

FCC RF Test Report

(5G NR)

Applicant: TECNO MOBILE LIMITED

Address of Applicant: FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE
19-25 SHAN MEI STREET FOTAN NT HONGKONG

Equipment Under Test (EUT)

Product Name: Mobile Phone

Model No.: AD9

Trade Mark: TECNO

FCC ID: 2ADYY-AD9

Applicable Standards: FCC CFR Title 47 Part 2, M& N&O&Q

Date of Sample Receipt: 21 Jul., 2022

Date of Test: 22 Jul., to 13 Oct., 2022

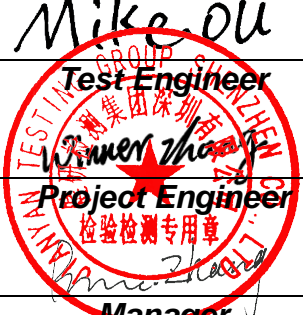
Date of Report Issued: 14 Oct., 2022

Test Result: PASS

Tested by: Mike Ou **Date:** 14 Oct., 2022
Test Engineer

Reviewed by: Wenwen Zhang **Date:** 14 Oct., 2022
Project Engineer

Approved by: Wenwen Zhang **Date:** 14 Oct., 2022
Manager



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.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

1 Version

Version No.	Date	Description
00	14 Oct., 2022	Original

2 Contents

Page

Cover Page	1
1 Version	2
2 Contents	3
3 General Information	4
3.1 Client Information	4
3.2 General Description of E.U.T.	4
3.3 Test Mode and Environment	5
3.4 Description of Test Auxiliary Equipment	5
3.5 Measurement Uncertainty	5
3.6 Additions to, Deviations, or Exclusions from the Method	5
3.7 Laboratory Facility	5
3.8 Laboratory Location	6
3.9 Test Instruments List	6
4 Measurement Setup and Procedure	7
4.1 Test Channel	7
4.2 Test Setup	12
4.3 Test Procedure	13
5 Test Results	14
5.1 Summary	14
5.1.1 Clause and Data Summary	14
5.1.2 Test Limit	15
5.2 Field Strength of Spurious Radiation Measurement	17

3 General Information

3.1 Client Information

Applicant:	TECNO MOBILE LIMITED
Address:	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG
Manufacturer:	TECNO MOBILE LIMITED
Address:	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG
Factory:	SHENZHEN TECNO TECHNOLOGY CO., LTD.
Address:	101, Building 24, Waijing Industrial Park, Fumin Community, Fucheng Street, Longhua District, Shenzhen City, P.R.China

3.2 General Description of E.U.T.

Product Name:	Mobile Phone			
Model No.:	AD9			
Operation Frequency Range:	Band n38:	Tx: 2570 MHz - 2620 MHz	Rx: 2570 MHz - 2620 MHz	
	Band n41:	Tx: 2535 MHz - 2655 MHz	Rx: 2535 MHz - 2655 MHz	
	Band n71:	Tx: 663 MHz - 698 MHz	Rx: 617 MHz - 652 MHz	
	Band n77:	Tx: 3450 MHz - 3550 MHz	Rx: 3450 MHz - 3550 MHz	
	Band n77:	Tx: 3700 MHz - 3980 MHz	Rx: 3700 MHz - 3980 MHz	
	Band n78:	Tx: 3450 MHz - 3550 MHz	Rx: 3450 MHz - 3550 MHz	
	Band n78:	Tx: 3700 MHz - 3800 MHz	Rx: 3700 MHz - 3800 MHz	
Modulation Type:	<input checked="" type="checkbox"/> DFT-s-OFDM:	Pi/2-BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM		
	<input checked="" type="checkbox"/> CP-OFDM:	QPSK, 16-QAM, 64-QAM, 256-QAM		
Network Mode:	<input checked="" type="checkbox"/> SA:	n38, n41, n71, n77, n78		
	<input checked="" type="checkbox"/> NSA(EN-DC):	DC_2A - n78A, DC_5A - n78A, DC_7A - n78A, DC_7C - n78A, DC_38A - n78A, DC_41A - n78A, DC_41C - n78A, DC_66A - n78A, DC_2A - n77A, DC_5A - n77A, DC_7A - n77A, DC_7C - n77A, DC_41A - n77A, DC_2A - n41A, DC_5A - n41A, DC_41A - n41A, DC_41c - n41A, DC_2A - n38A, DC_5A - n38A, DC_7A - n38A (LTE Band 7C and 41C only supports downlink)		
SCS Support:	<input checked="" type="checkbox"/> 15 kHz	<input checked="" type="checkbox"/> 30 kHz	<input type="checkbox"/> 60 kHz	<input type="checkbox"/> 120 kHz
Antenna Type:	Internal Antenna			
Antenna Gain:	Band n38:	-0.4 dBi (declare by Applicant)		
	Band n41:	0.9 dBi (declare by Applicant)		
	Band n71:	-2.0 dBi (declare by Applicant)		
	Band n77:	0.3 dBi (declare by Applicant)		
	Band n78:	0.3 dBi (declare by Applicant)		
Power Supply:	Rechargeable Li-ion Polymer Battery DC3.87V, 5040mAh			
AC Adapter:	Model: U450TSA Input: AC100-240V, 50/60Hz, 1.8A Output: DC 5.0V, 2.0A or DC 11.0V, 4.1A MAX			
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.
<i>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.</i>	
Operating Environment:	
Temperature:	15°C ~ 35°C
Humidity:	20 % ~ 75 % RH
Atmospheric Pressure:	1008 mbar
Voltage:	Nominal: 3.87 Vdc, Extreme: Low 3.50 Vdc, High 4.45 Vdc

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 ~ 1GHz) (3m SAC)	±4.45 dB
Radiated Emission (1GHz ~ 18GHz) (3m SAC)	±5.34 dB
Radiated Emission (18GHz ~ 40GHz) (3m SAC)	±5.34 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

<p>The test facility is recognized, certified, or accredited by the following organizations:</p> <ul style="list-style-type: none"> ● 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	04-13-2024
Loop Antenna	Schwarzbeck	FMZB 1519 B	WXJ002-4	03-07-2022	03-06-2023
BiConiLog Antenna	Schwarzbeck	VULB9163	WXJ002	03-08-2022	03-07-2023
Biconical Antenna	Schwarzbeck	VUBA9117	WXJ002-1	07-02-2021	07-01-2024
Horn Antenna	Schwarzbeck	BBHA9120D	WXJ002-2	03-08-2022	03-07-2023
Horn Antenna	Schwarzbeck	BBHA9120D	WXJ002-3	04-07-2022	04-06-2023
Horn Antenna	Schwarzbeck	BBHA9170	WXJ002-5	04-07-2022	04-06-2023
Horn Antenna	Schwarzbeck	BBHA9170	WXJ002-6	04-07-2022	04-06-2023
Pre-amplifier (30MHz ~ 1GHz)	Schwarzbeck	BBV9743B	WXJ001-2	01-20-2022	01-19-2023
Pre-amplifier (1GHz ~ 18GHz)	SKET	LNPA_0118G-50	WXJ001-3	01-20-2022	01-19-2023
Pre-amplifier (18GHz ~ 40GHz)	RF System	TRLA-180400G45B	WXJ002-7	03-30-2022	03-29-2023
EMI Test Receiver	Rohde & Schwarz	ESRP7	WXJ003-1	03-05-2022	03-04-2023
Spectrum Analyzer	Rohde & Schwarz	FSP 30	WXJ004	01-20-2022	01-19-2023
Spectrum Analyzer	KEYSIGHT	N9010B	WXJ004-2	10-27-2021	10-26-2022
Coaxial Cable (30MHz ~ 1GHz)	JYTSZ	JYT3M-1G-NN-8M	WXG001-4	10-27-2021	10-26-2022
Coaxial Cable (1GHz ~ 18GHz)	JYTSZ	JYT3M-18G-NN-8M	WXG001-5	03-03-2021	03-02-2023
Coaxial Cable (18GHz ~ 40GHz)	JYTSZ	JYT3M-40G-SS-8M	WXG001-7	07-16-2021	07-15-2022
Band Reject Filter Group	Tonscend	JS0806-F	WXJ089	N/A	
Test Software	Tonscend	TS+	Version: 3.0.0.1		

Conducted Method:					
Test Equipment	Manufacturer	Model No.	Manage No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
Spectrum Analyzer	Keysight	N9020B	WXJ004-2	10-27-2021	10-26-2022
UXM 5G Wireless Test Platform	Keysight	E7515B	WXJ008-6	10-27-2021	10-26-2022
DC Power Supply	Keysight	E3642A	WXJ025-3	N/A	
Temperature Humidity Chamber	HONG ZHI	CZ-A-80D	WXJ032-2	03-19-2021	03-18-2023
RF Control Box	MWRF-test	MW400-RFCB	WXG005	N/A	
Automatic Filter Box	MWRF-test	MW400-SFCB1	WXG005-1	N/A	
Automatic Filter Box	MWRF-test	MW400-SFCB2	WXG005-2	N/A	
Test Software	MWRF-test	MTS 8200 NR	Version: 2.0.0.0		

