



TEST REPORT

Product Name: Smart phone
FCC ID: 2ANMU-C38
Trademark: OUKITEL
Model Number: C38, C38 S, C38 Pro, C38 Ultra
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Sample Received Date: Dec. 05, 2023
Sample tested Date: Dec. 05, 2023 to Dec. 21, 2023
Issue Date: Dec. 21, 2023
Report No.: CTB231219046RFX
Test Standards: FCC Part 22H & 24E
Test Results: PASS
Remark: This is GSM radio test report.

Compiled by:

Reviewed by:

Approved by:

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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
CTB231219046RFX	Dec. 21, 2023	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

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 chamber 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°C
frequency	1×10 ⁻⁷

4. PRODUCT INFORMATION AND TEST SETUP

4.1 Product Information

Model(s):	C38, C38 S, C38 Pro, C38 Ultra
Model Description:	All the model are the same circuit and RF module, only different for model name .Test sample model: C38
Hardware Version:	M617-MUB-V2
Software Version:	OUKITELE_C38_EEA_V03
Operation Frequency:	GSM/GPRS/EDGE 850: 824~849MHz GSM/GPRS/EDGE 1900: 1850~1910MHz WCDMA Band 2: 1850~1910MHz WCDMA Band 5: 824~849MHz
Max. RF output power:	GSM850: 32.79dBm GSM1900: 29.24dBm WCDMA Band 2: 22.22dBm WCDMA Band 5: 23.62dBm
Type of Modulation:	GMSK, BPSK
Antenna installation:	Internal antenna
Antenna Gain:	GSM850: -2.33dBi GSM1900: -1.02dBi WCDMA Band 2: -1.02dBi WCDMA Band 5: -2.33dBi
Ratings:	DC 5V charging from adapter DC 3.87V 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	GSM/GPRS/EDGE	824.2 MHz	128
		836.6 MHz	190
		848.8 MHz	251
PCS 1900	GSM/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 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	GSM 850	Low, Middle, High Channels
TM2	GPRS 850	Low, Middle, High Channels
TM3	EDGE 850	Low, Middle, High Channels
TM4	GSM 1900	Low, Middle, High Channels
TM5	GPRS 1900	Low, Middle, High Channels
TM6	EDGE 1900	Low, Middle, High Channels
TM7	WCDMA Band 5	Low, Middle, High Channels
TM8	HSDPA Band 5	Low, Middle, High Channels
TM9	HSUPA Band 5	Low, Middle, High Channels
TM10	WCDMA Band 2	Low, Middle, High Channels
TM11	HSDPA Band 2	Low, Middle, High Channels
TM12	HSUPA Band 2	Low, Middle, High Channels

4.6 Test Environment

Humidity(%):	54
Atmospheric Pressure(kPa):	101
Normal Voltage(DC):	3.87
Normal Temperature(°C)	23
Low Temperature(°C)	0
High Temperature(°C)	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	Microwave	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	Microwave	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

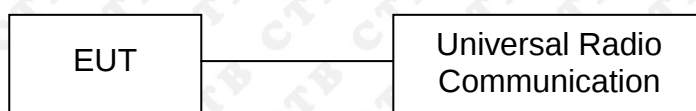
6.1 Standard Applicable

According to §22.913(a)(2), The ERP of mobile and 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 GSM Mode GSM850

Frequency	Substitute 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	32.45	1.5	0	H	1.5	-2.33	28.62	38.45
824.2	31.66	1.5	0	V	1.5	-2.33	27.83	38.45
Middle Channel								
836.6	32.40	1.5	0	H	1.5	-2.33	28.57	38.45
836.6	32.25	1.5	0	V	1.5	-2.33	28.42	38.45
High Channel								
848.8	31.75	1.5	0	H	1.5	-2.33	27.92	38.45
848.8	32.52	1.5	0	V	1.5	-2.33	28.69	38.45

EIRP For GSM Mode PCS1900

Frequency	Substitute 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	28.67	1.5	0	H	1.9	-1.02	25.75	33
1850.2	28.29	1.5	0	V	1.9	-1.02	25.37	33
Middle Channel								
1880	29.12	1.5	0	H	1.9	-1.02	26.20	33
1880	28.47	1.5	0	V	1.9	-1.02	25.55	33
High Channel								
1909.8	28.44	1.5	0	H	1.9	-1.02	25.52	33
1909.8	28.50	1.5	0	V	1.9	-1.02	25.58	33



ERP For GPRS Mode GSM850

Frequency	Substitute 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	32.61	1.5	0	H	1.5	-2.33	28.78	38.45
824.2	31.79	1.5	0	V	1.5	-2.33	27.96	38.45
Middle Channel								
836.6	31.76	1.5	0	H	1.5	-2.33	27.93	38.45
836.6	31.92	1.5	0	V	1.5	-2.33	28.09	38.45
High Channel								
848.8	32.49	1.5	0	H	1.5	-2.33	28.66	38.45
848.8	32.52	1.5	0	V	1.5	-2.33	28.69	38.45

EIRP For GPRS Mode PCS1900

Frequency	Substitute 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	27.82	1.5	0	H	1.9	-1.02	24.90	33
1850.2	28.31	1.5	0	V	1.9	-1.02	25.39	33
Middle Channel								
1880	28.47	1.5	0	H	1.9	-1.02	25.55	33
1880	28.34	1.5	0	V	1.9	-1.02	25.42	33
High Channel								
1909.8	28.23	1.5	0	H	1.9	-1.02	25.31	33
1909.8	28.45	1.5	0	V	1.9	-1.02	25.53	33



ERP For EDGE Mode GSM850

Frequency	Substitute 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	27.19	1.5	0	H	1.5	-2.33	23.36	38.45
824.2	26.57	1.5	0	V	1.5	-2.33	22.74	38.45
Middle Channel								
836.6	26.59	1.5	0	H	1.5	-2.33	22.76	38.45
836.6	26.56	1.5	0	V	1.5	-2.33	22.73	38.45
High Channel								
848.8	25.85	1.5	0	H	1.5	-2.33	22.02	38.45
848.8	25.79	1.5	0	V	1.5	-2.33	21.96	38.45

EIRP For EDGE Mode PCS1900

Frequency	Substitute 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	25.36	1.5	0	H	1.9	-1.02	22.44	33
1850.2	24.86	1.5	0	V	1.9	-1.02	21.94	33
Middle Channel								
1880	25.33	1.5	0	H	1.9	-1.02	22.41	33
1880	25.41	1.5	0	V	1.9	-1.02	22.49	33
High Channel								
1909.8	25.12	1.5	0	H	1.9	-1.02	22.20	33
1909.8	25.45	1.5	0	V	1.9	-1.02	22.53	33

ERP For WCDMA Mode Band 5

Frequency	Substitute 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	22.32	1.5	0	H	1.5	-2.33	18.49	38.45
826.4	22.66	1.5	0	V	1.5	-2.33	18.83	38.45
Middle Channel								
836.6	22.60	1.5	0	H	1.5	-2.33	18.77	38.45
836.6	23.15	1.5	0	V	1.5	-2.33	19.32	38.45
High Channel								
846.6	23.52	1.5	0	H	1.5	-2.33	19.69	38.45
846.6	23.08	1.5	0	V	1.5	-2.33	19.25	38.45

ERP For HSDPA Mode Band 5

Frequency	Substitute 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	21.86	1.5	0	H	1.5	-2.33	18.03	38.45
826.4	21.36	1.5	0	V	1.5	-2.33	17.53	38.45
Middle Channel								
836.6	22.30	1.5	0	H	1.5	-2.33	18.47	38.45
836.6	21.73	1.5	0	V	1.5	-2.33	17.90	38.45
High Channel								
846.6	21.86	1.5	0	H	1.5	-2.33	18.03	38.45
846.6	21.71	1.5	0	V	1.5	-2.33	17.88	38.45

ERP For HSUPA Mode Band 5

Frequency	Substitute 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	20.89	1.5	0	H	1.5	-2.33	17.06	38.45
826.4	20.76	1.5	0	V	1.5	-2.33	16.93	38.45
Middle Channel								
836.6	21.49	1.5	0	H	1.5	-2.33	17.66	38.45
836.6	21.83	1.5	0	V	1.5	-2.33	18.00	38.45
High Channel								
846.6	21.68	1.5	0	H	1.5	-2.33	17.85	38.45
846.6	21.55	1.5	0	V	1.5	-2.33	17.72	38.45

EIRP For WCDMA Mode Band 2

Frequency	Substitute 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	22.49	1.5	0	H	1.9	-1.02	19.57	33
1852.4	21.63	1.5	0	V	1.9	-1.02	18.71	33
Middle Channel								
1880	22.50	1.5	0	H	1.9	-1.02	19.58	33
1880	23.10	1.5	0	V	1.9	-1.02	20.18	33
High Channel								
1907.6	22.03	1.5	0	H	1.9	-1.02	19.11	33
1907.6	22.02	1.5	0	V	1.9	-1.02	19.10	33

EIRP For HSDPA Mode Band 2

Frequency	Substitute 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	20.26	1.5	0	H	1.9	-1.02	17.34	33
1852.4	20.44	1.5	0	V	1.9	-1.02	17.52	33
Middle Channel								
1880	21.91	1.5	0	H	1.9	-1.02	18.99	33
1880	22.03	1.5	0	V	1.9	-1.02	19.11	33
High Channel								
1907.6	21.41	1.5	0	H	1.9	-1.02	18.49	33
1907.6	21.57	1.5	0	V	1.9	-1.02	18.65	33

EIRP For HSUPA Mode Band 2

Frequency	Substitute 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	19.30	1.5	0	H	1.9	-1.02	16.38	33
1852.4	20.15	1.5	0	V	1.9	-1.02	17.23	33
Middle Channel								
1880	20.76	1.5	0	H	1.9	-1.02	17.84	33
1880	21.33	1.5	0	V	1.9	-1.02	18.41	33
High Channel								
1907.6	22.01	1.5	0	H	1.9	-1.02	19.09	33
1907.6	21.77	1.5	0	V	1.9	-1.02	18.85	33

Note: Result = Substitute - 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)
GSM	Low Channel	824.2	32.61	38.45
	Middle Channel	836.6	32.58	38.45
	High Channel	848.8	32.74	38.45
GPRS(1 Slot)	Low Channel	824.2	32.67	38.45
	Middle Channel	836.6	32.64	38.45
	High Channel	848.8	32.79	38.45
EDGE(1 Slot)	Low Channel	824.2	27.21	38.45
	Middle Channel	836.6	26.88	38.45
	High Channel	848.8	26.73	38.45

For PCS Band (GSM1900)

Test Mode	Channel	Frequency (MHz)	Average Power (dBm)	FCC Part 24.232 Limit (dBm)
GSM	Low Channel	1850.2	28.75	33.0
	Middle Channel	1880.0	29.19	33.0
	High Channel	1909.8	29.24	33.0
GPRS(1 Slot)	Low Channel	1850.2	28.70	33.0
	Middle Channel	1880.0	29.18	33.0
	High Channel	1909.8	29.22	33.0
EDGE(1 Slot)	Low Channel	1850.2	25.40	33.0
	Middle Channel	1880.0	25.75	33.0
	High Channel	1909.8	25.71	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	23.28	38.45
	Middle Channel	836.6	23.49	38.45
	High Channel	846.6	23.62	38.45
HSDPA	Low Channel	826.4	22.32	38.45
	Middle Channel	836.6	22.54	38.45
	High Channel	846.6	22.63	38.45
HSUPA	Low Channel	826.4	21.42	38.45
	Middle Channel	836.6	22.32	38.45
	High Channel	846.6	22.39	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	21.65	33.00
	Middle Channel	1880.0	22.22	33.00
	High Channel	1907.6	22.30	33.00
HSDPA	Low Channel	1852.4	20.69	33.00
	Middle Channel	1880.0	21.26	33.00
	High Channel	1907.6	21.37	33.00
HSUPA	Low Channel	1852.4	19.77	33.00
	Middle Channel	1880.0	21.01	33.00
	High Channel	1907.6	21.22	33.00

