

Dates of Tests: June 10 ~ Dec 13, 2018
Test Report S/N: LR500111808A
Test Site : LTA CO., LTD.

CERTIFICATION OF COMPLIANCE

FCC ID.

2AQPIDDP150

APPLICANT

DDPOPSTYLE Co.,Ltd.

Equipment Class	:	DCD - Low Power Transmitter Below 1705 kHz
Manufacturing Description	:	Wireless Power Charger
Manufacturer	:	DDPOPSTYLE Co.,Ltd.
Model name	:	DDP150
Variant name	:	LWC-Q01, DDPOP-QWC, S2B-QWC, OQWC18
Test Device Serial No.:	:	Identical prototype
Rule Part(s)	:	FCC Part 15.209 Subpart C ; ANSI C-63.4-2014
Frequency Range	:	115 kHz ~ 205 kHz
Data of issue	:	December 13, 2018

This test report is issued under the authority of:

The test was supervised by:



JaBeom, Koo / Manager



HeeCheon Kwon, Test Engineer

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NVLAP LAB Code.: 200723-0

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1. General information

1-1 Test Performed

Company name : LTA Co., Ltd.
 Address : 243, Jubug-ri, Yangji-Myeon, Youngin-Si, Kyunggi-Do, Korea. 17159
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Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the “General requirements for the competents of calibration and testing laboratory”.

1-2 Accredited agencies

LTA Co., Ltd. is approved to perform EMC testing by the following agencies:

Agency	Country	Accreditation No.	Validity	Reference
NVLAP	U.S.A	200723-0	2019-09-30	ECT accredited Lab.
RRA	KOREA	KR0049	-	EMC accredited Lab.
FCC	U.S.A	649054	2019-04-13	FCC CAB
VCCI	JAPAN	C-4948,	2020-09-10	VCCI registration
VCCI	JAPAN	T-2416,	2020-09-10	VCCI registration
VCCI	JAPAN	R-4483(10 m),	2020-10-15	VCCI registration
VCCI	JAPAN	G-847	2018-12-13	VCCI registration
IC	CANADA	5799A-1	2019-11-07	IC filing
KOLAS	KOREA	NO.551	2021-08-20	KOLAS accredited Lab.

2. Information about test item

2-1 Client & Manufacturer

Company name : DDPOPSTYLE Co.,Ltd.
 Address : 5th FL, Heejae BLDG, Junggye-Dong, 14-7, Deongneung-ro 83-gil,
 : Seoul, Korea
 Tel / Fax : TEL No : +82-2-930-8000

2-2 Equipment Under Test (EUT)

Trade name : DDPOPSTYLE
 Model name : DDP150
 Variant name : LWC-Q01, DDPOP-QWC, S2B-QWC, OQWC18
 Serial number : Identical prototype
 Date of receipt : June 10, 2018
 EUT condition : Pre-production, not damaged
 Antenna type : Inductive loop coil Antenna
 Frequency Range : 115 kHz ~ 205 kHz
 Modulation Technology : MSK
 Power Source : 5 Vdc by adapter

2-3 Operation Frequency each of channel

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	0.115	6	0.140	11	0.165	16	0.190
2	0.120	7	0.145	12	0.170	17	0.195
3	0.125	8	0.150	13	0.175	18	0.200
4	0.130	9	0.155	14	0.180	19	0.205
5	0.135	10	0.160	15	0.185		

3. Test Report

3.1 Summary of tests

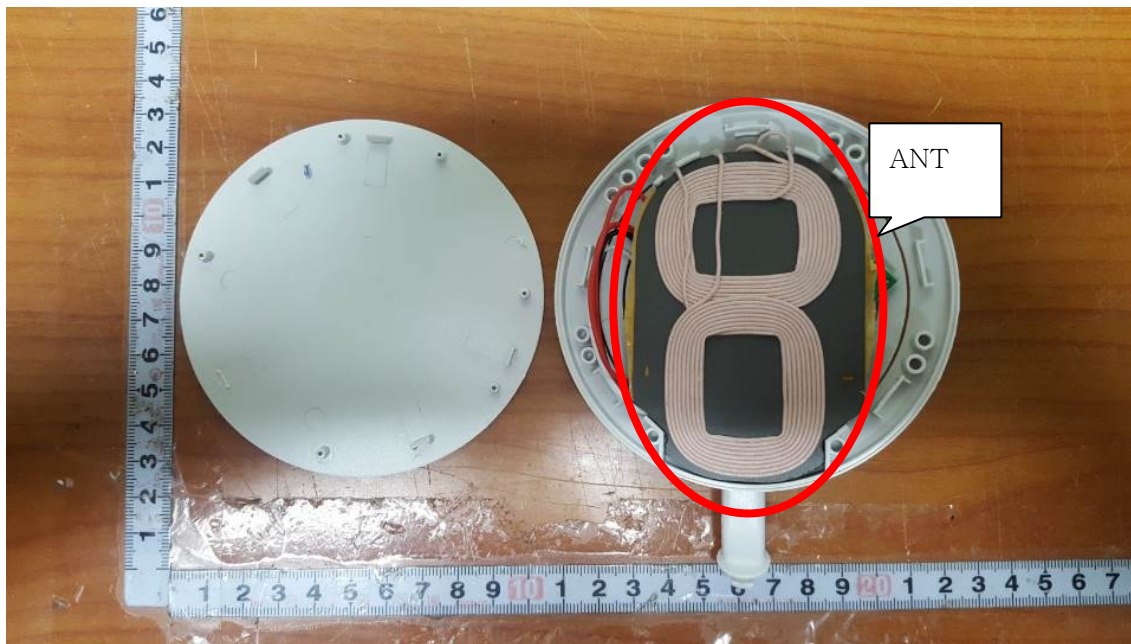
FCC Part Section(s)	Parameter	Test Condition	Status (note 1)
15.203	Antenna requirement	Radiation	C
15.209(a)(f)	Radiated Spurious Emission		C
15.207	AC Conducted Emissions		C

Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable

Note 2: The data in this test report are traceable to the national or international standards.

