

FCC EMC TEST REPORT

Name of Sample: Mobile Cellular Phone

Model of Sample: F-53E

Applicant: FCNT LLC

Issued Date: 2024-10-16



ADR TEST AND CERTIFICATION CENTER

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Name of Client	FCNT LLC		
Address of Client	Sanki Yamato Bldg. 3F, 7-10-1, Chuorinkan, Yamato-shi, Kanagawa, 242-0007, Japan		
Trademark	Raku-Raku smartphone	Type Name or ID	2BEPUFMP201
Applicant No.	RF182764	Sample No.	SN: N0KMC30106 SN: N0KM2J0123
Delivering Date	2024-09-23	Test Date(s)	2024-09-24 to 2024-09-25
Sample Illustration	None		
Standard	47 CFR FCC PART 15 Subpart B ANSI C63.4-2014		
Conclusion	PASS		
Remarks	None		

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Matters Needing Attention

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
24ADRTCC5054	Rev. 01	Initial issue of report	2024-09-30
24ADRTCC5054	Rev. 02	Update model name of sample to F-53E	2024-10-09
24ADRTCC5054	Rev. 03	Update Applicant related information	2024-10-10
24ADRTCC5054	Rev. 04	Update EUT information	2024-10-16

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1. Information Of Equipment Under Test(EUT)

Product Name:		Mobile Cellular Phone
Brand Name:		Raku-Raku smartphone
Model Name:		F-53E
FCC ID:		2BEPUFMP201
Software Version:		UUZ34.40
Hardware Version:		DVT2
IMEI Code:		Conduction: 354413330076248/354413330076255 for Sample 1 354413330078947/354413330078954 for Sample 2 Radiation: 354413330076248/354413330076255 for Sample 1 354413330078947/354413330078954 for Sample 2
Supports Radio application in this standard:		
GSM/WCDMA/LTE/5G NR/WLAN/BLE/TOOTH/GNSS/NFC/FM		
Accessory		
Product	Brand	model
Battery 1	ATL	RA07503-1091
Battery 2	COSMX	RA07503-1092

Remark:

1. The EUT's information was declared by manufacturer. Please refer to the manufacturer's specifications or user's manual for more detailed description.
2. This report includes the first and second source sample. The first source sample (SN: N0KMC30106, Applicant No. is RF182764) collectively referred to as sample1, and the second source sample (SN: N0KM2J0123, Applicant No. is RF182764) collectively referred to as sample2.
3. There is only one type of EUT. It is F-53E. Details of differences can be found in the Product Equality Declaration. Based on the differences, we selected F-53E (sample 1) for full testing, and F-53E (sample 2) to verify the differences.

2. Details Of Test

2.1 Applicant

Applicant Name:	FCNT LLC.
Address:	Sanki Yamato Bldg. 3F, 7-10-1, Chuorinkan, Yamato-shi, Kanagawa, 242-0007, Japan

2.2 Location of Test

Test Site 1:	ADR TEST AND CERTIFICATION CENTER
Address:	NO.19, Gao Xin 4 th Road, Wuhan, 430205, P.R China

2.3 Applied Standards

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

47 CFR FCC PART 15 Subpart B

ANSI C63.4-2014

3. Result Summary

Test Items	Test Standard	Limit	Result (PASS/FAIL)	Site
Radiated emissions	ANSI C63.4-2014	15.109 Class B	PASS	Site 1
Conducted emissions	ANSI C63.4-2014	15.107 Class B	PASS	Site 1

decision rules: Statements of conformity (e.g. Pass/Fail) to specifications are made in this report without taking measurement uncertainty into account except when requested by the customer. Where statements of conformity are made in this report, the following decision rules are applied:

PASS- Results within limits/specifications

FAIL- Results exceed limits/specifications

Remark: For the test result, the EUT had been tested with all test modes. But only the worst case was shown in test report.

