FCC TEST REPORT

For

NFC Android Reader

Model Number: FX205F

FCC ID: 2AGQIFX205

Report Number : WT198003464

Test Laboratory	:	Shenzhen Academy of Metrology and Quality Inspection
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TEST REPORT DECLARATION

Applicant	:	FAMOCO SAS
Address	:	59 avenue Victor Hugo Paris, France
Manufacturer	:	FAMOCO SAS
Address	:	59 avenue Victor Hugo Paris, France
EUT Description	:	NFC Android Reader
Model No.	:	FX205F
Trade mark	:	FAMOCO
Serial Number	:	/
FCC ID	:	2AGQIFX205

Test Standards:

FCC Part 15 Subpart B 15.107, 15.109 （2018）

The EUT described above is tested by Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory to determine the maximum emissions from the EUT. Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory is assumed full responsibility for the accuracy of the test results.

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

Project Engineer:	(Zhou Fangai 周芳媛)	Date:	Jul.23, 2019
Checked by:	(Lin Yixiang 林奕翔)	Date:	Jul.23, 2019
Approved by:	(Lin Bin 林斌)	Date:	Jul.23, 2019

TABLE OF CONTENTS

1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	FCC Rules	Test Results
Conducted Emission	15.107	Pass
Radiation Emission	15.109	Pass

Remark: “N/A” means “Not applicable.”

2. GENERAL INFORMATION

2.1. Report information

This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that SMQ approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that SMQ in any way guarantees the later performance of the product/equipment.

The sample/s mentioned in this report is/are supplied by Applicant, SMQ therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through SMQ, unless the applicant has authorized SMQ in writing to do so.

2.2. Laboratory Accreditation and Relationship to Customer

The testing report were performed by the Shenzhen Academy of Metrology and quality Inspection EMC Laboratory (Guangdong EMC compliance testing center), in their facilities located at NETC Building, No.4 Tongfa Rd., Xili, Nanshan, Shenzhen, China. At the time of testing, Laboratory is accredited by the following organizations:

China National Accreditation Service for Conformity Assessment (CNAS) accredits the Laboratory for conformance to FCC standards, EMC international standards and EN standards. The Registration Number is CNAS L0579.

The Laboratory is Accredited Testing Laboratory of FCC with Designation number CN1165 and Site registration number 582918.

The Laboratory is registered to perform emission tests with Innovation, Science and Economic Development (ISED), and the registration number is 11177A.

