

TEST REPORT

Product Name: Tablet
FCC ID: 2ANMU-RT7TITAN
Trademark: OUKITEL
Model Number: RT7 TITAN
Prepared For: SHENZHEN YUNJI INTELLIGENT TECHNOLOGY CO.,LTD
Address: A2 2F BUILDING ENET NEW INDUSTRIAL PARK, DAFU INDUSTRIAL ZONE, GUANLAN, LONGHUA, SHENZHEN, 518XXX China
Manufacturer: SHENZHEN YUNJI INTELLIGENT TECHNOLOGY CO.,LTD
Address: A2 2F BUILDING ENET NEW INDUSTRIAL PARK, DAFU INDUSTRIAL ZONE, GUANLAN, LONGHUA, SHENZHEN, 518XXX 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: Oct. 24, 2023
Sample tested Date: Oct. 24, 2023 to Nov. 10, 2023
Issue Date: Nov. 10, 2023
Report No.: CTB231109015RFX
Test Standards: FCC Part 22H & 24E
Test Results: PASS
Remark: This is GSM radio test report.

Compiled by:

Zhou kui

Zhou Kui

Reviewed by:

Arron Liu

Arron Liu

Approved by:



Bin Mei / Director

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(Note: N/A means not applicable)



1. VERSION

Report No.	Issue Date	Description	Approved
CTB231109015RFX	Nov. 10, 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):	RT7 TITAN
Model Description:	N/A
Hardware Version:	TP756_MAIN_PCB_V1.1
Software Version:	OUKITEL_P07B_EEA_V07_20231110
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: 31.86dBm GSM1900: 29.43dBm WCDMA Band 2: 19.83dBm WCDMA Band 5: 22.19dBm
Type of Modulation:	GMSK, BPSK
Antenna installation:	FPC Antenna
Antenna Gain:	GSM850: -0.75dBi GSM1900: 0.67dBi WCDMA Band 2: 0.67dBi WCDMA Band 5: -0.75dBi
Ratings:	DC 9V 3A

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):	9V
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

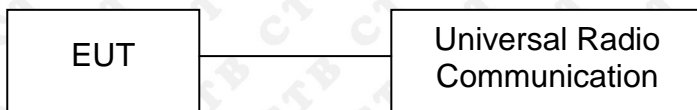
6.1 Standard Applicable

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	31.11	1.5	0	H	1.5	-0.75	28.86	38.45
824.2	30.92	1.5	0	V	1.5	-0.75	28.67	38.45
Middle Channel								
836.6	31.30	1.5	0	H	1.5	-0.75	29.05	38.45
836.6	30.92	1.5	0	V	1.5	-0.75	28.67	38.45
High Channel								
848.8	31.39	1.5	0	H	1.5	-0.75	29.14	38.45
848.8	30.97	1.5	0	V	1.5	-0.75	28.72	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	28.40	1.5	0	H	1.9	0.67	27.17	33
1850.2	28.19	1.5	0	V	1.9	0.67	26.96	33
Middle Channel								
1880	29.12	1.5	0	H	1.9	0.67	27.89	33
1880	28.36	1.5	0	V	1.9	0.67	27.13	33
High Channel								
1909.8	28.12	1.5	0	H	1.9	0.67	26.89	33
1909.8	28.88	1.5	0	V	1.9	0.67	27.65	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	31.04	1.5	0	H	1.5	-0.75	28.79	38.45
824.2	31.36	1.5	0	V	1.5	-0.75	29.11	38.45
Middle Channel								
836.6	31.20	1.5	0	H	1.5	-0.75	28.95	38.45
836.6	30.90	1.5	0	V	1.5	-0.75	28.65	38.45
High Channel								
848.8	30.97	1.5	0	H	1.5	-0.75	28.72	38.45
848.8	31.48	1.5	0	V	1.5	-0.75	29.23	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	28.65	1.5	0	H	1.9	0.67	27.42	33.00
1850.2	28.48	1.5	0	V	1.9	0.67	27.25	33.00
Middle Channel								
1880	28.78	1.5	0	H	1.9	0.67	27.55	33.00
1880	28.68	1.5	0	V	1.9	0.67	27.45	33.00
High Channel								
1909.8	28.51	1.5	0	H	1.9	0.67	27.28	33.00
1909.8	28.21	1.5	0	V	1.9	0.67	26.98	33.00



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	25.63	1.5	0	H	1.5	-0.75	23.38	38.45
824.2	25.39	1.5	0	V	1.5	-0.75	23.14	38.45
Middle Channel								
836.6	24.55	1.5	0	H	1.5	-0.75	22.30	38.45
836.6	25.18	1.5	0	V	1.5	-0.75	22.93	38.45
High Channel								
848.8	24.74	1.5	0	H	1.5	-0.75	22.49	38.45
848.8	24.16	1.5	0	V	1.5	-0.75	21.91	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	24.81	1.5	0	H	1.9	0.67	23.58	33.00
1850.2	24.63	1.5	0	V	1.9	0.67	23.40	33.00
Middle Channel								
1880	24.27	1.5	0	H	1.9	0.67	23.04	33.00
1880	24.48	1.5	0	V	1.9	0.67	23.25	33.00
High Channel								
1909.8	24.46	1.5	0	H	1.9	0	22.56	33.00
1909.8	24.30	1.5	0	V	1.9	0	22.40	33.00



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	21.34	1.5	0	H	1.5	-0.75	19.09	38.45
826.4	21.59	1.5	0	V	1.5	-0.75	19.34	38.45
Middle Channel								
836.6	21.32	1.5	0	H	1.5	-0.75	19.07	38.45
836.6	22.08	1.5	0	V	1.5	-0.75	19.83	38.45
High Channel								
846.6	21.99	1.5	0	H	1.5	-0.75	19.74	38.45
846.6	21.54	1.5	0	V	1.5	-0.75	19.29	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	20.86	1.5	0	H	1.5	-0.75	18.61	38.45
826.4	20.23	1.5	0	V	1.5	-0.75	17.98	38.45
Middle Channel								
836.6	20.47	1.5	0	H	1.5	-0.75	18.22	38.45
836.6	20.17	1.5	0	V	1.5	-0.75	17.92	38.45
High Channel								
846.6	20.08	1.5	0	H	1.5	-0.75	17.83	38.45
846.6	20.42	1.5	0	V	1.5	-0.75	18.17	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	20.06	1.5	0	H	1.5	-0.75	17.81	38.45
826.4	20.01	1.5	0	V	1.5	-0.75	17.76	38.45
Middle Channel								
836.6	20.10	1.5	0	H	1.5	-0.75	17.85	38.45
836.6	19.75	1.5	0	V	1.5	-0.75	17.50	38.45
High Channel								
846.6	19.98	1.5	0	H	1.5	-0.75	17.73	38.45
846.6	19.56	1.5	0	V	1.5	-0.75	17.31	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	18.87	1.5	0	H	1.9	0.67	17.64	33
1852.4	20.62	1.5	0	V	1.9	0.67	19.39	33
Middle Channel								
1880	18.99	1.5	0	H	1.9	0.67	17.76	33
1880	20.06	1.5	0	V	1.9	0.67	18.83	33
High Channel								
1907.6	19.61	1.5	0	H	1.9	0.67	18.38	33
1907.6	19.58	1.5	0	V	1.9	0.67	18.35	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	18.99	1.5	0	H	1.9	0.67	17.76	33
1852.4	19.41	1.5	0	V	1.9	0.67	18.18	33
Middle Channel								
1880	20.48	1.5	0	H	1.9	0.67	19.25	33
1880	20.48	1.5	0	V	1.9	0.67	19.25	33
High Channel								
1907.6	19.50	1.5	0	H	1.9	0.67	18.27	33
1907.6	17.93	1.5	0	V	1.9	0.67	16.70	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	19.10	1.5	0	H	1.9	0.67	17.87	33
1852.4	19.21	1.5	0	V	1.9	0.67	17.98	33
Middle Channel								
1880	19.87	1.5	0	H	1.9	0.67	18.64	33
1880	19.00	1.5	0	V	1.9	0.67	17.77	33
High Channel								
1907.6	17.93	1.5	0	H	1.9	0.67	16.70	33
1907.6	18.06	1.5	0	V	1.9	0.67	16.83	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	31.70	38.45
	Middle Channel	836.6	31.68	38.45
	High Channel	848.8	31.48	38.45
GPRS(1 Slot)	Low Channel	824.2	31.78	38.45
	Middle Channel	836.6	31.86	38.45
	High Channel	848.8	31.83	38.45
EDGE(1 Slot)	Low Channel	824.2	26.25	38.45
	Middle Channel	836.6	25.27	38.45
	High Channel	848.8	24.91	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	29.07	33.0
	Middle Channel	1880.0	29.22	33.0
	High Channel	1909.8	29.04	33.0
GPRS(1 Slot)	Low Channel	1850.2	29.43	33.0
	Middle Channel	1880.0	29.23	33.0
	High Channel	1909.8	29.07	33.0
EDGE(1 Slot)	Low Channel	1850.2	25.10	33.0
	Middle Channel	1880.0	24.80	33.0
	High Channel	1909.8	24.97	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	21.81	38.45
	Middle Channel	836.6	22.19	38.45
	High Channel	846.6	22.13	38.45
HSDPA	Low Channel	826.4	21.02	38.45
	Middle Channel	836.6	20.73	38.45
	High Channel	846.6	20.44	38.45
HSUPA	Low Channel	826.4	20.19	38.45
	Middle Channel	836.6	20.47	38.45
	High Channel	846.6	20.32	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	19.83	33.00
	Middle Channel	1880.0	19.75	33.00
	High Channel	1907.6	19.30	33.00
HSDPA	Low Channel	1852.4	19.45	33.00
	Middle Channel	1880.0	19.58	33.00
	High Channel	1907.6	18.81	33.00
HSUPA	Low Channel	1852.4	18.38	33.00
	Middle Channel	1880.0	19.17	33.00
	High Channel	1907.6	18.82	33.00

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

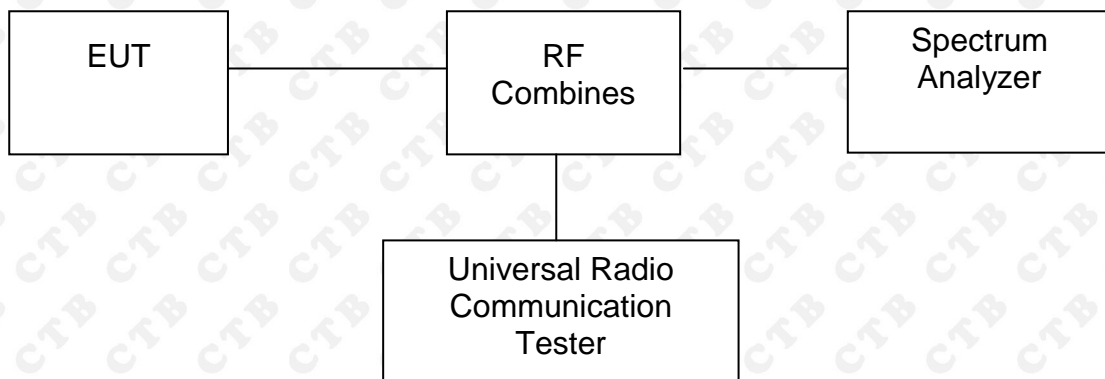
7.1 Standard Applicable

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	2.69	13
GPRS(1 Slot)	190	836.6	2.75	13
EDGE(1 Slot)	190	836.6	8.63	13

For PCS 1900

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
GSM	512	1850.2	2.70	13
GPRS(1 Slot)	512	1850.2	2.73	13
EDGE(1 Slot)	512	1850.2	6.84	13

For WCDMA Band 5

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	4182	836.4	3.19	13
HSDPA	4182	836.4	3.28	13
HSUPA	4182	836.4	3.56	13

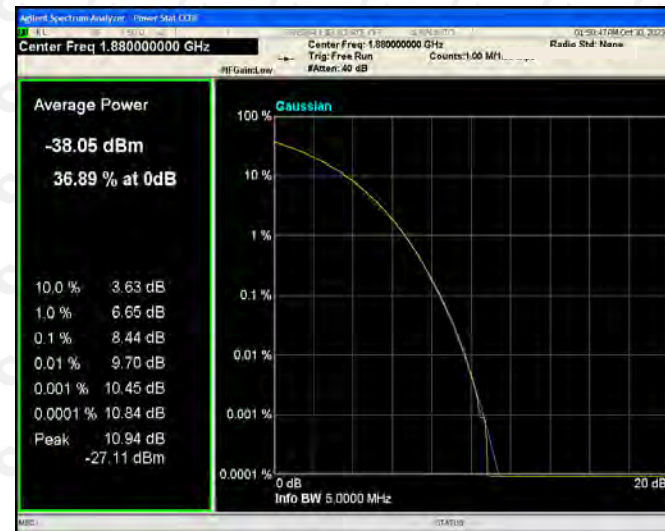
For WCDMA Band 2

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	9262	1852.4	8.44	13
HSDPA	9400	1852.4	3.20	13
HSUPA	9400	1852.4	3.52	13

GSM :



WCDMA:



