

TEST REPORT

FCC Part 22 Subpart H / Part 24 Subpart E

Report Reference No.....: MTEB23040135-R8

FCC ID.....: 2BBV2-VT31

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Date of issue.....: July 14 ,2023

Testing Laboratory Name.....: Shenzhen Most Technology Service Co., Ltd.

Address.....: No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China.

Applicant's name.....: M/s Linkwell Telesystems Pvt. Ltd.

Address.....: B-45 & 46, Electronics Complex, Kushaiguda, Hyderabad-500062, Telangana, India

Test specification.....:

Standard.....: **FCC CFR Title 47 Part 2, Part 22H, Part 24E**
ANSI/TIA-603-E-2016
KDB 971168 D01

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Test item description.....: Tablet

Trade Mark.....: VISIONTEK

Manufacturer.....: M/s Linkwell Telesystems Pvt. Ltd.

Model/Type reference.....: VT 31

Listed Models: N/A

Ratings.....: DC 3.8V(by Battery)
DC 5V

Modulation: GMSK/8PSK

Hardware version.....: M866YC

Software version: V1.0

Frequency.....: UMTS Band II, UMTS Band V

Result.....: **PASS**

TEST REPORT

Equipment under Test : Tablet

Model /Type : VT 31

Listed Models : N/A

Remark : N/A

Applicant : **M/s Linkwell Telesystems Pvt. Ltd.**

Address : B-45 & 46, Electronics Complex, Kushaiguda, Hyderabad-500062, Telangana, India

Manufacturer : **M/s Linkwell Telesystems Pvt. Ltd.**

Address : B-45 & 46, Electronics Complex, Kushaiguda, Hyderabad-500062, Telangana, India

Test Result:	PASS
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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.

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1 Revision History

Revision	Issue Date	Revisions	Revised By
00	2023.07.14	Initial Issue	Alisa Luo

2 SUMMARY

2.1 TEST STANDARDS

The tests were performed according to following standards:

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

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

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

[ANSI/TIA-603-E-2016:](#) Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

[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

[FCCKDB971168D01](#) Power Meas License Digital Systems

2.2 Test Description

Test Item	Section in CFR 47	Result
RF Output Power	Part 2.1046 Part 22.913 (a)(2) Part 24.232 (c)	Pass
Peak-to-Average Ratio	Part 24.232 (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)	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 22.917 (a) Part 24.238 (a)	Pass
Out of band emission, Band Edge	Part 22.917 (a) Part 24.238 (a)	Pass
Frequency stability	Part 2.1055 Part 22.355 Part 24.235	Pass

2.3 Address of the test laboratory

Shenzhen Most Technology Service Co., Ltd.

No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.4:2014 and CISPR 16-1-4:2010 SVSWR requirement for radiated emission above 1GHz.

2.4 Test Facility

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

FCC-Registration No.: 0031192610

Shenzhen Most Technology Service 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.

A2LA-Lab Cert. No.: 6343.01

Shenzhen Most Technology Service Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

2.5 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 TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2" and is documented in the Shenzhen Most Technology Service 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 Shenzhen Most Technology Service Co., Ltd. is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10 dB	(1)
Radiated Emission	1~18GHz	4.32 dB	(1)
Radiated Emission	18-40GHz	5.54 dB	(1)
Conducted Disturbance	0.15~30MHz	3.12 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 $k=1.96$.

3 GENERAL INFORMATION

3.1 Environmental conditions

Date of receipt of test sample	:	2023.03.25
Testing commenced on	:	2023.03.26
Testing concluded on	:	2023.04.28

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

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

3.2 General Description of EUT

Product Name:	Tablet
Model/Type reference:	VT 31
Power Supply :	DC 3.8V(by Battery) DC 5V
Testing sample ID :	MT23040072
WCDMA	
Operation Band:	FDD Band II & Band V
Power Class:	Power Class 3
Modulation Type:	QPSK for WCDMA/HSUPA/HSDPA,16QAM for HSPA+
Release Version:	R8
Antenna type:	PIFA antenna
Antenna gain:	FDD Band II: 1.41dBi FDD Band V: -5.69dBi

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

3.3 Description of Test Modes and Test Frequency

The EUT has been tested under typical operating condition. The CUM500 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 V	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
9262	1852.4	4132	826.40
9400	1880.0	4182	836.60
9538	1907.6	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:

1. As HSDPA and HSUPA with the same emission designator, test result recorded in this report at the worst case Mode 4 with RCM 12.2Kbps only after exploratory scan.

3.4 Block Diagram of Test Setup



3.5 Test Item (Equipment Under Test) Description*

Short designation	EUT Name	EUT Description	Serial number	Hardware status	Software status
EUT A					
EUT B					

*: declared by the applicant. According to customers information EUTs A and B are the same devices.

3.6 Auxiliary Equipment (AE) Description

AE short designation	EUT Name (if available)	EUT Description	Serial number (if available)	Software (if used)
AE 1	-			
AE 2	-			

3.7 Antenna Information*

Short designation	Antenna Name	Antenna Type	Frequency Range	Serial number	Antenna Peak Gain
Antenna 1	---	PIFA antenna	/	---	Band2:1.41dBi Band5:-5.69dBi
Antenna 2					

*: declared by the applicant.

3.8 Equipments Used during the Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Firmware versions	Last Cal.	Cal. Interval
1.	L.I.S.N.	R&S	ENV216	100093	/	2023/03/17	1 Year
2	Three-phase artificial power network	Schwarzback Mess	NNLK8129	8129178	/	2023/03/17	1 Year
3.	Receiver	R&S	ESCI	100492	V3.0-10-2	2023/03/17	1 Year
4	Receiver	R&S	ESPI	101202	V3.0-10-2	2023/03/17	1 Year
5	Spectrum analyzer	Agilent	9020A	MT-E306	A14.16	2023/03/17	1 Year
6	Bilog Antenna	Sunol Sciences	JB3	A121206	/	2023/03/17	1 Year
7	Horn antenna	HF Antenna	HF Antenna	MT-E158	/	2023/03/17	1 Year
8	Loop antenna	Beijing Daze	ZN30900B	/	/	2023/03/17	1 Year
9	Horn antenna	R&S	OBH100400	26999002	/	2023/03/17	1 Year
10	Wireless Communication Test Set	R&S	CMW500	/	CMW-BASE-3.7.21	2023/03/17	1 Year
11	Spectrum analyzer	R&S	FSP	100019	V4.40 SP2	2023/03/17	1 Year
12	High gain antenna	Schwarzbeck	LB-180400KF	MT-E389	/	2023/03/17	1 Year
13	Preamplifier	Schwarzbeck	BBV 9743	MT-E390	/	2023/03/17	1 Year
14	Pre-amplifier	EMCI	EMC051845S E	MT-E391	/	2023/03/17	1 Year
15	Pre-amplifier	Agilent	83051A	MT-E392	/	2023/03/17	1 Year
16	High pass filter unit	Tonscend	JS0806-F	MT-E393	/	2023/03/17	1 Year
17	RF Cable(below1GHz)	Times	9kHz-1GHz	MT-E394	/	2023/03/17	1 Year
18	RF Cable(above 1GHz)	Times	1-40G	MT-E395	/	2023/03/17	1 Year
19	RF Cable (9KHz-40GHz)	Tonscend	170660	N/A	/	2023/03/17	1 Year

Note: The Cal.Interval was one year.

