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Report No.: SZEM160700547002

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FCC REPORT

Application No. :SZEM1607005470CRApplicant:Potpourri Group Inc.

Manufacturer: SHANTOU YIERDA PLASTIC TOYS ELECTRONIC LIMITE SHANTOU YIERDA PLASTIC TOYS ELECTRONIC LIMITE

Product Name: 2.4G RC OFF-ROAD AMPHIBOUS VEHICLE

Model No.(EUT): YED1601
Trade Mark: YED

FCC ID: 2AIY3-Y162003

Standards: 47 CFR Part 15, Subpart C (2015)

 Date of Receipt:
 2016-07-08

 Date of Test:
 2016-07-13

 Date of Issue:
 2016-08-05

Test Result: PASS *

Authorized Signature:



Jack Zhang EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

^{. *} In the configuration tested, the EUT complied with the standards specified above.



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2 Version

Revision Record								
Version Chapter Date Modifier Remark								
00		2016-08-05		Original				

Authorized for issue by:		
Tested By	Gebin Sun	2016-07-15
	(Gebin Sun) /Project Engineer	Date
Checked By	Eric Fu	2016-08-05
	(Eric Fu) /Reviewer	Date



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3 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203	ANSI C63.10 (2013)	PASS
Field Strength of the Fundamental Signal	47 CFR Part 15, Subpart C Section 15.249 (a)	ANSI C63.10 (2013)	PASS
Spurious Emissions	47 CFR Part 15, Subpart C Section 15.249 (a)/15.209	ANSI C63.10 (2013)	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15, Subpart C Section 15.249(a)/15.205	ANSI C63.10 (2013)	PASS
20dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.215 (c)	ANSI C63.10 (2013)	PASS



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5 General Information

5.1 Client Information

Applicant:	Potpourri Group Inc.			
Address of Applicant:	101 Billerica Ave. Building 2 North BIllerica, Massachusetts, United States 01862			
Manufacturer:	SHANTOU YIERDA PLASTIC TOYS ELECTRONIC LIMITE			
Address of Manufacturer:	cturer: XiaoJiao Industrial Zone, Chenghai, Shantou, Guangdong, China			
Factory:	SHANTOU YIERDA PLASTIC TOYS ELECTRONIC LIMITE			
Address of Factory: XiaoJiao Industrial Zone, Chenghai, Shantou, Guangdong, Chin				

5.2 General Description of EUT

Name:	2.4G RC OFF-ROAD AMPHIBOUS VEHICLE
Model No.:	YED1601
Trade Mark :	YED
Frequency Range:	2402MHz-2480MHz
Modulation Type:	GFSK
Number of Channels:	79 (declared by the client)
Sample Type:	Portable production
Antenna Type:	Integral
Antenna Gain:	0dBi
Power Supply:	DC9V (1 x 9V "6F22" Size Batteries)



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Operation F	requency each	of channel					
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	20	2422MHz	40	2442MHz	60	2462MHz
1	2403MHz	21	2423MHz	41	2443MHz	61	2463MHz
2	2404MHz	22	2424MHz	42	2444MHz	62	2464MHz
3	2405MHz	23	2425MHz	43	2445MHz	63	2465MHz
4	2406MHz	24	2426MHz	44	2446MHz	64	2466MHz
5	2407MHz	25	2427MHz	45	2447MHz	65	2467MHz
6	2408MHz	26	2428MHz	46	2448MHz	66	2468MHz
7	2409MHz	27	2429MHz	47	2449MHz	67	2469MHz
8	2410MHz	28	2430MHz	48	2450MHz	68	2470MHz
9	2411MHz	29	2431MHz	49	2451MHz	69	2471MHz
10	2412MHz	30	2432MHz	50	2452MHz	70	2472MHz
11	2413MHz	31	2433MHz	51	2453MHz	71	2473MHz
12	2414MHz	32	2434MHz	52	2454MHz	72	2474MHz
13	2415MHz	33	2435MHz	53	2455MHz	73	2475MHz
14	2416MHz	34	2436MHz	54	2456MHz	74	2476MHz
15	2417MHz	35	2437MHz	55	2457MHz	75	2477MHz
16	2418MHz	36	2438MHz	56	2458MHz	76	2478MHz
17	2419MHz	37	2439MHz	57	2459MHz	77	2479MHz
18	2420MHz	38	2440MHz	58	2460MHz	78	2480MHz
19	2421MHz	39	2441MHz	59	2461MHz		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The Lowestchannel(CH0)	2402MHz
The Middle channel(CH38)	2440MHz
The Highest channel(CH78)	2480MHz



