Test Report

Report No.:	MTi211014003-02E3
Date of issue:	Nov. 11, 2021
Applicant:	Chug, Inc.
Product name:	Wireless keyboard
Model(s):	GSKB06
FCC ID:	2AO23-GSKB06

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

Address: 101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao' an District, Shenzhen, Guangdong, China.
Tel: (86-755)88850135 Fax: (86-755) 88850136 Web:www.mtitest.com E-mail: mti@51mti.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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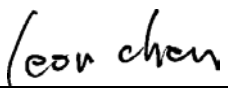
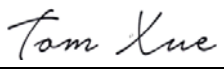
TEST RESULT CERTIFICATION	
Applicant's name ..... :	Chug, Inc.
Address ..... :	7157 Shady Oak Road, Eden Prairie, MN 55344, USA
Manufacturer's Name ..... :	Starwave Technology Co.,Limited
Address ..... :	Room 201, No. 240, West Shijie Xinfeng Road, Shijie Town, Dongguan, Guangdong
Product description	
Product name ..... :	Wireless keyboard
Trademark ..... :	Gamestop, Atrix, Geeknet, Inc.
Model Name ..... :	GSKB06
Serial Model	N/A
Standards ..... :	FCC Part 15.249
Test procedure ..... :	ANSI C63.10-2013
Date of Test	
Date (s) of performance of tests ..... :	2021-10-26 ~2021-11-11
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)

Technical Manager : 

(Leon Chen)

Authorized Signatory : 

(Tom Xue)

1 General description

1.1 Feature of equipment under test (EUT)

Equipment:	Wireless keyboard
Model Name:	GSKB06
Serial Model:	N/A
Model Difference:	N/A
Operation Frequency:	2402 - 2479 MHz
Modulation Type:	GFSK
Antenna Type:	PCB antenna
Antenna Gain:	-1dBi
Max. Field Strength:	99.24dBuV/m
Power Source:	DC 3.7V from battery
Battery:	DC 3.7V 3000mAh
Hardware version:	V1.0
Software version:	V1.0

1.2 Operation channel list

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2402	28	2429	55	2457
02	2403	29	2430	56	2458
03	2404	30	2431	57	2459
04	2405	31	2432	58	2460
05	2406	32	2433	59	2461
06	2407	33	2434	60	2462
07	2408	34	2435	61	2463
08	2409	35	2436	62	2464
09	2410	36	2437	63	2465
10	2411	37	2438	64	2466
11	2412	38	2439	65	2467
12	2413	39	2440	66	2468
13	2414	40	2441	67	2469
14	2415	41	2442	68	2470
15	2416	42	2443	69	2471
16	2417	43	2444	70	2472
17	2418	44	2445	71	2473
18	2419	45	2446	72	2474

19	2420	46	2447	73	2475
20	2421	47	2448	74	2476
21	2422	48	2449	75	2477
22	2423	49	2450	76	2478
23	2424	50	2451	77	2479
24	2425	51	2452	--	--
25	2426	52	2453	--	--
26	2427	53	2454	--	--
27	2428	54	2455	--	--

1.3 Test Frequency Channel

Channel	Frequency(MHz)
Low	2402
Middle	2446
High	2479

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
Adapter	HW-090200CH0	/	Huizhou BYD Electronics Co., Ltd.

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	Pass
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:	15ºC~35ºC
Humidity	20%~75%
Atmospheric pressure	98kPa~101kPa

3.3 Measurement uncertainty

The reported uncertainty of measurement y ± 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 x 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 tonscend 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	schwarabeck	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 Ssignal 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	schwarabeck	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 1519 B	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 or 24 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 -1dBi.

5.2 AC power line conducted emission

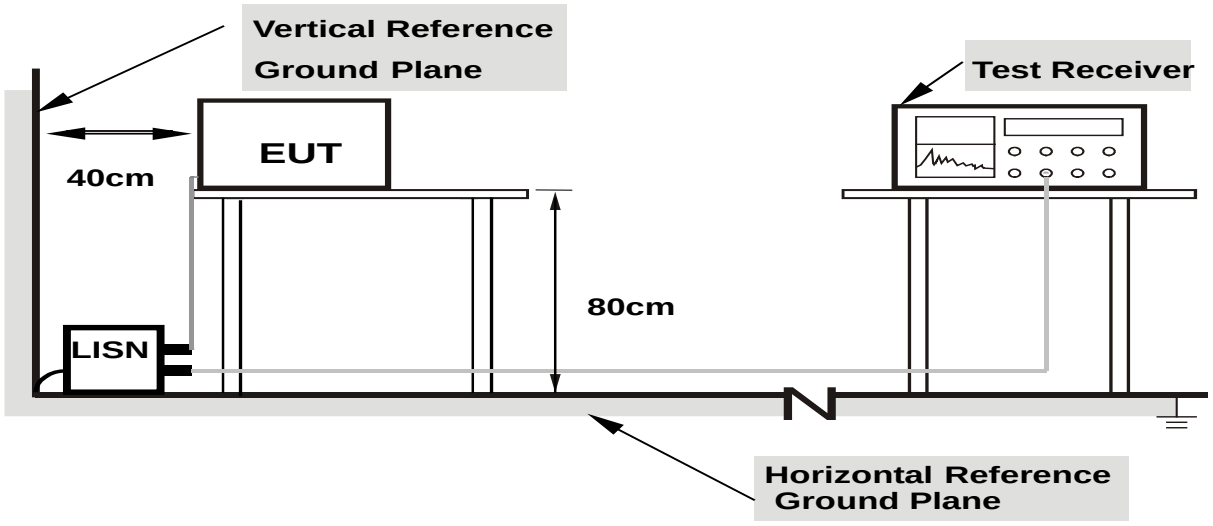
5.2.1 Limits

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 50μH/50Ω 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.

