

EMI TEST REPORT

FCC CERTIFICATION

Applicant:**Franklin Technology Inc.**906 JEI Platz, 186, Gasan digital 1-ro, Geumcheon-gu,
Seoul, 08502 South Korea**Date of Issue: December 27, 2018****Test Report No. HCT-EM-1812-FC031****Test Site: HCT CO., LTD.****MODEL:****F800HPVL**

Rule Part(s) / Standard(s) : FCC CFR 47 PART 15 Subpart B Class B
ANSI C63.4-2014

FCC ID : XHG-F800HPVL

EUT Type : VoLTE Home Phone Connect

Manufacturer : Franklin Technology Inc.

Date of Test : December 24, 2018 to December 25, 2018

The device bearing the trade name and model specified above, has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-2014. (See Test Report if any modifications were made for compliance)

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

HCT certifies that no party to application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C 862

Tested By

Kyoung-Hee Yoon
Test Engineer
EMC Team
Certification Division

Reviewed By

Jin-Pyo Hong
Technical Manager
EMC Team
Certification Division

This report only responds to the tested sample and may not be reproduced, except in full, without written approval of the HCT Co., Ltd.



REVISION HISTORY

The revision history for this document is shown in table.

Test Report No.	Issue Date	Description
HCT-EM-1812-FC031	December 27, 2018	Initial Release



TABLE OF CONTENTS

	PAGE
1. GENERAL INFORMATION	4
1.1 Description of EUT	4
1.2 Tested System Details	4
1.3 Cable Description	4
1.4 Noise Suppression Parts on Cable. (I/O Cable)	4
1.5 Test Facility	5
1.6 Instrument Calibration	5
1.7. Measurement Uncertainty	5
2 LIST OF TEST EQUIPMENT	6
3. DESCRIPTION OF TEST	7
3.1 Measurement of Conducted Emission	7
3.2 Measurement of Radiated Emission	8
4. PRELIMINARY TEST	10
4.1 Conducted Emission	10
4.2 Radiated Emission	10
5. CONDUCTED AND RADIATED EMISSION TEST SUMMARY	11
5.1 Conducted Emission	11
5.2 Radiated Emission	24
6. CONCLUSION	30
7. APPENDIX A. TEST SETUP PHOTOGRAPHS	31



1. GENERAL INFORMATION

1.1 Description of EUT

The EUT is VoLTE Home Phone Connect

Model	F800HPVL	
EUT type	VoLTE Home Phone Connect	
FCC ID	XHG-F800HPVL	
TX Frequency	LTE B4: 1710.7 MHz to 1 754.3 MHz LTE B13: 779.5 MHz to 784.5 MHz	
Power voltage	Switching adapter	AC Input voltage: Minimum: 90 VAC, Nominal: 100 to 240 VAC Maximum: 264 VA DC Output voltage: +5 V
	Battery	Rated capacity: 2 100 mAh, Rated voltage: 3.8 V
Manufacturer	Franklin Technology Inc.	

1.2 Tested System Details

All equipment descriptions used in the tested system (including inserted cards) are:

Equipment	Model No.	Serial Number	Manufacturer
EUT	F800HPVL	-	Franklin Technology
Switching adapter	DSA-10PFV-05 FUS 050200	-	DVE
Telephone	SP-F470	S2TB200938J	SAMSUNG

1.3 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
EUT	Micro USB	N	N/A	1.2
	RJ 11	N/A	N	2.2
	RJ 11	N/A	N	2.2

1.4 Noise Suppression Parts on Cable. (I/O Cable)

Product Name	Port	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
EUT	Micro USB	N/A	N/A	Y	Both end
	RJ 11	N/A	N/A	Y	Both end
	RJ 11	N/A	N/A	Y	Both end



1.5 Test Facility

Test site is located at 74, SEOICHEON-RO, 578BEON-GIL, MAJANG-MYEON, ICHEON-SI, GYEONGGI-DO, SOUTH KOREA. Those measurement facilities are constructed in conformance with the requirements of ANSI C63.4-2014. The Normalized site attenuations (30 MHz to 1GHz) and Site validation (1 GHz to 18 GHz) were performed in accordance with the standard in ANSI C63.4-2014

Measurement Facilities	Registration Number
Radiated Field strength measurement facility 3 m Semi Anechoic chamber	90661
Radiated Field strength measurement facility 10 m Semi Anechoic chamber	

1.6 Instrument Calibration

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturers recommendations for utilizing calibration equipment's, which is traceable to recognized national standards.

Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2006).

1.7. Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014.

All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95 % level of confidence. The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty (dB)
Conducted Emission (0.15 MHz to 30 MHz)	1.82 dB
3 m Radiated Emissions (30 MHz to 1 GHz)	5.20 dB
3 m Radiated Emissions (1 GHz to 18 GHz)	5.24 dB
3 m Radiated Emissions (18 GHz to 40 GHz)	5.40 dB



