

TEST REPORT

Report No.: BCTC2108137411E

Applicant: Shenzhen Beilai Technology Co., Ltd

Product Name: Industrial IoT Gateway

Model/Type
reference: BL101

Tested Date: 2021-08-27 to 2021-09-26

Issued Date: 2021-09-26

Shenzhen BCTC Testing Co., Ltd.



FCC ID: 2A3N7-BL101

Product Name: Industrial IoT Gateway

Trademark: BLiot

Model/Type reference: BL101

Prepared For: Shenzhen Beilai Technology Co., Ltd

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Manufacturer: Shenzhen Beilai Technology Co., Ltd

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Prepared By: Shenzhen BCTC Testing Co., Ltd.

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Sample Received Date: 2021-08-27

Sample tested Date: 2021-08-27 to 2021-09-26

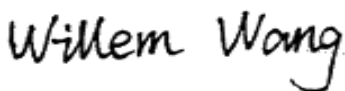
Issue Date: 2021-09-26

Report No.: BCTC2108137411E

Test Standards: FCC Part 22H & 24E

Test Results: FCC CFR Title 47 Part 2: 2016
FCC CFR Title 47 Part22 Subpart H: 2016
FCC CFR Title 47 Part24 Subpart E: 2016
FCC CFR Title 47 Part27 Subpart L: 2016
ANSI/ TIA/ EIA-603-D-2010
FCC KDB 971168 D01 Power Meas. License Digital Systems v02v02

Tested by:



Willem Wang/Project Handler

Approved by:



Zero Zhou/Reviewer

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Table Of Content

Test Report Declaration	Page
1. Version	4
2. Test Summary.....	5
3. Measurement Uncertainty	6
4. Product Information And Test Setup	7
4.1 Product Information	7
4.2 Test Setup Configuration	8
4.3 Support Equipment	8
4.5 Test Mode	9
5. Test Facility And Test Instrument Used	10
5.1 Test Facility	10
5.2 Test Instrument Used.....	10
6. RF Output Power	12
6.1 Block Diagram Of Test Setup.....	12
6.2 Limit	13
6.3 Test procedure	13
6.4 Test Result.....	14
7. Peak-To-Average Ratio(PAR) Of Transmitter	18
7.1 Block Diagram Of Test Setup.....	18
7.2 Limit	18
7.3 Test procedure	18
7.4 Test Result.....	19
8. Emission Bandwidth	22
8.1 Block Diagram Of Test Setup.....	22
8.2 Limit	22
8.3 Test procedure	22
8.4 Test Result.....	23
9. Out of Band Emissions at Antenna Terminal.....	39
9.1 Block Diagram Of Test Setup.....	39
9.2 Limit	39
9.3 Test procedure	39
9.4 Test Result.....	40
10. Spurious Radiated Emissions.....	76
10.1 Block Diagram Of Test Setup.....	76
10.2 Limit	77
10.3 Test procedure	77
10.4 Test Result.....	78
11. Frequency Stability	81
11.1 Block Diagram Of Test Setup.....	81
11.2 Limit	81
11.3 Test procedure	81
11.4 Test Result.....	82
12. EUT Photographs	87
13. EUT Test Setup Photographs.....	88
(Note: N/A means not applicable)	

1. Version

Report No.	Issue Date	Description	Approved
BCTC2108137411E	2021-09-26	Original	Valid

2. Test Summary

The Product has been tested according to the following specifications:

No.	Test Parameter	Clause No	Results
1	RF Exposure	§1.1307, §2.1093	PASS
2	RF Output Power	§22.913 (a), §24.232 (c), §27.50 (d),	PASS
3	Peak-to-average Ratio(PAR) of Transmitter	§24.232(d), §22.913, §27.50(d),	PASS
4	Emission Bandwidth	§22.917 (b), §24.238(b), §27.53(g)	PASS
5	Spurious Emissions at Antenna Terminal	§22.917 (a), §24.238 (a), §27.53(g), §27.53(h)	PASS
6	Spurious Radiation Emissions	§22.917 (a), §24.238 (a), §27.53(g), §27.53(h)	PASS
7	Out of Band Emissions	§22.917 (a), §24.238 (a), §27.53(g), §27.53(h)	PASS
8	Frequency Stability	§22.355, §24.235, §27.54	PASS

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.

No.	Item	Uncertainty
1	3m chamber Radiated spurious emission(30MHz-1GHz)	U=4.3dB
2	3m chamber Radiated spurious emission(9KHz-30MHz)	U=3.7dB
3	3m chamber Radiated spurious emission(1GHz-18GHz)	U=4.5dB
4	3m chamber Radiated spurious emission(18GHz-40GHz)	U=3.34dB
5	Conducted Emission (150kHz-30MHz)	U=3.20dB
6	Conducted Adjacent channel power	U=1.38dB
7	Conducted output power uncertainty Above 1G	U=1.576dB
8	Conducted output power uncertainty below 1G	U=1.28dB
9	humidity uncertainty	U=5.3%
10	Temperature uncertainty	U=0.59°C

4. Product Information And Test Setup

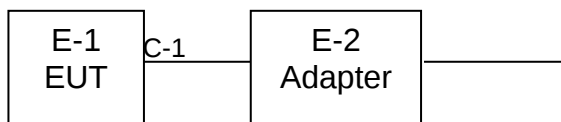
4.1 Product Information

Model/Type reference:	BL101 BL100, BL102, BL103, BL104, BL105, BL106, BL107, BL108, BL109, BL100, BL110, BL200, BL280, R10, R40
Model differences:	All the model are the same circuit and RF module, except model names.
Hardware Version:	BL10x_V1.0
Software Version:	BL10x_V1.0.3
Operation Frequency:	WCDMA Band II: TX: 1852.40~1907.60MHz; Rx: 1932.60~1987.40MHz WCDMA Band IV: TX: 1712.40~1752.60MHz; RX: 2112.60 – 2452.40MHz WCDMA Band V: TX: 826.40 - 846.60MHz; RX: 871.40 – 891.60MHz
MaxRF Output Power:	WCDMA Band II: 22.20 dBm WCDMA Band IV: 22.21 dBm WCDMA Band V: 21.90 dBm
Type of Modulation:	WCDMA Mode with BPSK Modulation HSDPA Mode with QPSK, 16QAM Modulation HSUPA Mode with QPSK, 16QAM Modulation
Type of Emission:	WCDMA Band II: 4M15F9W WCDMA Band IV: 4M16F9W WCDMA Band V: 4M16F9W
Antenna installation:	External antenna
Antenna Gain:	WCDMA BAND II: 3dBi WCDMA BAND IV :3dBi WCDMA BAND V :3dBi
Connecting I/O Port(s)	Please refer to the User's Manual
Ratings:	DC 12V from Adapter

4.2 Test Setup Configuration

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

Radiated Spurious Emission



4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
E-1	Industrial IoT Gateway	BLiot	BL101	N/A	EUT
E-2	Adapter	N/A	BCTC001	N/A	Auxiliary

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0.8M	USB cable unshielded

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.

4.5 Test Mode

Testing Configure			
Support Band	Support Standard	Channel Frequency	Channel Number
WCDMA Band II	WCDMA/ HSDPA/HSUPA	1852.4	9262
		1880.0	9400
		1907.6	9538
WCDMA Band IV	WCDMA/ HSDPA/HSUPA	1712.4	1312
		1732.4	1412
		1752.6	1513
WCDMA Band V	WCDMA/ HSDPA/HSUPA	826.4 MHz	4132
		836.6 MHz	4183
		846.6 MHz	4233
Note: the transmitter has been tested on the communications mode of WCDMA, HSDPA, HSUPA compliance test and record the worst case.			

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
/	/	/	/
/	/	/	/

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
/	/	/	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
/	/	/	/

5. Test Facility And Test Instrument Used

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at Shenzhen BCTC Testing Co., Ltd. Address: 1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, 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.

FCC Test Firm Registration Number: 712850

IC Registered No.: 23583

5.2 Test Instrument Used

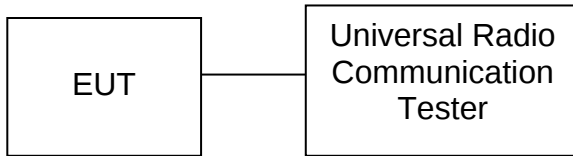
RF conducted test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Power Meter	Keysight	E4419B	\	May 28, 2021	May 27, 2022
Power Sensor (AV)	Keysight	E9 300A	\	May 28, 2021	May 27, 2022
Signal Analyzer 20kHz-26.5GHz	KEYSIGHT	N9020A	MY49100060	May 28, 2021	May 27, 2022
Spectrum Analyzer 9kHz-40GHz	R&S	FSP40	100363	May 28, 2021	May 27, 2022
Communication test set	R&S	CMU200	119435	May 28, 2021	May 27, 2022

Radiated emissions Test (966 chamber)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
966 chamber	ChengYu	966 Room	966	Jun. 06. 2020	Jun. 05, 2023
Receiver	R&S	ESR3	102075	May 28, 2021	May 27, 2022
Receiver	R&S	ESRP	101154	May 28, 2021	May 27, 2022
Amplifier	SKET	LAPA_01G18 G-45dB	\	May 28, 2021	May 27, 2022
Amplifier	Schwarzbeck	BBV9744	9744-0037	May 28, 2021	May 27, 2022
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	VULB9163-9 42	Jun. 01, 2021	May 31, 2022
Horn Antenna	SCHWARZBECK	BBHA9120D	1541	Jun. 02, 2021	Jun. 01, 2022
Horn Antenna (18GHz-40GH z)	SCHWARZBECK	BBHA9170	822	Jun. 15, 2021	Jun. 14, 2022
Amplifier (18GHz-40GH z)	MITEQ	TTA1840-35- HG	2034381	May 28, 2021	May 27, 2022
Loop Antenna (9KHz-30MHz)	SCHWARZBECK	FMZB1519B	014	Jun. 02, 2021	Jun. 01, 2022
RF cables1 (9kHz-30MHz)	Huber+Suhnar	9kHz-30MHz	B1702988-00 08	May 28, 2021	May 27, 2022
RF cables2 (30MHz-1GHz)	Huber+Suhnar	30MHz-1GH z	1486150	May 28, 2021	May 27, 2022
RF cables3 (1GHz-40GHz)	Huber+Suhnar	1GHz-40GHz	1607106	May 28, 2021	May 27, 2022
Power Metter	Keysight	E4419B	\	May 28, 2021	May 27, 2022
Power Sensor (AV)	Keysight	E9 300A	\	May 28, 2021	May 27, 2022
Signal Analyzer 20kHz-26.5GH z	KEYSIGHT	N9020A	MY49100060	May 28, 2021	May 27, 2022
Spectrum Analyzer 9kHz-40GHz	R&S	FSP40	100363	May 28, 2021	May 27, 2022
Communication test set	R&S	CMU200	119435	May 28, 2021	May 27, 2022
Software	Frad	EZ-EMC	FA-03A2 RE	\	\

6. RF Output Power

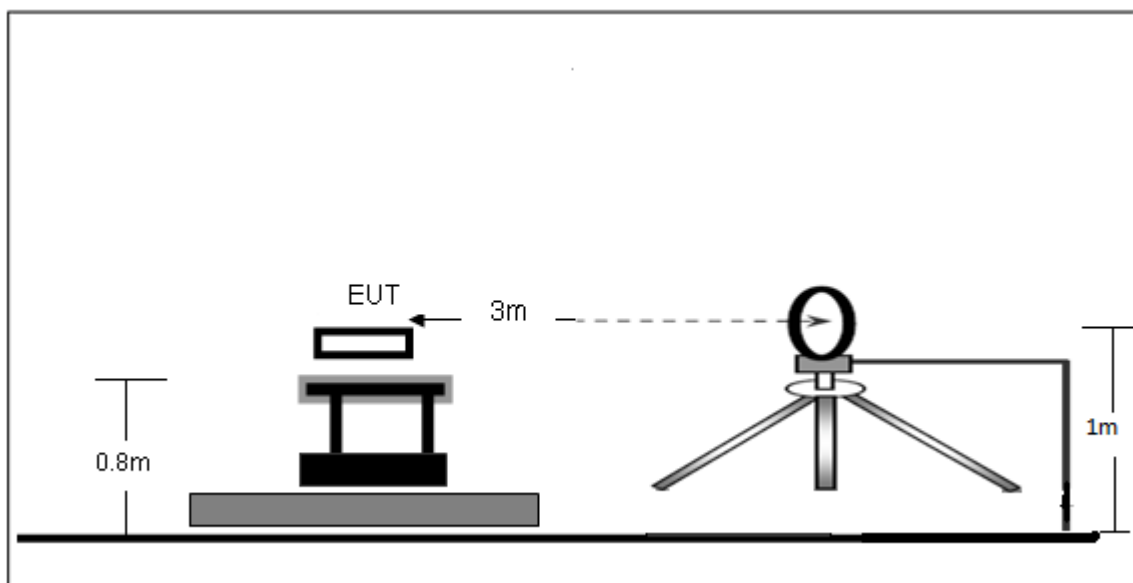
6.1 Block Diagram Of Test Setup

Conducted output power test method:

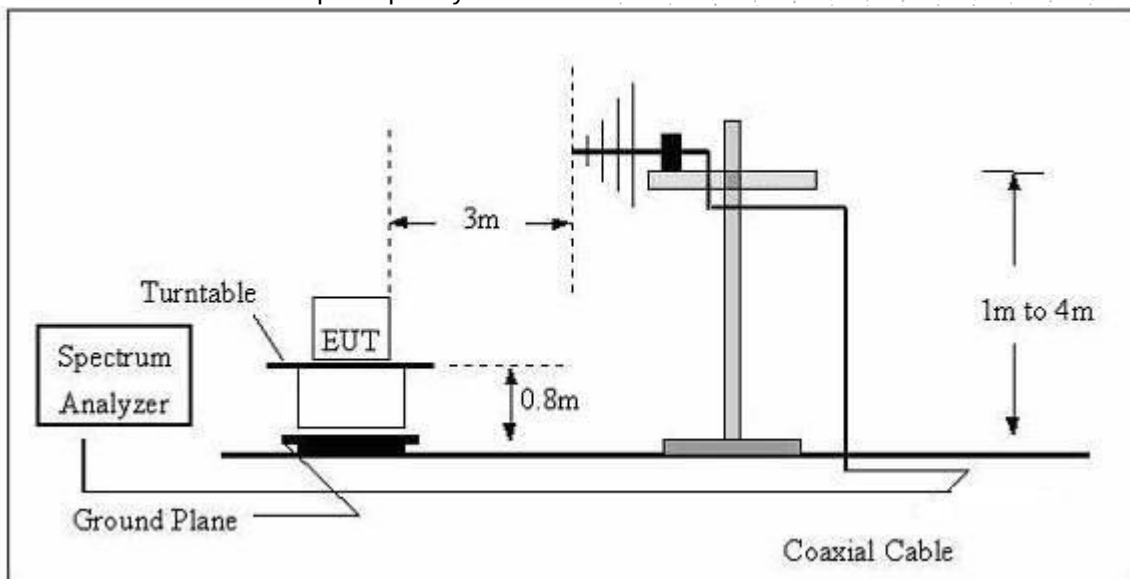


Radiated power test method:

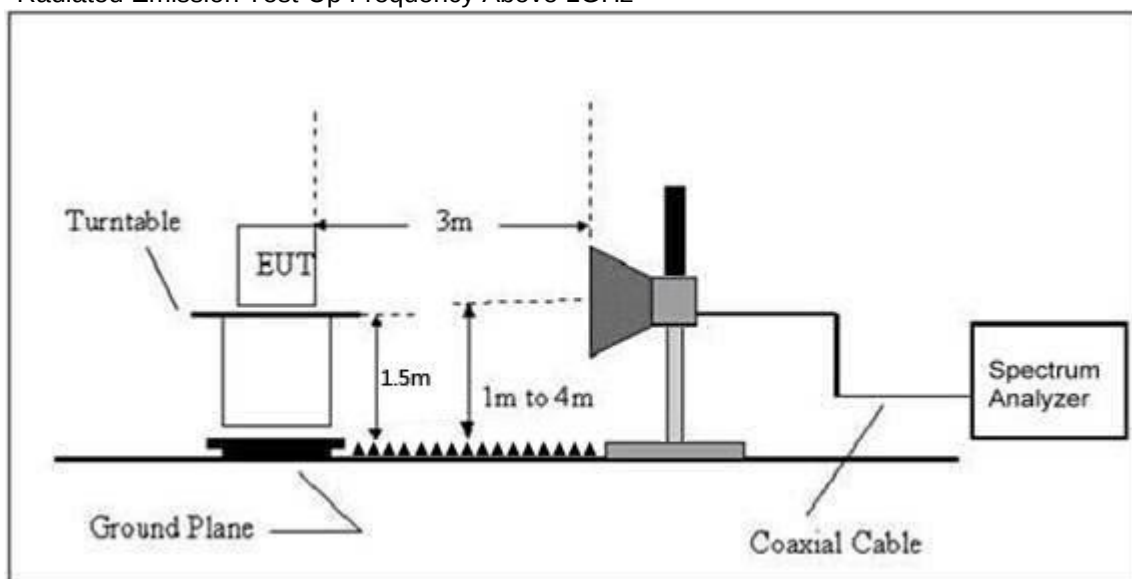
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



6.2 Limit

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.

