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EMI TEST REPORT
FCC CERTIFICATION

Applicant: **Franklin Technology Inc** 906 JEI Platz, 186, Gasan digital 1-ro, Geumcheon-gu, Seoul, Korea (08502)	**Date of Receipt: December 14, 2017** **Date of Issue: January 10, 2018** **Test Report No. HCT-EM-1801-FC030**

FCC ID : **XHG-C801**

Rule Part(s) / Standard(s):	FCC CFR 47 PART 15 Subpart B Class B
FCC Classification:	JBP (Part 15 B – Class B Computing Device Peripheral)
EUT Type:	CPE
Model Name:	C801
Date of Test:	January 02, 2018 – January 05, 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 denial the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C 862

Tested By

Wook Yi
Test Engineer
EMC Team
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Reviewed By

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REVISION HISTORY

The revision history for this document is shown in table.

Report No.	Issue Date	Information About Changes
HCT-EM-1801-FC030	January 10, 2018	Initial Release

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1. GENERAL INFORMATION

1.1 Description of EUT

Its basic purpose is used for communications.

FCC ID		XHG-C801
Model		C801
EUT Type		CPE
Frequency	LTE B25	TX 1 850 MHz to 1 910 MHz
	LTE B26	TX 814 MHz to 849 MHz
	LTE B41	TX 2 496 MHz to 2 690 MHz
Normal Voltage		Adapter: 5 Vdc, POE adaptor: 48 Vdc

1.2 Related Submittal(s) / Grant(s)

Original submittal only.

1.3 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.

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	

1.4 Calibration of Measuring Instrument

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturers recommendations for utilizing calibration equipments, which is traceable to recognized national standards.
Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Versi on : 2006).

1.5 Tested System Details

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

Device Type	Model Name	Serial Number	Manufacturer	FCC ID / DoC
EUT	C801	-	LG	XHG-C801
Switching adapter	DSA-10PFV-05 FUS 050200	-	DVE	-
POE adapter	IpTIME INJECTOR1 (HS36-4800500KA)	-	ZHONGSHAN XIAOLAN HUI YANG ELECTRIC APPLIANCE FACTORY	
Notebook PC 1	ProBook6560b	5CB2053MXF	HP	
Notebook PC adapter 1	PPP009D	WBGSV0BDD 1VLC	Delta Electronics (JIANGSU)	
Notebook PC 2	LGP53	205CPVU000899	LG	-
Notebook PC adapter 2	ADP-90WH	-	Delta Electronics (JIANGSU)	DoC
Gateway	TL-WR747N		TP Link	-
Gateway adapter	T120150-2H1		TP Link	-
Serial mouse	Serial 2 Button mouse	02031069	Radio Shack	FSUGMZE3

1.6 Cable Description

EUT & Switching adaptor

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
EUT	DC IN	Y	N/A	(P) 1.5
	WAN	N/A	N	(D) 3.0
	LAN	N/A	N	(D) 3.0
	SERIAL	N/A	Y	(D) 1.0
Notebook PC 1	RJ 45	N/A	N	(D) 2.5
	Serial(Mouse)	N/A	Y	(D)1.8
	DC IN	N	N/A	(P) 1.8
Gateway	DC IN	N	N/A	(P) 1.5
Notebook PC 2	DC IN	N	N/A	(P) 1.8

EUT & POE adaptor

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
EUT	WAN	N	N	(P,D) 3.0
	LAN	N	N	(P,D) 3.0
	SERIAL	N/A	Y	(D) 1.0
POE adapter	LAN	N/A	N	(D) 3.0
Notebook PC 1	RJ 45	N/A	N	(D) 2.5
	Serial (Mouse)	N/A	Y	(D)1.8
	DC IN	N	N/A	(P) 1.8
Gateway	DC IN	N	N/A	(P) 1.5
Notebook PC 2	DC IN	N	N/A	(P) 1.8

* The marked “(D)” means the data cable and “(P)” means the power cable.

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

EUT & Switching adaptor

Product Name	Port	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
EUT	DC IN	N	N/A	Y	EUT End
	WAN	N	N/A	N	N/A
	LAN	N	N/A	N	N/A
	SERIAL	N	N/A	Y	Both End
Notebook PC	RJ 45	Y	Both End	N	N/A
	Serial (Mouse)	N	N/A	Y	Notebook PC End
	DC IN	N	N/A	Y	Notebook End
Gateway	DC IN	N	N/A	Y	Gateway End
Notebook PC 2	DC IN	Y	Notebook PC End	Y	Notebook PC End

EUT & POE adaptor

Product Name	Port	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
EUT	WAN	N	N/A	N	N/A
	LAN	N	N/A	N	N/A
	SERIAL	N	N/A	Y	Both End
POE adaptor	LAN	N	N/A	N	N/A
Notebook PC 1	RJ 45	Y	Both End	N	N/A
	Serial(Mouse)	N	N/A	Y	Notebook PC End
	DC IN	N	N/A	Y	Notebook End
Gateway	DC IN	N	N/A	Y	Gateway End
Notebook PC 2	DC IN	Y	Notebook PC End	Y	Notebook PC End

2. 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 ($k = 2$)
Radiated Emissions (30 MHz to 1 GHz)	5.20 dB ($k = 2$)
Radiated Emissions (1 GHz to 18 GHz)	5.24 dB ($k = 2$)
Radiated Emissions (18 GHz to 40 GHz)	5.40 dB ($k = 2$)

3. DESCRIPTION OF TEST

3.1 Measurement of Conducted Emission

The test procedure was in accordance with ANSI C63.4-2014, Clause 7.3

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 Limits]

Frequency (MHz)	Resolution Bandwidth (kHz)	Quasi-Peak (dB(μV))	Average (dB(μV))
0.15 to 0.5	9	66 to 56*	56 to 46*
0.5 to 5	9	56	46
5 to 30	9	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, Clause 8.3

a. 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.
b. The EUT was set 3 m away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. 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.
d. 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.
e. 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.
f. 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.
g. 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)	Antenna Distance (m)	Field Strength (μV/m)	Quasi-Peak (dB(μV)/m)
30 to 88	3	100	40.0
88 to 216	3	150	43.5
216 to 960	3	200	46.0
Above 960	3	500	54.0
Frequency (MHz)	Antenna Distance (m)	Peak (dB(μV)/m)	Average (dB(μV)/m)
Above 1 000	3	74	54

