CTC Laboratories, Inc.

TEST REPORT

Report No. ·····:	**CTC2025510502**
FCC ID·····:	**2BB6E-GLMD25A01**
Applicant·····:	**UCLOUDLINK (SINGAPORE) PTE.LTD**
Address·····:	80 ROBINSON ROAD #02-00 SINGAPORE(068898)
Manufacturer·····:	UCLOUDLINK (SINGAPORE) PTE.LTD
Address·····:	80 ROBINSON ROAD #02-00 SINGAPORE(068898)
Product Name·····:	**4G Wireless Data Terminal**
Trade Mark·····:	GlocalMe
Model/Type reference·····:	GLMD25A01
Listed Model(s) ·····:	/
Standard·····:	**FCC CFR47 PART 22H, 24E, 27L**
Test Report Form No……..:	CTC-TR-116_A2
Master TRF……..:	Dated 2025-05-12
Date of receipt of test sample…:	Aug. 11, 2025
Date of testing……..:	Aug. 11, 2025 ~ Aug. 27, 2025
Date of issue…….....:	Aug. 28, 2025
Result……:	**PASS**

Compiled by: (Printed name+signature)	Jim Jiang	Jim Jiang
Supervised by: (Printed name+signature)	Eric Zhang	Eric Zhang
Approved by: (Printed name+signature)	Totti Zhao	Totti Zhao

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1. SUMMARY

1.1. Test Standards

FCC Rules Part 2: FREQUENCY ALLOCA-TIONS AND RADIO TREATY MAT-TERS; GENERAL RULES AND REG-ULATIONS
FCC Rules Part 22: PRIVATE LAND MOBILE RADIO SERVICES.
FCC Rules Part 24: PUBLIC MOBILE SERVICES
FCC Rules Part 27: MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES
TIA/EIA 603 E March 2016: Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.
ANSI C63.26: 2015: American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
KDB 971168 D01 Power Meas License Digital Systems v03: MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS
RSS-Gen Issue 5: General Requirements for Compliance of Radio Apparatus.
RSS-132 Issue 4: Cellular Telephone Systems Operating in the Bands 824-849MHz and 869-894MHz.
RSS-133 Issue 6: 2 GHz Personal Communications Services.
RSS-139 Issue 4: Advanced Wireless Services Equipment Operating in the Bands 1710-1780 MHz and 2110-2200 MHz

1.2. Report Version

Revised No.	Report No.	Date of issue	Description
01	CTC2025510502	Aug. 28, 2025	Original

1.3. Test Description

Test Item	Section in CFR 47	RSS Rule	Result	Test Engineer
Conducted Output Power	Part 2.1046 Part 22.913(a) Part 24.232(c) Part 27.50	RSS-132(5.4) RSS-133(6.4) RSS-139(6.5)	Pass	Jim Jiang
Peak-to-Average Ratio	Part 24.232 Part 27.50	RSS-132(5.4) RSS-133(6.4)	Pass	Jim Jiang
99% Occupied Bandwidth & 26 dB Bandwidth	Part 2.1049 Part 22.917(b) Part 24.238(b) Part 27.53	RSS-GEN(6.6) RSS-133(6.5)	Pass	Jim Jiang
Band Edge	Part 2.1051 Part 22.917 Part 24.238 Part 27.53	RSS-132(5.5) RSS-133(6.5)	Pass	Jim Jiang
Conducted Spurious Emissions	Part 2.1051 Part 22.917 Part 24.238 Part 27.53	RSS-132(5.5) RSS-133(6.5) RSS-139(6.6)	Pass	Jim Jiang
Frequency stability vs temperature	Part 2.1055(a)(1)(b) Part 22.355 Part 24.235 Part 27.54	RSS-GEN(6.11) RSS-132(5.3) RSS-139(6.4)	Pass	Jim Jiang
Frequency stability vs voltage	Part 2.1055(d)(1)(2) Part 22.355 Part 24.235 Part 27.54	RSS-GEN(6.11) RSS-132(5.3) RSS-139(6.4)	Pass	Jim Jiang
ERP and EIRP	Part 22.913(a) Part 24.232(b) Part 27.50	RSS-132(5.4) RSS-133(6.4) RSS-139(6.5)	Pass	Jim Jiang
Radiated Spurious Emissions	Part 2.1053 Part 22.917 Part 24.238 Part 27.53	RSS-132(5.5) RSS-133(6.5) RSS-139(6.6)	Pass	Jim Jiang
Receiver Spurious Emissions	/	RSS-GEN(7.1.3)	N/A	N/A

Note:
1. The measurement uncertainty is not included in the test result.
2. N/A: means this test item is not applicable for this device according to the technology characteristic of device.
3. The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, Part 22, Part 24, Part 27, FCC KDB 971168 D01 v03r01/ D02 v02r01, KDB 412172 D01 v01r01, ANSI C63.26:2015, IC RSS-132, RSS-133 and RSS-139.

1.4. Test Facility

Address of the report laboratory

CTC Laboratories, Inc.

Add: Room 107, 108, 207, 208, 303 of Building A, Room 101 of Building B, No.7, Lanqing 1st Road, Luhu Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China

Laboratory accreditation

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

A2LA-Lab Cert. No.: 4340.01

CTC Laboratories, Inc. 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 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in th e identified field of testing.

Industry Canada (Registration No.: 9783A, CAB Identifier: CN0029)

CTC Laboratories, Inc. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 9783A on Jan, 2016.

FCC (Registration No.: 951311, Designation Number CN1208)

CTC Laboratories, Inc. 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 inour fi les. Registration 951311, Aug 26, 2017.

1.5. 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 CTC Laboratories, Inc. 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 CTC Laboratories, Inc. is reported:

Test Items	Measurement Uncertainty	Notes
Frequency stability	25 Hz	(1)
Transmitter power conducted	0.57 dB	(1)
Transmitter power Radiated	2.20 dB	(1)
Conducted spurious emission 9KHz-12.75 GHz	1.60 dB	(1)
Conducted Emission 9KHz-30MHz	3.39 dB	(1)
Radiated Emission 30~1000MHz	4.24 dB	(1)
Radiated Emission 1~18GHz	5.16 dB	(1)
Radiated Emission 18-40GHz	5.54 dB	(1)
Occupied Bandwidth	---------	(1)
Emission Mask	---------	(1)
Modulation Characteristic	---------	(1)
Transmitter Frequency Behavior	---------	(1)

Note: (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

1.6. Environmental Conditions

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

Normal Temperature:	20°C-25°C
Relative Humidity:	50 %-55 %
Air Pressure:	101kPa

2. GENERAL INFORMATION

2.1. Client Information

Applicant:	UCLOUDLINK (SINGAPORE) PTE.LTD
Address:	80 ROBINSON ROAD #02-00 SINGAPORE(068898)
Manufacturer:	UCLOUDLINK (SINGAPORE) PTE.LTD
Address:	80 ROBINSON ROAD #02-00 SINGAPORE(068898)

2.2. General Description of EUT

Product Name:	4G Wireless Data Terminal
Trade Mark:	GlocalMe
Model/Type reference:	GLMD25A01
Listed Model(s):	/
Model Difference:	/
Sample ID:	CTC250801-004-S002
Power supply:	Input: 5Vdc 2A
Hardware version:	/
Software version:	/
WCDMA	
Operation Band:	Band II: UL: 1852.4MHz~1907.6MHz, DL: 1932.6MHz~1987.4MHz Band IV: UL: 1712.4MHz~1752.6MHz, DL: 2112.6MHz~2152.4MHz Band V: UL: 826.4MHz~846.6MHz, DL: 871.6MHz~1891.4MHz
Modulation Type:	QPSK for WCDMA/HSUPA/HSDPA
Antenna Type:	FPC Antenna
Antenna Gain:	Main Antenna: WCDMA Band II: 1.4dBi Max WCDMA Band IV: 0.2dBi Max WCDMA Band V: -4.7dBi Max

2.3. Description of Test Modes and Test Frequency

The EUT has been tested under typical operating condition. The CMW500 used to control the EUT staying in continuous transmitting and receiving mode for testing.

Test Frequency:

WCDMA Band II		WCDMA Band IV		WCDMA Band V	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
9262	1852.40	1312	1712.40	4132	826.40
9400	1880.00	1413	1732.60	4183	836.60
9538	1907.60	1513	1752.60	4233	846.60

2.4. Measurement Instruments List

RF Test System – SRD						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Calibrated Until
1	Spectrum Analyzer	R&S	FSV40-N	101331	Mar. 23, 2025	Mar. 24, 2026
2	MXA Signal Analyzer	Keysight	N9020A	MY52091402	Dec. 13, 2024	Dec. 12, 2025
3	MXG Vector Signal Generator	Agilent	N5182A	MY47420864	Dec. 13, 2024	Dec. 12, 2025
4	PSG Analog Signal Generator	Agilent	E8257D	MY46521908	Dec. 13, 2024	Dec. 12, 2025
5	USB Wideband Power Sensor	Keysight	U2021XA	MY55130004	Mar. 25, 2025	Mar. 24, 2026
6	USB Wideband Power Sensor	Keysight	U2021XA	MY55130006	Mar. 25, 2025	Mar. 24, 2026
7	Wideband Radio Communication Tester	R&S	CMW500	102414	Dec. 13, 2024	Dec. 12, 2025
8	RF Control Unit	Tonscend	JS0806-2	/	Mar. 25, 2025	Mar. 24, 2026
9	High and low temperature test chamber	ESPEC	MT3035	/	Mar. 25, 2025	Mar. 24, 2026
10	RF Cable	HUBER+SUHNER	SUCOFLEX101PE	RF-08	Apr. 15, 2025	Apr. 16, 2026

Test Software		
Name	Manufacturer	Software Version
JS1120-3	Tonscend	V2.6.88.0346

Radiated emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Calibrated Until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9163	01026	Dec. 25, 2024	Dec. 24, 2025
2	Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-647	Sep. 26, 2024	Sep. 25, 2025
3	Test Receiver	Keysight	N9038A	MY56400071	Dec. 13, 2024	Dec. 12, 2025
4	Broadband Amplifier	Schwarzbeck	BBV9743B	259	Dec. 13, 2024	Dec. 12, 2025
5	Mirowave Broadband Amplifier	Schwarzbeck	BBV9718C	111	Dec. 13, 2024	Dec. 12, 2025
6	RE33L-001	COMM	/	014 (9kHz-1GHz)	Feb. 09, 2025	Feb. 08, 2026
7	RE33L-002	COMM	/	015 (9kHz-1GHz)	Feb. 09, 2025	Feb. 08, 2026
8	RE33H-001	SUHBER SUCOFLEX	/	016 (1GHz-18GHz)	Feb. 09, 2025	Feb. 08, 2026
9	RE33H-002	HUBENR	/	017 (1GHz-18GHz)	Feb. 09, 2025	Feb. 08, 2026
10	RE33H-003	HUBENR	/	018 (1GHz-18GHz)	Feb. 09, 2025	Feb. 08, 2026
11	RE33H-003	HUBENR	/	019 (18GHz-40GHz)	Feb. 09, 2025	Feb. 08, 2026
12	3m chamber 3	YIHENG	EE106	/	Aug. 29, 2023	Aug. 28, 2026
13	SHF-EHF Horn Antenna	Schwarzbeck	BBHA 9170	013551	Dec. 13, 2024	Dec. 12, 2025
14	Low noise Amplifier	Tonscend	TAP180040048	AP24C8060348	Dec. 13, 2024	Dec. 12, 2025

Test Software		
Name	Manufacturer	Software Version
EZ-EMC	FARA	FA-03A2

Note: 1. The Cal. Interval was one year.
2. The Cal. Interval was three years of the antenna.
3. The cable loss has been calculated in test result which connection between each test instruments.

3. TEST ITEM AND RESULTS

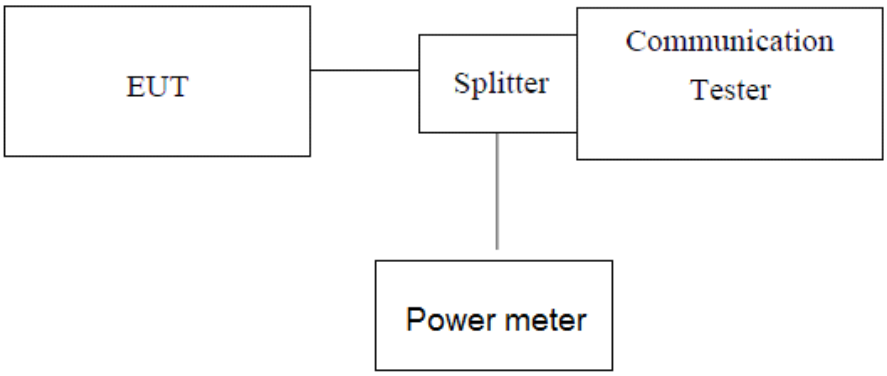
3.1. Conducted Output Power

LIMIT

FCC: §2.1046, §22.913, §24.232, §27.50 and §90.635

IC: RSS132§5.4; RSS133§6.4 and RSS139§6.5.

TEST CONFIGURATION



Note: Measurement setup for testing on Antenna connector

TEST PROCEDURE

1. The transmitter output port was connected to base station.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator, the path loss was compensated to the results for each measurement.
3. Set EUT at maximum power through base station.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure the maximum PK burst power and maximum Avg. burst power.

