



FCC RADIO TEST REPORT

FCC ID : 2A5R6VF060-F2
Equipment : Perimeter Surveillance Terminal
Model Name : VF060-F2, VF060-F1, TXPW60-6/8F, TXPW60-6/4F, RA60, TXPR60
Applicant : AXEND, Inc.
2637 Manhattan Beach Blvd, Redondo Beach, CA 90278, USA
Manufacturer : AXEND, Inc.
2637 Manhattan Beach Blvd, Redondo Beach, CA 90278, USA
Standard : FCC 47 CFR Part 15.255

The product was received on May 13, 2026 and testing was performed from Jun. 01, 2026 to Aug. 14, 2026. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. Wensan Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. Wensan Laboratory

No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)



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History of this test report

Report No.	Version	Description	Issue Date
FR650103	01	Initial issue of report	Jul. 22, 2026
FR650103	02	Update the version of Applied Standard in section 1.4 Update the test plot and test result in section 3.4 Revise the test procedure in section 3.4.3 Update List of Measuring Equipment Add test distance in Appendix B This report is an updated version, replacing the report issued on Jul. 22, 2026.	Aug. 18, 2026

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Limit	Result (PASS/FAIL)
3.4	§15.215(c)(2)(v)	Occupied Bandwidth	Within 61 ~ 61.5 GHz	Pass
3.5	§15.255(c)(2)(v)	EIRP Power	EIRP: Within 61 ~ 61.5 GHz - 43 dBm @ Peak Power - 40 dBm @ Average Power EIRP: Outside 61 ~ 61.5 GHz, but within 57 ~ 71 GHz - 13 dBm @ Peak Power - 10 dBm @ Average Power	Pass
3.6	§15.255(d)	Transmitter Spurious Emissions	Below 40GHz refer to 15.209 Above 40GHz: 90 pW/cm ² @ 3 m	Pass
3.7	§15.215(c)(2)(v) §15.255(f)	Frequency Stability for Temperature & Voltage	Within 61 ~ 61.5 GHz	Pass
4	§15.207	AC Power Conducted Emission	§15.207	Pass

Conformity Assessment Condition:

- The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
- The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

Disclaimer:

- The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.
- The purpose of different model name is for different sales territories. All the tests were performed with VF060-F2.

Reviewed by: Steve Chen

Report Producer: Dara Chiu

1 General Description

1.1 Feature of Equipment Under Test

Product Feature
General Specs 60GHz
Antenna Type 60GHz: Patch array antenna

Antenna information		
61.0 GHz ~ 61.5 GHz	Peak Gain (dBi)	12.12 dBi

Remark: The EUT's information above is declared by manufacturer. Please refer to Disclaimer in report summary.

1.2 Modification of EUT

No modifications are made to the EUT during all test items.

1.3 Testing Location

The test location is accredited based on TAF code 1190 and 3786 designated by NCC (National Communication Commission).

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)

FCC designation No.: TW1190 and TW3786

Note:

1. The test site complies with ANSI C63.4 2014 requirement.
2. The AC Conducted Emission test item subcontracted to Sporton International Inc. EMC & Wireless Communications Laboratory (TAF Code: 1190).

1.4 Applied Standards

- ♦ FCC 47 CFR Part 2, 15.255
- ♦ KDB 364244 D01 v01r01
- ♦ ANSI C63.10-2020 + Cor.1-2023

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

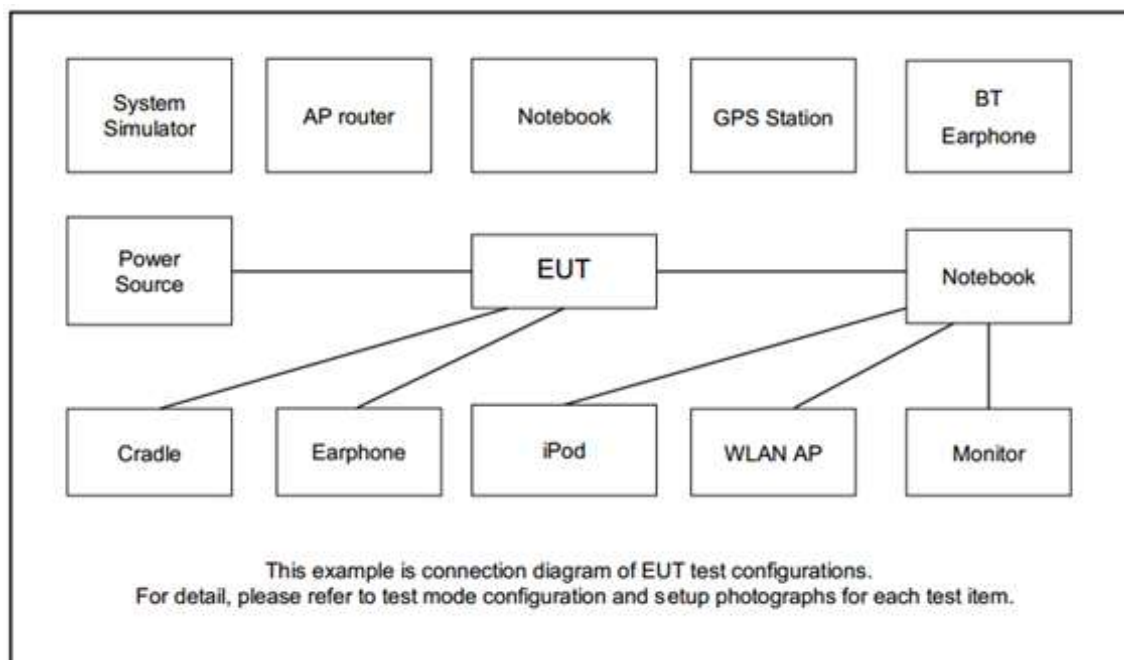
2 Test Configuration of Equipment Under Test

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and find Y plane as worst plane.
- b. AC power line Conducted Emission was tested under maximum output power.

2.1 Test Mode

Frequency (GHz)	Modulation
61.0 ~ 61.5	FMCW
Test Cases	
AC Conducted Emission	Mode 1: 60G TX + Charging from AC adapter

2.2 Connection Diagram of Test System



2.3 Far Field Condition for Frequency above 18GHz

Horn Antenna	Frequency (GHz)	Antenna Dimension A (mm)	Wavelength (λ) (m)	Far field R (m) $\geq 2A^2 / \lambda$	Measurement Distance (D) (m)
BBHA 9170	18	60	0.0167	0.43	1
	40	60	0.0075	0.96	
QWH-UPRR00	40	48	0.0075	0.61	0.87
	57	48	0.0053	0.87	
QWH-VPRR00 (OOB test)	57	38	0.0053	0.54	0.62
	61	38	0.0053	0.58	
QWH-VPRR00 (Fundamental test)	61	38	0.0053	0.58	0.62
	61.5	38	0.0046	0.62	
QWH-VPRR00 (OOB test)	61.5	38	0.0046	0.62	0.68
	71	38	0.0042	0.67	
QWH-EPRR00	71	31	0.0042	0.46	0.6
	90	31	0.0033	0.60	
QWH-FPRR00	90	21	0.0033	0.26	0.43
	140	21	0.0021	0.42	
QWH-GPRR00	140	14	0.0021	0.18	0.27
	200	14	0.0015	0.26	

Note:

1. The measurement distance may be far than the measurement distance above.
2. $\lambda = [300/f \text{ MHz}]$, in m ; This table only keeps the rounding to four decimal places to reference.

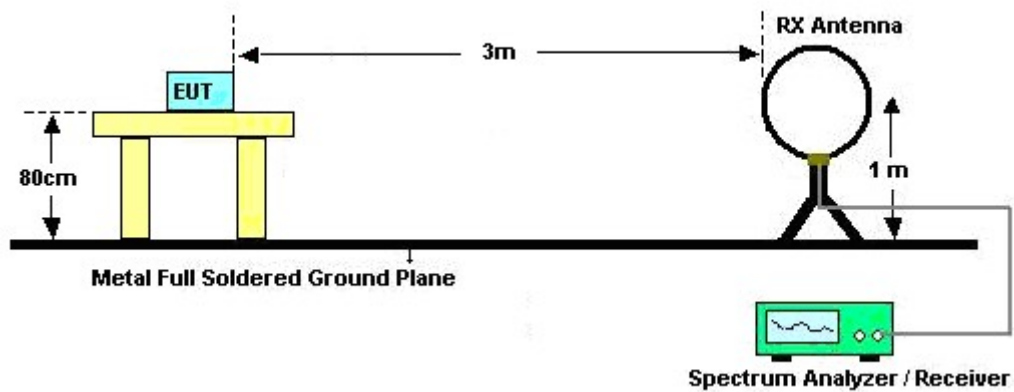
3 Radiated Test Items

3.1 Measuring Instruments

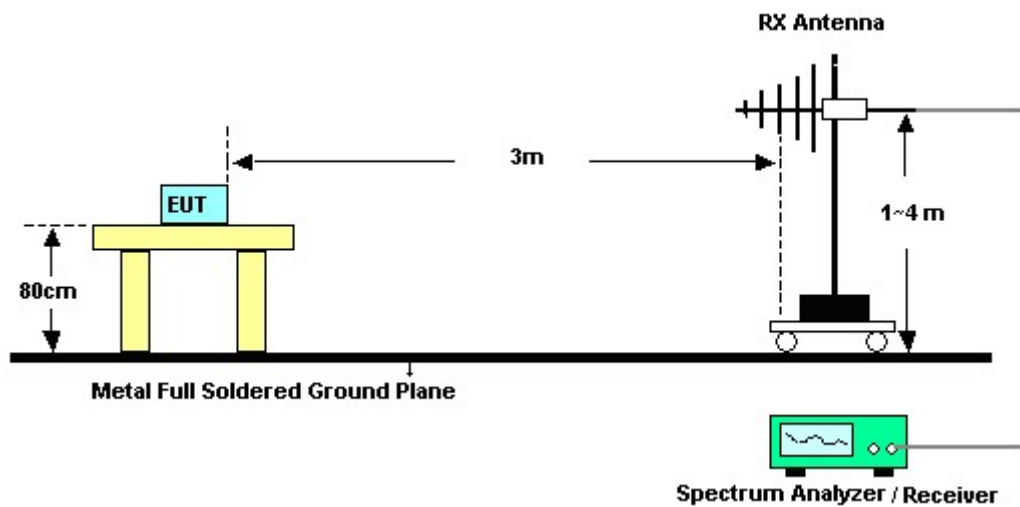
See list of measuring instruments of this test report.