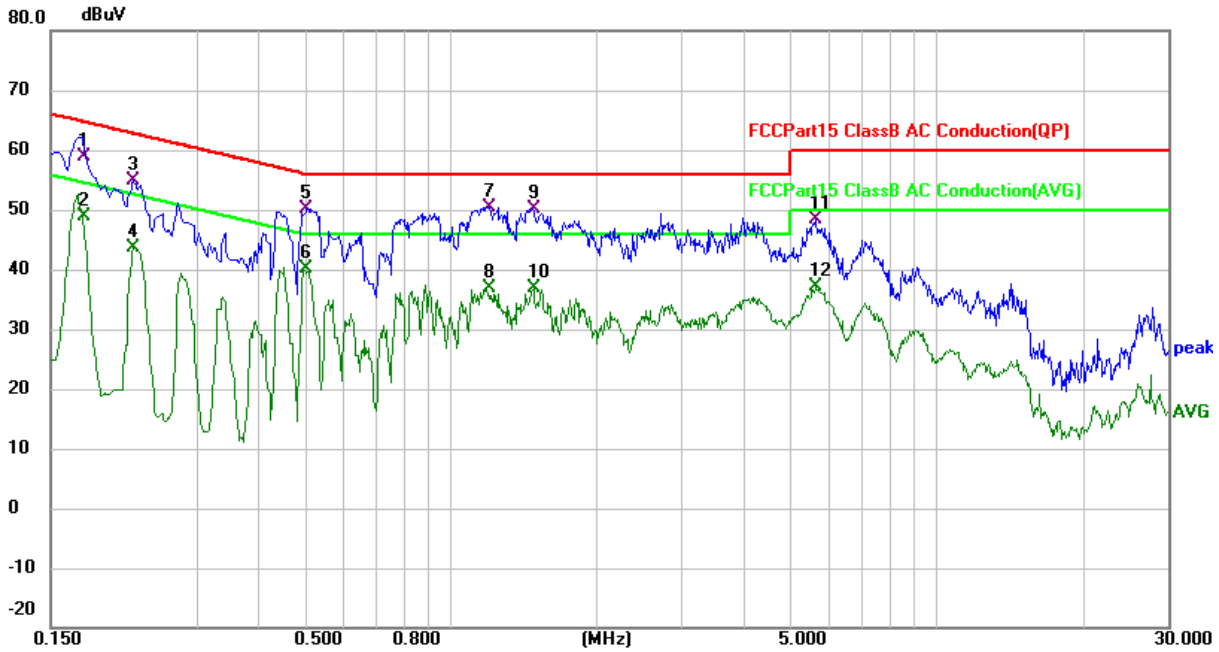
e. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

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.

