FCC RF Test Report

APPLICANT	:	Nokia Shanghai Bell Co. Ltd.
EQUIPMENT	:	Nokia FastMile 5G Gateway 3.2
BRAND NAME	:	Nokia
MODEL NAME	:	5G16-12W-A
FCC ID	:	2ADZR5G1612WA
STANDARD	:	47 CFR Part 2, 22, 24, 27
CLASSIFICATION	:	PCS Licensed Transmitter (PCB)
TEST DATE(S)	:	Dec. 20, 2021 ~ Dec. 29, 2021

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.26-2015 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Reviewed by: Jason Jia / Supervisor

Alexwang

Approved by: Alex Wang / Manager

ACCREDITED Cert #5145.02

Sporton International Inc. (Kunshan)

No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China

TABLE OF CONTENTS

REVISION HISTORY **3**

SUMMARY OF TEST RESULT **4**

1 GENERAL DESCRIPTION **6**

1.1 Applicant 6
1.2 Manufacturer 6
1.3 Product Feature of Equipment Under Test 6
1.4 Product Specification of Equipment Under Test 6
1.5 Modification of EUT 7
1.6 Testing Location 7
1.7 Test Software 7
1.8 Applicable Standards 8

2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST **9**

2.1 Test Mode 9
2.2 Connection Diagram of Test System 10
2.3 Support Unit used in test configuration and system 10
2.4 Frequency List of Low/Middle/High Channels 11

3 RADIATED TEST ITEMS **15**

3.1 Measuring Instruments 15
3.2 Test Setup 15
3.3 Test Result of Radiated Test 15
3.4 Radiated Spurious Emission 16

4 LIST OF MEASURING EQUIPMENT **18**

5 UNCERTAINTY OF EVALUATION **19**

APPENDIX A. TEST RESULTS OF RADIATED TEST

APPENDIX B. TEST SETUP PHOTOGRAPHS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG1O2908E	Rev. 01	Initial issue of report	Jan. 20, 2022

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
-	§2.1046	Conducted Output Power (Band 7)	< 2Watt	PASS	1
	§22.913(a)(5)	Effective Radiated Power (Band 5)	ERP < 7 Watt	PASS	1
	§27.50(b)(10) §27.50(c)(10)	Effective Radiated Power (Band 12) (Band 13) (Band 71)	ERP < 3 Watt		1
	§24.232(c) §27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 2)	EIRP < 2Watt		1
	§27.50(d)(4)	Equivalent Isotropic Radiated Power (Band 4) (Band 66)	EIRP < 1Watt		1
-	§24.232(d)	Peak-to-Average Ratio	<13 dB	PASS	1
-	§2.1049	Occupied Bandwidth	-	Report Only	1
- -	§2.1051 §22.917(a) §24.238(a) §27.53(c)(2)(4) §27.53(g) §27.53(h)	Conducted Band Edge Measurement (Band 2) (Band 4) (Band 5) (Band 12) (Band 13) (Band 66)(Band 71)	< 43+10log10(P[Watts])	PASS	1
	§27.53(m)(4)	Conducted Band Edge Measurement (Band 7)	§27.53(m)(4)		
-	§2.1051 §22.917(a) §24.238(a) §27.53(c)(2) §27.53(g) §27.53(h)	Conducted Spurious Emission (Band 2) (Band 4) (Band 5) (Band 12) (Band 13) (Band 66)(Band 71)	< 43+10log10(P[Watts])	PASS	1
	§2.1051 §27.53(m)(4)	Conducted Spurious Emission (Band 7)	< 55+10log$_{10}$(P[Watts])		
-	§2.1055 §22.355	Frequency Stability Temperature & Voltage	< 2.5 ppm for Part 22	PASS	1
	§2.1055 §24.235 §27.54		Within Authorized Band		

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1053 §22.917(a) §24.238(a) §27.53(c)(2) §27.53(f) §27.53(g) §27.53(h)	Radiated Spurious Emission (Band 2) (Band 4) (Band 5) (Band 12) (Band 13) (Band 66)(Band 71)	< 43+10log$_{10}$(P[Watts])	PASS	Under limit 26.95 dB at 10104.000 MHz
	§2.1053 §27.53(m)(4)	Radiated Spurious Emission (Band 7)	< 55+10log$_{10}$(P[Watts])		

Remark 1 :
The test items of inter band CA were cover by LTE single carrier due to the CA power is reduced according to 3GPP MPR.

