



Test report No:
24C0966R-RF-US-P40V01

FCC TEST REPORT

Product Name	Mobile Computer
Model and /or type reference	PM68
Trademark	N/A
FCC ID	V2X-PM68
Applicant's name / address	Point Mobile Co.,LTD. A-26F, Building Gasan Publik 178, Digital-ro, Geumcheon-gu Seoul, 08513 Republic of Korea
Test method requested, standard	FCC CFR Title 47 Part 22 & 24 & 27 ANSI C63.26: 2015 ANSI/TIA-603-E: 2016
Verdict Summary	IN COMPLIANCE
Documented by (name / position & signature)	Jun Xu/Project Manager 
Approved by (name / position & signature)	Frank He/ Manager 
Date of issue	2025-03-27
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COMPETENCES AND GUARANTEES

DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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GENERAL CONDITIONS

Test Location	No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Date(receive sample)	Feb. 17, 2025
Date (start test)	Feb. 18, 2025
Date (finish test)	Mar. 18, 2025

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
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4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	15 °C - 35 °C
Relative Humidity air	30% - 60%

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT	: Equipment Under Test
QP	: Quasi-Peak
CAV	: CISPR Average
AV	: Average
CDN	: Coupling Decoupling Network
SAC	: Semi-Anechoic Chamber
OATS	: Open Area Test Site
BW	: Bandwidth
AM	: Amplitude Modulation
PM	: Pulse Modulation
HCP	: Horizontal Coupling Plane
VCP	: Vertical Coupling Plane
U_N	: Nominal voltage
Tx	: Transmitter
Rx	: Receiver
N/A	: Not Applicable
N/M	: Not Measured

DOCUMENT HISTORY

Report No.	Version	Description	Issued Date
24C0966R-RF-US-P40V01	V1.0	Initial issue of report.	2025-03-27

REMARKS AND COMMENTS

1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with FCC Part 22,24,27.
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.
4. The test results relate only to the samples tested.
5. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
6. This report will not be used for social proof function in China market.
7. DEKRA declines any responsibility with the following test data provided by customer that may affect the validity of result:
 - Chapter 1.1 General Description of the Item(s);
 - Chapter 1.2 Antenna Information;
 - Chapter 1.3 Channel List.

USED EQUIPMENT

Part 22 & 24 & 27 Test System / TR7

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date	Firmware Version	Software Version
Wideband Radio Communication Tester	R&S	CMW 500	170870	2024.05.15	2025.05.14	X 4.0.62.11	N/A
Signal analyzer	R&S	FSV30	104212	2024.07.06	2025.07.05	3.40	N/A
ESG Vector Signal Generator	Agilent	E4438C	MY49070163	2024.10.19	2025.10.18	C.05.85	N/A
RF Control Unit	Tonscend	JS0806-1	168060022	2024.06.11	2025.06.10	N/A	N/A
PSG Analog Signal Generator	Agilent	E8257D	MY44321116	2024.06.14	2025.06.13	C.06.27	N/A
High and low temperature and fast temperature change test box	ASTUOD	ASTD-FBT-225K	N/A	2024.04.21	2025.04.20	N/A	N/A
Filter box	Tonscend	JS0806-1	168060022	2024.06.11	2025.06.10	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-1909	THM-036	2024.05.17	2025.05.16	N/A	N/A
Test Software	Tonscend	JS1120	JS1120-8	N/A	N/A	N/A	V3.1.46

Radiated Emission / AC5

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date	Firmware Version	Software version
EXA Spectrum Analyzer	Keysight	N9020B	MY60112218	2024.11.02	2025.11.01	A.31.05	N/A
Pre-Amplifier	SKET	LNPA_0118G-45	SK2021090101	2024.04.27	2025.04.26	N/A	N/A
Preamplifier	CHENGYI	EMC184045SE	980263	2024.07.06	2025.07.05	N/A	N/A
DRG Horn	ETS-Lindgren	3117	123988	2024.08.29	2025.08.28	N/A	N/A
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2024.05.30	2025.05.29	N/A	N/A
Filter Switch Box	MVE	MSW-F196	C070001S	2024.04.20	2025.04.19	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-1909	THM-024	2024.05.17	2025.05.16	N/A	N/A
Cable	Rosenberger	LA1-C011-1000	0523	2024.05.26	2025.05.25	N/A	N/A
Cable	Rosenberger	LA1-C011-1000	0623	2024.05.26	2025.05.25	N/A	N/A
Dekra test software	Dekra	N/A	N/A	N/A	N/A	N/A	3

UNCERTAINTY

Uncertainties have been calculated according to the DEKRA internal document. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%. The Uncertainties is comply with standard required as below.

Test item	Uncertainty
RF Output Power	± 1.2 dB
Frequency Stability	± 10 Hz
Occupied Bandwidth	± 10 Hz
Spurious Emissions at antenna terminals	± 1.2 dB
Spurious Emissions at antenna terminals at Block Edges	± 1.2 dB
Radiated Emission(30MHz~1GHz)	Horizontal: 30MHz~200MHz: 4.60 dB 200MHz~1GHz: 4.10 dB Vertical: 30MHz~200MHz: 4.80 dB 200MHz~1GHz: 4.10 dB
Radiated Emission(1GHz~40GHz)	Horizontal: 1GHz~18GHz: 5.00 dB Vertical: 1GHz~18GHz: 4.80 dB Horizontal: 18GHz~40GHz: 4.70 dB Vertical: 18GHz~40GHz: 4.60 dB

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Product Name	Mobile Computer
Model No.	PM68
Trademark.	N/A
FCC ID.....	V2X-PM68
Hardware Version.....	MP
Software Version	68.00
Manufacturer	Point Mobile Co.,LTD.
Manufacturer Address	A-26F, Building Gasan Publik 178, Digital-ro, Geumcheon-gu Seoul, 08513 Republic of Korea

Wireless specification.....	WCDMA
Support Band(s)	Band 2, Band 5
Uplink Frequency	Band 2: 1850-1910 MHz Band 5: 824-849 MHz
Downlink Frequency	Band 2: 1930-1990 MHz Band 5: 869-894 MHz
Type of Modulation.....	Downlink modulation: QPSK & 16QAM & 64QAM Uplink modulation: QPSK & 16QAM

Wireless specification.....	LTE
Support Band(s)	Band2/5/7/17/41
Uplink Frequency	Band 2: 1850-1910 MHz Band 5: 824-849 MHz Band 7: 2500-2570 MHz Band 17: 704-716 MHz Band 41: 2496-2690 MHz
Downlink Frequency	Band 2: 1930-1990 MHz Band 5: 869-894 MHz Band 7: 2620-2690 MHz Band 17: 734-746 MHz Band 41: 2496-2690 MHz
Type of Modulation.....	Downlink modulation: QPSK & 16QAM & 64QAM Uplink modulation: QPSK & 16QAM & 64QAM

Rated power supply :	Voltage and Frequency	
	☐	AC: 220 - 240 V, 50/60 Hz
	☐	DC: 24 Vdc
	☒	Battery: 3.8V
	☒	Adapter: Input:100-240V, 50/60 Hz,0.3A; Output:5.0V,2.0A,10W
Mounting position :	☐	Tabletop equipment
	☐	Floor standing equipment
	☒	Hand-held/Portable equipment
	☐	Other:

1.2 Antenna Information

Antenna model / type number	N/A			
Antenna serial number	N/A			
Antenna Delivery	☒	1TX + 1RX		
	☒	1TX + 2RX		
Antenna technology	☒	SISO		
	☐	MIMO	☐	CDD
			☐	Beam-forming
Antenna Type	☐	External	☐	Dipole
			☐	Sectorized
	☒	Internal	☒	PIFA
			☐	FPC
			☐	Ceramic Chip
			☐	Others.....
Antenna Gain	Band 2: 2.20 dBi Band 5: -2.35 dBi Band 7: 2.51 dBi Band 17: -2.12 dBi Band 41: 2.89 dBi			

1.3 Channel List

WCDMA Working Frequency of Each Channel:						
WCDMA Band	Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)
Band2	9262	1852.4	9400	1880	9538	1907.6
Band5	4132	836.6	4183	836.6	4233	846.6

LTE Working Frequency of Each Channel:						
LTE Band	Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)
Band2 (BW=1.4M)	18607	1850.7	18900	1880	19193	1909.3
Band2 (BW=3M)	18615	1851.5	18900	1880	19185	1908.5
Band2 (BW=5M)	18625	1852.5	18900	1880	19175	1907.5
Band2 (BW=10M)	18650	1855.0	18900	1880.0	19150	1905.0
Band2 (BW=15M)	18675	1857.5	18900	1880.0	19125	1902.5
Band2 (BW=20M)	18700	1860.0	18900	1880.0	19100	1900.0
Band5 (BW=1.4M)	20407	824.7	20525	836.5	20643	848.3
Band5 (BW=3M)	20415	825.5	20525	836.5	20635	847.5
Band5 (BW=5M)	20425	826.5	20525	836.5	20625	846.5
Band5 (BW=10M)	20450	829.0	20525	836.5	20600	844.0
Band7 (BW=5M)	20775	2502.5	21100	2535	21425	2567.5
Band7 (BW=10M)	20800	2505	21100	2535	21400	2565
Band7 (BW=15M)	20825	2507.5	21100	2535	21375	2562.5
Band7 (BW=20M)	20850	2510	21100	2535	21350	2560
Band17 (BW=5M)	23755	706.5	23790	710.0	23825	713.5
Band17 (BW=10M)	23780	709.0	23790	710.0	23800	711.0
Band41 (BW=5M)	40265	2557.5	40740	2605	41215	2652.5
Band41 (BW=10M)	40290	2560	40740	2605	41190	2650
Band41 (BW=15M)	40315	2562.5	40740	2605	41165	2647.5
Band41 (BW=20M)	40340	2565	40740	2605	41140	2645

Note: The General Description of the Item , antenna information and Channel List for the EUT in clause 1 are provided and confirmed by the client.

2 DESCRIPTION OF TEST SETUP

2.1 Operating mode(s) used for tests

During the tests the following operating mode(s) has(have) been used.

Test Mode	Mode 1: Transmit by WCDAM Band2
	Mode 2: Transmit by WCDAM Band5
	Mode 3: Transmit by LTE Band2
	Mode 4: Transmit by LTE Band5
	Mode 5: Transmit by LTE Band7
	Mode 6: Transmit by LTE Band17
	Mode 7: Transmit by LTE Band41

Note1 : Regards to the frequency band operation: the lowest, middle and highest frequency channel were selected to perform the test, then shown on this report.

