

FCC TEST REPORT

Product Name: Mobile Phone
Trade Mark: BLU
Model No.: C5
FCC ID: YHLBLUC518
Report Number: 180621011EMC-1
Test Standards: FCC 47 CFR Part 15 Subpart B
Test Result: PASS
Date of Issue: July 17, 2018

Prepared for:


BLU Products, Inc.
10814 NW 33rd St # 100 Doral, FL 33172

Prepared by:

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Date: July 17, 2018


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Version

Version No.	Date	Description
V1.0	July 17, 2018	Original

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1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	BLU Products, Inc.
Address of Applicant:	10814 NW 33rd St # 100 Doral, FL 33172
Manufacturer:	BLU Products, Inc.
Address of Manufacturer:	10814 NW 33rd St # 100 Doral, FL 33172

1.2 EUT INFORMATION

1.2.1 General Description of EUT

Product Name:	Mobile Phone
Model No.:	C5
Add. Model No.:	N/A
Trade Mark:	BLU
DUT Stage:	Identical Prototype
Power Supply:	100-240V~50/60 Hz or/and 3.8 V Battery
Classification of digital devices:	Class B
Highest Internal Frequency:	2.48 GHz
Software Version:	7731E_fs286_0021275_64x8_V01_64X8_GPS_PLS_2SIM_20180615_1124
Hardware Version:	FS286-MB-V6.0
Sample Received Date:	June 22, 2018
Sample Tested Date:	June 22, 2018 to June 28, 2018

1.2.2 Description of Accessories

Adapter	
Input:	100-240 V~50/60 Hz 0.2 A
Output:	5.0 V \equiv 1000 mA
AC Cable:	N/A
DC Cable:	N/A

Battery	
Battery Type:	Lithium-ion Rechargeable Battery
Rated Voltage:	3.8 Vdc
Rated Capacity:	2000 mAh

Cable	
Description:	USB Micro-B Plug Cable
Cable Type:	Unshielded without ferrite
Length:	1.1 Meter

1.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested with associated equipment below.

1) Support Equipment

Description	Manufacturer	Model No.	Serial Number	Supplied by
Notebook	Lenovo	E450	SL10G10780	UnionTrust
mouse	DELL	MS111	CN-011D3V-738	UnionTrust
USB Disk	Kingston	DTSE9	N/A	UnionTrust
Earphone	BLU	N/A	N/A	UnionTrust

2) Support Cable

Cable No.	Description	Connector	Length	Supplied by
--	--	--	--	--

1.4 TEST LOCATION

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: 16/F, Block A, Building 6, Baoneng Science and Technology Park, Qingxiang Road No.1, Longhua New District, Shenzhen, China 518109
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1.5 TEST FACILITY

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L9069

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC/EN 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

IC-Registration No.: 21600-1

The 3m Semi-anechoic chamber of Shenzhen UnionTrust Quality and Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 21600-1.

A2LA-Lab Certificate No.: 4312.01

Shenzhen UnionTrust Quality and Technology Co., Ltd. has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC Accredited Lab.

Designation Number: CN1194

Test Firm Registration Number: 259480

1.6 DEVIATION FROM STANDARDS

None.

1.7 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.8 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

1.9 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

No.	Item	Measurement Uncertainty
1	Conducted emission 9KHz-150KHz	± 3.8 dB
2	Conducted emission 150KHz-30MHz	± 3.4 dB
3	Radiated emission 9KHz-30MHz	± 4.9 dB
4	Radiated emission 30MHz-1GHz	± 4.7 dB
5	Radiated emission 1GHz-18GHz	± 5.1 dB
6	Radiated emission 18GHz-26GHz	± 5.2 dB
7	Radiated emission 26GHz-40GHz	± 5.2 dB

2. TEST SUMMARY

FCC 47 CFR Part 15 Subpart B Test Cases			
Test Item	Test Requirement	Test Method	Result
Conducted Emission	FCC 47 CFR Part 15.107	ANSI C63.4-2014	PASS
Radiated Emission	FCC 47 CFR Part 15.109	ANSI C63.4-2014	PASS



