TEST REPORT

Product Name:	Smart POS Terminal
FCC ID:	2ALKI-P40
Trademark:	N/A
Model Number:	P40
Prepared For:	Wuhan Tianyu Information Industry Co., Ltd.
Address:	Huazhong University of Sci. & Tech., East Lake Dev. Zone, Wuhan 430223, Hubei, China
Manufacturer:	Wuhan Tianyu Information Industry Co., Ltd.
Address:	Huazhong University of Sci. & Tech., East Lake Dev. Zone, Wuhan 430223, Hubei, China
Prepared By:	Shenzhen CTB Testing Technology Co., Ltd.
Address:	1&2/F., Building A, No.26, Xinhe Road, Xinqiao, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, China
Sample Received Date:	Jan. 30, 2024
Sample tested Date:	Jan. 30, 2024 to Mar. 11, 2024
Issue Date:	Mar. 11, 2024
Report No.:	CTB240312055RFX
Test Standards	FCC Part 22H & 24E
Test Results	PASS
Remark:	This is GSM radio test report.

Compiled by:	Reviewed by:	Approved by:
Zhou Kui	Arron Liu	Bin Mei / Director

Note: If there is any objection to the inspection results in this report, please submit a written report to the company within 15 days from the date of receiving the report. The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen CTB Testing Technology Co., Ltd. this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client. "*" indicates the testing items were fulfilled by subcontracted lab. "#" indicates the items are not in CNAS accreditation scope.

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(Note: N/A means not applicable)

1. VERSION

Report No.	Issue Date	Description	Approved
CTB240312055RFX	Mar. 11, 2024	Original	Valid

2. TEST SUMMARY

The Product has been tested according to the following specifications:

FCC Rules	Description of Test Item	Result
§1.1307,§2.1091	RF Exposure	Compliant
§22.913 (a), §24.232 (c)	RF Output Power	Compliant
§24.51	Peak-to-average Ratio(PAR) of Transmitter	Compliant
§22.917 (b), §24.238 (b)	Emission Bandwidth	Compliant
§22.917 (a), §24.238 (a)	Spurious Emissions at Antenna Terminal	Compliant
§22.917 (a), §24.238 (a)	Spurious Radiation Emissions	Compliant
§22.917 (a), §24.238 (a)	Out of Band Emissions	Compliant
§22.355, §24.235	Frequency Stability	Compliant

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3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Item	Uncertainty
Occupancy bandwidth	54.3kHz
Conducted output power Above 1G	0.9dB
Conducted output power below 1G	0.9dB
Power Spectral Density , Conduction	0.9dB
Conduction spurious emissions	2.0dB
Out of band emission	2.0dB
3m camber Radiated spurious emission(30MHz-1GHz)	4.6dB
3m chamber Radiated spurious emission(1GHz-18GHz)	5.1dB
3m chamber Radiated spurious emission(18GHz-40GHz)	3.4dB
Receiver Reference Sensitivity level	1.9dB
humidity uncertainty	5.5%
Temperature uncertainty	0.63℃
frequency	1×10-7

4. PRODUCT INFORMATION AND TEST SETUP

4.1 Product Information

Model(s):	P40
Model Description:	N/A
Hardware Version:	V1.0
Software Version:	V1.0
Operation Frequency:	GPRS/EDGE 850: 824~849MHz GPRS/EDGE 1900: 1850~1910MHz WCDMA Band 5: 824~849MHz WCDMA Band 4: 1710-1755MHz WCDMA Band 2: 1850~1910MHz
Max. RF output power:	GSM850: 32.00dBm GSM1900: 28.86dBm WCDMA Band 5: 24.48dBm WCDMA Band 4: 23.42dBm WCDMA Band 2: 23.27 dBm
Type of Modulation:	GMSK, BPSK
Antenna installation:	FPC Antenna
Antenna Gain:	GSM850: -4.3dBi, GSM1900: 0.89dBi WCDMA Band 5: -4.3dBi WCDMA Band 4: 0.8dBi WCDMA Band 2: 0.89dBi
Ratings:	DC 5V charging from adapter DC 3.7V from battery

4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment.

4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 Channel List

Testing Configure			
Support Band	Support Standard	Channel Frequency	Channel Number
GSM 850	GPRS/EDGE	824.2 MHz	128
		836.6 MHz	190
		848.8 MHz	251
PCS 1900	GPRS/EDGE	1850.2 MHz	512
		1880.0 MHz	661
		1909.8 MHz	810
WCDMA Band 5	WCDMA/HSDPA/HSUPA	826.4 MHz	4132
		836.6 MHz	4183
		846.6 MHz	4233
WCDMA Band 4	WCDMA/HSDPA/HSUPA	1712.4MHz	1312
		1732.4MHz	1412
		1752.6MHz	1513
WCDMA Band 2	WCDMA/HSDPA/HSUPA	1852.4 MHz	9262
		1880.0 MHz	9400
		1907.6 MHz	9538
Note: the transmitter has been tested on the communications mode of GSM, GPRS, EDGE, WCDMA, HSDPA, HSUPA compliance test and record the worst case.			

4.5 Test Mode

Test Mode List		
Test Mode	Description	Remark
TM1	GPRS 850	Low, Middle, High Channels
TM2	EDGE 850	Low, Middle, High Channels
TM3	GPRS 1900	Low, Middle, High Channels
TM4	EDGE 1900	Low, Middle, High Channels
TM5	WCDMA Band 5	Low, Middle, High Channels
TM6	HSDPA Band 5	Low, Middle, High Channels
TM7	HSUPA Band 5	Low, Middle, High Channels
TM8	WCDMA Band 4	Low, Middle, High Channels
TM9	HSDPA Band 4	Low, Middle, High Channels
TM10	HSUPA Band 4	Low, Middle, High Channels
TM8	WCDMA Band 2	Low, Middle, High Channels
TM9	HSDPA Band 2	Low, Middle, High Channels
TM10	HSUPA Band 2	Low, Middle, High Channels

4.6 Test Environment

Humidity(%):	54
Atmospheric Pressure(kPa):	101
Normal Voltage(DC):	3.7
Normal Temperature(℃)	23
Low Temperature(℃)	0
High Temperature(℃)	40

5. TEST FACILITY AND TEST INSTRUMENT USED

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at 1&2F., Building A, No. 26, Xinhe Road, Xinqiao, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

5.2 Test Instrument Used

Item	Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	Agilent	N9020A	MY52090073	2024.07.05
2	Power Sensor	Agilent	U2021XA	MY56120032	2024.07.05
3	Power Sensor	Agilent	U2021XA	MY56120034	2024.07.05
4	Communication test set	R&S	CMW500	108058	2024.07.05
5	Spectrum Analyzer	KEYSIGHT	N9020A	MY51289897	2024.07.05
6	Signal Generator	Agilent	N5181A	MY50140365	2024.07.05
7	Vector signal generator	Agilent	N5182A	MY47420195	2024.07.05
8	Communication test set	Agilent	E5515C	MY50102567	2024.07.06
9	2.4 GHz Filter	Shenxiang	MSF2400-2483.5MS-1154	20181015001	2024.07.05
10	5 GHz Filter	Shenxiang	MSF5150-5850 MS-1155	20181015001	2024.07.06
11	Filter	Xingbo	XBLBQ-DZA120	190821-1-1	2024.07.06
12	BT&WI-FI Automatic test software	Micowave	MTS8000	Ver. 2.0.0.0	/
13	Rohde & Schwarz SFU Broadcast Test System	R&S	SFU	101017	2024.10.30
14	Temperature humidity chamber	Hongjing	TH-80CH	DG-15174	2024.07.05
15	234G Automatic test software	Micowave	MTS8200	Ver. 2.0.0.0	/
16	966 chamber	C.R.T.	966	/	2024.08.11
17	Receiver	R&S	ESPI	100362	2024.07.05
18	Amplifier	HP	8447E	2945A02747	2024.07.05
19	Amplifier	Agilent	8449B	3008A01838	2024.07.05
20	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	00869	2024.07.08

21	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA9120D	01911	2024.07.08
22	EMI test software	Fala	EZ-EMC	FA-03A2 RE	/
23	Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-224	2024.07.08
24	loop antenna	ZHINAN	ZN30900A	GTS534	/
25	40G Horn antenna	A/H/System	SAS-574	588	2024.10.30
26	Amplifier	AEROFLEX	Aeroflex	097	2024.07.05

6. RF OUTPUT POWER

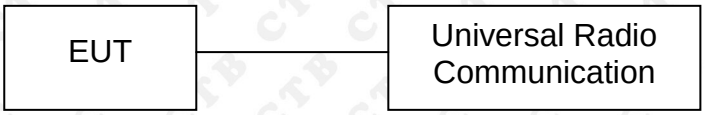
6.1 Standard Applicable

According to §22.913(a)(2),The ERP of mobileand portable stations transmitters and auxiliary test transmitters must not exceed 7 Watts.

According to §24.232 (c), Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

6.2 Test Procedure

Conducted output power test method:



Radiated power test method:

1.The setup of EUT is according with per ANSI/TIA Standard 603D and ANSI C63.4-2014 measurement procedure.
2.The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3.The frequency range up to tenth harmonic of the fundamental frequency was investigated.

4.Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

6.3 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	54%
ATM Pressure:	1010 mbar

6.4 Summary of Test Results/Plots

Max. Radiated Power

ERP For GPRS Mode GSM850

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
824.2	31.09	1.5	0	H	1.5	-4.3	25.29	38.45
824.2	31.35	1.5	0	V	1.5	-4.3	25.55	38.45
Middle Channel								
836.6	31.38	1.5	0	H	1.5	-4.3	25.58	38.45
836.6	31.52	1.5	0	V	1.5	-4.3	25.72	38.45
High Channel								
848.8	31.27	1.5	0	H	1.5	-4.3	25.47	38.45
848.8	30.96	1.5	0	V	1.5	-4.3	25.16	38.45

EIRP For GPRS Mode PCS1900

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 24E Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
1850.2	28.11	1.5	0	H	1.9	0.89	27.10	33
1850.2	27.98	1.5	0	V	1.9	0.89	26.97	33
Middle Channel								
1880	27.79	1.5	0	H	1.9	0.89	26.78	33
1880	28.25	1.5	0	V	1.9	0.89	27.24	33
High Channel								
1909.8	27.39	1.5	0	H	1.9	0.89	26.38	33
1909.8	27.71	1.5	0	V	1.9	0.89	26.70	33

ERP For EDGE Mode GSM850

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
824.2	27.18	1.5	0	H	1.5	-4.3	21.38	38.45
824.2	26.73	1.5	0	V	1.5	-4.3	20.93	38.45
Middle Channel								
836.6	27.00	1.5	0	H	1.5	-4.3	21.20	38.45
836.6	26.97	1.5	0	V	1.5	-4.3	21.17	38.45
High Channel								
848.8	26.71	1.5	0	H	1.5	-4.3	20.91	38.45
848.8	26.40	1.5	0	V	1.5	-4.3	20.60	38.45

EIRP For EDGE Mode PCS1900

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 24E Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
1850.2	24.26	1.5	0	H	1.9	0.89	23.25	33
1850.2	24.58	1.5	0	V	1.9	0.89	23.57	33
Middle Channel								
1880	24.94	1.5	0	H	1.9	0.89	23.93	33
1880	25.12	1.5	0	V	1.9	0.89	24.11	33
High Channel								
1909.8	24.72	1.5	0	H	1.9	0.89	23.71	33
1909.8	25.05	1.5	0	V	1.9	0.89	24.04	33

ERP For WCDMA Mode Band 5

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dBd	dBm	dBm
Low Channel								
826.4	23.54	1.5	0	H	1.5	-4.3	17.74	38.45
826.4	24.03	1.5	0	V	1.5	-4.3	18.23	38.45
Middle Channel								
836.6	23.33	1.5	0	H	1.5	-4.3	17.53	38.45
836.6	23.83	1.5	0	V	1.5	-4.3	18.03	38.45
High Channel								
846.6	23.54	1.5	0	H	1.5	-4.3	17.74	38.45
846.6	24.28	1.5	0	V	1.5	-4.3	18.48	38.45

ERP For HSDPA Mode Band 5

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dBd	dBm	dBm
Low Channel								
826.4	23.07	1.5	0	H	1.5	-4.3	17.27	38.45
826.4	23.12	1.5	0	V	1.5	-4.3	17.32	38.45
Middle Channel								
836.6	22.63	1.5	0	H	1.5	-4.3	16.83	38.45
836.6	23.24	1.5	0	V	1.5	-4.3	17.44	38.45
High Channel								
846.6	22.86	1.5	0	H	1.5	-4.3	17.06	38.45
846.6	23.45	1.5	0	V	1.5	-4.3	17.65	38.45

ERP For HSUPA Mode Band 5

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dBd	dBm	dBm
Low Channel								
826.4	21.75	1.5	0	H	1.5	-4.3	15.95	38.45
826.4	22.50	1.5	0	V	1.5	-4.3	16.70	38.45
Middle Channel								
836.6	22.64	1.5	0	H	1.5	-4.3	16.84	38.45
836.6	22.06	1.5	0	V	1.5	-4.3	16.26	38.45
High Channel								
846.6	23.00	1.5	0	H	1.5	-4.3	17.20	38.45
846.6	22.63	1.5	0	V	1.5	-4.3	16.83	38.45

ERP For WCDMA Mode Band 4

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dBd	dBm	dBm
Low Channel								
1712.4	22.40	1.5	0	H	1.5	0.8	21.70	38.45
1712.4	23.35	1.5	0	V	1.5	0.8	22.65	38.45
Middle Channel								
1740	22.54	1.5	0	H	1.5	0.8	21.84	38.45
1740	23.06	1.5	0	V	1.5	0.8	22.36	38.45
High Channel								
1752.6	22.85	1.5	0	H	1.5	0.8	22.15	38.45
1752.6	22.49	1.5	0	V	1.5	0.8	21.79	38.45

