



FCC PART 15B, CLASS B TEST REPORT

For

Congress Network Corporation

7235 NW 19th CT , Hollywood , Florida 33024 , United States

FCC ID:2ABY4T588-15

Report Type: Original Report		Product Type: FM Transmitter	
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	FM Transmitter
Tested Model	T588-15
Voltage Range	AC 120V /60Hz
Highest operating frequency	107.9MHz
Date of Test	2021-03-04 to 2021-04-01
Sample serial number	RSZ210120004-EM-S1(Assigned by BACL, Shenzhen)
Received date	2021-01-20
Sample/EUT Status	Good condition
Adapter information	Model No:WT24-1501000-T Input:100-240V~50/60Hz,1.6A Output:15.0V,1.0A,15.0W

Objective

This test report is in accordance with Part 2-Subpart J, Part 15-Subparts A, B of the Federal Communication Commissions rules.

The objective of the manufacturer is to determine the compliance of the EUT with FCC Part 15 B.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz. Each test item follows test standards and with no deviation.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of test at Bay Area Compliance Laboratories Corp. (Shenzhen) is shown as below. And the uncertainty will be taken into consideration for the test data recorded in the report

Parameter		uncertainty
Conducted Emissions		$\pm 1.95\text{dB}$
Radiated Emissions	Below 1GHz	$\pm 4.75\text{dB}$
	Above 1GHz	$\pm 4.88\text{dB}$

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West) ,6F,7F,the 3rd Phase of Wan Li Industrial Building D,Shihua Rd, FuTian Free Trade Zone, Shenzhen,China

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 342867, the FCC Designation No.: CN1221.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062B.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a manufacturer testing fashion.

Mode: FM Transmitting (The data is worst when playing stereo mode)

EUT Exercise Software

No exercise software was used.

Special Accessories

No special accessory.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

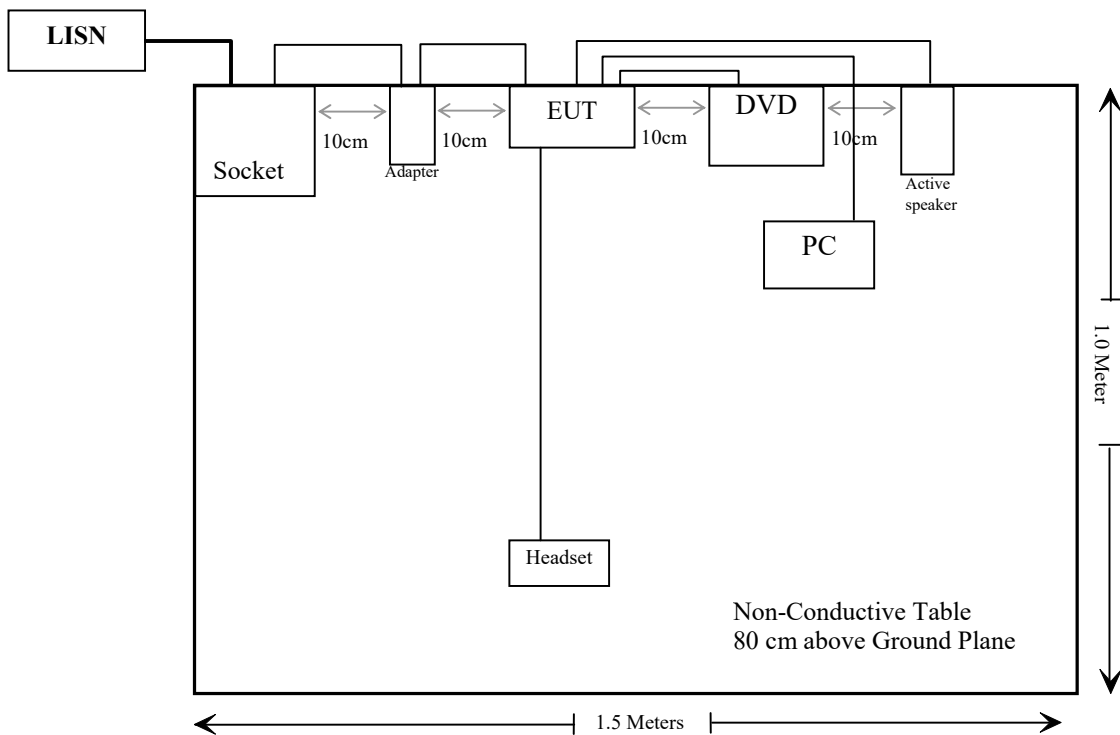
Manufacturer	Description	Model	Serial Number
BULL	Socket	GN-212	A37209315081183
Unknown	Headset	Unknown	Unknown
Ziguang	Active speaker	SE-200	Unknown
Dell	PC	Latitude E5430	11429208685
PHILIPS	DVD	DVP5986K/93	KX1A0713545698