3. EQUIPMENT LIST

Radiated Emission Test Equipment List						
Used	Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm dd, yyyy)	Cal. Due date (mm dd, yyyy)
<input checked="" type="checkbox"/>	3M Chamber & Accessory Equipment	ETS-LINDGREN	3M	N/A	Dec. 20, 2015	Dec. 19, 2018
<input checked="" type="checkbox"/>	Receiver	R&S	ESIB26	100114	Dec. 10, 2017	Dec. 10, 2018
<input checked="" type="checkbox"/>	Broadband Antenna	ETS-LINDGREN	3142E	00201566	Dec. 17, 2017	Dec. 17, 2018
<input checked="" type="checkbox"/>	Preamplifier	HP	8447F	2805A02960	Dec. 10, 2017	Dec. 10, 2018
<input checked="" type="checkbox"/>	Horn Antenna (Pre-amplifier)	ETS-LINDGREN	3117-PA	00201874	May 22, 2018	May 22, 2019
<input checked="" type="checkbox"/>	Horn Antenna (Pre-amplifier)	ETS-LINDGREN	3116C-PA	00202652	Dec. 17, 2017	Dec. 17, 2018
<input checked="" type="checkbox"/>	Multi device Controller	ETS-LINDGREN	7006-001	00160105	N/A	N/A
<input checked="" type="checkbox"/>	Test Software	Audix	e3	Software Version: 9.160323		

Conducted Emission Test Equipment List						
Used	Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm dd, yyyy)	Cal. Due date (mm dd, yyyy)
<input checked="" type="checkbox"/>	Receiver	R&S	ESR7	1316.3003K07-101181-K3	Dec. 10, 2017	Dec. 10, 2018
<input checked="" type="checkbox"/>	Pulse Limiter	R&S	ESH3-Z2	0357.8810.54	Dec. 10, 2017	Dec. 10, 2018
<input checked="" type="checkbox"/>	LISN	R&S	ESH2-Z5	860014/024	Dec. 10, 2017	Dec. 10, 2018
<input checked="" type="checkbox"/>	Test Software	Audix	e3	Software Version: 9.160323		

Figure 2. Above 1GHz

The diagram illustrates the test setup for radiated emissions of tabletop equipment (Above 1 GHz) within a 3 m Chamber. The chamber dimensions are 9 m by 6 m. The setup includes a PC connected to a Receiver / Spectrum Analyzer and a Multi device Controller. The Receiver / Spectrum Analyzer is connected to the Multi device Controller. The Multi device Controller is connected to the test setup. The test setup includes an Antenna Tower (1 m to 4 m high), a Horn Antenna, a Pre-Amplifier, a Ground Reference Plane, and a Test table (0.8 m high). The measurement distance is 3 m. The test setup is for radiated emissions of tabletop equipment (Above 1 GHz).

Figure 3. Conducted Emissions setup

Figure 3. Conducted Emissions setup

The diagram illustrates a conducted emissions test setup for tabletop equipment. The entire setup is contained within a **Shielding Room**. On the left, a **PC** and a **Receiver** are connected to a **Pulse Limiter**. A **Ground Reference Plane** is indicated on the floor. The test equipment, consisting of two **EUT/AE** units and a **PSU**, is placed on a **Test table**. The distance between the EUT/AE units is **10 cm**, and the distance between the PSU and the nearest EUT/AE unit is also **10 cm**. The test table is elevated **40 cm** from the floor, which is covered with **Insulation ≤ 0.15 m**. Two **LISN** (Line Impedance Stabilization Network) units, **LISN 1** and **LISN 2**, are connected to the **AC Mains** and the test equipment. The distance from the AC Mains to LISN 1 is **80 cm**, and from LISN 1 to the test table is **80 cm**. Similarly, the distance from the AC Mains to LISN 2 is **80 cm**, and from LISN 2 to the test table is **80 cm**.

Test setup for conducted emissions of tabletop equipment (AC mains power ports)

Radiated emission measurement were performed from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic (according to KDB 896810 D02 SDoC FAQ v01r01) of the highest fundamental frequency or to 40 GHz, whichever is lower.

