



RF MEASUREMENT REPORT

FCC ID: 2AW23-F22G00

Applicant: Xiamen R&T Plumbing Technology Co., Ltd

Product: Intelligent Toilet

Model No.: H01-T

Trademark: R&T

FCC Classification: Part 15 Low Power Communication Device Transmitter (DXX)

FCC Rule Part(s): Part 15.249

Test Procedure(s): ANSI C63.10 - 2013

Result: Complies

Test Date: 2022-12-13 ~ 2023-02-16

Reviewed By:

Vincent Yu

Approved By:

Robin Wu



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2212RSU029-U1	V01	Initial Report	2023-03-29	Valid

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1. General Information

1.1. Applicant

Xiamen R&T Plumbing Technology Co., Ltd
No.18, HouXiang Road, HaiCang District, Xiamen, 361028, China

1.2. Manufacturer

Xiamen R&T Plumbing Technology Co., Ltd
No.18, HouXiang Road, HaiCang District, Xiamen, 361028, China

1.3. Testing Facility

☒	Test Site – MRT Suzhou Laboratory Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China Laboratory Location (Suzhou - SIP) 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China Laboratory Accreditations A2LA: 3628.01 CNAS: L10551 FCC: CN1166 ISED: CN0001 VCCI: ☐ R-20025 ☐ G-20034 ☐ C-20020 ☐ T-20020 ☐ R-20141 ☐ G-20134 ☐ C-20103 ☐ T-20104
☐	Test Site – MRT Shenzhen Laboratory Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China Laboratory Accreditations A2LA: 3628.02 CNAS: L10551 FCC: CN1284 ISED: CN0105
☐	Test Site – MRT Taiwan Laboratory Laboratory Location (Taiwan) No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) Laboratory Accreditations TAF: L3261-190725 FCC: 291082, TW3261 ISED: TW3261

1.4. Product Information

Product Name	Intelligent Toilet
Model No.	H01-T
EUT Identification No.	20230306Sample#04
Operating Voltage	5Vdc
Operating Temperature Range	5°C ~ 40°C
Note: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

1.5. Radio Specification

Frequency Range	24.00 ~ 24.25GHz
Type of Modulation	FMCW
Antenna Type	PCB Layout Antenna
Antenna Gain	14.5dBi

2. Test Configuration

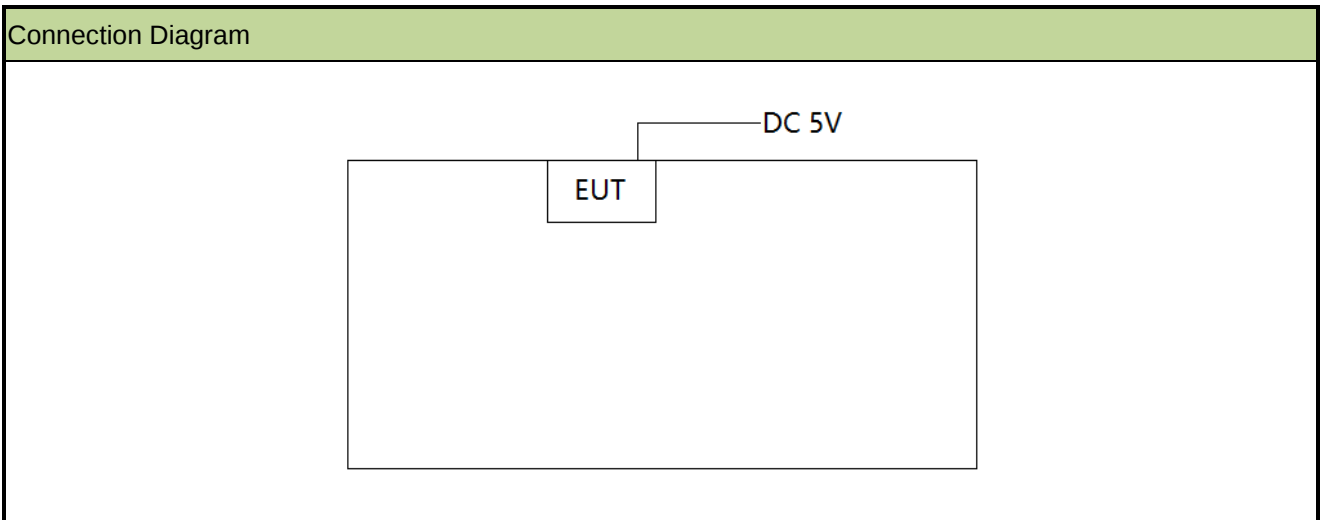
2.1. Test Mode

Mode 1: Transmitter (Tx) and Receiver (Rx) Work Simultaneously at 24GHz

Note: The test sample was provided by the manufacturer, which was configured into Collocated Tx/Rx mode after power on.

2.2. Test Configuration

This device was tested per the guidance ANSI C63.10:2013 was used to reference the appropriate EUT setup for radiated emissions testing.



2.3. Test Environment Condition

Ambient Temperature	15 ~ 35°C
Relative Humidity	20 ~ 75%RH

3. Antenna Requirements

Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- The antenna of the device is **permanently attached**.
- There are no provisions for connection to an external antenna.

Conclusion:

This unit complies with the requirement of §15.203.

4. Measuring Instrument

Instrument	Manufacturer	Model No.	Asset No.	Cali. Interval	Cali. Due Date	Test Site
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2023-06-08	SIP-AC3
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2022-12-29	SIP-AC3
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2023-12-28	SIP-AC3
Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2023-06-01	SIP-AC3
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06599	1 year	2023-10-13	SIP-AC3
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2023-10-10	SIP-AC3
Horn Antenna	R&S	HF907	MRTSUE06611	1 year	2023-07-30	SIP-AC3
EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2023-06-01	SIP-AC3
Thermohygrometer	testo	608-H1	MRTSUE06619	1 year	2023-11-01	SIP-AC3
Thermohygrometer	testo	608-H1	MRTSUE06622	1 year	2023-11-27	SIP-AC3
Preamplifier	EMCI	EMC012645SE	MRTSUE06642	1 year	2023-01-13	SIP-AC3
Preamplifier	EMCI	EMC012645SE	MRTSUE06642	1 year	2024-01-12	SIP-AC3
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06646	1 year	2023-08-16	SIP-AC3
Anechoic Chamber	RIKEN	SIP-AC3	MRTSUE06782	1 year	2022-12-23	SIP-AC3
Anechoic Chamber	RIKEN	SIP-AC3	MRTSUE06782	1 year	2023-12-22	SIP-AC3
Loop Antenna	Schwarzbeck	FMZB 1519 B	MRTSUE06937	1 year	2023-03-14	SIP-AC3
Signal Analyzer	Keysight	N9010B	MRTSUE07028	1 year	2023-11-25	SIP-AC3
mmWave Antenna	MI-WWAVE	261U-25/383	MRTSUE06273	N/A	N/A	SIP-TR2
Signal Analyzer	Keysight	N9030B	MRTSUE06395	1 year	2023-07-08	SIP-TR2
Thermohygrometer	testo	608-H1	MRTSUE11109	1 year	2023-03-21	SIP-TR2