3.9 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **2BBV2-VT31** filing to comply with of the FCC Part 22 and Part 24 Rules.

3.10 Modifications

No modifications were implemented to meet testing criteria.

3.11 Environmental conditions

Radiated Emission:

Temperature:	23 ° C
Humidity:	48 %
Atmospheric pressure:	950-1050mbar

Conducted testing :

Temperature:	24 ° C
Humidity:	45 %
Atmospheric pressure:	950-1050mbar

4 TEST CONDITIONS AND RESULTS

4.1 Output Power

LIMIT

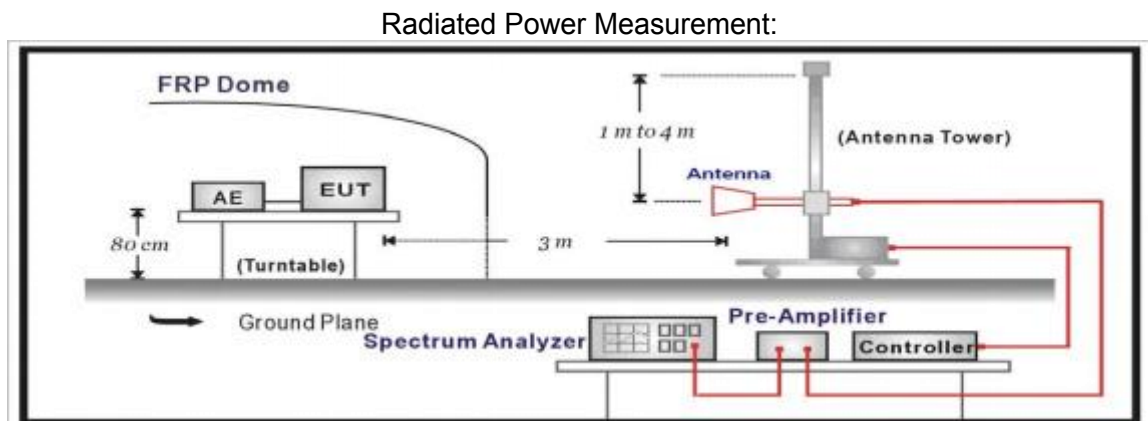
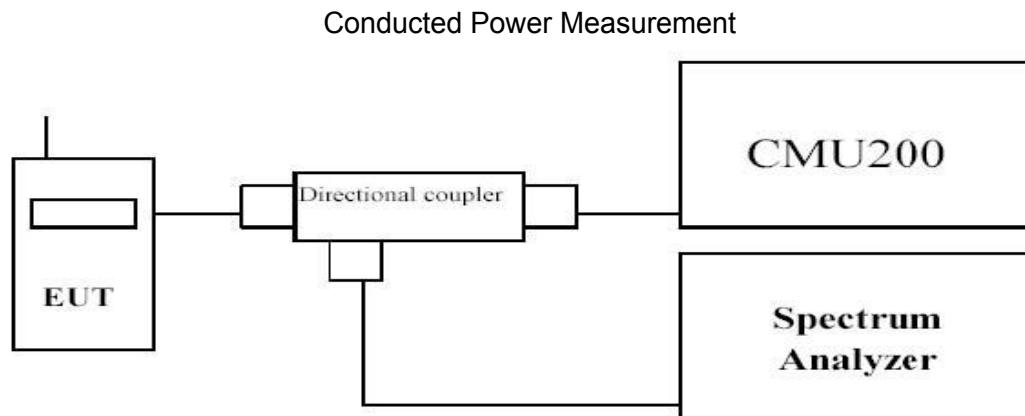
GSM850/WCDMA Band V: 7W

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:

- 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.

Radiated Power Measurement:

- The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.
- The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter
- 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:**

<i>Band</i>	<i>Channel</i>	<i>Frequency (MHz)</i>	<i>Power (dBm)</i>	<i>Gain (dB)</i>	<i>Verdict</i>
WCDMA Band2	9262	1852.4	21.66	1.41	PASS
WCDMA Band2	9400	1880	21.63	1.41	PASS
WCDMA Band2	9538	1907.6	21.79	1.41	PASS
HSDPA Band2 Subtest1	9262	1852.4	20.72	1.41	PASS
HSDPA Band2 Subtest2	9262	1852.4	20.15	1.41	PASS
HSDPA Band2 Subtest3	9262	1852.4	19.33	1.41	PASS
HSDPA Band2 Subtest4	9262	1852.4	19.04	1.41	PASS
HSDPA Band2 Subtest1	9400	1880	20.66	1.41	PASS
HSDPA Band2 Subtest2	9400	1880	20.27	1.41	PASS
HSDPA Band2 Subtest3	9400	1880	19.18	1.41	PASS
HSDPA Band2 Subtest4	9400	1880	18.89	1.41	PASS
HSDPA Band2 Subtest1	9538	1907.6	20.82	1.41	PASS
HSDPA Band2 Subtest2	9538	1907.6	20.27	1.41	PASS
HSDPA Band2 Subtest3	9538	1907.6	19.10	1.41	PASS
HSDPA Band2 Subtest4	9538	1907.6	19.37	1.41	PASS
HSUPA Band2 Subtest1	9262	1852.4	19.31	1.41	PASS
HSUPA Band2 Subtest2	9262	1852.4	20.65	1.41	PASS
HSUPA Band2 Subtest3	9262	1852.4	18.95	1.41	PASS
HSUPA Band2 Subtest4	9262	1852.4	20.69	1.41	PASS
HSUPA Band2 Subtest5	9262	1852.4	19.22	1.41	PASS
HSUPA Band2 Subtest1	9400	1880	20.48	1.41	PASS
HSUPA Band2 Subtest2	9400	1880	20.47	1.41	PASS
HSUPA Band2 Subtest3	9400	1880	19.49	1.41	PASS
HSUPA Band2 Subtest4	9400	1880	20.65	1.41	PASS
HSUPA Band2 Subtest5	9400	1880	19.72	1.41	PASS
HSUPA Band2 Subtest1	9538	1907.6	20.61	1.41	PASS
HSUPA Band2 Subtest2	9538	1907.6	20.72	1.41	PASS
HSUPA Band2 Subtest3	9538	1907.6	19.48	1.41	PASS
HSUPA Band2 Subtest4	9538	1907.6	20.85	1.41	PASS
HSUPA Band2 Subtest5	9538	1907.6	20.24	1.41	PASS

