Test Report

Report No.:	MTi210728004-09E1
Date of issue:	Sept. 18, 2021
Applicant:	Shenzhen Jiayz photo industrial., Ltd
Product name:	Ultracompact 2.4GHz Wirless Microphone System
Model(s):	SKM-W1 RX, SKM-W1, SKM-W1 D, SKM-W1 U
FCC ID:	2ARN3-SKM-W1RX

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

Instructions

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TEST RESULT CERTIFICATION

Applicant's name	Shenzhen Jiayz photo industrial., Ltd
Address	A16 Builing, Itelligent Terminal Industrial Park of Silcon Valley Power, Guanlan, Longhua District, Shenzhen, China.
Manufacturer's Name	Shenzhen Jiayz photo industrial., Ltd
Address	A16 Builing, Itelligent Terminal Industrial Park of Silcon Valley Power, Guanlan, Longhua District, Shenzhen, China.
Product description	
Product name	Ultracompact 2.4GHz Wirless Microphone System
Trademark	SEVENOAK
Model Name	SKM-W1 RX
Serial Model	SKM-W1, SKM-W1 D, SKM-W1 U
Standards	FCC Part 15.249
Test procedure	ANSI C63.10-2013
Date of Test	
Date (s) of performance of tests ..... :	2021-08-09~2021-09-15
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 : Cindy Qin

(Cindy Qin)

Technical Manager : Leon Chen

(Leon Chen)

Authorized Signatory : Tom Xue

(Tom Xue)

1 General description

1.1 Feature of equipment under test (EUT)

Equipment:	Ultracompact 2.4GHz Wirless Microphone System
Trade Name:	SEVENOAK
Model Name:	SKM-W1 RX
Serial Model:	SKM-W1, SKM-W1 D, SKM-W1 U
Model Difference:	All the models are the same circuit and module, except the model name
Operation Frequency:	2402 - 2480 MHz
Modulation Type:	GFSK
Antenna Type:	PCB antenna
Antenna Gain:	2 dBi
Max. Field Strength:	91.18dBuV/m
Power Source:	DC 3.8V from battery or DC 5V from adapter AC 120V/60Hz
Battery:	DC 3.8V 65mAh
Hardware version:	SKM-W1 RX-MAIN_V1.1
Software version:	V1.02

1.2 Operation channel list

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	2402	21	2442
2	2404	22	2444
3	2406	23	2446
4	2408	24	2448
5	2410	25	2450
6	2412	26	2452
7	2414	27	2454
8	2416	28	2456
9	2418	29	2458
10	2420	30	2460
11	2422	31	2462
12	2424	32	2464
13	2426	33	2466
14	2428	34	2468
15	2430	35	2470
16	2432	36	2472
17	2434	37	2474
18	2436	38	2476
19	2438	39	2478
20	2440	40	2480

1.3 Test Frequency Channel

Channel	Frequency(MHz)
Low	2402
Middle	2440
High	2480

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 2dBi.

5.2 AC power line conducted emission

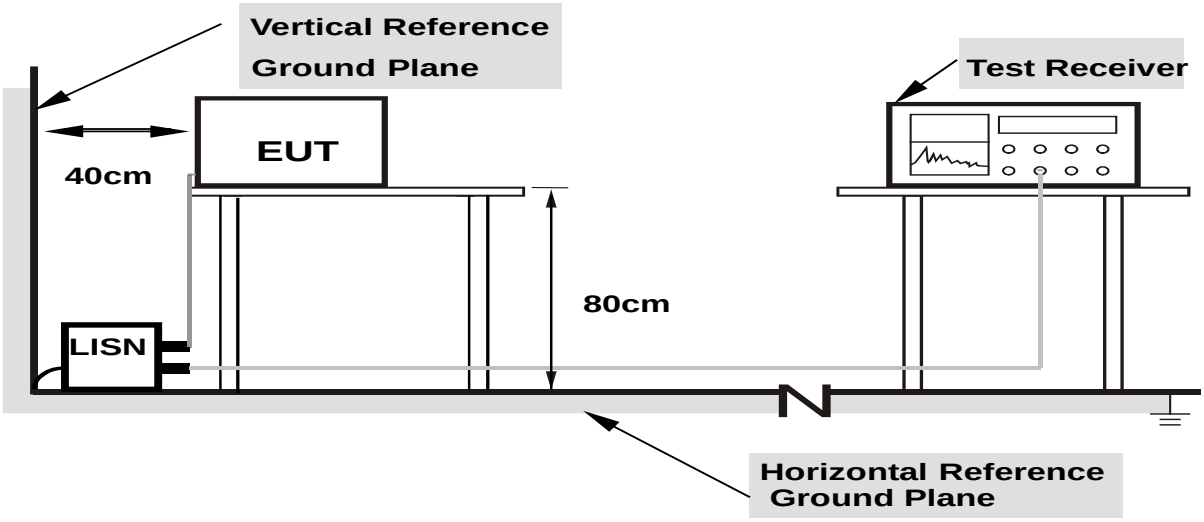
5.2.1 Limits

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.

