



Test Report

Report No.: MTi210621016-04E1

Date of issue: July 14, 2021

Applicant: Cherub Technology Co., Ltd

Product name: 5.8GHz Wireless Guitar System

Model(s): C-5RC

FCC ID: 2AOAA-C-5RC

Shenzhen Microtest Co., Ltd.
<http://www.mtitest.com>



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5. Any objection to this report shall be submitted to the laboratory within 15 days from the date of receipt of the report.



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TEST RESULT CERTIFICATION

Applicant's name	Cherub Technology Co., Ltd
Address	Room507, Block 1, Nanhai E-Cool, No. 6 Xinghua Road, Shekou, Nanshan District, Shenzhen City, Guangdong Province, China, 518067
Manufacturer's Name ...	Cherub Technology Co., Ltd
Address	Room507, Block 1, Nanhai E-Cool, No. 6 Xinghua Road, Shekou, Nanshan District, Shenzhen City, Guangdong Province, China, 518067
Factory:	Cherub Technology Co., Ltd (Zhuhai High-tech Park)
Address:	No.10, Keji No.9Rd, Tangjiawan Town, Zhuhai National Hi-tech Industrial Development Zone, Zhuhai City, Guangdong Province, China, 519080

Product description

Product name	5.8GHz Wireless Guitar System
Trademark	NUX
Model Name	C-5RC
Serial Model	N/A
Standards	FCC Part 15.249
Test procedure.....	ANSI C63.10-2013

Date of Test

Date (s) of performance of tests..... :	June 24, 2021 ~ July 14, 2021
Test Result..... :	Pass

This device described above has been tested by Shenzhen Microtest Co., Ltd. and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Testing Engineer

:

Danny Xu

(Danny Xu)

Technical Manager

:

Leo Su

(Leo Su)

Authorized Signatory

:

Tom Xue

(Tom Xue)



1 General description

1.1 Feature of equipment under test (EUT)

Equipment:	5.8GHz Wireless Guitar System
Trade Name:	NUX
Model Name:	C-5RC
Serial Model:	N/A
Model Difference:	N/A
Operation Frequency:	5729-5847 MHz
Modulation Type:	GFSK
Antenna Type:	PCB antenna
Antenna Gain:	4.42dBi
Max. Field Strength:	85.78dBuV/m
Power Source:	DC 3.7V from battery
Battery:	DC 3.7V 500mAh
Hardware version:	V1.0
Software version:	V1.0

1.2 Operation channel list

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
01	5729	17	5793
02	5733	18	5797
03	5737	19	5801
04	5741	20	5805
05	5745	21	5809
06	5749	22	5813
07	5753	23	5817
08	5757	24	5821
09	5761	25	5825
10	5765	26	5829
11	5769	27	5833
12	5773	28	5837
13	5777	29	5841
14	5781	30	5845
15	5785	31	5847
16	5789		



1.3 Test Frequency Channel

Channel	Frequency(MHz)
Low	5729
Middle	5789
High	5847

1.4 EUT operation mode

During testing, RF test program provided by the manufacture to control the Tx operation followed the test requirement.

1.5 Ancillary equipment list

Equipment	Model	S/N	Manufacturer
/	/	/	/

2 Summary of Test Result

Test procedures according to the technical standards:

Item	FCC Part No.	Description of Test	Result
1	FCC Part15.203	Antenna Requirement	Pass
2	FCC Part15.207	AC power line conducted emission	N/A
5	FCC Part15.249(d)	Radiated spurious emission	Pass
4	FCC Part 15.215	20dB and 99% Bandwidth	Pass



3 Test Facilities and Accreditations

3.1 Test laboratory

Test Laboratory	Shenzhen Microtest Co., Ltd
Location	101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao' an District, Shenzhen, Guangdong, China.
FCC Registration No.	448573

3.2 Environmental conditions

Temperature:	15°C~35°C
Humidity	20%~75%
Atmospheric pressure	98kPa~101kPa

3.3 Measurement uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %

RF frequency	1×10^{-7}
RF power, conducted	± 1 dB
Conducted emission(150kHz~30MHz)	± 2.5 dB
Radiated emission(30MHz~1GHz)	± 4.2 dB
Radiated emission (above 1GHz)	± 4.3 dB
Temperature	± 1 degree
Humidity	± 5 %

3.4 Test software

Software Name	Manufacturer	Model	Version
Bluetooth and WiFi Test System	Shenzhen JS tonscond co.,ltd	JS1120-3	2.5.77.0418



4 List of test equipment

Equipment No.	Equipment Name	Manufacturer	Model	Serial No.	Calibration date	Due date
MTI-E043	EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2021/06/02	2022/06/01
MTI-E044	TRILOG Broadband Antenna	schwarzbeck	VULB 9163	9163-1338	2021/05/30	2023/05/29
MTI-E047	Amplifier	Hewlett-Packard	8447F	3113A06150	2021/06/02	2022/06/01
MTI-E089	ESG Vector Signal Generator	Agilent	N5182A	MY49060455	2021/06/02	2022/06/01
MTI-E058	ESG Series Analog Signal Generator	Agilent	E4421B	GB40051240	2021/06/02	2022/06/01
MTI-E062	PXA Signal Analyzer	Agilent	N9030A	MY51350296	2021/06/02	2022/06/01
MTI-E066	MXA Signal Analyzer	Agilent	N9020A	MY50143483	2021/06/02	2022/06/01
MTI-E078	Synthesized Sweeper	Agilent	83752A	3610A01957	2021/06/02	2022/06/01
MTI-E079	DC Power Supply	Agilent	E3632A	MY40027695	2021/06/02	2022/06/01
MTI-E045	Double Ridged Broadband Horn Antenna	schwarzbeck	BBHA 9120D	9120D-2278	2021/05/30	2023/05/29
MTI-E021	EMI Test Receiver	Rohde&schwarz	ESCS30	100210	2021/06/02	2022/06/01
MTI-E022	Pulse Limiter	Schwarzbeck	VSTD 9561-F	00679	2021/06/02	2022/06/01
MTI-E023	Artificial mains network	Schwarzbeck	NSLK 8127	NSLK 8127 #841	2021/06/02	2022/06/01
MTI-E046	Active Loop Antenna	Schwarzbeck	FMZB 1519B	00044	2021/05/30	2023/05/29
MTI-E048	Amplifier	Agilent	8449B	3008A02400	2021/06/02	2022/06/01
MTI-E072	Thermometer Clock Humidity Monitor	-	HTC-1	/	2021/06/02	2022/06/01

