TEST REPORT

(Supplier's Declaration of conformity)
Under
47 CFR FCC Part15, Subpart B

Report Reference No.....:	E01A23050534F00101
Prepared by (name + signature).....:	Dyson Dai
Reviewed by (name + signature).....:	Duke Liu
Approved by (name + signature).....:	Tiger Xu
Date of Receipt of EUT.....:	May 23, 2023
Date of Test.....:	May 26, 2023 to May 29, 2023
Date of issue.....:	May 31, 2023
Testing Laboratory.....:	Dong Guan Anci Electronic Technology Co., Ltd
Laboratory address.....:	1-2 Floor, Building A, No.11, Headquarters 2 Road, Songshan Lake Hi-tech Industrial Development Zone, Dongguan City, Guangdong Pr., China.
Testing location.....:	EMC Laboratory
Applicant's name .....:	Dongguan Taiyi Electronics Co., LTD
Address.....:	45 Dafen Yuedao Road, Wanjiang Street, Dongguan City, Guangdong Province
Manufacturer .....:	Same as applicant
Address.....:	Same as applicant
Factory's name .....:	Same as applicant
Address.....:	Same as applicant

Test specification:

EUT description. .....:	Radio
FCC ID. .....:	2BDSY-FR
Trade Mark.....:	N/A
Model/Type reference. .....:	FR-182U, FR-011U, FR-181U, FR-521U, FR-521BT, FR-182BT, FR-118U, FR-118SLU, RX-525,RX-526, RX-125BT, RX-126BT, K69,K68, ST-BT808, ST-BT909, ST-BT808S, ST-BT909S, ICF-961, ICF-962
Test Sample. .....:	FR-182U
Sample number .....:	A23050534 001
Input Rating. .....:	DC 5V
Standards. .....:	47 CFR FCC Part 15 Subpart B ANSI C63.4: 2014

The device described above was tested by Dong Guan Anci Electronic Technology Co., Ltd. to determine the maximum emission levels emanated from the device and severity levels of the device endure and its performance criterion. The measurement results are contained in this test report and Dong Guan Anci Electronic Technology Co., Ltd. assumes full responsibility for the accuracy and completeness of these measurements. This report shows the EUT is technically compliance with the above official standards.

This report applies to the above sample only and shall not be reproduced in part without written approval of Dong Guan Anci Electronic Technology Co., Ltd.

Table of Contents **Page**

1 GENERAL INFORMATION 4

1.1 GENERAL PRODUCT INFORMATION 4

1.2 MODIFIED INFORMATION 4

1.3 FACILITIES AND ACCREDITATION 5

1.4 NORMATIVE REFERENCES 5

2. SUMMARY OF TEST RESULTS 6

2.1 MEASUREMENT UNCERTAINTY 6

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED 8

3. CONDUCTED EMISSION TEST 9

3.1 CONDUCTED EMISSION MEASUREMENT 9

3.1.1 LIMITS OF CONDUCTED EMISSION (MAINS PORT) 9

3.1.2 MEASUREMENT INSTRUMENTS LIST 9

3.1.3 TEST PROCEDURE 10

3.1.4 DEVIATION FROM TEST STANDARD 10

3.1.5 TEST SETUP 10

3.1.6 EUT OPERATING CONDITIONS 10

3.1.7 TEST RESULTS 11

3.2 RADIATED EMISSION MEASUREMENT 20

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT 20

3.2.2 MEASUREMENT INSTRUMENTS LIST 21

3.2.3 TEST PROCEDURE 21

3.2.4 DEVIATION FROM TEST STANDARD 21

3.2.5 TEST SETUP 22

3.2.6 EUT OPERATING CONDITIONS 22

3.2.7 TEST RESULTS 23

4. ATTACHMENT 36

4.1. EUT TEST PHOTO 36

4.2. EUT PRODUCT PHOTO 37

1 GENERAL INFORMATION

1.1 GENERAL PRODUCT INFORMATION

The product is Radio for use with Audio and Video, information technology equipment.

All the products are the same except the model and appearance.

All tests was performed on model FR-182U.

Test data reflecting the worst mode in the report.

The EUT passed the test.

1.2 MODIFIED INFORMATION

Version	Summary	Revision Date	Report No.
Ver.1.0	Original Report	/	E01A23050534F00101

1.3 FACILITIES AND ACCREDITATION

Test Location	Dong Guan Anci Electronic Technology Co., Ltd
Address	1-2 Floor, Building A, No.11, Headquarters 2 Road, Songshan Lake Hi-tech Industrial Development Zone, Dongguan City, Guangdong Pr., China.
Accreditation Laboratory	Accredited by FCC, May 30, 2019 Designation Number: CN1230 Test Firm Registration Number: 991798
Description	All tests measurement facilities use to collect the measurement data are located at 1-2 Floor, Building A, No.11, Headquarters 2 Road, Songshan Lake Hi-tech Industrial Development Zone, Dongguan City, Guangdong Pr., China.

1.4 NORMATIVE REFERENCES

[1] ANSI C63.4:2014 American National Standard for Methods of Measuring of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

[2] FCC 47 CFR Part 2 General Rules and Regulations

[3] FCC 47 CFR Part 15 Radio Frequency Devices (Subpart B)

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

Emission				
Standard	Test Item	Limit	Judgment	Remark
FCC Part15, Subpart B ANSI C63.4-2014	Conducted Emission	Class B	PASS	
	Radiated Emission Below 1 GHz	Class B	PASS	
	Radiated Emission Above 1 GHz	Class B	N/A	NOTE (1) NOTE (2)

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

(2) If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2GHz. If the highest frequency of the internal sources of the EUT is between 500 MHz and 1GHz, measurement shall only be made up to 5 GHz. If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 40 GHz, whichever is less.

2.1 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y ± U**, where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95** %.

A. Conducted Measurement:

Test Site	Method	Measurement Frequency Range	U , (dB)	NOTE
843	ANSI	150 KHz ~ 30MHz	2.74	

B. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U(dB)	NOTE
S02	ANSI	30MHz ~1,000MHz	V	3.52	
S02	ANSI	30MHz ~1,000MHz	H	3.52	

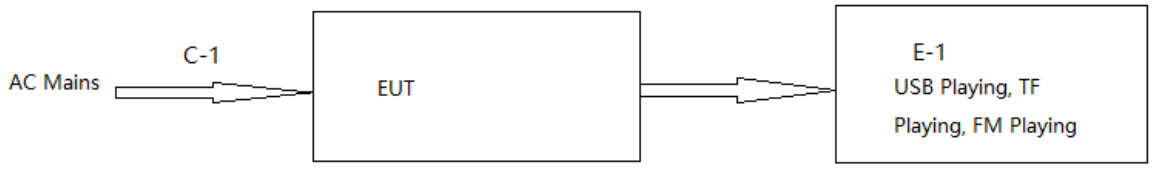
2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

For Conducted Emission Test	
Test Mode	Description
Mode 1	Charging
Mode 2	Charging +USB Playing +Lighting
Mode 3	Charging +TF Playing +Lighting
Mode 4	Charging +FM:108MHz+Lighting
The report reflects the worst tests. Mode	

For Radiated Emission Test	
Test Mode	Description
Mode 1	Charging
Mode 2	USB Playing +Lighting
Mode 3	TF Playing +Lighting
Mode 4	FM:88MHz+Lighting
Mode 5	FM: 98MHz+Lighting
Mode 6	FM:108MHz+Lighting
Mode 7	Charging +USB Playing +Lighting
Mode 8	Charging +TF Playing +Lighting
Mode 9	Charging +FM:88MHz+Lighting
Mode 10	Charging +FM: 98MHz+Lighting
Mode 11	Charging +FM:108MHz+Lighting
The report reflects the worst tests. Mode 2,Mode 3, Mode 5, Mode 7, Mode 8, Mode 10	

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Model Number
E-1	USB 3.0	HP
E-1	TF	N/A
AC Mains	Charger	CX65UC001

Item	Type of cable	Length
C-1	USB Cable	＜ 0.8 M

3. CONDUCTED EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 LIMITS OF CONDUCTED EMISSION (MAINS PORT) (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79	66	66 to 56	56 to 46
0.50 -5.0	73	60	56	46
5.0 -30.0	73	60	60	50

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

(3) The test result calculated as following:

Measurement Value = Reading Level + Correct Factor

Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor (if use)

Margin Level = Measurement Value - Limit Value

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 MEASUREMENT INSTRUMENTS LIST

Item	Instr. Code	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	AN-E025	LISN	ROHDE&SCHWARZ	ENV216	101413	2023-10-07
2	AN-E029	RF Cable	N/A	ZT06S-NJ-NJ-2.5M	19044022	2024-05-09
3	AN-E020	EMI Test Receiver	ROHDE&SCHWARZ	ESCI	101358	2024-05-09
4	AN-E058	1# Shielded Room	chengyu	8m*4m*3.3m	N/A	2025-11-21
5	AN-E046	Test Software	Farad	EZ-EMC (Ver.ANCI-3A1)	N/A	N/A

Remark: ” N/A” denotes No Model No., Serial No. or No Calibration specified.

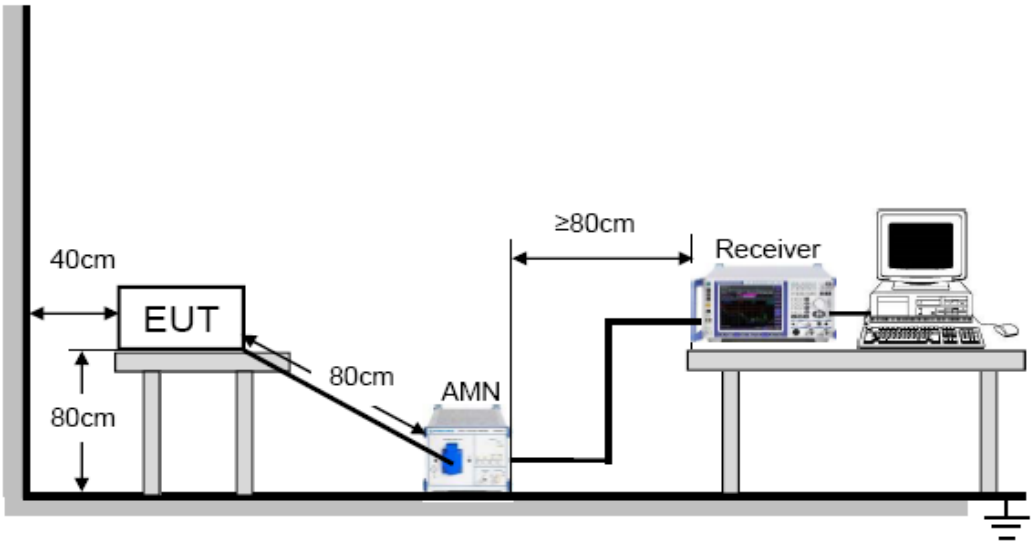
3.1.3 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item:EUT Test Photos.

3.1.4 DEVIATION FROM TEST STANDARD

No deviation

3.1.5 TEST SETUP



For the actual test configuration, please refer to Appendix: Photographs of the Conducted Emission Test.

3.1.6 EUT OPERATING CONDITIONS

The EUT exercise program used during radiated and/or conducted emission measurement was designed to exercise the various system components in a manner similar to a typical use.

3.1.7 TEST RESULTS

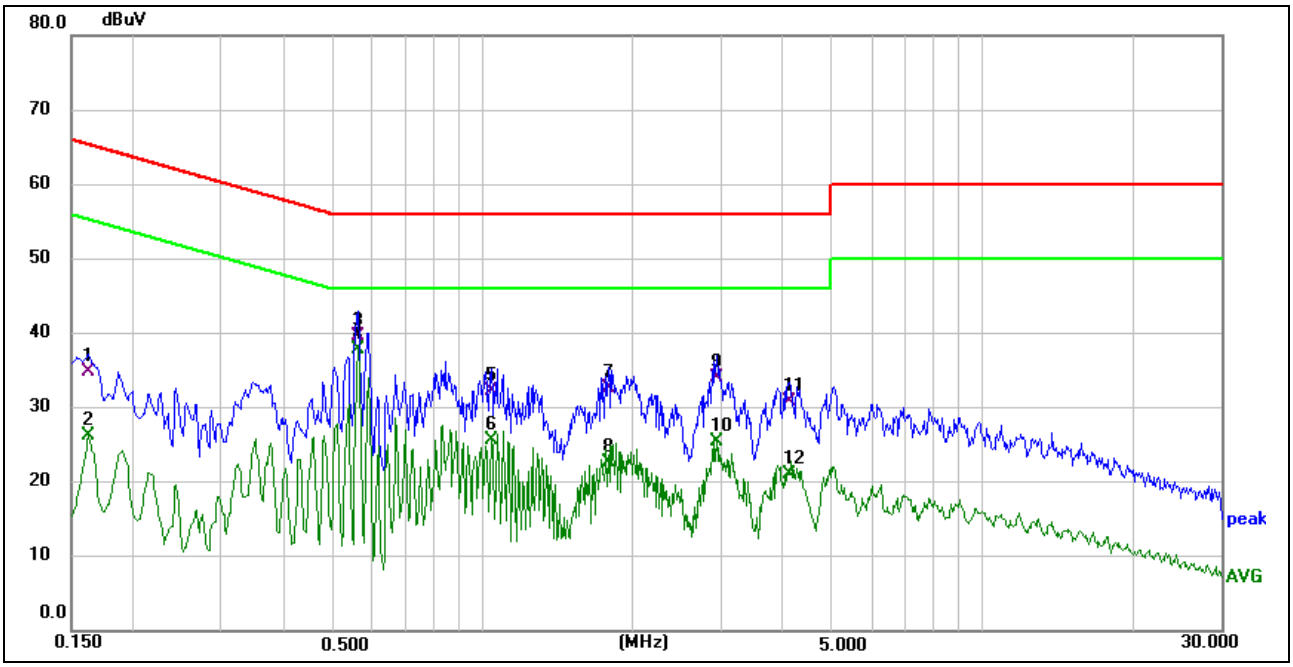
EUT：	Radio	**Model No. ：**	FR-182U
Temperature：	23.5℃	**Relative Humidity：**	52.6 %
Pressure：	1008 hPa	**Test Power ：**	DC 5V
Test Mode ：	Full Load		

Remark：

(1) Reading in which marked as QP means measurements by using Quasi-Peak Detector, and AV means measurements by using Average Detector.