According to §27.50(d)(4), Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

6.3 Test procedure

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.

6.4 Test Result

EIRP For WCDMA Mode Band II

Frequency (MHz)	Polar (H/V)	Height (Meter)	Table (Degree)	Reading Level (dBm)	Correct Factor (dB)	Measurement (dBm)	FCC Part 24E Limit Limits (dBm)	Result
Low Channel								
1852.4	H	1.5	0	43.14	-22.25	20.89	33.00	PASS
1852.4	V	1.5	0	41.97	-22.25	19.72	33.00	PASS
Middle Channel								
1880	H	1.5	0	42.24	-22.16	20.08	33.00	PASS
1880	V	1.5	0	42.54	-22.16	20.38	33.00	PASS
High Channel								
1907.6	H	1.5	0	42.93	-22.06	20.87	33.00	PASS
1907.6	V	1.5	0	42.35	-22.06	20.29	33.00	PASS

EIRP For HSDPA Mode Band II

Frequency (MHz)	Polar (H/V)	Height (Meter)	Table (Degree)	Reading Level (dBm)	Correct Factor (dB)	Measurement (dBm)	FCC Part 24E Limits (dBm)	Result
Low Channel								
1852.4	H	1.5	0	43.49	-22.25	21.24	33.00	PASS
1852.4	V	1.5	0	42.33	-22.25	20.08	33.00	PASS
Middle Channel								
1880	H	1.5	0	43.10	-22.16	20.94	33.00	PASS
1880	V	1.5	0	42.75	-22.16	20.59	33.00	PASS
High Channel								
1907.6	H	1.5	0	43.73	-22.06	21.67	33.00	PASS
1907.6	V	1.5	0	42.04	-22.06	19.98	33.00	PASS

EIRP For HSUPA Mode Band II

Frequency (MHz)	Polar (H/V)	Height (Meter)	Table (Degree)	Reading Level (dBm)	Correct Factor (dB)	Measurement (dBm)	FCC Part 24E Limits (dBm)	Result
Low Channel								
1852.4	H	1.5	0	41.90	-22.25	19.65	33.00	PASS
1852.4	V	1.5	0	41.96	-22.25	19.71	33.00	PASS
Middle Channel								
1880	H	1.5	0	42.90	-22.16	20.74	33.00	PASS
1880	V	1.5	0	41.96	-22.16	19.80	33.00	PASS
High Channel								
1907.6	H	1.5	0	43.70	-22.06	21.64	33.00	PASS
1907.6	V	1.5	0	42.62	-22.06	20.56	33.00	PASS

EIRP For WCDMA Mode Band IV

Frequency (MHz)	Polar (H/V)	Height (Meter)	Table (Degree)	Reading Level (dBm)	Correct Factor (dB)	Measurement (dBm)	FCC Part 27L Limits (dBm)	Result
Low Channel								
1712.4	H	1.5	0	42.71	-22.71	20.00	33.00	PASS
1712.4	V	1.5	0	41.96	-22.71	19.25	33.00	PASS
Middle Channel								
1732.4	H	1.5	0	42.30	-22.67	19.63	33.00	PASS
1732.4	V	1.5	0	41.95	-22.67	19.28	33.00	PASS
High Channel								
1752.6	H	1.5	0	43.25	-22.60	20.65	33.00	PASS
1752.6	V	1.5	0	41.82	-22.60	19.22	33.00	PASS

EIRP For HSDPA Mode Band IV

Frequency (MHz)	Polar (H/V)	Height (Meter)	Table (Degree)	Reading Level (dBm)	Correct Factor (dB)	Measurement (dBm)	FCC Part 27L Limits (dBm)	Result
Low Channel								
1712.4	H	1.5	0	43.11	-22.71	20.40	33.00	PASS
1712.4	V	1.5	0	42.42	-22.71	19.71	33.00	PASS
Middle Channel								
1732.4	H	1.5	0	42.73	-22.67	20.06	33.00	PASS
1732.4	V	1.5	0	42.73	-22.67	20.06	33.00	PASS
High Channel								
1752.6	H	1.5	0	42.34	-22.60	19.74	33.00	PASS
1752.6	V	1.5	0	42.58	-22.60	19.98	33.00	PASS

EIRP For HSUPA Mode Band IV

Frequency (MHz)	Polar (H/V)	Height (Meter)	Table (Degree)	Reading Level (dBm)	Correct Factor (dB)	Measurement (dBm)	FCC Part 27L Limits (dBm)	Result
Low Channel								
1712.4	H	1.5	0	42.77	-22.71	20.06	33.00	PASS
1712.4	V	1.5	0	42.02	-22.71	19.31	33.00	PASS
Middle Channel								
1732.4	H	1.5	0	41.89	-22.67	19.22	33.00	PASS
1732.4	V	1.5	0	42.37	-22.67	19.70	33.00	PASS
High Channel								
1752.6	H	1.5	0	42.97	-22.60	20.37	33.00	PASS
1752.6	V	1.5	0	42.32	-22.60	19.72	33.00	PASS

ERP For WCDMA Mode Band V

Frequency (MHz)	Polar (H/V)	Height (Meter)	Table (Degree)	Reading Level (dBm)	Correct Factor (dB)	Measurement (dBm)	FCC Part 22H Limits (dBm)	Result
Low Channel								
826.4	H	1.5	0	20.59	-1.33	19.26	38.45	PASS
826.4	V	1.5	0	20.14	-1.33	18.81	38.45	PASS
Middle Channel								
836.6	H	1.5	0	20.86	-1.10	19.76	38.45	PASS
836.6	V	1.5	0	19.81	-1.10	18.71	38.45	PASS
High Channel								
846.6	H	1.5	0	19.97	-0.87	19.10	38.45	PASS
846.6	V	1.5	0	19.89	-0.87	19.02	38.45	PASS

ERP For HSDPA Mode Band V

Frequency (MHz)	Polar (H/V)	Height (Meter)	Table (Degree)	Reading Level (dBm)	Correct Factor (dB)	Measurement (dBm)	FCC Part 22H Limits (dBm)	Result
Low Channel								
826.4	H	1.5	0	20.09	-1.33	18.76	38.45	PASS
826.4	V	1.5	0	20.07	-1.33	18.74	38.45	PASS
Middle Channel								
836.6	H	1.5	0	20.18	-1.10	19.08	38.45	PASS
836.6	V	1.5	0	20.11	-1.10	19.01	38.45	PASS
High Channel								
846.6	H	1.5	0	21.66	-0.87	20.79	38.45	PASS
846.6	V	1.5	0	20.50	-0.87	19.63	38.45	PASS

ERP For HSUPA Mode Band V

Frequency (MHz)	Polar (H/V)	Height (Meter)	Table (Degree)	Reading Level (dBm)	Correct Factor (dB)	Measurement (dBm)	FCC Part 22H Limits (dBm)	Result
Low Channel								
826.4	H	1.5	0	20.50	-1.33	19.17	38.45	PASS
826.4	V	1.5	0	20.03	-1.33	18.70	38.45	PASS
Middle Channel								
836.6	H	1.5	0	19.90	-1.10	18.80	38.45	PASS
836.6	V	1.5	0	20.76	-1.10	19.66	38.45	PASS
High Channel								
846.6	H	1.5	0	19.85	-0.87	18.98	38.45	PASS
846.6	V	1.5	0	20.13	-0.87	19.26	38.45	PASS

Max. Conducted Output Power

For WCDMA Band II

Test Mode	Channel	Frequency (MHz)	Average Power (dBm)	FCC Part 24.232 Limit (dBm)
WCDMA	Low Channel	1852.4	22.16	33.0
	Middle Channel	1880.0	22.16	33.0
	High Channel	1907.6	22.20	33.0
HSDPA	Low Channel	1852.4	20.84	33.0
	Middle Channel	1880.0	20.89	33.0
	High Channel	1907.6	20.97	33.0
HSUPA	Low Channel	1852.4	21.30	33.0
	Middle Channel	1880.0	21.84	33.0
	High Channel	1907.6	22.06	33.0

For WCDMA Band IV

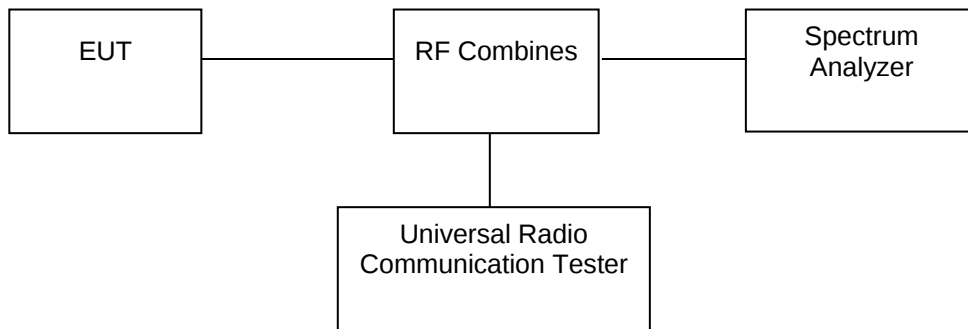
Test Mode	Channel	Frequency (MHz)	Average Power (dBm)	FCC Part 27.50 Limit (dBm)
WCDMA	Low Channel	1712.4	22.12	33.0
	Middle Channel	1732.4	22.21	33.0
	High Channel	1752.6	22.10	33.0
HSDPA	Low Channel	1712.4	20.94	33.0
	Middle Channel	1732.4	21.19	33.0
	High Channel	1752.6	20.91	33.0
HSUPA	Low Channel	1712.4	20.54	33.0
	Middle Channel	1732.4	20.69	33.0
	High Channel	1752.6	20.65	33.0

For WCDMA Band V

Test Mode	Channel	Frequency (MHz)	Average Power (dBm)	FCC Part 22.913 Limit (dBm)
WCDMA	Low Channel	826.4	21.88	38.45
	Middle Channel	836.6	21.93	38.45
	High Channel	846.6	21.90	38.45
HSDPA	Low Channel	826.4	20.72	38.45
	Middle Channel	836.6	20.79	38.45
	High Channel	846.6	20.67	38.45
HSUPA	Low Channel	826.4	19.98	38.45
	Middle Channel	836.6	20.11	38.45
	High Channel	846.6	20.04	38.45

7. Peak-To-Average Ratio(PAR) Of Transmitter

7.1 Block Diagram Of Test Setup



7.2 Limit

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.

According to §27.50(B), the peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure. The measurement must be performed using a signal corresponding to the highest PAPR expected during periods of continuous transmission.

7.3 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%.

7.4 Test Result

For WCDMA Band II

Test Mode	Channel	Frequency (MHz)	PAR(dB)	Limited (dB)
WCDMA	Low Channel	1852.4	2.70	13
	Middle Channel	1880.0	2.82	13
	High Channel	1907.6	2.59	13
HSDPA	Low Channel	1852.4	3.48	13
	Middle Channel	1880.0	3.56	13
	High Channel	1907.6	3.83	13
HSUPA	Low Channel	1852.4	3.56	13
	Middle Channel	1880.0	3.59	13
	High Channel	1907.6	3.76	13

For WCDMA Band IV

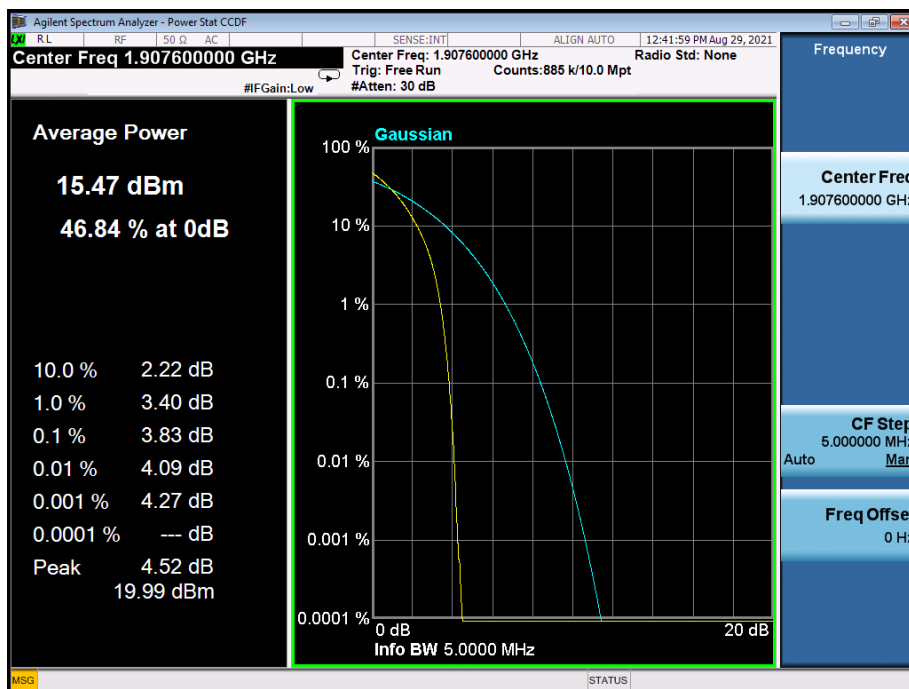
Test Mode	Channel	Frequency (MHz)	PAR(dB)	Limited (dB)
WCDMA	Low Channel	1712.4	2.74	13
	Middle Channel	1732.4	2.76	13
	High Channel	1752.6	2.48	13
HSDPA	Low Channel	1712.4	3.67	13
	Middle Channel	1732.4	3.66	13
	High Channel	1752.6	3.46	13
HSUPA	Low Channel	1712.4	3.74	13
	Middle Channel	1732.4	3.73	13
	High Channel	1752.6	3.62	13

For WCDMA Band V

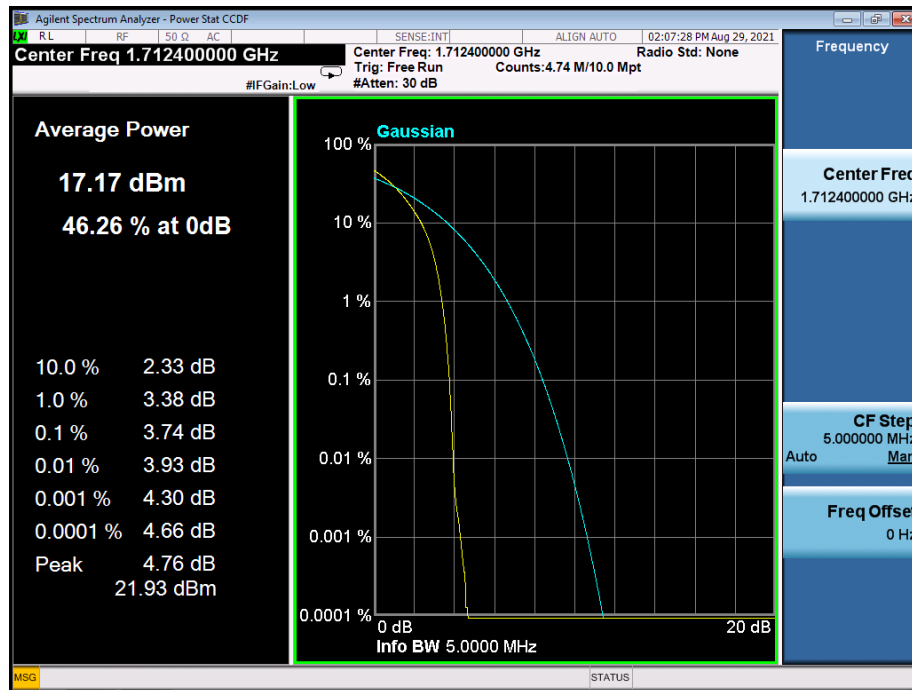
Test Mode	Channel	Frequency (MHz)	PAR(dB)	Limited (dB)
WCDMA	Low Channel	826.4	3.05	13
	Middle Channel	836.6	3.39	13
	High Channel	846.6	2.96	13
HSDPA	Low Channel	826.4	3.67	13
	Middle Channel	836.6	4.03	13
	High Channel	846.6	3.73	13
HSUPA	Low Channel	826.4	3.64	13
	Middle Channel	836.6	3.93	13
	High Channel	846.6	3.76	13

All modulations of EUT have been tested, but only show the test data of the worst case in this report.