2.3. Measurement Uncertainty

Conducted Emission
9 kHz~30MHz 2.9dB

Radiated Emission
30MHz~1000MHz 5.1dB
1GHz~6GHz 5.04dB
6GHz~18GHz 5.54dB

3. PRODUCT DESCRIPTION

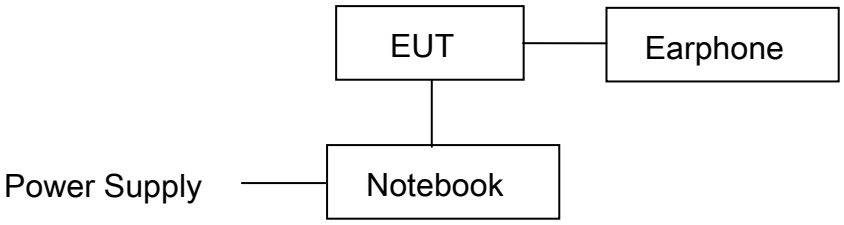
3.1. EUT Description

Table 2 Specification of the Equipment under Test

Product Type:	NFC Android Reader
Hardware Version:	F205_MB_V2.0
Software Version :	MOLY.LR12A.R2.MP.V44.1
FCC-ID:	2AGQIFX205
Frequency:	GSM850:TX 824MHz~849MHz RX 869MHz~894MHz PCS1900: TX 1850MHZ~1910MHz RX 1930MHz~1990MHz WCDMA 850: TX 824MHz~849MHz RX 869MHz~894MHz WCDMA 1700:TX: 1710MHz~1755MHz RX 2110MHz~2155MHz WCDMA 1900:TX 1850MHZ~1910MHz RX 1930MHz~1990MHz LTE Band 2: TX 1850MHZ~1910MHz RX 1930MHz~1990MHz LTE Band 5:TX 824MHz~849MHz RX 869MHz~894MHz LTE Band 7:TX 2500MHz~2570MHz RX 2620MHz~2690MHz LTE Band 12:TX 699MHz~716MHz RX 729MHz~746MHz LTE Band 13:TX 777MHz~787MHz RX 746MHz~756MHz LTE Band 17:TX 704MHz~716MHz RX 734MHz~746MHz LTE Band 38:TX 2570MHz~2620MHz RX 2570MHz~2620MHz LTE Band 41:TX 2555MHz~2655MHz RX 2555MHz~2655MHz WiFi:2412MHz~2462MHz BT:2402MHz~2480MHz
Type(s) of Modulation:	GSM850/PCS1900:GMSK 8PSK WCDMA:QPSK LTE:QPSK, 16QAM DSSS (DBPSK, DQPSK, CCK) for 802.11b OFDM (BPSK, QPSK, 16QAM, 64QAM) for 802.11a/g/n BT：GFSK, pi/4-DQPSK, 8DPSK
Antenna Type:	GSM/WCDMA/LTE: PIFA ANTENNA 699MHz~800MHz: -0.4dBi 824MHz~849MHz: -0.39dBi 1710MHz~1780MHz: 0.45dBi 1850MHZ~1910MHz: 0.46dBi 2500MHz~2570MHz: 1.17dBi WiFi: PIFA ANTENNA +1.3dBi BT: PIFA ANTENNA +1.3dBi
Operating voltage:	Internal battery, 120V AC Adapter 3.5V (Low)/3.8V (Nominal)/ 4.35V (Max)

Remark: --

3.2. Block Diagram of EUT Configuration



Test mode 1

3.3. Operating Condition of EUT

Test mode 1: connected to a pc and data transmission.

The test mode mentioned above is identified as worst case for this EUT and the test results for this mode are recorded in this report.

The Radiated emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission (X plane).

3.4. Support Equipment List

Table 3 Support Equipment List

Name	Model No	S/N	Manufacturer
Battery for EUT	FX205 Series	--	Zhuhai Greaton Electronic Technology Co.,Ltd..
USB for EUT	--	--	--

Table 4 Support Equipment List

Name	Model No	S/N	Manufacturer	FCC
Notebook	P35G	--	DELL	DOC
Earphone	--	--	--	--

3.5. Test Conditions

Date of test：Jun.25, 2019- Jul.02, 2019
Date of EUT Receive：Jun.20, 2019
Temperature: 22℃-26 ℃
Relative Humidity: 45%-46%

3.6. Modifications

No modification was made.

4. TEST EQUIPMENT USED

4.1. Test Equipment Used to Measure Conducted Emission

Table 5 Conducted Emission Test Equipment

No.	Equipment	Manufacturer	Model No.	LAST CALIB	Period
SB2603	Test Receiver	R&S	ESCS30	Feb.20,2019	1 Year
SB8501/06	AMN	R&S	ESH2-Z5	Feb.20,2019	1 Year

4.2. Test Equipment Used to Measure Radiated Emission

Table 6 Radiated Emission Test Equipment

No.	Equipment	Manufacturer	Model No.	LAST CALIB	Period
SB12943	Test Receiver	R&S	ESR7	Dec.06,2018	1 Year
SB5472/02	Broadband Antenna	Schwarzbeck	VULB9163	May.31,2019	1 Year
SB9054/09	Horn Antenna	R&S	HF907	Sep.04,2019	1 Year
SB8501/16	Pre-Amplifier	R&S	SCU 26	Feb.18,2019	1 Year
SB8501/17	Pre-Amplifier	R&S	SCU-18	Feb.20,2019	1 Year
SB9059	Preamplifier	R&S	SCU-40	Aug.29,2018	1 Year
SB8501/11	Horn Antenna	R&S	3160-09	Mar.21,2017	3 Years
SB8501/12	Horn Antenna	R&S	3160-10	Mar.21,2017	3 Years

5. CONDUCTED EMISSION TEST

5.1. Test Standard and Limit

5.1.1. Test Standard

FCC Part 15: Section 15.107

5.1.2. Test Limit

Table 7 Conducted Emission Test Limit (Class B)

Frequency	Power Port limits (dBμV)	
	Quasi-peak	Average
0.15MHz ~ 0.5MHz	66～56*	56~46*
0.5MHz ~ 5 MHz	56	46
5 MHz ~ 30MHz	60	50

* Decreasing linearly with logarithm of the frequency

5.2. Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver is used to test the emissions from both sides of AC line. The bandwidth of EMI test receiver is set at 9kHz.

5.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

5.4. Test Data

The emissions don't show in following result tables are more than 20dB below the limits, the test curves are shown in the next page.

