FCC TEST REPORT

Product Name:	Wireless Charger&UV Sanitizer
Trade Mark:	Ansbabe
Model No.:	ANS-ZY-C-001
Report Number:	190320022RFC-2
Test Standards:	FCC 47 CFR Part 15 Subpart C
FCC ID:	2ASXJANSZYC001
Test Result:	PASS
Date of Issue:	April 28, 2019

Prepared for:

Shenzhen Ansbabe Technology Co., Ltd.
7th Floor, Block B, Huai'de Business Building, Fu'yong, Bao'an, Shenzhen, Guangdong, China

Prepared by:

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Tested by: Henry Lu, Project Engineer

Reviewed by: Kevin Liang, Assistant Manager

Approved by: Billy Li, Technical Director

Date: April 28, 2019

Version

Version No.	Date	Description
V1.0	April 28, 2019	Original

CONTENTS

1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	Shenzhen Ansbabe Technology Co., Ltd.
Address of Applicant:	7th Floor, Block B, Huai'de Business Building, Fu'yong, Bao'an, Shenzhen, Guangdong, China
Manufacturer:	Shenzhen Ansbabe Technology Co., Ltd.
Address of Manufacturer:	7th Floor, Block B, Huai'de Business Building, Fu'yong, Bao'an, Shenzhen, Guangdong, China

1.2 EUT INFORMATION

1.2.1 General Description of EUT

Product Name:	Wireless Charger&UV Sanitizer	
Model No.:	ANS-ZY-C-001	
Add. Model No.:	N/A	
Trade Mark:	Ansbabe	
DUT Stage:	Identical Prototype	
EUT Supports Function:	2.4 GHz ISM Band:	IEEE 802.11b/g/n
	Wireless charge:	110 kHz to 205 kHz
Antenna Type:	Coil antenna	
Power Supply	Power the by USB port/AC adapter	
Sample Received Date:	March 20, 2019	
Sample Tested Date:	March 20, 2019 to April 23, 2019	

1.2.2 Description of Accessories

Cable	
Description:	USB Type-C Plug Cable
Cable Type:	Shielded without ferrite
Length:	1.00 Meter

1.2.3 Description of Support Equipment

Description	Manufacturer	Model No.	Serial Number	Supplied by
Adapter	Lenovo	C-P45	N/A	UnionTrust
AGING TEST	Ansbabe	Hello BEST	18830AP32-180623	UnionTrust

1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

Frequency Range:	110 kHz to 205 kHz
Work in Modes:	Mode 1: Wireless charging

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
Telephone: +86 (0) 755 2823 0888
Fax: +86 (0) 755 2823 0886

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.

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.

ISED Wireless Device Testing Laboratories
CAB identifier: CN0032

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 C Test Cases			
Test Item	**Test Requirement**	**Test Method**	**Result**
Antenna Requirement	FCC 47 CFR Part 15 Subpart C Section 15.203	ANSI C63.10-2013	PASS
Conducted Emission	FCC 47 CFR Part 15 Subpart C Section 15.207	ANSI C63.10-2013	PASS
Radiated Emission	FCC 47 CFR Part 15 Subpart C Section 15.209	ANSI C63.10-2013	PASS
Note: 1) N/A: In this whole report not application.			

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)**
☒	3M Chamber & Accessory Equipment	ETS-LINDGREN	3M	N/A	Dec. 03, 2018	Dec. 03, 2021
☒	Receiver	R&S	ESIB26	100114	Nov. 24, 2018	Nov. 24, 2019
☒	Loop Antenna	ETS-LINDGREN	6502	00202525	Dec. 03, 2018	Dec. 03, 2019
☒	Broadband Antenna	ETS-LINDGREN	3142E	00201566	Dec. 08, 2018	Dec. 08, 2019
☒	6dB Attenuator	Talent	RA6A5-N-18	18103001	Dec. 08, 2018	Dec. 08, 2019
☒	Preamplifier	HP	8447F	2805A02960	Nov. 24, 2018	Nov. 24, 2019
☒	Horn Antenna (Pre-amplifier)	ETS-LINDGREN	3117-PA	00201874	May 22, 2018	May 22, 2019
☐	Horn Antenna (Pre-amplifier)	ETS-LINDGREN	3116C-PA	00202652	Jan. 05, 2019	Jan. 05, 2020
☒	Multi device Controller	ETS-LINDGREN	7006-001	00160105	N/A	N/A
☒	Test Software	Audix	e3	Software Version: 9.160333		

Conducted Emission Test Equipment List						
Used	**Equipment**	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date (mm dd, yyyy)**	**Cal. Due date (mm dd, yyyy)**
☒	Receiver	R&S	ESR7	1316.3003K07 -101181-K3	Nov. 24, 2018	Nov. 24, 2019
☒	Pulse Limiter	R&S	ESH3-Z2	0357.8810.54	Nov. 24, 2018	Nov. 24, 2019
☒	LISN	R&S	ESH2-Z5	860014/024	Nov. 24, 2018	Nov. 24, 2019

