



FCC EMI TEST REPORT

The product was received on Apr. 15, 2025 and testing was performed from Apr. 30, 2025 to Jun. 11, 2025. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2014 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. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

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



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History of this test report



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.107	AC Conducted Emission	Pass	-
3.2	15.109	Radiated Emission	Pass	-

Conformity Assessment Condition:

1. 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/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. 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.

Reviewed by: Keven Cheng

Report Producer: Freda Wu



1. General Description

1.1. Product Feature of Equipment Under Test

Product Feature	
General Specs	
	Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n/ac/ax, Wi-Fi 5GHz 802.11a/n/ac/ax, NFC(WPT).
Sample1	Main source
Sample2	2nd source
Sample 3	2nd source – DRAM

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

<Sample List>

Main Board	Main source	Vendor	Avary
		Model Number	SB0SDV1BV0G
Antenna SUB Board	2nd source	Vendor	PI
		Model Number	SB0SDV1B00G
Antenna SUB Board	Main source	Vendor	Avary
		Model Number	SB0SDV2BV0D
PB FPC	2nd source	Vendor	ASKPCB
		Model Number	SB0SDV2B00D
PB FPC	Main source	Vendor	AKM
		Model Number	MESDV14201A
USB FPC	2nd source	Vendor	ICHIA
		Model Number	MESDV14211A
Hall Sensor FPC	Main source	Vendor	AKM
		Model Number	MESDV14205A
DRAM	2nd source	Vendor	ICHIA
		Model Number	MESDV14215A
DRAM	Main source	Vendor	Micron
		Model Number	MT53E1G16D1ZW-046 WT:C
	2nd source	Vendor	JSC
		Model Number	JSL4BAG167ZAMF-05A

1.2. Modification of EUT

No modifications made to the EUT during the testing.



1.3. Test Location

Test Site	Sportun International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	Sportun Site No. CO05-HY, 03CH06-HY

FCC designation No.: TW1093

1.4. Applicable Standards

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC 47 CFR FCC Part 15 Subpart B Class B
- ♦ ANSI C63.4-2014
- ♦ ANSI C63.4a-2017

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

2.1. Test Mode

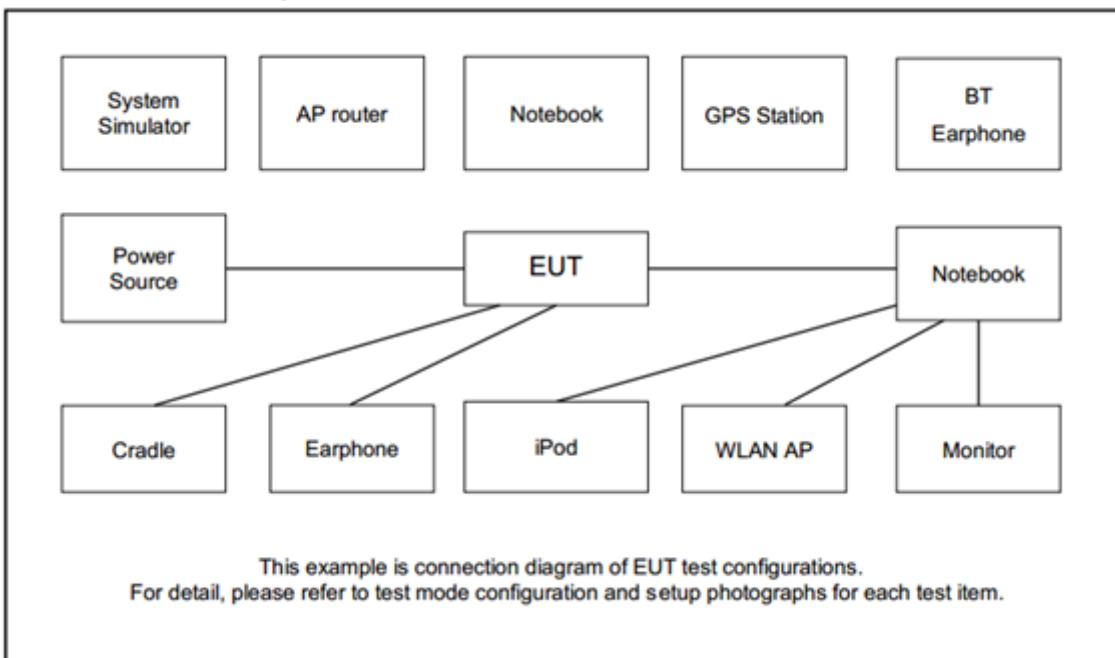
The EUT is tested along with the peripherals, operating under possible configurations in compliant with normal operation. The maximum emissions can be identified by a pre-scan carried out in different orientations of placement pursuant to ANSI C63.4-2014. Frequency range covered: Conduction Emission (150 kHz to 30 MHz), Radiation Emission (30 MHz to the 5th harmonics of the highest fundamental frequency or to 40 GHz, whichever is lower).

