Shanghai BackRobo Wellness Co.,Ltd.

TEST REPORT

SCOPE OF WORK
FCC TESTING– SP4WBL, more details see page 1.

REPORT NUMBER
260421084SZN-001

ISSUE DATE	**[REVISED DATE]**
23 June 2026	[----------]

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TEST REPORT

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Intertek Report No.: 260421084SZN-001

RF Test Report

Applicant:	Shanghai BackRobo Wellness Co.,Ltd.
Address of Applicant:	19EH Suntong Infoport Plaza, 55 Huaihai Rd. W., Shanghai 200030, China
Equipment Under Test (EUT)	
Product Name:	Smart Anti-Snore Pillow
TYPE:	ASP04
Model No.:	SP4WBL, SP4abb, which denotes for the lead feature (a = W(WIFI); the color bb = TL (Teal), LV (Lavender), PU (Purple), BL (Blue), GR (Gray), MI (Mint), SA (Sage), LI (Linen), WH (White), TR (Terracotta), BR (Brown)), SP4abb-c, which denotes for the lead feature a = W(WIFI); the color bb = TL (Teal), LV (Lavender), PU (Purple), BL (Blue), GR (Gray), MI (Mint), SA (Sage), LI (Linen), WH (White), TR (Terracotta), BR (Brown)), and secondary feature or country c = G (Gift), B (Bonus), C (Canada), X (Mexico), U (UK), E (Europe), I(India), A (Australia), L (LATAM), M (Middle East), J (Japan), H (China), N (Nordic), F (Africa)).
Trademark:	NoctIQ
FCC ID:	2BV7JASP040001
Applicable Standards:	FCC CFR Title 47 Part 15C (§15.247)
Date of Test:	21 April 2026 to 10 May 2026
Test Result:	PASS

Prepared and Checked by:

Allen Qin
Project Engineer

Approved by:

Johnny Wang
Project Engineer
Date: 23 June 2026

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1 Revision History

Report No.	Version No.	Description	Issued Date
260421084SZN-001	*01*	*Original*	*23 June 2026*

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3 Summary of Test Result

TEST ITEM	FCC REFERANCE	RESULT
Minimum 6dB Bandwidth	15.247(a)(2)	Pass
Maximum Conducted Output Power	15.247(b)(3)	Pass
Power spectrum density	15.247(e)	Pass
Occupied bandwidth	2.1049	Pass
Emission outside the frequency band	15.247(d)	Pass
Radiated Emission in restricted frequency bands	15.247(d), 15.205, 15.209	Pass
AC Power line conducted emission	15.207(a)	Pass
Antenna requirement	15.203	Pass

4 General Information

4.1 Client Information

Applicant:	Shanghai BackRobo Wellness Co.,Ltd.
Address:	19EH Suntong Infoport Plaza, 55 Huaihai Rd. W., Shanghai 200030, China
Manufacturer:	Shanghai BackRobo Wellness Co.,Ltd.
Address:	19EH Suntong Infoport Plaza, 55 Huaihai Rd. W., Shanghai 200030, China

4.2 Description of Equipment Under Test (EUT)

Product Name:	Smart Anti-Snore Pillow
Model No.:	SP4WBL
Description of EUT:	The EUT contains Wi-Fi 2.4G, Bluetooth (BLE mode) functions. This report is for BLE(1M). The worst data is listed in the report.
Operation Frequency:	2402MHz - 2480MHz
Channel Numbers:	40
Channel Separation:	2MHz
Modulation Technology:	GFSK
Data Speed:	1Mbps
Antenna Type:	Internal Antenna
Antenna Gain:	3.4dBi (This information is provided by applicant, and the applicant is responsible for the authenticity of the provided information.)
Antenna transmit mode:	1TX, 1RX
Power Supply:	Input: DC 5.0V, 2.0A 10W Max
AC Adapter:	AC/DC Adaptor Model: XSC-0502000AUSU Input: 100-240V~, 50/60Hz, 0.4A Max Output: 5.0V⎓2000mA

Note:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. The Model: SP4abb, which denotes for the lead feature (a = W(WIFI); the color bb = TL (Teal), LV (Lavender), PU (Purple), BL (Blue), GR (Gray), MI (Mint), SA (Sage), LI (Linen), WH (White), TR (Terracotta), BR (Brown)), SP4abb-c, which denotes for the lead feature a = W(WIFI); the color bb = TL (Teal), LV (Lavender), PU (Purple), BL (Blue), GR (Gray), MI (Mint), SA (Sage), LI (Linen), WH (White), TR (Terracotta), BR (Brown)), and secondary feature or country c = G (Gift), B (Bonus), C (Canada), X (Mexico), U (UK), E (Europe), I(India), A (Australia), L (LATAM), M (Middle East), J (Japan), H (China), N (Nordic), F (Africa)).are the same as the Model: SP4WBL in hardware aspect. The difference in model number, product color and silk-screen serves as marketing strategy.

4.3 Description of Test Facility

Name:	Intertek Testing Services Shenzhen Ltd. Longhua Branch
Address:	101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, GuanHu Subdistrict, LongHua District, ShenZhen.
The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0327
	FCC Accredited Lab Designation Number: CN1188
	IC Registration Lab CAB identifier: CN0038

5 Test Specifications

5.1 Standards or Specification

FCC CFR 47 Part 15C
ANSI C63.10-2020+Cor 1-2023
KDB 558074 D01 15.247 Meas Guidance v05r02

5.2 Channels List

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	11	2424	22	2446	33	2468
1	2404	12	2426	23	2448	34	2470
2	2406	13	2428	24	2450	35	2472
3	2408	14	2430	25	2452	36	2474
4	2410	15	2432	26	2454	37	2476
5	2412	16	2434	27	2456	38	2478
6	2414	17	2436	28	2458	39	2480
7	2416	18	2438	29	2460	/	/
8	2418	19	2440	30	2462	/	/
9	2420	20	2442	31	2464	/	/
10	2422	21	2444	32	2466	/	/

5.3 Test Channels

Test Mode	Test Channel	Frequency
LE 1M	CH 0(Low Channel), CH 19(MID Channel), CH 39(High Channel)	2402 MHz, 2440 MHz, 2480 MHz

The power setting parameter:

Test software and Power Setting parameter			
Test Software	EspRFTestTool_v5.2		
Working Mode	BLE (1M)		
Frequency	2402MHz	2440MHz	2480MHz
Power Setting	Default	Default	Default

5.4 EUT TEST STATUS

Type of Modulation	Tx Function	Description
GFSK	1Tx	1. Keep the EUT in continuously transmitting with Modulation test single

5.5 Support Equipment List and Description

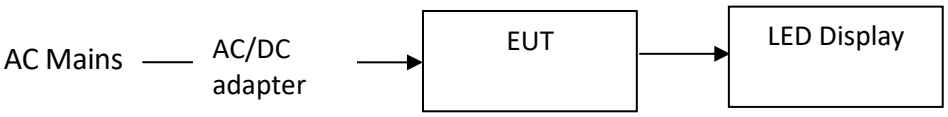
Description	Manufacturer	Model No.
Laptop	Dell	Dell 5420

5.6 Test environment condition:

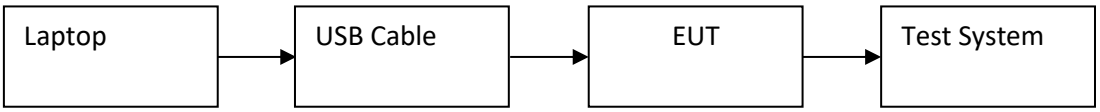
Environment Parameter	Selected Values During Tests		
Test Condition	Ambient		
	Temperature (°C)	Voltage (V)	Relative Humidity (%)
NT/NV	+15 to +35	120	20 to 75
Remark: 1) NV: Normal Voltage; NT: Normal Temperature			

5.7 Block Diagram Showing the Configuration of System Tested

Conducted Test & Radiated Test



Conducted Measurements Test



This example is connection diagram of EUT Test Setups.
For detail, please refer to test mode configuration and setup photographs for each test item.

