



TEST REPORT

MANUFACTURER : mMax Communications, Inc.

PRODUCT NAME : Mobile Hotspot

MODEL NAME : HPP-M14

BRAND NAME : Hot Pepper

FCC ID : 2AWVS-M14

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

RECEIPT DATE : 2020-07-15

TEST DATE : 2020-07-16 to 2020-08-05

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Change History		
Version	Date	Reason for change
1.0	2020-08-17	First edition



1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	mMax Communications, Inc.
Applicant Address:	5151 California Ave., Suite 100, Irvine 92617, USA
Manufacturer:	mMax Communications, Inc.
Manufacturer Address:	5151 California Ave., Suite 100, Irvine 92617, USA

1.2. Equipment Under Test (EUT) Description

Product Name:	Mobile Hotspot	
Serial No:	(N/A, marked #1 by test site)	
Hardware Version:	SD305T_V1.0	
Software Version:	Fresno_V1.0.2_RLK	
Modulation Type:	WCDMA Mode with QPSK Modulation HSDPA Mode with QPSK Modulation HSUPA Mode with QPSK Modulation	
Operating Frequency Range:	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 WCDMA Band IV Tx: 1712.4 - 1752.6MHz Rx: 2112.4 - 2152.6MHz	
Antenna Type:	Fixed Internal	
Antenna Gain:	WCDMA Band V:	0.1 dBi
	WCDMA Band II:	1.2 dBi
	WCDMA Band IV:	1.5dBi
Accessory Information:	Battery	
	Manufacturer:	Shenzhen Chaonengtong Technology Co.,LTD.
	Brand Name:	Hot Pepper

	Model No.:	C2020M14
	Capacity:	3000mAh
	Rated Voltage:	3.70V
	Charge Limit:	4.20V
	AC Adapter	
	Manufacturer:	Shenzhen King Fu Lin Technology Co.,Ltd
	Brand Name:	Hot Pepper
	Model No.:	KFL-C060500100
	Rated Input:	100-240V ~ 50/60Hz 0.2A
	Rated Output:	5V=1.0A

- Note 1:** 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 2:** 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 3:** 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 4:** 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:
WCDMA mode for WCDMA band V;
WCDMA mode for WCDMA band II;
WCDMA mode for WCDMA band IV;
- Note 5:** 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
WCDMA Band V	0.104	4M16F9W
WCDMA Band II	0.184	4M14F9W
WCDMA Band IV	0.176	4M13F9W

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	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 22	Public Mobile Services
3	47 CFR Part 24	Personal Communications Services
4	47 CFR Part 27	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
1	2.1046	Conducted RF Output Power	Jul 20,2020	Stefan Sun	PASS
2	22.913(d) 24.232(d), 27.50(d)	Peak - Average Ratio	Jul 20,2020	Stefan Sun	PASS
3	2.1049	99% Occupied Bandwidth	Jul 20,2020	Stefan Sun	PASS
4	2.1055, 22.355, 24.235, 27.54	Frequency Stability	Jul 20,2020	Stefan Sun	PASS
5	2.1051, 22.917(a), 24.238(a), 27.53(h)	Conducted Out of Band Emissions	Jul 20,2020	Stefan Sun	PASS
6	2.1051, 22.917(a), 24.238(a), 27.53(h)	Band Edge	Jul 20,2020	Stefan Sun	PASS
7	22.913(a), 27.50(d),24.232(a)	Transmitter Radiated Power (EIPR/ERP)	Jul 20,2020	Stefan Sun	PASS
8	2.1051, 22.917(a), 24.238(a), 27.53(h)	Radiated Out of Band Emissions	Jul 14,2020 Jul 25,2020	Bowers	PASS



Note 1: The tests were performed according to the method of measurements prescribed in KDB971168 D01 v03r01 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.

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

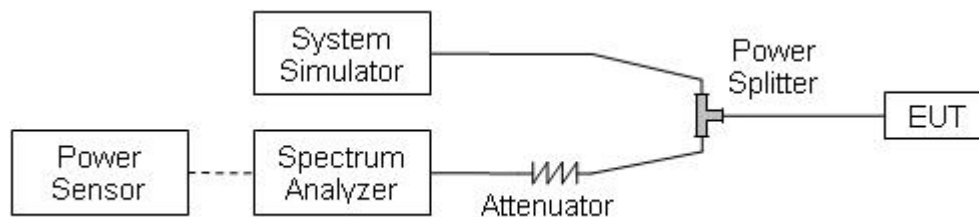
2.1. Conducted RF Output Power

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**

WCDMA Band II	Average Power (dBm)		
TX Channel	9262	9400	9538
Frequency (MHz)	1852.4	1880.0	1907.6
AMR 12.2Kbps	21.40	21.36	21.75
RMC 12.2Kbps	21.62	21.76	21.90
HSDPA Subtest-1	20.66	20.80	20.83
HSDPA Subtest-2	20.59	20.50	20.67
HSDPA Subtest-3	19.50	19.42	19.69
HSDPA Subtest-4	19.52	19.52	19.53
HSUPA Subtest-1	20.05	19.99	20.14
HSUPA Subtest-2	20.64	20.77	20.84
HSUPA Subtest-3	19.87	20.18	20.18
HSUPA Subtest-4	20.70	20.85	20.86
HSUPA Subtest-5	19.80	20.02	20.19
HSPA+ (16QAM) Subtest-1	19.83	19.92	19.90

WCDMA Band IV	Average Power (dBm)		
TX Channel	1312	1413	1513
Frequency (MHz)	1712.4	1732.6	1752.6
AMR 12.2Kbps	21.33	21.26	21.54
RMC 12.2Kbps	21.51	21.38	21.68
HSDPA Subtest-1	20.46	20.40	20.58
HSDPA Subtest-2	20.34	20.18	20.43
HSDPA Subtest-3	19.22	19.14	19.41
HSDPA Subtest-4	18.91	18.90	19.08
HSUPA Subtest-1	19.59	19.62	19.85
HSUPA Subtest-2	20.48	20.38	20.60
HSUPA Subtest-3	19.74	19.92	19.92
HSUPA Subtest-4	20.51	20.41	20.60
HSUPA Subtest-5	19.73	19.44	19.79
HSPA+ (16QAM) Subtest-1	19.96	19.86	19.88



WCDMA Band V	Average Power (dBm)		
TX Channel	4132	4182	4233
Frequency (MHz)	826.4	836.4	846.6
AMR 12.2Kbps	22.17	22.28	22.37
RMC 12.2Kbps	22.48	22.49	22.44
HSDPA Subtest-1	21.49	21.52	21.49
HSDPA Subtest-2	21.11	21.15	21.09
HSDPA Subtest-3	19.82	20.32	20.07
HSDPA Subtest-4	20.15	20.20	19.86
HSUPA Subtest-1	20.54	20.82	20.67
HSUPA Subtest-2	21.45	21.40	21.27
HSUPA Subtest-3	20.90	20.91	20.70
HSUPA Subtest-4	21.45	21.52	21.49
HSUPA Subtest-5	20.65	20.72	20.65
HSPA+ (16QAM) Subtest-1	19.50	19.64	19.49

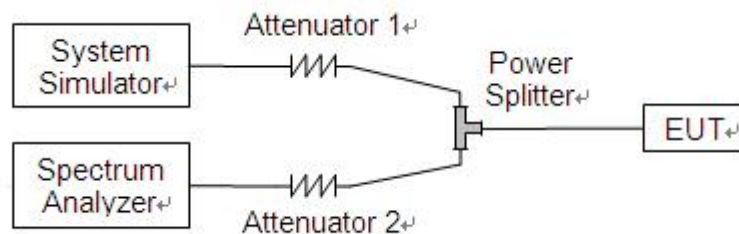
2.2. Peak to Average Ratio

2.2.1. Requirement

According to FCC 24.232(d)&22.913(d)&27.50(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%.

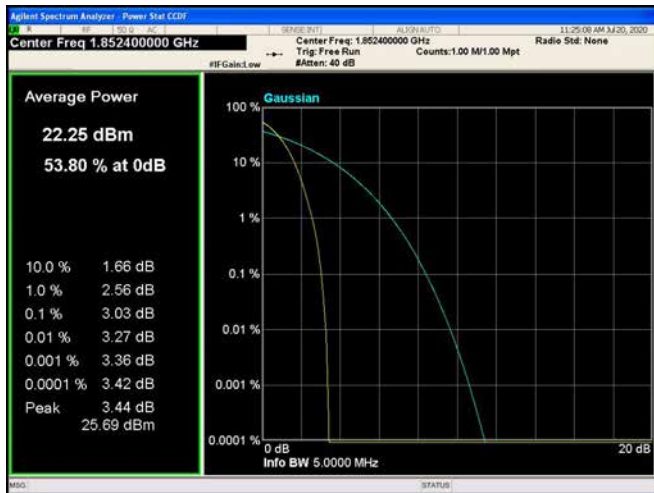
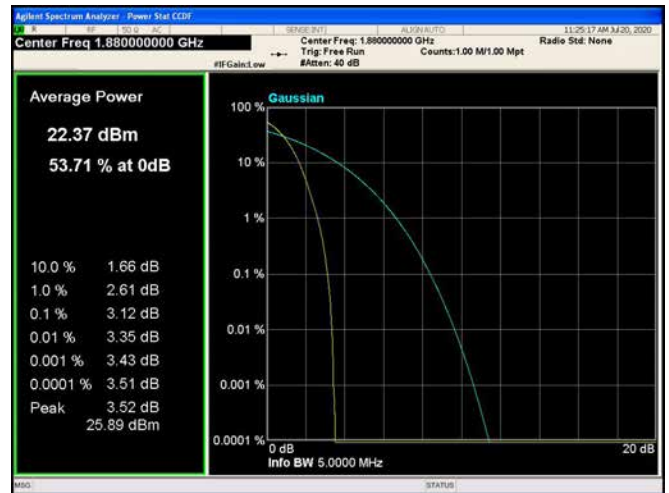


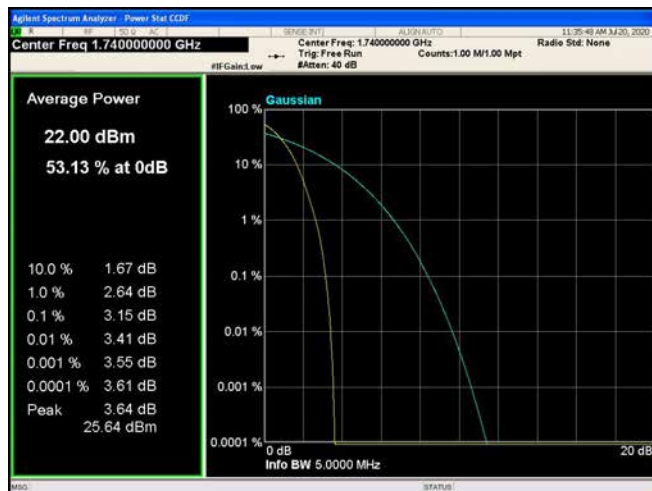
2.2.4. Test Result

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	
WCDMA Band II	9262	1852.4	3.03	13	PASS
	9400	1880.0	3.12		PASS
	9538	1907.6	3.16		PASS
WCDMA Band IV	1312	1712.4	3.18		PASS
	1413	1732.6	3.15		PASS
	1513	1752.6	3.20		PASS
WCDMA Band V	4132	826.4	2.91		PASS
	4182	836.4	2.93		PASS
	4233	846.6	2.92		PASS

**WCDMA Band II CH9262 1852.4MHz****WCDMA Band II CH9400 1880.0MHz****WCDMA Band II CH9538 1907.6MHz**

**WCDMA Band IV CH1312 1712.4MHz****WCDMA Band IV CH1413 1732.6MHz****WCDMA Band IV CH1513 1752.6MHz**

**WCDMA Band V CH4132 826.4MHz****WCDMA Band V CH4182 836.4MHz****WCDMA Band V CH4233 846.6MHz**

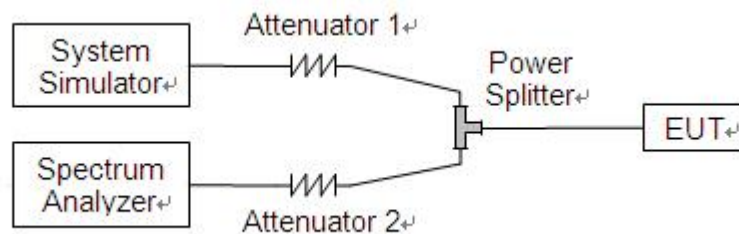
2.3.99% Occupied Bandwidth

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.

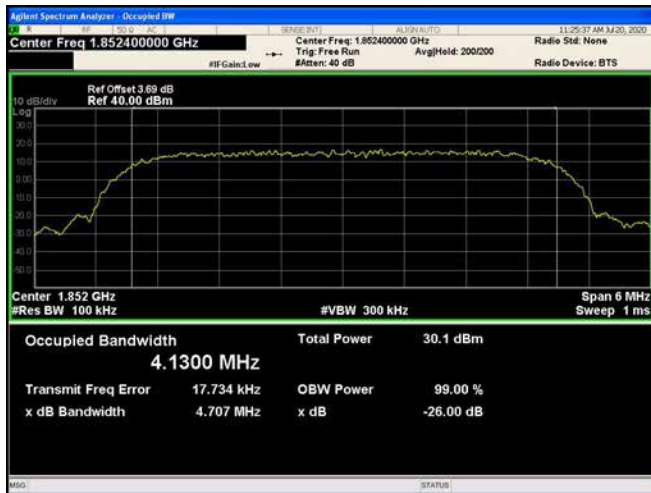
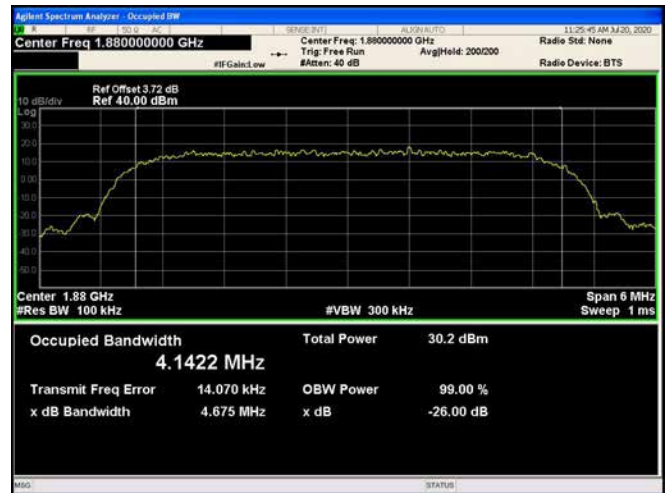
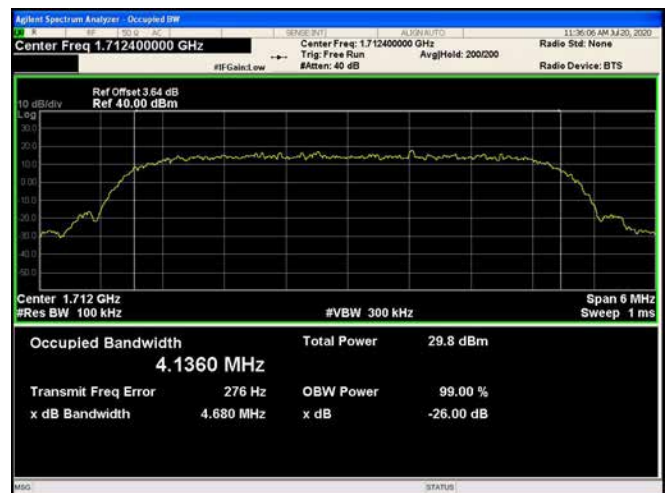
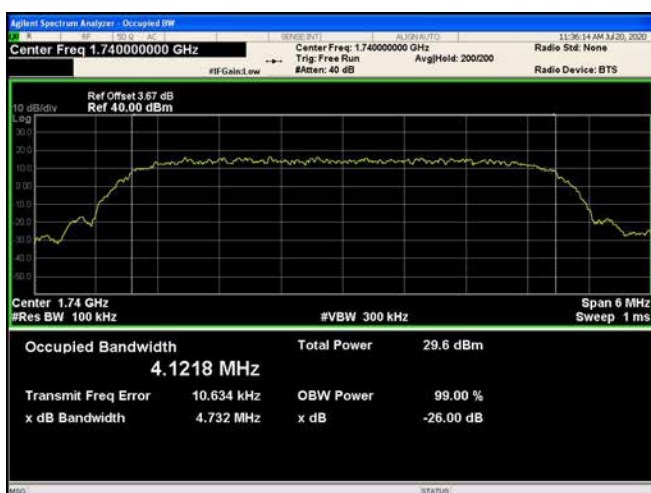
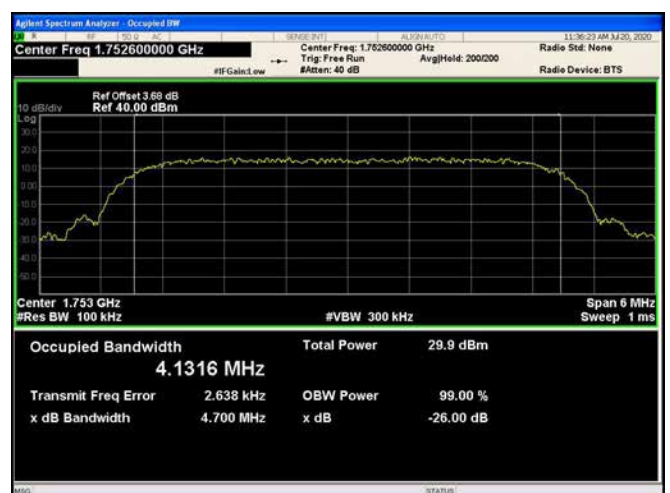


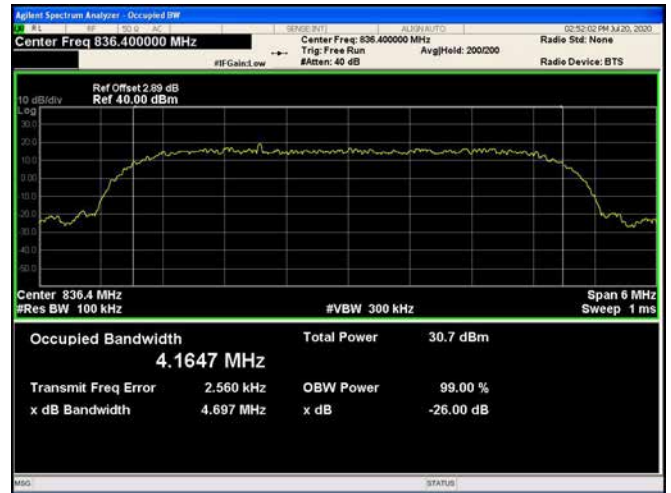
2.3.3. Test Result

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

WCDMA Test Verdict:

Band	Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
WCDMA Band II	9262	1852.4	4.130	4.707
	9400	1880.0	4.142	4.674
	9538	1907.6	4.120	4.719
WCDMA Band IV	1312	1712.4	4.136	4.679
	1413	1732.6	4.121	4.731
	1513	1752.6	4.131	4.700
WCDMA Band V	4132	826.4	4.155	4.741
	4182	836.4	4.164	4.696
	4233	846.6	4.139	4.715

**WCDMA Band II CH9262 1852.4MHz****WCDMA Band II CH9400 1880.0MHz****WCDMA Band II CH9538 1907.6MHz****WCDMA Band IV CH1312 1712.4MHz****WCDMA Band IV CH1413 1732.6MHz****WCDMA Band IV CH1513 1752.6MHz**

**WCDMA Band V CH4132 826.4MHz****WCDMA Band V CH4182 836.4MHz****WCDMA Band V CH4233 846.6MHz**



2.4. Frequency Stability

2.4.1. Requirement

According to FCC section 22.355, 24.235 and 27.54 the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

- (a) The temperature is varied from -15°C to $+55^{\circ}\text{C}$ at intervals of not more than 10°C .
- (b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

2.4.2. Test Description

Test Setup:



The EUT, which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (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 via a Common Antenna.

**2.4.3. Test Result****A. Test Verdict:**

WCDMA Band V, Channel 4182, Frequency 836.4MHz Limit = ± 2.5 ppm					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.8	+20(Ref)	-0.96	-0.001	PASS
100		-15	-1.35	-0.001	
100		-5	-1.67	-0.002	
100		+5	-0.83	-0.001	
100		15	0.77	0.001	
100		+25	-2.64	-0.003	
100		+35	-1.54	-0.002	
100		+45	-1.82	-0.002	
100		+55	0.91	0.001	
115	4.2	+20	-1.25	-0.001	
85	3.6	+20	-1.74	-0.002	

WCDMA Band II, Channel 9400, Frequency 1880.0MHz Limit =Within Authorized Band					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.8	+20(Ref)	-1.32	-0.001	PASS
100		-15	1.46	0.001	
100		-5	-2.37	-0.001	
100		+5	-1.68	-0.001	
100		15	-1.69	-0.001	
100		+25	1.05	0.001	
100		+35	1.42	0.001	
100		+45	-0.89	0.000	
100		+55	-0.67	0.000	
115	4.2	+20	-2.64	-0.001	
85	3.6	+20	-1.85	-0.001	



WCDMA Band IV, Channel 1413, Frequency 1732.6MHz Limit =Within Authorized Band					
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
100	3.8	+20(Ref)	-3.56	-0.002	PASS
100		-15	-4.21	-0.002	
100		-5	2.73	0.002	
100		+5	-2.68	-0.002	
100		15	-3.54	-0.002	
100		+25	-4.55	-0.003	
100		+35	2.69	0.002	
100		+45	1.33	0.001	
100		+55	-2.64	-0.002	
115	4.2	+20	-4.08	-0.002	
85	3.6	+20	-3.47	-0.002	

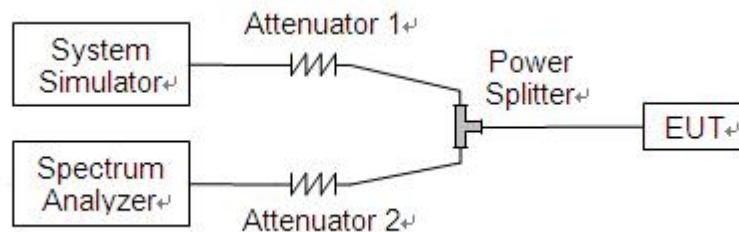
2.5. Conducted Out of Band Emissions

2.5.1. Requirement

According to FCC section 22.917(a), 24.238(a) and 27.53(h) the power of any emission 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. This calculated to be -13dBm.

2.5.2. Test Description

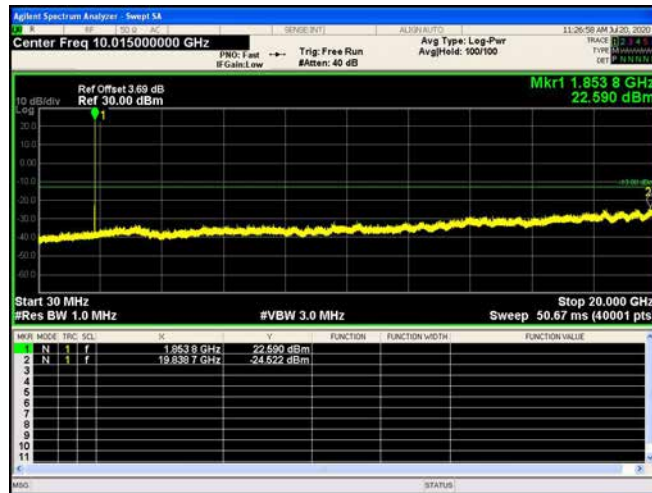
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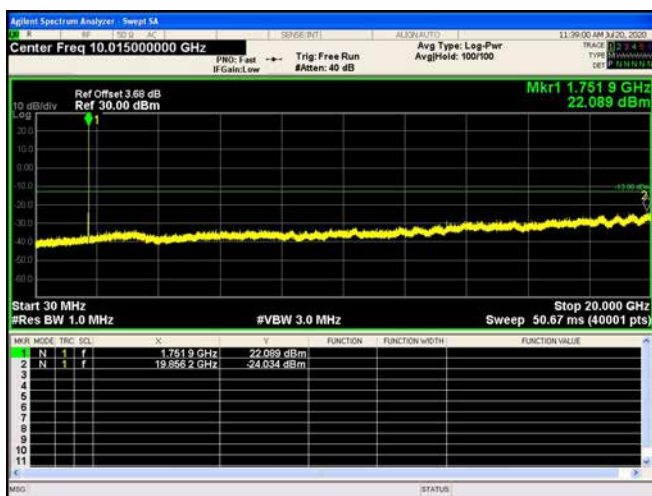


The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum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

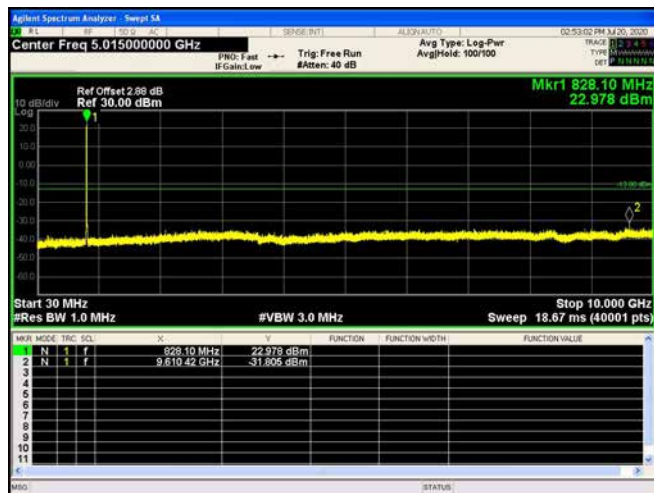
2.5.3. Test Result

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the out of band emissions.

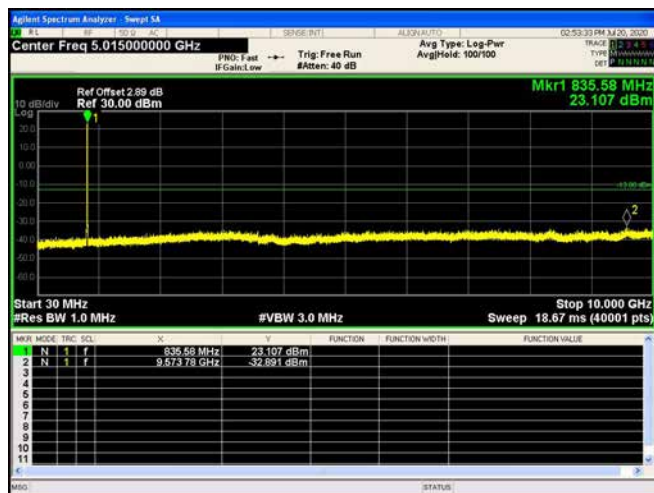
**WCDMA Band II CH9262 1852.4MHz****WCDMA Band II CH9400 1880.0MHz****WCDMA Band II CH9538 1907.6MHz**

**WCDMA Band IV CH1312 1712.4MHz****WCDMA Band IV CH1412 1734.8MHz****WCDMA Band IV CH1513 1755MHz**

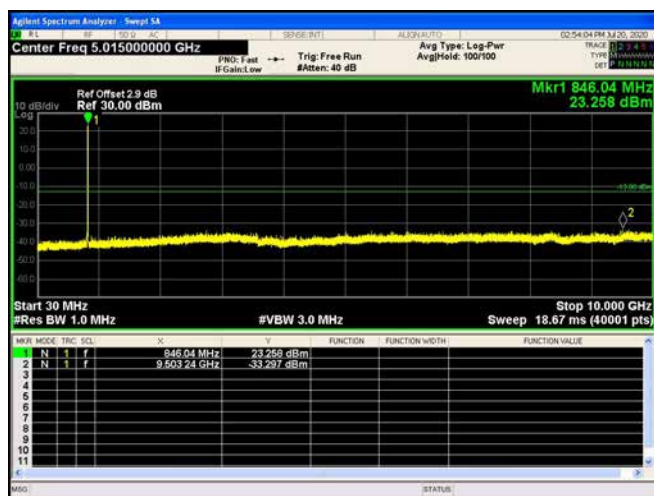
WCDMA Band V CH4132 826.4MHz



WCDMA Band V CH4182 836.4MHz



WCDMA Band V CH4233 846.6MHz



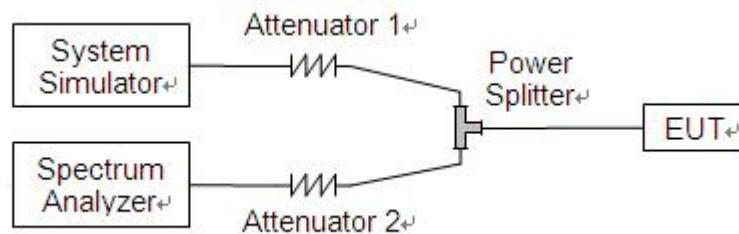
2.6. Band Edge

2.6.1. Requirement

According to FCC section 22.917(b), 24.238(b) and 27.53(h) in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth (26dB emission bandwidth) of the fundamental emission of the transmitter may be employed.

