



TEST REPORT

Product Name: Asset GPS tracker
FCC ID: 2BNBO-LT32D
Trademark: N/A
Model Number: LT32-D
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Sample Received Date: Dec. 10, 2024
Sample tested Date: Dec. 10, 2024 to Dec. 27, 2024
Issue Date: Dec. 27, 2024
Report No.: CTB24121002001RF01
Test Standards: FCC Part 2, 22, 24E, 27
Test Results: PASS
Remark: This is LTE radio test report.

Compiled by:

Reviewed by:

Approved by:

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Arron Liu



Zhou Kui

Arron Liu

Bin Mei / Director

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

TABLE OF CONTENT

Test Report Declaration	Page
1. VERSION	3
2. TEST SUMMARY	4
3. MEASUREMENT UNCERTAINTY	5
4. PRODUCT INFORMATION AND TEST SETUP	6
4.1 Product Information	6
4.2 Test Setup Configuration	6
4.3 Support Equipment	6
4.4 Test Mode	7
4.5 Test Environment	8
5. TEST FACILITY AND TEST INSTRUMENT USED	9
5.1 Test Facility	9
5.2 Test Instrument Used	9
6. RF EXPOSURE	11
6.1 Standard Applicable	11
6.2 Test Result	11
7. RF OUTPUT POWER	12
7.1 Standard Applicable	12
7.3 Summary of Test Results/Plots	13
8. PEAK-TO-AVERAGE RATIO (PAR) OF TRANSMITTER	14
8.1 Standard Applicable	14
8.2 Test Procedure	14
8.3 Summary of Test Results	14
9. EMISSION BANDWIDTH	15
9.1 Standard Applicable	15
9.2 Test Procedure	15
9.3 Summary of Test Results/Plots	15
10. OUT OF BAND EMISSIONS AT ANTENNA TERMINAL	16
10.1 Standard Applicable	16
10.2 Test Procedure	17
10.3 Summary of Test Results/Plots	17
11. SPURIOUS RADIATED EMISSIONS	18
11.1 Standard Applicable	18
11.2 Test Procedure	19
11.3 Summary of Test Results/Plots	19
12. FREQUENCY STABILITY	32
12.1 Standard Applicable	32
12.2 Test Procedure	32
12.3 Summary of Test Results/Plots	32

(Note: N/A means not applicable)



1. **VERSION**

Report No.	Issue Date	Description	Approved
CTB24121002001RF01	Dec. 27, 2024	Original	Valid

2. TEST SUMMARY

The Product has been tested according to the following specifications:

Test Item	Test Requirement	Test method	Result
Conducted output power	Part 2.1046(a)	TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
Effective Radiated Power of Transmitter(EIRP)	Part 22.913(a)(2)/ Part 24.232(c)/Part27.50(h)(2)/ Part27.50(d)(4)/ Part27.50(c)(10)/ Part27.50(b)(10)/ Part27.50(a)(3)	TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
peak-to-average ratio	Part 22.913(d)/Part 27.50(d) /Part 27.50(a) (1)	KDB 971168 D01v03r01	PASS
99% & 26dB Occupied Bandwidth	Part 2.1049(h)	KDB 971168 D01v03r01	PASS
Band Edge at antenna terminals	Part 2.1051/ Part 24.238(a)/Part 27.53(g) (1) Part 22.917(a)/Part 27.53(i) (4)/ Part 27.53(c) /Part 27.253(f)/Part 27.53(a) (2)	KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	Part 2.1051/ Part 24.238(a)/Part 27.53(g) (1) Part 22.917(a)/Part 27.53(i) (4)/ Part 27.53(c) /Part 27.253(f)/Part 27.53(a) (2)	TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
Field strength of spurious radiation	Part 2.1051/ Part 24.238(a)/Part 27.53(g) (1) Part 22.917(a)/Part 27.53(i) (4)/ Part 27.53(c) /Part 27.253(f)/Part 27.53(a) (2)	TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
Frequency stability	Part 2.1055/Part 27.54/ Part 22.355	TIA-603-E-2016 & KDB 971168 D01v03r01	PASS

