



TEST REPORT NUMBER: (8520)220-0099(A) (Revision)

TEST REPORT

Applicant:	Tree House Kids, INC	Fax:	--
		E-mail:	--
Address :	702 Crawford Street, Corona, CA 92882, USA		
Test Date :	11 Aug. 2020 ~ 25 Aug. 2020, 16 Oct. 2020 ~ 26 Oct. 2020		

Manufacturer or Supplier :	Tree House Kids, INC
Address :	702 Crawford Street, Corona, CA 92882, USA
Sample Description:	RC Gator
Model number:	1038-WM
Additional Model :	--
Rated Voltage:	3V d.c. ("AAA" Size *2)
FCC ID :	2AXB2-1038
The submitted sample of the above equipment has been tested according to following standard(s)	
FCC Rules and Regulations Part 15 Subpart C 15.249, ANSI C63.10:2013	
CONCLUSION: The submitted sample was found to COMPLY with the test requirement	

Assistant Manager

Name: Nick Lung

Date: 28 Oct 2020



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1. Summary of Test Results

The EUT have been tested according to the applicable standards as referenced below.		
Description of Test Item	Standard	Results
20 dB Bandwidth	FCC Part 15: 15.215 ANSI C63.10:2013	PASS
Radiated Emission	FCC Part 15: 15.209 FCC Part 15: 15.249 ANSI C63.10:2013	PASS
Band Edge Compliance	FCC Part 15: 15.249 ANSI C63.10:2013	PASS
Power Line Conducted Emission	FCC Part 15: 15.207 ANSI C63.10: 2013	N/A
Antenna Requirement	FCC Part 15: 15.203	PASS
Note 1: N/A is an abbreviation for Not Applicable.		
Note 2: The product updated the software, so under engineering judgment, only test Field strength of fundamental and Radiated Emission (1 GHz to 25 GHz), and other original test data was retained in this report.		



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2. General Test Information

2.1. Description of EUT

Power supply	: DC 3V from batteries (2*1.5V "AAA" batteries)
Operation frequency	: 2410 MHz - 2473 MHz
Modulation	: GFSK
Antenna Type	: wire antenna, maximum PK gain: 0 dBi

EUT channels and frequencies list:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2410	12	2430	23	2454
2	2414	13	2431	24	2456
3	2415	14	2433	25	2458
4	2416	15	2434	26	2462
5	2417	16	2439	27	2464
6	2418	17	2441	28	2465
7	2419	18	2442	29	2466
8	2421	19	2444	30	2467
9	2426	20	2446	31	2469
10	2428	21	2450	32	2473
11	2429	22	2452		

2.2. Accessories of EUT

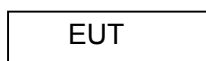
Description of Accessories	Manufacturer	Model number	Serial No.	Other
N/A	N/A	N/A	N/A	N/A

2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Serial No.	Other
N/A	N/A	N/A	N/A	N/A

2.4. Block diagram of EUT configuration for test

Tx Mode:





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For Tx Mode, A special test firmware was installed in EUT and which can exercise the EUT work in continues RF test mode at specified test channel as below:

Note: New batteries are used during all the test

Tested mode, channel, information		
Mode	Channel	Frequency (MHz)
GFSK Tx mode	Low	2410
	Middle	2442
	High	2473

2.5. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-25 °C
Humidity range:	40-75%
Pressure range:	86-106 kPa

2.6. Deviations of test standard

No deviation.

2.7. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808

Tel.: +86-0769-38826678, <http://www.dgddt.com>, Email: ddt@dgddt.com

CNAS Accreditation No. L6451; A2LA Accreditation No. 3870.01

FCC Designation Number: CN1182; FCC Test Firm Registration Number: 540522

Industry Canada site registration number: 10288A-1

Result reviewed by Centre of Testing Service (Ningbo) Co, Ltd Guangzhou Branch - a Bureau Veritas Company

Address: Building A, No.65 Zhuji Highway, jishancun, Tianhe District, Guangzhou, China



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2.8. Measurement uncertainty

Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86 dB (10 MHz $\leq$ f < 3.6 GHz);
	1.38 dB (3.6 GHz $\leq$ f < 8 GHz)
Peak Output Power (Conducted) (Power Sensor)	0.74 dB
Power Spectral Density	0.74 dB (10 MHz $\leq$ f < 3.6 GHz);
	1.38 dB (3.6 GHz $\leq$ f < 8 GHz)
Conducted Spurious Emissions	0.86 dB (10 MHz $\leq$ f < 3.6 GHz);
	1.40 dB (3.6 GHz $\leq$ f < 8 GHz)
	1.66 dB (8 GHz $\leq$ f < 22 GHz)
Uncertainty for radio frequency (RBW < 20 kHz)	3×10^{-8}
Temperature	0.4 °C
Humidity	2%
Uncertainty for Radiation Emission test (30 MHz - 1 GHz)	4.70 dB (Antenna Polarize: V)
	4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1 GHz - 18 GHz)	4.10 dB (1-6 GHz)
	4.40 dB (6 GHz - 18 GHz)
Uncertainty for Power line conduction emission test	3.32 dB (150 kHz - 30 MHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	



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3. Equipment Used During Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
RF Connected Test (Tonscend RF Measurement System 1#)					
Spectrum analyzer	R&S	FSU26	101272	Jul. 01, 2020	1 Year
Spectrum analyzer	Agilent	N9020D	MY49100362	Sep. 28, 2020	1 Year
Wideband Radio Communication tester	R&S	CMW500	117491	Jul. 01, 2020	1 Year
Vector Signal Generator	Agilent	E8267D	US49060192	Sep. 24, 2020	1 Year
Vector Signal Generator	Agilent	N5182A	MY48180737	Jul. 01, 2020	1 Year
Power Sensor	Agilent	U2021XA	MY55150010	Jul. 01, 2020	1 Year
Power Sensor	Agilent	U2021XA	MY55150011	Jul. 01, 2020	1 Year
DC Power Source	MATRIS	MPS-3005L-3	D813058W	Apr. 25, 2020	1 Year
RF Cable	Micable	C10-01-01-1	100309	Sep. 28, 2020	1 Year
Temp&Humi Programmable	ZHIXIANG	ZXGDJS-150L	ZX170110-A	Jul. 01, 2020	1 Year
Test Software	JS Tonscend	JS1120-3	Ver.2.7	N/A	N/A
RF Connected Test (Tonscend RF Measurement System 2#)					
Spectrum analyzer	R&S	FSU26	200071	Sep. 25, 2020	1 Year
Spectrum analyzer	Agilent	N9020D	MY49100362	Sep. 28, 2020	1 Year
Wideband Radio Communication tester	R&S	CMW500	117491	Jul. 01, 2020	1 Year
Vector Signal Generator	Agilent	N5182A	MY19060405	Jul. 01, 2020	1 Year
Vector Signal Generator	Agilent	N5182A	MY48180912	Jul. 01, 2020	1 Year
RF Control Unit	Tonsend	JS0806-2	DDT-ZC01449	Jul. 01, 2020	1 Year
DC Power Source	MATRIS	MPS-3005L-3	D813058W	Apr. 25, 2020	1 Year
RF Cable	Micable	C10-01-01-1	100309	Sep. 28, 2020	1 Year
Temp&Humi Programmable	ZHIXIANG	ZXGDJS-150L	ZX170110-A	Jul. 01, 2020	1 Year
Test Software	JS Tonscend	JS1120-3	Ver.2.7	N/A	N/A
Radiation 1#chamber					
EMI Test Receiver	R&S	ESU8	100316	Sep. 24, 2020	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jul. 01, 2020	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	Nov. 15, 2019	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Nov. 15, 2019	1 Year



