

TEST REPORT

Product Name : ALPON X4
Brand Name : Sixfab
Model : SEC1004
Series Model : N/A
FCC ID : 2BAWK-SEC1004
Applicant : **Sixfab, Inc.**
Address : 825 Watter's Creek Blvd., Suite 250, Suite 250, Allen, Texas 75013, USA
Manufacturer : **DENE Teknoloji A.Ş.**
Address : İkitelli OSB Mah, Bedrettin Dalan Blv, 23/56. Başakşehir. İstanbul. Turkey
Factory : **DENE Teknoloji A.Ş.**
Address : İstanbul İhtisas Serbest Bölgesi Şubesi Yeşilköy SB Mah. C Blok SK. C Blok AP. NO:1/7 Bakırköy/İSTANBUL Turkey
FCC CFR Title 47 Part 2, Part 22H, Part 24E, Part 27 and Part 90
Standard(s) : ANSI C63.26:2015
KDB 971168 D01
Date of Receipt : Aug.13, 2024
Date of Test : Aug.13, 2024~ Sept.14, 2024
Issued Date : Sept.14, 2024

Issued By: **Guangdong Asia Hongke Test Technology Limited**
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Reviewed by: _____

Jeon Yi

Approved by: _____

Sean She
Sean She



Note: This device has been tested and found to comply with the standard(s) listed, this test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory. This report shall not be reproduced except in full, without the written approval of Guangdong Asia Hongke Test Technology Limited. If there is a need to alter or revise this document, the right belongs to Guangdong Asia Hongke Test Technology Limited, and it should give a prior written notice of the revision document. This test report must not be used by the client to claim product endorsement.

Guangdong Asia Hongke Test Technology Limited

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Report Revise Record

Report Version	Issued Date	Notes
M1	Sept.14, 2024	Initial Release

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1 TEST SUMMARY

1.1 Test Standards

The tests were performed according to following standards:

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

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

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

[FCC Part 90 :](#) PRIVATE LAND MOBILE RADIO SERVICES

[FCC Part 2:](#) FREQUENCY ALLOCA-TIONS AND RADIO TREATY MAT-TERS; GENERAL RULES AND REG-ULATIONS

[ANSI C63.26:2015:](#) American National Standard of procedures for compliance testing of transmitters used in licensed radio services.

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

[KDB971168 D01:v03r01](#) MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS

1.2 Test Summary

Band2/ Band25

Test Item	FCC Rule No.	Requirements	Verdict (Note1)
Effective (Isotropic) Radiated Power Output Data	Part 2.1046, Part 24.232	EIRP \leq 2 W	Pass
Peak-Average Ratio	Part 2.1046, Part 24.232	Limits \leq 13 dB	Pass
Bandwidth	Part 2.1049 Part 24.238	OBW: No limit. EBW: No limit.	Pass
Band Edges Compliance	Part 2.1051, Part 24.238	\leq -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Pass
Spurious Emission at Antenna Terminals	Part 2.1051, Part 24.238	\leq -13 dBm/1 MHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges.	Pass
Field Strength of Spurious Radiation	Part 2.1053, Part 24.238	\leq -13 dBm/1 MHz.	Pass
Frequency Stability	Part 2.1055, Part 24.235	$\leq \pm$ 2.5 ppm.	Pass

Note1: For the verdict, the "N/A" denotes "not applicable", the "N/T" denotes "not tested".

Band4/Band 66

Test Item	FCC Rule No.	Requirements	Verdict (Note1)
Effective(Isotropic) Radiated Power Output Data	Part 2.1046, 27.50(d)	EIRP \leq 1W	Pass
Peak-Average Ratio	Part 2.1046, 27.50(d)	Limits \leq 13 dB	Pass
Bandwidth	Part 2.1049	OBW:No limit. EBW:No limit.	Pass
Band Edges Compliance	Part 2.1051, 27.53(h)	\leq -13 dBm/1%*EBW, in 1MHz bands immediately outside and adjacent to the frequency block.	Pass
Spurious Emission at Antenna Terminals	Part 2.1051, 27.53(h)	\leq -13 dBm/1MHz, from 9 kHz to 10 th harmonics but out side authorized operating frequency ranges.	Pass
Field Strength of Spurious Radiation	Part 2.1053, 27.53(h)	\leq -13 dBm/1MHz.	Pass
Frequency Stability	Part 2.1055, 27.54	$\leq \pm$ 2.5ppm.	Pass

Note1: For the verdict, the "N/A" denotes "not applicable", the "N/T" denotes "not tested".

Band5/Band26 Higher band (824MHz-848)

Test Item	FCC Rule No.	Requirements	Verdict (Note1)
Effective(Isotropic) Radiated Power Output Data	Part 2.1046, 22.913(a)	EIRP ≤ 1W	Pass
Peak-Average Ratio	--	Limits≤13 dB	Pass
Bandwidth	Part 2.1049	OBW:No limit. EBW:No limit.	Pass
Band Edges Compliance	Part 2.1051, 22.917(a)	≤ -13 dBm/1%*EBW,in1MHz bands immediately outside and adjacent to the frequency block.	Pass
Spurious Emission at Antenna Terminals	Part 2.1051, 22.917(a)	≤ -13 dBm/1MHz,from9 kHz to 10 th harmonics but out sideauthorized operating frequency ranges.	Pass
Field Strength of Spurious Radiation	Part 2.1051, 22.917(a)	≤ -13 dBm/1MHz.	Pass
Frequency Stability	Part 2.1055, 22.355	≤ ±2.5ppm.	Pass

Note1: For the verdict, the "N/A" denotes "not applicable", the "N/T" denotes "not tested".

Band12

Test Item	FCC Rule No.	Requirements	Verdict (Note1)
Effective (Isotropic) Radiated Power Output Data	Part 27.50(c)	FCC: ERP ≤ 3 W.	Pass
Peak-Average Ratio	Part 2.1046, Part 27.50(c)	Limits≤13 dB	Pass
Bandwidth	Part 2.1049	OBW: No limit. EBW: No limit.	Pass
Band Edges Compliance	Part 2.1051, Part 27.53(g) ,	≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Pass
Spurious Emission at Antenna Terminals	Part 2.1051, 27.53(g)	FCC: ≤ -13 dBm/100 kHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges.	Pass
Field Strength of Spurious Radiation	Part 2.1053, 27.53(g)	FCC: ≤ -13 dBm/100 kHz.	Pass
Frequency Stability	Part 2.1055 27.54	≤ ±2.5ppm.	Pass

Note1: For the verdict, the "N/A" denotes "not applicable", the "N/T" denotes "not tested".