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 n38, SCS: 15 kHz					
Channels	ARFCN	Frequency (MHz)	Channels	ARFCN	Frequency (MHz)
5 MHz			10 MHz		
Lowest	514500	2572.5	Lowest	515000	2575.0
Middle	518500	2592.5	Middle	519000	2595.0
Highest	523500	2617.5	Highest	523000	2615.0
15 MHz			20 MHz		
Lowest	515500	2577.5	Lowest	516000	2580.0
Middle	519000	2595.0	Middle	519000	2595.0
Highest	522500	2612.5	Highest	522000	2610.0
40 MHz					
Lowest	518000	2590.0			
Middle	519000	2595.0			
Highest	520000	2600.0			
Band n38, SCS: 30 kHz					
Channels	ARFCN	Frequency (MHz)	Channels	ARFCN	Frequency (MHz)
10 MHz			15 MHz		
Lowest	515000	2575.0	Lowest	515500	2577.5
Middle	519000	2595.0	Middle	519000	2595.0
Highest	523000	2615.0	Highest	522500	2612.5
20 MHz			40 MHz		
Lowest	516000	2580.0	Lowest	518000	2590.0
Middle	519000	2595.0	Middle	519000	2595.0
Highest	522000	2610.0	Highest	520000	2600.0
Band n41, SCS: 15 kHz					
Channels	ARFCN	Frequency (MHz)	Channels	ARFCN	Frequency (MHz)
10 MHz			15 MHz		
Lowest	508002	2540.010	Lowest	508500	2542.500
Middle	519000	2595.000	Middle	519000	2595.000
Highest	529998	2649.990	Highest	529500	2647.500
20 MHz			30 MHz		
Lowest	509001	2545.005	Lowest	510000	2550.000
Middle	519000	2595.000	Middle	519000	2595.000
Highest	528999	2644.995	Highest	528000	2640.000
40 MHz			50 MHz		
Lowest	511002	2555.010	Lowest	512001	2560.005
Middle	519000	2595.000	Middle	519000	2595.000
Highest	526998	2634.990	Highest	525999	2629.995

Band n41, SCS: 30 kHz					
Channels	ARFCN	Frequency (MHz)	Channels	ARFCN	Frequency (MHz)
10 MHz			15 MHz		
Lowest	508002	2540.010	Lowest	508500	2542.500
Middle	519000	2595.000	Middle	519000	2595.000
Highest	529998	2649.990	Highest	529500	2647.500
20 MHz			30 MHz		
Lowest	509004	2545.020	Lowest	510000	2550.000
Middle	519000	2595.000	Middle	519000	2595.000
Highest	528996	2644.980	Highest	528000	2640.000
40 MHz			50 MHz		
Lowest	511002	2555.010	Lowest	512004	2560.020
Middle	519000	2595.000	Middle	519000	2595.000
Highest	526998	2634.990	Highest	525996	2629.980
60 MHz			80 MHz		
Lowest	513000	2565.000	Lowest	515004	2575.020
Middle	519000	2595.000	Middle	519000	2595.000
Highest	525000	2625.000	Highest	522996	2614.980
90 MHz			100 MHz		
Lowest	516000	2580.000	Lowest	517002	2585.010
Middle	519000	2595.000	Middle	519000	2595.000
Highest	522000	2610.000	Highest	520998	2604.990
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 n71, SCS: 30 kHz					
Channels	ARFCN	Frequency (MHz)	Channels	ARFCN	Frequency (MHz)
10 MHz			15 MHz		
Lowest	133600	668.0	Lowest	134100	670.5
Middle	136100	680.5	Middle	136100	680.5
Highest	138600	693.0	Highest	138100	690.5
20 MHz					
Lowest	134600	673.0			
Middle	136100	680.5			
Highest	137600	688.0			

Band n77/78(3450-3550), SCS: 15 kHz					
Channels	ARFCN	Frequency (MHz)	Channels	ARFCN	Frequency (MHz)
10 MHz			15 MHz		
Lowest	630334	3455.010	Lowest	630500	3457.500
Middle	633333	3499.995	Middle	633333	3499.995
Highest	636333	3544.995	Highest	636166	3542.490
20 MHz			30 MHz		
Lowest	630667	3460.005	Lowest	631000	3465.000
Middle	633333	3499.995	Middle	633333	3499.995
Highest	636000	3540.000	Highest	635666	3534.990
40 MHz			50 MHz		
Lowest	631334	3470.010	Lowest	631667	3475.005
Middle	633333	3499.995	Middle	633333	3499.995
Highest	635333	3529.995	Highest	635000	3525.000
Band n77/78(3450-3550), SCS: 30 kHz					
Channels	ARFCN	Frequency (MHz)	Channels	ARFCN	Frequency (MHz)
10 MHz			15 MHz		
Lowest	630334	3455.010	Lowest	630500	3457.500
Middle	633334	3500.010	Middle	633334	3500.010
Highest	636332	3544.980	Highest	636166	3542.490
20 MHz			30 MHz		
Lowest	630668	3460.020	Lowest	631000	3465.000
Middle	633334	3500.010	Middle	633334	3500.010
Highest	636000	3540.000	Highest	635666	3534.990
40 MHz			50 MHz		
Lowest	631334	3470.010	Lowest	631668	3475.020
Middle	633334	3500.010	Middle	633334	3500.010
Highest	635332	3529.980	Highest	635000	3525.000
60 MHz			80 MHz		
Lowest	632000	3480.000	Lowest	632668	3490.020
Middle	633334	3500.010	Middle	633334	3500.010
Highest	634666	3519.990	Highest	634000	3510.000
90 MHz			100 MHz		
Lowest	633000	3495.000	Lowest	633334	3500.010
Middle	633334	3500.010	Middle	633334	3500.010
Highest	633666	3504.990	Highest	633334	3500.010

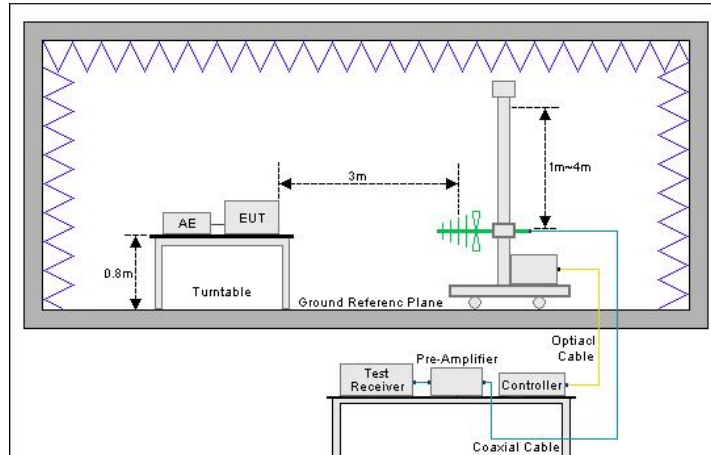
Band n77(3700-3980), SCS: 15 kHz					
Channels	ARFCN	Frequency (MHz)	Channels	ARFCN	Frequency (MHz)
10 MHz			15 MHz		
Lowest	647000	3705.000	Lowest	647167	3707.505
Middle	656000	3840.000	Middle	656000	3840.000
Highest	665000	3975.000	Highest	664833	3972.495
20 MHz			30 MHz		
Lowest	647334	3710.010	Lowest	647667	3715.005
Middle	656000	3840.000	Middle	656000	3840.000
Highest	664666	3969.990	Highest	664333	3964.995
40 MHz			50 MHz		
Lowest	648000	3720.000	Lowest	648334	3725.010
Middle	656000	3840.000	Middle	656000	3840.000
Highest	664000	3960.000	Highest	663666	3954.990
Band n77(3700-3980), SCS: 30 kHz					
Channels	ARFCN	Frequency (MHz)	Channels	ARFCN	Frequency (MHz)
10 MHz			15 MHz		
Lowest	647000	3705.000	Lowest	647168	3707.520
Middle	656000	3840.000	Middle	656000	3840.000
Highest	665000	3975.000	Highest	664832	3972.480
20 MHz			30 MHz		
Lowest	647334	3710.010	Lowest	647668	3715.020
Middle	656000	3840.000	Middle	656000	3840.000
Highest	664666	3969.990	Highest	664332	3964.980
40 MHz			50 MHz		
Lowest	648000	3720.000	Lowest	648334	3725.010
Middle	656000	3840.000	Middle	656000	3840.000
Highest	664000	3960.000	Highest	663666	3954.990
60 MHz			80 MHz		
Lowest	648668	3730.020	Lowest	649334	3740.010
Middle	656000	3840.000	Middle	656000	3840.000
Highest	663332	3949.980	Highest	662666	3939.990
90 MHz			100 MHz		
Lowest	649668	3745.020	Lowest	650000	3750.000
Middle	656000	3840.000	Middle	656000	3840.000
Highest	662332	3934.980	Highest	662000	3930.000