2.6.2. Test Description

Test Setup:

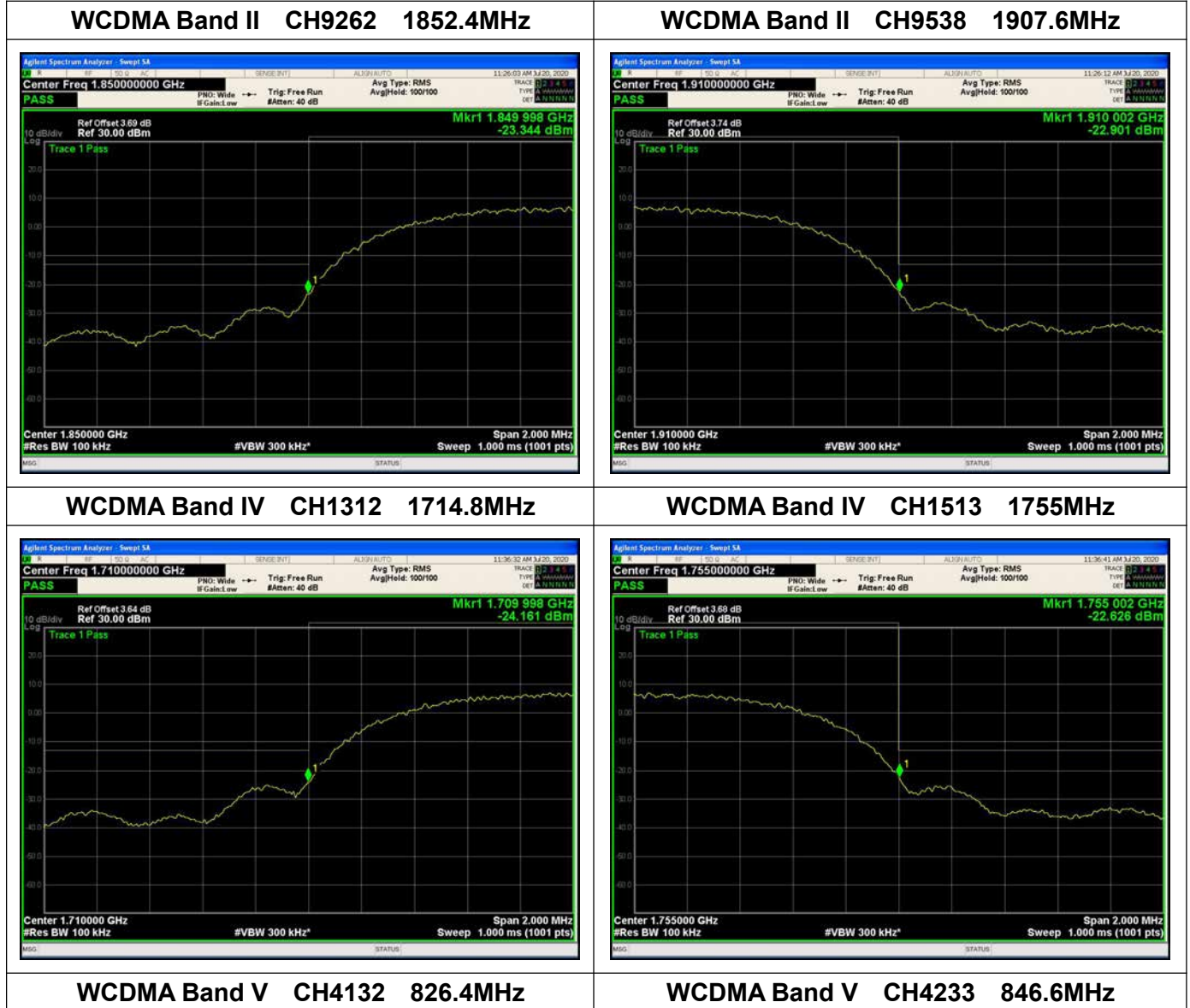


The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum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



2.6.3. Test Result

The lowest and highest channels are tested to verify the band edge emissions.





REPORT No. : XM20060054W01



2.7. Transmitter Radiated Power (EIRP/ERP)

2.7.1. Requirement

According to FCC section 22.913, the Effective Radiated Power (ERP) of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

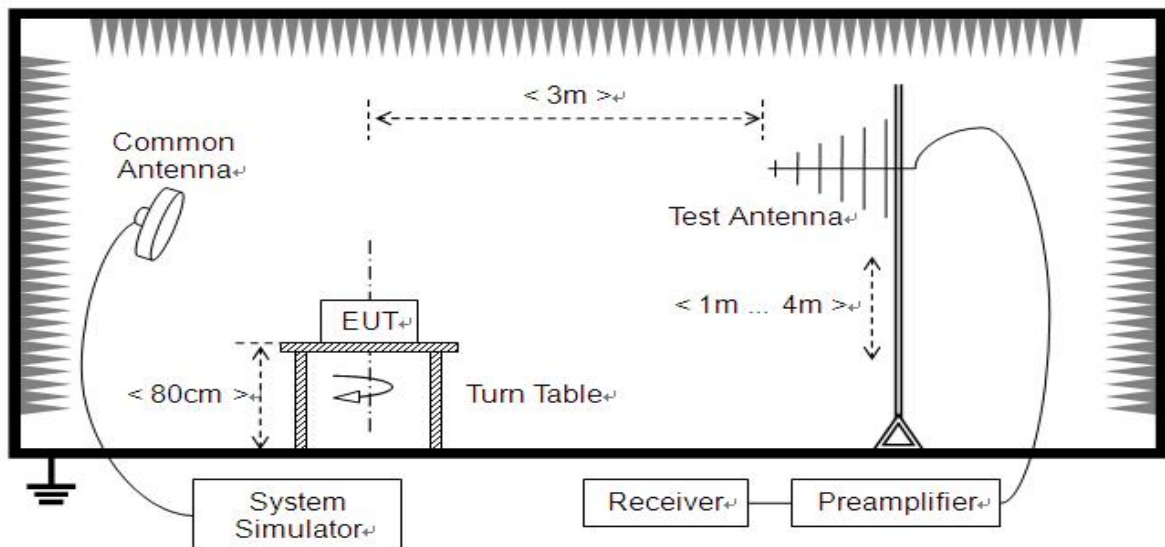
According to FCC section 24.232, the broadband PCS mobile station is limited to 2 Watts e.i.r.p. peak power.

According to FCC section 27.50, mobile, and portable (hand-held) stations is limited to 1 Watts e.i.r.p. peak power.

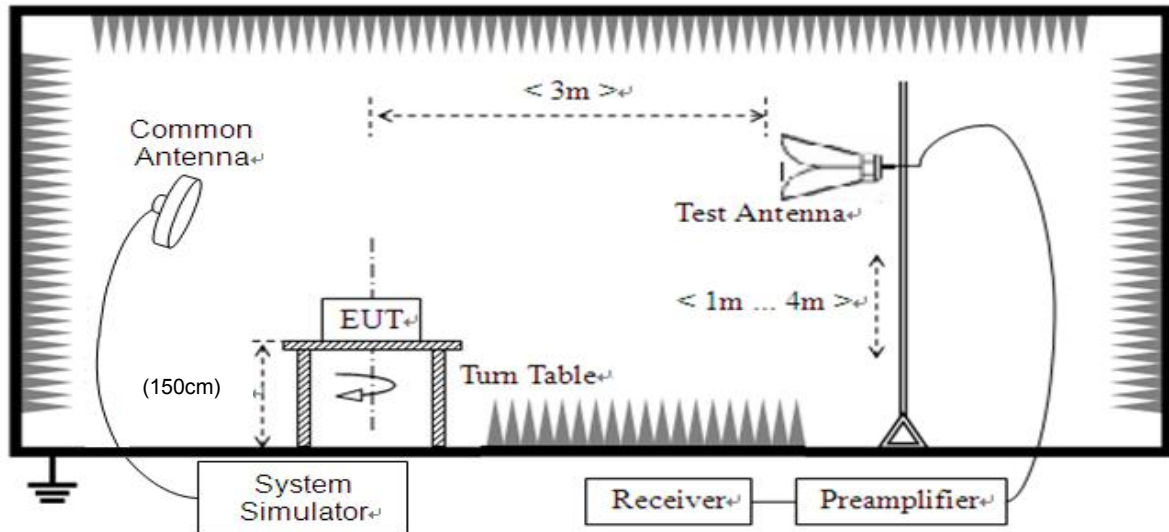
2.7.2. Test Description

Test Setup:

1) Below 1GHz



2) Above 1GHz



The EUT is located in a 3m Full-Anechoic Chamber; the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading.

A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power (i.e. GSM850MHz band Power Control Level (PCL) = 5/19 and Power Class = 4, GSM1900MHz band Power Control Level (PCL) = 0/15 and Power Class = 1), and only the test result of the maximum output power was recorded. Please refer to section 2.1.3 of this report.

- Step size (dB): 3dB

The Test Antenna is a Bi-Log one (used for 30MHz to 1GHz) or a Horn one (used for above 3GHz), it's located at the same height as the EUT. The Filters consists of Notch Filters and High Pass Filter.



2.7.3. Test Result

The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested.

The substitution corrections are obtained as described below:

$$A_{\text{SUBST}} = P_{\text{SUBST_TX}} - P_{\text{SUBST_RX}} - L_{\text{SUBST_CABLES}} + G_{\text{SUBST_TX_ANT}}$$

$$A_{\text{TOT}} = L_{\text{CABLES}} + A_{\text{SUBST}}$$

Where A_{SUBST} is the final substitution correction including receive antenna gain.

$P_{\text{SUBST_TX}}$ is signal generator level,

$P_{\text{SUBST_RX}}$ is receiver level,

$L_{\text{SUBST_CABLES}}$ is cable losses including TX cable,

$G_{\text{SUBST_TX_ANT}}$ is substitution antenna gain.

A_{TOT} is total correction factor including cable loss and substitution correction

During the test, the data of A_{TOT} was added in the Test Spectrum Analyze, so Spectrum Analyze reading is the final values which contain the data of A_{TOT} .

WCDMA Test verdict:

Band	Channel	Frequency (MHz)	Measured ERP		Limit		Verdict
			dBm	W	dBm	W	
WCDMA Band V	4132	826.4	19.97	0.099	38.5	7	PASS
	4182	836.4	20.08	0.102			PASS
	4233	846.6	20.17	0.104			PASS
HSDPA Band V	4132	826.4	19.29	0.085	38.5	7	PASS
	4182	836.4	19.32	0.086			PASS
	4233	846.6	19.29	0.085			PASS
HSUPA Band V	4132	826.4	18.34	0.068	38.5	7	PASS
	4182	836.4	18.62	0.073			PASS
	4233	846.6	18.47	0.070			PASS

Note: Both horizontal and vertical polarizations of the test antenna are evaluated respectively, only the worst data (horizontal) were recorded in this report.



Band	Channel	Frequency (MHz)	Measured EIRP		Limit		Verdict
			dBm	W	dBm	W	
WCDMA Band II	9262	1852.4	22.30	0.170	33	2	PASS
	9400	1880.0	22.26	0.168			PASS
	9538	1907.6	22.65	0.184			PASS
HSDPA Band II	9262	1852.4	21.56	0.143	33	2	PASS
	9400	1880.0	21.70	0.148			PASS
	9538	1907.6	21.73	0.149			PASS
HSUPA Band II	9262	1852.4	20.95	0.124	33	2	PASS
	9400	1880.0	20.89	0.123			PASS
	9538	1907.6	21.04	0.127			PASS

Note: Both horizontal and vertical polarizations of the test antenna are evaluated respectively, only the worst data (horizontal) were recorded in this report.

Band	Channel	Frequency (MHz)	Measured EIRP		Limit		Verdict
			dBm	W	dBm	W	
WCDMA Band IV	1312	1712.4	22.25	0.168	30	1	PASS
	1413	1732.6	22.18	0.165			PASS
	1513	1752.6	22.46	0.176			PASS
HSDPA Band IV	1312	1712.4	21.38	0.137	30	1	PASS
	1413	1732.6	21.32	0.136			PASS
	1513	1752.6	21.50	0.141			PASS
HSUPA Band IV	1312	1712.4	20.51	0.112	30	1	PASS
	1413	1732.6	20.54	0.113			PASS
	1513	1752.6	20.77	0.119			PASS

Note: Both horizontal and vertical polarizations of the test antenna are evaluated respectively, only the worst data (horizontal) were recorded in this report.

2.8. Radiated Out of Band Emissions

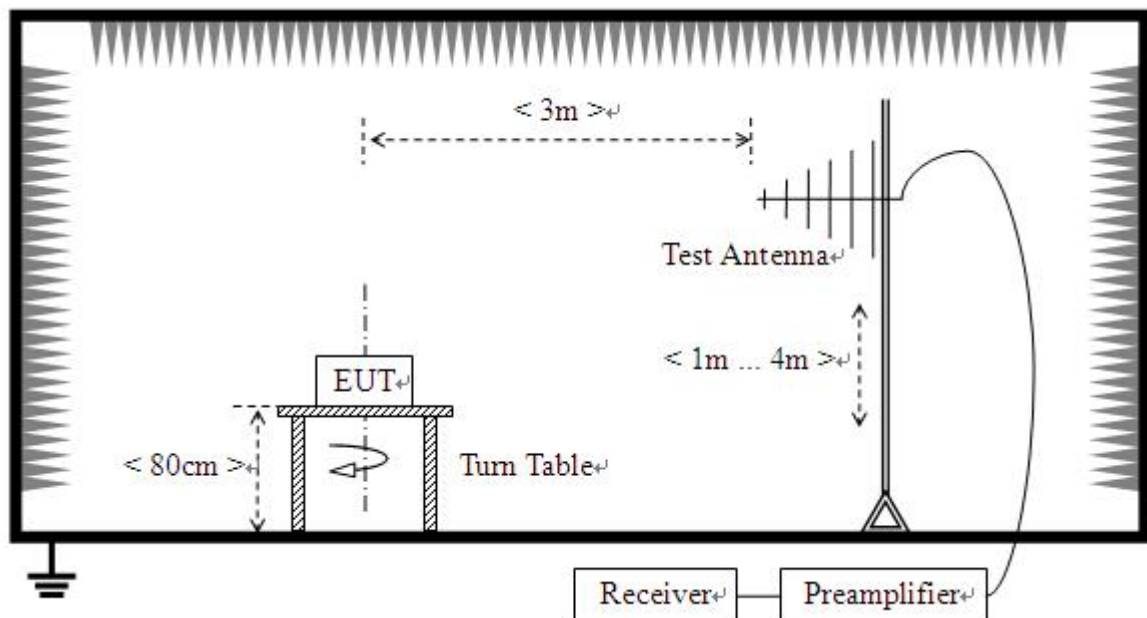
2.8.1. Requirement

The power of any emission 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. This calculated to be -13dBm.

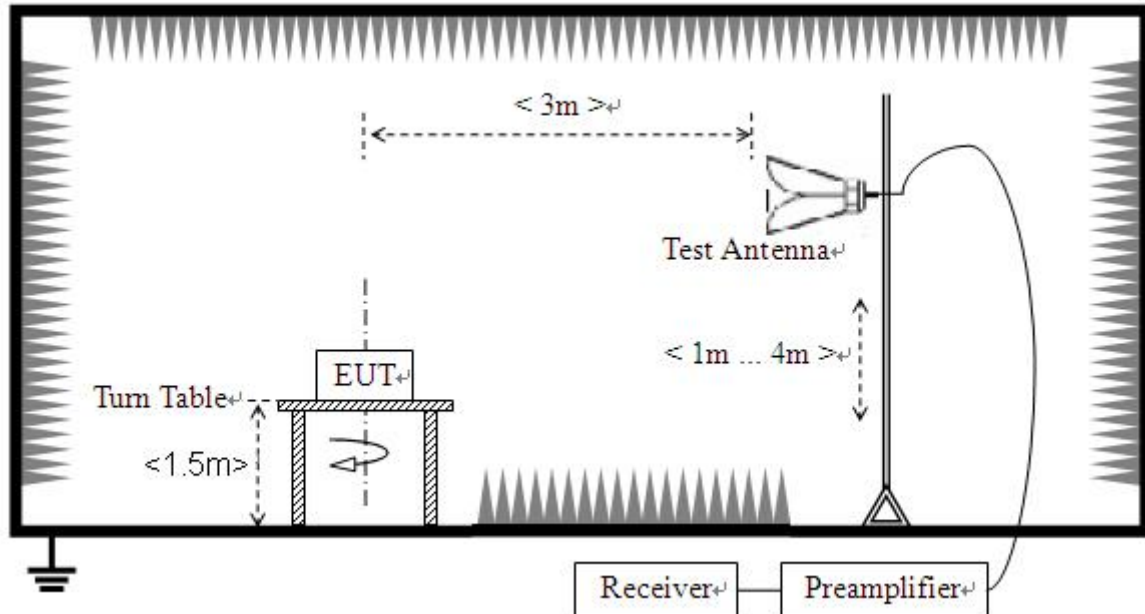
2.8.2. Test Description

Test Setup:

- 1) Below 1GHz



2) Above 1GHz



The EUT is located in a 3m Full-Anechoic Chamber, the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading.

A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power (i.e. GSM850MHz band Power Control Level (PCL) = 5/19 and Power Class = 4, GSM1900MHz band Power Control Level (PCL) = 0/15 and Power Class = 1), and only the test result of the maximum output power was recorded. Please refer to section 2.1.3 of this report.

- Step size (dB): 3dB

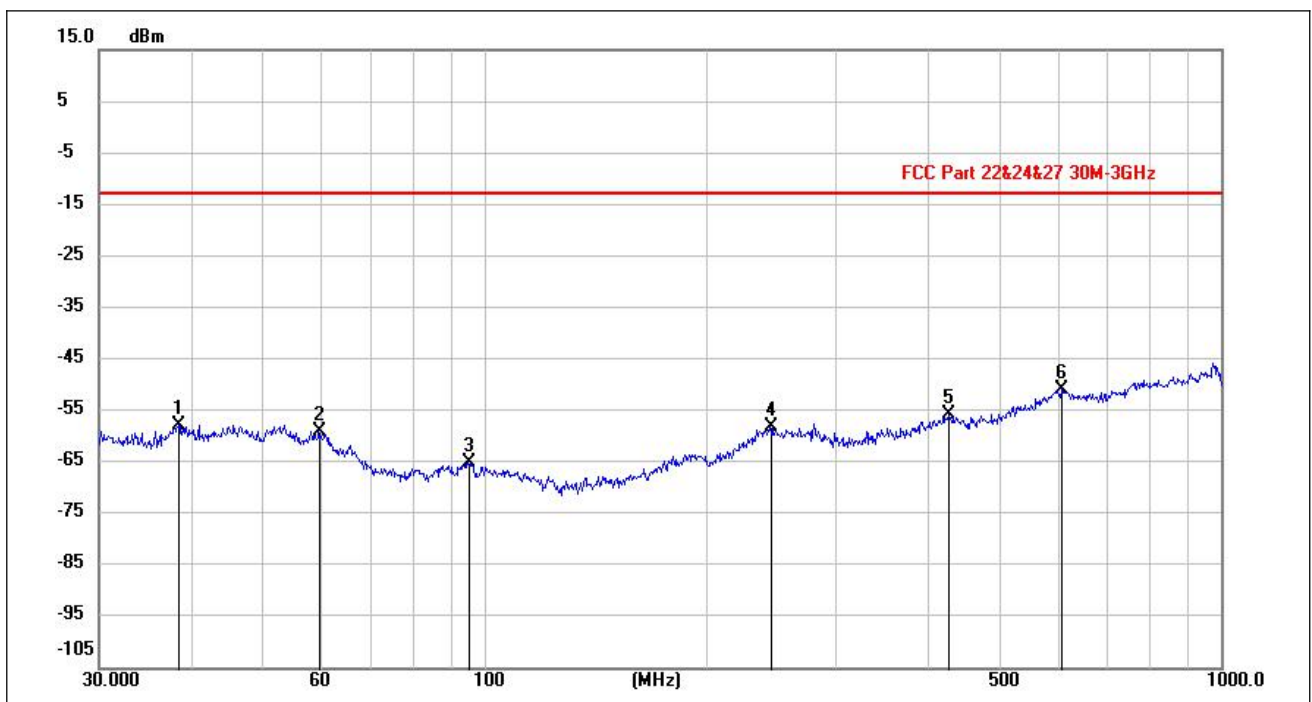
The Test Antenna is a Bi-Log one (used for 30MHz to 1GHz) and a Horn one (used for above 3 GHz), it's located at the same height as the EUT. The Filters consists of Notch Filters and High Pass Filter.

Note: when doing measurements above 1GHz, the EUT has been within the 3dB cone width of the horn antenna during horizontal antenna.

2.8.3. Test Result

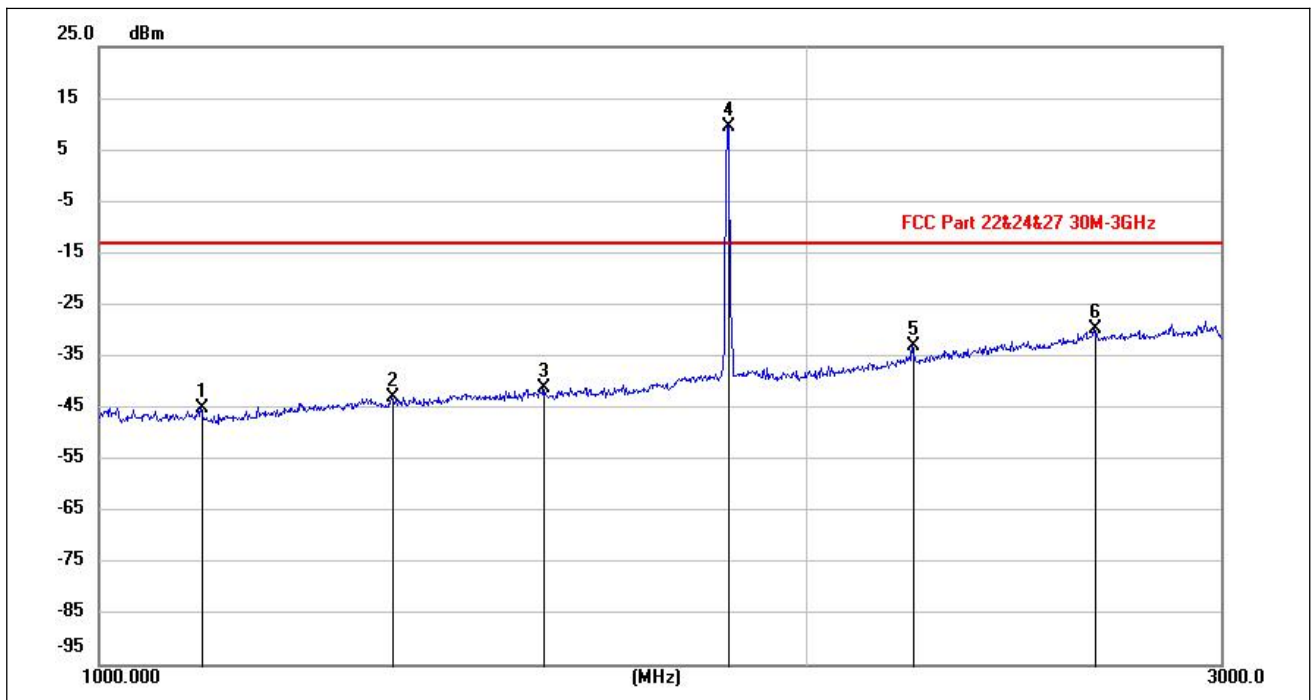
The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested to verify the out of band emissions. The power of the EUT transmitting frequency should be ignored.

