



FCC RADIO TEST REPORT

FCC ID : QYLFN990F12
Equipment : WWAN Module
Model Name : FN990A28
Applicant : Getac Technology Corporation.
5F., Building A, No. 209, Sec.1, Nangang Rd., Nangang
Dist., Taipei City 115018, Taiwan, R.O.C.
Standard : FCC 47 CFR Part 2, 96

The product was received on May 23, 2025 and testing was performed from Jun. 02, 2025 to Jun. 18, 2025. 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 and has been in compliance with the applicable technical standards.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval from 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.)



Table of Contents

History of this test report.....	3
Summary of Test Result.....	4
1 General Description	5
1.1 Product Feature of Equipment Under Test.....	5
1.2 Modification of EUT	6
1.3 Testing Site	7
1.4 Applied 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	10
3 Conducted Test Items.....	11
3.1 Measuring Instruments	11
3.2 Conducted Output Power Measurement	12
3.3 EIRP	13
4 Radiated Test Items	14
4.1 Measuring Instruments	14
4.2 Test Setup	14
4.3 Test Result of Radiated Test	15
4.4 Radiated Spurious Emission	16
5 List of Measuring Equipment.....	17
6 Measurement Uncertainty	18
Appendix A. Test Results of Conducted Test	
Appendix B. Test Results of Radiated Test	
Appendix C. Test Setup Photographs	



History of this test report

Report No.	Version	Description	Issue Date
FG552403E	01	Initial issue of report	Aug. 13, 2025

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Pass	-
-	§96.41	Peak-to-Average Ratio	Pass	See Note
3.3	§96.41	Effective Isotropic Radiated Power	Pass	-
-	§2.1049 §96.41	Occupied Bandwidth	Pass	See Note
-	§2.1051 §96.41	Conducted Band Edge Measurement	Pass	See Note
-	§2.1051 §96.41	Conducted Spurious Emission	Pass	See Note
-	§2.1055	Frequency Stability for Temperature & Voltage	Pass	See Note
4.4	§2.1053 §96.41	Radiated Spurious Emission	Pass	-

Remark:

- For host device, Radiated Spurious Emission and Equivalent Isotropic Radiated Power are verified and complies with the limit in this test report.
- For host device, the Conducted Output Power is no difference after compared to module (Model: FN990A28)

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: Yun Huang

Report Producer: Clio Lo

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
General Specs WCDMA/LTE/5G NR, and GNSS	
Antenna Type WWAN: PIFA Antenna	
Sample 1	EUT with Host 1
Sample 2	EUT with Host 2

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

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

Antenna information						
Band	Ant 0 Main	Ant 2 Aux	Ant 1 MIMO1	Ant 3 MIMO2		
n48			2.63	2.95		



The product was installed into Tablet (Brand Name: Getac, Model Name: F120,F120Y (Y= 10 characters, Y can be 0-9, a-z, A-Z, “-“, “_” or blank for marketing purpose and no impact safety related critical components and constructions.)) during test, and the host information was recorded in the following table.

Host Information	
Host 1	Host with SKU B
Host 2	Host with SKU C

DVT SKUs	SKU B	SKU C
CPU	ULTRA5-236V	ULTRA7-268V
DDR	INTEGRATED 16GB	INTEGRATED 32GB
SSD	512GB	1TB
PANEL	Full FHD AUO	Full FHD AUO
DIGITIZER	EMRright Digitizer	EMRright Digitizer
OPTION BAY	Barcode Reader	Barcode Reader
Expansion Bay	HID RFID	SMART CARD
Right side option	Fingerprinter	RFID (SN-NSVG7-C01)
WLAN/BT	Intel BE201NGW	Intel BE201NGW
WWAN	FN990A28	FN990A28
GNSS	FN990A28	FN990A28
Rear 8M Camera	Support	Support
Webcam FHD	Support	Support
USB3.2 Gen2 x 1 Type-A	Support	Support
Type-C (thunder bolt)	Support	Support

1.2 Modification of EUT

No modifications made to the EUT during the testing.



1.3 Testing Site

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)	20~24
Relative Humidity (%)	50~58

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. 03CH23-HY (TAF Code: 3786)
Test Engineer	Leo Li, Karl Hou and Lucifer Jiang
Temperature (°C)	19.4~21.1
Relative Humidity (%)	44.7~65.1
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 declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ ANSI C63.26-2015
- ♦ FCC 47 CFR Part 2, 96
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ♦ FCC KDB 940660 D01 Part 96 CBRS Eqpt v03
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
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.

