



FCC RADIO TEST REPORT

FCC ID : GKRRMLN1T
Equipment : 5G LGA Module
Brand Name : COMPAL
Model Name : RML-N1t
Marketing Name : 5G LGA Module
Applicant : Compal Electronics, Inc.
No.581 & 581-1, Ruiguang Rd., Neihu District,
Taipei, (114) Taiwan
Manufacturer : Compal Electronics, Inc.
No.581 & 581-1, Ruiguang Rd., Neihu District,
Taipei, (114) Taiwan
Standard : FCC 47 CFR Part 2, 96

The product was received on Mar. 01, 2024 and testing was performed from Mar. 14, 2024 to Apr. 08, 2024. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)



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History of this test report

Report No.	Version	Description	Issue Date
FG422012D	01	Initial issue of report	Apr. 19, 2024

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Reporting only	-
-	§96.41	Peak-to-Average Ratio	Not Required	-
3.3	§96.41	Effective Isotropic Radiated Power and EIRP PSD	Pass	-
-	§2.1049 §96.41	Occupied Bandwidth	Not Required	-
-	§2.1051 §96.41	Conducted Band Edge Measurement	Not Required	-
-	§2.1051 §96.41	Conducted Spurious Emission	Not Required	-
-	§2.1055	Frequency Stability for Temperature & Voltage	Not Required	-
4.4	§2.1051 §96.41	Radiated Spurious Emission	Pass	11.36 dB under the limit at 14205.00 MHz

Remark:

- Not required means after assessing, test items are not necessary to carry out.
- This is a variant report by changing module trace design. All the test cases were performed on original report which can be referred to Sporton Report Number FG2N2501-01F. Based on the original report, only worst case was verified.

Conformity Assessment Condition:

- The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
- The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Keven Cheng

Report Producer: Ming Chen



1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature
General Specs LTE/5G NR and GNSS

The following antennas were provided to the EUT

RF Exposure Max Antenna Gain information(dBi)		
Band	Ant 5	Main Ant. #
N48	4	5

Support band and evaluated information	
Supported band	n48
Evaluated and Tested band	n48

TDD band Power Class		
	PC3	PC2
N48	V	

Remark: The EUT's information above is declared by manufacturer. Please refer to Disclaimer in report summary.

1.2 Modification of EUT

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

1.3 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	Sporton Site No. TH03-HY
Test Engineer	Kelvin Lu
Temperature (°C)	20.3~22.7
Relative Humidity (%)	51.4~52.8

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	Sporton Site No. 03CH12-HY (TAF Code: 3786)
Test Engineer	Jesse Fan, Tim Lee and Wilson Wu
Temperature (°C)	20~25
Relative Humidity (%)	50~60
Remark	The Radiated Spurious Emission test item subcontracted to Sporton International Inc. Wensan Laboratory.

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW1190 and TW3786

1.4 Applied Standards

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

- ♦ ANSI C63.26-2015
- ♦ ANSI / TIA-603-E
- ♦ FCC 47 CFR Part 2, 96
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- ♦ FCC KDB 940660 D01 Part 96 CBRS Eqpt v03
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. The TAF code is not including all the FCC KDB listed without accreditation.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

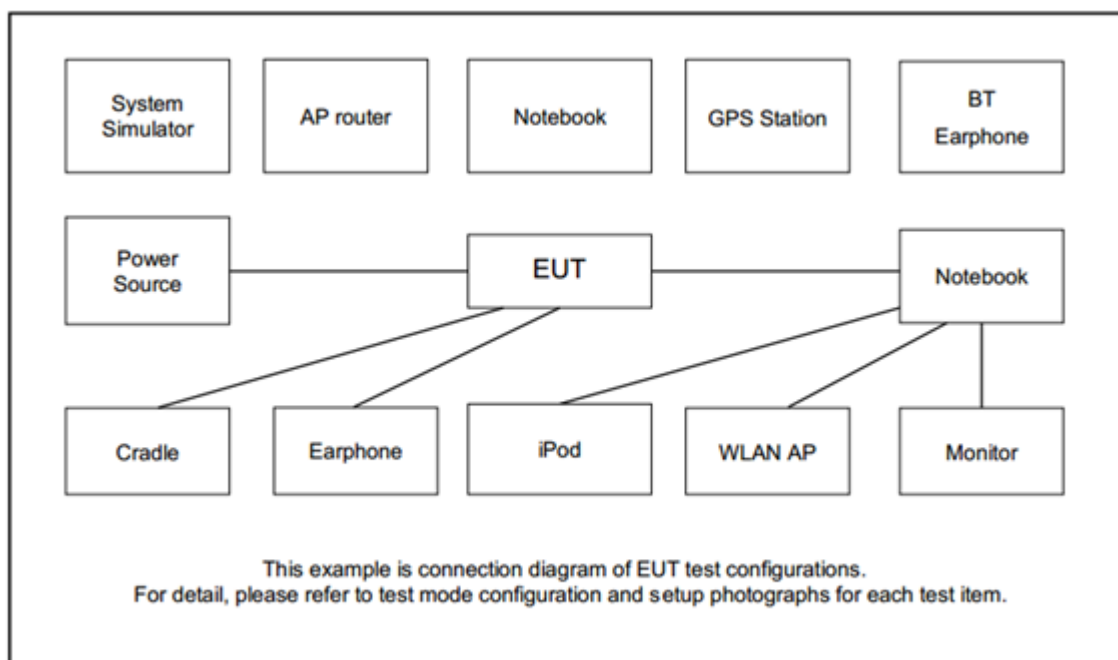
Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape) and accessory (Adapter or Earphone), and adjusting the measurement antenna orientation, following C63.26 exploratory test procedures and only the worst case emissions were reported in this report..

Modulation Type	Modulation	Modulation Type	Modulation
A	DFT-s-OFDM pi/2 BPSK	N/A	N/A
B	DFT-s-OFDM QPSK	F	CP-OFDM QPSK
C	DFT-s-OFDM 16QAM	G	CP-OFDM 16QAM
D	DFT-s-OFDM 64QAM	H	CP-OFDM 64QAM
E	DFT-s-OFDM 256QAM	I	CP-OFDM 256QAM

Test Item	Modulation Type	Bandwidth	RB Size	Channel
Conducted Power	A, B, F	All	1, Half, Full	L, M, H
EIRP	A, B, F	All	1, Half, Full	L, M, H
RSE	A, F	Maximum	Inner_1RB	L, M, H
Remark: 1. Evaluated all the transmitter signal and reporting worst-case configuration among all modulation types. 2. 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. 3. Output Conducted Power was spot checks Original models worse case Modulation				

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration

Item	Equipment	Brand Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m
2.	5G Wireless Test Platform	Anritsu	MT8000A	N/A	N/A	Unshielded, 1.8 m
3.	Fixture	Compal	ZM29	N/A	N/A	N/A
4.	Antenna	Inpaq	ANT5	N/A	N/A	N/A