TEST RESULTS

WCDMA Band II		Conducted Power (dBm)		
		CH9262	CH9400	CH9538
		1852.40	1880.00	1907.60
RMC 12.2K		23.23	22.95	22.97
HSDPA	Subtest-1	23.69	23.38	**23.71**
	Subtest-2	23.67	23.33	23.55
	Subtest-3	22.36	22.03	22.23
	Subtest-4	22.35	22.06	22.25
HSUPA	Subtest-1	20.93	19.94	20.04
	Subtest-2	20.77	20.38	20.63
	Subtest-3	21.20	20.32	20.58
	Subtest-4	21.21	20.59	20.84
	Subtest-5	22.77	22.43	22.65

WCDMA Band IV		Conducted Power (dBm)		
		CH1312	CH1413	CH1513
		1712.40	1732.60	1752.60
RMC 12.2K		23.18	23.42	**23.58**
HSDPA	Subtest-1	23.05	23.32	23.03
	Subtest-2	23.00	22.91	22.98
	Subtest-3	23.05	23.29	22.93
	Subtest-4	23.06	23.28	22.94
HSUPA	Subtest-1	23.14	22.72	22.42
	Subtest-2	22.69	22.87	22.65
	Subtest-3	23.14	22.88	22.66
	Subtest-4	22.16	23.11	23.11
	Subtest-5	23.15	23.43	23.17

WCDMA Band V		Conducted Power (dBm)		
		CH4132	CH4182	CH4233
		826.40	836.40	846.60
RMC 12.2K		23.69	23.72	23.74
HSDPA	Subtest-1	24.23	23.97	23.91
	Subtest-2	23.05	23.09	23.00
	Subtest-3	21.80	21.77	21.78
	Subtest-4	22.03	21.80	21.81
HSUPA	Subtest-1	21.39	21.27	21.26
	Subtest-2	21.16	20.79	20.85
	Subtest-3	21.44	20.83	20.83
	Subtest-4	21.15	20.56	20.67
	Subtest-5	**24.37**	24.07	23.94

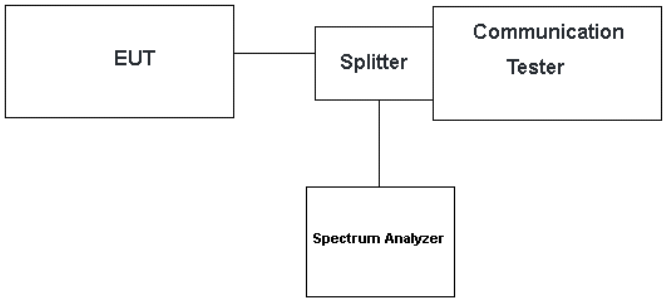
3.2. Peak-to-Average Ratio

LIMIT

In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

TEST CONFIGURATION

- For Peak-to-Average Ratio



TEST PROCEDURE

- For Peak-to-Average Ratio

1. The testing follows FCC KDB 971168 v02r02 Section 5.7.1.
2. The EUT was connected to spectrum and communication tester via a splitter
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyser.
4. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
6. Record the deviation as Peak to Average Ratio.

TEST RESULTS

Band	Channel	Result(dB)	Limit(dB)	Verdict
Band2 WCDMA	9262	2.92	13	PASS
Band2 WCDMA	9400	2.95	13	PASS
Band2 WCDMA	9538	2.91	13	PASS
Band4 WCDMA	1312	3.00	13	PASS
Band4 WCDMA	1413	2.93	13	PASS
Band4 WCDMA	1513	3.00	13	PASS
Band5 WCDMA	4132	3.05	13	PASS
Band5 WCDMA	4182	3.01	13	PASS
Band5 WCDMA	4233	2.93	13	PASS

Band	Channel	Sub. Test	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
Band2 HSDPA	9262	1	2.99	13	PASS
Band2 HSDPA	9400	1	3.01	13	PASS
Band2 HSDPA	9538	1	2.91	13	PASS
Band2 HSDPA	9262	2	3.54	13	PASS
Band2 HSDPA	9400	2	3.56	13	PASS
Band2 HSDPA	9538	2	3.52	13	PASS
Band2 HSDPA	9262	3	3.76	13	PASS
Band2 HSDPA	9400	3	3.78	13	PASS
Band2 HSDPA	9538	3	3.87	13	PASS
Band2 HSDPA	9262	4	3.81	13	PASS
Band2 HSDPA	9400	4	3.83	13	PASS
Band2 HSDPA	9538	4	3.94	13	PASS
Band4 HSDPA	1312	1	2.99	13	PASS
Band4 HSDPA	1413	1	2.92	13	PASS
Band4 HSDPA	1513	1	3.00	13	PASS
Band4 HSDPA	1312	2	3.50	13	PASS
Band4 HSDPA	1413	2	3.46	13	PASS
Band4 HSDPA	1513	2	3.52	13	PASS
Band4 HSDPA	1312	3	3.72	13	PASS
Band4 HSDPA	1413	3	3.68	13	PASS
Band4 HSDPA	1513	3	3.73	13	PASS
Band4 HSDPA	1312	4	3.77	13	PASS
Band4 HSDPA	1413	4	3.73	13	PASS
Band4 HSDPA	1513	4	3.78	13	PASS
Band5 HSDPA	4132	1	3.03	13	PASS
Band5 HSDPA	4182	1	2.99	13	PASS
Band5 HSDPA	4233	1	2.90	13	PASS
Band5 HSDPA	4132	2	3.52	13	PASS
Band5 HSDPA	4182	2	3.50	13	PASS
Band5 HSDPA	4233	2	3.54	13	PASS

Band5 HSDPA	4132	3	3.74	13	PASS
Band5 HSDPA	4182	3	3.71	13	PASS
Band5 HSDPA	4233	3	3.77	13	PASS
Band5 HSDPA	4132	4	3.78	13	PASS
Band5 HSDPA	4182	4	3.76	13	PASS
Band5 HSDPA	4233	4	3.83	13	PASS

Band	Channel	Sub. Test	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
Band2 HSUPA	9262	1	4.26	13	PASS
Band2 HSUPA	9400	1	4.27	13	PASS
Band2 HSUPA	9538	1	4.26	13	PASS
Band2 HSUPA	9262	2	5.43	13	PASS
Band2 HSUPA	9400	2	5.44	13	PASS
Band2 HSUPA	9538	2	5.42	13	PASS
Band2 HSUPA	9262	3	4.95	13	PASS
Band2 HSUPA	9400	3	4.97	13	PASS
Band2 HSUPA	9538	3	4.96	13	PASS
Band2 HSUPA	9262	4	5.22	13	PASS
Band2 HSUPA	9400	4	5.23	13	PASS
Band2 HSUPA	9538	4	5.18	13	PASS
Band2 HSUPA	9262	5	4.01	13	PASS
Band2 HSUPA	9400	5	4.04	13	PASS
Band2 HSUPA	9538	5	3.97	13	PASS
Band4 HSUPA	1312	1	4.25	13	PASS
Band4 HSUPA	1413	1	4.10	13	PASS
Band4 HSUPA	1513	1	4.25	13	PASS
Band4 HSUPA	1312	2	5.38	13	PASS
Band4 HSUPA	1413	2	5.27	13	PASS
Band4 HSUPA	1513	2	5.39	13	PASS
Band4 HSUPA	1312	3	4.91	13	PASS
Band4 HSUPA	1413	3	4.77	13	PASS
Band4 HSUPA	1513	3	4.94	13	PASS
Band4 HSUPA	1312	4	5.17	13	PASS
Band4 HSUPA	1413	4	4.96	13	PASS
Band4 HSUPA	1513	4	5.19	13	PASS
Band4 HSUPA	1312	5	3.98	13	PASS
Band4 HSUPA	1413	5	3.85	13	PASS
Band4 HSUPA	1513	5	3.99	13	PASS
Band5 HSUPA	4132	1	4.33	13	PASS
Band5 HSUPA	4182	1	4.30	13	PASS
Band5 HSUPA	4233	1	4.29	13	PASS
Band5 HSUPA	4132	2	5.51	13	PASS
Band5 HSUPA	4182	2	5.48	13	PASS
Band5 HSUPA	4233	2	5.44	13	PASS

Band5 HSUPA	4132	3	5.05	13	PASS
Band5 HSUPA	4182	3	5.02	13	PASS
Band5 HSUPA	4233	3	4.99	13	PASS
Band5 HSUPA	4132	4	5.34	13	PASS
Band5 HSUPA	4182	4	5.31	13	PASS
Band5 HSUPA	4233	4	5.27	13	PASS
Band5 HSUPA	4132	5	4.07	13	PASS
Band5 HSUPA	4182	5	3.98	13	PASS
Band5 HSUPA	4233	5	3.82	13	PASS