Note: For the frequency, which started from 18GHz to 40GHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded. (WCDMA Band II_ 30MHz to 1GHz _ Low Channel _ Horizontal)



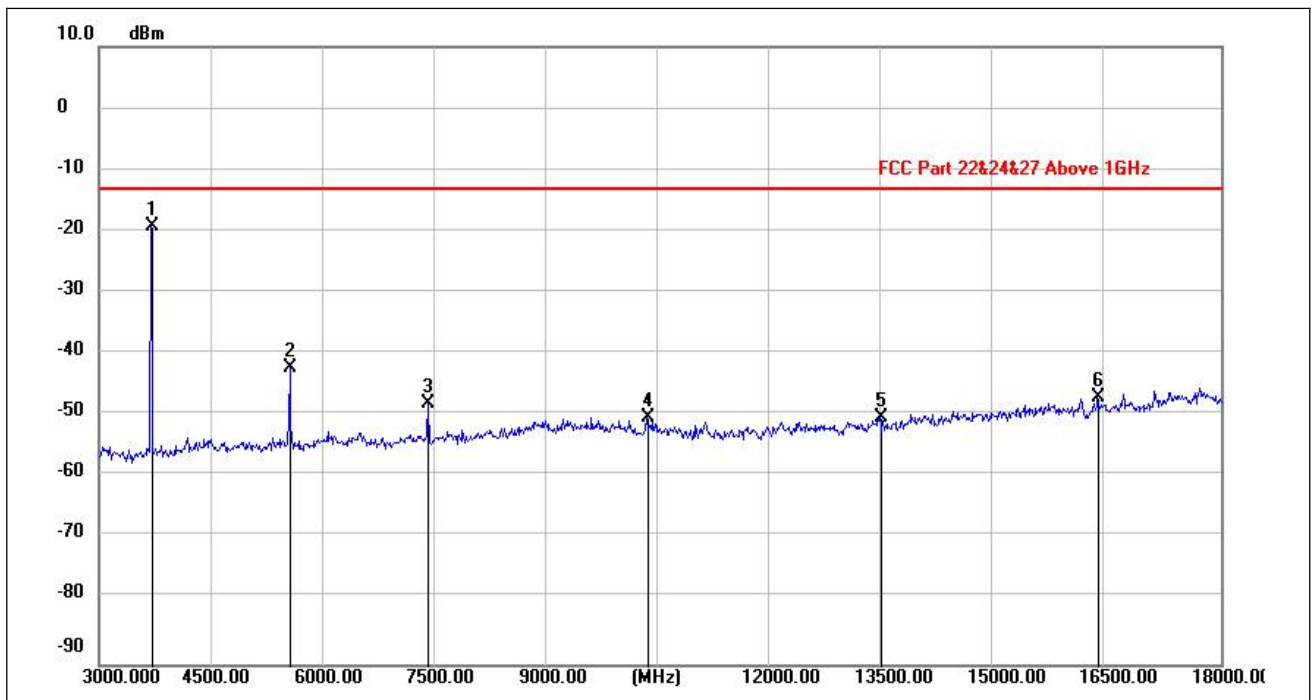
(WCDMA Band II_30MHz to 1GHz _ Low Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
3707.250	-26.75	7.68	-19.07	-13.00	-6.07	peak	PASS
5555.250	-51.94	10.04	-41.90	-13.00	-28.90	peak	PASS
7405.500	-58.71	10.98	-47.73	-13.00	-34.73	peak	PASS
10332.750	-63.88	13.86	-50.02	-13.00	-37.02	peak	PASS
13454.250	-67.44	17.52	-49.92	-13.00	-36.92	peak	PASS
16358.250	-69.32	22.63	-46.69	-13.00	-33.69	peak	PASS



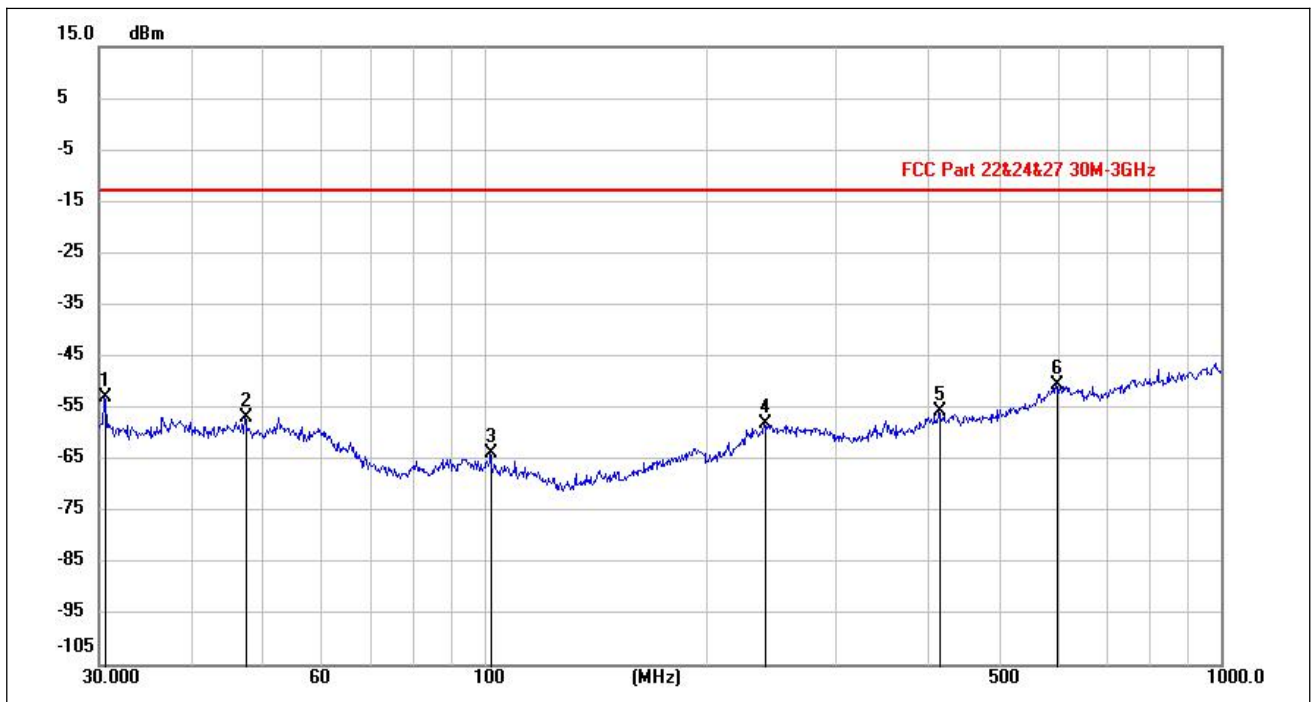
(WCDMA Band II_ 1GHz to 3GHz _ Low Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
1105.628	-85.37	40.20	-45.17	-13.00	-32.17	peak	PASS
1332.441	-84.64	41.77	-42.87	-13.00	-29.87	peak	PASS
1545.211	-85.09	43.80	-41.29	-13.00	-28.29	peak	PASS
1853.629	-36.92	46.48	9.56	-13.00	N/A	peak	N/A
2220.067	-83.10	50.14	-32.96	-13.00	-19.96	peak	PASS
2649.906	-83.74	53.96	-29.78	-13.00	-16.78	peak	PASS



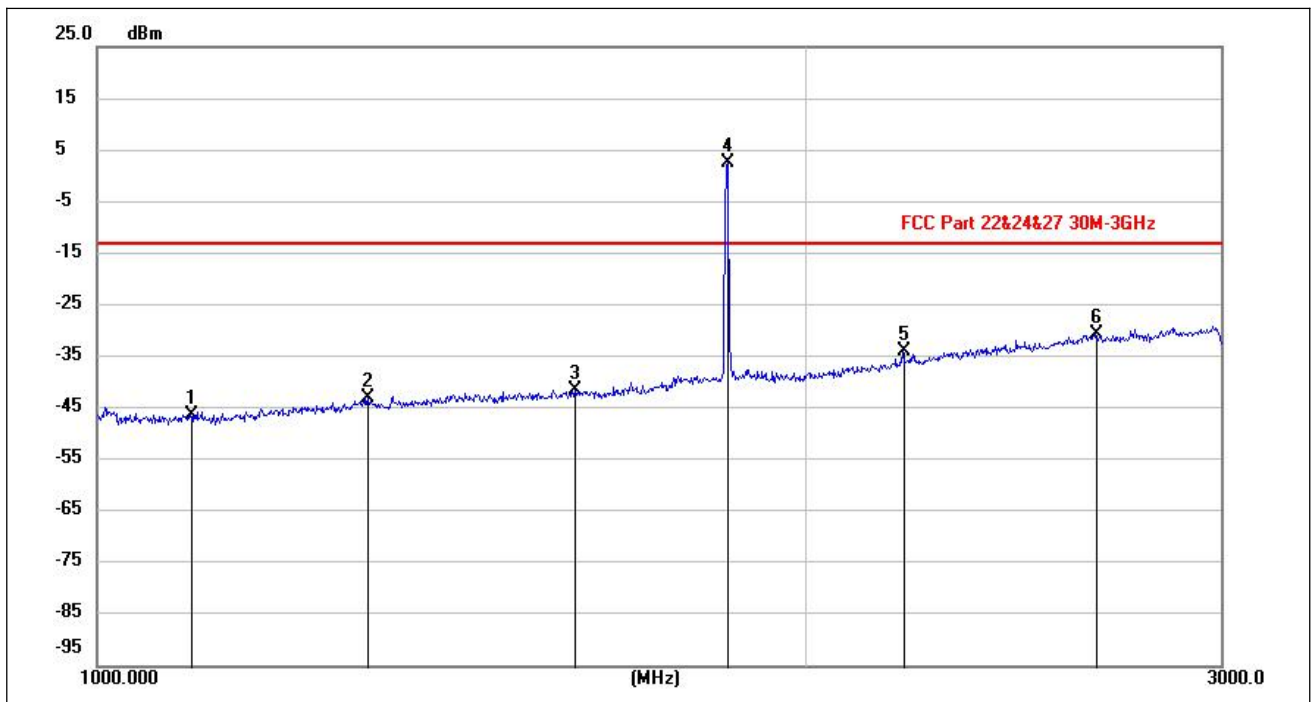
(WCDMA Band II _ 3GHz to 18GHz_ Low Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
3707.250	-26.75	7.68	-19.07	-13.00	-6.07	peak	PASS
5555.250	-51.94	10.04	-41.90	-13.00	-28.90	peak	PASS
7405.500	-58.71	10.98	-47.73	-13.00	-34.73	peak	PASS
10332.750	-63.88	13.86	-50.02	-13.00	-37.02	peak	PASS
13454.250	-67.44	17.52	-49.92	-13.00	-36.92	peak	PASS
16358.250	-69.32	22.63	-46.69	-13.00	-33.69	peak	PASS



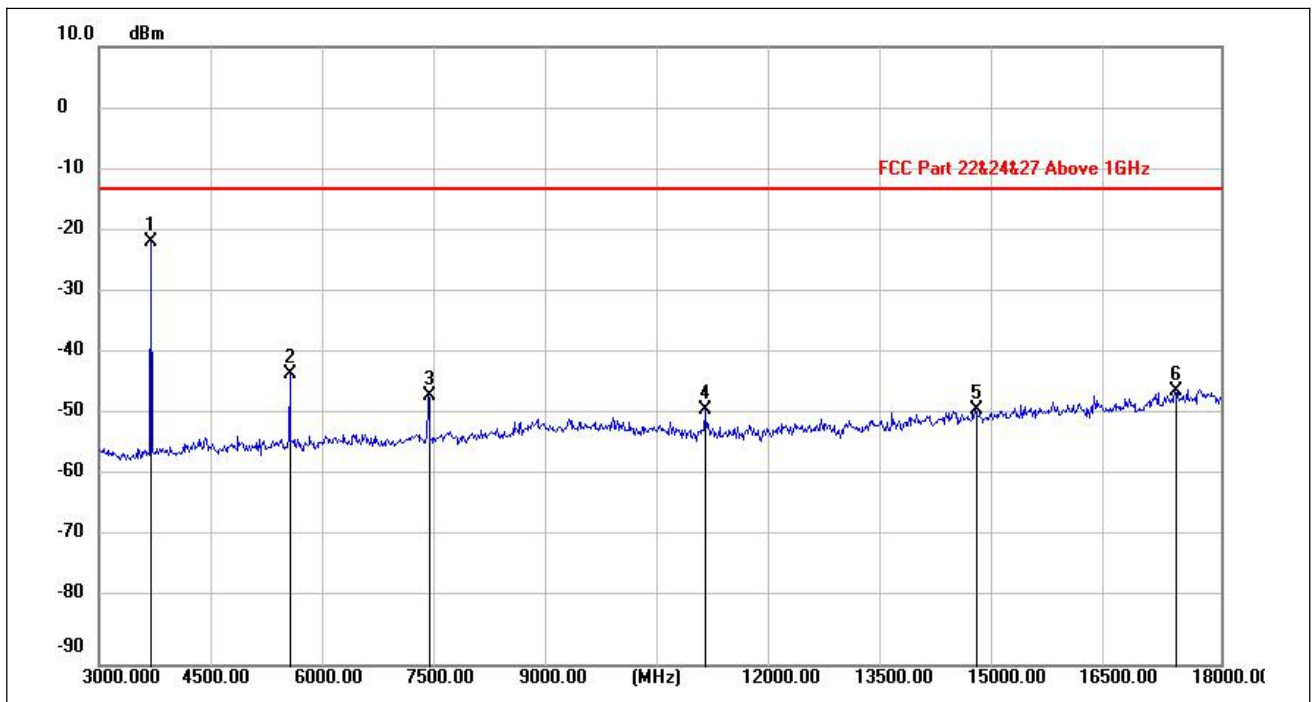
(WCDMA Band II _ 30MHz to 1GHz _ Low Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
30.5681	-72.83	19.72	-53.11	-13.00	-40.11	peak	PASS
47.4252	-79.31	22.36	-56.95	-13.00	-43.95	peak	PASS
102.0550	-94.67	30.80	-63.87	-13.00	-50.87	peak	PASS
240.6193	-83.09	24.84	-58.25	-13.00	-45.25	peak	PASS
415.8145	-85.97	30.24	-55.73	-13.00	-42.73	peak	PASS
597.7472	-85.09	34.50	-50.59	-13.00	-37.59	peak	PASS



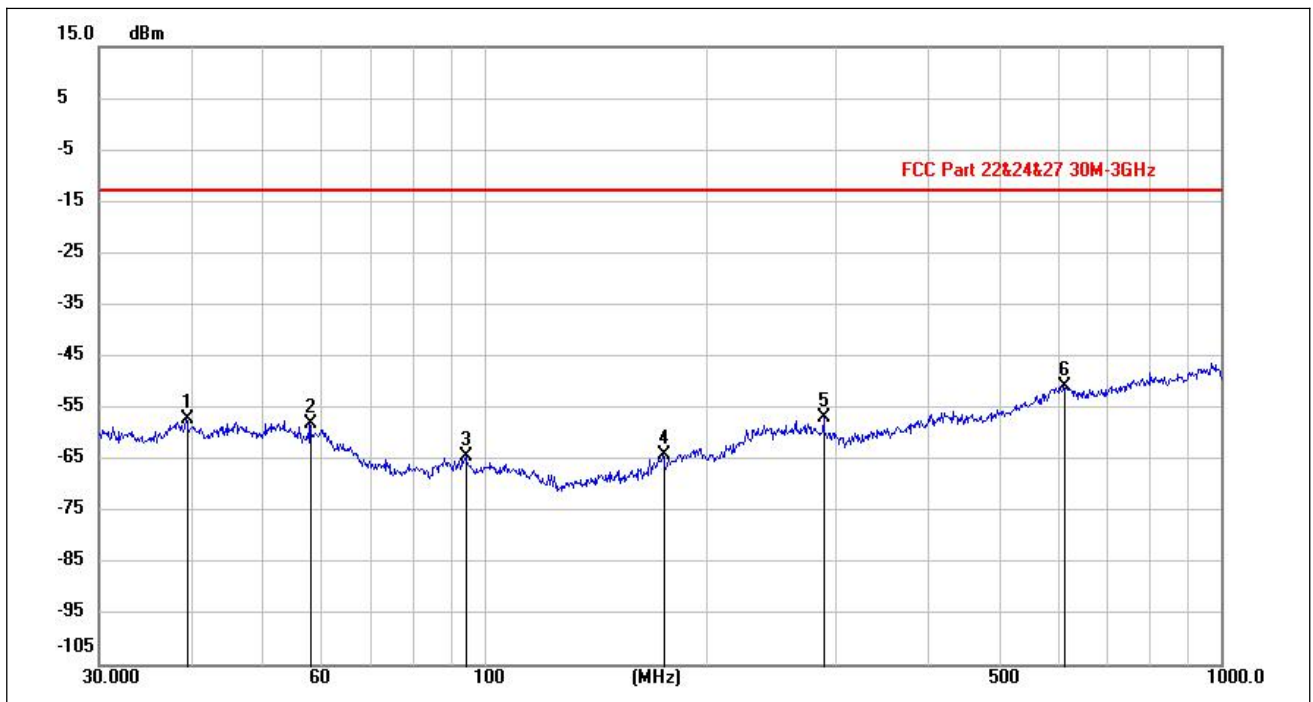
(WCDMA Band II _ 1GHz to 3GHz _ Low Channel_ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
1096.555	-86.07	39.80	-46.27	-13.00	-33.27	peak	PASS
1301.695	-84.90	41.87	-43.03	-13.00	-30.03	peak	PASS
1595.847	-85.25	43.73	-41.52	-13.00	-28.52	peak	PASS
1853.324	-43.95	46.38	2.43	-13.00	N/A	peak	N/A
2198.949	-83.69	49.60	-34.09	-13.00	-21.09	peak	PASS
2654.859	-84.52	53.77	-30.75	-13.00	-17.75	peak	PASS



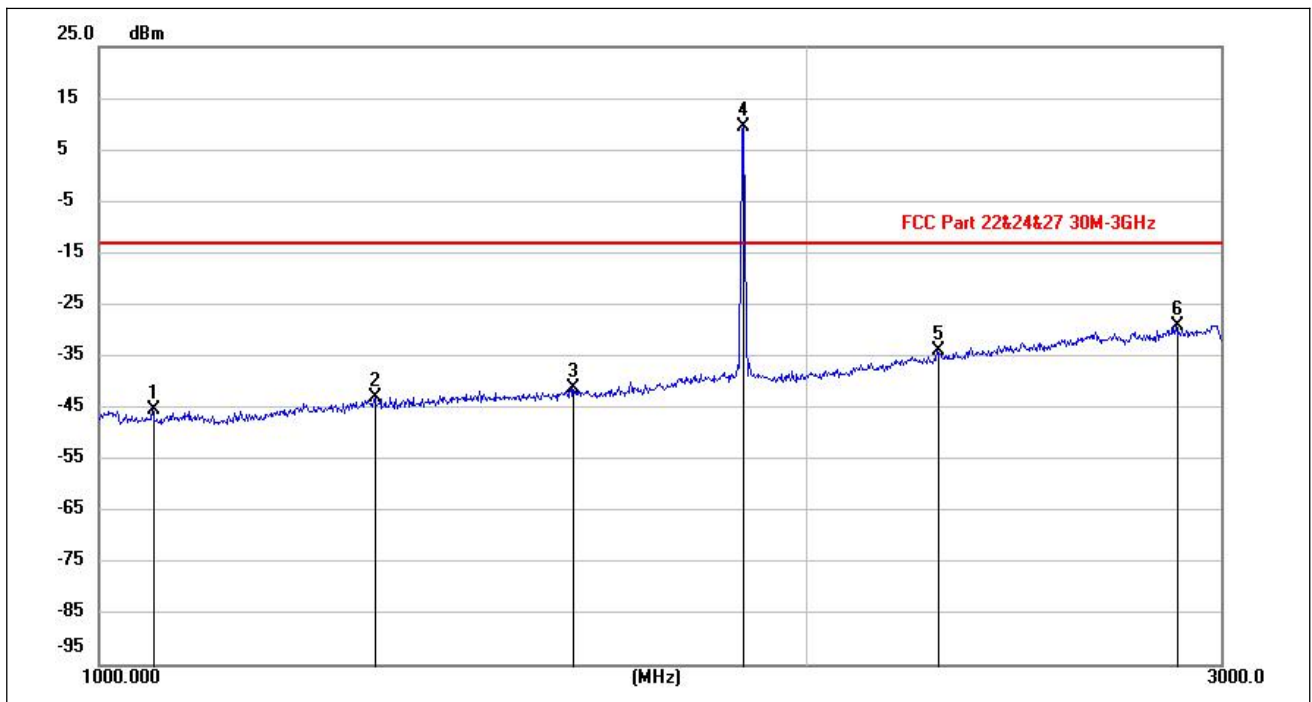
(WCDMA Band II_ 3GHz to 18GHz _ Low Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
3702.750	-29.16	7.56	-21.60	-13.00	-8.60	peak	PASS
5554.500	-52.77	9.94	-42.83	-13.00	-29.83	peak	PASS
7413.000	-57.55	11.08	-46.47	-13.00	-33.47	peak	PASS
11109.000	-63.21	14.43	-48.78	-13.00	-35.78	peak	PASS
14715.750	-69.18	20.46	-48.72	-13.00	-35.72	peak	PASS
17389.500	-69.32	23.65	-45.67	-13.00	-32.67	peak	PASS



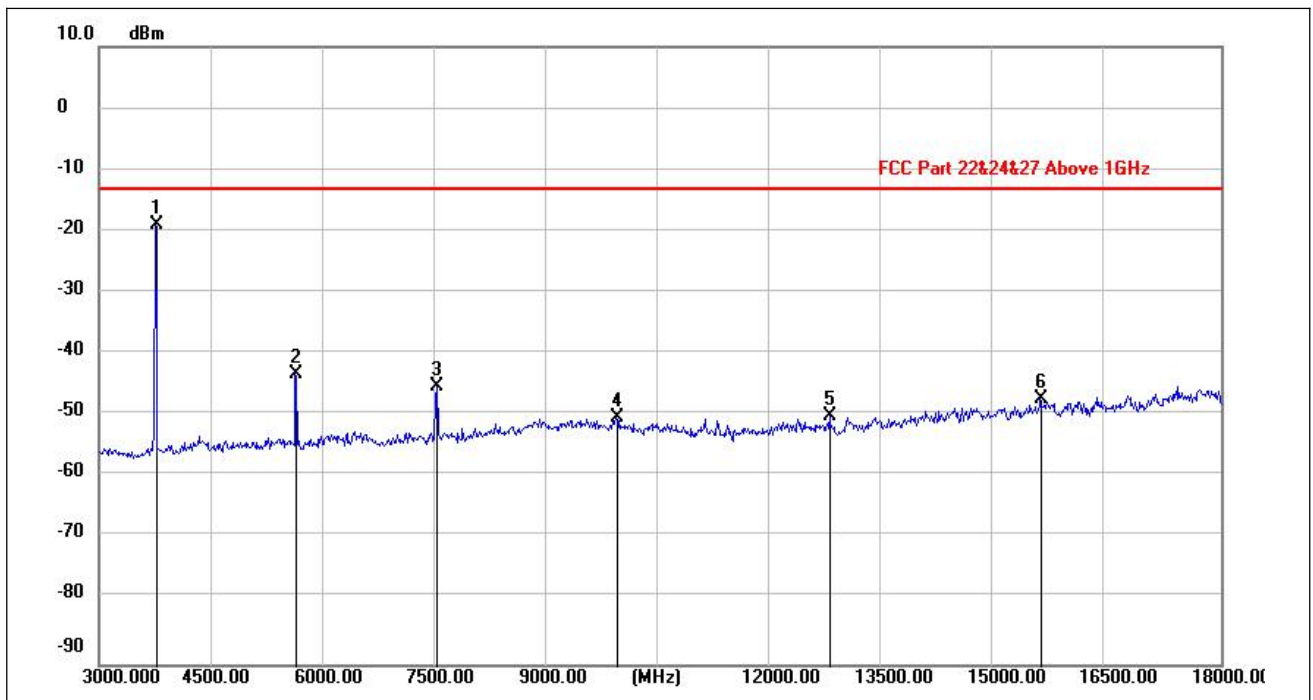
(WCDMA Band II_30MHz to 1GHz _ Middle Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
39.4995	-86.58	29.35	-57.23	-13.00	-44.23	peak	PASS
58.1928	-86.36	28.16	-58.20	-13.00	-45.20	peak	PASS
94.6273	-87.23	22.77	-64.46	-13.00	-51.46	peak	PASS
175.3132	-86.49	22.44	-64.05	-13.00	-51.05	peak	PASS
289.4584	-85.11	28.11	-57.00	-13.00	-44.00	peak	PASS
613.3533	-86.32	35.46	-50.86	-13.00	-37.86	peak	PASS



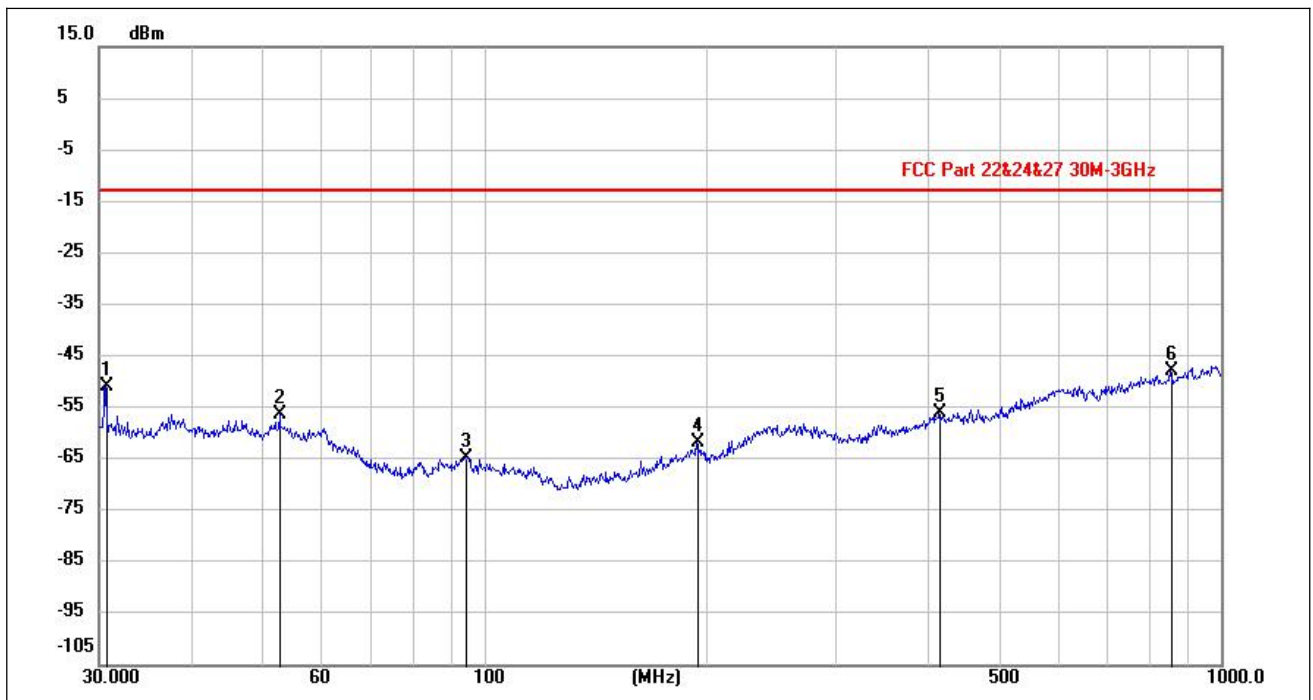
(WCDMA Band II _1GHz to 3GHz _ Middle Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
1054.322	-85.06	39.69	-45.37	-13.00	-32.37	peak	PASS
1310.735	-85.03	42.08	-42.95	-13.00	-29.95	peak	PASS
1591.383	-85.48	44.29	-41.19	-13.00	-28.19	peak	PASS
1879.054	-37.35	46.87	9.52	-13.00	N/A	peak	N/A
2274.504	-84.05	50.21	-33.84	-13.00	-20.84	peak	PASS
2871.179	-84.38	55.13	-29.25	-13.00	-16.25	peak	PASS



