



FCC Test Report

APPLICANT : VinCSS Internet Security Services Limited
Liability Company
EQUIPMENT : VinCSS FIDO2 Fingerprint
BRAND NAME : VinCSS
MODEL NAME : VFIDO2B
FCC ID : 2AYYU-VFIDO2B
STANDARD : 47 CFR Part 15 Subpart B
CLASSIFICATION : Certification
TEST DATE(S) : Aug. 19, 2021 ~ Aug. 20, 2021

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

Jason Jia

Reviewed by: Jason Jia / Supervisor

Alex Wang

Approved by: Alex Wang / Manager



Sporton International (Kunshan) Inc.

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



TABLE OF CONTENTS

REVISION HISTORY	3
SUMMARY OF TEST RESULT	4
1. GENERAL DESCRIPTION	5
1.1. Applicant.....	5
1.2. Manufacturer	5
1.3. Product Feature of Equipment Under Test	5
1.4. Product Specification of Equipment Under Test	5
1.5. Modification of EUT	5
1.6. Test Location	6
1.7. Test Software	6
1.8. Applicable Standards	6
2. TEST CONFIGURATION OF EQUIPMENT UNDER TEST	7
2.1. Test Mode	7
2.2. Connection Diagram of Test System	7
2.3. Support Unit used in test configuration and system	8
2.4. EUT Operation Test Setup	8
3. TEST RESULT	9
3.1. Test of AC Conducted Emission Measurement	9
3.2. Test of Radiated Emission Measurement	13
4. LIST OF MEASURING EQUIPMENT	17
5. UNCERTAINTY OF EVALUATION	18
APPENDIX A. SETUP PHOTOGRAPHS	



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC171908	Rev. 01	Initial issue of report	Sep. 10, 2021

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 13.24 dB at 0.474 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 8.82 dB at 263.770 MHz

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1. General Description

1.1. Applicant

VinCSS Internet Security Services Limited Liability Company

No. 7, Bang Lang 1 Street, Viet Hung Ward, Long Bien District, Ha Noi City, Viet Nam

1.2. Manufacturer

VinSmart Research and Manufacture Joint Stock Company

Lot CN1-06B-1&2, Hi-tech Industrial Park 1, Hoa Lac Hi-tech Park, Ha Bang Commune, Thach That District, Ha Noi City, Viet Nam

1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	VinCSS FIDO2 Fingerprint
Brand Name	VinCSS
Model Name	VFIDO2B
FCC ID	2AYYU-VFIDO2B
EUT supports Radios application	Bluetooth LE, NFC
HW Version	Rev v03
SW Version	v1.1.1
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4. Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	Bluetooth: 2400 MHz ~ 2483.5 MHz NFC : 13.56 MHz
Rx Frequency	Bluetooth: 2400 MHz ~ 2483.5 MHz NFC : 13.56 MHz
Antenna Type	Bluetooth : Ceramic Patch Antenna NFC : Loop Antenna
Type of Modulation	Bluetooth LE : GFSK NFC: ASK

1.5. Modification of EUT

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

1.6. Test Location

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

Test Firm	Sporton International (Kunshan) Inc.		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
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	6.2009-8-24a
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

