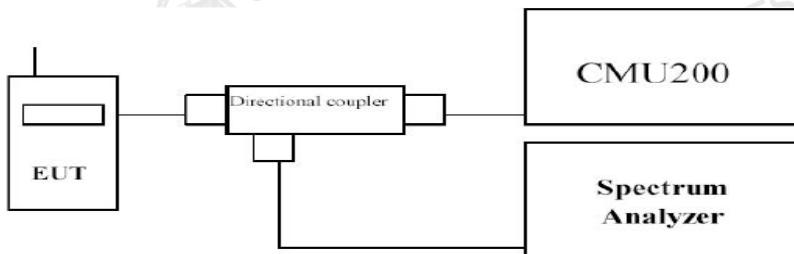
1. $EIRP = P_{Mea}(dBm) - P_{cl}(dB) + P_{Ag}(dB) + G_a(dBi)$
2. $ERP = EIRP - 2.15dBi$ as $EIRP$ by subtracting the gain of the dipole.

4.2 Occupied Bandwidth

LIMIT

N/A

TEST CONFIGURATION



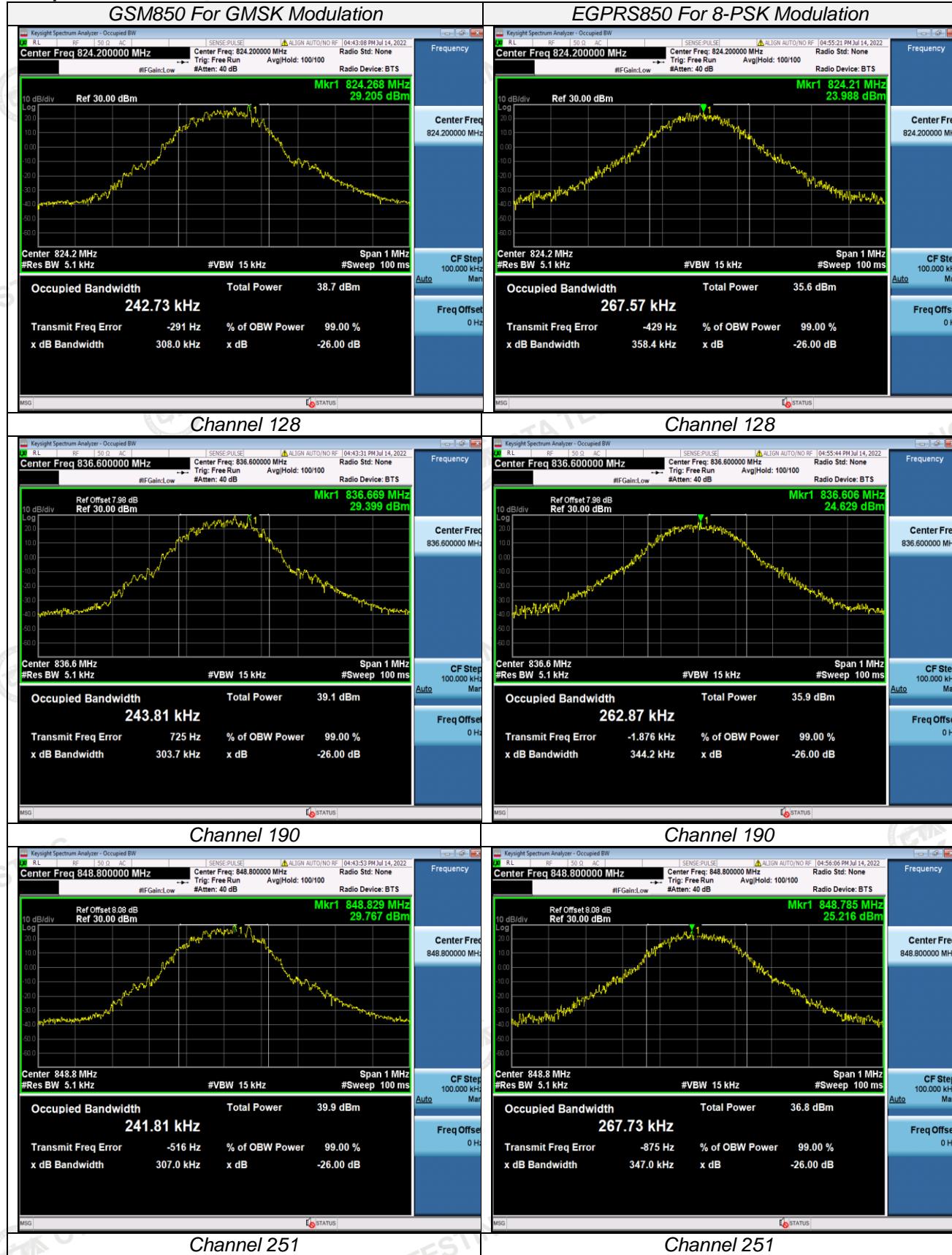
TEST PROCEDURE

