

TEST REPORT

Product Name: Car multimedia player
FCC ID: 2BCOLJY-UZS11N8
Trademark: N/A
Model Number: JY-UZD11N8, JY-UZS11N8, JY-HZ145N4, JY-HZ145N8, JY-UZD15N8, JY-UZS15N8, JY-UZD13N8, JY-UZS13N8, JY-UZD10N8, JY-UZS10N8, JY-UZD80N8, JY-UZS80N8, JY-UZS07N8, JY-UZS08N8, JY-TZ116N8, JY-TZ115N8, JY-HZ114N8, JY-TZ158N4, JY-TZ158N8, JY-HZS03N8, JY-HZD03N8, JY-TZ187N4, JY-TZ187N8
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Sample Received Date: Aug. 23, 2023
Sample tested Date: Aug. 23, 2023 to Sep. 05, 2023
Issue Date: Sep. 05, 2023
Report No.: CTB230905005RFX
Test Standards: FCC Part 22H & 24E
Test Results: PASS
Remark: This is GSM radio test report.

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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
CTB230905005RFX	Sep. 05, 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):	JY-UZD11N8, JY-UZS11N8, JY-HZ145N4, JY-HZ145N8, JY-UZD15N8, JY-UZS15N8, JY-UZD13N8, JY-UZS13N8, JY-UZD10N8, JY-UZS10N8, JY-UZD80N8, JY-UZS80N8, JY-UZS07N8, JY-UZS08N8, JY-TZ116N8, JY-TZ115N8, JY-HZ114N8, JY-TZ158N4, JY-TZ158N8, JY-HZS03N8, JY-HZD03N8, JY-TZ187N4, JY-TZ187N8
Model Description:	All the model are the same circuit and RF module, only for model name. Test sample model: JY-UZD11N8
Hardware Version:	V1.0
Software Version:	V1.0
Operation Frequency:	GSM/GPRS 850: 824~849MHz GSM/GPRS 1900: 1850~1910MHz WCDMA Band 2: 1850~1910MHz WCDMA Band 5: 824~849MHz
Max. RF output power:	GSM850: 31.65dBm, GSM1900: 28.65dBm WCDMA Band 2: 21.34dBm, WCDMA Band 5: 22.09dBm
Type of Modulation:	GMSK, BPSK
Antenna installation:	External antenna
Antenna Gain:	GSM850: 4.02dBi, GSM1900: 2.77dBi WCDMA Band 2: 2.77dBi WCDMA Band 5: 4.02dBi
Ratings:	DC 12V

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
1.	Battery	JUXIANG	6-QW-45(430)-C	/	/

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	824.2 MHz	128
		836.6 MHz	190
		848.8 MHz	251
PCS 1900	GSM/GPRS	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	GSM 1900	Low, Middle, High Channels
TM4	GPRS 1900	Low, Middle, High Channels
TM5	WCDMA Band 5	Low, Middle, High Channels
TM6	HSDPA Band 5	Low, Middle, High Channels
TM7	HSUPA Band 5	Low, Middle, High Channels
TM8	WCDMA Band 2	Low, Middle, High Channels
TM9	HSDPA Band 2	Low, Middle, High Channels
TM10	HSUPA Band 2	Low, Middle, High Channels



4.6 Test Environment

Humidity(%):	54
Atmospheric Pressure(kPa):	101
Normal Voltage(DC):	12
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	2023.10.30
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	2023.10.30
26	Amplifier	AEROFLEX	Aeroflex	097	2023.10.30

6. RF OUTPUT POWER

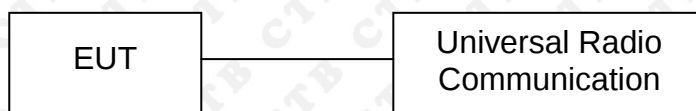
6.1 Standard Applicable

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	31.29	1.5	0	H	1.5	4.02	33.81	38.45
824.2	30.76	1.5	0	V	1.5	4.02	33.28	38.45
Middle Channel								
836.6	31.09	1.5	0	H	1.5	4.02	33.61	38.45
836.6	31.30	1.5	0	V	1.5	4.02	33.82	38.45
High Channel								
848.8	31.46	1.5	0	H	1.5	4.02	33.98	38.45
848.8	30.84	1.5	0	V	1.5	4.02	33.36	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	28.26	1.5	0	H	1.9	2.77	29.13	33.00
1850.2	28.21	1.5	0	V	1.9	2.77	29.08	33.00
Middle Channel								
1880	27.96	1.5	0	H	1.9	2.77	28.83	33.00
1880	27.72	1.5	0	V	1.9	2.77	28.59	33.00
High Channel								
1909.8	28.35	1.5	0	H	1.9	2.77	29.22	33.00
1909.8	27.93	1.5	0	V	1.9	2.77	28.80	33.00



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	30.64	1.5	0	H	1.5	4.02	33.16	38.45
824.2	30.63	1.5	0	V	1.5	4.02	33.15	38.45
Middle Channel								
836.6	30.85	1.5	0	H	1.5	4.02	33.37	38.45
836.6	31.50	1.5	0	V	1.5	4.02	34.02	38.45
High Channel								
848.8	30.78	1.5	0	H	1.5	4.02	33.30	38.45
848.8	31.17	1.5	0	V	1.5	4.02	33.69	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	28.59	1.5	0	H	1.9	2.77	29.46	33.00
1850.2	27.98	1.5	0	V	1.9	2.77	28.85	33.00
Middle Channel								
1880	28.48	1.5	0	H	1.9	2.77	29.35	33.00
1880	28.38	1.5	0	V	1.9	2.77	29.25	33.00
High Channel								
1909.8	27.85	1.5	0	H	1.9	2.77	28.72	33.00
1909.8	28.13	1.5	0	V	1.9	2.77	29.00	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	21.01	1.5	0	H	1.5	4.02	23.53	38.45
826.4	20.93	1.5	0	V	1.5	4.02	23.45	38.45
Middle Channel								
836.6	21.64	1.5	0	H	1.5	4.02	24.16	38.45
836.6	21.95	1.5	0	V	1.5	4.02	24.47	38.45
High Channel								
846.6	21.52	1.5	0	H	1.5	4.02	24.04	38.45
846.6	21.05	1.5	0	V	1.5	4.02	23.57	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	19.73	1.5	0	H	1.5	4.02	22.25	38.45
826.4	19.64	1.5	0	V	1.5	4.02	22.16	38.45
Middle Channel								
836.6	20.24	1.5	0	H	1.5	4.02	22.76	836.6
836.6	20.75	1.5	0	V	1.5	4.02	23.27	836.6
High Channel								
846.6	20.80	1.5	0	H	1.5	4.02	23.32	38.45
846.6	20.49	1.5	0	V	1.5	4.02	23.01	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	19.63	1.5	0	H	1.5	4.02	22.15	38.45
826.4	19.65	1.5	0	V	1.5	4.02	22.17	38.45
Middle Channel								
836.6	19.91	1.5	0	H	1.5	4.02	22.43	38.45
836.6	19.53	1.5	0	V	1.5	4.02	22.05	38.45
High Channel								
846.6	20.17	1.5	0	H	1.5	4.02	22.69	38.45
846.6	20.30	1.5	0	V	1.5	4.02	22.82	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	20.54	1.5	0	H	1.9	2.77	21.41	33
1852.4	20.49	1.5	0	V	1.9	2.77	21.36	33
Middle Channel								
1880	21.42	1.5	0	H	1.9	2.77	22.29	33
1880	20.73	1.5	0	V	1.9	2.77	21.60	33
High Channel								
1907.6	20.86	1.5	0	H	1.9	2.77	21.73	33
1907.6	20.86	1.5	0	V	1.9	2.77	21.73	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	19.44	1.5	0	H	1.9	2.77	20.31	33
1852.4	19.18	1.5	0	V	1.9	2.77	20.05	33
Middle Channel								
1880	19.66	1.5	0	H	1.9	2.77	20.53	33
1880	21.25	1.5	0	V	1.9	2.77	22.12	33
High Channel								
1907.6	19.90	1.5	0	H	1.9	2.77	20.77	33
1907.6	19.41	1.5	0	V	1.9	2.77	20.28	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	18.44	1.5	0	H	1.9	2.77	19.31	33
1852.4	18.40	1.5	0	V	1.9	2.77	19.27	33
Middle Channel								
1880	20.60	1.5	0	H	1.9	2.77	21.47	33
1880	20.49	1.5	0	V	1.9	2.77	21.36	33
High Channel								
1907.6	19.44	1.5	0	H	1.9	2.77	20.31	33
1907.6	18.60	1.5	0	V	1.9	2.77	19.47	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	31.60	38.45
	Middle Channel	836.6	31.55	38.45
	High Channel	848.8	31.57	38.45
GPRS(1 Slot)	Low Channel	824.2	31.62	38.45
	Middle Channel	836.6	31.58	38.45
	High Channel	848.8	31.65	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	28.64	33.0
	Middle Channel	1880.0	28.57	33.0
	High Channel	1909.8	28.45	33.0
GPRS(1 Slot)	Low Channel	1850.2	28.65	33.0
	Middle Channel	1880.0	28.55	33.0
	High Channel	1909.8	28.47	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	21.61	38.45
	Middle Channel	836.6	22.09	38.45
	High Channel	846.6	21.93	38.45
HSDPA	Low Channel	826.4	20.60	38.45
	Middle Channel	836.6	21.02	38.45
	High Channel	846.6	20.82	38.45
HSUPA	Low Channel	826.4	20.20	38.45
	Middle Channel	836.6	20.26	38.45
	High Channel	846.6	20.35	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	21.31	33.00
	Middle Channel	1880.0	21.34	33.00
	High Channel	1907.6	20.80	33.00
HSDPA	Low Channel	1852.4	20.06	33.00
	Middle Channel	1880.0	20.35	33.00
	High Channel	1907.6	19.96	33.00
HSUPA	Low Channel	1852.4	19.36	33.00
	Middle Channel	1880.0	19.62	33.00
	High Channel	1907.6	19.18	33.00

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

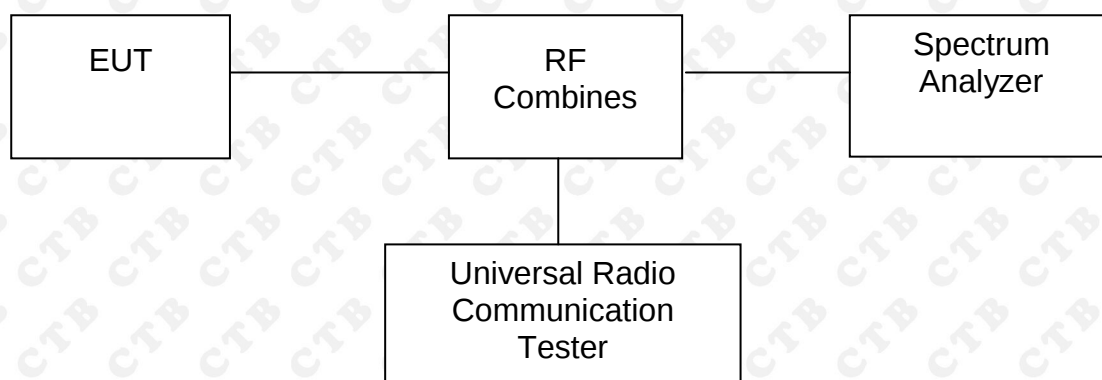
7.1 Standard Applicable

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	2.7	13
GPRS(1 Slot)	190	836.6	2.7	13

For PCS 1900

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
GSM	512	1850.2	2.7	13
GPRS(1 Slot)	512	1850.2	2.7	13

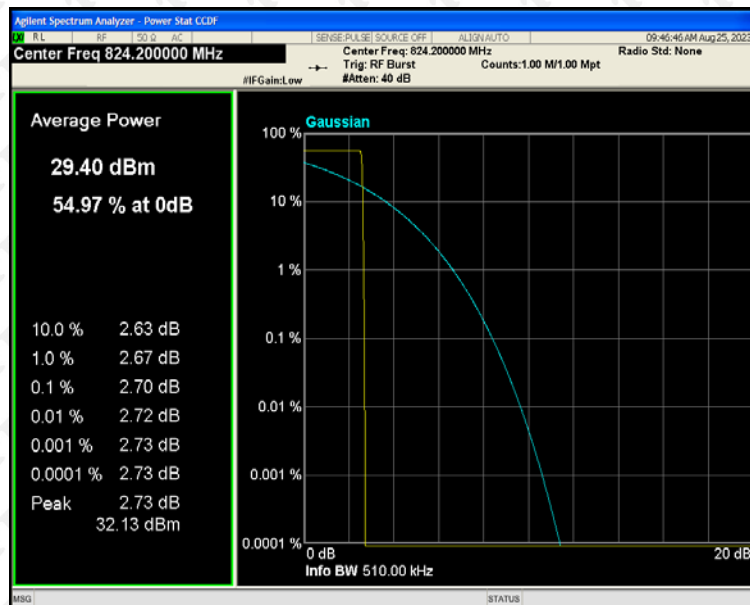
For WCDMA Band 5

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	4182	836.4	3.16	13
HSDPA	4182	836.4	4.68	13
HSUPA	4182	836.4	4.06	13

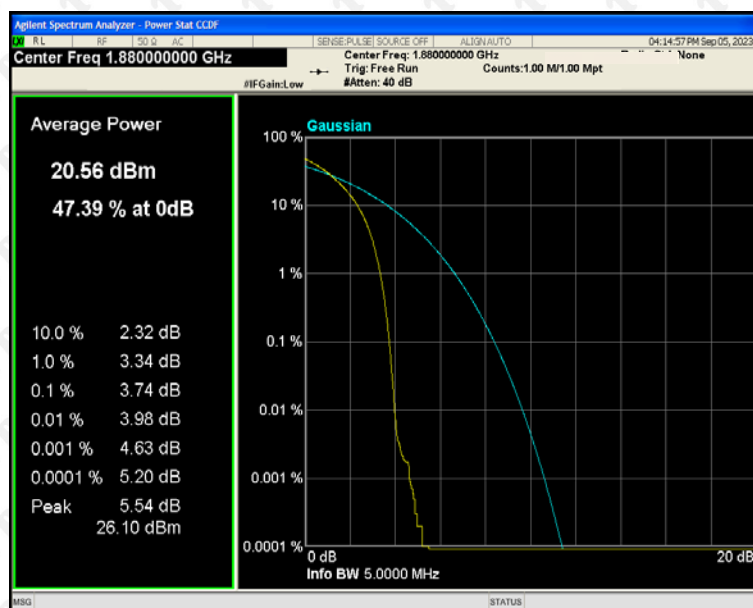
For WCDMA Band 2

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	9262	1852.4	3.23	13
HSDPA	9400	1852.4	4.68	13
HSUPA	9400	1852.4	4.15	13

GSM :



WCDMA:



8. EMISSION BANDWIDTH

8.1 Standard Applicable

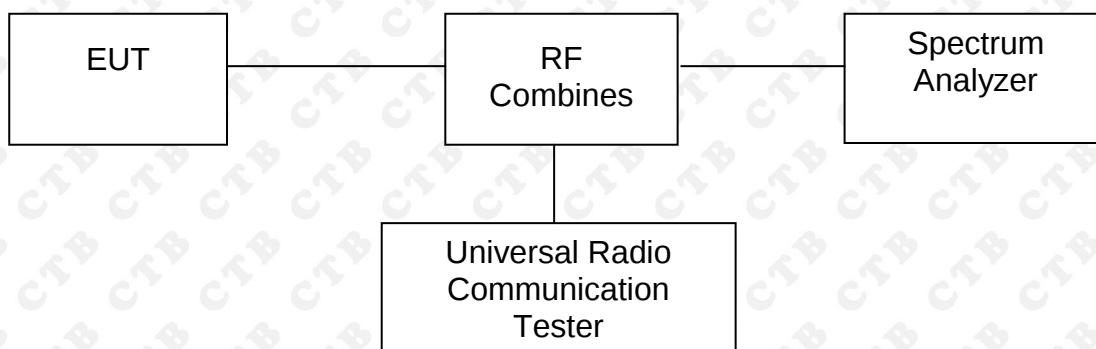
According to §22.917(b), The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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	246.708	312.644
	190	836.6	240.491	297.983
	251	848.8	249.874	310.719
GPRS	128	824.2	245.004	314.970
	190	836.6	248.379	317.198
	251	848.8	238.308	310.587

For PCS Band

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM	512	1850.2	247.286	313.065
	661	1880.0	245.983	315.163
	810	1909.8	245.194	311.382
GPRS	512	1850.2	249.980	325.208
	661	1880.0	251.186	322.180
	810	1909.8	248.066	323.749

For Band 5

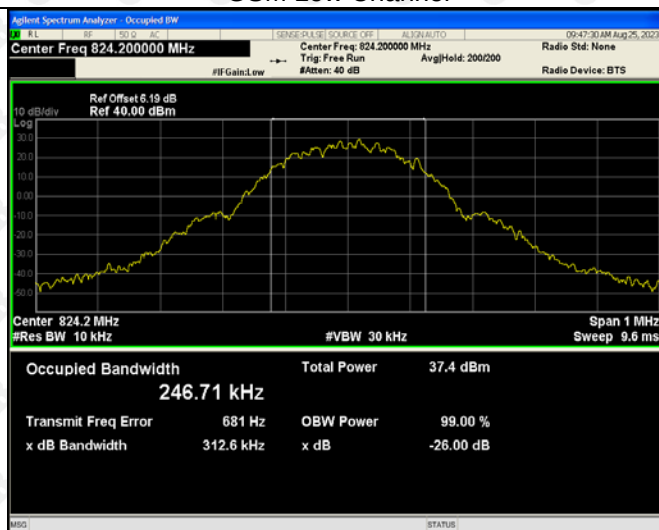
Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
WCDMA	4132	826.4	4126.068	4690.245
	4183	836.6	4110.028	4703.007
	4233	846.6	4112.351	4666.518
HSDPA	4132	826.4	4121.673	4688.934
	4183	836.6	4126.255	4690.913
	4233	846.6	4112.448	4662.943
HSUPA	4132	826.4	4125.122	4731.938
	4183	836.6	4163.324	5712.267
	4233	846.6	4115.889	5053.613

For Band 2

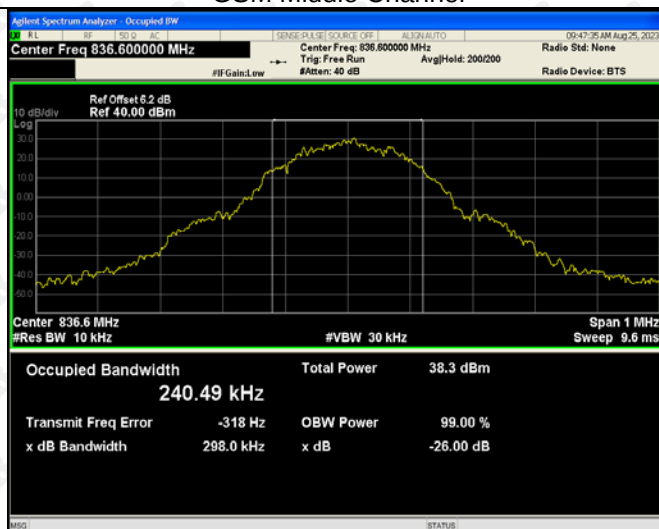
Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
WCDMA	9262	1852.4	4127.582	4659.986
	9400	1880.0	4105.370	4692.192
	9538	1907.6	4106.977	4661.962
HSDPA	9262	1852.4	4119.322	4682.789
	9400	1880.0	4109.055	4692.281
	9538	1907.6	4114.930	4671.488
HSUPA	9262	1852.4	4132.062	4711.335
	9400	1880.0	4117.393	4710.787
	9538	1907.6	4128.675	4642.934