Band	Channel	Frequency (MHz)	Power (dBm)	Gain (dB)	Verdict
WCDMA Band5	4132	826.4	22.94	-5.69	PASS
WCDMA Band5	4182	836.4	23.04	-5.69	PASS
WCDMA Band5	4233	846.6	23.01	-5.69	PASS
HSDPA Band5 Subtest1	4132	826.4	21.96	-5.69	PASS
HSDPA Band5 Subtest2	4132	826.4	21.51	-5.69	PASS
HSDPA Band5 Subtest3	4132	826.4	20.40	-5.69	PASS
HSDPA Band5 Subtest4	4132	826.4	20.44	-5.69	PASS
HSDPA Band5 Subtest1	4182	836.4	22.06	-5.69	PASS
HSDPA Band5 Subtest2	4182	836.4	21.49	-5.69	PASS
HSDPA Band5 Subtest3	4182	836.4	20.44	-5.69	PASS
HSDPA Band5 Subtest4	4182	836.4	20.44	-5.69	PASS
HSDPA Band5 Subtest1	4233	846.6	22.02	-5.69	PASS
HSDPA Band5 Subtest2	4233	846.6	21.57	-5.69	PASS
HSDPA Band5 Subtest3	4233	846.6	20.32	-5.69	PASS
HSDPA Band5 Subtest4	4233	846.6	20.69	-5.69	PASS
HSUPA Band5 Subtest1	4132	826.4	21.31	-5.69	PASS
HSUPA Band5 Subtest2	4132	826.4	21.86	-5.69	PASS
HSUPA Band5 Subtest3	4132	826.4	20.31	-5.69	PASS
HSUPA Band5 Subtest4	4132	826.4	21.97	-5.69	PASS
HSUPA Band5 Subtest5	4132	826.4	20.55	-5.69	PASS
HSUPA Band5 Subtest1	4182	836.4	21.90	-5.69	PASS
HSUPA Band5 Subtest2	4182	836.4	21.91	-5.69	PASS
HSUPA Band5 Subtest3	4182	836.4	20.59	-5.69	PASS
HSUPA Band5 Subtest4	4182	836.4	22.05	-5.69	PASS
HSUPA Band5 Subtest5	4182	836.4	21.48	-5.69	PASS
HSUPA Band5 Subtest1	4233	846.6	21.84	-5.69	PASS
HSUPA Band5 Subtest2	4233	846.6	21.92	-5.69	PASS
HSUPA Band5 Subtest3	4233	846.6	20.82	-5.69	PASS
HSUPA Band5 Subtest4	4233	846.6	22.01	-5.69	PASS
HSUPA Band5 Subtest5	4233	846.6	21.36	-5.69	PASS

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	-18.22	3.41	10.24	33.60	22.21	33.01	10.80	V
9400	-18.65	3.49	10.24	33.60	21.70	33.01	11.31	V
9538	-18.02	3.55	10.23	33.60	22.26	33.01	10.75	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	-18.97	2.42	8.45	2.15	36.82	21.73	38.45	16.72	V
4183	-18.79	2.46	8.45	2.15	36.82	21.87	38.45	16.58	V
4233	-18.07	2.53	8.36	2.15	36.82	22.43	38.45	16.02	V

Remark:

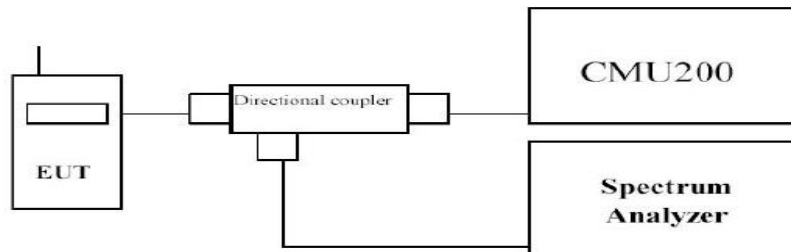
1. $EIRP = P_{Mea}(dBm) - P_{cl}(dB) + P_{Ag}(dB) + G_a(dBi)$
2. $ERP = EIRP - 2.15dBi$ as EIRP by subtracting the gain of the dipole.

4.2 Occupied Bandwidth

LIMIT

N/A

TEST CONFIGURATION

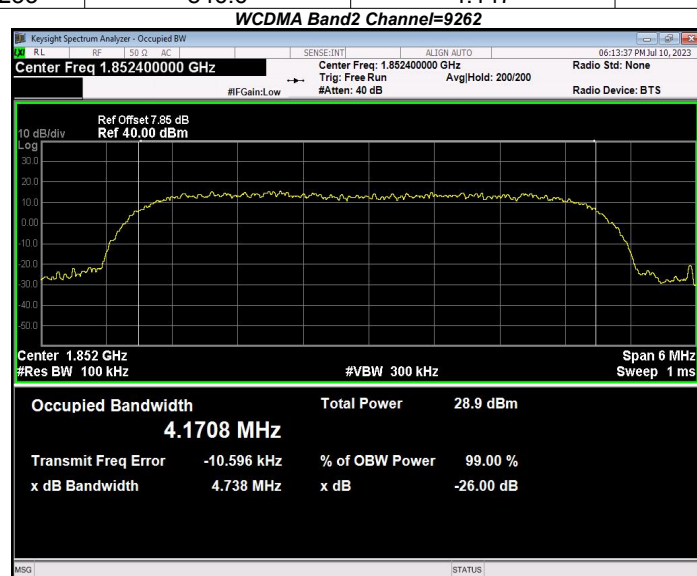


TEST PROCEDURE

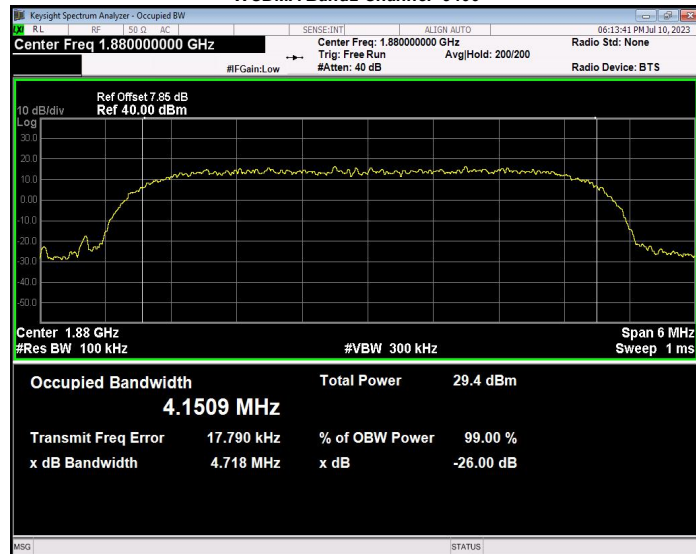
1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer
2. RBW was set to about 1% of emission BW, $VBW \geq 3$ times RBW.
3. -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where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

