



# **FCC Radio Test Report** FCC ID: RNE02047TX

This report concerns: Original Grant

Project No. 2208C150

WIRELESS CHARGING W. STATION **Equipment** 

**Brand Name** ACURITE Test Model 02047

Series Model 02047M, 02047DI, 02047C Applicant : Chaney Instrument Co.

**Address** Unit No. 1, 9/F., Clifford Centre, No. 782 Cheung Sha Wan

Road, Kowloon, Hong Kong.

**Factory** Chaney Instrument Co.

**Address** Unit No. 1, 9/F., Clifford Centre, No. 782 Cheung Sha Wan

Road, Kowloon, Hong Kong.

Date of Receipt : Aug. 22, 2022

**Date of Test** Aug. 23, 2022 ~ Sep. 02, 2022

Sep. 21, 2022 ~ Sep. 22, 2022

**Issued Date** Sep. 22, 2022

**Report Version** R01

**Test Sample** : Engineering Sample No.: DG2022081948 for radiated emissions above

30MHz, DG2022081949 for others.

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

ANSI C63.10-2013

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

Prepared by: Antony Liang

Approved by : Chay Cai



TESTING CERT #5123.02

### BTL Inc.

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### **Declaration**

**BTL** 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** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

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**BTL**'s laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** 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.



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# **REPORT ISSUED HISTORY**

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-1-2208C150	R00	Original Report.	Sep. 16, 2022	Invalid
BTL-FCCP-1-2208C150	R01	Modified the comments of TCB.	Sep. 22, 2022	Valid



# 1. 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.



### 1.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No. 3 Jinshagang 1st Rd. Shixia, Dalang Town Dongguan City, Guangdong 523792 People's Republic of China.

BTL's Registration Number for FCC: 357015
BTL's Designation Number for FCC: CN1240

### 1.2 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% 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	2.60

### 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	CB03	30MHz ~ 200MHz	٧	4.36
		30MHz ~ 200MHz	Н	3.32
(3m)	CISPR	200MHz ~ 1,000MHz	V	4.08
		200MHz ~ 1,000MHz	Н	3.96

### C. Other Measurement:

Test Item	Uncertainty
Bandwidth	±3.8 %
Temperature	±0.08 °C
Humidity	±1.5%

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

### 1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
AC Power Line Conducted Emissions	24°C	53%	AC 120V/60Hz	Burak Luo
Radiated Emissions-9kHz to 30MHz	25°C	55%	AC 120V/60Hz	Bob Cao
Radiated Emissions-30 MHz to 1GHz	25°C	55%	AC 120V/60Hz	Chen Mo
Bandwidth	25°C	50%	DC 5V	Complex Qin



# 2. GENERAL INFORMATION

# 2.1 GENERAL DESCRIPTION OF EUT

Equipment	WIRELESS CHARGING W. STATION
Brand Name	ACURITE
Test Model	02047
Series Model	02047M, 02047DI, 02047C
Model Difference(s)	Only differ in packaging.
Power Source	1# DC voltage supplied from AC adapter.  Model: XZ0500-2000 2# Battery supplied.
Power Rating	1# I/P: 100-240VAC 50/60Hz 0.4A O/P: 5VDC 2000mA 2# DC 4.5V
Operation Frequency	115kHz~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: 5V/2A, Output: 5W MAX.
- 4. Mobile exposure conditions only.



# 2.2 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		

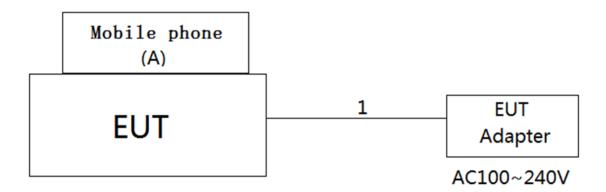
Bandwidth test			
Final Test Mode Description			
Mode 1	TX Mode		

### Note

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



# 2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



# 2.4 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
Α	Mobile phone	SAMSUNG	GALAXY S9	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	NO	NO	1.5m