Test Graphs: WCDMA

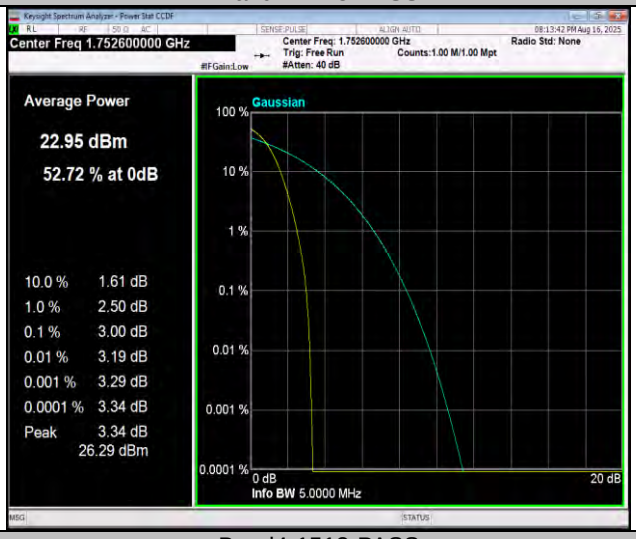
Band2-9262-PASS

Band2-9400-PASS

Band2-9538-PASS

Band4-1312-PASS

Band4-1413-PASS



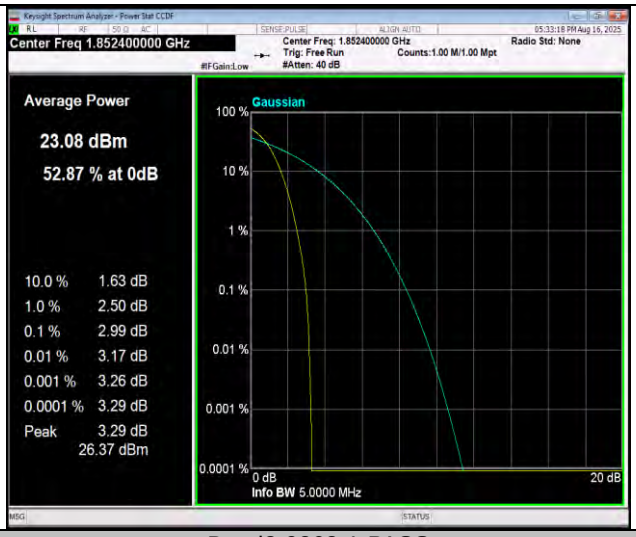
Band4-1513-PASS

Band5-4132-PASS

Band5-4182-PASS

Band5-4233-PASS

Test Graphs: HSDPA



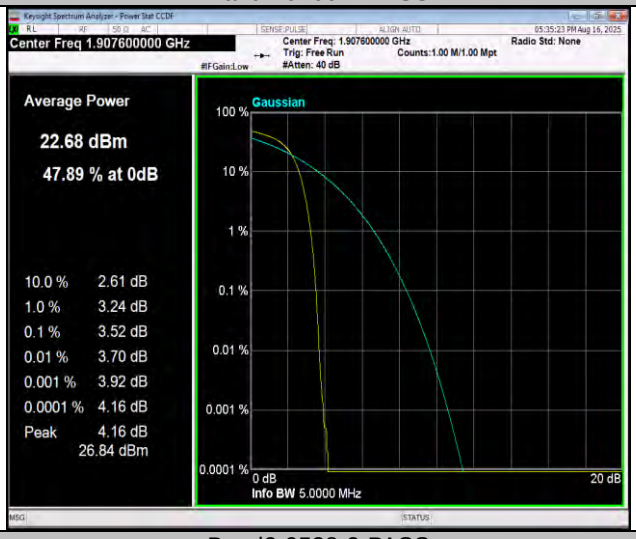
Band2-9262-1-PASS

Band2-9400-1-PASS

Band2-9538-1-PASS

Band2-9262-2-PASS

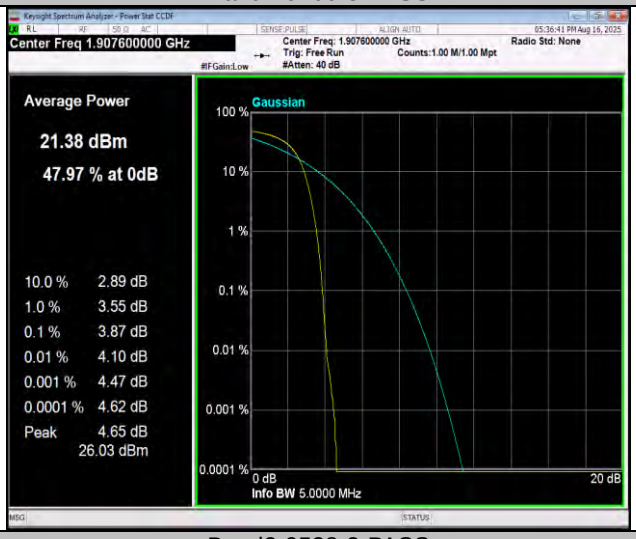
Band2-9400-2-PASS



Band2-9538-2-PASS

Band2-9262-3-PASS

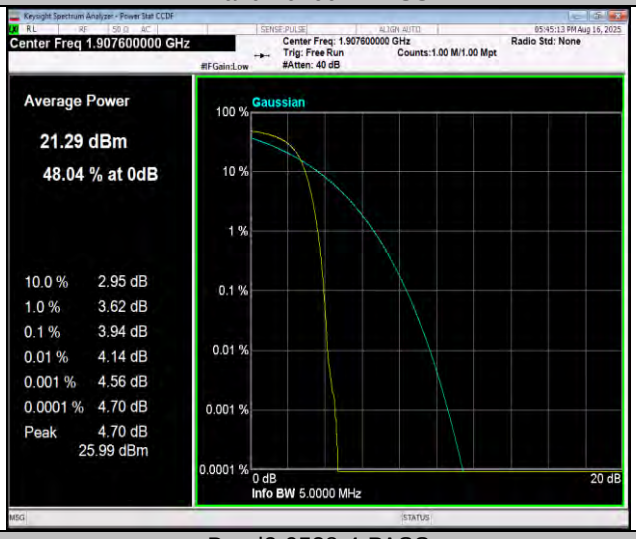
Band2-9400-3-PASS



Band2-9538-3-PASS

Band2-9262-4-PASS

Band2-9400-4-PASS



Band2-9538-4-PASS

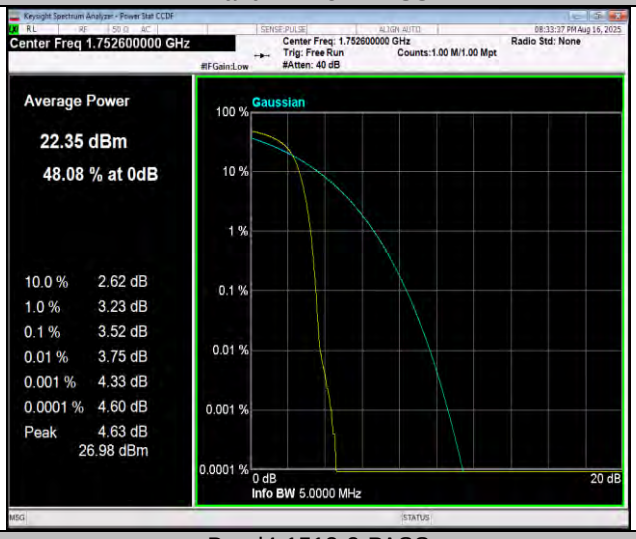
Band4-1312-1-PASS

Band4-1413-1-PASS

Band4-1513-1-PASS

Band4-1312-2-PASS

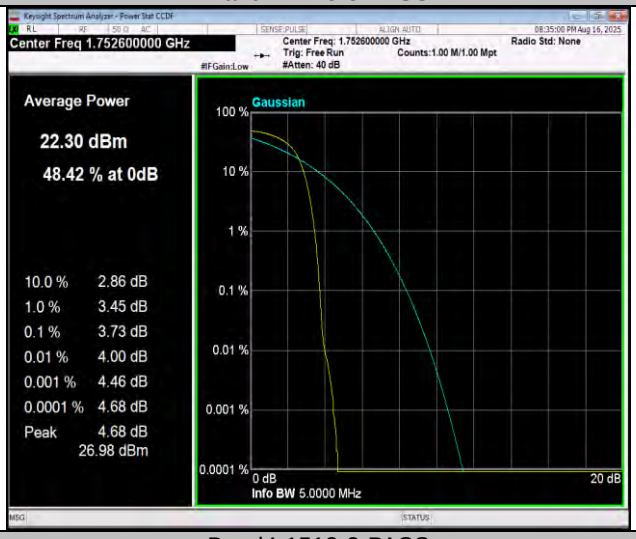
Band4-1413-2-PASS



Band4-1513-2-PASS

Band4-1312-3-PASS

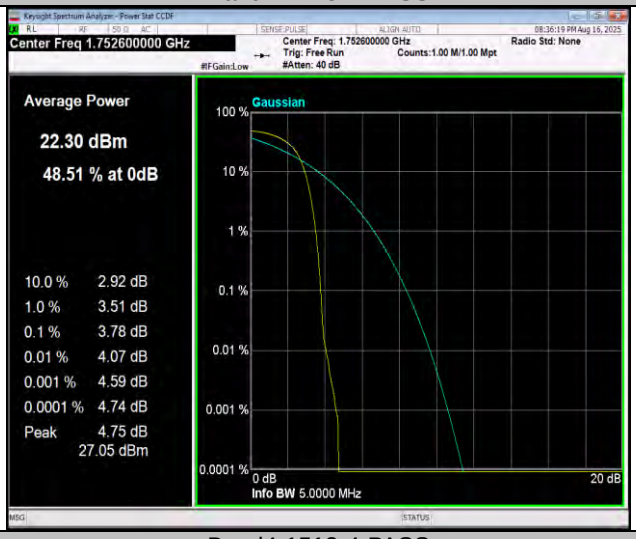
Band4-1413-3-PASS



Band4-1513-3-PASS

Band4-1312-4-PASS

Band4-1413-4-PASS



Band4-1513-4-PASS

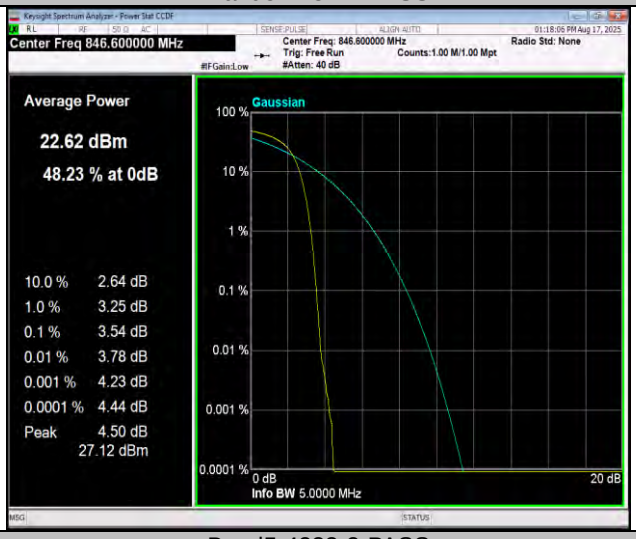
Band5-4132-1-PASS

Band5-4182-1-PASS

Band5-4233-1-PASS

Band5-4132-2-PASS

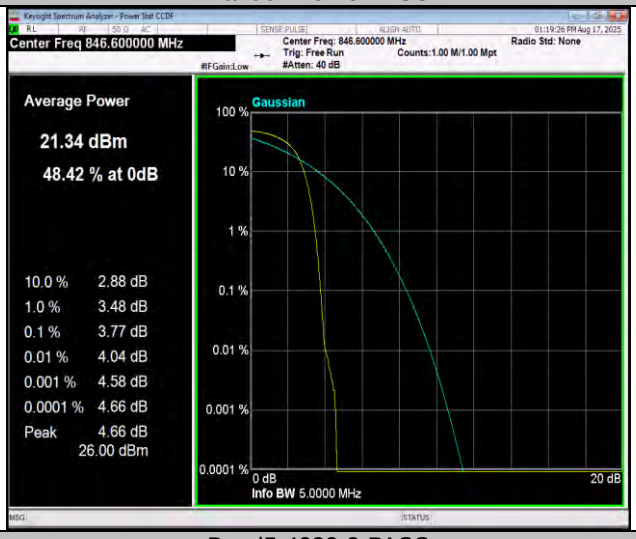
Band5-4182-2-PASS



Band5-4233-2-PASS

Band5-4132-3-PASS

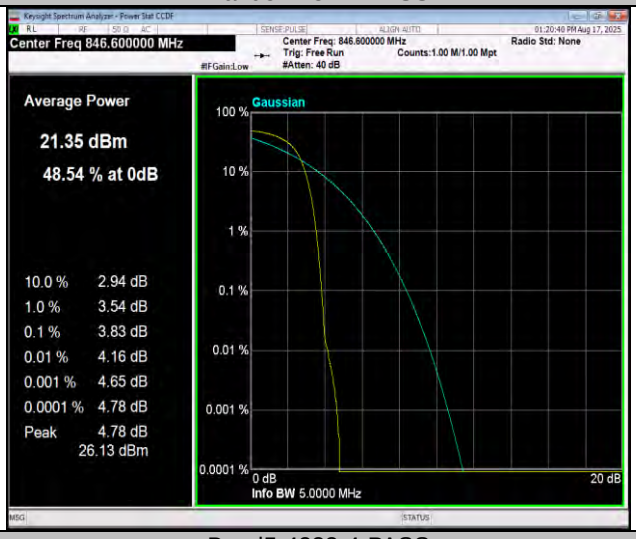
Band5-4182-3-PASS



Band5-4233-3-PASS

Band5-4132-4-PASS

Band5-4182-4-PASS



Band5-4233-4-PASS

Test Graphs: HSUPA

Band2-9262-1-PASS

Band2-9400-1-PASS

Band2-9538-1-PASS

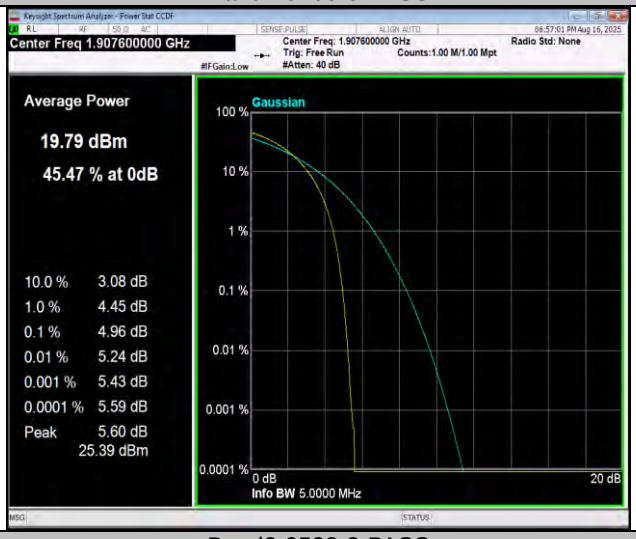
Band2-9262-2-PASS

Band2-9400-2-PASS

Band2-9538-2-PASS

Band2-9262-3-PASS

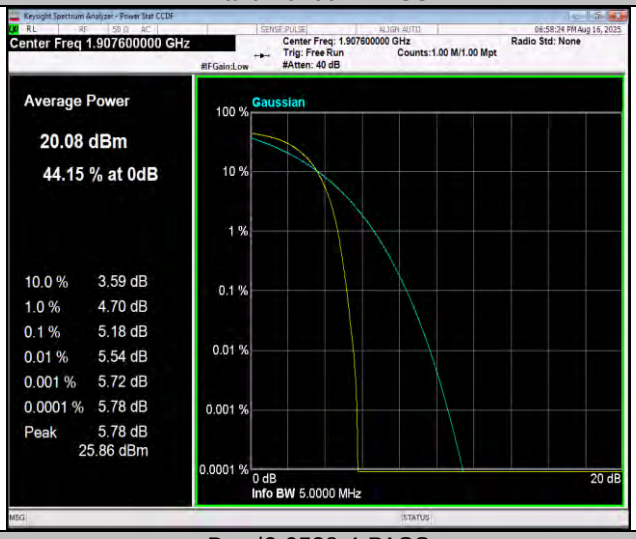
Band2-9400-3-PASS



Band2-9538-3-PASS

Band2-9262-4-PASS

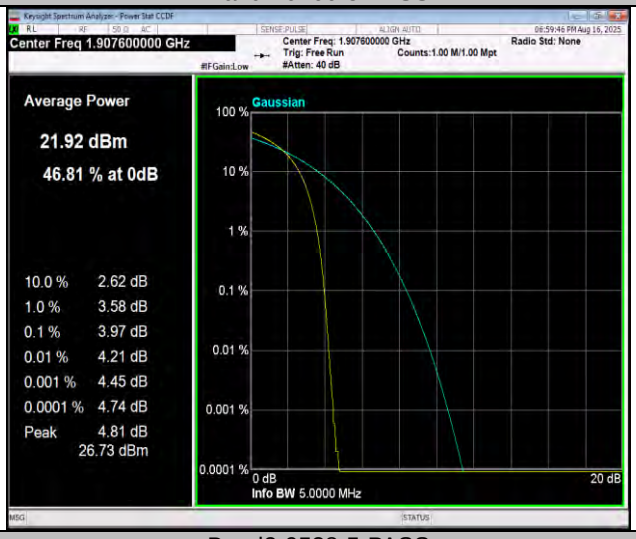
Band2-9400-4-PASS



Band2-9538-4-PASS

Band2-9262-5-PASS

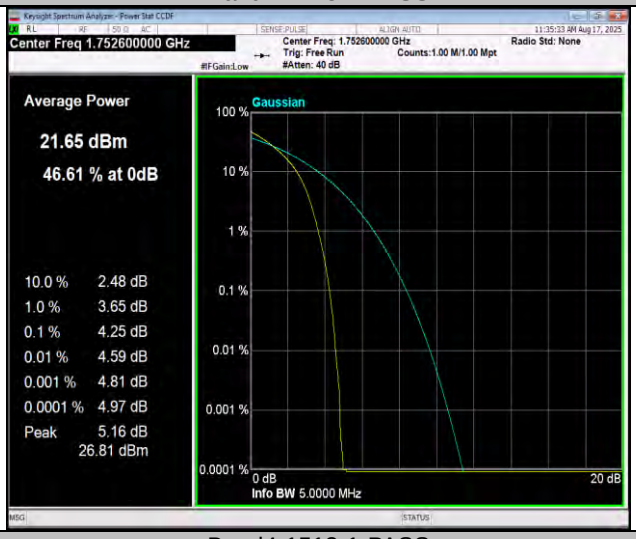
Band2-9400-5-PASS



Band2-9538-5-PASS

Band4-1312-1-PASS

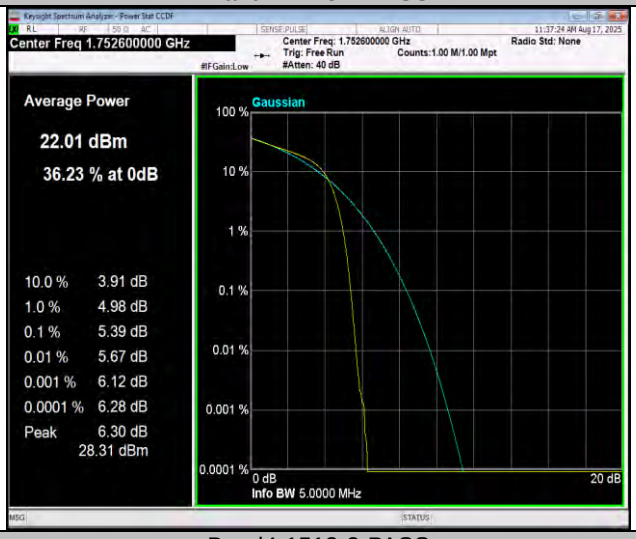
Band4-1413-1-PASS



Band4-1513-1-PASS

Band4-1312-2-PASS

Band4-1413-2-PASS



Band4-1513-2-PASS

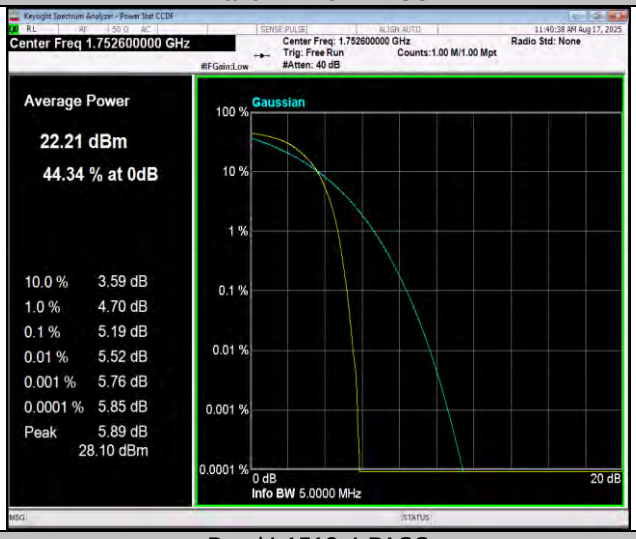
