





# **FCC Radio Test Report** FCC ID: RLY-R100MAGNETIC

This report concerns: Original Grant

Project No. : 2401G139

Equipment : Rechargeable Li-Polymer Magnetic Power Bank

**Brand Name** : ADATA

Test Model : R100 Magnetic

Series Model : N/A

: ADATA Technology Co., Ltd. Applicant

Address : 18F, No.258, Liancheng Rd., Zhonghe Dist, New Taipei City, Taiwan

Manufacturer : ADATA Technology Co., Ltd.

Address : 18F, No.258, Liancheng Rd., Zhonghe Dist, New Taipei City, Taiwan

: DONGGUAN ARUN INDUSTRIAL CO.,LTD Factory

Address : N0.13,Xinfeng Street,Changlong,Huangjiang Town, Dongguan City,China

Date of Receipt : Jan. 30, 2024

Date of Test : Jan. 31, 2024 ~ May 15, 2024

: Jul. 16, 2024 Issued Date

Report Version : R01

: Engineering Sample No.: SSL20240130156 for Bandwidth, Test Sample

SSL20240130155 for others.

Standard(s) : FCC CFR Title 47, Part 15, Subpart C

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

Approved by

Room 108, Building 2, No.1, Yile Road, Songshan Lake Zone, Dongguan City, Guangdong, People's Republic of China.

Tel: +86-769-8318-3000 Web: www.newbtl.com Service mail: btl qa@newbtl.com



### **Declaration**

**B**TL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

**BTL**'s reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. BTL assumes no responsibility for the data provided by the customer, any statements, inferences or generalizations drawn by the customer or others from the reports issued by BTL.

The report must not be used by the client to claim product certification, approval, or endorsement by A2LA or any agency of the U.S. Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

**BTL**'s laboratory quality assurance procedures are in compliance with the ISO/IEC 17025: 2017 requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

### Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective. Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.



Table of Contents	Page
REPORT ISSUED HISTORY	5
1 . APPLICABLE STANDARDS	6
2 . SUMMARY OF TEST RESULTS	6
2.1 TEST FACILITY	7
2.2 MEASUREMENT UNCERTAINTY	7
2.3 TEST ENVIRONMENT CONDITIONS	7
3 . GENERAL INFORMATION	8
3.1 GENERAL DESCRIPTION OF EUT	8
3.2 DESCRIPTION OF TEST MODES	9
3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	10
3.4 SUPPORT UNITS	10
3.5 CUSTOMER INFORMATION DESCRIPTION	10
4 . AC POWER LINE CONDUCTED EMISSIONS TEST	11
4.1 LIMIT	11
4.2 TEST PROCEDURE	11
4.3 DEVIATION FROM TEST STANDARD	11
4.4 TEST SETUP	12
4.5 EUT OPERATING CONDITIONS	12
4.6 TEST RESULTS	12
5 . RADIATED EMISSION TEST	13
5.1 LIMIT	13
5.2 TEST PROCEDURE	13
5.3 DEVIATION FROM TEST STANDARD	13
5.4 TEST SETUP	14
5.5 EUT OPERATING CONDITIONS	15
5.6 TEST RESULT - 9 KHZ TO 30 MHZ	15
5.7 TEST RESULTS - 30 MHZ TO 1000 MHZ	15
6 . BANDWIDTH	16
6.1 LIMIT	16
6.2 TEST PROCEDURE	16
6.3 DEVIATION FROM STANDARD	16
6.4 TEST SETUP	16
6.5 EUT OPERATION CONDITIONS	16



Table of Contents	Page
6.6 TEST RESULTS	16
7 . MEASUREMENT INSTRUMENTS LIST	17
8 . EUT TEST PHOTO	18
APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS	21
APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ	24
APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ	29
APPENDIX D - BANDWIDTH	32



# **REPORT ISSUED HISTORY**

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-1-2401G139	R00	Original Report.	May 16, 2024	Invalid
BTL-FCCP-1-2401G139	R01	Updated the Operation Frequency in Section 3.1.	Jul. 16, 2024	Valid



### 1. APPLICABLE STANDARDS

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

ANSI C63.10-2013

# 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC CFR Title 47, Part 15, Subpart C					
Standard(s) Section	Test Item	Test Result	Judgment	Remark	
15.207	AC Power Line Conducted Emissions	APPENDIX A	PASS		
15.209(a)	Radiated Emissions	APPENDIX B APPENDIX C	PASS		
15.215(c)	Bandwidth	APPENDIX D	PASS		
15.203	Antenna Requirement		PASS	Note(2)	

### NOTE:

- (1) "N/A" denotes test is not applicable to this device.
- (2) The device what use a permanently attached antenna were considered sufficient to comply with the provisions of 15.203.



