

TEST REPORT

According to : FCC 47CFR part 15 subpart C

Test Report No. : CTK-2012-01367-4
Date of Issue : March 25, 2013
FCC ID : TN8-OWC-300T
Equipment Under Test : OWC-300T
Kind of Product : Wireless Charging Pad
Applicant : OPENTECH Inc.
Applicant Address : 13F, SJ-Technoville 60-19, Gasan-Dong, Geumcheon-Gu, Seoul, Korea, 153-801
Manufacturer : OPENTECH Inc.
Manufacturer Address : 13F, SJ-Technoville 60-19, Gasan-Dong, Geumcheon-Gu, Seoul, Korea, 153-801
Contact Person : Jae Sung, Kim / Project Manager
Telephone : +82-2-3397-0184
Received Date : December 6, 2012
Test period : Start : December 6, 2012 End : March 19, 2013
Test Results : ☒ In Compliance ☐ Not in Compliance

The test results presented in this report relate only to the object tested.

Tested by

Y. T. Lee

Young-taek Lee
Test Engineer
Date: March 25, 2013

Reviewed by

Y. J. Park

Young-Joon, Park
Technical Manager
Date: March 25, 2013



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REPORT REVISION HISTORY

Date	Revision	Page No
February 7, 2013	Issued (CTK-2012-01367)	All
March 12, 2013	Issued (CTK-2012-01367-1) Update EUT Operating Modes and Test Modes	All
March 19, 2013	Issued (CTK-2012-01367-2) Update EUT Operating Modes, Test Modes and Test Results	All
March 21, 2013	Issued (CTK-2012-01367-3) Update Test Modes	All
March 25, 2013	Issued (CTK-2012-01367-4) Update Test Modes	All

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1.0 General Product Description

Type of equipment	Wireless Charging Pad
Equipment model name	OWC-300T
Frequency Range	110 kHz – 205 kHz
Antenna type	Coil antenna
Power Source	AC ADAPTER Input : AC 100-240 V, 50/60 Hz Output : DC 19 V, 0.5 A Test Voltage and Frequency : AC 120 V, 60 Hz

1.1 Model Differences

Not applicable

1.2 Device Modifications

The following modifications were necessary for compliance:

Not applicable

1.3 Peripheral Devices

Device	Manufacturer	Model No.	Serial No.	FCC ID or DoC
AC ADAPTER	Shenzhen Huoniu Technology Co., Ltd.	HNC190050U	-	Verification
Wireless Charging Cover	OPENTECH Inc.	OWC-300R	-	-
Mobile Phone	Samsung Electronics Co., Ltd.	GT-I9300	-	A3LGTI9300A

1.4 EUT Operating Modes

Equipment under test was operated during the measurement under the following conditions:

☒ Charging and communication mode

Modulation Type : CW (Continuous Wave)

Output Power : Max. -3.92 dBuV/m (Frequency 119.14 kHz, Test Distance 3 m)

TX Duty Cycle : 100 % by measurement

1.5 Test Modes

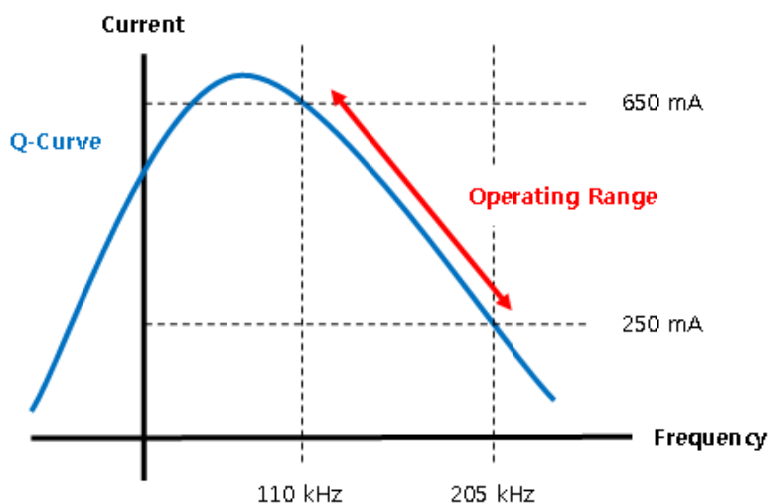
This device has been tested below conditions:

[Test Mode #1]

Frequency	Charging current	Note
110 kHz	650 mA	Low Frequency, Max. Load
157.5 kHz	425 mA	Middle Frequency, Medium Load
205 kHz	250 mA	High Frequency, Min. Load

This device has been tested with the various resistors to simulate the various load conditions of the client device. The charging current was controlled from 250 mA (Min.) to 650 mA (Max.) using the resistors and three types of Jig board with circular coil.

- 1) EUT has a range of the operating frequency from 110 kHz to 205 kHz and It has a range of the output current from 250 mA to 650 mA when output voltage is DC 5 V.
- 2) If the operating frequency is 110 kHz, the maximum output current is 650 mA and If the operating frequency is 205 kHz, the minimum output current is 250 mA.



- 3) To the simulation of the power transmission in from 110 kHz to 205 kHz. In the full range of the operating frequency, Normal operating condition, the test frequency is three which are the High, Middle and Low frequency of 110 kHz, 157.5 kHz and 205 kHz.
- 4) In order to operate EUT in three operating frequencies, three types of Test Jig were used.
- 5) The Wireless Charging Cover was used as Test Jig is actually used with the EUT.
- 6) The EUT to operate at a steady-state output current, the Wireless Charging Cover was not to combined with a smart phone. The DC output of the Wireless Charging Cover was connected to the resistor. As follows, the three types of Test Jig was prepared and tested.
- 7) Test Jig #1
Operating Frequency : 110 kHz, Output Voltage : DC 5 V, Output Current : 0.65 A
Calculation of resistor value : $I = \frac{V}{R}$, $0.65 \text{ A} = \frac{5 \text{ V}}{R}$, $R = \frac{5 \text{ V}}{0.65 \text{ A}}$, $R \approx 7.69 \Omega$
- 8) Test Jig #2
Operating Frequency : 157.5 kHz, Output Voltage : DC 5 V, Output Current : 0.425 A
Calculation of resistor value : $I = \frac{V}{R}$, $0.425 \text{ A} = \frac{5 \text{ V}}{R}$, $R = \frac{5 \text{ V}}{0.425 \text{ A}}$, $R \approx 11.76 \Omega$
- 9) Test Jig #3
Operating Frequency : 205 kHz, Output Voltage : DC 5 V, Output Current : 0.25 A
Calculation of resistor value : $I = \frac{V}{R}$, $0.25 \text{ A} = \frac{5 \text{ V}}{R}$, $R = \frac{5 \text{ V}}{0.25 \text{ A}}$, $R = 20 \Omega$

[Test Mode #2]

Support Equipment	Battery status	Note
Mobile Phone	< 1%	Max. Load
Mobile Phone	50 %	Medium Load

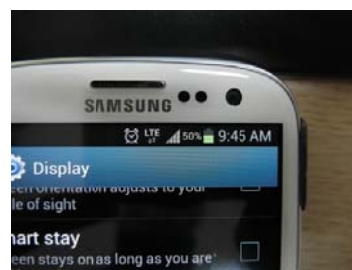
Note : The Charging is not operation when 100% fully charged status.

This device has been tested with the Mobile phone.

Mobile phone is on WWAN communicating. (Worst Case)

WWAN communication was implemented using CMU200(Radio Communication Tester).

Mobile phone's battery status was checked by display battery percentage function.



1.6 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

1.7 Test Facility

The measurement facility is located at 386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea.

1.8 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3 m & 10 m OATS, 3 m & 10 m SAC and Conducted Test Site to perform FCC Part 15/18 measurements	 805871
JAPAN	VCCI	10 m OATS, 3 m & 10 m SAC and Conducted Test Site	 R-948, C-986 T-1843
KOREA	KCC	EMI (10 m OATS, 10 m SAC and Conducted Test Site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and Interruptions)	 No. 51, KR0025
International	KOLAS	EMC	



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2.0 Summary of tests

FCC Part Section(s)	Parameter	Status (note 1)
15.203	Antenna requirement	N/A
15.204	External radio frequency power amplifier and antenna modifications	N/A
15.207	Conducted emissions	Complies
15.209	Radiated emissions	Complies

Footnotes for N/A's:

§ 15.203 is not applicable because the transmitter is provided with an integral antenna.

§ 15.204 is not applicable because the transmitter is provided with an integral antenna.



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2.1 Power line conducted emissions (Section 15.207)

Test Location

Shielded Room

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Procedures

The EUT was placed on a non-metallic table 0.8m above the metallic, grounded floor and 0.4m from the reference ground plane wall. The distance to other metallic surfaces was at least 0.8m.

Amplitude measurements were performed with a quasi-peak detector and an average detector.

* Measurement procedures was In accordance with ANSI C63.4-2009 7.3.3, 7.3.4

Limit

-15.207(a)

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56*	56 to 46*
0.5 ~ 5	56	46
5 ~ 30	60	50

* Decreases with the logarithm of the frequency.



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EUT Operating Modes

The EUT is an intentional radiator is operated at 110 kHz to 205 kHz.

We have tested three frequencies, Low (110 kHz), Middle (157.5 kHz), High (205 kHz), for power line conducted emissions test.

* Middle (157.5 kHz) : Exactly half way between 110 kHz and 205 kHz.

