



TEST REPORT

FCC Part 22 Subpart H / Part 24 Subpart E/ Part 27

Report Reference No. : CTL1806216041-WF01

Compiled by: (position+printed name+signature)	Allen Wang (File administrators)	<u>Allen Wang</u>
Tested by: (position+printed name+signature)	Nice Nong (Test Engineer)	<u>NICE NONG</u>
Approved by: (position+printed name+signature)	Ivan Xie (Manager)	<u>Ivan Xie</u>

Product Name : Wireless Infrared Scouting Camera

Model/Type reference : Enigma LTE AT&T

List Model(s)..... : N/A

Trade Mark..... : 1stcampro

FCC ID..... : 2APYZ-ENIGMA1

Applicant's name : FirstCam Outdoor Inc.

Address of applicant : 11027 S. Pikes Peak Dr., Unit #106 Parker, CO 80138 US

Test Firm..... : Shenzhen CTL Testing Technology Co., Ltd.

Address of Test Firm : Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055

Test specification..... :

Standard : FCC CFR Title 47 Part 2, Part 22H, Part 24E and Part 27
EIA/TIA 603-D: 2010
KDB 971168 D01

TRF Originator : Shenzhen CTL Testing Technology Co., Ltd.

Master TRF..... : Dated 2011-01

Date of Receipt..... : Jun. 25, 2018

Date of Test Date..... : Jun. 26, 2018–Jul. 10, 2018

Data of Issue : Jul. 11, 2018

Result..... : Pass

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TEST REPORT

Test Report No. :	CTL1806216041-WF01	Jul. 11, 2018
		Date of issue

Equipment under Test : Wireless Infrared Scouting Camera

Model /Type : Enigma LTE AT&T

Listed Models : N/A

Applicant : **FirstCam Outdoor Inc.**

Address : 11027 S. Pikes Peak Dr., Unit #106 Parker, CO
80138 US

Manufacturer : **UOVision Technology (Shenzhen) Co., Ltd.**

Address : 4th Floor, A1 Building, Shunheda Factory,
liuxiandong Industrial Zone, Xili street, Nanshan
District, Shenzhen CHN 518055

Test result	Pass *
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* In the configuration tested, the EUT complied with the standards specified page 5.

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Contents

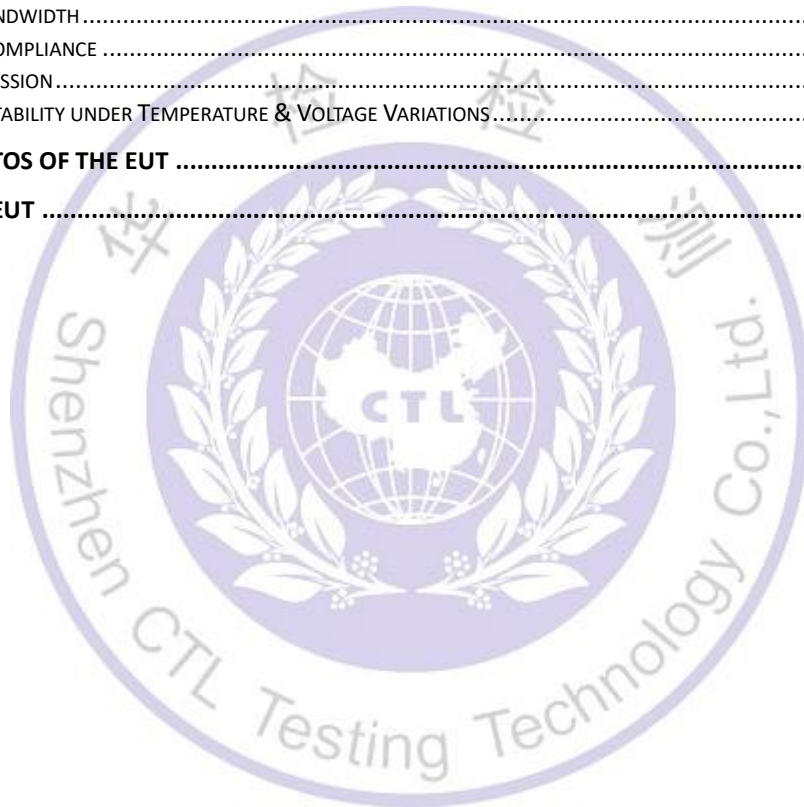
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1 SUMMARY

1.1 TEST STANDARDS

The tests were performed according to following standards:

[FCC Part 22](#): PRIVATE LAND MOBILE RADIO SERVICES.

[FCC Part 24](#): PUBLIC MOBILE SERVICES

[FCC Part 27](#): MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES

[TIA/EIA 603 D June 2010](#): Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

[FCC Part 2](#): FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

[KDB971168 D01:v02r02](#) MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS

[ANSI C63.10-2013](#) Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

1.2 Test Description

Test Item	Section in CFR 47	Result
RF Output Power	Part 2.1046 Part 22.913 (a)(2) Part 24.232 (c) Part 27.50(d)	Pass
Peak-to-Average Ratio	Part 24.232 (d) Part 27.50(d)	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 22.917 Part 24.238	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 22.917 (a) Part 24.238 (a) Part 27.53(h)	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 22.917 (a) Part 24.238 (a) Part 27.53(h)	Pass
Out of band emission, Band Edge	Part 22.917 (a) Part 24.238 (a) Part 27.53(h)	Pass
Frequency stability	Part 2.1055 Part 22.355 Part 24.235 Part 27.54	Pass

1.3 Test Facility

1.3.1 Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd.

Floor 1-A, Baisha Technology Park, No. 3011, Shahexi Road, Nanshan, Shenzhen 518055 China

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4 and CISPR 32/EN 55032 requirements.

1.3.2 Laboratory accreditation

The test facility is recognized, certified, or accredited by the following organizations:

IC Registration No.: 9618B

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration No.: 9618B on November 13, 2013.

FCC-Registration No.: 399832

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 399832, December 08, 2017.

1.4 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen CTL Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CTL laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	3.10 dB	(1)
Radiated Emission	1~18GHz	3.80 dB	(1)
Radiated Emission	18-40GHz	3.90 dB	(1)
Conducted Disturbance	0.15~30MHz	1.63 dB	(1)
Conducted Power	9KHz~18GHz	0.61 dB	(1)
Spurious RF Conducted Emission	9KHz~40GHz	1.22 dB	(1)
Band Edge Compliance of RF Emission	9KHz~40GHz	1.22 dB	(1)
Occupied Bandwidth	9KHz~40GHz	-	(1)

- (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

2 GENERAL INFORMATION

2.1 Environmental conditions

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

Normal Temperature:	25C
Relative Humidity:	55 %
Air Pressure:	101 kPa

2.2 General Description of EUT

Product Name:	Wireless Infrared Scouting Camera
Model/Type reference:	Enigma LTE AT&T
Power supply:	DC 6.0V from battery
WCDMA	
Operation Band:	FDD Band II & Band IV & Band V
Power Class:	Power Class 3
Modulation Type:	QPSK for WCDMA/HSUPA/HSDPA
WCDMA Release Version:	R99
HSDPA Release Version:	Release 7, CAT14
HSUPA Release Version:	Release 6, CAT6
Antenna type:	External antenna
Antenna gain:	2dBi

Note: For more details, refer to the user's manual of the EUT.

2.3 Description of Test Modes and Test Frequency

The EUT has been tested under typical operating condition. The CUM200 used to control the EUT staying in continuous transmitting and receiving mode for testing. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

Test Frequency:

FDD Band II		FDD Band IV		FDD Band V	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
9262	1852.4	1312	1712.4	4132	826.40
9400	1880.0	1413	1732.6	4182	836.60
9538	1907.6	1513	1752.6	4233	846.60

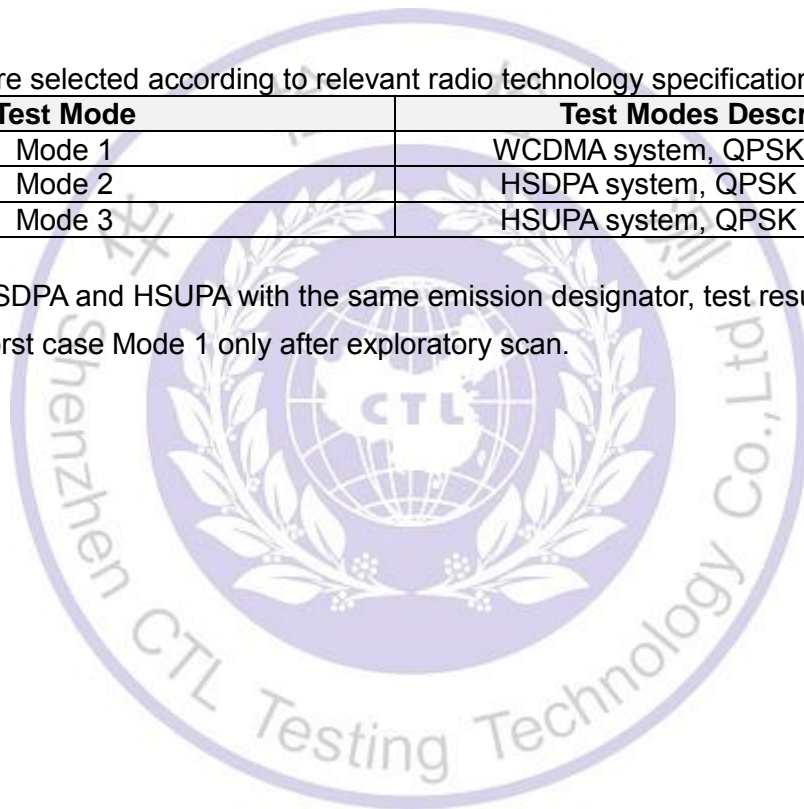
Test Modes:

The test mode(s) are selected according to relevant radio technology specifications.

Test Mode	Test Modes Description
Mode 1	WCDMA system, QPSK modulation
Mode 2	HSDPA system, QPSK modulation
Mode 3	HSUPA system, QPSK modulation

Note:

- As WCDMA, HSDPA and HSUPA with the same emission designator, test result recorded in this report at the worst case Mode 1 only after exploratory scan.



2.4 Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
Bilog Antenna	Sunol Sciences Corp.	JB1	A061713	2018/06/02	2019/06/01
Bilog Antenna	Sunol Sciences Corp.	JB1	A061714	2018/06/02	2019/06/01
EMI Test Receiver	R&S	ESCI	103710	2018/06/02	2019/06/01
Spectrum Analyzer	Agilent	E4407B	MY41440676	2018/05/21	2019/05/20
Spectrum Analyzer	Agilent	N9020	US46220290	2018/01/16	2019/01/17
Controller	EM Electronics	Controller EM 1000	N/A	2018/05/21	2019/05/20
Horn Antenna	Sunol Sciences Corp.	DRH-118	A062013	2018/05/19	2019/05/18
Horn Antenna	Sunol Sciences Corp.	DRH-118	A062014	2018/05/19	2019/05/18
Active Loop Antenna	SCHWARZBEC K	FMZB1519	1519-037	2018/05/19	2019/05/18
Amplifier	Agilent	8349B	3008A02306	2018/05/19	2019/05/18
Amplifier	Agilent	8447D	2944A10176	2018/05/19	2019/05/18
Temperature/Humidity Meter	Gangxing	CTH-608	02	2018/05/20	2019/05/19
Wideband Radio Communication Tester	R&S	CMW500	101814	2016/11/21	2017/11/20
High-Pass Filter	K&L	9SH10-2700/X1 2750-O/O	N/A	2018/05/20	2019/05/19
High-Pass Filter	K&L	41H10-1375/U1 2750-O/O	N/A	2018/05/20	2019/05/19
RF Cable	HUBER+SUHNER	RG214	N/A	2018/06/02	2019/06/01
Climate Chamber	ESPEC	EL-10KA	A20120523	2018/05/19	2019/05/18
SIGNAL GENERATOR	Agilent	E4421B	US40051744	2018/05/19	2019/05/18
Directional Coupler	Agilent	87300B	3116A03638	2018/05/19	2019/05/18

2.5 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: 2APYZ-ENIGMA1 filing to comply with of the FCC Part 22, Part 24 and Part 27 Rules.

2.6 Modifications

No modifications were implemented to meet testing criteria.