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Applicant

Nokia Shanghai Bell Co. Ltd.
No. 388, Ningqiao Rd. Pilot Free Trade Zone, Shanghai 201206, China

1.2 Manufacturer

Nokia Solutions and Networks Oy
Karakaari 7 02610 Espoo Finland

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Nokia FastMile 5G Gateway 3.2
Brand Name	Nokia
Model Name	5G16-12W-A
FCC ID	2ADZR5G1612WA
HW Version	3TG01797A
SW Version	5GGW3-OMNI-1_D210400Bh3T0301E0156
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. There are two types of EUT: sample 1 with 1st source antenna and sample 2 with 2nd source antenna. According to the difference, we chose sample 1 to perform full test and sample 2 to verify the worst cases of RSE.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	LTE Band 2 : 1850 MHz ~ 1910 MHz LTE Band 4 : 1710 MHz ~ 1755 MHz LTE Band 5 : 824 MHz ~ 849 MHz LTE Band 7 : 2500 MHz ~ 2570 MHz LTE Band 12 : 699 MHz ~ 716 MHz LTE Band 13 : 777 MHz ~ 787 MHz LTE Band 66 : 1710 MHz ~ 1755 MHz LTE Band 71: 663 MHz ~ 698 MHz
Rx Frequency	LTE Band 2 : 1930 MHz ~ 1990 MHz LTE Band 4 : 2110 MHz ~ 2155 MHz LTE Band 5 : 869 MHz ~ 894 MHz LTE Band 7 : 2620 MHz ~ 2690 MHz LTE Band 12 : 729 MHz ~ 746 MHz LTE Band 13 : 746 MHz ~ 756 MHz LTE Band 66 : 2110 MHz~ 2155 MHz

	LTE Band 71: 617 MHz ~ 652 MHz
Uplink CA Bands	2A-4A, 2A-5A, 2A-7A, 2A-12A, 2A-13A, 2A-66A, 4A-5A, 4A-7A, 4A-12A, 5A-7A, 5A-12A, 5A-66A, 12A-66A, 13A-66A, 66A-71A
Type of Modulation	QPSK / 16QAM / 64QAM / 256QAM

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH04-KS	CN1257	314309

1.7 Test Software

Item	Site	Manufacture	Name	Version
1.	03CH04-KS	AUDIX	E3	6.2009-8-24a

1.8 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 2, 22, 24, 27
- ANSI C63.26-2015
- FCC KDB 971168 D01 Power Meas License Digital Systems v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

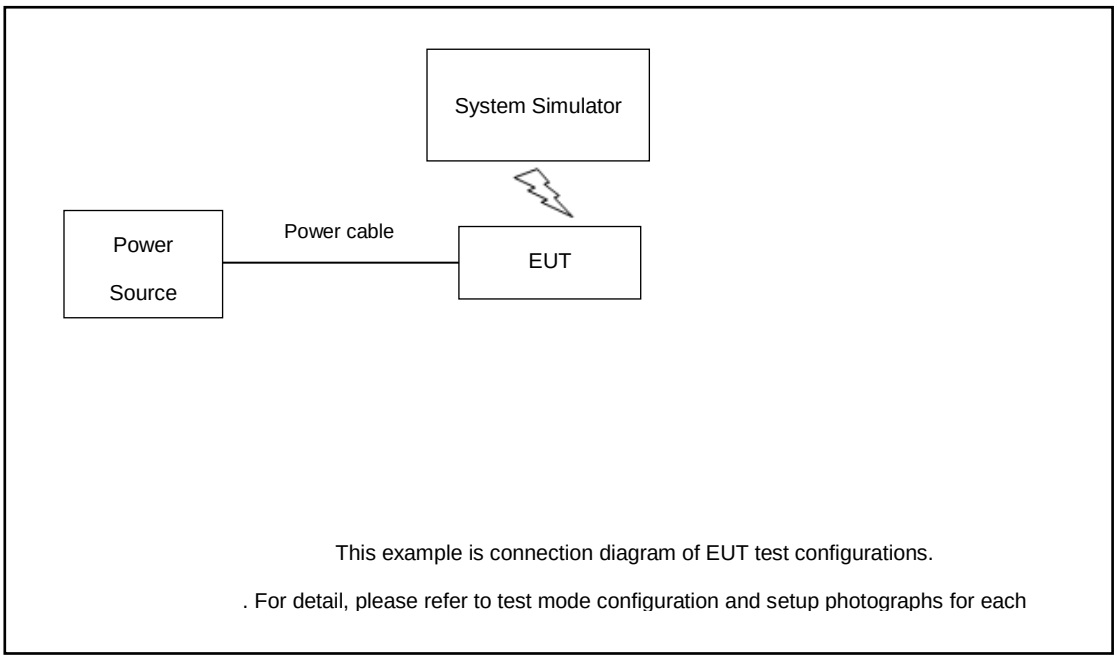
2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas License Digital Systems v03r01 with maximum output power.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

Test Items	Band	Bandwidth (MHz)				Modulation				RB #			Test Channel		
		5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full	L	M	H
Radiated Spurious Emission	2A-4A	Worst Case												v	
	2A-5A	Worst Case												v	
	2A-7A	Worst Case												v	
	2A-12A	Worst Case												v	
	2A-13A	Worst Case												v	
	2A-66A	Worst Case												v	
	4A-5A	Worst Case												v	
	4A-7A	Worst Case												v	
	4A-12A	Worst Case												v	
	5A-7A	Worst Case												v	
	5A-12A	Worst Case												v	
	5A-66A	Worst Case												v	
	12A-66A	Worst Case												v	
	13A-66A	Worst Case												v	
	66A-71A	Worst Case												v	
Note	1. The mark "**v** " means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.														