Software	Version	Function
EMI V3	V 3.0.0	EMI Test Software
Controller_MF 7802BS	1.02	RE Antenna & turntable
MotorContor	V 2	mmw

5. Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

AC Conducted Emission Measurement	
Measurement Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$):	
9kHz~150kHz: 3.58dB	
150kHz~30MHz: 3.20dB	
Radiated Emission Measurement	
Measurement Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$):	
Coaxial:	9kHz~30MHz: 2.59dB
Coplanar:	9kHz~30MHz: 2.60dB
Horizontal:	30MHz~200MHz: 3.85dB
	200MHz~1GHz: 4.36dB
	1GHz~40GHz: 4.98dB
	40GHz~50GHz: 3.96dB
	50GHz~75GHz: 4.01dB
	75GHz~110GHz: 3.99dB
Vertical:	30MHz~200MHz: 4.06dB
	200MHz~1GHz: 5.28dB
	1GHz~40GHz: 4.91dB
	40GHz~50GHz: 3.86dB
	50GHz~75GHz: 3.89dB
	75GHz~110GHz: 3.87dB

6. Test Result

6.1. Summary

FCC Part Section(s)	Test Description	Test Condition	Verdict
15.207	AC Conducted Emissions 150kHz - 30MHz	Line Conducted	N/A
15.209 15.249	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Radiated	Pass
15.215(c)	20dB Spectrum Bandwidth	Radiated	Pass

Notes:

1. The radiation measurements are performed in X, Y, Z axis positioning. The test results shown in the following sections represent the worst-case emissions.
2. The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
3. "N/A" means that this item is not applicable, and the detail information refer to relevant section.

6.2. AC Conducted Emissions Measurement

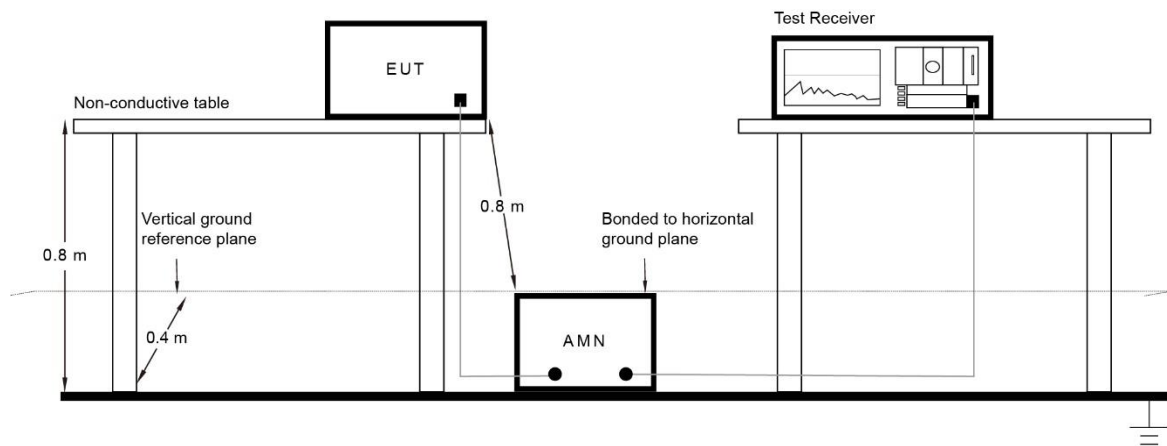
6.2.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dB μ V)	Average (dB μ V)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

6.2.2. Test Setup



6.2.3. Test Result

The EUT is powered by DC power supply, so this requirement does not apply.

6.3. Radiated Emission

6.3.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.249		
Fundamental Frequency (MHz)	Field Strength of Fundamental (mV/m)	Field Strength of Harmonics (μV/m)
902 ~ 928	50	500
2400 ~ 2483.5	50	500
5725 ~ 5875	50	500
24000 ~ 24250	250	2500
Note: FCC Part 15.249 (d), Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.		

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3
Note 1: The lower limit shall apply at the transition frequency.		
Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.		
Note 3: E field strength (dBμV/m) = 20 log E field strength (μV/m).		

6.3.2. Test Procedure

ANSI C63.10-2013 Section 6.3

ANSI C63.10-2013 Section 6.4

ANSI C63.10-2013 Section 6.5

ANSI C63.10-2013 Section 6.6

ANSI C63.10-2013 Section 9.10

Note: Far-field boundary calculation as below.

According to ANSI C63.10-2013, Clause 9, All measurements shall be made in the far-field of the measurement antenna. The far-field boundary for mm-wave antennas is $2D^2/\lambda$.

- For spurious and harmonic emissions testing, D is the largest antenna dimension of the measurement antenna in m;

For fundamental or out-of-band emissions, D is the largest antenna dimension of the EUT antenna or measurement antenna, whichever is largest.
- λ is the wavelength in m.

Far-field boundary calculation			
Frequency Range (GHz)	λ (m)	D (m)	$R_{(\text{Far Field})}$ (m)
24.00 ~ 24.25	0.012	0.096	1.536
40.00 ~ 50.00	0.006	0.046	0.705
50.00 ~ 75.00	0.004	0.036	0.648
75.00 ~ 100.00	0.003	0.026	0.451

For 24.00 ~ 24.25GHz, Our measurement is performed at a minimum distance of 3.0m > $R_{(\text{Far Field})}$.

For 40.00 ~ 50.00GHz, Our measurement is performed at a minimum distance of 1.0m > $R_{(\text{Far Field})}$.

For 50.00 ~ 100.00GHz, Our measurement is performed at a minimum distance of 0.75m > $R_{(\text{Far Field})}$.

6.3.3. Test Setting

Measurement of harmonic and spurious emissions above 40 GHz

1. Connect the test antenna covering the appropriate frequency range to a spectrum analyzer via an external mixer.
2. Set spectrum analyzer RBW = 1MHz, VBW = 3MHz, peak & average detector.
3. Maximize all observed emissions. Note the maximum power indicated on the spectrum analyzer. Adjust this reading, if necessary, by the conversion loss of the external mixer used at the frequency under investigation and the external mixer IF cable loss.
4. Calculate the maximum field strength of the emission at the measurement distance.

5. Calculate the power density at the distance specified by the limit from the field strength at the distance specified by the limit.
6. Repeat the preceding sequence for every emission observed in the frequency band under investigation.