Test Results

The requirements are:

☒ Complies

[Test Mode #1]

[Operating Frequency : 110 kHz]

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
0.5325	40.3	5.7	Average

[Operating Frequency : 157.5 kHz]

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
0.5595	37.3	8.7	Average

[Operating Frequency : 205 kHz]

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
2.2515	37.1	8.9	Average

[Test Mode #2]

[< 1 % Battery Status]

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
2.4630	36.5	9.5	Average

[50 % Battery Status]

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
1.5900	36.3	9.7	Average

Test Data

[Operating Frequency : 110 kHz]

[HOT : AC 120 V]

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	47.6	1000.0	9.000	On	L1	9.8	18.4	66.0
0.190500	48.5	1000.0	9.000	On	L1	10.0	15.5	64.0
0.240000	44.1	1000.0	9.000	On	L1	10.0	18.0	62.1
0.330000	30.7	1000.0	9.000	On	L1	10.0	28.7	59.5
0.528000	39.3	1000.0	9.000	On	L1	10.1	16.7	56.0
1.432500	31.4	1000.0	9.000	On	L1	9.8	24.6	56.0
2.553000	31.8	1000.0	9.000	On	L1	9.8	24.2	56.0
3.637500	32.0	1000.0	9.000	On	L1	9.7	24.0	56.0
4.740000	32.0	1000.0	9.000	On	L1	9.7	24.0	56.0
8.047500	39.6	1000.0	9.000	On	L1	9.8	20.4	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.528000	39.0	1000.0	9.000	On	L1	10.1	7.0	46.0
0.627000	33.5	1000.0	9.000	On	L1	10.1	12.5	46.0
1.212000	30.9	1000.0	9.000	On	L1	9.9	15.1	46.0
1.432500	31.0	1000.0	9.000	On	L1	9.8	15.0	46.0
1.590000	31.9	1000.0	9.000	On	L1	9.8	14.1	46.0
1.927500	32.2	1000.0	9.000	On	L1	9.8	13.8	46.0
2.535000	30.9	1000.0	9.000	On	L1	9.8	15.1	46.0
3.417000	31.4	1000.0	9.000	On	L1	9.7	14.6	46.0
3.637500	30.9	1000.0	9.000	On	L1	9.7	15.2	46.0
4.740000	31.3	1000.0	9.000	On	L1	9.7	14.7	46.0

[NEUTRAL : AC 0 V]

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	48.4	1000.0	9.000	On	N	9.8	17.6	66.0
0.190500	48.2	1000.0	9.000	On	N	10.0	15.8	64.0
0.240000	46.0	1000.0	9.000	On	N	10.0	16.1	62.1
0.289500	38.4	1000.0	9.000	On	N	10.0	22.2	60.5
0.532500	40.3	1000.0	9.000	On	N	10.1	15.7	56.0
0.577500	36.5	1000.0	9.000	On	N	10.1	19.5	56.0
0.771000	36.2	1000.0	9.000	On	N	10.0	19.8	56.0
1.207500	34.5	1000.0	9.000	On	N	9.9	21.5	56.0
4.294500	31.3	1000.0	9.000	On	N	9.7	24.7	56.0
7.395000	33.4	1000.0	9.000	On	N	9.8	26.6	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.195000	42.1	1000.0	9.000	On	N	10.0	11.7	53.8
0.240000	40.6	1000.0	9.000	On	N	10.0	11.5	52.1
0.532500	40.3	1000.0	9.000	On	N	10.1	5.7	46.0
0.577500	36.6	1000.0	9.000	On	N	10.1	9.4	46.0
0.771000	32.5	1000.0	9.000	On	N	10.0	13.5	46.0
1.212000	31.6	1000.0	9.000	On	N	9.9	14.4	46.0
1.432500	31.1	1000.0	9.000	On	N	9.8	14.9	46.0
1.873500	30.3	1000.0	9.000	On	N	9.8	15.7	46.0
2.310000	31.3	1000.0	9.000	On	N	9.8	14.7	46.0
2.530500	31.6	1000.0	9.000	On	N	9.8	14.4	46.0



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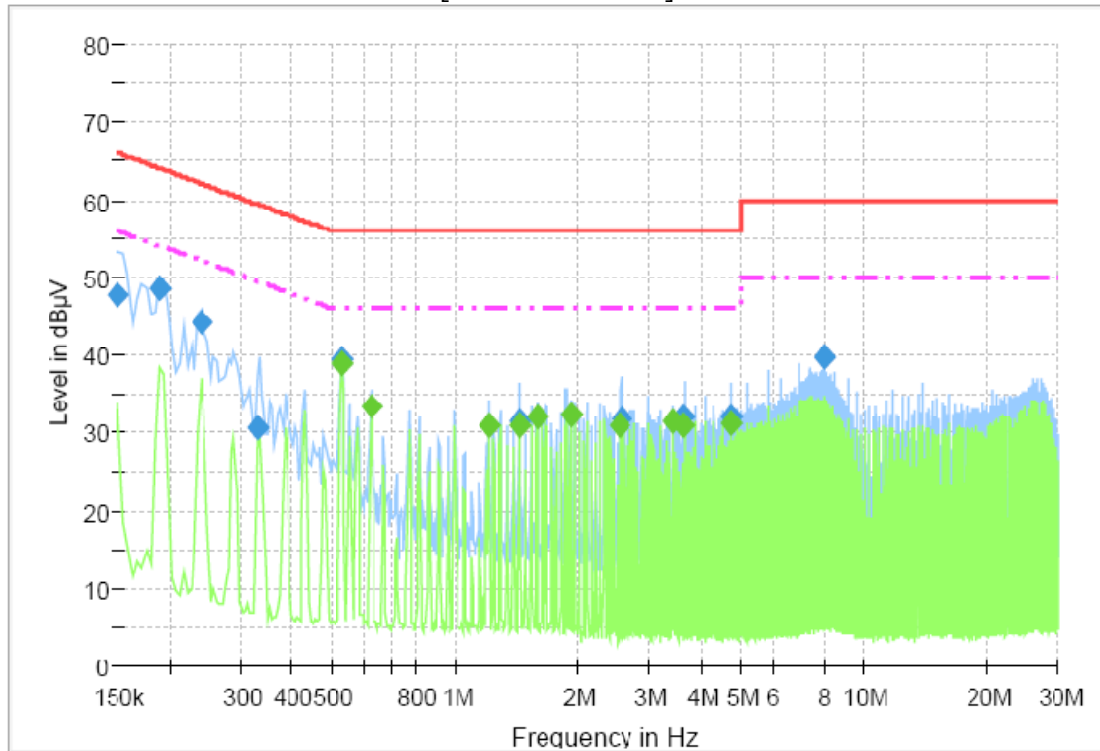
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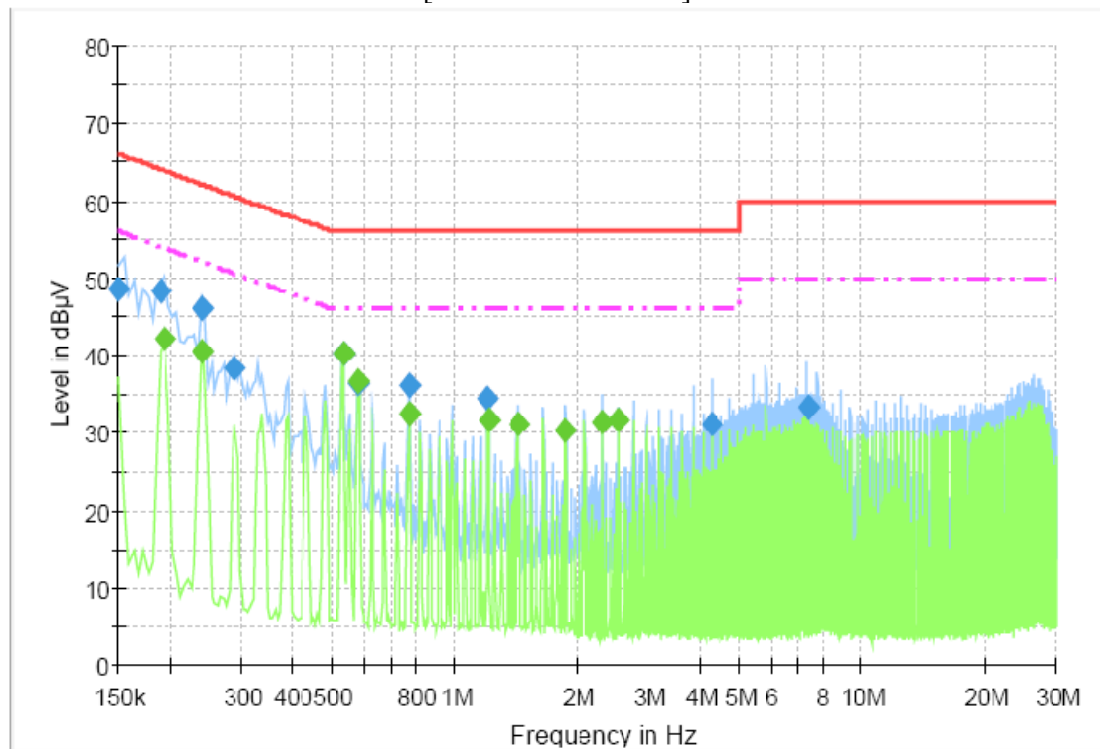
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[HOT : AC 120 V]



[NEUTRAL : AC 0 V]





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[Operating Frequency : 157.5 kHz]

[HOT : AC 120 V]

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	43.2	1000.0	9.000	On	L1	9.8	22.8	66.0
0.177000	40.0	1000.0	9.000	On	L1	10.1	24.6	64.6
0.231000	41.6	1000.0	9.000	On	L1	9.9	20.8	62.4
0.573000	35.9	1000.0	9.000	On	L1	10.1	20.1	56.0
1.410000	35.4	1000.0	9.000	On	L1	9.8	20.6	56.0
1.720500	36.1	1000.0	9.000	On	L1	9.8	19.9	56.0
2.035500	36.6	1000.0	9.000	On	L1	9.8	19.4	56.0
2.661000	36.9	1000.0	9.000	On	L1	9.8	19.1	56.0
3.286500	36.1	1000.0	9.000	On	L1	9.7	19.9	56.0
4.227000	34.8	1000.0	9.000	On	L1	9.7	21.2	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.555000	32.9	1000.0	9.000	On	L1	10.1	13.1	46.0
0.784500	34.3	1000.0	9.000	On	L1	10.0	11.7	46.0
1.095000	33.5	1000.0	9.000	On	L1	9.9	12.5	46.0
1.410000	34.3	1000.0	9.000	On	L1	9.8	11.7	46.0
1.720500	34.7	1000.0	9.000	On	L1	9.8	11.3	46.0
2.346000	34.5	1000.0	9.000	On	L1	9.8	11.5	46.0
2.661000	35.0	1000.0	9.000	On	L1	9.8	11.0	46.0
3.286500	34.6	1000.0	9.000	On	L1	9.7	11.4	46.0
4.227000	33.6	1000.0	9.000	On	L1	9.7	12.4	46.0
4.852500	33.9	1000.0	9.000	On	L1	9.7	12.1	46.0

[NEUTRAL : AC 0 V]