External I/O Cable

Cable Description	Length (m)	From/Port	To
Unshielded Un-detachable AC cable	1.0	Socket	LISN
Unshielded Detachable AC cable	1.0	Socket	Adapter
Unshielded Detachable DC cable	1.5	Adapter	EUT
Unshielded Un-Detachable Audio cable	2.0	Headset	EUT
Unshielded Detachable Audio cable	1.5	Active speaker	EUT
Unshielded Detachable Audio cable	1.0	PC	EUT
Unshielded Detachable Audio cable	1.0	DVD	EUT

Block Diagram of Test Setup

For conducted emission:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	AC Line Conducted Emissions	Compliance
§15.109	Radiated Spurious Emissions	Compliance

EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
AC Line Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2020/08/04	2021/08/03
Rohde & Schwarz	LISN	ENV216	101613	2020/08/04	2021/08/03
Rohde & Schwarz	Transient Limiter	ESH3Z2	DE25985	2020/11/29	2021/11/28
Unknown	CE Cable	CE Cable	UF A210B-1-0720-504504	2020/11/29	2021/11/28
Rohde & Schwarz	CE Test software	EMC 32	V8.53.0	NCR	NCR
CHIGO	Temperature & Humidity Meter	HTC-1S	T-03-EM450	2020/04/07	2021/04/06
Radiated Emission Test					
R&S	EMI Test Receiver	ESR3	102455	2020/08/04	2021/08/03
Sonoma instrument	Pre-amplifier	310 N	186238	2020/08/04	2021/08/03
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2020/12/22	2023/12/21
Unknown	Cable 2	RF Cable 2	F-03-EM197	2020/11/29	2021/11/28
Unknown	Cable	Chamber Cable 4	EC-007	2020/11/29	2021/11/28
Rohde & Schwarz	Auto test software	EMC 32	V9.10	NCR	NCR
CHIGO	Temperature & Humidity Meter	HTC-1S	T-03-EM451	2020/04/07	2021/04/06

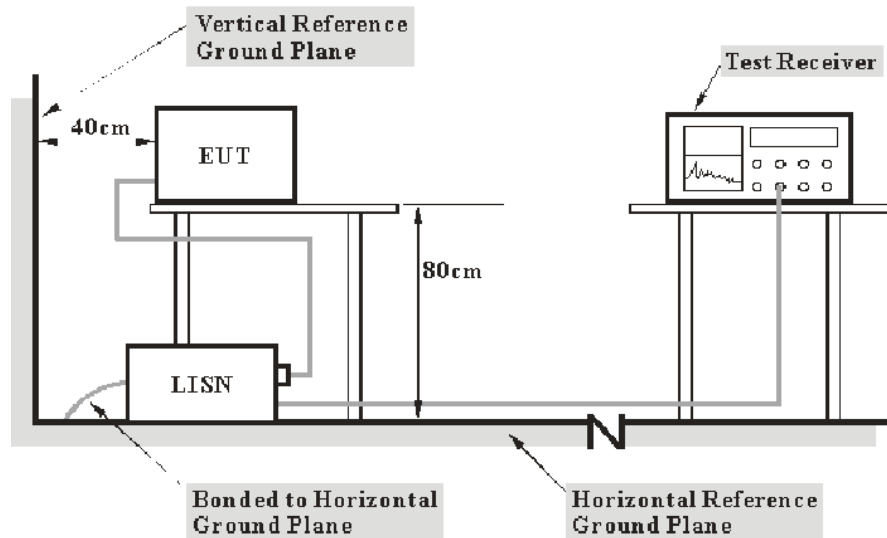
* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §15.107 – AC LINE CONDUCTED EMISSIONS

Applicable Standard

According to FCC §15.107

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is according with per ANSI C63.4-2014. The related limit was specified in FCC Part 15.107.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the device was connected to the first LISN and the other relevant equipments were connected to the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Corrected Factor & Margin Calculation

The Corrected factor is calculated by adding LISN/ISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

$$\text{Correction Factor} = \text{LISN VDF} + \text{Cable Loss} + \text{Transient Limiter Attenuation}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

