

**FCC TEST REPORT**

For

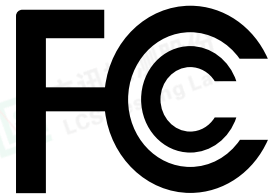
Digital Matter Embedded South Africa**G70-4G-BLE****Test Model: G70-4G-BLE**

Prepared for : Digital Matter Embedded South Africa
Address : Oval, St Georges Block, Cnr Meadowbrook Lane and Sloane Street, Bryanston, Gauteng, South Africa

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
Address : Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China

Tel : +(86) 0755-82591330
Fax : +(86) 0755-82591332
Web : www.lcs-cert.com
Mail : webmaster@lcs-cert.com

Date of receipt of test sample : May 24, 2024
Number of tested samples : 1
Serial number : Prototype
Date of Test : May 24, 2024 to May 29, 2024
Date of Report : May 29, 2024





TEST REPORT

Report No.	: LCSA05074021E
Date of Issue	: May 29, 2024
Testing Laboratory Name	: Shenzhen LCS Compliance Testing Laboratory Ltd.
Address	: Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China
Testing Location/ Procedure	: Full application of Harmonised standards <input checked="" type="checkbox"/> Partial application of Harmonised standards <input type="checkbox"/> Other standard testing method <input type="checkbox"/>
Applicant's Name	: Digital Matter Embedded South Africa
Address	: Oval, St Georges Block, Cnr Meadowbrook Lane and Sloane Street, Bryanston, Gauteng, South Africa
Test Specification	
Standard	: FCC 47 CFR Part 15, Subpart B ANSI C63.4-2014
Test Report Form No.	: LCSEMC-1.0
TRF Originator	: Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF	: Dated 2011-03
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Test Item Description.	: G70-4G-BLE
Trade Mark	: Digital Matter
Test Model	: G70-4G-BLE
Result	: Positive

Compiled by:

Jelly Li / File Administrator

Supervised by:

Cary Luo/ Technique principal

Approved by:

Gavin Liang / Manager





TEST REPORT

Test Report No.: LCSA05074021E	<u>May 29, 2024</u> Date of issue
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Test Model	: G70-4G-BLE
EUT	: G70-4G-BLE
Applicant	: Digital Matter Embedded South Africa
Address	: Oval, St Georges Block, Cnr Meadowbrook Lane and Sloane Street, Bryanston, Gauteng, South Africa
Telephone	: /
Fax	: /
Manufacturer	: Digital Matter Embedded South Africa
Address	: Oval, St Georges Block, Cnr Meadowbrook Lane and Sloane Street, Bryanston, Gauteng, South Africa
Telephone	: /
Fax	: /
Factory	: Digital Matter Embedded South Africa
Address	: Oval, St Georges Block, Cnr Meadowbrook Lane and Sloane Street, Bryanston, Gauteng, South Africa
Telephone	: /
Fax	: /

Test Result	Positive
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The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.





Revision History

Report Version	Issue Date	Revision Content	Revised By
000	May 29, 2024	Initial Issue	/





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1. SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

Description of Test Item	Standard	Limits	Result
Radiated emissions (Below 1GHz)	FCC 47 CFR Part 15, Subpart B ANSI C63.4-2014	15.109, Class B	Pass
Radiated emissions (Above 1GHz)	FCC 47 CFR Part 15, Subpart B ANSI C63.4-2014	15.109, Class B	Pass





1.2 Description of Test Modes

No	Title	Description
TM1	Working(DC)	Record





2. GENERAL INFORMATION

2.1 Description of Device (EUT)

EUT	: G70-4G-BLE
Test Model	: G70-4G-BLE
Power Supply	: Battery: DC 3.7V
Highest Internal Frequency	: 500-1000MHz
Classification of Equipment	: Class B

Highest internal frequency (Fx)	Highest measured frequency
$F_x \leq 1.705\text{MHz}$	30MHz
$1.705\text{MHz} < F_x \leq 108\text{MHz}$	1GHz
$108\text{MHz} < F_x \leq 500\text{MHz}$	2GHz
$500\text{MHz} < F_x \leq 1000\text{MHz}$	5GHz
$F_x > 1\text{GHz}$	5 x Fx up to a maximum of 40GHz

2.2 Support equipment List

Manufacturer	Description	Model	Serial Number	Certificate
dell	Notebook	Latitude 5280	77K2GH2	/

2.3 Description of Test Facility

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

NVLAP Accreditation Code is 600167-0.

FCC Designation Number is CN5024.

CAB identifier is CN0071.

CNAS Registration Number is L4595.