8. EMISSION BANDWIDTH

8.1 Standard Applicable

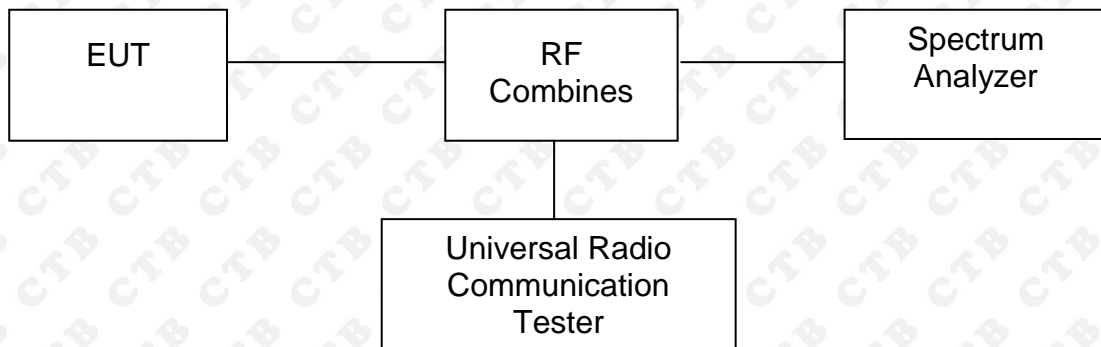
According to §22.917(b), The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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	244.647	315.203
	190	836.6	242.137	311.766
	251	848.8	240.796	316.670
GPRS	128	824.2	240.125	313.320
	190	836.6	242.918	326.629
	251	848.8	241.062	315.836
EDGE	128	824.2	244.621	313.708
	190	836.6	226.585	283.840
	251	848.8	248.012	311.245

For PCS Band

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM	512	1850.2	246.663	315.718
	661	1880.0	240.272	307.156
	810	1909.8	243.699	322.180
GPRS	512	1850.2	245.843	321.630
	661	1880.0	243.201	313.771
	810	1909.8	245.365	310.506
EDGE	512	1850.2	249.296	319.189
	661	1880.0	250.775	303.490
	810	1909.8	252.943	306.093

For Band 5

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
WCDMA	4132	826.4	4101.391	4671.303
	4183	836.6	4121.146	4681.921
	4233	846.6	4102.325	4703.442
HSDPA	4132	826.4	4126.515	4673.246
	4183	836.6	4127.237	4676.402
	4233	846.6	4114.649	4681.411
HSUPA	4132	826.4	4126.349	4707.613
	4183	836.6	4131.298	4701.947
	4233	846.6	4126.339	5486.056

For Band 2

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
WCDMA	9262	1852.4	5950.100	6000.000
	9400	1880.0	5942.570	6000.000
	9538	1907.6	5936.830	6000.000
HSDPA	9262	1852.4	4114.715	4654.856
	9400	1880.0	4122.551	4692.949
	9538	1907.6	4119.548	4697.124
HSUPA	9262	1852.4	4098.614	4700.042
	9400	1880.0	4127.505	4708.596
	9538	1907.6	4129.517	4707.666