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5.3 Test Environment and Mode

Operating Environment	Operating Environment:				
Temperature:	25.0 °C				
Humidity:	52 % RH				
Atmospheric Pressure:	1010 mbar				
5.4 Description of Support Units					
The EUT has been tested independent unit.					

5.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch,

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.



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5.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

VCC

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

FCC – Registration No.: 556682

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

Industry Canada (IC)

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

5.7 Deviation from Standards

None.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

None.



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5.10 Equipment List

	RE in Chamber					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2016-05-13	2017-05-13
2	EMI Test Receiver	Agilent Technologies	N9038A	SEM004-05	2015-09-16	2016-09-16
3	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2014-11-01	2017-11-01
4	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEM003-11	2015-10-17	2018-10-17
5	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEM003-12	2014-11-24	2017-11-24
6	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2016-04-25	2017-04-25
7	Band filter	Amindeon	Asi 3314	SEM023-01	N/A	N/A
8	DC Power Supply	Zhao Xin	RXN-305D	SEM011-02	2015-10-09	2016-10-09
9	Loop Antenna	Beijing Daze	ZN30401	SEM003-09	2015-05-13	2018-05-13

	RE in Chamber					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2016-05-13	2017-05-13
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEM004-04	2016-04-25	2017-04-25
3	BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-02	2014-11-15	2017-11-15
4	Amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2015-10-09	2016-10-09
5	Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2015-06-14	2018-06-14
6	Low Noise Amplifier	Black Diamond Series	BDLNA- 0118- 352810	SEM005-05	2015-10-09	2016-10-09
7	Band filter	Amindeon	Asi 3314	SEM023-01	N/A	N/A



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	RF connected test					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
1	DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2015-10-09	2016-10-09
2	Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2015-10-17	2016-10-17
3	Signal Generator	Rohde & Schwarz	SML03	SEM006-02	2016-04-25	2017-04-25
4	Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2015-10-09	2016-10-09



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6 Test results and Measurement Data

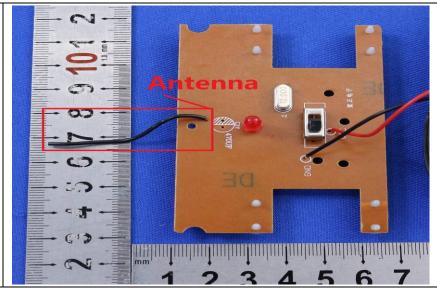
6.1 Antenna Requirement

Standard requirement: 47 CFR Part 15C Section 15.203

15.203 requirement:

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.

EUT Antenna:



The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0dBi.



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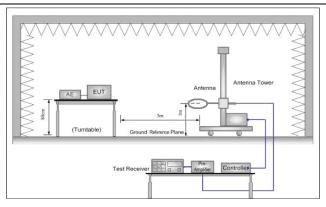
6.2 Radiated Emission

