



TEST REPORT

Product Name: Handheld Terminal
FCC ID: 2BMVS-N77
Trademark: Rayoungtek
Model Number: N77, N77S, N77-DB
Prepared For: Rayoungtek Technology Co., Limited
Address: ROOM 09, 27/F, HO KING COMMERCIAL CENTRE, 2-16 FA YUEN STREET, MONGKOK, KOWLOON HONG KONG, 999077 China
Manufacturer: Shenzhen NiaoNiao Technology Co., Ltd.
Address: Room 308, No. 99, Langkou Industrial Park, Langkou Community, Dalang Street, Longhua District, Shenzhen
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
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Sample tested Date: Jan. 13, 2025 to Feb. 06, 2025
Issue Date: Feb. 06, 2025
Report No.: CTB25012000103RF04
Test Standards: FCC Part 22H & 24E
Test Results: PASS
Remark: This is GSM radio test report.

Compiled by:

Reviewed by:

Approved by:

Zhou Kui

Arron Liu

Bin Mei

Zhou Kui

Arron Liu

Bin Mei / Director

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(Note: N/A means not applicable)



1. VERSION

Report No.	Issue Date	Description	Approved
CTB25012000103RF04	Feb. 06, 2025	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 camber Radiated spurious emission(30MHz-1GHz)	4.6dB
3m chamber Radiated spurious emission(1GHz-18GHz)	5.1dB
3m chamber Radiated spurious emission(18GHz-40GHz)	3.4dB
Receiver Reference Sensitivity level	1.9dB
humidity uncertainty	5.5%
Temperature uncertainty	0.63°C
frequency	1×10 ⁻⁷

4. PRODUCT INFORMATION AND TEST SETUP

4.1 Product Information

Model(s):	N77, N77S, N77-DB
Model Description:	All the model are the same circuit and RF module, only different in appearance. Test sample model: N77
Hardware Version:	V1.0
Software Version:	V1.0
Operation Frequency:	GSM/GPRS/EDGE 850: 824~849MHz GSM/GPRS/EDGE 1900: 1850~1910MHz WCDMA Band 2: 1850~1910MHz WCDMA Band 5: 824~849MHz
Max. RF output power:	GSM850: 32.79dBm GSM1900: 27.63dBm WCDMA Band 2: 21.55dBm WCDMA Band 5: 22.33dBm
Type of Modulation:	GMSK, BPSK
Antenna installation:	Internal antenna
Antenna Gain:	GSM850: -2.6dBi, GSM1900: 0.3dBi WCDMA Band 2: 0.3dBi WCDMA Band 5: -2.6dBi
Ratings:	Power input:100-240V 50/60Hz 1.0A Product input: 5V 2000mA DC 3.85V by battery

4.2 Test Setup Configuration

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

4.3 Support Equipment

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
1	Adapter	JIYIN	JY-05100C	/	AE

Notes:

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

4.4 Channel List

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

4.5 Test Mode

Test Mode List		
Test Mode	Description	Remark
TM1	GSM 850	Low, Middle, High Channels
TM2	GPRS 850	Low, Middle, High Channels
TM3	EDGE 850	Low, Middle, High Channels
TM4	GSM 1900	Low, Middle, High Channels
TM5	GPRS 1900	Low, Middle, High Channels
TM6	EDGE 1900	Low, Middle, High Channels
TM7	WCDMA Band 5	Low, Middle, High Channels
TM8	HSDPA Band 5	Low, Middle, High Channels
TM9	HSUPA Band 5	Low, Middle, High Channels
TM10	WCDMA Band 2	Low, Middle, High Channels
TM11	HSDPA Band 2	Low, Middle, High Channels
TM12	HSUPA Band 2	Low, Middle, High Channels

4.6 Test Environment

Humidity(%):	54
Atmospheric Pressure(kPa):	101
Normal Voltage(DC):	3.85V
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, Xinh 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

No.	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Calibration Last	Calibrated until
1	Spectrum Analyzer	Agilent	N9020A	MY52090073	A.14.16	2024/6/28	2025/6/28
2	Power Sensor	Agilent	U2021XA	MY56120032	/	2024/6/28	2025/6/28
3	Power Sensor	Agilent	U2021XA	MY56120034	/	2024/6/28	2025/6/28
4	Communication test set	R&S	CMW500	108058	V3.5.80	2024/6/28	2025/6/28
5	Spectrum Analyzer	KEYSIGHT	N9020A	MY51289897	A.14.16	2024/6/28	2025/6/28
6	Signal Generator	Agilent	N5181A	MY50140365	A.01.60	2024/6/28	2025/6/28
7	Vector signal generator	Agilent	N5182A	MY47420195	A.01.87	2024/6/28	2025/6/28
8	Communication test set	Agilent	E5515C	MY50102567	B.19.07 (E1962B)	2024/6/28	2025/6/28
9	2.4 GHz Filter	Shenxiang	MSF2400-24 83.5MS-1154	20181015001	/	2024/6/30	2025/6/30
10	5 GHz Filter	Shenxiang	MSF5150-58 50MS-1155	20181015001	/	2024/6/30	2025/6/30
11	Filter	Xingbo	XBLBQ-DZA 120	190821-1-1	/	2024/6/30	2025/6/30
12	BT&WI-FI Automatic test software	Microwave	MTS8310	Ver. 2.0.0.0	/	/	/
13	Rohde & Schwarz SFU Broadcast Test System	R&S	SFU	101017	/	2024/6/28	2025/6/28
14	Temperature humidity chamber	Hongjing	TH-80CH	DG-15174	/	2024/6/28	2025/6/28
15	234G Automatic test software	Microwave	MTS8200	Ver. 2.0.0.0	/	/	/

16	966 chamber	C.R.T.	966	/	/	2024/6/21	2027/6/21
17	Receiver	R&S	ESPI	100362	RF_ATTEN_7 (104489/003)	2024/6/28	2025/6/28
18	Amplifier	HP	8447E	2945A02747	/	2024/6/28	2025/6/28
19	Amplifier	Agilent	8449B	3008A01838	/	2024/6/28	2025/6/28
20	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	00869	/	2024/6/28	2025/6/28
21	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA9120D	01911	/	2024/6/28	2025/6/28
22	EMI test software	Fala	EZ-EMC	FA-03A2 RE	/	/	/
23	Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-224	/	2024/6/28	2025/6/28
24	loop antenna	ZHINAN	ZN30900A	GTS534	/	/	/
25	40G Horn antenna	A/H/System	SAS-574	588	/	2024/6/28	2025/6/28
26	Amplifier	AEROFLEX	Aeroflex	097	/	2024/6/28	2025/6/28
27	Power Metter	KEYSIGHT	N1912AP	N/A	A.05.00	2024/6/28	2025/6/28
28	Temperature chamber	Shima	AR867	N/A	/	2024/6/28	2025/6/28
29	controller	Mai Wei	MW200-RFC B	N/A	/	/	/

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	31.56	1.5	0	H	1.5	-2.6	27.46	38.45
824.2	31.87	1.5	0	V	1.5	-2.6	27.77	38.45
Middle Channel								
836.6	32.14	1.5	0	H	1.5	-2.6	28.04	38.45
836.6	32.06	1.5	0	V	1.5	-2.6	27.96	38.45
High Channel								
848.8	32.00	1.5	0	H	1.5	-2.6	27.90	38.45
848.8	32.05	1.5	0	V	1.5	-2.6	27.95	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	26.02	1.5	0	H	1.9	0.3	24.42	33
1850.2	26.13	1.5	0	V	1.9	0.3	24.53	33
Middle Channel								
1880	27.42	1.5	0	H	1.9	0.3	25.82	33
1880	27.08	1.5	0	V	1.9	0.3	25.48	33
High Channel								
1909.8	27.58	1.5	0	H	1.9	0.3	25.98	33
1909.8	26.84	1.5	0	V	1.9	0.3	25.24	33

ERP For GPRS Mode GSM850

Frequency	Substitute SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
824.2	32.35	1.5	0	H	1.5	-2.6	28.25	38.45
824.2	32.36	1.5	0	V	1.5	-2.6	28.26	38.45
Middle Channel								
836.6	32.20	1.5	0	H	1.5	-2.6	28.10	38.45
836.6	32.05	1.5	0	V	1.5	-2.6	27.95	38.45
High Channel								
848.8	32.20	1.5	0	H	1.5	-2.6	28.10	38.45
848.8	31.98	1.5	0	V	1.5	-2.6	27.88	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	25.89	1.5	0	H	1.9	0.3	24.29	33
1850.2	26.38	1.5	0	V	1.9	0.3	24.78	33
Middle Channel								
1880	26.92	1.5	0	H	1.9	0.3	25.32	33
1880	26.93	1.5	0	V	1.9	0.3	25.33	33
High Channel								
1909.8	27.06	1.5	0	H	1.9	0.3	25.46	33
1909.8	26.82	1.5	0	V	1.9	0.3	25.22	33