2 LIST OF TEST EQUIPMENT

Type	Manufacturer	Model Name	Serial Number	Calibration Cycle	CAL Date
<u>Conducted Emission</u>					
☒ EMI Test Receiver	Rohde & Schwarz	ESCI	100584	1 year	06.25.2018
☐ EMI Test Receiver	Rohde & Schwarz	ESCI	100033	1 year	06.27.2018
☒ LISN	Rohde & Schwarz	ENV216	102245	1 year	12.12.2018
☒ LISN	Rohde & Schwarz	ENV216	100073	1 year	05.03.2018
☒ Software	Rohde & Schwarz	EMC32 VER8.54.0	-	-	-
<u>Radiated Emission</u>					
-For measurement below 1 GHz					
☒ EMI Test Receiver	Rohde & Schwarz	ESU40	100524	1 year	07.27.2018
☒ Trilog Antenna	Schwarzbeck	VULB 9168	760	2 year	04.06.2017
☒ Antenna Master	INNCO Systems	MA4640-XP-ET	-	N/A	-
☒ Antenna master controller	INNCO Systems	CO 3000	CO3000/870/ 35990515/L	N/A	-
☒ Turn Table	INNCO Systems	1060-2M	-	N/A	-
☒ Turn Table controller	INNCO Systems	CO2000	CO2000/095/ 5790304/L	N/A	-
☐ Low Noise Amplifier	TESTEK	TK-PA01S	160014-L	1 year	01.24.2018
☐ EMI Test Receiver	Rohde & Schwarz	ESU26	100241	1 year	08.14.2018
☐ Antenna master	INNCO Systems	MA4000-EP	MA4000/283	N/A	-
☐ Turn Table	INNCO Systems	DT3000-3T	DT3000/69	N/A	-
☒ Software	Rohde & Schwarz	EMC32 VER.9.20.00	-	-	-
-For measurement above 1 GHz					
☒ EMI Test Receiver	Rohde & Schwarz	ESU40	100524	1 year	07.27.2018
☒ Antenna master	INNCO Systems	MA4640-XP-ET	-	N/A	-
☒ Antenna master controller	INNCO Systems	CO 3000	CO 3000/870/ 35990515/L	N/A	-
☒ Turn Table	INNCO Systems	1060-2M	-	N/A	-
☒ Turn Table controller	INNCO Systems	CO2000	CO2000/095/ 5790304/L	N/A	-
☒ Horn Antenna	Schwarzbeck	BBHA 9120D	01836	2 year	05.14.2018
☒ Low Noise Amplifier	TESTEK	TK-PA18H	170034-L	1 year	03.06.2018
☐ Power Amplifier	TESTEK	TK-PA1840H	170030-L	1 year	12.17.2018
☐ Antenna master	HD GmbH	MA240	240/520	N/A	-
☐ EMI Test Receiver	Rohde & Schwarz	ESU26	100241	1 year	08.14.2018
☐ Turn Table	INNCO Systems	DT3000-3T	DT3000/69	N/A	-
☒ Software	Rohde & Schwarz	EMC32 VER8.40.0	-	-	-



3. DESCRIPTION OF TEST

3.1 Measurement of Conducted Emission

The test procedure was in accordance with ANSI C63.4-2014

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN).
If the EUT is connected to the PC through USB, the AC power-line adapter of the PC is directly connected to a line impedance stabilization network (LISN).
Other support units were connected to the power mains through another LISN. The two LISNs provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both conducted lines are measured in Quasi-Peak and Average mode, including the worst-case data points for each tested configuration.
- c. The frequency range from 150 kHz to 30 MHz was searched.

[Conducted Emission Limit]

Frequency (MHz)	Resolution Bandwidth (kHz)	Class A		Class B	
		Quasi-Peak (dBμV)	Average (dBμV)	Quasi-Peak (dBμV)	Average (dBμV)
0.15 to 0.5	9	79	66	66 to 56*	56 to 46*
0.5 to 5	9	73	60	56	46
5 to 30	9	73	60	60	50

**Decreases with the logarithm of the frequency.*



3.2 Measurement of Radiated Emission

The test procedure was in accordance with ANSI C63.4-2014

- The EUT was placed on the top of a turn table 0.8 meters above the ground at a semi anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 m away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from 1 m to 4 m above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 m to 4 m and the turn table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Quasi-Peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- The test-receiver system was set to Peak and Average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
- Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response.(1 GHz to 40 GHz)

[Radiated Emission Limits]

Frequency (MHz)	Class A			Class B		
	Antenna Distance (m)	Field Strength (μ V/m)	Quasi-Peak (dB μ V/m)	Antenna Distance (m)	Field Strength (μ V/m)	Quasi-Peak (dB μ V/m)
30 to 88	10	90	39.0	3	100	40.0
88 to 216	10	150	43.5	3	150	43.5
216 to 960	10	210	46.4	3	200	46.0
Above 960	10	300	49.5	3	500	54.0
Frequency (MHz)	Antenna Distance (m)	Class A		Class B		
		Peak (dB μ V/m)	Average (dB μ V/m)	Peak (dB μ V/m)	Average (dB μ V/m)	
Above 1 000	3	80	60	74	54	