Measurement of harmonic and spurious emissions below 40 GHz

Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in Table 1
3. VBW = 3 x RBW
4. Detector = Peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Table 1 - RBW as a function of frequency

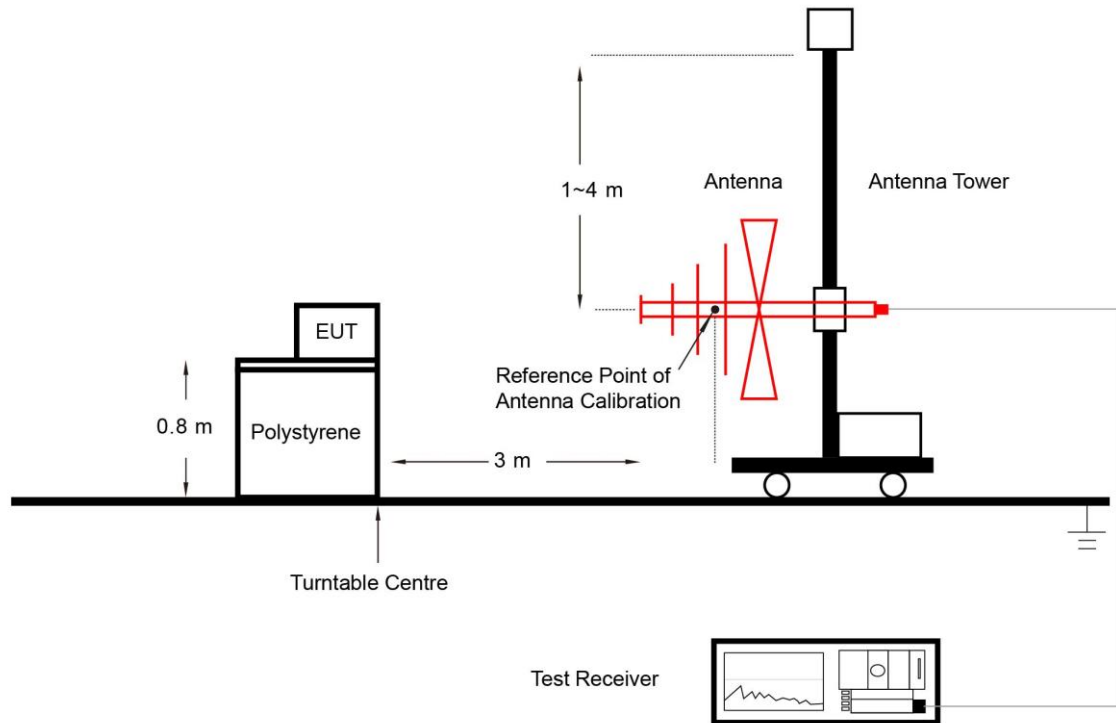
Frequency	RBW
9 ~ 150 kHz	200 Hz
0.15 ~ 30 MHz	9 kHz
30 ~ 1000 MHz	120 kHz
> 1000 MHz	1 MHz

Average Field Strength Measurements

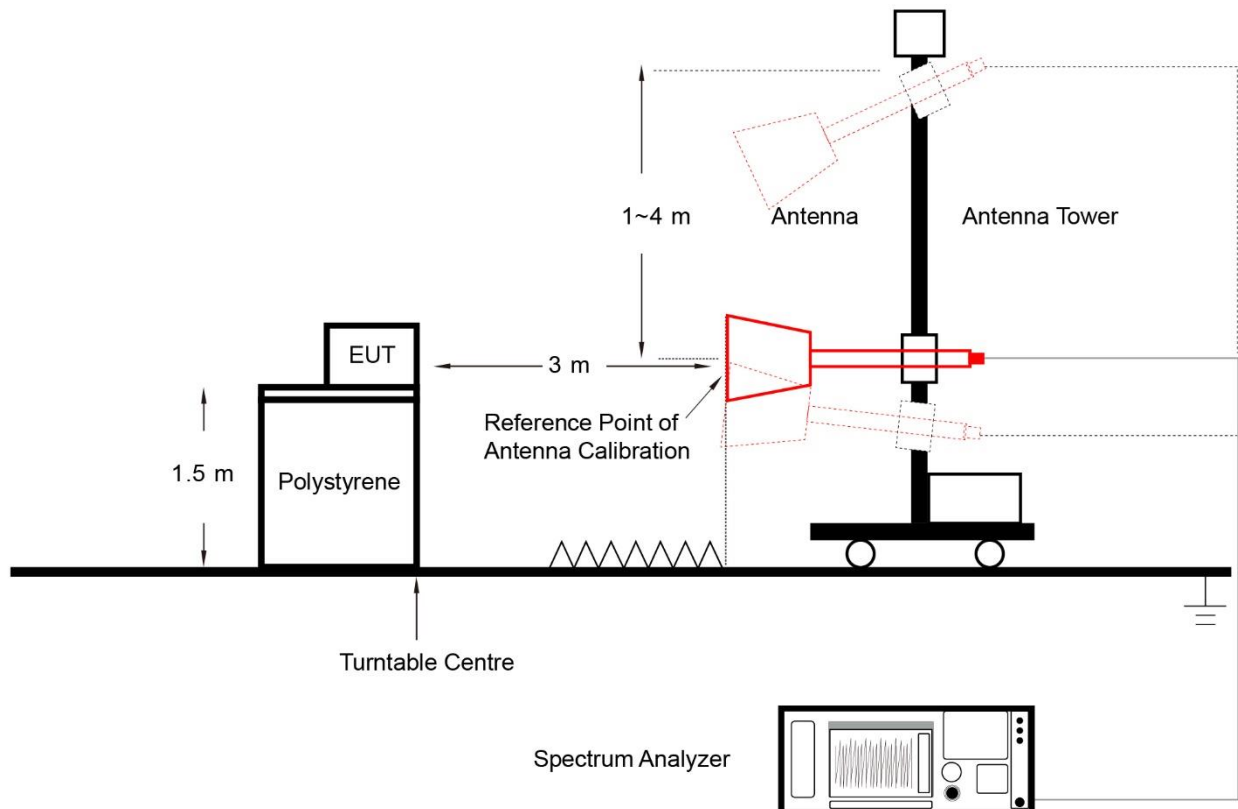
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW $\geq 1/T$
4. As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode
5. Detector = Peak
6. Sweep time = auto
7. Trace mode = max hold
8. Allow max hold to run for at least 50 times (1/duty cycle) traces