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Example :

$$\begin{aligned}
 \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\
 &= 4.2 + 10 = 14.2 \text{ (dB)}
 \end{aligned}$$

2.5 Frequency List of Low/Middle/High Channels

5G NR n48 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
100	Channel	640000	641666	643332
	Frequency	3600	3624.99	3649.98
90	Channel	639668	641666	643666
	Frequency	3595.02	3624.99	3654.99
80	Channel	639334	641666	644000
	Frequency	3590.01	3624.99	3660
70	Channel	639000	641666	644332
	Frequency	3585	3624.99	3664.98
60	Channel	638668	641666	644666
	Frequency	3580.02	3624.99	3669.99
50	Channel	638334	641666	645000
	Frequency	3575.01	3624.99	3675
40	Channel	638000	641666	645332
	Frequency	3570	3624.99	3679.98
30	Channel	637668	641666	645666
	Frequency	3565.02	3624.99	3684.99
20	Channel	637334	641666	646000
	Frequency	3560.01	3624.99	3690
15	Channel	637168	641666	646166
	Frequency	3557.52	3624.99	3692.49
10	Channel	637000	641666	646332
	Frequency	3555	3624.99	3694.98

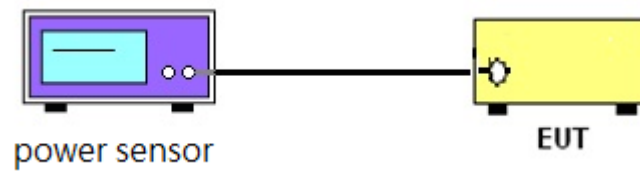
3 Conducted Test Items

3.1 Measuring Instruments

See list of measuring instruments of this test report.

3.1.1 Test Setup

3.1.2 Conducted Output Power



3.1.3 Test Result of Conducted Test

Please refer to Appendix A.



3.2 Conducted Output Power

3.2.1 Description of the Conducted Output Power Measurement

A power sensor was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

3.2.2 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through the system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.



3.3 EIRP

3.3.1 Description of the EIRP Measurement

The EIRP of mobile transmitters must not exceed 23 dBm /10 megahertz for 5G NR n48.

The testing follows ANSI C63.26-2015 Section 5.2.5.5

According to KDB 412172 D01 Power Approach,

$EIRP = PT + GT - LC$, where

PT = transmitter output power in dBm

GT = gain of the transmitting antenna in dBi

LC = signal attenuation in the connecting cable between the transmitter and antenna in dB

Device	Maximum EIRP (dBm/10 MHz)	Maximum PSD (dBm/MHz)
End User Device	23	n/a

Remark: Total channel power is complied with EIRP limit 23dBm/10MHz.

3.3.2 Test Procedures

The testing follows procedure in Section 5.2 of ANSI C63.26-2015 and KDB 940660 D01 Part 96 CBRS Eqpt v03 Section 3.2(b)(2)

Determine the EIRP by adding the effective antenna gain to the measured average conducted power level.

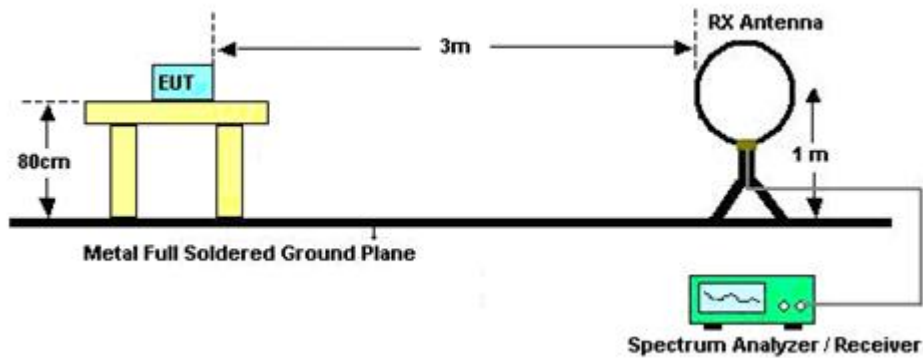
4 Radiated Test Items

4.1 Measuring Instruments

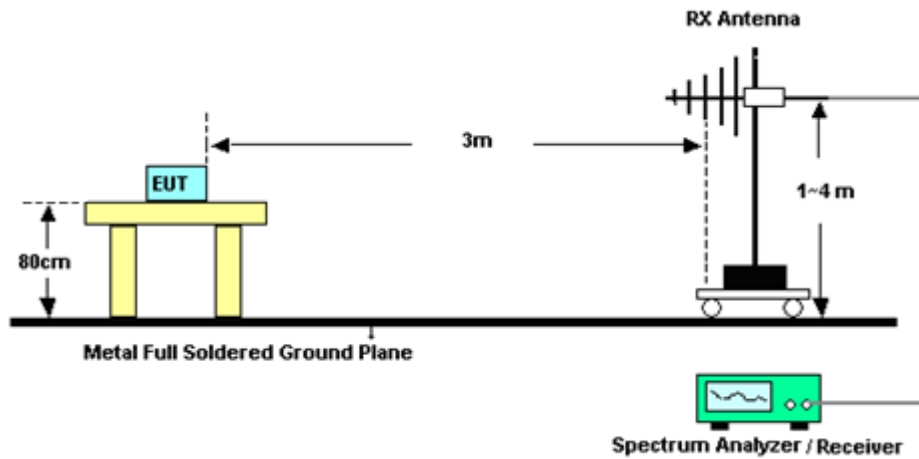
See list of measuring instruments of this test report.