ERP For EDGE Mode GSM850

Frequency	Substitute SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
824.2	31.93	1.5	0	H	1.5	-2.6	27.83	38.45
824.2	31.77	1.5	0	V	1.5	-2.6	27.67	38.45
Middle Channel								
836.6	32.30	1.5	0	H	1.5	-2.6	28.20	38.45
836.6	32.65	1.5	0	V	1.5	-2.6	28.55	38.45
High Channel								
848.8	31.89	1.5	0	H	1.5	-2.6	27.79	38.45
848.8	32.15	1.5	0	V	1.5	-2.6	28.05	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	26.47	1.5	0	H	1.9	0.3	24.87	33
1850.2	26.05	1.5	0	V	1.9	0.3	24.45	33
Middle Channel								
1880	26.68	1.5	0	H	1.9	0.3	25.08	33
1880	26.76	1.5	0	V	1.9	0.3	25.16	33
High Channel								
1909.8	27.00	1.5	0	H	1.9	0.3	25.40	33
1909.8	27.31	1.5	0	V	1.9	0.3	25.71	33

ERP For WCDMA Mode Band 5

Frequency	Substitute SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dBd	dBm	dBm
Low Channel								
826.4	21.42	1.5	0	H	1.5	-2.6	17.32	38.45
826.4	22.11	1.5	0	V	1.5	-2.6	18.01	38.45
Middle Channel								
836.6	22.04	1.5	0	H	1.5	-2.6	17.94	38.45
836.6	22.12	1.5	0	V	1.5	-2.6	18.02	38.45
High Channel								
846.6	21.29	1.5	0	H	1.5	-2.6	17.19	38.45
846.6	21.76	1.5	0	V	1.5	-2.6	17.66	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	22.29	1.5	0	H	1.5	-2.6	18.19	38.45
826.4	21.70	1.5	0	V	1.5	-2.6	17.60	38.45
Middle Channel								
836.6	21.78	1.5	0	H	1.5	-2.6	17.68	38.45
836.6	21.30	1.5	0	V	1.5	-2.6	17.20	38.45
High Channel								
846.6	21.55	1.5	0	H	1.5	-2.6	17.45	38.45
846.6	21.53	1.5	0	V	1.5	-2.6	17.43	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	21.82	1.5	0	H	1.5	-2.6	17.72	38.45
826.4	21.87	1.5	0	V	1.5	-2.6	17.77	38.45
Middle Channel								
836.6	21.91	1.5	0	H	1.5	-2.6	17.81	38.45
836.6	21.76	1.5	0	V	1.5	-2.6	17.66	38.45
High Channel								
846.6	21.69	1.5	0	H	1.5	-2.6	17.59	38.45
846.6	21.15	1.5	0	V	1.5	-2.6	17.05	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	20.85	1.5	0	H	1.9	0.3	19.25	33
1852.4	20.42	1.5	0	V	1.9	0.3	18.82	33
Middle Channel								
1880	21.88	1.5	0	H	1.9	0.3	20.28	33
1880	21.94	1.5	0	V	1.9	0.3	20.34	33
High Channel								
1907.6	21.66	1.5	0	H	1.9	0.3	20.06	33
1907.6	22.40	1.5	0	V	1.9	0.3	20.80	33

EIRP For HSDPA Mode Band 2

Frequency	Substitute SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 24E Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
1852.4	20.61	1.5	0	H	1.9	0.3	19.01	33
1852.4	21.17	1.5	0	V	1.9	0.3	19.57	33
Middle Channel								
1880	21.98	1.5	0	H	1.9	0.3	20.38	33
1880	21.10	1.5	0	V	1.9	0.3	19.50	33
High Channel								
1907.6	21.05	1.5	0	H	1.9	0.3	19.45	33
1907.6	21.98	1.5	0	V	1.9	0.3	20.38	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	21.77	1.5	0	H	1.9	0.3	20.17	33
1852.4	22.24	1.5	0	V	1.9	0.3	20.64	33
Middle Channel								
1880	22.25	1.5	0	H	1.9	0.3	20.65	33
1880	21.40	1.5	0	V	1.9	0.3	19.80	33
High Channel								
1907.6	22.09	1.5	0	H	1.9	0.3	20.49	33
1907.6	21.38	1.5	0	V	1.9	0.3	19.78	33

Note: Result = Substitute - Cable loss + Antenna Gain

Max. Conducted Output Power

For Cellular Band (GSM850)

Test Mode	Channel	Frequency (MHz)	Average Power (dBm)	FCC Part 22.913 Limit (dBm)
GSM	Low Channel	824.2	32.53	38.45
	Middle Channel	836.6	32.65	38.45
	High Channel	848.8	32.77	38.45
GPRS(1 Slot)	Low Channel	824.2	32.52	38.45
	Middle Channel	836.6	32.64	38.45
	High Channel	848.8	32.79	38.45
EDGE(1 Slot)	Low Channel	824.2	32.54	38.45
	Middle Channel	836.6	32.67	38.45
	High Channel	848.8	32.77	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	26.70	33.0
	Middle Channel	1880.0	27.48	33.0
	High Channel	1909.8	27.63	33.0
GPRS(1 Slot)	Low Channel	1850.2	26.65	33.0
	Middle Channel	1880.0	27.47	33.0
	High Channel	1909.8	27.59	33.0
EDGE(1 Slot)	Low Channel	1850.2	26.64	33.0
	Middle Channel	1880.0	27.47	33.0
	High Channel	1909.8	27.60	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	22.33	38.45
	Middle Channel	836.6	22.23	38.45
	High Channel	846.6	22.07	38.45
HSDPA	Low Channel	826.4	22.31	38.45
	Middle Channel	836.6	22.23	38.45
	High Channel	846.6	22.07	38.45
HSUPA	Low Channel	826.4	22.31	38.45
	Middle Channel	836.6	22.24	38.45
	High Channel	846.6	22.07	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	21.29	33.00
	Middle Channel	1880.0	21.55	33.00
	High Channel	1907.6	21.46	33.00
HSDPA	Low Channel	1852.4	21.30	33.00
	Middle Channel	1880.0	21.55	33.00
	High Channel	1907.6	21.47	33.00
HSUPA	Low Channel	1852.4	21.29	33.00
	Middle Channel	1880.0	21.55	33.00
	High Channel	1907.6	21.47	33.00

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

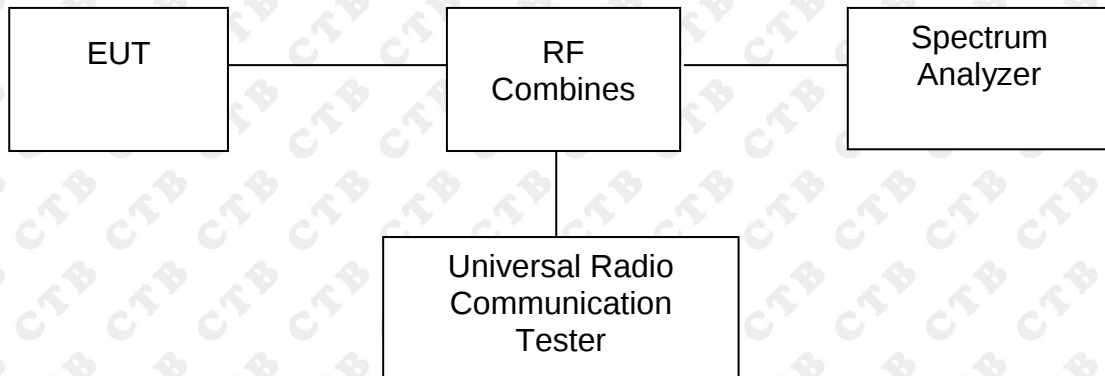
7.1 Standard Applicable

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	2.71	13
GPRS(1 Slot)	190	836.6	2.75	13
EDGE(1 Slot)	190	836.6	2.75	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	2.74	13
EDGE(1 Slot)	512	1850.2	2.73	13

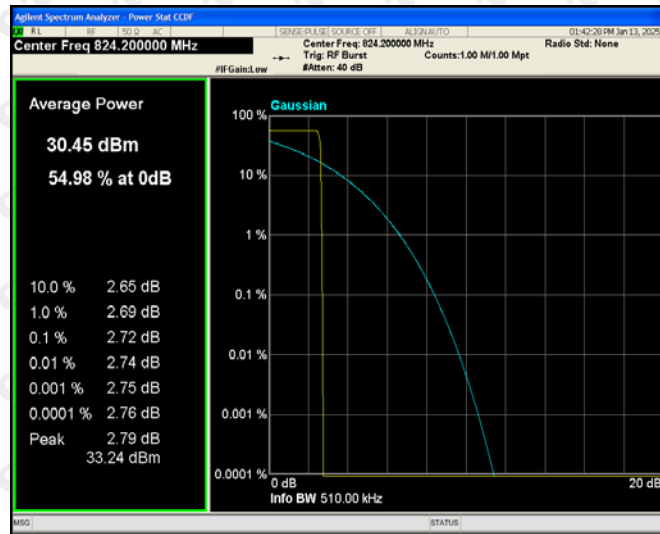
For WCDMA Band 5

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	4182	836.4	2.95	13
HSDPA	4182	836.4	2.96	13
HSUPA	4182	836.4	2.97	13