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

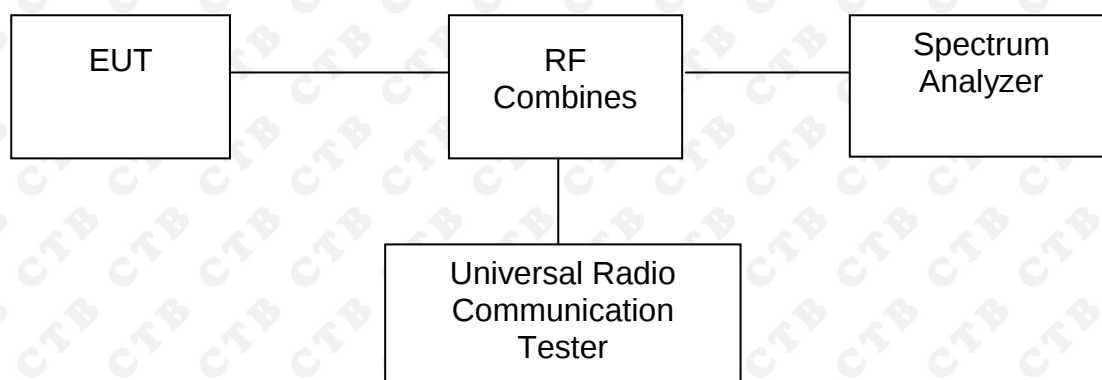
7.1 Standard Applicable

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)
GSM	190	836.6	2.75	13
GPRS(1 Slot)	190	836.6	2.79	13
EDGE(1 Slot)	190	836.6	8.14	13

For PCS 1900

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
GSM	512	1880	2.82	13
GPRS(1 Slot)	512	1880	2.87	13
EDGE(1 Slot)	512	1880	6.04	13

For WCDMA Band 5

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	4182	836.4	3.11	13
HSDPA	4182	836.4	3.17	13
HSUPA	4182	836.4	3.54	13

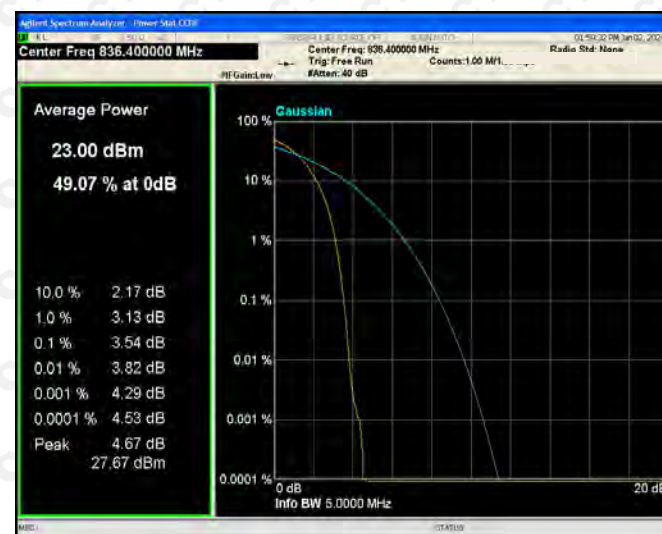
For WCDMA Band 2

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	9262	1880	3.03	13
HSDPA	9400	1880	3.14	13
HSUPA	9400	1880	3.47	13

GSM :



WCDMA:



8. EMISSION BANDWIDTH

8.1 Standard Applicable

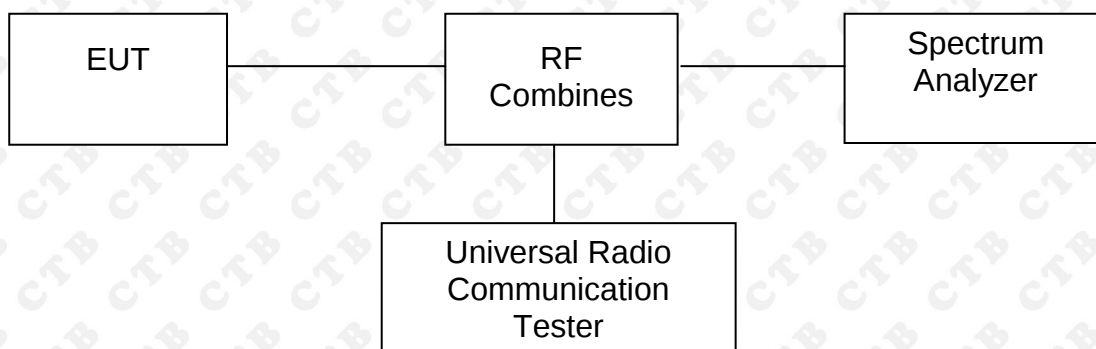
According to §22.917(b), The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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)
GSM	128	824.2	247.182	316.637
	190	836.6	251.839	328.263
	251	848.8	245.583	308.762
GPRS	128	824.2	239.641	314.937
	190	836.6	242.974	314.481
	251	848.8	251.169	324.587
EDGE	128	824.2	246.467	312.330
	190	836.6	258.956	319.970
	251	848.8	248.239	307.945

For PCS Band

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM	512	1850.2	247.290	316.062
	661	1880.0	248.848	315.084
	810	1909.8	243.197	316.541
GPRS	512	1850.2	246.045	308.798
	661	1880.0	240.456	317.933
	810	1909.8	250.106	310.877
EDGE	512	1850.2	243.912	313.122
	661	1880.0	247.061	311.570
	810	1909.8	247.121	321.186

For Band 5

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
WCDMA	4132	826.4	4184.340	4716.179
	4183	836.6	4187.766	4702.183
	4233	846.6	4186.803	4669.859
HSDPA	4132	826.4	4188.489	4713.818
	4183	836.6	4177.211	4694.787
	4233	846.6	4172.857	4690.007
HSUPA	4132	826.4	4185.031	4713.832
	4183	836.6	4183.739	4690.144
	4233	846.6	4183.985	4705.140

For Band 2

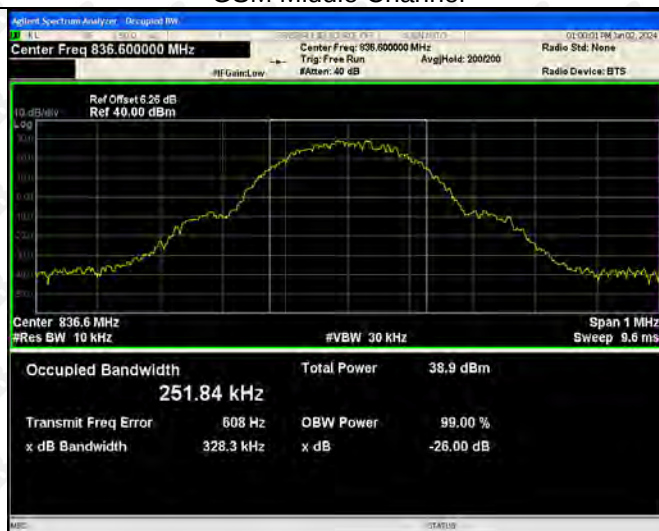
Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
WCDMA	9262	1852.4	4173.937	4712.395
	9400	1880.0	4162.736	4694.686
	9538	1907.6	4177.319	4718.795
HSDPA	9262	1852.4	4184.286	4722.196
	9400	1880.0	4200.280	4697.055
	9538	1907.6	4187.654	4713.916
HSUPA	9262	1852.4	4177.218	4724.415
	9400	1880.0	4187.699	4692.703
	9538	1907.6	4172.779	4730.208