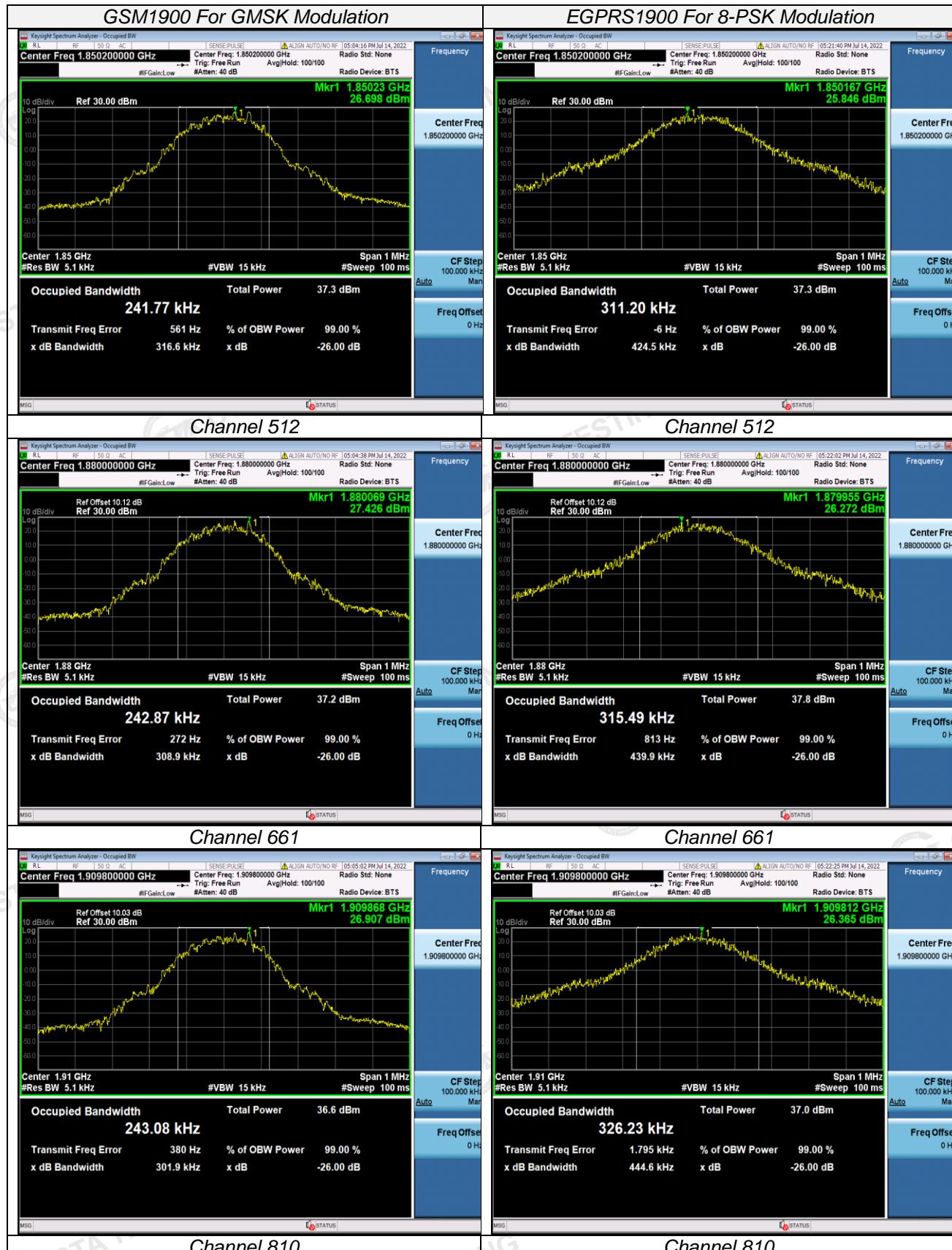
1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer
2. RBW was set to about 1% of emission BW, $VBW \geq 3$ times RBW.
3. -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where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