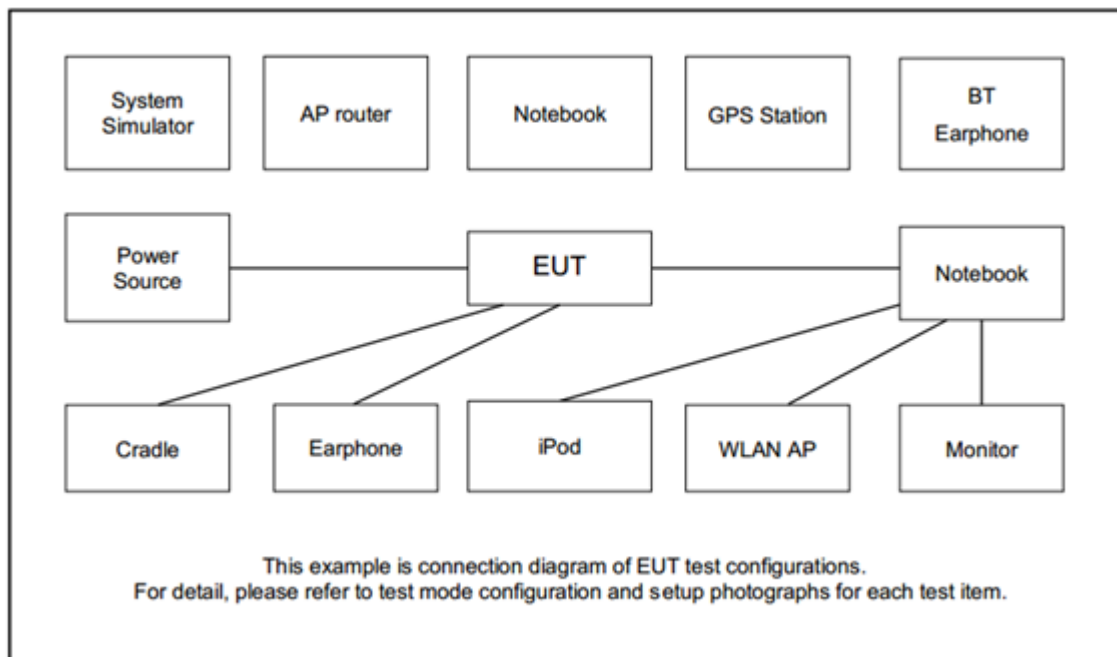
Modulation Type	Modulation	Modulation Type	Modulation
A	DFT-s-OFDM PI/2 BPSK	N/A	N/A
B	DFT-s-OFDM QPSK	F	CP-OFDM QPSK
C	DFT-s-OFDM 16QAM	G	CP-OFDM 16QAM
D	DFT-s-OFDM 64QAM	H	CP-OFDM 64QAM
E	DFT-s-OFDM 256QAM	I	CP-OFDM 256QAM

Test Item	Modulation Type	Bandwidth	RB Size	Channel
Conducted Power	A, B, C, D, E	40 MHz	1, Half, Full	L, M, H
EIRP	A, B, C, D, E	40 MHz	1, Half, Full	L, M, H
RSE	A	20 MHz or less	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. All the radiated test cases were performed with Adapter 1, Battery 1, Power Cable 1 and Sample 1.

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

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.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m

2.4 Frequency List of Low/Middle/High Channels

5G NR Band 48 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
40	Channel	638000	641666	645332
	Frequency	3570	3624.99	3679.98
20	Channel	637334	641666	646000
	Frequency	3560.01	3624.99	3690

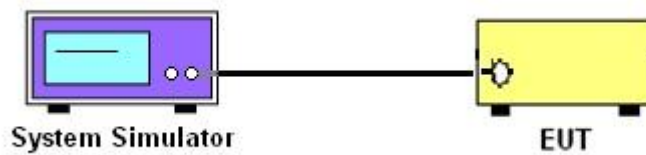
3 Conducted Test Items

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 Measurement

3.2.1 Description of the Conducted Output Power Measurement

A base station simulator was used to establish communication with the EUT. Its parameters were set to transmit the maximum power on the EUT. 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 base station.
2. Set EUT at maximum power through base station.
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 LTE Band 48.

