

TEST REPORT

Product Name: Portable reader
FCC ID: VUJ-AT911
Trademark: N/A
Model Number: AT911 PLUS
Prepared For: ATID Co. Ltd
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Manufacturer: ATID Co. Ltd
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Sample Received Date: Jun. 24, 2020
Sample tested Date: Jun. 24, 2020 to Oct. 10, 2020
Issue Date: Oct. 10, 2020
Report No.: CTB200917015RFX
Test Standards: FCC Part 2, 22, 24E, 27
Test Results: PASS
Remark: This is LTE radio test report.

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(Note: N/A means not applicable)

1. VERSION

Report No.	Issue Date	Description	Approved
CTB200917015RFX	Oct. 10, 2020	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 D01v02r02	PASS
Effective Radiated Power of Transmitter(EIRP)	Part 22.913(a)(5)/Part27.50(h)(2)	TIA-603-E-2016 & KDB 971168 D01v02r02	PASS
peak-to-average ratio	Part 27.50(d)	KDB 971168 D01v02r02	PASS
99% & 26dB Occupied Bandwidth	Part 2.1049(h)	KDB 971168 D01v02r02	PASS
Band Edge at antenna terminals	Part 2.1051/ Part 22.917(a)/Part 27.53(m) (4)	KDB 971168 D01v02r02	PASS
Spurious emissions at antenna terminals	Part 2.1051/ Part 22.917(a)/Part 27.53(m) (4)	TIA-603-E-2016 & KDB 971168 D01v02r02	PASS
Field strength of spurious radiation	Part 2.1053/ Part 22.917(a)/Part 27.53(m) (4)	TIA-603-E-2016 & KDB 971168 D01v02r02	PASS
Frequency stability	Part 2.1055/Part 27.54	TIA-603-E-2016 & KDB 971168 D01v02r02	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 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):	AT911 PLUS
Model Description:	N/A
Hardware Version:	V1.0
Software Version:	V1.0
Operation Frequency:	FDD-LTE BAND 5:824-849MHz FDD-LTE BAND 7:2500-2570MHz FDD-LTE BAND 38: 2570-2620MHz FDD-LTE BAND 41:2555-2655MHz
Max. RF output power:	FDD-LTE BAND 5: 24.17 FDD-LTE BAND 7:23.69 FDD-LTE BAND 38: 23.02 FDD-LTE BAND 41:23.50
Type of Modulation:	QPSK, 16QAM
Antenna installation:	Internal antenna
Antenna Gain:	4dBi
Ratings:	DC 3.7V 2200mAh form battery DC 5V, 2A, charging from adapter MODEL:PSAA10R-050 INPUT:AC100-240V 50/60Hz OUTPUT:5V $\overline{\text{---}}$ 2A

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

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 5	Low, Middle, High Channels
TM2	FDD-LTE BAND 7	Low, Middle, High Channels
TM3	FDD-LTE BAND 38	Low, Middle, High Channels
TM4	FDD-LTE BAND 41	Low, Middle, High Channels

4.5 Test Environment

Humidity(%):	55
Atmospheric Pressure(kPa):	101.1
Normal Voltage(DC):	3.7V
Normal Temperature(°C)	25
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 Floor 1&2, Building A, No. 26 of Xinhe Road, Xinqiao Street, Baoan District, Shenzhen 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.	Last calibration	Calibrated until
1	Spectrum Analyzer	Agilent	N9020A	MY52090073	Oct. 17, 2019	Oct. 16, 2020
2	Power Sensor	Agilent	U2021XA	MY56120032	Nov. 02, 2019	Nov. 01, 2020
3	Power Sensor	Agilent	U2021XA	MY56120034	Nov. 02, 2019	Nov. 01, 2020
4	Communication test set	R&S	CMW500	118735	Nov. 02, 2019	Nov. 01, 2020
5	Spectrum Analyzer	R&S	FSP40	100550	Nov. 02, 2019	Nov. 01, 2020
6	Signal Generator	Agilent	N5181A	MY49060920	Nov. 03, 2019	Nov. 02, 2020
7	Signal Generator	Agilent	N5182A	MY47420195	Nov. 03, 2019	Nov. 02, 2020
8	Communication test set	R&S	CMU200	119978	Nov. 02, 2019	Nov. 01, 2020
9	band rejection filter	Shenxiang	MSF2400-24 83.5MS-1154	20181015001	Nov. 02, 2019	Nov. 01, 2020
10	band rejection filter	Shenxiang	MSF5150-58 50MS-1155	20181015001	Nov. 02, 2019	Nov. 01, 2020
11	band rejection filter	Xingbo	XBLBQ-DZA 120	190821-1-1	Nov. 02, 2019	Nov. 01, 2020
12	BT&WI-FI Automatic test software	Microwave	MTS8310	Ver. 2.0.0.0	\	\
13	Rohde & Schwarz SFU Broadcast Test System	R&S	SFU	101017	Nov. 02, 2019	Nov. 01, 2020
14	Temperature humidity chamber	Hongjing	TH-80CH	DG-15174	Nov. 02, 2019	Nov. 01, 2020
15	234G Automatic test software	Microwave	MTS8200	Ver. 2.0.0.0	\	\
16	966 chamber	C.R.T.	966 Room	966	Nov. 10, 2019	Nov. 09, 2020
17	Receiver	R&S	ESPI	100362	Nov. 02, 2019	Nov. 01, 2020
18	Amplifier	HP	8447E	2945A02747	Nov. 03, 2019	Nov. 02, 2020