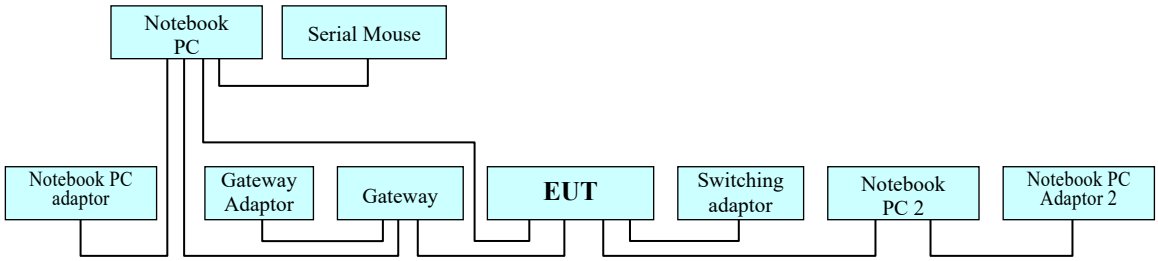
3.2.1 Frequency Range of Radiated Measurements

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

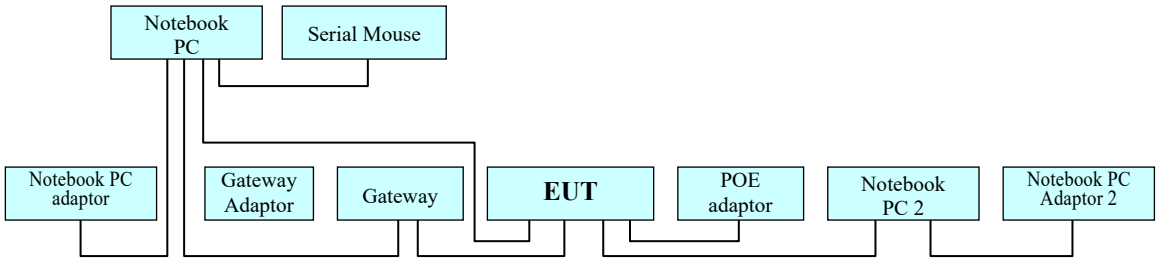
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 to 108	1 000
108 to 500	2 000
500 to 1 000	5 000
Above 1 000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

3.3 Configuration of Tested System

EUT & Switching adaptor



EUT & POE adaptor



4. PRELIMINARY TEST

4.1 Conducted Emission Test

It was tested Data Communication mode, after connecting all peripheral devices.

Operation Mode: ☒ Idle mode (DC IN / WAN POE / LAN POE)

4. 2 Radiated Emission Test

It was tested Data Communication mode, after connecting all peripheral devices.

Operation Mode: ☒ Idle mode (DC IN / WAN POE / LAN POE)

5. CONDUCTED AND RADIATED EMISSION TEST SUMMARY

5.1 Conducted Emission Test

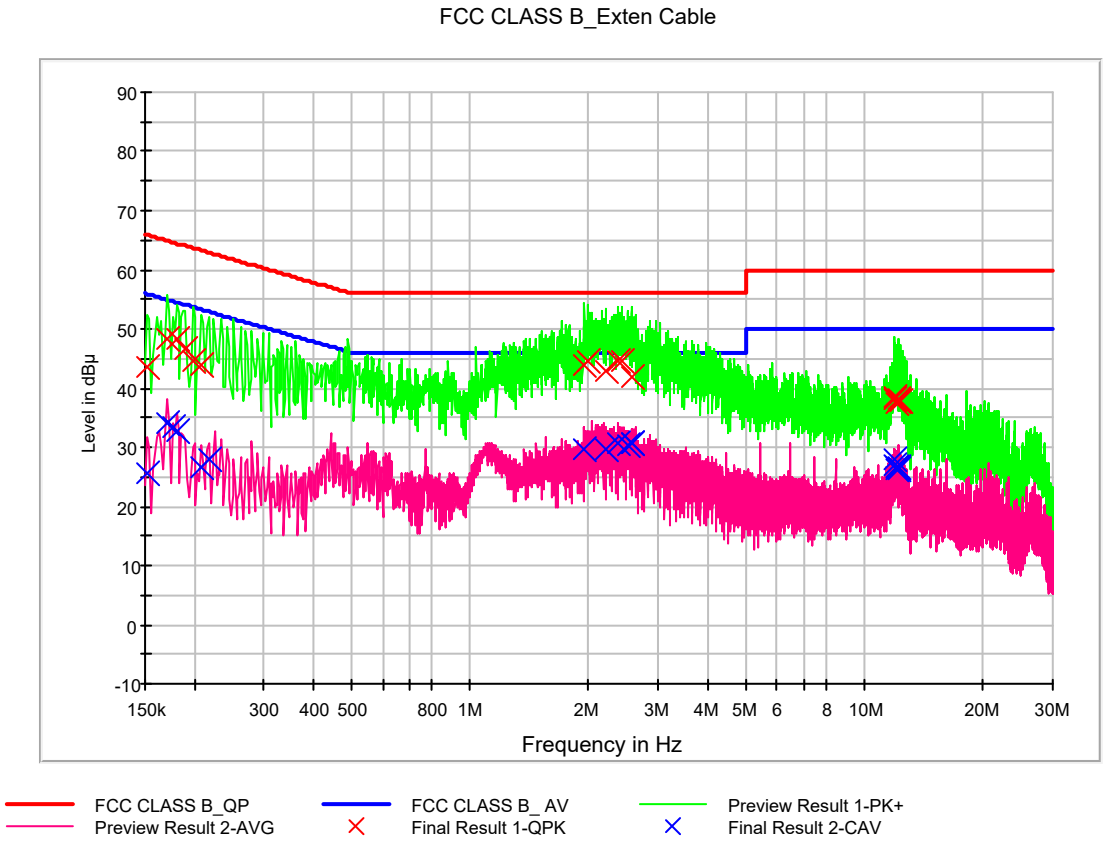
The test results of conducted emission at mains ports provide the following information:

Rule Part / Standard	FCC PART 15 Subpart B Class B
Detector	Quasi-Peak, CISPR-Average
Bandwidth	9 kHz (6 dB)
Operation Mode	Data Communication mode
Kind of Test Site	Shielded Room
Temperature	20.2 °C
Relative Humidity	38.6 %
Test Date	January 03, 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, Idle Mode (DC IN), Line (L1)