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	43.4	1000.0	9.000	On	N	9.8	22.6	66.0
0.186000	48.1	1000.0	9.000	On	N	10.0	16.1	64.2
0.231000	44.7	1000.0	9.000	On	N	9.9	17.7	62.4
0.276000	42.1	1000.0	9.000	On	N	10.0	18.9	60.9
0.469500	39.3	1000.0	9.000	On	N	10.1	17.2	56.5
0.573000	37.2	1000.0	9.000	On	N	10.1	18.8	56.0
1.725000	35.5	1000.0	9.000	On	N	9.8	20.5	56.0
3.295500	35.6	1000.0	9.000	On	N	9.7	20.4	56.0
3.610500	35.1	1000.0	9.000	On	N	9.7	20.9	56.0
4.861500	36.5	1000.0	9.000	On	N	9.7	19.5	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.280500	37.3	1000.0	9.000	On	N	10.0	13.5	50.8
0.469500	33.7	1000.0	9.000	On	N	10.1	12.9	46.5
0.559500	37.3	1000.0	9.000	On	N	10.1	8.7	46.0
1.099500	34.1	1000.0	9.000	On	N	9.9	11.9	46.0
1.410000	33.9	1000.0	9.000	On	N	9.8	12.1	46.0
1.725000	34.9	1000.0	9.000	On	N	9.8	11.1	46.0
2.040000	34.8	1000.0	9.000	On	N	9.8	11.2	46.0
3.295500	34.2	1000.0	9.000	On	N	9.7	11.8	46.0
3.606000	33.2	1000.0	9.000	On	N	9.7	12.8	46.0
4.861500	29.0	1000.0	9.000	On	N	9.7	17.0	46.0



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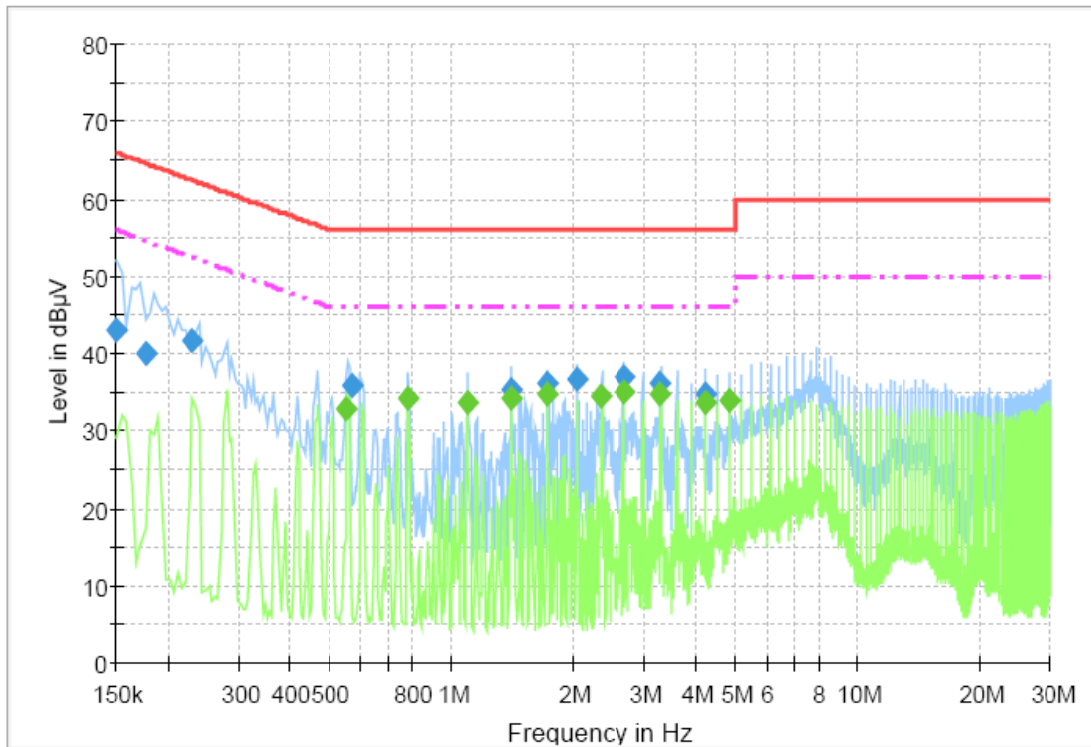
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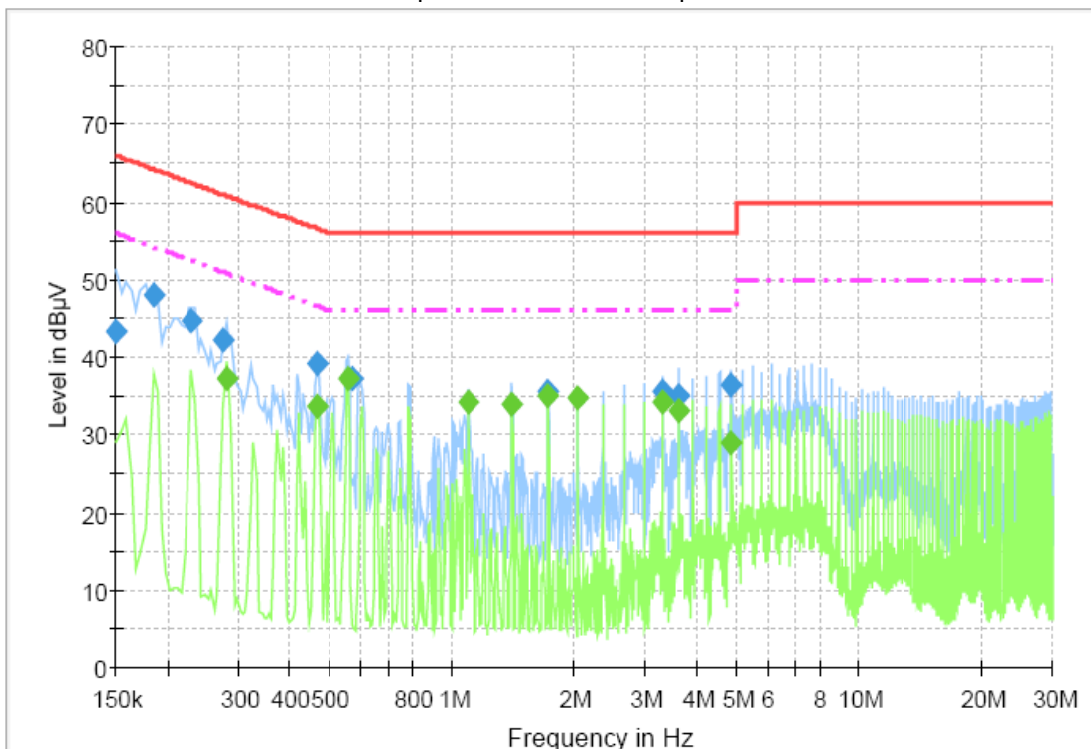
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[HOT : AC 120 V]



[NEUTRAL : AC 0 V]



[Operating Frequency : 205 kHz]

[HOT : AC 120 V]

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.154500	49.5	1000.0	9.000	On	L1	9.9	16.2	65.8
0.168000	40.4	1000.0	9.000	On	L1	10.1	24.6	65.1
0.613500	38.9	1000.0	9.000	On	L1	10.1	17.1	56.0
1.432500	37.1	1000.0	9.000	On	L1	9.8	18.9	56.0
1.828500	21.9	1000.0	9.000	On	L1	9.8	34.1	56.0
2.260500	36.6	1000.0	9.000	On	L1	9.8	19.4	56.0
2.670000	38.0	1000.0	9.000	On	L1	9.8	18.0	56.0
3.079500	38.3	1000.0	9.000	On	L1	9.7	17.7	56.0
4.312500	36.7	1000.0	9.000	On	L1	9.7	19.3	56.0
4.722000	37.2	1000.0	9.000	On	L1	9.7	18.8	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.613500	36.1	1000.0	9.000	On	L1	10.1	9.9	46.0
1.023000	36.3	1000.0	9.000	On	L1	9.9	9.7	46.0
1.432500	36.4	1000.0	9.000	On	L1	9.8	9.6	46.0
1.846500	36.6	1000.0	9.000	On	L1	9.8	9.4	46.0
2.260500	35.8	1000.0	9.000	On	L1	9.8	10.2	46.0
2.670000	36.9	1000.0	9.000	On	L1	9.8	9.1	46.0
3.079500	37.0	1000.0	9.000	On	L1	9.7	9.0	46.0
4.312500	35.6	1000.0	9.000	On	L1	9.7	10.4	46.0
4.722000	36.2	1000.0	9.000	On	L1	9.7	9.8	46.0
5.541000	35.9	1000.0	9.000	On	L1	9.7	14.1	50.0

[NEUTRAL : AC 0 V]

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	48.8	1000.0	9.000	On	N	9.8	17.2	66.0
0.172500	41.1	1000.0	9.000	On	N	10.1	23.7	64.8
0.613500	39.3	1000.0	9.000	On	N	10.1	16.7	56.0
1.023000	37.6	1000.0	9.000	On	N	9.9	18.4	56.0
1.432500	37.4	1000.0	9.000	On	N	9.8	18.6	56.0
1.842000	37.4	1000.0	9.000	On	N	9.8	18.6	56.0
2.661000	37.8	1000.0	9.000	On	N	9.8	18.2	56.0
3.480000	37.6	1000.0	9.000	On	N	9.7	18.4	56.0
3.889500	37.7	1000.0	9.000	On	N	9.7	18.3	56.0
4.708500	37.3	1000.0	9.000	On	N	9.7	18.7	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.501000	27.4	1000.0	9.000	On	N	10.1	18.6	46.0
0.613500	36.4	1000.0	9.000	On	N	10.1	9.6	46.0
1.023000	36.7	1000.0	9.000	On	N	9.9	9.3	46.0
1.432500	36.9	1000.0	9.000	On	N	9.8	9.1	46.0
1.842000	37.0	1000.0	9.000	On	N	9.8	9.0	46.0
2.251500	37.1	1000.0	9.000	On	N	9.8	8.9	46.0
2.661000	37.1	1000.0	9.000	On	N	9.8	8.9	46.0
3.070500	36.9	1000.0	9.000	On	N	9.7	9.1	46.0
3.889500	36.5	1000.0	9.000	On	N	9.7	9.5	46.0
4.704000	18.4	1000.0	9.000	On	N	9.7	27.6	46.0