Band n78(3700-3800), SCS: 15 kHz					
Channels	ARFCN	Frequency (MHz)	Channels	ARFCN	Frequency (MHz)
10 MHz			15 MHz		
Lowest	647000	3705.000	Lowest	647167	3707.505
Middle	650000	3750.000	Middle	650000	3750.000
Highest	653000	3795.000	Highest	652833	3792.495
20 MHz			30 MHz		
Lowest	647334	3710.010	Lowest	647667	3715.005
Middle	650000	3750.000	Middle	650000	3750.000
Highest	652666	3789.990	Highest	652333	3784.995
40 MHz			50 MHz		
Lowest	648000	3720.000	Lowest	648334	3725.010
Middle	650000	3750.000	Middle	650000	3750.000
Highest	652000	3780.000	Highest	651666	3774.990
Band n78(3700-3800), SCS: 30 kHz					
Channels	ARFCN	Frequency (MHz)	Channels	ARFCN	Frequency (MHz)
10 MHz			15 MHz		
Lowest	647000	3705.000	Lowest	647168	3707.520
Middle	650000	3750.000	Middle	650000	3750.000
Highest	653000	3795.000	Highest	652832	3792.480
20 MHz			30 MHz		
Lowest	647334	3710.010	Lowest	647668	3715.020
Middle	650000	3750.000	Middle	650000	3750.000
Highest	652666	3789.990	Highest	652332	3784.980
40 MHz			50 MHz		
Lowest	648000	3720.000	Lowest	648334	3725.010
Middle	650000	3750.000	Middle	650000	3750.000
Highest	652000	3780.000	Highest	651666	3774.990
60 MHz			80 MHz		
Lowest	648668	3730.020	Lowest	649334	3740.010
Middle	650000	3750.000	Middle	650000	3750.000
Highest	651332	3769.980	Highest	650666	3759.990
90 MHz			100 MHz		
Lowest	649668	3745.020	Lowest	650000	3750.000
Middle	650000	3750.000	Middle	650000	3750.000
Highest	650332	3754.980	Highest	650000	3750.000

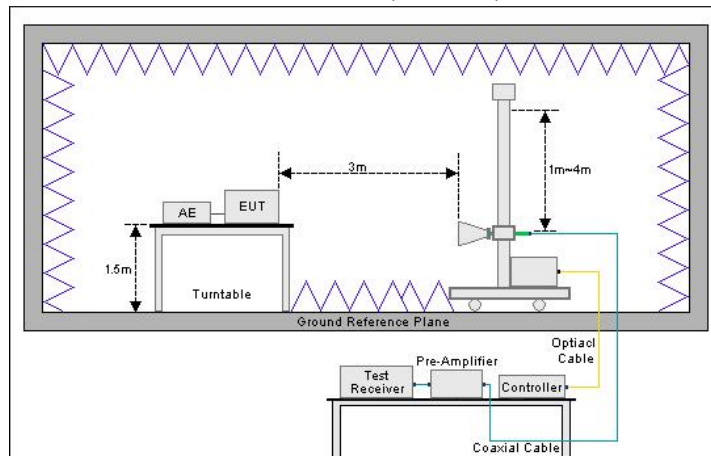
4.2 Test Setup

1) Radiated emission measurement:

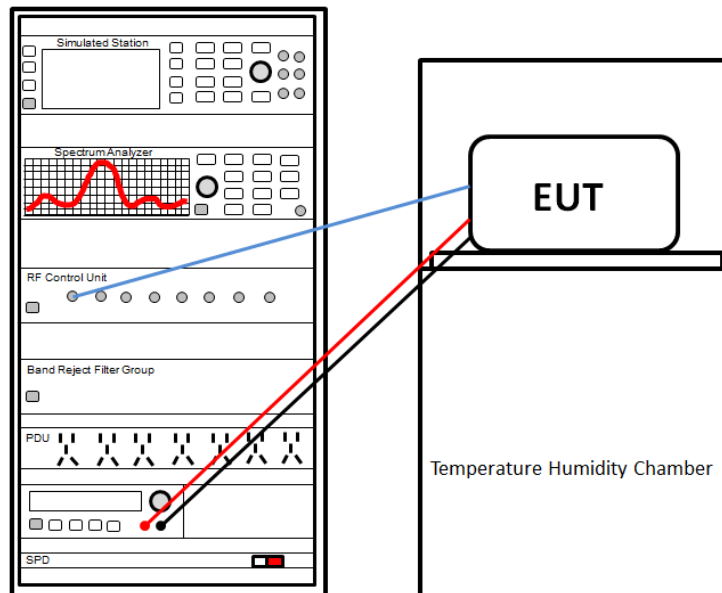
Below 1GHz (3m SAC)



Above 1GHz (3m SAC)



2) Conducted test method



4.3 Test Procedure

Test method	Test step
Radiated emission	<p>For below 1GHz:</p> <ol style="list-style-type: none"> 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. 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. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data. <p>For above 1GHz:</p> <ol style="list-style-type: none"> 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. 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. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.
Conducted test method	<ol style="list-style-type: none"> The NR antenna port of EUT was connected to the test port of the test system through an RF cable. The EUT is keeping in continuous transmission mode and tested in all modulation modes. Open the test software, prepare a test plan, and control the system through the software. After the test is completed, the test report is exported through the test software.

5 Test Results

5.1 Summary

5.1.1 Clause and Data Summary

Test items	Standard clause	Test data	Result
RF Exposure (SAR)	Part 1.1307 Part 2.1093	See SAR Report	Pass
RF Output Power	Part 2.1046 Part 27.50 (c)(10) Part 27.50 (h)(2) Part 27.50 (j)(3) Part 27.50 (k)(3)	Appendix – 5G NR	Pass
Peak-to-Average Power Ratio	Part 27.50 (j)(4) Part 27.50 (k)(4)	Appendix – 5G NR	Pass
26dB Emission Bandwidth 99% Occupied Bandwidth	Part 2.1049 Part 27.53 (g) Part 27.53 (l)(2) Part 27.53 (m)(6) Part 27.53 (n)(2)	Appendix – 5G NR	Pass
Out of Band Emission at Antenna Terminals	Part 2.1051 Part 27.53 (g) Part 27.53 (l)(2) Part 27.53 (m)(4) Part 27.53 (n)(2)	Appendix – 5G NR	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 27.53 (g) Part 27.53 (l)(2) Part 27.53 (m)(4) Part 27.53 (n)(2)	See Section 6.2	Pass
Frequency Stability vs. Temperature	Part 2.1055 (a)(1)(b) Part 22.355 Part 24.235 Part 27.54	Appendix – 5G NR	Pass
Frequency Stability vs. Voltage	Part 2.1055 (d)(2) Part 22.355 Part 24.235 Part 27.54	Appendix – 5G NR	Pass
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).			
Test Method:	ANSI/TIA-603-E-2016 ANSI C63.26-2015		

5.1.2 Test Limit

Test items	Limit
RF output power	Band n38/41: 2W EIRP, Band 71: 3W EIRP Band n77, n78: 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	<p>Band 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.</p> <p>Band n38, 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.</p> <p>Band n77, n78: For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (n)(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, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed, but limited to a maximum of 200 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.</p>

<p>Out of Band Emission at Antenna Terminals</p> <p>Field Strength of Spurious Radiation</p>	<p>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.</p>
<p>Frequency Stability vs. Temperature</p> <p>Frequency Stability vs. Voltage</p>	<p>The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.</p>

5.2 Field Strength of Spurious Radiation Measurement

Note:

1. The field strength of spurious radiation is tested by selecting the modulation and RB allocation with the maximum power in lowest and highest bandwidth.
2. Pre-Scan DC_2A - n78A, DC_5A - n78A, DC_7A - n78A, DC_7C - n78A, DC_38A - n78A, DC_41A - n78A, DC_41C - n78A, DC_66A - n78A, DC_2A - n77A, DC_5A - n77A, DC_7A - n77A, DC_7C - n77A, DC_41A - n77A, DC_2A - n41A, DC_5A - n41A, DC_41A - n41A, DC_41c - n41A, DC_2A - n38A, DC_5A - n38A, DC_7A - n38A mode, and found DC-2A-N38, DC_2A - n77A, DC_41A - n41A, were worst mode, the report only reflects the worst mode.