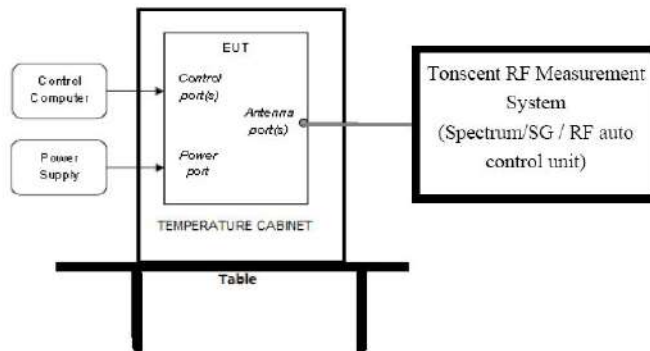
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Double Ridged Horn Antenna	R&S	HF907	100276	Nov. 15, 2019	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	Apr. 11, 2020	1 Year
Pre-amplifier	A.H.	PAM-0118	360	Sep. 28, 2020	1 Year
RF Cable	HUBSER	CP-X2+ CP-X1	W11.03+ W12.02	Sep. 24, 2020	1 Year
RF Cable	N/A	5m+6m+1m	06270619	Sep. 30, 2020	1 Year
MI Cable	HUBSER	C10-01-01-1 M	1091629	Sep. 30, 2020	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
Radiation 2#chamber					
EMI Test Receiver	R&S	ESCI	101364	Sep. 28, 2020	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jul. 01, 2020	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	9163-994	Nov. 15, 2019	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Nov. 15, 2019	1 Year
Double Ridged Horn Antenna	Schwarzbeck	BBHA9120	02108	Jul. 11, 2020	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	Apr. 11, 2020	1 Year
Pre-amplifier	TERA-MW	TRLA-0040 G35	1013 03	Sep. 28, 2020	1 Year
RF Cable	N/A	14+1.5m	06270619	Sep. 28, 2020	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
Power Line Conducted Emissions Test 1#					
EMI Test Receiver	R&S	ESU8	100316	Sep. 24, 2020	1 Year
LISN 1	R&S	ENV216	101109	Sep. 28, 2020	1 Year
LISN 2	R&S	ESH2-Z5	100309	Sep. 28, 2020	1 Year
Pulse Limiter	R&S	ESH3-Z2	101242	Sep. 24, 2020	1 Year
CE Cable 1	HUBSER	N/A	W10.01	Sep. 24, 2020	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
Power Line Conducted Emissions Test 2#					
Test Receiver	R&S	ESPI	101761	Sep. 24, 2020	1 Year
LISN 1	R&S	ENV216	101170	Sep. 28, 2020	1 Year
LISN 2	R&S	ESH2-Z5	100309	Sep. 28, 2020	1 Year
Pulse Limiter	R&S	KH43101	43101180156 8-12#	Jul. 01, 2020	1 Year
CE Cable 2	HUBSER	N/A	W11.02	Sep. 24, 2020	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A

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4. 20 dB Bandwidth

4.1. Block diagram of test setup



4.2. Limits

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

4.3. Test procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Set the spectrum analyzer as follows:

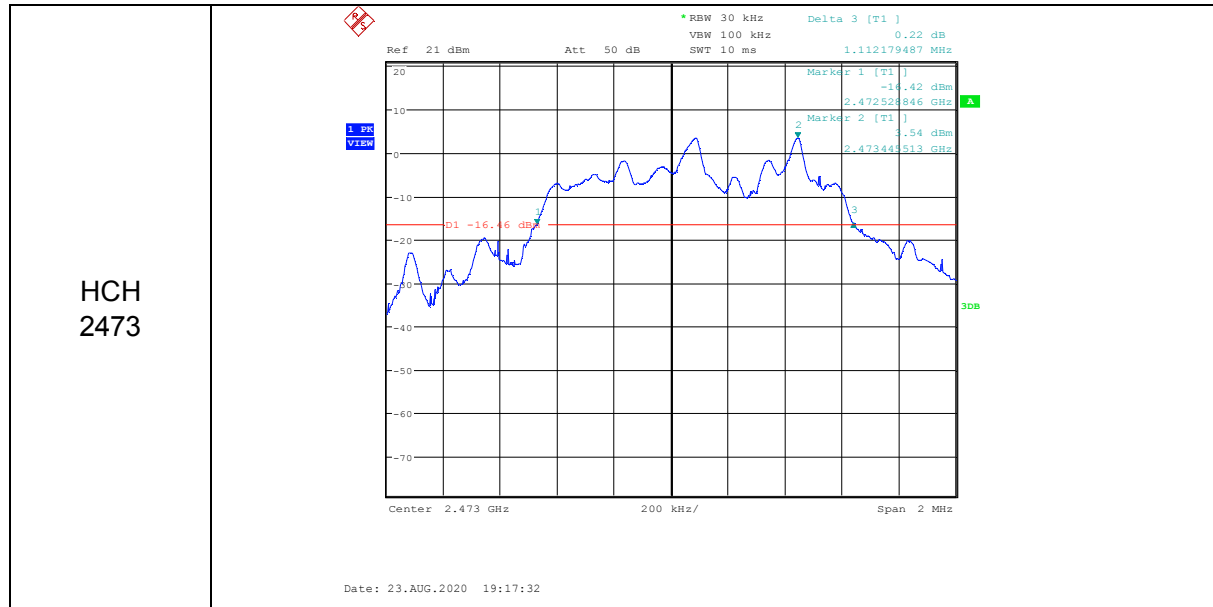
RBW:	30 kHz
VBW:	100 kHz
Detector Mode:	Peak
Sweep time:	auto
Trace mode	Max hold

(3) Allow the trace to stabilize, measure the 20 dB bandwidth of signal.

