



FCC Test Report

APPLICANT : Telink Semiconductor (Shanghai) Co., Ltd.
EQUIPMENT : ML3228A-GAIA-M3-PE11
BRAND NAME : TELINK SEMICONDUCTOR (SHANG HAI) CO., LTD.
MODEL NAME : ML3228A-GAIA-M3-PE11
FCC ID : OEOM3228AMRM0
STANDARD : 47 CFR Part 15 Subpart B
CLASSIFICATION : Certification
TEST DATE(S) : Feb. 27, 2026 ~ Feb. 28, 2026

We, Sporton International Inc. (Kunshan), 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 of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia



Sporton International Inc. (Kunshan)

No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC620206	Rev. 01	Initial issue of report	Apr. 01, 2026

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.107	AC Conducted Emission	< 15.107 limits	PASS	Under limit 8.55 dB at 0.154 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 3.10 dB at 65.65 MHz for Quasi-Peak

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. Please refer to each test results 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.

1. General Description

1.1. Applicant

Telink Semiconductor (Shanghai) Co., Ltd.

11F, Building 1, 61 Shengxia Road, Pudong District, Shanghai, China

1.2. Manufacturer

Shenzhen Xinghongju Technology Co., LTD

Building 201, No. 48, Pingzi Road, Nienfeng Community, Pingdi Street, Longgang District, Shenzhen

1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	ML3228A-GAIA-M3-PE11
Brand Name	TELINK SEMICONDUCTOR (SHANG HAI) CO., LTD.
Model Name	ML3228A-GAIA-M3-PE11
FCC ID	OEOM3228AMRM0
EUT supports Radios application	Bluetooth LE / Zigbee / RF4CE / Thread
SN Code	Conduction: 415034593831311100375b4b07324478 Radiation: 41503459383131110035874b0732a578
EUT Stage	Production Unit

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. The device supports IEEE 802.15.4 include Zigbee/RF4CE/Thread, the characteristic is the same. Thus, we evaluate full tests for Zigbee mode.

1.4. Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	Bluetooth LE: 2402 MHz ~ 2480 MHz ZigBee: 2405 MHz ~ 2480 MHz
Rx Frequency	Bluetooth LE: 2402 MHz ~ 2480 MHz ZigBee: 2405 MHz ~ 2480 MHz
Antenna Type	Bluetooth LE: PCB Antenna Zigbee : PCB Antenna
Type of Modulation	Bluetooth LE: GFSK ZigBee: O-QPSK

1.5. Modification of EUT

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

1.6. Test Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	CO01-KS 03CH02-KS	CN1257	314309

1.7. Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH02-KS	AUDIX	E3	6.2009-8-24a1
2.	CO01-KS	AUDIX	E3	6.2009-8-24

1.8. Applicable Standards

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

- ♦ 47 CFR Part 15 Subpart B
- ♦ ANSI C63.4-2014

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

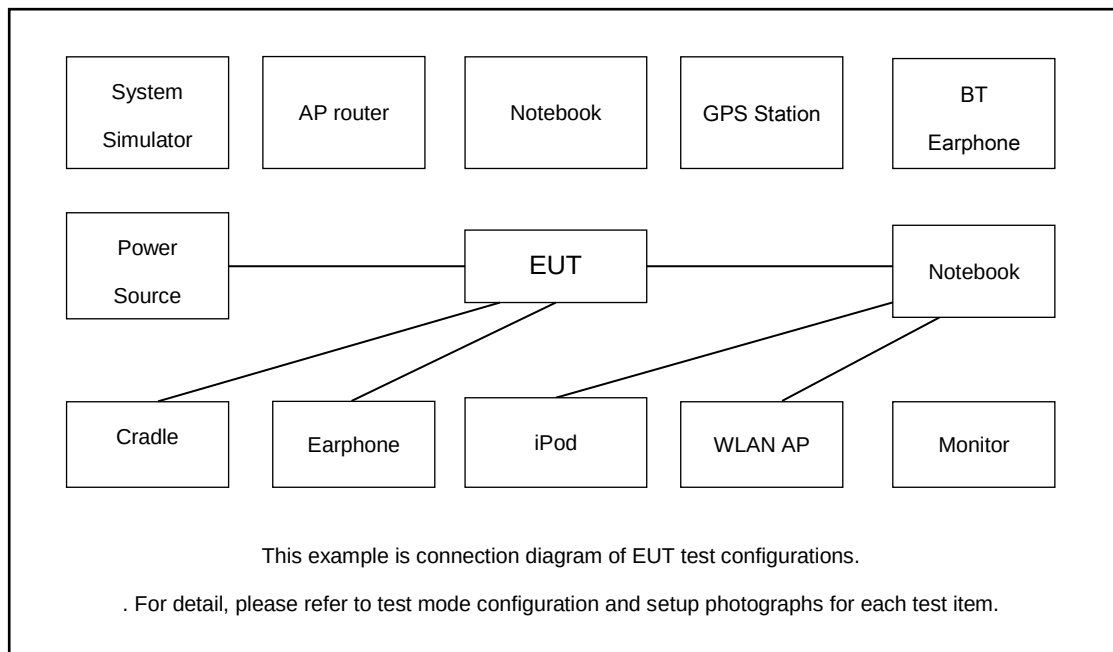
2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 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 (30MHz to the 5th harmonic of the highest frequency or to 40 GHz, whichever is lower).