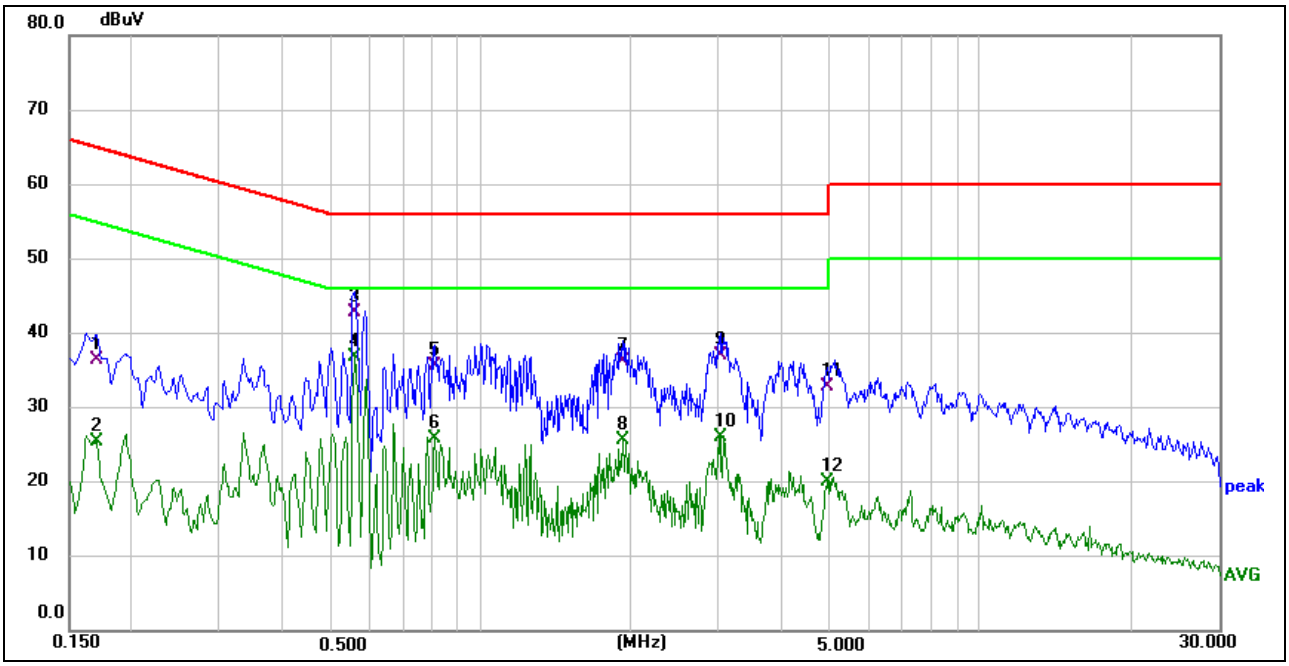
(2) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn‘t perform. In this case, a “ * ” marked in AVG Mode column of Interference Voltage Measured.

(3) Measuring frequency range from 150KHz to 30MHz.



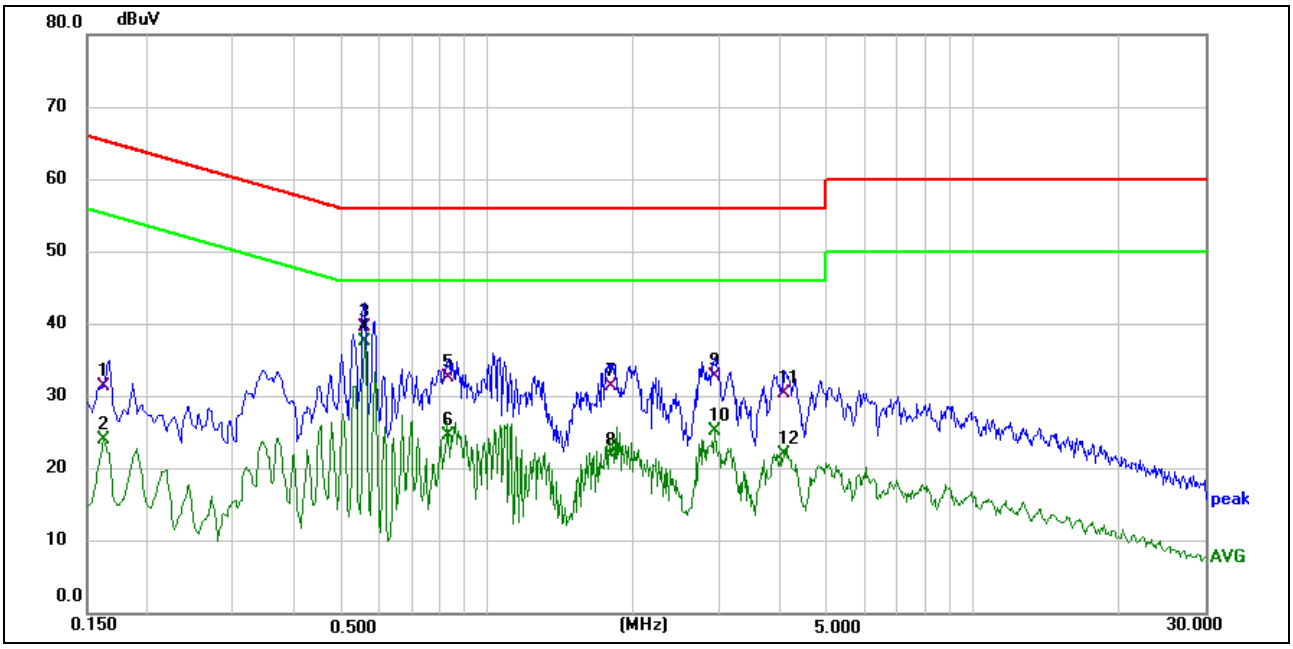
Site:	**843**	**Phase:L1**	**Temperature(C):24.1(C)**
Limit:	**FCC Part 15 B Conduction(QP)**		**Humidity(%):53.3%**
EUT:	**Radio**	**Test Time:**	**2023-05-29**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 1**	**Test Engineer:**	**Rock**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1620	24.94	9.86	34.80	65.36	-30.56	QP
2	0.1620	16.42	9.86	26.28	55.36	-29.08	AVG
3	0.5620	28.91	10.69	39.60	56.00	-16.40	QP
4 *	0.5620	27.03	10.69	37.72	46.00	-8.28	AVG
5	1.0420	22.59	9.61	32.20	56.00	-23.80	QP
6	1.0420	16.12	9.61	25.73	46.00	-20.27	AVG
7	1.7900	23.07	9.63	32.70	56.00	-23.30	QP
8	1.7900	13.03	9.63	22.66	46.00	-23.34	AVG
9	2.9340	24.45	9.65	34.10	56.00	-21.90	QP
10	2.9340	15.83	9.65	25.48	46.00	-20.52	AVG
11	4.1100	21.12	9.68	30.80	56.00	-25.20	QP
12	4.1100	11.30	9.68	20.98	46.00	-25.02	AVG



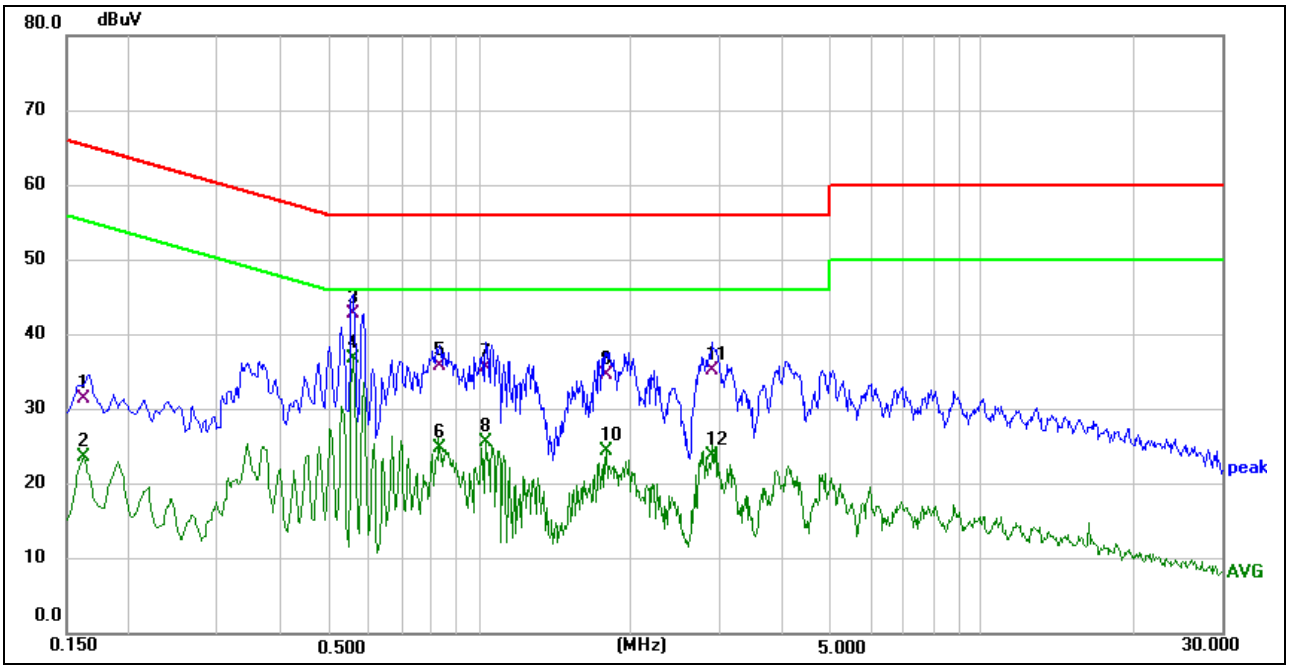
Site:	**843**	**Phase:N**	**Temperature(C):24.1(C)**
Limit:	**FCC Part 15 B Conduction(QP)**		**Humidity(%):53.3%**
EUT:	**Radio**	**Test Time:**	**2023-05-29**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 1**	**Test Engineer:**	**Rock**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1700	26.51	9.89	36.40	64.96	-28.56	QP
2	0.1700	15.50	9.89	25.39	54.96	-29.57	AVG
3	0.5580	32.01	10.69	42.70	56.00	-13.30	QP
4 *	0.5580	26.17	10.69	36.86	46.00	-9.14	AVG
5	0.8100	26.11	9.59	35.70	56.00	-20.30	QP
6	0.8100	16.20	9.59	25.79	46.00	-20.21	AVG
7	1.9220	26.57	9.63	36.20	56.00	-19.80	QP
8	1.9220	15.97	9.63	25.60	46.00	-20.40	AVG
9	3.0340	27.45	9.65	37.10	56.00	-18.90	QP
10	3.0340	16.41	9.65	26.06	46.00	-19.94	AVG
11	4.9340	23.10	9.70	32.80	56.00	-23.20	QP
12	4.9340	10.30	9.70	20.00	46.00	-26.00	AVG