2.2 Connection Diagram of Test System



The EUT has been configuration operated in a manner tended to maximize its emission characteristics in a typical application.

2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	Base Station	Anritsu	MT8821C	Fcc DoC	N/A	Shielded, 1.5m

2.4 Frequency List of Low/Middle/High Channels

LTE Band 2 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	18700	18900	19100
	Frequency	1860	1880	1900
15	Channel	18675	18900	19125
	Frequency	1857.5	1880	1902.5
10	Channel	18650	18900	19150
	Frequency	1855	1880	1905
5	Channel	18625	18900	19175
	Frequency	1852.5	1880	1907.5
3	Channel	18615	18900	19185
	Frequency	1851.5	1880	1908.5
1.4	Channel	18607	18900	19193
	Frequency	1850.7	1880	1909.3

LTE Band 4 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	20050	20175	20300
	Frequency	1720	1732.5	1745
15	Channel	20025	20175	20325
	Frequency	1717.5	1732.5	1747.5
10	Channel	20000	20175	20350
	Frequency	1715	1732.5	1750
5	Channel	19975	20175	20375
	Frequency	1712.5	1732.5	1752.5
3	Channel	19965	20175	20385
	Frequency	1711.5	1732.5	1753.5
1.4	Channel	19957	20175	20393
	Frequency	1710.7	1732.5	1754.3

LTE Band 5 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	20450	20525	20600
	Frequency	829	836.5	844
5	Channel	20425	20525	20625
	Frequency	826.5	836.5	846.5
3	Channel	20415	20525	20635
	Frequency	825.5	836.5	847.5
1.4	Channel	20407	20525	20643
	Frequency	824.7	836.5	848.3

LTE Band 7 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	20850	21100	21350
	Frequency	2510	2535	2560
15	Channel	20825	21100	21375
	Frequency	2507.5	2535	2562.5
10	Channel	20800	21100	21400
	Frequency	2505	2535	2565
5	Channel	20775	21100	21425
	Frequency	2502.5	2535	2567.5

LTE Band 12 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
10	Channel	23060	23095	23130
	Frequency	704	707.5	711
5	Channel	23035	23095	23155
	Frequency	701.5	707.5	713.5
3	Channel	23025	23095	23165
	Frequency	700.5	707.5	714.5
1.4	Channel	23017	23095	23173
	Frequency	699.7	707.5	715.3

LTE Band 13 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
10	Channel	-	23230	-
	Frequency	-	782	-
5	Channel	23205	23230	23255
	Frequency	779.5	782	784.5

LTE Band 66 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	132072	132197	132322
	Frequency	1720	1732.5	1745
15	Channel	132047	132197	132347
	Frequency	1717.5	1732.5	1747.5
10	Channel	132022	132197	132372
	Frequency	1715	1732.5	1750
5	Channel	131997	132197	132397
	Frequency	1712.5	1732.5	1752.5
3	Channel	131987	132197	132407
	Frequency	1711.5	1732.5	1753.5
1.4	Channel	131979	132197	132417
	Frequency	1710.7	1732.5	1754.5

LTE Band 71 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	133222	133322	133372
	Frequency	673.0	680.5	688.0
15	Channel	133197	133297	133397
	Frequency	670.5	680.5	690.5
10	Channel	133172	133272	133422
	Frequency	668.0	678.0	693.0
5	Channel	133147	133247	133447
	Frequency	665.5	675.5	695.5