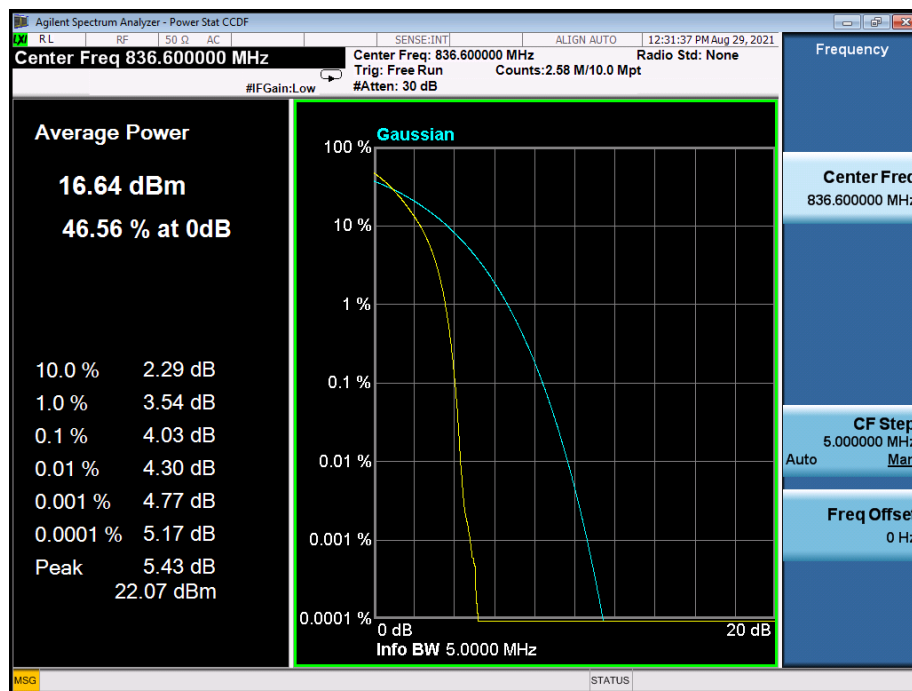
WCDMA Band II:



WCDMA Band IV:

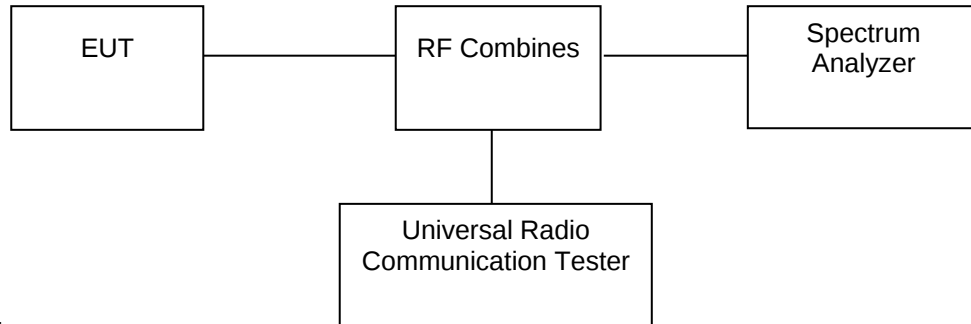


WCDMA Band V:



8. Emission Bandwidth

8.1 Block Diagram Of Test Setup



8.2 Limit

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.

According to §27.53, 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.

8.3 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.

8.4 Test Result

For WCDMA Band II

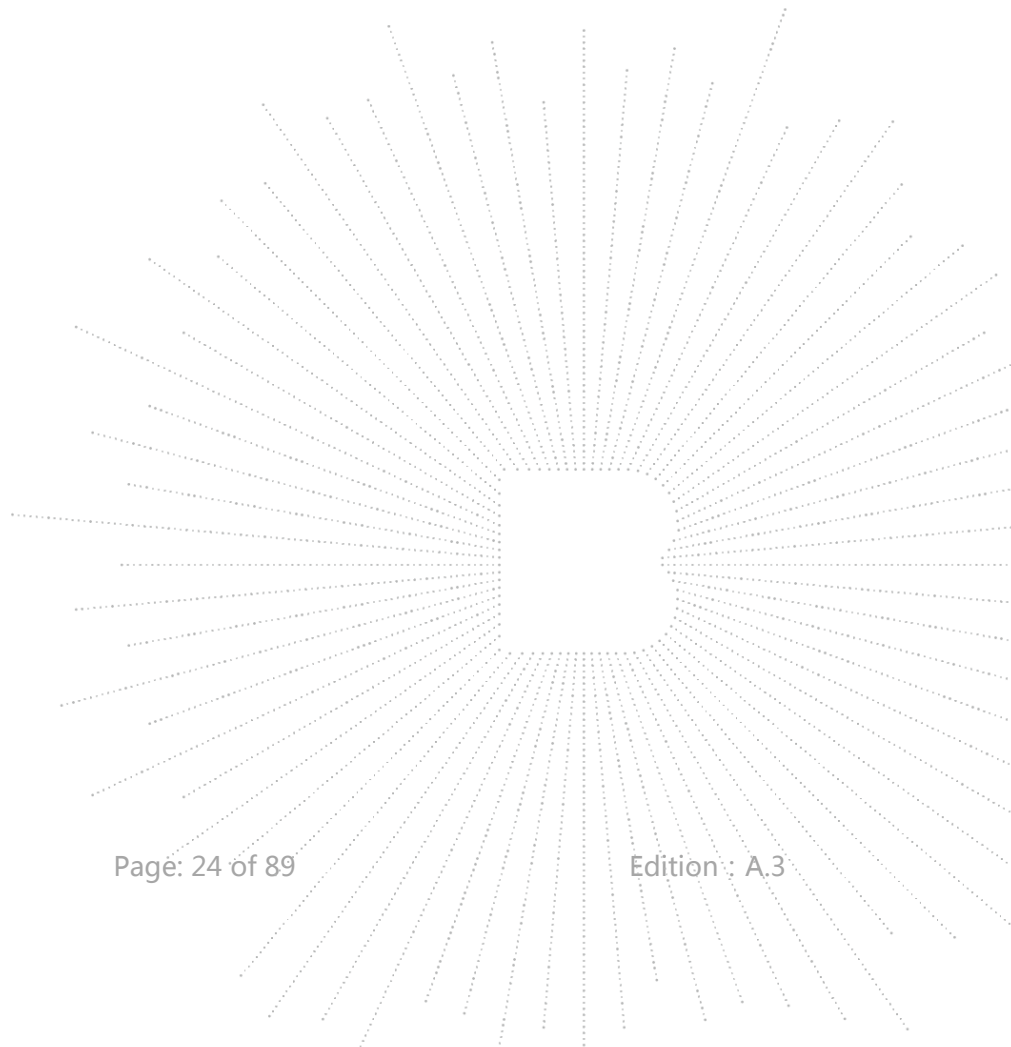
Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
WCDMA	Low Channel	1852.4	4.152	4.733
	Middle Channel	1880.0	4.141	4.739
	High Channel	1907.6	4.124	4.741
HSDPA	Low Channel	1852.4	4.146	4.729
	Middle Channel	1880.0	4.137	4.738
	High Channel	1907.6	4.136	4.712
HSUPA	Low Channel	1852.4	4.132	4.744
	Middle Channel	1880.0	4.136	4.718
	High Channel	1907.6	4.150	4.729

For WCDMA Band IV

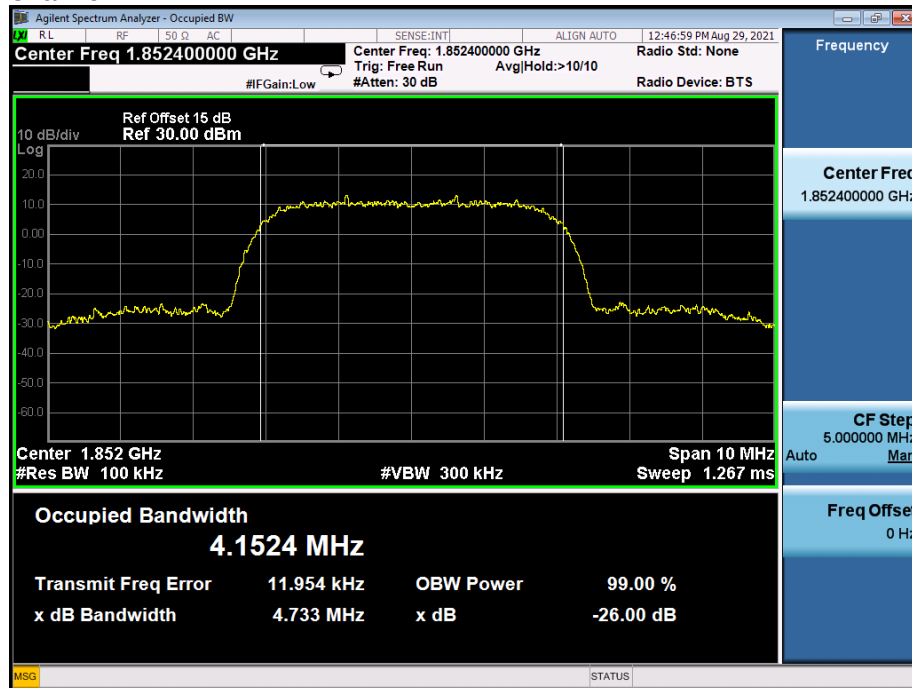
Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
WCDMA	Low Channel	1712.4	4.128	4.712
	Middle Channel	1732.4	4.136	4.704
	High Channel	1752.6	4.149	4.738
HSDPA	Low Channel	1712.4	4.135	4.712
	Middle Channel	1732.4	4.160	4.707
	High Channel	1752.6	4.137	4.738
HSUPA	Low Channel	1712.4	4.119	4.723
	Middle Channel	1732.4	4.129	4.672
	High Channel	1752.6	4.132	4.732

For WCDMA Band V

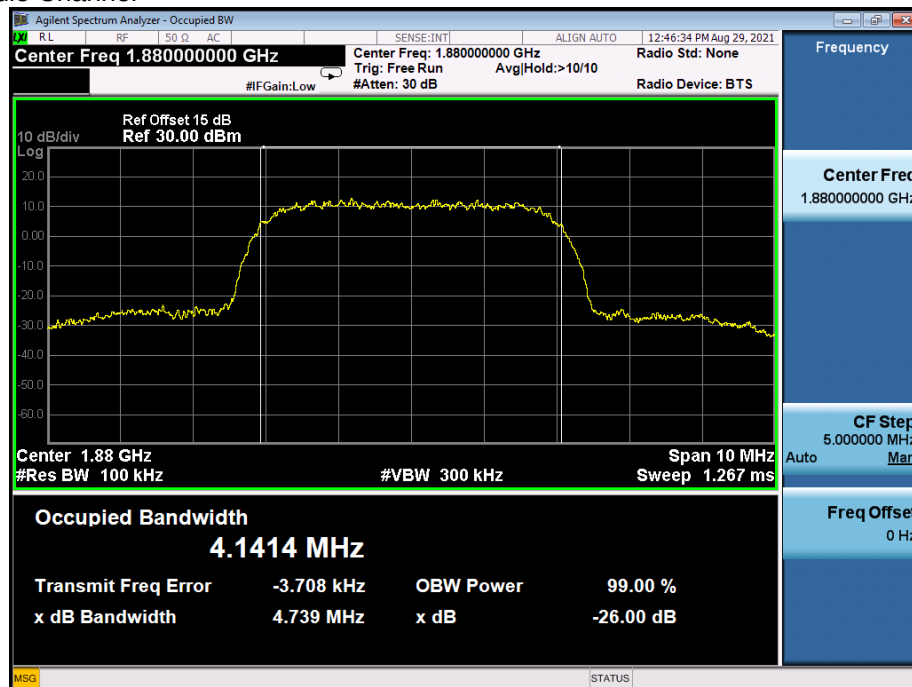
Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
WCDMA	Low Channel	826.4	4.126	4.704
	Middle Channel	836.6	4.122	4.694
	High Channel	846.6	4.158	4.726
HSDPA	Low Channel	826.4	4.134	4.718
	Middle Channel	836.6	4.145	4.674
	High Channel	846.6	4.142	4.741
HSUPA	Low Channel	826.4	4.145	4.720
	Middle Channel	836.6	4.123	4.709
	High Channel	846.6	4.140	4.728



