FCC RF Test Report

(5G NR)

Report No.:	JYTSZ-R12-2400173
Applicant:	Hangzhou Roombanker Technology Co., Ltd.
Address of Applicant:	A#801 Wantong center, Hangzhou, China

Equipment Under Test (EUT)

Product Name:	Industrial AI Edge Computing Gateway
Model No.:	DSGW-380, DSGW-380-1, DSGW-380-2, DSGW-380-3, DSGW-380-4, DSGW-380-X(X:1~29)
Trade Mark:	Roombanker
FCC ID:	2AUXBDSGW-380
Applicable Standards:	FCC CFR Title 47 Part 2, 22H, 24E, 27L&M&N&O
Date of Sample Receipt:	26 Feb., 2024
Date of Test:	27 Feb., to 29 May, 2024
Date of Report Issued:	29 May, 2024
Test Result:	PASS

Project by:	***Project Engineer***	***Date:***	*29 May, 2024*
Reviewed by:	***Senior Engineer***	***Date:***	*29 May, 2024*
Approved by:	***Manager***	***Date:***	*29 May, 2024*

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in above the application standard version. Test results reported herein relate only to the item(s) tested.

1 Version

Version No.	Date	Description
00	*29 May, 2024*	*Original*

2 Contents

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3 General Information

3.1 Client Information

Applicant:	Hangzhou Roombanker Technology Co., Ltd.
Address:	A#801 Wantong center, Hangzhou, China
Manufacturer/ Factory:	Zhejiang Dusun Electron Co., Ltd.
Address:	No.640 Feng Qing St, DeQing Zhejiang China

3.2 General Description of E.U.T.

Product Name:	Industrial AI Edge Computing Gateway		
Model No.:	DSGW-380, DSGW-380-1, DSGW-380-2, DSGW-380-3, DSGW-380-4, DSGW-380-X(X:1~29)		
Operation Frequency Range:	Band n2:	Tx: 1850 MHz - 1910 MHz	Rx: 1930 MHz - 1990 MHz
	Band n5:	Tx: 824 MHz - 849 MHz	Rx: 869 MHz - 894 MHz
	Band n7:	Tx: 2500 MHz - 2570 MHz	Rx: 2620 MHz - 2690 MHz
	Band n12:	Tx: 699 MHz - 716 MHz	Rx: 729 MHz - 746 MHz
	Band n25:	Tx: 1850 MHz - 1915 MHz	Rx: 1930 MHz - 1995 MHz
	Band n41:	Tx: 2496 MHz - 2690 MHz	Rx: 2496 MHz - 2690 MHz
	Band n66:	Tx: 1710 MHz - 1780 MHz	Rx: 2110 MHz - 2200 MHz
	Band n71:	Tx: 663 MHz - 698 MHz	Rx: 617 MHz - 652 MHz
	Band n77:	Tx: 3700 MHz - 3980 MHz	Rx: 3700 MHz - 3980 MHz
Modulation Type:	☒ DFT-s-OFDM:	Pi/2-BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM	
	☒ CP-OFDM:	QPSK, 16-QAM, 64-QAM, 256-QAM	
Network Mode:	☒ SA:	n2, n5, n7, n12, n25, n66, n71, n77	
	☒ SA UL MIMO:	n41	
	☒ NSA(EN-DC):	DC_5A_n2A, DC_12A_n2, DC_13A_n2A, DC_2A_n5A DC_30A_n5A, DC_66A_n5A, DC_5A_n7A, DC_12A_n7A DC_2A_n12A, DC_12A_n25A, DC_2A_n41A, DC_25A_n41A DC_26A_n41A, DC_66A_n41A, DC_5A_n66A, DC_12A_n66A DC_13A_n66A, DC_14A_n66A, DC_71A_n66A, DC_2A_n71A DC_7A_n71A, DC_66A_n71A	
SCS Support:	FDD Band : 15 kHz, TDD Band : 30 kHz		
HPUE Band:	n41, n77		
Antenna Type:	External Antenna		
Antenna Gain:	Band n2:	2.14 dBi (declare by Applicant)	
	Band n5:	-0.82 dBi (declare by Applicant)	
	Band n7:	2.31 dBi (declare by Applicant)	
	Band n12:	0.65 dBi (declare by Applicant)	
	Band n25:	2.14 dBi (declare by Applicant)	
	Band n41:	2.64 dBi (declare by Applicant)	
	Band n66:	2.64 dBi (declare by Applicant)	
	Band n71:	0.65 dBi (declare by Applicant)	
	Band n77:	4.29 dBi (declare by Applicant)	
Power Supply:	DC 12V		
Remark:	Model No.: DSGW-380, DSGW-380-1, DSGW-380-2, DSGW-380-3,		

	DSGW-380-4, DSGW-380-X(X:1~29) were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being model name.
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

3.3 Test Mode and Environment

Test Mode:	
DFT-s-OFDM access mode:	Keep the EUT communication with simulated station in Pi/2-BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM modulation of DFT-s-OFDM access mode.
CP-OFDM access mode:	Keep the EUT communication with simulated station in Pi/2-BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM modulation of CP-OFDM access mode.
Remark: *The EUT has been tested under continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing. The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for these modes. Just the worst case position (H mode) shown in report.*	
Operating Environment:	
Temperature:	15℃ ~ 35℃
Humidity:	20 % ~ 75 % RH
Atmospheric Pressure:	1008 mbar
Voltage:	Nominal: 12.0 Vdc, Extreme: Low 10.2 Vdc, High 13.8 Vdc
Test Engineer:	Kiran Zeng (Radiated measurement)

3.4 Description of Test Auxiliary Equipment

Test Equipment	Manufacturer	Model No.	Serial No.
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY60192444

3.5 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95%(U = 2Uc(y)))
Radiated Emission (30MHz ~ 200MHz) (3m SAC)	4.6 dB
Radiated Emission (200MHz ~ 1000MHz) (3m SAC)	5.8 dB
Radiated Emission (30MHz ~ 1GHz) (3m FAR)	3.43 dB
Radiated Emission (1GHz ~ 6GHz) (3m FAR)	4.95 dB
Radiated Emission (6GHz ~ 18GHz) (3m FAR)	5.23 dB
Radiated Emission (18GHz ~ 40GHz) (3m FAR)	5.32 dB
Note: *All the measurement uncertainty value were shown with a coverage k=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.*	

3.6 Additions to, Deviations, or Exclusions from the Method

No

3.7 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **CNAS - Registration No.: CNAS L15527**

JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

3.8 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.
Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info-JYTee@lets.com, Website: http://jyt.lets.com