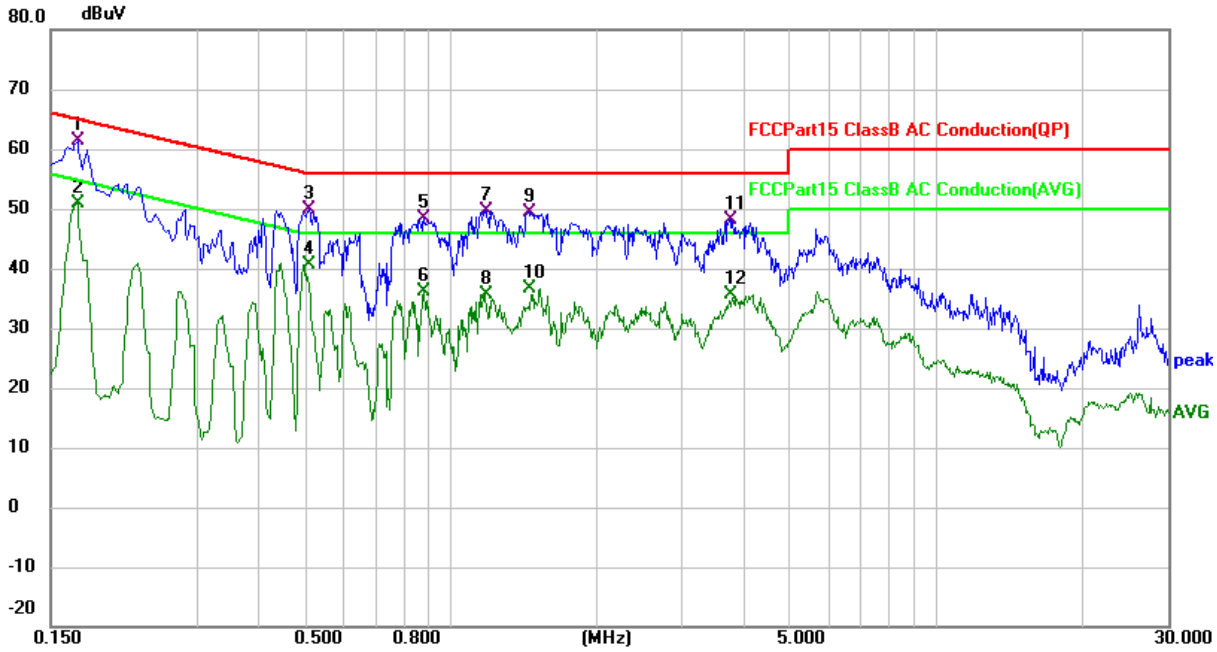
5.2.4 Test results

EUT:	Wireless keyboard	Model Name :	GSKB06
Pressure:	101kPa	Polarization:	N
Test voltage:	DC 5V from adapter AC 120V/60Hz	Test mode:	Mode 1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1740	48.02	10.98	59.00	64.77	-5.77	QP
2	0.1740	37.92	10.98	48.90	54.77	-5.87	AVG
3	0.2220	43.95	10.98	54.93	62.74	-7.81	QP
4	0.2220	32.77	10.98	43.75	52.74	-8.99	AVG
5	0.5060	39.17	11.07	50.24	56.00	-5.76	QP
6	0.5060	29.00	11.07	40.07	46.00	-5.93	AVG
7 *	1.1980	36.73	13.70	50.43	56.00	-5.57	QP
8	1.1980	23.13	13.70	36.83	46.00	-9.17	AVG
9	1.4740	35.94	14.27	50.21	56.00	-5.79	QP
10	1.4740	22.51	14.27	36.78	46.00	-9.22	AVG
11	5.6420	36.85	11.53	48.38	60.00	-11.62	QP
12	5.6420	25.56	11.53	37.09	50.00	-12.91	AVG

EUT:	Wireless keyboard	Model Name :	GSKB06
Pressure:	101kPa	Polarization:	L
Test voltage:	DC 5V from adapter AC 120V/60Hz	Test mode:	Mode 1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1 *	0.1700	50.49	10.93	61.42	64.96	-3.54	QP
2	0.1700	39.95	10.93	50.88	54.96	-4.08	AVG
3	0.5100	38.87	10.92	49.79	56.00	-6.21	QP
4	0.5100	29.60	10.92	40.52	46.00	-5.48	AVG
5	0.8820	35.40	12.92	48.32	56.00	-7.68	QP
6	0.8820	23.09	12.92	36.01	46.00	-9.99	AVG
7	1.1820	35.99	13.59	49.58	56.00	-6.42	QP
8	1.1820	22.05	13.59	35.64	46.00	-10.36	AVG
9	1.4460	35.16	14.18	49.34	56.00	-6.66	QP
10	1.4460	22.39	14.18	36.57	46.00	-9.43	AVG
11	3.7660	36.67	11.38	48.05	56.00	-7.95	QP
12	3.7660	24.20	11.38	35.58	46.00	-10.42	AVG

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 (μV/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 (μV/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

a) The EUT is placed on a turntable, which is 0.8m above ground plane for test frequency range blew 1GHz, and 1.5m above ground plane for test frequency range above 1GHz.

b) EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.

c) Use the following spectrum analyser settings:

1) Span = wide enough to fully capture the emission being measured

2) RBW = 1 MHz for f ≥ 1GHz, 100 kHz for f < 1 GHz

3) VBW ≥ RBW, Sweep = auto

4) Detector function = peak

5) Trace = max hold

d) 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.

e) 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：	Wireless keyboard	Model name. ：	GSKB06
Pressure：	1010 hPa	Test voltage：	DC 5V from adapter AC 120V/60Hz
Test mode：	Charging+TX	Polarization :	--

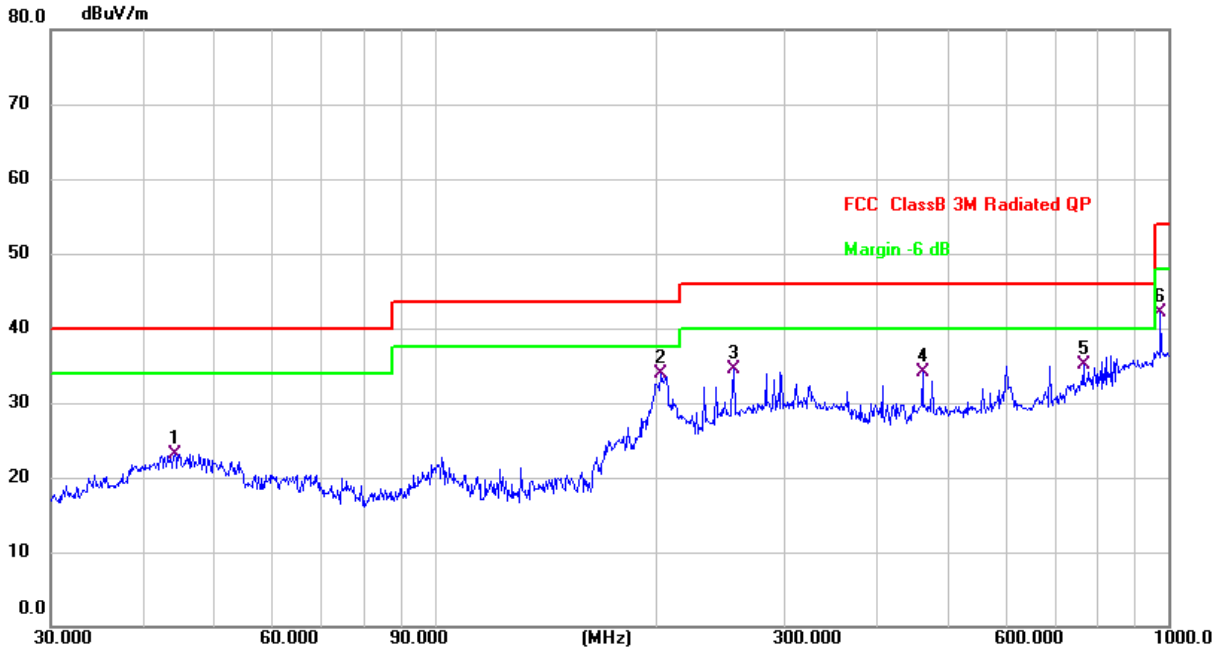
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	Pass
--	--	--	--	Pass

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 (specific distance/test distance)(dB);
3. Limit line = specific limits (dBuV) + distance extrapolation factor.