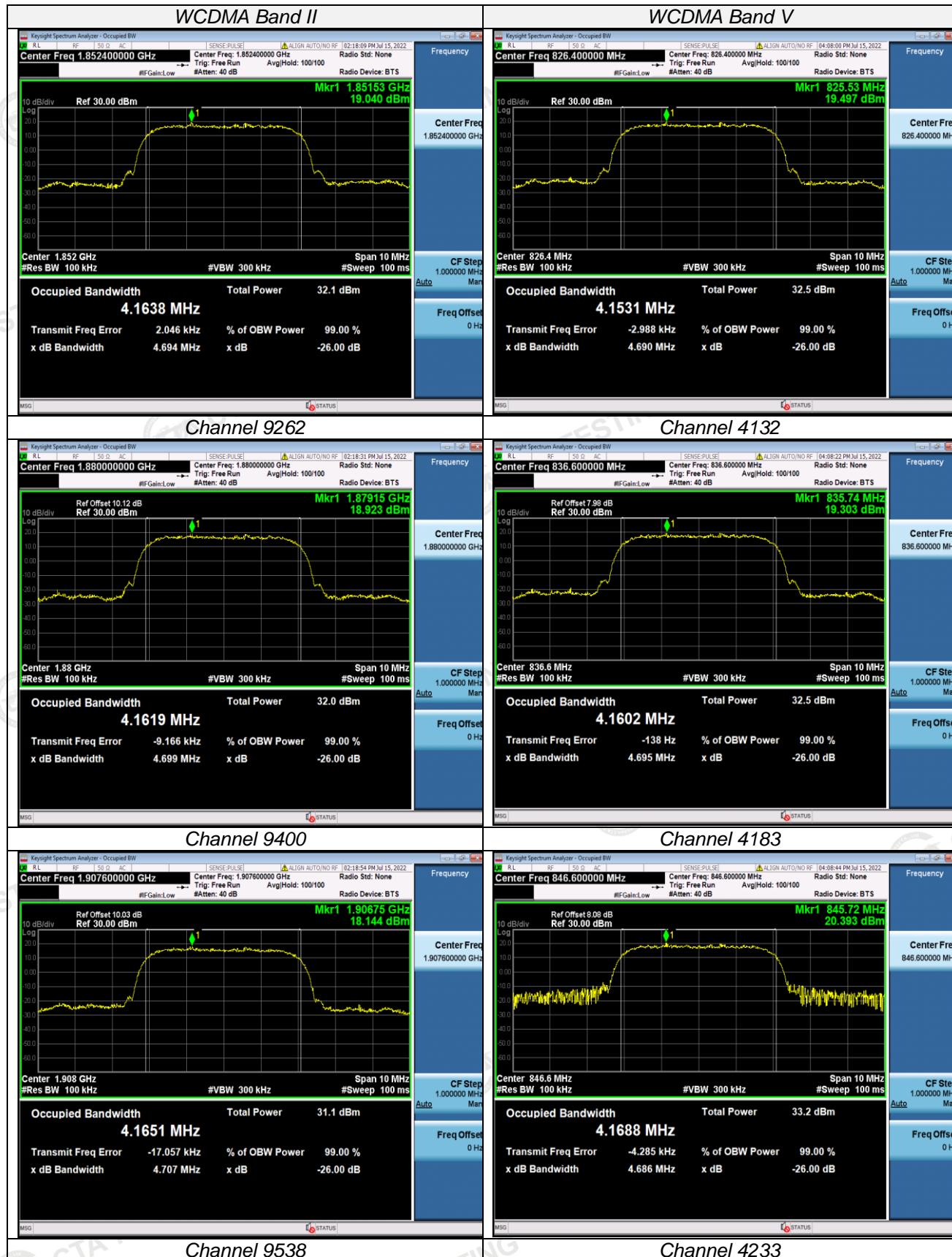
TEST RESULTS

EUT Mode	Channel	Frequency (MHz)	99% Occupy bandwidth (KHz)	-26dB bandwidth (KHz)
GSM850 (GMSK,1Slot)	128	824.20	242.73	308.0
	190	836.60	243.81	303.7
	251	848.80	241.81	307.0
EGPRS850 (8PSK,1Slot)	128	824.20	267.57	358.4
	190	836.60	262.87	344.2
	251	848.80	267.73	374.0
GSM1900 (GMSK,1Slot)	512	1850.20	241.77	316.6
	661	1880.00	242.87	308.9
	810	1909.80	243.08	301.9
EGPRS1900 (8PSK,1Slot)	512	1850.20	311.20	424.5
	661	1880.00	315.49	439.9
	810	1909.80	326.23	444.6
WCDMA Band II (QPSK)	9262	1852.4	4163.8	4694.0
	9400	1880.0	4161.9	4699.0
	9538	1907.6	4165.1	4707.0
WCDMA Band V (QPSK)	4132	826.4	4153.1	4690.0
	4183	836.6	4160.2	4695.0
	4233	846.6	4168.8	4686.0

Test plots as follow:





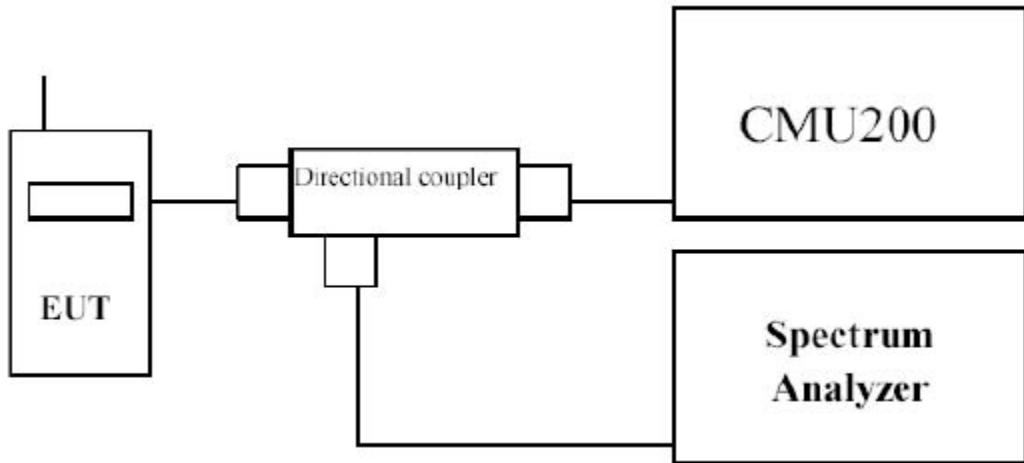


4.3 Band Edge compliance

LIMIT

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.