3.2 Test Setup

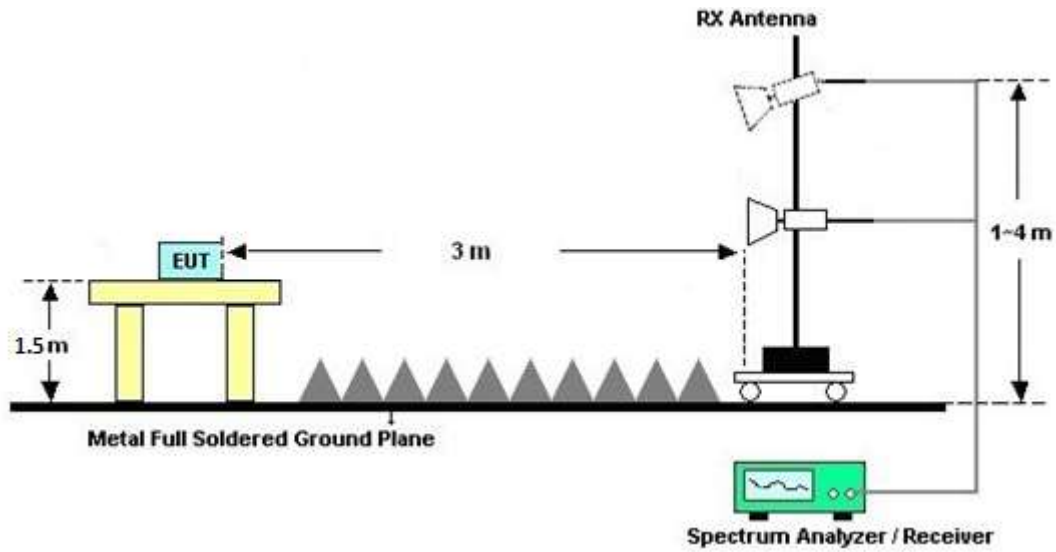
For radiated emissions from 9kHz to 30MHz



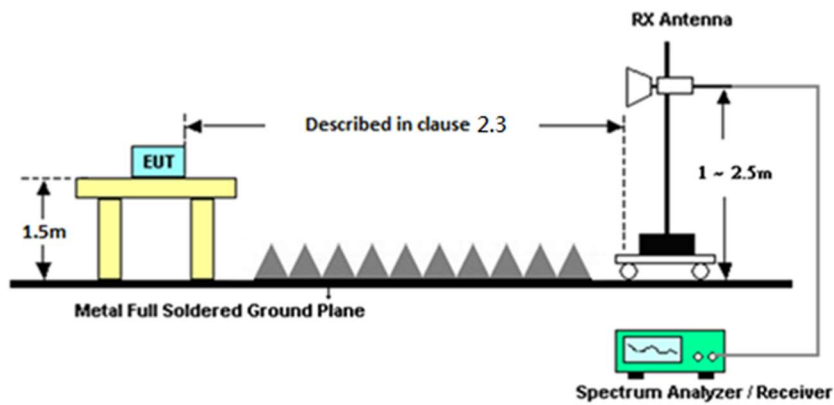
For radiated emissions from 30MHz to 1GHz



For radiated emissions 1GHz to 18GHz



For radiated emissions above 18GHz



3.3 Test Result of Radiated Test

Please refer to Clause 3.6.



3.4 Occupied Bandwidth

3.4.1 Limit of Emission Bandwidth Measurement

The 99% Occupied Bandwidth should be 500 MHz or less and contained wholly within the frequency band 61.0-61.5 GHz.

3.4.2 Measuring Instruments

See list of measuring equipment of this test report.

3.4.3 Test Procedures

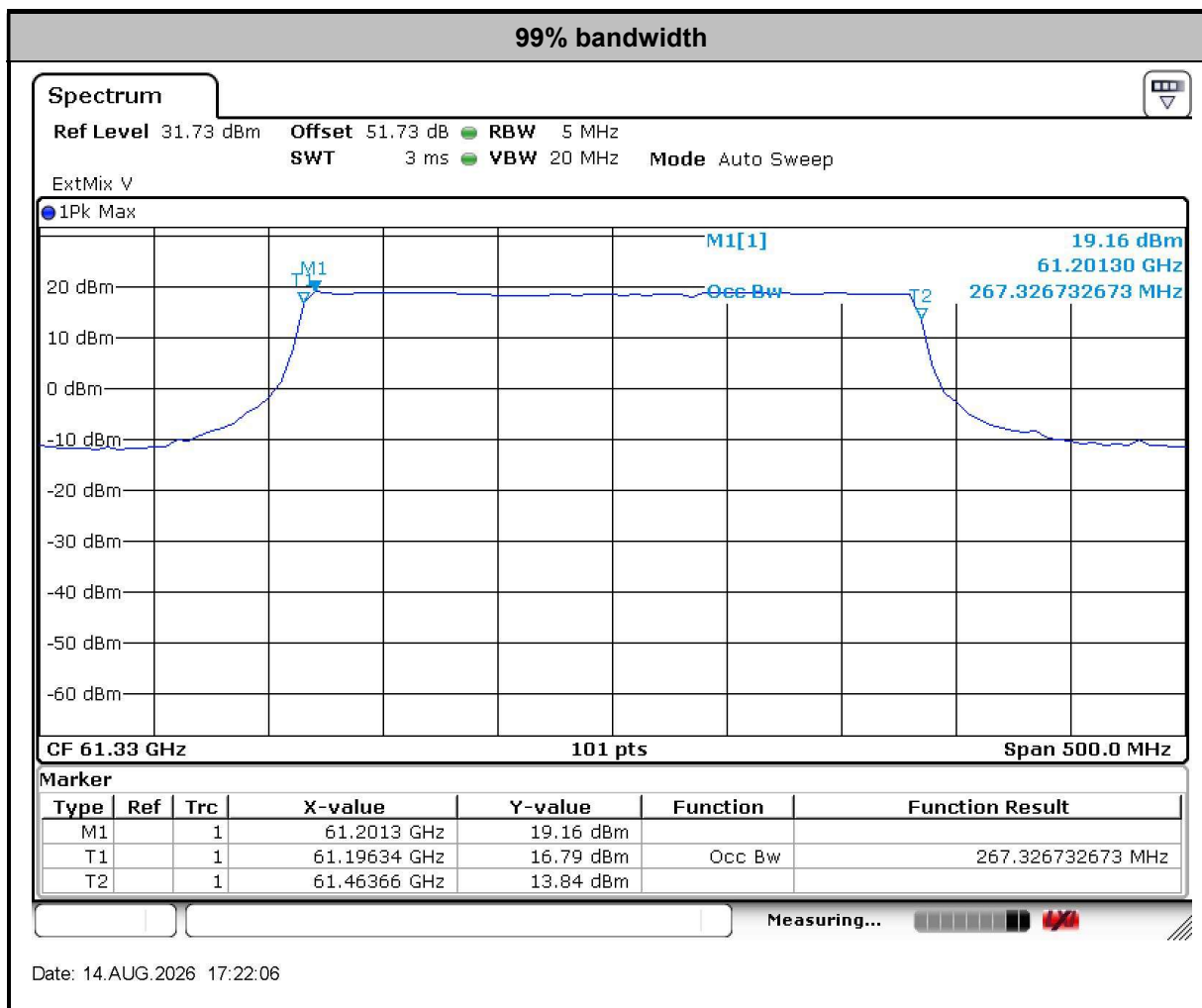
1. The testing follows ANSI C63.10 Section 9.3 and 9.4.
2. Set the maximum power setting.
3. The EUT is placed on a turntable with 1.6 meter respectively above ground.
4. The EUT is set 0.62 meters away from the receiving antenna, which is mounted on the top of a variable height antenna tower.
5. Use 50-75 GHz receiver antenna, mixer and spectrum analyzer.
6. The EUT is arranged to its worst case and then tune the antenna tower and turntable (from 0 degree to 360 degrees) to find the maximum reading.
7. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set to a value between 1 MHz to 5% of the signal bandwidth and Video bandwidth (VBW) is set 3 times of the RBW.
8. Measure and record the results in the test report.

3.4.4 Test Results

Temperature	20 ~25 °C	Relative Humidity	50 ~60 %
Test Engineer	Eric Jeng		
99% Occupied Bandwidth (MHz)		Limit (MHz)	Result
267.33		≤ 500	Pass
Lower Frequency (GHz)		Limit (GHz)	Result
61.196		≥ 61	Pass
Upper Frequency (GHz)		Limit (GHz)	Result
61.464		≤ 61.5	Pass



3.4.5 Test Plots





3.5 EIRP Power Measurement

3.5.1 Limit of EIRP Power Measurement

Field disturbance sensors/radars shall not exceed -10 dBm peak conducted output power and 10 dBm peak EIRP except that field disturbance sensors/radars that limit their operation to all or part of the specified frequency band may operate without being subject to a transmitter conducted output power limit if they operate in compliance with one or more of the provisions below:

61.0-61.5 GHz: For field disturbance sensors/radars that occupy 500 MHz bandwidth or less that are contained wholly within the frequency band 61.0-61.5 GHz, the average power of any emission, measured during the transmit interval, shall not exceed 40 dBm, and the peak power of any emission shall not exceed 43 dBm. In addition, the average power of any emission outside of the 61.0-61.5 GHz band, measured during the transmit interval, but still within the 57-71 GHz band, shall not exceed 10 dBm, and the peak power of any emission shall not exceed 13 dBm.