Test Items	Functions Enabled
AC Conducted Emission	Mode 1: WLAN (2.4GHz) Link + Wireless Charging to Pen1(NFC) + USB Cable 1(Charging from Adapter) + Battery + Holster 1 + H-Plane + Backlight for Sample 1 Mode 2: Bluetooth Link + WLAN (5GHz) Link + Wireless Charging to Pen2(NFC) + USB Cable 1(Data Link with Notebook) + Battery + Holster 2 + H-Plane + Backlight for Sample 1 Mode 3: WLAN (2.4GHz) Link + Write mode with Pen 1 + USB Cable 2(Charging from Adapter) + Battery + Backlight for Sample 1 Mode 4: Bluetooth Link + WLAN (5GHz) Link + Pen clear with Pen 2 + USB Cable 2(Data Link with Notebook) + Battery + Backlight for Sample 1
Radiated Emissions	Mode 1: WLAN (2.4GHz) Link + Wireless Charging to Pen1(NFC) + USB Cable 1(Charging from Adapter) + Battery + Holster 1 + H-Plane + Backlight for Sample 1 Mode 2: Bluetooth Link + WLAN (5GHz) Link + Wireless Charging to Pen2(NFC) + USB Cable1 (Data Link with Notebook) + Battery + Holster 2 + H-Plane + Backlight for Sample 1 Mode 3: WLAN (2.4GHz) Link + Write mode with Pen 1 + USB Cable2 (Charging from Adapter) + Battery + Backlight for Sample 1 Mode 4: Bluetooth Link + WLAN (5GHz) Link + Pen clear with Pen 2 + USB Cable2 (Data Link with Notebook) + Battery + Backlight for Sample 1 Mode 5: Bluetooth Link + WLAN (5GHz) Link + Pen clear with Pen 2 + USB Cable2 (Data Link with Notebook) + Battery for Sample 2 Mode 6: Bluetooth Link + WLAN (5GHz) Link + Pen clear with Pen 2 + USB Cable2 (Data Link with Notebook) + Battery for Sample 3

Remark:

1. The worst case of AC is mode 2; only the test data of this mode was reported.
2. The worst case of RE is mode 4; only the test data of this mode was reported.
3. Data Link with Notebook means data application transferred mode between EUT and Notebook.

2.2. Connection Diagram of Test System



2.3. Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
2.	WLAN AP	ASUS	RT-AX88U	MSQ-RTAXHP00	N/A	Unshielded, 1.8 m
3.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0m	N/A
4.	Adapter	Google	G9BR1 LPS	N/A	N/A	N/A
5.	Notebook	DELL	Latitude 3420	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	Notebook	DELL	P152G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

2.4. EUT Operation Test Setup

The EUT is attached to the Bluetooth earphone or WLAN AP, and the following programs installed in the EUT are programmed during the test:

1. Data application is transferred between Notebook via USB cable.
2. Execute "H Pattern" to show H Patterns.
3. Turn on the NFC function and charge the charging pen.



3. Test Result

3.1. Test of AC Conducted Emission Measurement

3.1.1. Limits 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.

<Class B>

Frequency of emission (MHz)	Conducted limit (dBuV)	
	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.

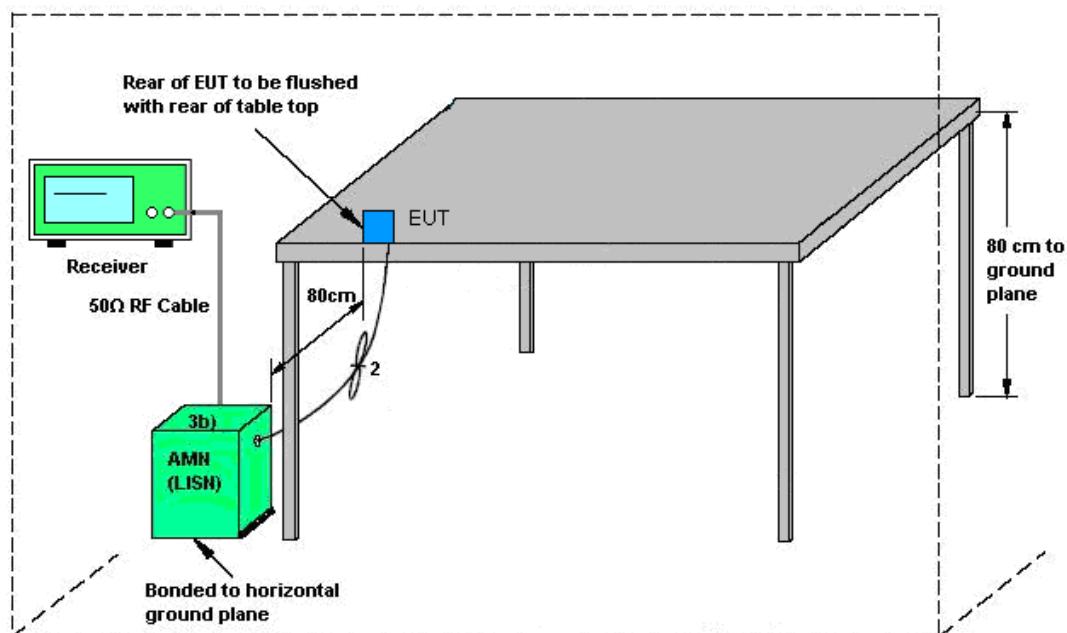
3.1.2. Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.1.3. Test Procedure

1. The EUT is placed 0.4 meter away from the conducting wall of the shielding room, and is 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 shall be used.
6. Both Line and Neutral shall be tested in order to find out the maximum conducted emission.
7. The frequency range from 150 kHz to 30 MHz is scanned.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (If Bandwidth = 9 kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

3.1.4. Test Setup



AMN = Artificial mains network (LISH)

AE = Associated equipment

EUT = Equipment under test

ISN = Impedance stabilization network

3.1.5. Test Result of AC Conducted Emission

Please refer to Appendix A.