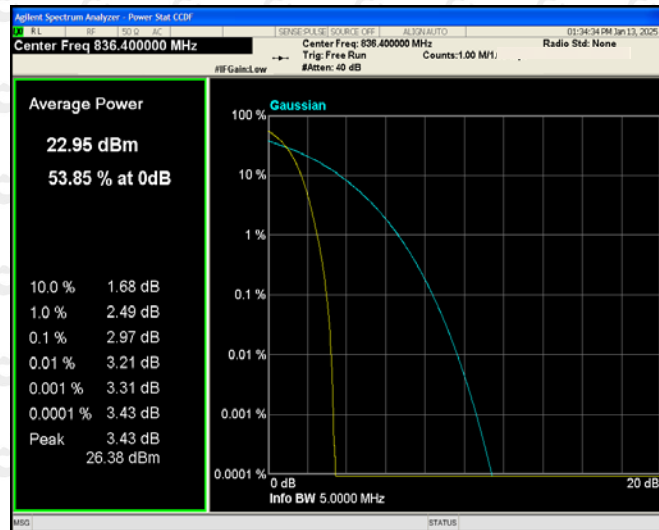
For WCDMA Band 2

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	9262	1852.4	2.60	13
HSDPA	9400	1852.4	2.58	13
HSUPA	9400	1852.4	2.56	13

GSM :



WCDMA:



8. EMISSION BANDWIDTH

8.1 Standard Applicable

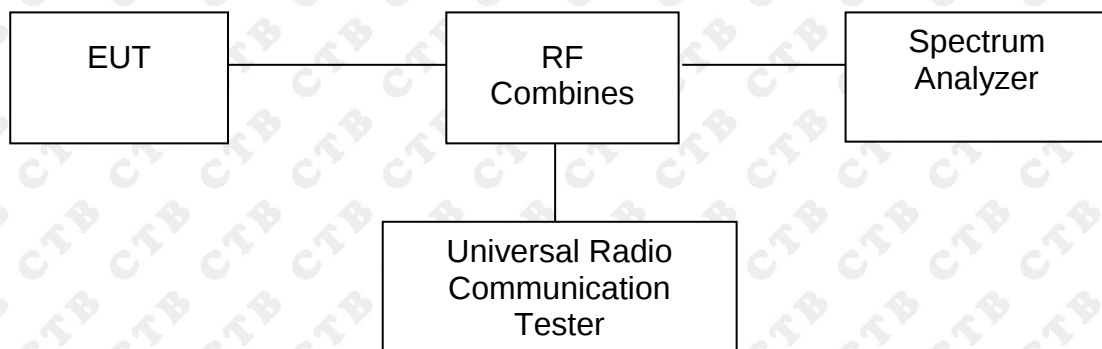
According to §22.917(b), The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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	249.286	318.469
	190	836.6	248.224	323.485
	251	848.8	248.267	314.161
GPRS	128	824.2	241.780	324.421
	190	836.6	243.423	319.738
	251	848.8	248.852	317.993
EDGE	128	824.2	246.481	319.868
	190	836.6	245.726	307.123
	251	848.8	247.232	314.601

For PCS Band

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM	512	1850.2	249.469	312.933
	661	1880.0	242.366	319.820
	810	1909.8	248.393	318.239
GPRS	512	1850.2	250.097	322.146
	661	1880.0	250.112	316.566
	810	1909.8	250.512	312.042
EDGE	512	1850.2	249.081	309.782
	661	1880.0	241.821	318.688
	810	1909.8	244.101	324.096

For Band 5

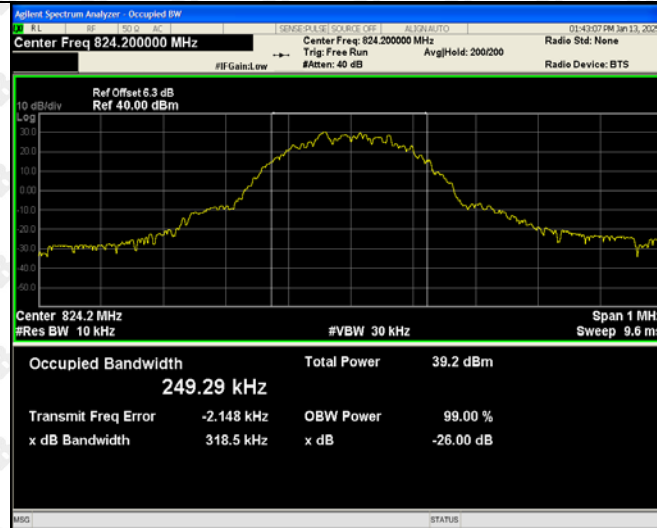
Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
WCDMA	4132	826.4	4168.041	4705.804
	4183	836.6	4170.887	4708.362
	4233	846.6	4166.342	4700.351
HSDPA	4132	826.4	4175.356	4703.890
	4183	836.6	4180.258	4691.432
	4233	846.6	4165.086	4720.405
HSUPA	4132	826.4	4175.603	4705.025
	4183	836.6	4165.718	4691.713
	4233	846.6	4175.462	4685.643

For Band 2

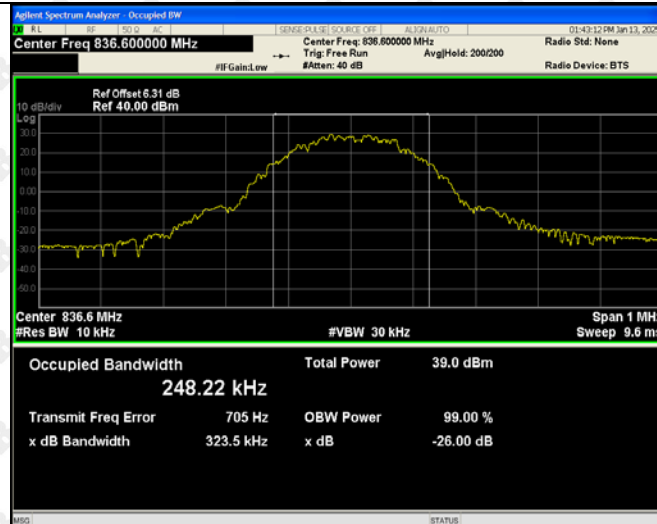
Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
WCDMA	9262	1852.4	4197.946	4748.473
	9400	1880.0	4195.169	4746.583
	9538	1907.6	4172.249	4691.016
HSDPA	9262	1852.4	4178.756	4714.380
	9400	1880.0	4187.895	4720.656
	9538	1907.6	4167.928	4690.024
HSUPA	9262	1852.4	4189.224	4736.711
	9400	1880.0	4191.182	4750.701
	9538	1907.6	4185.510	4725.731

