

TEST REPORT

Applicant Name: Xiamen Longstar Lighting Co., Ltd.
Address: NO. 4431, Min'an Avenue, Neicuo Town, Xiang'an District, Xiamen, China
Factory1 Name: LONGSTAR LIGHTING THAI BINH VIETNAM COMPANY LIMITED
Address: Lot D3, Lien Ha Thai Industrial Park (Green iP-1), Thai Binh Economic Zone, Thai Thuy Commune, Hung Yen Province, Vietnam
Factory2 Name: LONGSTAR LIGHTING (VIET NAM HAI PHONG) COMPANY LIMITED
Address: WORKSHOP P-7(RENT FROM TUONG VIEN GRAND PARK COMPANY), LOT P-7,TRANG DUE INDUSTRIAL ZONE, DINH VU-CAT HAI ECONOMIC AREA, AN PHONG WARD, HAI PHONG CITY, VIETNAM
Report Number: 2501X78827E-RF-00
FCC ID: 2A7EA-002RD

Test Standard (s)

FCC PART 15.249

Sample Description

Product Type: LED LAMP
Model No.: L15-A19K5N-13W
Multiple Model(s) No.: L15-A19K5N-13WA
Trade Mark: N/A
Date Received: 2025/09/23
Issue Date: 2025/10/28

Test Result:	Pass▲
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▲ In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

GaLa Liu

GaLa Liu
RF Engineer

Approved By:

Nancy Wang

Nancy Wang
RF Supervisor

Note: The information marked # is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report. Customer model name, addresses, names, trademarks etc. are included.

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	2501X78827E-RF-00	Original Report	2025/10/28

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	LED LAMP
Tested Model	L15-A19K5N-13W
Multiple Model(s)	L15-A19K5N-13WA
Frequency Range	5800MHz
Maximum E-field strength	90.52 dBuV/m@3m
Modulation Technique	FSK
Antenna Specification [#]	2.2dBi (provided by the applicant)
Voltage Range	AC120V
Sample serial number	L15-A19K5N-13W: 3AFJ-1 L15-A19K5N-13WA: 3AFJ-2 (Assigned by BACL, Shenzhen)
Sample/EUT Status	Good condition
Adapter Information	N/A:
Note: The Multiple models are electrically identical with the test model except for the connection method of the radar module. Please refer to the declaration letter [#] for more detail, which was provided by manufacturer.	

Objective

This test report is in accordance with Part 2-Subpart J, and Part 15-Subparts A and C of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209, 15.215 and 15.249 rules.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2020, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Each test item follows test standards and with no deviation.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		109.2kHz(k=2, 95% level of confidence)
RF Frequency		56.6Hz(k=2, 95% level of confidence)
RF output power, conducted		0.86dB(k=2, 95% level of confidence)
Unwanted Emission, conducted		1.60dB(k=2, 95% level of confidence)
AC Power Lines Conducted Emissions	9kHz-150kHz	3.63dB(k=2, 95% level of confidence)
	150kHz-30MHz	3.66dB(k=2, 95% level of confidence)
Radiated Emissions	0.009MHz~30MHz	3.60dB(k=2, 95% level of confidence)
	30MHz~200MHz (Horizontal)	5.32dB(k=2, 95% level of confidence)
	30MHz~200MHz (Vertical)	5.43dB(k=2, 95% level of confidence)
	200MHz~1000MHz (Horizontal)	5.77dB(k=2, 95% level of confidence)
	200MHz~1000MHz (Vertical)	5.73dB(k=2, 95% level of confidence)
	1GHz - 6GHz	5.34dB(k=2, 95% level of confidence)
	6GHz - 18GHz	5.40dB(k=2, 95% level of confidence)
	18GHz - 40GHz	5.64dB(k=2, 95% level of confidence)
Temperature		±1°C
Humidity		±1%
Supply voltages		±0.4%

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 715558, the FCC Designation No. : CN5045.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing by manufacturer.

Test Channel	Frequency (MHz)
Middle	5800

EUT Exercise Software

No exercise software was used.

Equipment Modifications

No modifications were made to the unit tested.

Support Equipment List and Details

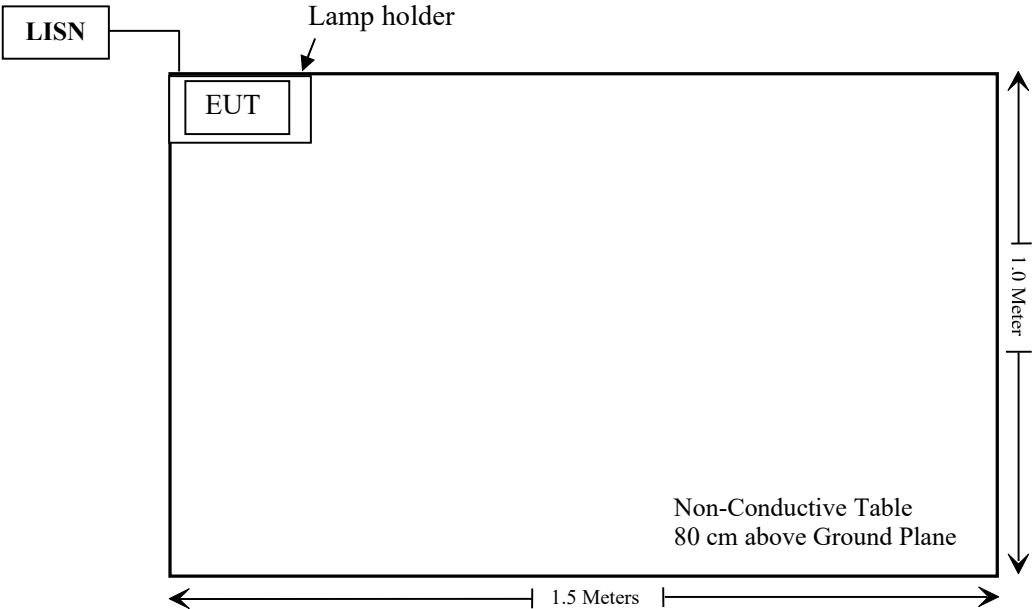
Manufacturer	Description	Model	Serial Number
Unknown	Lamp holder	Unknown	Unknown

Support Cable Descriptions

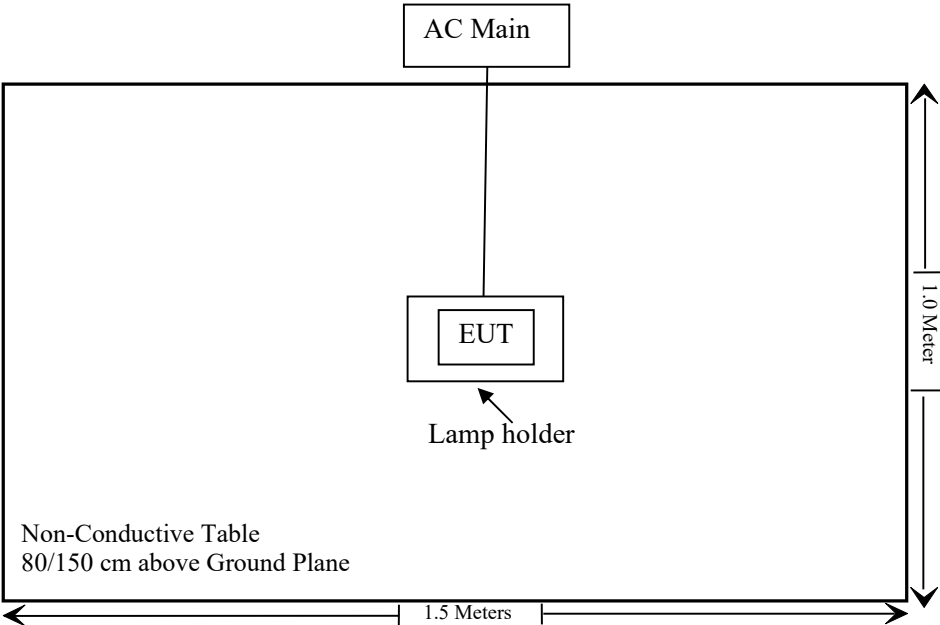
Cable Description	Length (m)	From/Port	To
Un-shielding Un-detachable AC Cable	1.2	Lamp holder	LISN/AC Main

Block Diagram of Test Setup

For Conducted Emissions:



For Radiated Emissions:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 (b) (3) & §2.1091	RF EXPOSURE	Compliant
§15.203	Antenna Requirement	Compliant
§15.207(a)	Conduction Emissions	Compliant
15.205, §15.209, §15.249(d)	Radiated Emissions& Outside of Band Emission	Compliant
§15.215 (c)	20 dB Bandwidth	Compliant

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted Emissions Test					
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2025/09/01	2026/08/31
Rohde & Schwarz	LISN	ENV216	101613	2024/12/04	2025/12/03
Rohde & Schwarz	Transient Limiter	ESH3Z2	DE25985	2025/04/29	2026/04/28
Unknown	CE Cable	Unknown	UF A210B-1-0720-504504	2025/04/29	2026/04/28
Audix	EMI Test software	E3	191218(V9)	NCR	NCR
Radiated Emissions Test					
Rohde & Schwarz	EMI Test Receiver	ESR3	102455	2025/09/01	2026/08/31
Sonoma instrument	Pre-amplifier	310 N	186238	2025/04/29	2026/04/28
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2023/07/20	2026/07/19
Unknown	Cable	Chamber A Cable 1	N/A	2025/04/29	2026/04/28
Unknown	Cable	XH500C	J-10M-A	2025/04/29	2026/04/28
BACL	Active Loop Antenna	1313-1A	4031911	2024/05/14	2027/05/13
Unknown	Cable	2Y194	0735	2024/12/04	2025/12/03
Unknown	Cable	PNG214	1354	2024/12/04	2025/12/03
Audix	EMI Test software	E3	19821b(V9)	NCR	NCR
Rohde & Schwarz	Spectrum Analyzer	FSV40	101605	2025/09/01	2026/08/31
A.H.System	Preamplifier	PAM-0118P	489	2024/11/15	2025/11/14
Schwarzbeck	Horn Antenna	BBHA9120D (1201)	1143	2023/07/26	2026/07/25
Unknown	RF Cable	KMSE	735	2024/12/06	2025/12/05
Unknown	RF Cable	UFA147	219661	2024/12/06	2025/12/05
Unknown	RF Cable	XH750A-N	J-10M	2024/12/06	2025/12/05
JD	Filter Switch Unit	DT7220FSU	DS79906	2025/08/12	2026/08/11
JD	Multiplex Switch Test Control Set	DT7220SCU	DS79903	2025/08/12	2026/08/11
Audix	EMI Test software	E3	191218(V9)	NCR	NCR
A.H.System	Pre-amplifier	PAM-1840VH	190	2025/04/29	2026/04/28
Electro-Mechanics Co	Horn Antenna	3116	9510-2270	2023/09/18	2026/09/17
UTIFLEX	RF Cable	NO. 13	232308-001	2024/12/18	2025/12/17

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

§1.1307 (b) (3) & §2.1091 - RF EXPOSURE

Applicable Standard

According to FCC §2.1091 and §1.1307(b) (3), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to KDB 447498 D04 Interim General RF Exposure Guidance V01

1-mW Test Exemption:

Per § 1.1307(b)(3)(i)(A), a single RF source is exempt RF device (from the requirement to show data demonstrating compliance to RF exposure limits, as previously mentioned) if the available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption applies to all operating configurations and exposure conditions, for the frequency range 100 kHz to 100 GHz, regardless of fixed, mobile, or portable device exposure conditions. This is a standalone exemption, and it cannot be applied in conjunction with any other test exemption.

For worst case:

Mode	Frequency (MHz)	Maximum E-Field (dBuV/m@3m)	Maximum EIRP		1-mW Test Exemption
			(dBm)	(mW)	
FSK	5800	90.52	-4.68	0.34	Yes

Note: EIRP = E-Field – 95.2 @3m

Result: Compliant.

FCC§15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to FCC § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

Antenna Connector Construction

The EUT has one internal antenna which was permanently attached and the antenna gain[#] is 2.2dBi, fulfill the requirement of this section. Please refer to the EUT photos.