### 2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3, Jinshagang 1st

Road, Dalang, Dongguan City, Guangdong People's Republic of China

BTL's Registration Number for FCC: 747969 BTL's Designation Number for FCC: CN1377

### 2.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95.45% confidence level (based on a coverage factor (k=2)) The BTL measurement uncertainty as below table:

A. AC power line conducted emissions Measurement:

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-C02	CISPR	150kHz ~ 30MHz	2.88

### B. Radiated emissions Measurement:

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-CB01	CISPR	9kHz ~ 30MHz	2.36

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)
	DG-CB03 (3m) CISPR	30MHz ~ 200MHz	>	4.40
DG-CB03		30MHz ~ 200MHz	Н	3.62
(3m)		200MHz ~ 1,000MHz	V	4.58
		200MHz ~ 1,000MHz	Н	3.98

### C. Other Measurement:

Test Item	Uncertainty
Bandwidth	0.90 %
Temperature	0.8 °C
Humidity	2.2 %

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

### 2.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By	Test Date
AC Power Line Conducted Emissions	24°C	68%	DC 5V	Hayden Chen	Feb. 04, 2024
Radiated Emissions-9kHz to 30MHz	23°C	51%	DC 5V	Hayden Chen	Feb. 03, 2024
Radiated Emissions- 30 MHz to 1GHz	24°C	45%	DC 5V	Allen Tong	Feb. 03, 2024
Bandwidth	25°C	49%	DC 5V	Steve Zhou	Feb. 07, 2024



# 3. GENERAL INFORMATION

# 3.1 GENERAL DESCRIPTION OF EUT

Equipment	Rechargeable Li-Polymer Magnetic Power Bank
Brand Name	ADATA
Test Model	R100 Magnetic
Series Model	N/A
Model Difference(s)	N/A
HVIN	V1.0.0
FVIN	V1.0.1
Power Source	1# Supplied from USB port. 2# Supplied from battery. Model: 706074
Power Rating	1# Rated Capacity: 5V / 6500mAh, 9V /3300mAh, 12V / 2500mAh Input: USB-C: DC 5V/3A, 9V/2A Output: USB-C: DC 5V/3A, 9V/2.22A, 12V/1.67A, 20W Max USB-A: DC 5V/3A, 9V/2A, 12V/1.5A, 18W Max Wireless Charge: 5W/7.5W/10W/15W Max Output: USB-C + USB-A + Wireless: DC 5V/3A, 15W 2# DC 3.85V 5000mAh 19.25Wh
Operation Frequency	110.5kHz-205kHz

### Note:

- 1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- 2. Output power from primary coil is to 5 watts (MAX).
- 3. Wireless Charging: Input: DC 5V/3A, 9V/2A, Output: 5W/7.5W/10W/15W.
- 4. Mobile exposure conditions only.



# 3.2 DESCRIPTION OF TEST MODES

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

Pretest Mode	Description
Mode 1	TX Mode

Following mode(s) was (were) found to be the worst case(s) and selected for the final test.

	AC power line conducted emissions test
Final Test Mode	Description
Mode 1	TX Mode

Radiated emissions test			
Final Test Mode Description			
Mode 1 TX Mode			

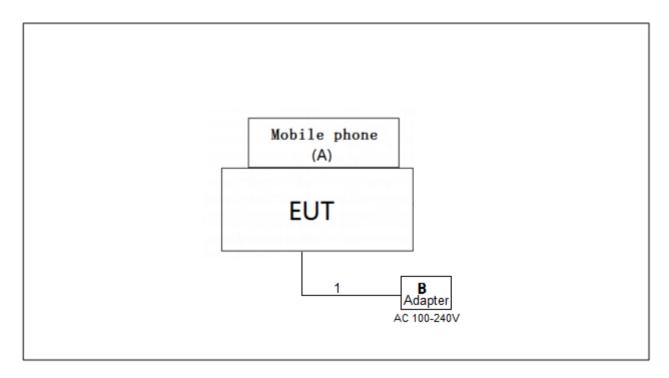
Bandwidth test			
Final Test Mode Description			
Mode 1	TX Mode		

### Note

1) The EUT has the maximum average output power when the support unit is in low power and being charged by EUT.