Summary of Environment Condition, Test Date and Test Engineer for all Test Items

Test items	Ambient Temperature (°C)	Relative Humidity (%)	Atmospheric Pressure (kPa)	Test Date	Test Engineer
Radiated emissions	23~25	62~64	/	Sep.24,2024~ Sep.25,2024	Mingzhu Li Chuanghui Xiao
Conducted emissions	25~26	64~65	/	Sep.24,2024~ Sep.25,2024	Mingzhu Li

4. Tests Configuration Of EUT

4.1 EUT Test Modes

All the test modes were carried out with the EUT under the normal operation, which were shown in this test report and defined as below:

Test Items	configuration
Radiated Emissions	Mode 1: GSM 850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + Camera (Rear) + Earphone + USB Cable 1(Charging from Adapter 1) + SIM for Sample 1
	Mode2: GSM1900 Idle + Bluetooth Idle + WLAN (5G) Idle + Camera (Front) + NFC On + USB Cable 1(Charging from Adapter 1) + E-SIM for Sample 1
	Mode3: WCDMA Band V Idle + Bluetooth Idle + WLAN(5G) Idle + Earphone + USB Cable 1(Charging from Adapter 1) + SIM for Sample 1
	Mode4: LTE Band 5 Idle + Bluetooth Idle + WLAN (2.4G) Idle + MPEG4(Run Color Bar) + Earphone + USB Cable 1(Charging from Adapter 1) + SIM for Sample 1
	Mode5: LTE Band 12 Idle + Bluetooth Idle + WLAN(5G)Idle + GNSS On + USB Cable 1(Data Link with Notebook) + EUT(eMMC)USB Data Link to NB + SIM for Sample 1
	Mode6: GSM 850 Idle + Bluetooth Idle + WLAN(2.4G)Idle + USB Cable 1(Data Link with Notebook) + NB USB Data Link to EUT(eMMC) + SD for Sample 1
	Mode7: n78 Idle+ Bluetooth Idle + WLAN(2.4G)Idle + Camera (Front) + Earphone + USB Cable 1(Charging from Adapter 1) + SIM for Sample 1
	Mode8: GSM 850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + Earphone + USB Cable 1(Charging from Adapter 1) + SIM for Sample 2
	Mode9: GSM 850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Front) + Earphone + USB Cable 1(Charging from Adapter 1) + SIM for Sample 2
	Mode10: GSM 850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + MPEG4(Run Color Bar) + Earphone + USB Cable 1(Charging from Adapter 1) + SIM for Sample 2
	Mode11: GSM 850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + Earphone + USB Cable 1(Data Link with Notebook) + EUT(eMMC)USB Data Link to NB + SIM for Sample 2
	Mode12: GSM 850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + FM On + Camera (Rear) + Earphone + USB Cable 1(Charging from Adapter 1) + SIM for Sample 1
	Mode13: GSM 850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + FM On + Camera (Rear) + Earphone + USB Cable 1(Data Link with Notebook) + EUT (eMMC)USB Data Link to NB + SIM for Sample 2
	Mode1: GSM 850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + Earphone + USB Cable 1(Charging from Adapter 1) + SIM for Sample 1