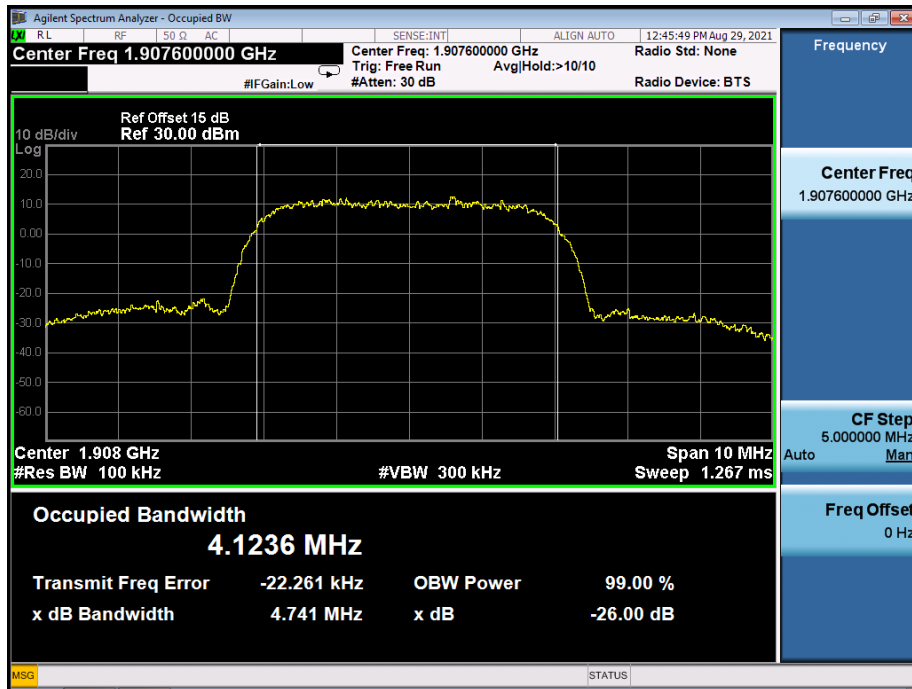
For WCDMA Band II
WCDMA Low Channel



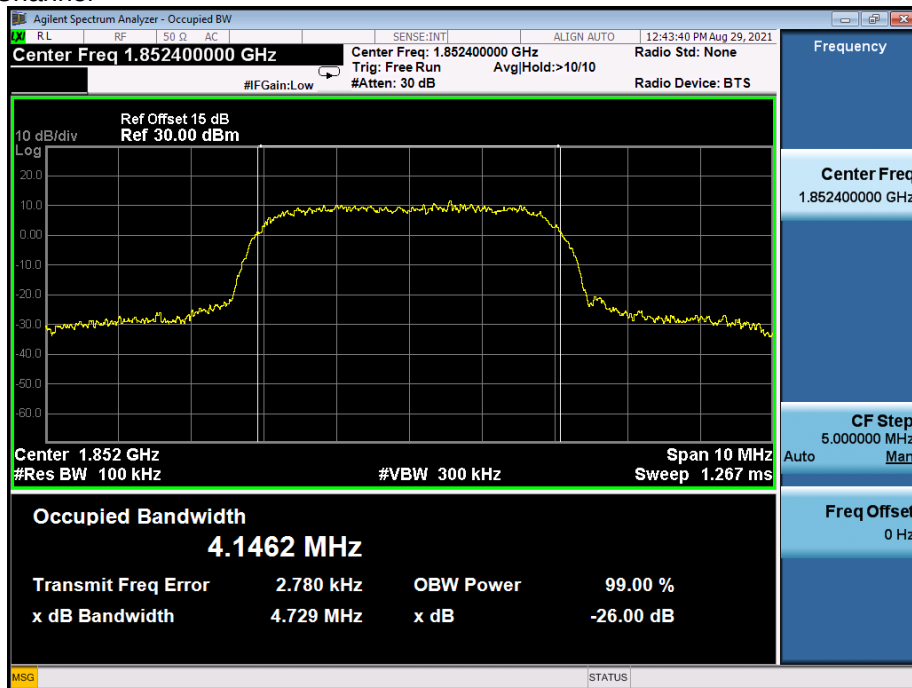
WCDMA Middle Channel



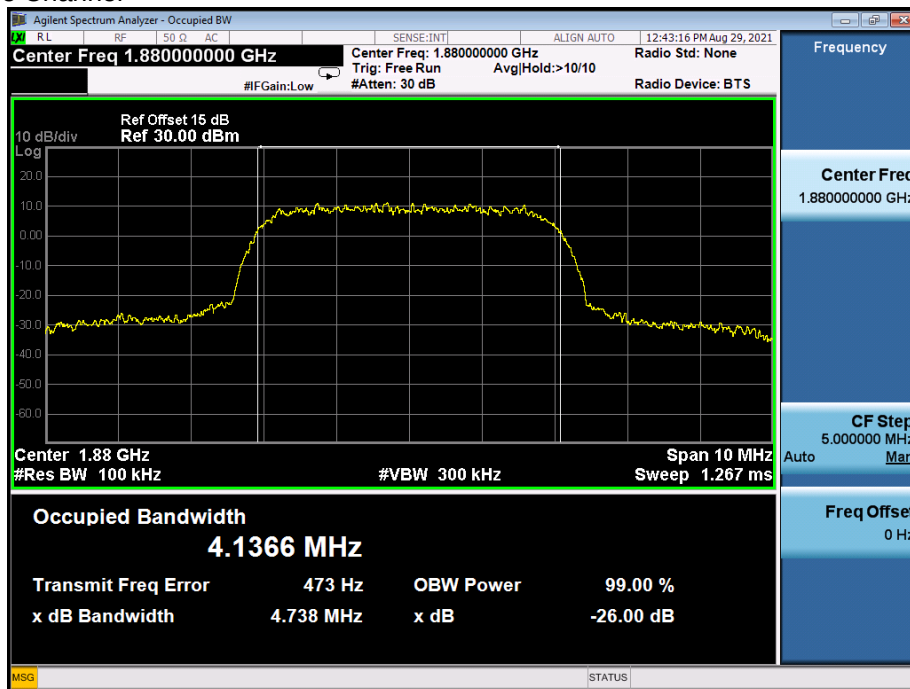
WCDMA High Channel



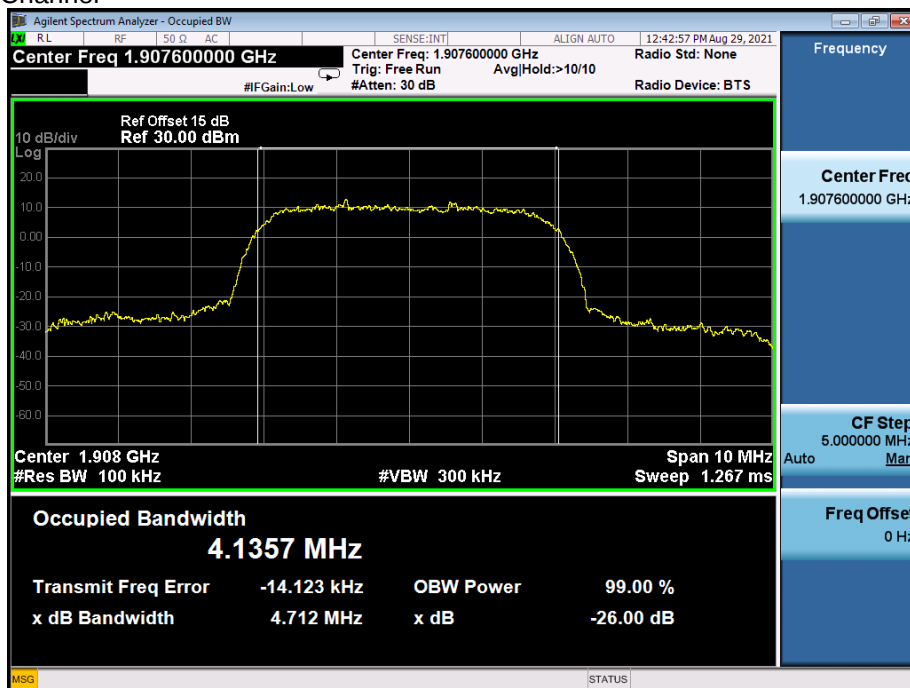
HSDPA Low Channel



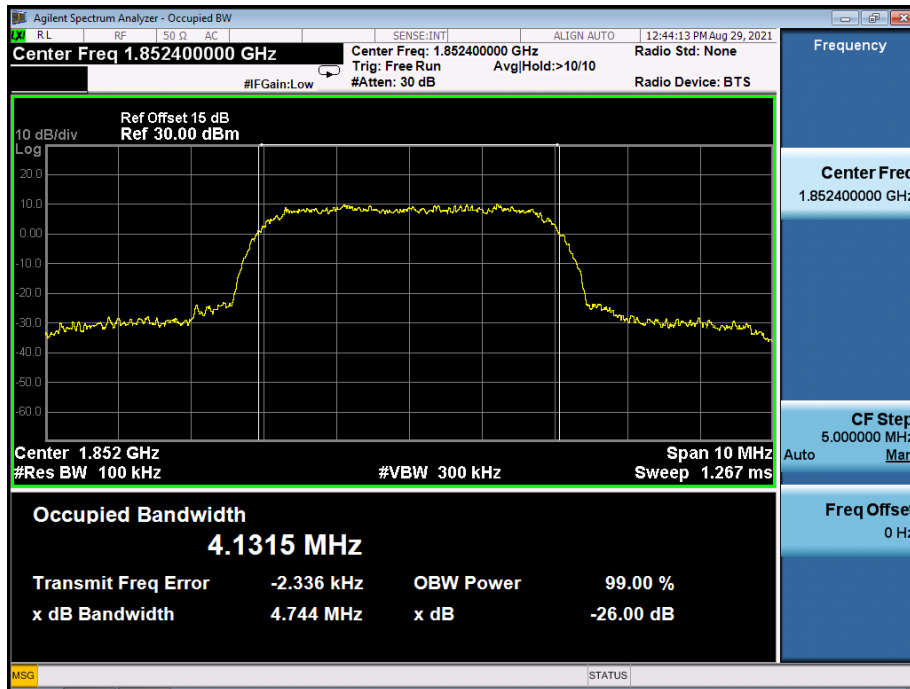
HSDPA Middle Channel



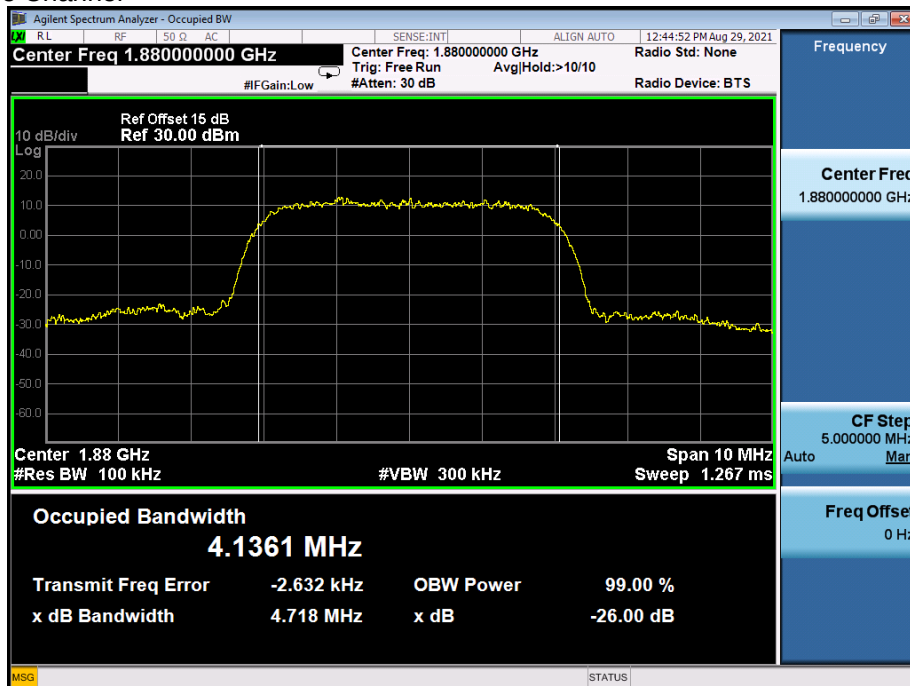
HSDPA High Channel



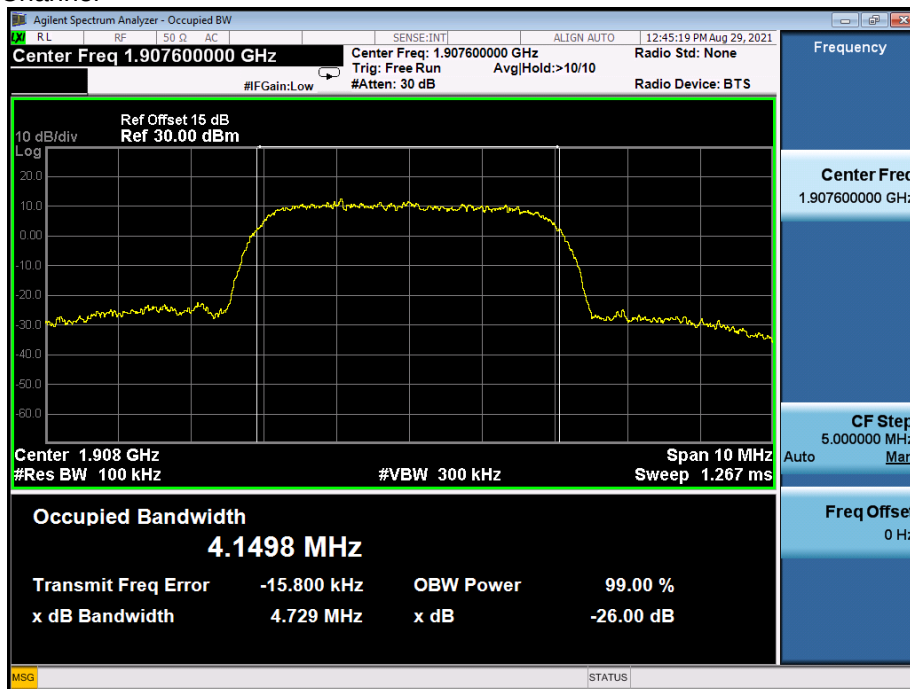
HSUPA Low Channel



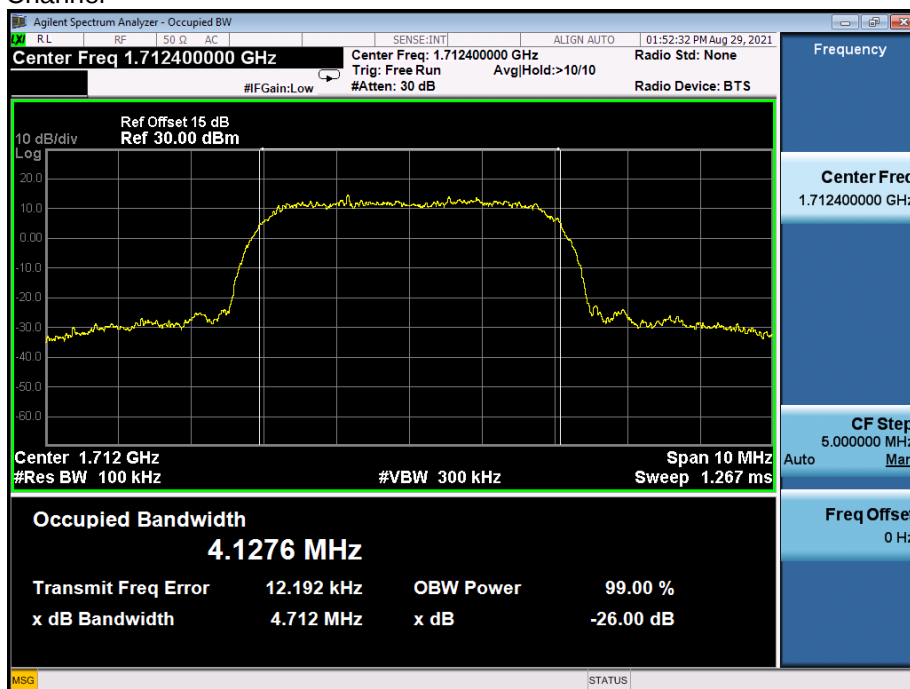
HSUPA Middle Channel



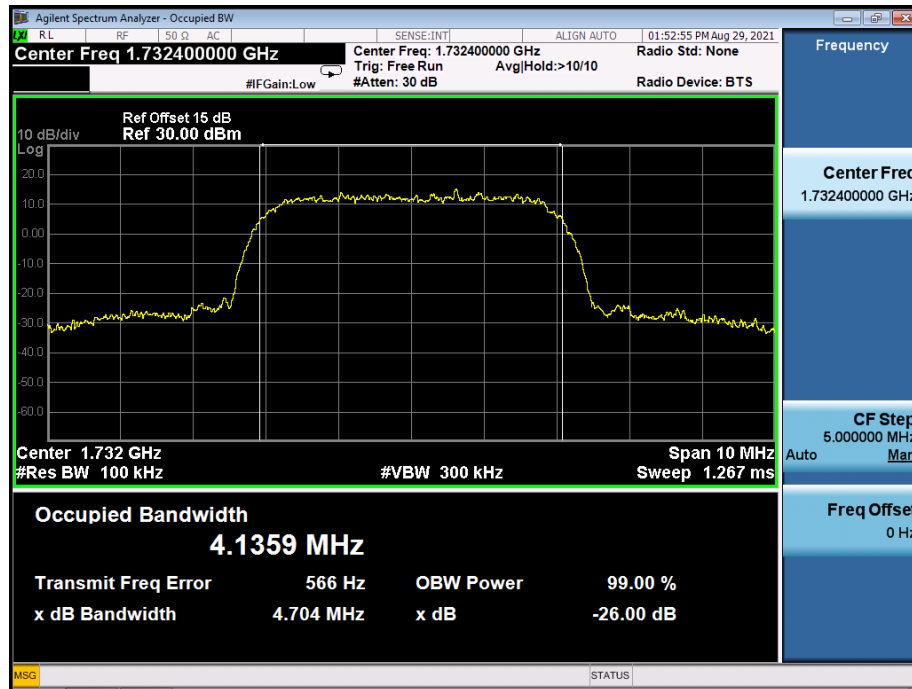
HSUPA High Channel



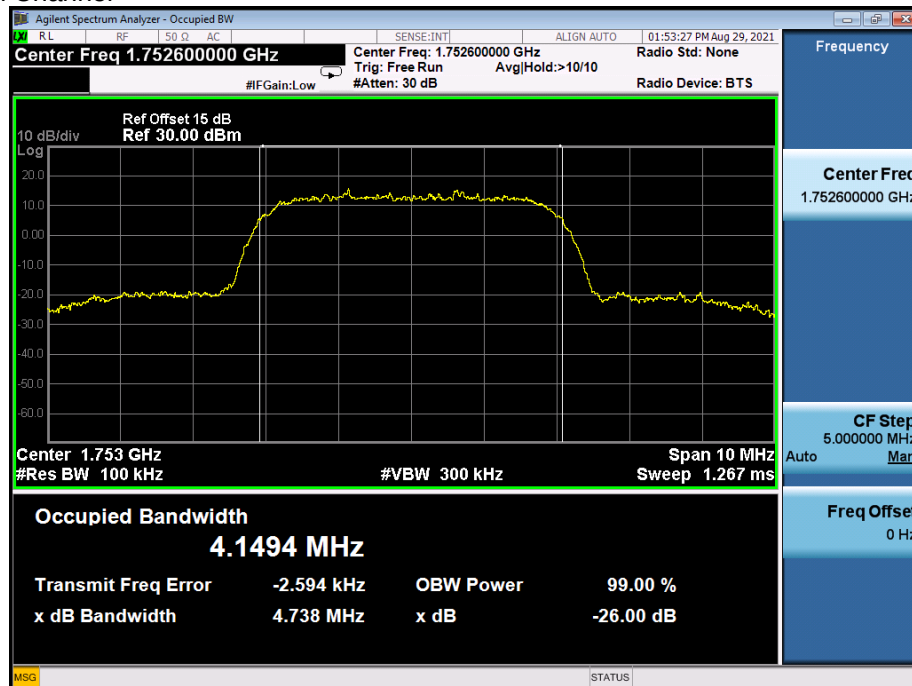
For WCDMA Band IV WCDMA Low Channel



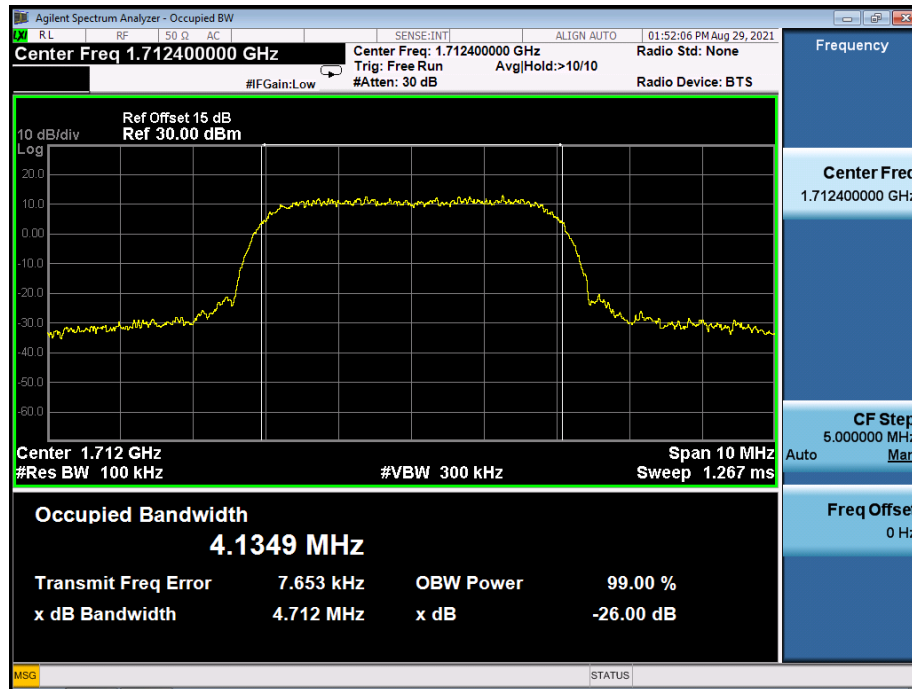
