

TEST REPORT

Radio Frequency Devices-Intentional Radiators

for

Products Name: BLUETOOTH SPEAKER

Model No.: Refer to basic introduction of page 3

FCC ID: 2AX85ISB406B-K

Report No.: SST2606E148

Issued Date: Jun. 12, 2026

Issued for

E-SOUND ELECTRONIC CO., LIMITED

2F, No. 3 Jianye Street, Xiangxi Industrial Zone, Liaobu Town, Dongguan City, Guangdong, China

Issued by

Dongguan Qiyang Testing Technology Co., Ltd.

Room 101-1, Building 1, No.19, Tianxin Butterfly 1st Road, Huangjiang, Dongguan, Guangdong, China

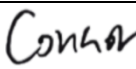
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1. Basic Introduction

Applicant's name :	E-SOUND ELECTRONIC CO., LIMITED	
Address	2F, No. 3 Jianye Street, Xiangxi Industrial Zone, Liaobu Town, Dongguan City, Guangdong, China	
Manufacturer's name	E-SOUND ELECTRONIC CO., LIMITED	
Address	2F, No. 3 Jianye Street, Xiangxi Industrial Zone, Liaobu Town, Dongguan City, Guangdong, China	
Products Name :	BLUETOOTH SPEAKER	
Model No. :	ISB406B-K, MSP1681, 612510, 612535, 612550, ET-729, ET-729C, ET-729A, ET-626, ET-629, ET-F41, ET-F42, ET-F51, ET-F52, ET-F48, ET-F49, ET-F53, ET-F54, ET-F15, ET-F17, ET-F36, ET-F50, ET-705, ET-706, ET-740, ET-760, ES-501, ET-502, ET-717D, ET-717, ET-727, ET-727B, ET-718, ET-721, ET-730, ET-731, ET-7370, ET-7373, ET-7374, ET-7375, ET-728, ET-7281, ET-7282, ET-733, ET-704, ET-724, ET-726, ET-417, ET-1035, ET1025, ET-1034, ET-1023, ET-1031, ET-S19L, ET-S117, ET-S103C, ET-K001, ET-K12, ET-K52, ET-K008, ET-1037, ET-1038, ET-261, ET-128, ET-308, ET-318, ET-262, ET-328, ET-208, ET-1080, ET-1081, ET-1082, ET-1061, ET-1062, ET-2063, ET-2064, ET-2081, ET-2083, ET-2066, ET-2088, ET-106, ET-206, ET-107, ET-207, ET-118, ET-802, ET-1208, ET-1210, ET-1308, ET-1408, E-T28N, TK-178, TK-266A, TK-298A, TK-266B, TK-580, TK-106C, TK-106B, TK-256A, TK-978B, TK-708A, TK-708B, RM-288A, ET-2065, ET-S122, ET-S18B, ET-S15C, ET-S111C, ET-F2, ET-F4, ET-F3, ET-F6, ET-739, ET-748, ET-786, ET-796, ET-1500, ET-1520, ET-736, ET-776, ET-662, ET-669, ET-667, ET-668, TK-568, TK-578, TK-678, TK-1010, TK-226A, TK-226 B, TK-1010A, TK-1010B, TPA-25, TK-705, TK-135, TK-502, RM-892, TK-582, TK-592, TK-522, HS-001	
Trade Mark	ILIVE	
Rating(s)	Rechargeable Li-ion Battery DC 3.7V	
Date of sample receipt :	Jun. 03, 2026	
Date of Test :	Jun. 03, 2026 ~ Jun. 12, 2026	
Standard(s)	FCC 47 CFR Part 15 Subpart C Section 15.247 ANSI C63.10-2020+Cor 1-2023	
Tested by (+signature) :	Connor Ma	
Check by (+signature) :	Davis Zhou	
Approved by (+signature) :	Tiger Chen	



2. General description

2.1. EUT description

Products Name	BLUETOOTH SPEAKER	
Model No.	ISB406B-K	
Rating(s)	Rechargeable Li-ion Battery DC 3.7V	
SN.....	SST2606E148-0101	
Operation frequency	2402MHz ~ 2480MHz	
Channel numbers	79	
Channel separation	1MHz	
Modulation technology	GFSK, pi/4 DQPSK, 8DPSK	
Antenna type	PCB antenna	
Antenna gain	-0.58dBi	
EUT cable description	Name	Description
	USB Line	☐ Shielded ☒ Unshielded ☒ Detachable ☐ Un-detachable ☐ No applicable ☒ Length: 0.77 m

2.2. Serial model(s) and model difference

Main model(s)	ISB406B-K
Serial model(s)	MSP1681, 612510, 612535, 612550, ET-729, ET-729C, ET-729A, ET-626, ET-629, ET-F41, ET-F42, ET-F51, ET-F52, ET-F48, ET-F49, ET-F53, ET-F54, ET-F15, ET-F17, ET-F36, ET-F50, ET-705, ET-706, ET-740, ET-760, ES-501, ET-502, ET-717D, ET-717, ET-727, ET-727B, ET-718, ET-721, ET-730, ET-731, ET-7370, ET-7373, ET-7374, ET-7375, ET-728, ET-7281, ET-7282, ET-733, ET-704, ET-724, ET-726, ET-417, ET-1035, ET-1025, ET-1034, ET-1023, ET-1031, ET-S19L, ET-S117, ET-S103C, ET-K001, ET-K12, ET-K52, ET-K008, ET-1037, ET-1038, ET-261, ET-128, ET-308, ET-318, ET-262, ET-328, ET-208, ET-1080, ET-1081, ET-1082, ET-1061, ET-1062, ET-2063, ET-2064, ET-2081, ET-2083, ET-2066, ET-2088, ET-106, ET-206, ET-107, ET-207, ET-118, ET-802, ET-1208, ET-1210, ET-1308, ET-1408, E-T28N, TK-178, TK-266A, TK-298A, TK-266B, TK-580, TK-106C, TK-106B, TK-256A, TK-978B, TK-708A, TK-708B, RM-288A, ET-2065, ET-S122, ET-S18B, ET-S15C, ET-S111C, ET-F2, ET-F4, ET-F3, ET-F6, ET-739, ET-748, ET-786, ET-796, ET-1500, ET-1520, ET-736, ET-776, ET-662, ET-669, ET-667, ET-668, TK-568, TK-578, TK-678, TK-1010, TK-226A, TK-226 B, TK-1010A, TK-1010B, TPA-25, TK-705, TK-135, TK-502, RM-892, TK-582, TK-592, TK-522, HS-001
Model difference	ISB406B-K is tested model, other models are derivative models. The models are identical in circuit and PCB layout, only different on the model names. So the test data of ISB406B-K can represent the remaining models.

2.3. Auxiliary equipment

Support equipment list			
Description	Manufacturer	Model No.	Serial No.
Notebook PC	HP	ZHAN 66P	66Y03PC#AB2
UART	Tengfei	USB TO TTL	/
Adapter	UGREEN	X763	E9C122810534
Support cable list			
Description	Specified length(m)	Shielded	Unshielded
/	/	/	/

2.4. Description of test modes

Prescan Operating Mode		
No.	Detailed description of the operating mode	Test voltage
1	continuously transmitting, with its lowest data rate which emit the max power level	DC 3.7V

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

18	2419MHz	38	2439MHz	58	2459MHz	78	2479MHz
19	2420MHz	39	2440MHz	59	2460MHz	79	2480MHz
20	2421MHz	40	2441MHz	60	2461MHz		

2.5.Test environmental conditions

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment.

The climatic conditions during the tests were within the following limits:

Ambient temperature	Relative humidity	Atmospheric pressure
15 °C ~ 35 °C	30 % ~ 60 %	86 kPa ~ 106 kPa

If explicitly required in the basic standard or applied product standard the climatic values are recorded and documented separately in this test report.

2.6.Statement of Measurement Uncertainty

Test Item	Uncertainty
Uncertainty for Conducted emissions	3.31 dB
Uncertainty for Radiated emission (9 kHz to 30 MHz)	3.1 dB
Uncertainty for Radiated emission (30 MHz to 1 GHz)	4.53 dB
Uncertainty for Radiated emission (above 1 GHz)	4.80 dB
RF power, conducted	1.08 dB
Power Spectral Density, Conducted	1.46 dB
Spurious Emissions, Conducted	2.94 dB
Occupied bandwidth	57.74 kHz
Measurement Uncertainty Decision Rule Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2023, clause 4.3.3 and 4.3.4.	

2.7.Report modification record

Report No.	Issue Date	Description
SST2606E148	2026-06-12	Original Report

2.8. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:	
A2LA	Certificate No.:7057.01
FCC	Designation Number: CN1432
	Test Firm Registration Number: 640253
IC	Company Number: 30419
	CAB identifier: CN0154
CNAS	Registration No.: L17883
Location	DONGGUAN QIYANG TESTING TECHNOLOGY CO., LTD. Room 101-1, Building 1, No. 19, Tianxin Butterfly 1st Road, Huangjiang, Dongguan, Guangdong, China

2.9. Other information

The laboratory responsible for all the information provided in the report, except those information provided by the applicant.

The applicant shall fully responsible for the information they provided.

The report would be invalid without a stamp of test laboratory and the signatures of compiler and approver.

The laboratory has not been responsible for the sampling stage; the test report merely corresponds to the test sample received.

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

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

2.10. Addition Instructions

Test Software	FCC Assist 1.0.2.2
Power level setup	10

3. Verdict summary section

FCC 47 CFR PART 15 Subpart C		
Requirement – Test case	Basic standard	Verdict
Antenna requirement	47 CFR Part 15.203	Pass
AC Power Line Conducted Emission	47 CFR Part 15.207	Pass
Conducted Peak Output Power	47 CFR Part 15.247(b)(1)	Pass
20dB & 99% Occupied Bandwidth	47 CFR Part 15.215(c)	Pass
Carrier Frequencies Separation	47 CFR Part 15.247(a)(1)	Pass
Hopping Channel Number	47 CFR Part 15.247(a)(1)(iii)	Pass
Dwell Time	47 CFR Part 15.247(a)(1)(iii)	Pass
Spurious Emission	47 CFR Part 15.247(d)	Pass

Test case verdicts	
- Test case does not apply to the test object	N/A
- Test object does meet the requirement	P (Pass)
- Test object does not meet the requirement	F (Fail)

4. List of Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Date of Cal.	Cal. Due
Connected emissions					
EMI Test Receiver	R&S	ESR3	103057	2026/04/10	2027/04/09
LISN	R&S	ENV 216	102832	2026/04/10	2027/04/09
Test Software	Farad	EZ-EMC	3A1.6	/	/
Radiated emissions					
Loop Antenna	Schwarzbeck	FMZB 1513-60 B	00044	2026/04/11	2027/04/10
Broadband Antenna	Schwarzbeck	VULB 9162	00556	2026/04/11	2027/04/10
Horn Antenna	Schwarzbeck	BBHA 9120 D	02783	2026/04/11	2027/04/10
Horn Antenna	Schwarzbeck	BBHA9170	01306	2026/04/11	2027/04/10
EMI Test Receiver	R&S	ESU8	100372	2026/04/11	2027/04/10
Spectrum Analyzer	R&S	FSV40-N	101791	2026/04/11	2027/04/10
Amplifier	Schwarzbeck	BBV 9744	00327	2026/04/11	2027/04/10
Amplifier	TSTPASS	LNA10180G45	TS2215008	2026/04/14	2027/04/13
Amplifier	RF system	TRLA-180400G45B	23060801	2026/04/14	2027/04/13
3m Anechoic Chamber	BOST	CHC-966	/	2026/04/11	2029/04/10
Test Software	Farad	EZ-EMC	3A1.1+	/	/
RF conducted					
Spectrum Analyzer	keysight	N9020A	MY51280659	2026/04/10	2027/04/09
Signal Generator	Agilent	N5181A	MY48180054	2026/04/10	2027/04/09
Signal Generator	keysight	N5172B	MY57281610	2026/04/10	2027/04/09
Spectrum Analyzer	R&S	FSV40-N	101791	2026/04/10	2027/04/09
Wideband Radio Communication Tester	R&S	CMW500	123123	2026/04/10	2027/04/09
RF Switch Box	TST PASS	TST V2	/	2026/04/10	2027/04/09
Test Software	TST PASS	TST PASS	V2.0	/	/
Temperature and Humidity Meter	KTJ	TA218A	879033	2026/04/13	2027/04/12

5. Technical Requirement and Measurement Data

5.1. Generally requirement

Antenna requirement:

§15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

§15.247(b) (4) requirement:

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is PCB antenna which is permanently attached, Reference to the appendix for details

5.2. Conducted emissions

5.2.1. Limits

Frequency (MHz)	Quasi-peak	Average
0.15 to 0.5	66 to 56	56 to 46
0.5 to 5	56	46
5 to 30	60	50