4. TEST CONFIGURATION

4.1 ENVIRONMENTAL CONDITIONS FOR TESTING

4.1.1 Normal or Extreme Test Conditions

Environment Parameter	Selected Values During Tests		
Test Condition	Ambient		
	Temperature (°C)	Voltage	Relative Humidity (%)
NT/NV	+15 to +35	120V~60Hz	20 to 75
Remark: 1) NV: Normal Voltage; NT: Normal Temperature			

4.1.2 Record of Normal Environment

Test Item	Temperature (°C)	Relative Humidity (%)	Pressure (Kpa)	Tested by
Conducted Emission	22.1	44	99.98	Robing Luo
Radiated Emission	22.1	44	99.98	Fire Huo

4.2 TEST MODE

Test Item	EMI Test Modes
Radiated Emission	Mode 1: Wireless charging
Conducted Emission	Mode 1: Wireless charging

4.3 TEST SETUP

4.1.3 For Radiated Emissions test setup

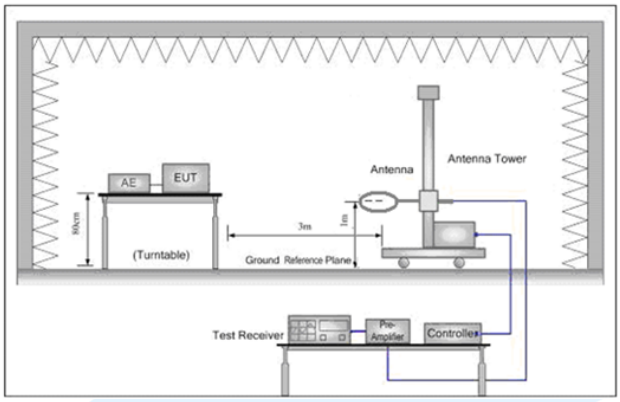


Figure 1. Below 30MHz

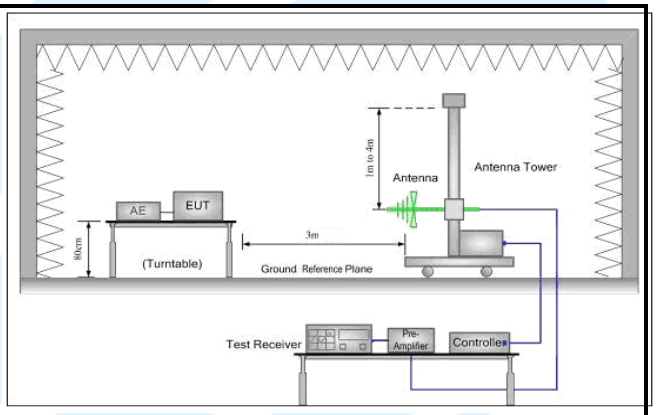
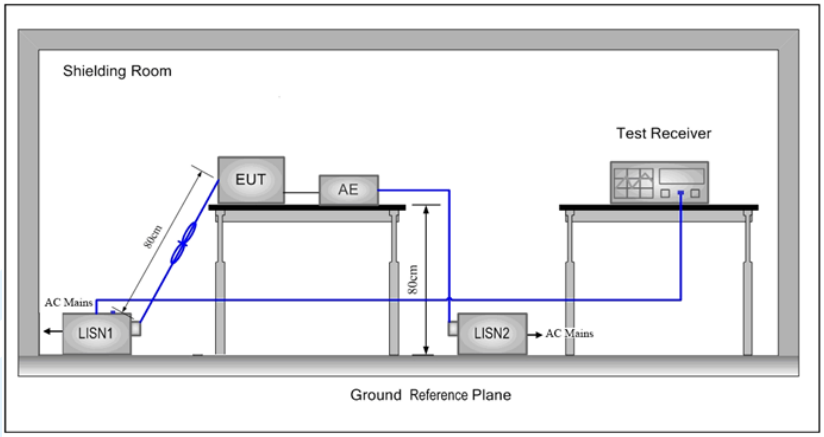


Figure 2. 30MHz to 1GHz

4.3.2For Conducted Emissions test setup

Figure 3. Conducted Emissions setup



4.4 SYSTEM TEST CONFIGURATION

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, radiated emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario. It was powered by 120V~60Hz. Only the worst case data were recorded in this test report.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

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 of the highest fundamental frequency or to 40 GHz, whichever is lower.

5. RADIO TECHNICAL REQUIREMENTS SPECIFICATION

5.1 REFERENCE DOCUMENTS FOR TESTING

No.	Identity	Document Title
1	FCC 47 CFR Part 15	Radio Frequency Devices
2	ANSI C63.10-2013	American National Standard for Testing Unlicesed Wireless Devices

5.2 ANTENNA REQUIREMENT

Standard Requirement
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.
EUT Antenna:
This product has a permanent antenna, fulfill the requirement of this section.

