TEST REPORT

Product Name	:	TV hearMore
Brand Mark	:	MoerLab
Model No.	:	ABB01
FCC ID	:	2A8MI-ABB01
Report Number	:	BLA-EMC-202308-A6202
Date of Sample Receipt	:	2023/8/23
Date of Test	:	2023/9/27 to 2023/12/13
Date of Issue	:	2023/12/14
Test Standard	:	47 CFR Part 15, Subpart C 15.247
Test Result	:	Pass

Prepared for:

Jiang Su Yisin Tech Co., Ltd
Rm. 103, Bldg. 1, No. 10, Wenzhou Rd., ETDZ,Shuyang County, Suqian, Jiangsu, CN

Prepared by:

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Date: 2023/12/14

BlueAsia of Technical Services(Shenzhen) Co., Ltd. BLA

REPORT REVISE RECORD

Version No.	Date	Description
00	2023/12/14	Original

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1 TEST SUMMARY

Test item	Test Requirement	Test Method	Class/Severity	Result
Dwell Time	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.4	47 CFR Part 15, Subpart C 15.247a(1)(iii)	Pass
Hopping Channel Number	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.3	47 CFR Part 15, Subpart C 15.247a(1)(iii)	Pass
Carrier Frequencies Separation	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.2	47 CFR Part 15, Subpart C 15.247a(1)	Pass
20dB Bandwidth	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.7	47 CFR Part 15, Subpart C 15.247(a)(1)	Pass
Conducted Peak Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.5	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.4,6.5,6.6	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass
Antenna Requirement	47 CFR Part 15, Subpart C 15.247	N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(c)	Pass
Conducted Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.6 & Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass
Conducted Band Edges Measurement	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.8 & Section 11.13.3.2	47 CFR Part 15, Subpart C 15.247(d)	Pass

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2 GENERAL INFORMATION

Applicant	Jiang Su Yisin Tech Co., Ltd
Address	Rm. 103, Bldg. 1, No. 10, Wenzhou Rd., ETDZ,Shuyang County, Suqian, Jiangsu, CN
Manufacturer	Jiang Su Yisin Tech Co., Ltd
Address	Rm. 103, Bldg. 1, No. 10, Wenzhou Rd., ETDZ,Shuyang County, Suqian, Jiangsu, CN
Factory	Jiang Su Yisin Tech Co., Ltd
Address	Rm. 103, Bldg. 1, No. 10, Wenzhou Rd., ETDZ,Shuyang County, Suqian, Jiangsu, CN
Product Name	TV hearMore
Test Model No.	ABB01

3 GENERAL DESCRIPTION OF E.U.T.

Hardware Version	V3.2
Software Version	V3.6.2

Operation Frequency:	2402MHz-2480MHz
Modulation Type:	GFSK, pi/4DQPSK, 8DPSK
Channel Spacing:	1MHz
Number of Channels:	79
Antenna Type:	External Antenna
Antenna Gain:	2.33dBi(Provided by the customer)

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4 OPERATION FREQUENCY EACH OF CHANNEL

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		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel	2402MHz
The middle channel	2441MHz
The Highest channel	2480MHz

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5 TEST ENVIRONMENT

Environment	Temperature	Voltage
Normal	25°C	DC 5V

6 TEST MODE

TEST MODE	TEST MODE DESCRIPTION
TX	Keep the EUT in continuously transmitting mode with modulation. (hopping and non hopping mode all have been tested, non hopping mode is worse case for RE)
Remark: Full battery is used during all test except ac conducted emission, DH1,DH3, DH5 all have been tested, during the test, GFSK, Pi/4DQPSK,8DPSK,modulation were all pre-scanned Only the 8DPSK of the worst mode would be recorded in this report.	

7 MEASUREMENT UNCERTAINTY

Parameter	Expanded Uncertainty (Confidence of 95%)
Radiated Emission(9kHz-30MHz)	±4.34dB
Radiated Emission(30Mz-1000MHz)	±4.24dB
Radiated Emission(1GHz-18GHz)	±4.68dB
AC Power Line Conducted Emission(150kHz-30MHz)	±3.45dB

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8 DESCRIPTION OF SUPPORT UNIT

Device Type	Manufacturer	Model Name	Serial No.	Remark
PC	lenovo	E46OC	N/A	From lab （No.BLA-ZC-BS-2022005）
AC Adapter	UGREEN	CD112	N/A	From lab

9 LABORATORY LOCATION

All tests were performed at:

BlueAsia of Technical Services(Shenzhen) Co., Ltd.

Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District, Shenzhen, Guangdong Province, China

Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673

No tests were sub-contracted.

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10 TEST INSTRUMENTS LIST

Test Equipment Of Radiated Spurious Emissions					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal.Date**	**Cal.Due**
Chamber 1	SKET	966	N/A	2020/11/10	2023/11/9
				2023/11/16	2026/11/15
Chamber 2	SKET	966	N/A	2021/07/20	2024/07/19
Spectrum	R&S	FSP40	100817	2023/08/30	2024/08/29
Receiver	R&S	ESR7	101199	2023/08/30	2024/08/29
Receiver	R&S	ESPI7	101477	2023/07/07	2024/07/06
broadband Antenna	Schwarzbeck	VULB9168	00836 P:00227	2022/10/12	2025/10/11
Horn Antenna	Schwarzbeck	BBHA9120D	01892 P:00331	2022/09/13	2025/09/12
Horn Antenna	Schwarzbeck	BBHA 9170	1106	2022/04/24	2024/04/23
Amplifier	SKET	LNPA_30M01G-30	SK2021060801	2023/07/07	2024/07/06
Amplifier	SKET	PA-000318G-45	N/A	2023/08/30	2024/08/29
Amplifier	SKET	LNPA_18G40G-50	SK2022071301	2023/07/14	2024/07/13
Filter group	SKET	2.4G/5G Filter group r	N/A	2023/07/07	2024/07/06
EMI software	EZ	EZ-EMC	EEMC-3A1	N/A	N/A
Loop antenna	SCHNARZBECK	FMZB1519B	00102	2022/09/14	2025/09/13
1kHZ calibration audio source	SKET	MCS-ABT-C35	N/A	2023/09/04	2024/09/03
Free Field Microphone	SKET	MGS MP 663	0414	2023/09/04	2024/09/03
Audio shielding box	SKET	SB-ABT-C35	N/A	2023/03/30	2024/03/29
Controller	SKET	N/A	N/A	N/A	N/A

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Coaxial Cable	BlueAsia	BLA-XC-02	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-03	N/A	N/A	N/A
Coaxial Cable	BlueAsia	BLA-XC-01	N/A	N/A	N/A
Signal Generator DTV	ECREDIX	DSG-1000	N/A	N/A	N/A

Test Equipment Of Conducted Emissions at AC Power Line (150kHz-30MHz)					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal.Date**	**Cal.Due**
Shield room	SKET	833	N/A	2020/11/25	2023/11/24
				2023/11/16	2025/11/15
Receiver	R&S	ESPI3	101082	2023/08/30	2024/08/29
LISN	R&S	ENV216	3560.6550.15	2023/08/30	2024/08/29
LISN	AT	AT166-2	AKK1806000003	2023/08/30	2024/08/29
ISN	TESEQ	ISNT8-cat6	53580	2023/08/30	2024/08/29
Single-channel vehicle artificial power network	Schwarzbeck	NNBM 8124	01045	2023/07/07	2024/07/06
Single-channel vehicle artificial power network	Schwarzbeck	NNBM 8124	01075	2023/07/07	2024/07/06
EMI software	EZ	EZ-EMC	EEMC-3A1	N/A	N/A

Test Equipment Of RF Conducted Test					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal.Date**	**Cal.Due**
Spectrum	R&S	FSP40	100817	2023/08/30	2024/08/29
Spectrum	Agilent	N9020A	MY49100060	2023/08/30	2024/08/29
Spectrum	Agilent	N9020A	MY54420161	2023/08/30	2024/08/29
Signal Generator	Agilent	N5182A	MY47420955	2023/08/30	2024/08/29
Signal Generator	Agilent	N5181A	MY46240904	2023/07/07	2024/07/06