3 TEST CONDITIONS AND RESULTS

3.1 Output Power

LIMIT

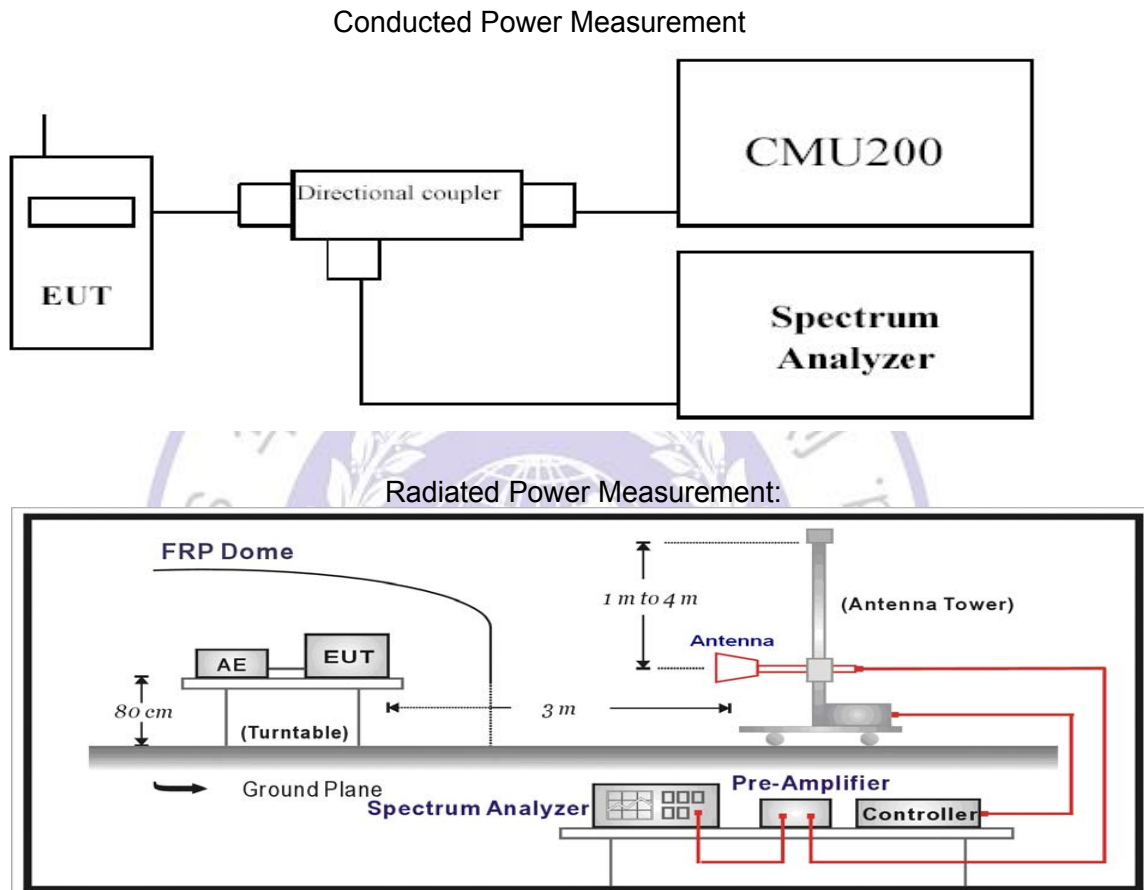
GSM850/WCDMA Band V: 7W

PCS1900/WCDMA Band II: 2W

WCDMA Band IV: 1W

The Peak-to-Average Ratio (PAR) of the transmission may not exceed 13 dB.

TEST CONFIGURATION



TEST PROCEDURE

The EUT was setup according to EIA/TIA 603C

Conducted Power Measurement:

- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMU200 by a Directional Coupler.
- c) EUT Communicate with CMU200 then selects a channel for testing.
- d) Add a correction factor to the display of spectrum, and then test.

Radiated Power Measurement:

- a) The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.

- b) The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter
- c) The output of the test antenna shall be connected to the measuring receiver.
- d) The transmitter shall be switched on and the measuring receiver shall be tuned to the frequency of the transmitter under test.
- e) The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
- f) The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- g) The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
- h) The maximum signal level detected by the measuring receiver shall be noted.
- i) The transmitter shall be replaced by a substitution antenna.
- j) The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
- k) The substitution antenna shall be connected to a calibrated signal generator.
- l) If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- m) The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
- n) The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
- o) The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
- p) The measure of the effective radiated power is the larger of the two levels recorded at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.

TEST RESULTS**Conducted Measurement:**

EUT Mode	Channel	Frequency (MHz)	Avg. Burst Power (dBm)	Peak-to-Average Ratio (dB)	Limit (dBm)	Result
WCDMA Band II (QPSK)	9262	1852.40	23.24	3.44	33.01	Pass
	9400	1880.00	23.56	3.52		
	9538	1907.60	23.44	3.69		
WCDMA Band IV (QPSK)	1312	1712.40	23.32	3.75	30.00	Pass
	1412	1732.60	23.48	3.69		
	1513	1752.60	23.59	3.27		
WCDMA Band V (QPSK)	4132	826.40	23.33	/	38.45	Pass
	4183	836.60	23.35	/		
	4233	846.60	23.48	/		

Note: 1. Peak-to-Average Ratio= maximum PK burst power-maximum Avg. burst power.

Radiated Measurement:

Note: 1. The field strength of radiation emission was measured in the following position: EUT stand-up position (Zaxis), lie-down position (X, Y axis). The data show in this report only with the worst case setup. After exploratory measurement the worst case of Z axis was reported.

Note: 2. We test the H direction and V direction and V direction is worse.

WCDMA BAND II

Channel	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
9262	-15.44	3.42	10.24	33.6	24.98	33.01	8.03	V
9400	-14.69	3.49	10.24	33.6	25.66	33.01	7.35	V
9538	-14.98	3.54	10.23	33.6	25.31	33.01	7.70	V

WCDMA BAND IV

Channel	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	P _{Ag} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1312	-15.49	3.15	9.58	33.6	24.54	30.00	5.46	V
1413	-15.36	3.17	9.62	33.6	24.69	30.00	5.31	V
1513	-15.27	3.26	9.71	33.6	24.78	30.00	5.22	V

WCDMA BAND V

Channel	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	Correction (dB)	P _{Ag} (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
4132	-14.59	2.43	8.45	2.15	36.82	26.10	38.45	12.35	V
4183	-14.79	2.46	8.45	2.15	36.82	25.87	38.45	12.58	V
4233	-14.28	2.52	8.36	2.15	36.82	26.23	38.45	12.22	V

Remark:

1. $EIRP = P_{Mea}(dBm) - P_{cl}(dB) + P_{Ag}(dB) + G_a(dBi)$

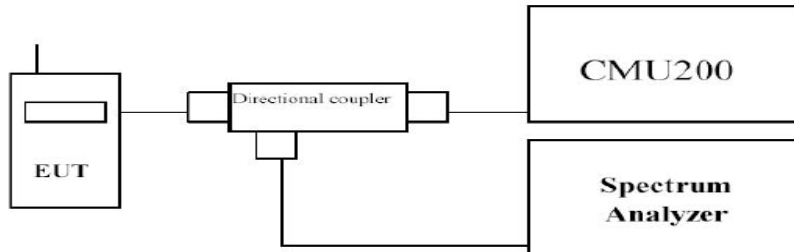
2. $ERP = EIRP - 2.15dBi$ as EIRP by subtracting the gain of the dipole.

3.2 Occupied Bandwidth

LIMIT

N/A

TEST CONFIGURATION



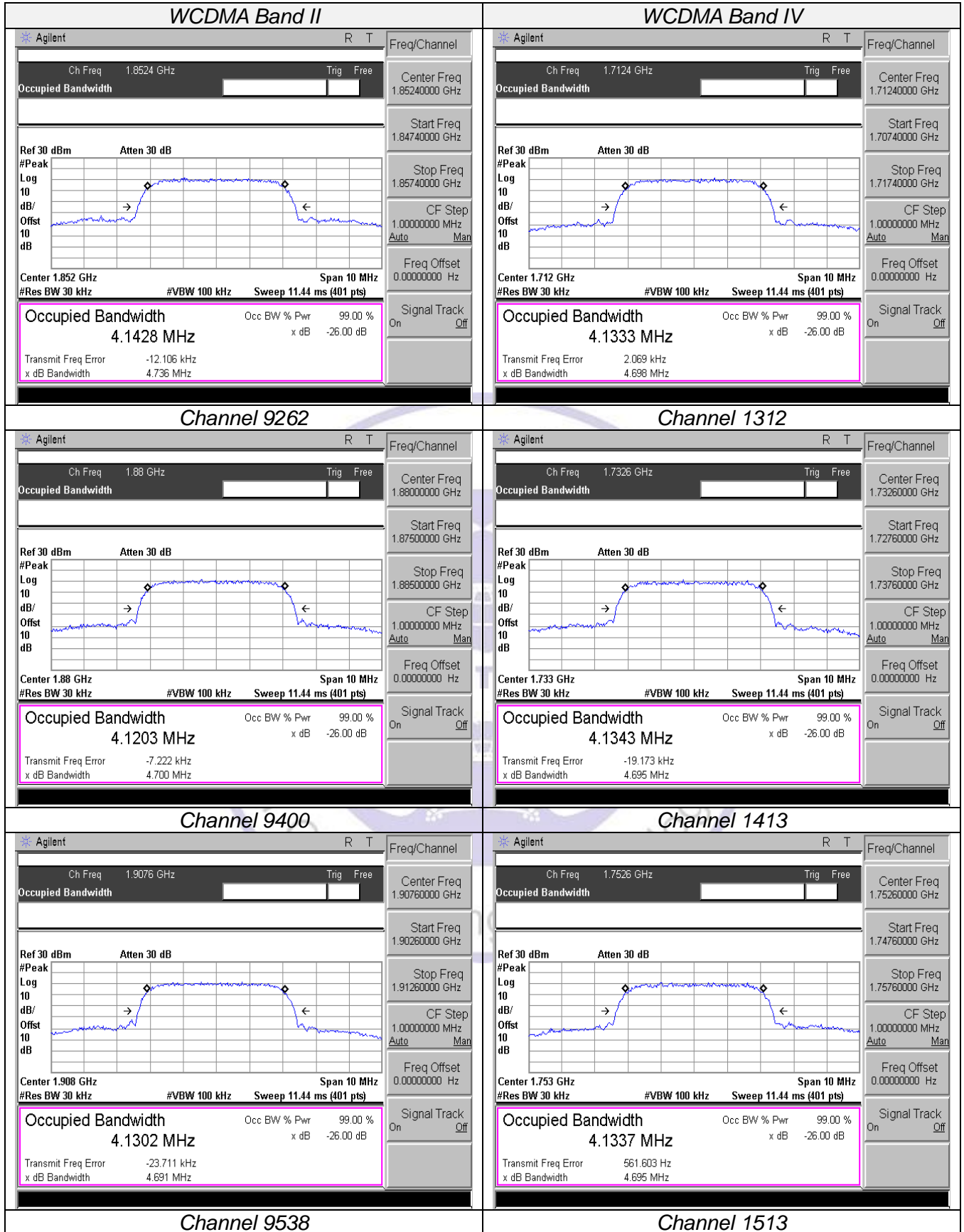
TEST PROCEDURE

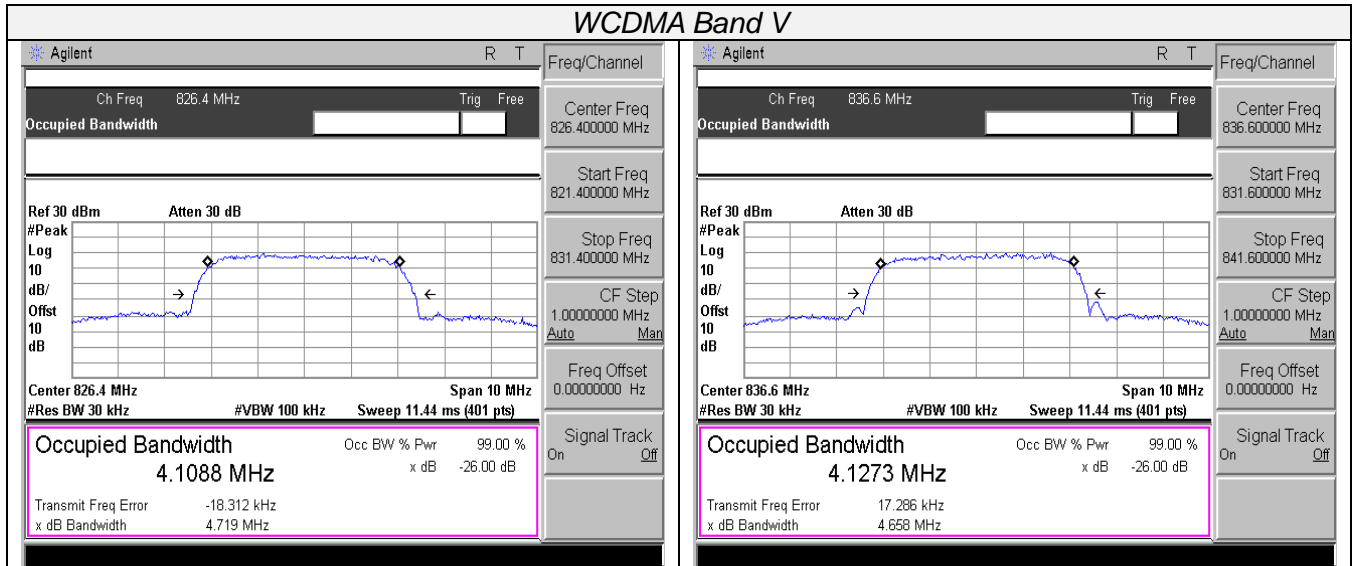
1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer
2. RBW was set to about 1% of emission BW, VBW \geq 3 times RBW.
3. -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