Table 8 Conducted Emission Test Data at mains Port

Model No.: FX205F

Test mode: 1

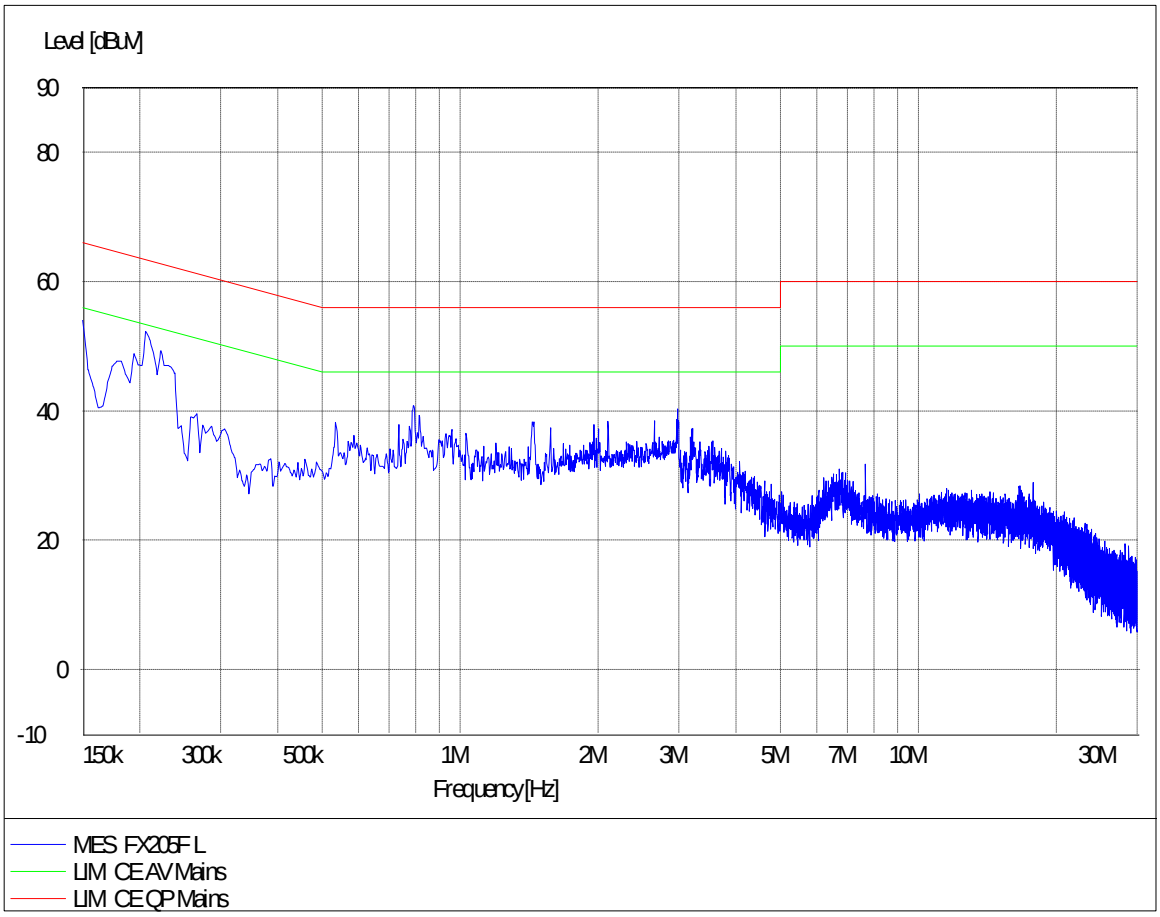
	Frequency (MHz)	Correction Factor (dB)	Quasi-Peak			Average		
			Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)
Line	0.150	9.7	38.0	47.7	66	19.6	29.3	56
	0.210	9.7	30.5	40.2	63.2	18.0	27.7	53.2
	0.222	9.7	30.7	40.4	62.7	17.1	26.8	52.7
	0.806	9.8	23.8	33.6	56	10.8	20.6	46
	0.914	9.8	21.0	30.8	56	12.1	21.9	46
	1.878	9.8	23.1	32.9	56	12.5	22.3	46
Neutral	0.150	9.7	38.2	47.9	66	15.5	25.2	56
	0.202	9.7	28.0	37.7	63.5	10.4	20.1	53.5
	0.214	9.7	29.7	39.4	63.0	11.4	21.1	53.0
	0.782	9.8	24.6	34.4	56	10.4	20.2	46
	0.790	9.8	22.0	31.8	56	10.8	20.6	46
	2.874	9.9	20.9	30.8	56	14.4	24.3	46

REMARKS: 1. Emission level (dBuV) =Read Value (dBuV) + Correction Factor (dB)

