TEST REPORT

Report Number: 103849240MPK-001
Project Number: G103849240
March 06, 2019

Testing performed on the
Rechargeable Power Toothbrush with NFC
Model Numbers: HX68 & HX75
(HX Numbers: HX685T & HX751V)

FCC ID: 2ADZNHX68

to

FCC Part 15 Subpart C (15.225)
Industry Canada RSS-210 Issue 9
FCC Part 15, Subpart B
Industry Canada ICES-003

For

Philips Oral Healthcare, Inc.

Test Performed by:	Test Authorized by:
Intertek	Philips Oral Healthcare, Inc.
1365 Adams Court	22100 Bothell-Everett Hwy
Menlo Park, CA 94025 USA	Bothwell, WA 98021 USA

Prepared by: _____ **Date:** March 06, 2019
Anderson Soungpanya

Reviewed by: _____ **Date:** March 06, 2019
Krishna Vemuri

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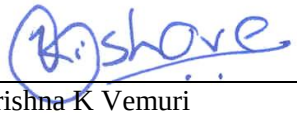
Report No. 103849240MPK-001	
Equipment Under Test:	Rechargeable Power Toothbrush with NFC
Trade Name:	Philips Oral Healthcare, Inc.
Model Numbers:	HX68 & HX75 (HX Numbers: HX685T & HX751V)
Applicant:	Philips Oral Healthcare, Inc.
Contact:	Matthew Vasa
Address:	Philips Oral Healthcare, Inc. 22100 Bothell-Everett Hwy Bothwell, WA 98021
Country:	USA
Tel. Number:	(425) 482-8367
Email:	matthew.vasa@philips.com
Applicable Regulation:	FCC Part 15 Subpart C (15.225) Industry Canada RSS-210 Issue 9 FCC Part 15, Subpart B Industry Canada ICES-003 Issue 6
Date of Test:	February 22 – March 01, 2019

We attest to the accuracy of this report:

Anderson Soungpanya
Project Engineer



Krishna K Vemuri
Engineering Team Lead

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1.0 Summary of Tests

TEST	REFERENCE FCC	REFERENCE IC	RESULTS
Field Strength of Fundamental	15.225(a)	RSS-210 B.6	Complies
Radiated Emissions Outside the band	15.225(b), 15.225(c), 15.225(d), 15.209	RSS-210 B.6	Complies
Frequency Tolerance of the Carrier	15.225(e)	RSS-210 B.6	Complies
Line Conducted Emissions	15.207	RSS-GEN	Complies
Occupied Bandwidth	15.215	RSS-GEN	Complies
Antenna requirement	15.203	RSS-GEN	Complies[1]
AC Line Conducted Emission	15.107 & 15.207	ICES-003 & RSS-GEN	Complies[2]
Digital Radiated Emissions	15.109	ICES-003	Complies

[1] The EUT utilizes an internal Antenna.
[2] The EUT is battery operated. Testing was performed with the Charging Pad.

2.0 General Description

2.1 Product Description

Philips Oral Healthcare, Inc. supplied the following description of the EUT:

The HX68 & HX75 is a Rechargeable Power Toothbrush with NFC.

Overview of the EUT

Model	HX685T & HX751V
FCC Identifier	2ADZNHX68
Operating Frequency	13.56MHz
Number of Channels	1
Type of Modulation	ASK
Operating Temperature	-20°C to +50°C
Nominal Voltage	4.05 Li-Ion Battery
Antenna Type	Internal Loop Antenna
Applicant name & address	Philips Oral Healthcare, Inc. 22100 Bothell-Everett Hwy Bothwell, WA 98021 USA

EUT receive date: February 21, 2019

EUT receive condition: The EUT was received in good condition with no apparent damage. As declared by the Applicant it is identical to the production units.

Test start date: February 22, 2019

Test completion date: March 01, 2019

2.2 Related Submittal(s) Grants

None

2.3 Test Methodology

Both AC mains line-conducted and radiated emissions measurements were performed according to the procedures in ANSI C63.4-2014. Radiated tests were performed at an antenna to EUT distance of 10 meters, unless stated otherwise in this test report. All other measurements were made in accordance with the procedures in part 2 of CFR 47 7, ANSI C63.10: 2013 & RSS-GEN Issue 5.

2.4 Test Facility

The radiated emission test site and conducted measurement facility used to collect the data is 10m semi-anechoic chamber located in Menlo Park, California. This test facility and site measurement data have been fully placed on file with the FCC and Industry Canada (Site # 2042L-1).

2.5 Measurement Uncertainty

Compliance with the limits was based on the results of the measurements and doesn't take into account the measurement uncertainty.

Estimated Measurement Uncertainty

Measurement	Expanded Uncertainty (k=2)		
	0.15 MHz – 1 GHz	1 GHz – 2.5 GHz	> 2.5 GHz
RF Power and Power Density – antenna conducted	-	0.7 dB	-
Unwanted emissions - antenna conducted	1.1 dB	1.3 dB	1.9 dB
Bandwidth – antenna conducted	-	30 Hz	-

Measurement	Expanded Uncertainty (k=2)		
	0.15 MHz – 30MHz	30 MHz – 1 GHz	1 GHz – 18 GHz
Radiated emissions	-	4.7	5.1 dB
AC mains conducted emissions	2.1 dB	-	-

3.0 System Test Configuration

3.1 Support Equipment and description

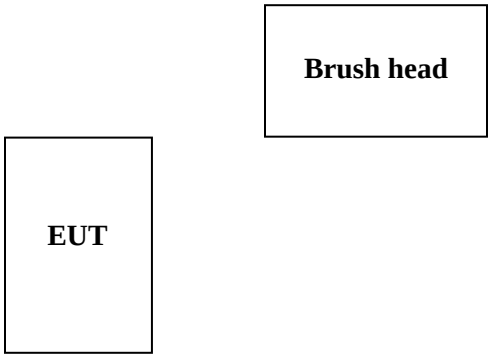
None

3.2 Block Diagram of Test Setup

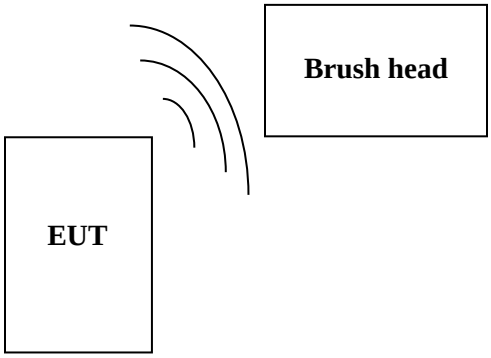
Equipment Under Test			
Description	**Manufacturer**	**Model**	**Serial Number**
Power Toothbrush	Philips Oral Healthcare, Inc..	HX685T	MPK1902220951-001
Power Toothbrush	Philips Oral Healthcare, Inc..	HX751V	MPK1902220951-002
Charging Pad	Philips Oral Healthcare, Inc..	HX6100	MPK1902220951-003
Brush Head	Philips Oral Healthcare, Inc..	C2	Not Marked
Brush Head	Philips Oral Healthcare, Inc..	G2	Not Marked