For Cellular Band

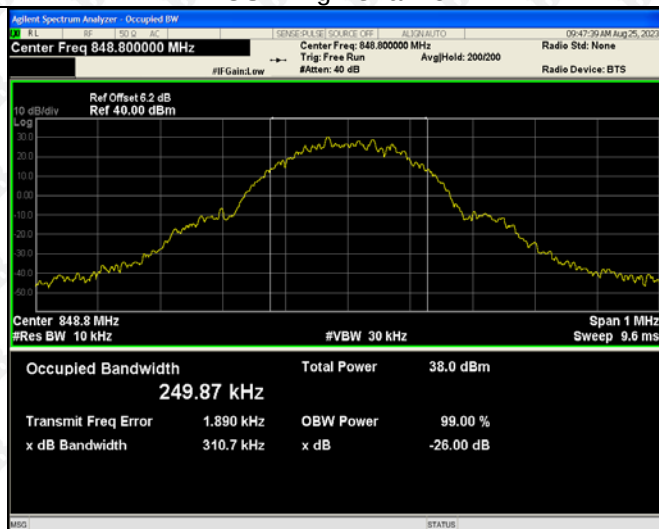
GSM Low Channel



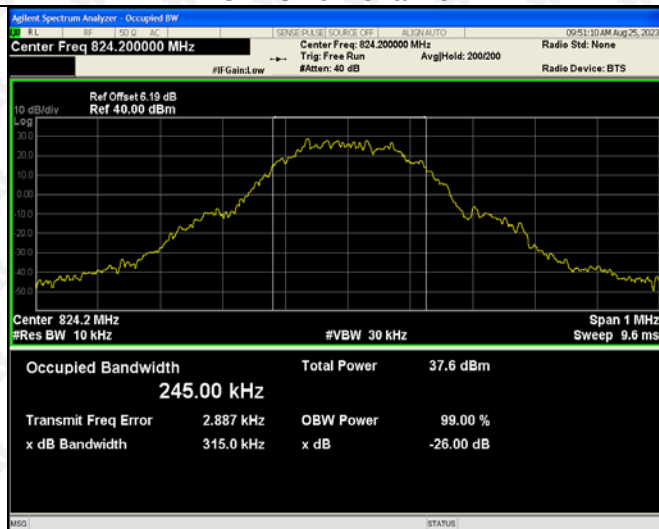
GSM Middle Channel



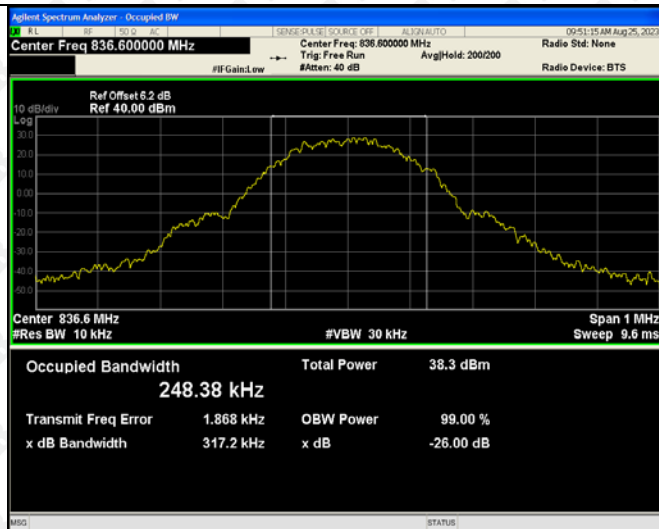
GSM High Channel



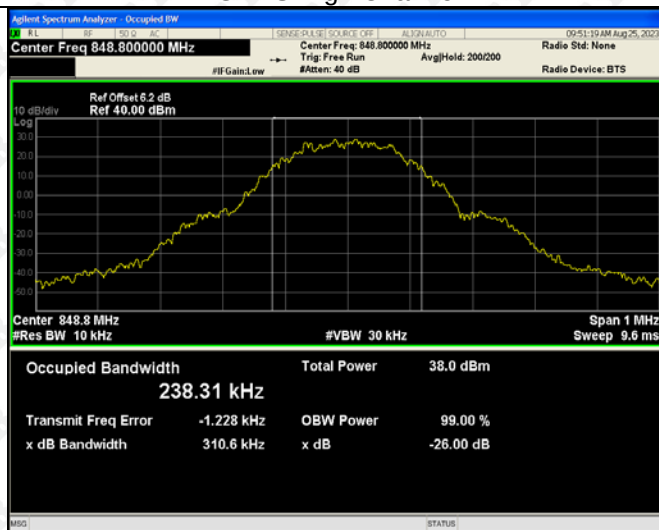
GPRS Low Channel



GPRS Middle Channel

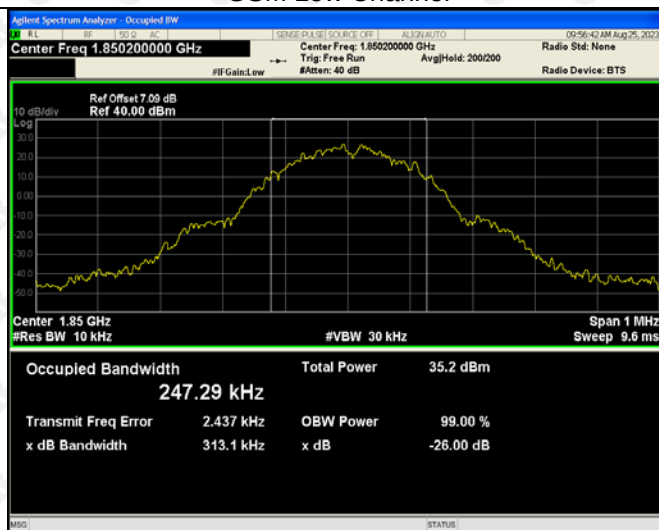


GPRS High Channel

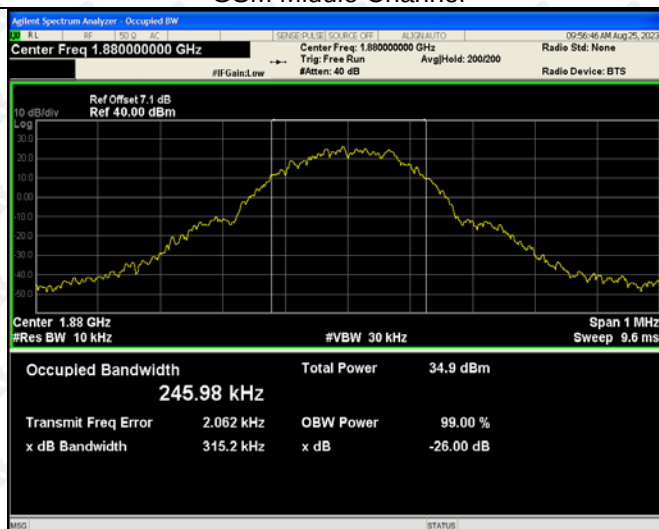


For PCS Band

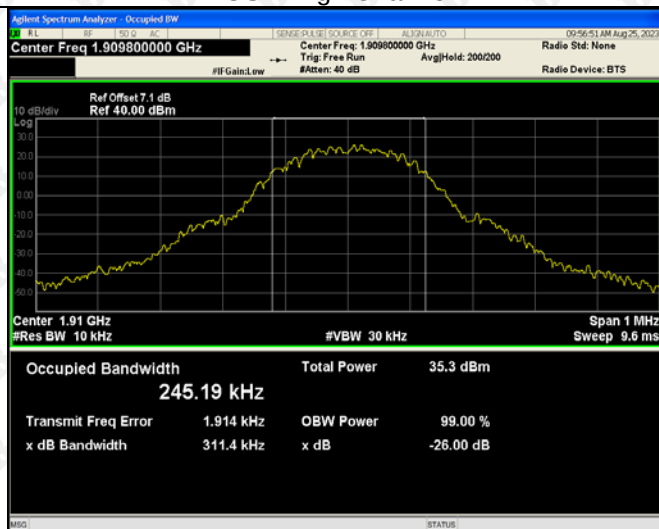
GSM Low Channel



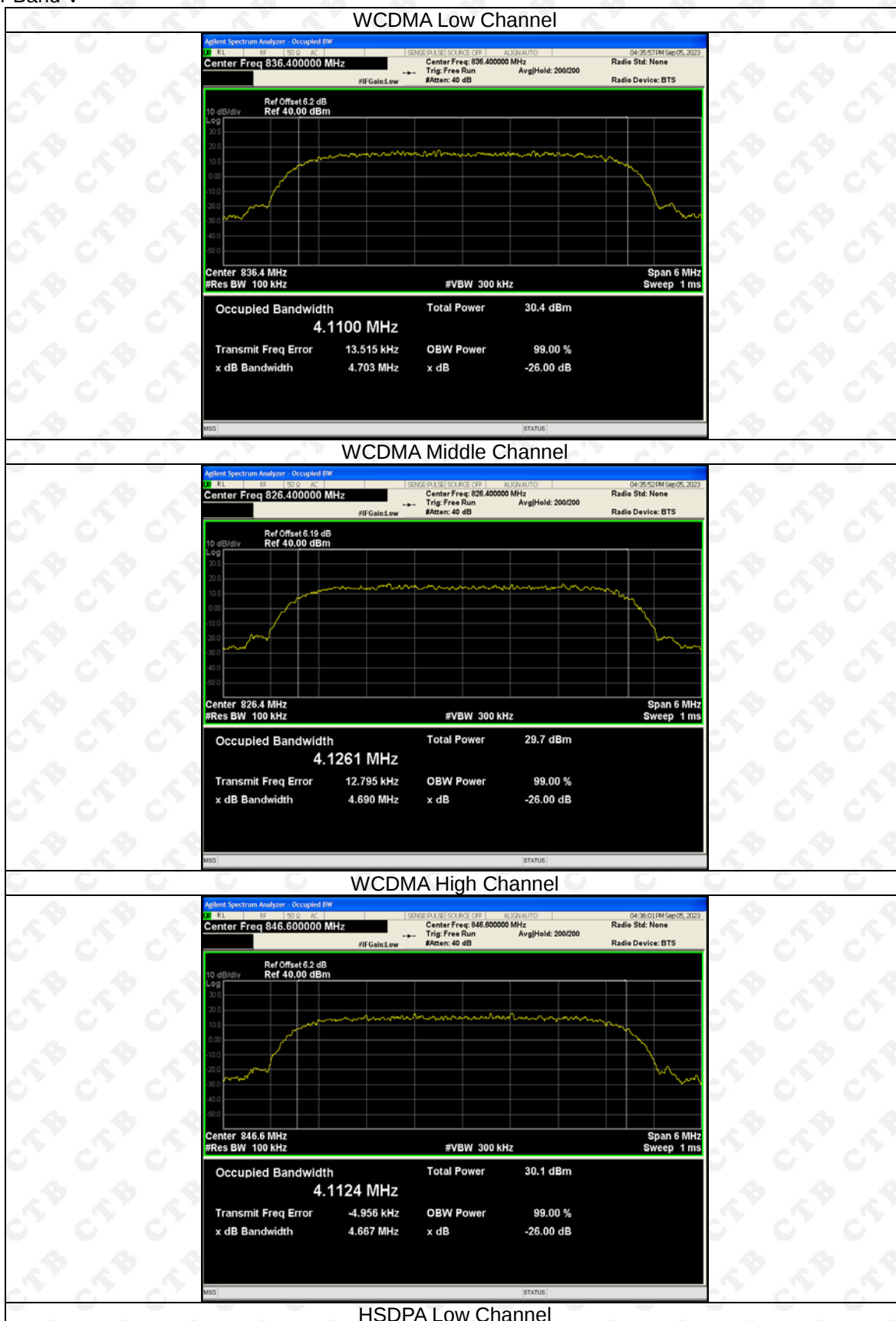
GSM Middle Channel

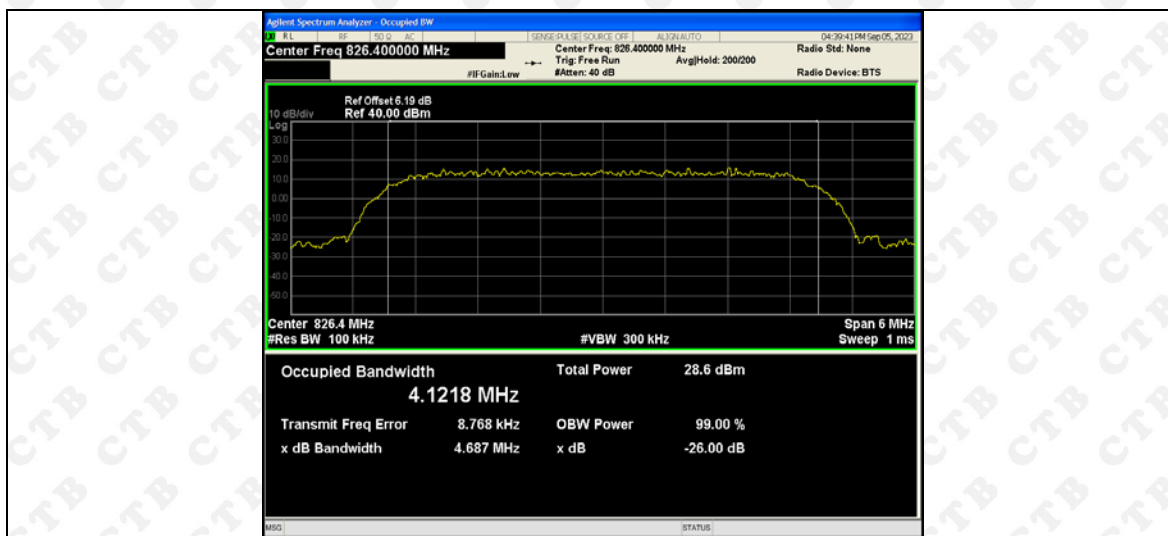


GSM High Channel

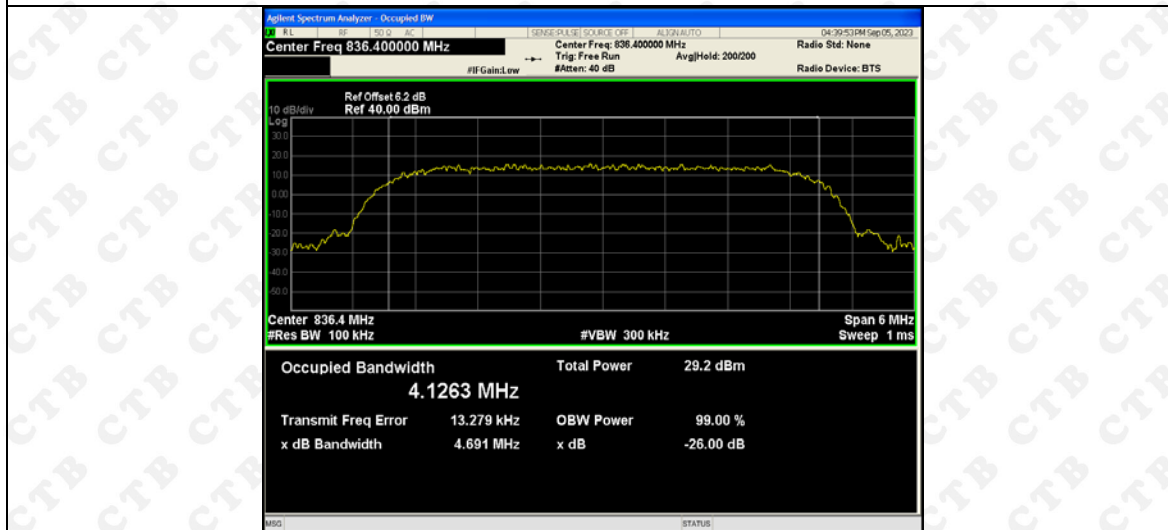


For Band V

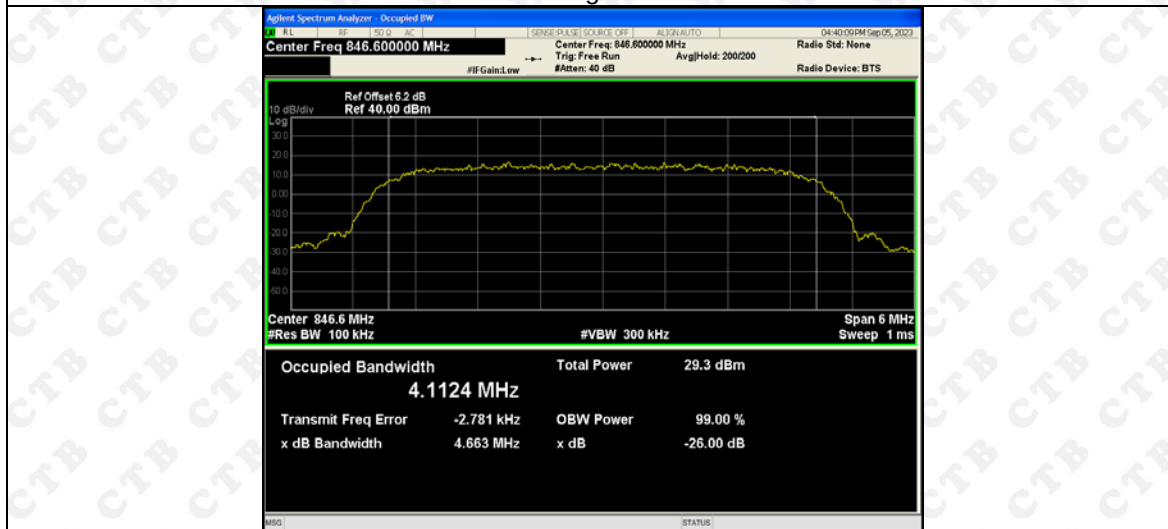




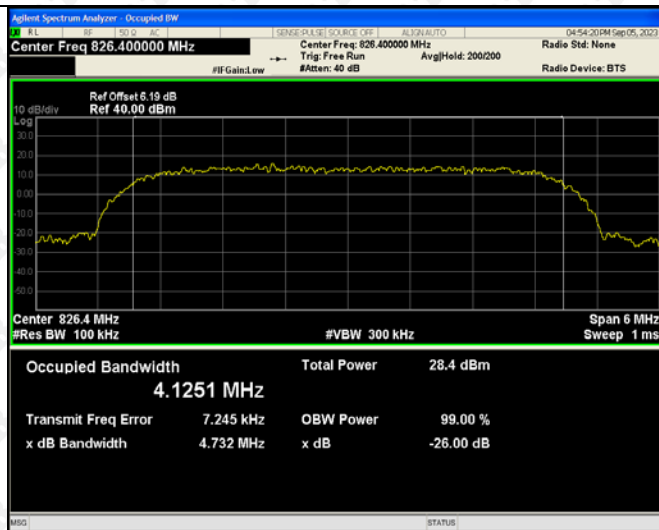
HSDPA Middle Channel



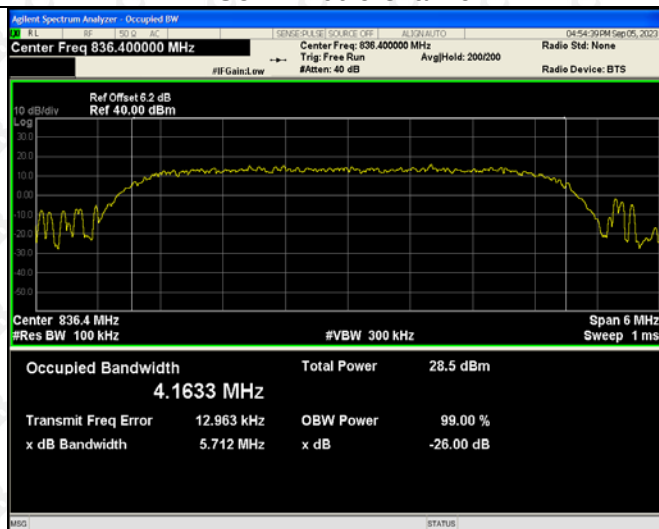
HSDPA High Channel



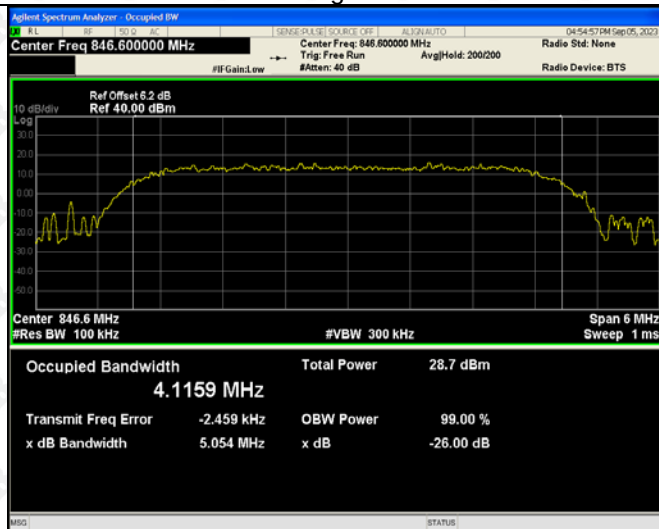
HSUPA Low Channel



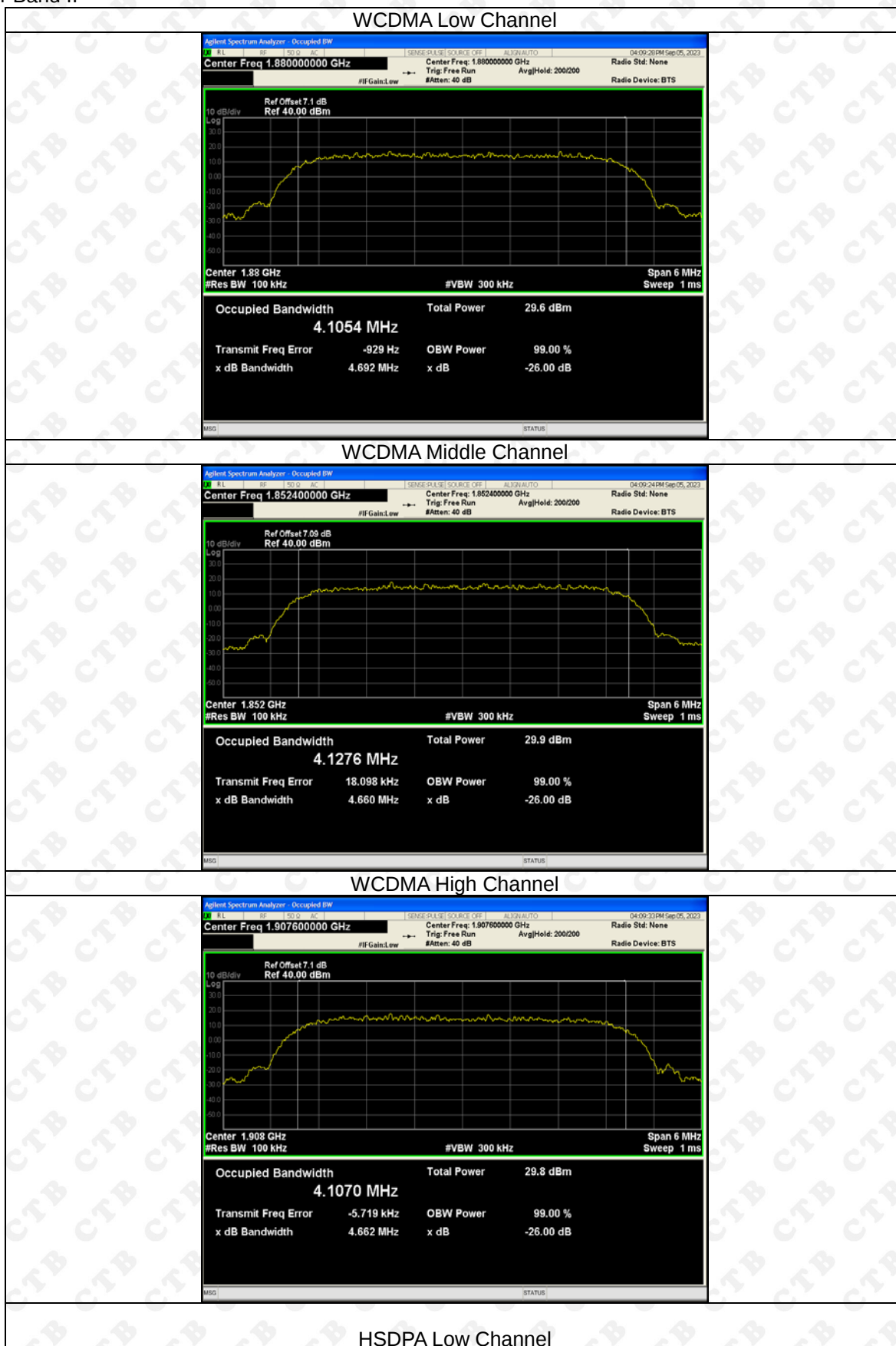