TEST RESULTS

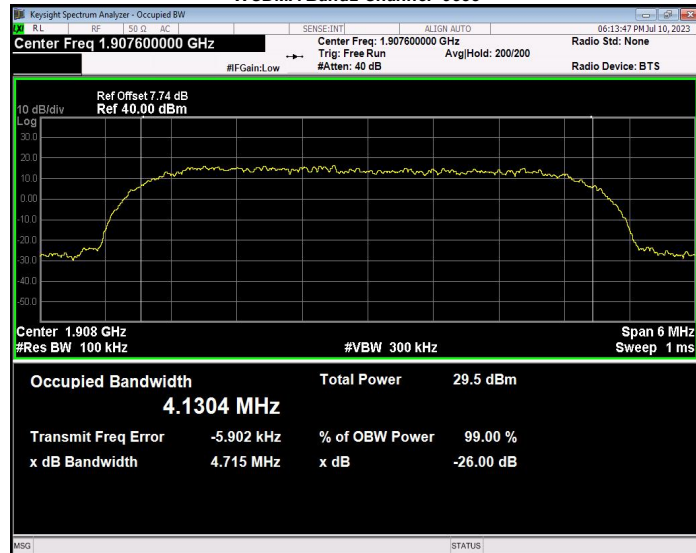
Band	Channel	Frequency (MHz)	99% OBW (MHz)	-26dB EBW (MHz)	Verdict
WCDMA Band2	9262	1852.4	4.171	4.738	PASS
WCDMA Band2	9400	1880	4.151	4.718	PASS
WCDMA Band2	9538	1907.6	4.130	4.715	PASS
WCDMA Band5	4132	826.4	4.142	4.667	PASS
WCDMA Band5	4182	836.4	4.169	4.701	PASS
WCDMA Band5	4233	846.6	4.147	4.681	PASS



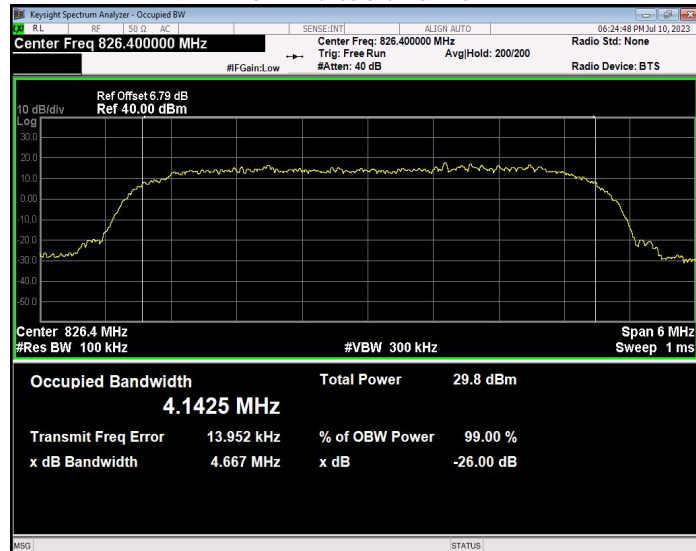
WCDMA Band2 Channel=9400



WCDMA Band2 Channel=9538



WCDMA Band5 Channel=4132



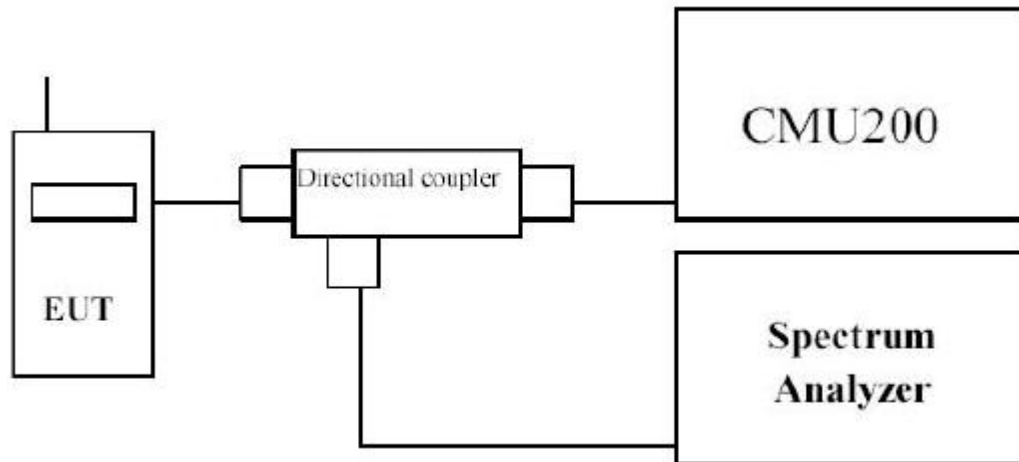


4.3 Band Edge compliance

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



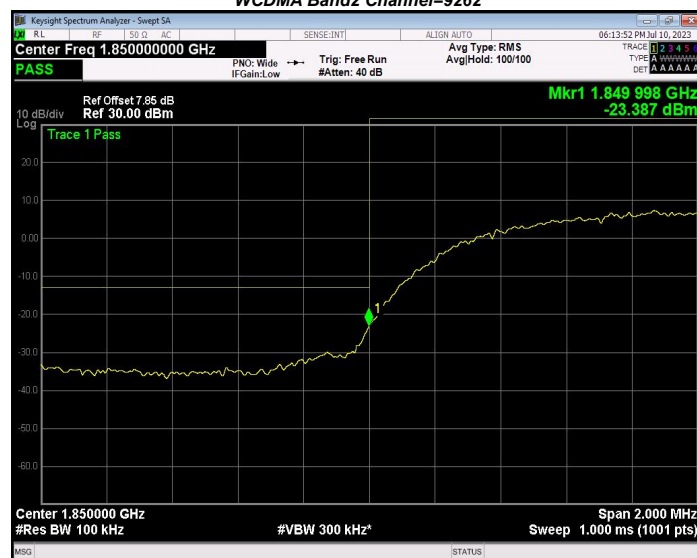
TEST PROCEDURE

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

Band	Channel	Frequency (MHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)	Verdict
WCDMA Band2	9262	1852.4	1850.00	-23.38	-13	PASS
WCDMA Band2	9538	1907.6	1910.00	-24.21	-13	PASS
WCDMA Band5	4132	826.4	823.99	-25.46	-13	PASS
WCDMA Band5	4233	846.6	849.00	-21.61	-13	PASS