3.2 Block Diagram and Configuration of Test Setup (Continued)

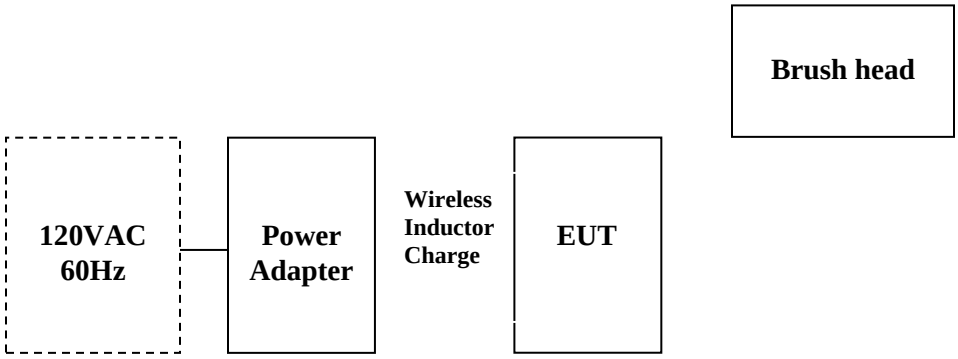
1. Battery Mode while brushing (While EUT is "brushing" the RFID is not active):



2. Battery Mode without brushing (While EUT is on and "brushing' is not active" the RFID is active):



3. Charge Mode (White EUT is Charging the RFID not active):



S = Shielded **U** = Unshielded	**F** = With Ferrite **m** = Length in Meters

3.3 Justification

For radiated emission measurements the EUT is placed on a non-conductive table. The EUT was configured to transmit. The highest clock frequency used in the EUT is 13.56 MHz.

Per the manufacturer, the HX68 and HX75 are electrically and mechanically identical. The only difference is the size of the decorative plastic piece that surrounds the buttons on the handle. The material between the two models is identical.

3.4 Software Exercise Program

The EUT exercise program used during testing was provided by Philips Oral Healthcare, Inc.

3.5 Mode of Operation during test

The Power Toothbrush was constantly broadcasting a 13.56 MHz signal in Battery Mode without brushing mode. This mode was used for FCC Part 15 Subpart C testing.

The Power Toothbrush was constantly charging on the charging pad in Charge Mode. This mode was used for FCC Part 15 Subpart B testing.

The Power Toothbrush was continuously brushing without RFID active in Battery Mode while brushing. This mode was used for FCC Part 15 Subpart B testing.

3.6 Modifications required for Compliance

No Modifications were made e to bring the EUT into compliance.

3.7 Additions, deviations and exclusions from standards

No additions, deviations or exclusion have been made from standard.

4.0 Measurement Results

4.1 Field Strength of Fundamental and Radiated Emissions Outside the band

4.1.1 Requirements

FCC Rules 15.225, 15.209

a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter (84 dBuV) at 30 meters.

b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in §15.209.

§15.209 Radiated emission limits; general requirements.

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
Above 960	500	3

4.1.2 Procedure

Radiated Measurements Below 30 MHz

During the test the EUT is rotated and the measuring antenna angles are varied during the search for maximum signal level.

Radiated emissions are taken at ten meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance. Measurements for below 30 MHz were performed at 10 meters. Data results below are corrected for distance at 10m. Limits were normalized to 10 meters.

Radiated Measurements Above 30 MHz

During the test the EUT is rotated and the measuring antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters.

Radiated emissions are taken at ten meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance. Measurements for above 30 MHz were made at 10 meters.

Radiated emission measurements were performed from 9kHz to 1 GHz.
Analyzer resolution is:

200Hz or greater for 9kHz to 150kHz
9 kHz or greater for 150kHz to 30 MHz
120 kHz or greater for 30MHz to 1000 MHz
For those frequencies quasi-peak detector applies

Data includes of the worst-case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation is as follows:

FS = RA + AF + CF – AG – DCF

Where FS = Field Strength in dB (μV/m)

RA = Receiver Amplitude (including preamplifier) in dB (μV)
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB (1/m)
AG = Amplifier Gain in dB
DCF = Distance Correction Factor

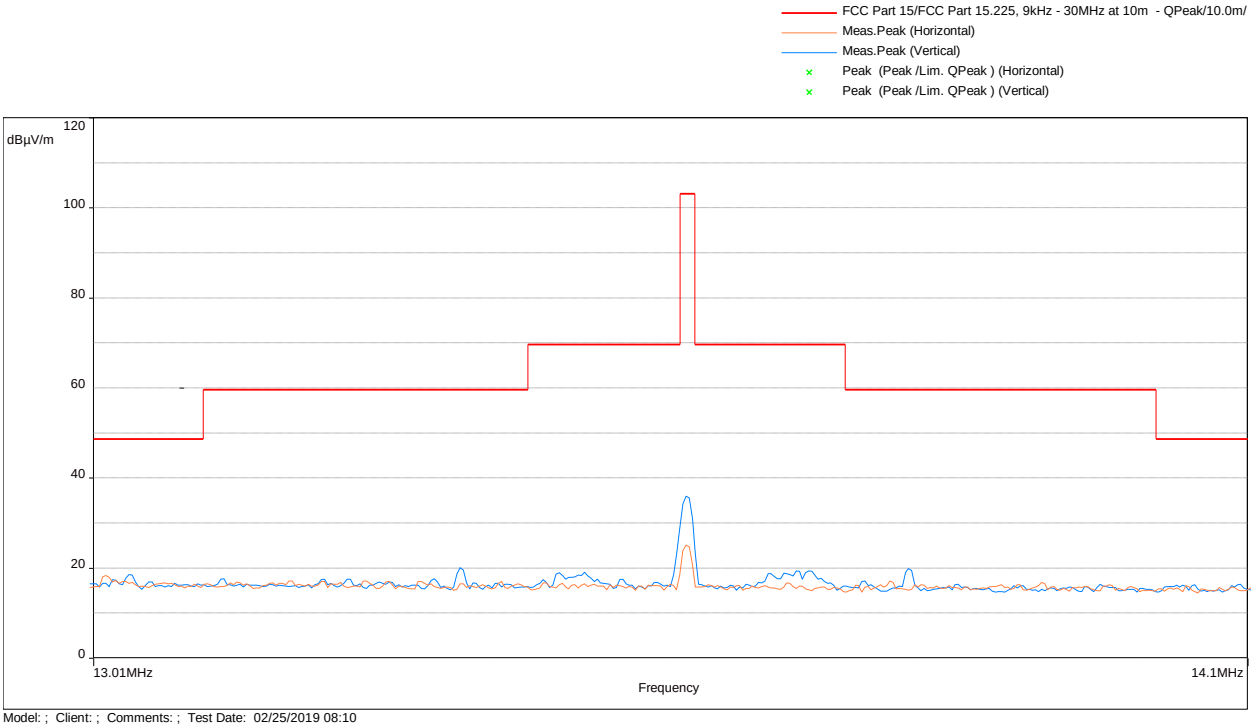
Note: FS was measured with loop antenna below 30MHz

4.1.3 Test Results

Tested By	Test Date
Anderson Soungpanya	February 25 & 27, 2019

Battery Mode without brushing

The data below shows the significant emission frequencies, the limit and the margin of compliance. Note: Measurements were performed at parallel and perpendicular orientation of loop antenna, and X, Y and Z Axis orientations of EUT. The worst-case data was presented below.

