



# TEST REPORT

Product Name: 4G security camera  
FCC ID: 2BHF2-4GRF01  
Trademark: **runofast**  
Model Number: 4G-RF-01, 4G-001, ICAM-Q8-4G, ZY-189W2B01, ZY-214B2B01, ZY-217W3801, HK-7W-Q8-4G, 4G-RF-03, 4G-RF-04, 4G-RF-05, 4G-RF-06, 4G-RF-07, 4G-RF-08, 4G-RF-09, 4G-RF-10, 4G-RF-11, 4G-RF-12, 4G-RF-13, 4G-RF-14, 4G-RF-15  
Prepared For: VisionCam LLC  
Address: 2372 Highland Avenue, Allison Park, Pennsylvania 15101  
Manufacturer: Shenzhen Zhiyun Wulian Co., Ltd.  
Address: Building 603, Building C, No. 7, East District, Shangxue Technology City, Xinxue Community, Bantian Street, Longgang District, Shenzhen  
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: Jun.21, 2024  
Sample tested Date: Jun. 21, 2024 to Jul. 02, 2024  
Issue Date: Jul. 02, 2024  
Report No.: CTB240702082RFX  
Test Standards: FCC Part 2, 22, 24E, 27  
Test Results: PASS  
Remark: This is LTE radio test report.

Compiled by:

Zhou kui

Zhou Kui

Reviewed by:

Arron Liu

Arron Liu

Approved by:



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.

**TABLE OF CONTENT**

Test Report Declaration	Page
<b>1. VERSION</b> .....	3
<b>2. TEST SUMMARY</b> .....	4
<b>3. MEASUREMENT UNCERTAINTY</b> .....	5
<b>4. PRODUCT INFORMATION AND TEST SETUP</b> .....	6
4.1 Product Information .....	6
4.2 Test Setup Configuration .....	6
4.3 Support Equipment .....	6
4.4 Test Mode .....	7
4.5 Test Environment .....	10
<b>5. TEST FACILITY AND TEST INSTRUMENT USED</b> .....	11
5.1 Test Facility .....	11
5.2 Test Instrument Used .....	11
<b>6. RF EXPOSURE</b> .....	13
6.1 Standard Applicable .....	13
6.2 Test Result .....	13
<b>7. RF OUTPUT POWER</b> .....	14
7.1 Standard Applicable .....	14
7.3 Summary of Test Results/Plots .....	15
<b>8. PEAK-TO-AVERAGE RATIO (PAR) OF TRANSMITTER</b> .....	16
8.1 Standard Applicable .....	16
8.2 Test Procedure .....	16
8.3 Summary of Test Results .....	16
<b>9. EMISSION BANDWIDTH</b> .....	17
9.1 Standard Applicable .....	17
9.2 Test Procedure .....	17
9.3 Summary of Test Results/Plots .....	17
<b>10. OUT OF BAND EMISSIONS AT ANTENNA TERMINAL</b> .....	18
10.1 Standard Applicable .....	18
10.2 Test Procedure .....	19
10.3 Summary of Test Results/Plots .....	19
<b>11. SPURIOUS RADIATED EMISSIONS</b> .....	20
11.1 Standard Applicable .....	20
11.2 Test Procedure .....	21
11.3 Summary of Test Results/Plots .....	21
<b>12. FREQUENCY STABILITY</b> .....	43
12.1 Standard Applicable .....	43
12.2 Test Procedure .....	43
12.3 Summary of Test Results/Plots .....	43

*(Note: N/A means not applicable)*

1. VERSION

Report No.	Issue Date	Description	Approved
CTB240702082RFX	Jul. 02, 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)(2)/ Part 24.232(c)/Part27.50(h)(2)/ Part27.50(d)(4)/ Part27.50(c)(10)/ Part27.50(b)(10)/ Part27.50(a)(3)	TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
peak-to-average ratio	Part 22.913(d)/Part 27.50(d) /Part 27.50(a) (1)	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 24.238(a)/Part 27.53(g) (1) Part 22.917(a)/Part 27.53(i) (4)/ Part 27.53(c) /Part 27.253(f)/Part 27.53(a) (2)	KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	Part 2.1051/ Part 24.238(a)/Part 27.53(g) (1) Part 22.917(a)/Part 27.53(i) (4)/ Part 27.53(c) /Part 27.253(f)/Part 27.53(a) (2)	TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
Field strength of spurious radiation	Part 2.1051/ Part 24.238(a)/Part 27.53(g) (1) Part 22.917(a)/Part 27.53(i) (4)/ Part 27.53(c) /Part 27.253(f)/Part 27.53(a) (2)	TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
Frequency stability	Part 2.1055/Part 27.54/ Part 22.355	TIA-603-E-2016 & KDB 971168 D01v03r01	PASS

### 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 chamber 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°C
frequency	1×10 <sup>-7</sup>

#### 4. PRODUCT INFORMATION AND TEST SETUP

##### 4.1 Product Information

Model(s): 4G-RF-01, 4G-001, ICAM-Q8-4G, ZY-189W2B01, ZY-214B2B01, HK-7W-Q8-4G, 4G-RF-03, 4G-RF-04, 4G-RF-05, 4G-RF-06, 4G-RF-07, 4G-RF-08, 4G-RF-09, 4G-RF-10, 4G-RF-11, 4G-RF-12, 4G-RF-13, 4G-RF-14, 4G-RF-15, 4G-RF-16

Model Description: All models only have different names and appearances, everything else is the same. Test model: 4G-RF-01

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 12: 699-716MHz  
 FDD-LTE BAND 13: 777-787MHz  
 FDD-LTE BAND 17: 704-716MHz  
 FDD-LTE BAND 66: 1710-1780MHz

Max. RF output power: FDD-LTE BAND 2: 25.22dBm  
 FDD-LTE BAND 4: 23.77dBm  
 FDD-LTE BAND 5: 24.63dBm  
 FDD-LTE BAND 12: 24.94dBm  
 FDD-LTE BAND 13: 24.73dBm  
 FDD-LTE BAND 17: 25.22dBm  
 FDD-LTE BAND 66: 20.57dBm

Type of Modulation: QPSK, 16QAM

Antenna installation: Internal antenna

Antenna Gain: FDD-LTE BAND 2: 2.35dBi  
 FDD-LTE BAND 4: 2.45dBi  
 FDD-LTE BAND 5: -0.62dBi  
 FDD-LTE BAND 12: -0.63dBi  
 FDD-LTE BAND 13: -0.63dBi  
 FDD-LTE BAND 17: -0.63dBi  
 FDD-LTE BAND 66: 2.45dBi

Ratings: DC 5V=1.5A by adapter or DC 5V by solar panel

##### 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

Item	Equipment	Mfr/Brand	Model/TypeNo.	SeriesNo.	Note

**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 12	Low, Middle, High Channels
TM5	FDD-LTE BAND 13	Low, Middle, High Channels
TM6	FDD-LTE BAND 17	Low, Middle, High Channels
TM7	FDD-LTE BAND 66	Low, Middle, High Channels