4.4. Test result

Mode	Freq (MHz)	20 dB bandwidth Result (MHz)	Conclusion
GFSK	2410	1.115	PASS
	2442	1.106	PASS
	2473	1.112	PASS

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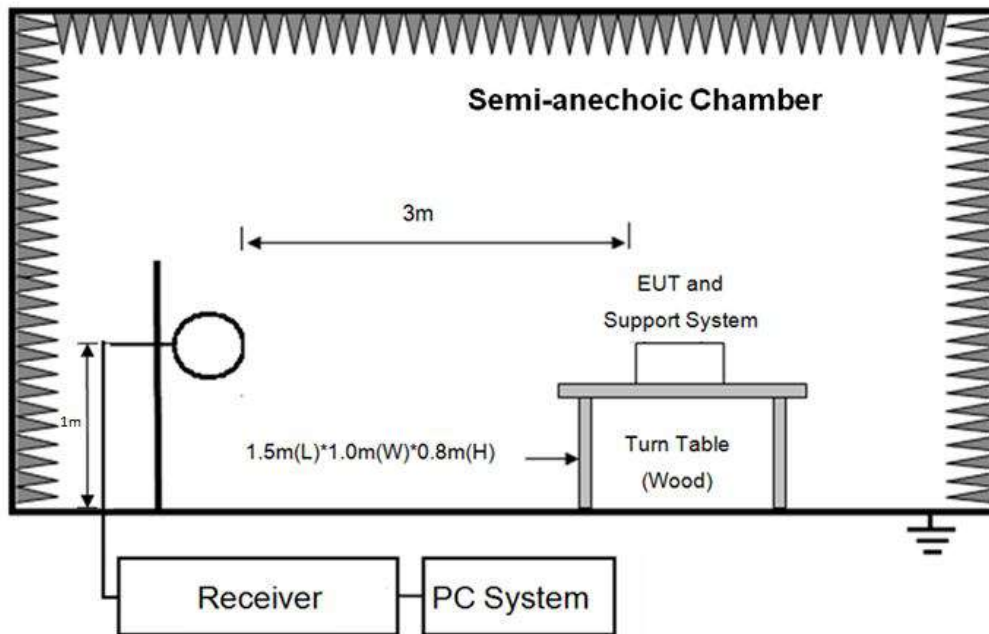


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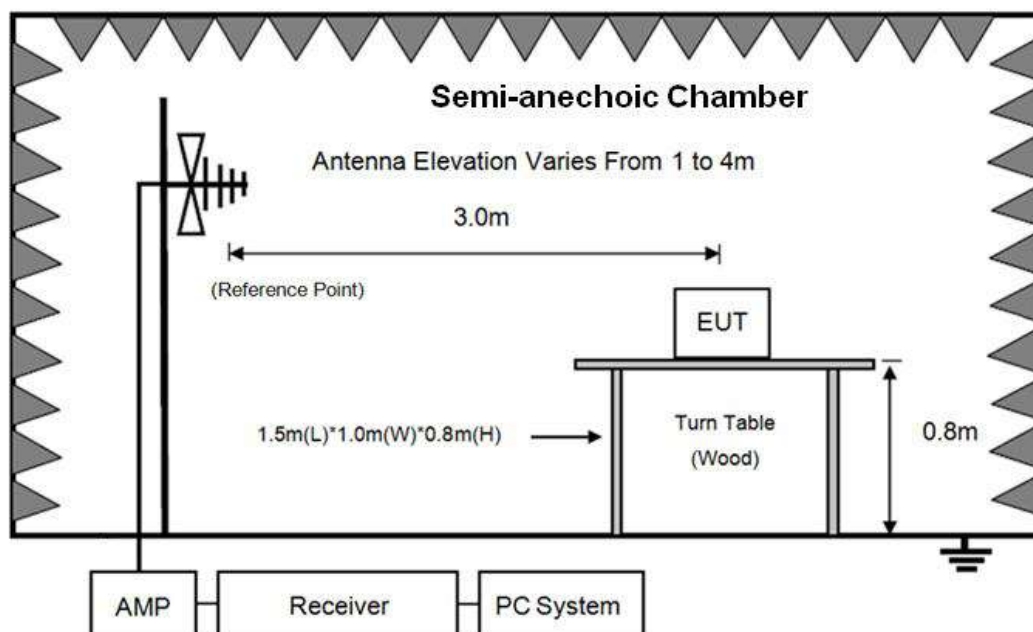
5. Radiated Emission

5.1. Block diagram of test setup

In 3 m Anechoic Chamber Test Setup Diagram for 9 kHz - 30 MHz

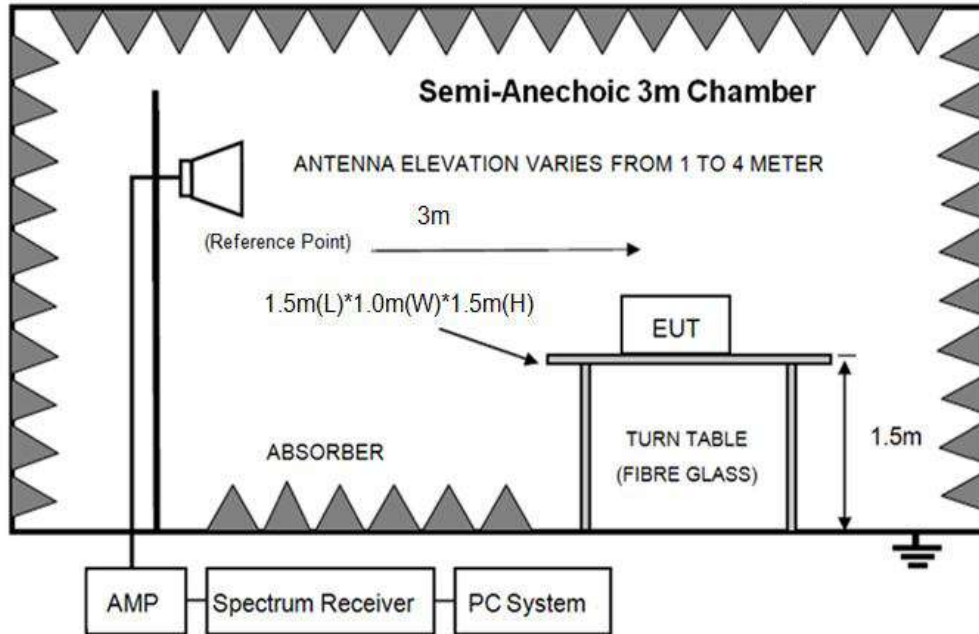


In 3 m Anechoic Chamber Test Setup Diagram for 30 MHz - 1 GHz



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In 3 m Anechoic Chamber Test Setup Diagram for frequency above 1 GHz



Note: For harmonic emissions test an appropriate high pass filter was inserted in the input port of AMP.

