



FCC RADIO TEST REPORT

Applicant.....: Leader Lao Co., Ltd

Address.....: Lot333, Savan Park, Nongdeun, Kaysone Phomvihane, Savannakhet Laos

Manufacturer.....: Leader Lao Co., Ltd

Address...... : Lot333, Savan Park, Nongdeun, Kaysone Phomvihane, Savannakhet Laos

Factory.....: Leader Lao Co., Ltd

Address.....: Lot333, Savan Park, Nongdeun, Kaysone Phomvihane, Savannakhet Laos

Product Name.....: Wireless Charger

Brand Name.....: N/A

Model No. : AB0553

FCC ID.....: : 2BAUN-AB0553

Measurement Standard.....: 47 CFR FCC Part 15, Subpart C

Receipt Date of Samples.....: December 23, 2023

Date of Tested...... : December 25, 2023 to January 08, 2024

Date of Report.....: January 12, 2024

This report shows that above equipment is technically compliant with the requirements of the standards above. All test results in this report apply only to the tested sample(s). Without prior written approval of Dongguan Nore Testing Center Co., Ltd, this report shall not be reproduced except in full.

Prepared by

Julie Xiao / Project Engineer



Table of Contents

1. Summary of Test Result	4
2. General Description of EUT	
3. Test Channels and Modes Detail	7
4. Configuration of EUT	8
5. Modification of EUT	8
6. Description of Support Device	9
7. Test Facility and Location	10
8. Applicable Standards and References	11
9. Deviations and Abnormalities from Standard Conditions	11
10. Test Conditions	11
11. Measurement Uncertainty	12
12. Sample Calculations	13
13. Test Items and Results	14
13.1 Conducted Emissions Measurement	14
13.2 Radiated Spurious Emissions and Restricted Bands Measurement	24
13.3 20dB Bandwidth Measurement	52
13.4 Antenna Requirement	56
14. Test Equipment List	57





Revision History

Report Number	Description	Issued Date
NTC2312307FV00	Initial Issue	2024-01-12





1. Summary of Test Result

FCC Rules	Description of Test	Result	Remarks
§15.207 (a)	AC Power Conducted Emission	PASS	
§15.209	Radiated Emissions	PASS	
§15.215(c)	20dB Bandwidth	PASS	
§15.203	Antenna Requirement	PASS	





2. General Description of EUT

Product Information	
Product Name:	Wireless Charger
Main Model Name:	AB0553
Additional Model Name:	N/A
Model Difference:	N/A
S/N:	2312-6310
Brand Name:	N/A
Hardware Version:	wirelesscharging-AB0553
Software Version:	leader.2021.11
Rating:	Type-c Input: 5V 3A,9V 3A
	Wireless Output(left): 15W Max;
	Wireless Output(middle): 2W Max;
	Wireless Output(right): 3W Max
Typical Arrangement:	Table-top
I/O Port:	Refer to user manual
Accessories Information	
Adapter:	N/A
Cable:	USB cable: 0.98m, unshielded, detachable
Other:	N/A
Additional Information	
Note:	N/A
Remark:	All the information above are provided by the manufacturer. More detailed feature of
	the EUT please refers to the user manual.





Technical Specification	
Frequency Range:	110.5-205KHz; 330KHz
Modulation Type:	FSK
Antenna Type:	Coil antenna
Output power for each coil:	1.5W for I Watch
	3W for Airpods
	5W, 10W, 15W for Wireless Charging Mobile phones





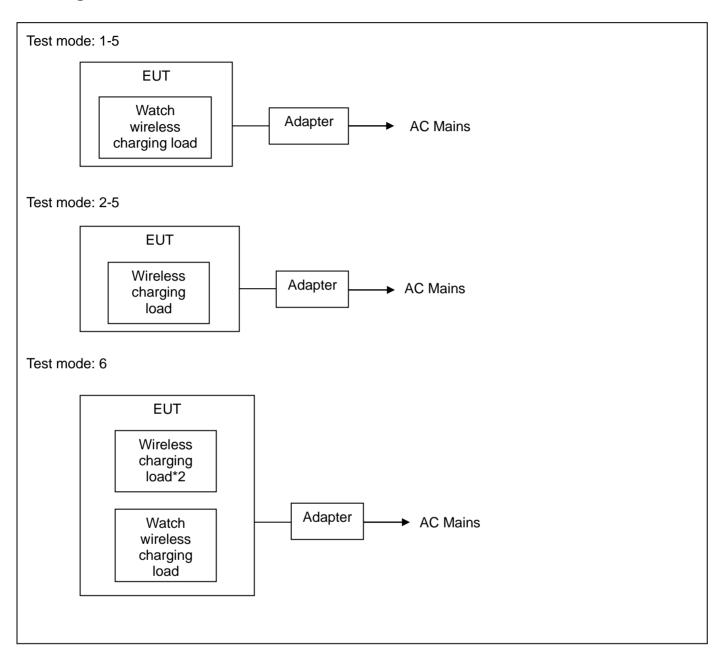
3. Test Channels and Modes Detail

	Mode	Modulation
1	Charging (I Watch) 1.5W	FSK
2	Wireless Charging 3W	FSK
3	Wireless Charging 5W	FSK
4	Wireless Charging 10W	FSK
5	Wireless Charging 15W	FSK
6	Charging I Watch 1.5W + Wireless Charging (Airpods) 3W + Wireless Charging 5W	FSK

Note: When the three are loaded together, the maximum power of wireless charging can only be 5W.



4. Configuration of EUT



5. Modification of EUT

No modifications are made to the EUT during all test items.





6. Description of Support Device

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.

No.	Equipment	Brand	M/N	S/N	Cable Specification	Remarks
1.	Wireless Charging Load*2	Consumer Electronics	2S			Provided by the Lab.
2.	Adapter	HUAWEI	HW-20032 5CP0			Provided by the Lab.
3.	Watch wireless charging Load					Provided by the Lab





7. Test Facility and Location

Test Site	:	Dongguan Nore Testing Center Co., Ltd. (Dongguan NTC Co., Ltd.)
Accreditations and	:	The Laboratory has been assessed and proved to be in compliance with
Authorizations		CNAS/CL01
		Listed by CNAS, August 13, 2018
		The Certificate Registration Number is L5795.
		The Certificate is valid until August 13, 2024
		The Laboratory has been assessed and proved to be in compliance with ISO17025
		Listed by A2LA, November 01, 2017
		The Certificate Registration Number is 4429.01
		The Certificate is valid until March 31, 2024
		Listed by FCC, November 06, 2017
		Test Firm Registration Number: 907417
		Listed by Industry Canada, June 08, 2017
		The Certificate Registration Number. Is 46405-9743A
Total Otto Location		
Test Site Location	:	Building D, Gaosheng Science and Technology Park, Hongtu Road, Nancheng
		District, Dongguan City, Guangdong Province, China



Testing Center Report No.: NTC2312307FV00

8. Applicable Standards and References

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

Test Standards:

47 CFR Part 15, Subpart C ANSI C63.10-2013

References Test Guidance:

N/A

9. Deviations and Abnormalities from Standard Conditions

No additions, deviations and exclusions from the standard.

10. Test Conditions

No.	Test Item	Test Mode	Test Voltage	Tested by	Remarks
1.	AC Power Conducted Emission	1-6	AC 120V 60Hz	Sean Yuan	See note 1
2.	Radiated Emissions	1-6	AC 120V 60Hz	Sean Yuan	See note 1
3.	20dB Bandwidth	1, 6	AC 120V 60Hz	Sean Yuan	See note 1
4.	Antenna Requirement				See note 1

Note:

- 1. The testing climatic conditions for temperature, humidity, and atmospheric pressure are within: 15~35℃, 30~70%, 86~106kPa.
- 2. Only the worst case was recorded in the report.





11. Measurement Uncertainty

No.	Test Item	Frequency	Uncertainty	Remarks
1.	Conducted Emission	150KHz ~ 30MHz	±2.52 dB	
		9kHz ~ 30MHz	±2.60 dB	
2.	Radiated Emission Test	30MHz ~ 1GHz	±5.66 dB	
	radiates Emilionen rest	1GHz ~ 18GHz	±5.19 dB	
		18GHz ~ 40GHz	±5.19 dB	
3.	Conducted Spurious Emissions	10Hz ~ 40GHz	±0.98 dB	
4.	RF Output Power	10Hz ~ 40GHz	±1.18 dB	
5.	Power Spectral Density	10Hz ~ 40GHz	±1.06 dB	
6.	Occupied Channel Bandwidth		±0.72%	

Note:

- 1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
- 2. The measurement uncertainly levels above are estimated and calculated according to CISPR 16-4-2.
- 3. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.