## LTE BAND 2

Test Mode	Test Frequency ID	Bandwidth (MHz)	Number [UL]	Frequency of Uplink(MHz)
LTE band 2	Low Range	1.4	18607	1850.7
		3	18615	1851.5
		5	18625	1852.5
		10	18650	1855
		15	18675	1857.5
		20	18700	1860
	Mid Range	1.4/3/5/10/15/20	18900	1880
	High Range	1.4	19193	1909.3
		3	19185	1908.5
		5	19175	1907.5
		10	19150	1905
		15	19125	1902.5
		20	19100	1900

## LTE BAND 4

Test Mode	Test Frequency ID	Bandwidth (MHz)	Number [UL]	Frequency of Uplink(MHz)
LTE band 4	Low Range	1.4	19957	1710.7
		3	19965	1711.5
		5	19975	1712.5
		10	20000	1715
		15	20025	1717.5
		20	20050	1720
	Mid Range	1.4/3/5/10/15/20	20175	1732.5
	High Range	1.4	20393	1754.3
		3	20385	1753.5
		5	20375	1752.5
		10	20350	1750
		15	20325	1747.5
		20	20300	1745

## LTE BAND 5

Test Mode	Test Frequency ID	Bandwidth (MHz)	Number [UL]	Frequency of Uplink(MHz)
LTE band 5	Low Range	1.4	20407	824.7
		3	20415	825.5
		5	20425	826.5
		10	20450	829
	Mid Range	1.4/3/5/10	20525	836.5
	High Range	1.4	20643	848.3
		3	20635	847.5
		5	20625	846.5
		10	20600	844



LTE BAND 12

Test Mode	Test Frequency ID	Bandwidth (MHz)	Number [UL]	Frequency of Uplink(MHz)
LTE band 12	Low Range	1.4	23017	699.7
		3	23025	700.5
		5	23035	701.5
		10	23060	704
	Mid Range	1.4/3/5/10	23095	707.5
	High Range	1.4	23173	715.3
		3	23165	714.5
		5	23155	713.5
		10	23130	711

LTE BAND 13

Test Mode	Test Frequency ID	Bandwidth (MHz)	Number [UL]	Frequency of Uplink(MHz)
LTE band 13	Low Range	5	23025	779.5
		10	23230	782
	Mid Range	5/10	23230	782
	High Range	5	23255	784.5
		10	23230	782

## LTE BAND 17

Test Mode	Test Frequency ID	Bandwidth (MHz)	Number [UL]	Frequency of Uplink(MHz)
LTE band 17	Low Range	5	23755	706.5
		10	23780	709
	Mid Range	5/10	23790	710
	High Range	5	23825	713.5
		10	23800	711

## LTE BAND 66

Test Mode	Test Frequency ID	Bandwidth (MHz)	Number [UL]	Frequency of Uplink(MHz)
LTE band 66	Low Range	1.4	66443	2110.7
		3	66451	2111.5
		5	66461	2112.5
		10	66486	2115
		15	66511	2117.5
		20	66536	2120
	Mid Range TX <sup>1</sup>	1.4/3/5/10/15/20	66786	2145
	Mid Range	1.4/3/5/10/15/20	66886	2155
	Paired High Range <sup>2</sup>	1.4	67129	2179.3
		3	67121	2178.5
		5	67111	2177.5
		10	67086	2175
		15	67061	2172.5
		20	67036	2170
	High Range <sup>3</sup>	1.4	67329	2199.3
		3	67321	2198.5
		5	67311	2197.5
		10	67286	2195
		15	67261	2192.5
		20	67236	2190

Note: EUT is UE category 1, 16QAM Modulation of 10MHz/15MHz/20MHz for all bands FULL RB size is not supported.

## 4.5 Test Environment

Humidity(%):	54
Atmospheric Pressure(kPa):	101
Normal Voltage(DC):	120V
Normal Temperature(°C)	23
Low Temperature(°C)	0
High Temperature(°C)	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, Xinhua 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

No.	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Calibrated until
1	Spectrum Analyzer	Agilent	N9020A	MY52090073	A.14.16	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	V3.5.80	2024.07.05
5	Spectrum Analyzer	KEYSIGHT	N9020A	MY51289897	A.14.16	2024.07.05
6	Signal Generator	Agilent	N5181A	MY50140365	A.01.60	2024.07.05
7	Vector signal generator	Agilent	N5182A	MY47420195	A.01.87	2024.07.05
8	Communication test set	Agilent	E5515C	MY50102567	B.19.07 (E1962B)	2024.07.06
9	2.4 GHz Filter	Shenxiang	MSF2400-24 83.5MS-1154	20181015001	/	2024.07.05
10	5 GHz Filter	Shenxiang	MSF5150-58 50MS-1155	20181015001	/	2024.07.06
11	Filter	Xingbo	XBLBQ-DZA 120	190821-1-1	/	2024.07.06
12	BT&WI-FI Automatic test software	Microwave	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	Microwave	MTS8200	Ver. 2.0.0.0	/	/
16	966 chamber	C.R.T.	966	/	/	2024.08.11
17	Receiver	R&S	ESPI	100362	RF_ATTEN_7 (104489/003)	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.

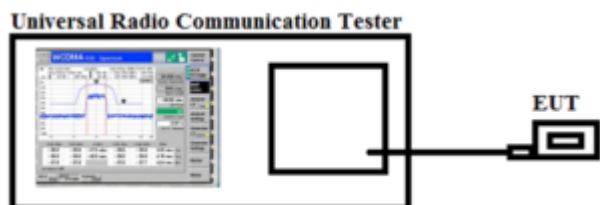
According to §27.50(h)(2), Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

According to §27.50(b)(10), Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

According to §27.50(a)(3), For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, *except that* for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth.

### 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 §22.913(d), Power measurement. Measurement of the ERP of Cellular base transmitters and repeaters must be made using an average power measurement technique. The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB.

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(d), 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.

According to §27.50(a) (1), For base and fixed stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, 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.

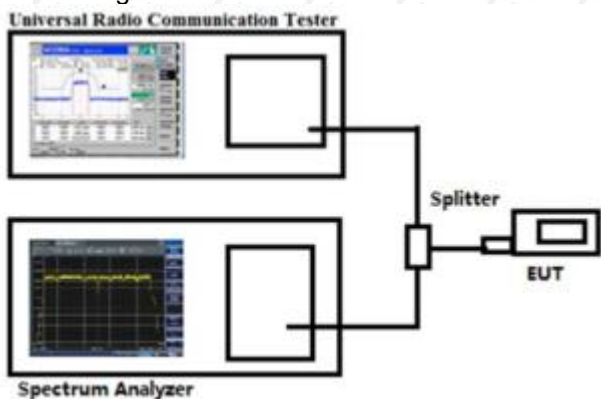
corresponding to the highest PAPR expected during periods of continuous transmission.