AC Conducted Emission	<p>Mode2: GSM1900 Idle + Bluetooth Idle + WLAN (5G) Idle + Camera(Front) + NFC On + USB Cable 1(Charging from Adapter 1) + E-SIM for Sample 1</p> <p>Mode3: WCDMA Band V Idle + Bluetooth Idle + WLAN(5G)Idle + Earphone + USB Cable 1(Charging from Adapter 1) + SIM for Sample 1</p> <p>Mode4: LTE Band 5 Idle + Bluetooth Idle + WLAN(5G)Idle + MPEG4(Run Color Bar) + Earphone + USB Cable 1(Charging from Adapter 1) + SIM for Sample 1</p> <p>Mode5: LTE Band 12 Idle + Bluetooth Idle + WLAN(2.4G)Idle + GNSS On + USB Cable 1(Data Link with Notebook) + EUT(eMMC)USB Data Link to NB + SIM for Sample 1</p> <p>Mode6: GSM 1900 Idle + Bluetooth Idle + WLAN(5G)Idle + USB Cable 1(Data Link with Notebook) + NB USB Data Link to EUT(eMMC) + SD for Sample 1</p> <p>Mode7: n78 Idle+ Bluetooth Idle + WLAN(2.4G)Idle + Camera(Front) + Earphone + USB Cable 1(Charging from Adapter 1) + SIM for Sample 1</p> <p>Mode8: GSM 850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + Earphone + USB Cable 1(Charging from Adapter 1) + SIM for Sample 2</p> <p>Mode9: GSM 850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Front) + Earphone + USB Cable 1(Charging from Adapter 1) + SIM for Sample 2</p> <p>Mode10: GSM 850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + MPEG4(Run Color Bar) + Earphone + USB Cable 1(Charging from Adapter 1) + SIM for Sample 2</p> <p>Mode11: LTE Band 12 Idle + Bluetooth Idle + WLAN(2.4G)Idle + GNSS On + USB Cable 1(Data Link with Notebook) + EUT(eMMC)USB Data Link to NB + SIM for Sample 2</p> <p>Mode12: LTE Band 12 Idle + Bluetooth Idle + WLAN(2.4G)Idle + FM On + GNSS On + USB Cable 1(Data Link with Notebook) + EUT(eMMC)USB Data Link to NB + SIM for Sample 1</p> <p>Mode13: LTE Band 12 Idle + Bluetooth Idle + WLAN(2.4G)Idle + FM On + GNSS On + USB Cable 1(Data Link with Notebook) + EUT(eMMC)USB Data Link to NB + SIM for Sample 2</p>
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Remark:

1. If there is over one kind of accessories, each one should be applied in the all test modes. However, only the worst case will be recorded in this report.
2. If EUT has more than one typical operation, only the worst case will be recorded in this report.

Link Mode:

When the EUT state is switched on and worked.

Idle Mode:

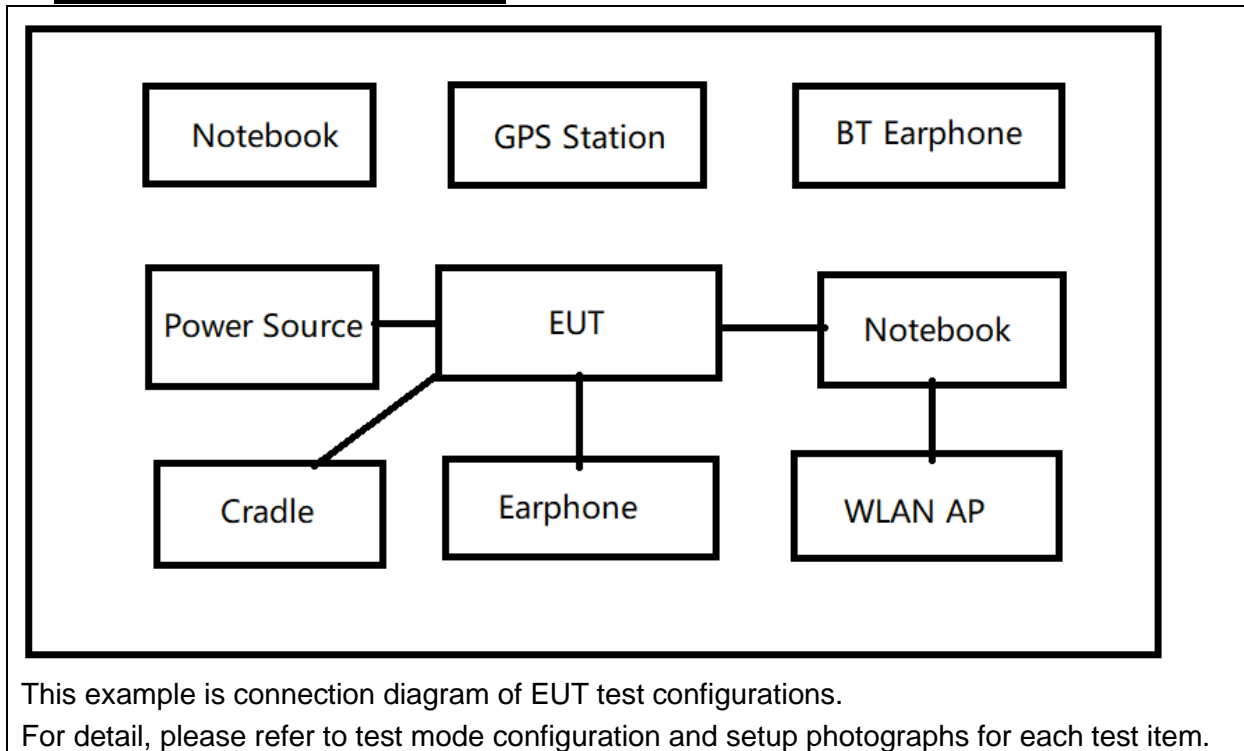
When the EUT state is switch on but without Radio Resource Control (RRC) connection.