3.2. Test of Radiated Emission Measurement

3.2.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

<Class B>

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.2.2. Measuring Instruments

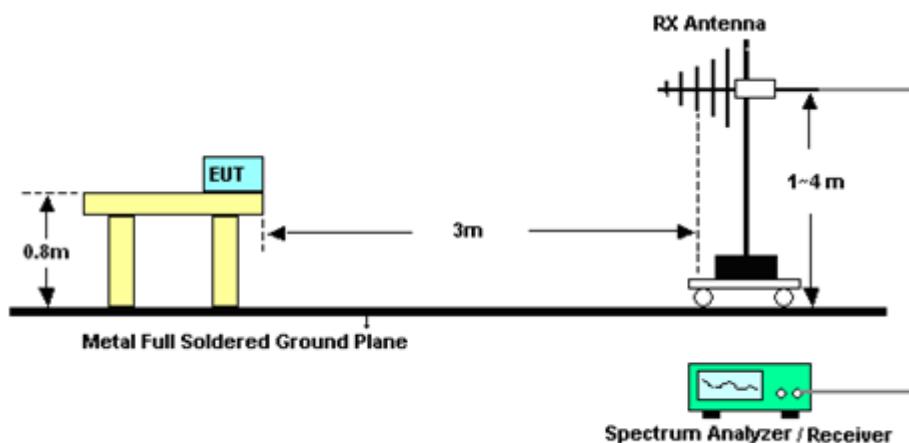
Please refer to the measuring equipment list in this test report.

3.2.3. Test Procedures

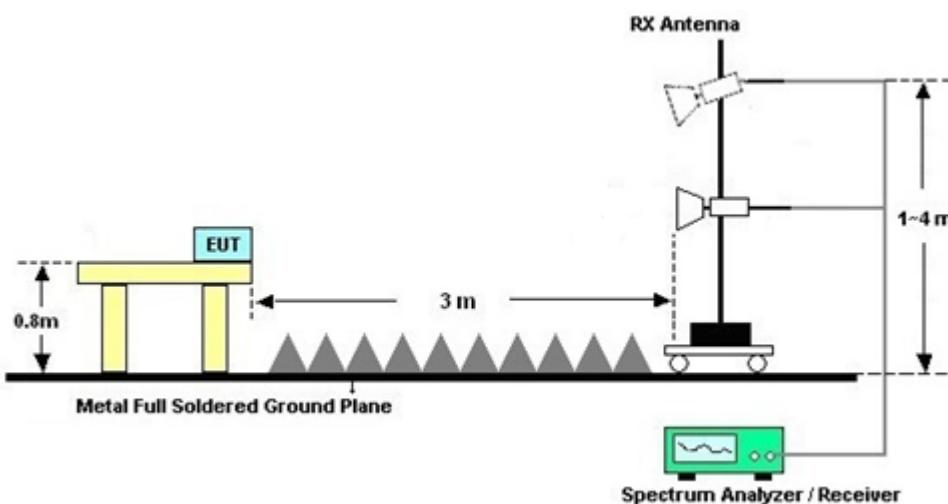
1. The EUT is placed on a turntable with 0.8 meter above ground.
2. The EUT is set 3 meters (30 M-18 G) and 1 meters (18 G~ 40 G) from the interference receiving antenna, which is mounted on the top of a variable height antenna tower.
3. The table is rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT is arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120 kHz/VBW=300 kHz for frequency below 1 GHz; RBW=1 MHz VBW=3 MHz (Peak), RBW=1 MHz/VBW=10 Hz (Average) for frequency above 1 GHz).
7. If the emission level of the EUT in peak mode is 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.

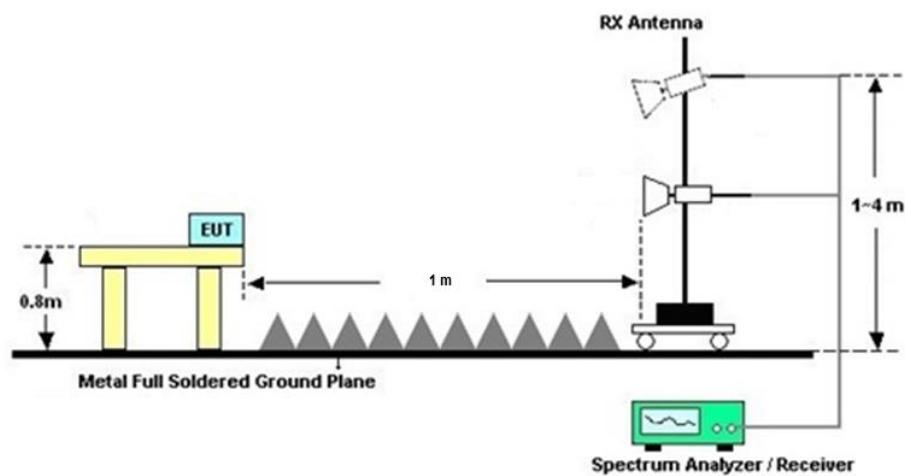
3.2.4. Test Setup of Radiated Emission

For Radiated Emissions from 30 MHz to 1 GHz



For Radiated Emissions from 1GHz to 18GHz



For Radiated Emissions above 18GHz**3.2.5. Test Result of Radiated Emission**

Please refer to Appendix B.