TEST RESULTS

EUT Mode	Channel	Frequency (MHz)	99% Occupy bandwidth (KHz)	-26dB bandwidth (KHz)
WCDMA Band II (QPSK)	9262	1852.4	4.1428	4.736
	9400	1880.0	4.1203	4.700
	9538	1907.6	4.1302	4.691
WCDMA Band VI (QPSK)	1312	1712.4	4.1333	4.698
	1413	1732.6	4.1343	4.695
	1513	1752.6	4.1337	4.695
WCDMA Band V (QPSK)	4132	826.4	4.1088	4.719
	4183	836.6	4.1273	4.658
	4233	846.6	4.1384	4.711

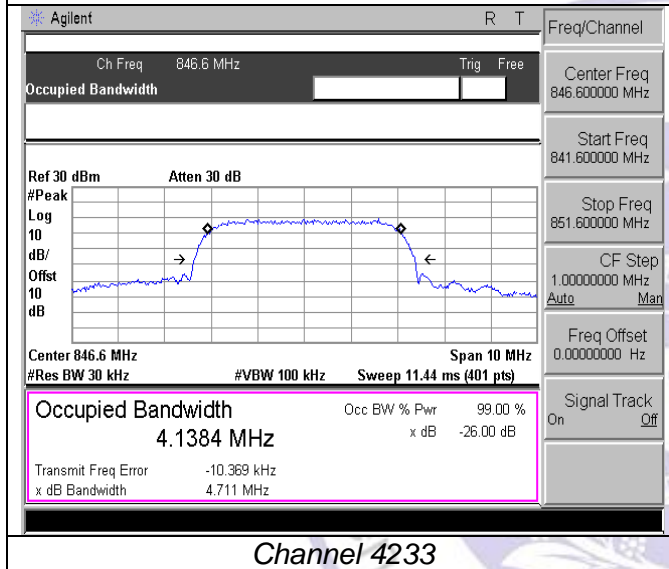
Test plots as follow:



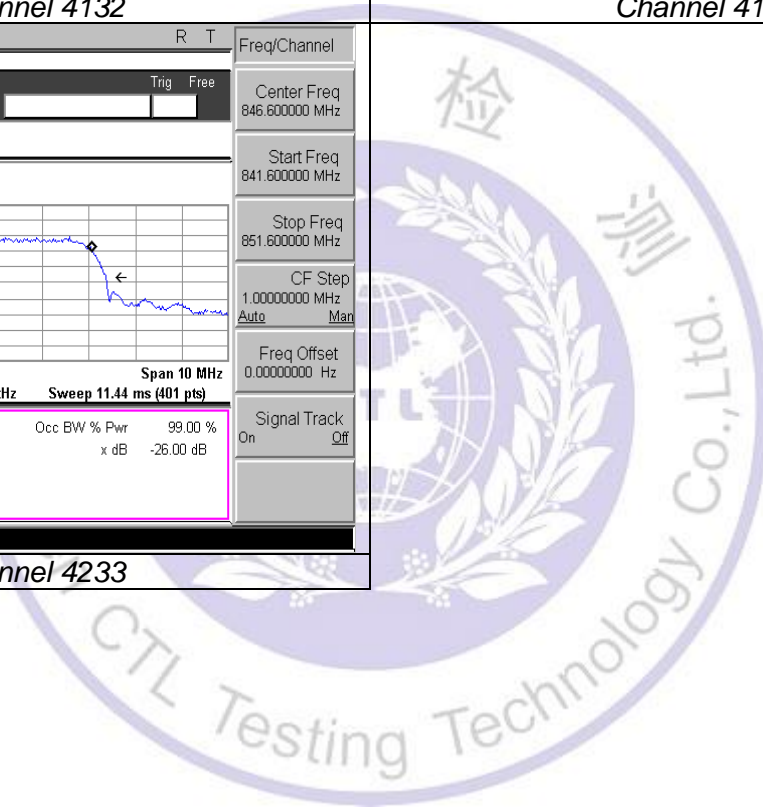


Channel 4132

Channel 4183



Channel 4233

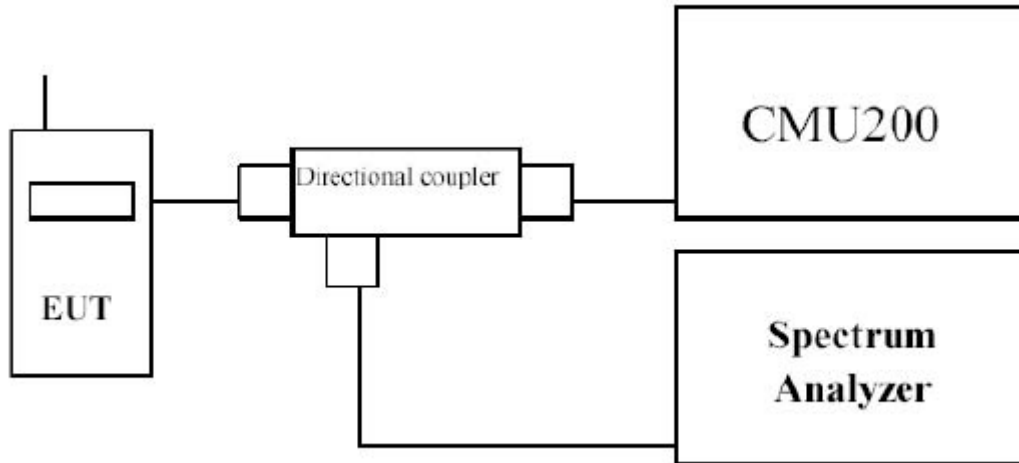


3.3 Band Edge compliance

LIMIT

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.

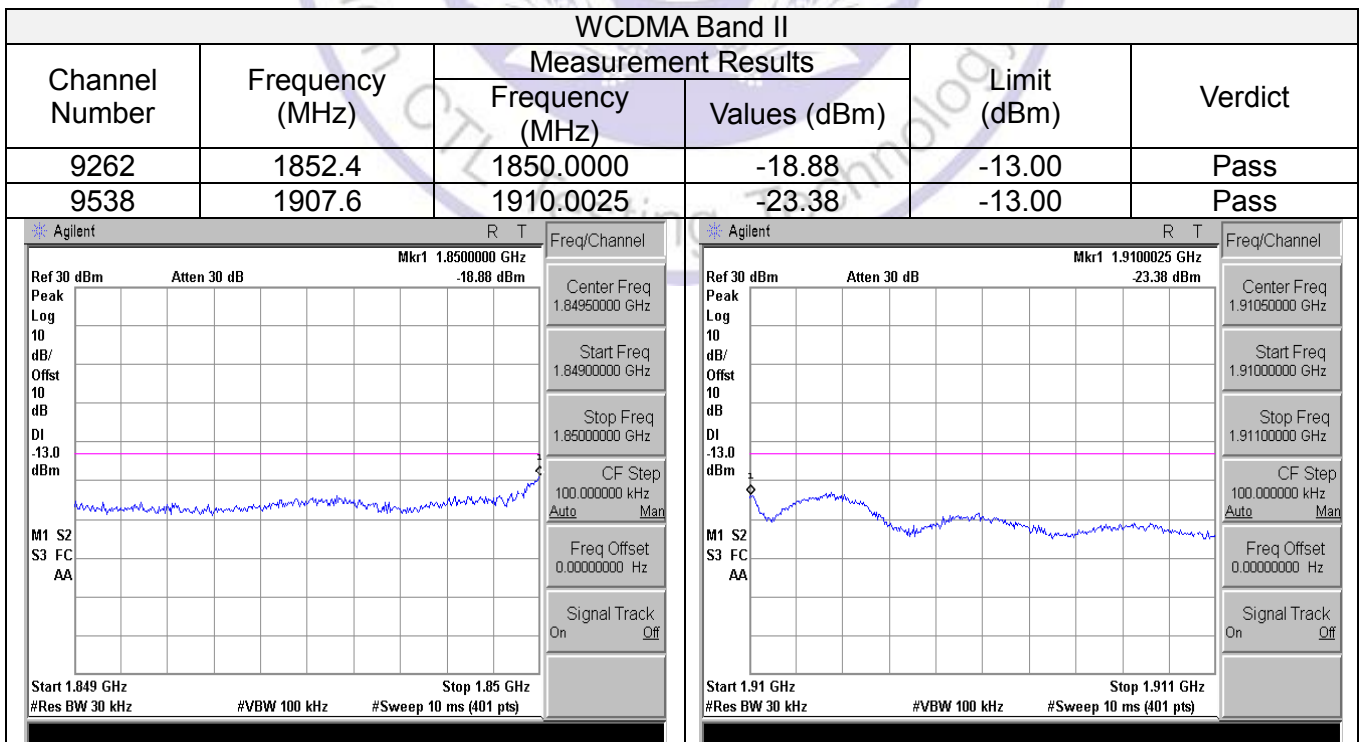
TEST CONFIGURATION

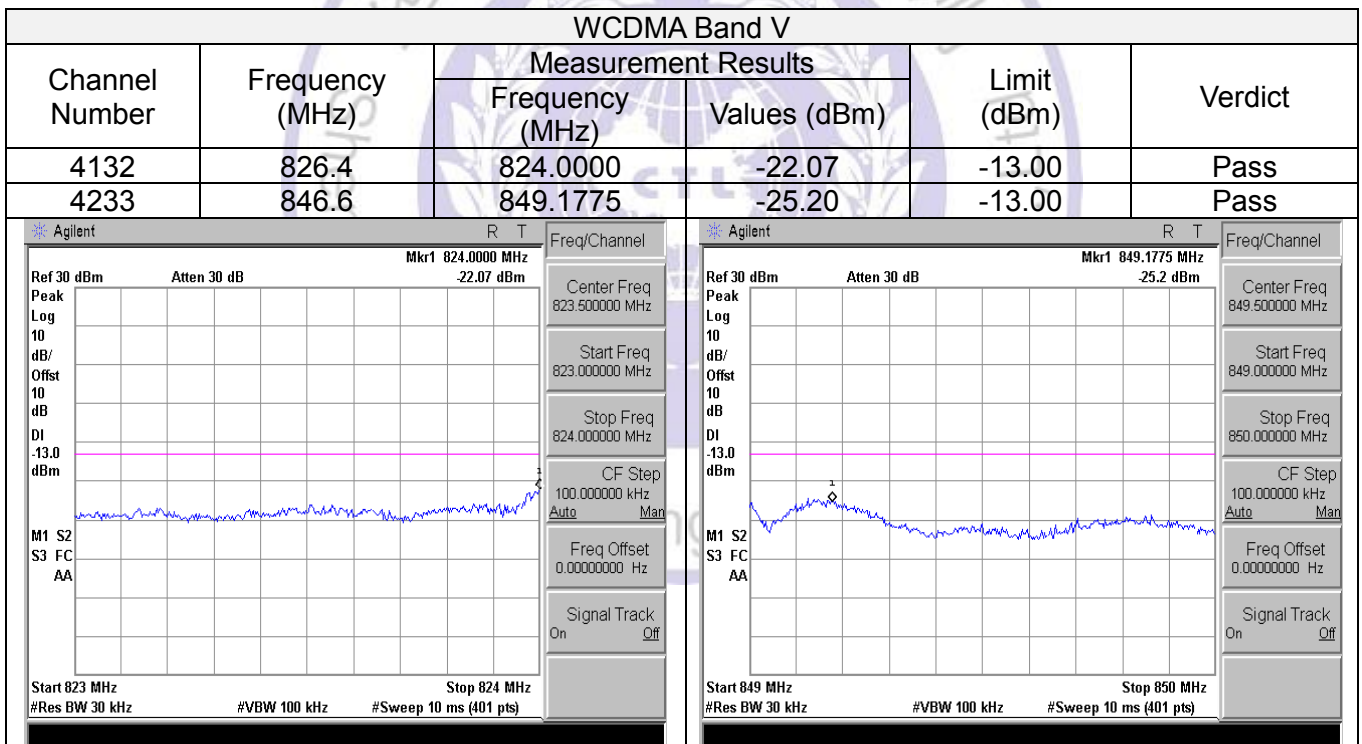
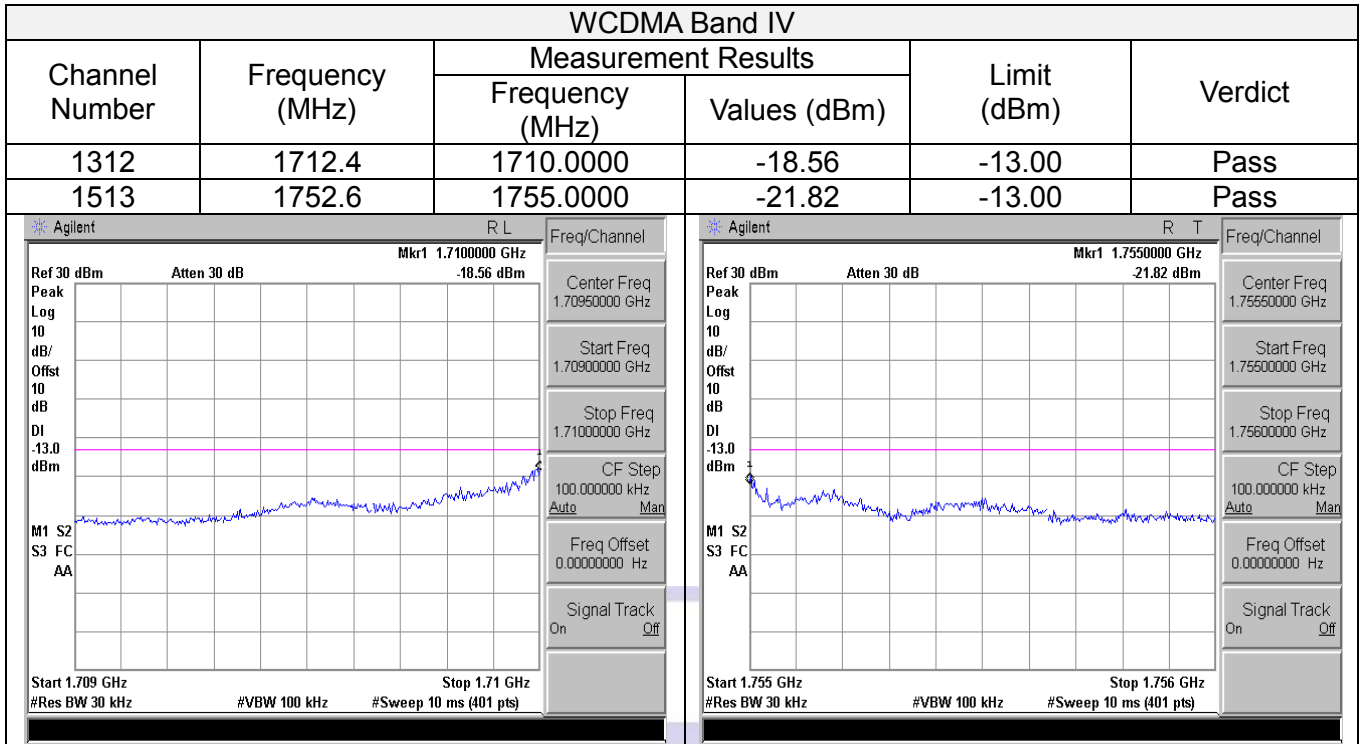


