



TEST REPORT

APPLICANT : BLU Products, Inc.

PRODUCT NAME : Smart Phone

MODEL NAME : G70

BRAND NAME : BLU

FCC ID : YHLBLUG70

STANDARD(S) : 47 CFR Part 22 Subpart H
47 CFR Part 24 Subpart E
47 CFR Part 27 Subpart L

RECEIPT DATE : 2019-11-12

TEST DATE : 2019-11-14 to 2019-12-04

ISSUE DATE : 2019-12-05

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Change History		
Version	Date	Reason for change
1.0	2019-12-05	First edition



1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	BLU Products, Inc.
Applicant Address:	10814 NW 33rd St # 100 Doral, FL 33172,USA
Manufacturer:	BLU Products, Inc.
Manufacturer Address:	10814 NW 33rd St # 100 Doral, FL 33172,USA

1.2. Equipment Under Test (EUT) Description

Product Name:	Smart Phone
Serial No:	(N/A, marked #1 by test site)
Hardware Version:	E959_V1.1
Software Version:	E959_BLU_63_P0_V0.1.4_S190929
Modulation Type:	GSM/GPRS Mode with GMSK Modulation EDGE Mode with 8PSK Modulation WCDMA Mode with QPSK Modulation HSDPA Mode with QPSK Modulation HSUPA Mode with QPSK Modulation HSPA+ Mode with QPSK Modulation
Operating Frequency Range:	GSM 850MHz: Tx: 824.20 - 848.80MHz Rx: 869.20 - 893.80MHz GSM 1900MHz: Tx: 1850.20 - 1909.80MHz Rx: 1930.20 - 1989.80MHz WCDMA Band V Tx: 826.4 - 846.6MHz Rx: 871.4 - 891.6MHz WCDMA Band II Tx: 1852.4 - 1907.6MHz Rx: 1932.4 - 1987.6MHz



Operating Frequency Range:	WCDMA Band IV Tx: 1712.4 – 1752.6MHz Rx: 2112.4 - 2152.6MHz	
Antenna Type:	Fixed Internal	
Antenna Gain:	GSM 850:	0.05 dBi
	GSM1900:	0.45 dBi
	WCDMA Band V:	0.05 dBi
	WCDMA Band II:	0.45 dBi
	WCDMA Band IV:	0.32 dBi
Accessory Information:	Battery	
	Brand Name:	BLU
	Model No.:	P866546390L
	Serial No.:	(N/A, marked #1 by test site)
	Capacity:	3900mAh
	Rated Voltage:	3.8V
	Charge Limit:	4.35V
	AC Adapter 1	
	Brand Name:	BLU
	Model No.:	US-WT-2000
	Serial No.:	(N/A, marked #1 by test site)
	Rated Input:	100-240V ~ 50/60Hz 0.3A
	Rated Output:	5V=2.0A

Note 1: The transmitter (Tx) frequency arrangement of the Cellular 850MHz band used by the EUT can be represented with the formula $F(n)=824.2+0.2*(n-128)$, $128 \leq n \leq 251$; the lowest, middle, highest channel numbers (ARFCHs) used and tested in this report are separately 128 (824.2MHz), 190 (836.6MHz) and 251 (848.8MHz).

Note 2: The transmitter (Tx) frequency arrangement of the PCS 1900MHz band used by the EUT can be represented with the formula $F(n)=1850.2+0.2*(n-512)$, $512 \leq n \leq 810$; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 512 (1850.2MHz), 661 (1880.0MHz) and 810 (1909.8MHz).

Note 3: The transmitter (Tx) frequency arrangement of the WCDMA Band V used by the EUT can be represented with the formula $F(n)=826.4+0.2*(n-4132)$, $4132 \leq n \leq 4233$; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 4132 (826.4MHz), 4182(836.4MHz) and 4233 (846.6MHz).

Note 4: The transmitter (Tx) frequency arrangement of the WCDMA Band II used by the EUT can be represented with the formula $F(n)=1852.4+0.2*(n-9262)$, $9262 \leq n \leq 9538$; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are



separately 9262 (1852.4MHz), 9400 (1880MHz) and 9538 (1907.6MHz).

Note 5: The transmitter (Tx) frequency arrangement of the WCDMA 1700MHz band used by the EUT can be represented with the formula $F(n)=1712.4+0.2*(n-1312)$, $1312 \leq n \leq 1513$; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 1312 (1712.4MHz), 1413 (1732.6MHz) and 1513 (1752.6MHz).

Note 6: All modes and data rates were considered and evaluated respectively by performing full test. Test modes are chosen to be reported as the worst case below:

GPRS mode and EDGE mode for GSM 850;

GPRS mode and EDGE mode for GSM 1900;

WCDMA mode for WCDMA band V;

WCDMA mode for WCDMA band II;

WCDMA mode for WCDMA band IV;

Note 7: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.



1.3. Maximum ERP/EIRP and Emission Designator

System	Maximum ERP/EIRP (W)	Emission Designator
GSM850	2.084	253KGXW
EDGE850	0.558	249KG7W
GSM1900	1.153	255KGXW
EDGE1900	0.370	249KG7W
WCDMA Band V	0.126	4M17F9W
WCDMA Band II	0.231	4M18F9W
WCDMA Band IV	0.232	4M16F9W



1.4. Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 2, Part 22, Part 24 and Part 27 for the EUT FCC ID Certification:

No	Identity	Document Title
1	47 CFR Part 2 (10-1-12 Edition)	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 22 (10-1-12 Edition)	Public Mobile Services
3	47 CFR Part 24 (10-1-12 Edition)	Personal Communications Services
4	47 CFR Part 27 (10-1-12 Edition)	Miscellaneous Wireless Communications Services

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Test Date	Test Engineer	Result	Method determination/ Remark
1	2.1046	Conducted RF Output Power	Nov 14 - 19, 2019	Gao Mingzhou	PASS	No deviation
2	24.232(d), 27.50(d)	Peak - Average Ratio	Nov 14 - 19, 2019	Gao Mingzhou	PASS	No deviation
3	2.1049	99% Occupied Bandwidth	Nov 14 - 19, 2019	Gao Mingzhou	PASS	No deviation
4	2.1055, 22.355, 24.235, 27.54	Frequency Stability	Nov 14 - 19, 2019	Gao Mingzhou	PASS	No deviation
5	2.1051, 22.917(a), 24.238(a), 27.53(h)	Conducted Out of Band Emissions	Nov 14 - 19, 2019	Gao Mingzhou	PASS	No deviation
6	2.1051, 22.917(a),	Band Edge	Nov 14 - 19, 2019	Gao Mingzhou	PASS	No deviation



	24.238(a), 27.53(h)					
7	22.913(a), 24.232(a)	Transmitter Radiated Power (EIPR/ERP)	Dec 02, 2019	Gao Jianrou	PASS	No deviation
8	2.1051, 22.917(a), 24.238(a), 27.53(h)	Radiated Out of Band Emissions	Dec 04, 2019	Gao Jianrou	PASS	No deviation

Note 1: The tests were performed according to the method of measurements prescribed in KDB971168 D01 v03 and ANSI/TIA-603-E-2016.

Note 2: The path loss during the RF test is calibrated to correct the results by the offset setting in the test equipments. The ref offset 26.5dB contains two parts that cable loss 16.5dB and Attenuator 10dB.



1.5. Environmental Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15 - 35
Relative Humidity (%):	30 -60
Atmospheric Pressure (kPa):	86-106

2.47 CFR Part 2, Part 22H , 24E&27L Requirements

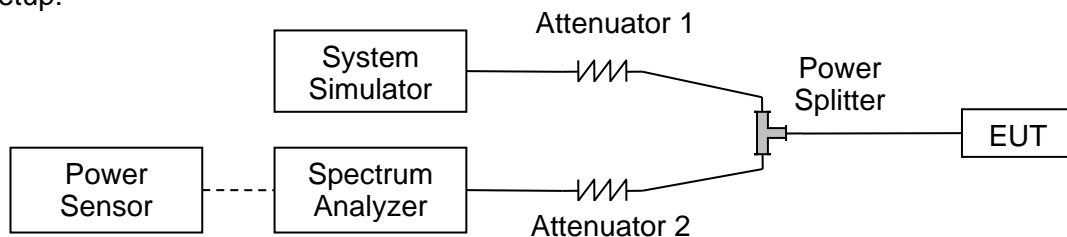
2.1. Conducted RF Output Power

2.1.1. Requirement

According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in FCC section 2.1033(c)(8).

2.1.2. Test Description

Test Setup:



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.