5.8 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ182-02	RF Power Meter	Anritsu	ML2496A	1302005	2026-04-13	2027-04-13
SZ182-02-01	Pulse Power Sensor	Anritsu	MA2411B	1207429	2026-04-13	2027-04-13
SZ056-06	Signal Analyzer	R&S	FSV 40	101101	2025-12-01	2026-12-01
SZ061-13	BiConiLog Antenna	ETS	3142E	00217919	2025-05-29	2028-05-29
SZ061-08	Horn Antenna	ETS	3115	00092346	2024-09-13	2027-09-13
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	2024-05-05	2027-05-05
SZ061-07	Pyramidal Horn Antenna	ETS	3160-09	00083067	2025-09-11	2028-09-11
SZ185-03	EMI Receiver	R&S	ESR7	101975	2026-04-10	2027-04-10
SZ056-05	Signal Analyzer	R&S	FSV40	US40522113	2025-12-01	2026-12-01
SZ181-08	Microwave System Amplifier	keysight	83017A	MY57280108	2025-07-30	2026-07-30
SZ188-05	Anechoic Chamber	ETS	FACT 3-2.0	CT001880-Q13914102	2025-06-18	2028-06-18
SZ062-23	RF Cable	HUBER+SUHNER	SF104PE-1M	MY4262/4PE	2025-09-15	2026-09-15
SZ062-40	RF Cable	Talent Microwave	A50-3.5M3.5M-4.5M	22012932	2025-09-15	2026-09-15
SZ062-38	RF Cable	Talent Microwave	A50-3.5M3.5M-8M	21051695	2025-09-15	2026-09-15
SZ067-25	Notch Filter	Micro-Tronics	BRM50716	076	2026-02-08	2027-02-08
SZ067-04	Notch Filter	Micro-Tronics	BRM50702-02	015	2026-04-13	2027-04-13
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	2025-06-30	2026-06-30
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	2026-04-10	2027-04-10
SZ062-16	RF Cable	HUBER+SUHNER	CBL2-BN-1m	110127-2231000	2025-06-30	2026-06-30

Software Information			
Test Item	**Software Name**	**Manufacturer**	**Version**
Radiated Test	EMC32	R&S	V10.20.01
Conducted Test	EMC32	R&S	V10.60.20
Conducted RF	Tonscend RF TEST SYSTEM	Shenzhen JS tonscend co., Ltd	2.6.87.0615

5.9 Measurement uncertainty

The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement Uncertainty	Uncertainty
Channel Bandwidth	±3.46%
RF Output Power	±0.31dB
Conducted Unwanted Emission	±0.55dB
Spurious emission (Above 18GHz)	±5.3dB
Spurious emission (6GHz to 18GHz)	±5.1dB
Radiated emission (1GHz to 6GHz)	±4.8dB
Radiated emission (Up to 1GHz)	±4.8dB
AC Conducted emission	±3.2 dB
Temperature	±1°C
Humidity	±5%

6 Antenna Requirement

6.1 Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the party responsible is 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.

1. The antennas of the EUT are permanently attached.
2. There are no provisions for connection to an external antenna.

6.2 Conclusion:

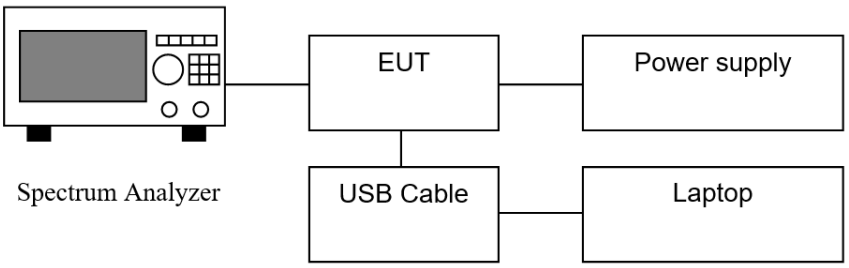
Therefore, this E.U.T complies with the requirement of Part 15.203

7 Minimum 6dB bandwidth

7.1 Limit

For systems using digital modulation techniques that may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz bands, the minimum 6 dB bandwidth shall be at least 500 kHz.

7.2 Test Setup



7.3 Test Procedure

- ANSI C63.10-2020+Cor 1-2023– Section 11.8.1
Set RBW = 100 kHz.
Set the video bandwidth (VBW) ≥ 3 × RBW.
Detector = Peak.
Trace mode = max hold.
Sweep = auto couple.
Allow the trace to stabilize.
Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.4 Test Results of Minimum 6dB bandwidth

Please refer the Appendix of 260421084SZN-001 Appendix A.

8 Maximum Conducted Output Power

8.1 Limit

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 W.

If the transmitting antenna of directional gain greater than 6dBi is used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi. If there have a beam forming type, the limit should be the minimum of 30dBm and 30+ (6 –antenna gain-beam forming gain).

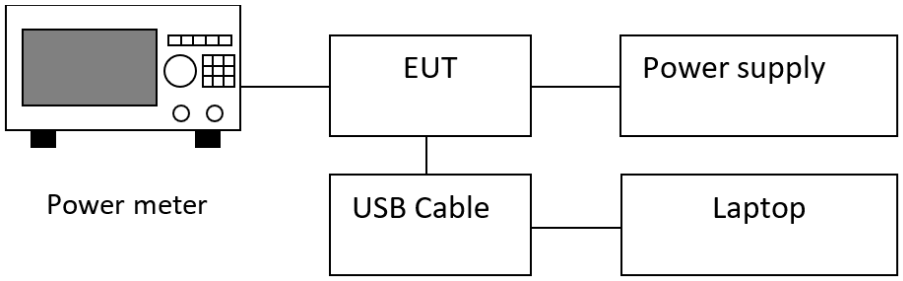
8.2 Test Procedure

- ANSI C63.10-2020+Cor 1-2023– Section 11.9.1.2

PKPM1 Peak power meter method

The maximum peak conducted output power may be measured using a broadband peak RF power meter.

8.3 Test Setup



8.4 Test Results of Maximum conducted output power

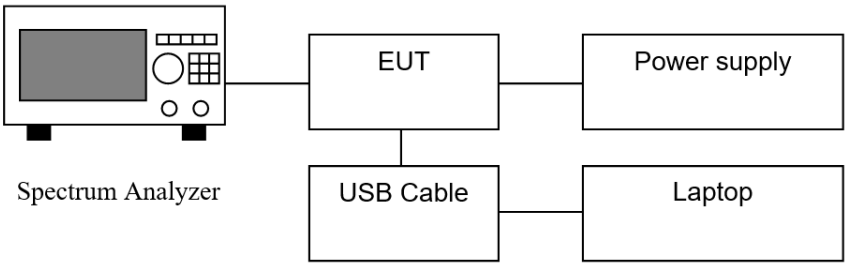
Please refer the Appendix of 260421084SZN-001 Appendix C.

9 Power spectrum density

9.1 Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.

9.2 Test Setup



9.3 Test Procedure

- ANSI C63.10-2020+Cor 1-2023– Section 11.10.2
Set analyzer center frequency to DTS channel center frequency.
Set the span to 1.5 times the DTS bandwidth.
Set the RBW to 3 kHz ≤ RBW ≤ 100 kHz.
Set the VBW ≥ 3 × RBW.
Detector = peak.
Sweep time = auto couple.
Trace mode = max hold.
Allow trace to fully stabilize.
Use the peak marker function to determine the maximum amplitude level within the RBW.
If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

9.4 Test Results of Power spectrum density

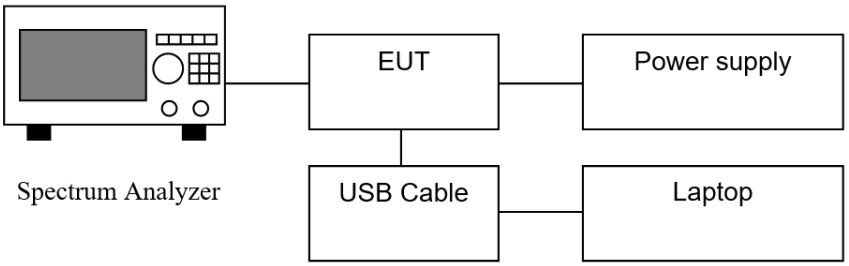
Please refer the Appendix of 260421084SZN-001 Appendix D.

10 Occupied Bandwidth

10.1 Limit

None, for reporting purposes only

10.2 Test Setup



10.3 Test Procedure

- ANSI C63.10-2020+Cor 1-2023 – Section 6.9.3

The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.

The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3x RBW.

10.4 Test Results of Occupied Bandwidth

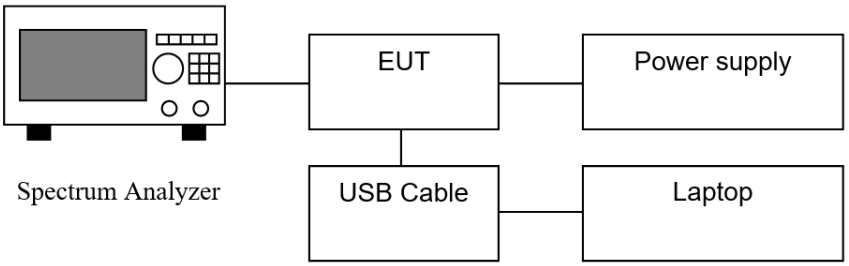
Please refer the Appendix of 260421084SZN-001 Appendix B.