5.3 RADIATED EMISSIONS

Test Requirement: FCC 47 CFR Part 15 Subpart C Section 15.209

Test Method: ANSI C63.10-2013 Section 6.6.4.3

Receiver Setup:

Frequency	RBW
0.009 MHz-0.150 MHz	200/300 kHz
0.150 MHz -30 MHz	9/10 kHz
30 MHz-1 GHz	100/120 kHz
Above 1 GHz	1 MHz

Limits:

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.

Spurious Emissions

Frequency	Field strength (microvolt/meter)	Limit (dBμV/m)	Remark	Measurement distance (m)
0.009 MHz-0.490 MHz	2400/F(kHz)	--	--	300
0.490 MHz-1.705 MHz	24000/F(kHz)	--	--	30
1.705 MHz-30 MHz	30	--	--	30
30 MHz-88 MHz	100	40.0	Quasi-peak	3
88 MHz-216 MHz	150	43.5	Quasi-peak	3
216 MHz-960 MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1 GHz	500	54.0	Average	3

Remark:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBμV/m) = 20 log Emission level (μV/m).
3. 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.
4. For Below 30MHz, the measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

Example:

Field strength limit for 13.56MHz	=	15848 µV/m	at 30m
	=	84 dBµV/m	at 30m
	=	84 dBµV/m + 40log(30/3) dB	at 3m
	=	124 dBµV/m	at 3m

Test Setup: Refer to section 4.5.1 for details.

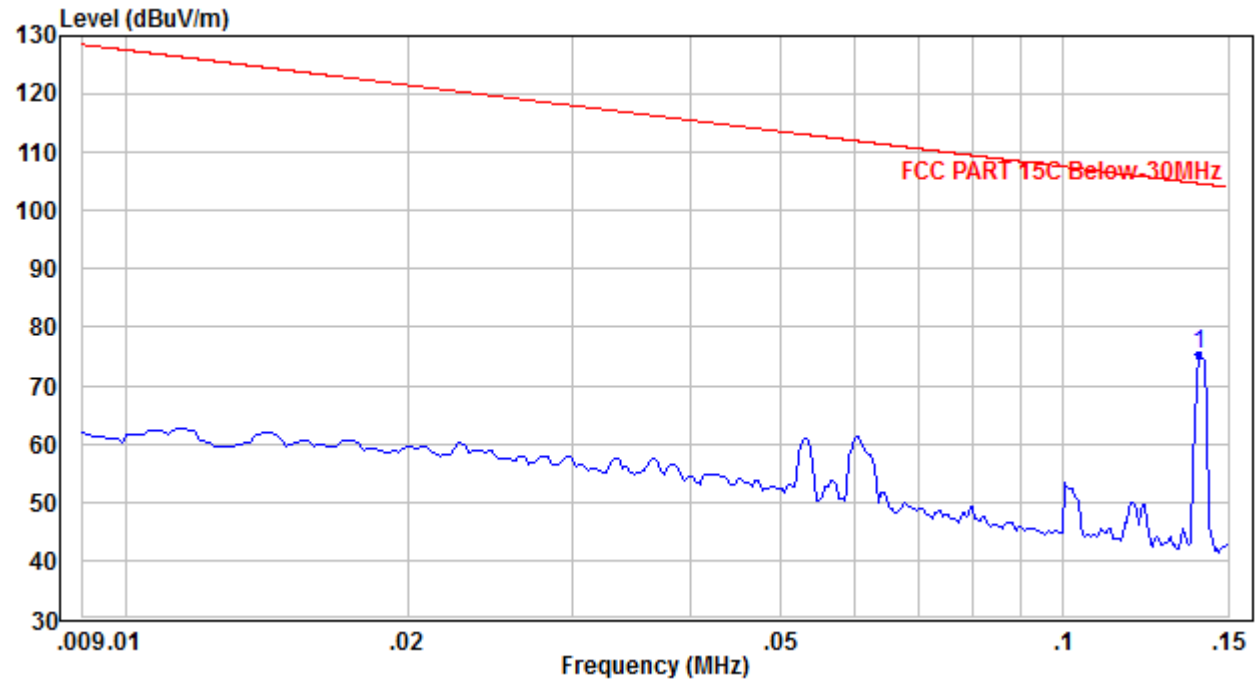
Test Procedures:

1) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3) The antenna height is varied from one meter to four meters 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.
4) For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rota table table was turned from 0 degrees to 360 degrees to find the maximum reading.
5) The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6) If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Equipment Used: Refer to section 3 for details.