6.3.4. Test Setup

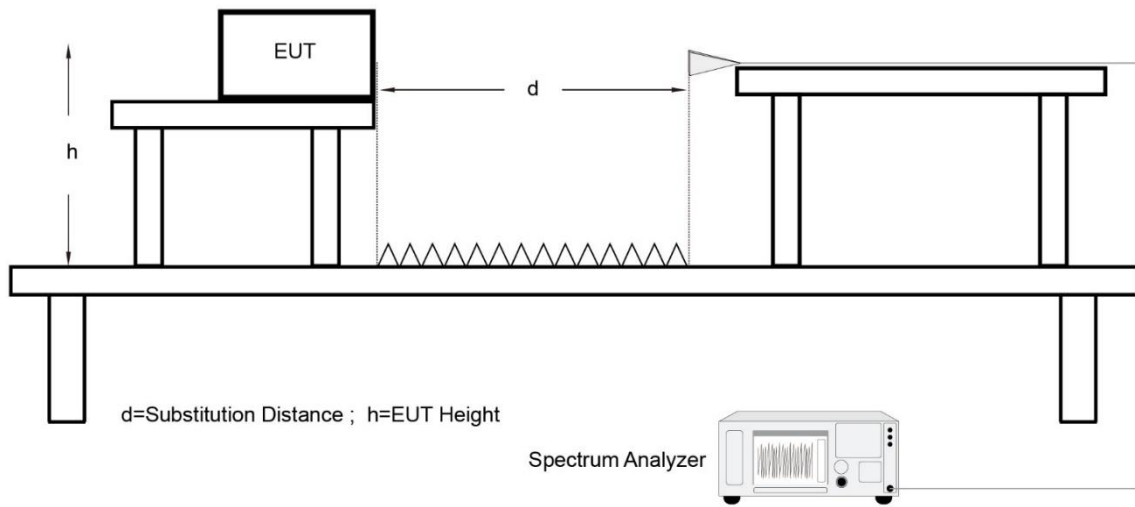
Below 1GHz Test Setup:



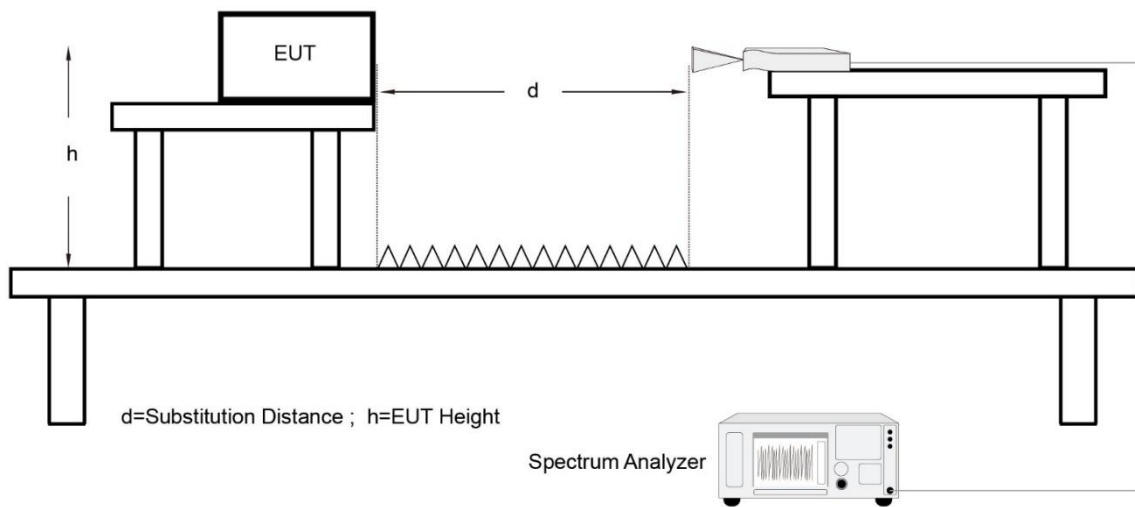
1GHz ~ 40GHz Test Setup:



40GHz ~ 50GHz Test Setup:



Above 50GHz Test Setup:



6.3.5. Test Result

Test Site	SIP-AC3	Test Date	2022-12-22
Test Engineer	Arvin Ding	Test Mode	Mode 1

Frequency Band (GHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level @3m (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Result
Fundamental Radiated Emission							
24.00 ~ 24.25	122.133	-9.577	112.556	127.959	-15.403	Peak	Pass
	104.856	-9.656	95.200	107.959	-12.759	Average	Pass

Notes:

- Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)
Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)
- The Vertical and Horizontal polarization were evaluated, only the worst-case test results are shown in the table.

Test Site	SIP-AC3	Test Date	2022-12-14
Test Engineer	Yien Qian	Test Mode	Mode 1

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Between 30MHz ~ 1GHz							
45.0	-1.1	18.0	16.9	40.0	-23.1	Peak	Horizontal
80.0	6.8	13.4	20.2	40.0	-19.8	Peak	Horizontal
114.9	2.2	15.3	17.5	43.5	-26.0	Peak	Horizontal
149.3	-0.8	18.1	17.3	43.5	-26.2	Peak	Horizontal
434.0	2.1	21.8	23.9	46.0	-22.1	Peak	Horizontal
938.9	1.1	29.9	31.0	46.0	-15.0	Peak	Horizontal
41.2	9.5	17.7	27.2	40.0	-12.8	Peak	Vertical
70.7	15.4	15.3	30.7	40.0	-9.3	Peak	Vertical
80.4	18.9	13.3	32.2	40.0	-7.8	Peak	Vertical
114.9	10.0	15.3	25.3	43.5	-18.2	Peak	Vertical
434.0	6.7	21.8	28.5	46.0	-17.5	Peak	Vertical
993.7	0.9	30.3	31.2	54.0	-22.8	Peak	Vertical

Note:

- Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)
Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)
- The amplitude of radiated emissions (frequency range from 9kHz to 30MHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.
- QP measurement was not performed when peak measure level was lower than the QP limit.

Test Site	SIP-AC3	Test Date	2022-12-13 ~ 2022-12-14
Test Engineer	Yien Qian	Test Mode	Mode 1

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Between 1GHz ~ 40GHz							
8386.5	48.6	-4.0	44.6	74.0	-29.4	Peak	Horizontal
11123.5	49.2	-2.6	46.6	74.0	-27.4	Peak	Horizontal
15645.5	45.2	4.1	49.3	74.0	-24.7	Peak	Horizontal
8403.5	47.9	-4.0	43.9	74.0	-30.1	Peak	Vertical
11072.5	47.8	-2.8	45.0	74.0	-29.0	Peak	Vertical
15713.5	44.8	4.1	48.9	74.0	-25.1	Peak	Vertical
33939.0	59.9	-6.3	53.6	74.0	-20.4	Peak	Horizontal
33939.0	46.1	-6.3	39.8	54.0	-14.2	Average	Horizontal
36436.0	57.2	-4.3	52.9	74.0	-21.1	Peak	Horizontal
36436.0	48.1	-4.3	43.8	54.0	-10.2	Average	Horizontal
39274.0	54.1	0.5	54.6	74.0	-19.4	Peak	Horizontal
39274.0	45.3	0.5	45.8	54.0	-8.2	Average	Horizontal
36293.0	57.6	-4.0	53.6	74.0	-20.4	Peak	Vertical
36293.0	46.3	-4.0	42.3	54.0	-11.7	Average	Vertical
37954.0	56.2	-2.1	54.1	74.0	-19.9	Peak	Vertical
37954.0	45.2	-2.1	43.1	54.0	-10.9	Average	Vertical
39285.0	54.5	0.5	55.0	74.0	-19.0	Peak	Vertical
39285.0	45.2	0.5	45.7	54.0	-8.3	Average	Vertical

Notes:

- Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)
Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre-Amplifier Gain (dB)
- Average measurement was not performed when the peak level lower than average limit.