4.2 Test Setup

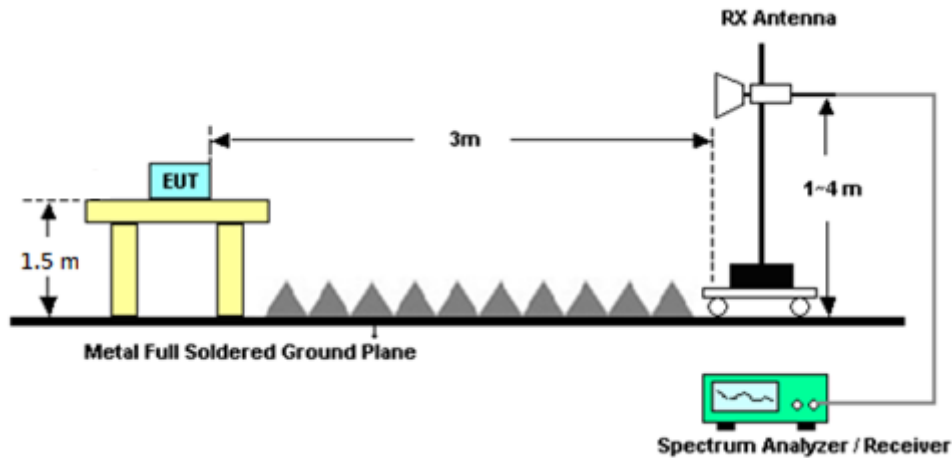
For radiated emissions below 30MHz



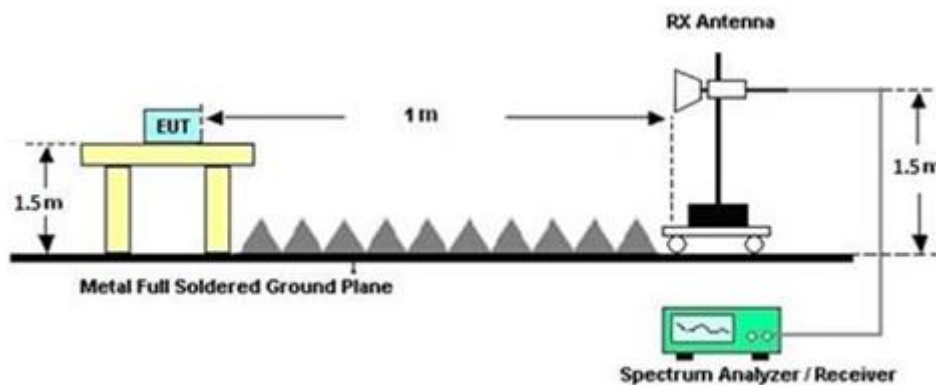
For radiated emissions from 30MHz to 1GHz



For radiated emissions from 1GHz to 18GHz



For radiated emissions above 18GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.

Note:

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA-603-E.

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 -40dBm / MHz .

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

4.4.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 7 and ANSI C63.26-2015 section 5.5.4 Radiated measurement using the field strength method.

1. 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.
2. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
5. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
6. To convert spectrum reading E(dBuV/m) to EIRP(dBm)
$$\text{EIRP(dBm)} = \text{Level (dBuV/m)} + 20\log(d) - 104.77$$
, where d is the distance at which field strength limit is specified in the rules.
7.
$$\text{Field Strength Level (dBm)} = \text{Spectrum Reading (dBm)} + \text{Antenna Factor} + \text{Cable Loss} + \text{Read Level} - \text{Preamp Factor}.$$
8.
$$\text{ERP (dBm)} = \text{EIRP (dBm)} - 2.15$$
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.



5 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
DC Power Supply	GW Instek	GPE2323	GEU871221	0V~64V ;0A~6A	Apr. 12, 2023	Mar. 14, 2024~ Apr. 01, 2024	Apr. 11, 2024	Conducted (TH03-HY)
Signal Analyzer	Rohde & Schwarz	FSV3044	101544	10Hz~44GHz	Jul. 25, 2023	Mar. 14, 2024~ Apr. 01, 2024	Jul. 24, 2024	Conducted (TH03-HY)
Temperature Chamber	ESPEC	SH-641	92013720	-40°C ~90°C	Sep. 04, 2023	Mar. 14, 2024~ Apr. 01, 2024	Sep. 03, 2024	Conducted (TH03-HY)
Base Station (Measure)	Anritsu	MT8821C	6261849015	LTE	Nov. 17, 2023	Mar. 14, 2024~ Apr. 01, 2024	Nov. 16, 2024	Conducted (TH03-HY)
Base Station (Measure)	Anritsu	MT8000A	6262186342	FR1	Nov. 14, 2023	Mar. 14, 2024~ Apr. 01, 2024	Nov. 13, 2024	Conducted (TH03-HY)
Hygrometer	Testo	DTM-303B	TP210073	NA	Jun. 26, 2023	Mar. 14, 2024~ Apr. 01, 2024	Jun. 25, 2024	Conducted (TH03-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Feb. 23, 2024	Mar. 26, 2024~ Apr. 08, 2024	Feb. 22, 2025	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CB1 6111D & 00800N1D01N-06	37059 & 01	30MHz~1GHz	Nov. 3, 2023	Mar. 26, 2024~ Apr. 08, 2024	Nov. 02, 2024	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-02114	1GHz~18GHz	Jul. 31, 2023	Mar. 26, 2024~ Apr. 08, 2024	Jul. 30, 2024	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	00993	18GHz~40GHz	Nov. 24, 2023	Mar. 26, 2024~ Apr. 08, 2024	Nov. 23, 2024	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103A	161075	10MHz~1GHz	Mar. 20, 2024	Mar. 26, 2024~ Apr. 08, 2024	Mar. 19, 2025	Radiation (03CH12-HY)
Preamplifier	Agilent	8449B	3008A02375	1GHz~26.5GHz	May 23, 2023	Mar. 26, 2024~ Apr. 08, 2024	May 22, 2024	Radiation (03CH12-HY)
Preamplifier	E-INSTRUMENT TECH LTD.	ERA-100M-18 G-56-01-A70	EC1900249	1GHz~18GHz	Dec. 20, 2023	Mar. 26, 2024~ Apr. 08, 2024	Dec. 19, 2024	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 07, 2023	Mar. 26, 2024~ Apr. 08, 2024	Dec. 06, 2024	Radiation (03CH12-HY)
Spectrum Analyzer	Agilent	N9010A	MY53470118	10Hz~44GHz	Jan. 10, 2024	Mar. 26, 2024~ Apr. 08, 2024	Jan. 09, 2025	Radiation (03CH12-HY)
Filter	Wainwright	WHKX12-900-1000-15000-60SS	SN11	1GHz High Pass Filter	Nov. 02, 2023	Mar. 26, 2024~ Apr. 08, 2024	Nov. 01, 2024	Radiation (03CH12-HY)
Filter	Wainwright	WHKX12-2700-3000-18000-60SS	SN2	3GHz High Pass Filter	Jul. 10, 2023	Mar. 26, 2024~ Apr. 08, 2024	Jul. 09, 2024	Radiation (03CH12-HY)
Filter	Wainwright	WHKX8-5872.5-6750-18000-40ST	SN5	6.75GHz High Pass Filter	Mar. 08, 2024	Mar. 26, 2024~ Apr. 08, 2024	Mar. 07, 2025	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9kHz~30MHz	Mar. 06, 2024	Mar. 26, 2024~ Apr. 08, 2024	Mar. 05, 2025	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 18, 2023	Mar. 26, 2024~ Apr. 08, 2024	Dec. 17, 2024	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Dec. 18, 2023	Mar. 26, 2024~ Apr. 08, 2024	Dec. 17, 2024	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803953/2	30MHz~40GHz	Dec. 18, 2023	Mar. 26, 2024~ Apr. 08, 2024	Dec. 17, 2024	Radiation (03CH12-HY)
Hygrometer	TECPEL	DTM-303B	TP210117	N/A	Oct. 19, 2023	Mar. 26, 2024~ Apr. 08, 2024	Oct. 18, 2024	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Mar. 26, 2024~ Apr. 08, 2024	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Mar. 26, 2024~ Apr. 08, 2024	N/A	Radiation (03CH12-HY)
Radio Communication Test Station	Anritsu	NT8000A	6272337370	N/A	Nov. 14, 2023	Mar. 26, 2024~ Apr. 08, 2024	Nov. 13, 2024	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Mar. 26, 2024~ Apr. 08, 2024	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Mar. 26, 2024~ Apr. 08, 2024	N/A	Radiation (03CH12-HY)