WCDMA Band2 Channel=9262



WCDMA Band2 Channel=9538



WCDMA Band5 Channel=4132



WCDMA Band5 Channel=4233



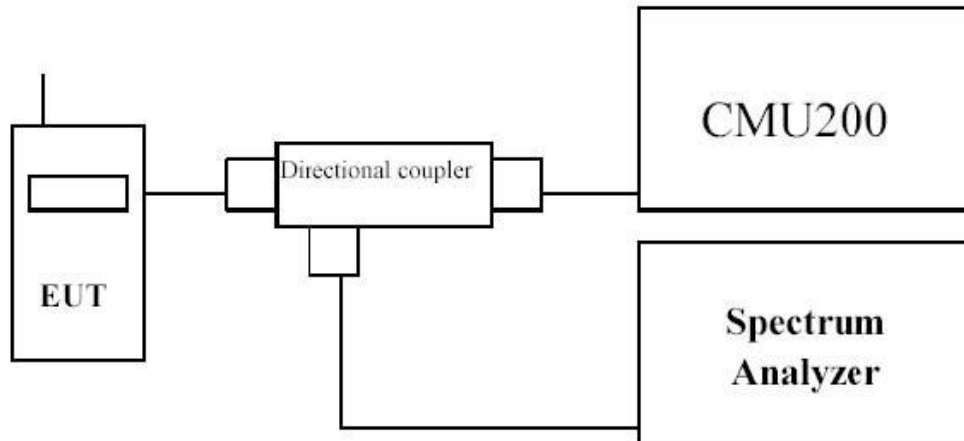
4.4 Spurious Emission

LIMIT

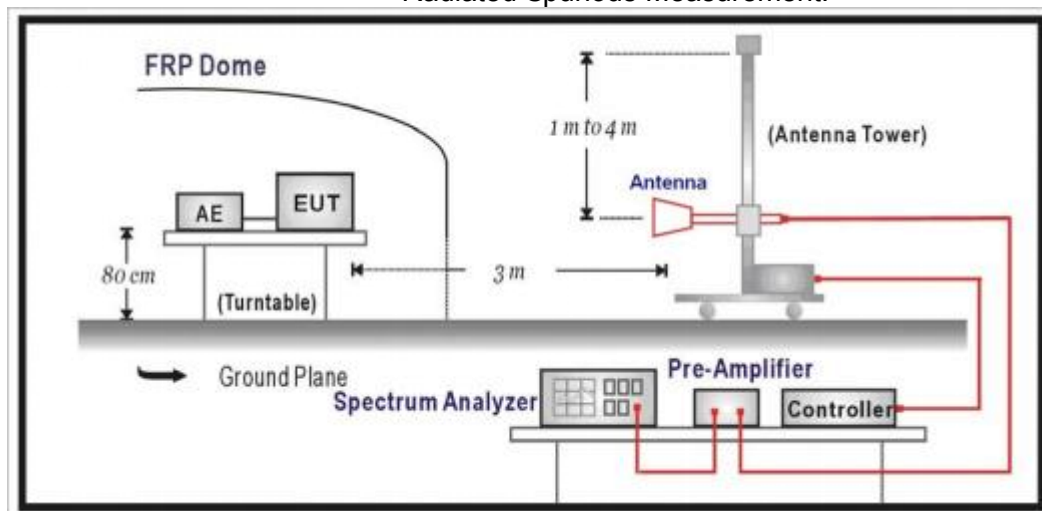
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.

TEST CONFIGURATION

Conducted Spurious Measurement:



Radiated Spurious Measurement:



TEST PROCEDURE

The EUT was setup according to EIA/TIA 603C

Conducted Spurious Measurement:

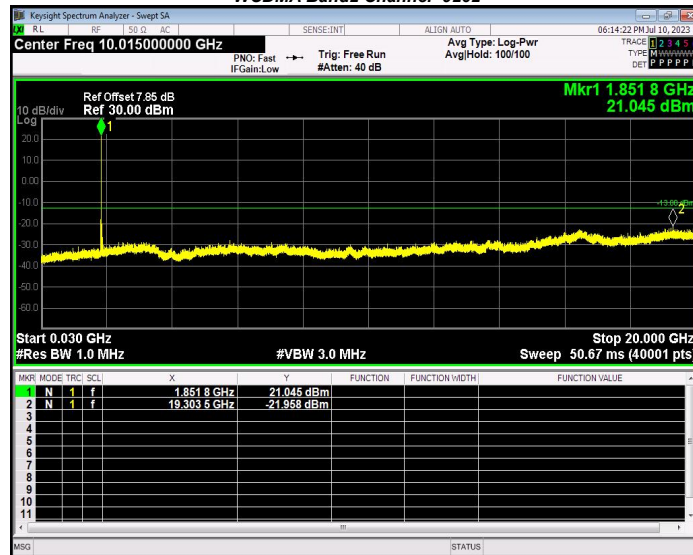
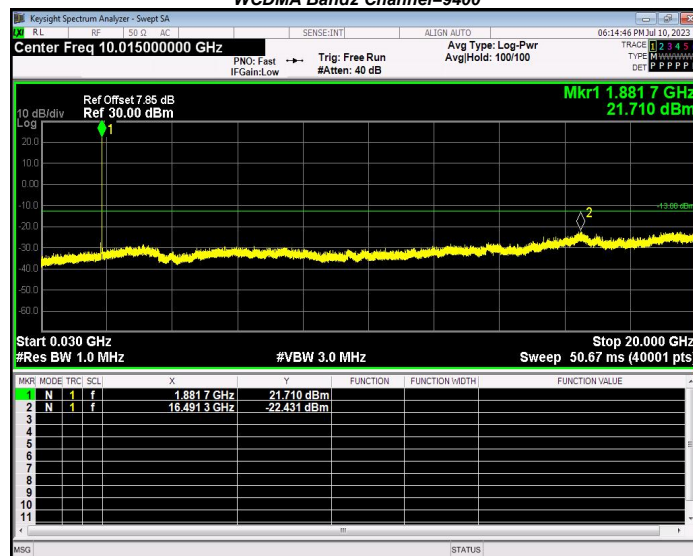
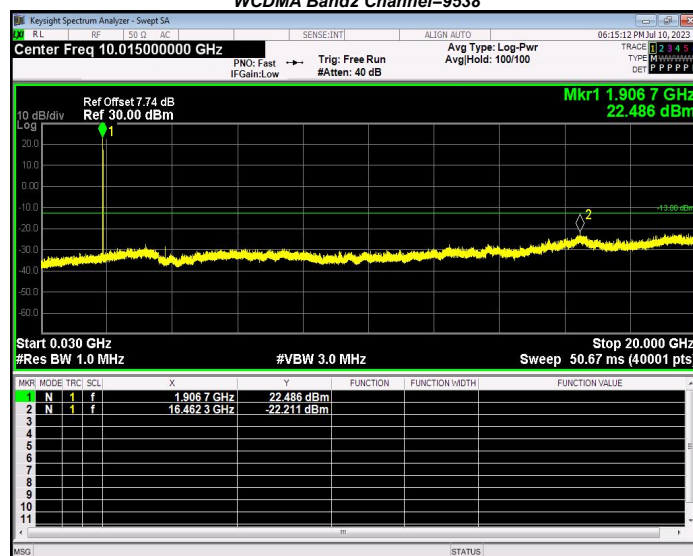
- Place the EUT on a bench and set it in transmitting mode.
- Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMU200 by a Directional Couple.
- EUT Communicate with CMU200 then selects a channel for testing.
- Add a correction factor to the display of spectrum, and then test.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