5.2. Limit

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000 MHz	3	74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average)	
Field Strength of Fundamental emission for 2.4 GHz - 2.4835 GHz	3	94.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average) 114.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak)	
Field Strength of Harmonics	3	74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average)	

Remark:

- (1) Emission level $\text{dB}\mu\text{V} = 20 \log \text{Emission level } \mu\text{V}/\text{m}$
- (2) The smaller limit shall apply at the cross point between two frequency bands.
- (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.
- (4) The emission limits shown in the above table are based on measurements employing a CISPR



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quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

5.3. Test procedure

- (1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.
- (2) Setup EUT and assistant system according clause 2.4
- (3) Test antenna was located 3 m from the EUT on an adjustable mast. Below pre-scan procedure was first performed in order to find prominent radiated emissions.
 - (a) Change work frequency or channel of device if practicable.
 - (b) Change modulation type of device if practicable.
 - (c) Change power supply range from 85% to 115% of the rated supply voltage
 - (d) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions
- (4) Spectrum frequency from 9 kHz to 25 GHz (tenth harmonic of fundamental frequency) was investigated, and no any obvious emission were detected from 9 kHz to 30 MHz and 18 GHz to 25 GHz, so below final test was performed with frequency range from 30 MHz to 18 GHz.
- (5) For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1 m and 4 m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10:2013 on Radiated Emission test.
- (6) For emissions from 30 MHz to 1 GHz, Quasi-Peak values were measured with EMI Receiver and the bandwidth of Receiver is 120 kHz.
- (7) For emissions above 1 GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1 MHz, VBW is set at 3 MHz for Peak measure; according ANSI C63.10:2013 clause 4.1.4.2.2 procedure for average measure.
- (8) For fundamental frequency test, set spectrum analyzer's RBW= 3 MHz, VBW= 10 MHz. Peak detector for PK, according ANSI C63.10:2013 clause 4.1.4.2.2 procedure for average measure.
- (9) X axis, Y axis, Z axis are tested, and worse setup X axis is reported.



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5.4. Test result

PASS. (See below detailed test result)

All the emissions except fundamental emission from 9 kHz to 25 GHz were comply with 15.209 limit.

Note1: According exploratory test, the emission levels are 20 dB below the limit detected from 9 kHz to 30 MHz and 18 GHz to 25 GHz, so the final test was performed with frequency range from 30 MHz to 18 GHz and recorded in below.

Note2: For emissions below 1 GHz, according exploratory explorer test, when change Tx mode and channel, have no distinct influence on emissions level, so for emissions below 1 GHz, the final test was only performed with EUT working in GFSK, Tx 2473 MHz mode.

Note3: For emissions above 1 GHz. If PK results comply with AV limit, AV Result is deemed to comply with AV limit.



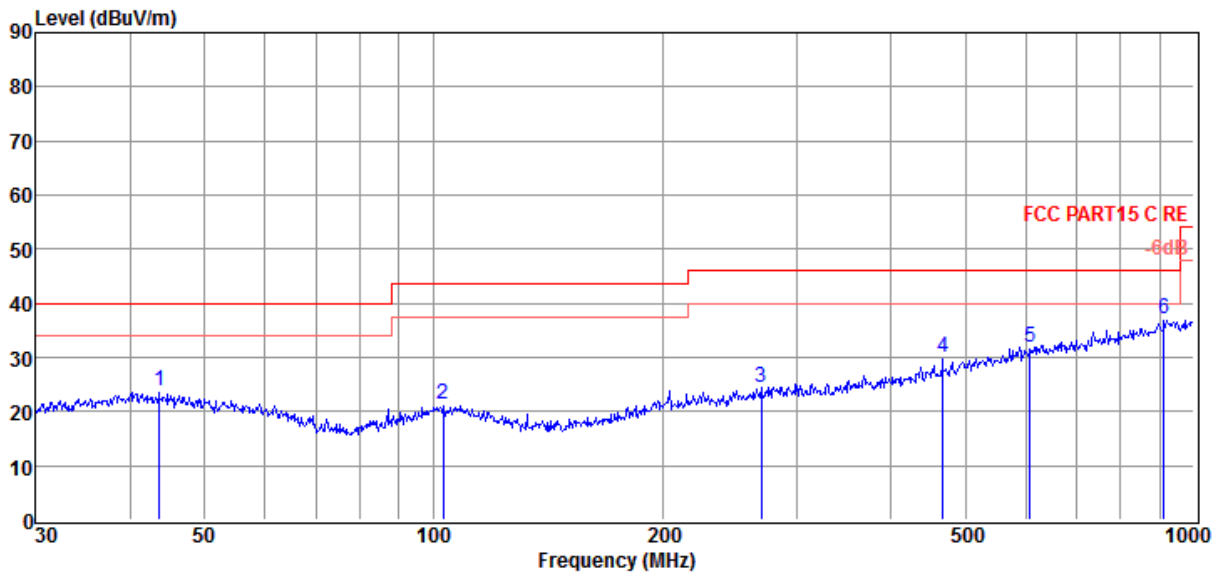
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Radiated Emission test (below 1 GHz)

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 2# **D:\2020 RE2# Report Data\8110120\FCC BELOW1G.EM6**
Test Date : 2020-08-18 **Tested By** : Ella
EUT : RC Gator **Model Number** : 1038-WM
Power Supply : DC 3V **Test Mode** : Tx mode
Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa **Antenna/Distance** : 2019 VULB 9163 2#/3m/VERTICAL
Memo :

Data: 1



Item (Mark)	Freq. (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	43.66	6.08	14.03	3.73	23.84	40.00	-16.16	QP	VERTICAL
2	103.08	5.44	11.67	4.23	21.34	43.50	-22.16	QP	VERTICAL
3	269.43	5.76	13.31	5.23	24.30	46.00	-21.70	QP	VERTICAL
4	467.24	6.97	17.03	6.14	30.14	46.00	-15.86	QP	VERTICAL
5	607.79	5.80	19.35	6.80	31.95	46.00	-14.05	QP	VERTICAL
6	912.86	6.83	22.19	7.97	36.99	46.00	-9.01	QP	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