11 Emission outside the frequency band

11.1 Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

11.2 Test Setup



11.3 Test procedure and test setup

- ANSI C63.10-2020+Cor 1-2023 – Section 11.11

Reference level measurement

Establish a reference level by using the following procedure:

a) Set instrument center frequency to DTS channel center frequency.
b) Set the span to ≥ 1.5 times the DTS bandwidth.
c) Set the RBW = 100 kHz.
d) Set the VBW ≥ 3 x RBW.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum PSD level.

Emission level measurement

a) Set the center frequency and span to encompass frequency range to be measured.
b) Set the RBW = 100 kHz.
c) Set the VBW ≥ 3 x RBW.
d) Detector = peak.
e) Sweep time = auto couple.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use the peak marker function to determine the maximum amplitude level.

11.4 Test Results of Emission outside the frequency band

Please refer the Appendix of 260421084SZN-001 Appendix E and Appendix F.

12 Radiated Emissions in restricted frequency bands

12.1 Limit

Part 15.247(d), Part 15.205, Part 15.209

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of Part 15.247 the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Part 15.209

Frequency (MHz)	FCC Limit (uV/m)	Measurement Distance (m)
0.009 – 0.490	2 400 / F (kHz)	300
0.490 – 1.705	24 000 / F (kHz)	30
1.705 – 30.0	30	30

Frequency (MHz)	FCC Limit (uV/m)	Measurement Distance (m)
30 ~ 88	100 **	3
88 ~ 216	150 **	3
216 ~ 960	200 **	3
Above 960	500	3

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §15.231 and 15.241.

FCC Restricted bands of operation refer to FCC §15.205 (a):

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1] 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2] Above 38.6

12.2 Test Procedure

- ANSI C63.10-2020+Cor 1-2023– Section 11.12

For Radiated emission below 30MHz:

a) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters chamber room. For the floor-standing devices, the EUT was placed on the top of a rotating table 0.1 meters above the ground at 3 meters chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
b) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c) Both X and Y axes of the antenna are set to make the measurement.
d) For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e) The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz).

For Radiated emission above 30MHz:

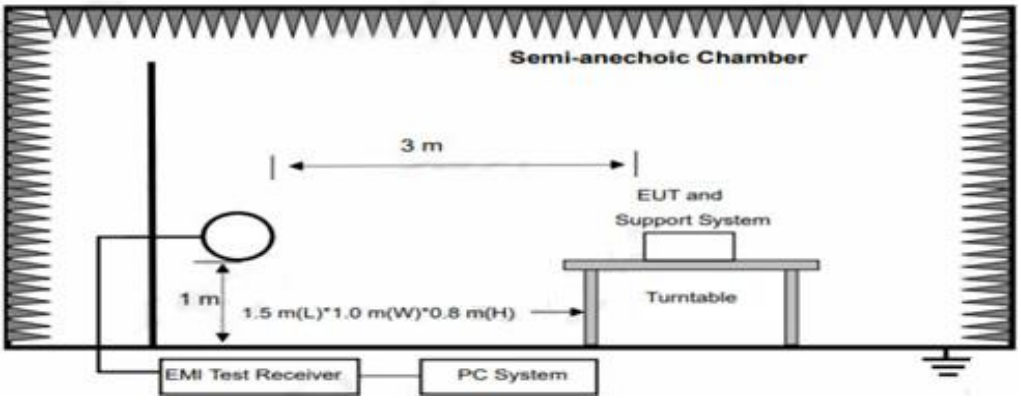
The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meters chamber room for test. For the floor-standing devices, the EUT was placed on the top of a rotating table 0.1 meters above the ground at 3 meters chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
The height of antenna 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.
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.
The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
The test-receiver system was set to peak and average detector function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

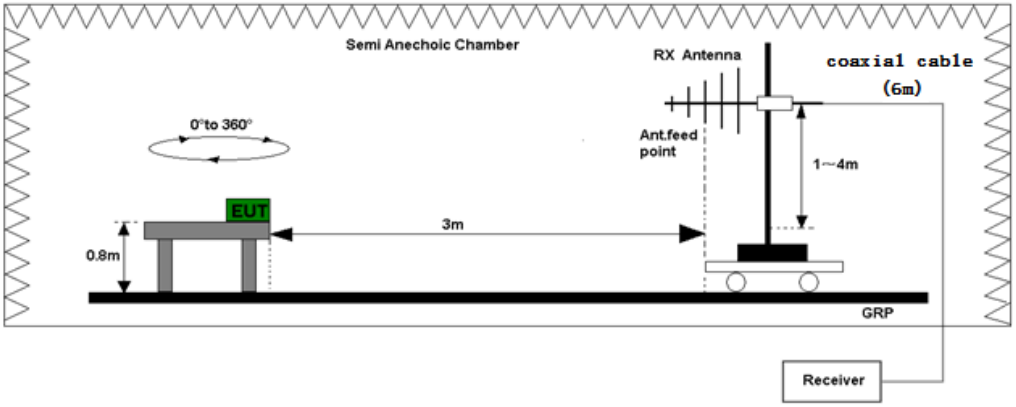
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 3 x RBW (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes have been tested, but only the worst data was recorded in the report.

12.3 Test Setup

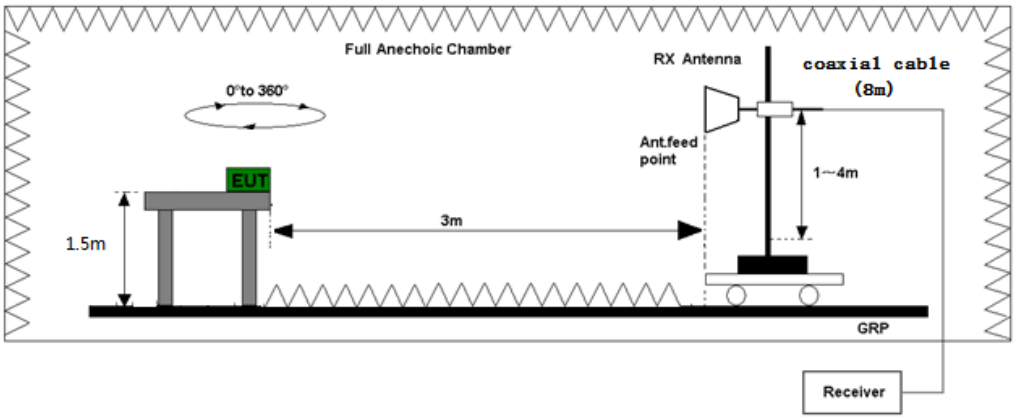
For Radiated emission below 30MHz:



For Radiated emission 30MHz to 1GHz:



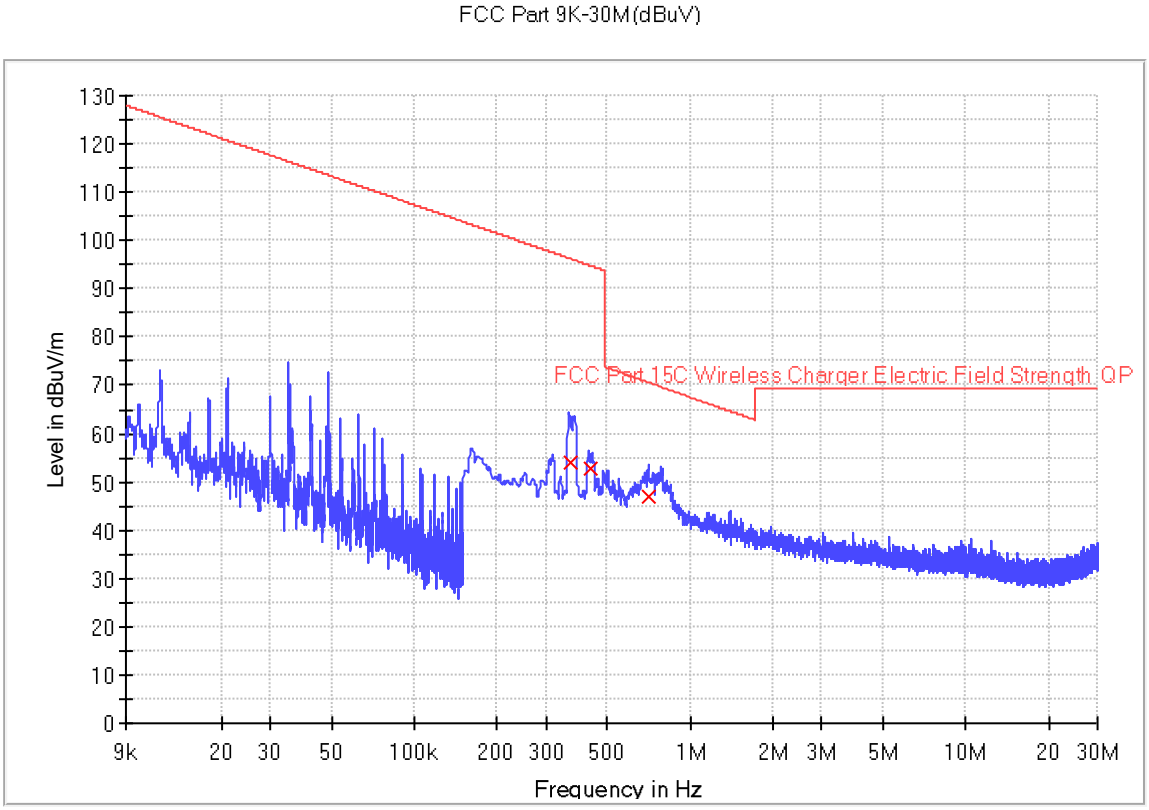
For Radiated emission above 1GHz:



13 Test Results of Radiated Emissions

Below 1GHz:

Product Name:	Smart Anti-Snore Pillow	**Product Model:**	SP4WBL
Test By:	Allen Qin	**Worst Test mode:**	BLE TX mode (1M)
Test Frequency:	0.009 MHz ~ 30 MHz	**Test Voltage:**	AC 120V, 60Hz



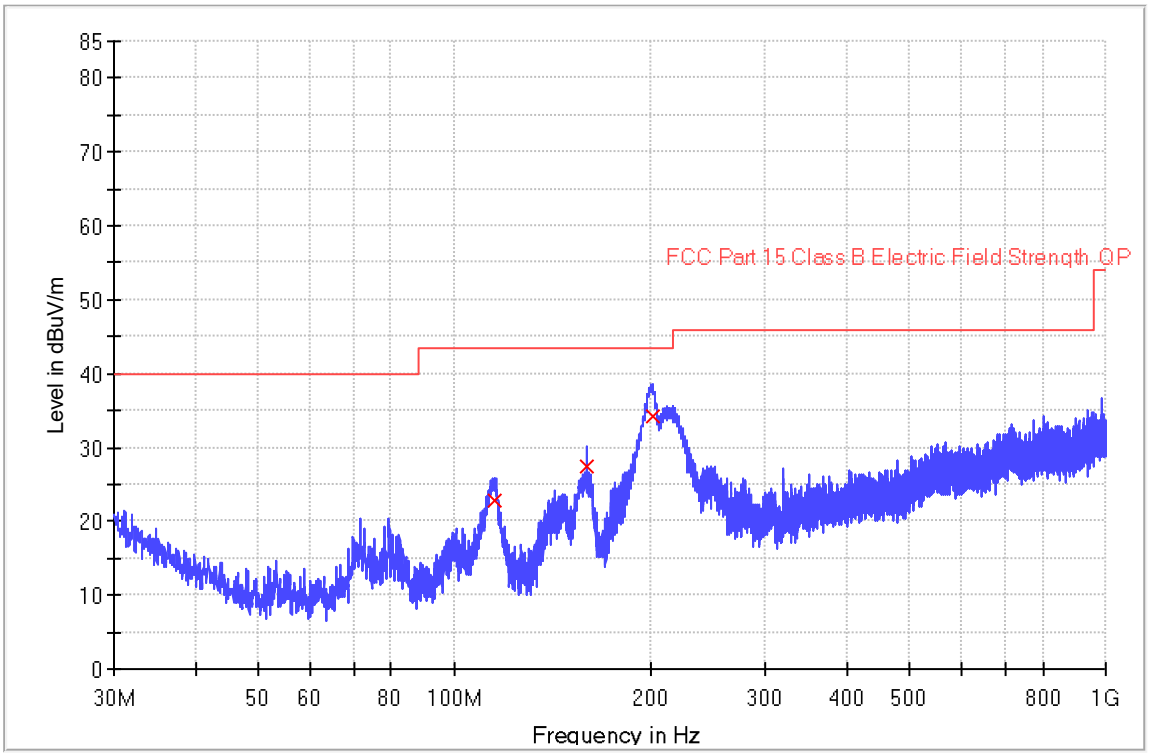
Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
0.367905	54.2	1000.0	9.000	16.6	42.1	96.3
0.436560	52.9	1000.0	9.000	16.5	41.8	94.8
0.703220	46.9	1000.0	9.000	15.9	23.7	70.6

Remark:
1. Corr. (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB)
2. Quasi Peak (dBµV/m) = Corr. (dB/m) + Read Level (dBµV)
3. Margin (dB) = Limit QPK (dBµV/m) – Quasi Peak (dBµV/m)

Product Name:	Smart Anti-Snore Pillow	**Product Model:**	SP4WBL
Test By:	Allen Qin	**Worst Test mode:**	BLE TX mode (1Mbps)
Test Frequency:	30 MHz ~ 1 GHz	**Polarization:**	Horizontal
Test Voltage:	AC 120V, 60Hz		

FCC Part 15



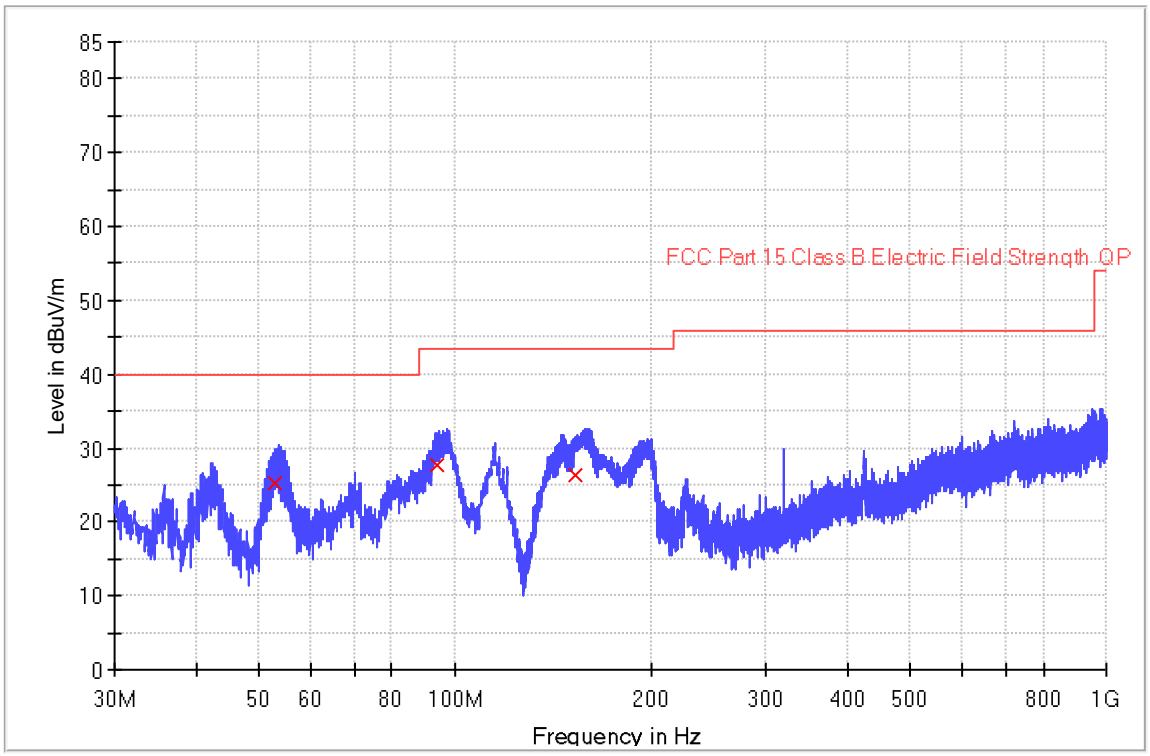
Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
115.586333	22.8	1000.0	120.000	H	14.8	20.7	43.5
159.980000	27.5	1000.0	120.000	H	17.3	16.0	43.5
201.140333	34.1	1000.0	120.000	H	17.4	9.4	43.5

Remark:
1. Corr. (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB)
2. Quasi Peak (dBµV/m) = Corr. (dB/m) + Read Level (dBµV)
3. Margin (dB) = Limit QPK (dBµV/m) – Quasi Peak (dBµV/m)

Product Name:	Smart Anti-Snore Pillow	Product Model:	SP4WBL
Test By:	Allen Qin	Worst Test mode:	BLE TX mode (1Mbps)
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Vertical
Test Voltage:	AC 120V, 60Hz		