### 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 3: 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.

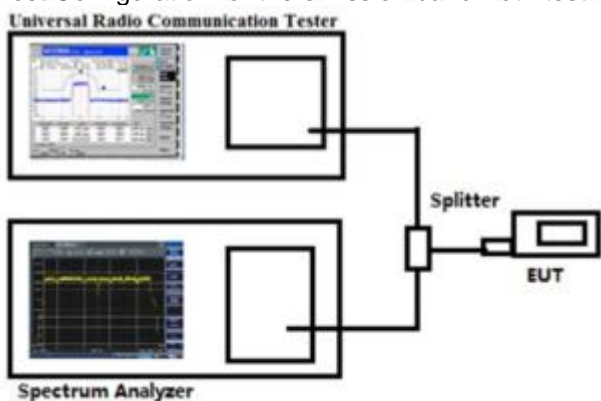
According to §24.238(b), the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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 4: 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  $43 + 10 \log_{10}(P)$  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 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.

According to §27.53(a)(2), For base and fixed stations' operations in the 2305-2320 MHz band and the 2345-2360 MHz band:

(1) By a factor of not less than  $43 + 10 \log(P)$  dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, and not less than

75 + 10 log (P) dB on all frequencies between 2320 and 2345 MHz;

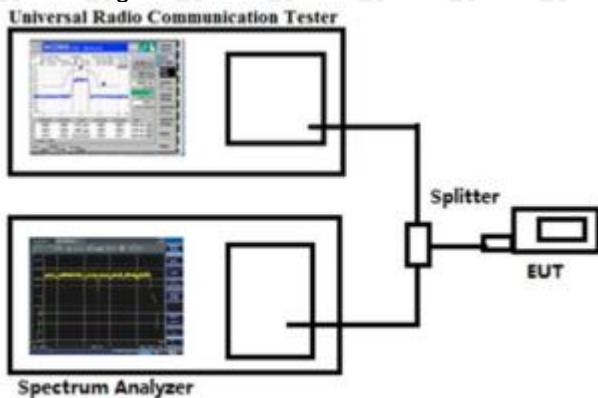
(2) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 70 + 10 log (P) dB on all frequencies between 2287.5 and 2300 MHz, 72 + 10 log (P) dB on all frequencies between 2285 and 2287.5 MHz, and 75 + 10 log (P) dB below 2285 MHz;

(3) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2362.5 MHz, 55 + 10 log (P) dB on all frequencies between 2362.5 and 2365 MHz, 70 + 10 log (P) dB on all frequencies between 2365 and 2367.5 MHz, 72 + 10 log (P) dB on all frequencies between 2367.5 and 2370 MHz, and 75 + 10 log (P) dB above 2370 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 5 & 6: 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:

(6) 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;

(7) 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;

(8) 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;

(9) 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;

(10) 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  $43 + 10 \log_{10}(P)$  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 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.

According to §27.53(a)(2), For base and fixed stations' operations in the 2305-2320 MHz band and the 2345-2360 MHz band:

(1) By a factor of not less than  $43 + 10 \log (P)$  dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, and not less than  $75 + 10 \log (P)$  dB on all frequencies between 2320 and 2345 MHz;

(2) By a factor of not less than  $43 + 10 \log (P)$  dB on all frequencies between 2300 and 2305 MHz,  $70 + 10 \log (P)$  dB on all frequencies between 2287.5 and 2300 MHz,  $72 + 10 \log (P)$  dB on all frequencies between 2285 and 2287.5 MHz, and  $75 + 10 \log (P)$  dB below 2285 MHz;

(3) By a factor of not less than  $43 + 10 \log (P)$  dB on all frequencies between 2360 and 2362.5 MHz,  $55 + 10 \log (P)$  dB on all frequencies between 2362.5 and 2365 MHz,  $70 + 10 \log (P)$  dB on all frequencies between 2365 and 2367.5 MHz,  $72 + 10 \log (P)$  dB on all frequencies between 2367.5 and 2370 MHz, and  $75 + 10 \log (P)$  dB above 2370 MHz.

## 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 =  $43 + 10 \log_{10}(\text{power out in Watts})$

## 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.

**Test Data:  
QPSK**

Band 2 18607 channel/BW1.4(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1263.26	152	272	-56.96	-13	-43.96	Pass	H
1776.36	153	147	-47.95	-13	-34.95	Pass	H
3890.45	148	248	-47.73	-13	-34.73	Pass	H
5853.69	159	46	-44.39	-13	-31.39	Pass	H
6581.39	149	172	-41.19	-13	-28.19	Pass	H
8151.97	154	299	-42.71	-13	-29.71	Pass	H
1150.34	148	220	-53.76	-13	-40.76	Pass	V
1546.06	142	280	-60.33	-13	-47.33	Pass	V
3623.02	141	242	-51.10	-13	-38.10	Pass	V
3866.14	154	93	-53.48	-13	-40.48	Pass	V
5848.51	144	16	-50.52	-13	-37.52	Pass	V
6501.55	158	236	-44.82	-13	-31.82	Pass	V
Band 2 18900 channel/BW1.4(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1329.76	150	110	-58.92	-13	-45.92	Pass	H
1704.42	146	35	-53.84	-13	-40.84	Pass	H
3799.68	150	58	-49.82	-13	-36.82	Pass	H
5776.72	146	279	-46.98	-13	-33.98	Pass	H
6499.27	149	147	-50.68	-13	-37.68	Pass	H
7932.14	151	123	-46.60	-13	-33.60	Pass	H
1168.90	149	65	-54.49	-13	-41.49	Pass	V
1387.39	148	41	-57.12	-13	-44.12	Pass	V
3512.25	147	340	-54.63	-13	-41.63	Pass	V
3972.97	148	178	-51.23	-13	-38.23	Pass	V
5768.06	150	151	-48.06	-13	-35.06	Pass	V
6452.40	150	239	-49.12	-13	-36.12	Pass	V

Band 2 19193 channel/BW1.4(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1272.56	148	145	-55.30	-13	-42.30	Pass	H
1724.44	151	276	-54.16	-13	-41.16	Pass	H
3772.02	153	191	-44.89	-13	-31.89	Pass	H
6003.58	147	69	-43.59	-13	-30.59	Pass	H
6471.81	151	51	-41.79	-13	-28.79	Pass	H
7990.38	150	197	-45.37	-13	-32.37	Pass	H
1354.90	151	5	-53.82	-13	-40.82	Pass	V
1407.38	150	166	-54.65	-13	-41.65	Pass	V
3464.57	154	5	-54.79	-13	-41.79	Pass	V
3864.97	147	191	-51.16	-13	-38.16	Pass	V
5831.44	150	327	-41.94	-13	-28.94	Pass	V
6515.09	147	151	-45.48	-13	-32.48	Pass	V