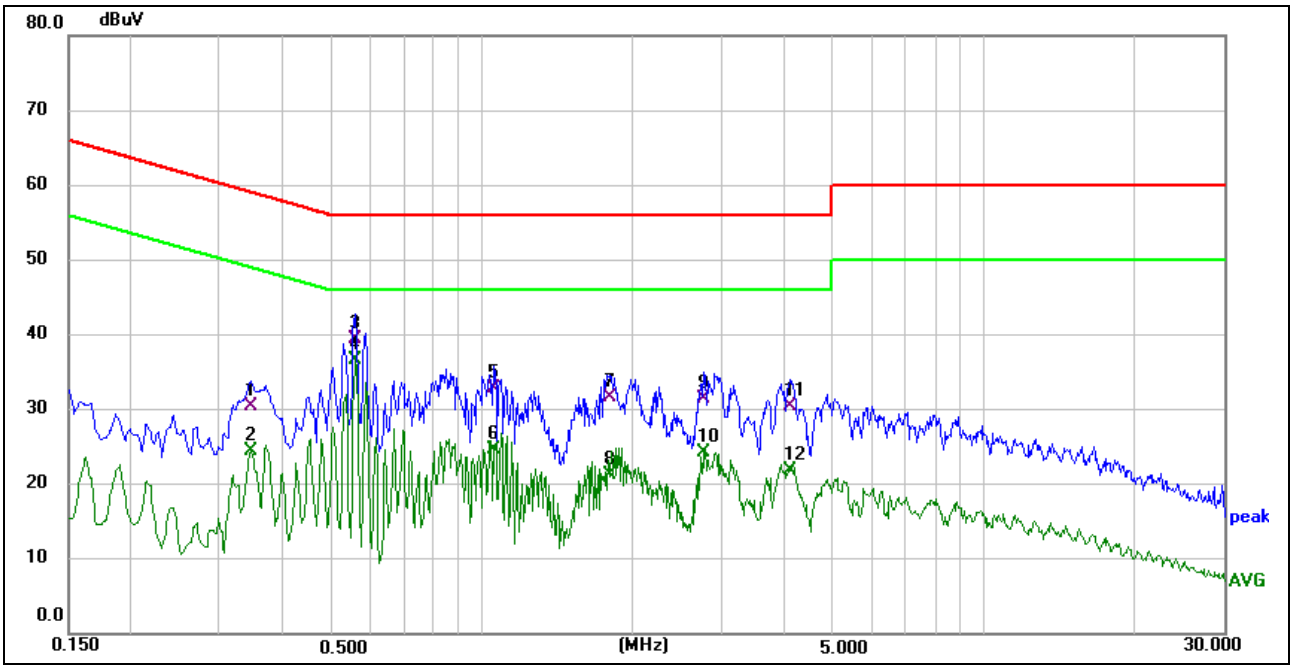
Site:	**843**	**Phase:L1**	**Temperature(C):24.1(C)**
Limit:	**FCC Part 15 B Conduction(QP)**		**Humidity(%):53.3%**
EUT:	**Radio**	**Test Time:**	**2023-05-29**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 2**	**Test Engineer:**	**Rock**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1620	21.54	9.86	31.40	65.36	-33.96	QP
2	0.1620	14.09	9.86	23.95	55.36	-31.41	AVG
3	0.5580	29.01	10.69	39.70	56.00	-16.30	QP
4 *	0.5580	26.83	10.69	37.52	46.00	-8.48	AVG
5	0.8340	23.01	9.59	32.60	56.00	-23.40	QP
6	0.8340	15.02	9.59	24.61	46.00	-21.39	AVG
7	1.8020	21.77	9.63	31.40	56.00	-24.60	QP
8	1.8020	12.19	9.63	21.82	46.00	-24.18	AVG
9	2.9420	23.15	9.65	32.80	56.00	-23.20	QP
10	2.9420	15.51	9.65	25.16	46.00	-20.84	AVG
11	4.0780	20.82	9.68	30.50	56.00	-25.50	QP
12	4.0780	12.44	9.68	22.12	46.00	-23.88	AVG



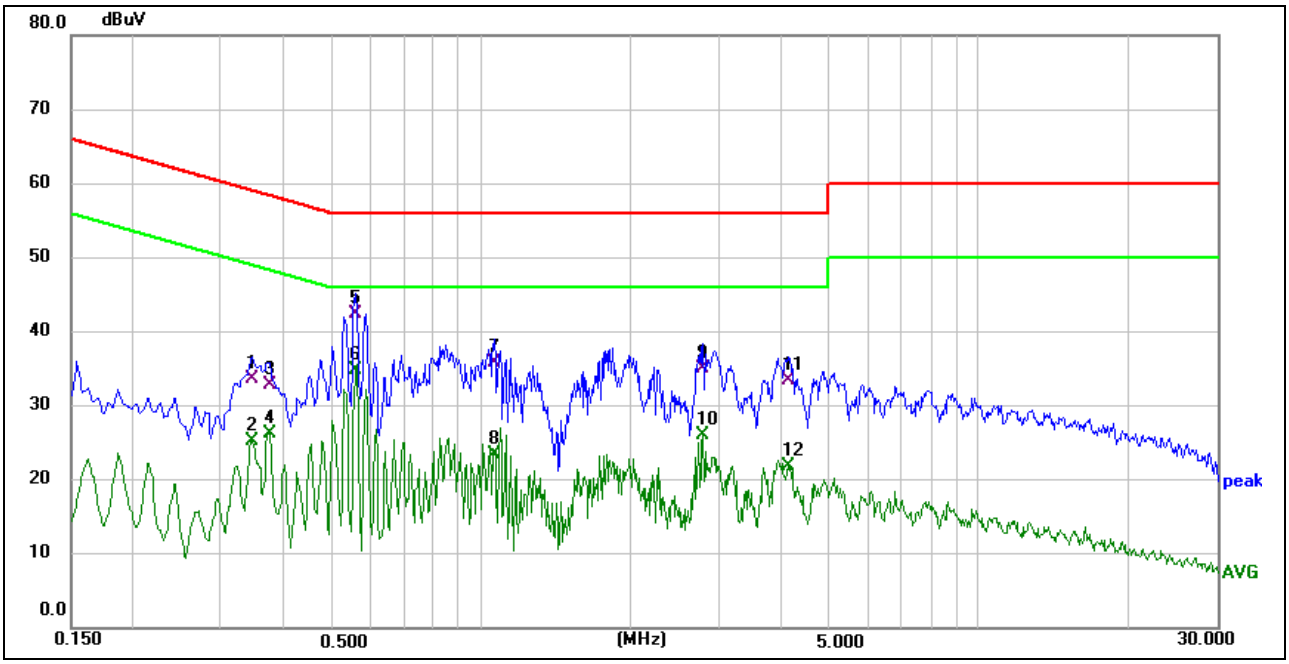
Site:	**843**	**Phase:N**	**Temperature(C):24.1(C)**
Limit:	**FCC Part 15 B Conduction(QP)**		**Humidity(%):53.3%**
EUT:	**Radio**	**Test Time:**	**2023-05-29**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 2**	**Test Engineer:**	**Rock**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1620	21.53	9.87	31.40	65.36	-33.96	QP
2	0.1620	13.86	9.87	23.73	55.36	-31.63	AVG
3	0.5580	32.11	10.69	42.80	56.00	-13.20	QP
4 *	0.5580	26.11	10.69	36.80	46.00	-9.20	AVG
5	0.8340	26.31	9.59	35.90	56.00	-20.10	QP
6	0.8340	15.26	9.59	24.85	46.00	-21.15	AVG
7	1.0300	26.09	9.61	35.70	56.00	-20.30	QP
8	1.0300	15.97	9.61	25.58	46.00	-20.42	AVG
9	1.7820	24.97	9.63	34.60	56.00	-21.40	QP
10	1.7820	14.72	9.63	24.35	46.00	-21.65	AVG
11	2.8900	25.55	9.65	35.20	56.00	-20.80	QP
12	2.8900	14.12	9.65	23.77	46.00	-22.23	AVG



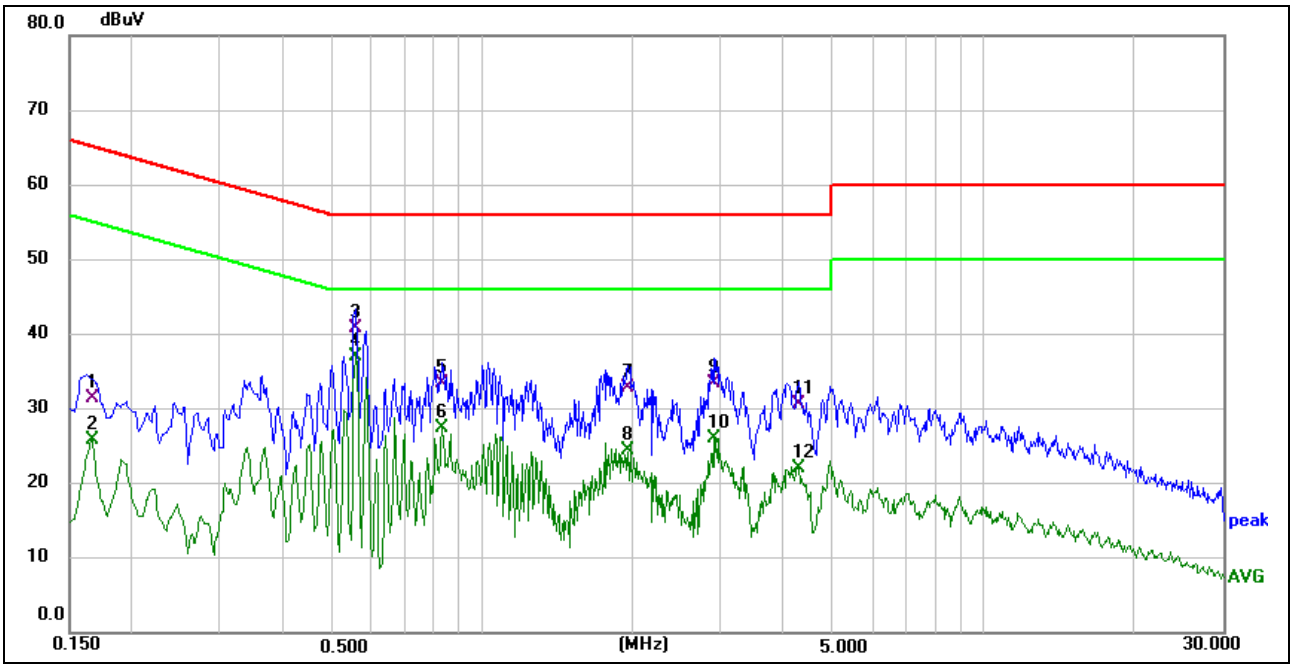
Site:	**843**	**Phase:L1**	**Temperature(C):24.1(C)**
Limit:	**FCC Part 15 B Conduction(QP)**		**Humidity(%):53.3%**
EUT:	**Radio**	**Test Time:**	**2023-05-29**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 3**	**Test Engineer:**	**Rock**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.3460	20.14	10.26	30.40	59.06	-28.66	QP
2	0.3460	14.10	10.26	24.36	49.06	-24.70	AVG
3	0.5580	28.71	10.69	39.40	56.00	-16.60	QP
4 *	0.5580	25.90	10.69	36.59	46.00	-9.41	AVG
5	1.0580	23.19	9.61	32.80	56.00	-23.20	QP
6	1.0580	15.03	9.61	24.64	46.00	-21.36	AVG
7	1.8020	22.07	9.63	31.70	56.00	-24.30	QP
8	1.8020	11.67	9.63	21.30	46.00	-24.70	AVG
9	2.7580	21.75	9.65	31.40	56.00	-24.60	QP
10	2.7580	14.58	9.65	24.23	46.00	-21.77	AVG
11	4.1100	20.82	9.68	30.50	56.00	-25.50	QP
12	4.1100	12.22	9.68	21.90	46.00	-24.10	AVG



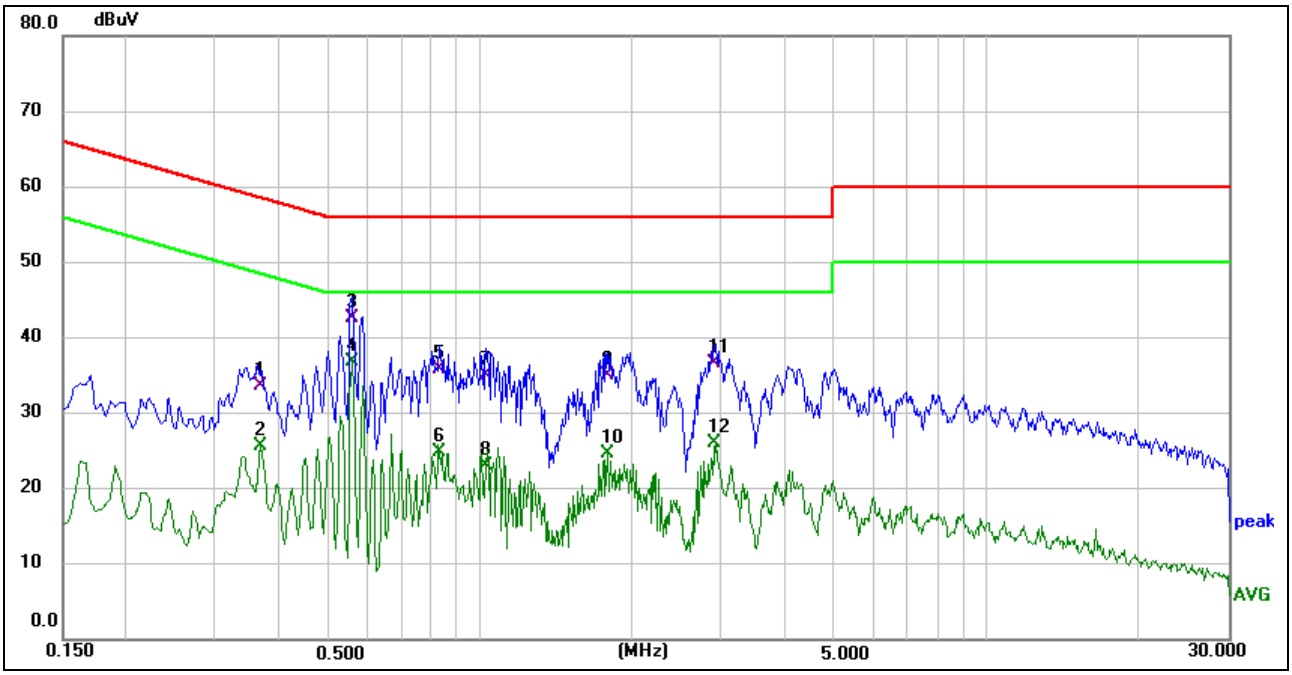
Site:	**843**	**Phase:N**	**Temperature(C):24.1(C)**
Limit:	**FCC Part 15 B Conduction(QP)**		**Humidity(%):53.3%**
EUT:	**Radio**	**Test Time:**	**2023-05-29**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 3**	**Test Engineer:**	**Rock**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.3460	23.34	10.26	33.60	59.06	-25.46	QP
2	0.3460	15.07	10.26	25.33	49.06	-23.73	AVG
3	0.3740	22.50	10.30	32.80	58.41	-25.61	QP
4	0.3740	15.97	10.30	26.27	48.41	-22.14	AVG
5	0.5580	31.71	10.69	42.40	56.00	-13.60	QP
6 *	0.5580	24.12	10.69	34.81	46.00	-11.19	AVG
7	1.0620	26.19	9.61	35.80	56.00	-20.20	QP
8	1.0620	13.79	9.61	23.40	46.00	-22.60	AVG
9	2.7860	25.45	9.65	35.10	56.00	-20.90	QP
10	2.7860	16.40	9.65	26.05	46.00	-19.95	AVG
11	4.1340	23.72	9.68	33.40	56.00	-22.60	QP
12	4.1340	12.16	9.68	21.84	46.00	-24.16	AVG