12. Sample Calculations

Conducted Emission						
Freq. Reading Level Correct Factor Measurement Limit Over (MHz) (dBuV) (dB) (dBuV) (dB)						
0.1580	33.32	9.98	43.30	65.57	-22.27	QP

Where,

= Emission frequency in MHz Freq.

= Spectrum Analyzer/Receiver Reading Reading Level

= Insertion loss of LISN + Cable Loss + RF Switching Unit attenuation **Corrector Factor**

= Reading + Corrector Factor Measurement = Limit stated in standard Limit = Measurement - Limit Margin

= Reading for Quasi-Peak / Average / Peak Detector

Radiated Spurious Emissions and Restricted Bands						
Freq. Reading Level Correct Factor Measurement Limit Over (MHz) (dBuV) (dB/m) (dBuV/m) (dBuV/m) (dB)						Detector
68.8000	31.95	-9.75	22.20	40.00	-17.80	QP

Where,

= Emission frequency in MHz Freq.

= Spectrum Analyzer/Receiver Reading Reading Level

= Antenna Factor + Cable Loss - Pre-amplifier **Corrector Factor**

= Reading + Corrector Factor Measurement = Limit stated in standard

Limit

= Margin, which calculated by Measurement - Limit Over

= Reading for Quasi-Peak / Average / Peak Detector

Note: For all conducted test items, the spectrum analyzer offset or transducer is derived from RF cable loss and attenuator factor. The offset or transducer is equal to the RF cable loss plus attenuator factor.



13. Test Items and Results

13.1 Conducted Emissions Measurement

LIMITS

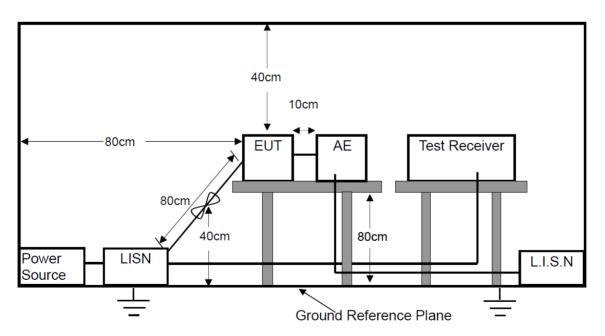
According to the requirements of FCC PART 15.207, the limits are as follows:

Frequency (MHz)	Quasi-peak	Average		
0.15 to 0.5	66 to 56	56 to 46		
0.5 to 5	56	46		
5 to 30	60	50		

Note: 1. If the limits for the average detector are met when using the quasi-peak detector, then the limits for the measurements with the average detector are considered to be met.

- 2. The lower limit shall apply at the transition frequencies.
- 3. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5MHz.

BLOCK DIAGRAM OF TEST SETUP







TEST PROCEDURES

- a. The EUT was placed on a wooden table 0.8m height from the metal ground plan and 0.4m from the conducting wall of the shielding room and it was kept at 0.8m from any other grounded conducting surface.
- b. All I/O cables and support devices were positioned as per ANSI C63.10.
- c. Connect mains power port of the EUT to a line impedance stabilization network (LISN).
- d. Connect all support devices to the other LISN and AAN, if needed.
- e. Scan the frequency range from 150KHz to 30MHz at both sides of AC line for maximum conducted interference checking and record the test data.

TEST RESULTS

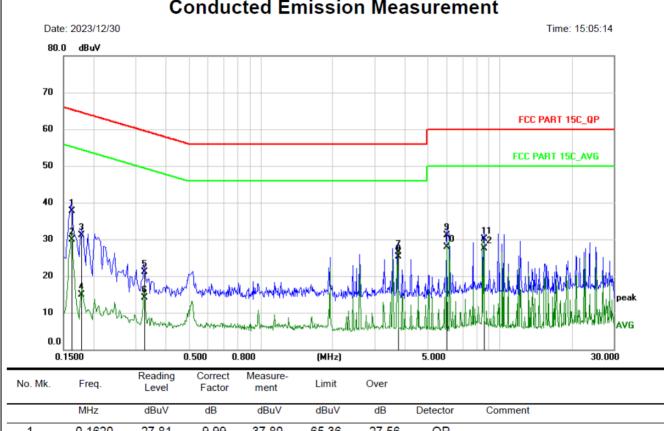
PASS

Please refer to the following pages of the worst case.





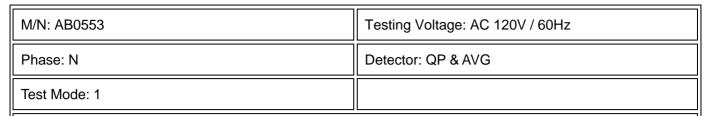
M/N: AB0553	Testing Voltage: AC 120V / 60Hz				
Phase: L1	Detector: QP & AVG				
Test Mode: 1					
Candusted Emission Massurement					

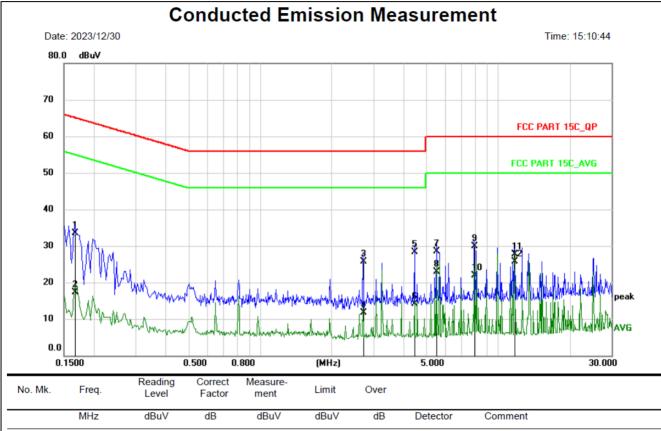


No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1620	27.81	9.99	37.80	65.36	-27.56	QP	
2	0.1620	20.01	9.99	30.00	55.36	-25.36	AVG	
3	0.1779	21.10	10.00	31.10	64.58	-33.48	QP	
4	0.1779	4.90	10.00	14.90	54.58	-39.68	AVG	
5	0.3260	11.14	10.06	21.20	59.55	-38.35	QP	
6	0.3260	4.04	10.06	14.10	49.55	-35.45	AVG	
7	3.7419	16.55	10.05	26.60	56.00	-29.40	QP	
8 *	3.7419	15.25	10.05	25.30	46.00	-20.70	AVG	
9	6.0219	21.02	10.08	31.10	60.00	-28.90	QP	
10	6.0219	17.92	10.08	28.00	50.00	-22.00	AVG	
11	8.6300	19.95	10.15	30.10	60.00	-29.90	QP	
12	8.6300	17.45	10.15	27.60	50.00	-22.40	AVG	







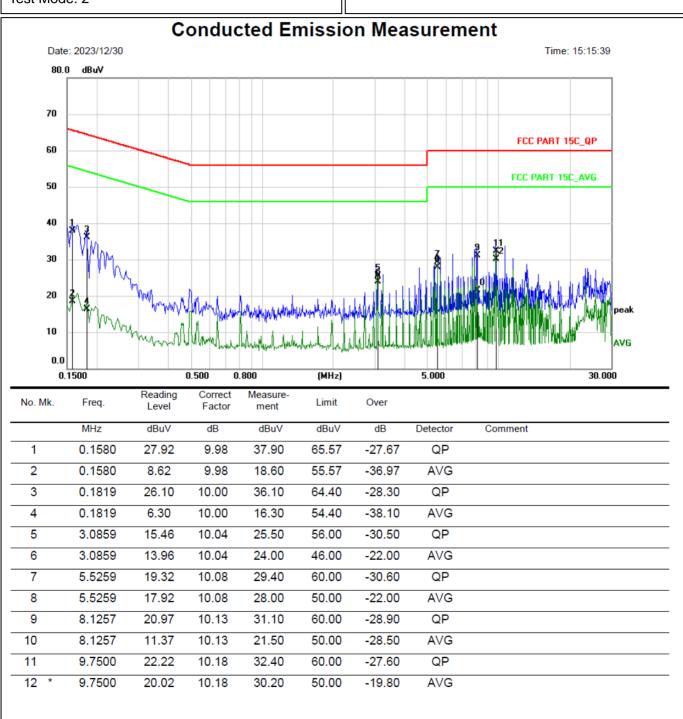


No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment	
1	0.1660	23.65	9.95	33.60	65.16	-31.56	QP		
2	0.1660	7.35	9.95	17.30	55.16	-37.86	AVG		
3	2.7139	15.82	9.98	25.80	56.00	-30.20	QP		
4	2.7139	1.82	9.98	11.80	46.00	-34.20	AVG		
5	4.4579	18.28	10.02	28.30	56.00	-27.70	QP		
6	4.4579	4.08	10.02	14.10	46.00	-31.90	AVG		
7	5.5300	18.46	10.04	28.50	60.00	-31.50	QP		
8	5.5300	12.86	10.04	22.90	50.00	-27.10	AVG		
9	7.9739	19.82	10.08	29.90	60.00	-30.10	QP		
10	7.9739	11.82	10.08	21.90	50.00	-28.10	AVG		
11	11.7179	17.57	10.13	27.70	60.00	-32.30	QP		
12 *	11.7179	15.67	10.13	25.80	50.00	-24.20	AVG		