3.5.2 Measuring Instruments

See list of measuring equipment of this test report.

3.5.3 Test Procedures

1. The testing follows ANSI C63.10 Section 9.8.
2. Set the maximum power setting.
3. The EUT is placed on a turntable with 1.6 meter respectively above ground.
4. The EUT is set 0.62 meters away from the receiving antenna, which is mounted on the top of a variable height antenna tower.
5. Use 50-75 GHz receiver antenna, mixer and spectrum analyzer.
6. The EUT is arranged to its worst case and then tune the antenna tower and turntable (from 0 degree to 360 degrees) to find the maximum reading.
7. The spectrum analyzer's resolution bandwidth (RBW) is set 1 MHz and Video bandwidth (VBW) is set 3 MHz.
8. Use mark Peak function to check result.
9. Measure and record the results in the test report.



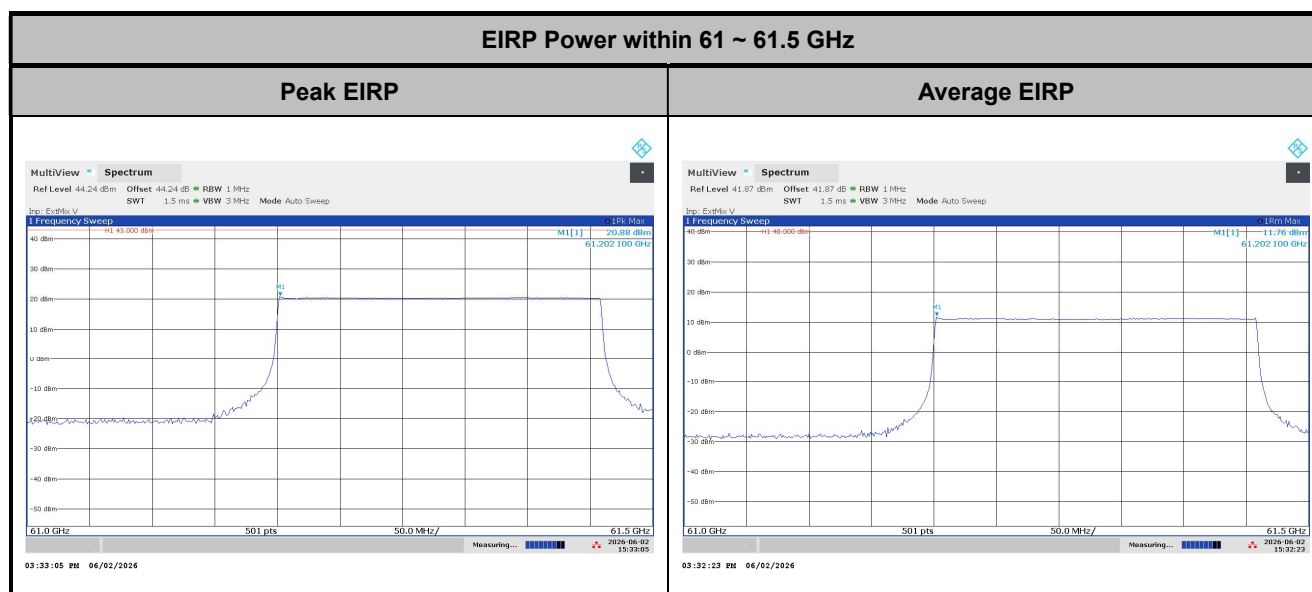
3.5.4 Test Results

Temperature		20 ~25 °C	Relative Humidity		50 ~60 %	
Test Engineer		Eric Jeng				
EIRP Power within 61 ~ 61.5 GHz						
Measurement	Measure Dist. (m)	Measure Ant Gain (dBi)	EIRP (dBm)	Limit (dBm)	Result	
Peak EIRP	0.62	22.7	20.88	43	PASS	
Average EIRP	0.62	22.7	11.76	40	PASS	
EIRP Power Outside 61 ~ 61.5 GHz but within 57 ~ 71 GHz						
Measurement	Measure Dist. (m)	Measure Ant Gain (dBi)	EIRP (dBm)	Limit (dBm)	Result	
Peak EIRP	0.68	22.7	-17.62	13	PASS	
Average EIRP	0.68	22.7	-41.80	10	PASS	

Note: Total path loss (dB) = Air loss - Measure Ant Gain (dBi) + Cable loss(dB) + Desensitization factor(dB)

Ex: Total path loss (dB) = 64.07 (dB) - 22.7 (dBi) + 0.5 (dB) + 2.37 (dB) = 44.24 (dB)

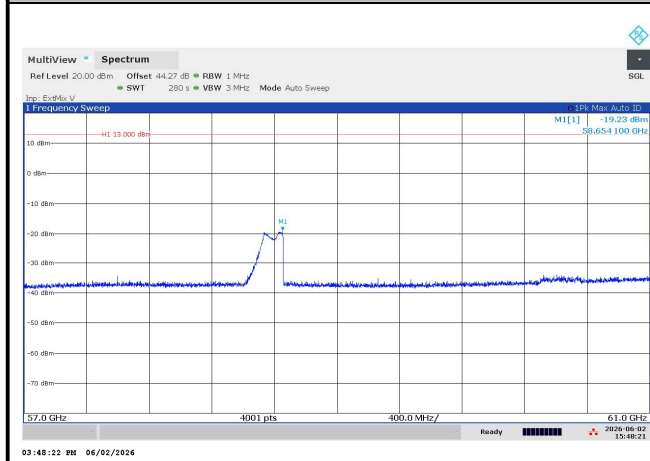
3.5.5 Test Plots





EIRP Power Outside 61 ~ 61.5 GHz but within 57 ~ 71 GHz

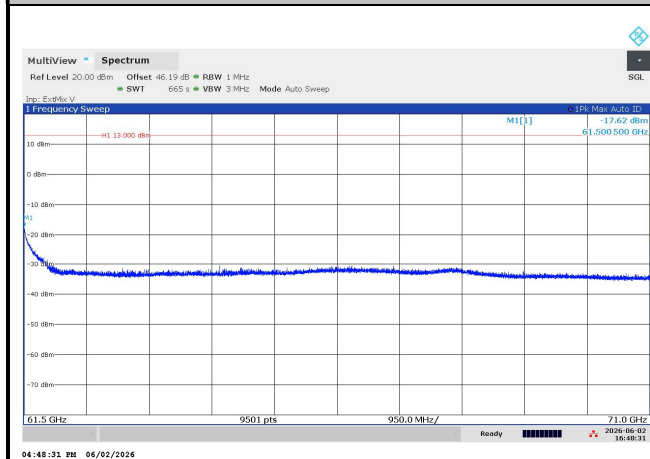
Peak EIRP - 57 ~ 61 GHz



Average EIRP - 57 ~ 61 GHz



Peak EIRP - 61.5 ~ 71 GHz



Average EIRP - 61.5 ~ 71 GHz



3.6 Transmit Spurious Emission

3.6.1 Limit of Radiated Spurious Emission

Frequency Range	Limit
Below 40GHz	Follow 15.209
Above 40GHz	90 pW/cm ² @ 3m (equivalent EIRP 102μW, -10dBm)
Note 1: For the applicable limit, see FCC 15.255 (d) Note 2: Spurious emissions shall not exceed the level of fundamental emission. Note 3: Per Part 15.215(c), the provisions in Part 15.35(b) and (c) that require emissions to be averaged over a 100 millisecond period and that limits the peak power to 20 dB above the average limit do not apply to devices operating under paragraphs Part 15.255(c)(2) and (3) of this section.	

3.6.2 Measuring Instruments

See list of measuring equipment of this test report.

3.6.3 Test Procedures

The testing follows ANSI C63.10 Section 9.10 and 9.11 and ANSI C63.10 clause 4.1.5.2.8 and Annex L.

For above 40GHz emission:

$$\text{EIRP} = \text{Prx} - \text{Grx} + \text{Free space loss} = \text{Prx} - \text{Grx} + 20 \cdot \log(4 \pi d / \lambda) + \text{Cable Loss}$$

Which

Prx = Read Level

Grx = Rx Antenna Gain

A distance factor is offset and formula is $20 \cdot \log(D1/D2)$

Which

D1 = Specification distance = 3m

D2 = Measurement distance

$$\text{Power Density (W/m}^2\text{)} = 10^{[(\text{EIRP}-30)/10]} / 4 \pi d$$

$$\text{Power Density (pW/cm}^2\text{)} = \text{Power Density (W/m}^2\text{)} * 10^{(-8)}$$

3.6.4 Test Result

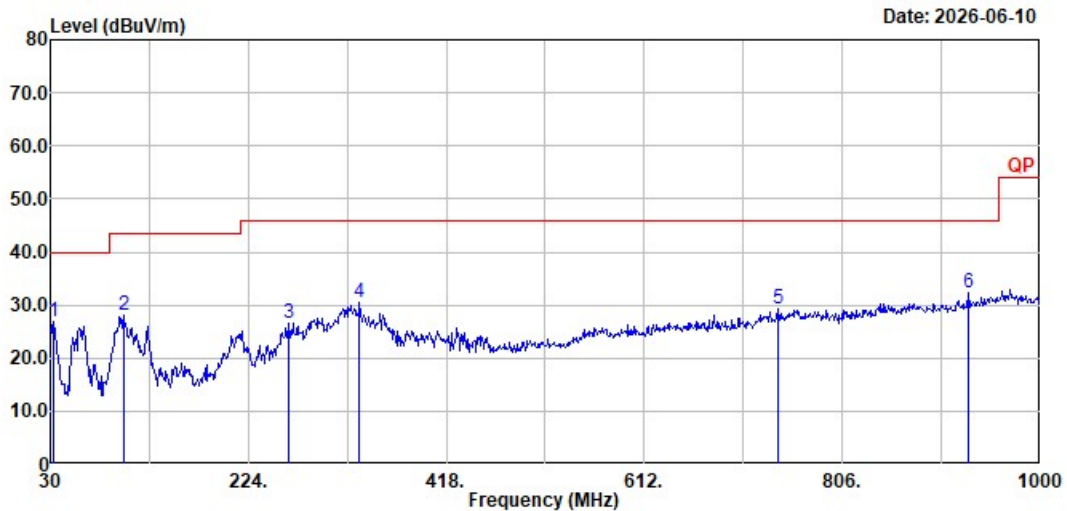
<9 kHz ~ 30 MHz >

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

<30MHz to 1GHz>

Temperature	19.3 ~ 21.8 °C	Relative Humidity	50.1 ~ 66.9 %
Test Engineer	Troye Hsieh and Fu Chen	Test Distance	3m
Test Range	30MHz to 1GHz	Test Polarization	Horizontal
Remark	1. Level (dBuV/m) = Read Level (dBuV) + Antenna Factor (dB) + Cable loss(dB) + Aux Factor - Preamp Factor (dB) 2. Aux Factor = Filter loss 3. The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.		

