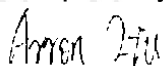


TEST REPORT

Product Name: Mobile Computer
FCC ID: VUJ-ATM660
Trademark: N/A
Model Number: ATM660
Prepared For: ATID Co., Ltd
Address: #1402, 83, Gasan digital 1-ro, Geumcheon-gu, Seoul, Republic of Korea.
Manufacturer: ATID Co., Ltd
Address: #1402, 83, Gasan digital 1-ro, Geumcheon-gu, Seoul, Republic of Korea.
Prepared By: Shenzhen CTB Testing Technology Co., Ltd.
Address: Floor 1&2, Building A, No. 26 of Xinhe Road, Xinqiao Community, Xinqiao Street, Baoan District, Shenzhen, Guangdong China
Sample Received Date: May. 8, 2021
Sample tested Date: May. 8, 2021 to May. 15, 2021
Issue Date: May. 15, 2021
Report No.: CTB210514021RFX
Test Standards FCC Part 2, 24E, 27
Test Results PASS
Remark: This is LTE radio test report.

Compiled by:

Arron Liu

Reviewed by:

Bin Mei

Approved by:

Rita Xiao / Director

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.

TABLE OF CONTENT

Test Report Declaration	Page
1. VERSION	4
2. TEST SUMMARY	5
3. MEASUREMENT UNCERTAINTY	6
4. PRODUCT INFORMATION AND TEST SETUP	7
4.1 Product Information	7
4.2 Test Setup Configuration	7
4.3 Support Equipment	8
4.4 Test Mode	8
4.5 Test Environment	10
5. TEST FACILITY AND TEST INSTRUMENT USED	11
5.1 Test Facility	11
5.2 Test Instrument Used	11
6. RF EXPOSURE	13
6.1 Standard Applicable	13
6.2 Test Result	13
7. RF OUTPUT POWER	14
7.1 Standard Applicable	14
7.2 Test Procedure	14
7.3 Summary of Test Results/Plots	15
8. PEAK-TO-AVERAGE RATIO (PAR) OF TRANSMITTER	27
8.1 Standard Applicable	27
8.2 Test Procedure	27
8.3 Summary of Test Results	27
9. EMISSION BANDWIDTH	28
9.1 Standard Applicable	28
9.2 Test Procedure	28
9.3 Summary of Test Results/Plots	28
10. OUT OF BAND EMISSIONS AT ANTENNA TERMINAL	29
10.1 Standard Applicable	29
10.2 Test Procedure	30

10.3	Summary of Test Results/Plots.....	30
11.	SPURIOUS RADIATED EMISSIONS	31
11.1	Standard Applicable	31
11.2	Test Procedure	32
11.3	Summary of Test Results/Plots.....	33
12.	FREQUENCY STABILITY	54
12.1	Standard Applicable	54
12.2	Test Procedure	54
12.3	Summary of Test Results/Plots.....	54

(Note: N/A means not applicable)

1. VERSION

Report No.	Issue Date	Description	Approved
CTB210514021RFX	May. 15, 2021	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 24.232(c)/Part27.50(h)(2)/ Part27.50(d)(4)/ Part27.50(c)(10)/ / Part27.50(b)(10)	TIA-603-E-2016 & KDB 971168 D01v02r02	PASS
peak-to-average ratio	Part 24.232(d)/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 24.238(a)/Part 27.53(g) (1)/ 27.53(i) (4)/ 27.53(f)/ 27.53(c)(1)-(4)	KDB 971168 D01v02r02	PASS
Spurious emissions at antenna terminals	Part 2.1051/ Part 24.238(a)/Part 27.53(g) (1)/ 27.53(i) (4)/ 27.53(f)/ 27.53(c)(1)-(4)	TIA-603-E-2016 & KDB 971168 D01v02r02	PASS
Field strength of spurious radiation	Part 2.1051/ Part 24.238(a)/Part 27.53(g) (1)/ 27.53(i) (4)/ 27.53(f)/ 27.53(c)(1)-(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 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^{-7}

4. PRODUCT INFORMATION AND TEST SETUP

4.1 Product Information

Model(s):	ATM660
Model Description:	N/A
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 7: 2500-2570MHz FDD-LTE BAND 12: 699-716MHz FDD-LTE BAND 13: 777-787MHz FDD-LTE BAND 17: 704-716MHz TDD-LTE BAND 41a:2557.5-2652.5MHz
Max. RF output power:	FDD-LTE BAND 2:24.00 dBm FDD-LTE BAND 4: 24.29 dBm FDD-LTE BAND 7: 23.76 dBm FDD-LTE BAND 12: 23.73 dBm FD-LTE BAND 13: 24.01 dBm FD-LTE BAND 17: 23.84 dBm TDD-LTE BAND 41: 24.36 dBm
Type of Modulation:	QPSK, 16QAM
Antenna installation:	Integral antenna
Antenna Gain:	LTE BAND 2 -1.64dBi LTE BAND 4 -1.72dBi LTE BAND 7 -1.45dBi LTE BAND 12 -2.60dBi LTE BAND 13 -2.51dBi LTE BAND 17 -2.57dBi LTE BAND 41 -1.53dBi
Ratings:	DC 5.0V charging from adapter DC 3.8V from battery, 4800mAh

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 2	Low, Middle, High Channels
TM2	FDD-LTE BAND 4	Low, Middle, High Channels
TM3	TDD-LTE BAND 7	Low, Middle, High Channels
TM4	TDD-LTE BAND 12	Low, Middle, High Channels
TM5	TDD-LTE BAND 13	Low, Middle, High Channels
TM6	TDD-LTE BAND 17	Low, Middle, High Channels
TM7	TDD-LTE BAND 41	Low, Middle, High Channels

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

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

Test Mode	Test Frequency ID	Bandwidth (MHz)	Number [UL]	Frequency of Uplink(MHz)
LTE band 7	Low Range	5	20775	2502.5
		10	20800	2505
		15	20825	2507.5
		20	20850	2510
	Mid Range	5/10/15/20	21100	2535
	High Range	5	21425	2567.5
		10	21400	2565
		15	21375	2562.5
		10	21350	2560

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

Test Mode	Test Frequency ID	Bandwidth (MHz)	Number [UL]	Frequency of Uplink(MHz)
LTE band 13	Low Range	5	23205	779.5
		10	23230	782
	Mid Range	5/10	23230	782
	High Range	5	23255	784.5
		10	23230	782

Test Mode	Test Frequency	Bandwidth (MHz)	Number [UL]	Frequency of Uplink(MHz)
FDD 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

Test Mode	Test Frequency	Bandwidth (MHz)	Number [UL]	Frequency of Uplink(MHz)
FDD band 41	Low Range	5	40265	2557.5
		10	40290	2560
		15	40315	2562.5
		20	40340	2565
	Mid Range	5/10/15/20	40740	2605
	High Range	5	41215	2652.5
		10	41190	2650
		15	41165	2647.5
		20	41140	2645