5. REFERENCE DOCUMENTS FOR TESTING

No.	Identity	Document Title
1	FCC 47 CFR Part15 Subpart B	Unintentional Radiators
2	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

6. EMC REQUIREMENTS SPECIFICATION

6.1 RADIATED EMISSION

Test Requirement: FCC 47 CFR Part 15.109

Test Method: ANSI C63.4-2014

Receiver Setup:

Frequency: (f) (MHz)	Detector type	Measurement receiver bandwidth	
		RBW	VBW
$30 \leq f \leq 1\,000$	Quasi Peak	120 kHz	300 kHz
$f \geq 1000$	Peak	1 MHz	3 MHz
	Average	1 MHz	3 MHz

Measured frequency range

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.
1.705-108	1000.
108-500	2000.
500-1000	5000.
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower.

Limits:

Limits for Class B devices

Frequency (MHz)	limits at 3m (dBμV/m)		
	QP Detector	PK Detector	AV Detector
30-88	40.0	--	--
88-216	43.5	--	--
216-960	46.0	--	--
960 to 1000	54.0	--	--
Above 1000	--	74.0	54.0

Remark:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBμV/m) = 20 log Emission level (μV/m).
- For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

Test Setup: Refer to section 4.3.1 for details.

Test Procedures:

- From 30 MHz to 1GHz test procedure as below:
 - The Product was placed on the non-conductive turntable 0.8 m above the ground at a chamber.
 - Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.

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- 3) For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

2. Above 1GHz test procedure as below:

- 1) The Product was placed on the non-conductive turntable 0.8 m above the ground at a chamber.
- 2) Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 1MHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- 3) For each frequency whose maximum record was higher or close to limit, measure its AV value: rotate the turntable from 0 to 360 degrees to find the degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to AV value and specified bandwidth with Maximum Hold Mode, and record the maximum value.

Equipment Used: Refer to section 3 for details.