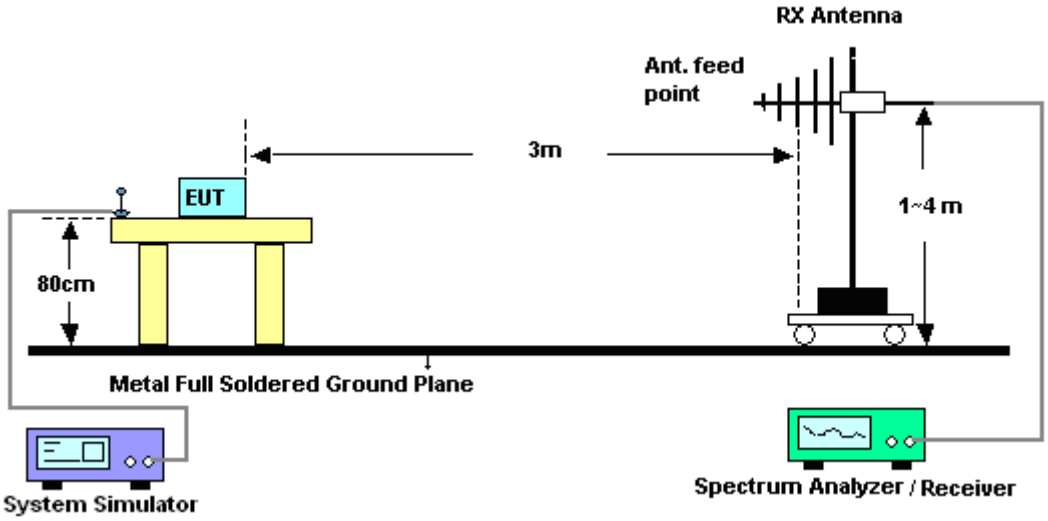
3 Radiated Test Items

3.1 Measuring Instruments

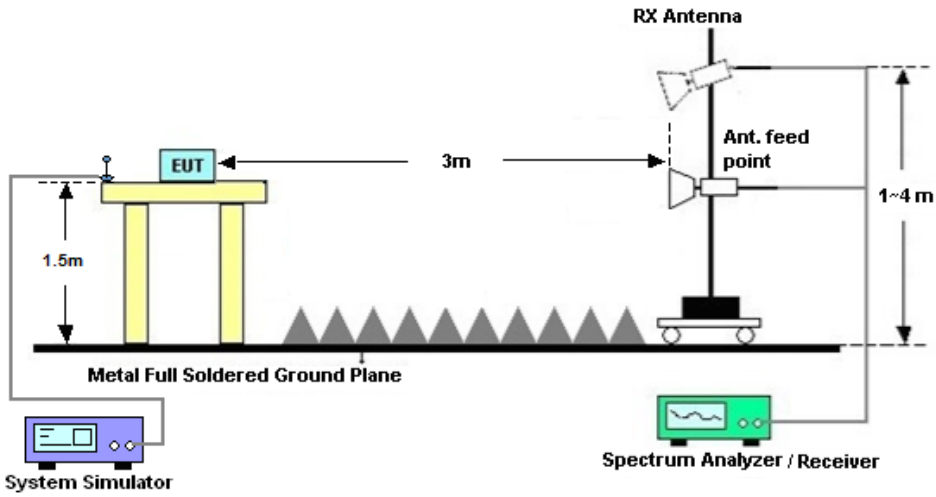
See list of measuring instruments of this test report.

3.2 Test Setup

3.2.1 For radiated test from 30MHz to 1GHz



3.2.2 For radiated test above 1GHz



3.3 Test Result of Radiated Test

Please refer to Appendix A.

3.4 Radiated Spurious Emission

3.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI C63.26. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For Band 7

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

For LTE Band 13

For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

3.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.5
2. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
6. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
7. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
8. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
9. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
10. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
11. ERP (dBm) = EIRP - 2.15
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
    The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.
13. For Band 7:
    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44G,MAX 30dB	Apr. 13, 2021	Dec. 20, 2021~ Dec. 29, 2021	Apr. 12, 2022	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 30, 2021	Dec. 20, 2021~ Dec. 29, 2021	Oct. 29, 2022	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	May 30, 2021	Dec. 20, 2021~ Dec. 29, 2021	May 29, 2022	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1356	1GHz~18GHz	Apr. 18, 2021	Dec. 20, 2021~ Dec. 29, 2021	Apr. 17, 2022	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 06, 2021	Dec. 20, 2021~ Dec. 29, 2021	Jan. 05, 2022	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Jan. 06, 2021	Dec. 20, 2021~ Dec. 29, 2021	Jan. 05, 2022	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40G GA	060728	18~40GHz	Jan. 07, 2021	Dec. 20, 2021~ Dec. 29, 2021	Jan. 06, 2022	Radiation (03CH04-KS)
high gain Amplifier	MITEQ	AMF-7D-00 101800-30-1 0P	2025788	1Ghz-18Ghz	Jan. 06, 2021	Dec. 20, 2021~ Dec. 29, 2021	Jan. 05, 2022	Radiation (03CH04-KS)
Amplifier	Keysight	83017A	MY57280106	500MHz~26.5GHz	Oct. 13, 2021	Dec. 20, 2021~ Dec. 29, 2021	Oct. 12, 2022	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Dec. 20, 2021~ Dec. 29, 2021	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Dec. 20, 2021~ Dec. 29, 2021	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Dec. 20, 2021~ Dec. 29, 2021	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required

5 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. 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.