Note: the calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

5 Test Result

5.1 Antenna requirement

5.1.1 Standard requirement

FCC PART 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 shall be considered sufficient to comply with the provisions of this section. 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.

This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or §15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

5.1.2 EUT Antenna

The antenna is a PCB antenna, which was permanently affixed to the device and un-replaced, complies with 15.203. In addition, the maximum antenna gain is 4.42dBi.



5.2 AC power line conducted emission

5.2.1 Limits

FCC §15.207;

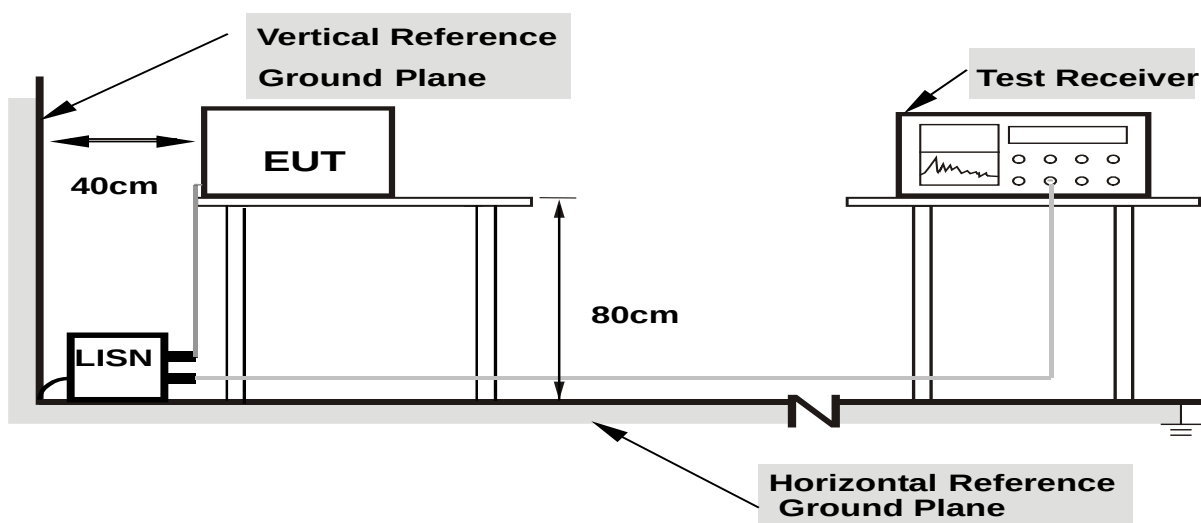
For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 Ω line impedance stabilization network (LISN).

Frequency (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 ^{note2}	56 - 46 ^{note2}
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Note1: The tighter limit applies at the band edges.

Note2: The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

5.2.2 Test setup



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes



5.2.3 Test procedure

a. EUT Operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

b. The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

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

d. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

e. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

f. LISN at least 80 cm from nearest part of EUT chassis.

For the actual test configuration, please refer to the related Item –EUT Test Photos.

5.2.4 Test results

Note: The device can not TX when it charging status.



5.3 Radiated spurious emission

5.3.1 Limit

FCC PART 15.249(a);

Except as provided in paragraph (a) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Frequency (MHz)	Field Strength of Fundamental (mV/m)	Field Strength of Harmonics (μ V/m)
902-928	50	500
2400-2483.5	50	500
5725-5875	50	500

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.

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μ V/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

5.3.2 Test method

- The EUT is placed on a turntable, which is 0.8m above ground plane for test frequency range below 1GHz, and 1.5m above ground plane for test frequency range above 1GHz.
- EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- Use the following spectrum analyser settings:
 - Span = wide enough to fully capture the emission being measured
 - RBW = 1 MHz for $f \geq 1\text{GHz}$, 100 kHz for $f < 1\text{GHz}$
 - VBW $\geq$ RBW, Sweep = auto
 - Detector function = peak
 - Trace = max hold
- Follow the guidelines in ANSI C63.4-2014 with respect to maximizing the emission by rotating the EUT, adjusting the measurement antenna height and polarization, etc. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, submit this data. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- The peak level, once corrected, must comply with the limit specified in Section 15.209. Set the RBW = 1MHz, VBW = 10Hz, Detector = PK for AV value, while maintaining all of the other instrument settings.