Site:	**843**	**Phase:L1**	**Temperature(C):24.1(C)**
Limit:	**FCC Part 15 B Conduction(QP)**		**Humidity(%):53.3%**
EUT:	**Radio**	**Test Time:**	**2023-05-29**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 4**	**Test Engineer:**	**Rock**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1660	21.62	9.88	31.50	65.16	-33.66	QP
2	0.1660	15.99	9.88	25.87	55.16	-29.29	AVG
3	0.5580	30.11	10.69	40.80	56.00	-15.20	QP
4 *	0.5580	26.38	10.69	37.07	46.00	-8.93	AVG
5	0.8340	23.81	9.59	33.40	56.00	-22.60	QP
6	0.8340	17.85	9.59	27.44	46.00	-18.56	AVG
7	1.9500	23.27	9.63	32.90	56.00	-23.10	QP
8	1.9500	14.71	9.63	24.34	46.00	-21.66	AVG
9	2.8940	23.75	9.65	33.40	56.00	-22.60	QP
10	2.8940	16.43	9.65	26.08	46.00	-19.92	AVG
11	4.2860	21.01	9.69	30.70	56.00	-25.30	QP
12	4.2860	12.43	9.69	22.12	46.00	-23.88	AVG



Site:	**843**	**Phase:N**	**Temperature(C):24.1(C)**
Limit:	**FCC Part 15 B Conduction(QP)**		**Humidity(%):53.3%**
EUT:	**Radio**	**Test Time:**	**2023-05-29**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 4**	**Test Engineer:**	**Rock**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.3660	23.40	10.30	33.70	58.59	-24.89	QP
2	0.3660	15.27	10.30	25.57	48.59	-23.02	AVG
3	0.5580	31.81	10.69	42.50	56.00	-13.50	QP
4 *	0.5580	26.10	10.69	36.79	46.00	-9.21	AVG
5	0.8340	26.21	9.59	35.80	56.00	-20.20	QP
6	0.8340	15.25	9.59	24.84	46.00	-21.16	AVG
7	1.0300	25.49	9.61	35.10	56.00	-20.90	QP
8	1.0300	13.50	9.61	23.11	46.00	-22.89	AVG
9	1.7820	25.37	9.63	35.00	56.00	-21.00	QP
10	1.7820	14.94	9.63	24.57	46.00	-21.43	AVG
11	2.9219	27.05	9.65	36.70	56.00	-19.30	QP
12	2.9219	16.47	9.65	26.12	46.00	-19.88	AVG

3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT (Below 1000MHz)

Frequency MHz	Class A		Class B	
	10m (dBuV/m) Field strength	3m (dBuV/m) Field strength	10m (dBuV/m) Field strength	3m (dBuV/m) Field strength
30 ~ 88	39.1	49.5	29.5	40
88 ~ 216	43.5	54	33.1	43.5
216 ~ 960	46.4	56.4	35.6	46
960 ~ 1000	54	64	44	54

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (GHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000MHz	80	60	74	54

Notes:

(1) The limit for radiated test was performed according to as following:
FCC PART 15B

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

(4) The test result calculated as following:
Level = Reading + Factor,
Margin = Level - Limit.

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

3.2.2 MEASUREMENT INSTRUMENTS LIST

3m Radiated Emission Measurement 30MHz-1GHz

Item	Instr. Code	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	AN-E023	EMI Test Receiver	Rohde & Schwarz	ESPI7	100502	2023-10-07
2	AN-E061	Pre-Amplifier	Anritsu	MH648A	M57886	2024-05-09
3	AN-E076	Bilog Antenna	Schwarzbeck	VULB9163	VULB9163-1290	2023-12-11
4	AN-E062	RF Cable	N/A	ZT06S-NJ-NJ-11M	19060398	2024-05-09
5	AN-E063	RF Cable	N/A	ZT06S-NJ-NJ-0.5M	19060400	2024-05-09
6	AN-E064	RF Cable	N/A	ZT06S-NJ-NJ-2.5M	19060404	2024-05-09
7	AN-E056	3m Semi-anechoic Chamber	chengyu	9m*6m*6m	N/A	2024-11-11
8	AN-E069	Test Software	Farad	EZ-EMC (Ver.FA-03A2 RE)	N/A	N/A

Remark: ” N/A” denotes No Model No. / Serial No. and No Calibration specified.

3.2.3 TEST PROCEDURE

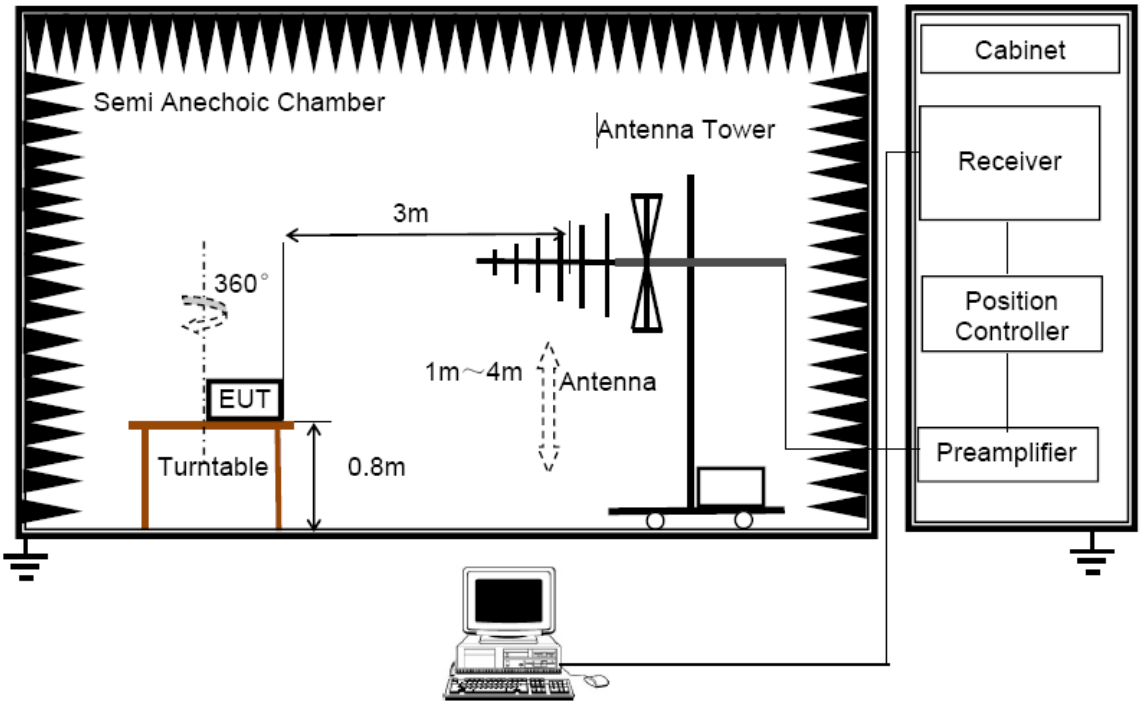
a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m or 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.2.4 DEVIATION FROM TEST STANDARD

No deviation

3.2.5 TEST SETUP

Radiated Emissions Test Set-Up Frequency 30MHz - 1GHz



For the actual test configuration, please refer to Appendix: Photographs of the Radiated Emission Test.

3.2.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 3.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.7 TEST RESULTS

EUT：	Radio	**Model No. ：**	FR-182U
Temperature：	26℃	**Relative Humidity：**	54%
Pressure：	1008 hPa	**Test Power ：**	DC 5V
Test Mode ：	Mode 2, Mode 3, Mode 5, Mode 7, Mode 8, Mode 10,		

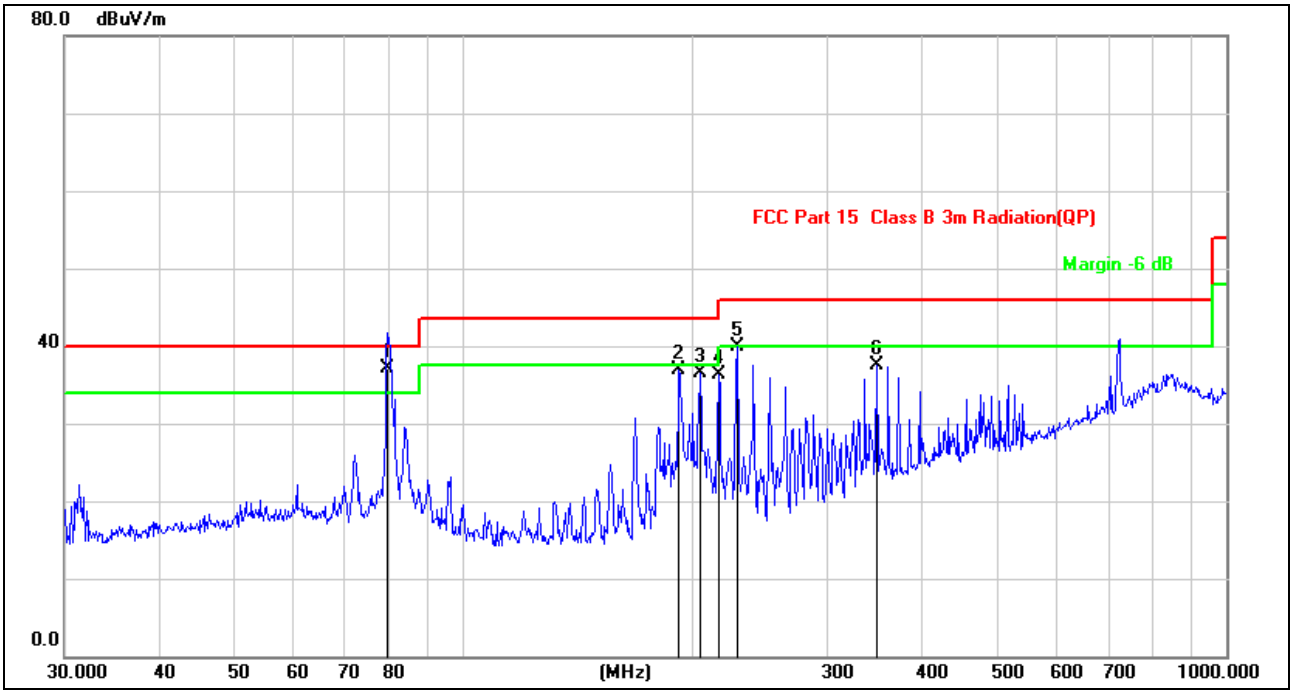
Remark：

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Detector or Peak Detector.

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak
reading compliance with the QP Limits and then QP Mode measurement didn‘t perform.

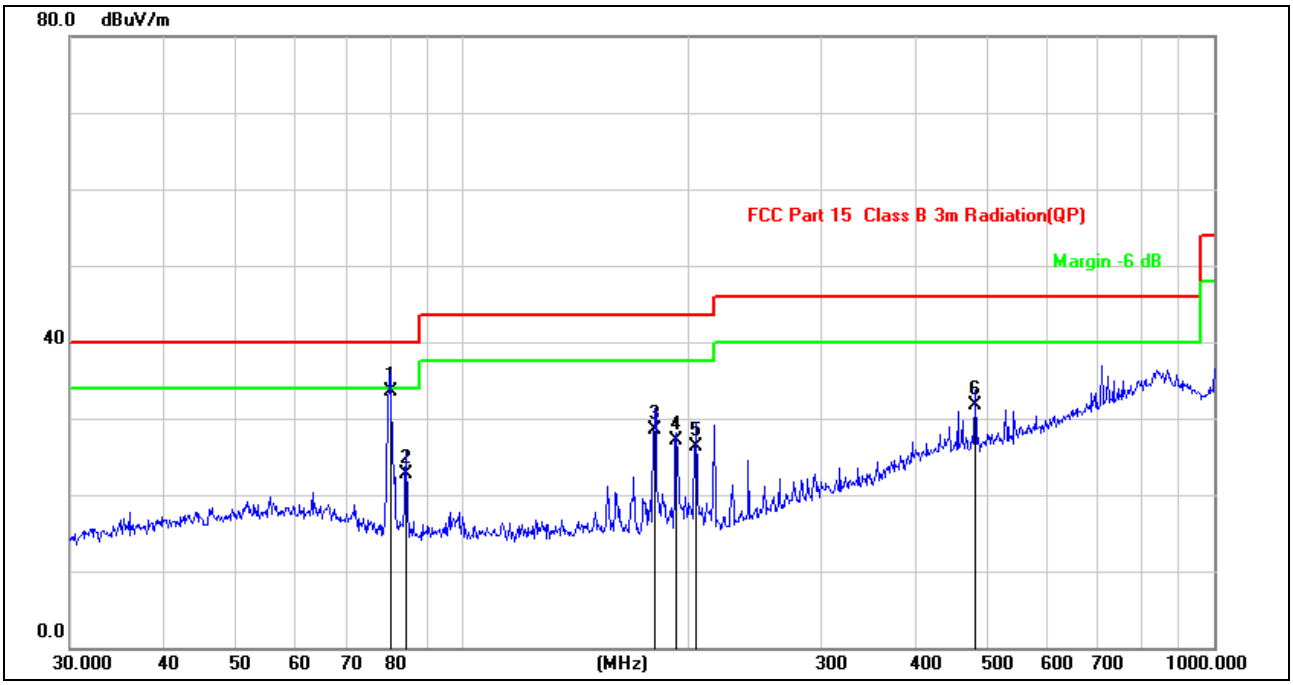
(3) Measuring frequency range from 30MHz to 1000MHz.