4. List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Apr. 30, 2025~May 02, 2025	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Dec. 10, 2024	Apr. 30, 2025~May 02, 2025	Dec. 09, 2025	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Oct. 14, 2024	Apr. 30, 2025~May 02, 2025	Oct. 13, 2025	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 12, 2024	Apr. 30, 2025~May 02, 2025	Dec. 11, 2025	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 14, 2024	Apr. 30, 2025~May 02, 2025	Nov. 13, 2025	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32	N/A	N/A	N/A	Apr. 30, 2025~May 02, 2025	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	00691	N/A	Jul. 30, 2024	Apr. 30, 2025~May 02, 2025	Jul. 29, 2025	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	MQT24082501	N/A	Oct. 15, 2024	Apr. 30, 2025~May 02, 2025	Oct. 14, 2025	Conduction (CO05-HY)
Amplifier	SONOMA	310N	186713	9kHz~1GHz	Apr. 15, 2025	May 7, 2025~Jun. 11, 2025	Apr. 14, 2026	Radiation (03CH06-HY)
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 05, 2024	May 7, 2025~Jun. 11, 2025	Oct. 04, 2025	Radiation (03CH06-HY)
EMI Test Receiver	Rohde & Schwarz	ESU26	100472	20Hz~26.5GHz	Jan. 23, 2025	May 7, 2025~Jun. 11, 2025	Jan. 22, 2026	Radiation (03CH06-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-02037	1GHz~18GHz	Dec. 20, 2024	May 7, 2025~Jun. 11, 2025	Dec. 19, 2025	Radiation (03CH06-HY)
Preamplifier	Jet-Power	JPA00101800-30-10P	1601180001	1GHz~18GHz	Jul. 15, 2024	May 7, 2025~Jun. 11, 2025	Jul. 14, 2025	Radiation (03CH06-HY)
RF Cable	HUBER + SUHNER	SF102_2000mm SF102_3000mm SF102_7000mm	532421/2 532422/2 532299/2	30MHz to 40GHz	Jul. 02, 2024	May 7, 2025~Jun. 11, 2025	Jul. 01, 2025	Radiation (03CH06-HY)
RF Cable	HUBER + SUHNER	SF104 SF102_2000mm SF102_3000mm SF102_7000mm	802433/4 532421/2 532422/2 532299/2	30MHz to 18GHz	Jul. 02, 2024	May 7, 2025~Jun. 11, 2025	Jul. 01, 2025	Radiation (03CH06-HY)
Hygrometer	TECPEL	DTM-303B	TP210018	N/A	Oct. 14, 2024	May 7, 2025~Jun. 11, 2025	Oct. 13, 2025	Radiation (03CH06-HY)
Controller	INN-CO	EM1000	060782	Control Turn table & Ant Mast	N/A	May 7, 2025~Jun. 11, 2025	N/A	Radiation (03CH06-HY)
Antenna Mast	MF	MF-7802	MF780208212	1m~4m	N/A	May 7, 2025~Jun. 11, 2025	N/A	Radiation (03CH06-HY)
Turn Table	INN-CO	DS2000	420/650/00	0-360 degree	N/A	May 7, 2025~Jun. 11, 2025	N/A	Radiation (03CH06-HY)
Software	Audix	E3	N/A	N/A	N/A	May 7, 2025~Jun. 11, 2025	N/A	Radiation (03CH06-HY)
Signal Analyzer	R&S	FSV3044	101103	N/A	Jan. 22, 2025	May 7, 2025~Jun. 11, 2025	Jan. 21, 2026	Radiation (03CH06-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	18~40GHz	Nov. 28, 2024	May 7, 2025~ Jun. 11, 2025	Nov. 27, 2025	Radiation (03CH06-HY)
Preamplifier	EMEC	EM18G40G	0600789	18~40GHz	Aug. 05, 2024	May 7, 2025~ Jun. 11, 2025	Aug. 04, 2025	Radiation (03CH06-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2857/2	9KHz ~ 40GHz	Aug. 2, 2024	May 7, 2025~ Jun. 11, 2025	Aug. 1, 2025	Radiation (03CH06-HY)