5.3.3 Test Result

Below 30MHz

EUT:	5.8GHz Wireless Guitar System	Model name. :	C-5RC
Pressure:	1010 hPa	Test voltage:	DC 3.7V from battery
Test mode:	TX	Polarization:	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	Pass
--	--	--	--	Pass

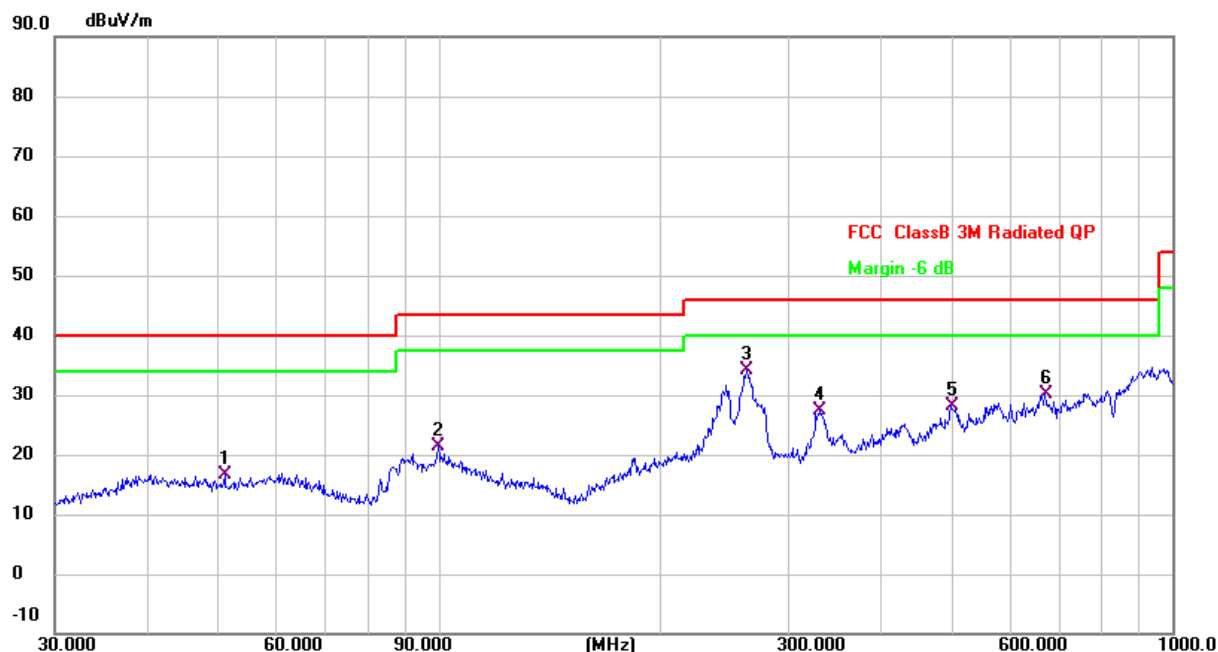
Note:

1. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
2. Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})(\text{dB})$;
3. Limit line = specific limits (dBuV) + distance extrapolation factor.



30MHz-1GHz

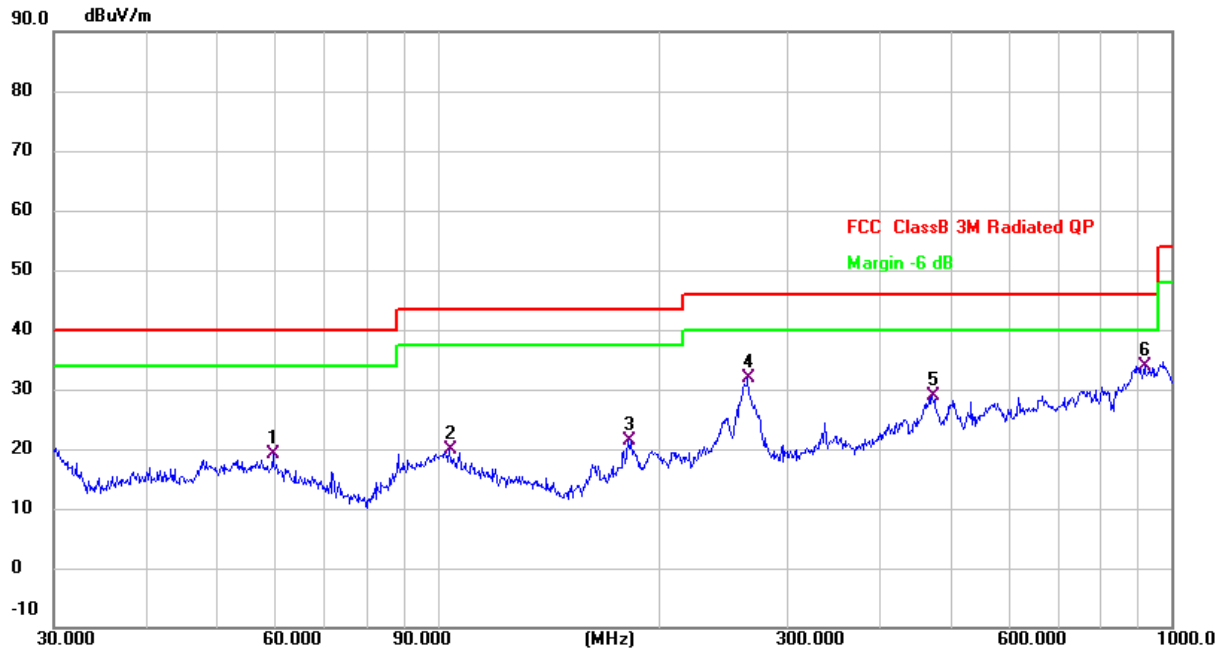
EUT:	5.8GHz Wireless Guitar System	Model Name:	C-5RC
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 3.7V from battery	Test Mode:	TX-5729MHZ