19	Amplifier	Agilent	8449B	3008A01838	Nov. 03, 2019	Nov. 02, 2020
20	TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	869	Nov. 02, 2019	Nov. 01, 2020
21	Horn Antenna	Schwarzbeck	BBHA9120D	1911	Nov. 02, 2019	Nov. 01, 2020
22	Software	Fala	EZ-EMC	FA-03A2 RE	\	\
23	3-Loop Antenna	Daze	ZN30401	17014	Nov. 02, 2019	Nov. 01, 2020
24	loop antenna	ZHINAN	ZN30900A	/	Nov. 02, 2019	Nov. 01, 2020
25	Horn antenna	A/H/System	SAS-574	588	Nov. 02, 2019	Nov. 01, 2020
26	Amplifier	AEROFLEX	/	S/N/ 097	Nov. 02, 2019	Nov. 01, 2020

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.

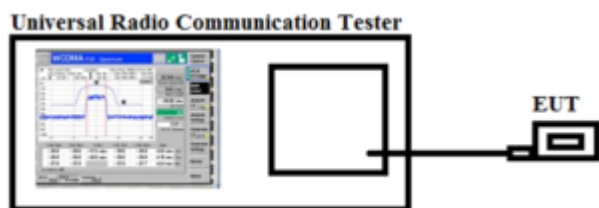
According to §24.232(c), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

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

Max. Radiated Power:

FDD-LTE Band 5

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	21.55	<33.00	PASS
		H	21.46		
	MCH	V	21.16		PASS
		H	21.04		
	HCH	V	21.38		PASS
		H	21.33		
16QAM	LCH	V	20.34	<33.00	PASS
		H	20.20		
	MCH	V	20.19		PASS
		H	19.17		
	HCH	V	19.95		PASS
		H	19.94		
Channel Bandwidth: 3 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	21.30	<33.00	PASS
		H	21.24		
	MCH	V	21.07		PASS
		H	20.31		
	HCH	V	21.31		PASS
		H	21.32		
16QAM	LCH	V	20.38	<33.00	PASS
		H	21.97		
	MCH	V	19.35		PASS
		H	20.12		
	HCH	V	19.92		PASS
		H	19.94		
Channel Bandwidth: 5 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	21.35	<33.00	PASS
		H	21.31		

	MCH	V	21.32		PASS
		H	21.16		
	HCH	V	21.18		PASS
		H	20.16		
16QAM	LCH	V	20.40	<33.00	PASS
		H	19.30		
	MCH	V	20.20		PASS
		H	20.14		
	HCH	V	20.26		PASS
		H	20.24		
Channel Bandwidth: 10 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	20.28	<33.00	PASS
		H	20.22		
	MCH	V	20.20		PASS
		H	21.10		
	HCH	V	21.23		PASS
		H	21.20		
16QAM	LCH	V	20.41	<33.00	PASS
		H	20.23		
	MCH	V	20.22		PASS
		H	20.21		
	HCH	V	19.99		PASS
		H	19.94		

FDD-LTE Band 7

Channel Bandwidth: 5 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	20.76	<33.00	PASS
		H	20.77		
	MCH	V	20.75		PASS
		H	20.59		
	HCH	V	20.30		PASS
		H	19.44		
16QAM	LCH	V	19.56	<33.00	PASS
		H	19.59		
	MCH	V	19.80		PASS

	HCH	H	19.78		PASS
		V	19.36		
		H	18.40		
Channel Bandwidth: 10 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	20.73	<33.00	PASS
		H	20.81		
	MCH	V	20.68		PASS
		H	20.66		
	HCH	V	19.50		PASS
		H	19.38		
16QAM	LCH	V	19.65	<33.00	PASS
		H	19.79		
	MCH	V	19.75		PASS
		H	19.70		
	HCH	V	19.23		PASS
		H	19.05		
Channel Bandwidth: 15 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	21.26	<33.00	PASS
		H	19.83		
	MCH	V	20.71		PASS
		H	20.72		
	HCH	V	20.86		PASS
		H	20.28		
16QAM	LCH	V	19.73	<33.00	PASS
		H	19.93		
	MCH	V	19.75		PASS
		H	19.74		
	HCH	V	19.29		PASS
		H	19.23		
Channel Bandwidth: 20 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	20.96	<33.00	PASS
		H	21.05		
	MCH	V	20.97		PASS