6 Measurement Uncertainty

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	3.07 dB
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	3.63 dB
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.14 dB
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Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power) and ERP/EIRP

Sub carrier spacing : 15kHz

NR n48 Maximum Average Power [dBm] (GT - LC = 4 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
10	1	1	PI/2 BPSK	18.70	18.70	18.64	22.84	0.1923
10	1	50		18.77	18.77	18.74		
10	25	12		18.80	18.77	18.75		
10	1	0		18.25	18.22	18.17		
10	1	51		18.35	18.27	18.25		
10	50	0		18.27	18.28	18.18		
10	1	1	QPSK	18.74	18.76	18.64		
10	1	50		18.83	18.84	18.76		
10	25	12		18.81	18.73	18.80		
10	1	0		17.74	17.72	17.70		
10	1	51		17.84	17.91	17.83		
10	50	0		17.81	17.80	17.79		
Limit	EIRP < 23dBm/10MHz			Result			Pass	

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.

NR n48 Maximum Average Power [dBm] (GT - LC = 4 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
15	1	1	PI/2 BPSK	18.78	18.71	18.65	22.91	0.1954
15	1	77		18.78	18.79	18.66		
15	36	18		18.91	18.82	18.69		
15	1	0		18.28	18.21	18.05		
15	1	78		18.32	18.28	18.14		
15	75	0		18.44	18.27	18.27		
15	1	1	QPSK	18.85	18.81	18.56		
15	1	77		18.82	18.87	18.77		
15	36	18		18.89	18.79	18.75		
15	1	0		17.79	17.77	17.68		
15	1	78		17.83	17.80	17.81		
15	75	0		17.89	17.77	17.70		
Limit	EIRP < 23dBm/10MHz			Result			Pass	

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.



NR n48 Maximum Average Power [dBm] (GT - LC = 4 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
20	1	1	PI/2 BPSK	18.93	18.81	18.65	22.97	0.1982
20	1	104		18.77	18.78	18.68		
20	50	25		18.92	18.81	18.62		
20	1	0		18.43	18.39	18.11		
20	1	105		18.28	18.31	18.19		
20	100	0		18.39	18.28	18.21		
20	1	1	QPSK	18.95	18.95	18.70		
20	1	104		18.87	18.97	18.71		
20	50	25		18.97	18.79	18.66		
20	1	0		18.02	17.86	17.72		
20	1	105		18.01	17.90	17.91		
20	100	0		17.95	17.80	17.61		
Limit	EIRP < 23dBm/10MHz			Result			Pass	

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.

NR n48 Maximum Average Power [dBm] (GT - LC = 4 dB)										
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)		
30	1	1	PI/2 BPSK	18.88	18.85	18.80	22.88	0.1941		
30	1	158		18.60	18.72	18.66				
30	80	40		18.73	18.86	18.81				
30	1	0		18.30	18.26	18.23				
30	1	159		18.10	18.13	18.28				
30	160	0		18.22	18.31	18.29				
30	1	1	QPSK	18.83	18.80	18.69				
30	1	158		18.63	18.61	18.72				
30	80	40		18.65	18.77	18.78				
30	1	0		17.81	17.79	17.75				
30	1	159		17.78	17.64	17.67				
30	160	0		17.75	17.76	17.69				
Limit	EIRP < 23dBm/10MHz			Result			Pass			

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.



NR n48 Maximum Average Power [dBm] (GT - LC = 4 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
40	1	1	PI/2 BPSK	18.84	18.98	18.68	22.98	0.1986
40	1	214		18.77	18.67	18.62		
40	108	54		18.60	18.67	18.56		
40	1	0		18.44	18.46	18.14		
40	1	215		18.28	18.17	18.11		
40	216	0		18.16	18.04	18.04		
40	1	1	QPSK	18.88	18.87	18.66		
40	1	214		18.79	18.65	18.64		
40	108	54		18.62	18.66	18.48		
40	1	0		17.92	17.89	17.71		
40	1	215		17.83	17.64	17.70		
40	216	0		17.65	17.67	17.54		
Limit	EIRP < 23dBm/10MHz			Result			Pass	

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.

NR n48 Maximum Average Power [dBm] (GT - LC = 4 dB)										
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)		
50	1	1	PI/2 BPSK	18.80	18.85	18.50	22.9	0.195		
50	1	268		18.77	18.66	18.56				
50	135	67		18.55	18.67	18.52				
50	1	0		18.29	18.34	18.01				
50	1	269		18.28	18.10	18.12				
50	270	0		18.07	18.22	17.98				
50	1	1	QPSK	18.83	18.90	18.54				
50	1	268		18.81	18.72	18.59				
50	135	67		18.60	18.69	18.52				
50	1	0		17.90	17.86	17.51				
50	1	269		17.82	17.69	17.62				
50	270	0		17.57	17.68	17.50				
Limit	EIRP < 23dBm/10MHz			Result			Pass			

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.



Sub carrier spacing : 30kHz

NR n48 Maximum Average Power [dBm] (GT - LC = 4 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
10	1	1	PI/2 BPSK	18.74	18.74	18.72	22.87	0.1936
10	1	22		18.72	18.73	18.72		
10	12	6		18.85	18.82	18.79		
10	1	0		18.25	18.23	18.17		
10	1	23		18.22	18.24	18.19		
10	24	0		18.33	18.28	18.30		
10	1	1	QPSK	18.80	18.73	18.68		
10	1	22		18.76	18.74	18.69		
10	12	6		18.87	18.84	18.85		
10	1	0		17.74	17.73	17.66		
10	1	23		17.76	17.72	17.70		
10	24	0		17.83	17.80	17.78		
Limit	EIRP < 23dBm/10MHz			Result			Pass	

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.

NR n48 Maximum Average Power [dBm] (GT - LC = 4 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
15	1	1	PI/2 BPSK	18.84	18.80	18.65	22.96	0.1977
15	1	36		18.76	18.75	18.65		
15	18	9		18.90	18.82	18.75		
15	1	0		18.34	18.32	18.12		
15	1	37		18.23	18.26	18.15		
15	36	0		18.40	18.30	18.21		
15	1	1	QPSK	18.87	18.77	18.66		
15	1	36		18.81	18.81	18.68		
15	18	9		18.96	18.82	18.74		
15	1	0		17.88	17.78	17.65		
15	1	37		17.75	17.76	17.67		
15	36	0		17.93	17.82	17.74		
Limit	EIRP < 23dBm/10MHz			Result			Pass	

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.