The testing follows ANSI C63.26-2015 Section 5.2.5.5.

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T - LC$, where

P_T = transmitter output power in dBm

G_T = 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.

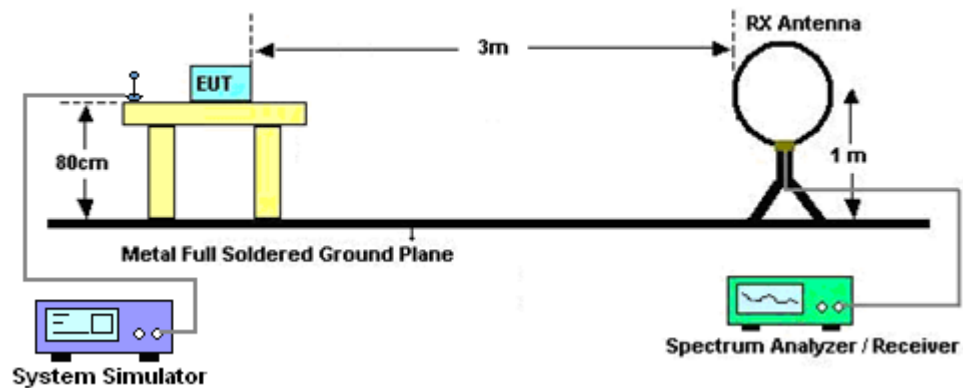
4 Radiated Test Items

4.1 Measuring Instruments

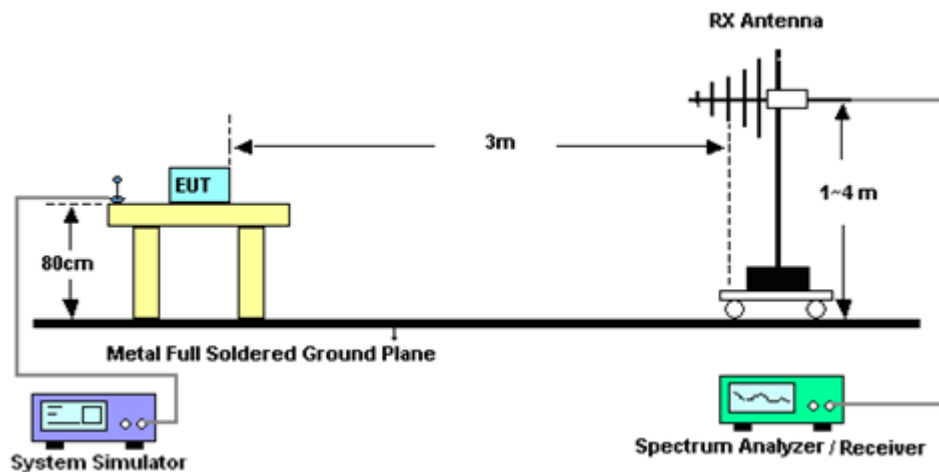
See list of measuring instruments of this test report.