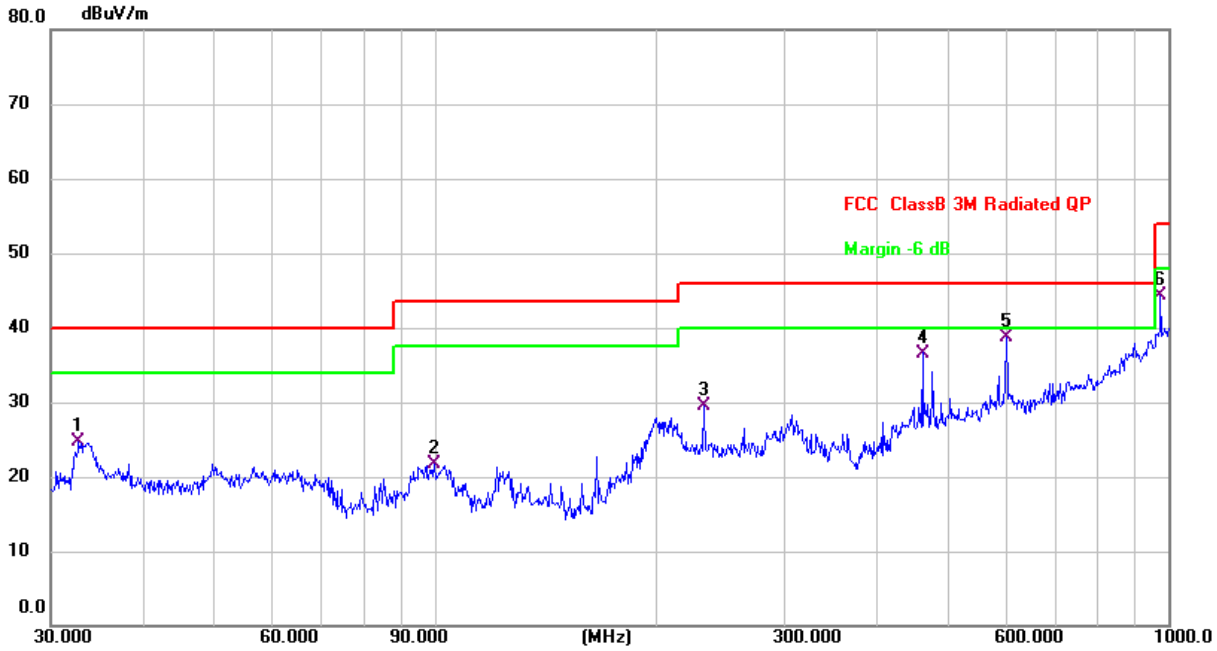
30MHz-1GHz

EUT:	Wireless keyboard	Model Name:	GSKB06
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2402MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	44.2751	39.36	-16.19	23.17	40.00	-16.83	QP
2 *	203.5226	46.67	-12.72	33.95	43.50	-9.55	QP
3	255.6228	45.27	-10.83	34.44	46.00	-11.56	QP
4	462.3455	42.03	-7.86	34.17	46.00	-11.83	QP
5	766.0570	36.94	-1.87	35.07	46.00	-10.93	QP
6	975.7527	38.08	3.94	42.02	54.00	-11.98	QP

EUT:	Wireless keyboard	Model Name:	GSKB06
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2402MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	32.7486	38.38	-13.66	24.72	40.00	-15.28	QP
2	99.8777	34.33	-12.61	21.72	43.50	-21.78	QP
3	232.5318	42.18	-12.72	29.46	46.00	-16.54	QP
4	462.3455	43.91	-7.31	36.60	46.00	-9.40	QP
5 *	601.4265	39.00	-0.23	38.77	46.00	-7.23	QP
6	975.7527	34.26	9.95	44.21	54.00	-9.79	QP

Note:

1. Emission Level = Meter Reading + Factor, Margin= Emission Level- Limit, Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. The three modulated high, medium and low channels have been tested. The report only shows the worst mode. The worst mode is CH1.

1GHz-26.5GHz:

Frequency	Read Level	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark	Comment
(MHz)	(dBμV)	(dB)	dB/m	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
Low Channel (2402 MHz)-Above 1G									
4804.338	61.69	4.36	32.92	45.53	53.44	74.00	-20.56	Pk	Vertical
4804.338	41.72	4.36	32.92	45.53	33.47	54.00	-20.53	AV	Vertical
7206.107	61.01	5.02	37.63	45.56	58.10	74.00	-15.90	Pk	Vertical
7206.107	41.67	5.02	37.63	45.56	38.76	54.00	-15.24	AV	Vertical
4804.169	63.94	4.36	32.92	45.53	55.69	74.00	-18.31	Pk	Horizontal
4804.169	42.14	4.36	32.92	45.53	33.89	54.00	-20.11	AV	Horizontal
7206.214	62.69	5.02	37.63	45.56	59.78	74.00	-14.22	Pk	Horizontal
7206.214	42.07	5.02	37.63	45.56	39.16	54.00	-14.84	AV	Horizontal
Mid Channel (2446 MHz)-Above 1G									
4892.473	63.25	4.41	33.01	45.76	54.91	74.00	-19.09	Pk	Vertical
4892.473	43.52	4.41	33.01	45.76	35.18	54.00	-18.82	AV	Vertical
7338.265	64.39	5.02	37.68	45.59	61.50	74.00	-12.50	Pk	Vertical
7338.265	42.32	5.02	37.68	45.59	39.43	54.00	-14.57	AV	Vertical
4892.366	63.33	4.41	33.01	45.76	54.99	74.00	-19.01	Pk	Horizontal
4892.366	41.25	4.41	33.01	45.76	32.91	54.00	-21.09	AV	Horizontal
7338.234	59.85	5.02	37.68	45.59	56.96	74.00	-17.04	Pk	Horizontal
7338.234	43.58	5.02	37.68	45.59	40.69	54.00	-13.31	AV	Horizontal
High Channel (2479 MHz)- Above 1G									
4958.482	64.50	4.50	33.26	46.07	56.19	74.00	-17.81	Pk	Vertical
4958.482	42.30	4.50	33.26	46.07	33.99	54.00	-20.01	AV	Vertical
7436.131	64.72	5.02	37.78	45.77	61.75	74.00	-12.25	Pk	Vertical
7436.131	49.79	5.02	37.78	45.77	46.82	54.00	-7.18	AV	Vertical
4958.326	64.29	4.50	33.26	46.07	55.98	74.00	-18.02	Pk	Horizontal
4958.326	44.71	4.50	33.26	46.07	36.40	54.00	-17.60	AV	Horizontal
7436.199	65.22	5.02	37.78	45.77	62.25	74.00	-11.75	Pk	Horizontal
7436.199	44.07	5.02	37.78	45.77	41.10	54.00	-12.90	AV	Horizontal