Test Items	Function Type
AC Conducted Emission	Mode 1: BLE Rx + Zigbee Rx + Charging from test Jig
Radiated Emissions	Mode 1: BLE Rx + Zigbee Rx + Charging from test Jig

2.2.Connection Diagram of Test System



The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application

**2.3. Support Unit used in test configuration and system**

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Notebook	Lenovo	V130-14IKB001	N/A	N/A	N/A
2.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
3.	Hard Disk	Lenovo	F310	DoC	Shielded, 1.2m	N/A
4.	Test Jig	N/A	N/A	N/A	N/A	N/A

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 Limit>

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.

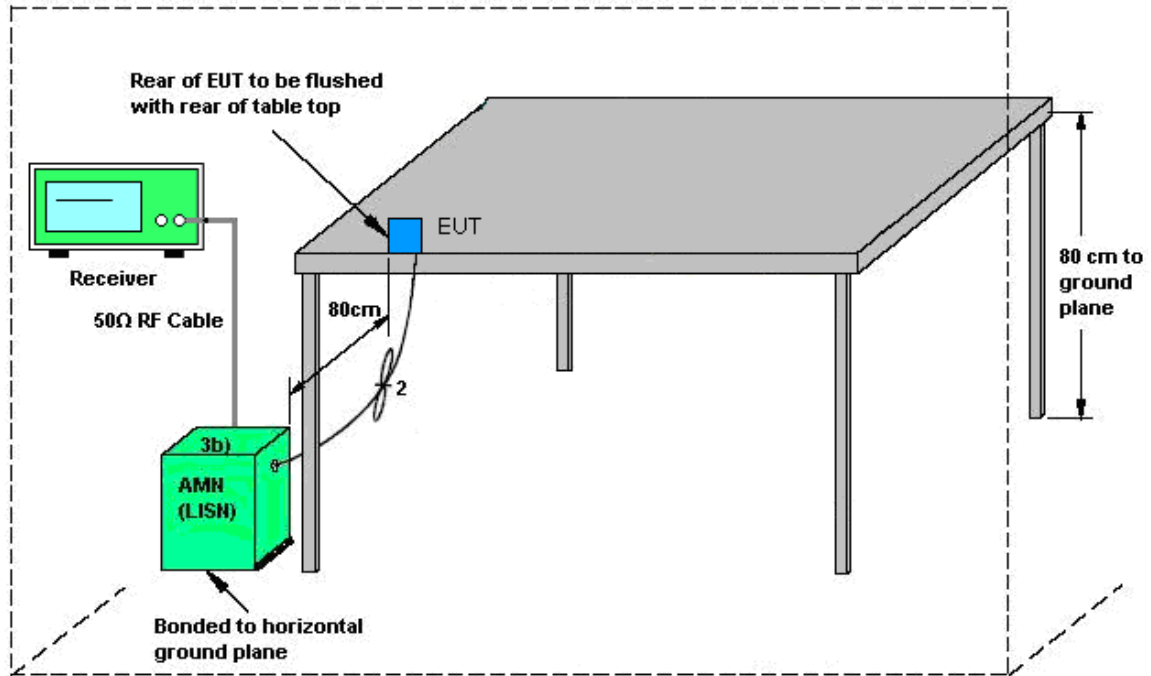
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedure

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.