For Cellular Band

GSM Low Channel



GSM Middle Channel



GSM High Channel



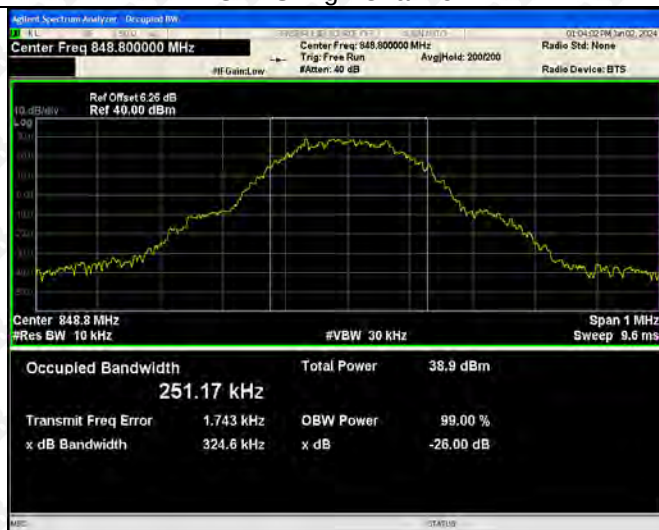
GPRS Low Channel



GPRS Middle Channel



GPRS High Channel



EDGE Low Channel



EDGE Middle Channel



EDGE High Channel



For PCS Band

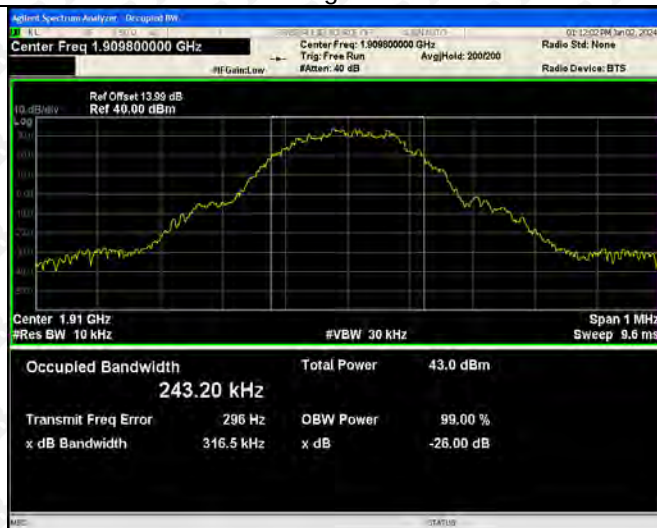
GSM Low Channel



GPRS Middle Channel



GPRS High Channel



GPRS Low Channel



GPRS Middle Channel



GPRS High Channel



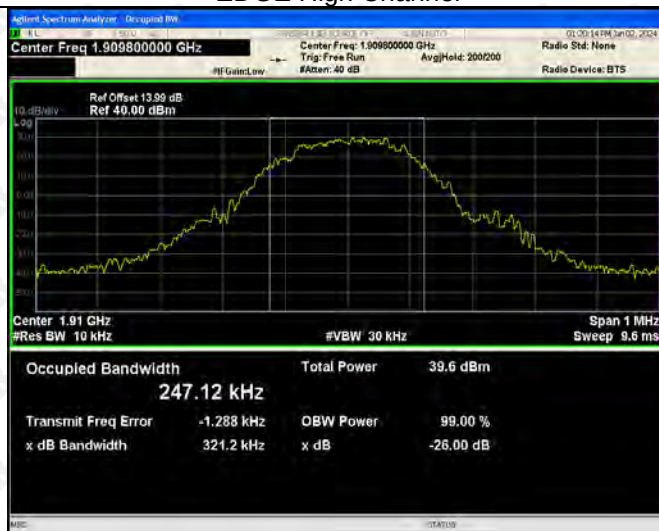
EDGE Low Channel



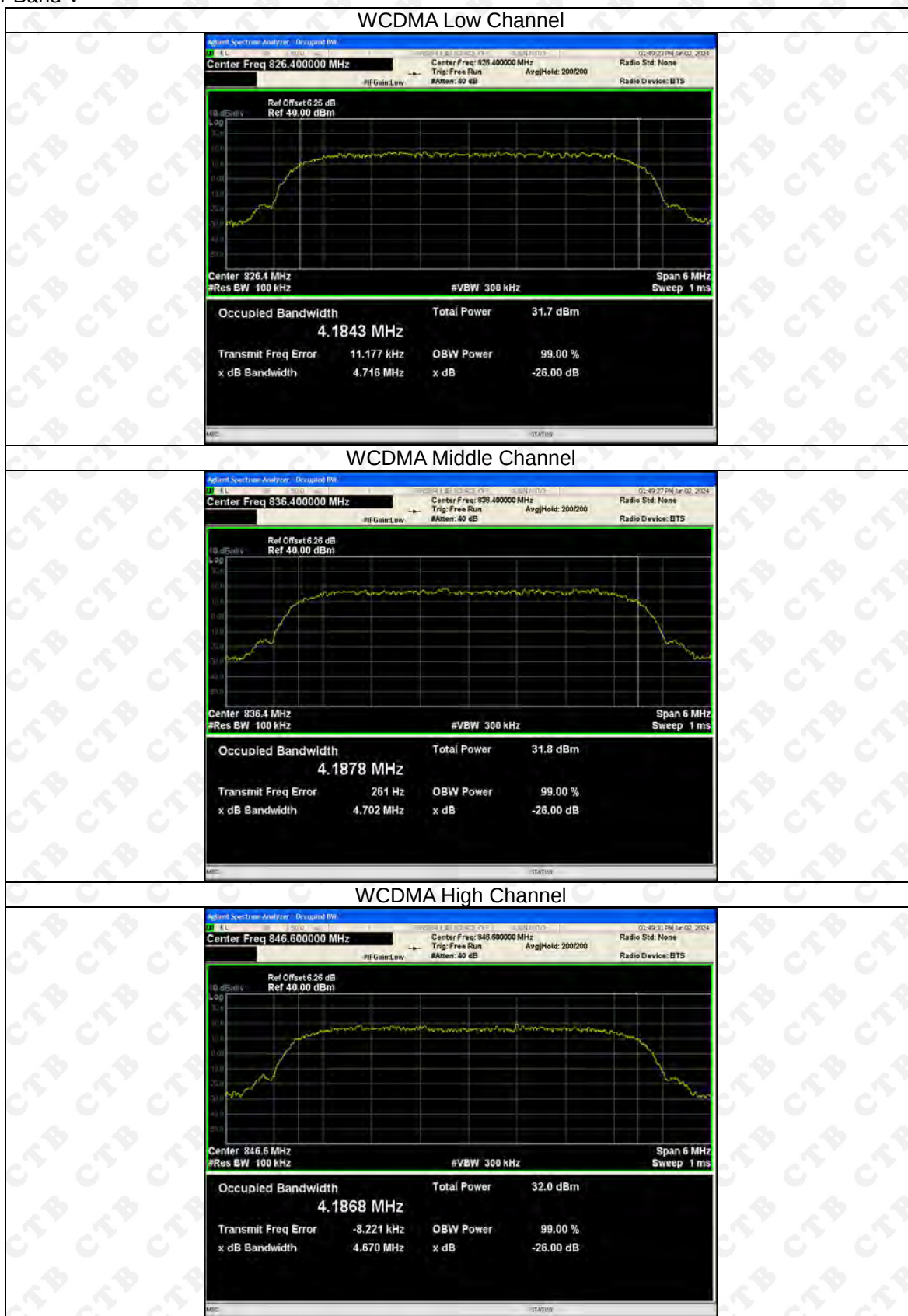
EDGE Middle Channel



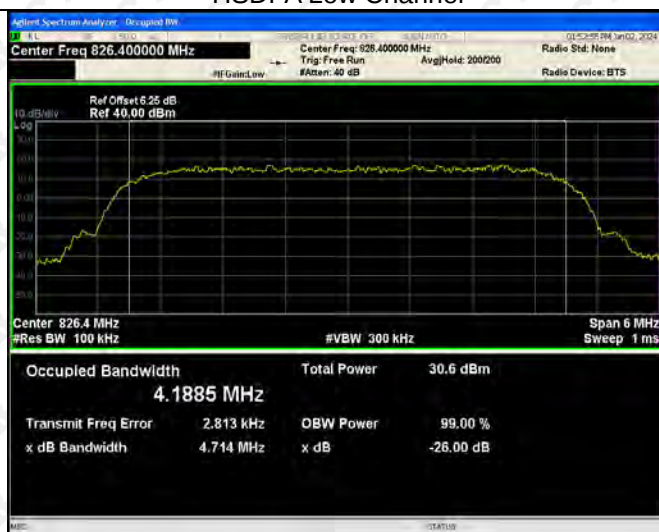
EDGE High Channel



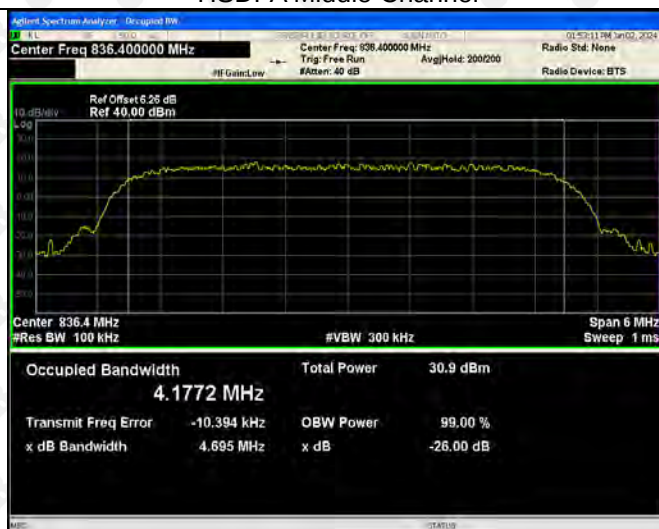
For Band V



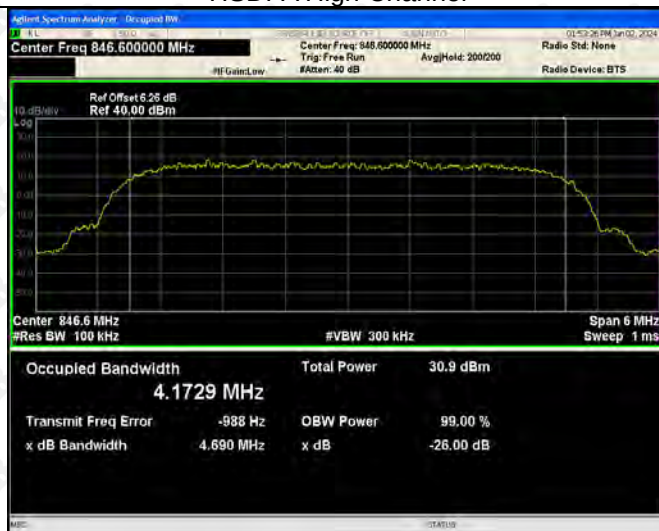
HSDPA Low Channel



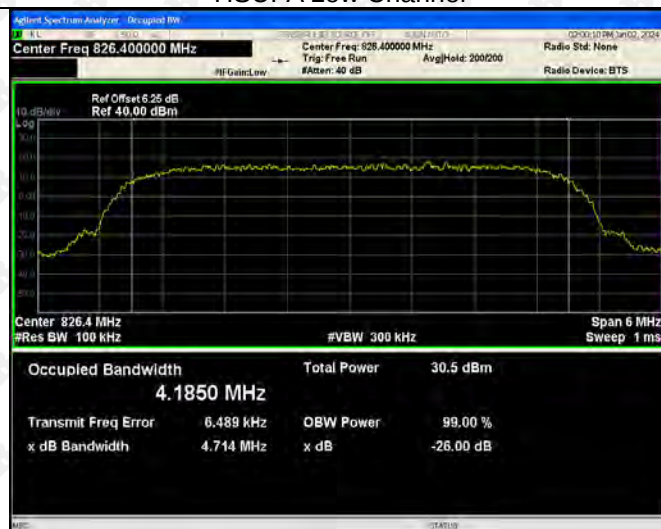
HSDPA Middle Channel



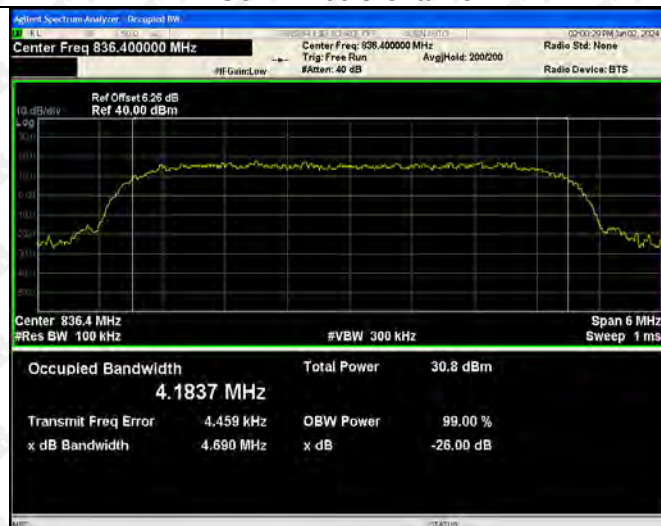
HSDPA High Channel



HSUPA Low Channel