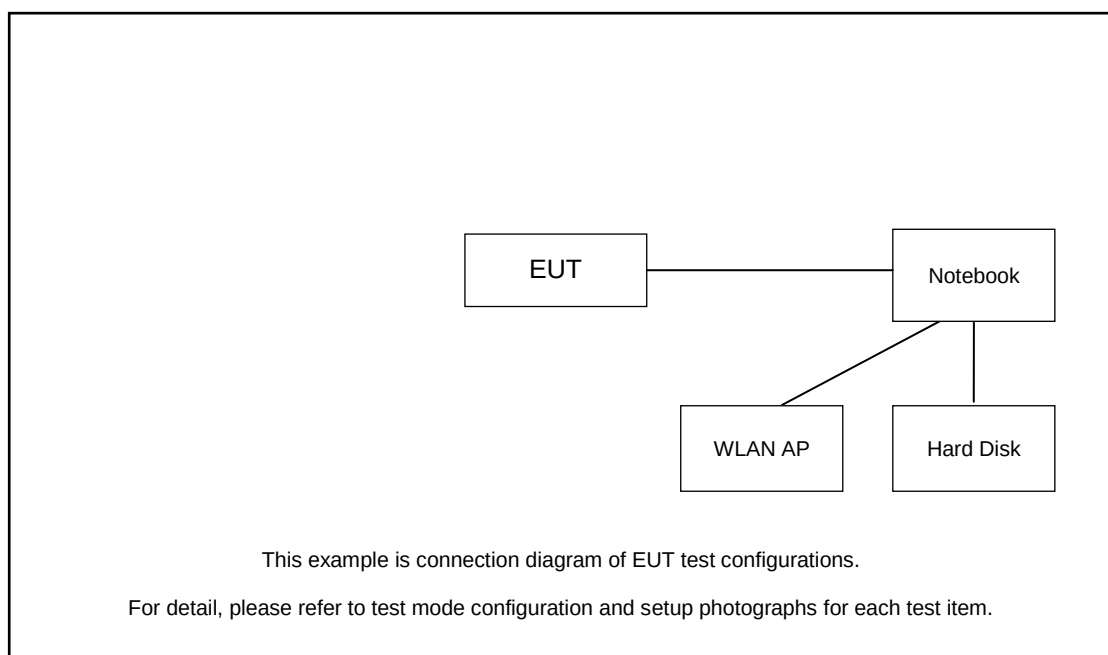
2.1. Test Mode

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: Bluetooth on + NFC On + Charging from Notebook
Radiated Emissions	Mode 1: Bluetooth on + NFC On + Charging from Notebook

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.	WLAN AP	TP-Link	TL-WDR5600	N/A	N/A	Unshielded,1.8m
2.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
3.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
4.	Notebook	Lenovo	S730-13IWL	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
5.	Hard Disk	KINGSHARE	KSP6120G	Fcc DoC	Shielded, 1.2m	N/A
6.	Hard Disk	Lenovo	F310	DoC	Shielded, 1.2m	N/A

2.4. EUT Operation Test Setup

The following program installed in the EUT was programmed during the test.

1. Turn on Bluetooth Function.
2. Turn on NFC Function.

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.