3. MEASUREMENT UNCERTAINTY

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

Item	Uncertainty
Occupancy bandwidth	54.3kHz
Conducted output power Above 1G	0.9dB
Conducted output power below 1G	0.9dB
Power Spectral Density , Conduction	0.9dB
Conduction spurious emissions	2.0dB
Out of band emission	2.0dB
3m 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):	LT32-D
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 5: 824-849MHz FDD-LTE BAND 7: 2500-2570MHz
Max. RF output power:	FDD-LTE BAND 2: 23.03dBm FDD-LTE BAND 4: 23.08dBm FDD-LTE BAND 5: 22.1dBm FDD-LTE BAND 7: 22.35dBm
Type of Modulation:	QPSK, 16QAM
Antenna installation:	Internal antenna
Antenna Gain:	FDD-LTE BAND 2: 1.35dBi FDD-LTE BAND 4: 1.34dBi FDD-LTE BAND 5: 2.35dBi FDD-LTE BAND 7: 1.82dBi
Ratings:	DC 9V-90V, Polymer lithium battery (3.6V, 60mAh)

4.2 Test Setup Configuration

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

4.3 Support Equipment

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

Notes:

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

4.4 Test Mode

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

LTE BAND 2

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

LTE BAND 4

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

LTE BAND 5

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

LTE BAND 7

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
		20	21350	2560

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

4.5 Test Environment

Humidity(%):	54
Atmospheric Pressure(kPa):	101
Normal Voltage(DC):	3.6V
Normal Temperature(°C)	23
Low Temperature(°C)	0
High Temperature(°C)	40

5. TEST FACILITY AND TEST INSTRUMENT USED

5.1 Test Facility

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

5.2 Test Instrument Used

No.	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Calibrated until
1	Spectrum Analyzer	Agilent	N9020A	MY52090073	A.14.16	2025/6/28
2	Power Sensor	Agilent	U2021XA	MY56120032	/	2025/6/28
3	Power Sensor	Agilent	U2021XA	MY56120034	/	2025/6/28
4	Communication test set	R&S	CMW500	108058	V3.5.80	2025/6/28
5	Spectrum Analyzer	KEYSIGHT	N9020A	MY51289897	A.14.16	2025/6/28
6	Signal Generator	Agilent	N5181A	MY50140365	A.01.60	2025/6/28
7	Vector signal generator	Agilent	N5182A	MY47420195	A.01.87	2025/6/28
8	Communication test set	Agilent	E5515C	MY50102567	B.19.07 (E1962B)	2025/6/28
9	2.4 GHz Filter	Shenxiang	MSF2400-24 83.5MS-1154	20181015001	/	2025/6/30
10	5 GHz Filter	Shenxiang	MSF5150-58 50MS-1155	20181015001	/	2025/6/30
11	Filter	Xingbo	XBLBQ-DZA 120	190821-1-1	/	2025/6/30
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	/	2025/6/28
14	Temperature humidity chamber	Hongjing	TH-80CH	DG-15174	/	2025/6/28
15	234G Automatic test software	Microwave	MTS8200	Ver. 2.0.0.0	/	/
16	966 chamber	C.R.T.	966	/	/	2027/6/21
17	Receiver	R&S	ESPI	100362	RF_ATTEN_7 (104489/003)	2025/6/28
18	Amplifier	HP	8447E	2945A02747	/	2025/6/28
19	Amplifier	Agilent	8449B	3008A01838	/	2025/6/28
20	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	00869	/	2025/6/28
21	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA9120D	01911	/	2025/6/28

22	EMI test software	Fala	EZ-EMC	FA-03A2 RE	/	/
23	Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-224	/	2025/6/28
24	loop antenna	ZHINAN	ZN30900A	GTS534	/	/
25	40G Horn antenna	A/H/System	SAS-574	588	/	2025/6/28
26	Amplifier	AEROFLEX	Aeroflex	097	/	2025/6/28
27	Power Metter	KEYSIGHT	N1912AP	N/A	A.05.00	2025/6/28

6. RF EXPOSURE

6.1 Standard Applicable

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

6.2 Test Result

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

7. RF OUTPUT POWER

7.1 Standard Applicable

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

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

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

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

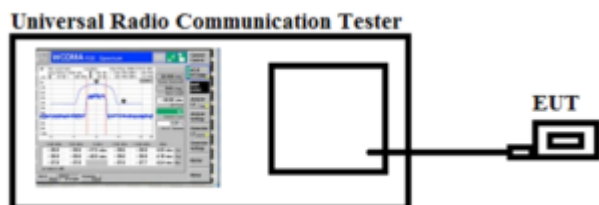
According to §27.50(h)(2), Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

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

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

7.2 Test Procedure

Conducted output power test method:



Radiated power test method:

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

7.3 Summary of Test Results/Plots

Please refer to Appendix 1: Conducted output power

Test result: Pass

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

8.1 Standard Applicable

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

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

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

According to §27.50(a) (1), For base and fixed stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure. The measurement must be performed using a signal corresponding to the highest PAPR expected during periods of continuous transmission.