4.5 Test Environment

Humidity (%):	55
Atmospheric Pressure(kPa):	101.1
Normal Voltage(DC):	3.8V
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	Sep. 28, 2020	Sep. 28, 2021
2	Power Sensor	Agilent	U2021XA	MY56120032	Sep. 28, 2020	Sep. 28, 2021
3	Power Sensor	Agilent	U2021XA	MY56120034	Sep. 28, 2020	Sep. 28, 2021
4	Communication test set	R&S	CMW500	108058	Sep. 28, 2020	Sep. 28, 2021
5	Spectrum Analyzer	R&S	FSP40	100550	Sep. 28, 2020	Sep. 28, 2021
6	Signal Generator	Agilent	N5181A	MY49060920	Sep. 28, 2020	Sep. 28, 2021
7	Signal Generator	Agilent	N5182A	MY47420195	Sep. 28, 2020	Sep. 28, 2021
8	Communication test set	Agilent	E5515C	MY50102567	Oct. 10, 2020	Oct. 10, 2021
9	band rejection filter	Shenxiang	MSF2400-24 83.5MS-1154	20181015001	Sep. 28, 2020	Sep. 28, 2021
10	band rejection filter	Shenxiang	MSF5150-58 50MS-1155	20181015001	Sep. 28, 2020	Sep. 28, 2021
11	band rejection filter	Xingbo	XBLBQ-DZA 120	190821-1-1	Sep. 28, 2020	Sep. 28, 2021
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	Sep. 28, 2020	Sep. 28, 2021
14	Temperature humidity chamber	Hongjing	TH-80CH	DG-15174	Sep. 28, 2020	Sep. 28, 2021
15	234G Automatic test software	Microwave	MTS8200	Ver. 2.0.0.0	\	\
16	966 chamber	C.R.T.	966 Room	966	Nov. 9, 2019	Nov. 08, 2022
17	Receiver	R&S	ESPI	100362	Sep. 28, 2020	Sep. 28, 2021

18	Amplifier	HP	8447E	2945A02747	Sep. 28, 2020	Sep. 28, 2021
19	Amplifier	Agilent	8449B	3008A01838	Sep. 28, 2020	Sep. 28, 2021
20	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	00869	Nov. 02, 2020	Nov. 01, 2021
21	Horn Antenna	Schwarzbeck	BBHA9120D	1911	Nov. 02, 2020	Nov. 01, 2021
22	Software	Fala	EZ-EMC	FA-03A2 RE	\	\
23	3-Loop Antenna	Daze	ZN30401	17014	Sep. 28, 2020	Sep. 28, 2021
24	loop antenna	ZHINAN	ZN30900A	/	Sep. 28, 2020	Sep. 28, 2021
25	Horn antenna	A/H/System	SAS-574	588	Sep. 28, 2020	Sep. 28, 2021
26	Amplifier	AEROFLEX	/	S/N/ 097	Sep. 28, 2020	Sep. 28, 2021

6. RF EXPOSURE

6.1 Standard Applicable

According to §1.1307 and §2.1091, §2.1093, §27.50(b) 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(H)(2), Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

According to §27.50(A)(3), Mobile and portable stations. (i) 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. For mobile and portable stations using time division duplexing (TDD) technology, the duty cycle must not exceed 38 percent in the 2305-2315 MHz and 2350-2360 MHz bands. Mobile and portable stations using FDD technology are restricted to transmitting in the 2305-2315 MHz band. Power averaging shall not include intervals in which the transmitter is off.

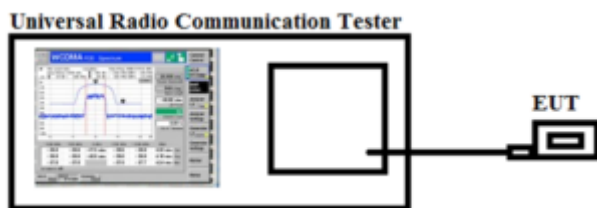
According to §27.50(d)(4), fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

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(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

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 2

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.55	<33.00	PASS
		H	22.69		
	MCH	V	23.43		PASS
		H	22.54		
	HCH	V	22.52		PASS
		H	21.46		
16QAM	LCH	V	22.36	<33.00	PASS
		H	21.51		
	MCH	V	22.57		PASS
		H	21.17		
	HCH	V	21.95		PASS
		H	21.94		
Channel Bandwidth: 3 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.33	<33.00	PASS
		H	22.28		
	MCH	V	23.17		PASS
		H	21.32		
	HCH	V	23.35		PASS
		H	21.37		
16QAM	LCH	V	23.33	<33.00	PASS

	MCH	H	21.65		PASS
		V	23.61		
		H	21.42		
	HCH	V	22.75		PASS
		H	21.64		
Channel Bandwidth: 5 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.63	<33.00	PASS
		H	21.54		
	MCH	V	23.61		PASS
		H	21.55		
	HCH	V	23.42		PASS
		H	21.77		
16QAM	LCH	V	22.65	<33.00	PASS
		H	22.01		
	MCH	V	22.37		PASS
		H	21.52		
	HCH	V	22.34		PASS
		H	21.57		
Channel Bandwidth: 10 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.60	<33.00	PASS
		H	22.52		
	MCH	V	23.41		PASS
		H	22.98		
	HCH	V	23.11		PASS
		H	22.79		
16QAM	LCH	V	23.94	<33.00	PASS
		H	22.89		
	MCH	V	23.21		PASS
		H	22.40		
	HCH	V	23.34		PASS
		H	22.04		
Channel Bandwidth: 15 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.52	<33.00	PASS

	MCH	H	21.71		PASS
		V	23.77		
		H	21.10		
	HCH	V	23.49		PASS
		H	21.72		
16QAM	LCH	V	23.68	<33.00	PASS
		H	21.67		
	MCH	V	23.58		PASS
		H	21.22		
	HCH	V	23.56		PASS
		H	21.64		
Channel Bandwidth: 20 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.21	<33.00	PASS
		H	22.97		
	MCH	V	23.56		PASS
		H	22.38		
	HCH	V	23.25		PASS
		H	22.95		
16QAM	LCH	V	23.05	<33.00	PASS
		H	22.30		
	MCH	V	23.44		PASS
		H	22.05		
	HCH	V	23.22		PASS
		H	22.01		

FDD-LTE Band 4

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.50	<30.00	PASS
		H	22.22		
	MCH	V	23.31		PASS
		H	22.69		
	HCH	V	23.22		PASS
		H	22.64		
16QAM	LCH	V	23.39	<30.00	PASS
		H	22.44		

	MCH	V	23.60		PASS
		H	22.51		
	HCH	V	23.28		PASS
		H	22.18		
Channel Bandwidth: 3 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.30	<30.00	PASS
		H	22.69		
	MCH	V	23.68		PASS
		H	22.93		
	HCH	V	23.10		PASS
		H	22.71		
16QAM	LCH	V	23.47	<30.00	PASS
		H	22.93		
	MCH	V	23.16		PASS
		H	22.31		
	HCH	V	23.26		PASS
		H	22.54		
Channel Bandwidth: 5 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.63	<30.00	PASS
		H	22.92		
	MCH	V	23.29		PASS
		H	22.59		
	HCH	V	23.19		PASS
		H	22.74		
16QAM	LCH	V	23.28	<30.00	PASS
		H	23.00		
	MCH	V	23.59		PASS
		H	22.94		
	HCH	V	23.49		PASS
		H	22.46		
Channel Bandwidth: 10 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.76	<30.00	PASS
		H	22.54		

	MCH	V	23.45		PASS
		H	21.97		
	HCH	V	22.55		PASS
		H	21.65		
16QAM	LCH	V	23.16	<30.00	PASS
		H	22.65		
	MCH	V	23.46		PASS
		H	22.27		
	HCH	V	22.91		PASS
		H	21.63		
Channel Bandwidth: 15 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.55	<30.00	PASS
		H	22.43		
	MCH	V	23.24		PASS
		H	21.88		
	HCH	V	23.21		PASS
		H	22.53		
16QAM	LCH	V	23.42	<30.00	PASS
		H	22.75		
	MCH	V	23.25		PASS
		H	22.14		
	HCH	V	23.09		PASS
		H	22.02		
Channel Bandwidth: 20 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.44	<30.00	PASS
		H	22.39		
	MCH	V	23.23		PASS
		H	22.94		
	HCH	V	23.35		PASS
		H	22.74		
16QAM	LCH	V	23.82	<30.00	PASS
		H	22.81		
	MCH	V	23.26		PASS
		H	22.78		