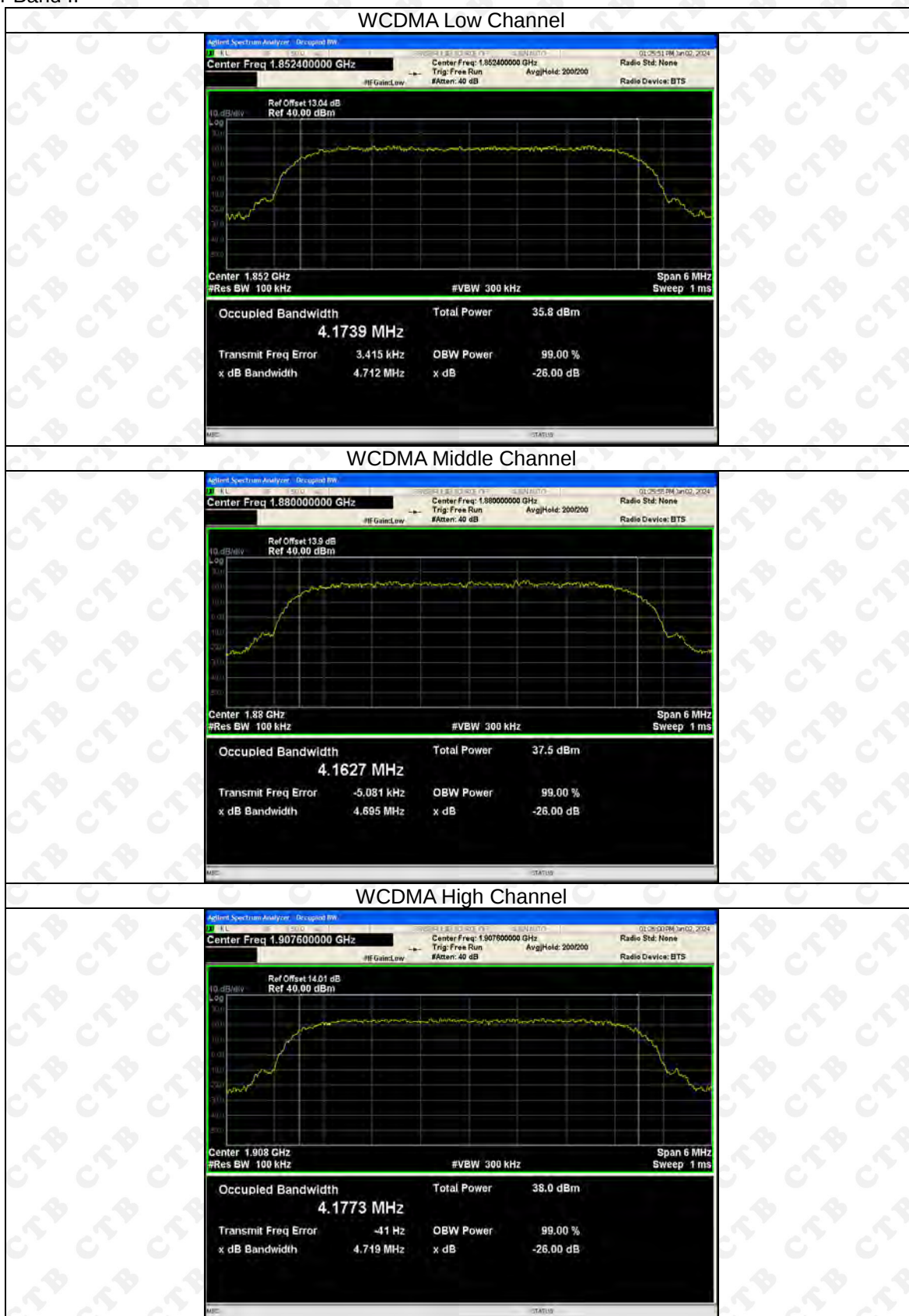
HSUPA Middle Channel



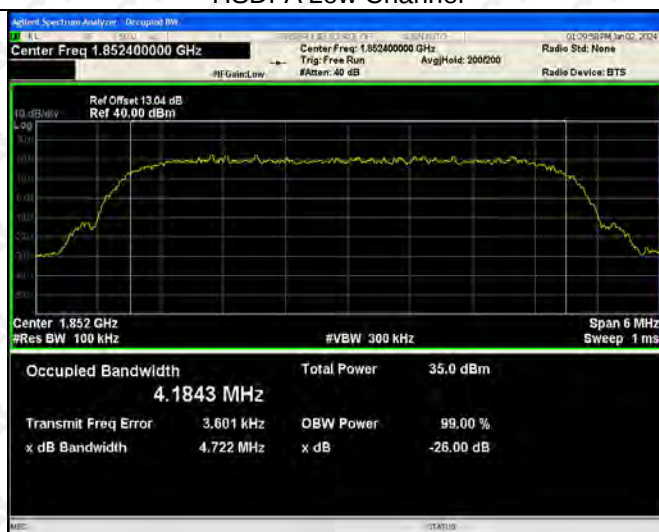
HSUPA High Channel



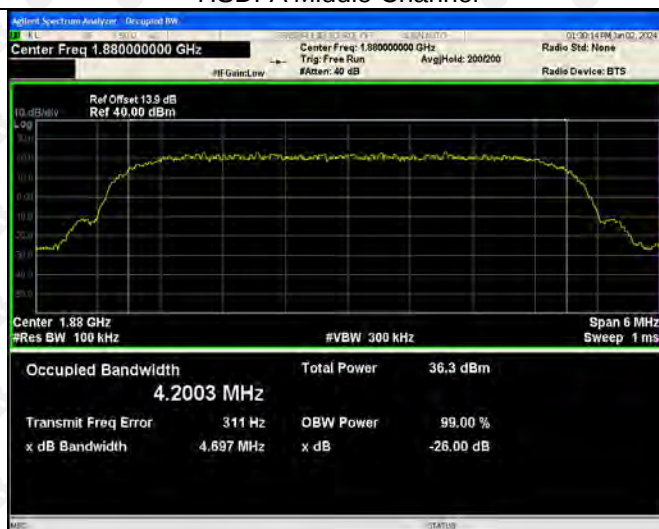
For Band II



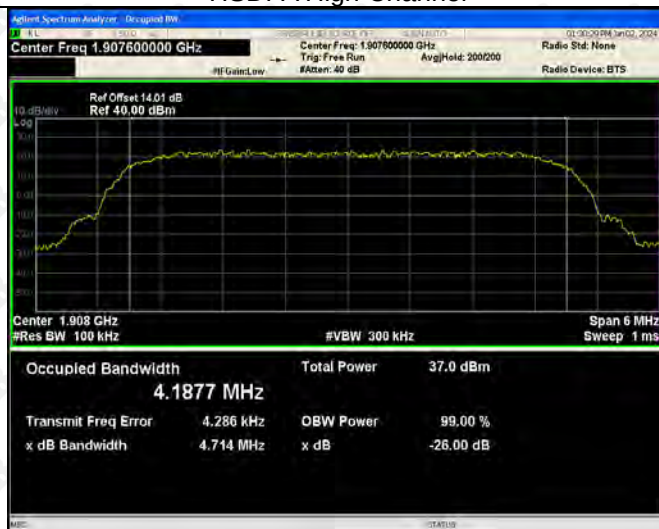
HSDPA Low Channel



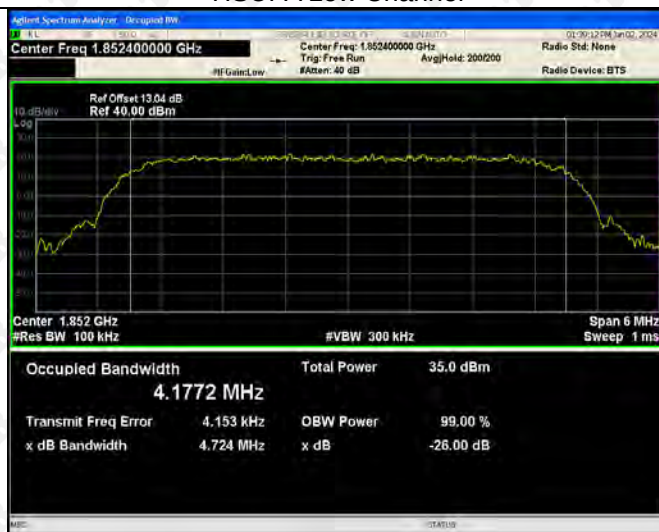
HSDPA Middle Channel



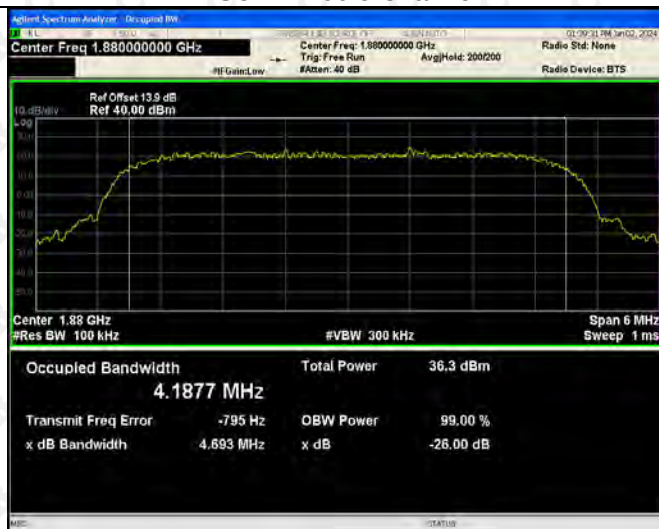
HSDPA High Channel



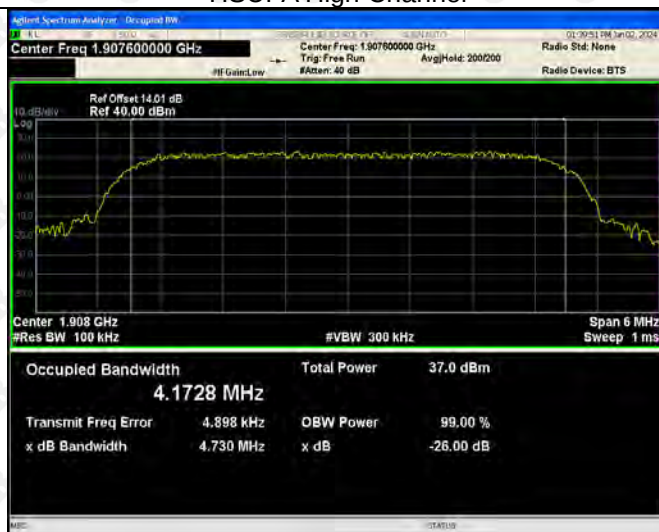
HSUPA Low Channel



HSUPA Middle Channel



HSUPA High Channel



9. OUT OF BAND EMISSIONS AT ANTENNA TERMINAL

9.1 Standard Applicable

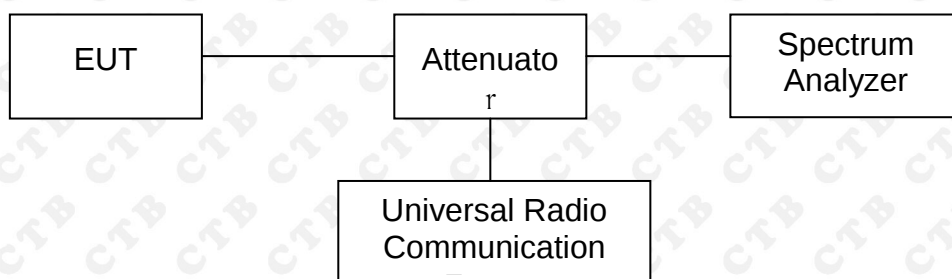
According to §22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

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 10^{th} harmonic.

Test Configuration for the out of band emissions testing:

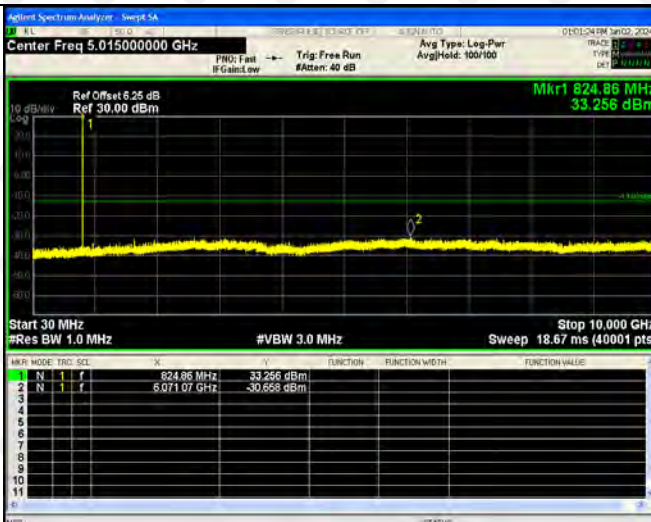
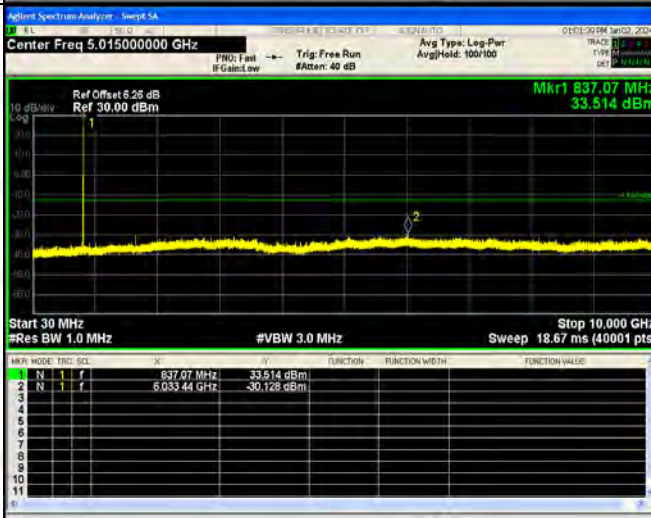
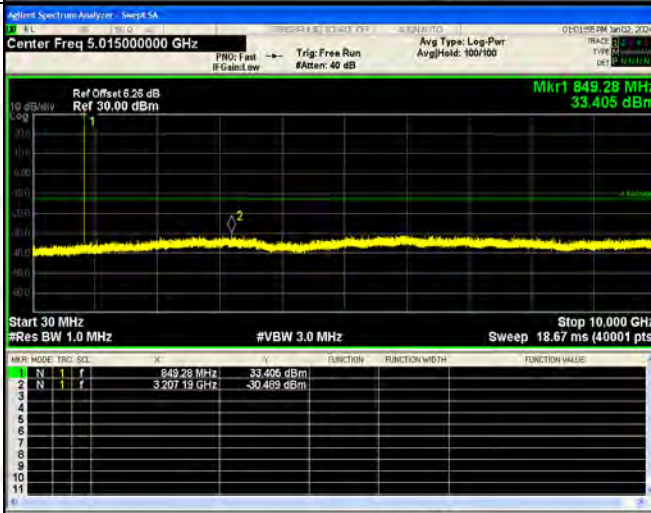