TEST PROCEDURE

In the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions.

TEST RESULTS





RBW compensate factor (30 kHz to 50 kHz): $10 \cdot \log(50/30) = 2.22$ dB
 Worst case: $-18.56 + 2.22 = -16.34$ dBm < 13 dBm.

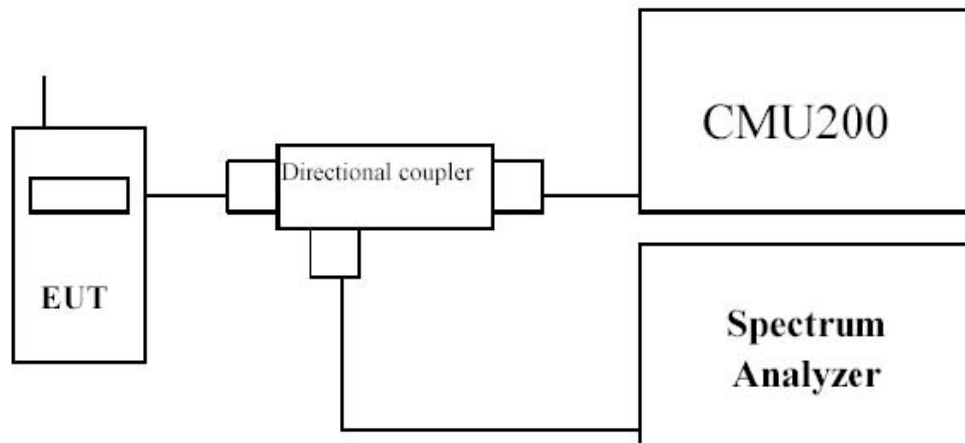
3.4 Spurious Emission

LIMIT

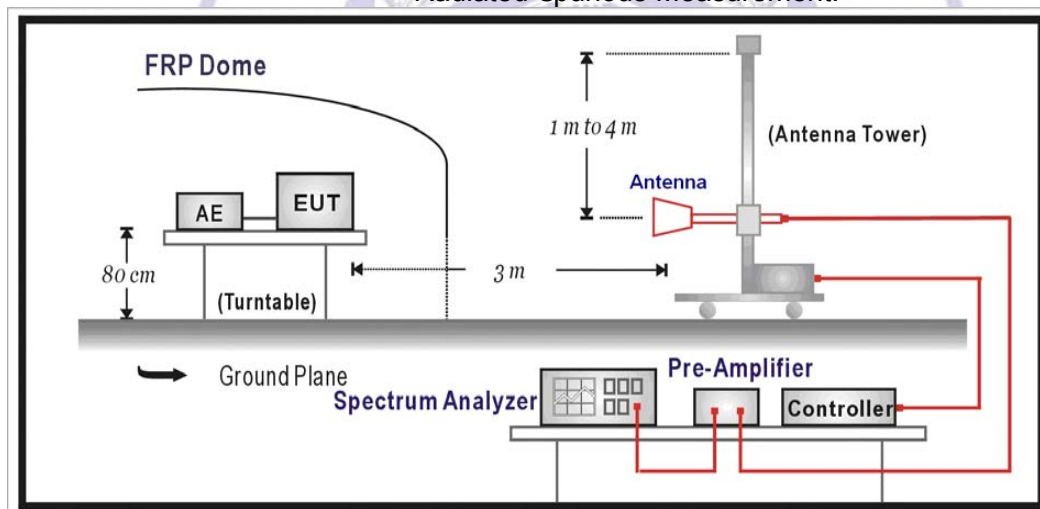
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.

TEST CONFIGURATION

Conducted Spurious Measurement:



Radiated Spurious Measurement:



TEST PROCEDURE

The EUT was setup according to EIA/TIA 603C

Conducted Spurious Measurement:

- Place the EUT on a bench and set it in transmitting mode.
- Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMU200 by a Directional Coupler.
- EUT Communicate with CMU200 then selects a channel for testing.
- Add a correction factor to the display of spectrum, and then test.

- e) The resolution bandwidth of the spectrum analyzer was set at 1MHz for Part 22 and 1MHz for Part 24, sufficient scans were taken to show the out of band Emission if any up to 10th harmonic.

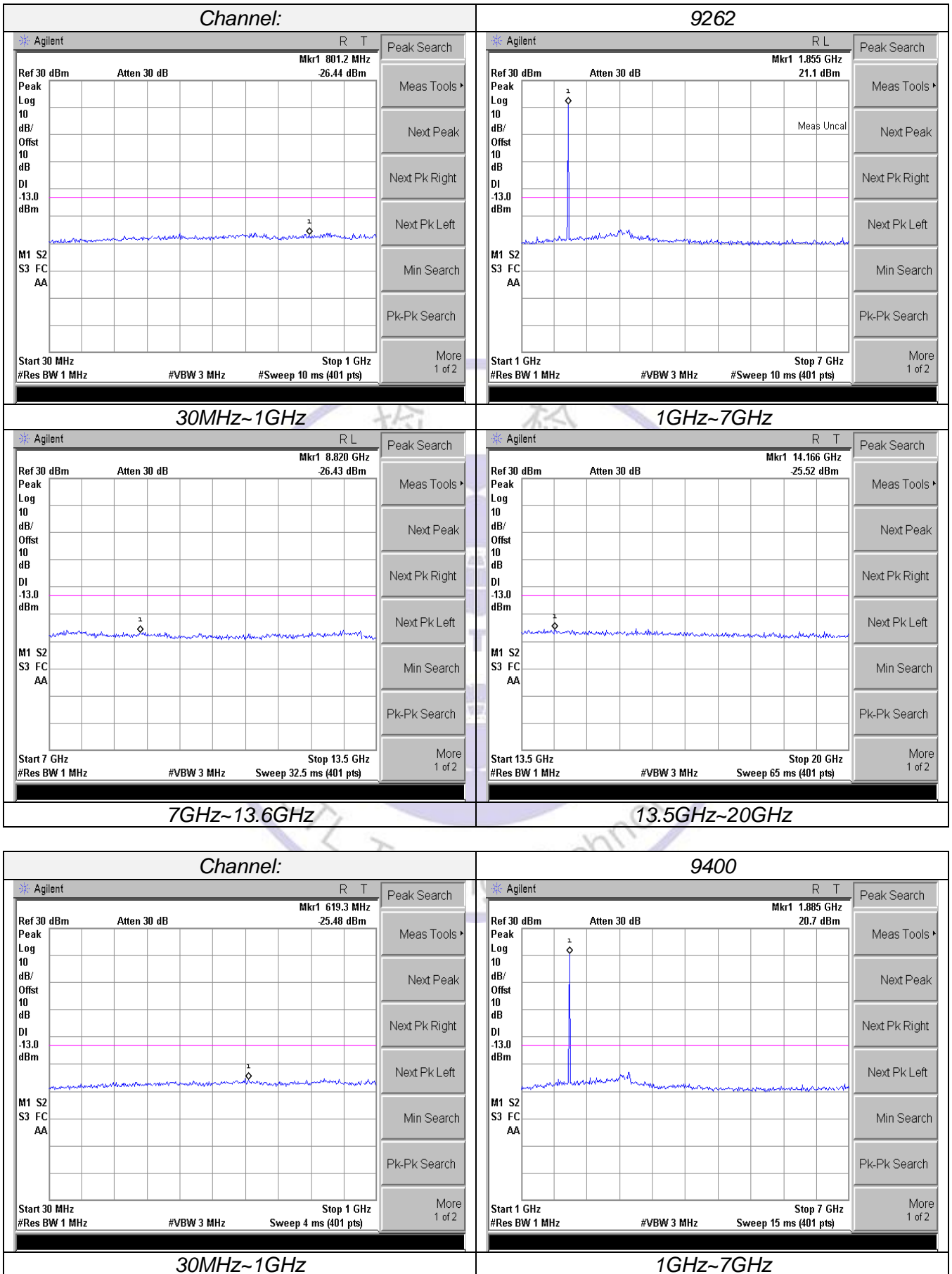
Radiated Spurious Measurement:

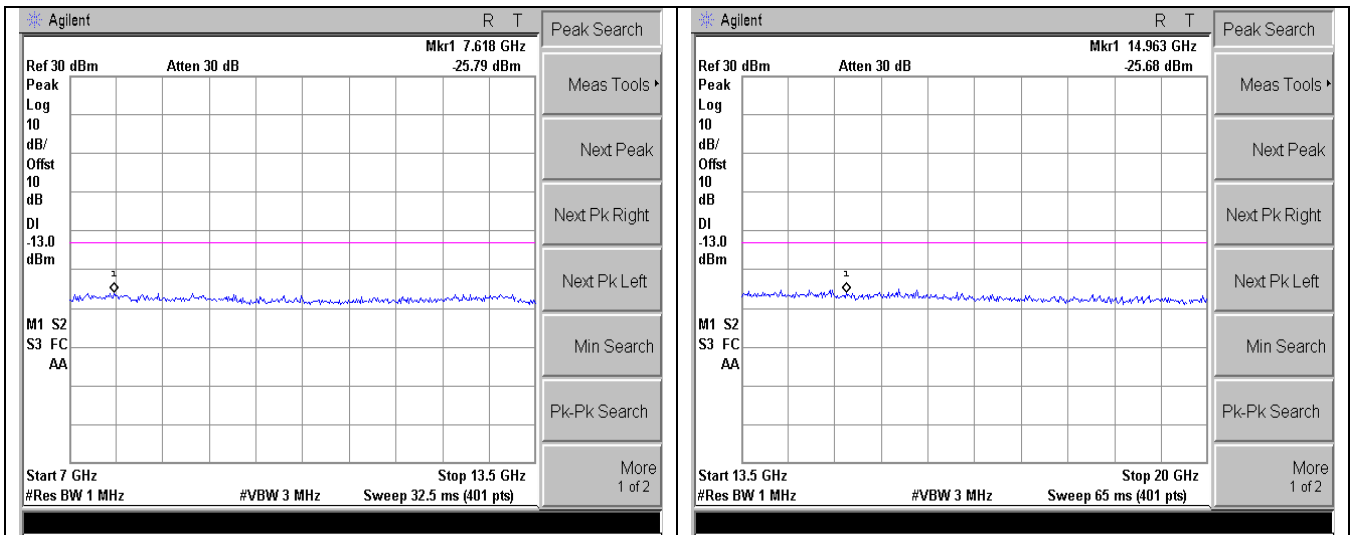
- a) The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.
- b) The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter
- c) The output of the test antenna shall be connected to the measuring receiver.
- d) The transmitter shall be switched on and the measuring receiver shall be tuned to the frequency of the transmitter under test.
- e) The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
- f) The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- g) The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
- h) The maximum signal level detected by the measuring receiver shall be noted.
- i) The transmitter shall be replaced by a substitution antenna.
- j) The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
- k) The substitution antenna shall be connected to a calibrated signal generator.
- l) If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- m) The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
- n) The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
- o) The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
- p) The measure of the effective radiated power is the larger of the two levels recorded at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.
- q) The resolution bandwidth of the spectrum analyzer was set at 100 kHz for Part 22 and 1MHz for Part 24. The frequency range was checked up to 10th harmonic.