Test Requirement:	47 CFR Part 15C Section 15.249 and 15.209										
Test Method:	ANSI C63.10: 2013 Clause 6.4,6.5 and 6.6										
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)										
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark						
	0.009MHz-0.090MHz	Peak	10kHz	30KHz	Peak						
	0.009MHz-0.090MHz	Average	10kHz	30KHz	Average						
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30KHz	Quasi-peak						
	0.110MHz-0.490MHz	Peak	10kHz	30KHz	Peak						
	0.110MHz-0.490MHz	Average	10kHz	30KHz	Average						
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak						
	30MHz-1GHz	Quasi-peak	100 kHz	300KHz	Quasi-peak						
	Above 1GHz	Peak	1MHz	3MHz	Peak						
	Above TGHZ	Peak	1MHz	10Hz	Average						
Limit: (Spurious Emissions)	Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark		Measurement distance (m)					
	0.009MHz-0.490MHz	2400/F (kHz)	-	-	300						
	0.490MHz-1.705MHz	24000/F (kHz)	-	-	30						
	1.705MHz-30MHz	30	-	-	30						
	30MHz-88MHz	100	40.0	Quasi-pea	k 3						
	88MHz-216MHz	150	43.5	Quasi-pea	k 3						
	216MHz-960MHz	200	46.0	Quasi-pea	.k 3						
	960MHz-1GHz	500	54.0	Quasi-pea	.k 3						
	Above 1GHz	500	54.0	Average	3						
		e maximum permit test. This peak lii	ted average	emission limi	it applicable to	the					
Limit:	Frequency	Limit (dBuV/	m @3m)	Remark							
(Field strength of the	0400MH= 0400 EMH	94.0)	Average Val	ue						
fundamental signal)	2400MHz-2483.5MH:	114.0	0	Peak Value	е						
Test Setup:											



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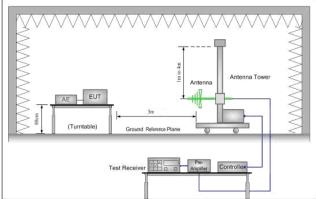


Figure 1. Below 30MHz

Figure 2. 30MHz to 1GHz

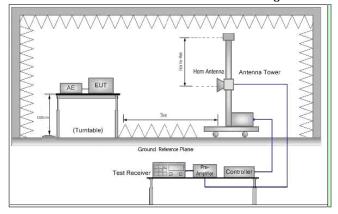


Figure 3. Above 1 GHz

Test Procedure:

- a. For 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 camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- 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 antenna height 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be retested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel



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	 i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case. j. Repeat above procedures until all frequencies measured was complete.
Instruments Used:	Refer to section 5.10 for details
Exploratory Test Mode:	Transmitting mode
Final Test Mode:	Pretest the EUT at Transmitting mode
	Only the worst case is recorded in the report.
Test Results:	Pass



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Measurement Data

6.2.1.1 Field Strength Of The Fundamental Signal

Peak value:

		1						1
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2402.481	29.11	5.35	38.15	96.34	92.65	114.00	-21.35	Horizontal
2402.481	29.11	5.35	38.15	91.49	87.80	114.00	-26.20	Vertical
2440.660	29.23	5.38	38.15	96.03	92.49	114.00	-21.51	Horizontal
2440.540	29.23	5.38	38.15	92.24	88.70	114.00	-25.30	Vertical
2480.696	29.34	5.41	38.15	96.94	93.54	114.00	-20.46	Horizontal
2480.038	29.34	5.41	38.15	91.75	88.35	114.00	-25.65	Vertical

Remark:

The peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.