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.3dB**

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.8dB**

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.8dB**

Appendix A. Test Results of Radiated Test

Radiated Spurious Emission

Test Engineer :	Levi Zhuo	Temperature :	22~23℃
		Relative Humidity :	41~42%

Sample 1 :

ULCA_2A-4A								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B2 BW 20MHz Middle 1RB0,QPSK	3741	-58.11	-13	-45.11	-70.37	2.64	14.90	H
	5613	-57.87	-13	-44.87	-69.73	2.94	14.80	H
	7488	-54.65	-13	-41.65	-64.42	3.39	13.16	H
	3741	-58.14	-13	-45.14	-70.40	2.64	14.90	V
	5613	-58.21	-13	-45.21	-70.07	2.94	14.80	V
	7488	-54.78	-13	-41.78	-64.55	3.39	13.16	V
LTE B4 BW 20MHz Middle 1RB0,QPSK	3447	-46.67	-13	-33.67	-57.41	2.604	13.34	H
	5172	-57.83	-13	-44.83	-68.34	3.011	13.52	H
	6900	-56.30	-13	-43.30	-66.50	3.271	13.47	H
	3447	-51.74	-13	-38.74	-62.48	2.604	13.34	V
	5172	-57.75	-13	-44.75	-68.26	3.011	13.52	V
	6900	-56.54	-13	-43.54	-66.74	3.271	13.47	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

ULCA_2A-5A								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B2 BW 20MHz Middle 1RB0,QPSK	3741	-58.48	-13	-45.48	-70.74	2.64	14.90	H
	5613	-57.93	-13	-44.93	-69.79	2.94	14.80	H
	7488	-55.06	-13	-42.06	-64.83	3.39	13.16	H
	3741	-58.28	-13	-45.28	-70.54	2.64	14.90	V
	5613	-58.27	-13	-45.27	-70.13	2.94	14.80	V
	7488	-54.92	-13	-41.92	-64.69	3.39	13.16	V
LTE B5 BW 10MHz Middle 1RB0,QPSK	1664	-66.45	-13	-53.45	-73.42	1.58	10.70	H
	2496	-62.66	-13	-49.66	-70.91	2.102	12.50	H
	3327	-60.09	-13	-47.09	-68.98	2.856	13.90	H
	1664	-64.67	-13	-51.67	-71.64	1.58	10.70	V
	2496	-60.58	-13	-47.58	-68.83	2.10	12.50	V
	3327	-60.11	-13	-47.11	-69.00	2.86	13.90	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

ULCA_2A-7A								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B2 BW 20MHz Middle 1RB0,QPSK	3741	-59.01	-13	-46.01	-71.27	2.64	14.90	H
	5613	-58.15	-13	-45.15	-70.01	2.94	14.80	H
	7488	-54.63	-13	-41.63	-64.40	3.39	13.16	H
	3741	-58.63	-13	-45.63	-70.89	2.64	14.90	V
	5613	-58.34	-13	-45.34	-70.20	2.94	14.80	V
	7488	-54.61	-13	-41.61	-64.38	3.39	13.16	V
LTE B7 BW 20MHz Middle 1RB0,QPSK	5052	-57.13	-25	-32.13	-67.34	3.03	13.24	H
	7584	-54.34	-25	-29.34	-63.79	3.56	13.01	H
	10104	-52.50	-25	-27.50	-62.02	3.92	13.44	H
	5052	-57.52	-25	-32.52	-67.73	3.03	13.24	V
	7584	-54.50	-25	-29.50	-63.95	3.56	13.01	V
	10104	-52.27	-25	-27.27	-61.79	3.92	13.44	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

ULCA_2A-12A								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B2 BW 20MHz Middle 1RB0,QPSK	3741	-58.87	-13	-45.87	-71.13	2.64	14.90	H
	5613	-57.67	-13	-44.67	-69.53	2.94	14.80	H
	7488	-54.71	-13	-41.71	-64.48	3.39	13.16	H
	3741	-58.88	-13	-45.88	-71.14	2.64	14.90	V
	5613	-57.92	-13	-44.92	-69.78	2.94	14.80	V
	7488	-54.78	-13	-41.78	-64.55	3.39	13.16	V
LTE B12 BW 10MHz Middle 1RB0,QPSK	1406	-68.62	-13	-55.62	-75.59	1.58	10.70	H
	2110	-63.53	-13	-50.53	-71.78	2.102	12.50	H
	2812	-61.76	-13	-48.76	-70.65	2.856	13.90	H
	3516	-59.78	-13	-46.78	-68.24	2.689	13.30	H
	1406	-66.77	-13	-53.77	-73.74	1.58	10.70	V
	2110	-61.36	-13	-48.36	-69.61	2.10	12.50	V
	2812	-60.72	-13	-47.72	-69.61	2.86	13.90	V
	3516	-60.13	-13	-47.13	-68.59	2.69	13.30	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