For Cellular Band

GSM Low Channel



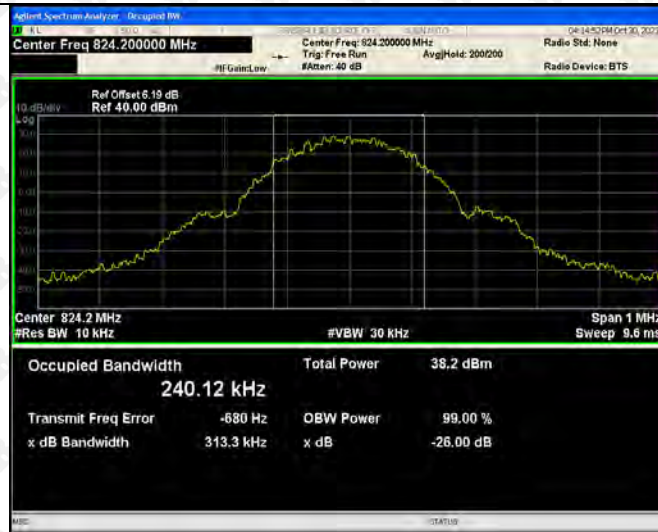
GSM Middle Channel



GSM High Channel



GPRS Low Channel



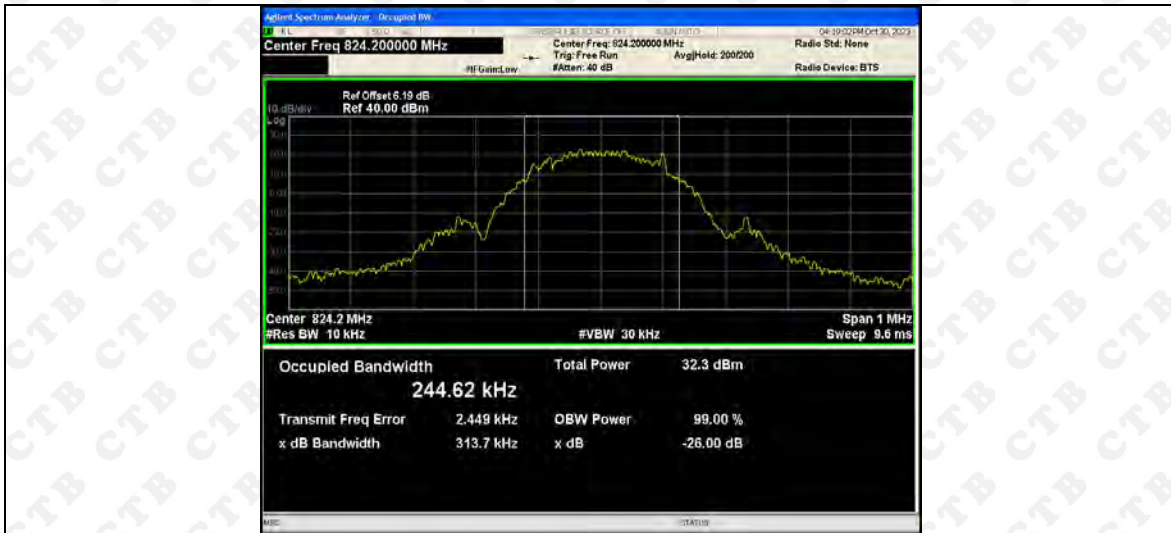
GPRS Middle Channel



GPRS High Channel



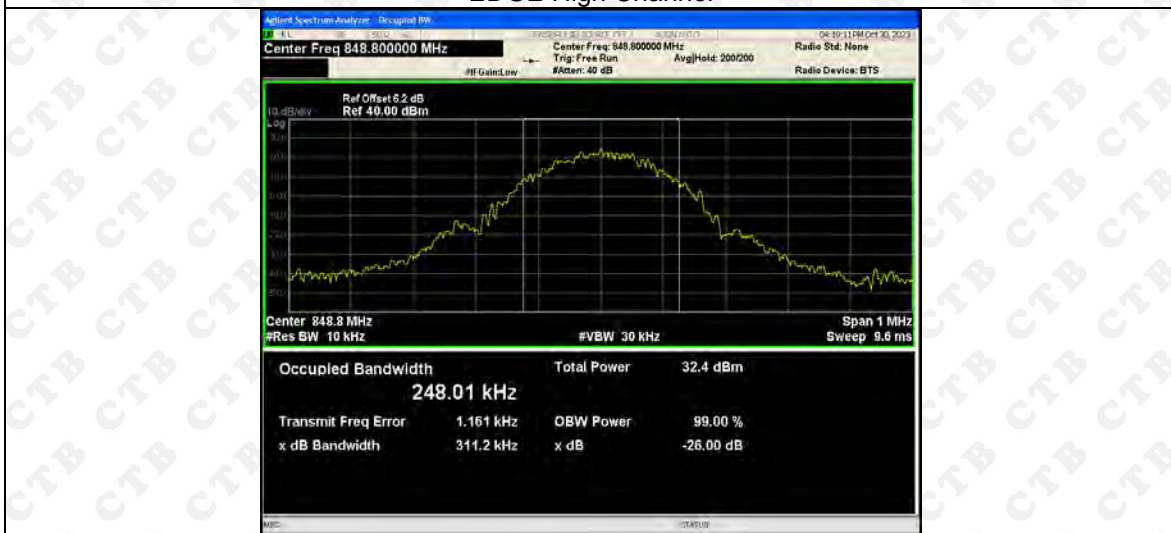
EDGE Low Channel



EDGE Middle Channel

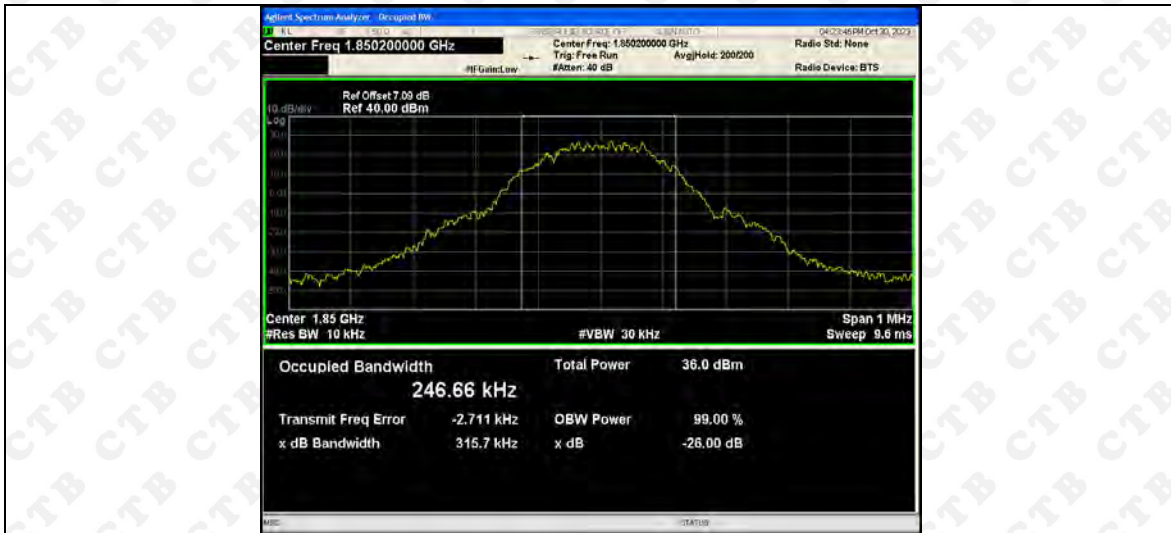


EDGE High Channel



For PCS Band

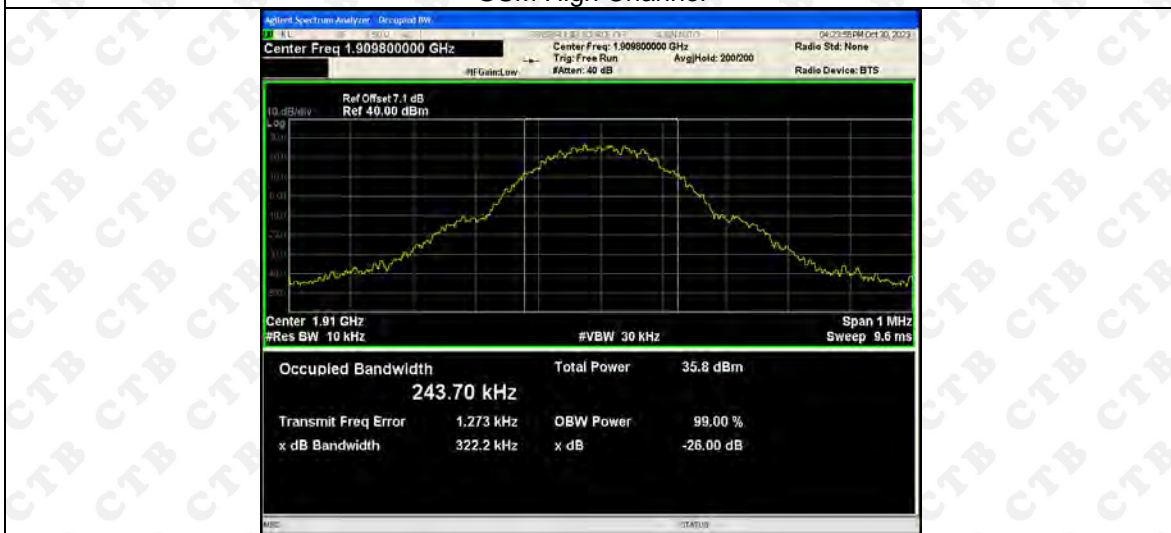
GSM Low Channel



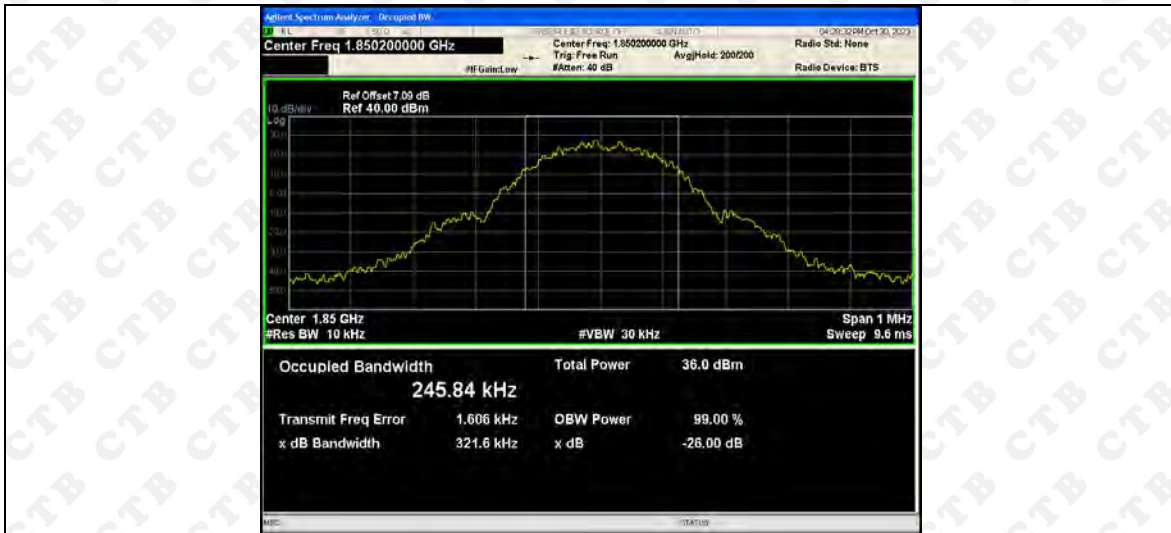
GSM Middle Channel



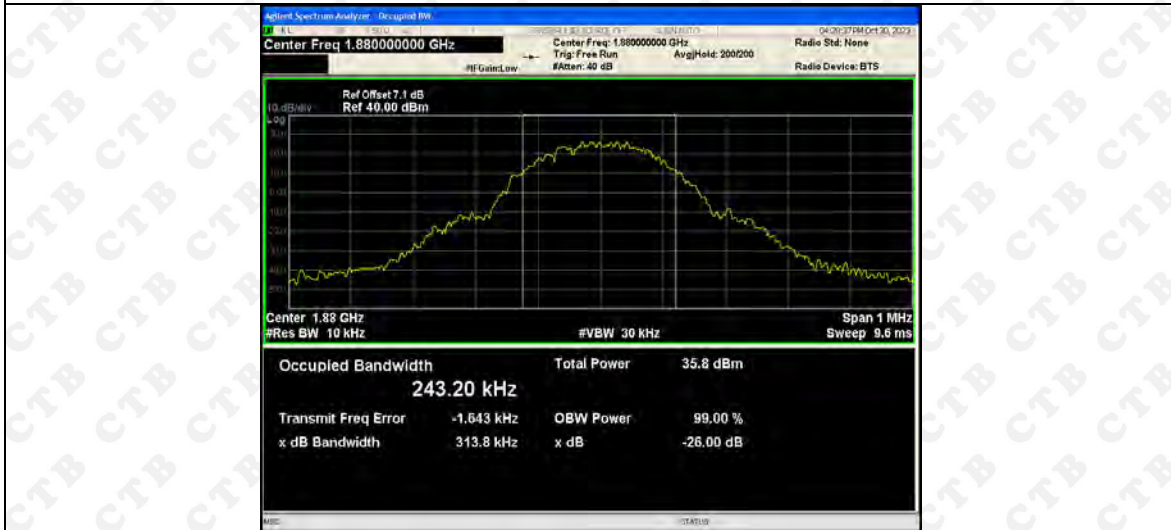
GSM High Channel



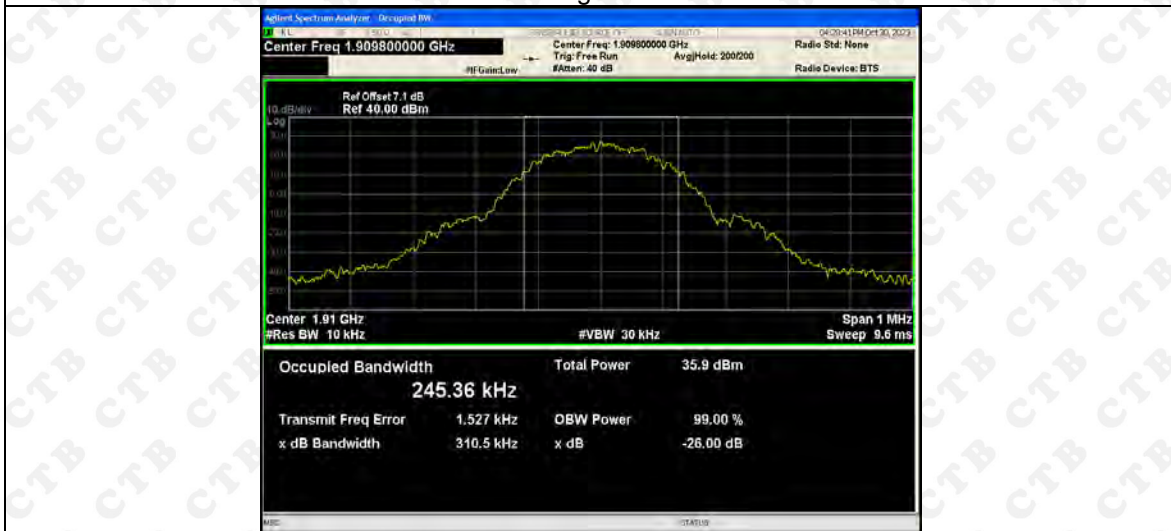
GPRS Low Channel



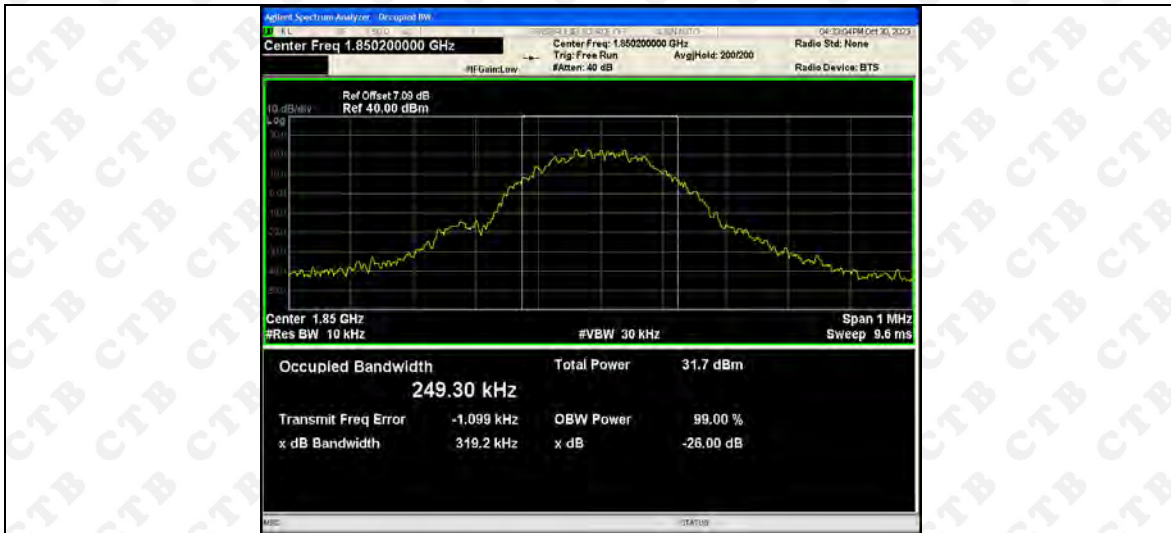
GPRS Middle Channel



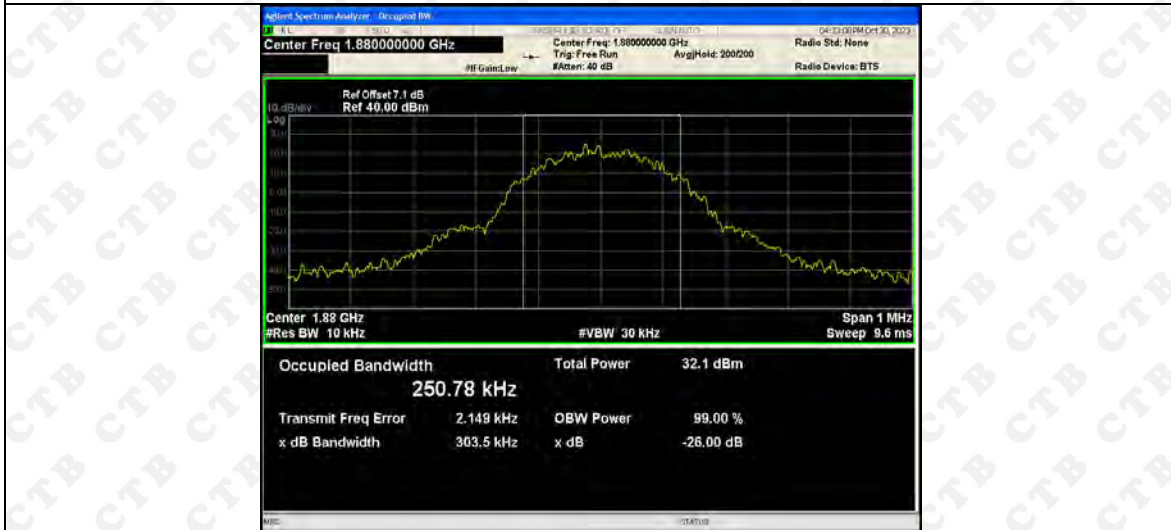
GPRS High Channel



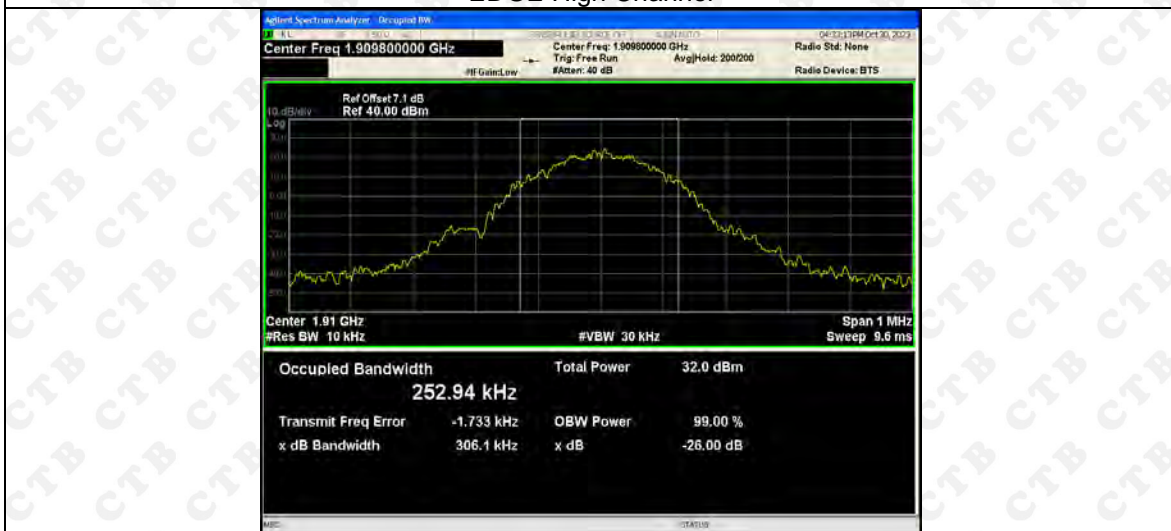
EDGE Low Channel



EDGE Middle Channel

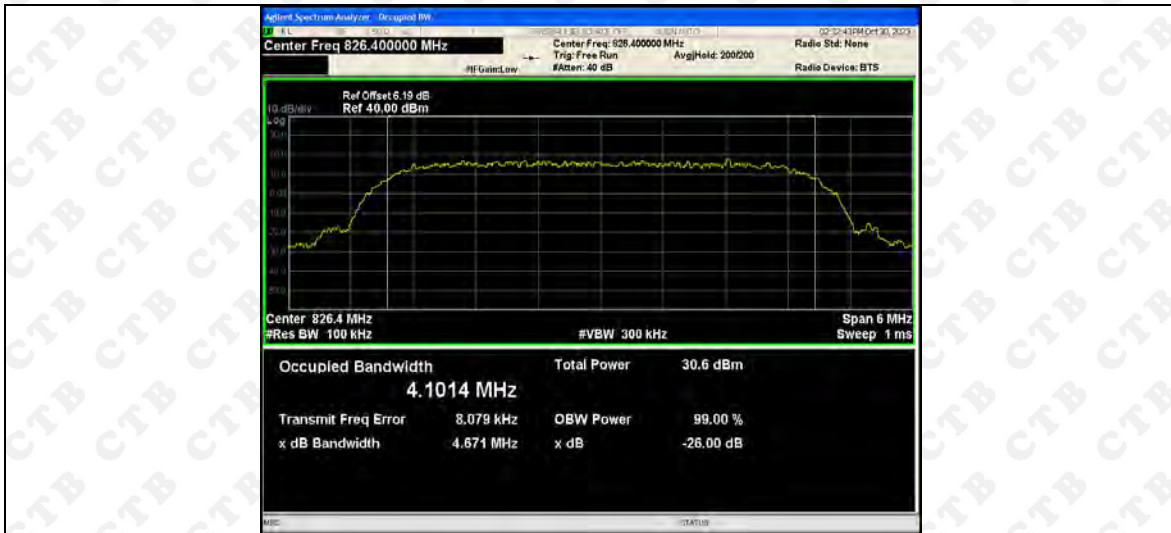


EDGE High Channel



For Band V

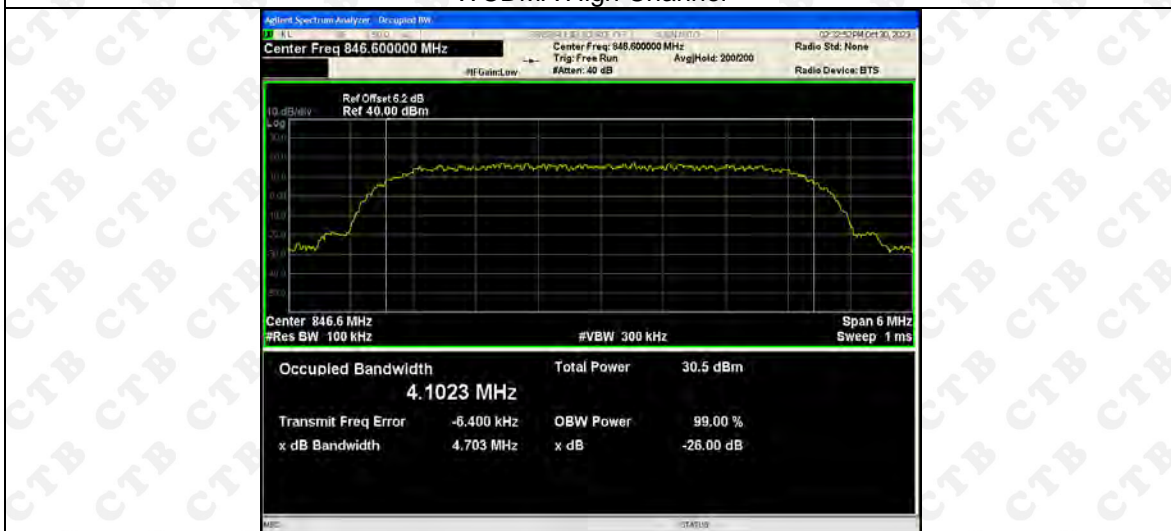
WCDMA Low Channel