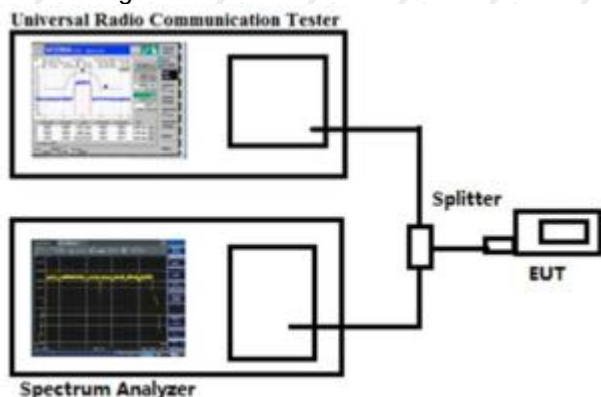
corresponding to the highest PAPR expected during periods of continuous transmission.

8.2 Test Procedure

According with KDB 971168

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

Test Configuration for the emission bandwidth testing:



8.3 Summary of Test Results

Please refer to Appendix 3: Peak-to-Average Ratio

Test result: Pass

9. EMISSION BANDWIDTH

9.1 Standard Applicable

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

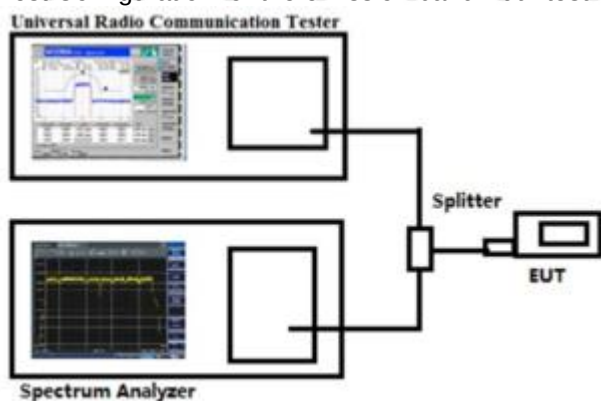
According to §24.238(b), the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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

9.2 Test Procedure

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

Test Configuration for the emission bandwidth testing:



9.3 Summary of Test Results/Plots

Please refer to Appendix 4: 26dB Bandwidth and Occupied Bandwidth

Test result: Pass

10. OUT OF BAND EMISSIONS AT ANTENNA TERMINAL

10.1 Standard Applicable

According to §22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to §24.238(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to §27.53 (c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB;

(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB;

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

(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations;

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

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

According to §27.53 (f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

According to §27.53(h), the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB.

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

According to §27.53(m)(4), for mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5 MHz.

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

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

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

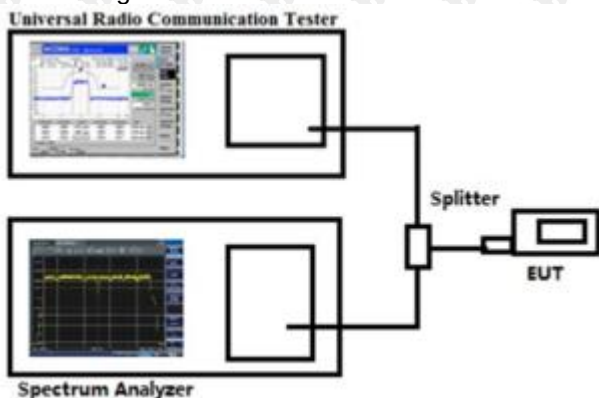
(2) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 70 + 10 log (P) dB on all frequencies between 2287.5 and 2300 MHz, 72 + 10 log (P) dB on all frequencies between 2285 and 2287.5 MHz, and 75 + 10 log (P) dB below 2285 MHz;

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

10.2 Test Procedure

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

Test Configuration for the out of band emissions testing:



10.3 Summary of Test Results/Plots

Please refer to Appendix 5 & 6: Band Edge & Conducted Spurious Emission
Test result: Pass

11. SPURIOUS RADIATED EMISSIONS

11.1 Standard Applicable

According to §22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to §24.238(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to §27.53 (c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(6) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB;

(7) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB;

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

(9) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations;

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

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

According to §27.53 (f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

According to §27.53(h), the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB.