HSUPA Middle Channel

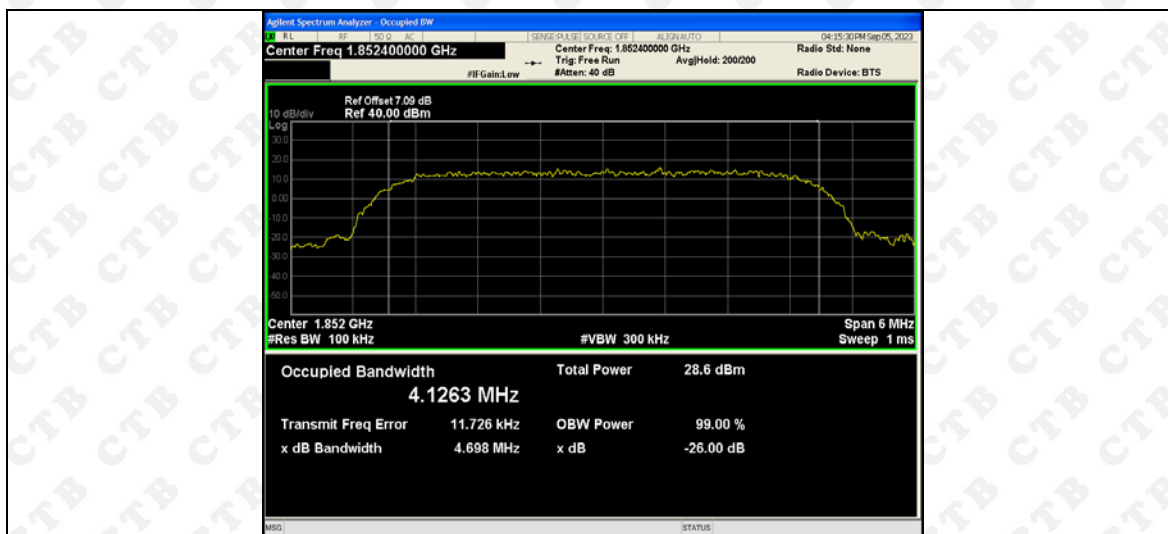


HSUPA High Channel

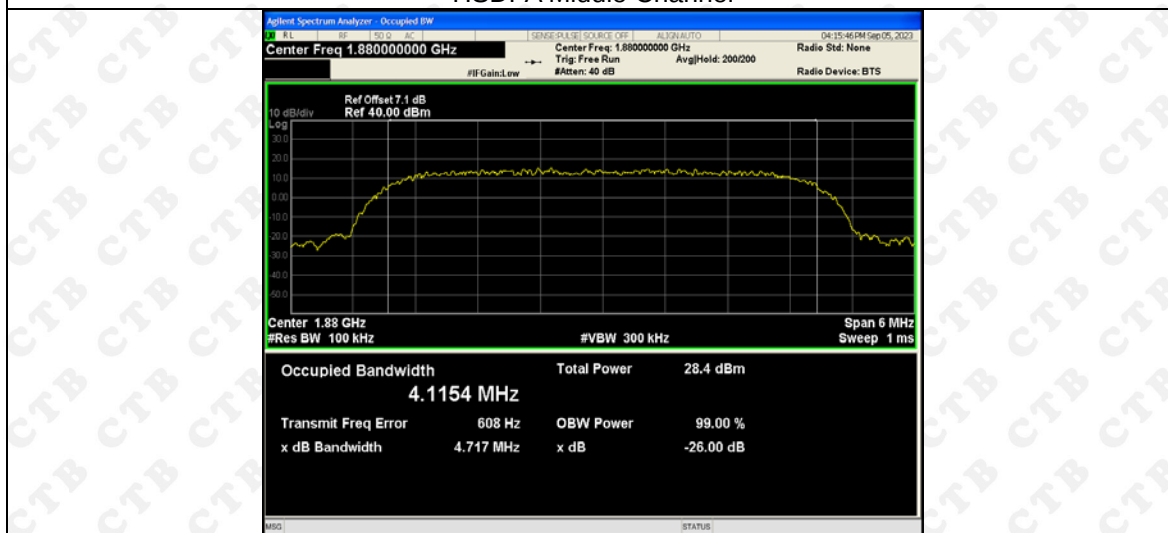


For Band II

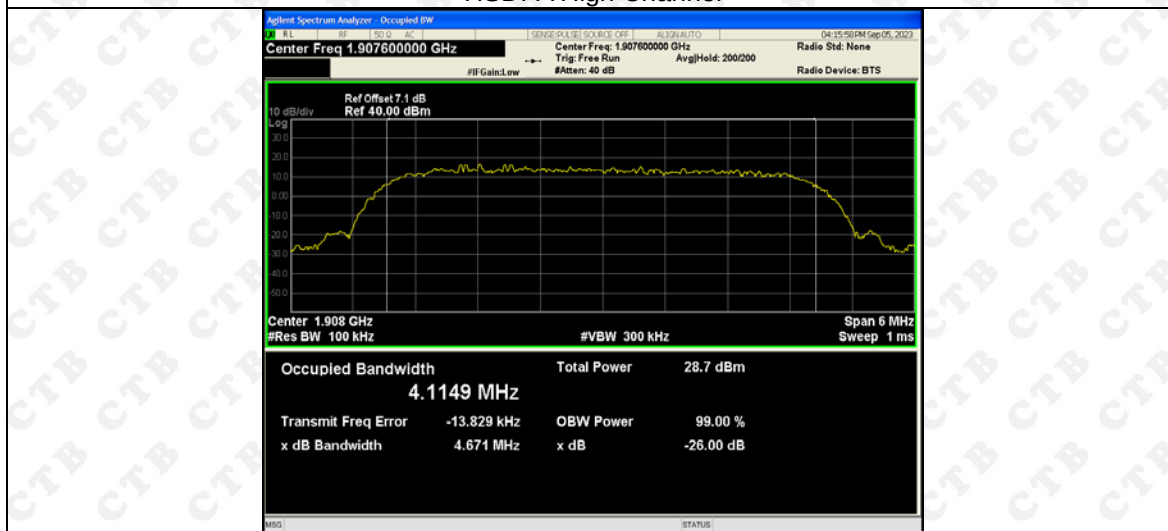




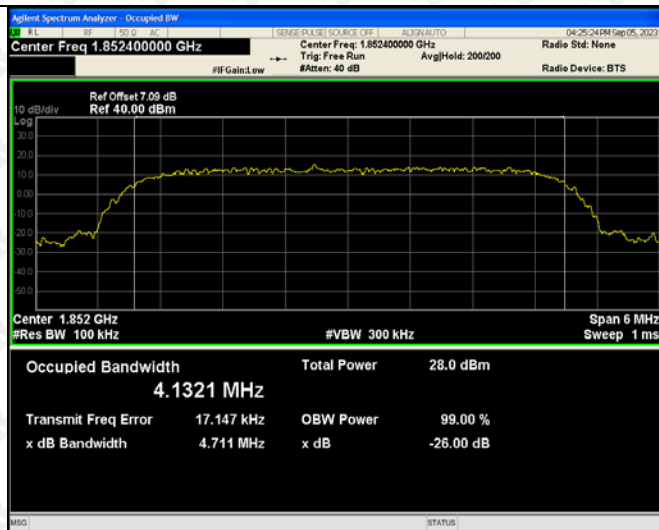
HSDPA Middle Channel



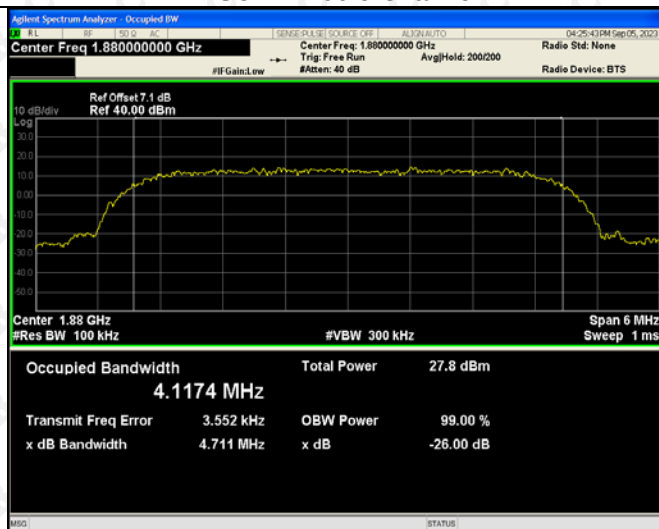
HSDPA High Channel



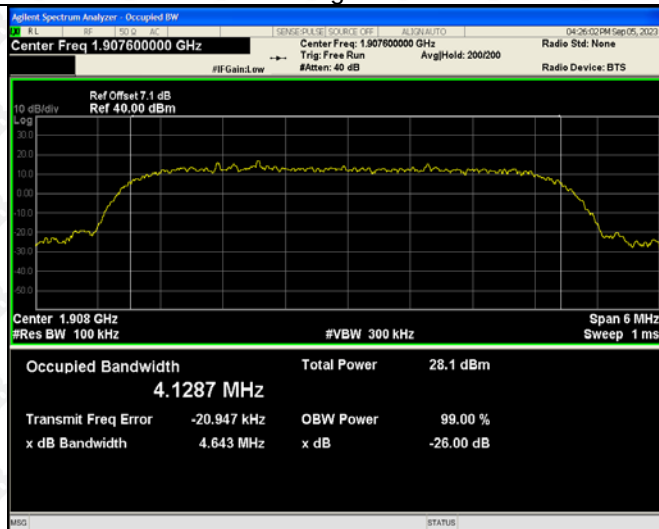
HSUPA Low Channel



HSUPA Middle Channel



HSUPA High Channel



9. OUT OF BAND EMISSIONS AT ANTENNA TERMINAL

9.1 Standard Applicable

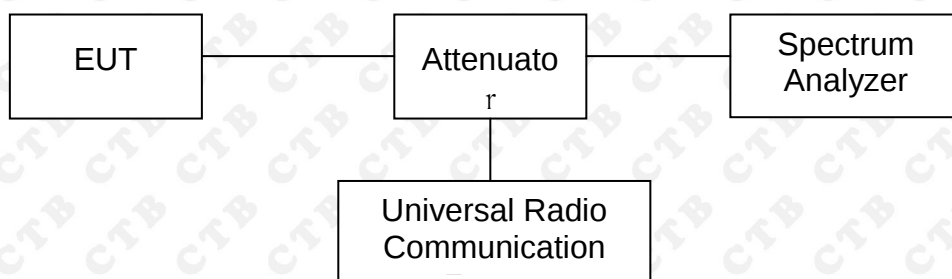
According to §22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

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 10^{th} harmonic.

Test Configuration for the out of band emissions testing:



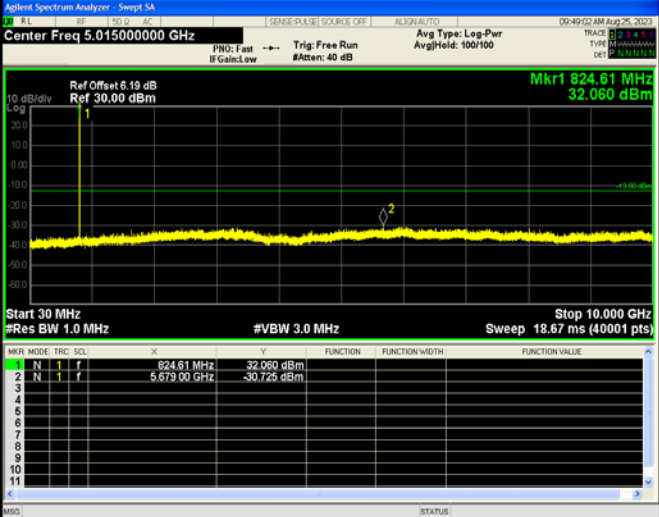
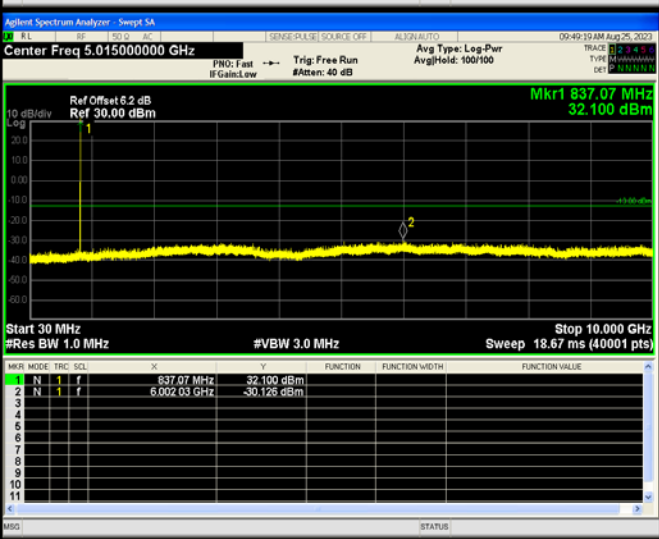
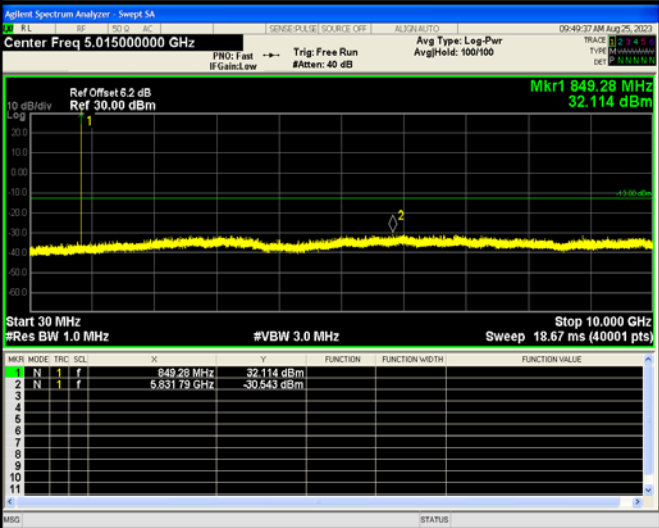
9.3 Environmental Conditions