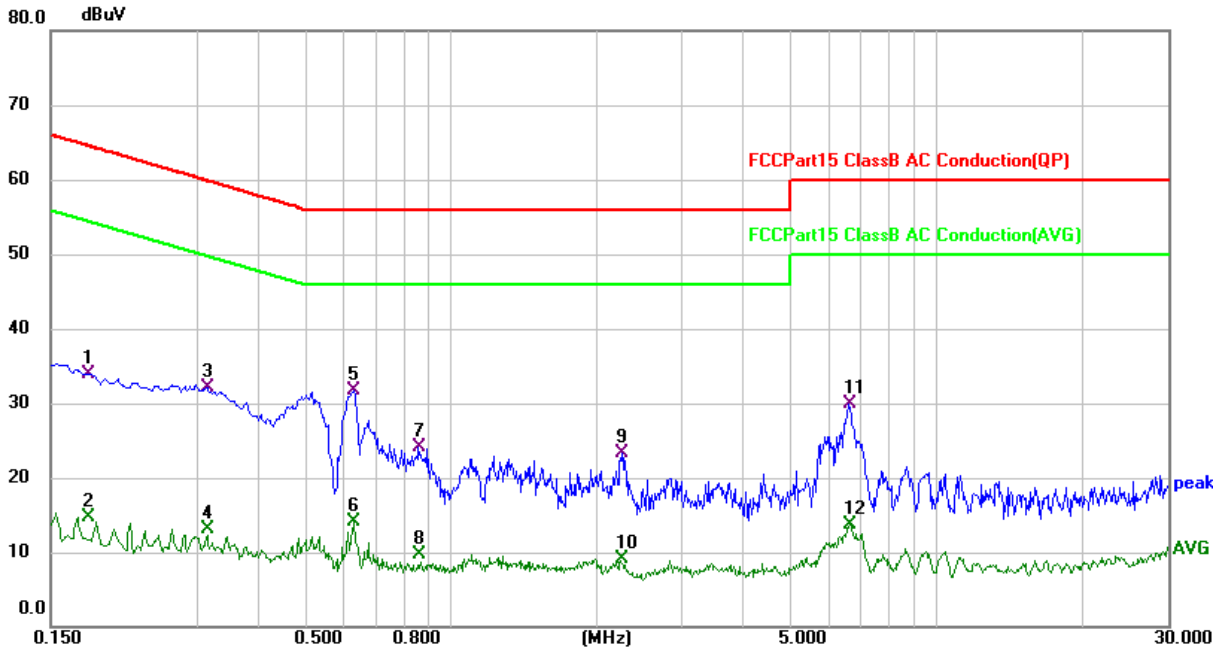
For the actual test configuration, please refer to the related Item –EUT Test Photos.

5.2.4 Test results

Note:

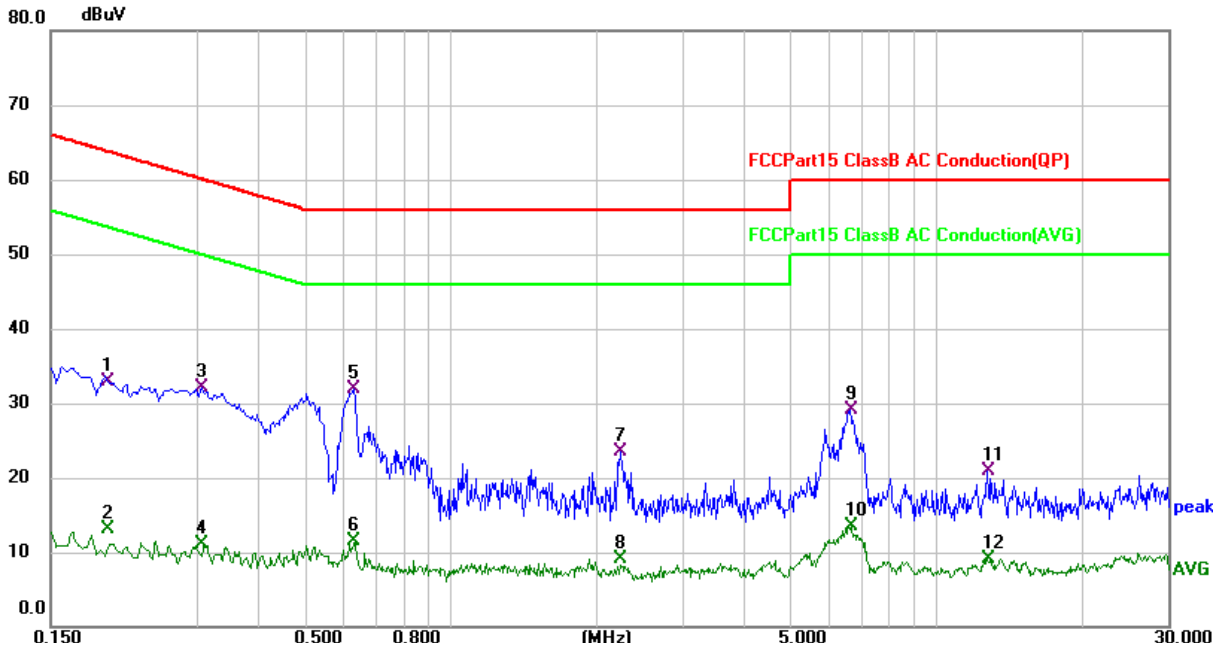
1. Emission Level = Meter Reading + Factor, Margin= Emission Level- Limit, Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. The three modulated high, medium and low channels have been tested. The report only shows the worst mode. The worst mode is CH40.