Band n38 – 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
5145.00	-50.41	4.66	-45.75	-25.00	20.75	Vertical
7717.50	-52.57	13.24	-39.33	-25.00	14.33	Vertical
10290.00	-54.15	18.46	-35.69	-25.00	10.69	Vertical
5145.00	-51.38	4.66	-46.72	-25.00	21.72	Horizontal
7717.50	-53.44	13.24	-40.20	-25.00	15.20	Horizontal
10290.00	-53.68	18.46	-35.22	-25.00	10.22	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5190.00	-50.38	4.76	-45.62	-25.00	20.62	Vertical
7785.00	-52.39	13.48	-38.91	-25.00	13.91	Vertical
10380.00	-53.98	17.85	-36.13	-25.00	11.13	Vertical
5190.00	-51.47	4.76	-46.71	-25.00	21.71	Horizontal
7785.00	-52.98	13.48	-39.50	-25.00	14.50	Horizontal
10380.00	-53.55	17.85	-35.70	-25.00	10.70	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5235.00	-50.80	4.95	-45.85	-25.00	20.85	Vertical
7852.50	-52.71	13.48	-39.23	-25.00	14.23	Vertical
10470.00	-54.30	18.39	-35.91	-25.00	10.91	Vertical
5235.00	-51.97	4.95	-47.02	-25.00	22.02	Horizontal
7852.50	-53.39	13.48	-39.91	-25.00	14.91	Horizontal
10470.00	-53.85	18.39	-35.46	-25.00	10.46	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

Band n38 – SCS 15kHz						
40MHz(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
5180.00	-50.57	4.71	-45.86	-25.00	20.86	Vertical
7770.00	-52.28	13.32	-38.96	-25.00	13.96	Vertical
10360.00	-54.22	18.30	-35.92	-25.00	10.92	Vertical
5180.00	-52.31	4.71	-47.60	-25.00	22.60	Horizontal
7770.00	-53.39	13.32	-40.07	-25.00	15.07	Horizontal
10360.00	-53.58	18.30	-35.28	-25.00	10.28	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5190.00	-50.61	4.76	-45.85	-25.00	20.85	Vertical
7785.00	-52.43	13.48	-38.95	-25.00	13.95	Vertical
10380.00	-53.50	17.85	-35.65	-25.00	10.65	Vertical
5190.00	-50.98	4.76	-46.22	-25.00	21.22	Horizontal
7785.00	-52.49	13.48	-39.01	-25.00	14.01	Horizontal
10380.00	-53.14	17.85	-35.29	-25.00	10.29	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5200.00	-50.99	4.86	-46.13	-25.00	21.13	Vertical
7800.00	-52.53	13.49	-39.04	-25.00	14.04	Vertical
10400.00	-54.31	18.21	-36.10	-25.00	11.10	Vertical
5200.00	-52.28	4.86	-47.42	-25.00	22.42	Horizontal
7800.00	-53.84	13.49	-40.35	-25.00	15.35	Horizontal
10400.00	-54.31	18.21	-36.10	-25.00	11.10	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

Band n38 – SCS 30kHz						
10MHz(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
5150.00	-50.63	4.66	-45.97	-25.00	20.97	Vertical
7725.00	-53.05	13.24	-39.81	-25.00	14.81	Vertical
10300.00	-54.00	18.46	-35.54	-25.00	10.54	Vertical
5150.00	-52.19	4.66	-47.53	-25.00	22.53	Horizontal
7725.00	-52.97	13.24	-39.73	-25.00	14.73	Horizontal
10300.00	-53.53	18.46	-35.07	-25.00	10.07	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5190.00	-50.18	4.76	-45.42	-25.00	20.42	Vertical
7785.00	-53.52	13.48	-40.04	-25.00	15.04	Vertical
10380.00	-54.05	17.85	-36.20	-25.00	11.20	Vertical
5190.00	-51.83	4.76	-47.07	-25.00	22.07	Horizontal
7785.00	-53.33	13.48	-39.85	-25.00	14.85	Horizontal
10380.00	-53.42	17.85	-35.57	-25.00	10.57	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5230.00	-49.88	4.95	-44.93	-25.00	19.93	Vertical
7845.00	-53.07	13.48	-39.59	-25.00	14.59	Vertical
10460.00	-54.55	18.39	-36.16	-25.00	11.16	Vertical
5230.00	-51.96	4.95	-47.01	-25.00	22.01	Horizontal
7845.00	-53.31	13.48	-39.83	-25.00	14.83	Horizontal
10460.00	-53.40	18.39	-35.01	-25.00	10.01	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

Band n38 – SCS 30kHz						
40MHz(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
5160.00	-50.97	4.71	-46.26	-25.00	21.26	Vertical
7740.00	-53.43	13.32	-40.11	-25.00	15.11	Vertical
10320.00	-54.43	18.30	-36.13	-25.00	11.13	Vertical
5160.00	-51.89	4.71	-47.18	-25.00	22.18	Horizontal
7740.00	-53.30	13.32	-39.98	-25.00	14.98	Horizontal
10320.00	-53.80	18.30	-35.50	-25.00	10.50	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5190.00	-50.19	4.76	-45.43	-25.00	20.43	Vertical
7785.00	-53.50	13.48	-40.02	-25.00	15.02	Vertical
10380.00	-54.20	17.85	-36.35	-25.00	11.35	Vertical
5190.00	-51.92	4.76	-47.16	-25.00	22.16	Horizontal
7785.00	-52.97	13.48	-39.49	-25.00	14.49	Horizontal
10380.00	-53.41	17.85	-35.56	-25.00	10.56	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5200.00	-49.56	4.86	-44.70	-25.00	19.70	Vertical
7800.00	-52.60	13.49	-39.11	-25.00	14.11	Vertical
10400.00	-54.37	18.21	-36.16	-25.00	11.16	Vertical
5200.00	-51.66	4.86	-46.80	-25.00	21.80	Horizontal
7800.00	-53.35	13.49	-39.86	-25.00	14.86	Horizontal
10400.00	-53.72	18.21	-35.51	-25.00	10.51	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 15kHz						
10MHz(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
5080.02	-52.02	4.56	-47.46	-25.00	22.46	Vertical
7620.03	-53.62	13.14	-40.48	-25.00	15.48	Vertical
10160.04	-52.00	16.89	-35.11	-25.00	10.11	Vertical
5080.02	-49.61	4.56	-45.05	-25.00	20.05	Horizontal
7620.03	-53.96	13.14	-40.82	-25.00	15.82	Horizontal
10160.04	-54.44	16.89	-37.55	-25.00	12.55	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5190.00	-51.82	4.76	-47.06	-25.00	22.06	Vertical
7785.00	-53.48	13.48	-40.00	-25.00	15.00	Vertical
10380.00	-52.16	18.00	-34.16	-25.00	9.16	Vertical
5190.00	-49.45	4.76	-44.69	-25.00	19.69	Horizontal
7785.00	-53.76	13.48	-40.28	-25.00	15.28	Horizontal
10380.00	-54.59	18.00	-36.59	-25.00	11.59	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5299.98	-51.93	5.50	-46.43	-25.00	21.43	Vertical
7949.97	-53.63	13.31	-40.32	-25.00	15.32	Vertical
10599.96	-51.91	19.50	-32.41	-25.00	7.41	Vertical
5299.98	-49.39	5.50	-43.89	-25.00	18.89	Horizontal
7949.97	-53.61	13.31	-40.30	-25.00	15.30	Horizontal
10599.96	-54.97	19.50	-35.47	-25.00	10.47	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 15kHz						
50MHz(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
5120.04	-51.68	4.56	-47.12	-25.00	22.12	Vertical
7680.06	-53.82	13.29	-40.53	-25.00	15.53	Vertical
10240.08	-51.88	16.93	-34.95	-25.00	9.95	Vertical
5120.04	-49.29	4.56	-44.73	-25.00	19.73	Horizontal
7680.06	-54.34	13.29	-41.05	-25.00	16.05	Horizontal
10240.08	-54.69	16.93	-37.76	-25.00	12.76	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5190.00	-52.20	4.76	-47.44	-25.00	22.44	Vertical
7785.00	-53.52	13.48	-40.04	-25.00	15.04	Vertical
10380.00	-52.04	18.00	-34.04	-25.00	9.04	Vertical
5190.00	-49.36	4.76	-44.60	-25.00	19.60	Horizontal
7785.00	-54.17	13.48	-40.69	-25.00	15.69	Horizontal
10380.00	-54.73	18.00	-36.73	-25.00	11.73	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5259.96	-51.53	5.41	-46.12	-25.00	21.12	Vertical
7889.94	-53.35	13.33	-40.02	-25.00	15.02	Vertical
10519.92	-51.67	19.67	-32.00	-25.00	7.00	Vertical
5259.96	-49.28	5.41	-43.87	-25.00	18.87	Horizontal
7889.94	-53.60	13.33	-40.27	-25.00	15.27	Horizontal
10519.92	-54.58	19.67	-34.91	-25.00	9.91	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						
10MHz(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
5080.02	-51.45	4.56	-46.89	-25.00	21.89	Vertical
7620.03	-53.72	13.14	-40.58	-25.00	15.58	Vertical
10160.04	-52.26	16.89	-35.37	-25.00	10.37	Vertical
5080.02	-49.20	4.56	-44.64	-25.00	19.64	Horizontal
7620.03	-53.80	13.14	-40.66	-25.00	15.66	Horizontal
10160.04	-54.48	16.89	-37.59	-25.00	12.59	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5190.00	-51.23	4.76	-46.47	-25.00	21.47	Vertical
7785.00	-54.04	13.48	-40.56	-25.00	15.56	Vertical
10380.00	-52.08	18.00	-34.08	-25.00	9.08	Vertical
5190.00	-48.79	4.76	-44.03	-25.00	19.03	Horizontal
7785.00	-54.13	13.48	-40.65	-25.00	15.65	Horizontal
10380.00	-54.49	18.00	-36.49	-25.00	11.49	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5299.98	-51.28	5.50	-45.78	-25.00	20.78	Vertical
7949.97	-53.89	13.31	-40.58	-25.00	15.58	Vertical
10599.96	-52.06	19.50	-32.56	-25.00	7.56	Vertical
5299.98	-49.27	5.50	-43.77	-25.00	18.77	Horizontal
7949.97	-54.23	13.31	-40.92	-25.00	15.92	Horizontal
10599.96	-54.51	19.50	-35.01	-25.00	10.01	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						
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
5170.02	-51.08	4.56	-46.52	-25.00	21.52	Vertical
7755.03	-53.43	13.29	-40.14	-25.00	15.14	Vertical
10340.04	-52.21	16.93	-35.28	-25.00	10.28	Vertical
5170.02	-49.06	4.56	-44.50	-25.00	19.50	Horizontal
7755.03	-53.33	13.29	-40.04	-25.00	15.04	Horizontal
10340.04	-54.68	16.93	-37.75	-25.00	12.75	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5190.00	-51.12	4.76	-46.36	-25.00	21.36	Vertical
7785.00	-53.81	13.48	-40.33	-25.00	15.33	Vertical
10380.00	-52.13	18.00	-34.13	-25.00	9.13	Vertical
5190.00	-48.45	4.76	-43.69	-25.00	18.69	Horizontal
7785.00	-54.22	13.48	-40.74	-25.00	15.74	Horizontal
10380.00	-54.86	18.00	-36.86	-25.00	11.86	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5209.98	-51.28	5.41	-45.87	-25.00	20.87	Vertical
7814.97	-54.31	13.33	-40.98	-25.00	15.98	Vertical
10419.96	-51.64	19.67	-31.97	-25.00	6.97	Vertical
5209.98	-49.14	5.41	-43.73	-25.00	18.73	Horizontal
7814.97	-54.48	13.33	-41.15	-25.00	16.15	Horizontal
10419.96	-54.05	19.67	-34.38	-25.00	9.38	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