Antenna Type	Antenna Gain [#]	Impedance	Frequency Range
Microstrip patch	2.2dBi	50Ω	5800MHz

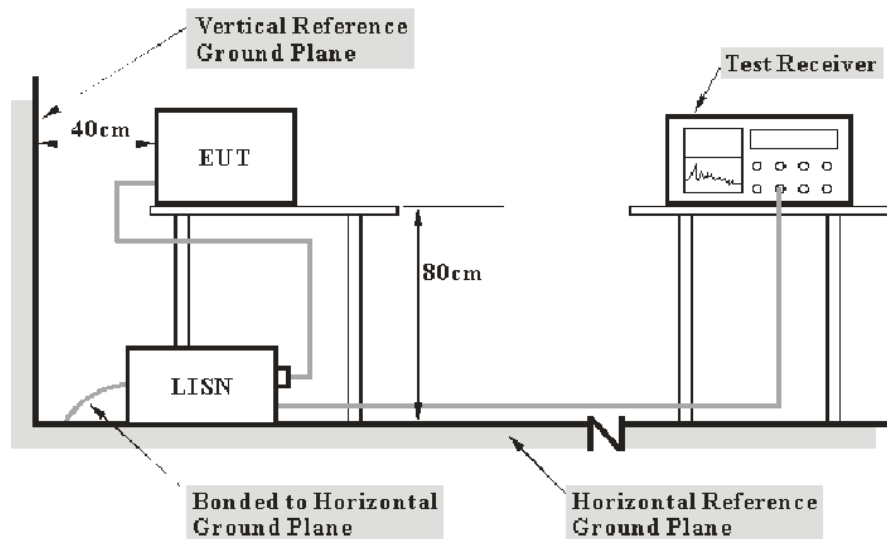
Result: Compliant.

FCC §15.207 (a) - AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a)

EUT Setup



Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is according with ANSI C63.10-2020. The related limit was specified in FCC Part 15.207.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

Factor & Over Limit Calculation

The factor is calculated by adding LISN VDF (Voltage Division Factor) and Cable Loss. The basic equation is as follows:

$$\text{Factor} = \text{LISN VDF} + \text{Cable Loss}$$

The “**Over limit**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over limit of -7 dB means the emission is 7 dB below the limit. The equation for calculation is as follows:

$$\begin{aligned}\text{Over Limit} &= \text{Level} - \text{Limit} \\ \text{Level} &= \text{Read Level} + \text{Factor}\end{aligned}$$

Note: The term "cable loss" refers to the combination of a cable and a 10dB transient limiter (attenuator).

Test Data

Environmental Conditions

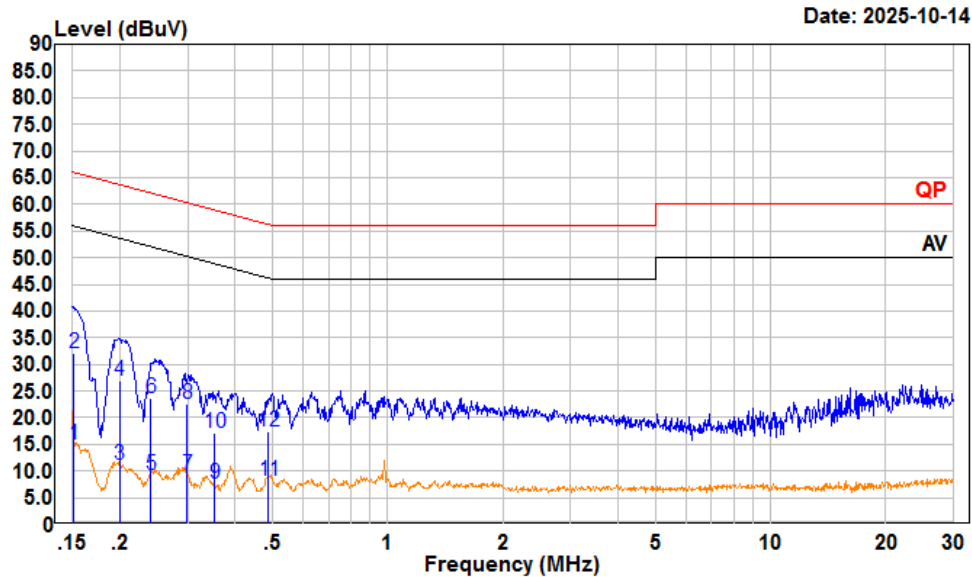
Temperature:	25.9 °C
Relative Humidity:	58 %
ATM Pressure:	100.6 kPa

The testing was performed by Macy Shi on 2025-10-14.

EUT operation mode: Transmitting

For Sample 3AFJ-1

AC 120V/60 Hz, Line



Condition: Line

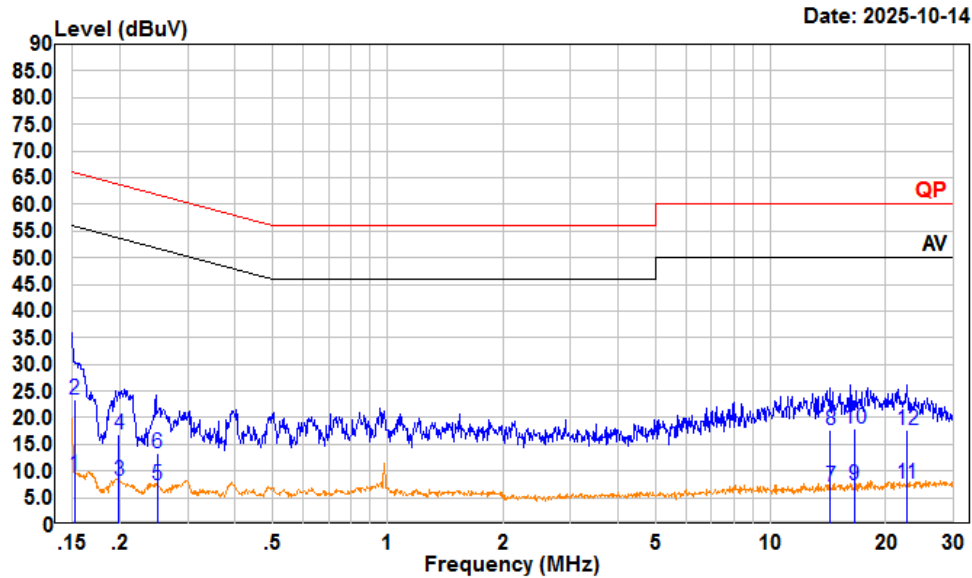
Project : 2501X78827E-RF

tester : Macy.shi Note:Transmitting

Setting : RBW:9kHz

	Freq	Read Level	LISN Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.151	-4.76	14.86	9.60	10.02	55.93	-41.07	Average
2	0.151	12.45	32.07	9.60	10.02	65.93	-33.86	QP
3	0.199	-8.41	11.22	9.60	10.03	53.64	-42.42	Average
4	0.199	7.41	27.04	9.60	10.03	63.64	-36.60	QP
5	0.241	-10.29	9.34	9.60	10.03	52.07	-42.73	Average
6	0.241	3.91	23.54	9.60	10.03	62.07	-38.53	QP
7	0.300	-10.38	9.25	9.60	10.03	50.25	-41.00	Average
8	0.300	3.04	22.67	9.60	10.03	60.25	-37.58	QP
9	0.353	-11.97	7.66	9.60	10.03	48.89	-41.23	Average
10	0.353	-2.47	17.16	9.60	10.03	58.89	-41.73	QP
11	0.488	-11.40	8.23	9.60	10.03	46.20	-37.97	Average
12	0.488	-2.12	17.51	9.60	10.03	56.20	-38.69	QP

AC 120V/60 Hz, Neutral



Condition: neutral

Project : 2501X78827E-RF

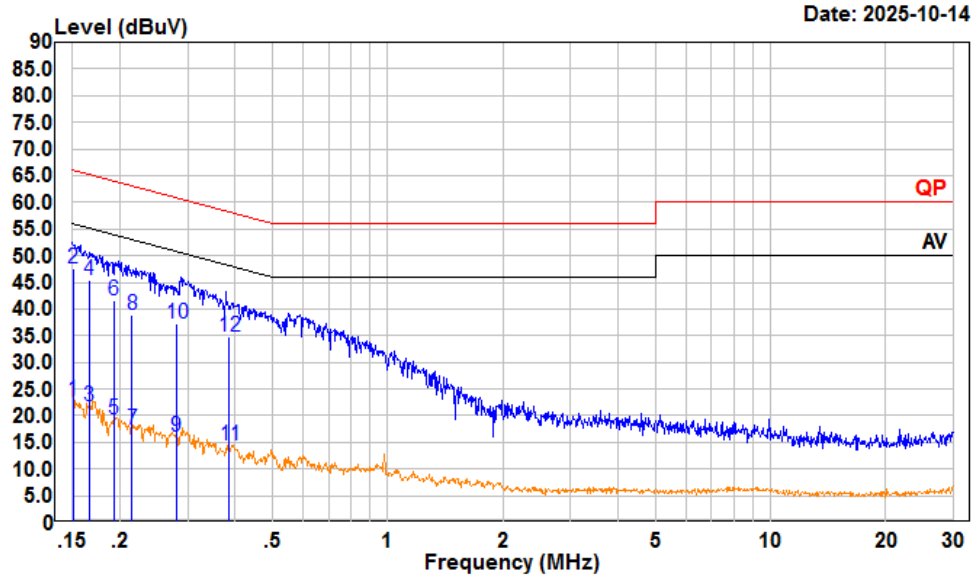
tester : Macy.shi Note:Transmitting

Setting : RBW:9kHz

	Freq	Read Level	LISN Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.152	-10.41	9.21	9.60	10.02	55.88	-46.67	Average
2	0.152	3.74	23.36	9.60	10.02	65.88	-42.52	QP
3	0.199	-11.37	8.26	9.60	10.03	53.66	-45.40	Average
4	0.199	-2.84	16.79	9.60	10.03	63.66	-46.87	QP
5	0.250	-12.33	7.30	9.60	10.03	51.76	-44.46	Average
6	0.250	-6.38	13.25	9.60	10.03	61.76	-48.51	QP
7	14.337	-12.89	7.18	9.70	10.37	50.00	-42.82	Average
8	14.337	-2.34	17.73	9.70	10.37	60.00	-42.27	QP
9	16.523	-12.77	7.33	9.70	10.40	50.00	-42.67	Average
10	16.523	-2.03	18.07	9.70	10.40	60.00	-41.93	QP
11	22.631	-12.65	7.54	9.73	10.46	50.00	-42.46	Average
12	22.631	-2.57	17.62	9.73	10.46	60.00	-42.38	QP

For Sample 3AFJ-2

AC 120V/60 Hz, Line



Condition: Line

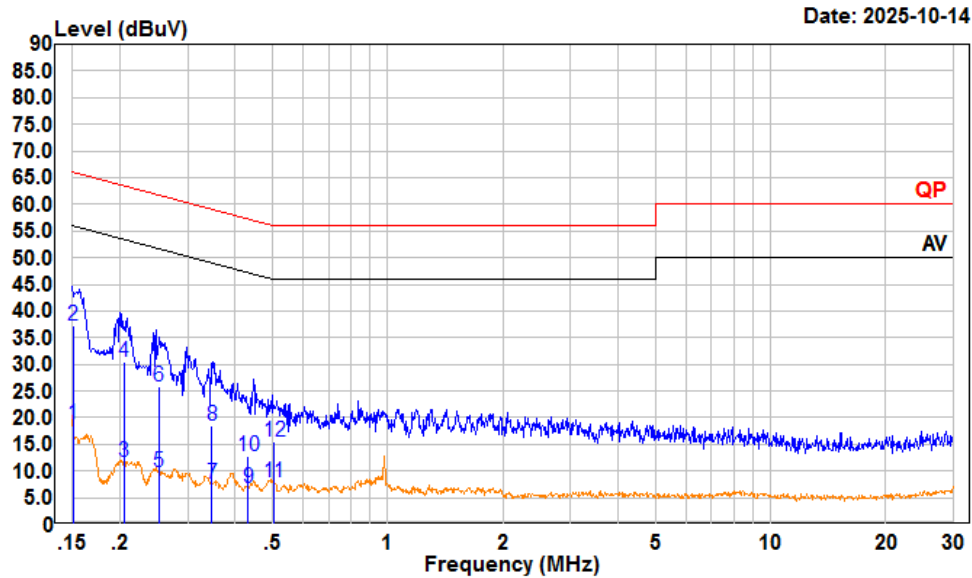
Project : 2501X78827E-RF

tester : Macy.shi Note:Transmitting

Setting : RBW:9kHz

	Freq	Read Level	Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.151	3.11	22.73	9.60	10.02	55.96	-33.23	Average
2	0.151	28.02	47.64	9.60	10.02	65.96	-18.32	QP
3	0.166	2.05	21.67	9.60	10.02	55.16	-33.49	Average
4	0.166	25.70	45.32	9.60	10.02	65.16	-19.84	QP
5	0.193	-0.44	19.19	9.60	10.03	53.92	-34.73	Average
6	0.193	22.05	41.68	9.60	10.03	63.92	-22.24	QP
7	0.215	-2.27	17.36	9.60	10.03	53.03	-35.67	Average
8	0.215	19.13	38.76	9.60	10.03	63.03	-24.27	QP
9	0.281	-3.53	16.10	9.60	10.03	50.80	-34.70	Average
10	0.281	17.71	37.34	9.60	10.03	60.80	-23.46	QP
11	0.385	-5.25	14.38	9.60	10.03	48.18	-33.80	Average
12	0.385	15.20	34.83	9.60	10.03	58.18	-23.35	QP

