TEST REPORT

Product Name:	4G Mobile Wifi
FCC ID:	2BFHE-M603
Trademark:	N/A
Model Number:	M603, M603H, MF523E, M232, MF56, MF21, D21
Prepared For:	Hunan Danuo Technology Co., Ltd.
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Manufacturer:	Hunan Danuo Technology Co., Ltd.
Address:	Xiangnan International Logistics Park, Building B7,No.89,Guo Qing South Road,Beihu District,Chenzhou City,Hunan Province.
Prepared By:	Shenzhen CTB Testing Technology Co., Ltd.
Address:	1&2/F., Building A, No.26, Xinhe Road, Xinqiao, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, China
Sample Received Date:	Feb. 22, 2024
Sample tested Date:	Feb. 22, 2024 to Mar. 12, 2024
Issue Date:	Mar. 12, 2024
Report No.:	CTB240229031RFX
Test Standards	FCC Part 2, 22, 24E, 27
Test Results	PASS
Remark:	This is LTE radio test report.

Compiled by:	Reviewed by:	Approved by:
Zhou Kui	Arron Liu	Bin Mei / Director

Note: If there is any objection to the inspection results in this report, please submit a written report to the company within 15 days from the date of receiving the report. The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen CTB Testing Technology Co., Ltd. this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client. "*" indicates the testing items were fulfilled by subcontracted lab. "#" indicates the items are not in CNAS accreditation scope.

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(Note: N/A means not applicable)

1. VERSION

Report No.	Issue Date	Description	Approved
CTB240229031RFX	Mar. 12, 2024	Original	Valid

2. TEST SUMMARY

The Product has been tested according to the following specifications:

Test Item	Test Requirement	Test method	Result
Conducted output power	Part 2.1046(a)	TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
Effective Radiated Power of Transmitter(EIRP)	Part 22.913(a)(5)/Part27.50(h)(2)	TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
peak-to-average ratio	Part 27.50(d)	KDB 971168 D01v03r01	PASS
99% & 26dB Occupied Bandwidth	Part 2.1049(h)	KDB 971168 D01v03r01	PASS
Band Edge at antenna terminals	Part 2.1051/ Part 22.917(a)/Part 27.53(m) (4)	KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	Part 2.1051/ Part 22.917(a)/Part 27.53(m) (4)	TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
Field strength of spurious radiation	Part 2.1053/ Part 22.917(a)/Part 27.53(m) (4)	TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
Frequency stability	Part 2.1055/Part 27.54	TIA-603-E-2016 & KDB 971168 D01v03r01	PASS

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3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Item	Uncertainty
Occupancy bandwidth	54.3kHz
Conducted output power Above 1G	0.9dB
Conducted output power below 1G	0.9dB
Power Spectral Density , Conduction	0.9dB
Conduction spurious emissions	2.0dB
Out of band emission	2.0dB
3m camber Radiated spurious emission(30MHz-1GHz)	4.6dB
3m chamber Radiated spurious emission(1GHz-18GHz)	5.1dB
3m chamber Radiated spurious emission(18GHz-40GHz)	3.4dB
Receiver Reference Sensitivity level	1.9dB
humidity uncertainty	5.5%
Temperature uncertainty	0.63℃
frequency	1×10-7

4. PRODUCT INFORMATION AND TEST SETUP

4.1 Product Information

Model(s):	M603, M603H, MF523E, M232, MF56, MF21, D21
Model Description:	All the model are the same circuit and RF module, only different for model name .Test sample model: M603
Hardware Version:	V1.0
Software Version:	V1.0
Operation Frequency:	FDD-LTE BAND 2:1850-1910MHz FDD-LTE BAND 4:1710-1755MHz FDD-LTE BAND 5:824-849MHz FDD-LTE BAND 7:2500-2570MHz
Max. RF output power:	FDD-LTE BAND 2: 21.39dBm FDD-LTE BAND 4: 22.11dBm FDD-LTE BAND 5: 22.32dBm FDD-LTE BAND 7: 23.43dBm
Type of Modulation:	QPSK, 16QAM
Antenna installation:	Internal antenna
Antenna Gain:	FDD-LTE BAND 2:1.1dBi FDD-LTE BAND 4: 0.11dBi FDD-LTE BAND 5: -0.92dBi FDD-LTE BAND 7: 2.11dBi
Ratings:	DC 5V charging from adapter Battery DC 3.7V

4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment.