3.2 Technical Characteristics Test

3.2.1 Antenna requirement

Standard requirement	FCC Part15 C Section 15.203
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	Inductive loop coil Antenna
The antenna is inductive loop coil antenna which permanently attached	
	

3.2.2 Radiated Spurious Emission

Procedure:

Radiated emissions from 30 MHz to 25 GHz were measured according to the methods defines in ANSI C63.10-2013.

The EUT is a placed on as turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna.

The spectrum analyzer is set to:

Center frequency = the worst channel

Frequency Range = 9 kHz ~ 10th harmonic.

RBW = 100 kHz (30 MHz ~ 1 GHz)

VBW ≥ RBW

= 1 MHz (1 GHz ~ 10th harmonic)

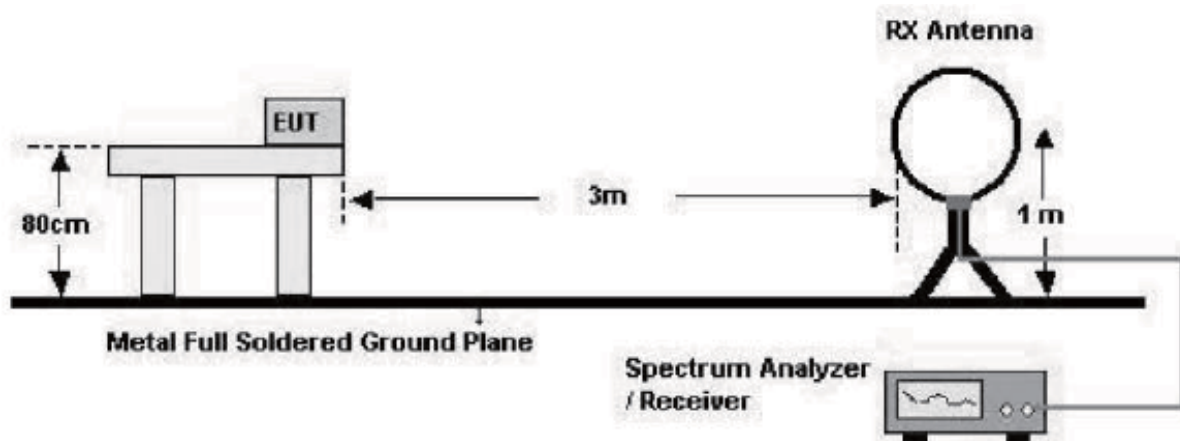
Span = 100 MHz

Detector function = peak

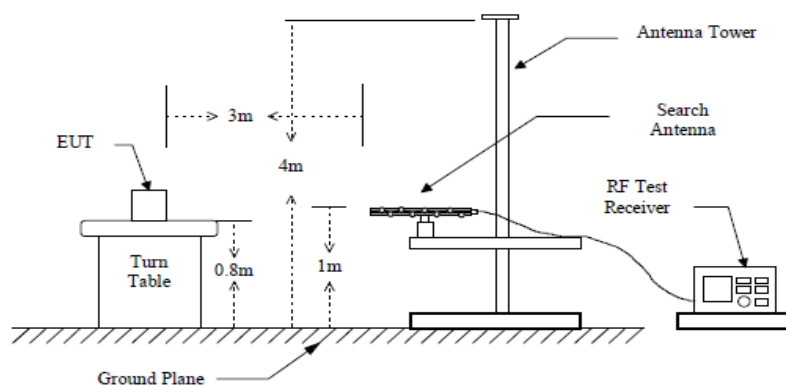
Trace = max hold

Sweep = auto

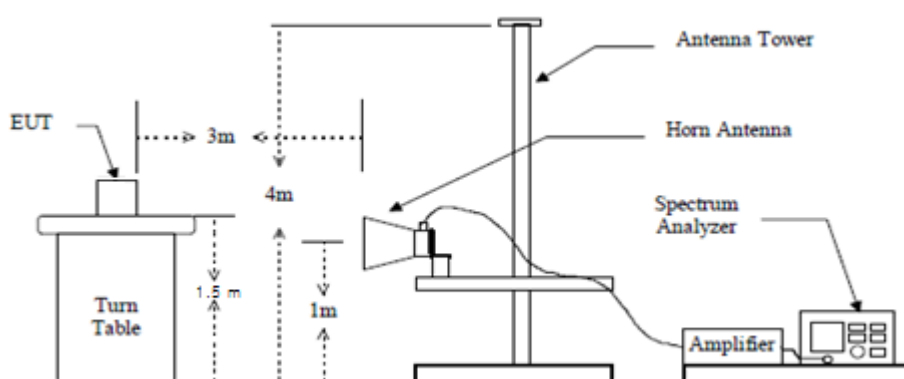
below 30 MHz



below 1 GHz (30 MHz to 1 GHz)



above 1 GHz



Measurement Data: **Complies**

- See next pages for actual measured data.
- No other emissions were detected at a level greater than 20 dB below limit include from 9 kHz to 30MHz.

