

TEST REPORT FOR WCDMA TESTING

Report No.: SRTC2020-9004(F)-20101401(B)

Product Name: LTE Ufi

Product Model: MF971R

Applicant: ZTE Corporation

Manufacturer: ZTE Corporation

Specification: FCC Part 24E, Part 22H, Part 2, Part 27 (2019)

FCC ID: SRQ-MF971R

The State Radio_monitoring_center Testing Center (SRTC)

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1. GENERAL INFORMATION

1.1 Notes of the test report

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1.2 Information about the testing laboratory

Company:	The State Radio_monitoring_center Testing Center (SRTC)
Address:	15th Building, No.30 Shixing Street, Shijingshan District, P.R.China
City:	Beijing
Country or Region:	P.R.China
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Email:	liujiuf@srtc.org.cn

1.3 Applicant's details

Company:	ZTE Corporation
Address:	ZTE Plaza, Keji Road South,Hi-Tech, Industrial Park, Nanshan District,Shenzhen, P.R.China,
City:	Shenzhen
Country or Region:	P.R.China
Contacted person:	Gong Yu
Tel:	86-21-68895397
Email:	gongyu@zte.com.cn

1.4 Manufacturer's details

Company:	ZTE Corporation
Address:	ZTE Plaza, Keji Road South,Hi-Tech, Industrial Park, Nanshan District,Shenzhen, P.R.China,
City:	Shenzhen
Country or Region:	P.R.China
Contacted person:	Gong Yu
Tel:	86-21-68895397
Email:	gongyu@zte.com.cn

1.5 Test Environment

Date of Receipt of test sample at SRTC:	2020-10-14
Testing Start Date:	2020-10-16
Testing End Date:	2020-12-16

Environmental Data:	Temperature (°C)	Humidity (%)
Ambient	20	47
Maximum Extreme	35	---
Minimum Extreme	-10	---

Normal Supply Voltage (V d.c.):	3.80
Maximum Extreme Supply Voltage (V d.c.):	4.35
Minimum Extreme Supply Voltage (V d.c.):	3.60

2 DESCRIPTION OF THE DEVICE UNDER TEST

2.1 Final Equipment Build Status

Frequency Range	WCDMA Band II: Tx:1852.4~1907.6MHz Rx:1932.4~1987.6MHz WCDMA Band V: Tx:826.4~846.6MHz Rx:871.4~891.6MHz
Mode	HSDPA/HSUPA/HSPA+/DC-HSDPA
Antenna Type	Fixed Internal Antenna
Antenna Gain	Frequency below 1GHz: 0.5dBi Frequency between 1GHz~2GHz: 1.7dBi
Power Supply	Battery/Charger
Hardware Version	DwbC
Software Version	BD_ZTE_MF971RV1.0.0B01
IMEI	860832040014370/860832040014693

2.2 Support Equipment

The following support equipment was used to exercise the DUT during testing:

Equipment	Battery
Manufacturer	ZHONGSHAN TIANMAO BATTERY CO.,LTD.
Model Number	Li3820T43P3h715345
Equipment	Usb cable
Manufacturer	Dongguan Guojun Plastic Electronic Co.,Ltd
Model Number	USB-MU5-B-70-M-L

2.3 Summary table.

FCC Rule Part	Frequency Range(MHz)	ERP/ EIRP (W)	Frequency Tolerance (ppm)	Emission Designator
24E	1852.4-1907.6	0.308	-0.009	4M16F9W
22H	826.4-846.6	0.145	-0.102	4M15F9W

3 REFERENCE SPECIFICATION

Specification	Version	Title
FCC Part2	2019	Frequency allocations and radio treaty matters; general rules and regulations
FCC Part22	2019	Public mobile services
FCC Part24	2019	Personal communications services
FCC Part27	2019	Miscellaneous wireless communications services
ANSI C63.26	2015	American national standard for compliance testing of transmitters used in licensed radio services
KDB 971168 D01	April 9, 2018	Measurement guidance for certification of licensed digital transmitters
TIA-603-E-2016	March 2016	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards

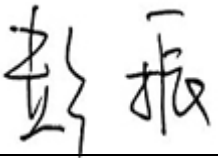

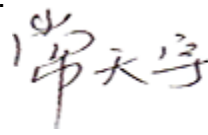
4 KEY TO NOTES AND RESULT CODES

The following are the definition of the test result.

Code	Meaning
PASS	Test result shows that the requirements of the relevant specification have been met.
FAIL	Test result shows that the requirements of the relevant specification have not been met.
NT	Normal Temperature
NV	Nominal voltage
HV	High voltage
LV	Low voltage

5 RESULT SUMMARY

No.	Test case	FCC reference	Verdict
1	RF Power Output	2.1046	Pass
2	Effective Radiated Power and Effective Isotropic Radiated Power	22.913(a),24.232(c),27.50(d)(4)	Pass
3	Occupied Bandwidth	2.1049	Pass
4	Emission Bandwidth	2.1049	Pass
5	Spurious Emissions at antenna terminal	2.1051,22.917(a),24.238(a),27.53(h)	Pass
6	Band Edges Compliance	2.1051,22.917(a),24.238(b),27.53(h)	Pass
7	Frequency Stability	2.1055,22.355,24.235,27.54	Pass
8	Radiated Spurious Emissions	2.1053,22.917(a),24.238(a),27.53(h)	Pass
9	Peak-Average Ratio	24.232(d),27.50(d) (5)	Pass

This Test Report Is approved by: Mr. PENG Zhen 	Checked by: Mr. LI Bin 
Tested and issued by: Mr. CHANG Tianyu 	Approved date: 20201216

6 TEST RESULT

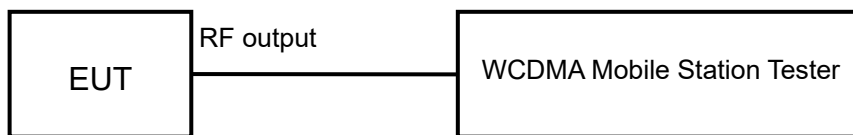
6.1 RF Power Output

Rule Part(s):
 2.1046

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	47%	101.9kPa

Test Setup:



Test procedure:

After a radio link has been established between EUT and Tester, the output power of the cell signal of the testing equipment will be decreased until the output power of the EUT reach a maximum value. Then the test data can be read at the tester screen. The loss between RF output port of the EUT and the input port of the tester will be taken into consideration. The measurement will be conducted at three channels (Low, middle and High channels).

Limits: Limits: No specific conduct power requirements in part 2.1046.

Test result:

The test results are shown in Appendix A.

6.2 Effective Radiated Power and Effective Isotropic Radiated Power

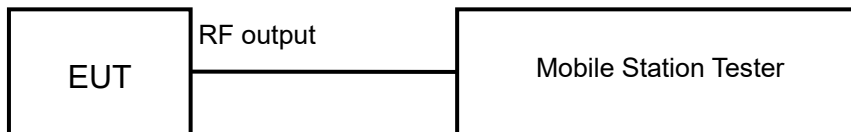
Rule Part(s):

FCC: 22.913(a) (5), 24.232(c), 27.50(d) (4)

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	47%	101.9kPa

Test setup:



Test procedure:

KDB 971168 D01 v03r01 – Section 5.6

Test Settings

Subclause 5.2.5.5 of ANSI C63.26-2015 is applicable, along with the following provisions. For personal/portable radios utilizing an integral antenna, the factor LC is typically negligible. However, in a fixed station transmit system that utilizes a long cable run between the transmitter and the transmitting antenna, this factor can be significant. The minimum cable loss should be used in this equation.

The relevant equation for determining the ERP or EIRP from the conducted RF output power measured is:

$$\text{ERP/EIRP} = \text{PMeas} - \text{LC} + \text{GT}$$

Where:

ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm)

PMeas = measured transmitter output power or PSD, in dBW or dBm

LC = signal attenuation in the connecting cable between the transmitter and antenna in dB

GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

ERP/EIRP LIMIT

This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15dB) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, $\text{ERP} = \text{EIRP} - 2.15 \text{ (dB)}$.

22.913(a) (5)

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

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.

27.50(b) (10)

Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

27.50(c) (10)

Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

27.50(h) (2)

Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

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. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

27.50(a) (3)

Mobile and portable stations (i) For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth.

Test result:

The test results are shown in Appendix B.

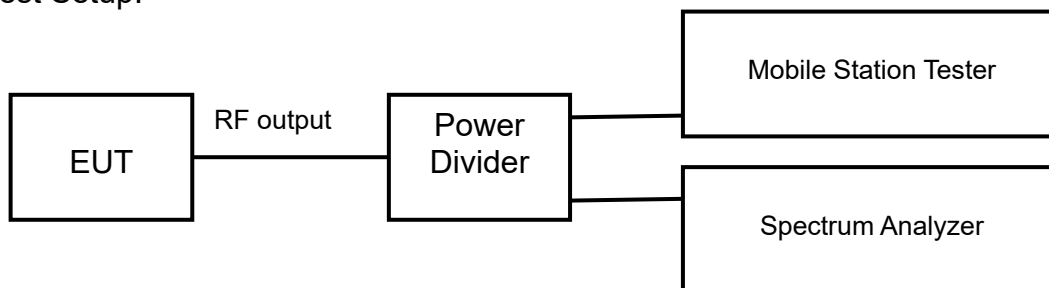
6.3 Occupied Bandwidth

Rule Part(s):
FCC: 2.1049

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	47%	101.9kPa

Test Setup:



Test procedure:
KDB 971168 D01 v03r01 – Section 4.2

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5% of the expected OBW
3. VBW \geq 3 x RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5% of the 99% occupied bandwidth observed in Step 7

Limits: No specific occupied bandwidth requirements in part 2.1049

Test result:
The test results are shown in Appendix A.

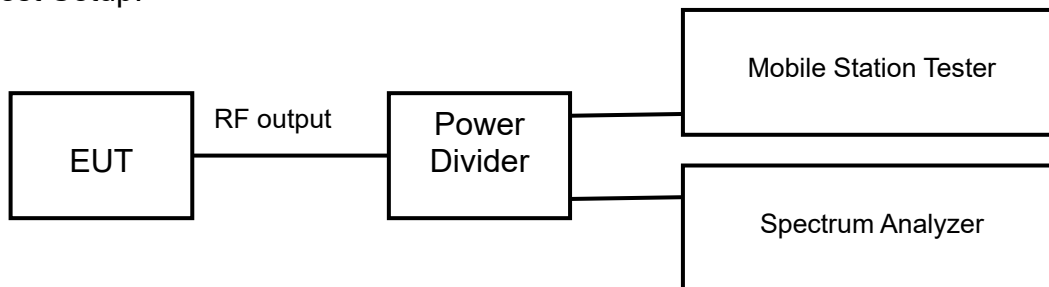
6.4 Emission Bandwidth

Rule Part(s):
FCC: 2.1049

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	47%	101.9kPa

Test Setup:



Test procedure:
KDB 971168 D01 v03r01 – Section 4.2

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 26dB occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5% of the expected OBW
3. VBW \geq 3 x RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5% of the emission bandwidth observed in Step 7

Limits: No specific occupied bandwidth requirements in part 2.1049

Test result:

The test results are shown in Appendix A.

6.5 Spurious Emissions at antenna terminal

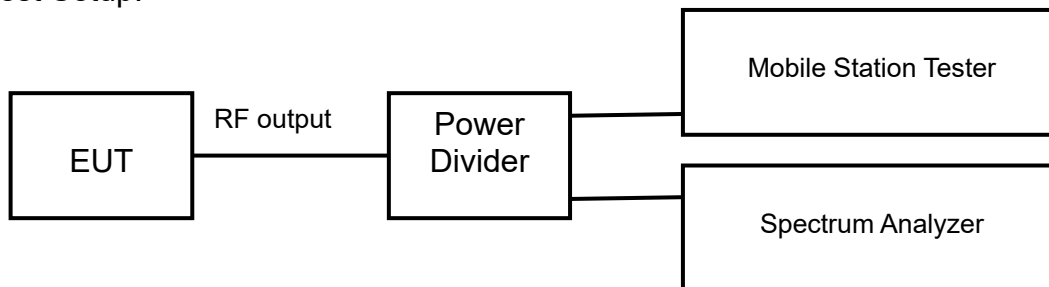
Rule Part(s):

FCC: 2.1051, 22.917(a), 24.238(a), 27.53(h)

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	47%	101.9kPa

Test Setup:



Test procedure:

KDB 971168 D01 v03r01 – Section 6.0

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to 10GHz for Cell, 20GHz for PCS
2. RBW=100 kHz (For below 1GHz), 1MHz (For above 1GHz)
3. VBW $\geq 3 \times$ RBW
4. Detector = RMS
5. Trace mode = trace average for continuous emissions, max hold for pulse emissions
6. Sweep time = auto couple
7. The trace was allowed to stabilize

Limits:

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P_{\text{[Watts]}})$, where P is the transmitter power in Watts.