For Cellular Band

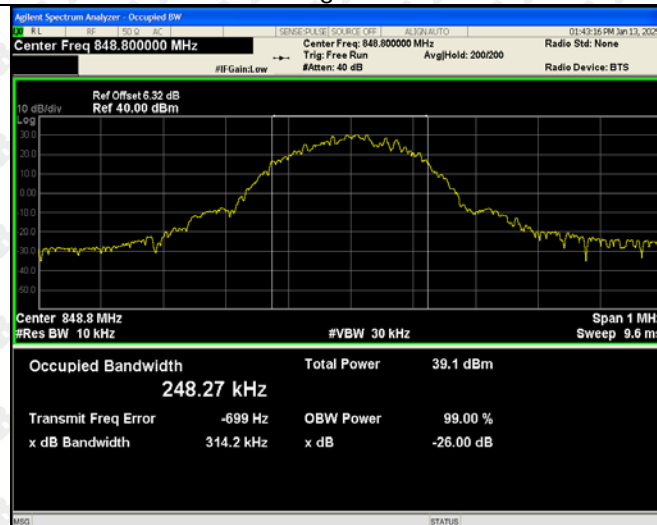
GSM Low Channel



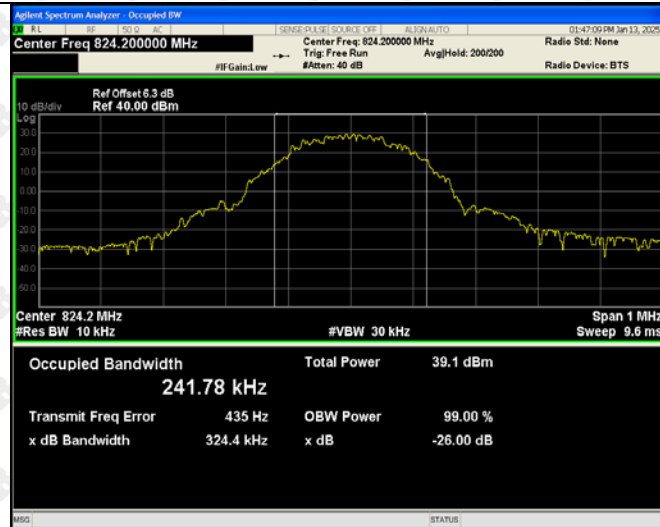
GSM Middle Channel



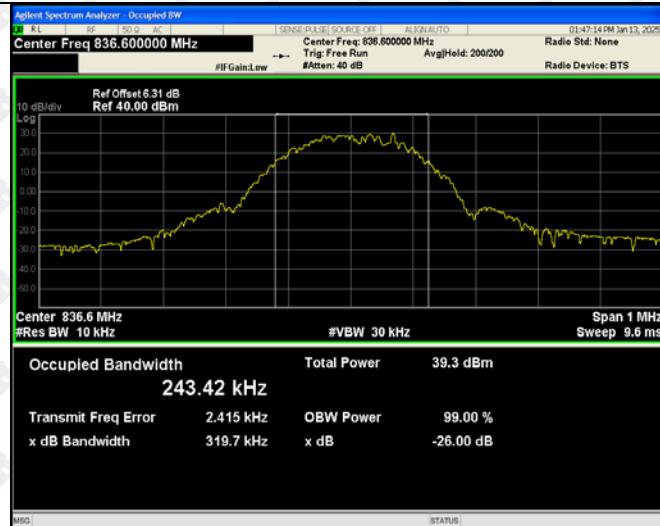
GSM High Channel



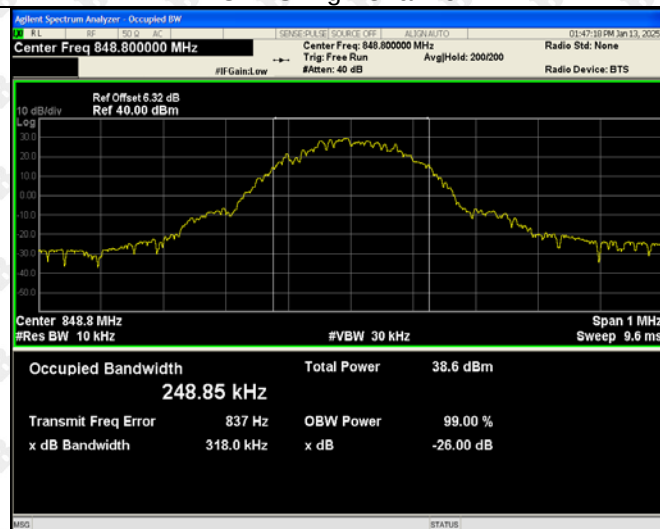
GPRS Low Channel



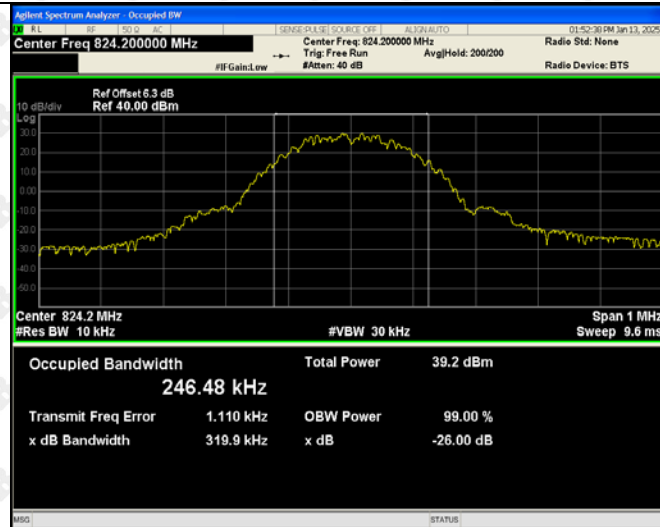
GPRS Middle Channel



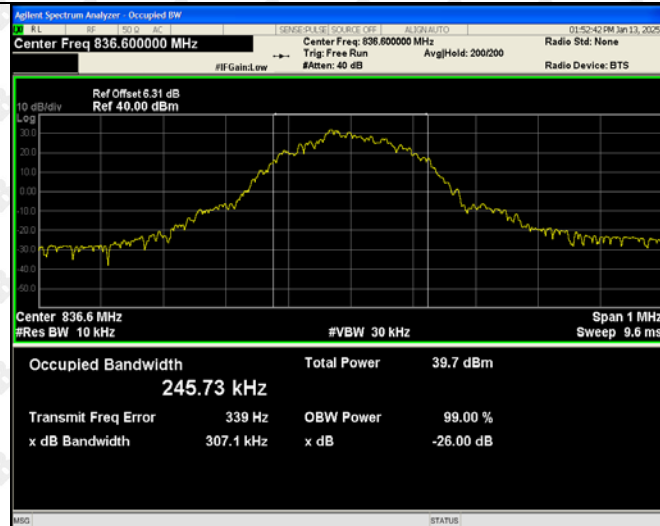
GPRS High Channel



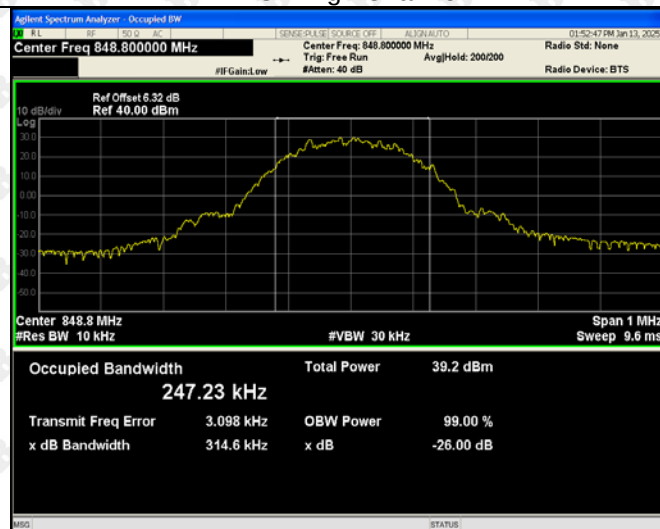
EDGE Low Channel



EDGE Middle Channel