Test Site	SIP-TR2	Test Date	2023-02-13
Test Engineer	Chase Zhu	Test Mode	Mode 1

Frequency (GHz)	Measure Level @1m (dBμV/m)	Measure Level @3m (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)	Detector	Result	Polarity
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Between 40 ~ 50GHz

48.370	78.910	69.368	88.000	-18.632	Peak	Pass	Horizontal
48.122	56.794	47.252	68.000	-20.748	Average	Pass	Horizontal
48.389	74.680	65.138	88.000	-22.862	Peak	Pass	Vertical
49.143	53.885	44.343	68.000	-23.657	Average	Pass	Vertical

Notes:

1. Measure Level @3m = Measure Level @1.0m + 20 * log(1.0m / 3m)
2. The distance of testing is 1m.

Test Site	SIP-TR2	Test Date	2023-02-13
Test Engineer	Chase Zhu	Test Mode	Mode 1

Frequency (GHz)	Measure Level @0.75m (dBμV/m)	Measure Level @3m (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)	Detector	Result	Polarity
Above 50GHz							
72.418	89.890	77.849	88.000	-10.151	Peak	Pass	Horizontal
72.418	62.687	50.646	68.000	-17.354	Average	Pass	Horizontal
72.418	71.190	59.149	88.000	-28.851	Peak	Pass	Vertical
72.418	62.900	50.859	68.000	-17.141	Average	Pass	Vertical
96.261	84.330	72.289	88.000	-15.711	Peak	Pass	Horizontal
96.261	69.409	57.368	68.000	-10.632	Average	Pass	Horizontal
96.261	78.080	66.039	88.000	-21.961	Peak	Pass	Vertical
96.261	69.777	57.736	68.000	-10.264	Average	Pass	Vertical

Notes:

1. Measure Level @3m = Measure Level @0.75m + 20 * log(0.75m / 3m)
2. The distance of testing is 0.75m.

6.4. Radiated Restricted Band Edge Measurement

6.4.1. Test Limit

For 15.205 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (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	--	--	--

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [$\mu\text{V}/\text{m}$]	Measured Distance [Meter]
0.009 ~ 0.490	2400/F (kHz)	300
0.490 ~ 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

6.4.2. Test Procedure

ANSI C63.10-2013 Section 6.3

ANSI C63.10-2013 Section 6.6

ANSI C63.10-2013 Section 6.10

6.4.3. Test Setting

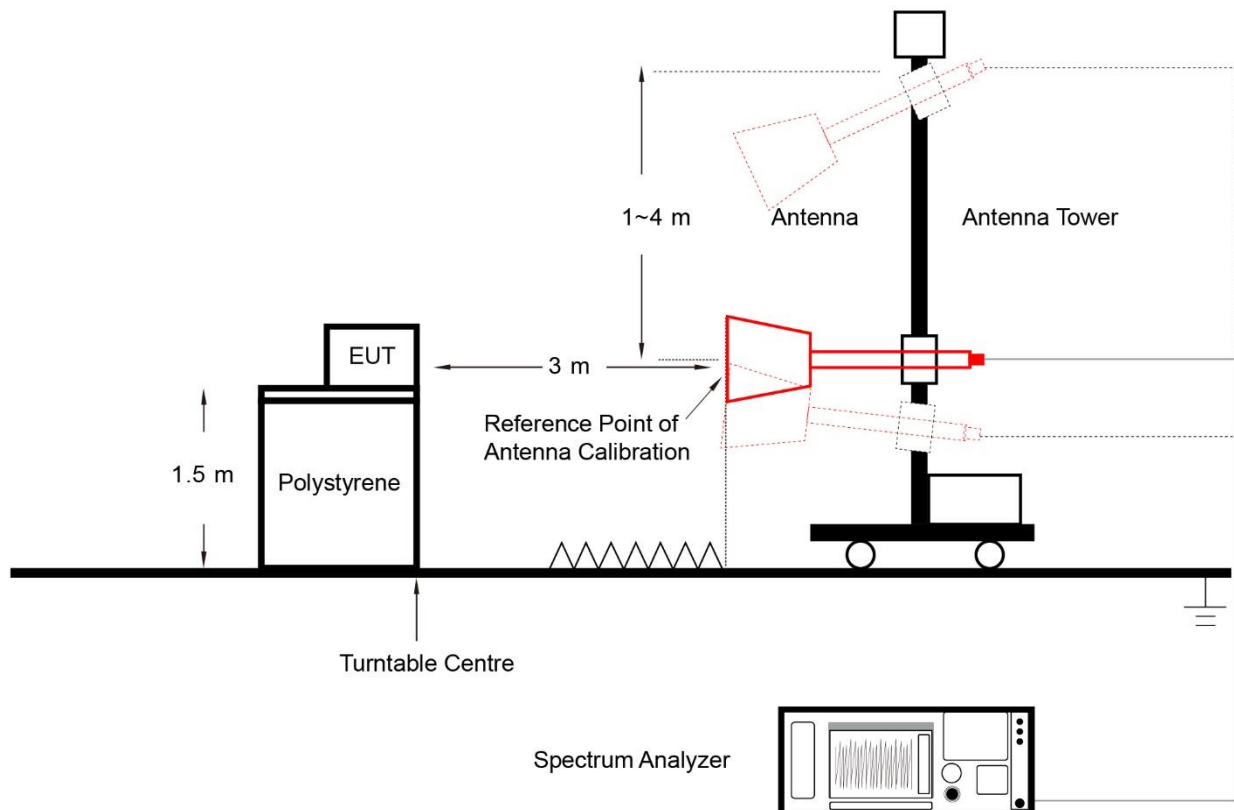
Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Field Strength Measurements