ERP For HSDPA Mode Band 4

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dBd	dBm	dBm
Low Channel								
1712.4	22.19	1.5	0	H	1.5	0.8	21.49	38.45
1712.4	21.74	1.5	0	V	1.5	0.8	21.04	38.45
Middle Channel								
1740	21.28	1.5	0	H	1.5	0.8	20.58	38.45
1740	21.59	1.5	0	V	1.5	0.8	20.89	38.45
High Channel								
1752.6	21.61	1.5	0	H	1.5	0.8	20.91	38.45
1752.6	21.21	1.5	0	V	1.5	0.8	20.51	38.45

ERP For HSUPA Mode Band 4

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dBd	dBm	dBm
Low Channel								
1712.4	21.08	1.5	0	H	1.5	0.8	20.38	38.45
1712.4	20.97	1.5	0	V	1.5	0.8	20.27	38.45
Middle Channel								
1740	21.99	1.5	0	H	1.5	0.8	21.29	38.45
1740	21.09	1.5	0	V	1.5	0.8	20.39	38.45
High Channel								
1752.6	21.96	1.5	0	H	1.5	0.8	21.26	38.45
1752.6	21.50	1.5	0	V	1.5	0.8	20.80	38.45

EIRP For WCDMA Mode Band 2

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 24E Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
1852.4	23.93	1.5	0	H	1.9	0.89	22.92	33
1852.4	23.60	1.5	0	V	1.9	0.89	22.59	33
Middle Channel								
1880	23.05	1.5	0	H	1.9	0.89	22.04	33
1880	22.92	1.5	0	V	1.9	0.89	21.91	33
High Channel								
1907.6	23.78	1.5	0	H	1.9	0.89	22.77	33
1907.6	23.65	1.5	0	V	1.9	0.89	22.64	33

EIRP For HSDPA Mode Band 2

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 24E Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
1852.4	22.52	1.5	0	H	1.9	0.89	21.51	33
1852.4	22.78	1.5	0	V	1.9	0.89	21.77	33
Middle Channel								
1880	22.40	1.5	0	H	1.9	0.89	21.39	33
1880	21.94	1.5	0	V	1.9	0.89	20.93	33
High Channel								
1907.6	22.85	1.5	0	H	1.9	0.89	21.84	33
1907.6	22.97	1.5	0	V	1.9	0.89	21.96	33

EIRP For HSUPA Mode Band 2

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 24E Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
1852.4	21.31	1.5	0	H	1.9	0.89	20.30	33
1852.4	20.14	1.5	0	V	1.9	0.89	19.13	33
Middle Channel								
1880	23.01	1.5	0	H	1.9	0.89	22.00	33
1880	22.40	1.5	0	V	1.9	0.89	21.39	33
High Channel								
1907.6	22.21	1.5	0	H	1.9	0.89	21.20	33
1907.6	21.21	1.5	0	V	1.9	0.89	20.20	33

Note: Result = Substitude - Cable loss + Antenna Gain

Max. Conducted Output Power

For Cellular Band (GSM850)

Test Mode	Channel	Frequency (MHz)	Average Power (dBm)	FCC Part 22.913 Limit (dBm)
GPRS(1 Slot)	Low Channel	824.2	32.00	38.45
	Middle Channel	836.6	31.80	38.45
	High Channel	848.8	31.50	38.45
EDGE(1 Slot)	Low Channel	824.2	27.70	38.45
	Middle Channel	836.6	27.81	38.45
	High Channel	848.8	27.40	38.45

For PCS Band (GSM1900)

Test Mode	Channel	Frequency (MHz)	Average Power (dBm)	FCC Part 24.232 Limit (dBm)
GPRS(1 Slot)	Low Channel	1850.2	28.86	33.0
	Middle Channel	1880.0	28.56	33.0
	High Channel	1909.8	28.18	33.0
EDGE(1 Slot)	Low Channel	1850.2	24.62	33.0
	Middle Channel	1880.0	25.29	33.0
	High Channel	1909.8	25.30	33.0

For WCDMA Band 5

Test Mode	Channel	Frequency (MHz)	Average Power (dBm)	FCC Part 22.913 Limit (dBm)
WCDMA	Low Channel	826.4	24.07	38.45
	Middle Channel	836.6	24.25	38.45
	High Channel	846.6	24.48	38.45
HSDPA	Low Channel	826.4	23.14	38.45
	Middle Channel	836.6	23.28	38.45
	High Channel	846.6	23.53	38.45
HSUPA	Low Channel	826.4	22.63	38.45
	Middle Channel	836.6	23.02	38.45
	High Channel	846.6	23.21	38.45

For WCDMA Band 4

Test Mode	Channel	Frequency (MHz)	Average Power (dBm)	FCC Part 22.913 Limit (dBm)
WCDMA	Low Channel	1712.4	23.37	38.45
	Middle Channel	1740	23.20	38.45
	High Channel	1752.6	23.42	38.45
HSDPA	Low Channel	1712.4	22.42	38.45
	Middle Channel	1740	22.22	38.45
	High Channel	1752.6	22.43	38.45
HSUPA	Low Channel	1712.4	21.44	38.45
	Middle Channel	1740	22.06	38.45
	High Channel	1752.6	22.30	38.45

For WCDMA Band 2

Test Mode	Channel	Frequency (MHz)	Average Power (dBm)	FCC Part 24.232 Limit (dBm)
WCDMA	Low Channel	1852.4	23.05	33.00
	Middle Channel	1880.0	23.18	33.00
	High Channel	1907.6	23.27	33.00
HSDPA	Low Channel	1852.4	22.06	33.00
	Middle Channel	1880.0	22.20	33.00
	High Channel	1907.6	22.32	33.00
HSUPA	Low Channel	1852.4	21.06	33.00
	Middle Channel	1880.0	22.05	33.00
	High Channel	1907.6	22.14	33.00

7. PEAK-TO-AVERAGE RATIO(PAR) OF TRANSMITTER

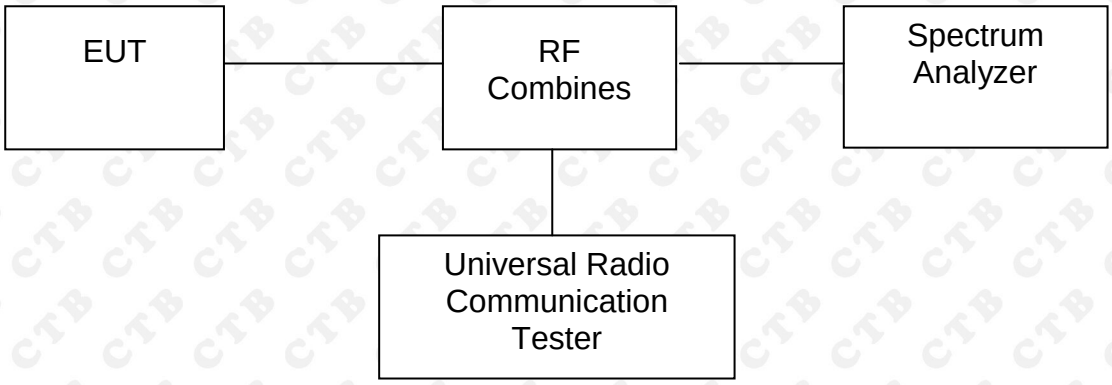
7.1 Standard Applicable

According to §24.232(d), Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. 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.

7.2 Test Procedure

The RF output terminal of the transmitter was connected to the input of the spectrum analyzer via a suitable attenuation. The RBW of the spectrum analyzer was set to 30kHz and the peak-to-average ratio (PAR) of the transmission was recorded.Record the maximum PAPR level associated with a probability of 0.1%.

Test Configuration for the emission bandwidth testing:



7.3 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	54%
ATM Pressure:	1010 mbar

7.4 Summary of Test Results

Only the worst case was selected to record
For GSM850

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
GPRS(1 Slot)	190	836.6	2.78	13
EDGE(1 Slot)	128	824.2	6.88	13

For PCS 1900

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
GPRS(1 Slot)	661	1880	2.83	13
EDGE(1 Slot)	512	1850.2	6.68	13

For WCDMA Band 5

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	4132	826.4	2.92	13
HSDPA	4132	826.4	4.69	13
HSUPA	4132	826.4	4.33	13

For WCDMA Band 4

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	1312	1712.4	2.98	13
HSDPA	1312	1712.4	4.71	13
HSUPA	1450	1740	4.28	13

For WCDMA Band 2

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	9400	1880	2.96	13
HSDPA	9262	1852.4	4.76	13
HSUPA	9262	1852.4	4.30	13

GSM :


Center Freq 824.200000 MHz
Center Freq: 824.200000 MHz
Trig: RF Burst
#Atten: 40 dB
Radio Std: None
Average Power
25.75 dBm
42.23 % at 0dB
10.0 % 4.38 dB
1.0 % 6.76 dB
0.1 % 6.88 dB
0.01 % 6.93 dB
0.001 % 6.94 dB
0.0001 % 6.95 dB
Peak 6.98 dB
32.73 dBm
Gaussian
100 %
10 %
1 %
0.1 %
0.01 %
0.001 %
0.0001 %
0 dB
20 dB
Info BW 510.00 kHz

WCDMA:


Center Freq 1.852400000 GHz
Center Freq: 1.852400000 GHz
Trig: Free Run
#Atten: 40 dB
Radio Std: None
Average Power
19.23 dBm
41.96 % at 0dB
10.0 % 3.25 dB
1.0 % 4.28 dB
0.1 % 4.76 dB
0.01 % 6.24 dB
0.001 % 7.31 dB
0.0001 % 7.81 dB
Peak 7.92 dB
27.15 dBm
Gaussian
100 %
10 %
1 %
0.1 %
0.01 %
0.001 %
0.0001 %
0 dB
20 dB
Info BW 5.0000 MHz

8. EMISSION BANDWIDTH

8.1 Standard Applicable

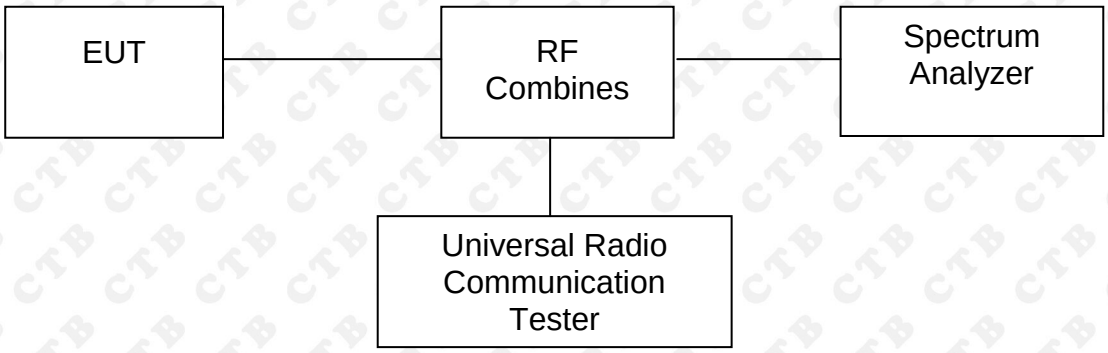
According to §22.917(b),The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

According to §24.238(b), The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

8.2 Test Procedure

The RF output terminal of the transmitter was connected to the input of the spectrum analyzer via a suitable attenuation. The RBW of the spectrum analyzer was set to 10kHz for GSM mode and 100kHz for WCDMA mode, VBW shall be at least 3 times the RBW, and the 26dB bandwidth was recorded.

Test Configuration for the emission bandwidth testing:



8.3 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	54%
ATM Pressure:	1010 mbar

8.4 Summary of Test Results/Plots

For Cellular Band

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GPRS	128	824.2	246.591	316.321
	190	836.6	243.325	312.213
	251	848.8	241.875	313.641
EDGE	128	824.2	247.434	313.800
	190	836.6	246.963	312.321
	251	848.8	246.928	317.313

For PCS Band

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GPRS	512	1850.2	246.482	320.230
	661	1880.0	239.551	310.442
	810	1909.8	245.934	310.141
EDGE	512	1850.2	248.697	313.584
	661	1880.0	246.992	314.925
	810	1909.8	240.463	308.543

For Band 5

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
WCDMA	4132	826.4	4178.283	4690.216
	4182	836.4	4179.718	4718.810
	4233	846.6	4177.945	4718.576
HSDPA	4132	826.4	4197.285	4860.436
	4183	836.6	4185.579	4702.841
	4233	846.6	4173.774	4684.648
HSUPA	4132	826.4	4170.425	4695.731
	4183	836.6	4184.265	4972.374
	4233	846.6	4197.468	4716.136

For Band 4

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
WCDMA	1312	1712.4	4179.670	4724.694
	1450	1740	4181.928	4739.978
	1513	1752.6	4183.135	4711.374
HSDPA	1312	1712.4	4190.012	4684.994
	1450	1740	4199.853	4715.301
	1513	1752.6	4186.405	4724.133
HSUPA	1312	1712.4	4188.389	4705.827
	1450	1740	4193.697	4687.442
	1513	1752.6	4178.683	4723.527

For Band 2

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
WCDMA	9262	1852.4	4167.446	4715.686
	9400	1880.0	4184.360	4730.142
	9538	1907.6	4177.031	4730.984
HSDPA	9262	1852.4	4178.358	4874.874
	9400	1880.0	4196.665	4691.585
	9538	1907.6	4182.869	4719.608
HSUPA	9262	1852.4	4183.065	4709.899
	9400	1880.0	4192.983	4742.251
	9538	1907.6	4168.380	4679.548