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table.



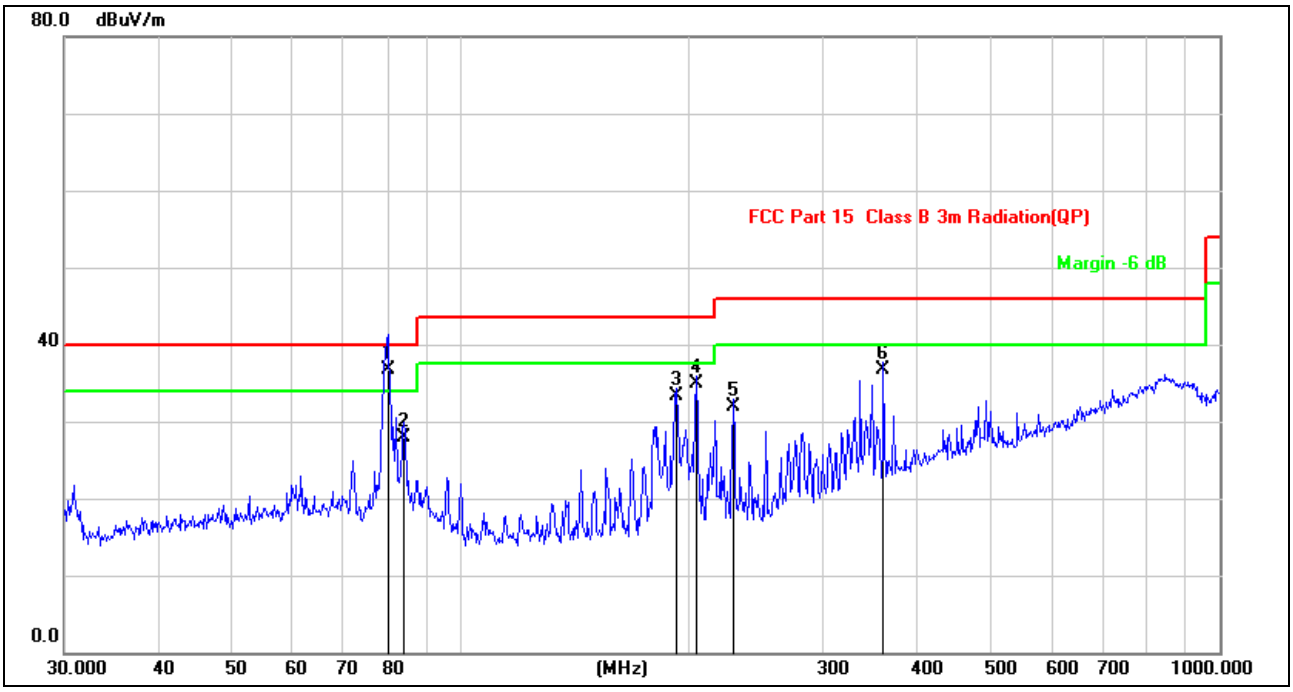
Site:	**LAB**	**Antenna:: Vertical**	**Temperature(C):26(C)**
Limit:	**FCC Part 15 Class B 3m Radiation(QP)**		**Humidity(%):54%**
EUT:	**Radio**	**Test Time:**	**2023-05-26**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 2**	**Test Engineer:**	**Luffy**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1 *	79.5209	49.42	-12.27	37.15	40.00	-2.85	QP
2	191.7450	47.94	-11.09	36.85	43.50	-6.65	QP
3	204.2377	47.87	-11.35	36.52	43.50	-6.98	QP
4	216.0240	47.22	-10.93	36.29	46.00	-9.71	QP
5	228.4904	50.52	-10.53	39.99	46.00	-6.01	QP
6	348.0274	42.92	-5.41	37.51	46.00	-8.49	QP



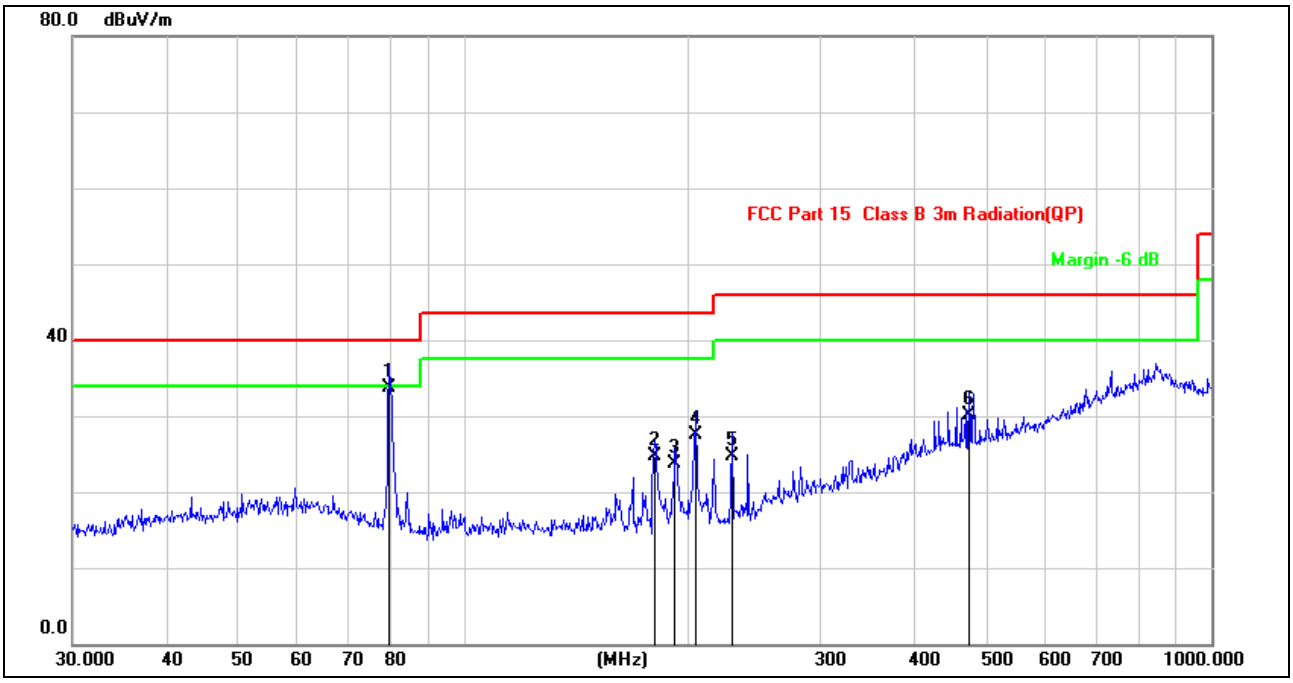
Site:	**LAB**	**Antenna:: Horizontal**	**Temperature(C):26(C)**
Limit:	**FCC Part 15 Class B 3m Radiation(QP)**		**Humidity(%):54%**
EUT:	**Radio**	**Test Time:**	**2023-05-26**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 2**	**Test Engineer:**	**Luffy**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1 *	80.0806	45.98	-12.39	33.59	40.00	-6.41	QP
2	84.1100	35.26	-12.64	22.62	40.00	-17.38	QP
3	180.0165	40.11	-11.70	28.41	43.50	-15.09	QP
4	192.4186	38.22	-11.17	27.05	43.50	-16.45	QP
5	204.2377	37.59	-11.35	26.24	43.50	-17.26	QP
6	480.5276	33.26	-1.58	31.68	46.00	-14.32	QP



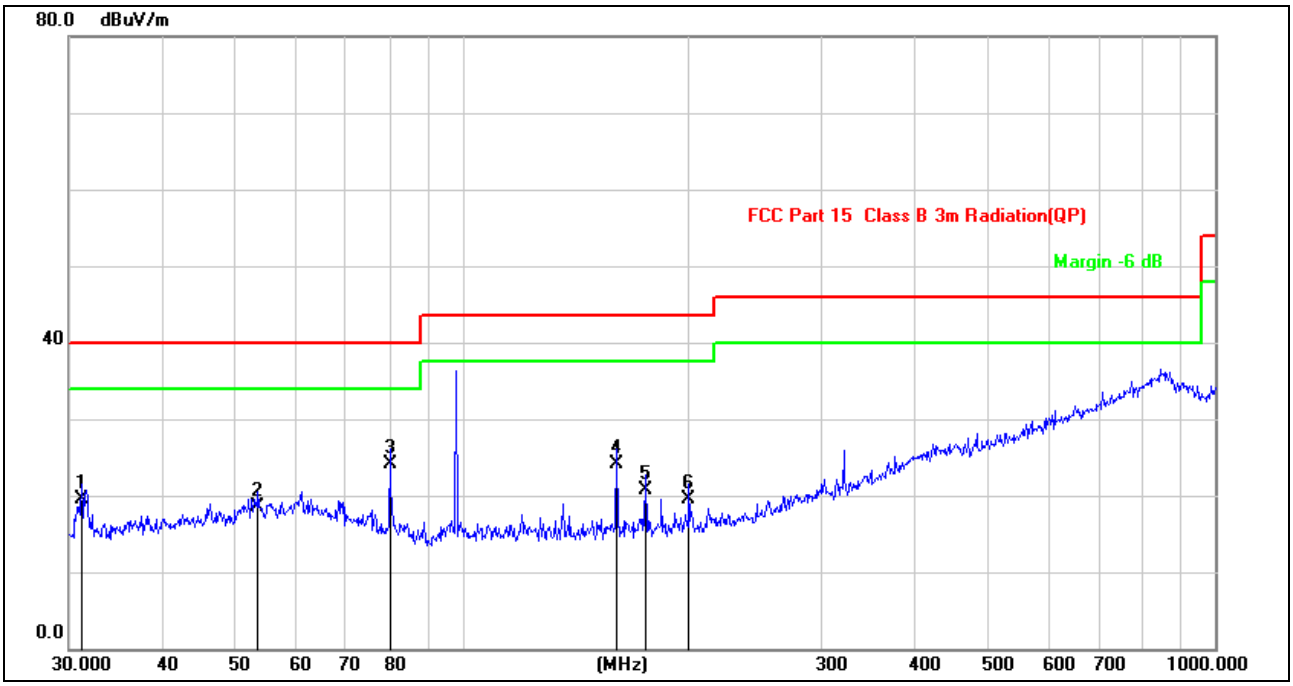
Site:	**LAB**	**Antenna:: Vertical**	**Temperature(C):26(C)**
Limit:	**FCC Part 15 Class B 3m Radiation(QP)**		**Humidity(%):54%**
EUT:	**Radio**	**Test Time:**	**2023-05-26**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 3**	**Test Engineer:**	**Luffy**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1 *	80.0806	49.15	-12.39	36.76	40.00	-3.24	QP
2	84.1100	40.53	-12.64	27.89	40.00	-12.11	QP
3	192.4186	44.42	-11.17	33.25	43.50	-10.25	QP
4	204.2377	46.25	-11.35	34.90	43.50	-8.60	QP
5	228.4901	42.48	-10.53	31.95	46.00	-14.05	QP
6	360.4476	41.42	-4.74	36.68	46.00	-9.32	QP



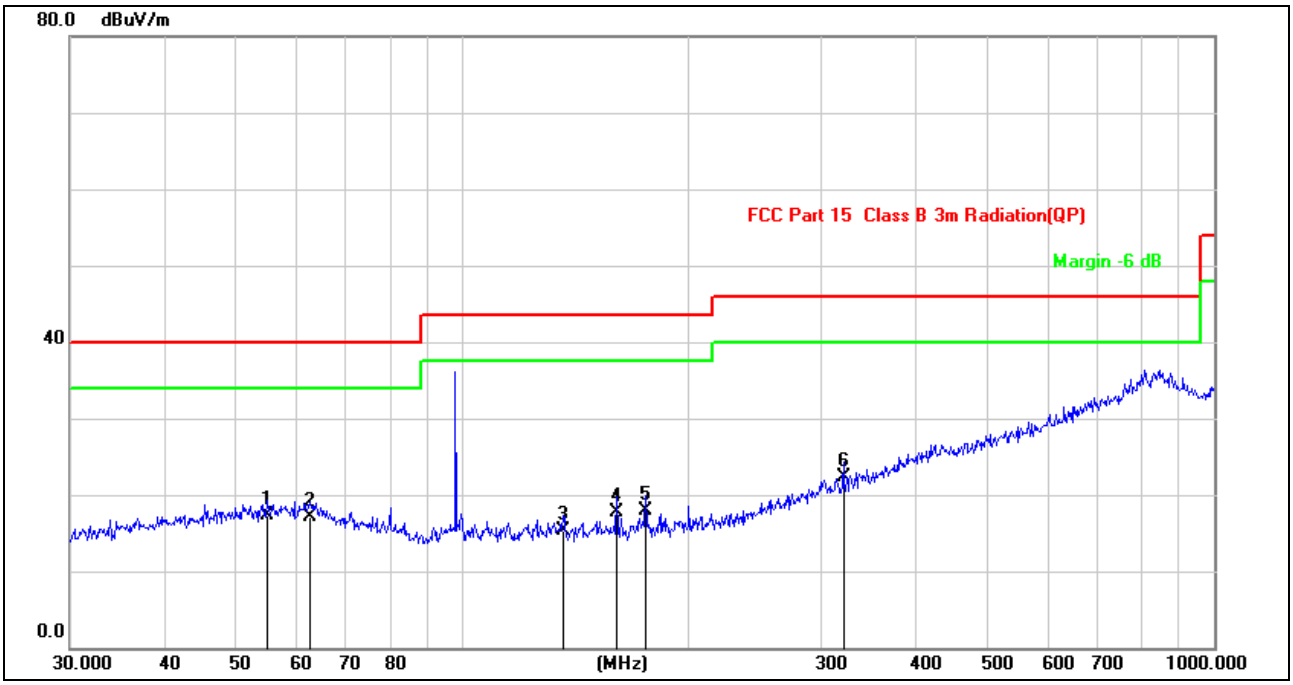
Site:	**LAB**	**Antenna:: Horizontal**	**Temperature(C):26(C)**
Limit:	**FCC Part 15 Class B 3m Radiation(QP)**		**Humidity(%):54%**
EUT:	**Radio**	**Test Time:**	**2023-05-26**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 3**	**Test Engineer:**	**Luffy**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1 *	79.5209	45.97	-12.27	33.70	40.00	-6.30	QP
2	180.0165	36.37	-11.70	24.67	43.50	-18.83	QP
3	191.7450	34.78	-11.09	23.69	43.50	-19.81	QP
4	204.2377	38.85	-11.35	27.50	43.50	-16.00	QP
5	228.4904	35.18	-10.53	24.65	46.00	-21.35	QP
6	473.8347	31.77	-1.65	30.12	46.00	-15.88	QP