4.2 Test Setup

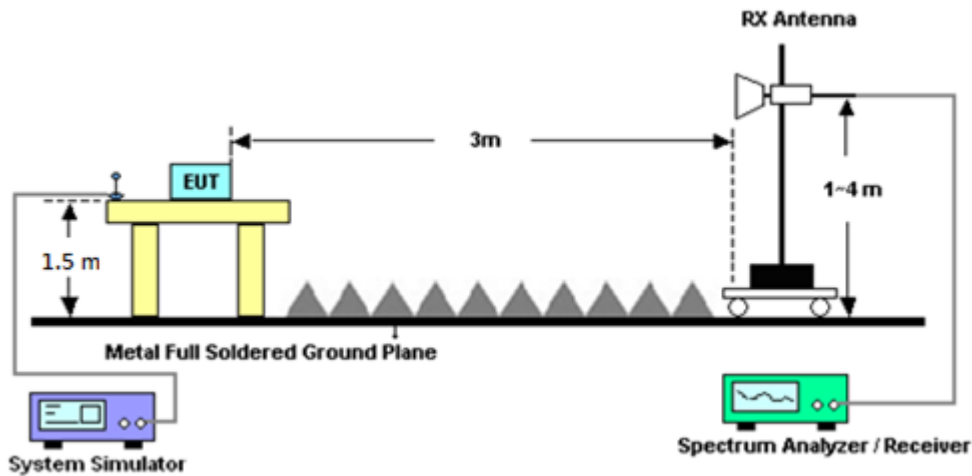
For radiated test below 30MHz



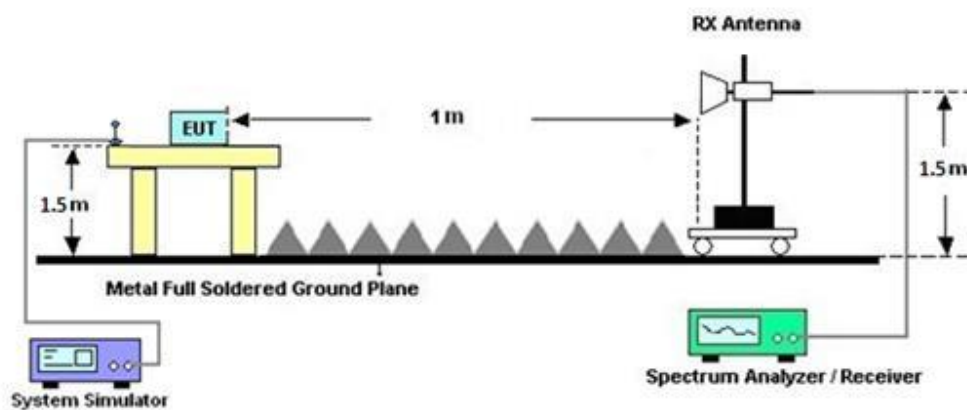
For radiated test from 30MHz to 1GHz



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

The radiated spurious emission was measured by substitution method according to ANSI C63.26-2015.

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 for frequency below 1GHz and 1.5 meter 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. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
7. 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
8. Field Strength Level (dBm) = Spectrum Reading (dBm) + Antenna Factor + Cable Loss + Read Level - Preamp Factor.
9. ERP (dBm) = EIRP (dBm) - 2.15
10. 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
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Aug. 29, 2024	Jun. 12, 2025~ Jun. 18, 2025	Aug. 28, 2025	Radiation (03CH23-HY)
Bilog Antenna	TESEQ & WOKEN	CBL 6111D & 00802N1D-06	62028 & 003	30MHz~1GHz	Nov. 27, 2024	Jun. 12, 2025~ Jun. 18, 2025	Nov. 26, 2025	Radiation (03CH23-HY)
Amplifier	SONOMA	310N	421582	9kHz~1GHz	Jul. 14, 2024	Jun. 12, 2025~ Jun. 18, 2025	Jul. 13, 2025	Radiation (03CH23-HY)
Amplifier	EMEC	EM01G18GA	060878	N/A	Sep. 27, 2024	Jun. 12, 2025~ Jun. 18, 2025	Sep. 26, 2025	Radiation (03CH23-HY)
Double Ridged Guide Horn Antenna	RFSPIN	DRH18-E	KV2D06A18ES	1GHz~18GHz	Oct. 25, 2024	Jun. 12, 2025~ Jun. 18, 2025	Oct. 24, 2025	Radiation (03CH23-HY)
HF-EHF Horn Antenna	SCHWARZB ECK	BBHA 9170	1225	18GHz-40GHz	Jun. 24, 2024	Jun. 12, 2025~ Jun. 18, 2025	Jun. 23, 2025	Radiation (03CH23-HY)
Preamplifier	EMEC	EM18G40G	060873	18GHz~40GHz	Sep. 02, 2024	Jun. 12, 2025~ Jun. 18, 2025	Sep. 01, 2025	Radiation (03CH23-HY)
Signal Analyzer	Keysight	N9010B	MY62170337	N/A	Aug. 21, 2024	Jun. 12, 2025~ Jun. 18, 2025	Aug. 20, 2025	Radiation (03CH23-HY)
Hygrometer	TECEPEL	DTM-303B	TP211542	N/A	Oct. 24, 2024	Jun. 12, 2025~ Jun. 18, 2025	Oct. 23, 2025	Radiation (03CH23-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Jun. 12, 2025~ Jun. 18, 2025	N/A	Radiation (03CH23-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Jun. 12, 2025~ Jun. 18, 2025	N/A	Radiation (03CH23-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Jun. 12, 2025~ Jun. 18, 2025	N/A	Radiation (03CH23-HY)
Software	Audix	E3 6.09824_2019 122	RK-002348	N/A	N/A	Jun. 12, 2025~ Jun. 18, 2025	N/A	Radiation (03CH23-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9kHz~30MHz	Mar. 05, 2025	Jun. 12, 2025~ Jun. 18, 2025	Mar. 04, 2026	Radiation (03CH23-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804395/2	N/A	Nov. 26, 2024	Jun. 12, 2025~ Jun. 18, 2025	Nov. 25, 2025	Radiation (03CH23-HY)
RF Cable	EMC	EMC101Y	231115/231119/ 231122	N/A	Nov. 26, 2024	Jun. 12, 2025~ Jun. 18, 2025	Nov. 25, 2025	Radiation (03CH23-HY)
Hygrometer	TECEPEL	DTM-303B	TP200886	NA	Mar. 03, 2025	Jun. 02, 2025~ Jun. 11, 2025	Mar. 02, 2026	Conducted (TH03-HY)
Base Station (Measure)	Anritsu	MT8000A	6262148275	FR1	Oct. 20, 2024	Jun. 02, 2025~ Jun. 11, 2025	Oct. 19, 2025	Conducted (TH03-HY)
RF Cable	MVE	MCBL-LL403P. 50	E80002C	9KHz~40GHz	Aug. 23, 2024	Jun. 02, 2025~ Jun. 11, 2025	Aug. 22, 2025	Conducted (TH03-HY)