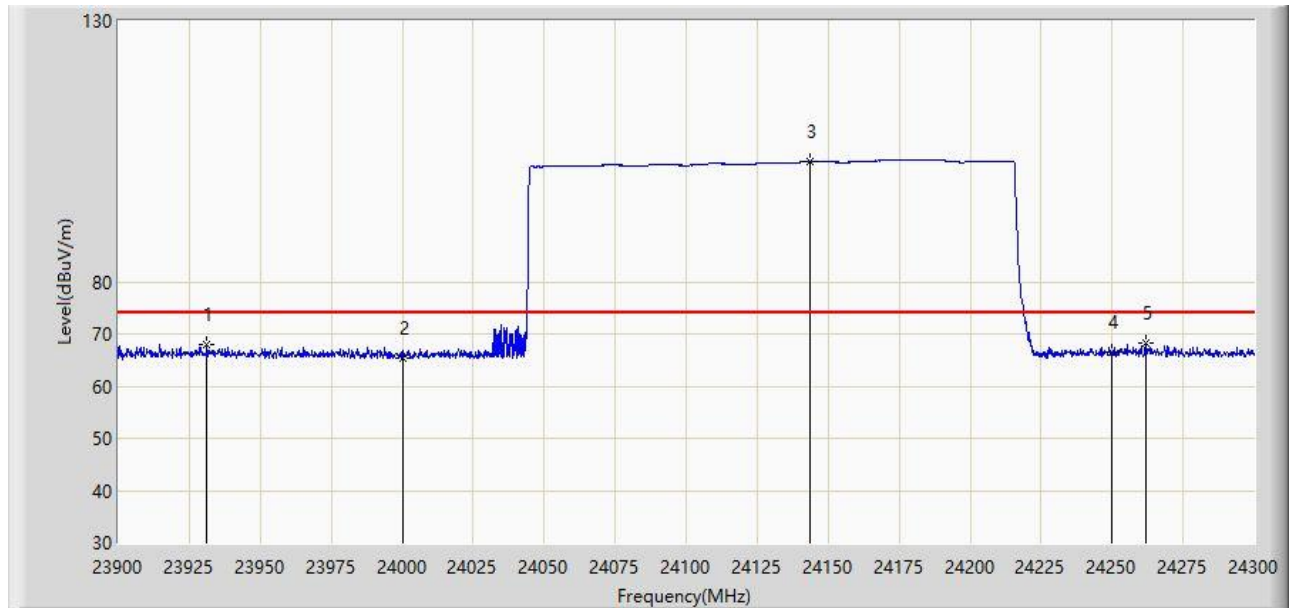
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW $\geq 1/T$
4. As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode
5. Detector = Peak
6. Sweep time = auto
7. Trace mode = max hold
8. Allow max hold to run for at least 50 times (1/duty cycle) traces

6.4.4. Test Setup



6.4.5. Test Result

Site: SIP-AC3	Test Date: 2023-02-09
Limit: FCC Part15.249_RSE(3m)	Engineer: Mero Zhou
Probe: BBHA 9170_00935_18-40GHz	Polarity: Horizontal
EUT: Intelligent Toilet	Power: DC 5V
Test Mode: Transmit at 24G	



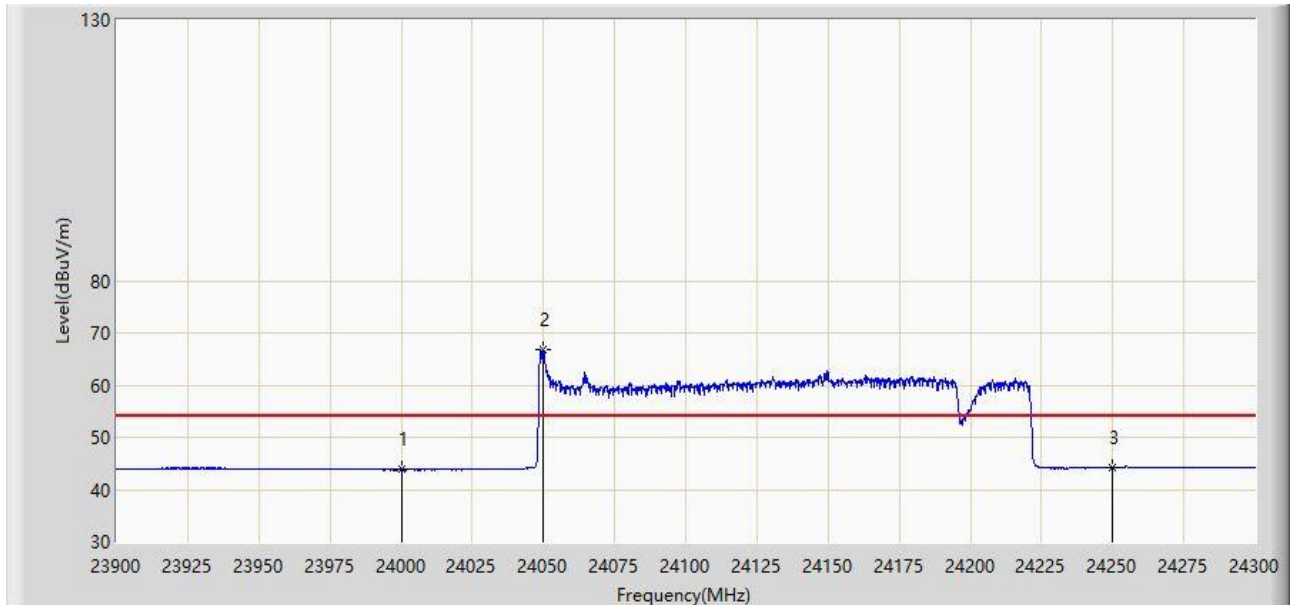
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		23931.199	68.105	76.613	-5.895	74.000	-8.508	PK
2		24000.000	65.417	74.180	-8.583	74.000	-8.763	PK
3		24143.600	103.137	111.689	N/A	N/A	-8.552	PK
4		24250.000	66.634	74.991	-7.366	74.000	-8.356	PK
5	*	24261.801	68.297	76.616	-5.703	74.000	-8.319	PK

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: SIP-AC3	Test Date: 2023-02-09
Limit: FCC Part15.249_RSE(3m)	Engineer: Mero Zhou
Probe: BBHA 9170_00935_18-40GHz	Polarity: Horizontal
EUT: Intelligent Toilet	Power: DC 5V
Test Mode: Transmit at 24G	