Band n77(3450 MHz – 3550 MHz) – SCS 15kHz						
10MHz(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
6910.02	-53.59	10.75	-42.84	-13.00	29.84	Vertical
10365.03	-53.04	17.40	-35.64	-13.00	22.64	Vertical
13820.04	-53.10	23.61	-29.49	-13.00	16.49	Vertical
6910.02	-38.39	10.75	-27.64	-13.00	14.64	Horizontal
10365.03	-52.26	17.40	-34.86	-13.00	21.86	Horizontal
13820.04	-51.90	23.61	-28.29	-13.00	15.29	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7000.00	-53.58	10.51	-43.07	-13.00	30.07	Vertical
10500.00	-53.23	18.37	-34.86	-13.00	21.86	Vertical
14000.00	-52.75	25.38	-27.37	-13.00	14.37	Vertical
7000.00	-38.23	10.51	-27.72	-13.00	14.72	Horizontal
10500.00	-51.88	18.37	-33.51	-13.00	20.51	Horizontal
14000.00	-52.25	25.38	-26.87	-13.00	13.87	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7090.00	-53.76	11.50	-42.26	-13.00	29.26	Vertical
10635.00	-53.50	18.87	-34.63	-13.00	21.63	Vertical
14180.00	-52.97	26.86	-26.11	-13.00	13.11	Vertical
7090.00	-37.86	11.50	-26.36	-13.00	13.36	Horizontal
10635.00	-51.60	18.87	-32.73	-13.00	19.73	Horizontal
14180.00	-52.44	26.86	-25.58	-13.00	12.58	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

Band n77(3450 MHz – 3550 MHz) – SCS 15kHz						
50MHz(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
6950.02	-53.67	10.50	-43.17	-13.00	30.17	Vertical
10425.03	-52.69	17.63	-35.06	-13.00	22.06	Vertical
13900.04	-53.23	24.60	-28.63	-13.00	15.63	Vertical
6950.02	-38.51	10.50	-28.01	-13.00	15.01	Horizontal
10425.03	-52.47	17.63	-34.84	-13.00	21.84	Horizontal
13900.04	-51.78	24.60	-27.18	-13.00	14.18	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7000.00	-53.62	10.49	-43.13	-13.00	30.13	Vertical
10500.00	-53.40	18.21	-35.19	-13.00	22.19	Vertical
14000.00	-52.40	25.38	-27.02	-13.00	14.02	Vertical
7000.00	-38.11	10.49	-27.62	-13.00	14.62	Horizontal
10500.00	-51.82	18.21	-33.61	-13.00	20.61	Horizontal
14000.00	-52.57	25.38	-27.19	-13.00	14.19	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7050.00	-53.81	11.08	-42.73	-13.00	29.73	Vertical
10575.00	-53.87	18.53	-35.34	-13.00	22.34	Vertical
14100.00	-52.64	26.24	-26.40	-13.00	13.40	Vertical
7050.00	-37.54	11.08	-26.46	-13.00	13.46	Horizontal
10575.00	-52.02	18.53	-33.49	-13.00	20.49	Horizontal
14100.00	-52.75	26.24	-26.51	-13.00	13.51	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

Band n77(3450 MHz – 3550 MHz) – SCS 30kHz						
10MHz(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
6910.02	-53.27	10.75	-42.52	-13.00	29.52	Vertical
10365.03	-53.79	17.58	-36.21	-13.00	23.21	Vertical
13820.04	-53.18	23.61	-29.57	-13.00	16.57	Vertical
6910.02	-37.49	10.75	-26.74	-13.00	13.74	Horizontal
10365.03	-51.82	17.58	-34.24	-13.00	21.24	Horizontal
13820.04	-52.64	23.61	-29.03	-13.00	16.03	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7000.02	-53.34	10.49	-42.85	-13.00	29.85	Vertical
10500.03	-53.09	18.21	-34.88	-13.00	21.88	Vertical
14000.04	-52.67	25.38	-27.29	-13.00	14.29	Vertical
7000.02	-37.99	10.49	-27.50	-13.00	14.50	Horizontal
10500.03	-51.41	18.21	-33.20	-13.00	20.20	Horizontal
14000.04	-52.69	25.38	-27.31	-13.00	14.31	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7089.96	-53.64	11.50	-42.14	-13.00	29.14	Vertical
10634.94	-53.32	18.71	-34.61	-13.00	21.61	Vertical
14179.92	-53.01	26.86	-26.15	-13.00	13.15	Vertical
7089.96	-38.24	11.50	-26.74	-13.00	13.74	Horizontal
10634.94	-51.88	18.71	-33.17	-13.00	20.17	Horizontal
14179.92	-52.61	26.86	-25.75	-13.00	12.75	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