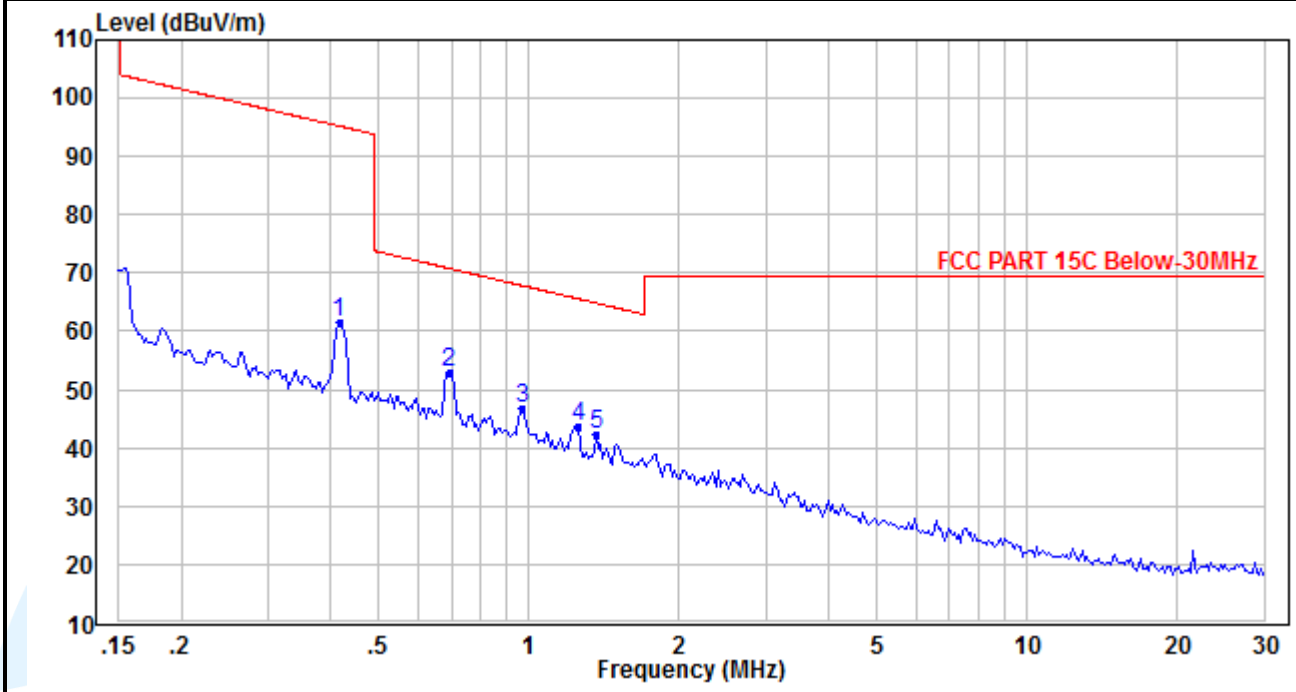
Test Result: Pass

Radiated Emission Test Data (150 kHz ~ 30 MHz):



No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	0.139	92.35	-17.00	75.35	104.71	-29.36	Peak

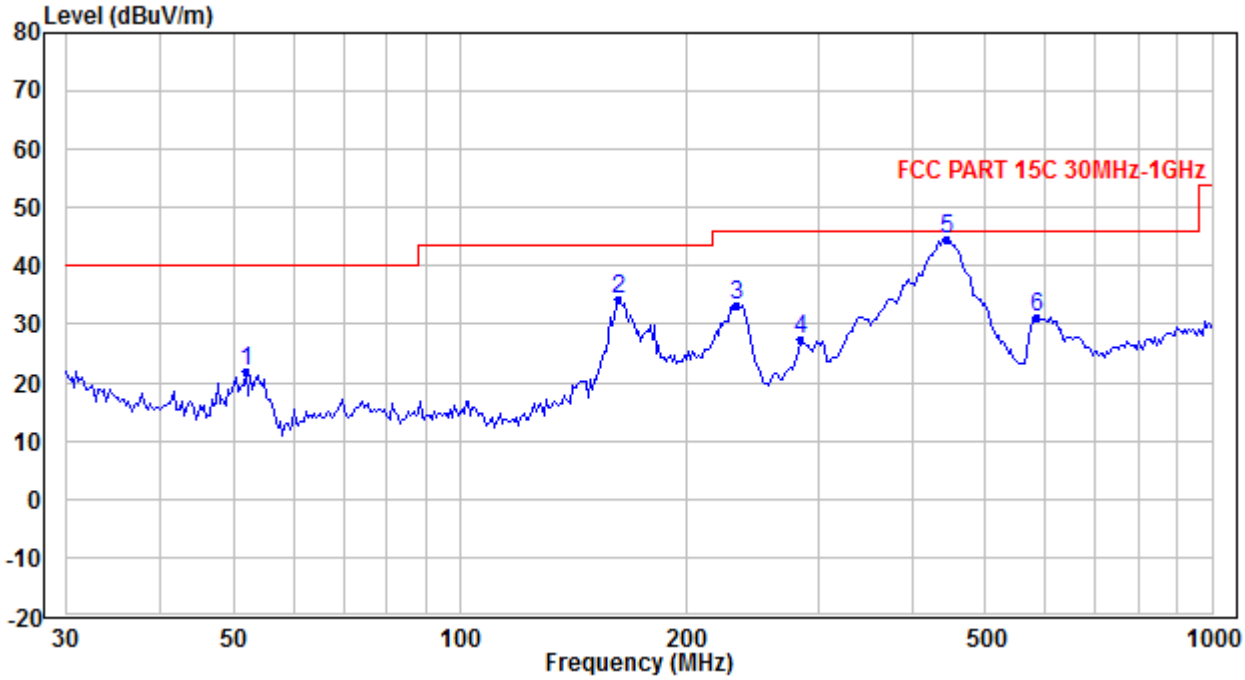
Radiated Emission Test Data (150 kHz ~ 30 MHz):