3.9 Test Instruments List

Radiated Emission(3m SAC):					
Test Equipment	**Manufacturer**	**Model No.**	**Manage No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
3m SAC	ETS	9m*6m*6m	WXJ001-1	04-14-2021	04-13-2026
Loop Antenna	Schwarzbeck	FMZB 1519 B	WXJ002-4	01-05-2024	01-04-2025
BiConiLog Antenna	Schwarzbeck	VULB9163	WXJ002	01-09-2024	01-08-2025
Biconical Antenna	Schwarzbeck	VUBA9117	WXJ002-1	07-02-2021	07-01-2024
Horn Antenna	Schwarzbeck	BBHA9120D	WXJ002-2	01-05-2024	01-04-2025
Horn Antenna	Schwarzbeck	BBHA9120D	WXJ002-3	12-28-2023	12-27-2024
Horn Antenna	Schwarzbeck	BBHA9170	WXJ002-5	12-28-2023	12-27-2024
Horn Antenna	Schwarzbeck	BBHA9170	WXJ002-6	12-28-2023	12-27-2024
Pre-amplifier (30MHz ~ 1GHz)	Schwarzbeck	BBV9743B	WXJ001-2	12-27-2023	12-26-2024
Pre-amplifier (1GHz ~ 18GHz)	SKET	LNPA_0118G-50	WXJ001-3	12-27-2023	12-26-2024
Pre-amplifier (18GHz ~ 40GHz)	RF System	TRLA-180400G45B	WXJ002-7	12-28-2023	12-27-2024
EMI Test Receiver	Rohde & Schwarz	ESRP7	WXJ003-1	12-27-2023	12-26-2024
Spectrum Analyzer	Rohde & Schwarz	FSP 30	WXJ004	12-27-2023	12-26-2024
Spectrum Analyzer	KEYSIGHT	N9010B	WXJ004-2	09-25-2023	09-24-2024
Coaxial Cable (30MHz ~ 1GHz)	JYTSZ	JYT3M-1G-NN-8M	WXG001-4	01-17-2024	01-16-2025
Coaxial Cable (1GHz ~ 18GHz)	JYTSZ	JYT3M-18G-NN-8M	WXG001-5	01-17-2024	01-16-2025
Coaxial Cable (18GHz ~ 40GHz)	JYTSZ	JYT3M-40G-SS-8M	WXG001-7	01-17-2024	01-16-2025
Band Reject Filter Group	Tonscend	JS0806-F	WXJ089	N/A	
Test Software	Tonscend	TS+	Version: 3.0.0.1		

Radiated Emission(3m FAR):					
Test Equipment	**Manufacturer**	**Model No.**	**Manage No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
3m FAR	YUNYI	9m*6m*6m	WXJ097	06-15-2023	06-14-2028
BiConiLog Antenna	Schwarzbeck	VULB9163	WXJ097-2	07-13-2023	07-12-2024
Biconical Antenna	Schwarzbeck	VUBA9117	WXJ002-1	07-02-2021	07-01-2024
Horn Antenna	Schwarzbeck	BBHA9120D	WXJ097-3	07-14-2023	07-13-2024
Horn Antenna	Schwarzbeck	BBHA9120D	WXJ002-3	12-28-2023	12-27-2024
Horn Antenna	Schwarzbeck	BBHA9170	WXJ002-5	12-28-2023	12-27-2024
Horn Antenna	Schwarzbeck	BBHA9170	WXJ002-6	12-28-2023	12-27-2024
Pre-amplifier (30MHz ~ 1GHz)	YUNYI	PAM-310N	WXJ097-5	05-14-2023	05-13-2024
				04-24-2024	04-23-2025
Pre-amplifier (1GHz ~ 18GHz)	YUNYI	PAM-118N	WXJ097-6	05-14-2023	05-13-2024
				04-24-2024	04-23-2025
Pre-amplifier (18GHz ~ 40GHz)	RF System	TRLA-180400G45B	WXJ002-7	12-28-2023	12-27-2024
EMI Test Receiver	Rohde & Schwarz	ESCI3	WXJ003	12-27-2023	12-26-2024
Spectrum Analyzer	Rohde & Schwarz	FSP 30	WXJ004	12-27-2023	12-26-2024
Spectrum Analyzer	KEYSIGHT	N9010B	WXJ081-1	06-13-2023	06-12-2024
Coaxial Cable (30MHz ~ 1GHz)	JYTSZ	JYT3M-1G-NN-13M	WXG097-1	08-01-2023	07-31-2024
Coaxial Cable (1GHz ~ 18GHz)	JYTSZ	JYT3M-18G-NN-8M	WXG097-2	08-01-2023	07-31-2024
Coaxial Cable (18GHz ~ 40GHz)	JYTSZ	JYT3M-40G-SS-8M	WXG097-3	08-01-2023	07-31-2024
High Band Reject Filter Group	Tonscend	JS0806-F	WXJ089	N/A	
Low Band Reject Filter Group	Tonscend	JS0806-F	WXJ097-4	N/A	
Test Software	Tonscend	TS+	Version: 5.0.0		

4 Measurement Setup and Procedure

4.1 Test Channel

According to ANSI C63.26-2015 chapter 5.1.2.1 Table 2 requirement, select lowest channel, middle channel, and highest channel in the frequency range in which device operates for testing. The detailed frequency points are as follows:

Band n2, SCS: 15 kHz

Channels	ARFCN	Frequency (MHz)	Channels	ARFCN	Frequency (MHz)
5 MHz			**10 MHz**		
Lowest	370500	1852.5	Lowest	371000	1855.0
Middle	376000	1880.0	Middle	376000	1880.0
Highest	381500	1907.5	Highest	381000	1905.0
15 MHz			**20 MHz**		
Lowest	371500	1857.5	Lowest	372000	1860.0
Middle	376000	1880.0	Middle	376000	1880.0
Highest	380500	1902.5	Highest	380000	1900.0

Band n5, SCS: 15 kHz

Channels	ARFCN	Frequency (MHz)	Channels	ARFCN	Frequency (MHz)
5 MHz			**10 MHz**		
Lowest	165300	826.5	Lowest	165800	829.0
Middle	167300	836.5	Middle	167300	836.5
Highest	169300	846.5	Highest	168800	844.0
15 MHz			**20 MHz**		
Lowest	166300	831.5	Lowest	166800	834.0
Middle	167300	836.5	Middle	167300	836.5
Highest	168300	841.5	Highest	167800	839.0

Band n7, SCS: 15 kHz

Channels	ARFCN	Frequency (MHz)	Channels	ARFCN	Frequency (MHz)
5 MHz			**10 MHz**		
Lowest	500500	2502.5	Lowest	501000	2505.0
Middle	507000	2535.0	Middle	507000	2535.0
Highest	513500	2567.5	Highest	513000	2565.0
15 MHz			**20 MHz**		
Lowest	501500	2507.5	Lowest	502000	2510.0
Middle	507000	2535.0	Middle	507000	2535.0
Highest	512500	2562.5	Highest	512000	2560.0