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

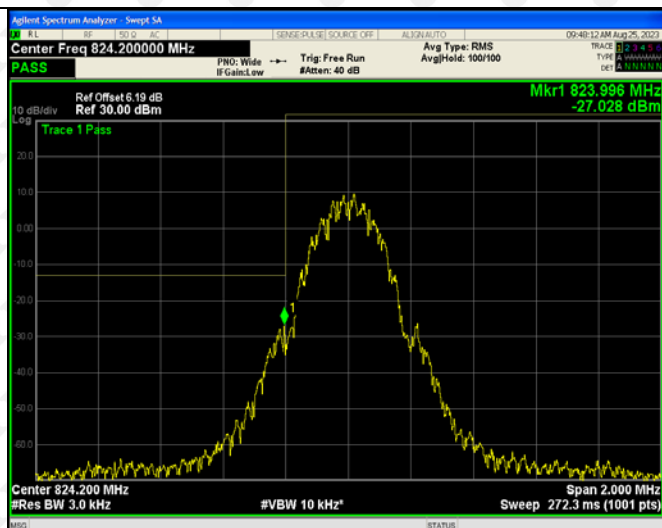
9.4 Summary of Test Results/Plots

Please refer to the following test plots

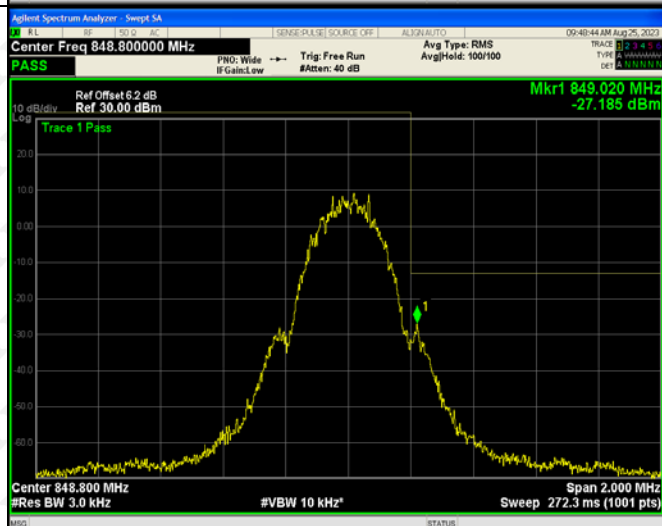
For Cellular Band

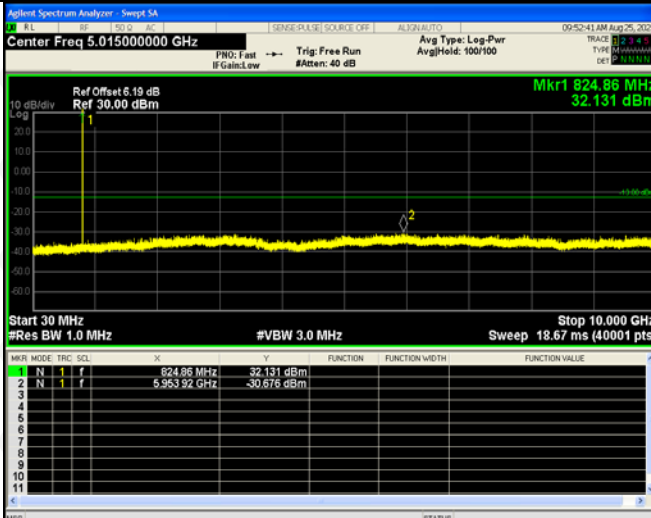
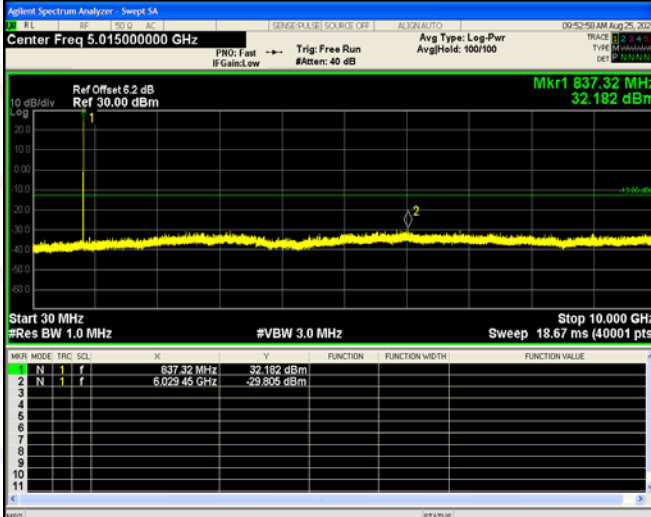
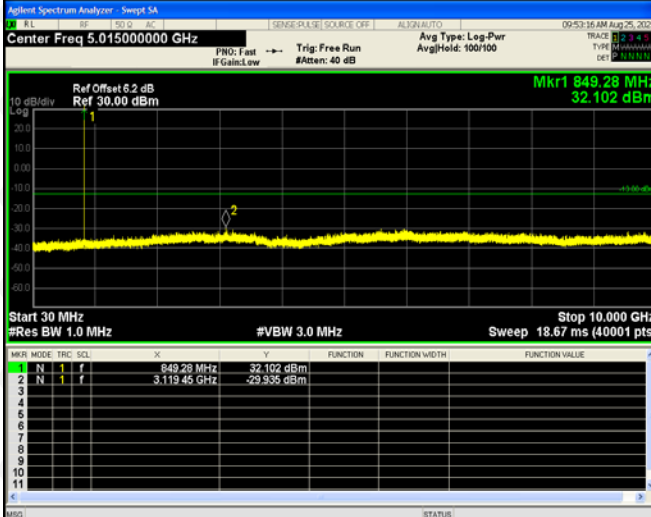
GSM Low Channel	
GSM Middle Channel	
GSM High Channel	

GSM
Low
Band
Emission

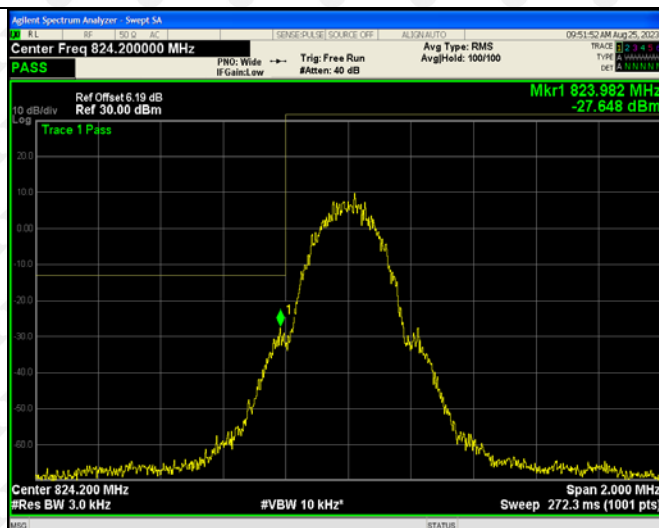


GSM
High
Band
Emission

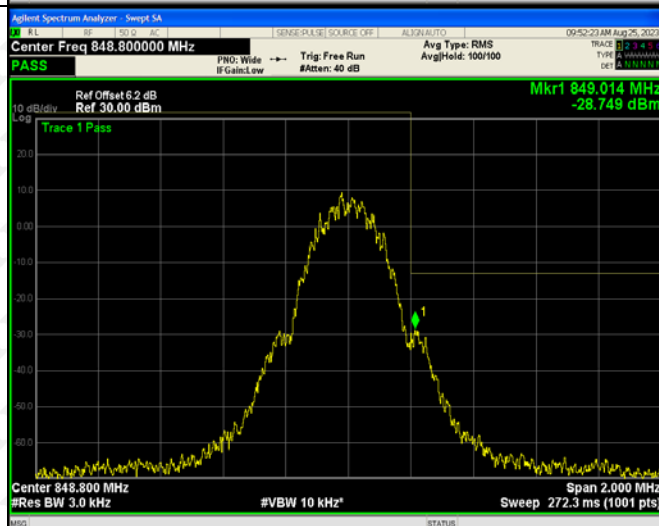


GPRS Low Channel	 Agilent Spectrum Analyzer - Sweep SA Center Freq 5.015000000 GHz Ref Offset 6.19 dB Ref 30.00 dBm Mkr1 824.86 MHz 32.131 dBm Start 30 MHz #Res BW 1.0 MHz #VBW 3.0 MHz Stop 10.000 GHz Sweep 18.67 ms (40001 pts) <table><tr><th>MARK</th><th>MODE</th><th>TRIG</th><th>SOL</th><th>F</th><th>dBm</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>824.86 MHz</td><td>32.131 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>5.953 92 GHz</td><td>-30.676 dBm</td><td></td><td></td><td></td></tr></table>	MARK	MODE	TRIG	SOL	F	dBm	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	824.86 MHz	32.131 dBm				2	N	1	f	5.953 92 GHz	-30.676 dBm				
MARK	MODE	TRIG	SOL	F	dBm	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																					
1	N	1	f	824.86 MHz	32.131 dBm																								
2	N	1	f	5.953 92 GHz	-30.676 dBm																								
GPRS Middle Channel	 Agilent Spectrum Analyzer - Sweep SA Center Freq 5.015000000 GHz Ref Offset 6.2 dB Ref 30.00 dBm Mkr1 837.32 MHz 32.182 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>TRIG</th><th>SOL</th><th>F</th><th>dBm</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>837.32 MHz</td><td>32.182 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>6.029 45 GHz</td><td>-29.805 dBm</td><td></td><td></td><td></td></tr></table>	MARK	MODE	TRIG	SOL	F	dBm	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	837.32 MHz	32.182 dBm				2	N	1	f	6.029 45 GHz	-29.805 dBm				
MARK	MODE	TRIG	SOL	F	dBm	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																					
1	N	1	f	837.32 MHz	32.182 dBm																								
2	N	1	f	6.029 45 GHz	-29.805 dBm																								
GPRS High Channel	 Agilent Spectrum Analyzer - Sweep SA Center Freq 5.015000000 GHz Ref Offset 6.2 dB Ref 30.00 dBm Mkr1 849.28 MHz 32.102 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>TRIG</th><th>SOL</th><th>F</th><th>dBm</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>849.28 MHz</td><td>32.102 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>3.119 45 GHz</td><td>-29.935 dBm</td><td></td><td></td><td></td></tr></table>	MARK	MODE	TRIG	SOL	F	dBm	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	849.28 MHz	32.102 dBm				2	N	1	f	3.119 45 GHz	-29.935 dBm				
MARK	MODE	TRIG	SOL	F	dBm	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																					
1	N	1	f	849.28 MHz	32.102 dBm																								
2	N	1	f	3.119 45 GHz	-29.935 dBm																								

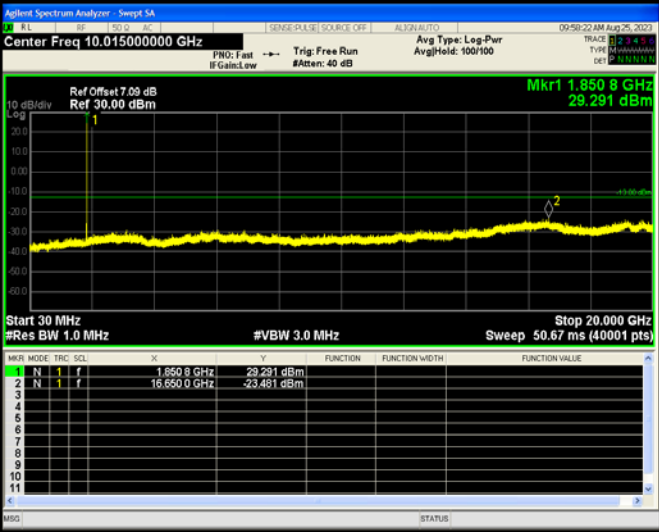
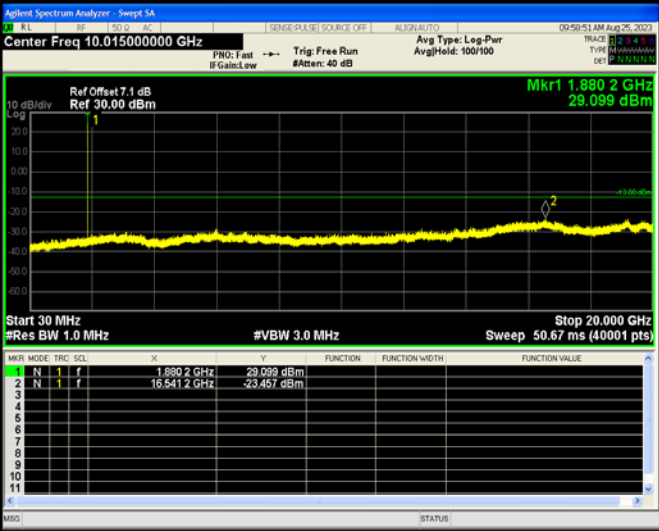
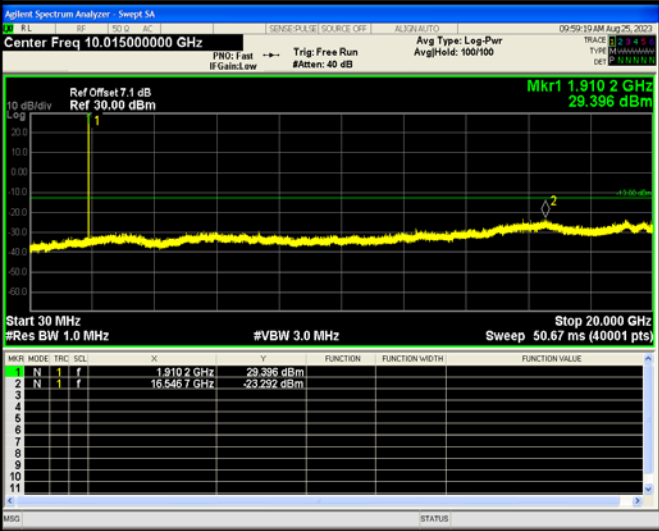
GPRS
Low
Band
Emission



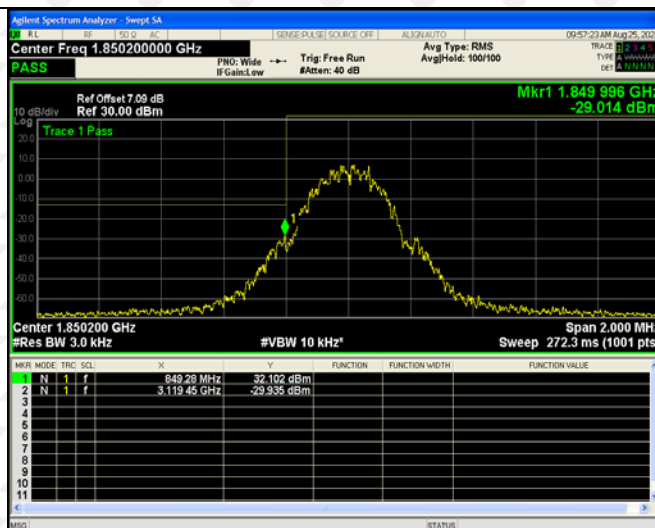
GPRS
High
Band
Emission



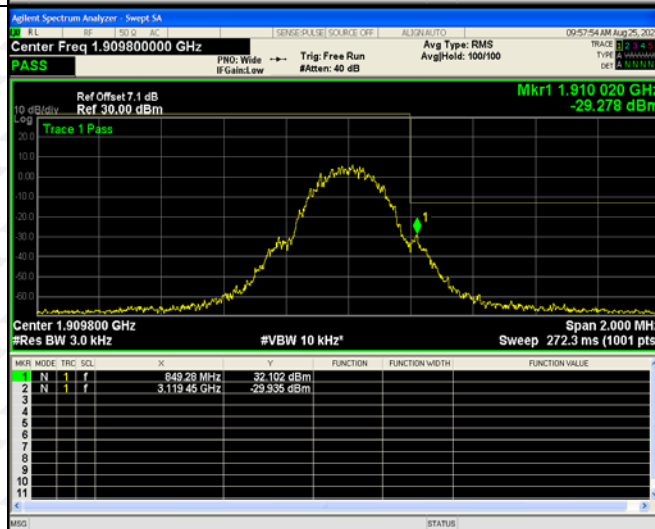
For PCS Band

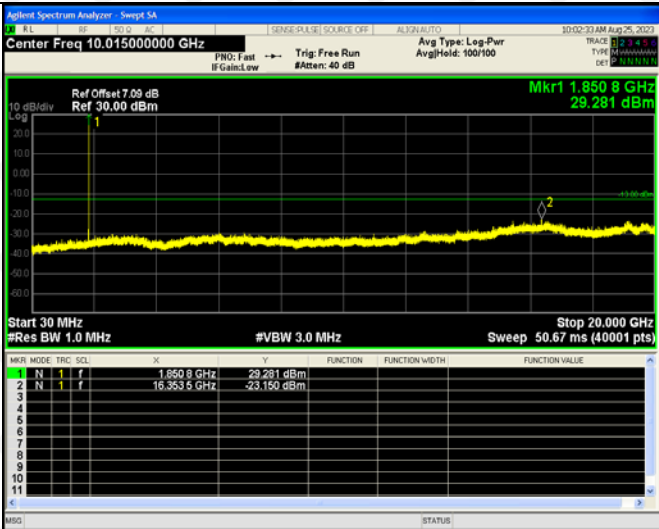
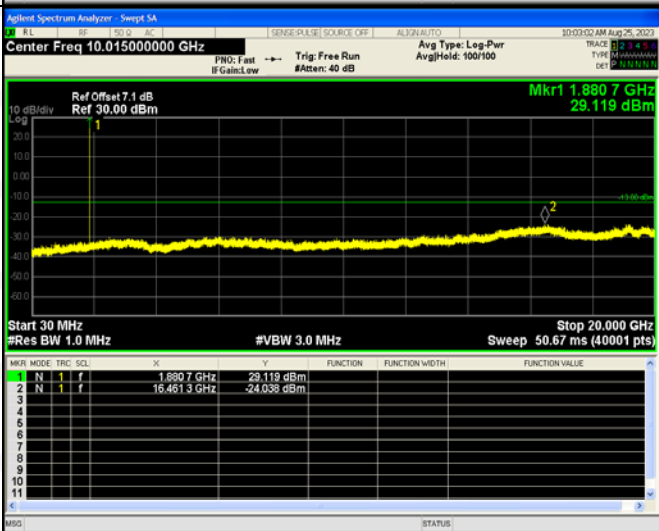
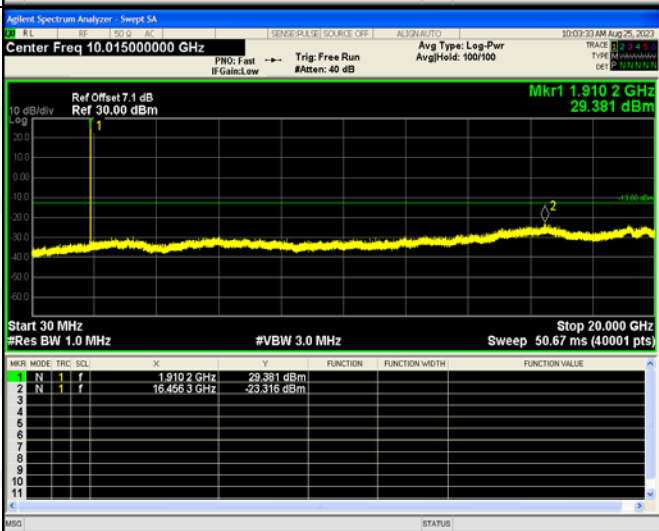
GSM Low Channel		
GSM Middle Channel		
GSM High Channel		