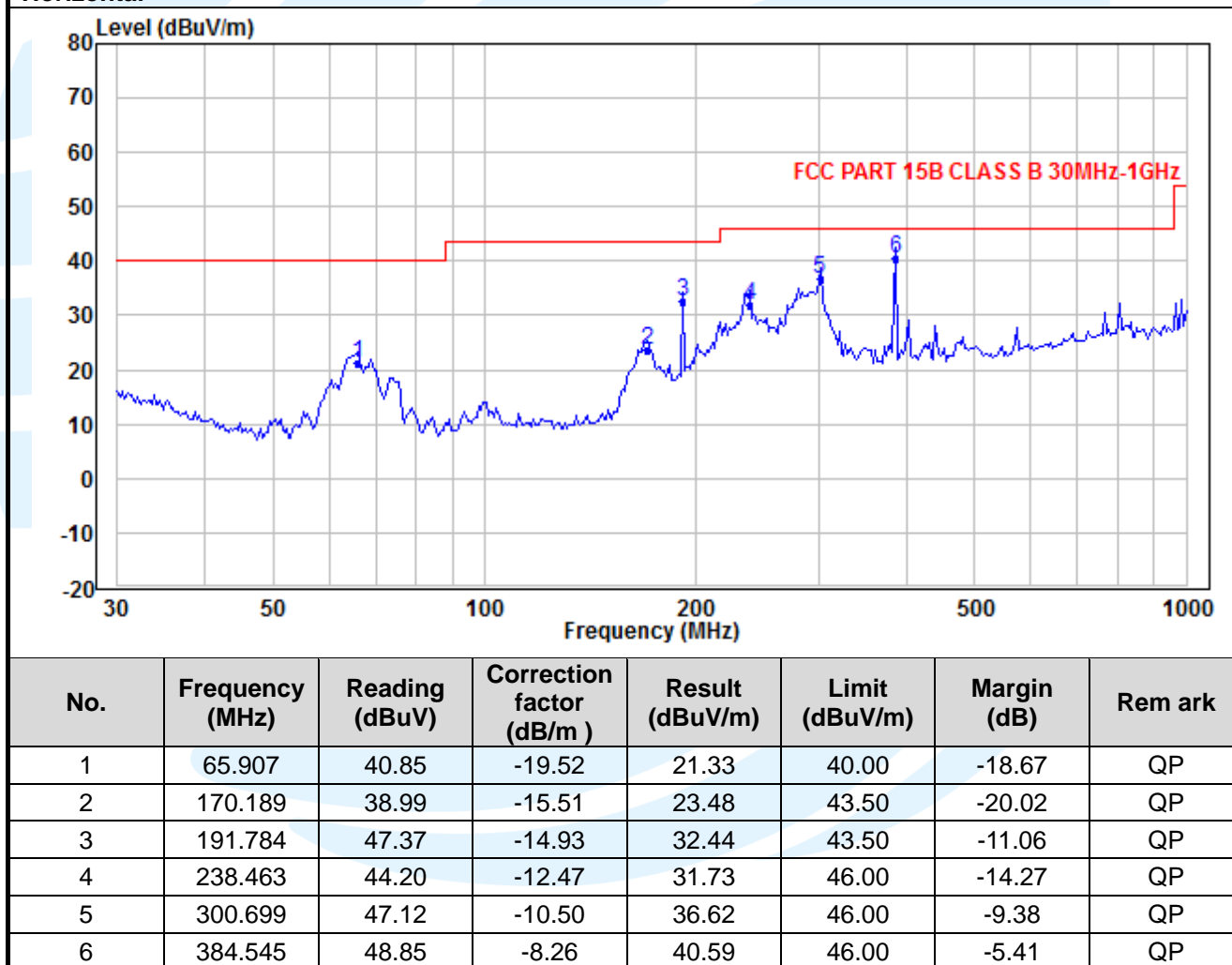
Test Result: Pass