Band4-1312-3-PASS

Band4-1413-3-PASS

Band4-1513-3-PASS

Band4-1312-4-PASS

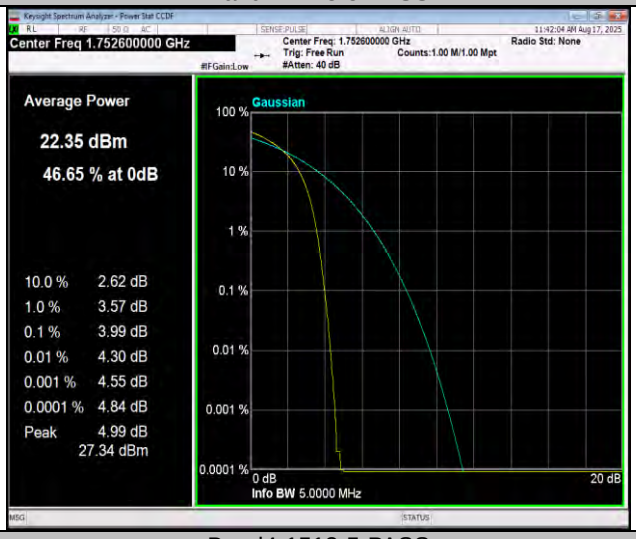
Band4-1413-4-PASS



Band4-1513-4-PASS

Band4-1312-5-PASS

Band4-1413-5-PASS



Band4-1513-5-PASS

Band5-4132-1-PASS

Band5-4182-1-PASS

Band5-4233-1-PASS

Band5-4132-2-PASS

Band5-4182-2-PASS

Band5-4233-2-PASS

Band5-4132-3-PASS

Band5-4182-3-PASS

Band5-4233-3-PASS

Band5-4132-4-PASS

Band5-4182-4-PASS

Band5-4233-4-PASS

Band5-4132-5-PASS

Band5-4182-5-PASS

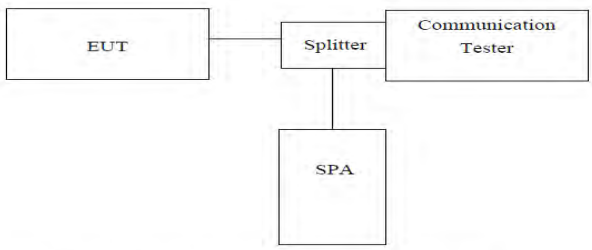
Band5-4233-5-PASS

3.3. Occupy Bandwidth

LIMIT

For reporting purposes only.

TEST CONFIGURATION



Note: Measurement setup for testing on Antenna connector

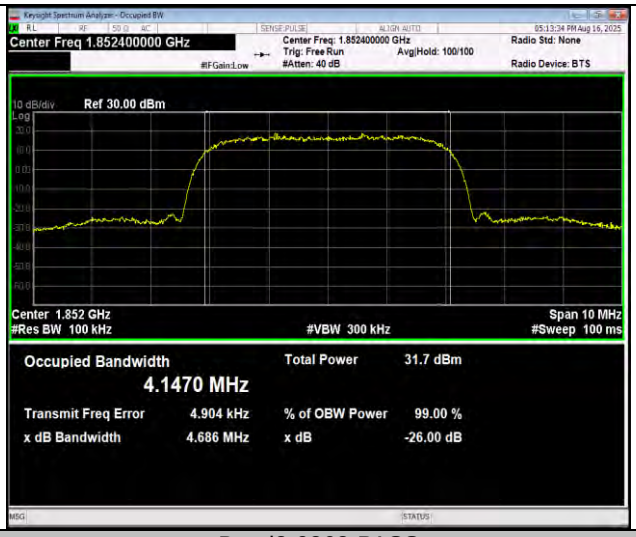
TEST PROCEDURE

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≥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

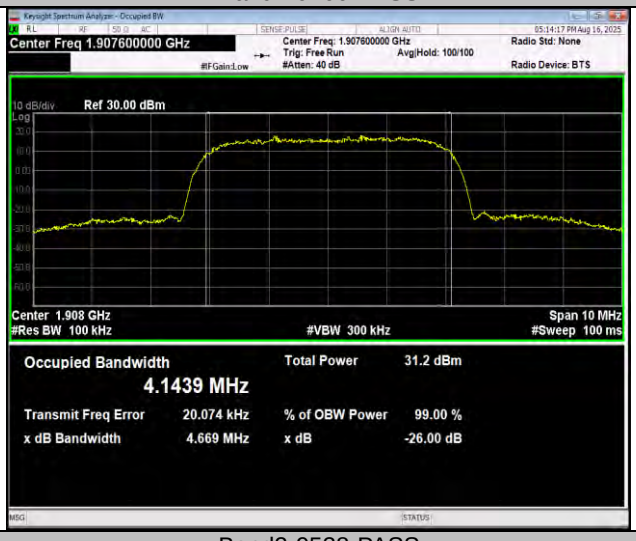
EUT Mode	Channel	Frequency (MHz)	99% Occupy bandwidth (MHz)	-26dB bandwidth (MHz)
WCDMA Band II (QPSK)	9262	1852.40	4.1470	4.686
	9400	1880.00	4.1472	4.682
	9538	1907.60	4.1439	4.669
WCDMA Band IV (QPSK)	1312	1712.40	4.1548	4.674
	1413	1732.60	4.1506	4.672
	1513	1752.60	4.1590	4.675
WCDMA Band V (QPSK)	4132	826.40	4.1522	4.668
	4183	836.60	4.1532	4.671
	4233	846.60	4.1402	4.669

Test Graphs

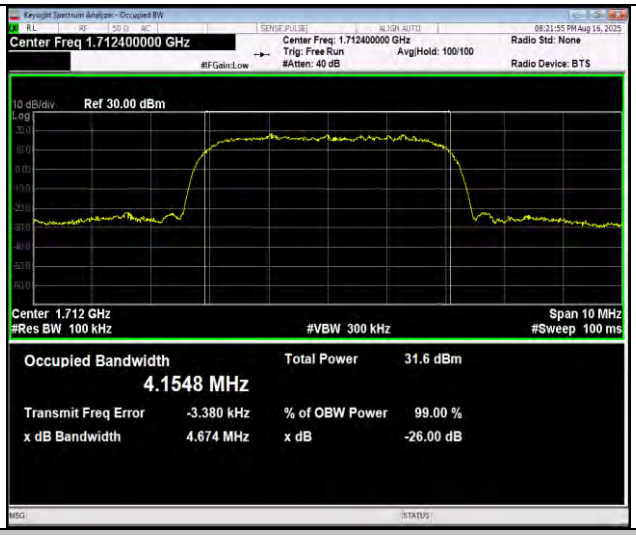


Band2-9262-PASS

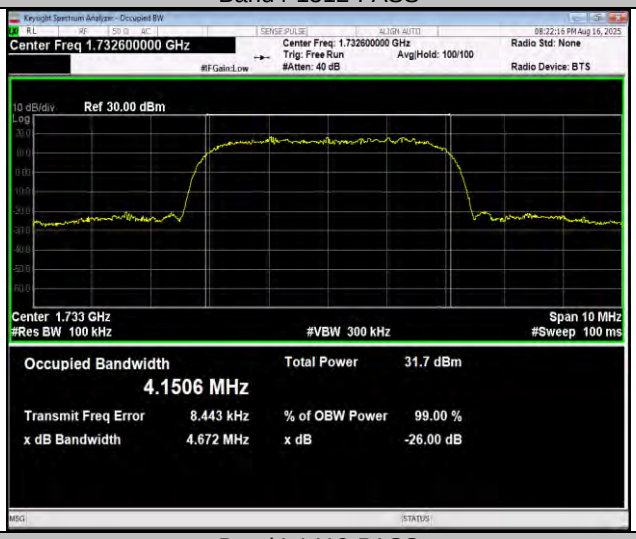
Band2-9400-PASS



Band2-9538-PASS

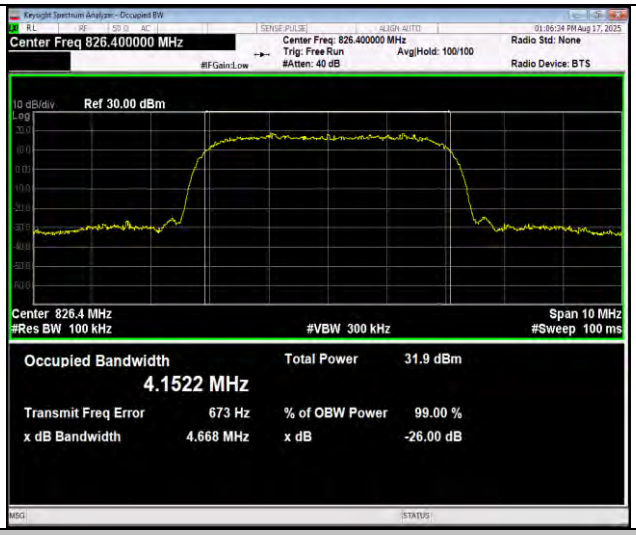


Band4-1312-PASS

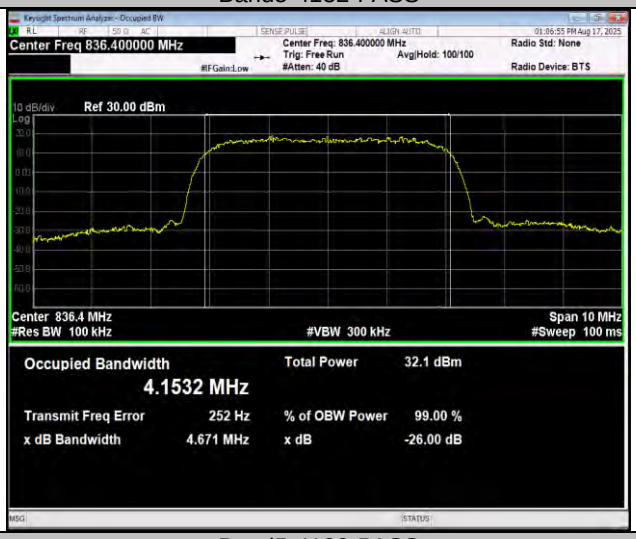


Band4-1413-PASS

Band4-1513-PASS



Band5-4132-PASS



Band5-4182-PASS

Band5-4233-PASS

3.4. Out Of Band Emissions

LIMIT

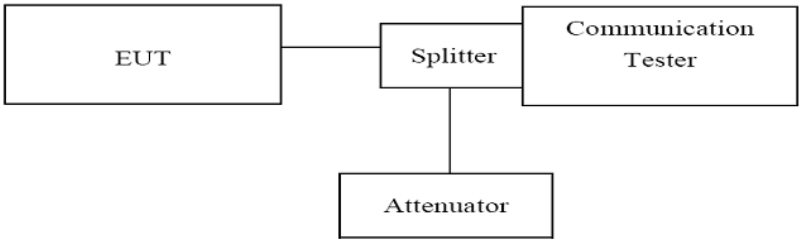
FCC: §22.917, §24.238, §27.53 (h), §90.691

The minimum permissible attenuation level of any spurious emissions is 43 + 10 log (P) dB where transmitting power (P) in Watts.

RSS132§5.5, RSS133§6.5, RSS139§6.6

The minimum permissible attenuation level of any spurious emissions is 43 + 10 log (P) dB where transmitting power (P) in Watts.