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

According to §27.53(m)(4), for mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5 MHz.

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

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

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

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

11.2 Test Procedure

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

Spurious attenuation limit in dB = $43 + 10 \log 10$ (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.
1298.36	153	294	-57.13	-13	-44.13	Pass	H
1799.37	149	250	-46.62	-13	-33.62	Pass	H
3874.72	141	20	-49.68	-13	-36.68	Pass	H
5899.86	149	30	-43.54	-13	-30.54	Pass	H
6604.57	151	120	-43.91	-13	-30.91	Pass	H
8143.94	152	95	-42.38	-13	-29.38	Pass	H
1302.58	148	53	-53.02	-13	-40.02	Pass	V
1555.79	147	318	-60.09	-13	-47.09	Pass	V
3527.38	149	241	-50.10	-13	-37.10	Pass	V
3926.28	152	169	-52.25	-13	-39.25	Pass	V
5847.96	144	38	-45.98	-13	-32.98	Pass	V
6636.20	155	68	-48.13	-13	-35.13	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.
1306.50	150	179	-57.35	-13	-44.35	Pass	H
1772.99	146	12	-49.47	-13	-36.47	Pass	H
3869.10	150	283	-51.03	-13	-38.03	Pass	H
5831.28	146	219	-46.86	-13	-33.86	Pass	H
6400.80	149	301	-50.63	-13	-37.63	Pass	H
8115.96	151	229	-50.16	-13	-37.16	Pass	H
1287.91	149	20	-53.25	-13	-40.25	Pass	V
1454.29	148	241	-57.64	-13	-44.64	Pass	V
3583.85	147	43	-51.75	-13	-38.75	Pass	V
3825.32	148	0	-51.42	-13	-38.42	Pass	V
5809.16	150	286	-48.03	-13	-35.03	Pass	V
6430.91	150	159	-49.74	-13	-36.74	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.
1419.27	152	254	-55.14	-13	-42.14	Pass	H
1753.72	152	7	-52.36	-13	-39.36	Pass	H
3766.13	153	274	-43.58	-13	-30.58	Pass	H
5941.12	151	63	-39.33	-13	-26.33	Pass	H
6478.06	149	165	-42.69	-13	-29.69	Pass	H
7903.47	147	74	-44.25	-13	-31.25	Pass	H
1321.49	153	66	-56.01	-13	-43.01	Pass	V
1366.44	154	270	-53.85	-13	-40.85	Pass	V
3583.01	147	166	-51.26	-13	-38.26	Pass	V
3925.67	149	329	-50.50	-13	-37.50	Pass	V
5885.65	150	34	-44.03	-13	-31.03	Pass	V
6588.57	153	139	-48.25	-13	-35.25	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.
1275.08	150	206	-60.88	-13	-47.88	Pass	H
1668.37	153	41	-48.31	-13	-35.31	Pass	H
3828.56	152	243	-46.25	-13	-33.25	Pass	H
5910.43	150	341	-45.94	-13	-32.94	Pass	H
6625.29	148	30	-44.75	-13	-31.75	Pass	H
7917.90	153	216	-42.59	-13	-29.59	Pass	H
1266.17	155	276	-55.07	-13	-42.07	Pass	V
1420.67	151	114	-53.30	-13	-40.30	Pass	V
3516.36	150	171	-48.76	-13	-35.76	Pass	V
3892.12	150	277	-51.62	-13	-38.62	Pass	V
5781.98	150	353	-46.47	-13	-33.47	Pass	V
6509.08	150	154	-51.17	-13	-38.17	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.
1394.96	146	1	-51.27	-13	-41.45	Pass	H
1632.90	152	52	-47.95	-13	-37.85	Pass	H
3867.50	152	150	-47.55	-13	-35.2	Pass	H
6002.57	153	7	-42.87	-13	-30.39	Pass	H
6486.84	152	309	-41.64	-13	-32.24	Pass	H
8055.56	154	149	-39.53	-13	-30.22	Pass	H
1228.13	147	141	-54.87	-13	-44.9	Pass	V
1376.59	154	226	-55.42	-13	-43.63	Pass	V
3574.86	149	273	-46.57	-13	-35.94	Pass	V
3857.42	152	214	-51.33	-13	-36.01	Pass	V
5816.21	152	305	-45.55	-13	-33.75	Pass	V
6526.47	149	267	-43.80	-13	-32.41	Pass	V
Band 2 19193 channel/BW1.4(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1239.80	146	340	-54.34	-13	-41.34	Pass	H
1632.02	150	184	-51.39	-13	-38.39	Pass	H
3938.97	146	210	-43.67	-13	-30.67	Pass	H
5973.76	155	39	-41.79	-13	-28.79	Pass	H
6597.25	154	114	-40.45	-13	-27.45	Pass	H
