

TEST REPORT

Product Name: 5 slots charge station
FCC ID: 2A73PDD-001
Trademark: chargefuze
Model Number: DD-001
Prepared For: Fuze Technology, Inc.
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Manufacturer: Shenzhen Dudu Sharing Technology Co., Ltd.
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Prepared By: Shenzhen CTB Testing Technology Co., Ltd.
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Sample Received Date: Sep.19, 2022
Sample tested Date: Sep.19, 2022 to Sep. 26, 2022
Issue Date: Sep. 26, 2022
Report No.: CTB220926004RF
Test Standards: FCC Part 2, 22, 24E, 27
Test Results: PASS
Remark: This is LTE radio test report.

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Approved by:

Bin Mei Director

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

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(Note: N/A means not applicable)

1. VERSION

Report No.	Issue Date	Description	Approved
CTB220926004RF	Sep. 26, 2022	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)/Part 22.50(d.4)/Part 24.232(c)/Part 27.50(h.2)/Part 27.50(d.4)	TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
Effective Radiated Power of Transmitter(EIRP)	Part 22.913(a)(5)/Part 24.232(c)/Part 27.50(h)(2)	TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
peak-to-average ratio	Part 24.232(d)/Part 27.50(d)	KDB 971168 D01v03r01	PASS
99% & 26dB Occupied Bandwidth	Part 2.1049(h)/Part 24.238/Part 27.53(a)	KDB 971168 D01v03r01	PASS
Band Edge at antenna terminals	Part 2.1051/ Part 22.917(a) /Part 24.238/Part 27.53(m) (4)	KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	Part 2.1051/ Part 22.917(a)/Part 24.238/Part 27.53(m) (4)	TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
Field strength of spurious radiation	Part 2.1053/ Part 22.917(a)/Part 24.235/Part 27.53(m) (4)	TIA-603-E-2016 & KDB 971168 D01v03r01	PASS
Frequency stability	Part 2.1055/Part 22.355/Part 24.235/Part 27.54/Part 27.5(h)	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°C
frequency	1×10 ⁻⁷

4. PRODUCT INFORMATION AND TEST SETUP

4.1 Product Information

Model(s):	DD-001
Model Description:	N/A
Hardware Version:	V5.0
Software Version:	V1081
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: 20.65dBm FDD-LTE BAND 4: 22.25dBm FDD-LTE BAND 5: 21.60dBm FDD-LTE BAND 7: 22.52dBm
Type of Modulation:	QPSK, 16QAM
Antenna installation:	Internal antenna
Antenna Gain:	FDD-LTE BAND 2:3.71dBi FDD-LTE BAND 4:1.84dBi FDD-LTE BAND 5: 2.75dBi FDD-LTE BAND 7: 2.31dBi
Ratings:	INPUT:AC 120-240V 50/60Hz 1.2A OUTPUT:12.0V 5.0A 60.0W

4.2 Test Setup Configuration

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

4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
1	AC Adapter	Dongguan Guangshu Electrical Technology Co.,LTD	P120D5000G	N/A	AC

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 5	Low, Middle, High Channels
TM4	TDD-LTE BAND 7	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 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

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

4.5 Test Environment

Humidity(%):	54
Atmospheric Pressure(kPa):	101
Normal Voltage(AC):	120V
Normal Temperature(°C)	23
Low Temperature(°C)	0
High Temperature(°C)	40

5. TEST FACILITY AND TEST INSTRUMENT USED

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at 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.	Calibrated until
1	Spectrum Analyzer	Agilent	N9020A	MY52090073	2023.07.19
2	Power Sensor	Agilent	U2021XA	MY56120032	2023.07.19
3	Power Sensor	Agilent	U2021XA	MY56120034	2023.07.19
4	Communication test set	R&S	CMW500	108058	2023.07.19
5	Spectrum Analyzer	KEYSIGHT	N9020A	MY51289897	2023.07.19
6	Signal Generator	Agilent	N5181A	MY50140365	2023.07.19
7	Vector signal generator	Agilent	N5182A	MY47420195	2023.07.19
8	Communication test set	Agilent	E5515C	MY50102567	2023.07.19
9	2.4 GHz Filter	Shenxiang	MSF2400-2483.5MS-1154	20181015001	2023.07.19
10	5 GHz Filter	Shenxiang	MSF5150-5850 MS-1155	20181015001	2023.07.19
11	Filter	Xingbo	XBLBQ-DZA120	190821-1-1	2023.07.19
12	BT&WI-FI Automatic test software	Microwave	MTS8000	Ver. 2.0.0.0	/
13	Rohde & Schwarz SFU Broadcast Test System	R&S	SFU	101017	2022.10.30
14	Temperature humidity chamber	Hongjing	TH-80CH	DG-15174	2023.07.19
15	234G Automatic test software	Microwave	MTS8200	Ver. 2.0.0.0	/
16	966 chamber	C.R.T.	966	/	2024.08.11
17	Receiver	R&S	ESPI	100362	2023.07.19
18	Amplifier	HP	8447E	2945A02747	2023.07.19
19	Amplifier	Agilent	8449B	3008A01838	2023.07.19
20	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	00869	2023.07.22
21	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA9120D	01911	2023.07.22