NR n48 Maximum Average Power [dBm] (GT - LC = 4 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
20	1	1	PI/2 BPSK	18.89	18.91	18.65	22.98	0.1986
20	1	49		18.70	18.77	18.66		
20	25	12		18.97	18.86	18.69		
20	1	0		18.38	18.38	18.14		
20	1	50		18.25	18.30	18.17		
20	50	0		18.39	18.32	18.21		
20	1	1	QPSK	18.94	18.89	18.60		
20	1	49		18.76	18.85	18.69		
20	25	12		18.98	18.85	18.72		
20	1	0		17.90	17.87	17.63		
20	1	50		17.75	17.75	17.61		
20	50	0		17.90	17.86	17.72		
Limit	EIRP < 23dBm/10MHz			Result			Pass	

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.

NR n48 Maximum Average Power [dBm] (GT - LC = 4 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
30	1	1	PI/2 BPSK	18.81	18.87	18.78	22.87	0.1936
30	1	76		18.64	18.60	18.70		
30	36	18		18.75	18.83	18.77		
30	1	0		18.29	18.33	18.24		
30	1	77		18.13	18.11	18.24		
30	75	0		18.24	18.29	18.26		
30	1	1	QPSK	18.83	18.81	18.76		
30	1	76		18.59	18.65	18.75		
30	36	18		18.82	18.86	18.79		
30	1	0		17.82	17.82	17.85		
30	1	77		17.64	17.61	17.76		
30	75	0		17.72	17.79	17.80		
Limit	EIRP < 23dBm/10MHz			Result			Pass	

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.



NR n48 Maximum Average Power [dBm] (GT - LC = 4 dB)										
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)		
40	1	1	PI/2 BPSK	18.89	18.93	18.65	22.94	0.1968		
40	1	104		18.78	18.65	18.63				
40	50	25		18.69	18.77	18.57				
40	1	0		18.43	18.44	18.15				
40	1	105		18.32	18.19	18.11				
40	100	0		18.26	18.20	18.09				
40	1	1	QPSK	18.94	18.91	18.69				
40	1	104		18.80	18.70	18.70				
40	50	25		18.70	18.74	18.55				
40	1	0		17.97	17.93	17.68				
40	1	105		17.80	17.65	17.70				
40	100	0		17.75	17.70	17.56				
Limit	EIRP < 23dBm/10MHz			Result			Pass			

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.

NR n48 Maximum Average Power [dBm] (GT - LC = 4 dB)										
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)		
50	1	1	PI/2 BPSK	18.87	18.95	18.66	22.95	0.1972		
50	1	131		18.86	18.76	18.66				
50	64	32		18.66	18.77	18.57				
50	1	0		18.40	18.44	18.17				
50	1	132		18.39	18.26	18.22				
50	128	0		18.17	18.31	18.11				
50	1	1	QPSK	18.86	18.92	18.63				
50	1	131		18.84	18.76	18.64				
50	64	32		18.70	18.78	18.60				
50	1	0		17.90	17.96	17.61				
50	1	132		17.90	17.77	17.66				
50	128	0		17.72	17.78	17.66				
Limit	EIRP < 23dBm/10MHz			Result			Pass			

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.



NR n48 Maximum Average Power [dBm] (GT - LC = 4 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
60	1	1	PI/2 BPSK	18.90	18.82	18.46	22.92	0.1959
60	1	160		18.92	18.72	18.59		
60	81	40		18.87	18.85	18.75		
60	1	0		18.37	18.30	17.92		
60	1	161		18.36	18.20	18.09		
60	162	0		18.34	18.31	18.17		
60	1	1	QPSK	18.89	18.86	18.46		
60	1	160		18.92	18.76	18.60		
60	81	40		18.87	18.86	18.75		
60	1	0		17.90	17.79	17.37		
60	1	161		17.89	17.72	17.61		
60	162	0		17.82	17.81	17.63		
Limit	EIRP < 23dBm/10MHz			Result			Pass	

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.

NR n48 Maximum Average Power [dBm] (GT - LC = 4 dB)										
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)		
70	1	1	PI/2 BPSK	18.83	18.83	18.61	22.94	0.1968		
70	1	187		18.67	18.72	18.53				
70	90	45		18.77	18.92	18.90				
70	1	0		18.33	18.33	18.12				
70	1	188		18.16	18.23	18.06				
70	180	0		18.32	18.43	18.29				
70	1	1	QPSK	18.83	18.84	18.65				
70	1	187		18.66	18.71	18.50				
70	90	45		18.75	18.87	18.94				
70	1	0		17.86	17.83	17.57				
70	1	188		17.70	17.72	17.56				
70	180	0		17.79	17.87	17.79				
Limit	EIRP < 23dBm/10MHz			Result			Pass			

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.



NR n48 Maximum Average Power [dBm] (GT - LC = 4 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
80	1	1	PI/2 BPSK	18.86	18.75	18.53	22.93	0.1963
80	1	215		18.69	18.61	18.61		
80	108	54		18.91	18.90	18.83		
80	1	0		18.32	18.18	17.96		
80	1	216		18.15	18.15	18.15		
80	216	0		18.31	18.33	18.21		
80	1	1	QPSK	18.89	18.73	18.57		
80	1	215		18.68	18.63	18.64		
80	108	54		18.93	18.91	18.82		
80	1	0		17.85	17.70	17.52		
80	1	216		17.64	17.63	17.62		
80	216	0		17.85	17.86	17.73		
Limit	EIRP < 23dBm/10MHz			Result			Pass	

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.

NR n48 Maximum Average Power [dBm] (GT - LC = 4 dB)										
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)		
90	1	1	PI/2 BPSK	18.84	18.64	18.78	22.89	0.1945		
90	1	243		18.71	18.67	18.53				
90	120	60		18.82	18.89	18.88				
90	1	0		18.33	18.13	18.25				
90	1	244		18.21	18.19	17.99				
90	243	0		18.28	18.35	18.31				
90	1	1	QPSK	18.87	18.65	18.81				
90	1	243		18.67	18.65	18.56				
90	120	60		18.76	18.89	18.87				
90	1	0		17.86	17.67	17.77				
90	1	244		17.70	17.67	17.58				
90	243	0		17.82	17.87	17.77				
Limit	EIRP < 23dBm/10MHz			Result			Pass			

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.