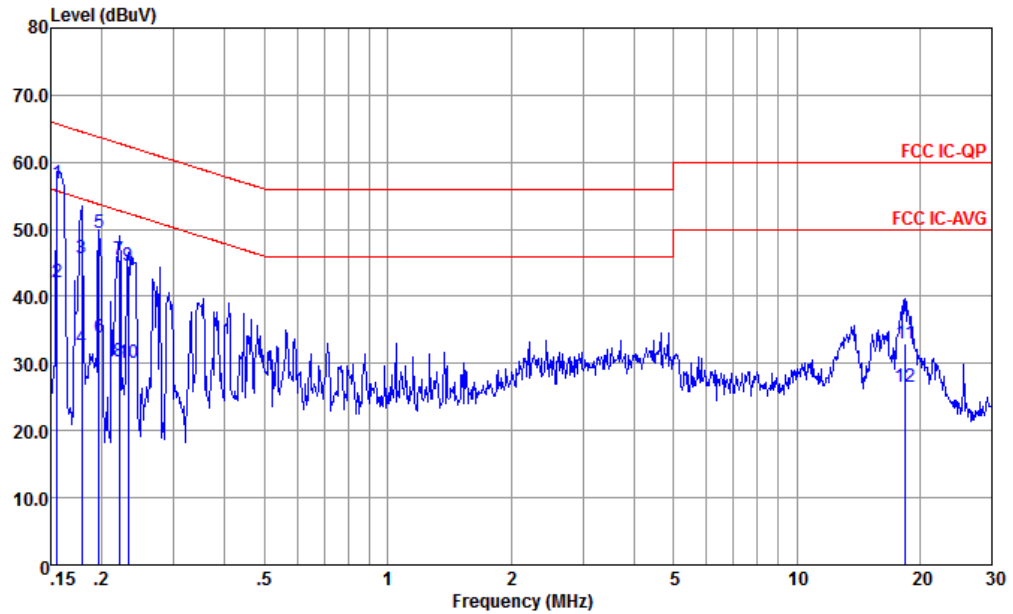
3.1.4 Test Setup



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

3.1.5 Test Result of AC Conducted Emission

Test Engineer :	Amos Zhang	Temperature :	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