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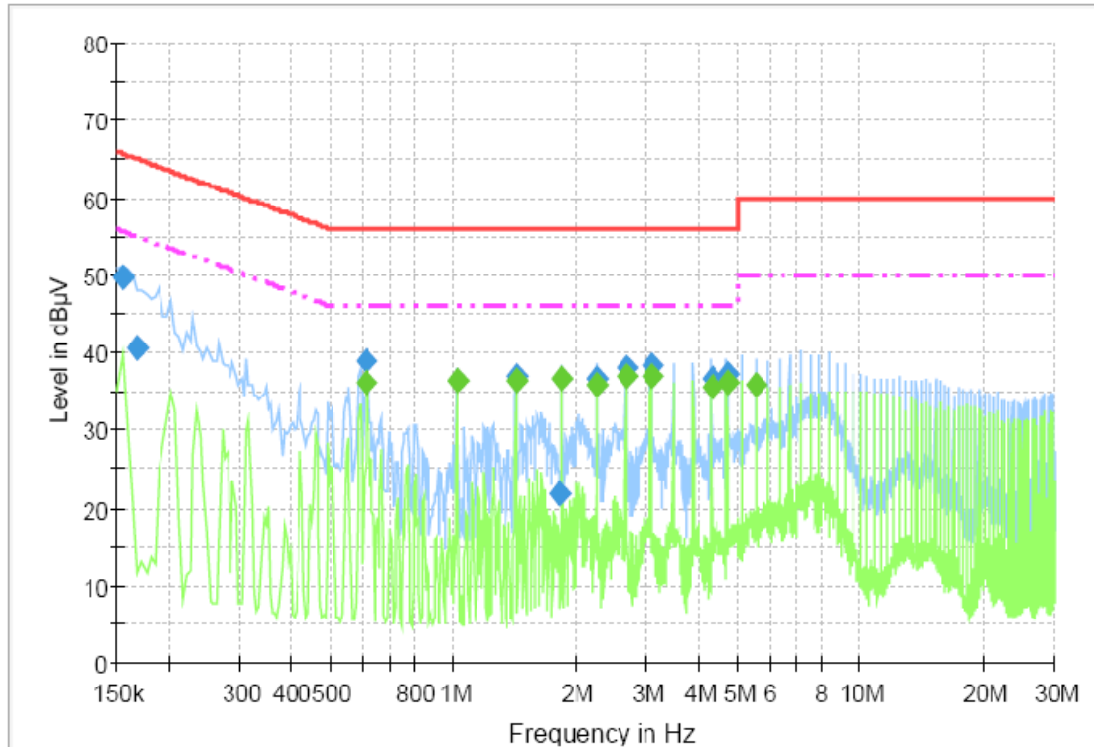
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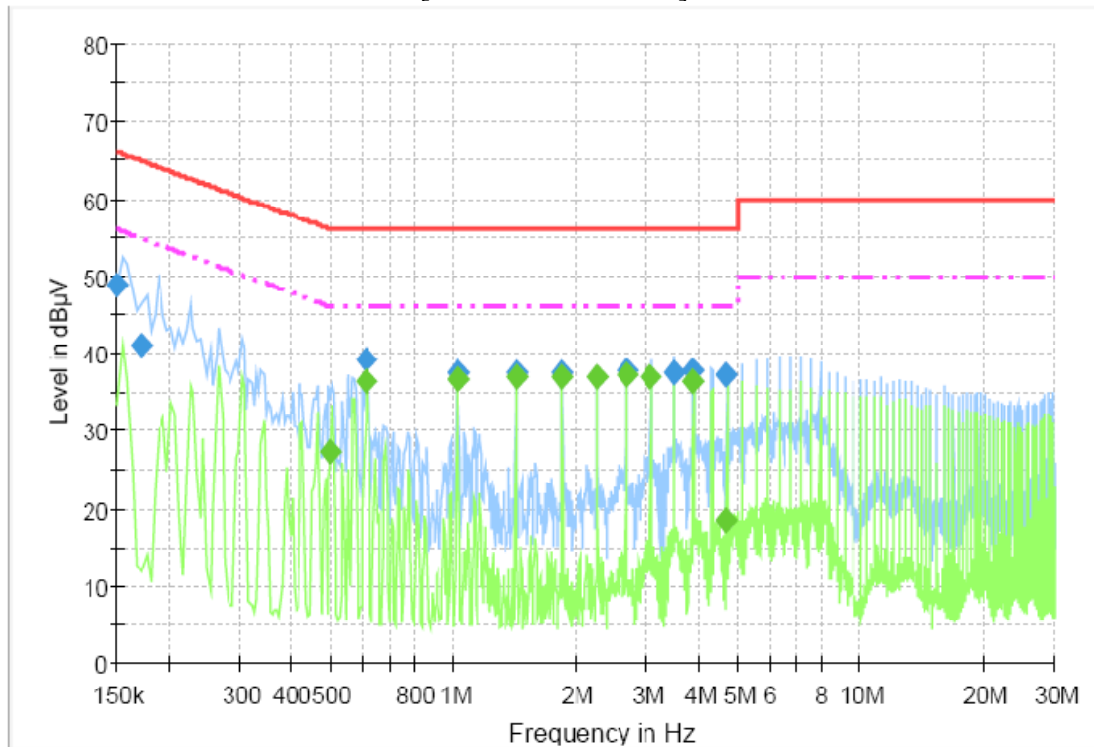
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[HOT : AC 120 V]



[NEUTRAL : AC 0 V]





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[< 1 % Battery Status]

[HOT : AC 120 V]

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	45.9	1000.0	9.000	On	L1	9.8	20.1	66.0
0.568500	40.1	1000.0	9.000	On	L1	10.1	15.9	56.0
0.721500	37.8	1000.0	9.000	On	L1	10.0	18.2	56.0
1.306500	35.2	1000.0	9.000	On	L1	9.8	20.8	56.0
1.594600	39.3	1000.0	9.000	On	L1	9.8	16.7	56.0
2.170500	37.2	1000.0	9.000	On	L1	9.8	18.8	56.0
2.463000	38.4	1000.0	9.000	On	L1	9.8	17.6	56.0
3.043500	35.9	1000.0	9.000	On	L1	9.7	20.1	56.0
3.619500	37.7	1000.0	9.000	On	L1	9.7	18.3	56.0
4.780500	37.5	1000.0	9.000	On	L1	9.7	18.5	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.568500	32.0	1000.0	9.000	On	L1	10.1	14.0	46.0
0.726000	34.9	1000.0	9.000	On	L1	10.0	11.1	46.0
1.014000	36.0	1000.0	9.000	On	L1	9.9	10.0	46.0
1.302000	35.5	1000.0	9.000	On	L1	9.8	10.5	46.0
1.594500	36.3	1000.0	9.000	On	L1	9.8	9.7	46.0
2.170500	35.6	1000.0	9.000	On	L1	9.8	10.4	46.0
2.463000	36.5	1000.0	9.000	On	L1	9.8	9.5	46.0
3.331500	35.9	1000.0	9.000	On	L1	9.7	10.1	46.0
3.619500	35.7	1000.0	9.000	On	L1	9.7	10.3	46.0
4.780500	35.6	1000.0	9.000	On	L1	9.7	10.5	46.0

[NEUTRAL : AC 0 V]

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	47.7	1000.0	9.000	On	N	9.8	18.3	66.0
0.177000	39.8	1000.0	9.000	On	N	10.1	24.9	64.6
0.249000	37.3	1000.0	9.000	On	N	10.0	24.5	61.8
0.564000	40.5	1000.0	9.000	On	N	10.1	15.5	56.0
0.721500	38.4	1000.0	9.000	On	N	10.0	17.6	56.0
1.302000	36.8	1000.0	9.000	On	N	9.8	19.2	56.0
2.746500	37.0	1000.0	9.000	On	N	9.7	19.0	56.0
3.034500	36.8	1000.0	9.000	On	N	9.7	19.2	56.0
4.191000	36.5	1000.0	9.000	On	N	9.7	19.5	56.0
4.479000	33.3	1000.0	9.000	On	N	9.7	22.7	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.568500	36.4	1000.0	9.000	On	N	10.1	9.6	46.0
0.721500	35.9	1000.0	9.000	On	N	10.0	10.1	46.0
1.009500	34.8	1000.0	9.000	On	N	9.9	11.2	46.0
1.302000	35.6	1000.0	9.000	On	N	9.8	10.4	46.0
1.878000	36.4	1000.0	9.000	On	N	9.8	9.6	46.0
2.166000	35.9	1000.0	9.000	On	N	9.8	10.1	46.0
2.746500	36.9	1000.0	9.000	On	N	9.7	10.1	46.0
3.034500	35.9	1000.0	9.000	On	N	9.7	10.1	46.0
3.698500	34.2	1000.0	9.000	On	N	9.7	11.8	46.0
4.483500	35.9	1000.0	9.000	On	N	9.7	10.1	46.0