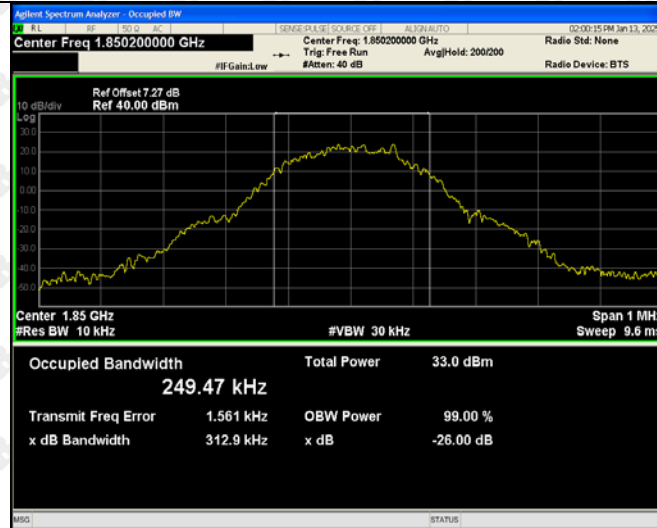


EDGE High Channel

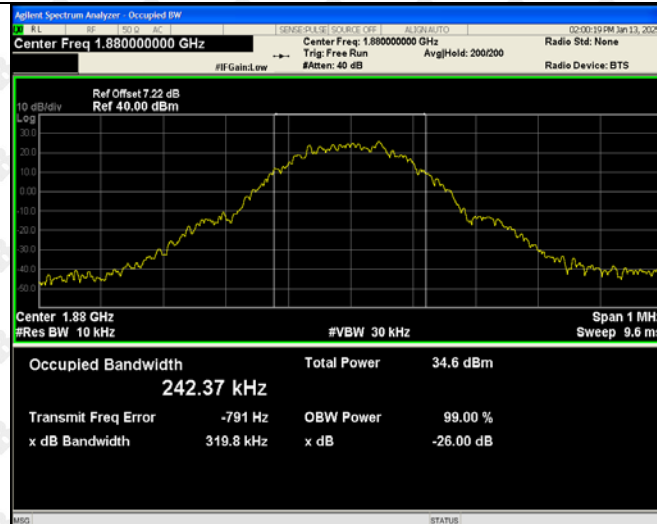


For PCS Band

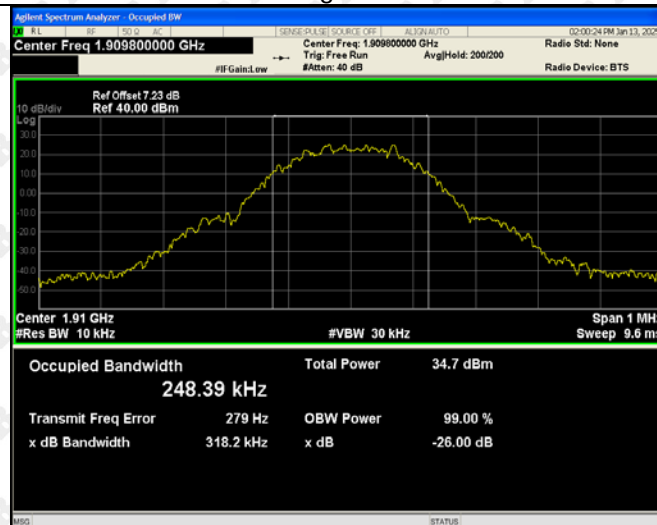
GSM Low Channel



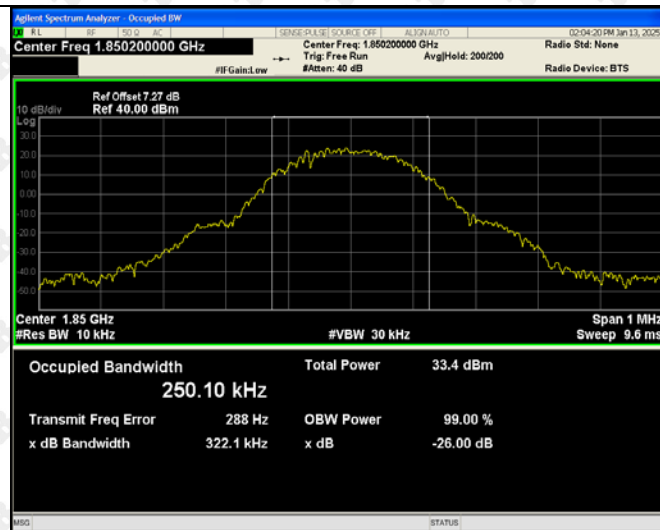
GSM Middle Channel



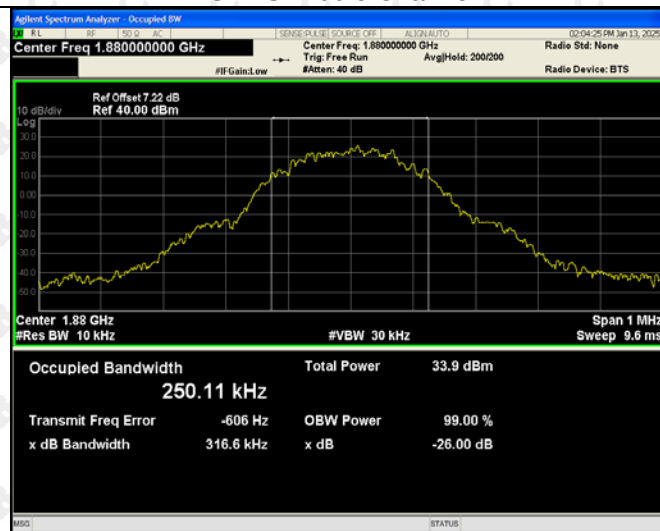
GSM High Channel



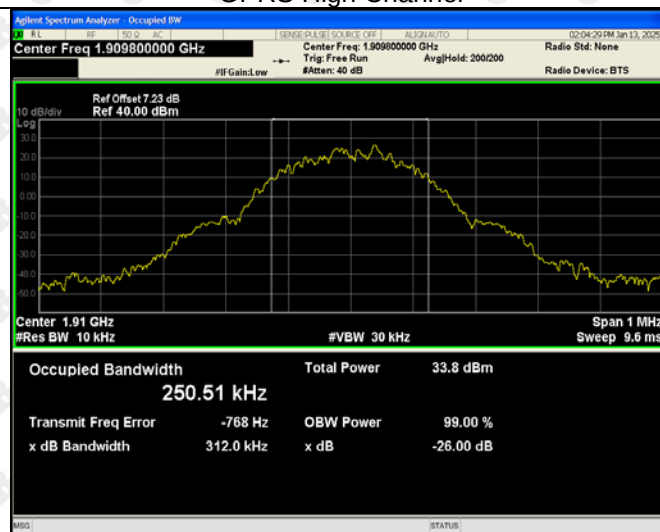
GPRS Low Channel



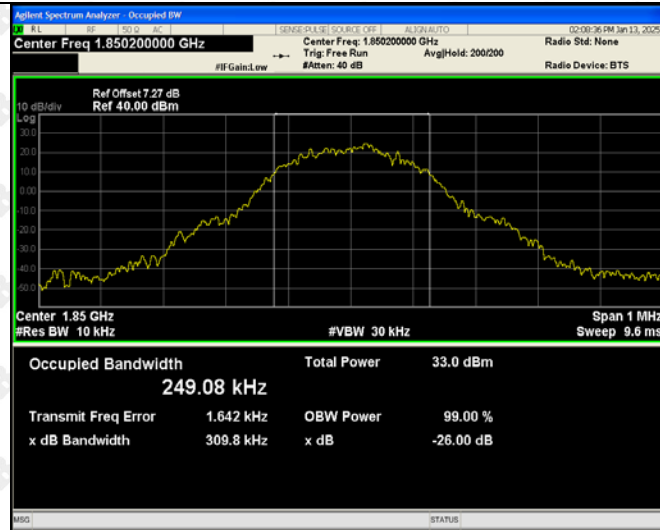
GPRS Middle Channel



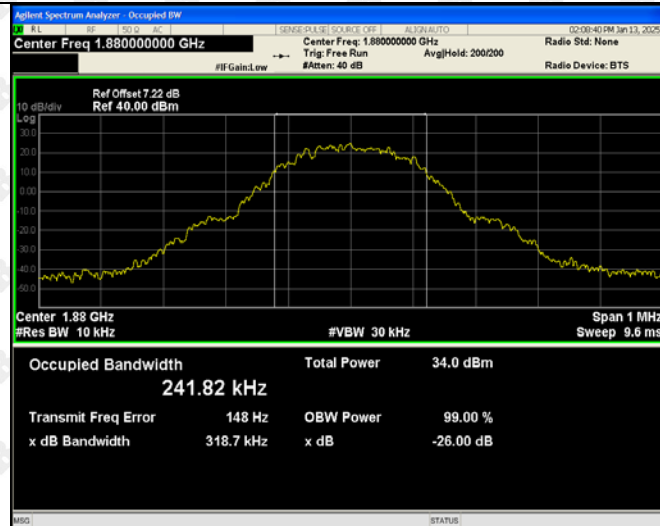