### 3. AC POWER LINE CONDUCTED EMISSIONS TEST

### **3.1 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.

### 3.2 TEST PROCEDURE

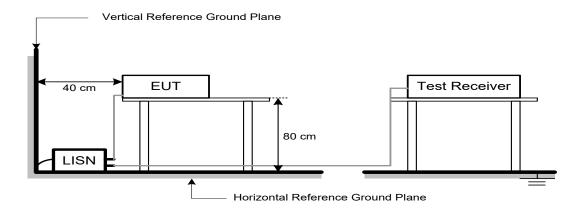
- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.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

### 3.3 DEVIATION FROM TEST STANDARD

No deviation



# 3.4 TEST SETUP



# 3.5 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.

### 3.6 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.



### 4. RADIATED EMISSION TEST

### **4.1 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).

# **4.2 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.

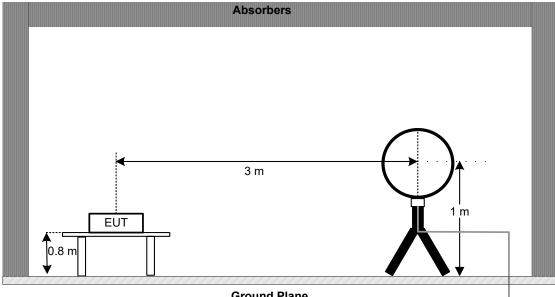
### 4.3 DEVIATION FROM TEST STANDARD

No deviation.

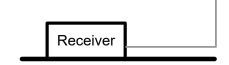


# 4.4 TEST SETUP

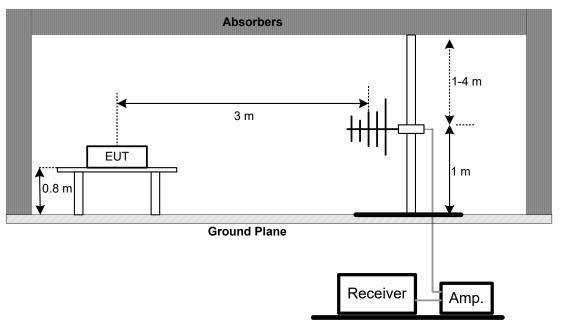
# 9 kHz-30 MHz



**Ground Plane** 



# 30 MHz to 1 GHz



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# 4.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

# 4.6 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.

# 4.7 TEST RESULTS - 30 MHZ TO 1000 MHZ

Please refer to the APPENDIX C.



# 5. BANDWIDTH

# **5.1 LIMIT**

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

# **5.2 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		

# **5.3 DEVIATION FROM STANDARD**

No deviation.

# **5.4 TEST SETUP**

EUT		SPECTRUM
	Dipole Ant	ANALYZER

# 5.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### **5.6 TEST RESULTS**

Please refer to the APPENDIX D.



# **6. 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	ESCI	100382	Jan. 22, 2023	
2	LISN	EMCO	3816/2	52765	Jan. 23, 2023	
3	TWO-LINE V-NETWORK	R&S	ENV216	101447	Jan. 23, 2023	
4	50Ω Terminator	SHX	TF5-3	15041304	Jan. 22, 2023	
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	
6	Cable	N/A	RG223	12m	Mar. 08, 2023	
7	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	MXE EMI Receiver	Keysight	N9038A	MY56400091	Jan. 22, 2023	
2*	Active Loop Antenna	R&S	HFH2-Z2	830749/020	Aug. 23, 2024	
3	Cable	N/A	RG 213/U(9kHz~1GHz)	N/A	Jun. 17, 2023	
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. 14, 2023	

	Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Antenna	Schwarzbeck	VULB9160	9160-3232	Mar. 03, 2023	
2	Amplifier	HP	8447D	2944A08742	Jan. 22, 2023	
3	Cable	emci	LMR-400	N/A	Nov. 30, 2022	
4	Controller	CT	SC100	N/A	N/A	
5	Controller	MF	MF-7802	MF780208416	N/A	
6	Receiver	Agilent	N9038A	MY52130039	Jan. 22, 2023	
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	
8	966 Chamber Room	RM	9*6*6	N/A	Jul. 15, 2023	