2.4 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emission (150kHz to 30MHz)	± 2.35 dB
Radiated Emission (30MHz to 1000MHz)	± 3.48 dB
Radiated Emission (above 1000MHz)	± 3.90 dB
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	





3. MEASURING DEVICES AND TEST EQUIPMENT

Conducted emissions on AC mains					
Equipment	Manufacturer	Model No	Serial No.	Cal Date	Due Date
EMI Test Software	Farad	EZ	/	/	/
Artificial Mains	R&S	ENV216	101288	2023-06-09	2024-06-08
Pulse Limiter	R&S	ESH3-Z2	102750-NB	2023-08-15	2024-08-14
EMI Test Receiver	R&S	ESR3	102312	2024-03-12	2025-03-11

Radiated emissions (Below 1GHz)					
Equipment	Manufacturer	Model No	Serial No.	Cal Date	Due Date
EMI Test Software	AUDIX	E3	/	/	/
By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2021-09-12	2024-09-11
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2021-09-05	2024-09-04
EMI Test Receiver	R&S	ESR3	102311	2023-08-15	2024-08-14
Broadband Pre-amplifier	/	BP-01M18G	P190501	2023-06-09	2024-06-08

Radiated emissions (Above 1GHz)					
Equipment	Manufacturer	Model No	Serial No.	Cal Date	Due Date
EMI Test Software	AUDIX	E3	/	/	/
By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2021-09-12	2024-09-11
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2021-09-05	2024-09-04
EMI Test Receiver	R&S	ESR3	102311	2023-08-15	2024-08-14
Broadband Pre-amplifier	/	BP-01M18G	P190501	2023-06-09	2024-06-08
EMI Test Software	Farad	EZ	/	/	/
MXA Signal Analyzer	Agilent	N9020A	MY53290398	2023-06-09	2024-06-08





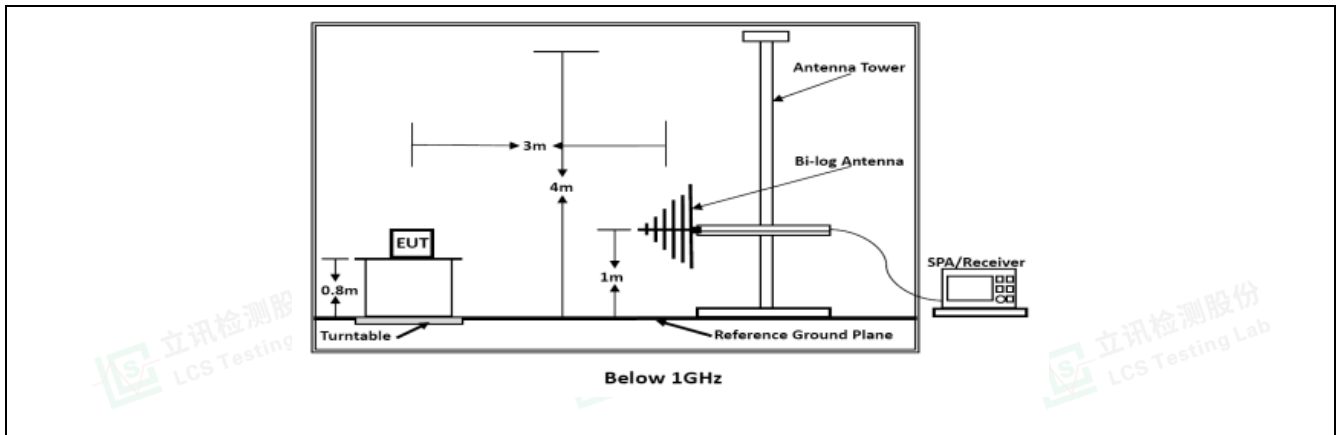
3.1 Radiated emissions (Below 1GHz)

Test Requirement:	15.109, Class B				
Test Limit:	Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:				
	Frequency of emission (MHz)	Field strength @3m		Field strength @10m	
		(uV/m)	(dBuV/m)	(uV/m)	(dBuV/m)
	30 – 88	100	40	30	29.5
	88 – 216	150	43.5	45	33.1
216 – 960	200	46	60	35.6	
Above 960	500	54	150	43.5	
Test Method:	ANSI C63.4-2014				
Procedure:	An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities. Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor				

3.1.1 E.U.T. Operation:

Operating Environment:			
Temperature:	22.3 °C	Humidity:	53 %
Pre test mode:	TM1		
Final test mode:	TM1		