16QAM	HCH	H	19.81		PASS
		V	20.34		
		H	20.11		
	LCH	V	19.84	<33.00	PASS
		H	20.05		
	MCH	V	19.55		PASS
		H	19.60		
	HCH	V	18.97		PASS
		H	18.72		

FDD-LTE Band 38

Channel Bandwidth: 5 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	20.31	<38.45	PASS
		H	20.23		
	MCH	V	20.05		PASS
		H	19.98		
	HCH	V	19.82		PASS
		H	19.79		
16QAM	LCH	V	19.37	<38.45	PASS
		H	19.33		
	MCH	V	19.38		PASS
		H	19.29		
	HCH	V	19.08		PASS
		H	19.03		
Channel Bandwidth: 10 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	20.28	<38.45	PASS
		H	20.20		
	MCH	V	20.15		PASS
		H	20.08		
	HCH	V	19.84		PASS
		H	19.78		
16QAM	LCH	V	19.43	<38.45	PASS
		H	19.41		
	MCH	V	19.18		PASS
		H	19.11		

	HCH	V	18.70		PASS
		H	18.65		
Channel Bandwidth: 15 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	20.18	<38.45	PASS
		H	20.12		
	MCH	V	20.25		PASS
		H	20.13		
	HCH	V	19.97		PASS
		H	19.93		
16QAM	LCH	V	19.42	<38.45	PASS
		H	19.46		
	MCH	V	19.26		PASS
		H	19.14		
	HCH	V	18.89		PASS
		H	18.82		
Channel Bandwidth: 20 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	20.24	<38.45	PASS
		H	20.70		
	MCH	V	20.15		PASS
		H	19.22		
	HCH	V	19.95		PASS
		H	19.89		
16QAM	LCH	V	19.28	<38.45	PASS
		H	19.37		
	MCH	V	19.08		PASS
		H	19.01		
	HCH	V	18.51		PASS
		H	18.47		

FDD-LTE Band 41

Channel Bandwidth: 5.0 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	-1.43	<34.77	PASS
		H	2.93		
	MCH	V	15.55		PASS

	HCH	H	15.50		PASS
		V	8.66		
		H	5.65		
16QAM	LCH	V	-1.63	<34.77	PASS
		H	2.36		
	MCH	V	15.10		PASS
		H	14.70		
	HCH	V	8.39		PASS
		H	5.38		
Channel Bandwidth: 10MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	0.53	<34.77	PASS
		H	13.14		
	MCH	V	15.73		PASS
		H	15.71		
	HCH	V	14.14		PASS
		H	11.80		
16QAM	LCH	V	6.55	<34.77	PASS
		H	15.03		
	MCH	V	15.13		PASS
		H	15.09		
	HCH	V	11.48		PASS
		H	5.48		
Channel Bandwidth: 15 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	13.86	<34.77	PASS
		H	16.20		
	MCH	V	15.25		PASS
		H	14.72		
	HCH	V	14.22		PASS
		H	6.36		
16QAM	LCH	V	13.04	<34.77	PASS
		H	15.35		
	MCH	V	15.07		PASS
		H	15.17		
	HCH	V	6.19		PASS
		H	12.49		

Channel Bandwidth: 20 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	15.93	<34.77	PASS
		H	16.06		
	MCH	V	15.68		PASS
		H	15.57		
	HCH	V	13.57		PASS
		H	13.06		
16QAM	LCH	V	15.27	<34.77	PASS
		H	15.42		
	MCH	V	14.75		PASS
		H	15.00		
	HCH	V	13.44		PASS
		H	6.30		

Max. Conducted Output Power

Please refer to Appendix A: Average Power Output Data

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.

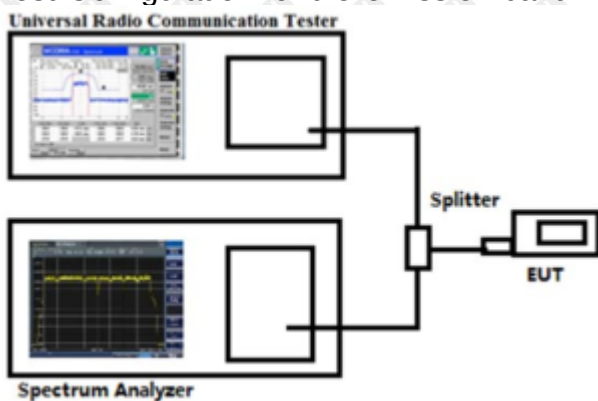
According to §27.50(B), the peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for 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.