Test result:

The test results are shown in Appendix A.

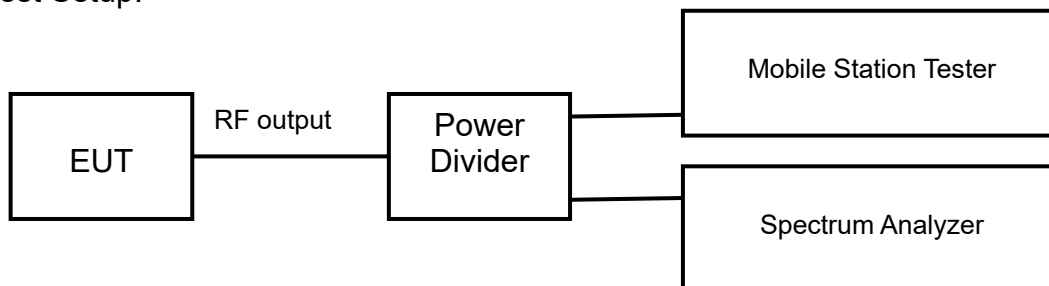
6.6 Band Edges Compliance

Rule Part(s)
FCC: 2.1051, 22.917(a), 24.238(a), 27.53(c)

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	47%	101.9kPa

Test Setup:



Test procedure:
KDB 971168 D01 v03r01 – Section 6.0

Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span=2MHz
3. RBW > 1% of the emission bandwidth
4. VBW > 3 x RBW
5. Detector = RMS
6. Number of sweep points $\geq 2 \times \text{Span}/\text{RBW}$
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Limit: The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P)$ (P [Watts]), where P is the transmitter power in Watts.

Test result:

The test results are shown in Appendix A.

6.7 Frequency Stability

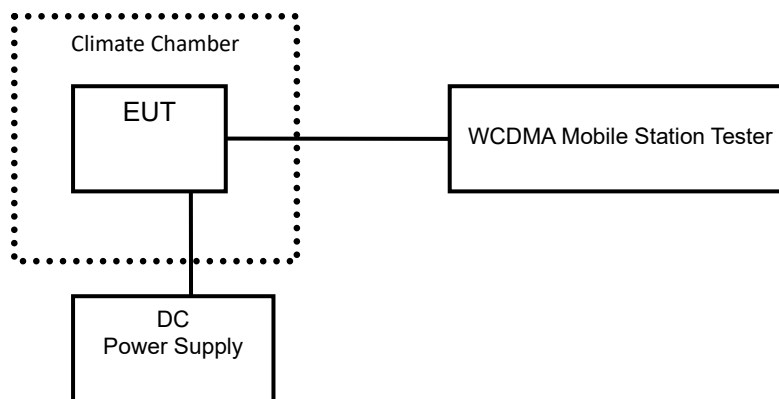
Rule Part(s)

FCC: 2.1055, 22.355, 24.235, 27.54

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	47%	101.9kPa

Test setup:



Test Procedure:

ANSI/TIA-603-E-2016

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C (The temperature range can be declared by the manufacturer). A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Limits: For Part 22, the frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency. For Part 24, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test result:

The test results are shown in Appendix A.

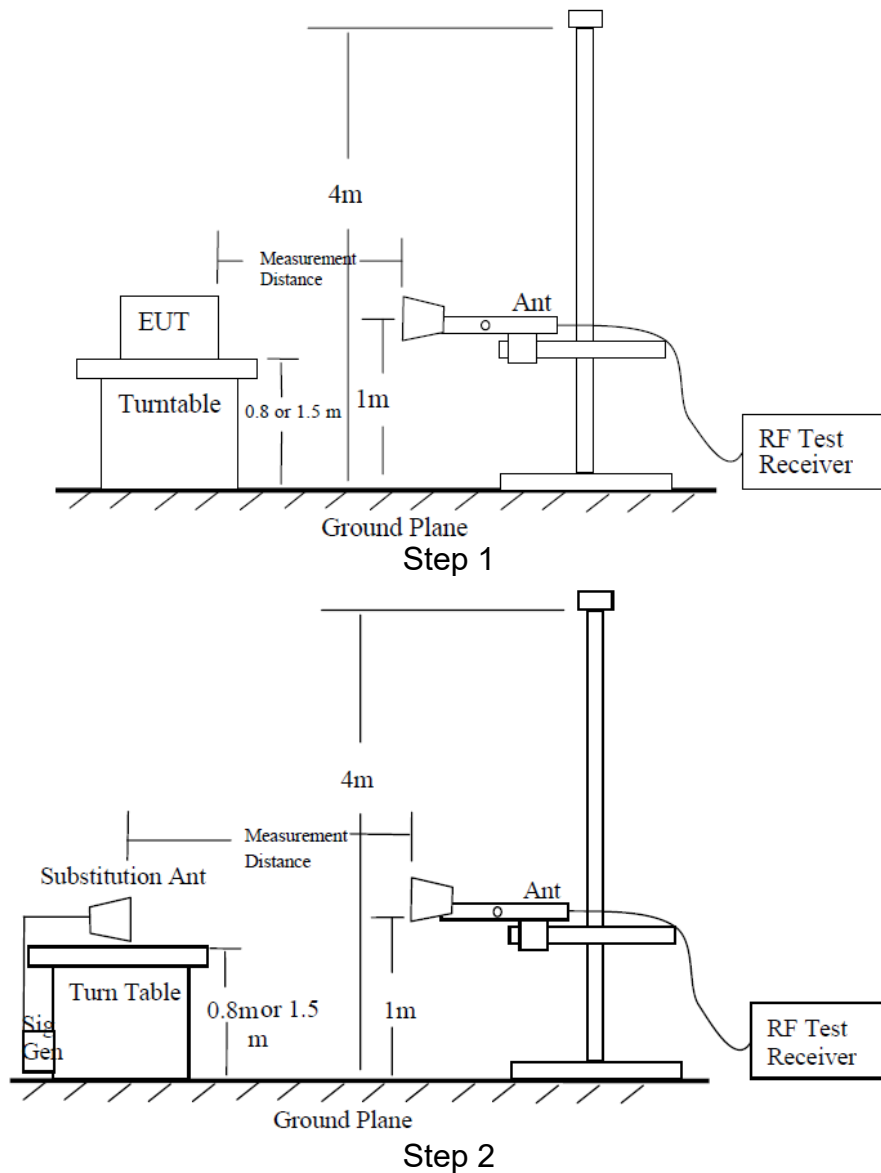
6.8 Radiated Spurious Emissions

Rule Part(s)
FCC: 2.1053, 22.917(a), 24.238(a), 27.53(h)

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	47%	101.9kPa

Test Setup:



Test procedure:

The measurements procedures in TIA-603-E-2016 are used.

The spectrum was scanned from 30MHz to the 10th harmonic of the highest frequency generated within the equipment.

Step 1:

The measurement is carried out in the chamber. EUT was placed on a 0.8m ($f < 1\text{GHz}$)/1.5m ($f > 1\text{GHz}$) high non-conductive table at a 3 meters test distance from the test receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT. The height of receiving antenna from 1m to 4m and varies in certain range to find the maximum power value. A radio link shall be established between EUT and Tester. The output power of the cell signal of the tester will be decreased until the output power of the EUT reach a maximum value. A peak detector is used and RBW is set to 100 kHz ($f < 1\text{GHz}$)/1MHz ($f > 1\text{GHz}$). The antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum power value on spectrum analyzer or receiver. The spectrum analyzer scans from 30MHz to 10th harmonic of the carrier. A notch filter is necessary in the band near to the carrier frequency. A high pass filter is needed to avoid the distortion of the testing equipment in the band above the carrier frequency.

Step 2:

A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.

A power (P_{mea}) is applied to the input of the substitution antenna, and adjusts the level of the signal generator output until the value of the receiver reach the previously recorded (P_r). The power of signal source (P_{mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

A "reference path loss" should be calculated after test. The attenuation of "reference path loss" is the cable loss between the Signal Source with the Substitution Antenna (P_{ca}) and the Substitution Antenna Gain (G_a).

Calculation procedure:

The data of cable loss and antenna gain has been calibrated in full testing frequency range before the testing.

The power of the Radiated Spurious Emissions is calculated by adding the cable loss and antenna gain. The basic equation with a sample calculation is as followed:

$$\text{Power (EIRP)} = P_{mea} + P_{ca} + G_a$$

This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15dB) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, $ERP = EIRP - 2.15 \text{ (dB)}$.

Assumed the power of signal source record is -20dBm. A cable loss of -30dB, and an antenna gain of 11dB are added.

$$P = P_{mea} + P_{ca} + G_a = (-20\text{dBm}) + (-30\text{dB}) + (11\text{dB}) = -39\text{dBm}$$

Test result:

The test results are shown in Appendix B.

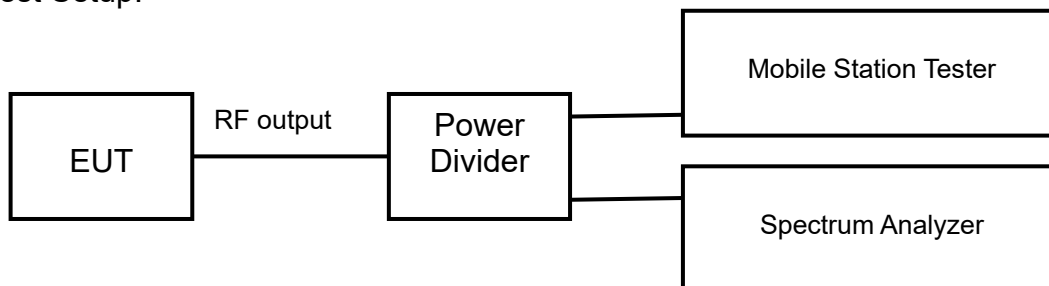
6.9 Peak-Average Ratio

Rule Part(s)
FCC: 24.232(d), 27.50(d) (5)

Ambient condition:

Temperature	Relative humidity	Pressure
25°C	47%	101.9kPa

Test Setup:



Test procedure:
KDB 971168 D01 v03r01 – Section 5.7.1

Test settings:

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW > Emission bandwidth of signal
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

Limits: the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

Test result:

The test results are shown in Appendix A

7 MEASUREMENT UNCERTAINTIES

Items	Uncertainty	
RF Power Output	U=0.6 dB	
Occupied Bandwidth	3kHz	
Spurious Emissions	9kHz~2GHz	U=1.2dB
	2G~3.6GHz	U=1.4dB
	3.6G~8GHz	U=2.2dB
	8G~12.75GHz	U=2.7dB
Band Edges Compliance	1.2dB	
Frequency Stability	U=48 Hz	