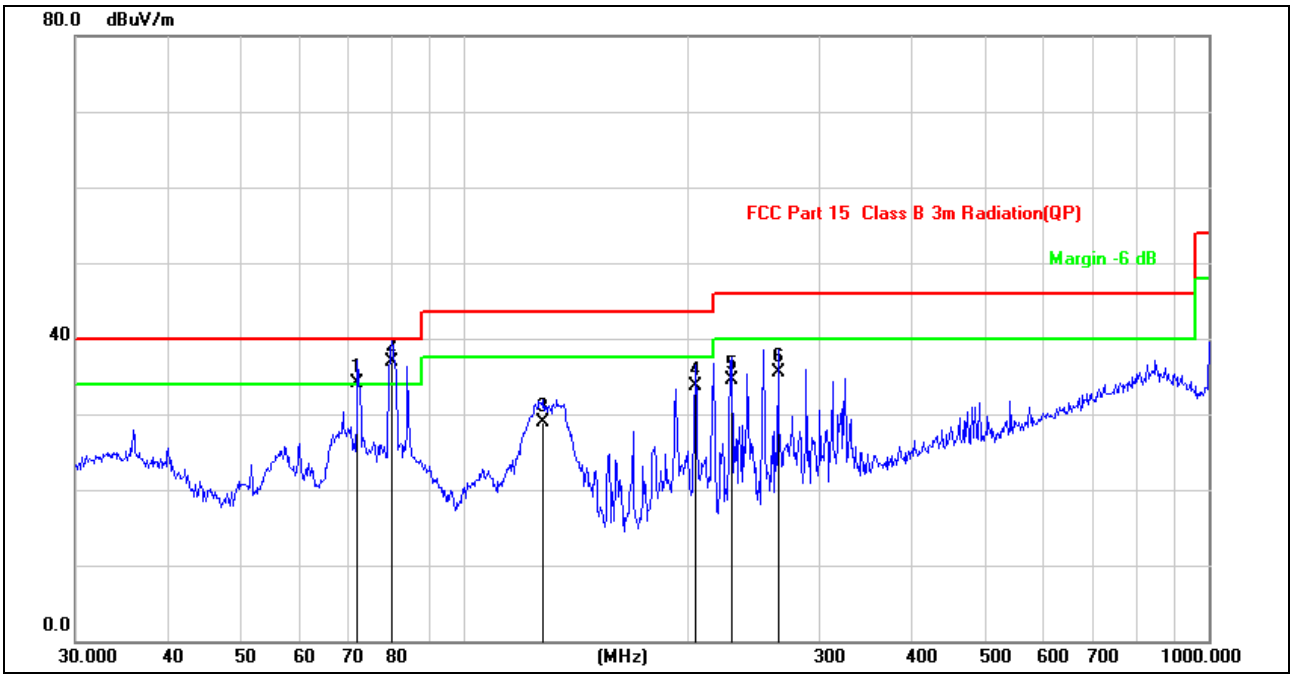
Site:	**LAB**	**Antenna:: Vertical**	**Temperature(C):26(C)**
Limit:	**FCC Part 15 Class B 3m Radiation(QP)**		**Humidity(%):54%**
EUT:	**Radio**	**Test Time:**	**2023-05-26**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 5**	**Test Engineer:**	**Luffy**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	31.1798	31.40	-11.97	19.43	40.00	-20.57	QP
2	53.5052	27.88	-9.32	18.56	40.00	-21.44	QP
3 *	80.0806	36.48	-12.39	24.09	40.00	-15.91	QP
4	160.3456	35.60	-11.58	24.02	43.50	-19.48	QP
5	175.0368	31.98	-11.24	20.74	43.50	-22.76	QP
6	199.9856	30.81	-11.29	19.52	43.50	-23.98	QP



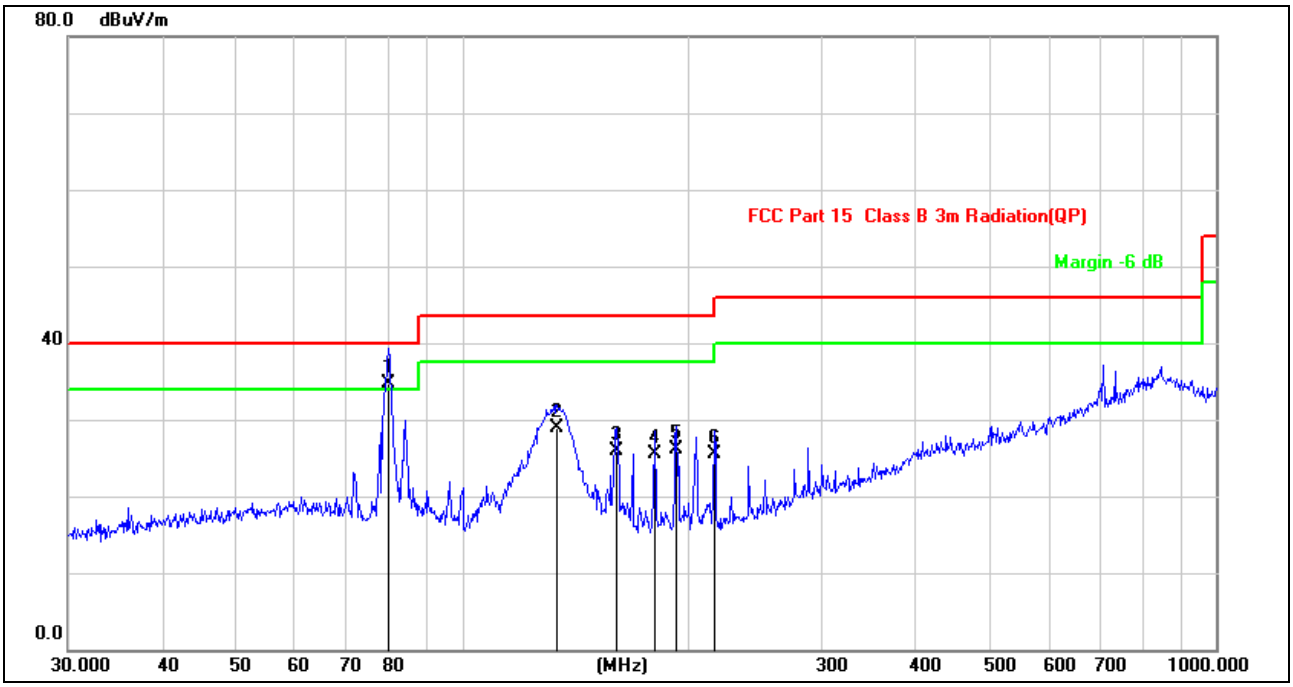
Site:	**LAB**	**Antenna:: Horizontal**	**Temperature(C):26(C)**
Limit:	**FCC Part 15 Class B 3m Radiation(QP)**		**Humidity(%):54%**
EUT:	**Radio**	**Test Time:**	**2023-05-26**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 5**	**Test Engineer:**	**Luffy**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1 *	54.8348	26.43	-9.12	17.31	40.00	-22.69	QP
2	62.6507	26.09	-8.95	17.14	40.00	-22.86	QP
3	135.9822	27.07	-11.81	15.26	43.50	-28.24	QP
4	160.3456	29.21	-11.58	17.63	43.50	-25.87	QP
5	175.0368	29.16	-11.24	17.92	43.50	-25.58	QP
6	321.0608	28.77	-6.54	22.23	46.00	-23.77	QP



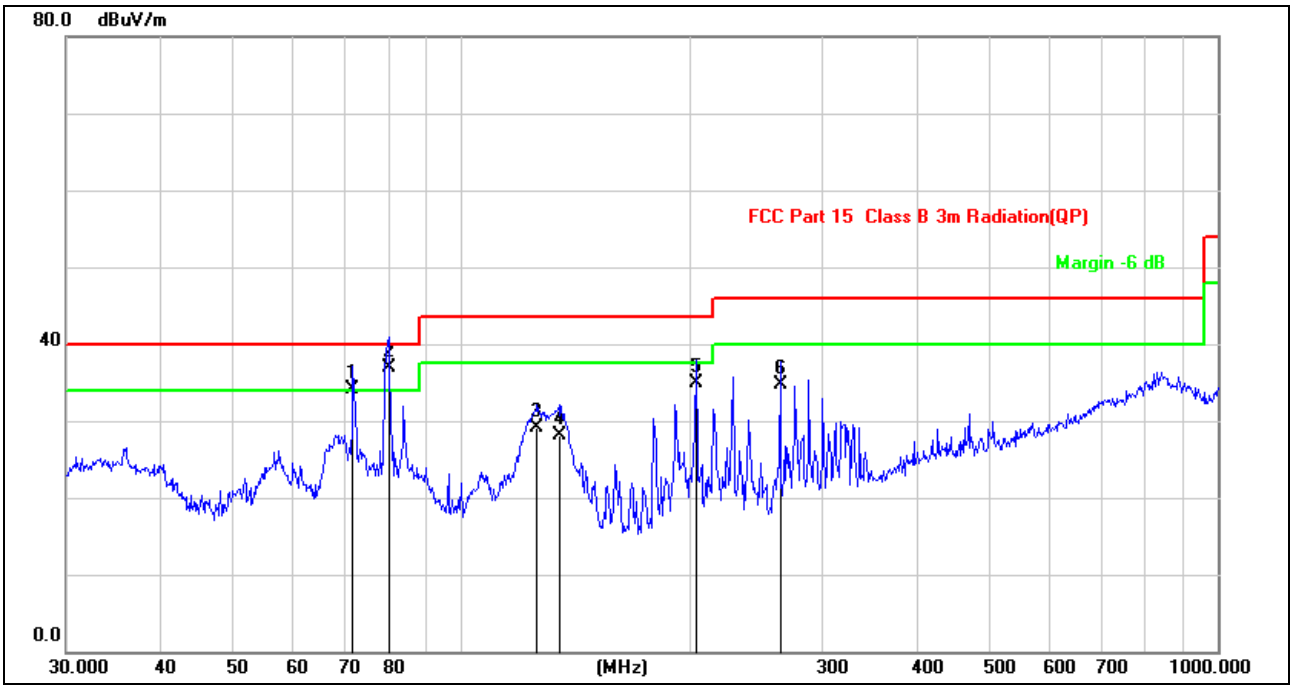
Site:	**LAB**	**Antenna:: Vertical**	**Temperature(C):26(C)**
Limit:	**FCC Part 15 Class B 3m Radiation(QP)**		**Humidity(%):54%**
EUT:	**Radio**	**Test Time:**	**2023-05-26**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 7**	**Test Engineer:**	**Luffy**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1 !	71.8320	44.99	-10.94	34.05	40.00	-5.95	QP
2 *	79.8003	49.34	-12.34	37.00	40.00	-3.00	QP
3	127.6645	40.75	-11.82	28.93	43.50	-14.57	QP
4	204.2377	45.00	-11.35	33.65	43.50	-9.85	QP
5	228.4904	45.03	-10.53	34.50	46.00	-11.50	QP
6	263.8190	44.34	-8.75	35.59	46.00	-10.41	QP