EUT:	Ultracompact 2.4GHz Wirless Microphone System	Model Name :	SKM-W1 RX
Pressure:	101kPa	Polarization:	N
Test voltage:	DC 5V from adapter AC 120V/60Hz	Test mode:	TX-2480MHz



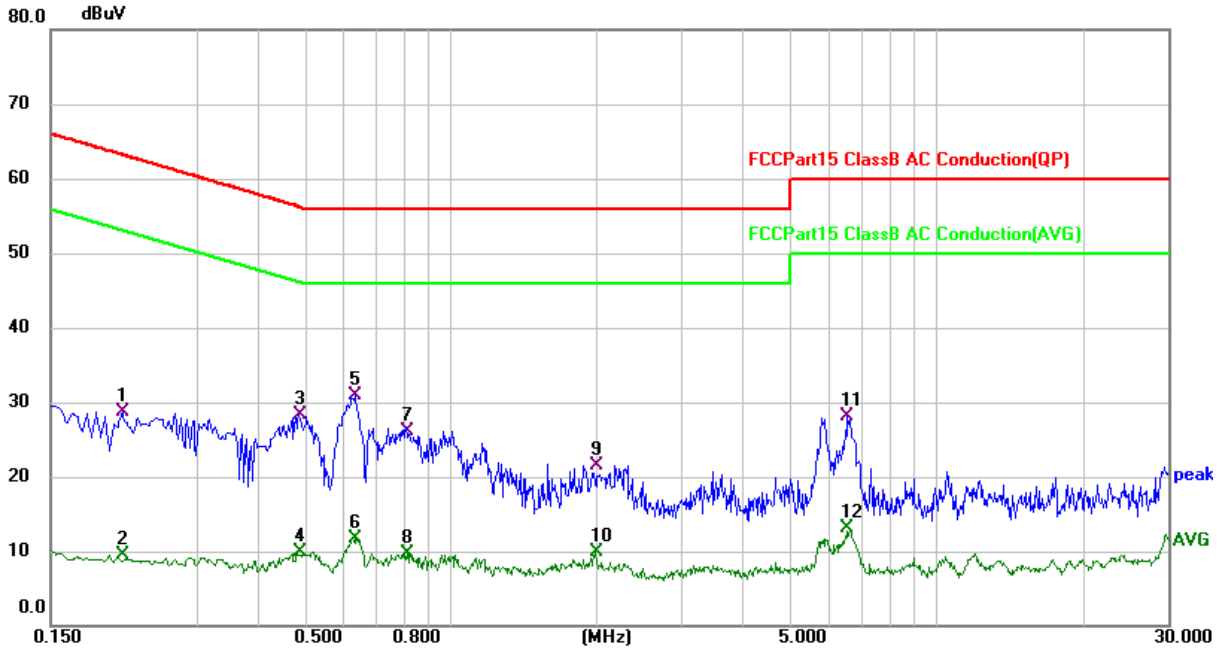
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1780	23.00	10.92	33.92	64.58	-30.66	QP
2		0.1780	3.69	10.92	14.61	54.58	-39.97	AVG
3		0.3140	21.14	10.92	32.06	59.86	-27.80	QP
4		0.3140	2.17	10.92	13.09	49.86	-36.77	AVG
5	*	0.6300	20.63	11.03	31.66	56.00	-24.34	QP
6		0.6300	3.15	11.03	14.18	46.00	-31.82	AVG
7		0.8580	12.93	11.15	24.08	56.00	-31.92	QP
8		0.8580	-1.52	11.15	9.63	46.00	-36.37	AVG
9		2.2500	7.44	15.89	23.33	56.00	-32.67	QP
10		2.2500	-6.80	15.89	9.09	46.00	-36.91	AVG
11		6.5980	18.51	11.41	29.92	60.00	-30.08	QP
12		6.5980	2.39	11.41	13.80	50.00	-36.20	AVG

EUT:	Ultracompact 2.4GHz Wirless Microphone System	Model Name :	SKM-W1 RX
Pressure:	101kPa	Polarization:	L
Test voltage:	DC 5V from adapter AC 120V/60Hz	Test mode:	TX-2480MHz