Note:

1. All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
2. Emission Level= Antenna Factor + Cable Loss + Read Level - Preamp Factor
3. All the modulation modes have been tested, and the worst results are reflected in the report.

5.3.4 Band edge–Field strength of fundamental

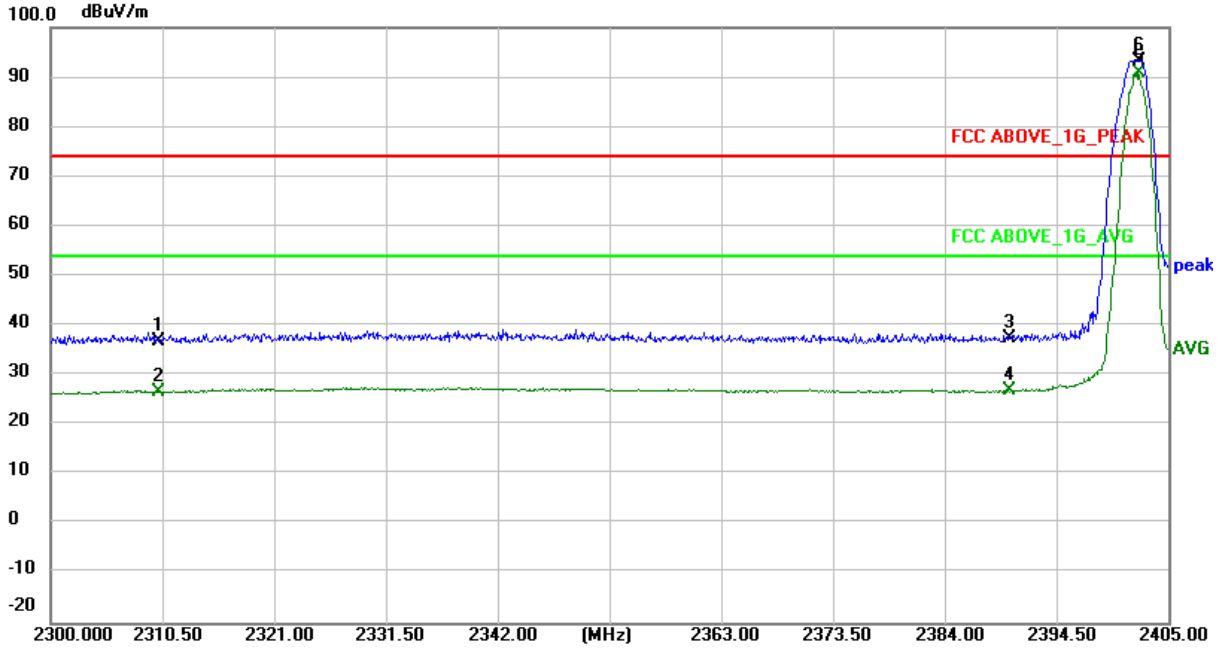
Frequency	Ant. Polarization	Emission level	Limits	Detector	Result
(MHz)	H / V	dBμV/m	dBμV/m		
2402	H	93.24	114	PK	PASS
2402	H	90.85	94	AV	PASS
2402	V	93.13	114	PK	PASS
2402	V	90.61	94	AV	PASS

Frequency	Ant. Polarization	Emission level	Limits	Detector	Result
(MHz)	H / V	dBμV/m	dBμV/m		
2446	H	92.88	114	PK	PASS
2446	H	90.76	94	AV	PASS
2446	V	91.87	114	PK	PASS
2446	V	89.32	94	AV	PASS

Frequency	Ant. Polarization	Emission level	Limits	Detector	Result
(MHz)	H / V	dBμV/m	dBμV/m		
2479	H	93.39	114	PK	PASS
2479	H	91.11	94	AV	PASS
2479	V	91.43	114	PK	PASS
2479	V	88.87	94	AV	PASS