	HCH	V	23.11		PASS
		H	22.43		

FDD-LTE Band 7

Channel Bandwidth: 5 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.76	<33.00	PASS
		H	22.33		
	MCH	V	23.17		PASS
		H	22.05		
	HCH	V	23.62		PASS
		H	22.90		
16QAM	LCH	V	23.03	<33.00	PASS
		H	22.53		
	MCH	V	23.15		PASS
		H	22.97		
	HCH	V	23.71		PASS
		H	22.18		
Channel Bandwidth: 10 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.39	<33.00	PASS
		H	22.45		
	MCH	V	22.84		PASS
		H	22.19		
	HCH	V	23.40		PASS
		H	21.54		
16QAM	LCH	V	22.81	<33.00	PASS
		H	21.72		
	MCH	V	22.50		PASS
		H	21.66		
	HCH	V	22.71		PASS
		H	22.24		
Channel Bandwidth: 15 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.06	<33.00	PASS
		H	21.70		

	MCH	V	23.41		PASS
		H	22.32		
	HCH	V	23.42		PASS
		H	21.89		
16QAM	LCH	V	23.15	<33.00	PASS
		H	22.40		
	MCH	V	22.73		PASS
		H	22.05		
	HCH	V	22.95		PASS
		H	21.95		
Channel Bandwidth: 20 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	22.89	<33.00	PASS
		H	22.12		
	MCH	V	23.25		PASS
		H	22.01		
	HCH	V	22.57		PASS
		H	22.43		
16QAM	LCH	V	22.92	<33.00	PASS
		H	21.61		
	MCH	V	23.37		PASS
		H	22.39		
	HCH	V	22.58		PASS
		H	21.92		

FDD-LTE Band 12

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.60	<34.77	PASS
		H	22.52		
	MCH	V	23.85		PASS
		H	23.48		
	HCH	V	24.14		PASS
		H	22.83		
16QAM	LCH	V	23.56	<34.77	PASS
		H	23.36		

	MCH	V	23.64		PASS
		H	23.11		
	HCH	V	24.08		PASS
		H	23.05		
Channel Bandwidth: 3 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.93	<34.77	PASS
		H	22.84		
	MCH	V	23.45		PASS
		H	22.12		
	HCH	V	23.04		PASS
		H	22.61		
16QAM	LCH	V	23.04	<34.77	PASS
		H	22.91		
	MCH	V	23.95		PASS
		H	22.26		
	HCH	V	23.09		PASS
		H	22.57		
Channel Bandwidth: 5 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.53	<34.77	PASS
		H	22.44		
	MCH	V	23.62		PASS
		H	22.14		
	HCH	V	23.23		PASS
		H	22.02		
16QAM	LCH	V	23.28	<34.77	PASS
		H	22.94		
	MCH	V	23.33		PASS
		H	22.18		
	HCH	V	23.24		PASS
		H	22.33		
Channel Bandwidth: 10 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.51	<34.77	PASS
		H	22.77		

16QAM	MCH	V	23.18		PASS
		H	22.80		
	HCH	V	23.60		PASS
		H	22.05		
	LCH	V	23.17	<34.77	PASS
		H	22.11		
	MCH	V	23.62		PASS
		H	22.12		
	HCH	V	23.27		PASS
		H	22.62		

FDD-LTE Band 13

Channel Bandwidth: 5.0 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.62	<34.77	PASS
		H	22.12		
	MCH	V	24.36		PASS
		H	22.91		
	HCH	V	24.24		PASS
		H	22.17		
16QAM	LCH	V	24.07	<34.77	PASS
		H	22.76		
	MCH	V	23.51		PASS
		H	22.03		
	HCH	V	24.10		PASS
		H	22.44		
Channel Bandwidth: 10 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.56	<34.77	PASS
		H	22.27		
	MCH	V	23.18		PASS
		H	22.55		
	HCH	V	23.55		PASS
		H	22.63		
16QAM	LCH	V	23.07	<34.77	PASS
		H	22.05		

	MCH	V	23.98		PASS
		H	22.71		
	HCH	V	23.24		PASS
		H	22.82		

FDD-LTE Band 17

Channel Bandwidth: 5.0 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.44	<34.77	PASS
		H	21.57		
	MCH	V	23.59		PASS
		H	21.55		
	HCH	V	23.39		PASS
		H	21.56		
16QAM	LCH	V	23.62	<34.77	PASS
		H	21.81		
	MCH	V	23.39		PASS
		H	22.29		
	HCH	V	23.50		PASS
		H	21.85		
Channel Bandwidth: 10 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.28	<34.77	PASS
		H	22.34		
	MCH	V	23.63		PASS
		H	22.19		
	HCH	V	23.50		PASS
		H	22.81		
16QAM	LCH	V	23.79	<34.77	PASS
		H	22.04		
	MCH	V	23.99		PASS
		H	22.62		
	HCH	V	23.67		PASS
		H	22.01		

TDD-LTE Band 41

Channel Bandwidth: 5 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.07	<33.00	PASS
		H	22.98		
	MCH	V	23.83		PASS
		H	22.27		
	HCH	V	23.25		PASS
		H	22.13		
16QAM	LCH	V	23.09	<33.00	PASS
		H	21.62		
	MCH	V	23.53		PASS
		H	21.44		
	HCH	V	23.14		PASS
		H	21.93		
Channel Bandwidth: 10 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.27	<33.00	PASS
		H	21.94		
	MCH	V	23.40		PASS
		H	21.91		
	HCH	V	22.99		PASS
		H	22.18		
16QAM	LCH	V	22.92	<33.00	PASS
		H	22.05		
	MCH	V	22.65		PASS
		H	22.36		
	HCH	V	22.90		PASS
		H	22.26		
Channel Bandwidth: 15 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	24.46	<33.00	PASS
		H	22.81		
	MCH	V	24.27		PASS
		H	22.61		
	HCH	V	24.28		PASS
		H	22.47		

16QAM	LCH	V	23.81	<33.00	PASS
		H	22.49		
	MCH	V	24.32		PASS
		H	22.31		
	HCH	V	23.57		PASS
		H	22.74		
Channel Bandwidth: 20 MHz					
Modulation	Channel	Antenna Polar	E.i.r.p [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	23.77	<33.00	PASS
		H	21.71		
	MCH	V	23.03		PASS
		H	22.39		
	HCH	V	23.62		PASS
		H	22.41		
16QAM	LCH	V	23.21	<33.00	PASS
		H	21.77		
	MCH	V	23.67		PASS
		H	21.78		
	HCH	V	23.62		PASS
		H	21.89		

Max. Conducted Output Power

Please refer to Appendix : 1 Conducted output power

Test result: Pass

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

8.1 Standard Applicable

According to §24.232(d), power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51, in measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

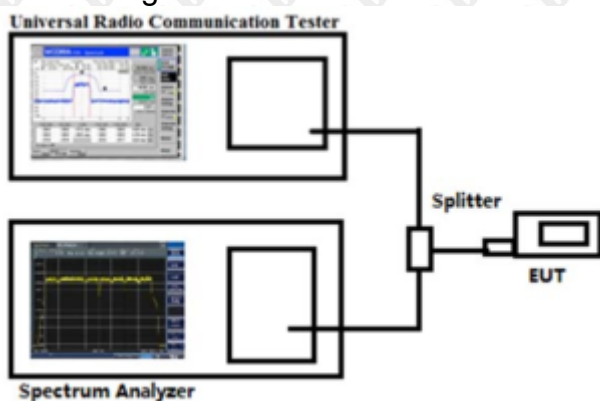
According to §27.50(B), the peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for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

8.2 Test Procedure

According with KDB 971168

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

Test Configuration for the emission bandwidth testing:



8.3 Summary of Test Results

Please refer to Appendix : 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.