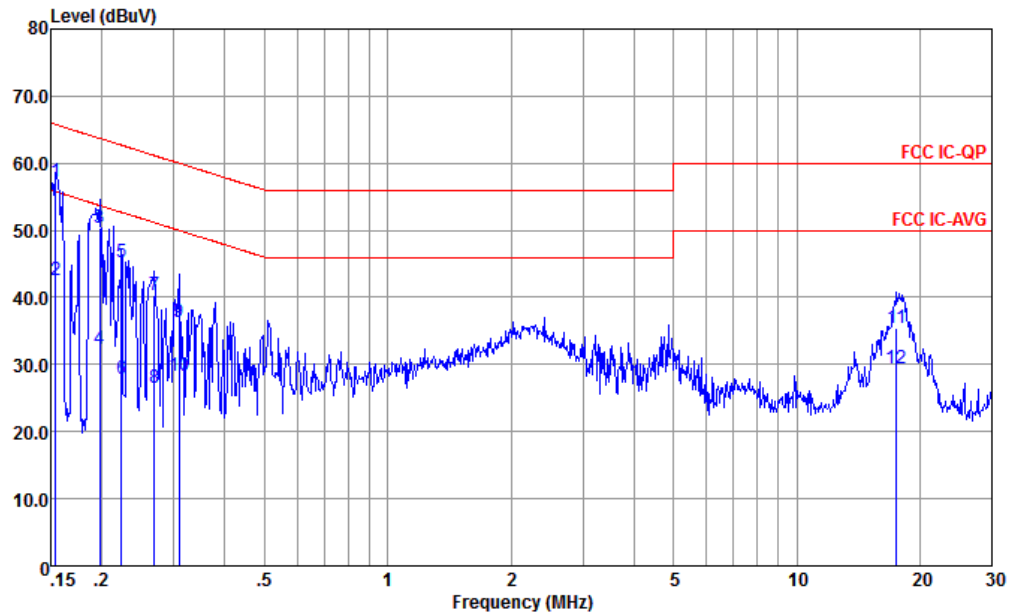


Site : CO01-KS
Condition : FCC IC-QP LISN-100334-L 2025 LINE

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1 *	0.156	56.92	-8.77	65.69	36.90	9.55	10.47	QP
2	0.156	42.22	-13.47	55.69	22.20	9.55	10.47	Average
3	0.179	45.63	-18.92	64.55	25.60	9.55	10.48	QP
4	0.179	32.33	-22.22	54.55	12.30	9.55	10.48	Average
5	0.197	49.43	-14.33	63.76	29.40	9.55	10.48	QP
6	0.197	33.83	-19.93	53.76	13.80	9.55	10.48	Average
7	0.221	45.57	-17.22	62.79	25.50	9.59	10.48	QP
8	0.221	30.27	-22.52	52.79	10.20	9.59	10.48	Average
9	0.232	44.58	-17.81	62.39	24.50	9.60	10.48	QP
10	0.232	30.14	-22.25	52.39	10.06	9.60	10.48	Average
11	18.426	32.99	-27.01	60.00	12.60	9.87	10.52	QP
12	18.426	26.59	-23.41	50.00	6.20	9.87	10.52	Average



Test Engineer :	Amos Zhang	Temperature :	25.3~26.2°C
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-KS
Condition : FCC IC-QP LISN-100334-N 2025 NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1 *	0.154	57.23	-8.55	65.78	37.20	9.56	10.47	QP
2	0.154	42.63	-13.15	55.78	22.60	9.56	10.47	Average
3	0.198	50.28	-13.43	63.71	30.20	9.60	10.48	QP
4	0.198	32.28	-21.43	53.71	12.20	9.60	10.48	Average
5	0.223	45.31	-17.39	62.70	25.20	9.63	10.48	QP
6	0.223	27.81	-24.89	52.70	7.70	9.63	10.48	Average
7	0.269	40.32	-20.84	61.16	20.20	9.64	10.48	QP
8	0.269	26.62	-24.54	51.16	6.50	9.64	10.48	Average
9	0.308	36.28	-23.74	60.02	16.19	9.60	10.49	QP
10	0.308	28.28	-21.74	50.02	8.19	9.60	10.49	Average
11	17.568	35.50	-24.50	60.00	15.20	9.76	10.54	QP
12	17.568	29.50	-20.50	50.00	9.20	9.76	10.54	Average

Note:

1. Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
2. Over Limit(dB) = Level(dBμV) – Limit Line(dBμV)

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 Limit>

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

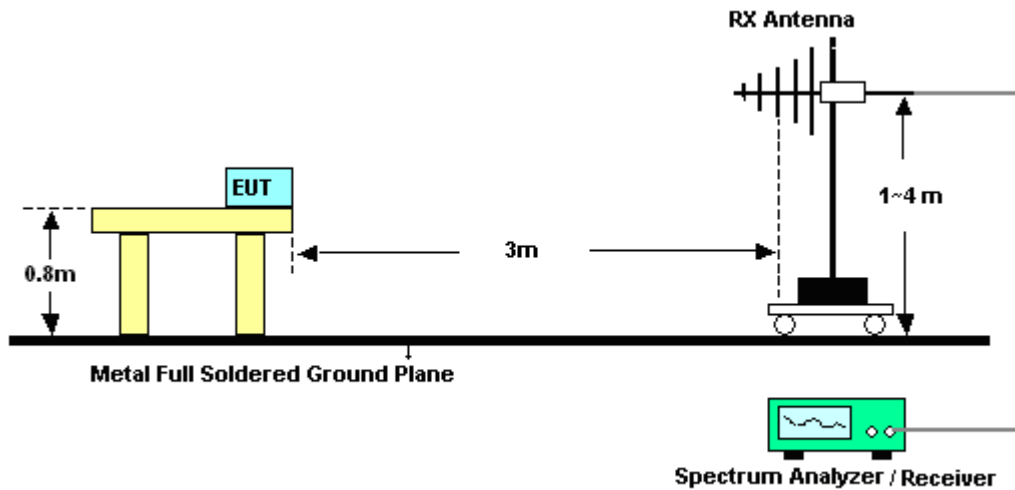
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