NR n48 Maximum Average Power [dBm] (GT - LC = 4 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
100	1	0	PI/2 BPSK	18.88	18.59	18.79	22.91	0.1954
100	1	272		18.72	18.63	18.61		
100	270	0		18.90	18.89	18.80		
100	1	1		18.36	18.10	18.28		
100	1	1		18.21	18.09	18.17		
100	1	1		18.32	18.31	18.20		
100	0	0	QPSK	18.91	18.63	18.78		
100	0	0		18.70	18.58	18.64		
100	0	0		18.88	18.87	18.76		
100	0	0		17.86	17.60	17.79		
100	0	0		17.73	17.56	17.64		
100	0	0		17.81	17.78	17.72		
Limit	EIRP < 23dBm/10MHz			Result			Pass	

Total EIRP power is less than partial EIRP limit 23 dBm/10MHz.



Appendix B. Test Results of Radiated Test

B1. Summary of each worse mode

Mode	Part	Band	Ch	Freq (MHz)	Level (dBm)	Det	Ant Factor (dB)	Amp\Cbl (dB)	Filter (dB)	EIRPCF (dB)	Reading (dBuV)	Limit (dBm)	Margin (dB)	Pol	Ant
1	Part 96	NR SA n48	L	14205	-51.36	RMS	41.09	-45.89	0.45	-95.23	48.22	-40.00	-11.36	H	ANT 5

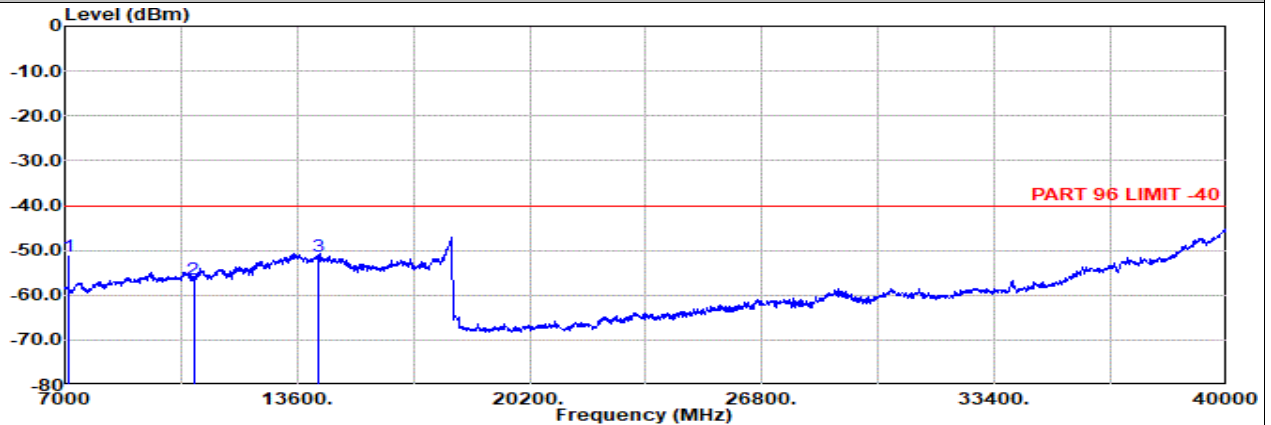


ANT 5

Part 96 Mode 38

NR SA n48 100M Ch640000 1RB1 BPSK

L

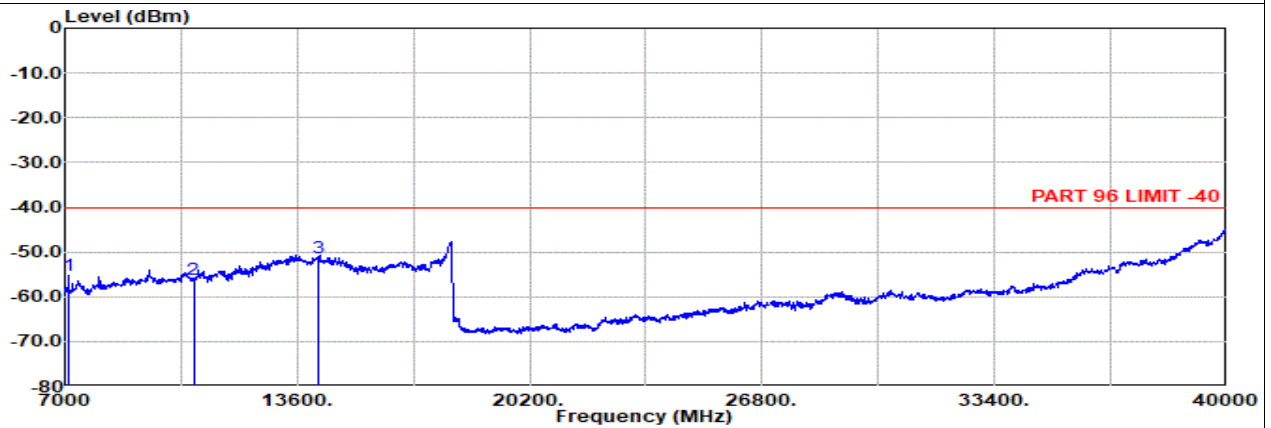


Site : 03CH12-HY

Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Horizontal

: NR SA n48 100M Ch640000 1RB1 BPSK

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1					
	MHz	dBm								
1	7102.00	-51.44	RMS	36.52	-51.91	0.90	-95.23	58.28	-40.00	-11.44 Horizontal
2	10653.00	-56.42	RMS	39.30	-50.06	0.26	-95.23	49.31	-40.00	-16.42 Horizontal
3	14205.00	-51.36	RMS	41.09	-45.89	0.45	-95.23	48.22	-40.00	-11.36 Horizontal



Site : 03CH12-HY

Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Vertical

: NR SA n48 100M Ch640000 1RB1 BPSK

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1					
	MHz	dBm								
1	7102.00	-55.10	RMS	36.52	-51.91	0.90	-95.23	54.62	-40.00	-15.10 Vertical
2	10653.00	-56.19	RMS	39.30	-50.06	0.26	-95.23	49.54	-40.00	-16.19 Vertical
3	14205.00	-51.43	RMS	41.09	-45.89	0.45	-95.23	48.15	-40.00	-11.43 Vertical