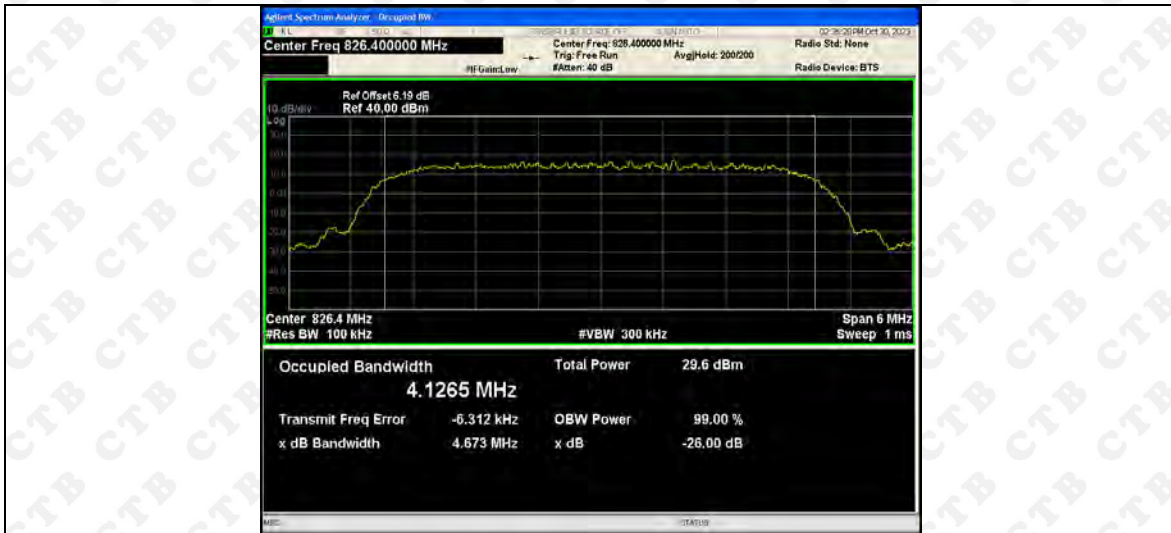
WCDMA Middle Channel



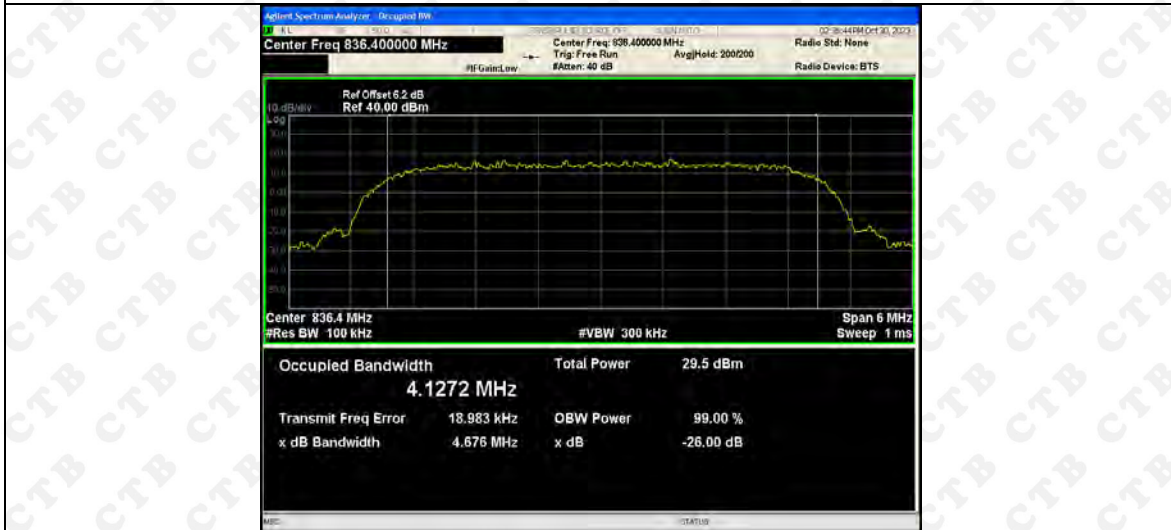
WCDMA High Channel



HSDPA Low Channel



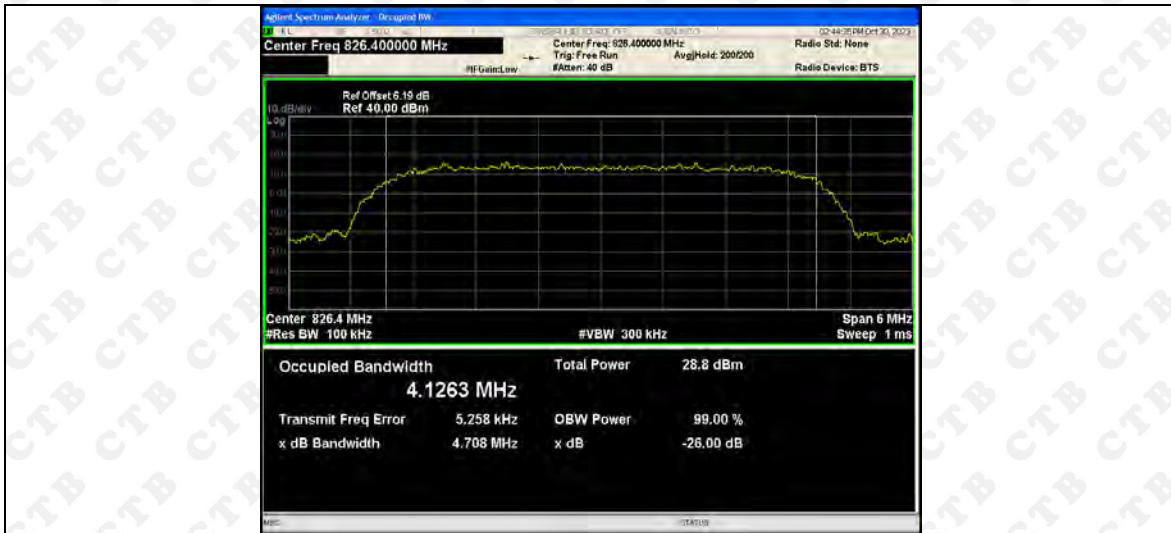
HSDPA Middle Channel



HSDPA High Channel



HSUPA Low Channel



HSUPA Middle Channel

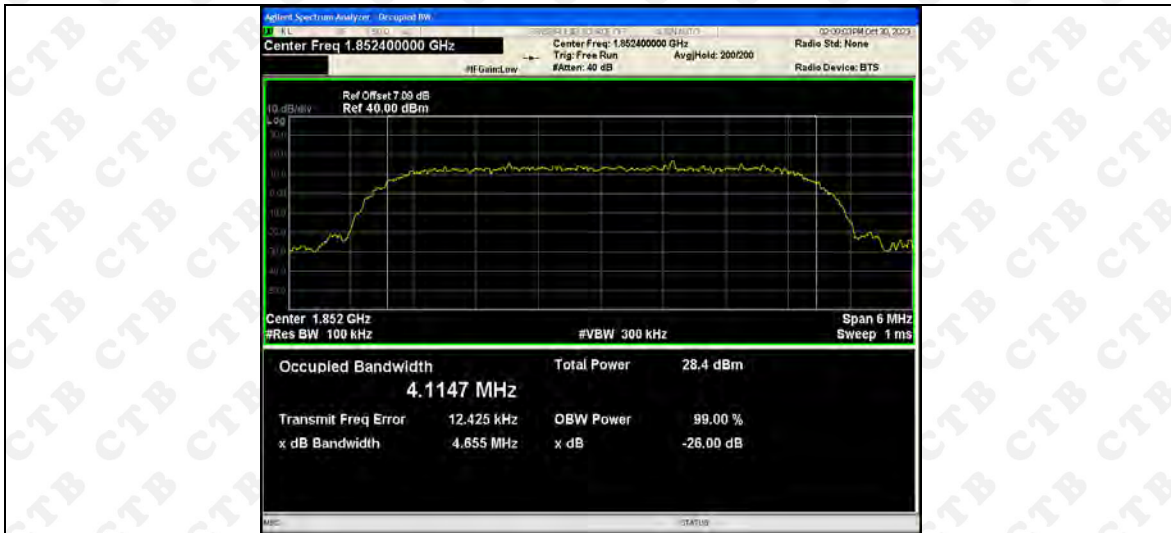


HSUPA High Channel

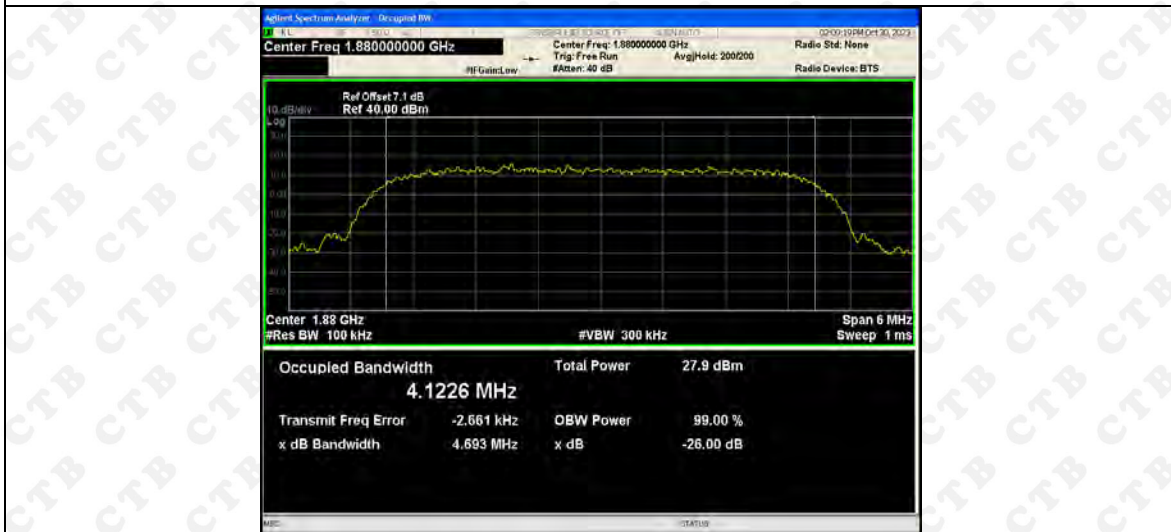


For Band II

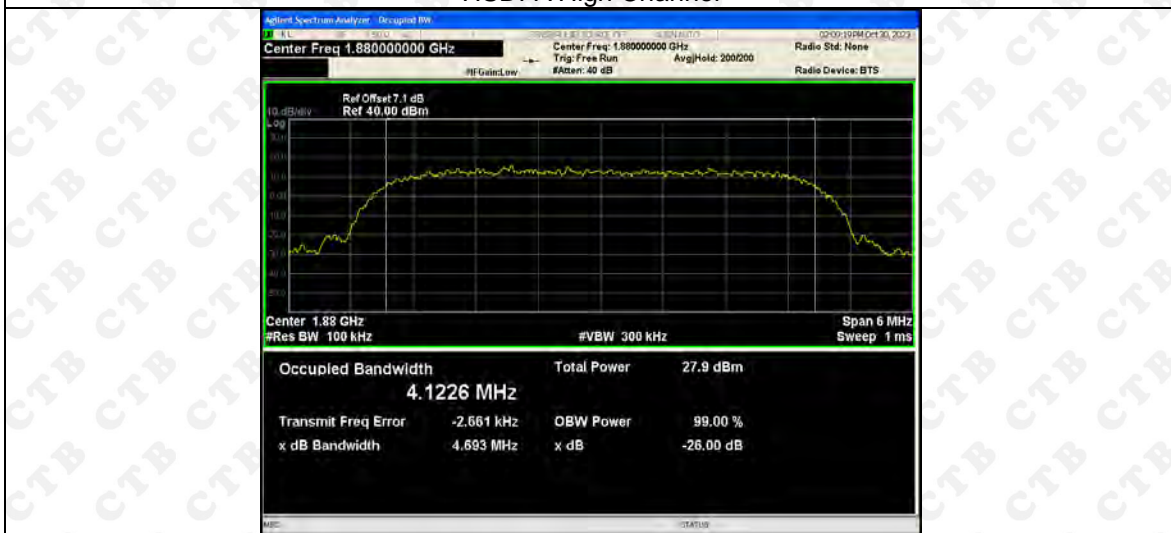




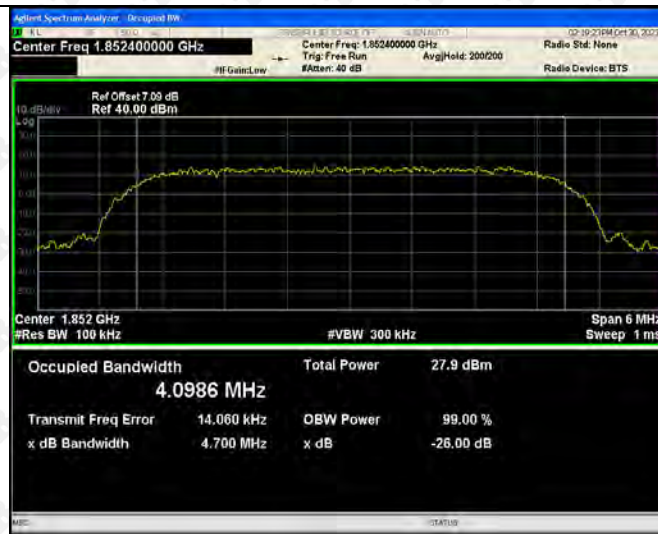
HSDPA Middle Channel



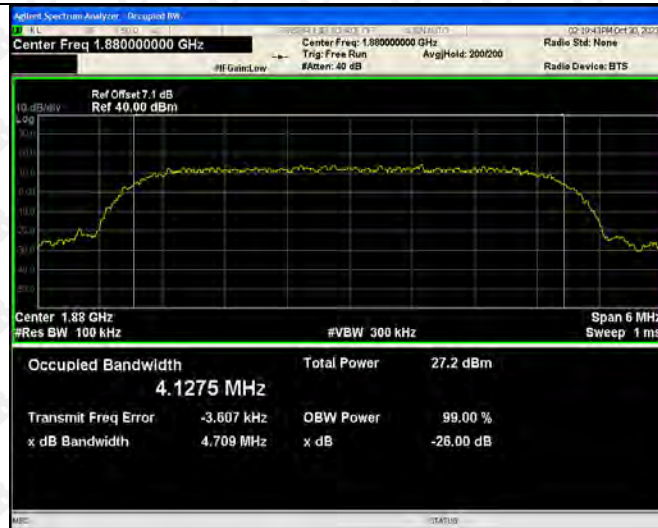
HSDPA High Channel



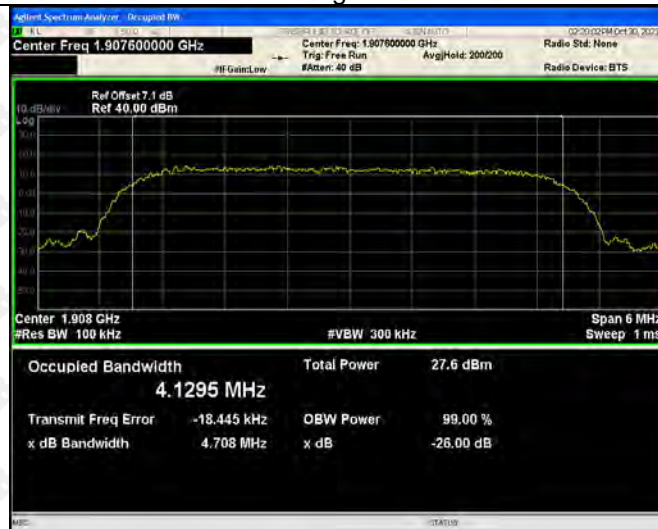
HSUPA Low Channel



HSUPA Middle Channel



HSUPA High Channel



9. OUT OF BAND EMISSIONS AT ANTENNA TERMINAL

9.1 Standard Applicable

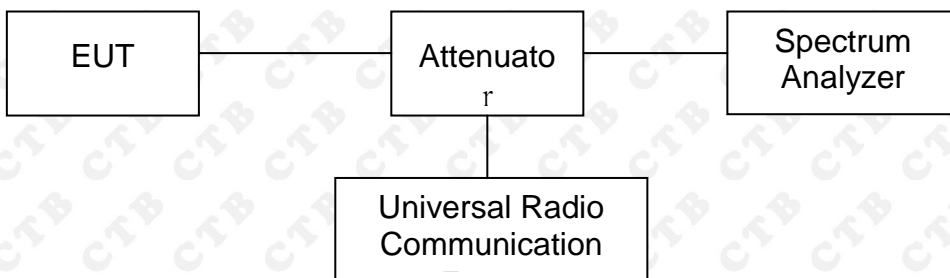
According to §22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

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:

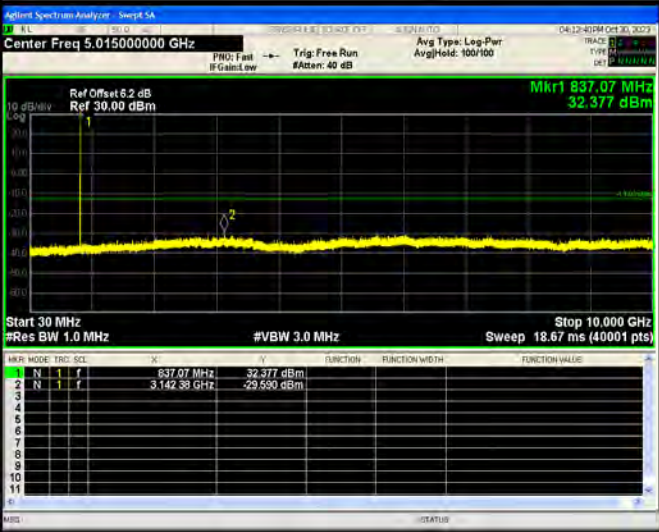