Bandwidth									
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until				
1	Spectrum Analyzer	R&S	FSP40	100185	Jul. 03, 2023				
2	Attenuator	WOKEN	6SM3502	VAS1214NL	N/A				
3	Dipole Antenna	N/A	N/A	N/A	N/A				
4	DC Block	Mini	N/A	N/A	N/A				

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

Except  $\ensuremath{^*}$  item, all calibration period of equipment list is one year.

<sup>&</sup>quot;\*" calibration period of equipment list is three year.



# 7. EUT TEST PHOTO



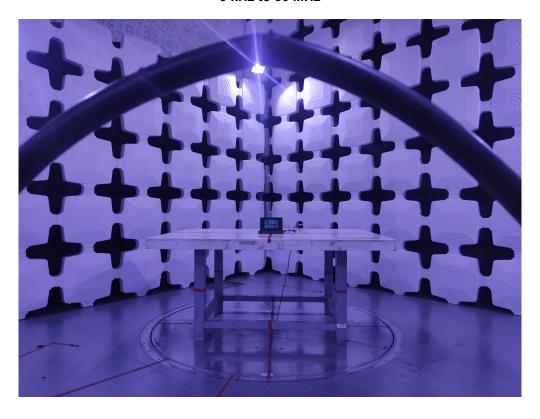