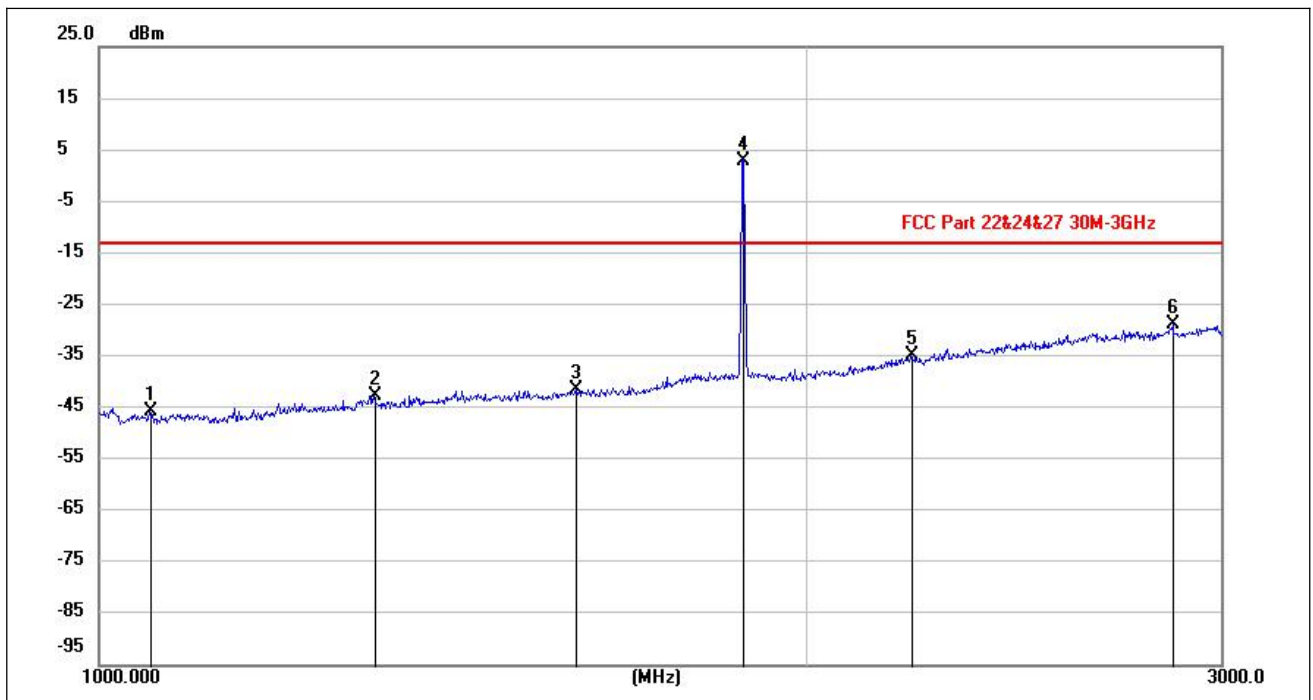
(WCDMA Band II _3GHz to 18GHz _ Middle Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
3757.500	-26.83	8.07	-18.76	-13.00	-5.76	peak	PASS
5636.250	-53.06	10.12	-42.94	-13.00	-29.94	peak	PASS
7515.000	-56.37	11.49	-44.88	-13.00	-31.88	peak	PASS
9928.500	-64.21	14.33	-49.88	-13.00	-36.88	peak	PASS
12765.750	-66.61	17.04	-49.57	-13.00	-36.57	peak	PASS
15588.000	-68.40	21.58	-46.82	-13.00	-33.82	peak	PASS



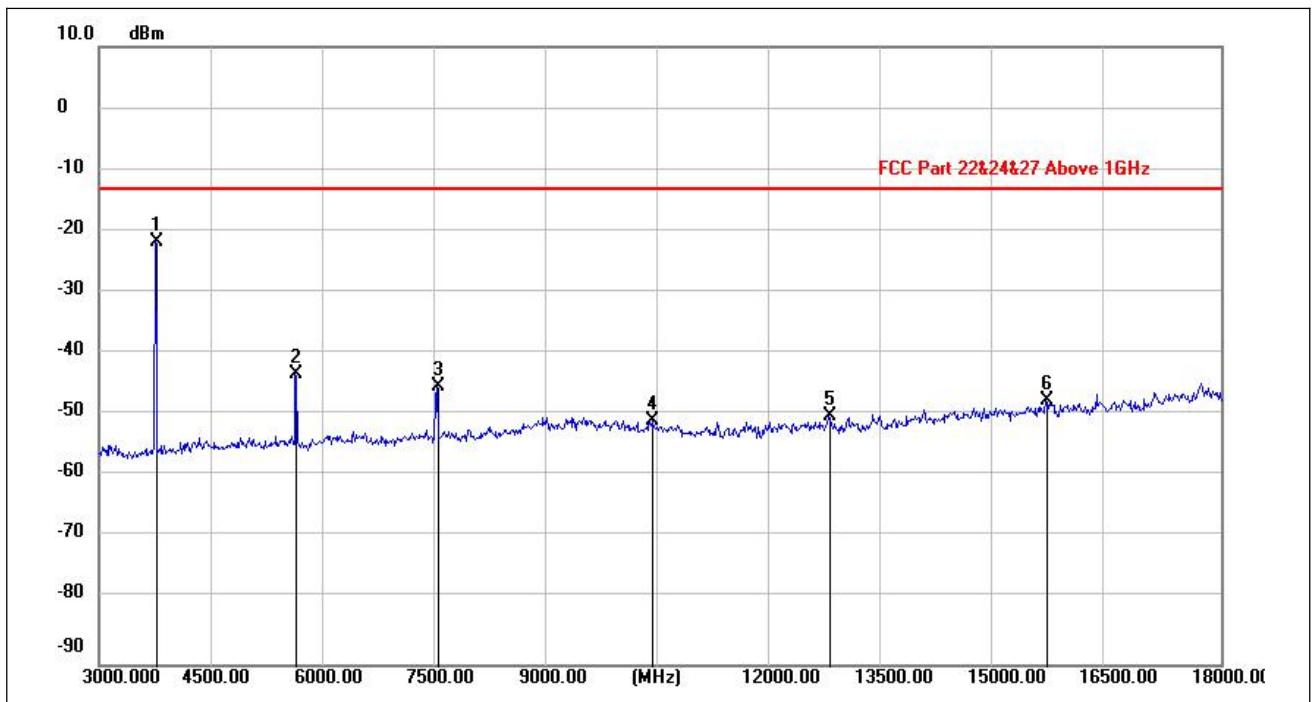
(WCDMA Band II _ 30MHz to 1GHz _ Middle Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
30.6540	-70.53	19.72	-50.81	-13.00	-37.81	peak	PASS
52.7878	-79.84	23.44	-56.40	-13.00	-43.40	peak	PASS
94.4284	-91.57	26.87	-64.70	-13.00	-51.70	peak	PASS
194.9997	-86.26	24.57	-61.69	-13.00	-48.69	peak	PASS
415.9603	-86.08	30.22	-55.86	-13.00	-42.86	peak	PASS
856.8744	-85.21	37.23	-47.98	-13.00	-34.98	peak	PASS



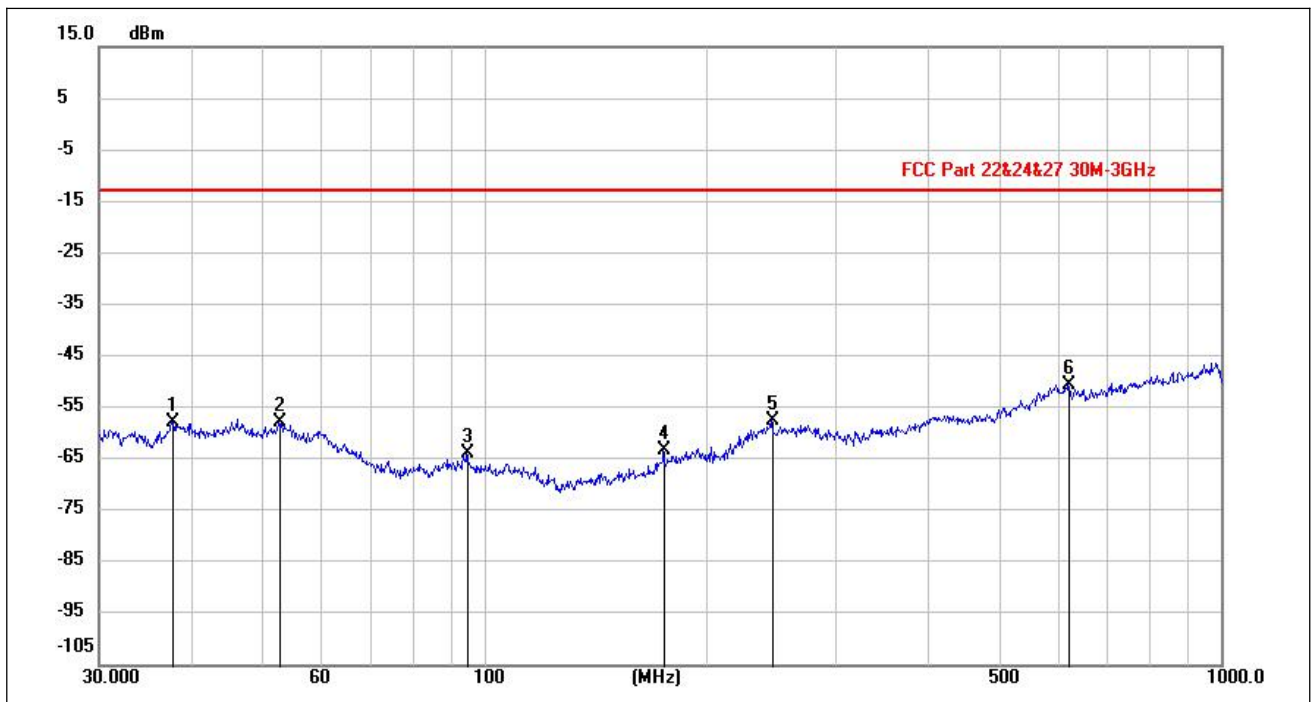
(WCDMA Band II_ 1GHz to 3GHz _ Middle Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
1051.200	-85.80	39.98	-45.82	-13.00	-32.82	peak	PASS
1309.656	-84.26	41.62	-42.64	-13.00	-29.64	peak	PASS
1596.198	-85.25	43.72	-41.53	-13.00	-28.53	peak	PASS
1878.641	-43.88	46.73	2.85	-13.00	N/A	peak	N/A
2217.508	-85.21	50.29	-34.92	-13.00	-21.92	peak	PASS
2863.147	-83.70	54.88	-28.82	-13.00	-15.82	peak	PASS



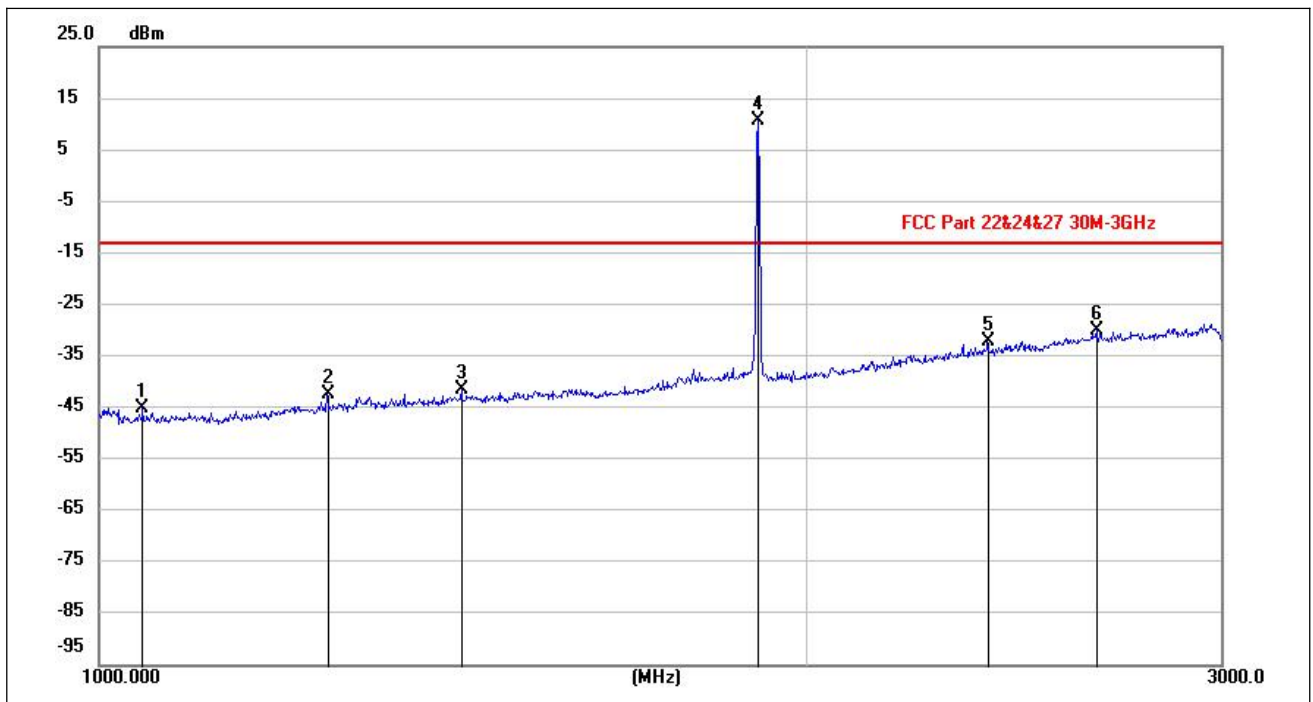
(WCDMA Band II _ 3GHz to 18GHz _ Middle Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
3756.750	-29.54	7.98	-21.56	-13.00	-8.56	peak	PASS
5636.250	-52.94	10.10	-42.84	-13.00	-29.84	peak	PASS
7523.250	-56.48	11.46	-45.02	-13.00	-32.02	peak	PASS
10395.000	-65.15	14.77	-50.38	-13.00	-37.38	peak	PASS
12753.000	-66.47	16.84	-49.63	-13.00	-36.63	peak	PASS
15667.500	-68.62	21.44	-47.18	-13.00	-34.18	peak	PASS



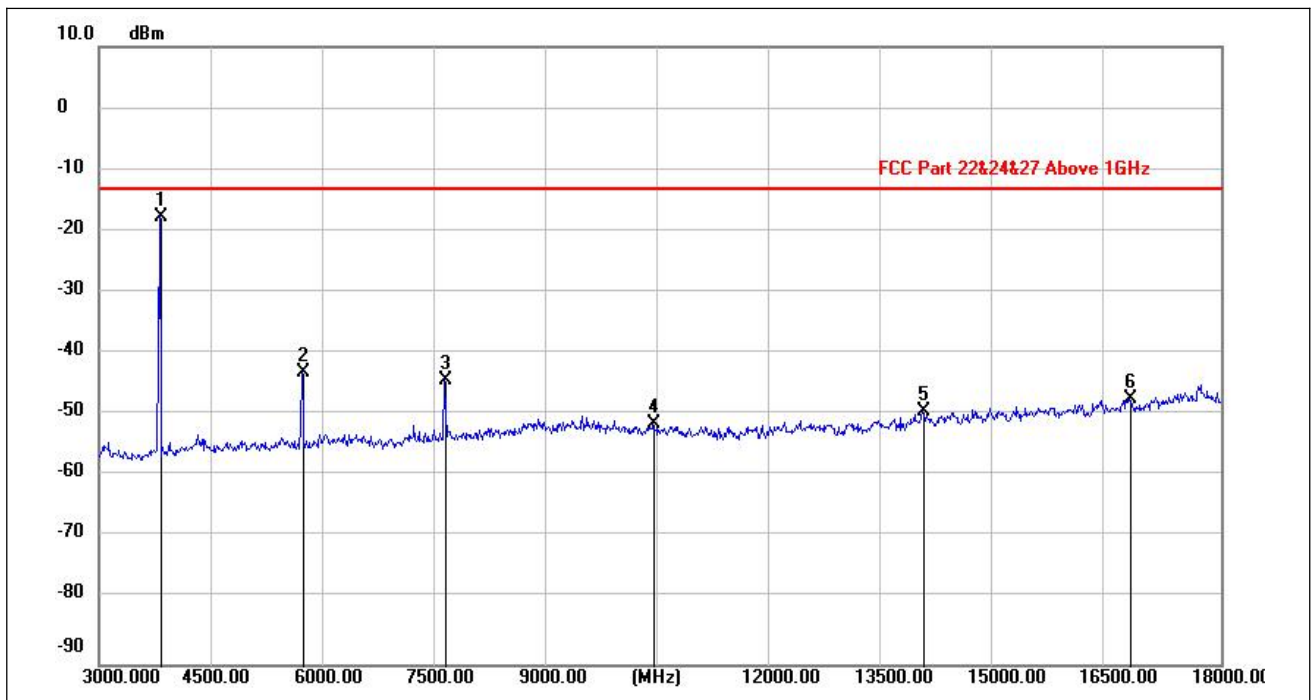
(WCDMA Band II _ 30MHz to 1GHz _ High Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
37.8055	-87.14	29.33	-57.81	-13.00	-44.81	peak	PASS
52.6583	-87.86	30.00	-57.86	-13.00	-44.86	peak	PASS
94.9763	-86.66	22.79	-63.87	-13.00	-50.87	peak	PASS
175.2517	-85.75	22.43	-63.32	-13.00	-50.32	peak	PASS
245.3910	-86.55	29.06	-57.49	-13.00	-44.49	peak	PASS
622.2351	-85.92	35.30	-50.62	-13.00	-37.62	peak	PASS



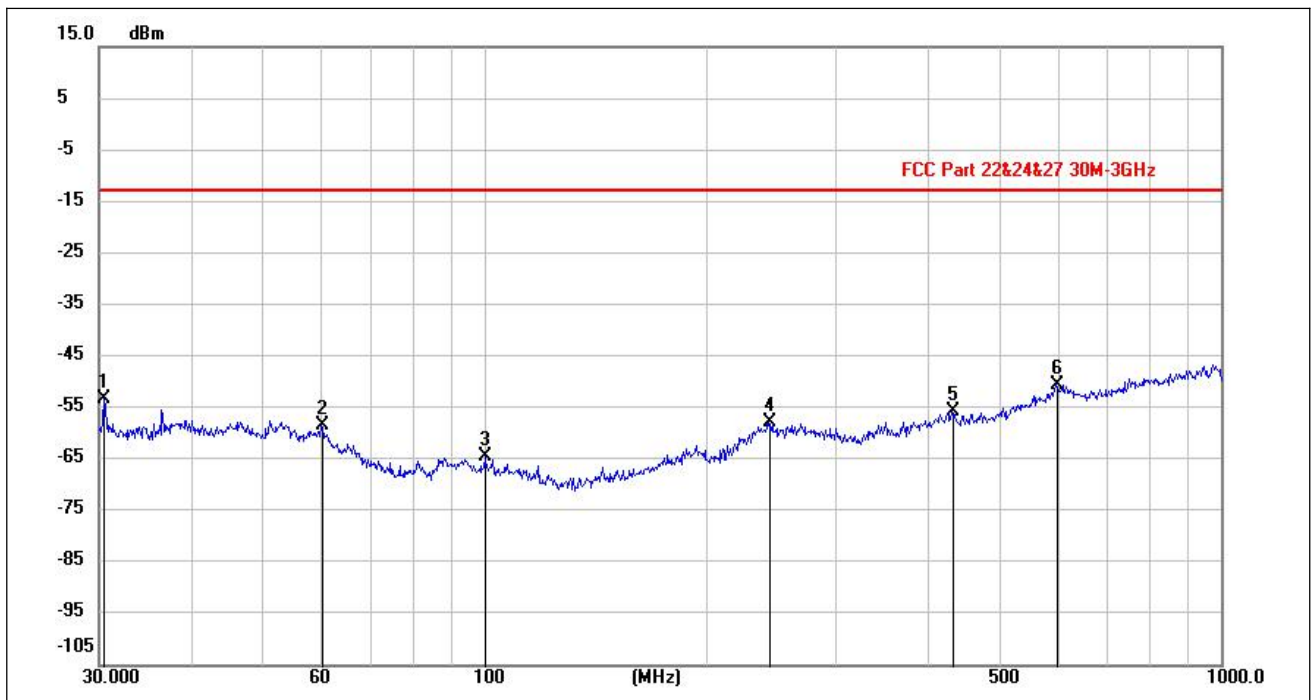
(WCDMA Band II _ 1GHz to 3GHz_ High Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
1043.777	-84.80	39.64	-45.16	-13.00	-32.16	peak	PASS
1251.011	-83.71	41.44	-42.27	-13.00	-29.27	peak	PASS
1427.380	-84.49	43.14	-41.35	-13.00	-28.35	peak	PASS
1906.606	-36.54	47.12	10.58	-13.00	N/A	peak	N/A
2388.988	-83.37	51.16	-32.21	-13.00	-19.21	peak	PASS
2655.880	-83.85	53.83	-30.02	-13.00	-17.02	peak	PASS



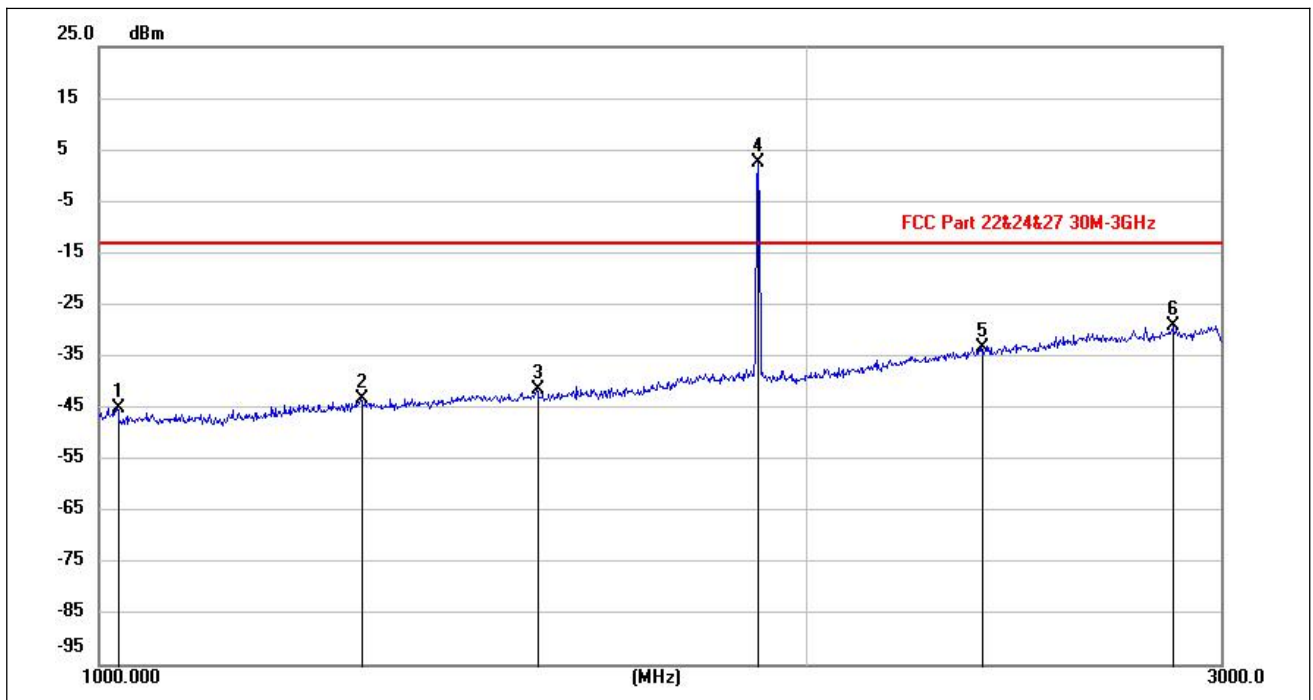
(WCDMA Band II _ 3GHz to 18GHz _ High Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
3812.250	-25.28	7.71	-17.57	-13.00	-4.57	peak	PASS
5725.500	-52.62	9.90	-42.72	-13.00	-29.72	peak	PASS
7625.250	-56.01	12.12	-43.89	-13.00	-30.89	peak	PASS
10410.750	-65.49	14.48	-51.01	-13.00	-38.01	peak	PASS
14010.750	-67.77	18.95	-48.82	-13.00	-35.82	peak	PASS
16772.250	-70.08	23.08	-47.00	-13.00	-34.00	peak	PASS



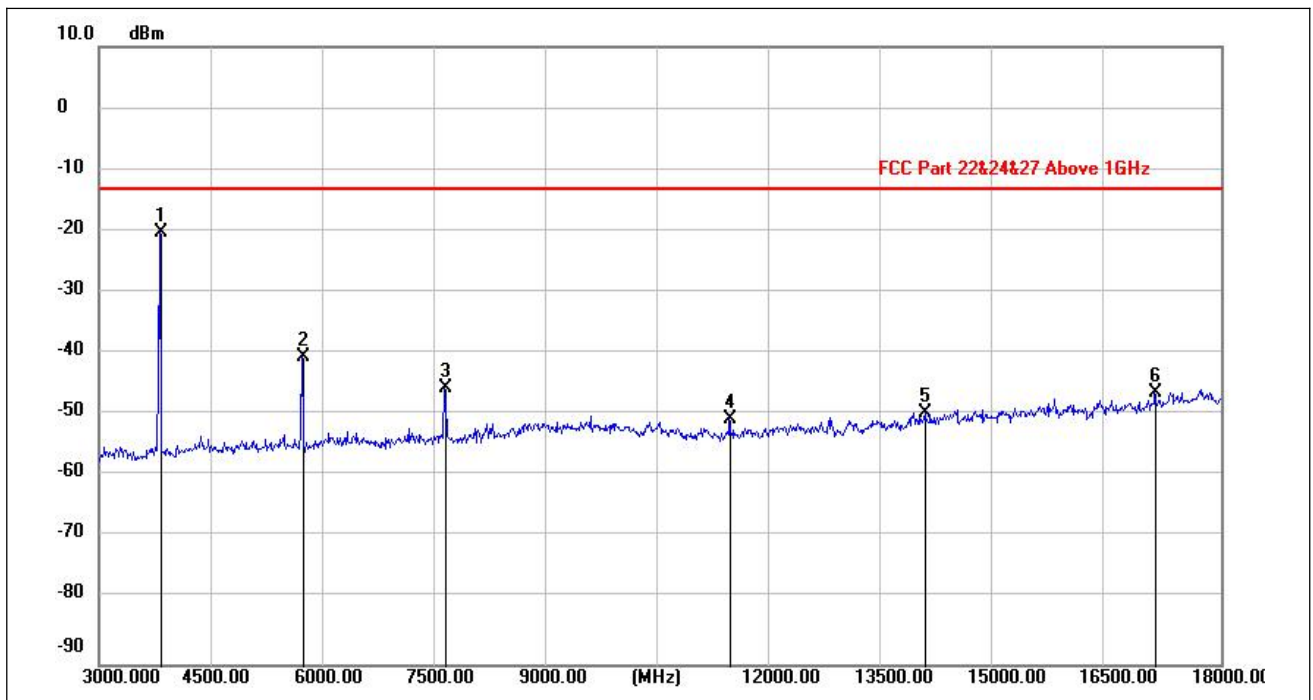
(WCDMA Band II _ 30MHz to 1GH _ High Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
30.5306	-72.90	19.70	-53.20	-13.00	-40.20	peak	PASS
60.1640	-82.70	24.21	-58.49	-13.00	-45.49	peak	PASS
100.3341	-94.69	30.24	-64.45	-13.00	-51.45	peak	PASS
243.5906	-82.87	24.96	-57.91	-13.00	-44.91	peak	PASS
431.1828	-85.39	29.71	-55.68	-13.00	-42.68	peak	PASS
599.2162	-85.02	34.45	-50.57	-13.00	-37.57	peak	PASS