Minimum Standard: FCC Part 15.209(a)

Frequency (MHz)	Limit (uV/m) @ 3 m
0.009 ~ 0.490	2400/F(kHz) (@ 300 m)
0.490 ~ 1.705	24000/F(kHz) (@ 30 m)
1.705 ~ 30	30(@ 30 m)
30 ~ 88	100 **
88 ~ 216	150 **
216 ~ 960	200 **
Above 960	500

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

Radiated Emissions (9 kHz ~ 30 MHz)

9 kHz ~ 150 kHz



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EUT/Model No.: DDP150

Temp/Humi: 22 / 36

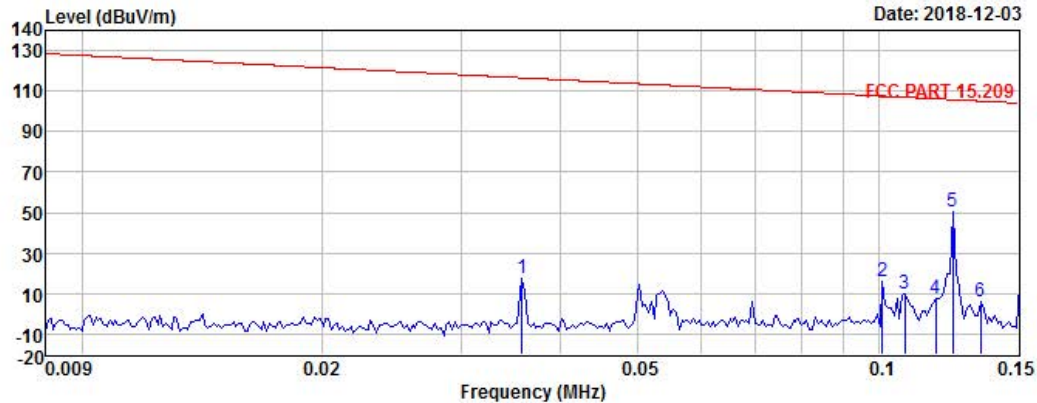
Test Mode : Wireless Charging mode

Tested by: KWON H C

Data: 208

File: C:\Program Files (x86)\e3\KN17.EM6 (211)

Date: 2018-12-03



Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
MHz	dBuV	dB	QP dBuV/m	dBuV/m	dB	cm	deg	
0.04	-2.03	19.65	17.62	116.54	98.92	**	**	HORIZONTAL
0.10	-3.34	19.64	16.30	107.52	91.22	**	**	HORIZONTAL
0.11	-9.87	19.63	9.76	106.96	97.20	**	**	HORIZONTAL
0.12	-11.79	19.62	7.83	106.18	98.35	**	**	HORIZONTAL
0.12	30.43	19.62	50.05	105.76	55.71	**	**	HORIZONTAL
0.13	-13.25	19.61	6.36	105.05	98.69	**	**	HORIZONTAL

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain



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EUT/Model No.: DDP150

Temp/Humi: 22 / 36

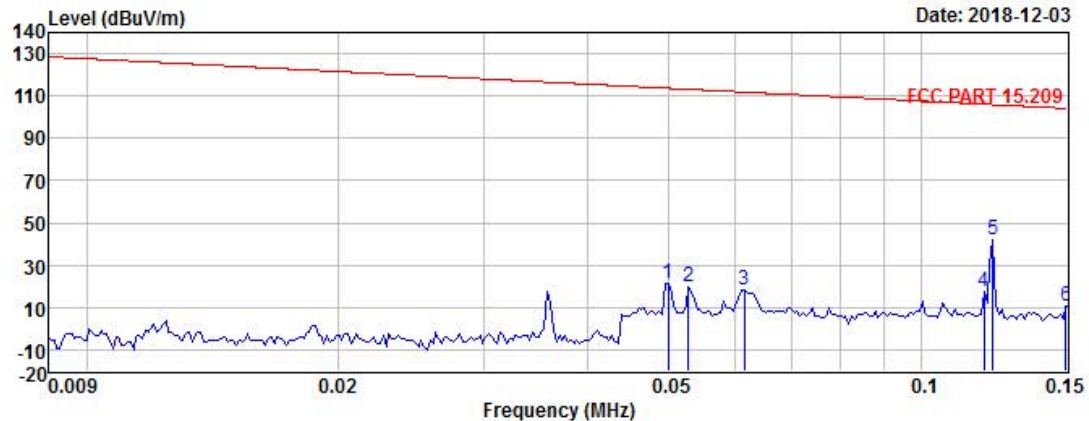
Test Mode : Wireless Charging mode

Tested by: KWON H C

Data: 211

File: C:\Program Files (x86)\e3\KN17.EM6 (211)

Date: 2018-12-03



Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
MHz	dBuV	dB	QP dBuV/m	dBuV/m	dB	cm	deg	
0.05	1.90	19.78	21.68	113.65	91.97	**	**	VERTICAL
0.05	0.28	19.74	20.02	113.16	93.14	**	**	VERTICAL
0.06	-1.25	19.62	18.37	111.82	93.45	**	**	VERTICAL
0.12	-2.36	19.62	17.26	106.11	88.85	**	**	VERTICAL
0.12	22.60	19.61	42.21	105.90	63.69	**	**	VERTICAL
0.15	-8.78	19.58	10.80	104.14	93.34	**	**	VERTICAL