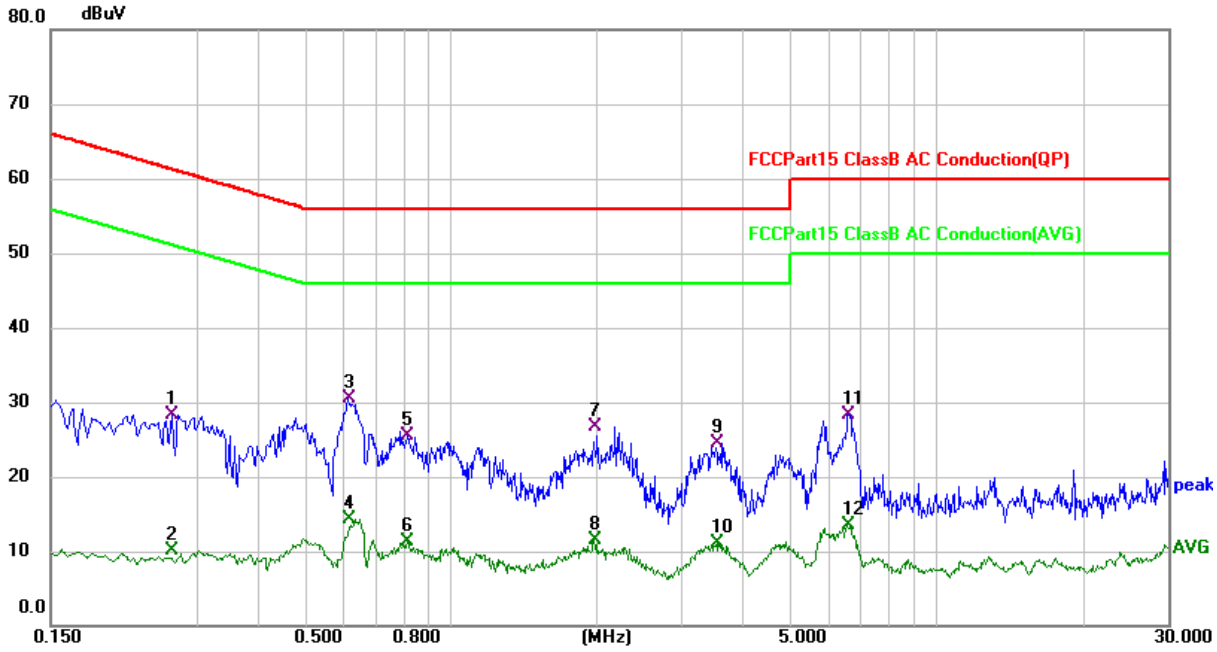
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1965	22.02	10.97	32.99	63.76	-30.77	QP
2		0.1965	2.15	10.97	13.12	53.76	-40.64	AVG
3		0.3060	21.17	10.99	32.16	60.08	-27.92	QP
4		0.3060	0.15	10.99	11.14	50.08	-38.94	AVG
5	*	0.6300	20.74	11.10	31.84	56.00	-24.16	QP
6		0.6300	0.46	11.10	11.56	46.00	-34.44	AVG
7		2.2380	7.60	15.88	23.48	56.00	-32.52	QP
8		2.2380	-6.74	15.88	9.14	46.00	-36.86	AVG
9		6.6340	17.58	11.61	29.19	60.00	-30.81	QP
10		6.6940	1.82	11.62	13.44	50.00	-36.56	AVG
11		12.7460	9.16	11.65	20.81	60.00	-39.19	QP
12		12.7460	-2.48	11.65	9.17	50.00	-40.83	AVG

EUT:	Ultracompact 2.4GHz Wirless Microphone System	Model Name :	SKM-W1 RX
Pressure:	101kPa	Polarization:	N
Test voltage:	DC 5V from adapter AC 240V/60Hz	Test mode:	TX-2480MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2100	17.70	10.91	28.61	63.21	-34.60	QP
2		0.2100	-1.41	10.91	9.50	53.21	-43.71	AVG
3		0.4860	17.39	10.90	28.29	56.24	-27.95	QP
4		0.4860	-0.90	10.90	10.00	46.24	-36.24	AVG
5	*	0.6340	19.84	11.03	30.87	56.00	-25.13	QP
6		0.6340	0.75	11.03	11.78	46.00	-34.22	AVG
7		0.8139	14.98	11.13	26.11	56.00	-29.89	QP
8		0.8139	-1.51	11.13	9.62	46.00	-36.38	AVG
9		1.9860	6.23	15.37	21.60	56.00	-34.40	QP
10		1.9860	-5.54	15.37	9.83	46.00	-36.17	AVG
11		6.5659	16.61	11.41	28.02	60.00	-31.98	QP
12		6.5659	1.66	11.41	13.07	50.00	-36.93	AVG

EUT:	Ultracompact 2.4GHz Wirless Microphone System	Model Name :	SKM-W1 RX
Pressure:	101kPa	Polarization:	L
Test voltage:	DC 5V from adapter AC 240V/60Hz	Test mode:	TX-2480MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2660	17.39	11.00	28.39	61.24	-32.85	QP
2		0.2660	-0.95	11.00	10.05	51.24	-41.19	AVG
3	*	0.6140	19.32	11.09	30.41	56.00	-25.59	QP
4		0.6140	3.25	11.09	14.34	46.00	-31.66	AVG
5		0.8139	14.33	11.17	25.50	56.00	-30.50	QP
6		0.8139	0.11	11.17	11.28	46.00	-34.72	AVG
7		1.9780	11.35	15.36	26.71	56.00	-29.29	QP
8		1.9780	-3.88	15.36	11.48	46.00	-34.52	AVG
9		3.5420	13.09	11.41	24.50	56.00	-31.50	QP
10		3.5420	-0.33	11.41	11.08	46.00	-34.92	AVG
11		6.5660	16.78	11.61	28.39	60.00	-31.61	QP
12		6.5660	1.90	11.61	13.51	50.00	-36.49	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：	Ultracompact 2.4GHz Wirless Microphone System	Model name. ：	SKM-W1 RX
Pressure：	1010 hPa	Test voltage：	DC 3.8V from battery
Test mode：	TX	Polarization :	--