Worst mode of all test items listed in section 4.1

Test items	Worst mode
Radiated Emission	12
Conducted Emission	11

Remark: Only data of worst mode (if test item has) was reported in test result.

4.2 Configuration Of Test System



4.3 Support Unit For Test

Name	Model Name	Manufacturer	S/N
System Simulator	CMW500	R&S	141518
System Simulator	CMW500	R&S	171184
System Simulator	CMX500	R&S	101840
Vector Signal Generator	SMBV100A	R&S	258462
WLAN AP	TP-Link-8342	TP-Link	NA
WLAN AP	H3C Magic NX54	H3C	NA
Notebook	YOGA Pro 14s	Lenovo	PF48HYHV
Bluetooth Earphone	TR6	SOA/Y	NA
Bluetooth Earphone	Earbuds X2	COSONIC	NA
SD Card	128 PRO Plus	Samsung	NA
U disk	L7C	Lenovo	NA
Adapter	33 W MC-332	Acbel	SA18D18934
USB Cable	/	/	SC18D22299
Earphone	/	Lyand	SH38C81577

5. Test Result

5.1 Radiated Emissions

5.1.1 Limit

Frequency range MHz	Quasi-peak limits dB (μV/m)		RBW kHz
30 to 88	40		120
88 to 216	43.5		120
216 to 960	46		120
960 to 1000	54		120
Frequency range MHz	Peak limits dB (μV/m)	Average limits dB (μV/m)	RBW MHz
Above 1000	74	54	1
At transitional frequencies the lower limit applies.			

5.1.2 Test Procedure

1. The test site, test set-up and test methods were according to ANSI C63.4-2014.
2. The EUT was placed on a non-metallic table 0.8m above the reference ground plane. The table was rotated 360 degrees to determine the position of the highest radiation.
3. The EUT was set 3m from the receiving antenna, which was mounted on a variable height antenna tower. The height range of tower was 1m to 4m.
4. A preliminary scan and a final scan of the emissions were made by using test script of software; The emissions were measured using quasi-peak detector (30M~1000MHz) and PK/AV detector (above 1GHz).
5. The maximal emission was acquired by adjusting the antenna height, polarisation and turntable azimuth in accordance with the software setup.
6. The EUT was configured in the typical operating mode.
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 for frequency range below 1GHz.
8. If emission level of the EUT in Peak measurement mode is 20dB lower than Peak limit line (that means the emission level in Peak measurement mode complies with both Peak and Average limit lines), then only Peak measurement result is reported. Otherwise, emissions in Average measurement mode shall be measured and reported above 1GHz.

5.1.3 Test Set-up

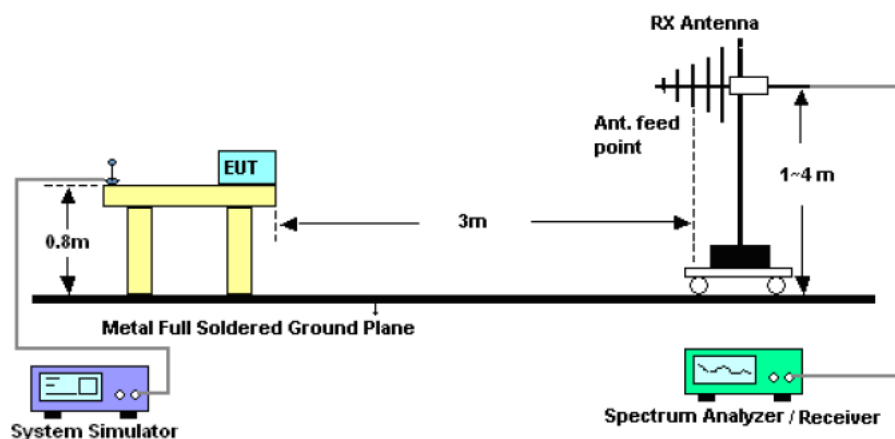


Figure.1 Test set-up of radiated emissions (30MHz~1000MHz)