Band n12, SCS: 15 kHz

Channels	ARFCN	Frequency (MHz)	Channels	ARFCN	Frequency (MHz)
5 MHz			**10 MHz**		
Lowest	140300	701.5	Lowest	140800	704.0
Middle	141500	707.5	Middle	141500	707.5
Highest	142700	713.5	Highest	142200	711.0
15 MHz					
Lowest	141300	706.5			
Middle	141500	707.5			
Highest	141700	708.5			

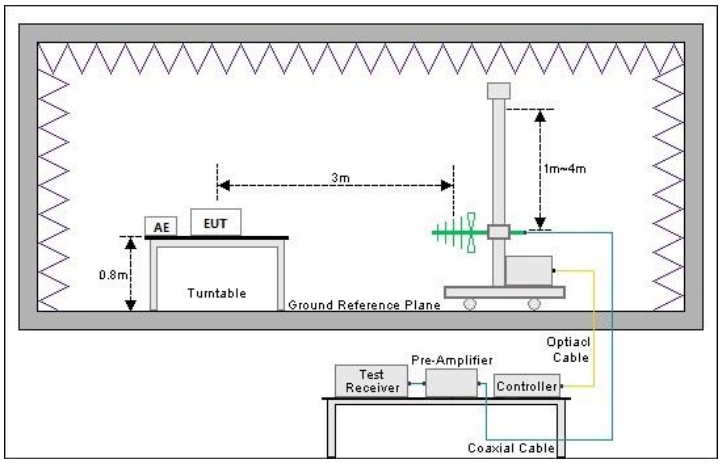
Band n25, SCS: 15 kHz					
Channels	**ARFCN**	**Frequency (MHz)**	**Channels**	**ARFCN**	**Frequency (MHz)**
5 MHz			**10 MHz**		
Lowest	370500	1852.5	Lowest	371000	1855.0
Middle	376500	1882.5	Middle	376500	1882.5
Highest	382500	1912.5	Highest	382000	1910.0
15 MHz			**20 MHz**		
Lowest	371500	1857.5	Lowest	372000	1860.0
Middle	376500	1882.5	Middle	376500	1882.5
Highest	381500	1907.5	Highest	381000	1905.0
Band n41(2496 MHz ~2690 MHz), SCS: 30 kHz					
Channels	**ARFCN**	**Frequency (MHz)**	**Channels**	**ARFCN**	**Frequency (MHz)**
20 MHz			**30 MHz**		
Lowest	501204	2506.020	Lowest	502200	2511.000
Middle	518598	2592.990	Middle	518598	2592.990
Highest	535998	2679.990	Highest	534996	2674.980
40 MHz			**50 MHz**		
Lowest	503202	2516.010	Lowest	504204	2521.020
Middle	518598	2592.990	Middle	518598	2592.990
Highest	534000	2670.000	Highest	532998	2664.990
60 MHz			**80 MHz**		
Lowest	505200	2526.000	Lowest	507204	2536.020
Middle	518598	2592.990	Middle	518598	2592.990
Highest	531996	2659.980	Highest	52998	2649.990
90 MHz			**100 MHz**		
Lowest	508200	2541.000	Lowest	509202	2546.010
Middle	518598	2592.990	Middle	518598	2592.990
Highest	528996	2644.980	Highest	528000	2640.000
Band n66, SCS: 15 kHz					
Channels	**ARFCN**	**Frequency (MHz)**	**Channels**	**ARFCN**	**Frequency (MHz)**
5 MHz			**10 MHz**		
Lowest	342500	1712.5	Lowest	343000	1715.0
Middle	349000	1745.0	Middle	349000	1745.0
Highest	355500	1777.5	Highest	355000	1775.0
15 MHz			**20 MHz**		
Lowest	343500	1717.5	Lowest	344000	1720.0
Middle	349000	1745.0	Middle	349000	1745.0
Highest	354500	1772.5	Highest	354000	1770.0

Band n71, SCS: 15 kHz					
Channels	**ARFCN**	**Frequency (MHz)**	**Channels**	**ARFCN**	**Frequency (MHz)**
5 MHz			**10 MHz**		
Lowest	133100	665.5	Lowest	133600	668.0
Middle	136100	680.5	Middle	136100	680.5
Highest	139100	695.5	Highest	138600	693.0
15 MHz			**20 MHz**		
Lowest	134100	670.5	Lowest	134600	673.0
Middle	136100	680.5	Middle	136100	680.5
Highest	138100	690.5	Highest	137600	688.0
Band n77(3700-3980), SCS: 30 kHz					
Channels	**ARFCN**	**Frequency (MHz)**	**Channels**	**ARFCN**	**Frequency (MHz)**
100 MHz					
Lowest	650000	3750.000			
Middle	656000	3840.000			
Highest	662000	3930.000			

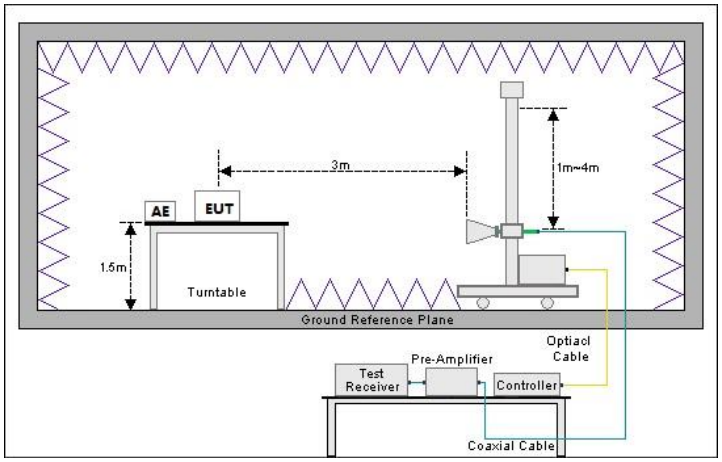
4.2 Test Setup

1) Radiated emission measurement:

Below 1GHz (3m SAC)



Above 1GHz (3m FAR)



4.3 Test Procedure

Test method	Test step
Radiated emission	**For below 1GHz:** 1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m. 2. EUT works in each mode of operation that needs to be tested，and having the EUT continuously working, respectively on 3 axis (X, Y & Z) and considered typical configuration to obtain worst position. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations. 3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data. **For above 1GHz:** 1. The EUT was placed on the tabletop of a rotating table 1.5 m the ground at a 3 m fully anechoic room. The measurement distance from the EUT to the receiving antenna is 3 m. 2. EUT works in each mode of operation that needs to be tested，and having the EUT continuously working, respectively on 3 axis (X, Y & Z) and considered typical configuration to obtain worst position. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations. 3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.