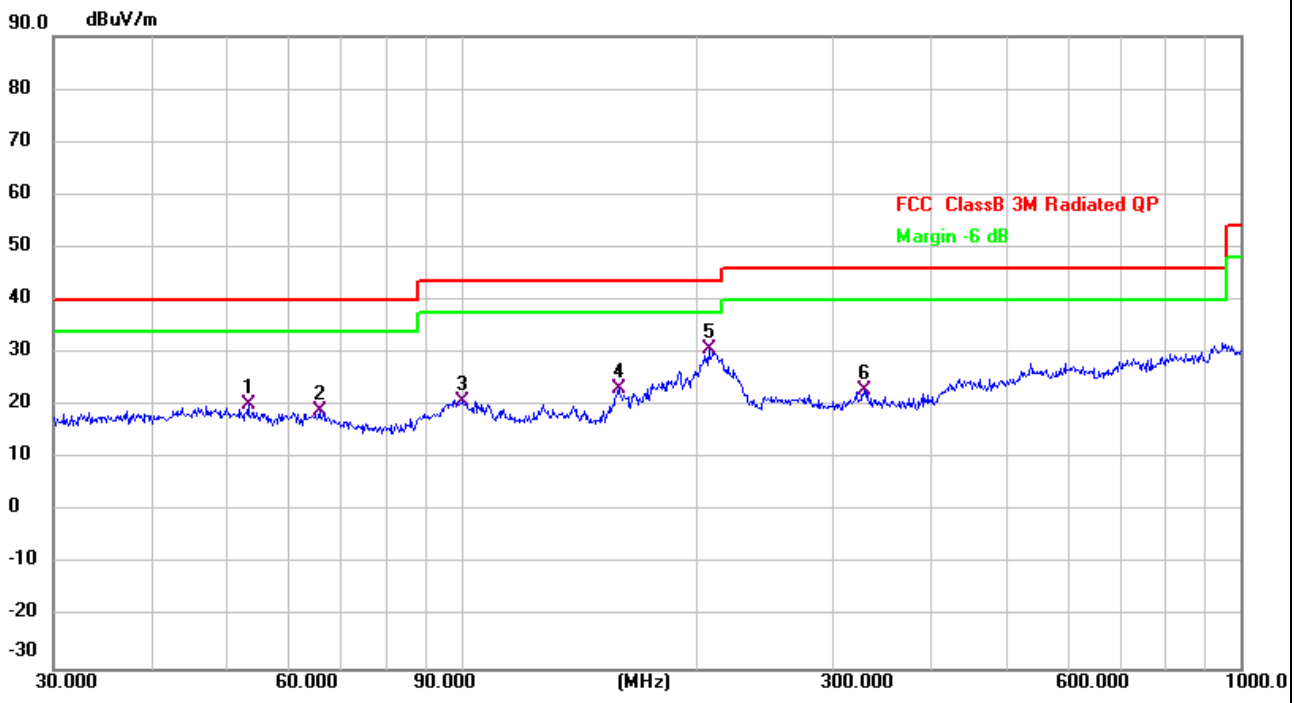
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	Pass
--	--	--	--	Pass

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

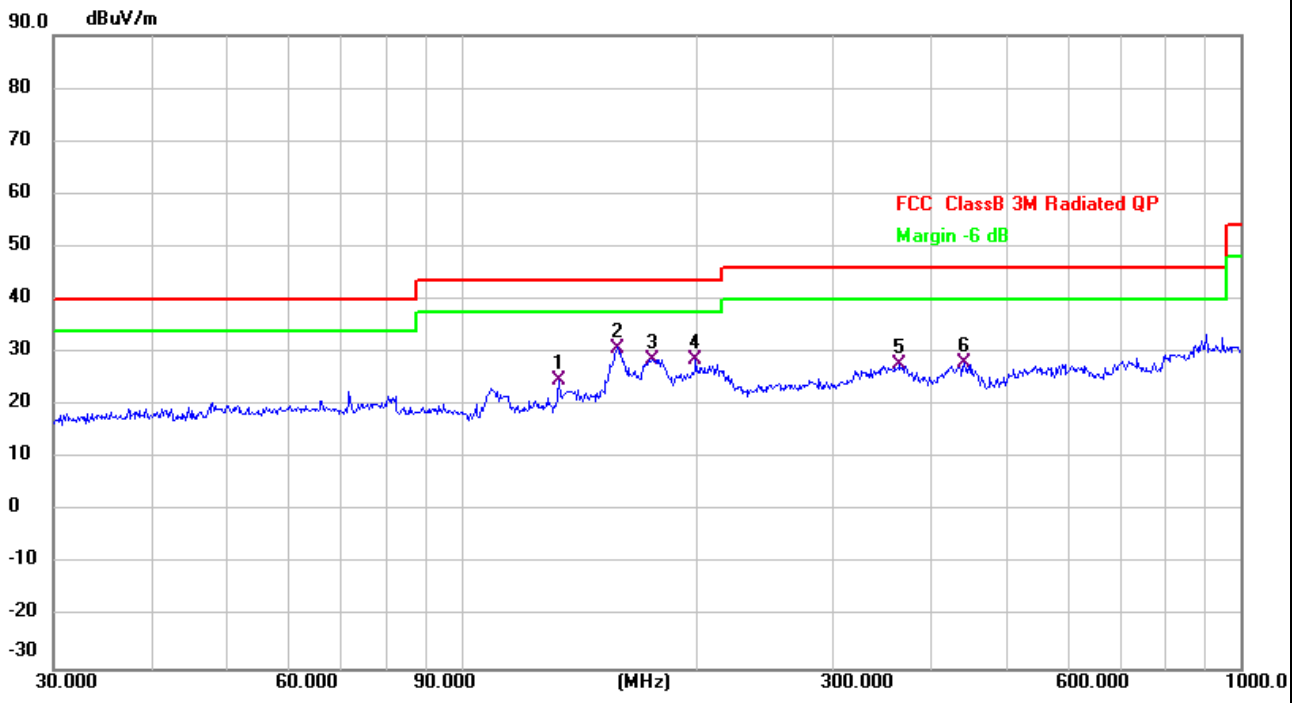
30MHz-1GHz

EUT:	Ultracompact 2.4GHz Wirless Microphone System	Model Name:	SKM-W1 RX
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 3.8V from battery	Test Mode:	TX-2480MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		53.3179	28.46	-8.26	20.20	40.00	-19.80	QP
2		65.8028	28.90	-9.79	19.11	40.00	-20.89	QP
3		100.2283	29.46	-8.50	20.96	43.50	-22.54	QP
4		159.2248	33.18	-9.88	23.30	43.50	-20.20	QP
5	*	207.8500	38.06	-7.44	30.62	43.50	-12.88	QP
6		329.0389	27.48	-4.53	22.95	46.00	-23.05	QP