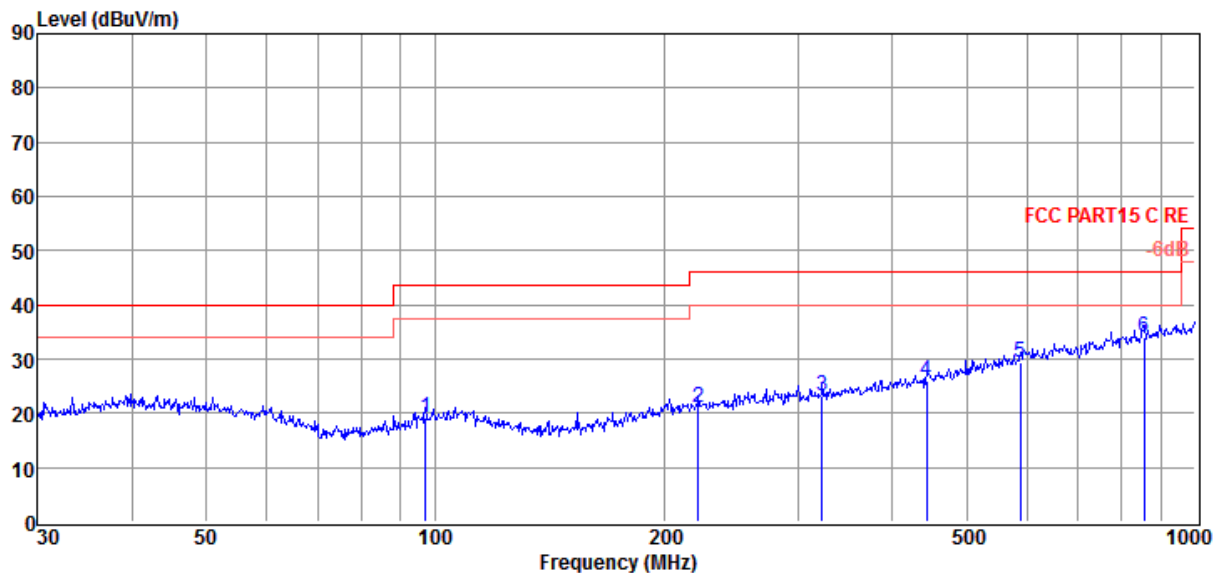


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TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 2# **D:\2020 RE2# Report Data\8110120\FCC BELOW1G.EM6**
Test Date : 2020-08-18 **Tested By** : Ella
EUT : RC Gator **Model Number** : 1038-WM
Power Supply : DC 3V **Test Mode** : Tx mode
Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa **Antenna/Distance** : 2019 VULB 9163 2#/3m/HORIZONTAL
Memo :

Data: 2



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	97.12	3.72	11.26	4.18	19.16	43.50	-24.34	QP	HORIZONTAL
2	222.17	4.05	12.07	4.98	21.10	46.00	-24.90	QP	HORIZONTAL
3	323.32	3.34	14.39	5.49	23.22	46.00	-22.78	QP	HORIZONTAL
4	443.29	3.30	16.51	6.03	25.84	46.00	-20.16	QP	HORIZONTAL
5	588.91	3.52	19.14	6.71	29.37	46.00	-16.63	QP	HORIZONTAL
6	857.03	4.67	21.73	7.76	34.16	46.00	-11.84	QP	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.



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Radiated Emission test (above 1 GHz)

Freq. (MHz)	Read level (dBμV)	Antenn a Factor (dB/m)	PRM Facto r(dB)	Cable Loss (dB)	ResultL evel(dB μV/m)	Limit (dBμV/ m)	Margin (dB)	Detector type	Polarization
Tx mode 2410 MHz									
2410.00	99.72	27.52	43.22	4.05	88.07	114.00	-25.93	Peak	HORIZONTAL
3620.25	51.10	29.61	43.68	5.28	42.31	74.00	-31.69	Peak	HORIZONTAL
4818.75	58.28	32.25	43.48	6.16	53.21	74.00	-20.79	Peak	HORIZONTAL
6369.75	50.48	34.75	43.04	7.19	49.38	74.00	-24.62	Peak	HORIZONTAL
7227.50	50.42	37.14	42.91	7.82	52.47	74.00	-21.53	Peak	HORIZONTAL
7979.50	48.85	37.97	42.80	8.67	52.69	74.00	-21.31	Peak	HORIZONTAL
8602.25	48.21	37.90	42.67	8.64	52.08	74.00	-21.92	Peak	HORIZONTAL
2410.00	95.77	29.50	43.22	4.24	86.29	74.00	12.29	Peak	VERTICAL
3667.25	51.13	29.73	43.70	5.33	42.49	74.00	-31.51	Peak	VERTICAL
4818.75	58.37	32.25	43.48	6.16	53.30	74.00	-20.70	Peak	VERTICAL
6369.75	50.53	34.75	43.04	7.19	49.43	74.00	-24.57	Peak	VERTICAL
7227.50	51.68	37.14	42.91	7.82	53.73	74.00	-20.27	Peak	VERTICAL
8520.00	49.22	37.74	42.69	8.64	52.91	74.00	-21.09	Peak	VERTICAL
9236.75	47.34	38.89	42.54	8.78	52.47	74.00	-21.53	Peak	VERTICAL
Tx mode 2442 MHz									
2442.00	101.18	27.58	43.23	4.08	89.61	114.00	-24.39	Peak	HORIZONTAL
3726.00	50.21	29.89	43.72	5.40	41.78	74.00	-32.22	Peak	HORIZONTAL
4884.00	57.36	32.34	43.46	6.20	52.44	74.00	-21.56	Peak	HORIZONTAL
6170.00	51.21	33.91	43.07	7.07	49.12	74.00	-24.88	Peak	HORIZONTAL
7321.50	50.45	37.19	42.89	7.92	52.67	74.00	-21.33	Peak	HORIZONTAL
8132.25	49.71	37.92	42.77	8.68	53.54	74.00	-20.46	Peak	HORIZONTAL
9178.00	47.58	38.84	42.55	8.74	52.61	74.00	-21.39	Peak	HORIZONTAL
2442.00	99.98	27.58	43.23	4.08	88.41	114.00	-25.59	Peak	VERTICAL
3914.00	51.55	30.38	43.77	5.60	43.76	74.00	-30.24	Peak	VERTICAL
4884.00	55.26	32.34	43.46	6.20	50.34	74.00	-23.66	Peak	VERTICAL
6170.00	50.58	33.91	43.07	7.07	48.49	74.00	-25.51	Peak	VERTICAL
7321.50	51.26	37.19	42.89	7.92	53.48	74.00	-20.52	Peak	VERTICAL
8402.50	49.30	37.76	42.71	8.65	53.00	74.00	-21.00	Peak	VERTICAL
9072.25	48.75	38.76	42.57	8.66	53.60	74.00	-20.40	Peak	VERTICAL
Tx mode 2473 MHz									
2473.00	102.93	27.65	43.25	4.11	91.44	114.00	-22.56	Peak	HORIZONTAL
3902.25	51.92	30.35	43.77	5.59	44.09	74.00	-29.91	Peak	HORIZONTAL
4948.00	55.69	32.43	43.43	6.24	50.93	74.00	-23.07	Peak	HORIZONTAL
6698.75	50.26	35.98	42.99	7.38	50.63	74.00	-23.37	Peak	HORIZONTAL
7415.50	50.65	37.25	42.88	8.03	53.05	74.00	-20.95	Peak	HORIZONTAL
8813.75	48.78	38.33	42.63	8.62	53.10	74.00	-20.90	Peak	HORIZONTAL
9507.00	47.42	39.11	42.49	9.00	53.04	74.00	-20.96	Peak	HORIZONTAL