WCDMA Middle Channel



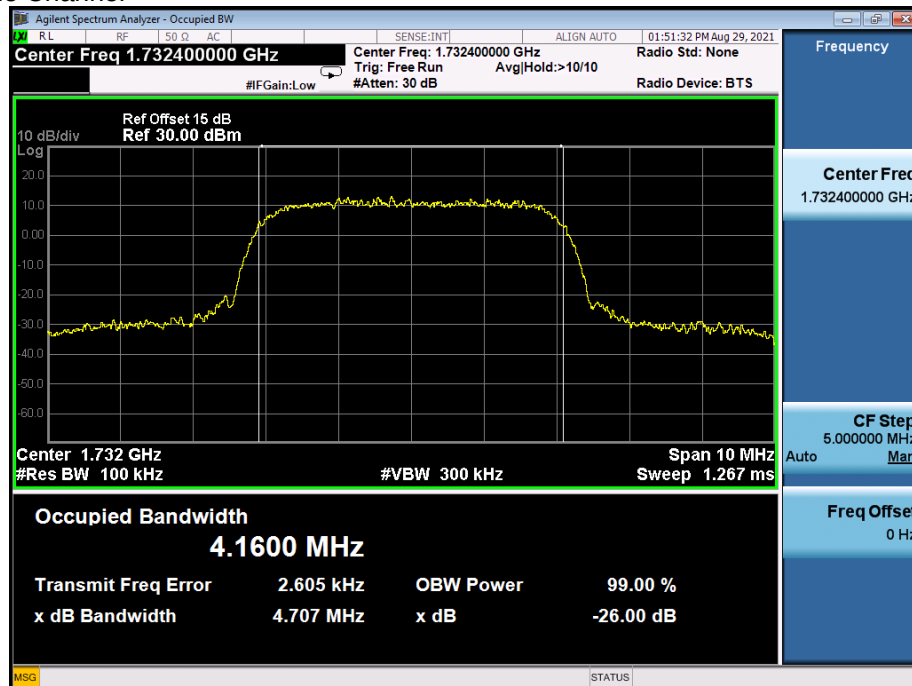
WCDMA High Channel



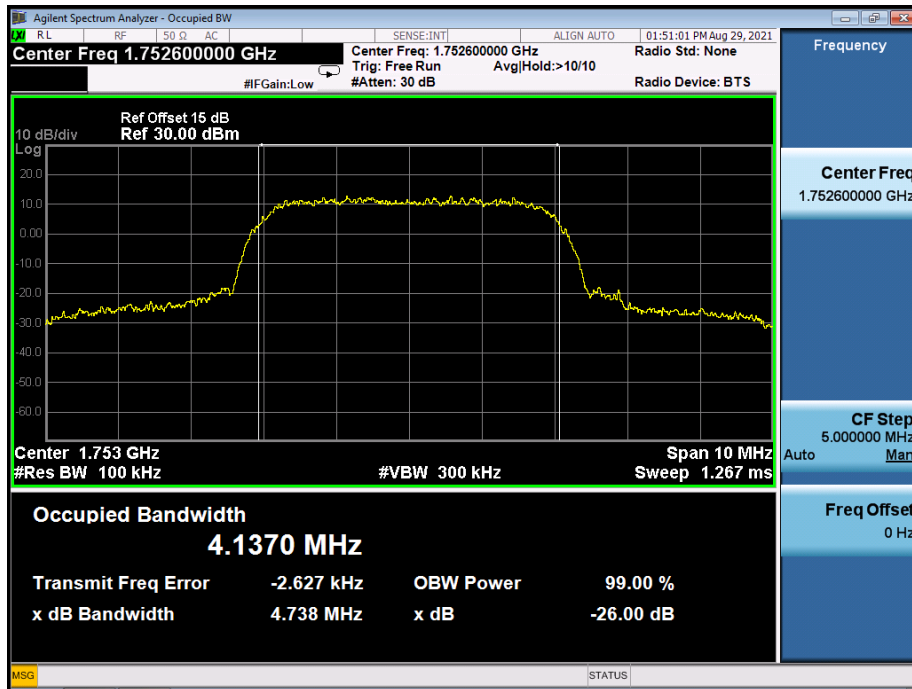
HSDPA Low Channel



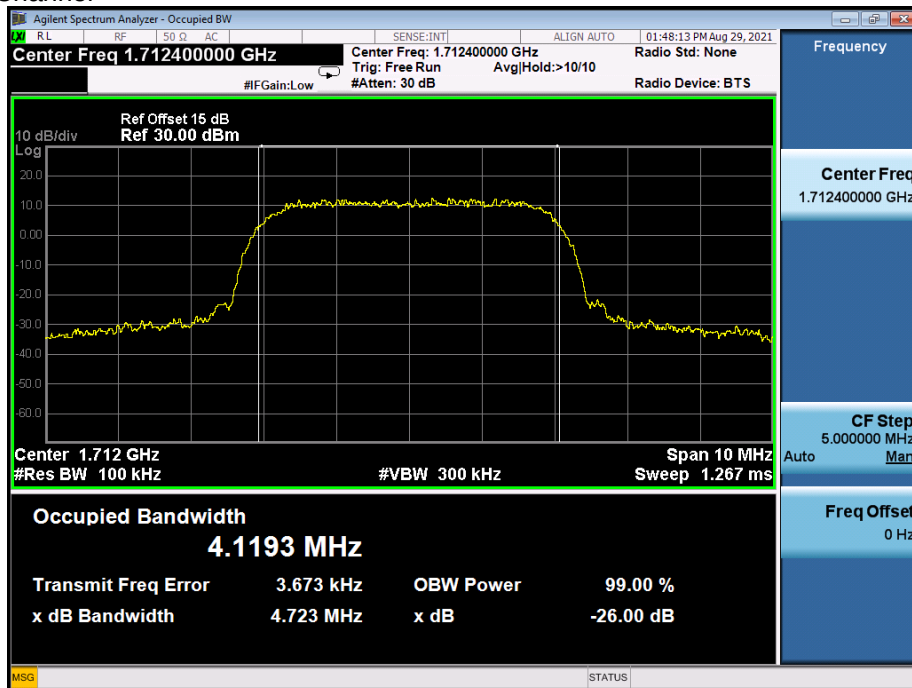
HSDPA Middle Channel



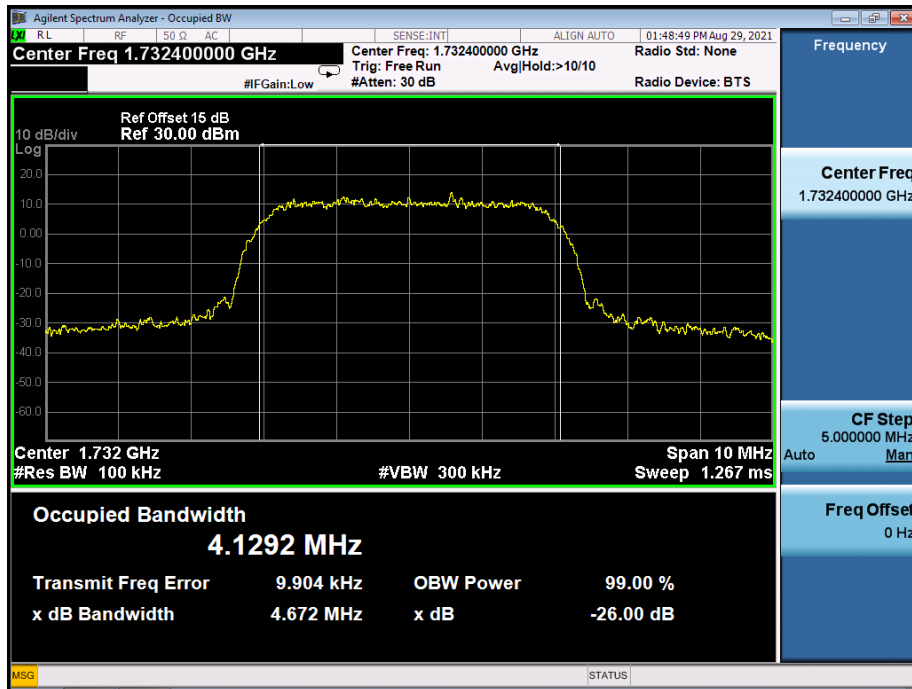
HSDPA High Channel



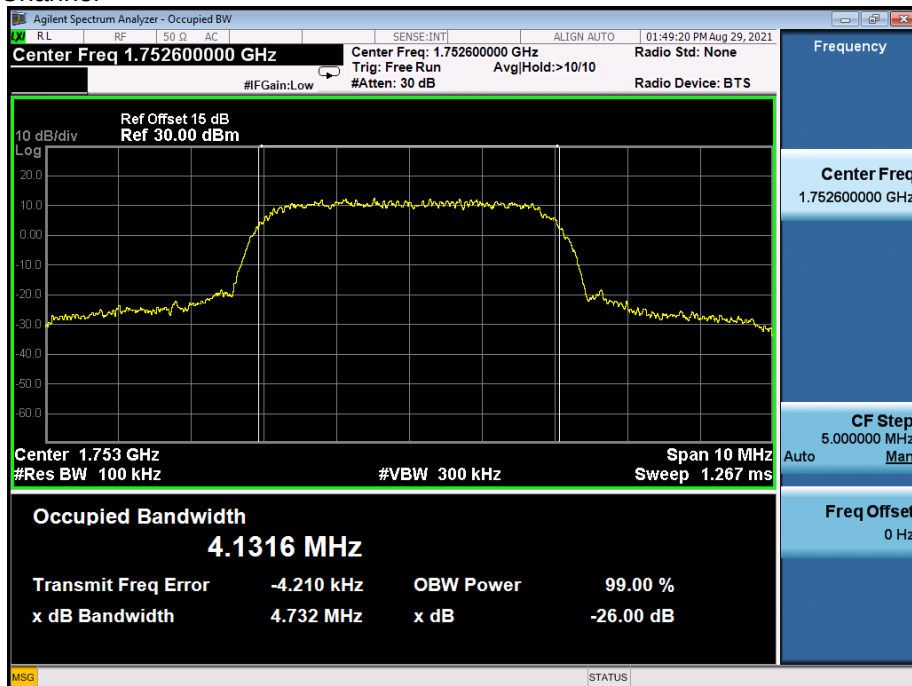
HSUPA Low Channel



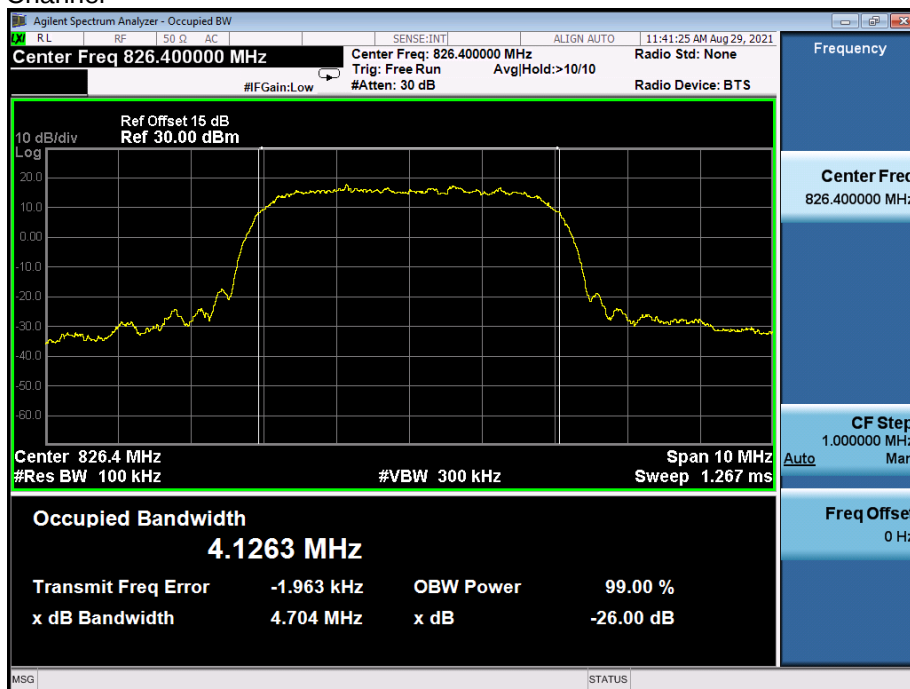
HSUPA Middle Channel



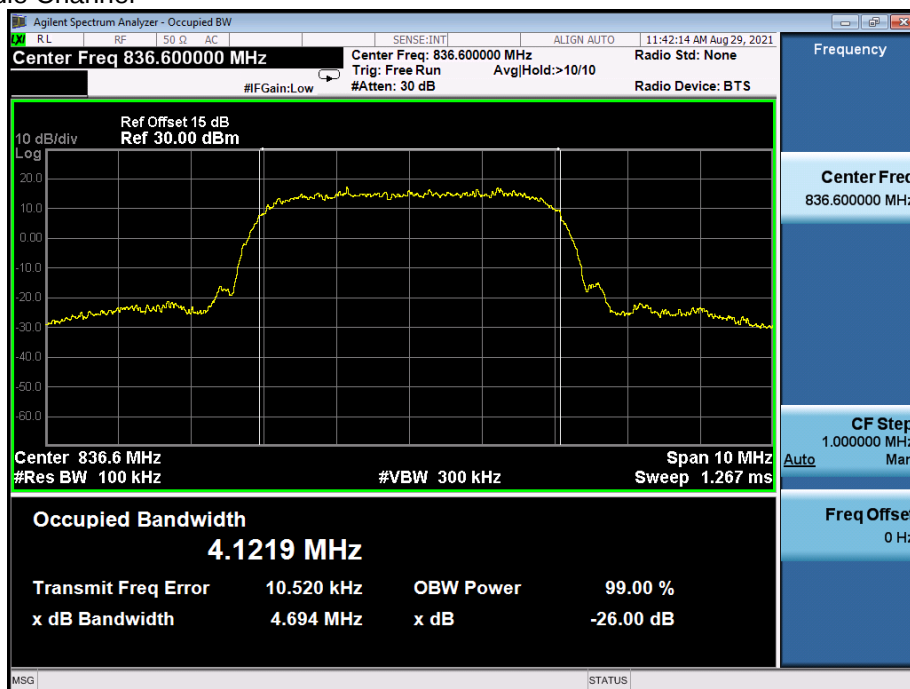
HSUPA High Channel



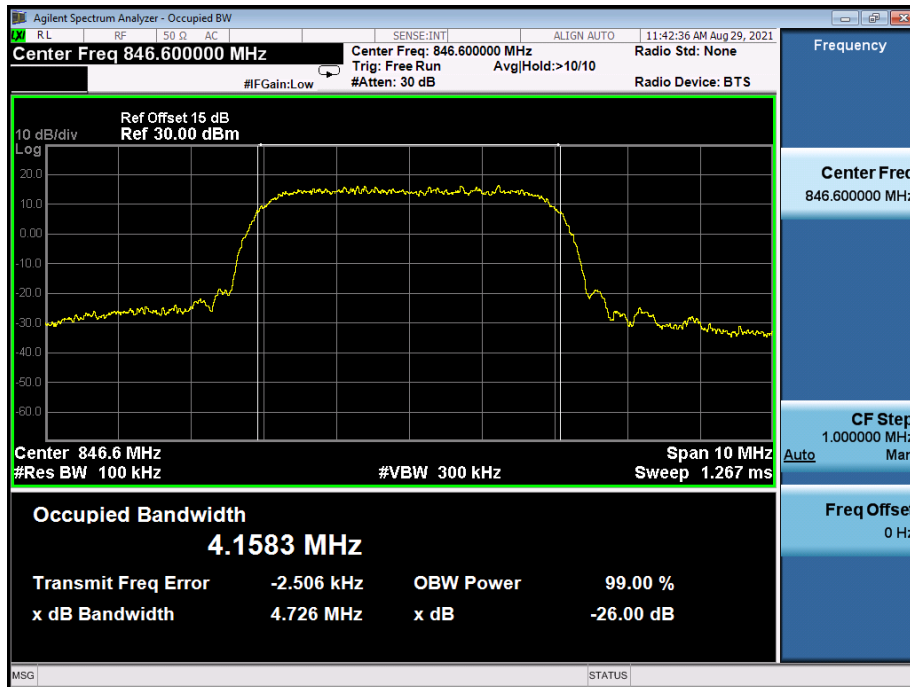
For WCDMA Band V
WCDMA Low Channel



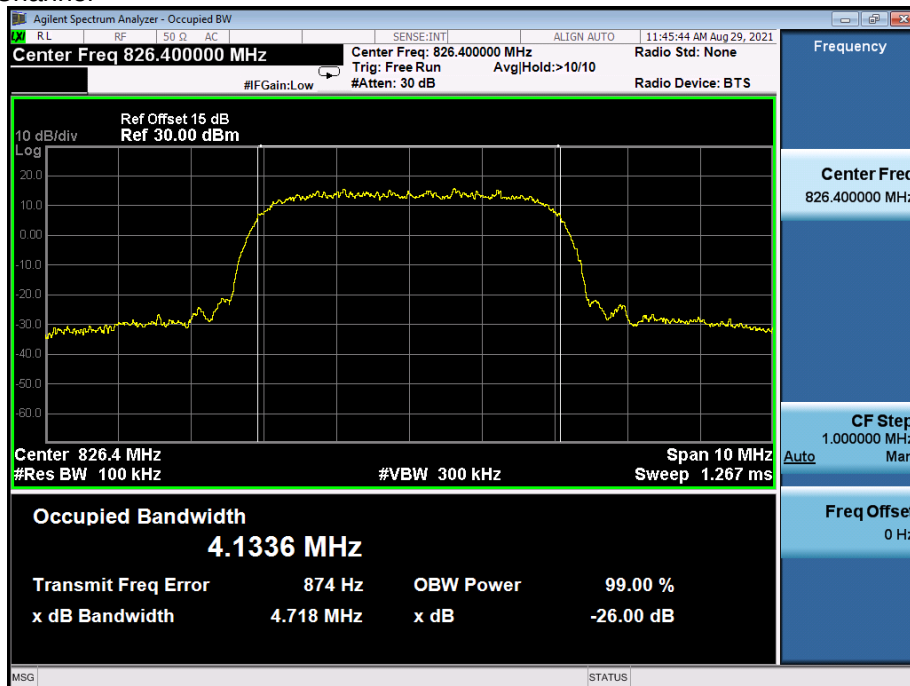
WCDMA Middle Channel



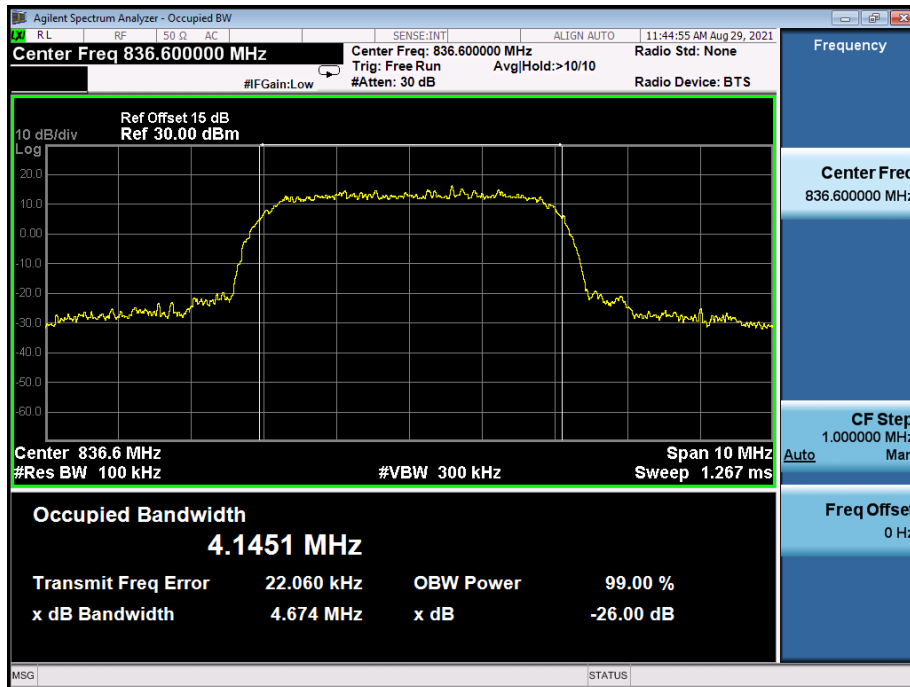
WCDMA High Channel



