

FCC RADIO TEST REPORT

Applicant.....: : Alliance Sports Group., LP

Address.....: : 700 Henrietta Creek Rd. Roanoke, TX 76262 the USA.

Manufacturer.....: Dongquan Zhongkang Technology Electronics Co., Ltd.

Address...... : No.12 Yansha Road, TianXin, Tangxia Town, Dongguan City, Guangdong

Province, China

Factory.....: Dongguan Zhongkang Technology Electronics Co., Ltd.

Address...... : No.12 Yansha Road, TianXin, Tangxia Town, Dongguan City, Guangdong

Province, China

Product Name.....: NEBO Rambler 100W Power Station

Brand Name : HALO, NEE

Model No. : NEB-PST-0004

FCC ID.....: 2BASY-NEBOPS100

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

Receipt Date of Samples.....: March 09, 2023

Date of Tested.....: March 09, 2023 to March 31, 2023

Date of Report.....: April 27, 2023

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 with approved approved to Dongguan Nore Testing Center Co., Ltd, this report shall not be reproduced except in full.

Prepared by

Rose Hu / Project Engineer

Approved by

Iori Fan / Authorized Signatory





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Revision History

Report Number	Description	Issued Date
NTC2303123FV00	Initial Issue	2023-04-27





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:	NEBO Rambler 100W Power Station
Main Model Name:	NEB-PST-0004
Additional Model Name:	N/A
Model Difference:	N/A
S/N:	2303-1207
Brand Name:	HALO, NEBO
Hardware Version:	V01
Software Version:	V01
Rating:	Input: USB-C: DC 5V 3A; DC 9V 3A; DC 12V 3A; DC 15V 3A or DC 20V 2.25A; DC input: DC 12V-24V 50W; Output: 2 x USB DC 5V 2.4A;
	USB-C: DC5V 3A; DC 9V 3A; DC 12V 3A; DC 15V 3A or DC 20V 2.25A
	Wireless charging: 10W,
	AC 115V 60Hz 100W
	AC Input: AC 100-240V 50/60Hz come from Adapter
	Capacity: 94900mWh, 18.25V
Typical Arrangement:	Table-top
I/O Port:	Refer to user manual
Accessories Information	
Adapter:	Model: S6-QC20-ETL
	Input: AC 100-240V, 50/60Hz, 0.6A
	Output: DC 5V 3A/ DC 9V 2.22A/ DC 12V 1.67A
Oaklas	USB line: 0.58m, unshielded, detachable
Cable:	Car charger line: 1.17m, unshielded, undetachable
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.
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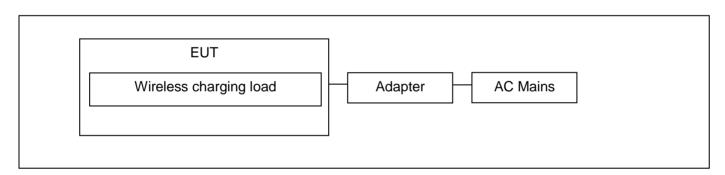
Technical Specification	
Frequency Range:	110.5-205KHz
Modulation Type:	FSK
Antenna Type:	Coil antenna
Output power for each coil:	10W, 7.5W, 5W



3. Test Channels and Modes Detail

N	l lode	Modulation
1	Full Load 5W	FSK
2	Half Load 5W	FSK
3	Empty Load 5W	FSK
4	Full Load 7.5W	FSK
5	Half Load 7.5W	FSK
6	Empty Load 7.5W	FSK
7	Full Load 10W	FSK
8	Half Load 10W	FSK
9	Empty Load 10W	FSK

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					Provided by manufacturer
2.	Adapter	HUWEI	HW-050200 C01			Provided by manufacturer

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 December 31, 2023
		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
Test Site Location	:	Building D, Gaosheng Science and Technology Park, Hongtu Road, Nancheng
		District, Dongguan City, Guangdong Province, China