ULCA_2A-13A								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B2 BW 20MHz Middle 1RB0,QPSK	3741	-58.88	-13	-45.88	-71.14	2.64	14.90	H
	5613	-58.30	-13	-45.30	-70.16	2.94	14.80	H
	7488	-54.93	-13	-41.93	-64.70	3.39	13.16	H
	3741	-58.77	-13	-45.77	-71.03	2.64	14.90	V
	5613	-58.55	-13	-45.55	-70.41	2.94	14.80	V
	7488	-55.01	-13	-42.01	-64.78	3.39	13.16	V
LTE B13 BW 10MHz Middle 1RB0,QPSK	1556	-67.48	-13	-54.48	-70.11	1.09	5.87	H
	2332	-63.42	-13	-50.42	-65.82	1.37	5.92	H
	3111	-60.18	-13	-47.18	-64.07	1.64	7.68	H
	1556	-66.02	-13	-53.02	-68.65	1.09	5.87	V
	2332	-61.43	-13	-48.43	-63.83	1.37	5.92	V
	3111	-59.99	-13	-46.99	-63.88	1.64	7.68	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

ULCA_2A-66A								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B2 BW 20MHz Middle 1RB0,QPSK	3741	-58.66	-13	-45.66	-70.92	2.64	14.90	H
	5613	-57.93	-13	-44.93	-69.79	2.94	14.80	H
	7488	-55.12	-13	-42.12	-64.89	3.39	13.16	H
	3741	-58.65	-13	-45.65	-70.91	2.64	14.90	V
	5613	-58.10	-13	-45.10	-69.96	2.94	14.80	V
	7488	-55.05	-13	-42.05	-64.82	3.39	13.16	V
LTE B66 BW 20MHz Middle 1RB0,QPSK	3492	-59.78	-13	-46.78	-70.52	2.604	13.34	H
	5238	-58.19	-13	-45.19	-68.70	3.011	13.52	H
	6984	-55.79	-13	-42.79	-65.99	3.271	13.47	H
	3492	-60.05	-13	-47.05	-70.79	2.604	13.34	V
	5238	-58.15	-13	-45.15	-68.66	3.011	13.52	V
	6984	-56.09	-13	-43.09	-66.29	3.271	13.47	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

ULCA_4A-5A								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B4 BW 20MHz Middle 1RB0,QPSK	3447	-59.54	-13	-46.54	-70.28	2.604	13.34	H
	5172	-57.93	-13	-44.93	-68.44	3.011	13.52	H
	6900	-55.99	-13	-42.99	-66.19	3.271	13.47	H
	3447	-59.98	-13	-46.98	-70.72	2.604	13.34	V
	5172	-57.66	-13	-44.66	-68.17	3.011	13.52	V
	6900	-56.49	-13	-43.49	-66.69	3.271	13.47	V
LTE B5 BW 10MHz Middle 1RB0,QPSK	1664	-66.05	-13	-53.05	-73.02	1.58	10.70	H
	2496	-62.56	-13	-49.56	-70.81	2.102	12.50	H
	3327	-60.31	-13	-47.31	-69.20	2.856	13.90	H
	1664	-65.00	-13	-52.00	-71.97	1.58	10.70	V
	2496	-60.62	-13	-47.62	-68.87	2.10	12.50	V
	3327	-60.39	-13	-47.39	-69.28	2.86	13.90	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

ULCA_4A-7A								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B4 BW 20MHz Middle 1RB0,QPSK	3447	-60.09	-13	-47.09	-70.83	2.604	13.34	H
	5172	-58.16	-13	-45.16	-68.67	3.011	13.52	H
	6900	-56.48	-13	-43.48	-66.68	3.271	13.47	H
	3447	-60.03	-13	-47.03	-70.77	2.604	13.34	V
	5172	-58.07	-13	-45.07	-68.58	3.011	13.52	V
	6900	-56.29	-13	-43.29	-66.49	3.271	13.47	V
LTE B7 BW 20MHz Middle 1RB0,QPSK	5052	-57.23	-25	-32.23	-67.44	3.03	13.24	H
	7584	-54.62	-25	-29.62	-64.07	3.56	13.01	H
	10104	-52.40	-25	-27.40	-61.92	3.92	13.44	H
	5052	-57.61	-25	-32.61	-67.82	3.03	13.24	V
	7584	-54.57	-25	-29.57	-64.02	3.56	13.01	V
	10104	-51.95	-25	-26.95	-61.47	3.92	13.44	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