5.2.2. Test method

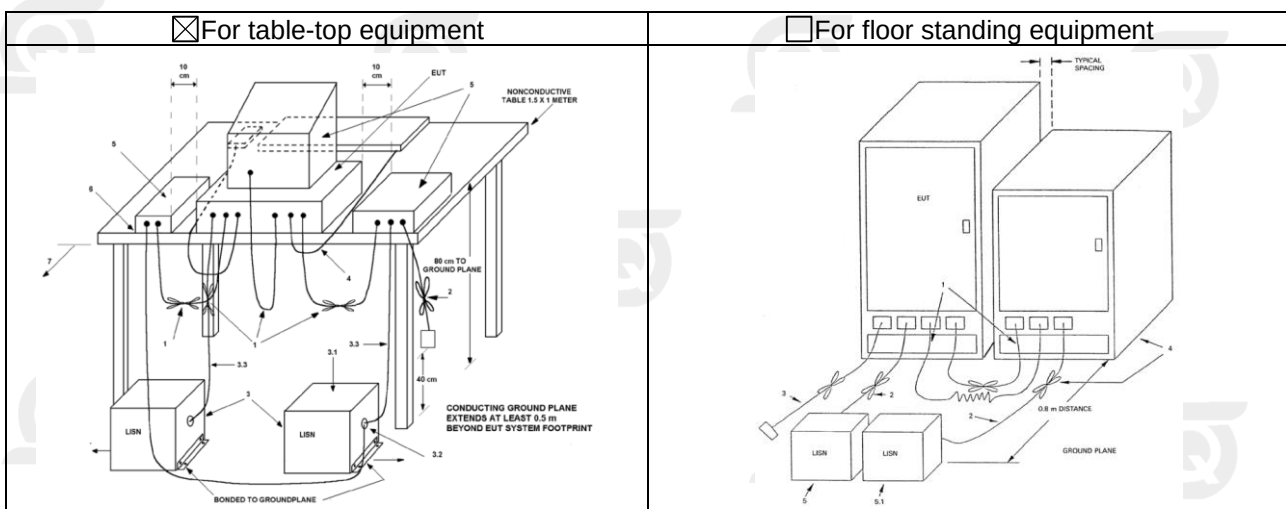
The measurement was performed in a shield room.

Measured levels of ac power-line conducted emission shall be the radio-noise voltage from the voltage probe, where permitted, or across the 50 Ω LISN port (to which the EUT is connected), as terminated into a 50 Ω EMI receiver or spectrum analyzer. All radio-noise voltage and current measurements shall be made on each current-carrying conductor at the plug end of the EUT power cord or calibrated extension cord by the use of mating plugs and receptacles on the EUT and LISN, if used. The manufacturer shall test equipment with power cords that are normally supplied or recommended by the manufacturer and that have electrical and shielding characteristics that are the same as those cords normally supplied or recommended. For measurements using a LISN, the 50 Ω measuring port is terminated into a 50 Ω EMI receiver or spectrum analyzer. All other ports are terminated into 50 Ω loads.

Table top devices shall be placed on a platform of nominal size 1 m by 1.5 m, raised 80 cm above the reference ground plane. The vertical conducting plane or wall of an RF-shielded (screened) room shall be located 40 cm to the rear of the EUT. Floor-standing devices shall be placed either directly on the reference ground-plane or on insulating material as described in ANSI C63.4. All other surfaces of tabletop or floor-standing EUTs shall be at least 80 cm from any other grounded conducting surface, including the case or cases of one or more LISNs.

The bandwidth of the test receiver is set at 9 kHz.

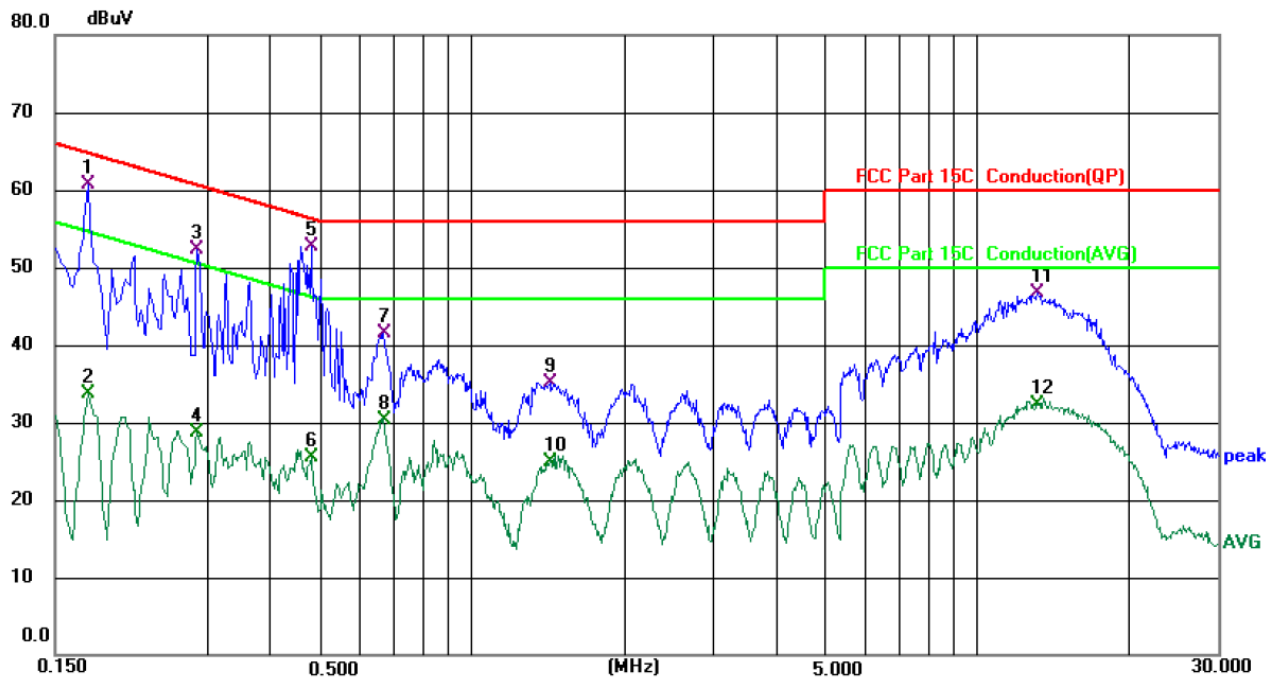
5.2.3. Block diagram of test setup



5.2.4. Test information

Ambient temperature:	22.8 °C
Relative humidity:	48 %
EUT operation mode:	Mode 1
Test results:	Pass
Remark:	Correct Factor Value = Attenuator Factor + Cable Loss + LISN Factor Measurement Value = Reading Level Value + Correct Factor Value Over Value = Measurement Value - Limit Value Only the worst case report (8DPSK, 2441MHz)

Measurement data and Graphical presentation of the result



Site 844 Shielding Room

Phase: L1

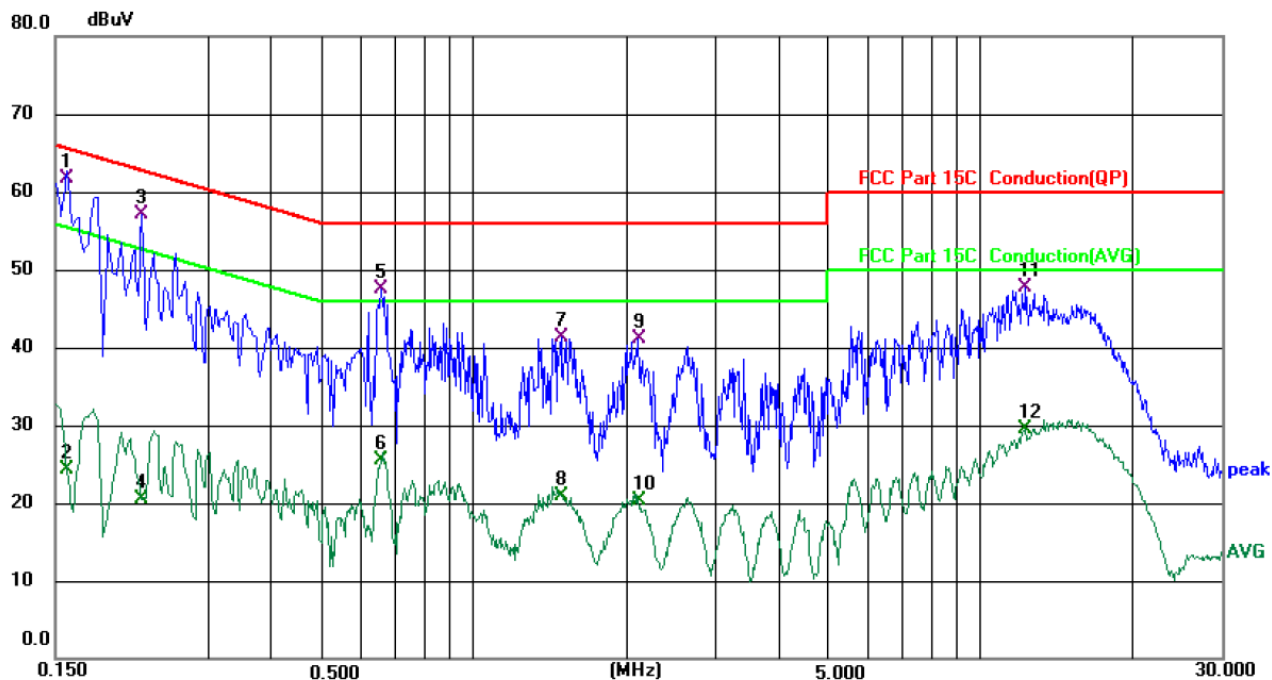
Temperature: 22.8 (°C)

Humidity: 48 %

Limit: FCC Part 15C Conduction(QP)

Power: DC 5 V(Adapter Input AC 120 V/60 Hz)

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1740	50.51	10.21	60.72	64.77	-4.05	QP	
2		0.1740	23.54	10.21	33.75	54.77	-21.02	AVG	
3		0.2860	42.26	10.13	52.39	60.64	-8.25	QP	
4		0.2860	18.60	10.13	28.73	50.64	-21.91	AVG	
5	*	0.4820	42.63	10.16	52.79	56.30	-3.51	QP	
6		0.4820	15.35	10.16	25.51	46.30	-20.79	AVG	
7		0.6700	31.31	10.15	41.46	56.00	-14.54	QP	
8		0.6700	20.25	10.15	30.40	46.00	-15.60	AVG	
9		1.4260	24.87	10.18	35.05	56.00	-20.95	QP	
10		1.4260	14.69	10.18	24.87	46.00	-21.13	AVG	
11		13.1740	35.68	11.12	46.80	60.00	-13.20	QP	
12		13.1740	21.14	11.12	32.26	50.00	-17.74	AVG	



Site 844 Shielding Room

Phase: **N**

Temperature: 22.8 (°C)

Humidity: 48 %

Limit: FCC Part 15C Conduction(QP)

Power: DC 5 V(Adapter Input AC 120 V/60 Hz)

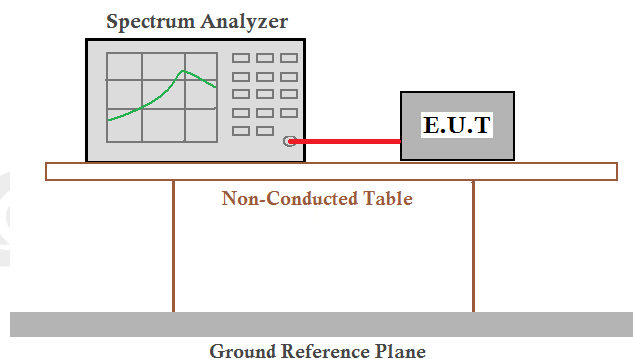
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1580	51.41	10.20	61.61	65.57	-3.96	QP	
2		0.1580	14.16	10.20	24.36	55.57	-31.21	AVG	
3		0.2220	46.98	10.15	57.13	62.74	-5.61	QP	
4		0.2220	10.29	10.15	20.44	52.74	-32.30	AVG	
5		0.6580	37.35	10.12	47.47	56.00	-8.53	QP	
6		0.6580	15.47	10.12	25.59	46.00	-20.41	AVG	
7		1.4940	31.25	10.14	41.39	56.00	-14.61	QP	
8		1.4940	10.74	10.14	20.88	46.00	-25.12	AVG	
9		2.1180	31.00	10.17	41.17	56.00	-14.83	QP	
10		2.1180	10.16	10.17	20.33	46.00	-25.67	AVG	
11		12.2860	36.57	11.06	47.63	60.00	-12.37	QP	
12		12.2860	18.52	11.06	29.58	50.00	-20.42	AVG	

5.3. Conducted Peak Output Power

Limit

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

Block diagram of Test Setup



Test Instrument

Refer to section 4 for details

Test Procedures

The path loss was compensated to the results for each measurement.
 Use the following spectrum analyzer settings:
 Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel
 RBW > the 20 dB bandwidth of the emission being measured VBW ≥ RBW
 Sweep = auto
 Detector function = peak
 Trace = max hold
 Allow the trace to stabilize.
 Use the marker-to-peak function to set the marker to the peak of the emission.