TEST RESULTS

Conducted Measurement:

WCDMA Band II



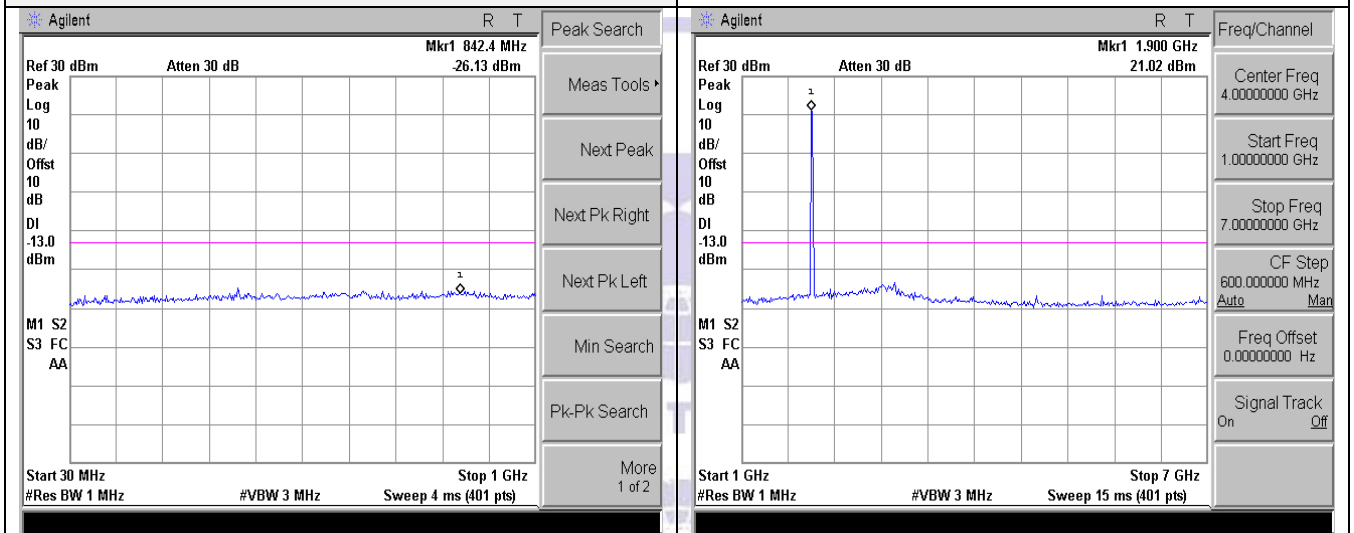


7GHz~13.6GHz

13.5GHz~20GHz

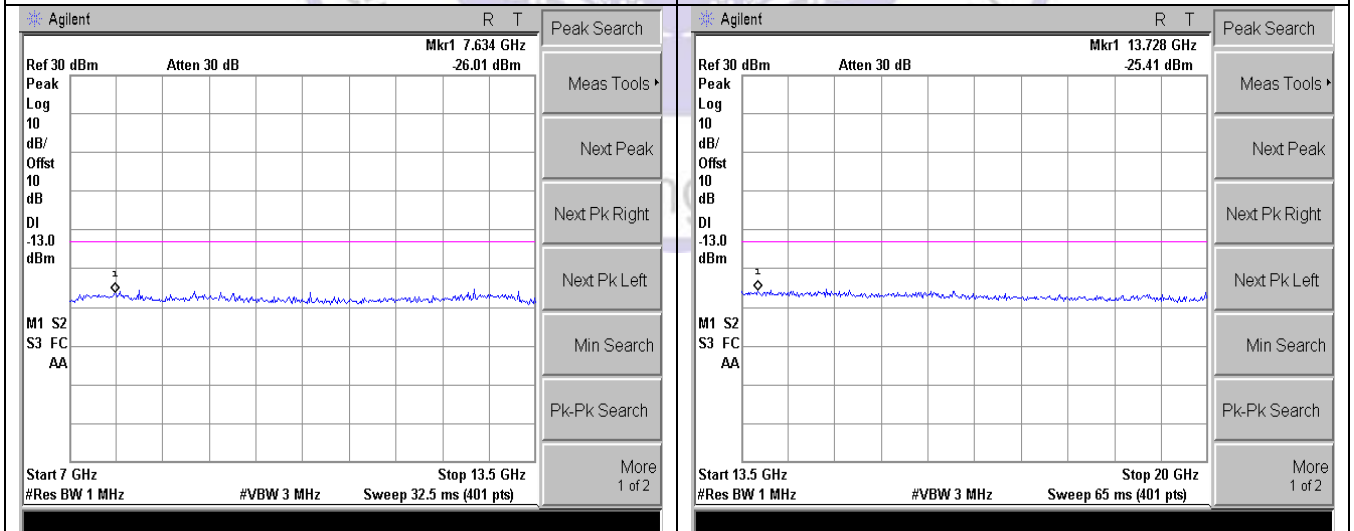
Channel:

9538



30MHz~1GHz

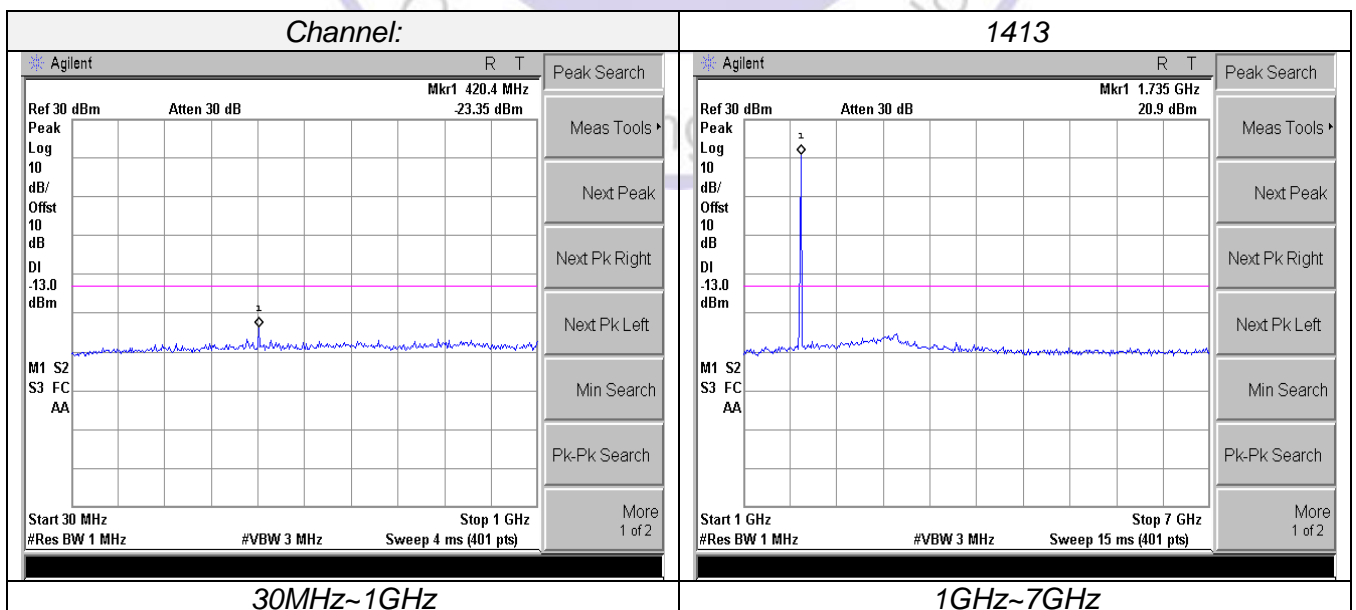
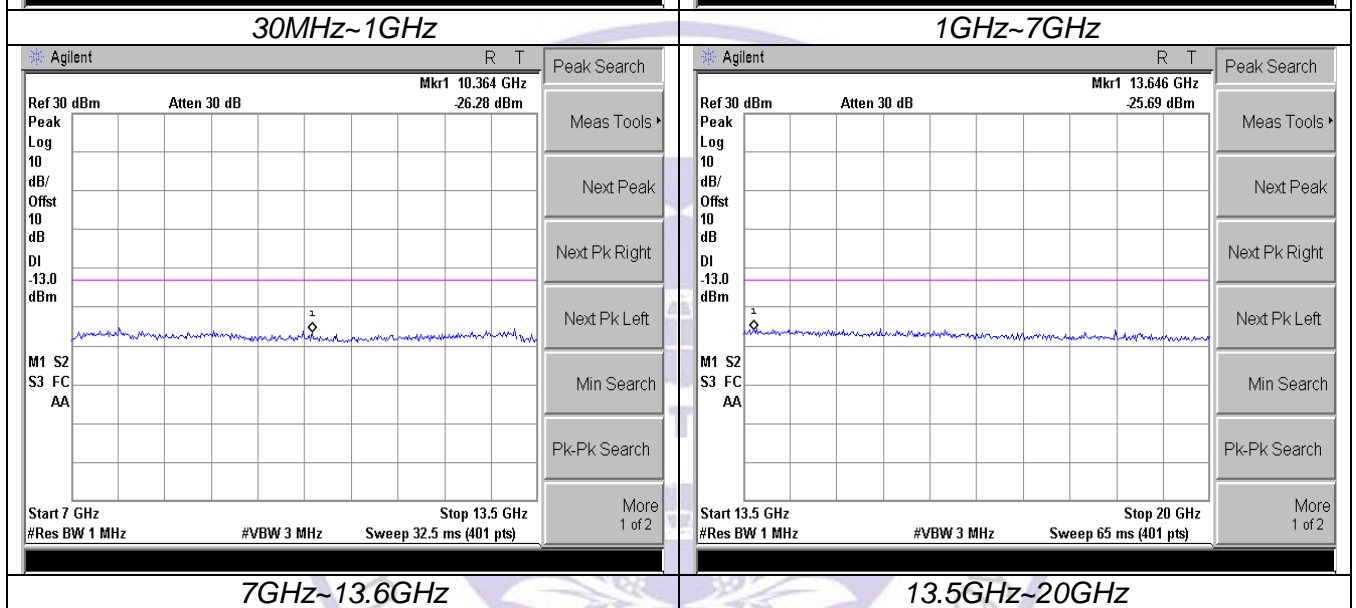
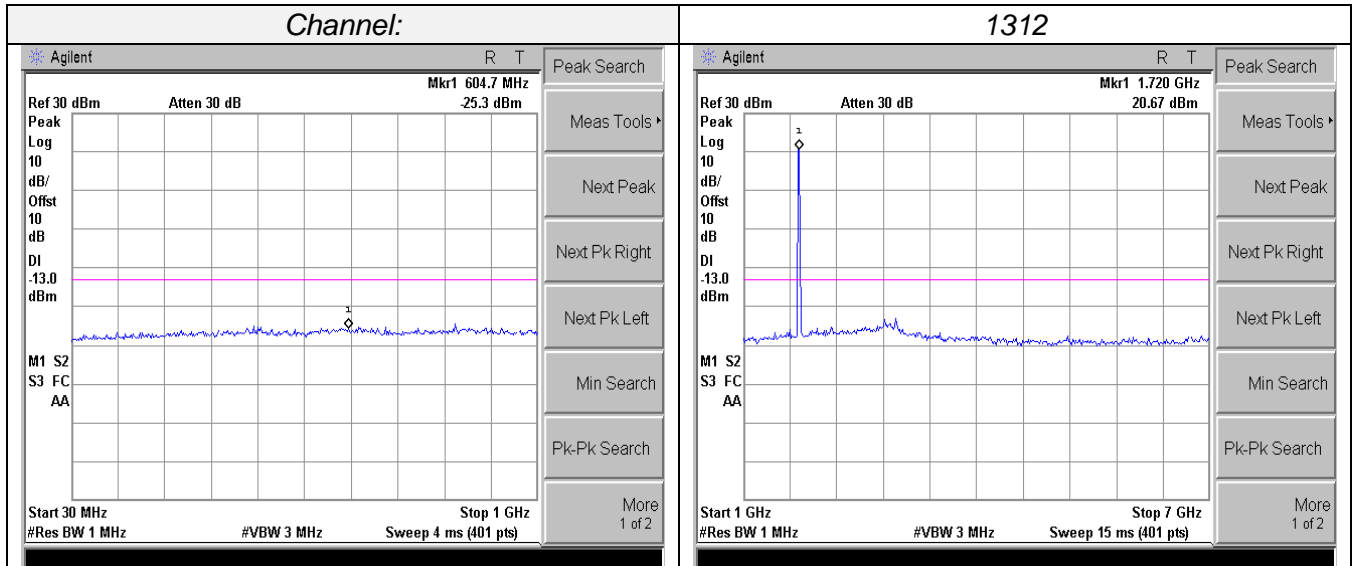
1GHz~7GHz