6 Measurement Uncertainty

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	6.6 dB
---	--------

Uncertainty of Radiated Emission Measurement (1 GHz ~ 6 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.4 dB
---	--------

Uncertainty of Radiated Emission Measurement (6 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.8 dB
---	--------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.7 dB
---	--------

Appendix A. Test Results of Conducted Test

Conducted Output Power (Average power and EIRP)

NR n48 Maximum Average Power [dBm] (GT - LC = 2.95 dB)										
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)		
40	1	1	PI/2 BPSK	19.60	19.95	19.87	22.90	0.1950		
40	1	104		19.67	19.92	19.77				
40	50	25		19.75	19.91	19.73				
40	1	0		19.11	19.42	19.25				
40	1	105		19.66	19.94	19.68				
40	100	0		19.18	19.34	19.17				
40	1	1	QPSK	19.15	19.40	19.18				
40	1	104		19.67	19.89	19.82				
40	50	25		19.77	19.94	19.61				
40	1	0		19.91	19.94	19.67				
40	1	105		18.63	18.91	18.75				
40	100	0		19.65	19.88	19.62				
40	1	1	16-QAM	19.67	19.72	19.69	22.83	0.1919		
40	1	1	64-QAM	19.66	19.81	19.64				
40	1	1	256-QAM	19.67	19.88	19.67				
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	Band	Part	Ch	Freq (MHz)	Level (dBm)	Det	Ant Factor (dB)	AmplCbl (dB)	Filter (dB)	EIRPCF (dB)	Reading (dBuV)	Limit (dBm)	Margin (dB)	Pol	Ant
2	NR SA n48	Part 96	H	14725	-49.11	RMS	41.45	-26.03	2.50	-95.23	28.20	-40.00	-9.11	H	MIMO2