AC 120V/60 Hz, Neutral



Condition: neutral

Project : 2501X78827E-RF

tester : Macy.shi Note:Transmitting

Setting : RBW:9kHz

	Freq	Read Level	LISN Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBUV	dBUV	dB	dB	dBUV	dB	
1	0.151	-0.76	18.86	9.60	10.02	55.96	-37.10	Average
2	0.151	17.64	37.26	9.60	10.02	65.96	-28.70	QP
3	0.205	-8.01	11.62	9.60	10.03	53.41	-41.79	Average
4	0.205	10.88	30.51	9.60	10.03	63.41	-32.90	QP
5	0.252	-9.78	9.85	9.60	10.03	51.69	-41.84	Average
6	0.252	6.26	25.89	9.60	10.03	61.69	-35.80	QP
7	0.347	-11.99	7.64	9.60	10.03	49.03	-41.39	Average
8	0.347	-1.01	18.62	9.60	10.03	59.03	-40.41	QP
9	0.431	-12.75	6.88	9.60	10.03	47.23	-40.35	Average
10	0.431	-6.72	12.91	9.60	10.03	57.23	-44.32	QP
11	0.504	-11.81	7.82	9.60	10.03	46.00	-38.18	Average
12	0.504	-4.04	15.59	9.60	10.03	56.00	-40.41	QP

FCC§15.205, §15.209 & §15.249(d) - RADIATED EMISSIONS**Applicable Standard**

As per FCC§15.249 (a), except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

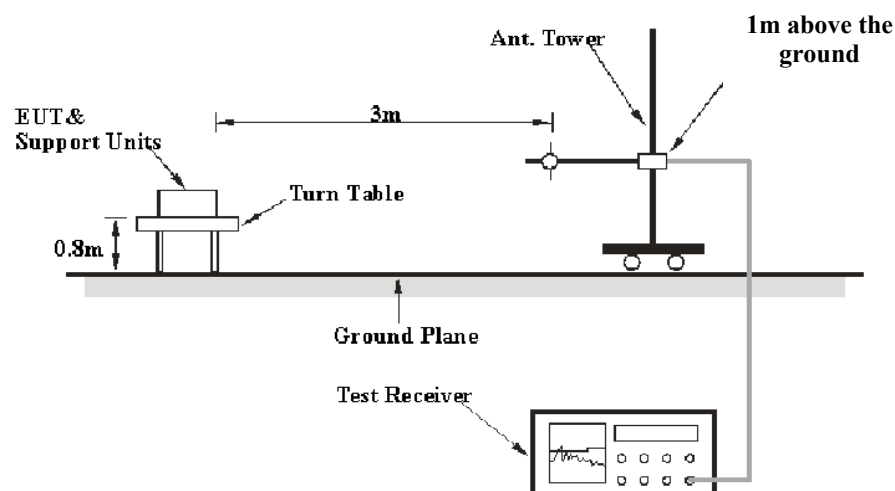
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

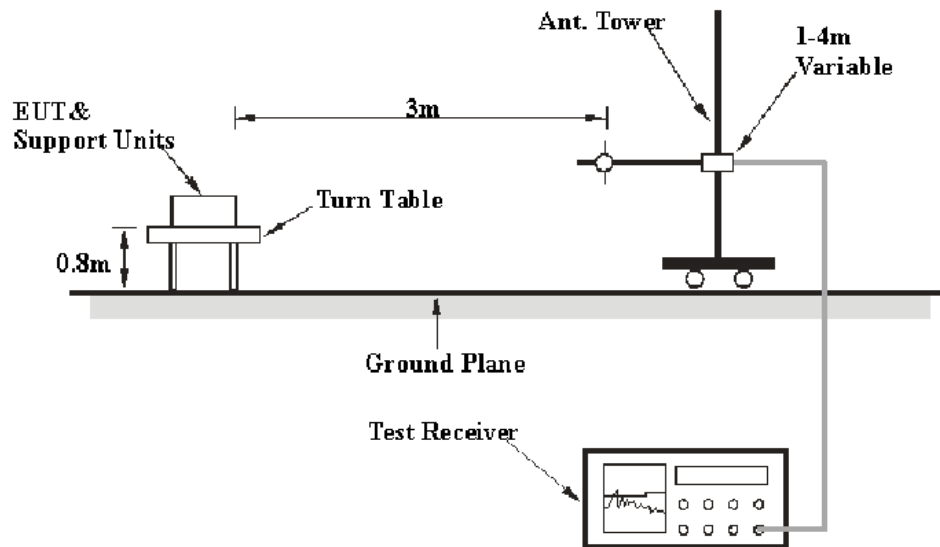
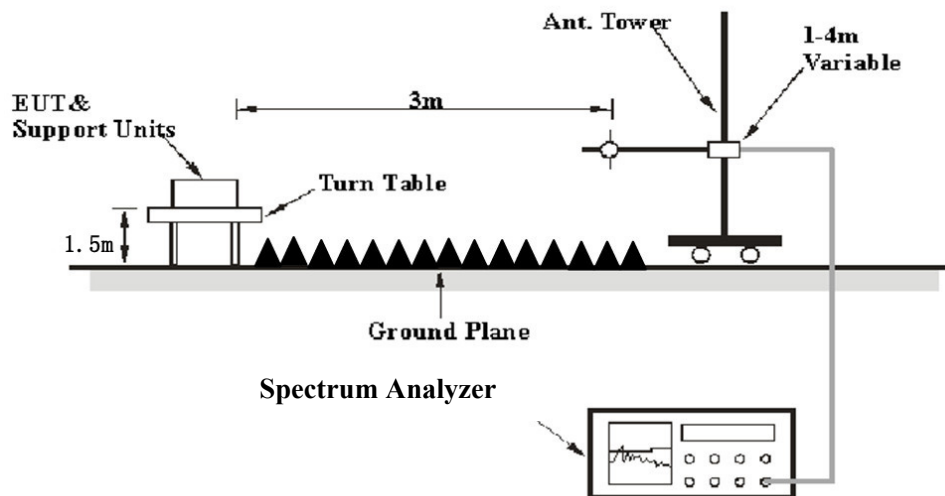
As per FCC§15.249 (c), Field strength limits are specified at a distance of 3 meters.

As per FCC§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.

EUT Setup

9 kHz-30MHz:



30MHz-1GHz:**Above 1GHz:**

The radiated emission and out of band emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2020. The specification used was the FCC 15.209/15.205 and FCC 15.249 limits.

EMI Test Receiver & Spectrum Analyzer Setup

The EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Measurement	Detector
9 kHz – 150 kHz	/	/	200 Hz	QP	QP
	300 Hz	1 kHz	/	PK	PK
150 kHz – 30 MHz	/	/	9 kHz	QP	QP
	10 kHz	30 kHz	/	PK	PK
30 MHz – 1000 MHz	/	/	120 kHz	QP	QP
	100 kHz	300 kHz	/	PK	PK
Above 1 GHz	Harmonics				
	1MHz	3 MHz	/	PK	PK
	1MHz	≥10Hz	/	Average	PK
	Band Edge & Other Emissions				
	1MHz	3 MHz	/	PK	PK
	1MHz	≥10 Hz	/	Average	PK

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The EUT is set 3 meter away from the testing antenna, which is varied from 1-4 meter, and the EUT is placed on a turntable, which is 0.8 meter above ground plane for below 1GHz or 1.5 meter for above 1GHz, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna should be changed the polarization both of horizontal and vertical.

All final data was recorded in Quasi-peak detection mode except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz, average detection modes for frequency bands 9–90 kHz and 110–490 kHz, peak and average detection modes for frequencies above 1 GHz.

For 9 kHz-30MHz, the report shall list the six emissions with the smallest margin relative to the limit, for each of the three antenna orientations (parallel, perpendicular, and ground-parallel) unless the margin is greater than 20 dB.

All emissions under the average limit and under the noise floor have not recorded in the report.

Factor & Over Limit/Margin Calculation

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain. The basic equation is as follows:

$$\text{Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Over Limit/Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over Limit/margin of -7dB means the emission is 7dB below the limit. The equation for calculation is as follows:

$$\begin{aligned}\text{Over Limit} &= \text{Level} - \text{Limit}; \text{Margin} = \text{Limit} - \text{Corrected Amplitude} \\ \text{Level} / \text{Corrected Amplitude} &= \text{Read Level} + \text{Factor}\end{aligned}$$

Test Data

Environmental Conditions

Temperature:	22.4~25.8 °C
Relative Humidity:	48~58 %
ATM Pressure:	100.7~101.4 kPa

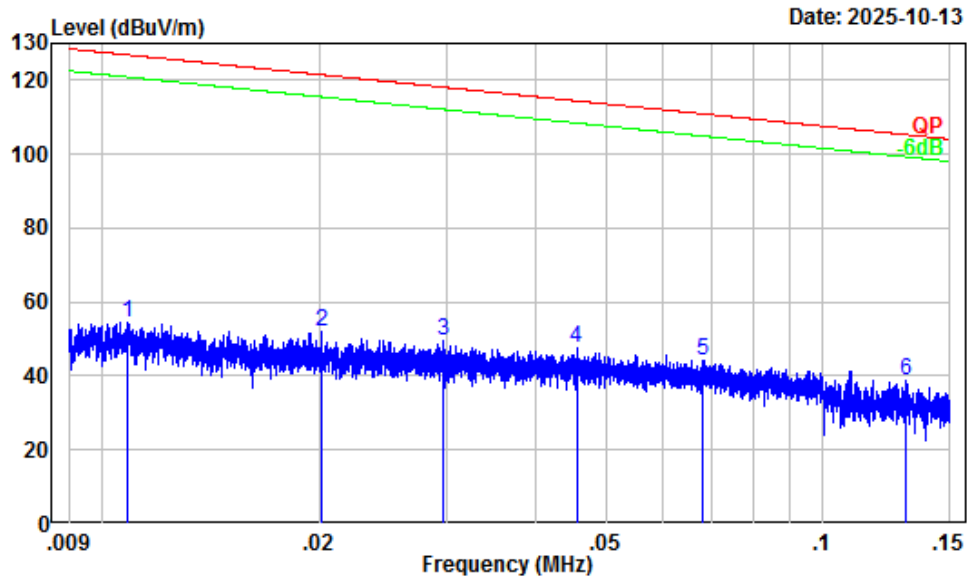
The testing was performed by Nico Wu from 2025-10-05 to 2025-10-13 for below 1GHz and Wing K Ji on 2025-10-09 for above 1GHz.

EUT operation mode: Transmitting

For Sample 3AFJ-1
9 kHz-30MHz:

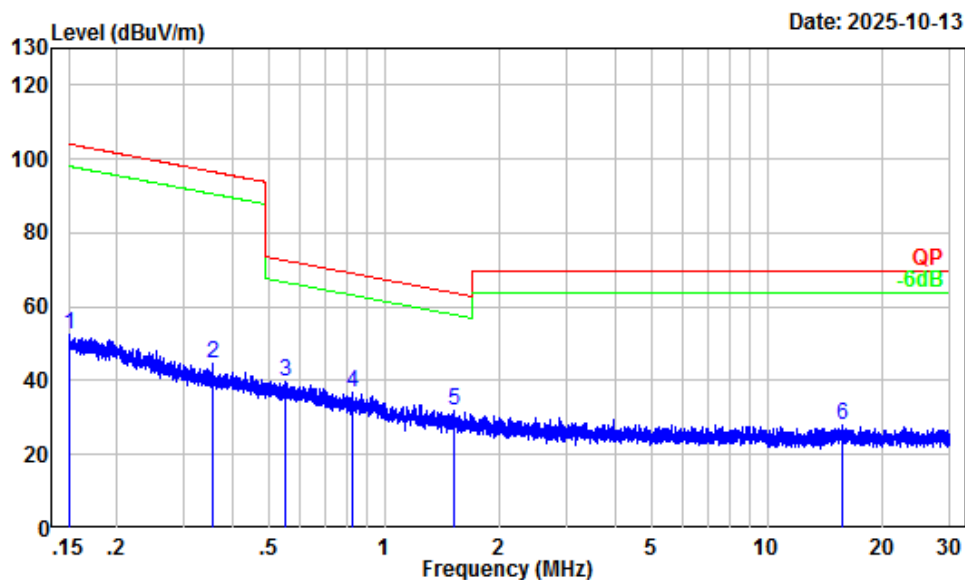
Note: When the test result of peak was less than the limit of QP/Average more than 6dB, just peak value were recorded.