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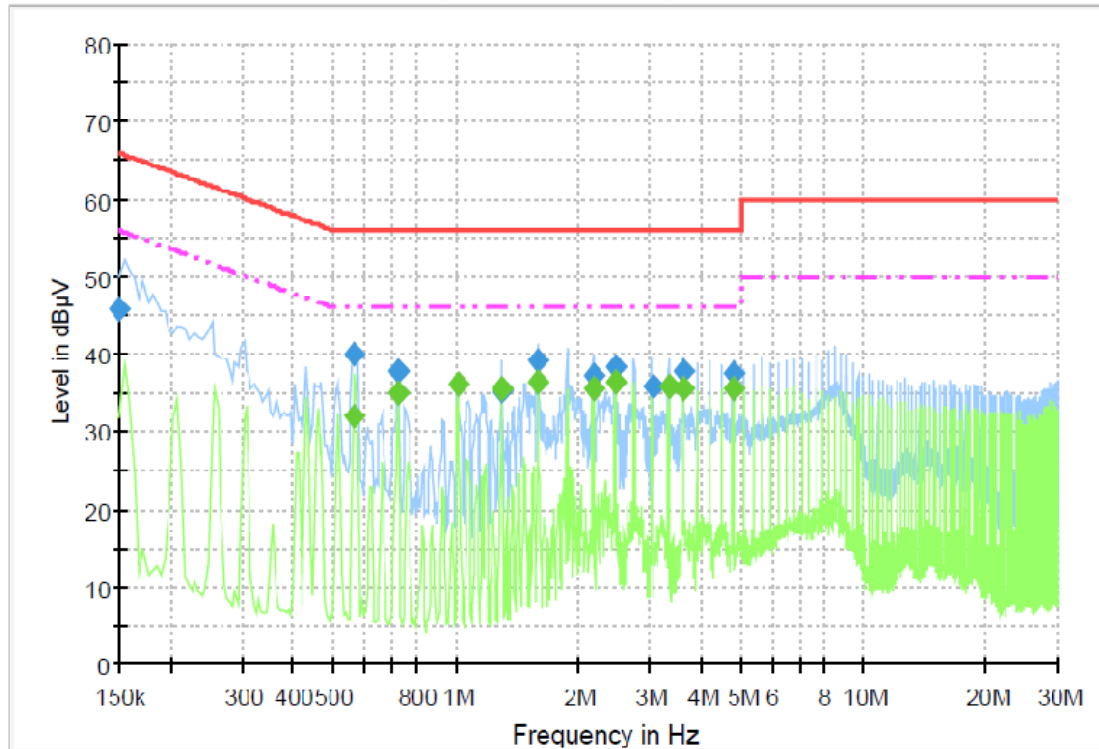
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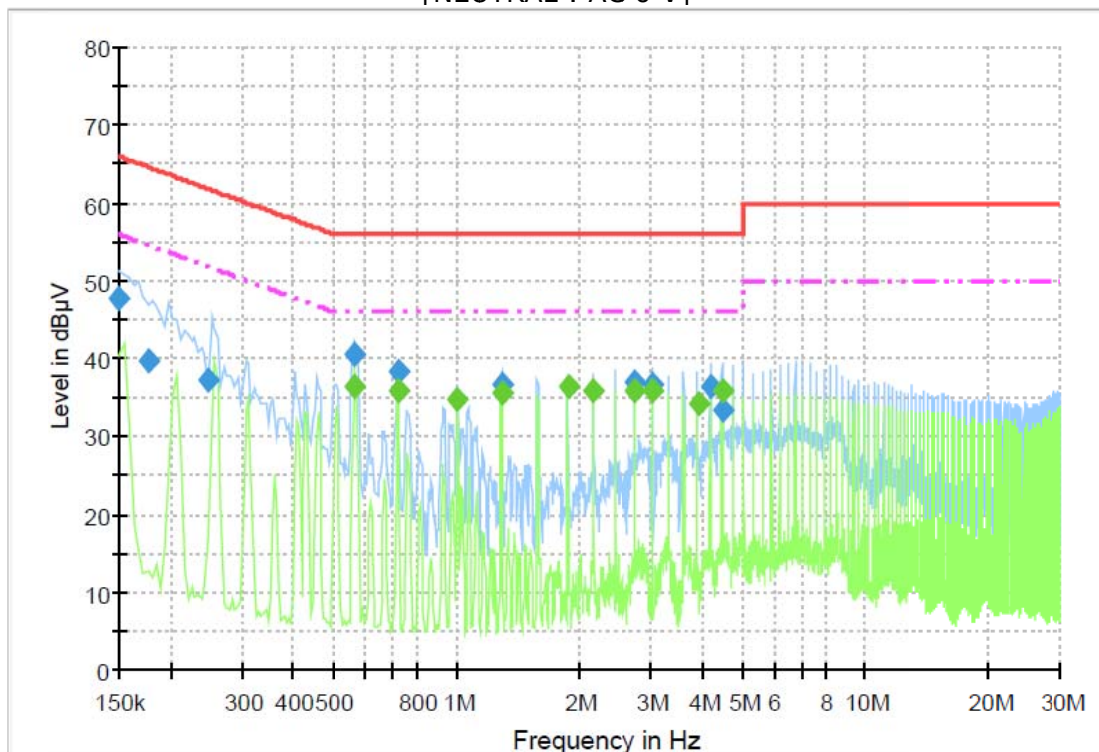
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[HOT : AC 120 V]



[NEUTRAL : AC 0 V]



[50 % Battery Status]

[HOT : AC 120 V]

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	47.4	1000.0	9.000	On	L1	9.8	18.6	66.0
0.172500	39.8	1000.0	9.000	On	L1	10.1	25.0	64.8
0.564000	39.0	1000.0	9.000	On	L1	10.1	17.0	56.0
0.721500	37.4	1000.0	9.000	On	L1	10.0	18.6	56.0
1.302000	36.5	1000.0	9.000	On	L1	9.8	19.5	56.0
1.590000	39.3	1000.0	9.000	On	L1	9.8	16.7	56.0
2.458500	37.5	1000.0	9.000	On	L1	9.8	18.5	56.0
3.322500	37.4	1000.0	9.000	On	L1	9.7	18.6	56.0
3.610500	36.8	1000.0	9.000	On	L1	9.7	19.2	56.0
4.479000	37.7	1000.0	9.000	On	L1	9.7	18.3	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.668500	26.7	1000.0	9.000	On	L1	10.1	19.3	46.0
0.721500	35.3	1000.0	9.000	On	L1	10.0	10.7	46.0
1.014000	34.3	1000.0	9.000	On	L1	9.9	11.7	46.0
1.302000	35.5	1000.0	9.000	On	L1	9.8	10.5	46.0
1.590000	36.3	1000.0	9.000	On	L1	9.8	9.7	46.0
2.166000	35.4	1000.0	9.000	On	L1	9.8	10.6	46.0
2.746500	36.2	1000.0	9.000	On	L1	9.7	9.8	46.0
3.034500	35.9	1000.0	9.000	On	L1	9.7	10.1	46.0
3.610500	34.8	1000.0	9.000	On	L1	9.7	11.2	46.0
4.479000	35.8	1000.0	9.000	On	L1	9.7	10.2	46.0

[NEUTRAL : AC 0 V]

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	47.9	1000.0	9.000	On	N	9.8	18.1	66.0
0.168000	40.8	1000.0	9.000	On	N	10.1	24.3	65.1
0.249000	37.6	1000.0	9.000	On	N	10.0	24.2	61.8
0.573000	38.9	1000.0	9.000	On	N	10.1	17.1	56.0
1.014000	37.0	1000.0	9.000	On	N	9.9	19.0	56.0
1.594500	36.3	1000.0	9.000	On	N	9.8	19.7	56.0
2.751000	37.4	1000.0	9.000	On	N	9.7	18.6	56.0
3.331500	37.2	1000.0	9.000	On	N	9.7	18.8	56.0
3.912000	36.4	1000.0	9.000	On	N	9.7	19.6	56.0
4.780500	37.0	1000.0	9.000	On	N	9.7	19.0	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.559500	33.4	1000.0	9.000	On	N	10.1	12.6	46.0
0.726000	35.1	1000.0	9.000	On	N	10.0	10.9	46.0
1.014000	36.0	1000.0	9.000	On	N	9.9	10.0	46.0
1.302000	35.4	1000.0	9.000	On	N	9.8	10.6	46.0
1.594500	35.7	1000.0	9.000	On	N	9.8	10.3	46.0
2.170500	35.2	1000.0	9.000	On	N	9.8	10.8	46.0
2.463000	36.1	1000.0	9.000	On	N	9.8	9.9	46.0
3.331500	35.7	1000.0	9.000	On	N	9.7	10.3	46.0
3.912000	35.1	1000.0	9.000	On	N	9.7	10.9	46.0
4.780500	35.6	1000.0	9.000	On	N	9.7	10.4	46.0



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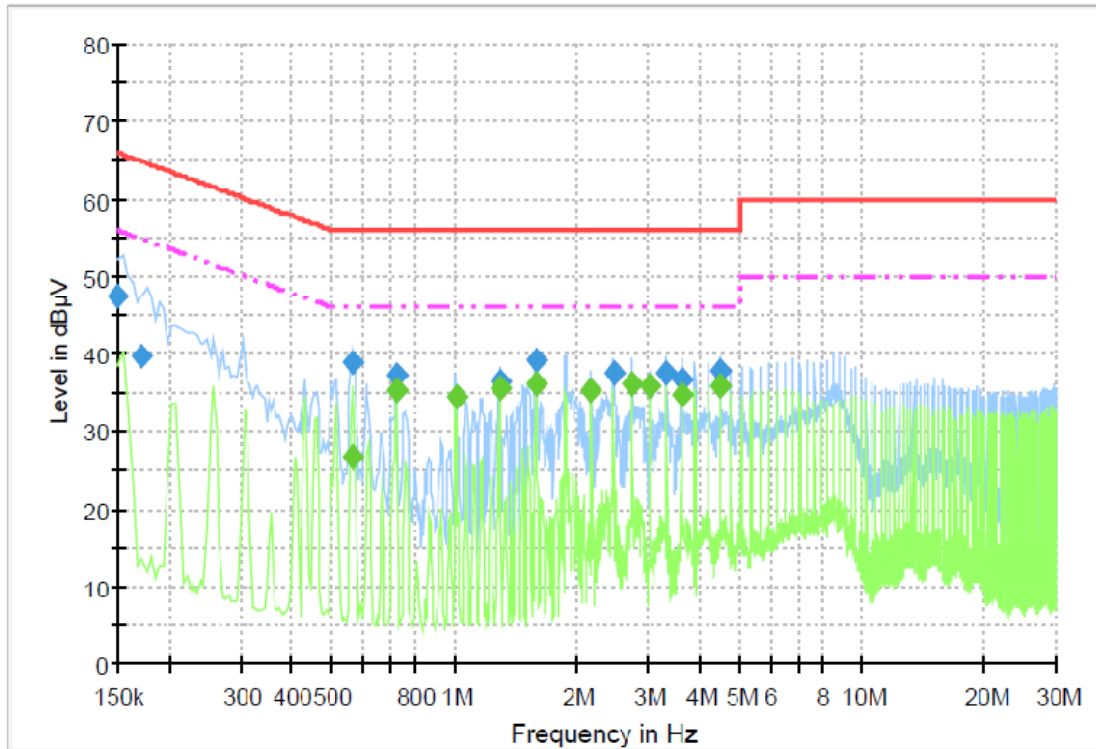
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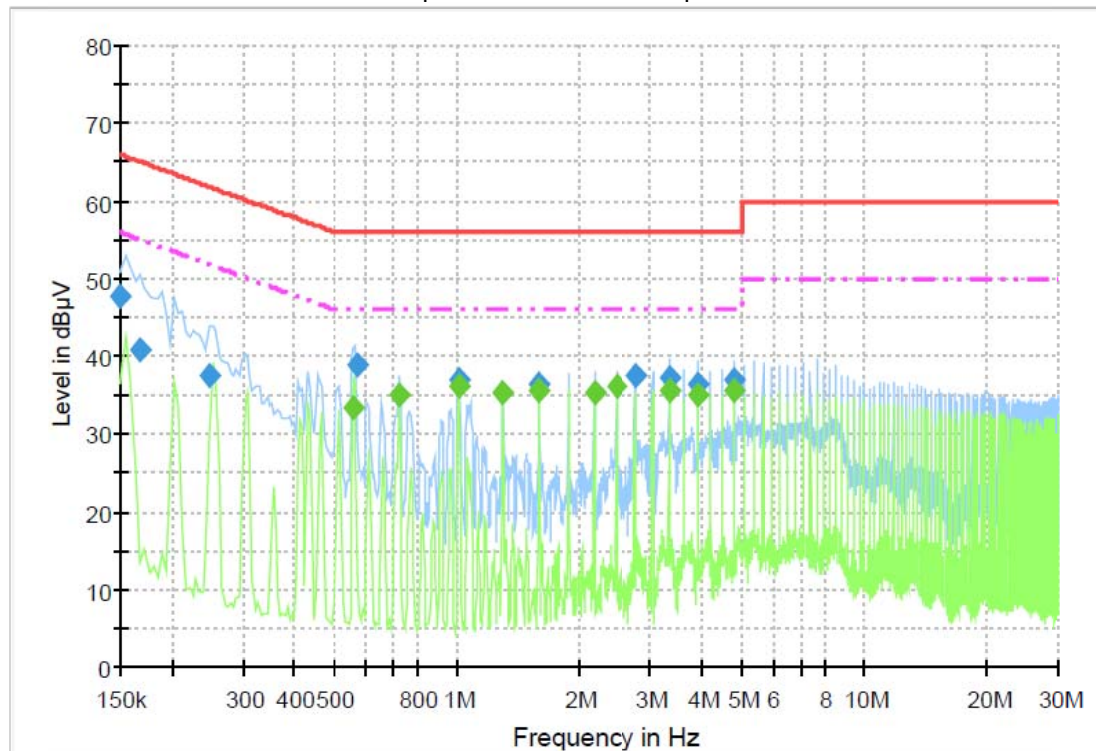
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[HOT : AC 120 V]