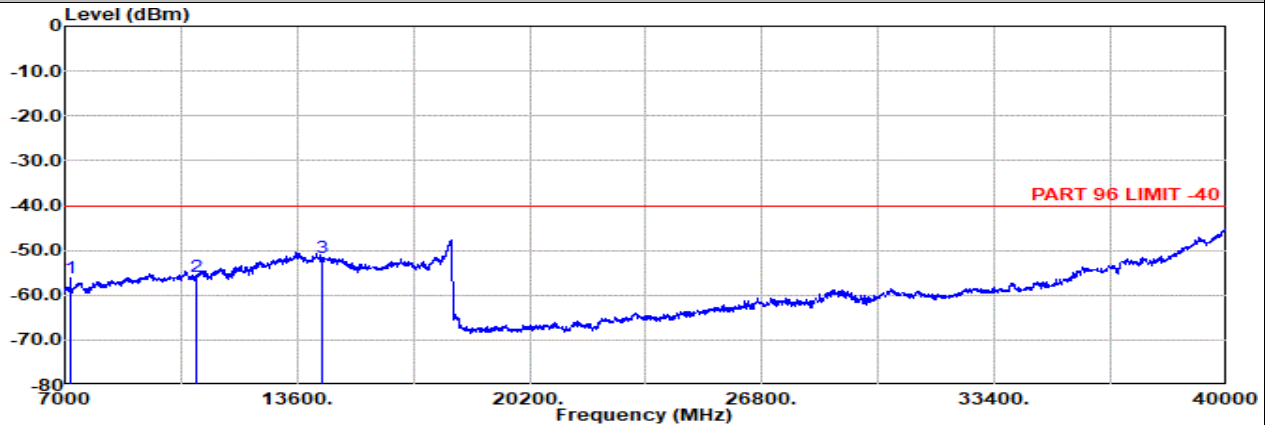


ANT 5

Part 96 Mode 38

NR SA n48 100M Ch641666 1RB1 BPSK

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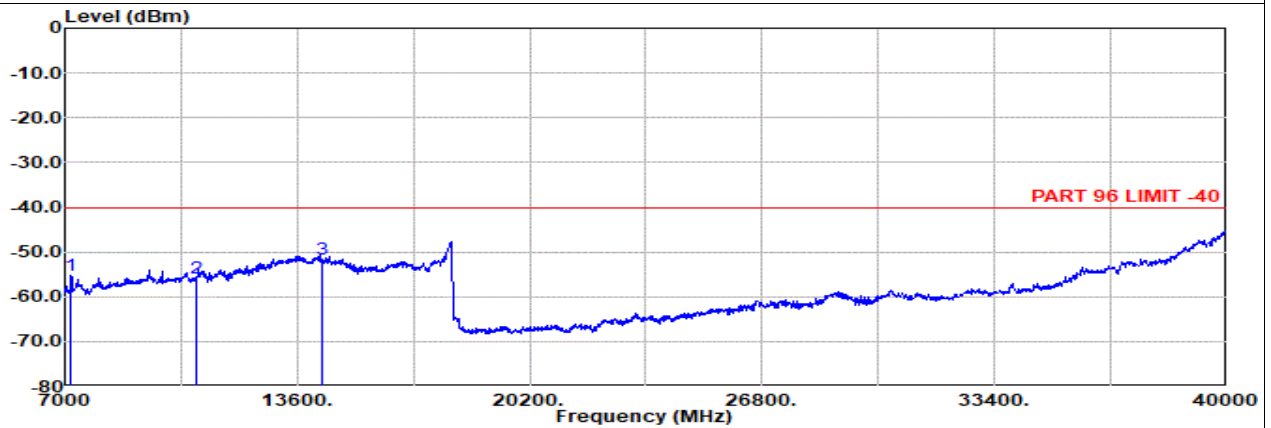


Site : 03CH12-HY

Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Horizontal

: SA n48 100M Ch641666 1RB1 BPSK

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1					
	MHz	dBm								
1	7152.00	-56.25	RMS	36.91	-51.95	0.90	-95.23	53.12	-40.00	-16.25 Horizontal
2	10728.00	-55.83	RMS	39.24	-49.96	0.26	-95.23	49.86	-40.00	-15.83 Horizontal
3	14305.00	-51.70	RMS	40.90	-45.72	0.44	-95.23	47.91	-40.00	-11.70 Horizontal



Site : 03CH12-HY

Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Vertical

: SA n48 100M Ch641666 1RB1 BPSK

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1					
	MHz	dBm								
1	7152.00	-55.10	RMS	36.91	-51.95	0.90	-95.23	54.27	-40.00	-15.10 Vertical
2	10728.00	-55.82	RMS	39.24	-49.96	0.26	-95.23	49.87	-40.00	-15.82 Vertical
3	14305.00	-51.56	RMS	40.90	-45.72	0.44	-95.23	48.05	-40.00	-11.56 Vertical

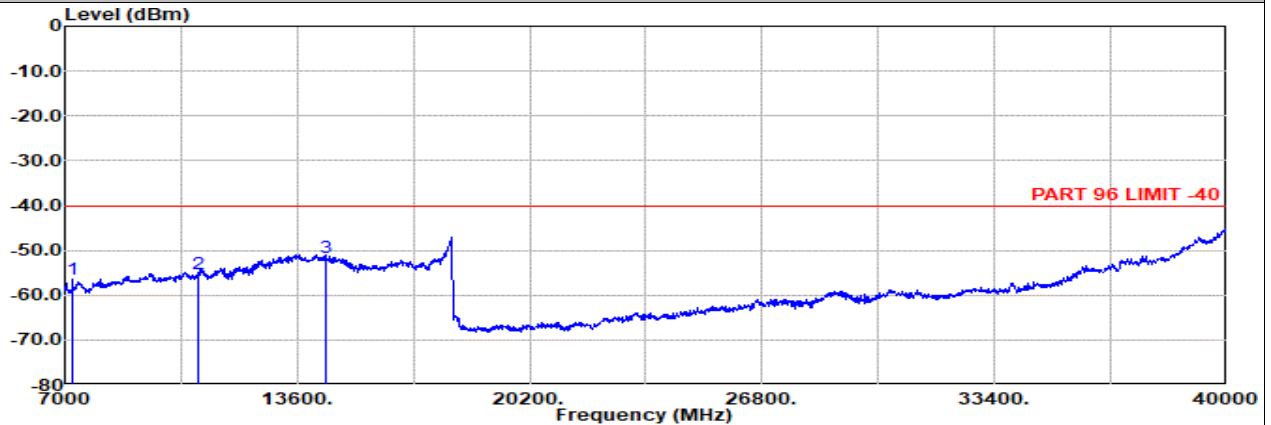


ANT 5

Part 96 Mode 38

NR SA n48 100M Ch643332 1RB1 BPSK

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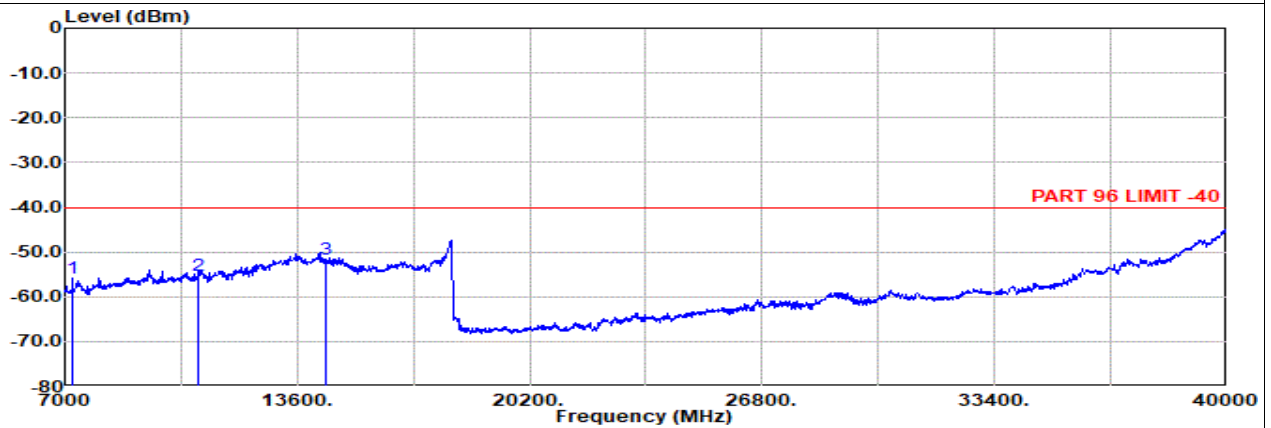