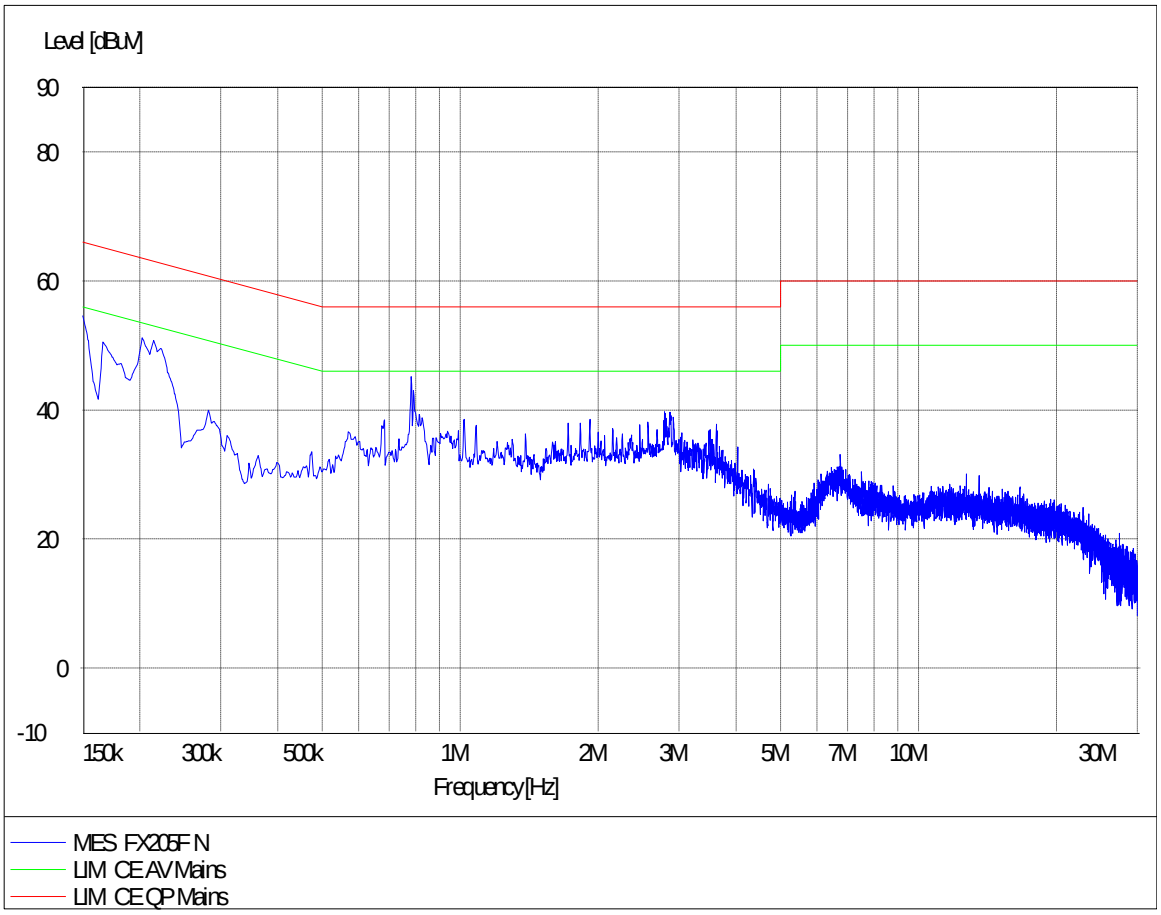
2. Correction Factor (dB) =LISN Factor (dB) + Cable Factor (dB) +Limiter Factor (dB)

3. The other emission levels were more than 20dB below the limits.

EUT: FX205F
Operating Condition: Test mode 1
Test Specification: L
Comment: AC 120V/60Hz
Comment:



EUT: FX205F
Operating Condition: Test mode 1
Test Specification: N
Comment: AC 120V/60Hz
Comment:



6. RADIATION EMISSION TEST

6.1. Test Standard and Limit

6.1.1. Test Standard

FCC Part 15: Section 15.109

6.1.2. Test Limit

Table 9 Radiation Emission Test Limit for FCC (Class B) (9 kHz-1GHz)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

Table 10 Radiation Emission Test Limit for FCC (Class B) (Above 1G)

Frequency (MHz)	(dBuV/m) (at 3 meters)	
	PEAK	AVERAGE
Above 1000	74	54

* The lower limit shall apply at the transition frequency.
* The test distance is 3m.