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	51.1209	31.84	-15.29	16.55	40.00	-23.45	QP
2	99.8777	32.60	-11.32	21.28	43.50	-22.22	QP
3 *	262.8955	44.73	-10.59	34.14	46.00	-11.86	QP
4	331.3546	35.75	-8.46	27.29	46.00	-18.71	QP
5	499.4247	31.48	-3.31	28.17	46.00	-17.83	QP
6	670.4893	33.18	-2.99	30.19	46.00	-15.81	QP



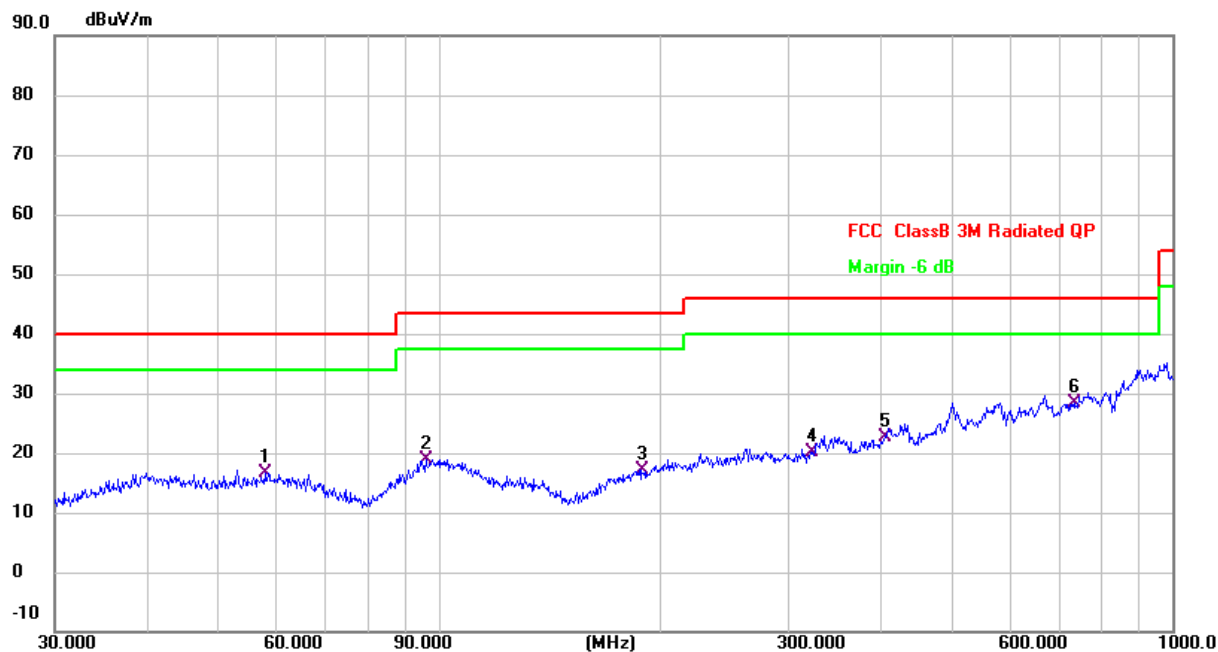
EUT:	5.8GHz Wireless Guitar System	Model Name:	C-5RC
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 3.7V from battery	Test Mode:	TX-5729MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	59.6493	32.01	-12.77	19.24	40.00	-20.76	QP
2	103.8055	31.93	-12.07	19.86	43.50	-23.64	QP
3	181.9202	35.06	-13.62	21.44	43.50	-22.06	QP
4	264.7457	44.79	-12.94	31.85	46.00	-14.15	QP
5	472.1760	37.43	-8.50	28.93	46.00	-17.07	QP
6 *	919.2866	28.91	4.99	33.90	46.00	-12.10	QP



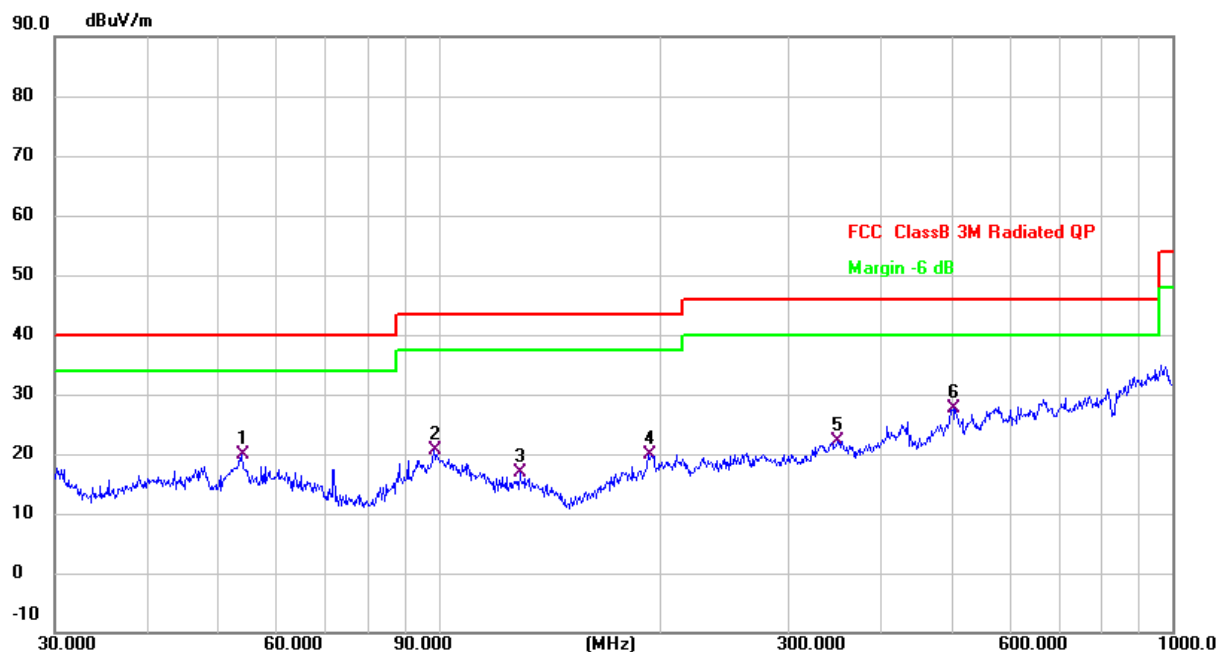
EUT:	5.8GHz Wireless Guitar System	Model Name:	C-5RC
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 3.7V from battery	Test Mode:	TX-5789MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	57.9993	31.27	-14.52	16.75	40.00	-23.25	QP
2	96.0986	31.19	-12.27	18.92	43.50	-24.58	QP
3	189.0743	30.33	-13.27	17.06	43.50	-26.44	QP
4	322.1886	29.85	-9.69	20.16	46.00	-25.84	QP
5	406.0880	29.98	-7.27	22.71	46.00	-23.29	QP
6 *	734.4913	32.17	-3.78	28.39	46.00	-17.61	QP