For Cellular Band

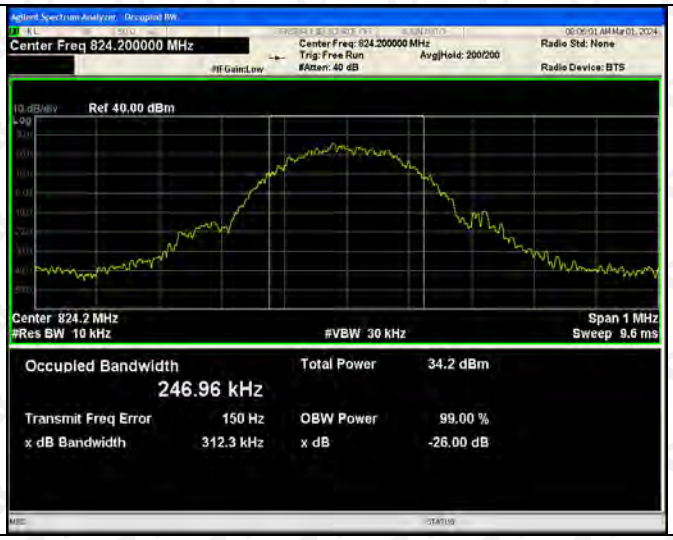
GPRS Low Channel

GPRS Middle Channel

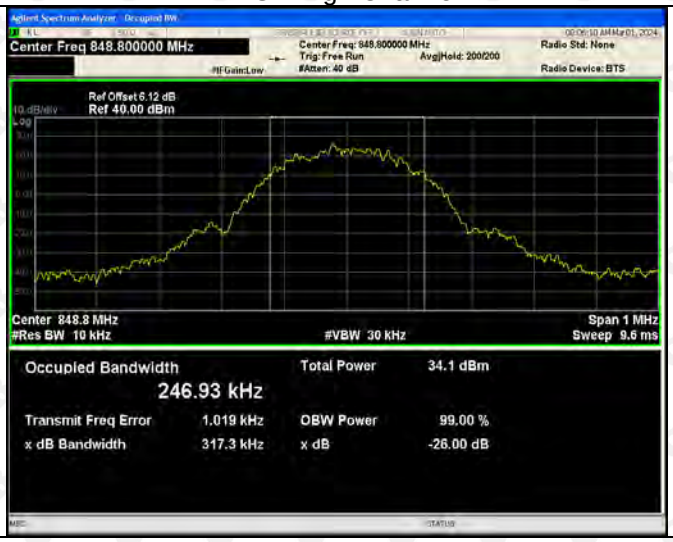
GPRS High Channel

EDGE Low Channel

EDGE Middle Channel



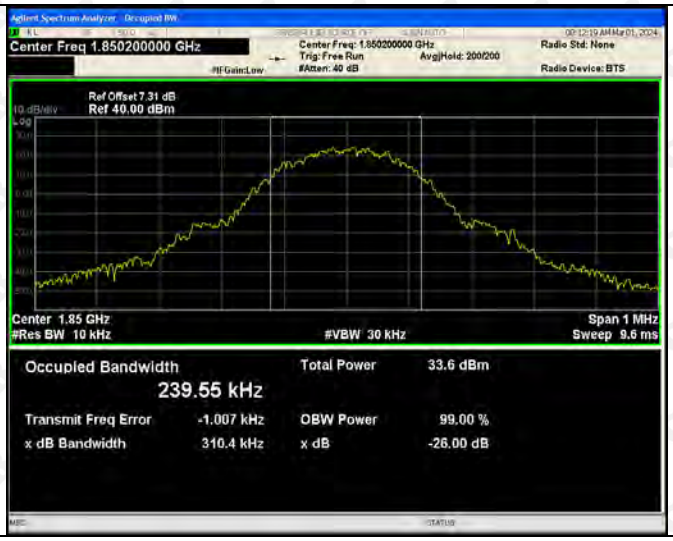
EDGE High Channel



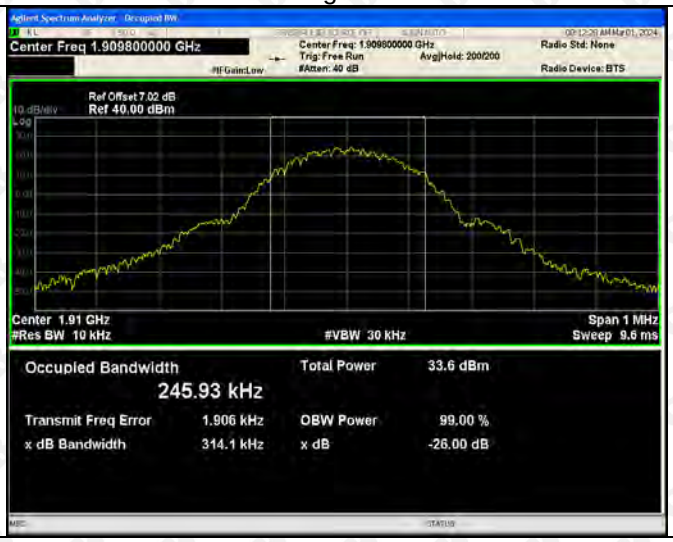
For PCS Band

GPRS Low Channel

GPRS Middle Channel



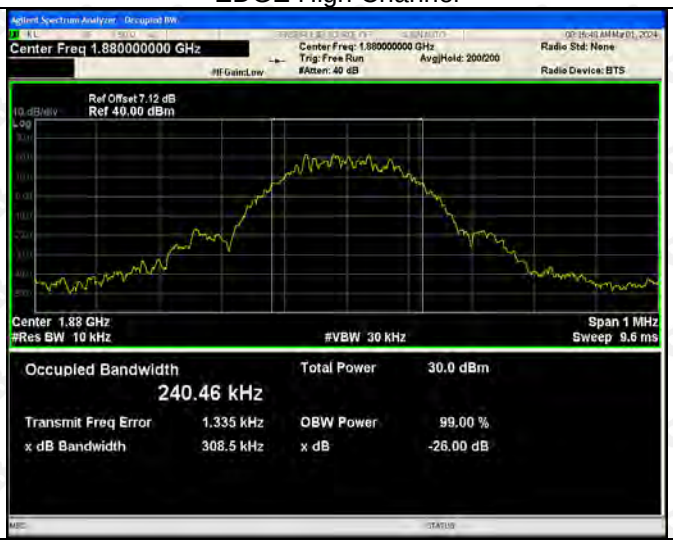
GPRS High Channel



EDGE Low Channel

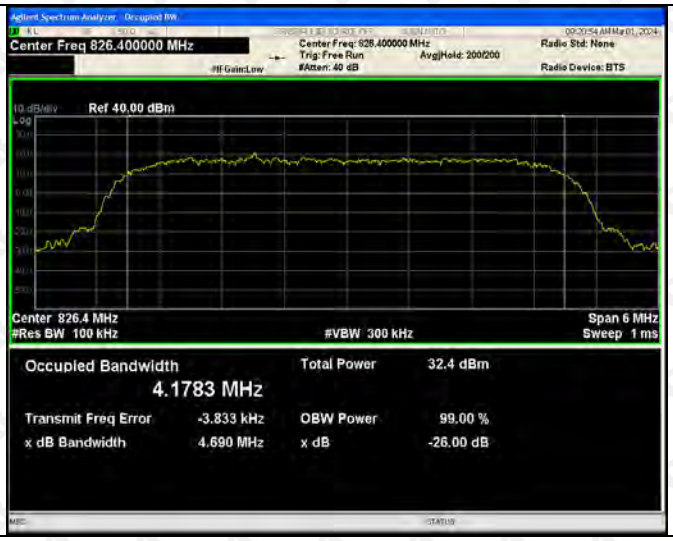
EDGE Middle Channel

EDGE High Channel

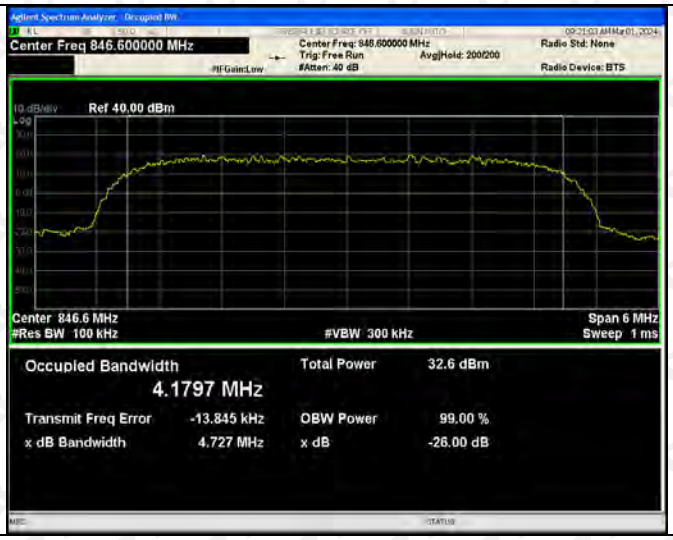


For Band V

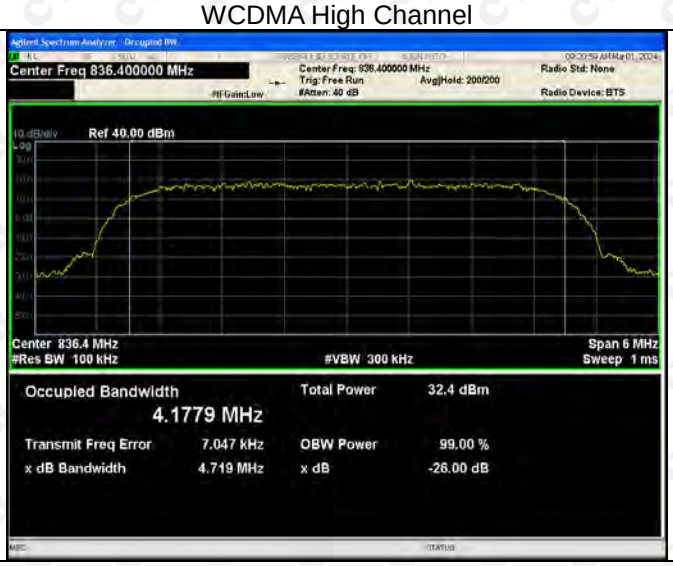
WCDMA Low Channel

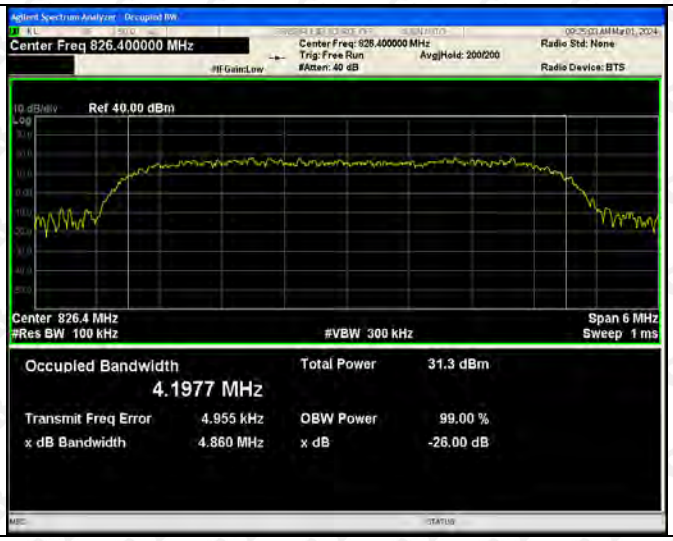
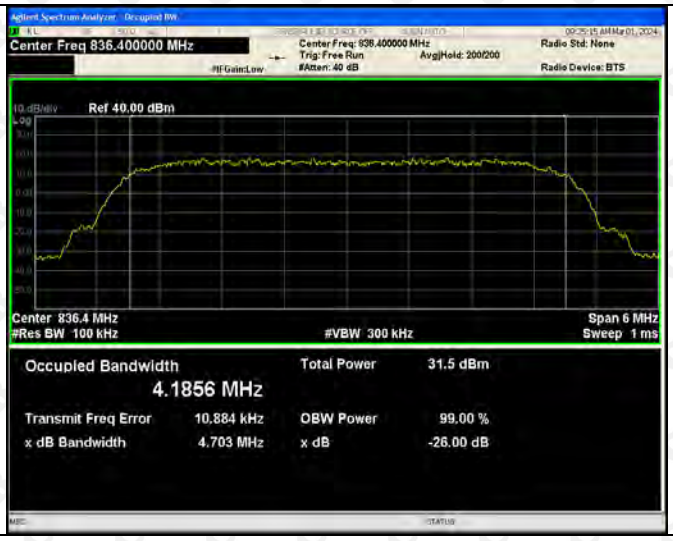


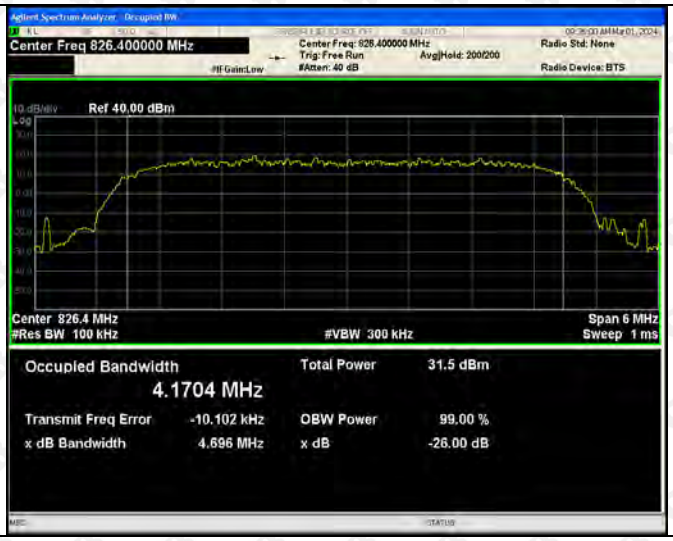
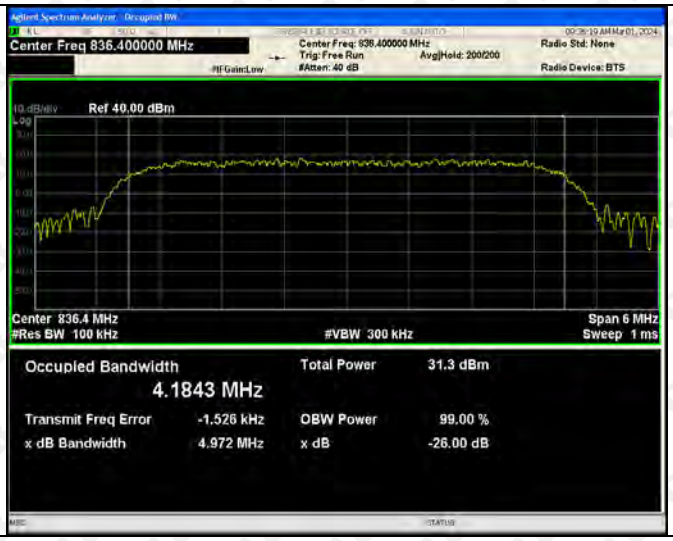
WCDMA Middle Channel