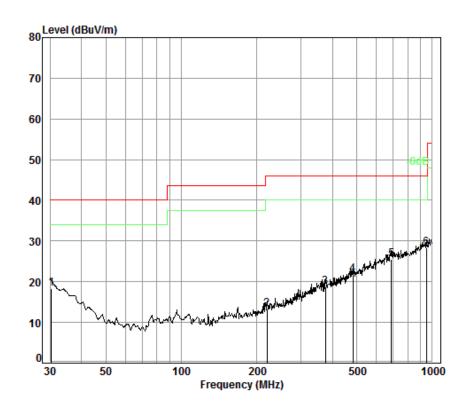


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6.2.1.2 Spurious Emissions

30MHz~1GHz (QP)			
Test mode:	Transmitter mode	Polarization:	Vertical



Condition: 3m Vertical

Job No. : 5470CR

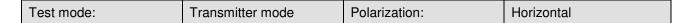
Test mode: TX

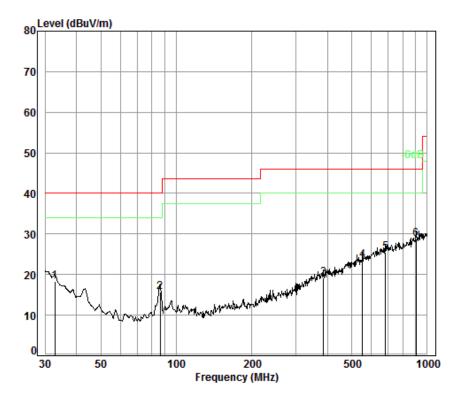
	Frea			Preamp Factor				Over Limit
	MHz	dB	dB/m				dBuV/m	dB
1	30.42	0.60	18.72	26.00	24.91	18.23	40.00	-21.77
2	219.84	1.52	11.16	25.76	26.28	13.20	46.00	-32.80
3 4	375.94 482.22			25.67 25.63				-27.27 -24.21
5 6 pp	687.15 948.76	2.88 3.65		25.69 24.73				



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Condition: 3m Horizontal

Job No. : 5470CR Test mode: TX

	Freq	Cable Loss		Preamp Factor				Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	32.86	0.60	17.16	26.00	26.45	18.21	40.00	-21.79
2	86.20	1.10	8.43	25.91	32.02	15.64	40.00	-24.36
3	386.63	2.16	16.14	25.66	26.61	19.25	46.00	-26.75
4	552.88	2.66	19.00	25.61	27.51	23.56	46.00	-22.44
5	682.35	2.87	21.42	25.69	26.80	25.40	46.00	-20.60
6 pp	903.31	3.60	23.23	25.04	27.01	28.80	46.00	-17.20



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Above 1GH	Z										
Test mode:		Trans	mitting	Test char	nnel:	Lo	west	Remark:	Remark: Pe		
Frequency (MHz)	Fa	enna ctor 3/m)	Cable Loss (dB)	Preamp Factor (dB)	Read Leve (dBuV	I	Level (dBuV/m)	Limit Line (dBuV/m)	Ov Lim (dE	nit	Polarization
4006.813	33	3.60	7.82	38.70	44.94	ļ	47.66	74.00	-26.	34	Vertical
4804.000	34	.16	8.87	39.03	54.52	2	58.52	74.00	-15.	48	Vertical
6087.002	34	1.77	10.45	38.94	45.72	2	52.00	74.00	-22.	00	Vertical
7206.000	36	5.42	10.68	38.18	43.10)	52.02	74.00	-21.	98	Vertical
9608.000	37	.52	12.50	36.99	36.59)	49.62	74.00	-24.	38	Vertical
12566.85	38	3.89	14.34	38.88	38.72	2	53.07	74.00	-20.	93	Horizontal
3610.398	32	2.53	7.67	38.52	45.89)	47.57	74.00	-26.	43	Horizontal
4804.000	34	.16	8.87	39.03	62.75	5	66.75	74.00	-7.2	25	Horizontal
6034.386	34	1.73	10.52	38.98	45.69)	51.96	74.00	-22.	04	Horizontal
7206.000	36	5.42	10.68	38.18	41.76	5	50.68	74.00	-23.	32	Horizontal

Test mode:	Trans	mitting	Test char	Test channel:		west	Remark:		Average	
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Read Level (dBuV		Level (dBuV/m)	Limit Line (dBuV/m)	Ove Lim (dB	iit	Polarization
4804.000	34.16	8.87	39.03	39.49)	43.49	54.00	-10.5	51	Vertical
4804.000	34.16	8.87	39.03	46.00)	50.00	54.00	-4.0	00	Horizontal