4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
1	Adapter	JIYIN	JY-05100C	N/A	N/A

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 Test Mode

Test Mode List		
Test Mode	Description	Remark
TM1	FDD-LTE BAND 2	Low, Middle, High Channels
TM2	FDD-LTE BAND 4	Low, Middle, High Channels
TM3	FDD-LTE BAND 5	Low, Middle, High Channels
TM4	FDD-LTE BAND 7	Low, Middle, High Channels

4.5 Test Environment

Humidity(%):	54
Atmospheric Pressure(kPa):	101
Normal Voltage(DC):	3.7V
Normal Temperature(℃)	23
Low Temperature(℃)	0
High Temperature(℃)	40

5. TEST FACILITY AND TEST INSTRUMENT USED

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at 1&2F., Building A, No. 26, Xinhe Road, Xinqiao, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

5.2 Test Instrument Used

Item	Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	Agilent	N9020A	MY52090073	2024.07.05
2	Power Sensor	Agilent	U2021XA	MY56120032	2024.07.05
3	Power Sensor	Agilent	U2021XA	MY56120034	2024.07.05
4	Communication test set	R&S	CMW500	108058	2024.07.05
5	Spectrum Analyzer	KEYSIGHT	N9020A	MY51289897	2024.07.05
6	Signal Generator	Agilent	N5181A	MY50140365	2024.07.05
7	Vector signal generator	Agilent	N5182A	MY47420195	2024.07.05
8	Communication test set	Agilent	E5515C	MY50102567	2024.07.06
9	2.4 GHz Filter	Shenxiang	MSF2400-2483.5MS-1154	20181015001	2024.07.05
10	5 GHz Filter	Shenxiang	MSF5150-5850 MS-1155	20181015001	2024.07.06
11	Filter	Xingbo	XBLBQ-DZA120	190821-1-1	2024.07.06
12	BT&WI-FI Automatic test software	Micowave	MTS8000	Ver. 2.0.0.0	/
13	Rohde & Schwarz SFU Broadcast Test System	R&S	SFU	101017	2024.10.30
14	Temperature humidity chamber	Hongjing	TH-80CH	DG-15174	2024.07.05
15	234G Automatic test software	Micowave	MTS8200	Ver. 2.0.0.0	/
16	966 chamber	C.R.T.	966	/	2024.08.11
17	Receiver	R&S	ESPI	100362	2024.07.05
18	Amplifier	HP	8447E	2945A02747	2024.07.05
19	Amplifier	Agilent	8449B	3008A01838	2024.07.05
20	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	00869	2024.07.08

21	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA9120D	01911	2024.07.08
22	EMI test software	Fala	EZ-EMC	FA-03A2 RE	/
23	Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-224	2024.07.08
24	loop antenna	ZHINAN	ZN30900A	GTS534	/
25	40G Horn antenna	A/H/System	SAS-574	588	2024.10.30
26	Amplifier	AEROFLEX	Aeroflex	097	2024.07.05

6. RF EXPOSURE

6.1 Standard Applicable

According to §1.1307 and§2.1091,§2.1093, the portable transmitter must comply the RF exposure requirements.

6.2 Test Result

This product complied with the requirement of the RF exposure, please see the RF Exposure report.

7. RF OUTPUT POWER

7.1 Standard Applicable

According to §22.913(a)(2), the ERP of mobile and portable stations transmitters and auxiliary test transmitters must not exceed 7 Watts.

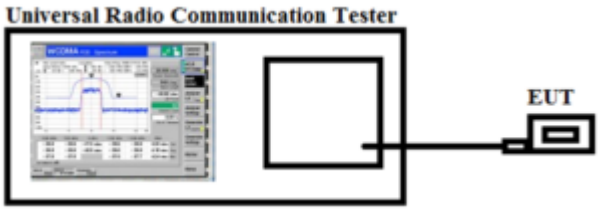
According to §24.232(c), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

According to §27.50(d)(4), fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

According to §27.50(c)(10), portable stations (hand-held devices) in the 698-746 MHz band are limited to 3 watts ERP.