6.2. Test Procedure

The EUT is placed on a turntable, which is 0.8 meter above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set **3 meters** away from the receiving antenna, which is mounted on an antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.
RBW = 100 kHz (less than or equal to 1 GHz); 1 MHz (above 1 GHz)
VBW ≥ 3 x RBW
Detector = Peak & Quasi-Peak (frequency range 30 MHz to 1 GHz);
Peak & Average (frequency range above 1 GHz);
Changing VBW to 10 Hz for average measurement
The use of a higher-than-specified video bandwidth produces a conservative measurement result.

6.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in

a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

6.4.Test Data

The emissions don't show in following result tables are more than 20dB below the limits, the test curves are shown in the next page.
The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the res ult
which was 20dB lower than the limit line per 15.31(o) was not reported.

Table 11 Radiated Emission Test Data

Model No.: FX205F
Test mode: 1

Frequency (MHz)	Cable Loss +preamp (dB)	Antenna Factor (dB)	Readings (dBμV/m)	Level (dBμV/m)	Polarity (H/V)	Limits (dBμV/m)	Margin (dB)	Note
42.998	0.8	13.6	17.3	31.7	V	40	8.3	QP
145.527	1.4	10.5	12.6	24.5	V	43.5	19.0	QP
176.858	1.5	9.0	13.0	23.5	V	43.5	20.0	QP
315.180	2.1	13.1	15.4	30.6	V	46	15.4	QP
383.953	2.4	14.6	13.4	30.4	V	46	15.6	QP
729.273	3.3	18.8	8.5	30.6	V	46	15.4	QP
103.623	1.2	13.2	7.0	21.4	H	43.5	22.1	QP
149.407	1.5	10.5	9.7	21.7	H	43.5	21.8	QP
176.567	1.5	9.0	16.0	26.5	H	43.5	17.0	QP
211.972	1.8	10.6	16.1	28.5	H	43.5	15.0	QP
308.584	2.1	13.1	15.5	30.7	H	46	15.3	QP
383.953	2.4	14.6	4.4	21.4	H	46	24.6	QP
1397.500	-40.8	24.3	69.1	52.6	V	74	21.4	PK
1599.000	-40.6	25.1	75.6	60.1	V	74	13.9	PK
1799.000	-40.5	26.7	63.1	49.3	V	74	24.7	PK
2391.500	-40.2	28.3	64.0	52.1	V	74	21.9	PK
3195.000	-39.0	30.4	56.7	48.1	V	74	25.9	PK
6000.000	-38.3	34.7	56.0	52.4	V	74	21.6	PK
1198.500	-41.0	24.4	61.1	44.5	H	74	29.5	PK
1597.500	-40.6	25.1	66.8	51.3	H	74	22.7	PK
1640.500	-40.7	26.7	62.7	48.7	H	74	25.3	PK
1799.000	-40.5	26.7	57.4	43.6	H	74	30.4	PK
3190.000	-39.0	30.4	55.4	46.8	H	74	27.2	PK
6000.000	-38.3	34.7	52.5	48.9	H	74	25.1	PK
1397.500	-40.8	24.3	44.0	27.5	V	54	26.5	AV
1599.000	-40.6	25.1	46.1	30.6	V	54	23.4	AV
1799.000	-40.5	26.7	39.1	25.3	V	54	28.7	AV

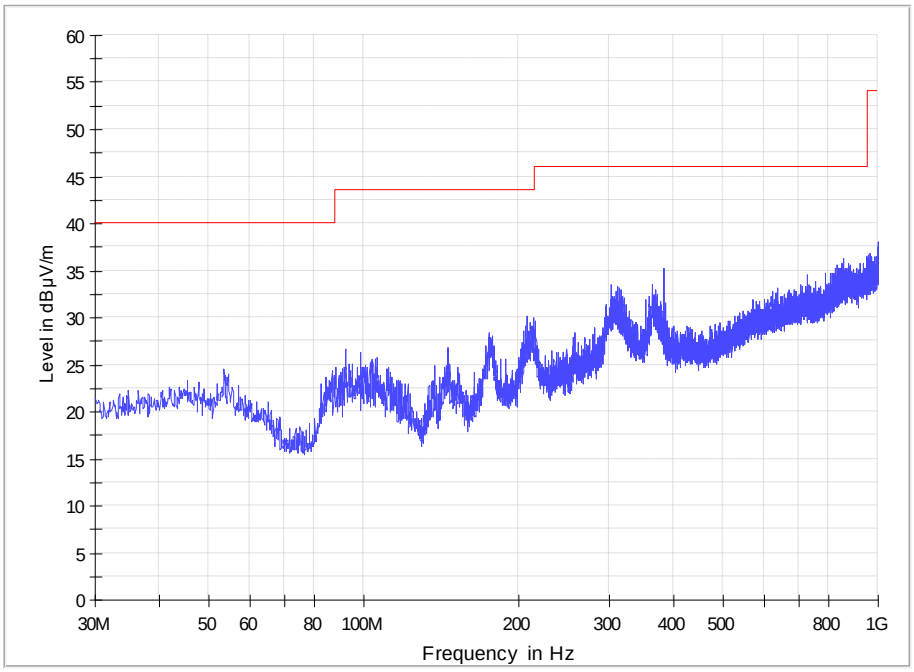
2391.500	-40.2	28.3	39.0	27.1	V	54	26.9	AV
3195.000	-39.0	30.4	33.6	25.0	V	54	29.0	AV
6000.000	-38.3	34.7	53.4	49.8	V	54	4.2	AV
1198.500	-41.0	24.4	40.1	23.5	H	54	30.5	AV
1597.500	-40.6	25.1	43.1	27.6	H	54	26.4	AV
1640.500	-40.7	26.7	40.5	26.5	H	54	27.5	AV
1799.000	-40.5	26.7	36.5	22.7	H	54	31.3	AV
3190.000	-39.0	30.4	33.9	25.3	H	54	28.7	AV
6000.000	-38.3	34.7	50.1	46.5	H	54	7.5	AV