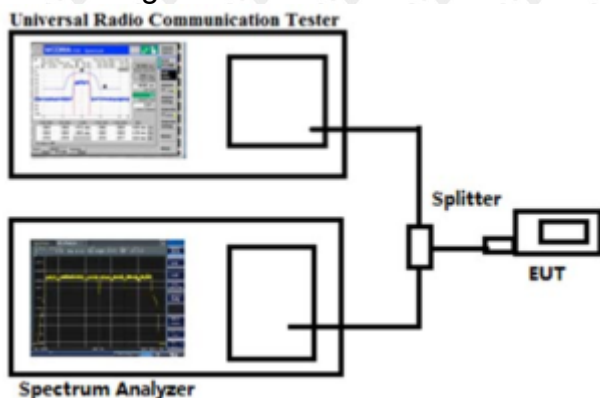
According to §24.238(b), the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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 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

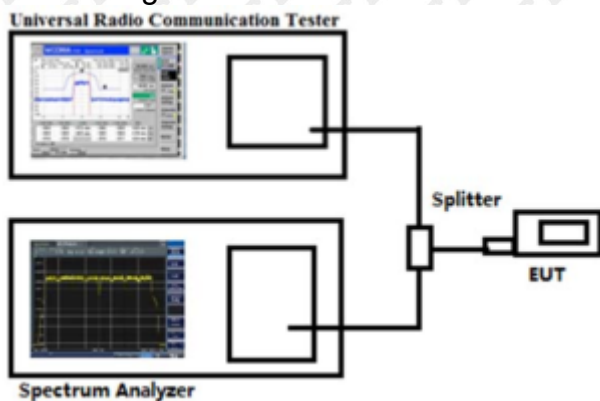
attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB.

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: 5 Band edge & 6 Out-of-band emissions