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	1-9	AC 120V 60Hz,	Sean Yuan	See note 1
'.	AC Fower Conducted LittleStoff 1-9	AC 240V 50Hz	Jean Tuan	See note i	
			AC 120V 60Hz,		
			AC 240V 50Hz,		
2.	Radiated Emissions	1-9	DC 18.25V internal	Sean Yuan	See note 1
			battery,		
			DC 12V, DC 24V		
3.	20dB Bandwidth	1	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: $15\sim35^{\circ}$ C, $30\sim70\%$, $86\sim106$ kPa.
- 2. For test voltage DC 12V or DC 24V were come from external battery, AC 240V/50Hz, AC 120V/60Hz were come from adapter, DC 18.25V was come from internal battery. And 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	±4.68 dB	
2.	radiated Emission rest	1GHz ~ 18GHz	±5.14 dB	
		18GHz ~ 40GHz	±5.14 dB	
3.	Conducted Spurious Emissions	10Hz ~ 40GHz	±0.78 dB	
4.	RF Output Power	10Hz ~ 40GHz	±0.86 dB	
5.	Power Spectral Density	10Hz ~ 40GHz	±1.06 dB	
6.	Occupied Channel Bandwidth		±1.42 x10 ⁻⁷ MHz	

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)						
0.4300	32.99	20.61	53.60	57.25	-3.65	QP

Where,

Freq. = Emission frequency in MHz

Reading Level = Uncorrected Analyzer/Receiver reading

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

Measurement = Reading + Corrector Factor

Limit = Limit stated in standard

Margin = Measurement - Limit

Detector = Reading for Quasi-Peak / Average / Peak

Radiated Spurious Emissions and Restricted Bands						
Freq. Reading Level Correct Factor Measurement Limit Over (MHz) (dBuV) (dB/m) (dBuV/m) (dBuV/m) Detector						
52.3100	45.90	-7.30	38.60	40.00	-1.40	Peak

Where,

Freq. = Emission frequency in MHz

Reading Level = Uncorrected Analyzer/Receiver reading

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

Measurement = Reading + Corrector Factor

Limit = Limit stated in standard

Over = Margin, which calculated by Measurement - Limit

Detector = Reading for Quasi-Peak / Average / Peak

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

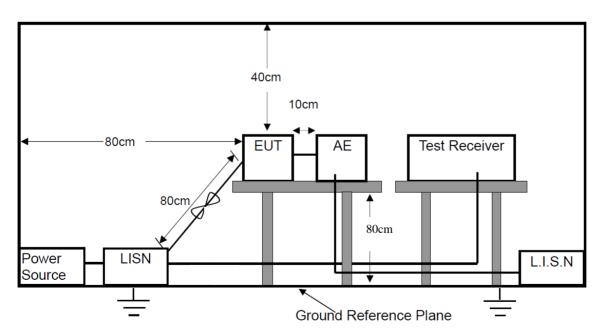
According to the requirements of FCC PART 15.207, the limits are as follows:

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: NEB-PST-0004	Testing Voltage: AC 120V / 60Hz
Phase: L1	Detector: QP & AVG
Test Mode: 1	

Conducted Emission Measurement Date: 2023/3/22 Time: 14:25:40 80.0 dBuV 70 FCC PART 15C_QP 60 FCC PART 15C_AVG 50 40 30 20 10 0.0 30.000 0.1500 (MHz) 5.000 0.500 0.800

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.4300	32.99	20.61	53.60	57.25	-3.65	QP	
2	0.4300	20.19	20.61	40.80	47.25	-6.45	AVG	
3	0.5299	32.10	20.60	52.70	56.00	-3.30	QP	
4	0.5299	20.00	20.60	40.60	46.00	-5.40	AVG	
5 *	0.7419	32.29	20.61	52.90	56.00	-3.10	QP	
6	0.7419	14.59	20.61	35.20	46.00	-10.80	AVG	
7	1.2540	31.99	20.61	52.60	56.00	-3.40	QP	
8	1.2540	13.09	20.61	33.70	46.00	-12.30	AVG	
9	1.6658	31.39	20.61	52.00	56.00	-4.00	QP	
10	1.6658	13.19	20.61	33.80	46.00	-12.20	AVG	
11	9.0457	30.80	20.70	51.50	60.00	-8.50	QP	
12	9.0457	14.70	20.70	35.40	50.00	-14.60	AVG	