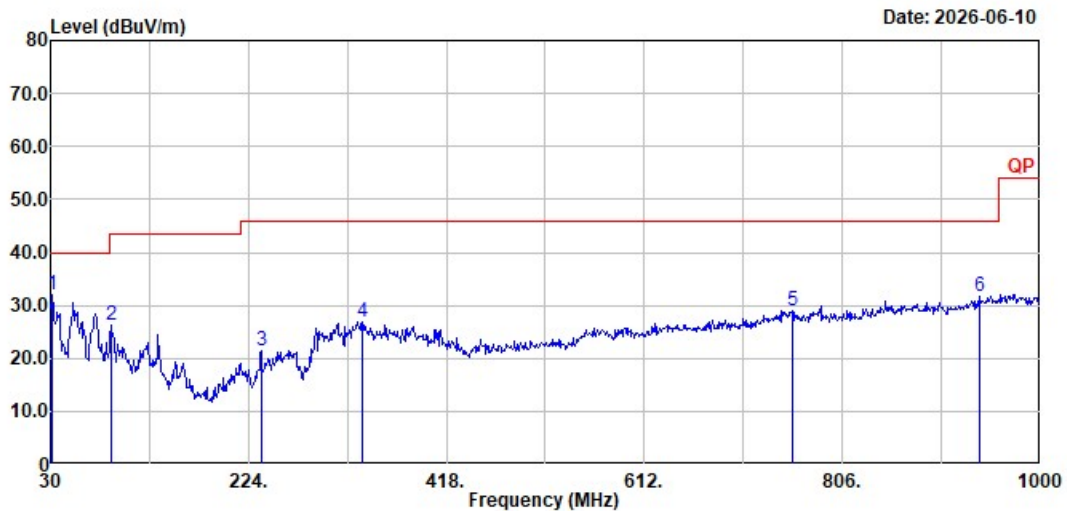


Site : 03CH11-HY
 Condition: QP 3m Bilog_66925 & 24006_260412 HORIZONTAL
 Mode : 1
 Setting :

	Freq	Level	Limit	Line	Margin	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m		dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	32.91	26.79	40.00	-13.21		35.27	22.64	0.75	31.92	0.05	--	--	Peak
2	101.78	28.00	43.50	-15.50		42.46	16.24	1.36	32.09	0.03	--	--	Peak
3	262.80	26.71	46.00	-19.29		36.07	20.34	2.16	31.93	0.07	--	--	Peak
4	332.64	30.49	46.00	-15.51		40.16	19.71	2.47	31.91	0.06	--	--	Peak
5	742.95	29.33	46.00	-16.67		29.00	27.93	3.72	31.89	0.57	--	--	Peak
6	930.16	32.36	46.00	-13.64		28.95	29.76	4.12	30.90	0.43	--	--	Peak



Temperature	19.3 ~ 21.8 °C	Relative Humidity	50.1 ~ 66.9 %
Test Engineer	Troye Hsieh and Fu Chen	Test Distance	3m
Test Range	30MHz to 1GHz	Test Polarization	Vertical
Remark	1. Level (dBμV/m) = Read Level (dBμV) + Antenna Factor (dB) + Cable loss(dB) + Aux Factor - Preamp Factor (dB) 2. Aux Factor = Filter loss 3. The emission position marked as "-" means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.		



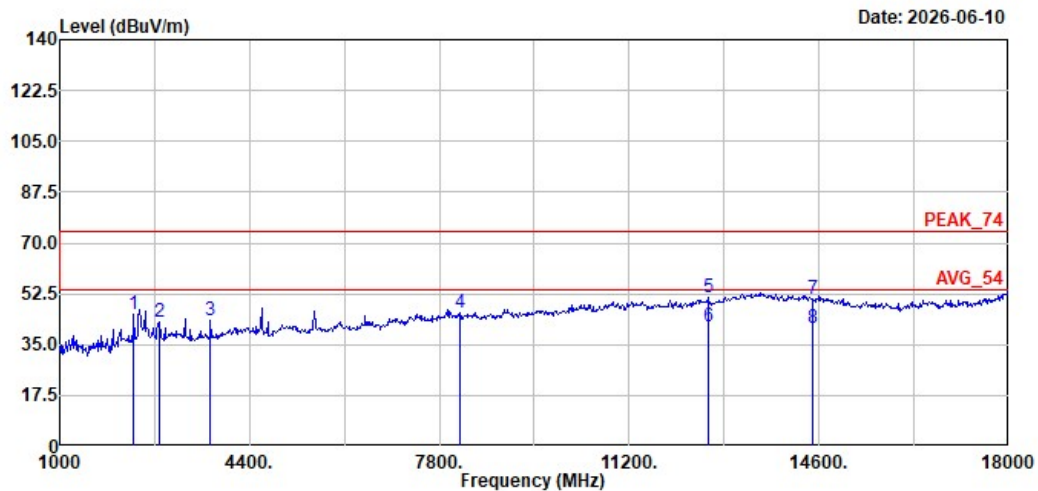
Site : 03CH11-HY
 Condition: QP 3m Bilog_66925 & 24006_260412 VERTICAL
 Mode : 1
 Setting :

	Freq	Level	Limit	Line	Margin	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m		dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	31.94	32.03	40.00	-7.97	40.51	22.62	0.74	31.90	0.06	--	--	--	Peak
2	89.17	26.13	43.50	-17.37	42.20	14.75	1.23	32.08	0.03	--	--	--	Peak
3	236.61	21.41	46.00	-24.59	34.49	16.78	2.05	31.96	0.05	--	--	--	Peak
4	335.55	27.01	46.00	-18.99	36.61	19.76	2.49	31.90	0.05	--	--	--	Peak
5	757.50	28.99	46.00	-17.01	28.48	28.07	3.75	31.86	0.55	--	--	--	Peak
6	939.86	31.75	46.00	-14.25	27.73	30.28	4.13	30.81	0.42	--	--	--	Peak



<1GHz to 18GHz>

Temperature	19.3 ~ 21.8 °C	Relative Humidity	50.1 ~ 66.9 %
Test Engineer	Troye Hsieh and Fu Chen	Test Distance	3m
Test Range	1GHz to 18GHz	Test Polarization	Horizontal
Remark	1. Level (dB μ V/m) = Read Level (dB μ V) + Antenna Factor (dB) + Cable loss(dB) + Aux Factor - Preamp Factor (dB) 2. Aux Factor = Filter loss 3. The emission position marked as "-" means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.		

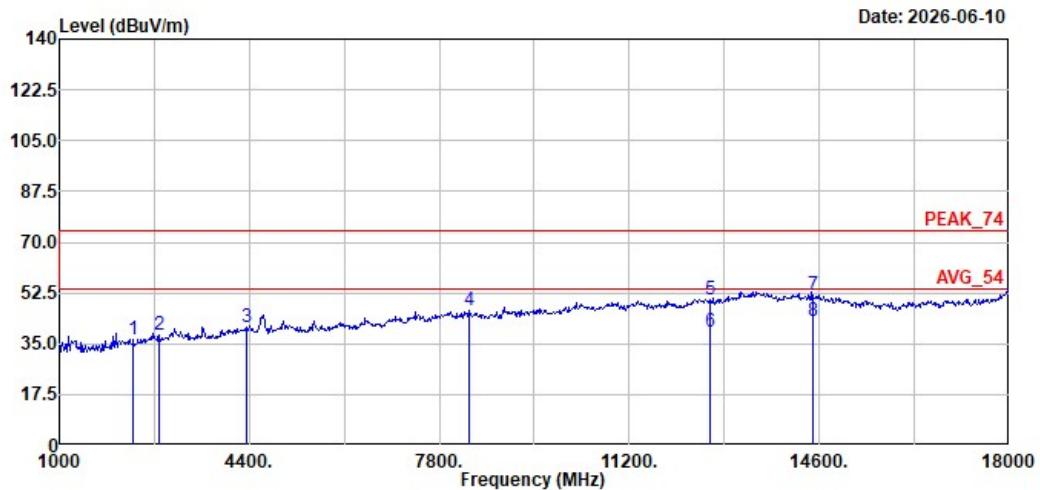


Site : 03CH11-HY
Condition: PEAK_74 3m 9120D_01620_250915 HORIZONTAL
Mode : 1
Setting :

	Freq	Level	Limit	Margin	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark
	MHz	dB μ V/m	dB μ V/m	dB	dB μ V	dB/m	dB	dB	dB	cm	deg	
1	2326.00	45.55	74.00	-28.45	78.00	27.20	7.52	67.17	0.00	--	--	Peak
2	2785.00	42.85	74.00	-31.15	73.19	28.20	8.26	66.80	0.00	--	--	Peak
3	3703.00	43.19	74.00	-30.81	70.87	29.62	9.65	66.95	0.00	--	--	Peak
4	8157.00	45.91	74.00	-28.09	61.19	36.87	14.45	66.60	0.00	--	--	Peak
5	12611.00	51.39	74.00	-22.61	60.69	39.02	18.08	66.40	0.00	--	--	Peak
6	12611.00	41.03	54.00	-12.97	50.33	39.02	18.08	66.40	0.00	--	--	Average
7	14498.00	50.70	74.00	-23.30	56.75	40.30	19.95	66.30	0.00	--	--	Peak
8	14498.00	40.61	54.00	-13.39	46.66	40.30	19.95	66.30	0.00	--	--	Average



Temperature	19.3 ~ 21.8 °C	Relative Humidity	50.1 ~ 66.9 %
Test Engineer	Troye Hsieh and Fu Chen	Test Distance	3m
Test Range	1GHz to 18GHz	Test Polarization	Vertical
Remark	1. Level (dBμV/m) = Read Level (dBμV) + Antenna Factor (dB) + Cable loss(dB) + Aux Factor - Preamp Factor (dB) 2. Aux Factor = Filter loss 3. The emission position marked as "-" means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.		