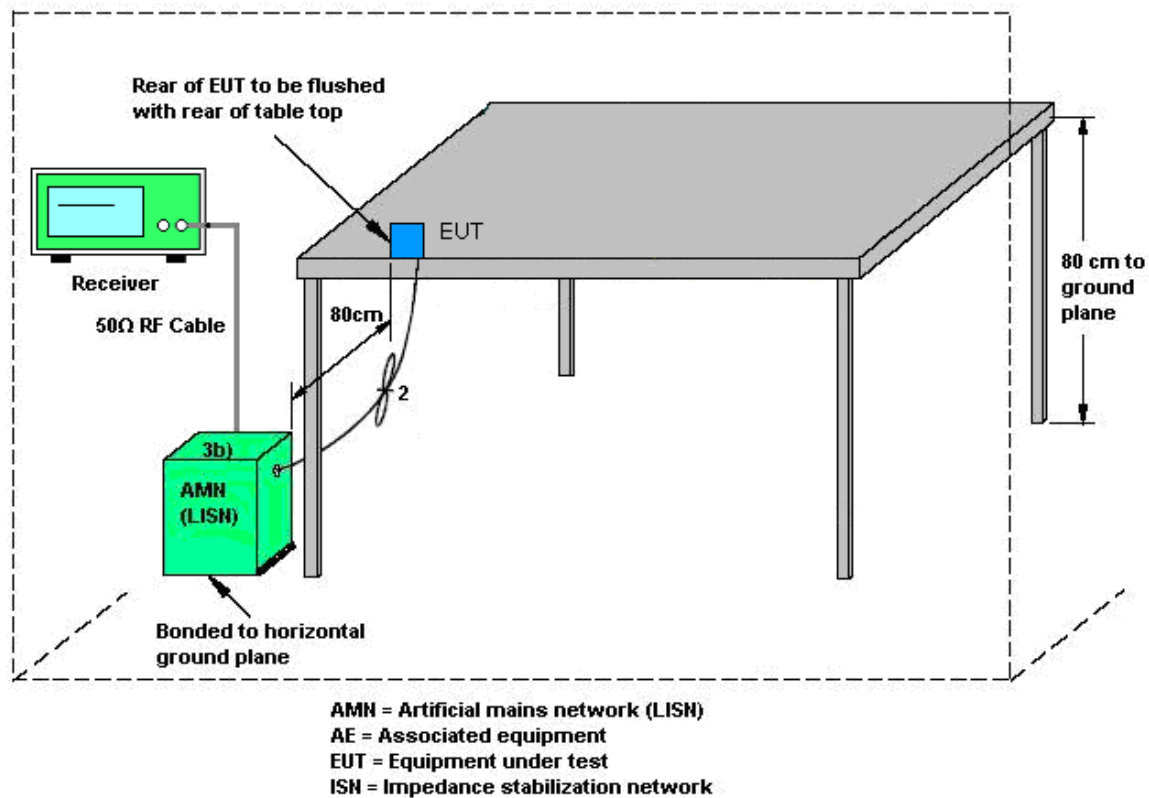
3.1.2 Measuring Instruments

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.

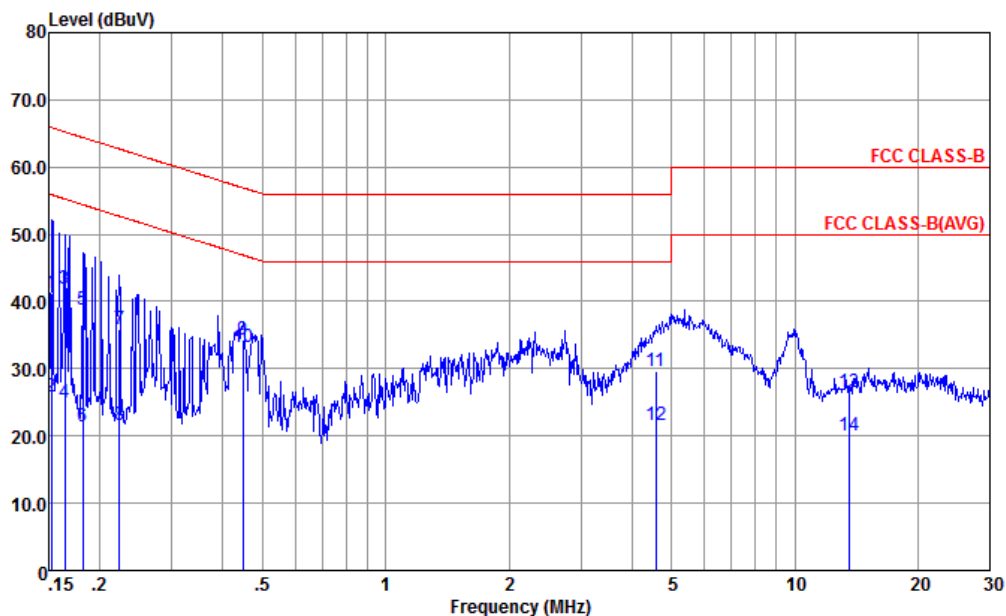
3.1.4 Test Setup





3.1.5 Test Result of AC Conducted Emission

Test Engineer :	Amos Zhang	Temperature :	25.3~26.2°C
		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.		