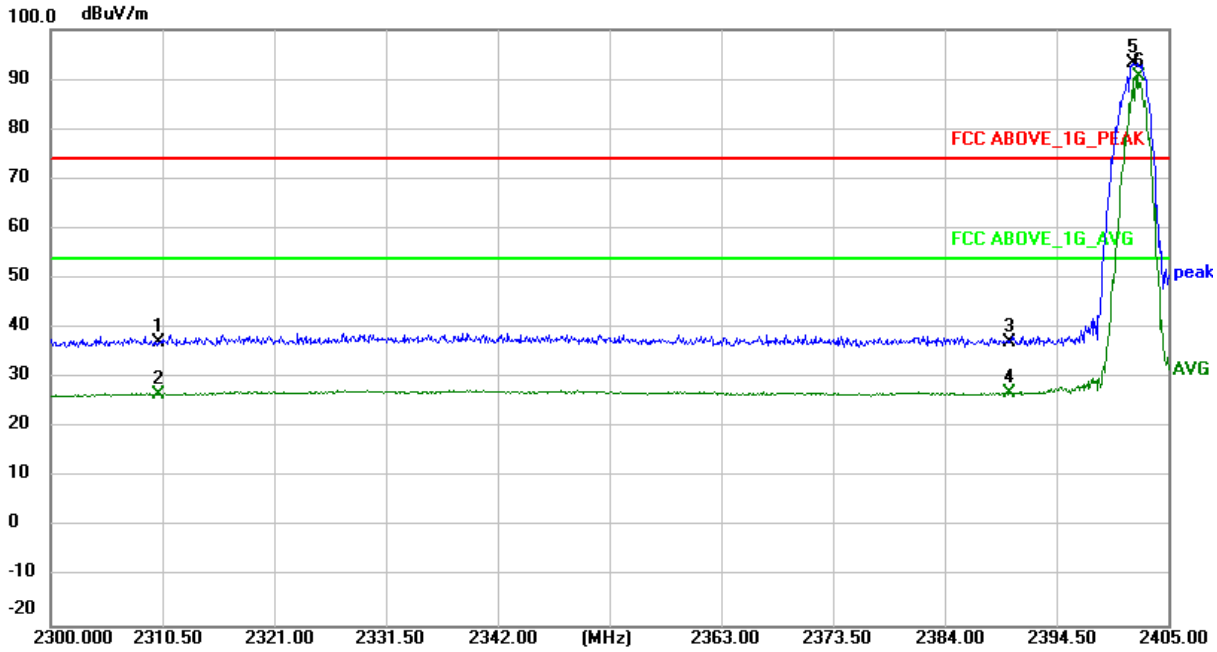
5.3.5 Band edge-radiated

EUT:	Wireless keyboard	Model Name:	GSKB06
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 5V from adapter AC 120V/60Hz	Test Mode:	TX-2402MHz



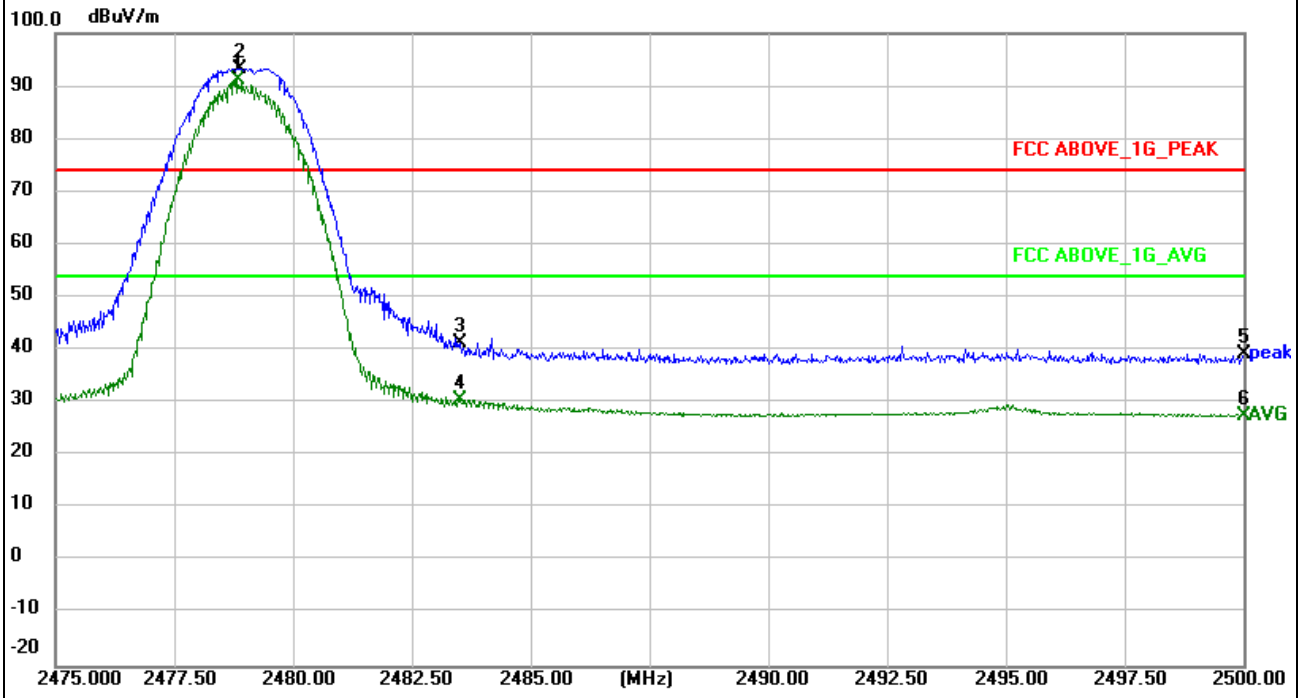
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2310.000	43.38	-6.60	36.78	74.00	-37.22	peak
2	2310.000	33.37	-6.60	26.77	54.00	-27.23	AVG
3	2390.000	43.55	-6.23	37.32	74.00	-36.68	peak
4	2390.000	33.05	-6.23	26.82	54.00	-27.18	AVG
5 *	2402.165	97.02	-6.17	90.85	Fundamental Frequency		AVG
6 X	2402.270	99.41	-6.17	93.24			peak

EUT:	Wireless keyboard	Model Name:	GSKB06
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 5V from adapter AC 120V/60Hz	Test Mode:	TX-2402MHz