TEST CONFIGURATION



TEST PROCEDURE

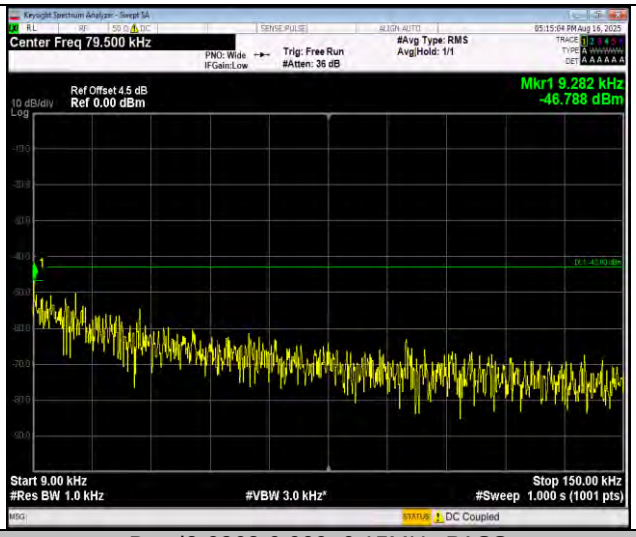
1. The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.
2. Sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

TEST RESULTS

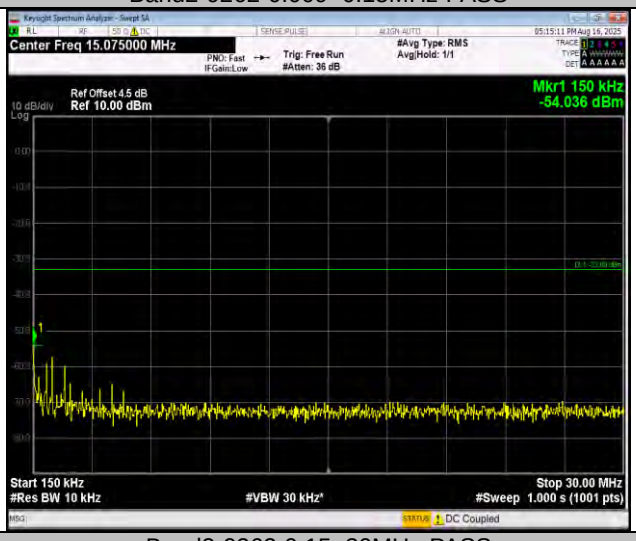
Remark: We test all modulation type and record worst case at Voice mode for WCDMA.

Band	Channel	Frequency Range (MHz)	Frequency (dBm)	Result (dBm)	Limit (dBm)	Verdict
Band2	9262	0.009~0.15MHz	0.01	-46.79	-43	PASS
Band2	9262	0.15~30MHz	0.15	-54.04	-33	PASS
Band2	9262	30~1000MHz	932.1	-49.91	-13	PASS
Band2	9262	1000~20000MHz	19813.8	-37.36	-13	PASS
Band2	9400	0.009~0.15MHz	0.01	-47.32	-43	PASS
Band2	9400	0.15~30MHz	0.15	-55.14	-33	PASS
Band2	9400	30~1000MHz	936.47	-49.93	-13	PASS
Band2	9400	1000~20000MHz	19781.5	-37.54	-13	PASS
Band2	9538	0.009~0.15MHz	0.01	-49.46	-43	PASS
Band2	9538	0.15~30MHz	0.15	-53.22	-33	PASS
Band2	9538	30~1000MHz	936.95	-49.89	-13	PASS
Band2	9538	1000~20000MHz	19617.63	-37.52	-13	PASS
Band4	1312	0.009~0.15MHz	0.01	-46.03	-43	PASS
Band4	1312	0.15~30MHz	0.15	-52.45	-33	PASS
Band4	1312	30~1000MHz	941.32	-49.96	-13	PASS
Band4	1312	1000~20000MHz	19282.28	-37.58	-13	PASS
Band4	1413	0.009~0.15MHz	0.01	-49.27	-43	PASS
Band4	1413	0.15~30MHz	0.15	-53.36	-33	PASS
Band4	1413	30~1000MHz	903.49	-49.93	-13	PASS
Band4	1413	1000~20000MHz	19840.88	-37.48	-13	PASS
Band4	1513	0.009~0.15MHz	0.01	-45.64	-43	PASS
Band4	1513	0.15~30MHz	0.15	-53.92	-33	PASS
Band4	1513	30~1000MHz	938.89	-49.91	-13	PASS
Band4	1513	1000~20000MHz	18578.8	-37.29	-13	PASS
Band5	4132	0.009~0.15MHz	0.01	-47.41	-33	PASS
Band5	4132	0.15~30MHz	0.15	-53.06	-23	PASS
Band5	4132	30~1000MHz	938.41	-59.01	-13	PASS
Band5	4132	1000~10000MHz	9585.1	-43.32	-13	PASS
Band5	4182	0.009~0.15MHz	0.01	-47.13	-33	PASS
Band5	4182	0.15~30MHz	0.18	-53.38	-23	PASS
Band5	4182	30~1000MHz	976.72	-59.10	-13	PASS
Band5	4182	1000~10000MHz	9811.45	-44.09	-13	PASS
Band5	4233	0.009~0.15MHz	0.01	-47.13	-33	PASS
Band5	4233	0.15~30MHz	0.15	-54.25	-23	PASS
Band5	4233	30~1000MHz	948.11	-58.98	-13	PASS
Band5	4233	1000~10000MHz	9540.1	-43.80	-13	PASS