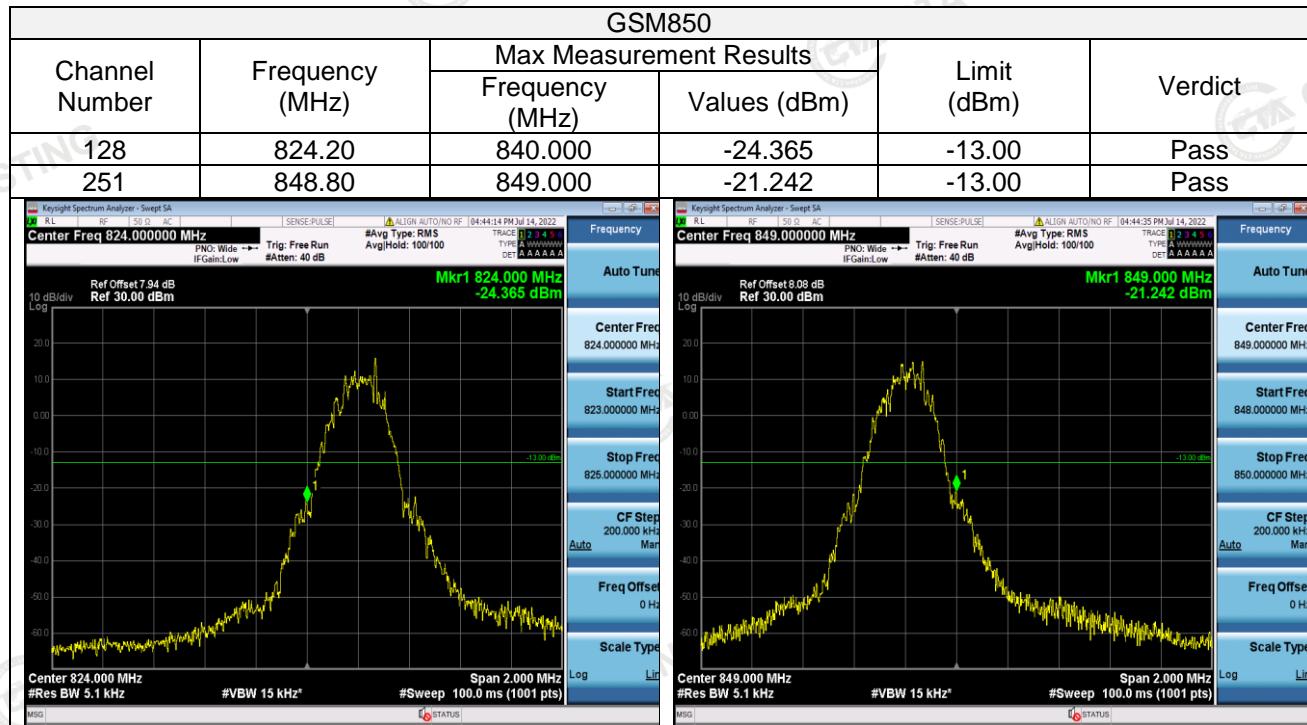
TEST CONFIGURATION