8015.62	146	310	-42.15	-13	-29.15	Pass	H
1128.30	153	225	-53.13	-13	-40.13	Pass	V
1463.16	145	216	-56.80	-13	-43.80	Pass	V
3465.26	148	292	-48.24	-13	-35.24	Pass	V
3863.90	145	21	-47.85	-13	-34.85	Pass	V
5843.18	145	334	-47.12	-13	-34.12	Pass	V
6497.02	150	157	-43.76	-13	-30.76	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.
1245.51	154	344	-54.62	-13	-41.62	Pass	H
1617.15	153	222	-49.02	-13	-36.02	Pass	H
3835.52	150	296	-47.17	-13	-34.17	Pass	H
5922.76	154	65	-46.17	-13	-33.17	Pass	H
6558.99	155	98	-41.47	-13	-28.47	Pass	H
7960.84	147	293	-39.52	-13	-26.52	Pass	H
1278.19	147	344	-53.95	-13	-40.95	Pass	V
1464.83	154	75	-54.74	-13	-41.74	Pass	V
3663.03	150	139	-48.27	-13	-35.27	Pass	V
3832.57	155	60	-47.62	-13	-34.62	Pass	V
5846.86	153	197	-46.24	-13	-33.24	Pass	V
6629.42	147	156	-45.27	-13	-32.27	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.
1349.20	151	330	-55.41	-13	-42.41	Pass	H
1799.79	150	283	-50.45	-13	-37.45	Pass	H
3927.90	147	113	-44.69	-13	-31.69	Pass	H
5987.36	145	328	-44.45	-13	-31.45	Pass	H
6407.98	152	148	-42.94	-13	-29.94	Pass	H
8045.99	152	74	-46.91	-13	-33.91	Pass	H
1113.03	145	274	-53.82	-13	-40.82	Pass	V
1371.59	148	52	-59.75	-13	-46.75	Pass	V
3474.24	152	171	-50.72	-13	-37.72	Pass	V
3858.65	155	74	-47.17	-13	-34.17	Pass	V
5765.91	147	169	-44.70	-13	-31.70	Pass	V
6433.39	147	29	-44.71	-13	-31.71	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.
1402.72	146	171	-51.45	-13	-38.45	Pass	H
1775.26	148	171	-50.12	-13	-37.12	Pass	H
3952.21	145	65	-46.83	-13	-33.83	Pass	H
5977.62	145	52	-41.78	-13	-28.78	Pass	H
6465.22	148	175	-40.66	-13	-27.66	Pass	H
8024.60	147	201	-45.59	-13	-32.59	Pass	H
1293.09	154	0	-56.41	-13	-43.41	Pass	V
1418.15	153	291	-53.27	-13	-40.27	Pass	V
3607.85	146	45	-51.82	-13	-38.82	Pass	V
3783.31	152	265	-49.64	-13	-36.64	Pass	V
5742.89	148	321	-46.87	-13	-33.87	Pass	V
6575.56	151	260	-49.75	-13	-36.75	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.
1434.65	145	151	-54.16	-13	-41.16	Pass	H
1793.38	154	152	-55.27	-13	-42.27	Pass	H
3924.20	150	80	-47.58	-13	-34.58	Pass	H
5849.00	147	107	-43.34	-13	-30.34	Pass	H
6531.54	155	150	-46.14	-13	-33.14	Pass	H
8012.41	155	183	-47.52	-13	-34.52	Pass	H
1274.22	151	229	-55.28	-13	-42.28	Pass	V
1363.14	155	88	-56.76	-13	-43.76	Pass	V
3661.85	146	266	-50.74	-13	-37.74	Pass	V
3788.41	145	50	-47.55	-13	-34.55	Pass	V
5768.73	147	185	-44.02	-13	-31.02	Pass	V
6614.12	153	53	-50.78	-13	-37.78	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.
1319.26	148	231	-57.10	-13	-44.10	Pass	H
1797.43	155	306	-55.11	-13	-42.11	Pass	H
3857.36	150	281	-49.13	-13	-36.13	Pass	H
5773.36	152	20	-41.80	-13	-28.80	Pass	H
6364.56	149	353	-51.29	-13	-38.29	Pass	H
8030.53	147	98	-47.97	-13	-34.97	Pass	H
1243.15	146	194	-51.05	-13	-38.05	Pass	V
1398.45	147	162	-61.43	-13	-48.43	Pass	V
3681.33	154	99	-54.11	-13	-41.11	Pass	V
3830.17	154	276	-54.94	-13	-41.94	Pass	V
5831.38	149	4	-49.96	-13	-36.96	Pass	V
6526.72	149	332	-51.09	-13	-38.09	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.
1298.44	153	329	-54.11	-13	-41.11	Pass	H
1570.75	149	237	-48.81	-13	-35.81	Pass	H
3791.08	154	67	-44.23	-13	-31.23	Pass	H
5826.14	153	171	-44.68	-13	-31.68	Pass	H
6485.40	149	111	-42.94	-13	-29.94	Pass	H
7944.26	151	347	-44.40	-13	-31.40	Pass	H
1193.02	150	90	-50.53	-13	-37.53	Pass	V
1388.57	145	53	-55.49	-13	-42.49	Pass	V
3437.88	147	2	-51.61	-13	-38.61	Pass	V
3844.37	151	228	-42.88	-13	-29.88	Pass	V
5769.73	152	310	-44.10	-13	-31.10	Pass	V
6567.61	151	16	-46.74	-13	-33.74	Pass	V