Test Graphs



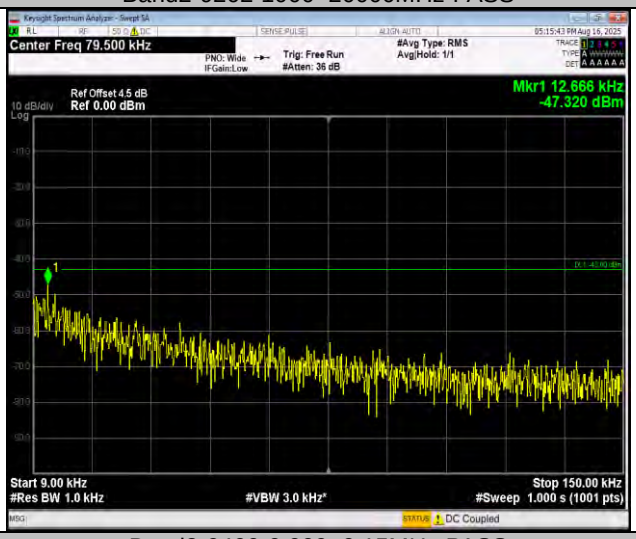
Band2-9262-0.009~0.15MHz-PASS



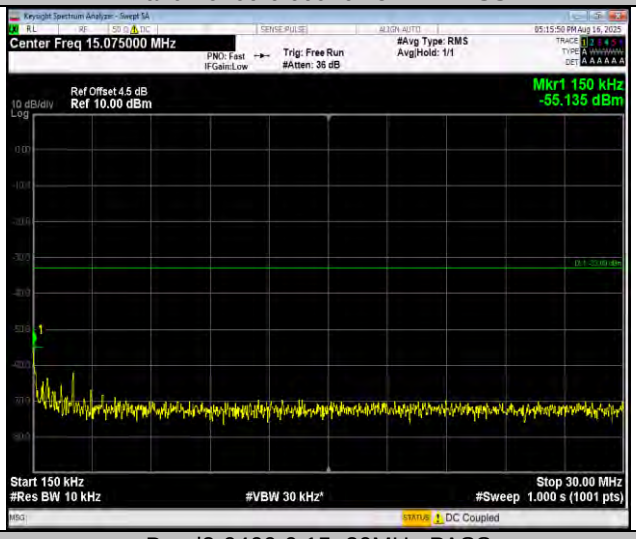
Band2-9262-0.15~30MHz-PASS

Band2-9262-30~1000MHz-PASS

Band2-9262-1000~20000MHz-PASS



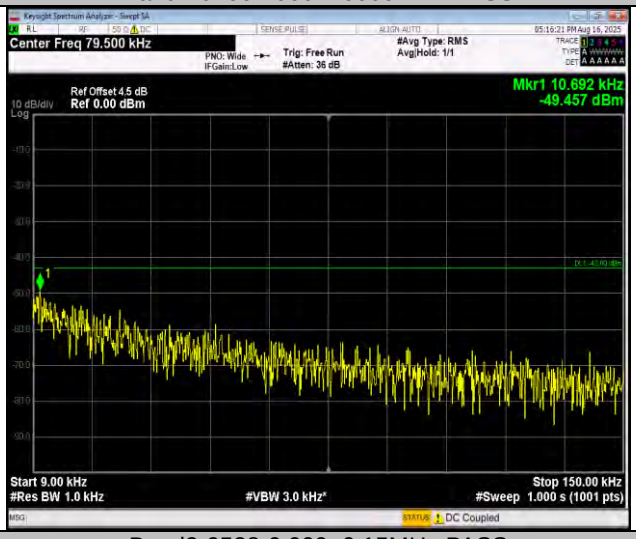
Band2-9400-0.009~0.15MHz-PASS



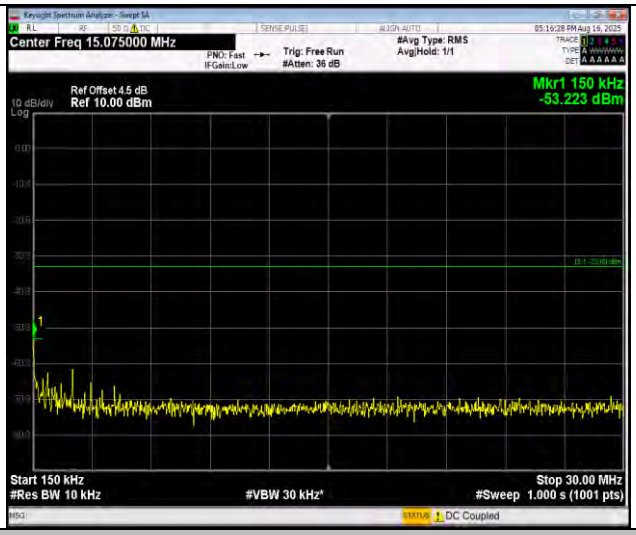
Band2-9400-0.15~30MHz-PASS

Band2-9400-30~1000MHz-PASS

Band2-9400-1000~20000MHz-PASS



Band2-9538-0.009~0.15MHz-PASS

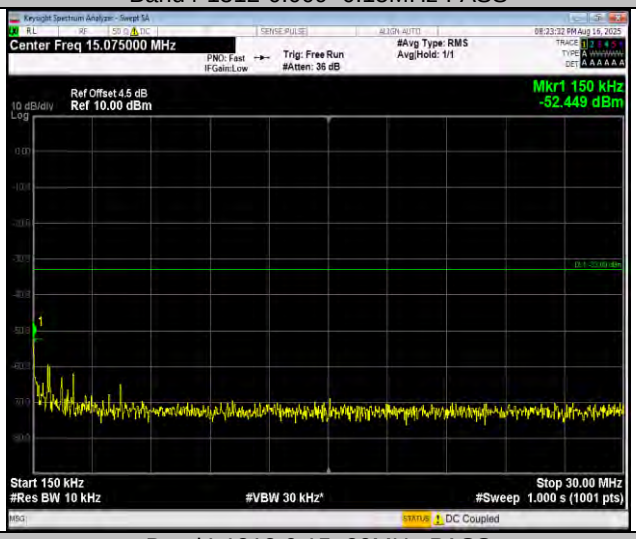


Band2-9538-0.15~30MHz-PASS

Band2-9538-30~1000MHz-PASS

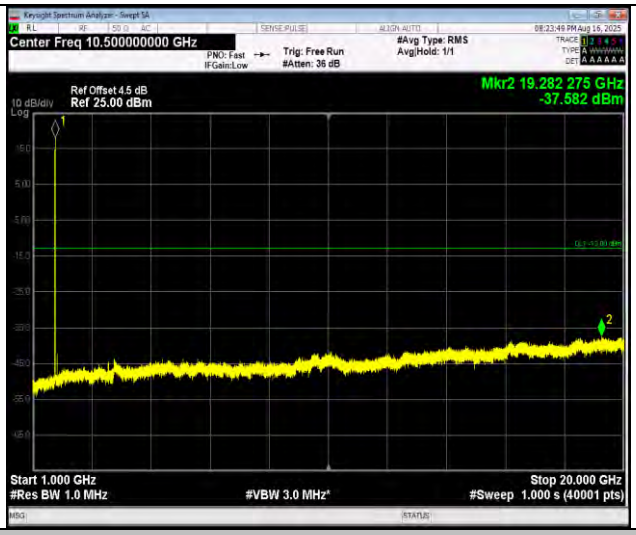
Band2-9538-1000~20000MHz-PASS

Band4-1312-0.009~0.15MHz-PASS

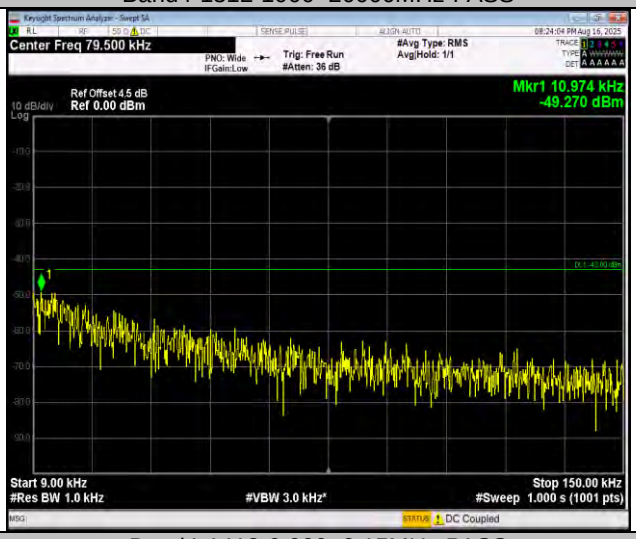


Band4-1312-0.15~30MHz-PASS

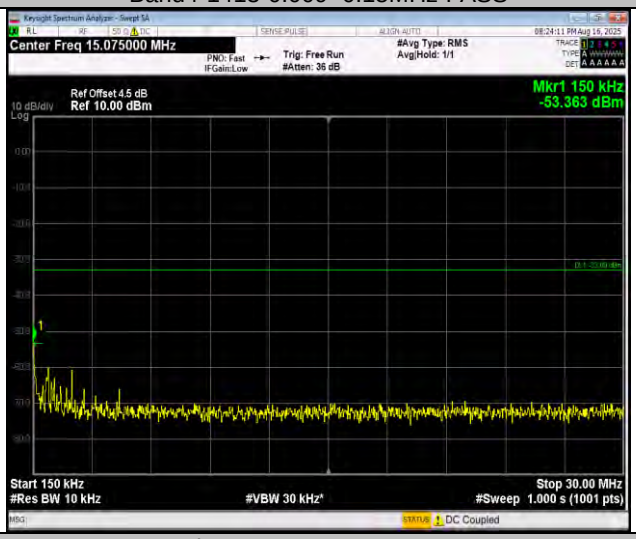
Band4-1312-30~1000MHz-PASS



Band4-1312-1000~20000MHz-PASS

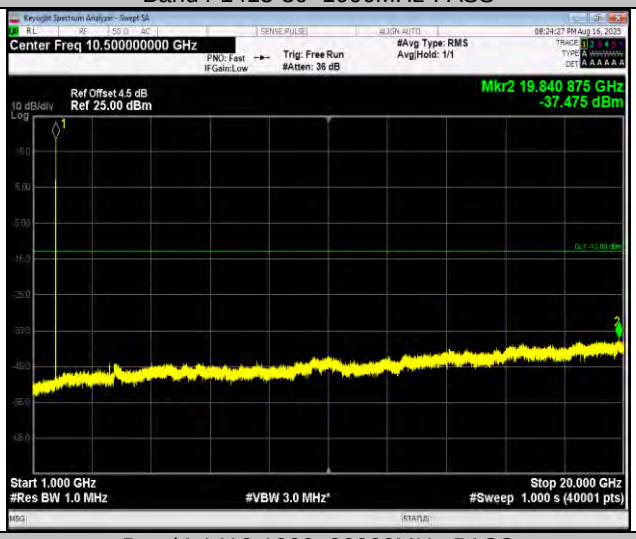


Band4-1413-0.009~0.15MHz-PASS

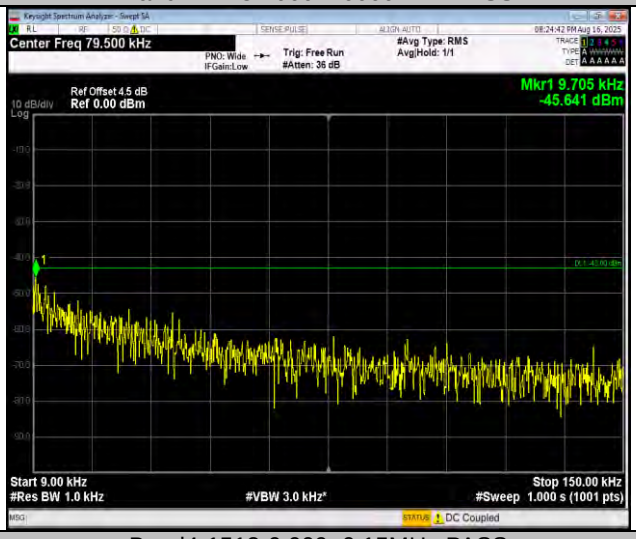


Band4-1413-0.15~30MHz-PASS

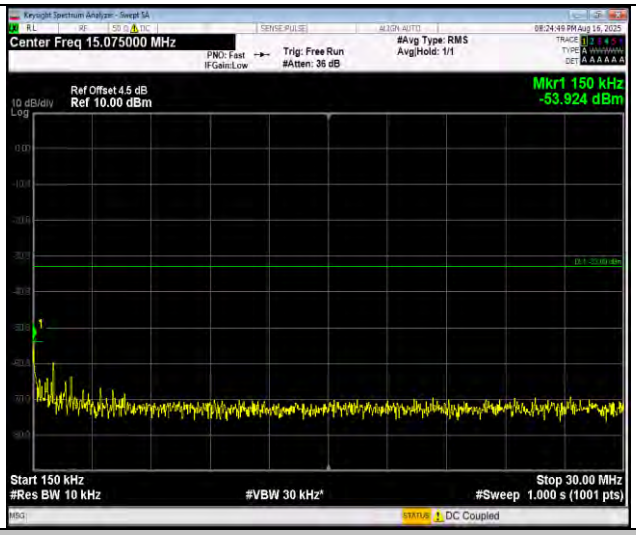
Band4-1413-30~1000MHz-PASS



Band4-1413-1000~20000MHz-PASS



Band4-1513-0.009~0.15MHz-PASS

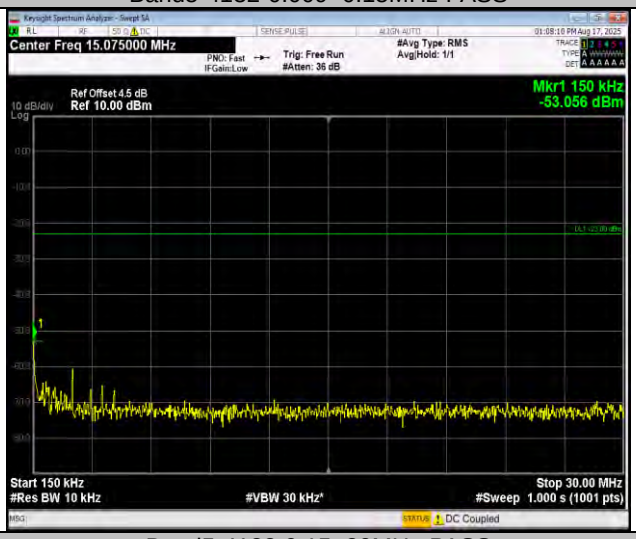


Band4-1513-0.15~30MHz-PASS

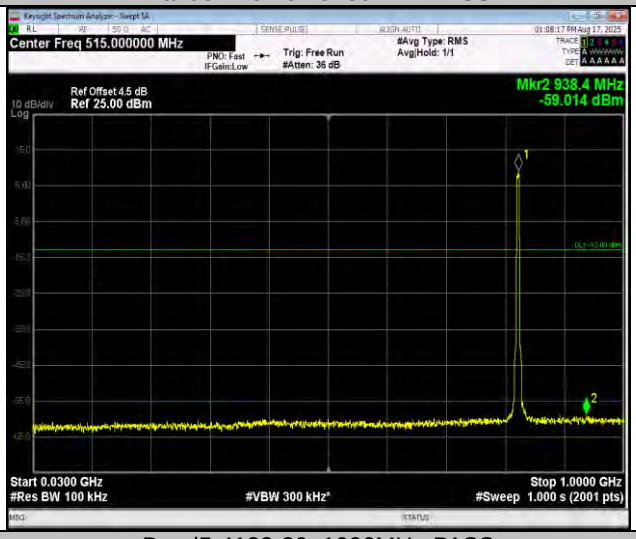
Band4-1513-30~1000MHz-PASS

Band4-1513-1000~20000MHz-PASS

Band5-4132-0.009~0.15MHz-PASS

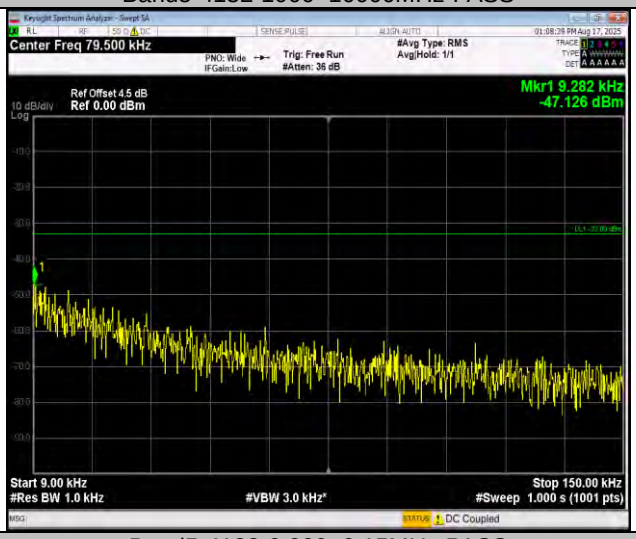


Band5-4132-0.15~30MHz-PASS

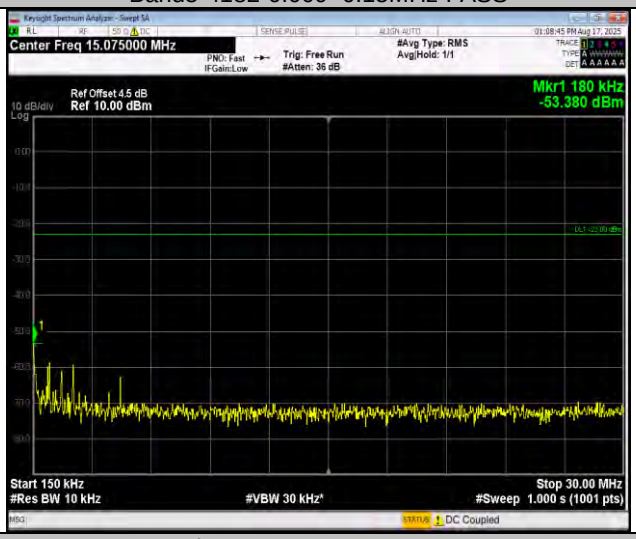


Band5-4132-30~1000MHz-PASS

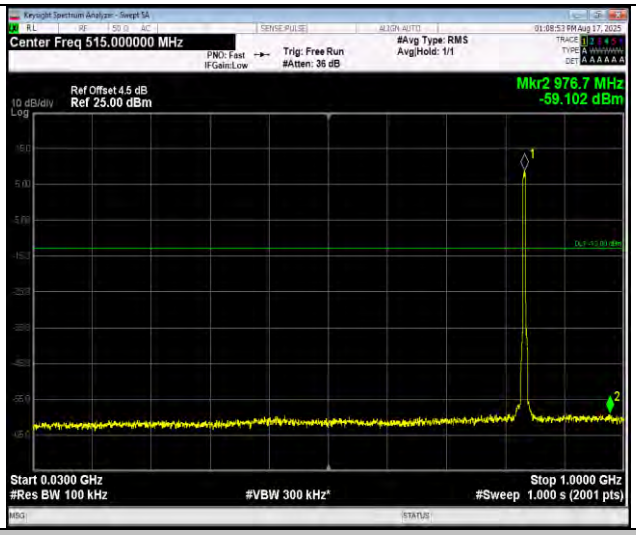
Band5-4132-1000~10000MHz-PASS



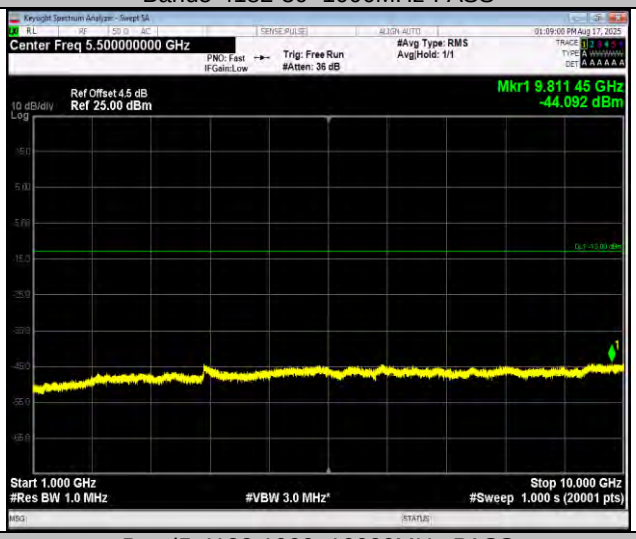
Band5-4182-0.009~0.15MHz-PASS



Band5-4182-0.15~30MHz-PASS

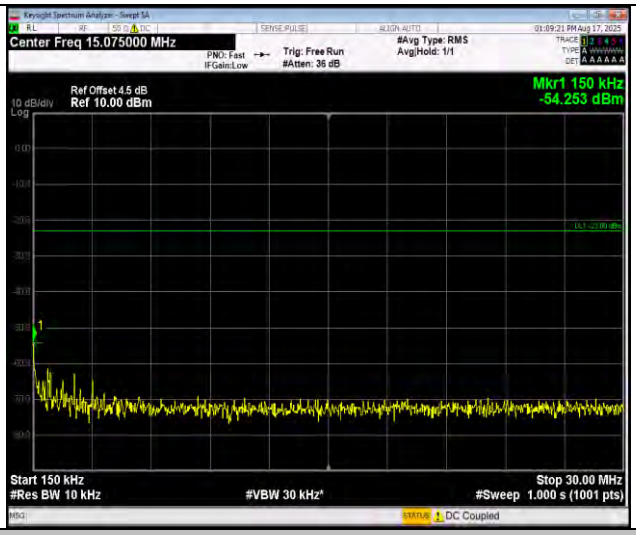


Band5-4182-30~1000MHz-PASS

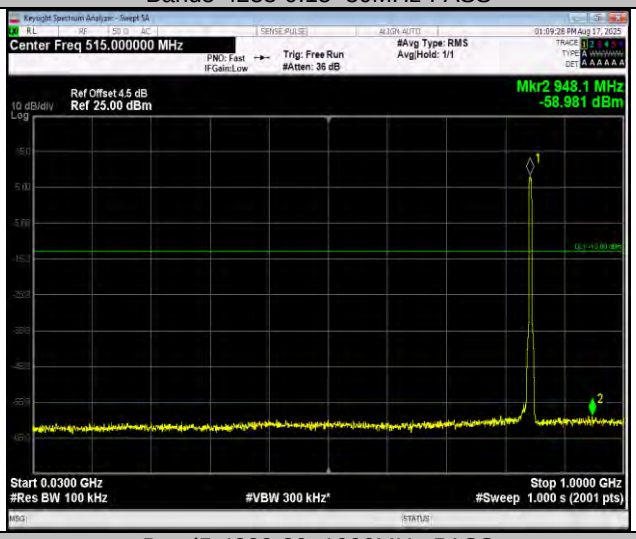


Band5-4182-1000~10000MHz-PASS

Band5-4233-0.009~0.15MHz-PASS



Band5-4233-0.15~30MHz-PASS



Band5-4233-30~1000MHz-PASS

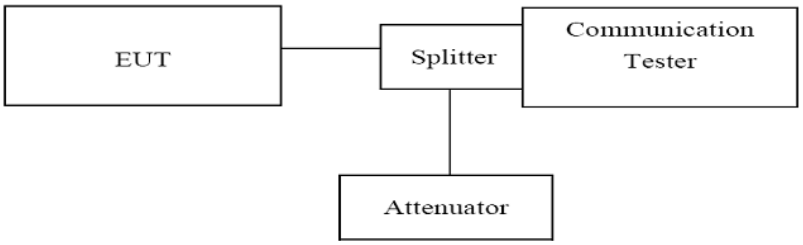
Band5-4233-1000~10000MHz-PASS

3.5. Receiver Spurious Emissions at Antenna Terminal

LIMIT

RSS-GEN7.1.3, Receiver-spurious emissions at any discrete frequency shall not exceed 2 nW in the band 30-1000 MHz, nor 5 nW above 1000 MHz.