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Test mode:	Trans	mitting	Test char	nnel:	Middle	Remark:	Remark: Pe	
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	
3759.672	32.95	7.73	38.59	45.14	47.23	74.00	-26.77	7 Vertical
4880.000	34.29	8.97	39.06	55.17	59.37	74.00	-14.63	3 Vertical
5794.797	34.58	9.98	39.02	46.29	51.83	74.00	-22.17	7 Vertical
7320.000	36.37	10.72	38.07	43.70	52.72	74.00	-21.28	3 Vertical
9760.000	37.55	12.58	36.92	37.90	51.11	74.00	-22.89) Vertical
12566.850	38.89	14.34	38.88	39.05	53.40	74.00	-20.60) Horizontal
3825.521	33.13	7.75	38.62	45.96	48.22	74.00	-25.78	B Horizontal
4880.000	34.29	8.97	39.06	62.91	67.11	74.00	-6.89	Horizontal
6104.642	34.79	10.42	38.93	45.89	52.17	74.00	-21.83	B Horizontal
7320.000	36.37	10.72	38.07	43.21	52.23	74.00	-21.77	7 Horizontal

Test mode:	Transmitting		Test channel: Middle		ddle	Remark:		Average		
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Read Level (dBuV		Level (dBuV/m)	Limit Line (dBuV/m)	Ov Lim (dE	nit	Polarization
4880.000	34.29	8.97	39.06	40.77	,	44.97	54.00	-9.(03	Vertical
4880.000	34.29	8.97	39.06	46.77	,	50.97	54.00	-3.0	03	Horizontal



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Test mode:	Trans	mitting	Test char	nnel:	Highest	Remark:	Pe	ak
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
3803.444	33.07	7.74	38.61	45.57	47.77	74.00	-26.23	Vertical
4960.000	34.43	9.09	39.09	55.23	59.66	74.00	-14.34	Vertical
6034.386	34.73	10.52	38.98	46.16	52.43	74.00	-21.57	Vertical
7440.000	36.32	10.77	37.94	43.26	52.41	74.00	-21.59	Vertical
9920.000	37.58	12.67	36.84	37.56	50.97	74.00	-23.03	Vertical
12603.270	38.88	14.44	38.91	37.98	52.39	74.00	-21.61	Horizontal
3836.607	33.16	7.75	38.63	45.66	47.94	74.00	-26.06	Horizontal
4960.000	34.43	9.09	39.09	62.25	66.68	74.00	-7.32	Horizontal
6087.002	34.77	10.45	38.94	46.25	52.53	74.00	-21.47	Horizontal
7440.000	36.32	10.77	37.94	43.23	52.38	74.00	-21.62	Horizontal

Test mode:	Trans	mitting	Test channel:		Highest		Remark:		Average	
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Read Level (dBuV	ı	Level (dBuV/m)	Limit Line (dBuV/m)	Ove Lim (dE	nit	Polarization
4960.000	34.43	9.09	39.09	40.50)	44.93	54.00	-9.()7	Vertical
4960.000	34.43	9.09	39.09	44.58	3	49.01	54.00	-4.9	99	Horizontal

Remark:

- 1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
 Final Test Level = Receiver Reading + Antenna Factor + Cable Factor Preamplifier Factor
- 2) Scan from 9kHz to 25GHz, The disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
- 3) As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits.