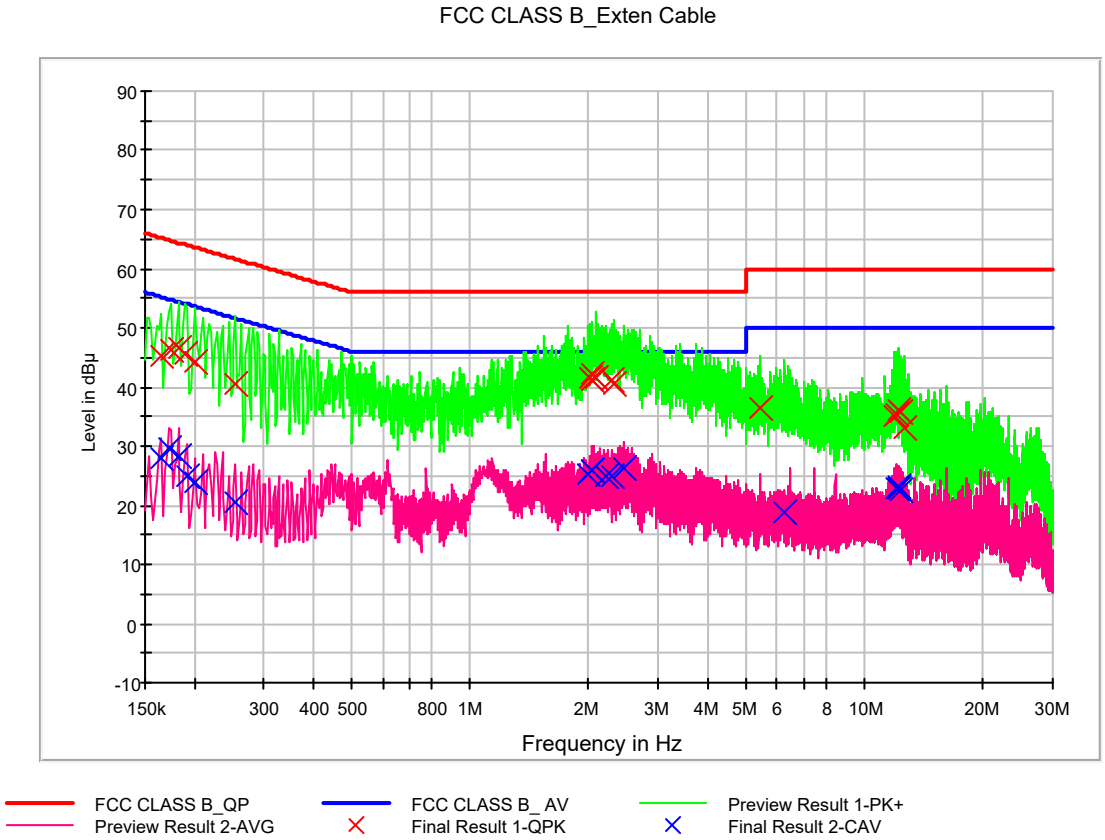
QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.152000	43.5	9.000	L1	9.7	22.4	65.9
0.170000	48.3	9.000	L1	9.7	16.6	65.0
0.180000	48.3	9.000	L1	9.7	16.2	64.5
0.190000	46.5	9.000	L1	9.7	17.5	64.0
0.198000	44.6	9.000	L1	9.7	19.1	63.7
0.208000	43.8	9.000	L1	9.7	19.5	63.3
1.954000	43.7	9.000	L1	9.8	12.3	56.0
1.992000	44.6	9.000	L1	9.8	11.4	56.0
2.206000	43.0	9.000	L1	9.8	13.0	56.0
2.360000	44.5	9.000	L1	9.8	11.5	56.0
2.416000	44.4	9.000	L1	9.8	11.6	56.0
2.560000	42.0	9.000	L1	9.9	14.0	56.0
11.892000	38.4	9.000	L1	10.2	21.6	60.0
11.956000	38.0	9.000	L1	10.2	22.0	60.0
12.110000	37.6	9.000	L1	10.2	22.4	60.0
12.166000	38.0	9.000	L1	10.2	22.0	60.0
12.240000	38.0	9.000	L1	10.2	22.0	60.0
12.290000	37.7	9.000	L1	10.2	22.3	60.0

CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.152000	25.6	9.000	L1	9.7	30.3	55.9
0.170000	33.9	9.000	L1	9.7	21.0	55.0
0.176000	33.4	9.000	L1	9.7	21.3	54.7
0.180000	32.8	9.000	L1	9.7	21.7	54.5
0.208000	26.6	9.000	L1	9.7	26.7	53.3
0.218000	27.8	9.000	L1	9.7	25.1	52.9
1.954000	29.7	9.000	L1	9.8	16.3	46.0
2.206000	29.8	9.000	L1	9.8	16.2	46.0
2.360000	30.7	9.000	L1	9.8	15.3	46.0
2.516000	30.4	9.000	L1	9.9	15.6	46.0
2.560000	30.7	9.000	L1	9.9	15.3	46.0
2.570000	30.6	9.000	L1	9.9	15.4	46.0
11.892000	28.1	9.000	L1	10.2	21.9	50.0
11.956000	26.8	9.000	L1	10.2	23.2	50.0
12.102000	26.5	9.000	L1	10.2	23.5	50.0
12.112000	26.4	9.000	L1	10.2	23.6	50.0
12.214000	26.3	9.000	L1	10.2	23.7	50.0
12.240000	26.4	9.000	L1	10.2	23.6	50.0

Figure 2: Conducted Emission, Idle Mode (DC IN), Line (N)