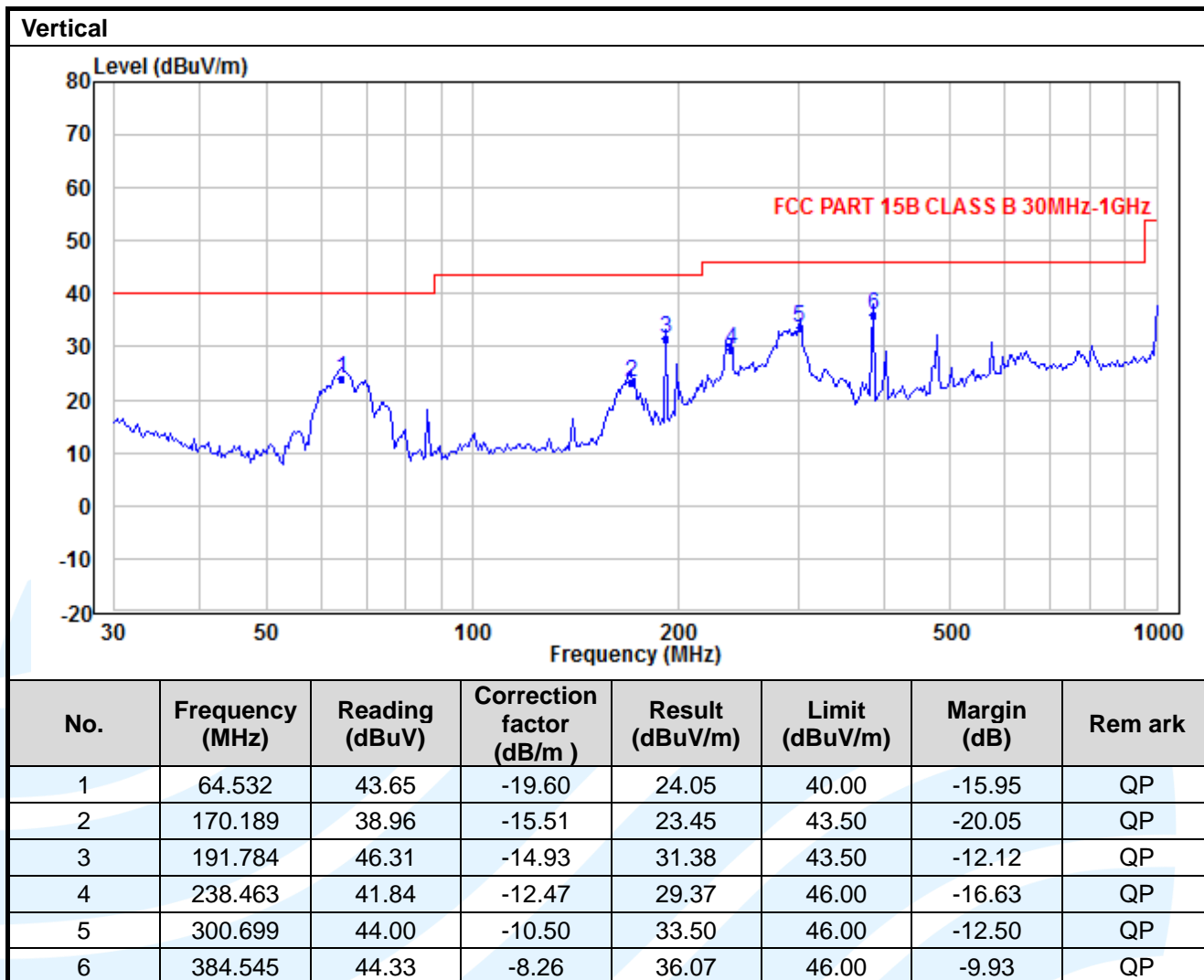
The measurement data as follows:

Below 1GHz(Quasi Peak):

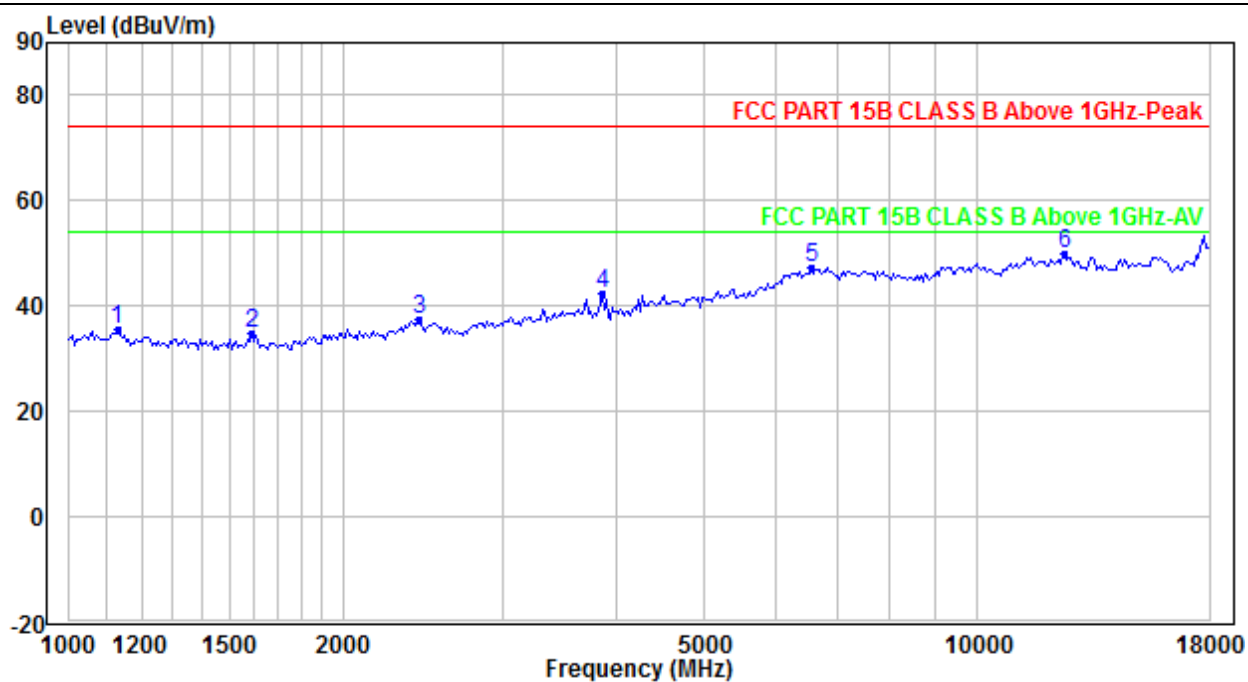
Mode 5

Horizontal

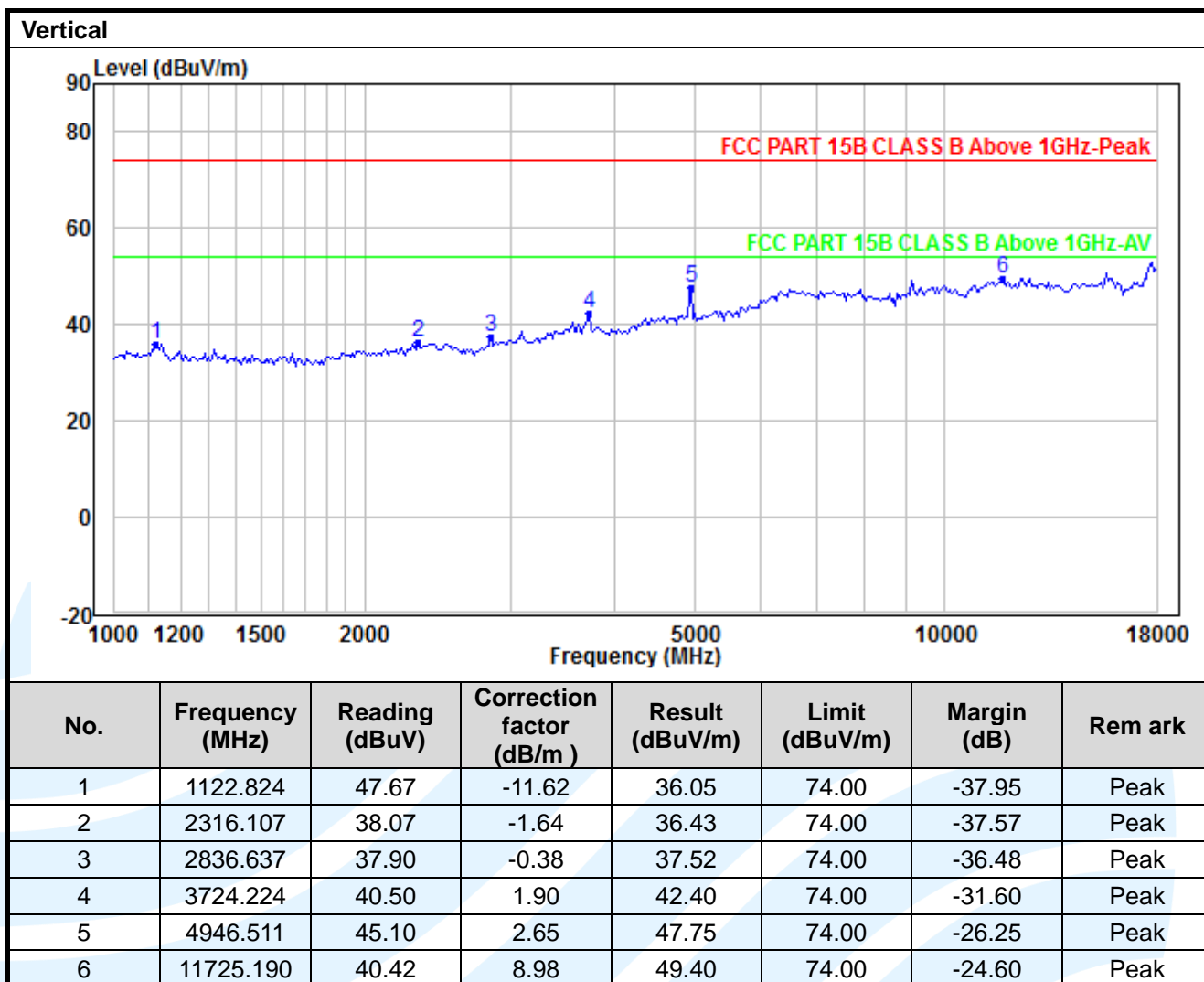




Above 1GHz(Peak & Average)
Mode 2
Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1129.346	47.20	-11.59	35.61	74.00	-38.39	Peak
2	1589.447	43.77	-8.88	34.89	74.00	-39.11	Peak
3	2425.957	38.18	-0.53	37.65	74.00	-36.35	Peak
4	3855.931	40.71	1.58	42.29	74.00	-31.71	Peak
5	6569.953	39.97	7.36	47.33	74.00	-26.67	Peak
6	12496.580	40.10	9.90	50.00	74.00	-24.00	Peak