**2.1.3. Test Results**

GSM850	Average Power (dBm)		
TX Channel	128	190	251
Frequency (MHz)	824.2	836.6	848.8
GSM 1 Tx slot	33.18	33.19	33.17
GPRS 1 Tx slot	33.16	33.17	33.16
GPRS 2 Tx slots	32.36	32.37	32.35
GPRS 3 Tx slots	30.54	30.55	30.54
GPRS 4 Tx slots	29.39	29.44	29.43
EDGE 1 Tx slot	27.47	27.39	27.38
EDGE 2 Tx slots	26.47	26.43	26.40
EDGE 3 Tx slots	24.49	24.34	24.31
EDGE 4 Tx slots	23.37	23.21	23.19

GSM1900	Average Power (dBm)		
TX Channel	512	661	810
Frequency (MHz)	1850.2	1880	1909.8
GSM 1 Tx slot	30.62	30.51	30.41
GPRS 1 Tx slot	30.62	30.52	30.44
GPRS 2 Tx slots	29.68	29.68	29.58
GPRS 3 Tx slots	27.60	27.59	27.59
GPRS 4 Tx slots	26.57	26.65	26.56
EDGE 1 Tx slot	25.68	25.66	25.59
EDGE 2 Tx slots	24.60	24.60	24.48
EDGE 3 Tx slots	22.40	22.39	22.33
EDGE 4 Tx slots	21.25	21.17	21.07



WCDMA Band V	Average Power (dBm)		
TX Channel	4132	4182	4233
Frequency (MHz)	826.4	836.4	846.6
RMC 12.2Kbps	23.07	23.12	23.08
HSDPA Subtest-1	21.33	21.36	21.46
HSDPA Subtest-2	21.31	21.32	21.37
HSDPA Subtest-3	20.78	20.79	20.89
HSDPA Subtest-4	20.82	20.72	20.83
HSUPA Subtest-1	19.35	19.43	19.44
HSUPA Subtest-2	19.35	19.43	19.35
HSUPA Subtest-3	20.27	20.34	20.41
HSUPA Subtest-4	18.83	18.91	19.00
HSUPA Subtest-5	20.26	20.32	20.32
HSPA+ (16QAM) Subtest-1	19.45	19.48	19.49

WCDMA Band II	Average Power (dBm)		
TX Channel	9262	9400	9538
Frequency (MHz)	1852.4	1880.0	1907.6
RMC 12.2Kbps	23.16	23.18	23.11
HSDPA Subtest-1	21.56	21.59	21.47
HSDPA Subtest-2	21.48	21.54	21.40
HSDPA Subtest-3	20.93	21.01	20.87
HSDPA Subtest-4	20.94	21.01	20.87
HSUPA Subtest-1	19.51	19.54	19.45
HSUPA Subtest-2	19.49	19.52	19.39
HSUPA Subtest-3	20.52	20.52	20.43
HSUPA Subtest-4	19.03	19.04	18.95
HSUPA Subtest-5	20.42	20.48	20.42
HSPA+ (16QAM) Subtest-1	19.40	19.41	19.42

WCDMA Band IV	Average Power (dBm)		
TX Channel	1312	1413	1513
Frequency (MHz)	1712.4	1732.6	1752.6
RMC 12.2Kbps	23.29	23.34	23.28
HSDPA Subtest-1	21.58	21.66	21.67
HSDPA Subtest-2	21.50	21.55	21.58
HSDPA Subtest-3	21.00	21.02	21.08
HSDPA Subtest-4	20.99	21.03	21.02



HSUPA Subtest-1	20.09	20.03	20.14
HSUPA Subtest-2	19.59	19.59	19.60
HSUPA Subtest-3	20.60	20.63	20.64
HSUPA Subtest-4	19.11	19.16	19.16
HSUPA Subtest-5	20.53	20.49	20.56
HSPA+ (16QAM) Subtest-1	19.65	19.60	19.64

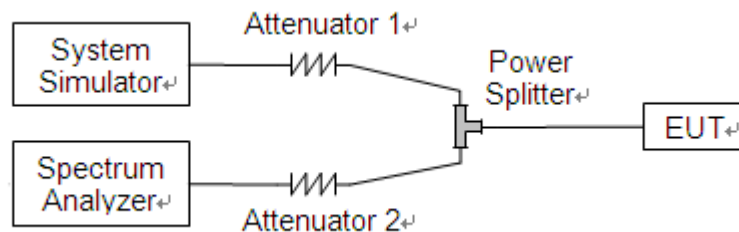
2.2. Peak to Average Ratio

2.2.1. Requirement

According to FCC 24.232(d) the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

2.2.2. Test Description

Test Setup:



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.

2.2.3. Test procedure

1 .For GSM/EDGE operating mode:

- a. Set RBW=1MHz, VBW=3MHz, peak detector in spectrum analyzer.
- b. Set EUT in maximum output power, and triggered the bust signal.
- c. Measured respectively the peak level and mean level, and the deviation was recorded as Peak to Average ratio.

2. For UMTS operating mode:

- a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
- b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1%.



2.2.4. Test Result

The lowest, middle and highest channels are selected to perform testing to verify the conducted RF output peak power of the Module.

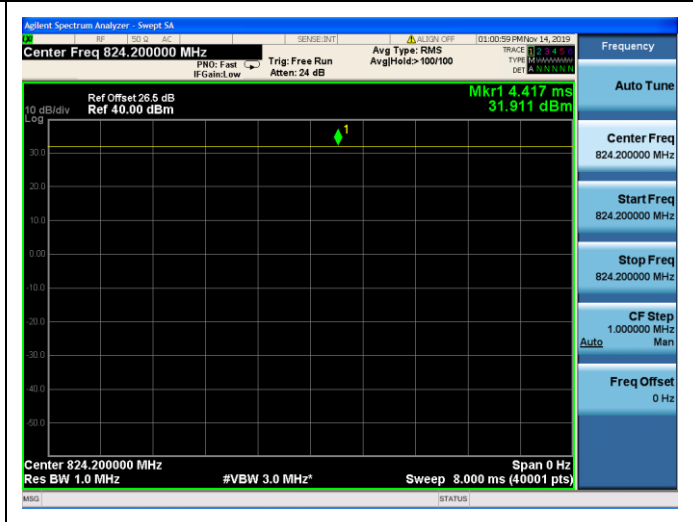
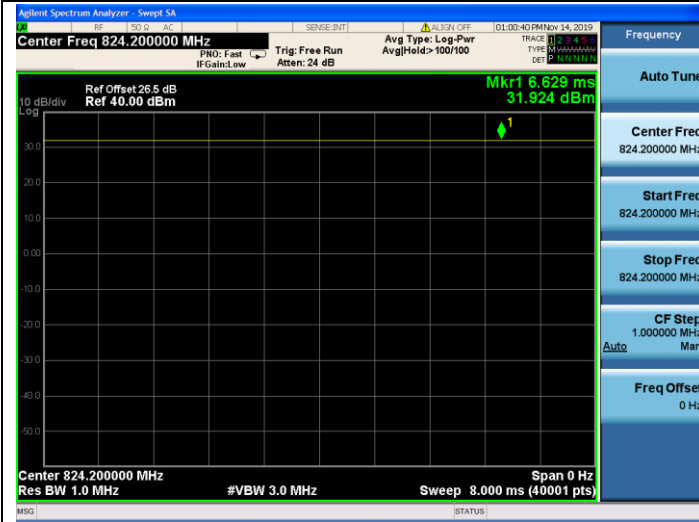
A. Test Verdict:

Band	Channel	Frequency (MHz)	Peak to Average ratio	Limit	Verdict
			dB	dB	
GSM 850MHz	128	824.2	0.013	13	PASS
	190	836.6	0.026		PASS
	251	848.8	0.017		PASS
GSM 1900MHz	512	1850.2	0.032		PASS
	661	1880.0	0.033		PASS
	810	1909.8	0.037		PASS
EDGE 850MHz	128	824.2	0.014		PASS
	190	836.6	0.026		PASS
	251	848.8	0.031		PASS
EDGE 1900MHz	512	1850.2	0.032		PASS
	661	1880.0	0.022		PASS
	810	1909.8	0.015		PASS

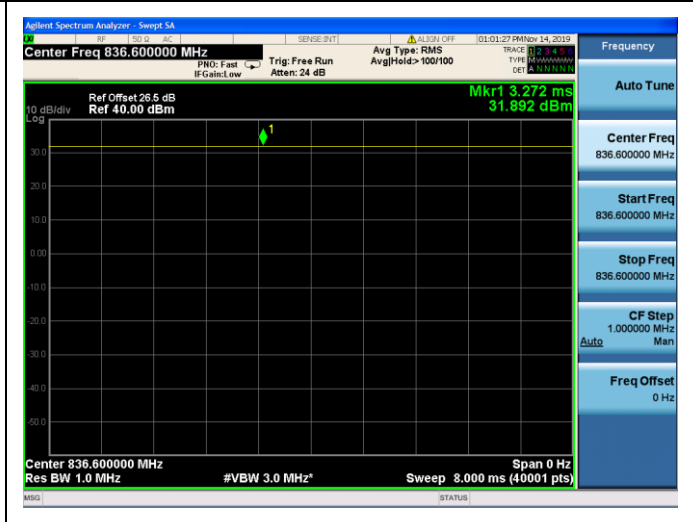
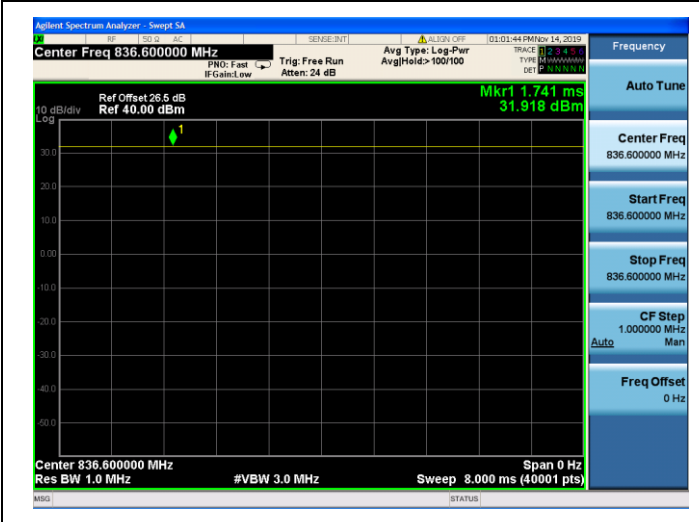
Band	Channel	Frequency (MHz)	Peak to Average ratio	Limit	Verdict
			dB	dB	
WCDMA Band V	4132	826.4	3.13	13	PASS
	4182	836.4	3.11		PASS
	4233	846.6	3.13		PASS
WCDMA Band II	9262	1852.4	2.96		PASS
	9400	1880.0	3.08		PASS
	9538	1907.6	3.11		PASS
WCDMA Band IV	1312	1712.4	3.09		PASS
	1413	1732.6	3.08		PASS
	1513	1752.6	3.11		PASS