ULCA_4A-12A								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B4 BW 20MHz Middle 1RB0,QPSK	3447	-59.82	-13	-46.82	-70.56	2.604	13.34	H
	5172	-57.86	-13	-44.86	-68.37	3.011	13.52	H
	6900	-56.49	-13	-43.49	-66.69	3.271	13.47	H
	3447	-60.13	-13	-47.13	-70.87	2.604	13.34	V
	5172	-58.01	-13	-45.01	-68.52	3.011	13.52	V
	6900	-56.42	-13	-43.42	-66.62	3.271	13.47	V
LTE B12 BW 10MHz Middle 1RB0,QPSK	1406	-68.36	-13	-55.36	-75.33	1.58	10.70	H
	2110	-63.57	-13	-50.57	-71.82	2.102	12.50	H
	2812	-61.85	-13	-48.85	-70.74	2.856	13.90	H
	3516	-59.99	-13	-46.99	-68.45	2.689	13.30	H
	1406	-67.03	-13	-54.03	-74.00	1.58	10.70	V
	2110	-61.99	-13	-48.99	-70.24	2.10	12.50	V
	2812	-61.18	-13	-48.18	-70.07	2.86	13.90	V
	3516	-59.92	-13	-46.92	-68.38	2.69	13.30	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

ULCA_5A-7A								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B5 BW 10MHz Middle 1RB0,QPSK	1664	-55.11	-13	-42.11	-62.08	1.58	10.70	H
	2496	-62.71	-13	-49.71	-70.96	2.102	12.50	H
	3327	-60.68	-13	-47.68	-69.57	2.856	13.90	H
	4161	-60.58	-13	-47.58	-69.04	2.689	13.30	H
	1664	-54.35	-13	-41.35	-61.32	1.58	10.70	V
	2496	-61.08	-13	-48.08	-69.33	2.10	12.50	V
	3327	-60.37	-13	-47.37	-69.26	2.86	13.90	V
	4161	-60.86	-13	-47.86	-69.32	2.69	13.30	V
LTE B7 BW 20MHz Middle 1RB0,QPSK	5052	-57.44	-25	-32.44	-67.65	3.03	13.24	H
	7572	-54.93	-25	-29.93	-64.38	3.56	13.01	H
	10104	-52.51	-25	-27.51	-62.03	3.92	13.44	H
	5052	-57.38	-25	-32.38	-67.59	3.03	13.24	V
	7572	-54.62	-25	-29.62	-64.07	3.56	13.01	V
	10104	-52.72	-25	-27.72	-62.24	3.92	13.44	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

ULCA_5A-12A								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B5 BW 10MHz Middle 1RB0,QPSK	1664	-65.27	-13	-52.27	-72.24	1.58	10.70	H
	2496	-62.67	-13	-49.67	-70.92	2.102	12.50	H
	3327	-60.51	-13	-47.51	-69.40	2.856	13.90	H
	1664	-64.35	-13	-51.35	-71.32	1.58	10.70	V
	2496	-62.66	-13	-49.66	-70.91	2.10	12.50	V
	3327	-60.36	-13	-47.36	-69.25	2.86	13.90	V
LTE B12 BW 10MHz Middle 1RB0,QPSK	1406	-69.01	-13	-56.01	-75.98	1.58	10.70	H
	2110	-63.88	-13	-50.88	-72.13	2.102	12.50	H
	2812	-61.73	-13	-48.73	-70.62	2.856	13.90	H
	1406	-67.97	-13	-54.97	-74.94	1.58	10.70	V
	2110	-63.84	-13	-50.84	-72.09	2.10	12.50	V
	2812	-61.64	-13	-48.64	-70.53	2.86	13.90	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

ULCA_5A-66A								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B5 BW 10MHz Middle 1RB0,QPSK	1664	-56.69	-13	-43.69	-63.66	1.58	10.70	H
	2496	-62.91	-13	-49.91	-71.16	2.102	12.50	H
	3327	-60.62	-13	-47.62	-69.51	2.856	13.90	H
	1664	-54.32	-13	-41.32	-61.29	1.58	10.70	V
	2496	-61.25	-13	-48.25	-69.50	2.10	12.50	V
	3327	-60.42	-13	-47.42	-69.31	2.86	13.90	V
LTE B66 BW 20MHz Middle 1RB0,QPSK	3492	-59.73	-13	-46.73	-70.47	2.604	13.34	H
	5238	-58.03	-13	-45.03	-68.54	3.011	13.52	H
	6984	-55.75	-13	-42.75	-65.95	3.271	13.47	H
	3492	-60.29	-13	-47.29	-71.03	2.604	13.34	V
	5238	-58.13	-13	-45.13	-68.64	3.011	13.52	V
	6984	-56.07	-13	-43.07	-66.27	3.271	13.47	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