8 TEST EQUIPMENTS

No.	Name/Model	Manufacturer	S/N	Calibration Date	Calibration Due Date
1	E5515C(8960) Mobile Station Tester	Agilent	MY50266302	2020.08.20	2021.08.19
2	N9020A Spectrum Analyzer	Agilent	MY48010771	2020.08.20	2021.08.19
3	6007 Power Divider	Weinschel	6007-GJ-1	2020.08.20	2021.08.19
4	DC Power Supply E3645A	Agilent	MY40000741	2020.03.01	2021.02.28
5	Temperature chamber SH241	ESPEC	92013758	2020.08.20	2021.08.19
6	12.65m×8.03m×7.50m Fully-Anechoic Chamber	FRANKONIA	----	----	----
7	23.18m×16.88m×9.60m Semi-Anechoic Chamber	FRANKONIA	---	----	----
8	Turn table Diameter:1m	FRANKONIA	----	----	----
9	Turn table Diameter:5m	FRANKONIA	----	----	----
10	Antenna master FAC(MA4.0)	MATURO	----	----	----
11	Antenna master SAC(MA4.0)	MATURO	----	----	----
12	9.080m×5.255m×3.525m Shielding room	FRANKONIA	----	----	----
13	HF 907 Double-Ridged Waveguide Horn Antenna	R&S	100512	2020.08.20	2021.08.19
14	HF 907 Double-Ridged Waveguide Horn Antenna	R&S	100513	2020.08.20	2021.08.19
15	HL562 Ultra log antenna	R&S	100016	2020.08.20	2021.08.19
16	3160-09 Receive antenna	SCHWARZ-BECK	002058-002	2020.08.20	2021.08.19
17	ESI 40 EMI test receiver	R&S	100015	2020.08.20	2021.08.19
18	ESCS30 EMI test receiver	R&S	100029	2020.08.20	2021.08.19
19	HL562 Receive antenna	R&S	100167	2020.08.20	2021.08.19
20	ENV216 AMN	R&S	3560.6550.12	2020.08.20	2021.08.19

APPENDIX A – TEST DATA OF CONDUCTED EMISSION

Power Output WCDMA band II

Mode		Carrier frequency (MHz)	Channel No.	RF Power Output (dBm)
Release 99	RMC,12.2kbps	1852.4	9262	23.00
		1880	9400	22.40
		1907.6	9538	22.97
HSDPA	Subtest 1	1852.4	9262	22.97
		1880	9400	22.39
		1907.6	9538	22.93
	Subtest 2	1852.4	9262	22.95
		1880	9400	22.34
		1907.6	9538	22.88
	Subtest 3	1852.4	9262	22.91
		1880	9400	22.33
		1907.6	9538	22.87
	Subtest 4	1852.4	9262	22.93
		1880	9400	22.39
		1907.6	9538	22.90
HSUPA	Subtest 1	1852.4	9262	23.02
		1880	9400	22.55
		1907.6	9538	23.09
	Subtest 2	1852.4	9262	23.19
		1880	9400	22.59
		1907.6	9538	23.08
	Subtest 3	1852.4	9262	23.15
		1880	9400	22.49
		1907.6	9538	23.09
	Subtest 4	1852.4	9262	23.02
		1880	9400	22.41
		1907.6	9538	23.10
	Subtest 5	1852.4	9262	23.02
		1880	9400	22.53

		1907.6	9538	23.06
HSPA+	QPSK	1852.4	9262	23.05
		1880	9400	22.47
		1907.6	9538	22.98
	16QAM	1852.4	9262	23.05
		1880	9400	22.44
		1907.6	9538	23.00

Mode		Carrier frequency (MHz)	Channel No.	RF Power Output (dBm)
DC-HSDPA	Subtest 1	1852.4	9262	22.90
		1880	9400	22.36
		1907.6	9538	22.96
	Subtest 2	1852.4	9262	22.99
		1880	9400	22.33
		1907.6	9538	22.92
	Subtest 3	1852.4	9262	22.96
		1880	9400	22.30
		1907.6	9538	22.89
	Subtest 4	1852.4	9262	22.91
		1880	9400	22.33
		1907.6	9538	22.90

WCDMA band V

Mode		Carrier frequency (MHz)	Channel No.	RF Power Output (dBm)
Release 99	RMC,12.2kbps	826.4	4132	22.94
		836.6	4183	22.98
		846.6	4233	23.05
HSDPA	Subtest 1	826.4	4132	22.89
		836.6	4183	22.89
		846.6	4233	22.99
	Subtest 2	826.4	4132	22.85
		836.6	4183	22.94
		846.6	4233	23.01
	Subtest 3	826.4	4132	22.92
		836.6	4183	22.96
		846.6	4233	22.99
	Subtest 4	826.4	4132	22.90
		836.6	4183	22.96
		846.6	4233	22.97
HSUPA	Subtest 1	826.4	4132	23.05
		836.6	4183	23.16
		846.6	4233	23.20
	Subtest 2	826.4	4132	23.05
		836.6	4183	23.10
		846.6	4233	23.09
	Subtest 3	826.4	4132	23.03
		836.6	4183	23.14
		846.6	4233	23.06
	Subtest 4	826.4	4132	23.02
		836.6	4183	23.03
		846.6	4233	23.25
	Subtest 5	826.4	4132	23.01
		836.6	4183	23.05
		846.6	4233	23.18
HSPA+	QPSK	826.4	9262	23.00
		836.6	9400	23.01
		846.6	9538	23.17
	16QAM	826.4	9262	22.85
		836.6	9400	22.91
		846.6	9538	23.02

Mode		Carrier frequency (MHz)	Channel No.	RF Power Output (dBm)
DC-HSDPA	Subtest 1	826.4	9262	22.93
		836.6	9400	22.95
		846.6	9538	22.95
	Subtest 2	826.4	9262	22.86
		836.6	9400	22.98
		846.6	9538	22.96
	Subtest 3	826.4	9262	22.91
		836.6	9400	22.94
		846.6	9538	22.95
	Subtest 4	826.4	9262	22.90
		836.6	9400	22.92
		846.6	9538	22.96

Occupied Bandwidth

WCDMA band II

REL99 Mode:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (MHz)
1852.4	9262	4.1352
1880.0	9400	4.1550
1907.6	9538	4.1566

HSUPA Mode:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (MHz)
1852.4	9262	4.1415
1880.0	9400	4.1588
1907.6	9538	4.1589

WCDMA band V

REL99 Mode:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (MHz)
826.4	4132	4.1272
836.6	4183	4.1333
846.6	4233	4.0834

HSUPA Mode:

Carrier frequency (MHz)	Channel No.	Bandwidth of 99% Power (MHz)
826.4	4132	4.1503
836.6	4183	4.1213
846.6	4233	4.1260

Emission Bandwidth

WCDMA band II

REL99 Mode:

Carrier frequency (MHz)	Channel No.	Bandwidth of -26dBc Power (MHz)
1852.4	9262	4.712
1880.0	9400	4.757
1907.6	9538	4.763

HSUPA Mode:

Carrier frequency (MHz)	Channel No.	Bandwidth of -26dBc Power (MHz)
1852.4	9262	4.709
1880.0	9400	4.757
1907.6	9538	4.764

WCDMA band V

REL99 Mode:

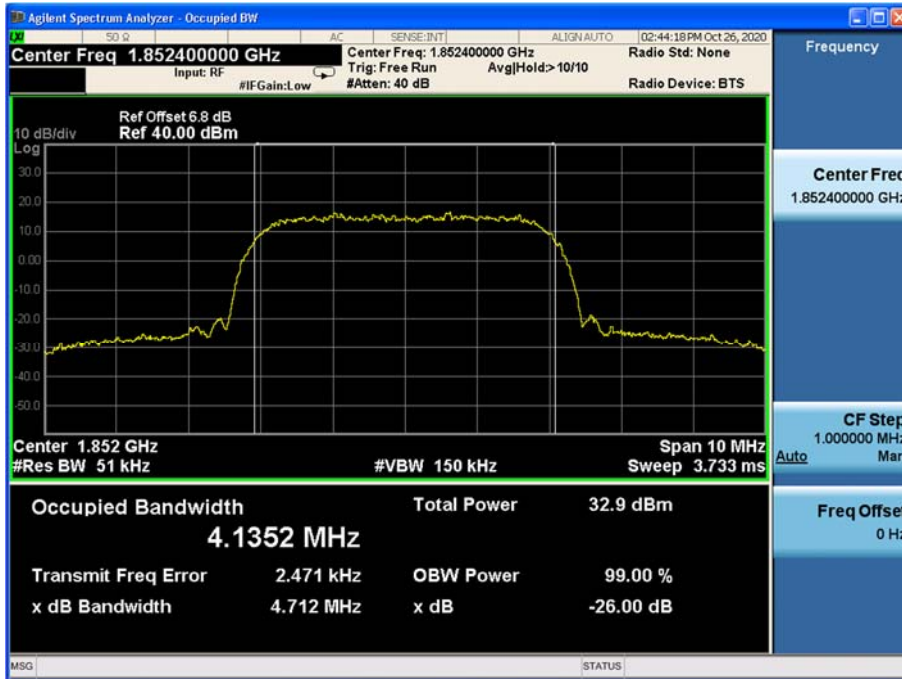
Carrier frequency (MHz)	Channel No.	Bandwidth of -26dBc Power (MHz)
826.4	4132	4.701
836.6	4183	4.704
846.6	4233	4.491

HSUPA Mode:

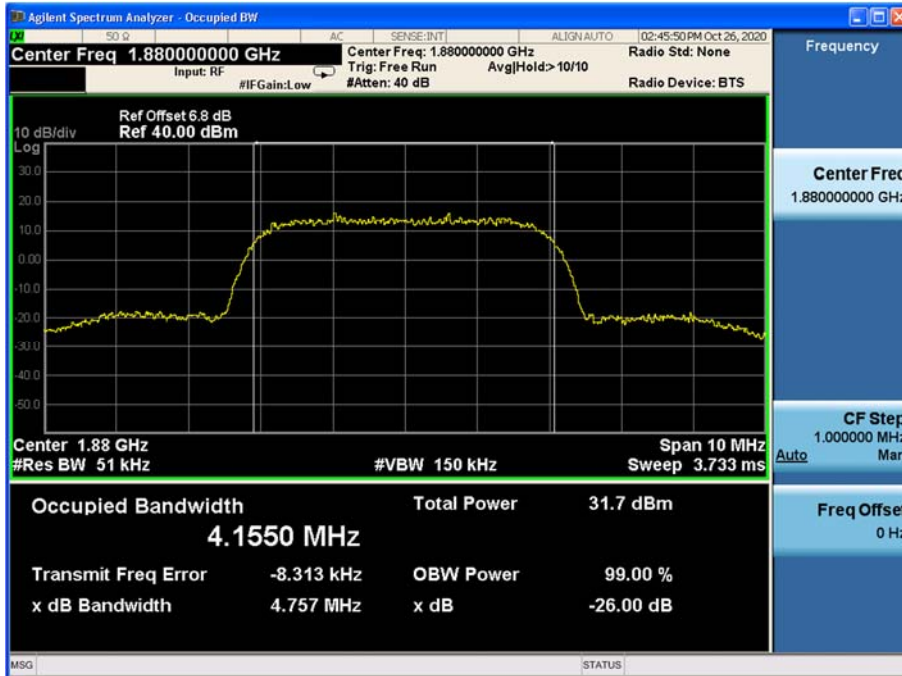
Carrier frequency (MHz)	Channel No.	Bandwidth of -26dBc Power (MHz)
826.4	4132	4.687
836.6	4183	4.692
846.6	4233	4.694

WCDMA band II

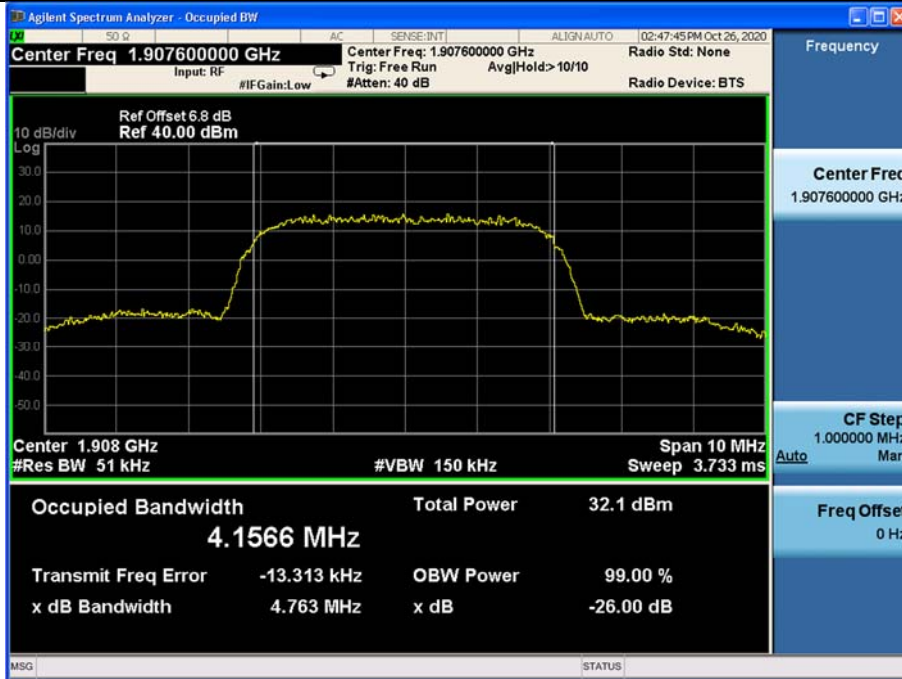
REL99 Mode:



Channel 9262

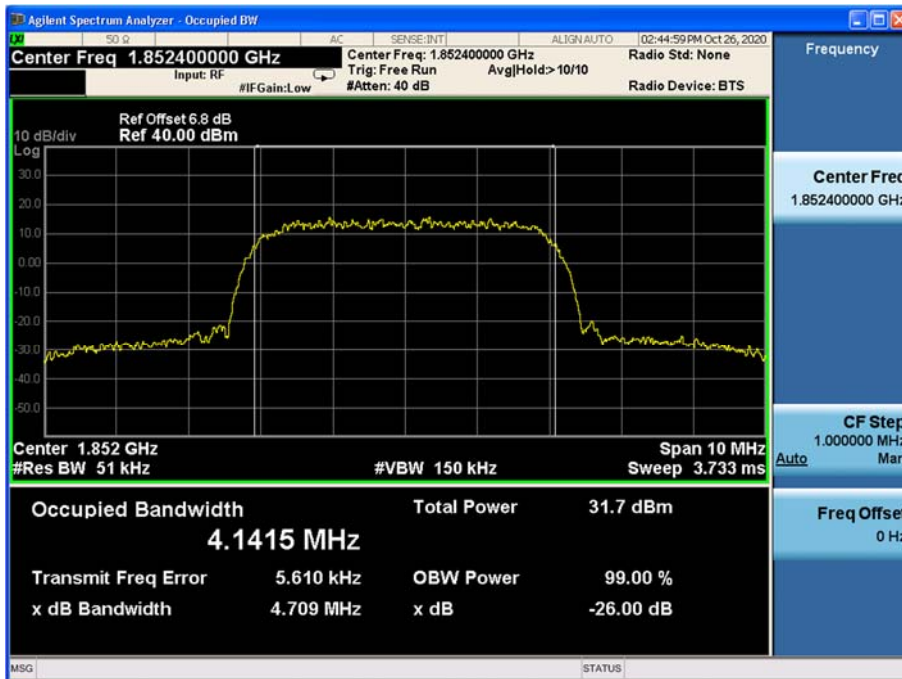


Channel 9400

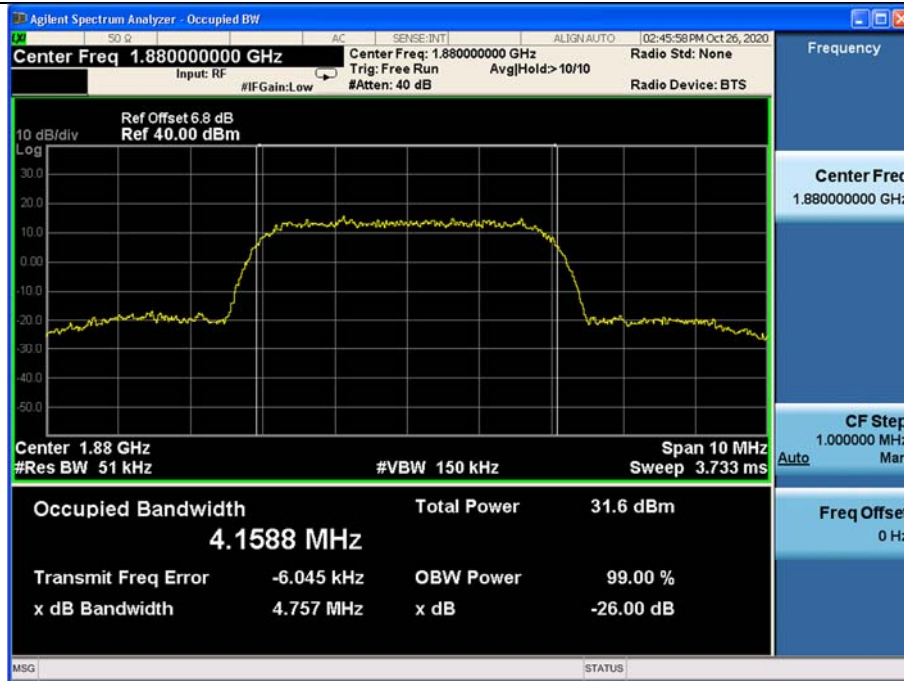


Channel 9538

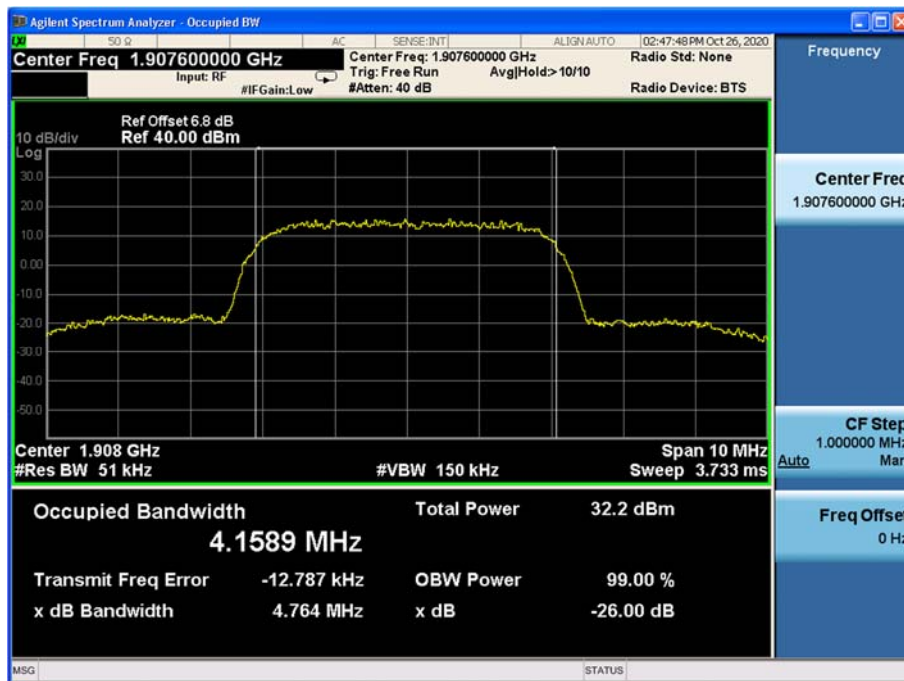
HSUPA Mode:



Channel 9262



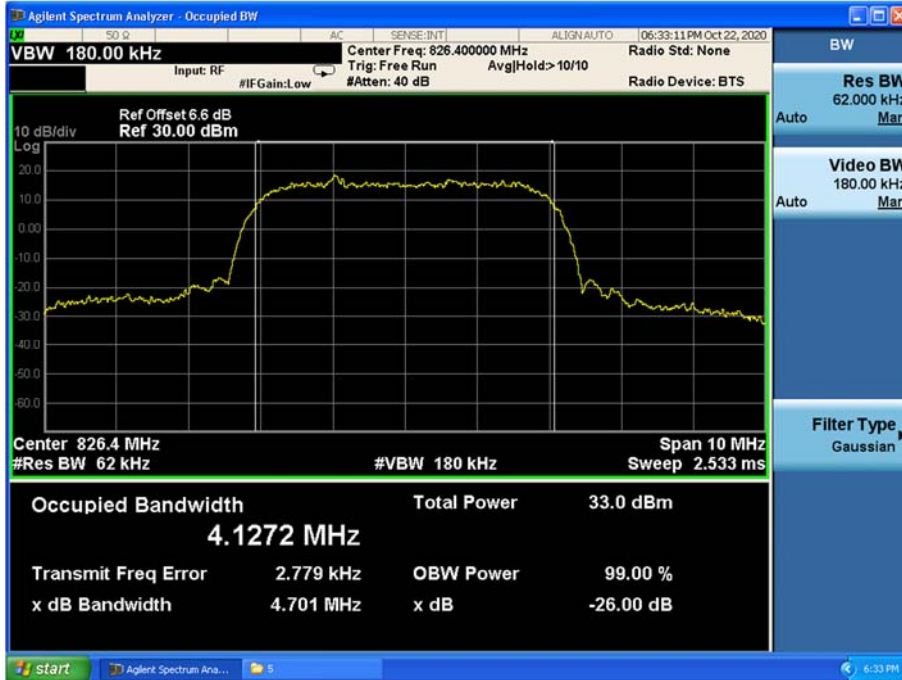
Channel 9400



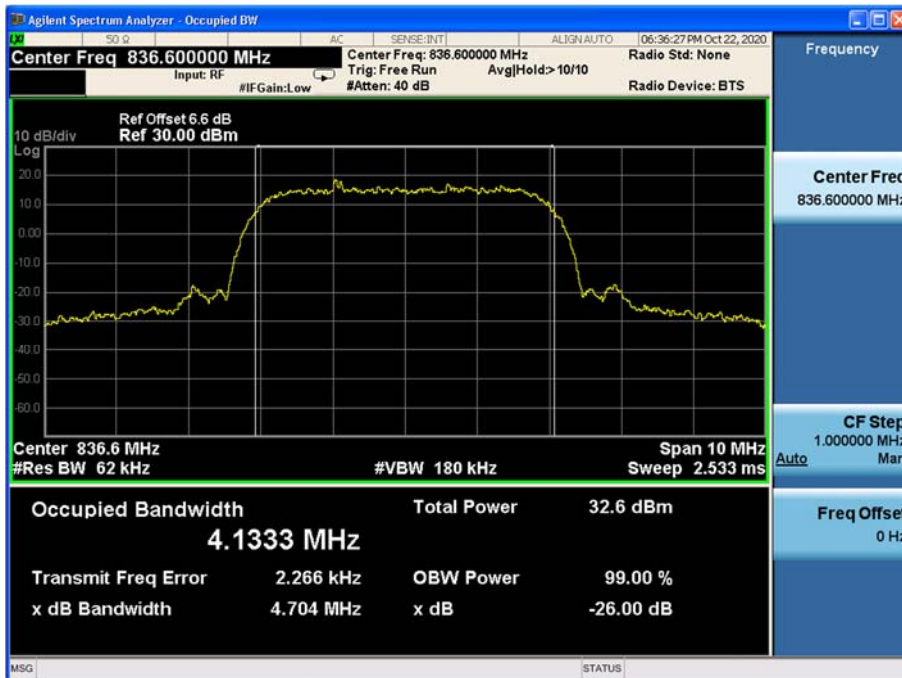
Channel 9538

WCDMA band V

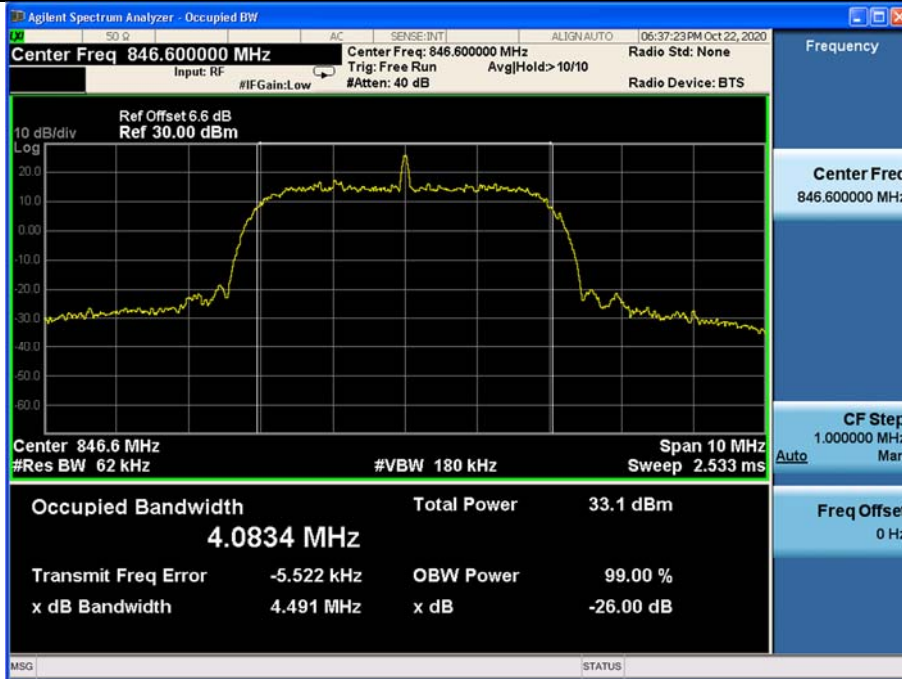
REL99 Mode:



Channel 4132



Channel 4183

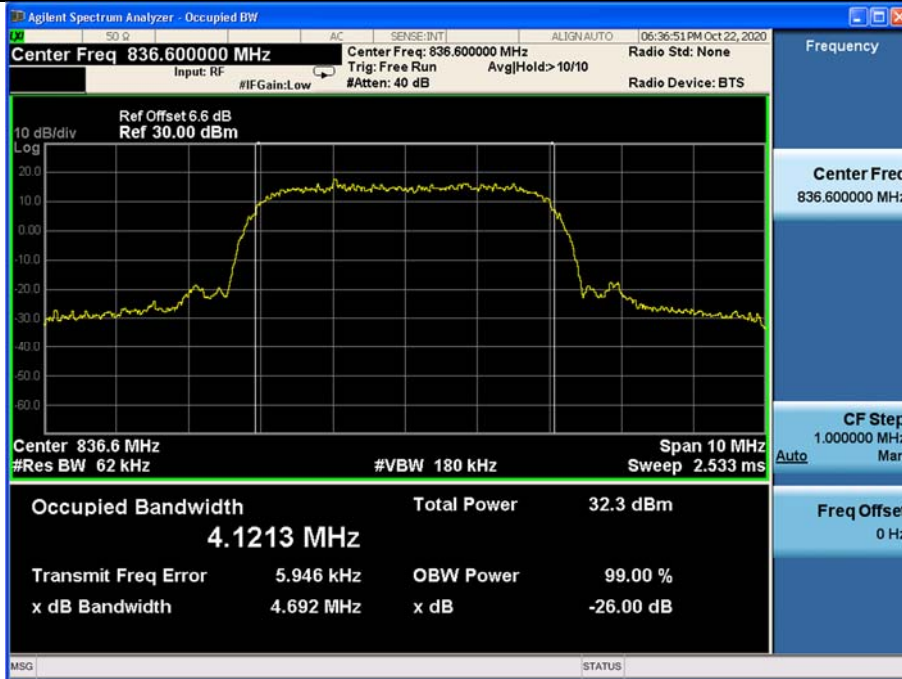


Channel 4233

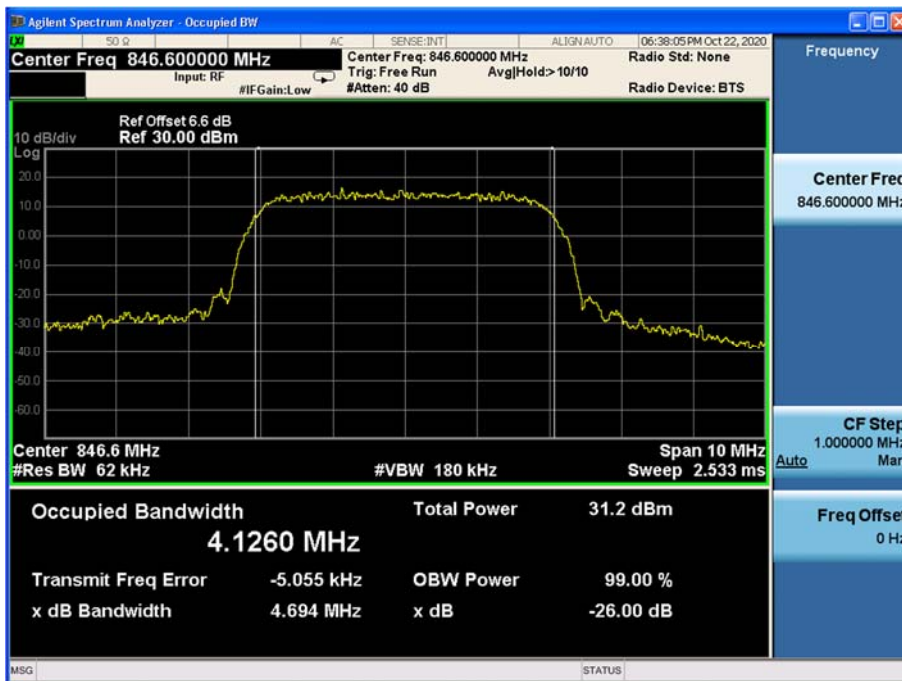
HSUPA Mode:



Channel 4132



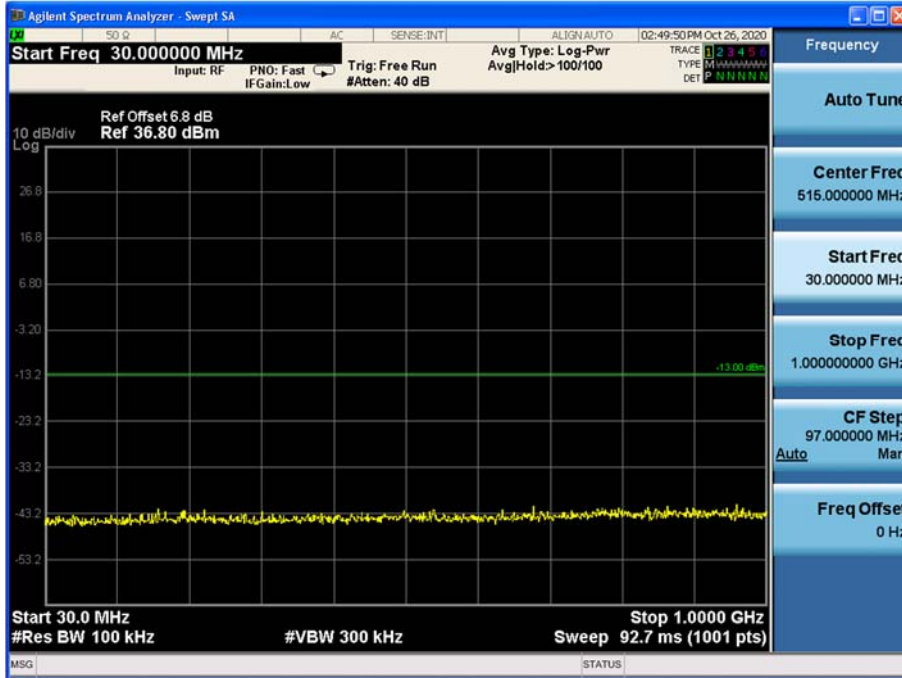
Channel 4183



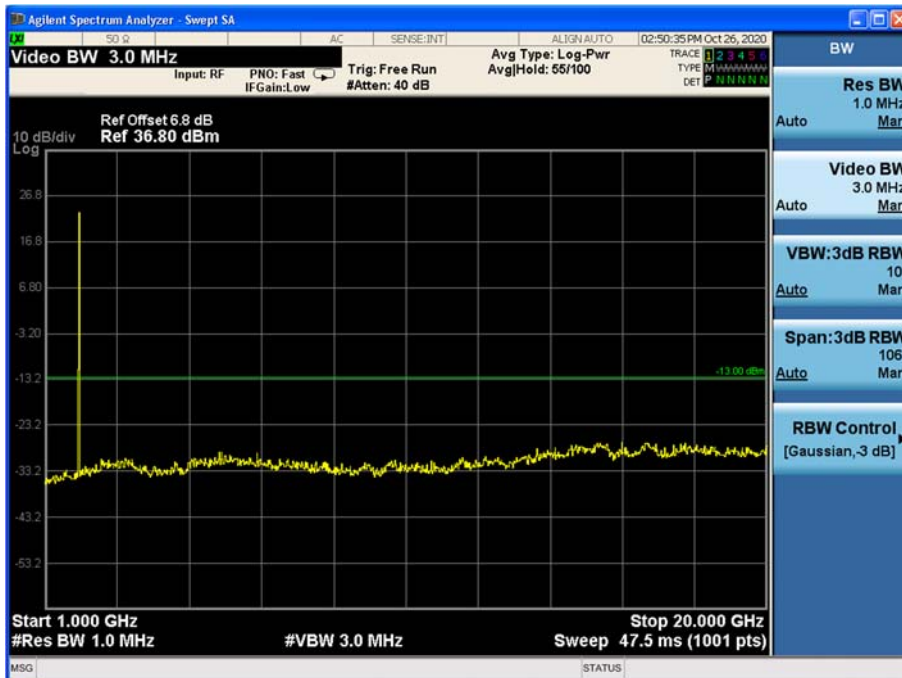
Channel 4233

Spurious Emissions at antenna terminal
WCDMA band II

REL99 Mode:



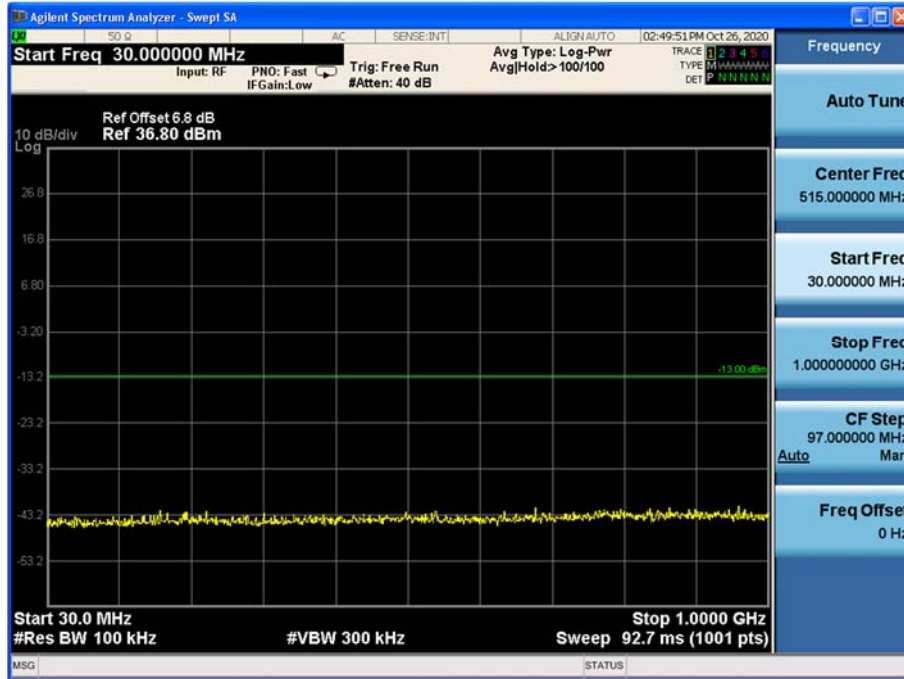
Channel 9400, 30MHz~1GHz



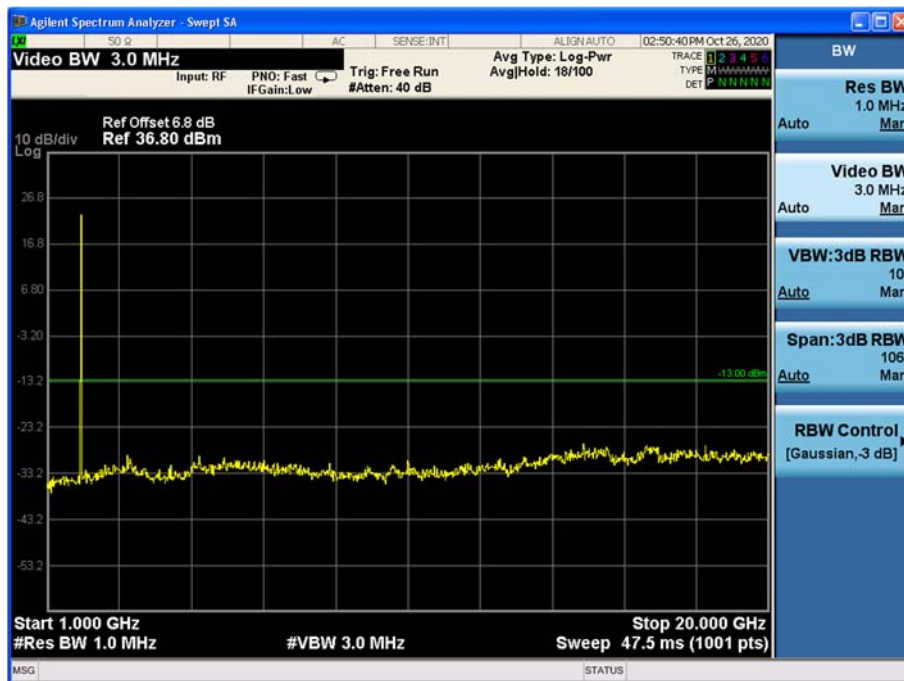
Channel 9400, 1GHz~20GHz

Note: The signal beyond the limit is the signal transmitted by EUT.