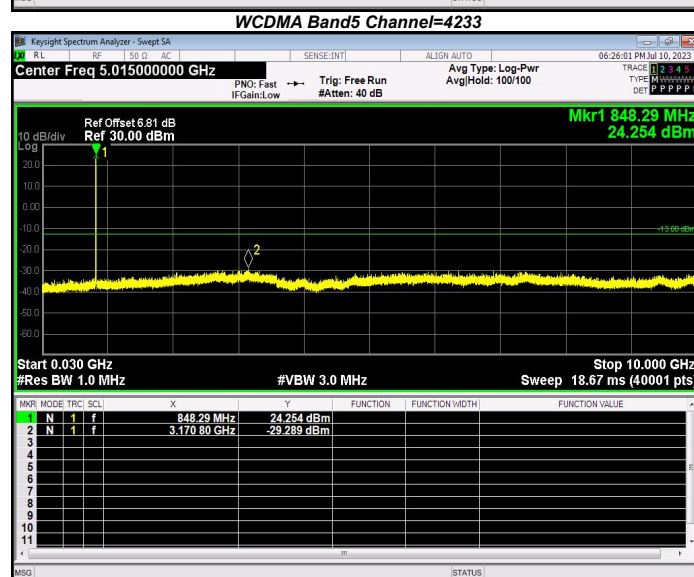
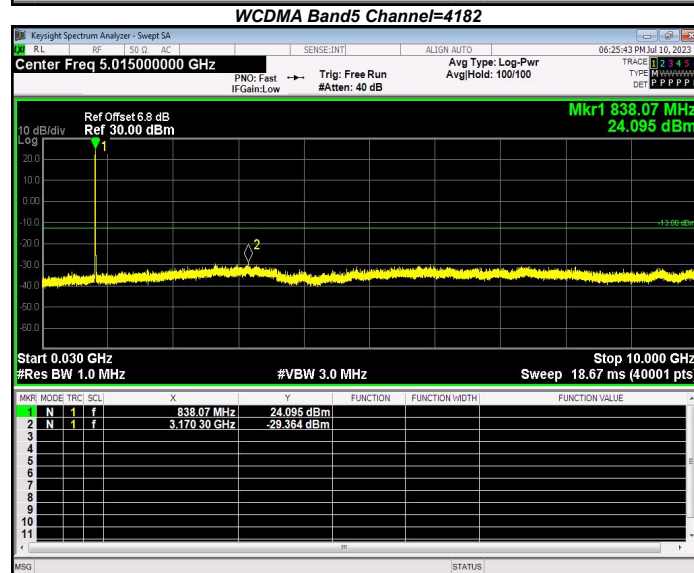
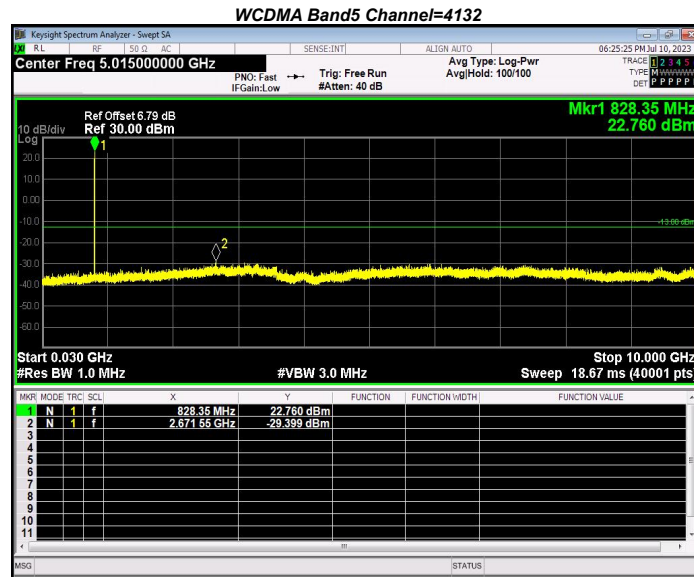
Radiated Spurious Measurement:

- 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:**

Band	Channel	Frequency (MHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)	Verdict
WCDMA Band2	9262	1852.4	19303.55	-21.95	-13	PASS
WCDMA Band2	9400	1880	16491.27	-22.43	-13	PASS
WCDMA Band2	9538	1907.6	16462.31	-22.21	-13	PASS
WCDMA Band5	4132	826.4	2671.55	-29.39	-13	PASS
WCDMA Band5	4182	836.4	3170.30	-29.36	-13	PASS
WCDMA Band5	4233	846.6	3170.80	-29.28	-13	PASS

WCDMA Band2 Channel=9262**WCDMA Band2 Channel=9400****WCDMA Band2 Channel=9538**



Radiated Measurement:**WCDMA Band II**

Channel	Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	Diatance	G _a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
9262	3704.80	-40.02	4.27	3.00	12.34	-31.95	-13.00	18.95	H
	5557.20	-43.90	4.99	3.00	13.52	-35.37	-13.00	22.37	H
	3704.80	-38.27	4.27	3.00	12.34	-30.20	-13.00	17.20	V
	5557.20	-41.14	4.99	3.00	13.52	-32.61	-13.00	19.61	V
9400	3760.00	-38.90	4.38	3.00	12.34	-30.94	-13.00	17.94	H
	5640.00	-43.28	5.01	3.00	13.58	-34.71	-13.00	21.71	H
	3760.00	-36.38	4.38	3.00	12.34	-28.42	-13.00	15.42	V
	5640.00	-41.49	5.01	3.00	13.58	-32.92	-13.00	19.92	V
9538	3815.20	-38.05	4.47	3.00	12.45	-30.07	-13.00	17.07	H
	5722.80	-42.83	5.23	3.00	13.66	-34.40	-13.00	21.40	H
	3815.20	-36.55	4.47	3.00	12.45	-28.57	-13.00	15.57	V
	5722.80	-40.34	5.23	3.00	13.66	-31.91	-13.00	18.91	V

WCDMA Band V

Channel	Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	Diatance	G _a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
9262	1652.80	-35.96	3.02	3.00	9.58	-29.40	-13.00	16.40	H
	2479.20	-40.56	3.51	3.00	10.72	-33.35	-13.00	20.35	H
	1652.80	-34.41	3.02	3.00	9.68	-27.75	-13.00	14.75	V
	2479.20	-38.77	3.51	3.00	10.72	-31.56	-13.00	18.56	V
9400	1673.20	-36.28	3.14	3.00	9.61	-29.81	-13.00	16.81	H
	2509.80	-40.85	3.59	3.00	10.77	-33.67	-13.00	20.67	H
	1673.20	-34.72	3.14	3.00	9.61	-28.25	-13.00	15.25	V
	2509.80	-38.82	3.59	3.00	10.77	-31.64	-13.00	18.64	V
9538	1693.20	-36.13	3.24	3.00	9.77	-29.60	-13.00	16.60	H
	2539.80	-39.85	3.65	3.00	10.89	-32.61	-13.00	19.61	H
	1693.20	-34.20	3.24	3.00	9.77	-27.67	-13.00	14.67	V
	2539.80	-37.07	3.65	3.00	10.89	-29.83	-13.00	16.83	V