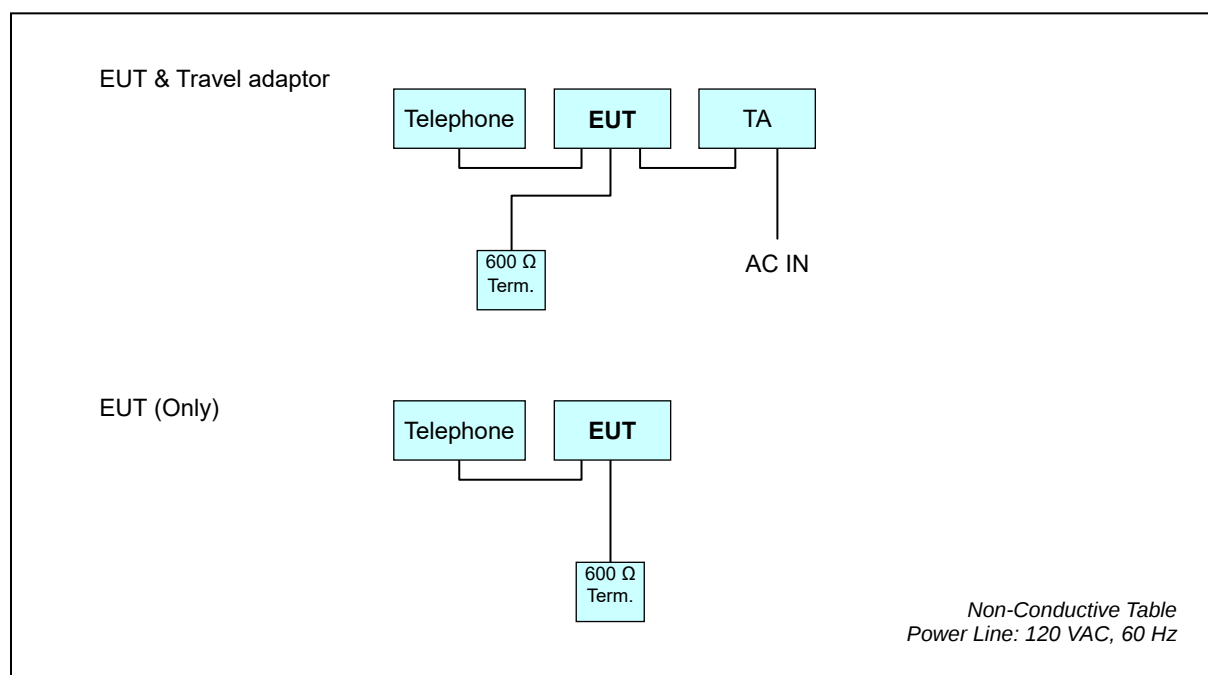


3.2.1 Frequency Range of Radiated Measurements

An unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a Radiated Emission limit is specified, up to the frequency shown in the following table

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 to 108	1 000
108 to 500	2 000
500 to 1 000	5 000
Above 1 000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

3.3 Configuration of Tested System





4. PRELIMINARY TEST

4.1 Conducted Emission

During preliminary tests, the following operating mode was investigated:

Operation Mode: Charging & LTE B4 RX Receive mode
Charging & LTE B13 RX Receive mode

4.2 Radiated Emission

During preliminary tests, the following operating mode was investigated:

Operation Mode: Charging & LTE B4 RX Receive mode
Charging & LTE B13 RX Receive mode
LTE B4 RX Receive mode
LTE B13 RX Receive mode

NOTE.

The EUT is powered by an internal battery or a switching adapter and has only ports to connect the phone and can't be wired to the PC (IT equipment)



5. CONDUCTED AND RADIATED EMISSION TEST SUMMARY

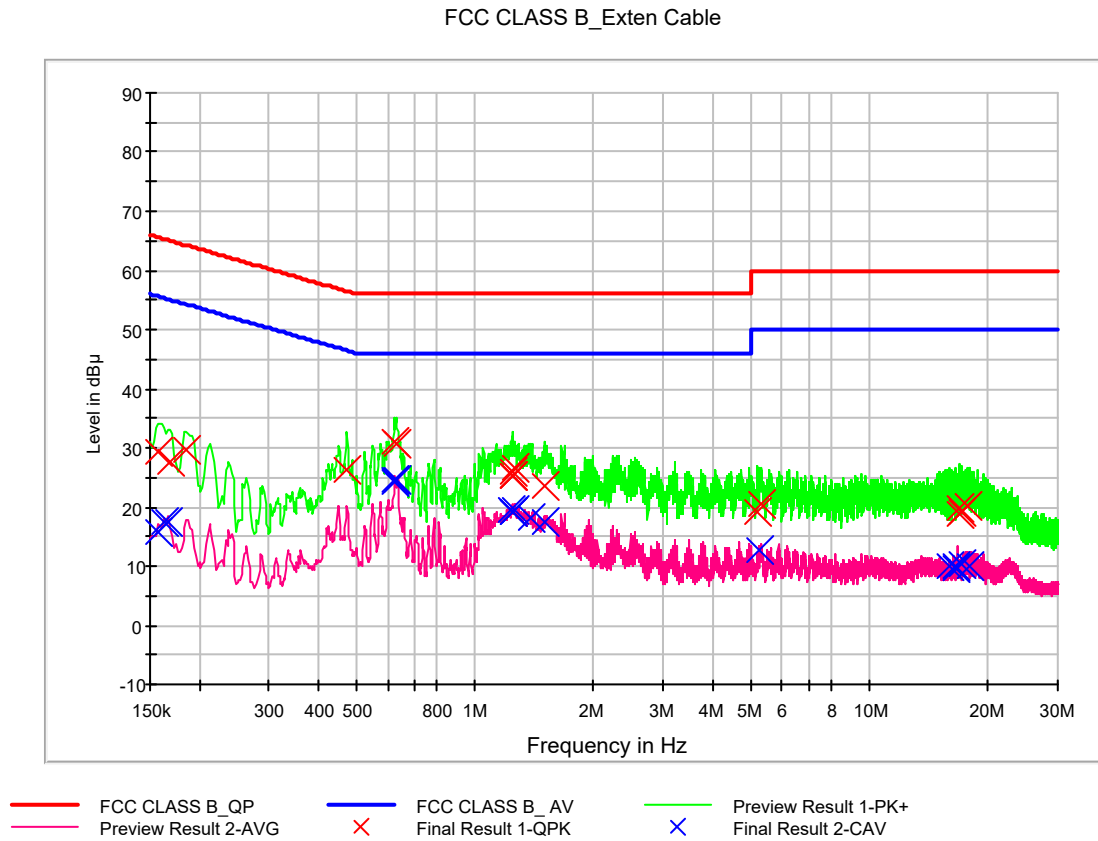
5.1 Conducted Emission

The test results of conducted emission at mains ports provide the following information:

Rule Part / Standard	FCC PART 15 Subpart B Class B
Detector	Quasi-Peak, CISPR-Average
Bandwidth	9 kHz (6 dB)
Kind of Test Site	EMI Shielded Room
Temperature	21.1 °C
Relative Humidity	40.3 %
Test Date	December 25, 2018

- Calculation Formula:

1. Conductor L1 = Hot, Conductor N = Neutral
2. Corr. = LISN Factor + Cable Loss
3. QuasiPeak or CAverage= Receiver Reading + Corr.
4. Margin = Limit – QuasiPeak or CAverage

**Figure 1: Conducted Emission, Charging & LTE B4 RX Receive mode, Line (L1)**



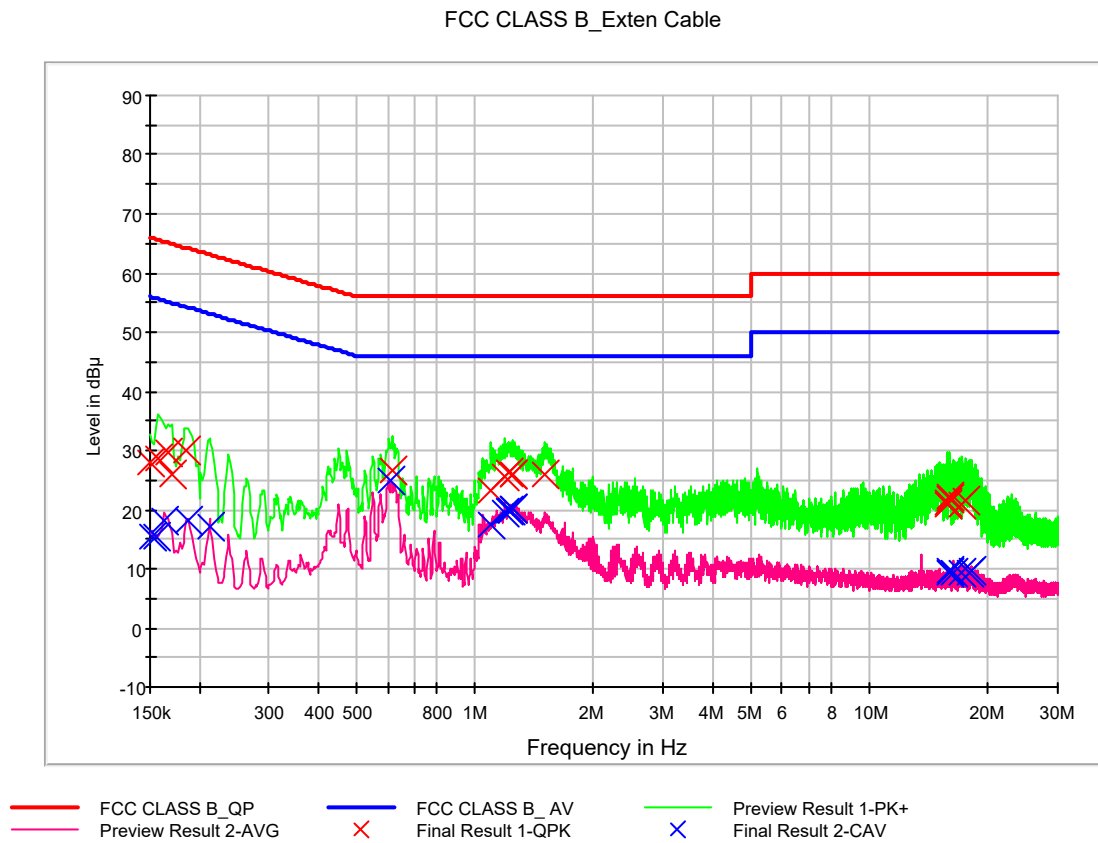
QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.158000	29.2	9.000	L1	9.7	36.4	65.6
0.168000	27.7	9.000	L1	9.7	37.3	65.1
0.186000	29.6	9.000	L1	9.7	34.7	64.2
0.474000	26.2	9.000	L1	9.8	30.2	56.4
0.626000	30.9	9.000	L1	9.8	25.1	56.0
0.632000	30.6	9.000	L1	9.8	25.4	56.0
1.240000	25.8	9.000	L1	9.9	30.2	56.0
1.244000	25.2	9.000	L1	9.9	30.8	56.0
1.248000	25.3	9.000	L1	9.9	30.7	56.0
1.252000	25.4	9.000	L1	9.9	30.6	56.0
1.258000	26.6	9.000	L1	9.9	29.4	56.0
1.506000	23.6	9.000	L1	9.9	32.4	56.0
5.214000	19.0	9.000	L1	10.0	41.0	60.0
5.298000	20.6	9.000	L1	10.0	39.4	60.0
16.880000	18.7	9.000	L1	10.5	41.3	60.0
16.926000	20.0	9.000	L1	10.5	40.0	60.0
17.180000	19.0	9.000	L1	10.5	41.0	60.0
17.626000	20.1	9.000	L1	10.5	39.9	60.0



CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.158000	15.7	9.000	L1	9.7	39.9	55.6
0.162000	17.6	9.000	L1	9.7	37.7	55.4
0.166000	17.3	9.000	L1	9.7	37.9	55.2
0.624000	24.5	9.000	L1	9.8	21.5	46.0
0.628000	24.1	9.000	L1	9.8	21.9	46.0
0.632000	24.5	9.000	L1	9.8	21.5	46.0
1.236000	19.5	9.000	L1	9.9	26.5	46.0
1.240000	19.3	9.000	L1	9.9	26.7	46.0
1.244000	19.3	9.000	L1	9.9	26.7	46.0
1.258000	19.7	9.000	L1	9.9	26.3	46.0
1.390000	18.2	9.000	L1	9.9	27.8	46.0
1.506000	17.6	9.000	L1	9.9	28.4	46.0
5.230000	12.6	9.000	L1	10.0	37.4	50.0
15.960000	9.9	9.000	L1	10.4	40.1	50.0
16.598000	9.5	9.000	L1	10.5	40.5	50.0
16.610000	9.9	9.000	L1	10.5	40.1	50.0
17.180000	10.4	9.000	L1	10.5	39.6	50.0
17.842000	10.0	9.000	L1	10.5	40.0	50.0