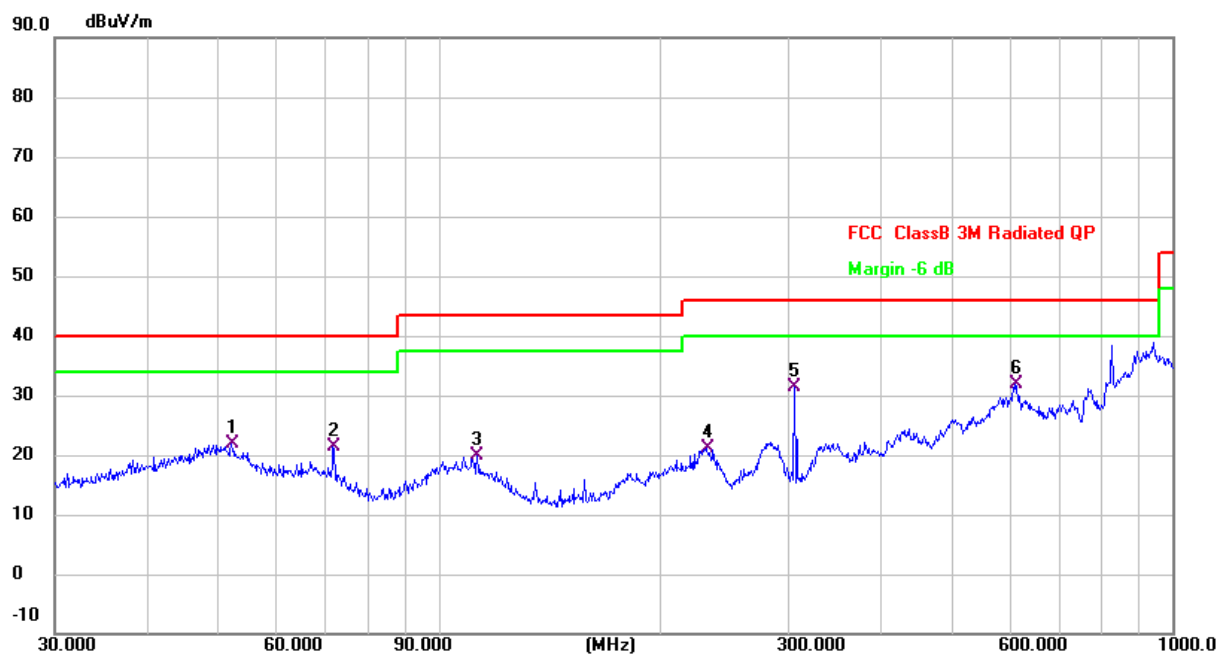
EUT:	5.8GHz Wireless Guitar System	Model Name:	C-5RC
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 3.7V from battery	Test Mode:	TX-5789MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	53.8818	30.50	-10.52	19.98	40.00	-20.02	QP
2	98.4866	33.34	-12.73	20.61	43.50	-22.89	QP
3	129.0146	33.64	-16.68	16.96	43.50	-26.54	QP
4	193.0945	33.74	-13.96	19.78	43.50	-23.72	QP
5	349.2500	30.57	-8.50	22.07	46.00	-23.93	QP
6 *	502.9395	32.70	-5.04	27.66	46.00	-18.34	QP