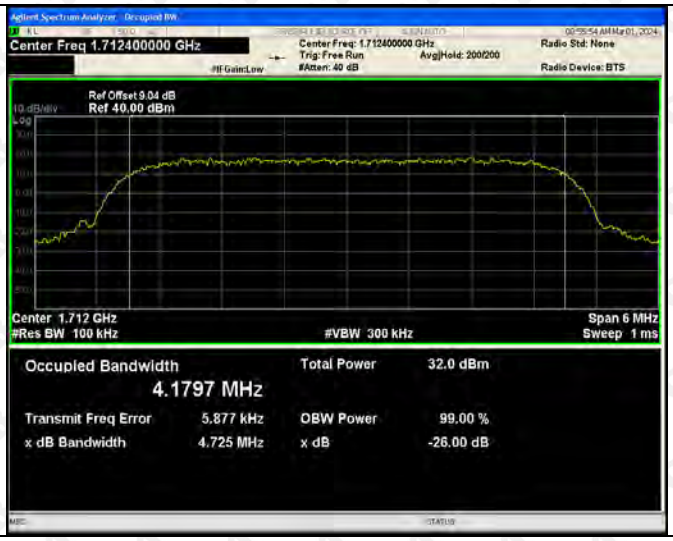
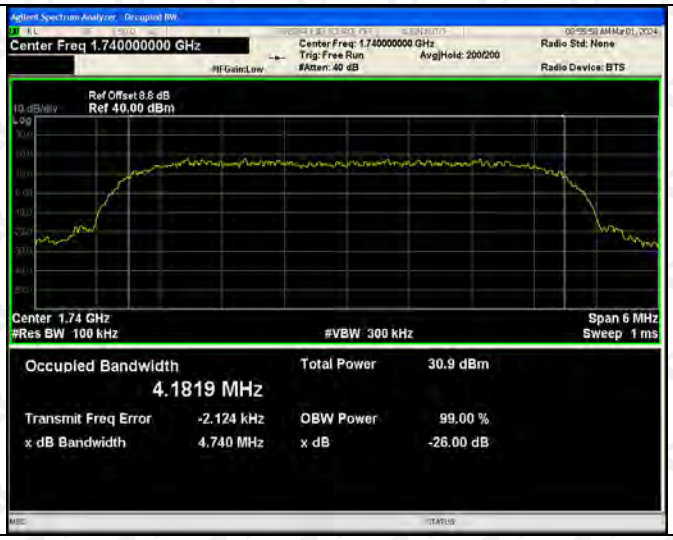
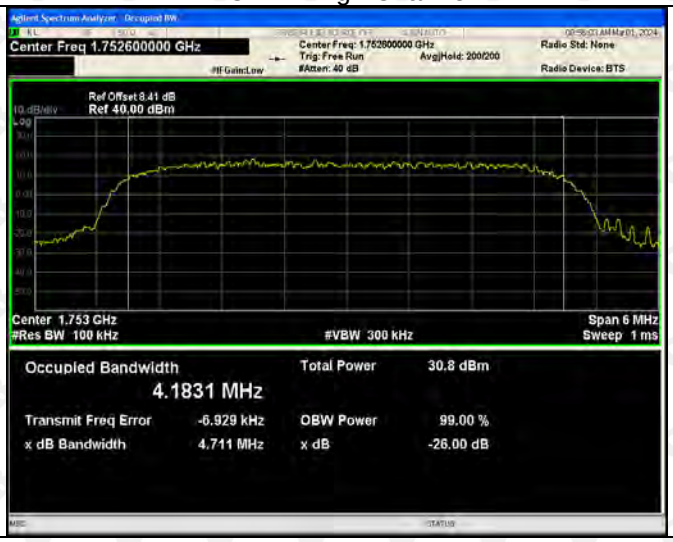
WCDMA High Channel



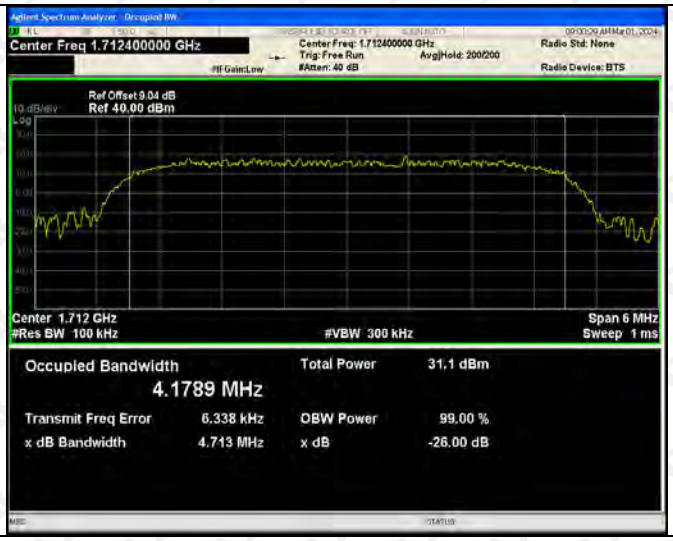
HSDPA Low Channel

HSDPA Middle Channel

HSDPA High Channel


HSUPA Low Channel

HSUPA Middle Channel

HSUPA High Channel

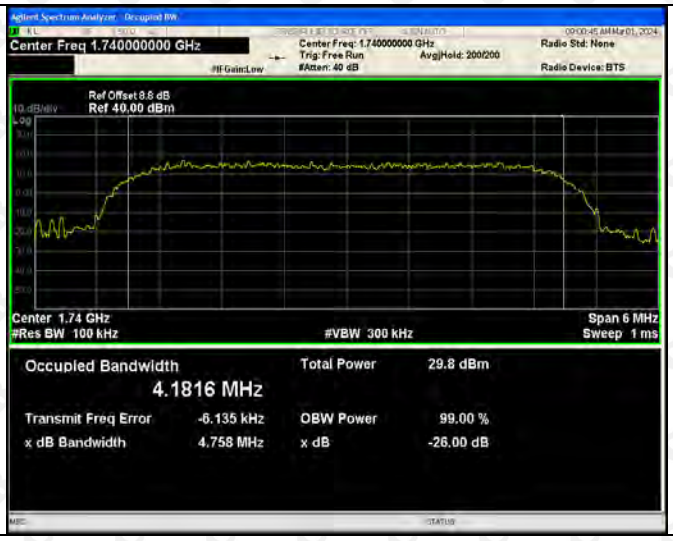

For Band IV

WCDMA Low Channel

WCDMA Middle Channel

WCDMA High Channel


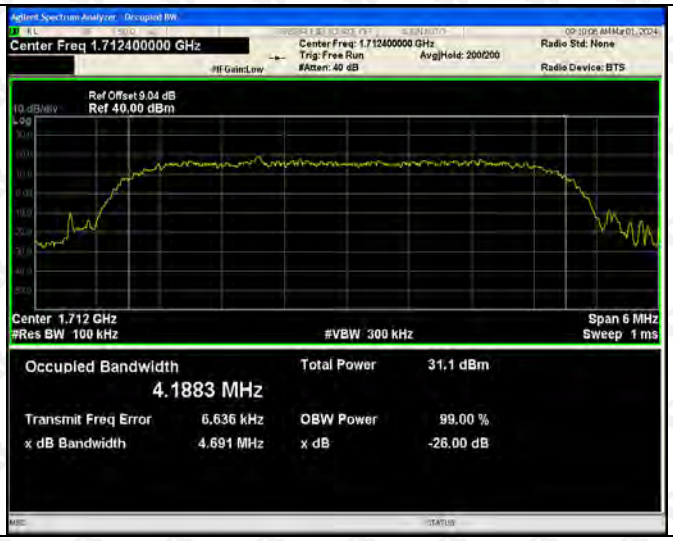
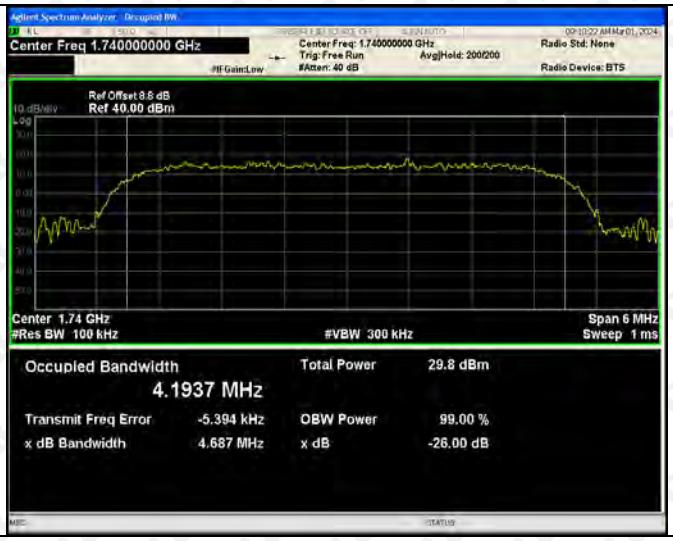
HSDPA Low Channel