**Figure 2: Conducted Emission, Charging & LTE B4 RX Receive mode, Line (N)**



QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	27.9	9.000	N	9.8	38.1	66.0
0.158000	28.6	9.000	N	9.8	36.9	65.6
0.166000	29.7	9.000	N	9.8	35.5	65.2
0.170000	26.1	9.000	N	9.8	38.9	65.0
0.186000	29.9	9.000	N	9.8	34.4	64.2
0.618000	26.6	9.000	N	9.9	29.4	56.0
1.098000	23.2	9.000	N	10.0	32.8	56.0
1.190000	25.5	9.000	N	10.0	30.5	56.0
1.212000	26.4	9.000	N	10.0	29.6	56.0
1.244000	26.0	9.000	N	10.0	30.0	56.0
1.252000	25.9	9.000	N	10.0	30.1	56.0
1.500000	25.9	9.000	N	10.1	30.1	56.0
15.680000	21.3	9.000	N	10.7	38.7	60.0
15.696000	21.0	9.000	N	10.7	39.0	60.0
15.950000	21.9	9.000	N	10.7	38.1	60.0
15.970000	22.0	9.000	N	10.7	38.0	60.0
17.212000	21.0	9.000	N	10.8	39.0	60.0
17.498000	21.4	9.000	N	10.8	38.6	60.0

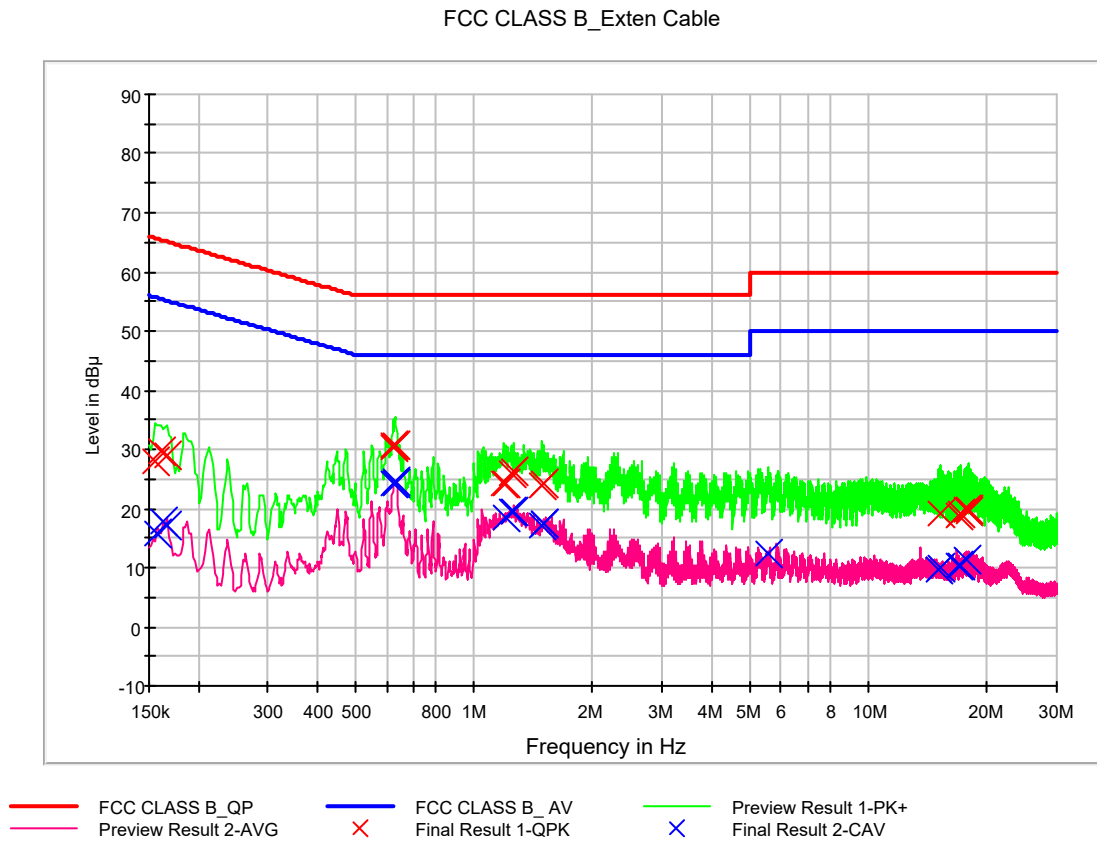


CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.152000	15.5	9.000	N	9.8	40.4	55.9
0.156000	15.5	9.000	N	9.8	40.2	55.7
0.162000	18.3	9.000	N	9.8	37.1	55.4
0.188000	18.3	9.000	N	9.8	35.8	54.1
0.212000	17.0	9.000	N	9.9	36.1	53.1
0.612000	24.8	9.000	N	9.9	21.2	46.0
1.098000	17.5	9.000	N	10.0	28.5	46.0
1.190000	19.5	9.000	N	10.0	26.5	46.0
1.212000	19.8	9.000	N	10.0	26.2	46.0
1.226000	20.0	9.000	N	10.0	26.0	46.0
1.244000	20.2	9.000	N	10.0	25.8	46.0
1.252000	20.3	9.000	N	10.0	25.7	46.0
15.950000	9.3	9.000	N	10.7	40.7	50.0
15.970000	9.5	9.000	N	10.7	40.5	50.0
16.246000	9.2	9.000	N	10.7	40.8	50.0
17.212000	9.4	9.000	N	10.8	40.6	50.0
17.898000	9.2	9.000	N	10.8	40.8	50.0
18.064000	9.5	9.000	N	10.8	40.5	50.0