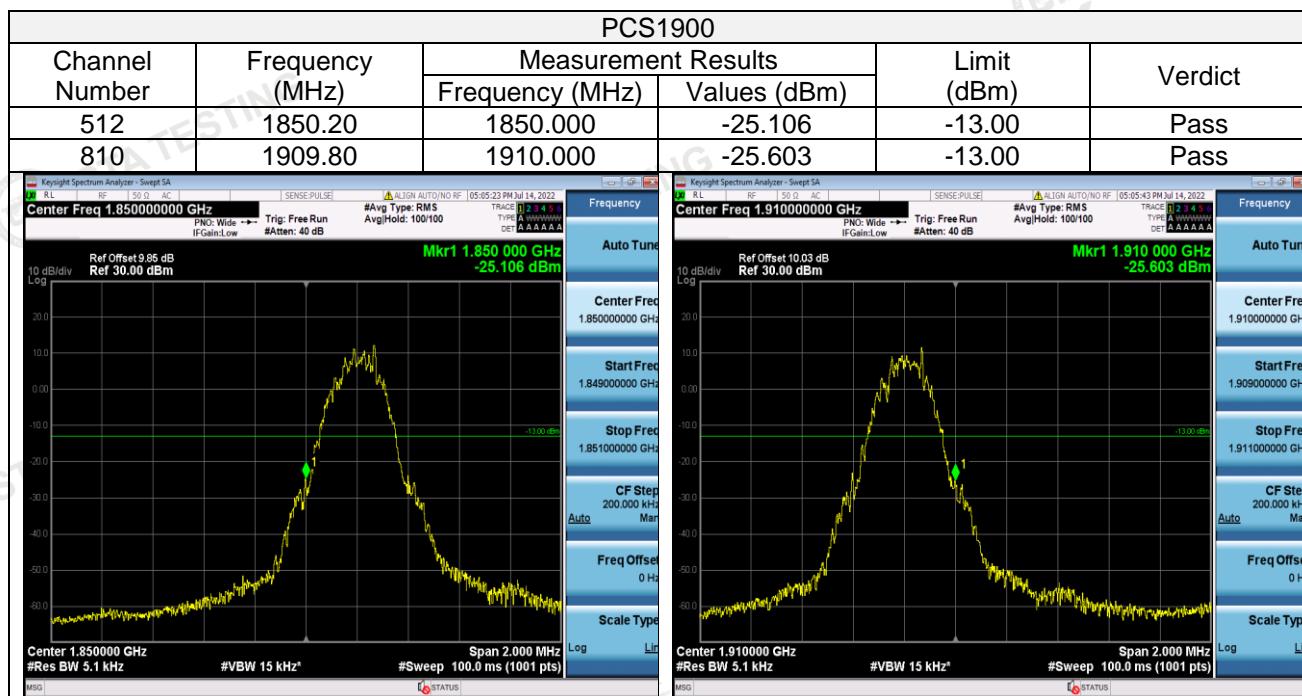
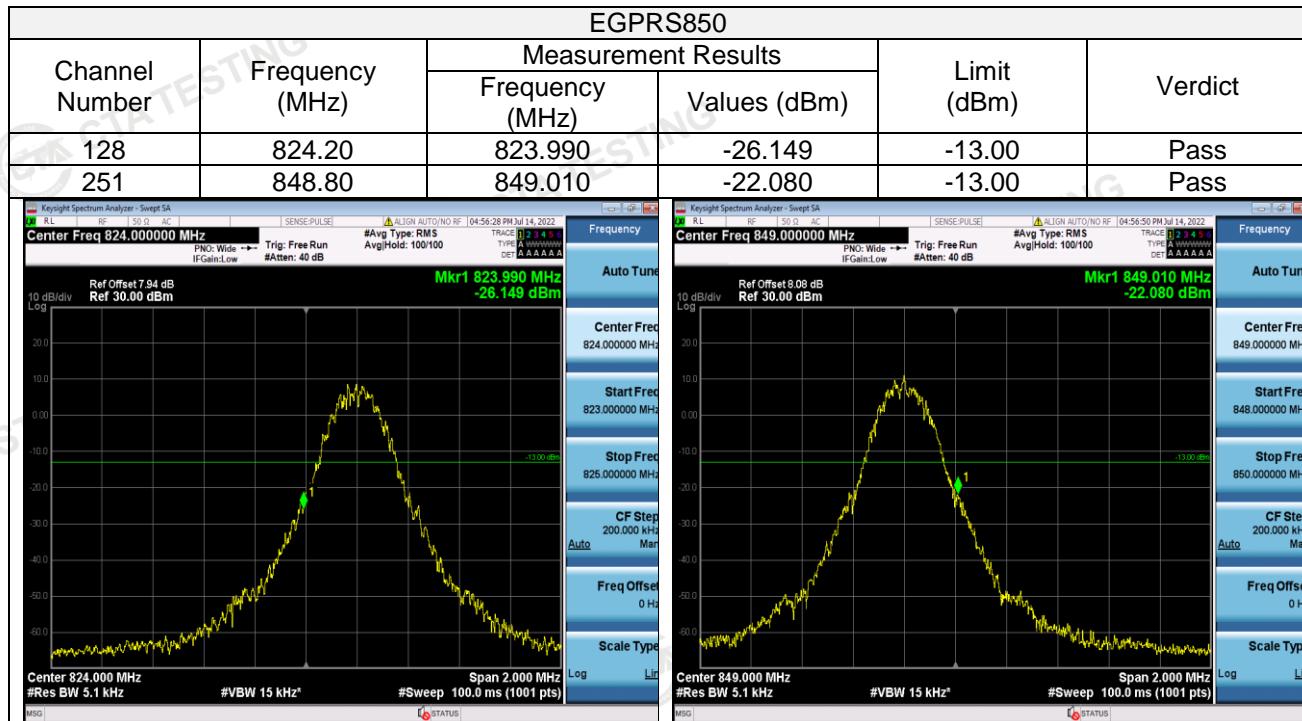