ULCA_12A-66A								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B12 BW 10MHz Middle 1RB0,QPSK	1406	-68.63	-13	-55.63	-75.60	1.58	10.70	H
	2110	-63.82	-13	-50.82	-72.07	2.102	12.50	H
	2812	-61.97	-13	-48.97	-70.86	2.856	13.90	H
	3516	-60.07	-13	-47.07	-68.53	2.689	13.30	H
	1406	-66.72	-13	-53.72	-73.69	1.58	10.70	V
	2110	-62.68	-13	-49.68	-70.93	2.10	12.50	V
	2812	-60.95	-13	-47.95	-69.84	2.86	13.90	V
	3516	-60.25	-13	-47.25	-68.71	2.69	13.30	V
LTE B66 BW 20MHz Middle 1RB0,QPSK	3492	-59.86	-13	-46.86	-70.60	2.604	13.34	H
	5238	-58.09	-13	-45.09	-68.60	3.011	13.52	H
	6984	-55.76	-13	-42.76	-65.96	3.271	13.47	H
	3492	-60.36	-13	-47.36	-71.10	2.604	13.34	V
	5238	-57.45	-13	-44.45	-67.96	3.011	13.52	V
	6984	-56.12	-13	-43.12	-66.32	3.271	13.47	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

ULCA_13A-66A								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B13 BW 10MHz Middle 1RB0,QPSK	1556	-68.11	-13	-55.11	-70.74	1.09	5.87	H
	2332	-63.71	-13	-50.71	-66.11	1.37	5.92	H
	3111	-60.10	-13	-47.10	-63.99	1.64	7.68	H
	1556	-68.05	-13	-55.05	-70.68	1.09	5.87	V
	2332	-63.25	-13	-50.25	-65.65	1.37	5.92	V
	3111	-59.68	-13	-46.68	-63.57	1.64	7.68	V
LTE B66 BW 20MHz Middle 1RB0,QPSK	3492	-59.94	-13	-46.94	-70.68	2.604	13.34	H
	5238	-57.79	-13	-44.79	-68.30	3.011	13.52	H
	6984	-55.16	-13	-42.16	-65.36	3.271	13.47	H
	3492	-59.75	-13	-46.75	-70.49	2.604	13.34	V
	5238	-57.64	-13	-44.64	-68.15	3.011	13.52	V
	6984	-55.77	-13	-42.77	-65.97	3.271	13.47	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

ULCA_66A-71A								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B66 BW 20MHz Middle 1RB0,QPSK	3492	-60.14	-13	-47.14	-70.88	2.604	13.34	H
	5238	-58.23	-13	-45.23	-68.74	3.011	13.52	H
	6984	-56.11	-13	-43.11	-66.31	3.271	13.47	H
	3492	-60.21	-13	-47.21	-70.95	2.604	13.34	V
	5238	-58.08	-13	-45.08	-68.59	3.011	13.52	V
	6984	-56.02	-13	-43.02	-66.22	3.271	13.47	V
LTE B71 BW 20MHz Middle 1RB0,QPSK	1344	-70.69	-13	-57.69	-72.44	1.02	4.92	H
	2014	-63.92	-13	-50.92	-65.89	1.27	5.39	H
	2686	-62.09	-13	-49.09	-65.02	1.49	6.57	H
	3357	-60.34	-13	-47.34	-63.74	1.73	7.28	H
	1344	-69.79	-13	-56.79	-71.54	1.02	4.92	V
	2014	-62.58	-13	-49.58	-64.55	1.27	5.39	V
	2686	-60.76	-13	-47.76	-63.69	1.49	6.57	V
	3357	-59.99	-13	-46.99	-63.39	1.73	7.28	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Sample 2 :

Note: The sample 2 to verify the worse cases of the sample 1.

ULCA_4A-7A								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B4 BW 20MHz Middle 1RB0,16QAM	3447	-59.85	-13	-46.85	-70.59	2.604	13.34	H
	5172	-57.99	-13	-44.99	-68.50	3.011	13.52	H
	6900	-56.39	-13	-43.39	-66.59	3.271	13.47	H
	3447.18	-60.19	-13	-47.19	-70.93	2.604	13.34	V
	5172	-58.05	-13	-45.05	-68.56	3.011	13.52	V
	6900	-56.47	-13	-43.47	-66.67	3.271	13.47	V
LTE B7 BW 20MHz Middle 1RB0,16QAM	5052	-56.73	-13	-43.73	-66.94	3.03	13.24	H
	7584	-54.49	-13	-41.49	-63.94	3.56	13.01	H
	10104	-52.44	-13	-39.44	-61.96	3.92	13.44	H
	5052	-56.99	-13	-43.99	-67.20	3.03	13.24	V
	7584	-54.61	-13	-41.61	-64.06	3.56	13.01	V
	10104	-52.96	-13	-39.96	-62.48	3.92	13.44	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.