Band26 Lower band (814MHz-824MHz)

Test Item	FCC Rule No.	Requirements	Verdict (Note1)
Effective (Isotropic) Radiated Power Output Data	90.635(b)	FCC: ERP ≤100Watt	Pass
Peak-Average Ratio	Part 2.1046, 22.913(d)	Limits≤13 dB	Pass
Bandwidth	Part 2.1049	OBW: No limit. EBW: No limit.	Pass
Band Edges Compliance	Part 2.1051, Part 90.691	Please refer to standard	Pass
Spurious Emission at Antenna Terminals	Part 2.1051, Part 90.691	< 43+10log10(P[Watts])	Pass
Field Strength of Spurious Radiation	Part 2.1053, Part 90.691	< 43+10log10(P[Watts])	Pass
Frequency Stability	Part 2.1055 Part 90.213	≤ ±2.5ppm.	Pass

Note1: For the verdict, the "N/A" denotes "not applicable", the "N/T" denotes "not tested".

Band13

Test Item	FCC Rule No.	Requirements	Verdict (Note1)
Effective (Isotropic) Radiated Power Output Data	Part 2.1046, 27.50(b)	FCC: ERP ≤ 3 W.	Pass
Peak-Average Ratio	Part 27.50	Limit≤13 dB	Pass
Bandwidth	Part 2.1049	OBW: No limit. EBW: No limit.	Pass
Band Edges Compliance	Part 2.1051, Part 27.53(c) ,	≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Pass
Spurious Emission at Antenna Terminals	Part 2.1051, Part 27.53(c) Part 27.53(f)	FCC: ≤ -13 dBm/100 kHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges. 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. For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.	Pass
Field Strength of Spurious Radiation	Part 2.1053, Part 27.53(c) Part 27.53(f)	FCC: ≤ -13 dBm/100 kHz. For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.	Pass
Frequency Stability	Part 2.1055 27.54	≤ ±2.5ppm.	Pass
Note1: For the verdict, the "N/A" denotes "not applicable", the "N/T" denotes "not tested".			

Band41 (2555MHz -2655MHz)

Test Item	FCC Rule No.	Requirements	Verdict (Note1)
Effective(Isotropic) Radiated Power Output Data	§2.1046, §27.50(h)	ERP ≤ 2W;	PASS
Peak-Average Ratio	§2.1046, §27.50	Limit≤13dB	PASS
Modulation Characteristics	§2.1047	Digital modulation	N/A
Bandwidth	§2.1049	OBW: Nolimit. EBW: Nolimit.	PASS
BandEdges Compliance	§2.1051, §27.53(m)	≤ -13dBm/1%*EBW,in1 MHz bands immediately outside and adjacent to The frequency block.	PASS
Spurious Emission at Antenna Terminals	§2.1051, §27.53(m)	≤ -13dBm/1MHz, from 9kHz to10th harmonics but outside authorized Operating frequency ranges.	PASS
Frequency Stability	§2.1055, §27.54	Within authorized bands of operation/frequency block.	PASS
Radiated spurious emission	§2.1053, §27.53(m)	≤ -25dBm/1MHz.	PASS
NOTE 1:For the verdict, the"N/A"denotes"not applicable",the"N/T"de notes "not tested".			

1.3 Test Facility

Test Laboratory:

Guangdong Asia Hongke Test Technology Limited

B1/F, Building 11, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

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

FCC-Registration No.: 251906 Designation Number: CN1376

Guangdong Asia Hongke Test Technology Limited has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

IC —Registration No.: 31737 CAB identifier: CN0165

The 3m Semi-anechoic chamber of Guangdong Asia Hongke Test Technology Limited has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 31737

A2LA-Lab Cert. No.: 7133.01

Guangdong Asia Hongke Test Technology Limited 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 the identified field of testing.

1.4 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 according to CISPR 16 - 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the Guangdong Asia Hongke Test Technology Limited’s quality system according 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 Asia Hongke laboratory is reported:

Test	Measurement Uncertainty	Notes
Power Line Conducted Emission	150KHz~30MHz ±1.20 dB	(1)
Radiated Emission	9KHz~30Hz ±3.10dB	(1)
Radiated Emission	9KHz~1GHz ±3.75dB	(1)
Radiated Emission	1GHz~18GHz ±3.88 dB	(1)
Radiated Emission	18GHz-40GHz ±3.88dB	(1)
RF power, conducted	30MHz~6GHz ±0.16dB	(1)
RF power density, conducted	±0.24dB	(1)
Spurious emissions, conducted	±0.21dB	(1)
Temperature	±1°C	(1)
Humidity	±3%	(1)
DC and low frequency voltages	±1.5%	(1)
Time	±2%	(1)
Duty cycle	±2%	(1)

The report uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty Multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%