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 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.
1335.150	149	165	-56.240	-13	-43.24	Pass	H
1702.977	146	208	-47.409	-13	-34.41	Pass	H
3902.401	146	4	-47.437	-13	-34.44	Pass	H
5890.611	150	198	-43.620	-13	-30.62	Pass	H
6509.626	146	341	-44.593	-13	-31.59	Pass	H
8080.440	150	235	-43.454	-13	-30.45	Pass	H
1206.150	146	292	-56.894	-13	-43.89	Pass	V
1460.409	150	158	-58.754	-13	-45.75	Pass	V
3541.667	149	55	-51.010	-13	-38.01	Pass	V
3829.899	150	319	-48.517	-13	-35.52	Pass	V
5803.089	146	118	-46.429	-13	-33.43	Pass	V
6558.254	150	155	-46.279	-13	-33.28	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.
1335.036	149	165	-54.444	-13	-41.44	Pass	H
1703.362	146	208	-48.967	-13	-35.97	Pass	H
3901.377	146	4	-45.002	-13	-32.00	Pass	H
5887.799	150	198	-44.795	-13	-31.80	Pass	H
6509.658	146	341	-44.402	-13	-31.40	Pass	H
8080.738	150	235	-42.285	-13	-29.28	Pass	H
1206.524	146	292	-55.829	-13	-42.83	Pass	V
1459.921	150	158	-57.283	-13	-44.28	Pass	V
3543.575	149	55	-52.286	-13	-39.29	Pass	V
3830.657	150	319	-49.510	-13	-36.51	Pass	V
5801.708	146	118	-47.541	-13	-34.54	Pass	V
6556.909	150	155	-47.038	-13	-34.04	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.
1335.207	149	165	-55.359	-13	-42.36	Pass	H
1702.947	146	208	-49.162	-13	-36.16	Pass	H
3901.062	146	4	-47.677	-13	-34.68	Pass	H
5889.008	150	198	-42.410	-13	-29.41	Pass	H
6509.058	146	341	-44.120	-13	-31.12	Pass	H
8080.806	150	235	-43.010	-13	-30.01	Pass	H
1206.897	146	292	-54.843	-13	-41.84	Pass	V
1459.619	150	158	-57.456	-13	-44.46	Pass	V
3542.782	149	55	-49.833	-13	-36.83	Pass	V
3830.145	150	319	-47.820	-13	-34.82	Pass	V
5801.408	146	118	-45.446	-13	-32.45	Pass	V
6556.681	150	155	-46.201	-13	-33.20	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.
1333.893	149	165	-56.742	-13	-43.74	Pass	H
1702.716	146	208	-48.184	-13	-35.18	Pass	H
3903.353	146	4	-44.005	-13	-31.01	Pass	H
5890.111	150	198	-44.504	-13	-31.50	Pass	H
6511.063	146	341	-42.764	-13	-29.76	Pass	H
8078.173	150	235	-42.993	-13	-29.99	Pass	H
1205.365	146	292	-56.161	-13	-43.16	Pass	V
1460.344	150	158	-59.590	-13	-46.59	Pass	V
3543.298	149	55	-53.215	-13	-40.21	Pass	V
3829.095	150	319	-50.163	-13	-37.16	Pass	V
5801.280	146	118	-46.154	-13	-33.15	Pass	V
6557.845	150	155	-47.359	-13	-34.36	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.
1334.608	149	165	-55.932	-13	-42.93	Pass	H
1701.773	146	208	-50.139	-13	-37.14	Pass	H
3902.435	146	4	-46.618	-13	-33.62	Pass	H
5887.828	150	198	-41.839	-13	-28.84	Pass	H
6510.876	146	341	-44.063	-13	-31.06	Pass	H
8079.742	150	235	-44.670	-13	-31.67	Pass	H
1204.775	146	292	-53.138	-13	-40.14	Pass	V
1460.289	150	158	-56.174	-13	-43.17	Pass	V
3543.542	149	55	-51.543	-13	-38.54	Pass	V
3829.804	150	319	-49.981	-13	-36.98	Pass	V
5801.156	146	118	-46.100	-13	-33.10	Pass	V
6557.247	150	155	-46.078	-13	-33.08	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.
1335.461	149	165	-54.710	-13	-41.71	Pass	H
1702.831	146	208	-46.970	-13	-33.97	Pass	H
3900.425	146	4	-47.171	-13	-34.17	Pass	H
5888.162	150	198	-42.994	-13	-29.99	Pass	H
6510.267	146	341	-43.787	-13	-30.79	Pass	H
8079.707	150	235	-42.830	-13	-29.83	Pass	H
1206.172	146	292	-53.835	-13	-40.83	Pass	V
1461.106	150	158	-58.482	-13	-45.48	Pass	V
3543.341	149	55	-50.442	-13	-37.44	Pass	V
3829.739	150	319	-49.356	-13	-36.36	Pass	V
5801.708	146	118	-48.841	-13	-35.84	Pass	V
6558.991	150	155	-45.617	-13	-32.62	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.
1334.531	149	165	-53.727	-13	-40.73	Pass	H
1703.065	146	208	-48.551	-13	-35.55	Pass	H
3902.814	146	4	-45.134	-13	-32.13	Pass	H
5888.271	150	198	-44.041	-13	-31.04	Pass	H
6509.578	146	341	-44.291	-13	-31.29	Pass	H
8079.289	150	235	-44.442	-13	-31.44	Pass	H
1204.418	146	292	-55.712	-13	-42.71	Pass	V
1460.937	150	158	-58.305	-13	-45.31	Pass	V
3544.274	149	55	-52.056	-13	-39.06	Pass	V
3828.678	150	319	-50.003	-13	-37.00	Pass	V
5802.174	146	118	-47.496	-13	-34.50	Pass	V
6556.128	150	155	-47.474	-13	-34.47	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.
1333.940	149	165	-57.245	-13	-44.25	Pass	H
1702.194	146	208	-49.081	-13	-36.08	Pass	H
3901.252	146	4	-46.191	-13	-33.19	Pass	H
5890.534	150	198	-42.330	-13	-29.33	Pass	H
6508.832	146	341	-41.256	-13	-28.26	Pass	H
8079.059	150	235	-45.541	-13	-32.54	Pass	H
1204.946	146	292	-55.820	-13	-42.82	Pass	V
1461.516	150	158	-58.441	-13	-45.44	Pass	V
3541.632	149	55	-52.888	-13	-39.89	Pass	V
3830.662	150	319	-48.305	-13	-35.30	Pass	V
5800.783	146	118	-46.078	-13	-33.08	Pass	V
6558.923	150	155	-45.249	-13	-32.25	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.
1333.750	149	165	-53.416	-13	-40.42	Pass	H
1702.059	146	208	-46.836	-13	-33.84	Pass	H
3900.502	146	4	-45.736	-13	-32.74	Pass	H
5889.441	150	198	-43.195	-13	-30.19	Pass	H
6509.030	146	341	-42.893	-13	-29.89	Pass	H
8080.846	150	235	-44.497	-13	-31.50	Pass	H
1206.702	146	292	-56.837	-13	-43.84	Pass	V
1459.321	150	158	-58.090	-13	-45.09	Pass	V
3544.030	149	55	-53.082	-13	-40.08	Pass	V
3831.147	150	319	-51.450	-13	-38.45	Pass	V
5801.026	146	118	-46.781	-13	-33.78	Pass	V
6557.032	150	155	-47.273	-13	-34.27	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.
1332.965	149	165	-56.037	-13	-43.04	Pass	H
1701.666	146	208	-47.141	-13	-34.14	Pass	H
3901.861	146	4	-45.603	-13	-32.60	Pass	H
5890.718	150	198	-44.341	-13	-31.34	Pass	H
6508.992	146	341	-42.862	-13	-29.86	Pass	H
8080.119	150	235	-44.932	-13	-31.93	Pass	H
1205.452	146	292	-56.127	-13	-43.13	Pass	V
1462.136	150	158	-59.340	-13	-46.34	Pass	V
3544.277	149	55	-53.048	-13	-40.05	Pass	V
3829.379	150	319	-48.872	-13	-35.87	Pass	V
5801.875	146	118	-48.343	-13	-35.34	Pass	V
6557.299	150	155	-46.752	-13	-33.75	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.
1335.699	149	165	-55.909	-13	-42.91	Pass	H
1704.145	146	208	-49.306	-13	-36.31	Pass	H
3900.734	146	4	-45.747	-13	-32.75	Pass	H
5888.433	150	198	-43.363	-13	-30.36	Pass	H
6511.285	146	341	-41.417	-13	-28.42	Pass	H
8080.393	150	235	-44.928	-13	-31.93	Pass	H
1204.831	146	292	-56.299	-13	-43.30	Pass	V
1460.927	150	158	-57.937	-13	-44.94	Pass	V
3541.849	149	55	-52.749	-13	-39.75	Pass	V
3829.281	150	319	-49.143	-13	-36.14	Pass	V
5800.917	146	118	-48.706	-13	-35.71	Pass	V
6556.564	150	155	-48.171	-13	-35.17	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.
1333.418	149	165	-54.873	-13	-41.87	Pass	H
1703.571	146	208	-47.445	-13	-34.44	Pass	H
3902.634	146	4	-47.307	-13	-34.31	Pass	H
5889.542	150	198	-42.605	-13	-29.61	Pass	H
6509.101	146	341	-45.063	-13	-32.06	Pass	H
8079.054	150	235	-45.467	-13	-32.47	Pass	H
1204.591	146	292	-53.258	-13	-40.26	Pass	V
1460.714	150	158	-57.167	-13	-44.17	Pass	V
3542.080	149	55	-50.022	-13	-37.02	Pass	V
3829.786	150	319	-51.575	-13	-38.57	Pass	V
5800.189	146	118	-45.471	-13	-32.47	Pass	V
6557.128	150	155	-48.023	-13	-35.02	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 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	-25	-35.51	Pass	H
1664.510	148	100	-51.99	-25	-26.99	Pass	H
3793.489	151	335	-50.29	-25	-25.29	Pass	H
5829.984	151	23	-47.94	-25	-22.94	Pass	H
6487.837	149	42	-48.03	-25	-23.03	Pass	H
7987.461	152	176	-46.82	-25	-21.82	Pass	H
1213.162	150	308	-58.47	-25	-33.47	Pass	V
1372.232	152	244	-58.36	-25	-33.36	Pass	V
3507.781	152	8	-54.25	-25	-29.25	Pass	V
3837.380	152	297	-50.96	-25	-25.96	Pass	V
5737.007	150	275	-46.50	-25	-21.5	Pass	V
6540.479	151	4	-49.01	-25	-24.01	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	-25	-35.77	Pass	H
1579.946	153	320	-52.95	-25	-27.95	Pass	H
3805.355	152	130	-49.95	-25	-24.95	Pass	H
5847.537	148	59	-46.78	-25	-21.78	Pass	H
6495.263	153	158	-47.65	-25	-22.65	Pass	H