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

150 kHz ~ 30 MHz



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EUT/Model No.: DDP150

Temp/Humi: 22 / 36

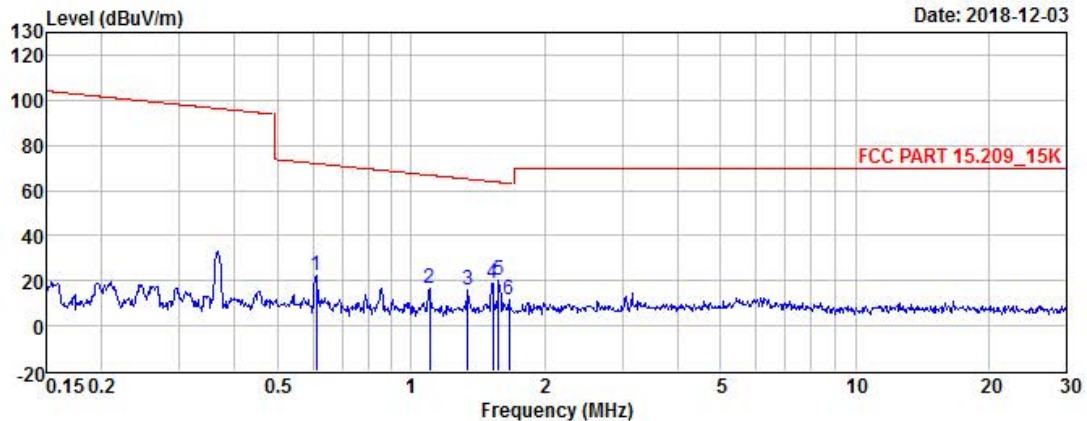
Test Mode : Wireless Charging mode

Tested by: KWON H C

Data: 217

File: C:\Program Files (x86)\e3\KN17.EM6 (217)

Date: 2018-12-03



Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
MHz	dBuV	dB	QP dBuV/m	dBuV/m	dB	cm	deg	
0.61	2.87	19.46	22.33	71.89	49.56	**	**	HORIZONTAL
1.10	-2.56	19.52	16.96	66.78	49.82	**	**	HORIZONTAL
1.34	-3.65	19.53	15.88	65.03	49.15	**	**	HORIZONTAL
1.53	-0.45	19.54	19.09	63.93	44.84	**	**	HORIZONTAL
1.58	0.63	19.55	20.18	63.65	43.47	**	**	HORIZONTAL
1.66	-7.96	19.55	11.59	63.19	51.60	**	**	HORIZONTAL

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain



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EUT/Model No.: DDP150

Temp/Humi: 22 / 36

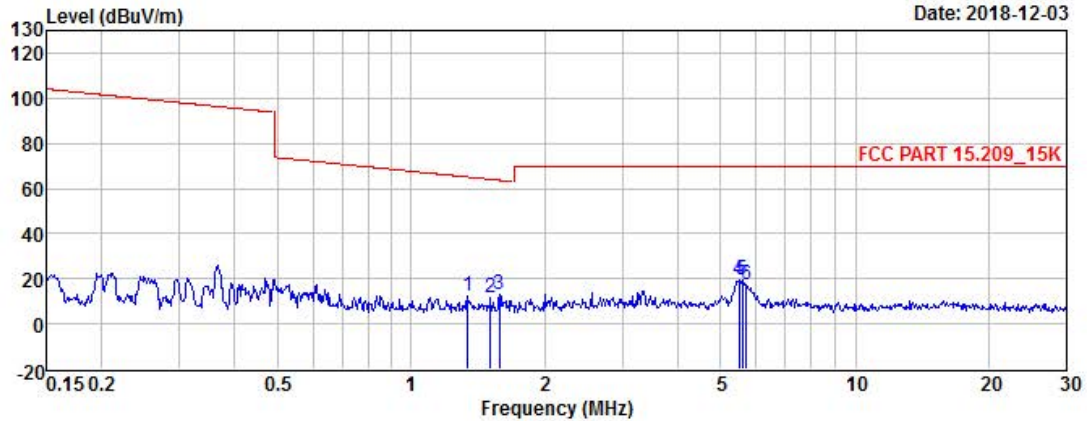
Test Mode : Wireless Charging mode

Tested by: KWON H C

Data: 214

File: C:\Program Files (x86)\e3\KN17.EM6 (214)

Date: 2018-12-03



Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
MHz	dBuV	dB	QP dBuV/m	dBuV/m	dB	cm	deg	
1.34	-7.07	19.52	12.45	65.03	52.58	**	**	VERTICAL
1.51	-7.74	19.53	11.79	64.02	52.23	**	**	VERTICAL
1.59	-6.86	19.54	12.68	63.60	50.92	**	**	VERTICAL
5.51	-0.34	19.87	19.53	69.54	50.01	**	**	VERTICAL
5.59	-0.61	19.87	19.26	69.54	50.28	**	**	VERTICAL
5.71	-2.66	19.89	17.23	69.54	52.31	**	**	VERTICAL