2 GENGENERAL INFORMATION

2.1 Environmental conditions

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

Normal Temperature:	25°C
Relative Humidity:	95 %
Air Pressure:	101 kPa

2.2 General Description of EUT

Product Name:	ALPON X4																											
Model/Type reference:	SEC1004																											
Serial Model:	N/A																											
Power Supply:	Type 1: USB PD: 12V DC 2.25A, 15V DC 1.8A, 27W Max Type 2: DC Input: 9-30V DC, 27W Max Type 3: IEEE 802.3at Poe+: 48V DC 0.5A 24W																											
Adapter Information:	Adapter 1(USB PD) Model:HT-PD27W-HD Input: 100-240V~ 50/60Hz 0.6A Max Output: 5.1V=5.0A, 9V=3.0A, 12V=2.25A, 15.0V=1.8A 27.0W Max Adapter 2(DC) Model:HT36-1202500AX Input: 100-240V~ 50/60Hz 1.0A Max Output: 12V=2.5A 30.0W Max Adapter 3(POE) Model:GP-H480-050G Input: 100-240V~ 50/60Hz Max 0.75A Output: 48.0V=0.5A 24W																											
Hardware Version:	SEC1004-CXYZABC <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>X</th> <th>Y</th> <th>Z</th> <th>A</th> <th>B</th> <th>C</th> </tr> <tr> <th></th> <th>RAM</th> <th>Memory</th> <th>Wi-Fi</th> <th>POE</th> <th>Antenna Type</th> <th>GPS Antenna</th> </tr> </thead> <tbody> <tr> <td>SEC1004-</td> <td>1: 1GB 2: 2GB 4: 4GB 8: 8GB</td> <td>8: 8GB 1: 16GB 3: 32GB</td> <td>N: No Wi-Fi W: Wi-Fi</td> <td>0: No POE 1: POE</td> <td>Q: Antenna 1 J: Antenna 2 C: Antenna 3</td> <td>0: None 1: Yes</td> </tr> </tbody> </table>								X	Y	Z	A	B	C		RAM	Memory	Wi-Fi	POE	Antenna Type	GPS Antenna	SEC1004-	1: 1GB 2: 2GB 4: 4GB 8: 8GB	8: 8GB 1: 16GB 3: 32GB	N: No Wi-Fi W: Wi-Fi	0: No POE 1: POE	Q: Antenna 1 J: Antenna 2 C: Antenna 3	0: None 1: Yes
	X	Y	Z	A	B	C																						
	RAM	Memory	Wi-Fi	POE	Antenna Type	GPS Antenna																						
SEC1004-	1: 1GB 2: 2GB 4: 4GB 8: 8GB	8: 8GB 1: 16GB 3: 32GB	N: No Wi-Fi W: Wi-Fi	0: No POE 1: POE	Q: Antenna 1 J: Antenna 2 C: Antenna 3	0: None 1: Yes																						
Software Version:	12																											
Sample(s) Status:	AiTSZ-240813002-1(Normal sample) AiTSZ-240813002-2(Engineer sample)																											
LTE:																												
Operation Band:	FDD-LTE: Band 2/4/5/12/13/25/26/66 TDD-LTE: Band 41																											
Support Bandwidth:	Band 2: <input checked="" type="checkbox"/> 1.4MHz, <input checked="" type="checkbox"/> 3MHz, <input checked="" type="checkbox"/> 5MHz, <input checked="" type="checkbox"/> 10MHz, <input checked="" type="checkbox"/> 15MHz, <input checked="" type="checkbox"/> 20MHz Band 4: <input checked="" type="checkbox"/> 1.4MHz, <input checked="" type="checkbox"/> 3MHz, <input checked="" type="checkbox"/> 5MHz, <input checked="" type="checkbox"/> 10MHz, <input checked="" type="checkbox"/> 15MHz, <input checked="" type="checkbox"/> 20MHz Band 5: <input checked="" type="checkbox"/> 1.4MHz, <input checked="" type="checkbox"/> 3MHz, <input checked="" type="checkbox"/> 5MHz, <input checked="" type="checkbox"/> 10MHz Band 12: <input checked="" type="checkbox"/> 1.4MHz, <input checked="" type="checkbox"/> 3MHz, <input checked="" type="checkbox"/> 5MHz, <input checked="" type="checkbox"/> 10MHz Band 13: <input checked="" type="checkbox"/> 5MHz, <input checked="" type="checkbox"/> 10MHz Band 25: <input checked="" type="checkbox"/> 1.4MHz, <input checked="" type="checkbox"/> 3MHz, <input checked="" type="checkbox"/> 5MHz, <input checked="" type="checkbox"/> 10MHz, <input checked="" type="checkbox"/> 15MHz, <input checked="" type="checkbox"/> 20MHz Band 26: <input checked="" type="checkbox"/> 1.4MHz, <input checked="" type="checkbox"/> 3MHz, <input checked="" type="checkbox"/> 5MHz, <input checked="" type="checkbox"/> 10MHz, <input checked="" type="checkbox"/> 15MHz, <input checked="" type="checkbox"/> 20MHz Band 66: <input checked="" type="checkbox"/> 1.4MHz, <input checked="" type="checkbox"/> 3MHz, <input checked="" type="checkbox"/> 5MHz, <input checked="" type="checkbox"/> 10MHz, <input checked="" type="checkbox"/> 15MHz, <input checked="" type="checkbox"/> 20MHz Band 41: <input checked="" type="checkbox"/> 5MHz, <input checked="" type="checkbox"/> 10MHz, <input checked="" type="checkbox"/> 15MHz, <input checked="" type="checkbox"/> 20MHz																											
Frequency Range:	Band 2:uplink 1850MHz to 1910MHz; downlink 1930MHz to 1990MHz																											

	Band 4:uplink 1710MHz to 1755MHz; downlink 2110MHz to 2155MHz Band 5:uplink 824MHz to 849MHz; downlink 869MHz to 894MHz Band 12:uplink 699MHz to 716MHz; downlink 729MHz to 746MHz Band 13:uplink 777MHz to 787MHz; downlink 746MHz to 756MHz Band 25:uplink 1850MHz to 1915MHz;downlink 1930MHz to 1995MHz Band 26:uplink 814MHz to 849MHz;downlink 859MHz to 894MHz Band 66:uplink 1710MHz to 1780MHz;downlink 2110MHz to 2200MHz Band 41:uplink 2496MHz to 2690MHz;downlink 2496MHz to 2690MHz
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Power Class:	Power Class 3
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Modulation Type:	QPSK, 16QAM
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Antenna:	Type	Antenna type	Gain	Manufacturer
	2JW1102 -C943B	External Dipole Antenna	Band 2: 0.5dBi Band 4: 0.5dBi Band 5: -1.1dBi Band 12: -1.1dBi Band 13: -1.1dBi Band 25: 0.5dBi Band 26: -1.1dBi Band 66: 0.5dBi Band 41: 0.5dBi	2J
	YB0022AA	External Combo antenna	Band 2: 1.27dBi Band 4: 1.27dBi Band 5: 0.56dBi Band 12: 1.90dBi Band 13: 1.90dBi Band 25: 1.27dBi Band 26: 0.56dBi Band 66: 1.27dBi Band 41: 2.30dBi	QUECTEL
	YEBT002W1AM	External Dipole Antenna	Band 2: 4.60dBi Band 4: 1.27dBi Band 5: 1.90dBi Band 12: 1.40dBi Band 13: 1.40dBi Band 25: 4.60dBi Band 26: 1.90dBi Band 66: 1.27dBi Band 41: 3.60dBi	QUECTEL

Remark:

1. The above DUT's information was declared by manufacturer. For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. This report only list US E-UTRA bands supported by the US, the device may support non-US E-UTRA bands.
3. Pre-scan ,we test each combinations of type power supply as well as the antenna type, only the worst combination of POE adapter + antenna (with the max. gain for each E-UTRA band) was final test and recorded for LTE test.

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

Test Frequency:

Band 2

Test Frequency ID	Bandwidth [MHz]	NUL	Frequency of Uplink [MHz]	NDL	Frequency of Downlink [MHz]
Low Range	1.4	18607	1850.7	607	1930.7
	3	18615	1851.5	615	1931.5
	5	18625	1852.5	625	1932.5
	10	18650	1855	650	1935
	15	18675	1857.5	675	1937.5
	20	18700	1860	700	1940
Mid Range	1.4/3/5/10/15/20	18900	1880	900	1960
High Range	1.4	19193	1909.3	1193	1989.3
	3	19185	1908.5	1185	1988.5
	5	19175	1907.5	1175	1987.5
	10	19150	1905	1150	1985
	15	19125	1902.5	1125	1982.5
	20	19100	1900	1100	1980

Band 4

Test Frequency ID	Bandwidth [MHz]	NUL	Frequency of Uplink [MHz]	NDL	Frequency of Downlink [MHz]
Low Range	1.4	19957	1710.7	1957	2110.7
	3	19965	1711.5	1965	2111.5
	5	19975	1712.5	1975	2112.5
	10	20000	1715	2000	2115
	15	20025	1717.5	2025	2117.5
	20	20050	1720	2050	2120
Mid Range	1.4/3/5/10/15/20	20175	1732.5	2175	2132.5
High Range	1.4	20393	1754.3	2393	2154.3
	3	20385	1753.5	2385	2153.5
	5	20375	1752.5	2375	2152.5
	10	20350	1750	2350	2150
	15	20325	1747.5	2325	2147.5
	20	20300	1745	2300	2145