5. Measurement Uncertainty

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.7 dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.8 dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 6000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.8 dB
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Uncertainty of Radiated Emission Measurement (6000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.4 dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.0 dB
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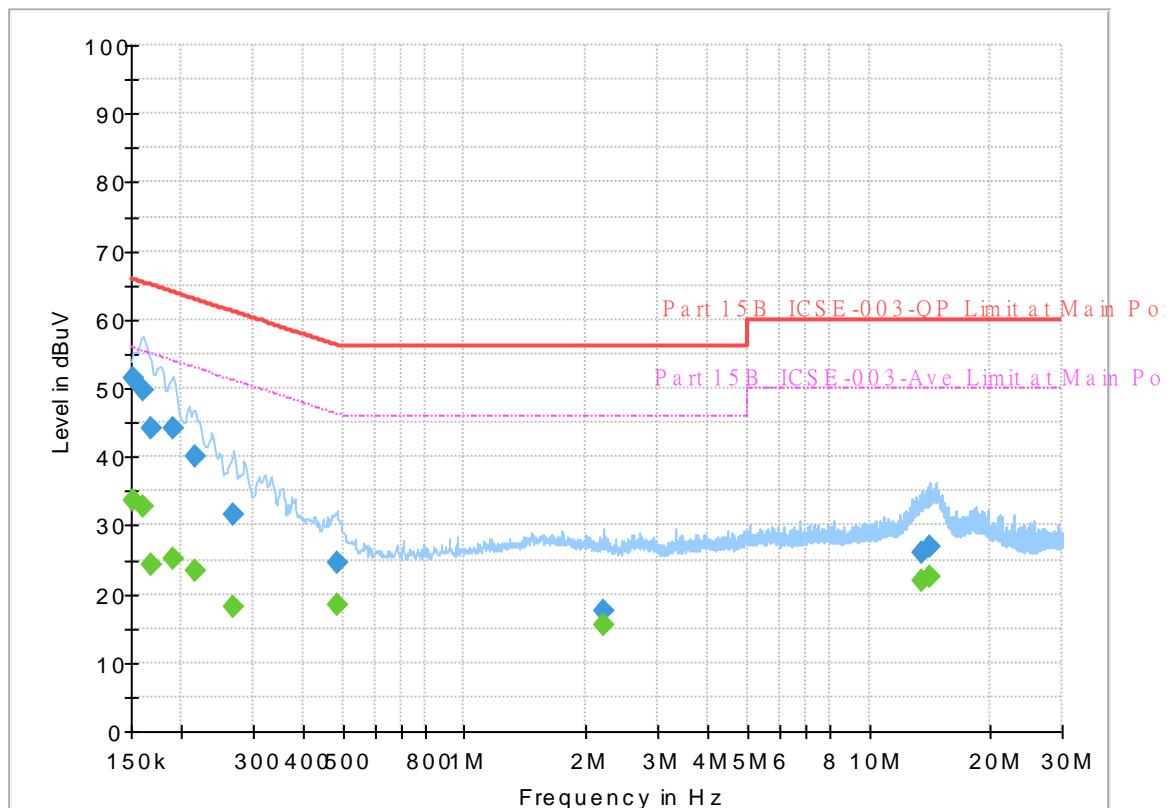


Appendix A. AC Conducted Emission Test Results

Test Engineer :	Brian Chen	Temperature :	23~26°C
		Relative Humidity :	45~55%

EUT Information

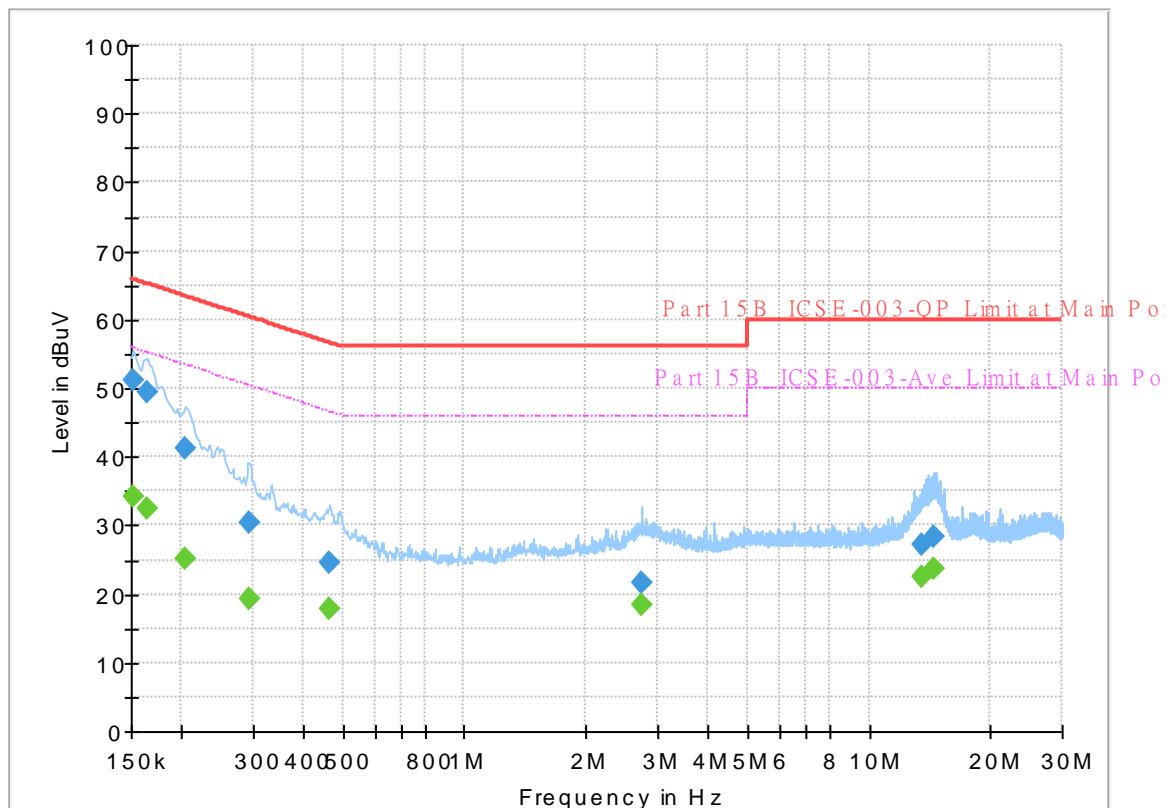
Report NO : 541507
 Test Mode : Mode 2
 Test Voltage : Power From System
 Phase : Line