TEST CONFIGURATION



TEST PROCEDURE

1. The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.
2. The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.
3. Set the RBW= 100kHz, VBW =300kHz, Below 1GHz
4. Set the RBW= 1MHz, VBW = 3MHz, Above1GHz,
5. Start=30MHz, Stop= 10th harmonic.

TEST RESULTS

Note: This test item is not applicable.

3.6. Band Edge compliance

LIMIT

FCC: §22.917, §24.238, §27.53 (h)

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

FCC: §90.691 Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

RSS132§5.5

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

(i) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1,the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p (watts).

(ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least43 +10 log10 p (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

RSS133§6.5

Equipment shall comply with the limits in (i) and (ii) below.

(i) In the 1.0 MHz bands immediately outside and adjacent to the equipment’s operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p(watts).

(ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

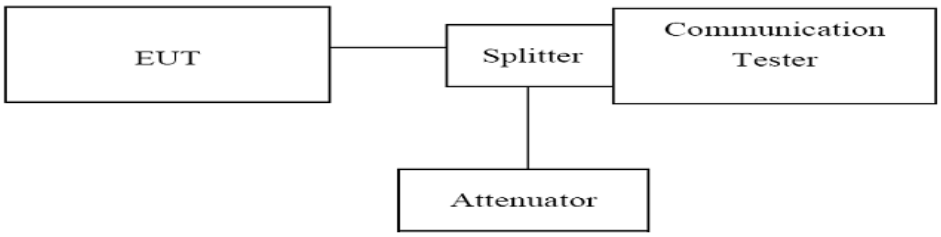
RSS139§6.6

(i) In the first 1.0 MHz bands immediately outside and adjacent to the equipment’s smallest operating frequency block,Footnote2 which can contain the equipment’s occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least43 + 10 log10 p (watts) dB.

(ii) After the first 1.0 MHz outside the equipment’s smallest operating frequency block, which can contain the equipment’s occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated

below the transmitter output power P (in dBW) by at least 43 + 10 log10 p (watts) dB.

TEST CONFIGURATION



TEST PROCEDURE

The transmitter output was connected to a R&S CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

• Set the spectrum analyzer span to include the block edge frequency.

• Set a marker to point the corresponding band edge frequency in each test case.

• Set display line at -13dBm

• Set resolution bandwidth to at least 1% of emission bandwidth.

TEST RESULTS

Band	Channel	Frequency (MHz)	Result (dBm)	Limit(dBm)	Verdict
Band2	9262	1850.00	-32.63	-13	PASS
Band2	9538	1910.00	-31.91	-13	PASS
Band4	1312	1710.00	-31.52	-13	PASS
Band4	1513	1755.00	-32.45	-13	PASS
Band5	4132	824.00	-33.84	-13	PASS
Band5	4233	849.00	-31.27	-13	PASS

Test Graphs

Band2-9262-PASS

Band2-9538-PASS

Band4-1312-PASS

Band4-1513-PASS

Band5-4132-PASS

Band5-4233-PASS

3.7. Radiated Power Measurement

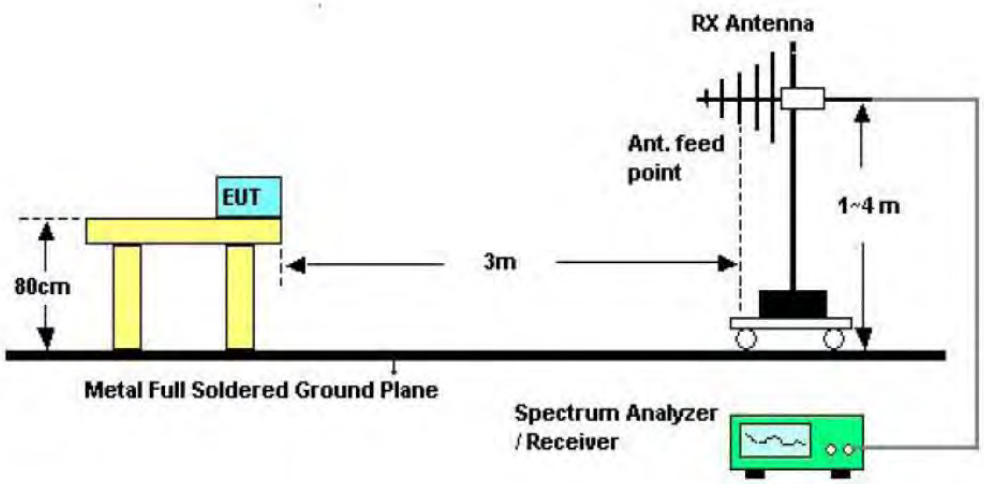
LIMIT

FCC: §2.1046, §22.913, §24.232, §27.50 and §90.635

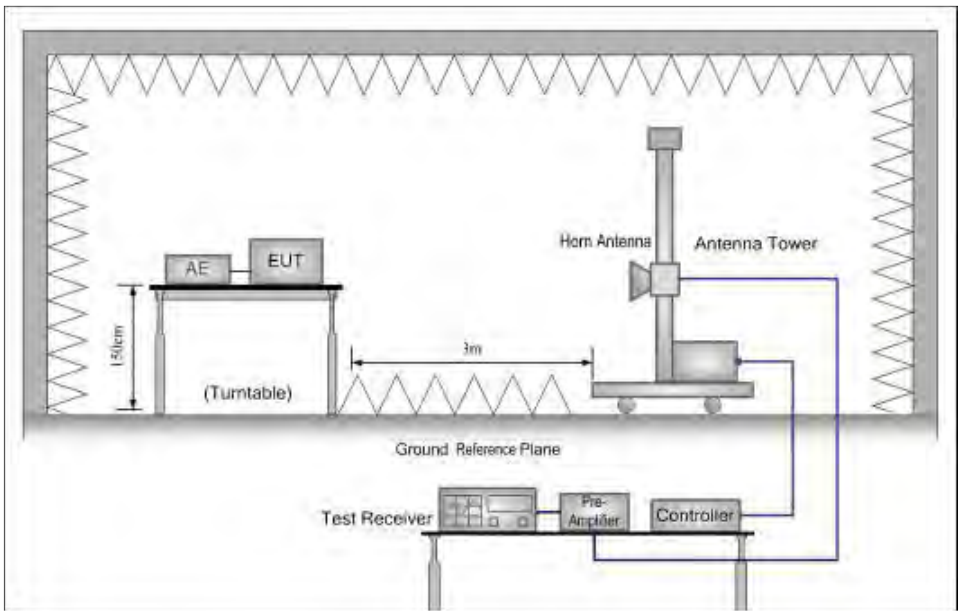
IC: RSS132§5.4; RSS133§6.4 and RSS139§6.5.

TEST CONFIGURATION

For the actual test configuration, please refer to the related Item – EUT Test Photos.



Below 1GHz



Above 1GHz

TEST PROCEDURE

1. EUT was placed on a 1.50 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.50m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
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.
3. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz, and the maximum value of the receiver should be recorded as (Pr).
4. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) 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 (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
5. An amplifier should be connected to the Signal Source output port. And the cable should be connecting between the Amplifier and the Substitution Antenna. The cable loss (Pcl), the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
6. The measurement results are obtained as described below:
   Power(EIRP)=PMea- PAg - Pcl + Ga
   We used N5182A microwave signal generator which signal level can up to 33dBm,so we not used power Amplifier for substitution test; The measurement results are amend as described below:
   Power(EIRP)=PMea- Pcl + Ga
7. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
   ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.

TEST RESULTS

Remark: By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that “X axis” position was the worst, and test data recorded in this report.

Measurement Data (worst case):

Mode	Channel	Antenna Pol.	EIRP	Limit (dBm)	Result
WCDMA Band II (QPSK)	9262	V	23.19	33.00	Pass
		H	21.56		
	9400	V	23.02		
		H	20.87		
	9538	V	23.11		
		H	21.34		

Mode	Channel	Antenna Pol.	EIRP	Limit (dBm)	Result
WCDMA Band IV (QPSK)	1312	V	23.38	33.00	Pass
		H	21.52		
	1413	V	22.99		
		H	21.18		
	1513	V	23.36		
		H	21.25		

Mode	Channel	Antenna Pol.	ERP	Limit (dBm)	Result
WCDMA Band V (QPSK)	4132	V	23.47	38.45	Pass
		H	21.27		
	4183	V	23.30		
		H	21.10		
	4233	V	23.61		
		H	21.38		

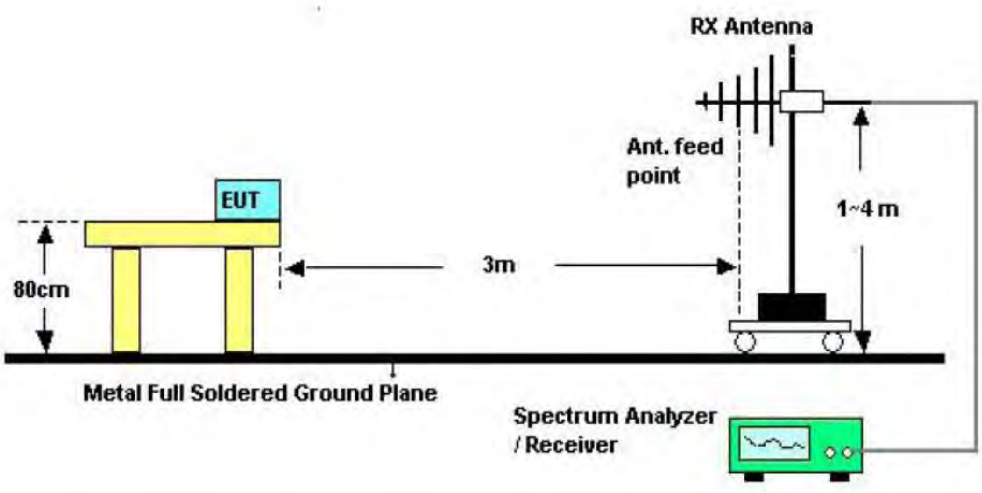
3.8. Radiated Spurious Emission

LIMIT

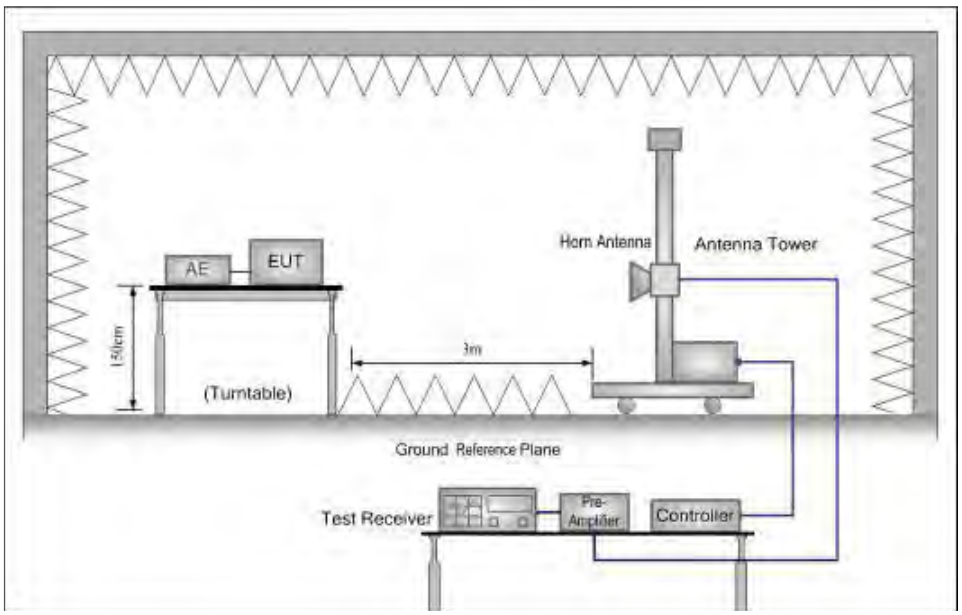
FCC: §22.917(a), §24.238(a), §27.53 (h), §90.691
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.
RSS132§5.5
Mobile and base station equipment shall comply with the limits in (i) and (ii) below.
(i) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p (watts).
(ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least43 +10 log10 p (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.
RSS133§6.5
Equipment shall comply with the limits in (i) and (ii) below.
(i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p(watts).
(ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.
RSS139§6.6
(i) In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block,Footnote2 which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least43 + 10log10 p (watts) dB.
(ii) After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 log10 p (watts) dB.