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

30 ~ 1 GHz



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EUT/Model No.: DDP150

Temp/Humi: 22 / 36

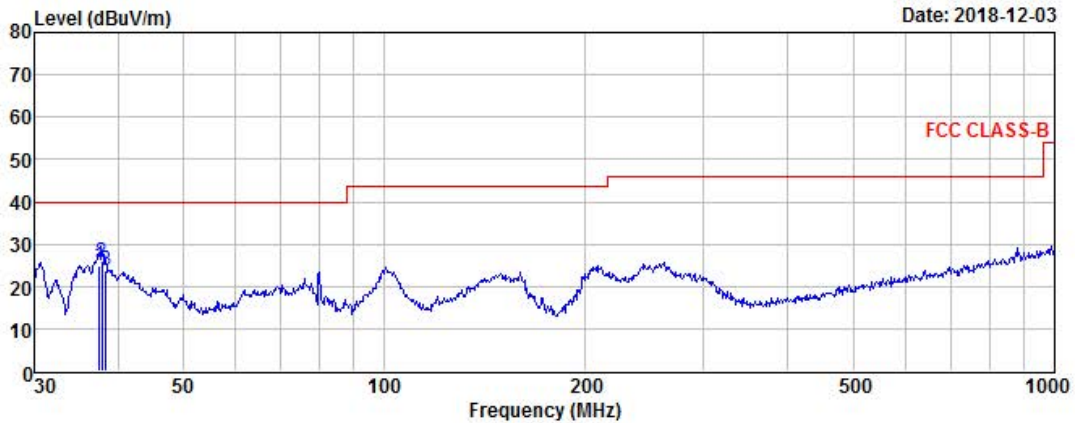
Test Mode : Wiress charging mode

Tested by: KWON H C

Data: 37

File: C:\Program Files (x86)\e3\1812-1.EM6 (38)

Date: 2018-12-03



Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
MHz	dBuV	dB	QP dBuV/m	dBuV/m	dB	cm	deg	
37.55	39.91	-14.94	24.97	40.00	15.03	394	163	HORIZONTAL
37.81	40.39	-14.91	25.48	40.00	14.52	347	125	HORIZONTAL
38.35	38.41	-14.85	23.56	40.00	16.44	354	152	HORIZONTAL

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain



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EUT/Model No.: DDP150

Temp/Humi: 22 / 36

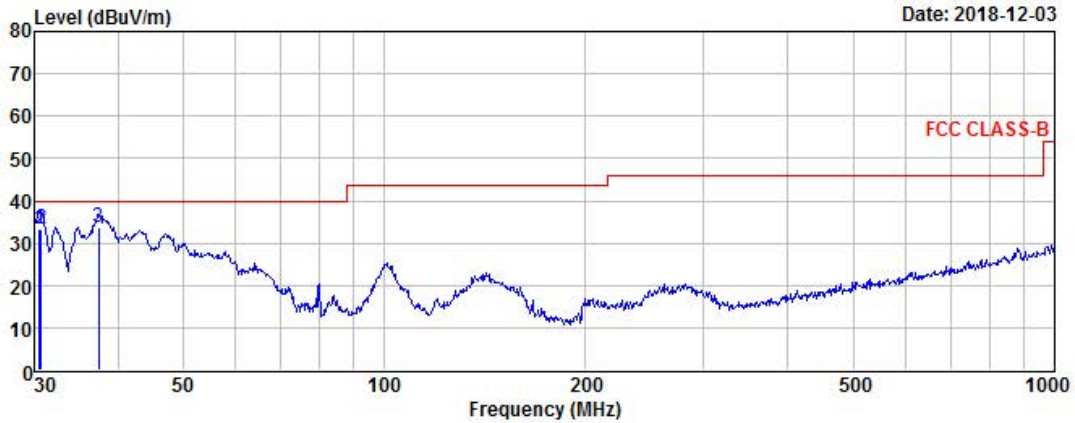
Test Mode : Wiress charging mode

Tested by: KWON H C

Data: 38

File: C:\Program Files (x86)\e3\1812-1.EM6 (38)

Date: 2018-12-03



Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
MHz	dBuV	dB	QP dBuV/m	dBuV/m	dB	cm	deg	
30.53	48.91	-15.79	33.12	40.00	6.88	106	241	VERTICAL
30.75	48.96	-15.76	33.20	40.00	6.80	113	214	VERTICAL
37.42	48.63	-14.96	33.67	40.00	6.33	108	268	VERTICAL

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

3.2.3 AC Conducted Emissions

Procedure:

The conducted emissions are measured in the shielded room with a spectrum analyzer in peak hold. While the measurement, EUT had its hopping function disabled at the middle channels in line with Section 15.31(m). Emissions closest to the limit are measured in the quasi-peak mode (QP) with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation and Exerciser operation. The highest emissions relative to the limit are listed.

Minimum Standard: FCC Part 15.207(a) / EN 55022

Class B

Frequency Range	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 / Model No. : DDP150