M/N: NEB-PST-0004	Testing Voltage: AC 120V / 60Hz
Phase: N	Detector: QP & AVG
Test Mode: 1	

Conducted Emission Measurement Date: 2023/3/22 Time: 14:31:07 80.0 dBuV 70 FCC PART 15C_QP 60 (1 FCC PART 15C_AVG 50 40 30 20 10 0.00.1500 (MHz) 5.000 30.000

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.4220	29.93	20.57	50.50	57.41	-6.91	QP	
2	0.4220	18.93	20.57	39.50	47.41	-7.91	AVG	
3 *	0.5220	31.83	20.57	52.40	56.00	-3.60	QP	
4	0.5220	18.03	20.57	38.60	46.00	-7.40	AVG	
5	0.7500	29.83	20.57	50.40	56.00	-5.60	QP	
6	0.7500	15.93	20.57	36.50	46.00	-9.50	AVG	
7	1.2217	29.63	20.57	50.20	56.00	-5.80	QP	
8	1.2217	14.43	20.57	35.00	46.00	-11.00	AVG	
9	2.0539	27.93	20.57	48.50	56.00	-7.50	QP	
10	2.0539	11.23	20.57	31.80	46.00	-14.20	AVG	
11	10.1979	29.65	20.65	50.30	60.00	-9.70	QP	
12	10.1979	10.55	20.65	31.20	50.00	-18.80	AVG	





13.2 Radiated Spurious Emissions and Restricted Bands Measurement

LIMITS

Frequency range	Distance Meters	Field Strengths Limit (15.209)			
MHz		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	10	00		
88 ~ 216	3	150			
216 ~ 960	3	200			
Above 960	3	500			
Frequency range	Distance Meters	Field Strengths	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		

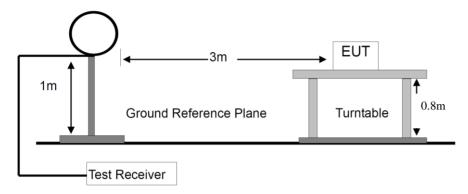
Remark:

- (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.

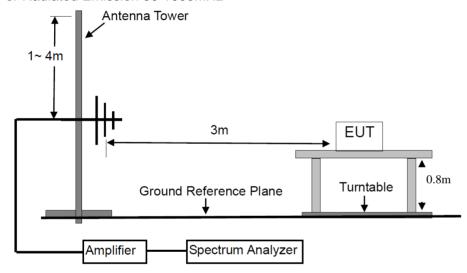


BLOCK DIAGRAM OF TEST SETUP

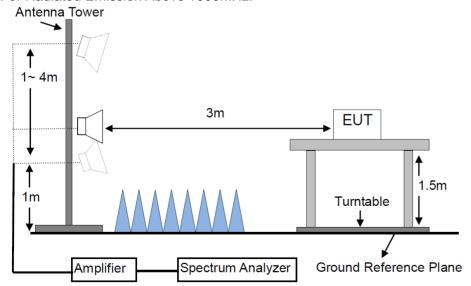
For Radiated Emission below 30MHz



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 1000IVITZ	Average	1 MHz	10 Hz





TEST RESULTS

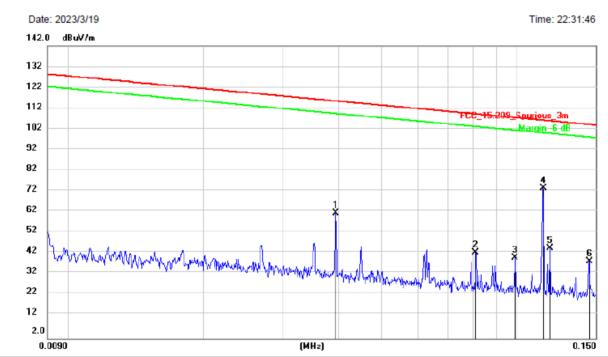
PASS

Please refer to the following pages of the worst case.