Figure 3: Conducted Emission, Charging & LTE B13 RX Receive mode, Line (L1)





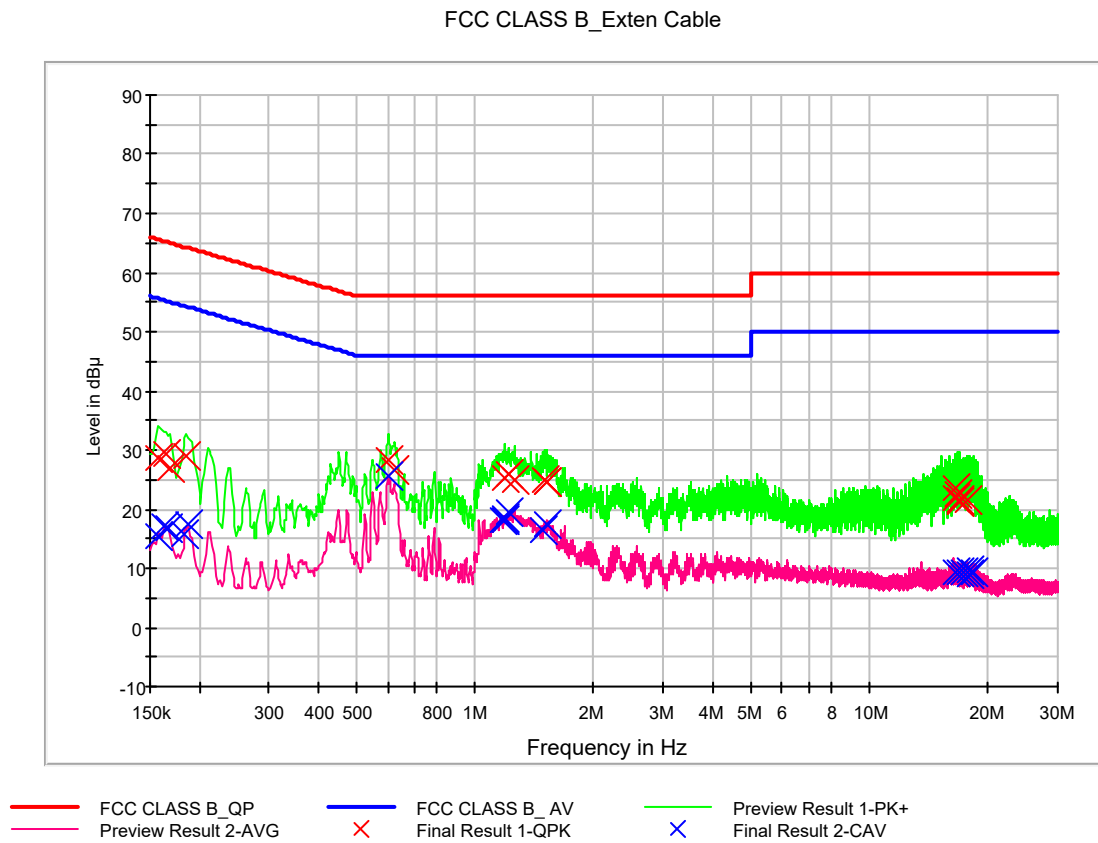
QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.156000	27.9	9.000	L1	9.7	37.8	65.7
0.160000	29.7	9.000	L1	9.7	35.7	65.5
0.166000	28.9	9.000	L1	9.7	36.2	65.2
0.624000	30.5	9.000	L1	9.8	25.5	56.0
0.628000	30.5	9.000	L1	9.8	25.5	56.0
0.632000	30.6	9.000	L1	9.8	25.4	56.0
1.192000	24.3	9.000	L1	9.8	31.7	56.0
1.196000	24.4	9.000	L1	9.8	31.6	56.0
1.240000	26.0	9.000	L1	9.9	30.0	56.0
1.264000	26.2	9.000	L1	9.9	29.8	56.0
1.480000	23.8	9.000	L1	9.9	32.2	56.0
1.498000	24.1	9.000	L1	9.9	31.9	56.0
15.236000	19.1	9.000	L1	10.4	40.9	60.0
16.902000	19.0	9.000	L1	10.5	41.0	60.0
17.168000	19.0	9.000	L1	10.5	41.0	60.0
17.736000	19.8	9.000	L1	10.5	40.2	60.0
17.876000	19.6	9.000	L1	10.5	40.4	60.0
17.882000	19.8	9.000	L1	10.5	40.2	60.0



CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.158000	15.7	9.000	L1	9.7	39.9	55.6
0.162000	17.7	9.000	L1	9.7	37.6	55.4
0.166000	17.2	9.000	L1	9.7	38.0	55.2
0.626000	24.4	9.000	L1	9.8	21.6	46.0
0.630000	24.3	9.000	L1	9.8	21.7	46.0
0.634000	24.5	9.000	L1	9.8	21.5	46.0
1.196000	18.5	9.000	L1	9.8	27.5	46.0
1.240000	19.6	9.000	L1	9.9	26.4	46.0
1.264000	19.7	9.000	L1	9.9	26.3	46.0
1.480000	17.0	9.000	L1	9.9	29.0	46.0
1.498000	17.5	9.000	L1	9.9	28.5	46.0
1.502000	17.4	9.000	L1	9.9	28.6	46.0
5.578000	12.3	9.000	L1	10.1	37.7	50.0
15.030000	9.6	9.000	L1	10.4	40.4	50.0
15.236000	9.9	9.000	L1	10.4	40.1	50.0
16.902000	10.5	9.000	L1	10.5	39.5	50.0
17.168000	10.3	9.000	L1	10.5	39.7	50.0
17.736000	11.2	9.000	L1	10.5	38.8	50.0