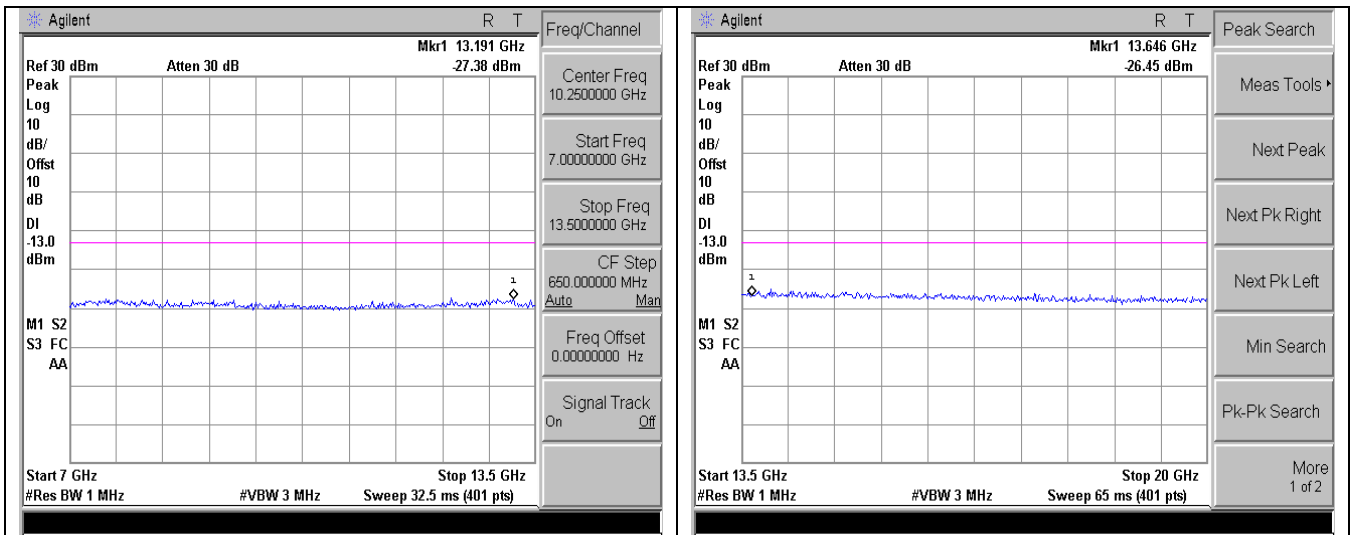


7GHz~13.6GHz

13.5GHz~20GHz

WCDMA Band IV



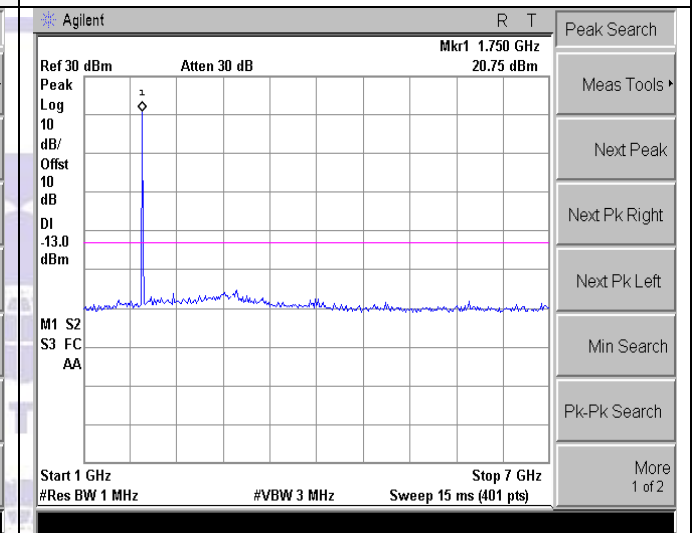
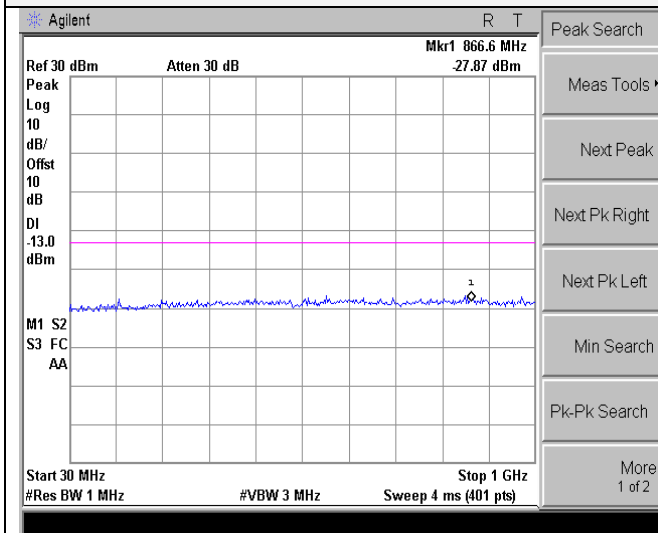


7GHz~13.6GHz

13.5GHz~20GHz

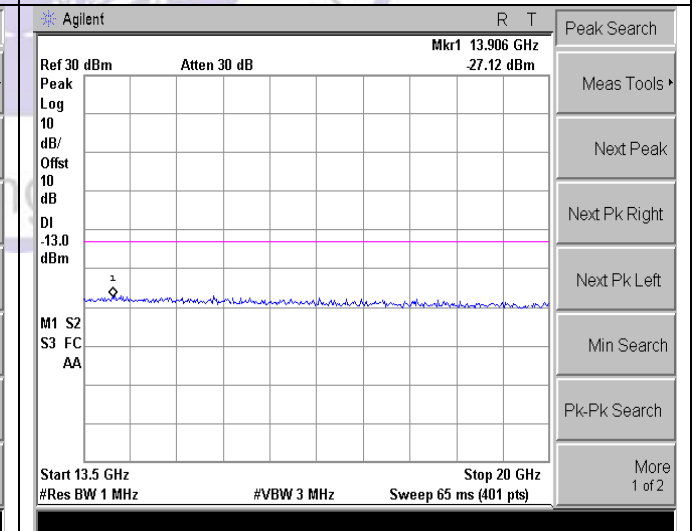
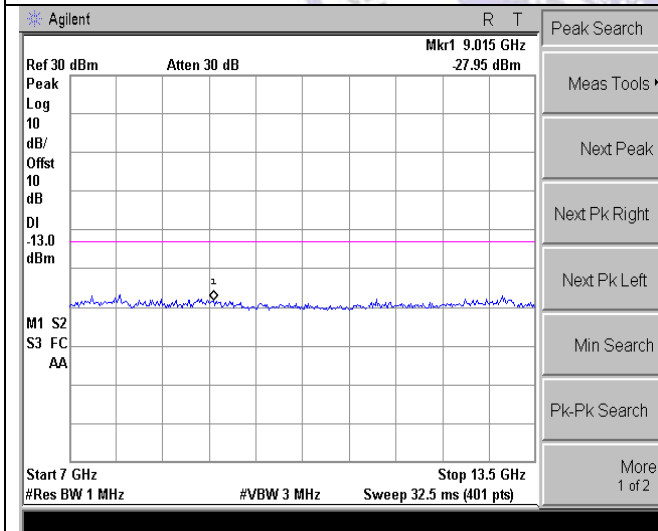
Channel:

1513



30MHz~1GHz

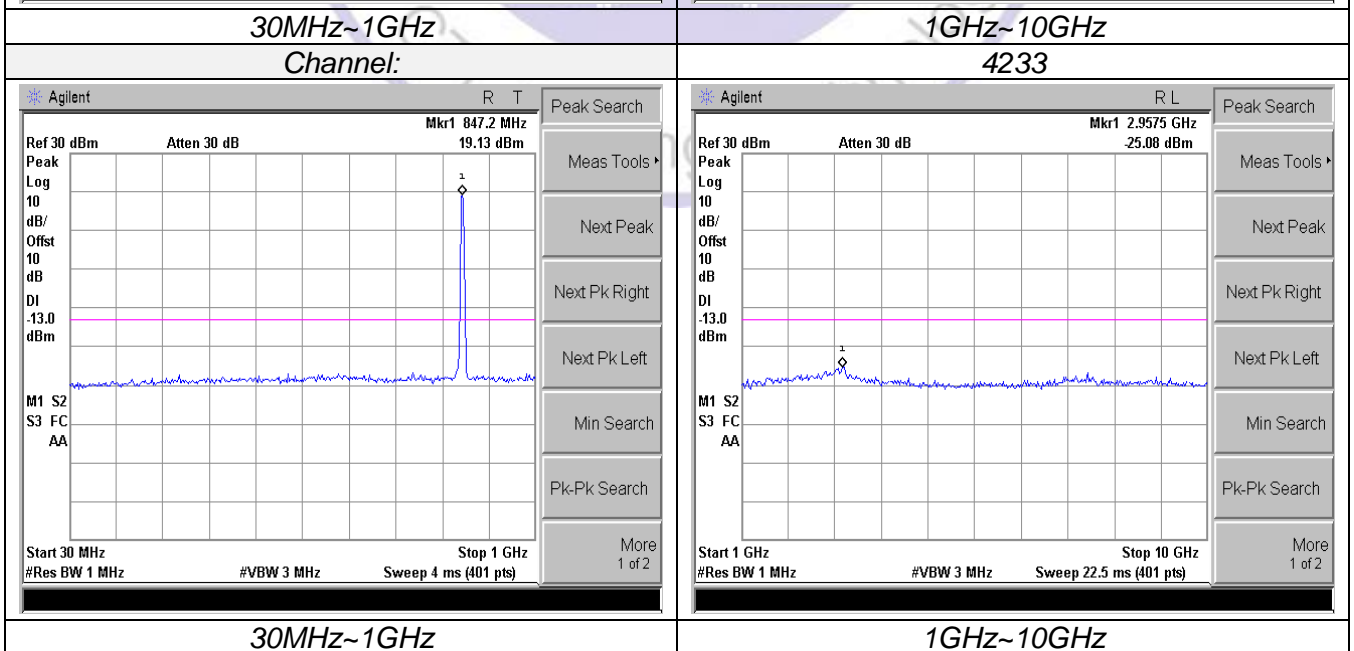
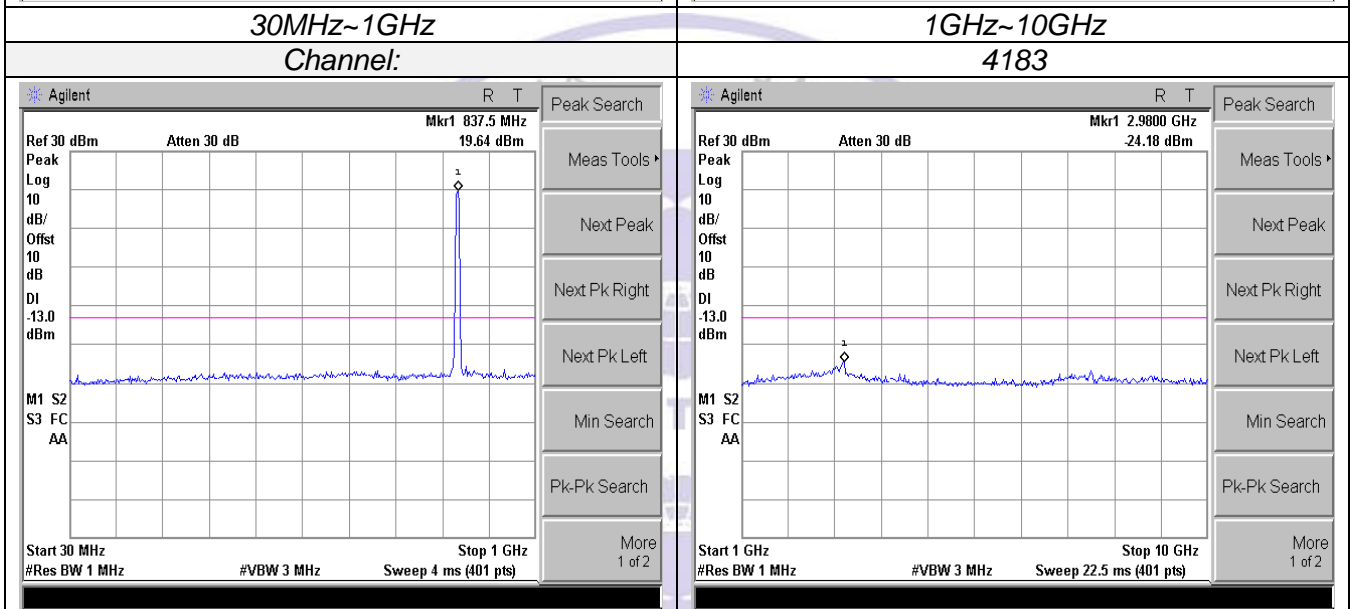
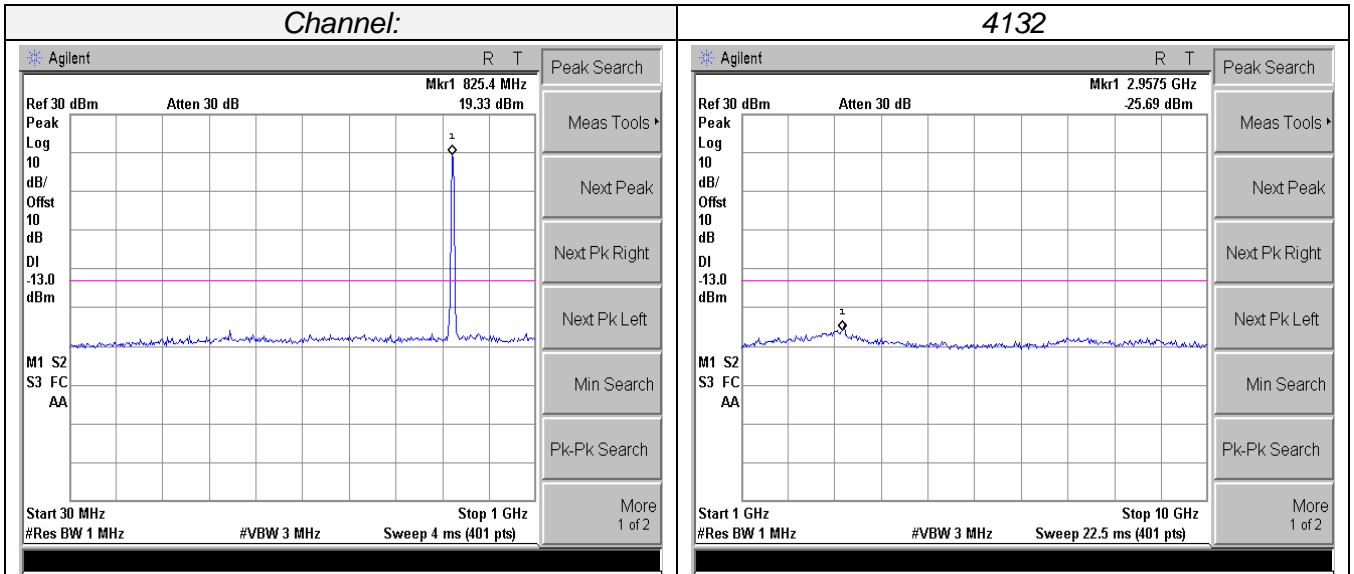
1GHz~7GHz