Full Spectrum**Final Result**

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	33.76	55.88	22.12	L1	OFF	19.8
0.152250	51.45	---	65.88	14.43	L1	OFF	19.8
0.161250	---	32.76	55.40	22.64	L1	OFF	19.8
0.161250	49.74	---	65.40	15.66	L1	OFF	19.8
0.168000	---	24.39	55.06	30.67	L1	OFF	19.8
0.168000	44.27	---	65.06	20.79	L1	OFF	19.8
0.190500	---	25.23	54.02	28.79	L1	OFF	19.8
0.190500	44.05	---	64.02	19.97	L1	OFF	19.8
0.215250	---	23.33	53.00	29.67	L1	OFF	19.8
0.215250	40.00	---	63.00	23.00	L1	OFF	19.8
0.269250	---	18.24	51.14	32.90	L1	OFF	19.8
0.269250	31.49	---	61.14	29.65	L1	OFF	19.8
0.485250	---	18.29	46.25	27.96	L1	OFF	19.8
0.485250	24.68	---	56.25	31.57	L1	OFF	19.8
2.206500	---	15.35	46.00	30.65	L1	OFF	19.8
2.206500	17.46	---	56.00	38.54	L1	OFF	19.8
13.560000	---	21.82	50.00	28.18	L1	OFF	19.9
13.560000	25.95	---	60.00	34.05	L1	OFF	19.9
14.127000	---	22.38	50.00	27.62	L1	OFF	19.9
14.127000	26.94	---	60.00	33.06	L1	OFF	19.9

EUT Information

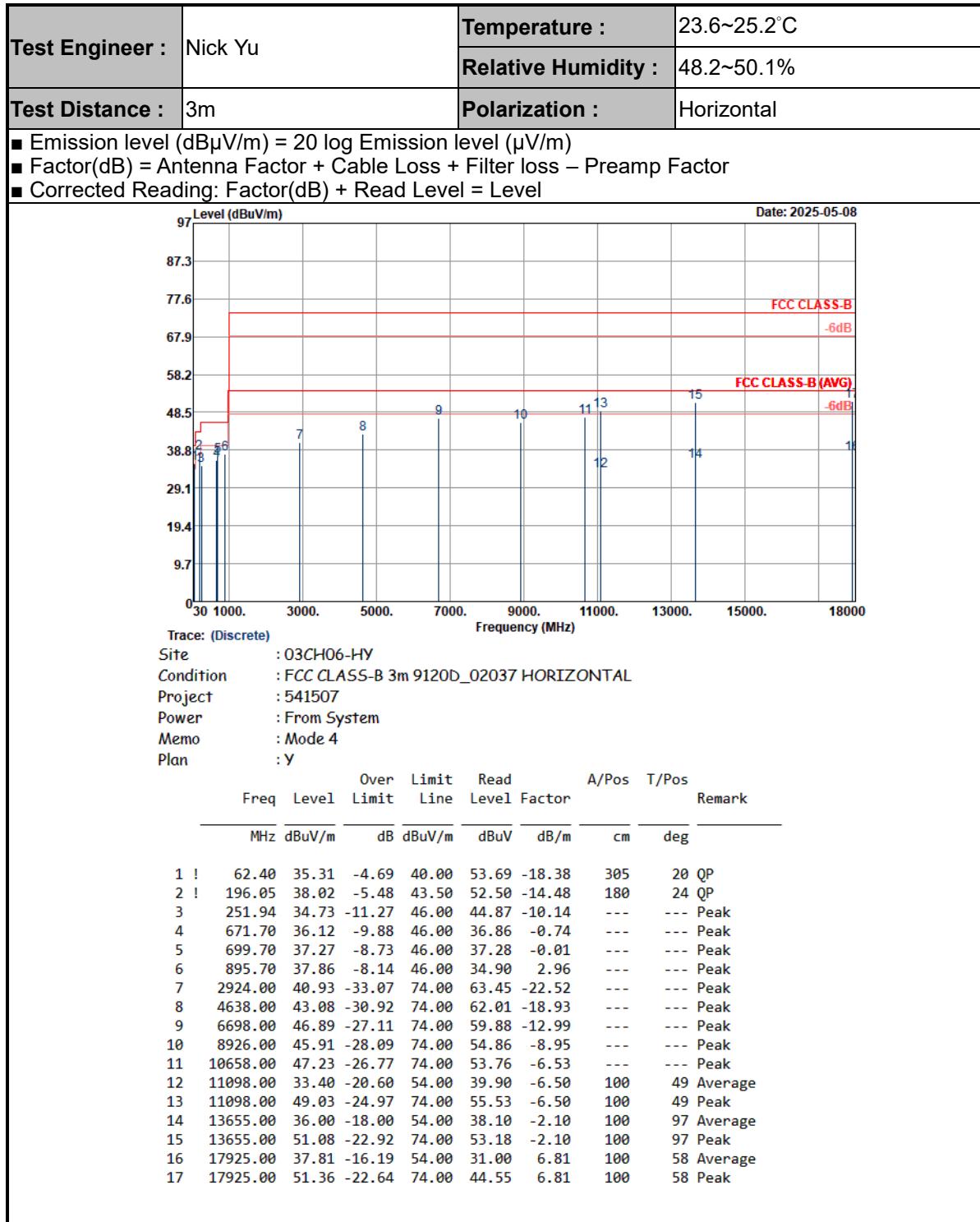
Report NO : 541507
 Test Mode : Mode 2
 Test Voltage : Power From System
 Phase : Neutral