22	EMI test software	Fala	EZ-EMC	FA-03A2 RE	/
23	Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-224	2023.07.23
24	loop antenna	ZHINAN	ZN30900A	GTS534	/
25	40G Horn antenna	A/H/System	SAS-574	588	2024.10.30
26	Amplifier	AEROFLEX	Aeroflex	097	2024.10.30

6. RF EXPOSURE

6.1 Standard Applicable

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

6.2 Test Result

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

7. RF OUTPUT POWER

7.1 Standard Applicable

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

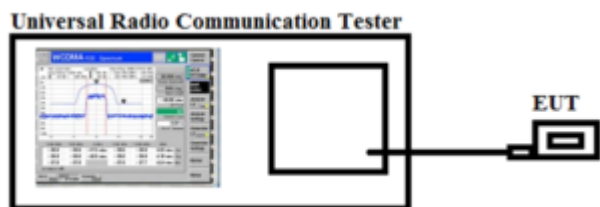
According to §24.232(c), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

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

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

7.2 Test Procedure

Conducted output power test method:



Radiated power test method:

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

7.3 Summary of Test Results/Plots

Max. Radiated Power:
FDD-LTE Band 2

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	20.12	<33	PASS
		H	19.89		
	MCH	V	20.40		PASS
		H	19.18		
	HCH	V	19.89		PASS
		H	20.55		
16QAM	LCH	V	20.11	<33	PASS
		H	18.72		
	MCH	V	19.93		PASS
		H	19.31		
	HCH	V	19.86		PASS
		H	18.95		
Channel Bandwidth: 3 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	18.64	<33	PASS
		H	19.92		
	MCH	V	18.54		PASS
		H	19.68		
	HCH	V	18.69		PASS
		H	19.72		
16QAM	LCH	V	18.72	<33	PASS
		H	18.46		
	MCH	V	18.45		PASS
		H	18.22		
	HCH	V	17.99		PASS
		H	19.65		

Channel Bandwidth: 5 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	18.56	<33	PASS
		H	18.29		
	MCH	V	17.83		PASS
		H	18.74		
	HCH	V	18.71		PASS
		H	17.90		
16QAM	LCH	V	18.08	<33	PASS
		H	18.74		
	MCH	V	18.08		PASS
		H	18.62		
	HCH	V	18.59		PASS
		H	18.49		
Channel Bandwidth: 10 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	19.32	<33	PASS
		H	19.64		
	MCH	V	19.43		PASS
		H	18.34		
	HCH	V	19.31		PASS
		H	19.91		
16QAM	LCH	V	19.61	<33	PASS
		H	19.25		
	MCH	V	19.39		PASS
		H	18.51		
	HCH	V	18.67		PASS

Channel Bandwidth: 15 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	17.82	<33	PASS
		H	17.81		
	MCH	V	19.58		PASS
		H	17.66		
	HCH	V	18.31		PASS
		H	18.73		
16QAM	LCH	V	19.15	<33	PASS
		H	19.63		
	MCH	V	18.37		PASS
		H	19.24		
	HCH	V	18.06		PASS
		H	18.84		
Channel Bandwidth: 20 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	18.98	<33	PASS
		H	20.60		
	MCH	V	18.85		PASS
		H	19.54		
	HCH	V	19.54		PASS
		H	19.93		
16QAM	LCH	V	20.63	<33	PASS
		H	19.69		
	MCH	V	19.52		PASS
		H	18.94		
	HCH	V	20.65		PASS
		H	19.23		

FDD-LTE Band 4

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	21.24	<30	PASS
		H	20.30		
	MCH	V	19.61		PASS
		H	21.31		
	HCH	V	20.08		PASS
		H	21.20		
16QAM	LCH	V	20.58	<30	PASS
		H	21.15		
	MCH	V	20.47		PASS
		H	20.08		
	HCH	V	20.57		PASS
		H	21.01		
Channel Bandwidth: 3 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	21.85	<30	PASS
		H	20.91		
	MCH	V	21.05		PASS
		H	21.11		
	HCH	V	20.74		PASS
		H	21.15		
16QAM	LCH	V	21.46	<30	PASS
		H	20.66		
	MCH	V	21.29		PASS
		H	20.20		
	HCH	V	20.22		PASS
		H	20.30		