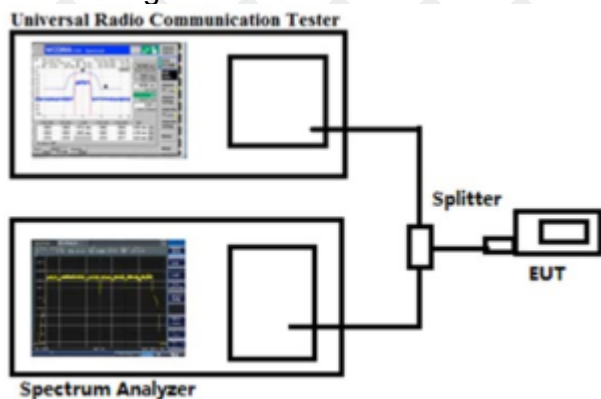
According to §24.238(b), the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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

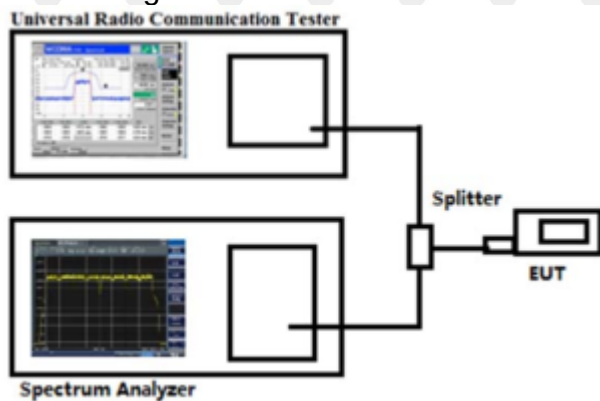
measured in watts, by at least $43 + 10 \log (P)$ dB.

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.

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

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 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.
1274.721	152	40	-60.68	-13.00	-47.68	Pass	H
1633.892	150	54	-51.97	-13.00	-38.97	Pass	H
3859.037	152	209	-50.32	-13.00	-37.32	Pass	H
5762.527	153	100	-47.32	-13.00	-34.32	Pass	H
6501.260	152	276	-46.04	-13.00	-33.04	Pass	H
7966.120	152	100	-46.46	-13.00	-33.46	Pass	H
1218.322	148	159	-58.06	-13.00	-45.06	Pass	V
1349.515	151	66	-59.48	-13.00	-46.48	Pass	V
3491.050	151	42	-54.52	-13.00	-41.52	Pass	V
3824.302	151	145	-52.47	-13.00	-39.47	Pass	V
5831.171	149	57	-48.67	-13.00	-35.67	Pass	V
6554.944	153	304	-48.22	-13.00	-35.22	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.
1285.754	148	28	-58.44	-13.00	-45.44	Pass	H
1592.179	153	40	-52.71	-13.00	-39.71	Pass	H
3863.718	150	91	-50.18	-13.00	-37.18	Pass	H
5772.008	150	24	-47.41	-13.00	-34.41	Pass	H
6508.712	150	64	-46.74	-13.00	-33.74	Pass	H
7987.524	151	158	-48.53	-13.00	-35.53	Pass	H
1187.078	149	257	-58.30	-13.00	-45.30	Pass	V
1444.228	152	217	-58.50	-13.00	-45.50	Pass	V
3491.005	152	166	-52.75	-13.00	-39.75	Pass	V
3828.463	150	321	-50.01	-13.00	-37.01	Pass	V
5819.595	149	256	-48.91	-13.00	-35.91	Pass	V
6517.992	152	119	-49.78	-13.00	-36.78	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.
1255.758	152	82	-59.10	-13.00	-46.10	Pass	H
1592.939	152	133	-53.93	-13.00	-40.93	Pass	H
3805.815	148	238	-52.28	-13.00	-39.28	Pass	H
5771.354	151	218	-45.76	-13.00	-32.76	Pass	H
6460.374	152	212	-46.76	-13.00	-33.76	Pass	H
7969.397	152	135	-46.17	-13.00	-33.17	Pass	H
1237.367	148	313	-58.65	-13.00	-45.65	Pass	V
1425.805	149	181	-60.49	-13.00	-47.49	Pass	V
3413.608	152	199	-54.46	-13.00	-41.46	Pass	V
3838.075	153	106	-50.97	-13.00	-37.97	Pass	V
5790.637	150	252	-47.67	-13.00	-34.67	Pass	V
6463.444	150	69	-47.33	-13.00	-34.33	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.
1274.414	150	316	-60.26	-13.00	-47.26	Pass	H
1586.496	150	311	-52.73	-13.00	-39.73	Pass	H
3785.222	150	261	-49.40	-13.00	-36.40	Pass	H
5785.566	152	349	-48.24	-13.00	-35.24	Pass	H
6508.923	149	55	-46.06	-13.00	-33.06	Pass	H
8037.229	153	230	-49.02	-13.00	-36.02	Pass	H
1204.199	150	170	-60.00	-13.00	-47.00	Pass	V
1393.910	149	104	-59.53	-13.00	-46.53	Pass	V
3453.009	153	134	-53.28	-13.00	-40.28	Pass	V
3832.912	150	325	-51.50	-13.00	-38.50	Pass	V
5766.325	148	319	-46.38	-13.00	-33.38	Pass	V
6476.194	150	13	-48.25	-13.00	-35.25	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.
1280.766	149	13	-59.67	-13.00	-46.67	Pass	H
1623.596	148	27	-51.65	-13.00	-38.65	Pass	H
3825.338	151	290	-50.94	-13.00	-37.94	Pass	H
5852.068	149	241	-47.10	-13.00	-34.10	Pass	H
6500.431	149	72	-48.31	-13.00	-35.31	Pass	H
7960.070	151	192	-48.74	-13.00	-35.74	Pass	H
1235.840	152	310	-57.98	-13.00	-44.98	Pass	V
1363.961	150	155	-59.62	-13.00	-46.62	Pass	V
3443.031	153	298	-51.90	-13.00	-38.90	Pass	V
3878.058	150	279	-50.73	-13.00	-37.73	Pass	V
5775.252	150	80	-46.61	-13.00	-33.61	Pass	V
6526.687	153	148	-50.28	-13.00	-37.28	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.
1199.624	148	173	-59.70	-13.00	-46.70	Pass	H
1595.673	150	184	-52.86	-13.00	-39.86	Pass	H
3774.401	150	26	-49.98	-13.00	-36.98	Pass	H
5776.211	151	176	-47.82	-13.00	-34.82	Pass	H
6510.263	149	8	-47.82	-13.00	-34.82	Pass	H
7955.124	149	77	-49.00	-13.00	-36.00	Pass	H
1169.030	151	170	-59.48	-13.00	-46.48	Pass	V
1446.031	153	21	-60.27	-13.00	-47.27	Pass	V
3442.499	152	317	-53.39	-13.00	-40.39	Pass	V
3908.846	151	58	-51.82	-13.00	-38.82	Pass	V
5819.102	153	111	-48.39	-13.00	-35.39	Pass	V
6548.387	150	264	-48.30	-13.00	-35.30	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.