FCC Part 15



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
53.021333	25.2	1000.0	120.000	V	13.1	14.8	40.0
93.955333	27.7	1000.0	120.000	V	14.1	15.8	43.5
152.737333	26.3	1000.0	120.000	V	16.6	17.2	43.5

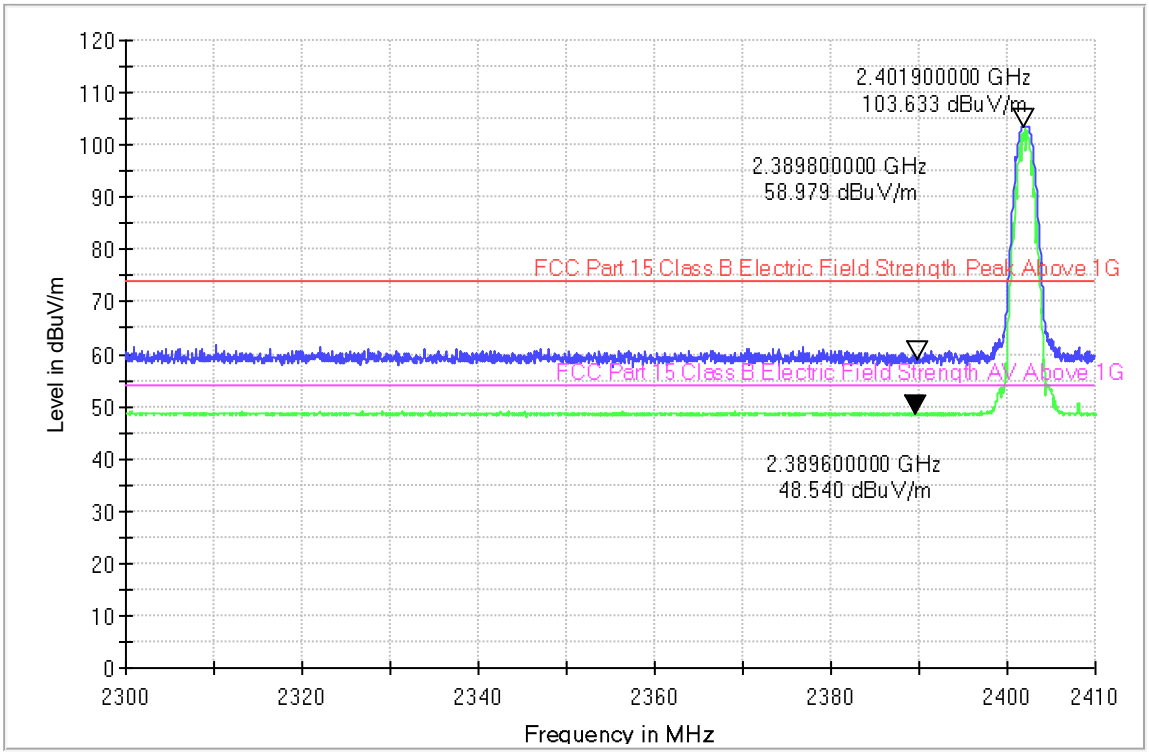
Remark:
1. Corr. (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB)
2. Quasi Peak (dBµV/m) = Corr. (dB/m) + Read Level (dBµV)
3. Margin (dB) = Limit QPK (dBµV/m) – Quasi Peak (dBµV/m)

Above 1GHz:
Worst-case Results: BLE 1M
Test channel: Lowest channel

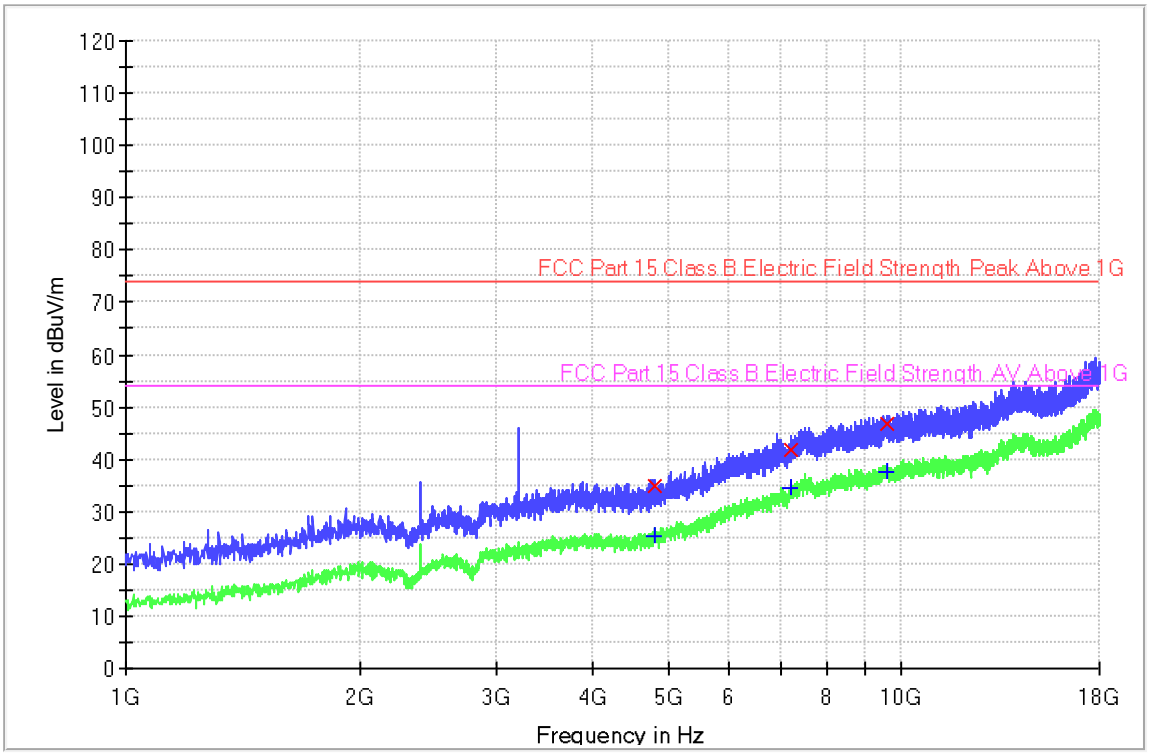
Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	2390.000	64.5	32.0	27.5	60.0	74.0	-14.0
Horizontal	4804.000	32.5	30.4	32.7	34.8	74.0	-39.2
Horizontal	7206.000	34.9	30.5	37.4	41.8	74.0	-32.2
Horizontal	9608.000	39.3	30.6	38.1	46.8	74.0	-27.2

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m	Margin (dB)
Horizontal	2390.000	53.0	32.0	27.5	48.5	54.0	-5.5
Horizontal	4804.000	23.2	30.4	32.7	25.5	54.0	-28.5
Horizontal	7206.000	27.6	30.5	37.4	34.5	54.0	-19.5
Horizontal	9608.000	30.0	30.6	38.1	37.5	54.0	-16.5