# 3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



# 3.4 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
Α	Mobile phone	SAMSUNG-	GALAXY S9	N/A
В	Adapter	HUAWEI	HW-200325CP0	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	USB Cable	NO	NO	0.2m

### 3.5 CUSTOMER INFORMATION DESCRIPTION

Except for AC power line conducted emissions and radiated emissions, the results of all test items include cable losses. All cable losses are provided by the testing laboratory.



### 4. AC POWER LINE CONDUCTED EMISSIONS TEST

### **4.1 LIMIT**

Fraguency of Emission (MHz)	Limit (dl	ΒμV)
Frequency of Emission (MHz)	Quasi-peak	Average
0.15 - 0.50	66 to 56*	56 to 46*
0.50 - 5.0	56	46
5.0 - 30.0	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.

### **4.2 TEST PROCEDURE**

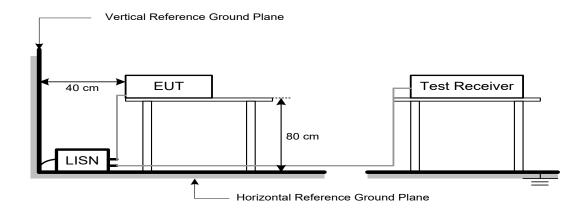
- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- 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.

### 4.3 DEVIATION FROM TEST STANDARD

No deviation



### 4.4 TEST SETUP



### 4.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

### 4.6 TEST RESULTS

Please refer to the APPENDIX A.

### Remark:

- (1) 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.
- (2) Measuring frequency range from 150 kHz to 30 MHz.



### 5. RADIATED EMISSION TEST

### **5.1 LIMIT**

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

LIMITS OF RADIATED EMISSION MEASUREMENT(9 kHz-1000 MHz)

Frequency	Field Strength	Measurement Distance
(MHz)	(microvolts/meter)	(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

### Note:

- (1) The limit for radiated test was performed according to FCC CFR Title 47, Part 15, Subpart C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

# **5.2 TEST PROCEDURE**

- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
- b. The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; 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.
- c. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- d. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. 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. (below 1 GHz)
- f. For the actual test configuration, please refer to the related Item -EUT Test Photos.

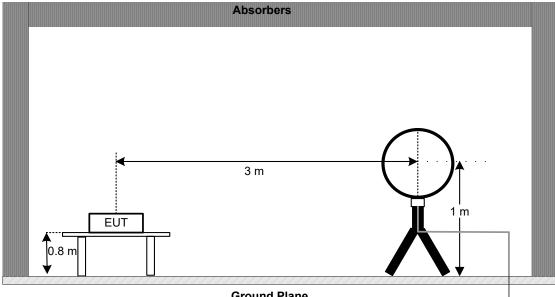
### **5.3 DEVIATION FROM TEST STANDARD**

No deviation.

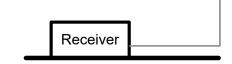


# **5.4 TEST SETUP**

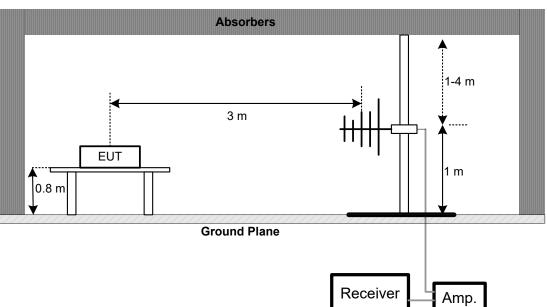
### 9 kHz-30 MHz



**Ground Plane** 



### 30 MHz to 1 GHz





### **5.5 EUT OPERATING CONDITIONS**

The EUT was programmed to be in continuously transmitting mode.

# 5.6 TEST RESULT - 9 kHz TO 30 MHz

Please refer to the APPENDIX B

### Remark:

- (1) Distance extrapolation factor = 40 log (specific distance / test distance) (dB).
- (2) Limit line = specific limits (dBuV) + distance extrapolation factor.