GPRS High Channel



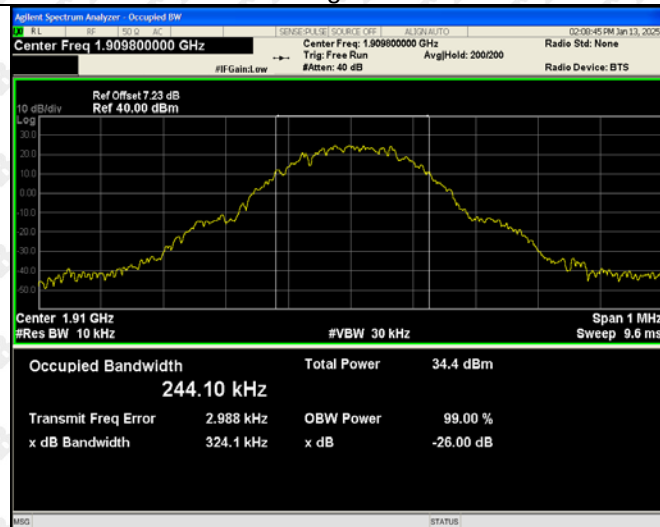
EDGE Low Channel



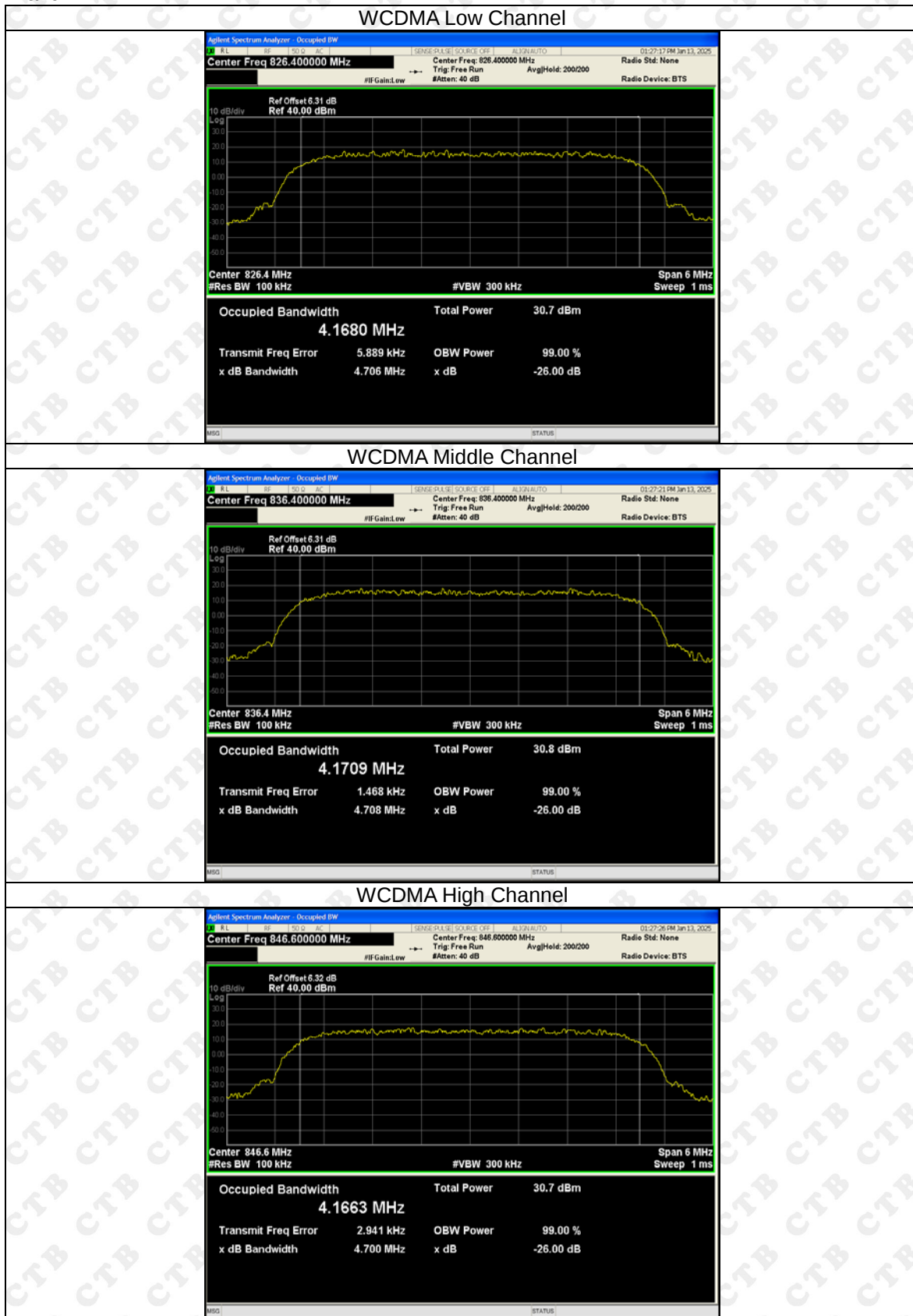
EDGE Middle Channel



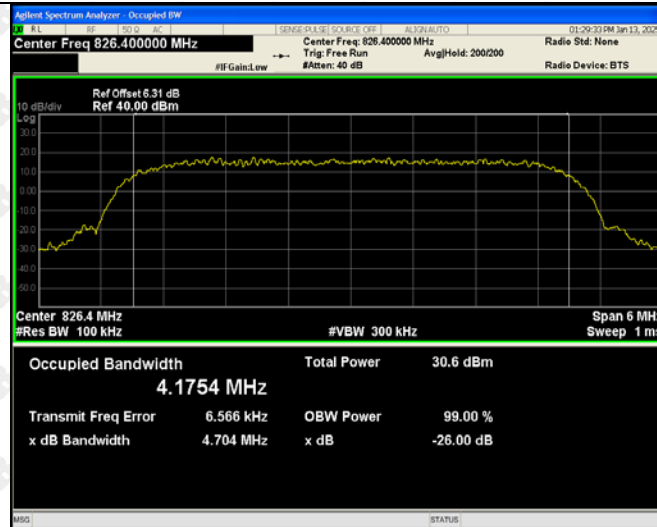
EDGE High Channel



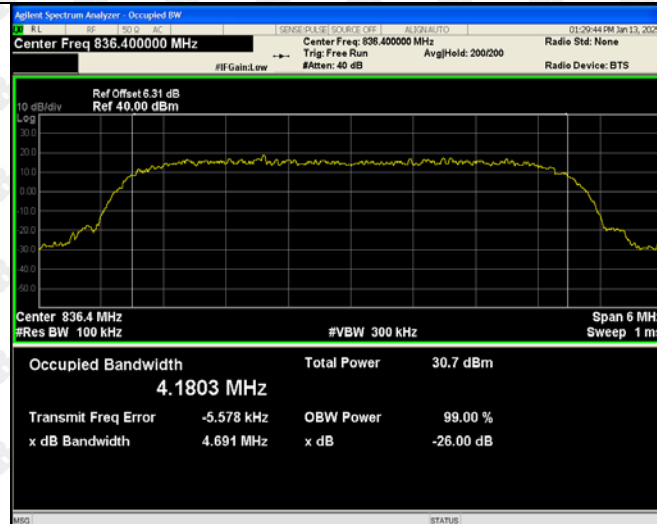
For Band V



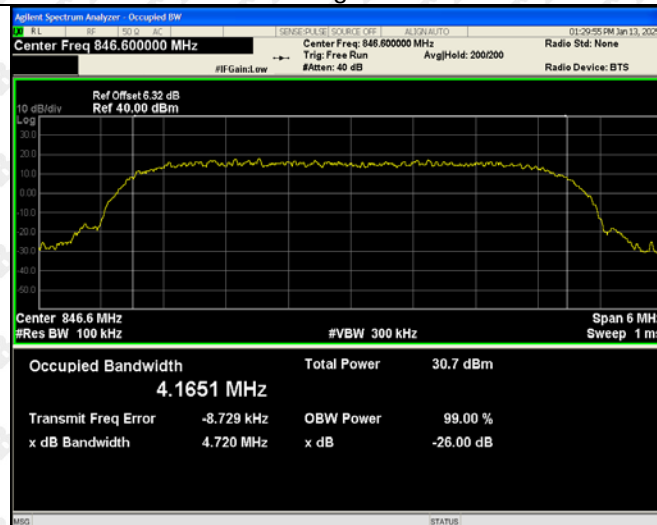
HSDPA Low Channel



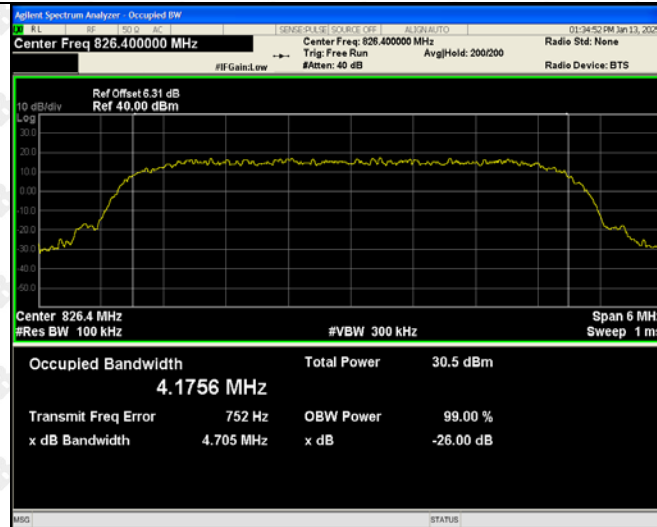
HSDPA Middle Channel



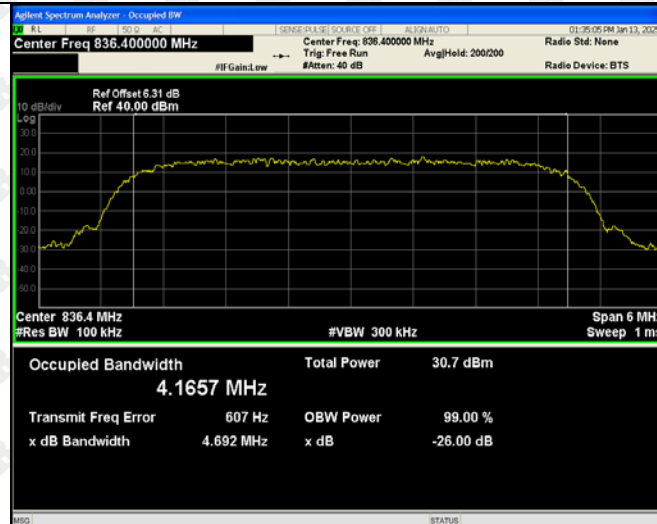
HSDPA High Channel