Channel Bandwidth: 5 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	20.65	<30	PASS
		H	21.80		
	MCH	V	21.43		PASS
		H	21.54		
	HCH	V	22.21		PASS
		H	20.79		
16QAM	LCH	V	21.51	<30	PASS
		H	21.47		
	MCH	V	21.93		PASS
		H	20.49		
	HCH	V	21.17		PASS
		H	21.12		
Channel Bandwidth: 10 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	21.43	<30	PASS
		H	20.05		
	MCH	V	20.83		PASS
		H	21.12		
	HCH	V	20.20		PASS
		H	20.64		
16QAM	LCH	V	21.73	<30	PASS
		H	19.87		
	MCH	V	21.53		PASS
		H	21.75		
		V	20.19		

Channel Bandwidth: 15 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	20.10	<30	PASS
		H	21.42		
	MCH	V	21.03		PASS
		H	20.77		
	HCH	V	20.47		PASS
		H	20.59		
16QAM	LCH	V	21.49	<30	PASS
		H	19.59		
	MCH	V	19.88		PASS
		H	19.79		
	HCH	V	20.44		PASS
Channel Bandwidth: 20 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	19.85	<30	PASS
		H	20.79		
	MCH	V	20.23		PASS
		H	20.31		
	HCH	V	20.74		PASS
		H	21.46		
16QAM	LCH	V	22.25	<30	PASS
		H	20.44		
	MCH	V	20.73		PASS
		H	19.78		
	HCH	V	20.53		PASS

FDD-LTE Band 5

Channel Bandwidth: 1.4 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	21.29	<38.45	PASS
		H	21.09		
	MCH	V	21.59		PASS
		H	20.56		
	HCH	V	20.39		PASS
		H	20.65		
16QAM	LCH	V	21.46	<38.45	PASS
		H	21.50		
	MCH	V	20.88		PASS
		H	21.55		
	HCH	V	21.51		PASS
		H	21.07		
Channel Bandwidth: 3 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	20.85	<38.45	PASS
		H	19.30		
	MCH	V	20.97		PASS
		H	19.16		
	HCH	V	20.71		PASS
		H	19.44		
16QAM	LCH	V	21.10	<38.45	PASS
		H	20.58		
	MCH	V	21.03		PASS
		H	19.90		
	HCH	V	19.91		PASS
		H	20.29		

Channel Bandwidth: 5 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	20.70	<38.45	PASS
		H	20.12		
	MCH	V	21.24		PASS
		H	20.87		
	HCH	V	20.92		PASS
		H	20.25		
16QAM	LCH	V	20.60	<38.45	PASS
		H	21.52		
	MCH	V	21.14		PASS
		H	20.30		
	HCH	V	19.88		PASS
		H	20.20		
Channel Bandwidth: 10 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	20.91	<38.45	PASS
		H	19.89		
	MCH	V	21.08		PASS
		H	19.78		
	HCH	V	19.80		PASS
		H	20.36		
16QAM	LCH	V	20.54	<38.45	PASS
		H	20.12		
	MCH	V	20.83		PASS
		H	20.56		
	HCH	V	20.84		PASS
		H	21.60		

FDD-LTE Band 7

Channel Bandwidth: 5 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	20.94	<33	PASS
		H	20.20		
	MCH	V	20.99		PASS
		H	21.41		
	HCH	V	19.61		PASS
		H	20.54		
16QAM	LCH	V	20.36	<33	PASS
		H	21.05		
	MCH	V	20.55		PASS
		H	20.07		
	HCH	V	20.78		PASS
		H	20.04		
Channel Bandwidth: 10 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	19.95	<33	PASS
		H	21.61		
	MCH	V	21.10		PASS
		H	21.57		
	HCH	V	19.91		PASS
		H	20.92		
16QAM	LCH	V	21.07	<33	PASS
		H	21.16		
	MCH	V	20.16		PASS
		H	21.65		
	HCH	V	20.24		PASS
		H	20.50		

Channel Bandwidth: 15 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	20.54	<33	PASS
		H	20.90		
	MCH	V	20.17		PASS
		H	21.05		
	HCH	V	21.43		PASS
		H	20.76		
16QAM	LCH	V	20.05	<33	PASS
		H	20.26		
	MCH	V	19.80		PASS
		H	20.15		
	HCH	V	20.27		PASS
		H	20.10		

Channel Bandwidth: 20 MHz					
Modulation	Channel	Antenna Polar	ERP [dBm]	Limit (dBm)	Verdict
QPSK	LCH	V	21.17	<33	PASS
		H	21.51		
	MCH	V	20.96		PASS
		H	21.01		
	HCH	V	20.12		PASS
		H	19.85		
16QAM	LCH	V	22.52	<33	PASS
		H	20.18		
	MCH	V	21.51		PASS
		H	20.57		
	HCH	V	19.84		PASS
		H	19.79		

Max. Conducted Output Power
Please refer to Appendix A: Average Power Output Data
Test result: Pass