Note:

3) Scan from 9kHz to 40GHz, the disturbance above 13GHz and below 1GHz are attenuated more than 20 dB below the applicable limit and not required to be reported, the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

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

QPSK

Band 5 20407 channel/BW1.4(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1275.04	149	84	-59.79	-13	-46.79	Pass	H
1730.60	155	85	-46.81	-13	-33.81	Pass	H
3803.67	143	330	-45.63	-13	-32.63	Pass	H
5985.73	140	152	-45.85	-13	-32.85	Pass	H
6520.95	146	115	-45.42	-13	-32.42	Pass	H
8055.39	159	311	-43.02	-13	-30.02	Pass	H
1273.74	158	334	-56.24	-13	-43.24	Pass	V
1383.81	143	224	-58.30	-13	-45.30	Pass	V
3473.77	144	104	-51.64	-13	-38.64	Pass	V
3913.33	147	92	-49.21	-13	-36.21	Pass	V
5750.08	154	189	-46.16	-13	-33.16	Pass	V
6535.42	156	262	-45.58	-13	-32.58	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.
1257.78	150	292	-56.90	-13	-43.90	Pass	H
1673.78	146	99	-53.08	-13	-40.08	Pass	H
3807.52	150	327	-50.98	-13	-37.98	Pass	H
5875.96	146	59	-46.98	-13	-33.98	Pass	H
6373.37	149	305	-49.38	-13	-36.38	Pass	H
7980.79	151	78	-48.28	-13	-35.28	Pass	H
1143.66	149	290	-54.16	-13	-41.16	Pass	V
1375.45	148	161	-59.07	-13	-46.07	Pass	V
3533.66	147	9	-52.07	-13	-39.07	Pass	V
4004.82	148	302	-52.16	-13	-39.16	Pass	V
5900.57	150	68	-46.21	-13	-33.21	Pass	V
6498.74	150	321	-45.83	-13	-32.83	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.
1279.69	149	152	-57.00	-13	-44.00	Pass	H
1574.92	152	176	-49.68	-13	-36.68	Pass	H
3908.89	149	170	-47.17	-13	-34.17	Pass	H
5819.86	145	308	-41.61	-13	-28.61	Pass	H
6471.08	149	267	-43.70	-13	-30.70	Pass	H
7964.61	153	79	-46.16	-13	-33.16	Pass	H
1237.51	150	237	-56.43	-13	-43.43	Pass	V
1450.32	149	281	-59.22	-13	-46.22	Pass	V
3433.09	152	144	-54.87	-13	-41.87	Pass	V
3894.44	149	260	-45.79	-13	-32.79	Pass	V
5784.39	145	195	-42.75	-13	-29.75	Pass	V
6518.34	154	281	-48.10	-13	-35.10	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.
1364.32	148	355	-59.37	-13	-46.37	Pass	H
1678.02	155	75	-46.06	-13	-33.06	Pass	H
3884.17	147	356	-47.11	-13	-34.11	Pass	H
5949.96	152	13	-45.68	-13	-32.68	Pass	H
6505.08	145	30	-47.15	-13	-34.15	Pass	H
8030.75	145	321	-39.88	-13	-26.88	Pass	H
1174.77	153	215	-55.11	-13	-42.11	Pass	V
1459.10	151	164	-53.97	-13	-40.97	Pass	V
3516.08	145	119	-54.23	-13	-41.23	Pass	V
3905.00	151	92	-53.54	-13	-40.54	Pass	V
5805.67	151	192	-48.04	-13	-35.04	Pass	V