**16QAM**

Band 2 18607 channel/BW1.4(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1357.11	149	302	-59.07	-13	-46.07	Pass	H
1609.67	150	200	-47.82	-13	-34.82	Pass	H
3818.40	152	7	-46.04	-13	-33.04	Pass	H
5927.81	148	68	-47.59	-13	-34.59	Pass	H
6516.32	153	353	-43.00	-13	-30.00	Pass	H
8062.50	149	133	-44.55	-13	-31.55	Pass	H
1174.54	147	274	-53.64	-13	-40.64	Pass	V
1375.75	147	208	-52.86	-13	-39.86	Pass	V
3653.71	150	279	-48.84	-13	-35.84	Pass	V
3923.48	148	27	-51.49	-13	-38.49	Pass	V
5759.49	155	356	-45.76	-13	-32.76	Pass	V
6621.45	151	198	-51.27	-13	-38.27	Pass	V

Band 2 18900 channel/BW1.4(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1295.02	151	123	-55.46	-13	-41.45	Pass	H
1672.25	153	264	-52.76	-13	-37.85	Pass	H
3813.56	152	20	-46.89	-13	-35.2	Pass	H
5865.51	152	118	-42.65	-13	-30.39	Pass	H
6567.40	146	112	-46.34	-13	-32.24	Pass	H
8151.30	151	158	-41.79	-13	-30.22	Pass	H
1110.80	147	263	-58.88	-13	-44.9	Pass	V
1307.93	150	318	-58.78	-13	-43.63	Pass	V
3449.45	153	280	-50.59	-13	-35.94	Pass	V
3910.82	150	102	-47.13	-13	-36.01	Pass	V
5789.67	148	205	-45.59	-13	-33.75	Pass	V
6508.62	147	339	-46.98	-13	-32.41	Pass	V
Band 2 19193 channel/BW1.4(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1374.12	148	275	-56.47	-13	-43.47	Pass	H
1768.13	145	210	-47.82	-13	-34.82	Pass	H
3856.89	152	39	-45.26	-13	-32.26	Pass	H
5985.31	150	331	-45.31	-13	-32.31	Pass	H
6458.81	153	318	-38.09	-13	-25.09	Pass	H
8144.26	147	352	-43.31	-13	-30.31	Pass	H
1130.68	145	196	-54.83	-13	-41.83	Pass	V
1421.91	153	334	-58.62	-13	-45.62	Pass	V
3452.74	146	346	-51.61	-13	-38.61	Pass	V
3755.60	146	165	-47.94	-13	-34.94	Pass	V
5880.12	152	344	-45.19	-13	-32.19	Pass	V
6628.86	145	73	-47.90	-13	-34.90	Pass	V

Note:

- 1) Scan from 9kHz to 40GHz, 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.



**QPSK**

Band 4 19957 channel/BW1.4(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1410.44	151	277	-58.26	-13	-45.26	Pass	H
1631.02	149	315	-43.68	-13	-30.68	Pass	H
3871.93	146	172	-50.30	-13	-37.30	Pass	H
5950.65	147	345	-43.13	-13	-30.13	Pass	H
6526.93	152	63	-41.93	-13	-28.93	Pass	H
8044.62	146	20	-40.54	-13	-27.54	Pass	H
1105.89	154	77	-56.96	-13	-43.96	Pass	V
1488.32	154	87	-54.59	-13	-41.59	Pass	V
3683.60	152	184	-53.41	-13	-40.41	Pass	V
3990.44	149	267	-52.84	-13	-39.84	Pass	V
5873.17	148	20	-45.46	-13	-32.46	Pass	V
6673.97	151	305	-46.56	-13	-33.56	Pass	V
Band 4 20175 channel/BW1.4(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1422.58	155	226	-50.67	-13	-37.67	Pass	H
1769.69	149	35	-48.69	-13	-35.69	Pass	H
3835.01	145	266	-49.12	-13	-36.12	Pass	H
5888.03	149	295	-38.58	-13	-25.58	Pass	H
6592.87	147	23	-39.72	-13	-26.72	Pass	H
8103.20	152	303	-42.72	-13	-29.72	Pass	H
1234.01	147	18	-59.62	-13	-46.62	Pass	V
1396.69	150	174	-58.12	-13	-45.12	Pass	V
3493.74	153	22	-45.69	-13	-32.69	Pass	V
3859.62	155	199	-50.36	-13	-37.36	Pass	V
5854.91	149	355	-44.49	-13	-31.49	Pass	V
6565.38	148	300	-42.85	-13	-29.85	Pass	V

Band 4 20393 channel/BW1.4(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1383.90	149	165	-50.71	-13	-37.71	Pass	H
1767.54	146	208	-51.62	-13	-38.62	Pass	H
3839.58	146	4	-40.70	-13	-27.70	Pass	H
5890.10	150	198	-41.48	-13	-28.48	Pass	H
6448.04	146	341	-43.66	-13	-30.66	Pass	H
8019.35	150	235	-39.84	-13	-26.84	Pass	H
1120.13	146	292	-55.33	-13	-42.33	Pass	V
1533.64	150	158	-58.64	-13	-45.64	Pass	V
3611.77	149	55	-50.79	-13	-37.79	Pass	V
3733.31	150	319	-49.70	-13	-36.70	Pass	V
5869.15	146	118	-44.49	-13	-31.49	Pass	V
6480.73	150	155	-48.22	-13	-35.22	Pass	V

**16QAM**

Band 4 19957 channel/BW1.4(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1326.81	150	78	-55.12	-13	-42.12	Pass	H
1745.82	149	291	-49.30	-13	-36.30	Pass	H
3955.16	151	213	-47.17	-13	-34.17	Pass	H
5825.76	150	89	-48.87	-13	-35.87	Pass	H
6514.93	151	329	-49.22	-13	-36.22	Pass	H
7952.43	148	138	-50.18	-13	-37.18	Pass	H
1284.87	149	99	-56.59	-13	-43.59	Pass	V
1479.05	148	217	-54.19	-13	-41.19	Pass	V
3556.37	150	12	-46.65	-13	-33.65	Pass	V
3912.26	150	137	-48.54	-13	-35.54	Pass	V
5859.93	146	356	-46.47	-13	-33.47	Pass	V
6632.42	146	95	-50.25	-13	-37.25	Pass	V

Band 4 20175 channel/BW1.4(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1292.03	150	142	-56.34	-13	-43.34	Pass	H
1754.16	146	280	-51.26	-13	-38.26	Pass	H
3930.88	150	330	-51.12	-13	-38.12	Pass	H
5876.44	146	194	-47.62	-13	-34.62	Pass	H
6400.13	149	260	-52.24	-13	-39.24	Pass	H
8082.44	151	31	-48.54	-13	-35.54	Pass	H
1156.89	149	4	-51.82	-13	-38.82	Pass	V
1411.17	148	257	-59.79	-13	-46.79	Pass	V
3567.98	147	55	-50.56	-13	-37.56	Pass	V
3960.69	148	273	-55.58	-13	-42.58	Pass	V
5894.06	150	136	-48.56	-13	-35.56	Pass	V
6453.87	150	16	-51.07	-13	-38.07	Pass	V
Band 4 20393 channel/BW1.4(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1285.73	149	156	-58.87	-13	-45.87	Pass	H
1577.92	149	170	-50.18	-13	-37.18	Pass	H
3747.25	149	127	-46.50	-13	-33.50	Pass	H
5894.92	146	42	-42.51	-13	-29.51	Pass	H
6488.88	147	69	-40.89	-13	-27.89	Pass	H
7946.71	151	110	-47.43	-13	-34.43	Pass	H
1204.18	148	61	-54.19	-13	-41.19	Pass	V
1354.30	147	266	-52.17	-13	-39.17	Pass	V
3436.99	148	303	-50.94	-13	-37.94	Pass	V
3858.54	149	195	-44.30	-13	-31.30	Pass	V
5770.50	147	323	-44.75	-13	-31.75	Pass	V
6515.81	146	325	-49.93	-13	-36.93	Pass	V

Note:

3) Scan from 9kHz to 40GHz, 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.