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

8.1 Standard Applicable

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

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

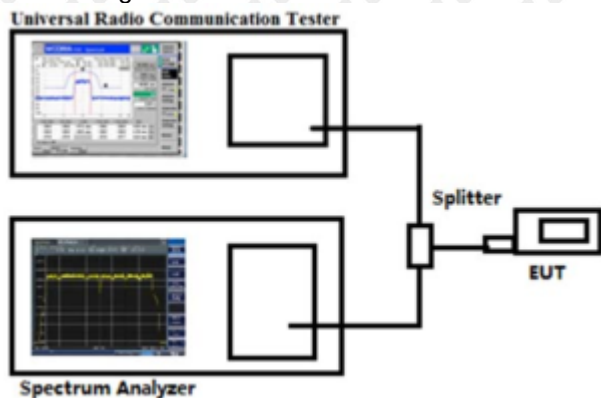
corresponding to the highest PAPR expected during periods of continuous transmission.

8.2 Test Procedure

According with KDB 971168

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

Test Configuration for the emission bandwidth testing:



8.3 Summary of Test Results

Please refer to Appendix 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.

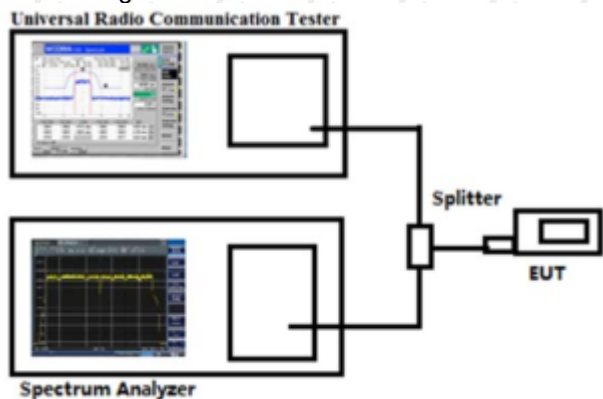
According to §24.238(b), the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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.

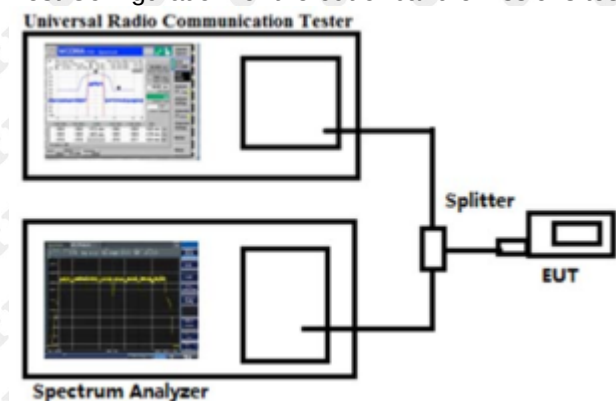
According to §27.53(g), for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$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

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:

(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.

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.
1248.90	143	158	-57.96	-13	-44.96	Pass	H
1711.32	159	233	-51.53	-13	-38.53	Pass	H
3847.33	144	105	-49.91	-13	-36.91	Pass	H
5874.37	141	2	-44.47	-13	-31.47	Pass	H
6451.76	144	206	-46.62	-13	-33.62	Pass	H
8054.68	147	304	-50.10	-13	-37.10	Pass	H
1215.82	156	254	-56.31	-13	-43.31	Pass	V
1372.12	142	49	-58.84	-13	-45.84	Pass	V
3560.79	151	26	-50.88	-13	-37.88	Pass	V
3764.52	146	272	-47.73	-13	-34.73	Pass	V
5751.44	155	262	-43.59	-13	-30.59	Pass	V
6524.50	158	10	-49.82	-13	-36.82	Pass	V

Band 2 18900 channel/BW1.4(middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1284.92	150	74	-53.38	-13	-40.38	Pass	H
1718.71	146	84	-54.50	-13	-41.50	Pass	H
3810.35	150	182	-51.77	-13	-38.77	Pass	H
5795.25	146	105	-47.12	-13	-34.12	Pass	H
6402.03	149	300	-47.64	-13	-34.64	Pass	H
7979.36	151	25	-46.89	-13	-33.89	Pass	H
1166.61	149	334	-55.86	-13	-42.86	Pass	V
1356.82	148	335	-57.19	-13	-44.19	Pass	V
3563.80	147	22	-53.13	-13	-40.13	Pass	V
3963.08	148	87	-52.30	-13	-39.30	Pass	V
5877.65	150	109	-50.88	-13	-37.88	Pass	V
6618.45	150	348	-47.33	-13	-34.33	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.
1340.71	146	76	-56.73	-13	-43.73	Pass	H
1669.90	145	103	-52	-13	-39	Pass	H
3845.50	151	267	-45.66	-13	-32.66	Pass	H
5906.91	145	243	-40.96	-13	-27.96	Pass	H
6531.65	151	97	-42.47	-13	-29.47	Pass	H
8000.07	152	275	-44.74	-13	-31.74	Pass	H
1257.63	147	64	-56.49	-13	-43.49	Pass	V
1403.18	145	219	-56.84	-13	-43.84	Pass	V
3525.24	152	192	-52.79	-13	-39.79	Pass	V
3912.13	150	98	-48.59	-13	-35.59	Pass	V
5788.31	146	270	-43.05	-13	-30.05	Pass	V
6576.29	146	208	-47.76	-13	-34.76	Pass	V