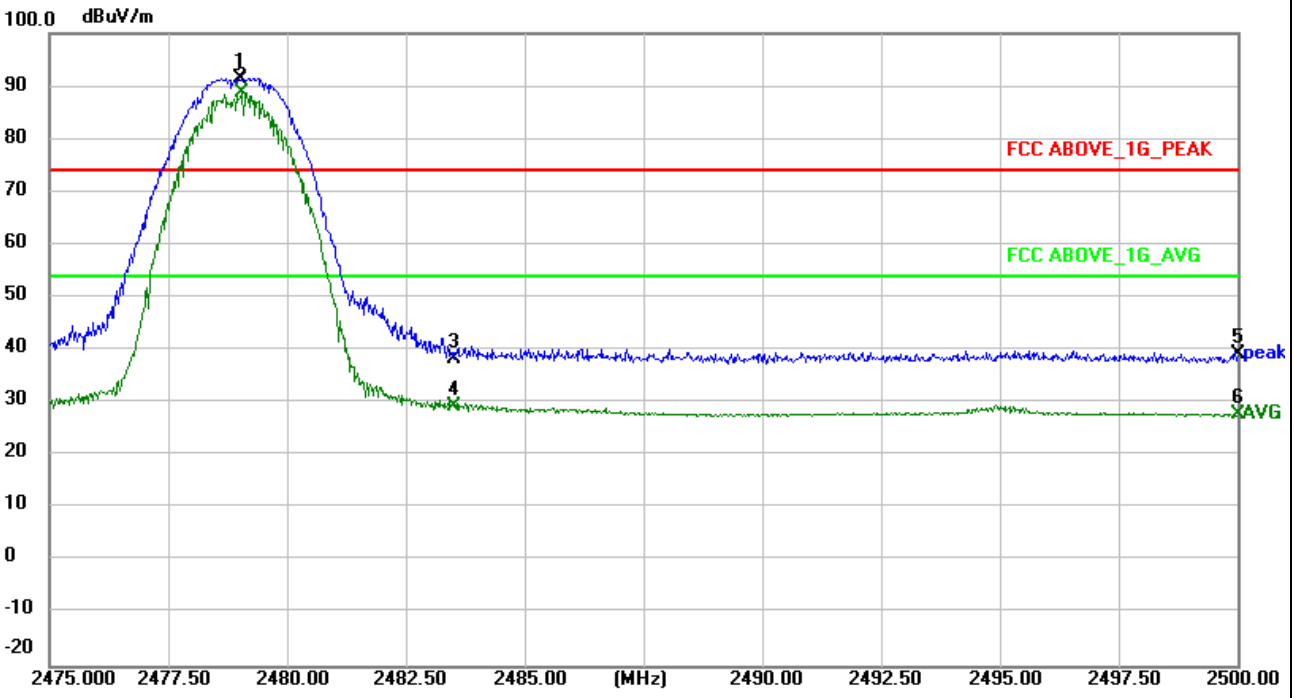
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2310.000	43.73	-6.60	37.13	74.00	-36.87	peak
2	2310.000	33.29	-6.60	26.69	54.00	-27.31	AVG
3	2390.000	43.40	-6.23	37.17	74.00	-36.83	peak
4	2390.000	33.06	-6.23	26.83	54.00	-27.17	AVG
5 X	2401.640	99.30	-6.17	93.13	Fundamental Frequency		peak
6 *	2402.165	96.78	-6.17	90.61			AVG

EUT:	Wireless keyboard	Model Name:	GSKB06
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 5V from adapter AC 120V/60Hz	Test Mode:	TX-2479MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	2478.825	96.92	-5.81	91.11	Fundamental Frequency		AVG
2 X	2478.875	99.20	-5.81	93.39			peak
3	2483.500	47.27	-5.79	41.48	74.00	-32.52	peak
4	2483.500	36.32	-5.79	30.53	54.00	-23.47	AVG
5	2500.000	45.09	-5.72	39.37	74.00	-34.63	peak
6	2500.000	33.40	-5.72	27.68	54.00	-26.32	AVG

EUT:	Wireless keyboard	Model Name:	GSKB06
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 5V from adapter AC 120V/60Hz	Test Mode:	TX-2479MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 X	2478.975	97.24	-5.81	91.43	Fundamental Frequency		peak
2 *	2479.050	94.68	-5.81	88.87			AVG
3	2483.500	44.24	-5.79	38.45	74.00	-35.55	peak
4	2483.500	35.13	-5.79	29.34	54.00	-24.66	AVG
5	2500.000	44.92	-5.72	39.20	74.00	-34.80	peak
6	2500.000	33.45	-5.72	27.73	54.00	-26.27	AVG