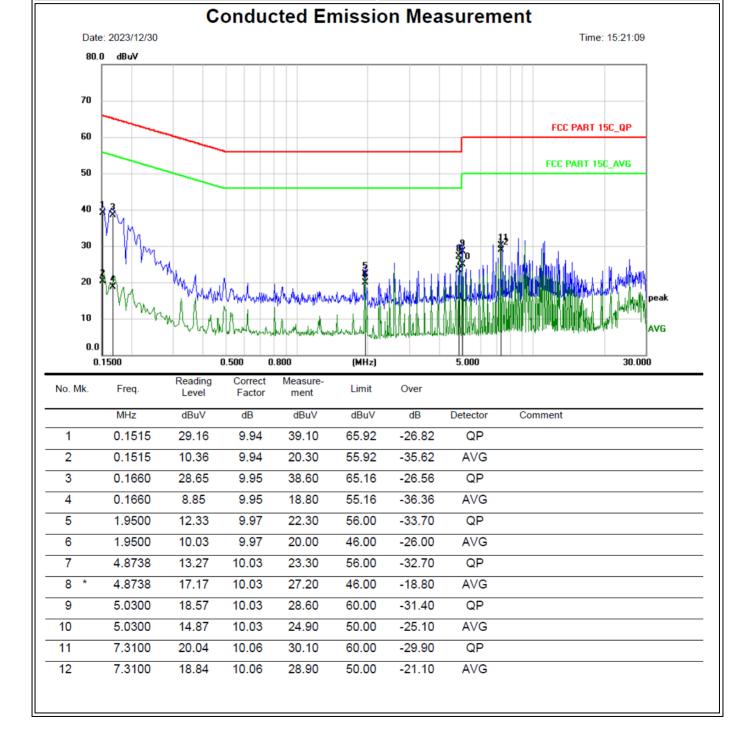
M/N: AB0553	Testing Voltage: AC 120V / 60Hz		
Phase: L1	Detector: QP & AVG		
Test Mode: 2			







M/N: AB0553	Testing Voltage: AC 120V / 60Hz		
Phase: N	Detector: QP & AVG		
Test Mode: 2			







24.7300

24.7300

11

12

20.00

17.40

10.40

10.40

30.40

27.80

60.00

50.00

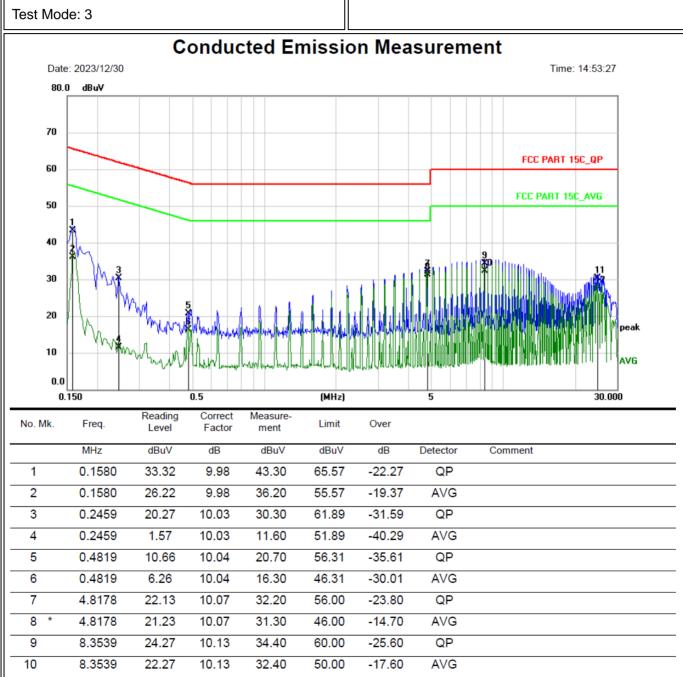
-29.60

-22.20

QP

AVG

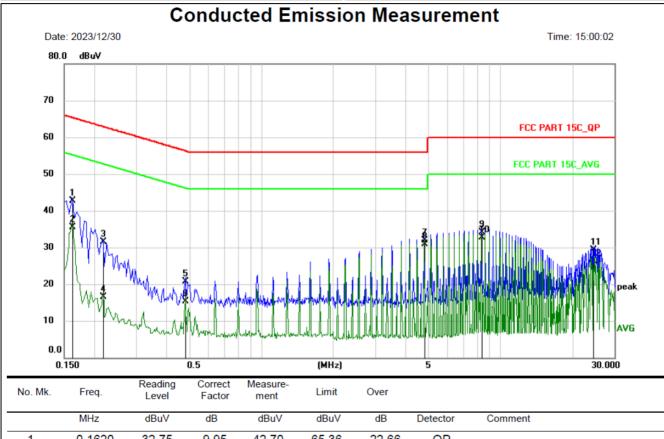
M/N: AB0553	Testing Voltage: AC 120V / 60Hz			
Phase: L1	Detector: QP & AVG			
Test Mode: 3				







M/N: AB0553	Testing Voltage: AC 120V / 60Hz			
Phase: N	Detector: QP & AVG			
Test Mode: 3				

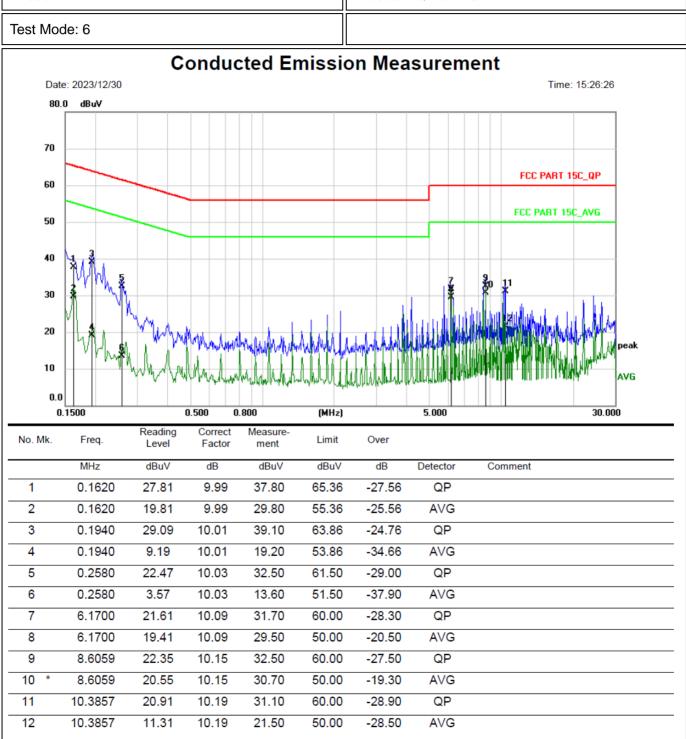


No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment	
1	0.1620	32.75	9.95	42.70	65.36	-22.66	QP		
2	0.1620	25.65	9.95	35.60	55.36	-19.76	AVG		
3	0.2179	21.52	9.98	31.50	62.90	-31.40	QP		
4	0.2179	6.62	9.98	16.60	52.90	-36.30	AVG		
5	0.4819	10.80	10.00	20.80	56.31	-35.51	QP		
6	0.4819	5.30	10.00	15.30	46.31	-31.01	AVG		
7	4.8178	21.97	10.03	32.00	56.00	-24.00	QP		
8 *	4.8178	20.97	10.03	31.00	46.00	-15.00	AVG		
9	8.3500	24.02	10.08	34.10	60.00	-25.90	QP		
10	8.3500	22.72	10.08	32.80	50.00	-17.20	AVG		
11	24.4140	19.05	10.35	29.40	60.00	-30.60	QP		
12	24.4140	16.05	10.35	26.40	50.00	-23.60	AVG		