HSDPA Middle Channel

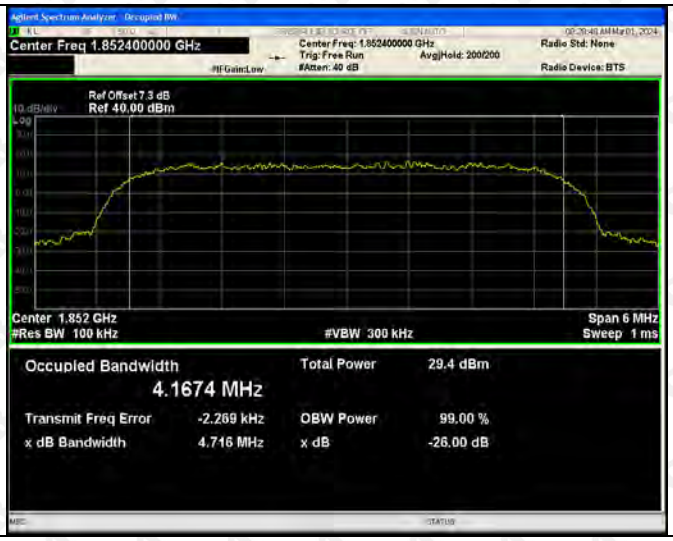


HSDPA High Channel

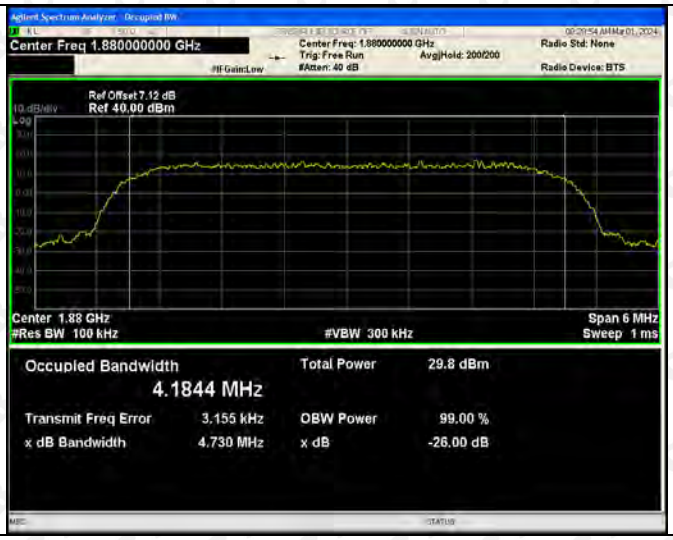
HSUPA Low Channel

HSUPA Middle Channel

HSUPA High Channel


For Band II

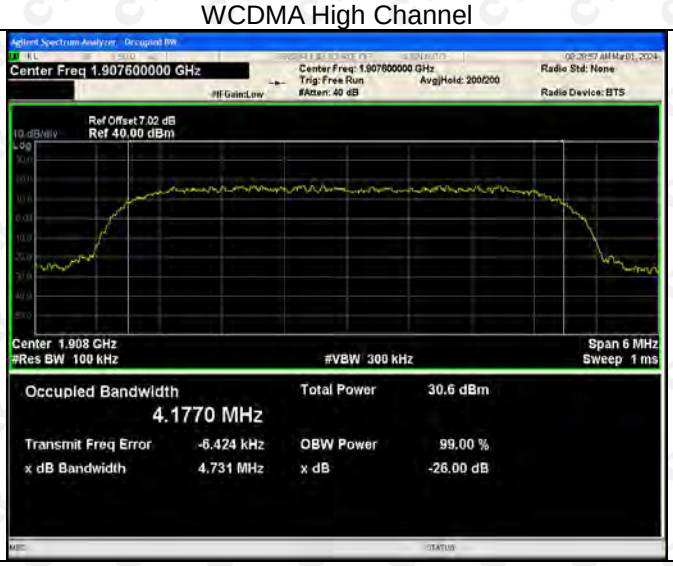
WCDMA Low Channel



WCDMA Middle Channel



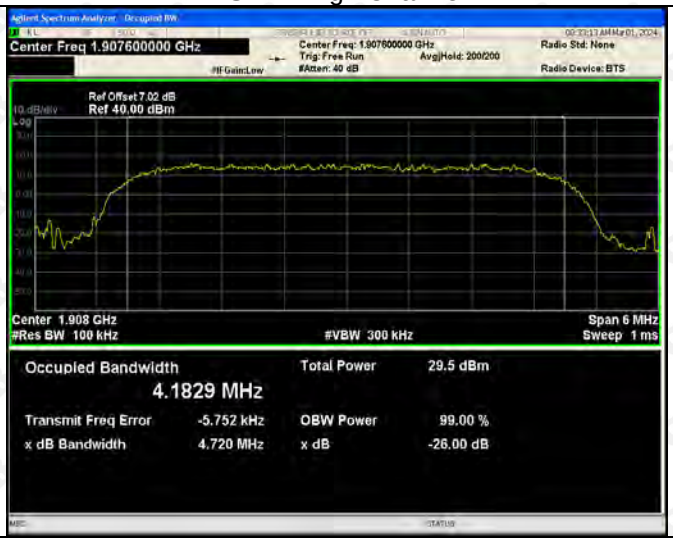
WCDMA High Channel



HSDPA Low Channel

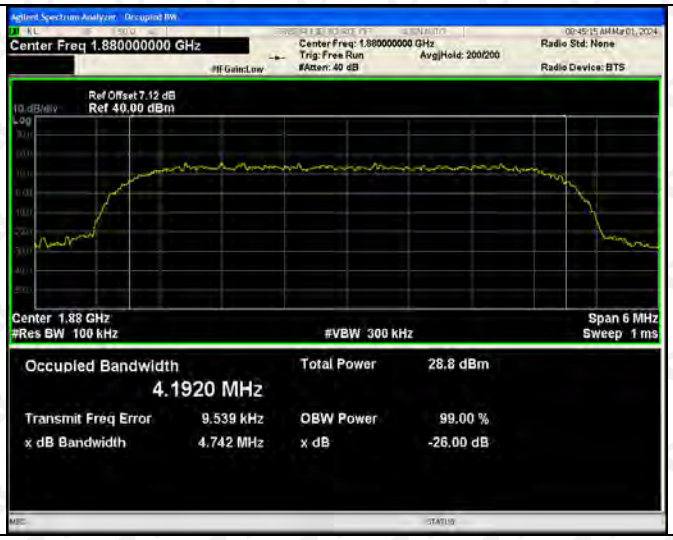
HSDPA Middle Channel

HSDPA High Channel

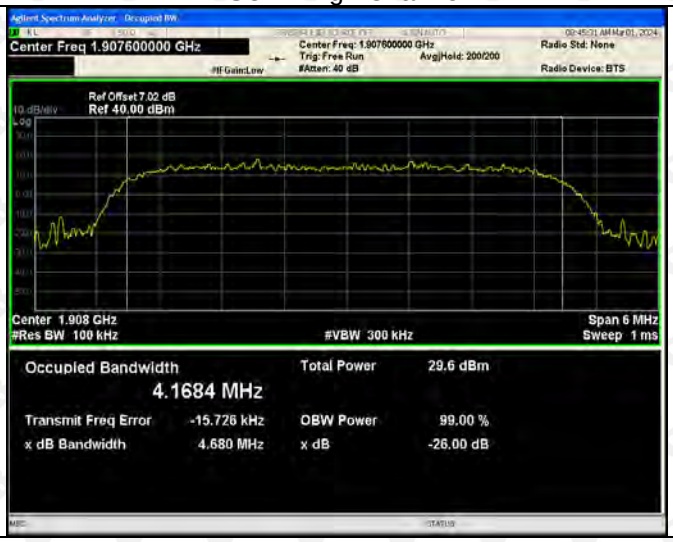


HSUPA Low Channel

HSUPA Middle Channel



HSUPA High Channel



9. OUT OF BAND EMISSIONS AT ANTENNA TERMINAL

9.1 Standard Applicable

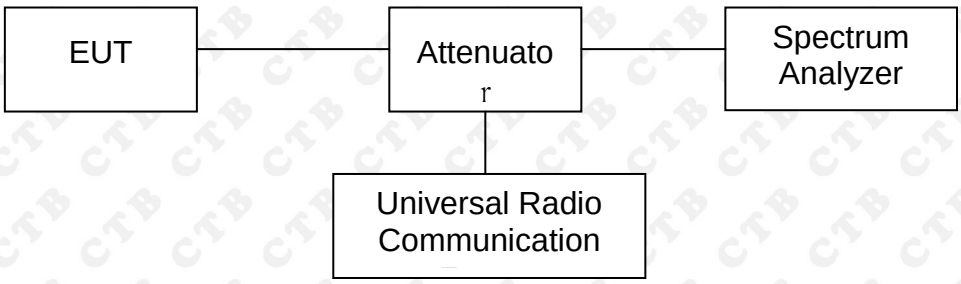
According to §22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to §24.238(a), the power of any emissions 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.

9.2 Test Procedure

The RF output terminal of the transmitter was connected to the input of the spectrum analyzer via a suitable attenuation. The RBW of the spectrum analyzer was set to 100kHz and 1MHz for the scan frequency from 30MHz to 1GHz and the scan frequency from 1GHz to up to 10th harmonic.

Test Configuration for the out of band emissions testing:

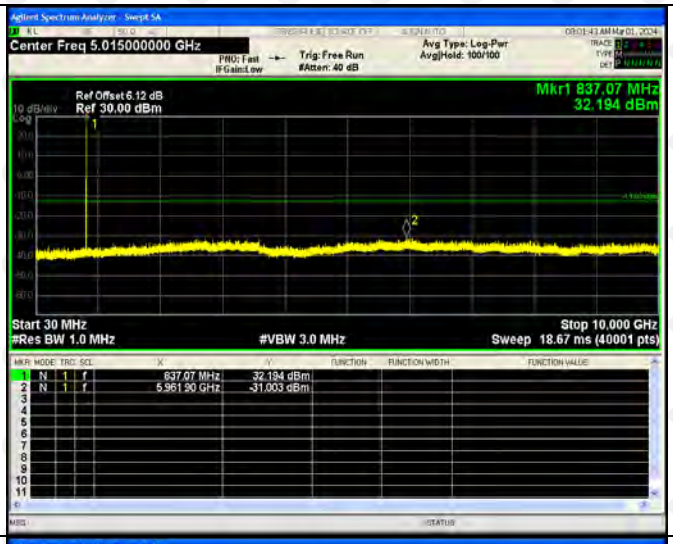
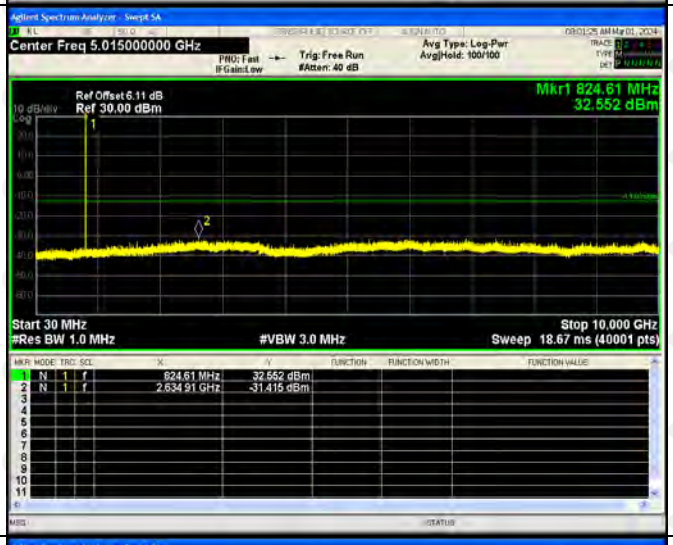
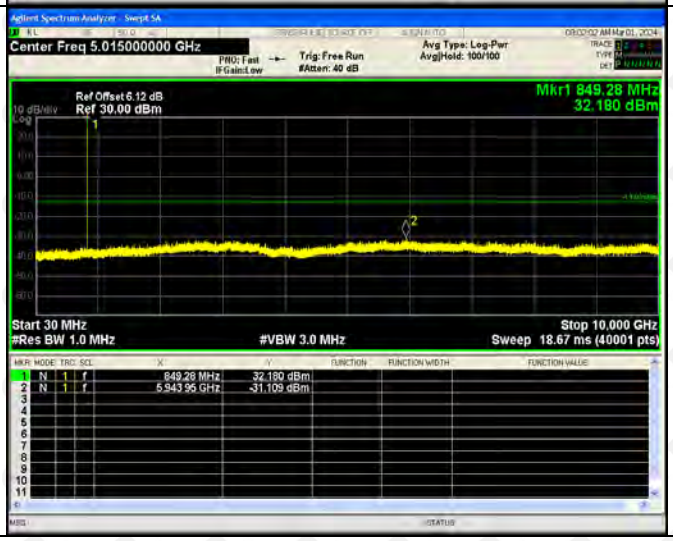


9.3 Environmental Conditions

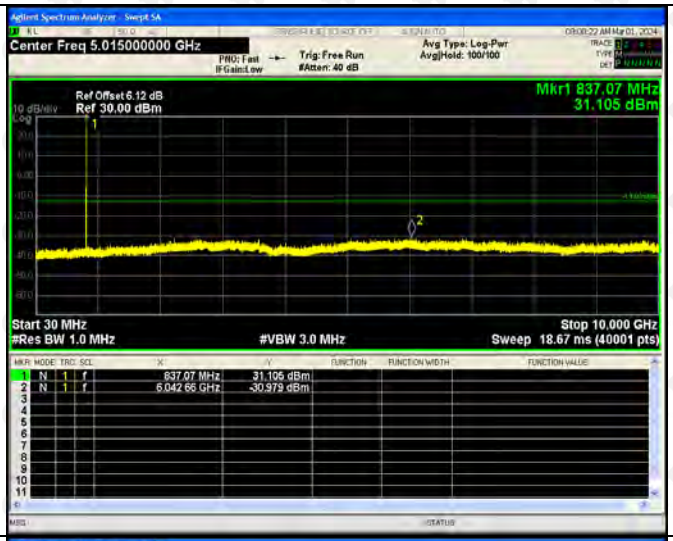
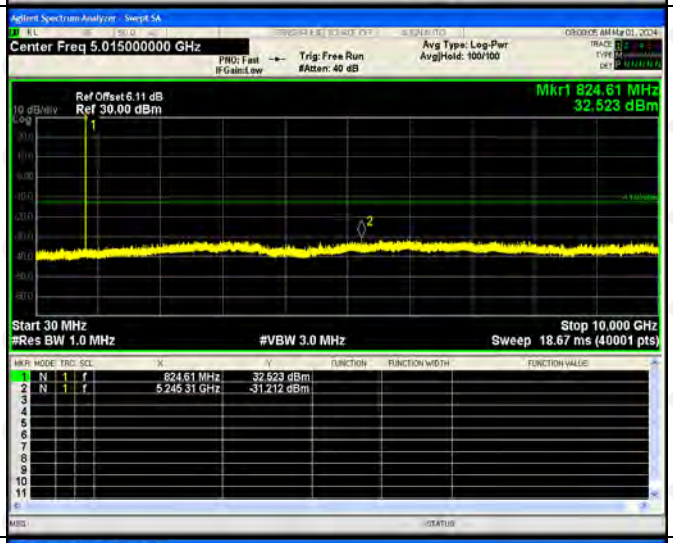
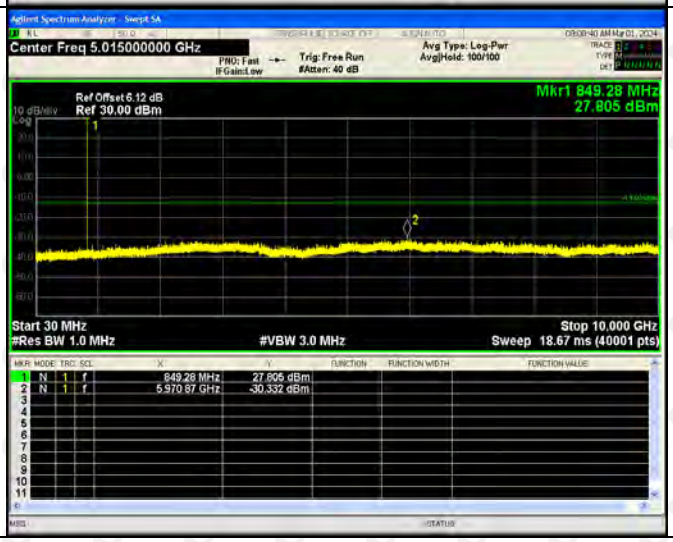
Temperature:	23 °C
Relative Humidity:	54%
ATM Pressure:	1010 mbar

9.4 Summary of Test Results/Plots

Please refer to the following test plots
For Cellular Band

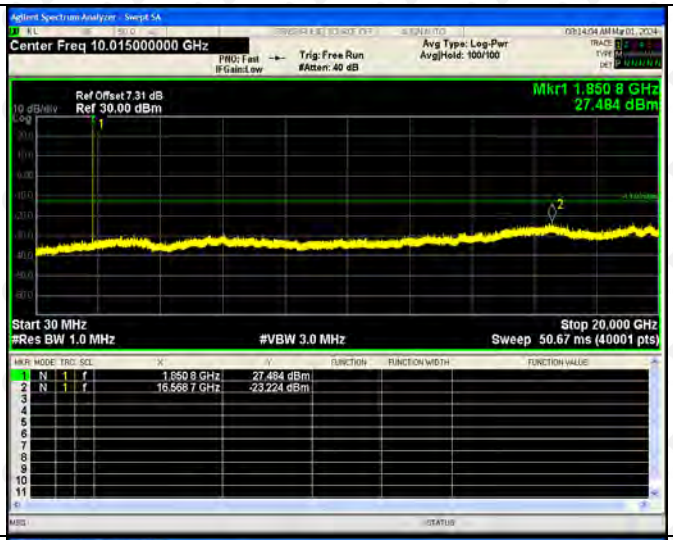
GPRS Low Channel			
GPRS Middle Channel			
GPRS High Channel			