Emission level (dBuV)=Read Value(dBuV/m) + Antenna Factor(dB)+ Cable Loss +preamp(dB)

Radiated Emission

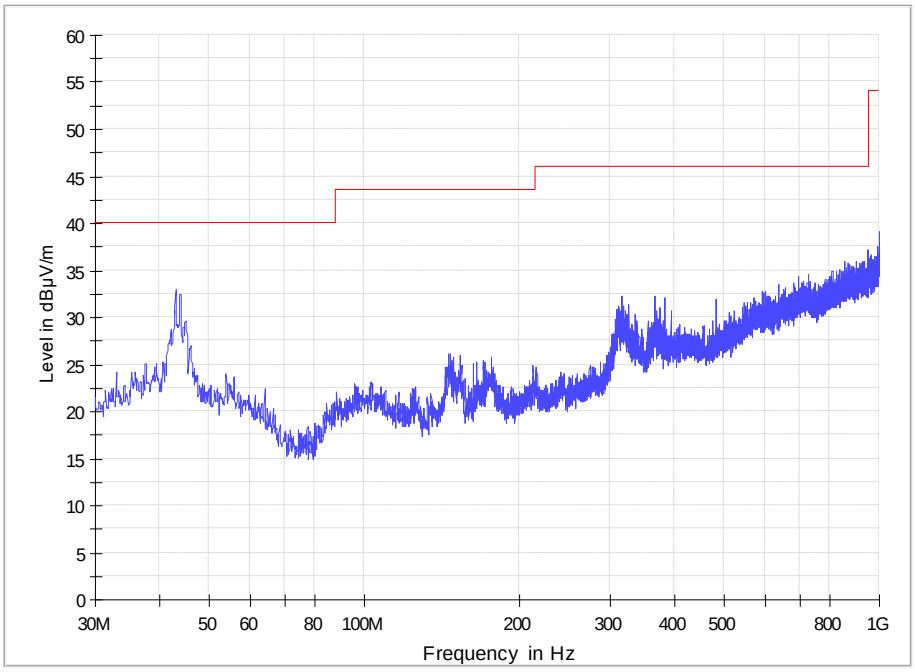
EUT Name: FX205F
Operating Condition: Test Mode 1
Test site: SMQ NETC EMC Lab.3m Chamber
Antenna Position: Horizontal & Vertical
Comment: AC 120V60Hz

Field strength 30M-1GHz 1F 3m chamber



(Horizontal)