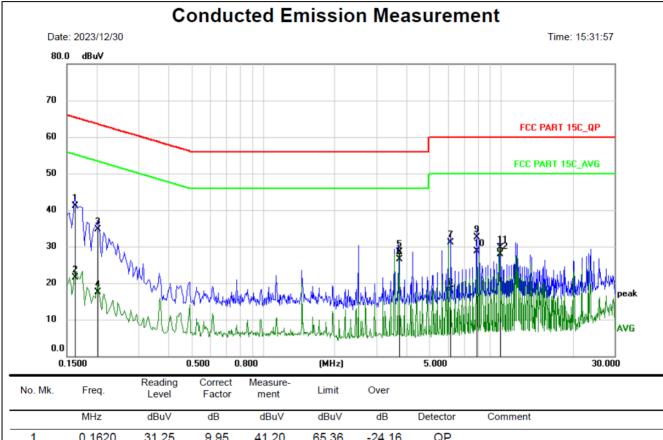
M/N: AB0553	Testing Voltage: AC 120V / 60Hz			
Phase: L1	Detector: QP & AVG			
Test Mode: 6				







M/N: AB0553	Testing Voltage: AC 120V / 60Hz			
Phase: N	Detector: QP & AVG			
Test Mode: 6				



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1620	31.25	9.95	41.20	65.36	-24.16	QP	
2	0.1620	11.65	9.95	21.60	55.36	-33.76	AVG	
3	0.2020	24.83	9.97	34.80	63.53	-28.73	QP	
4	0.2020	7.63	9.97	17.60	53.53	-35.93	AVG	
5	3.7378	18.59	10.01	28.60	56.00	-27.40	QP	
6 *	3.7378	16.49	10.01	26.50	46.00	-19.50	AVG	
7	6.1500	21.05	10.05	31.10	60.00	-28.90	QP	
8	6.1500	8.15	10.05	18.20	50.00	-31.80	AVG	
9	7.9300	22.52	10.08	32.60	60.00	-27.40	QP	
10	7.9300	18.62	10.08	28.70	50.00	-21.30	AVG	
11	9.9059	19.59	10.11	29.70	60.00	-30.30	QP	
12	9.9059	17.79	10.11	27.90	50.00	-22.10	AVG	





13.2 Radiated Spurious Emissions and Restricted Bands Measurement

LIMITS

Frequency range	Distance Meters	Field Strengths Limit (15.209)			
MHz	Diotarios Motors	μV	//m		
0.009 ~ 0.490	300	2400/1	F(kHz)		
0.490 ~ 1.705	30	24000/	F(kHz)		
1.705 ~ 30	30	3	0		
30 ~ 88	3	100			
88 ~ 216	3	150			
216 ~ 960	3	200			
Above 960	3	50	00		
Frequency range	Distance Meters	Field Strengths	s Limit (15.249)		
MHz		mV/m (Field strength of fundamental)	μV/m (Field strength of Harmonics)		
902 ~ 928	3	50	500		
2400 ~ 2483.5	3	50	500		
5725 ~ 5875	3	50 500			
24000 ~ 2425000	3	250	2500		

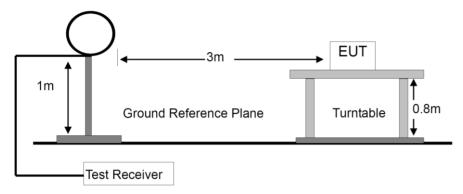
Remark:

- (1) Emission level (dB) μ V = 20 log Emission level μ V/m
- (2) The smaller limit shall apply at the cross point between two frequency bands.
- (3) As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
- (4) The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower.
- (5) §15.249(d) specifies that emissions which fall in the restricted bands, as defined in §15.205 comply with radiated emission limits specified in §15.209.

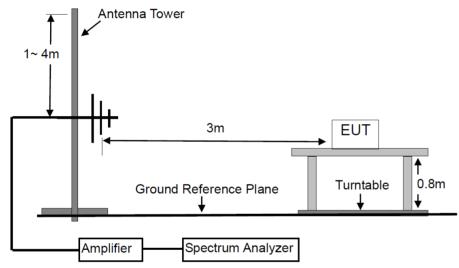


BLOCK DIAGRAM OF TEST SETUP

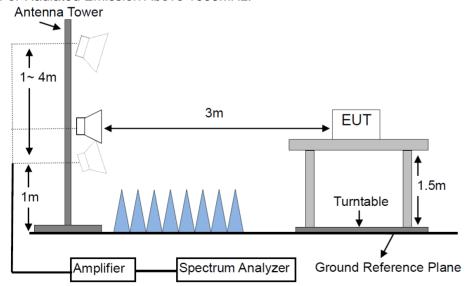
For Radiated Emission below 30MHz



For Radiated Emission 30-1000MHz



For Radiated Emission Above 1000MHz.





TEST PROCEDURES

- a. Below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi- anechoic chamber room.
- b. For the radiated emission test above 1GHz:
 - The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter full anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- c. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to peak detect function and specified bandwidth with maximum hold mode.
- f. A Quasi-peak measurement was then made for that frequency point for below 1GHz test. PK and AV for above 1GHz emission test.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

Frequency Band	Detector	Resolution Bandwidth	Video Bandwidth
9KHz-90KHz	AVG	300Hz	1KHz
91KHz-109KHz	QP	300Hz	1KHz
110KHz-490KHz	AVG	300Hz/ 9KHz	1KHz /30KHz
150KHz-30MHz	QP	10KHz	30KHz
30MHz-1000MHz	QP	120KHz	300KHz
Above 1000MHz	Peak	1 MHz	3 MHz
Above Toodivinz	Average	1 MHz	10 Hz



TEST RESULTS

PASS

Please refer to the following pages of the worst case.

Report No.: NTC2312307FV00





M/N: AB0553	Testing Voltage: AC 120V / 60Hz			
Polarization: Horizontal	Detector: AVG			
Test Mode: 1	Distance: 3m			

Radiated Emission Measurement Date: 2023/12/29 Time: 16:32:38 142.0 dBuV/m 132 122 112 209_Spurious_3m 102 92 82 72 62 52 42 32 22 12 2.0 0.0090 (MHz) 0.150

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1	0.0354	42.33	20.54	62.87	116.50	-53.63	AVG		
2	0.0635	38.94	20.55	59.49	111.45	-51.96	AVG		
3	0.1135	36.74	20.53	57.27	106.43	-49.16	AVG		
4	0.1171	29.11	20.53	49.64	106.16	-56.52	AVG		
5 *	0.1295	56.01	20.53	76.54	105.29	-28.75	AVG		
6	0.1351	27.58	20.52	48.10	104.93	-56.83	AVG		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz		
Polarization: Vertical	Detector: AVG, QP		
Test Mode: 1	Distance: 3m		

Radiated Emission Measurement Date: 2023/12/29 Time: 16:52:27 142.0 dBuV/m 132 122 112 FCC_15.209_Spurious_3m 102 92 82 72 62 52 42 32 22 12 2.0 0.0090 (MHz) 0.150

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1	0.0629	41.81	20.55	62.36	111.53	-49.17	AVG		
2	0.0810	40.14	20.54	60.68	109.35	-48.67	AVG		
3	0.0990	38.40	20.54	58.94	107.61	-48.67	QP		
4	0.1174	38.38	20.53	58.91	106.14	-47.23	AVG		
5 *	0.1295	59.39	20.53	79.92	105.29	-25.37	AVG		
6	0.1350	35.65	20.52	56.17	104.93	-48.76	AVG		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz			
Polarization: Horizontal	Detector: AVG, QP			
Test Mode: 1	Distance: 3m			

Radiated Emission Measurement Date: 2023/12/29 Time: 16:38:43 122.0 dBuV/m 112 102 92 82 FCC_15.209_Spurious_3m 72 Margin -6 dB 62 52 42 32 22 12 2.0 0.1500 0.500 5.000 30.000 0.800 (MHz)

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1	0.3240	44.28	20.46	64.74	97.37	-32.63	AVG		
2	0.9087	28.87	20.40	49.27	68.44	-19.17	QP		
3 *	1.6801	27.49	20.40	47.89	63.10	-15.21	QP		
4	1.9906	28.71	20.40	49.11	69.50	-20.39	QP		
5	2.6360	29.49	20.40	49.89	69.50	-19.61	QP		
6	6.1208	18.29	20.47	38.76	69.50	-30.74	QP		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz		
Polarization: Vertical	Detector: AVG, QP		
Test Mode: 1	Distance: 3m		

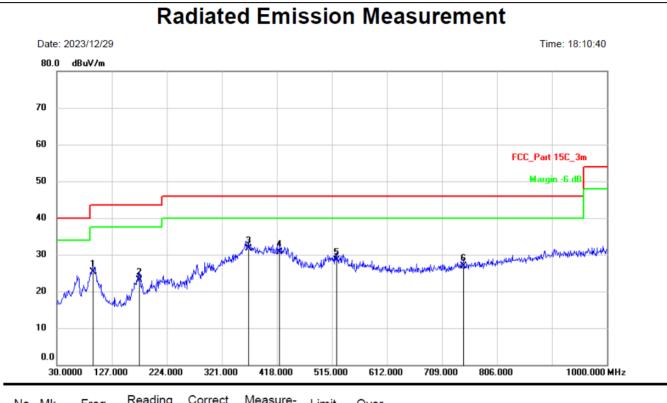
Radiated Emission Measurement Date: 2023/12/29 Time: 16:45:12 122.0 dBuV/m 112 102 92 82 FCC_15.209_Spurious_3m 72 Margin -6 dB 62 52 42 32 22 12 2.0 0.1500 0.500 0.800 (MHz) 5.000 30.000