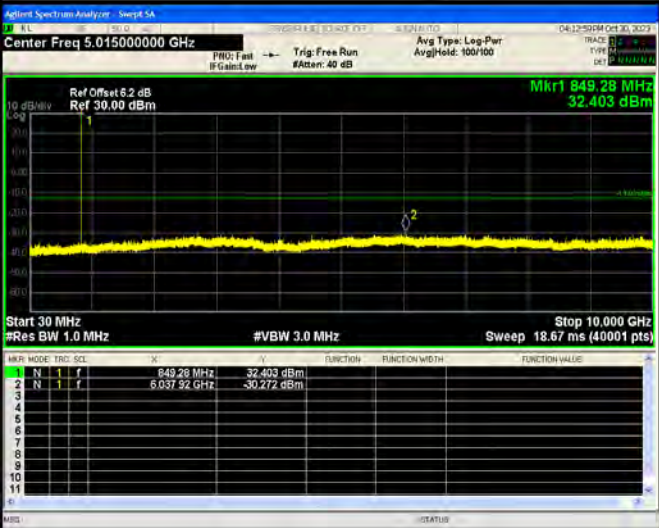



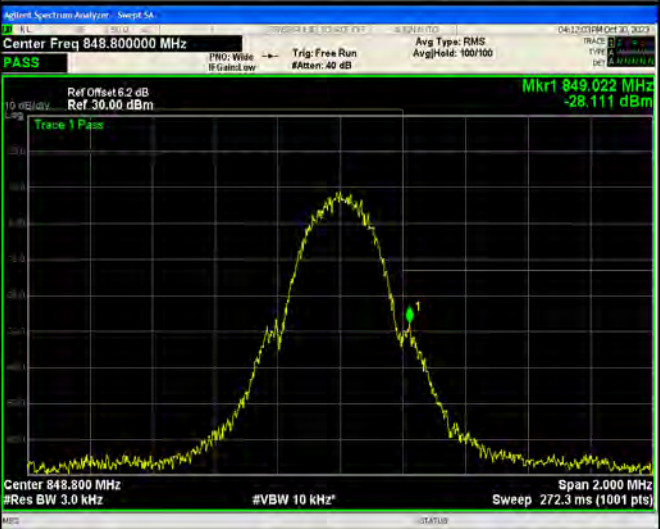
9.3 Environmental Conditions

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

9.4 Summary of Test Results/Plots

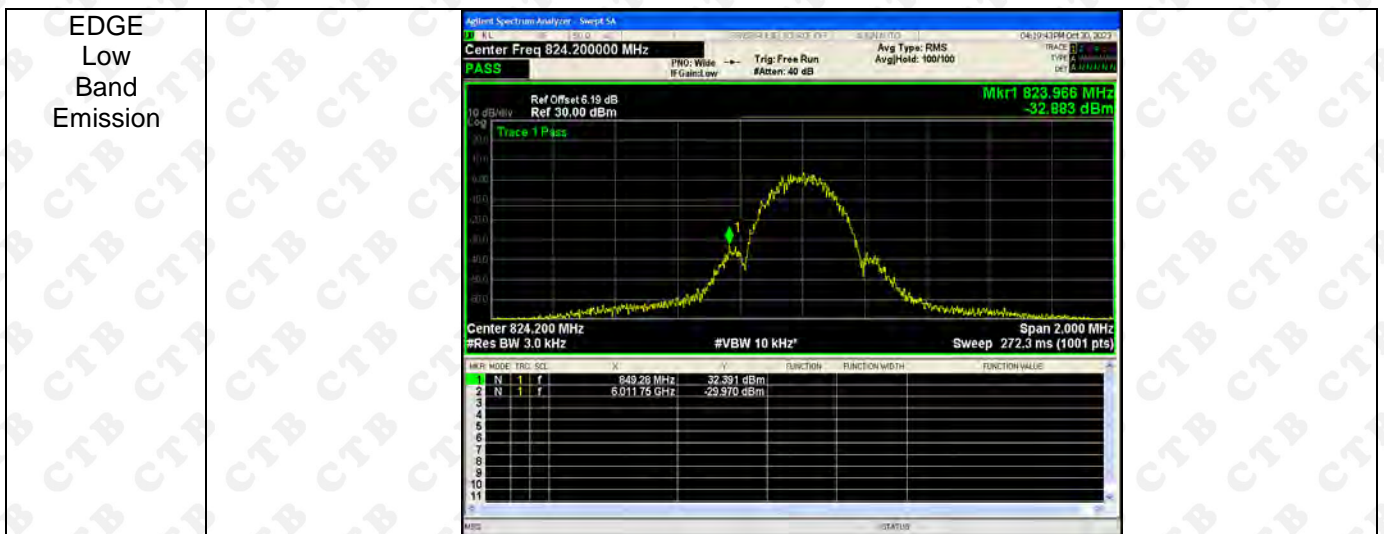
Please refer to the following test plots
For Cellular Band

<p>GSM Low Channel</p>	
<p>GSM Middle Channel</p>	
<p>GSM High Channel</p>	

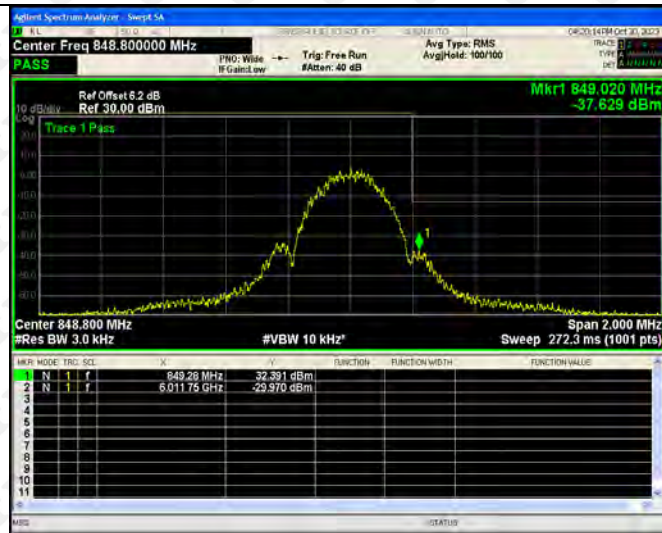
<p>GSM Low Band Emission</p>	 <p>Agilent Spectrum Analyzer - Sweep 5A Center Freq 824.200000 MHz PASS Ref Offset 6.19 dB Ref 30.00 dBm Mkr1 823.996 MHz -26.752 dBm Trace 1 Pass Center 824.200 MHz #Res BW 3.0 kHz #VBW 10 kHz* Span 2,000 MHz Sweep 272.3 ms (1001 pts)</p>
<p>GSM High Band Emission</p>	 <p>Agilent Spectrum Analyzer - Sweep 5A Center Freq 848.800000 MHz PASS Ref Offset 6.2 dB Ref 30.00 dBm Mkr1 849.022 MHz -28.111 dBm Trace 1 Pass Center 848.800 MHz #Res BW 3.0 kHz #VBW 10 kHz* Span 2,000 MHz Sweep 272.3 ms (1001 pts)</p>