M/N: NEB-PST-0004	Testing Voltage: DC 12V
Polarization: Horizontal	Detector: AV,QP
Test Mode: 7	Distance: 3m

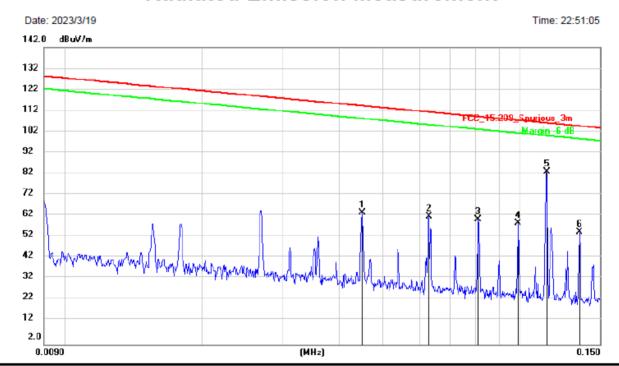


No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1	0.0395	41.44	20.56	62.00	115.55	-53.55	AVG		
2	0.0810	22.50	20.53	43.03	109.35	-66.32	AVG		
3	0.0991	20.30	20.54	40.84	107.61	-66.77	QP		
4 *	0.1144	53.47	20.53	74.00	106.36	-32.36	AVG		
5	0.1184	24.66	20.53	45.19	106.07	-60.88	AVG		
6	0.1450	18.29	20.53	38.82	104.32	-65.50	AVG		





M/N: NEB-PST-0004	Testing Voltage: DC 12V
Polarization: Vertical	Detector: AV,QP
Test Mode: 7	Distance: 3m

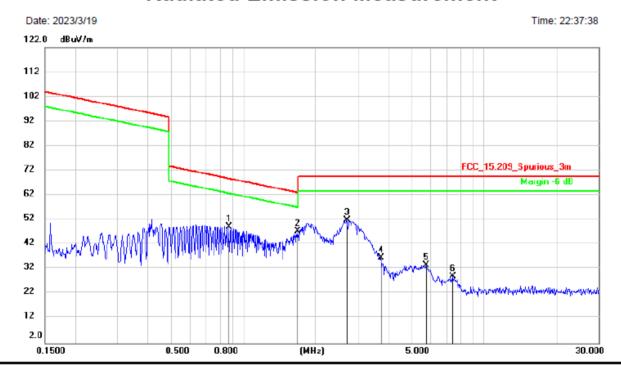


No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1	0.0449	43.45	20.59	64.04	114.44	-50.40	AVG		
2	0.0629	41.85	20.53	62.38	111.53	-49.15	AVG		
3	0.0810	40.37	20.53	60.90	109.35	-48.45	AVG		
4	0.0991	38.54	20.54	59.08	107.61	-48.53	QP		
5 *	0.1144	62.97	20.53	83.50	106.36	-22.86	AVG		
6	0.1351	34.40	20.53	54.93	104.93	-50.00	AVG		





M/N: NEB-PST-0004	Testing Voltage: DC 12V
Polarization: Horizontal	Detector: QP
Test Mode: 7	Distance: 3m