Phase : LINE

Test Mode : Operating mode

Test Power : 120 / 60

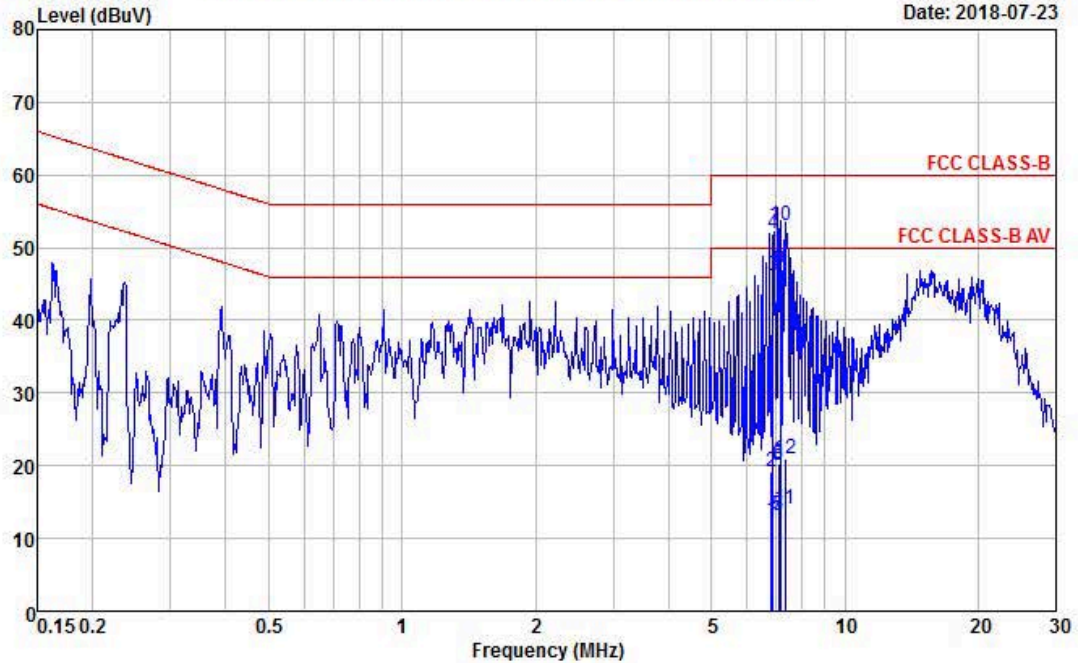
Temp. / Humi. : 25 / 48

Test Engineer : SEO J W

Data: 1773

File: D:\Conducted Data\2018\LTA_Conduction_2018_7.EM6 (1776)

Date: 2018-07-23



Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
MHz	QP	AV		QP	AV	QP	AV	QP	AV
	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB
6.820	-0.49	-7.31	19.72	19.23	12.41	60.00	50.00	40.77	37.59
6.895	32.14	26.47	19.73	51.87	46.20	60.00	50.00	8.13	3.80
7.082	0.47	-6.59	19.74	20.21	13.15	60.00	50.00	39.79	36.85
7.083	0.33	-6.65	19.74	20.07	13.09	60.00	50.00	39.93	36.91
7.155	33.20	27.28	19.75	52.95	47.03	60.00	50.00	7.05	2.97
7.345	1.14	-5.67	19.76	20.90	14.09	60.00	50.00	39.10	35.91