7.2 Test Procedure

Conducted output power test method:



Radiated power test method:
1. The setup of EUT is according with per ANSI/TIA Standard 603E and ANSI C63.26 measurement procedure.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. The frequency range up to tenth harmonic of the fundamental frequency was investigated.
4. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

7.3 Summary of Test Results/Plots

Please refer to Appendix 1: Conducted output power

Test result: Pass

8. PEAK-TO-AVERAGE RATIO (PAR) OF TRANSMITTER

8.1 Standard Applicable

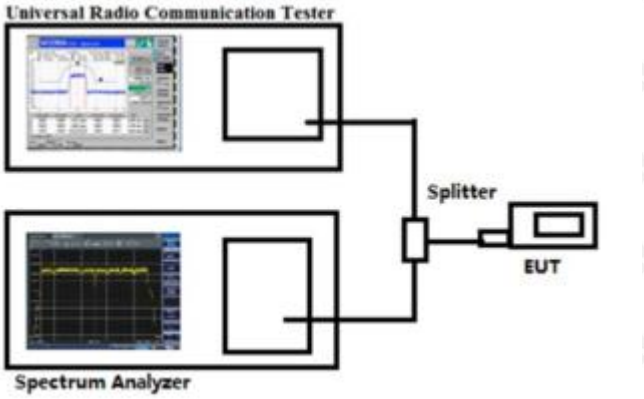
According to §24.232(d), power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51, 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.

According to §27.50(B), the peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure. The measurement must be performed using a signal
corresponding to the highest PAPR expected during periods of continuous transmission.

8.2 Test Procedure

According with KDB 971168
1. The signal analyzer' s CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW > Emission bandwidth of signal
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal " RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the " on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

Test Configuration for the emission bandwidth testing:



8.3 Summary of Test Results

Please refer to Appendix B: Peak-to-Average Ratio

Test result: Pass

9. EMISSION BANDWIDTH

9.1 Standard Applicable

According to §22.917(b), the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

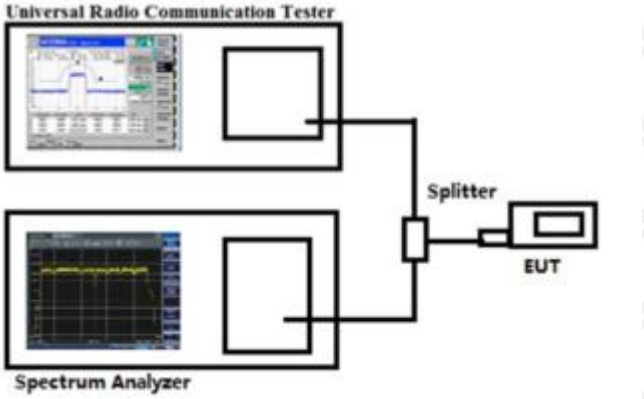
According to §24.238(b), the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

According to §27.53, the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

9.2 Test Procedure

According to §22.917(b), the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

Test Configuration for the emission bandwidth testing:



9.3 Summary of Test Results/Plots

Please refer to Appendix C: 26dB Bandwidth and Occupied Bandwidth
Test result: Pass

10. OUT OF BAND EMISSIONS AT ANTENNA TERMINAL

10.1 Standard Applicable

According to §22.917(a), the power of any emissions 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.

According to §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.

According to §27.53 (c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the 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, in accordance with the following:

(1) On any frequency outside the 746-758 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;

(2) 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;

(3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations;

(4) 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;

(5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

(6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

According to §27.53 (f) 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. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

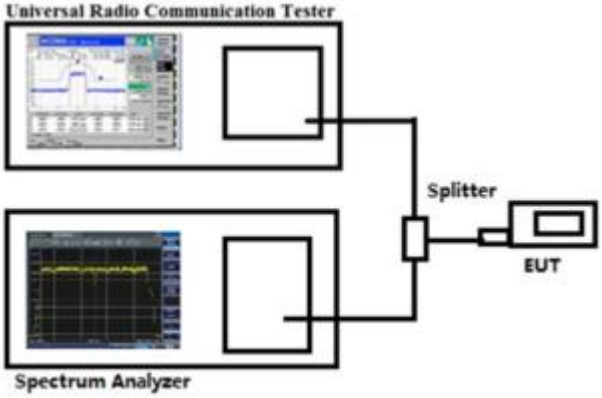
According to §27.53(h), the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB.
According to §27.53(g), for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside 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.

According to §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 that 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.

10.2 Test Procedure

The RF output terminal of the transmitter was connected to the input of the spectrum analyzer via a suitable attenuation. The RBW of the spectrum analyzer was set to 100kHz and 1MHz for the scan frequency from 30MHz to 1GHz and the scan frequency from 1GHz to up to 10 th harmonic.