Remark:

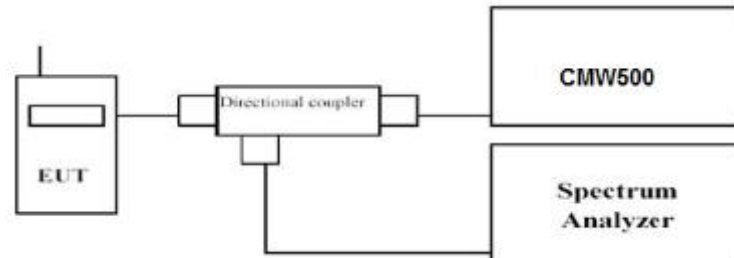
1. $EIRP = P_{Mea}(dBm) - P_{cl}(dB) + G_a(dBi)$
2. We were not recorded other points as values lower than limits.
3. $Margin = Limit - EIRP$

4.5 Peak-to-Average Ratio (PAR)

LIMIT

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

TEST CONFIGURATION

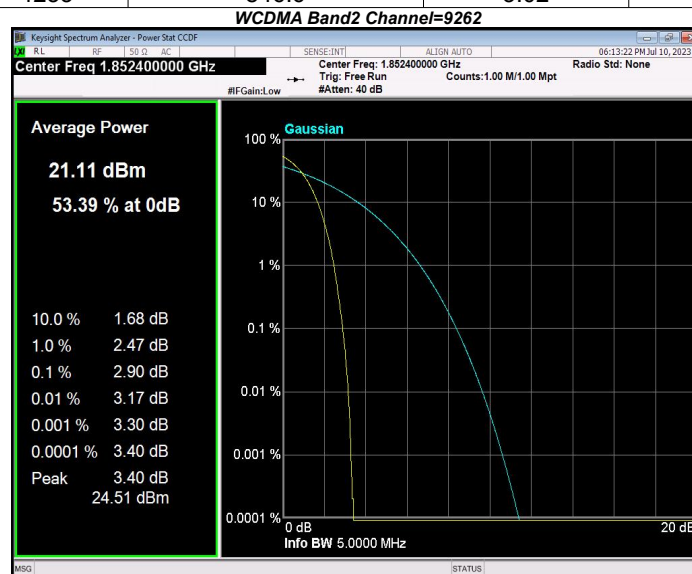


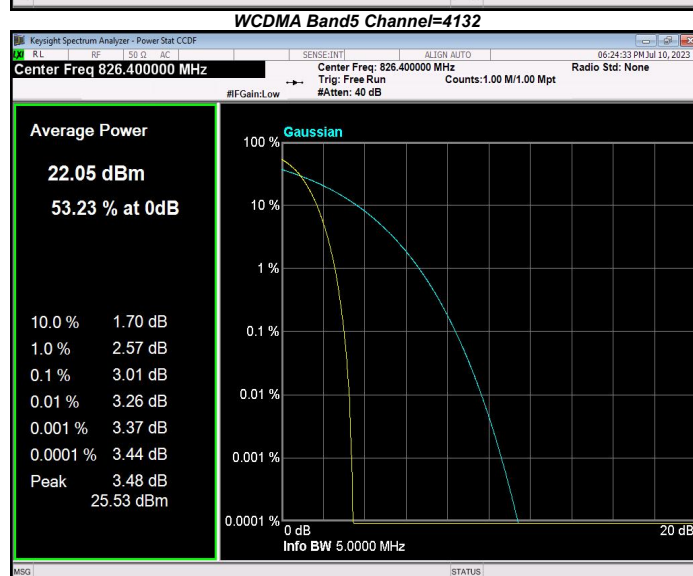
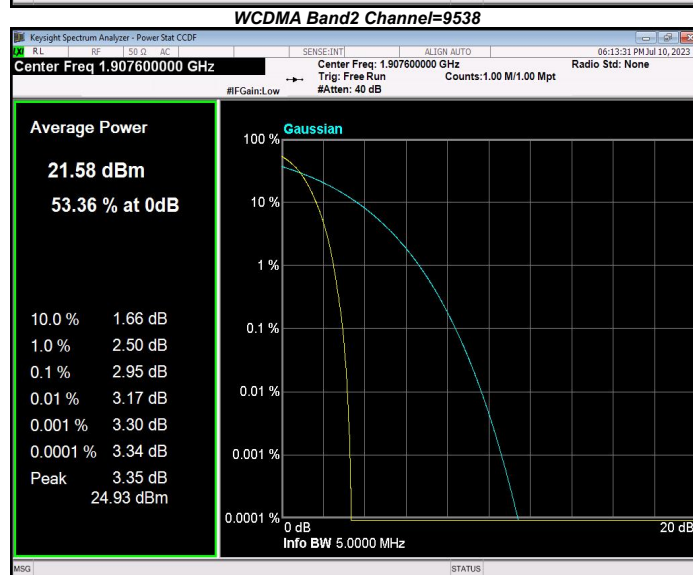
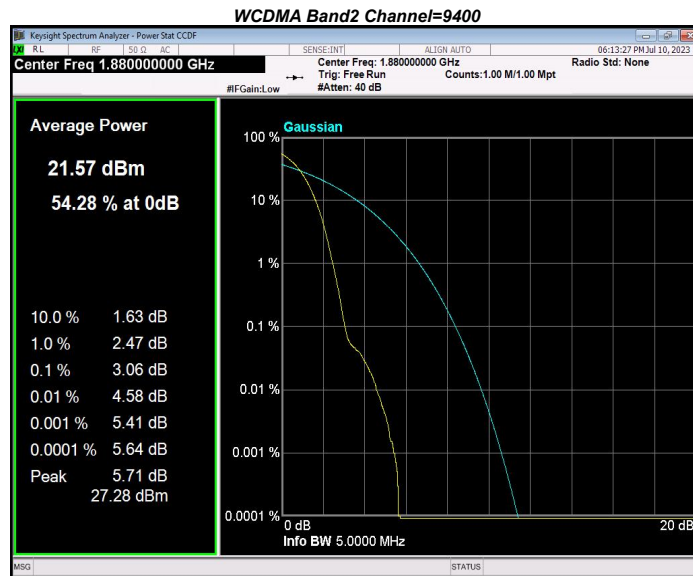
TEST PROCEDURE