Band 5

Test Frequency ID	Bandwidth [MHz]	NUL	Frequency of Uplink [MHz]	NDL	Frequency of Downlink [MHz]
Low Range	1.4	20407	824.7	2407	869.7
	3	20415	825.5	2415	870.5
	5	20425	826.5	2425	871.5
	10	20450	829	2450	874
Mid Range	1.4/3/5/10	20525	836.5	2525	881.5
High Range	1.4	20643	848.3	2643	893.3
	3	20635	847.5	2635	892.5
	5	20625	846.5	2625	891.5
	10	20700	835	2700	880

Band 12

Test Frequency ID	Bandwidth [MHz]	NUL	Frequency of Uplink [MHz]	NDL	Frequency of Downlink [MHz]
Low Range	1.4	23017	699.7	5017	729.7
	3	23025	700.5	5025	730.5
	5	23035	701.5	5035	731.5
	10	23060	704	5060	734
Mid Range	1.4/3/5/10	23095	707.5	5095	737.5
High Range	1.4	23173	715.3	5173	745.3
	3	23165	714.5	5165	744.5
	5	23155	713.5	5155	743.5
	10	23130	711	5130	741

Band 13

Test Frequency ID	Bandwidth [MHz]	NUL	Frequency of Uplink [MHz]	NDL	Frequency of Downlink [MHz]
Low Range	5	23205	779.5	5205	748.5
	10	23230	782	5230	751
Mid Range	5/10	23230	782	5230	751
High Range	5	23255	784.5	5255	753.5
	10	23230	782	5230	751

Band 25

Test Frequency ID	Bandwidth [MHz]	NUL	Frequency of Uplink [MHz]	NDL	Frequency of Downlink [MHz]
Low Range	1.4	26047	1850.7	8047	1930.7
	3	26055	1851.5	8055	1931.5
	5	26065	1852.5	8065	1932.5
	10	26090	1855	8090	1935
	15	26115	1857.5	8115	1937.5
	20	26140	1860	8140	1940
Mid Range	1.4/3/5/10/5/20	26365	1882.5	8365	1962.5
High Range	1.4	26683	1914.3	8683	1994.3
	3	26675	1913.5	8675	1993.5
	5	26665	1912.5	8665	1992.5
	10	26640	1910	8640	1990
	15	26615	1907.5	8615	1987.5
	20	26590	1905	8590	1985

Band 26

Test Frequency ID	Bandwidth [MHz]	NUL	Frequency of Uplink [MHz]	NDL	Frequency of Downlink [MHz]
Low Range	1.4	26697	814.7	8697	859.7
	3	26705	815.5	8705	860.5
	5	26715	816.5	8715	861.5
	10	26750	820	8750	865
	15	26775	822.5	8775	867.5
Mid Range	1.4/3/5/10/15	26865	831.5	8865	876.5
High Range	1.4	27033	848.3	9033	893.3
	3	27025	847.5	9025	892.5
	5	27015	846.5	9015	891.5
	10	26990	844	8990	889
	15	26965	841.5	8965	886.5

Band 66

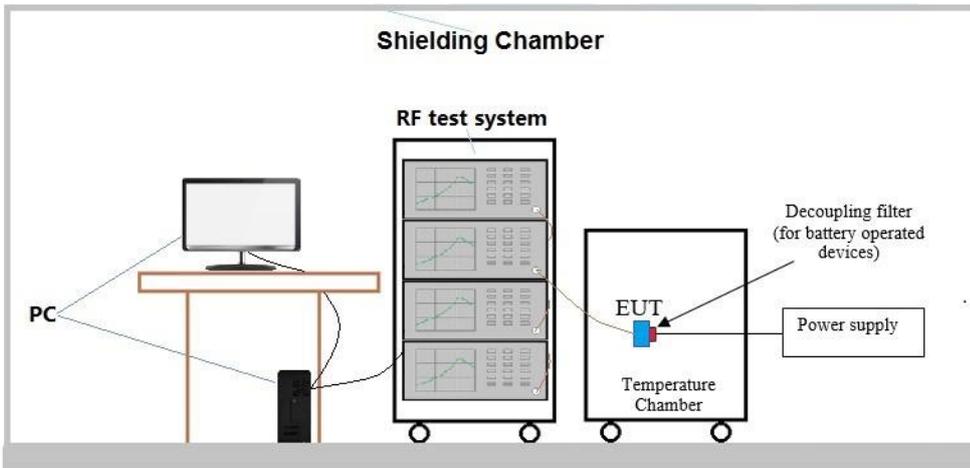
Test Frequency ID	Bandwidth [MHz]	NUL	Frequency of Uplink [MHz]	NDL	Frequency of Downlink [MHz]
Low Range	1.4	131979	1710.7	66443	2110.7
	3	131987	1711.5	66451	2111.5
	5	131997	1712.5	66461	2112.5
	10	132022	1715	66486	2115
	15	132047	1717.5	66511	2117.5
	20	132072	1720	66536	2120
Mid Range	1.4/3/5/10/15/20	132322	1745	66786	2145
High Range	1.4	132665	1779.3	67129	2179.3
	3	132657	1778.5	67121	2178.5
	5	132647	1777.5	67111	2177.5
	10	132622	1775	67086	2175
	15	132597	1772.5	67061	2172.5
	20	132572	1770	67036	2170

Band 41

Test Frequency ID	Bandwidth [MHz]	NUL	Frequency (UL and DL) [MHz]
Low Range	5	39675	2498.5
	10	39700	2501
	15	39725	2503.5
	20	39750	2506
Mid Range	5/10/15/20	40620	2593
High Range	5	41565	2687.5
	10	41540	2685
	15	41515	2682.5
	20	41490	2680