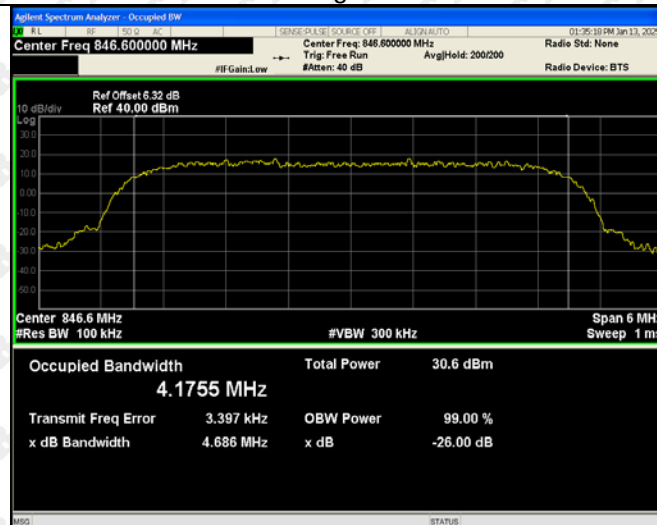
HSUPA Low Channel



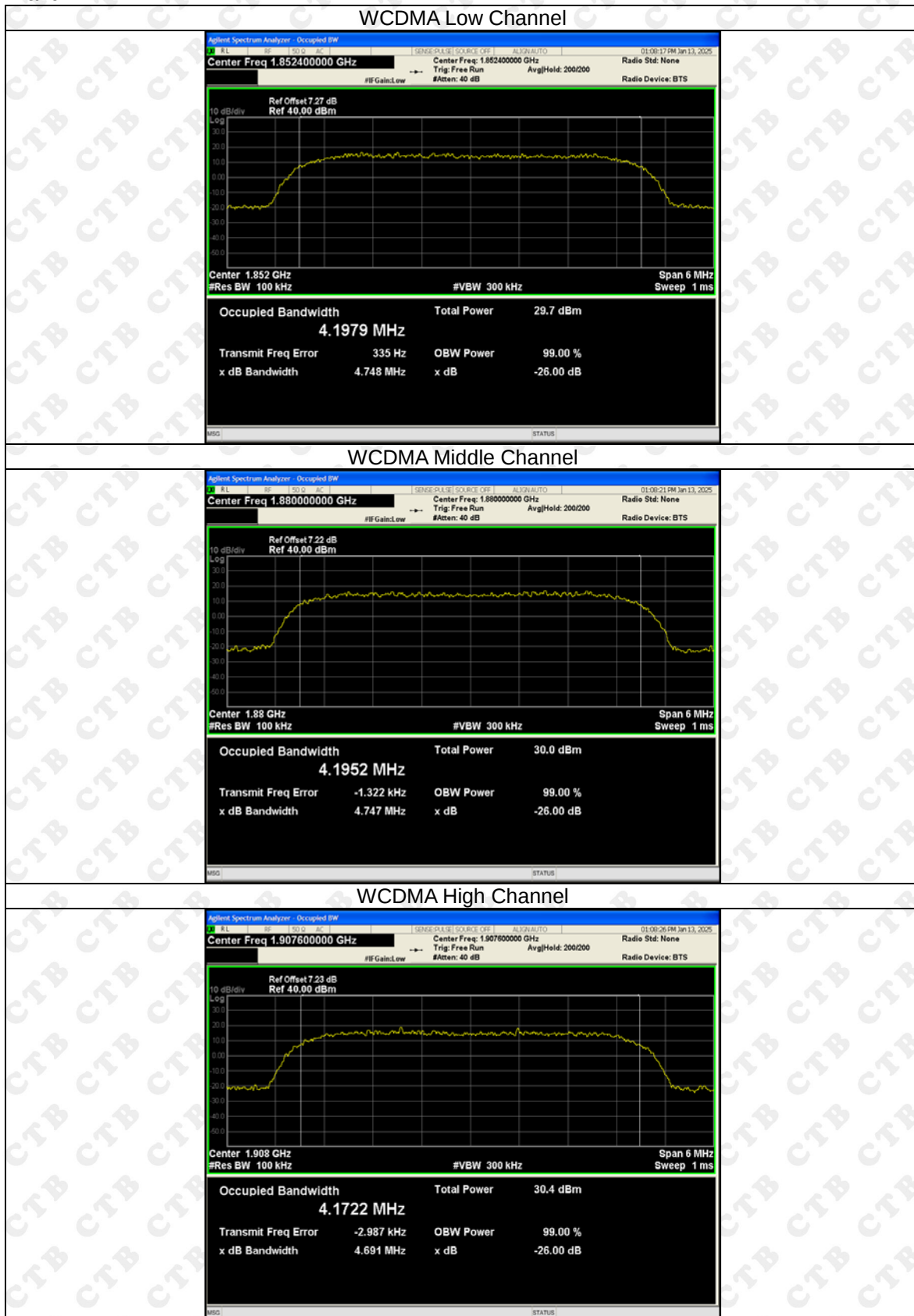
HSUPA Middle Channel



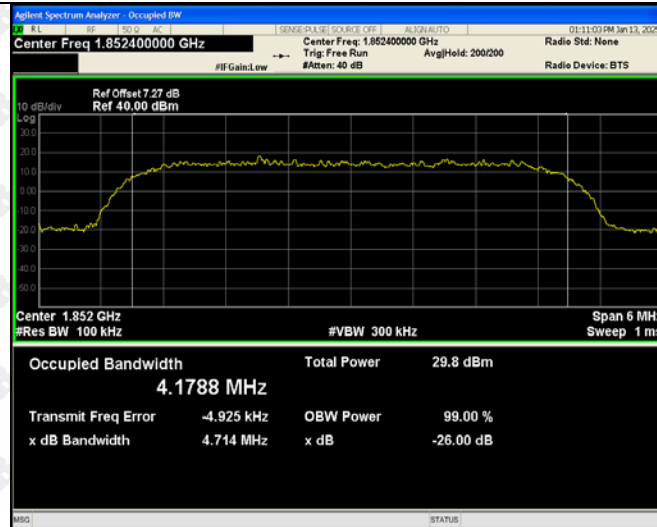
HSUPA High Channel



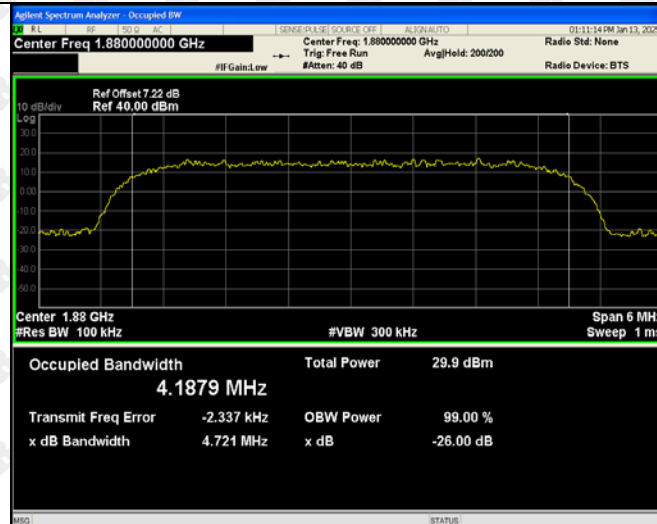
For Band II



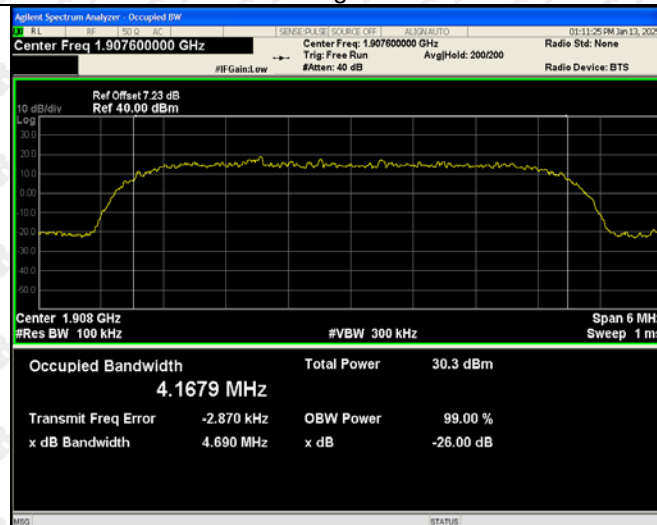
HSDPA Low Channel

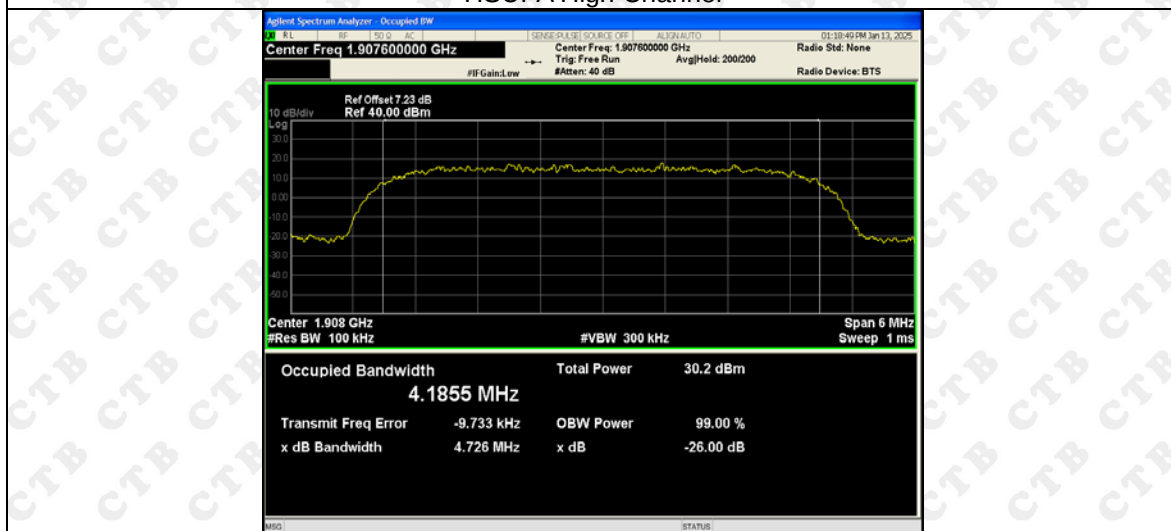
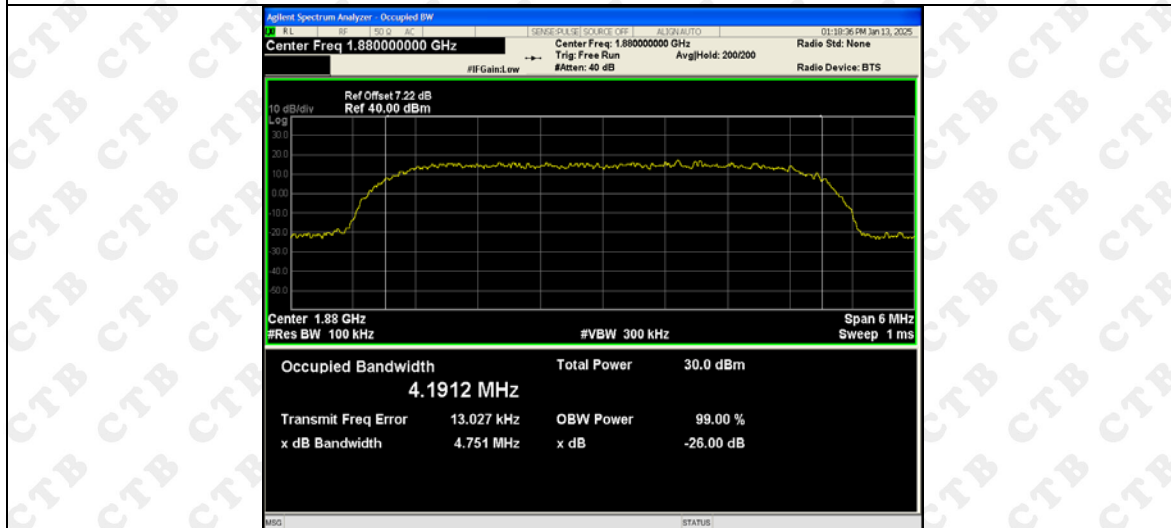
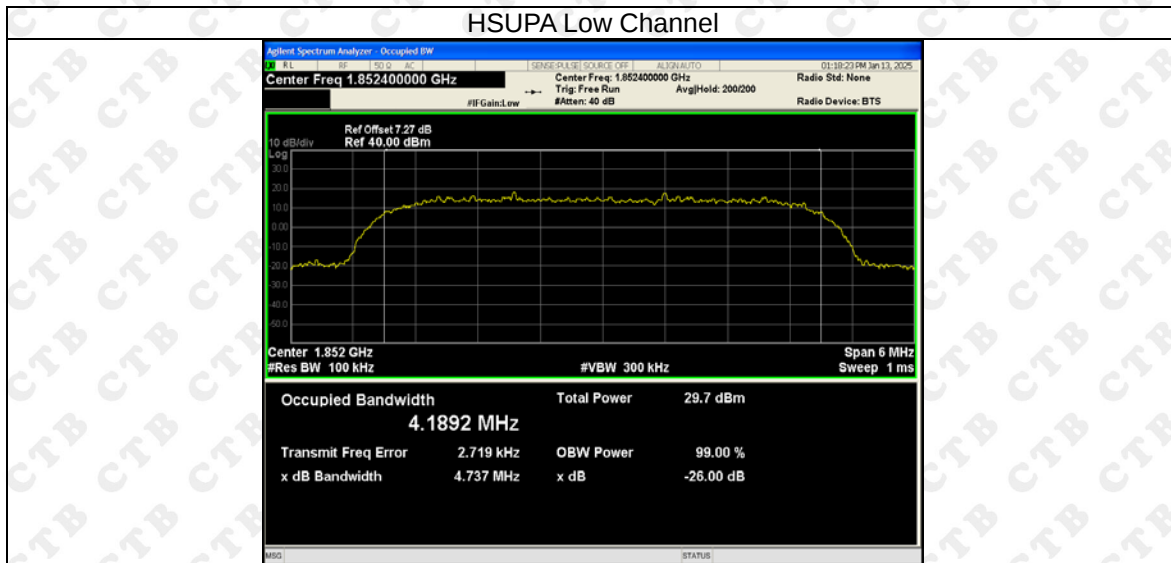


HSDPA Middle Channel



HSDPA High Channel