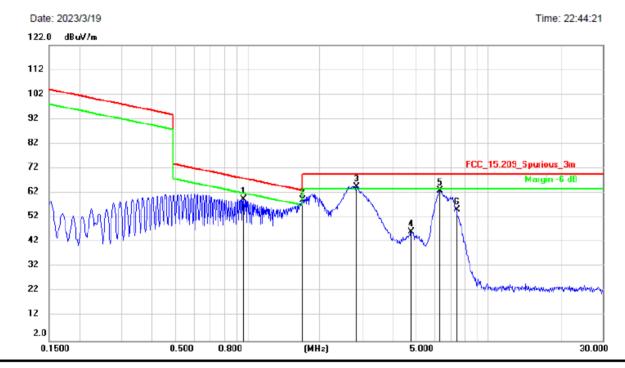


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1		0.8710	28.83	20.40	49.23	68.80	-19.57	QP		
2	*	1.6802	27.14	20.40	47.54	63.10	-15.56	QP		
3		2.6925	31.60	20.40	52.00	69.50	-17.50	QP		
4		3.7198	16.18	20.42	36.60	69.50	-32.90	QP		
5		5.7743	13.19	20.46	33.65	69.50	-35.85	QP		
6		7.4071	8.64	20.51	29.15	69.50	-40.35	QP		





M/N: NEB-PST-0004	Testing Voltage: DC 12V
Polarization: Vertical	Detector: QP
Test Mode: 7	Distance: 3m

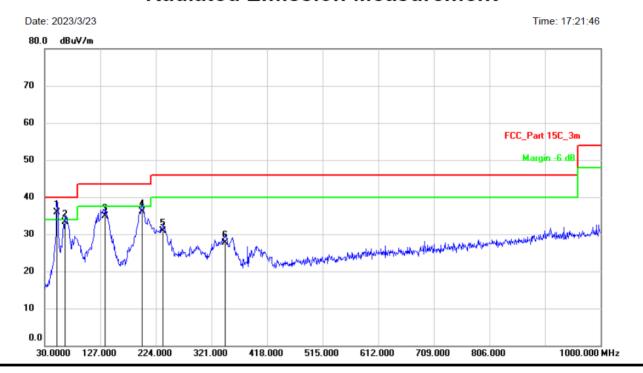


No. M	lk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1		0.9631	39.05	20.40	59.45	67.93	-8.48	QP		
2 *		1.6979	38.63	20.40	59.03	63.01	-3.98	QP		
3 !		2.8389	44.27	20.40	64.67	69.50	-4.83	QP		
4		4.7968	25.82	20.45	46.27	69.50	-23.23	QP		
5		6.3185	42.48	20.47	62.95	69.50	-6.55	QP		
6		7.4070	34.87	20.51	55.38	69.50	-14.12	QP		





M/N: NEB-PST-0004	Testing Voltage: DC 12V
Polarization: Horizontal	Detector: QP
Test Mode: 7	Distance: 3m

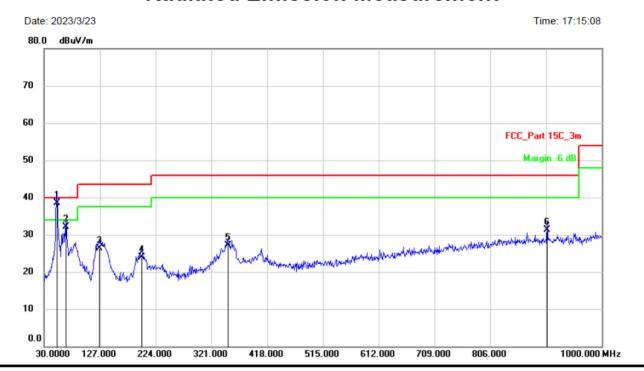


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
1	*	51.3400	43.05	-7.05	36.00	40.00	-4.00	QP		
2		65.8900	41.20	-7.90	33.30	40.00	-6.70	QP		
3		135.7300	45.77	-10.77	35.00	43.50	-8.50	QP		
4		199.7500	43.82	-7.72	36.10	43.50	-7.40	QP		
5		236.6100	37.63	-6.73	30.90	46.00	-15.10	QP		
6		345.2500	32.04	-4.24	27.80	46.00	-18.20	QP		