# 5.7 TEST RESULTS - 30 MHZ TO 1000 MHZ

Please refer to the APPENDIX C.



# 6. BANDWIDTH

# **6.1 LIMIT**

Section	Test Item	Limit
15.215(c)	20 dB Bandwidth	-

### **6.2 TEST PROCEDURE**

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. The following table is the setting of the spectrum analyzer.

Spectrum Parameters	Setting		
Span Frequency	Between 2 times and 5 times the BW		
RBW	Range of 1% to 5% of the BW		
VBW	Approximately 3 times RBW		
Detector	Peak		
Trace	Max Hold		
Sweep Time Auto			

### **6.3 DEVIATION FROM STANDARD**

No deviation.

### **6.4 TEST SETUP**

EUT		SPECTRUM
	Dipole Ant	ANALYZER

### **6.5 EUT OPERATION CONDITIONS**

The EUT was programmed to be in continuously transmitting mode.

### **6.6 TEST RESULTS**

Please refer to the APPENDIX D.



# 7. MEASUREMENT INSTRUMENTS LIST

	AC Power Line Conducted Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	EMI Test Receiver	R&S	ESR3	103027	Jun. 16, 2024	
2	TWO-LINE V-NETWORK	R&S	ENV216	101447	Dec. 22, 2024	
3	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	
4	Cable	N/A	SFT205-NMNM-9M -001	9M	Nov. 27, 2024	
5	643 Shield Room	ETS	6*4*3	N/A	N/A	

	Radiated Emissions - 9 kHz to 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Active Loop Antenna	Schwarzbeck	FMZB 1513-60B	1513-60 B-034	Apr. 01, 2024	
2	MXE EMI Receiver	Keysight	N9038A	MY56400091	Dec. 22, 2024	
3	Cable	N/A	RW2350-3.8A-NMB M-1.5M	N/A	Jun. 10, 2024	
4	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	
5	966 Chamber room	ETS	9*6*6	N/A	Jul. 11, 2024	

	Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	1462	Dec. 13, 2024	
2	Attenuator	EMC INSTRUMENT	EMCI-N-6-06	AT-06009	Dec. 13, 2024	
3	Preamplifier	EMC INSTRUMENT	EMC001330	980863	Nov. 17, 2024	
4	Cable	RegalWay	LMR400-NMNM-12 .5m	N/A	Jul. 04, 2024	
5	Cable	RegalWay	LMR400-NMNM-3 m	N/A	Jul. 04, 2024	
6	Cable	RegalWay	LMR400-NMNM-0. 5m	N/A	Jul. 04, 2024	
7	Receiver	Agilent	N9038A	MY52130039	Dec. 22, 2024	
8	Positioning Controller	MF	MF-7802	N/A	N/A	
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	
10	966 Chamber room	CM	9*6*6	N/A	May 17, 2024	

	Bandwidth							
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until			
1	Spectrum Analyzer	R&S	FSP40	100185	Jun. 16, 2024			
2	DC Block	N/A	N/A	N/A	N/A			

Remark: "N/A" denotes no model name, serial no. or calibration specified.

All calibration period of equipment list is one year.