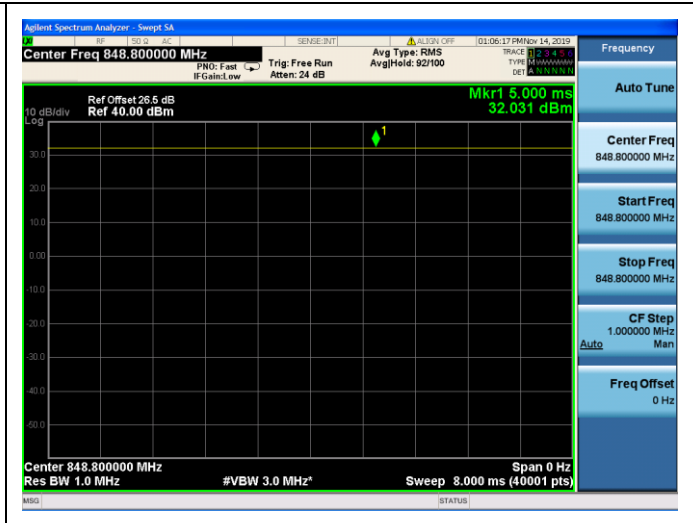
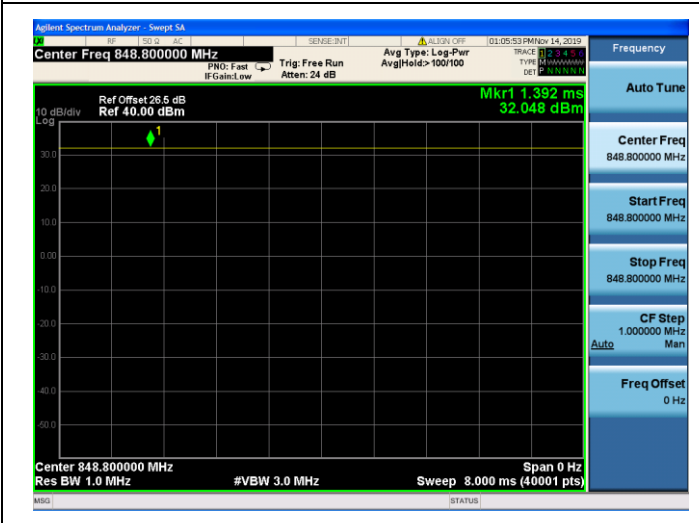
GSM 850MHz CH128 824.2MHz



GSM 850MHz CH190 836.6MHz

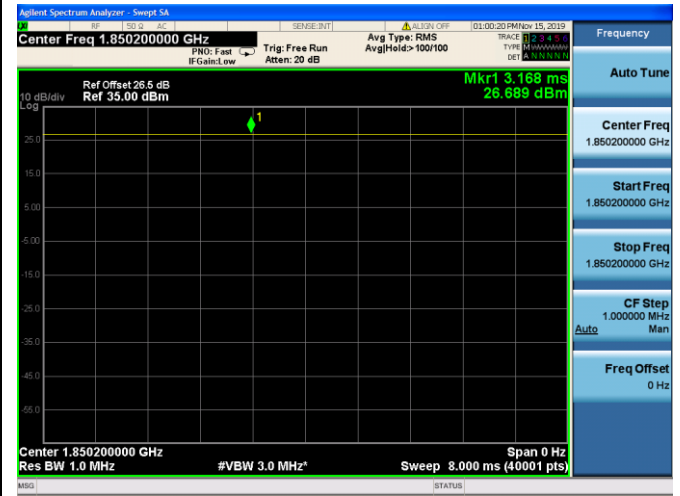
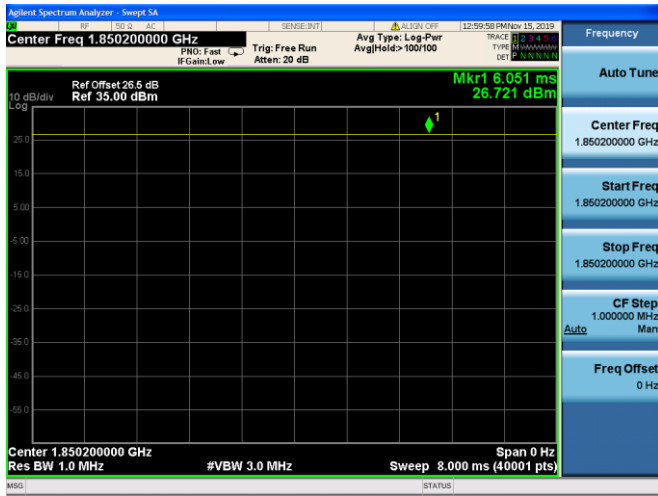


GSM 850MHz CH251 848.8MHz

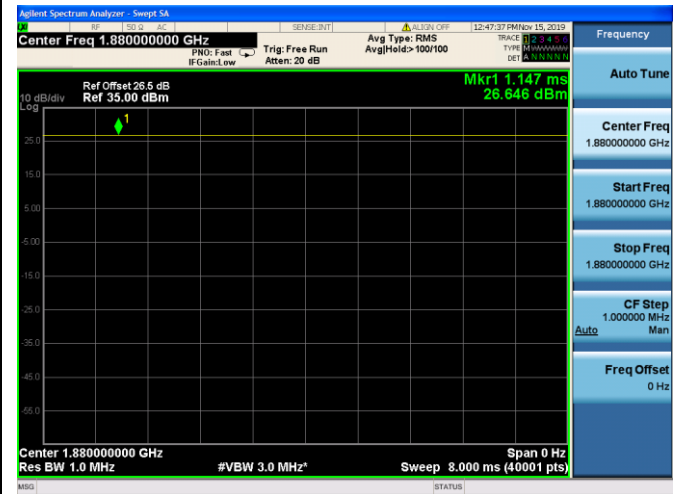
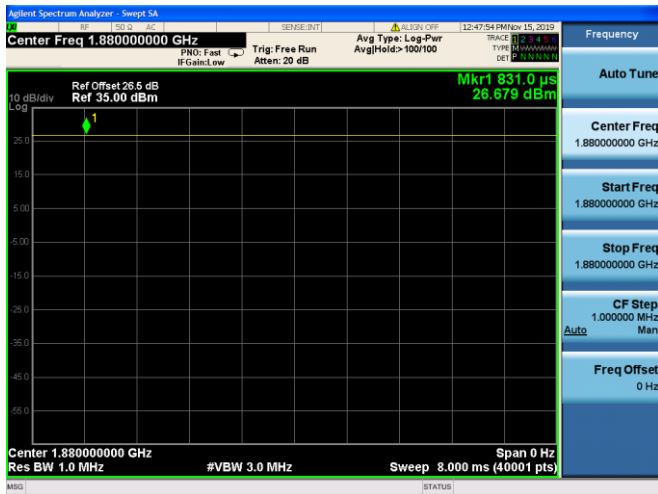