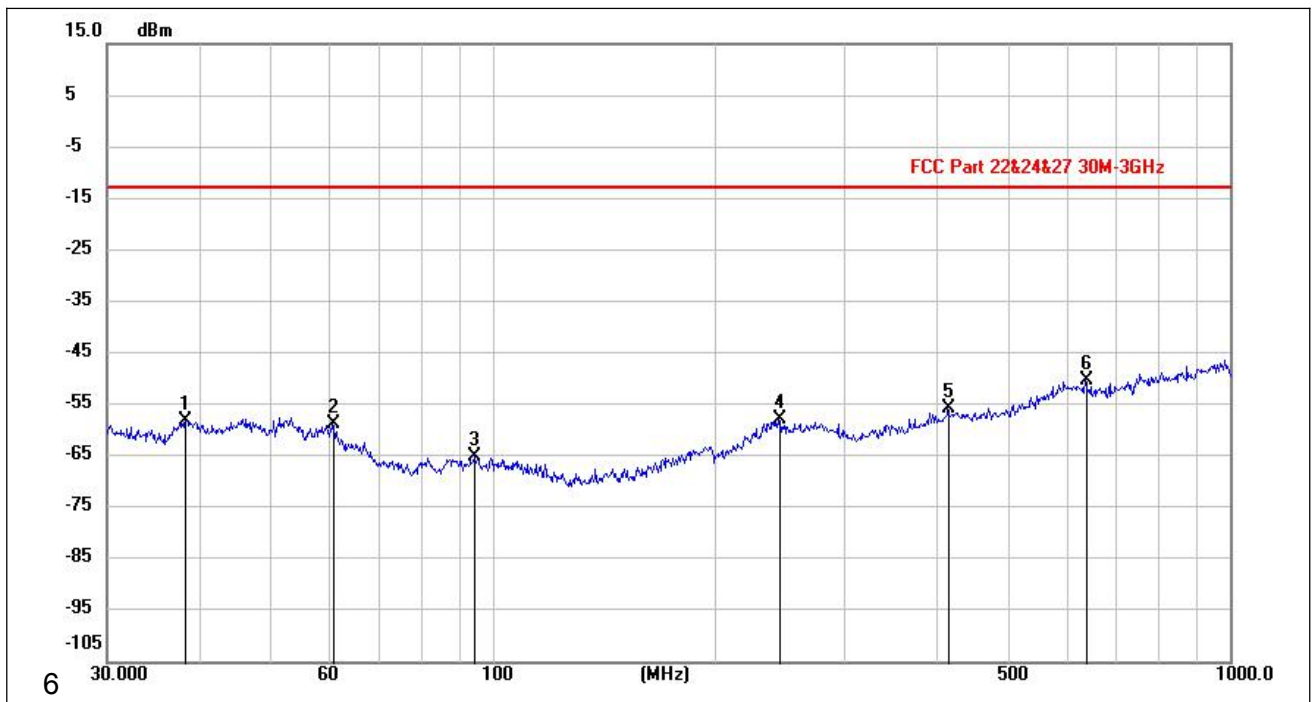
(WCDMA Band II_ 1GHz to 3GHz _ High Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
1018.516	-83.38	38.23	-45.15	-13.00	-32.15	peak	PASS
1292.361	-85.51	42.16	-43.35	-13.00	-30.35	peak	PASS
1535.480	-85.77	44.19	-41.58	-13.00	-28.58	peak	PASS
1906.711	-44.87	47.35	2.48	-13.00	N/A	peak	N/A
2371.729	-84.47	51.10	-33.37	-13.00	-20.37	peak	PASS
2864.563	-84.17	54.93	-29.24	-13.00	-16.24	peak	PASS



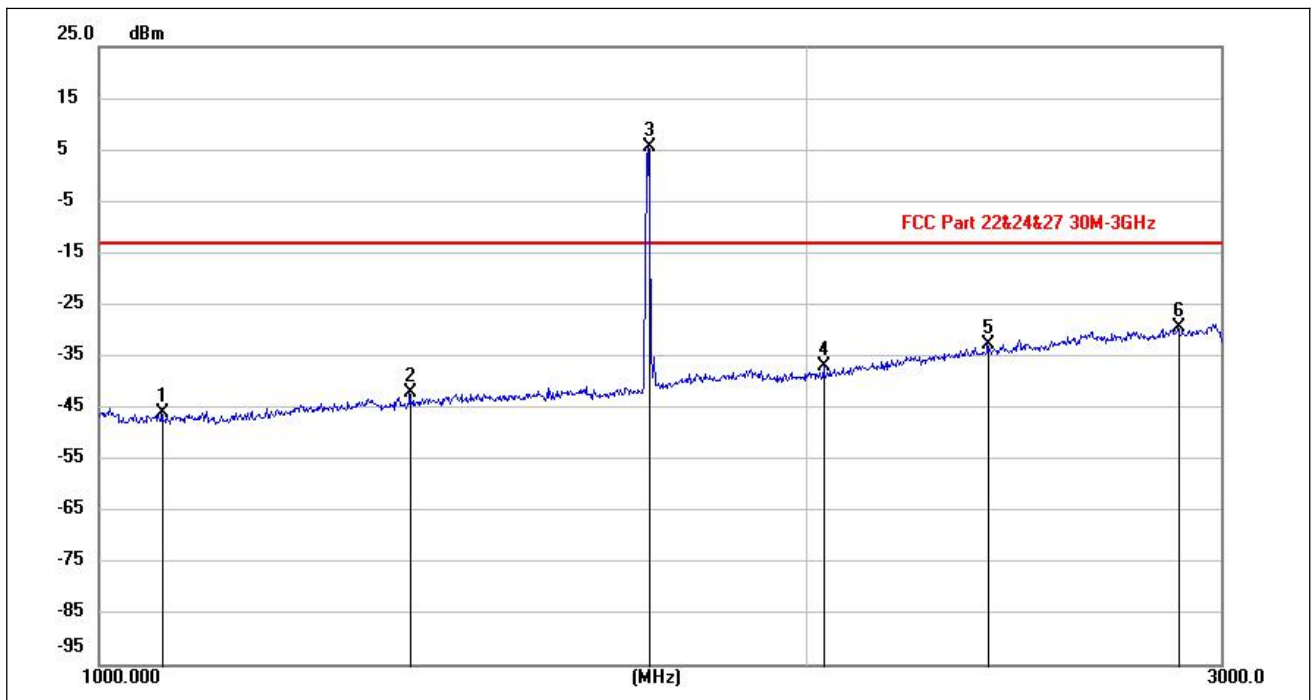
(WCDMA Band II _ 3GHz to 18GHz _ High Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
3813.000	-27.84	7.87	-19.97	-13.00	-6.97	peak	PASS
5726.250	-49.98	9.87	-40.11	-13.00	-27.11	peak	PASS
7625.250	-57.27	12.12	-45.15	-13.00	-32.15	peak	PASS
11441.250	-64.90	14.66	-50.24	-13.00	-37.24	peak	PASS
14043.000	-68.28	19.15	-49.13	-13.00	-36.13	peak	PASS
17118.750	-68.96	23.04	-45.92	-13.00	-32.92	peak	PASS



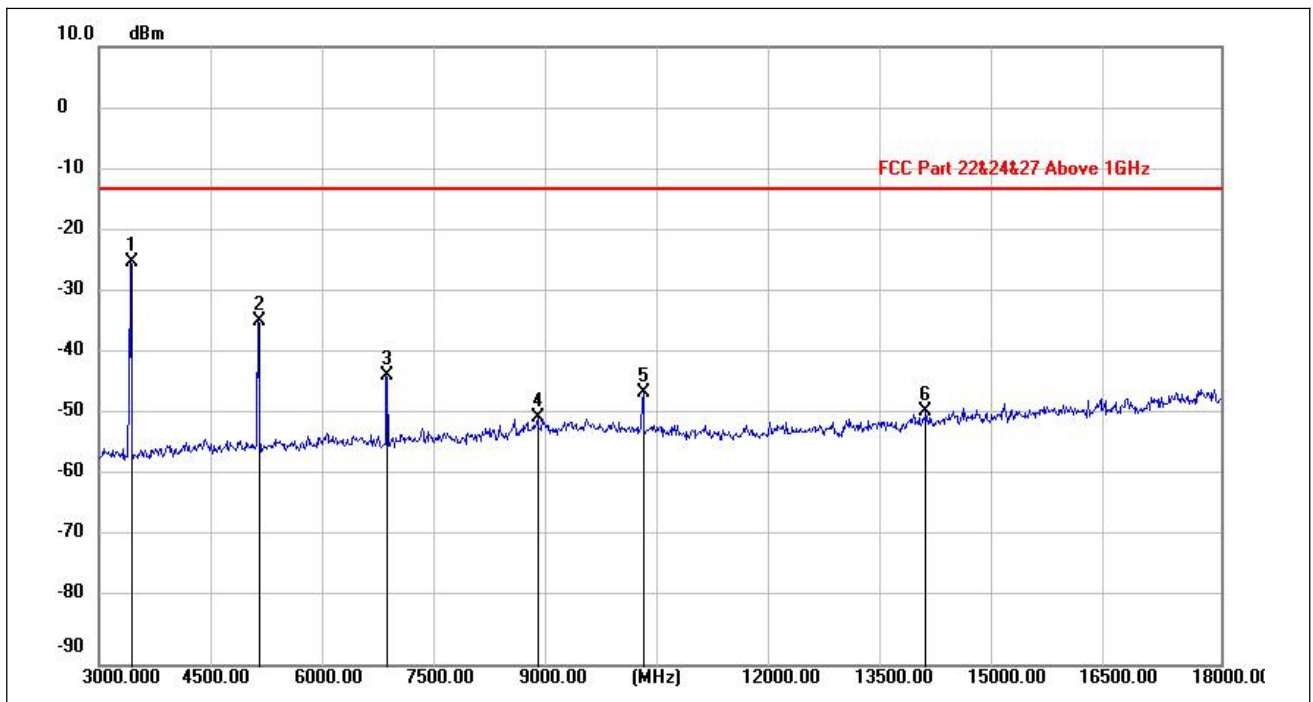
(WCDMA Band IV _ 30MHz to 1GHz _ Low Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
38.3462	-87.70	29.63	-58.07	-13.00	-45.07	peak	PASS
60.7469	-87.12	28.55	-58.57	-13.00	-45.57	peak	PASS
94.6771	-87.72	22.78	-64.94	-13.00	-51.94	peak	PASS
244.7036	-86.80	29.01	-57.79	-13.00	-44.79	peak	PASS
416.1062	-86.55	30.84	-55.71	-13.00	-42.71	peak	PASS
636.4687	-85.05	34.63	-50.42	-13.00	-37.42	peak	PASS



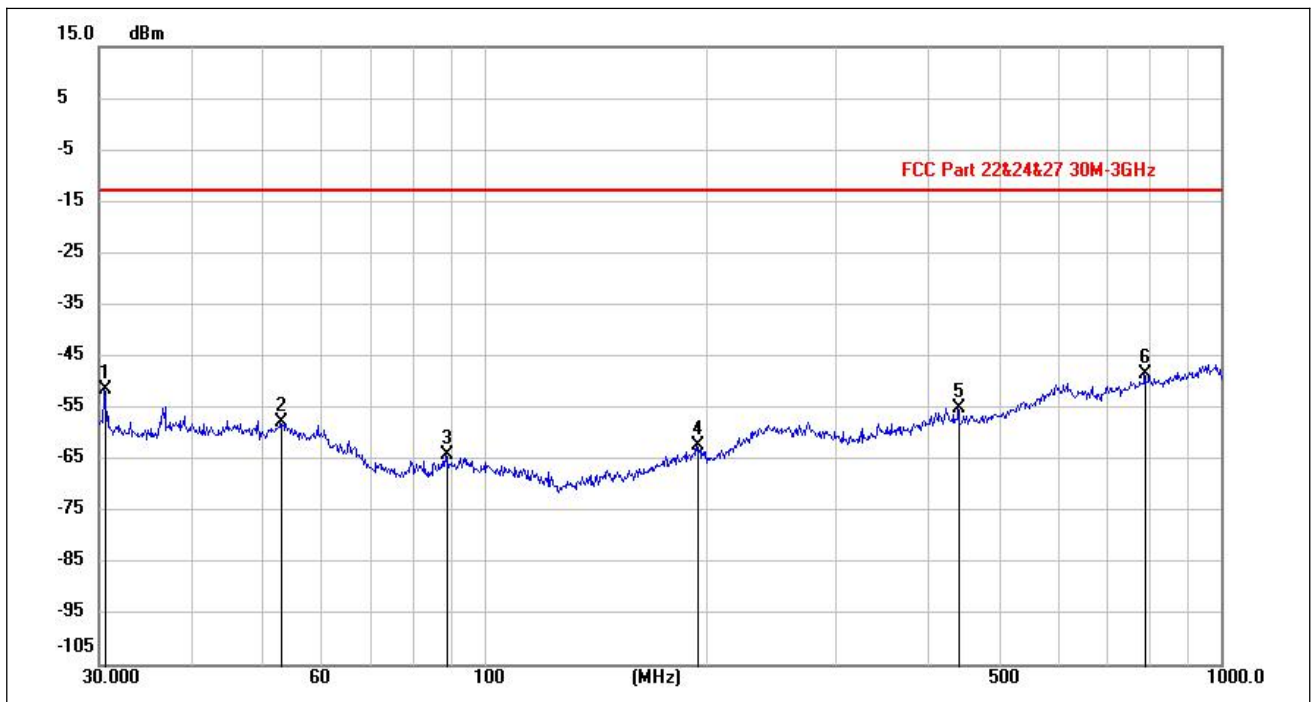
(WCDMA Band IV _ 1GHz to 3GHz_ Low Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
1063.805	-85.48	39.45	-46.03	-13.00	-33.03	peak	PASS
1356.293	-84.25	42.09	-42.16	-13.00	-29.16	peak	PASS
1713.503	-39.20	44.66	5.46	-13.00	N/A	peak	N/A
2034.729	-84.30	47.31	-36.99	-13.00	-23.99	peak	PASS
2388.070	-83.74	51.15	-32.59	-13.00	-19.59	peak	PASS
2878.285	-84.52	55.01	-29.51	-13.00	-16.51	peak	PASS



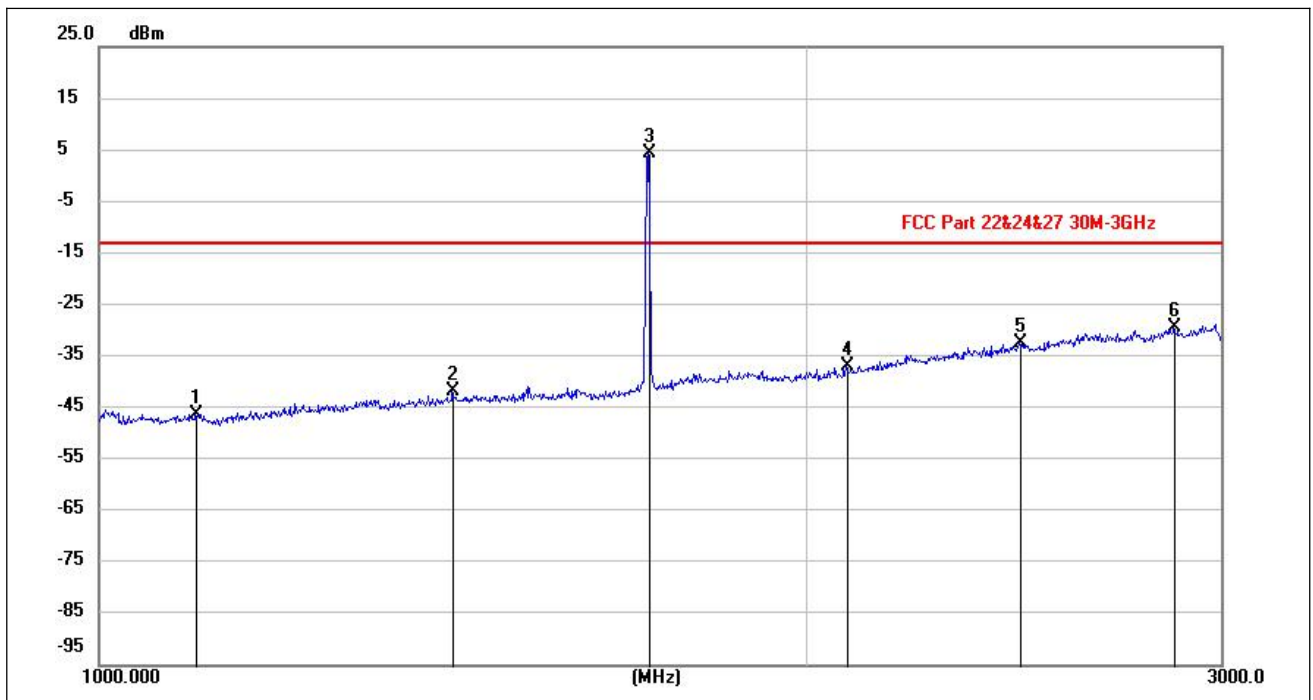
(WCDMA Band IV_ 3GHz to 18GHz _ Low Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
3426.000	-31.62	6.83	-24.79	-13.00	-11.79	peak	PASS
5140.500	-44.00	9.57	-34.43	-13.00	-21.43	peak	PASS
6854.250	-53.74	10.69	-43.05	-13.00	-30.05	peak	PASS
8874.000	-63.98	14.11	-49.87	-13.00	-36.87	peak	PASS
10276.500	-59.91	14.12	-45.79	-13.00	-32.79	peak	PASS
14055.000	-68.14	19.22	-48.92	-13.00	-35.92	peak	PASS



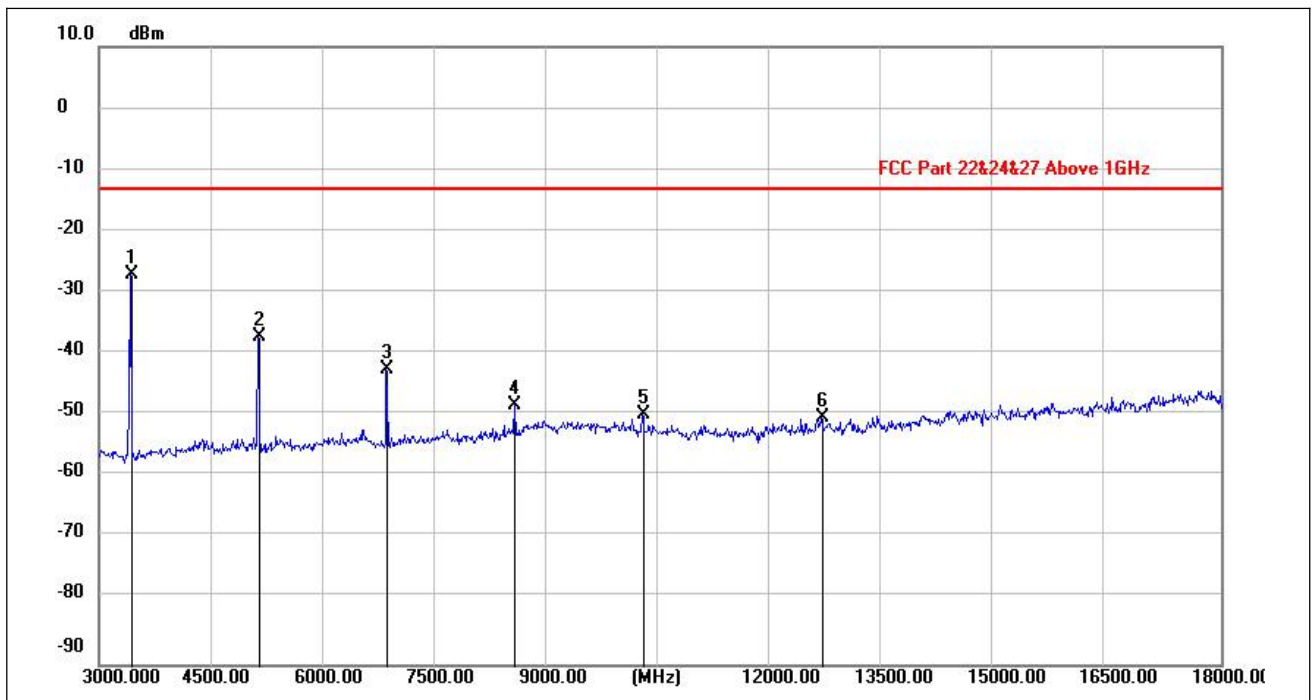
(WCDMA Band IV_ 30MHz to 1GHz _ Low Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
30.5735	-71.20	19.71	-51.49	-13.00	-38.49	peak	PASS
53.0103	-81.32	23.45	-57.87	-13.00	-44.87	peak	PASS
88.8548	-88.26	24.02	-64.24	-13.00	-51.24	peak	PASS
194.7264	-86.86	24.63	-62.23	-13.00	-49.23	peak	PASS
441.4329	-84.79	29.82	-54.97	-13.00	-41.97	peak	PASS
789.2338	-84.35	35.98	-48.37	-13.00	-35.37	peak	PASS



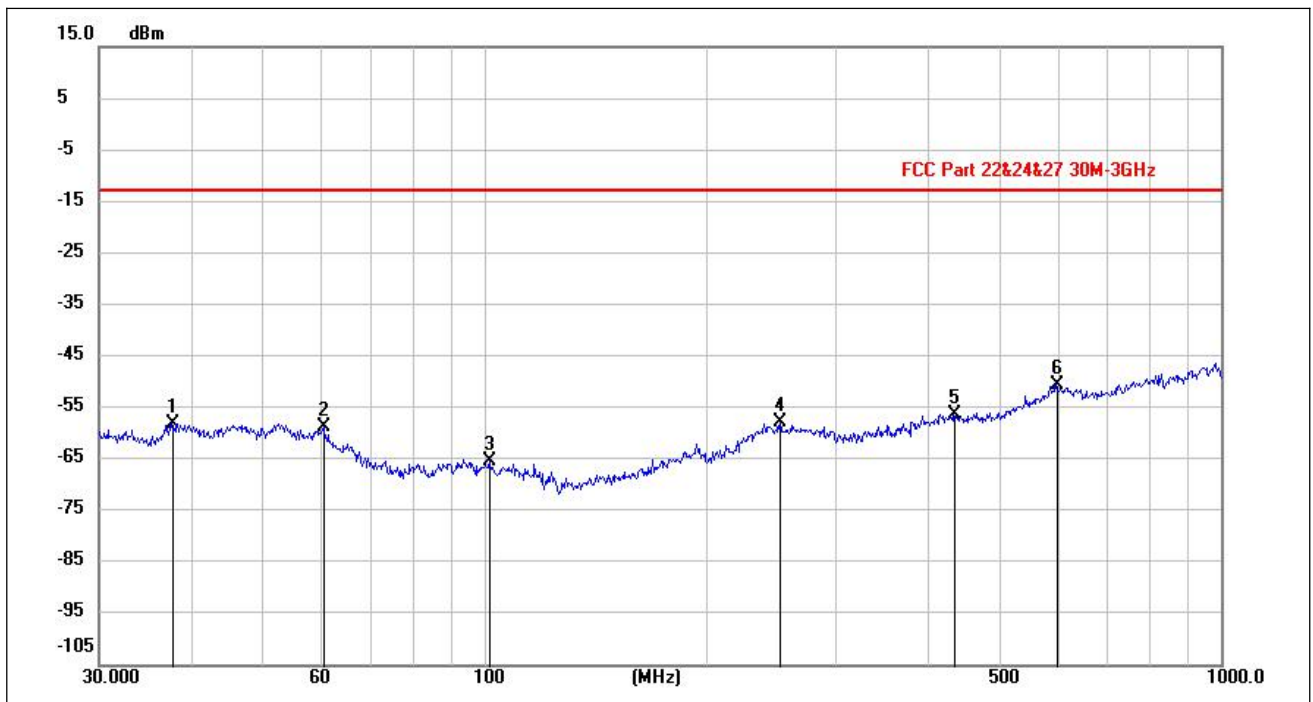
(WCDMA Band IV _ 1GHz to 3GHz _ Low Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
1099.813	-86.03	39.83	-46.20	-13.00	-33.20	peak	PASS
1414.812	-84.22	42.39	-41.83	-13.00	-28.83	peak	PASS
1713.315	-40.15	44.56	4.41	-13.00	N/A	peak	N/A
2078.675	-84.81	47.72	-37.09	-13.00	-24.09	peak	PASS
2464.024	-84.52	52.17	-32.35	-13.00	-19.35	peak	PASS
2865.035	-84.32	54.95	-29.37	-13.00	-16.37	peak	PASS



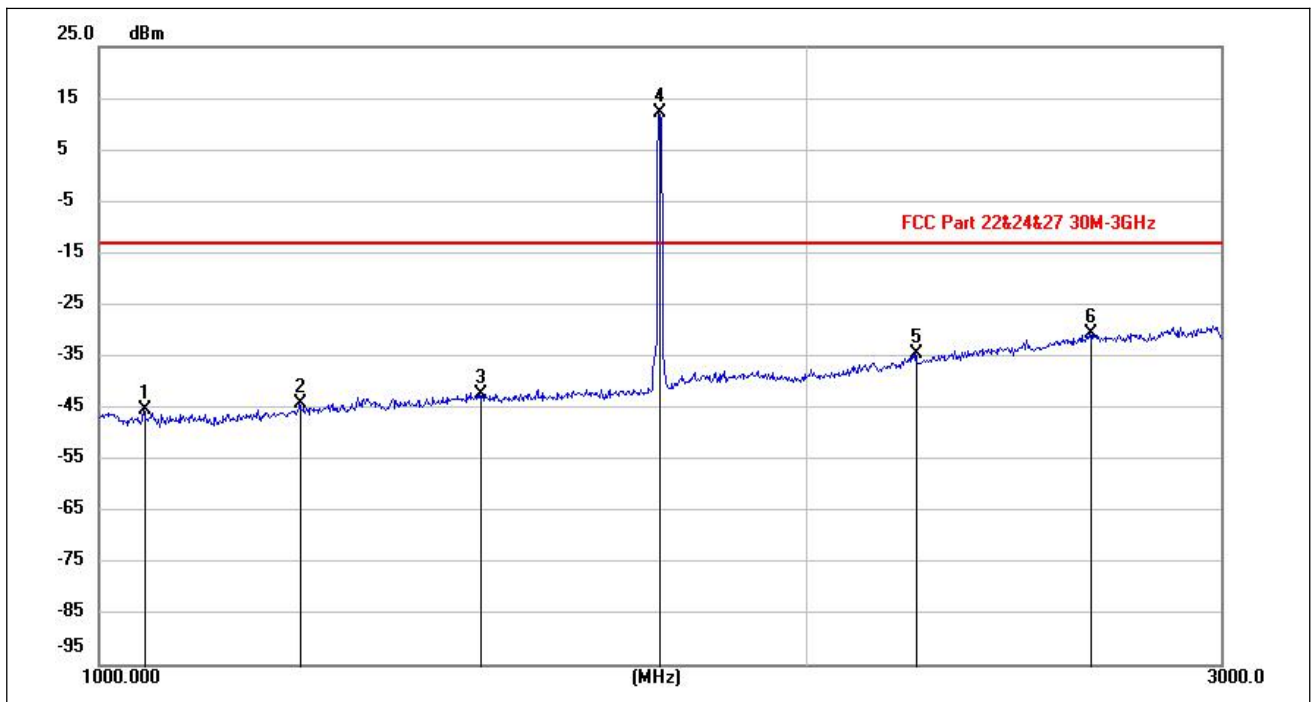
(WCDMA Band IV_ 3GHz to 18GH _ Low Channel z _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
3426.000	-33.59	6.75	-26.84	-13.00	-13.84	peak	PASS
5139.750	-46.45	9.52	-36.93	-13.00	-23.93	peak	PASS
6854.250	-52.71	10.65	-42.06	-13.00	-29.06	peak	PASS
8561.250	-61.16	13.21	-47.95	-13.00	-34.95	peak	PASS
10272.000	-63.76	14.46	-49.30	-13.00	-36.30	peak	PASS
12670.500	-66.47	16.45	-50.02	-13.00	-37.02	peak	PASS