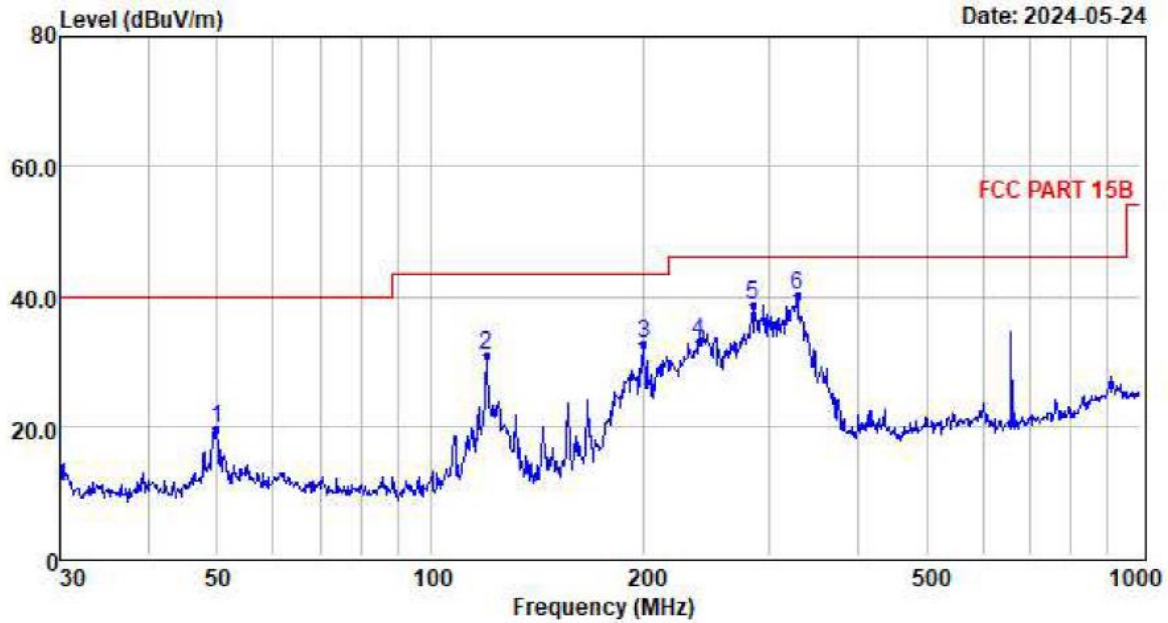
3.1.2 Test Setup Diagram:





3.1.3 Test Data:

TM1 / Polarization: Horizontal



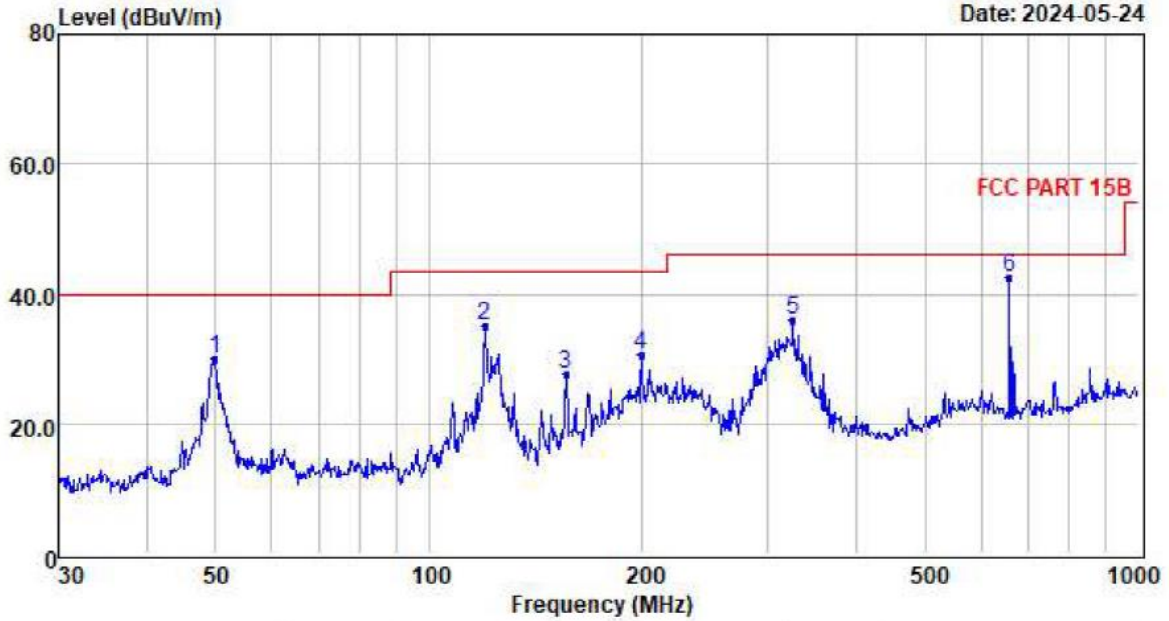
	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	49.88	6.37	0.60	12.57	19.54	40.00	-20.46	QP
2	119.86	19.47	0.90	10.61	30.98	43.50	-12.52	QP
3	199.99	20.75	1.20	10.80	32.75	43.50	-10.75	QP
4	239.15	19.47	1.25	12.19	32.91	46.00	-13.09	QP
5	284.98	24.04	1.30	13.40	38.74	46.00	-7.26	QP
6	329.04	25.04	1.34	13.73	40.11	46.00	-5.89	QP