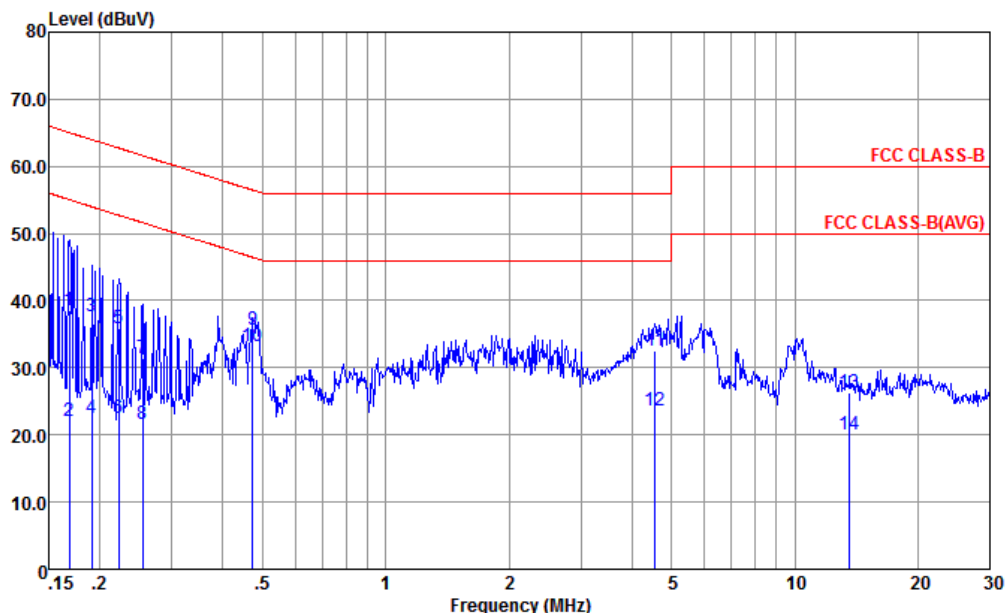


Site : CO01-KS
Condition : FCC CLASS-B TWO-LISN-100334-20-L LINE

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.152	41.22	-24.65	65.87	21.80	8.95	10.47	QP
2	0.152	25.92	-29.95	55.87	6.50	8.95	10.47	Average
3	0.164	41.98	-23.27	65.25	22.60	8.94	10.44	QP
4	0.164	24.98	-30.27	55.25	5.60	8.94	10.44	Average
5	0.182	38.83	-25.59	64.42	19.50	8.93	10.40	QP
6	0.182	21.43	-32.99	54.42	2.10	8.93	10.40	Average
7	0.223	35.86	-26.84	62.70	16.60	8.91	10.35	QP
8	0.223	21.56	-31.14	52.70	2.30	8.91	10.35	Average
9	0.447	34.40	-22.53	56.93	15.30	8.85	10.25	QP
10 *	0.447	33.20	-13.73	46.93	14.10	8.85	10.25	Average
11	4.574	29.65	-26.35	56.00	10.20	9.19	10.26	QP
12	4.574	21.55	-24.45	46.00	2.10	9.19	10.26	Average
13	13.560	26.43	-33.57	60.00	6.50	9.55	10.38	QP
14	13.560	20.13	-29.87	50.00	0.20	9.55	10.38	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 CLASS-B TWO-LISN-100334-20-N NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.169	38.58	-26.45	65.03	19.20	8.95	10.43	QP
2	0.169	21.98	-33.05	55.03	2.60	8.95	10.43	Average
3	0.191	37.55	-26.43	63.98	18.20	8.97	10.38	QP
4	0.191	22.55	-31.43	53.98	3.20	8.97	10.38	Average
5	0.222	35.93	-26.81	62.74	16.60	8.98	10.35	QP
6	0.222	22.43	-30.31	52.74	3.10	8.98	10.35	Average
7	0.255	31.50	-30.10	61.60	12.20	8.97	10.33	QP
8	0.255	21.60	-30.00	51.60	2.30	8.97	10.33	Average
9	0.474	35.71	-20.74	56.45	16.61	8.86	10.24	QP
10 *	0.474	33.21	-13.24	46.45	14.11	8.86	10.24	Average
11	4.549	32.47	-23.53	56.00	13.30	8.91	10.26	QP
12	4.549	23.67	-22.33	46.00	4.50	8.91	10.26	Average
13	13.560	26.36	-33.64	60.00	6.01	9.97	10.38	QP
14	13.560	20.06	-29.94	50.00	-0.29	9.97	10.38	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.