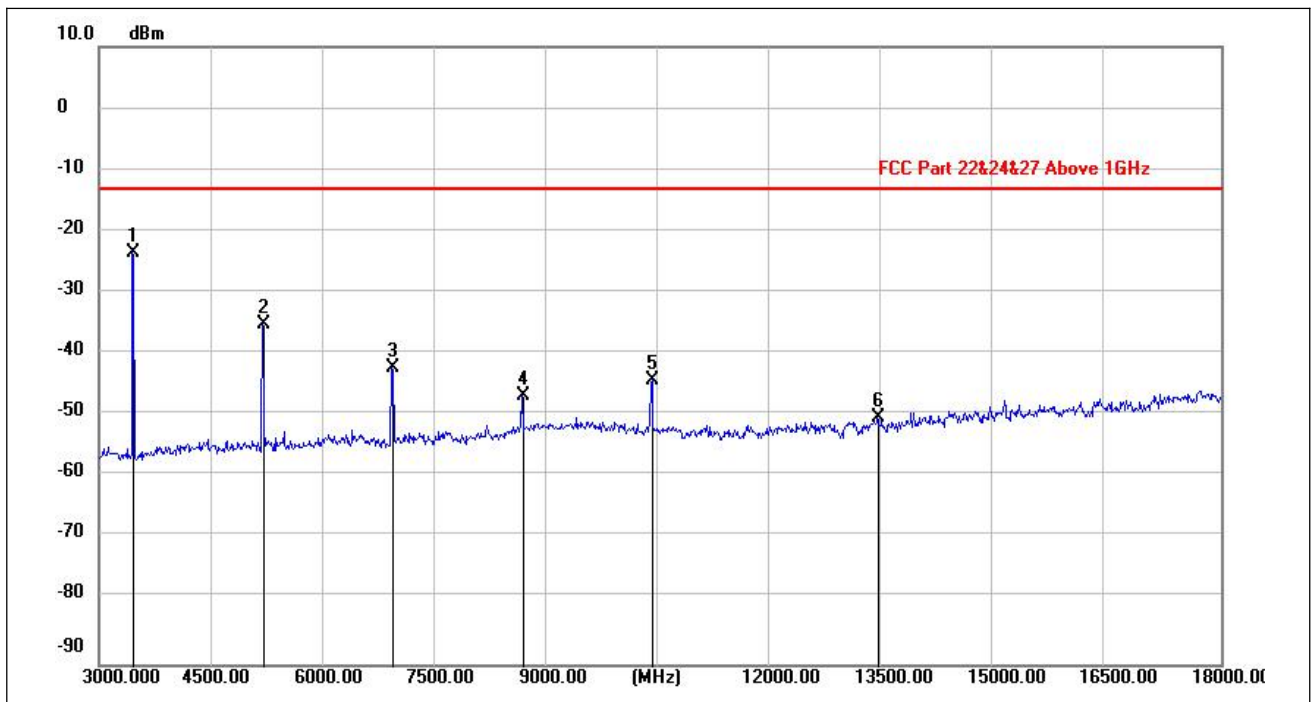
(WCDMA Band IV _ 30MHz to 1GHz _ Middle Channel_ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
37.6864	-87.29	29.20	-58.09	-13.00	-45.09	peak	PASS
60.6618	-87.35	28.58	-58.77	-13.00	-45.77	peak	PASS
101.8762	-87.66	22.22	-65.44	-13.00	-52.44	peak	PASS
252.0627	-86.88	28.94	-57.94	-13.00	-44.94	peak	PASS
434.2935	-86.82	30.59	-56.23	-13.00	-43.23	peak	PASS
598.1665	-86.12	35.64	-50.48	-13.00	-37.48	peak	PASS



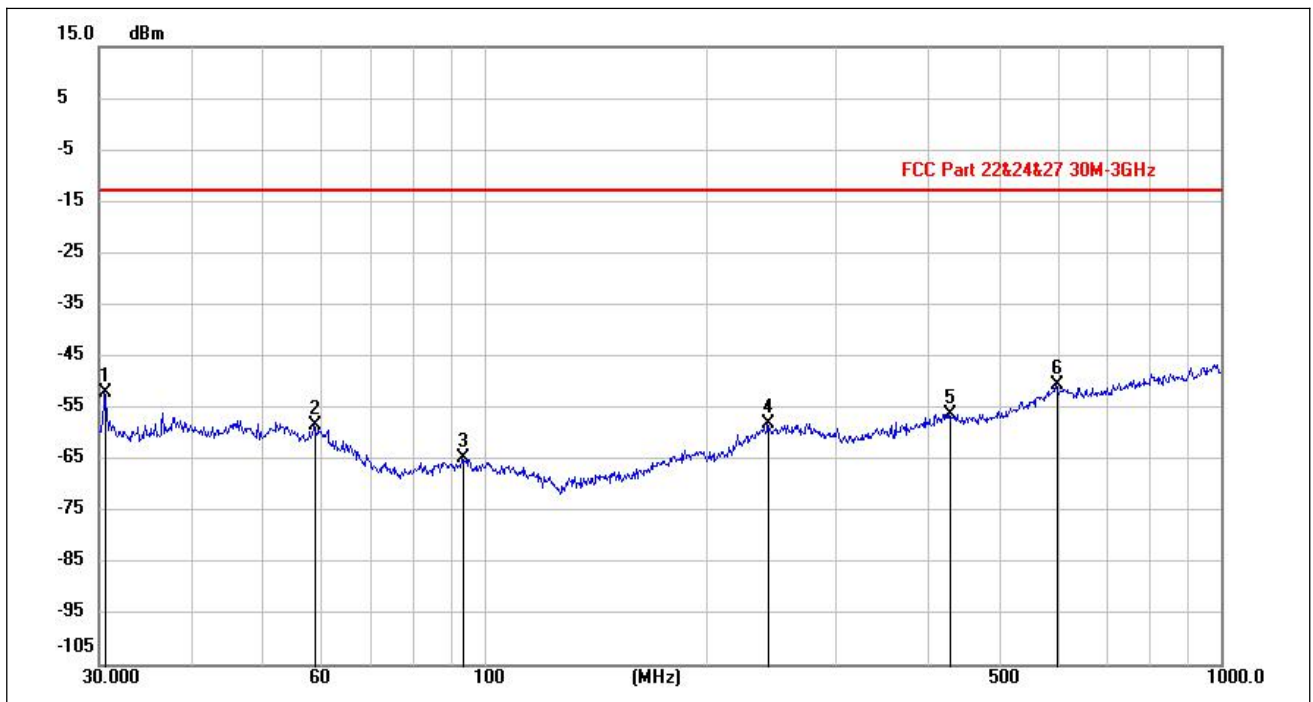
(WCDMA Band IV _ 1GHz to 3GHz _ Middle Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
1045.556	-85.15	39.71	-45.44	-13.00	-32.44	peak	PASS
1218.323	-85.59	41.51	-44.08	-13.00	-31.08	peak	PASS
1452.213	-85.81	43.36	-42.45	-13.00	-29.45	peak	PASS
1731.290	-33.08	45.33	12.25	-13.00	N/A	peak	N/A
2225.318	-84.63	49.97	-34.66	-13.00	-21.66	peak	PASS
2639.591	-84.51	53.90	-30.61	-13.00	-17.61	peak	PASS



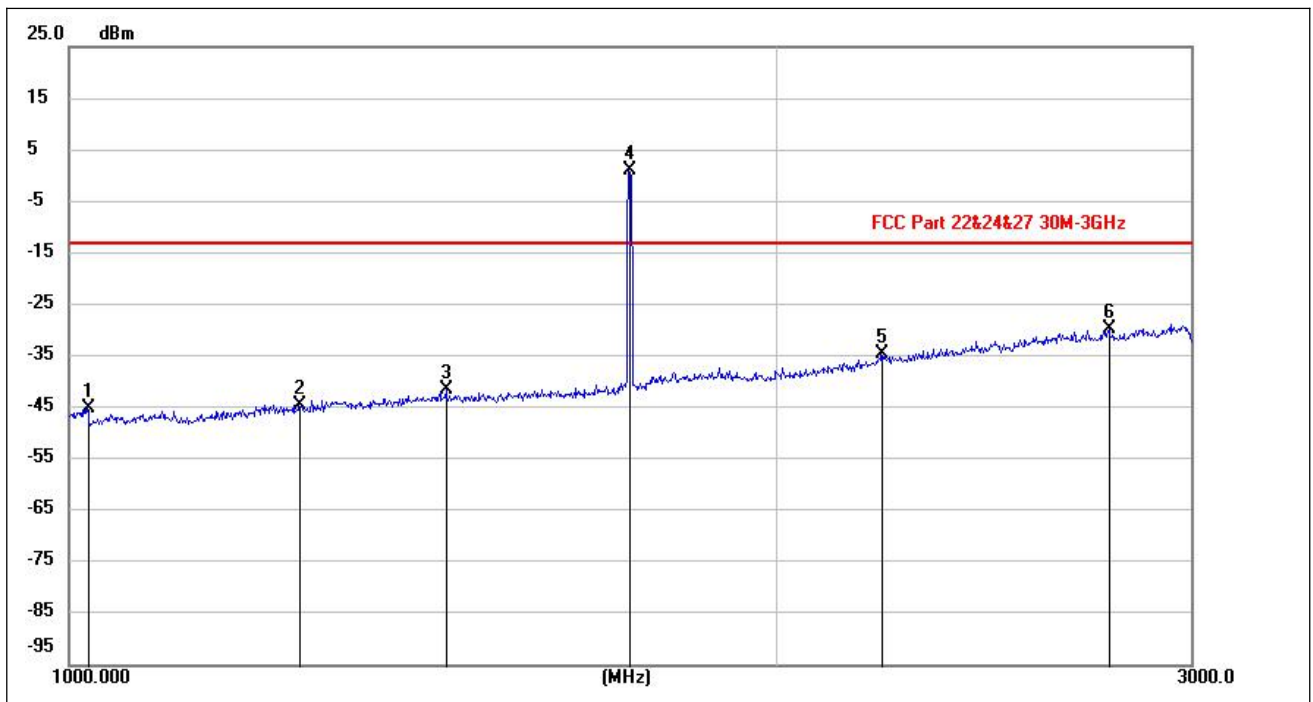
(WCDMA Band IV_ 3GHz to 18GHz _ Middle Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
3463.500	-30.28	6.90	-23.38	-13.00	-10.38	peak	PASS
5195.250	-44.58	9.66	-34.92	-13.00	-21.92	peak	PASS
6927.000	-53.00	11.06	-41.94	-13.00	-28.94	peak	PASS
8658.750	-59.81	13.38	-46.43	-13.00	-33.43	peak	PASS
10401.000	-58.27	14.48	-43.79	-13.00	-30.79	peak	PASS
13423.500	-67.41	17.44	-49.97	-13.00	-36.97	peak	PASS



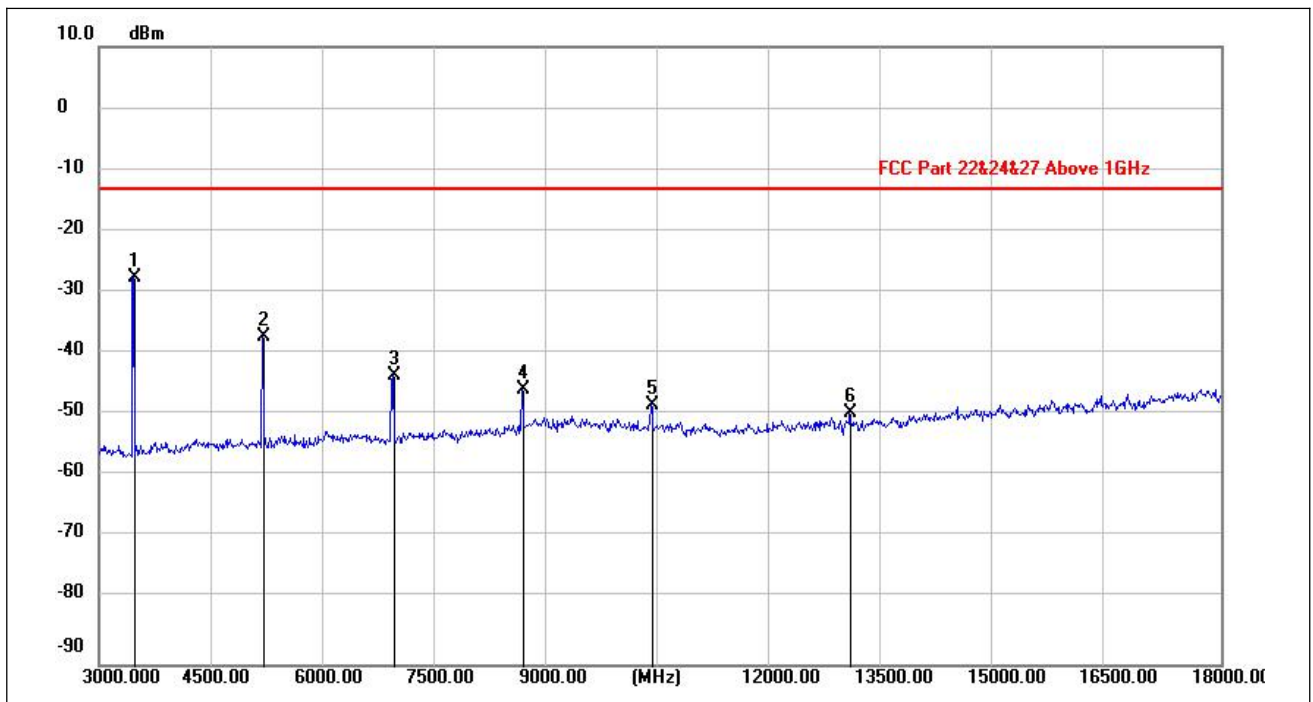
(WCDMA Band IV _ 30MHz to 1GH_ Middle Channel z _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
30.5788	-71.74	19.72	-52.02	-13.00	-39.02	peak	PASS
58.8391	-81.49	23.17	-58.32	-13.00	-45.32	peak	PASS
93.6699	-91.11	26.24	-64.87	-13.00	-51.87	peak	PASS
242.9935	-82.99	24.89	-58.10	-13.00	-45.10	peak	PASS
428.4698	-86.13	29.93	-56.20	-13.00	-43.20	peak	PASS
597.6424	-85.21	34.51	-50.70	-13.00	-37.70	peak	PASS



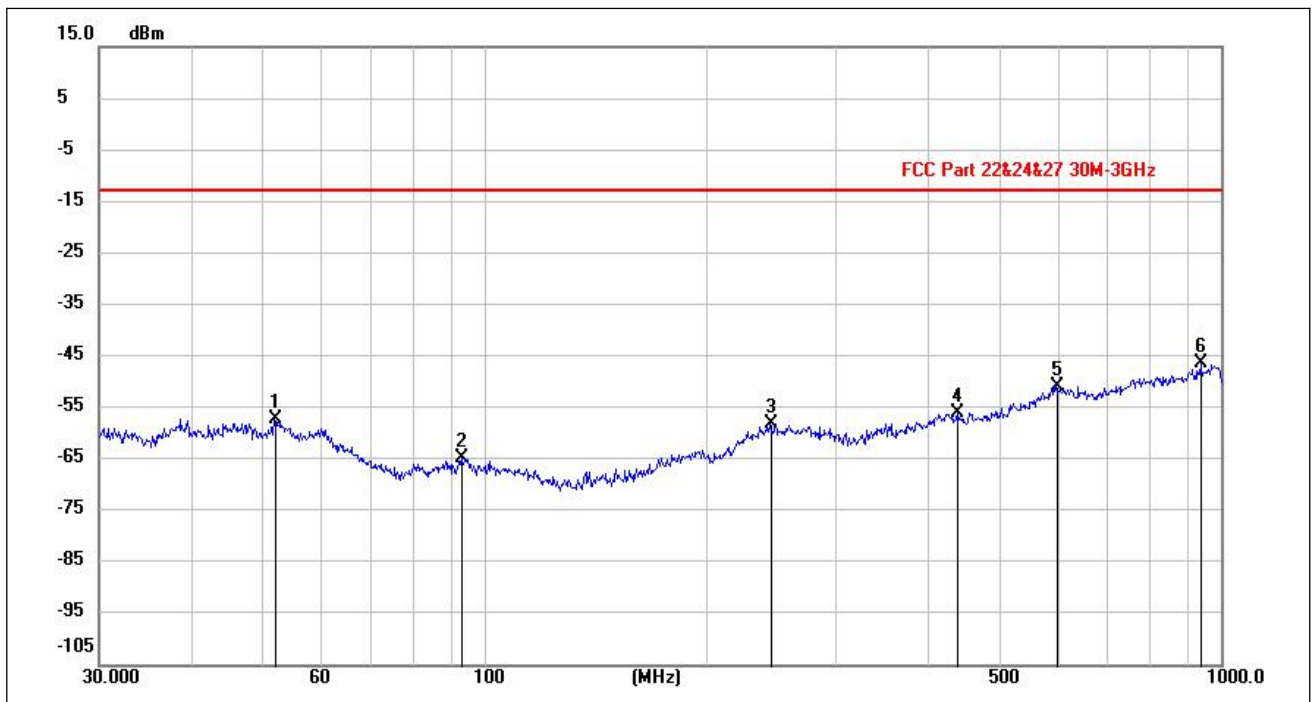
(WCDMA Band IV _ 1GHz to 3GHz_ Middle Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
1017.957	-83.20	38.25	-44.95	-13.00	-31.95	peak	PASS
1253.212	-85.95	41.53	-44.42	-13.00	-31.42	peak	PASS
1446.560	-84.84	43.35	-41.49	-13.00	-28.49	peak	PASS
1731.385	-44.32	45.29	0.97	-13.00	N/A	peak	N/A
2216.534	-84.89	50.32	-34.57	-13.00	-21.57	peak	PASS
2768.799	-83.90	54.08	-29.82	-13.00	-16.82	peak	PASS



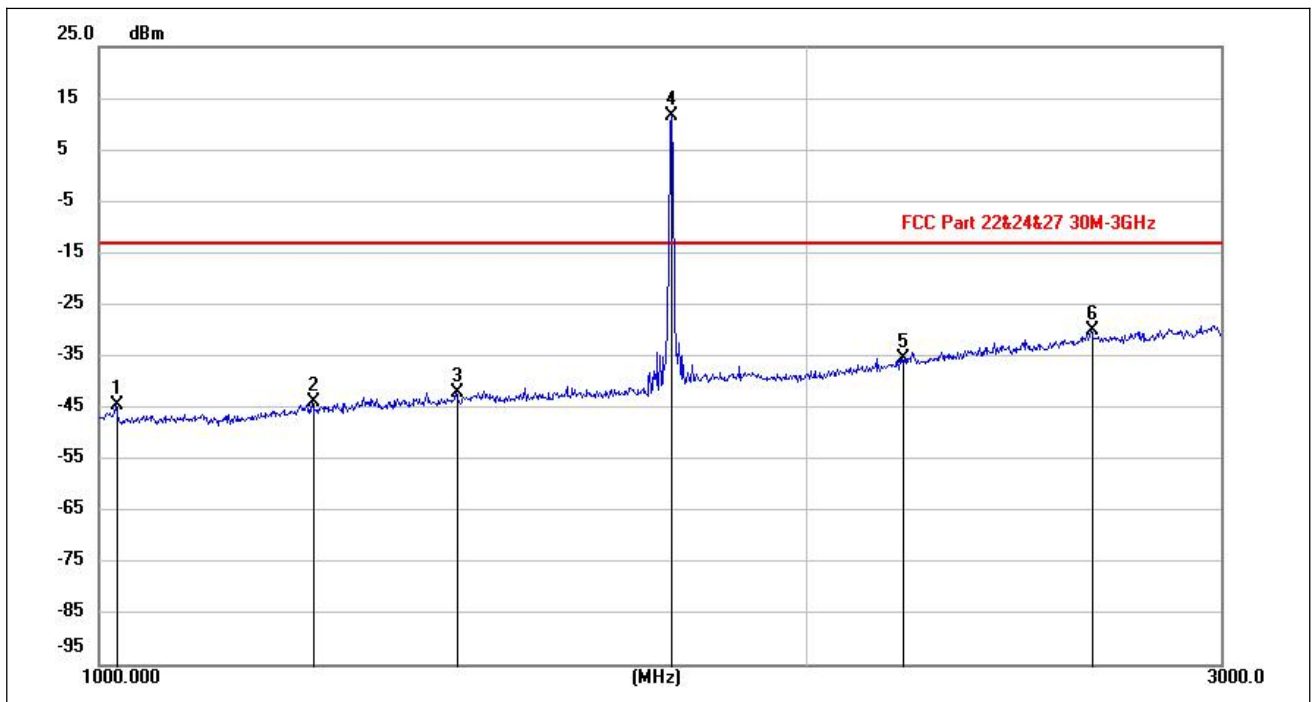
(WCDMA Band IV_ 3GHz to 18GHz _ Middle Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
3466.500	-34.21	6.80	-27.41	-13.00	-14.41	peak	PASS
5201.250	-46.51	9.56	-36.95	-13.00	-23.95	peak	PASS
6935.250	-54.10	11.08	-43.02	-13.00	-30.02	peak	PASS
8661.000	-58.79	13.49	-45.30	-13.00	-32.30	peak	PASS
10389.750	-62.69	14.76	-47.93	-13.00	-34.93	peak	PASS
13037.250	-66.61	17.34	-49.27	-13.00	-36.27	peak	PASS



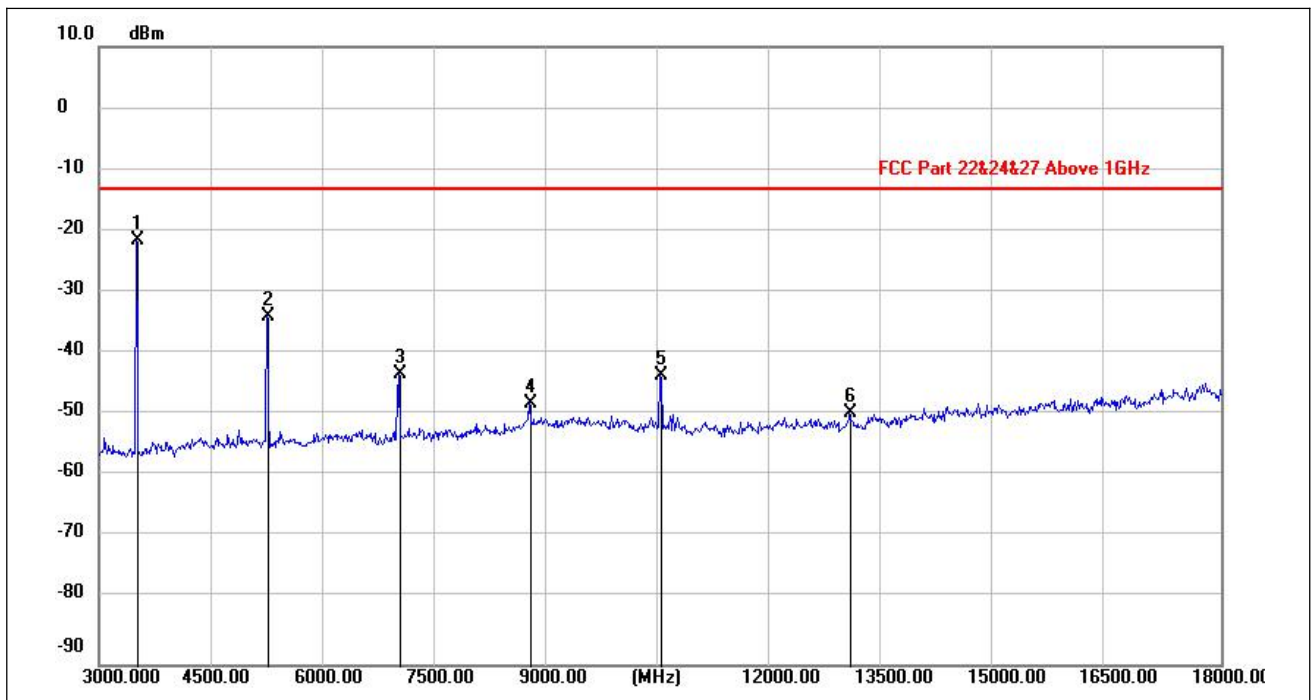
(WCDMA Band IV _ 30MHz to 1GHz _ High Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
51.9340	-86.71	29.58	-57.13	-13.00	-44.13	peak	PASS
93.2439	-86.98	22.26	-64.72	-13.00	-51.72	peak	PASS
244.9611	-87.03	29.05	-57.98	-13.00	-44.98	peak	PASS
439.8877	-86.35	30.43	-55.92	-13.00	-42.92	peak	PASS
599.2162	-86.44	35.64	-50.80	-13.00	-37.80	peak	PASS
941.6351	-84.95	38.66	-46.29	-13.00	-33.29	peak	PASS



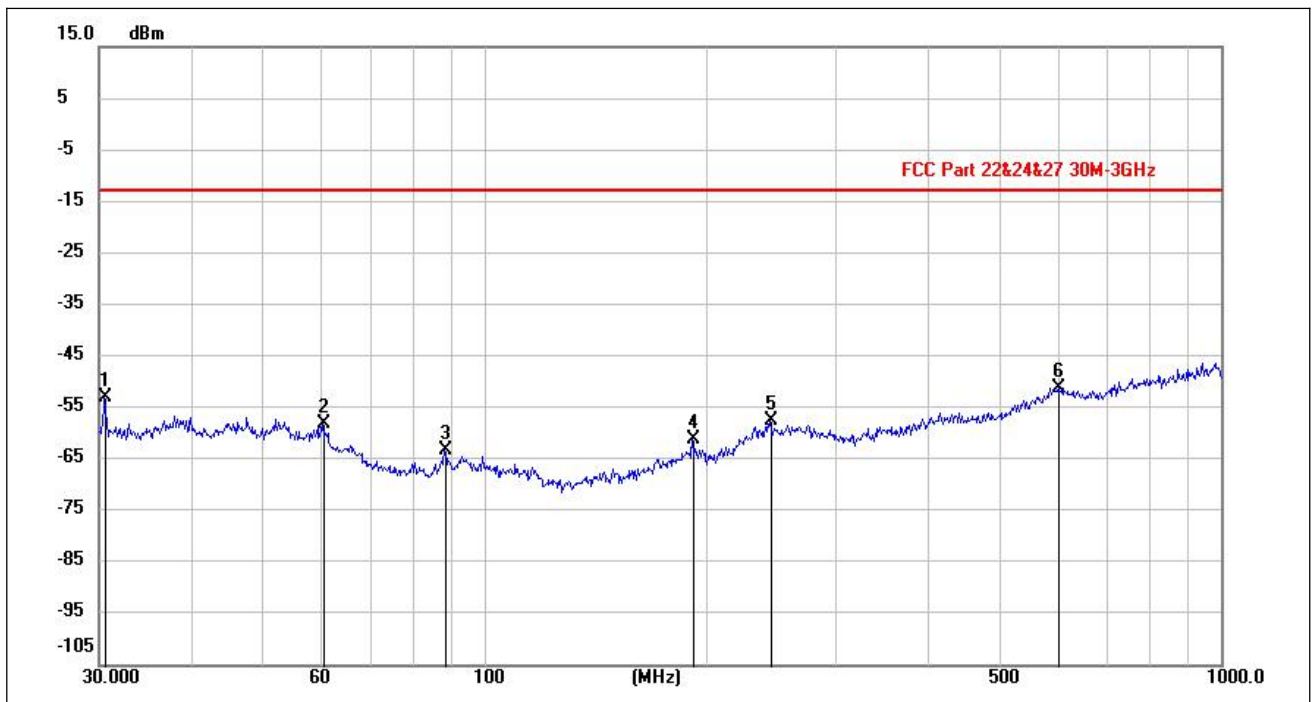
(WCDMA Band IV _ 1GHz to 3GHz _ High Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
1017.621	-83.08	38.66	-44.42	-13.00	-31.42	peak	PASS
1232.594	-85.33	41.29	-44.04	-13.00	-31.04	peak	PASS
1419.015	-85.38	43.19	-42.19	-13.00	-29.19	peak	PASS
1751.377	-33.96	45.47	11.51	-13.00	N/A	peak	N/A
2196.052	-84.91	49.45	-35.46	-13.00	-22.46	peak	PASS
2641.186	-83.83	53.92	-29.91	-13.00	-16.91	peak	PASS