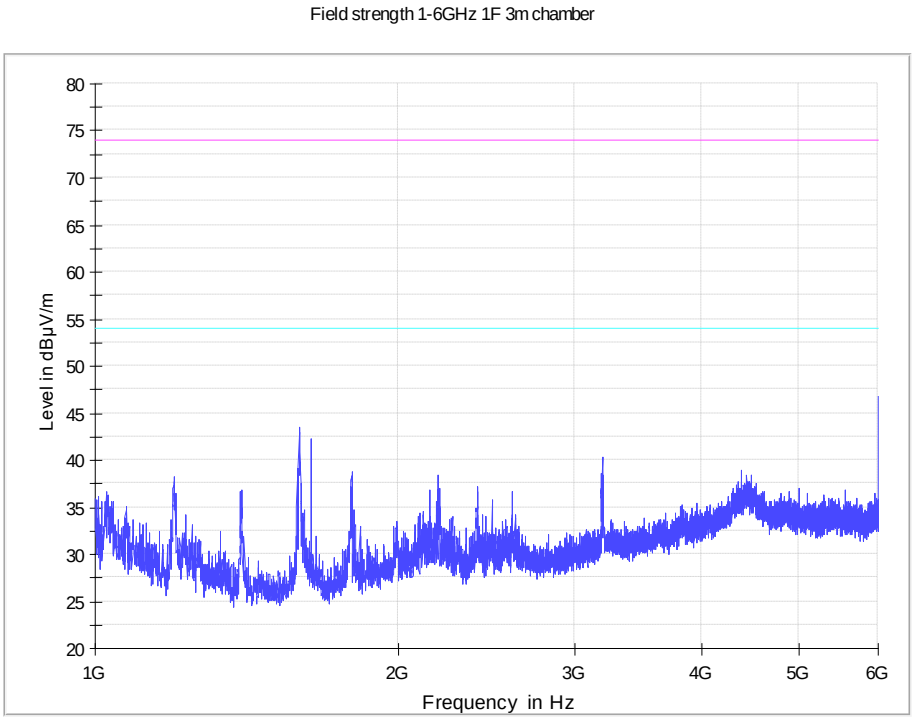
Field strength 30M-1GHz 1F 3m chamber



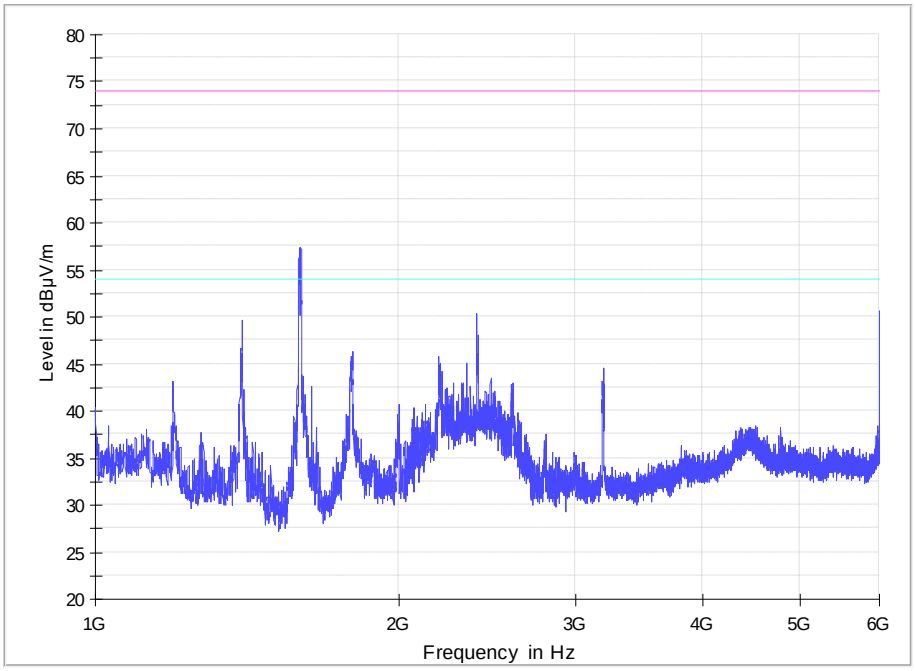
(Vertical)

Radiated Emission

EUT Name: FX205F
Operating Condition: Test Mode 1
Test site: SMQ NETC EMC Lab.3m Chamber
Antenna Position: Vertical & Horizontal
Comment: AC 120V/60Hz



(Horizontal)



(Vertical)