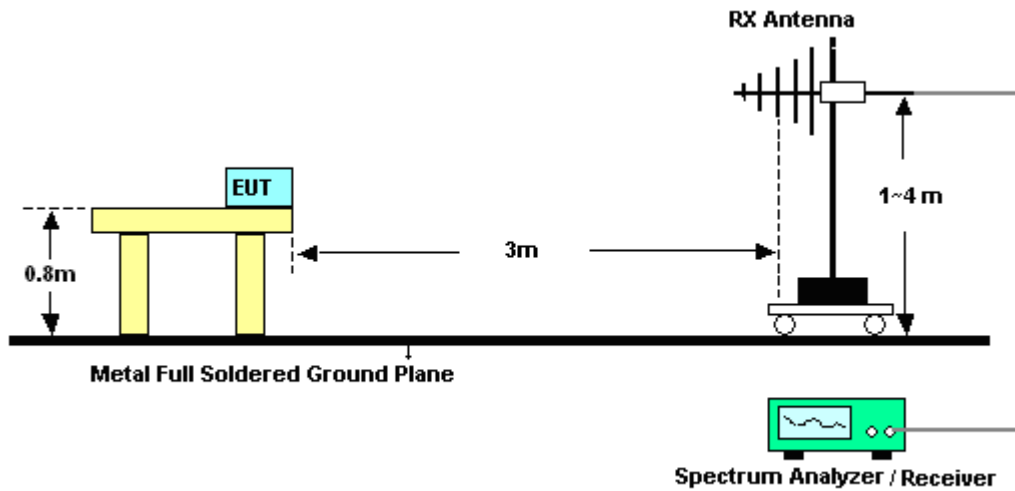
3.2.3. Test Procedures

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)

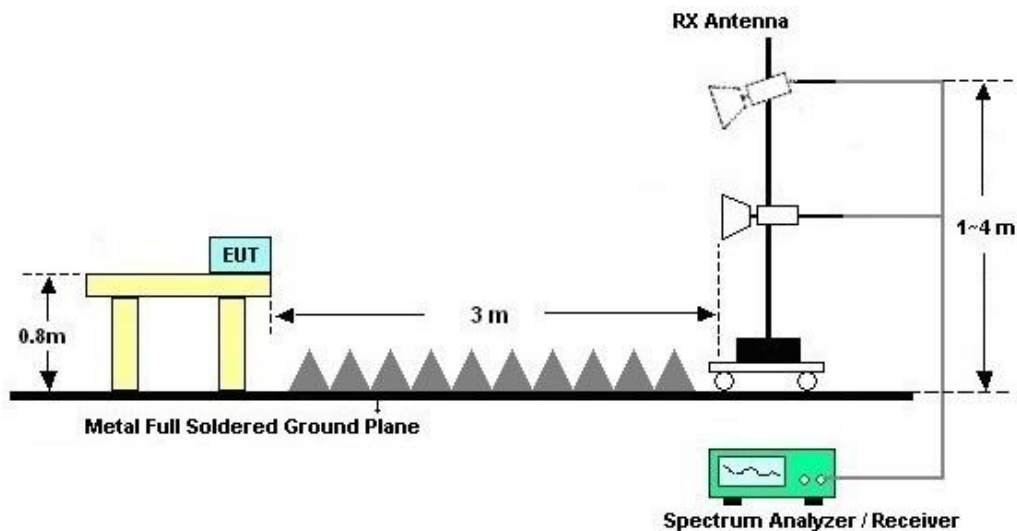
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamplifier Factor = Level
10. Exploratory radiated emissions testing of handheld and/or body-worn devices shall include rotation of the EUT through three orthogonal axes (X/Y/Z Plane) to determine the orientation (attitude) that maximizes the emissions.