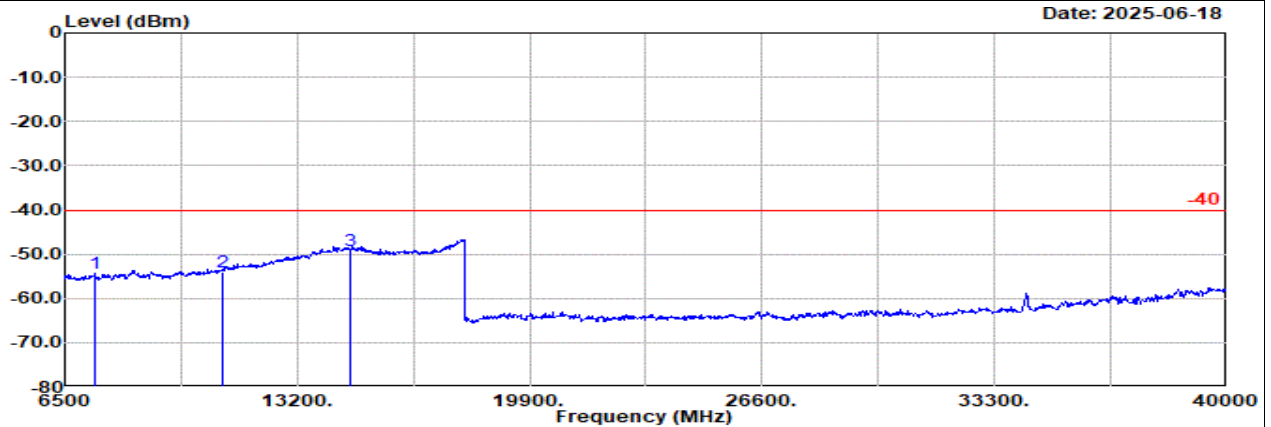


MIMO2 Antenna

Part 96 Mode 2

NR SA n48 20M Ch646000 1RB1 BPSK

H

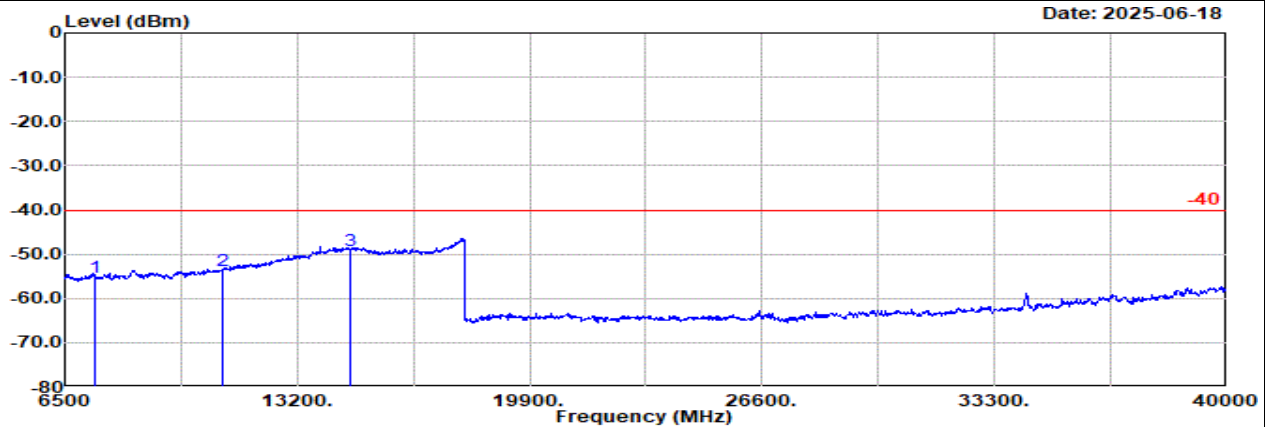


Site : 03CH23-HY

Condition: -40 3m DRH18-E_KV2D06A18ES_241025 Horizontal

NR SA n48 20M Ch646000 1RB1 BPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb 1	Filter	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	7362.00	-54.38	RMS	36.98	-23.50	2.26	-95.23	25.11	-40.00	-14.38	Horizontal
2	11043.00	-53.91	RMS	37.90	-24.47	2.25	-95.23	25.64	-40.00	-13.91	Horizontal
3	14725.00	-49.11	RMS	41.45	-26.03	2.50	-95.23	28.20	-40.00	-9.11	Horizontal



Site : 03CH23-HY

Condition: -40 3m DRH18-E_KV2D06A18ES_241025 Vertical

NR SA n48 20M Ch646000 1RB1 BPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb l	Filter	EIRPCF	Reading	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	7362.00	-55.38	RMS	36.98	-23.50	2.26	-95.23	24.11	-40.00	-15.38	Vertical
2	11043.00	-53.80	RMS	37.90	-24.47	2.25	-95.23	25.75	-40.00	-13.80	Vertical
3	14725.00	-49.21	RMS	41.45	-26.03	2.50	-95.23	28.10	-40.00	-9.21	Vertical