Band n77(3450 MHz – 3550 MHz) – SCS 30kHz						
100MHz(Edge_1RB_Left) for DFT-s-OFDM Pi/2 BPSK						
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7000.02	-53.74	10.49	-43.25	-13.00	30.25	Vertical
10500.03	-53.48	18.21	-35.27	-13.00	22.27	Vertical
14000.04	-53.10	25.38	-27.72	-13.00	14.72	Vertical
7000.02	-38.32	10.49	-27.83	-13.00	14.83	Horizontal
10500.03	-51.20	18.21	-32.99	-13.00	19.99	Horizontal
14000.04	-52.62	25.38	-27.24	-13.00	14.24	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 15kHz						
10MHz(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	-48.94	12.64	-36.30	-13.00	23.30	Vertical
11115.00	-53.04	18.78	-34.26	-13.00	21.26	Vertical
14820.00	-53.27	26.68	-26.59	-13.00	13.59	Vertical
7410.00	-53.16	12.64	-40.52	-13.00	27.52	Horizontal
11115.00	-53.03	18.78	-34.25	-13.00	21.25	Horizontal
14820.00	-52.96	26.68	-26.28	-13.00	13.28	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7680.00	-49.09	12.84	-36.25	-13.00	23.25	Vertical
11520.00	-52.67	18.50	-34.17	-13.00	21.17	Vertical
15360.00	-53.41	24.94	-28.47	-13.00	15.47	Vertical
7680.00	-52.70	12.84	-39.86	-13.00	26.86	Horizontal
11520.00	-52.64	18.50	-34.14	-13.00	21.14	Horizontal
15360.00	-53.42	24.94	-28.48	-13.00	15.48	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7950.00	-48.81	16.92	-31.89	-13.00	18.89	Vertical
11925.00	-52.31	12.98	-39.33	-13.00	26.33	Vertical
15900.00	-53.55	22.31	-31.24	-13.00	18.24	Vertical
7950.00	-52.87	16.92	-35.95	-13.00	22.95	Horizontal
11925.00	-52.84	12.98	-39.86	-13.00	26.86	Horizontal
15900.00	-53.74	22.31	-31.43	-13.00	18.43	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 15kHz						
50MHz(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
7450.02	-48.58	12.49	-36.09	-13.00	23.09	Vertical
11175.03	-53.46	18.85	-34.61	-13.00	21.61	Vertical
14900.04	-53.03	26.90	-26.13	-13.00	13.13	Vertical
7450.02	-52.93	12.49	-40.44	-13.00	27.44	Horizontal
11175.03	-53.04	18.85	-34.19	-13.00	21.19	Horizontal
14900.04	-53.40	26.90	-26.50	-13.00	13.50	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7680.00	-49.01	12.84	-36.17	-13.00	23.17	Vertical
11520.00	-53.17	18.50	-34.67	-13.00	21.67	Vertical
15360.00	-53.67	24.94	-28.73	-13.00	15.73	Vertical
7680.00	-52.66	12.84	-39.82	-13.00	26.82	Horizontal
11520.00	-52.96	18.50	-34.46	-13.00	21.46	Horizontal
15360.00	-53.67	24.94	-28.73	-13.00	15.73	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7909.98	-48.45	17.07	-31.38	-13.00	18.38	Vertical
11864.97	-52.01	17.97	-34.04	-13.00	21.04	Vertical
15819.96	-53.81	18.75	-35.06	-13.00	22.06	Vertical
7909.98	-52.88	17.07	-35.81	-13.00	22.81	Horizontal
11864.97	-52.65	17.97	-34.68	-13.00	21.68	Horizontal
15819.96	-53.44	18.75	-34.69	-13.00	21.69	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						
10MHz(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	-49.35	12.64	-36.71	-13.00	23.71	Vertical
11115.00	-52.91	18.78	-34.13	-13.00	21.13	Vertical
14820.00	-53.59	26.68	-26.91	-13.00	13.91	Vertical
7410.00	-52.58	12.64	-39.94	-13.00	26.94	Horizontal
11115.00	-53.11	18.78	-34.33	-13.00	21.33	Horizontal
14820.00	-53.86	26.68	-27.18	-13.00	14.18	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7680.00	-48.95	12.84	-36.11	-13.00	23.11	Vertical
11520.00	-53.14	18.50	-34.64	-13.00	21.64	Vertical
15360.00	-53.91	24.94	-28.97	-13.00	15.97	Vertical
7680.00	-52.9	12.84	-40.06	-13.00	27.06	Horizontal
11520.00	-52.83	18.50	-34.33	-13.00	21.33	Horizontal
15360.00	-53.41	24.94	-28.47	-13.00	15.47	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7950.00	-48.52	16.92	-31.60	-13.00	18.60	Vertical
11925.00	-52.76	12.98	-39.78	-13.00	26.78	Vertical
15900.00	-53.86	22.31	-31.55	-13.00	18.55	Vertical
7950.00	-52.80	16.92	-35.88	-13.00	22.88	Horizontal
11925.00	-52.34	12.98	-39.36	-13.00	26.36	Horizontal
15900.00	-53.37	22.31	-31.06	-13.00	18.06	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
7500.00	-49.08	12.48	-36.60	-13.00	23.60	Vertical
11250.00	-52.45	19.20	-33.25	-13.00	20.25	Vertical
15000.00	-54.03	25.36	-28.67	-13.00	15.67	Vertical
7500.00	-52.64	12.48	-40.16	-13.00	27.16	Horizontal
11250.00	-53.14	19.20	-33.94	-13.00	20.94	Horizontal
15000.00	-53.53	25.36	-28.17	-13.00	15.17	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7680.00	-49.43	12.84	-36.59	-13.00	23.59	Vertical
11520.00	-53.04	18.50	-34.54	-13.00	21.54	Vertical
15360.00	-53.56	24.94	-28.62	-13.00	15.62	Vertical
7680.00	-52.60	12.84	-39.76	-13.00	26.76	Horizontal
11520.00	-52.48	18.50	-33.98	-13.00	20.98	Horizontal
15360.00	-53.75	24.94	-28.81	-13.00	15.81	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7860.00	-48.80	13.20	-35.60	-13.00	22.60	Vertical
11790.00	-52.57	18.40	-34.17	-13.00	21.17	Vertical
15720.00	-53.48	20.34	-33.14	-13.00	20.14	Vertical
7860.00	-53.01	13.20	-39.81	-13.00	26.81	Horizontal
11790.00	-52.28	18.40	-33.88	-13.00	20.88	Horizontal
15720.00	-53.76	20.34	-33.42	-13.00	20.42	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

DC_2A_n38A – 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
5145.00	-50.27	4.66	-45.61	-25.00	20.61	Vertical
7717.50	-52.03	13.24	-38.79	-25.00	13.79	Vertical
10290.00	-54.34	18.46	-35.88	-25.00	10.88	Vertical
5145.00	-51.04	4.66	-46.38	-25.00	21.38	Horizontal
7717.50	-53.02	13.24	-39.78	-25.00	14.78	Horizontal
10290.00	-53.67	18.46	-35.21	-25.00	10.21	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5190.00	-50.68	4.76	-45.92	-25.00	20.92	Vertical
7785.00	-52.34	13.48	-38.86	-25.00	13.86	Vertical
10380.00	-54.23	17.85	-36.38	-25.00	11.38	Vertical
5190.00	-51.36	4.76	-46.60	-25.00	21.60	Horizontal
7785.00	-53.14	13.48	-39.66	-25.00	14.66	Horizontal
10380.00	-53.45	17.85	-35.60	-25.00	10.60	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5235.00	-50.51	4.95	-45.56	-25.00	20.56	Vertical
7852.50	-51.88	13.48	-38.40	-25.00	13.40	Vertical
10470.00	-54.60	18.39	-36.21	-25.00	11.21	Vertical
5235.00	-51.04	4.95	-46.09	-25.00	21.09	Horizontal
7852.50	-53.43	13.48	-39.95	-25.00	14.95	Horizontal
10470.00	-53.82	18.39	-35.43	-25.00	10.43	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

DC_2A_n38A – SCS 15kHz						
40MHz(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
5180.00	-49.85	4.71	-45.14	-25.00	20.14	Vertical
7770.00	-52.26	13.32	-38.94	-25.00	13.94	Vertical
10360.00	-54.66	18.30	-36.36	-25.00	11.36	Vertical
5180.00	-50.90	4.71	-46.19	-25.00	21.19	Horizontal
7770.00	-53.19	13.32	-39.87	-25.00	14.87	Horizontal
10360.00	-54.05	18.30	-35.75	-25.00	10.75	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5190.00	-50.36	4.76	-45.60	-25.00	20.60	Vertical
7785.00	-52.04	13.48	-38.56	-25.00	13.56	Vertical
10380.00	-54.32	17.85	-36.47	-25.00	11.47	Vertical
5190.00	-51.11	4.76	-46.35	-25.00	21.35	Horizontal
7785.00	-53.48	13.48	-40.00	-25.00	15.00	Horizontal
10380.00	-53.92	17.85	-36.07	-25.00	11.07	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5200.00	-50.84	4.86	-45.98	-25.00	20.98	Vertical
7800.00	-52.32	13.49	-38.83	-25.00	13.83	Vertical
10400.00	-54.79	18.21	-36.58	-25.00	11.58	Vertical
5200.00	-50.78	4.86	-45.92	-25.00	20.92	Horizontal
7800.00	-53.81	13.49	-40.32	-25.00	15.32	Horizontal
10400.00	-54.24	18.21	-36.03	-25.00	11.03	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

DC_2A_n38A– SCS 30kHz						
10MHz(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
5150.00	-50.97	4.66	-46.31	-25.00	21.31	Vertical
7725.00	-52.23	13.24	-38.99	-25.00	13.99	Vertical
10300.00	-54.12	18.46	-35.66	-25.00	10.66	Vertical
5150.00	-51.05	4.66	-46.39	-25.00	21.39	Horizontal
7725.00	-53.76	13.24	-40.52	-25.00	15.52	Horizontal
10300.00	-53.86	18.46	-35.40	-25.00	10.40	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5190.00	-51.30	4.76	-46.54	-25.00	21.54	Vertical
7785.00	-52.67	13.48	-39.19	-25.00	14.19	Vertical
10380.00	-54.03	17.85	-36.18	-25.00	11.18	Vertical
5190.00	-51.33	4.76	-46.57	-25.00	21.57	Horizontal
7785.00	-53.50	13.48	-40.02	-25.00	15.02	Horizontal
10380.00	-53.40	17.85	-35.55	-25.00	10.55	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5230.00	-51.34	4.95	-46.39	-25.00	21.39	Vertical
7845.00	-52.48	13.48	-39.00	-25.00	14.00	Vertical
10460.00	-54.37	18.39	-35.98	-25.00	10.98	Vertical
5230.00	-51.77	4.95	-46.82	-25.00	21.82	Horizontal
7845.00	-53.33	13.48	-39.85	-25.00	14.85	Horizontal
10460.00	-53.64	18.39	-35.25	-25.00	10.25	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

DC_2A_n38A – SCS 30kHz						
40MHz(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
5160.00	-51.15	4.71	-46.44	-25.00	21.44	Vertical
7740.00	-52.60	13.32	-39.28	-25.00	14.28	Vertical
10320.00	-54.53	18.30	-36.23	-25.00	11.23	Vertical
5160.00	-51.48	4.71	-46.77	-25.00	21.77	Horizontal
7740.00	-53.92	13.32	-40.60	-25.00	15.60	Horizontal
10320.00	-53.92	18.30	-35.62	-25.00	10.62	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5190.00	-50.97	4.76	-46.21	-25.00	21.21	Vertical
7785.00	-52.92	13.48	-39.44	-25.00	14.44	Vertical
10380.00	-54.11	17.85	-36.26	-25.00	11.26	Vertical
5190.00	-51.43	4.76	-46.67	-25.00	21.67	Horizontal
7785.00	-53.61	13.48	-40.13	-25.00	15.13	Horizontal
10380.00	-53.00	17.85	-35.15	-25.00	10.15	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5200.00	-51.16	4.86	-46.30	-25.00	21.30	Vertical
7800.00	-53.09	13.49	-39.60	-25.00	14.60	Vertical
10400.00	-53.97	18.21	-35.76	-25.00	10.76	Vertical
5200.00	-51.26	4.86	-46.40	-25.00	21.40	Horizontal
7800.00	-53.97	13.49	-40.48	-25.00	15.48	Horizontal
10400.00	-53.75	18.21	-35.54	-25.00	10.54	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