16QAM

Band 2 18607channel/BW1.4(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1307.05	146	219	-59.62	-13	-46.62	Pass	H
1776.33	154	30	-45.88	-13	-32.88	Pass	H
3893.92	151	78	-50.67	-13	-37.67	Pass	H
5941.45	145	216	-43.08	-13	-30.08	Pass	H
6596.84	148	49	-43.17	-13	-30.17	Pass	H
7928.31	146	322	-42.24	-13	-29.24	Pass	H
1118.77	150	276	-53.90	-13	-40.90	Pass	V
1428.36	153	253	-53.96	-13	-40.96	Pass	V
3634.07	151	264	-50.68	-13	-37.68	Pass	V
3974.00	147	268	-49.56	-13	-36.56	Pass	V
5827.09	145	168	-44.35	-13	-31.35	Pass	V
6552.13	147	357	-47.78	-13	-34.78	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.
1415.15	150	255	-53.22	-13	-41.45	Pass	H
1812.96	147	211	-52.32	-13	-37.85	Pass	H
3932.61	154	358	-45.47	-13	-35.2	Pass	H
6002.37	149	1	-40.80	-13	-30.39	Pass	H
6550.71	150	86	-42.79	-13	-32.24	Pass	H
7991.67	151	106	-41.99	-13	-30.22	Pass	H
1092.98	154	258	-57.90	-13	-44.9	Pass	V
1446.71	146	228	-55.23	-13	-43.63	Pass	V
3517.94	147	359	-47.83	-13	-35.94	Pass	V
3792.21	150	301	-49.32	-13	-36.01	Pass	V
5807.63	149	50	-42.90	-13	-33.75	Pass	V
6485.09	145	236	-46.21	-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.
1262.22	154	209	-55.62	-13	-42.62	Pass	H
1704.86	149	168	-50.97	-13	-37.97	Pass	H
3920.64	150	27	-47.11	-13	-34.11	Pass	H
5829.42	151	140	-43.14	-13	-30.14	Pass	H
6467.88	148	21	-41.64	-13	-28.64	Pass	H
8034.07	150	289	-44.85	-13	-31.85	Pass	H
1171.16	151	186	-53.83	-13	-40.83	Pass	V
1491.65	146	31	-56.62	-13	-43.62	Pass	V
3562.03	146	165	-47.46	-13	-34.46	Pass	V
3768.44	148	319	-48.88	-13	-35.88	Pass	V
5871.70	152	357	-50.39	-13	-37.39	Pass	V
6568.31	147	91	-46.95	-13	-33.95	Pass	V