7GHz~13.6GHz

13.5GHz~20GHz

WCDMA Band V



Radiated Measurement:**WCDMA Band II**

Channel	Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	Distance	G _a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
9262	3704.80	-36.35	4.27	3.00	12.34	-28.28	-13.00	15.28	H
	5557.20	-40.89	4.99	3.00	13.52	-32.36	-13.00	19.36	H
	3704.80	-35.32	4.27	3.00	12.34	-27.25	-13.00	14.25	V
	5557.20	-39.39	4.99	3.00	13.52	-30.86	-13.00	17.86	V
9400	3760.00	-38.51	4.38	3.00	12.34	-30.55	-13.00	17.55	H
	5640.00	-42.26	5.01	3.00	13.58	-33.69	-13.00	20.69	H
	3760.00	-36.83	4.38	3.00	12.34	-28.87	-13.00	15.87	V
	5640.00	-40.12	5.01	3.00	13.58	-31.55	-13.00	18.55	V
9538	3815.20	-37.67	4.47	3.00	12.45	-29.69	-13.00	16.69	H
	5722.80	-42.17	5.23	3.00	13.66	-33.74	-13.00	20.74	H
	3815.20	-35.56	4.47	3.00	12.45	-27.58	-13.00	14.58	V
	5722.80	-37.75	5.23	3.00	13.66	-29.32	-13.00	16.32	V

WCDMA Band IV

Channel	Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	Distance	G _a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1312	3424.80	-37.78	3.98	3.00	10.98	-30.78	-13.00	17.78	H
	5137.20	-41.72	4.11	3.00	11.47	-34.36	-13.00	21.36	H
	3424.80	-36.41	3.98	3.00	10.98	-29.41	-13.00	16.41	V
	5137.20	-39.88	4.11	3.00	11.47	-32.52	-13.00	19.52	V
1413	3465.20	-37.02	4.01	3.00	11.25	-29.78	-13.00	16.78	H
	5197.80	-40.06	4.15	3.00	11.58	-32.63	-13.00	19.63	H
	3465.20	-34.51	4.01	3.00	11.25	-27.27	-13.00	14.27	V
	5197.80	-39.28	4.15	3.00	11.58	-31.85	-13.00	18.85	V
1513	3505.20	-37.71	4.07	3.00	11.33	-30.45	-13.00	17.45	H
	5275.80	-41.09	4.21	3.00	11.67	-33.63	-13.00	20.63	H
	3505.20	-36.77	4.07	3.00	11.33	-29.51	-13.00	16.51	V
	5275.80	-39.82	4.21	3.00	11.67	-32.36	-13.00	19.36	V

WCDMA Band V

Channel	Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	Distance	G _a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
9262	1652.80	-34.82	3.02	3.00	9.58	-28.26	-13.00	15.26	H
	2479.20	-39.65	3.51	3.00	10.72	-32.44	-13.00	19.44	H
	1652.80	-34.24	3.02	3.00	9.68	-27.58	-13.00	14.58	V
	2479.20	-37.46	3.51	3.00	10.72	-30.25	-13.00	17.25	V
9400	1673.20	-35.09	3.14	3.00	9.61	-28.62	-13.00	15.62	H
	2509.80	-40.07	3.59	3.00	10.77	-32.89	-13.00	19.89	H
	1673.20	-33.92	3.14	3.00	9.61	-27.45	-13.00	14.45	V
	2509.80	-37.70	3.59	3.00	10.77	-30.52	-13.00	17.52	V
9538	1693.20	-37.22	3.24	3.00	9.77	-30.69	-13.00	17.69	H
	2539.80	-40.76	3.65	3.00	10.89	-33.52	-13.00	20.52	H
	1693.20	-36.78	3.24	3.00	9.77	-30.25	-13.00	17.25	V
	2539.80	-39.54	3.65	3.00	10.89	-32.30	-13.00	19.30	V

Remark:

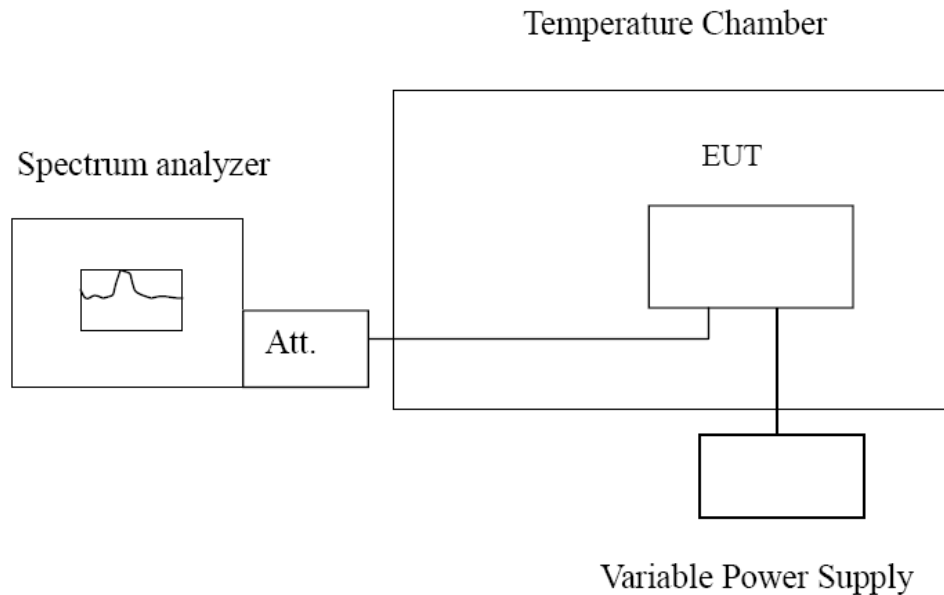
1. $EIRP = P_{Mea}(dBm) - P_{cl}(dB) + G_a(dBi)$
2. We were not recorded other points as values lower than limits.
3. $Margin = Limit - EIRP$

3.5 Frequency Stability under Temperature & Voltage Variations

LIMIT

Cellular Band: ± 2.5 ppm PCS Band: Within the authorized frequency block

TEST CONFIGURATION



TEST PROCEDURE

The EUT was setup according to EIA/TIA 603C

Frequency Stability under Temperature Variations:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

Frequency Stability under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. Reduce the input voltage to specify extreme voltage variation ($\pm 15\%$) and endpoint, record the maximum frequency change.

TEST RESULTS

Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.00	-30	62.60	0.033	Within the authorized frequency block	Pass
	-20	74.72	0.040		
	-10	67.94	0.036		
	0	34.40	0.018		
	10	34.63	0.018		
	20	83.27	0.044		
	30	97.69	0.052		
	40	56.40	0.030		
5.10	25	89.08	0.047		
End point 4.50	25	58.85	0.031		

Reference Frequency: WCDMA Band IV Middle channel=1413 channel=1732.6MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.00	-30	42.65	0.025	Within the authorized frequency block	Pass
	-20	82.65	0.048		
	-10	50.85	0.029		
	0	88.15	0.051		
	10	60.46	0.035		
	20	53.89	0.031		
	30	97.52	0.056		
	40	85.69	0.049		
5.10	25	98.34	0.057		
End point 4.50	25	84.52	0.049		

Reference Frequency: WCDMA Band V Middle channel=4182 channel=836.6MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.00	-30	42.28	0.051	2.5	Pass
	-20	93.25	0.111		
	-10	66.62	0.080		
	0	96.68	0.116		
	10	94.90	0.113		
	20	71.28	0.085		
	30	46.59	0.056		
	40	32.63	0.039		
5.10	25	74.82	0.089		
End point 4.50	25	54.33	0.065		

4 Test Setup Photos of the EUT



5 Photos of the EUT

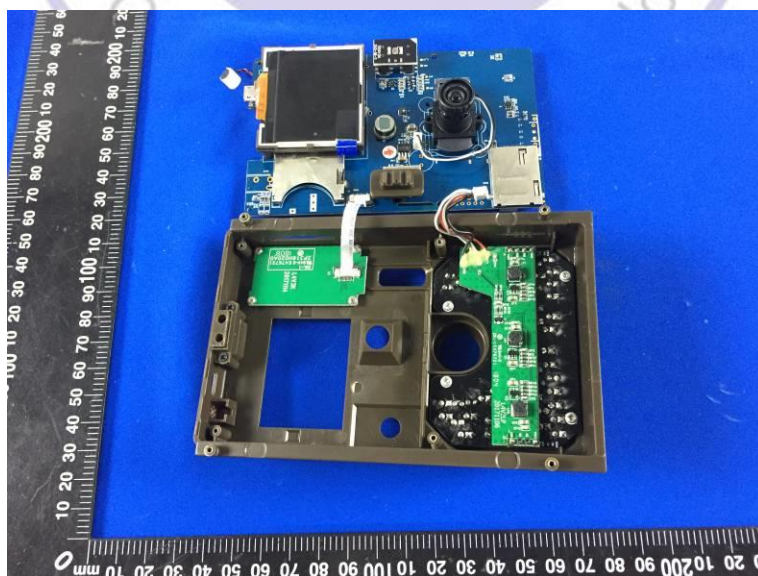
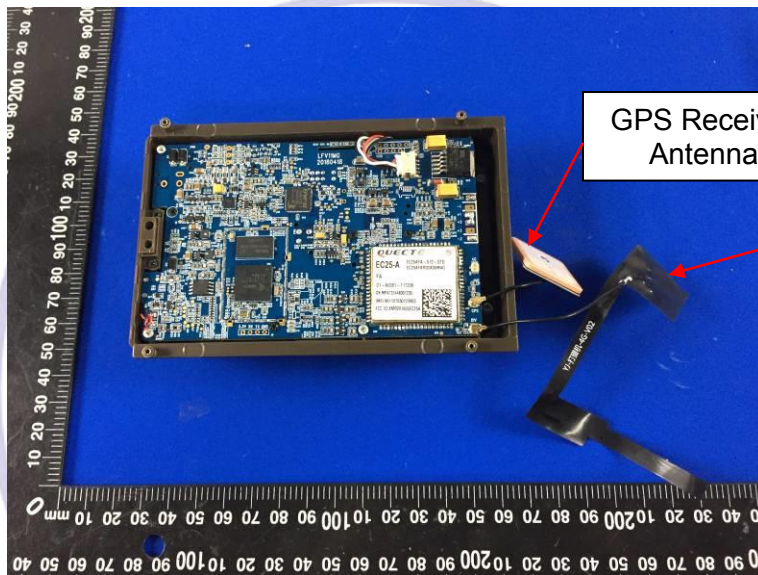
External photos