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 ≥1% of the 20 dB bandwidth

VBW ≥RBW

Sweep = auto

Detector function = peak

Trace = max hold

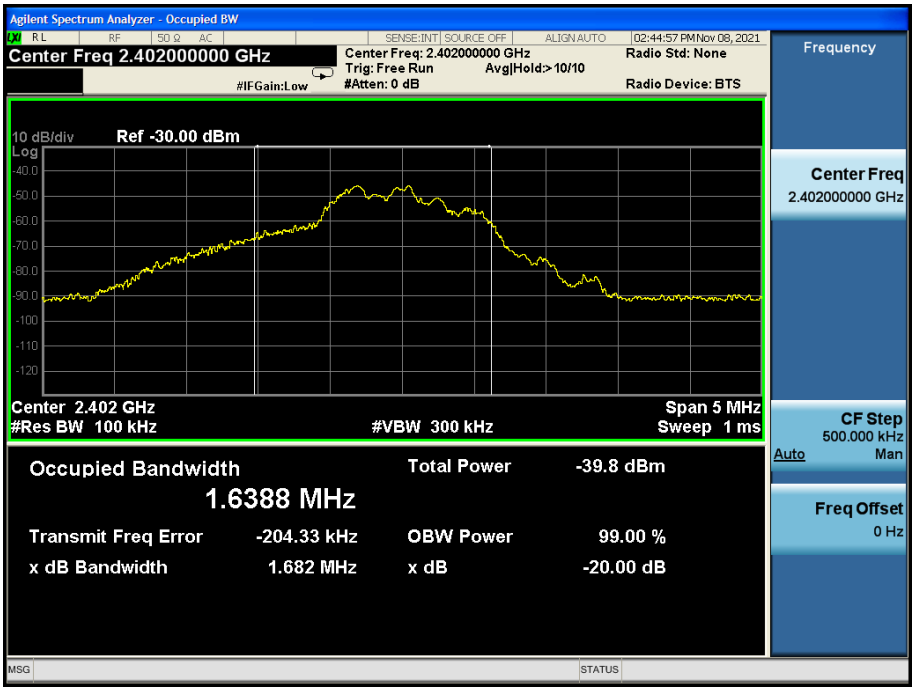
The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 20 dB down one side of the emission. Reset the marker-delta function, and move the marker to the 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

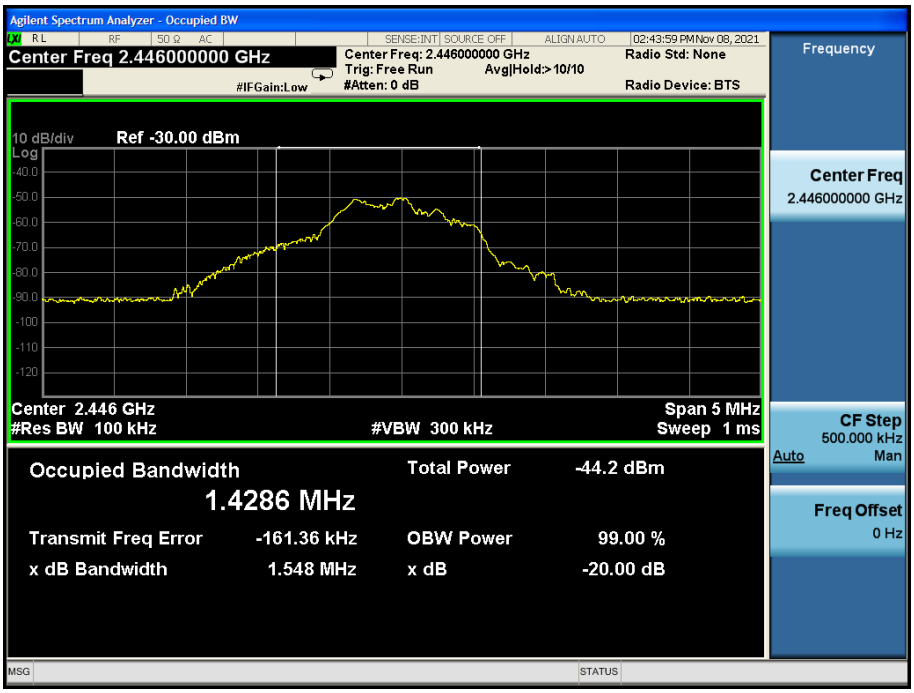
Frequency (MHz)	20dB bandwidth (MHz)	99% bandwidth (MHz)
2402	1.682	1.6388
2446	1.548	1.4286
2479	1.974	1.8515

Test plots

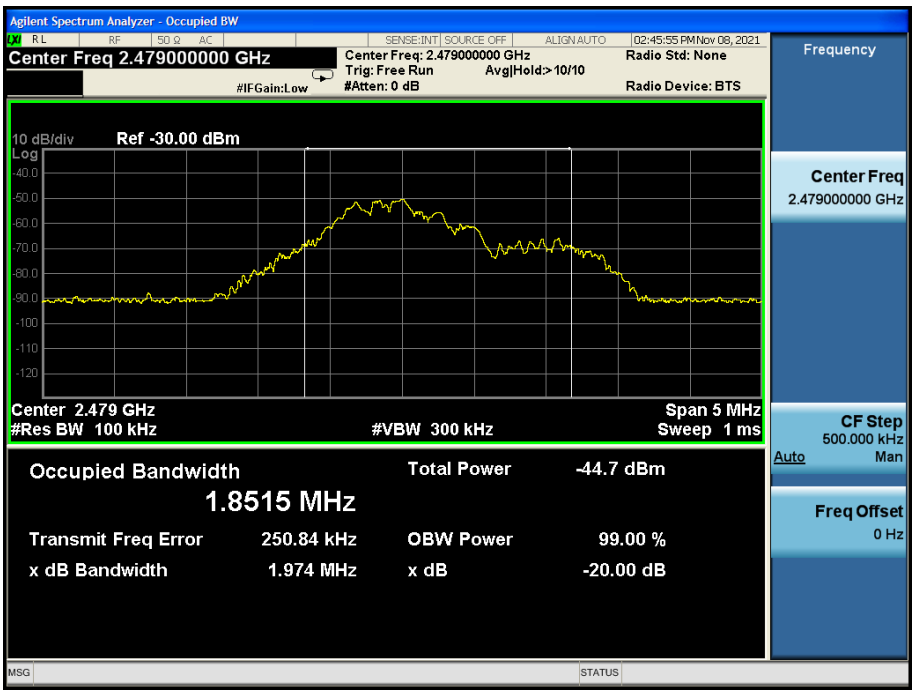
2402MHz



2446MHz



2479MHz



Photographs of the Test Setup

See the APPENDIX – Test setup photos.

Photographs of the EUT

See the APPENDIX 1- EUT PHOTO.

----END OF REPORT----