Test Configuration for the out of band emissions testing:



10.3 Summary of Test Results/Plots

Please refer to Appendix D & E: Band Edge & Conducted Spurious Emission
Test result: Pass

11. SPURIOUS RADIATED EMISSIONS

11.1 Standard Applicable

According to §22.917(a), the power of any emissions 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.

According to §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.

According to §27.53 (c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the 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, in accordance with the following:

(1) On any frequency outside the 746-758 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;

(2) 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;

(3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations;

(4) 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;

(5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

(6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

According to §27.53 (f) 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. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

According to §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 log10 (P) dB.

According to §27.53(g) 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.

11.2 Test Procedure

1. The setup of EUT is according with per ANSI/TIA-603-E and ANSI C63.4-2014 measurement procedure.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. The frequency range up to tenth harmonic of the fundamental frequency was investigated.
4. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.
Spurious attenuation limit in dB =43+10 Log 10 (power out in Watts)

11.3 Summary of Test Results/Plots

Note: 1. this EUT was tested in 3 orthogonal positions and the worst case position data was reported.
2. All test modes (different bandwidth and different modulation) are performed, but only the worst case is recorded in this report.

QPSK

Band 7 20775 channel/BW 5(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1336.914	147	256	-57.67	-13	-44.67	Pass	H
1682.429	147	243	-47.41	-13	-34.41	Pass	H
3867.309	148	259	-49.90	-13	-36.90	Pass	H
5926.238	149	28	-46.07	-13	-33.07	Pass	H
6556.935	148	108	-44.79	-13	-31.79	Pass	H
8001.810	147	328	-41.84	-13	-28.84	Pass	H
1181.319	150	16	-54.24	-13	-41.24	Pass	V
1424.907	148	117	-56.57	-13	-43.57	Pass	V
3596.468	147	325	-50.85	-13	-37.85	Pass	V
3900.220	149	302	-51.46	-13	-38.46	Pass	V
5851.915	147	15	-45.52	-13	-32.52	Pass	V
6584.025	147	280	-48.32	-13	-35.32	Pass	V

Band 7 21100 channel/BW 5 (middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1334.035	151	14	-54.58	-13	-41.58	Pass	H
1725.114	147	71	-48.80	-13	-35.80	Pass	H
3853.292	150	318	-47.44	-13	-34.44	Pass	H
5927.139	147	56	-42.18	-13	-29.18	Pass	H
6504.833	147	216	-43.49	-13	-30.49	Pass	H
8058.294	151	79	-45.55	-13	-32.55	Pass	H
1191.791	151	65	-57.66	-13	-44.66	Pass	V
1383.036	146	225	-59.64	-13	-46.64	Pass	V
3535.795	149	47	-48.85	-13	-35.85	Pass	V
3854.372	150	73	-47.81	-13	-34.81	Pass	V
5820.741	147	168	-44.02	-13	-31.02	Pass	V
6519.553	150	28	-45.83	-13	-32.83	Pass	V

Band 7 21425 channel/BW 5 (highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1334.588	149	165	-53.651	-13	-40.65	Pass	H
1702.091	146	208	-48.956	-13	-35.96	Pass	H
3900.869	146	4	-44.174	-13	-31.17	Pass	H
5890.521	150	198	-41.568	-13	-28.57	Pass	H
6511.016	146	341	-44.165	-13	-31.16	Pass	H
8079.590	150	235	-42.705	-13	-29.71	Pass	H
1204.729	146	292	-54.555	-13	-41.55	Pass	V
1461.572	150	158	-56.609	-13	-43.61	Pass	V
3542.782	149	55	-50.573	-13	-37.57	Pass	V
3830.544	150	319	-48.337	-13	-35.34	Pass	V
5803.017	146	118	-47.459	-13	-34.46	Pass	V
6558.221	150	155	-48.488	-13	-35.49	Pass	V