TEST CONFIGURATION

For the actual test configuration, please refer to the related Item – EUT Test Photos.



Below 1GHz



Above 1GHz

TEST PROCEDURE

1. EUT was placed on a 1.50 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.50m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
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.
3. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz, and the maximum value of the receiver should be recorded as (Pr).
4. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) 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 (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
5. An amplifier should be connected to the Signal Source output port. And the cable should be connecting between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
6. The measurement results are obtained as described below:
   Power(EIRP)=PMea- PAg - Pcl + Ga

We used SMF100A microwave signal generator which signal level can up to 33dBm,so we not used power Amplifier for substitution test; The measurement results are amend as described below: Power(EIRP)=PMea- Pcl + Ga

7. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15dBi) and known input power.
   ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.
8. Test frequency range should extend to 10th harmonic of highest fundamental frequency.

TEST RESULTS

Remark:
1. By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that “X axis” position was the worst, and test data recorded in this report.
2. The emission levels of below 1 GHz are very lower than the limit above 20dB and not show in test report.

WCDMA Band II					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
9262	3705.20	Vertical	-35.60	-13.00	Pass
	5557.80	Vertical	-50.29		
	3705.20	Horizontal	-48.42		
	5557.80	Horizontal	-51.19		
9400	3760.00	Vertical	-43.46		
	5640.00	Vertical	-50.23		
	3760.00	Horizontal	-43.94		
	5640.00	Horizontal	-54.44		
9538	3814.80	Vertical	-41.27		
	5722.20	Vertical	-50.82		
	3814.80	Horizontal	-43.27		
	5722.20	Horizontal	-46.51		

WCDMA Band IV					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
1312	3425.20	Vertical	-42.87	-13.00	Pass
	5137.80	Vertical	-53.84		
	3425.20	Horizontal	-48.80		
	5137.80	Horizontal	-53.87		
1413	3465.20	Vertical	-41.33		
	5197.80	Vertical	-51.90		
	3465.20	Horizontal	-46.30		
	5197.80	Horizontal	-52.40		
1513	3504.80	Vertical	-38.18		
	5257.20	Vertical	-53.54		
	3504.80	Horizontal	-45.50		
	5257.20	Horizontal	-50.94		

WCDMA Band V					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
4132	1653.20	Vertical	-43.26	-13.00	Pass
	2479.80	Vertical	-55.37		
	1653.20	Horizontal	-48.15		
	2479.80	Horizontal	-51.22		
4183	1672.80	Vertical	-53.27		
	2509.20	Vertical	-55.32		
	1672.80	Horizontal	-50.41		
	2509.20	Horizontal	-51.78		
4233	1692.80	Vertical	-52.27		
	2539.20	Vertical	-55.45		
	1692.80	Horizontal	-51.38		
	2539.20	Horizontal	-51.79		

3.9. Frequency stability

LIMIT

FCC §22.355, §90.213

The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations.

FCC §24.235 & §27.54

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

RSS132§5.3

The carrier frequency shall not depart from the reference frequency in excess of ±2.5 SRSP for mobile stations and±1.5 ppm for base stations.

In lieu of meeting the above stability values, the test report may show that the frequency stability is sufficient to ensure that the occupied bandwidth stays within each of the sub-bands (see Section 5.1) when tested to the temperature and supply voltage variations specified in RSS-Gen.

RSS133§6.3

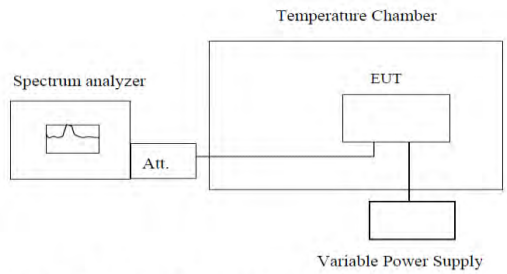
The carrier frequency shall not depart from the reference frequency, in excess of ±2.5 ppm for mobile stations and±1.0 ppm for base stations.

In lieu of meeting the above stability values, the test report may show that the frequency stability is sufficient to ensure that the emission bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

RSS139§6.4

The frequency stability shall be sufficient to ensure that the occupied bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

TEST CONFIGURATION



Note : Measurement setup for testing on Antenna connector

TEST PROCEDURE

1. The equipment under test was connected to an external DC power supply and input rated voltage.
2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators.
3. The EUT was placed inside the temperature chamber.
4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25℃ operating frequency as reference frequency.
5. Turn EUT off and set the chamber temperature to -5℃. After the temperature stabilized for

approximately 30 minutes recorded the frequency.

6. Repeat step measure with 10℃ increased per stage until the highest temperature of +30℃ reached.
7. Reduce the input voltage to specified extreme voltage variation (+/- 10%) and endpoint, record the maximum frequency change.

TEST RESULTS

Voltage							
Band	Channel	Voltage (Vdc)	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band2	9262	VN	NT	7.85	0.004238	±2.5	PASS
Band2	9262	VL	NT	6.39	0.003450	±2.5	PASS
Band2	9262	VH	NT	1.95	0.001053	±2.5	PASS
Band2	9400	VN	NT	-2.50	-0.001330	±2.5	PASS
Band2	9400	VL	NT	9.34	0.004968	±2.5	PASS
Band2	9400	VH	NT	-4.07	-0.002165	±2.5	PASS
Band2	9538	VN	NT	-3.35	-0.001756	±2.5	PASS
Band2	9538	VL	NT	-3.68	-0.001929	±2.5	PASS
Band2	9538	VH	NT	-0.86	-0.000451	±2.5	PASS
Band4	1312	VN	NT	0.31	0.000181	±2.5	PASS
Band4	1312	VL	NT	1.78	0.001039	±2.5	PASS
Band4	1312	VH	NT	3.43	0.002003	±2.5	PASS
Band4	1413	VN	NT	-8.70	-0.005021	±2.5	PASS
Band4	1413	VL	NT	-11.59	-0.006689	±2.5	PASS
Band4	1413	VH	NT	-4.63	-0.002672	±2.5	PASS
Band4	1513	VN	NT	4.28	0.002442	±2.5	PASS
Band4	1513	VL	NT	5.94	0.003389	±2.5	PASS
Band4	1513	VH	NT	-0.09	-0.000051	±2.5	PASS
Band5	4132	VN	NT	2.15	0.002602	±2.5	PASS
Band5	4132	VL	NT	-1.92	-0.002323	±2.5	PASS
Band5	4132	VH	NT	-0.38	-0.000460	±2.5	PASS
Band5	4182	VN	NT	-2.55	-0.003049	±2.5	PASS
Band5	4182	VL	NT	-0.52	-0.000622	±2.5	PASS
Band5	4182	VH	NT	-3.28	-0.003922	±2.5	PASS
Band5	4233	VN	NT	-2.75	-0.003248	±2.5	PASS
Band5	4233	VL	NT	-0.46	-0.000543	±2.5	PASS
Band5	4233	VH	NT	-0.20	-0.000236	±2.5	PASS

Temperature							
Band	Channel	Voltage (Vdc)	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band2	9262	NV	-30	-2.85	-0.001539	±2.5	PASS
Band2	9262	NV	-20	-1.09	-0.000588	±2.5	PASS
Band2	9262	NV	-10	2.27	0.001225	±2.5	PASS
Band2	9262	NV	0	3.70	0.001997	±2.5	PASS
Band2	9262	NV	10	-5.98	-0.003228	±2.5	PASS
Band2	9262	NV	20	-7.87	-0.004249	±2.5	PASS
Band2	9262	NV	30	-11.14	-0.006014	±2.5	PASS
Band2	9262	NV	40	2.05	0.001107	±2.5	PASS
Band2	9262	NV	50	-4.89	-0.002640	±2.5	PASS
Band2	9400	NV	-30	-4.38	-0.002330	±2.5	PASS
Band2	9400	NV	-20	-2.14	-0.001138	±2.5	PASS
Band2	9400	NV	-10	0.64	0.000340	±2.5	PASS
Band2	9400	NV	0	5.97	0.003176	±2.5	PASS
Band2	9400	NV	10	2.73	0.001452	±2.5	PASS
Band2	9400	NV	20	0.07	0.000037	±2.5	PASS
Band2	9400	NV	30	-0.33	-0.000176	±2.5	PASS
Band2	9400	NV	40	4.68	0.002489	±2.5	PASS
Band2	9400	NV	50	0.43	0.000229	±2.5	PASS
Band2	9538	NV	-30	8.14	0.004267	±2.5	PASS
Band2	9538	NV	-20	-0.31	-0.000163	±2.5	PASS
Band2	9538	NV	-10	-3.74	-0.001961	±2.5	PASS
Band2	9538	NV	0	5.51	0.002888	±2.5	PASS
Band2	9538	NV	10	5.84	0.003061	±2.5	PASS
Band2	9538	NV	20	4.24	0.002223	±2.5	PASS
Band2	9538	NV	30	2.81	0.001473	±2.5	PASS
Band2	9538	NV	40	-1.17	-0.000613	±2.5	PASS
Band2	9538	NV	50	6.15	0.003224	±2.5	PASS
Band4	1312	NV	-30	5.09	0.002972	±2.5	PASS
Band4	1312	NV	-20	-2.01	-0.001174	±2.5	PASS
Band4	1312	NV	-10	3.25	0.001898	±2.5	PASS
Band4	1312	NV	0	-4.36	-0.002546	±2.5	PASS
Band4	1312	NV	10	1.44	0.000841	±2.5	PASS
Band4	1312	NV	20	-1.77	-0.001034	±2.5	PASS
Band4	1312	NV	30	4.31	0.002517	±2.5	PASS
Band4	1312	NV	40	-8.68	-0.005069	±2.5	PASS
Band4	1312	NV	50	0.53	0.000310	±2.5	PASS
Band4	1413	NV	-30	-6.85	-0.003954	±2.5	PASS
Band4	1413	NV	-20	-0.98	-0.000566	±2.5	PASS
Band4	1413	NV	-10	-4.49	-0.002591	±2.5	PASS
Band4	1413	NV	0	7.12	0.004109	±2.5	PASS
Band4	1413	NV	10	1.36	0.000785	±2.5	PASS
Band4	1413	NV	20	-1.11	-0.000641	±2.5	PASS
Band4	1413	NV	30	4.11	0.002372	±2.5	PASS
Band4	1413	NV	40	6.33	0.003653	±2.5	PASS
Band4	1413	NV	50	4.31	0.002488	±2.5	PASS
Band4	1513	NV	-30	-1.27	-0.000725	±2.5	PASS
Band4	1513	NV	-20	-8.85	-0.005050	±2.5	PASS
Band4	1513	NV	-10	2.65	0.001512	±2.5	PASS
Band4	1513	NV	0	1.32	0.000753	±2.5	PASS
Band4	1513	NV	10	0.16	0.000091	±2.5	PASS
Band4	1513	NV	20	4.37	0.002493	±2.5	PASS
Band4	1513	NV	30	4.46	0.002545	±2.5	PASS

Band4	1513	NV	40	0.27	0.000154	±2.5	PASS
Band4	1513	NV	50	1.97	0.001124	±2.5	PASS
Band5	4132	NV	-30	-2.47	-0.002989	±2.5	PASS
Band5	4132	NV	-20	0.24	0.000290	±2.5	PASS
Band5	4132	NV	-10	-1.06	-0.001283	±2.5	PASS
Band5	4132	NV	0	1.78	0.002154	±2.5	PASS
Band5	4132	NV	10	-0.26	-0.000315	±2.5	PASS
Band5	4132	NV	20	0.96	0.001162	±2.5	PASS
Band5	4132	NV	30	-0.55	-0.000666	±2.5	PASS
Band5	4132	NV	40	-1.47	-0.001779	±2.5	PASS
Band5	4132	NV	50	1.95	0.002360	±2.5	PASS
Band5	4182	NV	-30	-1.01	-0.001208	±2.5	PASS
Band5	4182	NV	-20	-0.99	-0.001184	±2.5	PASS
Band5	4182	NV	-10	-3.14	-0.003754	±2.5	PASS
Band5	4182	NV	0	-2.67	-0.003192	±2.5	PASS
Band5	4182	NV	10	-2.50	-0.002989	±2.5	PASS
Band5	4182	NV	20	0.11	0.000132	±2.5	PASS
Band5	4182	NV	30	0.49	0.000586	±2.5	PASS
Band5	4182	NV	40	0.34	0.000407	±2.5	PASS
Band5	4182	NV	50	-0.95	-0.001136	±2.5	PASS
Band5	4233	NV	-30	2.06	0.002433	±2.5	PASS
Band5	4233	NV	-20	0.37	0.000437	±2.5	PASS
Band5	4233	NV	-10	0.39	0.000461	±2.5	PASS
Band5	4233	NV	0	-2.54	-0.003000	±2.5	PASS
Band5	4233	NV	10	1.24	0.001465	±2.5	PASS
Band5	4233	NV	20	-1.85	-0.002185	±2.5	PASS
Band5	4233	NV	30	0.00	0.000000	±2.5	PASS
Band5	4233	NV	40	-0.29	-0.000343	±2.5	PASS
Band5	4233	NV	50	1.81	0.002138	±2.5	PASS

**********THE END**********