M/N: NEB-PST-0004	Testing Voltage: DC 12V
Polarization: Vertical	Detector: QP
Test Mode: 7	Distance: 3m



Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment	
*	52.3100	45.90	-7.30	38.60	40.00	-1.40	QP		
	67.8300	42.16	-10.06	32.10	40.00	-7.90	QP		
	126.0300	37.65	-11.25	26.40	43.50	-17.10	QP		
	199.7500	32.75	-8.75	24.00	43.50	-19.50	QP		
	350.1000	32.25	-5.15	27.10	46.00	-18.90	QP		
	904.9400	26.34	4.96	31.30	46.00	-14.70	QP		
	*	MHz * 52.3100 67.8300 126.0300	MHz dBuV * 52.3100 45.90 67.8300 42.16 126.0300 37.65 199.7500 32.75 350.1000 32.25	* 52.3100 45.90 -7.30 67.8300 42.16 -10.06 126.0300 37.65 -11.25 199.7500 32.75 -8.75 350.1000 32.25 -5.15	* 52.3100 45.90 -7.30 38.60 67.8300 42.16 -10.06 32.10 126.0300 37.65 -11.25 26.40 199.7500 32.75 -8.75 24.00 350.1000 32.25 -5.15 27.10	MHz dBuV dBm dBuV/m dBuV/m * 52.3100 45.90 -7.30 38.60 40.00 67.8300 42.16 -10.06 32.10 40.00 126.0300 37.65 -11.25 26.40 43.50 199.7500 32.75 -8.75 24.00 43.50 350.1000 32.25 -5.15 27.10 46.00	MHz dBuV dBm dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m dB * 52.3100 45.90 -7.30 38.60 40.00 -1.40 67.8300 42.16 -10.06 32.10 40.00 -7.90 126.0300 37.65 -11.25 26.40 43.50 -17.10 199.7500 32.75 -8.75 24.00 43.50 -19.50 350.1000 32.25 -5.15 27.10 46.00 -18.90	MHz dBuV dB/m dBuV/m dBuV/m dB Detector * 52.3100 45.90 -7.30 38.60 40.00 -1.40 QP 67.8300 42.16 -10.06 32.10 40.00 -7.90 QP 126.0300 37.65 -11.25 26.40 43.50 -17.10 QP 199.7500 32.75 -8.75 24.00 43.50 -19.50 QP 350.1000 32.25 -5.15 27.10 46.00 -18.90 QP	MHz dBuV dB/m dBuV/m dBuV/m dB Detector Comment * 52.3100 45.90 -7.30 38.60 40.00 -1.40 QP 67.8300 42.16 -10.06 32.10 40.00 -7.90 QP 126.0300 37.65 -11.25 26.40 43.50 -17.10 QP 199.7500 32.75 -8.75 24.00 43.50 -19.50 QP 350.1000 32.25 -5.15 27.10 46.00 -18.90 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

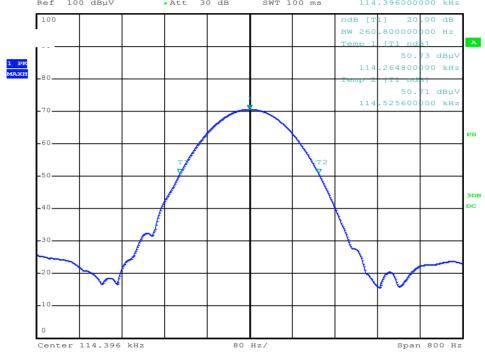
PASS

Please refer to the following table.





FSK								
Frequency (KHz)	20dB Bandwidth (Hz)	Result						
114.396	260.8	PASS						
Ref 100 dBµV	*RBW 100 Hz Marker 1 [T1] VBW 300 Hz 70.57 dBµV *Att 30 dB SWT 100 ms 114.396000000 kHz							



Date: 18.MAR.2063 14:29:42



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 consider 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, 2021	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.