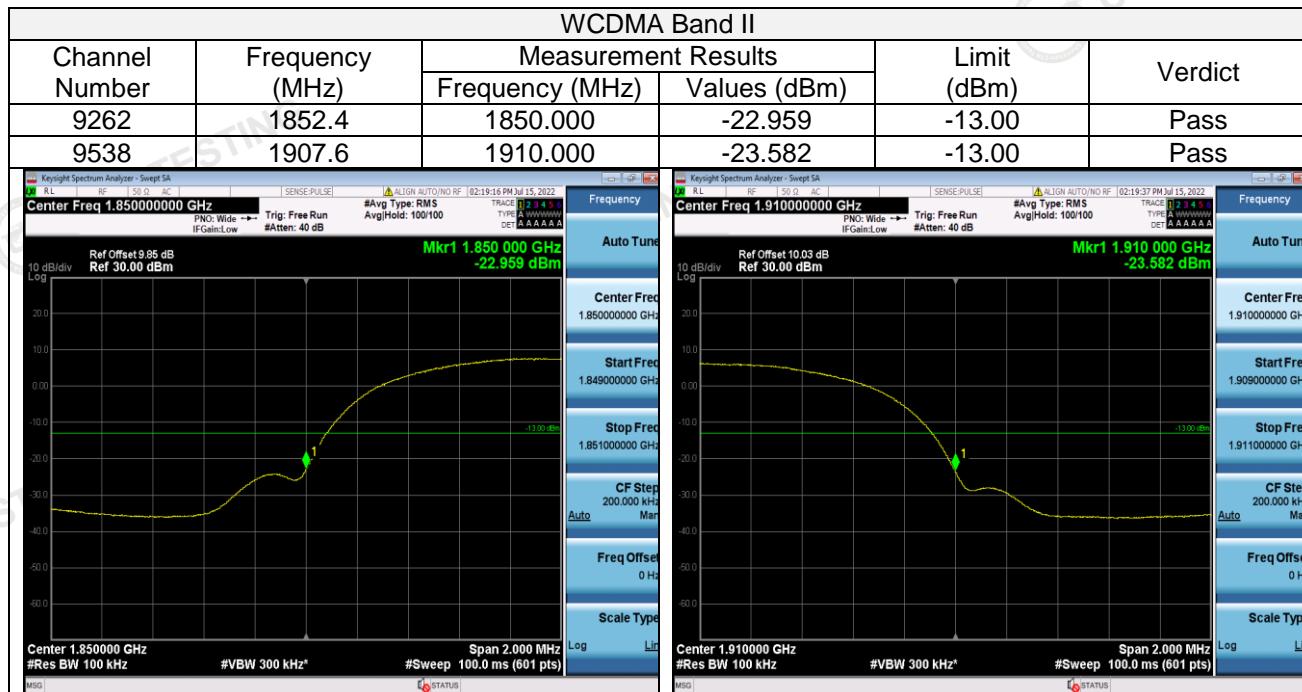
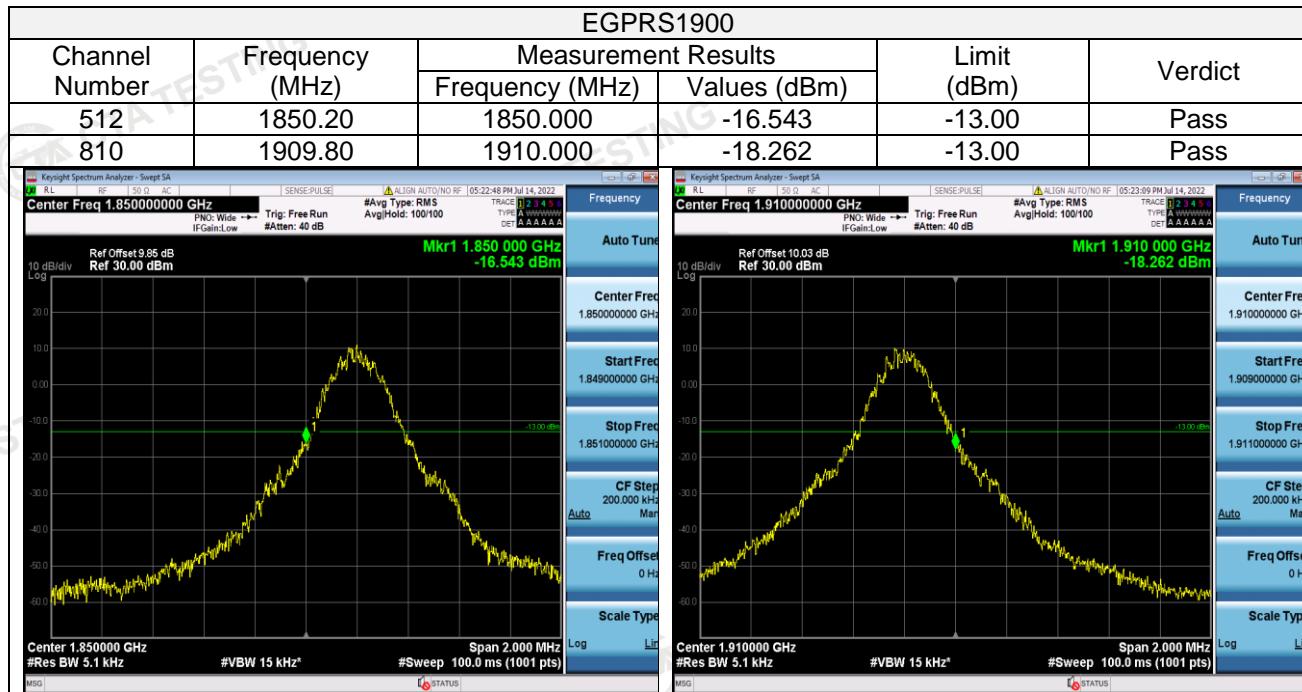
TEST PROCEDURE