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1	0.1621	45.56	20.51	66.07	103.35	-37.28	AVG		
2	0.3240	46.56	20.46	67.02	97.37	-30.35	AVG		
3 *	1.6624	33.03	20.40	53.43	63.19	-9.76	QP		
4	2.6500	35.14	20.40	55.54	69.50	-13.96	QP		
5	4.4537	24.72	20.44	45.16	69.50	-24.34	QP		
6	6.3856	29.81	20.47	50.28	69.50	-19.22	QP		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz			
Polarization: Horizontal	Detector: QP			
Test Mode: 1	Distance: 3m			

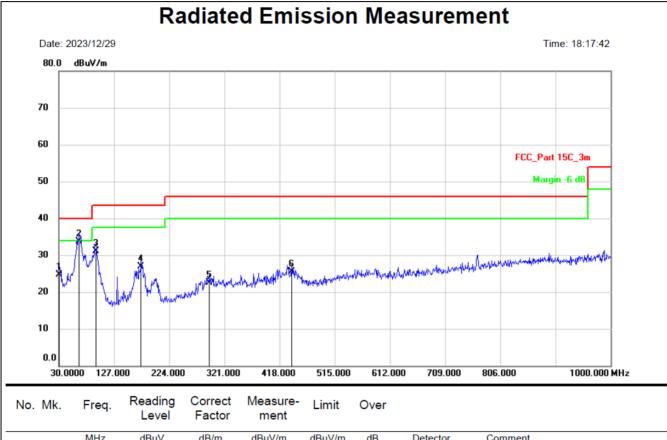


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1		94.0199	33.75	-8.45	25.30	43.50	-18.20	QP		
2		175.5000	32.81	-9.61	23.20	43.50	-20.30	QP		
3	*	367.5600	35.61	-3.91	31.70	46.00	-14.30	QP		
4		422.8500	33.76	-2.96	30.80	46.00	-15.20	QP		
5		523.7300	29.87	-1.37	28.50	46.00	-17.50	QP		
6		746.8300	23.92	2.98	26.90	46.00	-19.10	QP		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz			
Polarization: Vertical	Detector: QP			
Test Mode: 1	Distance: 3m			



No.	Mk.	Freq.	Level	Factor	ment	Limit	Over			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1		30.9700	34.95	-10.15	24.80	40.00	-15.20	QP		
2	*	65.8900	43.33	-9.63	33.70	40.00	-6.30	QP		
3		94.9900	40.31	-9.21	31.10	43.50	-12.40	QP		
4		174.5300	36.79	-9.89	26.90	43.50	-16.60	QP		
5		293.8400	29.25	-6.65	22.60	46.00	-23.40	QP		
6		439.3400	29.24	-3.74	25.50	46.00	-20.50	QP		





0.0090

M/N: AB0553	Testing Voltage: AC 120V / 60Hz		
Polarization: Horizontal	Detector: AVG		
Test Mode: 2	Distance: 3m		

Radiated Emission Measurement Date: 2023/12/29 Time: 17:20:47 142.0 dBuV/m 132 122 112 FCC_15.209_Spurious_3m 102 92 82 72 62 52 42 32 22 12 2.0

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1	0.0354	41.96	20.54	62.50	116.50	-54.00	AVG		
2	0.0622	37.17	20.54	57.71	111.63	-53.92	AVG		
3	0.0636	39.05	20.55	59.60	111.44	-51.84	AVG		
4	0.1135	36.44	20.53	56.97	106.43	-49.46	AVG		
5 *	0.1283	51.42	20.53	71.95	105.37	-33.42	AVG		
6	0.1352	27.09	20.52	47.61	104.92	-57.31	AVG		

(MHz)

0.150





M/N: AB0553	Testing Voltage: AC 120V / 60Hz		
Polarization: Vertical	Detector: AVG, QP		
Test Mode: 2	Distance: 3m		

Radiated Emission Measurement Date: 2023/12/29 Time: 16:59:24 142.0 dBuV/m 132 122 112 FCC_15.209_Spurious_3m 102 92 82 72 62 52 42 32 22 12 2.0 (MHz) 0.0090 0.150

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1	0.0629	41.96	20.55	62.51	111.53	-49.02	AVG		
2	0.0810	40.06	20.54	60.60	109.35	-48.75	AVG		
3	0.0990	37.78	20.54	58.32	107.61	-49.29	QP		
4	0.1174	39.45	20.53	59.98	106.14	-46.16	AVG		
5 *	0.1282	59.31	20.53	79.84	105.38	-25.54	AVG		
6	0.1350	35.62	20.52	56.14	104.93	-48.79	AVG		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz		
Polarization: Horizontal	Detector: AVG, QP		
Test Mode: 2	Distance: 3m		

Radiated Emission Measurement Date: 2023/12/29 Time: 17:13:28 122.0 dBuV/m 112 102 92 82 72 FCC_15.209_Spurious_3m Margin -6 dB 62 52 42 32 22 12 2.0 0.1500 0.500 5.000 30.000 0.800 (MHz)

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1	0.1624	57.29	20.51	77.80	103.34	-25.54	AVG		
2	0.2587	50.63	20.48	71.11	99.32	-28.21	AVG		
3	0.9087	28.77	20.40	49.17	68.44	-19.27	QP		
4 *	1.6980	28.24	20.40	48.64	63.01	-14.37	QP		
5	2.0011	29.34	20.40	49.74	69.50	-19.76	QP		
6	3.0414	28.99	20.40	49.39	69.50	-20.11	QP		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz
Polarization: Vertical	Detector: AVG, QP
Test Mode: 2	Distance: 3m

Radiated Emission Measurement Date: 2023/12/29 Time: 17:06:46 122.0 dBuV/m 112 102 92 82 FCC_15.209_Spurious_3m 72 Margin -6 dB 62 52 42 32 22 12 2.0 30.000 0.1500 0.500 0.800 (MHz) 5.000

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1	0.2584	47.02	20.48	67.50	99.33	-31.83	AVG		
2	0.4939	34.89	20.42	55.31	73.73	-18.42	QP		
3 *	1.6800	35.08	20.40	55.48	63.10	-7.62	QP		
4	2.7942	38.40	20.40	58.80	69.50	-10.70	QP		
5	4.3146	25.53	20.44	45.97	69.50	-23.53	QP		
6	6.3856	28.92	20.47	49.39	69.50	-20.11	QP		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz		
Polarization: Horizontal	Detector: QP		
Test Mode: 2	Distance: 3m		

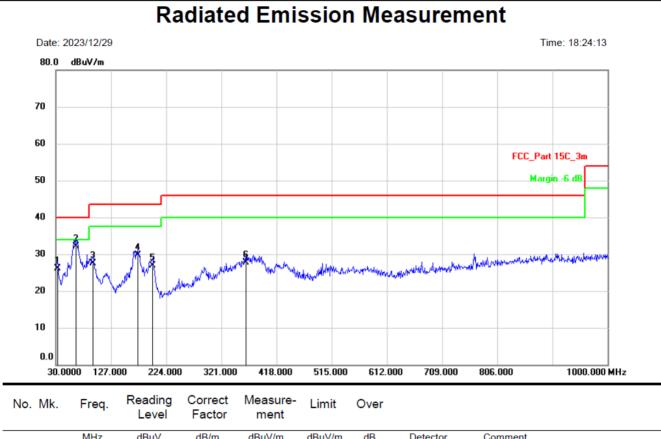
Radiated Emission Measurement Date: 2023/12/29 Time: 18:31:12 80.0 dBuV/m 70 60 FCC_Part 15C_3m Margin -6 dB 50 40 30 20 10 30.0000 127.000 224.000 321.000 418.000 515.000 612.000 709.000 806.000 1000.000 MHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1		65.8900	30.70	-7.90	22.80	40.00	-17.20	QP		
2		174.5300	35.50	-9.70	25.80	43.50	-17.70	QP		
3		198.7800	33.66	-7.76	25.90	43.50	-17.60	QP		
4		251.1600	34.34	-6.34	28.00	46.00	-18.00	QP		
5	*	372.4100	42.54	-3.84	38.70	46.00	-7.30	QP		
6		654.6800	25.32	1.38	26.70	46.00	-19.30	QP		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz				
Polarization: Vertical	Detector: QP				
Test Mode: 2	Distance: 3m				