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter



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EUT / Model No. : DDP150

Phase : NEUTRAL

Test Mode : Operating mode

Test Power : 120 / 60

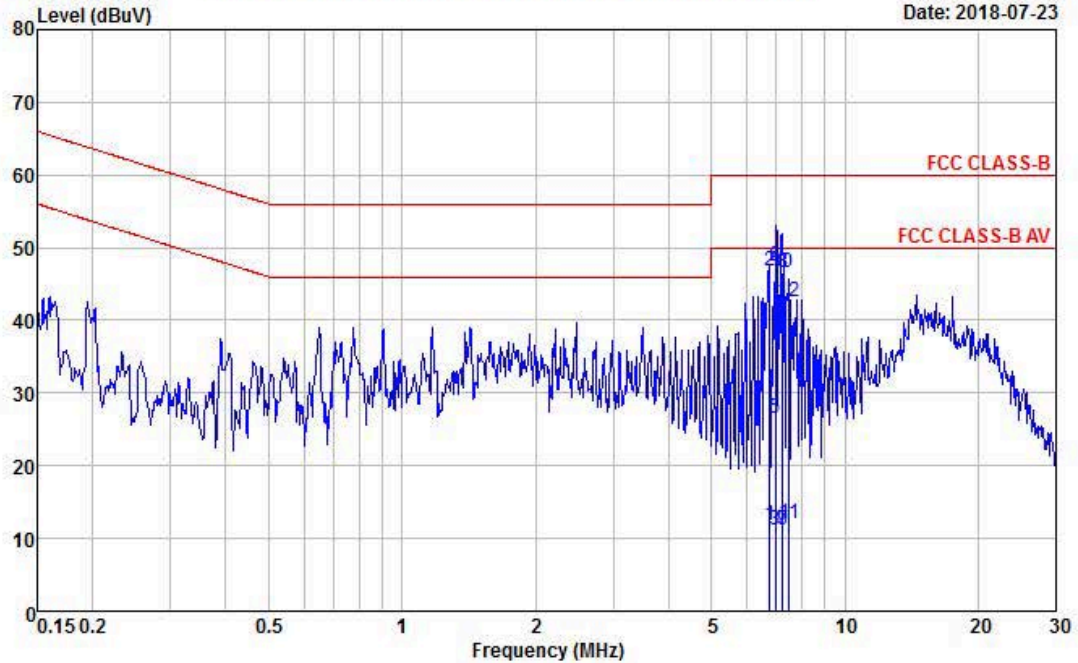
Temp. / Humi. : 25 / 48

Test Engineer : SEO J W

Data: 1776

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Date: 2018-07-23

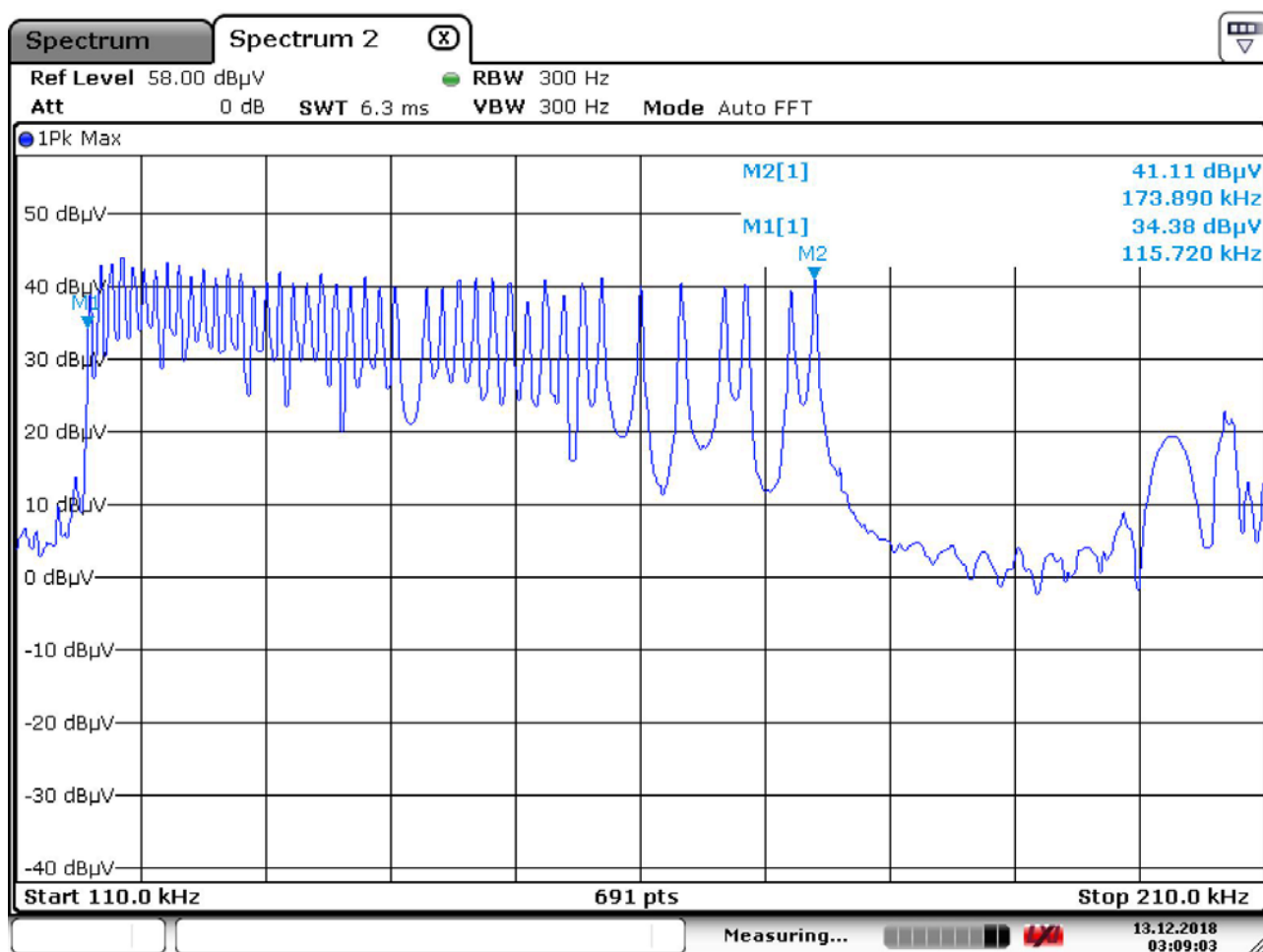


Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
MHz	QP	AV		QP	AV	QP	AV	QP	AV
	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB
6.765	27.04	-8.00	19.71	46.75	11.71	60.00	50.00	13.25	38.29
6.968	27.22	-8.57	19.72	46.94	11.15	60.00	50.00	13.06	38.85
6.969	27.66	-6.88	19.72	47.38	26.60	60.00	50.00	12.62	23.40
7.226	26.94	-8.64	19.74	46.68	11.10	60.00	50.00	13.32	38.90
7.227	26.87	-8.59	19.74	46.61	11.15	60.00	50.00	13.39	38.85
7.485	22.77	-7.63	19.76	42.53	12.13	60.00	50.00	17.47	37.87

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

3.2.4 Bandwidth Measurement

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	0.115	6	0.140	11	0.165	16	0.190
2	0.120	7	0.145	12	0.170	17	0.195
3	0.125	8	0.150	13	0.175	18	0.200
4	0.130	9	0.155	14	0.180	19	0.205
5	0.135	10	0.160	15	0.185		