EUT:	Ultracompact 2.4GHz Wirless Microphone System	Model Name:	SKM-W1 RX
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 3.8V from battery	Test Mode:	TX-2480MHz



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		133.6184	35.50	-10.83	24.67	43.50	-18.83	QP
2	*	158.6673	40.81	-9.91	30.90	43.50	-12.60	QP
3		175.6516	37.98	-9.19	28.79	43.50	-14.71	QP
4		199.9855	36.34	-7.65	28.69	43.50	-14.81	QP
5		365.5389	32.34	-4.54	27.80	46.00	-18.20	QP
6		441.7425	31.53	-3.41	28.12	46.00	-17.88	QP

Note:

3. Emission Level = Meter Reading + Factor, Margin= Emission Level- Limit, Factor = Antenna Factor + Cable Loss – Pre-amplifier.
4. The three modulated high, medium and low channels have been tested. The report only shows the worst mode. The worst mode is CH40.

1GHz-26.5GHz:

Frequency	Read Level	Correct Factor	Emission Level	Limits	Margin	Remark	Comment
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
Low Channel (2402 MHz)-Above 1G							
4804.338	43.33	1.52	44.85	74.00	-29.15	Pk	Vertical
4804.338	39.56	1.52	41.08	54.00	-12.92	AV	Vertical
7206.107	41.98	5.46	47.44	74.00	-23.56	Pk	Vertical
7206.107	34.85	5.46	40.31	54.00	-13.69	AV	Vertical
4804.169	42.62	1.52	44.14	74.00	-29.86	Pk	Horizontal
4804.169	38.24	1.52	39.76	54.00	-14.24	AV	Horizontal
7206.214	42.97	5.46	48.43	74.00	-25.57	Pk	Horizontal
7206.214	36.72	5.46	42.18	54.00	-11.82	AV	Horizontal
Mid Channel (2440 MHz)-Above 1G							
4880.473	42.40	1.68	44.08	74.00	-29.92	Pk	Vertical
4880.473	37.41	1.68	39.09	54.00	-14.91	AV	Vertical
7320.265	42.43	5.45	47.88	74.00	-26.12	Pk	Vertical
7320.265	35.81	5.45	41.26	54.00	-12.74	AV	Vertical
4880.366	42.96	1.68	44.64	74.00	-29.36	Pk	Horizontal
4880.366	36.47	1.68	38.15	54.00	-15.85	AV	Horizontal
7320.234	41.39	5.45	46.84	74.00	-27.16	Pk	Horizontal
7320.234	35.20	5.45	40.65	54.00	-13.35	AV	Horizontal
High Channel (2480 MHz)- Above 1G							
4960.482	42.50	1.83	44.33	74.00	-29.67	Pk	Vertical
4960.482	36.69	1.83	38.52	54.00	-15.48	AV	Vertical
7440.131	42.22	5.43	47.65	74.00	-26.35	Pk	Vertical
7440.131	35.62	5.43	41.05	54.00	-12.95	AV	Vertical
4960.326	43.33	1.83	45.16	74.00	-28.84	Pk	Horizontal
4960.326	37.29	1.83	39.12	54.00	-14.88	AV	Horizontal
7440.199	42.09	5.43	47.52	74.00	-26.48	Pk	Horizontal
7440.199	35.63	5.43	41.06	54.00	-12.94	AV	Horizontal

Note:

1. All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
2. Correct Factor= Antenna Factor + Cable Loss - Preamp Factor
3. Emission Level= Correct Factor + Read Level

5.3.4 Field strength of fundamental

Frequency	Read Level	Correct Factor	Emission Level	Limits	Margin	Remark	Comment
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
Low Channel (2402 MHz)							
2402.000	92.96	-6.17	86.79	114.00	-27.21	Pk	Horizontal
2402.000	88.01	-6.17	81.84	94.00	-12.16	AV	Horizontal
2402.000	89.59	-6.17	83.42	114.00	-30.58	Pk	Vertical
2402.000	86.09	-6.17	79.92	94.00	-14.08	AV	Vertical
Mid Channel (2440 MHz)							
2440.000	91.79	-6.00	85.79	114.00	-28.21	Pk	Horizontal
2440.000	87.87	-6.00	81.87	94.00	-12.13	AV	Horizontal
2440.000	88.53	-6.00	82.53	114.00	-31.47	Pk	Vertical
2440.000	84.75	-6.00	78.75	94.00	-15.25	AV	Vertical
High Channel (2480 MHz)							
2480.000	96.99	-5.81	91.18	114.00	-22.82	Pk	Horizontal
2480.000	93.46	-5.81	87.65	94.00	-6.35	AV	Horizontal
2480.000	93.04	-5.81	87.23	114.00	-26.77	Pk	Vertical
2480.000	89.61	-5.81	83.80	94.00	-10.20	AV	Vertical

Note:

1. All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
2. Correct Factor= Antenna Factor + Cable Loss - Preamp Factor
3. Emission Level= Correct Factor + Read Level