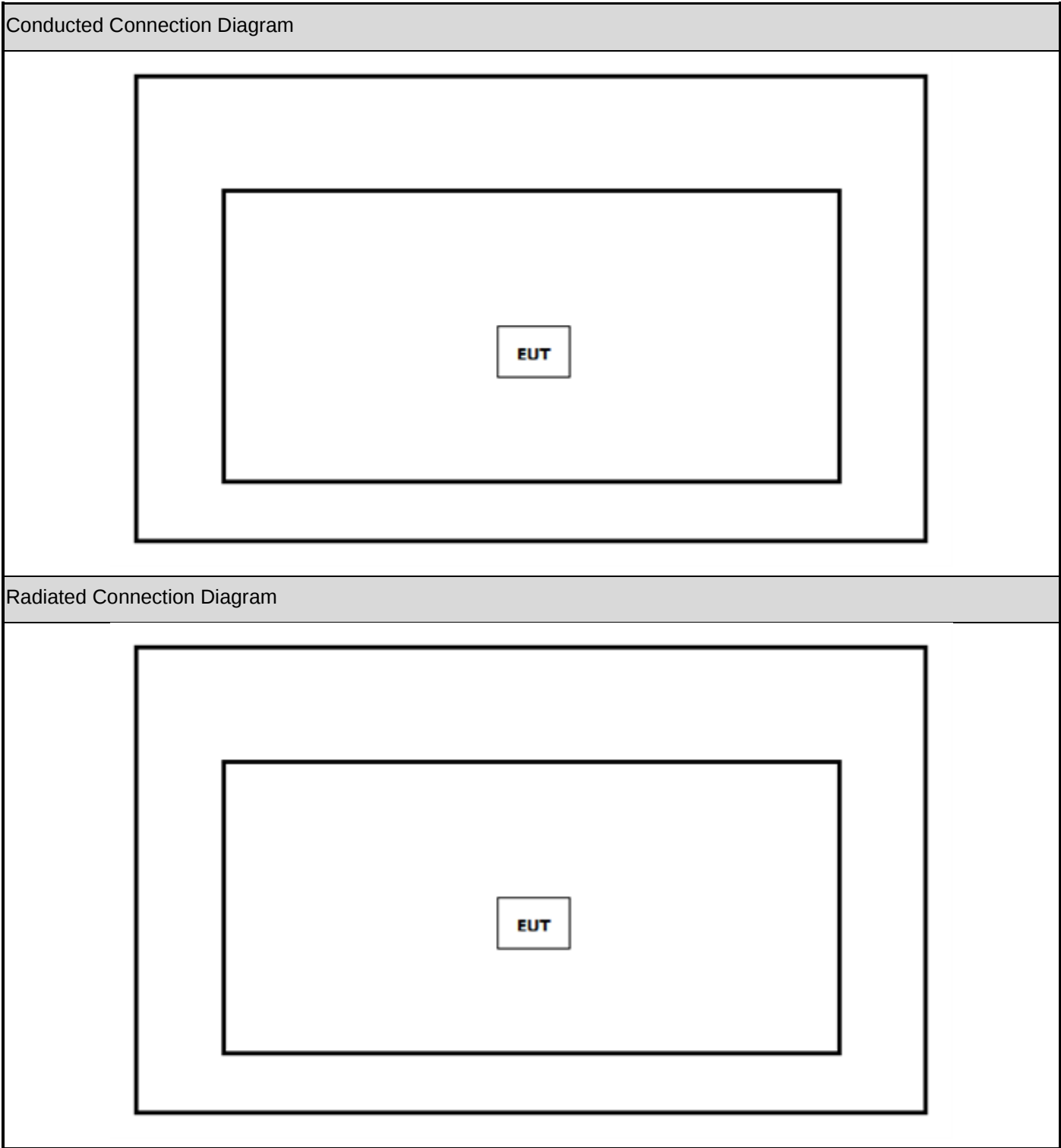
Note 2: For portable device, radiated tests was verified over X, Y, Z axis, and shown the worst case on this report.

2.2 Auxiliary equipment / Test software for the EUT

Auxiliary equipment	Type / Version	Manufacturer	Supplied by
Wideband Radio Communication Tester	CMW 500	R&S	230Vac
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
software	Type / Version	Manufacturer	Supplied by
N/A	N/A	N/A	N/A

Accessories Information	Cable		
	Length used during test [m]	Attached during test	Shielded
N/A	1	☒	☐
N/A	8	☒	☐

2.3 Test Configuration / Block diagram used for tests



2.4 Testing process

1	Setup the EUT as shown in Section 2.3.
2	Connect EUT with base station.
3	Select the test mode, the test channel, and the data rate.
4	Press connect to start the continuous transmitting.
5	Verify that the EUT works properly.

3 VERDICT SUMMARY SECTION

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

3.1 Standards

Standard	Year	Description
FCC CFR Title 47 Part 2	2024	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
FCC CFR Title 47 Part 22	2024	Public Mobile Services
FCC CFR Title 47 Part 24	2024	Personal Communications Services
FCC CFR Title 47 Part 27	2024	Miscellaneous Wireless Communications Services
ANSI C63.26	2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
ANSI TIA-603-E	2016	Land Mobile FM or PM Communications Equipment Measurement and performance Standards
KDB971168 D01 v03r01	2018	Measurement Guidance for Certification of Licensed Digital Transmitters
KDB971168 D02 v02r01	2023	Miscellaneous and Basic Review and Approval Items for Transmitting Equipment Used in Licensed Radio Services

3.2 Deviation(s) from the Standard(s) / Test Specification(s)

The following deviation(s) was / were made from the published requirements of the listed standards: N/A.

(Please define the deviations from the standard(s) if applicable)

3.3 Overview of results

WCDMA Band 5, LTE band 5:

FCC Part 22			
Requirement – Test case	Basic standard(s)	Verdict	Remark
Effective (Isotropic) Radiated Power Output Data	Section 22.913	PASS	N/A
Peak-Average Ratio	Section 22.913	PASS	Test data please refer to Appendix A
Bandwidth	Section 2.1049	PASS	Test data please refer to Appendix B
Band Edges Compliance	Section 22.917	PASS	Test data please refer to Appendix C
Spurious Emission at Antenna Terminals	Section 22.917	PASS	Test data please refer to Appendix D
Field Strength of Spurious Radiation	Section 22.917	PASS	N/A
Frequency Stability	Section 22.355	PASS	Test data please refer to Appendix E
Modulation Characteristics	Section 2.1047	PASS	Test data please refer to Appendix F

WCDMA Band 2, LTE band 2:

FCC Part 24			
Requirement – Test case	Basic standard(s)	Verdict	Remark
Effective (Isotropic) Radiated Power Output Data	Section 24.232	PASS	N/A
Peak-Average Ratio	Section 24.232	PASS	Test data please refer to Appendix A
Bandwidth	Section 2.1049	PASS	Test data please refer to Appendix B
Band Edges Compliance	Section 24.238	PASS	Test data please refer to Appendix C
Spurious Emission at Antenna Terminals	Section 24.238	PASS	Test data please refer to Appendix D
Field Strength of Spurious Radiation	Section 24.238	PASS	N/A
Frequency Stability	Section 24.235	PASS	Test data please refer to Appendix E
Modulation Characteristics	Section 2.1047	PASS	Test data please refer to Appendix F

LTE band 7/17/41:

FCC Part 27			
Requirement – Test case	Basic standard(s)	Verdict	Remark
Effective (Isotropic) Radiated Power Output Data	Section 27.50	PASS	N/A
Peak-Average Ratio	--	PASS	Test data please refer to Appendix A
Bandwidth	Section 2.1049	PASS	Test data please refer to Appendix B
Band Edges Compliance	Section 27.53	PASS	Test data please refer to Appendix C
Spurious Emission at Antenna Terminals	Section 27.53	PASS	Test data please refer to Appendix D
Field Strength of Spurious Radiation	Section 27.53	PASS	N/A
Frequency Stability	Section 27.54	PASS	Test data please refer to Appendix E
Modulation Characteristics	Section 2.1047	PASS	Test data please refer to Appendix F

3.4 Test Facility

USA : FCC Designation Number: CN1199

4 TEST RESULTS

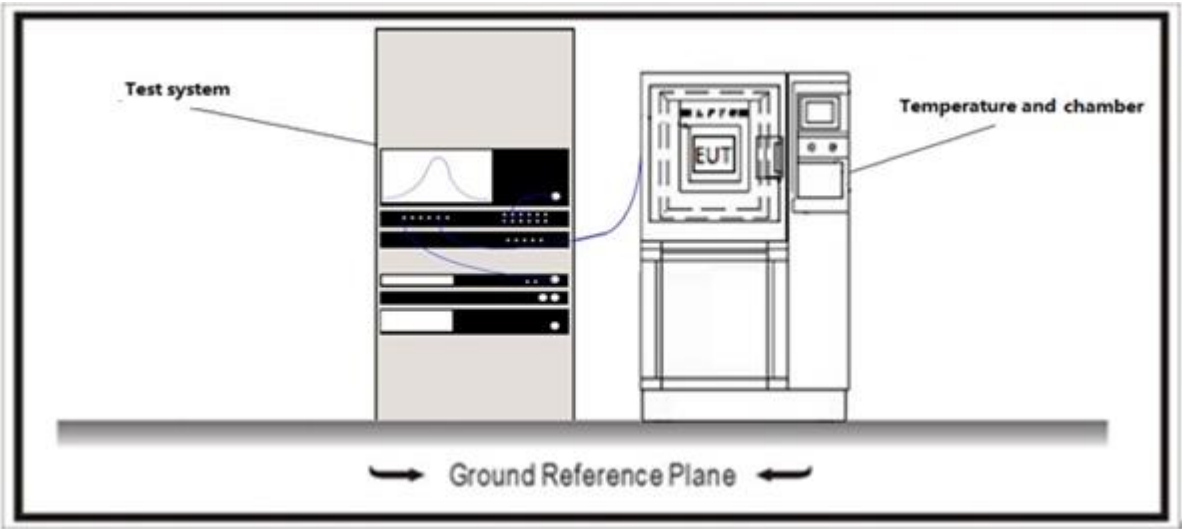
4.1 Effective (Isotropic) Radiated Power Output

VERDICT: PASS

4.1.1 Limit

Band	Standard
WCDMA Band 5; LTE Band 5	FCC §2.1046 and §22.913: The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.
WCDMA Band 2; LTE Band 2	FCC §2.1046 and §24.232: Mobile and portable stations are limited to 2 watts EIRP. The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.
LTE Band 17	FCC §27.50(c)(10): Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.
LTE Band 7/41	FCC §27.50(h)(2): Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

4.1.2 Test Setup



4.1.3 Test Procedure

	References Rule	Chapter	Item
☒	ANSI C63.26-2015	5.2	RF output power measurement procedures
The conducted RF Output Power measurements were made at the RF output terminals of the EUT using the power meter of the Universal Radio Communication tester R&S CMW500, selecting maximum transmission power of the EUT and different modes of modulation. Peak to average ratio(PAPR) is used equation $PAPR(dB)=PPK(dBm)-PAVG(dBm)$, where PPK is measured peak power, and PAVG is measured average power. The maximum equivalent isotropically radiated power(e.i.r.p.) is calculated by adding the declared maximum antenna gain(dBi). The maximum effective radiated power e.r.p. is calculated form the maximum equivalent isotropically radiated power(e.i.r.p.) by subtracting 2.15 dB: $E.R.P = E.I.R.P. - 2.15\text{ dB}$			

4.1.4 Test Data

WCDMA:

RMC					
Band	Channel	Power(dBm)	EIRP(dBm)	Limit(dBm)	Verdict
Band II	9262	23.09	25.29	33	PASS
Band II	9400	23.10	25.30	33	PASS
Band II	9538	23.00	25.20	33	PASS
Band	Channel	Power(dBm)	ERP(dBm)	Limit(dBm)	Verdict
Band V	4132	23.78	19.28	38.5	PASS
Band V	4182	23.81	19.31	38.5	PASS
Band V	4233	23.59	19.09	38.5	PASS

HSDPA						
Band	Channel	SubTest	Power(dBm)	EIRP(dBm)	Limit(dBm)	Verdict
Band II	9262	1	22.15	24.35	33	PASS
Band II	9262	2	21.63	23.83	33	PASS
Band II	9262	3	21.67	23.87	33	PASS
Band II	9262	4	21.58	23.78	33	PASS
Band II	9400	1	21.87	24.07	33	PASS
Band II	9400	2	21.35	23.55	33	PASS
Band II	9400	3	21.37	23.57	33	PASS
Band II	9400	4	21.34	23.54	33	PASS
Band II	9538	1	21.98	24.18	33	PASS
Band II	9538	2	21.49	23.69	33	PASS
Band II	9538	3	21.42	23.62	33	PASS
Band II	9538	4	21.43	23.63	33	PASS
Band	Channel	SubTest	Power(dBm)	ERP(dBm)	Limit(dBm)	Verdict
Band V	4132	1	22.83	18.33	38.5	PASS
Band V	4132	2	22.26	17.76	38.5	PASS
Band V	4132	3	22.26	17.76	38.5	PASS
Band V	4132	4	22.30	17.8	38.5	PASS
Band V	4182	1	22.74	18.24	38.5	PASS
Band V	4182	2	22.21	17.71	38.5	PASS
Band V	4182	3	22.22	17.72	38.5	PASS
Band V	4182	4	22.20	17.7	38.5	PASS
Band V	4233	1	22.64	18.14	38.5	PASS
Band V	4233	2	22.13	17.63	38.5	PASS
Band V	4233	3	22.09	17.59	38.5	PASS
Band V	4233	4	22.13	17.63	38.5	PASS