No.	Mk.	Freq.	Level	Factor	ment	Limit	Over			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1		32.9100	35.59	-9.49	26.10	40.00	-13.90	QP		
2	*	64.9200	41.62	-9.42	32.20	40.00	-7.80	QP		
3		94.9900	36.70	-9.20	27.50	43.50	-16.00	QP		
4		173.5600	39.67	-9.97	29.70	43.50	-13.80	QP		
5		199.7500	35.65	-8.75	26.90	43.50	-16.60	QP		
6		364.6500	32.74	-4.94	27.80	46.00	-18.20	QP		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz
Polarization: Horizontal	Detector: AVG
Test Mode: 5	Distance: 3m

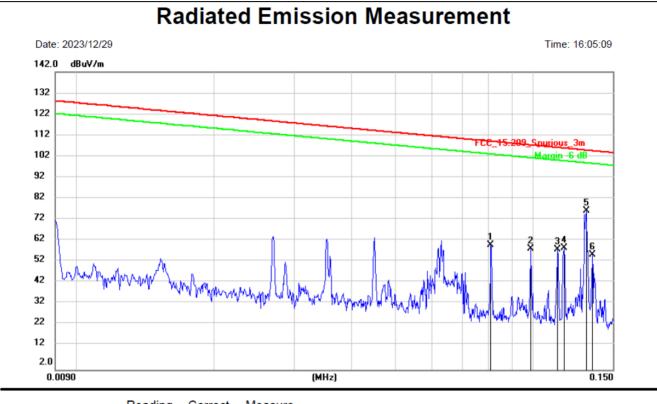
Radiated Emission Measurement Date: 2023/12/29 Time: 16:26:12 142.0 dBuV/m 132 122 112 102 92 82 72 62 52 42 32 22 12 2.0 0.0090 (MHz)

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1	0.0354	42.40	20.54	62.94	116.50	-53.56	AVG		
2	0.0635	38.85	20.55	59.40	111.45	-52.05	AVG		
3	0.1135	37.06	20.53	57.59	106.43	-48.84	AVG		
4	0.1170	29.39	20.53	49.92	106.17	-56.25	AVG		
5 *	0.1313	61.39	20.53	81.92	105.17	-23.25	AVG		
6	0.1363	38.20	20.52	58.72	104.85	-46.13	AVG		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz			
Polarization: Vertical	Detector: AVG, QP			
Test Mode: 5	Distance: 3m			

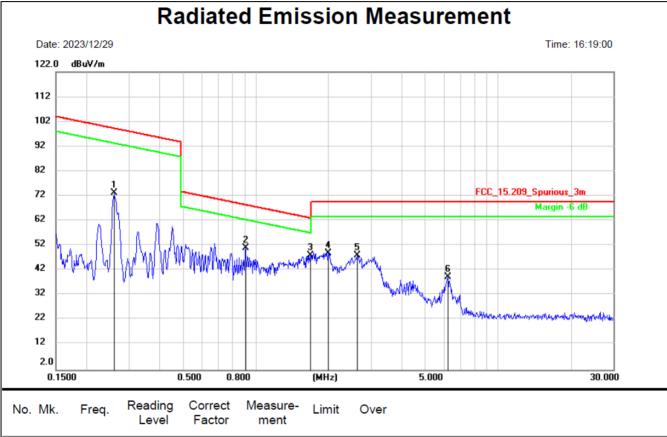


No. M	lk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
-		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1		0.0810	40.02	20.54	60.56	109.35	-48.79	AVG		
2		0.0990	38.45	20.54	58.99	107.61	-48.62	QP		
3		0.1135	37.84	20.53	58.37	106.43	-48.06	AVG		
4		0.1174	38.78	20.53	59.31	106.14	-46.83	AVG		
5 *		0.1313	56.08	20.53	76.61	105.17	-28.56	AVG		
6		0.1350	35.45	20.52	55.97	104.93	-48.96	AVG		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz			
Polarization: Horizontal	Detector: AVG, QP			
Test Mode: 5	Distance: 3m			

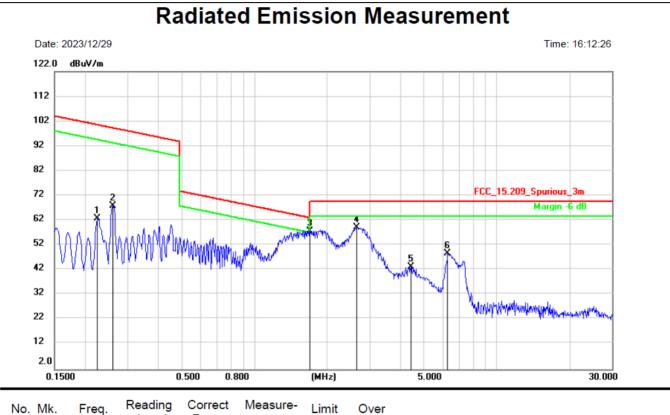


No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1	0.2602	52.79	20.48	73.27	99.27	-26.00	AVG		
2	0.9087	30.72	20.40	51.12	68.44	-17.32	QP		
3 *	1.6801	27.53	20.40	47.93	63.10	-15.17	QP		
4	1.9906	28.48	20.40	48.88	69.50	-20.62	QP		
5	2.6220	27.71	20.40	48.11	69.50	-21.39	QP		
4 5 6	6.2189	18.95	20.47	39.42	69.50	-30.08	QP		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz		
Polarization: Vertical	Detector: AVG, QP		
Test Mode: 5	Distance: 3m		

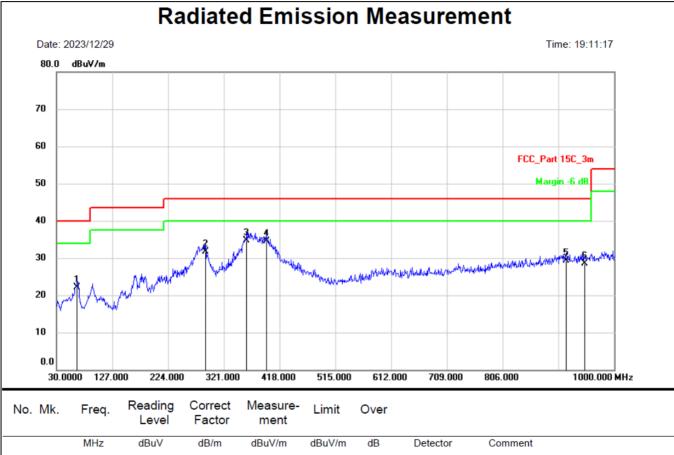


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1		0.2242	42.15	20.49	62.64	100.55	-37.91	AVG		
2		0.2601	47.23	20.48	67.71	99.27	-31.56	AVG		
3	*	1.6979	37.33	20.40	57.73	63.01	-5.28	QP		
4		2.6500	38.87	20.40	59.27	69.50	-10.23	QP		
5		4.4303	22.90	20.44	43.34	69.50	-26.16	QP		
6		6.2850	28.18	20.47	48.65	69.50	-20.85	QP		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz		
Polarization: Horizontal	Detector: QP		
Test Mode: 4	Distance: 3m		

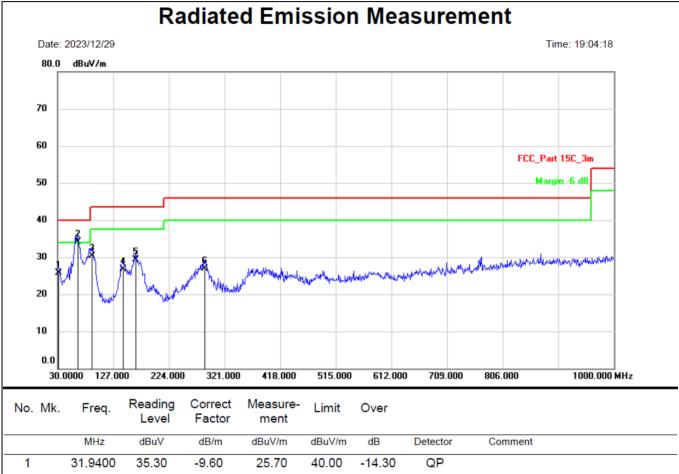


No.	Mk.	Freq.	Level	Factor	ment	Limit	Over			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1		65.8900	30.10	-7.90	22.20	40.00	-17.80	QP		
2		288.9900	37.55	-5.75	31.80	46.00	-14.20	QP		
3	*	360.7700	38.80	-4.00	34.80	46.00	-11.20	QP		
4		394.7200	37.95	-3.45	34.50	46.00	-11.50	QP		
5		916.5800	23.18	6.22	29.40	46.00	-16.60	QP		
6		948.5900	22.23	6.27	28.50	46.00	-17.50	QP		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz		
Polarization: Vertical	Detector: QP		
Test Mode: 4	Distance: 3m		