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Signal Generator	R&S	CMW500	132429	2023/08/30	2024/08/29
BluetoothTester	Anritsu	MT8852B	06262047872	2023/08/30	2024/08/29
Power probe	DARE	RPR3006W	14I00889SN042	2023/09/01	2024/08/31
Power detection box	CDKMV	MW100-PSB	MW201020JYT	2023/07/07	2024/07/06
DCPowersupply	zhaoxin	KXN-305D	20K305D1221363	2023/08/30	2024/08/29
DCPowersupply	zhaoxin	RXN-1505D	19R1505D050168	2023/08/30	2024/08/29
2.4GHz/5GHz RF Test software	MTS	MTS 8310	Version 2.0.0.0	N/A	N/A
Audio Analyzer	Audio Precision	ATS-1	ATS141094	2023/07/07	2024/07/06

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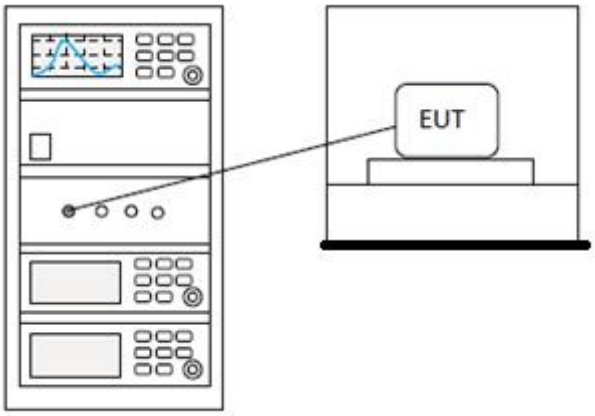
11 DWELL TIME

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.4
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	William
Temperature	25℃
Humidity	60%

11.1 LIMITS

Frequency(MHz)	Limit
902-928	0.4S within a 20S period(20dB bandwidth<250kHz)
	0.4S within a 10S period(20dB bandwidth≥250kHz)
2400-2483.5	0.4S within a period of 0.4S multiplied by the number of hopping channels
5725-5850	0.4S within a 30S period

11.2 BLOCK DIAGRAM OF TEST SETUP



11.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

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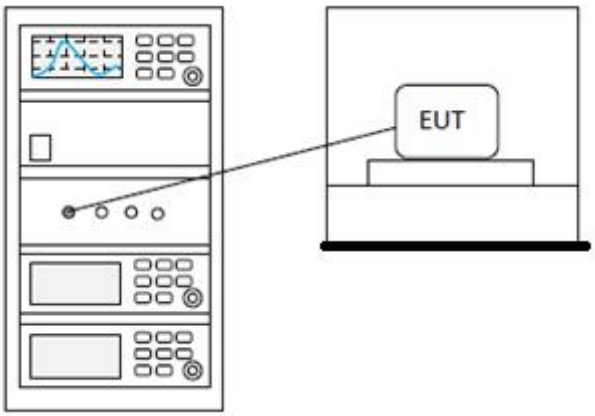
12 HOPPING CHANNEL NUMBER

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.3
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	William
Temperature	25℃
Humidity	60%

12.1 LIMITS

Frequency range(MHz)	Number of hopping channels (minimum)
902-928	50 for 20dB bandwidth <250kHz
	25 for 20dB bandwidth ≥250kHz
2400-2483.5	15
5725-5850	75

12.2 BLOCK DIAGRAM OF TEST SETUP



12.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

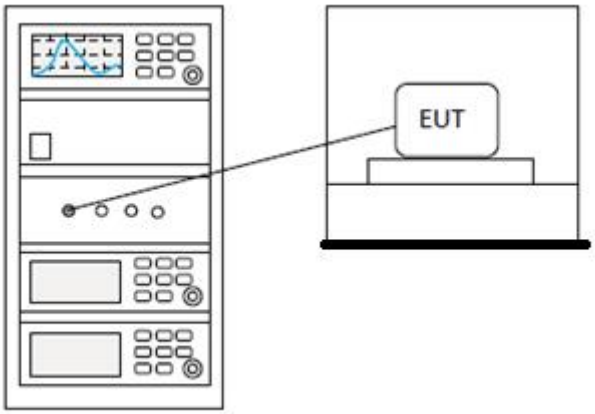
13 CARRIER FREQUENCIES SEPARATION

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	William
Temperature	25℃
Humidity	60%

13.1 LIMITS

Limit:	2/3 of the 20dB bandwidth base on the transmission power is less than 0.125W

13.2 BLOCK DIAGRAM OF TEST SETUP



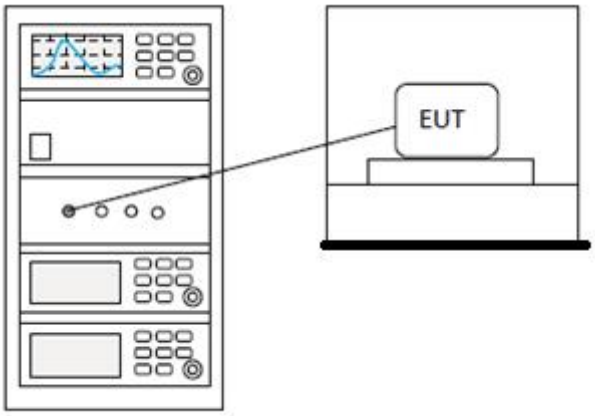
13.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

14 20DB BANDWIDTH

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.7
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	William
Temperature	25℃
Humidity	60%

14.1 BLOCK DIAGRAM OF TEST SETUP



14.2 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

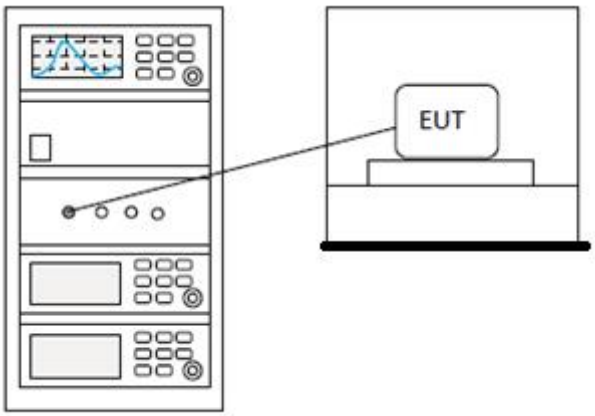
15 CONDUCTED PEAK OUTPUT POWER

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.5
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	William
Temperature	25℃
Humidity	60%

15.1 LIMITS

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for ≥50 hopping channels
	0.25 for 25≤ hopping channels <50
	1 for digital modulation
2400-2483.5	1 for ≥75 non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

15.2 BLOCK DIAGRAM OF TEST SETUP



15.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

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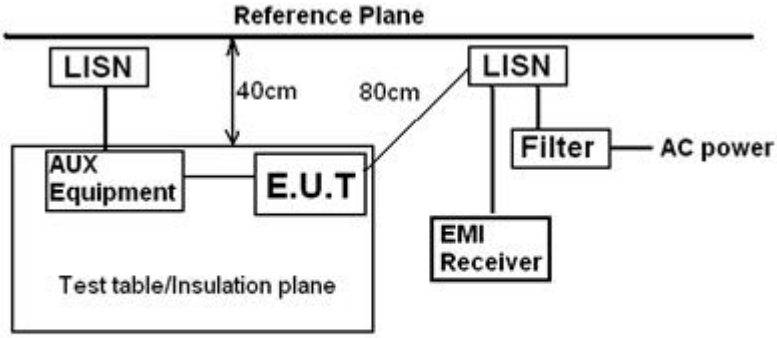
16 CONDUCTED EMISSIONS AT AC POWER LINE (150KHZ-30MHZ)

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Aiden
Temperature	25℃
Humidity	60%

16.1 LIMITS

Frequency of emission(MHz)	Conducted limit(dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with the logarithm of the frequency.		