<p>GPRS Low Channel</p>	<p>Agilent Spectrum Analyzer - Sweep 5A Center Freq 5.015000000 GHz Ref Offset 6.19 dB Ref 30.00 dBm Mkr1 824.86 MHz 32.307 dBm Start 30 MHz #Res BW 1.0 MHz #VBW 3.0 MHz Stop 10.000 GHz Sweep 18.67 ms (40001 pts)</p> <table border="1"> <thead> <tr> <th>MNR</th> <th>MODE</th> <th>FREQ</th> <th>SCN</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>1</td> <td>F</td> <td>824.86 MHz</td> <td>32.307 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>1</td> <td>F</td> <td>7.00377 GHz</td> <td>-30.069 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MNR	MODE	FREQ	SCN	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	F	824.86 MHz	32.307 dBm				2	N	1	F	7.00377 GHz	-30.069 dBm				
MNR	MODE	FREQ	SCN	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																					
1	N	1	F	824.86 MHz	32.307 dBm																								
2	N	1	F	7.00377 GHz	-30.069 dBm																								
<p>GPRS Middle Channel</p>	<p>Agilent Spectrum Analyzer - Sweep 5A Center Freq 5.015000000 GHz Ref Offset 6.2 dB Ref 30.00 dBm Mkr1 837.07 MHz 32.310 dBm Start 30 MHz #Res BW 1.0 MHz #VBW 3.0 MHz Stop 10.000 GHz Sweep 18.67 ms (40001 pts)</p> <table border="1"> <thead> <tr> <th>MNR</th> <th>MODE</th> <th>FREQ</th> <th>SCN</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>1</td> <td>F</td> <td>837.07 MHz</td> <td>32.310 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>1</td> <td>F</td> <td>4.65433 GHz</td> <td>-29.546 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MNR	MODE	FREQ	SCN	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	F	837.07 MHz	32.310 dBm				2	N	1	F	4.65433 GHz	-29.546 dBm				
MNR	MODE	FREQ	SCN	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																					
1	N	1	F	837.07 MHz	32.310 dBm																								
2	N	1	F	4.65433 GHz	-29.546 dBm																								
<p>GPRS High Channel</p>	<p>Agilent Spectrum Analyzer - Sweep 5A Center Freq 5.015000000 GHz Ref Offset 6.2 dB Ref 30.00 dBm Mkr1 849.28 MHz 32.391 dBm Start 30 MHz #Res BW 1.0 MHz #VBW 3.0 MHz Stop 10.000 GHz Sweep 18.67 ms (40001 pts)</p> <table border="1"> <thead> <tr> <th>MNR</th> <th>MODE</th> <th>FREQ</th> <th>SCN</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>1</td> <td>F</td> <td>849.28 MHz</td> <td>32.391 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>1</td> <td>F</td> <td>6.01175 GHz</td> <td>-29.970 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MNR	MODE	FREQ	SCN	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	F	849.28 MHz	32.391 dBm				2	N	1	F	6.01175 GHz	-29.970 dBm				
MNR	MODE	FREQ	SCN	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																					
1	N	1	F	849.28 MHz	32.391 dBm																								
2	N	1	F	6.01175 GHz	-29.970 dBm																								

<p>GPRS Low Band Emission</p>																							
<p>GPRS High Band Emission</p>																							
<p>EDGE Low Channel</p>	<table border="1" data-bbox="558 1702 1212 1859"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>FREQ</th> <th>VAL</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>524.86 MHz</td> <td>32.273 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>2.619 71 GHz</td> <td>-29.349 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MKR	MODE	FREQ	VAL	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	524.86 MHz	32.273 dBm				2	N	2.619 71 GHz	-29.349 dBm				
MKR	MODE	FREQ	VAL	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																	
1	N	524.86 MHz	32.273 dBm																				
2	N	2.619 71 GHz	-29.349 dBm																				

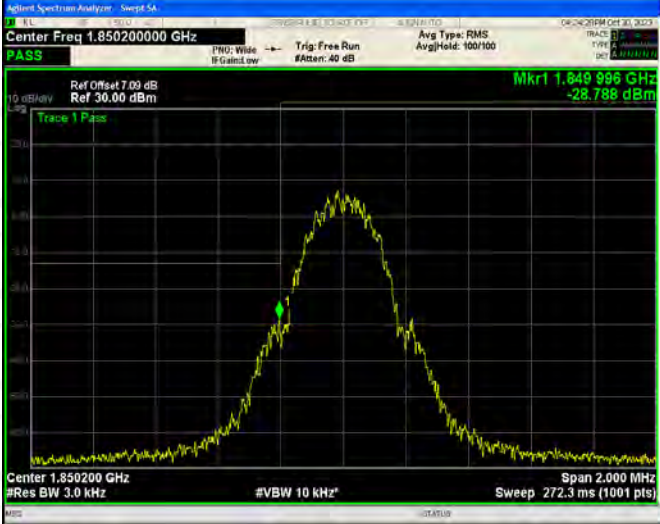



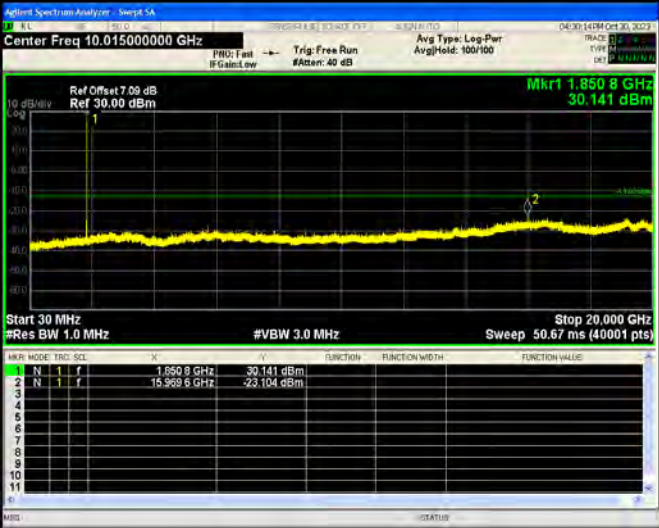


EDGE
High
Band
Emission





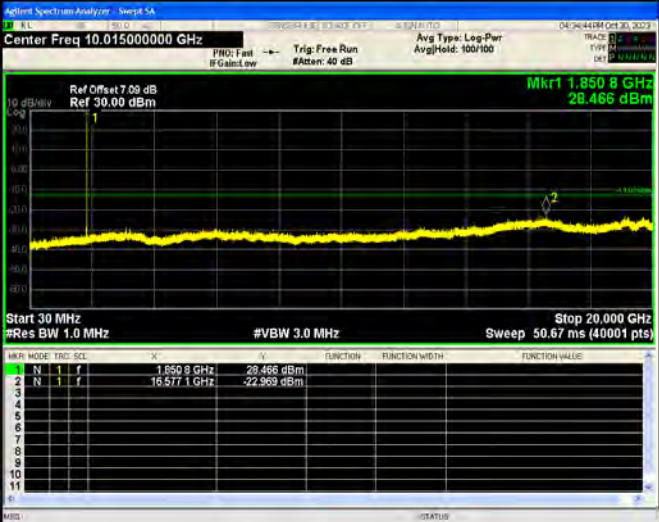
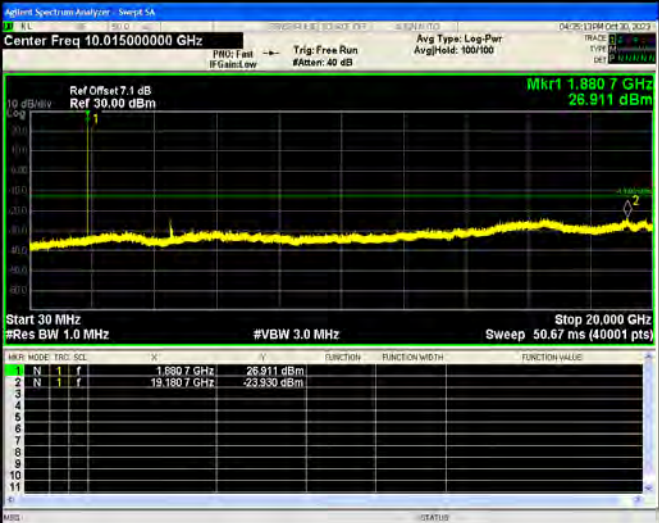
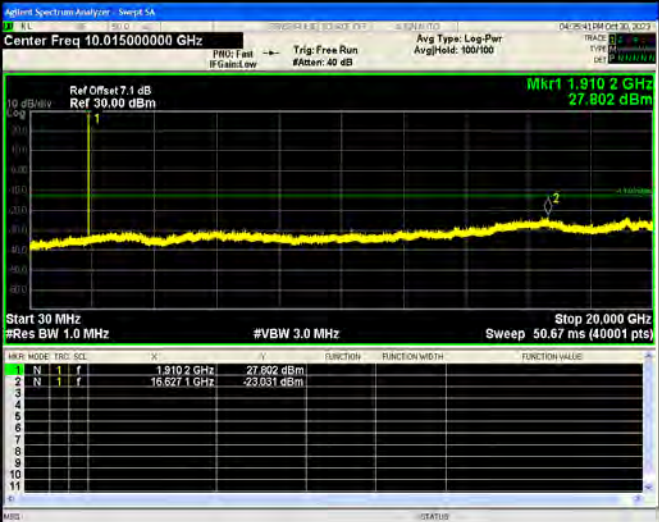
For PCS Band

<p>GSM Low Channel</p>	<p>Agilent Spectrum Analyzer - Sweep SA Center Freq 10.01500000 GHz Ref Offset 7.09 dB Ref 30.00 dBm Mkr1 1.850 8 GHz 30.041 dBm Start 30 MHz #Res BW 1.0 MHz #VBW 3.0 MHz Stop 20.000 GHz Sweep 50.67 ms (40001 pts)</p> <table border="1"> <thead> <tr> <th>MR</th> <th>MODE</th> <th>TRIG</th> <th>SCN</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>1</td> <td>7</td> <td>1.850 8 GHz</td> <td>30.041 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>1</td> <td>7</td> <td>16.529 7 GHz</td> <td>-23.393 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MR	MODE	TRIG	SCN	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	7	1.850 8 GHz	30.041 dBm				2	N	1	7	16.529 7 GHz	-23.393 dBm				
MR	MODE	TRIG	SCN	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																					
1	N	1	7	1.850 8 GHz	30.041 dBm																								
2	N	1	7	16.529 7 GHz	-23.393 dBm																								
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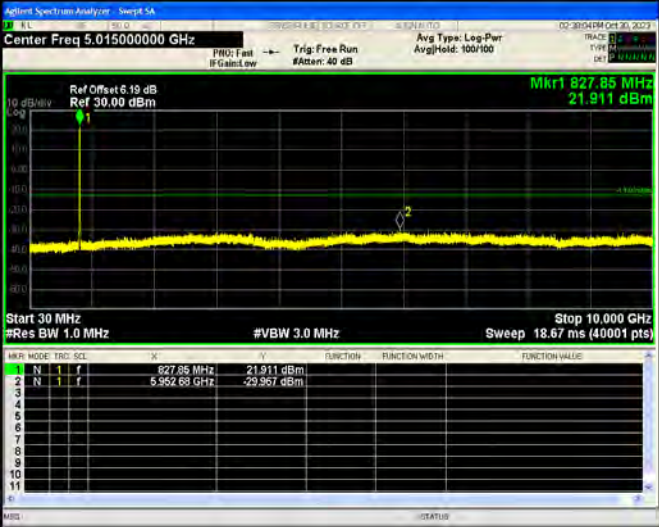
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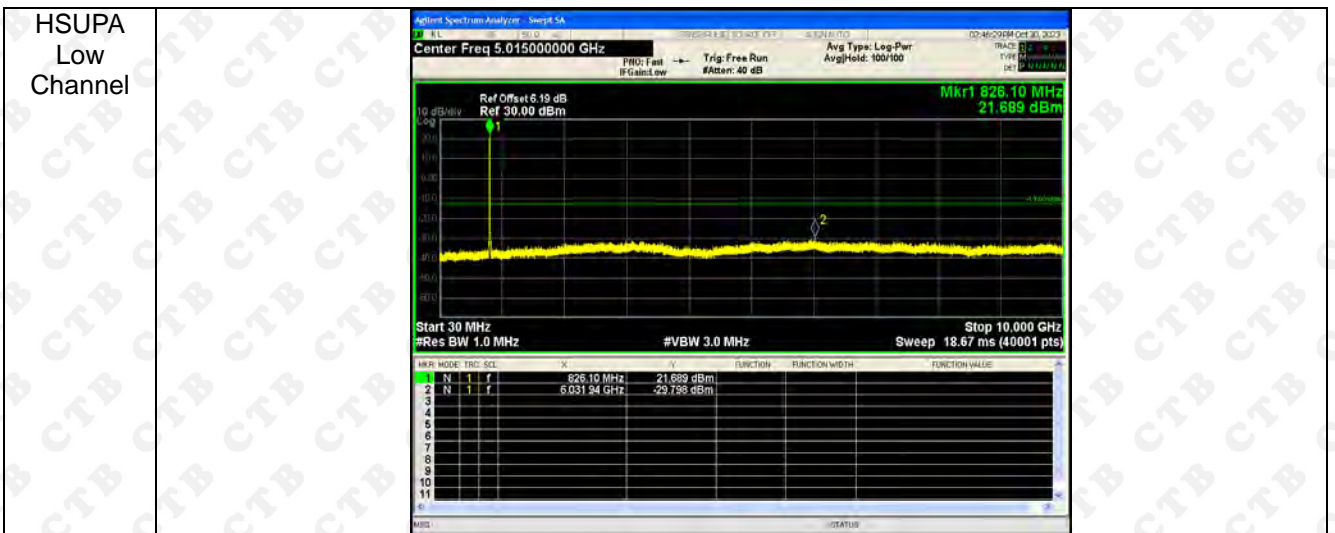
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For Band V