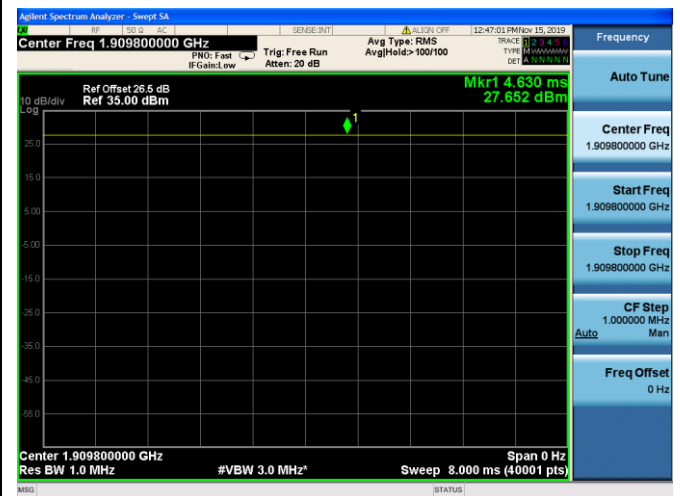
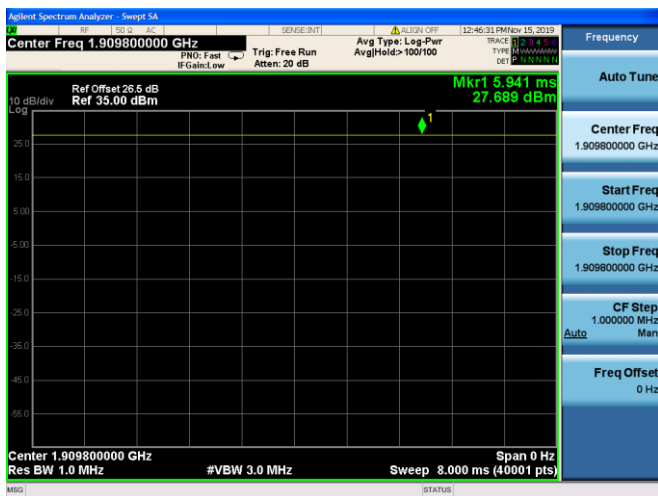
GSM 1900MHz CH512 1850.2MHz



GSM 1900MHz CH661 1880.0MHz

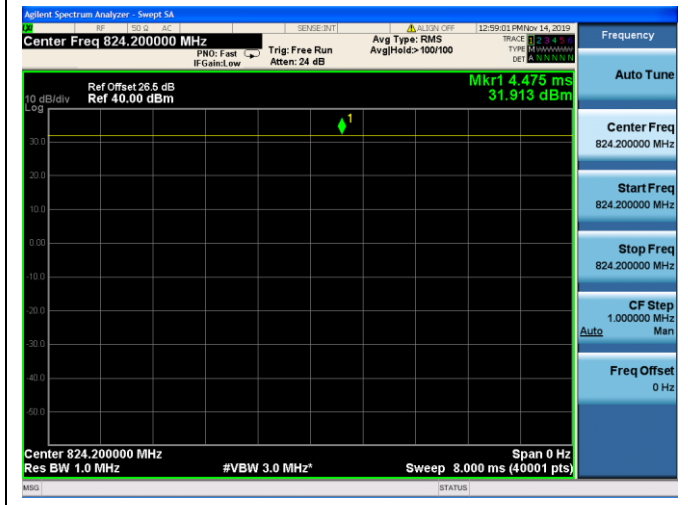
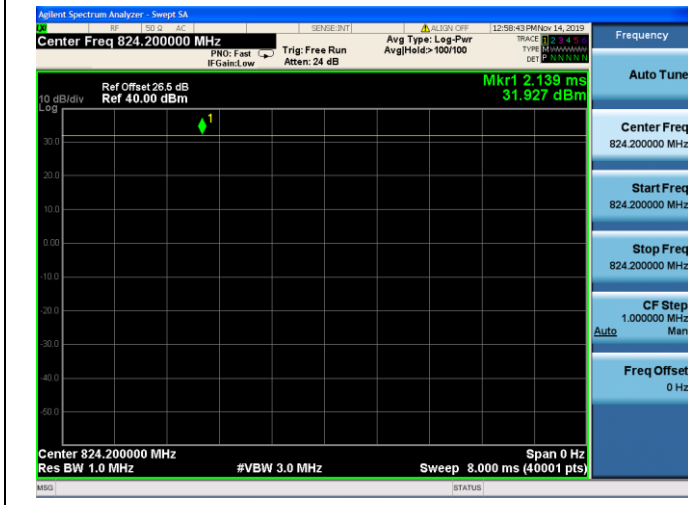


GSM 1900MHz CH810 1909.8MHz

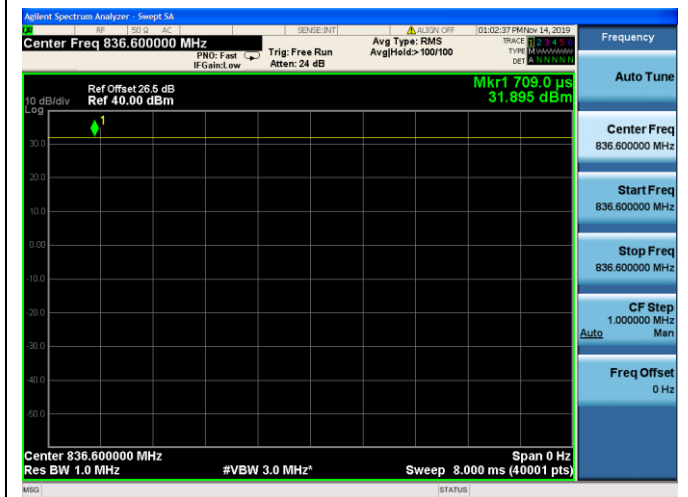
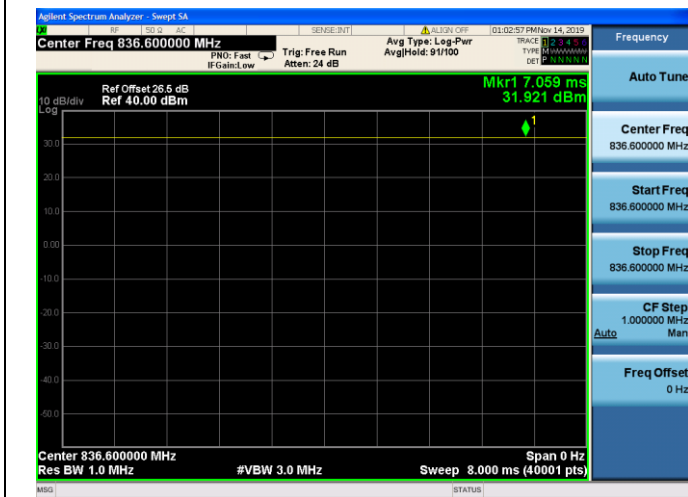




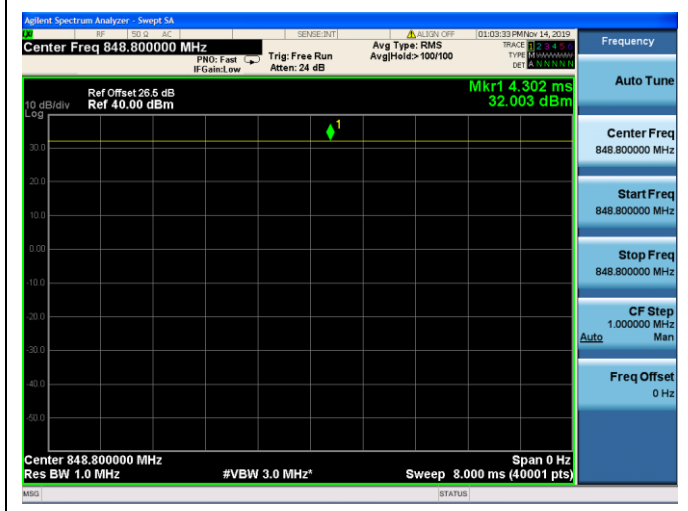
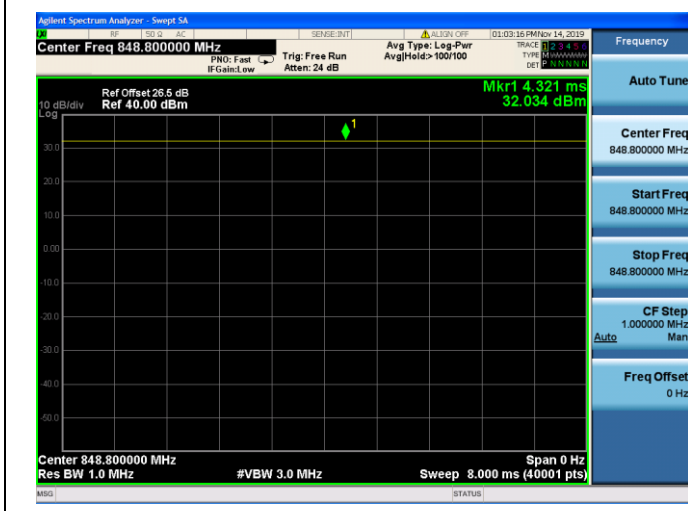
EDGE 850MHz CH128 824.2MHz