HSUPA Mode:



Channel 9400, 30MHz~1GHz

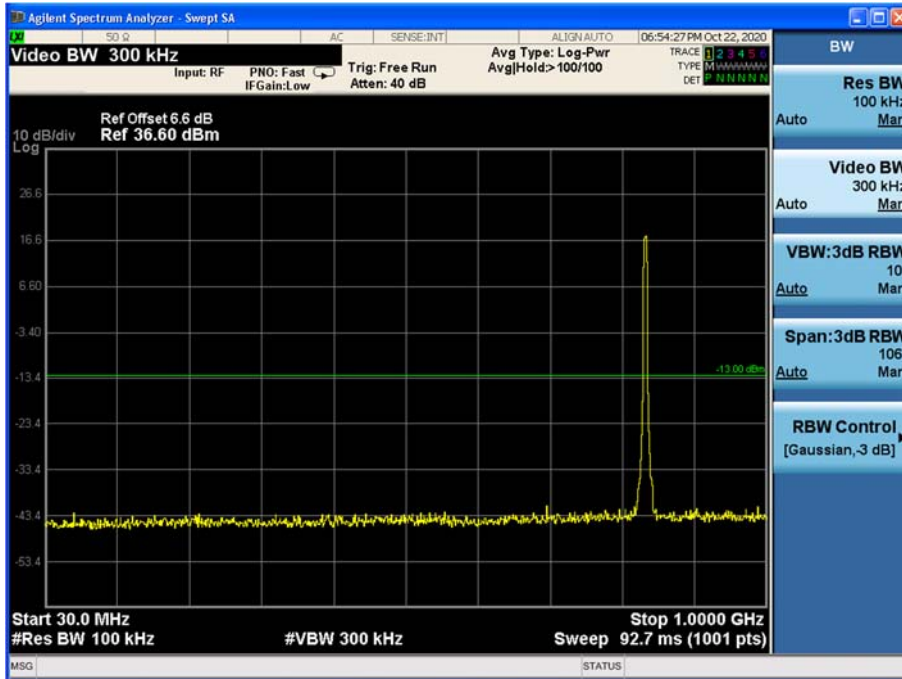


Channel 9400, 1GHz~20GHz

Note: The signal beyond the limit is the signal transmitted by EUT.

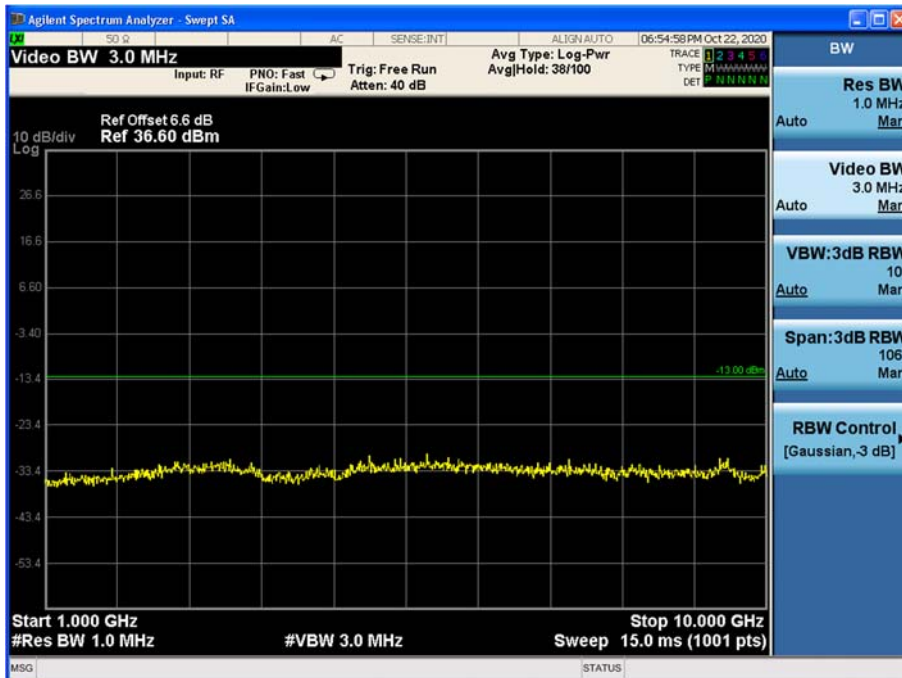
WCDMA band V

REL99 Mode:



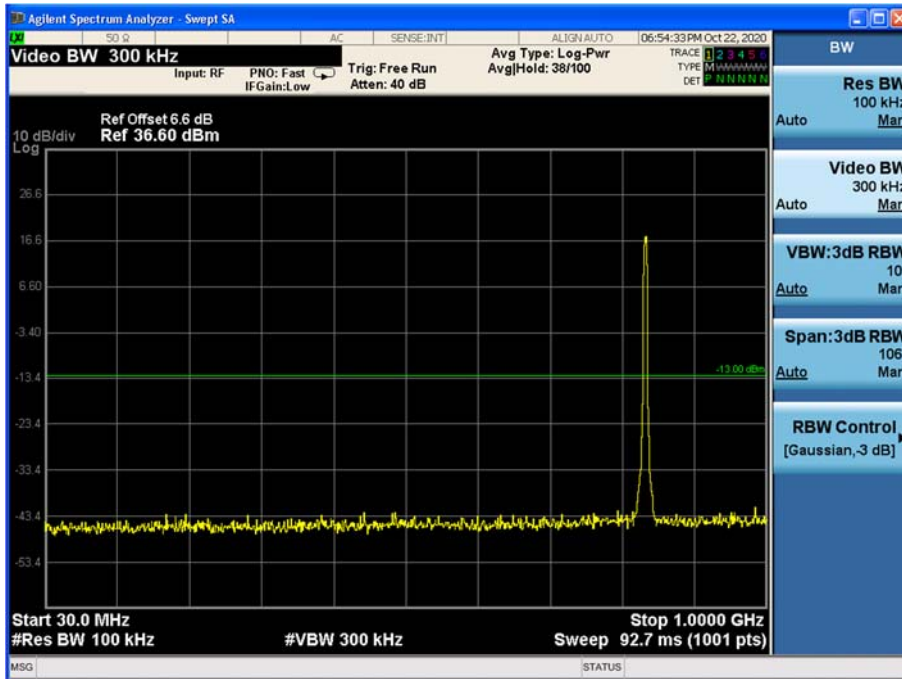
Channel 4183, 30MHz~1GHz

Note: The signal beyond the limit is the signal transmitted by EUT.



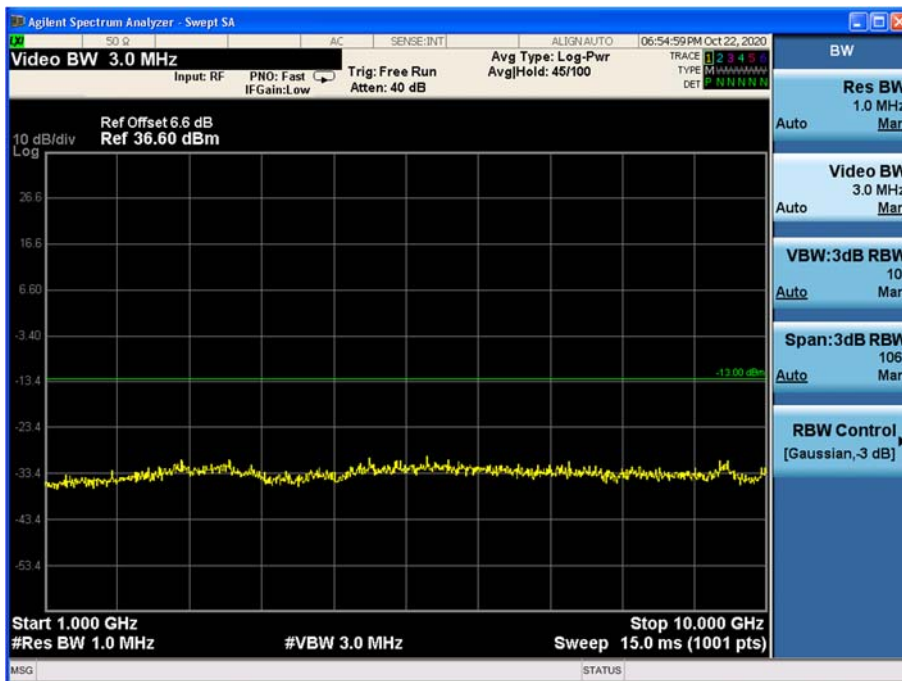
Channel 4183, 1GHz~10GHz

HSUPA Mode:



Channel 4183, 30MHz~1GHz

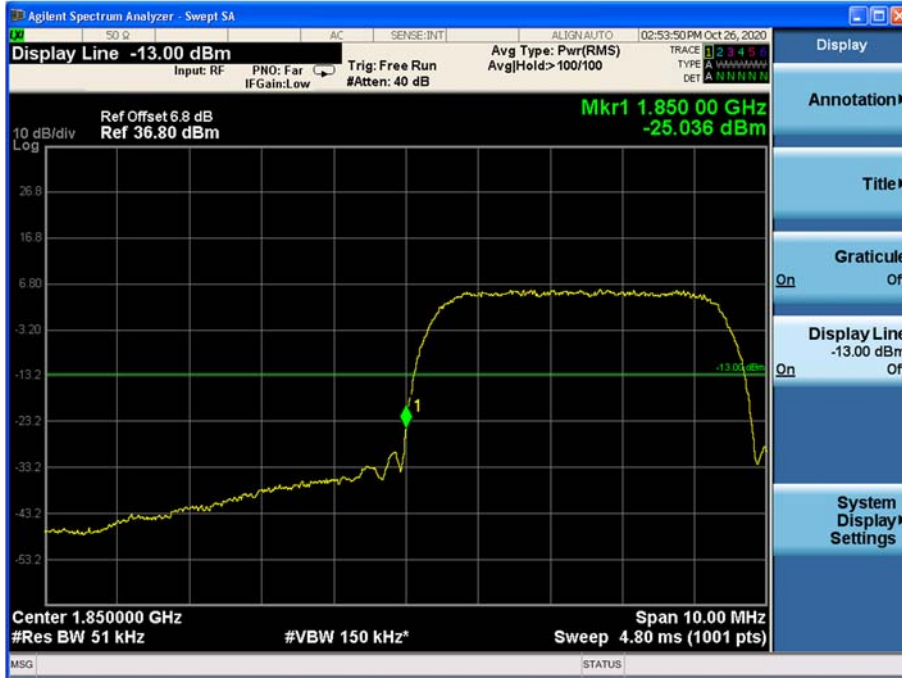
Note: The signal beyond the limit is the signal transmitted by EUT.