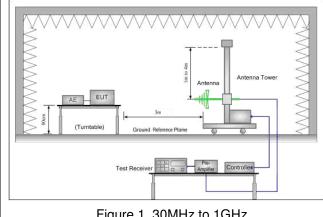


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6.3 Restricted bands around fundamental frequency

Test Requirement:	47 CFR Part 15C Section 1	47 CFR Part 15C Section 15.209 and 15.205						
Test Method:	ANSI C63.10: 2013 Clause	6.10						
Test Site:	Measurement Distance: 3m	(Semi-Anechoic Chambe	r)					
Limit(band edge):	harmonics, shall be attenua fundamental or to the general	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 Section 15.209, whichever is the lesser attenuation.						
	Frequency	Frequency Limit (dBuV/m @3m) Remark						
	30MHz-88MHz	40.0	Quasi-peak Value					
	88MHz-216MHz	43.5	Quasi-peak Value					
	216MHz-960MHz	46.0	Quasi-peak Value					
	960MHz-1GHz	960MHz-1GHz 54.0 Quasi-peak Value						
	54.0 Average Value							
	Above 1GHz	Above 1GHz 74.0 Peak Value						
Test Setup:		1						





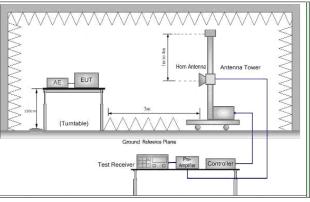


Figure 2. Above 1 GHz



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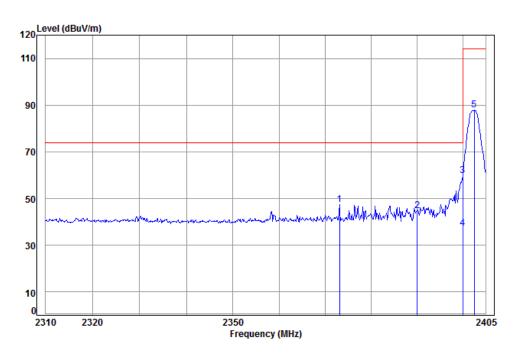
	1 age . 22 01 33
Test Procedure:	a. For bleow 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
	b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation
	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 antenna height 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.
	f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
	g. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel
	h. Test the EUT in the lowest channel, the Highest channel
	i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case.
	j. Repeat above procedures until all frequencies measured was complete.
Instruments Used:	Refer to section 5.10 for details
Test Mode:	Transmitting with GFSK modulation. Transmitting mode
Test Results:	Pass



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Band edge test	data (Radiated En	nission)			
Test mode:	Transmitting	Test channel:	Lowest	Remark:	Vertical



Condition: 3m Vertical Job No: : 5470CR

Mode: : 2402 Band edge

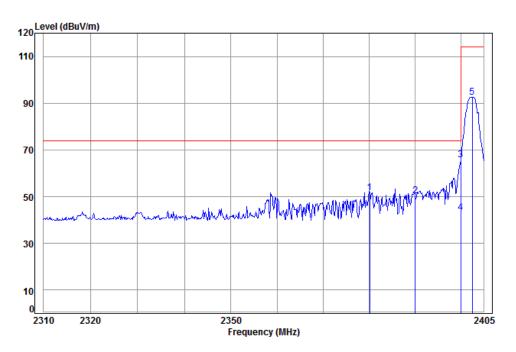
	C	able	Ant	Preamp	Read		Limit	0ver
	Freq	Loss Fa	ctor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 237	3.034	5.32 2	9.03	38.14	51.23	47.44	74.00	-26.56
2 2396	0.000	5.34 2	9.08	38.14	48.39	44.67	74.00	-29.33
3 pp 2400	0.000	5.34 2	9.11	38.14	63.66	59.97	74.00	-14.03
4 av 2400	0.000	5.34 2	9.11	38.14	41.00	37.31	54.00	-16.69
5 2402	2.481	5.35 2	9.11	38.15	91.49	87.80	114.00	-26.20