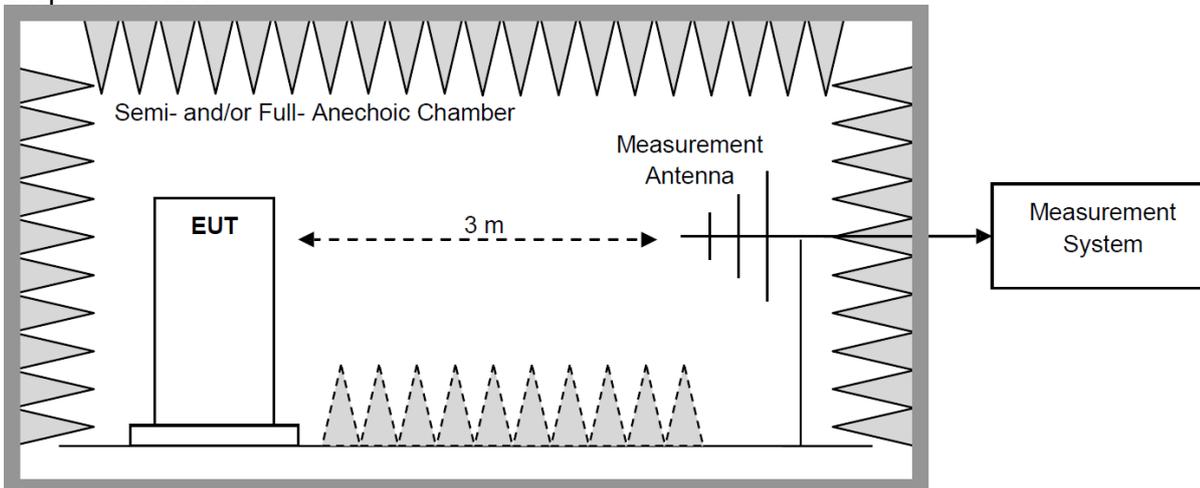
2.4 Test Setup and Conditions

2.4.1 Conducted Measurement Test Setup

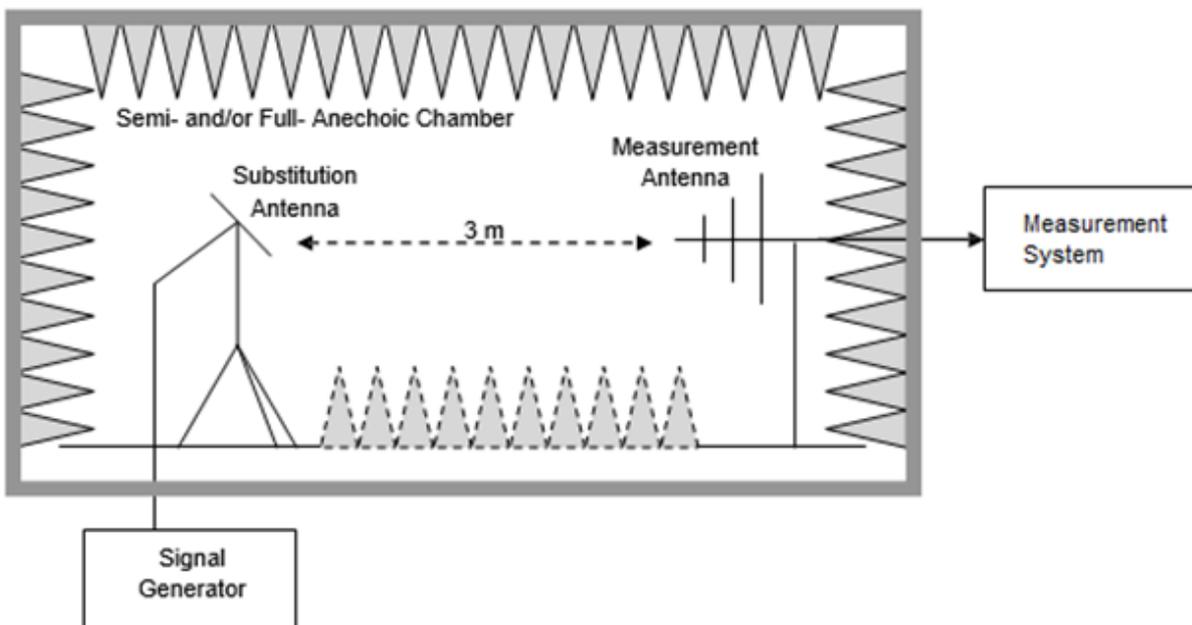


2.4.2 Radiated Measurement Test Setup

Step 1: Pre-test



Step 2: Substitution method to verify the maximum ERP/EIRP



2.5 Equipment List for the Test

No	Test Equipment	Manufacturer	Model No	Serial No	Pre.Cal. Date	New Cal. Date	Cal. Due Date
1	Spectrum Analyzer	R&S	FSV40	101470	2023.09.08	2024.09.07	2025.09.06
2	Spectrum Analyzer	Keysight	N9020A	MY51280643	2023.09.08	2024.09.07	2025.09.06
3	EMI Measuring Receiver	R&S	ESR	101660	2023.09.08	2024.09.07	2025.09.06
4	Low Noise Pre-Amplifier	HP	HP8447E	1937A01855	2023.09.08	2024.09.07	2025.09.06
5	Low Noise Pre-Amplifier	Tsj	MLA-0120-A02-34	2648A04738	2023.09.08	2024.09.07	2025.09.06
6	Passive Loop	ETS	6512	00165355	2022.09.04	2024.09.03	2026.09.06
7	TRILOG Super Broadband test Antenna	SCHWARZBECK	VULB9160	9160-3206	2021.08.29	2024.08.28	2027.08.27
8	Broadband Horn Antenna	SCHWARZBECK	BBHA9120D	452	2021.08.29	2024.08.28	2027.08.27
9	SHF-EHF Horn Antenna 15-40GHz	SCHWARZBECK	BBHA9170	BBHA9170367d	2021.08.29	2024.08.28	2027.08.27
10	EMI Measuring Receiver	R&S	ESR	101160	2023.09.13	2024.09.12	2025.09.11
11	LISN	SCHWARZBECK	NNLK 8129	8130179	2023.10.29	2024.10.28	2025.10.27
12	Pulse Limiter	R&S	ESH3-Z2	102789	2023.09.13	2024.09.12	2025.09.11
13	Pro.Temp&Humi.chamber	MENTEK	MHP-150-1C	MAA08112501	2023.09.08	2024.09.07	2025.09.06
14	RF Automatic Test system	MW	MW100-RFCB	21033016	2023.09.08	2024.09.07	2025.09.06
15	Signal Generator	Agilent	N5182A	MY50143009	2023.09.08	2024.09.07	2025.09.06
16	Wideband Radio communication tester	R&S	CMW500	1201.0002K50	2023.09.08	2024.09.07	2025.09.06
17	RF Automatic Test system	MW	MW100-RFCB	21033016	2023.09.08	2024.09.07	2025.09.06
18	DC power supply	ZHAOXIN	RXN-305D-2	28070002559	N/A	N/A	N/A
19	RE Software	EZ	EZ-EMC_RE	Ver.AIT-03A	N/A	N/A	N/A
20	CE Software	EZ	EZ-EMC_CE	Ver.AIT-03A	N/A	N/A	N/A
21	RF Software	MW	MTS 8310	2.0.0.0	N/A	N/A	N/A
22	temporary antenna connector(Note)	NTS	R001	N/A	N/A	N/A	N/A
<p>Note: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.</p>							

3 TEST CONDITIONS AND RESULTS

3.1 Output Power

MEASUREMENT SETUP

Test set up as section 2.4.1& 2.4.2.