- Note: 1. All readings are Quasi-peak values.
 2. Measured= Reading + Antenna Factor + Cable Loss
 3. The emission that are 20db below the official limit are not reported





TM1 / Polarization: Vertical



	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	49.88	16.79	0.60	12.57	29.96	40.00	-10.04	QP
2	119.86	23.55	0.90	10.61	35.06	43.50	-8.44	QP
3	155.91	17.62	1.06	9.00	27.68	43.50	-15.82	QP
4	199.29	18.59	1.20	10.77	30.56	43.50	-12.94	QP
5	325.60	21.02	1.34	13.53	35.89	46.00	-10.11	QP
6	658.84	22.29	1.68	18.62	42.59	46.00	-3.41	QP

- Note: 1. All readings are Quasi-peak values.
 2. Measured= Reading + Antenna Factor + Cable Loss
 3. The emission that are 20db below the official limit are not reported





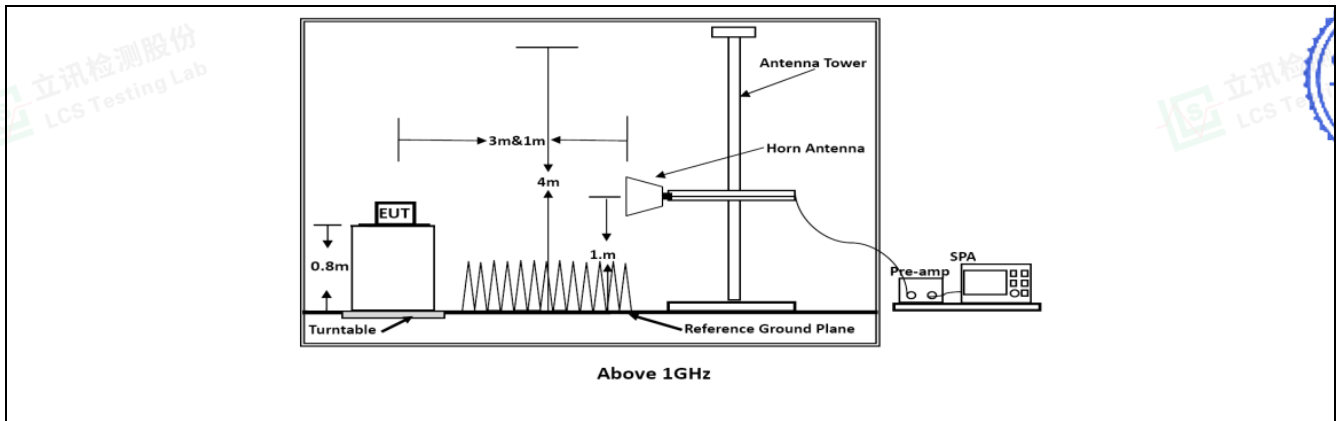
3.2 Radiated emissions (Above 1GHz)

Test Requirement:	15.109, Class B			
Test Limit:	Frequency of emission (MHz)	Field strength @3m		
		Average (uV/m)	Average(d BuV/m)	Peak (dBuV/m)
	Above 1GHz	500	54	74
Test Method:	ANSI C63.4-2014			
Procedure:	<p>An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. For below 1GHz test, Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities. For above 1GHz test, Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.</p> <p>Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</p>			

3.2.1 E.U.T. Operation:

Operating Environment:			
Temperature:	23.9 °C	Humidity:	52 %
Pre test mode:	TM1		
Final test mode:	TM1		