5 Test Results

5.1 Summary

5.1.1 Clause and Data Summary

Test items	Standard clause	Test data	Result
RF Exposure	Part 1.1307 Part 2.1091	See RF Exposure Report	Pass
RF Output Power	Part 2.1046 Part 22.913 (a)(5) Part 24.232 (c) Part 27.50 (c)(10) Part 27.50 (h)(2) Part 27.50 (d)(4) Part 27.50 (j)(3) Part 27.50 (k)(3)	1. Appendix – 5G NR Appendix – 5G NR ((Spot Cheek Power)) 2. Please refer to FCC ID: XMR2020RM500QAE, report No.: 2011RSU077-U6,	1.Pass 2. Please refer to FCC ID: XMR2020RM500QAE, report No.: 2011RSU077-U6,
Peak-to-Average Power Ratio	Part 24.232 (d) Part 27.50 (d)(5) Part 27.50 (j)(4) Part 27.50 (k)(4)	Please refer to FCC ID: XMR2020RM500QAE, report No.: 2011RSU077-U6,	Please refer to FCC ID: XMR2020RM500QAE, report No.: 2011RSU077-U6,
26dB Emission Bandwidth 99% Occupied Bandwidth	Part 2.1049 Part 22.917 (b) Part 24.238 (b) Part 27.53 (g) Part 27.53 (h)(3) Part 27.53 (l)(2) Part 27.53 (m)(6) Part 27.53 (n)(2)	Please refer to FCC ID: XMR2020RM500QAE, report No.: 2011RSU077-U6,	Please refer to FCC ID: XMR2020RM500QAE, report No.: 2011RSU077-U6,
Out of Band Emission at Antenna Terminals	Part 2.1051 Part 22.917 (a) Part 24.238 (a) Part 27.53 (g) Part 27.53 (h)(1) Part 27.53 (l)(2) Part 27.53 (m)(4) Part 27.53 (n)(2)	Please refer to FCC ID: XMR2020RM500QAE, report No.: 2011RSU077-U6,	Please refer to FCC ID: XMR2020RM500QAE, report No.: 2011RSU077-U6,
Field Strength of Spurious Radiation	Part 2.1053 Part 22.917 (a) Part 24.238 (a) Part 27.53 (g) Part 27.53 (h)(1) Part 27.53 (l)(2) Part 27.53 (m)(4) Part 27.53 (n)(2)	See Section 5.2	Pass
Frequency Stability vs. Temperature	Part 2.1055 (a)(1)(b) Part 22.355 Part 24.235 Part 27.54	Please refer to FCC ID: XMR2020RM500QAE, report No.: 2011RSU077-U6,	Please refer to FCC ID: XMR2020RM500QAE, report No.: 2011RSU077-U6,
Frequency Stability vs. Voltage	Part 2.1055 (d)(2) Part 22.355 Part 24.235 Part 27.54	Please refer to FCC ID: XMR2020RM500QAE, report No.: 2011RSU077-U6,	Please refer to FCC ID: XMR2020RM500QAE, report No.: 2011RSU077-U6,

Remark: *1. Pass: The EUT complies with the essential requirements in the standard.* *2. The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (Fundamental Frequency below 1GHz)/1.0dB (Fundamental Frequency above 1GHz) (provided by the customer).* *3. Please refer to FCC ID: XMR2020RM500QAE, report No.: 2011RSU077-U6, issued by MRT Technology (Suzhou) Co., Ltd.*	
Test Method:	*ANSI/TIA-603-E-2016* *ANSI C63.26-2015*

5.1.2 Test Limit

Test items	Limit
RF output power	**Band n2/7/25/41:** 2W EIRP, **Band n5:** 7W EIRP, **Band n12/71:** 3W EIRP **Band n66, n77:** 1W EIRP
Peak-to-Average Power Ratio	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB
Modulation Characteristics	N/A
26dB Emission Bandwidth 99% Occupied Bandwidth	N/A
Out of Band Emission at Antenna Terminals Field Strength of Spurious Radiation	**Band n2, n5, n12, n25, n66, n71 :** 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. **Band n7, n41:** 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 that 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. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. **Band n77:** For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed ?13 dBm/MHz. Compliance with this paragraph (l)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. 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.
Frequency Stability vs. Temperature Frequency Stability vs. Voltage	The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

5.2 Field Strength of Spurious Radiation Measurement

Note:

1. All bandwidths, modulation types and RB configurations were pretested; the report only reflects the worst mode.
2. For NSA mode:

Pre-Scan DC_5A_n2A, DC_12A_n2, DC_13A_n2A, mode, and found DC 5A-n2A was worst mode;
Pre-Scan DC_2A_n5A DC_66A_n5A, mode, and found DC 2A-n5A was worst mode;
Pre-Scan DC_5A_n7A, DC_12A_n7A, mode, and found DC 5A-n7A was worst mode;
Pre-Scan DC_2A_n41A, DC_25A_n41A DC_66A_n41A, mode, and found DC 2A-n41A was worst mode;
Pre-Scan DC_5A_n66A, DC_12A_n66A DC_13A_n66A, DC_14A_n66A, DC_71A_n66A, mode, and found DC 5A-n66A was worst mode;
Pre-Scan DC_2A_n71A, DC_7A_n71A, DC_66A_n71A, mode, and found DC 2A-n71A was worst mode;
The report only reflects the worst mode.

Band n2 – SCS 15kHz

5MHz(Edge_1RB_Left) for DFT-s-OFDM Pi/2 BPSK

Lowest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3705.00	-64.67	-0.45	-65.12	-13.00	52.12	Vertical
5557.50	-64.99	4.18	-60.81	-13.00	47.81	Vertical
7410.00	-65.53	6.12	-59.41	-13.00	46.41	Vertical
3705.00	-64.38	-0.24	-64.62	-13.00	51.62	Horizontal
5557.50	-65.17	4.10	-61.07	-13.00	48.07	Horizontal
7410.00	-65.41	5.68	-59.73	-13.00	46.73	Horizontal

Middle channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3760.00	-65.59	-1.01	-66.60	-13.00	53.60	Vertical
5640.00	-65.29	3.96	-61.33	-13.00	48.33	Vertical
7520.00	-66.05	5.55	-60.50	-13.00	47.50	Vertical
3760.00	-65.18	-0.56	-65.74	-13.00	52.74	Horizontal
5640.00	-65.60	4.14	-61.46	-13.00	48.46	Horizontal
7520.00	-66.47	5.56	-60.91	-13.00	47.91	Horizontal

Highest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3815.00	-65.26	-0.65	-65.91	-13.00	52.91	Vertical
5722.50	-65.57	3.41	-62.16	-13.00	49.16	Vertical
7630.00	-66.41	6.36	-60.05	-13.00	47.05	Vertical
3815.00	-65.04	-0.14	-65.18	-13.00	52.18	Horizontal
5722.50	-66.27	3.80	-62.47	-13.00	49.47	Horizontal
7630.00	-66.12	6.20	-59.92	-13.00	46.92	Horizontal

Remark:

1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.