16.2 BLOCK DIAGRAM OF TEST SETUP



Remark
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m

16.3 PROCEDURE

1) The mains terminal disturbance voltage test was conducted in a shielded room.
2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50H + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.
Remark: LISN=Read Level+ Cable Loss+ LISN Factor

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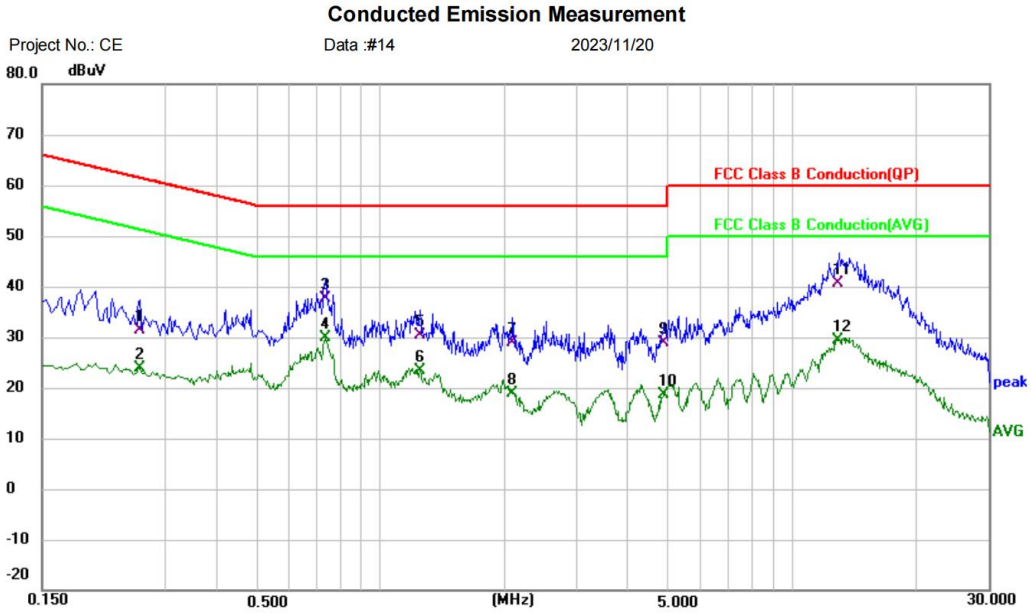
16.4 TEST DATA

[TestMode: TX mode]; [Line: Line]; [Power:120V/60Hz]

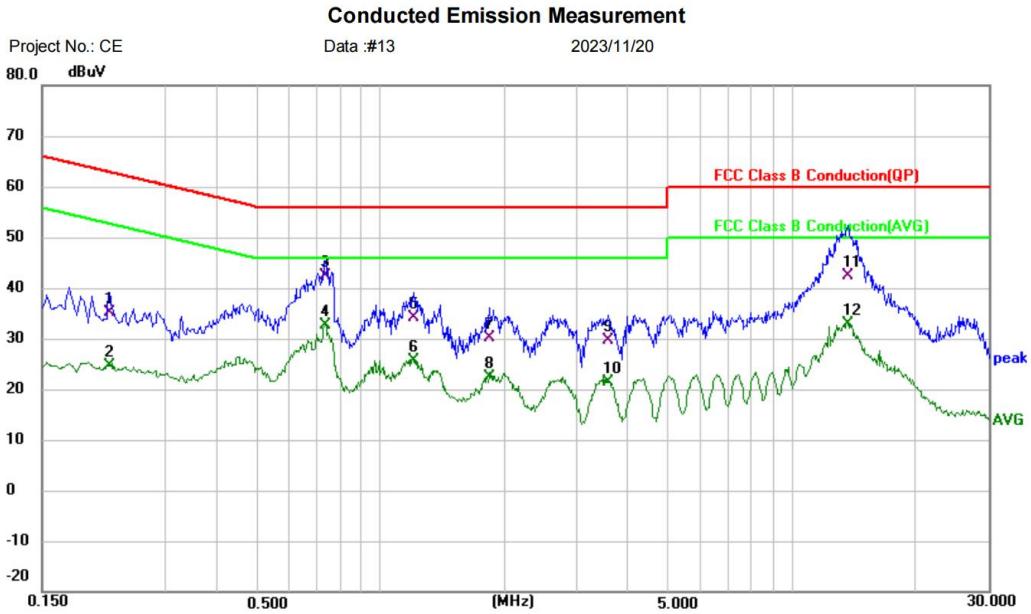


Site		Phase:	*L1*	Temperature:	(C)
Limit:	FCC Class B Conduction(QP)	Power:		Humidity:	%RH
EUT:	TV hearMore	Distance:	RBW: 9 KHz		
M/N:	ABB01		VBW: 30 KHz	Sweep Time: 10 ms	
Mode:	TX-MODE				
Note:					

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		0.2580	20.93	10.55	31.48	61.50	-30.02	QP			
2		0.2580	13.37	10.55	23.92	51.50	-27.58	AVG			
3		0.7338	27.69	10.02	37.71	56.00	-18.29	QP			
4	*	0.7338	19.93	10.02	29.95	46.00	-16.05	AVG			
5		1.2459	20.60	9.88	30.48	56.00	-25.52	QP			
6		1.2459	13.62	9.88	23.50	46.00	-22.50	AVG			
7		2.0900	18.65	10.14	28.79	56.00	-27.21	QP			
8		2.0900	8.83	10.14	18.97	46.00	-27.03	AVG			
9		4.8900	18.69	10.23	28.92	56.00	-27.08	QP			
10		4.8900	8.45	10.23	18.68	46.00	-27.32	AVG			
11		13.0219	41.06	-0.55	40.51	60.00	-19.49	QP			
12		13.0219	29.83	-0.55	29.28	50.00	-20.72	AVG			

Test Result: Pass

[TestMode: TX mode]; [Line: Nutral]; [Power:120V/60Hz]



Site		Phase:	N	Temperature:	(C)
Limit:	FCC Class B Conduction(QP)	Power:		Humidity:	%RH
EUT:	TV hearMore	Distance:	RBW: 9 KHz		
M/N:	ABB01		VBW: 30 KHz	Sweep Time: 10 ms	
Mode:	TX-MODE				
Note:					

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		0.2179	24.80	10.25	35.05	62.90	-27.85	QP			
2		0.2179	14.29	10.25	24.54	52.90	-28.36	AVG			
3		0.7338	32.40	9.95	42.35	56.00	-13.65	QP			
4	*	0.7338	22.75	9.95	32.70	46.00	-13.30	AVG			
5		1.2057	24.17	9.89	34.06	56.00	-21.94	QP			
6		1.2057	15.62	9.89	25.51	46.00	-20.49	AVG			
7		1.8380	20.16	9.99	30.15	56.00	-25.85	QP			
8		1.8380	12.32	9.99	22.31	46.00	-23.69	AVG			
9		3.5819	19.69	10.05	29.74	56.00	-26.26	QP			
10		3.5819	11.27	10.05	21.32	46.00	-24.68	AVG			
11		13.6257	43.46	-1.03	42.43	60.00	-17.57	QP			
12		13.6257	33.80	-1.03	32.77	50.00	-17.23	AVG			

Test Result: Pass

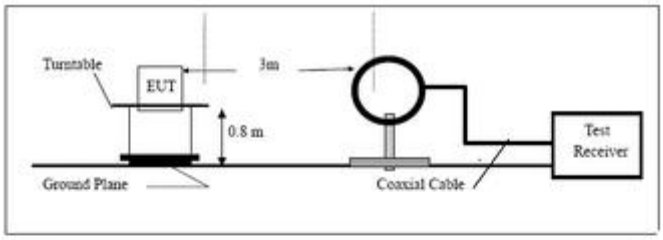
17 RADIATED SPURIOUS EMISSIONS

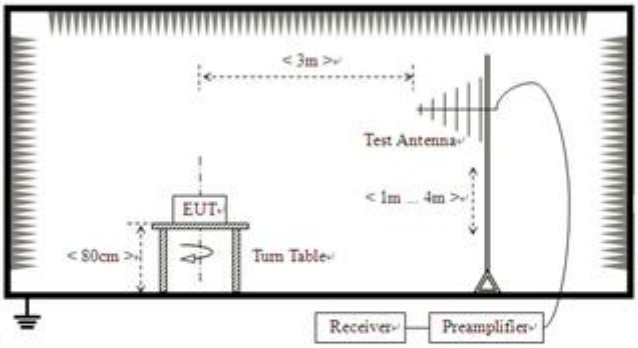
Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.4,6.5,6.6
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	William
Temperature	25℃
Humidity	60%