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2473.00	100.46	27.65	43.25	4.11	88.97	114.00	-25.03	Peak	VERTICAL
3620.25	51.65	29.61	43.68	5.28	42.86	74.00	-31.14	Peak	VERTICAL
4948.00	57.87	32.43	43.43	6.24	53.11	74.00	-20.89	Peak	VERTICAL
6839.75	51.29	36.46	42.96	7.47	52.26	74.00	-21.74	Peak	VERTICAL
7415.50	51.31	37.25	42.88	8.03	53.71	74.00	-20.29	Peak	VERTICAL
8543.50	49.22	37.79	42.68	8.64	52.97	74.00	-21.03	Peak	VERTICAL
9354.25	46.60	38.98	42.52	8.88	51.94	74.00	-22.06	Peak	VERTICAL
Result: Pass									

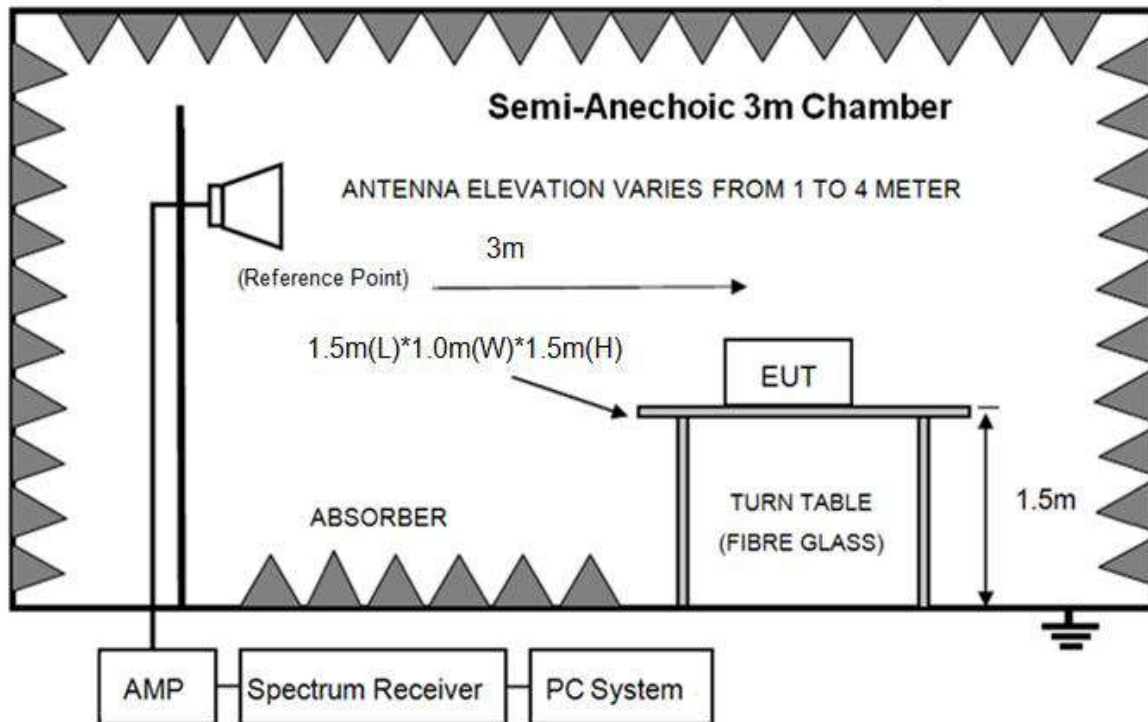
Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

2. For emissions above 1 GHz. If peak results comply with AV limit, AV Result is deemed to comply with AV limit.

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6. Band Edge Compliance

6.1. Block diagram of test setup



6.2. Limit

All the lower and upper band-edges emissions appearing within 2310 MHz to 2390 MHz and 2483.5 MHz to 2500 MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

6.3. Test procedure

Same with clause 5.3 except change investigated frequency range from 2310 MHz to 2420 MHz and 2470 MHz to 2500 MHz.

Remark: All restriction band have been tested, and only the worst case is shown in report.

6.4. Test result

PASS. (See below detailed test result)