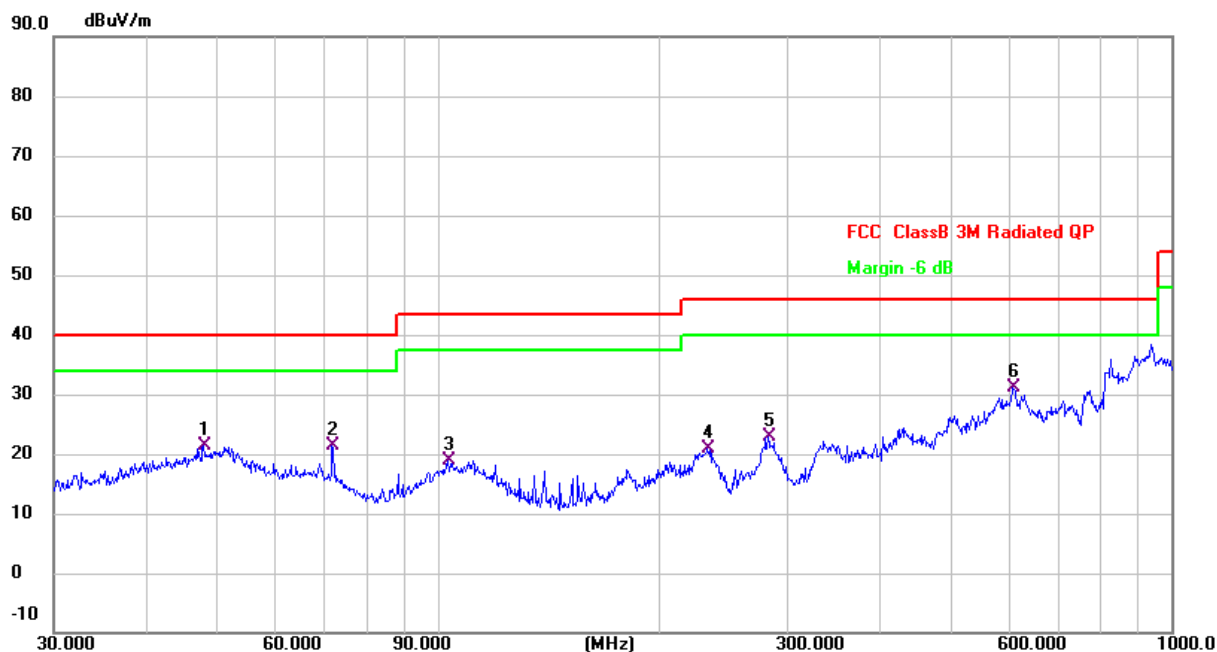
EUT:	5.8GHz Wireless Guitar System	Model Name. :	C-5RC
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 3.7V from battery	Test Mode :	TX-5847MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	52.2079	36.97	-15.16	21.81	40.00	-18.19	QP
2	71.8320	38.02	-16.65	21.37	40.00	-18.63	QP
3	112.9196	33.26	-13.35	19.91	43.50	-23.59	QP
4	231.7179	32.61	-11.59	21.02	46.00	-24.98	QP
5	305.6800	42.16	-10.69	31.47	46.00	-14.53	QP
6 *	609.9217	37.32	-5.51	31.81	46.00	-14.19	QP



EUT:	5.8GHz Wireless Guitar System	Model Name:	C-5RC
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 3.7V from battery	Test Mode:	TX-5847MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	47.9940	30.99	-9.62	21.37	40.00	-18.63	QP
2	71.8320	34.75	-13.48	21.27	40.00	-18.73	QP
3	103.4421	30.98	-12.08	18.90	43.50	-24.60	QP
4	233.3487	30.72	-9.72	21.00	46.00	-25.00	QP
5	281.9946	31.39	-8.48	22.91	46.00	-23.09	QP
6 *	607.7867	31.54	-0.46	31.08	46.00	-14.92	QP



1GHz-40GHz:									
Polar	Frequen cy	Meter Readin g	Cabl e loss	Antenn a Factor	Preamp Factor	Emissio n Level	Limits	Margi n	Detect or Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/ m)	(dBuV/m)	(dB)	
Low Channel (5729 MHz)-Above 1G									
Vertical	4679.13 6	58.58	5.94	35.40	44.00	55.92	74.00	-18.0 8	Pk
Vertical	4679.13 6	46.37	5.94	35.40	44.00	43.71	54.00	-10.2 9	AV
Vertical	11490.05 2	58.60	8.46	39.75	44.50	62.31	74.00	-11.6 9	Pk
Vertical	11490.05 2	46.66	8.46	39.75	44.50	50.37	54.00	-3.63	AV
Vertical	17235.2 61	57.01	10.1 2	38.80	44.10	61.83	74.00	-12.1 7	Pk
Vertical	17235.2 61	45.02	10.1 2	38.8	44.10	49.84	54.00	-4.16	AV
Horizont al	4679.13 5	59.57	5.94	35.18	44.00	56.69	74.00	-17.3 1	Pk
Horizont al	4679.13 5	45.62	5.94	35.18	44.00	42.74	54.00	-11.2 6	AV
Horizont al	11490.30 2	59.26	8.46	38.71	44.50	61.93	74.00	-12.0 7	Pk
Horizont al	11490.30 2	44.72	8.46	38.71	44.50	47.39	54.00	-6.61	AV
Horizont al	17235.2 46	59.49	10.1 2	38.38	44.10	63.89	74.00	-10.1 1	Pk
Horizont al	17235.2 46	43.85	10.1 2	38.38	44.10	48.25	54.00	-5.75	AV
middle Channel (5789 MHz)-Above 1G									
Vertical	4592.20 8	59.69	6.48	36.35	44.05	58.47	74.00	-15.5 3	Pk
Vertical	4592.20 8	44.62	6.48	36.35	44.05	43.40	54.00	-10.6 0	AV
Vertical	11570.13 6	60.03	8.47	37.88	44.51	61.87	74.00	-12.1 3	Pk
Vertical	11570.13 6	43.73	8.47	37.88	44.51	45.57	54.00	-8.43	AV
Vertical	17355.2 49	57.96	10.1 2	38.8	44.10	62.78	74.00	-11.2 2	Pk
Vertical	17355.2 49	43.08	10.1 2	38.8	44.10	47.9	54.00	-6.1	AV
Horizont al	4592.13 8	59.78	6.48	36.37	44.05	58.58	74.00	-15.4 2	Pk
Horizont al	4592.13 8	45.13	6.48	36.37	44.05	43.93	54.00	-10.0 7	AV
Horizont al	11570.25 6	61.59	8.47	38.64	44.50	64.20	74.00	-9.80	Pk
Horizont al	11570.25 6	46.85	8.47	38.64	44.50	49.46	54.00	-4.54	AV