# **8. EUT TEST PHOTO**



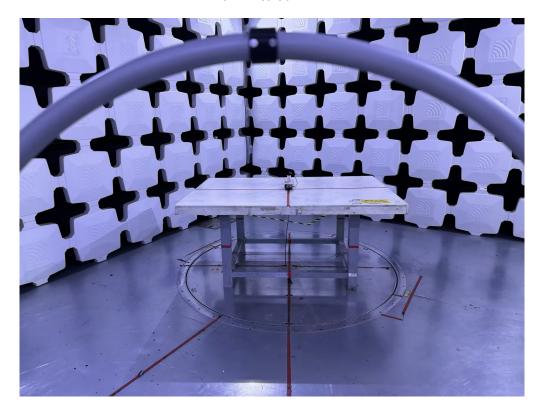


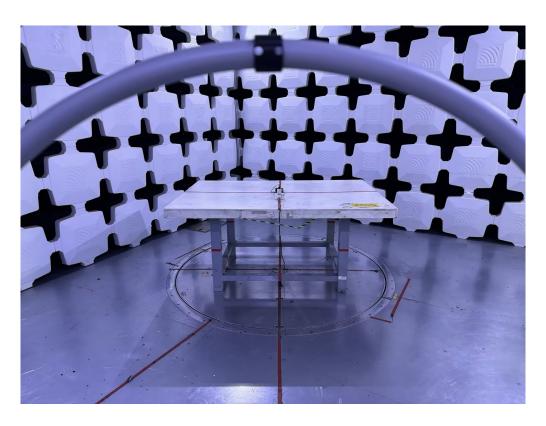




# **Radiated Emissions Test Photos**

9 kHz to 30 MHz

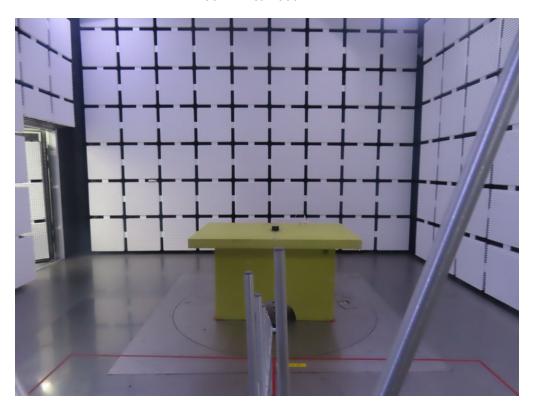






# **Radiated Emissions Test Photos**

# 30 MHz to 1000 MHz

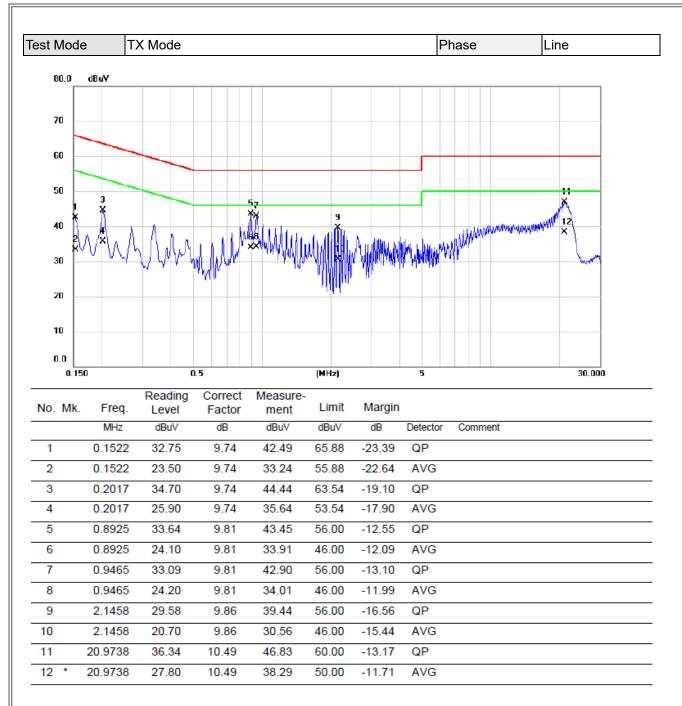






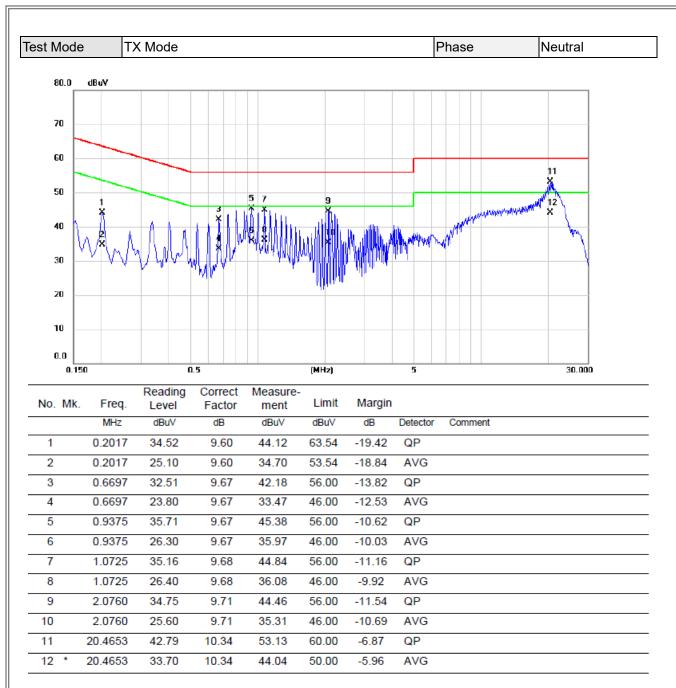
# **APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS**





- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



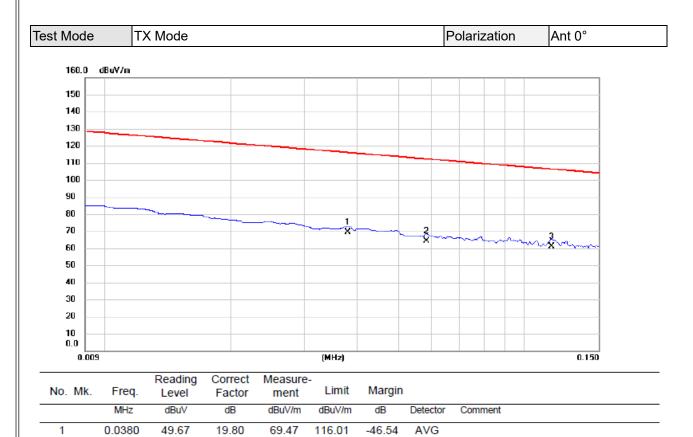


- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



# **APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ**





AVG

AVG

-48.18

-45.14

### **REMARKS:**

2

3 \*

(1) Measurement Value = Reading Level + Correct Factor.

19.83

19.83

64.08

61.16

112.26

106.30

(2) Margin Level = Measurement Value - Limit Value.

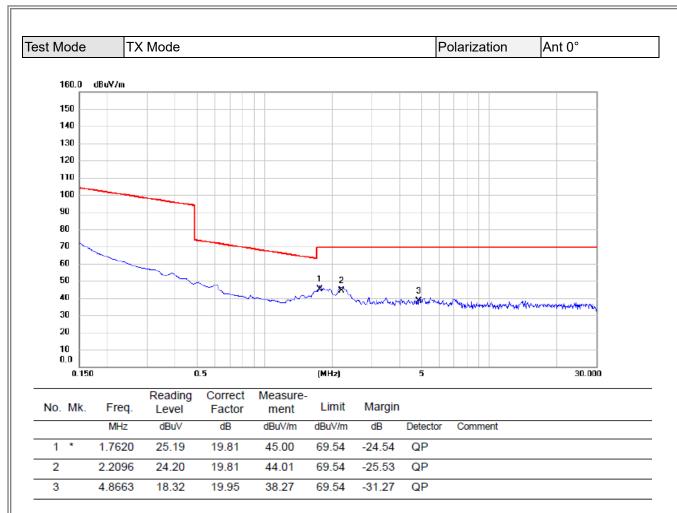
44.25

41.33

0.0585

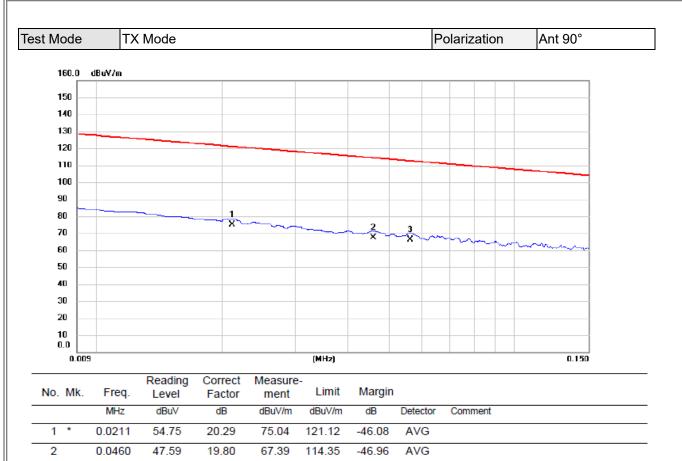
0.1162





- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





3

0.0563

(1) Measurement Value = Reading Level + Correct Factor.