5.3.5 Band edge-radiated

Frequency	Read Level	Correct Factor	Emission Level	Limits	Margin	Remark	Comment
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
2310.000	43.84	-6.60	37.24	74.00	-36.76	Pk	Horizontal
2310.000	36.87	-6.60	30.27	54.00	-23.73	AV	Horizontal
2310.000	43.59	-6.60	36.99	74.00	-37.01	Pk	Vertical
2310.000	36.76	-6.60	30.16	54.00	-23.84	AV	Vertical
2390.000	44.01	-6.23	37.78	74.00	-33.22	Pk	Horizontal
2390.000	36.92	-6.23	30.69	54.00	-23.31	AV	Horizontal
2390.000	43.56	-6.23	37.33	74.00	-36.67	Pk	Vertical
2390.000	37.37	-6.23	31.14	54.00	-22.86	AV	Vertical
2400.000	44.53	-6.18	38.35	74.00	-35.65	Pk	Horizontal
2400.000	38.41	-6.18	32.23	54.00	-21.77	AV	Horizontal
2400.000	43.86	-6.18	37.68	74.00	-36.32	Pk	Vertical
2400.000	37.49	-6.18	31.31	54.00	-22.69	AV	Vertical
2483.500	43.82	-5.79	38.03	74.00	-35.97	Pk	Horizontal
2483.500	37.75	-5.79	31.96	54.00	-22.04	AV	Horizontal
2483.500	44.29	-5.79	38.50	74.00	-35.50	Pk	Vertical
2483.500	37.05	-5.79	31.26	54.00	-22.74	AV	Vertical
2500.000	43.30	-5.72	37.58	74.00	-36.42	Pk	Horizontal
2500.000	37.29	-5.72	31.57	54.00	-22.43	AV	Horizontal
2500.000	42.92	-5.72	37.20	74.00	-36.80	Pk	Vertical
2500.000	36.30	-5.72	30.58	54.00	-23.42	AV	Vertical

Note:

1. All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
2. Correct Factor= Antenna Factor + Cable Loss - Preamp Factor
3. Emission Level= Correct Factor + Read Level

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

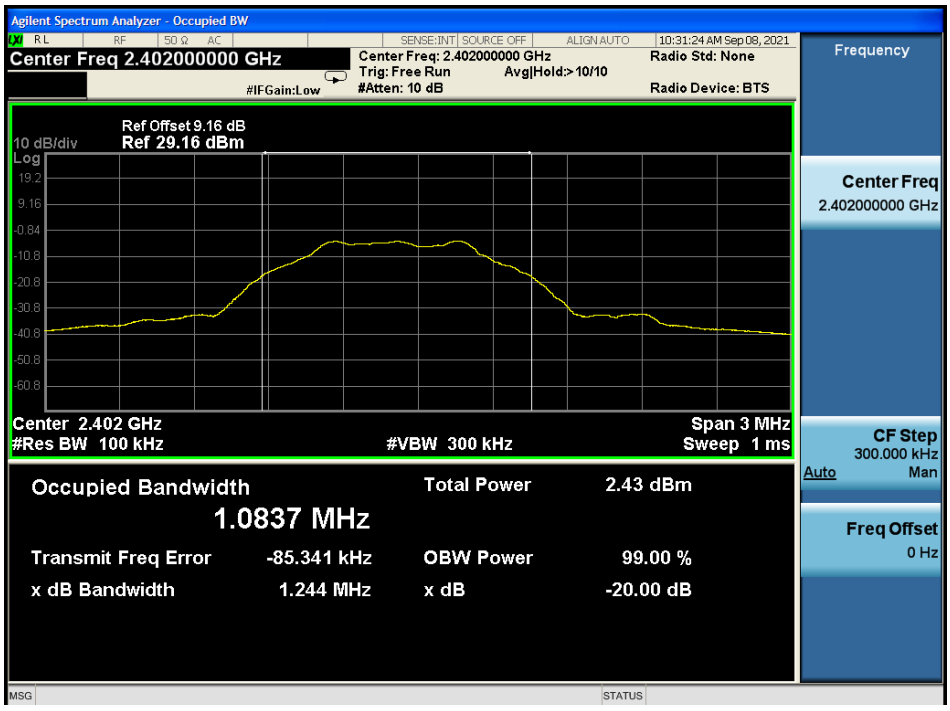
The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 20 dB down one side of the emission. Reset the marker-delta function, and move the marker to the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

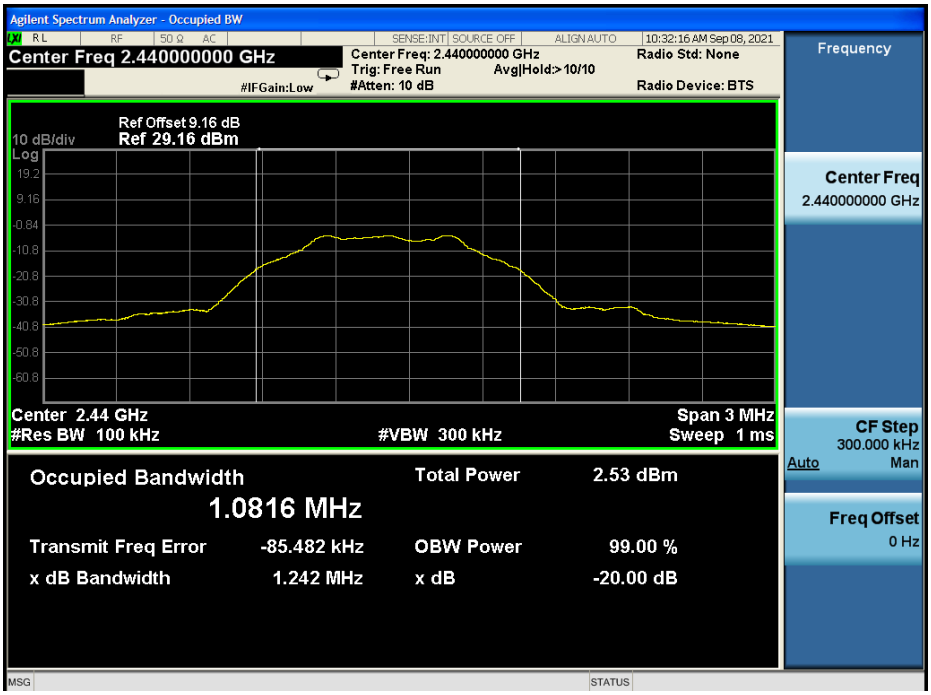
Frequency (MHz)	20dB bandwidth (MHz)	99% bandwidth (MHz)
2402	1.244	1.0837
2440	1.242	1.0816
2480	1.242	1.0838