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.
1242.825	150	142	-60.51	-13.00	-47.51	Pass	H
1664.510	148	100	-51.99	-13.00	-38.99	Pass	H
3793.489	151	335	-50.29	-13.00	-37.29	Pass	H
5829.984	151	23	-47.94	-13.00	-34.94	Pass	H
6487.837	149	42	-48.03	-13.00	-35.03	Pass	H
7987.461	152	176	-46.82	-13.00	-33.82	Pass	H
1213.162	150	308	-58.47	-13.00	-45.47	Pass	V
1372.232	152	244	-58.36	-13.00	-45.36	Pass	V
3507.781	152	8	-54.25	-13.00	-41.25	Pass	V
3837.380	152	297	-50.96	-13.00	-37.96	Pass	V
5737.007	150	275	-46.50	-13.00	-33.50	Pass	V
6540.479	151	4	-49.01	-13.00	-36.01	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.
1260.747	150	158	-60.77	-13.00	-47.77	Pass	H
1579.946	153	320	-52.95	-40.00	-12.95	Pass	H
3805.355	152	130	-49.95	-13.00	-36.95	Pass	H
5847.537	148	59	-46.78	-13.00	-33.78	Pass	H
6495.263	153	158	-47.65	-13.00	-34.65	Pass	H
8019.626	150	234	-47.15	-13.00	-34.15	Pass	H
1214.194	148	30	-57.80	-13.00	-44.80	Pass	V
1372.369	152	47	-58.56	-13.00	-45.56	Pass	V
3505.945	152	309	-52.53	-13.00	-39.53	Pass	V
3871.903	150	282	-52.30	-13.00	-39.30	Pass	V
5802.199	150	357	-46.02	-13.00	-33.02	Pass	V
6534.315	151	2	-49.45	-13.00	-36.45	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.
1270.291	148	3	-58.85	-13.00	-45.85	Pass	H
1613.202	150	329	-51.73	-13.00	-38.73	Pass	H
3814.647	153	227	-52.26	-13.00	-39.26	Pass	H
5850.214	153	64	-48.40	-13.00	-35.40	Pass	H
6496.679	150	231	-47.59	-13.00	-34.59	Pass	H
8004.855	153	227	-48.94	-13.00	-35.94	Pass	H
1173.931	150	92	-60.06	-13.00	-47.06	Pass	V
1401.093	150	312	-58.63	-13.00	-45.63	Pass	V
3470.450	151	243	-52.61	-13.00	-39.61	Pass	V
3910.916	151	334	-49.81	-13.00	-36.81	Pass	V
5784.554	151	339	-48.06	-13.00	-35.06	Pass	V
6482.066	152	335	-50.06	-13.00	-37.06	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.
1258.391	152	170	-60.27	-13.00	-47.27	Pass	H
1641.162	150	269	-53.59	-13.00	-40.59	Pass	H
3820.733	148	272	-50.78	-13.00	-37.78	Pass	H
5805.850	150	79	-47.47	-13.00	-34.47	Pass	H
6471.015	149	103	-45.85	-13.00	-32.85	Pass	H
7997.699	150	266	-46.24	-13.00	-33.24	Pass	H
1245.089	152	321	-57.44	-13.00	-44.44	Pass	V
1363.048	150	173	-59.13	-13.00	-46.13	Pass	V
3451.971	149	154	-52.74	-13.00	-39.74	Pass	V
3818.164	152	139	-52.57	-13.00	-39.57	Pass	V
5821.301	148	328	-47.70	-13.00	-34.70	Pass	V
6514.957	151	179	-50.08	-13.00	-37.08	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.
1288.932	149	355	-58.66	-13.00	-45.66	Pass	H
1621.184	149	70	-52.48	-13.00	-39.48	Pass	H
3823.855	151	166	-51.58	-13.00	-38.58	Pass	H
5829.359	150	53	-47.52	-13.00	-34.52	Pass	H
6447.951	149	223	-47.69	-13.00	-34.69	Pass	H
7946.524	150	106	-46.88	-13.00	-33.88	Pass	H
1215.380	152	206	-57.67	-13.00	-44.67	Pass	V
1428.360	151	217	-59.76	-13.00	-46.76	Pass	V
3499.883	152	122	-52.96	-13.00	-39.96	Pass	V
3854.579	151	341	-50.64	-13.00	-37.64	Pass	V
5754.563	153	331	-48.50	-13.00	-35.50	Pass	V
6542.138	148	331	-48.82	-13.00	-35.82	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.
1262.832	148	84	-59.95	-13.00	-46.95	Pass	H
1662.832	149	262	-52.55	-13.00	-39.55	Pass	H
3807.731	152	41	-50.48	-13.00	-37.48	Pass	H
5854.959	150	220	-46.87	-13.00	-33.87	Pass	H
6459.729	150	181	-47.48	-13.00	-34.48	Pass	H
7986.051	150	191	-47.35	-13.00	-34.35	Pass	H
1170.490	152	170	-57.83	-13.00	-44.83	Pass	V
1364.541	152	264	-60.53	-13.00	-47.53	Pass	V
3509.861	149	192	-52.99	-13.00	-39.99	Pass	V
3830.152	152	2	-52.29	-13.00	-39.29	Pass	V
5760.493	149	324	-48.53	-13.00	-35.53	Pass	V
6487.761	151	134	-48.70	-13.00	-35.70	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.