No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
1	0.416	78.35	-16.92	61.43	95.23	-33.80	Peak
2	0.692	69.59	-16.79	52.80	70.78	-17.98	Peak
3	0.972	63.47	-16.87	46.60	67.81	-21.21	Peak
4	1.254	60.59	-16.82	43.77	65.58	-21.81	Peak
5	1.365	58.95	-16.80	42.15	64.84	-22.69	Peak

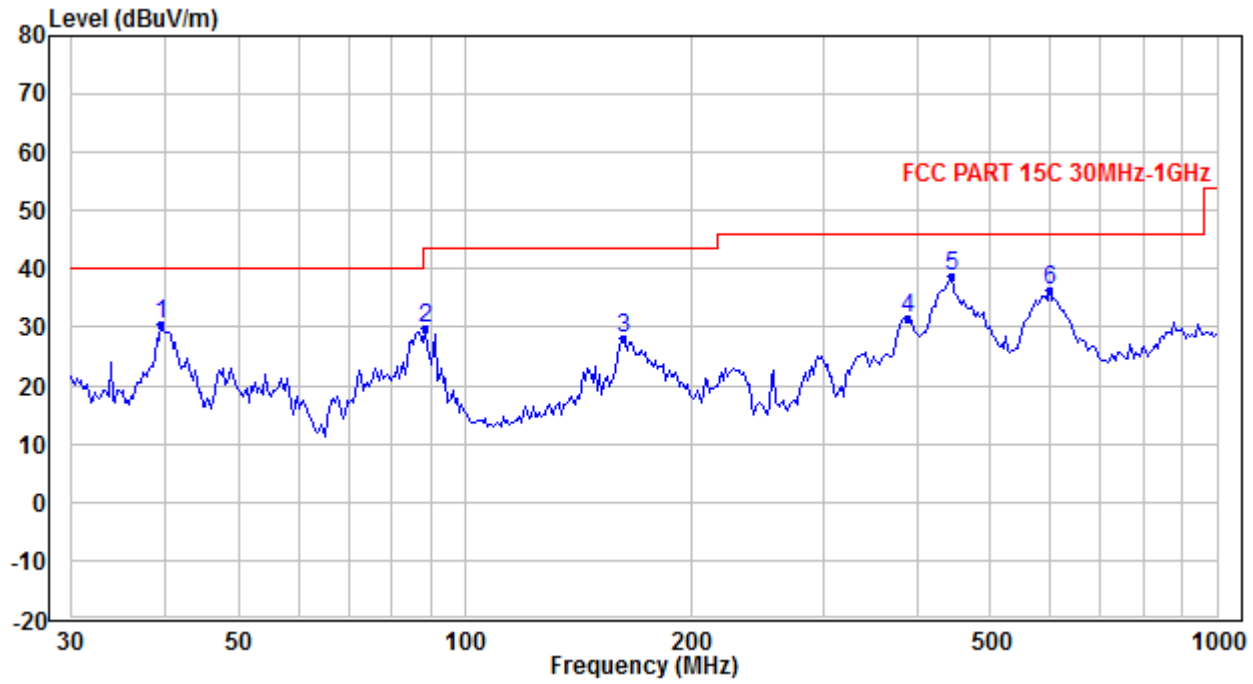
Radiated Emission Test Data (30 MHz ~ 1 GHz):

Horizontal



No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Remark
1	51.900	35.40	-13.33	22.07	40.00	-17.93	QP
2	162.020	44.84	-10.47	34.37	43.50	-9.13	QP
3	233.488	42.40	-9.13	33.27	46.00	-12.73	QP
4	284.261	34.65	-7.31	27.34	46.00	-18.66	QP
5	442.572	48.88	-4.42	44.46	46.00	-1.54	QP
6	586.217	33.13	-1.92	31.21	46.00	-14.79	QP