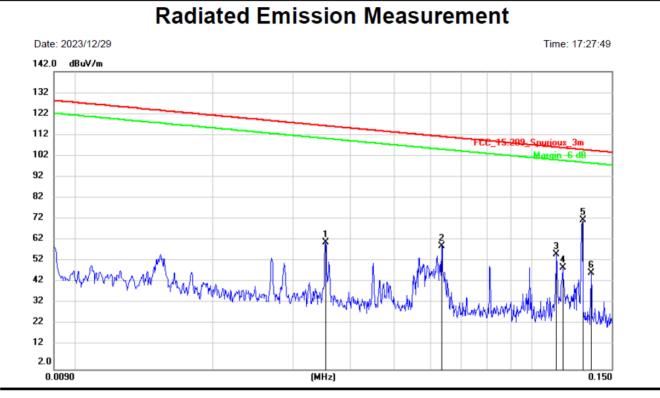


INO.	IVIK.	Freq.	Level	Factor	ment	Limit	Over			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1		31.9400	35.30	-9.60	25.70	40.00	-14.30	QP		
2	*	65.8900	43.73	-9.63	34.10	40.00	-5.90	QP		
3		90.1400	40.75	-10.45	30.30	43.50	-13.20	QP		
4		144.4600	38.42	-11.62	26.80	43.50	-16.70	QP		
5		166.7700	39.85	-10.45	29.40	43.50	-14.10	QP		
6		286.0799	33.79	-6.79	27.00	46.00	-19.00	QP		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz		
Polarization: Horizontal	Detector: AVG		
Test Mode: 6	Distance: 3m		



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1	0.0354	41.01	20.54	61.55	116.50	-54.95	AVG		
2	0.0635	39.30	20.55	59.85	111.45	-51.60	AVG		
3	0.1135	35.44	20.53	55.97	106.43	-50.46	AVG		
4	0.1171	29.35	20.53	49.88	106.16	-56.28	AVG		
5 *	0.1293	51.76	20.53	72.29	105.31	-33.02	AVG		
6	0.1351	26.69	20.52	47.21	104.93	-57.72	AVG		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz
Polarization: Vertical	Detector: AVG, QP
Test Mode: 6	Distance: 3m

Radiated Emission Measurement Date: 2023/12/29 Time: 17:49:49 142.0 dBuV/m 132 122 112 FCC_15.209_Spurious_3m 102 92 82 72 62 52 42 32 22 12 2.0 0.0090 (MHz) 0.150

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1		0.0810	40.05	20.54	60.59	109.35	-48.76	AVG		
2		0.0990	38.48	20.54	59.02	107.61	-48.59	QP		
3		0.1135	38.83	20.53	59.36	106.43	-47.07	AVG		
4		0.1174	39.73	20.53	60.26	106.14	-45.88	AVG		
5	*	0.1290	54.65	20.53	75.18	105.33	-30.15	AVG		
6		0.1350	35.40	20.52	55.92	104.93	-49.01	AVG		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz			
Polarization: Horizontal	Detector: AVG, QP			
Test Mode: 6	Distance: 3m			

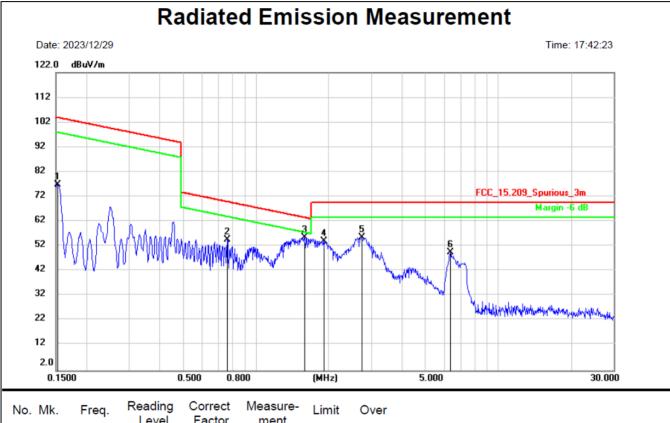
Radiated Emission Measurement Date: 2023/12/29 Time: 17:35:07 122.0 dBuV/m 112 102 92 82 FCC_15.209_Spurious_3m 72 Margin -6 dB 62 52 42 32 22 12 2.0 30.000 0.1500 0.500 0.800 (MHz) 5.000

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1	0.1623	60.20	20.51	80.71	103.34	-22.63	AVG		
2	0.2519	51.07	20.48	71.55	99.55	-28.00	AVG		
3	0.3251	46.41	20.46	66.87	97.34	-30.47	AVG		
4	0.6473	33.52	20.41	53.93	71.38	-17.45	QP		
5 *	1.6979	28.23	20.40	48.63	63.01	-14.38	QP		
5 * 6	2.6781	29.92	20.40	50.32	69.50	-19.18	QP		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz		
Polarization: Vertical	Detector: AVG, QP		
Test Mode: 6	Distance: 3m		

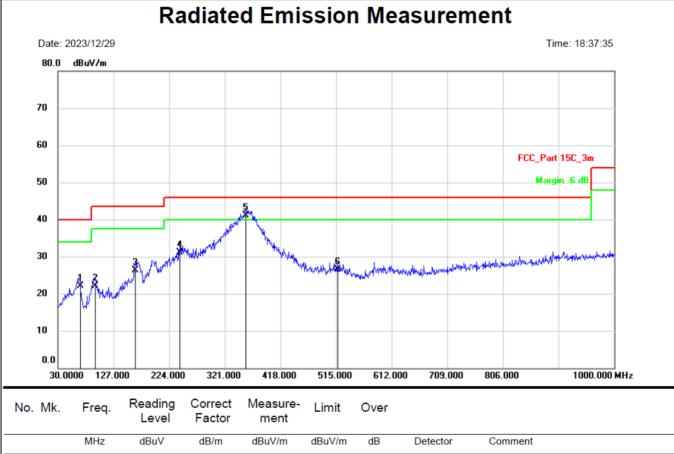


	No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
	1		0.1524	56.46	20.52	76.98	103.89	-26.91	AVG		
_	2		0.7629	34.27	20.41	54.68	69.95	-15.27	QP		
	3	*	1.5933	35.02	20.40	55.42	63.56	-8.14	QP		
	4		1.9180	33.73	20.40	54.13	69.50	-15.37	QP		
	5		2.7501	35.29	20.40	55.69	69.50	-13.81	QP		
	6		6.3520	29.14	20.47	49.61	69.50	-19.89	QP		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz		
Polarization: Horizontal	Detector: QP		
Test Mode: 6	Distance: 3m		

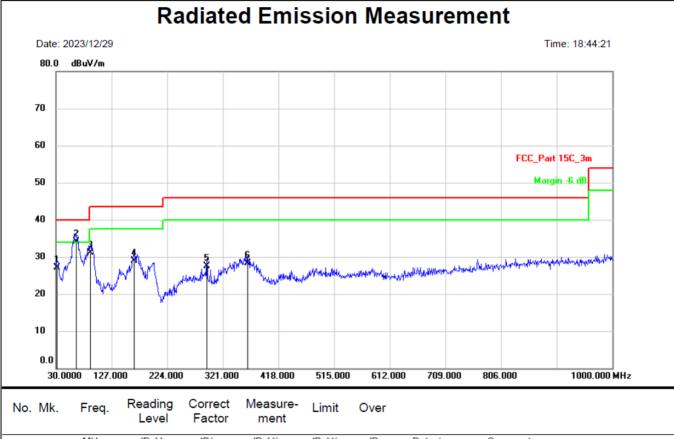


No.	Mk.	Freq.	Level	Factor	ment	Limit	Over			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1		68.8000	31.95	-9.75	22.20	40.00	-17.80	QP		
2		94.9900	30.40	-8.20	22.20	43.50	-21.30	QP		
3		164.8300	36.63	-10.23	26.40	43.50	-17.10	QP		
4		242.4300	37.66	-6.56	31.10	46.00	-14.90	QP		
5	*	357.8599	45.14	-4.04	41.10	46.00	-4.90	QP		
6		517.9099	27.98	-1.48	26.50	46.00	-19.50	QP		





M/N: AB0553	Testing Voltage: AC 120V / 60Hz		
Polarization: Vertical	Detector: QP		
Test Mode: 6	Distance: 3m		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1		31.9400	36.80	-9.60	27.20	40.00	-12.80	QP		
2	*	65.8900	43.83	-9.63	34.20	40.00	-5.80	QP		
3		90.1400	41.55	-10.45	31.10	43.50	-12.40	QP		
4		165.8000	39.40	-10.50	28.90	43.50	-14.60	QP		
5		292.8700	34.17	-6.67	27.50	46.00	-18.50	QP		
6		363.6800	33.27	-4.97	28.30	46.00	-17.70	QP		





13.3 20dB Bandwidth Measurement

LIMITS

There is no limit.