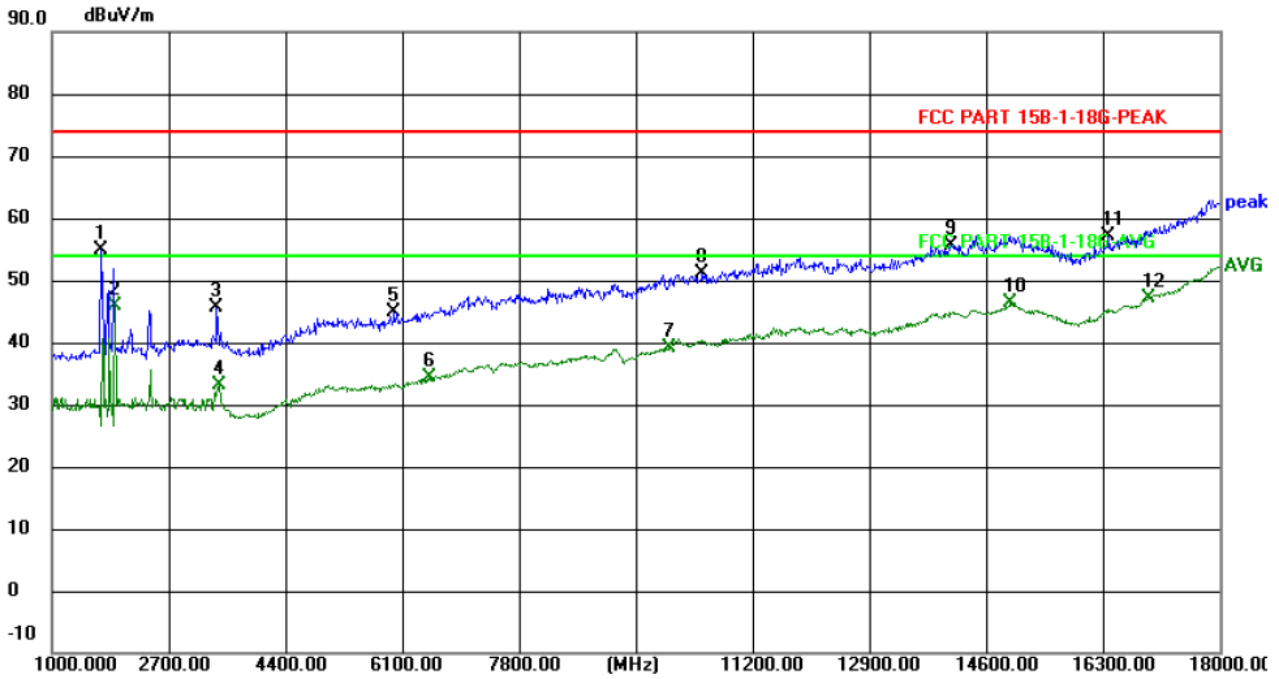
3.2.2 Test Setup Diagram:





3.2.3 Test Data:

TM1 / Polarization: Horizontal

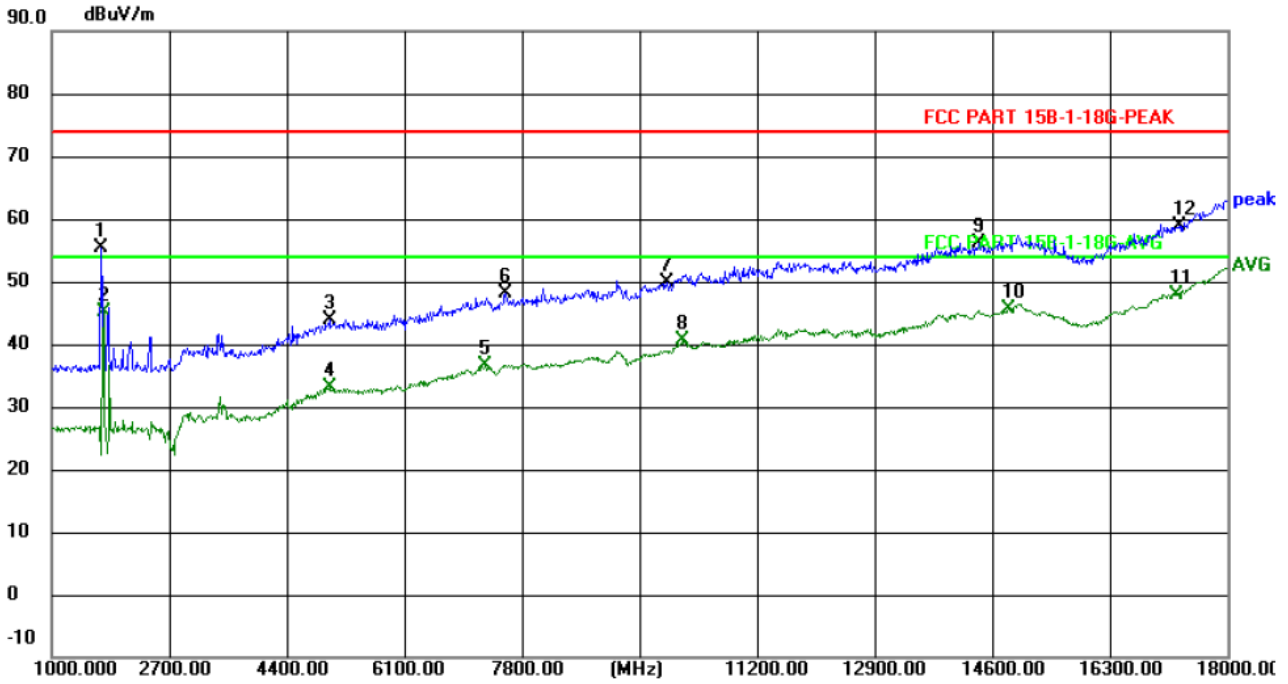


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1714.000	69.29	-14.35	54.94	74.00	-19.06	peak	P	
2	1918.000	59.38	-13.53	45.85	54.00	-8.15	AVG	P	
3	3397.000	55.10	-9.45	45.65	74.00	-28.35	peak	P	
4	3431.000	42.56	-9.44	33.12	54.00	-20.88	AVG	P	
5	5981.000	48.50	-3.67	44.83	74.00	-29.17	peak	P	
6	6491.000	35.88	-1.49	34.39	54.00	-19.61	AVG	P	
7	9993.000	35.71	3.53	39.24	54.00	-14.76	AVG	P	
8	10469.000	46.63	4.39	51.02	74.00	-22.98	peak	P	
9	14090.000	46.40	9.25	55.65	74.00	-18.35	peak	P	
10	14957.000	36.46	9.96	46.42	54.00	-7.58	AVG	P	
11	16385.000	48.27	8.87	57.14	74.00	-16.86	peak	P	
12	16963.000	36.03	11.17	47.20	54.00	-6.80	AVG	P	