TEST PROCEDURE

The EUT was setup according to ANSI C63.26:2015

Conducted Power Measurement:

- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMW500 by a Directional Couple.
- c) EUT Communicate with CMW500 then selects a channel for testing.
- d) Add a correction factor to the display of spectrum, and then test.

Radiated Power Measurement:

Determining ERP and/or EIRP from conducted RF output power measurements according to ANSI C63.26 2015 Section 5.2.5.5.

In many cases, RF output power limits are specified in terms of the ERP or the EIRP. Typically, ERP is specified when the operating frequency is less than or equal to 1 GHz and EIRP is specified when the operating frequency is greater than 1 GHz. Both are defined as the product of the power supplied to the antenna and its gain (relative to a dipole antenna in the case of ERP, and relative to an isotropic antenna in the case of EIRP); however, when working in decibels (i.e., logarithmic scale), the ERP and EIRP represent the sum of the transmit antenna gain (in dBd or dBi, respectively) and the conducted RF output power (expressed in dB relative to watts or milliwatts).

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation (1) as follows:

$$ERP \text{ or } EIRP = P_{Meas} + G_T$$

$$ERP = EIRP - 2.15$$

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas} , e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

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

For devices utilizing multiple antennas, see 6.4 for guidance with respect to determining the effective array transmit antenna gain term to be used in the above equation.

The following equations demonstrate the mathematical relationship between ERP and EIRP:

- a) $ERP = EIRP - 2.15$, where ERP and EIRP are expressed in consistent units.
- b) $EIRP = ERP + 2.15$, where ERP and EIRP are expressed in consistent units.

TEST RESULTS

Passed

Pass **Not Applicable**

Note:

For test data, please refer to Appendix RF test data for LTE.

3.2 PEAK-TO-AVERAGE RATIO

MEASUREMENT SETUP

Test set up as section 2.4.1.

TEST PROCEDURE

CCDF Procedure for PAPR :

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

TEST RESULTS

Passed

Pass **Not Applicable**

Note:

For test data, please refer to Appendix RF test data for LTE.

3.3 Occupied Bandwidth

MEASUREMENT SETUP

Test set up as section 2.4.1.

TEST PROCEDURE

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

TEST RESULTS

Passed

Pass **Not Applicable**

Note:

For test data, please refer to Appendix RF test data for LTE.

3.4 Band Edge compliance

MEASUREMENT SETUP

Test set up as section 2.4.1.

TEST PROCEDURE

GSM:

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW > 1% of the emission bandwidth = 10KHZ
4. VBW > 3 x RBW =30KHZ
5. Detector = RMS
6. Number of sweep points $\geq 2 \times \text{Span/RBW}$
7. Trace mode = trace average
8. Sweep time = (number of points in sweep) \times (symbol period)
9. Sweep =Single

TEST RESULTS

Passed

Pass **Not Applicable**

Note:

For test data, please refer to Appendix RF test data for LTE.

3.5 Spurious Emission

MEASUREMENT SETUP

Test set up as section 2.4.1& 2.4.2.

TEST PROCEDURE

The EUT was setup according to ANSI C63.26:2015

Conducted Spurious Measurement:

1. RBW = 1 MHz
2. VBW \geq 3 MHz
3. Detector = RMS
4. Trace Mode = Trace average
5. Sweep time > (number of points in sweep) \times (symbol period)
6. Number of points in sweep \geq 2 x Span / RBW
7. Sweep =Single

Test Settings (WCDMA)

1. RBW = 1 MHz
2. VBW \geq 3 MHz
3. Detector = RMS
4. Trace Mode = trace average
5. Sweep time > (number of points in sweep) \times (symbol period)
6. Number of points in sweep \geq 2 x Span / RBW
7. Sweep =Single

Radiated Spurious Measurement:

1. The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.
2. The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter
3. The output of the test antenna shall be connected to the measuring receiver.
4. The transmitter shall be switched on and the measuring receiver shall be tuned to the frequency of the transmitter under test.
5. The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
6. The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
7. The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.

8. The maximum signal level detected by the measuring receiver shall be noted.
9. The transmitter shall be replaced by a substitution antenna.
10. The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
11. The substitution antenna shall be connected to a calibrated signal generator.
12. If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
13. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
14. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
15. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
16. The measure of the effective radiated power is the larger of the two levels recorded at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.
17. The frequency range need checked up to 10th harmonic.

Final measurement calculation as below:

The relevant equation for determining the ERP/EIRP from the radiated RF output power is:

$$\text{ERP/EIRP (dBm)} = \text{SA Read Value (dBm)} + \text{Correction Factor (dB)}$$

where:

ERP/EIRP = effective or equivalent radiated power, in dBm;

SA Read Value = measured transmitter power received by EMI receiver or spectrum analyzer, in dBm;

Correction Factor = total correction factor including cable loss, in dB;

TEST RESULTS**Conducted Measurement result:****Passed**

Pass **Not Applicable**

Note:

For test data, please refer to Appendix RF test data for LTE.

Radiated Measurement:

LTE Band 2 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3702.40	-42.52	11.63	5.22	-36.11	-13.00	-23.11	H
5552.40	-44.20	12.19	6.34	-38.35	-13.00	-25.35	H
7402.85	-49.49	11.12	7.58	-45.95	-13.00	-32.95	H
3702.40	-42.12	11.63	5.22	-35.71	-13.00	-22.71	V
5552.40	-44.15	12.19	6.34	-38.30	-13.00	-25.30	V
7402.85	-48.62	11.12	7.58	-45.08	-13.00	-32.08	V
LTE Band 2 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3759.70	-45.94	11.55	5.29	-39.68	-13.00	-26.68	H
5640.15	-48.33	12.1	6.34	-42.57	-13.00	-29.57	H
7520.75	-47.89	11.35	7.64	-44.18	-13.00	-31.18	H
3759.70	-45.83	11.55	5.29	-39.57	-13.00	-26.57	V
5640.15	-48.16	12.1	6.34	-42.40	-13.00	-29.40	V
7520.75	-46.94	11.35	7.64	-43.23	-13.00	-30.23	V
LTE Band 2 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3819.30	-44.07	11.48	5.33	-37.92	-13.00	-24.92	H
5728.00	-46.31	11.94	6.36	-40.73	-13.00	-27.73	H
7637.55	-51.18	11.43	7.69	-47.44	-13.00	-34.44	H
3819.30	-43.76	11.48	5.33	-37.61	-13.00	-24.61	V
5728.00	-46.10	11.94	6.36	-40.52	-13.00	-27.52	V
7637.55	-50.53	11.43	7.69	-46.79	-13.00	-33.79	V