Date: 13.DEC.2018 03:09:04

APPENDIX I

TEST EQUIPMENT USED FOR TESTS

	Use	Description	Model No.	Serial No.	Manufacturer	Interval	Last Cal. Date
1	■	Signal Analyzer (9 kHz ~ 30 GHz)	FSV30	100757	R&S	1 year	2018-09-06
2		SYNTHESIZED CW GENERATOR	83711B	US34490456	HP	1 year	2018-03-19
3		Attenuator (3 dB)	8491A	37822	HP	1 year	2018-09-06
4		Attenuator (10 dB)	8491A	63196	HP	1 year	2018-09-06
5	■	EMI Test Receiver (~7 GHz)	ESCI7	100722	R&S	1 year	2018-09-06
6	■	RF Amplifier (~1.3 GHz)	8447D OPT 010	2944A07684	HP	1 year	2018-09-06
7	■	RF Amplifier (1~26.5 GHz)	8449B	3008A02126	HP	1 year	2018-03-21
8	■	Horn Antenna (1~18 GHz)	3115	00114105	ETS	2 year	2018-08-04
9		DRG Horn (Small)	3116B	81109	ETS-Lindgren	2 year	2018-05-03
10	■	DRG Horn (Small)	3116B	133350	ETS-Lindgren	2 year	2018-05-03
11	■	TRILOG Antenna	VULB 9160	9160-3237	SCHWARZBECK	2 year	2017-04-17
13		DC Power Supply	6674A	3637A01657	Agilent	-	-
14	■	Power Meter	EPM-441A	GB32481702	HP	1 year	2018-03-20
15	■	Power Sensor	8481A	3318A94972	HP	1 year	2018-09-06
16		Audio Analyzer	8903B	3729A18901	HP	1 year	2018-09-06
17		Modulation Analyzer	8901B	3749A05878	HP	1 year	2018-09-06
18		TEMP & HUMIDITY Chamber	YJ-500	LTAS06041	JinYoung Tech	1 year	2018-09-06
19		Stop Watch	HS-3	812Q08R	CASIO	2 year	2018-03-21
20	■	LISN	KNW-407	8-1430-1	Kyoritsu	1 year	2018-09-06
21		Two-Lime V-Network	ESH3-Z5	893045/017	R&S	1 year	2018-03-20
22		Highpass Filter	WHKX1.5/15G-10SS	74	Wainwright Instruments	1 year	2018-03-20
23		Highpass Filter	WHKX3.0/18G-10SS	118	Wainwright Instruments	1 year	2018-03-20
24		OSP120 BASE UNIT	OSP120	101230	R&S	1 year	2018-03-21
25	■	Signal Generator(100 kHz ~ 40 GHz)	SMB100A	177621	R&S	1 year	2018-03-20
26		Vector Signal Generator(9kHz ~ 6 GHz)	SMBV100A	255081	R&S	1 year	2018-03-20
27		Signal Analyzer (10 Hz ~ 40 GHz)	FSV40	101367	R&S	1 year	2018-03-21
28	■	Loop Antenna	HFH2-Z2	-	R&S	2 year	2017-02-27
29	■	RF Cable	SUCOFLEX	-	Huber+suhner	-	-

APPENDIX II

TEST EQUIPMENT USED FOR TESTS

	Use	Description	Model No.	Serial No.	Manufacturer	Interval	Last Cal. Date
1	■	Signal Analyzer (9 kHz ~ 30 GHz)	FSV30	100757	R&S	1 year	2017-09-07
3		SYNTHESIZED CW GENERATOR	83711B	US34490456	HP	1 year	2018-03-20
4		Attenuator (3 dB)	8491A	37822	HP	1 year	2017-09-07
5		Attenuator (10 dB)	8491A	63196	HP	1 year	2017-09-07
6		EMI Test Receiver (~7 GHz)	ESC17	100722	R&S	1 year	2017-09-07
7		RF Amplifier (~1.3 GHz)	8447D OPT 010	2944A07684	HP	1 year	2017-09-07
8		Horn Antenna (1~18 GHz)	3115	00114105	ETS	2 year	2017-04-17
9		DRG Horn (Small)	3116B	81109	ETS-Lindgren	2 year	2018-05-03
10		DRG Horn (Small)	3116B	133350	ETS-Lindgren	2 year	2018-05-03
11	■	TRILOG Antenna	VULB 9160	9160-3237	SCHWARZBECK	2 year	2018-04-17
12	■	Temp.Humidity Data Logger	SK-L200TH II A	00801	SATO	1 year	2017-09-07
13		Splitter (SMA)	ZFSC-2-2500	SF617800326	Mini-Circuits	-	-
14	■	DC Power Supply	6674A	3637A01657	Agilent	-	-
15	■	Power Meter	EPM-441A	GB32481702	HP	1 year	2018-03-20
16	■	Power Sensor	8481A	3318A94972	HP	1 year	2017-12-23
17		Audio Analyzer	8903B	3729A18901	HP	1 year	2017-09-07
18		Modulation Analyzer	8901B	3749A05878	HP	1 year	2017-09-07
19		TEMP & HUMIDITY Chamber	YJ-500	LTAS06041	JinYoung Tech	1 year	2017-09-07
20		Stop Watch	HS-3	812Q08R	CASIO	2 year	2017-03-21
21		LISN	KNW-407	8-1430-1	Kyoritsu	1 year	2017-09-12
22		Two-Lime V-Network	ESH3-Z5	893045/017	R&S	1 year	2018-03-20
23		Highpass Filter	WHKX1.5/15G-10SS	74	Wainwright Instruments	1 year	2018-03-19
24		Highpass Filter	WHKX3.0/18G-10SS	118	Wainwright Instruments	1 year	2018-03-19
25	■	Loop Antenna	HFH2-Z2	-	ROHDE&SCHWARZ	2 year	2017-02-27
26		OSP120 BASE UNIT	OSP120	101230	R&S	1 year	2018-03-21
27		Signal Generator(100 kHz ~ 40 GHz)	SMB100A03	177621	R&S	1 year	2018-03-20
28	■	Signal Generator(9kHz ~ 40 GHz)	SMB100V03	255081	R&S	1 year	2018-03-20
29		Signal Analyzer (10 Hz ~ 40 GHz)	FSV40	101367	R&S	1 year	2018-03-21
30	■	RF Cable	SUCOFLEX	-	Huber+suhner	-	-