Verdict

Pass

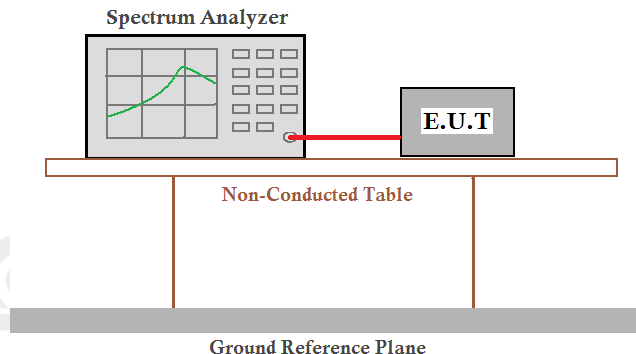
Measurement Data: The detailed test data see Appendix IV

5.4. Occupied Channel Bandwidth

Limit

Report only

Block diagram of Test Setup



Test Instrument

Refer to section 4 for details

Test Procedures

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Use the following spectrum analyzer settings for 20dB Bandwidth measurement.
 Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hopping channel; $1\% \leq RBW \leq 5\%$ of the 20 dB bandwidth; $VBW \geq 3RBW$;
 Sweep = auto; Detector function = peak; Trace = max hold.
4. Measure and record the results in the test report.

The following procedure shall be used for measuring 99% power bandwidth: Use the following spectrum analyzer settings:

- a) Span equal to approximately 1.5 times the OBW, centered on the carrier frequency
- b) RBW, prefer 1% to 5% of OBW, or a minimum of 1 MHz if this is not possible due to a large OBW
- c) VBW approximately $3 \times RBW$.
- d) Sweep = No faster than coupled (auto) time
- e) Detector function = peak.
- f) Trace = max-hold.
- g) The EUT shall be transmitting at its maximum data rate. Allow the trace to stabilize.

Verdict

Pass

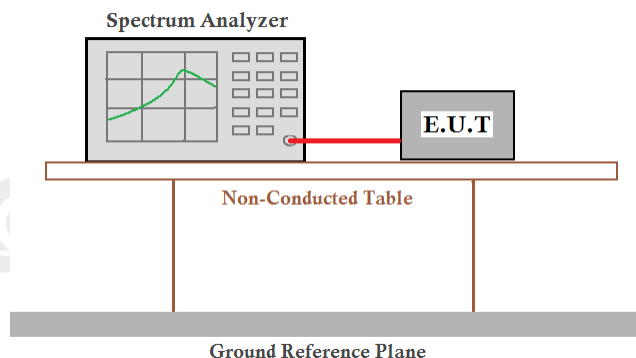
Measurement Data: The detailed test data see Appendix IV

5.5. Carrier Frequency Separation

Limit

FHS operating in the band 2400-2483.5 MHz may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided that the systems operate with an output power no greater than 0.125 W

Block diagram of Test Setup



Test Instrument

Refer to section 4 for details

Test Procedures

The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings:

- Span: Wide enough to capture the peaks of two adjacent channels.
- RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel.
- Video (or average) bandwidth (VBW) $\geq$ RBW.
- Sweep: No faster than coupled (auto) time.
- Detector function: Peak.
- Trace: Max-hold.
- Allow the trace to stabilize.

Use the marker-delta function to determine the separation between the peaks of the adjacent channels.

Verdict

Pass

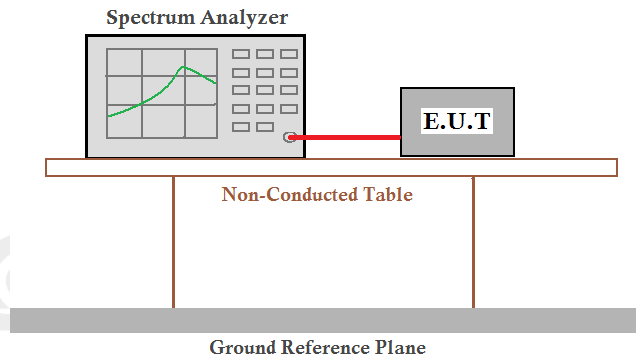
Measurement Data: The detailed test data see Appendix IV

5.6. Hopping Channel Numbers

Limit

FHS operating in the band 2400-2483.5 MHz shall use at least 15 hopping channels.

Block diagram of Test Setup



Test Instrument

Refer to section 4 for details

Test Procedures

The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings:

- Span: The frequency band of operation. Depending on the number of channels the device supports, it could be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen.
- RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.
- VBW $\geq$ RBW.
- Sweep: No faster than coupled (auto) time.
- Detector function: Peak.
- Trace: Max-hold.
- Allow the trace to stabilize.

Verdict

Pass

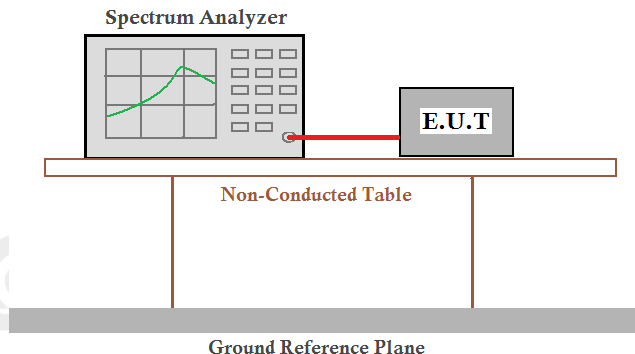
Measurement Data: The detailed test data see Appendix IV

5.7. Dwell Time

Limit

0.4s

Block diagram of Test Setup



Test Instrument

Refer to section 4 for details

Test Procedures

Use the following spectrum analyzer settings to determine the dwell time per hop:

- Span: Zero span, centered on a hopping channel.
- RBW shall be $\leq$ channel spacing and where possible RBW should be set $\gg 1/T$, where T is the expected transmission time per hop.
- Sweep time: Set so that the start of the first transmission and end of the last transmission for the hop are clearly captured. Setting the sweep time to be slightly longer than the hopping period per channel (hopping period = $1/\text{hopping rate}$) should achieve this.
- Use a video trigger, where possible with a trigger delay, so that the start of the transmission is clearly observed. The trigger level might need adjustment to reduce the chance of triggering when the system hops on an adjacent channel.
- Detector function: Peak.
- Trace: Clear-write, single sweep.
- Place markers at the start of the first transmission on the channel and at the end of the last transmission. The dwell time per hop is the time between these two markers.

Verdict

Pass

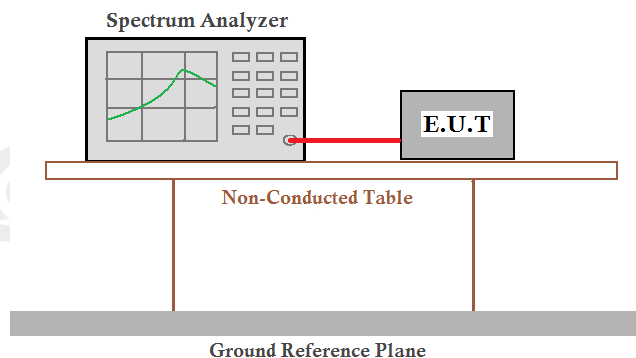
Measurement Data: The detailed test data see Appendix IV

5.8. Conducted Spurious Emission

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, based on either an RF conducted or a radiated measurement.

Block diagram of Test Setup



Test Instrument

Refer to section 4 for details

Test Procedures

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
 2. Set to the maximum power setting and enable the EUT transmit continuously.
 3. Set RBW = 100 kHz, VBW = 300kHz, scan up through 10th harmonic. All harmonics / spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.
 4. Measure and record the results in the test report.
 5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
- Note: The conducted spurious emissions test has compensated for the maximum line loss measurement, and the recorded data represents the worst-case scenario.

Verdict

Pass

Note: The conducted spurious emissions test has compensated for the maximum line loss measurement, and the recorded data represents the worst-case scenario

Measurement Data: The detailed test data see Appendix IV

5.9. Radiated emissions

5.9.1. Limits

Frequency (MHz)	Field Strength(microvolts/meter)	Measurement distance(meters)
0.009~0.49	2400/F(kHz)	300
0.49~1.705	24000/F(kHz)	30
1.705~30	30	30
30~88	100**	3
88~216	150**	3
216~960	200**	3
Above 960	500	3

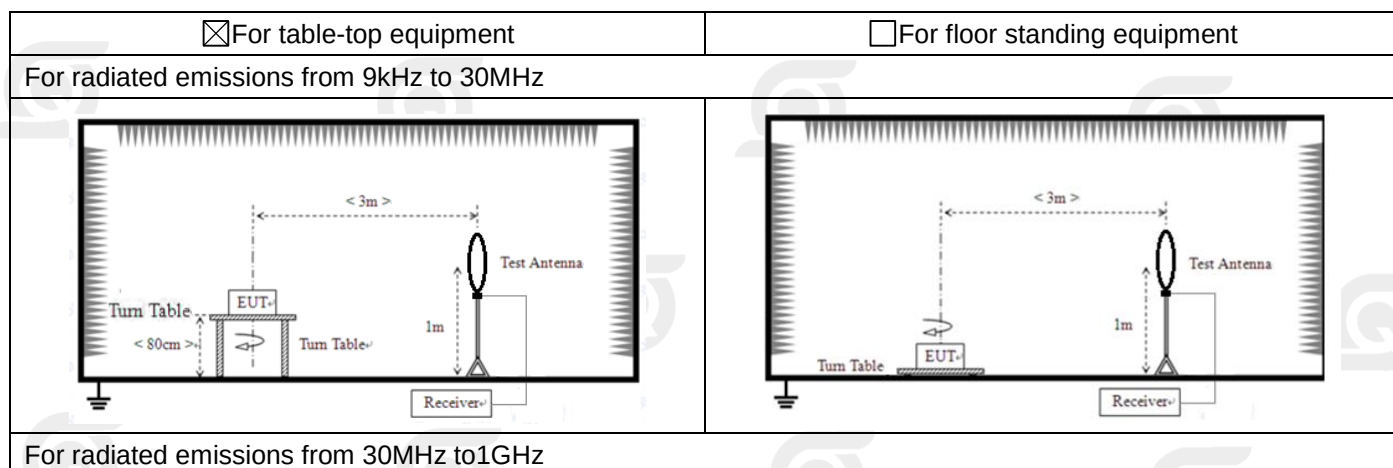
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54–72 MHz, 76–88 MHz, 174–216 MHz or 470–806 MHz. However, operation within these frequency bands is permitted under other sections of this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

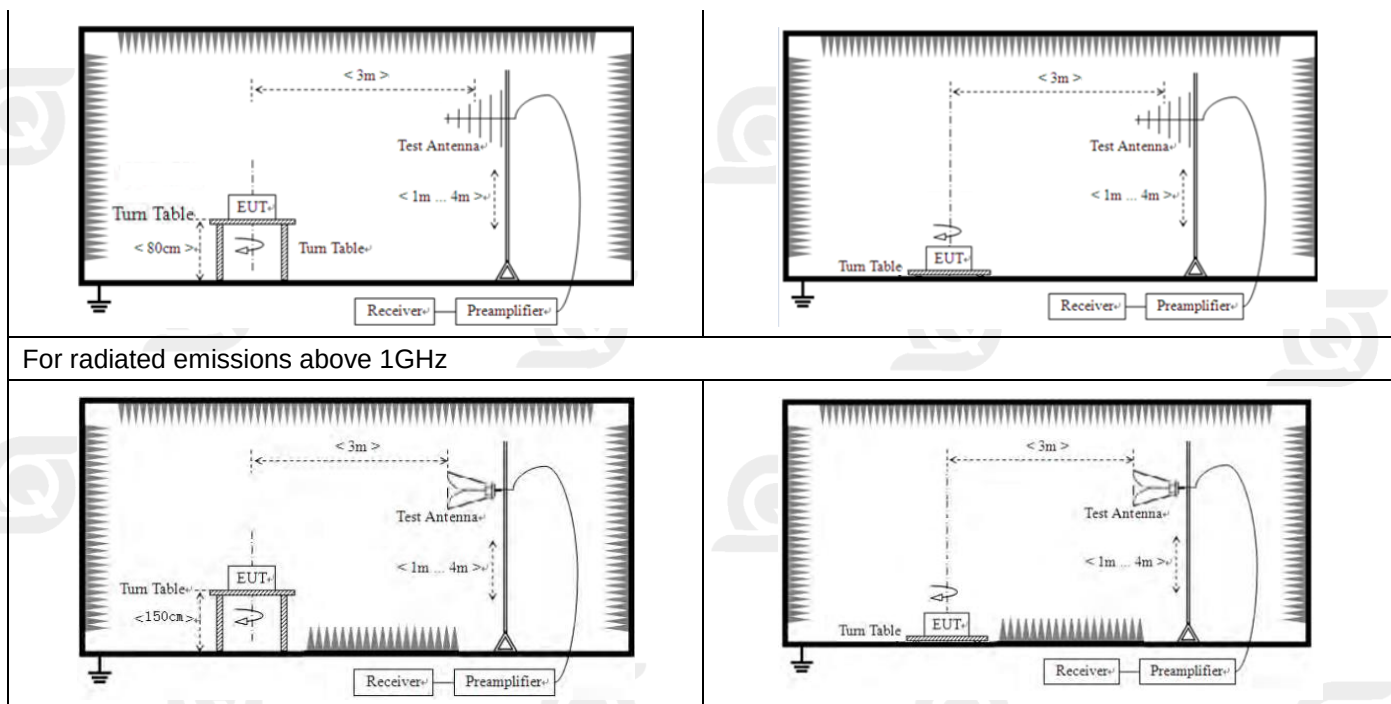
5.9.2. Test method

Measurements were made in semi-anechoic chamber or Open Area Test Site that complies to CISPR 16.