GSM
Low
Band
Emission

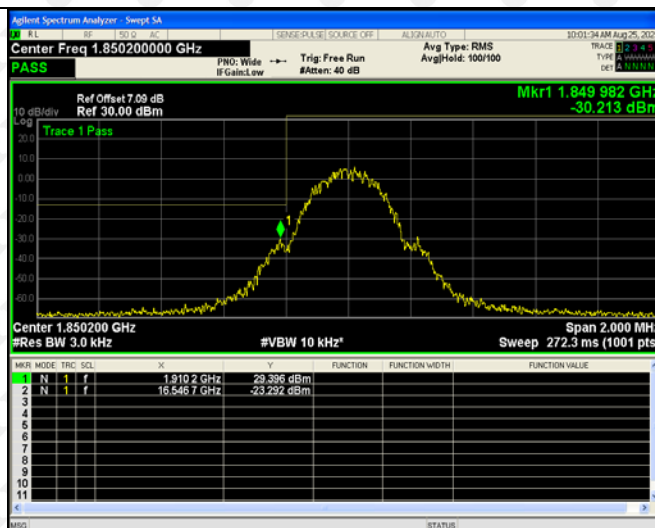


GSM
High
Band
Emission

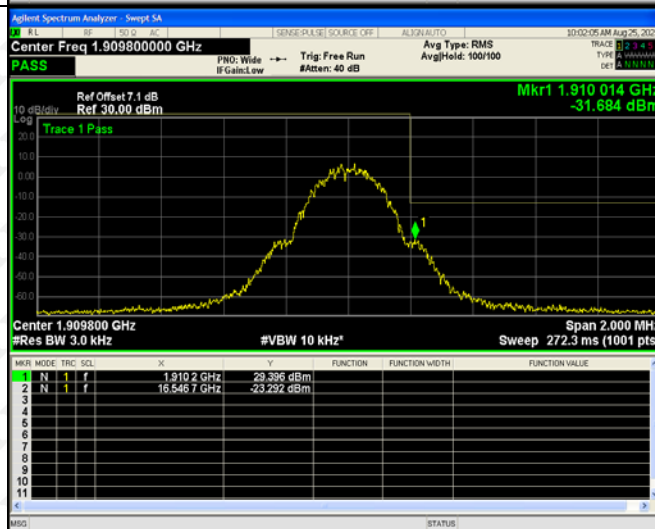


GPRS Low Channel	 Agilent Spectrum Analyzer - Sweep SA Center Freq 10.01500000 GHz Ref Offset 7.09 dB Ref 30.00 dBm Mkr1 1.850 8 GHz 29.281 dBm Start 30 MHz #Res BW 1.0 MHz #VBW 3.0 MHz Stop 20.000 GHz Sweep 50.67 ms (40001 pts) <table><thead><tr><th>MKR</th><th>MODE</th><th>TRIG</th><th>SOL</th><th>X</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>1.850 8 GHz</td><td>29.281 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>16.353 5 GHz</td><td>-23.150 dBm</td><td></td><td></td><td></td></tr></tbody></table>	MKR	MODE	TRIG	SOL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	1.850 8 GHz	29.281 dBm				2	N	1	f	16.353 5 GHz	-23.150 dBm				
MKR	MODE	TRIG	SOL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																					
1	N	1	f	1.850 8 GHz	29.281 dBm																								
2	N	1	f	16.353 5 GHz	-23.150 dBm																								
GPRS Middle Channel	 Agilent Spectrum Analyzer - Sweep SA Center Freq 10.01500000 GHz Ref Offset 7.1 dB Ref 30.00 dBm Mkr1 1.880 7 GHz 29.119 dBm Start 30 MHz #Res BW 1.0 MHz #VBW 3.0 MHz Stop 20.000 GHz Sweep 50.67 ms (40001 pts) <table><thead><tr><th>MKR</th><th>MODE</th><th>TRIG</th><th>SOL</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>1.880 7 GHz</td><td>29.119 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>16.481 3 GHz</td><td>-24.038 dBm</td><td></td><td></td><td></td></tr></tbody></table>	MKR	MODE	TRIG	SOL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	1.880 7 GHz	29.119 dBm				2	N	1	f	16.481 3 GHz	-24.038 dBm				
MKR	MODE	TRIG	SOL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																					
1	N	1	f	1.880 7 GHz	29.119 dBm																								
2	N	1	f	16.481 3 GHz	-24.038 dBm																								
GPRS High Channel	 Agilent Spectrum Analyzer - Sweep SA Center Freq 10.01500000 GHz Ref Offset 7.1 dB Ref 30.00 dBm Mkr1 1.910 2 GHz 29.381 dBm Start 30 MHz #Res BW 1.0 MHz #VBW 3.0 MHz Stop 20.000 GHz Sweep 50.67 ms (40001 pts) <table><thead><tr><th>MKR</th><th>MODE</th><th>TRIG</th><th>SOL</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>1.910 2 GHz</td><td>29.381 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>16.496 3 GHz</td><td>-23.316 dBm</td><td></td><td></td><td></td></tr></tbody></table>	MKR	MODE	TRIG	SOL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	1.910 2 GHz	29.381 dBm				2	N	1	f	16.496 3 GHz	-23.316 dBm				
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1	N	1	f	1.910 2 GHz	29.381 dBm																								
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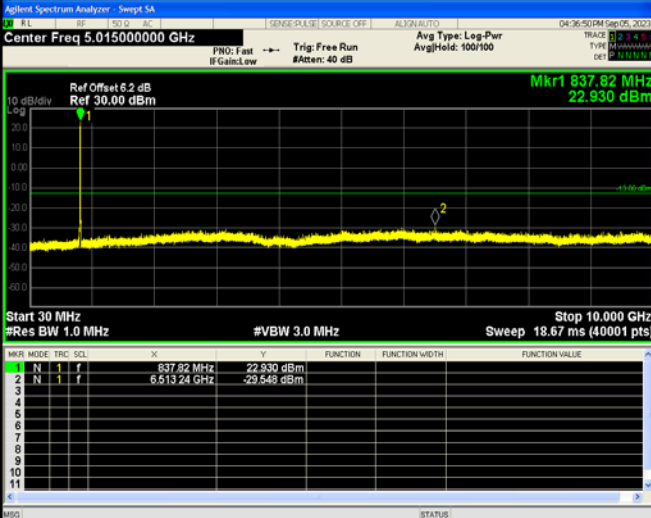
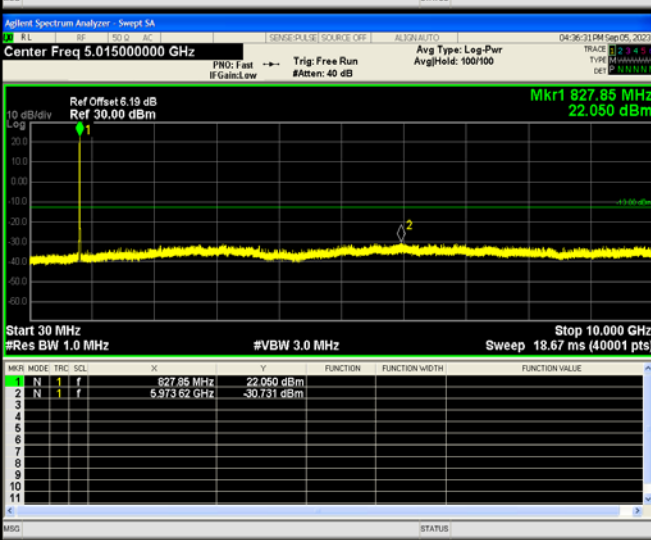
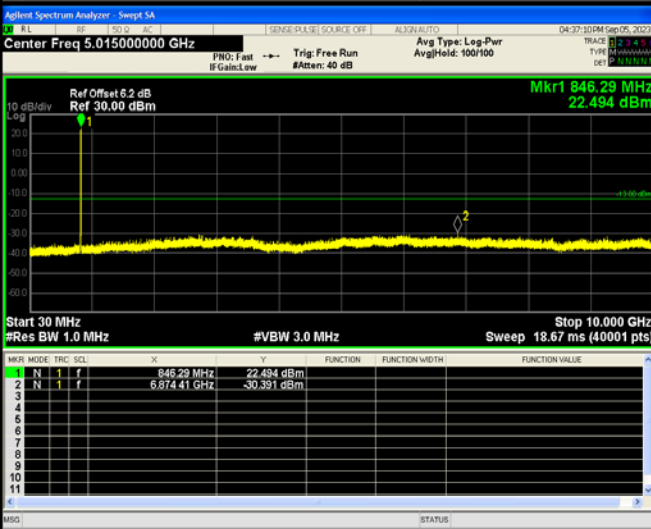
GPRS
Low
Band
Emission



GPRS
High
Band
Emission



For Band V

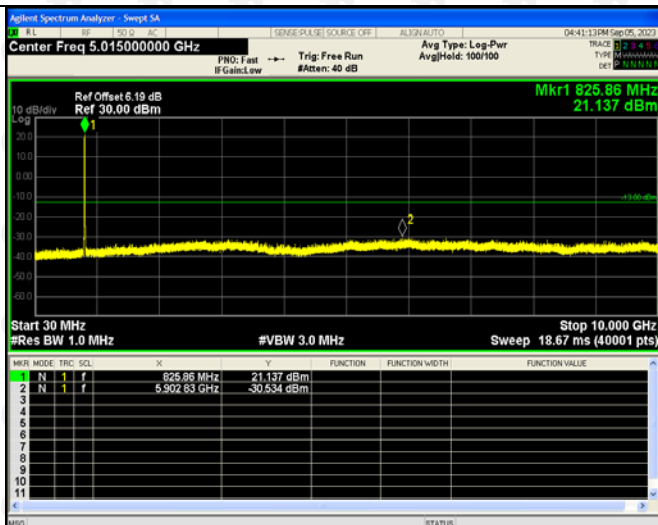
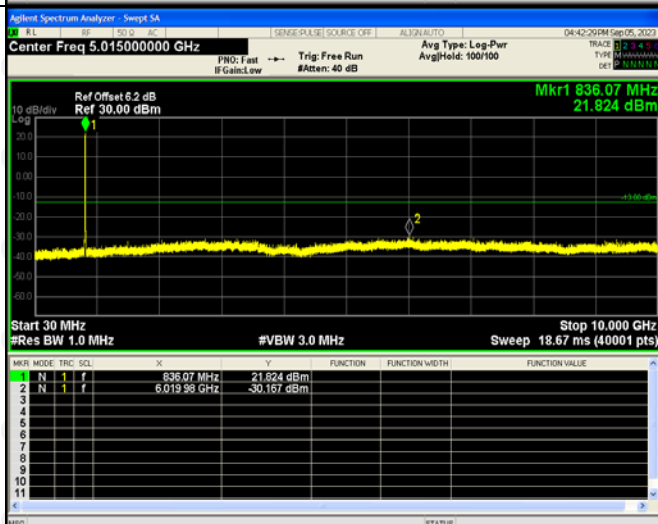
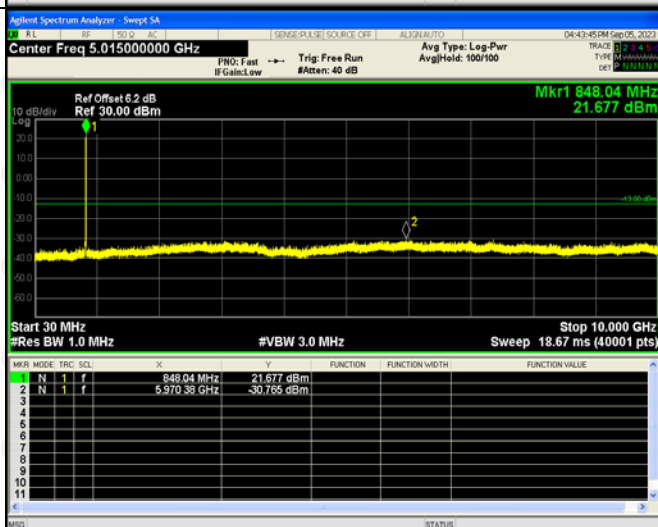
WCDMA Low Channel		
WCDMA Middle Channel		
WCDMA High Channel		