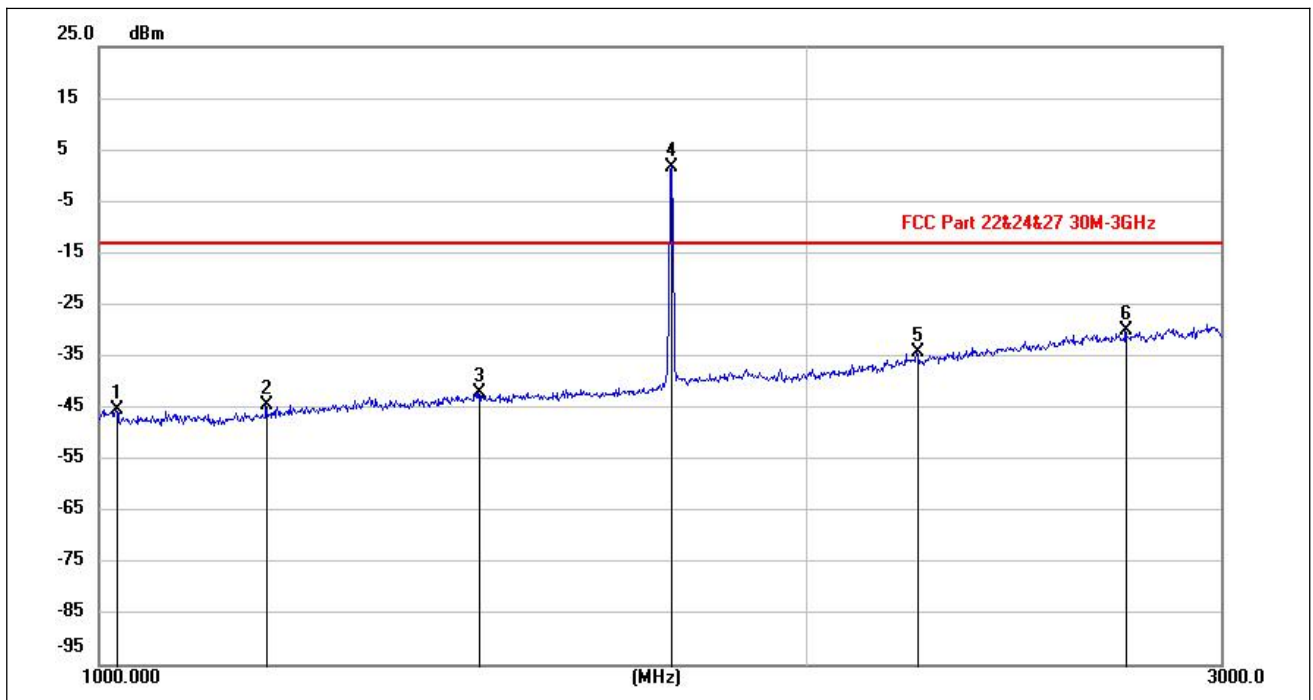
(WCDMA Band IV _ 3GHz to 18GHz _ High Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
3506.250	-27.53	6.36	-21.17	-13.00	-8.17	peak	PASS
5255.250	-43.06	9.48	-33.58	-13.00	-20.58	peak	PASS
7013.250	-54.15	11.17	-42.98	-13.00	-29.98	peak	PASS
8764.500	-61.45	13.80	-47.65	-13.00	-34.65	peak	PASS
10510.500	-57.31	14.09	-43.22	-13.00	-30.22	peak	PASS
13042.500	-66.55	17.40	-49.15	-13.00	-36.15	peak	PASS



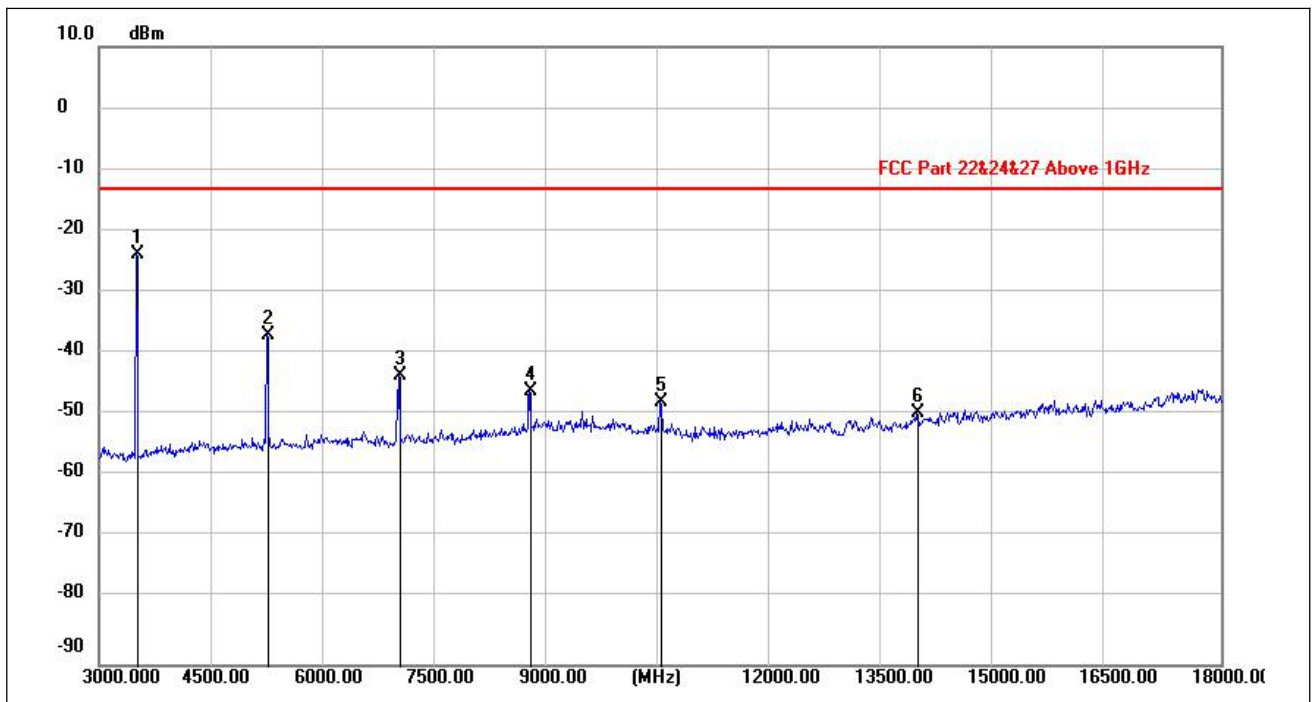
(WCDMA Band IV _ 30MHz to 1GHz_ High Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
30.5788	-72.75	19.72	-53.03	-13.00	-40.03	peak	PASS
60.2907	-82.24	24.18	-58.06	-13.00	-45.06	peak	PASS
88.4196	-87.06	23.95	-63.11	-13.00	-50.11	peak	PASS
192.2163	-85.27	24.03	-61.24	-13.00	-48.24	peak	PASS
244.7036	-82.67	25.13	-57.54	-13.00	-44.54	peak	PASS
603.4334	-85.39	34.30	-51.09	-13.00	-38.09	peak	PASS



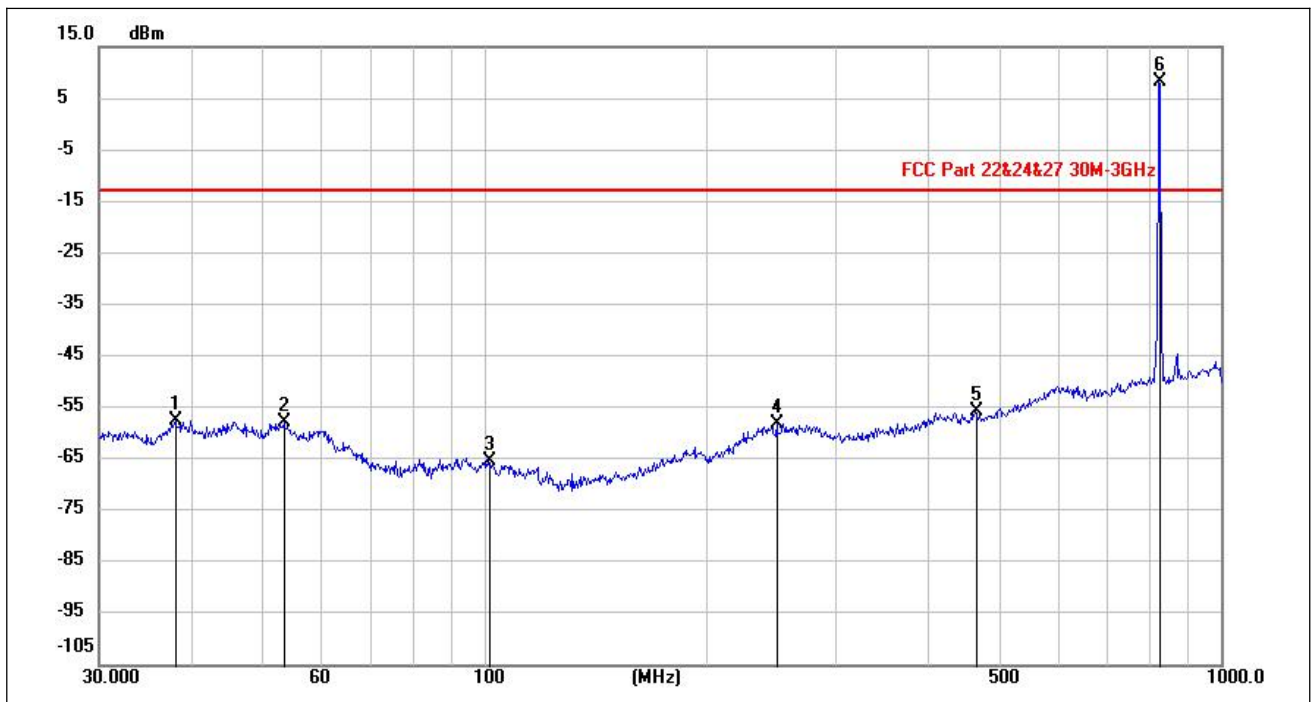
(WCDMA Band IV _ 1GHz to 3GHz _ High Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
1016.727	-83.68	38.29	-45.39	-13.00	-32.39	peak	PASS
1177.982	-84.91	40.39	-44.52	-13.00	-31.52	peak	PASS
1449.742	-85.60	43.46	-42.14	-13.00	-29.14	peak	PASS
1751.858	-44.07	45.70	1.63	-13.00	N/A	peak	N/A
2229.477	-84.06	49.93	-34.13	-13.00	-21.13	peak	PASS
2735.390	-83.83	53.75	-30.08	-13.00	-17.08	peak	PASS



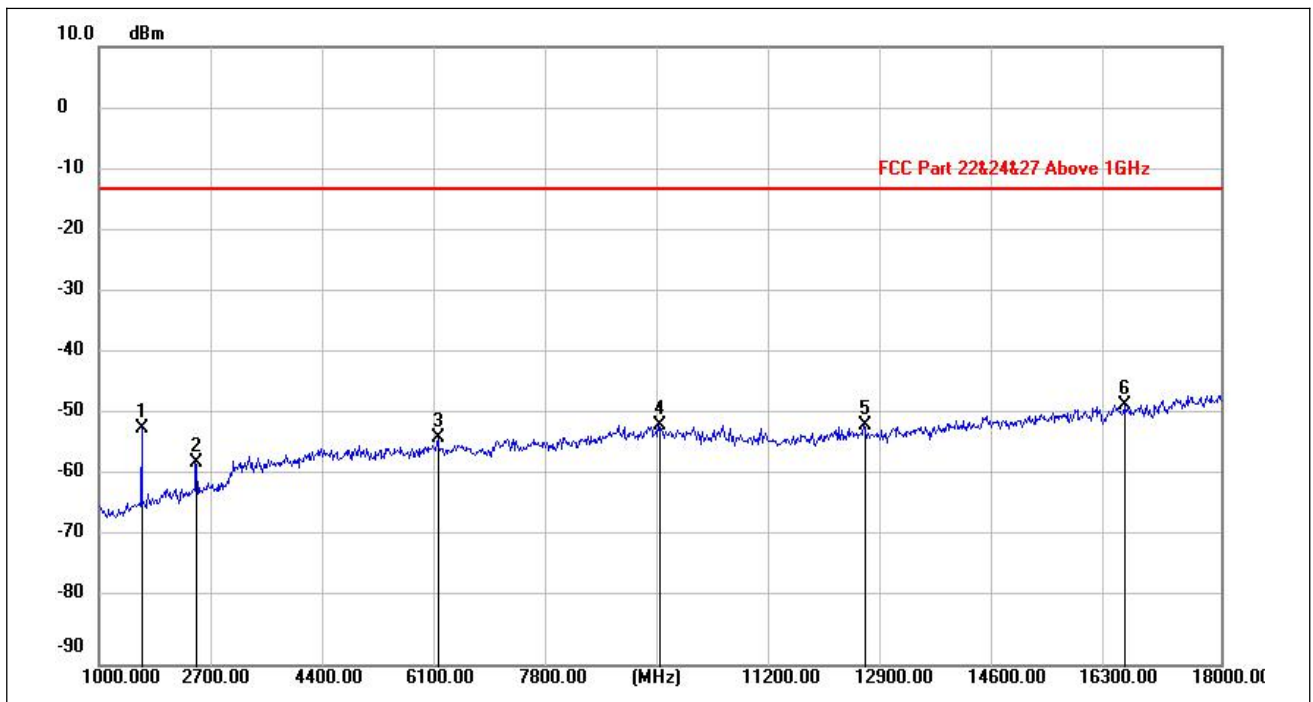
(WCDMA Band IV_3GHz to 18GHz_High Channel_Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
3506.250	-29.86	6.36	-23.50	-13.00	-10.50	peak	PASS
5261.250	-46.28	9.55	-36.73	-13.00	-23.73	peak	PASS
7015.500	-54.31	11.14	-43.17	-13.00	-30.17	peak	PASS
8763.000	-59.49	13.88	-45.61	-13.00	-32.61	peak	PASS
10513.500	-61.86	14.41	-47.45	-13.00	-34.45	peak	PASS
13937.250	-68.08	18.80	-49.28	-13.00	-36.28	peak	PASS



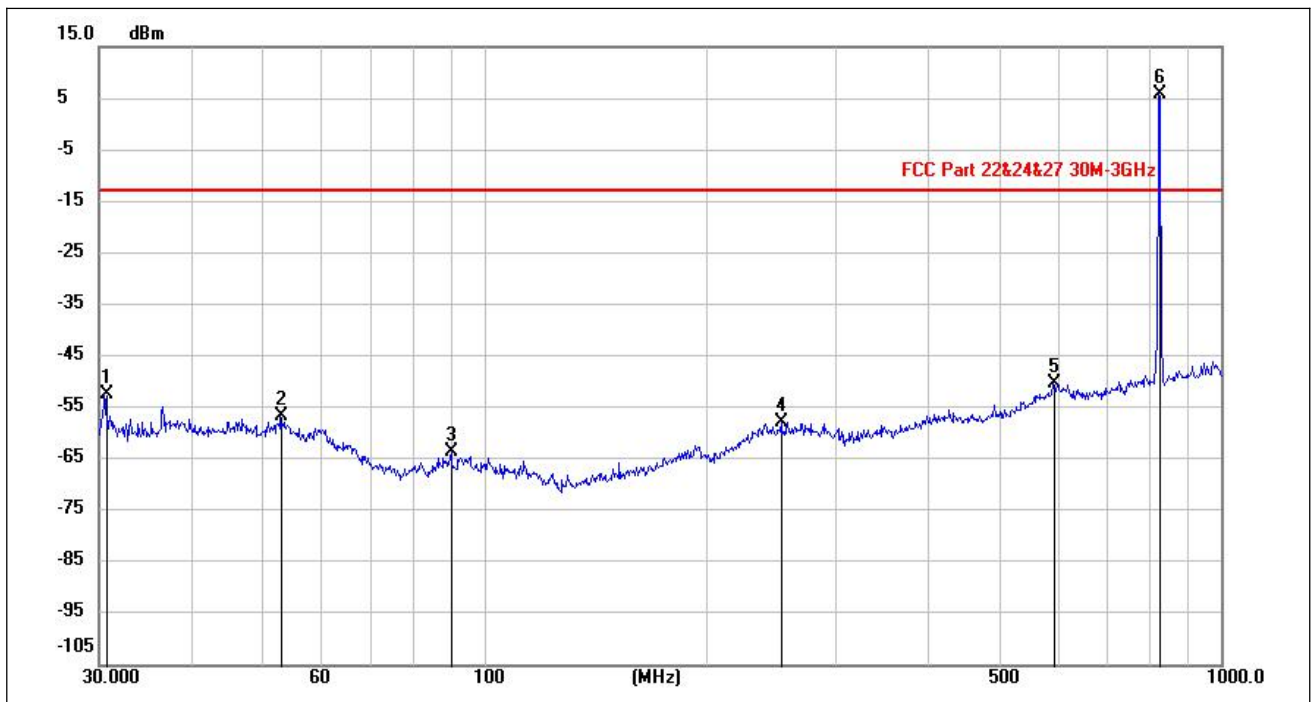
(WCDMA Band V_ 30MHz to 1GHz _ Low Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
38.0983	-87.09	29.57	-57.52	-13.00	-44.52	peak	PASS
53.6838	-87.71	29.88	-57.83	-13.00	-44.83	peak	PASS
101.4485	-87.55	22.32	-65.23	-13.00	-52.23	peak	PASS
250.0380	-87.13	29.08	-58.05	-13.00	-45.05	peak	PASS
464.6209	-86.23	30.49	-55.74	-13.00	-42.74	peak	PASS
826.6234	-29.02	37.20	8.18	-13.00	N/A	peak	N/A



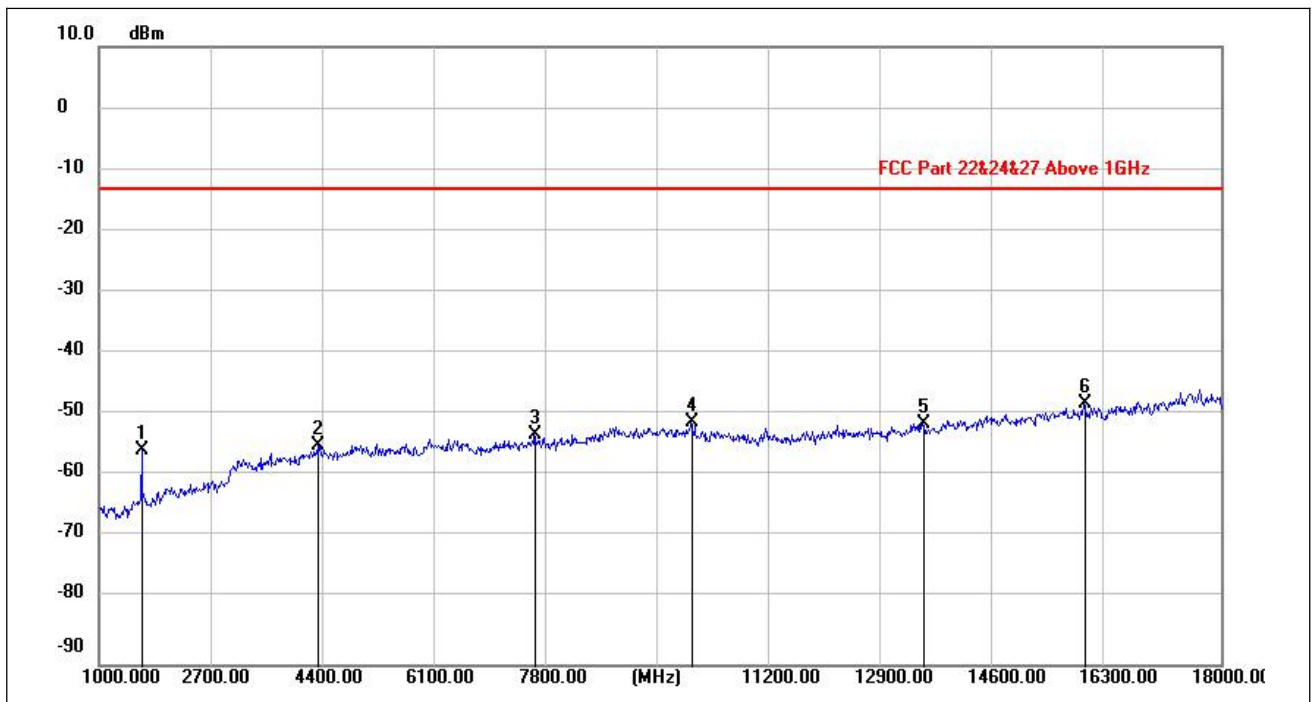
(WCDMA Band V _ 1GHz to 18GHz_ Low Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
1655.350	-48.61	-3.10	-51.71	-13.00	-38.71	peak	PASS
2475.600	-57.53	0.36	-57.17	-13.00	-44.17	peak	PASS
6134.000	-62.97	9.88	-53.09	-13.00	-40.09	peak	PASS
9499.150	-64.34	13.24	-51.10	-13.00	-38.10	peak	PASS
12610.150	-66.66	15.36	-51.30	-13.00	-38.30	peak	PASS
16551.600	-70.53	22.68	-47.85	-13.00	-34.85	peak	PASS



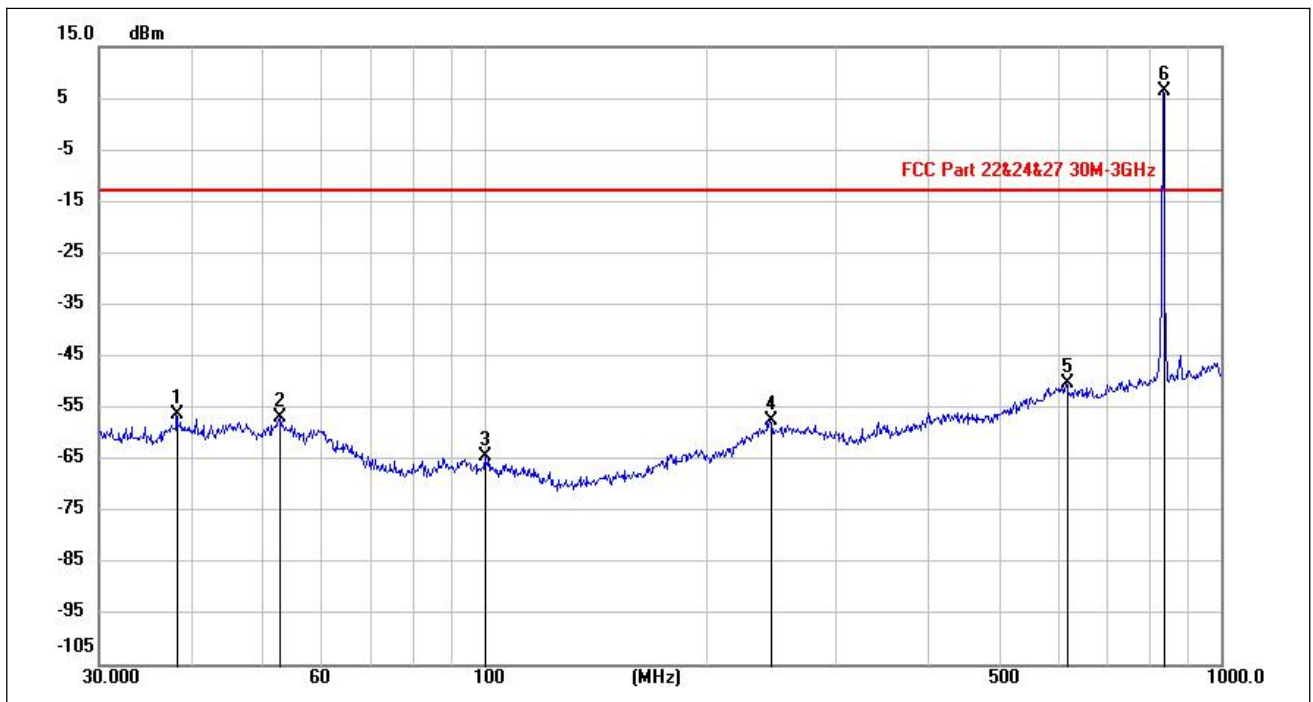
(WCDMA Band V _ 30MHz to 1GHz_ Low Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
30.6379	-72.09	19.72	-52.37	-13.00	-39.37	peak	PASS
53.0941	-79.90	23.43	-56.47	-13.00	-43.47	peak	PASS
90.3788	-87.65	24.02	-63.63	-13.00	-50.63	peak	PASS
253.3920	-83.10	25.27	-57.83	-13.00	-44.83	peak	PASS
591.1810	-84.65	34.34	-50.31	-13.00	-37.31	peak	PASS
826.7683	-31.03	36.98	5.95	-13.00	N/A	peak	N/A



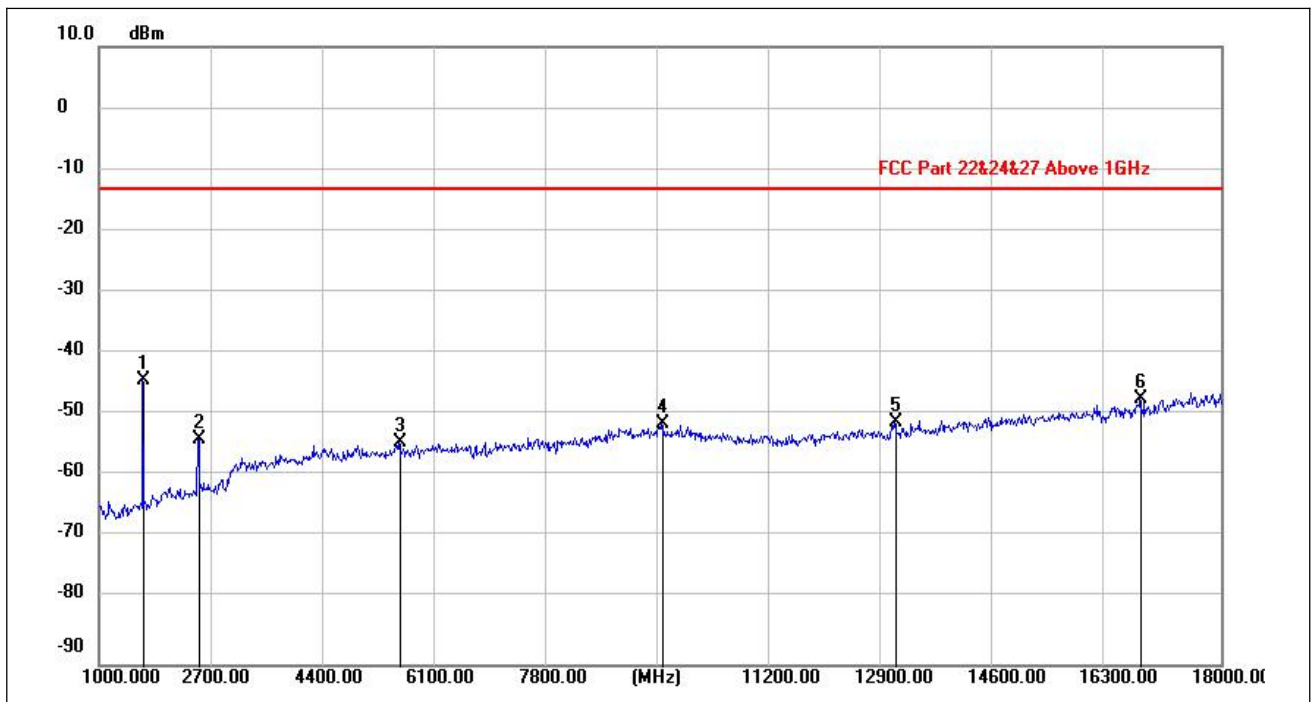
(WCDMA Band V _ 1GHz to 18GHz_ Low Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
1651.100	-51.89	-3.19	-55.08	-13.00	-42.08	peak	PASS
4332.000	-62.80	8.33	-54.47	-13.00	-41.47	peak	PASS
7607.050	-63.35	10.77	-52.58	-13.00	-39.58	peak	PASS
9979.400	-64.05	13.46	-50.59	-13.00	-37.59	peak	PASS
13490.750	-67.48	16.58	-50.90	-13.00	-37.90	peak	PASS
15937.050	-68.73	21.07	-47.66	-13.00	-34.66	peak	PASS