HSUPA						
Band	Channel	SubTest	Power(dBm)	EIRP(dBm)	Limit(dBm)	Verdict
Band II	9262	1	21.45	23.65	33	PASS
Band II	9262	2	20.46	22.66	33	PASS
Band II	9262	3	21.38	23.58	33	PASS
Band II	9262	4	19.90	22.1	33	PASS
Band II	9262	5	21.35	23.55	33	PASS
Band II	9400	1	21.62	23.82	33	PASS
Band II	9400	2	20.41	22.61	33	PASS
Band II	9400	3	21.41	23.61	33	PASS
Band II	9400	4	20.00	22.2	33	PASS
Band II	9400	5	21.35	23.55	33	PASS
Band II	9538	1	21.47	23.67	33	PASS
Band II	9538	2	20.16	22.36	33	PASS
Band II	9538	3	21.20	23.40	33	PASS
Band II	9538	4	19.67	21.87	33	PASS
Band II	9538	5	21.23	23.43	33	PASS
Band	Channel	SubTest	Power(dBm)	ERP(dBm)	Limit(dBm)	Verdict
Band V	4132	1	22.23	17.73	38.5	PASS
Band V	4132	2	21.22	16.72	38.5	PASS
Band V	4132	3	22.12	17.62	38.5	PASS
Band V	4132	4	20.57	16.07	38.5	PASS
Band V	4132	5	22.10	17.6	38.5	PASS
Band V	4182	1	22.41	17.91	38.5	PASS
Band V	4182	2	21.27	16.77	38.5	PASS
Band V	4182	3	22.32	17.82	38.5	PASS
Band V	4182	4	20.79	16.29	38.5	PASS
Band V	4182	5	22.19	17.69	38.5	PASS
Band V	4233	1	22.27	17.77	38.5	PASS
Band V	4233	2	20.93	16.43	38.5	PASS
Band V	4233	3	22.01	17.51	38.5	PASS
Band V	4233	4	20.54	16.04	38.5	PASS
Band V	4233	5	22.11	17.61	38.5	PASS

LTE:

Band 2

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) HighCh. / Freq.	EIRP (dBm) Low Ch. / Freq.	EIRP (dBm) MiddleCh. / Freq.	EIRP (dBm) HighCh. / Freq.	Limit (dBm)
Channel				18700	18900	19100	18700	18900	19100	
Frequency (MHz)				1860	1880	1900	1860	1880	1900	
20	QPSK	1	0	23.41	23.17	23.22	25.61	25.37	25.42	33.00
20	QPSK	1	49	23.63	23.76	23.68	25.83	25.96	25.88	33.00
20	QPSK	1	99	23.22	23.14	23.38	25.42	25.34	25.58	33.00
20	QPSK	50	0	22.53	22.51	22.49	24.73	24.71	24.69	33.00
20	QPSK	50	24	22.50	22.46	22.55	24.7	24.66	24.75	33.00
20	QPSK	50	50	22.55	22.56	22.45	24.75	24.76	24.65	33.00
20	QPSK	100	0	22.58	22.59	22.48	24.78	24.79	24.68	33.00
20	16QAM	1	0	22.50	22.00	22.14	24.7	24.2	24.34	33.00
20	16QAM	1	49	22.82	22.25	22.55	25.02	24.45	24.75	33.00
20	16QAM	1	99	22.38	21.92	22.30	24.58	24.12	24.5	33.00
20	16QAM	50	0	21.58	21.57	21.56	23.78	23.77	23.76	33.00
20	16QAM	50	24	21.65	21.63	21.53	23.85	23.83	23.73	33.00
20	16QAM	50	50	21.56	21.51	21.56	23.76	23.71	23.76	33.00
20	16QAM	100	0	21.53	21.48	21.52	23.73	23.68	23.72	33.00
20	64QAM	1	0	21.65	20.99	21.41	23.85	23.19	23.61	33.00
20	64QAM	1	49	21.85	21.46	21.77	24.05	23.66	23.97	33.00
20	64QAM	1	99	21.40	20.89	21.48	23.6	23.09	23.68	33.00
20	64QAM	50	0	20.64	20.61	20.58	22.84	22.81	22.78	33.00
20	64QAM	50	24	20.68	20.57	20.56	22.88	22.77	22.76	33.00
20	64QAM	50	50	20.60	20.45	20.53	22.8	22.65	22.73	33.00
20	64QAM	100	0	20.62	20.48	20.52	22.82	22.68	22.72	33.00
Channel				18675	18900	19125	18675	18900	19125	Limit (dBm)
Frequency (MHz)				1857.5	1880	1902.5	1857.5	1880	1902.5	
15	QPSK	1	0	23.46	23.37	23.41	25.66	25.57	25.61	33.00
15	QPSK	1	37	23.51	23.43	23.48	25.71	25.63	25.68	33.00
15	QPSK	1	74	23.30	23.32	23.42	25.5	25.52	25.62	33.00
15	QPSK	36	0	22.66	22.48	22.27	24.86	24.68	24.47	33.00
15	QPSK	36	20	22.65	22.55	22.33	24.85	24.75	24.53	33.00
15	QPSK	36	39	22.45	22.44	22.28	24.65	24.64	24.48	33.00
15	QPSK	75	0	22.55	22.38	22.46	24.75	24.58	24.66	33.00
15	16QAM	1	0	22.63	22.10	22.40	24.83	24.3	24.6	33.00
15	16QAM	1	37	22.65	22.18	22.51	24.85	24.38	24.71	33.00
15	16QAM	1	74	22.48	22.10	22.46	24.68	24.3	24.66	33.00
15	16QAM	36	0	21.65	21.49	21.25	23.85	23.69	23.45	33.00
15	16QAM	36	20	21.69	21.54	21.33	23.89	23.74	23.53	33.00
15	16QAM	36	39	21.43	21.41	21.30	23.63	23.61	23.5	33.00
15	16QAM	75	0	21.59	21.37	21.33	23.79	23.57	23.53	33.00

15	64QAM	1	0	21.55	21.51	21.24	23.75	23.71	23.44	33.00
15	64QAM	1	37	21.65	21.53	21.35	23.85	23.73	23.55	33.00
15	64QAM	1	74	21.36	21.40	21.31	23.56	23.6	23.51	33.00
15	64QAM	36	0	20.66	20.49	20.25	22.86	22.69	22.45	33.00
15	64QAM	36	20	20.72	20.52	20.30	22.92	22.72	22.5	33.00
15	64QAM	36	39	20.66	20.44	20.26	22.86	22.64	22.46	33.00
15	64QAM	75	0	20.63	20.40	20.44	22.83	22.6	22.64	33.00
Channel				18650	18900	19150	18650	18900	19150	Limit (dBm)
Frequency (MHz)				1855	1880	1905	1855	1880	1855	
10	QPSK	1	0	23.68	23.40	23.45	25.88	25.6	25.65	33.00
10	QPSK	1	25	23.66	23.45	23.55	25.86	25.65	25.75	33.00
10	QPSK	1	49	23.51	23.38	23.49	25.71	25.58	25.69	33.00
10	QPSK	25	0	22.60	22.46	22.54	24.8	24.66	24.74	33.00
10	QPSK	25	12	22.59	22.46	22.49	24.79	24.66	24.69	33.00
10	QPSK	25	25	22.52	22.36	22.50	24.72	24.56	24.7	33.00
10	QPSK	50	0	22.54	22.43	22.48	24.74	24.63	24.68	33.00
10	16QAM	1	0	22.50	22.19	22.45	24.7	24.39	24.65	33.00
10	16QAM	1	25	22.46	22.28	22.61	24.66	24.48	24.81	33.00
10	16QAM	1	49	22.40	22.16	22.53	24.6	24.36	24.73	33.00
10	16QAM	25	0	21.64	21.52	21.59	23.84	23.72	23.79	33.00
10	16QAM	25	12	21.70	21.48	21.53	23.9	23.68	23.73	33.00
10	16QAM	25	25	21.59	21.41	21.57	23.79	23.61	23.77	33.00
10	16QAM	50	0	21.62	21.45	21.59	23.82	23.65	23.79	33.00
10	64QAM	1	0	21.43	21.52	21.29	23.63	23.72	23.49	33.00
10	64QAM	1	25	21.44	21.59	21.43	23.64	23.79	23.63	33.00
10	64QAM	1	49	21.41	21.49	21.39	23.61	23.69	23.59	33.00
10	64QAM	25	0	20.64	20.42	20.54	22.84	22.62	22.74	33.00
10	64QAM	25	12	20.66	20.45	20.56	22.86	22.65	22.76	33.00
10	64QAM	25	25	20.56	20.38	20.51	22.76	22.58	22.71	33.00
10	64QAM	50	0	20.64	20.41	20.49	22.84	22.61	22.69	33.00
Channel				18625	18900	19175	18625	18900	19175	Limit (dBm)
Frequency (MHz)				1852.5	1880	1907.5	1852.5	1880	1907.5	
5	QPSK	1	0	23.57	23.35	23.43	25.77	25.55	25.63	33.00
5	QPSK	1	12	23.64	23.48	23.58	25.84	25.68	25.78	33.00
5	QPSK	1	24	23.44	23.28	23.50	25.64	25.48	25.7	33.00
5	QPSK	12	0	22.57	22.36	22.55	24.77	24.56	24.75	33.00
5	QPSK	12	7	22.58	22.40	22.52	24.78	24.6	24.72	33.00
5	QPSK	12	13	22.51	22.33	22.43	24.71	24.53	24.63	33.00
5	QPSK	25	0	22.55	22.38	22.52	24.75	24.58	24.72	33.00
5	16QAM	1	0	22.63	22.27	22.39	24.83	24.47	24.59	33.00
5	16QAM	1	12	22.70	22.39	22.50	24.9	24.59	24.7	33.00
5	16QAM	1	24	22.56	22.27	22.39	24.76	24.47	24.59	33.00
5	16QAM	12	0	21.57	21.40	21.55	23.77	23.6	23.75	33.00
5	16QAM	12	7	21.64	21.36	21.56	23.84	23.56	23.76	33.00
5	16QAM	12	13	21.58	21.40	21.48	23.78	23.6	23.68	33.00
5	16QAM	25	0	21.59	21.44	21.58	23.79	23.64	23.78	33.00
5	64QAM	1	0	21.94	21.49	21.20	24.14	23.69	23.4	33.00
5	64QAM	1	12	22.04	21.57	21.36	24.24	23.77	23.56	33.00

5	64QAM	1	24	21.93	21.47	21.26	24.13	23.67	23.46	33.00
5	64QAM	12	0	20.63	20.47	20.59	22.83	22.67	22.79	33.00
5	64QAM	12	7	20.62	20.41	20.61	22.82	22.61	22.81	33.00
5	64QAM	12	13	20.53	20.44	20.50	22.73	22.64	22.7	33.00
5	64QAM	25	0	20.61	20.41	20.57	22.81	22.61	22.77	33.00
Channel				18615	18900	19185	18615	18900	19185	Limit (dBm)
Frequency (MHz)				1851.5	1880	1908.5	1851.5	1880	1908.5	
3	QPSK	1	0	23.66	23.42	23.48	25.86	25.62	25.68	33.00
3	QPSK	1	8	23.69	23.37	23.54	25.89	25.57	25.74	33.00
3	QPSK	1	14	23.63	23.39	23.52	25.83	25.59	25.72	33.00
3	QPSK	8	0	22.62	22.38	22.49	24.82	24.58	24.69	33.00
3	QPSK	8	4	22.61	22.36	22.49	24.81	24.56	24.69	33.00
3	QPSK	8	7	22.57	22.37	22.47	24.77	24.57	24.67	33.00
3	QPSK	15	0	22.56	22.34	22.51	24.76	24.54	24.71	33.00
3	16QAM	1	0	22.53	22.16	22.52	24.73	24.36	24.72	33.00
3	16QAM	1	8	22.50	22.22	22.56	24.7	24.42	24.76	33.00
3	16QAM	1	14	22.41	22.15	22.52	24.61	24.35	24.72	33.00
3	16QAM	8	0	21.65	21.40	21.53	23.85	23.6	23.73	33.00
3	16QAM	8	4	21.64	21.43	21.53	23.84	23.63	23.73	33.00
3	16QAM	8	7	21.56	21.37	21.56	23.76	23.57	23.76	33.00
3	16QAM	15	0	21.54	21.33	21.58	23.74	23.53	23.78	33.00
3	64QAM	1	0	21.45	21.50	21.30	23.65	23.7	23.5	33.00
3	64QAM	1	8	21.42	21.51	21.40	23.62	23.71	23.6	33.00
3	64QAM	1	14	21.37	21.47	21.40	23.57	23.67	23.6	33.00
3	64QAM	8	0	20.66	20.37	20.53	22.86	22.57	22.73	33.00
3	64QAM	8	4	20.65	20.35	20.53	22.85	22.55	22.73	33.00
3	64QAM	8	7	20.60	20.35	20.48	22.8	22.55	22.68	33.00
3	64QAM	15	0	20.56	20.37	20.64	22.76	22.57	22.84	33.00
Channel				18607	18900	19193	18607	18900	19193	Limit (dBm)
Frequency (MHz)				1850.7	1880	1909.3	1850.7	1880	1909.3	
1.4	QPSK	1	0	23.55	23.34	23.58	25.75	25.54	25.78	33.00
1.4	QPSK	1	3	23.58	23.56	23.45	25.78	25.76	25.65	33.00
1.4	QPSK	1	5	23.60	23.36	23.58	25.8	25.56	25.78	33.00
1.4	QPSK	3	0	23.75	23.50	23.65	25.95	25.7	25.85	33.00
1.4	QPSK	3	1	23.40	23.50	23.65	25.6	25.7	25.85	33.00
1.4	QPSK	3	3	23.72	23.46	23.70	25.92	25.66	25.9	33.00
1.4	QPSK	6	0	22.68	22.40	22.54	24.88	24.6	24.74	33.00
1.4	16QAM	1	0	22.55	22.27	22.36	24.75	24.47	24.56	33.00
1.4	16QAM	1	3	22.64	22.47	22.46	24.84	24.67	24.66	33.00
1.4	16QAM	1	5	22.46	22.24	22.41	24.66	24.44	24.61	33.00
1.4	16QAM	3	0	22.53	22.29	22.43	24.73	24.49	24.63	33.00
1.4	16QAM	3	1	22.52	22.28	22.48	24.72	24.48	24.68	33.00
1.4	16QAM	3	3	22.53	22.27	22.48	24.73	24.47	24.68	33.00
1.4	16QAM	6	0	21.68	21.41	21.44	23.88	23.61	23.64	33.00
1.4	64QAM	1	0	21.84	21.64	21.29	24.04	23.84	23.49	33.00
1.4	64QAM	1	3	21.95	21.74	21.48	24.15	23.94	23.68	33.00
1.4	64QAM	1	5	21.81	21.60	21.29	24.01	23.8	23.49	33.00