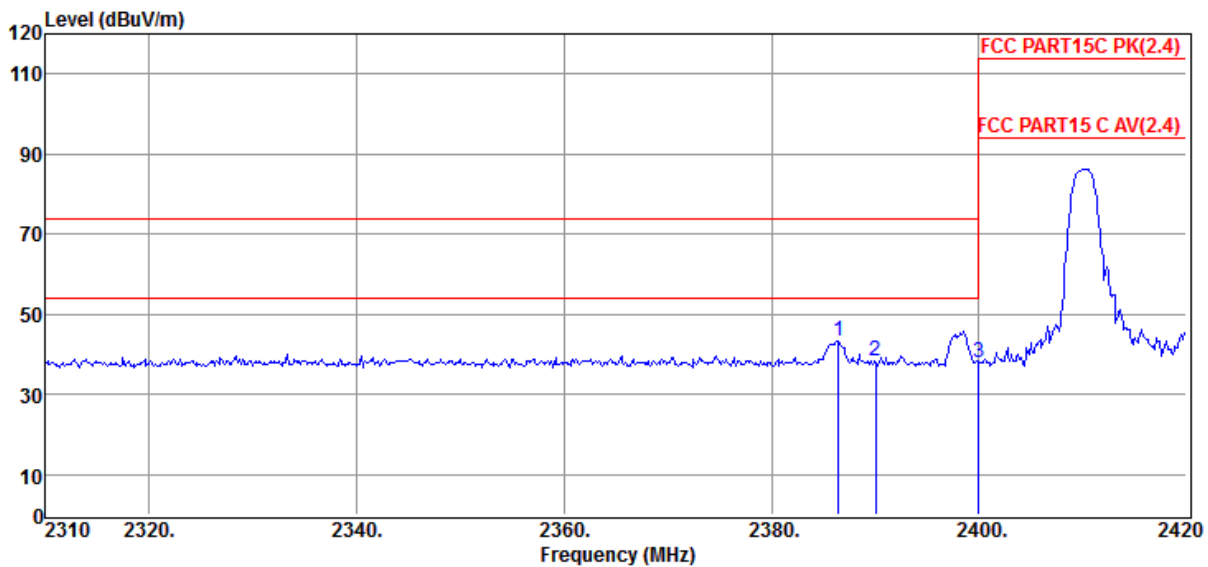


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TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 2# **D:\2020 RE2# Report Data\8110120\FCC ABOVE1G.EM6**
Test Date : 2020-08-18 **Tested By** : Ella
EUT : RC Gator **Model Number** : 1038-WM
Power Supply : DC 3V **Test Mode** : Tx mode
Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa **Antenna/Distance** : 2019 BBHA9120D/3m/VERTICAL
Memo : 2410

Data: 19



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	2386.45	55.06	27.47	43.20	4.03	43.36	74.00	-30.64	Peak	VERTICAL
2	2390.00	50.00	27.48	43.21	4.03	38.30	74.00	-35.70	Peak	VERTICAL
3	2400.00	49.50	27.50	43.21	4.04	37.83	74.00	-36.17	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

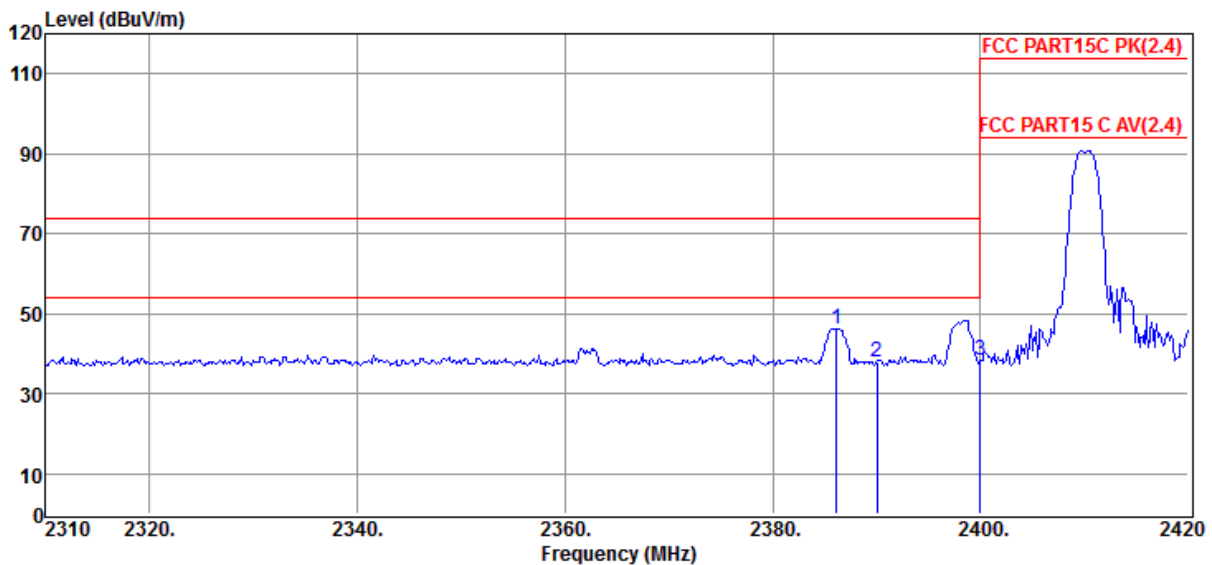


TEST REPORT NUMBER: (8520)220-0099(A) (Revision)

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 2# **D:\2020 RE2# Report Data\8110120\FCC ABOVE1G.EM6**
Test Date : 2020-08-18 **Tested By** : Ella
EUT : RC Gator **Model Number** : 1038-WM
Power Supply : DC 3V **Test Mode** : Tx mode
Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa **Antenna/Distance** : 2019 BBHA9120D/3m/HORIZONTAL
Memo : 2410

Data: 20



Item (Mark)	Freq. (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	2386.12	58.04	27.47	43.20	4.03	46.34	74.00	-27.66	Peak	HORIZONTAL
2	2390.00	49.44	27.48	43.21	4.03	37.74	74.00	-36.26	Peak	HORIZONTAL
3	2400.00	50.13	27.50	43.21	4.04	38.46	74.00	-35.54	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.



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TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 2# **D:\2020 RE2# Report Data\8110120\FCC ABOVE1G.EM6**

Test Date : 2020-08-18 **Tested By** : Ella

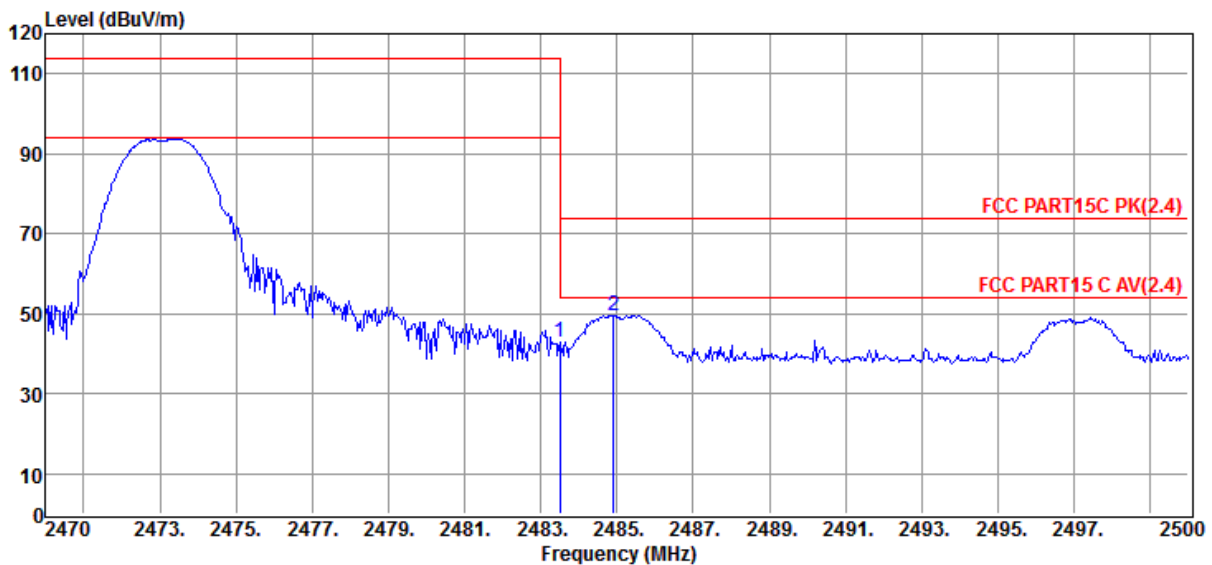
EUT : RC Gator **Model Number** : 1038-WM