Channel 4183, 1GHz~10GHz

Band Edges Compliance
WCDMA band II

REL99 Mode:

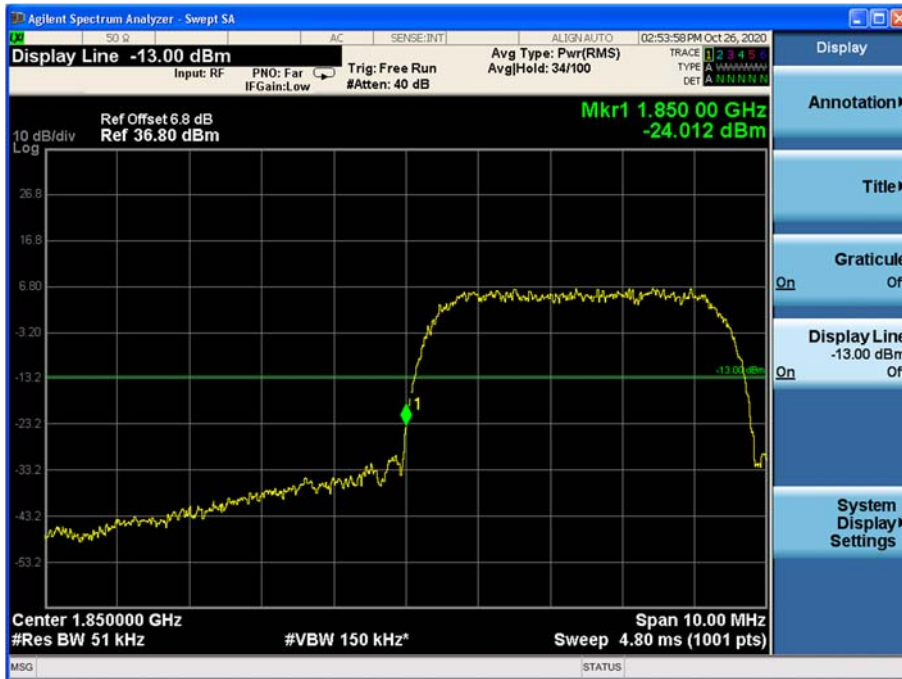


Channel 9262



Channel 9538

HSUPA Mode:



Channel 9262



Channel 9538

WCDMA band V

REL99 Mode:



Channel 4132



Channel 4233

HSUPA Mode:



Channel 9262



Channel 9538

Frequency Stability

WCDMA band II

REL99 Mode:

Temperature(°C)	Test Result (ppm)@NV		
	Channel 9262	Channel 9400	Channel 9538
-10	-0.005	-0.001	-0.007
0	-0.004	-0.006	-0.004
+10	-0.005	-0.006	-0.006
+20	0.000	0.000	0.000
+35	-0.009	-0.001	-0.006
Voltage	Test Result (ppm)@NT		
	Channel 9262	Channel 9400	Channel 9538
LV	-0.001	-0.005	-0.005
HV	-0.005	-0.005	-0.001

HSUPA Mode:

Temperature(°C)	Test Result (ppm)@NV		
	Channel 9262	Channel 9400	Channel 9538
-10	-0.002	-0.002	-0.005
0	-0.002	-0.009	-0.008
+10	-0.008	-0.002	0.002
+20	0.000	0.000	0.000
+35	-0.002	-0.004	-0.006
Voltage	Test Result (ppm)@NT		
	Channel 9262	Channel 9400	Channel 9538
LV	-0.003	0.000	-0.006
HV	-0.006	-0.006	0.000

WCDMA band V
REL99 Mode:

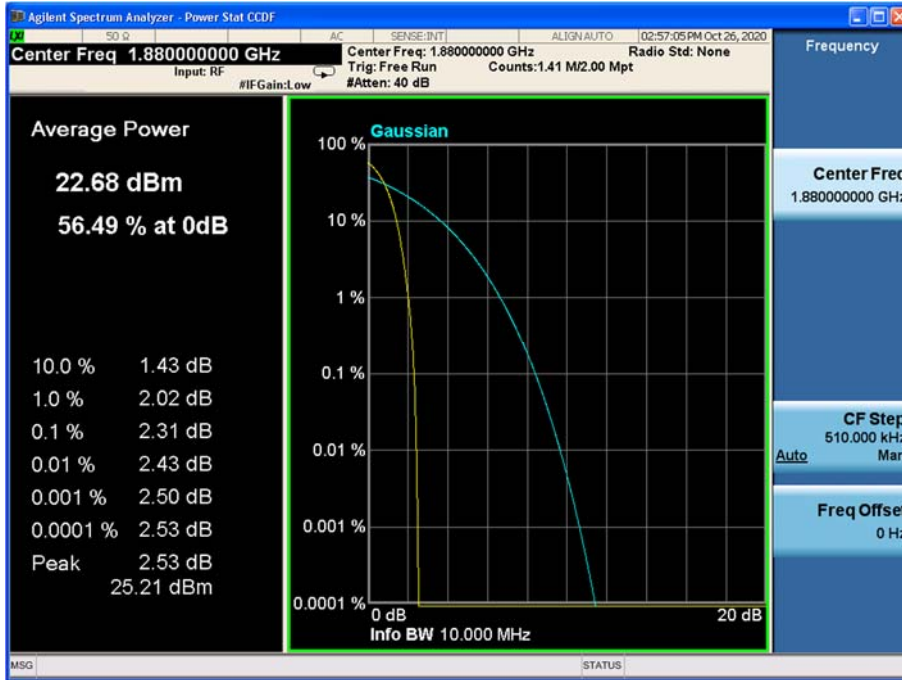
Temperature(°C)	Test Result (ppm)@NV		
	Channel 4132	Channel 4183	Channel 4233
-10	-0.077	-0.071	0.048
0	-0.030	-0.034	-0.010
+10	-0.012	0.014	0.058
+20	0.000	0.000	0.000
+35	0.001	0.090	-0.016
Voltage	Test Result (ppm)@NT		
	Channel 4132	Channel 4183	Channel 4233
LV	0.075	-0.091	-0.042
HV	-0.076	0.051	0.061

HSUPA Mode:

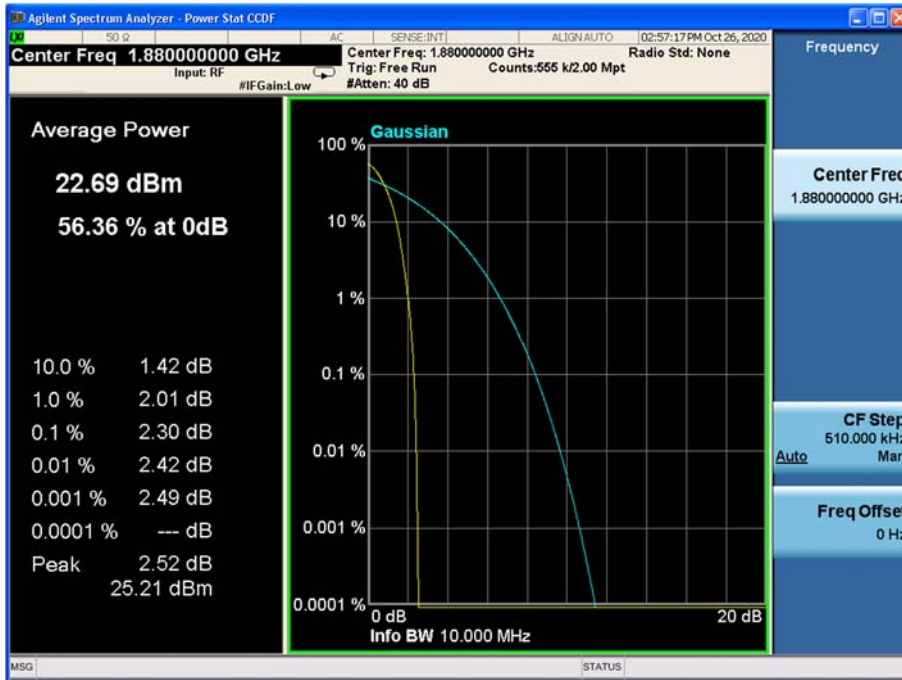
Temperature(°C)	Test Result (ppm)@NV		
	Channel 4132	Channel 4183	Channel 4233
-10	0.071	0.072	-0.053
0	-0.086	-0.043	-0.086
+10	-0.100	-0.102	0.023
+20	0.000	0.000	0.000
+35	-0.036	-0.050	-0.047
Voltage	Test Result (ppm)@NT		
	Channel 4132	Channel 4183	Channel 4233
LV	-0.003	0.079	0.009
HV	-0.010	0.035	0.056

Peak-Average Ratio

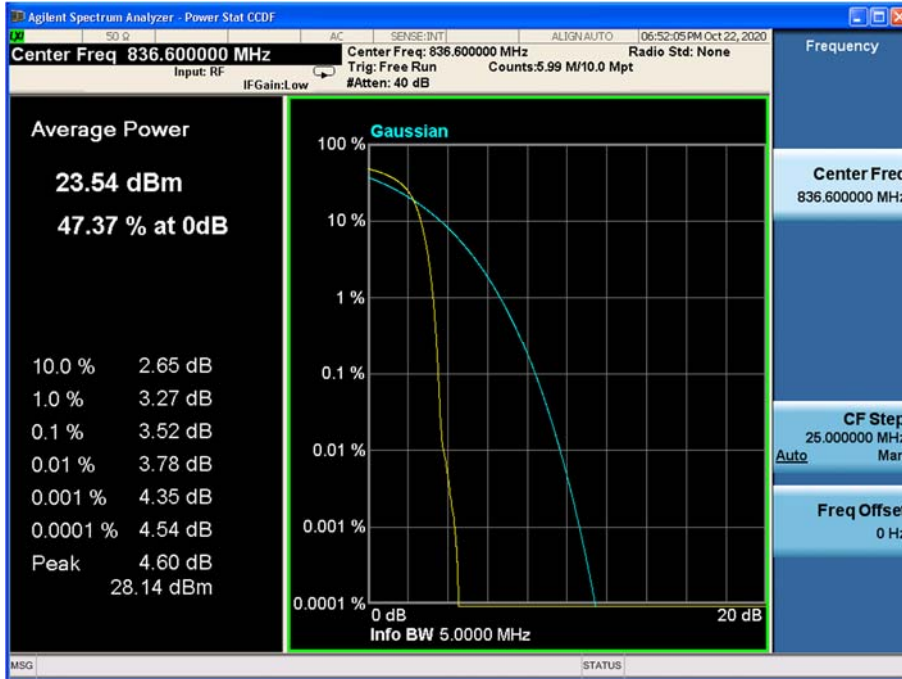
WCDMA band II
REL99 Mode:



HSUPA Mode:



WCDMA band V
REL99 Mode:



HSUPA Mode:



Effective Radiated Power and Effective Isotropic Radiated Power

WCDMA band II

Mode		Carrier frequency (MHz)	Channel No.	ERP/EIRP(W)
Release 99	RMC,12.2kbps	1852.4	9262	0.295
		1880	9400	0.257
		1907.6	9538	0.293
HSDPA	Subtest 1	1852.4	9262	0.293
		1880	9400	0.256
		1907.6	9538	0.290
	Subtest 2	1852.4	9262	0.292
		1880	9400	0.254
		1907.6	9538	0.287
	Subtest 3	1852.4	9262	0.289
		1880	9400	0.253
		1907.6	9538	0.286
	Subtest 4	1852.4	9262	0.290
		1880	9400	0.256
		1907.6	9538	0.288
HSUPA	Subtest 1	1852.4	9262	0.296
		1880	9400	0.266
		1907.6	9538	0.301
	Subtest 2	1852.4	9262	0.308
		1880	9400	0.269
		1907.6	9538	0.301
	Subtest 3	1852.4	9262	0.305
		1880	9400	0.262
		1907.6	9538	0.301
	Subtest 4	1852.4	9262	0.296
		1880	9400	0.258
		1907.6	9538	0.302
	Subtest 5	1852.4	9262	0.296
		1880	9400	0.265