4) 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.

**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.
1427.59	147	62	-58.92	-13	-45.92	Pass	H
1724.54	152	82	-47.98	-13	-34.98	Pass	H
3939.44	145	213	-45.63	-13	-32.63	Pass	H
5908.54	159	337	-42.16	-13	-29.16	Pass	H
6537.09	142	183	-45.54	-13	-32.54	Pass	H
8076.56	156	357	-42.75	-13	-29.75	Pass	H
1189.35	155	355	-53.06	-13	-40.06	Pass	V
1365.63	159	265	-59.96	-13	-46.96	Pass	V
3523.89	148	72	-49.02	-13	-36.02	Pass	V
3902.79	158	242	-49.38	-13	-36.38	Pass	V
5814.13	146	1	-46.06	-13	-33.06	Pass	V
6650.91	145	233	-44.65	-13	-31.65	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.
1340.04	150	78	-56.91	-13	-43.91	Pass	H
1767.82	146	257	-50.30	-13	-37.30	Pass	H
3877.24	150	258	-50.07	-13	-37.07	Pass	H
5955.80	146	171	-43.64	-13	-30.64	Pass	H
6505.03	149	104	-48.21	-13	-35.21	Pass	H
8113.12	151	40	-48.02	-13	-35.02	Pass	H
1321.06	149	302	-56.03	-13	-43.03	Pass	V
1406.02	148	356	-61.62	-13	-48.62	Pass	V
3603.58	147	66	-52.24	-13	-39.24	Pass	V
3936.06	148	179	-52.55	-13	-39.55	Pass	V
5782.65	150	340	-45.88	-13	-32.88	Pass	V
6563.21	150	163	-48.72	-13	-35.72	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.
1365.21	149	155	-57.27	-13	-44.27	Pass	H
1755.54	148	242	-52.00	-13	-39.00	Pass	H
3765.54	149	47	-46.37	-13	-33.37	Pass	H
5875.99	148	346	-41.07	-13	-28.07	Pass	H
6574.60	152	149	-41.73	-13	-28.73	Pass	H
8063.24	148	154	-46.53	-13	-33.53	Pass	H
1314.97	145	40	-58.23	-13	-45.23	Pass	V
1439.06	153	293	-58.25	-13	-45.25	Pass	V
3580.28	146	308	-53.07	-13	-40.07	Pass	V
4007.88	150	207	-46.62	-13	-33.62	Pass	V
5882.15	146	186	-44.57	-13	-31.57	Pass	V
6486.18	149	21	-47.31	-13	-34.31	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.
1381.00	151	121	-58.99	-13	-45.99	Pass	H
1610.68	148	262	-47.03	-13	-34.03	Pass	H
3808.71	148	319	-46.00	-13	-33.00	Pass	H
5984.89	154	148	-43.03	-13	-30.03	Pass	H
6654.88	152	208	-41.94	-13	-28.94	Pass	H
7975.43	154	250	-41.36	-13	-28.36	Pass	H
1205.46	154	81	-51.49	-13	-38.49	Pass	V
1410.94	145	75	-57.16	-13	-44.16	Pass	V
3693.88	148	161	-52.10	-13	-39.10	Pass	V
3805.34	153	124	-50.82	-13	-37.82	Pass	V
5938.54	150	27	-45.31	-13	-32.31	Pass	V
6516.10	153	235	-48.33	-13	-35.33	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.
1426.53	145	247	-56.74	-13	-41.45	Pass	H
1668.98	148	53	-50.24	-13	-37.85	Pass	H
3800.02	147	295	-49.90	-13	-35.2	Pass	H
5933.09	151	72	-42.25	-13	-30.39	Pass	H
6565.78	147	209	-45.34	-13	-32.24	Pass	H
7998.78	145	43	-40.38	-13	-30.22	Pass	H
1173.92	150	151	-58.77	-13	-44.9	Pass	V
1342.17	153	113	-54.49	-13	-43.63	Pass	V
3625.20	154	215	-49.12	-13	-35.94	Pass	V
3786.11	146	339	-48.82	-13	-36.01	Pass	V
5889.27	150	178	-45.32	-13	-33.75	Pass	V
6522.26	146	248	-46.42	-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.
1298.80	147	345	-57.88	-13	-44.88	Pass	H
1632.98	150	57	-47.40	-13	-34.40	Pass	H
3881.48	152	288	-43.25	-13	-30.25	Pass	H
5862.13	147	356	-42.90	-13	-29.90	Pass	H
6587.25	146	313	-43.90	-13	-30.90	Pass	H
8050.72	149	68	-46.51	-13	-33.51	Pass	H
1171.50	145	271	-53.24	-13	-40.24	Pass	V
1372.13	154	348	-60.72	-13	-47.72	Pass	V
3505.85	147	272	-49.41	-13	-36.41	Pass	V
3733.23	153	279	-51.10	-13	-38.10	Pass	V
5839.21	148	11	-47.13	-13	-34.13	Pass	V
6463.38	150	208	-45.26	-13	-32.26	Pass	V

Note:

5) Scan from 9kHz to 40GHz, 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.

6) 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.