Band n5 – SCS 15kHz

5MHz(Edge_1RB_Left) for DFT-s-OFDM Pi/2 BPSK

Lowest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1653.00	-31.81	-11.40	-43.21	-13.00	30.21	Vertical
2479.50	-43.86	-8.68	-52.54	-13.00	39.54	Vertical
3306.00	-63.57	-3.72	-67.29	-13.00	54.29	Vertical
1653.00	-34.10	-10.77	-44.87	-13.00	31.87	Horizontal
2479.50	-44.35	-9.07	-53.42	-13.00	40.42	Horizontal
3306.00	-63.05	-3.83	-66.88	-13.00	53.88	Horizontal

Middle channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1673.00	-32.90	-10.70	-43.60	-13.00	30.60	Vertical
2509.50	-43.49	-8.66	-52.15	-13.00	39.15	Vertical
3346.00	-62.62	-3.33	-65.95	-13.00	52.95	Vertical
1673.00	-33.87	-10.28	-44.15	-13.00	31.15	Horizontal
2509.50	-43.37	-8.73	-52.10	-13.00	39.10	Horizontal
3346.00	-62.89	-3.42	-66.31	-13.00	53.31	Horizontal

Highest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1693.00	-31.03	-10.05	-41.08	-13.00	28.08	Vertical
2539.50	-44.07	-8.55	-52.62	-13.00	39.62	Vertical
3386.00	-64.20	-2.82	-67.02	-13.00	54.02	Vertical
1693.00	-34.83	-9.81	-44.64	-13.00	31.64	Horizontal
2539.50	-45.06	-8.29	-53.35	-13.00	40.35	Horizontal
3386.00	-63.69	-2.89	-66.58	-13.00	53.58	Horizontal

Remark:

1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.

Band n7 – SCS 15kHz

5MHz(Edge_1RB_Left) for DFT-s-OFDM Pi/2 BPSK

Lowest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5005.00	-64.56	3.69	-60.87	-25.00	35.87	Vertical
7507.50	-67.22	5.56	-61.66	-25.00	36.66	Vertical
10010.00	-69.00	10.09	-58.91	-25.00	33.91	Vertical
5005.00	-66.19	4.02	-62.17	-25.00	37.17	Horizontal
7507.50	-66.28	5.56	-60.72	-25.00	35.72	Horizontal
10010.00	-68.68	9.47	-59.21	-25.00	34.21	Horizontal

Middle channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5070.00	-64.58	4.23	-60.35	-25.00	35.35	Vertical
7605.00	-65.88	6.06	-59.82	-25.00	34.82	Vertical
10140.00	-67.04	10.48	-56.56	-25.00	31.56	Vertical
5070.00	-64.38	3.51	-60.87	-25.00	35.87	Horizontal
7605.00	-65.97	5.95	-60.02	-25.00	35.02	Horizontal
10140.00	-66.78	10.21	-56.57	-25.00	31.57	Horizontal

Highest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5135.00	-63.82	3.78	-60.04	-25.00	35.04	Vertical
7702.50	-66.99	6.22	-60.77	-25.00	35.77	Vertical
10270.00	-68.15	11.48	-56.67	-25.00	31.67	Vertical
5135.00	-66.61	3.83	-62.78	-25.00	37.78	Horizontal
7702.50	-66.73	5.97	-60.76	-25.00	35.76	Horizontal
10270.00	-68.26	11.00	-57.26	-25.00	32.26	Horizontal

Remark:

1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.

Band n12 – SCS 15kHz

5MHz(Edge_1RB_Left) for DFT-s-OFDM Pi/2 BPSK

Lowest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1403.00	-44.16	-11.70	-55.86	-13.00	42.86	Vertical
2104.50	-30.87	-9.82	-40.69	-13.00	27.69	Vertical
2806.00	-62.05	-7.00	-69.05	-13.00	56.05	Vertical
1403.00	-50.34	-11.44	-61.78	-13.00	48.78	Horizontal
2104.50	-32.26	-9.30	-41.56	-13.00	28.56	Horizontal
2806.00	-61.93	-6.51	-68.44	-13.00	55.44	Horizontal

Middle channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1415.00	-43.09	-11.77	-54.86	-13.00	41.86	Vertical
2122.50	-32.02	-9.58	-41.60	-13.00	28.60	Vertical
2830.00	-62.81	-6.50	-69.31	-13.00	56.31	Vertical
1415.00	-51.45	-11.45	-62.90	-13.00	49.90	Horizontal
2122.50	-33.31	-8.86	-42.17	-13.00	29.17	Horizontal
2830.00	-63.10	-5.97	-69.07	-13.00	56.07	Horizontal

Highest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1427.00	-43.72	-11.88	-55.60	-13.00	42.60	Vertical
2140.50	-31.64	-9.52	-41.16	-13.00	28.16	Vertical
2854.00	-63.20	-5.76	-68.96	-13.00	55.96	Vertical
1427.00	-50.65	-11.58	-62.23	-13.00	49.23	Horizontal
2140.50	-32.72	-9.07	-41.79	-13.00	28.79	Horizontal
2854.00	-62.52	-5.56	-68.08	-13.00	55.08	Horizontal

Remark:

1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.

Band n25 – SCS 15kHz

5MHz(Edge_1RB_Left) for DFT-s-OFDM Pi/2 BPSK

Lowest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3705.00	-63.74	-0.45	-64.19	-13.00	51.19	Vertical
5557.50	-64.91	4.18	-60.73	-13.00	47.73	Vertical
7410.00	-65.05	6.12	-58.93	-13.00	45.93	Vertical
3705.00	-63.66	-0.24	-63.90	-13.00	50.90	Horizontal
5557.50	-65.03	4.10	-60.93	-13.00	47.93	Horizontal
7410.00	-65.33	5.68	-59.65	-13.00	46.65	Horizontal

Middle channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3765.00	-64.85	-1.01	-65.86	-13.00	52.86	Vertical
5647.50	-65.53	3.85	-61.68	-13.00	48.68	Vertical
7530.00	-65.46	5.56	-59.90	-13.00	46.90	Vertical
3765.00	-64.58	-0.54	-65.12	-13.00	52.12	Horizontal
5647.50	-66.15	4.08	-62.07	-13.00	49.07	Horizontal
7530.00	-65.51	5.56	-59.95	-13.00	46.95	Horizontal

Highest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3825.00	-63.91	-0.44	-64.35	-13.00	51.35	Vertical
5737.50	-65.22	3.48	-61.74	-13.00	48.74	Vertical
7650.00	-66.13	6.61	-59.52	-13.00	46.52	Vertical
3825.00	-63.76	0.01	-63.75	-13.00	50.75	Horizontal
5737.50	-65.35	3.84	-61.51	-13.00	48.51	Horizontal
7650.00	-65.69	6.40	-59.29	-13.00	46.29	Horizontal

Remark:

1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.