QPSK

Band 38 37775 channel/BW 5(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1242.825	150	142	-60.51	-13.00	-47.51	Pass	H
1664.510	148	100	-51.99	-13.00	-38.99	Pass	H
3793.489	151	335	-50.29	-13.00	-37.29	Pass	H
5829.984	151	23	-47.94	-13.00	-34.94	Pass	H
6487.837	149	42	-48.03	-13.00	-35.03	Pass	H
7987.461	152	176	-46.82	-13.00	-33.82	Pass	H
1213.162	150	308	-58.47	-13.00	-45.47	Pass	V
1372.232	152	244	-58.36	-13.00	-45.36	Pass	V
3507.781	152	8	-54.25	-13.00	-41.25	Pass	V
3837.380	152	297	-50.96	-13.00	-37.96	Pass	V
5737.007	150	275	-46.50	-13.00	-33.50	Pass	V
6540.479	151	4	-49.01	-13.00	-36.01	Pass	V

Band 38 38000 channel/BW 5(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1260.747	150	158	-60.77	-13.00	-47.77	Pass	H
1579.946	153	320	-52.95	-40.00	-12.95	Pass	H
3805.355	152	130	-49.95	-13.00	-36.95	Pass	H
5847.537	148	59	-46.78	-13.00	-33.78	Pass	H
6495.263	153	158	-47.65	-13.00	-34.65	Pass	H
8019.626	150	234	-47.15	-13.00	-34.15	Pass	H
1214.194	148	30	-57.80	-13.00	-44.80	Pass	V
1372.369	152	47	-58.56	-13.00	-45.56	Pass	V
3505.945	152	309	-52.53	-13.00	-39.53	Pass	V
3871.903	150	282	-52.30	-13.00	-39.30	Pass	V
5802.199	150	357	-46.02	-13.00	-33.02	Pass	V
6534.315	151	2	-49.45	-13.00	-36.45	Pass	V