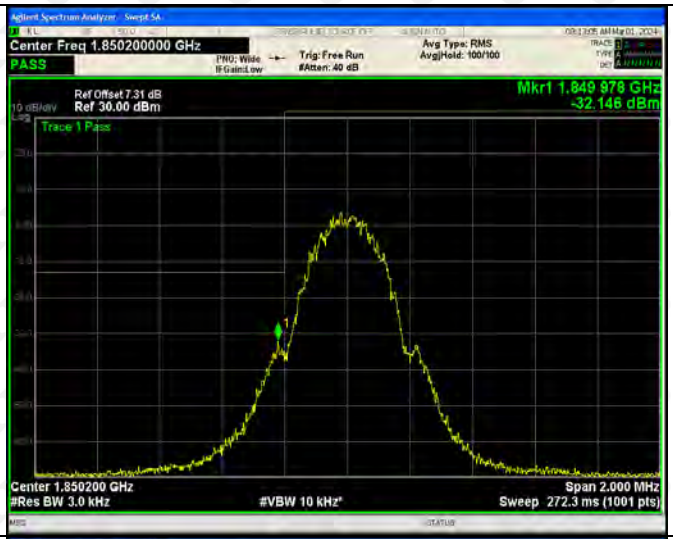
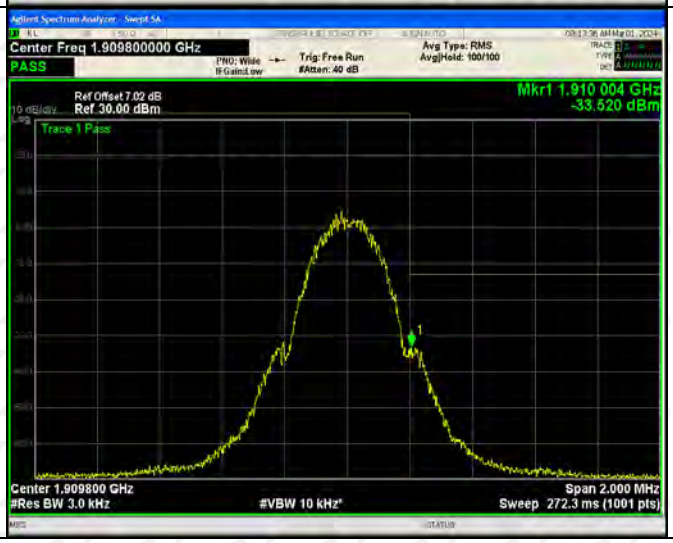
GPRS Low Band Emission			
GPRS High Band Emission			

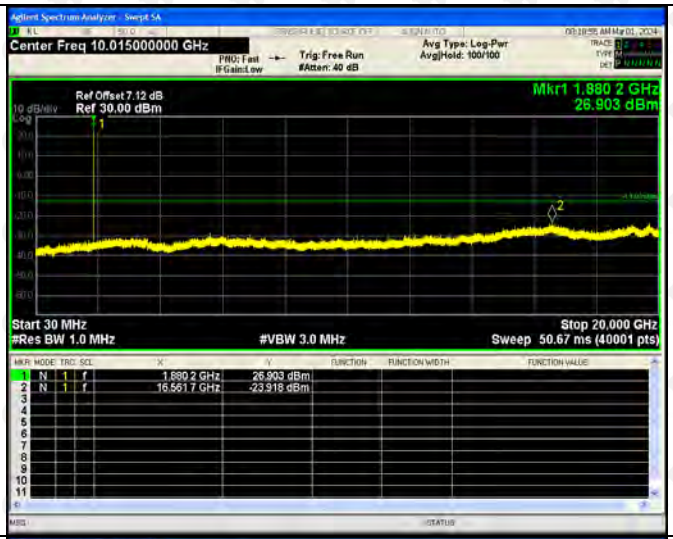
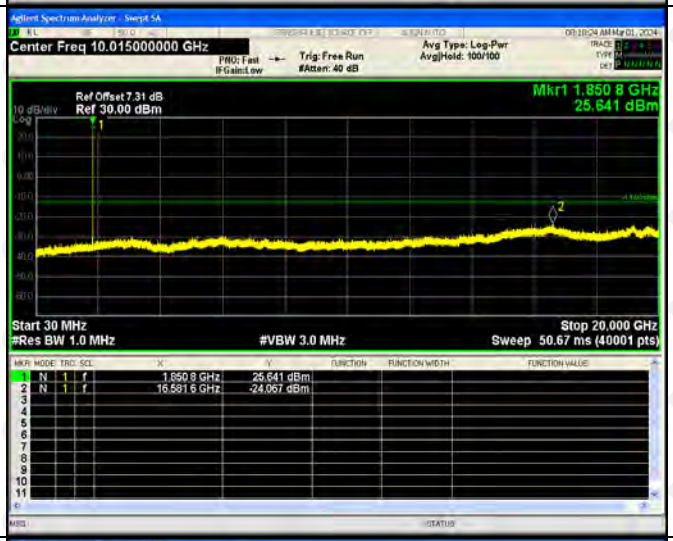
EDGE Low Channel			
EDGE Middle Channel			
EDGE High Channel			

EDGE Low Band Emission			
EDGE High Band Emission			

For PCS Band

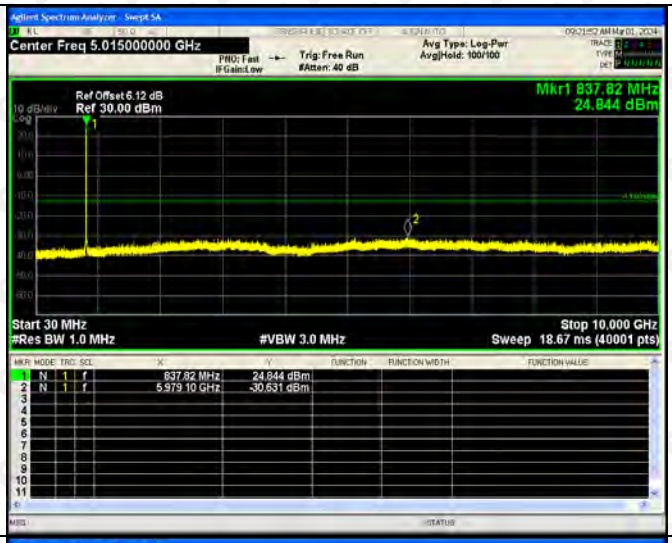
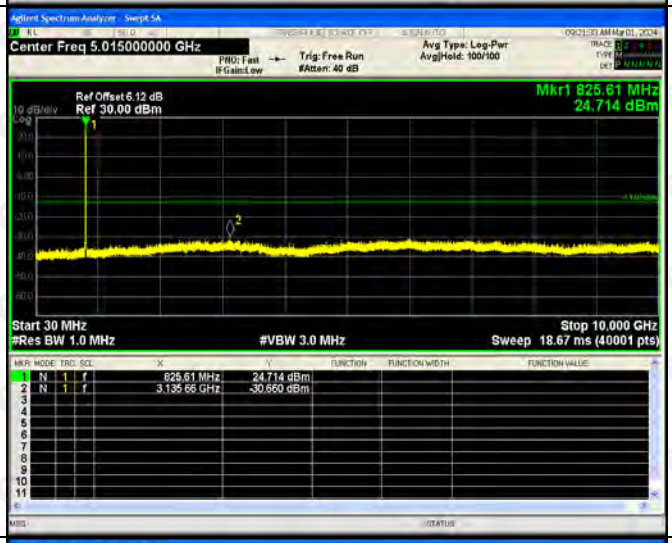
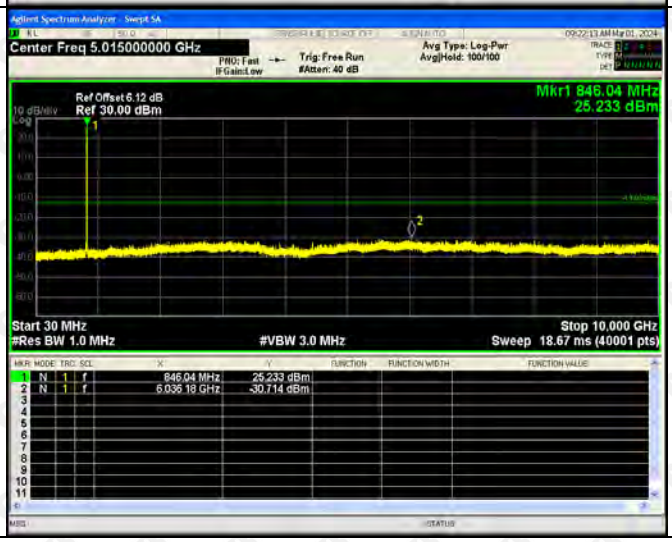
GPRS Low Channel			
GPRS Middle Channel			
GPRS High Channel			

GPRS Low Band Emission			
GPRS High Band Emission			

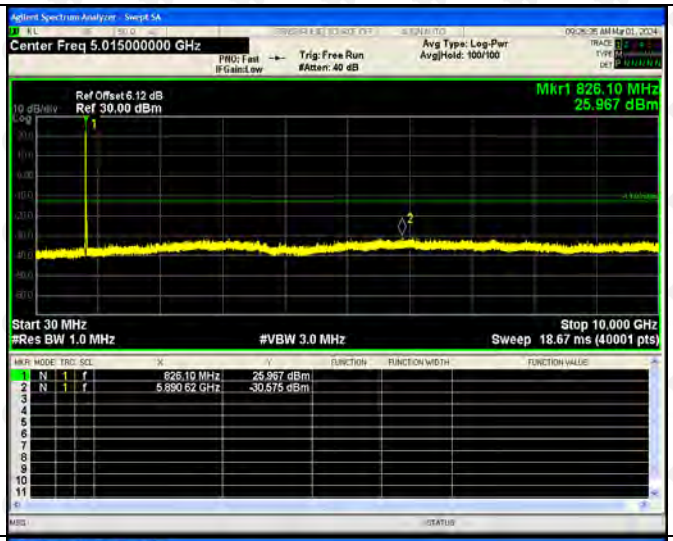
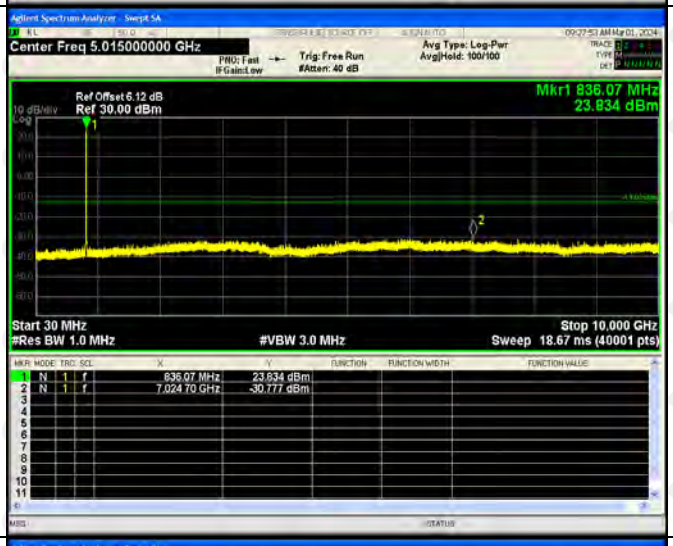
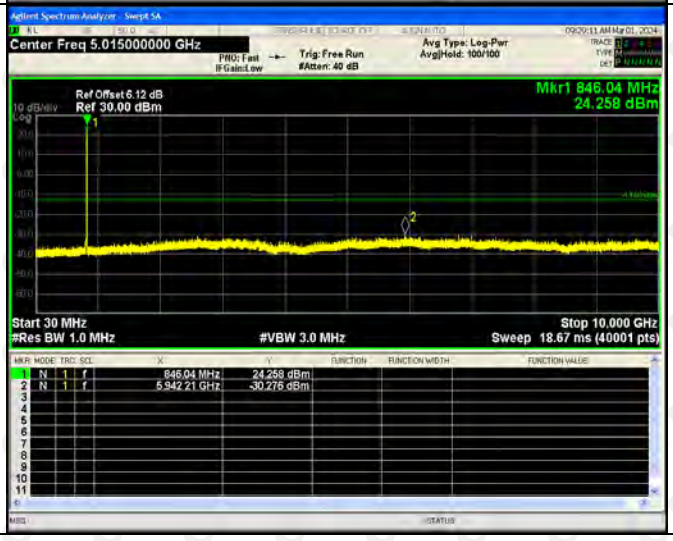
EDGE Low Channel			
EDGE Middle Channel			
EDGE High Channel			