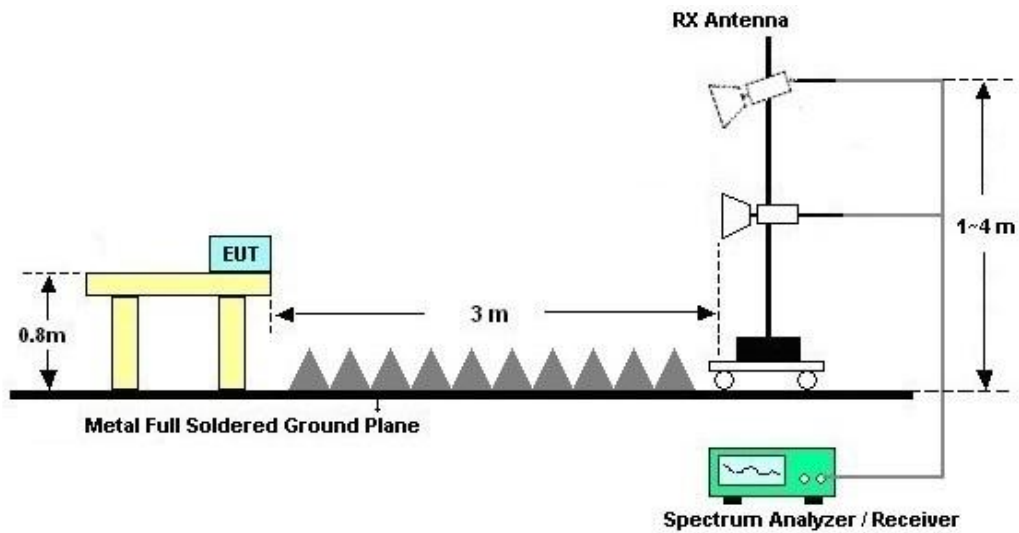
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna 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 was 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=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
7. If the emission level of the EUT in peak mode was 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.
8. Emission level (dBμV/m) = 20 log Emission level (μV/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
10. Exploratory radiated emissions testing of handheld and/or body-worn devices shall include rotation of the EUT through three orthogonal axes (X/Y/Z Plane) to determine the orientation (attitude) that maximizes the emissions.