Parallel (worst case)



Site : Chamber A
Condition : 3m
Project Number : 2501X78827E-RF
Test Mode : Transmitting
Detector: Peak RBW/VBW: 0.3/1kHz
Tester : Nico Wu

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	0.011	32.13	22.49	54.62	126.88	-72.26	Peak
2	0.020	30.37	21.58	51.95	121.52	-69.57	Peak
3	0.030	28.55	20.78	49.33	118.14	-68.81	Peak
4	0.046	26.87	20.69	47.56	114.44	-66.88	Peak
5	0.068	24.57	19.73	44.30	110.92	-66.62	Peak
6	0.130	20.20	18.71	38.91	105.30	-66.39	Peak

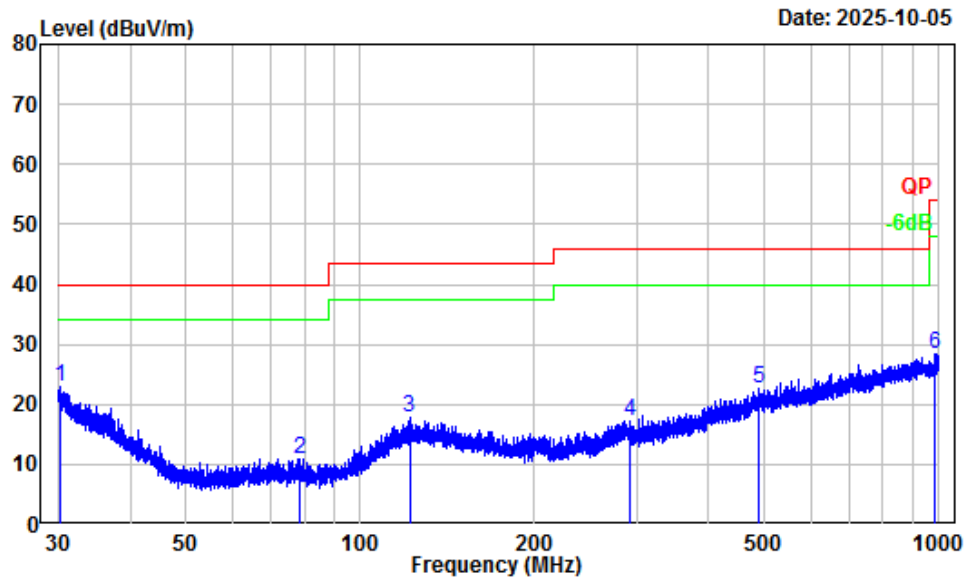


Site : Chamber A
 Condition : 3m
 Project Number : 2501X78827E-RF
 Test Mode : Transmitting
 Detector: Peak RBW/VBW: 10/30kHz
 Tester : Nico Wu

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	0.151	19.00	33.41	52.41	104.03	-51.62	Peak
2	0.356	9.14	35.55	44.69	96.58	-51.89	Peak
3	0.553	5.75	33.84	39.59	72.73	-33.14	Peak
4	0.827	2.50	34.51	37.01	69.16	-32.15	Peak
5	1.514	-0.24	32.17	31.93	63.79	-31.86	Peak
6	15.697	-2.36	30.43	28.07	69.54	-41.47	Peak

30MHz-1GHz:

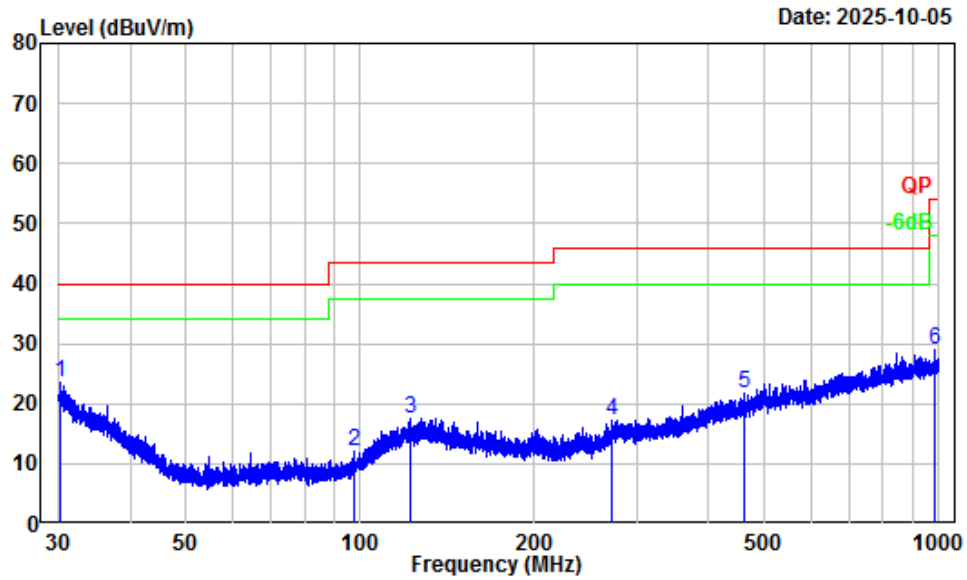
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number : 2501X78827E-RF
Test Mode : Transmitting
Detector: Peak RBW/VBW: 100/300kHz
Tester : Nico Wu

	Freq	Factor	Read Level	Limit Level	Over Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	30.30	-6.11	28.93	22.82	40.00	-17.18	Peak
2	78.45	-17.85	28.82	10.97	40.00	-29.03	Peak
3	121.60	-11.29	29.05	17.76	43.50	-25.74	Peak
4	292.83	-11.21	28.51	17.30	46.00	-28.70	Peak
5	487.53	-6.08	28.76	22.68	46.00	-23.32	Peak
6	981.76	-0.65	28.91	28.26	54.00	-25.74	Peak

Vertical



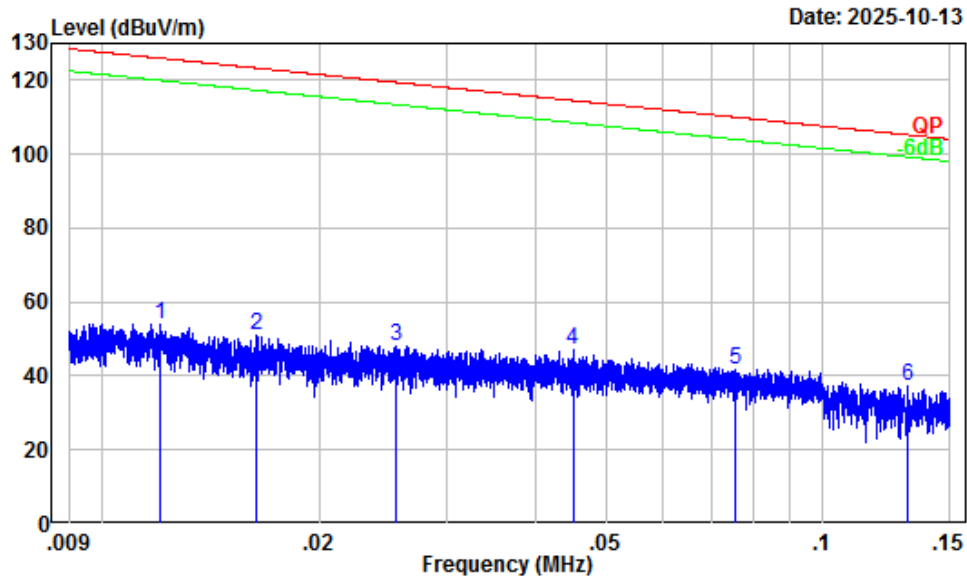
Site : Chamber A
Condition : 3m Vertical
Project Number : 2501X78827E-RF
Test Mode : Transmitting
Detector: Peak RBW/VBW: 100/300kHz
Tester : Nico Wu

	Freq	Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	30.36	-6.14	29.69	23.55	40.00	-16.45	Peak
2	97.58	-16.63	28.71	12.08	43.50	-31.42	Peak
3	122.46	-11.19	28.84	17.65	43.50	-25.85	Peak
4	272.88	-11.56	28.77	17.21	46.00	-28.79	Peak
5	459.52	-7.12	28.82	21.70	46.00	-24.30	Peak
6	981.76	-0.65	29.64	28.99	54.00	-25.01	Peak

For Sample 3AFJ-2
9 kHz-30MHz:

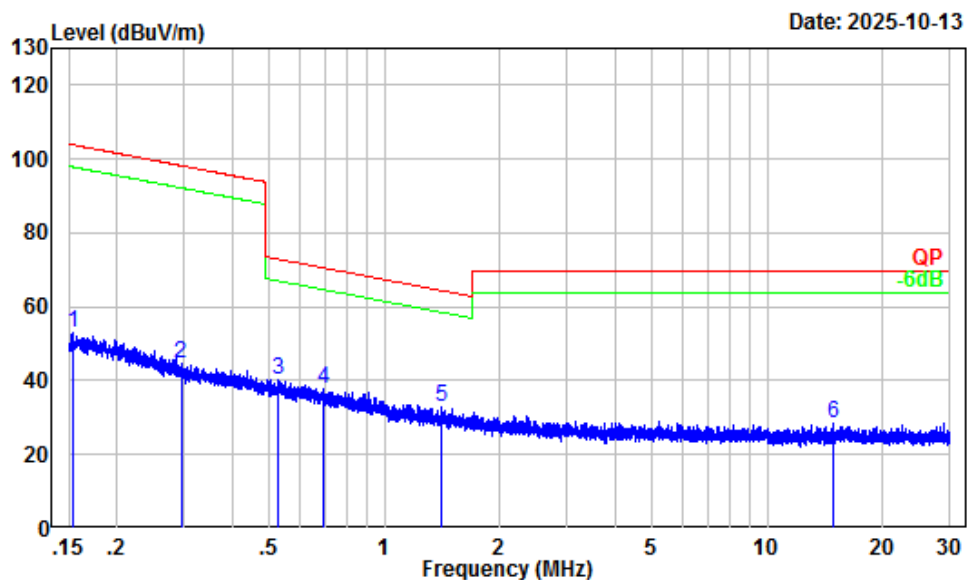
Note: When the test result of peak was less than the limit of QP/Average more than 6dB, just peak value were recorded.

Parallel (worst case)



Site : Chamber A
Condition : 3m
Project Number : 2501X78827E-RF
Test Mode : Transmitting
Detector: Peak RBW/VBW: 0.3/1kHz
Tester : Nico Wu

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	0.012	31.91	22.20	54.11	125.98	-71.87	Peak
2	0.016	31.08	20.14	51.22	123.30	-72.08	Peak
3	0.026	29.35	18.74	48.09	119.47	-71.38	Peak
4	0.045	26.92	20.15	47.07	114.54	-67.47	Peak
5	0.076	23.83	17.87	41.70	110.03	-68.33	Peak
6	0.131	20.16	17.26	37.42	105.25	-67.83	Peak

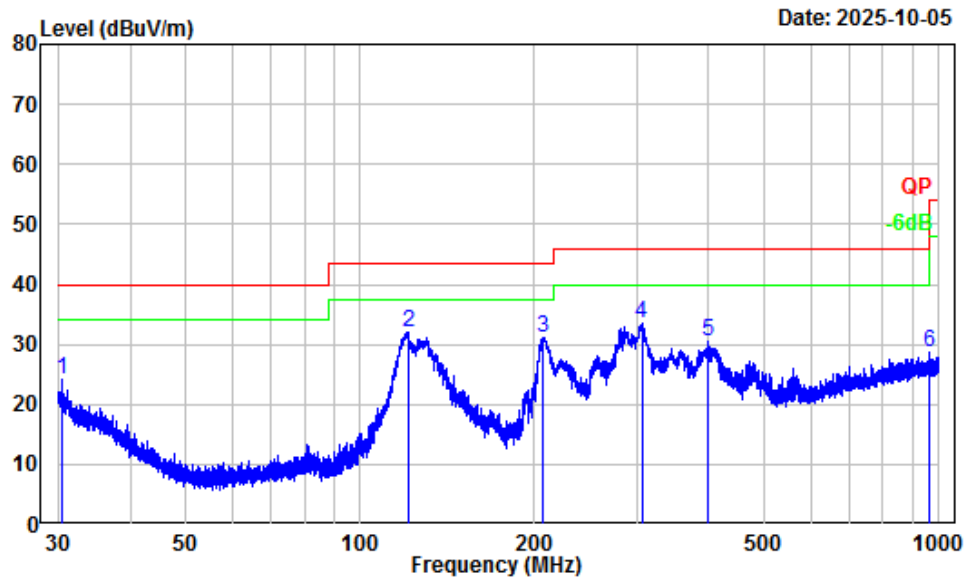


Site : Chamber A
 Condition : 3m
 Project Number : 2501X78827E-RF
 Test Mode : Transmitting
 Detector: Peak RBW/VBW: 10/30kHz
 Tester : Nico Wu

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	0.154	18.84	34.06	52.90	103.88	-50.98	Peak
2	0.294	10.53	33.89	44.42	98.23	-53.81	Peak
3	0.527	6.06	34.01	40.07	73.15	-33.08	Peak
4	0.696	3.98	33.72	37.70	70.69	-32.99	Peak
5	1.413	0.04	32.84	32.88	64.41	-31.53	Peak
6	14.936	-2.51	30.86	28.35	69.54	-41.19	Peak

30MHz-1GHz:

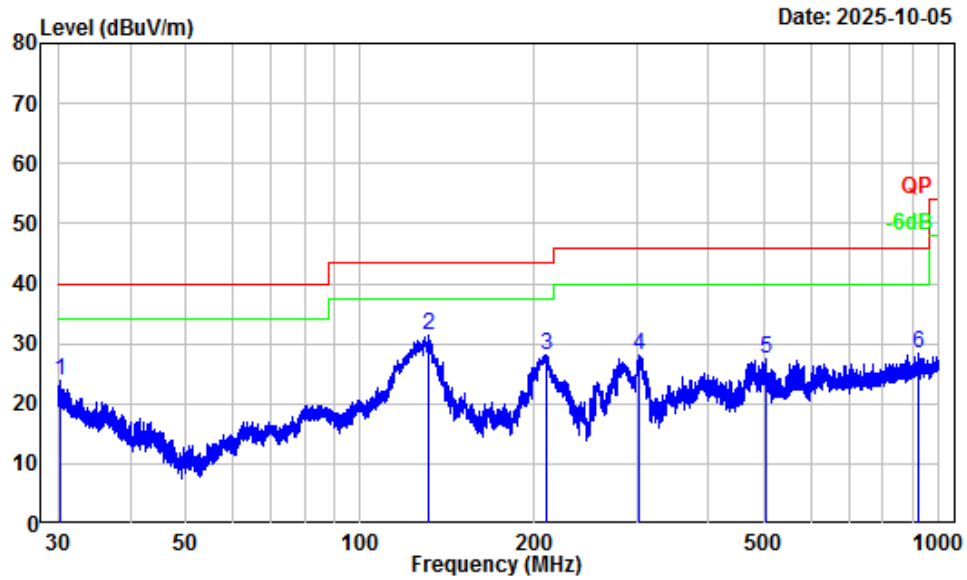
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number : 2501X78827E-RF
Test Mode : Transmitting
Detector: Peak RBW/VBW: 100/300kHz
Tester : Nico Wu

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	30.58	-6.26	30.37	24.11	40.00	-15.89	Peak
2	120.75	-11.37	43.33	31.96	43.50	-11.54	Peak
3	206.85	-13.66	44.78	31.12	43.50	-12.38	Peak
4	306.49	-11.07	44.55	33.48	46.00	-12.52	Peak
5	398.33	-8.49	38.83	30.34	46.00	-15.66	Peak
6	963.43	-0.88	29.65	28.77	54.00	-25.23	Peak

Vertical



Site : Chamber A
Condition : 3m Vertical
Project Number : 2501X78827E-RF
Test Mode : Transmitting
Detector: Peak RBW/VBW: 100/300kHz
Tester : Nico Wu

	Freq	Factor	Read Level	Limit Level	Over Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	30.38	-6.15	29.98	23.83	40.00	-16.17	Peak
2	131.47	-11.31	42.66	31.35	43.50	-12.15	Peak
3	210.23	-14.04	42.24	28.20	43.50	-15.30	Peak
4	303.94	-11.10	39.03	27.93	46.00	-18.07	Peak
5	500.96	-5.76	33.16	27.40	46.00	-18.60	Peak
6	918.88	-1.13	29.41	28.28	46.00	-17.72	Peak

For Sample 3AFJ-1

Above 1GHz:

Frequency (MHz)	Reading (dBμV)	PK/AV	Polar (H/V)	Factor (dB/m)	Absolute Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
5800MHz							
11600.00	53.58	PK	H	3.19	56.77	74	-17.23
11600.00	39.29	AV	H	3.19	42.48	54	-11.52
11600.00	53.31	PK	V	3.19	56.50	74	-17.50
11600.00	39.11	AV	V	3.19	42.30	54	-11.70

Note:

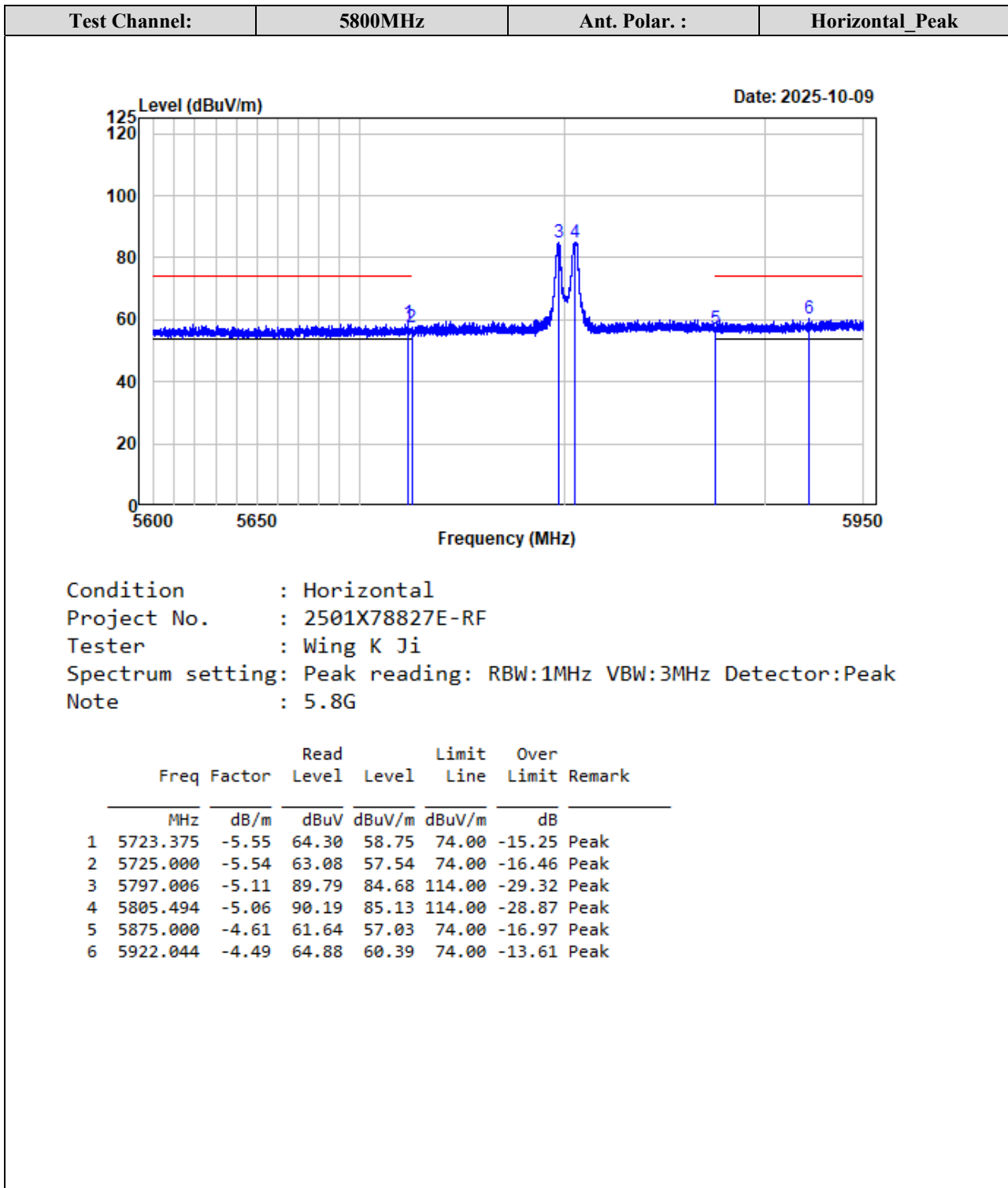
Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor

Absolute Level (Corrected Amplitude) = Factor + Reading

Margin = Absolute Level - Limit

The other spurious emission which is 20dB to the limit or in noise floor level was not recorded.

Test plots for Band Edge Measurements (Radiated):

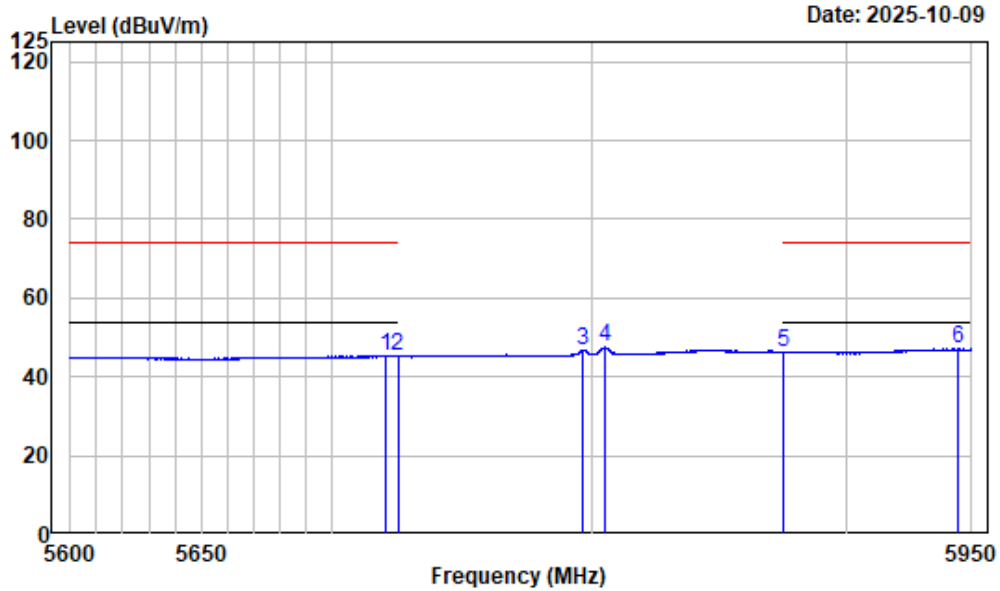


Test Channel:

5800MHz

Ant. Polar. :

Horizontal_Average



Condition : Horizontal

Project No. : 2501X78827E-RF

Tester : Wing K Ji

Spectrum setting: Average reading: RBW:1MHz VBW:10Hz Detector:Peak

Note : 5.8G

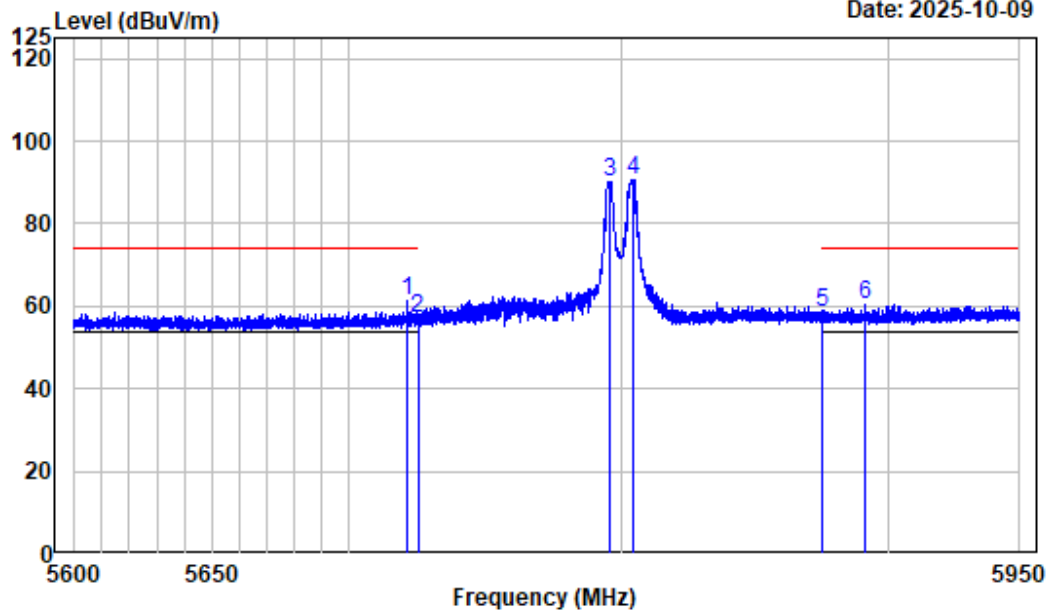
	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5720.225	-5.58	50.92	45.34	54.00	-8.66	Average
2	5725.000	-5.54	50.73	45.19	54.00	-8.81	Average
3	5796.831	-5.11	51.99	46.88	94.00	-47.12	Average
4	5805.319	-5.06	52.55	47.49	94.00	-46.51	Average
5	5875.000	-4.61	50.82	46.21	54.00	-7.79	Average
6	5944.925	-4.49	51.49	47.00	54.00	-7.00	Average

Test Channel:

5800MHz

Ant. Polar. :