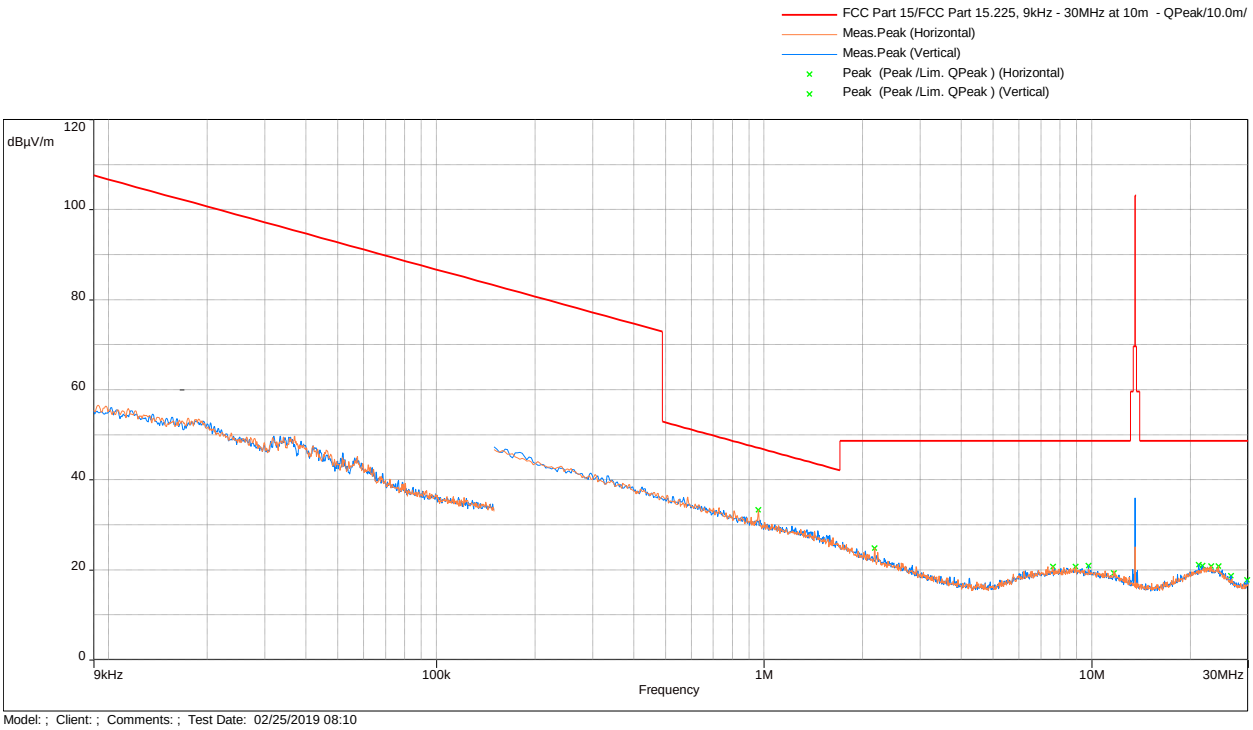


Frequency	Corrected Peak FS @10m	Limit @10m	Margin	RA@10m	Correction
(MHz)	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB
13.56	37.02	103.10	-66.08	33.72	3.30

Note: Correction = AF+CF–AG

4.1.3 Test Result (Continued)

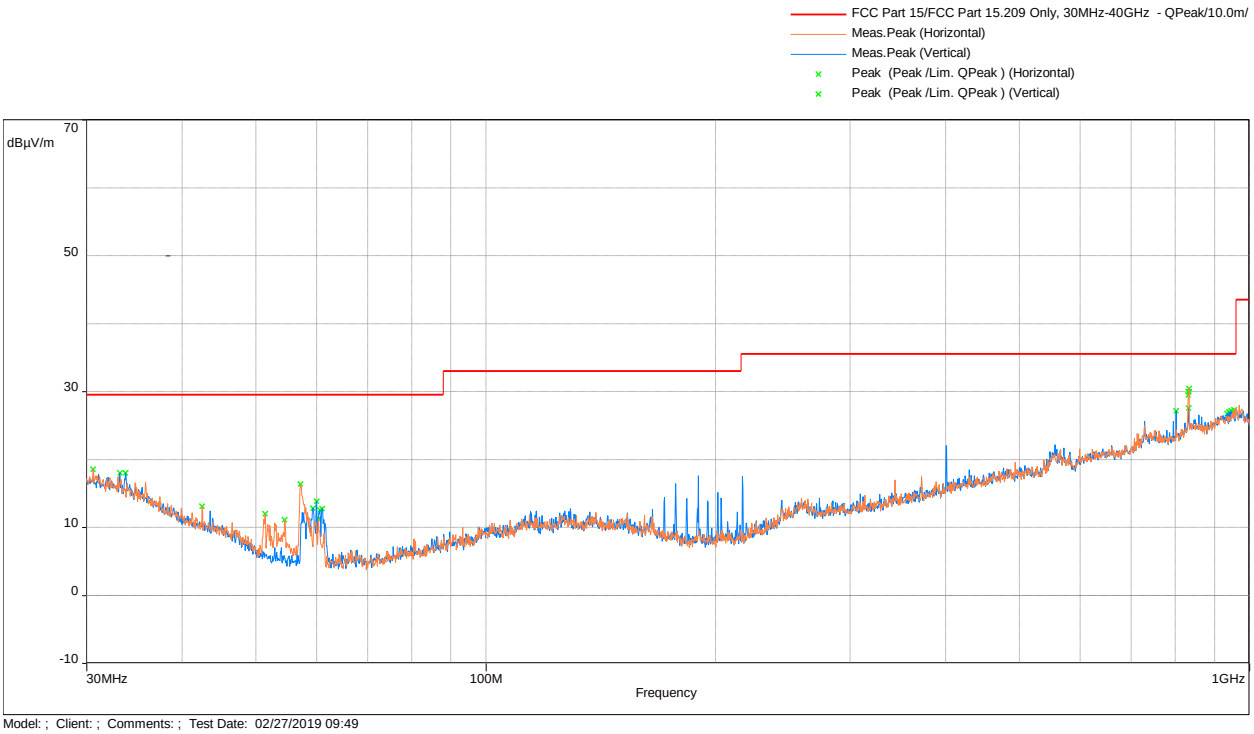
Radiated Spurious Emissions from 9 kHz to 30MHz



Model: ; Client: ; Comments: ; Test Date: 02/25/2019 08:10

4.1.3 Test Result (Continued)

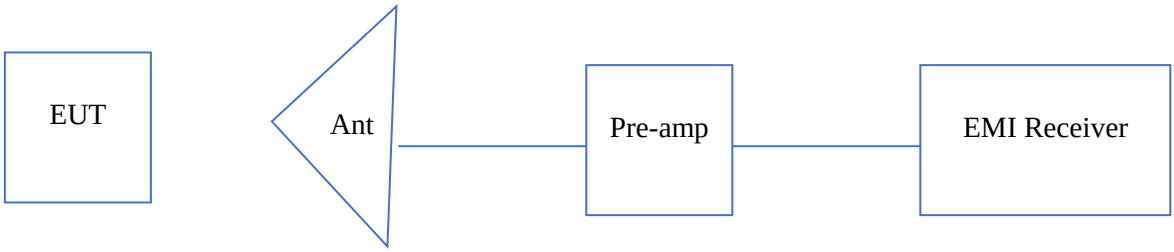
Radiated Spurious Emissions from 30 MHz to 1000 MHz



Frequency MHz	FS dBµV/m	Limit dBuV/m	Margin (dB)	Azimuth (deg)	Height (m)	Polarity	RA (dBuV)	Correction (dB)
57.192	16.37	29.50	-13.13	0	1.98	Horizontal	37.72	-21.35
59.359	12.77	29.50	-16.73	158	2.00	Vertical	34.30	-21.53
60.005	13.86	29.50	-15.64	182	2.00	Vertical	35.45	-21.59
60.620	12.52	29.50	-16.98	232	2.00	Vertical	34.04	-21.52
61.072	12.75	29.50	-16.75	232	2.00	Vertical	34.23	-21.48
832.675	29.91	35.50	-5.59	264	1.00	Horizontal	30.39	-0.48
Result:	**Complies** by 5.59 dB							

4.1.4 Test Configuration Photographs

The following photographs show the testing configurations used.