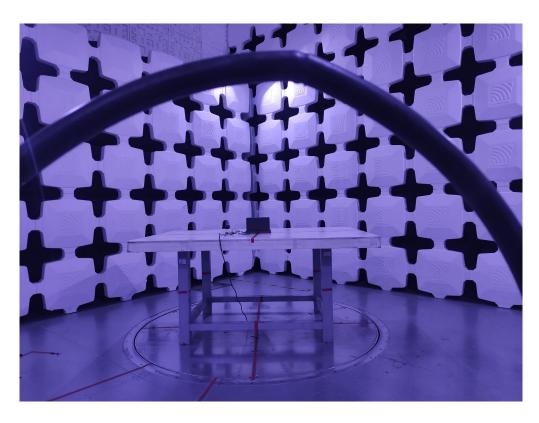




# **Radiated Emissions Test Photos**

9 kHz to 30 MHz

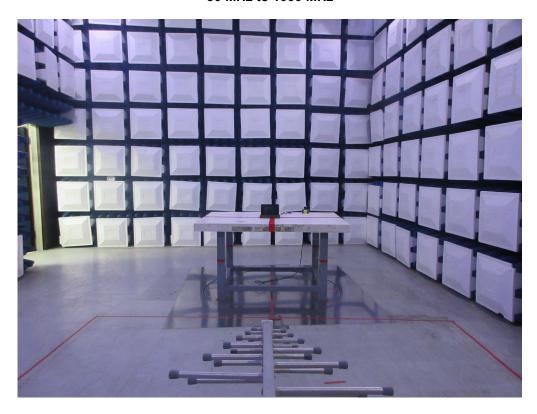


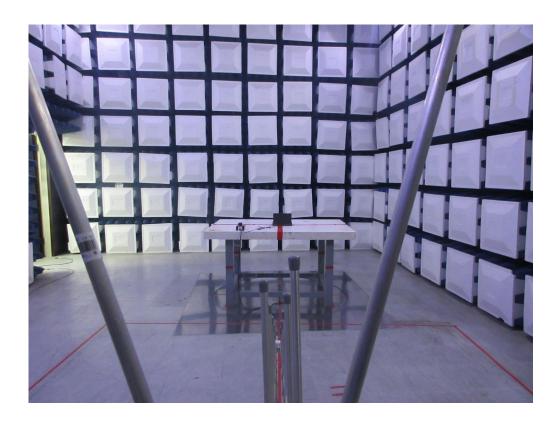




# **Radiated Emissions Test Photos**

30 MHz to 1000 MHz

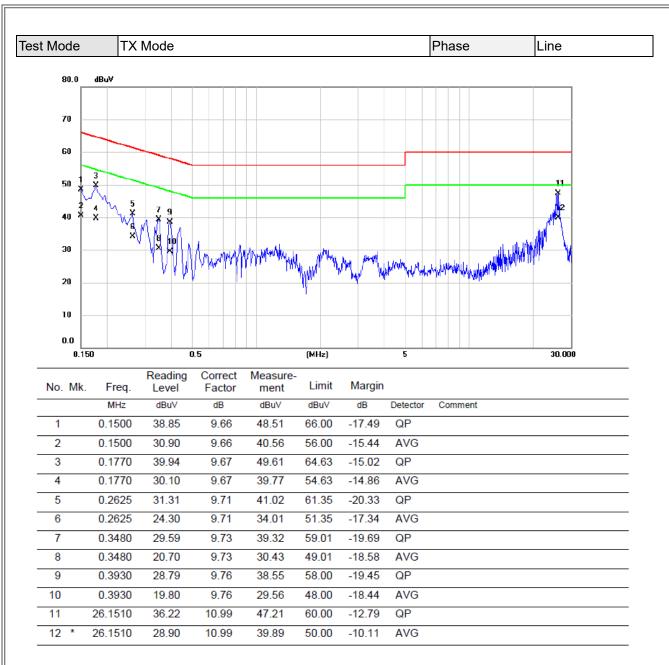






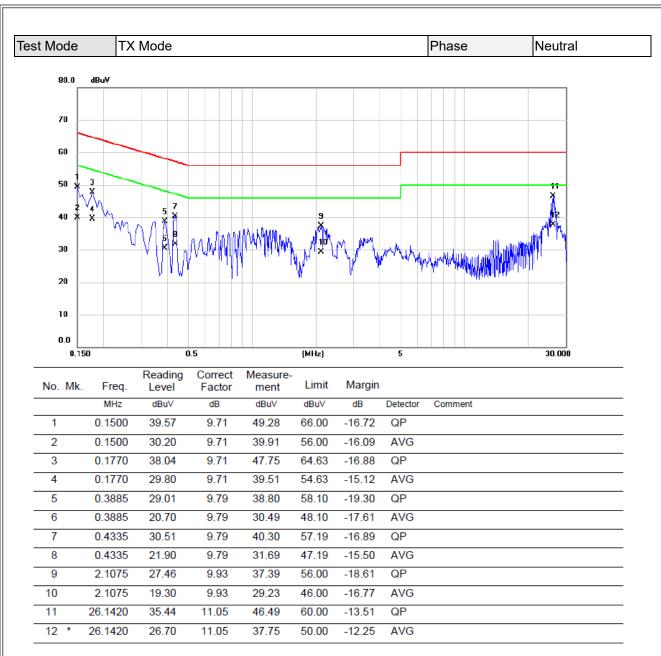
APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS





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





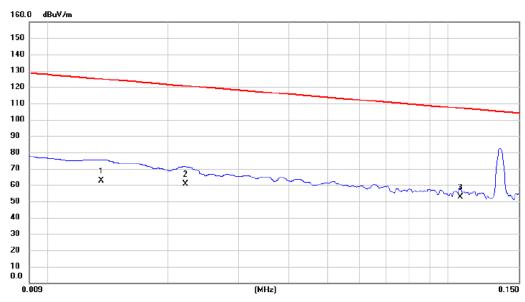
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