Vertical_Peak



Condition : Vertical

Project No. : 2501X78827E-RF

Tester : Wing K Ji

Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak

Note : 5.8G

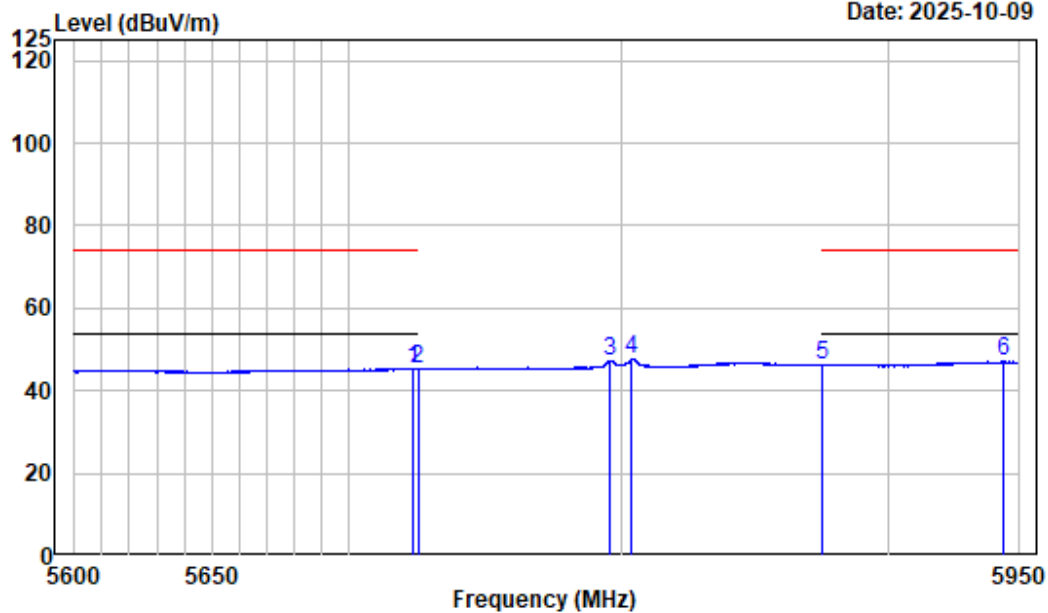
	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5721.100	-5.57	66.69	61.12	74.00	-12.88	Peak
2	5725.000	-5.54	62.56	57.02	74.00	-16.98	Peak
3	5796.087	-5.11	95.19	90.08	114.00	-23.92	Peak
4	5804.837	-5.06	95.58	90.52	114.00	-23.48	Peak
5	5875.000	-4.61	63.29	58.68	74.00	-15.32	Peak
6	5891.200	-4.55	64.78	60.23	74.00	-13.77	Peak

Test Channel:

5800MHz

Ant. Polar. :

Vertical_Average



Condition : Vertical

Project No. : 2501X78827E-RF

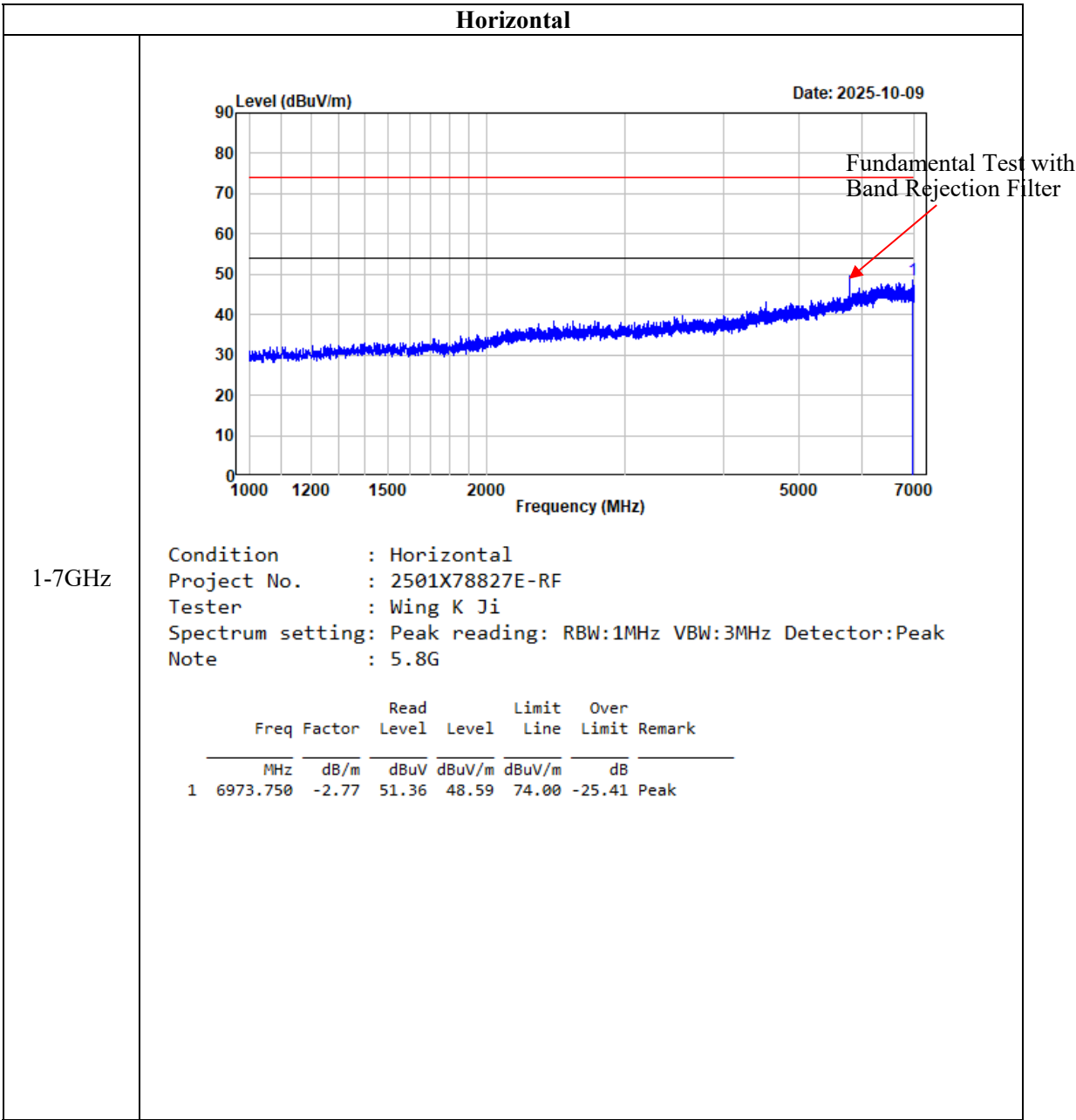
Tester : Wing K Ji

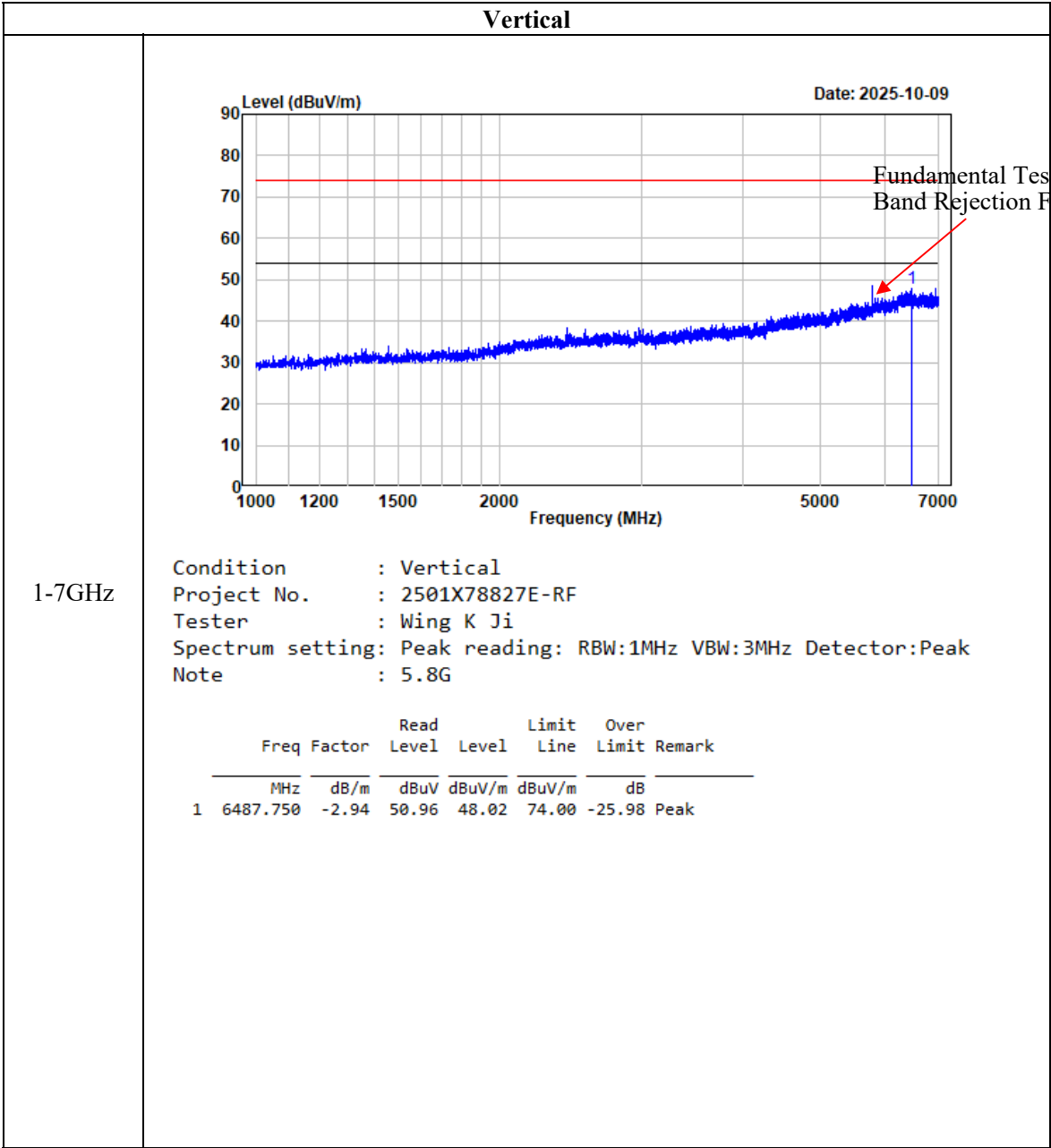
Spectrum setting: Average reading: RBW:1MHz VBW:10Hz Detector:Peak