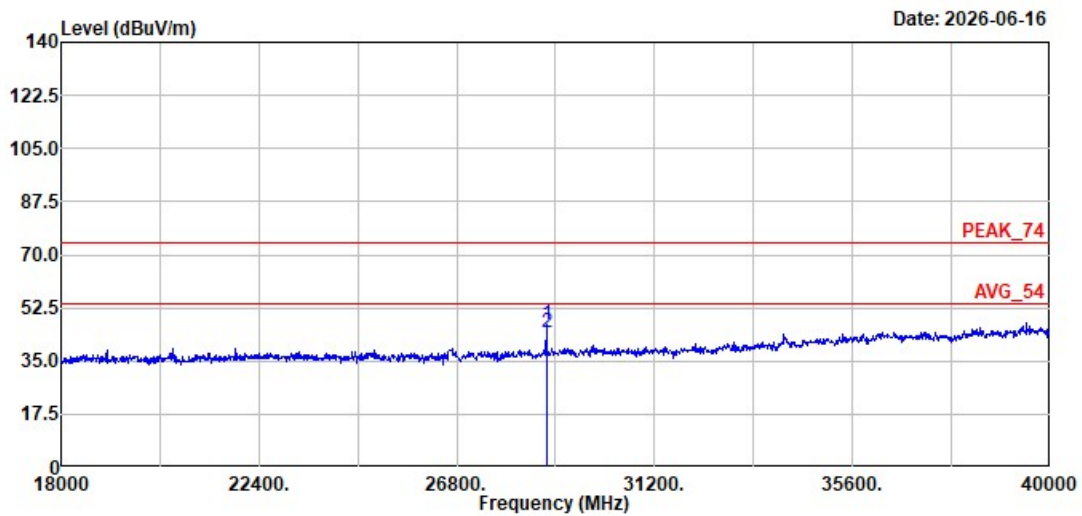
Site : 03CH11-HY
Condition: PEAK_74 3m 9120D_01620_250915 VERTICAL
Mode : 1
Setting :

	Freq	Level	Limit	Line	Margin	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m		dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	2326.00	36.47	74.00		-37.53	68.92	27.20	7.52	67.17	0.00	--	--	Peak
2	2785.00	37.99	74.00		-36.01	68.33	28.20	8.26	66.80	0.00	--	--	Peak
3	4349.00	40.78	74.00		-33.22	66.08	31.50	10.55	67.35	0.00	--	--	Peak
4	8327.00	46.35	74.00		-27.65	61.84	36.85	14.45	66.79	0.00	--	--	Peak
5	12645.00	50.45	74.00		-23.55	59.74	39.09	18.11	66.49	0.00	--	--	Peak
6	12645.00	39.24	54.00		-14.76	48.53	39.09	18.11	66.49	0.00	--	--	Average
7	14498.00	51.91	74.00		-22.09	57.96	40.30	19.95	66.30	0.00	--	--	Peak
8	14498.00	42.94	54.00		-11.06	48.99	40.30	19.95	66.30	0.00	--	--	Average



<18GHz to 40GHz>

Temperature	20.9 ~ 22.4 °C	Relative Humidity	58.0 ~ 63.7 %
Test Engineer	Quentin Liu	Test Distance	1m
Test Range	18GHz to 40GHz	Test Polarization	Horizontal
Remark	- Level (dBuV/m) = Read Level (dBuV) + Antenna Factor (dB) + Cable loss(dB) + Aux Factor - Preamp Factor (dB) - Aux Factor = Distance extrapolation factor (dB) = $20 \log(1/3) = -9.54$ (dB) - The emission position marked as “-” means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.		

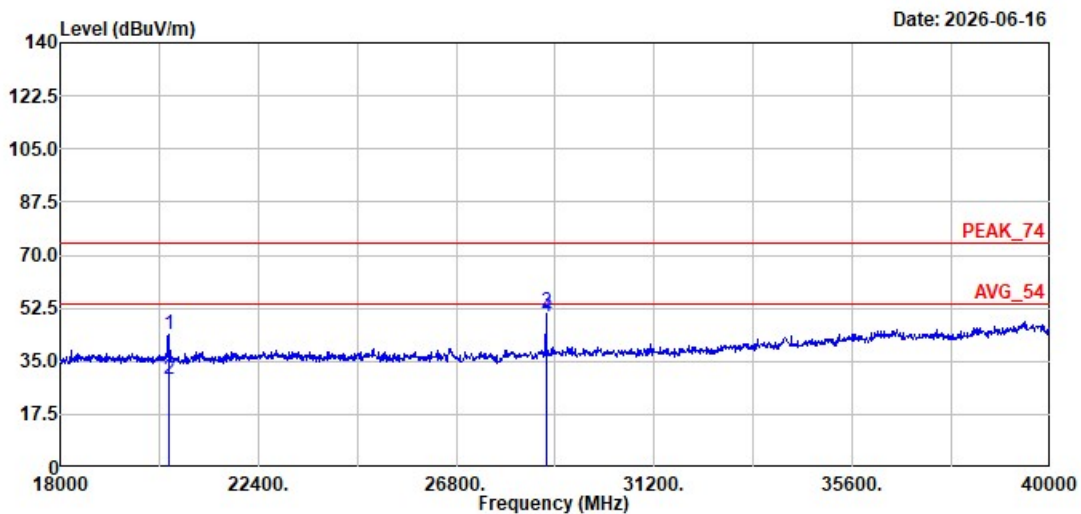


Site : 03CH15-HY
Condition: PEAK_74 1m SHF_1230_260513 HORIZONTAL
Mode : 1
Setting :

	Freq	Level	Limit		Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark
	MHz	dBuV/m	Line	Margin	Level	Factor	Loss	Factor	Factor	cm	deg	
1	28795.00	47.14	74.00	-26.86	63.88	40.29	7.05	54.54	-9.54	150	202	Peak
2	28795.00	44.60	54.00	-9.40	61.34	40.29	7.05	54.54	-9.54	150	202	Average



Temperature	20.9 ~ 22.4 °C	Relative Humidity	58.0 ~ 63.7 %
Test Engineer	Quentin Liu	Test Distance	1m
Test Range	18GHz to 40GHz	Test Polarization	Vertical
Remark	1. Level (dB μ V/m) = Read Level (dB μ V) + Antenna Factor (dB) + Cable loss(dB) + Aux Factor - Preamp Factor (dB) 2. Aux Factor = Distance extrapolation factor (dB) = 20 log(1/3) = -9.54 (dB) 3. The emission position marked as "-" means no suspected emission found and emission level has at least 6dB margin against limit or emission is noise floor only.		



Site : 03CH15-HY
Condition: PEAK_74 1m SHF_1230_260513 VERTICAL
Mode : 1
Setting :

	Freq	Level	Limit	Line	Margin	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark
	MHz	dB μ V/m	dB μ V/m		dB	dB μ V	dB/m	dB	dB	dB	cm	deg	
1	20405.50	43.73	74.00	-30.27		64.49	38.10	5.80	55.12	-9.54	150	12	Peak
2	20405.50	28.92	54.00	-25.08		49.68	38.10	5.80	55.12	-9.54	150	12	Average
3	28795.00	51.47	74.00	-22.53		68.40	40.10	7.05	54.54	-9.54	150	174	Peak
4	28795.00	49.75	54.00	-4.25		66.68	40.10	7.05	54.54	-9.54	150	174	Average

**<40GHz to 200GHz>**

Temperature	20 ~25 °C	Relative Humidity	50 ~60 %
Test Engineer	Eric Jeng	Test Range	40GHz to 200GHz

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
40 - 57	22.7	0.87	43.198	-94.32
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm ²)	Limit (pW/cm ²)	Test Result
-50.18	3	0.008	90	PASS

Note: Cable Loss = 0.50 dB; the calculate of λ using 57GHz as f.

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
71 - 90	23.1	0.60	86.397	-88.42
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm ²)	Limit (pW/cm ²)	Test Result
-43.93	3	0.036	90	PASS

Note: Cable Loss = 0.50 dB; the calculate of λ using 90GHz as f.