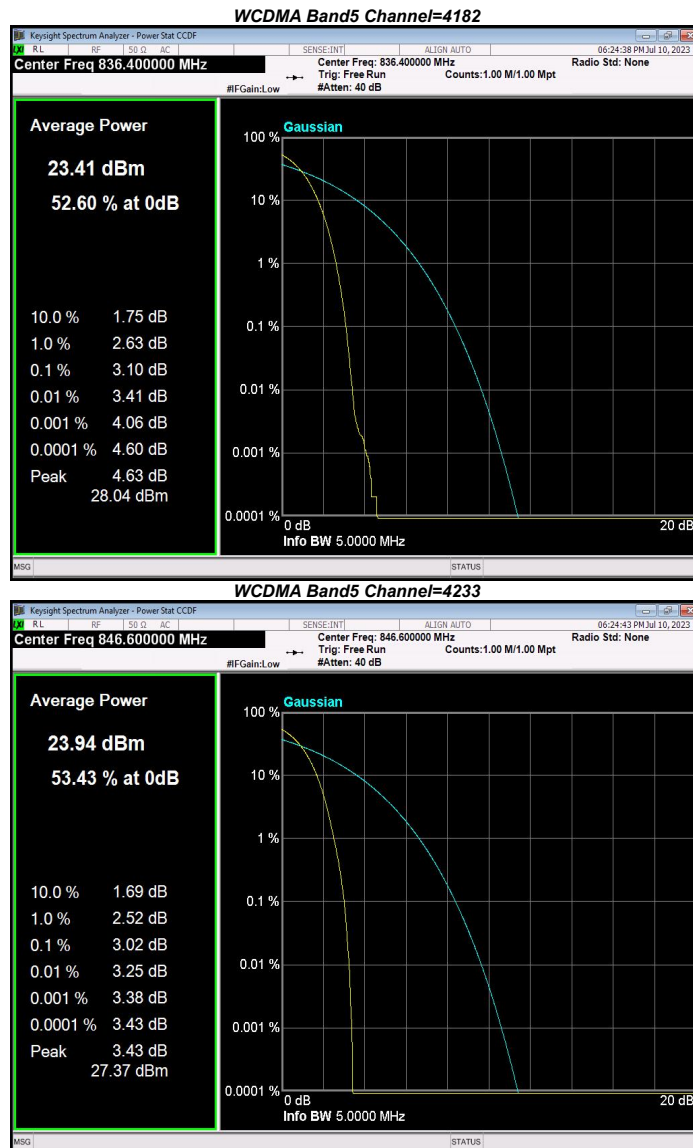
1. Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
2. Set resolution/measurement bandwidth \geq signal's occupied bandwidth;
3. Set the number of counts to a value that stabilizes the measured CCDF curve;
4. Set the measurement interval as follows: 1). for continuous transmissions, set to 1 ms, 2). for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.
5. Record the maximum PAPR level associated with a probability of 0.1%.

TEST RESULTS

Band	Channel	Frequency (MHz)	Result (dB)	high Limit (dB)	Verdict
WCDMA Band2	9262	1852.4	2.90	13	PASS
WCDMA Band2	9400	1880	3.06	13	PASS
WCDMA Band2	9538	1907.6	2.95	13	PASS
WCDMA Band5	4132	826.4	3.01	13	PASS
WCDMA Band5	4182	836.4	3.10	13	PASS
WCDMA Band5	4233	846.6	3.02	13	PASS





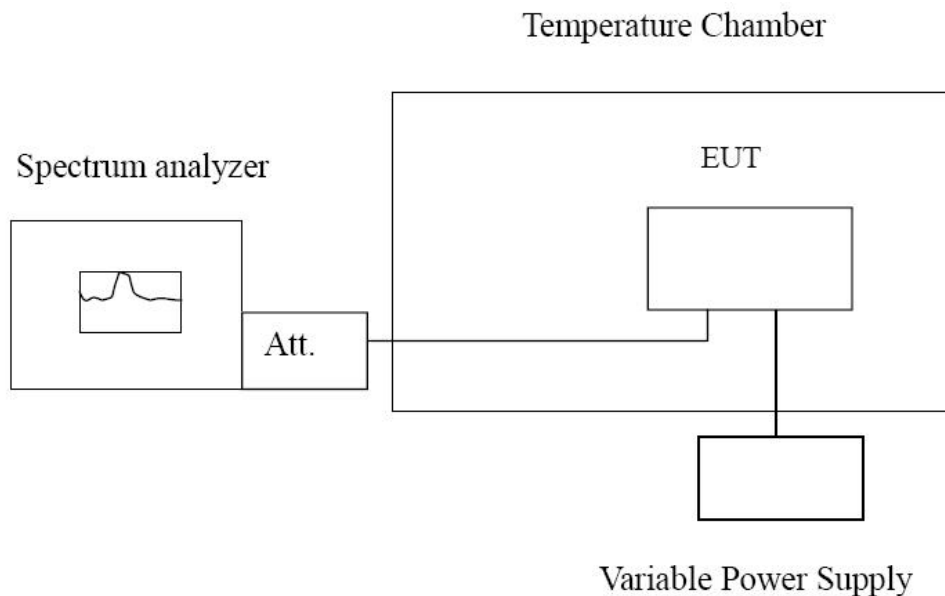


4.6 Frequency Stability under Temperature & Voltage Variations

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.

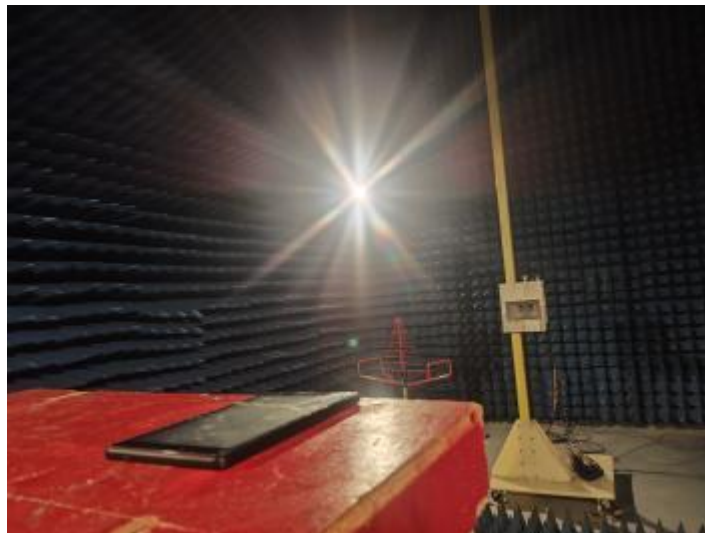
Reduce the input voltage to specify extreme voltage variation ($\pm 15\%$) and endpoint, record the maximum frequency change.

TEST RESULTS

The report only reflects the worst case data.

Band	Channel	Frequency (MHz)	Result(Hz)	Result (ppm)	Low Limit (ppm)	high Limit (ppm)	Verdict
WCDMA Band2	9262	1852.4	-7.00	-0.003779	-2.5	2.5	PASS
WCDMA Band2	9400	1880	-9.56	-0.005085	-2.5	2.5	PASS
WCDMA Band2	9538	1907.6	-6.02	-0.003156	-2.5	2.5	PASS
WCDMA Band5	4132	826.4	-7.48	-0.009051	-2.5	2.5	PASS
WCDMA Band5	4182	836.4	-5.84	-0.006982	-2.5	2.5	PASS
WCDMA Band5	4233	846.6	-7.32	-0.008646	-2.5	2.5	PASS

5 Test Setup Photos of the EUT



6 External and Internal Photos of the EUT

Reference to the test report .

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