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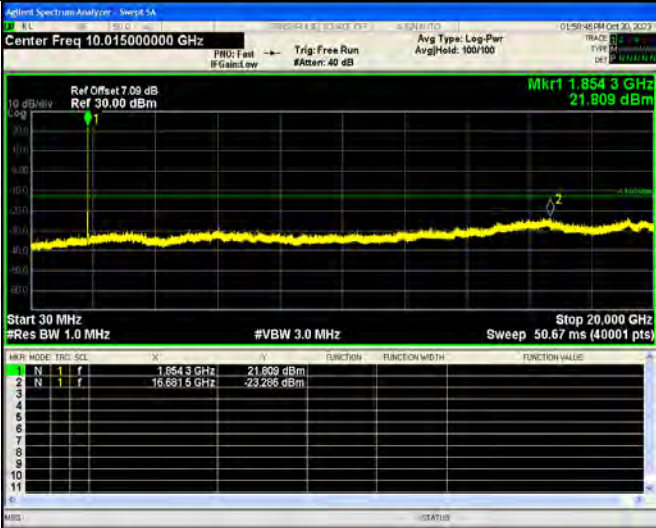

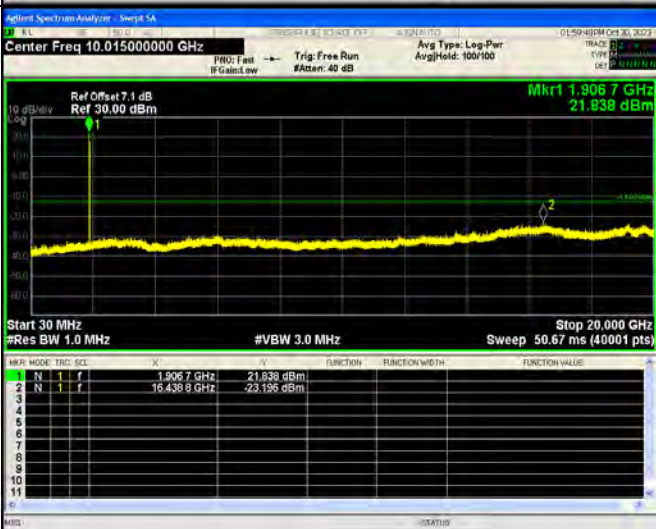
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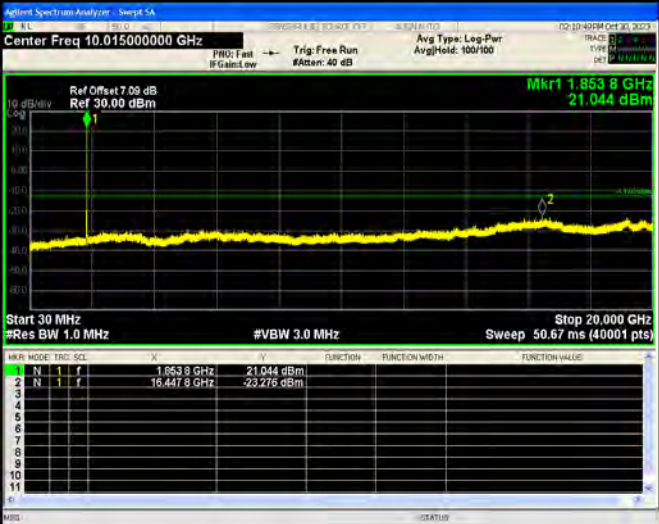
HSUPA
High
Band
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For Band II

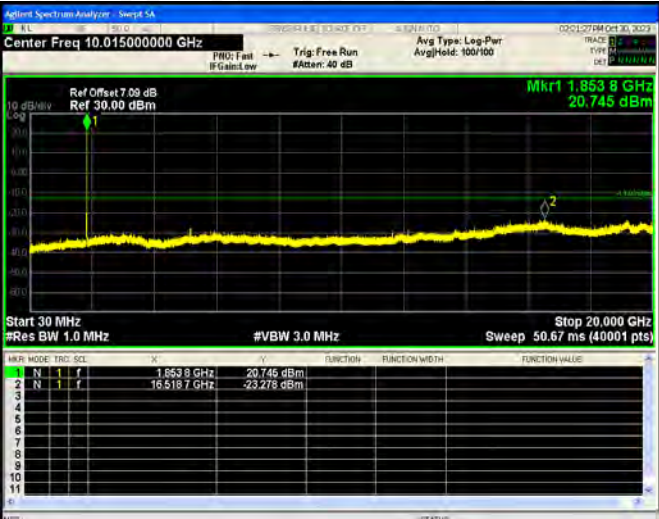
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<p>WCDMA High Channel</p>	 <p>Agilent Spectrum Analyzer - Swept SA Center Freq 10.01500000 GHz Ref Offset 7.1 dB Ref 30.00 dBm Mkr1 1.9067 GHz 21.838 dBm Start 30 MHz #Res BW 1.0 MHz #VBW 3.0 MHz Stop 20,000 GHz Sweep 50.67 ms (40001 pts)</p> <table border="1"> <thead> <tr> <th>MNR</th> <th>MODE</th> <th>FREQ</th> <th>SCN</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>1</td> <td>f</td> <td>1.9067 GHz</td> <td>21.838 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>1</td> <td>f</td> <td>16.4389 GHz</td> <td>-23.195 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MNR	MODE	FREQ	SCN	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	1.9067 GHz	21.838 dBm				2	N	1	f	16.4389 GHz	-23.195 dBm			
MNR	MODE	FREQ	SCN	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																				
1	N	1	f	1.9067 GHz	21.838 dBm																							
2	N	1	f	16.4389 GHz	-23.195 dBm																							

<p>WCDMA Low Band Spurious Emission</p>		
<p>WCDMA High Band Spurious Emission</p>		

<p>HSDPA Low Channel</p>		
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<p>HSDPA Middle Channel</p>	<p>Agilent Spectrum Analyzer - Sweep SA Center Freq 10.015000000 GHz Ref Offset 7.1 dB Ref 30.00 dBm Mkr1 1.8797 GHz 20.275 dBm Start 30 MHz #Res BW 1.0 MHz #VBW 3.0 MHz Stop 20.000 GHz Sweep 50.67 ms (40001 pts)</p> <table border="1"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>TRIG</th> <th>SCAL</th> <th>F</th> <th>X1</th> <th>X2</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>1</td> <td>F</td> <td></td> <td>1.8797 GHz</td> <td></td> <td>20.275 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>1</td> <td>F</td> <td></td> <td>19.7414 GHz</td> <td></td> <td>-22.956 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MKR	MODE	TRIG	SCAL	F	X1	X2	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	F		1.8797 GHz		20.275 dBm				2	N	1	F		19.7414 GHz		-22.956 dBm				
MKR	MODE	TRIG	SCAL	F	X1	X2	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																									
1	N	1	F		1.8797 GHz		20.275 dBm																												
2	N	1	F		19.7414 GHz		-22.956 dBm																												
<p>HSDPA High Channel</p>	<p>Agilent Spectrum Analyzer - Sweep SA Center Freq 10.015000000 GHz Ref Offset 7.1 dB Ref 30.00 dBm Mkr1 1.9072 GHz 21.320 dBm Start 30 MHz #Res BW 1.0 MHz #VBW 3.0 MHz Stop 20.000 GHz Sweep 50.67 ms (40001 pts)</p> <table border="1"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>TRIG</th> <th>SCAL</th> <th>F</th> <th>X1</th> <th>X2</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>1</td> <td>F</td> <td></td> <td>1.9072 GHz</td> <td></td> <td>21.320 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>1</td> <td>F</td> <td></td> <td>19.6890 GHz</td> <td></td> <td>-23.732 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	MKR	MODE	TRIG	SCAL	F	X1	X2	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	F		1.9072 GHz		21.320 dBm				2	N	1	F		19.6890 GHz		-23.732 dBm				
MKR	MODE	TRIG	SCAL	F	X1	X2	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																									
1	N	1	F		1.9072 GHz		21.320 dBm																												
2	N	1	F		19.6890 GHz		-23.732 dBm																												

<p>HSDPA Low Band Spurious Emission</p>		
<p>HSDPA High Band Spurious Emission</p>		

<p>HSUPA Low Channel</p>		
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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)						
41.68	-75.45	3.9	-71.55	-13	-58.55	H
1647.75	-58.01	4.83	-53.18	-13	-40.18	H
2470.40	-54.16	8.08	-46.08	-13	-33.08	H
39.88	-71.82	4.02	-67.80	-13	-54.80	V
1644.99	-49.76	4.48	-45.28	-13	-32.28	V
2467.49	-53.66	8.2	-45.46	-13	-32.46	V
Middle Channel (836.6MHz)						
45.58	-67.65	3.84	-63.81	-13	-50.81	H
1665.27	-55.25	4.62	-50.63	-13	-37.63	H
2509.32	-56.47	8.25	-48.22	-13	-35.22	H
38.95	-68.46	4.25	-64.21	-13	-51.21	V
1666.13	-47.41	4.54	-42.87	-13	-29.87	V
2504.33	-56.63	8.35	-48.28	-13	-29.75	V
High Channel (848.8MHz)						
40.41	-73.20	4.22	-77.42	-13	-64.42	H
1692.98	-52.49	4.87	-57.36	-13	-44.36	H
2537.98	-54.48	8.38	-62.86	-13	-49.86	H
45.72	-65.54	4.02	-69.56	-13	-56.56	V
1690.70	-49.69	4.56	-54.25	-13	-41.25	V
2540.80	-52.57	8.41	-60.98	-13	-47.98	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)						
39.27	-65.91	4.34	-61.57	-13	-48.57	H
3693.45	-59.15	10.54	-48.61	-13	-35.61	H
5543.41	-53.54	13.37	-40.17	-13	-27.17	H
37.91	-67.58	4.34	-63.24	-13	-50.24	V
3696.22	-50.90	10.54	-40.36	-13	-27.36	V
5542.61	-54.22	13.37	-40.85	-13	-27.85	V
Middle Channel (1880MHz)						
36.45	-71.21	4.02	-67.19	-13	-54.19	H
3751.75	-53.06	10.71	-42.35	-13	-29.35	H
5638.74	-58.58	13.73	-44.85	-13	-31.85	H
38.04	-74.49	4.14	-70.35	-13	-57.35	V
3751.28	-50.33	10.22	-40.11	-13	-27.11	V
5631.57	-56.70	13.16	-43.54	-13	-30.54	V
High Channel (1909.8MHz)						
42.46	-70.74	4.02	-66.72	-13	-53.72	H
3818.25	-56.03	4.9	-51.13	-13	-38.13	H
5729.06	-47.06	8.09	-38.97	-13	-25.97	H
38.41	-54.34	4.25	-50.09	-13	-37.09	V
3818.77	-58.13	4.93	-53.20	-13	-40.20	V
5721.83	-65.43	8.43	-57.00	-13	-44.00	V

For Band 5 Mode

Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Polar H/V
Low Channel (826.4MHz)						
46.01	-68.41	3.91	-64.50	-13	-51.50	H
1644.55	-49.60	10.56	-39.04	-13	-26.04	H
2469.97	-54.39	13.5	-40.89	-13	-27.89	H
37.96	-69.39	3.93	-65.46	-13	-52.46	V
1644.51	-50.00	10.41	-39.59	-13	-26.59	V
2476.73	-62.60	13.16	-49.44	-13	-36.44	V
Middle Channel (836.6MHz)						
36.67	-70.56	4.02	-66.54	-13	-53.54	H
1664.88	-56.05	4.66	-51.39	-13	-38.39	H
2506.92	-44.51	8.34	-36.17	-13	-23.17	H
37.71	-56.63	4.17	-52.46	-13	-39.46	V
1664.71	-60.83	4.94	-55.89	-13	-42.89	V
2503.77	-60.97	8.19	-52.78	-13	-39.78	V
High Channel (846.6MHz)						
38.41	-73.96	3.87	-70.09	-13	-57.09	H
1690.66	-56.17	4.89	-51.28	-13	-38.28	H
2530.50	-42.78	8.42	-34.36	-13	-21.36	H
43.61	-57.08	3.95	-53.13	-13	-40.13	V
1686.02	-61.95	4.99	-56.96	-13	-43.96	V
2535.33	-65.09	8.12	-56.97	-13	-43.97	V