WCDMA
Low
Band
Spurious
Emission



WCDMA
High
Band
Spurious
Emission



HSDPA
Low
Channel

HSDPA
Middle
Channel

HSDPA
High
Channel


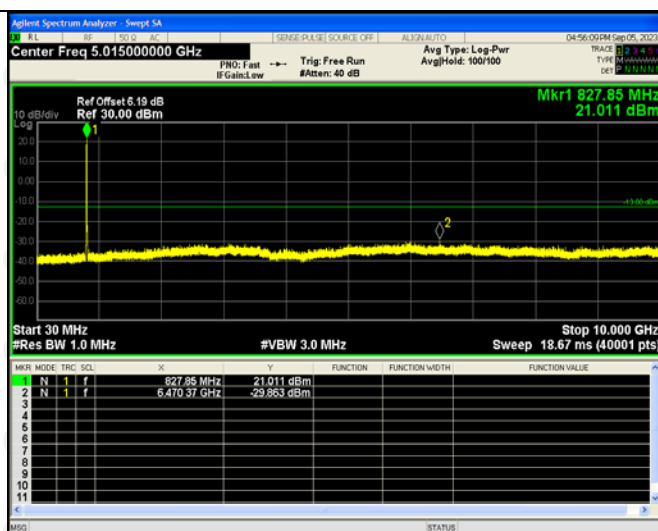
HSDPA
Low
Band
Spurious
Emission



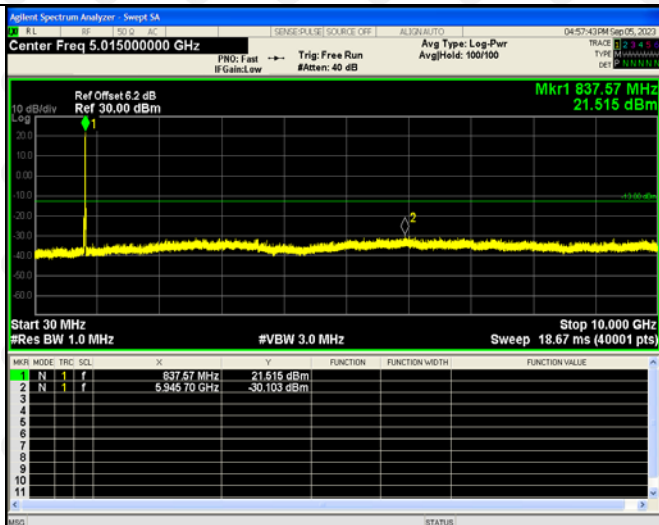
HSDPA
High
Band
Spurious
Emission



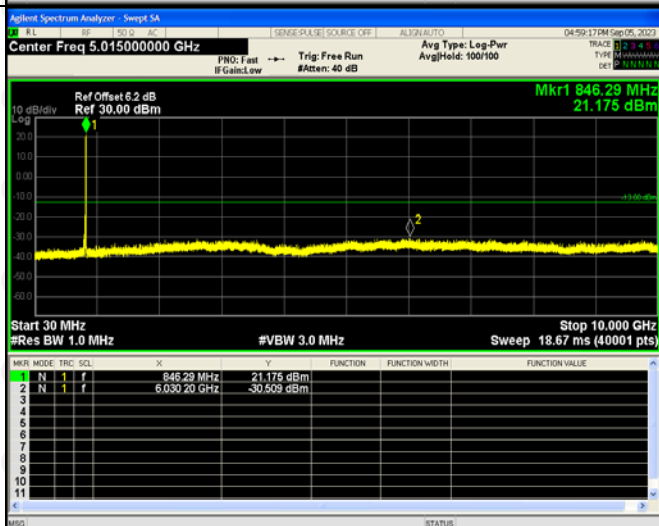
HSUPA
Low
Channel



HSUPA
Middle
Channel



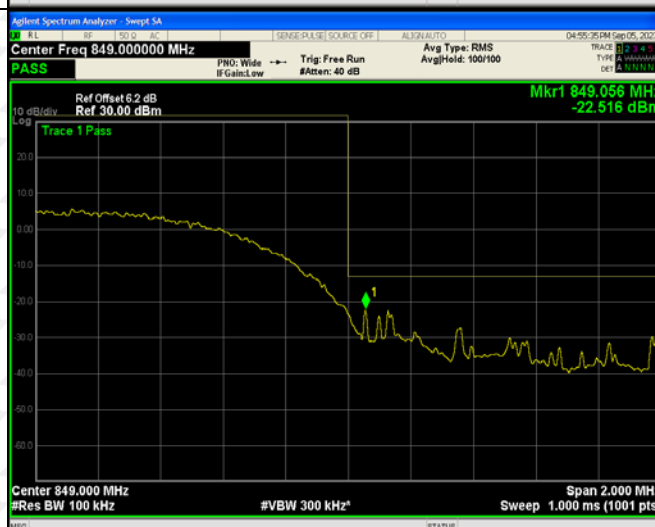
HSUPA
High
Channel



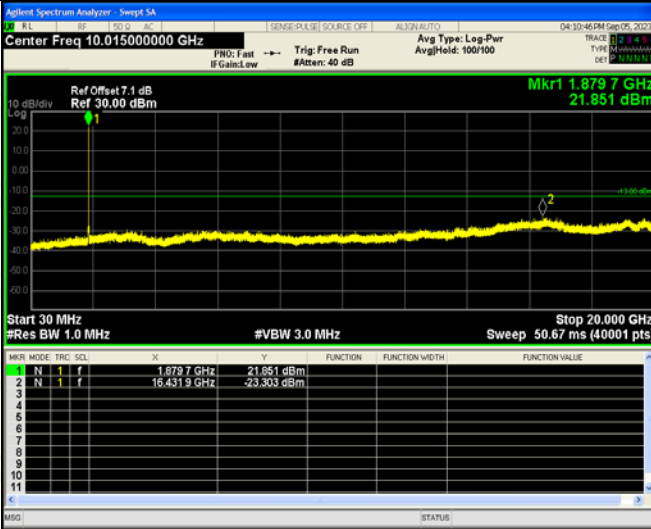
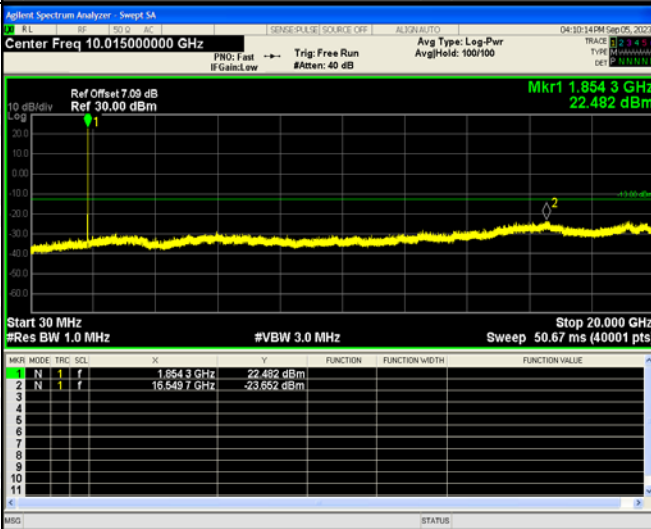
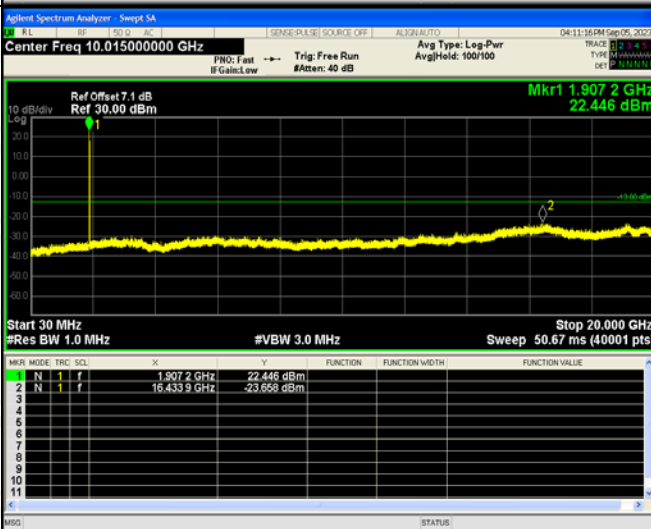
HSUPA
Low
Band
Spurious
Emission



HSUPA
High
Band
Spurious
Emission



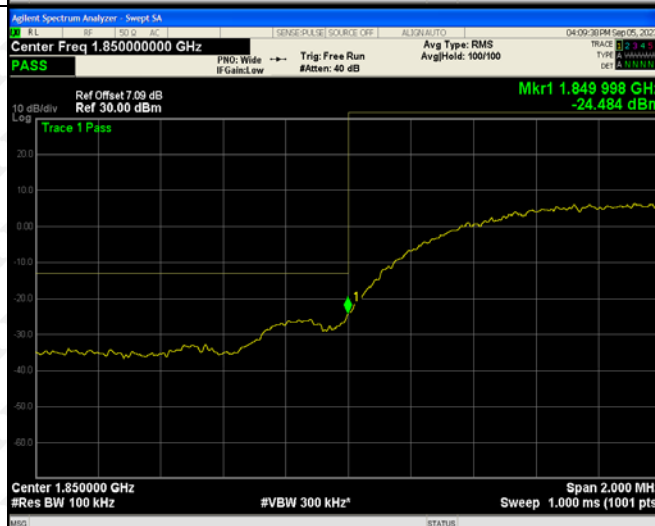
For Band II

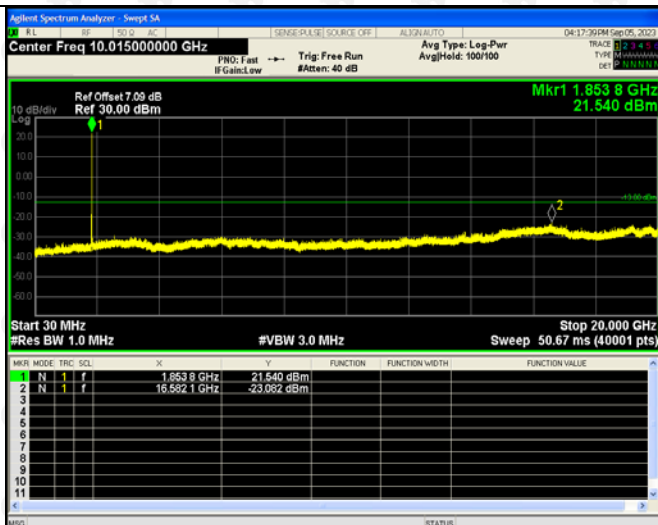
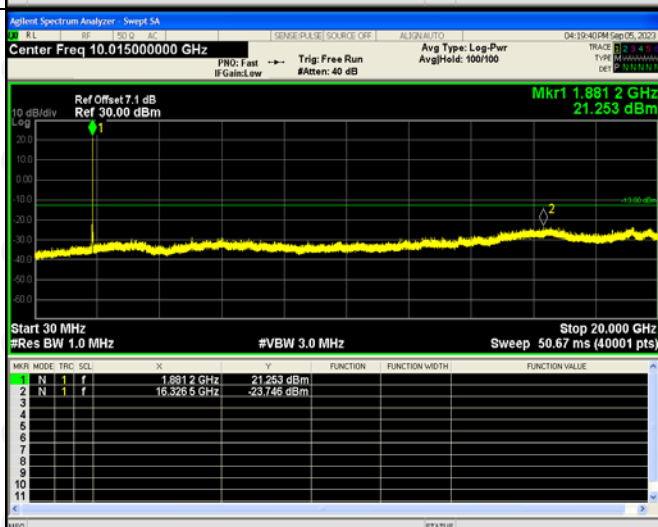
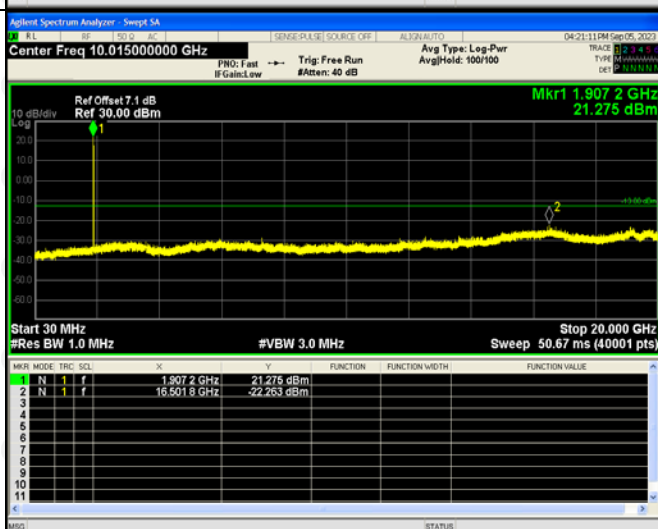
WCDMA Low Channel		
WCDMA Middle Channel		
WCDMA High Channel		