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
90 - 140	22.5	0.43	135.026	-76.79
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm ²)	Limit (pW/cm ²)	Test Result
-30.76	3	0.742	90	PASS

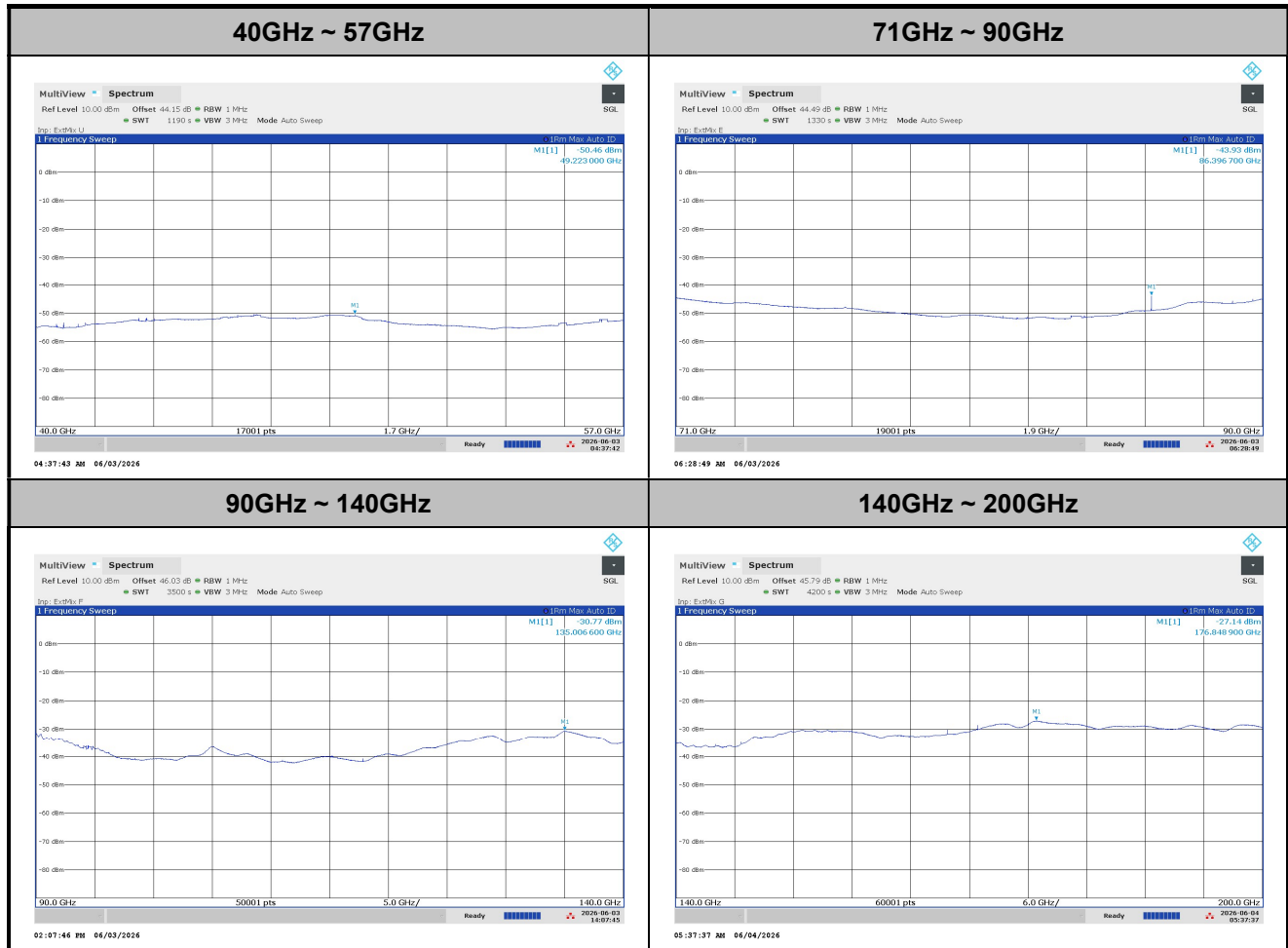
Note: Cable Loss = 0.50 dB; the calculate of λ using 140GHz as f.

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
140 - 200	21.8	0.27	176.848	-72.93
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm ²)	Limit (pW/cm ²)	Test Result
-27.14	3	1.708	90	PASS

Note: Cable Loss = 0.50 dB; the calculate of λ using 200GHz as f.

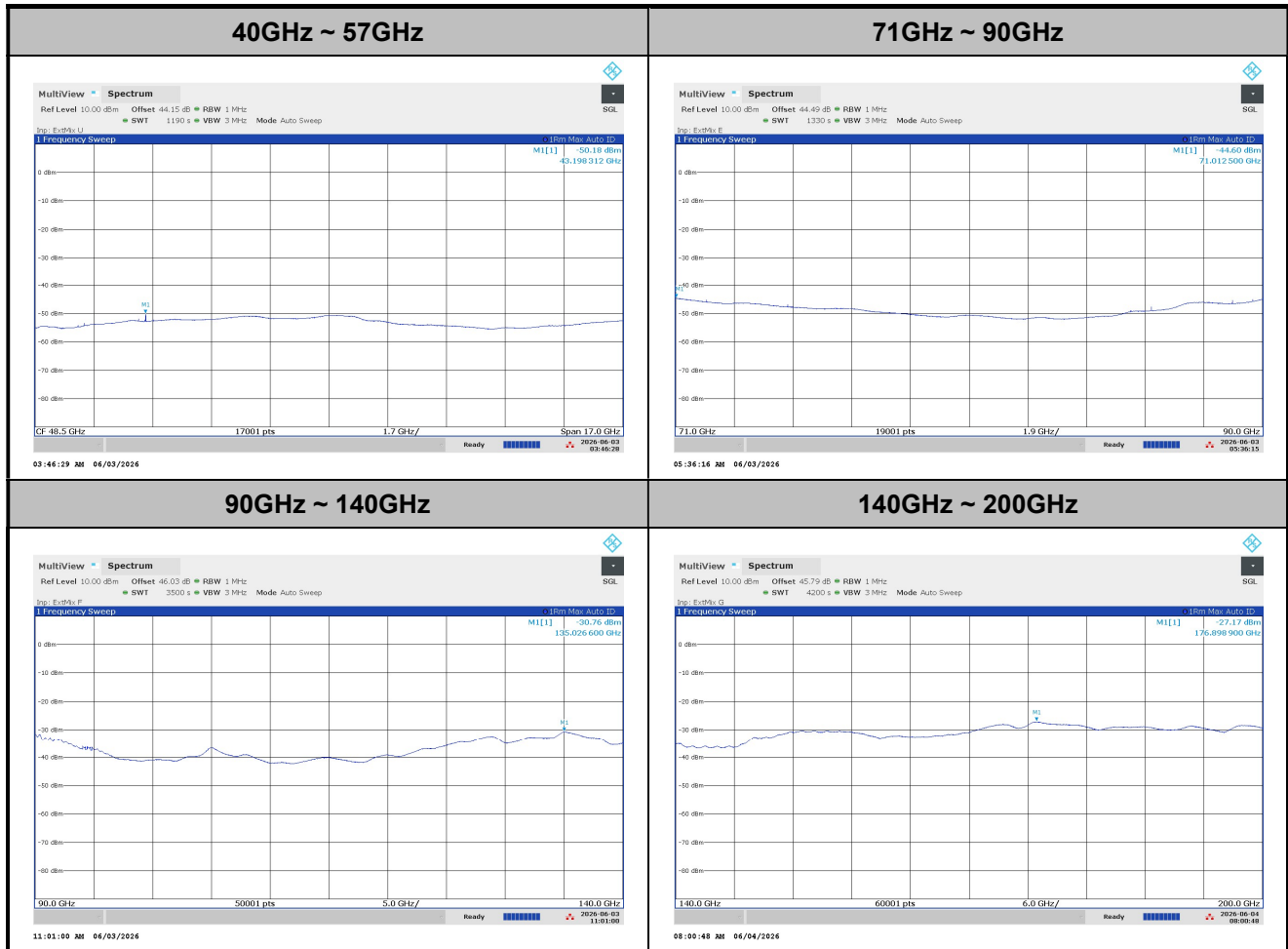


Horizontal





Vertical





3.7 Frequency Stability

3.7.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency range, 61 GHz – 61.5 GHz.

3.7.2 Measuring Instruments

See list of measuring equipment of this test report.

3.7.3 Test Procedures

The testing follows ANSI C63.10 Section 9.5.

3.7.4 Test Result

Test Engineer	Eric Jeng				
Test Temperature (°C)	Voltage (Volt)	Low Frequency (GHz)	High Frequency (GHz)	Limit	Result
50	220	61.201661	61.456824	Within 61 ~ 61.5 GHz	pass
40	220	61.201602	61.456655		
30	220	61.201587	61.456626		
20	220	61.207573	61.456752		
10	220	61.201662	61.456824		
0	220	61.202491	61.457379		
-10	220	61.202742	61.457779		
-20	220	61.203094	61.458187		
20	100	61.201557	61.456635		
20	240	61.201557	61.456668		

Note:

1. Normal Voltage = 220 Vac. ; Low Voltage = 100 Vac. ; Maximum Voltage = 240 Vac.
2. The frequency fundamental emissions stay within the operation band.

4 AC conducted Emission Measurement

4.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	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.

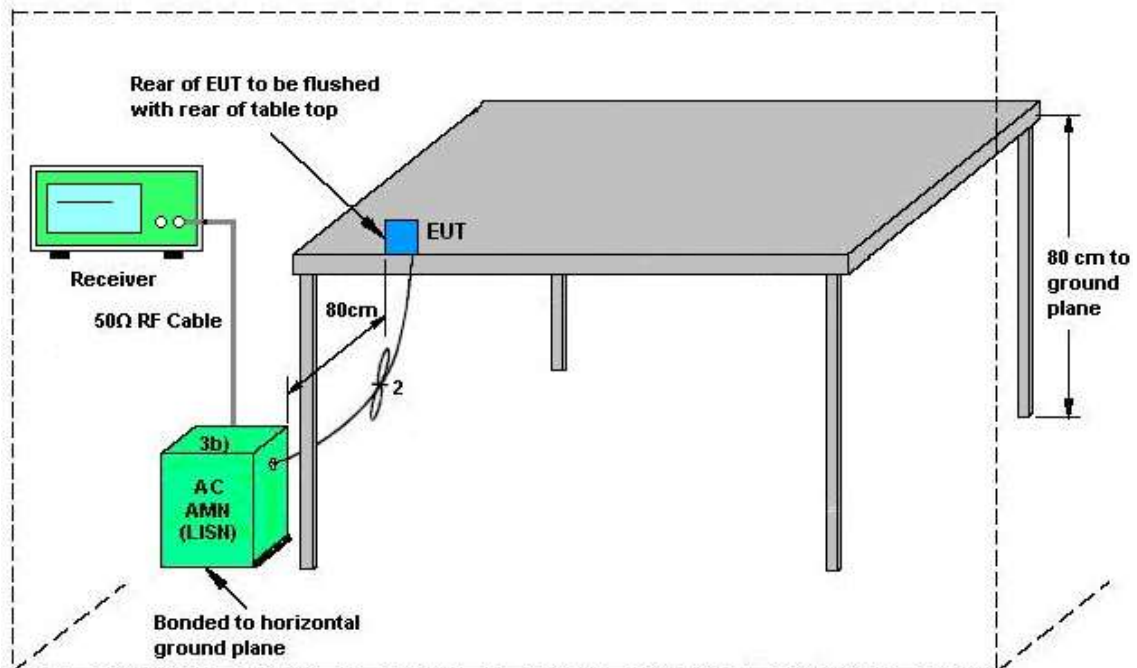
4.2 Measuring Instruments

See list of measuring equipment of this test report.