Horizontal	17355.1 27	61.16	10.1 2	38.38	44.10	65.56	74.00	-8.44	Pk
Horizontal	17355.1 27	42.35	10.1 2	38.38	44.10	46.75	54.00	-7.25	AV
High Channel (5847 MHz)-Above 1G									
Vertical	5039.15 6	60.62	7.10	37.2 4	43.5 0	61.46	74.0 0	-12.5 4	Pk
Vertical	5039.15 6	47.59	7.10	37.2 4	43.5 0	48.43	54.0 0	-5.57	AV
Vertical	11650.13 1	55.27	8.46	37.6 8	44.5 0	56.91	74.0 0	-17.0 9	Pk
Vertical	11650.13 1	42.44	8.46	37.6 8	44.5 0	44.08	54.0 0	-9.92	AV
Vertical	17475.2 89	61.15	10.12	38.8	44.1 0	65.97	74.0 0	-8.03	Pk
Vertical	17475.2 89	43.06	10.12	38.8	44.1 0	47.88	54.0 0	-6.12	AV
Horizontal	5039.31 6	67.73	7.10	37.2 4	43.5 0	68.57	74.0 0	-5.43	Pk
Horizontal	5039.31 6	43.81	7.10	37.2 4	43.5 0	44.65	54.0 0	-9.35	AV
Horizontal	11650.20 3	57.30	8.46	38.5 7	44.5 0	59.83	74.0 0	-14.1 7	Pk
Horizontal	11650.20 3	43.92	8.46	38.5 7	44.5 0	46.45	54.0 0	-7.55	AV
Horizontal	17475.1 52	61.67	10.12	38.3 8	44.1 0	66.07	74.0 0	-7.93	Pk
Horizontal	17475.1 52	41.85	10.12	38.3 8	44.1 0	46.25	54.0 0	-7.75	AV



5.3.4 Band edge-Field strength of fundamental

Frequency	Ant. Polarization	Emission level	Limits	Detector	Result
(MHz)	H / V	dB μ V/m	dB μ V/m		
5729	H	84.74	114	PK	PASS
5729	H	82.66	94	AV	PASS
5729	V	83.26	114	PK	PASS
5729	V	81.58	94	AV	PASS

Frequency	Ant. Polarization	Emission level	Limits	Detector	Result
(MHz)	H / V	dB μ V/m	dB μ V/m		
5789	H	85.78	114	PK	PASS
5789	H	83.43	94	AV	PASS
5789	V	83.86	114	PK	PASS
5789	V	81.62	94	AV	PASS

Frequency	Ant. Polarization	Emission level	Limits	Detector	Result
(MHz)	H / V	dB μ V/m	dB μ V/m		
5847	H	85.23	114	PK	PASS
5847	H	83.71	94	AV	PASS
5847	V	82.96	114	PK	PASS
5847	V	80.86	94	AV	PASS



5.3.5 Band edge-radiated

Polarization	Frequency	Read Level	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Over Limit	Detector Type
/	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	5725.00	72.56	9.37	32.67	47.79	66.81	74	-7.19	Pk
Horizontal	5875.00	73.66	9.46	32.94	47.96	68.1	74	-5.9	Pk
Horizontal	5725.00	54.37	9.37	32.67	47.79	48.62	54	-5.38	AV
Horizontal	5875.00	53.86	9.46	32.94	47.96	48.3	54	-5.7	AV
Vertical	5725.00	70.49	9.37	32.67	47.79	64.74	74	-9.26	Pk
Vertical	5875.00	71.37	9.46	32.94	47.96	65.81	74	-8.19	Pk
Vertical	5725.00	54.22	9.37	32.67	47.79	48.47	54	-5.53	AV
Vertical	5875.00	53.19	9.46	32.94	47.96	47.63	54	-6.37	AV



5.4 20dB and 99% bandwidth

5.4.1 Limits

FCC §15.215(c)

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.

5.4.2 Test method

Use the following spectrum analyzer settings:

For 20 dB bandwidth

Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel

RBW $\geq 1\%$ of the 20 dB bandwidth

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 20 dB down one side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level. The marker-delta reading at this point is the 20 dB bandwidth and 99% occupied bandwidth of the emission