1.4	64QAM	3	0	21.66	21.42	21.48	23.86	23.62	23.68	33.00
1.4	64QAM	3	1	21.67	21.46	21.48	23.87	23.66	23.68	33.00
1.4	64QAM	3	3	21.68	21.45	21.47	23.88	23.65	23.67	33.00
1.4	64QAM	6	0	20.49	20.24	20.43	22.69	22.44	22.63	33.00

Band5

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.	ERP (dBm) Low Ch. / Freq.	ERP (dBm) Middle Ch. / Freq.	ERP (dBm) High Ch. / Freq.	Limit (dBm)
Channel				20450	20525	20600	20450	20525	20450	
Frequency (MHz)				829	836.5	844	829	836.5	844	
10	QPSK	1	0	24.30	24.41	24.29	19.80	19.91	19.79	38.45
10	QPSK	1	25	24.36	24.32	24.27	19.86	19.82	19.77	38.45
10	QPSK	1	49	24.26	24.20	24.17	19.76	19.70	19.67	38.45
10	QPSK	25	0	23.22	23.22	23.17	18.72	18.72	18.67	38.45
10	QPSK	25	12	23.23	23.22	23.16	18.73	18.72	18.66	38.45
10	QPSK	25	25	23.25	23.26	23.14	18.75	18.76	18.64	38.45
10	QPSK	50	0	23.17	23.20	23.15	18.67	18.70	18.65	38.45
10	16QAM	1	0	23.05	23.26	23.07	18.55	18.76	18.57	38.45
10	16QAM	1	25	23.14	23.35	23.05	18.64	18.85	18.55	38.45
10	16QAM	1	49	23.01	23.17	22.98	18.51	18.67	18.48	38.45
10	16QAM	25	0	22.24	22.22	22.18	17.74	17.72	17.68	38.45
10	16QAM	25	12	22.29	22.21	22.20	17.79	17.71	17.70	38.45
10	16QAM	25	25	22.23	22.21	22.09	17.73	17.71	17.59	38.45
10	16QAM	50	0	22.22	22.20	22.15	17.72	17.70	17.65	38.45
10	64QAM	1	0	22.33	22.09	21.95	17.83	17.59	17.45	38.45
10	64QAM	1	25	22.48	22.11	22.07	17.98	17.61	17.57	38.45
10	64QAM	1	49	22.30	22.00	21.91	17.80	17.50	17.41	38.45
10	64QAM	25	0	21.24	21.22	21.15	16.74	16.72	16.65	38.45
10	64QAM	25	12	21.21	21.26	21.19	16.71	16.76	16.69	38.45
10	64QAM	25	25	21.19	21.26	21.11	16.69	16.76	16.61	38.45
10	64QAM	50	0	21.21	21.19	21.19	16.71	16.69	16.69	38.45
Channel				20425	20525	20625	20425	20525	20625	Limit (dBm)
Frequency (MHz)				826.5	836.5	846.5	826.5	836.5	846.5	
5	QPSK	1	0	24.21	24.17	24.07	19.71	19.67	19.57	38.45
5	QPSK	1	12	24.38	24.35	24.18	19.88	19.85	19.68	38.45
5	QPSK	1	24	24.25	24.21	23.98	19.75	19.71	19.48	38.45
5	QPSK	12	0	23.22	23.14	23.13	18.72	18.64	18.63	38.45
5	QPSK	12	7	23.18	23.19	23.15	18.68	18.69	18.65	38.45
5	QPSK	12	13	23.26	23.20	23.06	18.76	18.70	18.56	38.45
5	QPSK	25	0	23.21	23.23	23.11	18.71	18.73	18.61	38.45
5	16QAM	1	0	23.08	23.07	23.13	18.58	18.57	18.63	38.45
5	16QAM	1	12	23.26	23.18	23.20	18.76	18.68	18.70	38.45
5	16QAM	1	24	23.12	23.05	23.08	18.62	18.55	18.58	38.45
5	16QAM	12	0	22.18	22.13	22.15	17.68	17.63	17.65	38.45
5	16QAM	12	7	22.17	22.12	22.11	17.67	17.62	17.61	38.45

5	16QAM	12	13	22.21	22.13	22.10	17.71	17.63	17.60	38.45
5	16QAM	25	0	22.24	22.21	22.06	17.74	17.71	17.56	38.45
5	64QAM	1	0	22.25	21.92	22.44	17.75	17.42	17.94	38.45
5	64QAM	1	12	22.41	22.01	22.49	17.91	17.51	17.99	38.45
5	64QAM	1	24	22.28	21.95	22.39	17.78	17.45	17.89	38.45
5	64QAM	12	0	21.26	21.20	21.19	16.76	16.70	16.69	38.45
5	64QAM	12	7	21.24	21.21	21.13	16.74	16.71	16.63	38.45
5	64QAM	12	13	21.28	21.13	21.11	16.78	16.63	16.61	38.45
5	64QAM	25	0	21.24	21.22	21.09	16.74	16.72	16.59	38.45
Channel				20415	20525	20635	20415	20525	20635	Limit (dBm)
Frequency (MHz)				825.5	836.5	847.5	825.5	836.5	847.5	
3	QPSK	1	0	24.28	24.21	24.16	19.78	19.71	19.66	38.45
3	QPSK	1	8	24.31	24.23	24.17	19.81	19.73	19.67	38.45
3	QPSK	1	14	24.24	24.17	24.18	19.74	19.67	19.68	38.45
3	QPSK	8	0	23.27	23.19	23.13	18.77	18.69	18.63	38.45
3	QPSK	8	4	23.28	23.24	23.16	18.78	18.74	18.66	38.45
3	QPSK	8	7	23.24	23.19	23.07	18.74	18.69	18.57	38.45
3	QPSK	15	0	23.21	23.18	23.10	18.71	18.68	18.60	38.45
3	16QAM	1	0	23.01	23.20	23.00	18.51	18.70	18.50	38.45
3	16QAM	1	8	23.04	23.22	22.96	18.54	18.72	18.46	38.45
3	16QAM	1	14	23.10	23.20	22.94	18.60	18.70	18.44	38.45
3	16QAM	8	0	22.21	22.20	22.07	17.71	17.70	17.57	38.45
3	16QAM	8	4	22.22	22.18	22.07	17.72	17.68	17.57	38.45
3	16QAM	8	7	22.22	22.20	22.07	17.72	17.70	17.57	38.45
3	16QAM	15	0	22.10	22.20	22.00	17.60	17.70	17.50	38.45
3	64QAM	1	0	22.33	22.00	21.87	17.83	17.50	17.37	38.45
3	64QAM	1	8	22.33	22.05	21.87	17.83	17.55	17.37	38.45
3	64QAM	1	14	22.35	22.01	21.90	17.85	17.51	17.40	38.45
3	64QAM	8	0	21.22	21.15	21.10	16.72	16.65	16.60	38.45
3	64QAM	8	4	21.21	21.17	21.11	16.71	16.67	16.61	38.45
3	64QAM	8	7	21.23	21.21	21.07	16.73	16.71	16.57	38.45
3	64QAM	15	0	21.14	21.27	21.09	16.64	16.77	16.59	38.45
Channel				20407	20525	20643	20407	20525	20643	Limit (dBm)
Frequency (MHz)				824.7	836.5	848.3	824.7	836.5	848.3	
1.4	QPSK	1	0	24.23	24.24	24.05	19.73	19.74	19.55	38.45
1.4	QPSK	1	3	24.37	24.37	24.21	19.87	19.87	19.71	38.45
1.4	QPSK	1	5	24.21	24.25	24.06	19.71	19.75	19.56	38.45
1.4	QPSK	3	0	24.32	24.27	24.17	19.82	19.77	19.67	38.45
1.4	QPSK	3	1	24.33	24.28	24.17	19.83	19.78	19.67	38.45
1.4	QPSK	3	3	24.31	24.29	24.17	19.81	19.79	19.67	38.45
1.4	QPSK	6	0	23.34	23.24	23.18	18.84	18.74	18.68	38.45
1.4	16QAM	1	0	23.11	23.05	22.82	18.61	18.55	18.32	38.45
1.4	16QAM	1	3	23.30	23.24	23.02	18.80	18.74	18.52	38.45
1.4	16QAM	1	5	23.10	23.03	22.80	18.60	18.53	18.30	38.45
1.4	16QAM	3	0	23.08	23.05	22.89	18.58	18.55	18.39	38.45
1.4	16QAM	3	1	23.07	23.07	22.90	18.57	18.57	18.40	38.45
1.4	16QAM	3	3	23.06	23.09	22.87	18.56	18.59	18.37	38.45
1.4	16QAM	6	0	22.28	22.09	22.11	17.78	17.59	17.61	38.45

1.4	64QAM	1	0	22.42	21.96	22.14	17.92	17.46	17.64	38.45
1.4	64QAM	1	3	22.63	22.09	22.27	18.13	17.59	17.77	38.45
1.4	64QAM	1	5	22.41	21.90	22.13	17.91	17.40	17.63	38.45
1.4	64QAM	3	0	22.16	22.06	22.16	17.66	17.56	17.66	38.45
1.4	64QAM	3	1	22.21	22.05	22.15	17.71	17.55	17.65	38.45
1.4	64QAM	3	3	22.18	22.05	22.11	17.68	17.55	17.61	38.45
1.4	64QAM	6	0	21.12	21.10	21.07	16.62	16.60	16.57	38.45

Band7

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power(dBm) High Ch. / Freq.	EIRP(dBm) Low Ch. / Freq.	EIRP(dBm) Middle Ch. / Freq.	EIRP(dBm) High Ch. / Freq.	Limit (dBm)
Channel				20850	21100	21350	20850	21100	21350	
Frequency (MHz)				2510	2535	2560	2510	2535	2560	
20	QPSK	1	0	23.16	23.12	23.12	25.67	25.63	25.63	33.00
20	QPSK	1	49	23.15	23.39	23.27	25.66	25.90	25.78	33.00
20	QPSK	1	99	23.01	23.04	23.11	25.52	25.55	25.62	33.00
20	QPSK	50	0	22.31	22.33	22.30	24.82	24.84	24.81	33.00
20	QPSK	50	24	22.31	22.30	22.32	24.82	24.81	24.83	33.00
20	QPSK	50	50	22.26	22.22	22.30	24.77	24.73	24.81	33.00
20	QPSK	100	0	22.24	22.33	22.30	24.75	24.84	24.81	33.00
20	16QAM	1	0	21.94	21.97	22.21	24.45	24.48	24.72	33.00
20	16QAM	1	49	22.17	22.25	22.55	24.68	24.76	25.06	33.00
20	16QAM	1	99	22.07	21.95	22.01	24.58	24.46	24.52	33.00
20	16QAM	50	0	21.29	21.23	21.07	23.80	23.74	23.58	33.00
20	16QAM	50	24	21.22	21.23	21.08	23.73	23.74	23.59	33.00
20	16QAM	50	50	21.21	21.25	21.07	23.72	23.76	23.58	33.00
20	16QAM	100	0	21.21	21.23	21.11	23.72	23.74	23.62	33.00
20	64QAM	1	0	21.29	21.27	21.36	23.80	23.78	23.87	33.00
20	64QAM	1	49	21.36	21.31	21.36	23.87	23.82	23.87	33.00
20	64QAM	1	99	21.33	21.17	21.33	23.84	23.68	23.84	33.00
20	64QAM	50	0	20.27	20.30	20.39	22.78	22.81	22.90	33.00
20	64QAM	50	24	20.32	20.31	20.38	22.83	22.82	22.89	33.00
20	64QAM	50	50	20.30	20.19	20.32	22.81	22.70	22.83	33.00
20	64QAM	100	0	20.25	20.23	20.31	22.76	22.74	22.82	33.00