For Band 2 Mode

Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Polar H/V
Low Channel (1852.4MHz)						
38.10	-73.38	3.91	-69.47	-13	-56.47	H
1642.93	-55.86	10.56	-45.30	-13	-32.30	H
2478.59	-56.69	13.5	-43.19	-13	-30.19	H
37.23	-71.94	3.93	-68.01	-13	-55.01	V
1650.73	-54.28	10.41	-43.87	-13	-30.87	V
2479.03	-54.95	13.16	-41.79	-13	-28.79	V
Middle Channel (1880MHz)						
44.71	-66.07	4.02	-62.05	-13	-49.05	H
1663.36	-59.18	4.66	-54.52	-13	-41.52	H
2505.66	-43.76	8.34	-35.42	-13	-22.42	H
36.64	-56.72	4.17	-52.55	-13	-39.55	V
1671.13	-60.94	4.94	-56.00	-13	-43.00	V
2505.91	-60.29	8.19	-52.10	-13	-39.10	V
High Channel (1907.6MHz)						
40.18	-70.74	3.87	-66.87	-13	-53.87	H
1684.44	-62.60	4.89	-57.71	-13	-44.71	H
2535.63	-47.81	8.42	-39.39	-13	-26.39	H
41.84	-58.67	3.95	-54.72	-13	-41.72	V
1692.44	-55.37	4.99	-50.38	-13	-37.38	V
2529.97	-61.47	8.12	-53.35	-13	-40.35	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	8.94	0.01069
40	NV	9.39	0.01122
30	NV	9.88	0.01181
20	NV	9.90	0.01183
10	NV	10.11	0.01208
0	NV	10.29	0.01230
-10	NV	10.76	0.01286
-20	NV	10.30	0.01232
-30	NV	10.43	0.01246

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	12.69	0.00675
40	NV	12.79	0.00680
30	NV	12.32	0.00655
20	NV	12.63	0.00672
10	NV	13.02	0.00692
0	NV	13.59	0.00723
-10	NV	13.54	0.00720
-20	NV	13.84	0.00736
-30	NV	14.03	0.00746

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	9.14	0.01092
40	NV	8.96	0.01071
30	NV	9.36	0.01119
20	NV	9.98	0.01194
10	NV	10.31	0.01233
0	NV	9.85	0.01177
-10	NV	10.29	0.01230
-20	NV	10.98	0.01313
-30	NV	11.00	0.01315

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	12.93	0.00688
40	NV	12.76	0.00678
30	NV	12.75	0.00678
20	NV	12.84	0.00683
10	NV	12.71	0.00676
0	NV	13.78	0.00733
-10	NV	14.00	0.00745
-20	NV	14.60	0.00776
-30	NV	14.00	0.00745

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	10.87	0.01300
40	NV	11.53	0.01378
30	NV	11.85	0.01417
20	NV	12.05	0.01441
10	NV	11.65	0.01393
0	NV	11.92	0.01425
-10	NV	12.60	0.01506
-20	NV	12.81	0.01532
-30	NV	12.43	0.01486

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	-10.61	-0.00565
40	NV	-10.00	-0.00532
30	NV	-9.31	-0.00495
20	NV	-9.09	-0.00483
10	NV	-8.96	-0.00477
0	NV	-8.73	-0.00464
-10	NV	-8.34	-0.00444
-20	NV	-8.16	-0.00434
-30	NV	-7.52	-0.00400

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	-0.36	-0.00043
40	NV	0.04	0.00004
30	NV	0.81	0.00096
20	NV	0.52	0.00062
10	NV	0.49	0.00058
0	NV	1.36	0.00163
-10	NV	0.97	0.00116
-20	NV	0.63	0.00075
-30	NV	0.88	0.00106

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	-0.37	-0.00044
40	NV	-0.09	-0.00010
30	NV	0.86	0.00102
20	NV	0.81	0.00097
10	NV	0.92	0.00110
0	NV	1.05	0.00125
-10	NV	0.88	0.00105
-20	NV	1.26	0.00151
-30	NV	1.37	0.00163

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	-0.14	-0.00017
40	NV	0.35	0.00042
30	NV	0.37	0.00044
20	NV	0.00	0.00000
10	NV	0.98	0.00117
0	NV	0.60	0.00071
-10	NV	0.82	0.00098
-20	NV	1.03	0.00123
-30	NV	1.95	0.00233

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	-0.60	-0.00071
40	NV	-0.40	-0.00048
30	NV	0.50	0.00060
20	NV	0.27	0.00032
10	NV	1.03	0.00124
0	NV	0.89	0.00106
-10	NV	1.44	0.00172
-20	NV	1.49	0.00179
-30	NV	1.68	0.00201

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	0.68	0.00082
30	NV	0.73	0.00088
20	NV	1.37	0.00164
10	NV	1.07	0.00127
0	NV	1.50	0.00179
-10	NV	1.94	0.00232
-20	NV	2.00	0.00239
-30	NV	2.29	0.00273

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	0.23	0.00027
40	NV	1.05	0.00125
30	NV	1.28	0.00153
20	NV	0.76	0.00091
10	NV	1.26	0.00151
0	NV	1.24	0.00149
-10	NV	1.63	0.00195
-20	NV	2.47	0.00296
-30	NV	2.26	0.00270

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	11.11	0.01327
	NV	11.11	0.01327
	HV	11.15	0.01332
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	14.38	0.00765
	NV	15.04	0.00800
	HV	14.70	0.00782

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	12.95	0.01548
	NV	12.43	0.01485
	HV	13.07	0.01562
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	-7.98	-0.00953
	NV	-7.84	-0.00937
	HV	-7.41	-0.00885

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	12.93	0.01546
	NV	12.63	0.01509
	HV	13.19	0.01577
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	-7.53	-0.00900
	NV	-7.83	-0.00936
	HV	-6.89	-0.00824
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	0.89	0.00106
	NV	1.20	0.00144
	HV	1.80	0.00216
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	0.89	0.00107
	NV	1.52	0.00182
	HV	1.31	0.00156
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	1.23	0.00147
	NV	1.10	0.00132
	HV	1.98	0.00237

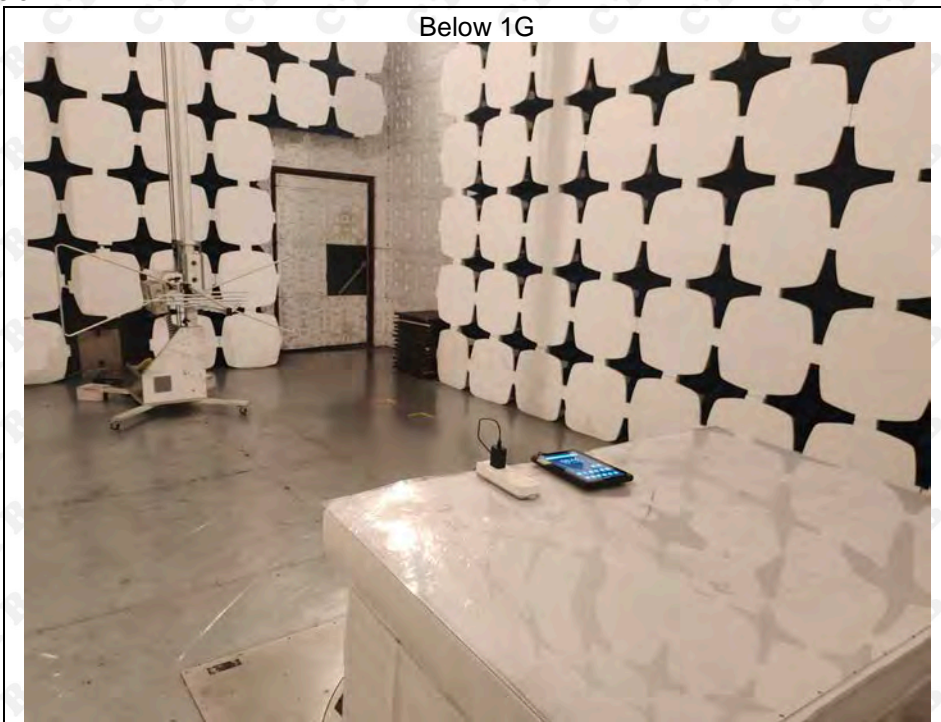
Reference Frequency(Middle Channel): HSDPA 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	2.08	0.00249
	NV	1.88	0.00225
	HV	2.05	0.00245
Reference Frequency(Middle Channel): HSDPA 1732.4MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	1.32	0.00158
	NV	2.19	0.00262
	HV	1.78	0.00212
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	1.67	0.00199
	NV	1.76	0.00210
	HV	2.39	0.00285
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	2.34	0.00280
	NV	3.31	0.00396
	HV	2.67	0.00319
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	2.69	0.00322
	NV	3.09	0.00370
	HV	2.91	0.00348

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	1.94	0.00232
	NV	3.25	0.00388
	HV	2.83	0.00338

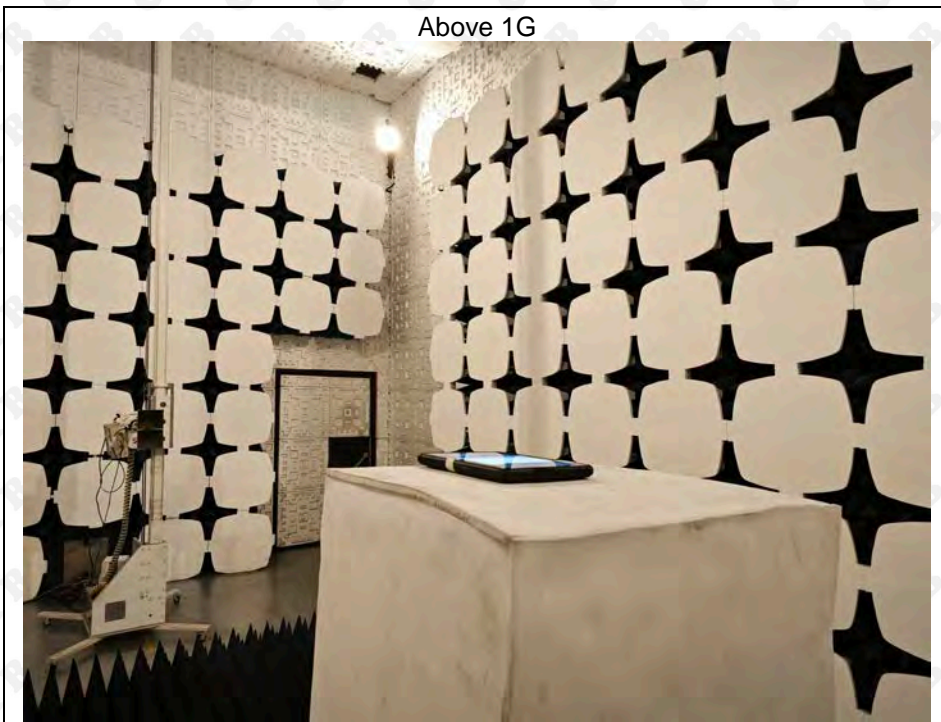
12. EUT TEST PHOTO

Radiated Emission

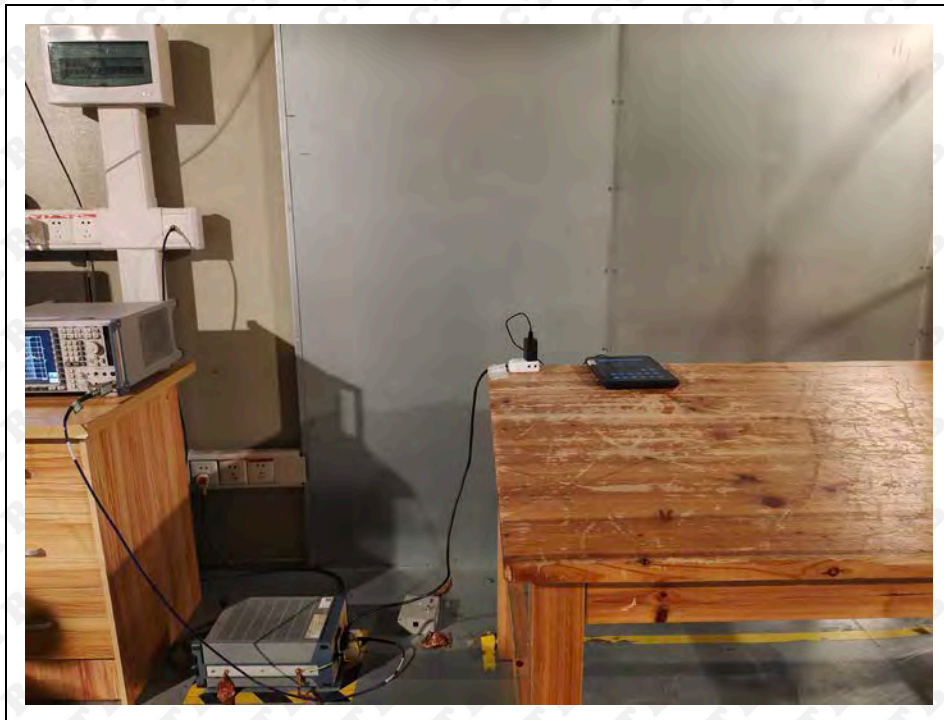
Below 1G



Above 1G



Conducted emission



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