6504.90	149	219	-51.40	-13	-38.40	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.
1309.13	145	266	-53.76	-13	-41.45	Pass	H
1759.73	154	254	-47.21	-13	-37.85	Pass	H
3847.41	154	138	-45.85	-13	-35.2	Pass	H
5970.15	151	210	-44.80	-13	-30.39	Pass	H
6487.05	145	227	-45.82	-13	-32.24	Pass	H
8087.51	147	331	-42.67	-13	-30.22	Pass	H
1177.52	151	310	-59.87	-13	-44.9	Pass	V
1312.39	153	149	-56.74	-13	-43.63	Pass	V
3478.02	147	319	-48.67	-13	-35.94	Pass	V
3937.08	149	137	-50.68	-13	-36.01	Pass	V
5849.64	146	214	-44.36	-13	-33.75	Pass	V
6552.75	145	304	-42.03	-13	-32.41	Pass	V
Band 5 20643 channel/BW1.4(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1356.82	151	199	-54.58	-13	-41.58	Pass	H
1751.00	148	108	-50.93	-13	-37.93	Pass	H
3882.24	155	228	-40.95	-13	-27.95	Pass	H
5838.43	150	155	-44.14	-13	-31.14	Pass	H
6438.90	150	285	-42.44	-13	-29.44	Pass	H
8109.64	155	85	-45.60	-13	-32.60	Pass	H
1275.85	152	87	-55.95	-13	-42.95	Pass	V
1488.59	152	202	-58.98	-13	-45.98	Pass	V
3543.30	154	199	-51.20	-13	-38.20	Pass	V
3815.72	145	132	-52.04	-13	-39.04	Pass	V
5865.97	152	245	-51.59	-13	-38.59	Pass	V
6538.24	149	349	-42.55	-13	-29.55	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 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.
1309.05	153	261	-58.58	-13	-45.58	Pass	H
1690.15	152	353	-45.85	-13	-32.85	Pass	H
3840.99	146	100	-51.37	-13	-38.37	Pass	H
5966.61	151	246	-48.55	-13	-35.55	Pass	H
6534.98	148	169	-46.63	-13	-33.63	Pass	H
8058.68	149	204	-40.17	-13	-27.17	Pass	H
1187.38	151	118	-50.82	-13	-37.82	Pass	V
1515.87	150	151	-53.81	-13	-40.81	Pass	V
3565.62	155	201	-49.21	-13	-36.21	Pass	V
3910.58	152	58	-50.06	-13	-37.06	Pass	V
5855.27	148	107	-45.33	-13	-32.33	Pass	V
6581.42	147	203	-46.26	-13	-33.26	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.
1360.50	154	348	-56.95	-13	-43.95	Pass	H
1753.44	154	94	-50.99	-13	-37.99	Pass	H
3920.25	155	70	-46.97	-13	-33.97	Pass	H
5868.96	151	189	-41.30	-13	-28.30	Pass	H
6532.31	152	147	-46.08	-13	-33.08	Pass	H
8060.22	154	242	-43.39	-13	-30.39	Pass	H
1186.46	154	229	-59.23	-13	-46.23	Pass	V
1299.10	152	172	-60.28	-13	-47.28	Pass	V
3608.56	151	283	-47.01	-13	-34.01	Pass	V
3782.67	153	117	-50.39	-13	-37.39	Pass	V
5830.71	148	102	-44.57	-13	-31.57	Pass	V
6542.49	148	212	-43.96	-13	-30.96	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.
1345.55	153	291	-52.24	-13	-39.24	Pass	H
1619.79	146	172	-48.80	-13	-35.80	Pass	H
3982.70	154	84	-40.63	-13	-27.63	Pass	H
5861.20	149	137	-44.35	-13	-31.35	Pass	H