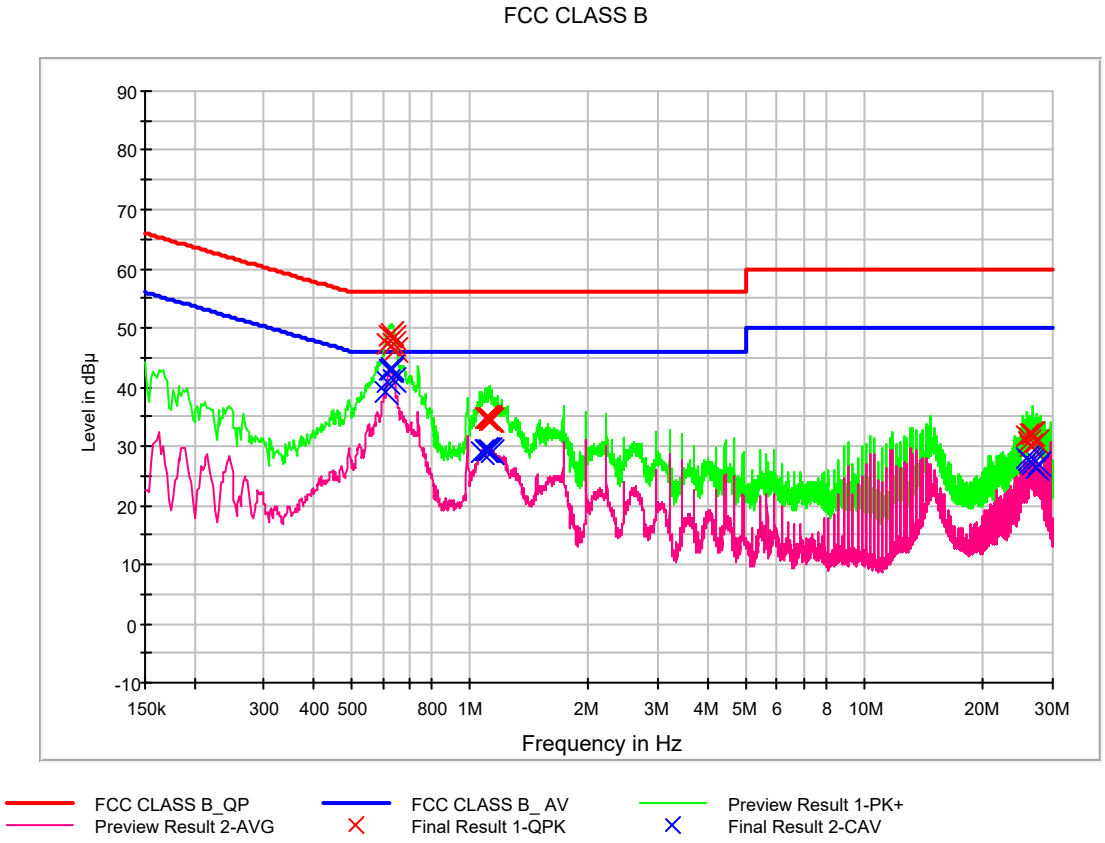
QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.164000	45.3	9.000	N	9.7	20.0	65.3
0.174000	46.4	9.000	N	9.7	18.4	64.8
0.182000	46.7	9.000	N	9.7	17.7	64.4
0.190000	45.5	9.000	N	9.7	18.5	64.0
0.200000	44.3	9.000	N	9.7	19.3	63.6
0.254000	40.4	9.000	N	9.7	21.2	61.6
2.022000	41.5	9.000	N	9.8	14.5	56.0
2.028000	41.3	9.000	N	9.8	14.7	56.0
2.036000	42.4	9.000	N	9.8	13.6	56.0
2.084000	41.6	9.000	N	9.8	14.4	56.0
2.282000	41.1	9.000	N	9.8	14.9	56.0
2.322000	40.5	9.000	N	9.8	15.5	56.0
5.460000	36.5	9.000	N	10.0	23.5	60.0
11.968000	35.0	9.000	N	10.3	25.0	60.0
12.002000	35.3	9.000	N	10.3	24.7	60.0
12.194000	36.1	9.000	N	10.3	23.9	60.0
12.290000	35.9	9.000	N	10.4	24.1	60.0
12.644000	33.1	9.000	N	10.4	26.9	60.0

CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.164000	28.1	9.000	N	9.7	27.1	55.3
0.172000	29.7	9.000	N	9.7	25.1	54.9
0.182000	28.3	9.000	N	9.7	26.1	54.4
0.192000	25.1	9.000	N	9.7	28.9	53.9
0.200000	23.8	9.000	N	9.7	29.8	53.6
0.254000	20.6	9.000	N	9.7	31.0	51.6
1.994000	25.3	9.000	N	9.8	20.7	46.0
2.028000	25.8	9.000	N	9.8	20.2	46.0
2.036000	26.1	9.000	N	9.8	19.9	46.0
2.210000	24.7	9.000	N	9.8	21.3	46.0
2.282000	24.8	9.000	N	9.8	21.2	46.0
2.464000	26.2	9.000	N	9.8	19.8	46.0
6.256000	18.7	9.000	N	10.1	31.3	50.0
12.002000	22.7	9.000	N	10.3	27.3	50.0
12.194000	23.4	9.000	N	10.3	26.6	50.0
12.212000	22.7	9.000	N	10.3	27.3	50.0
12.240000	22.7	9.000	N	10.3	27.3	50.0
12.268000	22.6	9.000	N	10.3	27.4	50.0

Figure 3: Conducted Emission, Idle Mode (LAN POE), Line (L1)