16QAM

Band 7 20775 channel/BW 5 (lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1335.825	150	78	-56.55	-13	-43.55	Pass	H
1726.285	149	291	-52.97	-13	-39.97	Pass	H
3902.486	151	213	-50.47	-13	-37.47	Pass	H
5858.221	150	89	-46.45	-13	-33.45	Pass	H
6497.692	151	329	-47.86	-13	-34.86	Pass	H
7997.269	148	138	-47.83	-13	-34.83	Pass	H
1219.537	149	99	-57.55	-13	-44.55	Pass	V
1439.397	148	217	-55.34	-13	-42.34	Pass	V
3571.423	150	12	-50.36	-13	-37.36	Pass	V
3835.328	150	137	-48.45	-13	-35.45	Pass	V
5804.448	146	356	-46.43	-13	-33.43	Pass	V
6552.667	146	95	-48.08	-13	-35.08	Pass	V

Band 7 21100 channel/BW 5 (middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1295.830	150	142	-57.01	-13	-44.01	Pass	H
1715.462	146	280	-53.75	-13	-40.75	Pass	H
3877.169	150	330	-49.16	-13	-36.16	Pass	H
5866.314	146	194	-44.86	-13	-31.86	Pass	H
6458.405	149	260	-50.57	-13	-37.57	Pass	H
8018.511	151	31	-46.11	-13	-33.11	Pass	H
1233.443	149	4	-54.38	-13	-41.38	Pass	V
1393.811	148	257	-63.29	-13	-50.29	Pass	V
3590.295	147	55	-52.04	-13	-39.04	Pass	V
3914.602	148	273	-53.51	-13	-40.51	Pass	V
5827.383	150	136	-51.79	-13	-38.79	Pass	V
6516.447	150	16	-48.89	-13	-35.89	Pass	V

Band 7 21425 channel/BW 5 (highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1337.948	149	156	-57.12	-13	-44.12	Pass	H
1668.740	149	170	-51.84	-13	-38.84	Pass	H
3841.514	149	127	-46.83	-13	-33.83	Pass	H
5911.252	146	42	-42.88	-13	-29.88	Pass	H
6526.565	147	69	-43.27	-13	-30.27	Pass	H
8001.111	151	110	-46.21	-13	-33.21	Pass	H
1256.550	148	61	-53.84	-13	-40.84	Pass	V
1405.030	147	266	-53.72	-13	-40.72	Pass	V
3523.014	148	303	-52.15	-13	-39.15	Pass	V
3907.089	149	195	-46.73	-13	-33.73	Pass	V
5790.819	147	323	-45.35	-13	-32.35	Pass	V
6580.124	146	325	-47.42	-13	-34.42	Pass	V

QPSK

Band 5 20407 channel/BW1.4(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1335.923	150	78	-55.07	-13	-42.07	Pass	H
1726.041	149	291	-50.38	-13	-37.38	Pass	H
3902.205	151	213	-49.01	-13	-36.01	Pass	H
5856.340	150	89	-44.81	-13	-31.81	Pass	H
6497.289	151	329	-44.34	-13	-31.34	Pass	H
7996.504	148	138	-47.49	-13	-34.49	Pass	H
1218.853	149	99	-55.37	-13	-42.37	Pass	V
1440.383	148	217	-58.29	-13	-45.29	Pass	V
3570.413	150	12	-52.19	-13	-39.19	Pass	V
3836.225	150	137	-48.14	-13	-35.14	Pass	V
5802.271	146	356	-45.27	-13	-32.27	Pass	V
6552.230	146	95	-48.48	-13	-35.48	Pass	V

Band 5 20525 channel/BW1.4(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1296.050	150	142	-56.31	-13	-43.31	Pass	H
1715.369	146	280	-51.81	-13	-38.81	Pass	H
3876.610	150	330	-50.52	-13	-37.52	Pass	H
5867.686	146	194	-45.34	-13	-32.34	Pass	H
6458.449	149	260	-49.16	-13	-36.16	Pass	H
8020.853	151	31	-48.51	-13	-35.51	Pass	H
1235.106	149	4	-53.82	-13	-40.82	Pass	V
1394.738	148	257	-59.09	-13	-46.09	Pass	V
3590.206	147	55	-53.87	-13	-40.87	Pass	V
3915.015	148	273	-50.98	-13	-37.98	Pass	V
5829.043	150	136	-48.55	-13	-35.55	Pass	V
6518.620	150	16	-48.26	-13	-35.26	Pass	V