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Condition: 3m HORIZONTAL

Job No: : 5470CR

Mode: : 2402 Band edge

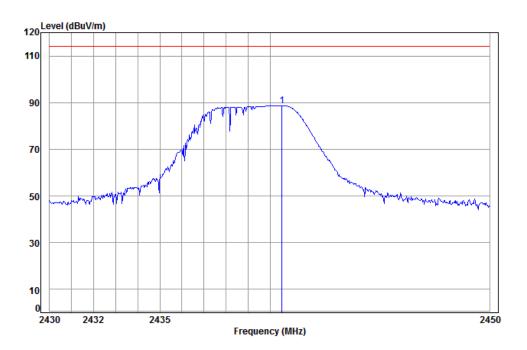
		Cable	Ant	Preamp	Read		Limit	0ver
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2380.026	5.33	29.05	38.14	55.48	51.72	74.00	-22.28
2	2390.000	5.34	29.08	38.14	53.91	50.19	74.00	-23.81
3	pp 2400.000	5.34	29.11	38.14	69.27	65.58	74.00	-8.42
4	av 2400.000	5.34	29.11	38.14	47.00	43.31	54.00	-10.69
5	2402.481	5.35	29.11	38.15	96.34	92.65	114.00	-21.35



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Test mode:	Transmitting	Test channel:	Middle	Remark:	Vertical



Condition: 3m VERTICAL Job No: : 5470CR

Mode: : 2440 Band edge

Cable Ant Preamp Read Limit Over
Freq Loss Factor Factor Level Level Line Limit

MHz dB dB/m dB dBuV dBuV/m dBuV/m dB

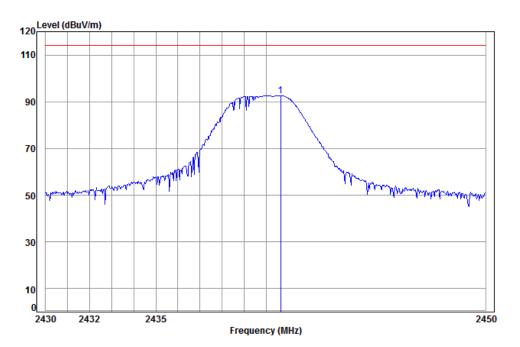
1 pp 2440.540 5.38 29.23 38.15 92.24 88.70 114.00 -25.30



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Test mode:	Transmitting	Test channel:	Middle	Remark:	Horizontal



Condition: 3m HORIZONTAL

Job No: : 5470CR

1 pp 2440.660

Mode: : 2440 Band edge

Cable Ant Preamp Read Limit Over
Freq Loss Factor Factor Level Level Line Limit

MHz dB dB/m dB dBuV dBuV/m dBuV/m dB

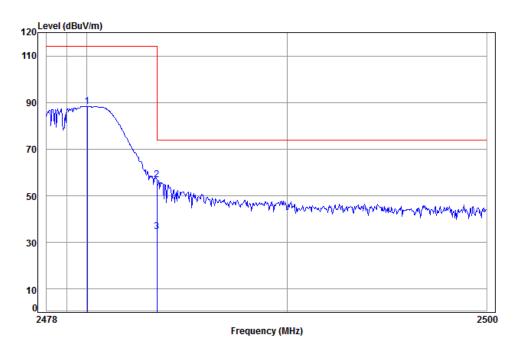
5.38 29.23 38.15 96.03 92.49 114.00 -21.51



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Test mode:	Transmitting	Test channel:	Highest	Remark:	Vertical



Read

Limit

0ver

Condition: 3m Vertical Job No: : 5470CR

Mode: : 2480 Band edge

		Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	-	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
		2480.038 2483.500							
3	av	2483.500	5.41	29.35	38.15	38.13	34.74	54.00	-19.26