LTE Band 4 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3421.75	-44.36	11.48	4.9	-37.78	-13.00	-24.78	H
5133.65	-47.08	11.41	5.71	-41.38	-13.00	-28.38	H
6842.70	-49.39	11.06	6.88	-45.21	-13.00	-32.21	H
3421.75	-43.69	11.48	4.9	-37.11	-13.00	-24.11	V
5133.65	-46.00	11.41	5.71	-40.30	-13.00	-27.30	V
6842.70	-49.37	11.06	6.88	-45.19	-13.00	-32.19	V
LTE Band 4 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3464.25	-42.21	11.57	4.93	-35.57	-13.00	-22.57	H
5198.00	-46.11	11.55	5.88	-40.44	-13.00	-27.44	H
6929.35	-49.36	11.07	6.93	-45.22	-13.00	-32.22	H
3464.25	-41.48	11.57	4.93	-34.84	-13.00	-21.84	V
5198.00	-45.41	11.55	5.88	-39.74	-13.00	-26.74	V
6929.35	-48.18	11.07	6.93	-44.04	-13.00	-31.04	V
LTE Band 4 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3509.00	-41.62	11.66	4.96	-34.92	-13.00	-21.92	H
5262.85	-48.66	11.72	5.92	-42.86	-13.00	-29.86	H
7018.45	-49.19	11.01	6.99	-45.17	-13.00	-32.17	H
3509.00	-40.80	11.66	4.96	-34.10	-13.00	-21.10	V
5262.85	-47.74	11.72	5.92	-41.94	-13.00	-28.94	V
7018.45	-48.56	11.01	6.99	-44.54	-13.00	-31.54	V

LTE Band 5 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
1649.70	-43.53	9.31	3.02	-37.24	-13.00	-24.24	H
2475.30	-44.70	10.4	3.97	-38.27	-13.00	-25.27	H
3299.30	-52.41	11.08	4.74	-46.07	-13.00	-33.07	H
1649.70	-43.35	9.31	3.02	-37.06	-13.00	-24.06	V
2475.30	-43.86	10.4	3.97	-37.43	-13.00	-24.43	V
3299.30	-51.99	11.08	4.74	-45.65	-13.00	-32.65	V
LTE Band 5 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
1673.05	-45.38	9.48	3.06	-38.96	-13.00	-25.96	H
2510.25	-48.16	10.41	4.01	-41.76	-13.00	-28.76	H
3346.45	-51.82	11.24	4.81	-45.39	-13.00	-32.39	H
1673.05	-44.37	9.48	3.06	-37.95	-13.00	-24.95	V
2510.25	-47.78	10.41	4.01	-41.38	-13.00	-28.38	V
3346.45	-51.69	11.24	4.81	-45.26	-13.00	-32.26	V
LTE Band 5 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
1697.00	-45.40	9.65	3.11	-38.86	-13.00	-25.86	H
2544.80	-48.05	10.41	4.04	-41.68	-13.00	-28.68	H
3394.35	-53.28	11.41	4.88	-46.75	-13.00	-33.75	H
1697.00	-44.61	9.65	3.11	-38.07	-13.00	-25.07	V
2544.80	-47.86	10.41	4.04	-41.49	-13.00	-28.49	V
3394.35	-53.17	11.41	4.88	-46.64	-13.00	-33.64	V

LTE Band 12 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
1400.65	-41.81	7.53	2.68	-36.96	-13.00	-23.96	H
2100.00	-45.37	9.5	3.55	-39.42	-13.00	-26.42	H
2799.20	-49.33	10.68	4.35	-43.00	-13.00	-30.00	H
1400.65	-40.97	7.53	2.68	-36.12	-13.00	-23.12	V
2100.00	-44.30	9.5	3.55	-38.35	-13.00	-25.35	V
2799.20	-48.41	10.68	4.35	-42.08	-13.00	-29.08	V
LTE Band 12 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
1415.15	-43.70	7.64	2.73	-38.79	-13.00	-25.79	H
2123.00	-46.11	9.56	3.58	-40.13	-13.00	-27.13	H
2830.10	-53.01	10.67	4.33	-46.67	-13.00	-33.67	H
1415.15	-42.70	7.64	2.73	-37.79	-13.00	-24.79	V
2123.00	-45.57	9.56	3.58	-39.59	-13.00	-26.59	V
2830.10	-52.95	10.67	4.33	-46.61	-13.00	-33.61	V
LTE Band 12 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
1431.00	-44.13	7.76	2.78	-39.15	-13.00	-26.15	H
2146.20	-46.15	9.61	3.6	-40.14	-13.00	-27.14	H
2862.40	-52.41	10.65	4.31	-46.07	-13.00	-33.07	H
1431.00	-43.68	7.76	2.78	-38.70	-13.00	-25.70	V
2146.20	-45.91	9.61	3.6	-39.90	-13.00	-26.90	V
2862.40	-51.88	10.65	4.31	-45.54	-13.00	-32.54	V

LTE Band 13 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
1558.65	-45.01	8.68	2.97	-39.30	-13.00	-26.30	H
2339.00	-47.80	10.24	3.83	-41.39	-13.00	-28.39	H
3118.20	-52.39	10.48	4.58	-46.49	-13.00	-33.49	H
1558.65	-44.33	8.68	2.97	-38.62	-13.00	-25.62	V
2339.00	-47.26	10.24	3.83	-40.85	-13.00	-27.85	V
3118.20	-52.16	10.48	4.58	-46.26	-13.00	-33.26	V
LTE Band 13 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
1564.40	-42.06	8.72	2.96	-36.30	-13.00	-23.30	H
2345.50	-45.69	10.26	3.84	-39.27	-13.00	-26.27	H
3127.80	-50.72	10.50	4.58	-44.80	-13.00	-31.80	H
1564.40	-41.82	8.72	2.96	-36.06	-13.00	-23.06	V
2345.50	-44.94	10.26	3.84	-38.52	-13.00	-25.52	V
3127.80	-49.78	10.50	4.58	-43.86	-13.00	-30.86	V
LTE Band 13 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
1569.70	-42.64	8.76	2.96	-36.84	-13.00	-23.84	H
2354.20	-45.97	10.28	3.84	-39.53	-13.00	-26.53	H
3137.95	-50.91	10.52	4.58	-44.97	-13.00	-31.97	H
1569.70	-41.56	8.76	2.96	-35.76	-13.00	-22.76	V
2354.20	-44.88	10.28	3.84	-38.44	-13.00	-25.44	V
3137.95	-50.90	10.52	4.58	-44.96	-13.00	-31.96	V