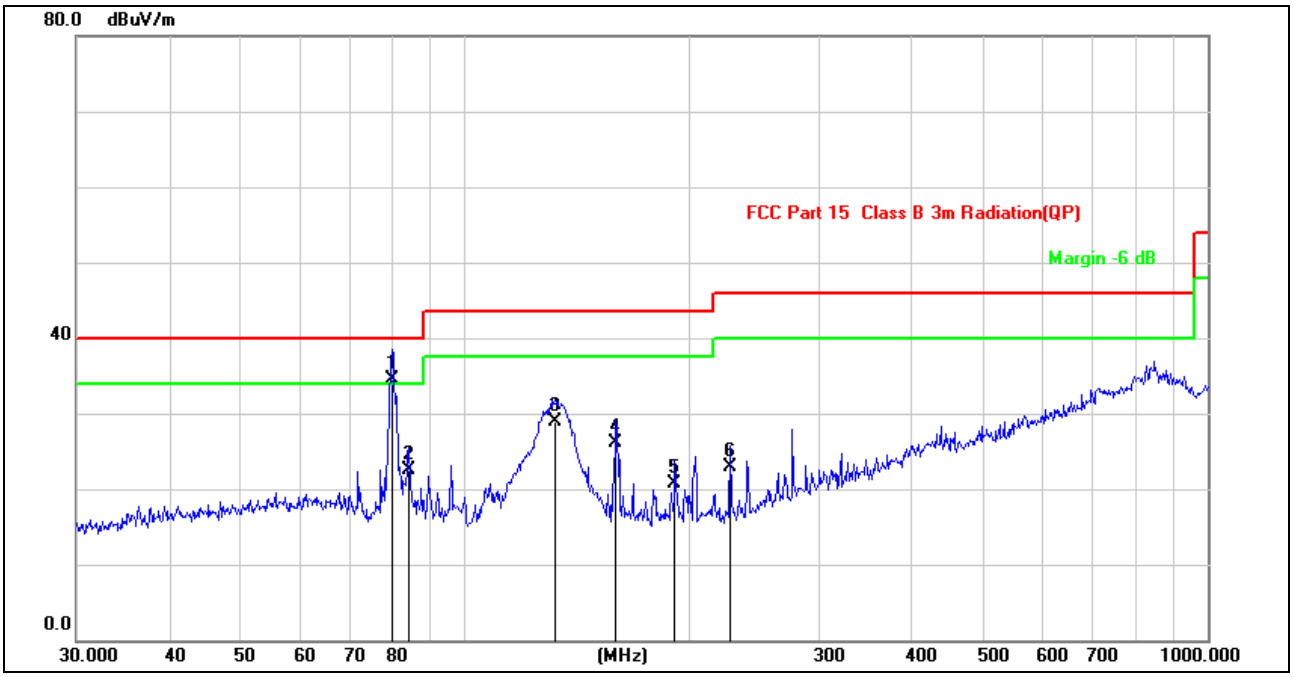
Site:	**LAB**	**Antenna:: Horizontal**	**Temperature(C):26(C)**
Limit:	**FCC Part 15 Class B 3m Radiation(QP)**		**Humidity(%):54%**
EUT:	**Radio**	**Test Time:**	**2023-05-26**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 7**	**Test Engineer:**	**Luffy**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1 *	79.8003	47.09	-12.34	34.75	40.00	-5.25	QP
2	133.6188	40.57	-11.69	28.88	43.50	-14.62	QP
3	160.3456	37.47	-11.58	25.89	43.50	-17.61	QP
4	180.0165	37.15	-11.70	25.45	43.50	-18.05	QP
5	192.4186	37.34	-11.17	26.17	43.50	-17.33	QP
6	216.0240	36.36	-10.93	25.43	46.00	-20.57	QP



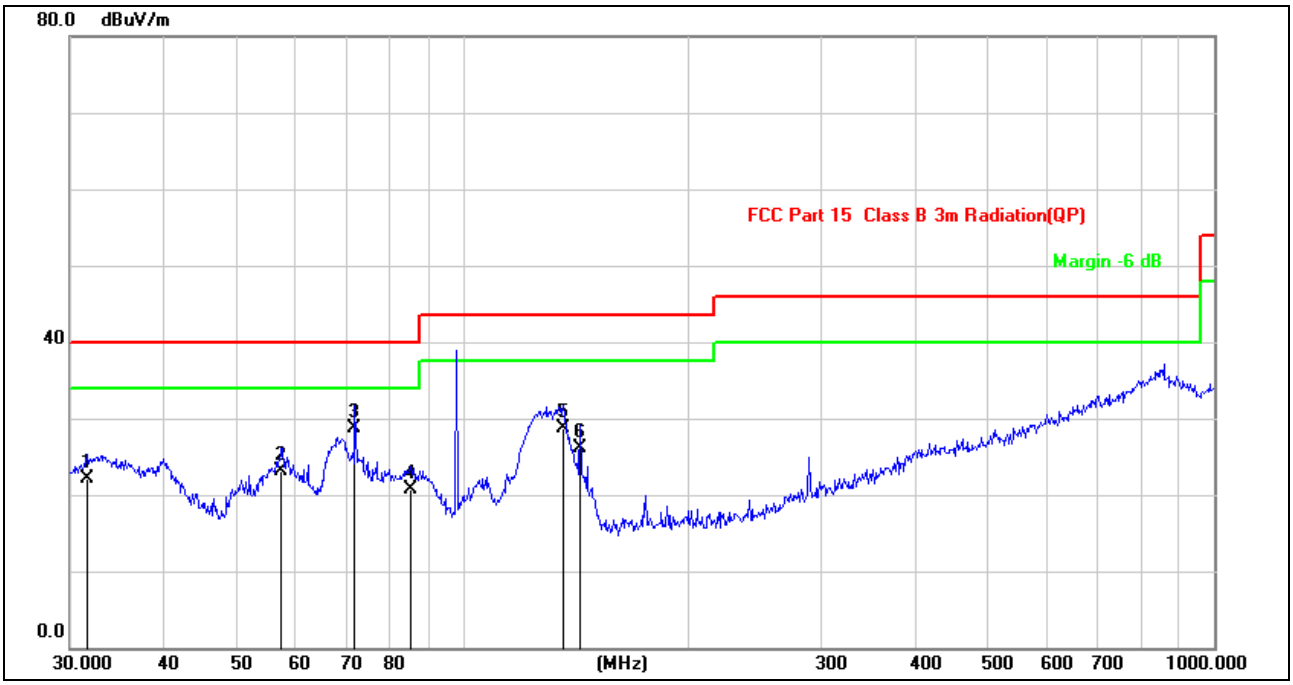
Site:	**LAB**	**Antenna:: Vertical**	**Temperature(C):26(C)**
Limit:	**FCC Part 15 Class B 3m Radiation(QP)**		**Humidity(%):54%**
EUT:	**Radio**	**Test Time:**	**2023-05-26**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 8**	**Test Engineer:**	**Luffy**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1 !	71.8319	45.09	-10.94	34.15	40.00	-5.85	QP
2 *	80.0806	49.35	-12.39	36.96	40.00	-3.04	QP
3	125.8863	40.94	-11.82	29.12	43.50	-14.38	QP
4	134.5592	39.84	-11.67	28.17	43.50	-15.33	QP
5	204.2375	46.30	-11.35	34.95	43.50	-8.55	QP
6	263.8190	43.49	-8.75	34.74	46.00	-11.26	QP



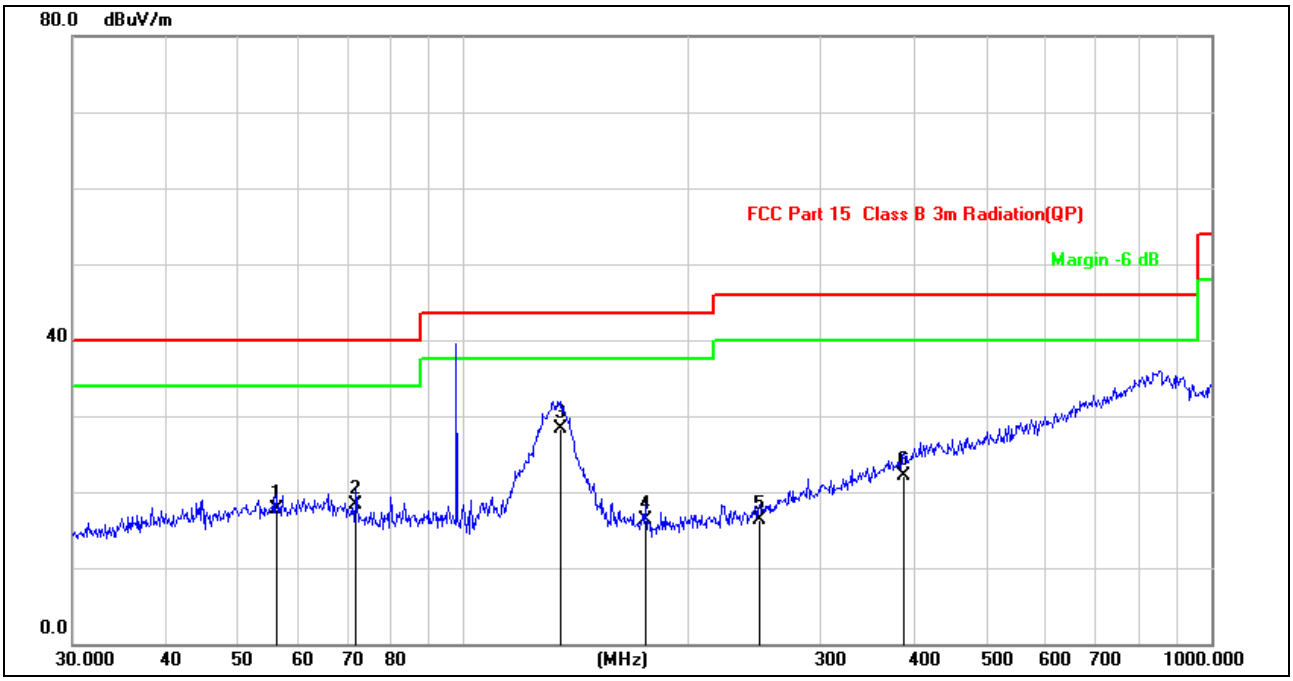
Site:	**LAB**	**Antenna:: Horizontal**	**Temperature(C):26(C)**
Limit:	**FCC Part 15 Class B 3m Radiation(QP)**		**Humidity(%):54%**
EUT:	**Radio**	**Test Time:**	**2023-05-26**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 8**	**Test Engineer:**	**Luffy**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1 *	79.8002	46.85	-12.34	34.51	40.00	-5.49	QP
2	84.1100	35.09	-12.64	22.45	40.00	-17.55	QP
3	132.2204	40.61	-11.74	28.87	43.50	-14.63	QP
4	159.7844	37.54	-11.47	26.07	43.50	-17.43	QP
5	191.7450	31.83	-11.09	20.74	43.50	-22.76	QP
6	227.6904	33.42	-10.56	22.86	46.00	-23.14	QP



Site:	**LAB**	**Antenna:: Vertical**	**Temperature(C):26(C)**
Limit:	**FCC Part 15 Class B 3m Radiation(QP)**		**Humidity(%):54%**
EUT:	**Radio**	**Test Time:**	**2023-05-26**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 10**	**Test Engineer:**	**Luffy**
Note:			

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	31.6202	34.12	-11.92	22.20	40.00	-17.80	QP
2	57.3923	32.35	-9.17	23.18	40.00	-16.82	QP
3 *	71.8320	39.71	-10.94	28.77	40.00	-11.23	QP
4	85.2980	33.64	-12.88	20.76	40.00	-19.24	QP
5	135.9822	40.43	-11.81	28.62	43.50	-14.88	QP
6	143.3261	37.85	-11.71	26.14	43.50	-17.36	QP



Site:	**LAB**	**Antenna:: Horizontal**	**Temperature(C):26(C)**
Limit:	**FCC Part 15 Class B 3m Radiation(QP)**		**Humidity(%):54%**
EUT:	**Radio**	**Test Time:**	**2023-05-26**
M/N.:	**FR-182U**	**Power Rating:**	**DC 5V**
Mode:	**Mode 10**	**Test Engineer:**	**Luffy**
Note:			

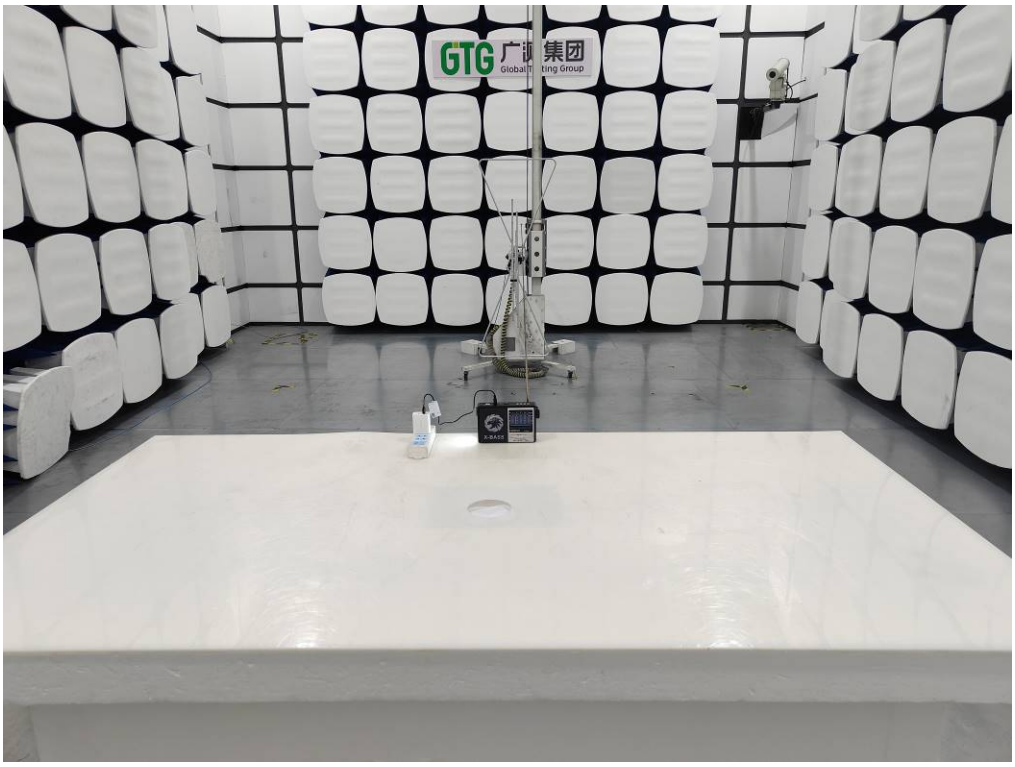
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	56.1974	26.84	-9.12	17.72	40.00	-22.28	QP
2	71.8320	29.19	-10.94	18.25	40.00	-21.75	QP
3 *	135.0319	40.03	-11.71	28.32	43.50	-15.18	QP
4	175.0368	27.47	-11.24	16.23	43.50	-27.27	QP
5	248.5519	25.64	-9.39	16.25	46.00	-29.75	QP
6	387.9920	25.57	-3.55	22.02	46.00	-23.98	QP