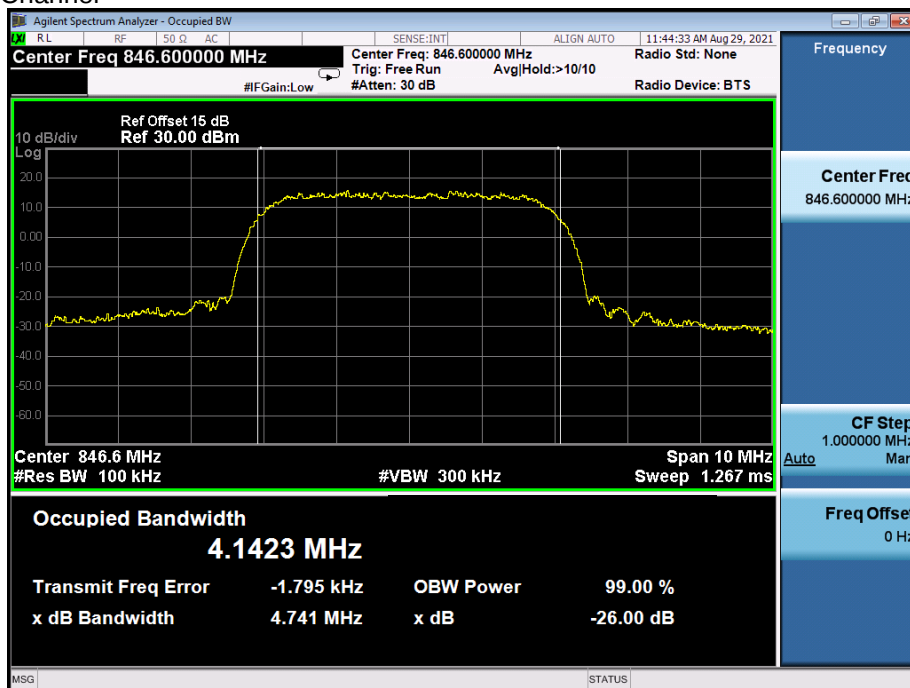
HSDPA Low Channel



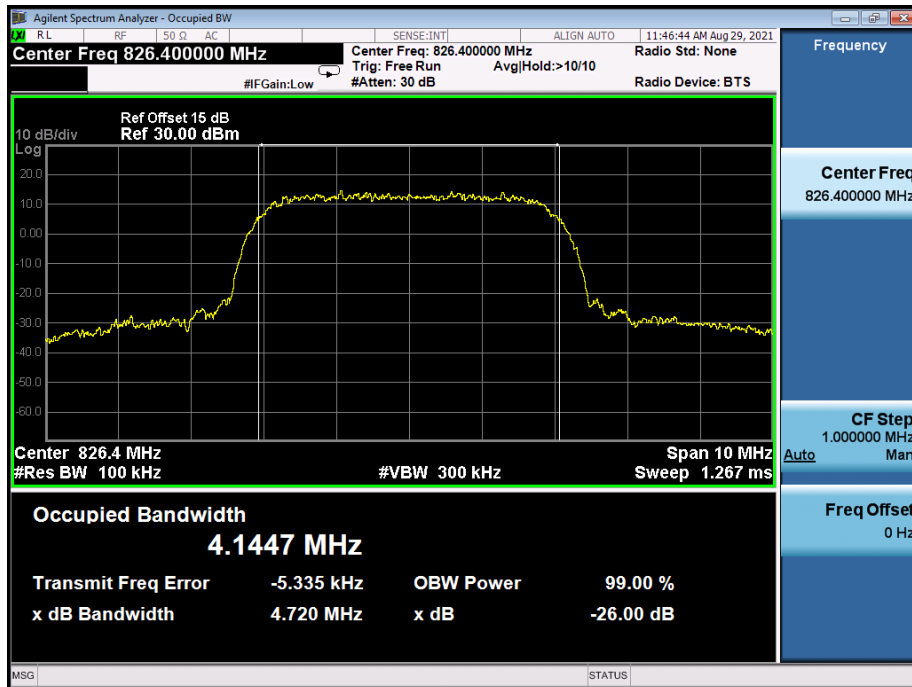
HSDPA Middle Channel



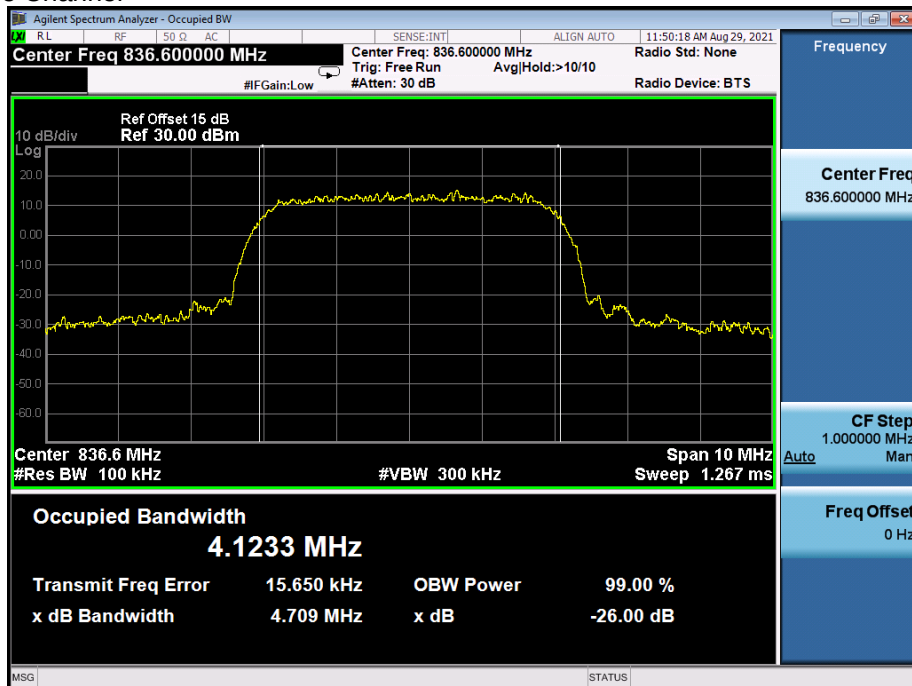
HSDPA High Channel



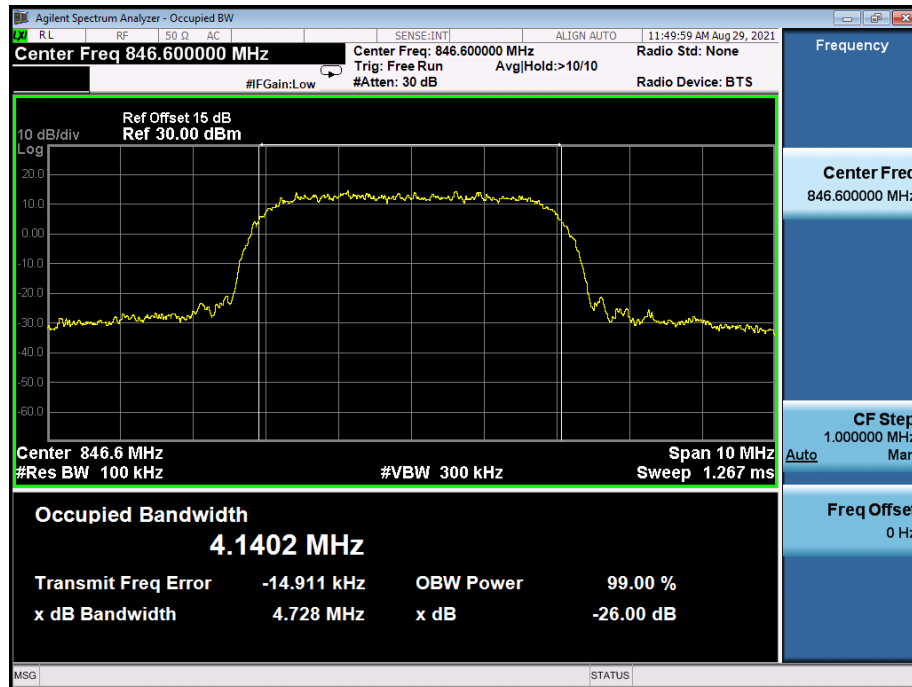
HSUPA Low Channel



HSUPA Middle Channel

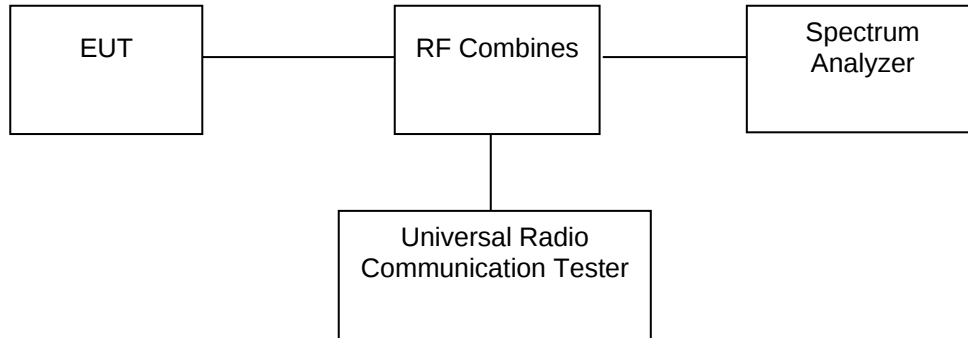


HSUPA High Channel



9. Out of Band Emissions at Antenna Terminal

9.1 Block Diagram Of Test Setup



9.2 Limit

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.

According to §27.53 (h), the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB.

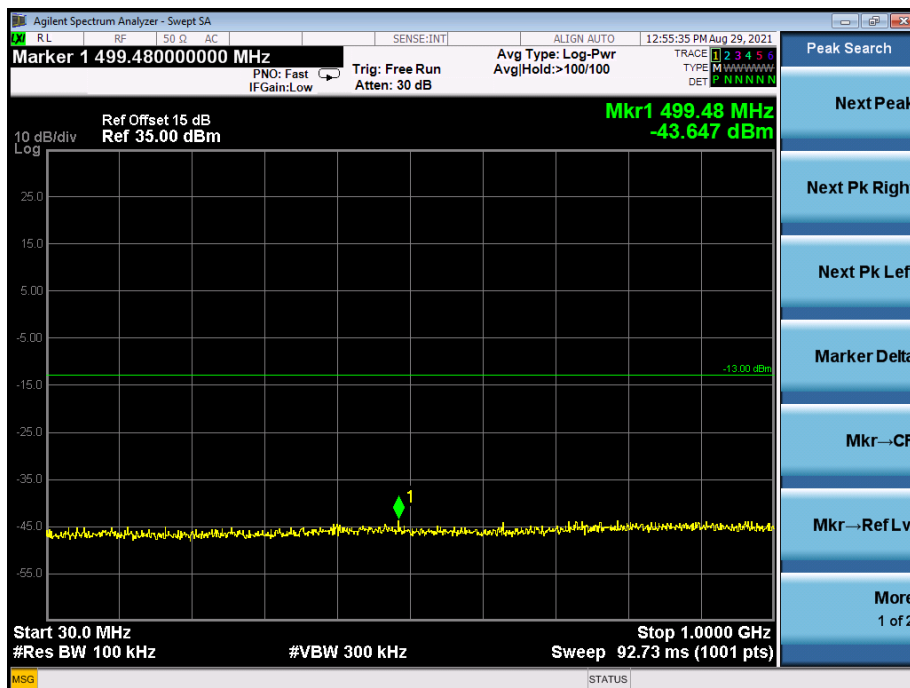
9.3 Test procedure

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.