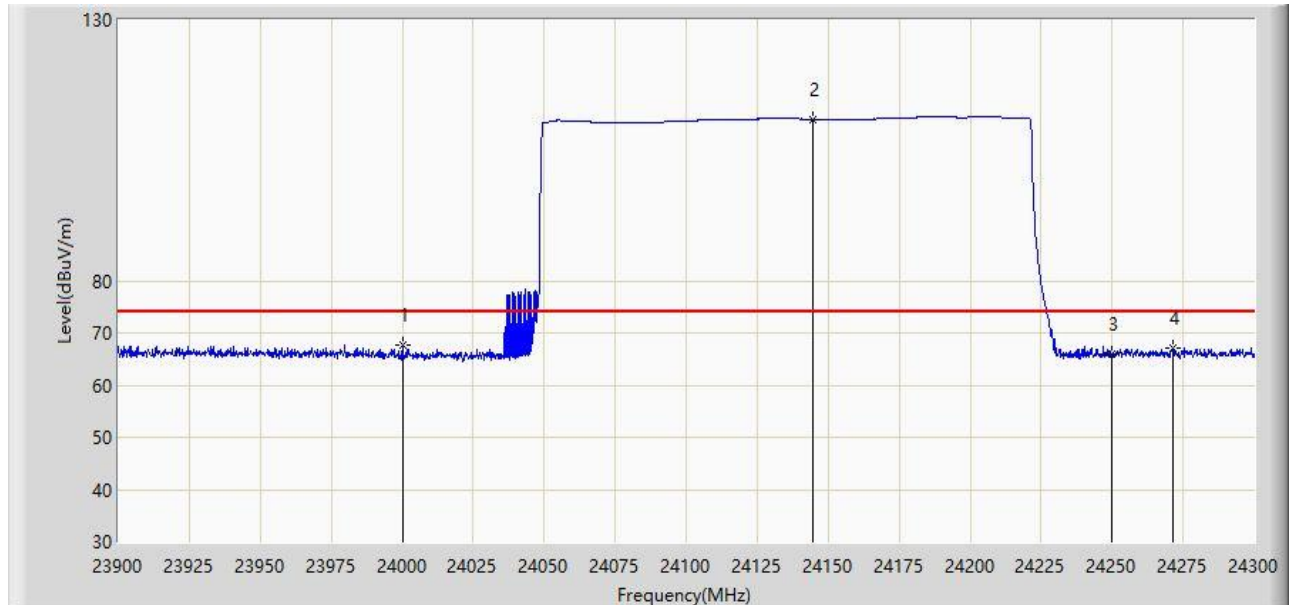
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		24000.000	43.796	52.559	-10.204	54.000	-8.763	AV
2		24050.000	66.796	75.397	N/A	N/A	-8.601	AV
3	*	24250.000	44.199	52.556	-9.801	54.000	-8.356	AV

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: SIP-AC3	Test Date: 2023-02-09
Limit: FCC Part15.249_RSE(3m)	Engineer: Mero Zhou
Probe: BBHA 9170_00935_18-40GHz	Polarity: Vertical
EUT: Intelligent Toilet	Power: DC 5V
Test Mode: Transmit at 24G	



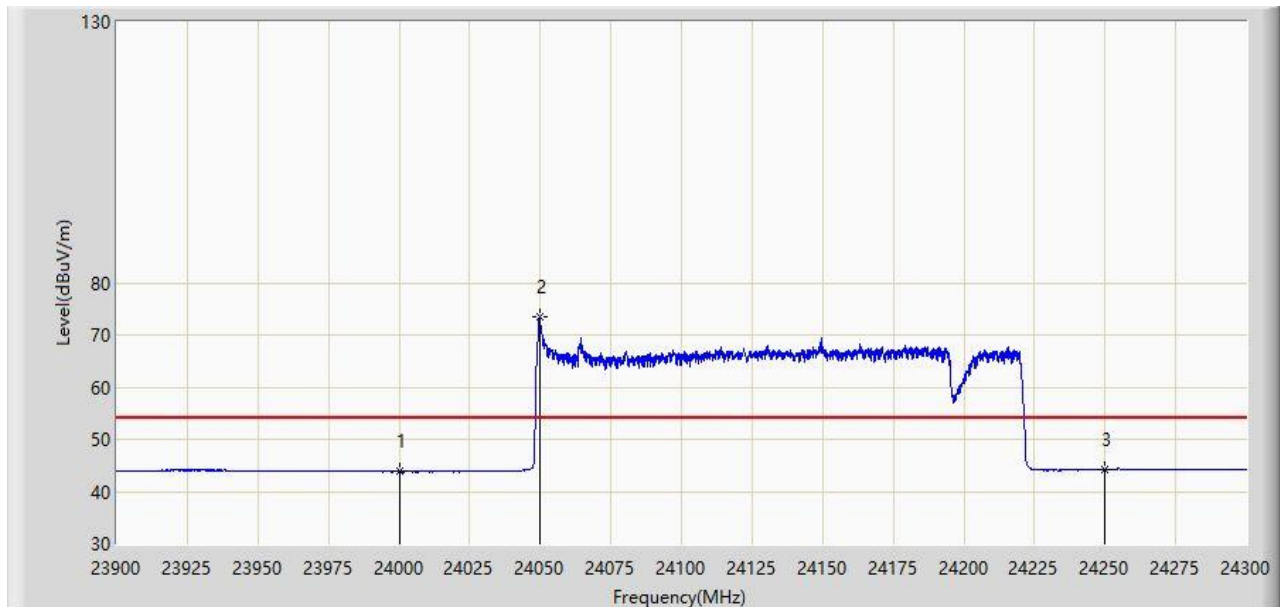
No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1	*	24000.000	67.796	76.559	-6.204	74.000	-8.763	PK
2		24144.801	110.933	119.477	N/A	N/A	-8.545	PK
3		24250.000	65.877	74.234	-8.123	74.000	-8.356	PK
4		24271.600	67.050	75.342	-6.950	74.000	-8.292	PK

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: SIP-AC3	Test Date: 2023-02-09
Limit: FCC Part15.249_RSE(3m)	Engineer: Mero Zhou
Probe: BBHA 9170_00935_18-40GHz	Polarity: Vertical
EUT: Intelligent Toilet	Power: DC 5V
Test Mode: Transmit at 24G	



No	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		24000.000	43.796	52.559	-10.204	54.000	-8.763	AV
2		24049.801	73.431	82.033	N/A	N/A	-8.602	AV
3	*	24250.000	44.256	52.613	-9.744	54.000	-8.356	AV

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

6.5. 20dB Spectrum Bandwidth Measurement

6.5.1. Test Limit

Intentional radiators must be designed to ensure that the 20 dB bandwidth of the emission in the specific band.