Band n41 – SCS 30kHz MIMO

20MHz(Edge_1RB_Left) for DFT-s-OFDM Pi/2 BPSK

Lowest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5002.02	-65.86	3.65	-62.21	-25.00	37.21	Vertical
7503.03	-67.07	5.61	-61.46	-25.00	36.46	Vertical
10004.04	-68.60	10.05	-58.55	-25.00	33.55	Vertical
5002.02	-65.55	4.06	-61.49	-25.00	36.49	Horizontal
7503.03	-66.49	5.54	-60.95	-25.00	35.95	Horizontal
10004.04	-67.65	9.55	-58.10	-25.00	33.10	Horizontal

Middle channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5185.98	-64.8	3.35	-61.45	-25.00	36.45	Vertical
7778.97	-65.87	8.21	-57.66	-25.00	32.66	Vertical
10371.96	-67.64	10.91	-56.73	-25.00	31.73	Vertical
5185.98	-65.13	3.29	-61.84	-25.00	36.84	Horizontal
7778.97	-66.24	8.05	-58.19	-25.00	33.19	Horizontal
10371.96	-67.62	10.39	-57.23	-25.00	32.23	Horizontal

Highest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5370.00	-65.46	4.30	-61.16	-25.00	36.16	Vertical
8055.00	-66.76	8.10	-58.66	-25.00	33.66	Vertical
10740.00	-68.55	11.60	-56.95	-25.00	31.95	Vertical
5370.00	-65.39	4.28	-61.11	-25.00	36.11	Horizontal
8055.00	-66.79	8.75	-58.04	-25.00	33.04	Horizontal
10740.00	-68.66	11.02	-57.64	-25.00	32.64	Horizontal

Remark:

1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.

Band n66 – SCS 15kHz

5MHz(Edge_1RB_Left) for DFT-s-OFDM Pi/2 BPSK

Lowest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3425.00	-62.71	-2.17	-64.88	-13.00	51.88	Vertical
5137.50	-61.15	3.76	-57.39	-13.00	44.39	Vertical
6850.00	-65.01	5.80	-59.21	-13.00	46.21	Vertical
3425.00	-62.79	-2.23	-65.02	-13.00	52.02	Horizontal
5137.50	-61.38	3.81	-57.57	-13.00	44.57	Horizontal
6850.00	-64.83	6.01	-58.82	-13.00	45.82	Horizontal

Middle channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3490.00	-63.04	-3.02	-66.06	-13.00	53.06	Vertical
5235.00	-61.59	3.17	-58.42	-13.00	45.42	Vertical
6980.00	-66.00	5.49	-60.51	-13.00	47.51	Vertical
3490.00	-63.29	-2.92	-66.21	-13.00	53.21	Horizontal
5235.00	-62.42	3.32	-59.10	-13.00	46.10	Horizontal
6980.00	-65.16	5.46	-59.70	-13.00	46.70	Horizontal

Highest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3555.00	-63.94	-2.32	-66.26	-13.00	53.26	Vertical
5332.50	-61.92	4.12	-57.80	-13.00	44.80	Vertical
7110.00	-65.24	5.42	-59.82	-13.00	46.82	Vertical
3555.00	-63.24	-2.28	-65.52	-13.00	52.52	Horizontal
5332.50	-62.28	4.13	-58.15	-13.00	45.15	Horizontal
7110.00	-64.94	5.24	-59.70	-13.00	46.70	Horizontal

Remark:

1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.

Band n71 – SCS 15kHz

5MHz(Edge_1RB_Left) for DFT-s-OFDM Pi/2 BPSK

Lowest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1331.00	-53.68	-11.75	-65.43	-13.00	52.43	Vertical
1996.50	-22.22	-10.59	-32.81	-13.00	19.81	Vertical
2662.00	-55.69	-7.26	-62.95	-13.00	49.95	Vertical
1331.00	-57.96	-11.97	-69.93	-13.00	56.93	Horizontal
1996.50	-23.61	-10.81	-34.42	-13.00	21.42	Horizontal
2662.00	-61.26	-7.18	-68.44	-13.00	55.44	Horizontal

Middle channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1361.00	-53.54	-11.77	-65.31	-13.00	52.31	Vertical
2041.50	-22.82	-10.78	-33.60	-13.00	20.60	Vertical
2722.00	-56.86	-7.04	-63.90	-13.00	50.90	Vertical
1361.00	-58.22	-11.70	-69.92	-13.00	56.92	Horizontal
2041.50	-23.62	-11.11	-34.73	-13.00	21.73	Horizontal
2722.00	-61.93	-7.16	-69.09	-13.00	56.09	Horizontal

Highest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1391.00	-54.07	-11.69	-65.76	-13.00	52.76	Vertical
2086.50	-22.91	-10.13	-33.04	-13.00	20.04	Vertical
2782.00	-56.47	-7.00	-63.47	-13.00	50.47	Vertical
1391.00	-58.97	-11.48	-70.45	-13.00	57.45	Horizontal
2086.50	-24.34	-9.89	-34.23	-13.00	21.23	Horizontal
2782.00	-61.52	-6.83	-68.35	-13.00	55.35	Horizontal

Remark:

1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.

Band n77(3700 MHz – 3980 MHz) – SCS 30kHz

100MHz(Edge_1RB_Left) for DFT-s-OFDM Pi/2 BPSK

Lowest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7410.00	-66.62	6.75	-59.87	-13.00	46.87	Vertical
11115.00	-67.17	11.70	-55.47	-13.00	42.47	Vertical
14820.00	-63.85	13.78	-50.07	-13.00	37.07	Vertical
7410.00	-66.14	6.30	-59.84	-13.00	46.84	Horizontal
11115.00	-66.48	11.49	-54.99	-13.00	41.99	Horizontal
14820.00	-63.16	15.10	-48.06	-13.00	35.06	Horizontal

Middle channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7680.00	-65.70	7.10	-58.60	-13.00	45.60	Vertical
11520.00	-66.55	11.50	-55.05	-13.00	42.05	Vertical
15360.00	-62.82	14.88	-47.94	-13.00	34.94	Vertical
7680.00	-65.39	6.87	-58.52	-13.00	45.52	Horizontal
11520.00	-66.41	11.25	-55.16	-13.00	42.16	Horizontal
15360.00	-62.71	16.38	-46.33	-13.00	33.33	Horizontal

Highest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7950.00	-65.15	9.18	-55.97	-13.00	42.97	Vertical
11925.00	-66.89	11.53	-55.36	-13.00	42.36	Vertical
15900.00	-63.54	14.10	-49.44	-13.00	36.44	Vertical
7950.00	-66.47	8.85	-57.62	-13.00	44.62	Horizontal
11925.00	-67.27	11.84	-55.43	-13.00	42.43	Horizontal
15900.00	-63.56	16.99	-46.57	-13.00	33.57	Horizontal

Remark:

1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.