3.2.4. Test Setup of Radiated Emission

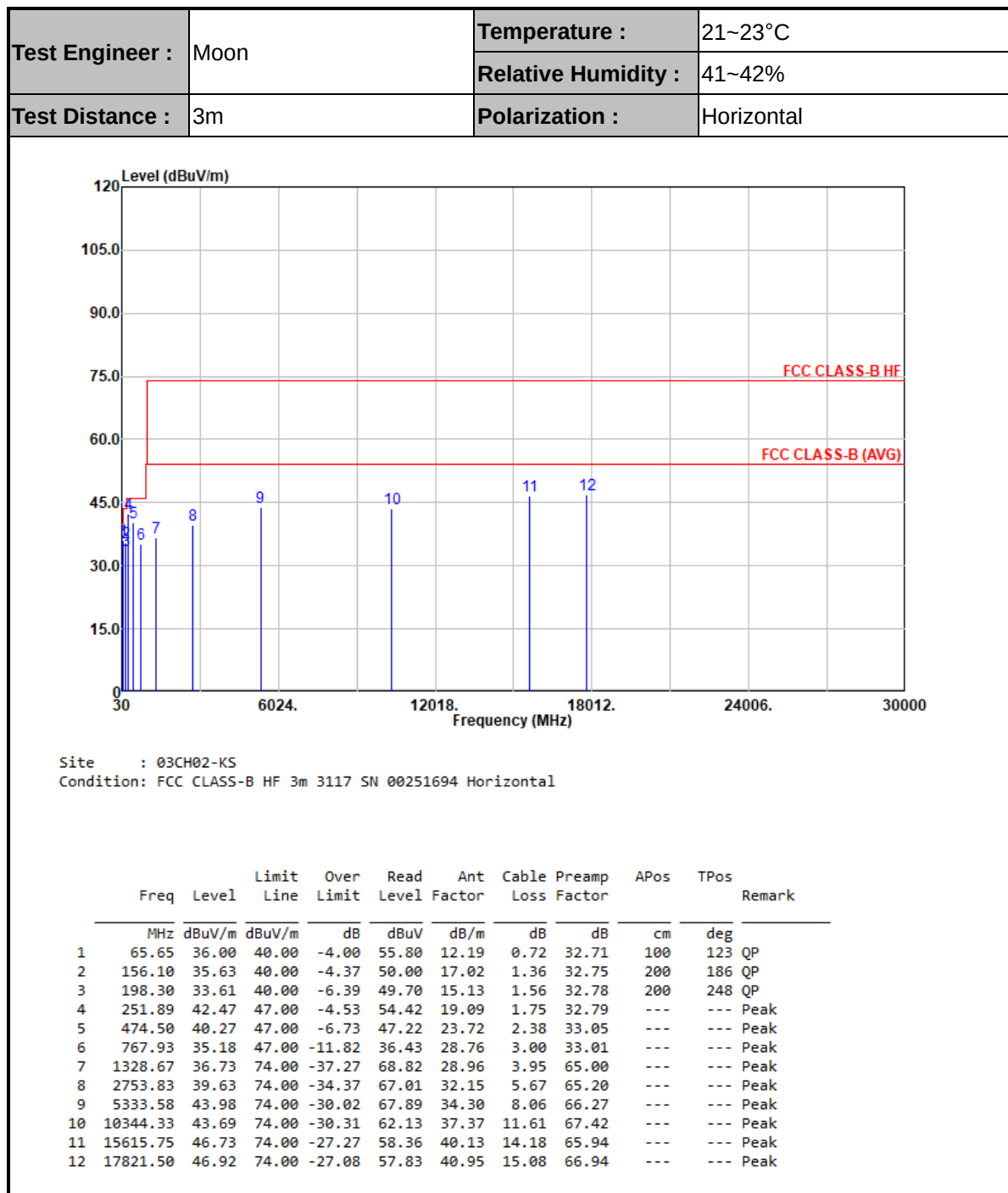
For radiated emissions from 30MHz to 1GHz