**QPSK**

Band 12 23017 channel/BW1.4(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1424.78	149	80	-59.24	-13	-46.24	Pass	H
1745.14	155	218	-46.19	-13	-33.19	Pass	H
3912.83	146	306	-47.83	-13	-34.83	Pass	H
5997.66	152	159	-46.10	-13	-33.10	Pass	H
6649.18	151	80	-42.29	-13	-29.29	Pass	H
7954.04	152	257	-38.58	-13	-25.58	Pass	H
1173.21	152	208	-57.07	-13	-44.07	Pass	V
1501.59	155	31	-54.49	-13	-41.49	Pass	V
3661.63	155	33	-50.88	-13	-37.88	Pass	V
3972.53	148	225	-49.43	-13	-36.43	Pass	V
5755.64	149	301	-47.59	-13	-34.59	Pass	V
6671.78	149	138	-44.34	-13	-31.34	Pass	V
Band 12 23095 channel/BW1.4(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1268.12	154	304	-54.68	-13	-41.68	Pass	H
1725.57	147	84	-47.01	-13	-34.01	Pass	H
3829.38	148	253	-45.55	-13	-32.55	Pass	H
6022.42	146	39	-41.38	-13	-28.38	Pass	H
6438.32	148	82	-43.19	-13	-30.19	Pass	H
8029.77	151	78	-44.31	-13	-31.31	Pass	H
1212.24	153	144	-54.11	-13	-41.11	Pass	V
1480.20	149	87	-55.95	-13	-42.95	Pass	V
3590.87	146	332	-50.20	-13	-37.20	Pass	V
3777.90	149	31	-44.91	-13	-31.91	Pass	V
5842.58	153	216	-42.56	-13	-29.56	Pass	V
6569.74	147	252	-45.36	-13	-32.36	Pass	V

Band 12 23173 channel/BW1.4(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1371.00	149	165	-54.86	-13	-41.86	Pass	H
1628.88	146	208	-45.57	-13	-32.57	Pass	H
3944.32	146	4	-45.32	-13	-32.32	Pass	H
5899.00	150	198	-42.63	-13	-29.63	Pass	H
6575.23	146	341	-40.67	-13	-27.67	Pass	H
8115.24	150	235	-44.14	-13	-31.14	Pass	H
1223.41	146	292	-56.78	-13	-43.78	Pass	V
1473.25	150	158	-58.30	-13	-45.30	Pass	V
3639.33	149	55	-49.53	-13	-36.53	Pass	V
3903.94	150	319	-49.73	-13	-36.73	Pass	V
5704.87	146	118	-48.19	-13	-35.19	Pass	V
6506.47	150	155	-49.93	-13	-36.93	Pass	V

**16QAM**

Band 12 23017 channel/BW1.4(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1328.06	150	78	-53.51	-13	-40.51	Pass	H
1640.61	149	291	-52.83	-13	-39.83	Pass	H
3921.52	151	213	-47.65	-13	-34.65	Pass	H
5943.62	150	89	-45.91	-13	-32.91	Pass	H
6432.19	151	329	-45.34	-13	-32.34	Pass	H
8006.62	148	138	-47.35	-13	-34.35	Pass	H
1264.96	149	99	-56.85	-13	-43.85	Pass	V
1392.84	148	217	-52.61	-13	-39.61	Pass	V
3560.98	150	12	-51.78	-13	-38.78	Pass	V
3904.73	150	137	-48.40	-13	-35.40	Pass	V
5839.97	146	356	-47.76	-13	-34.76	Pass	V
6558.41	146	95	-45.47	-13	-32.47	Pass	V



Band 12 23095 channel/BW1.4(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1289.98	150	142	-58.51	-13	-45.51	Pass	H
1668.20	146	280	-54.15	-13	-41.15	Pass	H
3848.54	150	330	-51.50	-13	-38.50	Pass	H
5792.20	146	194	-41.69	-13	-28.69	Pass	H
6484.78	149	260	-50.62	-13	-37.62	Pass	H
8095.31	151	31	-43.20	-13	-30.20	Pass	H
1207.06	149	4	-52.66	-13	-39.66	Pass	V
1361.06	148	257	-65.52	-13	-52.52	Pass	V
3664.56	147	55	-51.79	-13	-38.79	Pass	V
4009.40	148	273	-52.56	-13	-39.56	Pass	V
5884.10	150	136	-52.10	-13	-39.10	Pass	V
6583.70	150	16	-50.23	-13	-37.23	Pass	V
Band 12 23173 channel/BW1.4(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1242.72	149	156	-55.98	-13	-42.98	Pass	H
1586.25	149	170	-48.83	-13	-35.83	Pass	H
3748.65	149	127	-49.24	-13	-36.24	Pass	H
5813.27	146	42	-42.77	-13	-29.77	Pass	H
6450.35	147	69	-42.28	-13	-29.28	Pass	H
7957.04	151	110	-44.03	-13	-31.03	Pass	H
1174.11	148	61	-51.61	-13	-38.61	Pass	V
1361.97	147	266	-54.10	-13	-41.10	Pass	V
3502.37	148	303	-54.88	-13	-41.88	Pass	V
3901.19	149	195	-44.02	-13	-31.02	Pass	V
5703.76	147	323	-42.30	-13	-29.30	Pass	V
6508.29	146	325	-45.49	-13	-32.49	Pass	V

Note:

7) Scan from 9kHz to 40GHz, 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.

8) 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.

**QPSK**

Band 13 23025 channel/BW 5(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1405.06	156	259	-59.75	-25	-34.75	Pass	H
1669.46	159	152	-47.68	-25	-22.68	Pass	H
3830.64	156	338	-49.52	-25	-24.52	Pass	H
5900.82	152	270	-44.84	-25	-19.84	Pass	H
6586.52	160	164	-42.97	-25	-17.97	Pass	H
7982.20	156	119	-40.42	-25	-15.42	Pass	H
1115.24	155	266	-55.29	-25	-30.29	Pass	V
1540.53	156	94	-60.24	-25	-35.24	Pass	V
3487.55	155	99	-49.16	-25	-24.16	Pass	V
3799.43	153	27	-49.10	-25	-24.10	Pass	V
5868.77	157	85	-49.61	-25	-24.61	Pass	V
6589.91	155	106	-45.56	-25	-20.56	Pass	V
Band 13 23230 channel/BW 5(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1415.70	153	282	-57.27	-25	-32.27	Pass	H
1753.24	144	83	-50.48	-25	-25.48	Pass	H
3965.28	146	31	-49.27	-25	-24.27	Pass	H
5917.20	142	94	-46.67	-25	-21.67	Pass	H
6506.53	146	164	-45.03	-25	-20.03	Pass	H
8083.25	144	107	-40.48	-25	-15.48	Pass	H
1105.43	142	112	-54.00	-25	-29.00	Pass	V
1489.47	143	264	-59.78	-25	-34.78	Pass	V
3448.85	154	282	-52.81	-25	-27.81	Pass	V
3918.46	140	339	-49.36	-25	-24.36	Pass	V
5850.48	148	253	-48.32	-25	-23.32	Pass	V
6556.27	156	341	-45.98	-25	-20.98	Pass	V

Band 13 23255 channel/BW 5(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1426.43	153	119	-56.97	-25	-31.97	Pass	H
1779.26	155	215	-47.50	-25	-22.50	Pass	H
3835.29	149	56	-46.10	-25	-21.10	Pass	H
5961.11	159	146	-44.26	-25	-19.26	Pass	H
6540.33	142	170	-43.07	-25	-18.07	Pass	H
8131.82	141	334	-45.22	-25	-20.22	Pass	H
1255.84	143	70	-52.67	-25	-27.67	Pass	V
1498.92	155	65	-58.54	-25	-33.54	Pass	V
3543.66	158	118	-49.00	-25	-24.00	Pass	V
3876.57	144	271	-51.17	-25	-26.17	Pass	V
5834.12	149	26	-48.86	-25	-23.86	Pass	V
6488.49	150	2	-45.60	-25	-20.60	Pass	V