EDGE Low Band Emission			
EDGE High Band Emission			

For Band V

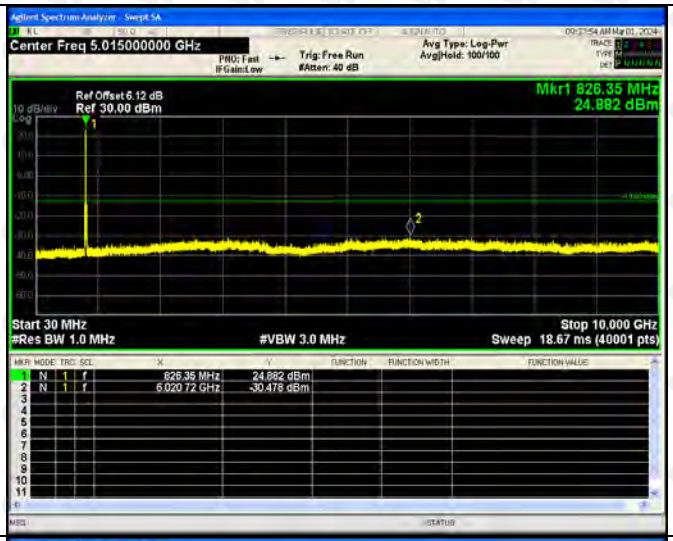
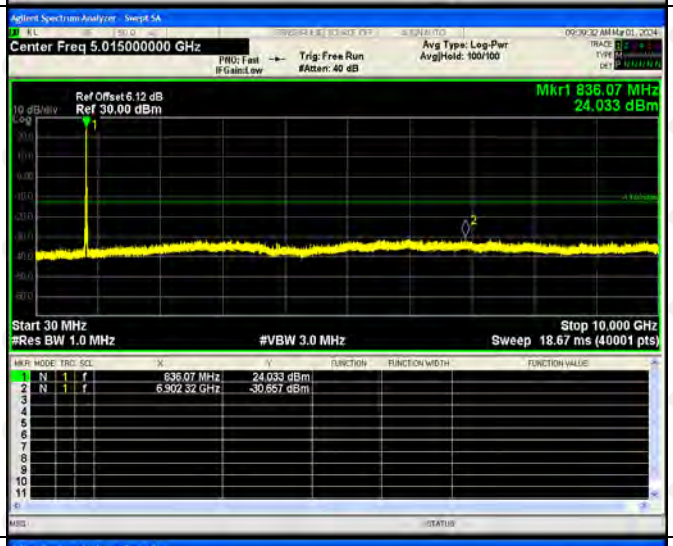
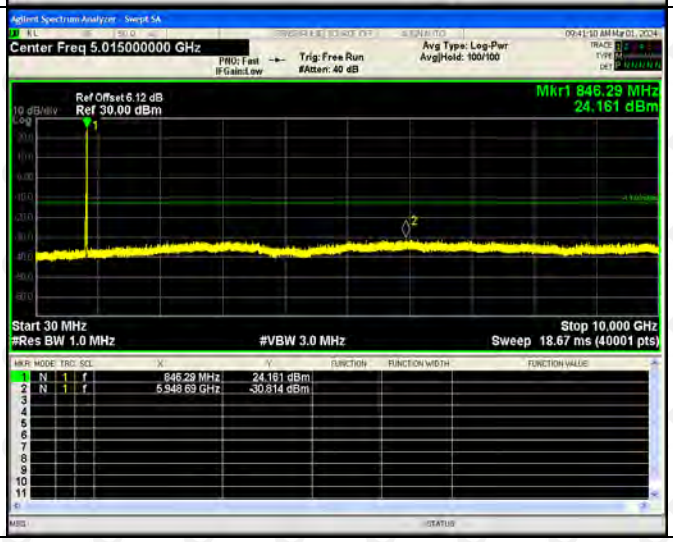
WCDMA Low Channel			
WCDMA Middle Channel			
WCDMA High Channel			

WCDMA Low Band Spurious Emission			
WCDMA High Band Spurious Emission			

HSDPA Low Channel			
HSDPA Middle Channel			
HSDPA High Channel			

HSDPA Low Band	

Spurious Emission			
HSDPA High Band Spurious Emission			

HSUPA Low Channel			
HSUPA Middle Channel			
HSUPA High Channel			

HSUPA Low Band Spurious Emission			
HSUPA High Band Spurious Emission			

For Band IV

WCDMA Low Channel			
WCDMA Middle Channel			
WCDMA High Channel			

WCDMA Low Band Spurious Emission			
WCDMA High Band Spurious Emission			

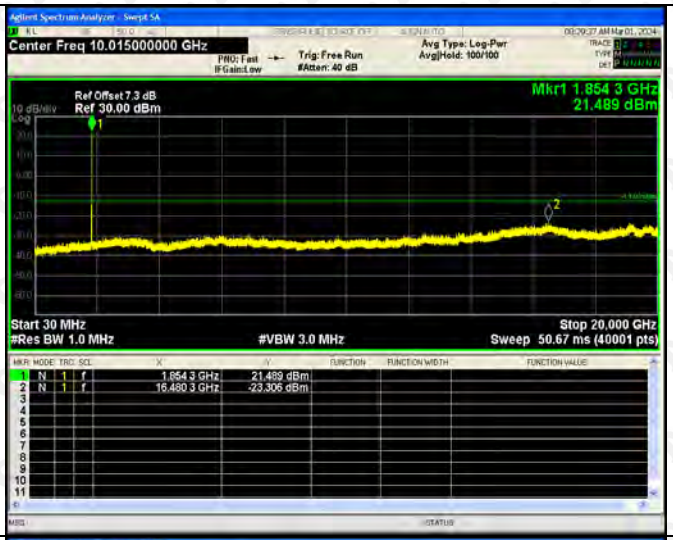
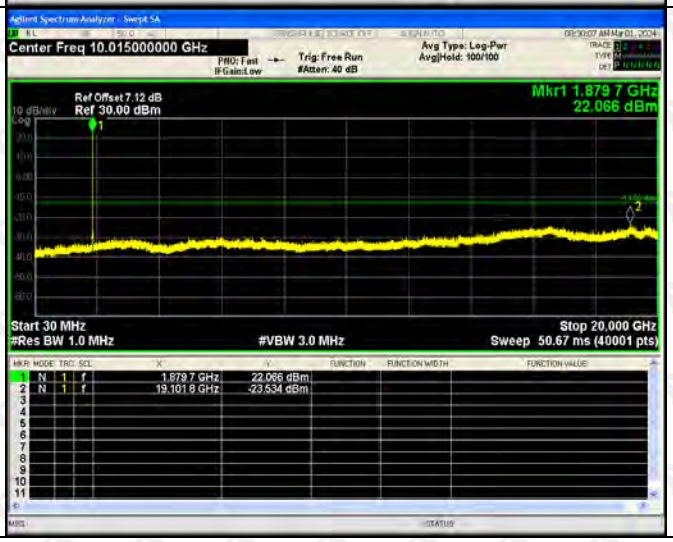
HSDPA Low Channel			
HSDPA Middle Channel			
HSDPA High Channel			

HSDPA Low Band Spurious Emission		
HSDPA High Band Spurious Emission		

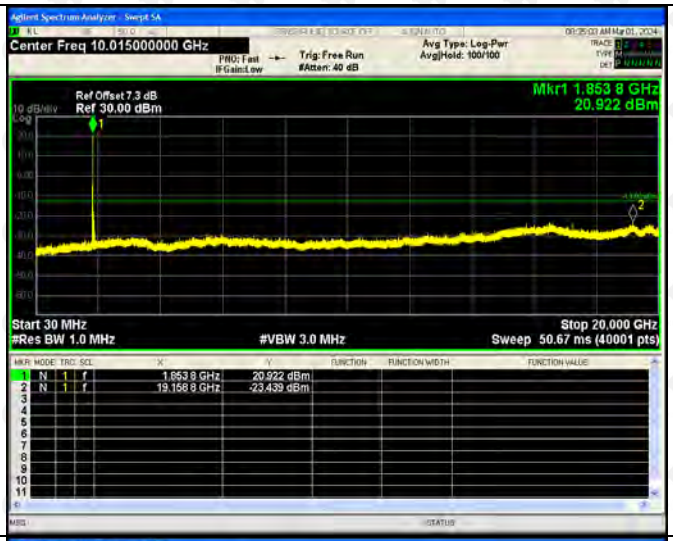
HSUPA Low Channel			
HSUPA Middle Channel			
HSUPA High Channel			

HSUPA Low Band Spurious Emission			
HSUPA High Band Spurious Emission			

For Band II

WCDMA Low Channel			
WCDMA Middle Channel			
WCDMA High Channel			

WCDMA Low Band Spurious Emission			
WCDMA High Band Spurious Emission			

HSDPA Low Channel			
HSDPA Middle Channel			
HSDPA High Channel			

HSDPA Low Band Spurious Emission			
HSDPA High Band Spurious Emission			

HSUPA Low Channel			
HSUPA Middle Channel			
HSUPA High Channel			

HSUPA Low Band Spurious Emission			
HSUPA High Band Spurious Emission			

10. SPURIOUS RADIATED EMISSIONS

10.1 Standard Applicable

According to §22.917(a), the power of any emissions 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.

According to §24.238(a), the power of any emissions 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.

10.2 Test Procedure

1. The setup of EUT is according with per ANSI/TIA Standard 603D and ANSI C63.4-2014 measurement procedure.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. The frequency range up to tenth harmonic of the fundamental frequency was investigated.
4. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious attenuation limit in dB =43+10 Log_{10} (power out in Watts)

10.3 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	54%
ATM Pressure:	101 kPa
Test Voltage	DC6.4V

10.4 Summary of Test Results/Plots

According to the data below, the FCC Part22.917 and 24.238 standards, and had the worst margin of:

Note: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.

All test modes are performed, but only the worst case is recorded in this report.

For Cellular Band_GSM850 Mode

Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Polar H/V
Low Channel (824.2MHz)						
38.16	-70.23	3.9	-66.33	-13	-53.33	H
1640.67	-56.30	4.83	-51.47	-13	-38.47	H
2462.82	-57.95	8.08	-49.87	-13	-36.87	H
43.12	-73.97	4.02	-69.95	-13	-56.95	V
1646.29	-48.04	4.48	-43.56	-13	-30.56	V
2467.39	-52.17	8.2	-43.97	-13	-30.97	V
Middle Channel (836.6MHz)						
40.01	-69.05	3.84	-65.21	-13	-52.21	H
1664.69	-51.46	4.62	-46.84	-13	-33.84	H
2499.95	-57.04	8.25	-48.79	-13	-35.79	H
45.16	-72.58	4.25	-68.33	-13	-55.33	V
1669.29	-56.18	4.54	-51.64	-13	-38.64	V
2507.06	-56.37	8.35	-48.02	-13	-29.75	V
High Channel (848.8MHz)						
38.05	-69.07	4.22	-73.29	-13	-60.29	H
1692.88	-54.89	4.87	-59.76	-13	-46.76	H
2541.83	-57.67	8.38	-66.05	-13	-53.05	H
38.08	-66.38	4.02	-70.40	-13	-57.40	V
1692.51	-55.36	4.56	-59.92	-13	-46.92	V
2538.86	-51.52	8.41	-59.93	-13	-46.93	V

For PCS Band_GSM1900 Mode

Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Polar H/V
Low Channel (1850.2MHz)						
36.43	-70.87	4.34	-66.53	-13	-53.53	H
3695.31	-56.82	10.54	-46.28	-13	-33.28	H
5545.17	-57.33	13.37	-43.96	-13	-30.96	H
40.41	-68.73	4.34	-64.39	-13	-51.39	V
3690.41	-50.58	10.54	-40.04	-13	-27.04	V
5547.99	-53.43	13.37	-40.06	-13	-27.06	V
Middle Channel (1880MHz)						
41.77	-68.78	4.02	-64.76	-13	-51.76	H
3753.14	-55.42	10.71	-44.71	-13	-31.71	H
5631.42	-59.17	13.73	-45.44	-13	-32.44	H
37.49	-66.67	4.14	-62.53	-13	-49.53	V
3753.87	-58.98	10.22	-48.76	-13	-35.76	V
5630.57	-60.66	13.16	-47.50	-13	-34.50	V
High Channel (1909.8MHz)						
44.27	-75.11	4.02	-71.09	-13	-58.09	H
3818.68	-56.59	4.9	-51.69	-13	-38.69	H
5724.51	-48.35	8.09	-40.26	-13	-27.26	H
36.75	-56.54	4.25	-52.29	-13	-39.29	V
3817.72	-60.88	4.93	-55.95	-13	-42.95	V
5727.49	-63.05	8.43	-54.62	-13	-41.62	V

For Band 5 Mode

Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Polar H/V
Low Channel (826.4MHz)						
37.98	-75.12	3.91	-71.21	-13	-58.21	H
1643.88	-55.18	10.56	-44.62	-13	-31.62	H
2473.80	-54.66	13.5	-41.16	-13	-28.16	H
37.67	-69.00	3.93	-65.07	-13	-52.07	V
1643.66	-51.17	10.41	-40.76	-13	-27.76	V
2475.78	-60.01	13.16	-46.85	-13	-33.85	V
Middle Channel (836.6MHz)						
38.82	-67.78	4.02	-63.76	-13	-50.76	H
1668.94	-56.79	4.66	-52.13	-13	-39.13	H
2508.76	-44.54	8.34	-36.20	-13	-23.20	H
45.19	-55.25	4.17	-51.08	-13	-38.08	V
1672.06	-63.48	4.94	-58.54	-13	-45.54	V
2501.14	-61.16	8.19	-52.97	-13	-39.97	V
High Channel (846.6MHz)						
37.24	-71.56	3.87	-67.69	-13	-54.69	H
1692.01	-61.10	4.89	-56.21	-13	-43.21	H
2537.49	-43.21	8.42	-34.79	-13	-21.79	H
41.21	-61.88	3.95	-57.93	-13	-44.93	V
1683.90	-63.58	4.99	-58.59	-13	-45.59	V
2534.86	-57.16	8.12	-49.04	-13	-36.04	V

For Band 4Mode

Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Polar H/V
Low Channel (1712.4MHz)						
39.05	-67.65	3.91	-63.74	-13	-50.74	H
1645.93	-56.73	10.56	-46.17	-13	-33.17	H
2473.81	-53.41	13.5	-39.91	-13	-26.91	H
43.29	-67.93	3.93	-64.00	-13	-51.00	V
1644.52	-55.27	10.41	-44.86	-13	-31.86	V
2476.17	-55.82	13.16	-42.66	-13	-29.66	V
Middle Channel (1740 MHz)						
43.52	-71.18	4.02	-67.16	-13	-54.16	H
1667.99	-55.77	4.66	-51.11	-13	-38.11	H
2499.92	-40.71	8.34	-32.37	-13	-19.37	H
37.71	-55.61	4.17	-51.44	-13	-38.44	V
1665.96	-60.01	4.94	-55.07	-13	-42.07	V
2506.29	-65.19	8.19	-57.00	-13	-44.00	V
High Channel (1752.6MHz)						
41.29	-66.93	3.87	-63.06	-13	-50.06	H
1692.32	-55.31	4.89	-50.42	-13	-37.42	H
2534.13	-46.39	8.42	-37.97	-13	-24.97	H
37.70	-60.44	3.95	-56.49	-13	-43.49	V
1690.31	-58.62	4.99	-53.63	-13	-40.63	V
2532.64	-61.17	8.12	-53.05	-13	-40.05	V