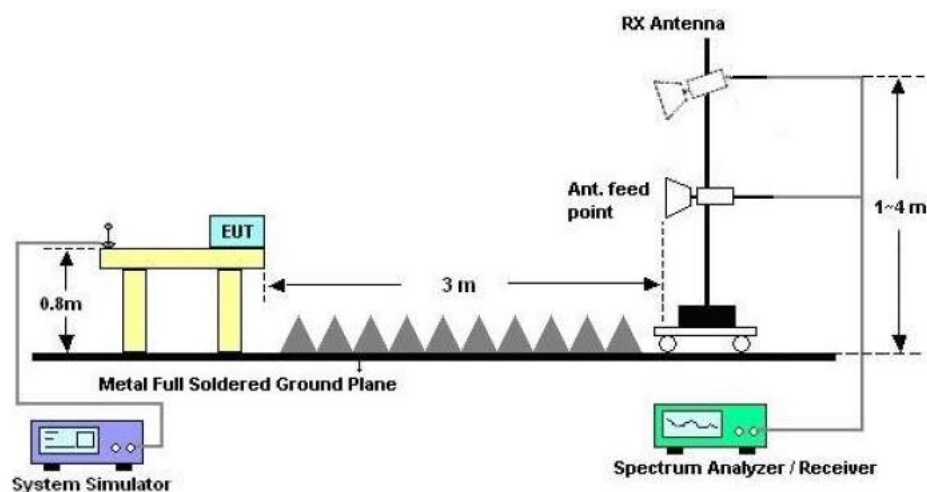


Figure.2 Test set-up of radiated emissions (above 1GHz)

5.1.4 Test Results

The EUT has met the requirements for Radiated Emissions.

Test data refer to the section 8.1 of this report.

Only the worst test result was shown in this report.

5.2 Conducted Emissions

5.2.1 Limit

Frequency range MHz	Class B Limits dB (μV)		RBW kHz
	Quasi-peak	Average	
0.15 to 0.50	66 to 56	56 to 46	9
0.50 to 5	56	46	9
5 to 30	60	50	9

NOTE 1: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

NOTE 2: The lower limit is applicable at the transition frequency.

5.2.2 Test Procedure

1. The test site, test set-up and test methods were according to ANSI C63.4-2014.
2. The EUT was placed on a non-metallic table 0.8m above the reference ground plane.
3. The EUT was connected to LISN and LISN was connected to the reference ground plane. EUT was 80cm away from LISN.
4. A preliminary scan and a final scan of the emissions were made by using test script of software; the emissions were measured using quasi-peak and average detector.
5. Conducted Emission at AC port measurements were undertaken on the L and N lines.
6. The EUT was configured in the typical operating mode.