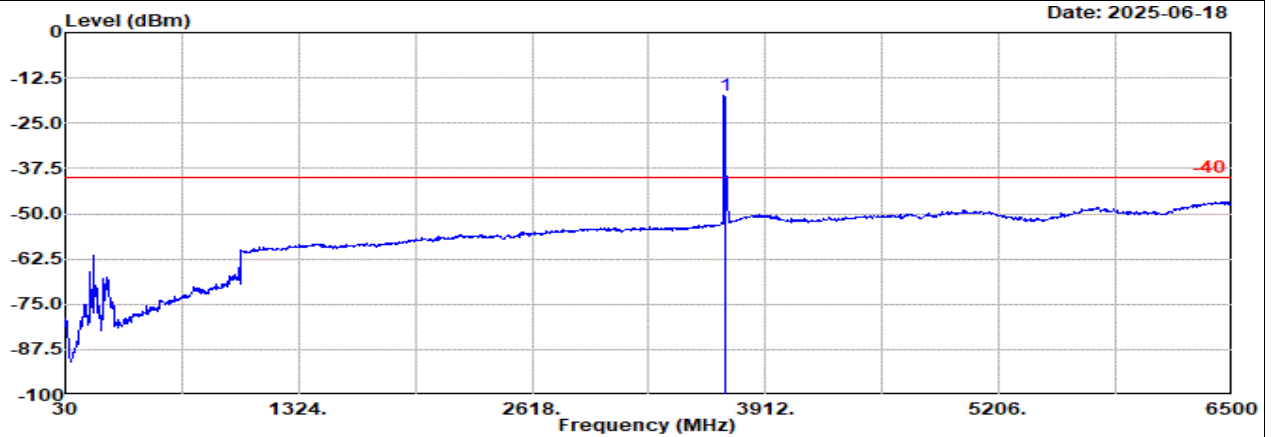


MIMO2 Antenna

Part 96 Mode 2

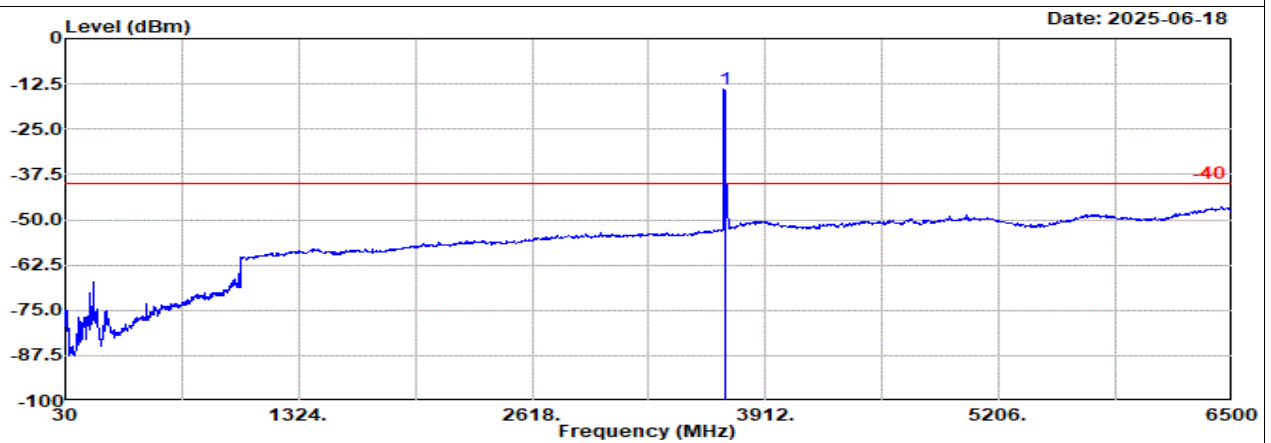
NR SA n48 20M Ch646000 1RB1 BPSK

H



Site : 03CH23-HY
Condition: -40 3m DRH18-E_KV2D06A18ES_241025 Horizontal
: NR SA n48 20M Ch646000 1RB1 BPSK
: #1 is a Fundamental signal

	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	3690.00	-17.43	RMS	29.74	-23.81	10.61	-95.23	61.26	-40.00	22.57 Horizontal



Site : 03CH23-HY
Condition: -40 3m DRH18-E_KV2D06A18ES_241025 Vertical
: NR SA n48 20M Ch646000 1RB1 BPSK
: #1 is a Fundamental signal

	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	3690.00	-13.99	RMS	29.74	-23.81	10.61	-95.23	64.70	-40.00	26.01 Vertical

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