**16QAM**

Band 13 23025 channel/BW 5(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1413.09	146	68	-58.82	-25	-33.82	Pass	H
1783.53	153	233	-50.64	-25	-25.64	Pass	H
3861.50	155	292	-46.70	-25	-21.70	Pass	H
5966.43	147	26	-46.04	-25	-21.04	Pass	H
6504.36	148	145	-44.06	-25	-19.06	Pass	H
8061.73	145	289	-43.48	-25	-18.48	Pass	H
1124.54	159	81	-55.02	-25	-30.02	Pass	V
1525.76	149	5	-59.48	-25	-34.48	Pass	V
3478.94	159	115	-52.70	-25	-27.70	Pass	V
3909.82	148	221	-53.44	-25	-28.44	Pass	V
5723.15	155	205	-47.58	-25	-22.58	Pass	V
6636.22	142	147	-47.02	-25	-22.02	Pass	V

Band 13 23230 channel/BW 5(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1388.88	159	301	-55.94	-25	-30.94	Pass	H
1767.87	158	193	-47.14	-25	-22.14	Pass	H
3820.95	151	192	-45.05	-25	-20.05	Pass	H
5918.19	150	130	-42.69	-25	-17.69	Pass	H
6428.50	159	3	-43.97	-25	-18.97	Pass	H
8014.85	148	82	-44.65	-25	-19.65	Pass	H
1245.53	154	192	-56.95	-25	-31.95	Pass	V
1368.72	143	75	-57.51	-25	-32.51	Pass	V
3455.78	145	259	-48.66	-25	-23.66	Pass	V
3845.48	155	322	-52.58	-25	-27.58	Pass	V
5852.83	146	188	-48.64	-25	-23.64	Pass	V
6623.53	145	249	-48.34	-25	-23.34	Pass	V
Band 13 23255 channel/BW 5(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1331.86	141	203	-56.65	-25	-31.65	Pass	H
1754.46	146	181	-48.07	-25	-23.07	Pass	H
3997.35	153	95	-48.77	-25	-23.77	Pass	H
5878.27	143	261	-45.32	-25	-20.32	Pass	H
6418.10	151	186	-45.56	-25	-20.56	Pass	H
8117.06	141	274	-42.20	-25	-17.20	Pass	H
1281.46	145	103	-55.95	-25	-30.95	Pass	V
1530.61	156	356	-57.27	-25	-32.27	Pass	V
3488.43	153	214	-48.15	-25	-23.15	Pass	V
3854.32	156	281	-50.44	-25	-25.44	Pass	V
5801.72	143	44	-48.78	-25	-23.78	Pass	V
6633.89	149	3	-47.01	-25	-22.01	Pass	V

Note:

9) Scan from 9kHz to 40GHz, 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.

10) 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.

**QPSK**

Band 17 23755 channel/BW1.4(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1370.93	146	76	-58.82	-13	-45.82	Pass	H
1620.47	159	291	-50.16	-13	-37.16	Pass	H
3934.08	152	159	-48.29	-13	-35.29	Pass	H
5938.47	158	162	-46.91	-13	-33.91	Pass	H
6465.31	155	244	-44.67	-13	-31.67	Pass	H
8012.84	157	262	-41.66	-13	-28.66	Pass	H
1272.17	146	316	-52.39	-13	-39.39	Pass	V
1421.97	153	101	-57.01	-13	-44.01	Pass	V
3595.34	151	157	-49.39	-13	-36.39	Pass	V
3883.38	149	183	-49.86	-13	-36.86	Pass	V
5787.04	143	11	-48.96	-13	-35.96	Pass	V
6605.08	145	357	-48.52	-13	-35.52	Pass	V

Band 17 23790 channel/BW1.4(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1241.21	153	340	-58.01	-13	-45.01	Pass	H
1664.45	143	350	-50.74	-13	-37.74	Pass	H
3979.03	145	326	-45.46	-13	-32.46	Pass	H
5845.10	147	269	-46.20	-13	-33.20	Pass	H
6527.12	145	262	-42.64	-13	-29.64	Pass	H
8075.95	140	340	-44.49	-13	-31.49	Pass	H
1128.73	155	55	-54.43	-13	-41.43	Pass	V
1378.77	148	96	-56.05	-13	-43.05	Pass	V
3614.16	141	347	-51.03	-13	-38.03	Pass	V
3858.67	155	131	-50.61	-13	-37.61	Pass	V
5900.65	153	319	-48.93	-13	-35.93	Pass	V
6539.72	158	165	-47.04	-13	-34.04	Pass	V

Band 17 23825 channel/BW1.4(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1357.96	150	60	-58.73	-13	-45.73	Pass	H
1618.34	146	295	-51.07	-13	-38.07	Pass	H
3777.28	150	75	-52.62	-13	-39.62	Pass	H
5774.68	146	351	-46.52	-13	-33.52	Pass	H
6511.94	149	264	-47.40	-13	-34.40	Pass	H
8010.95	151	160	-45.56	-13	-32.56	Pass	H
1174.36	149	290	-52.45	-13	-39.45	Pass	V
1402.62	148	280	-56.51	-13	-43.51	Pass	V
3505.47	147	246	-51.90	-13	-38.90	Pass	V
4000.18	148	231	-48.44	-13	-35.44	Pass	V
5901.13	150	126	-47.42	-13	-34.42	Pass	V
6537.01	150	233	-48.78	-13	-35.78	Pass	V

**16QAM**

Band 17 23755 channel/BW1.4(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1419.24	150	185	-61.30	-13	-48.30	Pass	H
1676.66	149	50	-47.09	-13	-34.09	Pass	H
3808.34	155	23	-50.57	-13	-37.57	Pass	H
5989.39	152	57	-47.92	-13	-34.92	Pass	H
6588.97	151	93	-46.26	-13	-33.26	Pass	H
8026.82	150	294	-40.90	-13	-27.90	Pass	H
1093.51	152	112	-50.83	-13	-37.83	Pass	V
1418.40	153	64	-54.11	-13	-41.11	Pass	V
3640.54	154	79	-49.57	-13	-36.57	Pass	V
3938.54	151	209	-49.44	-13	-36.44	Pass	V
5799.34	148	185	-43.94	-13	-30.94	Pass	V
6513.73	146	176	-48.47	-13	-35.47	Pass	V

Band 17 23790 channel/BW1.4(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1402.05	153	314	-60.52	-13	-47.52	Pass	H
1634.33	153	151	-49.03	-13	-36.03	Pass	H
3909.52	150	143	-46.87	-13	-33.87	Pass	H
5836.21	145	140	-42.63	-13	-29.63	Pass	H
6597.18	152	119	-46.57	-13	-33.57	Pass	H
7997.45	154	134	-40.23	-13	-27.23	Pass	H
1155.47	155	109	-55.38	-13	-42.38	Pass	V
1368.04	151	291	-54.86	-13	-41.86	Pass	V
3629.47	153	21	-52.76	-13	-39.76	Pass	V
3976.40	152	332	-51.66	-13	-38.66	Pass	V
5938.92	154	124	-42.61	-13	-29.61	Pass	V
6664.72	149	163	-46.98	-13	-33.98	Pass	V