Power Supply : DC 3V **Test Mode** : Tx mode

Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa **Antenna/Distance** : 2019 BBHA9120D/3m/HORIZONTAL

Memo : 2473

Data: 21



Item (Mark)	Freq. (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	2483.50	54.28	27.67	43.25	4.12	42.82	74.00	-31.18	Peak	HORIZONTAL
2	2484.91	61.10	27.67	43.25	4.13	49.65	74.00	-24.35	Peak	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

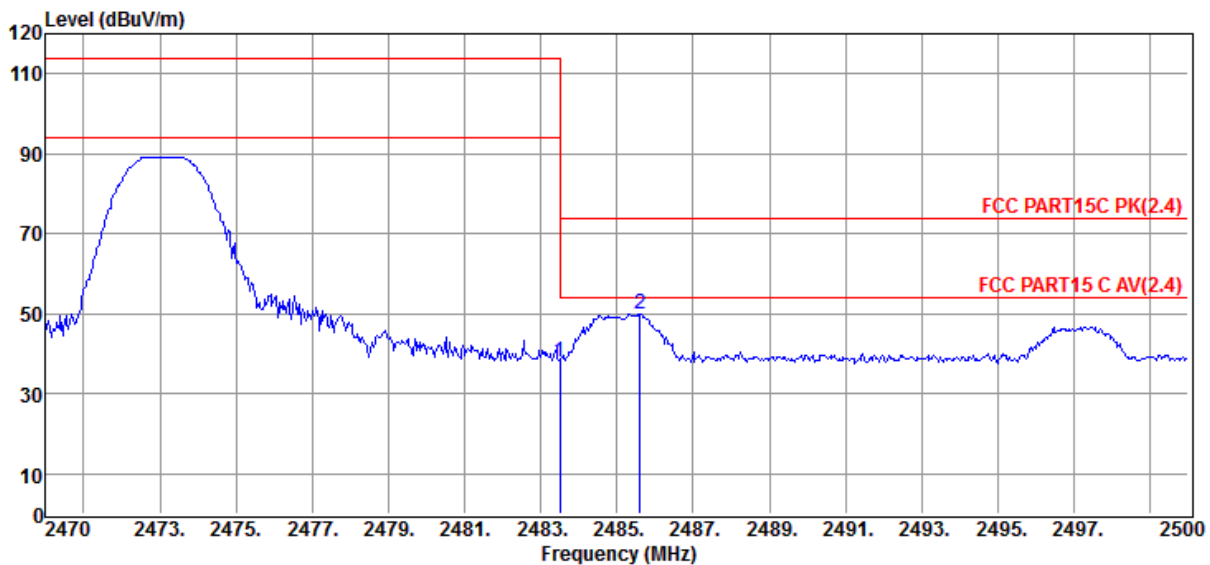


TEST REPORT NUMBER: (8520)220-0099(A) (Revision)

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 2# **D:\2020 RE2# Report Data\8110120\FCC ABOVE1G.EM6**
Test Date : 2020-08-18 **Tested By** : Ella
EUT : RC Gator **Model Number** : 1038-WM
Power Supply : DC 3V **Test Mode** : Tx mode
Condition : Temp:24.5°C,Humi:55%,Press:100.1kPa **Antenna/Distance** : 2019 BBHA9120D/3m/VERTICAL
Memo : 2473

Data: 22



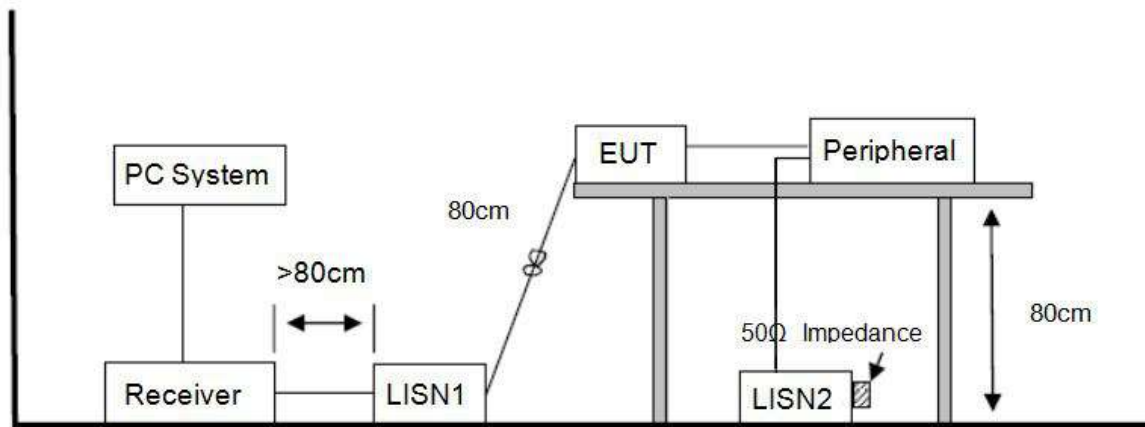
Item (Mark)	Freq. (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	2483.50	49.59	27.67	43.25	4.12	38.13	74.00	-35.87	Peak	VERTICAL
2	2485.60	61.50	27.67	43.25	4.13	50.05	74.00	-23.95	Peak	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

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7. Power Line Conducted Emission

7.1. Block diagram of test setup



7.2. Power line conducted emission limits

Frequency	Quasi-Peak Level dB(μ V)	Average Level dB(μ V)
150 kHz ~ 500 kHz	66 ~ 56*	56 ~ 46*
500 kHz ~ 5 MHz	56	46
5 MHz ~ 30 MHz	60	50

Note 1: * Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

7.3. Test procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.4 and test equipment as described in clause 3 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30 MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.



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The test mode(s) described in clause 2.4 were scanned during the preliminary test. After the preliminary scan, we found the test mode producing the highest emission level. The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 kHz.

7.4. Test result

Not Applicable, since the EUT is only battery-operated device.

8. Antenna Requirements

8.1. Limit

For intentional device, according to FCC 47 CFR 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.

8.2. Result

The antenna used for this product is wire antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 0 dBi.