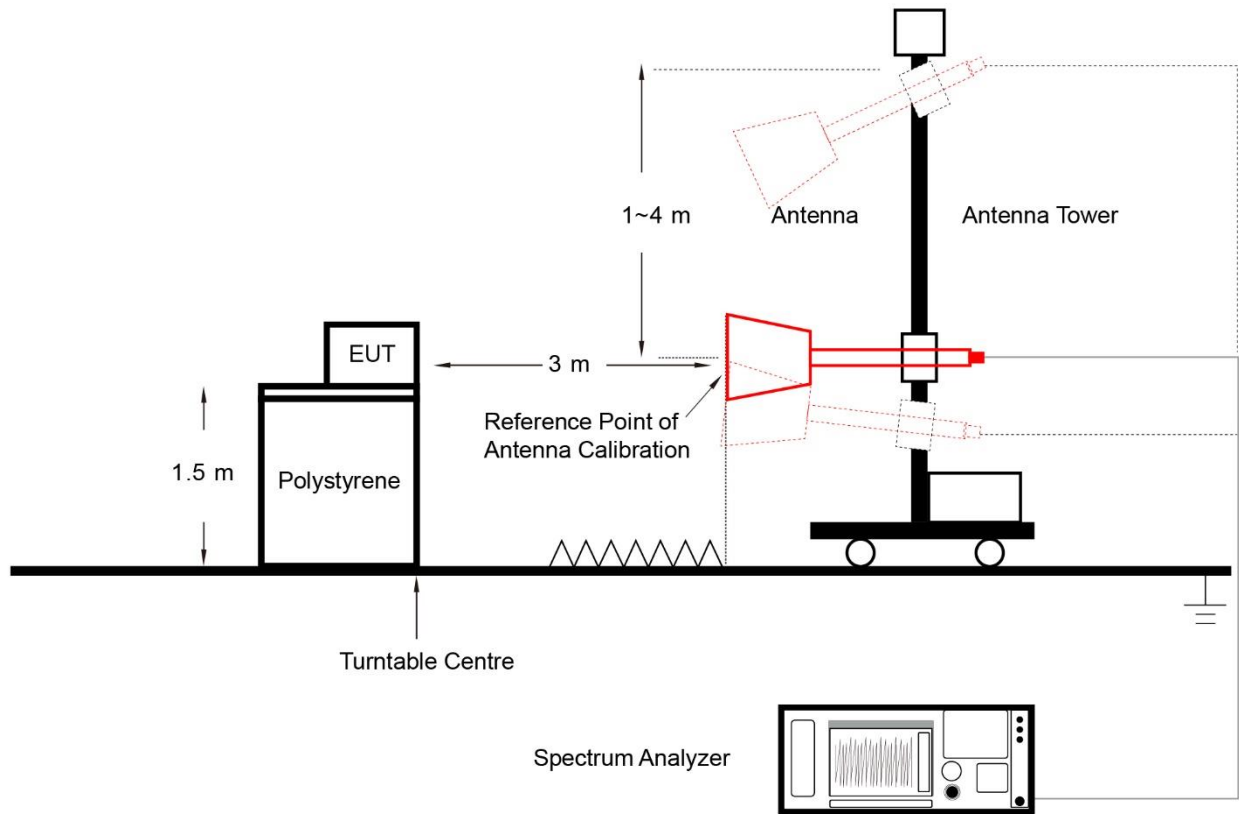
6.5.2. Test Procedure

ANSI C63.10-2013 Clause 6.9.2

6.5.3. Test Setting

1. Set the spectrum span range to overlap the nominal center frequency
2. Set RBW = 1% ~ 5% of the OBW
3. $VBW \geq 3 \times RBW$
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. Allow the trace to stabilize and marker the highest level
8. Use Occupied BW function to determine two frequencies, one at the lowest frequency and the other at the highest frequency

6.5.4. Test Setup



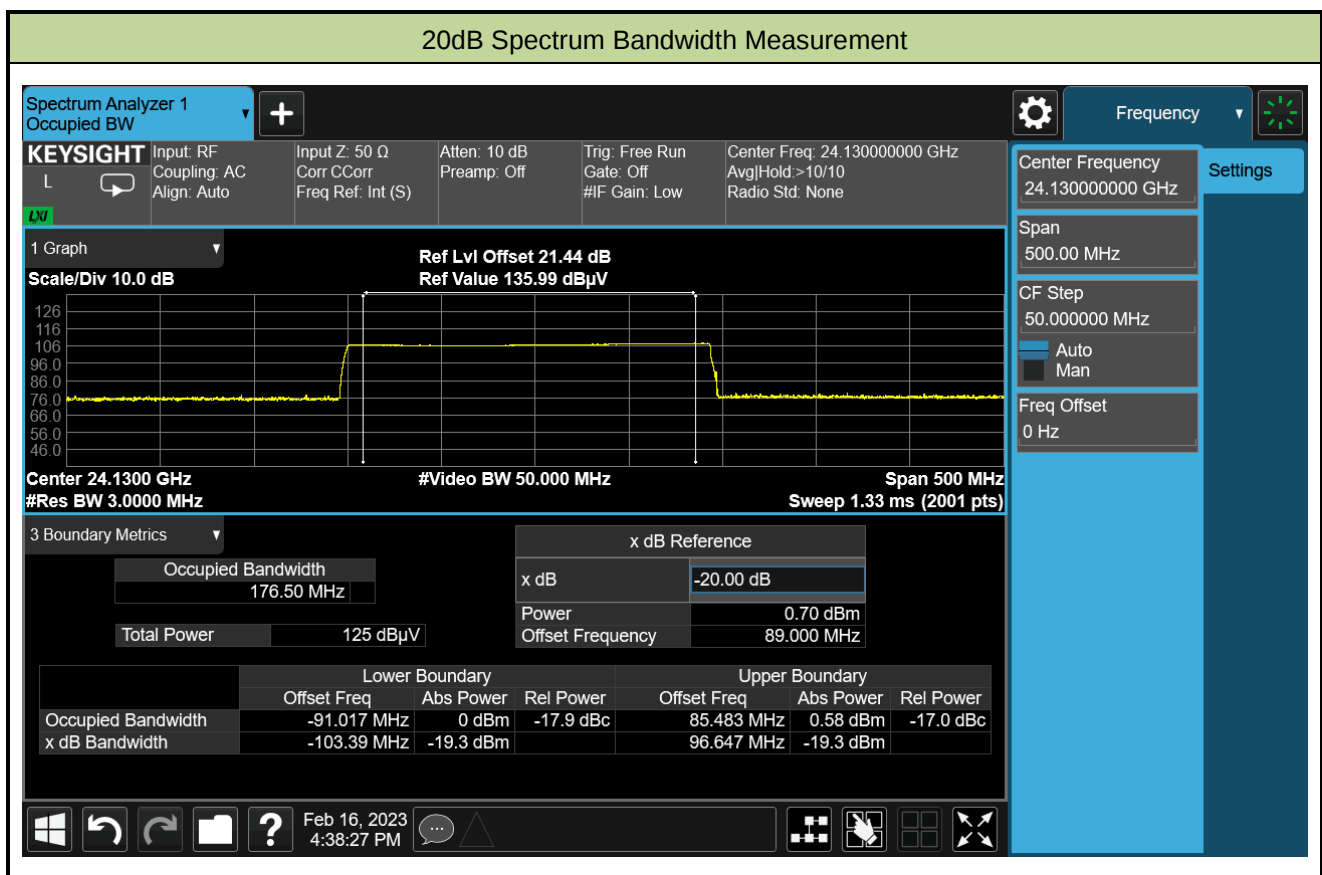
6.5.5. Test Result

Test Site	SIP-AC3	Test Date	2023-02-16
Test Engineer	Mero Zhou		

20dB Bandwidth (MHz)	F _L (MHz)	F _L Limit (MHz)	F _H (MHz)	F _H Limit (MHz)	Result
200.037	24026.61	≥ 24000	24226.647	≤ 24250	Pass

Note: Low Frequency (F_L) = Center Frequency + Lower Boundary;

High Frequency (F_H) = Center Frequency + Upper Boundary



Appendix A - Test Setup Photograph

Refer to “2212RSU029-UT” file.

Appendix B - EUT Photograph

Refer to “2212RSU029-UE” file.