19.82

66.03

112.59

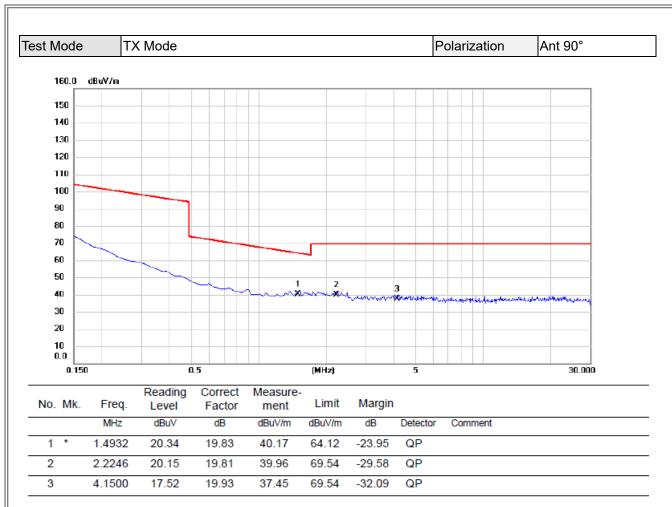
-46.56

AVG

(2) Margin Level = Measurement Value - Limit Value.

46.21



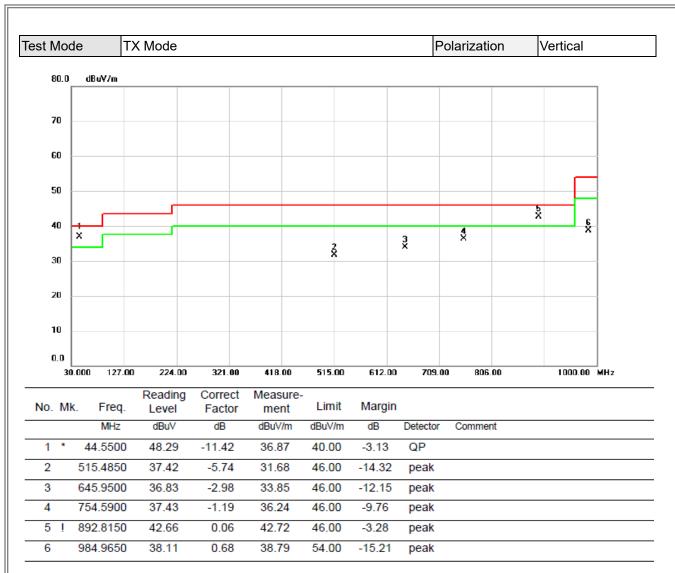


- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



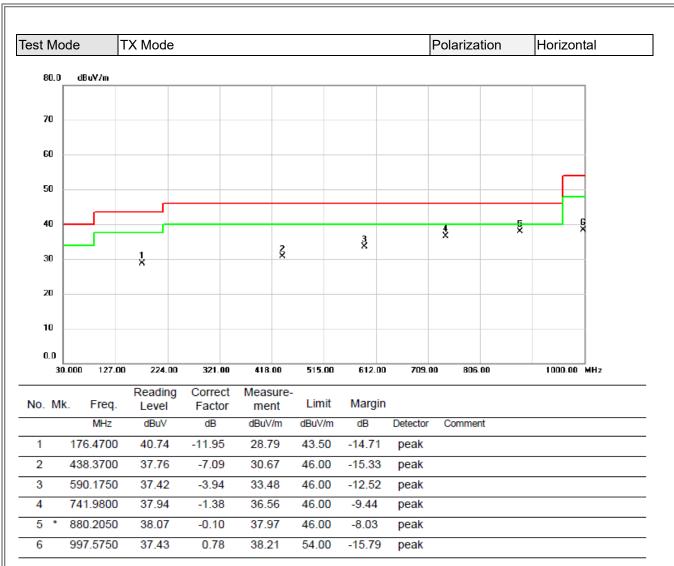
APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ				





- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



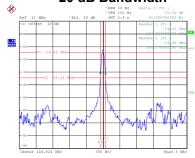
APPENDIX D - BANDWIDTH				



Test Mode TX Mode

Frequency (kHz)	20 dB Bandwidth (Hz)	Result
127.6	42.00	Complies

# 20 dB Bandwidth



Date: 15.MAY.2024 16:09:02