Band 38 38225 channel/BW 5(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1270.291	148	3	-58.85	-13.00	-45.85	Pass	H
1613.202	150	329	-51.73	-13.00	-38.73	Pass	H
3814.647	153	227	-52.26	-13.00	-39.26	Pass	H
5850.214	153	64	-48.40	-13.00	-35.40	Pass	H
6496.679	150	231	-47.59	-13.00	-34.59	Pass	H
8004.855	153	227	-48.94	-13.00	-35.94	Pass	H
1173.931	150	92	-60.06	-13.00	-47.06	Pass	V
1401.093	150	312	-58.63	-13.00	-45.63	Pass	V
3470.450	151	243	-52.61	-13.00	-39.61	Pass	V
3910.916	151	334	-49.81	-13.00	-36.81	Pass	V
5784.554	151	339	-48.06	-13.00	-35.06	Pass	V
6482.066	152	335	-50.06	-13.00	-37.06	Pass	V

16QAM

Band 38 37775 channel/BW 5(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1258.391	152	170	-60.27	-13.00	-47.27	Pass	H
1641.162	150	269	-53.59	-13.00	-40.59	Pass	H
3820.733	148	272	-50.78	-13.00	-37.78	Pass	H
5805.850	150	79	-47.47	-13.00	-34.47	Pass	H
6471.015	149	103	-45.85	-13.00	-32.85	Pass	H
7997.699	150	266	-46.24	-13.00	-33.24	Pass	H
1245.089	152	321	-57.44	-13.00	-44.44	Pass	V
1363.048	150	173	-59.13	-13.00	-46.13	Pass	V
3451.971	149	154	-52.74	-13.00	-39.74	Pass	V
3818.164	152	139	-52.57	-13.00	-39.57	Pass	V
5821.301	148	328	-47.70	-13.00	-34.70	Pass	V
6514.957	151	179	-50.08	-13.00	-37.08	Pass	V

Band 38 38000 channel/BW 5(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1288.932	149	355	-58.66	-13.00	-45.66	Pass	H
1621.184	149	70	-52.48	-13.00	-39.48	Pass	H
3823.855	151	166	-51.58	-13.00	-38.58	Pass	H
5829.359	150	53	-47.52	-13.00	-34.52	Pass	H
6447.951	149	223	-47.69	-13.00	-34.69	Pass	H
7946.524	150	106	-46.88	-13.00	-33.88	Pass	H
1215.380	152	206	-57.67	-13.00	-44.67	Pass	V
1428.360	151	217	-59.76	-13.00	-46.76	Pass	V
3499.883	152	122	-52.96	-13.00	-39.96	Pass	V
3854.579	151	341	-50.64	-13.00	-37.64	Pass	V
5754.563	153	331	-48.50	-13.00	-35.50	Pass	V
6542.138	148	331	-48.82	-13.00	-35.82	Pass	V

Band 38 38225 channel/BW 5(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1262.832	148	84	-59.95	-13.00	-46.95	Pass	H
1662.832	149	262	-52.55	-13.00	-39.55	Pass	H
3807.731	152	41	-50.48	-13.00	-37.48	Pass	H
5854.959	150	220	-46.87	-13.00	-33.87	Pass	H
6459.729	150	181	-47.48	-13.00	-34.48	Pass	H
7986.051	150	191	-47.35	-13.00	-34.35	Pass	H
1170.490	152	170	-57.83	-13.00	-44.83	Pass	V
1364.541	152	264	-60.53	-13.00	-47.53	Pass	V
3509.861	149	192	-52.99	-13.00	-39.99	Pass	V
3830.152	152	2	-52.29	-13.00	-39.29	Pass	V
5760.493	149	324	-48.53	-13.00	-35.53	Pass	V
6487.761	151	134	-48.70	-13.00	-35.70	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.

QPSK

Band 41 39675 channel/BW 5(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1242.825	150	142	-60.51	-13.00	-47.51	Pass	H
1664.510	148	100	-51.99	-13.00	-38.99	Pass	H
3793.489	151	335	-50.29	-13.00	-37.29	Pass	H
5829.984	151	23	-47.94	-13.00	-34.94	Pass	H
6487.837	149	42	-48.03	-13.00	-35.03	Pass	H
7987.461	152	176	-46.82	-13.00	-33.82	Pass	H
1213.162	150	308	-58.47	-13.00	-45.47	Pass	V
1372.232	152	244	-58.36	-13.00	-45.36	Pass	V
3507.781	152	8	-54.25	-13.00	-41.25	Pass	V
3837.380	152	297	-50.96	-13.00	-37.96	Pass	V
5737.007	150	275	-46.50	-13.00	-33.50	Pass	V
6540.479	151	4	-49.01	-13.00	-36.01	Pass	V