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.
1304.64	155	124	-57.22	-13	-44.22	Pass	H
1735.07	142	18	-48.70	-13	-35.70	Pass	H
3929.88	158	7	-49.58	-13	-36.58	Pass	H
5946.45	148	153	-45.93	-13	-32.93	Pass	H
6454.59	154	177	-46.43	-13	-33.43	Pass	H
8011.32	147	216	-48.87	-13	-35.87	Pass	H
1265.76	159	240	-55.45	-13	-42.45	Pass	V
1346.75	160	146	-59.09	-13	-46.09	Pass	V
3537.90	152	100	-54.03	-13	-41.03	Pass	V
3747.11	143	248	-50.89	-13	-37.89	Pass	V
5754.06	150	178	-47.82	-13	-34.82	Pass	V
6523.01	143	314	-49.70	-13	-36.70	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.
1302.46	150	127	-56.54	-13	-43.54	Pass	H
1810.44	146	102	-49.48	-13	-36.48	Pass	H
3821.70	150	146	-49.80	-13	-36.80	Pass	H
5940.13	146	307	-46.50	-13	-33.50	Pass	H
6461.23	149	295	-50.86	-13	-37.86	Pass	H
7921.19	151	142	-51.41	-13	-38.41	Pass	H
1283.71	149	144	-52.18	-13	-39.18	Pass	V
1462.76	148	147	-60.57	-13	-47.57	Pass	V
3521.80	147	193	-52.98	-13	-39.98	Pass	V
3904.74	148	145	-48.79	-13	-35.79	Pass	V
5835.86	150	83	-50.53	-13	-37.53	Pass	V
6549.36	150	50	-46.05	-13	-33.05	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.
1340.71	155	295	-56.73	-13	-43.73	Pass	H
1669.90	149	144	-52	-13	-39	Pass	H
3845.50	152	104	-45.66	-13	-32.66	Pass	H
5906.91	155	328	-40.96	-13	-27.96	Pass	H
6531.65	154	257	-42.47	-13	-29.47	Pass	H
8000.07	151	66	-44.74	-13	-31.74	Pass	H
1257.63	146	249	-56.49	-13	-43.49	Pass	V
1403.18	147	113	-56.84	-13	-43.84	Pass	V
3525.24	147	75	-52.79	-13	-39.79	Pass	V
3912.13	155	325	-48.59	-13	-35.59	Pass	V
5788.31	149	190	-43.05	-13	-30.05	Pass	V
6576.29	149	256	-47.76	-13	-34.76	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.
1276.29	147	94	-58.54	-13	-45.54	Pass	H
1696.85	151	32	-46.67	-13	-33.67	Pass	H
3920.18	150	14	-50.89	-13	-37.89	Pass	H
5900.58	153	13	-46.00	-13	-33.00	Pass	H
6583.96	145	40	-43.97	-13	-30.97	Pass	H
8003.49	145	167	-43.21	-13	-30.21	Pass	H
1152.38	145	173	-50.62	-13	-37.62	Pass	V
1410.91	149	15	-58.13	-13	-45.13	Pass	V
3570.22	146	347	-51.38	-13	-38.38	Pass	V
3936.00	146	46	-49.25	-13	-36.25	Pass	V
5774.54	148	18	-45.20	-13	-32.20	Pass	V
6630.22	147	215	-51.55	-13	-38.55	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.
1339.25	149	319	-57.38	-13	-41.45	Pass	H
1749.89	146	337	-47.38	-13	-37.85	Pass	H
3873.93	150	97	-50.06	-13	-35.2	Pass	H
5850.59	146	280	-44.06	-13	-30.39	Pass	H
6458.02	148	212	-42.26	-13	-32.24	Pass	H
8002.64	151	45	-42.27	-13	-30.22	Pass	H
1247.29	146	219	-56.97	-13	-44.9	Pass	V
1461.28	151	165	-55.72	-13	-43.63	Pass	V
3511.36	149	268	-48.10	-13	-35.94	Pass	V
3895.73	154	8	-46.42	-13	-36.01	Pass	V
5882.11	151	216	-46.09	-13	-33.75	Pass	V
6565.37	147	42	-42.87	-13	-32.41	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.
1415.45	152	71	-58.61	-13	-45.61	Pass	H
1800.99	150	172	-50.89	-13	-37.89	Pass	H
3967.76	150	235	-45.47	-13	-32.47	Pass	H
5797.62	153	198	-39.46	-13	-26.46	Pass	H
6479.94	154	318	-42.45	-13	-29.45	Pass	H
8028.91	147	296	-44.39	-13	-31.39	Pass	H
1195.54	151	266	-54.02	-13	-41.02	Pass	V
1393.98	148	154	-61.24	-13	-48.24	Pass	V
3589.76	149	272	-47.11	-13	-34.11	Pass	V
3751.03	154	9	-53.00	-13	-40.00	Pass	V
5897.40	150	307	-46.87	-13	-33.87	Pass	V
6551.29	150	237	-44.44	-13	-31.44	Pass	V

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.
1259.11	152	223	-58.27	-13	-44.67	Pass	H
1585.96	145	258	-43.56	-13	-34.41	Pass	H
3835.55	147	242	-51.77	-13	-36.9	Pass	H
5899.38	152	282	-44.91	-13	-33.07	Pass	H
6591.59	153	88	-43.45	-13	-31.79	Pass	H
8048.60	151	232	-41.68	-13	-28.84	Pass	H
1190.28	154	315	-53.21	-13	-41.24	Pass	V
1329.65	149	277	-55.84	-13	-43.57	Pass	V
3621.28	147	100	-48.66	-13	-37.85	Pass	V
3839.23	149	74	-47.48	-13	-38.46	Pass	V
5863.48	154	360	-42.30	-13	-32.52	Pass	V
6591.48	151	37	-49.27	-13	-35.32	Pass	V