[NEUTRAL : AC 0 V]



2.2 Radiated emissions (Section 15.209)

Test Location

- ☒ 10 m SAC (test distance : ☐ 10 m, ☒ 3 m)
☐ 3 m SAC (test distance : 3 m)

- 1) In the frequency range of 9 kHz to 30 MHz, magnetic field is measured with Loop Antenna. The Test Antenna is positioned with its plane vertical at 1m distance from the EUT. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.
- 2) In the frequency range above 30 MHz, Bi-Log Test Antenna(30 MHz to 1 GHz) and Horn Test Antenna(above 1 GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is carried from 1m to 4m above the ground to determine the maximum value of the field strength. The emissions levels at both horizontal and vertical polarizations should be tested.

The spectrum analyzer is set to:

Frequency Range = 9 kHz ~ 1 GHz

RBW = 100 kHz for $f < 1$ GHz, 9 kHz for $f < 30$ MHz

VBW $\geq$ RBW

Sweep = Auto

Limit

- 15.209(a)

Frequency [MHz]	Field Strength [μ V/m]	Measurement Distance [Meters]
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

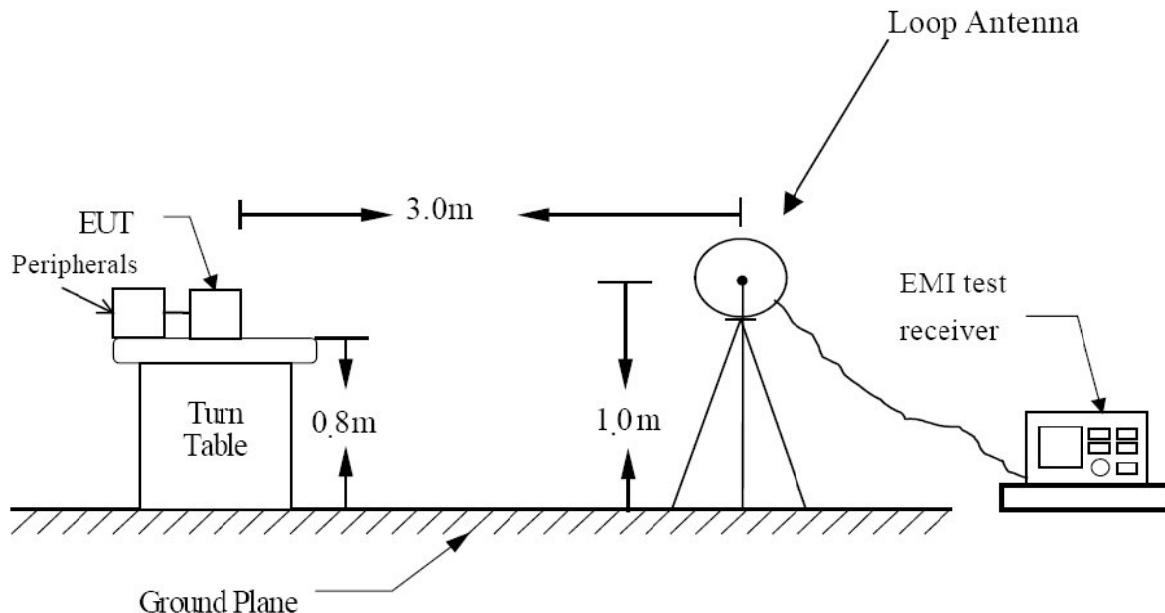
** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72MHz, 76-88MHz, 174-216MHz, 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

Note :

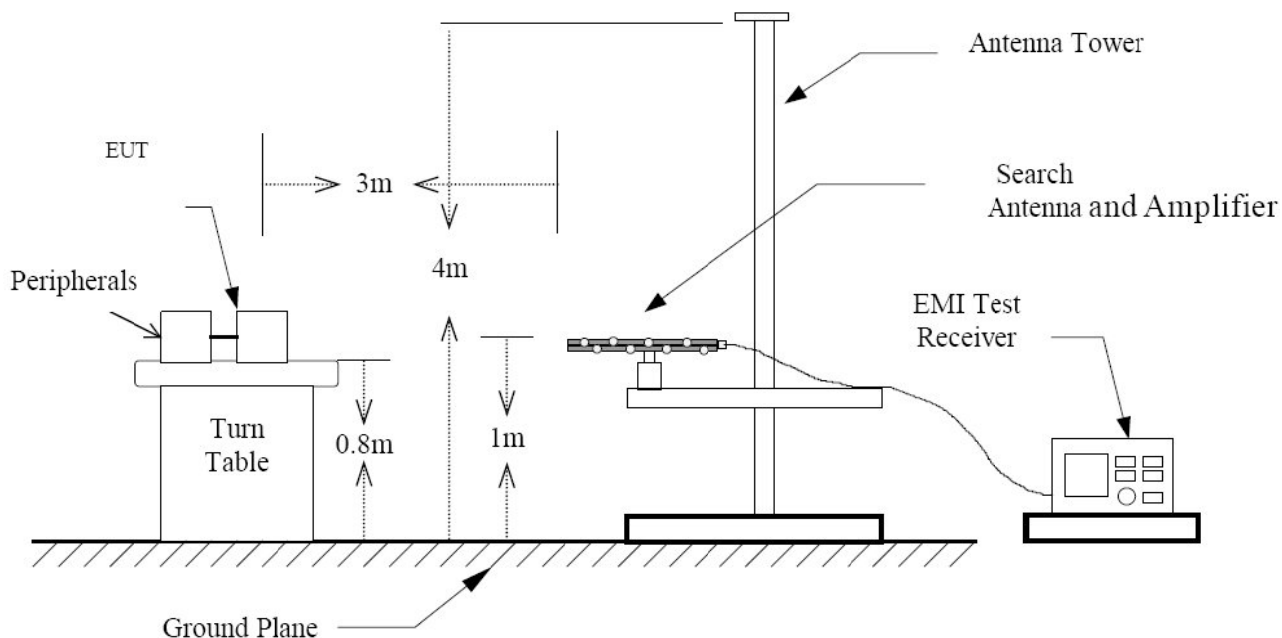
- 1) For above 1 GHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

Test Setup:

- 1) For field strength of emissions from 9 kHz to 30 MHz



- 2) For field strength of emissions from 30 MHz to 1 GHz





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Test Results

EUT	Wireless Charger	Model	OWC-300T
Frequency Range	9 kHz ~ 1 GHz	Test mode	TX

The requirements are:

☒ Complies

Test Data

Fundamental Test Data

[Test Mode #1]

Operating Frequency : 110 kHz

Freq. (kHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Distance Correction	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	Detect Mode
109.50	46.32	20.18	5.9	-80	-7.60	46.82	54.42	Peak
109.50	46.27	20.18	5.9	-80	-7.65	26.82	34.47	Average

Operating Frequency : 157.5 kHz

Freq. (kHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Distance Correction	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	Detect Mode
157.26	46.16	20.18	5.9	-80	-7.76	43.67	51.43	Peak
157.26	46.01	20.18	5.9	-80	-7.91	23.67	31.58	Average

Operating Frequency : 205 kHz

Freq. (kHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Distance Correction	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	Detect Mode
204.16	39.55	20.18	5.9	-80	-14.37	41.40	55.77	Peak
204.16	38.98	20.18	5.9	-80	-14.94	21.40	36.34	Average

[Test Mode #2]

< 1 % Battery Status

Freq. (kHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Distance Correction	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	Detect Mode
119.14	50.00	20.18	5.9	-80	-3.92	46.08	50.00	Peak
119.14	49.90	20.18	5.9	-80	-4.02	26.08	30.10	Average

50 % Battery Status

Freq. (kHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Distance Correction	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	Detect Mode
132.60	48.50	20.18	5.9	-80	-5.42	45.15	50.57	Peak
132.60	48.40	20.18	5.9	-80	-5.52	25.15	30.67	Average

Spurious Test Data

[Test Mode #1]

Operating Frequency : 110 kHz

Freq. (kHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Distance Correction	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	Detect Mode
329.00	23.78	20.18	5.9	-80	-30.14	37.26	67.40	Peak
329.00	21.69	20.18	5.9	-80	-32.23	17.26	49.49	Average

Operating Frequency : 157.5 kHz

Freq. (kHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Distance Correction	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	Detect Mode
471.86	24.18	20.18	5.9	-80	-29.74	34.13	63.87	Peak
471.86	23.95	20.18	5.9	-80	-29.97	14.13	44.10	Average

Operating Frequency : 205 kHz

Freq. (kHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Distance Correction	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	Detect Mode
408.17	24.95	20.18	5.9	-80	-28.97	35.39	64.36	Peak
408.17	23.12	20.18	5.9	-80	-30.80	15.39	46.19	Average

[Test Mode #2]

< 1 % Battery Status

Freq. (kHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Distance Correction	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	Detect Mode
357.90	30.20	20.18	5.9	-80	-23.72	36.53	60.25	Peak
357.90	29.50	20.18	5.9	-80	-24.42	16.53	40.95	Average

50 % Battery Status

Freq. (kHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Distance Correction	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	Detect Mode
397.72	29.00	20.18	5.9	-80	-24.92	35.61	60.53	Peak
397.72	28.30	20.18	5.9	-80	-25.62	15.61	41.23	Average