3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz

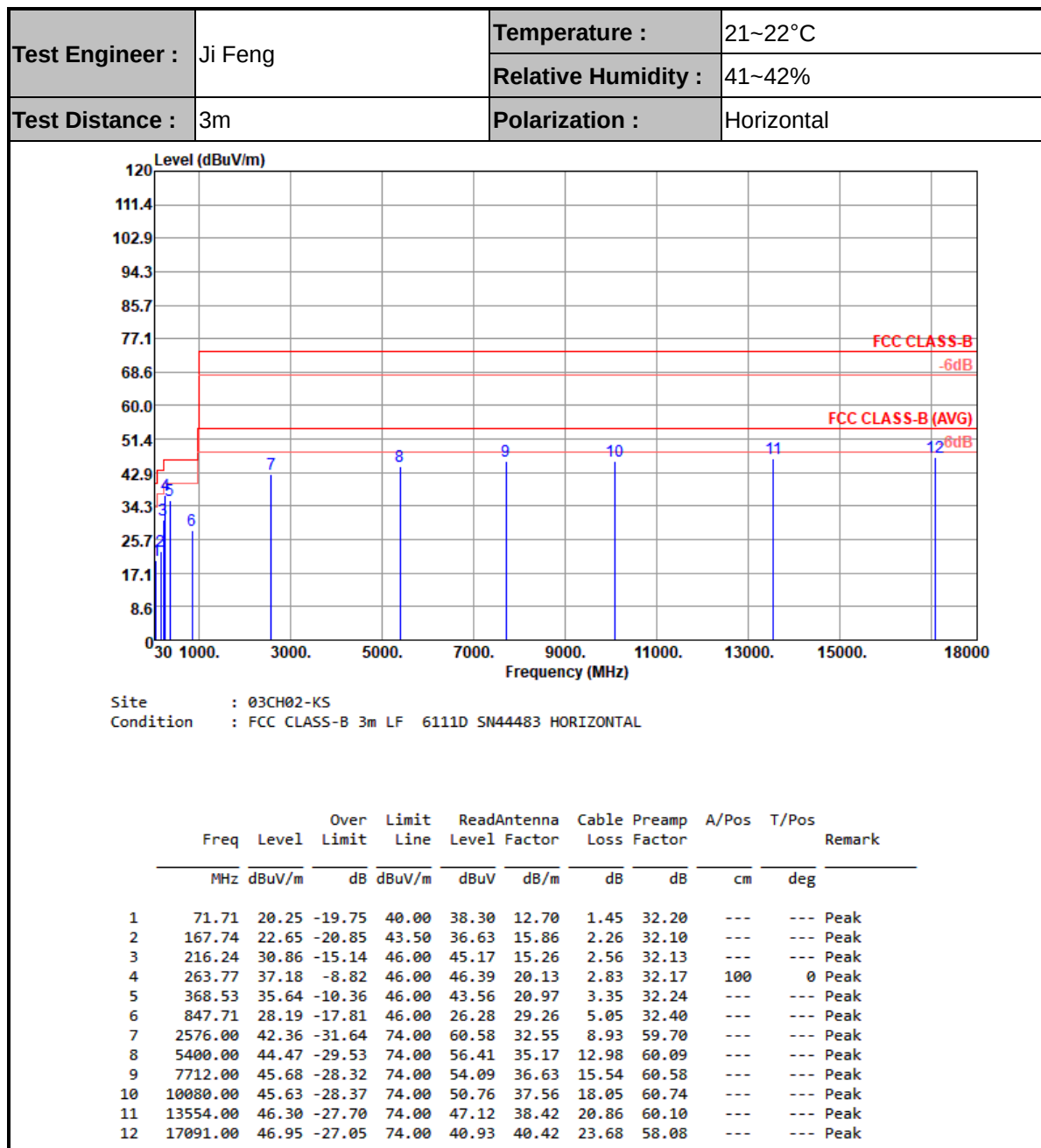


For radiated emissions above 1GHz



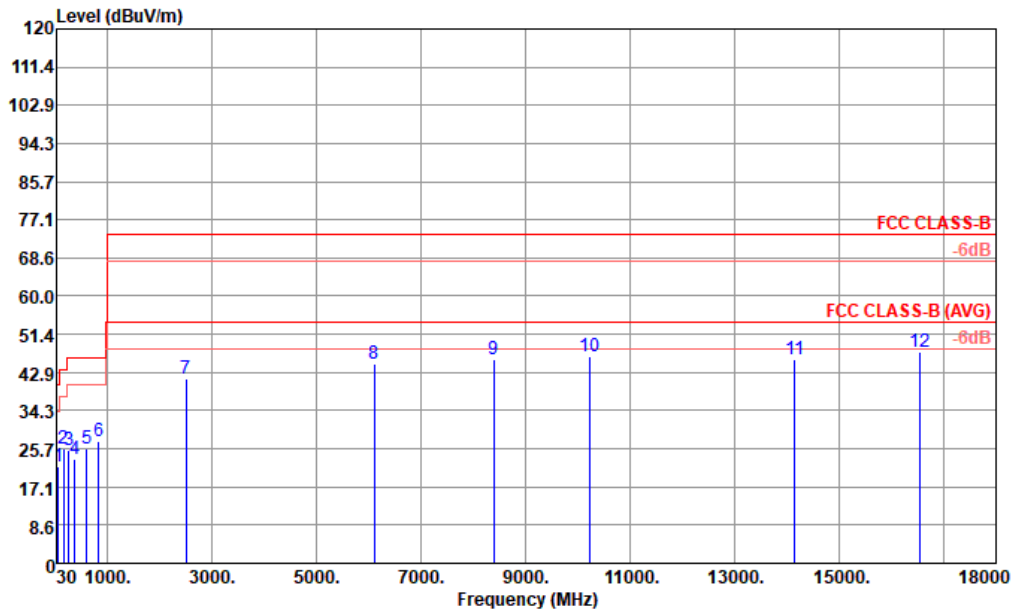


3.2.5. Test Result of Radiated Emission





Test Engineer :	Ji Feng	Temperature :	21~22°C
		Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Vertical



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	71.71	21.83	-18.17	40.00	39.88	12.70	1.45	32.20	---	Peak
2	167.74	25.72	-17.78	43.50	39.70	15.86	2.26	32.10	100	Peak
3	263.77	25.26	-20.74	46.00	34.47	20.13	2.83	32.17	---	Peak
4	384.05	23.24	-22.76	46.00	30.75	21.34	3.42	32.27	---	Peak
5	607.15	25.58	-20.42	46.00	27.69	25.90	4.28	32.29	---	Peak
6	832.19	27.50	-18.50	46.00	25.94	28.91	5.01	32.36	---	Peak
7	2512.00	41.54	-32.46	74.00	59.77	32.60	8.82	59.65	---	Peak
8	6112.00	44.93	-29.07	74.00	55.90	35.26	13.89	60.12	---	Peak
9	8400.00	45.73	-28.27	74.00	54.02	36.48	16.14	60.91	---	Peak
10	10224.00	46.48	-27.52	74.00	51.35	37.67	18.17	60.71	---	Peak
11	14157.00	45.93	-28.07	74.00	45.92	38.69	21.37	60.05	---	Peak
12	16542.00	47.52	-26.48	74.00	42.80	40.25	23.33	58.86	---	Peak

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 Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 21, 2021	Aug. 19, 2021	Apr. 20, 2022	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 17, 2020	Aug. 19, 2021	Oct. 16, 2021	Conduction (CO01-KS)