EDGE 850MHz CH190 836.6MHz



EDGE 850MHz CH251 848.8MHz

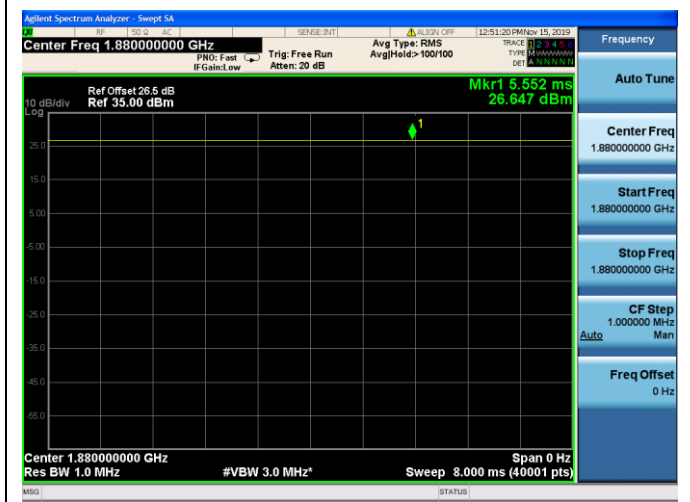
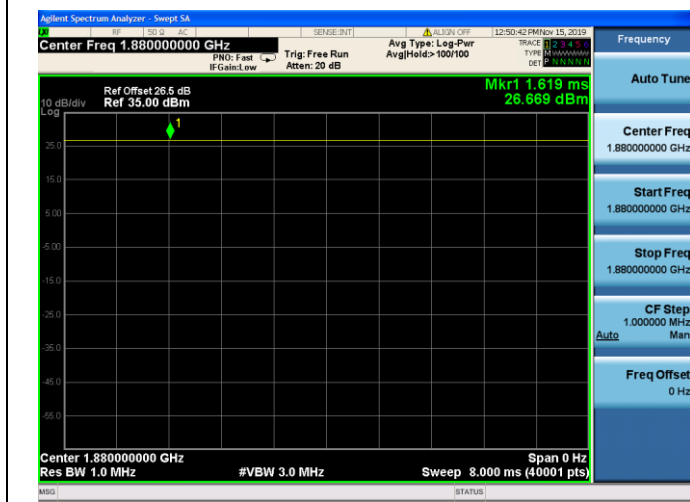




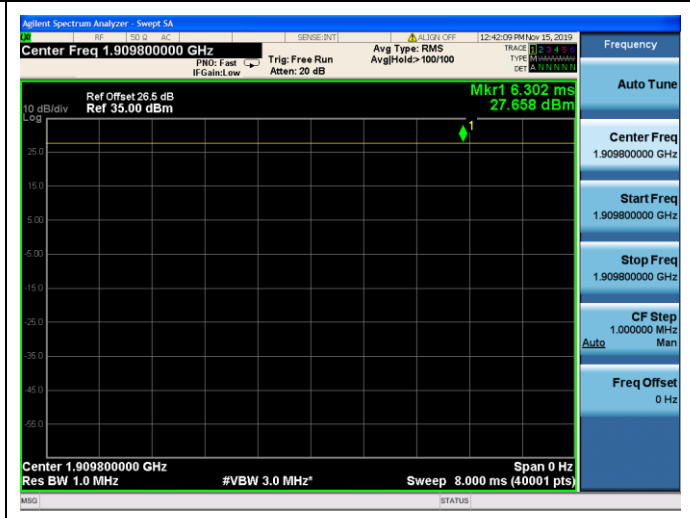
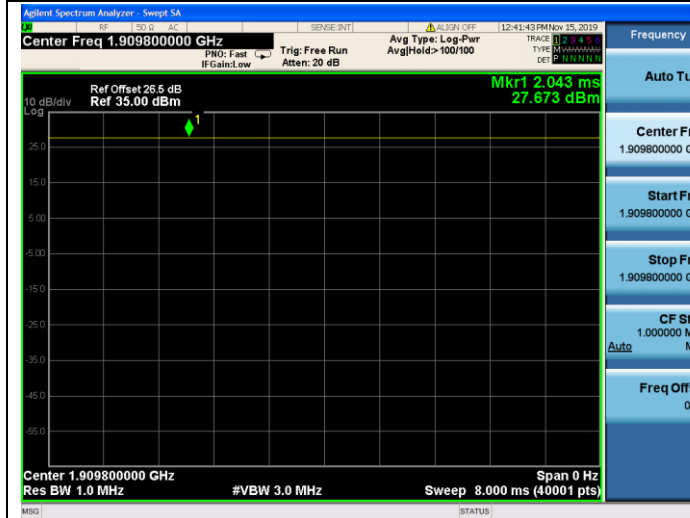
EDGE 1900MHz CH512 1850.2MHz