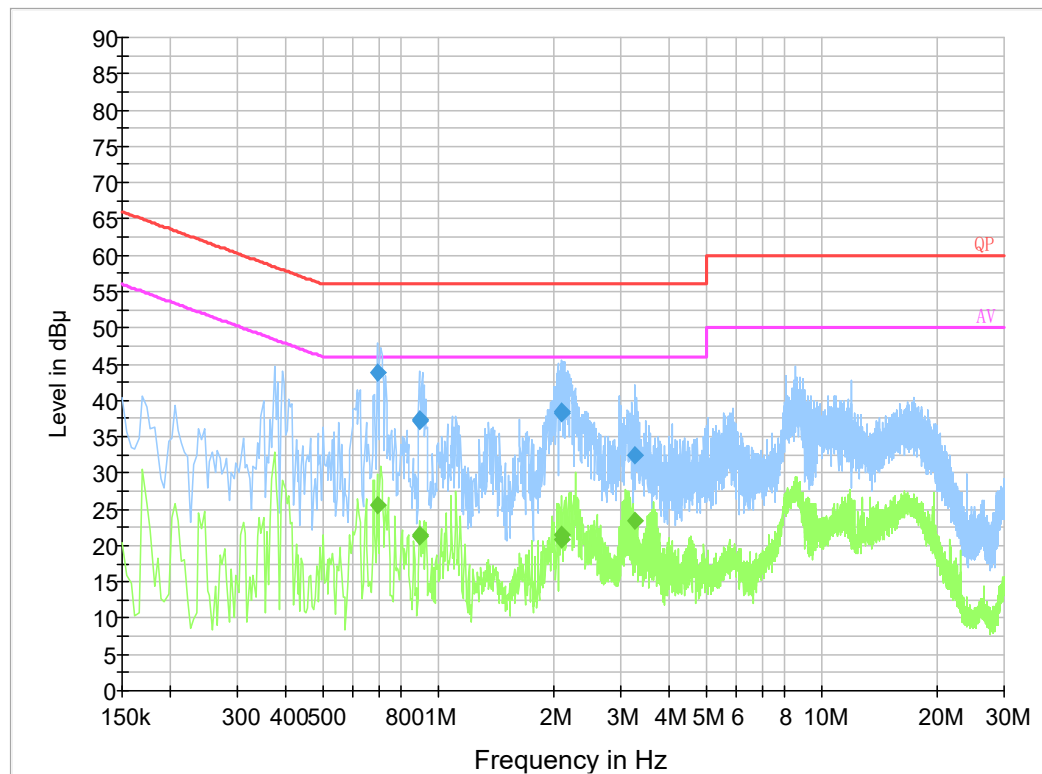
$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	65%
ATM Pressure:	101.0 kPa

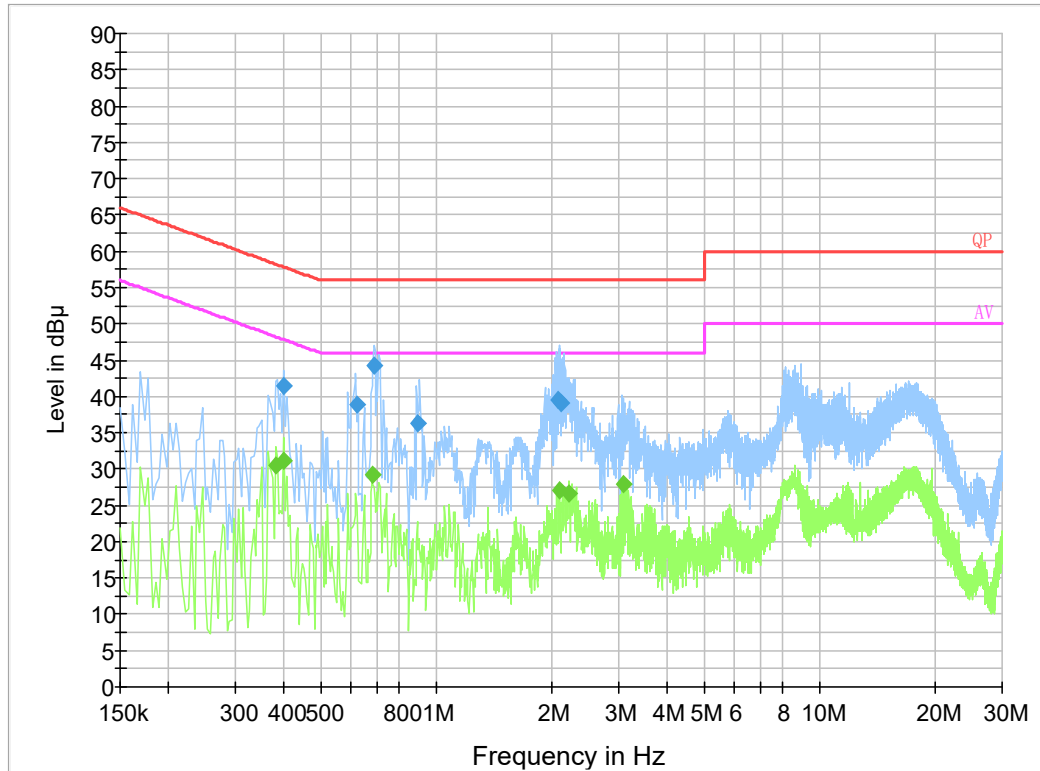
The testing was performed by Haiguo Li on 2021-03-04.