Electric Field Strength 1-18GdBuV TX Band Edge+EIRP

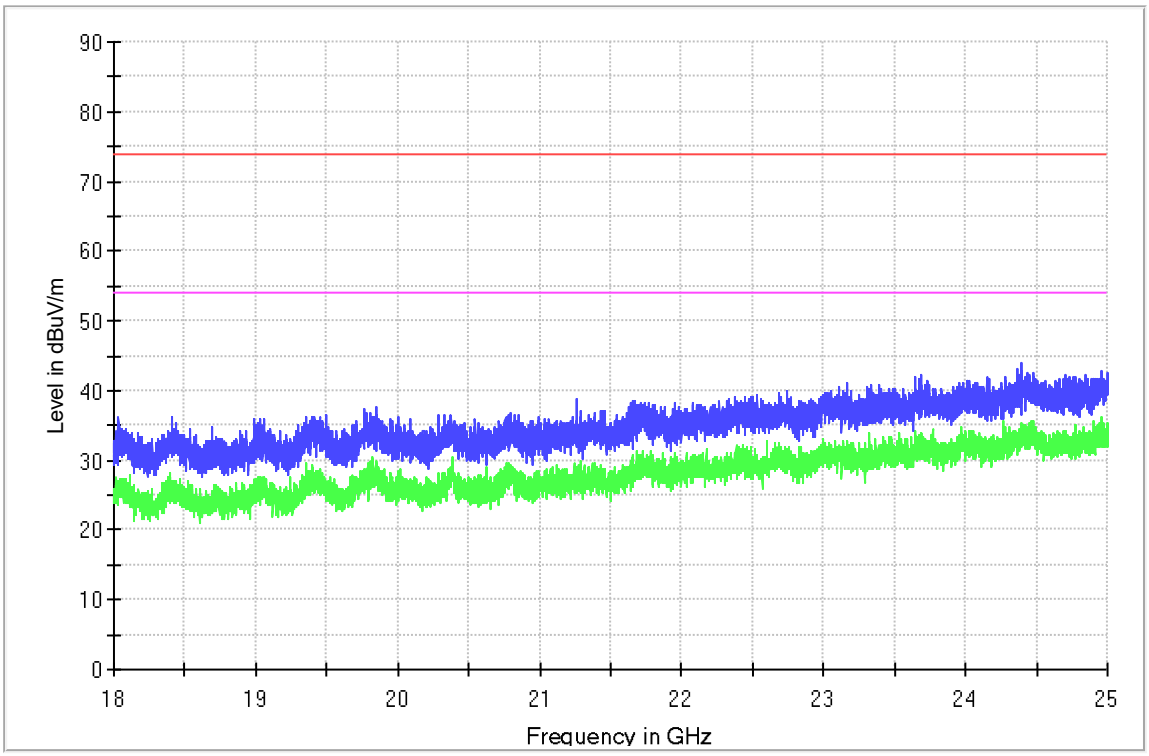


Electric Field Strength 1-12.5GdBuV



During the test, a 2.4–2.5 GHz filter was added.

Electric Field Strength 18-40 GdBuV

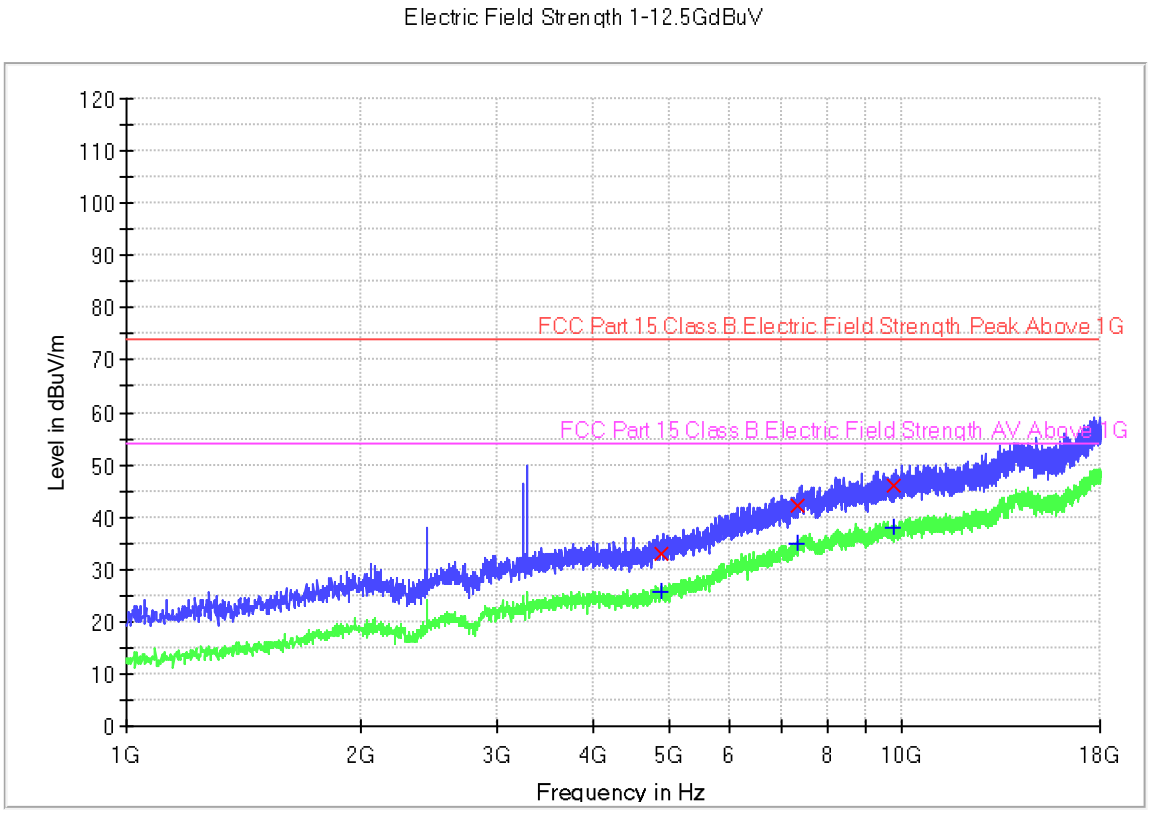


No emissions were significantly above the equipment noise floor.

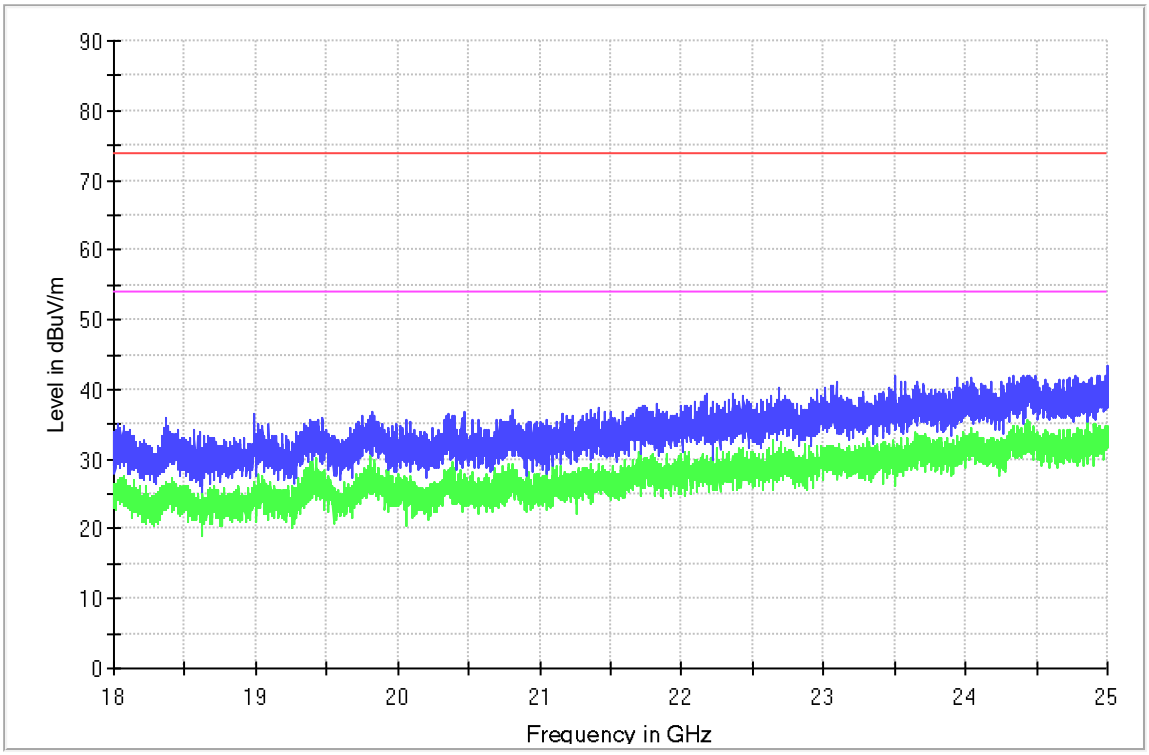
Test channel: Middle channel

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	4880.000	30.5	30.3	32.9	33.1	74.0	-40.9
Horizontal	7320.000	35.0	30.5	37.6	42.1	74.0	-31.9
Horizontal	9760.000	38.6	30.7	38.2	46.1	74.0	-27.9

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m	Margin (dB)
Horizontal	4880.000	23.2	30.3	32.9	25.8	54.0	-28.2
Horizontal	7320.000	27.7	30.5	37.6	34.8	54.0	-19.2
Horizontal	9760.000	30.3	30.7	38.2	37.8	54.0	-16.2



During the test, a 2.4–2.5 GHz filter was added.