In the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions.

TEST RESULTS







WCDMA Band V					
Channel Number	Frequency (MHz)	Measurement Results		Limit (dBm)	Verdict
		Frequency (MHz)	Values (dBm)		
4132	826.4	824.000	-22.157	-13.00	Pass
4233	846.6	849.130	-21.881	-13.00	Pass



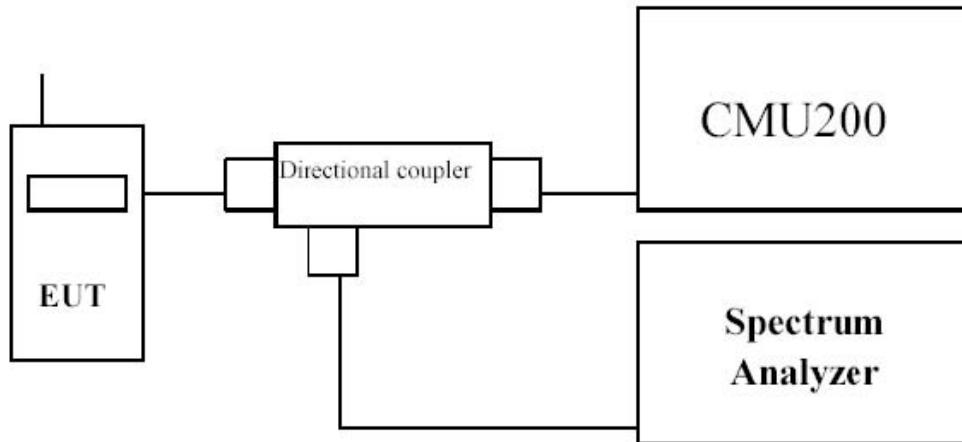
4.4 Spurious Emission

LIMIT

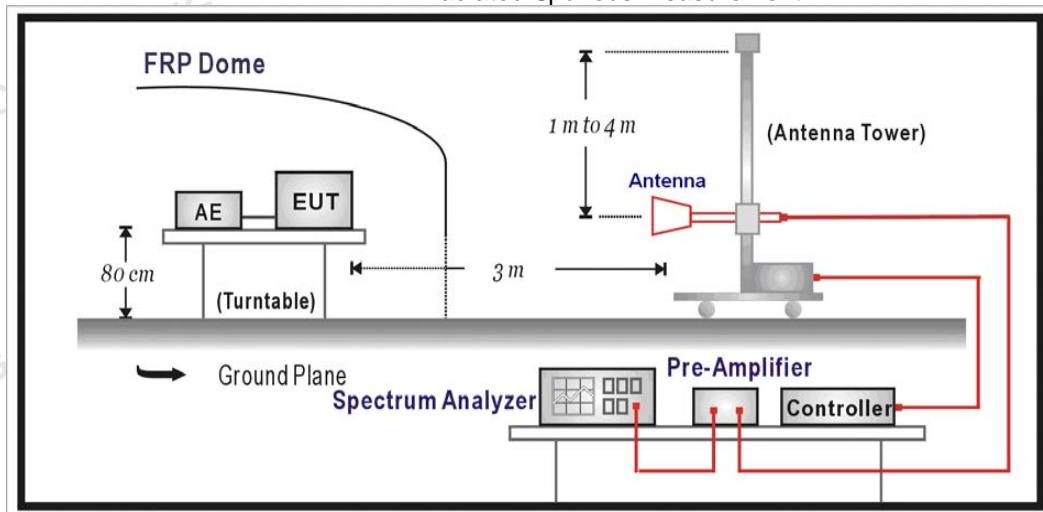
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.

TEST CONFIGURATION

Conducted Spurious Measurement:



Radiated Spurious Measurement:



TEST PROCEDURE

The EUT was setup according to EIA/TIA 603E

Conducted Spurious Measurement:

- Place the EUT on a bench and set it in transmitting mode.
- Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMW500 by a Directional Couple.
- EUT Communicate with CMW500 then selects a channel for testing.
- Add a correction factor to the display of spectrum, and then test.
- The resolution bandwidth of the spectrum analyzer was set at 1MHz for Part 22 and 1MHz for Part 24, sufficient scans were taken to show the out of band Emission if any up to 10th harmonic.