6459.59	146	123	-40.66	-13	-27.66	Pass	H
8043.04	152	302	-41.92	-13	-28.92	Pass	H
1118.03	155	100	-50.74	-13	-37.74	Pass	V
1493.23	150	126	-59.54	-13	-46.54	Pass	V
3475.49	147	73	-53.05	-13	-40.05	Pass	V
3910.89	145	100	-46.67	-13	-33.67	Pass	V
5804.29	148	233	-45.96	-13	-32.96	Pass	V
6473.43	147	309	-51.40	-13	-38.40	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.
1329.97	148	309	-58.84	-13	-45.84	Pass	H
1676.22	150	166	-54.55	-13	-41.55	Pass	H
3986.44	147	2	-47.84	-13	-34.84	Pass	H
5841.80	153	302	-44.70	-13	-31.70	Pass	H
6573.65	146	287	-48.87	-13	-35.87	Pass	H
8008.02	154	143	-47.30	-13	-34.30	Pass	H
1126.04	154	89	-55.07	-13	-42.07	Pass	V
1348.61	152	337	-53.33	-13	-40.33	Pass	V
3528.81	153	119	-47.17	-13	-34.17	Pass	V
3785.66	148	73	-47.94	-13	-34.94	Pass	V
5807.24	150	136	-43.55	-13	-30.55	Pass	V
6542.46	150	216	-48.39	-13	-35.39	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.
1318.84	154	100	-59.66	-13	-46.66	Pass	H
1790.50	155	215	-51.99	-13	-38.99	Pass	H
3833.92	148	330	-49.82	-13	-36.82	Pass	H
5796.44	151	291	-45.93	-13	-32.93	Pass	H
6489.54	154	346	-49.93	-13	-36.93	Pass	H
8003.16	149	23	-42.76	-13	-29.76	Pass	H
1266.23	148	128	-50.91	-13	-37.91	Pass	V
1363.94	146	113	-60.72	-13	-47.72	Pass	V
3630.35	148	260	-51.18	-13	-38.18	Pass	V
3967.75	154	157	-51.83	-13	-38.83	Pass	V
5821.67	151	165	-53.75	-13	-40.75	Pass	V
6609.17	147	280	-49.74	-13	-36.74	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.
1282.35	150	22	-58.98	-13	-45.98	Pass	H
1646.53	152	80	-48.64	-13	-35.64	Pass	H
3756.53	149	252	-47.29	-13	-34.29	Pass	H
5874.50	151	225	-44.27	-13	-31.27	Pass	H
6449.53	149	0	-41.20	-13	-28.20	Pass	H
7957.51	146	51	-47.03	-13	-34.03	Pass	H
1182.40	152	151	-53.42	-13	-40.42	Pass	V
1315.39	145	48	-56.39	-13	-43.39	Pass	V
3442.38	155	351	-48.96	-13	-35.96	Pass	V
3811.59	148	97	-47.27	-13	-34.27	Pass	V
5744.88	150	290	-43.19	-13	-30.19	Pass	V
6559.53	152	127	-49.14	-13	-36.14	Pass	V

Note:

7) Scan from 9kHz to 40GHz, the disturbance above 13GHz and below 1GHz are attenuated more than 20 dB below the applicable limit and not required to be reported, the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

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

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=DC3.6V; Low Voltage LV=DC3.24; High Voltage HV=DC3.96V

Please refer to Appendix 2: Frequency Stability

Test result: Pass

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