8019.626	150	234	-47.15	-25	-22.15	Pass	H
1214.194	148	30	-57.80	-25	-32.8	Pass	V
1372.369	152	47	-58.56	-25	-33.56	Pass	V
3505.945	152	309	-52.53	-25	-27.53	Pass	V
3871.903	150	282	-52.30	-25	-27.3	Pass	V
5802.199	150	357	-46.02	-25	-21.02	Pass	V
6534.315	151	2	-49.45	-25	-24.45	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	-25	-33.85	Pass	H
1613.202	150	329	-51.73	-25	-26.73	Pass	H
3814.647	153	227	-52.26	-25	-27.26	Pass	H
5850.214	153	64	-48.40	-25	-23.4	Pass	H
6496.679	150	231	-47.59	-25	-22.59	Pass	H
8004.855	153	227	-48.94	-25	-23.94	Pass	H
1173.931	150	92	-60.06	-25	-35.06	Pass	V
1401.093	150	312	-58.63	-25	-33.63	Pass	V
3470.450	151	243	-52.61	-25	-27.61	Pass	V
3910.916	151	334	-49.81	-25	-24.81	Pass	V
5784.554	151	339	-48.06	-25	-23.06	Pass	V
6482.066	152	335	-50.06	-25	-25.06	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	-25	-35.27	Pass	H
1641.162	150	269	-53.59	-25	-28.59	Pass	H
3820.733	148	272	-50.78	-25	-25.78	Pass	H
5805.850	150	79	-47.47	-25	-22.47	Pass	H
6471.015	149	103	-45.85	-25	-20.85	Pass	H
7997.699	150	266	-46.24	-25	-21.24	Pass	H
1245.089	152	321	-57.44	-25	-32.44	Pass	V
1363.048	150	173	-59.13	-25	-34.13	Pass	V
3451.971	149	154	-52.74	-25	-27.74	Pass	V
3818.164	152	139	-52.57	-25	-27.57	Pass	V
5821.301	148	328	-47.70	-25	-22.7	Pass	V
6514.957	151	179	-50.08	-25	-25.08	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	-25	-33.66	Pass	H
1621.184	149	70	-52.48	-25	-27.48	Pass	H
3823.855	151	166	-51.58	-25	-26.58	Pass	H
5829.359	150	53	-47.52	-25	-22.52	Pass	H
6447.951	149	223	-47.69	-25	-22.69	Pass	H
7946.524	150	106	-46.88	-25	-21.88	Pass	H
1215.380	152	206	-57.67	-25	-32.67	Pass	V
1428.360	151	217	-59.76	-25	-34.76	Pass	V
3499.883	152	122	-52.96	-25	-27.96	Pass	V
3854.579	151	341	-50.64	-25	-25.64	Pass	V
5754.563	153	331	-48.50	-25	-23.5	Pass	V
6542.138	148	331	-48.82	-25	-23.82	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	-25	-34.95	Pass	H
1662.832	149	262	-52.55	-25	-27.55	Pass	H
3807.731	152	41	-50.48	-25	-25.48	Pass	H
5854.959	150	220	-46.87	-25	-21.87	Pass	H
6459.729	150	181	-47.48	-25	-22.48	Pass	H
7986.051	150	191	-47.35	-25	-22.35	Pass	H
1170.490	152	170	-57.83	-25	-32.83	Pass	V
1364.541	152	264	-60.53	-25	-35.53	Pass	V
3509.861	149	192	-52.99	-25	-27.99	Pass	V
3830.152	152	2	-52.29	-25	-27.29	Pass	V
5760.493	149	324	-48.53	-25	-23.53	Pass	V
6487.761	151	134	-48.70	-25	-23.7	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 5.0MHz 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.
1335.303	149	165	-54.355	-13	-41.36	Pass	H
1702.214	146	208	-50.300	-13	-37.30	Pass	H
3903.367	146	4	-46.207	-13	-33.21	Pass	H
5890.043	150	198	-41.414	-13	-28.41	Pass	H
6508.687	146	341	-44.922	-13	-31.92	Pass	H
8079.113	150	235	-45.543	-13	-32.54	Pass	H
1205.964	146	292	-56.933	-13	-43.93	Pass	V
1459.203	150	158	-59.043	-13	-46.04	Pass	V
3542.271	149	55	-49.761	-13	-36.76	Pass	V
3830.148	150	319	-47.918	-13	-34.92	Pass	V
5803.095	146	118	-48.196	-13	-35.20	Pass	V
6558.093	150	155	-47.723	-13	-34.72	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.
1332.938	149	165	-54.804	-13	-41.80	Pass	H
1703.706	146	208	-48.951	-13	-35.95	Pass	H
3901.084	146	4	-46.465	-13	-33.47	Pass	H
5890.720	150	198	-41.109	-13	-28.11	Pass	H
6508.545	146	341	-41.257	-13	-28.26	Pass	H
8079.158	150	235	-45.876	-13	-32.88	Pass	H
1207.011	146	292	-56.828	-13	-43.83	Pass	V
1461.441	150	158	-58.310	-13	-45.31	Pass	V
3542.062	149	55	-49.648	-13	-36.65	Pass	V
3828.867	150	319	-49.367	-13	-36.37	Pass	V
5801.530	146	118	-46.413	-13	-33.41	Pass	V
6558.733	150	155	-44.879	-13	-31.88	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.
1334.421	149	165	-56.612	-13	-43.61	Pass	H
1702.694	146	208	-49.609	-13	-36.61	Pass	H
3902.234	146	4	-43.957	-13	-30.96	Pass	H
5889.710	150	198	-42.358	-13	-29.36	Pass	H
6509.962	146	341	-42.694	-13	-29.69	Pass	H
8080.758	150	235	-43.072	-13	-30.07	Pass	H
1205.485	146	292	-53.116	-13	-40.12	Pass	V
1460.568	150	158	-57.107	-13	-44.11	Pass	V
3543.993	149	55	-51.522	-13	-38.52	Pass	V
3830.015	150	319	-48.167	-13	-35.17	Pass	V
5802.667	146	118	-48.988	-13	-35.99	Pass	V
6556.976	150	155	-47.012	-13	-34.01	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.
1332.776	149	165	-53.535	-13	-40.54	Pass	H
1703.126	146	208	-46.894	-13	-33.89	Pass	H
3901.342	146	4	-44.873	-13	-31.87	Pass	H
5888.438	150	198	-42.990	-13	-29.99	Pass	H
6509.010	146	341	-41.379	-13	-28.38	Pass	H
8080.276	150	235	-45.758	-13	-32.76	Pass	H
1206.232	146	292	-54.847	-13	-41.85	Pass	V
1460.904	150	158	-58.740	-13	-45.74	Pass	V
3544.348	149	55	-52.344	-13	-39.34	Pass	V
3830.397	150	319	-48.164	-13	-35.16	Pass	V
5800.998	146	118	-46.137	-13	-33.14	Pass	V
6556.632	150	155	-48.717	-13	-35.72	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.
1333.453	149	165	-54.619	-13	-41.62	Pass	H
1701.676	146	208	-47.836	-13	-34.84	Pass	H
3902.776	146	4	-46.004	-13	-33.00	Pass	H
5888.338	150	198	-44.752	-13	-31.75	Pass	H
6508.868	146	341	-42.210	-13	-29.21	Pass	H
8079.375	150	235	-45.027	-13	-32.03	Pass	H
1206.180	146	292	-55.243	-13	-42.24	Pass	V
1459.261	150	158	-58.462	-13	-45.46	Pass	V
3543.745	149	55	-51.084	-13	-38.08	Pass	V
3829.226	150	319	-47.946	-13	-34.95	Pass	V
5801.541	146	118	-46.677	-13	-33.68	Pass	V
6556.220	150	155	-46.643	-13	-33.64	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.
1332.903	149	165	-56.835	-13	-43.83	Pass	H
1703.622	146	208	-48.432	-13	-35.43	Pass	H
3901.250	146	4	-46.710	-13	-33.71	Pass	H
5888.303	150	198	-43.984	-13	-30.98	Pass	H
6508.684	146	341	-43.132	-13	-30.13	Pass	H
8079.723	150	235	-42.387	-13	-29.39	Pass	H
1205.076	146	292	-54.148	-13	-41.15	Pass	V
1461.315	150	158	-57.433	-13	-44.43	Pass	V
3542.783	149	55	-49.896	-13	-36.90	Pass	V
3828.374	150	319	-50.848	-13	-37.85	Pass	V
5800.902	146	118	-47.906	-13	-34.91	Pass	V
6556.199	150	155	-46.521	-13	-33.52	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 13 23205 channel/BW 5(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1334.595	149	165	-56.929	-13	-43.93	Pass	H
1702.967	146	208	-48.225	-13	-35.22	Pass	H
3902.786	146	4	-44.572	-13	-31.57	Pass	H
5890.729	150	198	-42.824	-13	-29.82	Pass	H
6509.454	146	341	-41.343	-13	-28.34	Pass	H
8080.704	150	235	-43.304	-13	-30.30	Pass	H
1206.659	146	292	-53.125	-13	-40.13	Pass	V
1460.304	150	158	-56.172	-13	-43.17	Pass	V
3542.753	149	55	-49.947	-13	-36.95	Pass	V
3831.290	150	319	-49.208	-13	-36.21	Pass	V
5800.548	146	118	-46.411	-13	-33.41	Pass	V
6558.417	150	155	-47.944	-13	-34.94	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.
1333.678	149	165	-54.711	-13	-41.71	Pass	H
1703.190	146	208	-47.722	-13	-34.72	Pass	H
3901.217	146	4	-47.336	-13	-34.34	Pass	H
5889.086	150	198	-44.057	-13	-31.06	Pass	H
6509.371	146	341	-42.701	-13	-29.70	Pass	H
8078.590	150	235	-45.655	-13	-32.65	Pass	H
1206.022	146	292	-57.075	-13	-44.08	Pass	V
1461.764	150	158	-56.080	-13	-43.08	Pass	V
3541.775	149	55	-52.406	-13	-39.41	Pass	V
3829.011	150	319	-49.317	-13	-36.32	Pass	V
5802.764	146	118	-45.911	-13	-32.91	Pass	V
6556.989	150	155	-46.447	-13	-33.45	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.
1334.470	149	165	-54.354	-13	-41.35	Pass	H
1703.505	146	208	-47.066	-13	-34.07	Pass	H
3902.798	146	4	-45.169	-13	-32.17	Pass	H
5887.972	150	198	-43.783	-13	-30.78	Pass	H
6509.343	146	341	-44.916	-13	-31.92	Pass	H
8080.923	150	235	-45.556	-13	-32.56	Pass	H
1205.414	146	292	-56.636	-13	-43.64	Pass	V
1461.697	150	158	-56.668	-13	-43.67	Pass	V
3543.320	149	55	-52.307	-13	-39.31	Pass	V
3831.309	150	319	-48.606	-13	-35.61	Pass	V
5801.117	146	118	-45.797	-13	-32.80	Pass	V
6556.651	150	155	-45.716	-13	-32.72	Pass	V