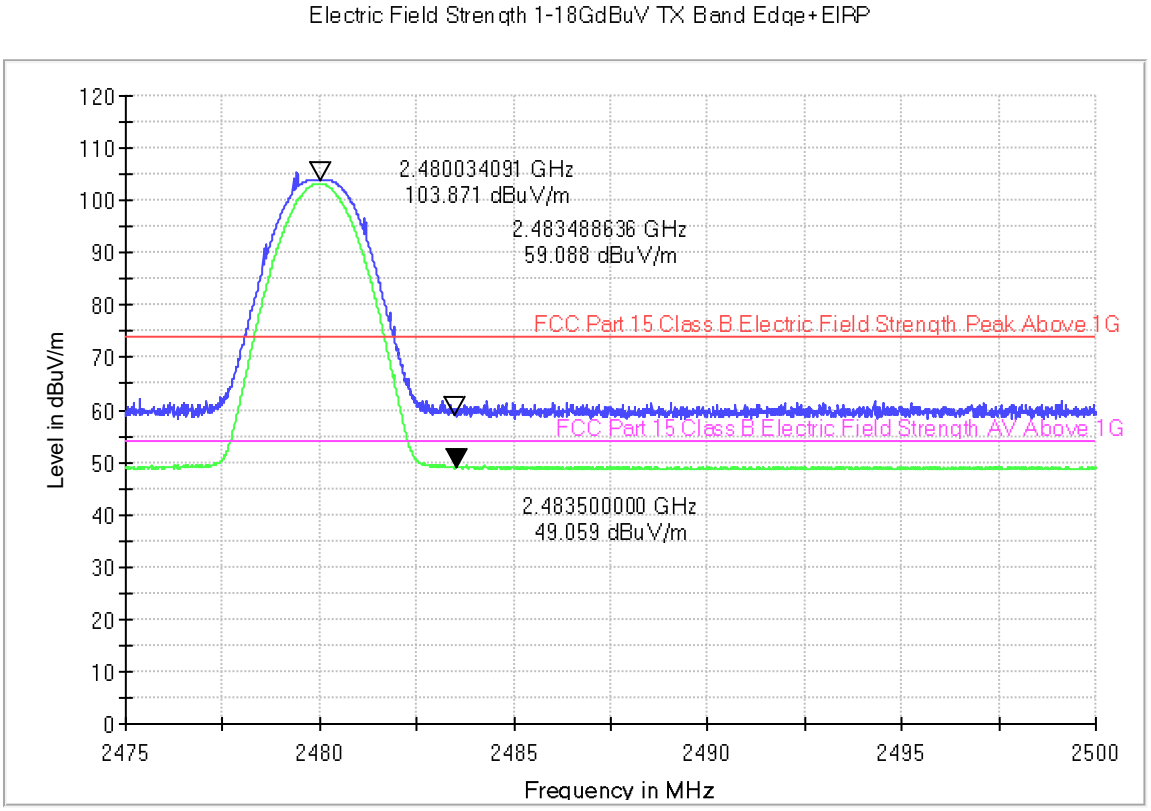


No emissions were significantly above the equipment noise floor.

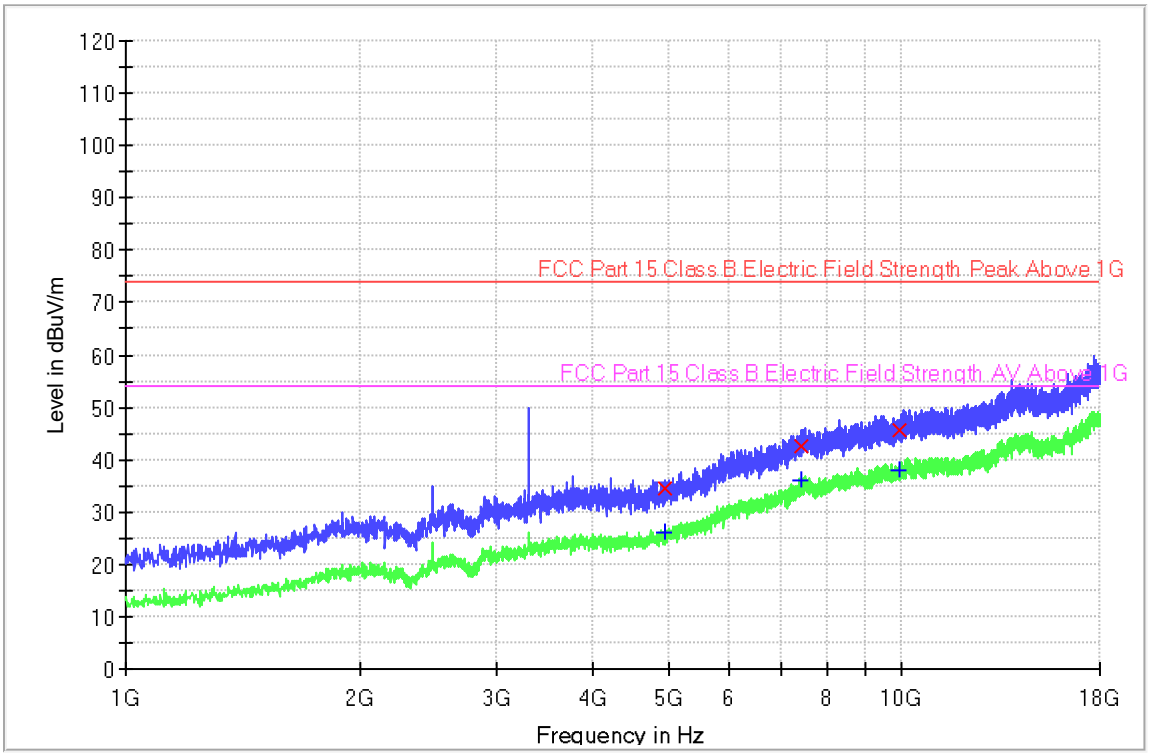
Test channel: Highest channel

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	2483.500	62.8	31.8	28.1	59.1	74.0	-14.9
Horizontal	4960.000	31.8	30.2	32.9	34.5	74.0	-39.5
Horizontal	7440.000	35.5	30.6	37.6	42.5	74.0	-31.5
Horizontal	9920.000	37.8	30.7	38.4	45.5	74.0	-28.5

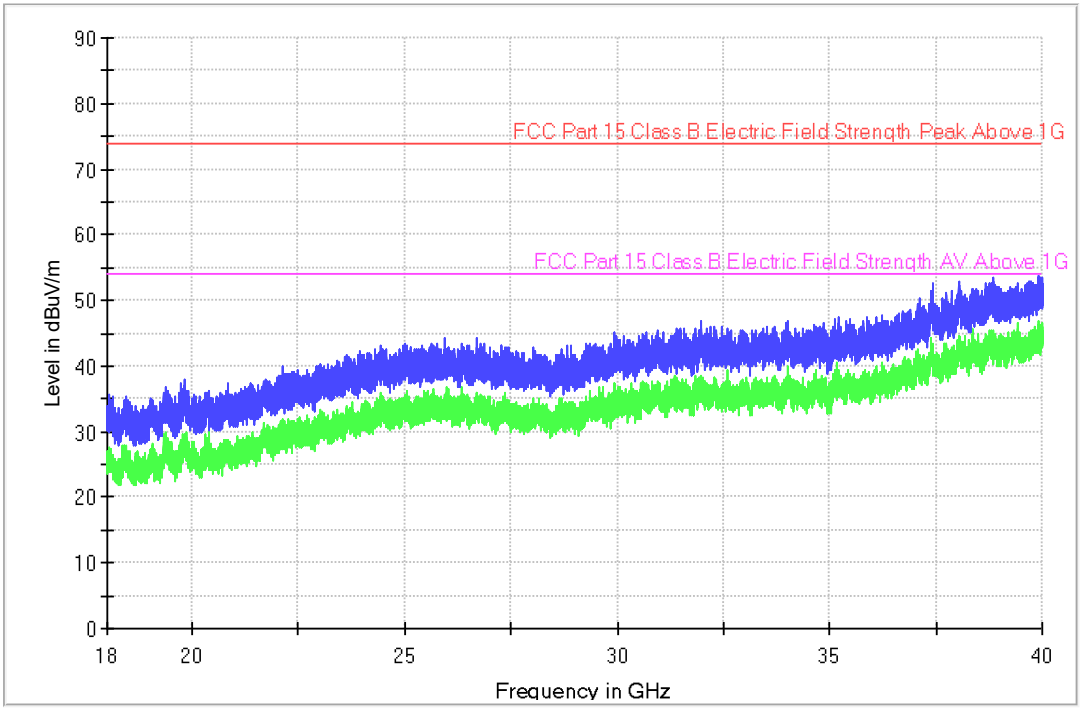
Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB/m)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m	Margin (dB)
Horizontal	2483.500	52.8	31.8	28.1	49.1	54.0	-4.9
Horizontal	4960.000	23.2	30.2	32.9	25.9	54.0	-28.1
Horizontal	7440.000	28.9	30.6	37.6	35.9	54.0	-18.1
Horizontal	9920.000	30.2	30.7	38.4	37.9	54.0	-16.1



Electric Field Strength 1-12.5GdBuV



During the test, a 2.4–2.5 GHz filter was added.