*EUT Operation Mode: FM Transmitting***AC 120V/60 Hz, Line:****Final Result 1**

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.699590	43.8	9.000	L1	19.8	12.2	56.0
0.900350	37.3	9.000	L1	19.8	18.7	56.0
0.900590	37.4	9.000	L1	19.8	18.6	56.0
2.110110	38.4	9.000	L1	19.9	17.6	56.0
2.110590	38.2	9.000	L1	19.9	17.8	56.0
3.276950	32.4	9.000	L1	19.9	23.6	56.0

Final Result 2

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.699590	25.6	9.000	L1	19.8	20.4	46.0
0.900350	21.2	9.000	L1	19.8	24.8	46.0
0.900590	21.5	9.000	L1	19.8	24.5	46.0
2.110110	21.4	9.000	L1	19.9	24.6	46.0
2.110590	20.7	9.000	L1	19.9	25.3	46.0
3.276950	23.3	9.000	L1	19.9	22.7	46.0

AC 120V/60 Hz, Neutral:**Final Result 1**

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.399970	41.4	9.000	N	19.8	16.5	57.9
0.620730	38.9	9.000	N	19.8	17.1	56.0
0.691650	44.3	9.000	N	19.8	11.7	56.0
0.892410	36.3	9.000	N	19.7	19.7	56.0
2.090470	39.6	9.000	N	19.9	16.4	56.0
2.129690	39.1	9.000	N	19.9	16.9	56.0

Final Result 2

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.382000	30.4	9.000	N	19.8	17.8	48.2
0.402000	31.2	9.000	N	19.8	16.6	47.8
0.682000	29.1	9.000	N	19.8	16.9	46.0
2.102000	27.1	9.000	N	19.9	18.9	46.0
2.230000	26.5	9.000	N	19.8	19.5	46.0
3.094000	27.9	9.000	N	19.9	18.1	46.0

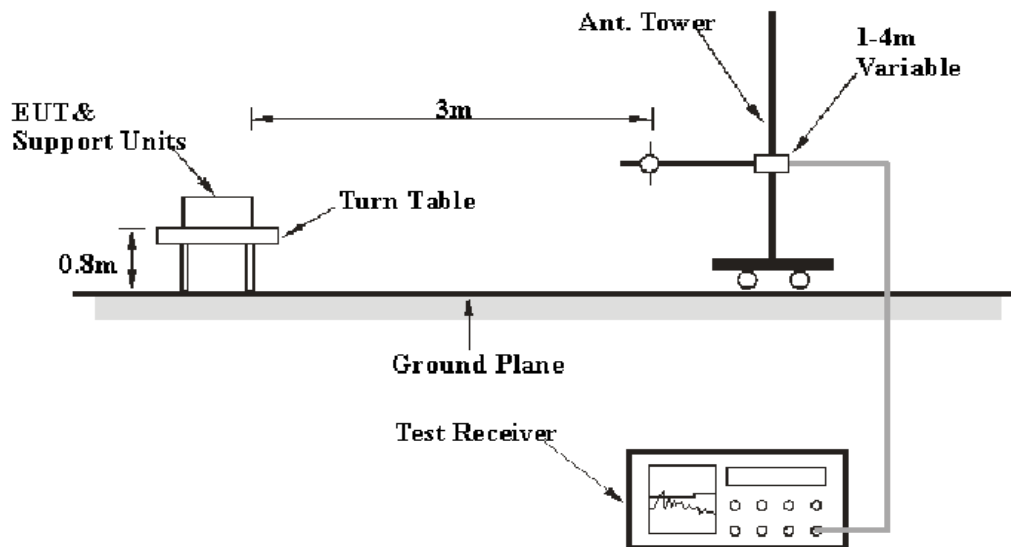
FCC §15.109 - RADIATED SPURIOUS EMISSIONS