BLOCK DIAGRAM OF TEST SETUP

EUT		Attenuator		Spectrum Analyzer
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TEST PROCEDURES

The 20dB bandwidth of the emission was contained within the frequency band designated which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over excepted variations in temperature and supply voltage were considered, FCC Rule 15.35:

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RBW was chosen so that the display was a result of the tested channel modulation. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. Use the spectrum 20dB down delta function to measure the bandwidth.

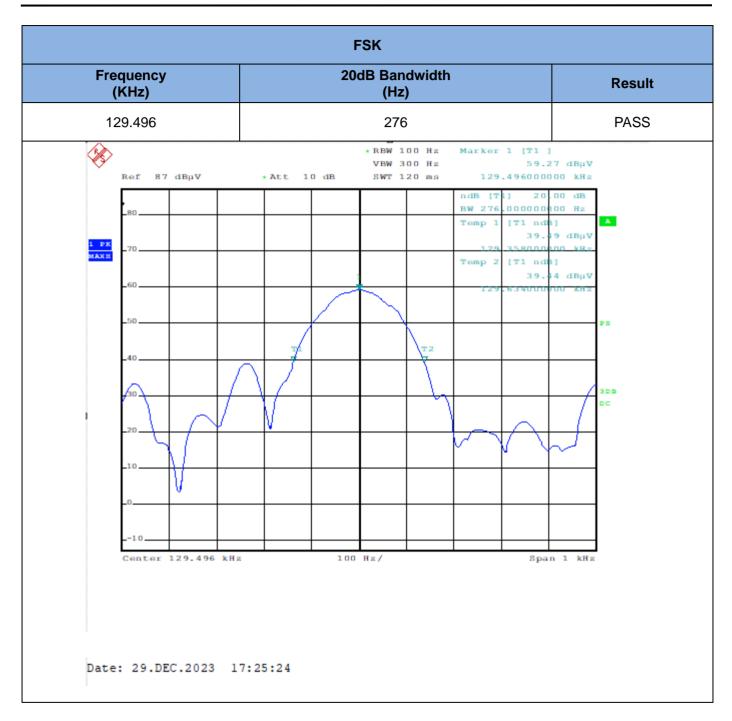
TEST RESULTS

PASS

Please refer to the following table.

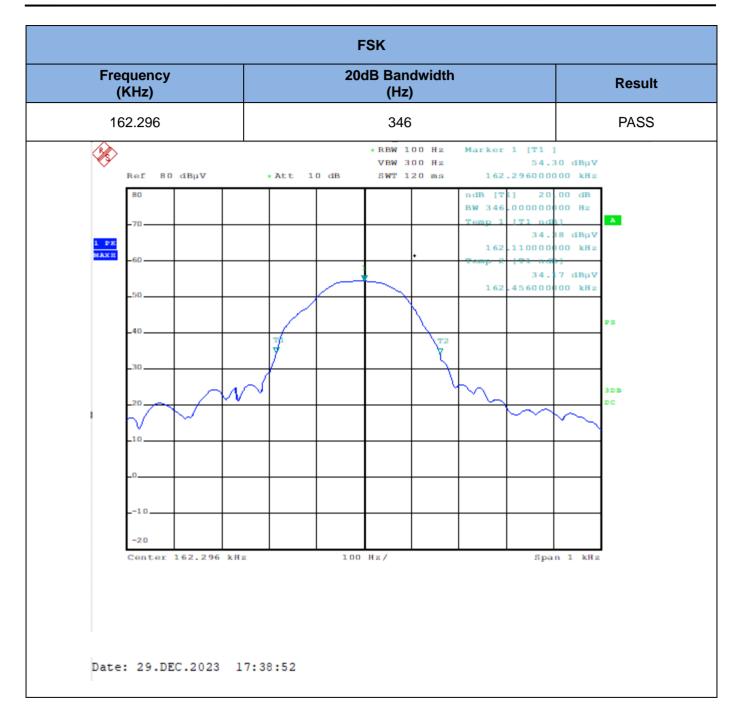






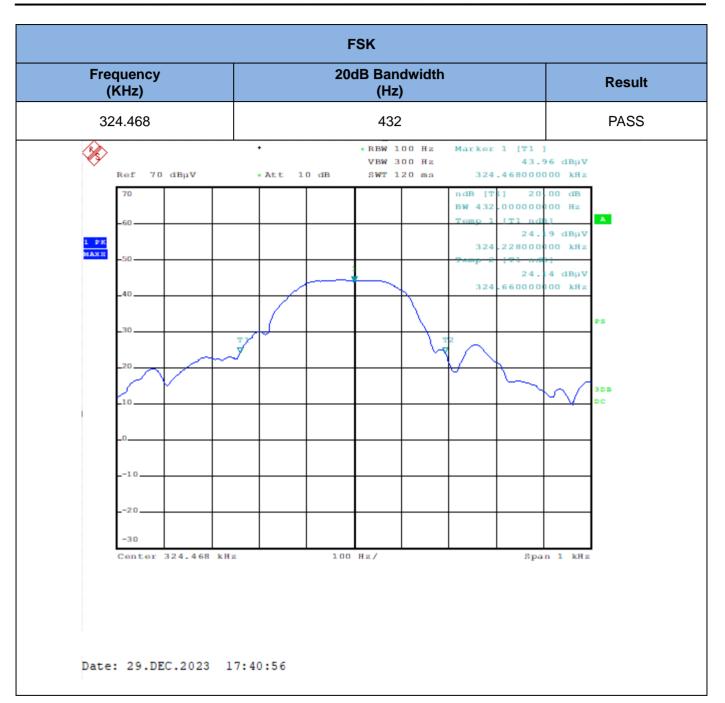














13.4 Antenna Requirement

STANDARD APPLICABLE

According to of FCC part 15C section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Systems operating in the 2400-2483.5MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

ANTENNA CONNECTED CONSTRUCTION

The antenna is coil antenna that no antenna other than furnished by the responsible party shall be used with the device. Therefore, the antenna is considered meet the requirement.





14. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI7	100837	Mar. 13, 2023	1 Year
2.	Antenna	Schwarzbeck	VULB9162	9162-010	Mar. 23, 2022	2 Year
3.	Spectrum Analyzer	Rohde & Schwarz	FSU26	200409/026	Mar. 13, 2023	1 Year
4.	Spectrum Analyzer	Keysight	N9020A	MY54200831	Mar. 13, 2023	1 Year
5.	Spectrum Analyzer	Rohde & Schwarz	FSV40	101094	Mar. 13, 2023	1 Year
6.	Horn Antenna	Schwarzbeck	BBHA9170	9170-172	Mar. 23, 2022	2 Year
7.	Power Sensor	DARE	RPR3006W	15I00041SNO 64	Mar. 13, 2023	1 Year
8.	Communication Tester	Rohde & Schwarz	CMW500	149004	Mar. 13, 2023	1 Year
9.	Horn Antenna	COM-Power	AH-118	071078	Mar. 23, 2022	2 Year
10.	Pre-Amplifier	HP	HP 8449B	3008A00964	Mar. 13, 2023	1 Year
11.	Pre-Amplifier	HP	HP 8447D	1145A00203	Mar. 13, 2023	1 Year
12.	Loop Antenna	Schwarzbeck	FMZB 1513	1513-272	Mar. 23, 2022	2 Year
13.	Test Receiver	Rohde & Schwarz	ESCI	101152	Mar. 14, 2023	1 Year
14.	L.I.S.N	Rohde & Schwarz	ENV 216	101317	Mar. 13, 2023	1 Year
15.	L.I.S.N	Rohde & Schwarz	ESH2-Z5	893606/014	Mar. 13, 2023	1 Year
16.	RF Switching Unit	Compliance Direction Systems Inc.	RSU-M2	38311	Mar.13, 2023	1 Year
17.	Temperature & Humidity Chamber	REMAFEE	SYHR225L	N/A	Mar. 13, 2023	1 Year
18.	DC Source	Maynuo	MY8811	N/A	Mar. 13, 2023	1 Year
19.	Temporary antenna connector	TESCOM	SS402	N/A	N/A	N/A
20.	Chamber	SAEMC	9*7*7m	N/A	Apr. 21, 2023	2 Year
21.	Test Software	EZ	EZ_EMC, NTC-3A1.1	N/A	N/A	N/A

Note: For photographs of EUT and measurement, please refer to appendix in separate documents.