Channel				20825	21100	21375	20825	21100	21375	Limit (dBm)
Frequency (MHz)				2507.5	2535	2562.5	2507.5	2535	2562.5	
15	QPSK	1	0	23.06	23.08	23.02	25.57	25.59	25.53	33.00
15	QPSK	1	37	23.08	23.14	23.17	25.59	25.65	25.68	33.00
15	QPSK	1	74	22.97	23.03	23.04	25.48	25.54	25.55	33.00
15	QPSK	36	0	22.23	22.27	22.24	24.74	24.78	24.75	33.00
15	QPSK	36	20	22.28	22.28	22.29	24.79	24.79	24.80	33.00
15	QPSK	36	39	22.25	22.21	22.23	24.76	24.72	24.74	33.00
15	QPSK	75	0	22.21	22.23	22.22	24.72	24.74	24.73	33.00
15	16QAM	1	0	21.88	21.88	22.12	24.39	24.39	24.63	33.00
15	16QAM	1	37	22.15	22.21	22.49	24.66	24.72	25.00	33.00
15	16QAM	1	74	22.01	21.93	21.92	24.52	24.44	24.43	33.00
15	16QAM	36	0	21.28	21.17	21.00	23.79	23.68	23.51	33.00
15	16QAM	36	20	21.20	21.16	21.01	23.71	23.67	23.52	33.00
15	16QAM	36	39	21.18	21.19	21.04	23.69	23.70	23.55	33.00
15	16QAM	75	0	21.11	21.14	21.10	23.62	23.65	23.61	33.00
15	64QAM	1	0	21.29	21.23	21.36	23.80	23.74	23.87	33.00
15	64QAM	1	37	21.34	21.25	21.27	23.85	23.76	23.78	33.00
15	64QAM	1	74	21.30	21.14	21.32	23.81	23.65	23.83	33.00
15	64QAM	36	0	20.21	20.29	20.34	22.72	22.80	22.85	33.00
15	64QAM	36	20	20.25	20.30	20.38	22.76	22.81	22.89	33.00
15	64QAM	36	39	20.27	20.12	20.25	22.78	22.63	22.76	33.00
15	64QAM	75	0	20.16	20.14	20.25	22.67	22.65	22.76	33.00
Channel				20800	21100	21400	20800	21100	21400	Limit (dBm)
Frequency (MHz)				2505	2535	2565	2505	2535	2565	
10	QPSK	1	0	23.19	23.25	23.35	25.70	25.76	25.86	33.00
10	QPSK	1	25	23.33	23.30	23.38	25.84	25.81	25.89	33.00
10	QPSK	1	49	23.15	23.21	23.23	25.66	25.72	25.74	33.00
10	QPSK	25	0	22.31	22.33	22.34	24.82	24.84	24.85	33.00
10	QPSK	25	12	22.32	22.29	22.36	24.83	24.80	24.87	33.00
10	QPSK	25	25	22.25	22.26	22.30	24.76	24.77	24.81	33.00
10	QPSK	50	0	22.29	22.31	22.26	24.80	24.82	24.77	33.00
10	16QAM	1	0	22.03	22.30	22.18	24.54	24.81	24.69	33.00
10	16QAM	1	25	22.11	22.35	22.13	24.62	24.86	24.64	33.00
10	16QAM	1	49	21.94	22.24	22.01	24.45	24.75	24.52	33.00
10	16QAM	25	0	21.33	21.31	21.33	23.84	23.82	23.84	33.00
10	16QAM	25	12	21.29	21.25	21.34	23.80	23.76	23.85	33.00
10	16QAM	25	25	21.31	21.25	21.29	23.82	23.76	23.80	33.00
10	16QAM	50	0	21.28	21.28	21.30	23.79	23.79	23.81	33.00
10	64QAM	1	0	21.27	21.19	21.26	23.78	23.70	23.77	33.00
10	64QAM	1	25	21.33	21.24	21.33	23.84	23.75	23.84	33.00
10	64QAM	1	49	21.29	21.10	21.25	23.80	23.61	23.76	33.00
10	64QAM	25	0	20.19	20.25	20.38	22.70	22.76	22.89	33.00
10	64QAM	25	12	20.28	20.25	20.32	22.79	22.76	22.83	33.00
10	64QAM	25	25	20.20	20.14	20.26	22.71	22.65	22.77	33.00
10	64QAM	50	0	20.25	20.15	20.24	22.76	22.66	22.75	33.00
Channel				20775	21100	21425	20775	21100	21425	

Frequency (MHz)				2502.5	2535	2567.5	2502.5	2535	2567.5	Limit (dBm)
5	QPSK	1	0	23.17	23.14	23.16	25.68	25.65	25.67	33.00
5	QPSK	1	12	23.24	23.23	23.28	25.75	25.74	25.79	33.00
5	QPSK	1	24	23.09	23.13	23.17	25.60	25.64	25.68	33.00
5	QPSK	12	0	22.15	22.17	22.23	24.66	24.68	24.74	33.00
5	QPSK	12	7	22.18	22.28	22.21	24.69	24.79	24.72	33.00
5	QPSK	12	13	22.12	22.19	22.14	24.63	24.70	24.65	33.00
5	QPSK	25	0	22.16	22.29	22.18	24.67	24.80	24.69	33.00
5	16QAM	1	0	22.13	22.21	22.06	24.64	24.72	24.57	33.00
5	16QAM	1	12	22.23	22.32	22.13	24.74	24.83	24.64	33.00
5	16QAM	1	24	22.10	22.21	22.00	24.61	24.72	24.51	33.00
5	16QAM	12	0	21.11	21.21	21.14	23.62	23.72	23.65	33.00
5	16QAM	12	7	21.05	21.19	21.13	23.56	23.70	23.64	33.00
5	16QAM	12	13	21.12	21.13	21.16	23.63	23.64	23.67	33.00
5	16QAM	25	0	21.21	21.35	21.20	23.72	23.86	23.71	33.00
5	64QAM	1	0	21.00	21.44	21.23	23.51	23.95	23.74	33.00
5	64QAM	1	12	21.05	21.61	21.28	23.56	24.12	23.79	33.00
5	64QAM	1	24	20.95	21.42	21.14	23.46	23.93	23.65	33.00
5	64QAM	12	0	20.19	20.18	20.16	22.70	22.69	22.67	33.00
5	64QAM	12	7	20.21	20.15	20.14	22.72	22.66	22.65	33.00
5	64QAM	12	13	20.11	20.12	20.17	22.62	22.63	22.68	33.00
5	64QAM	25	0	20.19	20.13	20.13	22.70	22.64	22.64	33.00

Band 17

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.	ERP (dBm) Low Ch. / Freq.	ERP (dBm) Middle Ch. / Freq.	ERP (dBm) High Ch. / Freq.	Limit (dBm)
Channel				23780	23790	23800	23780	23790	23800	
Frequency (MHz)				709	710	711	709	710	711	
10	QPSK	1	0	24.20	24.19	24.26	19.93	19.92	19.99	36.00
10	QPSK	1	25	24.33	24.36	24.28	20.06	20.09	20.01	36.00
10	QPSK	1	49	24.17	24.18	24.29	19.90	19.91	20.02	36.00
10	QPSK	25	0	23.28	23.33	23.28	19.01	19.06	19.01	36.00
10	QPSK	25	12	23.31	23.28	23.30	19.04	19.01	19.03	36.00
10	QPSK	25	25	23.23	23.23	23.24	18.96	18.96	18.97	36.00
10	QPSK	50	0	23.21	23.26	23.25	18.94	18.99	18.98	36.00
10	16QAM	1	0	22.97	23.22	23.07	18.70	18.95	18.80	36.00
10	16QAM	1	25	23.05	23.38	23.18	18.78	19.11	18.91	36.00
10	16QAM	1	49	22.97	23.21	23.08	18.70	18.94	18.81	36.00
10	16QAM	25	0	22.35	22.28	22.35	18.08	18.01	18.08	36.00
10	16QAM	25	12	22.39	22.31	22.30	18.12	18.04	18.03	36.00
10	16QAM	25	25	22.32	22.28	22.30	18.05	18.01	18.03	36.00
10	16QAM	50	0	22.32	22.31	22.31	18.05	18.04	18.04	36.00
10	64QAM	1	0	22.39	22.08	22.03	18.12	17.81	17.76	36.00
10	64QAM	1	25	22.35	22.17	22.19	18.08	17.90	17.92	36.00
10	64QAM	1	49	22.33	22.08	22.05	18.06	17.81	17.78	36.00

10	64QAM	25	0	21.31	21.29	21.26	17.04	17.02	16.99	36.00
10	64QAM	25	12	21.30	21.36	21.25	17.03	17.09	16.98	36.00
10	64QAM	25	25	21.24	21.27	21.27	16.97	17.00	17.00	36.00
10	64QAM	50	0	21.29	21.28	21.29	17.02	17.01	17.02	36.00
Channel				23755	23790	23825	23780	23790	23800	Limit (dBm)
Frequency (MHz)				706.5	710	713.5	709	710	711	
5	QPSK	1	0	24.20	24.23	24.17	19.93	19.96	19.90	36.00
5	QPSK	1	12	24.35	24.33	24.33	20.08	20.06	20.06	36.00
5	QPSK	1	24	24.18	24.16	24.20	19.91	19.89	19.93	36.00
5	QPSK	12	0	23.31	23.28	23.20	19.04	19.01	18.93	36.00
5	QPSK	12	7	23.25	23.24	23.22	18.98	18.97	18.95	36.00
5	QPSK	12	13	23.26	23.21	23.20	18.99	18.94	18.93	36.00
5	QPSK	25	0	23.26	23.28	23.23	18.99	19.01	18.96	36.00
5	16QAM	1	0	23.10	23.15	23.20	18.83	18.88	18.93	36.00
5	16QAM	1	12	23.22	23.25	23.35	18.95	18.98	19.08	36.00
5	16QAM	1	24	23.09	23.09	23.20	18.82	18.82	18.93	36.00
5	16QAM	12	0	22.32	22.25	22.31	18.05	17.98	18.04	36.00
5	16QAM	12	7	22.31	22.23	22.26	18.04	17.96	17.99	36.00
5	16QAM	12	13	22.25	22.18	22.28	17.98	17.91	18.01	36.00
5	16QAM	25	0	22.31	22.31	22.24	18.04	18.04	17.97	36.00
5	64QAM	1	0	22.29	21.97	22.31	18.02	17.70	18.04	36.00
5	64QAM	1	12	22.46	22.13	22.33	18.19	17.86	18.06	36.00
5	64QAM	1	24	22.35	21.98	22.41	18.08	17.71	18.14	36.00
5	64QAM	12	0	21.33	21.26	21.28	17.06	16.99	17.01	36.00
5	64QAM	12	7	21.35	21.32	21.29	17.08	17.05	17.02	36.00
5	64QAM	12	13	21.34	21.29	21.29	17.07	17.02	17.02	36.00
5	64QAM	25	0	21.30	21.32	21.27	17.03	17.05	17.00	36.00