Preliminary (peak) measurements. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in horizontal and vertical polarities. Final measurements (quasi-peak detector below 1 GHz and average detector above 1 GHz) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4 m. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.

5.9.3. Block diagram of test setup





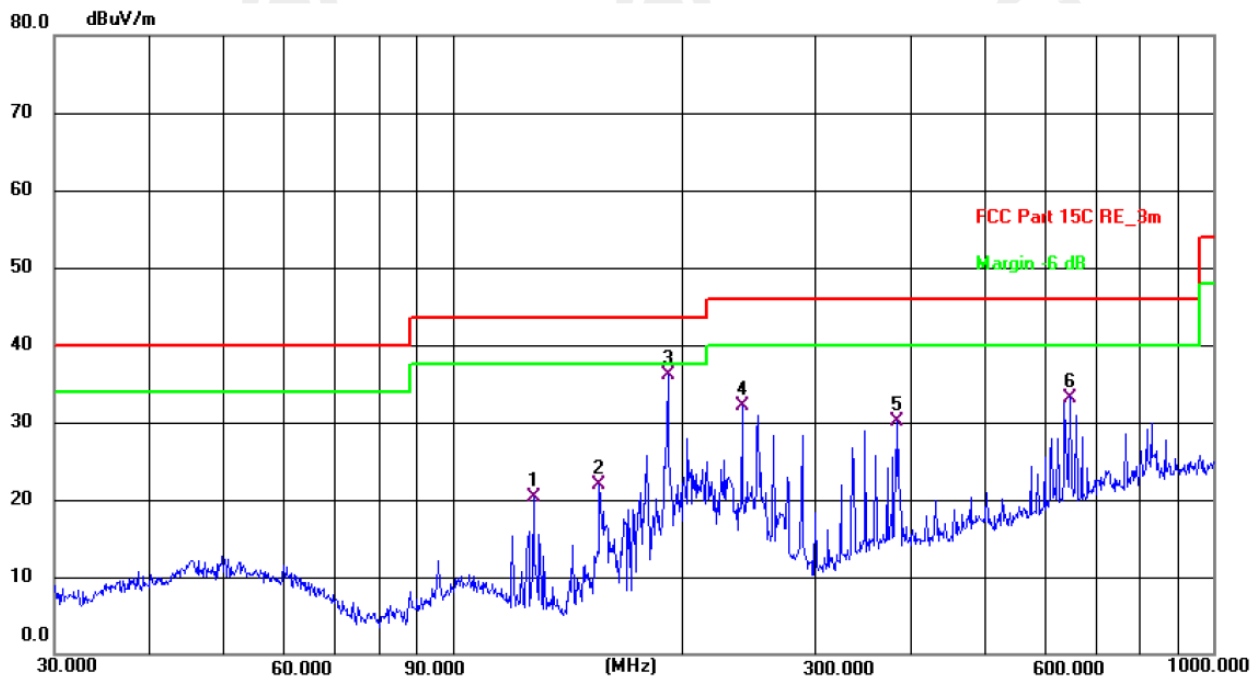
5.9.4. Test information

Ambient temperature:	25.7 °C
Relative humidity:	51 %
EUT operation mode:	Mode 1
Test results:	Pass
Remark:	Factor Value = Antenna Factor + Cable Loss - Preamplifier Factor Level Value = Reading Value + Factor Value Margin Value = Level Value - Limit Value

Note: The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o), the test result no need to reported.

Measurement data and Graphical presentation of the result

All condition were test and passed, only worst data report (8DPSK, 2441MHz)



Site: 3m Anechoic Chamber1

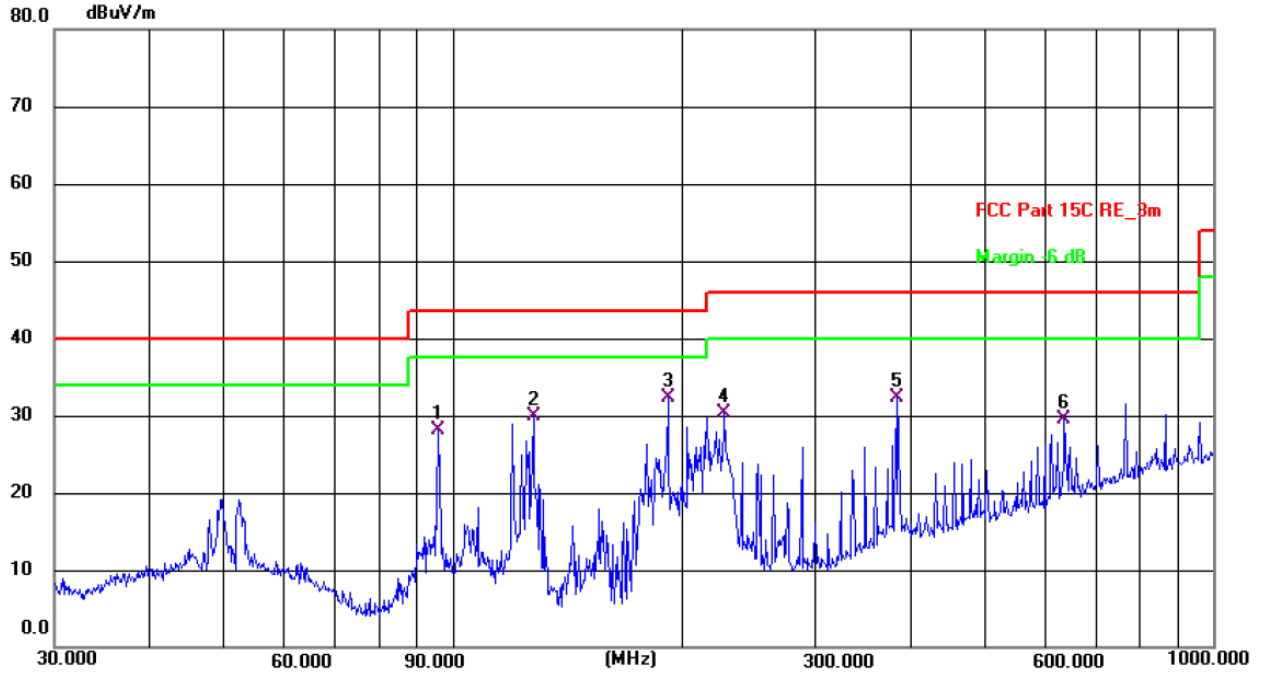
Polarization: **Horizontal**

Temperature: 25.7(C) Humidity: 51 %

Limit: FCC Part 15C RE_3m

Power: DC 3.7V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	127.6645	39.73	-19.33	20.40	43.50	-23.10	QP	P	
2	155.9101	41.36	-19.47	21.89	43.50	-21.61	QP	P	
3 *	191.7450	53.72	-17.54	36.18	43.50	-7.32	QP	P	
4	239.9873	47.47	-15.44	32.03	46.00	-13.97	QP	P	
5	383.9318	41.60	-11.47	30.13	46.00	-15.87	QP	P	
6	647.3856	39.40	-6.28	33.12	46.00	-12.88	QP	P	



Site: 3m Anechoic Chamber1

Polarization: **Vertical**

Temperature: 25.7(C)

Humidity: 51 %

Limit: FCC Part 15C RE_3m

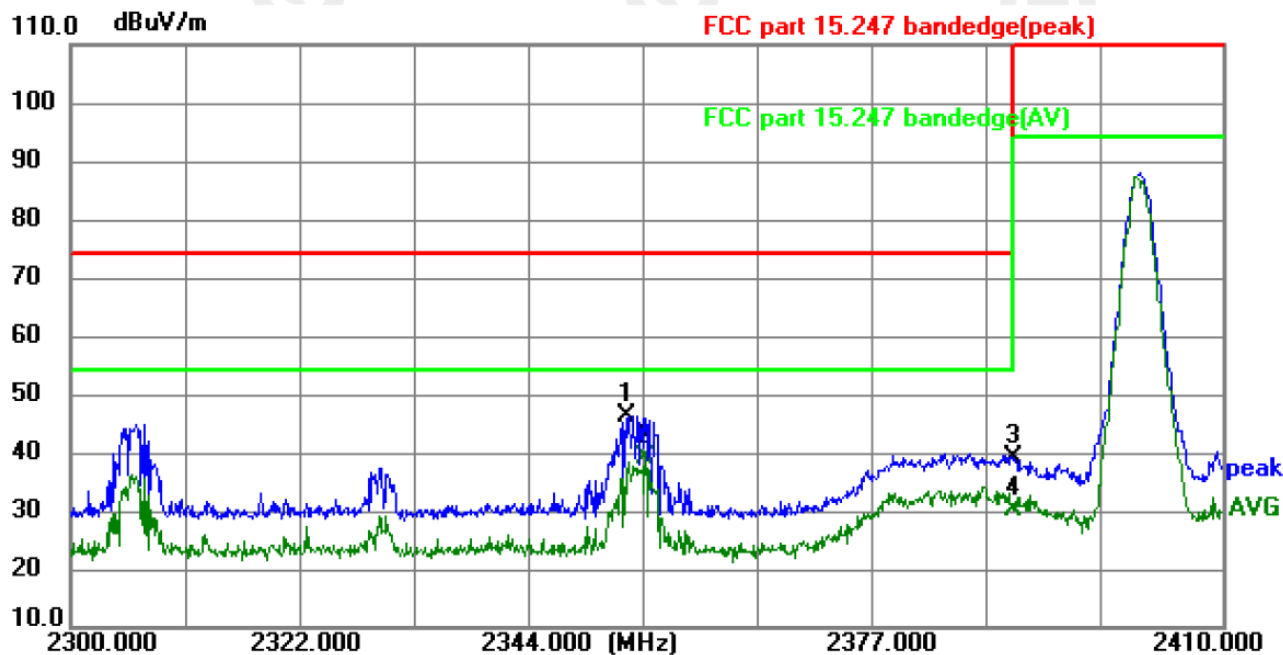
Power: DC 3.7V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	95.7622	45.48	-17.41	28.07	43.50	-15.43	QP	P	
2	127.6645	49.31	-19.33	29.98	43.50	-13.52	QP	P	
3 *	191.7450	49.76	-17.54	32.22	43.50	-11.28	QP	P	
4	227.6906	46.44	-16.07	30.37	46.00	-15.63	QP	P	
5	383.9318	43.74	-11.47	32.27	46.00	-13.73	QP	P	
6	636.1340	35.93	-6.46	29.47	46.00	-16.53	QP	P	

Band Edge:

All condition were test and passed, only worst data report (8DPSK)

Lowest channel:



Site: 3m Anechoic Chamber

Polarization: **Horizontal**

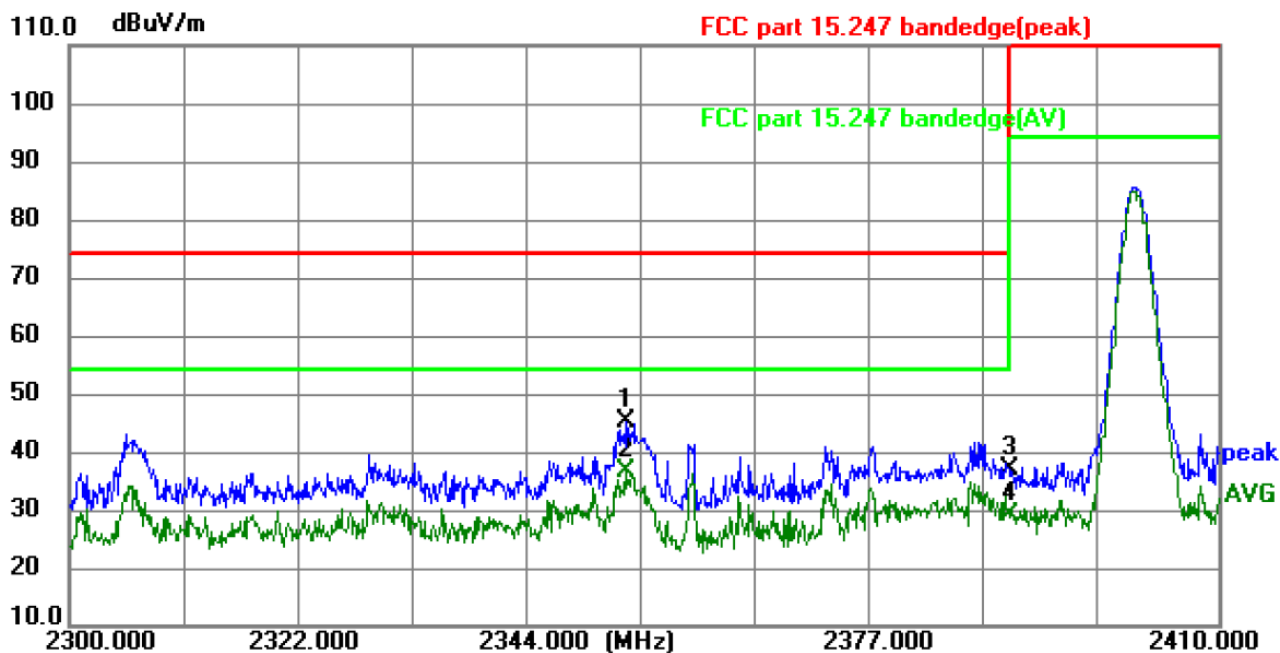
Temperature: 26.6 °C

Humidity: 57 %

Limit: FCC part 15.247 bandedge(peak)

Power:DC 3.7V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2353.2931	67.36	-21.11	46.25	74.00	-27.75	peak	P	
2 *	2354.8348	60.13	-21.11	39.02	54.00	-14.98	AVG	P	
3	2390.0000	60.00	-20.98	39.02	74.00	-34.98	peak	P	
4	2390.0000	51.31	-20.98	30.33	54.00	-23.67	AVG	P	



Site: 3m Anechoic Chamber

Polarization: **Vertical**

Temperature: 26.6 °C

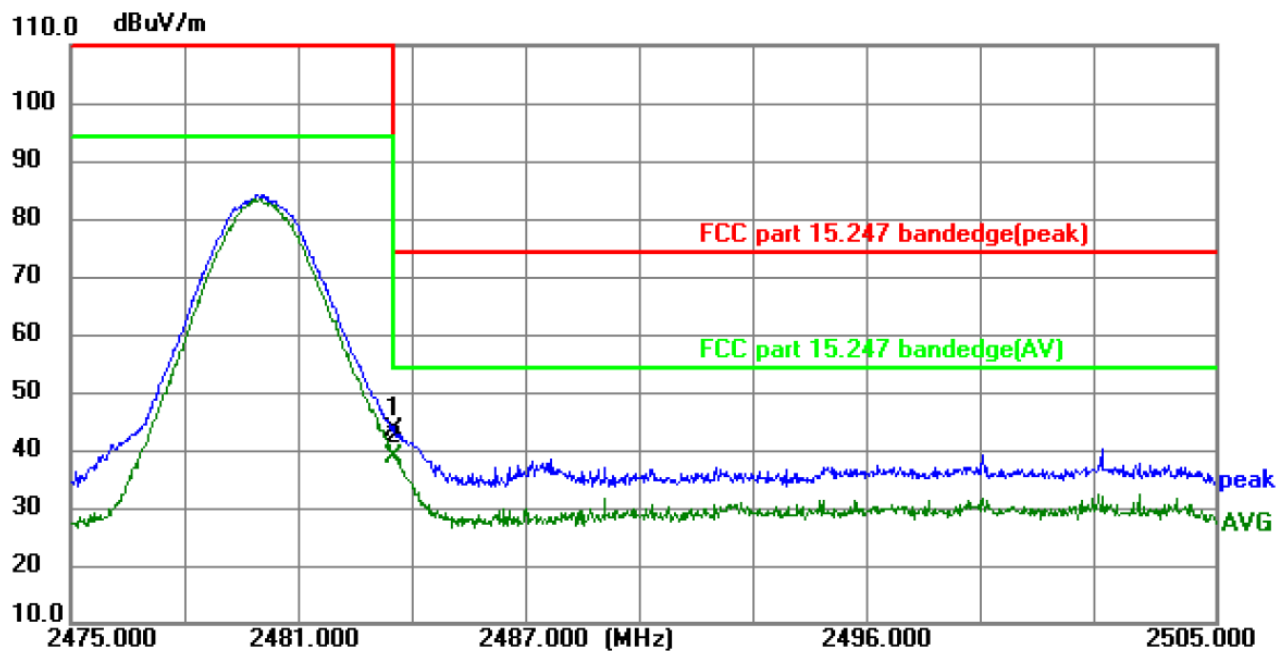
Humidity: 57 %

Limit: FCC part 15.247 bandedge(peak)

Power:DC 3.7V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2353.4034	66.33	-21.11	45.22	74.00	-28.78	peak	P	
2 *	2353.4034	57.70	-21.11	36.59	54.00	-17.41	AVG	P	
3	2390.0000	58.02	-20.98	37.04	74.00	-36.96	peak	P	
4	2390.0000	49.98	-20.98	29.00	54.00	-25.00	AVG	P	

Highest channel:



Site: 3m Anechoic Chamber

Polarization: **Horizontal**

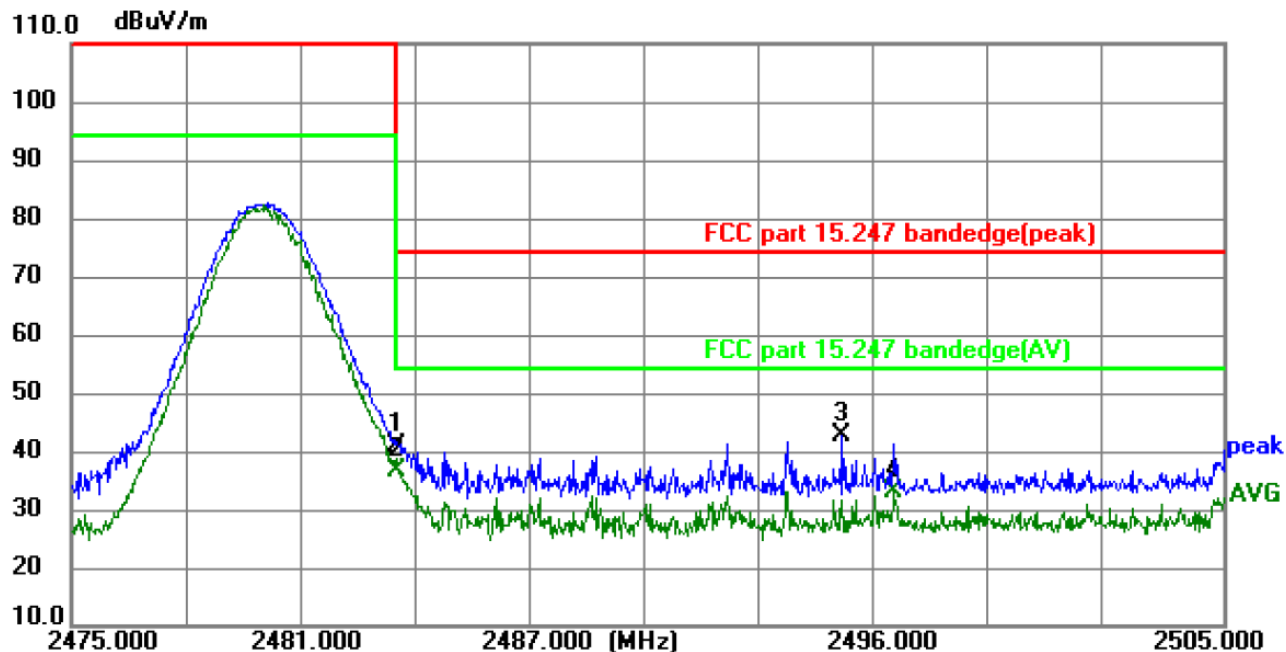
Temperature: 26.6 °C

Humidity: 57 %

Limit: FCC part 15.247 bandedge(peak)

Power: DC 3.7V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2483.5000	64.01	-20.79	43.22	74.00	-30.78	peak	P	
2 *	2483.5000	59.46	-20.79	38.67	54.00	-15.33	AVG	P	



Site: 3m Anechoic Chamber

Polarization: **Vertical**

Temperature: 26.6 °C

Humidity: 57 %

Limit: FCC part 15.247 bandedge(peak)

Power: DC 3.7V

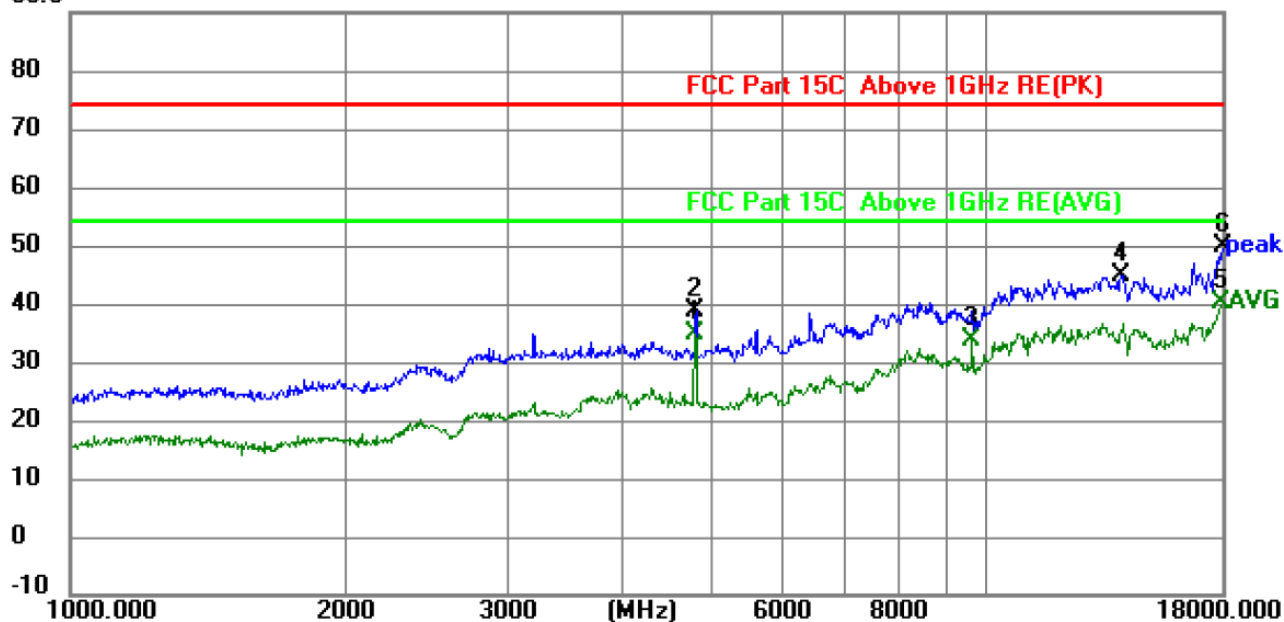
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2483.5000	61.54	-20.79	40.75	74.00	-33.25	peak	P	
2 *	2483.5000	57.56	-20.79	36.77	54.00	-17.23	AVG	P	
3	2495.0900	63.24	-20.65	42.59	74.00	-31.41	peak	P	
4	2496.4414	53.70	-20.64	33.06	54.00	-20.94	AVG	P	

Spurious Emissions:

All condition were test and passed, only worst data report (8DPSK)

Lowest Channel:

90.0 dBuV/m



Site: 3m Anechoic Chamber

Polarization: **Horizontal**

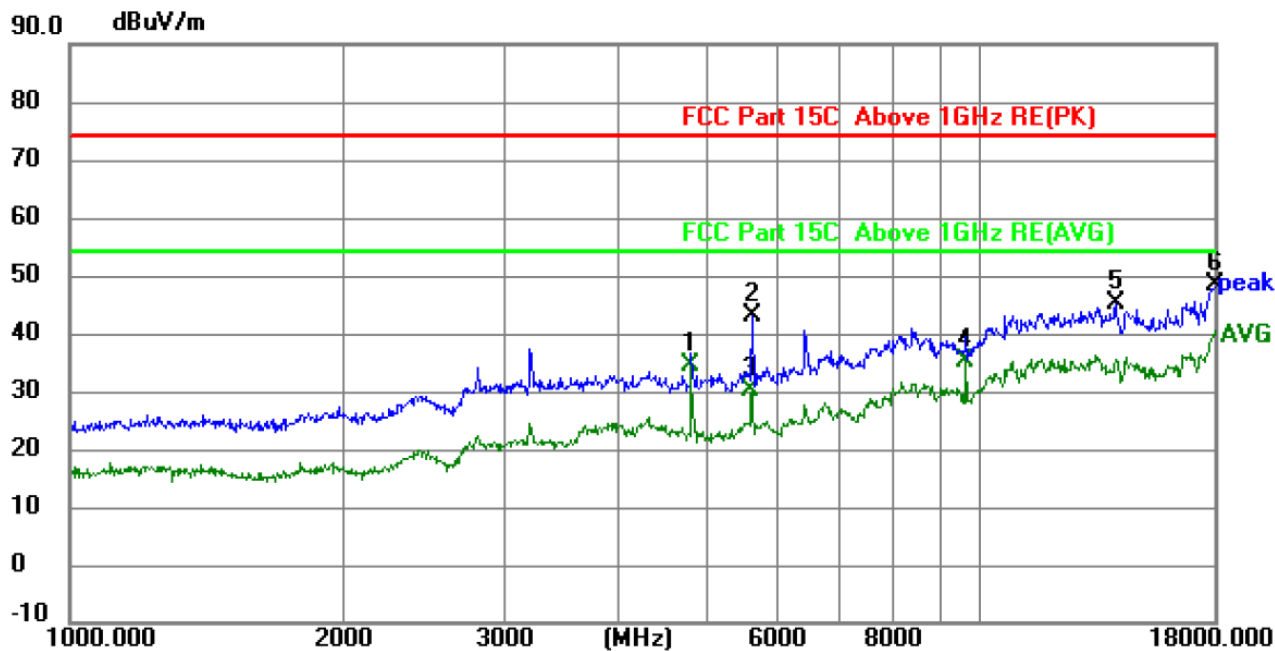
Temperature: 23.1 °C

Humidity: 48 %

Limit: FCC Part 15C Above 1GHz RE(PK)

Power:DC 3.7V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	4801.3340	48.21	-13.51	34.70	54.00	-19.30	AVG	P	
2	4804.5732	52.17	-13.49	38.68	74.00	-35.32	peak	P	
3	9608.8000	37.57	-3.75	33.82	54.00	-20.18	AVG	P	
4	13968.2907	44.24	0.60	44.84	74.00	-29.16	peak	P	
5 *	17998.2659	32.93	7.35	40.28	54.00	-13.72	AVG	P	
6	18000.0000	42.49	7.37	49.86	74.00	-24.14	peak	P	



Site: 3m Anechoic Chamber

Polarization: **Vertical**

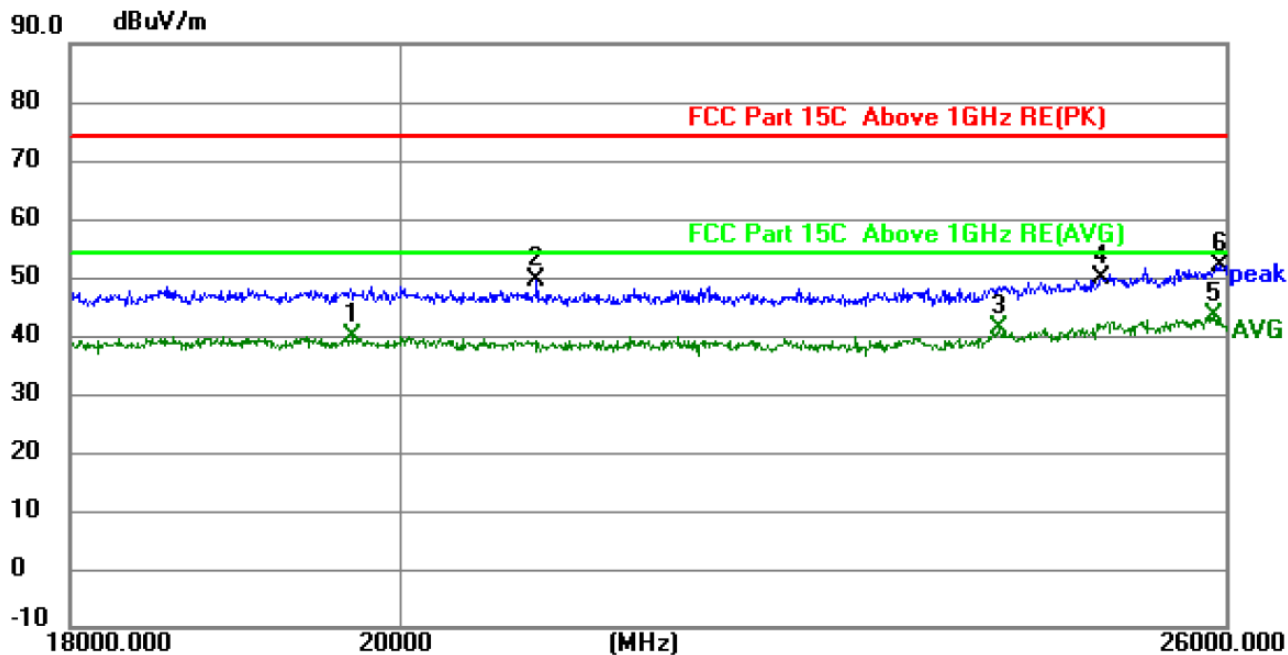
Temperature: 23.1 °C

Humidity: 48 %

Limit: FCC Part 15C Above 1GHz RE(PK)

Power: DC 3.7V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	4801.3340	47.94	-13.51	34.43	54.00	-19.57	AVG	P	
2	5583.7888	55.72	-12.52	43.20	74.00	-30.80	peak	P	
3	5597.2544	42.62	-12.39	30.23	54.00	-23.77	AVG	P	
4 *	9608.8000	38.98	-3.75	35.23	54.00	-18.77	AVG	P	
5	14001.9759	44.49	0.70	45.19	74.00	-28.81	peak	P	
6	17991.3310	41.08	7.26	48.34	74.00	-25.66	peak	P	



Site: 3m Anechoic Chamber

Polarization: **Horizontal**

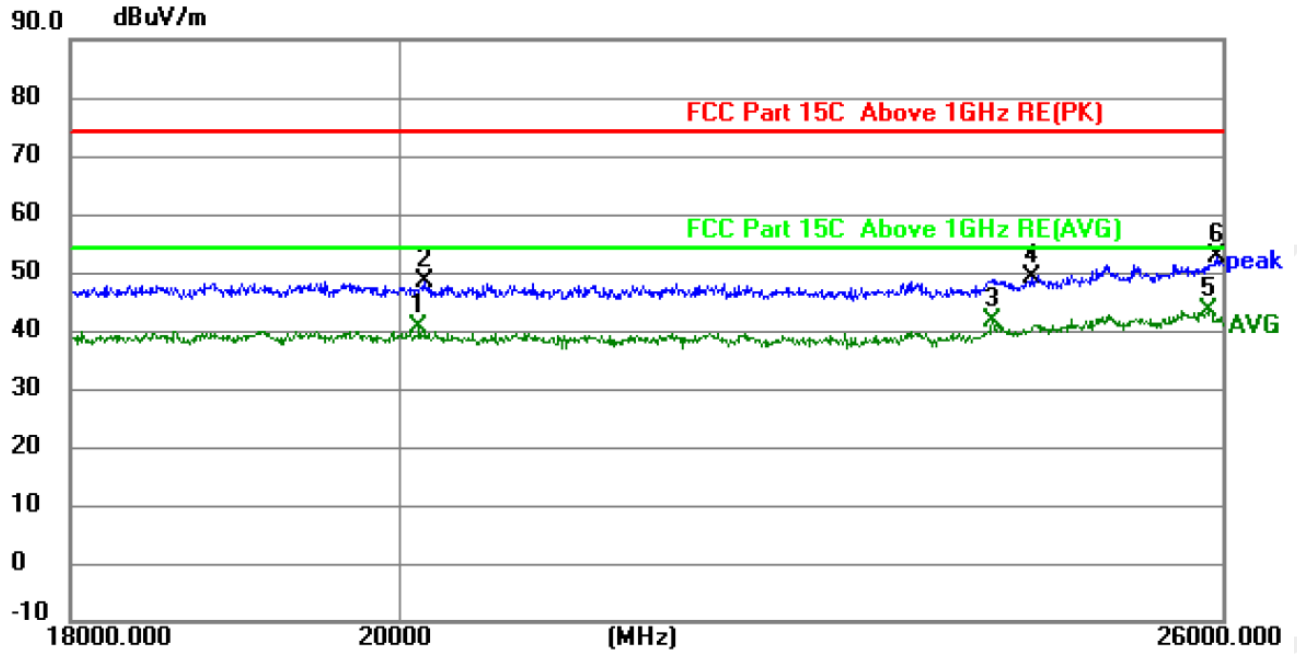
Temperature: 23.1 °C

Humidity: 48 %

Limit: FCC Part 15C Above 1GHz RE(PK)

Power: DC 3.7V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	19688.5120	40.36	-0.45	39.91	54.00	-14.09	AVG	P	
2	20879.3569	50.38	-0.96	49.42	74.00	-24.58	peak	P	
3	24189.3430	42.79	-1.49	41.30	54.00	-12.70	AVG	P	
4	24993.4841	50.63	-0.75	49.88	74.00	-24.12	peak	P	
5 *	25897.5825	43.09	0.19	43.28	54.00	-10.72	AVG	P	
6	25944.9242	51.84	0.25	52.09	74.00	-21.91	peak	P	



Site: 3m Anechoic Chamber

Polarization: **Vertical**

Temperature: 23.1 °C

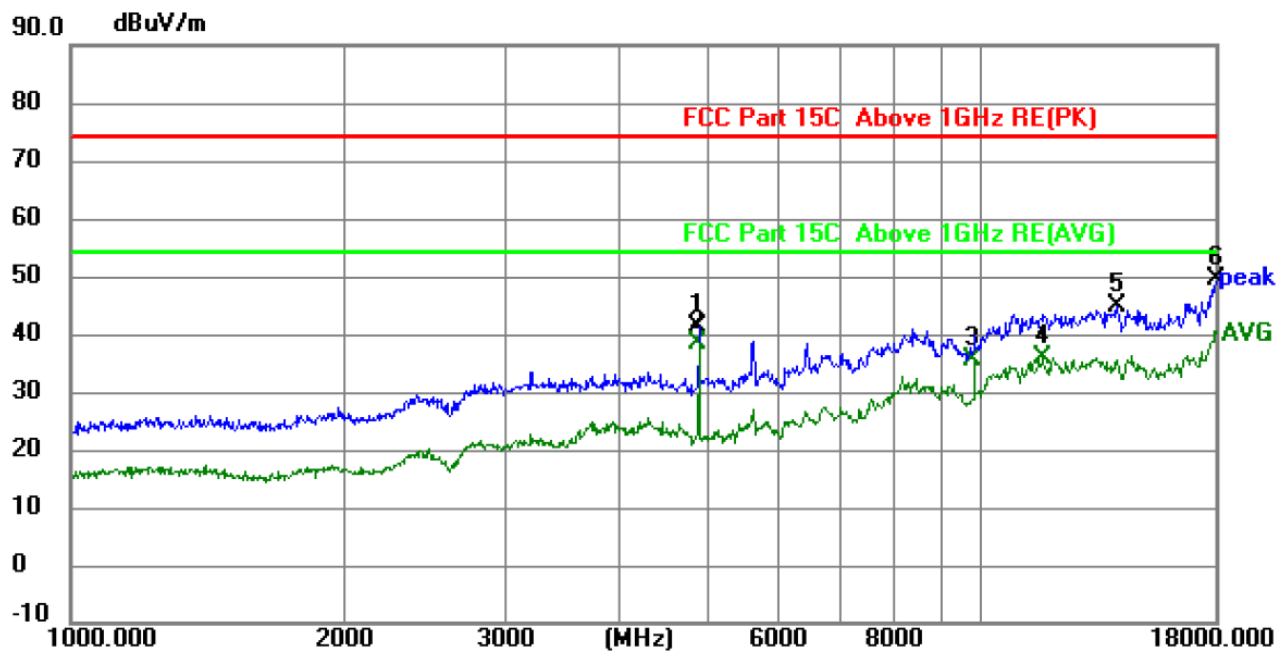
Humidity: 48 %

Limit: FCC Part 15C Above 1GHz RE(PK)

Power:DC 3.7V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	20120.0901	41.23	-0.70	40.53	54.00	-13.47	AVG	P	
2	20157.8585	49.12	-0.71	48.41	74.00	-25.59	peak	P	
3	24152.6047	43.26	-1.49	41.77	54.00	-12.23	AVG	P	
4	24466.6663	50.37	-1.13	49.24	74.00	-24.76	peak	P	
5 *	25891.2345	43.26	0.18	43.44	54.00	-10.56	AVG	P	
6	25944.6062	52.52	0.25	52.77	74.00	-21.23	peak	P	