9.3 Environmental Conditions

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

GSM Low Channel	 Agilent Spectrum Analyzer - Sweep 5A Center Freq 5.015000000 GHz Ref Offset 6.25 dB Ref 30.00 dBm Mkr1 824.86 MHz 33.256 dBm Start 30 MHz #Res BW 1.0 MHz #VBW 3.0 MHz Stop 10.000 GHz Sweep 18.67 ms (40001 pts) <table><tr><th>MARK</th><th>MODE</th><th>FREQ</th><th>POWER</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>824.86 MHz</td><td>33.256 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>6.07107 GHz</td><td>-30.658 dBm</td><td></td><td></td><td></td></tr></table>	MARK	MODE	FREQ	POWER	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	824.86 MHz	33.256 dBm				2	N	6.07107 GHz	-30.658 dBm				
MARK	MODE	FREQ	POWER	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																	
1	N	824.86 MHz	33.256 dBm																				
2	N	6.07107 GHz	-30.658 dBm																				
GSM Middle Channel	 Agilent Spectrum Analyzer - Sweep 5A Center Freq 5.015000000 GHz Ref Offset 6.25 dB Ref 30.00 dBm Mkr1 837.07 MHz 33.514 dBm Start 30 MHz #Res BW 1.0 MHz #VBW 3.0 MHz Stop 10.000 GHz Sweep 18.67 ms (40001 pts) <table><tr><th>MARK</th><th>MODE</th><th>FREQ</th><th>POWER</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>837.07 MHz</td><td>33.514 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>6.03344 GHz</td><td>-30.128 dBm</td><td></td><td></td><td></td></tr></table>	MARK	MODE	FREQ	POWER	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	837.07 MHz	33.514 dBm				2	N	6.03344 GHz	-30.128 dBm				
MARK	MODE	FREQ	POWER	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																	
1	N	837.07 MHz	33.514 dBm																				
2	N	6.03344 GHz	-30.128 dBm																				
GSM High Channel	 Agilent Spectrum Analyzer - Sweep 5A Center Freq 5.015000000 GHz Ref Offset 6.25 dB Ref 30.00 dBm Mkr1 849.28 MHz 33.406 dBm Start 30 MHz #Res BW 1.0 MHz #VBW 3.0 MHz Stop 10.000 GHz Sweep 18.67 ms (40001 pts) <table><tr><th>MARK</th><th>MODE</th><th>FREQ</th><th>POWER</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>849.28 MHz</td><td>33.406 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>3.20719 GHz</td><td>-30.489 dBm</td><td></td><td></td><td></td></tr></table>	MARK	MODE	FREQ	POWER	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	849.28 MHz	33.406 dBm				2	N	3.20719 GHz	-30.489 dBm				
MARK	MODE	FREQ	POWER	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																	
1	N	849.28 MHz	33.406 dBm																				
2	N	3.20719 GHz	-30.489 dBm																				