Test plots

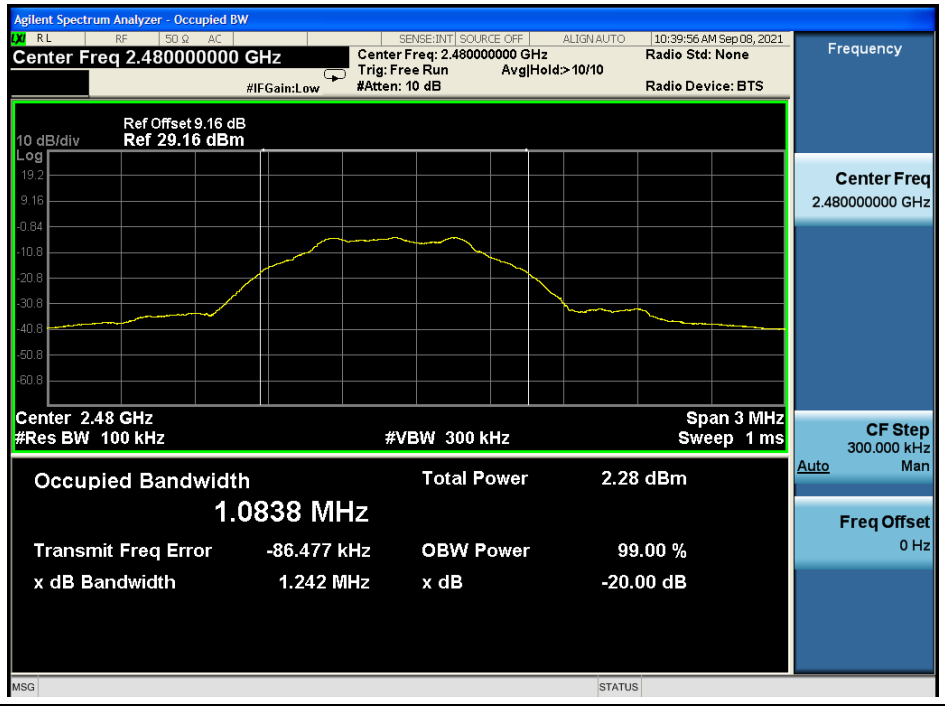
2402MHz



2440MHz

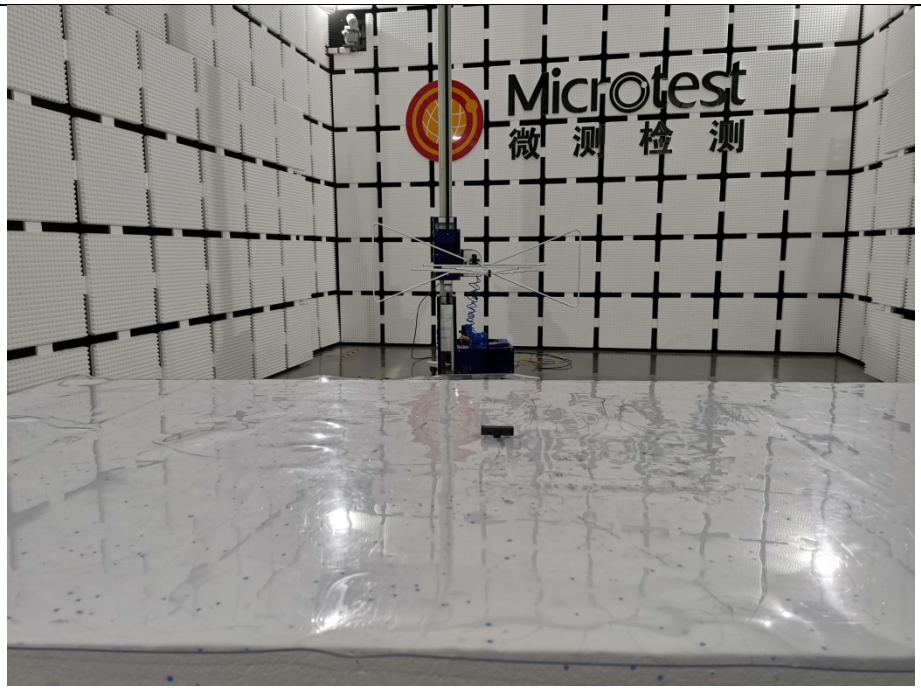


2480MHz



Photographs of the Test Setup

Radiated emission – below 1GHz



Radiated emission – above 1GHz

Conducted emission

Photographs of the EUT

See the APPENDIX 1- EUT PHOTO.

----END OF REPORT----