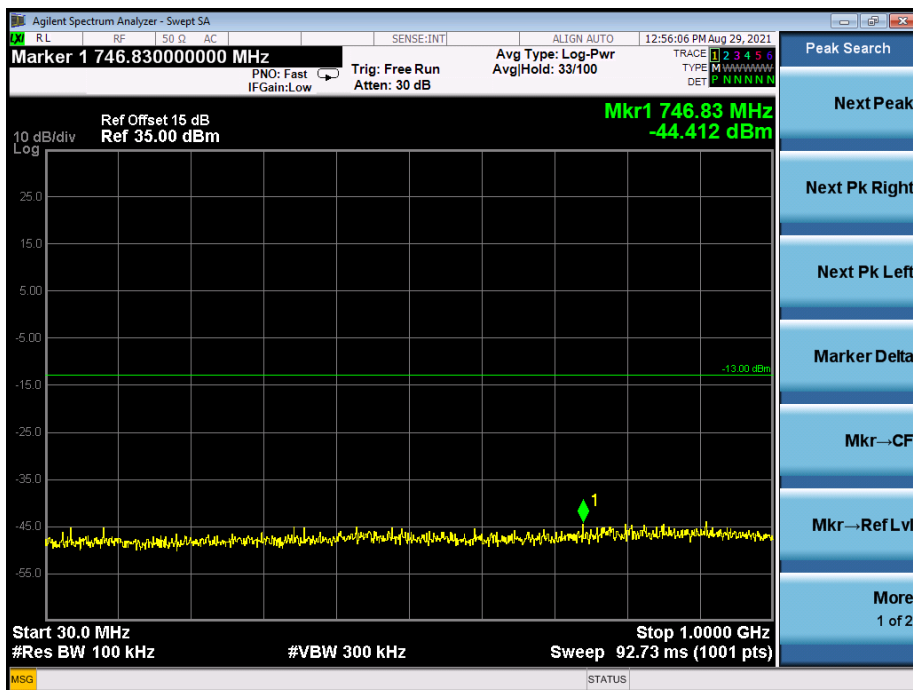
9.4 Test Result

For WCDMA Band II

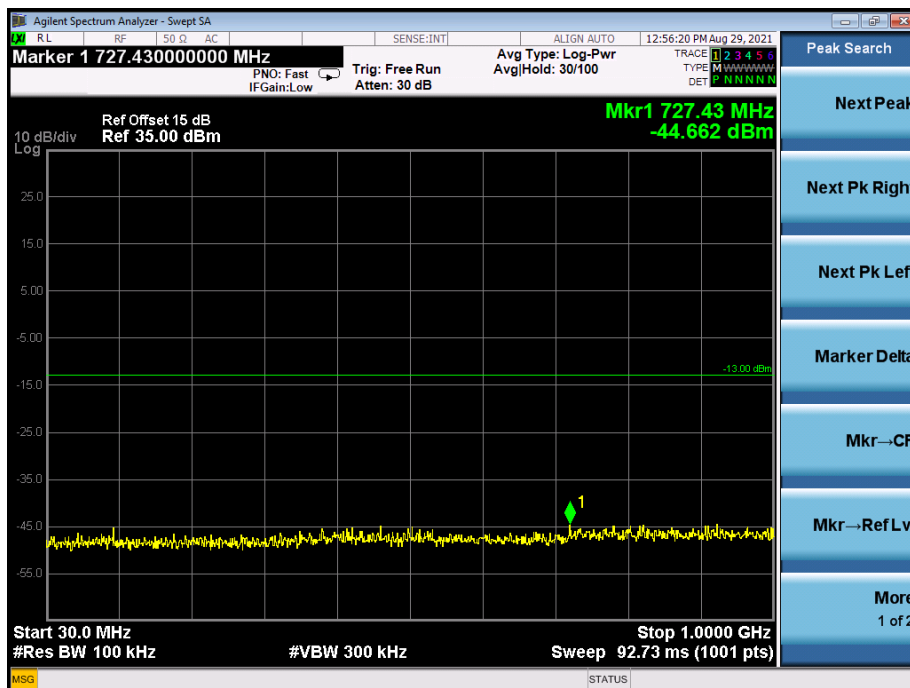
WCDMA Low Channel



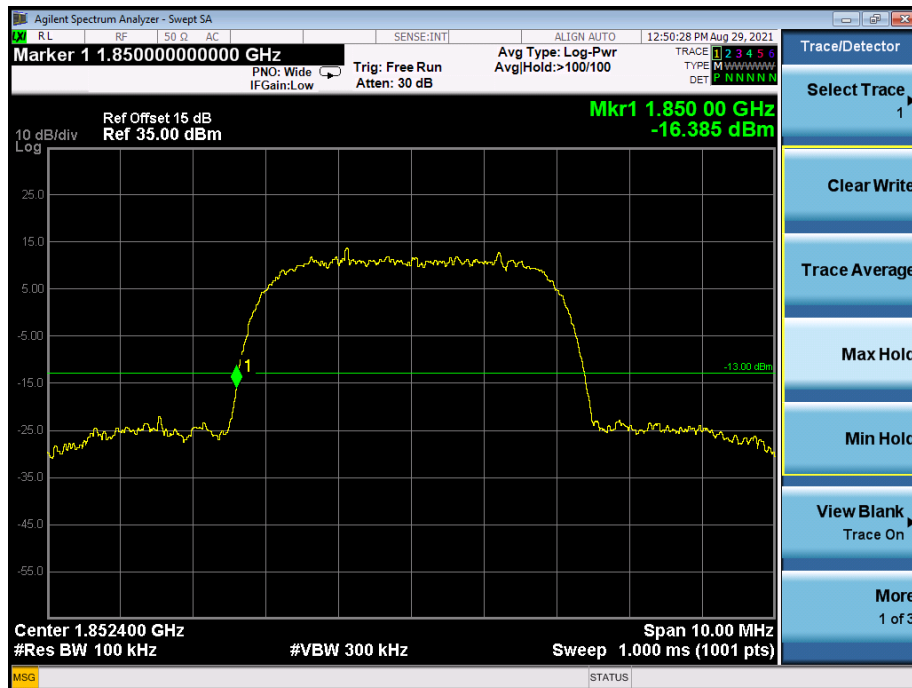
WCDMA Middle Channel



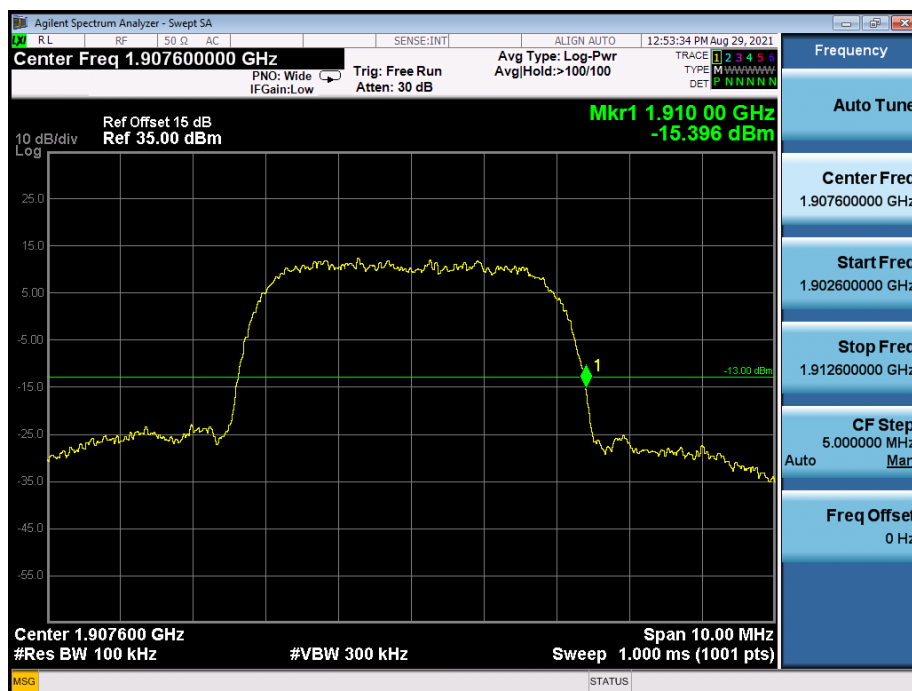
WCDMA High Channel



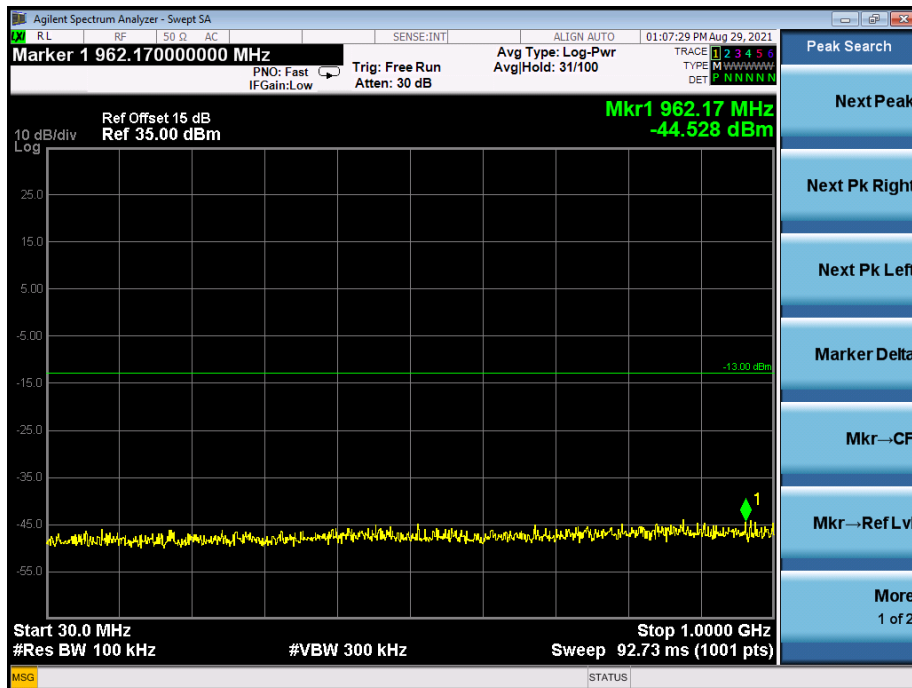
WCDMA Low Band Spurious Emission



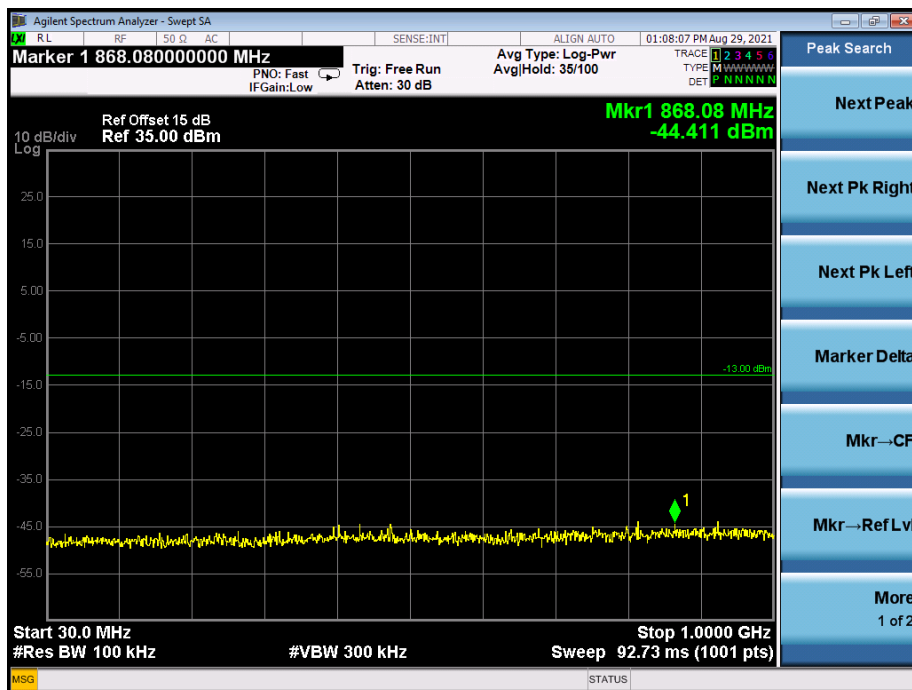
WCDMA High Band Spurious Emission