Band DC_5A_n2 (5MHz)-SCS 15kHz

5MHz(1@0) for DFT-s-OFDM Pi/2 BPSK

Lowest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3705.00	-64.48	-0.45	-64.93	-13.00	51.93	Vertical
5557.50	-65.18	4.18	-61.00	-13.00	48.00	Vertical
7410.00	-66.65	6.12	-60.53	-13.00	47.53	Vertical
3705.00	-65.04	-0.24	-65.28	-13.00	52.28	Horizontal
5557.50	-65.84	4.10	-61.74	-13.00	48.74	Horizontal
7410.00	-65.48	5.68	-59.80	-13.00	46.80	Horizontal

Middle channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3760.00	-65.59	-1.01	-66.60	-13.00	53.60	Vertical
5640.00	-65.29	3.96	-61.33	-13.00	48.33	Vertical
7520.00	-66.05	5.55	-60.50	-13.00	47.50	Vertical
3760.00	-65.18	-0.56	-65.74	-13.00	52.74	Horizontal
5640.00	-65.60	4.14	-61.46	-13.00	48.46	Horizontal
7520.00	-66.47	5.56	-60.91	-13.00	47.91	Horizontal

Highest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3815.00	-65.26	-0.65	-65.91	-13.00	52.91	Vertical
5722.50	-65.57	3.41	-62.16	-13.00	49.16	Vertical
7630.00	-66.41	6.36	-60.05	-13.00	47.05	Vertical
3815.00	-65.04	-0.14	-65.18	-13.00	52.18	Horizontal
5722.50	-66.27	3.80	-62.47	-13.00	49.47	Horizontal
7630.00	-66.12	6.20	-59.92	-13.00	46.92	Horizontal

Remark:

1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.

Band DC_2A_n5(5MHz)-SCS 15kHz

5MHz(1@0) for DFT-s-OFDM Pi/2 BPSK

Lowest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1653.00	-31.81	-11.40	-43.21	-13.00	30.21	Vertical
2479.50	-43.86	-8.68	-52.54	-13.00	39.54	Vertical
3306.00	-63.57	-3.72	-67.29	-13.00	54.29	Vertical
1653.00	-34.10	-10.77	-44.87	-13.00	31.87	Horizontal
2479.50	-44.35	-9.07	-53.42	-13.00	40.42	Horizontal
3306.00	-63.05	-3.83	-66.88	-13.00	53.88	Horizontal

Middle channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1673.00	-30.90	-10.70	-41.60	-13.00	28.60	Vertical
2509.50	-44.02	-8.66	-52.68	-13.00	39.68	Vertical
3346.00	-63.96	-3.33	-67.29	-13.00	54.29	Vertical
1673.00	-34.73	-10.28	-45.01	-13.00	32.01	Horizontal
2509.50	-44.54	-8.73	-53.27	-13.00	40.27	Horizontal
3346.00	-63.76	-3.42	-67.18	-13.00	54.18	Horizontal

Highest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1693.00	-31.03	-10.05	-41.08	-13.00	28.08	Vertical
2539.50	-44.07	-8.55	-52.62	-13.00	39.62	Vertical
3386.00	-64.20	-2.82	-67.02	-13.00	54.02	Vertical
1693.00	-34.83	-9.81	-44.64	-13.00	31.64	Horizontal
2539.50	-45.06	-8.29	-53.35	-13.00	40.35	Horizontal
3386.00	-63.69	-2.89	-66.58	-13.00	53.58	Horizontal

Remark:

1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.

BandDC_5A_n7(5MHz)-SCS 15kHz

5MHz(1@0) for DFT-s-OFDM Pi/2 BPSK

Lowest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5005.00	-64.56	3.69	-60.87	-25.00	35.87	Vertical
7507.50	-67.22	5.56	-61.66	-25.00	36.66	Vertical
10010.00	-69.00	10.09	-58.91	-25.00	33.91	Vertical
5005.00	-66.19	4.02	-62.17	-25.00	37.17	Horizontal
7507.50	-66.28	5.56	-60.72	-25.00	35.72	Horizontal
10010.00	-68.68	9.47	-59.21	-25.00	34.21	Horizontal

Middle channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5070.00	-64.14	4.23	-59.91	-25.00	34.91	Vertical
7605.00	-67.00	6.06	-60.94	-25.00	35.94	Vertical
10140.00	-69.24	10.48	-58.76	-25.00	33.76	Vertical
5070.00	-65.89	3.51	-62.38	-25.00	37.38	Horizontal
7605.00	-66.99	5.95	-61.04	-25.00	36.04	Horizontal
10140.00	-68.64	10.21	-58.43	-25.00	33.43	Horizontal

Highest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5135.00	-63.82	3.78	-60.04	-25.00	35.04	Vertical
7702.50	-66.99	6.22	-60.77	-25.00	35.77	Vertical
10270.00	-68.15	11.48	-56.67	-25.00	31.67	Vertical
5135.00	-66.61	3.83	-62.78	-25.00	37.78	Horizontal
7702.50	-66.73	5.97	-60.76	-25.00	35.76	Horizontal
10270.00	-68.26	11.00	-57.26	-25.00	32.26	Horizontal

Remark:

1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.

Band DC_2A_n12 (5MHz)-SCS 15kHz

5MHz(1@0) for DFT-s-OFDM Pi/2 BPSK

Lowest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1403.00	-44.99	-11.70	-56.69	-13.00	43.69	Vertical
2104.50	-30.94	-9.82	-40.76	-13.00	27.76	Vertical
2806.00	-63.10	-7.00	-70.10	-13.00	57.10	Vertical
1403.00	-51.13	-11.44	-62.57	-13.00	49.57	Horizontal
2104.50	-32.48	-9.30	-41.78	-13.00	28.78	Horizontal
2806.00	-62.57	-6.51	-69.08	-13.00	56.08	Horizontal

Middle channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1415.00	-43.20	-11.77	-54.97	-13.00	41.97	Vertical
2122.50	-31.94	-9.58	-41.52	-13.00	28.52	Vertical
2830.00	-63.30	-6.50	-69.80	-13.00	56.80	Vertical
1415.00	-50.62	-11.45	-62.07	-13.00	49.07	Horizontal
2122.50	-33.30	-8.86	-42.16	-13.00	29.16	Horizontal
2830.00	-62.99	-5.97	-68.96	-13.00	55.96	Horizontal

Highest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1427.00	-44.39	-11.88	-56.27	-13.00	43.27	Vertical
2140.50	-31.70	-9.52	-41.22	-13.00	28.22	Vertical
2854.00	-62.11	-5.76	-67.87	-13.00	54.87	Vertical
1427.00	-51.20	-11.58	-62.78	-13.00	49.78	Horizontal
2140.50	-32.56	-9.07	-41.63	-13.00	28.63	Horizontal
2854.00	-62.62	-5.56	-68.18	-13.00	55.18	Horizontal

Remark:

1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.