16QAM

Band 13 23205 channel/BW 5(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1333.895	149	165	-57.366	-13	-44.37	Pass	H
1702.662	146	208	-49.497	-13	-36.50	Pass	H
3901.014	146	4	-47.527	-13	-34.53	Pass	H
5888.707	150	198	-45.003	-13	-32.00	Pass	H
6508.568	146	341	-43.187	-13	-30.19	Pass	H
8080.607	150	235	-43.025	-13	-30.02	Pass	H
1206.101	146	292	-57.059	-13	-44.06	Pass	V
1460.584	150	158	-58.603	-13	-45.60	Pass	V
3543.788	149	55	-52.095	-13	-39.10	Pass	V
3830.258	150	319	-50.957	-13	-37.96	Pass	V
5801.406	146	118	-46.594	-13	-33.59	Pass	V
6558.916	150	155	-44.831	-13	-31.83	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.
1333.585	149	165	-56.918	-13	-43.92	Pass	H
1702.860	146	208	-46.544	-13	-33.54	Pass	H
3900.924	146	4	-46.133	-13	-33.13	Pass	H
5889.723	150	198	-44.887	-13	-31.89	Pass	H
6508.545	146	341	-43.598	-13	-30.60	Pass	H
8079.926	150	235	-45.738	-13	-32.74	Pass	H
1204.724	146	292	-53.941	-13	-40.94	Pass	V
1461.932	150	158	-57.814	-13	-44.81	Pass	V
3544.194	149	55	-50.846	-13	-37.85	Pass	V
3829.158	150	319	-50.494	-13	-37.49	Pass	V
5802.143	146	118	-45.534	-13	-32.53	Pass	V
6558.852	150	155	-47.461	-13	-34.46	Pass	V

Band 13 23225 channel/BW 5(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1335.261	149	165	-53.561	-13	-40.56	Pass	H
1702.847	146	208	-49.520	-13	-36.52	Pass	H
3902.089	146	4	-46.122	-13	-33.12	Pass	H
5889.172	150	198	-41.586	-13	-28.59	Pass	H
6510.651	146	341	-42.089	-13	-29.09	Pass	H
8078.314	150	235	-44.696	-13	-31.70	Pass	H
1205.098	146	292	-54.819	-13	-41.82	Pass	V
1460.270	150	158	-59.382	-13	-46.38	Pass	V
3541.687	149	55	-50.739	-13	-37.74	Pass	V
3830.914	150	319	-50.916	-13	-37.92	Pass	V
5800.660	146	118	-46.463	-13	-33.46	Pass	V
6556.246	150	155	-47.420	-13	-34.42	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 5.0MHz with full RB were the worst case; and then Only the worst case is recorded in the report.

QPSK

Band 17 23755 channel/BW 5(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1334.584	149	165	-56.828	-13	-43.83	Pass	H
1702.948	146	208	-46.517	-13	-33.52	Pass	H
3901.348	146	4	-47.672	-13	-34.67	Pass	H
5890.304	150	198	-44.397	-13	-31.40	Pass	H
6509.519	146	341	-43.042	-13	-30.04	Pass	H
8078.694	150	235	-42.240	-13	-29.24	Pass	H
1206.367	146	292	-54.252	-13	-41.25	Pass	V
1461.484	150	158	-59.376	-13	-46.38	Pass	V
3542.208	149	55	-50.463	-13	-37.46	Pass	V
3831.215	150	319	-51.035	-13	-38.03	Pass	V
5802.817	146	118	-47.116	-13	-34.12	Pass	V
6557.381	150	155	-46.371	-13	-33.37	Pass	V

Band 17 23790 channel/BW 5(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1333.259	151	14	-55.20	-13	-42.20	Pass	H
1725.532	147	71	-49.56	-13	-36.56	Pass	H
3853.753	150	318	-48.00	-13	-35.00	Pass	H
5927.252	147	56	-43.66	-13	-30.66	Pass	H
6504.364	147	216	-42.99	-13	-29.99	Pass	H
8057.814	151	79	-45.54	-13	-32.54	Pass	H
1191.247	151	65	-57.45	-13	-44.45	Pass	V
1382.795	146	225	-57.69	-13	-44.69	Pass	V
3536.679	149	47	-50.84	-13	-37.84	Pass	V
3855.240	150	73	-49.90	-13	-36.90	Pass	V
5820.156	147	168	-46.00	-13	-33.00	Pass	V
6519.879	150	28	-42.91	-13	-29.91	Pass	V

Band 17 23825 channel/BW 5(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1333.268	151	14	-55.73	-13	-42.73	Pass	H
1725.157	147	71	-46.83	-13	-33.83	Pass	H
3853.789	150	318	-46.96	-13	-33.96	Pass	H
5927.161	147	56	-43.18	-13	-30.18	Pass	H
6504.654	147	216	-43.74	-13	-30.74	Pass	H
8058.475	151	79	-41.98	-13	-28.98	Pass	H
1191.617	151	65	-55.86	-13	-42.86	Pass	V
1382.768	146	225	-58.17	-13	-45.17	Pass	V
3536.070	149	47	-49.36	-13	-36.36	Pass	V
3854.578	150	73	-48.62	-13	-35.62	Pass	V
5820.427	147	168	-44.38	-13	-31.38	Pass	V
6519.682	150	28	-45.38	-13	-32.38	Pass	V

16QAM

Band 17 23755 channel/BW 5(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1333.582	151	14	-55.92	-13	-42.92	Pass	H
1724.772	147	71	-50.14	-13	-37.14	Pass	H
3853.353	150	318	-46.13	-13	-33.13	Pass	H
5927.115	147	56	-43.49	-13	-30.49	Pass	H
6504.442	147	216	-46.90	-13	-33.90	Pass	H
8058.143	151	79	-44.61	-13	-31.61	Pass	H
1191.465	151	65	-56.92	-13	-43.92	Pass	V
1382.372	146	225	-58.29	-13	-45.29	Pass	V
3535.820	149	47	-49.04	-13	-36.04	Pass	V
3854.469	150	73	-48.00	-13	-35.00	Pass	V
5820.173	147	168	-47.09	-13	-34.09	Pass	V
6519.656	150	28	-42.68	-13	-29.68	Pass	V