AC LISN	R&S	ENV216	100334	9kHz~30MHz	Oct. 17, 2020	Aug. 19, 2021	Oct. 16, 2021	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP0000008 11	AC 0V~300V, 45Hz~1000Hz	Oct. 17, 2020	Aug. 19, 2021	Oct. 16, 2021	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz;Ma x 30dBm	Oct. 17, 2020	Aug. 20, 2021	Oct. 16, 2021	Radiation (03CH02-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55370528	10Hz~44G,MAX 30dB	Oct. 17, 2020	Aug. 20, 2021	Oct. 16, 2021	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6111D	44483	30MHz~1GHz	Jan. 26, 2021	Aug. 20, 2021	Jan. 25, 2022	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Nov. 01, 2020	Aug. 20, 2021	Oct. 31, 2021	Radiation (03CH02-KS)
Amplifier	SONOMA	310N	187289	9KHz~1GHz	Jan. 06, 2021	Aug. 20, 2021	Jan. 05, 2022	Radiation (03CH02-KS)
Amplifier	Keysight	83017A	MY53270316	500MHz~26.5G Hz	Oct. 17, 2020	Aug. 20, 2021	Oct. 16, 2021	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	61601000247 3	N/A	NCR	Aug. 20, 2021	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Aug. 20, 2021	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Aug. 20, 2021	NCR	Radiation (03CH02-KS)

NCR: No Calibration Required

5. Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.94dB
--	--------

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.9dB
--	-------

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

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