GSM
Low
Band
Emission



GSM
High
Band
Emission



GPRS Low Channel		
GPRS Middle Channel		
GPRS High Channel		

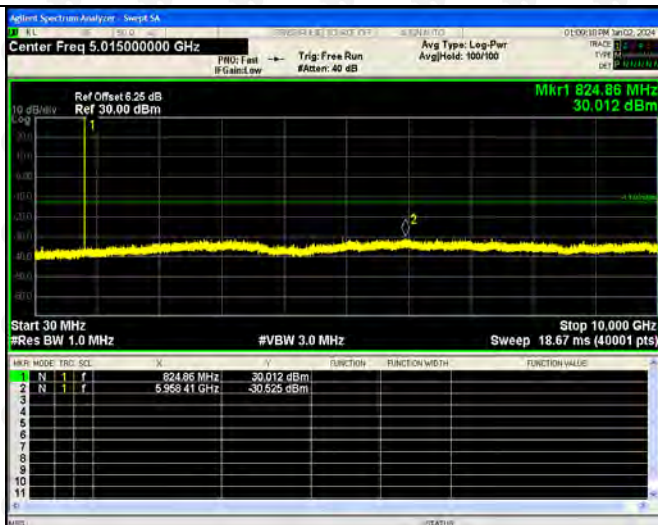
GPRS
Low
Band
Emission



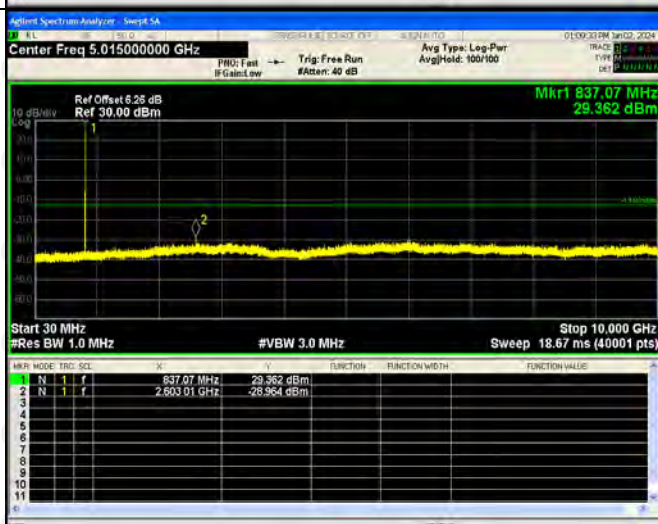
GPRS
High
Band
Emission



EDGE
Low
Channel



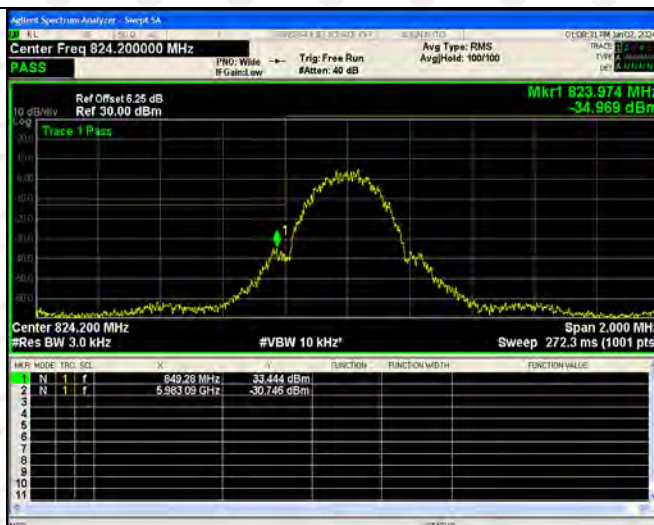
EDGE
Middle
Channel



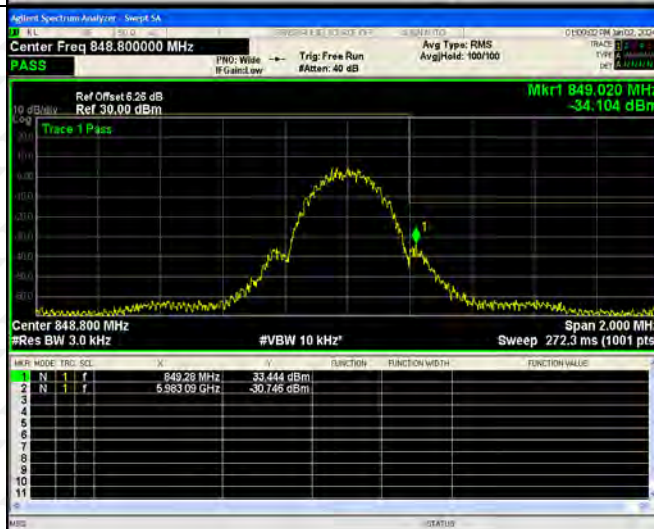
EDGE
High
Channel



EDGE
Low
Band
Emission



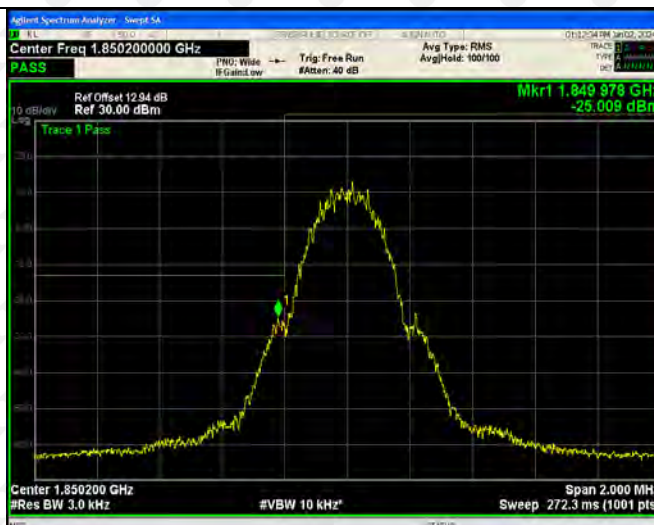
EDGE
High
Band
Emission



For PCS Band

GSM Low Channel		
GSM Middle Channel		
GSM High Channel		

GSM
Low
Band
Emission



GSM
High
Band
Emission



GPRS Low Channel		
GPRS Middle Channel		
GPRS High Channel		

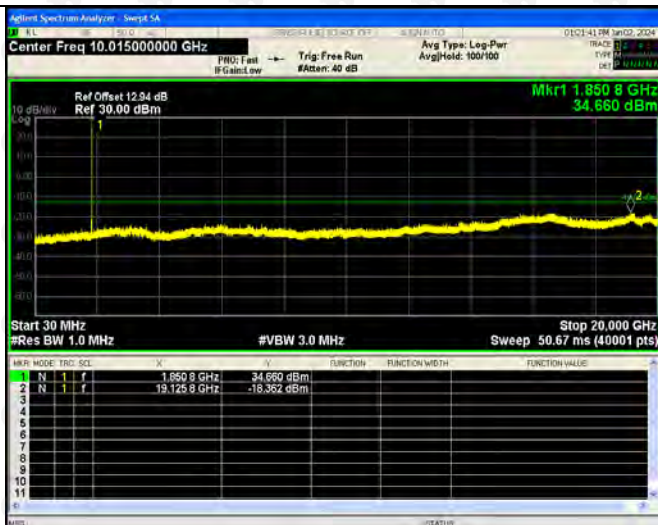
GPRS
Low
Band
Emission



GPRS
High
Band
Emission



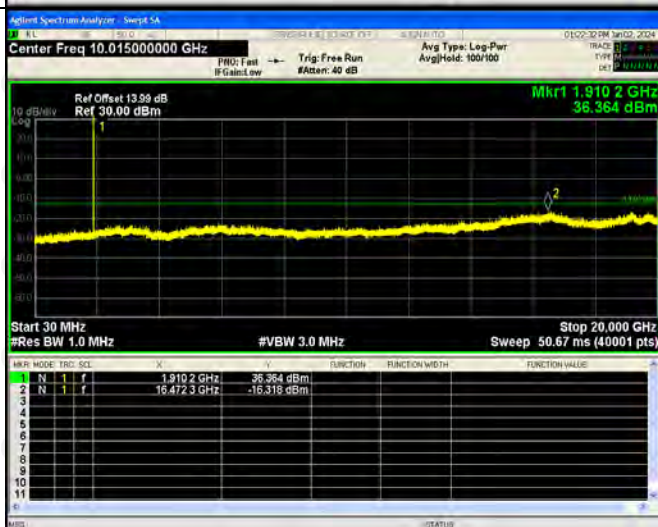
EDGE
Low
Channel



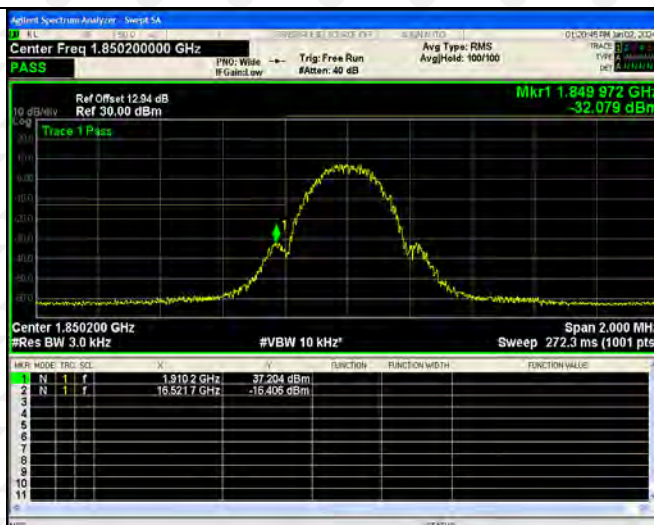
EDGE
Middle
Channel



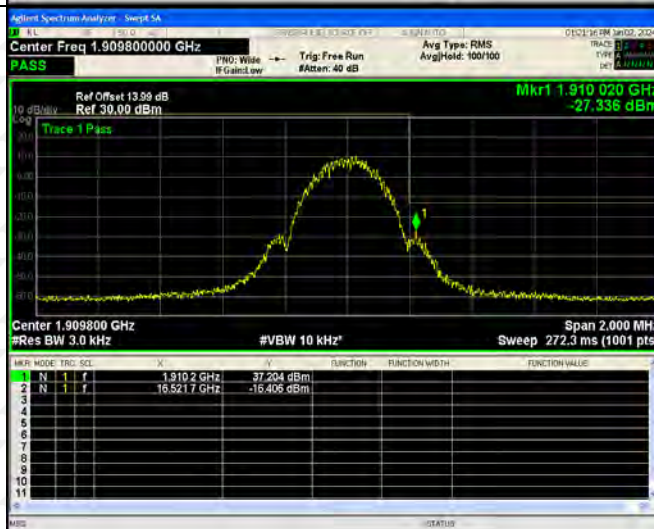
EDGE
High
Channel



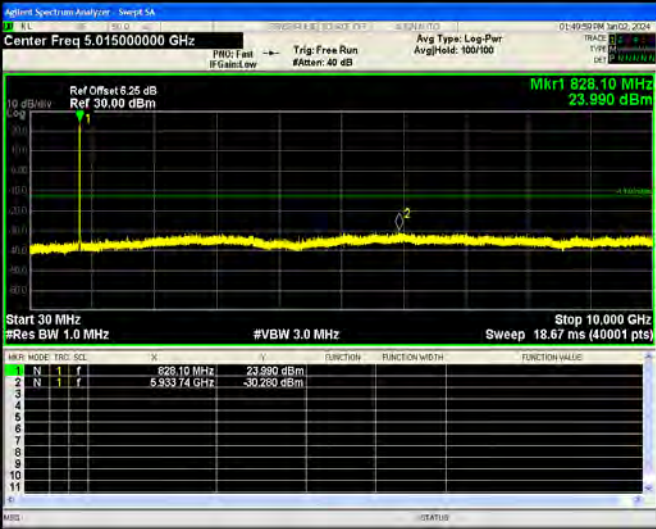
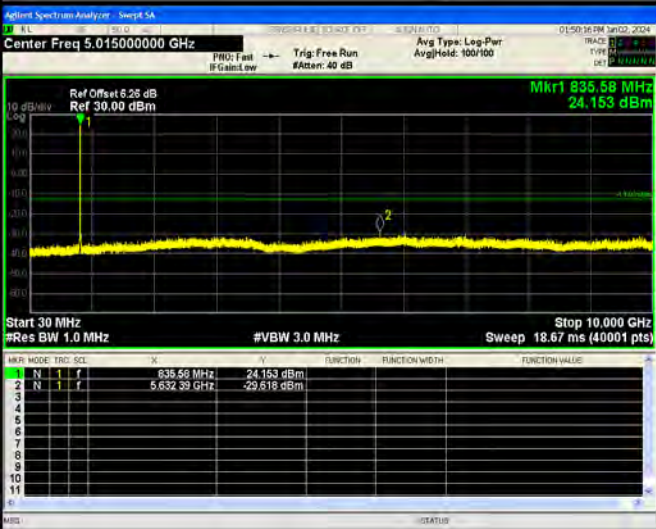
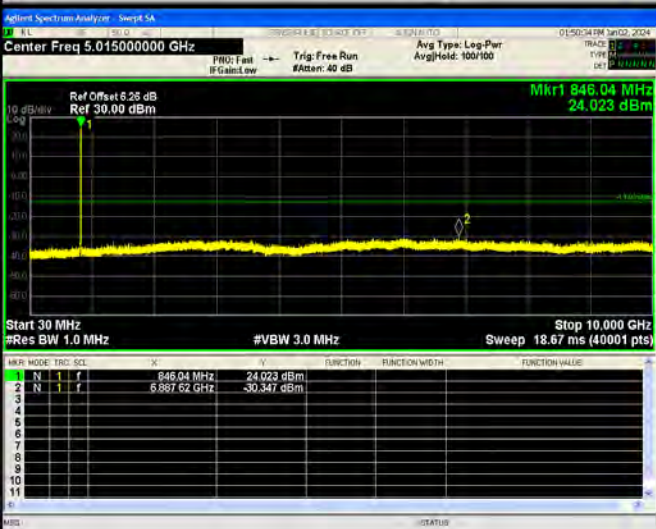
EDGE
Low
Band
Emission



EDGE
High
Band
Emission



For Band V

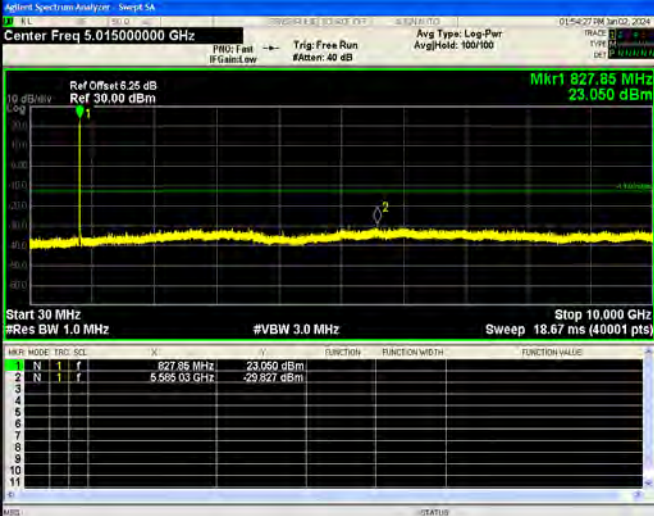
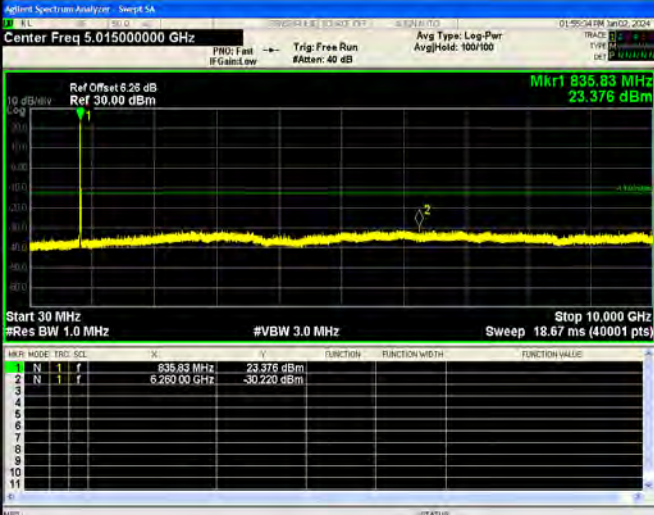
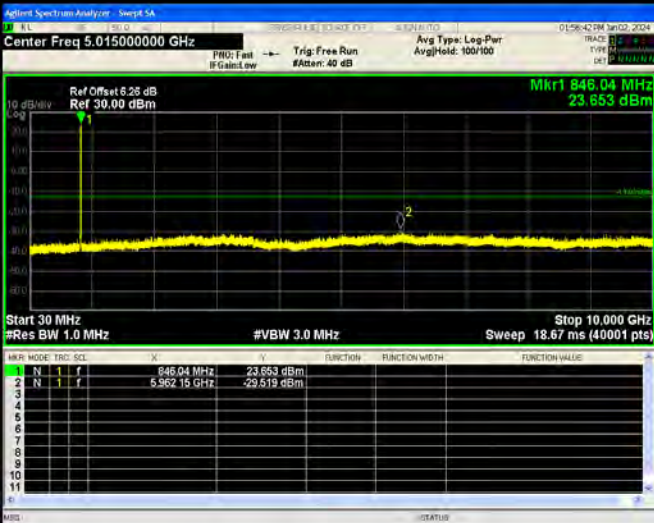
WCDMA Low Channel		
WCDMA Middle Channel		
WCDMA High Channel		

WCDMA
Low
Band
Spurious
Emission



WCDMA
High
Band
Spurious
Emission



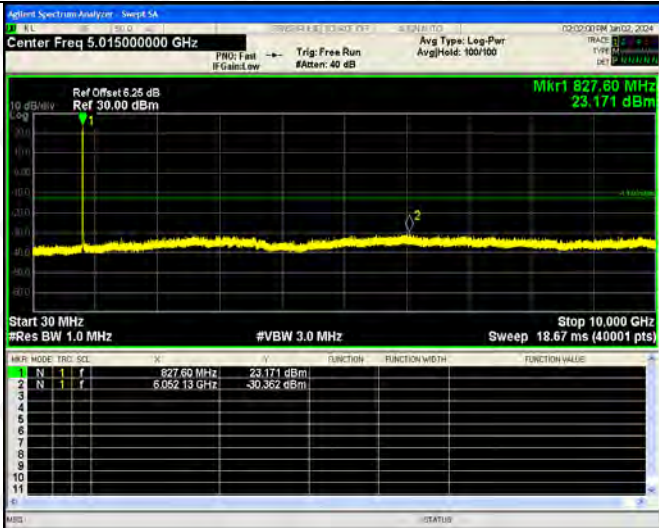
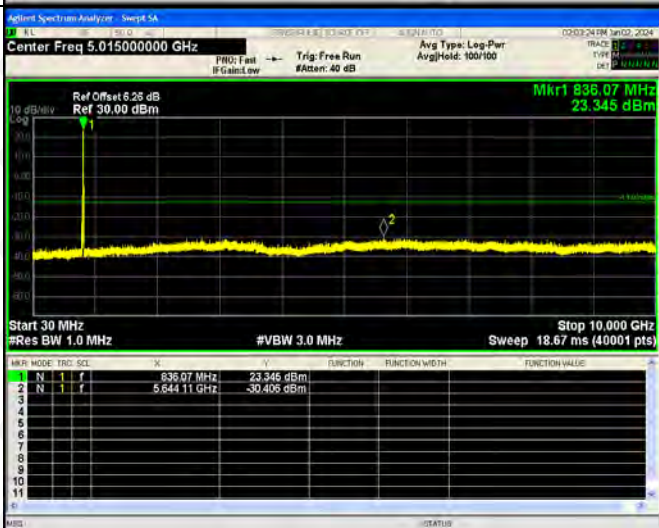
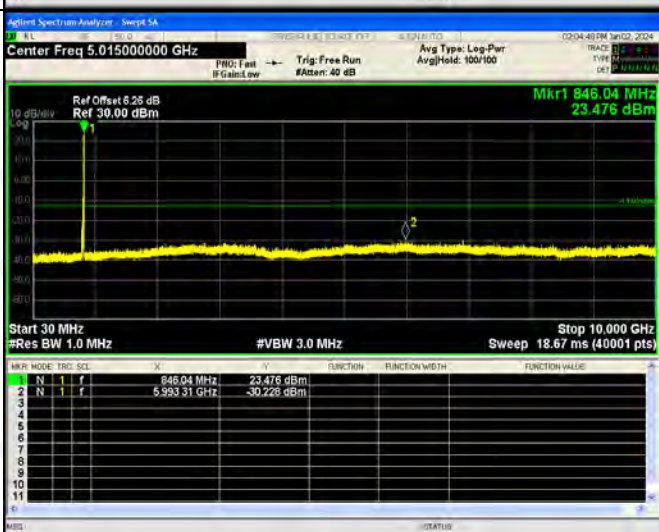
HSDPA Low Channel	
HSDPA Middle Channel	
HSDPA High Channel	