DC_2A_n77A (3450 MHz – 3550 MHz) – SCS 15kHz						
10MHz(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
6910.02	-53.78	10.75	-43.03	-13.00	30.03	Vertical
10365.03	-53.13	17.40	-35.73	-13.00	22.73	Vertical
13820.04	-52.78	23.61	-29.17	-13.00	16.17	Vertical
6910.02	-37.92	10.75	-27.17	-13.00	14.17	Horizontal
10365.03	-51.57	17.40	-34.17	-13.00	21.17	Horizontal
13820.04	-53.27	23.61	-29.66	-13.00	16.66	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7000.00	-53.83	10.51	-43.32	-13.00	30.32	Vertical
10500.00	-53.4	18.37	-35.03	-13.00	22.03	Vertical
14000.00	-52.98	25.38	-27.60	-13.00	14.60	Vertical
7000.00	-38.11	10.51	-27.60	-13.00	14.60	Horizontal
10500.00	-51.51	18.37	-33.14	-13.00	20.14	Horizontal
14000.00	-52.97	25.38	-27.59	-13.00	14.59	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7090.00	-54.17	11.50	-42.67	-13.00	29.67	Vertical
10635.00	-53.07	18.87	-34.20	-13.00	21.20	Vertical
14180.00	-52.93	26.86	-26.07	-13.00	13.07	Vertical
7090.00	-38.07	11.50	-26.57	-13.00	13.57	Horizontal
10635.00	-51.36	18.87	-32.49	-13.00	19.49	Horizontal
14180.00	-52.89	26.86	-26.03	-13.00	13.03	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

DC_2A_n77A (3450 MHz – 3550 MHz) – SCS 15kHz						
50MHz(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
6950.02	-53.61	10.50	-43.11	-13.00	30.11	Vertical
10425.03	-52.86	17.63	-35.23	-13.00	22.23	Vertical
13900.04	-53.02	24.60	-28.42	-13.00	15.42	Vertical
6950.02	-38.39	10.50	-27.89	-13.00	14.89	Horizontal
10425.03	-51.09	17.63	-33.46	-13.00	20.46	Horizontal
13900.04	-52.89	24.60	-28.29	-13.00	15.29	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7000.00	-53.55	10.49	-43.06	-13.00	30.06	Vertical
10500.00	-52.97	18.21	-34.76	-13.00	21.76	Vertical
14000.00	-53.12	25.38	-27.74	-13.00	14.74	Vertical
7000.00	-38.57	10.49	-28.08	-13.00	15.08	Horizontal
10500.00	-51.76	18.21	-33.55	-13.00	20.55	Horizontal
14000.00	-55.14	25.38	-29.76	-13.00	16.76	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7050.00	-54.10	11.08	-43.02	-13.00	30.02	Vertical
10575.00	-53.08	18.53	-34.55	-13.00	21.55	Vertical
14100.00	-52.96	26.24	-26.72	-13.00	13.72	Vertical
7050.00	-38.32	11.08	-27.24	-13.00	14.24	Horizontal
10575.00	-51.07	18.53	-32.54	-13.00	19.54	Horizontal
14100.00	-53.19	26.24	-26.95	-13.00	13.95	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

DC_2A_n77A (3450 MHz – 3550 MHz) – SCS 30kHz						
10MHz(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
6910.02	-53.71	10.75	-42.96	-13.00	29.96	Vertical
10365.03	-53.71	17.58	-36.13	-13.00	23.13	Vertical
13820.04	-53.00	23.61	-29.39	-13.00	16.39	Vertical
6910.02	-38.03	10.75	-27.28	-13.00	14.28	Horizontal
10365.03	-52.28	17.58	-34.70	-13.00	21.70	Horizontal
13820.04	-53.10	23.61	-29.49	-13.00	16.49	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7000.02	-54.14	10.49	-43.65	-13.00	30.65	Vertical
10500.03	-53.53	18.21	-35.32	-13.00	22.32	Vertical
14000.04	-53.19	25.38	-27.81	-13.00	14.81	Vertical
7000.02	-38.13	10.49	-27.64	-13.00	14.64	Horizontal
10500.03	-51.97	18.21	-33.76	-13.00	20.76	Horizontal
14000.04	-53.13	25.38	-27.75	-13.00	14.75	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7089.96	-53.98	11.50	-42.48	-13.00	29.48	Vertical
10634.94	-53.50	18.71	-34.79	-13.00	21.79	Vertical
14179.92	-52.80	26.86	-25.94	-13.00	12.94	Vertical
7089.96	-37.54	11.50	-26.04	-13.00	13.04	Horizontal
10634.94	-52.08	18.71	-33.37	-13.00	20.37	Horizontal
14179.92	-53.03	26.86	-26.17	-13.00	13.17	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

DC_2A_n77A (3450 MHz – 3550 MHz) – SCS 30kHz						
100MHz(Edge_1RB_Left) for DFT-s-OFDM Pi/2 BPSK						
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7000.02	-53.91	10.49	-43.42	-13.00	30.42	Vertical
10500.03	-53.85	18.21	-35.64	-13.00	22.64	Vertical
14000.04	-52.91	25.38	-27.53	-13.00	14.53	Vertical
7000.02	-37.17	10.49	-26.68	-13.00	13.68	Horizontal
10500.03	-52.40	18.21	-34.19	-13.00	21.19	Horizontal
14000.04	-53.29	25.38	-27.91	-13.00	14.91	Horizontal

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

DC_2A_n77A (3700 MHz – 3980 MHz) – SCS 15kHz						
10MHz(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	-52.03	12.64	-39.39	-13.00	26.39	Vertical
11115.00	-51.60	18.78	-32.82	-13.00	19.82	Vertical
14820.00	-56.47	26.68	-29.79	-13.00	16.79	Vertical
7410.00	-52.90	12.64	-40.26	-13.00	27.26	Horizontal
11115.00	-53.66	18.78	-34.88	-13.00	21.88	Horizontal
14820.00	-56.51	26.68	-29.83	-13.00	16.83	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7680.00	-52.14	12.84	-39.30	-13.00	26.30	Vertical
11520.00	-51.62	18.50	-33.12	-13.00	20.12	Vertical
15360.00	-56.28	24.94	-31.34	-13.00	18.34	Vertical
7680.00	-53.12	12.84	-40.28	-13.00	27.28	Horizontal
11520.00	-53.69	18.50	-35.19	-13.00	22.19	Horizontal
15360.00	-56.36	24.94	-31.42	-13.00	18.42	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7950.00	-52.23	16.92	-35.31	-13.00	22.31	Vertical
11925.00	-51.51	12.98	-38.53	-13.00	25.53	Vertical
15900.00	-56.49	22.31	-34.18	-13.00	21.18	Vertical
7950.00	-53.33	16.92	-36.41	-13.00	23.41	Horizontal
11925.00	-54.15	12.98	-41.17	-13.00	28.17	Horizontal
15900.00	-56.08	22.31	-33.77	-13.00	20.77	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

DC_2A_n77A (3700 MHz – 3980 MHz) – SCS 15kHz						
50MHz(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
7450.02	-52.23	12.49	-39.74	-13.00	26.74	Vertical
11175.03	-51.33	18.85	-32.48	-13.00	19.48	Vertical
14900.04	-56.91	26.90	-30.01	-13.00	17.01	Vertical
7450.02	-53.39	12.49	-40.90	-13.00	27.90	Horizontal
11175.03	-53.45	18.85	-34.60	-13.00	21.60	Horizontal
14900.04	-56.66	26.90	-29.76	-13.00	16.76	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7680.00	-52.60	12.84	-39.76	-13.00	26.76	Vertical
11520.00	-51.69	18.50	-33.19	-13.00	20.19	Vertical
15360.00	-55.81	24.94	-30.87	-13.00	17.87	Vertical
7680.00	-53.55	12.84	-40.71	-13.00	27.71	Horizontal
11520.00	-53.58	18.50	-35.08	-13.00	22.08	Horizontal
15360.00	-56.05	24.94	-31.11	-13.00	18.11	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7909.98	-52.23	17.07	-35.16	-13.00	22.16	Vertical
11864.97	-51.25	17.97	-33.28	-13.00	20.28	Vertical
15819.96	-56.48	18.75	-37.73	-13.00	24.73	Vertical
7909.98	-53.58	17.07	-36.51	-13.00	23.51	Horizontal
11864.97	-54.05	17.97	-36.08	-13.00	23.08	Horizontal
15819.96	-56.55	18.75	-37.80	-13.00	24.80	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