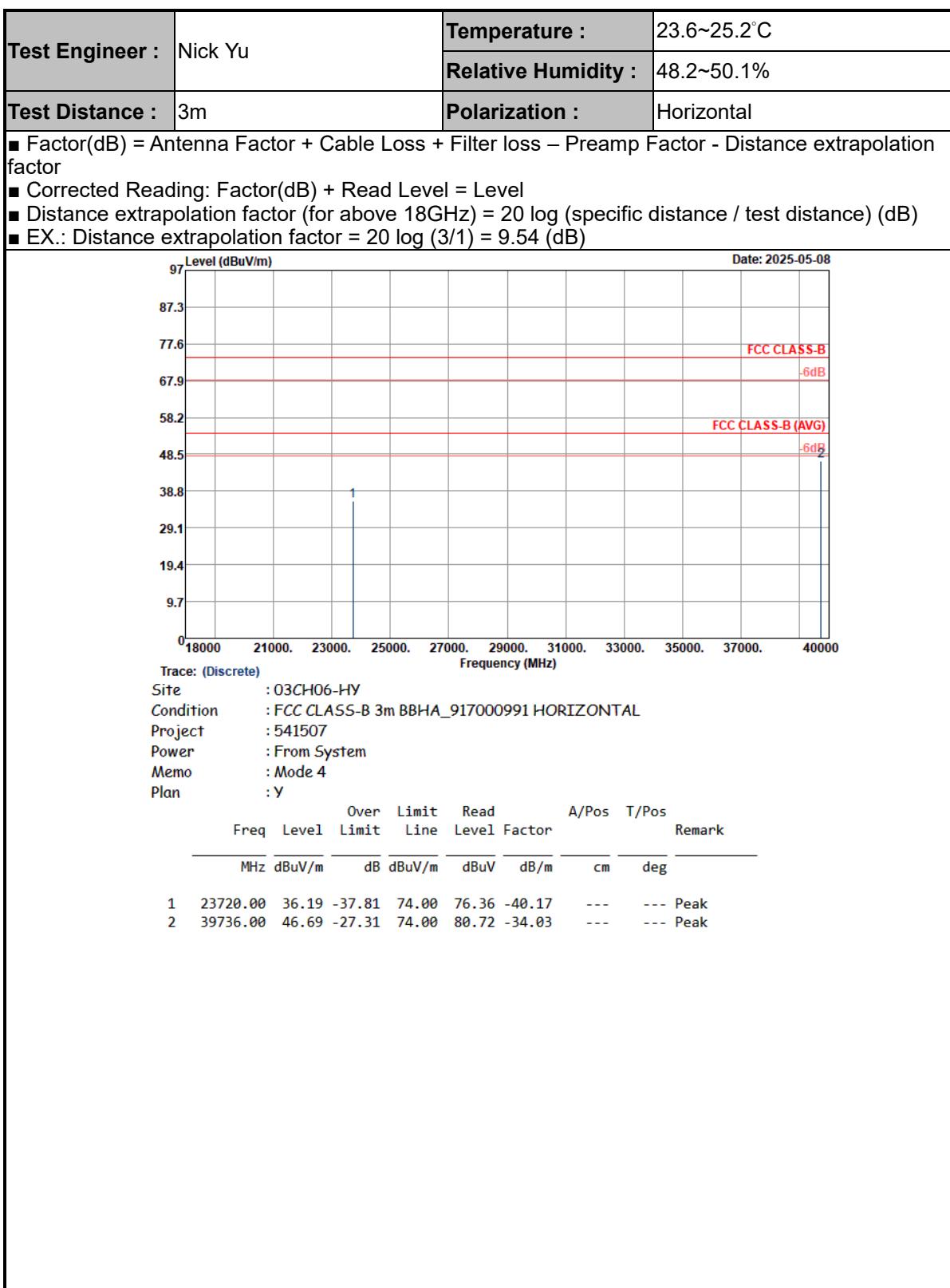
Full Spectrum**Final Result**

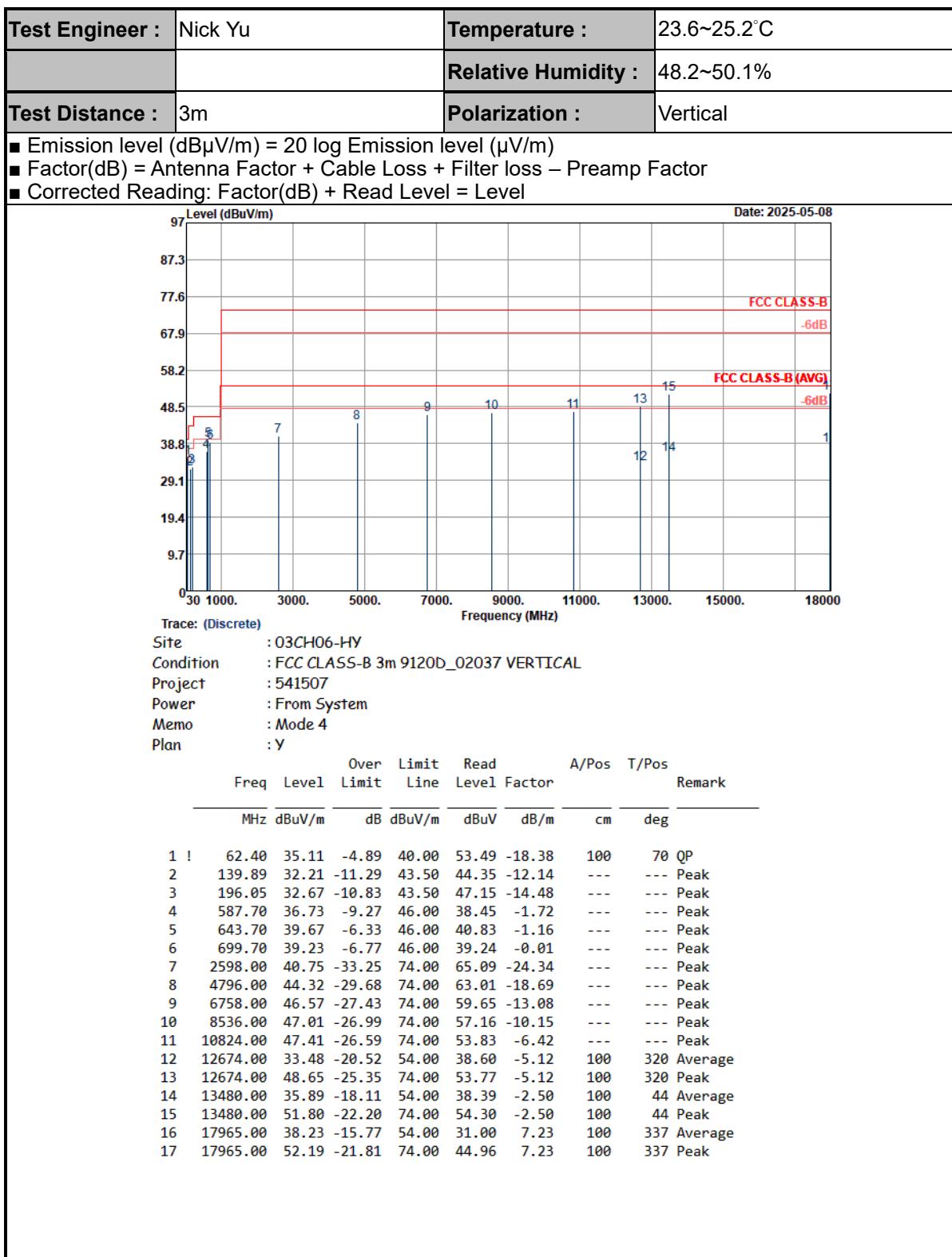
Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	34.08	55.88	21.80	N	OFF	19.8
0.152250	51.14	---	65.88	14.74	N	OFF	19.8
0.163500	---	32.47	55.28	22.81	N	OFF	19.8
0.163500	49.43	---	65.28	15.85	N	OFF	19.8
0.204000	---	25.15	53.45	28.30	N	OFF	19.8
0.204000	41.37	---	63.45	22.08	N	OFF	19.8
0.294000	---	19.43	50.41	30.98	N	OFF	19.8
0.294000	30.28	---	60.41	30.13	N	OFF	19.8
0.465000	---	17.93	46.60	28.67	N	OFF	19.8
0.465000	24.54	---	56.60	32.06	N	OFF	19.8
2.744250	---	18.55	46.00	27.45	N	OFF	19.8
2.744250	21.74	---	56.00	34.26	N	OFF	19.8
13.560000	---	22.56	50.00	27.44	N	OFF	20.0
13.560000	27.18	---	60.00	32.82	N	OFF	20.0
14.435250	---	23.69	50.00	26.31	N	OFF	20.0