HSDPA
Low
Band
Spurious
Emission



HSDPA
High
Band
Spurious
Emission



HSUPA Low Channel	 <table><tr><th>Mkr</th><th>Freq (MHz)</th><th>Power (dBm)</th></tr><tr><td>Mkr1</td><td>827.60</td><td>23.171</td></tr><tr><td>Mkr2</td><td>6.05213</td><td>-30.362</td></tr></table>	Mkr	Freq (MHz)	Power (dBm)	Mkr1	827.60	23.171	Mkr2	6.05213	-30.362
Mkr	Freq (MHz)	Power (dBm)								
Mkr1	827.60	23.171								
Mkr2	6.05213	-30.362								
HSUPA Middle Channel	 <table><tr><th>Mkr</th><th>Freq (MHz)</th><th>Power (dBm)</th></tr><tr><td>Mkr1</td><td>836.07</td><td>23.345</td></tr><tr><td>Mkr2</td><td>5.64411</td><td>-30.406</td></tr></table>	Mkr	Freq (MHz)	Power (dBm)	Mkr1	836.07	23.345	Mkr2	5.64411	-30.406
Mkr	Freq (MHz)	Power (dBm)								
Mkr1	836.07	23.345								
Mkr2	5.64411	-30.406								
HSUPA High Channel	 <table><tr><th>Mkr</th><th>Freq (MHz)</th><th>Power (dBm)</th></tr><tr><td>Mkr1</td><td>846.04</td><td>23.476</td></tr><tr><td>Mkr2</td><td>5.99331</td><td>-30.228</td></tr></table>	Mkr	Freq (MHz)	Power (dBm)	Mkr1	846.04	23.476	Mkr2	5.99331	-30.228
Mkr	Freq (MHz)	Power (dBm)								
Mkr1	846.04	23.476								
Mkr2	5.99331	-30.228								

HSUPA
Low
Band
Spurious
Emission



HSUPA
High
Band
Spurious
Emission



For Band II

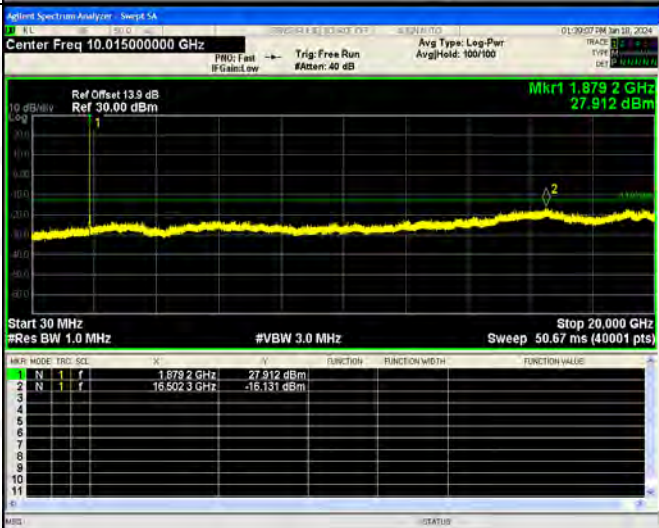
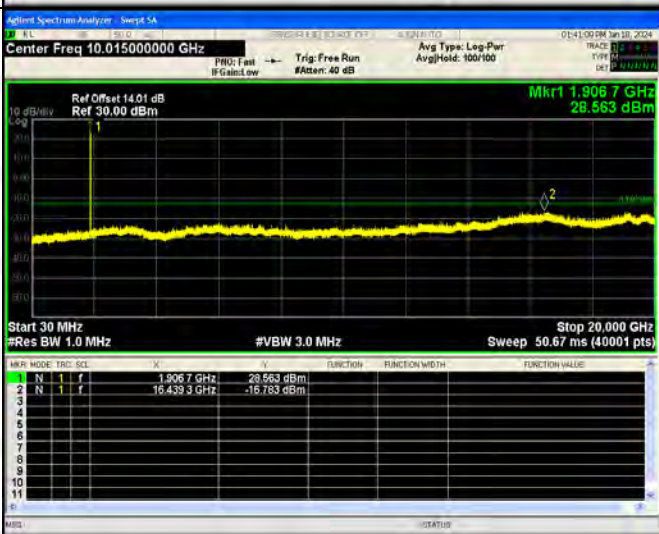
WCDMA Low Channel		
WCDMA Middle Channel		
WCDMA High Channel		

WCDMA
Low
Band
Spurious
Emission



WCDMA
High
Band
Spurious
Emission



HSDPA Low Channel	
HSDPA Middle Channel	
HSDPA High Channel	

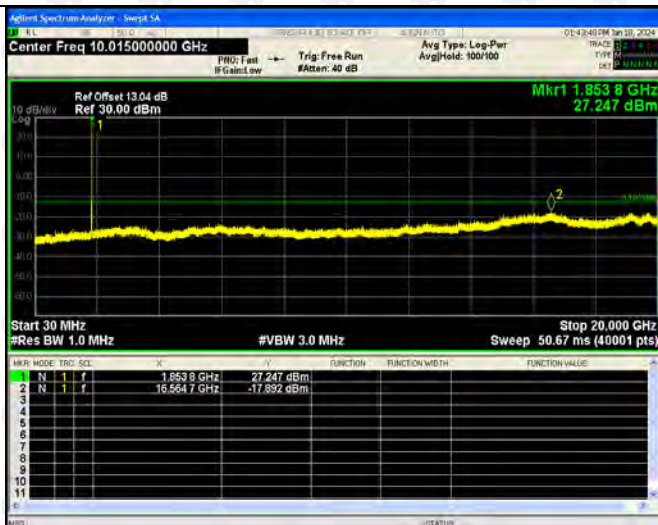
HSDPA
Low
Band
Spurious
Emission



HSDPA
High
Band
Spurious
Emission



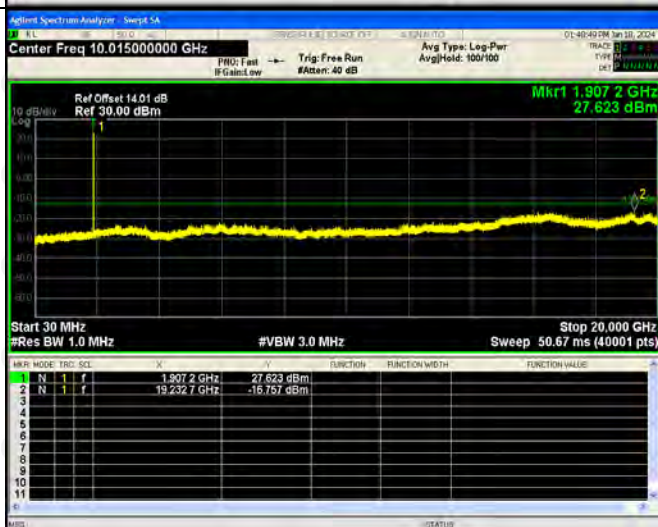
HSUPA
Low
Channel



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 = $43 + 10 \log_{10}(\text{power out in Watts})$

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)						
42.80	-75.01	3.9	-71.11	-13	-58.11	H
1643.12	-59.88	4.83	-55.05	-13	-42.05	H
2466.29	-54.78	8.08	-46.70	-13	-33.70	H
36.43	-70.69	4.02	-66.67	-13	-53.67	V
1648.04	-50.95	4.48	-46.47	-13	-33.47	V
2468.82	-55.39	8.2	-47.19	-13	-34.19	V
Middle Channel (836.6MHz)						
45.88	-71.71	3.84	-67.87	-13	-54.87	H
1670.49	-52.71	4.62	-48.09	-13	-35.09	H
2500.39	-50.28	8.25	-42.03	-13	-29.03	H
39.51	-74.05	4.25	-69.80	-13	-56.80	V
1672.04	-48.77	4.54	-44.23	-13	-31.23	V
2505.23	-48.67	8.35	-40.32	-13	-29.75	V
High Channel (848.8MHz)						
43.26	-75.34	4.22	-79.56	-13	-66.56	H
1689.36	-52.16	4.87	-57.03	-13	-44.03	H
2542.77	-58.73	8.38	-67.11	-13	-54.11	H
38.57	-67.53	4.02	-71.55	-13	-58.55	V
1693.17	-49.88	4.56	-54.44	-13	-41.44	V
2540.33	-52.73	8.41	-61.14	-13	-48.14	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)						
41.72	-70.14	4.34	-65.80	-13	-52.80	H
3699.80	-53.84	10.54	-43.30	-13	-30.30	H
5545.23	-61.90	13.37	-48.53	-13	-35.53	H
39.07	-70.51	4.34	-66.17	-13	-53.17	V
3695.34	-57.76	10.54	-47.22	-13	-34.22	V
5549.12	-60.55	13.37	-47.18	-13	-34.18	V
Middle Channel (1880MHz)						
38.80	-73.23	4.02	-69.21	-13	-56.21	H
3751.06	-51.93	10.71	-41.22	-13	-28.22	H
5630.05	-56.60	13.73	-42.87	-13	-29.87	H
43.43	-71.92	4.14	-67.78	-13	-54.78	V
3759.04	-55.82	10.22	-45.60	-13	-32.60	V
5637.98	-54.58	13.16	-41.42	-13	-28.42	V
High Channel (1909.8MHz)						
41.13	-72.53	4.02	-68.51	-13	-55.51	H
3817.01	-56.53	4.9	-51.63	-13	-38.63	H
5720.89	-48.86	8.09	-40.77	-13	-27.77	H
36.73	-56.32	4.25	-52.07	-13	-39.07	V
3818.61	-58.57	4.93	-53.64	-13	-40.64	V
5724.48	-59.71	8.43	-51.28	-13	-38.28	V

For Band 5 Mode

Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Polar H/V
Low Channel (826.4MHz)						
40.31	-73.95	3.91	-70.04	-13	-57.04	H
1643.34	-58.19	10.56	-47.63	-13	-34.63	H
2476.10	-61.59	13.5	-48.09	-13	-35.09	H
38.65	-69.99	3.93	-66.06	-13	-53.06	V
1652.09	-55.72	10.41	-45.31	-13	-32.31	V
2475.80	-55.74	13.16	-42.58	-13	-29.58	V
Middle Channel (836.6MHz)						
41.86	-72.31	4.02	-68.29	-13	-55.29	H
1672.39	-57.83	4.66	-53.17	-13	-40.17	H
2501.60	-45.25	8.34	-36.91	-13	-23.91	H
37.91	-61.58	4.17	-57.41	-13	-44.41	V
1664.80	-62.56	4.94	-57.62	-13	-44.62	V
2503.78	-63.91	8.19	-55.72	-13	-42.72	V
High Channel (846.6MHz)						
44.67	-65.90	3.87	-62.03	-13	-49.03	H
1686.33	-59.84	4.89	-54.95	-13	-41.95	H
2533.07	-46.14	8.42	-37.72	-13	-24.72	H
41.60	-60.23	3.95	-56.28	-13	-43.28	V
1684.20	-55.13	4.99	-50.14	-13	-37.14	V
2538.09	-60.34	8.12	-52.22	-13	-39.22	V