Band41

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.	EIRP (dBm) Low Ch. / Freq.	EIRP (dBm) Middle Ch. / Freq.	EIRP (dBm) High Ch. / Freq.	Limit (dBm)
Channel				39750	40620	41490	39750	40620	41490	
Frequency (MHz)				2506	2593	2680	2506	2593	2680	
20	QPSK	1	0	23.95	24.01	23.93	26.84	26.9	26.82	33
20	QPSK	1	49	23.98	23.99	23.96	26.87	26.88	26.85	33
20	QPSK	1	99	23.90	23.76	23.99	26.79	26.65	26.88	33
20	QPSK	50	0	23.11	23.03	23.00	26	25.92	25.89	33
20	QPSK	50	24	23.07	23.28	23.02	25.96	26.17	25.91	33
20	QPSK	50	50	23.08	22.97	23.10	25.97	25.86	25.99	33
20	QPSK	100	0	23.10	23.23	23.04	25.99	26.12	25.93	33
20	16QAM	1	0	22.90	22.86	22.55	25.79	25.75	25.44	33
20	16QAM	1	49	23.29	22.95	22.97	26.18	25.84	25.86	33
20	16QAM	1	99	22.85	22.89	22.87	25.74	25.78	25.76	33
20	16QAM	50	0	22.11	22.05	22.01	25	24.94	24.9	33
20	16QAM	50	24	22.10	22.05	22.00	24.99	24.94	24.89	33

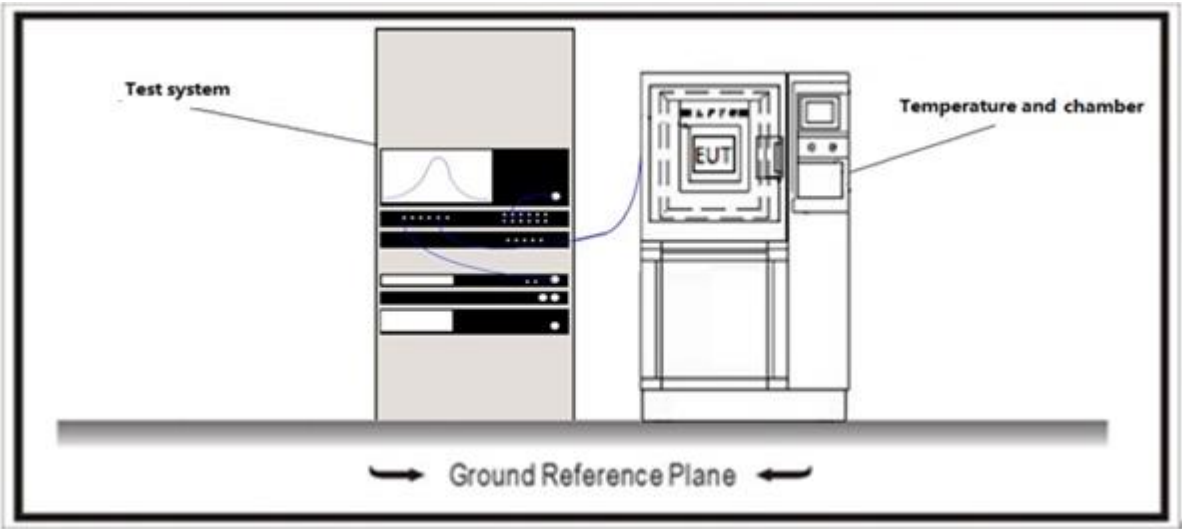
20	16QAM	50	50	22.08	22.03	22.10	24.97	24.92	24.99	33
20	16QAM	100	0	22.09	22.01	22.11	24.98	24.9	25	33
20	64QAM	1	0	21.84	21.84	21.93	24.73	24.73	24.82	33
20	64QAM	1	49	21.91	21.79	21.88	24.8	24.68	24.77	33
20	64QAM	1	99	21.74	21.76	21.94	24.63	24.65	24.83	33
20	64QAM	50	0	21.08	21.11	21.01	23.97	24	23.9	33
20	64QAM	50	24	21.08	21.12	21.03	23.97	24.01	23.92	33
20	64QAM	50	50	21.06	21.07	21.11	23.95	23.96	24	33
20	64QAM	100	0	21.09	21.05	21.03	23.98	23.94	23.92	33
Channel				39725	40620	41515	39725	40620	41515	Limit (dBm)
Frequency (MHz)				2503.5	2593	2682.5	2503.5	2593	2682.5	
15	QPSK	1	0	23.94	23.75	23.89	26.83	26.64	26.78	33
15	QPSK	1	37	23.96	23.98	23.88	26.85	26.87	26.77	33
15	QPSK	1	74	23.84	23.67	23.89	26.73	26.56	26.78	33
15	QPSK	36	0	23.08	22.98	22.98	25.97	25.87	25.87	33
15	QPSK	36	20	22.99	22.99	22.96	25.88	25.88	25.85	33
15	QPSK	36	39	23.05	22.93	23.02	25.94	25.82	25.91	33
15	QPSK	75	0	23.10	22.88	23.01	25.99	25.77	25.9	33
15	16QAM	1	0	22.89	22.77	22.51	25.78	25.66	25.4	33
15	16QAM	1	37	23.26	22.94	22.89	26.15	25.83	25.78	33
15	16QAM	1	74	22.81	22.87	22.80	25.7	25.76	25.69	33
15	16QAM	36	0	22.05	21.95	21.93	24.94	24.84	24.82	33
15	16QAM	36	20	22.06	22.01	21.98	24.95	24.9	24.87	33
15	16QAM	36	39	22.02	21.94	22.02	24.91	24.83	24.91	33
15	16QAM	75	0	22.09	21.95	22.04	24.98	24.84	24.93	33
15	64QAM	1	0	21.78	21.81	21.91	24.67	24.7	24.8	33
15	64QAM	1	37	21.85	21.69	21.86	24.74	24.58	24.75	33
15	64QAM	1	74	21.64	21.71	21.86	24.53	24.6	24.75	33
15	64QAM	36	0	20.98	21.03	20.98	23.87	23.92	23.87	33
15	64QAM	36	20	21.07	21.07	20.97	23.96	23.96	23.86	33
15	64QAM	36	39	21.02	21.02	21.02	23.91	23.91	23.91	33
15	64QAM	75	0	20.99	20.96	20.98	23.88	23.85	23.87	33
Channel				39700	40620	41540	39700	40620	41540	Limit (dBm)
Frequency (MHz)				2501	2593	2685	2501	2593	2685	
10	QPSK	1	0	23.89	23.77	23.87	26.78	26.66	26.76	33
10	QPSK	1	25	23.93	23.94	23.91	26.82	26.83	26.8	33
10	QPSK	1	49	23.85	23.76	23.92	26.74	26.65	26.81	33
10	QPSK	25	0	23.01	22.95	22.97	25.9	25.84	25.86	33
10	QPSK	25	12	23.05	22.96	22.97	25.94	25.85	25.86	33
10	QPSK	25	25	23.08	22.91	23.10	25.97	25.8	25.99	33
10	QPSK	50	0	23.08	22.89	22.98	25.97	25.78	25.87	33
10	16QAM	1	0	22.86	22.84	22.51	25.75	25.73	25.4	33
10	16QAM	1	25	23.21	22.88	22.95	26.1	25.77	25.84	33
10	16QAM	1	49	22.78	22.80	22.78	25.67	25.69	25.67	33
10	16QAM	25	0	22.05	21.95	21.96	24.94	24.84	24.85	33
10	16QAM	25	12	22.03	21.97	21.94	24.92	24.86	24.83	33
10	16QAM	25	25	22.01	22.02	22.04	24.9	24.91	24.93	33
10	16QAM	50	0	22.00	21.97	22.06	24.89	24.86	24.95	33

10	64QAM	1	0	21.75	21.74	21.88	24.64	24.63	24.77	33
10	64QAM	1	25	21.86	21.69	21.79	24.75	24.58	24.68	33
10	64QAM	1	49	21.65	21.75	21.88	24.54	24.64	24.77	33
10	64QAM	25	0	21.00	21.11	20.96	23.89	24	23.85	33
10	64QAM	25	12	21.07	21.09	21.03	23.96	23.98	23.92	33
10	64QAM	25	25	21.00	21.01	21.06	23.89	23.9	23.95	33
10	64QAM	50	0	21.03	21.03	21.01	23.92	23.92	23.9	33
Channel				39675	40620	41565	39675	40620	41565	Limit (dBm)
Frequency (MHz)				2498.5	2593	2687.5	2498.5	2593	2687.5	
5	QPSK	1	0	23.88	23.77	23.92	26.77	26.66	26.81	33
5	QPSK	1	12	23.96	23.91	23.88	26.85	26.8	26.77	33
5	QPSK	1	24	23.89	23.66	23.99	26.78	26.55	26.88	33
5	QPSK	12	0	23.10	23.01	22.94	25.99	25.9	25.83	33
5	QPSK	12	7	22.98	22.98	23.00	25.87	25.87	25.89	33
5	QPSK	12	13	22.98	22.89	23.06	25.87	25.78	25.95	33
5	QPSK	25	0	23.07	22.95	23.00	25.96	25.84	25.89	33
5	16QAM	1	0	22.81	22.77	22.46	25.7	25.66	25.35	33
5	16QAM	1	12	23.21	22.92	22.94	26.1	25.81	25.83	33
5	16QAM	1	24	22.78	22.86	22.86	25.67	25.75	25.75	33
5	16QAM	12	0	22.10	21.95	21.99	24.99	24.84	24.88	33
5	16QAM	12	7	22.04	21.95	21.95	24.93	24.84	24.84	33
5	16QAM	12	13	22.07	21.94	22.09	24.96	24.83	24.98	33
5	16QAM	25	0	22.02	21.95	22.10	24.91	24.84	24.99	33
5	64QAM	1	0	21.77	21.81	21.91	24.66	24.7	24.8	33
5	64QAM	1	12	21.91	21.75	21.81	24.8	24.64	24.7	33
5	64QAM	1	24	21.66	21.72	21.91	24.55	24.61	24.8	33
5	64QAM	12	0	21.02	21.08	20.95	23.91	23.97	23.84	33
5	64QAM	12	7	21.02	21.03	21.02	23.91	23.92	23.91	33
5	64QAM	12	13	21.03	21.00	21.09	23.92	23.89	23.98	33
5	64QAM	25	0	21.06	21.00	20.96	23.95	23.89	23.85	33

4.2 Peak-to-Average Ratio(CCDF)**VERDICT: PASS****4.2.1 Limit**

Band	Standard
WCDMA Band 5; LTE Band 5	FCC §2.1046 and §22.913(d): The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB.
WCDMA Band 2; LTE Band 2	FCC §2.1046 and §24.232(d): In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.
LTE Band 17	Limit≤13 dB
LTE Band 7/41	FCC §27.50(d)(5): In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

4.2.2 Test Setup



4.2.3 Test Procedure

	References Rule	Chapter	Item
☒	ANSI C63.26-2015	5.2	RF output power measurement procedures
The conducted RF Output Power measurements were made at the RF output terminals of the EUT using the power meter of the Universal Radio Communication tester R&S CMW500, selecting maximum transmission power of the EUT and different modes of modulation. Peak to average ratio(PAPR) is used equation $PAPR(dB)=PPK(dBm)-PAVG(dBm)$, where PPK is measured peak power, and PAVG is measured average power. The maximum equivalent isotropically radiated power(e.i.r.p.) is calculated by adding the declared maximum antenna gain(dBi). The maximum effective radiated power e.r.p. is calculated form the maximum equivalent isotropically radiated power(e.i.r.p.) by subtracting 2.15 dB: $E.R.P = E.I.R.P. - 2.15\text{ dB}$			