4.2 Frequency Tolerance

4.2.1 Requirement

FCC 15.225 (e)

The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of −20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

4.2.2 Procedure

The EUT was placed in the temperature chamber. The frequency counter was connected to the transmitter output. For each temperature, the carrier frequency was recorded.

4.2.3 Test Results

Tested By	Test Date
Anderson Soungpanya	February 22, 2019

Battery Voltage (DC)	Temperature (C)	Measured Frequency (Hz)	Deviation from Reference (Hz)	Deviation (%)
4.05V (with Fully Charged Battery)	50	13559300	67	0.00049
	40	13559283	50	0.00037
	30	13559279	46	0.00034
	20	13559233	0	0.00000
	10	13559274	41	0.00030
	0	13559294	61	0.00045
	-10	13559280	47	0.00035
	-20	13559400	167	0.00123

Nominal Frequency @ 20C, 4.05 VDC: 13559233 Hz

4.3 Occupied Bandwidth
FCC 15.215

4.3.1 Requirements

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage.

4.3.2 Procedure

The EUT was setup to transmit in normal operating condition.

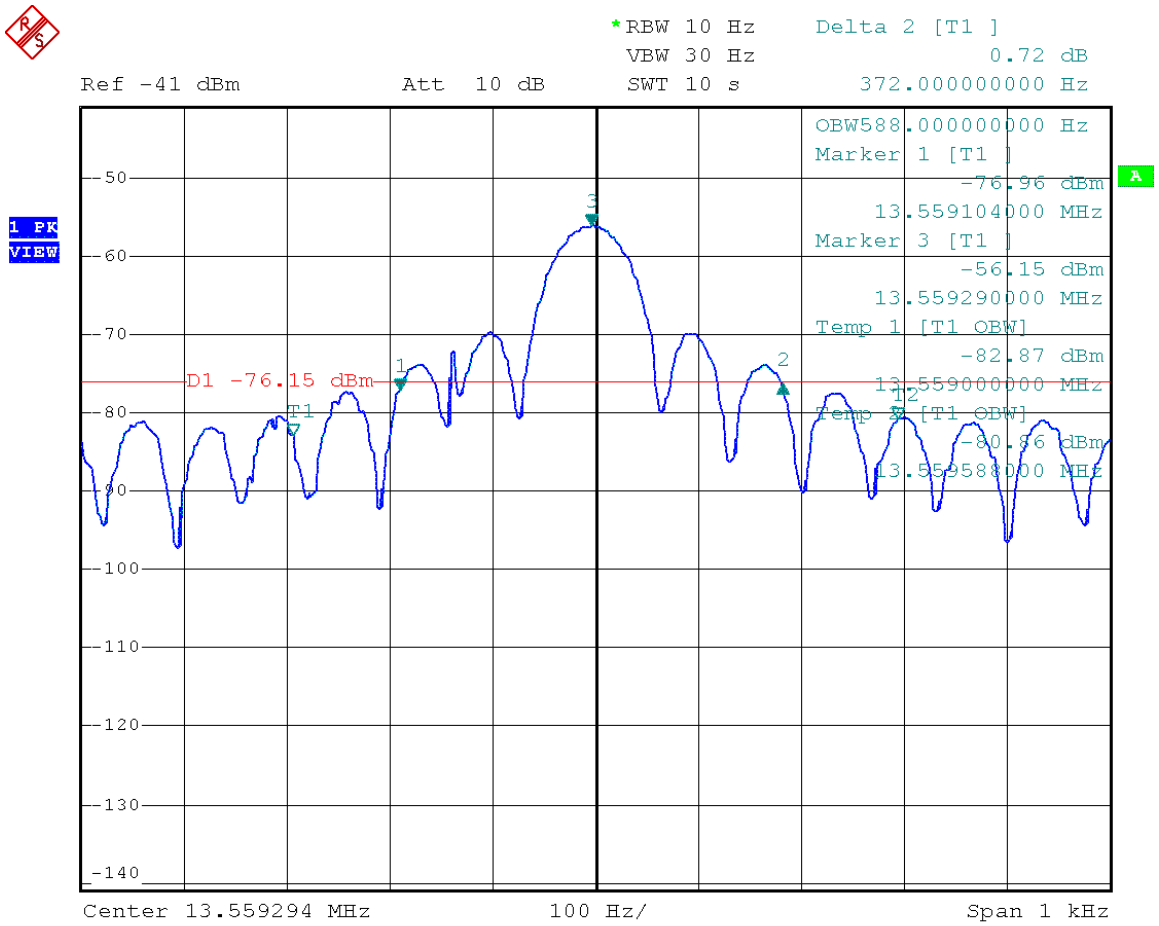
Measurements were made with the loop antenna in close proximity of the EUT. Following the procedures of ANSI 63.10, the 20dB bandwidth measurements were taken. The following plots show Occupied Bandwidth.

4.3.3 Test Results

Tested By	Test Date
Anderson Soungpanya	February 22, 2019

Frequency (MHz)	20-dB Channel Bandwidth (Hz)	99% Channel Bandwidth (Hz)
13.56	434.0	568.0

20-dB & 99% Channel Bandwidth



4.4 Radiated Emissions from Digital Parts

FCC Ref: 15.109, ICES 003

4.4.1 Requirement

Limits for Electromagnetic Radiated Emissions FCC Section 15.109(b), ICES 003*, RSS GEN

Frequency (MHz)	**Class A at 10m dB(µV/m)**	**Class B at 3m dB(µV/m)**
30-88	39	40.0
88-216	43.5	43.5
216-960	46.4	46.0
Above 960	49.5	54.0

* According to FCC Part 15.109(g) an alternative to the radiated emission limits shown above, digital devices may be shown to comply with the limit of CISPR Pub. 22

4.4.2 Procedures

Measurements are conducted with a quasi-peak detector instrument in the frequency range of 30 MHz to 1000 MHz and with the average detector instrument in the frequency range above 1000 MHz. The measuring receiver meets the requirements of Section One of CISPR 16 and the measuring antenna correlates to a balanced dipole.

Measurements of the radiated field are made with the antenna located at a distance of 10 meters from the EUT. If the field-strength measurements at 10m cannot be made because of high ambient noise level or for other reasons, measurements of Class B equipment may be made at a closer distance, for example 3m. An inverse proportionality factor of 20 dB per decade should be used to normalize the measured data or limit line to the specified distance for determining compliance.

The antenna is adjusted between 1m and 4m in height above the ground plane for maximum meter reading at each test frequency.

The antenna-to-EUT azimuth is varied during the measurement to find the maximum field-strength readings.

The antenna-to-EUT polarization (horizontal and vertical) is varied during the measurements to find the maximum field-strength readings.

The EUT, where intended for tabletop use, is placed on a table whose top is 0.8m above the ground plane. The table is constructed of non-conductive materials. Its dimensions are 1m by 1.5m, but may be extended for a larger EUT.

Floor standing EUT are placed on a horizontal metal ground plane and isolated from the ground plane by resting on an insulating material.