Band 41 40620 channel/BW 5(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1260.747	150	158	-60.77	-13.00	-47.77	Pass	H
1579.946	153	320	-52.95	-40.00	-12.95	Pass	H
3805.355	152	130	-49.95	-13.00	-36.95	Pass	H
5847.537	148	59	-46.78	-13.00	-33.78	Pass	H
6495.263	153	158	-47.65	-13.00	-34.65	Pass	H
8019.626	150	234	-47.15	-13.00	-34.15	Pass	H
1214.194	148	30	-57.80	-13.00	-44.80	Pass	V
1372.369	152	47	-58.56	-13.00	-45.56	Pass	V
3505.945	152	309	-52.53	-13.00	-39.53	Pass	V
3871.903	150	282	-52.30	-13.00	-39.30	Pass	V
5802.199	150	357	-46.02	-13.00	-33.02	Pass	V
6534.315	151	2	-49.45	-13.00	-36.45	Pass	V

Band 41 41565 channel/BW 5(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1270.291	148	3	-58.85	-13.00	-45.85	Pass	H
1613.202	150	329	-51.73	-13.00	-38.73	Pass	H
3814.647	153	227	-52.26	-13.00	-39.26	Pass	H
5850.214	153	64	-48.40	-13.00	-35.40	Pass	H
6496.679	150	231	-47.59	-13.00	-34.59	Pass	H
8004.855	153	227	-48.94	-13.00	-35.94	Pass	H
1173.931	150	92	-60.06	-13.00	-47.06	Pass	V
1401.093	150	312	-58.63	-13.00	-45.63	Pass	V
3470.450	151	243	-52.61	-13.00	-39.61	Pass	V
3910.916	151	334	-49.81	-13.00	-36.81	Pass	V
5784.554	151	339	-48.06	-13.00	-35.06	Pass	V
6482.066	152	335	-50.06	-13.00	-37.06	Pass	V

16QAM

Band 41 39675 channel/BW 5(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1258.391	152	170	-60.27	-13.00	-47.27	Pass	H
1641.162	150	269	-53.59	-13.00	-40.59	Pass	H
3820.733	148	272	-50.78	-13.00	-37.78	Pass	H
5805.850	150	79	-47.47	-13.00	-34.47	Pass	H
6471.015	149	103	-45.85	-13.00	-32.85	Pass	H
7997.699	150	266	-46.24	-13.00	-33.24	Pass	H
1245.089	152	321	-57.44	-13.00	-44.44	Pass	V
1363.048	150	173	-59.13	-13.00	-46.13	Pass	V
3451.971	149	154	-52.74	-13.00	-39.74	Pass	V
3818.164	152	139	-52.57	-13.00	-39.57	Pass	V
5821.301	148	328	-47.70	-13.00	-34.70	Pass	V
6514.957	151	179	-50.08	-13.00	-37.08	Pass	V

Band 41 40620 channel/BW 5(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1288.932	149	355	-58.66	-13.00	-45.66	Pass	H
1621.184	149	70	-52.48	-13.00	-39.48	Pass	H
3823.855	151	166	-51.58	-13.00	-38.58	Pass	H
5829.359	150	53	-47.52	-13.00	-34.52	Pass	H
6447.951	149	223	-47.69	-13.00	-34.69	Pass	H
7946.524	150	106	-46.88	-13.00	-33.88	Pass	H
1215.380	152	206	-57.67	-13.00	-44.67	Pass	V
1428.360	151	217	-59.76	-13.00	-46.76	Pass	V
3499.883	152	122	-52.96	-13.00	-39.96	Pass	V
3854.579	151	341	-50.64	-13.00	-37.64	Pass	V
5754.563	153	331	-48.50	-13.00	-35.50	Pass	V
6542.138	148	331	-48.82	-13.00	-35.82	Pass	V

Band 41 41565 channel/BW 5(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1262.832	148	84	-59.95	-13.00	-46.95	Pass	H
1662.832	149	262	-52.55	-13.00	-39.55	Pass	H
3807.731	152	41	-50.48	-13.00	-37.48	Pass	H
5854.959	150	220	-46.87	-13.00	-33.87	Pass	H
6459.729	150	181	-47.48	-13.00	-34.48	Pass	H
7986.051	150	191	-47.35	-13.00	-34.35	Pass	H
1170.490	152	170	-57.83	-13.00	-44.83	Pass	V
1364.541	152	264	-60.53	-13.00	-47.53	Pass	V
3509.861	149	192	-52.99	-13.00	-39.99	Pass	V
3830.152	152	2	-52.29	-13.00	-39.29	Pass	V
5760.493	149	324	-48.53	-13.00	-35.53	Pass	V
6487.761	151	134	-48.70	-13.00	-35.70	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=DC6.4V; Low Voltage LV=DC5.44V; High Voltage HV=DC7.36V

Please refer to Appendix F: Frequency Stability

Test result: Pass

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