Radiated Emission

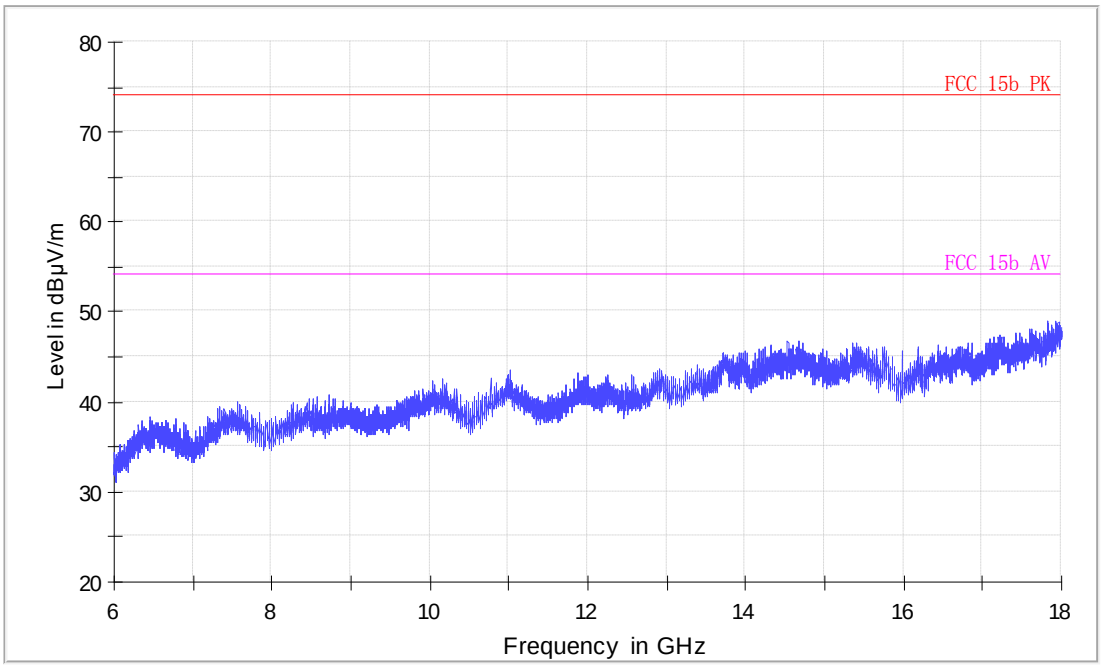
EUT Information

EUT Model name:	FX205F
Operator Mode:	Test Mode 1
Comment:	

Common Information

Test Description:	SMQ NETC EMC Lab.3m Chamber
Customer	
Antenna Position:	Horizontal
Operator Name:	
Comment1:	AC 120V/60Hz
Comment2:	

Copy (2) of FCC Electric Field Strength 1-18GHz operate on 2.4GHz



Radiated Emission

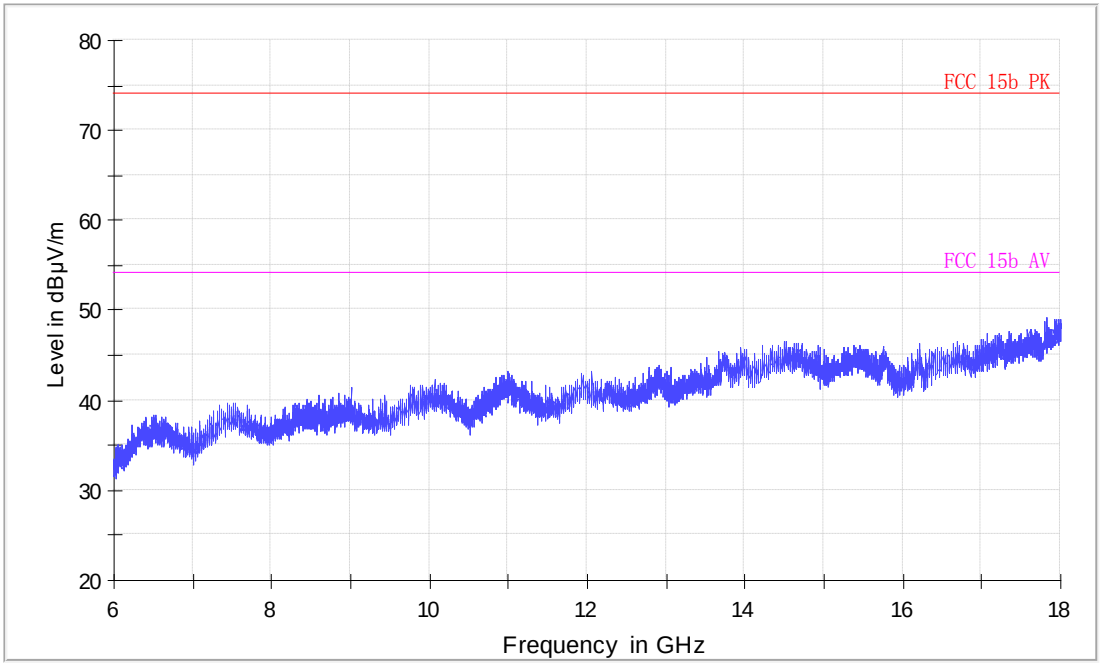
EUT Information

EUT Model name:	FX205F
Operator Mode:	Test Mode 1
Comment:	

Common Information

Test Description:	SMQ NETC EMC Lab.3m Chamber
Customer	
Antenna Position:	Vertical
Operator Name:	
Comment1:	AC 120V/60Hz
Comment2:	

Copy (2) of FCC Electric Field Strength 1-18GHz operate on 2.4GHz



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