5.2.3 Test Set-up

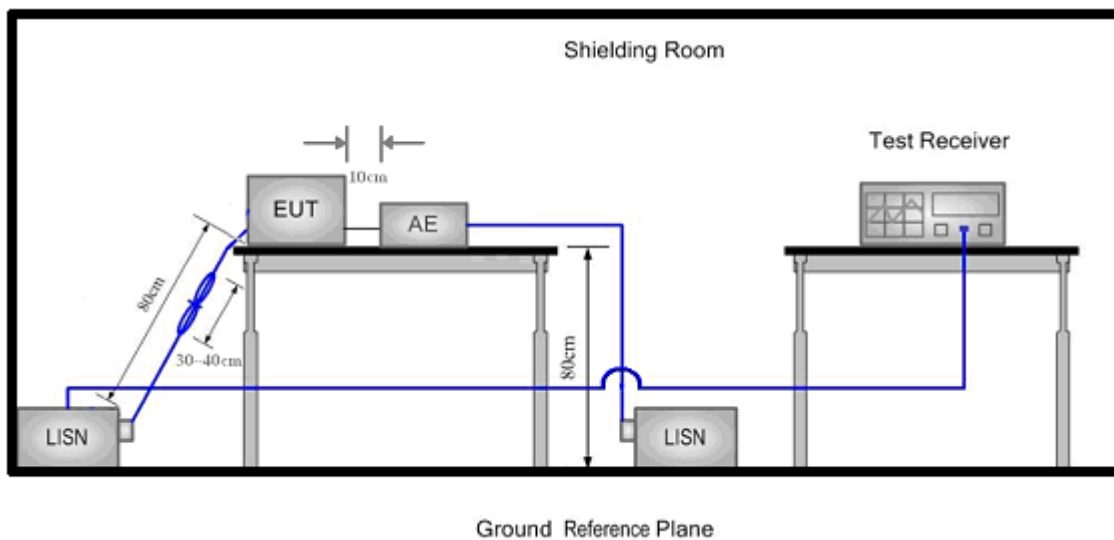


Figure.3 Test set-up of conducted emissions

5.2.4 Test Results

The EUT has met the requirements for Conducted Emissions.
 Test data refer to the section 8.2 of this report.
 Only the worst test result was shown in this report.

6. Test Equipment And Software

Main Test Equipments						
Test items	Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration interval (year)
RE	Double Ridged Horde Antenna	R&S	HF907	100545	2022/02/23	3
	Log-per.-Antenna	R&S	VULB9163	9163-893	2024/01/19	2
	broadband Antenna	R&S	QWH-SL-18-40-K-SG	12004	2022/01/20	3
	EMI Test Receiver (30M~1GHz)	R&S	ESR7	101188	2024/07/08	1
	Signal Analyzer (Above 1GHz)	R&S	FSV40	100956	2023/11/17	1
CE	LISN	R&S	ENV216	101223	2024/07/08	1
	EMI Test Receiver	R&S	ESR7	101188	2024/07/08	1
Software Information						
Test Item		Software Name		Version		
RE		EMC32		V 10.60.20		
CE		EMC32		V 10.60.20		

7. System Measurement Uncertainty

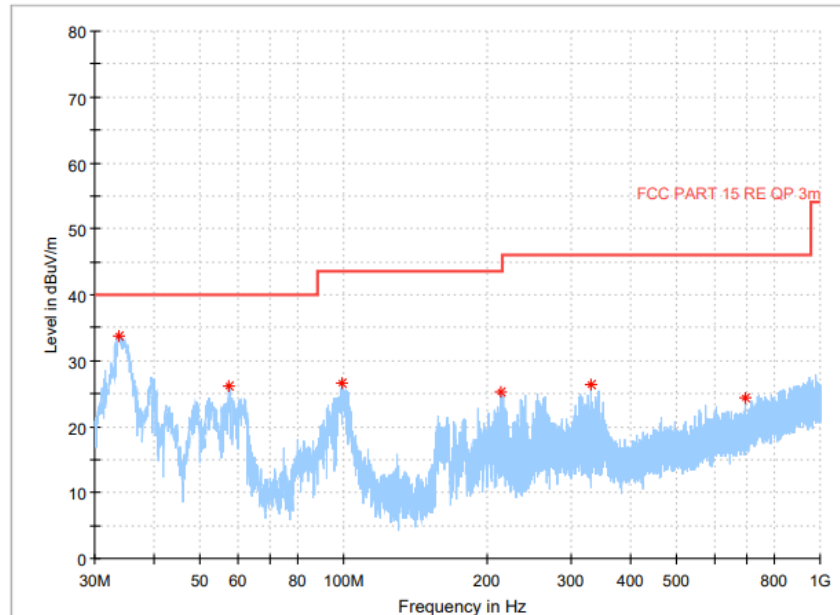
For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

Measurement Uncertainty		
Items		Extended Uncertainty
RE(30MHz~1GHz)	Field strength(dBμV/m)	U=5.9dB; k=2
RE(1GHz~18GHz)	Field strength(dBμV/m)	U=5.0dB; k=2
RE(18GHz~40GHz)	Field strength(dBμV/m)	U=5.1dB; k=2
CE(150kHz~30MHz)	Voltage(dBμV)	U=3.3dB; k=2