Applicable Standard

FCC §15.109

EUT Setup

Below 1GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The specification used was the FCC Part 15.109 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Measurment
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detector mode from 30 MHz to 1 GHz

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

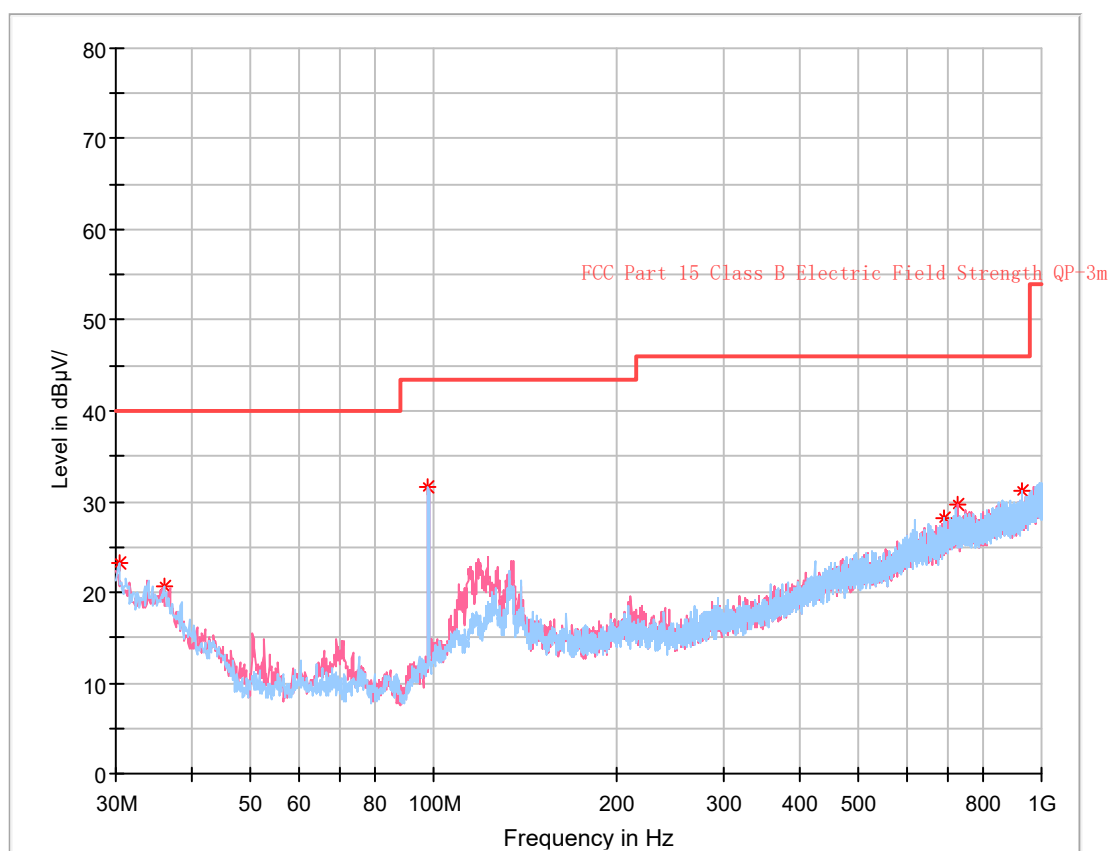
Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	54%
ATM Pressure:	101.0 kPa

The testing was performed by Andy Yu on 2021-04-01.

EUT Operation Mode: FM Transmitting

30 MHz~1 GHz:**Critical_Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.363750	23.16	40.00	16.84	200.0	H	211.0	-3.8
36.062500	20.73	40.00	19.27	400.0	H	238.0	-8.0
98.021250	31.69	43.50	11.81	300.0	H	218.0	-14.3
692.146250	28.15	46.00	17.85	100.0	H	322.0	-1.7
728.763750	29.76	46.00	16.24	100.0	V	282.0	-0.9
926.401250	31.13	46.00	14.87	400.0	H	238.0	1.3

Note:**Note:**

- 1) Corrected Amplitude = Meter Reading + Correction Factor
- 2) Correction Factor = Antenna Factor + Cable Loss - Amplifier Gain
- 3) Margin = Limit - Corrected Amplitude

***** END OF REPORT *****