Remark:

1. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.
2. All possible modes of operation were investigated. Only the worst case emissions reported.
3. Margin = Result – Limit

6.2 CONDUCTED EMISSION

Test Requirement: FCC 47 CFR Part 15.107

Test Method: ANSI C63.4-2014

Limits:

Limits for Class B devices

Frequency range (MHz)	Limits (dB(μV))	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50

Remark:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz.

Test Setup: Refer to section 4.3.2 for details.

Test Procedures:

- 1) The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
- 2) The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.
- 3) For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

Equipment Used: Refer to section 3 for details.

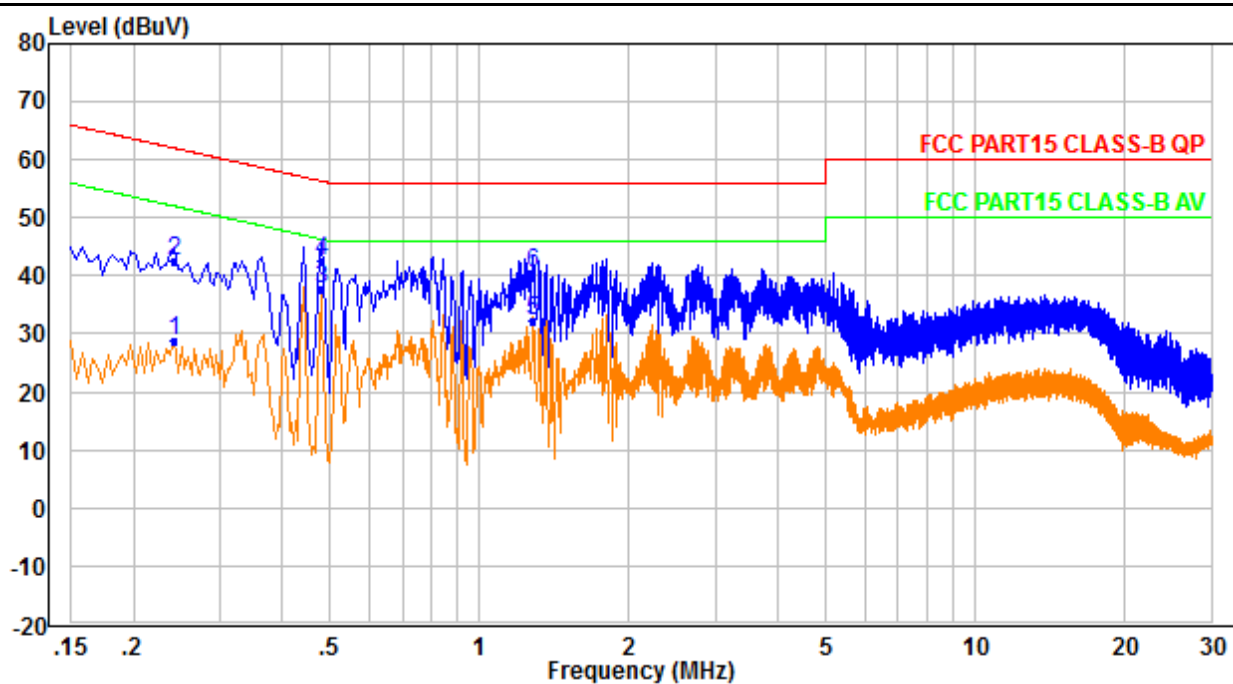
Test Result: Pass

The measurement data as follows:

Quasi Peak and Average:

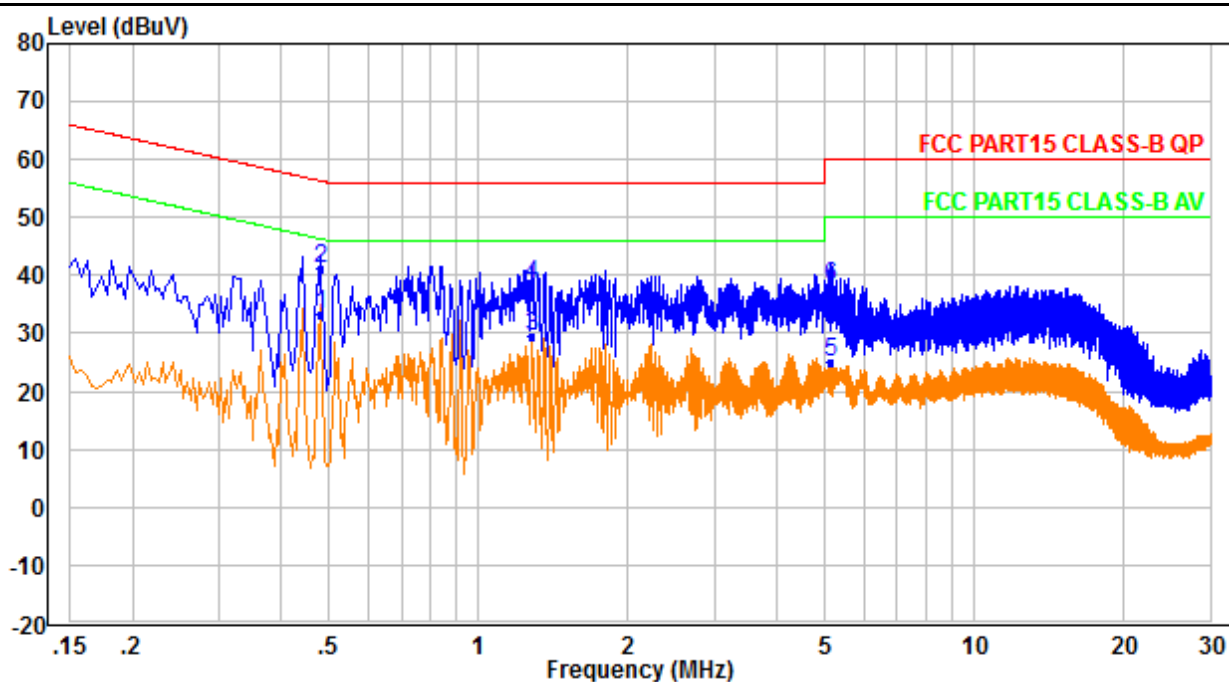
Mode 4

Live Line



No.	Frequency (MHz)	Reading (dBUV)	Correction factor (dB)	Result (dBUV)	Limit (dBUV)	Margin (dB)	Remark
1	0.242	18.50	10.20	28.70	52.00	-23.30	Average
2	0.242	32.50	10.20	42.70	62.00	-19.30	QP
3	0.482	27.30	10.30	37.60	46.30	-8.70	Average
4	0.482	32.30	10.30	42.60	56.30	-13.70	QP
5	1.282	22.00	10.30	32.30	46.00	-13.70	Average
6	1.282	30.00	10.30	40.30	56.00	-15.70	QP

Neutral Line



No.	Frequency (MHz)	Reading (dBuV)	Correction factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.478	22.80	10.40	33.20	46.40	-13.20	Average
2	0.478	30.80	10.40	41.20	56.40	-15.20	QP
3	1.282	19.00	10.40	29.40	46.00	-16.60	Average
4	1.282	28.00	10.40	38.40	56.00	-17.60	QP
5	5.130	14.40	10.60	25.00	50.00	-25.00	Average
6	5.130	27.40	10.60	38.00	60.00	-22.00	QP

Remark:

1. An initial pre-scan was performed on the Phase and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

APPENDIX 1 PHOTOS OF TEST SETUP

See test photos attached in Appendix 1 for the actual connections between Product and support equipment.

APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS

Refer to Appendix 2 for EUT external and internal photos.

***** End of Report *****

The test report is effective only with both signature and specialized stamp. The result(s) shown in this report refer only to the sample(s) tested. Without written approval of UnionTrust, this report can't be reproduced except in full.