Band 7 21100 channel/BW 5 (middle channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1347.28	152	131	-50.94	-13	-37.94	Pass	H
1684.09	154	350	-49.48	-13	-36.48	Pass	H
3825.48	154	255	-49.95	-13	-36.95	Pass	H
5927.23	152	191	-45.16	-13	-32.16	Pass	H
6439.68	150	83	-45.99	-13	-32.99	Pass	H
8104.20	155	122	-47.48	-13	-34.48	Pass	H
1096.26	154	19	-60.36	-13	-47.36	Pass	V
1429.21	153	43	-56.65	-13	-43.65	Pass	V
3516.16	149	319	-45.82	-13	-32.82	Pass	V
3858.74	154	140	-46.08	-13	-33.08	Pass	V
5903.20	151	123	-40.12	-13	-27.12	Pass	V
6605.44	146	307	-47.19	-13	-34.19	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.
1392.22	149	165	-55.54	-13	-42.54	Pass	H
1682.91	146	208	-48.42	-13	-35.42	Pass	H
3894.99	146	4	-42.16	-13	-29.16	Pass	H
5804.24	150	198	-41.55	-13	-28.55	Pass	H
6605.04	146	341	-46.22	-13	-33.22	Pass	H
8106.73	150	235	-43.61	-13	-30.61	Pass	H
1146.12	146	292	-50.76	-13	-37.76	Pass	V
1379.88	150	158	-56.56	-13	-43.56	Pass	V
3580.16	149	55	-46.75	-13	-33.75	Pass	V
3828.08	150	319	-49.07	-13	-36.07	Pass	V
5716.87	146	118	-45.53	-13	-32.53	Pass	V
6542.34	150	155	-45.42	-13	-32.42	Pass	V

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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.
1431.36	150	78	-57.44	-13	-44.44	Pass	H
1717.04	149	291	-49.37	-13	-36.37	Pass	H
3963.15	151	213	-47.20	-13	-34.20	Pass	H
5891.70	150	89	-44.01	-13	-31.01	Pass	H
6470.39	151	329	-49.46	-13	-36.46	Pass	H
7923.17	148	138	-46.89	-13	-33.89	Pass	H
1286.07	149	99	-56.39	-13	-43.39	Pass	V
1359.47	148	217	-57.77	-13	-44.77	Pass	V
3536.33	150	12	-46.60	-13	-33.60	Pass	V
3907.05	150	137	-50.97	-13	-37.97	Pass	V
5869.13	146	356	-42.92	-13	-29.92	Pass	V
6597.79	146	95	-45.60	-13	-32.60	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.
1249.80	150	142	-57.09	-13	-44.09	Pass	H
1720.72	146	280	-51.46	-13	-38.46	Pass	H
3931.10	150	330	-47.80	-13	-34.80	Pass	H
5945.17	146	194	-42.02	-13	-29.02	Pass	H
6390.38	149	260	-50.51	-13	-37.51	Pass	H
8068.67	151	31	-43.24	-13	-30.24	Pass	H
1310.99	149	4	-53.70	-13	-40.70	Pass	V
1323.30	148	257	-60.57	-13	-47.57	Pass	V
3596.38	147	55	-51.67	-13	-38.67	Pass	V
3967.40	148	273	-55.99	-13	-42.99	Pass	V
5807.67	150	136	-49.32	-13	-36.32	Pass	V
6585.75	150	16	-45.17	-13	-32.17	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.
1292.72	149	156	-57.99	-13	-44.99	Pass	H
1666.01	149	170	-48.34	-13	-35.34	Pass	H
3751.57	149	127	-45.72	-13	-32.72	Pass	H
5897.18	146	42	-40.28	-13	-27.28	Pass	H
6468.80	147	69	-45.38	-13	-32.38	Pass	H
7925.37	151	110	-44.67	-13	-31.67	Pass	H
1180.12	148	61	-56.37	-13	-43.37	Pass	V
1394.95	147	266	-51.66	-13	-38.66	Pass	V
3453.42	148	303	-54.84	-13	-41.84	Pass	V
3902.52	149	195	-42.79	-13	-29.79	Pass	V
5697.96	147	323	-44.91	-13	-31.91	Pass	V
6495.18	146	325	-44.63	-13	-31.63	Pass	V

QPSK

Band 5 20407 channel/BW1.4(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1304.63	149	106	-56.28	-13	-43.28	Pass	H
1757.71	141	324	-48.85	-13	-35.85	Pass	H
3942.91	152	19	-49.87	-13	-36.87	Pass	H
5859.39	156	167	-47.34	-13	-34.34	Pass	H
6595.32	150	300	-44.21	-13	-31.21	Pass	H
7960.40	158	210	-48.69	-13	-35.69	Pass	H
1280.07	154	293	-57.61	-13	-44.61	Pass	V
1428.14	142	336	-58.46	-13	-45.46	Pass	V
3487.04	150	38	-54.89	-13	-41.89	Pass	V
3875.74	150	276	-50.04	-13	-37.04	Pass	V
5846.41	156	241	-46.88	-13	-33.88	Pass	V
6602.15	145	135	-47.63	-13	-34.63	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.
1256.28	150	110	-55.18	-13	-42.18	Pass	H
1726.27	146	78	-50.40	-13	-37.40	Pass	H
3822.60	150	109	-52.95	-13	-39.95	Pass	H
5786.78	146	208	-46.67	-13	-33.67	Pass	H
6390.24	149	24	-48.24	-13	-35.24	Pass	H
7953.70	151	356	-51.06	-13	-38.06	Pass	H
1184.57	149	324	-55.00	-13	-42.00	Pass	V
1361.90	148	304	-60.20	-13	-47.20	Pass	V
3652.66	147	245	-51.15	-13	-38.15	Pass	V
3998.97	148	125	-51.88	-13	-38.88	Pass	V
5789.90	150	278	-51.05	-13	-38.05	Pass	V
6530.61	150	23	-46.11	-13	-33.11	Pass	V