4. ATTACHMENT

4.1. EUT TEST PHOTO

Conduction Measurement Photo

Radiated Measurement Photo



4.2. EUT PRODUCT PHOTO

Figure 1. Overall view of unit

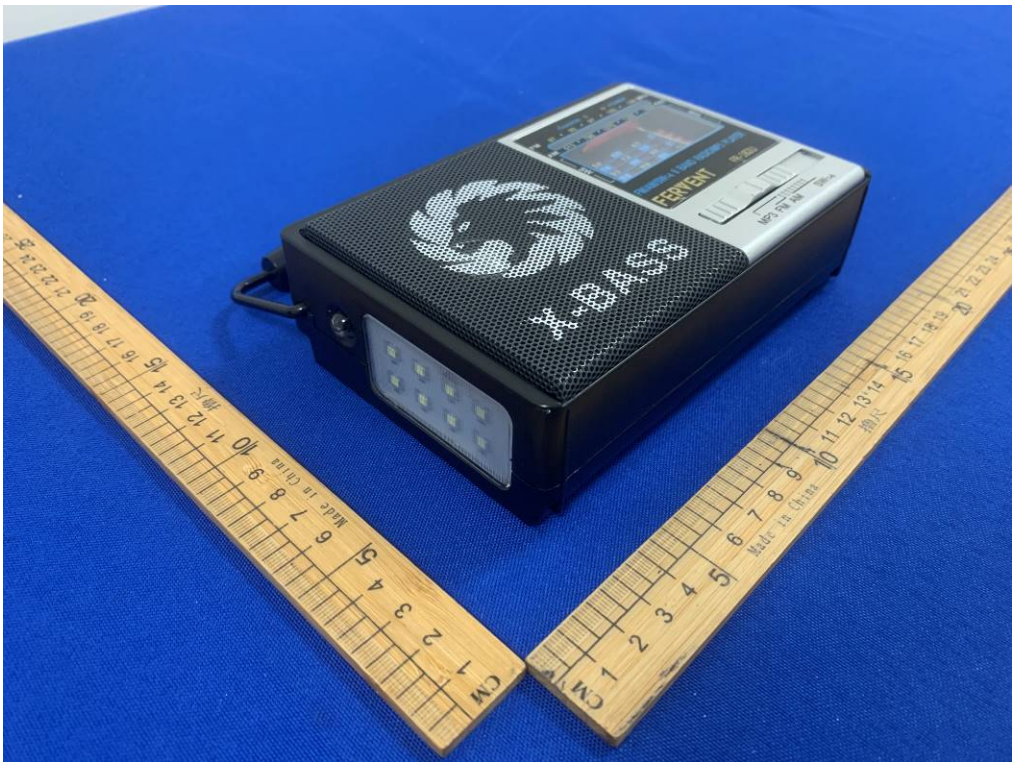


Figure 2. Overall view of unit

Figure 3. Overall view of unit

Figure 4. Overall view of unit

Figure 5. Internal view of unit

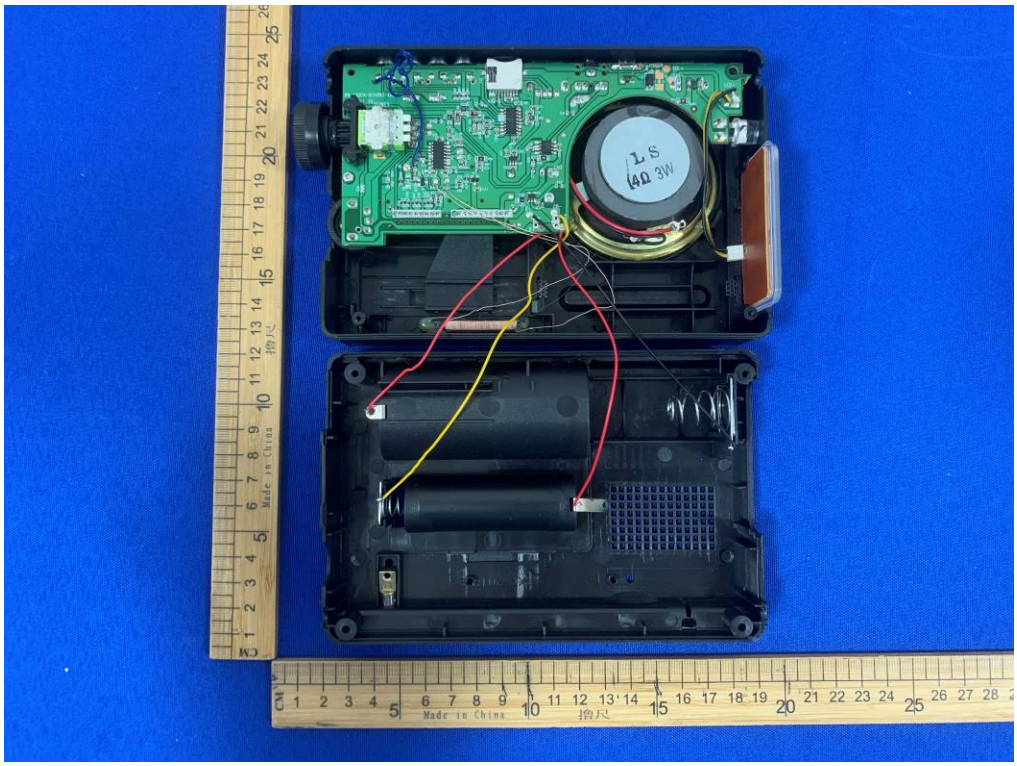


Figure 6. Internal view of unit

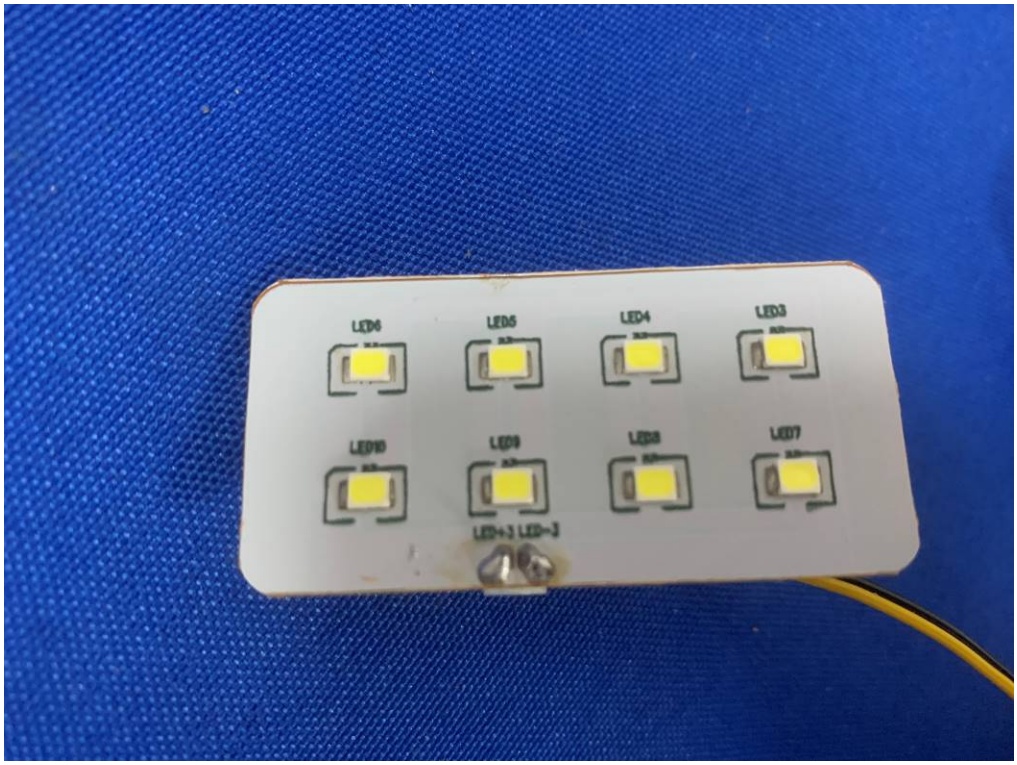


Figure 7. Overall view of LED

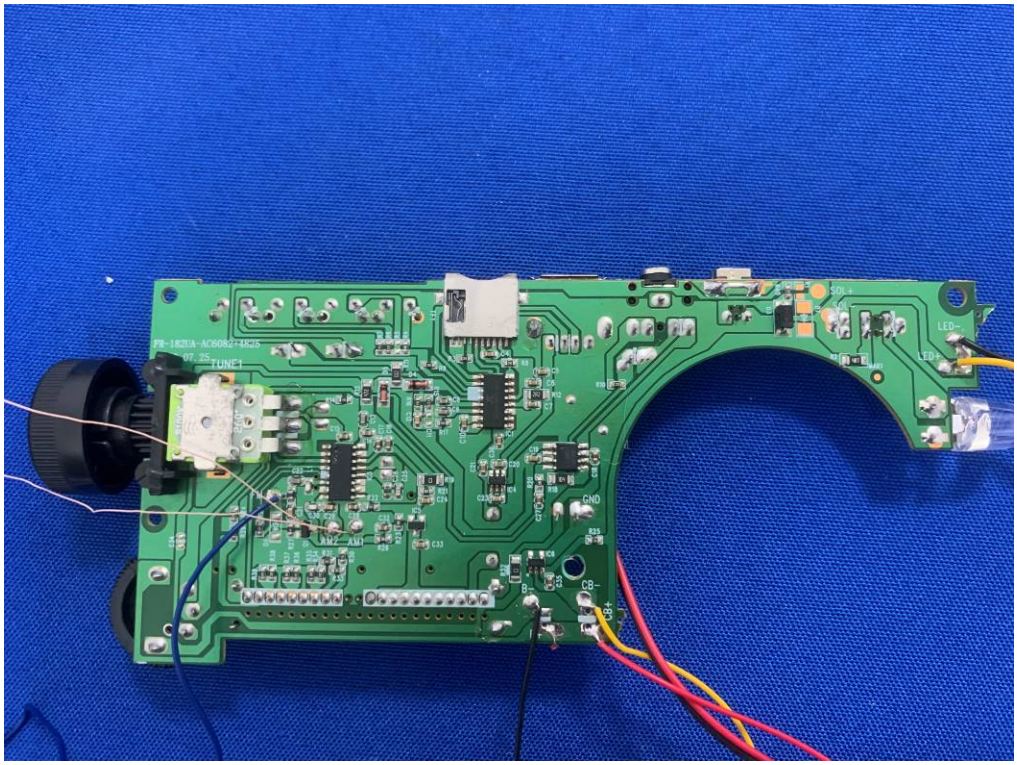


Figure 8. Bottom view of PCB

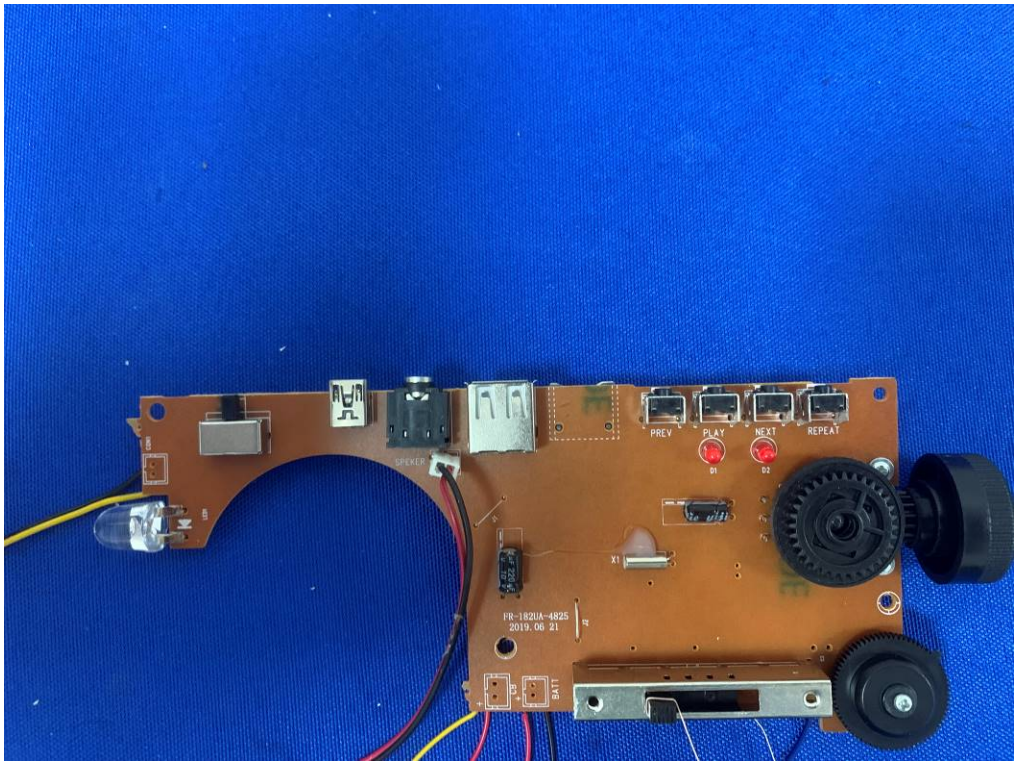


Figure 9. Top view of PCB

Figure 10. Overall view of Battery

--- End of Report ---