**Figure 4: Conducted Emission, Charging & LTE B13 RX Receive mode, Line (N)**



QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.158000	28.7	9.000	N	9.8	36.8	65.6
0.164000	29.3	9.000	N	9.8	36.0	65.3
0.168000	27.0	9.000	N	9.8	38.1	65.1
0.186000	29.1	9.000	N	9.8	35.1	64.2
0.604000	28.2	9.000	N	9.9	27.8	56.0
0.628000	26.7	9.000	N	9.9	29.3	56.0
1.188000	25.2	9.000	N	10.0	30.8	56.0
1.214000	25.8	9.000	N	10.0	30.2	56.0
1.258000	25.0	9.000	N	10.0	31.0	56.0
1.500000	25.0	9.000	N	10.1	31.0	56.0
1.516000	24.5	9.000	N	10.1	31.5	56.0
1.520000	24.4	9.000	N	10.1	31.6	56.0
16.500000	23.5	9.000	N	10.7	36.5	60.0
16.604000	21.9	9.000	N	10.7	38.1	60.0
16.792000	22.6	9.000	N	10.7	37.4	60.0
16.886000	21.2	9.000	N	10.7	38.8	60.0
16.900000	21.4	9.000	N	10.7	38.6	60.0
17.784000	21.6	9.000	N	10.8	38.4	60.0



CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.158000	15.3	9.000	N	9.8	40.2	55.6
0.162000	17.3	9.000	N	9.8	38.1	55.4
0.166000	16.9	9.000	N	9.8	38.3	55.2
0.184000	15.8	9.000	N	9.8	38.5	54.3
0.188000	17.5	9.000	N	9.8	36.7	54.1
0.600000	25.4	9.000	N	10.0	20.6	46.0
1.176000	18.1	9.000	N	10.0	27.9	46.0
1.188000	18.3	9.000	N	10.0	27.7	46.0
1.194000	18.6	9.000	N	10.0	27.4	46.0
1.214000	19.4	9.000	N	10.0	26.6	46.0
1.488000	16.5	9.000	N	10.1	29.5	46.0
1.516000	17.4	9.000	N	10.1	28.6	46.0
16.604000	9.4	9.000	N	10.7	40.6	50.0
16.900000	9.4	9.000	N	10.7	40.6	50.0
17.340000	9.4	9.000	N	10.8	40.6	50.0
17.894000	9.5	9.000	N	10.8	40.5	50.0
18.010000	8.9	9.000	N	10.8	41.1	50.0
18.454000	9.4	9.000	N	10.8	40.6	50.0



5.2 Radiated Emission

The test results of radiated emission provide the following information:

For Measurement Below 1 GHz

Rule Part / Standard	FCC PART 15 Subpart B Class B
Detector	Quasi-Peak
Bandwidth	120 kHz (6 dB)
Kind of Test Site	3 m semi anechoic chamber
Temperature	21.0 °C
Relative Humidity	41.1 %
Test Date	December 25, 2018

- Calculation Formula:

1. POL. H = Horizontal, POL. V = Vertical
2. QuasiPeak = Reading (Receiver Reading) + Corr.
3. Corr. (Correction Factor) = Antenna Factor + Cable Loss
4. Margin = Limit - QuasiPeak



Charging & LTE B4 RX Receive mode

Frequency (MHz)	Quasi Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
32.224000	19.6	174.9	V	308.0	18.9	20.4	40.0
54.613600	17.9	208.8	V	57.0	20.0	22.1	40.0
64.635200	17.6	117.9	V	53.0	18.9	22.4	40.0
276.972000	17.8	225.1	V	0.0	19.8	28.2	46.0
697.065600	28.4	292.9	V	64.0	28.7	17.6	46.0
959.064000	31.8	374.7	V	271.0	31.7	14.2	46.0

Charging & LTE B13 RX Receive mode

Frequency (MHz)	Quasi Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
32.151200	19.5	175.0	V	37.0	18.9	20.5	40.0
58.149600	17.4	374.8	V	128.0	19.9	22.6	40.0
64.753600	17.5	125.2	V	158.0	18.9	22.5	40.0
250.005600	24.4	191.9	V	1.0	18.8	21.6	46.0
492.358400	23.9	99.7	V	200.0	25.0	22.1	46.0
653.059200	27.9	174.9	V	82.0	28.1	18.1	46.0

**LTE B4 RX Receive mode**

Frequency (MHz)	Quasi Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
32.415200	19.0	174.9	V	348.0	18.9	21.0	40.0
52.328000	18.0	99.7	V	216.0	20.2	22.0	40.0
70.527200	15.2	374.8	V	318.0	17.9	24.8	40.0
155.742400	18.5	225.2	V	79.0	20.1	25.0	43.5
250.009600	24.4	174.8	V	1.0	18.8	21.6	46.0
630.552000	27.7	374.8	V	340.0	27.8	18.3	46.0

LTE B13 RX Receive mode

Frequency (MHz)	Quasi Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
34.229600	17.9	174.9	V	223.0	19.1	22.1	40.0
48.140000	17.5	274.9	V	109.0	20.2	22.5	40.0
168.407200	18.0	116.8	V	334.0	19.6	25.5	43.5
249.987200	23.5	225.2	V	27.0	18.8	22.5	46.0
476.758400	23.6	116.8	V	45.0	24.7	22.4	46.0
697.177600	28.4	374.7	V	130.0	28.7	17.6	46.0