Middle channel:



Site: 3m Anechoic Chamber

Polarization: **Horizontal**

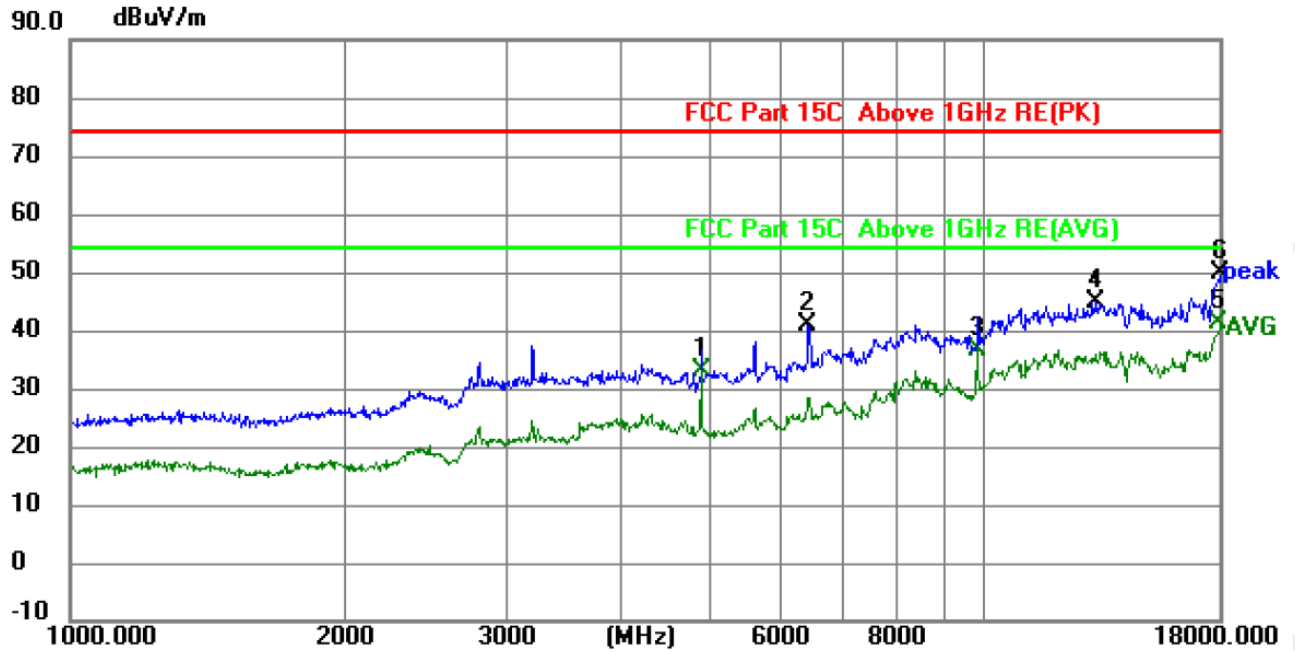
Temperature: 23.1 °C

Humidity: 48 %

Limit: FCC Part 15C Above 1GHz RE(PK)

Power: DC 3.7V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	4882.0323	54.69	-13.28	41.41	74.00	-32.59	peak	P	
2 *	4882.0323	51.72	-13.28	38.44	54.00	-15.56	AVG	P	
3	9764.6536	38.85	-3.49	35.36	54.00	-18.64	AVG	P	
4	11629.4450	37.61	-1.84	35.77	54.00	-18.23	AVG	P	
5	14001.9758	44.26	0.70	44.96	74.00	-29.04	peak	P	
6	18000.0000	42.24	7.37	49.61	74.00	-24.39	peak	P	



Site: 3m Anechoic Chamber

Polarization: **Vertical**

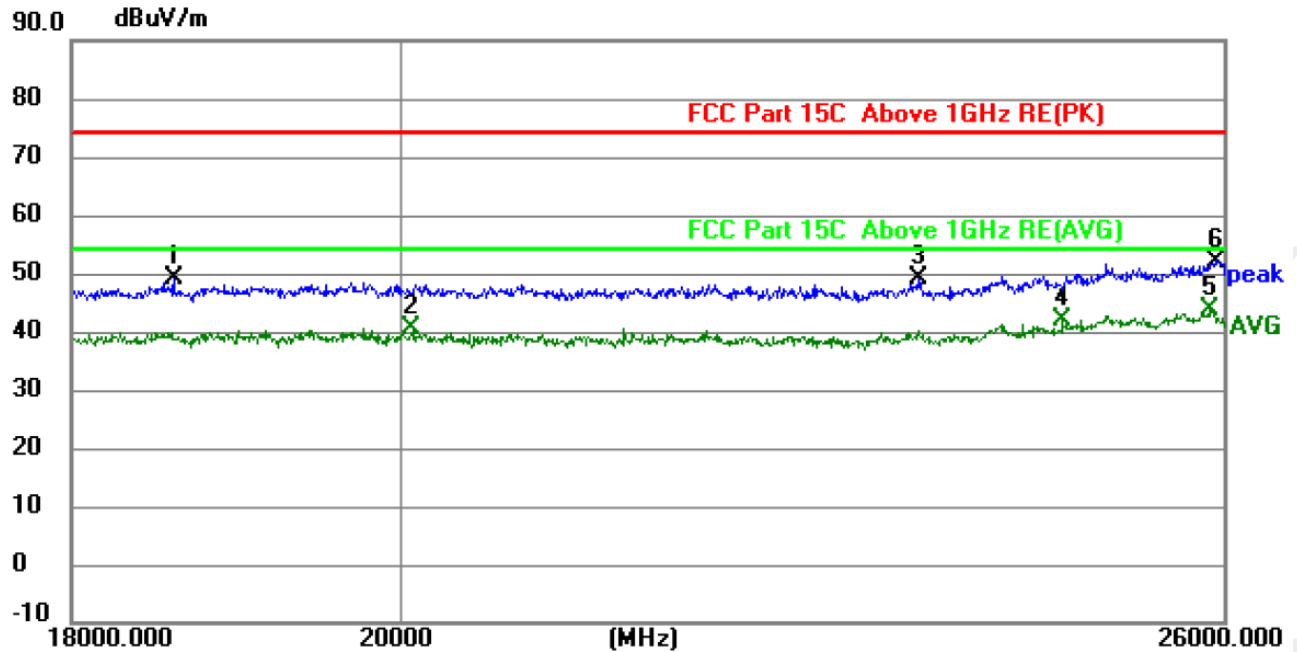
Temperature: 23.1 °C

Humidity: 48 %

Limit: FCC Part 15C Above 1GHz RE(PK)

Power: DC 3.7V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	4879.2110	46.30	-13.28	33.02	54.00	-20.98	AVG	P	
2	6393.8055	51.14	-10.23	40.91	74.00	-33.09	peak	P	
3	9764.6536	40.25	-3.49	36.76	54.00	-17.24	AVG	P	
4	13204.0540	45.59	-0.76	44.83	74.00	-29.17	peak	P	
5 *	17998.2659	33.84	7.35	41.19	54.00	-12.81	AVG	P	
6	18000.0000	42.28	7.37	49.65	74.00	-24.35	peak	P	



Site: 3m Anechoic Chamber

Polarization: **Horizontal**

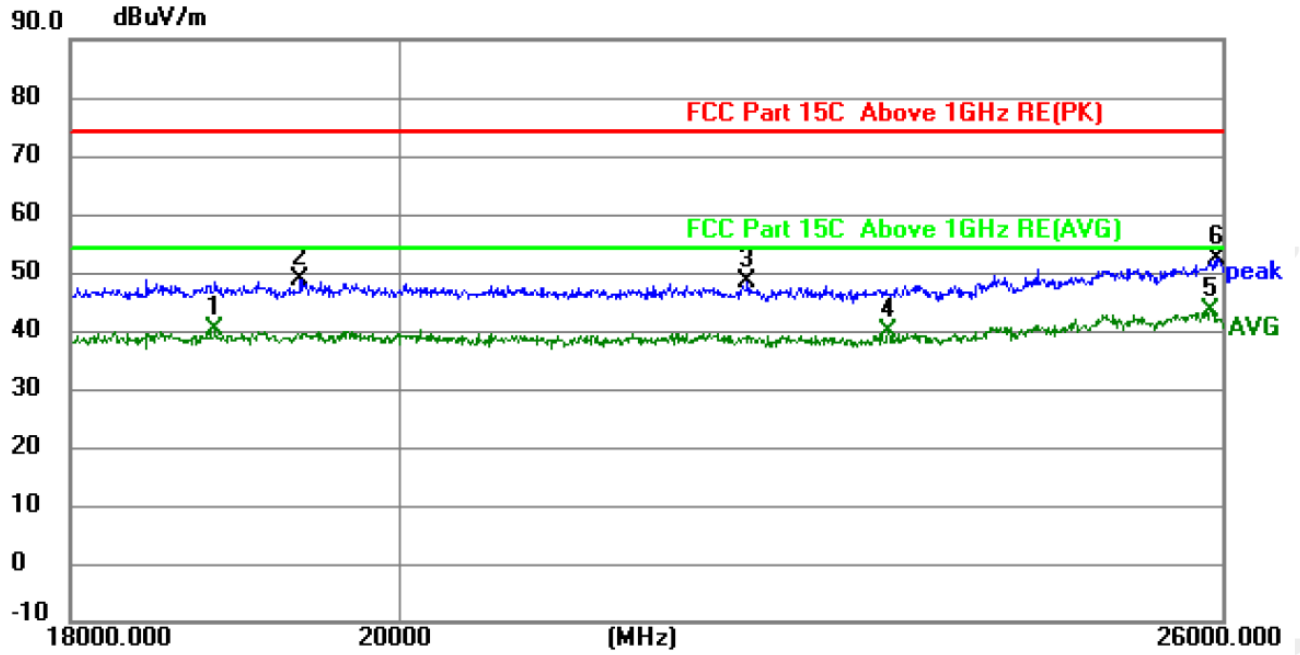
Temperature: 23.1 °C

Humidity: 48 %

Limit: FCC Part 15C Above 1GHz RE(PK)

Power: DC 3.7V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	18598.6130	50.33	-1.31	49.02	74.00	-24.98	peak	P	
2	20076.7314	41.37	-0.70	40.67	54.00	-13.33	AVG	P	
3	23590.8246	50.87	-1.85	49.02	74.00	-24.98	peak	P	
4	24694.7471	42.62	-0.83	41.79	54.00	-12.21	AVG	P	
5 *	25883.6190	43.73	0.18	43.91	54.00	-10.09	AVG	P	
6	25938.2467	51.91	0.23	52.14	74.00	-21.86	peak	P	



Site: 3m Anechoic Chamber

Polarization: **Vertical**

Temperature: 23.1 °C

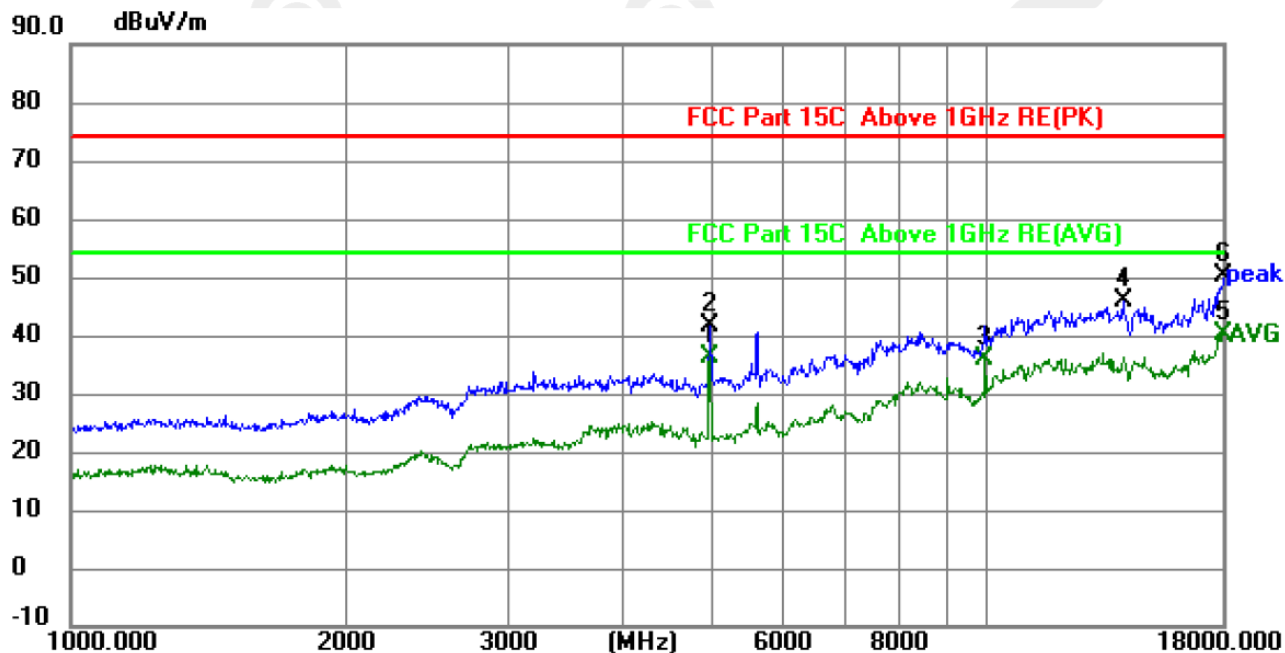
Humidity: 48 %

Limit: FCC Part 15C Above 1GHz RE(PK)