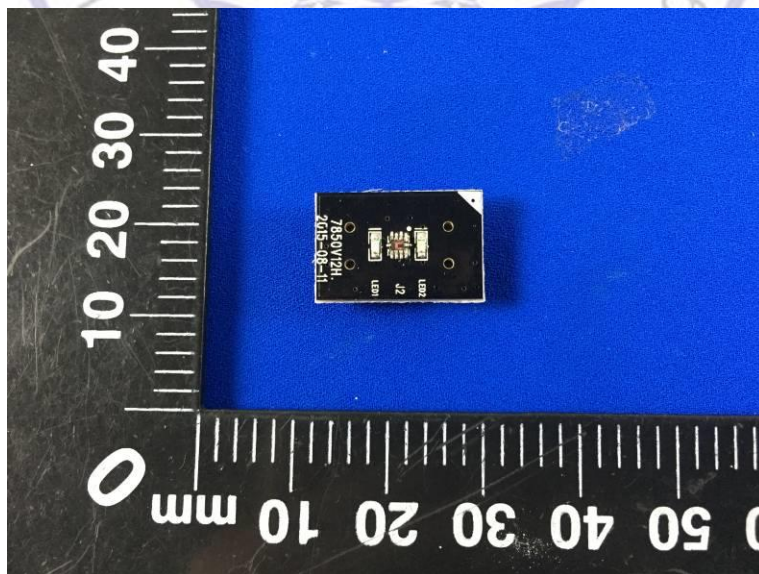
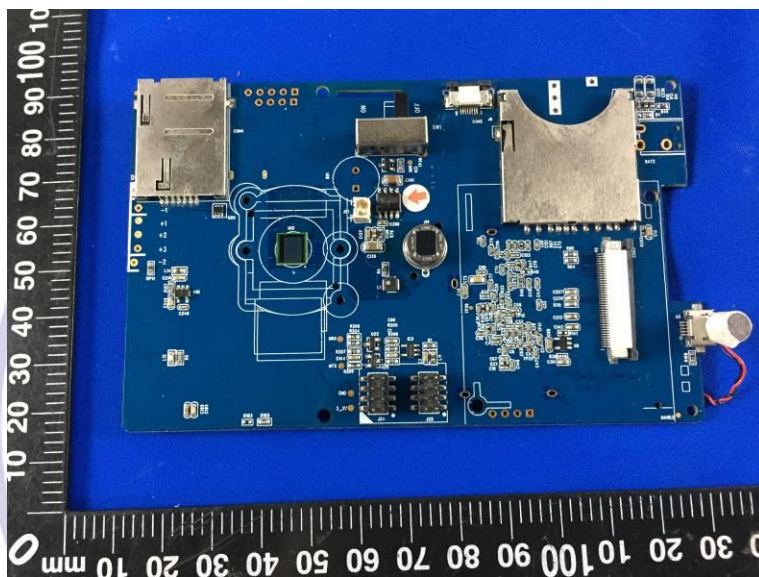
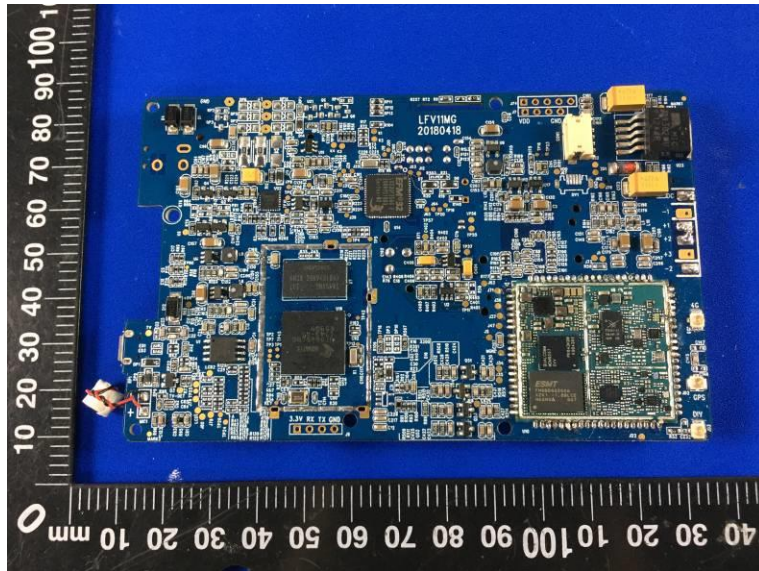


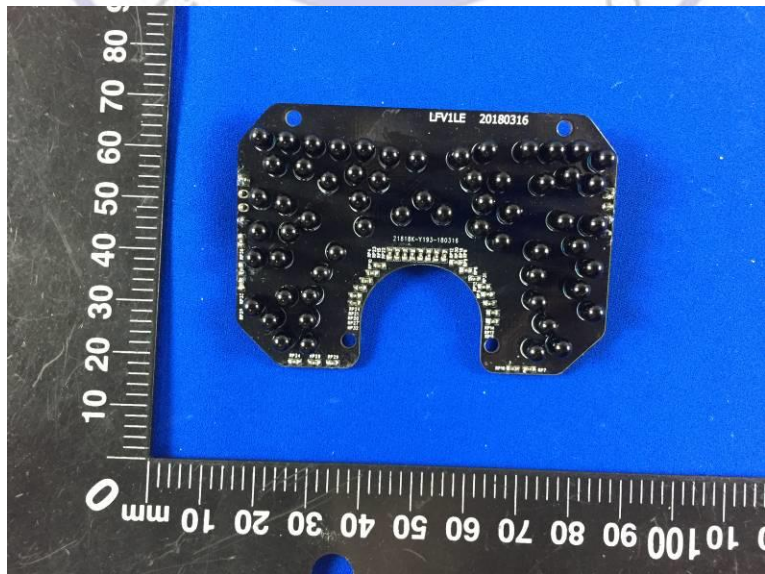
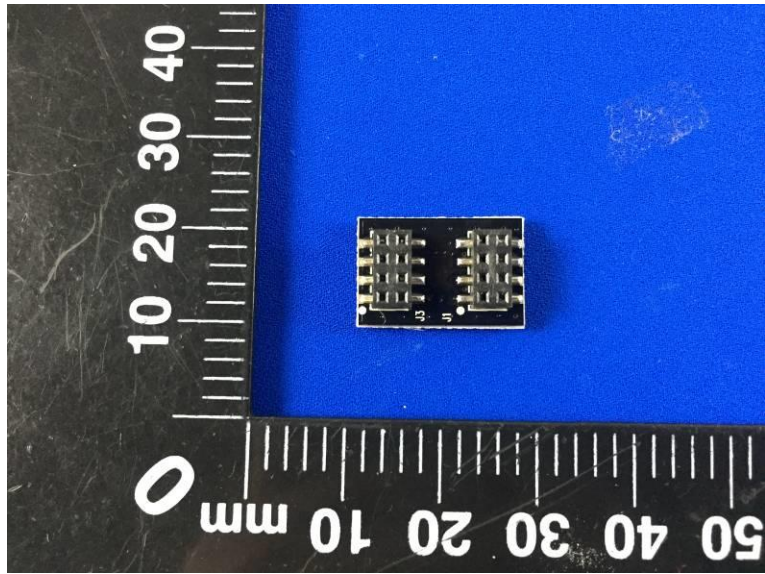


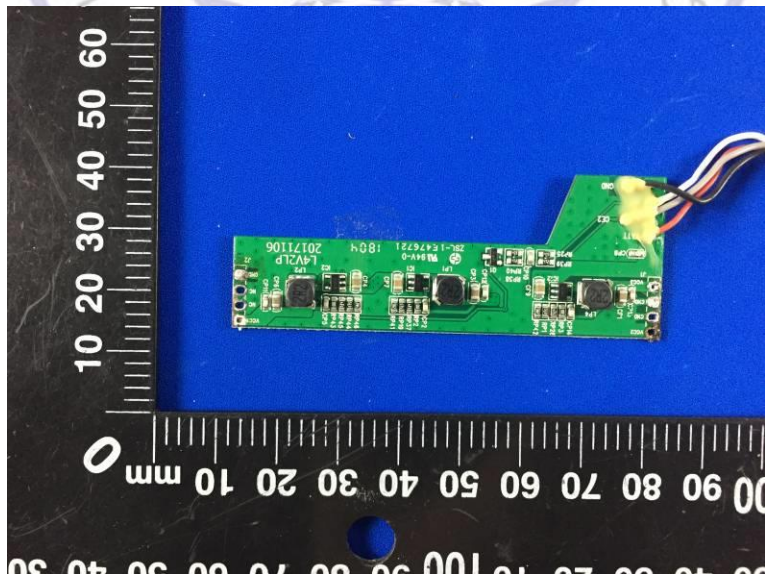
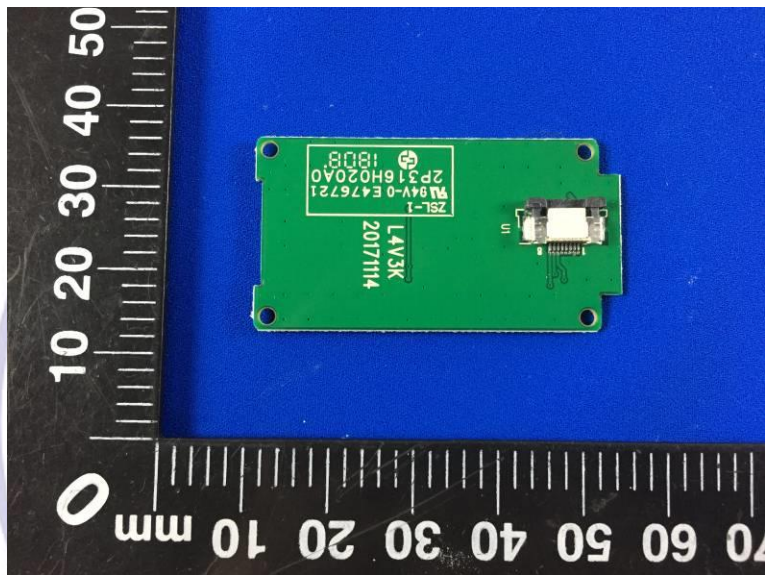
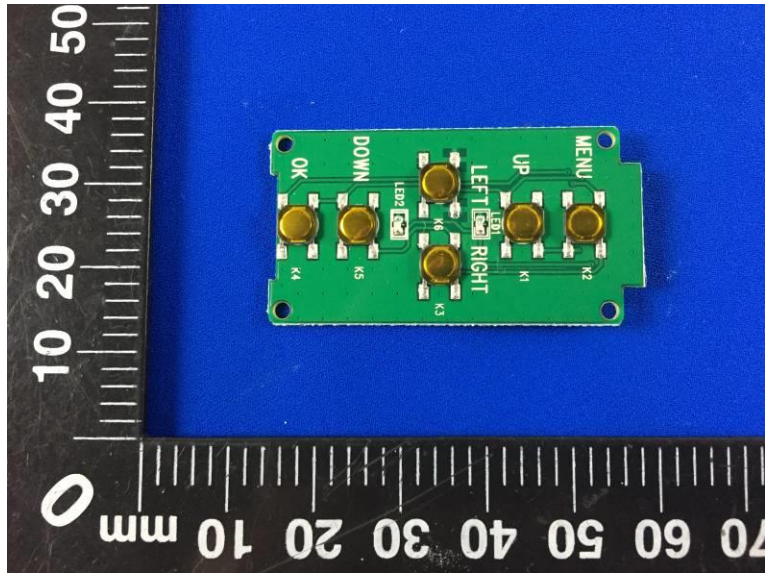


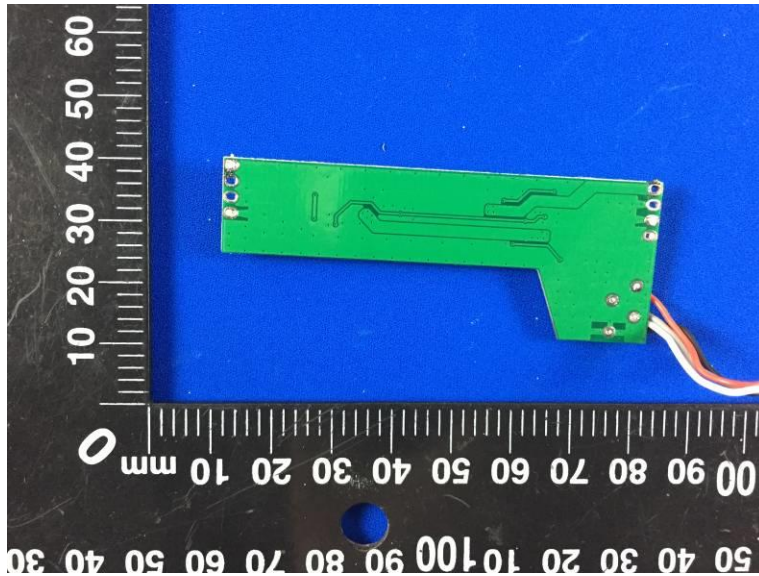
Internal photos











***** End of Report *****