9. OUT OF BAND EMISSIONS AT ANTENNA TERMINAL

9.1 Standard Applicable

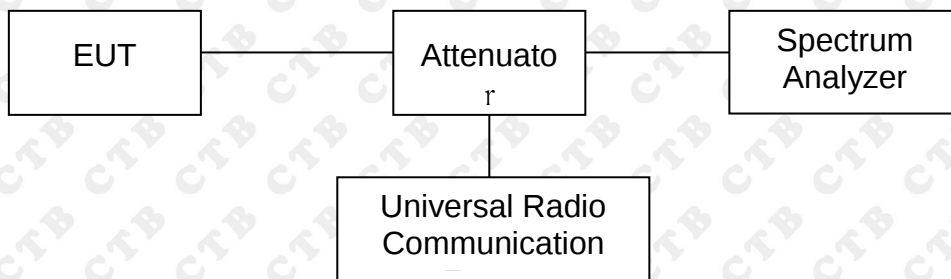
According to §22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

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:



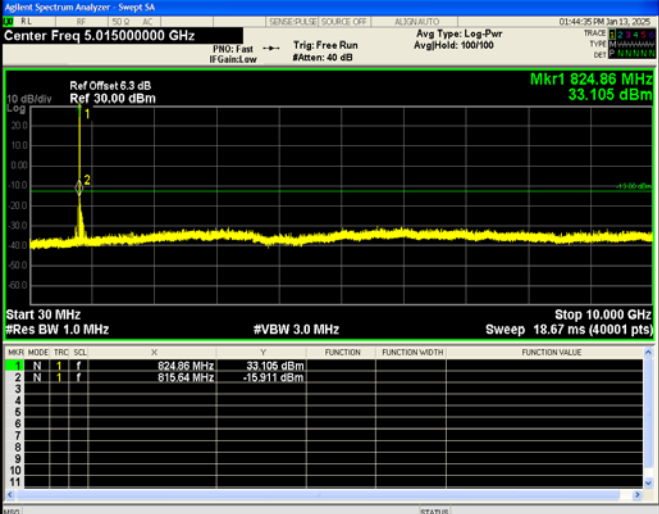
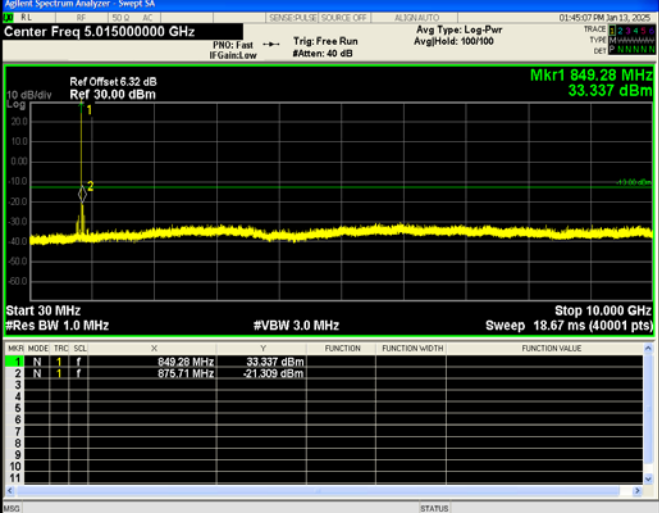
9.3 Environmental Conditions

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

GSM Low Channel	
GSM Middle Channel	
GSM High Channel	