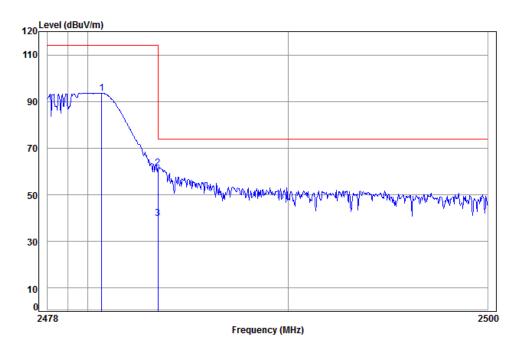
Cable Ant Preamp



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Test mode:	Transmitting	Test channel:	Highest	Remark:	Horizontal
			9		



Condition: 3m HORIZONTAL

Job No: : 5470CR

Mode: : 2480 Band edge

		Cable	Ant	Preamp	Read		Limit	0ver
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2480.696	5.41	29.34	38.15	96.94	93.54	114.00	-20.46
2 pp	2483.500	5.41	29.35	38.15	65.01	61.62	74.00	-12.38
3 av	2483.500	5.41	29.35	38.15	43.21	39.82	54.00	-14.18

Note:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

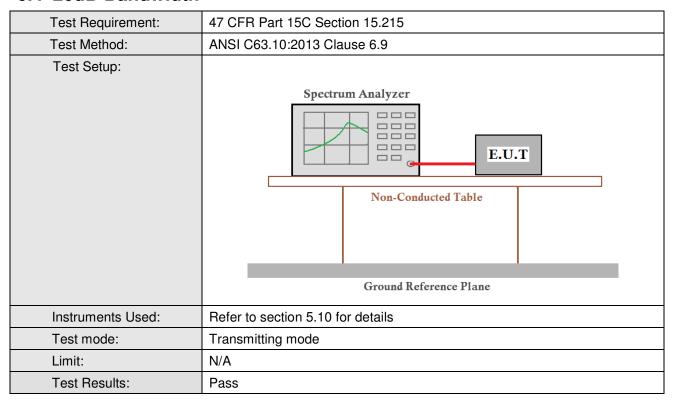
Final Test Level =Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor



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6.4 20dB Bandwidth



Measurement Data

Test channel	20dB bandwidth (MHz)	Results
Lowest	1.285	Pass
Middle	1.202	Pass
Highest	1.350	Pass

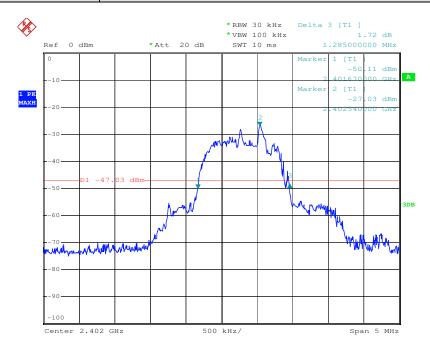


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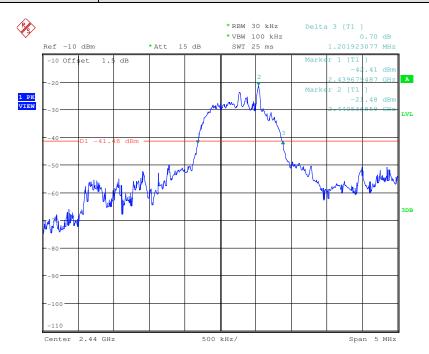
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Test plot as follows:

Test channel: Lowest



Test channel: Middle

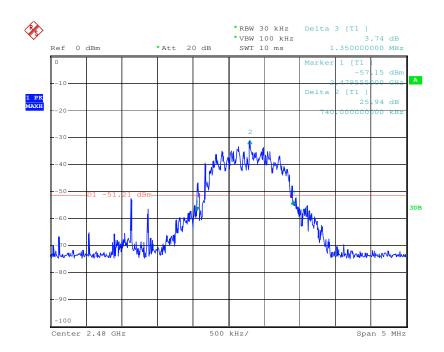




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Test channel: Highest





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7 Photographs

Test model No.: YED1601

7.1 Radiated Emission Test Setup







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7.2 EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1607005470CR.