Radiated Spurious Measurement:

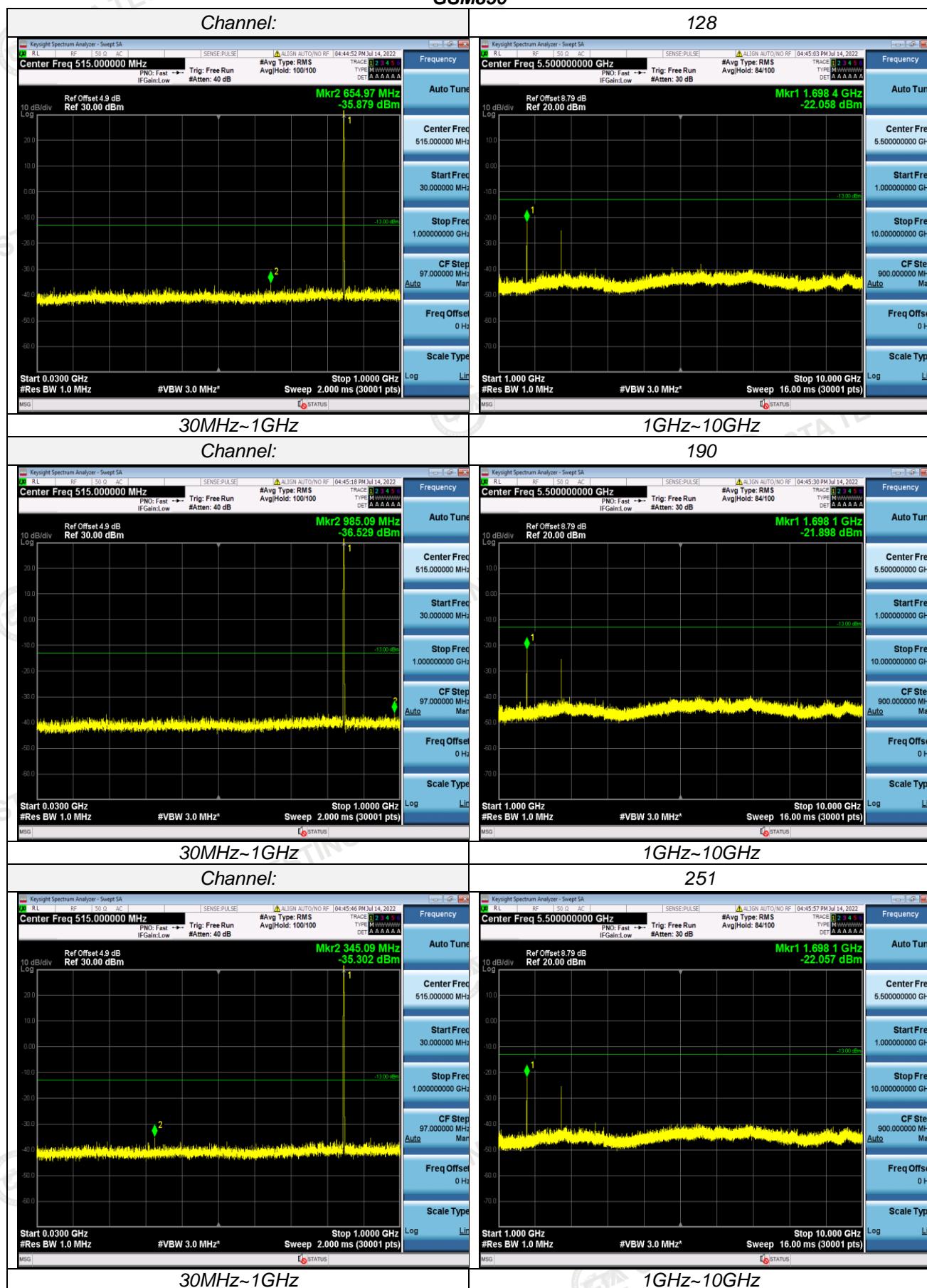
- The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.

- b) The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter
- c) The output of the test antenna shall be connected to the measuring receiver.
- d) The transmitter shall be switched on and the measuring receiver shall be tuned to the frequency of the transmitter under test.
- e) The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
- f) The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- g) The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
- h) The maximum signal level detected by the measuring receiver shall be noted.
- i) The transmitter shall be replaced by a substitution antenna.
- j) The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
- k) The substitution antenna shall be connected to a calibrated signal generator.
- l) If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- m) The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
- n) The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
- o) The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
- p) The measure of the effective radiated power is the larger of the two levels recorded at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.
- q) The resolution bandwidth of the spectrum analyzer was set at 100 kHz for Part 22 and 1MHz for Part 24. The frequency range was checked up to 10th harmonic.

TEST RESULTS

Conducted Measurement:

GSM850



GSM1900