Equipment setup for radiated disturbance tests followed the guidelines of ANSI C63.4: 2014

4.4.3 Test Results

Radiated emission measurements were performed from 30 MHz to 1000 MHz. The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

An inverse proportionality factor of 20 dB per decade was used to normalize the limit line of 30MHz to 1000MHz to the specified distance for determining compliance

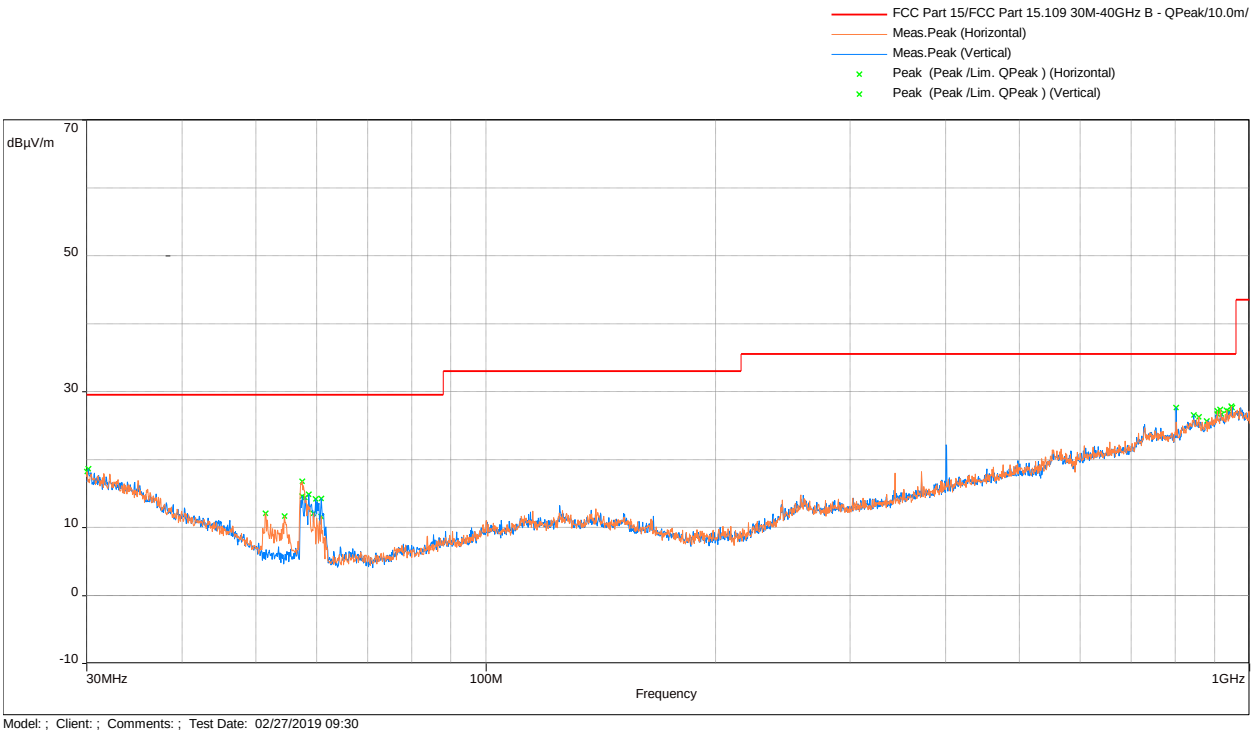
Note: Radiated emission measurements were performed up to 1 GHz.

Tested By	Test Date
Anderson Soungpanya	February 27 & March 1, 2019

Battery Mode "brushing" is active

The data below shows the significant emission frequencies, the limit and the margin of compliance. Note: Measurements were performed with Clean, White and Gum Care at the highest settings and X, Y and Z Axis orientations of EUT. The worst-case data was presented below.

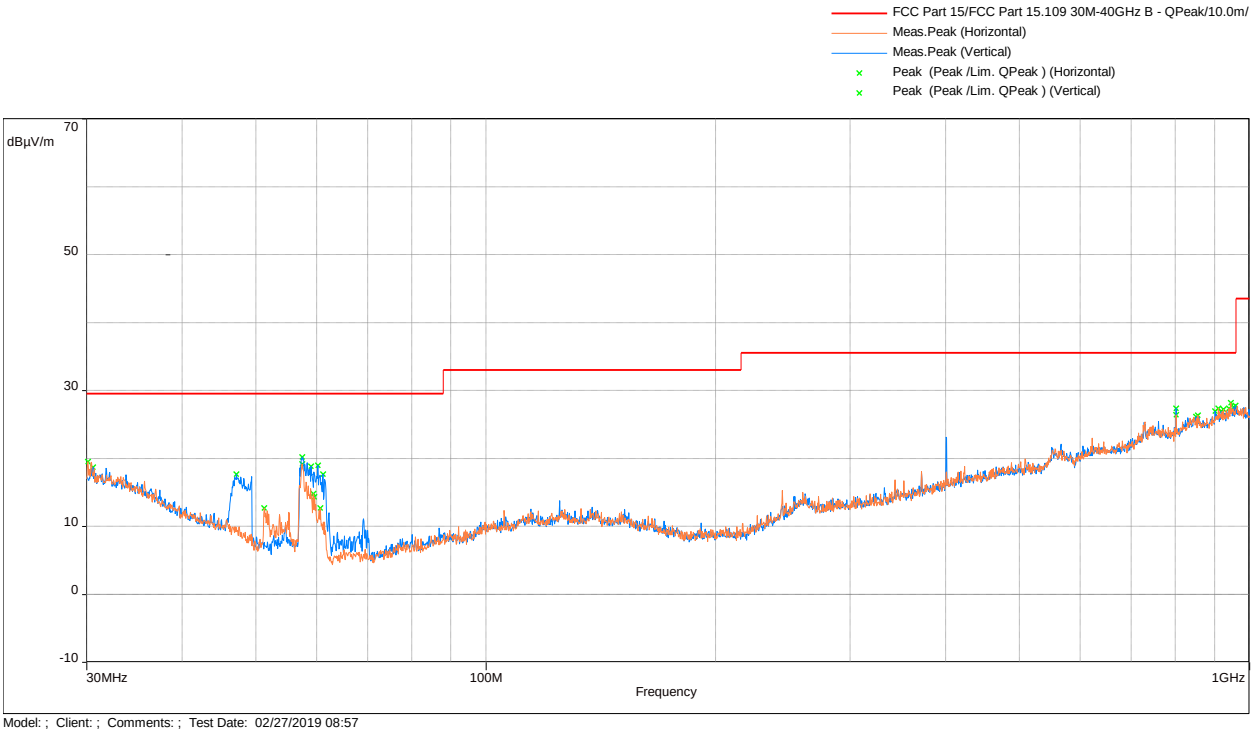
HX685T Test Results: Radiated Emissions 30 MHz - 1000



Frequency MHz	FS dBµV/m	Limit dBuV/m	Margin (dB)	Azimuth (deg)	Height (m)	Polarity	RA (dBuV)	Correction (dB)
51.763	11.55	29.5	-17.95	199	1.51	Horizontal	31.33	-19.78
53.086	10.91	29.5	-18.59	199	1.55	Horizontal	31.31	-20.40
56.416	8.77	29.5	-20.73	341	2.05	Vertical	30.04	-21.27
57.645	17.65	29.5	-11.85	359	1.65	Horizontal	39.04	-21.39
57.742	14.35	29.5	-15.15	270	2.02	Vertical	35.75	-21.4
59.067	11.91	29.5	-17.59	253	1.95	Vertical	33.42	-21.51
Result:	**Complies** by 11.85 dB							