Band 5 20643 channel/BW1.4(highest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1340.71	153	164	-56.73	-13	-43.73	Pass	H
1669.90	150	301	-52	-13	-39	Pass	H
3845.50	151	153	-45.66	-13	-32.66	Pass	H
5906.91	148	59	-40.96	-13	-27.96	Pass	H
6531.65	146	179	-42.47	-13	-29.47	Pass	H
8000.07	149	45	-44.74	-13	-31.74	Pass	H
1257.63	149	95	-56.49	-13	-43.49	Pass	V
1403.18	152	231	-56.84	-13	-43.84	Pass	V
3525.24	152	280	-52.79	-13	-39.79	Pass	V
3912.13	154	29	-48.59	-13	-35.59	Pass	V
5788.31	148	267	-43.05	-13	-30.05	Pass	V
6576.29	149	145	-47.76	-13	-34.76	Pass	V

16QAM

Band 5 20407 channel/BW1.4(lowest channel)							
Frequency (MHz)	Height (cm)	Azimuth (deg)	Spurious Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result	Antenna Polaxis.
1404.57	146	49	-57.00	-13	-44.00	Pass	H
1747.97	151	329	-47.94	-13	-34.94	Pass	H
3925.43	145	285	-49.19	-13	-36.19	Pass	H
5875.37	152	172	-46.13	-13	-33.13	Pass	H
6624.70	146	301	-42.70	-13	-29.70	Pass	H
7954.56	150	107	-44.73	-13	-31.73	Pass	H
1113.42	152	263	-54.89	-13	-41.89	Pass	V
1452.25	152	263	-53.11	-13	-40.11	Pass	V
3606.48	153	145	-53.30	-13	-40.30	Pass	V
3875.39	154	27	-52.74	-13	-39.74	Pass	V
5934.54	147	5	-43.32	-13	-30.32	Pass	V
6663.90	147	238	-50.62	-13	-37.62	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.
1258.42	150	310	-51.23	-13	-41.45	Pass	H
1701.84	152	144	-51.52	-13	-37.85	Pass	H
3847.33	154	342	-47.95	-13	-35.2	Pass	H
5847.02	146	318	-41.44	-13	-30.39	Pass	H
6535.59	151	349	-43.11	-13	-32.24	Pass	H
8077.46	151	319	-41.56	-13	-30.22	Pass	H
1168.63	153	326	-55.45	-13	-44.9	Pass	V
1304.85	151	119	-58.40	-13	-43.63	Pass	V
3487.60	149	107	-47.05	-13	-35.94	Pass	V
3866.05	147	66	-45.73	-13	-36.01	Pass	V
5849.52	150	266	-48.00	-13	-33.75	Pass	V
6558.79	146	315	-42.61	-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.
1285.31	147	93	-57.03	-13	-44.03	Pass	H
1612.26	146	63	-47.98	-13	-34.98	Pass	H
3833.88	152	111	-45.66	-13	-32.66	Pass	H
5842.14	149	355	-42.72	-13	-29.72	Pass	H
6565.61	153	239	-40.30	-13	-27.30	Pass	H
8115.07	145	90	-48.79	-13	-35.79	Pass	H
1129.04	150	28	-58.05	-13	-45.05	Pass	V
1522.23	152	137	-60.45	-13	-47.45	Pass	V
3625.19	153	144	-49.95	-13	-36.95	Pass	V
3797.45	154	219	-51.07	-13	-38.07	Pass	V
5902.20	155	246	-46.65	-13	-33.65	Pass	V
6503.06	147	284	-45.48	-13	-32.48	Pass	V

Note:

- 1) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 1GHz are attenuated more than 20 dB below the applicable limit and not required to be reported, the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.
- 2) Tested with all kind of bandwidth, RB Size and RB Offset, Found the 1.4MHz with full RB were the worst case; and then Only the worst case is recorded in the report.

12. FREQUENCY STABILITY

12.1 Standard Applicable

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

12.2 Test Procedure

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

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

The Carrier Frequency Stability over Power Supply Voltage and over Temperature is measured with a Frequency Domain Analyzer in histogram mode

12.3 Summary of Test Results/Plots

Note: 1.Normal Voltage NV=DC12V; Low Voltage LV=DC10.8; High Voltage HV=DC13.2V

Please refer to Appendix F: Frequency Stability

Test result: Pass

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