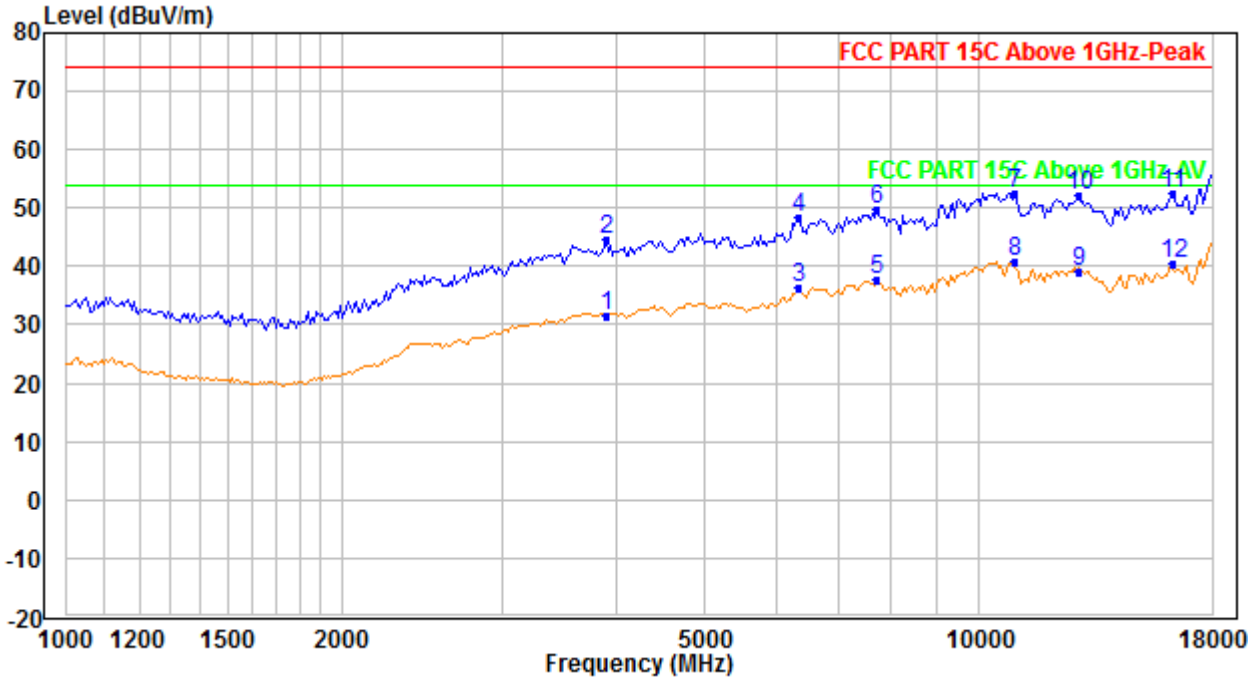
Vertical



No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
1	39.459	40.50	-10.09	30.41	40.00	-9.59	QP
2	88.534	42.71	-12.79	29.92	43.50	-13.58	QP
3	162.020	38.43	-10.47	27.96	43.50	-15.54	QP
4	387.257	37.09	-5.47	31.62	46.00	-14.38	QP
5	442.572	43.04	-4.42	38.62	46.00	-7.38	QP
6	598.707	37.72	-1.34	36.38	46.00	-9.62	QP

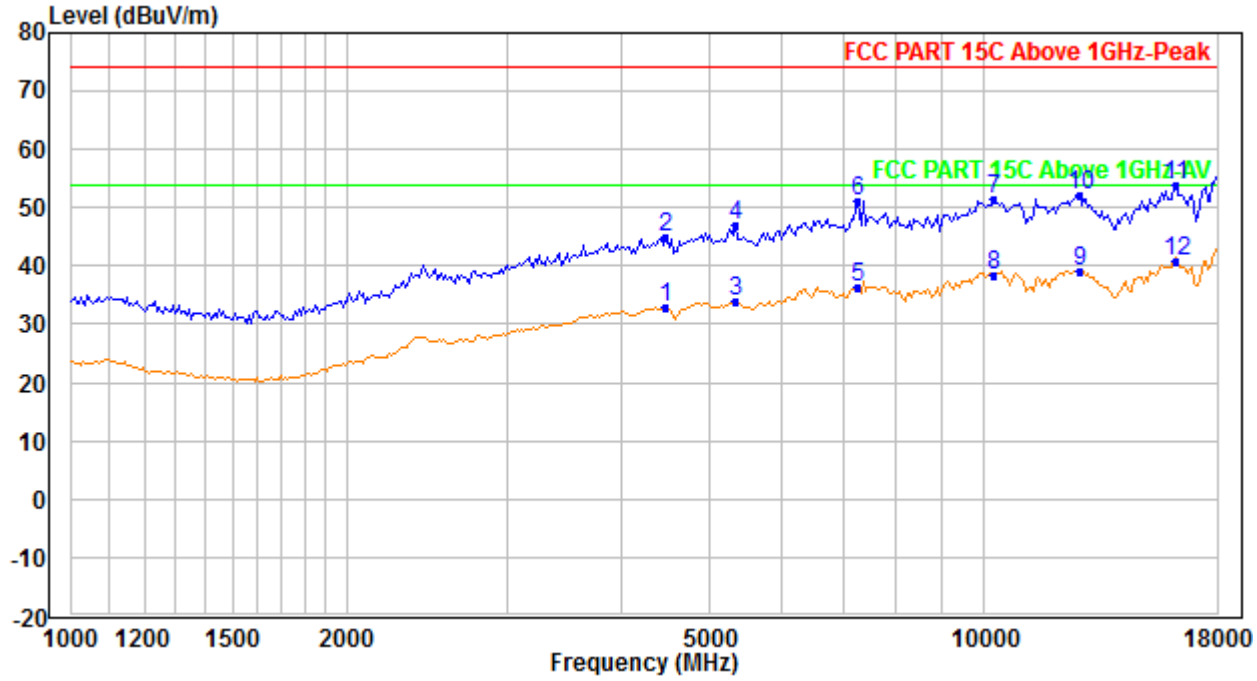
Radiated Emission Test Data (1 GHz ~ 18 GHz):