No emissions were significantly above the equipment noise floor.

NOTES:

1. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
2. Negative value in the margin column shows emission below limit.
3. Horn antenna used for the emission over 1000MHz.
4. All modes have been tested, but only the worst data was recorded in the report.
5. Tests were conducted in both the horizontal and vertical directions, but only worst-case data record in report.

* Emissions within restricted bands comply with applicable regulatory requirements. The corresponding limits are based on quasi-peak measurements for frequencies below 1000 MHz and average measurements for frequencies above 1000 MHz. Furthermore, for radio frequency emissions above 1 GHz, the measured peak level using a peak detector also meets the permitted limit, which is 20 dB above the average limit.

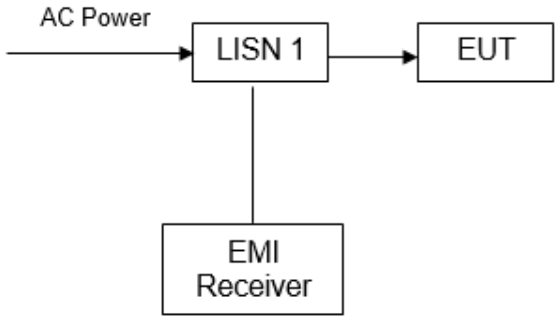
14 AC Power line Conducted Emissions

14.1 Limit

Freq. (MHz)	Conducted Limit (dBµV)	
	Q.P.	Ave.
0.15~0.5	66 – 56*	56 – 46*
0.50~5.0	56	46
5.00~30.0	60	50

* Decreases with the logarithm of the frequency.

14.2 Test Setup

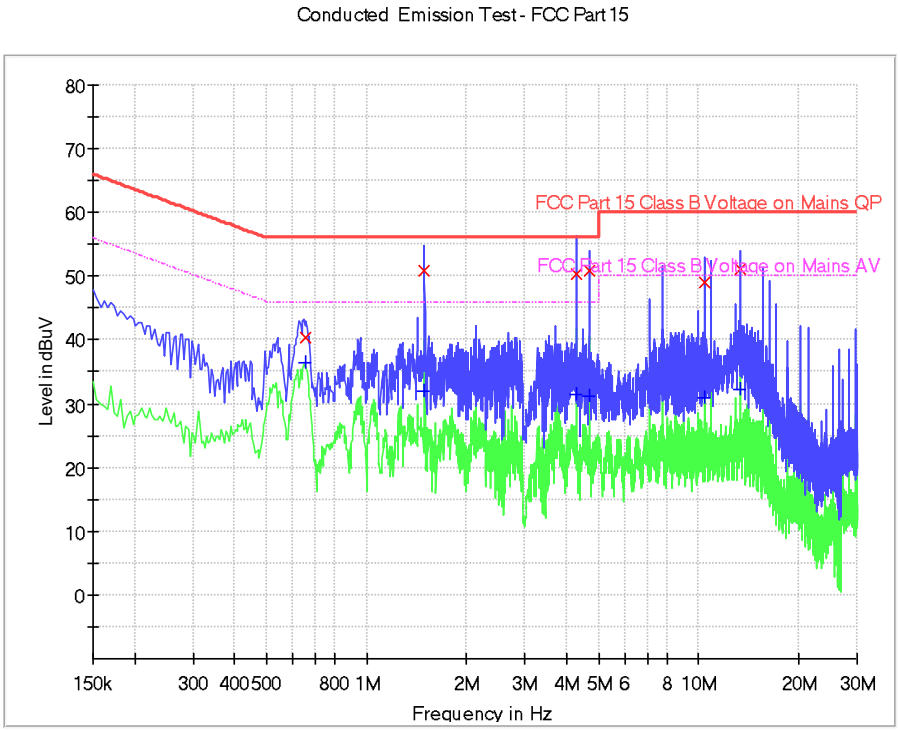


14.3 Test Procedure

The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESCI) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2020+Cor 1-2023. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

14.4 Test Results of AC Power line Conducted Emissions

Product Name:	Smart Anti-Snore Pillow	**Product Model:**	SP4WBL
Test By:	Allen Qin	**Worst Test mode:**	BLE TX mode (1Mbps)
Test frequency:	150 kHz ~ 30 MHz	**Phase:**	Line
Test voltage:	AC 120V, 60Hz		



Limit and Margin QP

Frequency (MHz)	Quasi Peak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.654000	40.5	9.000	L1	9.8	15.5	56.0
1.490000	50.9	9.000	L1	9.9	5.1	56.0
4.282000	50.4	9.000	L1	10.0	5.6	56.0
4.674000	50.8	9.000	L1	10.0	5.2	56.0
10.426000	49.0	9.000	L1	10.5	11.0	60.0
13.410000	51.2	9.000	L1	10.9	8.8	60.0

Limit and Margin AV

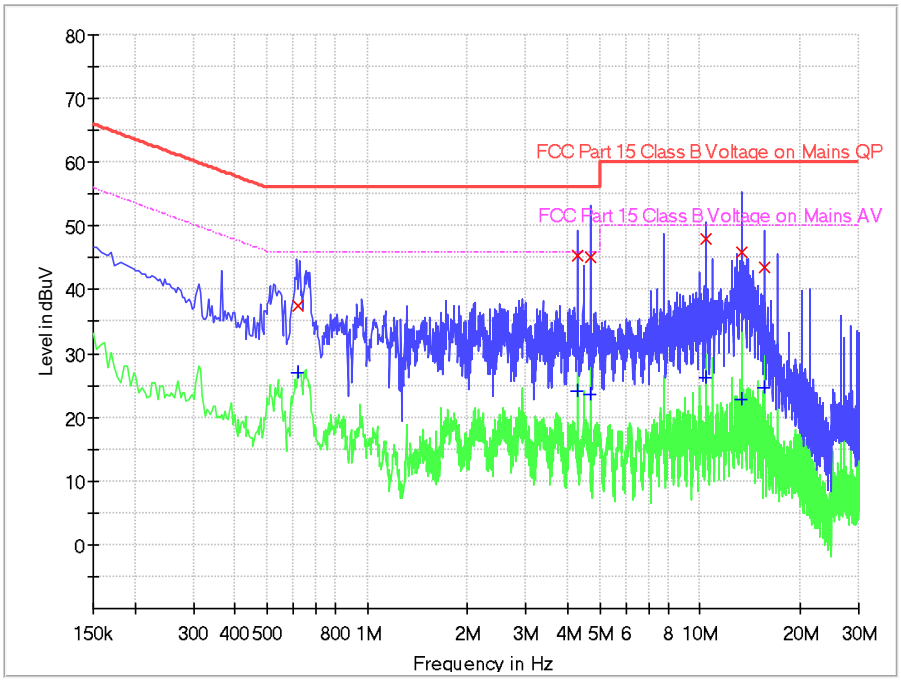
Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.654000	36.6	9.000	L1	9.8	9.4	46.0
1.490000	32.0	9.000	L1	9.9	14.0	46.0
4.282000	31.4	9.000	L1	10.0	14.6	46.0
4.674000	31.2	9.000	L1	10.0	14.8	46.0
10.426000	30.9	9.000	L1	10.5	19.1	50.0
13.410000	32.2	9.000	L1	10.9	17.8	50.0

Remark:

1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Limit (dBµV) – Quasi Peak/Average (dBµV)

Product Name:	Smart Anti-Snore Pillow	**Product Model:**	SP4WBL
Test By:	Allen Qin	**Worst Test mode:**	BLE TX mode (1Mbps)
Test frequency:	150 kHz ~ 30 MHz	**Phase:**	Neutral
Test voltage:	AC 120V, 60Hz		

Conducted Emission Test - FCC Part 15



Limit and Margin QP

Frequency (MHz)	Quasi Peak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.618000	37.4	9.000	N	9.7	18.6	56.0
4.282000	45.3	9.000	N	9.9	10.7	56.0
4.674000	45.0	9.000	N	10.0	11.0	56.0
10.430000	48.0	9.000	N	10.5	12.0	60.0
13.414000	46.0	9.000	N	10.8	14.0	60.0
15.702000	43.6	9.000	N	11.1	16.4	60.0

Limit and Margin AV

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.618000	26.9	9.000	N	9.7	19.1	46.0
4.282000	24.2	9.000	N	9.9	21.8	46.0
4.674000	23.6	9.000	N	10.0	22.4	46.0
10.430000	26.1	9.000	N	10.5	23.9	50.0
13.414000	22.8	9.000	N	10.8	27.2	50.0
15.702000	24.7	9.000	N	11.1	25.3	50.0

Remark:

1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Limit (dBµV) – Quasi Peak/Average (dBµV)

********** End of Report**********