WCDMA
Low
Band
Spurious
Emission

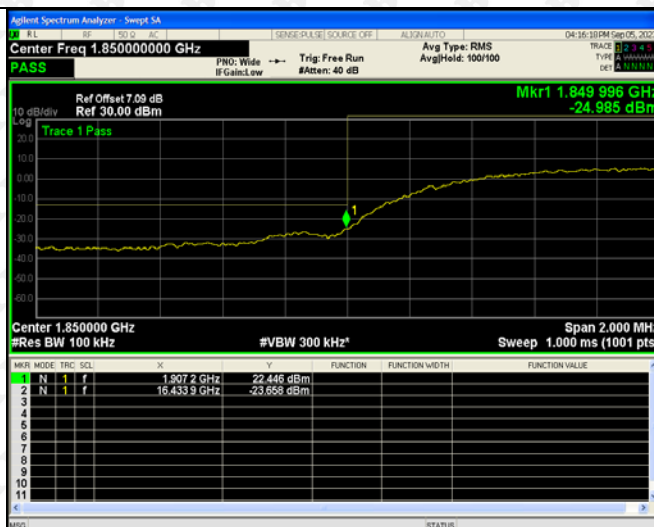


WCDMA
High
Band
Spurious
Emission



HSDPA
Low
Channel

HSDPA
Middle
Channel

HSDPA
High
Channel


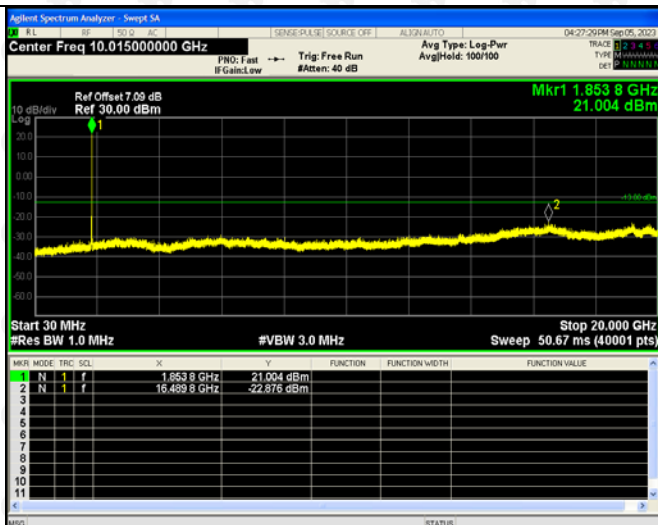
HSDPA
Low
Band
Spurious
Emission



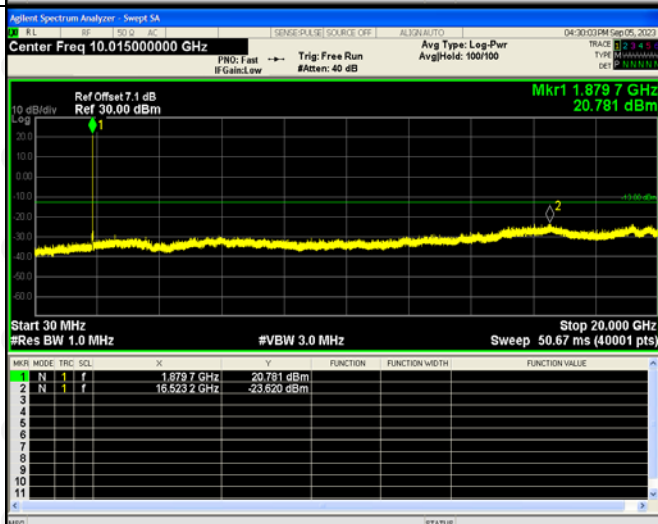
HSDPA
High
Band
Spurious
Emission



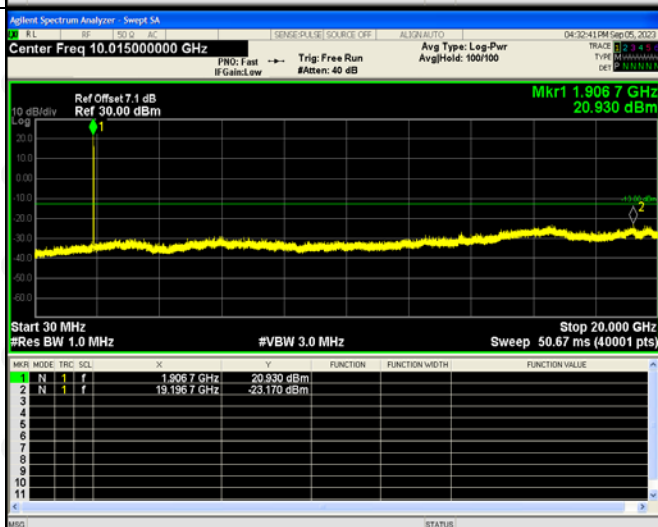
HSUPA
Low
Channel



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)						
44.87	-74.49	3.9	-70.59	-13	-57.59	H
1641.40	-56.60	4.83	-51.77	-13	-38.77	H
2472.28	-49.78	8.08	-41.70	-13	-28.70	H
39.06	-67.99	4.02	-63.97	-13	-50.97	V
1647.53	-46.86	4.48	-42.38	-13	-29.38	V
2463.75	-57.13	8.2	-48.93	-13	-35.93	V
Middle Channel (836.6MHz)						
44.02	-72.90	3.84	-69.06	-13	-56.06	H
1672.55	-58.38	4.62	-53.76	-13	-40.76	H
2507.95	-51.12	8.25	-42.87	-13	-29.87	H
43.45	-71.69	4.25	-67.44	-13	-54.44	V
1669.83	-53.14	4.54	-48.60	-13	-35.60	V
2501.22	-49.13	8.35	-40.78	-13	-29.75	V
High Channel (848.8MHz)						
36.47	-66.79	4.22	-71.01	-13	-58.01	H
1689.03	-58.17	4.87	-63.04	-13	-50.04	H
2537.37	-53.69	8.38	-62.07	-13	-49.07	H
38.05	-73.98	4.02	-78.00	-13	-65.00	V
1695.04	-53.84	4.56	-58.40	-13	-45.40	V
2540.61	-49.55	8.41	-57.96	-13	-44.96	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)						
42.06	-72.38	4.34	-68.04	-13	-55.04	H
3690.48	-55.55	10.54	-45.01	-13	-32.01	H
5549.50	-59.18	13.37	-45.81	-13	-32.81	H
44.86	-74.15	4.34	-69.81	-13	-56.81	V
3693.00	-57.92	10.54	-47.38	-13	-34.38	V
5542.48	-55.38	13.37	-42.01	-13	-29.01	V
Middle Channel (1880MHz)						
36.74	-71.80	4.02	-67.78	-13	-54.78	H
3752.16	-57.49	10.71	-46.78	-13	-33.78	H
5633.71	-59.39	13.73	-45.66	-13	-32.66	H
46.24	-72.56	4.14	-68.42	-13	-55.42	V
3755.50	-57.97	10.22	-47.75	-13	-34.75	V
5639.93	-59.97	13.16	-46.81	-13	-33.81	V
High Channel (1909.8MHz)						
45.51	-72.74	4.02	-68.72	-13	-55.72	H
3817.68	-56.17	4.9	-51.27	-13	-38.27	H
5720.97	-49.39	8.09	-41.30	-13	-28.30	H
36.52	-57.47	4.25	-53.22	-13	-40.22	V
3819.15	-55.75	4.93	-50.82	-13	-37.82	V
5728.29	-57.52	8.43	-49.09	-13	-36.09	V

For Band 5 Mode

Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Polar H/V
Low Channel (826.4MHz)						
39.56	-73.29	3.91	-69.38	-13	-56.38	H
1648.25	-51.51	10.56	-40.95	-13	-27.95	H
2472.69	-58.66	13.5	-45.16	-13	-32.16	H
37.04	-69.59	3.93	-65.66	-13	-52.66	V
1652.09	-53.41	10.41	-43.00	-13	-30.00	V
2471.26	-58.63	13.16	-45.47	-13	-32.47	V
Middle Channel (836.6MHz)						
45.72	-72.60	4.02	-68.58	-13	-55.58	H
1672.00	-61.68	4.66	-57.02	-13	-44.02	H
2502.29	-46.06	8.34	-37.72	-13	-24.72	H
40.34	-57.35	4.17	-53.18	-13	-40.18	V
1671.18	-57.39	4.94	-52.45	-13	-39.45	V
2499.49	-65.05	8.19	-56.86	-13	-43.86	V
High Channel (846.6MHz)						
44.50	-73.12	3.87	-69.25	-13	-56.25	H
1689.58	-62.62	4.89	-57.73	-13	-44.73	H
2538.13	-43.08	8.42	-34.66	-13	-21.66	H
39.75	-53.99	3.95	-50.04	-13	-37.04	V
1689.61	-59.25	4.99	-54.26	-13	-41.26	V
2537.18	-62.51	8.12	-54.39	-13	-41.39	V

For Band 2 Mode

Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Polar H/V
Low Channel (1852.4MHz)						
41.74	-71.45	4.22	-67.23	-13	-54.23	H
3701.74	-56.45	10.7	-45.75	-13	-32.75	H
5550.91	-62.51	13.73	-48.78	-13	-35.78	H
44.21	-65.02	3.93	-61.09	-13	-48.09	V
3700.22	-58.89	10.09	-48.80	-13	-35.80	V
5548.05	-62.03	13.11	-48.92	-13	-35.92	V
Middle Channel (1880MHz)						
38.51	-67.74	4.26	-63.48	-13	-50.48	H
3752.89	-62.52	4.76	-57.76	-13	-44.76	H
5632.49	-40.83	8.37	-32.46	-13	-19.46	H
36.86	-62.81	3.96	-58.85	-13	-45.85	V
3757.58	-61.54	4.63	-56.91	-13	-43.91	V
5631.99	-56.63	8.1	-48.53	-13	-35.53	V
High Channel (1907.6MHz)						
36.91	-70.35	4.26	-66.09	-13	-53.09	H
3807.10	-58.65	4.76	-53.89	-13	-40.89	H
5722.68	-42.37	8.37	-34.00	-13	-21.00	H
45.94	-57.64	3.96	-53.68	-13	-40.68	V
3809.55	-56.24	4.63	-51.61	-13	-38.61	V
5716.35	-63.54	8.1	-55.44	-13	-42.44	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	8.56	0.01023
40	NV	9.25	0.01106
30	NV	9.38	0.01122
20	NV	9.70	0.01159
10	NV	9.86	0.01178
0	NV	10.66	0.01275
-10	NV	9.82	0.01173
-20	NV	10.86	0.01298
-30	NV	11.08	0.01325

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	12.25	0.00651
40	NV	12.83	0.00682
30	NV	13.18	0.00701
20	NV	13.28	0.00706
10	NV	13.47	0.00716
0	NV	13.83	0.00735
-10	NV	14.47	0.00770
-20	NV	13.94	0.00741
-30	NV	14.78	0.00786

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	8.65	0.01034
40	NV	8.79	0.01050
30	NV	8.95	0.01069
20	NV	9.59	0.01147
10	NV	10.44	0.01248
0	NV	10.79	0.01290
-10	NV	10.37	0.01239
-20	NV	10.24	0.01224
-30	NV	10.91	0.01304

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	12.31	0.00655
40	NV	12.54	0.00667
30	NV	12.74	0.00678
20	NV	12.49	0.00664
10	NV	13.04	0.00694
0	NV	13.52	0.00719
-10	NV	13.68	0.00728
-20	NV	13.68	0.00728
-30	NV	13.99	0.00744

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	0.41	0.00049
40	NV	-0.21	-0.00025
30	NV	0.37	0.00044
20	NV	0.40	0.00047
10	NV	1.28	0.00153
0	NV	1.38	0.00165
-10	NV	0.81	0.00097
-20	NV	0.62	0.00074
-30	NV	0.74	0.00089

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	0.06	0.00003
40	NV	0.15	0.00008
30	NV	0.34	0.00018
20	NV	1.02	0.00054
10	NV	0.80	0.00043
0	NV	1.11	0.00059
-10	NV	0.91	0.00048
-20	NV	0.91	0.00049
-30	NV	0.77	0.00041

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	-0.52	-0.00063
40	NV	-0.25	-0.00030
30	NV	0.24	0.00029
20	NV	0.71	0.00084
10	NV	0.63	0.00075
0	NV	0.94	0.00113
-10	NV	0.84	0.00100
-20	NV	1.32	0.00157
-30	NV	2.03	0.00243

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	4.39	0.00233
40	NV	4.64	0.00247
30	NV	5.36	0.00285
20	NV	6.26	0.00333
10	NV	5.51	0.00293
0	NV	6.31	0.00336
-10	NV	6.52	0.00347
-20	NV	6.66	0.00354
-30	NV	6.83	0.00363

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	0.47	0.00056
40	NV	0.64	0.00077
30	NV	0.61	0.00073
20	NV	1.17	0.00140
10	NV	1.71	0.00204
0	NV	1.69	0.00202
-10	NV	2.10	0.00251
-20	NV	2.01	0.00241
-30	NV	2.47	0.00295

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	6.24	0.00332
40	NV	6.76	0.00360
30	NV	7.01	0.00373
20	NV	7.47	0.00398
10	NV	7.62	0.00405
0	NV	8.09	0.00430
-10	NV	8.08	0.00430
-20	NV	8.08	0.00430
-30	NV	8.58	0.00456

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	10.56	0.01263
	NV	11.19	0.01337
	HV	11.19	0.01337
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	14.22	0.00756
	HV	14.35	0.00763

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	11.12	0.01329
	NV	11.78	0.01408
	HV	11.24	0.01343
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	15.04	0.00800
	NV	14.78	0.00786
	HV	14.48	0.00770

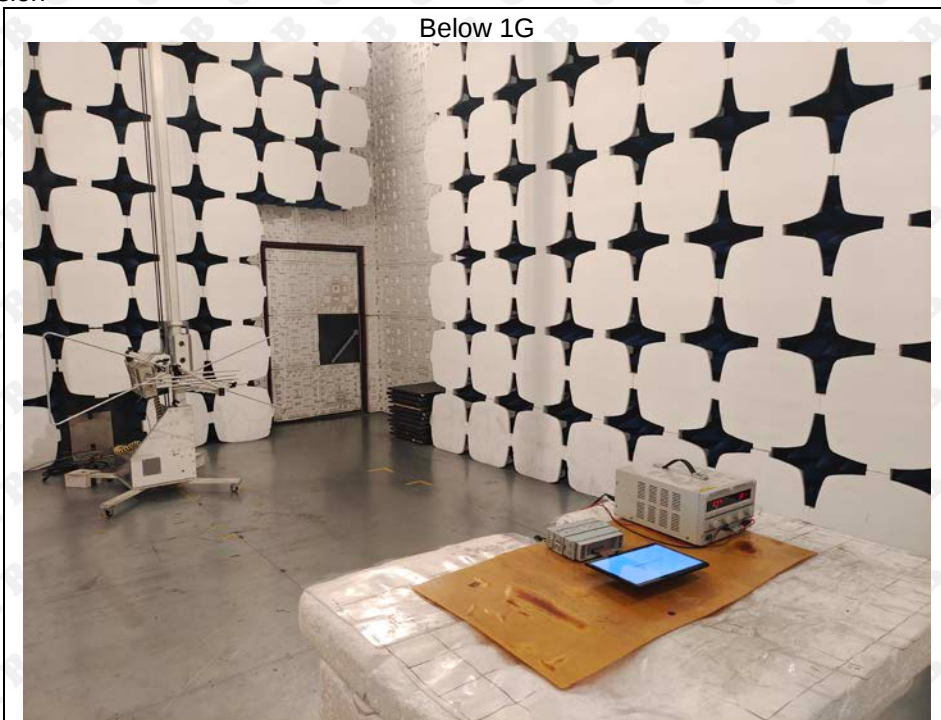
Reference Frequency(Middle Channel): WCDMA 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	1.6	0.0019
	NV	2.0	0.0024
	HV	2.1	0.0025
Reference Frequency(Middle Channel): WCDMA 1732.4MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	LV	1.69	0.0009
	NV	1.27	0.0007
	HV	1.83	0.0001
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	2.7	0.0014
	NV	3.0	0.0016
	HV	3.4	0.0018
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	2.2	0.0026
	NV	2.4	0.0029
	HV	2.6	0.0031
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	6.61	0.004441
	NV	6.8	0.004716
	HV	7.2	0.004822
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	7.4	0.0039
	NV	7.5	0.0040
	HV	7.7	0.0041

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	2.9	0.0035
	NV	3.4	0.0040
	HV	3.6	0.0043
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	6.0	0.00421
	NV	6.4	0.004477
	HV	6.8	0.004537
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	9.4	0.0050
	NV	9.6	0.0051
	HV	9.9	0.0053

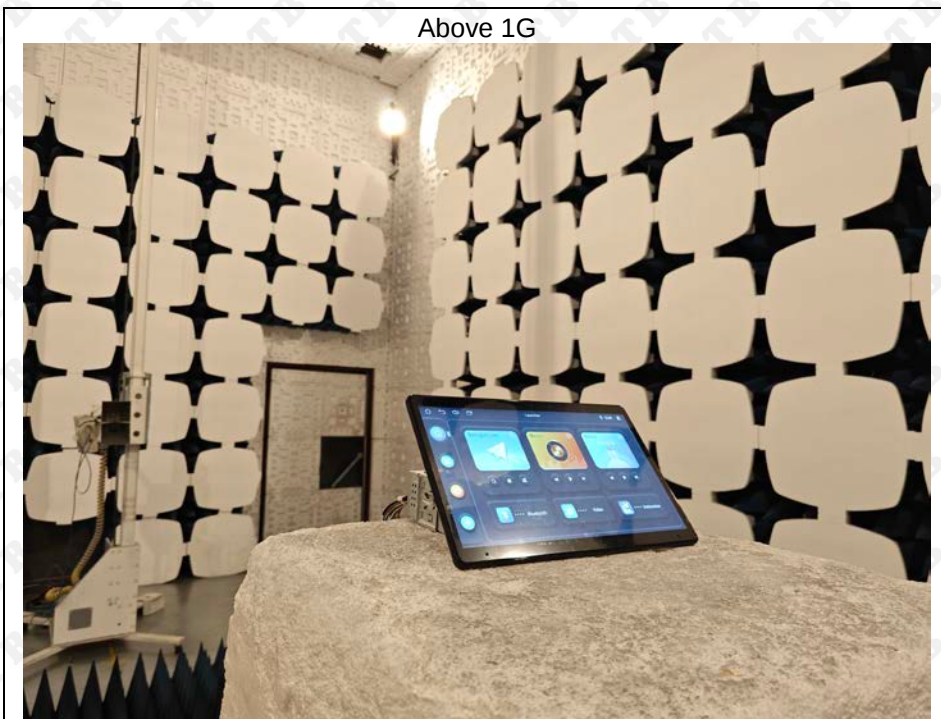
12. EUT TEST PHOTO

Radiated Emission

Below 1G



Above 1G



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