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



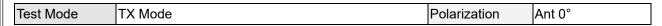


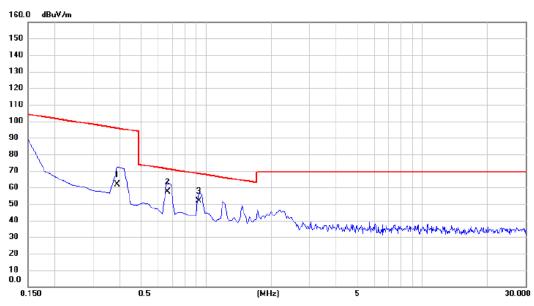


No. Mk.	Freq.			Measure- ment		Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.0136	46.31	16.32	62.63	124.93	-62.30	AVG	
2	0.0221	46.36	14.26	60.62	120.72	-60.10	AVG	
3 *	0.1071	38.98	13.71	52.69	107.01	-54.32	QP	

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





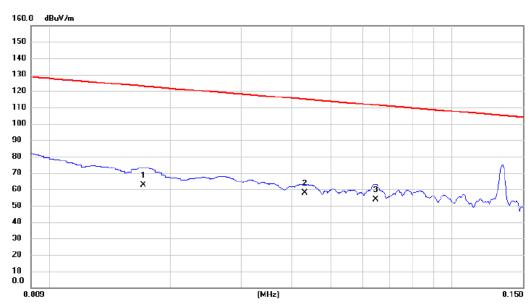


No. Mk.	Freq.			Measure- ment		Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.3888	48.36	13.45	61.81	95.81	-34.00	AVG	
2 *	0.6613	44.25	13.14	57.39	71.20	-13.81	QP	
3	0.9261	39.10	12.85	51.95	68.27	-16.32	QP	

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



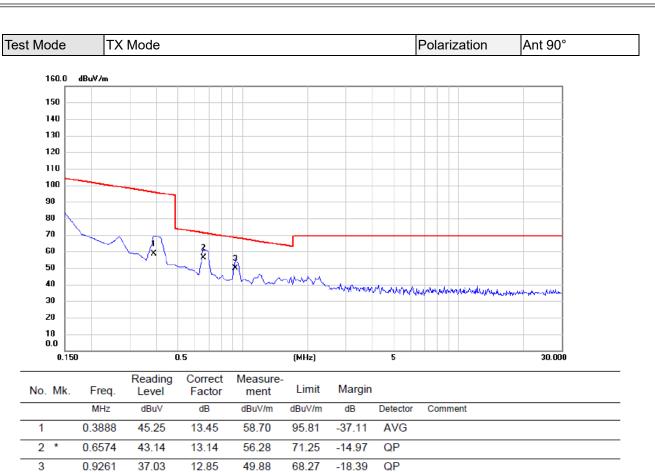




No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.0171	47.33	15.22	62.55	122.94	-60.39	AVG	
2 *	0.0431	44.01	13.79	57.80	114.92	-57.12	AVG	
3	0.0645	40.25	13.64	53.89	111.41	-57.52	AVG	