8. Test Data

8.1 Radiated Emissions

30MHz~1GHz



Critical Freqs

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Bandwidth (kHz)	Pol	Azimuth (deg)	Corr. (dB/m)
33.718333	33.74	40.00	6.26	---	V	315.0	11.9
57.591111	26.14	40.00	13.86	---	V	180.0	13.7
99.301111	26.68	43.50	16.82	---	V	225.0	12.5
214.084444	25.30	43.50	18.20	---	H	90.0	12.9
330.807778	26.29	46.00	19.71	---	H	0.0	15.7
698.815000	24.28	46.00	21.72	---	H	0.0	21.8

Note:

Level = Reading level by receiver + Corr. (Antenna factor + cable loss – preamplifier gain)

The reading level is calculated by software which is not shown in the sheet.

1GHz~40GHz



Critical Freqs

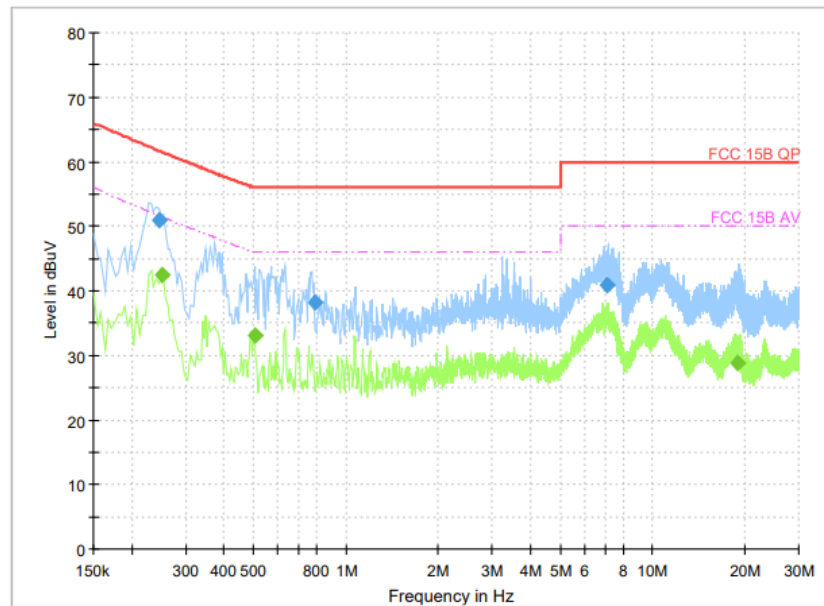
Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Bandwidth (kHz)	Pol	Azimuth (deg)	Corr. (dB/m)
1722.500000	32.44	---	74.00	41.56	---	H	180.0	-11.8
2239.300000	---	22.64	54.00	31.36	---	H	135.0	-9.1
3539.800000	38.26	---	74.00	35.74	---	H	270.0	-4.9
6142.500000	---	29.12	54.00	24.88	---	H	45.0	0.9
10732.500000	41.85	---	74.00	32.15	---	V	180.0	3.5
11395.500000	---	30.66	54.00	23.34	---	V	270.0	3.7

Level = Reading level by receiver + Corr. (Antenna factor + cable loss – preamplifier gain)

The reading level is calculated by software which is not shown in the sheet.

8.2 Conducted Emissions

AC Port Test Data



Final Result

Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.246454	51.02	---	61.68	10.65	9.000	L1	ON	9.9
0.250454	---	42.35	51.50	9.15	9.000	L1	ON	9.9
0.503204	---	33.14	46.00	12.86	9.000	L1	ON	9.9
0.793704	38.25	---	56.00	17.75	9.000	N	ON	9.8
7.126750	40.93	---	60.00	19.07	9.000	L1	ON	10.1
18.952273	---	28.91	50.00	21.09	9.000	L1	ON	10.2

Note:

Level = Reading level by receiver + Corr. (cable loss+ insertion loss)

The reading level is calculated by software which is not shown in the sheet.