Band 17 23790 channel/BW 5(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1333.599	151	14	-55.00	-13	-42.00	Pass	H
1725.540	147	71	-50.24	-13	-37.24	Pass	H
3853.376	150	318	-46.12	-13	-33.12	Pass	H
5927.124	147	56	-42.87	-13	-29.87	Pass	H
6504.643	147	216	-46.66	-13	-33.66	Pass	H
8057.941	151	79	-45.42	-13	-32.42	Pass	H
1191.313	151	65	-57.90	-13	-44.90	Pass	V
1382.948	146	225	-61.09	-13	-48.09	Pass	V
3536.230	149	47	-47.71	-13	-34.71	Pass	V
3854.568	150	73	-48.66	-13	-35.66	Pass	V
5820.393	147	168	-44.23	-13	-31.23	Pass	V
6519.513	150	28	-46.38	-13	-33.38	Pass	V

Band 17 23825 channel/BW 5(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1333.336	151	14	-56.66	-13	-43.66	Pass	H
1725.252	147	71	-47.99	-13	-34.99	Pass	H
3853.933	150	318	-48.31	-13	-35.31	Pass	H
5927.334	147	56	-44.44	-13	-31.44	Pass	H
6504.389	147	216	-46.08	-13	-33.08	Pass	H
8058.355	151	79	-43.75	-13	-30.75	Pass	H
1191.896	151	65	-55.45	-13	-42.45	Pass	V
1382.336	146	225	-59.42	-13	-46.42	Pass	V
3536.427	149	47	-49.97	-13	-36.97	Pass	V
3854.712	150	73	-49.87	-13	-36.87	Pass	V
5820.226	147	168	-43.97	-13	-30.97	Pass	V
6519.950	150	28	-46.71	-13	-33.71	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 5.0MHz with full RB were the worst case; and then Only the worst case is recorded in the report.

QPSK

Band 41 40265 channel/BW 5(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1334.618	149	165	-55.719	-25	-30.72	Pass	H
1701.719	146	208	-50.062	-25	-25.06	Pass	H
3901.651	146	4	-47.304	-25	-22.30	Pass	H
5888.171	150	198	-41.761	-25	-16.76	Pass	H
6510.618	146	341	-43.396	-25	-18.40	Pass	H
8079.876	150	235	-45.781	-25	-20.78	Pass	H
1205.755	146	292	-53.704	-25	-28.70	Pass	V
1460.139	150	158	-59.683	-25	-34.68	Pass	V
3544.176	149	55	-52.191	-25	-27.19	Pass	V
3828.893	150	319	-49.834	-25	-24.83	Pass	V
5802.286	146	118	-45.748	-25	-20.75	Pass	V
6557.895	150	155	-47.358	-25	-22.36	Pass	V

Band 41 40740 channel/BW 5(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1333.862	149	165	-56.601	-25	-31.60	Pass	H
1703.096	146	208	-47.806	-25	-22.81	Pass	H
3902.783	146	4	-46.628	-25	-21.63	Pass	H
5890.086	150	198	-43.290	-25	-18.29	Pass	H
6511.262	146	341	-42.539	-25	-17.54	Pass	H
8079.408	150	235	-45.390	-25	-20.39	Pass	H
1205.774	146	292	-56.575	-25	-31.57	Pass	V
1461.526	150	158	-56.214	-25	-31.21	Pass	V
3542.086	149	55	-50.982	-25	-25.98	Pass	V
3831.173	150	319	-50.849	-25	-25.85	Pass	V
5800.569	146	118	-47.577	-25	-22.58	Pass	V
6558.623	150	155	-45.640	-25	-20.64	Pass	V

Band 41 41215 channel/BW 5(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1333.181	149	165	-55.847	-25	-30.85	Pass	H
1703.914	146	208	-49.901	-25	-24.90	Pass	H
3903.126	146	4	-44.731	-25	-19.73	Pass	H
5888.469	150	198	-44.103	-25	-19.10	Pass	H
6508.784	146	341	-44.464	-25	-19.46	Pass	H
8080.341	150	235	-44.003	-25	-19.00	Pass	H
1206.563	146	292	-54.691	-25	-29.69	Pass	V
1461.738	150	158	-58.211	-25	-33.21	Pass	V
3543.417	149	55	-50.028	-25	-25.03	Pass	V
3830.869	150	319	-51.079	-25	-26.08	Pass	V
5800.926	146	118	-45.980	-25	-20.98	Pass	V
6556.922	150	155	-48.187	-25	-23.19	Pass	V

16QAM

Band 41 40265 channel/BW 5(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1334.252	149	165	-54.092	-25	-29.09	Pass	H
1702.075	146	208	-47.523	-25	-22.52	Pass	H
3900.803	146	4	-47.070	-25	-22.07	Pass	H
5889.289	150	198	-42.746	-25	-17.75	Pass	H
6508.488	146	341	-44.334	-25	-19.33	Pass	H
8080.044	150	235	-46.183	-25	-21.18	Pass	H
1205.735	146	292	-53.192	-25	-28.19	Pass	V
1461.102	150	158	-59.151	-25	-34.15	Pass	V
3543.436	149	55	-53.324	-25	-28.32	Pass	V
3828.898	150	319	-51.469	-25	-26.47	Pass	V
5802.553	146	118	-47.485	-25	-22.48	Pass	V
6558.099	150	155	-47.999	-25	-23.00	Pass	V

Band 41 40740 channel/BW 5(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1335.696	149	165	-54.103	-25	-29.10	Pass	H
1703.118	146	208	-47.232	-25	-22.23	Pass	H
3901.195	146	4	-43.914	-25	-18.91	Pass	H
5890.617	150	198	-41.380	-25	-16.38	Pass	H
6508.916	146	341	-43.534	-25	-18.53	Pass	H
8079.090	150	235	-43.385	-25	-18.39	Pass	H
1204.646	146	292	-53.967	-25	-28.97	Pass	V
1461.895	150	158	-59.240	-25	-34.24	Pass	V
3544.422	149	55	-51.191	-25	-26.19	Pass	V
3830.736	150	319	-48.889	-25	-23.89	Pass	V
5800.410	146	118	-47.610	-25	-22.61	Pass	V
6558.279	150	155	-45.787	-25	-20.79	Pass	V

Band 41 41215 channel/BW 5(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1335.443	149	165	-57.339	-25	-32.34	Pass	H
1701.957	146	208	-47.595	-25	-22.59	Pass	H
3902.821	146	4	-44.488	-25	-19.49	Pass	H
5890.178	150	198	-41.809	-25	-16.81	Pass	H
6509.583	146	341	-42.438	-25	-17.44	Pass	H
8078.537	150	235	-42.914	-25	-17.91	Pass	H
1206.328	146	292	-53.390	-25	-28.39	Pass	V
1459.901	150	158	-57.033	-25	-32.03	Pass	V
3543.884	149	55	-52.580	-25	-27.58	Pass	V
3829.315	150	319	-50.823	-25	-25.82	Pass	V
5801.490	146	118	-47.156	-25	-22.16	Pass	V
6558.086	150	155	-47.123	-25	-22.12	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 5.0MHz with full RB were the worst case; and then Only the worst case is recorded in the report.

12. FREQUENCY STABILITY

12.1 Standard Applicable

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

12.2 Test Procedure

According to §2.1055, the following test procedure was performed.

The Frequency Stability is measured directly with a Frequency Domain Analyzer. Frequency Deviation in ppm is calculated from the measured peak to peak value.

The Carrier Frequency Stability over Power Supply Voltage and over Temperature is measured with a

Frequency Domain Analyzer in histogram mode

12.3 Summary of Test Results/Plots

Note: 1.Normal Voltage NV=DC3.8V; Low Voltage LV=DC3.42V; High Voltage HV=DC4.18V

Please refer to Appendix F: Frequency Stability

Test result: Pass

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