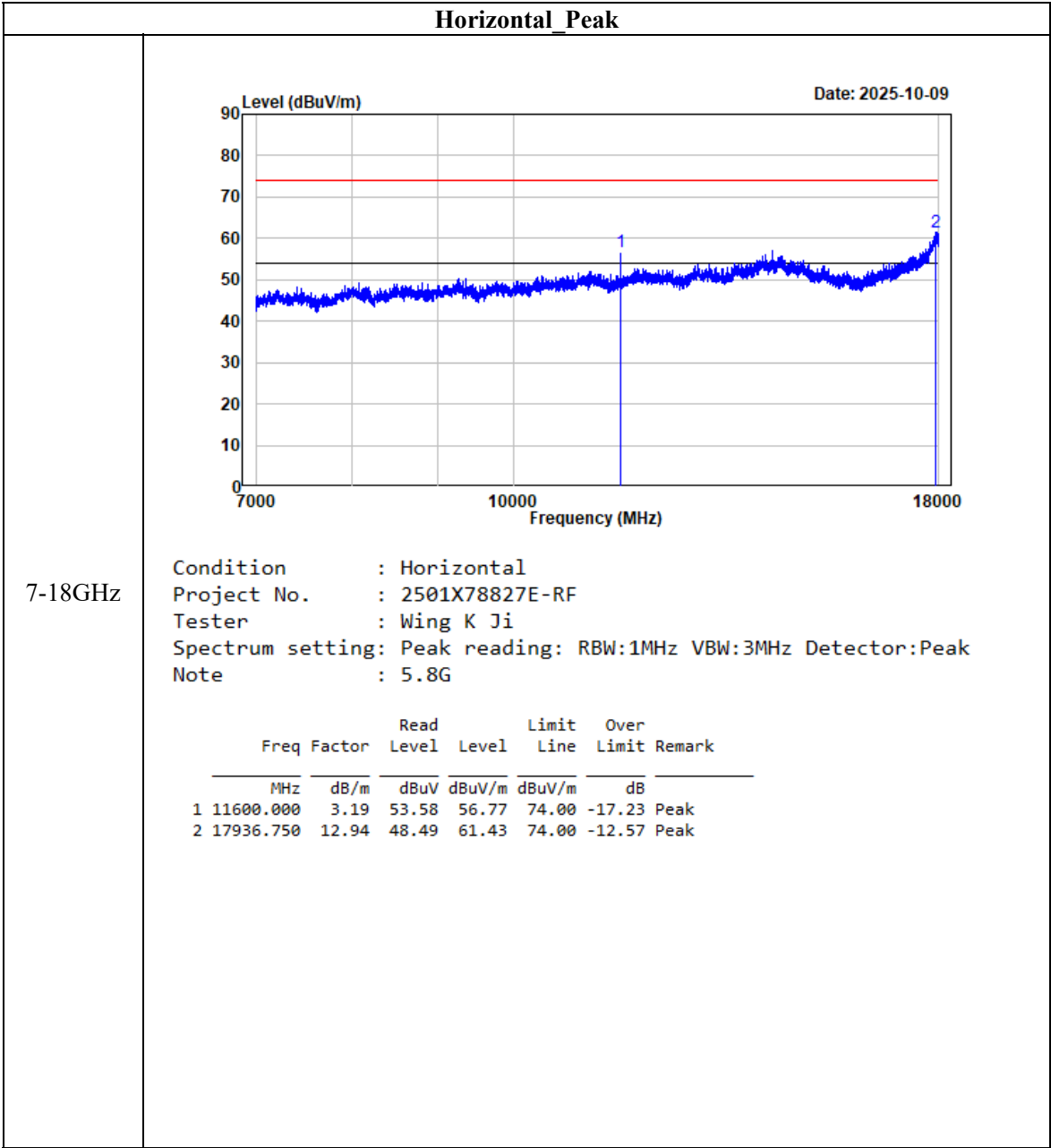
Note : 5.8G

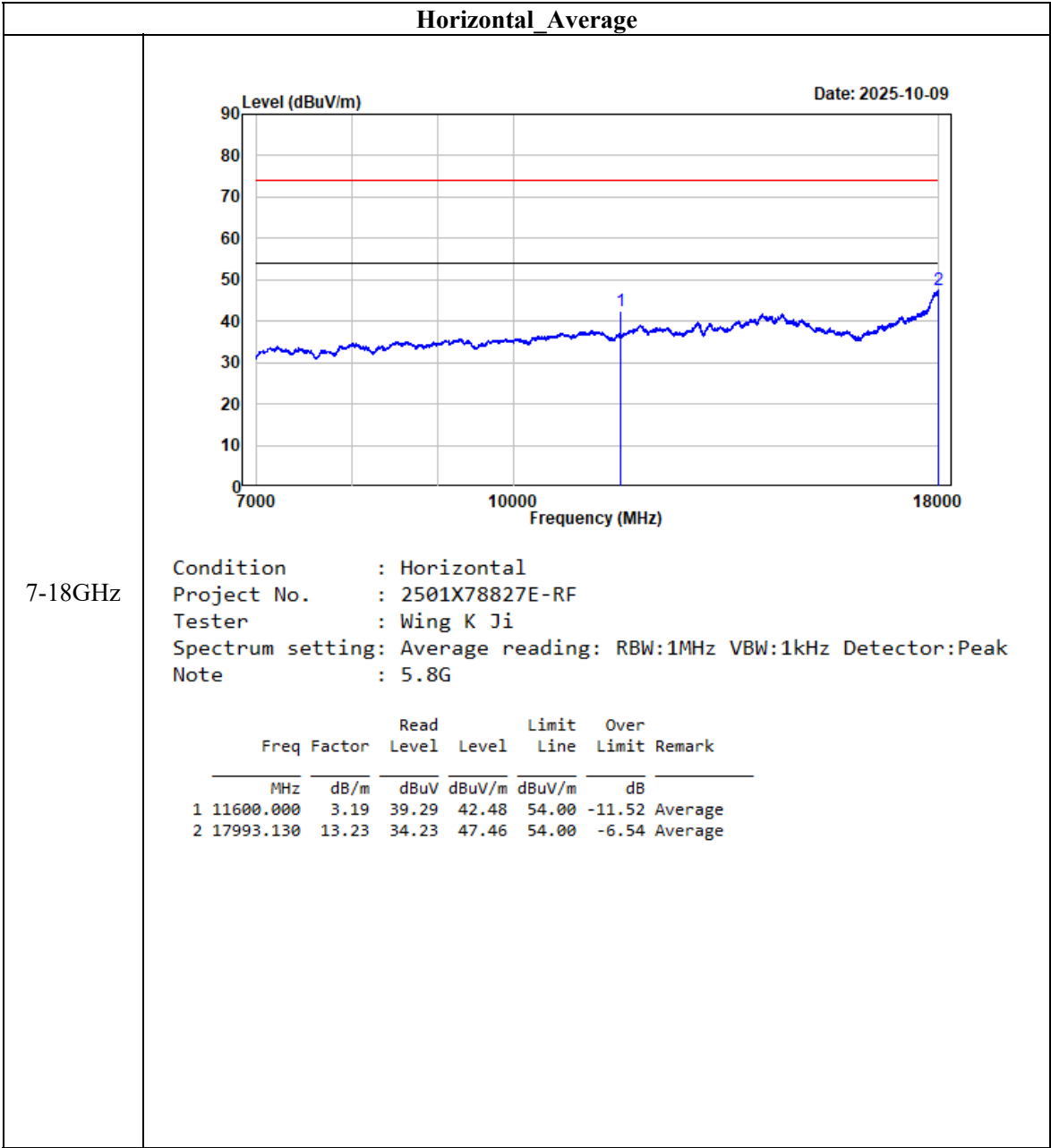
	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	5723.462	-5.55	50.93	45.38	54.00	-8.62	Average
2	5725.000	-5.54	50.74	45.20	54.00	-8.80	Average
3	5796.175	-5.11	52.35	47.24	94.00	-46.76	Average
4	5804.138	-5.07	52.82	47.75	94.00	-46.25	Average
5	5875.000	-4.61	50.89	46.28	54.00	-7.72	Average
6	5943.875	-4.49	51.53	47.04	54.00	-6.96	Average

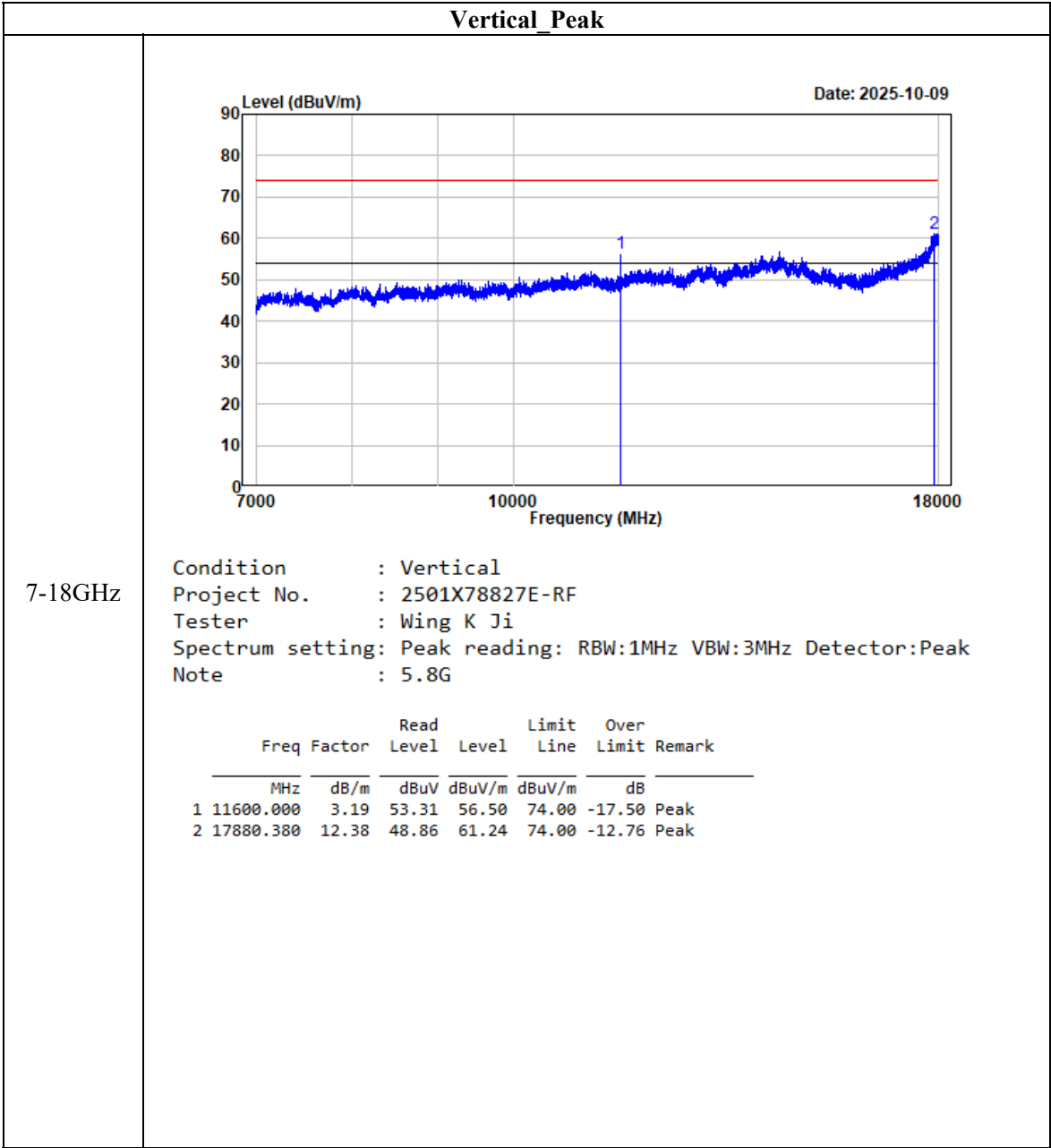
Listed with the worst harmonic margin test plot:

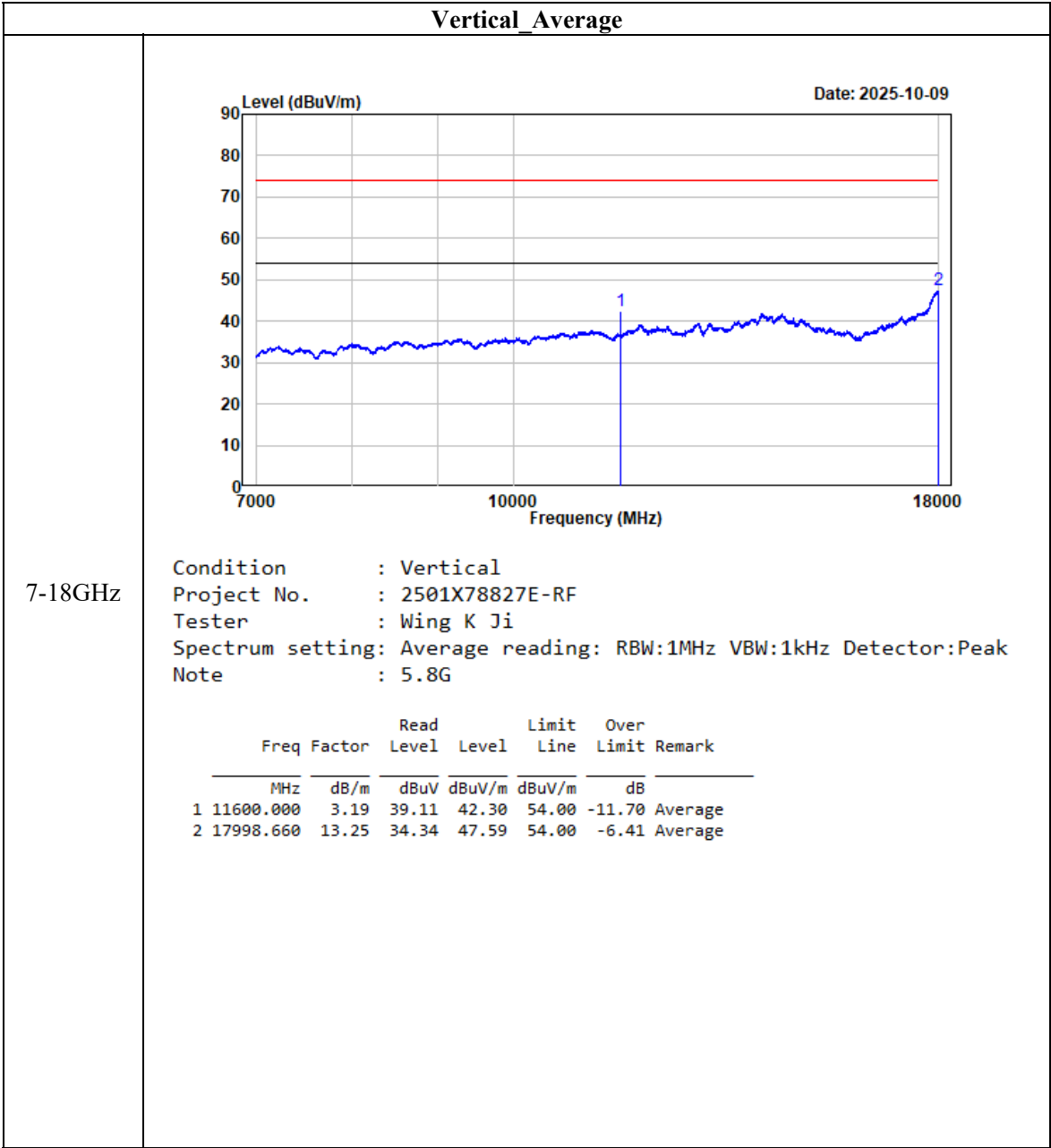


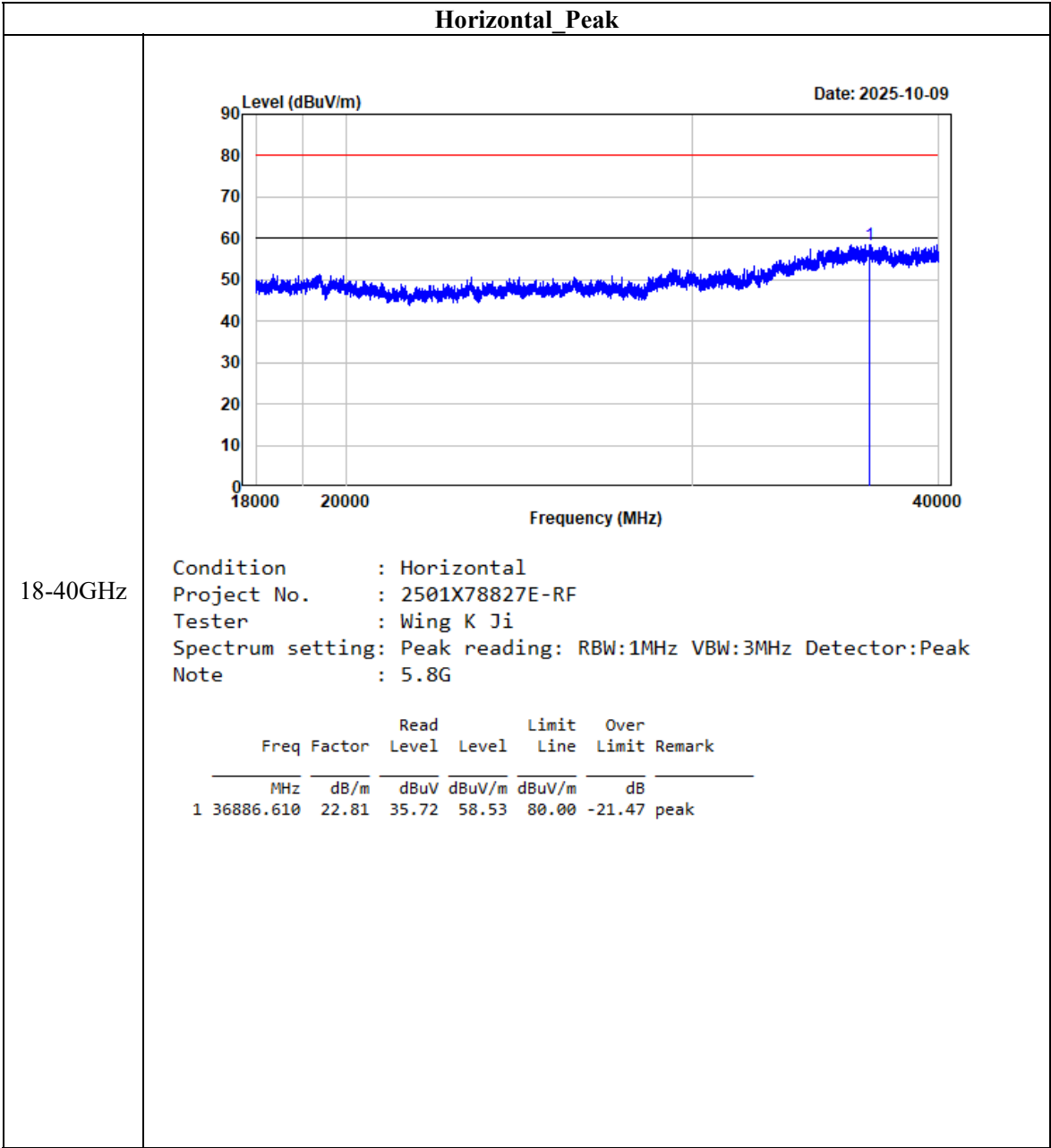


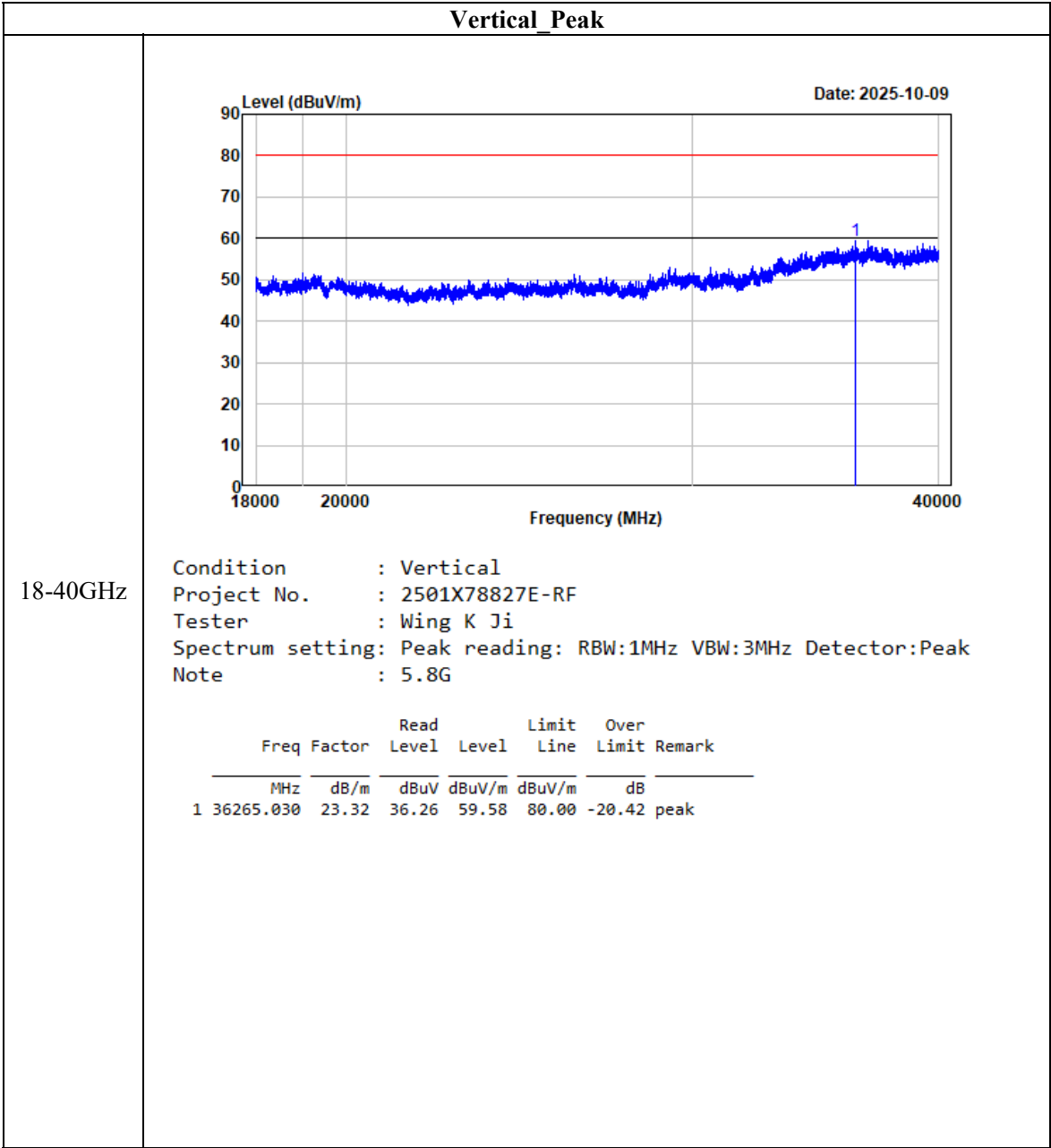












FCC§15.215(c) - 20dB EMISSION BANDWIDTH

Applicable Standard

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

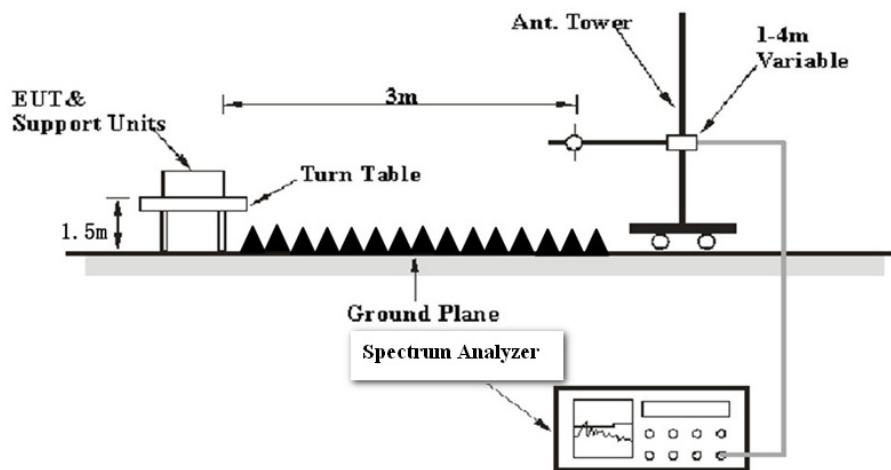
Test Procedure

Test Method: ANSI C63.10-2020 Clause 6.9.2

- a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW.
- b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be at least three times RBW, unless otherwise specified by the applicable requirement.
- c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (OBW/RBW)]$ below the reference level. Specific guidance is given in 4.1.6.2.
- d) Steps a) through c) might require iteration to adjust within the specified tolerances.
- e) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target “-xx dB down” requirement; that is, if the requirement calls for measuring the -20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below the reference value.
- f) Set detection mode to peak and trace mode to max-hold.
- g) Determine the reference value: Set the EUT to transmit an unmodulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).
- h) Determine the “-xx dB down amplitude” using $[(\text{reference value}) - xx]$. Alternatively, this calculation may be made by using the marker-delta function of the instrument.
- i) If the reference value is determined by an unmodulated carrier, then turn the EUT modulation ON, and either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j).

j) Place two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “-xx dB down amplitude” determined in step h). If a marker is below this “-xx dB down amplitude” value, then it shall be as close as possible to this value. The dBc bandwidth is the frequency difference between the two markers. Alternatively, set a marker at the lowest frequency of the envelope of the spectral display, such that the marker is at or slightly below the “-xx dB down amplitude” determined in step h). Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth.

k) The dBc bandwidth shall be reported by providing spectral plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).



Test Data**Environmental Conditions**

Temperature:	22.4 °C
Relative Humidity:	48 %
ATM Pressure:	101.4 kPa

The testing was performed by Wing K Ji on 2025-10-09.

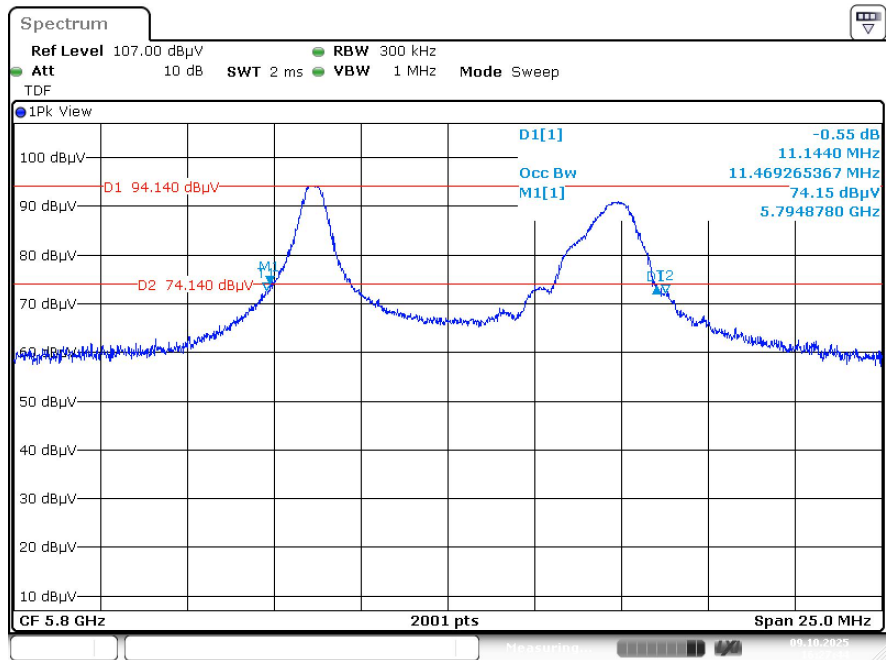
EUT operation mode: Transmitting

For Sample 3AFJ-1

Please refer to the following table and plots.

Channel	Frequency (MHz)	20dB Bandwidth (MHz)
Middle	5800	11.144

Middle Channel



ProjectNo.:2501X78827E-RF Tester:Wing K Ji

Date: 9.OCT.2025 16:27:44

EUT PHOTOGRAPHS

Please refer to the attachment 2501X78827E-RF-EXP External photo and 2501X78827E-RF-INP Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2501X78827E-RF-TSP Test Setup photo.

******* END OF REPORT *******