For Band 2 Mode

Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Polar H/V
Low Channel (1852.4MHz)						
40.04	-74.08	3.91	-70.17	-13	-57.17	H
1645.58	-50.64	10.56	-40.08	-13	-27.08	H
2473.72	-54.44	13.5	-40.94	-13	-27.94	H
45.11	-67.37	3.93	-63.44	-13	-50.44	V
1651.81	-57.75	10.41	-47.34	-13	-34.34	V
2479.15	-55.43	13.16	-42.27	-13	-29.27	V
Middle Channel (1880MHz)						
38.60	-72.66	4.02	-68.64	-13	-55.64	H
1665.50	-60.79	4.66	-56.13	-13	-43.13	H
2506.39	-41.56	8.34	-33.22	-13	-20.22	H
37.52	-57.15	4.17	-52.98	-13	-39.98	V
1672.66	-62.52	4.94	-57.58	-13	-44.58	V
2501.43	-56.48	8.19	-48.29	-13	-35.29	V
High Channel (1907.6MHz)						
41.33	-69.06	3.87	-65.19	-13	-52.19	H
1687.96	-55.54	4.89	-50.65	-13	-37.65	H
2531.02	-48.51	8.42	-40.09	-13	-27.09	H
45.60	-60.06	3.95	-56.11	-13	-43.11	V
1691.60	-54.99	4.99	-50.00	-13	-37.00	V
2535.24	-58.02	8.12	-49.90	-13	-36.90	V

Note: Result=Reading+ Correct, Margin= Result- Limit
Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listedin the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

11. FREQUENCY STABILITY

11.1 Standard Applicable

According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Cellular Band

Frequency range (MHz)	Base, fixed (ppm)	Mobile >3 watts (ppm)	Mobile ≤3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929	5.0	N/A	N/A
929 to 960	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

According to §27.54 The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

11.2 Test Procedure

According to §2.1055, the following test procedure was performed.
The Frequency Stability is measured directly with a Frequency Domain Analyzer. Frequency Deviation in ppm is calculated from the measured peak to peak value.
The Carrier Frequency Stability over Power Supply Voltage and over Temperature is measured with a Frequency Domain Analyzer in histogram mode

11.3 Environmental Conditions

Temperature:	23°C
Relative Humidity:	54%
ATM Pressure:	101kPa

11.4 Summary of Test Results/Plots

For Cellular Band GPRS Mode

Reference Frequency(Middle Channel): 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	NV	8.41	0.01005
40	NV	8.75	0.01046
30	NV	9.08	0.01085
20	NV	8.89	0.01063
10	NV	9.48	0.01133
0	NV	10.44	0.01248
-10	NV	9.49	0.01134
-20	NV	10.50	0.01254
-30	NV	10.92	0.01305

For PCS Band GPRS Mode

Reference Frequency(Middle Channel): 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	NV	12.45	0.00662
40	NV	12.71	0.00676
30	NV	12.87	0.00685
20	NV	13.05	0.00694
10	NV	13.41	0.00713
0	NV	14.01	0.00745
-10	NV	13.97	0.00743
-20	NV	14.38	0.00765
-30	NV	13.95	0.00742

For Cellular Band EDGE Mode

Reference Frequency(Middle Channel): 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	NV	9.88	0.01181
40	NV	11.30	0.01351
30	NV	10.62	0.01270
20	NV	11.03	0.01319
10	NV	11.72	0.01401
0	NV	11.26	0.01346
-10	NV	12.21	0.01459
-20	NV	12.11	0.01447
-30	NV	12.38	0.01480

For PCS Band EDGE Mode

Reference Frequency(Middle Channel): 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	NV	-11.47	-0.00610
40	NV	-10.10	-0.00537
30	NV	-10.68	-0.00568
20	NV	-9.86	-0.00524
10	NV	-9.87	-0.00525
0	NV	-9.63	-0.00512
-10	NV	-9.90	-0.00527
-20	NV	-9.13	-0.00485
-30	NV	-7.84	-0.00417

For WCDMA Band 5 Mode

Reference Frequency(Middle Channel): 836.6 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	NV	0.43	0.00052
40	NV	-0.38	-0.00045
30	NV	0.69	0.00083
20	NV	0.88	0.00105
10	NV	0.57	0.00068
0	NV	1.24	0.00148
-10	NV	1.00	0.00120
-20	NV	0.68	0.00082
-30	NV	1.04	0.00125

For WCDMA Band 4Mode

Reference Frequency(Middle Channel): 1740 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	NV	0.16	0.00009
40	NV	-0.66	-0.00038
30	NV	-0.16	-0.00009
20	NV	0.34	0.00019
10	NV	-0.32	-0.00018
0	NV	0.32	0.00018
-10	NV	0.88	0.00050
-20	NV	-0.27	-0.00016
-30	NV	0.40	0.00023

For WCDMA Band 2 Mode

Reference Frequency(Middle Channel): 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	NV	0.02	0.00001
40	NV	-0.55	-0.00029
30	NV	-0.21	-0.00011
20	NV	-0.66	-0.00035
10	NV	0.75	0.00040
0	NV	-0.37	-0.00020
-10	NV	1.74	0.00093
-20	NV	2.05	0.00109
-30	NV	1.04	0.00055

For HSDPA Band 5 Mode

Reference Frequency(Middle Channel): 836.6 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	NV	-0.59	-0.00070
40	NV	0.32	0.00039
30	NV	0.53	0.00064
20	NV	0.25	0.00030
10	NV	0.57	0.00068
0	NV	1.02	0.00122
-10	NV	1.40	0.00167
-20	NV	1.42	0.00169
-30	NV	1.65	0.00198

For HSDPA Band 4Mode

Reference Frequency(Middle Channel): 1740 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	NV	-0.83	-0.00047
40	NV	-0.29	-0.00017
30	NV	-0.16	-0.00009
20	NV	0.14	0.00008
10	NV	0.39	0.00023
0	NV	0.42	0.00024
-10	NV	0.62	0.00036
-20	NV	1.42	0.00081
-30	NV	0.73	0.00042

For HSDPA Band 2 Mode

Reference Frequency(Middle Channel): 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	NV	4.69	0.00249
40	NV	4.49	0.00239
30	NV	4.25	0.00226
20	NV	5.61	0.00298
10	NV	5.55	0.00295
0	NV	6.21	0.00330
-10	NV	6.32	0.00336
-20	NV	6.02	0.00320
-30	NV	5.92	0.00315

For HSUPA Band 5 Mode

Reference Frequency(Middle Channel): 836.6 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	NV	-0.02	-0.00002
40	NV	-0.32	-0.00038
30	NV	0.95	0.00113
20	NV	-0.14	-0.00017
10	NV	0.64	0.00076
0	NV	0.85	0.00101
-10	NV	1.20	0.00143
-20	NV	1.62	0.00194
-30	NV	2.41	0.00288

For HSUPA Band 4Mode

Reference Frequency(Middle Channel): 1740 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	NV	-0.72	-0.00042
40	NV	-0.29	-0.00017
30	NV	1.02	0.00059
20	NV	0.35	0.00020
10	NV	0.76	0.00043
0	NV	0.79	0.00046
-10	NV	0.78	0.00045
-20	NV	1.71	0.00098
-30	NV	1.98	0.00114

For HSUPA Band 2 Mode

Reference Frequency(Middle Channel): 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	NV	5.26	0.00280
40	NV	6.53	0.00347
30	NV	6.66	0.00354
20	NV	6.61	0.00351
10	NV	7.17	0.00381
0	NV	7.06	0.00376
-10	NV	7.44	0.00396
-20	NV	8.51	0.00453
-30	NV	9.00	0.00479

So, Frequency Stability Versus Input Voltage is:

Reference Frequency(Middle Channel): GPRS 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	10.80	0.01291
	NV	10.46	0.01250
	HV	11.06	0.01322
Reference Frequency(Middle Channel): GPRS 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	13.68	0.00728
	NV	13.84	0.00736
	HV	13.93	0.00741

Reference Frequency(Middle Channel): EDGE 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	12.38	0.01480
	NV	11.97	0.01431
	HV	12.77	0.01527
Reference Frequency(Middle Channel): EDGE 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	-7.77	-0.00414
	NV	-8.09	-0.00431
	HV	-7.91	-0.00421

Reference Frequency(Middle Channel): WCDMA 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	1.20	0.00144
	NV	1.04	0.00124
	HV	1.20	0.00144
Reference Frequency(Middle Channel): WCDMA 1732.4MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	0.87	0.00050
	NV	-0.47	-0.00027
	HV	0.97	0.00056
Reference Frequency(Middle Channel): WCDMA 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	1.07	0.00057
	NV	1.45	0.00077
	HV	2.43	0.00129

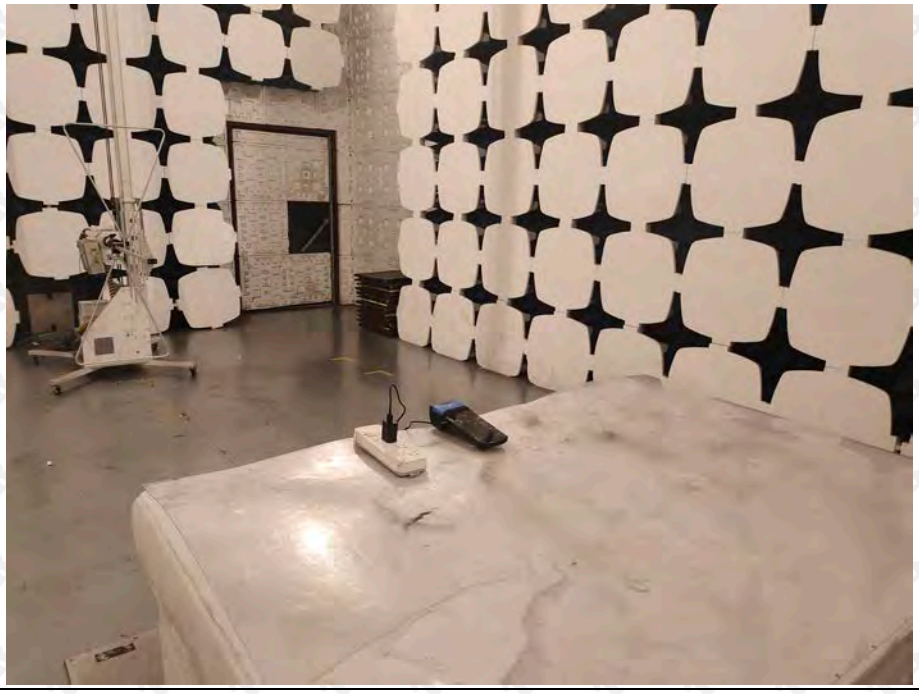
Reference Frequency(Middle Channel): HSDPA 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	1.14	0.00137
	NV	2.05	0.00245
	HV	1.58	0.00189
Reference Frequency(Middle Channel): HSDPA 1732.4MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	5.56	0.00321
	NV	5.85	0.00337
	HV	6.10	0.00352
Reference Frequency(Middle Channel): HSDPA 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	6.79	0.00361
	NV	7.30	0.00389
	HV	7.10	0.00378

Reference Frequency(Middle Channel): HSUPA 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	1.64	0.00197
	NV	3.16	0.00378
	HV	2.21	0.00265
Reference Frequency(Middle Channel): HSUPA 1732.4MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	4.62	0.00267
	NV	5.00	0.00289
	HV	6.08	0.00351
Reference Frequency(Middle Channel): HSUPA 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	8.64	0.00460
	NV	8.69	0.00462
	HV	8.62	0.00458

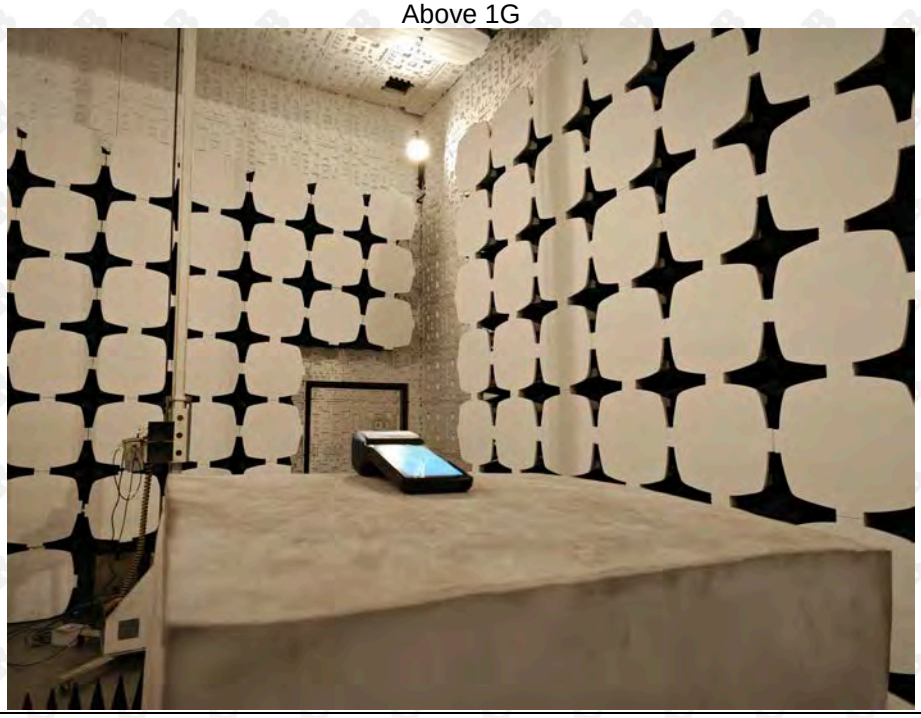
12. EUT TEST PHOTO

Radiated Emission

Below 1G



Above 1G



※※※※※ **END OF REPORT** ※※※※※