4.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

4.4 Test Setup



AMN = Artificial mains network (LISN)
 AE = Associated equipment
 EUT = Equipment under test
 ISN = Impedance stabilization network

4.5 Test Result of AC Conducted Emission

Please refer to Appendix A.



5 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Bilog Antenna with 6dB pad	TESEQ & VGT	CBL 6111D & VFA_Z-04002-N-06	66925 & 24006	30MHz~1GHz	Apr. 12, 2026	Jun. 09, 2026 ~ Jun. 10, 2026	Apr. 11, 2027	Radiation (03CH11-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2E	101108	9 kHz~30 MHz	Dec. 11, 2025	Jun. 09, 2026 ~ Jun. 10, 2026	Dec. 10, 2026	Radiation (03CH11-HY)
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-01620	1GHz~18GHz	Sep. 15, 2025	Jun. 09, 2026 ~ Jun. 10, 2026	Sep. 14, 2026	Radiation (03CH11-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Dec. 06, 2025	Jun. 09, 2026 ~ Jun. 10, 2026	Dec. 05, 2026	Radiation (03CH11-HY)
Preamplifier	E-INSTRUMENT TECH LTD.	ERA-100M-18 G-56-01-A70	EC1900249	1GHz~18GHz	Jan. 20, 2026	Jun. 09, 2026 ~ Jun. 10, 2026	Jan. 19, 2027	Radiation (03CH11-HY)
Signal Analyzer	Keysight	N9010A	MY54200486	10Hz~44GHz	May 28 2026	Jun. 09, 2026 ~ Jun. 10, 2026	May 27, 2027	Radiation (03CH11-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY55420170	20MHz~8.4GHz	Jul. 22, 2025	Jun. 09, 2026 ~ Jun. 10, 2026	Jul. 21, 2026	Radiation (03CH11-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Jun. 09, 2026 ~ Jun. 10, 2026	N/A	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Jun. 09, 2026 ~ Jun. 10, 2026	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Jun. 09, 2026 ~ Jun. 10, 2026	N/A	Radiation (03CH11-HY)
Software	Audix	E3	RK-002391	N/A	N/A	Jun. 09, 2026 ~ Jun. 10, 2026	N/A	Radiation (03CH11-HY)
USB Data Logger	TECPEL	TR-32	HE17XM6804	N/A	Dec. 15, 2025	Jun. 09, 2026 ~ Jun. 10, 2026	Dec. 14, 2026	Radiation (03CH11-HY)
Hygrometer	TECPEL	DTM-303B	TP200880	N/A	Aug. 26, 2025	Jun. 09, 2026 ~ Jun. 10, 2026	Aug. 25, 2026	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804013/2	30M~40G	Mar. 04, 2026	Jun. 09, 2026 ~ Jun. 10, 2026	Mar. 03, 2027	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9K~30M	Mar. 04, 2026	Jun. 09, 2026 ~ Jun. 10, 2026	Mar. 03, 2027	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	30M~40G	Mar. 04, 2026	Jun. 09, 2026 ~ Jun. 10, 2026	Mar. 03, 2027	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	805139 2	9K~30M	Mar. 04, 2026	Jun. 09, 2026 ~ Jun. 10, 2026	Mar. 03, 2027	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	805139 2	30M~40G	Mar. 04, 2026	Jun. 09, 2026 ~ Jun. 10, 2026	Mar. 03, 2027	Radiation (03CH11-HY)
Filter	Wainwright	WLK4-1000-15 30-8000-40SS	SN11	1.53GHz Low Pass Filter	Sep. 09, 2025	Jun. 09, 2026 ~ Jun. 10, 2026	Sep. 08, 2026	Radiation (03CH11-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	Rohde & Schwarz	FSW43	101456	2Hz to 43.5GHz	Feb. 04, 2026	Jun. 01, 2026 ~ Jul. 18, 2026	Feb. 03, 2027	Radiation (03CH18-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV30	103738	9kHz to 30GHz	Oct. 21, 2025	Aug. 14, 2026	Oct. 20, 2026	Radiation (03CH18-HY)
Harmonic Mixer	Rohde & Schwarz	RPG FS-Z75	102042	50 GHz to 75 GHz	Jun. 27, 2024	Jun. 01, 2026 ~ Aug. 14, 2026	Jun. 26, 2027	Radiation (03CH18-HY)
Harmonic Mixer	Rohde & Schwarz	RPG FS-Z60	101033	40GHz to 60GHz	Jun. 27, 2024	Jun. 01, 2026 ~ Jul. 18, 2026	Jun. 26, 2027	Radiation (03CH18-HY)
Harmonic Mixer	Rohde & Schwarz	FSZ-90	101867	60GHz to 90GHz	Jun. 27, 2024	Jun. 01, 2026 ~ Jul. 18, 2026	Jun. 26, 2027	Radiation (03CH18-HY)
Harmonic Mixer	Rohde & Schwarz	RPG FS-Z140	101130	90GHz to 140GHz	Jun. 27, 2024	Jun. 01, 2026 ~ Jul. 18, 2026	Jun. 26, 2027	Radiation (03CH18-HY)
Harmonic Mixer	Rohde & Schwarz	RPG FS-Z220	101042	140GHz to 220GHz	Jun. 27, 2024	Jun. 01, 2026 ~ Jul. 18, 2026	Jun. 26, 2027	Radiation (03CH18-HY)
Antenna	Quinstar	QWH-VPRR00	1371800008	50-75 GHz	Jun. 27, 2024	Jun. 01, 2026 ~ Aug. 14, 2026	Jun. 26, 2027	Radiation (03CH18-HY)
Antenna	Quinstar	QWH-UPRR00	1410300003	40-60 GHz	Jun. 27, 2024	Jun. 01, 2026 ~ Jul. 18, 2026	Jun. 26, 2027	Radiation (03CH18-HY)
Antenna	Quinstar	QWH-EPRR00	1372000000	60-90 GHz	Jun. 27, 2024	Jun. 01, 2026 ~ Jul. 18, 2026	Jun. 26, 2027	Radiation (03CH18-HY)
Antenna	Quinstar	QWH-FPRR00	1011500008	90-140 GHz	Jun. 27, 2024	Jun. 01, 2026 ~ Jul. 18, 2026	Jun. 26, 2027	Radiation (03CH18-HY)
Antenna	Quinstar	QWH-GPRR00	QWH-GPRR00-01	140-220 GHz	Jun. 27, 2024	Jun. 01, 2026 ~ Jul. 18, 2026	Jun. 26, 2027	Radiation (03CH18-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	801607/2	N/A	Dec. 24, 2025	Jun. 01, 2026 ~ Aug. 14, 2026	Dec. 23, 2026	Radiation (03CH18-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	519231/2	N/A	Dec. 24, 2025	Jun. 01, 2026 ~ Aug. 14, 2026	Dec. 23, 2026	Radiation (03CH18-HY)
Low Noise Amplifier	Eravant	SBL-50375318 50-1515-E1	07115-01	50 ~ 75 GHz	Jul. 14, 2024	Jun. 01, 2026 ~ Jul. 18, 2026	Jul. 13, 2027	Radiation (03CH18-HY)
Detector	Quinstars	QEA-FBFBVP	2672009	50 ~ 75 GHz	Jul. 09, 2024	Jun. 01, 2026 ~ Jul. 18, 2026	Jul. 08, 2027	Radiation (03CH18-HY)
Oscilloscope	Rohde & Schwarz	RTO 1002	400025	600MHz, 10GSa/sec	Aug. 29, 2025	Jun. 01, 2026 ~ Jul. 18, 2026	Aug. 28, 2026	Radiation (03CH18-HY)
Temperature Chamber	ESPEC	SU-641	92013720	-40℃ ~90℃	Sep. 10, 2025	Jun. 01, 2026 ~ Jul. 18, 2026	Sep. 09, 2026	Radiation (03CH18-HY)
AC Power Source	AC POWER	AFC-500W	F104070011	50Hz~60Hz	May 12, 2025	Jun. 01, 2026 ~ Aug. 14, 2026	N/A	Radiation (03CH18-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Horn Antenna	SCHWARZBECK	BBHA9170	1230	18GHz~40GHz	Nov. 05, 2025	Jun. 09, 2026	Nov. 04, 2026	Radiation (03CH15-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 08, 2026	Jun. 09, 2026	Jun. 08, 2027	Radiation (03CH15-HY)
Spectrum Analyzer	Keysight	N9010B	MY60241058	10Hz~44Gz	Jul. 15, 2025	Jun. 09, 2026	Jul. 14, 2026	Radiation (03CH15-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Jun. 09, 2026	N/A	Radiation (03CH15-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Jun. 09, 2026	N/A	Radiation (03CH15-HY)
Software	Audix	E3_V9_230621	RK-002394	N/A	N/A	Jun. 09, 2026	N/A	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804011/2,804012/2	18GHz~40GHz	Dec. 18, 2025	Jun. 09, 2026	Dec. 17, 2026	Radiation (03CH15-HY)
Hygrometer	TECPEL	DTM-302	SN2	N/A	Aug. 26, 2025	Jun. 09, 2026	Aug. 25, 2026	Radiation (03CH15-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Jun. 23, 2026	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	N/A	Dec. 16, 2025	Jun. 23, 2026	Dec. 15, 2026	Conduction (CO05-HY)
Hygrometer	TECPEL	DTM-303A	TP210031	N/A	Jun. 26, 2025	Jun. 23, 2026	Jun. 25, 2026	Conduction (CO05-HY)
Two-Line V-Network	Rohde & Schwarz	ENV 216 +EMCI-EXP-US-US S	100080+N-021	N/A	Apr. 22, 2026	Jun. 23, 2026	Apr. 21, 2027	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32	N/A	N/A	N/A	Jun. 23, 2026	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-FN	00691	N/A	Jul. 29, 2025	Jun. 23, 2026	Jul. 28, 2026	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	MQT24082501	N/A	Oct. 14, 2025	Jun. 23, 2026	Oct. 13, 2026	Conduction (CO05-HY)