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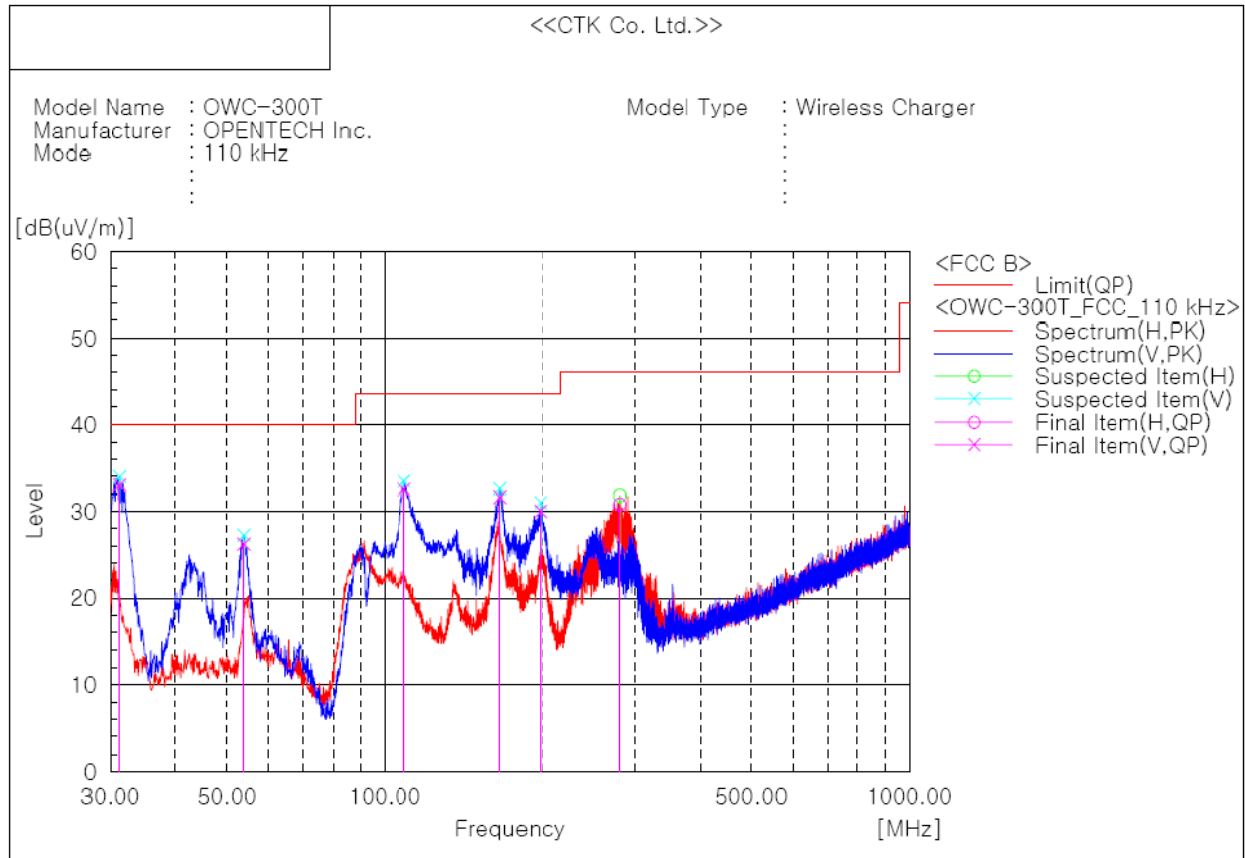
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[Operating Frequency : 110 kHz]



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	31.334	V	47.8	-14.8	33.0	40.0	7.0	100.0	30.0
2	53.886	V	41.4	-15.2	26.2	40.0	13.8	100.0	141.0
3	109.055	V	46.1	-13.6	32.5	43.5	11.0	100.0	0.0
4	165.800	V	36.7	-5.1	31.6	43.5	11.9	100.0	0.0
5	197.810	V	42.8	-12.8	30.0	43.5	13.5	100.0	30.0
6	280.018	H	41.7	-10.9	30.8	46.0	15.2	100.0	352.0



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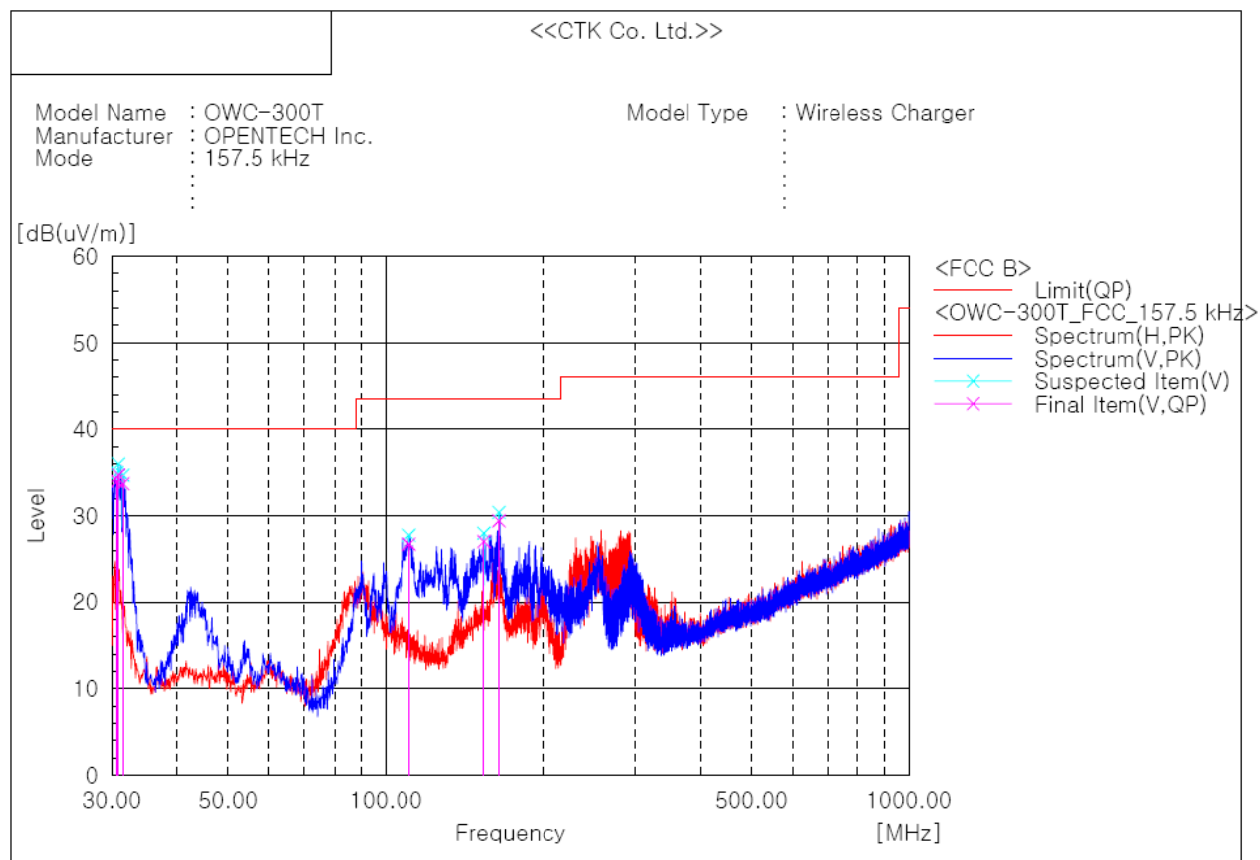
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[Operating Frequency : 157.5 kHz]



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	30.728	V	48.8	-14.8	34.0	40.0	6.0	100.0	253.0
2	30.970	V	49.5	-14.8	34.7	40.0	5.3	100.0	0.0
3	31.576	V	48.5	-14.8	33.7	40.0	6.3	100.0	290.0
4	110.874	V	40.3	-13.6	26.7	43.5	16.8	100.0	29.0
5	153.918	V	34.5	-7.5	27.0	43.5	16.5	100.0	29.0
6	164.466	V	34.3	-4.9	29.4	43.5	14.1	100.0	29.0



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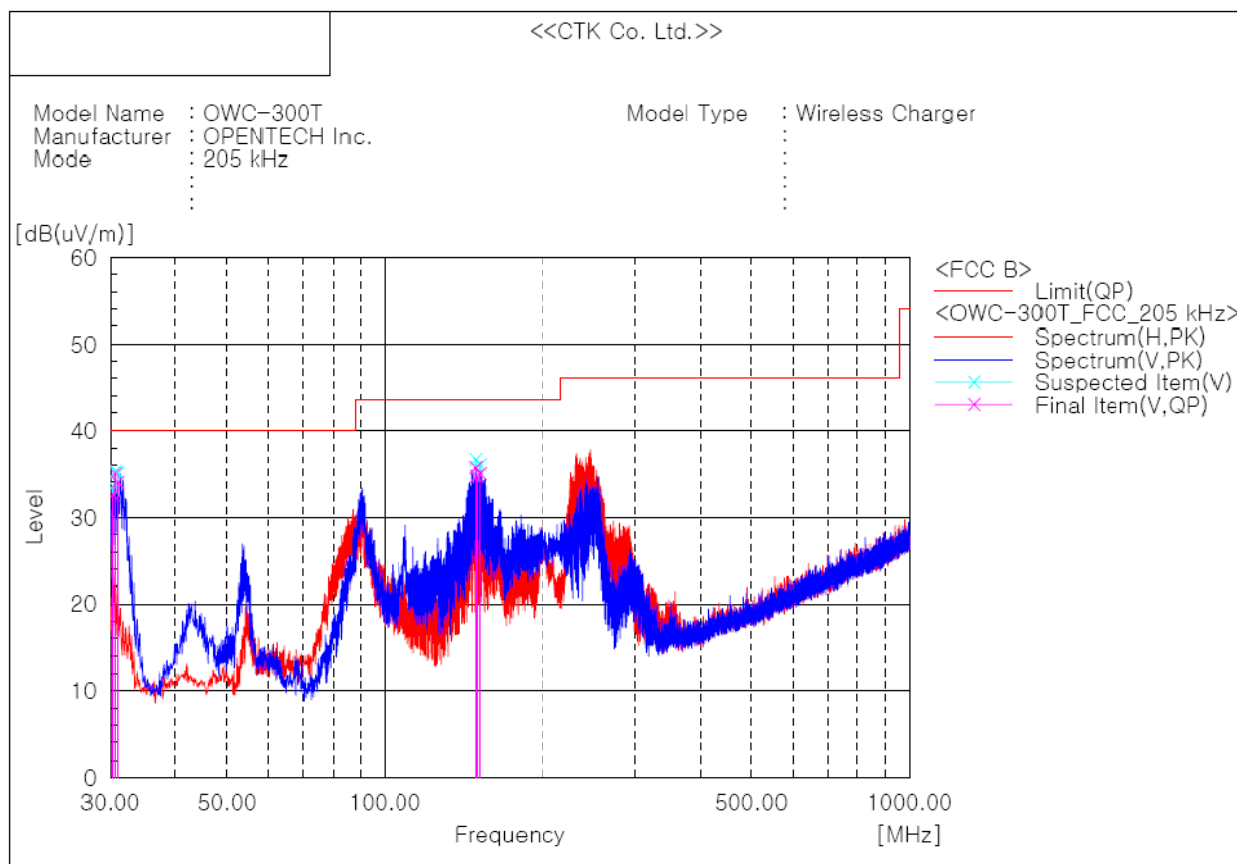
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[Operating Frequency : 205 kHz]