DC_2A_n77A (3700 MHz – 3980 MHz) – SCS 30kHz						
10MHz(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	-48.90	12.64	-36.26	-13.00	23.26	Vertical
11115.00	-53.01	18.78	-34.23	-13.00	21.23	Vertical
14820.00	-53.68	26.68	-27.00	-13.00	14.00	Vertical
7410.00	-53.01	12.64	-40.37	-13.00	27.37	Horizontal
11115.00	-53.05	18.78	-34.27	-13.00	21.27	Horizontal
14820.00	-53.64	26.68	-26.96	-13.00	13.96	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7680.00	-48.99	12.84	-36.15	-13.00	23.15	Vertical
11520.00	-52.81	18.50	-34.31	-13.00	21.31	Vertical
15360.00	-53.78	24.94	-28.84	-13.00	15.84	Vertical
7680.00	-53.38	12.84	-40.54	-13.00	27.54	Horizontal
11520.00	-52.5	18.50	-34.00	-13.00	21.00	Horizontal
15360.00	-53.69	24.94	-28.75	-13.00	15.75	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7950.00	-48.61	16.92	-31.69	-13.00	18.69	Vertical
11925.00	-53.24	12.98	-40.26	-13.00	27.26	Vertical
15900.00	-53.34	22.31	-31.03	-13.00	18.03	Vertical
7950.00	-52.95	16.92	-36.03	-13.00	23.03	Horizontal
11925.00	-53.26	12.98	-40.28	-13.00	27.28	Horizontal
15900.00	-53.49	22.31	-31.18	-13.00	18.18	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

DC_2A_n77A (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
7500.00	-48.73	12.48	-36.25	-13.00	23.25	Vertical
11250.00	-53.11	19.20	-33.91	-13.00	20.91	Vertical
15000.00	-53.71	25.36	-28.35	-13.00	15.35	Vertical
7500.00	-52.52	12.48	-40.04	-13.00	27.04	Horizontal
11250.00	-52.79	19.20	-33.59	-13.00	20.59	Horizontal
15000.00	-53.43	25.36	-28.07	-13.00	15.07	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7680.00	-48.78	12.84	-35.94	-13.00	22.94	Vertical
11520.00	-53.54	18.50	-35.04	-13.00	22.04	Vertical
15360.00	-54.18	24.94	-29.24	-13.00	16.24	Vertical
7680.00	-52.56	12.84	-39.72	-13.00	26.72	Horizontal
11520.00	-52.41	18.50	-33.91	-13.00	20.91	Horizontal
15360.00	-53.58	24.94	-28.64	-13.00	15.64	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
7860.00	-48.71	13.20	-35.51	-13.00	22.51	Vertical
11790.00	-53.28	18.40	-34.88	-13.00	21.88	Vertical
15720.00	-53.70	20.34	-33.36	-13.00	20.36	Vertical
7860.00	-53.02	13.20	-39.82	-13.00	26.82	Horizontal
11790.00	-52.57	18.40	-34.17	-13.00	21.17	Horizontal
15720.00	-53.13	20.34	-32.79	-13.00	19.79	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

DC_41A_n41 – SCS 15kHz						
10MHz(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
5080.02	-51.75	4.56	-47.19	-25.00	22.19	Vertical
7620.03	-53.51	13.14	-40.37	-25.00	15.37	Vertical
10160.04	-51.81	16.89	-34.92	-25.00	9.92	Vertical
5080.02	-49.06	4.56	-44.50	-25.00	19.50	Horizontal
7620.03	-53.80	13.14	-40.66	-25.00	15.66	Horizontal
10160.04	-54.88	16.89	-37.99	-25.00	12.99	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5190.00	-51.84	4.76	-47.08	-25.00	22.08	Vertical
7785.00	-53.71	13.48	-40.23	-25.00	15.23	Vertical
10380.00	-51.09	18.00	-33.09	-25.00	8.09	Vertical
5190.00	-49.72	4.76	-44.96	-25.00	19.96	Horizontal
7785.00	-53.40	13.48	-39.92	-25.00	14.92	Horizontal
10380.00	-55.21	18.00	-37.21	-25.00	12.21	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5299.98	-51.53	5.50	-46.03	-25.00	21.03	Vertical
7949.97	-53.83	13.31	-40.52	-25.00	15.52	Vertical
10599.96	-51.44	19.50	-31.94	-25.00	6.94	Vertical
5299.98	-49.49	5.50	-43.99	-25.00	18.99	Horizontal
7949.97	-53.69	13.31	-40.38	-25.00	15.38	Horizontal
10599.96	-54.83	19.50	-35.33	-25.00	10.33	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

DC_41A_n41 – SCS 15kHz						
50MHz(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
5120.04	-51.64	4.56	-47.08	-25.00	22.08	Vertical
7680.06	-53.47	13.29	-40.18	-25.00	15.18	Vertical
10240.08	-51.99	16.93	-35.06	-25.00	10.06	Vertical
5120.04	-49.05	4.56	-44.49	-25.00	19.49	Horizontal
7680.06	-53.98	13.29	-40.69	-25.00	15.69	Horizontal
10240.08	-55.01	16.93	-38.08	-25.00	13.08	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5190.00	-51.68	4.76	-46.92	-25.00	21.92	Vertical
7785.00	-53.53	13.48	-40.05	-25.00	15.05	Vertical
10380.00	-51.47	18.00	-33.47	-25.00	8.47	Vertical
5190.00	-49.95	4.76	-45.19	-25.00	20.19	Horizontal
7785.00	-53.43	13.48	-39.95	-25.00	14.95	Horizontal
10380.00	-55.10	18.00	-37.10	-25.00	12.10	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5259.96	-51.96	5.41	-46.55	-25.00	21.55	Vertical
7889.94	-53.48	13.33	-40.15	-25.00	15.15	Vertical
10519.92	-51.23	19.67	-31.56	-25.00	6.56	Vertical
5259.96	-49.23	5.41	-43.82	-25.00	18.82	Horizontal
7889.94	-52.94	13.33	-39.61	-25.00	14.61	Horizontal
10519.92	-55.14	19.67	-35.47	-25.00	10.47	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

DC_41A_n41 – SCS 30kHz						
10MHz(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
5080.02	-51.62	4.56	-47.06	-25.00	22.06	Vertical
7620.03	-53.90	13.14	-40.76	-25.00	15.76	Vertical
10160.04	-51.70	16.89	-34.81	-25.00	9.81	Vertical
5080.02	-49.47	4.56	-44.91	-25.00	19.91	Horizontal
7620.03	-53.26	13.14	-40.12	-25.00	15.12	Horizontal
10160.04	-54.37	16.89	-37.48	-25.00	12.48	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5190.00	-52.11	4.76	-47.35	-25.00	22.35	Vertical
7785.00	-53.62	13.48	-40.14	-25.00	15.14	Vertical
10380.00	-51.26	18.00	-33.26	-25.00	8.26	Vertical
5190.00	-49.67	4.76	-44.91	-25.00	19.91	Horizontal
7785.00	-52.85	13.48	-39.37	-25.00	14.37	Horizontal
10380.00	-54.06	18.00	-36.06	-25.00	11.06	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5299.98	-51.78	5.50	-46.28	-25.00	21.28	Vertical
7949.97	-54.05	13.31	-40.74	-25.00	15.74	Vertical
10599.96	-51.70	19.50	-32.20	-25.00	7.20	Vertical
5299.98	-49.52	5.50	-44.02	-25.00	19.02	Horizontal
7949.97	-52.63	13.31	-39.32	-25.00	14.32	Horizontal
10599.96	-54.06	19.50	-34.56	-25.00	9.56	Horizontal
Remark:						
1. The emission levels of below 1 GHz are lower than the limit 10dB, so not show in test report.						

DC_41A_n41 – 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
5170.02	-51.24	4.56	-46.68	-25.00	21.68	Vertical
7755.03	-54.07	13.29	-40.78	-25.00	15.78	Vertical
10340.04	-51.83	16.93	-34.90	-25.00	9.90	Vertical
5170.02	-49.70	4.56	-45.14	-25.00	20.14	Horizontal
7755.03	-53.19	13.29	-39.90	-25.00	14.90	Horizontal
10340.04	-54.68	16.93	-37.75	-25.00	12.75	Horizontal
Middle channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5190.00	-52.14	4.76	-47.38	-25.00	22.38	Vertical
7785.00	-53.68	13.48	-40.20	-25.00	15.20	Vertical
10380.00	-50.96	18.00	-32.96	-25.00	7.96	Vertical
5190.00	-49.38	4.76	-44.62	-25.00	19.62	Horizontal
7785.00	-52.69	13.48	-39.21	-25.00	14.21	Horizontal
10380.00	-54.03	18.00	-36.03	-25.00	11.03	Horizontal
Highest channel						
Frequency (MHz)	Reading Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Polarization
5209.98	-51.38	5.41	-45.97	-25.00	20.97	Vertical
7814.97	-54.17	13.33	-40.84	-25.00	15.84	Vertical
10419.96	-51.68	19.67	-32.01	-25.00	7.01	Vertical
5209.98	-49.91	5.41	-44.50	-25.00	19.50	Horizontal
7814.97	-52.57	13.33	-39.24	-25.00	14.24	Horizontal
10419.96	-54.35	19.67	-34.68	-25.00	9.68	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-----