Charge Mode

HX685T Test Results: Radiated Emissions 30 MHz - 1000

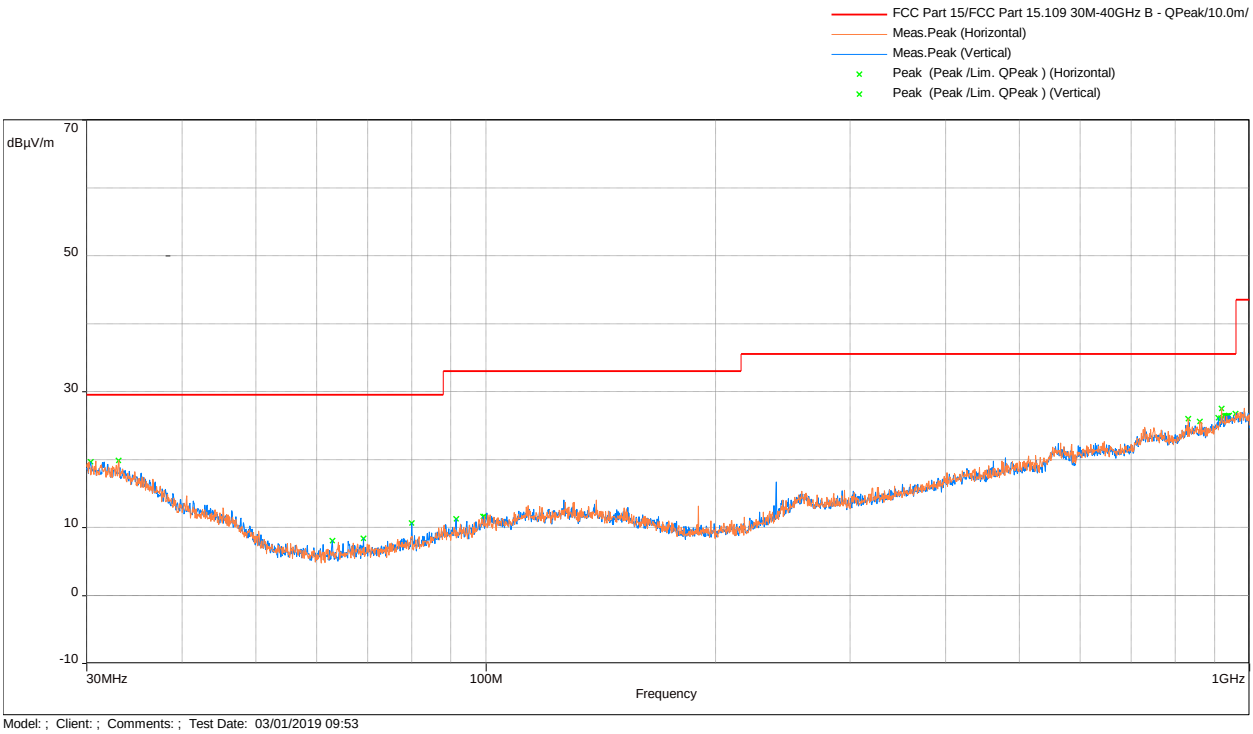


Frequency MHz	FS dBµV/m	Limit dBuV/m	Margin (dB)	Azimuth (deg)	Height (m)	Polarity	RA (dBuV)	Correction (dB)
47.137	17.68	29.5	-11.82	0	2.04	Vertical	35.16	-17.48
51.275	12.70	29.5	-16.80	254	1.54	Horizontal	32.29	-19.59
57.451	20.14	29.5	-9.36	143	1.95	Vertical	41.51	-21.37
59.068	18.78	29.5	-10.72	130	1.99	Vertical	40.29	-21.51
60.264	18.91	29.5	-10.59	130	2.11	Vertical	40.47	-21.56
61.202	17.66	29.5	-11.84	205	2.06	Vertical	39.14	-21.48
Result:	**Complies** by 9.36 dB							

Battery Mode "brushing" is active

The data below shows the significant emission frequencies, the limit and the margin of compliance. Note: Measurements were performed with Clean, White and Gum Care at the highest settings and X, Y and Z Axis orientations of EUT. The worst-case data was presented below.

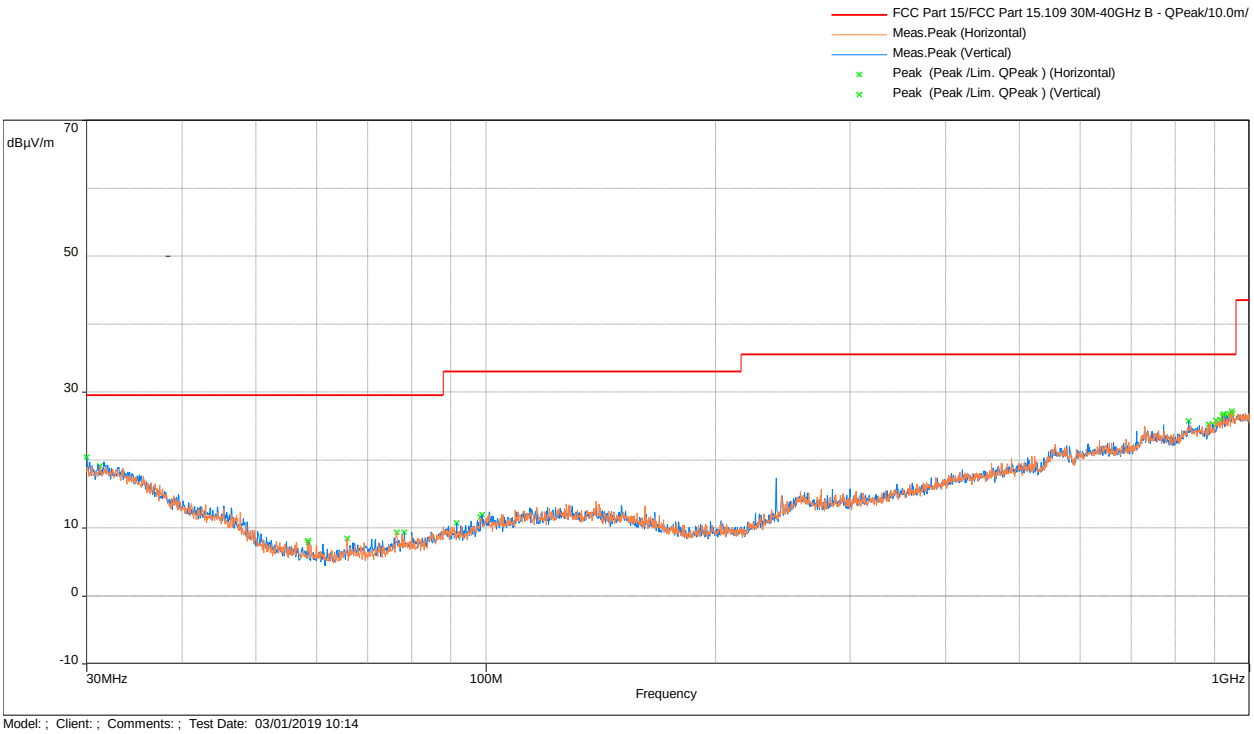
HX751V Test Results: Radiated Emissions 30 MHz - 1000



Frequency MHz	FS dBµV/m	Limit dBuV/m	Margin (dB)	Azimuth (deg)	Height (m)	Polarity	RA (dBuV)	Correction (dB)
30.388	19.64	29.5	-9.86	20	2.20	Vertical	31.54	-11.9
33.039	19.80	29.5	-9.70	360	1.30	Horizontal	33.19	-13.39
62.948	8.03	29.5	-21.47	48	1.88	Vertical	32.84	-24.81
69.156	8.35	29.5	-21.15	325	1.93	Vertical	32.58	-24.23
79.987	10.59	29.5	-18.91	140	2.01	Vertical	33.45	-22.86
91.433	11.20	33.0	-21.80	1	2.10	Vertical	32.42	-21.22
Result:	**Complies** by 9.86 dB							