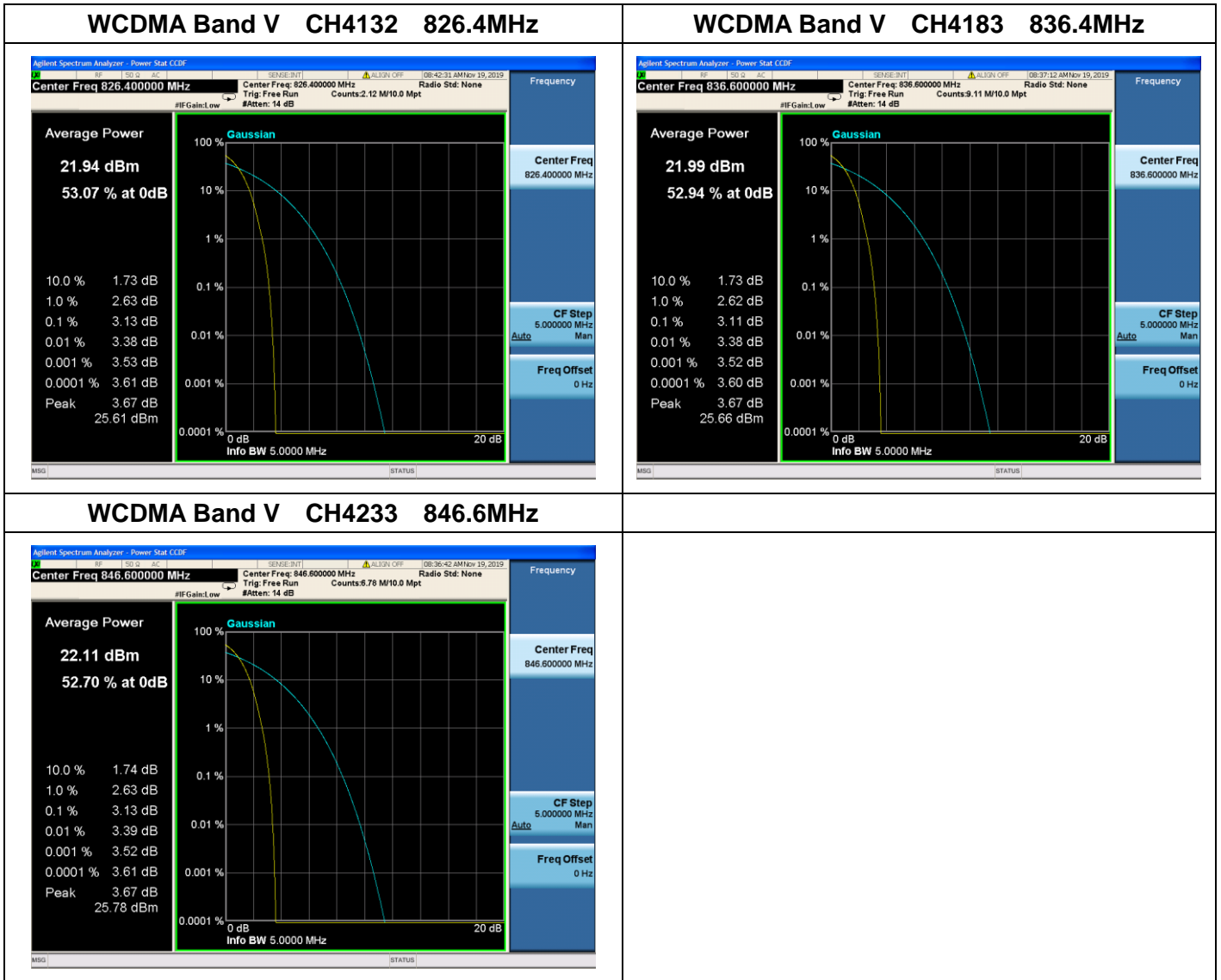


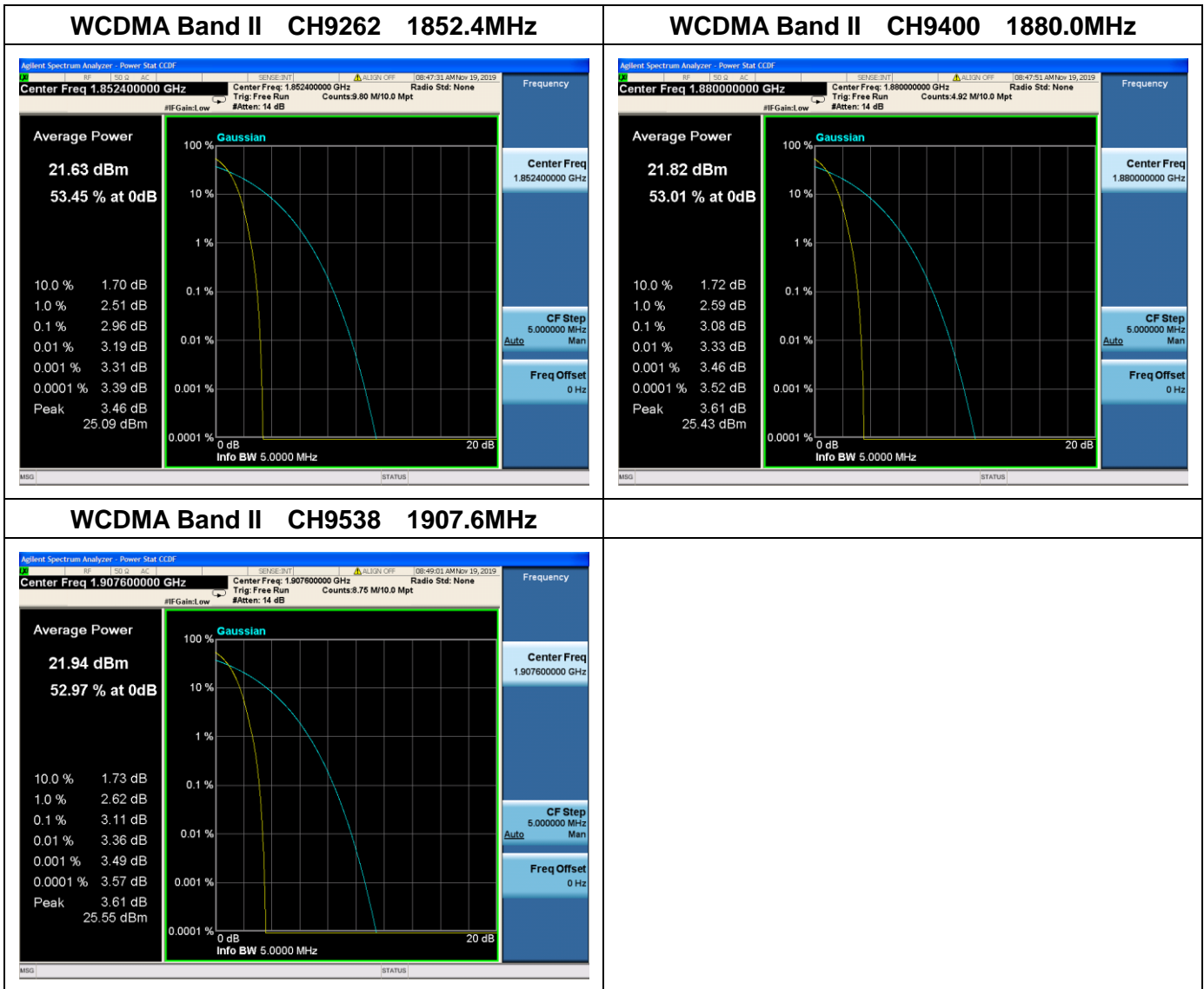
EDGE 1900MHz CH661 1880.0MHz



EDGE 1900MHz CH810 1909.8MHz

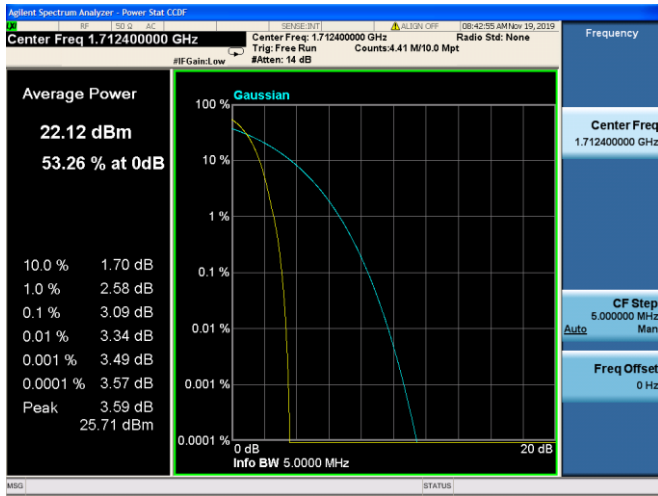




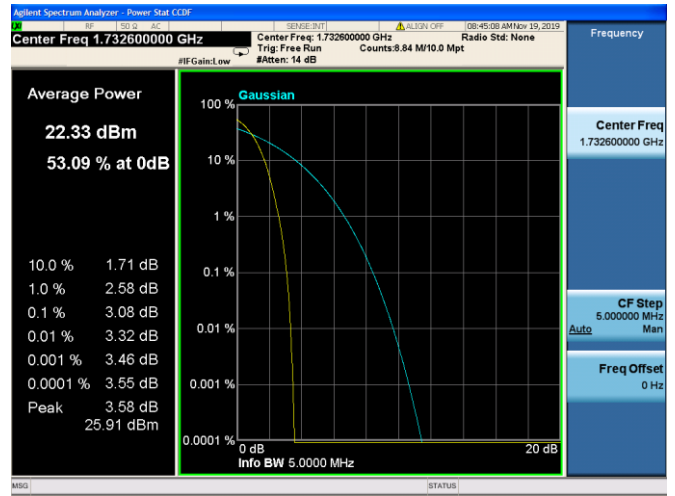




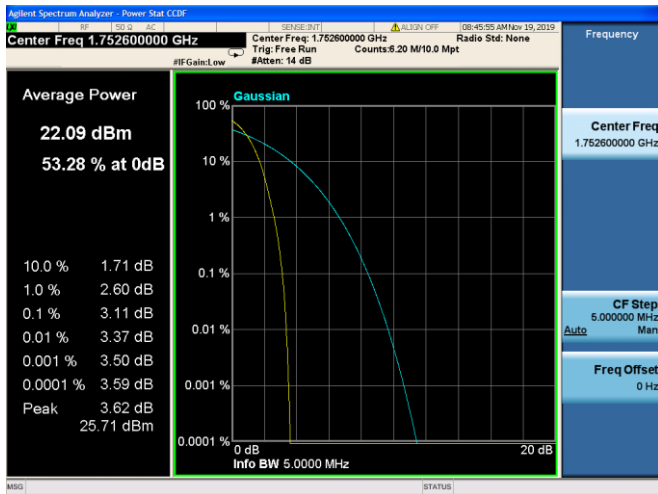
WCDMA Band IV CH1312 1712.4MHz



WCDMA Band IV CH1413 1732.6MHz



WCDMA Band IV CH1513 1752.6MHz



2.3.99% Occupied Bandwidth

2.3.1. Requirement

According to FCC section 2.1049, the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission. Occupied bandwidth is also known as the 99% emission bandwidth.

2.3.2. Test Description

Test Setup:



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.



2.3.3. Test Result

The lowest, middle and highest channels are selected to perform testing to record the 99% occupied bandwidth.

GSM Test Verdict:

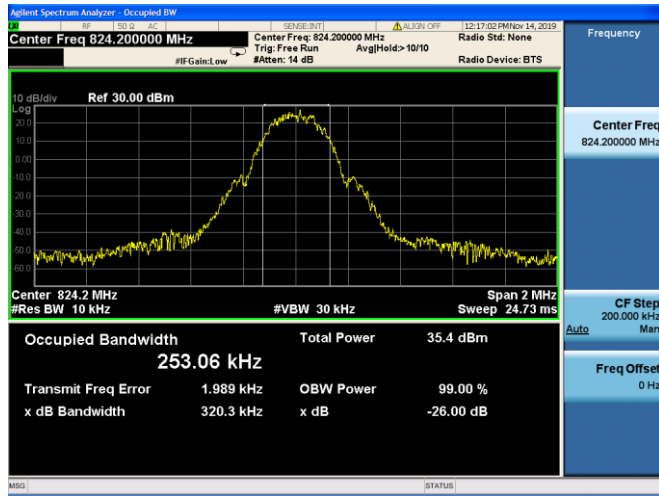
Band	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)
GSM 850MHz	128	824.2	253.06	320.3
	190	836.6	241.99	319.0
	251	848.8	243.64	310.7
GSM 1900MHz	512	1850.2	246.55	316.2
	661	1880.0	254.68	318.1
	810	1909.8	245.90	321.1
EDGE 850MHz	128	824.2	248.32	316.8
	190	836.6	244.90	314.2
	251	848.8	249.44	319.1
EDGE 1900MHz	512	1850.2	249.21	315.9
	661	1880.0	243.68	318.3
	810	1909.8	245.72	315.1

WCDMA Test Verdict:

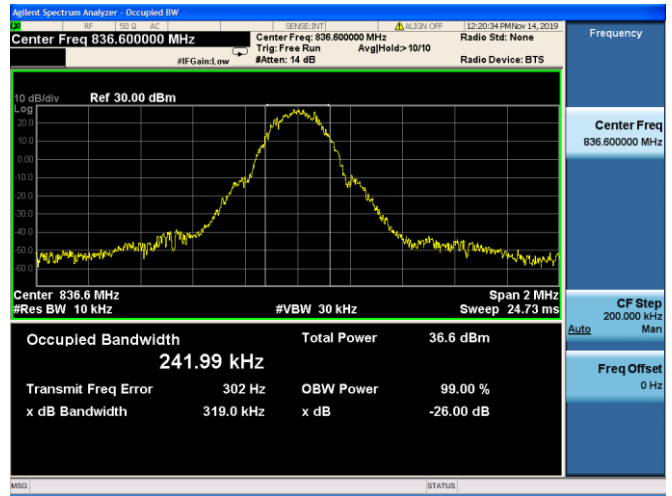
Band	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
WCDMA Band V	4132	826.4	4.158	4.705
	4183	836.4	4.174	4.706
	4233	846.6	4.160	4.699
WCDMA Band II	9262	1852.4	4.172	4.714
	9400	1880.0	4.179	4.706
	9538	1907.6	4.157	4.700
WCDMA Band IV	1312	1712.4	4.162	4.701
	1413	1732.6	4.162	4.710
	1513	1752.6	4.160	4.704