Horizontal



No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
1	3900.860	29.20	2.34	31.54	54.00	-22.46	Average
2	3900.860	42.20	2.34	44.54	74.00	-29.46	Peak
3	6345.543	29.29	7.07	36.36	54.00	-17.64	Average
4	6345.543	41.29	7.07	48.36	74.00	-25.64	Peak
5	7726.777	30.27	7.33	37.60	54.00	-16.40	Average
6	7726.777	42.27	7.33	49.60	74.00	-24.40	Peak
1	10937.880	42.14	10.54	52.68	74.00	-21.32	Peak
2	10937.880	30.14	10.54	40.68	54.00	-13.32	Average
3	12863.790	27.01	12.23	39.24	54.00	-14.76	Average
4	12863.790	40.01	12.23	52.24	74.00	-21.76	Peak
5	16312.020	39.65	12.85	52.50	74.00	-21.50	Peak
6	16312.020	27.65	12.85	40.50	54.00	-13.50	Average

Vertical



No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
1	4482.644	28.70	4.09	32.79	54.00	-21.21	Average
2	4482.644	40.70	4.09	44.79	74.00	-29.21	Peak
3	5333.368	28.53	5.35	33.88	54.00	-20.12	Average
4	5333.368	41.53	5.35	46.88	74.00	-27.12	Peak
5	7249.817	29.85	6.40	36.25	54.00	-17.75	Average
6	7249.817	44.85	6.40	51.25	74.00	-22.75	Peak
1	10262.700	42.10	9.35	51.45	74.00	-22.55	Peak
2	10262.700	29.10	9.35	38.45	54.00	-15.55	Average
3	12715.630	27.84	11.32	39.16	54.00	-14.84	Average
4	12715.630	40.84	11.32	52.16	74.00	-21.84	Peak
5	16217.810	40.44	13.34	53.78	74.00	-20.22	Peak
6	16217.810	27.44	13.34	40.78	54.00	-13.22	Average

Remark:

1. For Radiated Emission above 18GHz, there was not any unwanted emission detected.

5.4 CONDUCTED EMISSION

Test Requirement: FCC 47 CFR Part 15 Subpart C Section 15.207

Test Method: ANSI C63.10-2013 Section 6.2

Limits:

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 4.5.2 for details.

Test Procedures:

Test frequency range :150KHz-30MHz

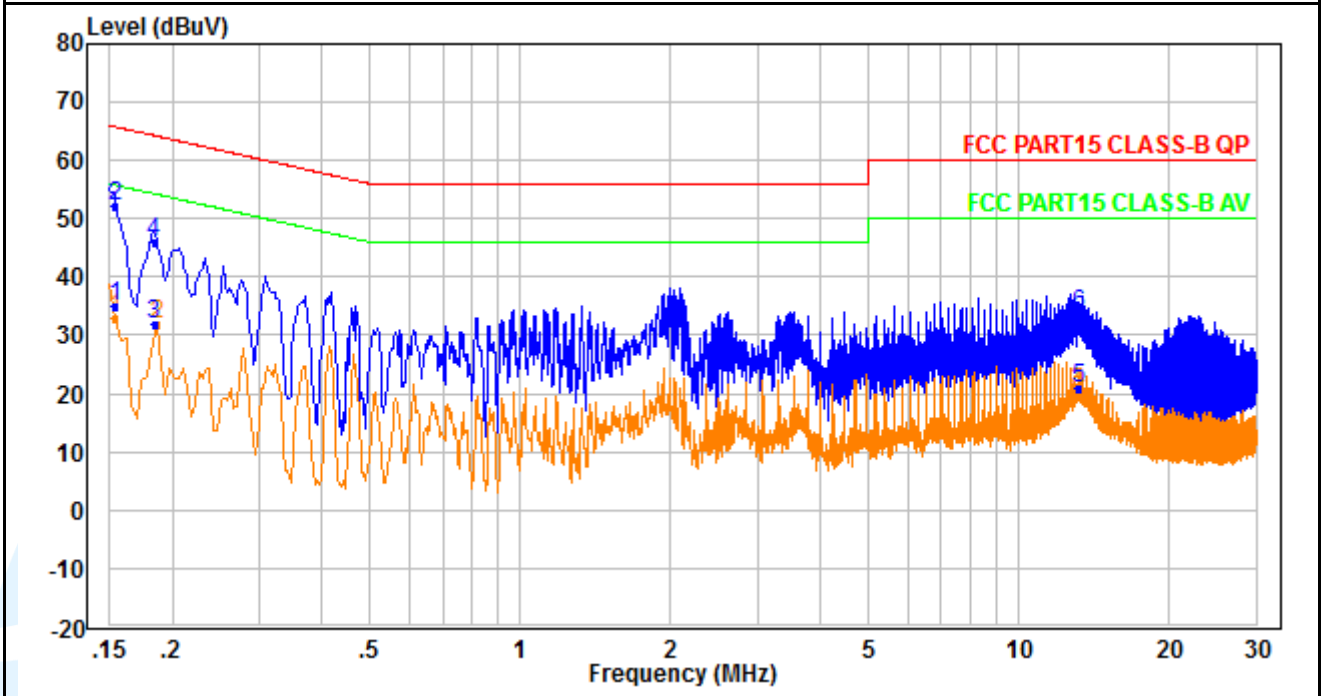
1) The mains terminal disturbance voltage test was conducted in a shielded room.
2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Equipment Used: Refer to section 3 for details.