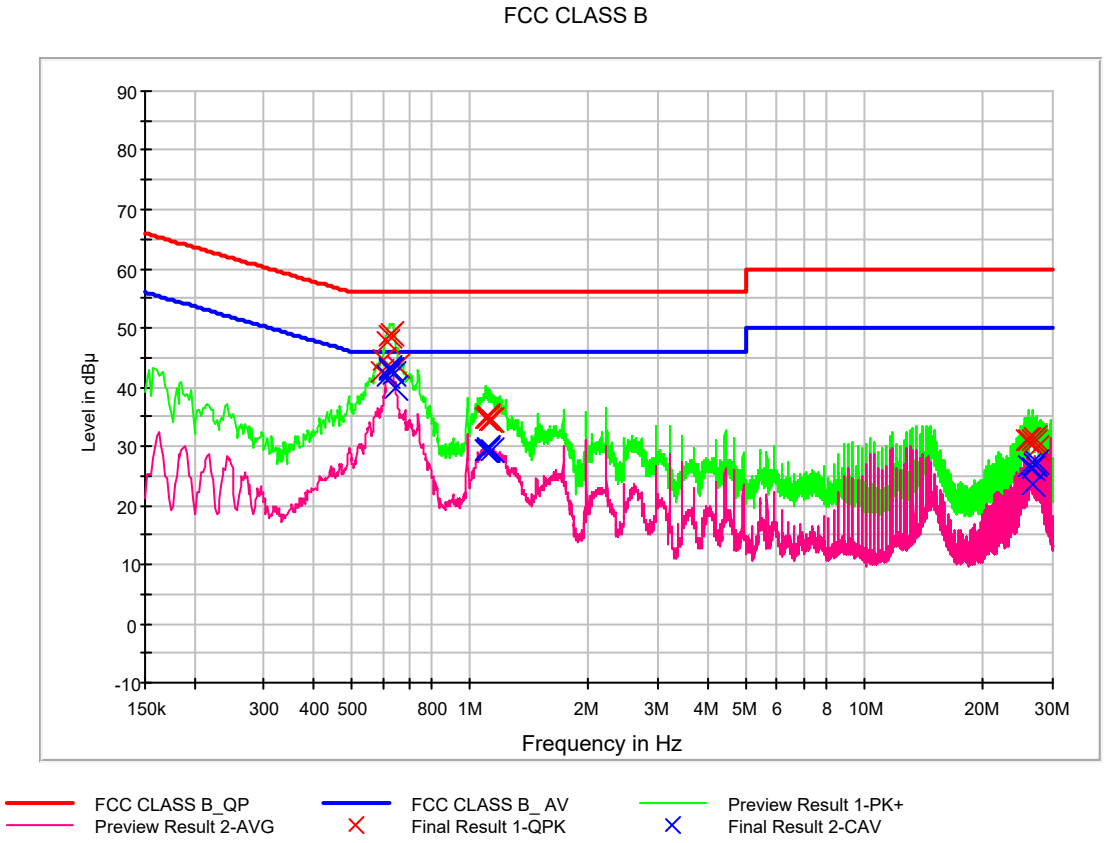
QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.616000	47.3	9.000	L1	9.7	8.7	56.0
0.624000	48.5	9.000	L1	9.7	7.5	56.0
0.632000	48.8	9.000	L1	9.7	7.2	56.0
0.636000	48.4	9.000	L1	9.7	7.6	56.0
0.642000	47.4	9.000	L1	9.7	8.6	56.0
0.646000	46.4	9.000	L1	9.7	9.6	56.0
1.090000	34.9	9.000	L1	9.7	21.1	56.0
1.104000	34.8	9.000	L1	9.7	21.2	56.0
1.108000	34.8	9.000	L1	9.7	21.2	56.0
1.122000	34.6	9.000	L1	9.7	21.4	56.0
1.128000	34.3	9.000	L1	9.7	21.7	56.0
1.138000	34.3	9.000	L1	9.7	21.7	56.0
25.862000	31.8	9.000	L1	10.1	28.2	60.0
26.104000	30.7	9.000	L1	10.1	29.3	60.0
26.354000	32.0	9.000	L1	10.1	28.0	60.0
26.488000	29.8	9.000	L1	10.1	30.2	60.0
26.598000	32.1	9.000	L1	10.1	27.9	60.0
27.336000	30.7	9.000	L1	10.1	29.3	60.0

CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.608000	39.3	9.000	L1	9.7	6.7	46.0
0.616000	40.8	9.000	L1	9.7	5.2	46.0
0.626000	42.8	9.000	L1	9.7	3.2	46.0
0.630000	43.2	9.000	L1	9.7	2.8	46.0
0.634000	42.8	9.000	L1	9.7	3.2	46.0
0.642000	41.0	9.000	L1	9.7	5.0	46.0
1.074000	28.9	9.000	L1	9.7	17.1	46.0
1.090000	29.3	9.000	L1	9.7	16.7	46.0
1.094000	29.3	9.000	L1	9.7	16.7	46.0
1.104000	29.3	9.000	L1	9.7	16.7	46.0
1.122000	29.3	9.000	L1	9.7	16.7	46.0
1.134000	29.1	9.000	L1	9.7	16.9	46.0
25.860000	27.9	9.000	L1	10.1	22.1	50.0
26.108000	27.6	9.000	L1	10.1	22.4	50.0
26.354000	27.4	9.000	L1	10.1	22.6	50.0
26.600000	27.1	9.000	L1	10.1	22.9	50.0
27.336000	26.4	9.000	L1	10.1	23.6	50.0
27.584000	26.8	9.000	L1	10.1	23.2	50.0

Figure 4: Conducted Emission, Idle Mode (LAN POE), Line (N)



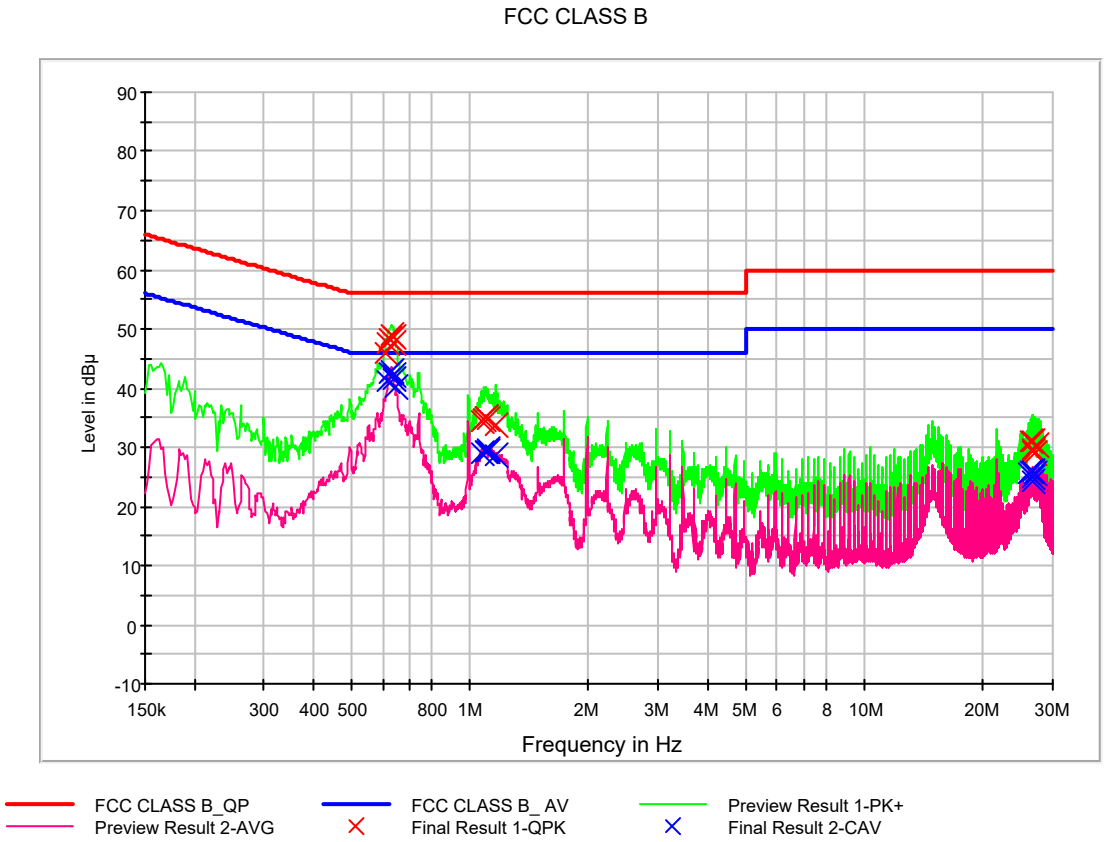
QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.594000	42.4	9.000	N	9.7	13.6	56.0
0.604000	44.5	9.000	N	9.7	11.5	56.0
0.618000	47.8	9.000	N	9.7	8.2	56.0
0.624000	48.7	9.000	N	9.7	7.3	56.0
0.634000	48.8	9.000	N	9.7	7.2	56.0
0.654000	43.4	9.000	N	9.7	12.6	56.0
1.096000	34.7	9.000	N	9.7	21.3	56.0
1.102000	35.0	9.000	N	9.7	21.0	56.0
1.106000	34.9	9.000	N	9.7	21.1	56.0
1.110000	35.0	9.000	N	9.7	21.0	56.0
1.126000	34.4	9.000	N	9.7	21.6	56.0
1.136000	34.5	9.000	N	9.7	21.5	56.0
25.864000	31.1	9.000	N	10.3	28.9	60.0
26.110000	31.0	9.000	N	10.3	29.0	60.0
26.602000	31.0	9.000	N	10.3	29.0	60.0
26.850000	30.6	9.000	N	10.3	29.4	60.0
27.094000	31.2	9.000	N	10.3	28.8	60.0
27.342000	29.8	9.000	N	10.3	30.2	60.0

CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.620000	41.8	9.000	N	9.7	4.2	46.0
0.624000	42.7	9.000	N	9.7	3.3	46.0
0.628000	43.2	9.000	N	9.7	2.8	46.0
0.632000	43.0	9.000	N	9.7	3.0	46.0
0.638000	42.2	9.000	N	9.7	3.8	46.0
0.646000	40.0	9.000	N	9.7	6.0	46.0
1.092000	29.2	9.000	N	9.7	16.8	46.0
1.096000	29.5	9.000	N	9.7	16.5	46.0
1.102000	29.5	9.000	N	9.7	16.5	46.0
1.106000	29.5	9.000	N	9.7	16.5	46.0
1.110000	29.6	9.000	N	9.7	16.4	46.0
1.136000	29.2	9.000	N	9.7	16.8	46.0
26.110000	26.6	9.000	N	10.3	23.4	50.0
26.602000	26.4	9.000	N	10.3	23.6	50.0
26.780000	23.7	9.000	N	10.3	26.3	50.0
26.848000	26.8	9.000	N	10.3	23.2	50.0
27.094000	27.0	9.000	N	10.3	23.0	50.0
27.340000	27.2	9.000	N	10.3	22.8	50.0

Figure 5: Conducted Emission, Idle Mode (WAN POE), Line (L1)



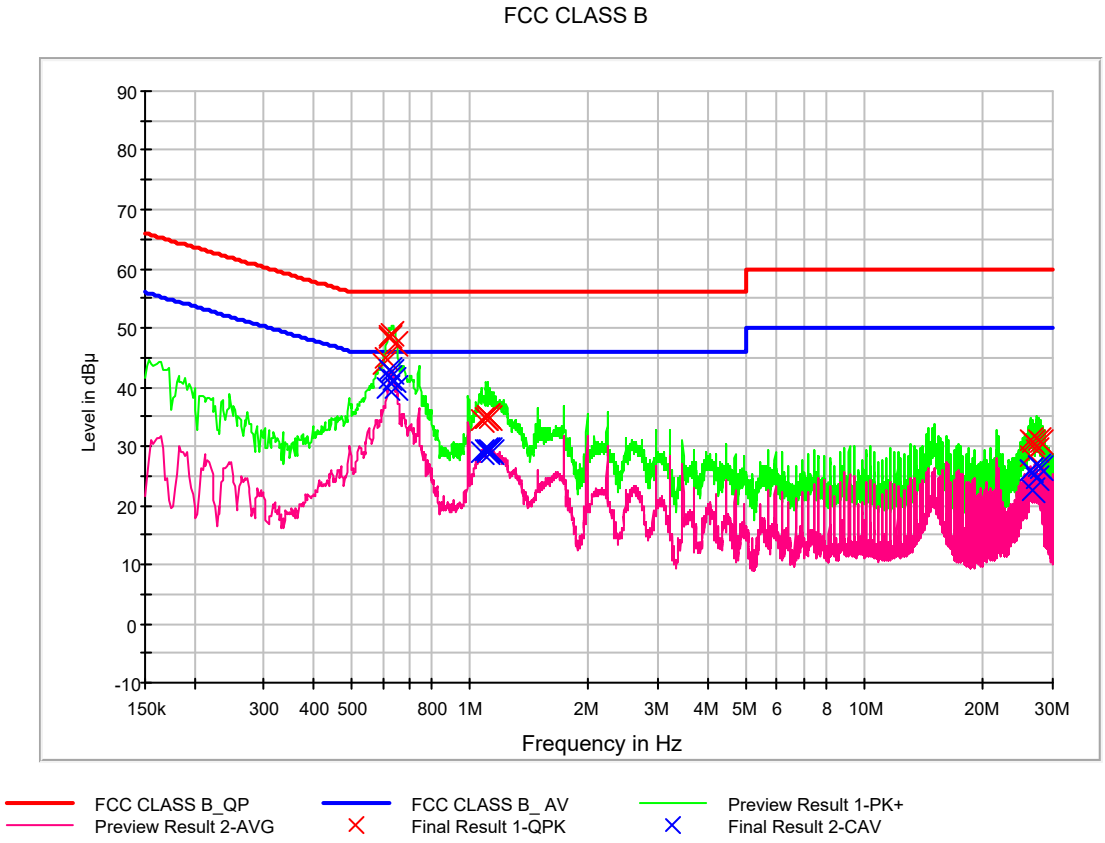
QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.612000	46.0	9.000	L1	9.7	10.0	56.0
0.620000	47.8	9.000	L1	9.7	8.2	56.0
0.624000	48.4	9.000	L1	9.7	7.6	56.0
0.632000	48.9	9.000	L1	9.7	7.1	56.0
0.636000	48.5	9.000	L1	9.7	7.5	56.0
0.642000	47.6	9.000	L1	9.7	8.4	56.0
1.074000	34.4	9.000	L1	9.7	21.6	56.0
1.088000	34.9	9.000	L1	9.7	21.1	56.0
1.092000	35.0	9.000	L1	9.7	21.0	56.0
1.100000	35.1	9.000	L1	9.7	20.9	56.0
1.112000	34.7	9.000	L1	9.7	21.3	56.0
1.162000	33.8	9.000	L1	9.7	22.2	56.0
26.470000	31.0	9.000	L1	10.1	29.0	60.0
26.550000	29.6	9.000	L1	10.1	30.4	60.0
26.606000	29.4	9.000	L1	10.1	30.6	60.0
26.718000	31.1	9.000	L1	10.1	28.9	60.0
26.958000	28.9	9.000	L1	10.1	31.1	60.0
27.460000	30.5	9.000	L1	10.1	29.5	60.0

CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.620000	41.2	9.000	L1	9.7	4.8	46.0
0.626000	42.7	9.000	L1	9.7	3.3	46.0
0.632000	42.8	9.000	L1	9.7	3.2	46.0
0.636000	42.4	9.000	L1	9.7	3.6	46.0
0.640000	41.4	9.000	L1	9.7	4.6	46.0
0.644000	40.2	9.000	L1	9.7	5.8	46.0
1.074000	28.9	9.000	L1	9.7	17.1	46.0
1.094000	29.3	9.000	L1	9.7	16.7	46.0
1.100000	29.5	9.000	L1	9.7	16.5	46.0
1.104000	29.5	9.000	L1	9.7	16.5	46.0
1.112000	29.4	9.000	L1	9.7	16.6	46.0
1.162000	28.6	9.000	L1	9.7	17.4	46.0
25.974000	25.5	9.000	L1	10.1	24.5	50.0
26.470000	26.1	9.000	L1	10.1	23.9	50.0
26.550000	24.8	9.000	L1	10.1	25.2	50.0
26.606000	24.3	9.000	L1	10.1	25.7	50.0
26.718000	25.8	9.000	L1	10.1	24.2	50.0
27.158000	25.5	9.000	L1	10.1	24.6	50.0

Figure 6: Conducted Emission, Idle Mode (WAN POE), Line (N)



QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.606000	44.0	9.000	N	9.7	12.0	56.0
0.610000	45.0	9.000	N	9.7	11.0	56.0
0.624000	48.2	9.000	N	9.7	7.8	56.0
0.628000	48.7	9.000	N	9.7	7.3	56.0
0.634000	48.9	9.000	N	9.7	7.1	56.0
0.644000	47.4	9.000	N	9.7	8.6	56.0
1.072000	34.3	9.000	N	9.7	21.7	56.0
1.096000	34.6	9.000	N	9.7	21.4	56.0
1.100000	34.9	9.000	N	9.7	21.1	56.0
1.104000	35.1	9.000	N	9.7	20.9	56.0
1.112000	34.9	9.000	N	9.7	21.1	56.0
1.124000	34.7	9.000	N	9.7	21.4	56.0
26.472000	31.1	9.000	N	10.3	28.9	60.0
26.476000	28.4	9.000	N	10.3	31.6	60.0
26.610000	30.6	9.000	N	10.3	29.4	60.0
27.464000	29.3	9.000	N	10.3	30.7	60.0
27.710000	31.2	9.000	N	10.3	28.8	60.0
27.952000	30.5	9.000	N	10.3	29.5	60.0

CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.618000	39.8	9.000	N	9.7	6.2	46.0
0.622000	41.5	9.000	N	9.7	4.5	46.0
0.626000	43.0	9.000	N	9.7	3.0	46.0
0.634000	42.7	9.000	N	9.7	3.3	46.0
0.640000	41.3	9.000	N	9.7	4.7	46.0
0.648000	39.9	9.000	N	9.7	6.1	46.0
1.072000	28.8	9.000	N	9.7	17.2	46.0
1.094000	29.2	9.000	N	9.7	16.8	46.0
1.102000	29.4	9.000	N	9.7	16.6	46.0
1.112000	29.1	9.000	N	9.7	16.9	46.0
1.122000	29.2	9.000	N	9.7	16.8	46.0
1.138000	29.1	9.000	N	9.7	16.9	46.0
26.226000	26.1	9.000	N	10.3	23.9	50.0
26.472000	25.9	9.000	N	10.3	24.1	50.0
26.670000	22.7	9.000	N	10.3	27.3	50.0
27.342000	24.6	9.000	N	10.3	25.4	50.0
27.710000	26.5	9.000	N	10.3	23.5	50.0
27.954000	26.4	9.000	N	10.3	23.6	50.0

5.2 Radiated Emission Test

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	20.4 °C
Relative Humidity	38.6 %
Test Date	January 02, 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

Radiated Emission, Idle Mode (DC IN)

Frequency (MHz)	Quasi Peak (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.792806	33.0	113.0	V	109.0	21.8	7.0	40.0
55.324000	37.2	100.0	V	342.0	23.1	2.8	40.0
62.236000	35.2	100.0	V	341.0	22.5	4.8	40.0
125.015200	37.5	100.0	V	300.0	21.5	6.0	43.5
500.006400	39.3	100.0	H	202.0	28.9	6.7	46.0
875.008800	42.7	100.0	H	179.0	34.9	3.3	46.0

Radiated Emission, Idle Mode (LAN POE)

Frequency (MHz)	Quasi Peak (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.782150	36.7	100.0	V	210.0	21.8	3.3	40.0
56.795200	35.1	114.0	V	12.0	23.0	4.9	40.0
63.997600	36.5	123.0	V	0.0	22.2	3.5	40.0
110.824800	34.5	100.0	V	321.0	19.9	9.0	43.5
500.001600	40.8	100.0	H	159.0	28.9	5.2	46.0
875.030400	40.7	100.0	H	159.0	34.9	5.3	46.0

Radiated Emission, Idle Mode (WAN POE)

Frequency (MHz)	Quasi Peak (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.689088	34.9	100.0	V	7.0	21.8	5.1	40.0
39.511200	37.5	100.0	V	250.0	22.6	2.5	40.0
51.180000	36.8	100.0	V	12.0	23.3	3.2	40.0
68.976800	36.6	150.0	V	154.0	21.3	3.4	40.0
125.008000	37.9	100.0	V	61.0	21.5	5.6	43.5
875.015200	39.9	100.0	H	1.0	34.9	6.1	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	2 690 MHz
Upper Frequency	1 GHz to 13.45 GHz
Kind of Test Site	3 m semi anechoic chamber
Temperature	20.2 / 19.8 °C
Relative Humidity	37.6 / 37.3 %
Test Date	January 04 / January 05, 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

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Radiated Emission, Idle Mode (DC IN)