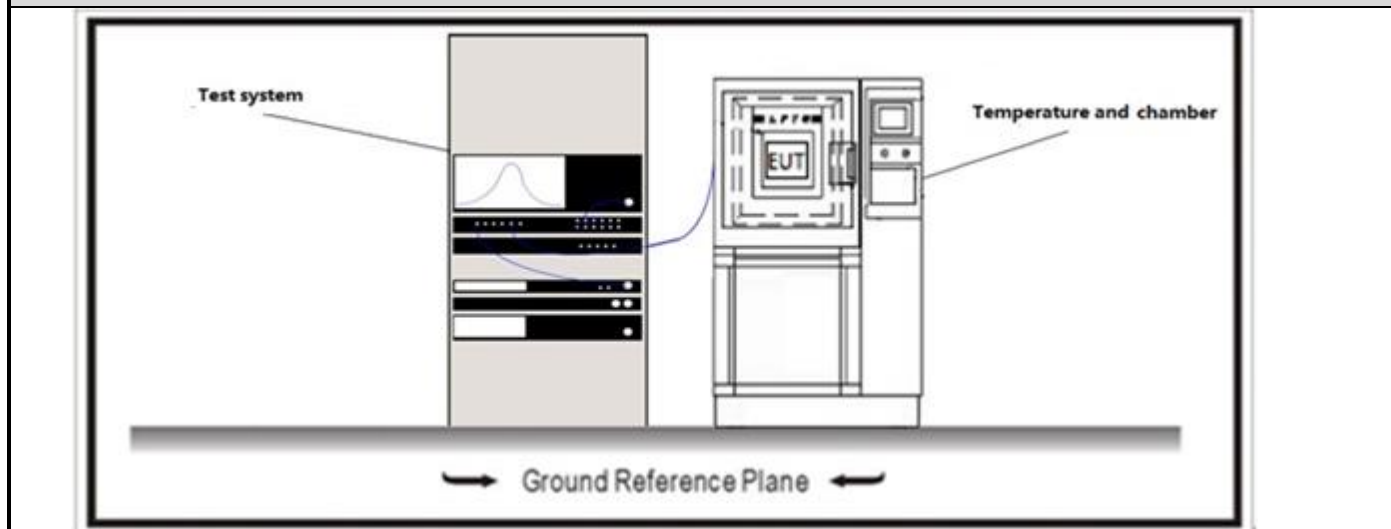
4.3 Frequency Stability

VERDICT: PASS

4.3.1 Limit

Band	Standard
WCDMA Band 5; LTE Band 5	FCC §2.1055 and §22.355: ± 2.5 ppm for mobile stations operating in the range 821 to 896 MHz.
WCDMA Band 2; LTE Band 2	FCC §2.1055 and §24.235: The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.
LTE Band 7/17/41	FCC §2.1055 and §27.54: The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

4.3.2 Test Setup



4.3.3 Test Procedure

	References Rule	Chapter	Description
☒	ANSI C63.26	5.6	Frequency stability testing

The frequency tolerance measurements over temperature variations were made over temperature range of -30°C to $+50^{\circ}\text{C}$. The EUT was placed inside an environmental temperature chamber and the temperature was lowered hourly in 10°C steps from $+50^{\circ}\text{C}$ to -30°C .

The supply voltage was varied between 85% and 115% of nominal voltage.

The EUT was set in "Radio Resource Control (RRC) mode" in the middle channel using the Universal Radio Communication tester R&S CMW500 and the maximum frequency error was measured using the built-in calibrated frequency meter. The worst case NB-IoT mode for conducted power was used for the test.

In order to check that the frequency stability is sufficient such that the fundamental emissions stay within the authorized bands of operation, a reference point is established at the applicable unwanted emissions limit using a RBW equal to the RBW required by the unwanted emissions specification of the applicable regulatory standard.

These reference points measured using the lowest and highest channel of operation are identified as fL and fH respectively. The worst-case frequency offset determined in the above methods is added or subtracted from the values of fL and fH to check that the resulting frequencies remain within the band.

The reference point measurements were made at the RF output terminals of the EUT using a directional coupler and spectrum analyser. The EUT was controlled via the Universal Radio Communication tester R&S CMW500 selecting maximum transmission power of the EUT and different modes of modulation.

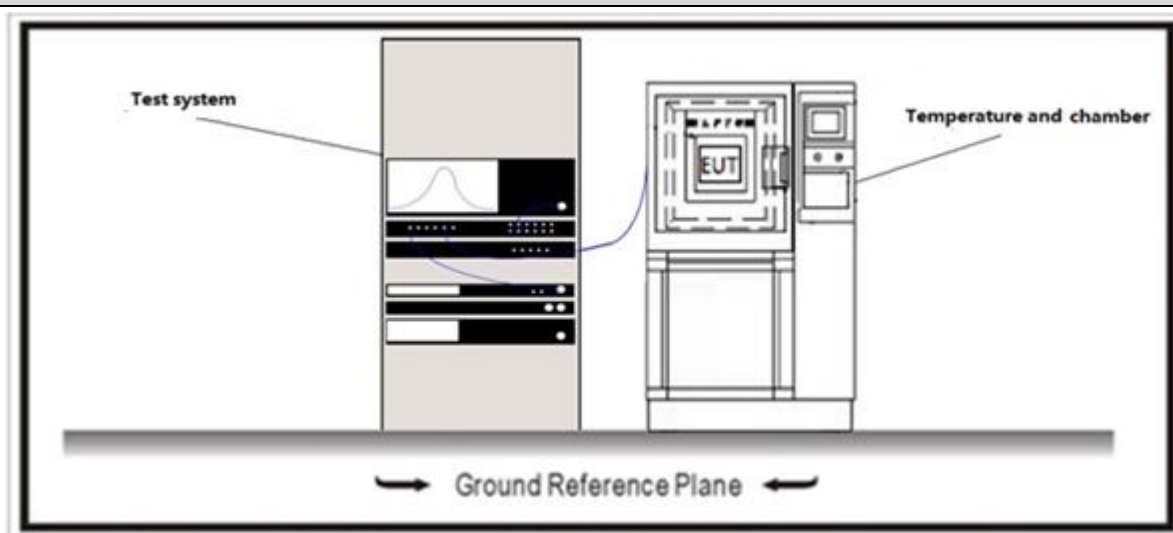
4.4 Occupied Bandwidth

VERDICT: PASS

4.4.1 Limit

LTE Band	Standard
WCDMA Band 2/5, LTE Band 2/5/7/17/41	FCC §2.1049: The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured.

4.4.2 Test Setup



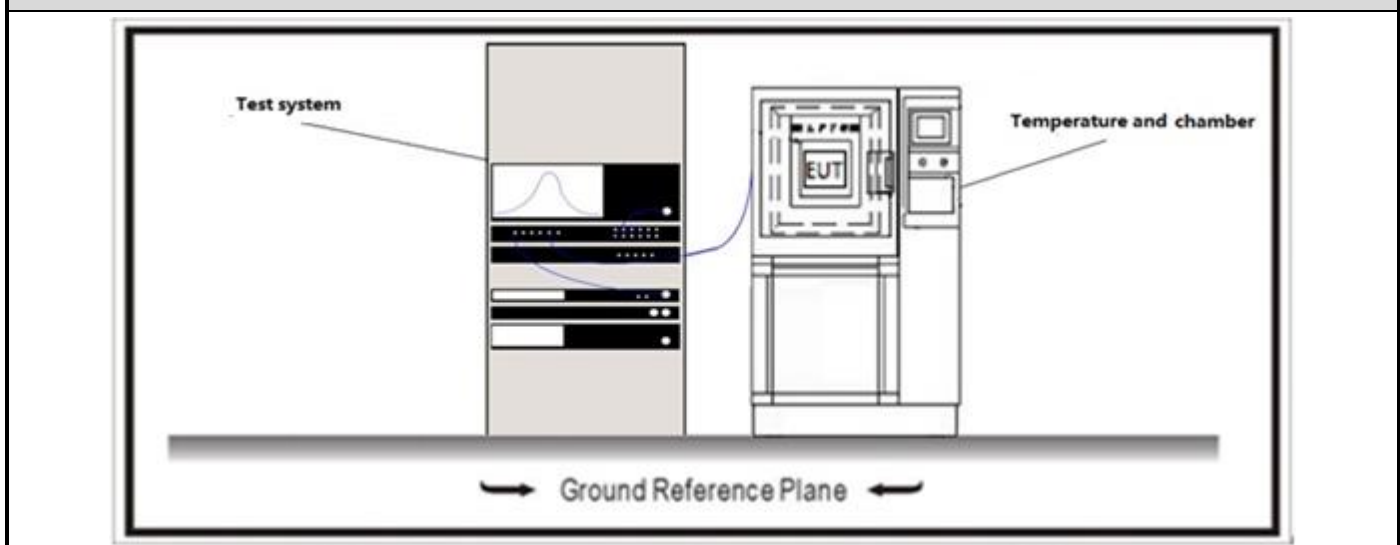
4.4.3 Test Procedure

References Rule	Chapter	Description
☒ ANSI C63.26	5.4	Occupied bandwidth

The occupied bandwidth measurement was performed at the output terminals of the EUT using directional coupler and spectrum analyser. The EUT was controller via the Universal Radio Communication tester R&S CMW500 selecting maximum transmission power of the EUT and different modes of modulation. The 99% occupied bandwidth and the -26 dBc bandwidth were measured directly using the built-in bandwidth measuring option of spectrum analyser.

4.5 Spurious Emissions at antenna terminals**VERDICT: PASS****4.5.1 Limit**

Band	Standard
WCDMA Band 5; LTE Band 5	FCC §2.1051: The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna.
	FCC §22.917: 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.
WCDMA Band 2; LTE Band 2	FCC §2.1051: The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna.
	FCC §24.238: 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.
LTE Band 17	FCC §2.1051: The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna.
	FCC §27.53(g): For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.
LTE Band 7/41	FCC §2.1051: The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna.
	FCC §27.53(h): The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB.

4.5.2 Test Setup

4.5.3 Test Procedure

References Rule		Chapter	Description
☒	ANSI C63.26	5.7	Unwanted (out-of-band and spurious) conducted emissions measurement procedures (conducted test at antenna port)

The EUT RF output connector was connected to a spectrum analyser and to the Universal Radio Communication tester R&S CMW500 (selecting maximum transmission power of the EUT and different modes of modulation) using directional coupler.

The spectrum was investigated from 9 kHz to the 10th harmonic of the highest frequency generated within the equipment.

The reading of the spectrum analyser is corrected with the attenuation loss of connection between output terminal of EUT and input of the spectrum analyser.

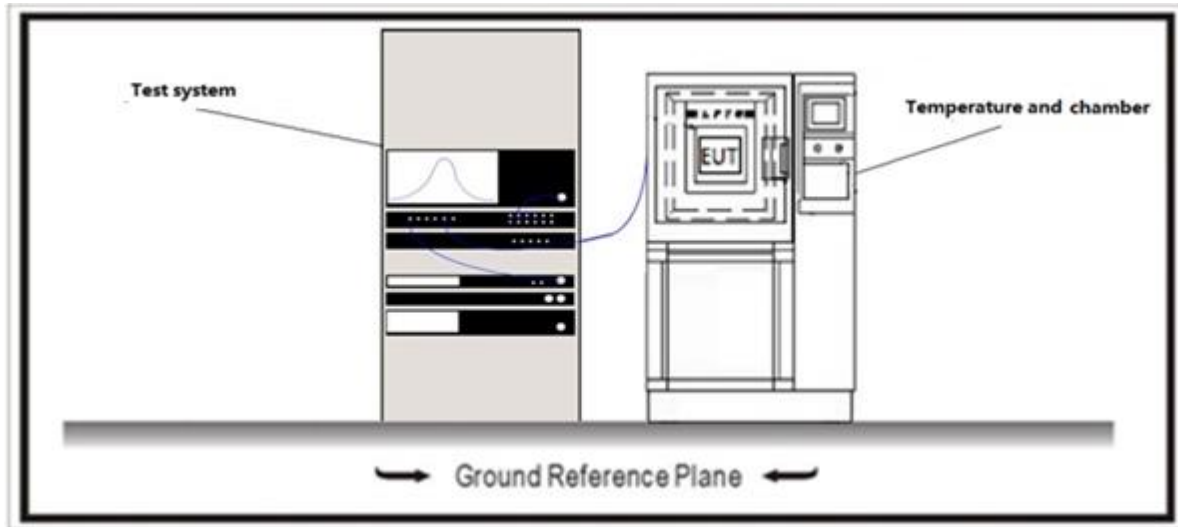
According to specification, the power of emissions shall be attenuated below the transmitter power (P) by a factor of at least $X + 10 \log (P)$ dB. P in watts. The specification can be interpreted as an absolute limit when the specified attenuation is actually subtracted from the maximum permissible transmitter power [i.e., $10 \log P - \{X + 10 \log P\}$], resulting in an absolute level of -X dBW [or $(-X + 30)$ dBm].

The configuration of tones and modulation which is the worst case for conducted power was used.

4.6 Spurious Emissions at antenna terminals at Block Edges**VERDICT: PASS****4.6.1 Limit**

Band	Standard
WCDMA Band 5; LTE Band 5	FCC §2.1051: The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna.
	FCC §22.917: 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.
WCDMA Band 2; LTE Band 2	FCC §2.1051: The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna.
	FCC §24.238: 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.
LTE Band 17	FCC §2.1051: The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna.
	FCC §27.53(g): For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB.
	FCC §27.53(c): On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations.
LTE Band 7/41	FCC §2.1051: The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna.
	FCC §27.53(m)(4): For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5 MHz.