Band 17 23825 channel/BW1.4(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1307.07	152	207	-56.46	-13	-43.46	Pass	H
1643.40	152	286	-47.84	-13	-34.84	Pass	H
3782.80	152	52	-46.80	-13	-33.80	Pass	H
5984.43	150	98	-47.04	-13	-34.04	Pass	H
6551.34	151	138	-44.02	-13	-31.02	Pass	H
8053.71	152	36	-44.37	-13	-31.37	Pass	H
1272.73	149	228	-51.28	-13	-38.28	Pass	V
1513.54	154	13	-56.93	-13	-43.93	Pass	V
3545.58	145	194	-51.92	-13	-38.92	Pass	V
3931.50	151	276	-53.91	-13	-40.91	Pass	V
5816.67	147	69	-47.02	-13	-34.02	Pass	V
6549.94	147	56	-51.58	-13	-38.58	Pass	V

Note:

11) Scan from 9kHz to 40GHz, 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.

12) 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.

**QPSK**

Band 66 131979 channel/BW1.4(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1304.35	152	238	-57.79	-13	-44.79	Pass	H
1610.84	143	1	-49.90	-13	-36.90	Pass	H
3999.87	149	82	-46.03	-13	-33.03	Pass	H
5978.52	151	200	-42.30	-13	-29.30	Pass	H
6421.76	140	129	-43.65	-13	-30.65	Pass	H
8010.65	154	359	-43.82	-13	-30.82	Pass	H
1200.41	145	152	-56.67	-13	-43.67	Pass	V
1529.99	156	182	-59.80	-13	-46.80	Pass	V
3446.19	156	249	-50.90	-13	-37.90	Pass	V
3871.85	155	326	-52.84	-13	-39.84	Pass	V
5824.47	158	36	-47.26	-13	-34.26	Pass	V
6471.26	149	36	-47.37	-13	-34.37	Pass	V
Band 66 132322 channel/BW1.4(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1370.30	150	44	-57.78	-13	-44.78	Pass	H
1695.08	146	112	-48.92	-13	-35.92	Pass	H
3962.58	150	284	-50.74	-13	-37.74	Pass	H
5859.20	146	262	-45.13	-13	-32.13	Pass	H
6374.45	149	154	-49.34	-13	-36.34	Pass	H
8054.26	151	310	-51.47	-13	-38.47	Pass	H
1282.57	149	283	-52.80	-13	-39.80	Pass	V
1389.74	148	256	-60.58	-13	-47.58	Pass	V
3503.50	147	262	-55.36	-13	-42.36	Pass	V
3973.78	148	251	-51.47	-13	-38.47	Pass	V
5893.41	150	209	-46.66	-13	-33.66	Pass	V
6420.86	150	348	-45.27	-13	-32.27	Pass	V



Band 66 132665 channel/BW1.4(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1421.59	150	200	-59.16	-13	-46.16	Pass	H
1683.80	155	193	-51.23	-13	-38.23	Pass	H
3879.22	148	307	-43.30	-13	-30.30	Pass	H
5818.55	146	175	-41.54	-13	-28.54	Pass	H
6511.59	154	140	-42.94	-13	-29.94	Pass	H
8083.70	154	323	-42.53	-13	-29.53	Pass	H
1245.07	146	223	-57.12	-13	-44.12	Pass	V
1334.19	150	34	-58.84	-13	-45.84	Pass	V
3440.84	155	2	-50.33	-13	-37.33	Pass	V
3902.61	148	157	-50.06	-13	-37.06	Pass	V
5767.61	153	203	-42.22	-13	-29.22	Pass	V
6483.05	152	210	-50.20	-13	-37.20	Pass	V

**16QAM**

Band 66 131979 channel/BW1.4(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1428.33	148	214	-58.00	-13	-45.00	Pass	H
1604.62	146	40	-46.86	-13	-33.86	Pass	H
3947.44	149	140	-48.43	-13	-35.43	Pass	H
5867.32	151	258	-47.30	-13	-34.30	Pass	H
6504.25	147	221	-41.36	-13	-28.36	Pass	H
8070.38	154	23	-44.91	-13	-31.91	Pass	H
1246.56	152	56	-49.66	-13	-36.66	Pass	V
1422.61	150	151	-55.68	-13	-42.68	Pass	V
3646.68	148	161	-54.51	-13	-41.51	Pass	V
3981.17	148	30	-50.73	-13	-37.73	Pass	V
5781.89	152	339	-47.49	-13	-34.49	Pass	V
6672.39	146	265	-48.78	-13	-35.78	Pass	V

Band 66 132322 channel/BW1.4(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1403.25	154	148	-54.60	-13	-41.45	Pass	H
1819.62	154	276	-49.09	-13	-37.85	Pass	H
3923.60	153	183	-49.03	-13	-35.2	Pass	H
5977.46	147	37	-46.15	-13	-30.39	Pass	H
6408.40	148	189	-44.88	-13	-32.24	Pass	H
8048.69	146	127	-40.50	-13	-30.22	Pass	H
1273.82	150	140	-59.07	-13	-44.9	Pass	V
1420.83	146	252	-55.78	-13	-43.63	Pass	V
3439.24	146	357	-45.75	-13	-35.94	Pass	V
3776.00	147	11	-48.56	-13	-36.01	Pass	V
5880.46	147	218	-43.46	-13	-33.75	Pass	V
6595.80	154	173	-43.77	-13	-32.41	Pass	V
Band 66 132665 channel/BW1.4(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1341.11	147	136	-59.15	-13	-46.15	Pass	H
1793.87	151	132	-50.79	-13	-37.79	Pass	H
3901.59	147	109	-41.58	-13	-28.58	Pass	H
5844.55	150	357	-45.44	-13	-32.44	Pass	H
6599.50	153	191	-43.41	-13	-30.41	Pass	H
8038.57	149	70	-44.67	-13	-31.67	Pass	H
1167.84	149	259	-51.94	-13	-38.94	Pass	V
1494.87	146	101	-59.69	-13	-46.69	Pass	V
3501.32	150	67	-50.27	-13	-37.27	Pass	V
3757.84	152	335	-48.46	-13	-35.46	Pass	V
5895.06	154	343	-49.15	-13	-36.15	Pass	V
6467.26	146	130	-44.98	-13	-31.98	Pass	V

Note:

13) Scan from 9kHz to 40GHz, 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.

14) 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=DC5V; Low Voltage LV=DC4.5; High Voltage HV=DC5.5V

Please refer to Appendix 2: Frequency Stability

Test result: Pass

\*\*\*\*\* END OF REPORT \*\*\*\*\*