Charge Mode

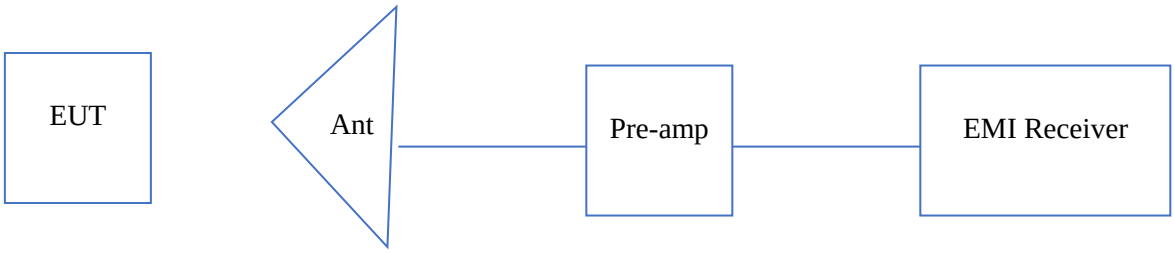
HX751V Test Results: Radiated Emissions 30 MHz – 1000



Frequency MHz	FS dBµV/m	Limit dBuV/m	Margin (dB)	Azimuth (deg)	Height (m)	Polarity	RA (dBuV)	Correction (dB)
31.229	19.07	29.5	-10.43	276	1.74	Horizontal	31.49	-12.42
58.583	7.85	29.5	-21.65	351	2.11	Vertical	32.64	-24.79
65.825	8.42	29.5	-21.08	66	1.32	Horizontal	32.91	-24.49
78.209	9.32	29.5	-20.18	206	1.98	Vertical	32.48	-23.16
91.627	10.71	33.0	-22.29	357	1.83	Vertical	31.91	-21.2
98.902	11.94	33.0	-21.06	93	1.99	Vertical	32.12	-20.18
Result:	**Complies** by 10.43 dB							

4.4.4 Test Setup Configuration

The following photographs show the testing configurations used.



4.5 AC Line Conducted Emission
FCC: 15.207, 15.107; RSS-GEN;

4.5.1 Requirement

Frequency Band MHz	Class B Limit dB(µV)		Class A Limit dB(µV)	
	Quasi-Peak	Average	Quasi-Peak	Average
0.15-0.50	66 to 56 *	56 to 46 *	79	66
0.50-5.00	56	46	73	60
5.00-30.00	60	50	73	60

*Note: *Decreases linearly with the logarithm of the frequency*
At the transition frequency the lower limit applies.

4.5.2 Procedure

Measurements are carried out using quasi-peak and average detector receivers in accordance with CISPR 16. An AMN is required to provide a defined impedance at high frequencies across the power feed at the point of measurement of terminal voltage and also to provide isolation of the circuit under test from the ambient noise on the power lines. An AMN as defined in CISPR 16 shall be used.

The EUT is located so that the distance between the boundary of the EUT and the closest surface of the AMN is 0.8m.

Where a flexible mains cord is provided by the manufacturer, this shall be 1m long or if in excess of 1m, the excess cable is folded back and forth as far as possible so as to form a bundle not exceeding 0.4m in length.

The EUT is arranged and connected with cables terminated in accordance with the product specification.

Conducted disturbance is measured between the phase lead and the reference ground, and between the neutral lead and the reference ground. Both measured values are reported.

The EUT, where intended for tabletop use, is placed on a table whose top is 0.8m above the ground plane. A vertical, metal reference plane is placed 0.4m from the EUT. The vertical metal reference-plane is at least 2m by 2m. The EUT shall be kept at least 0.8m from any other metal surface or other ground plane not being part of the EUT. The table is constructed of non-conductive materials. Its dimensions are 1m by 1.5m, but may be extended for larger EUT.

Floor standing EUT are placed on a horizontal metal ground plane and isolated from the ground plane by resting on an insulating material. The metal ground plane extends at least 0.5m beyond the boundaries of the EUT and has minimum dimensions of 2m by 2m.

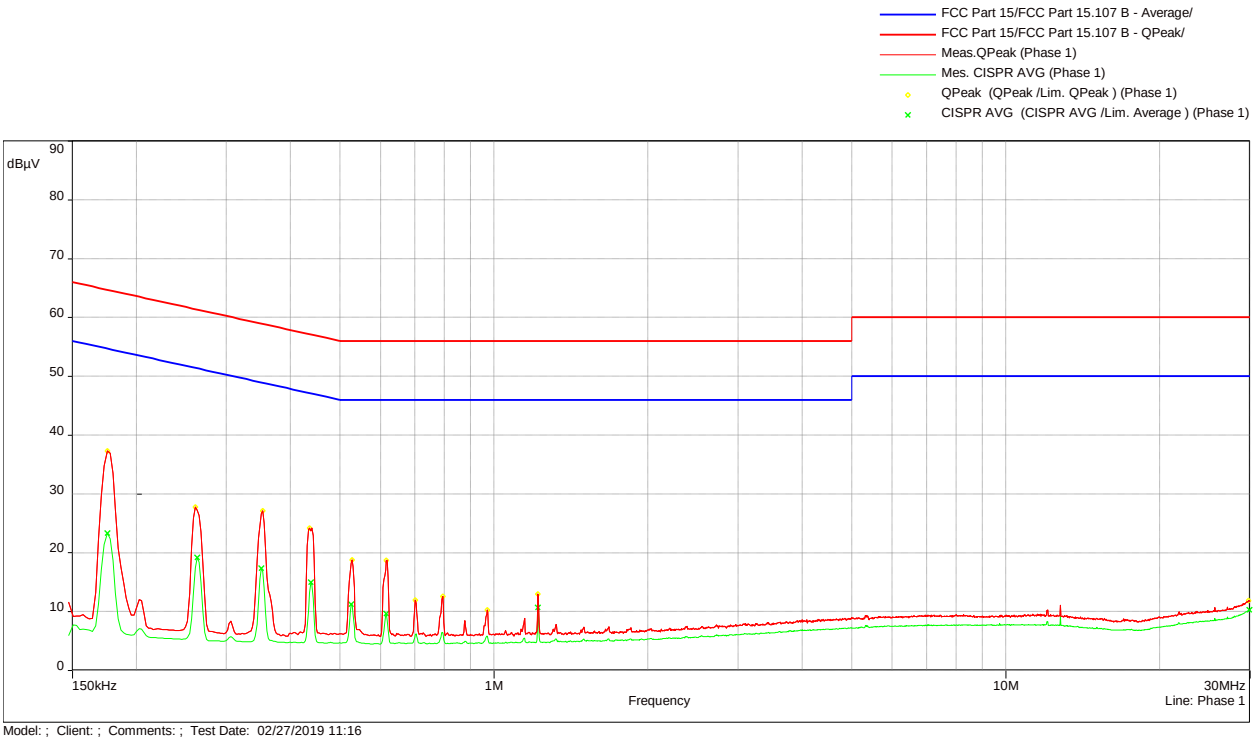
Equipment setup for conducted disturbance tests followed the guidelines of ANSI C63.4:2014.