4.6.2 Test Setup



4.6.3 Test Procedure

	References Rule	Chapter	Description
☒	ANSI C63.26	5.7	Unwanted (out-of-band and spurious) conducted emissions measurement procedures (conducted test at antenna port)

The EUT RF output connector was connected to a spectrum analyser and to the Universal Radio Communication tester R&S CMW500 (selecting maximum transmission power of the EUT and different modes of modulation) using directional coupler.

The reading of the spectrum analyser is corrected with the attenuation loss of connection between output terminal of EUT and input of the spectrum analyser.

For NB-IoT Band 5/26: For §22, in the 1 MHz bands immediately outside and adjacent to the frequency block or band, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. For §90, use RBW = 300 Hz for offsets less than 37.5 kHz from a channel edge; RBW = 100 kHz for offsets greater than 37.5 kHz is allowed.

For NB-IoT Band 2/25: In the 1 MHz 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.

For NB-IoT Band 12/17/71/85: In the 1 MHz 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.

For NB-IoT Band 13: On any frequency outside the 746-758 MHz band and 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed; on all frequencies between 763-775 MHz and 793-805 MHz, any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25KHz segment.

For NB-IoT Band 4/66: In the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

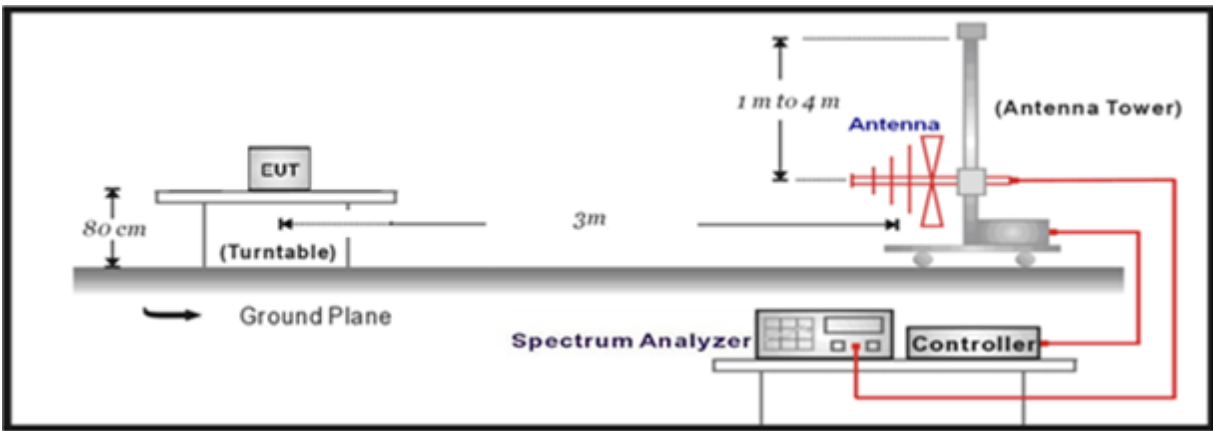
According to specification, the power of emissions shall be attenuated below the transmitter power (P) by a factor of at least $X + 10 \log (P)$ dB. P in watts. The specification can be interpreted as an absolute limit when the specified attenuation is actually subtracted from the maximum permissible transmitter power [i.e., $10 \log P - \{X + 10 \log P\}$], resulting in an absolute level of -X dBW [or $(-X + 30)$ dBm].

4.7 Radiated Emissions**VERDICT: PASS****4.7.1 Limit**

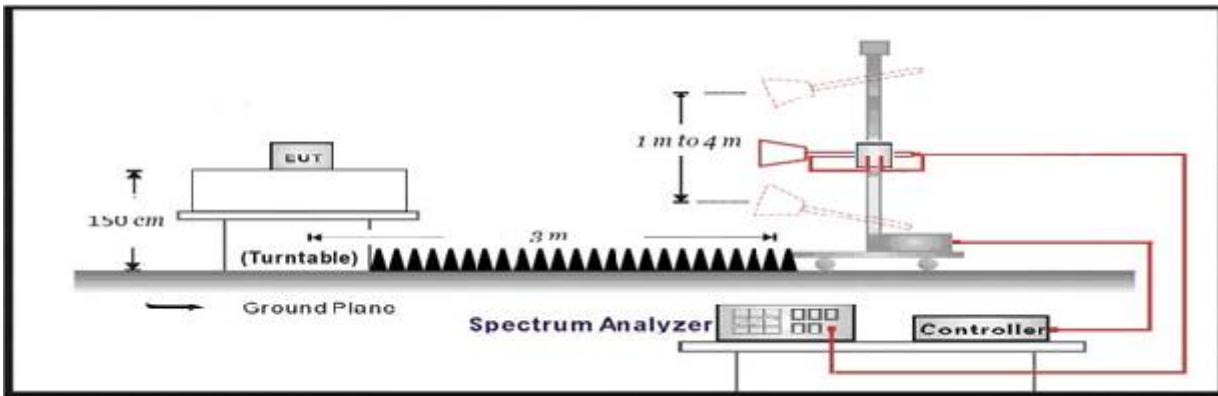
Band	Standard
WCDMA Band 5; LTE Band 5	§2.1053, FCC §22.917(a): The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.
WCDMA Band 2; LTE Band 2	§2.1053, FCC §24.238(a): The power 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.
LTE Band 17	§2.1053, FCC §27.53(g): For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.
LTE Band 7/41	§2.1053, FCC §27.53(m): For BRS and EBS stations, the power of any emissions outside the licensee's frequency bands of operation shall be attenuated below the transmitter power (P) measured in watts in accordance with the standards below. If a licensee has multiple contiguous channels, out-of-band emissions shall be measured from the upper and lower edges of the contiguous channels.

4.7.2 Test Setup

30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



4.7.3 Test Procedure

	Reference Rule	Chapter	Description
☒	ANSI C63.26	5.5	Radiated emissions testing

The spectrum was scanned from 9 kHz to the 10th harmonic of the highest frequency generated within the equipment.

Emissions below 18 GHz were measured at a 3 meter test distance.

The EUT was tested in three orthogonal axes and in all possible test configurations and poisoning when measurement antenna is oriented in both horizontal and vertical polarization, the worst case emissions was showed in the report.

Radiated emissions were used the substitution method described in ANSI/TIA-603-E-2016.

Radiated emissions were measured with 100kHz RBW below 1GHz and 1MHz RBW above 1GHz.

According to specification, the power of emissions shall be attenuated below the transmitter power (P) by a factor of at least $X + 10 \log (P)$ dB. P in watts. The specification can be interpreted as an absolute limit when the specified attenuation is actually subtracted from the maximum permissible transmitter power [i.e., $10 \log P - \{X + 10 \log P\}$], resulting in an absolute level of -X dBW [or $(-X + 30)$ dBm].

4.7.4 Test Data

WCDMA:

WCDMA Band II

Frequency (MHz)	Ant.Pol. (H/V)	Spurious Emissions Level (dBm)	Limit (dBm)	Margin (dB)
Lowest channel				
3704.80	H	-58.08	-13	45.1
5557.20	H	-56.02	-13	43.0
3704.80	V	-58.20	-13	45.2
5557.20	V	-55.81	-13	42.8
Middle channel				
3760.00	H	-60.06	-13	47.1
5640.00	H	-55.48	-13	42.5
3760.00	V	-58.42	-13	45.4
5640.00	V	-55.34	-13	42.3
Highest channel				
3813.50	H	-53.38	-13	40.4
5722.80	H	-55.19	-13	42.2
3815.20	V	-58.39	-13	45.4
5722.80	V	-55.03	-13	42.0

WCDMA Band V

Frequency (MHz)	Ant.Pol. (H/V)	Spurious Emissions Level (dBm)	Limit (dBm)	Margin (dB)
Lowest channel				
1652.80	H	-64.30	-13	51.3
2479.20	V	-63.42	-13	50.4
1652.80	H	-65.05	-13	52.1
2479.20	V	-62.27	-13	49.3
Middle channel				
1673.20	H	-64.60	-13	51.6
2509.80	V	-63.33	-13	50.3
1673.20	H	-65.06	-13	52.1
2509.80	V	-61.32	-13	48.3
Highest channel				
1693.20	H	-64.48	-13	51.5
2539.80	V	-62.02	-13	49.0
1693.20	H	-63.43	-13	50.4
2539.80	V	-62.12	-13	49.1

LTE:**LTE Band 2**

Frequency (MHz)	Ant.Pol. (H/V)	Spurious Emissions Level (dBm)	Limit (dBm)	Margin (dB)
Lowest channel				
3701.3	H	-43.43	-13	30.4
5552.6	H	-48.41	-13	35.4
3701.3	V	-48.88	-13	35.9
5552.6	V	-47.07	-13	34.1
Middle channel				
3752.3	H	-49.49	-13	36.5
5640.0000	H	-54.04	-13	41.0
3765.9	V	-52.91	-13	39.9
5640.0000	V	-53.36	-13	40.4
Highest channel				
3818.6	H	-43.88	-13	30.9
5727.7	H	-44.24	-13	31.2
3818.6	V	-47.03	-13	34.0
5727.7	V	-47.28	-13	34.3

LTE Band 5

Frequency (MHz)	Ant.Pol. (H/V)	Spurious Emissions Level (dBm)	Limit (dBm)	Margin (dB)
Lowest channel				
1649.4	H	-52.10	-13	39.1
2473.9	H	-32.74	-13	19.7
1649.4	V	-58.25	-13	45.3
2473.9	V	-35.22	-13	22.2
Middle channel				
1673.2	H	-58.13	-13	45.1
2509.6	H	-43.38	-13	30.4
1673.2	V	-60.57	-13	47.6
2504.5	V	-50.45	-13	37.5
Highest channel				
1697	H	-51.57	-13	38.6
2545.3	H	-26.46	-13	13.5
1697	V	-59.64	-13	46.6
2545.3	V	-30.70	-13	17.7

LTE Band 7

Frequency (MHz)	Ant.Pol. (H/V)	Spurious Emissions Level (dBm)	Limit (dBm)	Margin (dB)
Lowest channel				
5005.2	H	-49.76	-13	36.8
7507.5000	H	-50.68	-13	37.7
5005.0000	V	-53.27	-13	40.3
7507.5000	V	-51.37	-13	38.4
Middle channel				
5069.8	H	-47.89	-13	34.9
7605.0000	H	-51.24	-13	38.2
5069.8	V	-45.80	-13	32.8
7605.0000	V	-49.02	-13	36.0
Highest channel				
5134.4	H	-48.19	-13	35.2
7702.5000	H	-51.35	-13	38.4
5132.7	V	-51.79	-13	38.8
7702.5000	V	-50.47	-13	37.5

LTE Band 17

Frequency (MHz)	Ant.Pol. (H/V)	Spurious Emissions Level (dBm)	Limit (dBm)	Margin (dB)
Lowest channel				
1413.1	H	-61.71	-13	48.7
2120.3	H	-55.22	-13	42.2
1409.7	V	-63.71	-13	50.7
2118.6	V	-59.11	-13	46.1
Middle channel				
1419.9	H	-60.84	-13	47.8
2132.2	H	-55.98	-13	43.0
1420.0000	V	-65.10	-13	52.1
2130.0000	V	-59.48	-13	46.5
Highest channel				
1423.3	H	-59.98	-13	47.0
2140.7	H	-54.97	-13	42.0
1426.7	V	-63.25	-13	50.3
2140.7	V	-55.98	-13	43.0

LTE Band 41

Frequency (MHz)	Ant.Pol. (H/V)	Spurious Emissions Level (dBm)	Limit (dBm)	Margin (dB)
Lowest channel				
5115.0000	H	-51.75	-13	38.8
7672.5000	H	-49.87	-13	36.9
5115.0000	V	-54.14	-13	41.1
7672.5000	V	-50.51	-13	37.5
Middle channel				
5182	H	-49.31	-13	36.3
7779.0000	H	-52.28	-13	39.3
5183.7	V	-48.42	-13	35.4
7779.0000	V	-52.22	-13	39.2
Highest channel				
5304.4	H	-43.47	-13	30.5
7957.5000	H	-49.01	-13	36.0
5305.0000	V	-51.79	-13	38.8
7957.5000	V	-48.85	-13	35.9

Note 1: Spurious emissions level = Signal Generator Reading(dBm) - Cable loss(dB) + substitute antenna gain(dBi).

Note 2: For each band, we tested all configurations and only the worst mode is shown in the report.



4.8 Test setup photo and EUT Photo	VERDICT: PASS
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Remark: The test setup photo and EUT Photo please see appendix.

_____ The End _____