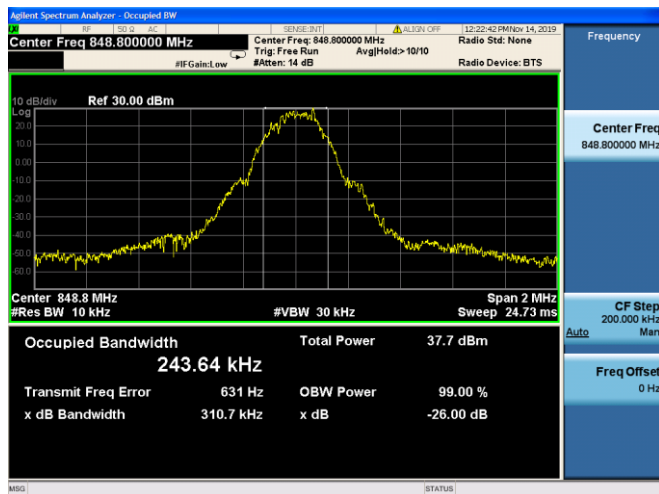
GSM 850MHz CH128 824.2MHz



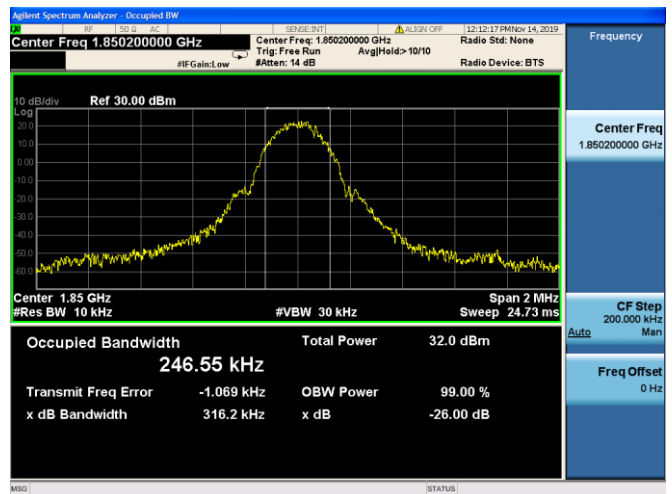
GSM 850MHz CH190 836.6MHz



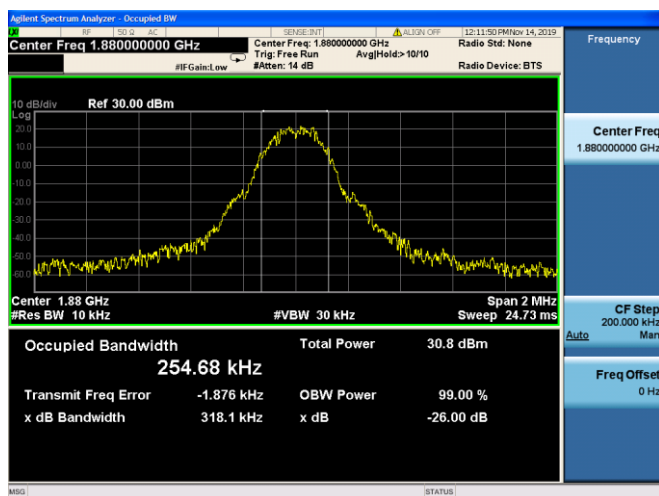
GSM 850MHz CH251 848.8MHz



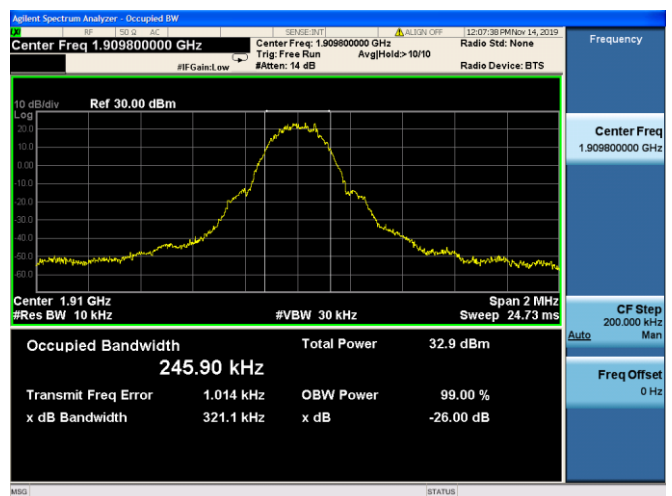
GSM 1900MHz CH512 1850.2MHz



GSM 1900MHz CH661 1880.0MHz

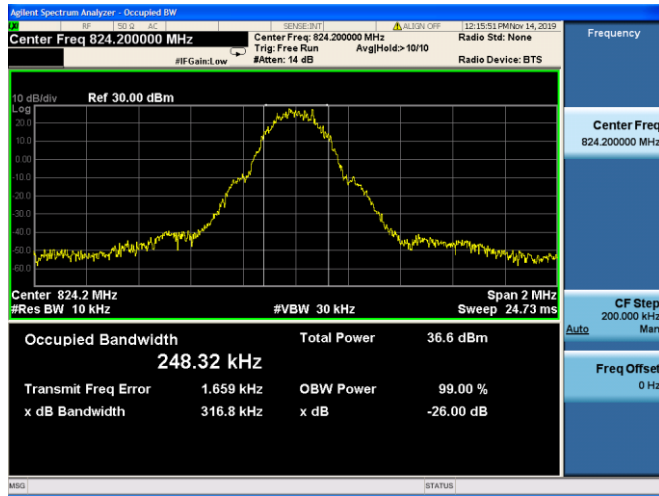


GSM 1900MHz CH810 1909.8MHz

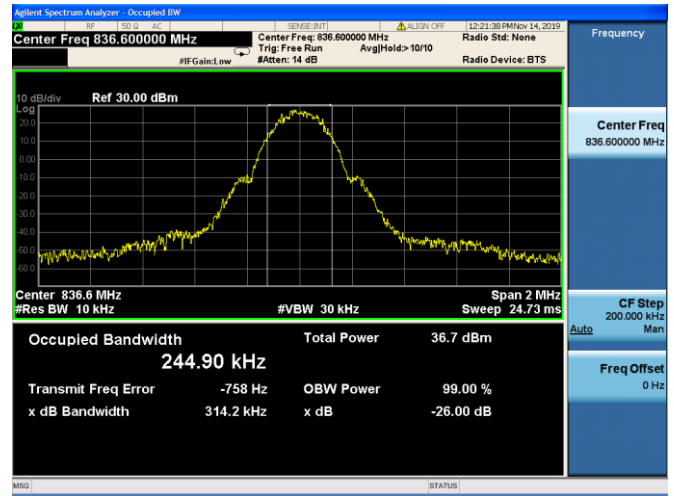




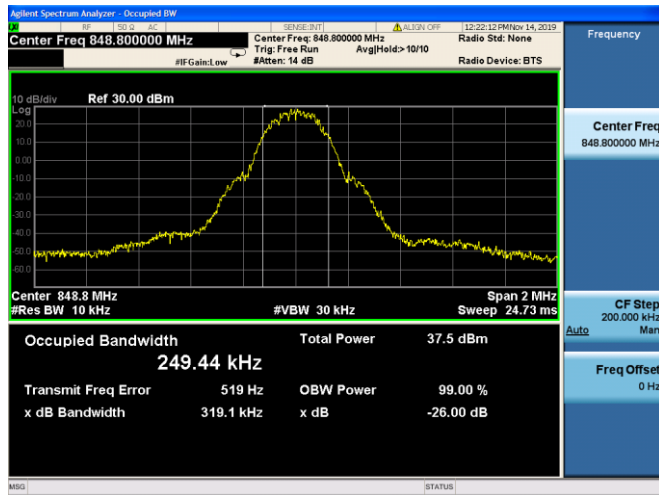
EDGE 850MHz CH128 824.2MHz



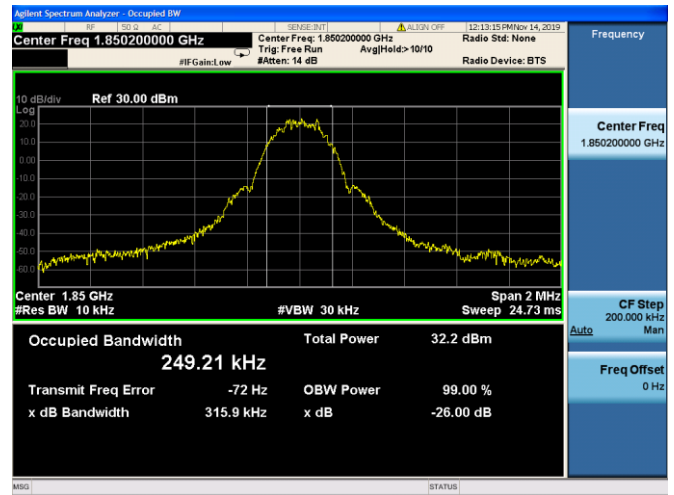
EDGE 850MHz CH190 836.6MHz



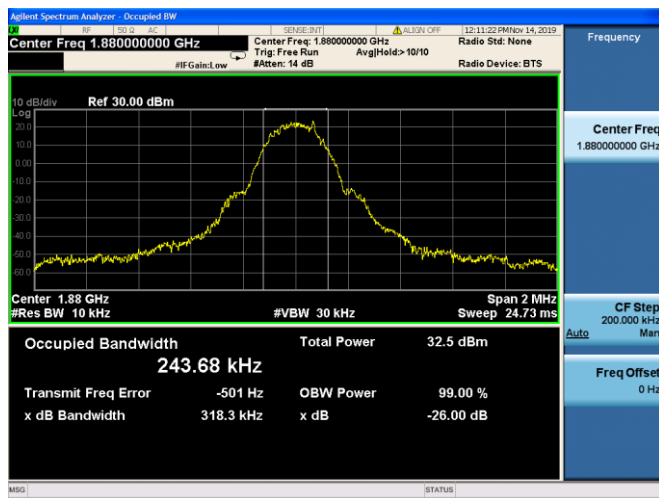
EDGE 850MHz CH251 848.8MHz



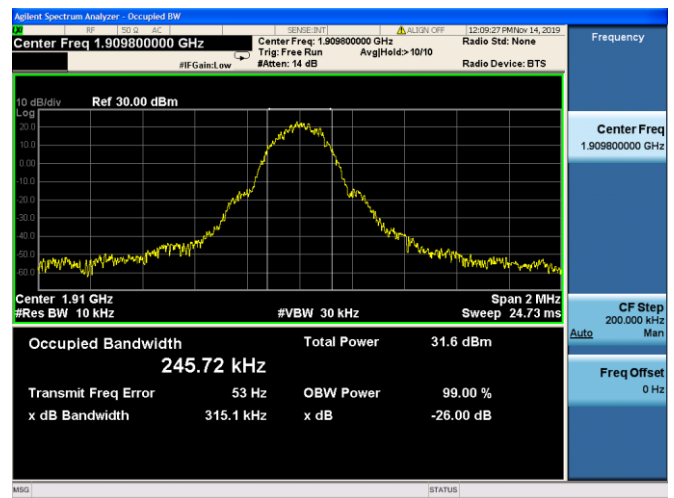
EDGE 1900MHz CH512 1850.2MHz



EDGE 1900MHz CH661 1880.0MHz

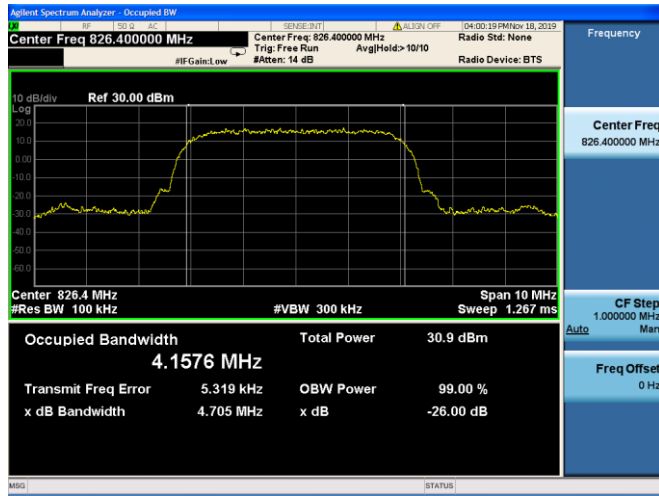


EDGE 1900MHz CH810 1909.8MHz

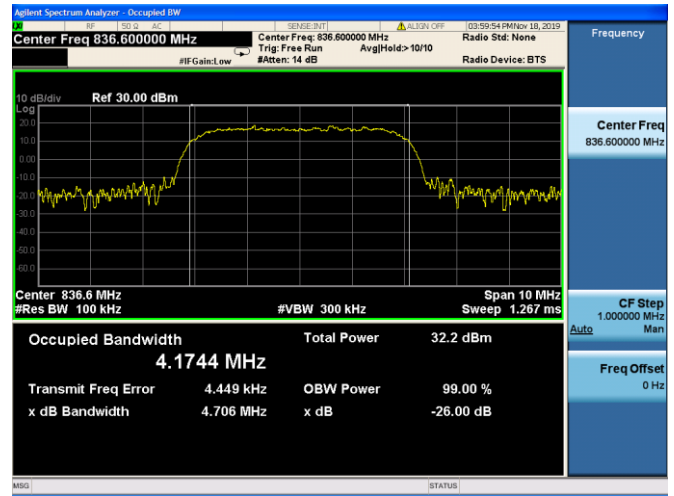




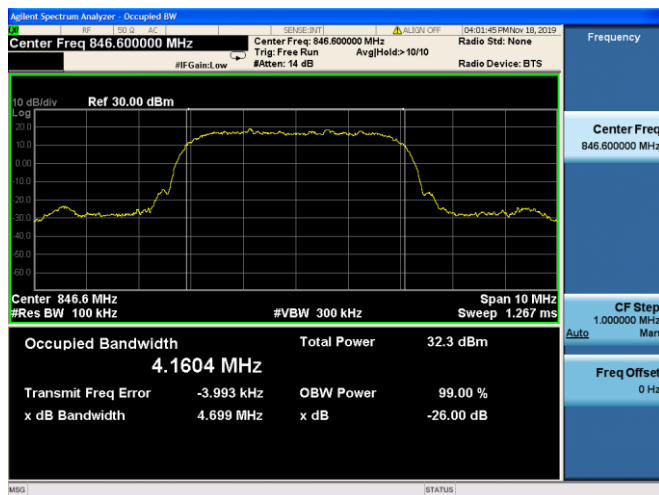
WCDMA Band V CH4132 826.4MHz



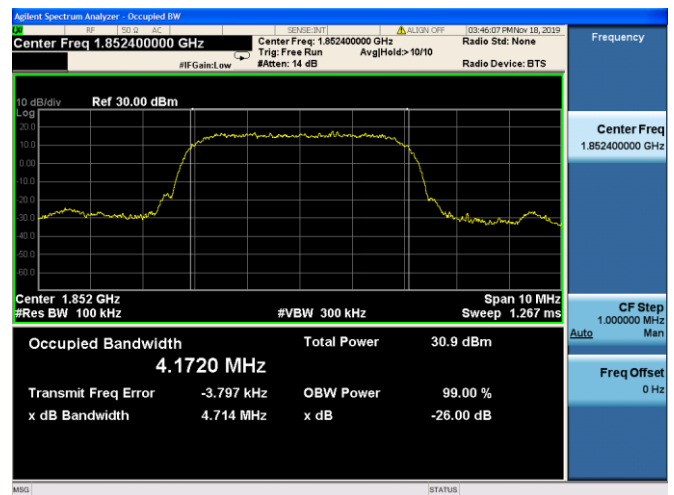
WCDMA Band V CH4183 836.4MHz



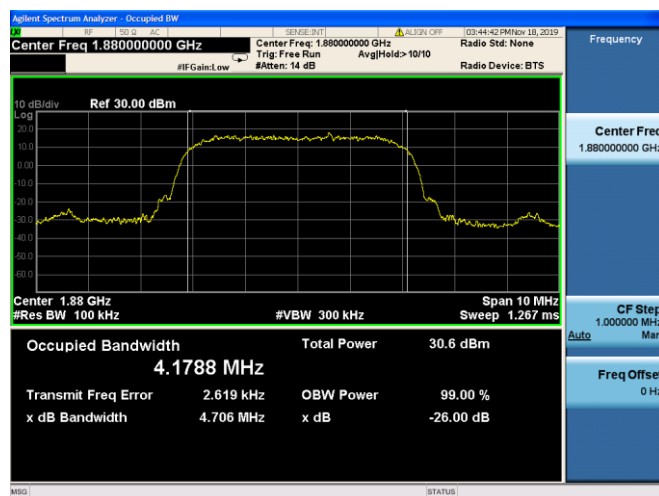
WCDMA Band V CH4233 846.6MHz



WCDMA Band II CH9262 1852.4MHz



WCDMA Band II CH9400 1880.0MHz



WCDMA Band II CH9538 1907.6MHz