Power: DC 3.7V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	18847.3840	41.27	-1.11	40.16	54.00	-13.84	AVG	P	
2	19368.4810	49.48	-0.70	48.78	74.00	-25.22	peak	P	
3	22343.9850	50.19	-1.79	48.40	74.00	-25.60	peak	P	
4	23369.5020	41.99	-2.11	39.88	54.00	-14.12	AVG	P	
5 *	25903.9320	43.22	0.20	43.42	54.00	-10.58	AVG	P	
6	25947.4684	51.97	0.25	52.22	74.00	-21.78	peak	P	

Highest channel:



Site: 3m Anechoic Chamber

Polarization: **Horizontal**

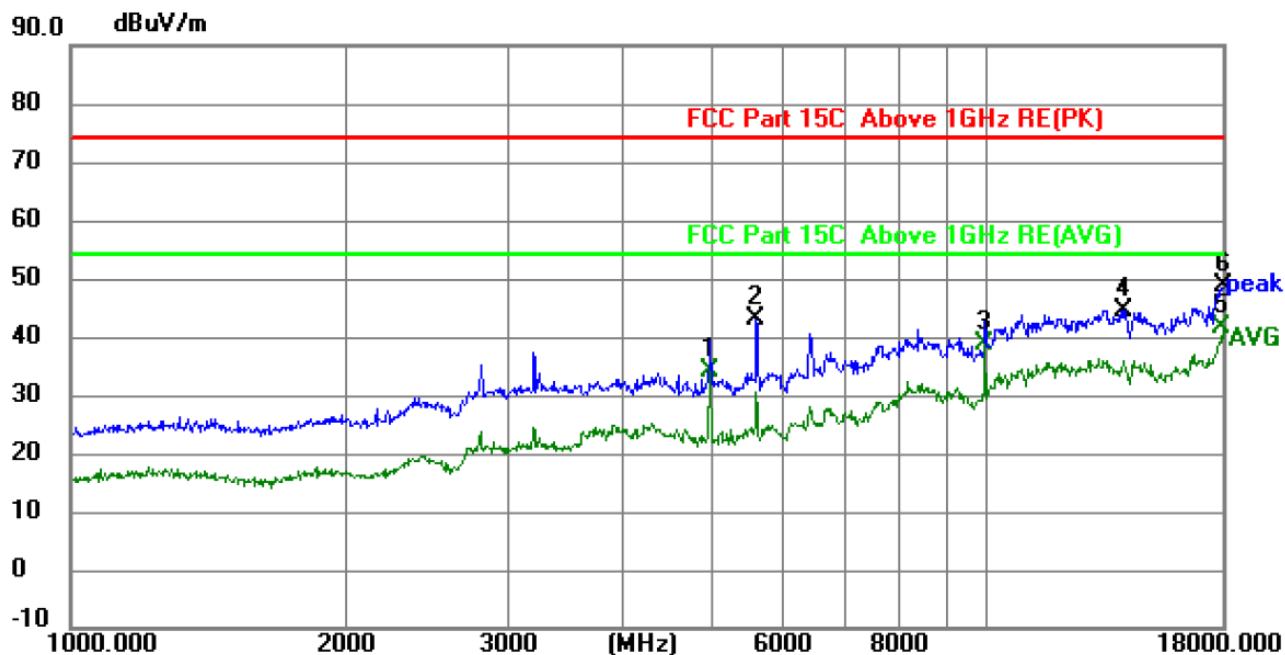
Temperature: 23.1 °C

Humidity: 48 %

Limit: FCC Part 15C Above 1GHz RE(PK)

Power: DC 3.7V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	4960.2624	49.44	-13.04	36.40	54.00	-17.60	AVG	P	
2	4960.7403	54.78	-13.04	41.74	74.00	-32.26	peak	P	
3	9921.1232	38.68	-2.82	35.86	54.00	-18.14	AVG	P	
4	14038.4471	45.25	0.58	45.83	74.00	-28.17	peak	P	
5 *	17972.2738	33.23	7.02	40.25	54.00	-13.75	AVG	P	
6	18000.0000	42.80	7.37	50.17	74.00	-23.83	peak	P	



Site: 3m Anechoic Chamber

Polarization: **Vertical**

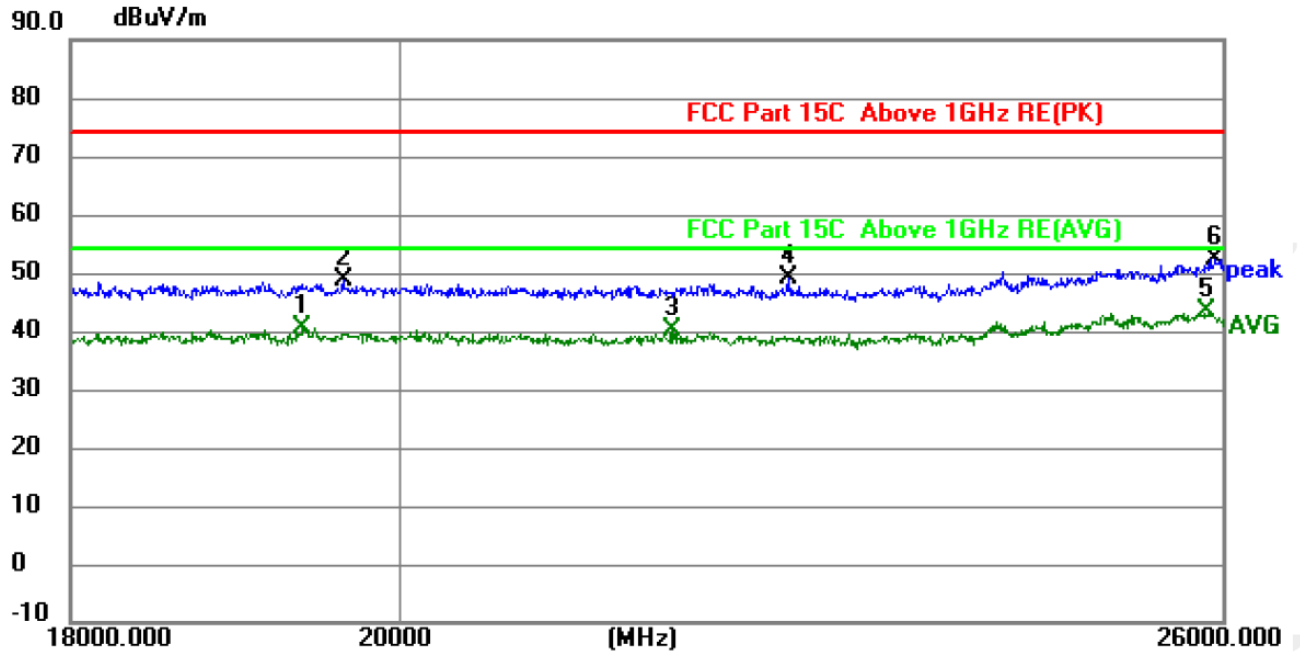
Temperature: 23.1 °C

Humidity: 48 %

Limit: FCC Part 15C Above 1GHz RE(PK)

Power: DC 3.7V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	4960.2624	46.98	-13.04	33.94	54.00	-20.06	AVG	P	
2	5577.3368	55.67	-12.57	43.10	74.00	-30.90	peak	P	
3	9921.1232	41.46	-2.82	38.64	54.00	-15.36	AVG	P	
4	13999.2781	43.84	0.71	44.55	74.00	-29.45	peak	P	
5 *	17998.2659	34.18	7.35	41.53	54.00	-12.47	AVG	P	
6	18000.0000	41.27	7.37	48.64	74.00	-25.36	peak	P	



Site: 3m Anechoic Chamber

Polarization: **Horizontal**

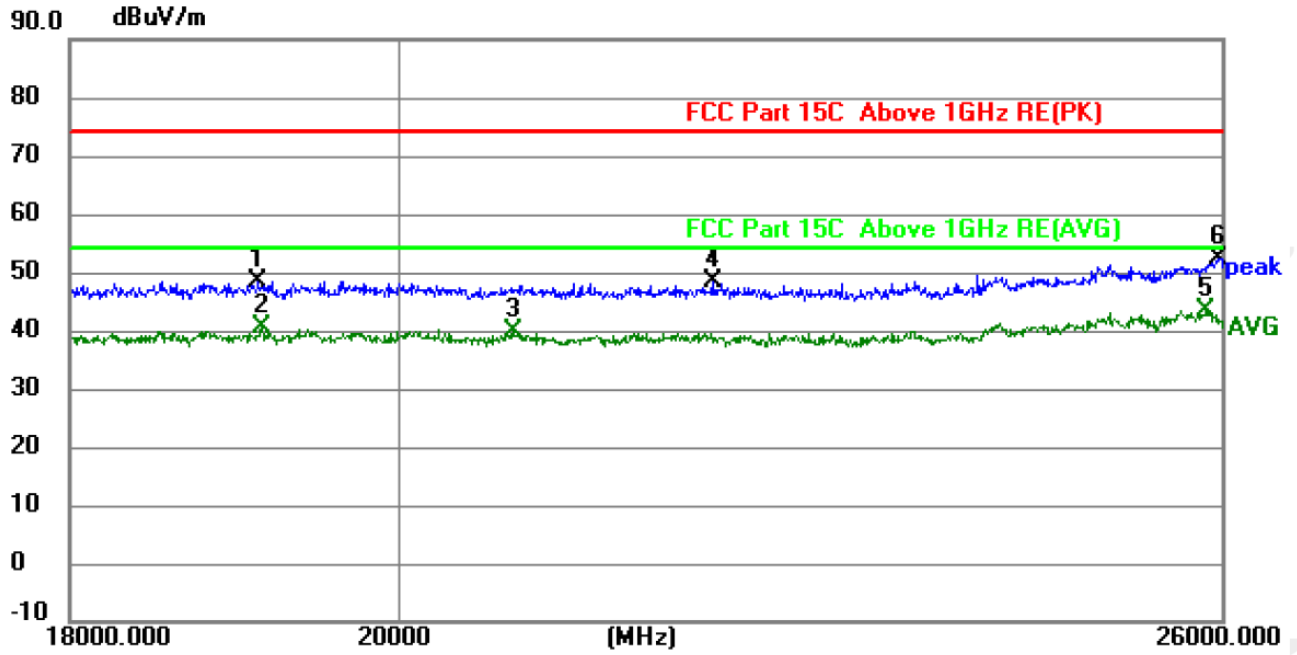
Temperature: 23.1 °C

Humidity: 48 %

Limit: FCC Part 15C Above 1GHz RE(PK)

Power: DC 3.7V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	19382.0180	41.20	-0.71	40.49	54.00	-13.51	AVG	P	
2	19633.3244	49.25	-0.53	48.72	74.00	-25.28	peak	P	
3	21815.7138	41.87	-1.82	40.05	54.00	-13.95	AVG	P	
4	22631.1995	51.13	-1.94	49.19	74.00	-24.81	peak	P	
5 *	25882.6671	43.25	0.18	43.43	54.00	-10.57	AVG	P	
6	25936.6570	52.20	0.23	52.43	74.00	-21.57	peak	P	



Site: 3m Anechoic Chamber

Polarization: **Vertical**

Temperature: 23.1 °C

Humidity: 48 %

Limit: FCC Part 15C Above 1GHz RE(PK)

Power: DC 3.7V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	19112.8317	49.38	-0.83	48.55	74.00	-25.45	peak	P	
2	19133.4590	41.34	-0.82	40.52	54.00	-13.48	AVG	P	
3	20744.6630	40.53	-0.64	39.89	54.00	-14.11	AVG	P	
4	22096.1380	49.98	-1.72	48.26	74.00	-25.74	peak	P	
5 *	25868.3945	43.31	0.16	43.47	54.00	-10.53	AVG	P	
6	25979.9300	52.11	0.27	52.38	74.00	-21.62	peak	P	

6. Test setup photo

Refer to appendix I for details

7. Photo of the EUT

Refer to appendix II & appendix III for details

*****End of report*****