TM1 / Polarization: Vertical



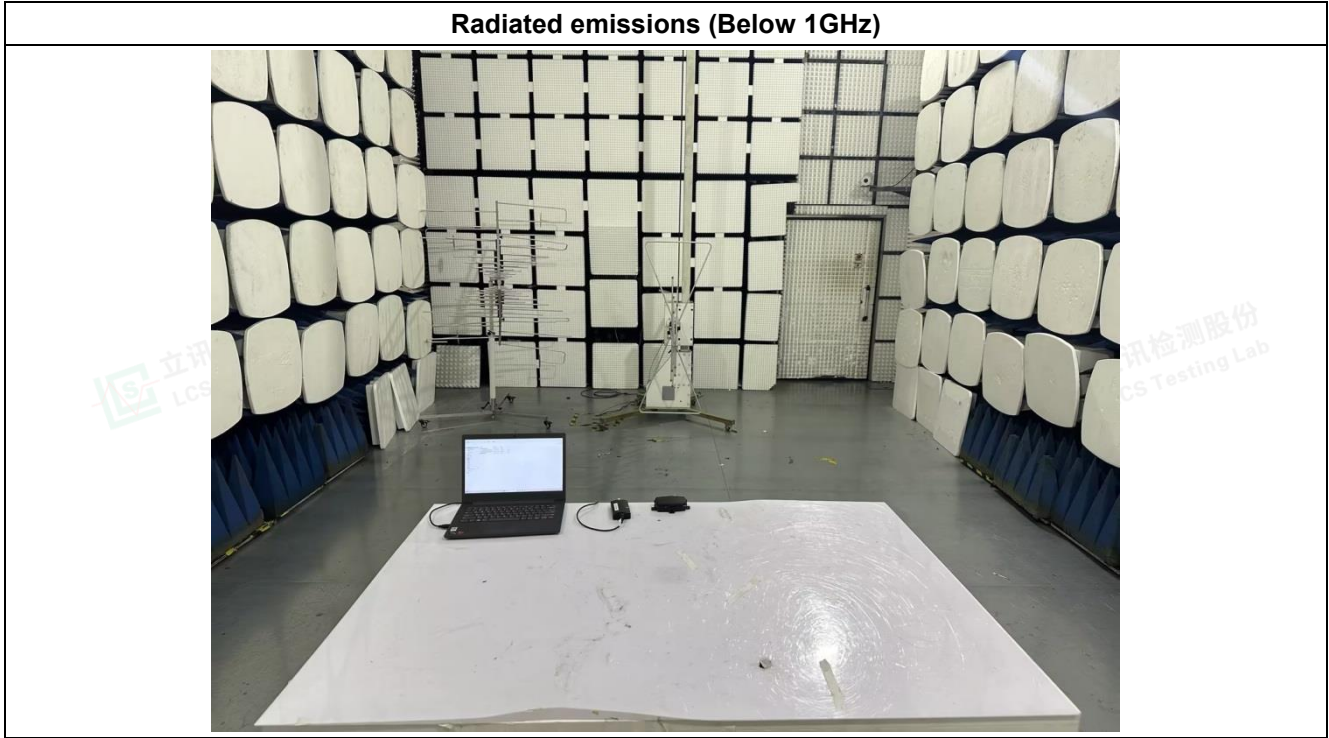
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1714.000	69.69	-14.35	55.34	74.00	-18.66	peak	P	
2	1748.000	59.31	-14.26	45.05	54.00	-8.95	AVG	P	
3	5012.000	47.92	-4.10	43.82	74.00	-30.18	peak	P	
4	5029.000	37.08	-4.07	33.01	54.00	-20.99	AVG	P	
5	7273.000	36.34	0.26	36.60	54.00	-17.40	AVG	P	
6	7562.000	47.38	0.65	48.03	74.00	-25.97	peak	P	
7	9891.000	46.49	3.37	49.86	74.00	-24.14	peak	P	
8	10129.000	36.73	3.78	40.51	54.00	-13.49	AVG	P	
9	14413.000	46.53	9.52	56.05	74.00	-17.95	peak	P	
10	14838.000	35.65	9.87	45.52	54.00	-8.48	AVG	P	
11	17252.000	35.06	12.93	47.99	54.00	-6.01	AVG	P	
12	17303.000	45.71	13.26	58.97	74.00	-15.03	peak	P	