Band 5 20643 channel/BW1.4(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1340.713	149	156	-56.73	-13	-43.73	Pass	H
1669.900	149	170	-52.00	-13	-39.00	Pass	H
3845.500	149	127	-45.66	-13	-32.66	Pass	H
5906.908	146	42	-40.96	-13	-27.96	Pass	H
6531.650	147	69	-42.47	-13	-29.47	Pass	H
8000.071	151	110	-44.74	-13	-31.74	Pass	H
1257.628	148	61	-56.49	-13	-43.49	Pass	V
1403.175	147	266	-56.84	-13	-43.84	Pass	V
3525.243	148	303	-52.79	-13	-39.79	Pass	V
3912.129	149	195	-48.59	-13	-35.59	Pass	V
5788.308	147	323	-43.05	-13	-30.05	Pass	V
6576.285	146	325	-47.76	-13	-34.76	Pass	V

16QAM

Band 5 20407 channel/BW1.4(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1333.388	147	256	-58.58	-13	-45.58	Pass	H
1686.285	147	243	-47.50	-13	-34.50	Pass	H
3871.595	148	259	-48.88	-13	-35.88	Pass	H
5922.236	149	28	-44.97	-13	-31.97	Pass	H
6559.259	148	108	-44.23	-13	-31.23	Pass	H
7999.466	147	328	-42.32	-13	-29.32	Pass	H
1179.127	150	16	-52.48	-13	-39.48	Pass	V
1427.446	148	117	-55.56	-13	-42.56	Pass	V
3593.941	147	325	-51.51	-13	-38.51	Pass	V
3904.708	149	302	-51.53	-13	-38.53	Pass	V
5855.285	147	15	-45.36	-13	-32.36	Pass	V
6579.994	147	280	-49.33	-13	-36.33	Pass	V

Band 5 20525 channel/BW1.4(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1333.387	151	14	-54.45	-13	-41.45	Pass	H
1724.842	147	71	-50.85	-13	-37.85	Pass	H
3853.828	150	318	-48.20	-13	-35.20	Pass	H
5927.747	147	56	-43.39	-13	-30.39	Pass	H
6504.467	147	216	-45.24	-13	-32.24	Pass	H
8058.305	151	79	-43.22	-13	-30.22	Pass	H
1191.468	151	65	-57.90	-13	-44.90	Pass	V
1383.042	146	225	-56.63	-13	-43.63	Pass	V
3536.693	149	47	-48.94	-13	-35.94	Pass	V
3855.255	150	73	-49.01	-13	-36.01	Pass	V
5820.512	147	168	-46.75	-13	-33.75	Pass	V
6519.526	150	28	-45.41	-13	-32.41	Pass	V

Band 5 20643 channel/BW1.4(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1333.212	149	165	-56.287	-13	-43.29	Pass	H
1703.699	146	208	-49.706	-13	-36.71	Pass	H
3901.055	146	4	-44.234	-13	-31.23	Pass	H
5890.032	150	198	-42.648	-13	-29.65	Pass	H
6509.796	146	341	-41.373	-13	-28.37	Pass	H
8078.278	150	235	-45.896	-13	-32.90	Pass	H
1205.270	146	292	-55.728	-13	-42.73	Pass	V
1461.157	150	158	-59.167	-13	-46.17	Pass	V
3542.135	149	55	-50.175	-13	-37.17	Pass	V
3830.941	150	319	-50.928	-13	-37.93	Pass	V
5802.269	146	118	-48.924	-13	-35.92	Pass	V
6556.507	150	155	-45.845	-13	-32.84	Pass	V

Note:

1) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 1GHz are attenuated more than 20 dB below the applicable limit and not required to be reported, the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

2) Tested with all kind of bandwidth,RB Size and RB Offset, Found the 1.4MHz with full RB were the worst case; and then Only the worst case is recorded in the report.

12. FREQUENCY STABILITY

12.1 Standard Applicable

According to §22.355, §24.235, §27.54 the limit is 2.5ppm.

12.2 Test Procedure

According to §2.1055, the following test procedure was performed.
The Frequency Stability is measured directly with a Frequency Domain Analyzer. Frequency Deviation in ppm is calculated from the measured peak to peak value.
The Carrier Frequency Stability over Power Supply Voltage and over Temperature is measured with a Frequency Domain Analyzer in histogram mode

12.3 Summary of Test Results/Plots

Note: 1.Normal Voltage NV=DC3.7V; Low Voltage LV=DC3.33; High Voltage HV=DC4.07V
Please refer to Appendix 2: Frequency stability
Test result: Pass

※※※※※ END OF REPORT ※※※※※