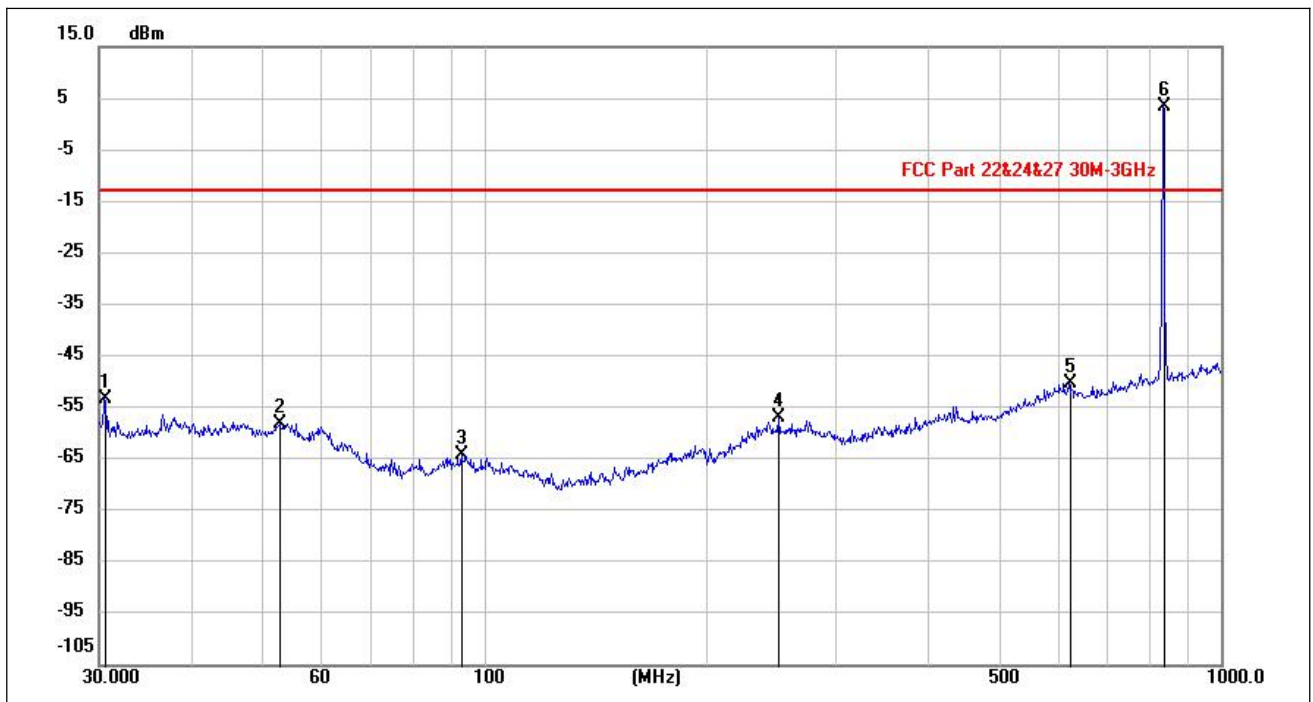
(WCDMA Band V _ 30MHz to 1GHz_ Middle Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
38.3059	-86.03	29.62	-56.41	-13.00	-43.41	peak	PASS
52.7692	-87.03	30.04	-56.99	-13.00	-43.99	peak	PASS
100.3517	-86.58	22.28	-64.30	-13.00	-51.30	peak	PASS
244.3178	-86.52	28.92	-57.60	-13.00	-44.60	peak	PASS
616.4798	-85.80	35.42	-50.38	-13.00	-37.38	peak	PASS
836.5376	-30.66	36.96	6.30	-13.00	N/A	peak	N/A



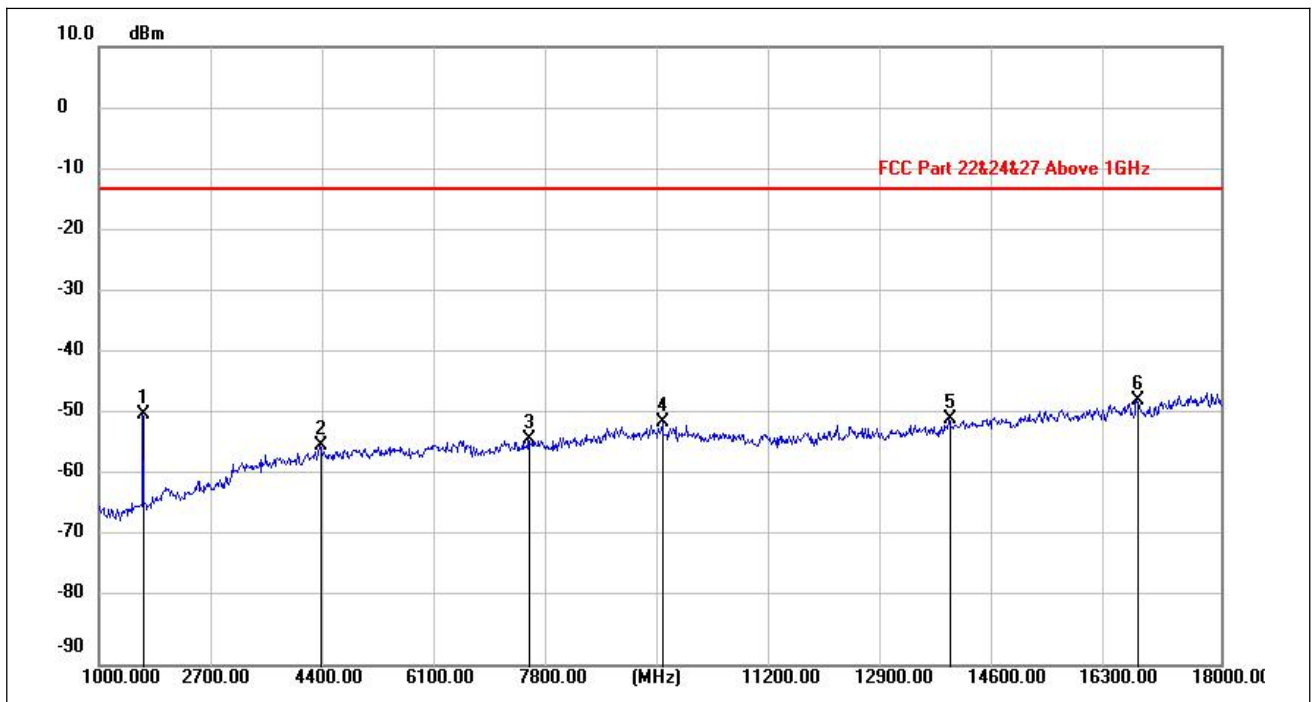
(WCDMA Band V_ 1GHz to 18GHz _ Middle Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
1671.500	-41.02	-2.79	-43.81	-13.00	-30.81	peak	PASS
2506.200	-53.86	0.44	-53.42	-13.00	-40.42	peak	PASS
5540.700	-63.22	9.32	-53.90	-13.00	-40.90	peak	PASS
9520.400	-64.02	13.19	-50.83	-13.00	-37.83	peak	PASS
13054.700	-67.08	16.50	-50.58	-13.00	-37.58	peak	PASS
16787.900	-69.32	22.48	-46.84	-13.00	-33.84	peak	PASS



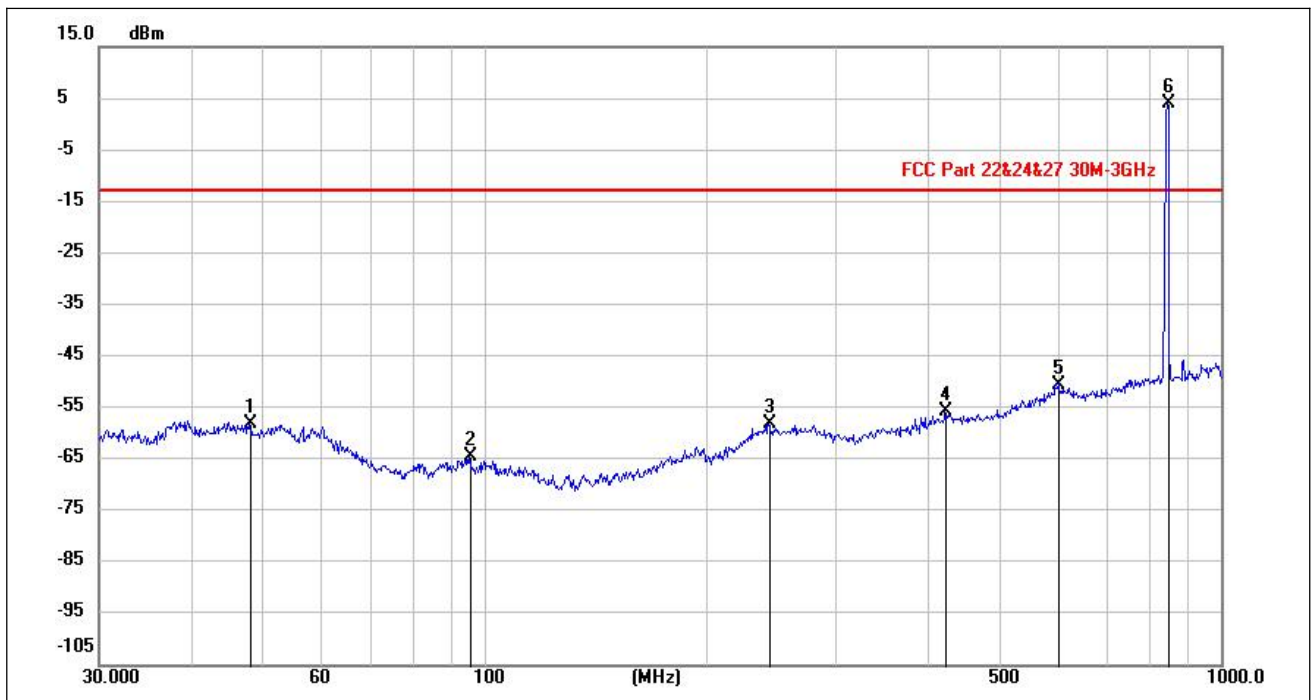
(WCDMA Band V_ 30MHz to 1GHz _ Middle Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
30.6110	-73.01	19.73	-53.28	-13.00	-40.28	peak	PASS
52.9268	-81.50	23.47	-58.03	-13.00	-45.03	peak	PASS
93.3747	-90.12	25.97	-64.15	-13.00	-51.15	peak	PASS
251.1804	-82.25	25.19	-57.06	-13.00	-44.06	peak	PASS
623.2177	-84.47	34.25	-50.22	-13.00	-37.22	peak	PASS
837.1245	-33.57	37.02	3.45	-13.00	N/A	peak	N/A



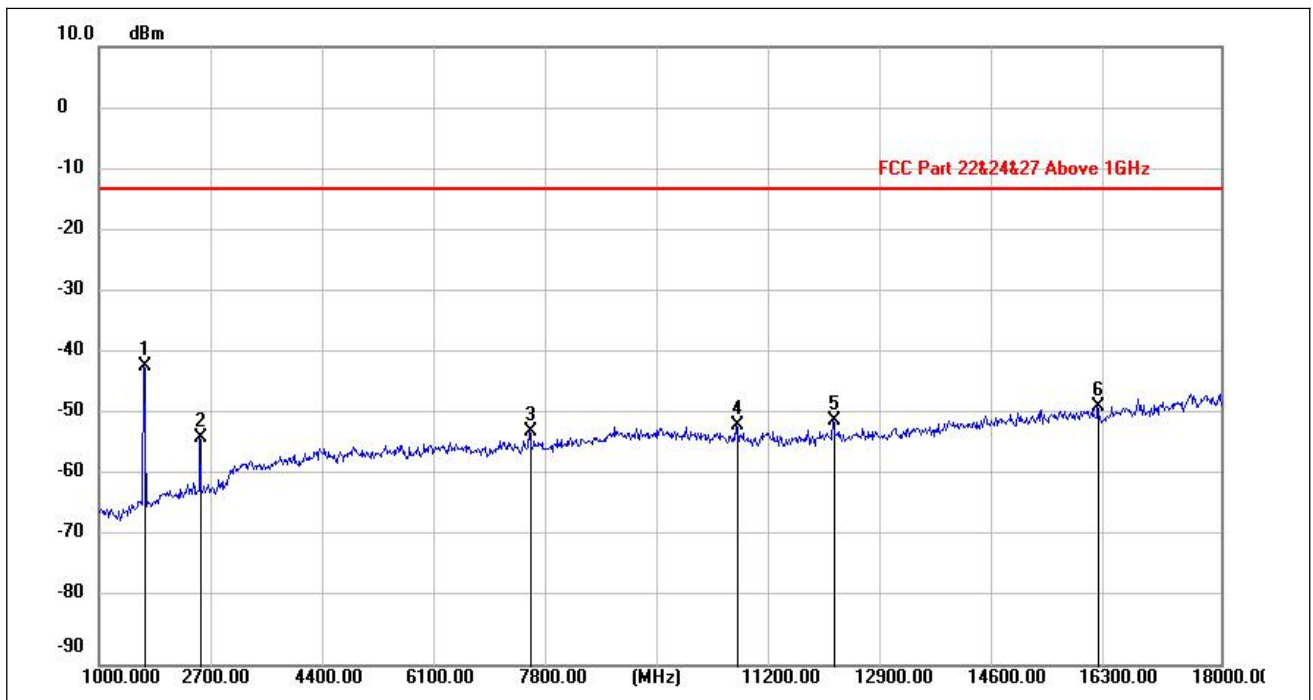
(WCDMA Band V_ 1GHz to 18GHz _ Middle Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
1671.500	-46.91	-2.56	-49.47	-13.00	-36.47	peak	PASS
4351.550	-62.91	8.46	-54.45	-13.00	-41.45	peak	PASS
7522.050	-63.95	10.40	-53.55	-13.00	-40.55	peak	PASS
9544.200	-63.88	13.32	-50.56	-13.00	-37.56	peak	PASS
13902.150	-68.02	17.86	-50.16	-13.00	-37.16	peak	PASS
16735.200	-69.48	22.41	-47.07	-13.00	-34.07	peak	PASS



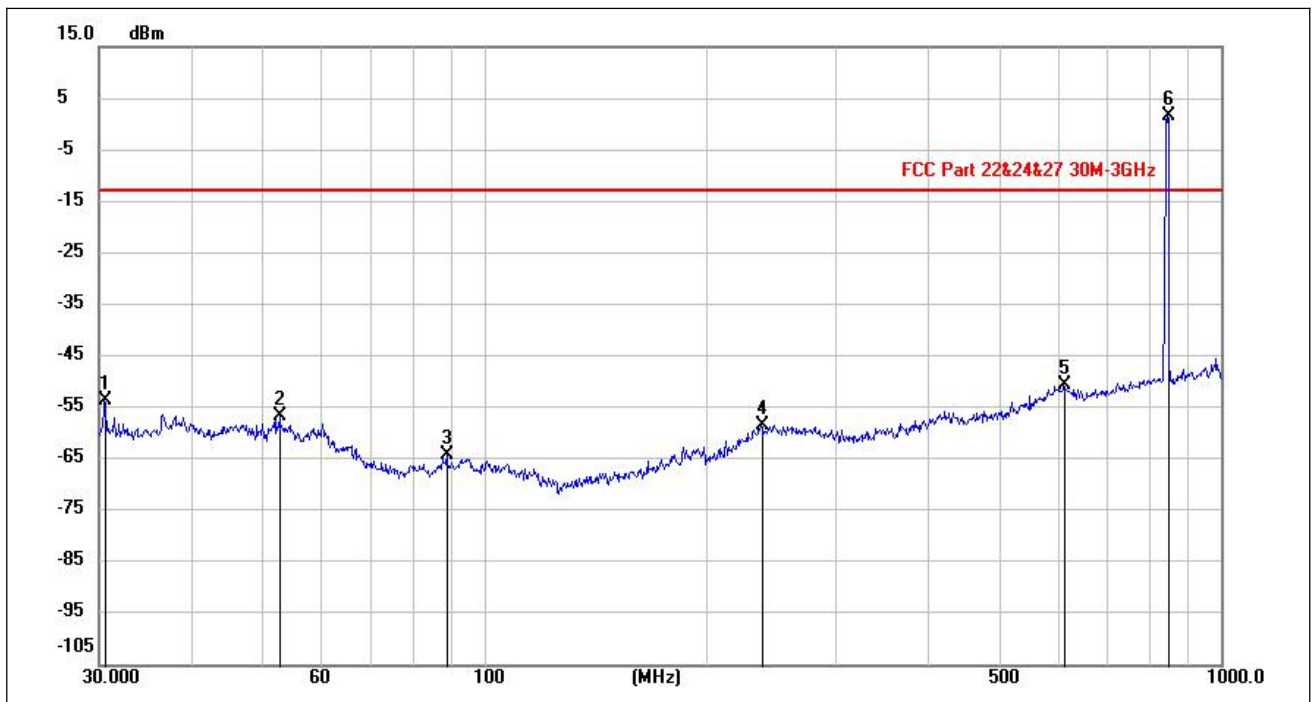
(WCDMA Band V _ 30MHz to 1GHz_ High Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
48.1457	-87.19	29.19	-58.00	-13.00	-45.00	peak	PASS
95.4605	-87.03	22.67	-64.36	-13.00	-51.36	peak	PASS
243.5052	-86.91	28.74	-58.17	-13.00	-45.17	peak	PASS
422.2798	-86.44	30.81	-55.63	-13.00	-42.63	peak	PASS
602.1651	-85.89	35.46	-50.43	-13.00	-37.43	peak	PASS
847.1647	-32.99	37.12	4.13	-13.00	N/A	peak	N/A



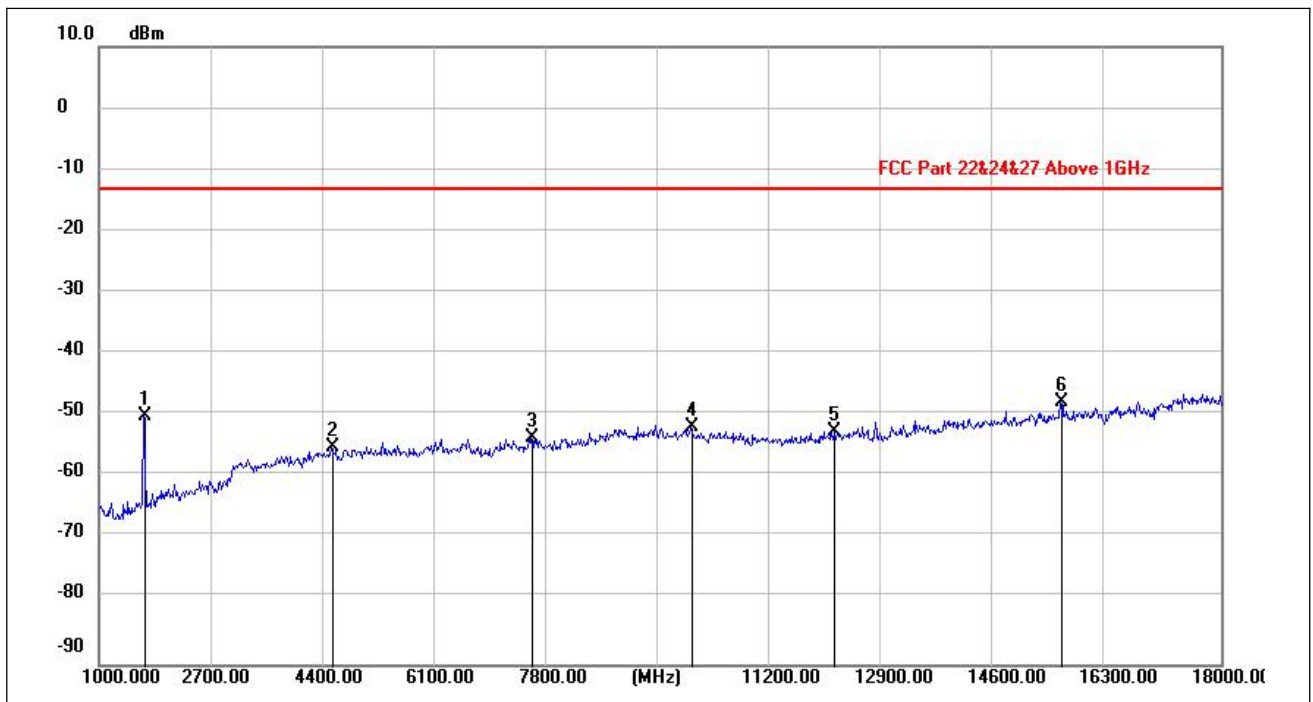
(WCDMA Band V _ 1GHz to 18GHz _ High Channel _ Horizontal)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
1695.300	-38.45	-3.20	-41.65	-13.00	-28.65	peak	PASS
2535.100	-53.60	0.45	-53.15	-13.00	-40.15	peak	PASS
7544.150	-62.70	10.47	-52.23	-13.00	-39.23	peak	PASS
10670.450	-64.40	13.21	-51.19	-13.00	-38.19	peak	PASS
12119.700	-64.99	14.48	-50.51	-13.00	-37.51	peak	PASS
16145.300	-69.86	21.69	-48.17	-13.00	-35.17	peak	PASS



(WCDMA Band V _ 30MHz to 1GHz_ High Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
30.5735	-73.23	19.71	-53.52	-13.00	-40.52	peak	PASS
52.8433	-80.21	23.46	-56.75	-13.00	-43.75	peak	PASS
89.0731	-88.28	24.03	-64.25	-13.00	-51.25	peak	PASS
237.8510	-83.02	24.74	-58.28	-13.00	-45.28	peak	PASS
613.5684	-84.86	34.35	-50.51	-13.00	-37.51	peak	PASS
846.2739	-35.60	37.10	1.50	-13.00	N/A	peak	N/A



(WCDMA Band V_ 1GHz to 18GHz _ High Channel _ Vertical)

Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Det.	Verdict
1694.450	-46.43	-3.34	-49.77	-13.00	-36.77	peak	PASS
4521.550	-62.50	7.88	-54.62	-13.00	-41.62	peak	PASS
7561.150	-63.64	10.56	-53.08	-13.00	-40.08	peak	PASS
9985.350	-64.77	13.46	-51.31	-13.00	-38.31	peak	PASS
12140.950	-66.63	14.46	-52.17	-13.00	-39.17	peak	PASS
15578.350	-68.34	21.04	-47.30	-13.00	-34.30	peak	PASS



Annex A Test Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for test performed on the EUT as specified in CISPR 16-1-2:

Test items	Uncertainty
Output Power	$\pm 2.22\text{dB}$
Bandwidth	$\pm 5\%$
Conducted Spurious Emission	$\pm 2.77\text{ dB}$
Radiated Emission	$\pm 2.95\text{dB}$

This uncertainty represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$



Annex B Testing Laboratory Information

1. Identification of the Responsible Testing Laboratory

Laboratory Name:	Kehu-Morlab Test Laboratory
Laboratory Address:	Unit 101, No.1732 Gangzhong Road, Xiamen Area, Pilot Free Trade Zone (Fujian) , P.R. China
Telephone:	+86 592 5612050
Facsimile:	+86 592 5612095

2. Identification of the Responsible Testing Location

Name:	Kehu-Morlab Test Laboratory
Address:	Unit 101, No.1732 Gangzhong Road, Xiamen Area, Pilot Free Trade Zone (Fujian) , P.R. China

3. Accreditation Certificate

Accredited Testing Laboratory:	The FCC designation number is CN1249. (Kehu-Morlab Test Laboratory)
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4. Test Equipments Utilized

4.1 Conducted Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Due
Power Splitter	1723	WA1506A	Weinschel	2021.03.07
Power Sensor	MY56410006	U2021XA	Keysight	2021.06.04
MXA Signal Analyzer	MY53421845	N9020A	Keysight	2021.01.02
Wideband Radio Communication Tester	102592	CMW500	R&S	2021.03.10
RF cable (30MHz-26.5GHz)	RF01	N/A	Morlab	2021.03.06
Coaxial cable	RF02	N/A	Morlab	2021.03.06
Attenuator 1	N/A	10dB	Woken	N/A
SMA connector	RF03	N/A	Xingbo	N/A
Temperature Chamber	MZ9371	MZ-PRHT80	Mingzhi	2021.03.15
DC power source	170329048	RPS6003D-2	REK	2021.03.09

**4.2 Radiated Test Equipments**

Equipment Name	Serial No.	Type	Manufacturer	Cal. Due
Anechoic Chamber	N/A	9m*6m*6m	ETS-Lindgren	2022.07.20
Signal Analyzer	101294	FSV40	R&S	2021.06.04
Active Ring Antenna	FMZB 1513 #269	FMZB 1513	Schwarzbeck	2022.01.11
Linear Log Periodic Broad Band Antenna	949	VULB 9163	Schwarzbeck	2021.09.24
Ultra-Wideband Horn Antenna	102615	HF907	R&S	2022.01.18
Steatite Antennas	17868	QSH-SL-18-2 6-S-20	Seibersdorf	2022.01.11
Ultra-Wideband Horn Antenna	17989	QSH-26-40	Schwarzbeck	2022.01.11
RF Switch and Control Platform	N/A	RSC	CDSI	N/A
Coaxial cable (N male) (9kHz -3GHz)	EMC02	N/A	Morlab	2021.03.23
Coaxial cable (N male) (9kHz -3GHz)	EMC03	N/A	Morlab	2021.03.23
Coaxial cable (N male) (1GHz-26.5GHz)	EMC04	N/A	Morlab	2021.03.23
Coaxial cable (N male) (1GHz-26.5GHz)	EMC05	N/A	Morlab	2021.03.23
Pre-amplifier (1GHz-18GHz)	8810011	PAP-1G18	CDSI	2021.03.11
Pre-amplifier (18GHz-40GHz)	17021-17024	PAP-1840	CDSI	2021.03.11
Band stop Filter	EMC11	BJF814/849-60	CDSI	2021.03.23



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Band stop Filter	EMC12	BJF1710/178 5-60	CDSI	2021.03.23
Band stop Filter	EMC13	BJF1847.5/1 922.5-60	CDSI	2021.03.23
Band stop Filter	EMC14	BJF697/752- 40	CDSI	2021.03.23
Band stop Filter	EMC15	BJF770/815- 50	CDSI	2021.03.23
Band stop Filter	EMC16	BJF2494/257 2-50	CDSI	2021.03.23
Band stop Filter	EMC17	BJF2570/262 0-50	CDSI	2021.03.23
Band stop Filter	EMC18	BJF2620/269 0-50	CDSI	2021.03.23
High Pass Filter	EMC21	HFP-1.0/18G -60	CDSI	2021.03.23
High Pass Filter	EMC22	HFP-3.0/18G -60	CDSI	2021.03.23

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