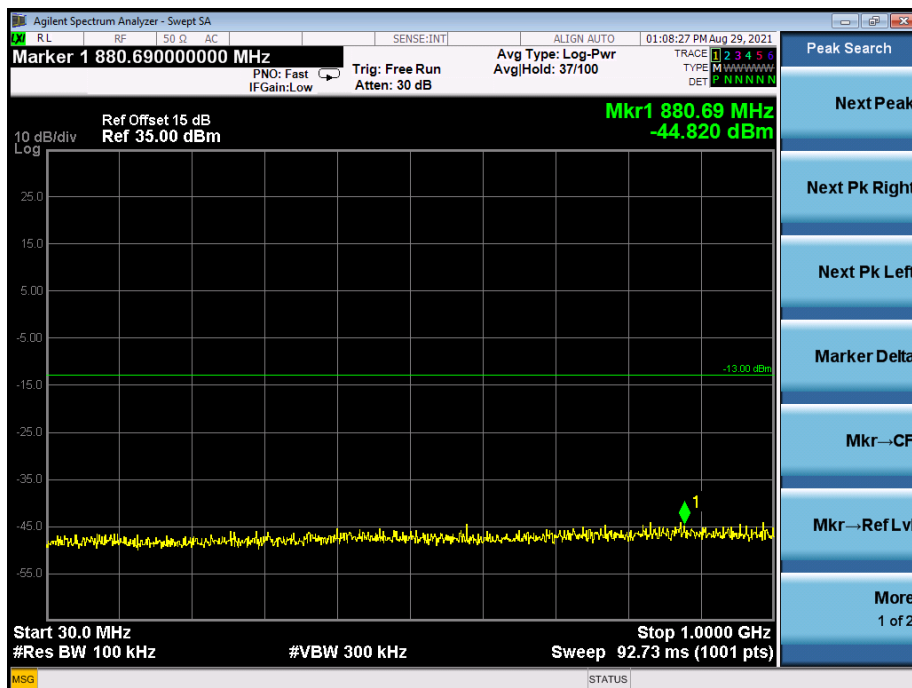
HSDPA Low Channel



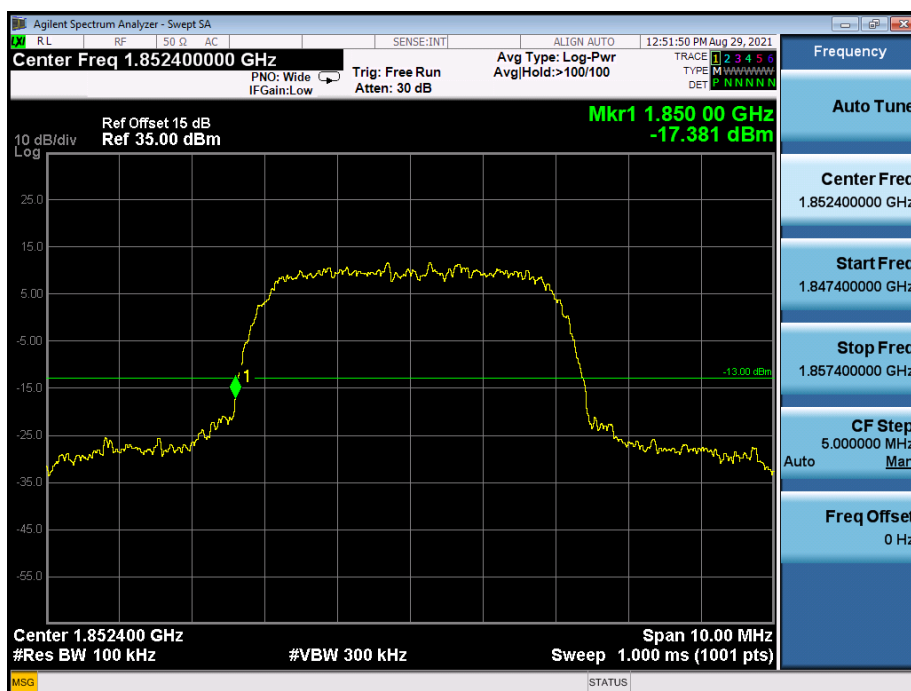
HSDPA Middle Channel



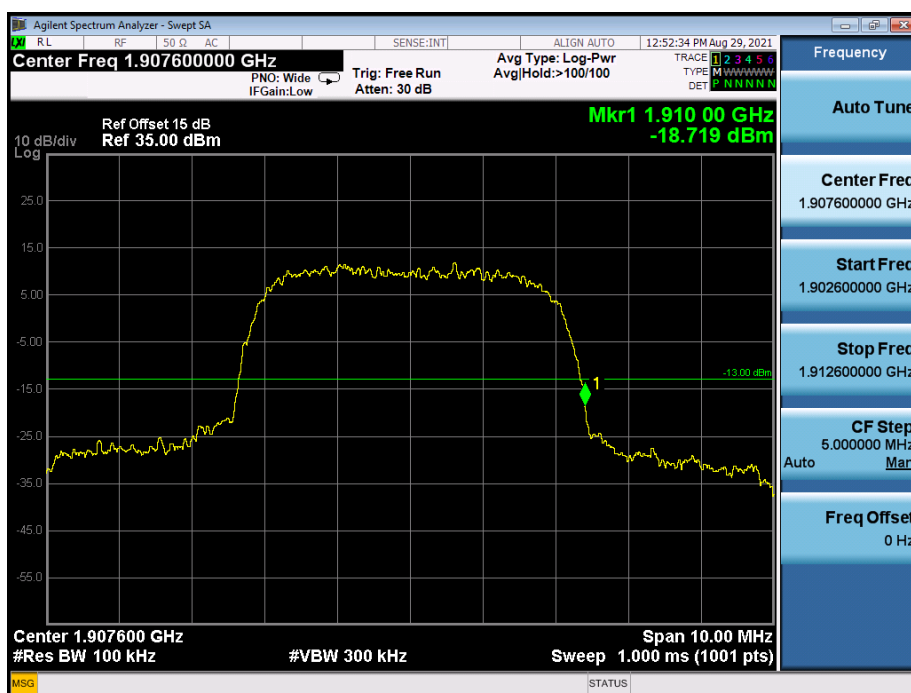
HSDPA High Channel



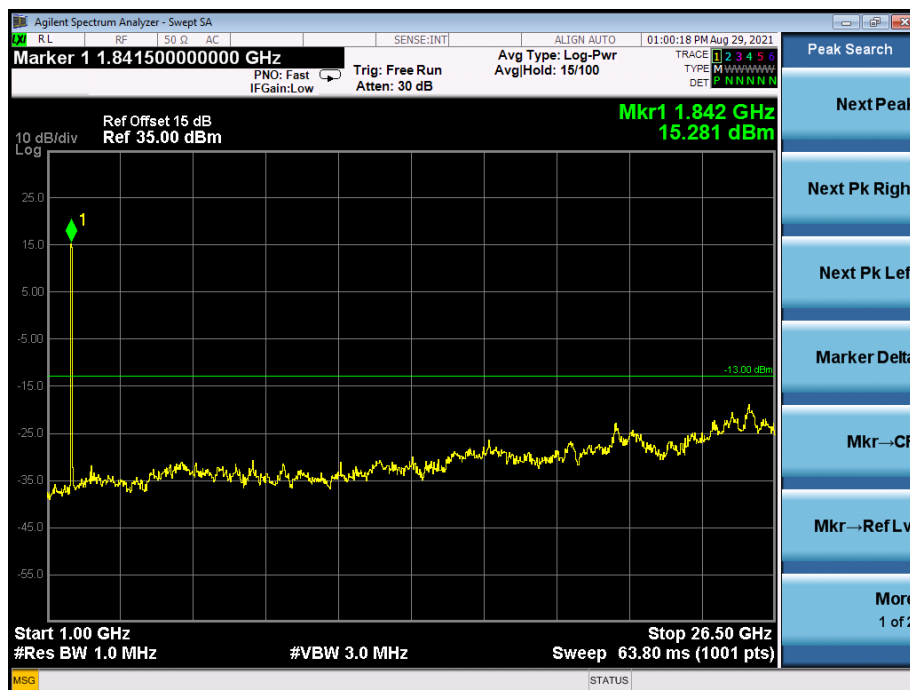
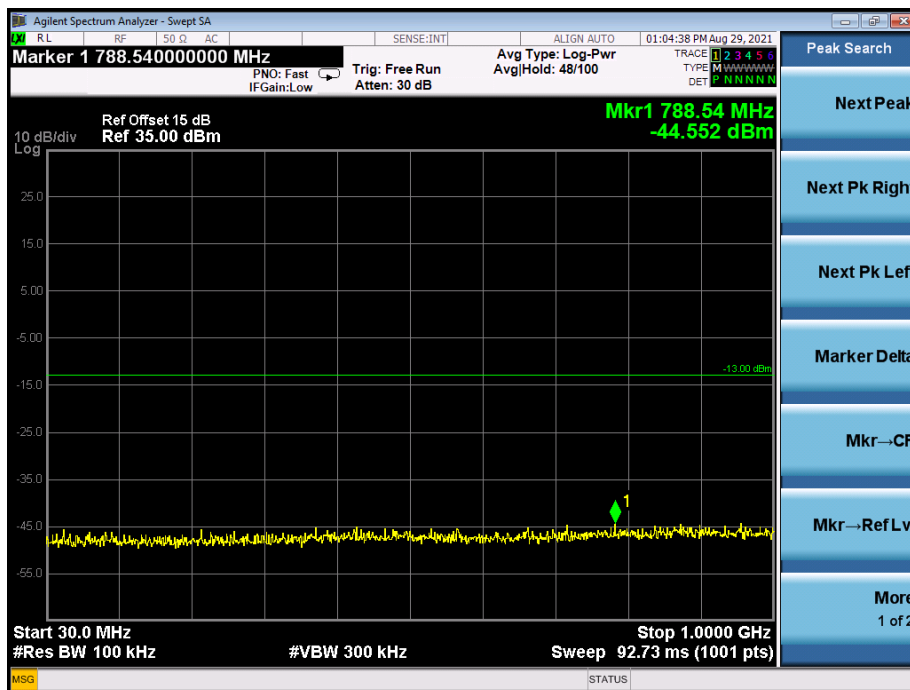
HSDPA Low Band Spurious Emission



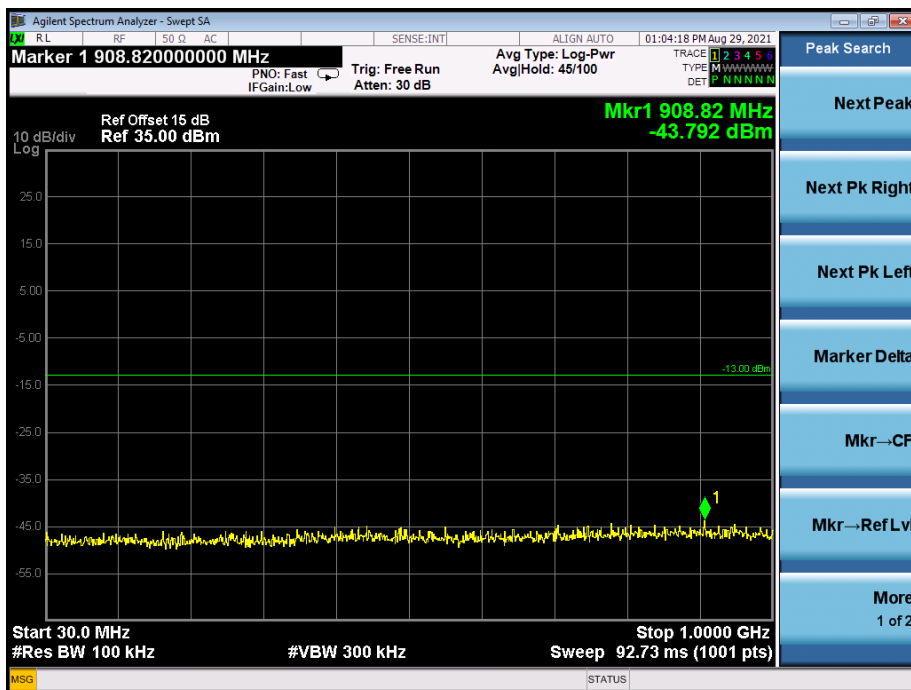
HSDPA High Band Spurious Emission



HSUPA Low Channel



HSUPA Middle Channel



HSUPA High Channel