Tested By	Test Date
Anderson Soungpanya	February 27, 2019

4.5.3 Test Results

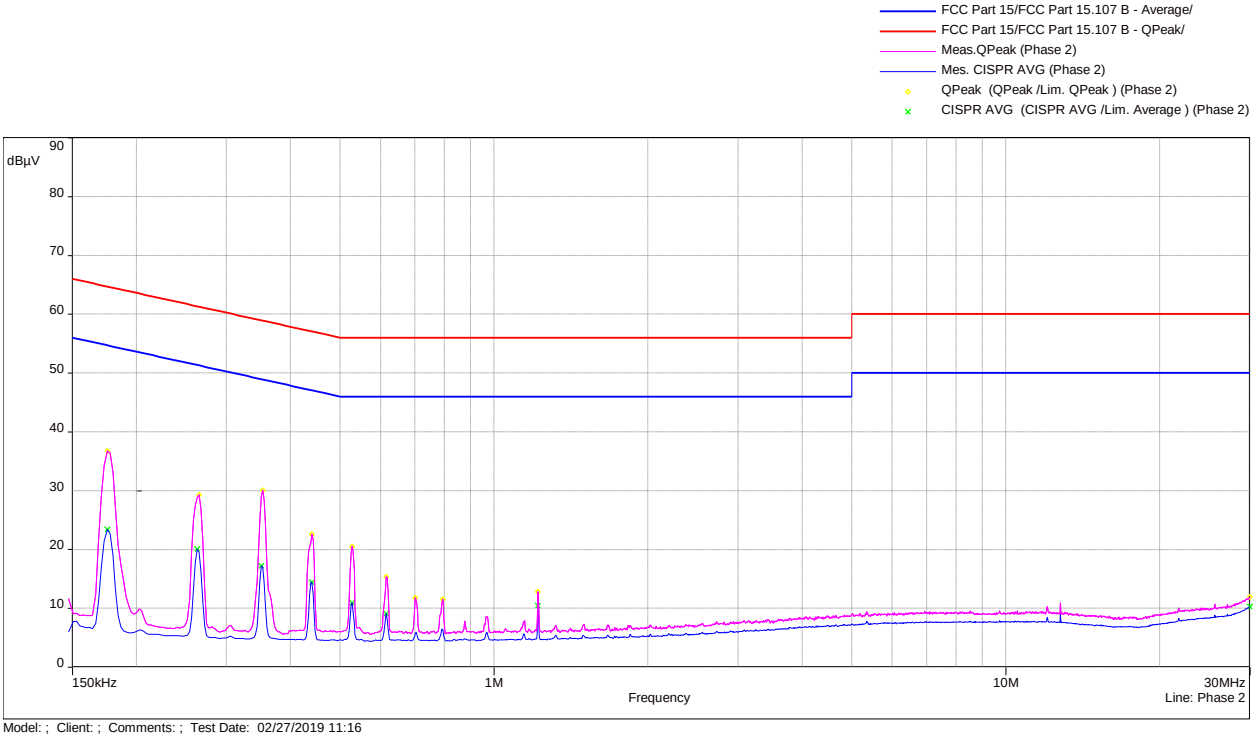
Charging Mode at 120VAC 60Hz

Line 1



Model: ; Client: ; Comments: ; Test Date: 02/27/2019 11:16

Line 2



Model: ; Client: ; Comments: ; Test Date: 02/27/2019 11:16

Quasi-Peak Table					
Frequency (MHz)	**Q.Peak (dBµV)**	**Limit (dBµV)**	**Margin (dB)**	**Comment**	**Correction (dB)**
0.176	37.30	64.70	-27.40	Phase 1	11.56
0.176	36.70	64.70	-28.00	Phase 2	11.56
0.261	27.74	61.40	-33.66	Phase 1	11.58
0.266	29.24	61.26	-32.02	Phase 2	11.58
0.353	30.05	58.89	-28.84	Phase 2	11.57
0.353	27.14	58.89	-31.75	Phase 1	11.57
0.437	24.21	57.13	-32.92	Phase 1	11.61
0.441	22.57	57.04	-34.47	Phase 2	11.60
0.529	20.52	56.00	-35.48	Phase 2	11.61
0.529	18.77	56.00	-37.23	Phase 1	11.61
0.617	18.68	56.00	-37.32	Phase 1	11.62
0.617	15.31	56.00	-40.69	Phase 2	11.62
0.702	11.90	56.00	-44.10	Phase 1	11.63
0.702	11.80	56.00	-44.20	Phase 2	11.63
0.794	12.55	56.00	-43.45	Phase 1	11.63
0.794	11.51	56.00	-44.49	Phase 2	11.63
0.970	10.23	56.00	-45.77	Phase 1	11.63
1.220	12.94	56.00	-43.06	Phase 1	11.64
1.220	12.83	56.00	-43.17	Phase 2	11.64
29.828	11.83	60.00	-48.17	Phase 1	12.28
29.993	11.94	60.00	-48.06	Phase 2	12.28

Average Table					
Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Comment	Correction (dB)
0.176	23.26	54.70	-31.43	Phase 1	11.56
0.176	23.41	54.70	-31.29	Phase 2	11.56
0.263	19.18	51.33	-32.15	Phase 1	11.58
0.263	20.01	51.33	-31.32	Phase 2	11.58
0.351	17.32	48.94	-31.61	Phase 1	11.57
0.351	17.16	48.94	-31.78	Phase 2	11.57
0.439	14.96	47.09	-32.13	Phase 1	11.60
0.441	14.42	47.04	-32.62	Phase 2	11.60
0.527	11.20	46.00	-34.80	Phase 1	11.61
0.529	10.92	46.00	-35.08	Phase 2	11.61
0.617	9.60	46.00	-36.40	Phase 1	11.62
0.617	9.08	46.00	-36.92	Phase 2	11.62
1.220	10.62	46.00	-35.38	Phase 1	11.64
1.220	10.45	46.00	-35.55	Phase 2	11.64
29.952	10.25	50.00	-39.75	Phase 1	12.28
29.999	10.22	50.00	-39.78	Phase 2	12.28

Result:	**Complies** by 27.40 dB

5.0 List of test equipment

Measurement equipment used for emission compliance testing utilized the equipment on the following list:

Equipment	Manufacturer	Model/Type	Asset No.	Calibration Interval	Cal Due
Bi-Log Antenna	Teseq	CBL 6111D	ITS 01058	12	09/20/19
Pre-Amplifier	Sonoma Instrument	310N	ITS 01493	12	02/27/20
EMI Receiver	Rohde and Schwarz	ESR7	ITS 01607	12	10/23/19
LISN	Teseq	NNB-51	ITS 00666	12	09/12/19
RF Cable	TRU Corporation	TRU CORE 300	ITS 01465	12	08/17/19
RF Cable	TRU Corporation	TRU CORE 300	ITS 01470	12	08/17/19
RF Cable	TRU Corporation	TRU CORE 300	ITS 01460	12	03/08/19
RF Cable	TRU Corporation	TRU CORE 300	ITS 01342	12	12/05/19
Loop Sensor	Solar Electronics	7334-1	ITS 01608	12	10/09/19
Environmental Test Chamber	ESPEC	BTX-475	ITS 01436	12	09/21/19
Ant-Passive Loop	EMCO	6512	ITS 01598	12	10/09/19

Verified before use

Software used for emission compliance testing utilized the following:

Name	Manufacturer	Version	Template/Profile
BAT-EMC	Nexio	3.17.0.10	Philips_G103849240.bpp

6.0 Document History

Revision/ Job Number	Writer Initials	Reviewer Initials	Date	Change
1.0 / G103849240	AS	KV	March 06, 2019	Original document

END OF REPORT