6 Measurement Uncertainty

Test Item	Uncertainty
AC Power Conducted Emission Measurement (150 kHz ~ 30 MHz)	±3.7 dB
Radiated Emission Measurement (9 kHz ~ 30 MHz)	±3.40 dB
Radiated Emission Measurement (30 MHz ~ 1000 MHz)	±6.50 dB
Radiated Emission Measurement (1 GHz ~ 6 GHz)	±4.90 dB
Radiated Emission Measurement (6 GHz ~ 18 GHz)	±5.70 dB
Radiated Emission Measurement (18 GHz ~ 40 GHz)	±4.90 dB
Radiated Emission Measurement (40 GHz ~ 140 GHz)	±5.24 dB
Radiated Emission Measurement (140 GHz ~ 200 GHz)	±5.40 dB

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)



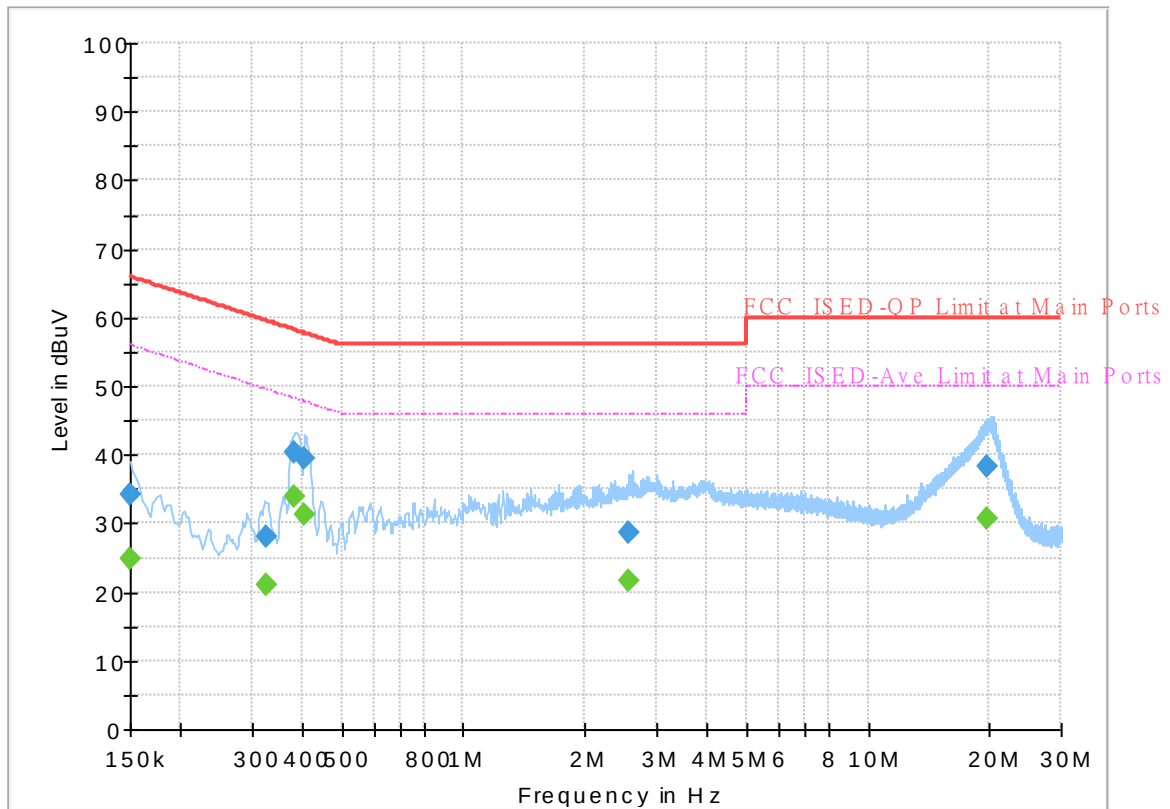
Appendix A. AC Conducted Emission Test Results

Test Engineer:	Calvin Wang	Temperature:	23 ~ 26°C
		Relative Humidity:	45 ~ 55%

EUT Information

Report NO : 650103
 Test Mode : Mode 1
 Test Voltage : 120Vac/60Hz
 Phase : Line

Full Spectrum

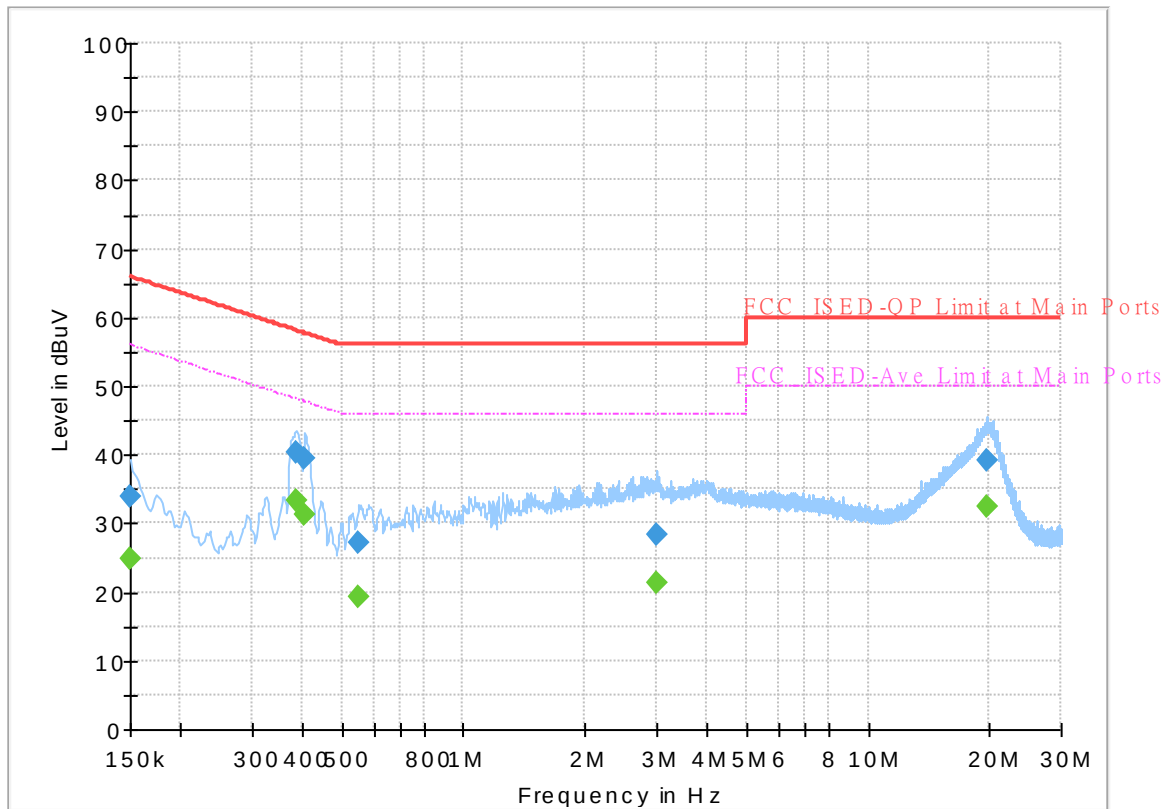
**Final Result**

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.150000	---	24.89	56.00	31.11	L1	OFF	19.9
0.150000	34.16	---	66.00	31.84	L1	OFF	19.9
0.325500	---	21.13	49.57	28.44	L1	OFF	19.9
0.325500	27.94	---	59.57	31.63	L1	OFF	19.9
0.381750	---	33.79	48.24	14.45	L1	OFF	19.9
0.381750	40.22	---	58.24	18.02	L1	OFF	19.9
0.406500	---	31.30	47.72	16.42	L1	OFF	19.9
0.406500	39.37	---	57.72	18.35	L1	OFF	19.9
2.559750	---	21.64	46.00	24.36	L1	OFF	20.0
2.559750	28.62	---	56.00	27.38	L1	OFF	20.0
19.731750	---	30.72	50.00	19.28	L1	OFF	20.8
19.731750	38.30	---	60.00	21.70	L1	OFF	20.8

EUT Information

Report NO : 650103
Test Mode : Mode 1
Test Voltage : 120Vac/60Hz
Phase : Neutral

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.150000	---	24.82	56.00	31.18	N	OFF	19.9
0.150000	34.05	---	66.00	31.95	N	OFF	19.9
0.386250	---	33.41	48.14	14.73	N	OFF	19.9
0.386250	40.25	---	58.14	17.89	N	OFF	19.9
0.406500	---	31.37	47.72	16.35	N	OFF	19.9
0.406500	39.39	---	57.72	18.33	N	OFF	19.9
0.550500	---	19.42	46.00	26.58	N	OFF	19.9
0.550500	27.10	---	56.00	28.90	N	OFF	19.9
2.998500	---	21.31	46.00	24.69	N	OFF	20.0
2.998500	28.43	---	56.00	27.57	N	OFF	20.0
19.709250	---	32.31	50.00	17.69	N	OFF	20.6
19.709250	39.08	---	60.00	20.92	N	OFF	20.6