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



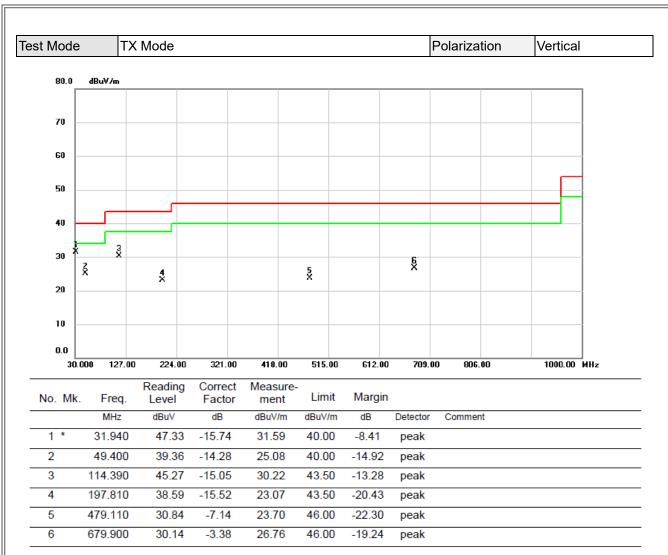


- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



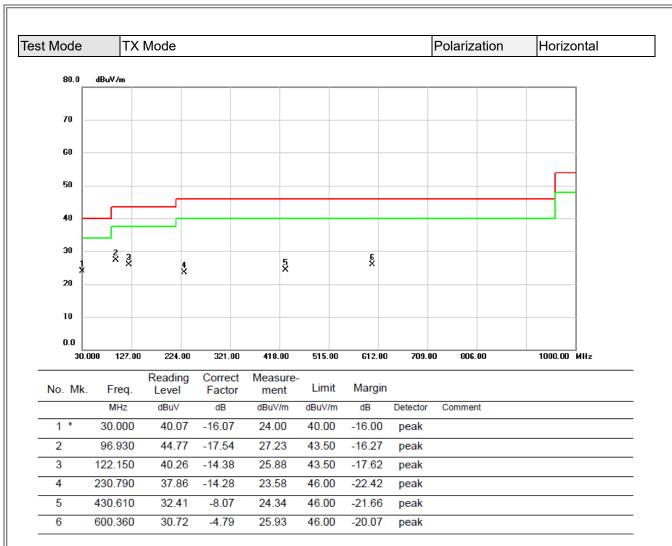
APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ





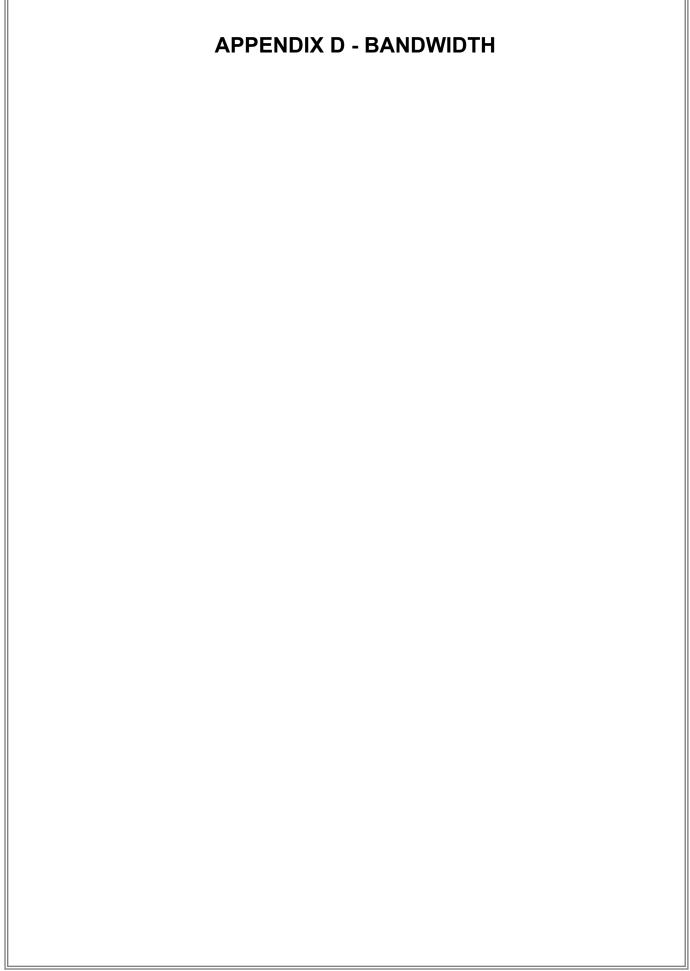
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





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



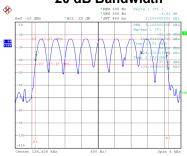




-	T) ( 1.4 )
lest Mode	IX Mode
100t Wood	17 Wode

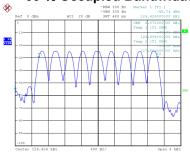
Frequency (kHz)	20 dB Bandwidth (kHz)	99 % Occupied Bandwidth (kHz)	Result
126.426	3.208	2.872	Complies





Date: 22.SEP.2022 16:37:29

# 99 % Occupied Bandwidth



Date: 29.AUG.2022 15:42:11

**End of Test Report**