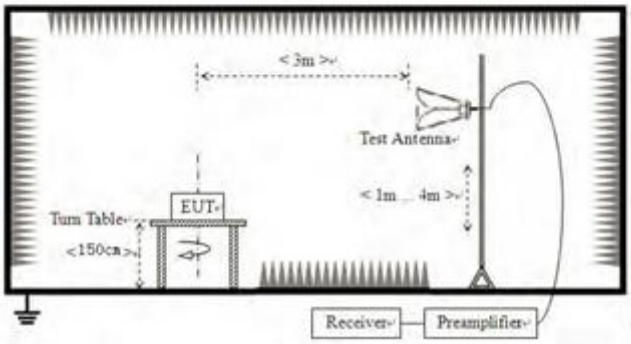
17.1 LIMITS

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
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
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.		

17.2 BLOCK DIAGRAM OF TEST SETUP







17.3 PROCEDURE

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
d. The antenna height 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.
e. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
j. Repeat above procedures until all frequencies measured was complete.

Remark:
1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.
2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Test Level =Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor
3) Scan from 9kHz to 25GHz, the disturbance above 12.75GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.fundamental frequency is blocked by filter, and only spurious emission is shown.
4) For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

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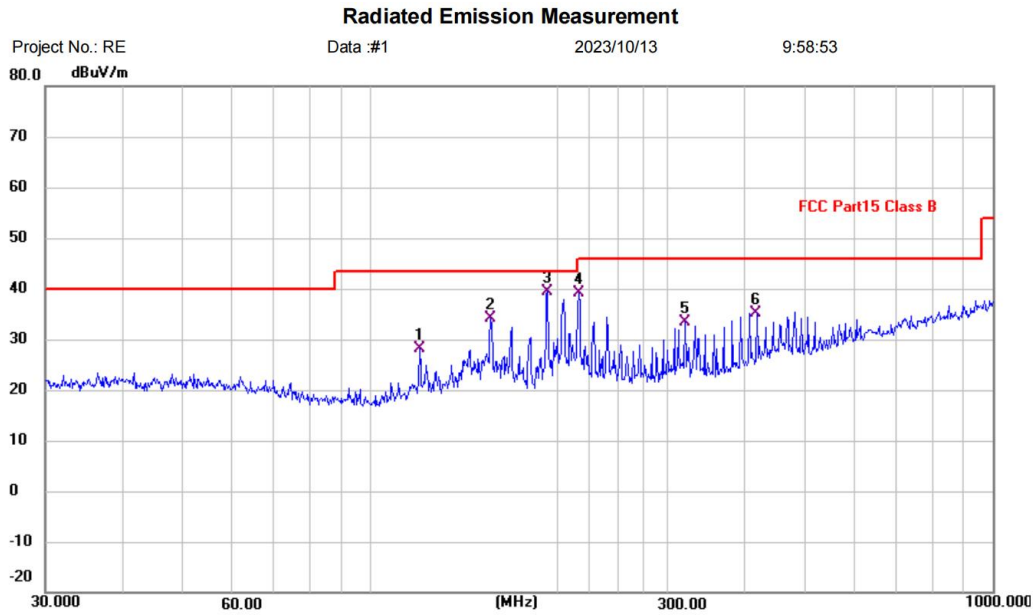
17.4 TEST DATA

Below 1GHz

[TestMode: TX mdoe]; [Polarity: Horizontal]



Site
Limit: FCC Part15 Class B
EUT: TV hearMore
M/N: ABB01
Mode: BT-TX-MODE
Note:

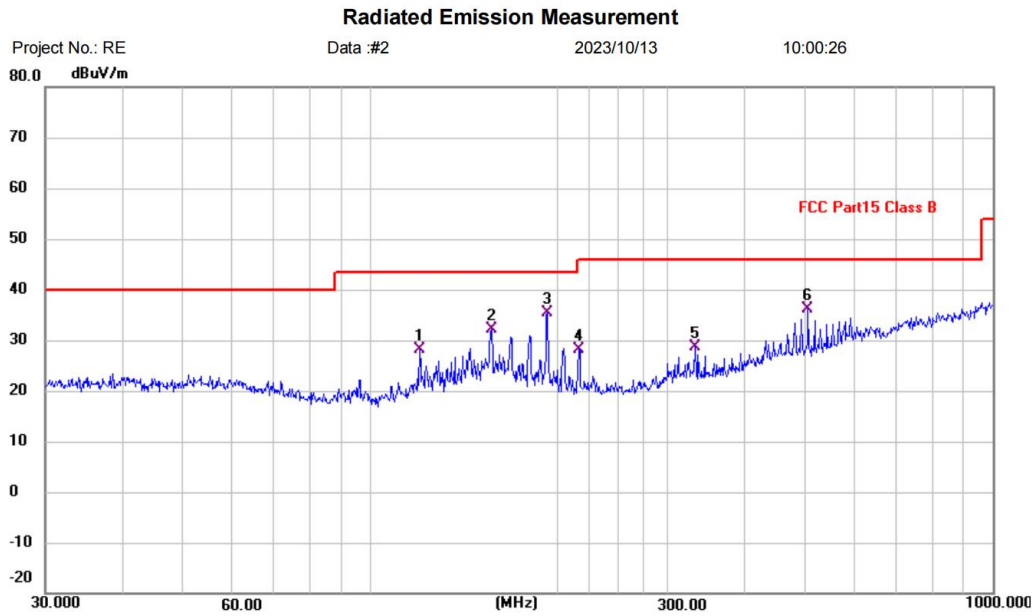
Polarization: ***Horizontal***
Power:

Temperature: (C)
Humidity: %RH

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	119.8556	7.05	21.19	28.24	43.50	-15.26	QP	P	
2	155.9101	10.70	23.40	34.10	43.50	-9.40	QP	P	
3 *	192.4185	19.47	20.01	39.48	43.50	-4.02	QP	P	
4	216.0239	19.70	19.54	39.24	46.00	-6.76	QP	P	
5	319.9369	9.34	23.93	33.27	46.00	-12.73	QP	P	
6	417.6409	8.97	26.28	35.25	46.00	-10.75	QP	P	

Test Result: Pass

[TestMode: TX mode]; [Polarity: Vertical]



Site
Limit: FCC Part15 Class B
EUT: TV hearMore
M/N: ABB01
Mode: BT-TX-MODE
Note:

Polarization: ***Vertical***
Power:

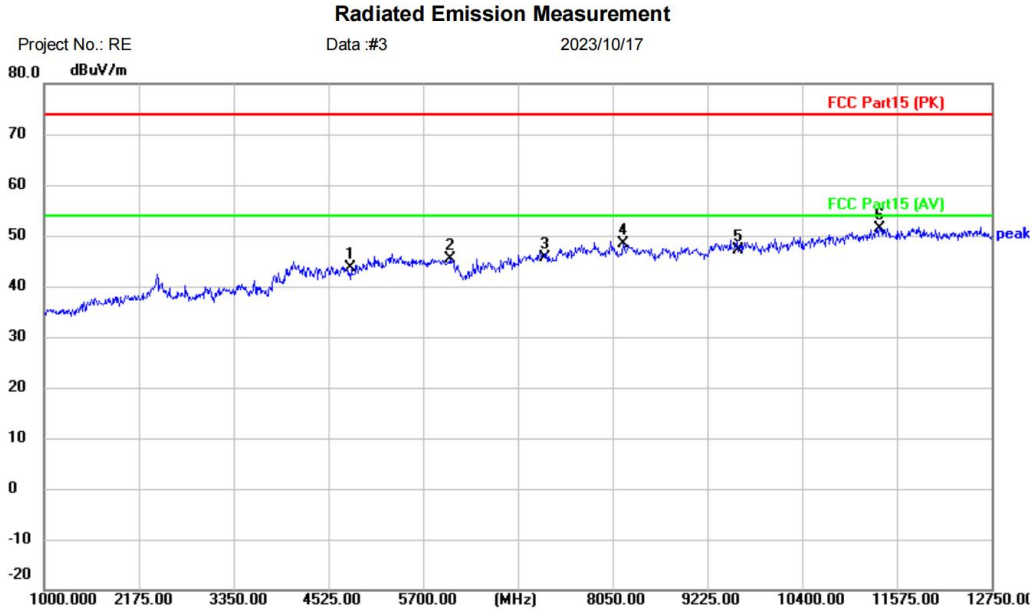
Temperature: (C)
Humidity: %RH

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	119.8556	7.04	21.19	28.23	43.50	-15.27	QP	P	
2	156.4577	8.57	23.51	32.08	43.50	-11.42	QP	P	
3 *	192.4185	15.26	20.01	35.27	43.50	-8.23	QP	P	
4	216.0239	8.59	19.54	28.13	46.00	-17.87	QP	P	
5	332.5187	4.51	24.18	28.69	46.00	-17.31	QP	P	
6	504.7062	8.50	27.69	36.19	46.00	-9.81	QP	P	

Test Result: Pass

Above 1GHz

[TestMode: TX lowest channel]; [Polarity: Horizontal]

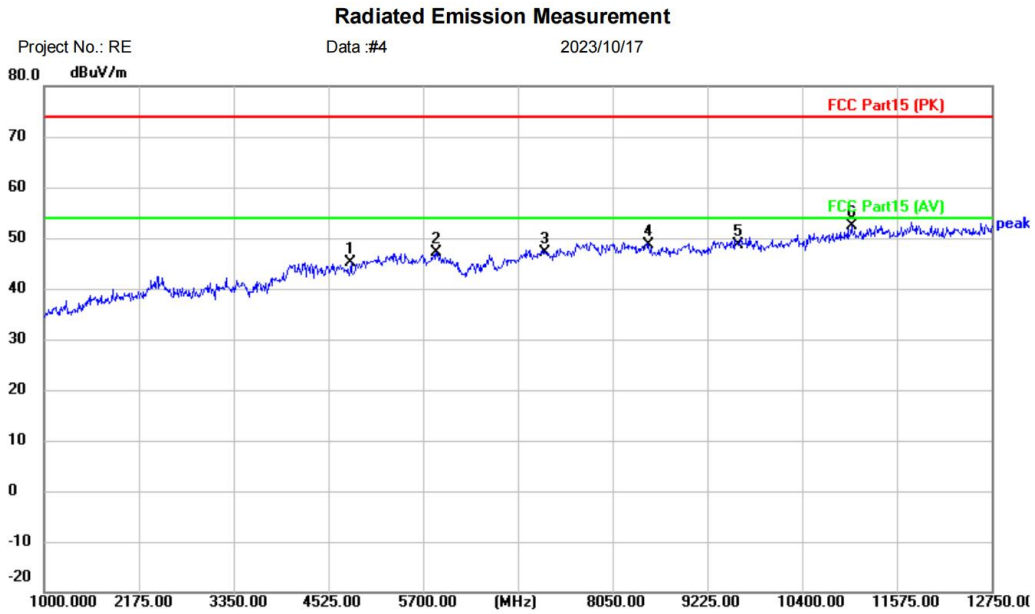


Site	Polarization: ***Horizontal***	Temperature: (C)
Limit: FCC Part15 (PK)	Power:	Humidity: %RH
EUT: TV hearMore		
M/N: ABB01		
Mode: TX--BT-2402		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4804.000	49.54	-5.95	43.59	74.00	-30.41	peak	
2		6029.000	51.47	-5.98	45.49	74.00	-28.51	peak	
3		7206.000	47.64	-2.07	45.57	74.00	-28.43	peak	
4		8179.250	49.28	-1.02	48.26	74.00	-25.74	peak	
5		9608.000	46.14	0.90	47.04	74.00	-26.96	peak	
6	*	11363.50	47.88	3.62	51.50	74.00	-22.50	peak	

Test Result: Pass

[TestMode:TX lowest channel]; [Polarity: Vertical]



Site
Limit: FCC Part15 (PK)
EUT: TV hearMore
M/N: ABB01
Mode: TX--BT-2402
Note:

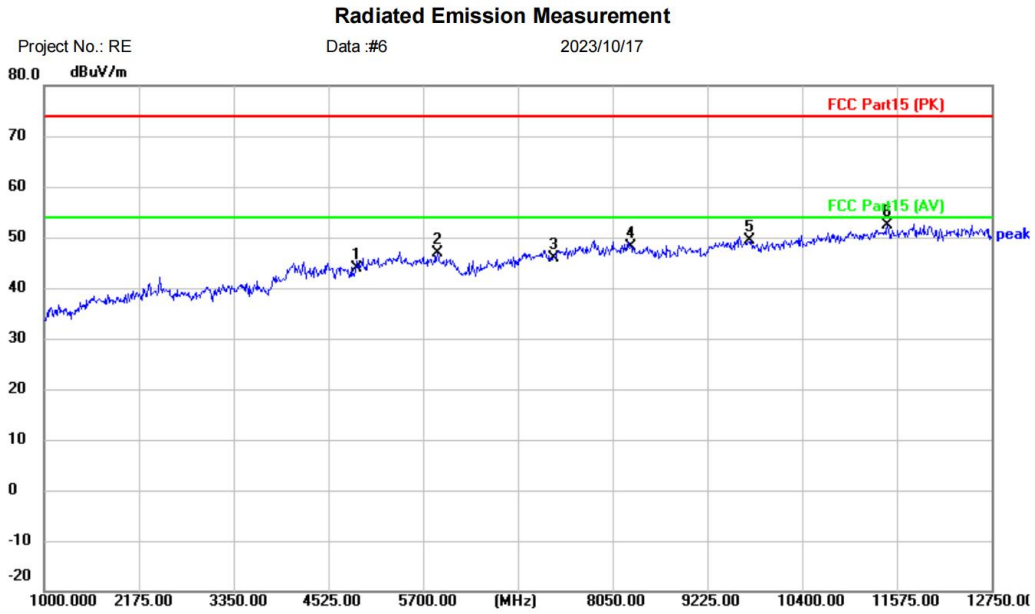
Polarization: *Vertical*
Power:

Temperature: (C)
Humidity: %RH

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4804.000	51.07	-5.95	45.12	74.00	-28.88	peak	
2		5864.500	50.43	-3.20	47.23	74.00	-26.77	peak	
3		7206.000	49.09	-2.07	47.02	74.00	-26.98	peak	
4		8496.500	49.40	-0.88	48.52	74.00	-25.48	peak	
5		9608.000	47.84	0.90	48.74	74.00	-25.26	peak	
6	*	11011.00	48.99	3.45	52.44	74.00	-21.56	peak	

Test Result: Pass

[TestMode: TX middle channel]; [Polarity: Horizontal]



Site
Limit: FCC Part15 (PK)
EUT: TV hearMore
M/N: ABB01
Mode: TX--BT-2441
Note:

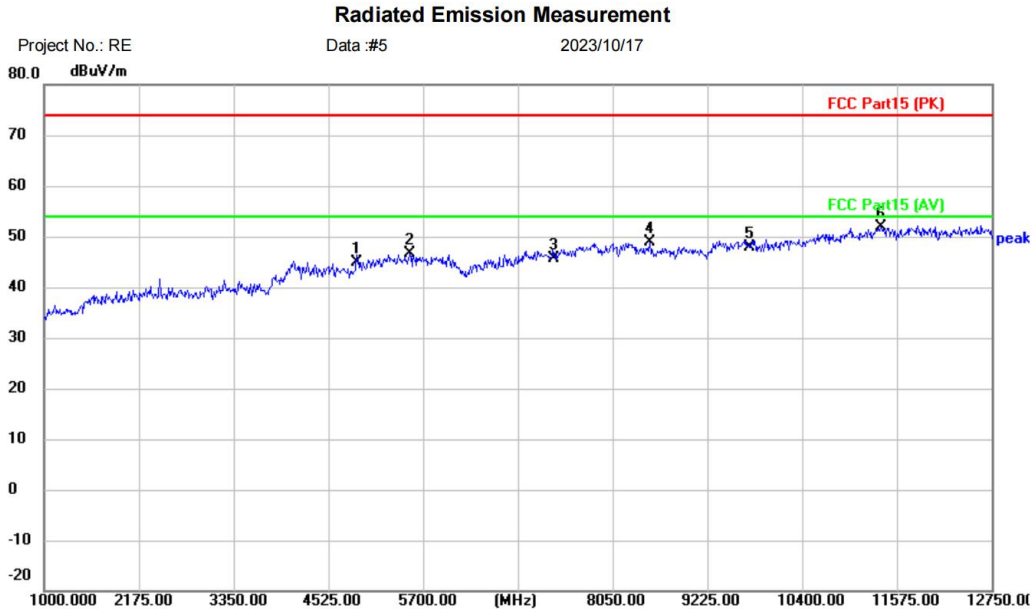
Polarization: ***Horizontal***
Power:

Temperature: (C)
Humidity: %RH

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4882.000	49.56	-5.63	43.93	74.00	-30.07	peak	
2		5876.250	50.08	-3.19	46.89	74.00	-27.11	peak	
3		7323.000	47.55	-1.79	45.76	74.00	-28.24	peak	
4		8273.250	49.15	-0.97	48.18	74.00	-25.82	peak	
5		9764.000	48.20	1.30	49.50	74.00	-24.50	peak	
6	*	11457.50	48.64	3.66	52.30	74.00	-21.70	peak	

Test Result: Pass

[TestMode: TX middle channel]; [Polarity: Vertical]



Site
Limit: FCC Part15 (PK)
EUT: TV hearMore
M/N: ABB01
Mode: TX--BT-2441
Note:

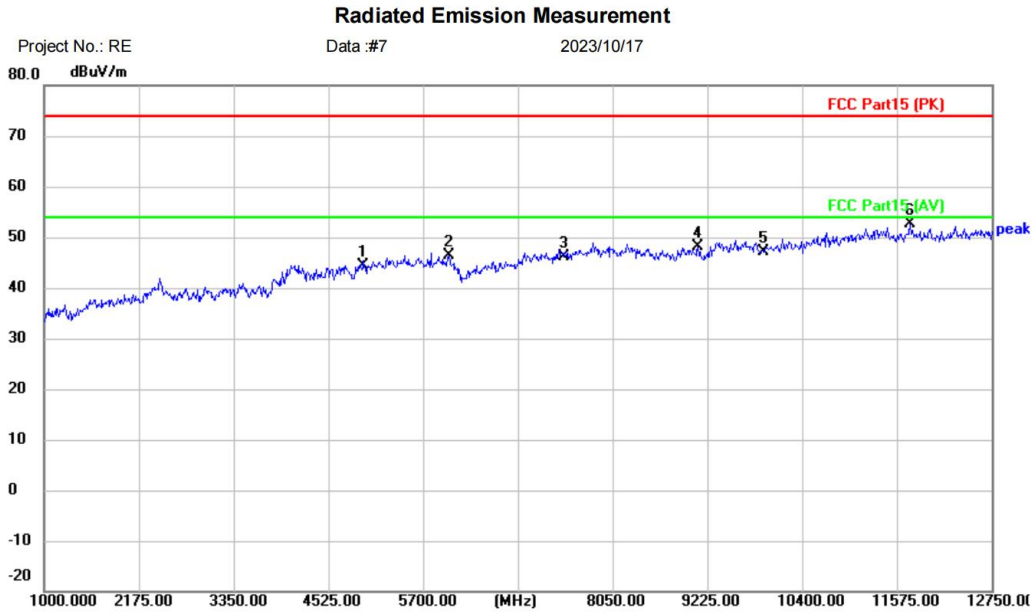
Polarization: ***Vertical***
Power:

Temperature: (C)
Humidity: %RH

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4882.000	50.51	-5.63	44.88	74.00	-29.12	peak	
2		5535.500	49.87	-3.12	46.75	74.00	-27.25	peak	
3		7323.000	47.35	-1.79	45.56	74.00	-28.44	peak	
4		8508.250	49.72	-0.87	48.85	74.00	-25.15	peak	
5		9764.000	46.62	1.30	47.92	74.00	-26.08	peak	
6	*	11375.25	48.29	3.62	51.91	74.00	-22.09	peak	

Test Result: Pass

[TestMode: TX highest channel]; [Polarity: Horizontal]



Site
Limit: FCC Part15 (PK)
EUT: TV hearMore
M/N: ABB01
Mode: TX--BT-2480
Note:

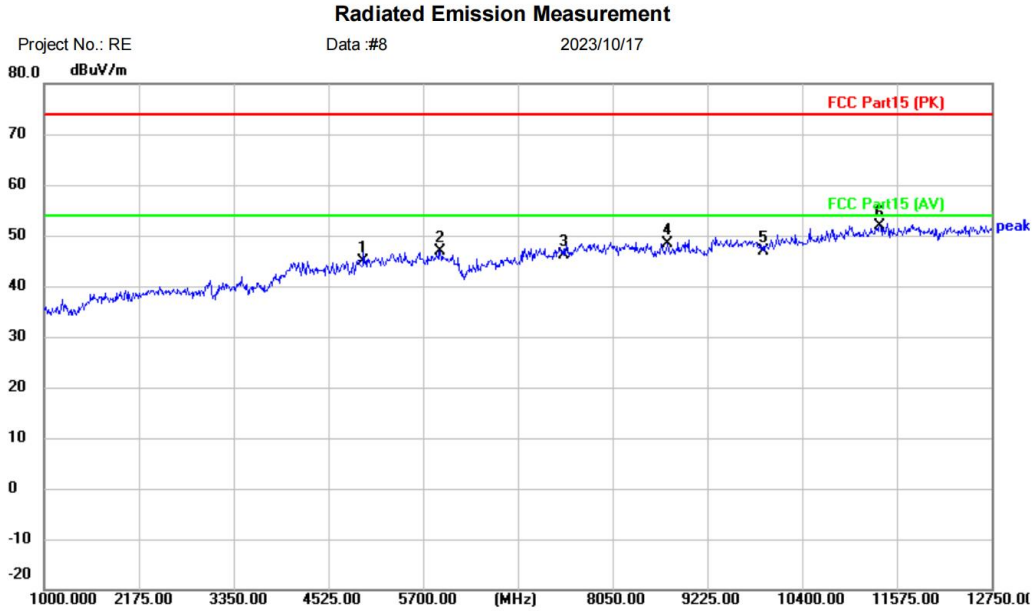
Polarization: ***Horizontal***
Power:

Temperature: (C)
Humidity: %RH

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4960.000	48.85	-4.58	44.27	74.00	-29.73	peak	
2		6017.250	52.38	-6.03	46.35	74.00	-27.65	peak	
3		7440.000	47.76	-1.52	46.24	74.00	-27.76	peak	
4		9107.500	48.39	-0.38	48.01	74.00	-25.99	peak	
5		9920.000	45.40	1.69	47.09	74.00	-26.91	peak	
6	*	11739.50	48.88	3.78	52.66	74.00	-21.34	peak	

Test Result: Pass

[TestMode: TX highest channel]; [Polarity: Vertical]