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	30.364	V	47.4	-14.8	32.6	40.0	7.4	100.0	0.0
2	30.728	V	49.8	-14.8	35.0	40.0	5.0	100.0	0.0
3	31.091	V	48.8	-14.8	34.0	40.0	6.0	100.0	290.0
4	149.189	V	44.1	-8.4	35.7	43.5	7.8	100.0	0.0
5	149.674	V	43.0	-8.3	34.7	43.5	8.8	100.0	0.0
6	151.978	V	42.9	-7.9	35.0	43.5	8.5	100.0	0.0



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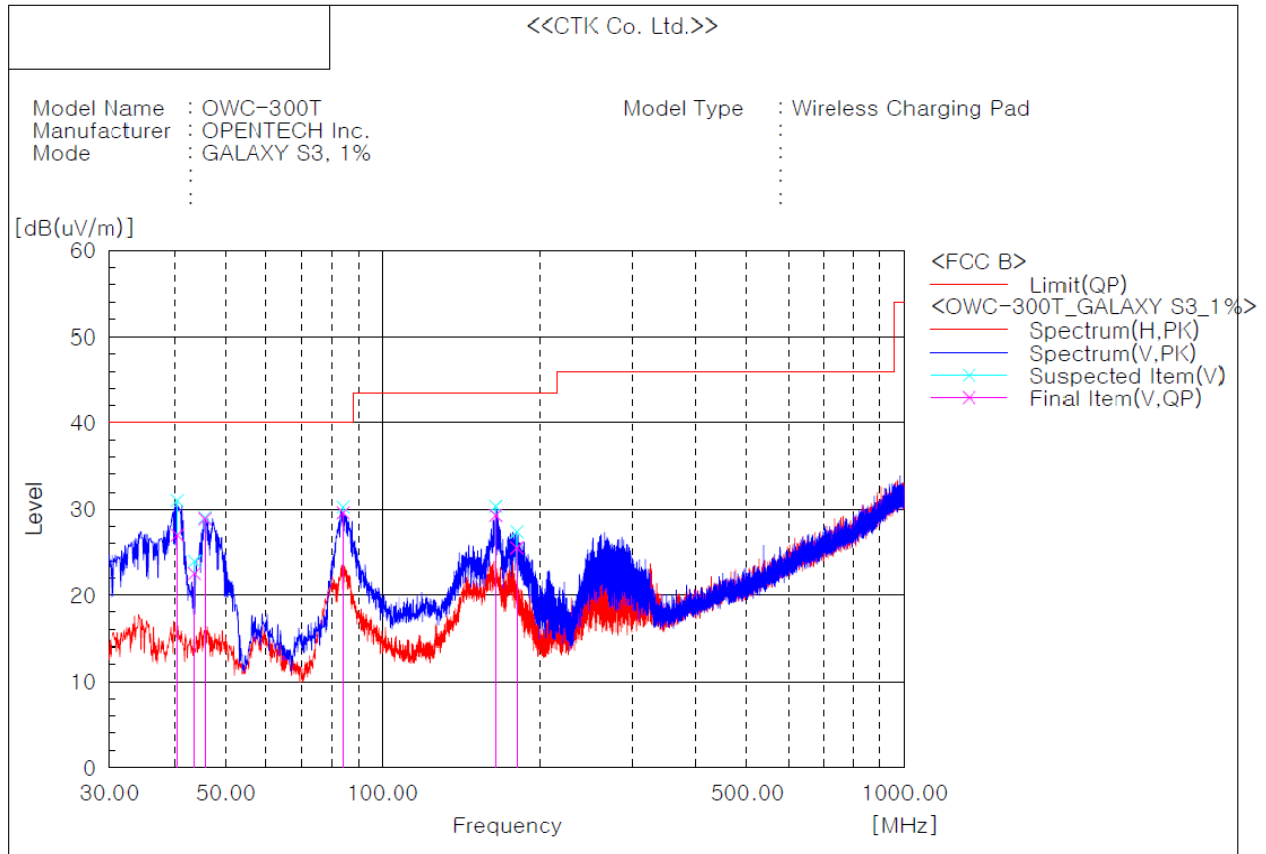
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[< 1 % Battery Status]



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	40.428	V	40.5	-13.5	27.0	40.0	13.0	100.0	290.0
2	43.580	V	35.9	-13.4	22.5	40.0	17.5	100.0	290.0
3	45.641	V	42.3	-13.4	28.9	40.0	11.1	100.0	0.0
4	83.956	V	46.4	-16.8	29.6	40.0	10.4	100.0	67.0
5	164.345	V	34.2	-4.9	29.3	43.5	14.2	100.0	0.0
6	180.350	V	35.4	-9.9	25.5	43.5	18.0	100.0	30.0



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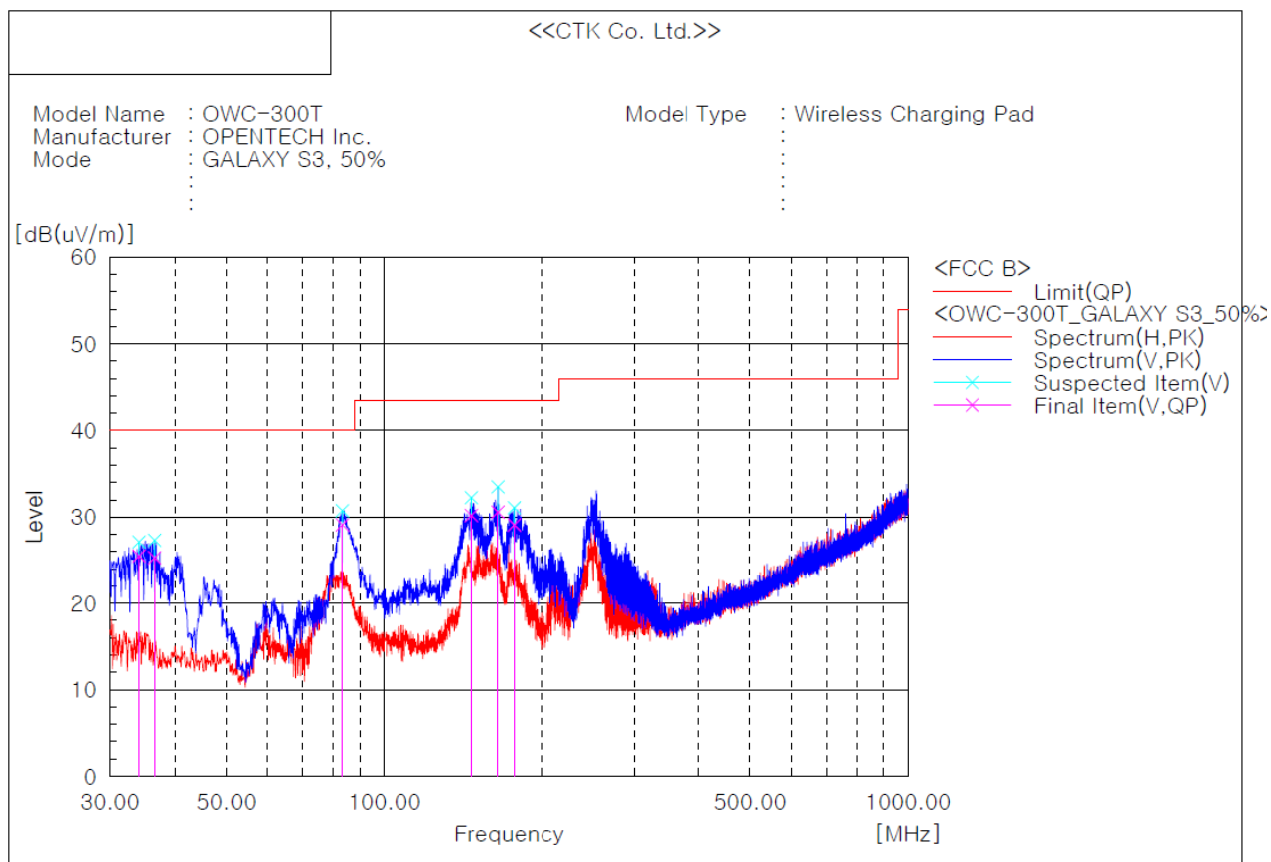
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[50 % Battery Status]



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	34.123	V	40.4	-14.9	25.5	40.0	14.5	100.0	0.0
2	36.548	V	39.8	-14.5	25.3	40.0	14.7	100.0	253.0
3	83.229	V	46.2	-17.1	29.1	40.0	10.9	100.0	66.0
4	146.643	V	39.0	-8.8	30.2	43.5	13.3	100.0	0.0
5	164.830	V	35.5	-4.9	30.6	43.5	12.9	100.0	0.0
6	177.076	V	38.3	-9.2	29.1	43.5	14.4	100.0	66.0



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APPENDIX A – Test Equipment Used For Tests

	Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
1	EMI Test Receiver	Rohde & Schwarz	ESCI7	100816	2013-12-15
2	LISN	Rohde & Schwarz	ENV216	101235	2013-08-18
3	LISN	Rohde & Schwarz	ENV216	101236	2013-08-06
4	EMI Test Receiver	Rohde & Schwarz	ESCI7	100814	2013-12-15
5	Active Loop Antenna	SCHWARZBECK	FMZB 1513	1513-125	2014-06-06
6	Trilog Broadband Antenna	Rohde & Schwarz	VULB 9161 SE	9161-4133	2014-06-11
7	6dB Attenuator	Rohde & Schwarz	DNF	272.4110.50	2013-11-14
8	AMPLIFIER	Sonoma Instrument Co.	310	291721	2013-03-27
9	Radio Communication Tester	Rohde & Schwarz	CMU200	106765	2014-02-04