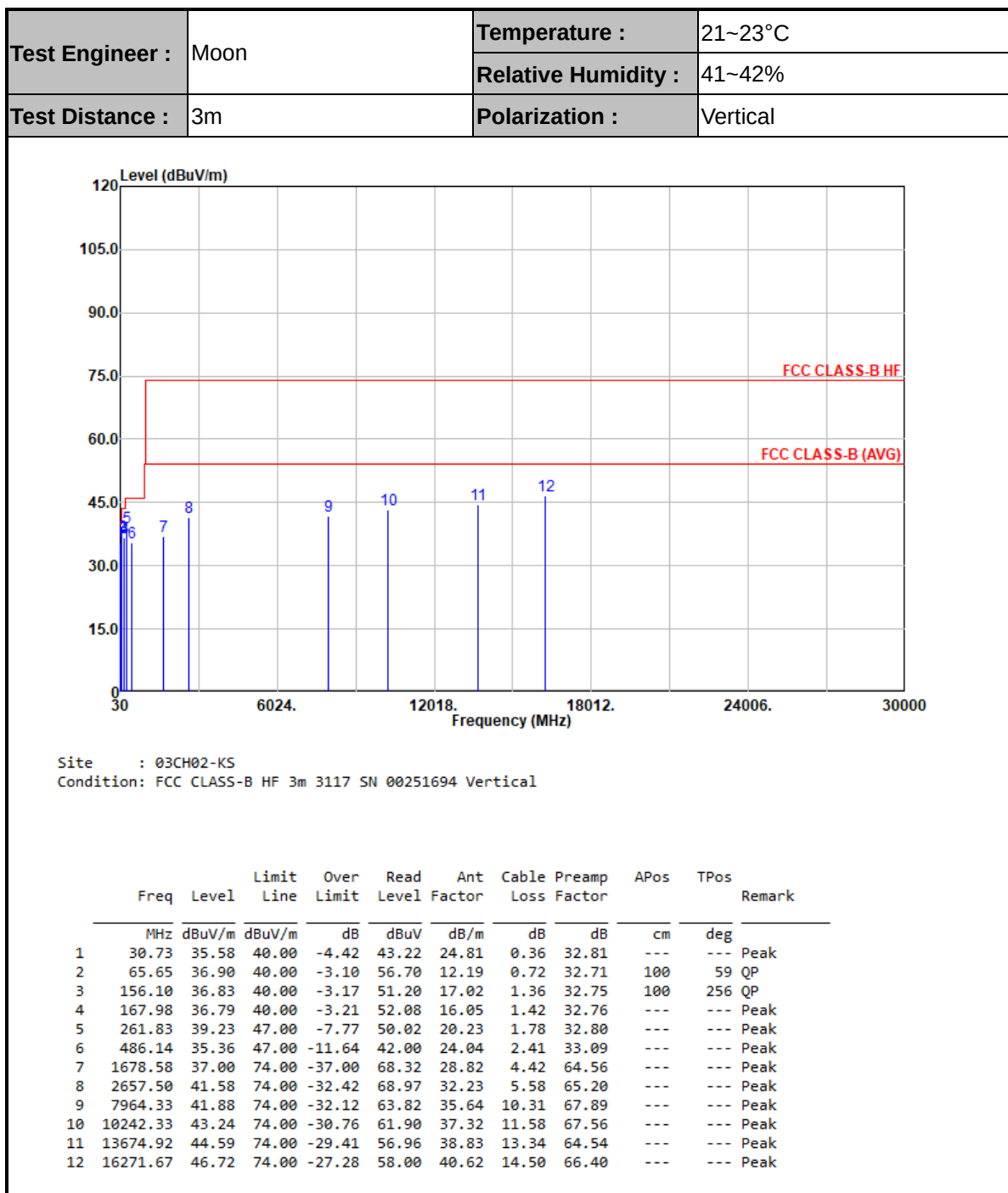


For radiated emissions above 1GHz



3.2.5. Test Result of Radiated Emission





Note:

- Level(dBμV/m) = Read Level(dBμV) + Antenna Factor(dB/m) + Cable Loss(dB) - Preamp Factor(dB)
- Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)



4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	Keysight	N9038A	MY56400004	3Hz~8.5GHz;Max 30dBm	Oct. 10, 2025	Feb. 28, 2026	Oct. 09, 2026	Radiation (03CH02-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55370528	10Hz~44G,MAX 30dB	Oct. 10, 2025	Feb. 28, 2026	Oct. 09, 2026	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6111D	59915	30MHz~1GHz	Aug. 12, 2025	Feb. 28, 2026	Aug. 11, 2026	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75959	1GHz~18GHz	Mar. 05, 2025	Feb. 28, 2026	Mar. 04, 2026	Radiation (03CH02-KS)
SHF-EHF Horn	Com-power	AH-840	101116	18GHz~40GHz	Oct. 18, 2025	Feb. 28, 2026	Oct. 17, 2026	Radiation (03CH02-KS)
Amplifier	EM	EM18G40GA	060852	18~40GHz	Dec. 24, 2025	Feb. 28, 2026	Dec. 23, 2026	Radiation (03CH02-KS)
Amplifier	SONOMA	310N	413740	9KHz~1GHz	Dec. 25, 2025	Feb. 28, 2026	Dec. 24, 2026	Radiation (03CH02-KS)
Amplifier	EM	EM01G18GA	060841	1Ghz~18Ghz	Oct. 09, 2025	Feb. 28, 2026	Oct. 08, 2026	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Feb. 28, 2026	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Feb. 28, 2026	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Feb. 28, 2026	NCR	Radiation (03CH02-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 16, 2025	Feb. 27, 2026	Apr. 15, 2026	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Jul. 03, 2025	Feb. 27, 2026	Jul. 02, 2026	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	Dec. 23, 2025	Feb. 27, 2026	Dec. 22, 2026	Conduction (CO01-KS)
AC Power Source	Ouhan	APW-130NYT	202201040060	AC 0V~300V,45Hz~1000Hz	Apr. 16, 2025	Feb. 27, 2026	Apr. 15, 2026	Conduction (CO01-KS)

NCR: No Calibration Required

5. Measurement Uncertainty

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.84 dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	6.18 dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.90 dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	5.30 dB
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