For Measurement Above 1 GHz

Rule Part / Standard	FCC PART 15 Subpart B Class B
Detector	Peak mode: Peak (RBW: 1 MHz, VBW: 3 MHz) CISPR-Average mode: Peak (RBW: 1 MHz, VBW: 10 Hz)
Highest Operating Frequency	1 754.3 MHz
Tested Frequency Range	1 GHz to 18 GHz
Kind of Test Site	3 m semi anechoic chamber
Temperature	21.0 °C
Relative Humidity	41.1 %
Test Date	December 24, 2018

- Calculation Formula:

1. POL. H = Horizontal, POL. V = Vertical
2. Peak or CAverage = Reading (Receiver Reading) + Corr.
3. Corr. (Correction Factor) = Antenna Factor+ Cable Loss –Amplifier Gain
4. Margin = Limit - Peak or CAverage



Charging & LTE B4 RX Receive mode

Frequency (MHz)	Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
4265.035000	36.5	337.5	V	45.0	-20.2	37.5	74.0
6776.935000	33.7	99.7	V	198.0	-14.9	40.4	74.0
9723.095000	43.0	187.4	H	46.0	-9.7	31.0	74.0
11232.790000	46.0	150.0	H	0.0	-5.2	28.0	74.0
12794.775000	44.4	190.5	V	63.0	-4.9	29.6	74.0
14756.000000	43.4	189.6	V	71.0	-1.4	30.6	74.0

Frequency (MHz)	CAverage (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
4265.035000	28.8	337.5	V	45.0	-20.2	25.2	54.0
6776.935000	15.7	99.7	V	198.0	-14.9	38.3	54.0
9723.095000	30.0	187.4	H	46.0	-9.7	24.0	54.0
11232.790000	32.7	150.0	H	0.0	-5.2	21.3	54.0
12794.775000	31.8	190.5	V	63.0	-4.9	22.2	54.0
14756.000000	30.3	189.6	V	71.0	-1.4	23.7	54.0

Charging & LTE B13 RX Receive mode

Frequency (MHz)	Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
5136.875000	35.6	124.6	V	50.0	-18.4	38.4	74.0
7425.370000	41.0	126.6	V	52.0	-13.0	33.0	74.0
9853.080000	44.0	99.9	V	120.0	-9.5	30.0	74.0
11501.760000	44.9	335.5	H	50.0	-4.8	29.1	74.0
13414.080000	39.9	150.0	H	149.0	-3.9	34.1	74.0
14749.585000	43.6	249.4	H	162.0	-1.4	30.4	74.0

Frequency (MHz)	CAverage (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
5136.875000	22.5	124.6	V	50.0	-18.4	31.5	54.0
7425.370000	27.5	126.6	V	52.0	-13.0	26.5	54.0
9853.080000	31.6	99.9	V	120.0	-9.5	22.4	54.0
11501.760000	32.2	335.5	H	50.0	-4.8	21.8	54.0
13414.080000	27.2	150.0	H	149.0	-3.9	26.8	54.0
14749.585000	30.8	249.4	H	162.0	-1.4	23.2	54.0

**LTE B4 RX Receive mode**

Frequency (MHz)	Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
4253.765000	35.3	189.5	V	50.0	-20.2	38.7	74.0
7797.550000	41.7	291.5	V	182.0	-12.5	32.3	74.0
9513.810000	44.4	248.6	H	199.0	-10.0	29.6	74.0
10757.100000	45.1	204.6	V	148.0	-6.4	28.9	74.0
12819.155000	43.3	249.8	V	29.0	-4.8	30.7	74.0
14850.050000	47.3	190.5	H	313.0	-1.3	26.7	74.0

Frequency (MHz)	CAverage (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
4253.765000	22.3	189.5	V	50.0	-20.2	31.7	54.0
7797.550000	28.9	291.5	V	182.0	-12.5	25.1	54.0
9513.810000	31.5	248.6	H	199.0	-10.0	22.5	54.0
10757.100000	32.4	204.6	V	148.0	-6.4	21.6	54.0
12819.155000	30.8	249.8	V	29.0	-4.8	23.2	54.0
14850.050000	33.7	190.5	H	313.0	-1.3	20.3	54.0

LTE B13 RX Receive mode

Frequency (MHz)	Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
3014.515000	33.4	337.5	V	29.0	-22.8	40.6	74.0
5684.000000	36.8	350.1	V	200.0	-17.6	37.2	74.0
7462.415000	41.1	150.0	H	164.0	-12.8	32.9	74.0
10050.215000	43.7	244.4	H	29.0	-9.1	30.3	74.0
11009.540000	45.3	124.6	H	54.0	-5.6	28.7	74.0
14648.600000	46.8	199.4	H	284.0	-1.5	27.2	74.0

Frequency (MHz)	CAverage (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
3014.515000	20.9	337.5	V	29.0	-22.8	33.1	54.0
5684.000000	23.9	350.1	V	200.0	-17.6	30.1	54.0
7462.415000	28.3	150.0	H	164.0	-12.8	25.7	54.0
10050.215000	30.7	244.4	H	29.0	-9.1	23.3	54.0
11009.540000	32.6	124.6	H	54.0	-5.6	21.4	54.0
14648.600000	34.0	199.4	H	284.0	-1.5	20.0	54.0



6. CONCLUSION

The data collected shows that the **EUT Type: VoLTE Home Phone Connect, Model: F800HPVL** complies with §15.107 and §15.109 of the FCC rules.



7. APPENDIX A. TEST SETUP PHOTOGRAPHS

Please refer to Appendix A