Test Result: Pass

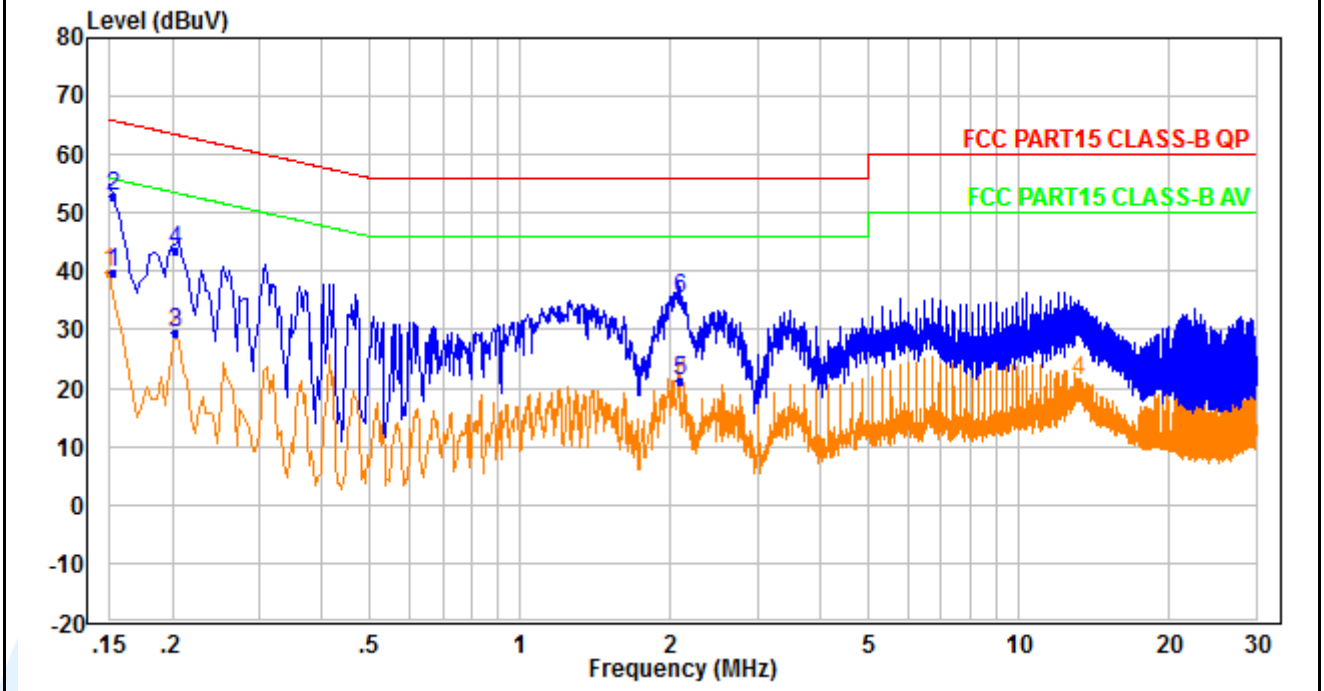
The measurement data as follows:
Quasi Peak and Average:
Mode 1

Live Line



No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
1	0.154	25.04	10.03	35.07	55.78	-20.71	Average
2	0.154	42.12	10.03	52.15	65.78	-13.63	QP
3	0.184	21.92	10.01	31.93	54.30	-22.37	Average
4	0.184	35.99	10.01	46.00	64.30	-18.30	QP
5*	13.217	8.53	12.52	21.05	50.00	-28.95	Average
6*	13.217	21.14	12.52	33.66	60.00	-26.34	QP

Neutral Line



No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
1*	0.152	29.66	10.00	39.66	55.89	-16.23	Average
2	0.152	42.81	10.00	52.81	65.89	-13.08	QP
3	0.202	19.62	9.99	29.61	53.53	-23.92	Average
4	0.202	33.46	9.99	43.45	63.53	-20.08	QP
5	2.086	10.85	10.23	21.08	46.00	-24.92	Average
6	2.086	25.04	10.23	35.27	56.00	-20.73	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 ***