LTE Band 25 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3701.75	-45.14	11.63	5.22	-38.73	-13.00	-25.73	H
5552.55	-46.36	12.19	6.34	-40.51	-13.00	-27.51	H
7402.50	-48.30	11.12	7.58	-44.76	-13.00	-31.76	H
3701.75	-44.10	11.63	5.22	-37.69	-13.00	-24.69	V
5552.55	-46.18	12.19	6.34	-40.33	-13.00	-27.33	V
7402.50	-47.32	11.12	7.58	-43.78	-13.00	-30.78	V
LTE Band 25 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3765.00	-44.59	11.54	5.29	-38.34	-13.00	-25.34	H
5648.75	-47.63	12.09	6.34	-41.88	-13.00	-28.88	H
7529.65	-49.15	11.36	7.64	-45.43	-13.00	-32.43	H
3765.00	-44.40	11.54	5.29	-38.15	-13.00	-25.15	V
5648.75	-47.26	12.09	6.34	-41.51	-13.00	-28.51	V
7529.65	-48.78	11.36	7.64	-45.06	-13.00	-32.06	V
LTE Band 25 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3828.60	-41.13	11.48	5.32	-34.97	-13.00	-21.97	H
5743.50	-45.43	11.9	6.36	-39.89	-13.00	-26.89	H
7658.75	-51.50	11.42	7.7	-47.78	-13.00	-34.78	H
3828.60	-40.78	11.48	5.32	-34.62	-13.00	-21.62	V
5743.50	-44.56	11.9	6.36	-39.02	-13.00	-26.02	V
7658.75	-50.73	11.42	7.7	-47.01	-13.00	-34.01	V

LTE Band 26 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
1630.35	-41.34	9.17	2.98	-35.15	-13.00	-22.15	H
2445.00	-48.26	10.39	3.93	-41.80	-13.00	-28.80	H
3259.40	-53.40	10.91	4.68	-47.17	-13.00	-34.17	H
1630.35	-40.75	9.17	2.98	-34.56	-13.00	-21.56	V
2445.00	-47.78	10.39	3.93	-41.32	-13.00	-28.32	V
3259.40	-52.69	10.91	4.68	-46.46	-13.00	-33.46	V
LTE Band 26 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
1637.25	-44.14	9.22	3	-37.92	-13.00	-24.92	H
2456.90	-48.11	10.4	3.94	-41.65	-13.00	-28.65	H
3275.25	-53.61	10.98	4.71	-47.34	-13.00	-34.34	H
1637.25	-43.69	9.22	3	-37.47	-13.00	-24.47	V
2456.90	-47.69	10.4	3.94	-41.23	-13.00	-28.23	V
3275.25	-52.64	10.98	4.71	-46.37	-13.00	-33.37	V
LTE Band 26 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
1647.70	-44.83	9.3	3.02	-38.55	-13.00	-25.55	H
2470.55	-48.08	10.4	3.96	-41.64	-13.00	-28.64	H
3293.85	-51.12	11.06	4.74	-44.80	-13.00	-31.80	H
1647.70	-44.02	9.3	3.02	-37.74	-13.00	-24.74	V
2470.55	-48.04	10.4	3.96	-41.60	-13.00	-28.60	V
3293.85	-50.16	11.06	4.74	-43.84	-13.00	-30.84	V

LTE Band 66 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3421.85	-43.51	11.48	4.90	-36.93	-13.00	-23.93	H
5133.70	-46.31	11.41	5.71	-40.61	-13.00	-27.61	H
6843.10	-48.68	11.06	6.89	-44.51	-13.00	-31.51	H
3421.85	-43.22	11.48	4.90	-36.64	-13.00	-23.64	V
5133.70	-46.29	11.41	5.71	-40.59	-13.00	-27.59	V
6843.10	-47.61	11.06	6.89	-43.44	-13.00	-30.44	V
LTE Band 66 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3490.65	-44.90	11.63	4.95	-38.22	-13.00	-25.22	H
5234.65	-46.16	11.65	5.91	-40.42	-13.00	-27.42	H
6979.60	-48.23	11.05	6.95	-44.13	-13.00	-31.13	H
3490.65	-43.98	11.63	4.95	-37.30	-13.00	-24.30	V
5234.65	-45.51	11.65	5.91	-39.77	-13.00	-26.77	V
6979.60	-47.29	11.05	6.95	-43.19	-13.00	-30.19	V
LTE Band 66 / 1.4MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
3559.00	-43.75	11.71	4.99	-37.03	-13.00	-24.03	H
5337.85	-44.40	11.92	6.05	-38.53	-13.00	-25.53	H
7118.00	-49.77	10.85	7.15	-46.07	-13.00	-33.07	H
3559.00	-43.67	11.71	4.99	-36.95	-13.00	-23.95	V
5337.85	-44.31	11.92	6.05	-38.44	-13.00	-25.44	V
7118.00	-48.61	10.85	7.15	-44.91	-13.00	-31.91	V

LTE Band 41 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
4997.75	-43.82	11.33	5.76	-38.25	-25.00	-13.25	H
7496.20	-41.74	11.32	7.62	-38.04	-25.00	-13.04	H
9993.50	-50.45	11.74	9.11	-47.82	-25.00	-22.82	H
4997.75	-43.20	11.33	5.76	-37.63	-25.00	-12.63	V
7496.20	-41.23	11.32	7.62	-37.53	-25.00	-12.53	V
9993.50	-49.91	11.74	9.11	-47.28	-25.00	-22.28	V
LTE Band 41 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
5186.00	-40.90	11.52	5.85	-35.23	-25.00	-10.23	H
7778.35	-43.23	11.31	7.71	-39.63	-25.00	-14.63	H
10371.55	-48.17	11.69	9.22	-45.70	-25.00	-20.70	H
5186.00	-39.96	11.52	5.85	-34.29	-25.00	-9.29	V
7778.35	-43.20	11.31	7.71	-39.60	-25.00	-14.60	V
10371.55	-47.41	11.69	9.22	-44.94	-25.00	-19.94	V
LTE Band 41 / 5MHz / QPSK / RB Size 1 Offset 0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea	Limit	Margin	Polarity
				(dBm)	(dBm)	(dBm)	
5374.35	-43.27	12.01	6.15	-37.41	-25.00	-12.41	H
8062.85	-41.75	11.33	7.82	-38.24	-25.00	-13.24	H
10750.30	-44.97	11.66	9.70	-43.01	-25.00	-18.01	H
5374.35	-42.76	12.01	6.15	-36.90	-25.00	-11.90	V
8062.85	-41.04	11.33	7.82	-37.53	-25.00	-12.53	V
10750.30	-44.84	11.66	9.70	-42.88	-25.00	-17.88	V

Remark:

1. $PMea = S\ G.Lev + Ant - Loss$
2. $Margin = PMea - Limit$
3. *Other emission levels are attenuated 20dB below the limit and not recorded in report.*

3.6 Frequency Stability under Temperature & Voltage Variations

TEST CONFIGURATION

Test set up as section 2.4.1.

TEST PROCEDURE

The EUT was setup according to ANSI C63.26:2015

Frequency Stability under Temperature Variations:

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

Frequency Stability under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

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

TEST RESULTS

Passed

Pass **Not Applicable**

Note:

For test data, please refer to Appendix RF test data for LTE.

4 Test Setup Photographs of EUT

Please refer to separated files for Test Setup Photos of the EUT.

5 External Photographs of EUT

Please refer to separated files for External Photos of the EUT.

6 Internal Photographs of EUT

Please refer to separated files for Internal Photos of the EUT.

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