		1907.6	9538	0.299
HSPA+	QPSK	1852.4	9262	0.299
		1880	9400	0.261
		1907.6	9538	0.294
	16QAM	1852.4	9262	0.299
		1880	9400	0.259
		1907.6	9538	0.295

Mode		Carrier frequency (MHz)	Channel No.	ERP/EIRP(W)
DC-HSDPA	Subtest 1	1852.4	9262	0.288
		1880	9400	0.255
		1907.6	9538	0.292
	Subtest 2	1852.4	9262	0.294
		1880	9400	0.253
		1907.6	9538	0.290
	Subtest 3	1852.4	9262	0.292
		1880	9400	0.251
		1907.6	9538	0.288
	Subtest 4	1852.4	9262	0.289
		1880	9400	0.253
		1907.6	9538	0.288

WCDMA band V

Mode		Carrier frequency (MHz)	Channel No.	ERP/EIRP(W)
Release 99	RMC,12.2kbps	826.4	4132	0.135
		836.6	4183	0.136
		846.6	4233	0.138
HSDPA	Subtest 1	826.4	4132	0.133
		836.6	4183	0.133
		846.6	4233	0.136
	Subtest 2	826.4	4132	0.132
		836.6	4183	0.135
		846.6	4233	0.137
	Subtest 3	826.4	4132	0.134
		836.6	4183	0.135
		846.6	4233	0.136
	Subtest 4	826.4	4132	0.133
		836.6	4183	0.135
		846.6	4233	0.136
HSUPA	Subtest 1	826.4	4132	0.138
		836.6	4183	0.142
		846.6	4233	0.143
	Subtest 2	826.4	4132	0.138
		836.6	4183	0.140
		846.6	4233	0.139
	Subtest 3	826.4	4132	0.137
		836.6	4183	0.141
		846.6	4233	0.138
	Subtest 4	826.4	4132	0.137
		836.6	4183	0.137
		846.6	4233	0.145
	Subtest 5	826.4	4132	0.137
		836.6	4183	0.138
		846.6	4233	0.142
HSPA+	QPSK	826.4	9262	0.136
		836.6	9400	0.137
		846.6	9538	0.142
	16QAM	826.4	9262	0.132
		836.6	9400	0.134
		846.6	9538	0.137

Mode		Carrier frequency (MHz)	Channel No.	ERP/EIRP(W)
DC-HSDPA	Subtest 1	826.4	9262	0.134
		836.6	9400	0.135
		846.6	9538	0.135
	Subtest 2	826.4	9262	0.132
		836.6	9400	0.136
		846.6	9538	0.135
	Subtest 3	826.4	9262	0.134
		836.6	9400	0.135
		846.6	9538	0.135
	Subtest 4	826.4	9262	0.133
		836.6	9400	0.134
		846.6	9538	0.135

APPENDIX B – TEST DATA OF RADIATED EMISSION

WCDMA band II

Test result:

WCDMA Mode:

Channel 9262

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2457.16	-52.61	-13	Vertical
2778.17	-51.38	-13	Vertical
3729.77	-43.75	-13	Vertical
6674.48	-43.35	-13	Horizontal
9962.20	-39.68	-13	Vertical
17822.19	-35.10	-13	Vertical

Channel 9400

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2454.22	-52.24	-13	Vertical
2779.27	-50.96	-13	Vertical
3727.36	-43.01	-13	Horizontal
6677.28	-43.00	-13	Vertical
9963.72	-39.77	-13	Vertical
17822.53	-36.15	-13	Vertical

Channel 9538

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2455.37	-52.89	-13	Vertical
2780.17	-51.61	-13	Vertical
3727.90	-43.13	-13	Vertical
6677.40	-43.69	-13	Vertical
9961.25	-39.95	-13	Horizontal
17823.88	-36.55	-13	Vertical

HSDPA/HSUPA Mode:
Channel 9262

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2456.24	-52.74	-13	Vertical
2782.30	-52.05	-13	Vertical
3726.95	-44.48	-13	Horizontal
6681.68	-43.97	-13	Vertical
9963.42	-39.89	-13	Vertical
17822.14	-36.58	-13	Vertical

Channel 9400

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2453.69	-53.35	-13	Vertical
2777.77	-51.79	-13	Vertical
3729.47	-43.96	-13	Vertical
6680.70	-42.97	-13	Horizontal
9961.92	-40.62	-13	Vertical
17820.50	-35.81	-13	Vertical

Channel 9538

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2453.09	-53.14	-13	Vertical
2779.62	-52.22	-13	Vertical
3731.54	-44.04	-13	Horizontal
6675.24	-43.79	-13	Vertical
9962.15	-39.27	-13	Horizontal
17820.98	-35.61	-13	Vertical

HSPA+ Mode: (QPSK)
Channel 9262

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2453.41	-52.12	-13	Vertical
2780.43	-51.63	-13	Vertical
3730.87	-43.68	-13	Horizontal
6678.49	-43.37	-13	Vertical
9964.62	-39.75	-13	Vertical
17823.64	-35.67	-13	Vertical

Channel 9400

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2451.52	-53.41	-13	Vertical
2781.29	-51.03	-13	Vertical
3728.98	-43.87	-13	Horizontal
6676.82	-43.04	-13	Vertical
9962.17	-39.94	-13	Vertical
17820.09	-35.98	-13	Vertical

Channel 9538

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2454.59	-52.20	-13	Vertical
2777.51	-52.08	-13	Vertical
3729.76	-43.36	-13	Vertical
6675.17	-44.05	-13	Vertical
9963.04	-40.23	-13	Vertical
17821.04	-35.41	-13	Vertical

HSPA+ Mode: (16QAM)

Channel 9262

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2458.32	-52.37	-13	Vertical
2780.67	-51.84	-13	Vertical
3729.57	-44.24	-13	Vertical
6679.67	-44.09	-13	Vertical
9966.43	-40.00	-13	Vertical
17823.80	-35.58	-13	Vertical

Channel 9400

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2454.43	-52.41	-13	Vertical
2781.22	-51.82	-13	Vertical
3728.22	-42.92	-13	Vertical
6680.93	-42.95	-13	Vertical
9964.36	-40.07	-13	Vertical
17823.78	-35.50	-13	Vertical

Channel 9538

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2454.83	-52.39	-13	Vertical
2778.79	-51.36	-13	Vertical
3729.52	-44.70	-13	Vertical
6680.11	-44.18	-13	Vertical
9962.67	-39.96	-13	Vertical
17822.76	-36.24	-13	Vertical

DC-HSDPA Mode:

Channel 9262

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2457.60	-52.65	-13	Vertical
2780.72	-52.05	-13	Vertical
3728.93	-43.77	-13	Vertical
6675.71	-44.18	-13	Vertical
9962.79	-40.27	-13	Vertical
17822.08	-35.67	-13	Vertical

Channel 9400

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2454.21	-53.50	-13	Vertical
2777.44	-51.78	-13	Vertical
3729.00	-43.46	-13	Vertical
6678.42	-42.86	-13	Vertical
9960.41	-40.03	-13	Vertical
17825.86	-35.55	-13	Vertical

Channel 9538

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2456.34	-52.83	-13	Vertical
2782.34	-51.85	-13	Vertical
3728.89	-43.77	-13	Vertical
6676.31	-43.76	-13	Vertical
9962.33	-40.04	-13	Vertical
17821.28	-35.79	-13	Vertical

WCDMA band V

Test result:

WCDMA Mode:

Channel 4132

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1649.64	-52.41	-13	Vertical
1666.84	-52.38	-13	Vertical
2535.49	-43.91	-13	Vertical
2574.91	-43.15	-13	Vertical
8963.22	-39.33	-13	Vertical
9967.66	-35.26	-13	Vertical

Channel 4183

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1648.88	-52.53	-13	Vertical
1664.74	-51.62	-13	Vertical
2530.84	-43.85	-13	Vertical
2577.96	-42.45	-13	Vertical
8961.40	-39.52	-13	Vertical
9969.30	-36.14	-13	Vertical

Channel 4233

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1645.41	-52.01	-13	Vertical
1664.87	-51.84	-13	Horizontal
2533.35	-43.59	-13	Vertical
2578.72	-43.31	-13	Vertical
8965.54	-39.39	-13	Vertical
9971.18	-35.65	-13	Vertical

HSDPA/HSUPA Mode:
Channel 4132

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1646.35	-52.41	-13	Vertical
1666.04	-52.29	-13	Horizontal
2535.93	-44.29	-13	Vertical
2574.03	-42.35	-13	Vertical
8962.60	-40.37	-13	Vertical
9967.86	-36.19	-13	Vertical

Channel 4183

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1649.66	-52.10	-13	Vertical
1666.14	-52.08	-13	Horizontal
2534.63	-43.33	-13	Vertical
2573.93	-42.92	-13	Vertical
8965.23	-39.87	-13	Vertical
9969.89	-35.69	-13	Vertical

Channel 4233

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1650.56	-52.46	-13	Vertical
1663.22	-51.82	-13	Vertical
2534.06	-43.76	-13	Vertical
2574.58	-43.36	-13	Horizontal
8962.48	-39.62	-13	Vertical
9971.21	-35.38	-13	Vertical

HSPA+ Mode: (QPSK)
Channel 4132

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1647.94	-53.13	-13	Vertical
1665.15	-50.76	-13	Vertical
2534.11	-44.04	-13	Vertical
2573.13	-43.05	-13	Vertical
8961.94	-40.28	-13	Horizontal
9967.75	-35.29	-13	Vertical

Channel 4183

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1648.79	-53.07	-13	Vertical
1664.59	-52.04	-13	Vertical
2535.38	-43.57	-13	Vertical
2576.81	-42.84	-13	Vertical
8964.90	-39.92	-13	Vertical
9968.52	-36.05	-13	Horizontal

Channel 4233

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1648.73	-52.04	-13	Vertical
1667.08	-51.71	-13	Vertical
2533.22	-44.39	-13	Vertical
2576.78	-42.42	-13	Vertical
8963.76	-39.73	-13	Horizontal
9969.67	-35.77	-13	Vertical

HSPA+ Mode: (16QAM)

Channel 4132

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1647.94	-51.81	-13	Vertical
1668.13	-52.16	-13	Vertical
2536.40	-43.45	-13	Horizontal
2573.83	-42.67	-13	Vertical
8963.18	-39.16	-13	Vertical
9972.67	-35.33	-13	Vertical

Channel 4183

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1649.71	-52.01	-13	Vertical
1664.60	-52.10	-13	Vertical
2532.26	-43.66	-13	Horizontal
2574.92	-43.16	-13	Vertical
8962.62	-40.41	-13	Vertical
9967.92	-34.95	-13	Vertical

Channel 4233

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1649.46	-52.67	-13	Vertical
1668.76	-51.03	-13	Vertical
2534.21	-43.81	-13	Vertical
2574.12	-42.45	-13	Horizontal
8964.66	-39.40	-13	Vertical
9968.27	-35.65	-13	Vertical

DC-HSDPA+ Mode:
Channel 4132

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1647.65	-52.07	-13	Vertical
1669.01	-51.96	-13	Vertical
2535.19	-44.39	-13	Vertical
2573.79	-43.51	-13	Horizontal
8963.13	-39.97	-13	Vertical
9972.60	-35.96	-13	Vertical

Channel 4183

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1647.17	-51.90	-13	Vertical
1665.74	-51.54	-13	Horizontal
2534.32	-43.67	-13	Vertical
2574.31	-42.93	-13	Vertical
8965.38	-40.13	-13	Vertical
9969.56	-35.74	-13	Vertical

Channel 4233

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1650.03	-52.00	-13	Vertical
1667.84	-51.22	-13	Vertical
2534.90	-43.29	-13	Vertical
2574.53	-43.19	-13	Vertical
8963.44	-39.34	-13	Horizontal
9972.25	-35.97	-13	Vertical

---The end of the test report---