Band DC-12A-n25 (5MHz)-SCS 15kHz

5MHz(1@0) for DFT-s-OFDM Pi/2 BPSK

Lowest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3705.00	-64.27	-0.45	-64.72	-13.00	51.72	Vertical
5557.50	-65.11	4.18	-60.93	-13.00	47.93	Vertical
7410.00	-66.35	6.12	-60.23	-13.00	47.23	Vertical
3705.00	-63.99	-0.24	-64.23	-13.00	51.23	Horizontal
5557.50	-65.52	4.10	-61.42	-13.00	48.42	Horizontal
7410.00	-66.03	5.68	-60.35	-13.00	47.35	Horizontal

Middle channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3765.00	-64.67	-1.01	-65.68	-13.00	52.68	Vertical
5647.50	-65.38	3.85	-61.53	-13.00	48.53	Vertical
7530.00	-66.47	5.56	-60.91	-13.00	47.91	Vertical
3765.00	-64.90	-0.54	-65.44	-13.00	52.44	Horizontal
5647.50	-65.76	4.08	-61.68	-13.00	48.68	Horizontal
7530.00	-65.90	5.56	-60.34	-13.00	47.34	Horizontal

Highest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3825.00	-64.38	-0.44	-64.82	-13.00	51.82	Vertical
5737.50	-64.95	3.48	-61.47	-13.00	48.47	Vertical
7650.00	-65.71	6.61	-59.10	-13.00	46.10	Vertical
3825.00	-64.53	0.01	-64.52	-13.00	51.52	Horizontal
5737.50	-65.85	3.84	-62.01	-13.00	49.01	Horizontal
7650.00	-65.86	6.40	-59.46	-13.00	46.46	Horizontal

Remark:

1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.

Band DC-2A-n41(20MHz)-SCS 30kHz

20MHz(Edge_1RB_Left) for DFT-s-OFDM Pi/2 BPSK

Lowest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5002.02	-66.91	3.65	-63.26	-25.00	38.26	Vertical
7503.03	-67.39	5.61	-61.78	-25.00	36.78	Vertical
10004.04	-69.16	10.05	-59.11	-25.00	34.11	Vertical
5002.02	-66.62	4.06	-62.56	-25.00	37.56	Horizontal
7503.03	-66.77	5.54	-61.23	-25.00	36.23	Horizontal
10004.04	-68.77	9.55	-59.22	-25.00	34.22	Horizontal

Middle channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5185.98	-66.63	3.35	-63.28	-25.00	38.28	Vertical
7778.97	-67.86	8.21	-59.65	-25.00	34.65	Vertical
10371.96	-69.05	10.91	-58.14	-25.00	33.14	Vertical
5185.98	-65.66	3.29	-62.37	-25.00	37.37	Horizontal
7778.97	-66.61	8.05	-58.56	-25.00	33.56	Horizontal
10371.96	-68.4	10.39	-58.01	-25.00	33.01	Horizontal

Highest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5370.00	-66.25	4.30	-61.95	-25.00	36.95	Vertical
8055.00	-68.28	8.10	-60.18	-25.00	35.18	Vertical
10740.00	-69.60	11.60	-58.00	-25.00	33.00	Vertical
5370.00	-66.09	4.28	-61.81	-25.00	36.81	Horizontal
8055.00	-67.65	8.75	-58.90	-25.00	33.90	Horizontal
10740.00	-68.84	11.02	-57.82	-25.00	32.82	Horizontal

Remark:

1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.

Band 5A-n66(5MHz)-SCS 15kHz

5MHz(1@0) for DFT-s-OFDM Pi/2 BPSK

Lowest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3425.00	-62.90	-2.17	-65.07	-13.00	52.07	Vertical
5137.50	-61.67	3.76	-57.91	-13.00	44.91	Vertical
6850.00	-65.75	5.80	-59.95	-13.00	46.95	Vertical
3425.00	-63.04	-2.23	-65.27	-13.00	52.27	Horizontal
5137.50	-62.48	3.81	-58.67	-13.00	45.67	Horizontal
6850.00	-65.49	6.01	-59.48	-13.00	46.48	Horizontal

Middle channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3490.00	-63.72	-3.02	-66.74	-13.00	53.74	Vertical
5235.00	-61.99	3.17	-58.82	-13.00	45.82	Vertical
6980.00	-65.84	5.49	-60.35	-13.00	47.35	Vertical
3490.00	-63.12	-2.92	-66.04	-13.00	53.04	Horizontal
5235.00	-62.23	3.32	-58.91	-13.00	45.91	Horizontal
6980.00	-65.58	5.46	-60.12	-13.00	47.12	Horizontal

Highest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
3555.00	-63.42	-2.32	-65.74	-13.00	52.74	Vertical
5332.50	-62.14	4.12	-58.02	-13.00	45.02	Vertical
7110.00	-65.03	5.42	-59.61	-13.00	46.61	Vertical
3555.00	-62.99	-2.28	-65.27	-13.00	52.27	Horizontal
5332.50	-62.15	4.13	-58.02	-13.00	45.02	Horizontal
7110.00	-65.04	5.24	-59.80	-13.00	46.80	Horizontal

Remark:

1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.

Band 2A-n71(5MHz)-SCS 15kHz

5MHz(1@0) for DFT-s-OFDM Pi/2 BPSK

Lowest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1331.00	-54.62	-11.75	-66.37	-13.00	53.37	Vertical
1996.50	-22.59	-10.59	-33.18	-13.00	20.18	Vertical
2662.00	-56.88	-7.26	-64.14	-13.00	51.14	Vertical
1331.00	-58.99	-11.97	-70.96	-13.00	57.96	Horizontal
1996.50	-24.67	-10.81	-35.48	-13.00	22.48	Horizontal
2662.00	-61.73	-7.18	-68.91	-13.00	55.91	Horizontal

Middle channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1361.00	-54.05	-11.77	-65.82	-13.00	52.82	Vertical
2041.50	-23.15	-10.78	-33.93	-13.00	20.93	Vertical
2722.00	-55.95	-7.04	-62.99	-13.00	49.99	Vertical
1361.00	-58.57	-11.70	-70.27	-13.00	57.27	Horizontal
2041.50	-24.26	-11.11	-35.37	-13.00	22.37	Horizontal
2722.00	-61.85	-7.16	-69.01	-13.00	56.01	Horizontal

Highest channel

Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
1391.00	-54.74	-11.69	-66.43	-13.00	53.43	Vertical
2086.50	-22.43	-10.13	-32.56	-13.00	19.56	Vertical
2782.00	-55.75	-7.00	-62.75	-13.00	49.75	Vertical
1391.00	-58.38	-11.48	-69.86	-13.00	56.86	Horizontal
2086.50	-24.35	-9.89	-34.24	-13.00	21.24	Horizontal
2782.00	-62.49	-6.83	-69.32	-13.00	56.32	Horizontal

Remark:

1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.

------End of report------