Frequency (MHz)	Peak (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1000.097500	42.9	348.9	H	173.0	-14.0	31.1	74.0
1399.985000	50.6	345.5	V	217.0	-12.9	23.4	74.0
2020.990000	48.9	99.7	V	66.0	-11.7	25.1	74.0
2666.135000	43.0	361.6	V	0.0	-9.4	31.0	74.0
5998.295000	46.7	111.5	V	107.0	-2.2	27.3	74.0
10344.540000	49.6	249.7	V	275.0	9.2	24.4	74.0

Frequency (MHz)	CAverage (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1000.097500	34.7	348.9	H	173.0	-14.0	19.3	54.0
1399.985000	49.3	345.5	V	217.0	-12.9	4.7	54.0
2020.990000	25.8	99.7	V	66.0	-11.7	28.2	54.0
2666.135000	22.1	361.6	V	0.0	-9.4	31.9	54.0
5998.295000	30.1	111.5	V	107.0	-2.2	23.9	54.0
10344.540000	36.3	249.7	V	275.0	9.2	17.7	54.0

Radiated Emission, Idle Mode (LAN POE)

Frequency (MHz)	Peak (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1400.015000	50.9	337.3	V	215.0	-12.9	23.1	74.0
1996.925000	52.8	99.8	V	59.0	-11.8	21.2	74.0
2596.225000	47.8	299.2	V	64.0	-9.5	26.2	74.0
2995.475000	40.2	99.8	V	63.0	-8.7	33.8	74.0
5973.845000	46.7	99.8	V	109.0	-2.2	27.3	74.0
8098.800000	44.7	149.9	H	0.0	4.2	29.3	74.0

Frequency (MHz)	CAverage (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1400.015000	49.8	337.3	V	215.0	-12.9	4.2	54.0
1996.925000	26.9	99.8	V	59.0	-11.8	27.1	54.0
2596.225000	22.2	299.2	V	64.0	-9.5	31.8	54.0
2995.475000	25.0	99.8	V	63.0	-8.7	29.0	54.0
5973.845000	28.9	99.8	V	109.0	-2.2	25.1	54.0
8098.800000	32.2	149.9	H	0.0	4.2	21.8	54.0

Radiated Emission, Idle Mode (WAN POE)

Frequency (MHz)	Peak (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1000.077500	42.6	249.7	H	180.0	-14.0	31.4	74.0
1400.010000	50.8	319.3	V	222.0	-12.9	23.2	74.0
1499.990000	51.5	399.9	H	19.0	-12.6	22.5	74.0
1994.810000	52.4	99.8	V	56.0	-11.8	21.6	74.0
2664.215000	45.8	100.0	V	63.0	-9.4	28.2	74.0
5986.290000	46.5	111.5	V	109.0	-2.2	27.5	74.0

Frequency (MHz)	CAverage (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1000.077500	32.7	249.7	H	180.0	-14.0	21.3	54.0
1400.010000	49.6	319.3	V	222.0	-12.9	4.4	54.0
1499.990000	22.9	399.9	H	19.0	-12.6	31.1	54.0
1994.810000	27.8	99.8	V	56.0	-11.8	26.2	54.0
2664.215000	23.2	100.0	V	63.0	-9.4	30.8	54.0
5986.290000	29.7	111.5	V	109.0	-2.2	24.3	54.0

6. LIST OF TEST EQUIPMENT

	Type	Manufacturer	Model Name	Serial Number	Calibration Cycle	CAL Date
Conducted Emission						
☒	EMI Test Receiver	Rohde & Schwarz	ESCI	100584	1 year	06.20.2017
☐	EMI Test Receiver	Rohde & Schwarz	ESCI	100033	1 year	06.27.2017
☒	LISN	Rohde & Schwarz	ESH3-Z5	100282	1 year	05.22.2017
☒	LISN	Rohde & Schwarz	ENV216	102245	1 year	12.20.2017
☒	Software	Rohde & Schwarz	EMC32 VER8.54.0	-	-	-
Radiated Emission						
-For measurement below 1 GHz						
☒	EMI Test Receiver	Rohde & Schwarz	ESU40	100524	1 year	08.16.2017
☒	Trilog Antenna	Schwarzbeck	VULB 9168	760	2 year	04.06.2017
☒	Antenna master	HD GmbH	MA240	240/520	N/A	-
☒	Antenna master controller	HD GmbH	HD 100	100/637	N/A	-
☒	Turn Table	INNCO Systems	-	-	N/A	-
☒	Turn Table controller	INNCO Systems	CO2000	-	N/A	-
☐	EMI Test Receiver	Rohde & Schwarz	ESU26	100241	1 year	08.16.2017
☐	Antenna master	INNCO Systems	MA4000-EP	MA4000/283	N/A	-
☐	Turn Table	INNCO Systems	DT3000-3T	DT3000/69	N/A	-
☒	Software	Rohde & Schwarz	EMC32 VER8.40.0	-	-	-
-For measurement above 1 GHz						
☒	EMI Test Receiver	Rohde & Schwarz	ESU40	100524	1 year	08.16.2017
☒	Antenna master	INNCO Systems	MA4000-XP-ET	-	N/A	-
☒	Antenna master controller	INNCO Systems	CO 3000	CO 3000/870/ 35990515/L	N/A	-
☒	Turn Table	INNCO Systems	-	-	N/A	-
☒	Turn Table controller	INNCO Systems	CO2000	-	N/A	-
☒	Power Amplifier	CERNEX	CBLU5183530	24348	1 year	06.01.2017
☐	Power Amplifier	CERNEX	CBL18265035	21873	1 year	01.19.2017
☐	Power Amplifier	CERNEX	CBL26405040	19660	1 year	07.11.2017
☒	Horn Antenna	Schwarzbeck	BBHA 9120D	296	2 year	10.12.2016
☐	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170124	2 year	04.25.2017
☐	Antenna master controller	HD GmbH	HD 100	100/637	N/A	-
☐	Power Amplifier	CERNEX	CBLU1183540	21691	1 year	06.28.2017
☐	Antenna master	HD GmbH	MA240	240/520	N/A	-
☐	Horn Antenna	Schwarzbeck	BBHA 9120D	1300	2 year	06.30.2017
☐	EMI Test Receiver	Rohde & Schwarz	ESU26	100241	1 year	08.16.2017
☐	Turn Table	INNCO Systems	DT3000-3T	DT3000/69	N/A	-
☒	Software	Rohde & Schwarz	EMC32 VER8.40.0	-	-	-

7. CONCLUSION

The data collected shows that the **EUT Type: CPE, Model: C801,**

FCC ID: XHG-C801 complies with §15.107 and §15.109 of the FCC rules.

8. APPENDIX A. TEST SETUP PHOTOGRAPHS

Please refer to Appendix A