14.435250	28.26	---	60.00	31.74	N	OFF	20.0



Appendix B. Radiated Emission Test Result



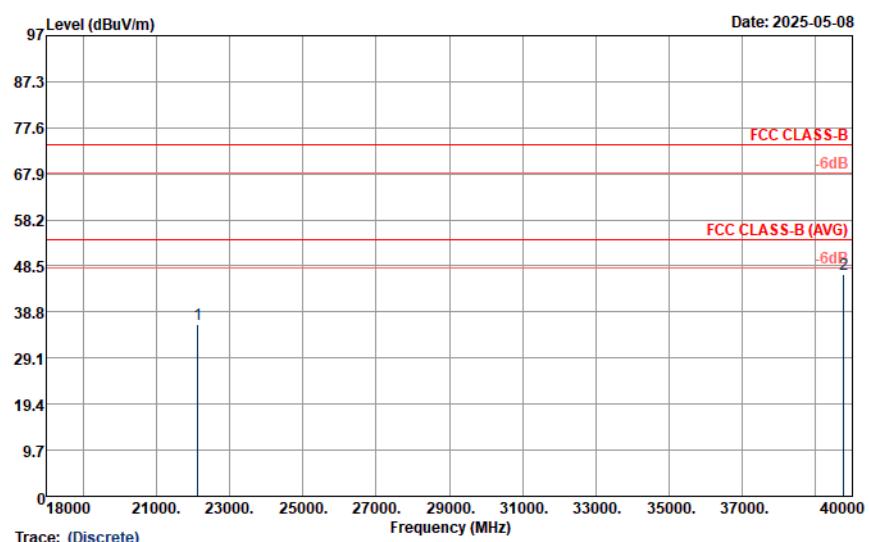






Test Engineer :	Nick Yu	Temperature :	23.6~25.2°C
		Relative Humidity :	48.2~50.1%
Test Distance :	3m	Polarization :	Vertical

■ Factor(dB) = Antenna Factor + Cable Loss + Filter loss – Preamp Factor - Distance extrapolation factor
■ Corrected Reading: Factor(dB) + Read Level = Level
■ Distance extrapolation factor (for above 18GHz) = 20 log (specific distance / test distance) (dB)
■ EX.: Distance extrapolation factor = 20 log (3/1) = 9.54 (dB)



Freq	Level	Over	Limit	Read	A/Pos	T/Pos	Remark	
		Line	Level	Factor				
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	cm	deg	
1	22136.00	36.26	-37.74	74.00	79.61	-43.35	---	---
2	39758.00	46.63	-27.37	74.00	80.60	-33.97	---	---