4. TEST SETUP PHOTOS

Radiated emissions (Below 1GHz)





Radiated emissions (Above 1GHz)

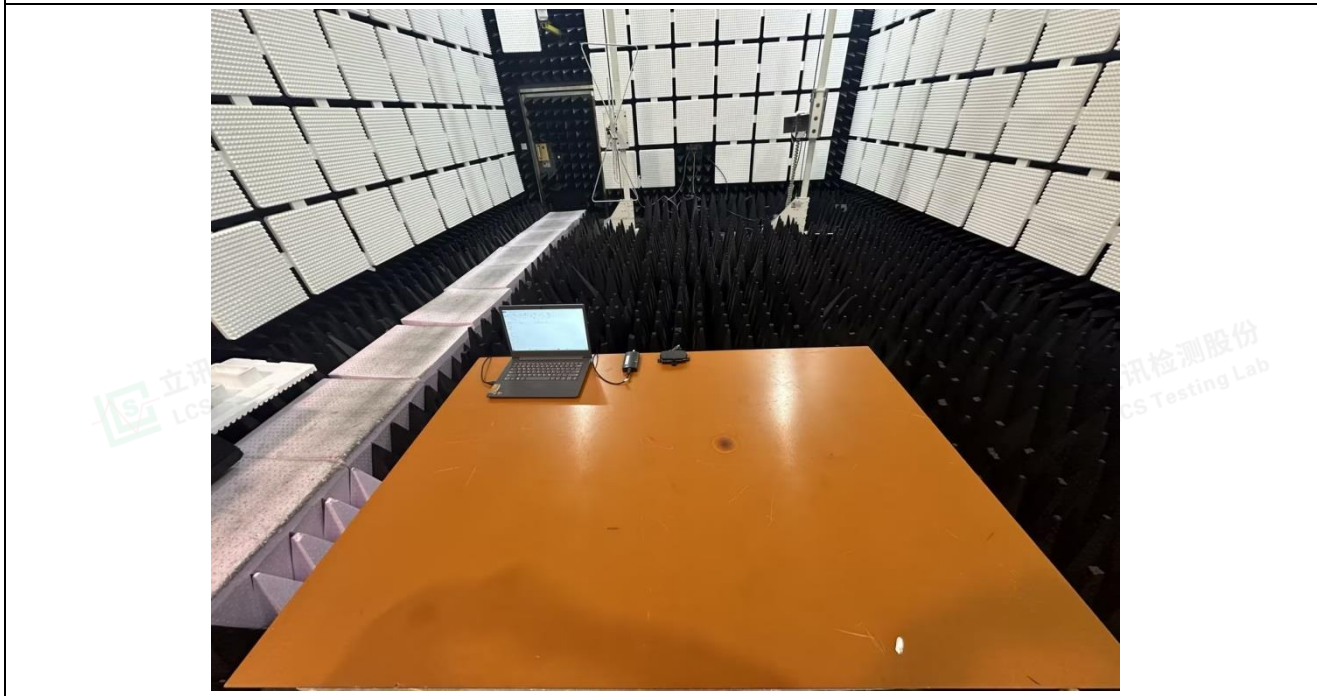




Fig. 3

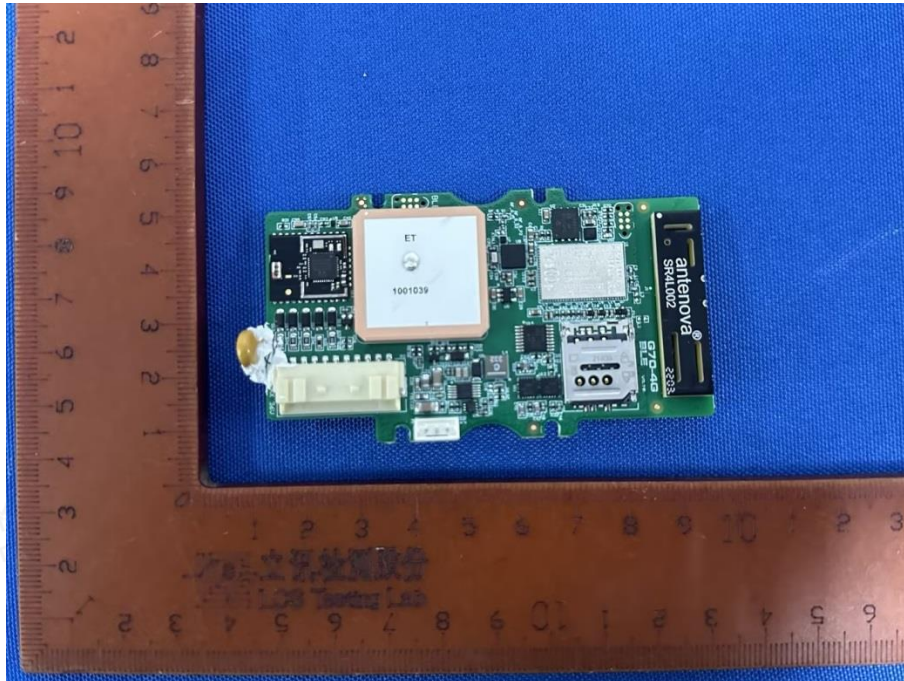


Fig. 4



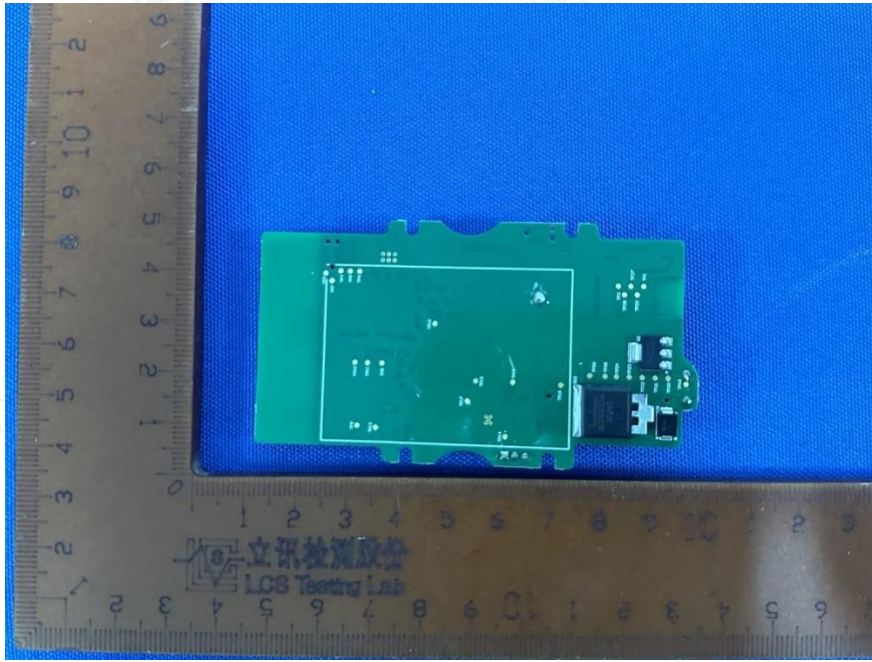


Fig. 5

--- End of Report ---