Site
Limit: FCC Part15 (PK)
EUT: TV hearMore
M/N: ABB01
Mode: TX--BT-2480
Note:

Polarization: *Vertical*
Power:

Temperature: (C)
Humidity: %RH

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4960.000	49.53	-4.58	44.95	74.00	-29.05	peak	
2		5911.500	50.06	-3.15	46.91	74.00	-27.09	peak	
3		7440.000	47.62	-1.52	46.10	74.00	-27.90	peak	
4		8731.500	49.17	-0.77	48.40	74.00	-25.60	peak	
5		9920.000	45.19	1.69	46.88	74.00	-27.12	peak	
6	*	11363.50	48.30	3.62	51.92	74.00	-22.08	peak	

Test Result: Pass

18 RADIATED EMISSIONS WHICH FALL IN THE RESTRICTED BANDS

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.10.5
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	William
Temperature	25℃
Humidity	60%

18.1 LIMITS

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
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

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

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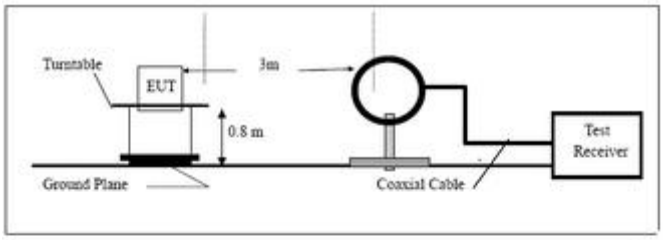
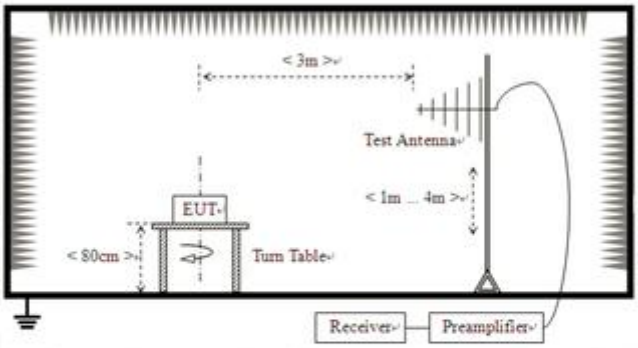
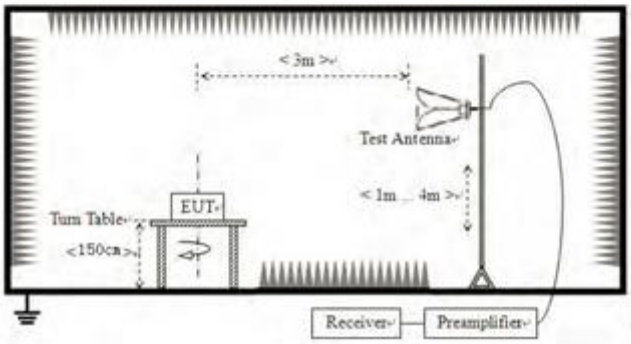
18.2 BLOCK DIAGRAM OF TEST SETUP







18.3 PROCEDURE

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
d. The antenna height 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.
e. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
j. Repeat above procedures until all frequencies measured was complete.
Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

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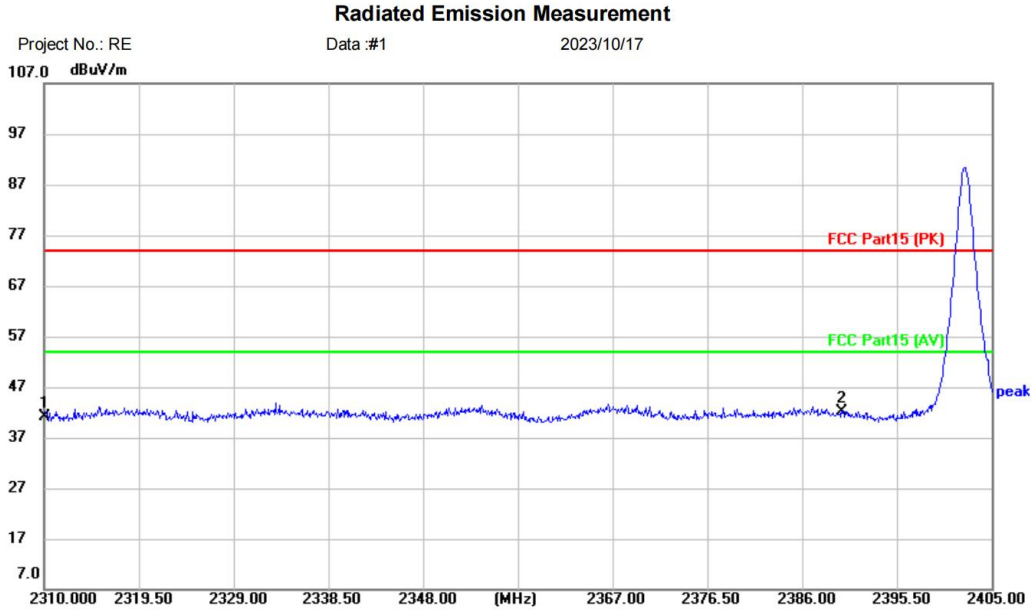
18.4 TEST DATA

[TestMode: TX lowest channel]; [Polarity: Horizontal]



Site
Limit: FCC Part15 (PK)
EUT: TV hearMore
M/N: ABB01
Mode: TX--BT-2402
Note:

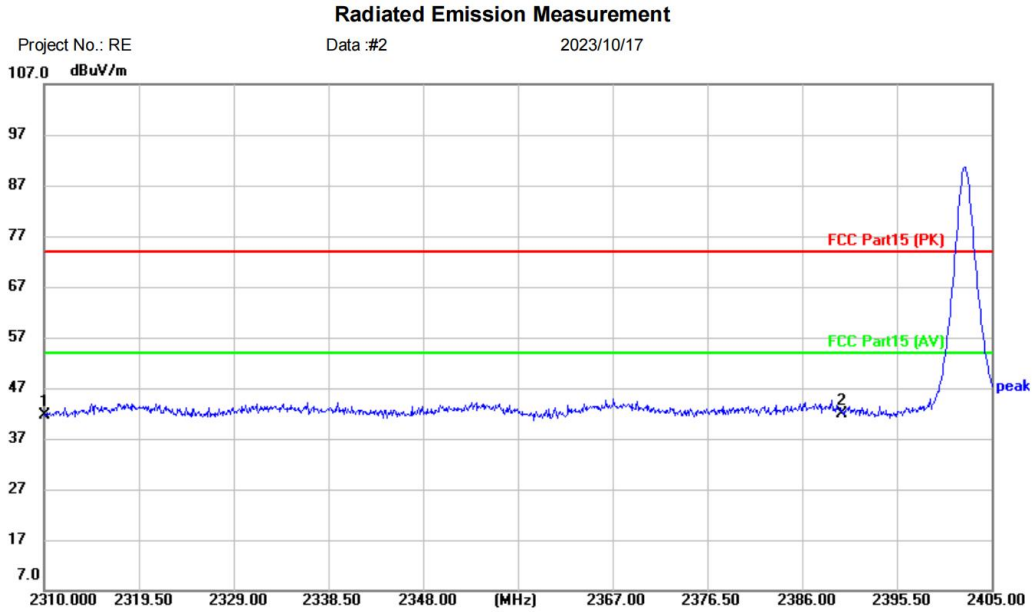
Polarization: ***Horizontal***
Power:

Temperature: (C)
Humidity: %RH

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2310.000	55.29	-14.27	41.02	74.00	-32.98	peak	
2	*	2390.000	55.98	-13.82	42.16	74.00	-31.84	peak	

Test Result: Pass

[TestMode: TX lowest channel]; [Polarity: Vertical]



Site
Limit: FCC Part15 (PK)
EUT: TV hearMore
M/N: ABB01
Mode: TX--BT-2402
Note:

Polarization: ***Vertical***
Power:

Temperature: (C)
Humidity: %RH

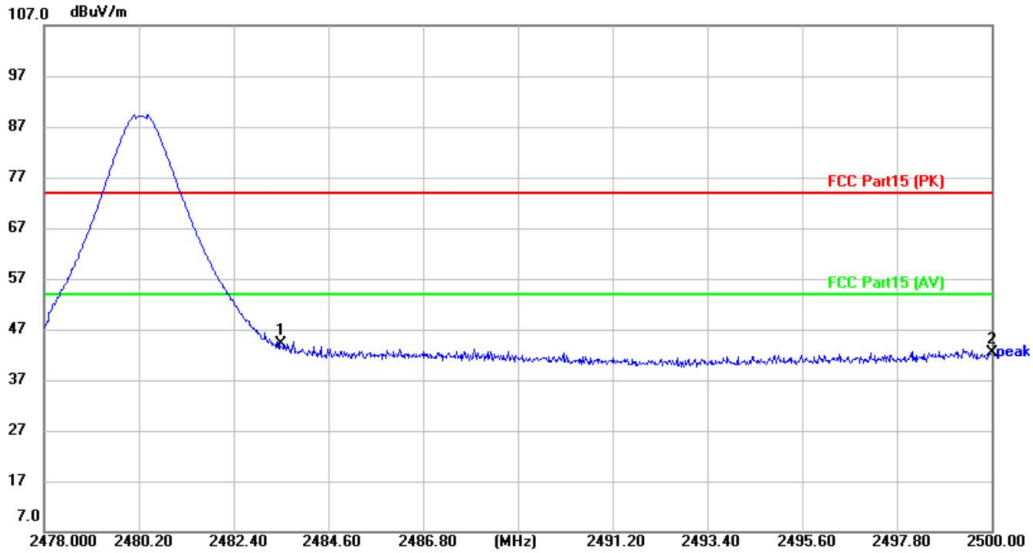
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2310.000	55.82	-14.27	41.55	74.00	-32.45	peak	
2	*	2390.000	55.79	-13.82	41.97	74.00	-32.03	peak	

Test Result: Pass

[TestMode: TX highest channel]; [Polarity: Horizontal]

Radiated Emission Measurement

Project No.: RE Data :#9 2023/10/17



Site
Limit: FCC Part15 (PK)
EUT: TV hearMore
M/N: ABB01
Mode: TX--BT-2480
Note:

Polarization: ***Horizontal***
Power:

Temperature: (C)
Humidity: %RH

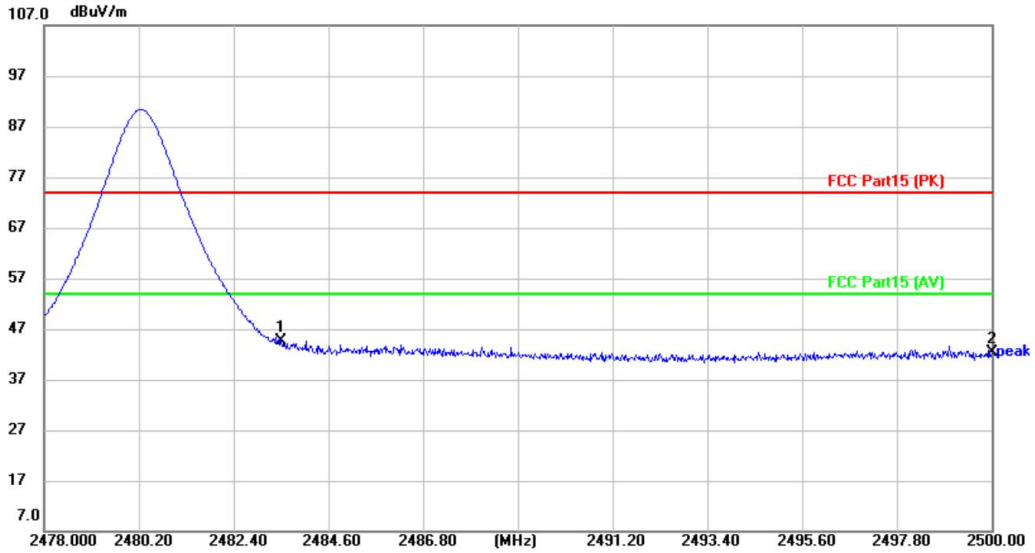
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2483.500	58.07	-13.96	44.11	74.00	-29.89	peak	
2		2500.000	56.38	-14.00	42.38	74.00	-31.62	peak	

Test Result: Pass

[TestMode: TX highest channel]; [Polarity: Vertical]

Radiated Emission Measurement

Project No.: RE Data :#10 2023/10/17



Site
Limit: FCC Part15 (PK)
EUT: TV hearMore
M/N: ABB01
Mode: TX--BT-2480
Note:

Polarization: *Vertical*
Power:

Temperature: (C)
Humidity: %RH

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2483.500	58.50	-13.96	44.54	74.00	-29.46	peak	
2		2500.000	56.35	-14.00	42.35	74.00	-31.65	peak	

Test Result: Pass

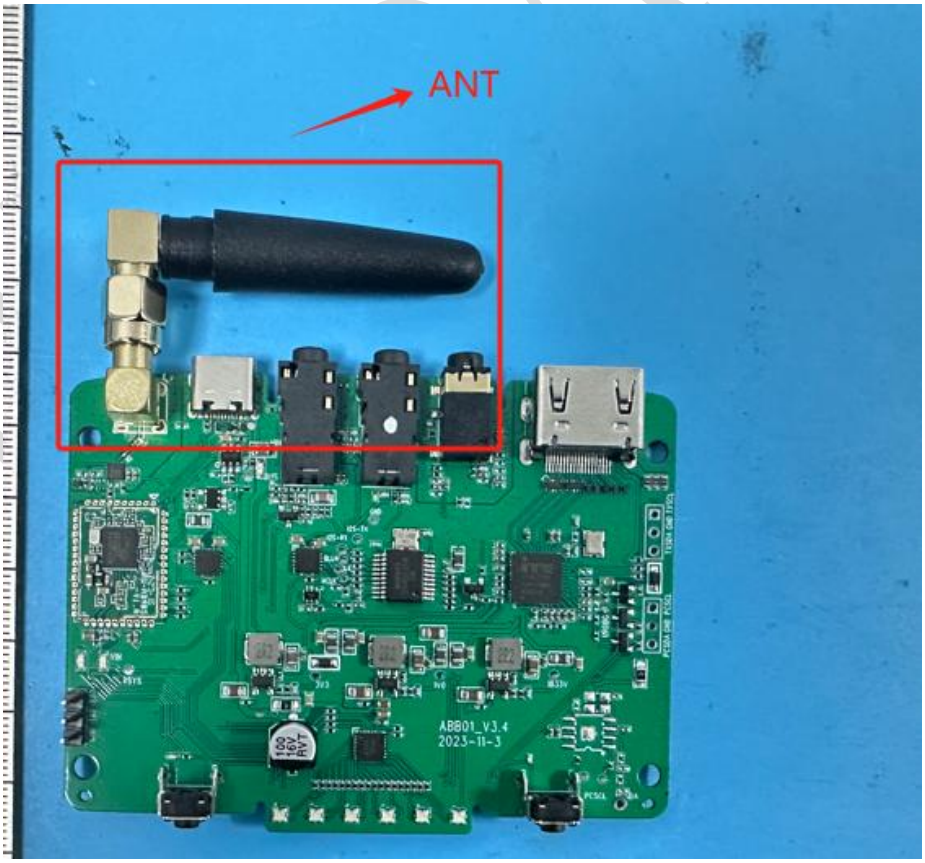
19 ANTENNA REQUIREMENT

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	N/A

19.1 CONCLUSION

Standard 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 antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:
The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 2.33dBi.



20 CONDUCTED SPURIOUS EMISSIONS

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.6 & Section 11.11
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	William
Temperature	25℃
Humidity	60%

20.1 LIMITS

Limit:	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 this section, 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)).