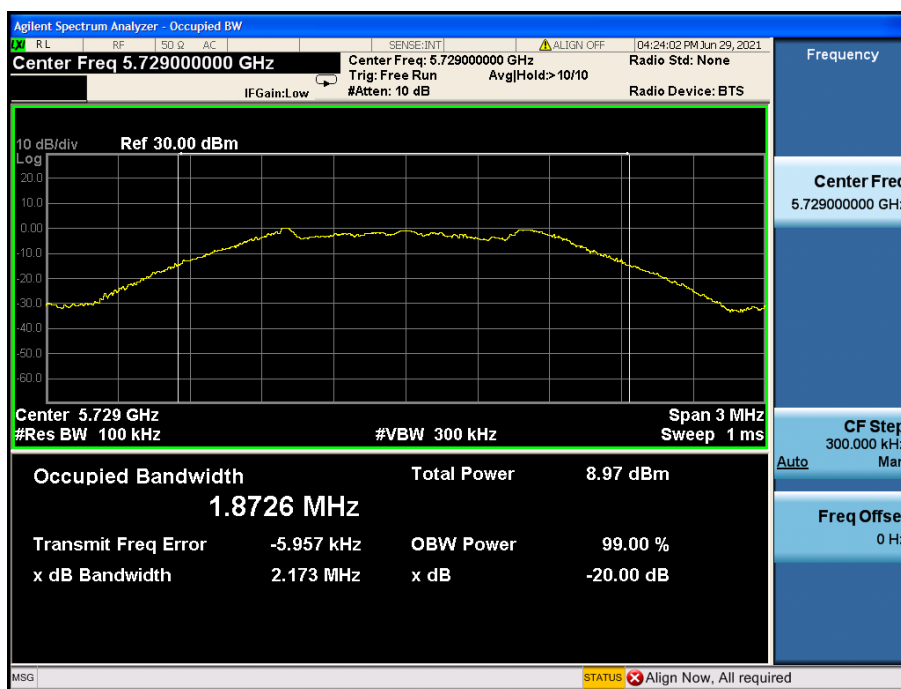


5.4.3 Test result

Frequency (MHz)	20dB bandwidth (MHz)
5729	2.173
5789	2.160
5847	2.175

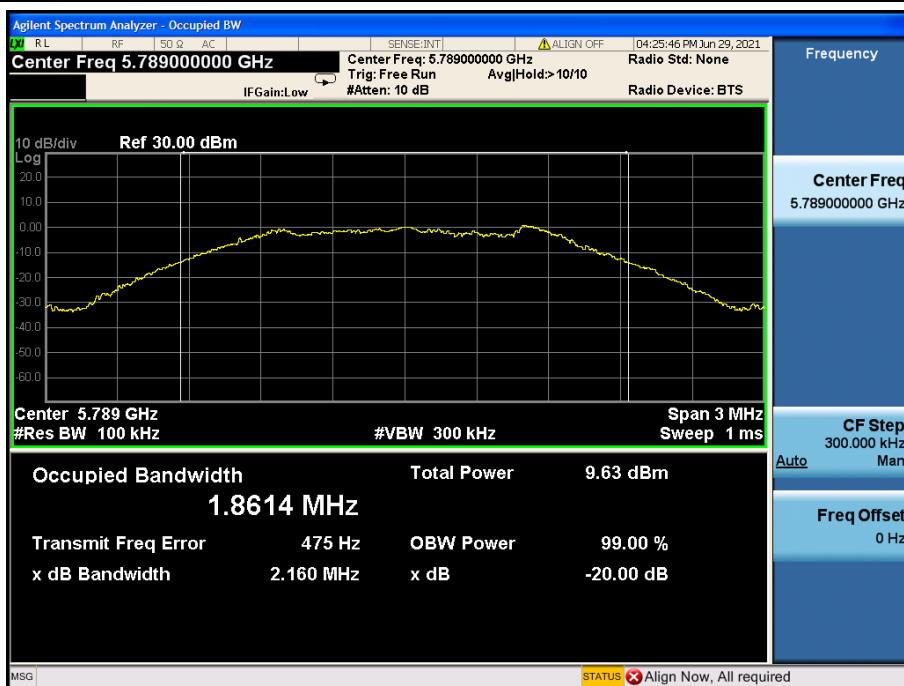
Test plots

5729MHz

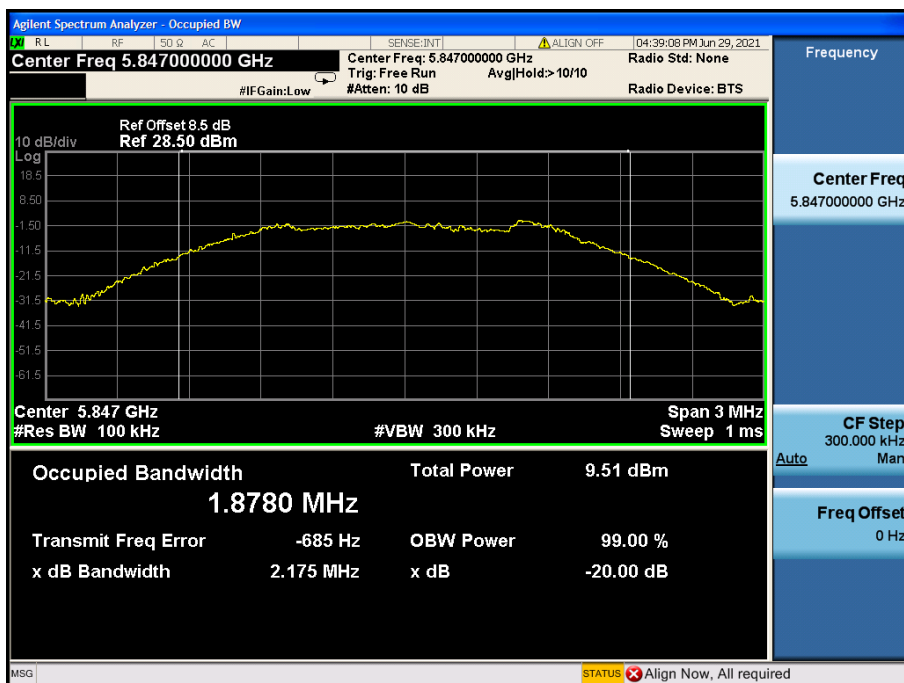




5789MHz



5847MHz





Photographs of the Test Setup

Radiated emission – below 1GHz



Radiated emission – above 1GHz





Photographs of the EUT

See the APPENDIX 1- EUT PHOTO.

----END OF REPORT----