Site : 03CH12-HY

Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Horizontal

: NR SA n48 100M Ch643332 1RB1 BPSK

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1		g			
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	7202.00	-56.33	RMS	37.10	-51.98	0.89	-95.23	52.89	-40.00	-16.33 Horizontal
2	10803.00	-55.36	RMS	39.30	-49.87	0.27	-95.23	50.17	-40.00	-15.36 Horizontal
3	14405.00	-51.54	RMS	40.80	-45.55	0.44	-95.23	48.00	-40.00	-11.54 Horizontal



Site : 03CH12-HY

Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Vertical

: NR SA n48 100M Ch643332 1RB1 BPSK

	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
				Factor	1		g			
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB
1	7202.00	-55.92	RMS	37.10	-51.98	0.89	-95.23	53.30	-40.00	-15.92 Vertical
2	10803.00	-55.11	RMS	39.30	-49.87	0.27	-95.23	50.42	-40.00	-15.11 Vertical
3	14405.00	-51.59	RMS	40.80	-45.55	0.44	-95.23	47.95	-40.00	-11.59 Vertical

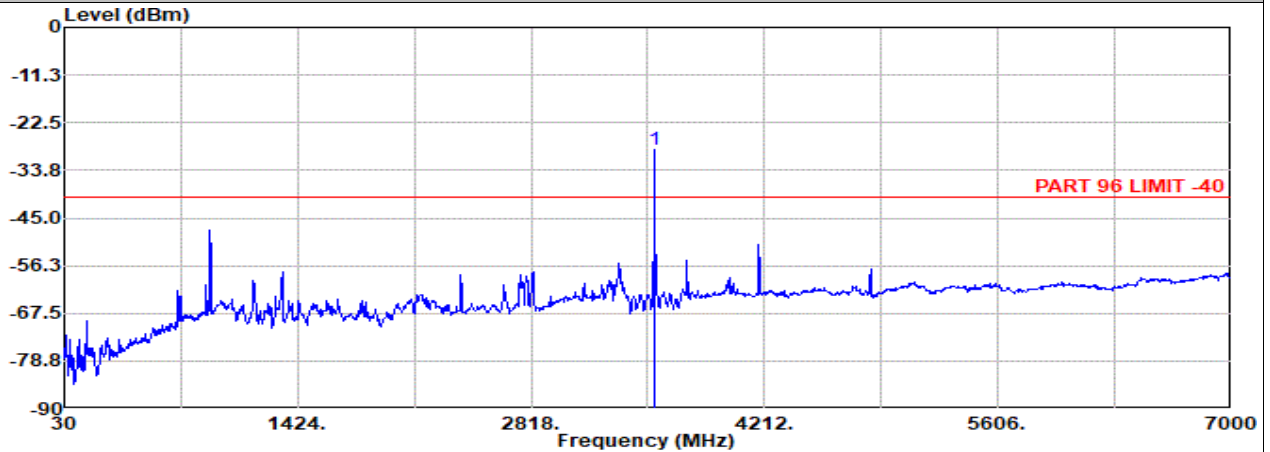


ANT 5

Part 96 Mode 38

NR SA n48 100M Ch640000 1RB1 BPSK

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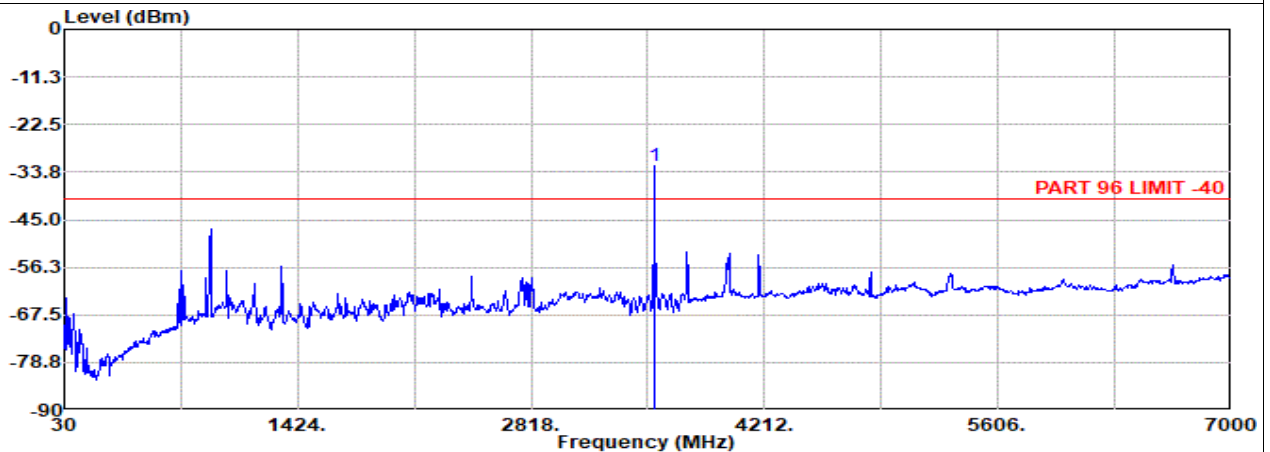


Site : 03CH12-HY

Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Horizontal

: SA n48 100M Ch640000 1RB1 QPSK

1	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
	MHz	dBm		Factor	1		g			
1	3551.00	-28.94	RMS	29.60	-57.17	0.54	-95.23	93.32	-----	----- Horizontal



Site : 03CH12-HY

Condition: PART 96 LIMIT -40 3m 9120D-02114-230731 Vertical

: SA n48 100M Ch640000 1RB1 QPSK

1	Freq	Level	Detector	Ant Amp\Cb Filter		EIRPCF	Readin	Limit	Margin Pol	
	MHz	dBm		Factor	1		g			
1	3551.00	-32.37	RMS	29.60	-57.17	0.54	-95.23	89.89	-----	----- Vertical

Remark: The over limit signal #1 is fundamental signal which can be ignored.