For Band 2 Mode

Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Polar H/V
Low Channel (1852.4MHz)						
42.88	-65.97	4.22	-62.06	-13	-49.06	H
1649.60	-57.39	10.7	-46.83	-13	-33.83	H
2470.11	-55.09	13.73	-41.59	-13	-28.59	H
36.59	-65.98	3.93	-62.05	-13	-49.05	V
1648.29	-55.35	10.09	-44.94	-13	-31.94	V
2473.88	-59.39	13.11	-46.23	-13	-33.23	V
Middle Channel (1880MHz)						
44.30	-67.42	4.26	-63.40	-13	-50.40	H
1664.26	-62.85	4.76	-58.19	-13	-45.19	H
2504.61	-45.70	8.37	-37.36	-13	-24.36	H
39.02	-56.35	3.96	-52.18	-13	-39.18	V
1670.19	-61.01	4.63	-56.07	-13	-43.07	V
2505.20	-62.69	8.1	-54.50	-13	-41.50	V
High Channel (1907.6MHz)						
43.65	-72.44	4.26	-68.57	-13	-55.57	H
1688.68	-61.02	4.76	-56.13	-13	-43.13	H
2536.16	-50.26	8.37	-41.84	-13	-28.84	H
45.47	-61.06	3.96	-57.11	-13	-44.11	V
1693.12	-62.67	4.63	-57.68	-13	-44.68	V
2532.71	-56.87	8.1	-48.75	-13	-35.75	V

Note: Result=Reading+ Correct, Margin= Result- Limit

Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in 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 GSM 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	9.24	0.01104
40	NV	9.06	0.01083
30	NV	9.44	0.01128
20	NV	9.96	0.01190
10	NV	10.26	0.01227
0	NV	10.49	0.01253
-10	NV	9.88	0.01181
-20	NV	11.07	0.01323
-30	NV	11.31	0.01352

For PCS Band GSM 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	12.79	0.00680
40	NV	12.79	0.00680
30	NV	12.43	0.00661
20	NV	13.23	0.00704
10	NV	13.22	0.00703
0	NV	13.12	0.00698
-10	NV	13.53	0.00720
-20	NV	14.11	0.00750
-30	NV	14.39	0.00766

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	8.98	0.01073
40	NV	9.09	0.01087
30	NV	8.98	0.01074
20	NV	9.13	0.01091
10	NV	10.35	0.01237
0	NV	10.77	0.01288
-10	NV	10.25	0.01225
-20	NV	10.26	0.01227
-30	NV	10.63	0.01270

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	12.69	0.00675
40	NV	12.47	0.00663
30	NV	12.84	0.00683
20	NV	13.06	0.00695
10	NV	13.15	0.00700
0	NV	13.70	0.00729
-10	NV	14.34	0.00763
-20	NV	14.23	0.00757
-30	NV	14.27	0.00759

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	11.19	0.01338
40	NV	11.49	0.01373
30	NV	12.00	0.01435
20	NV	11.36	0.01358
10	NV	11.65	0.01393
0	NV	12.17	0.01455
-10	NV	11.87	0.01418
-20	NV	12.50	0.01494
-30	NV	12.44	0.01487

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	-10.81	-0.00575
40	NV	-9.78	-0.00520
30	NV	-9.87	-0.00525
20	NV	-9.48	-0.00504
10	NV	-8.52	-0.00453
0	NV	-9.15	-0.00487
-10	NV	-8.63	-0.00459
-20	NV	-7.73	-0.00411
-30	NV	-8.01	-0.00426

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	-0.54	-0.00064
40	NV	0.36	0.00043
30	NV	0.14	0.00017
20	NV	0.99	0.00119
10	NV	0.51	0.00061
0	NV	0.75	0.00090
-10	NV	0.51	0.00061
-20	NV	0.67	0.00080
-30	NV	1.54	0.00184

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	0.36	0.00043
40	NV	0.91	0.00109
30	NV	0.99	0.00119
20	NV	1.06	0.00127
10	NV	1.11	0.00132
0	NV	2.03	0.00242
-10	NV	1.79	0.00214
-20	NV	2.25	0.00269
-30	NV	2.17	0.00259

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	-0.35	-0.00042
40	NV	0.32	0.00039
30	NV	0.22	0.00026
20	NV	0.77	0.00092
10	NV	1.05	0.00126
0	NV	1.34	0.00160
-10	NV	1.45	0.00173
-20	NV	1.66	0.00198
-30	NV	1.49	0.00178

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	4.76	0.00253
40	NV	5.07	0.00270
30	NV	4.10	0.00218
20	NV	5.94	0.00316
10	NV	5.31	0.00283
0	NV	5.87	0.00312
-10	NV	6.06	0.00323
-20	NV	5.68	0.00302
-30	NV	5.73	0.00305

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	0.35	0.00042
40	NV	-0.11	-0.00013
30	NV	0.23	0.00027
20	NV	1.05	0.00125
10	NV	0.90	0.00108
0	NV	0.53	0.00064
-10	NV	1.08	0.00129
-20	NV	1.29	0.00154
-30	NV	0.60	0.00072

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	4.33	0.00230
40	NV	4.51	0.00240
30	NV	4.26	0.00227
20	NV	5.47	0.00291
10	NV	5.09	0.00271
0	NV	5.95	0.00316
-10	NV	5.73	0.00305
-20	NV	5.60	0.00298
-30	NV	5.65	0.00301

So, Frequency Stability Versus Input Voltage is:

Reference Frequency(Middle Channel): GSM 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	11.22	0.01341
	NV	11.06	0.01322
	HV	11.49	0.01373
Reference Frequency(Middle Channel): GSM 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	14.79	0.00787
	NV	14.53	0.00773
	HV	14.32	0.00762

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	10.68	0.01277
	NV	11.56	0.01382
	HV	11.50	0.01374
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	14.34	0.00763
	NV	14.62	0.00777
	HV	14.51	0.00772

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	12.60	0.01506
	NV	12.95	0.01548
	HV	12.93	0.01546
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	-8.32	-0.00995
	NV	-7.15	-0.00855
	HV	-7.63	-0.00912
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	1.06	0.00127
	NV	1.11	0.00132
	HV	1.22	0.00146
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	1.90	0.00227
	NV	1.62	0.00193
	HV	1.77	0.00212
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	2.39	0.00286
	NV	2.50	0.00299
	HV	3.13	0.00374

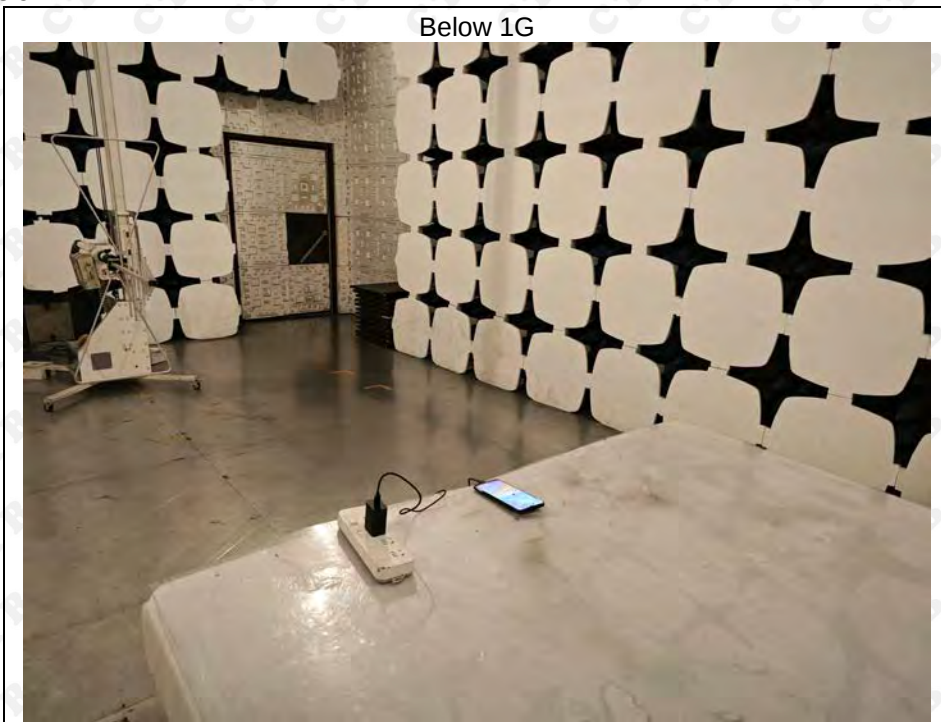
Reference Frequency(Middle Channel): HSDPA 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	1.25	0.00149
	NV	1.31	0.00156
	HV	1.59	0.00191
Reference Frequency(Middle Channel): HSDPA 1732.4MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	5.24	0.00626
	NV	5.49	0.00656
	HV	6.13	0.00733
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	5.23	0.00625
	NV	5.63	0.00673
	HV	6.85	0.00818
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	1.56	0.00186
	NV	1.74	0.00208
	HV	1.22	0.00146
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	6.09	0.00727
	NV	5.21	0.00623
	HV	6.12	0.00732

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	8.04	0.00962
	NV	8.29	0.00990
	HV	8.08	0.00966

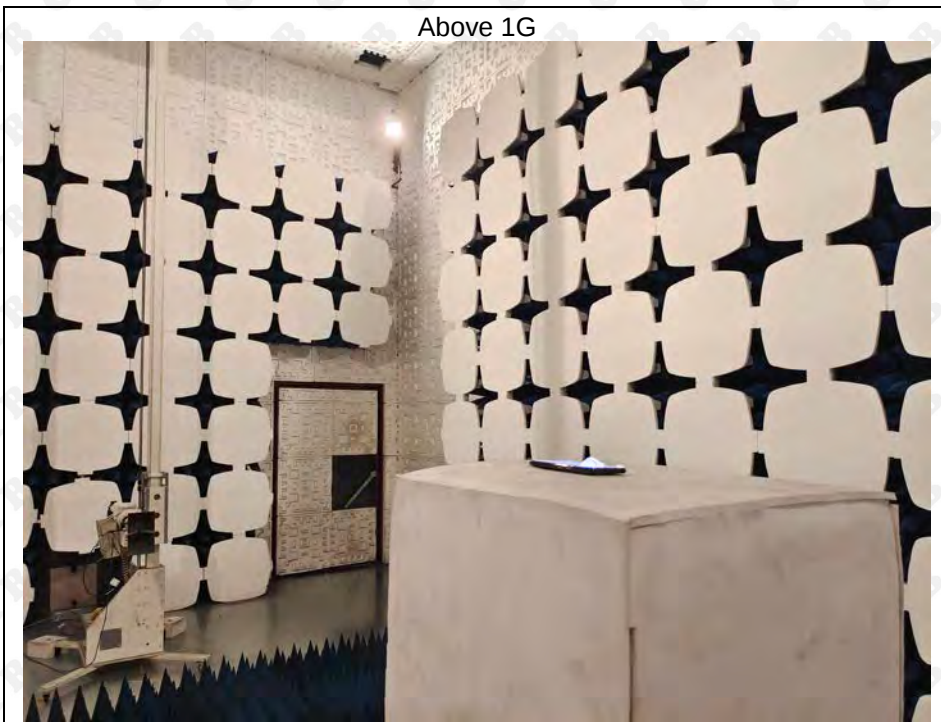
12. EUT TEST PHOTO

Radiated Emission

Below 1G



Above 1G



***** END OF REPORT *****