CTK Co., Ltd.
(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea
Tel: +82-31-339-9970 Fax: +82-31-624-9501
www.e-ctk.com

TEST REPORT

According to : FCC 47CFR part 15 subpart C

Test Report No.	:	CTK-2015-00483
Date of Issue	:	April 30, 2015
FCC ID	:	2AAJPB100T
Equipment Under Test	:	B100T
Kind of Product	:	Dual Wireless Charging Pad
Applicant	:	Hansol Technics Co., Ltd.
Applicant Address	:	55, Hansam-ro, Deoksan-myeon, Jincheon-gun, Chungcheongbuk-do 365-843, Korea
Manufacturer	:	Hansol Technics Co., Ltd.
Manufacturer Address	:	55, Hansam-ro, Deoksan-myeon, Jincheon-gun, Chungcheongbuk-do 365-843, Korea
Contact Person	:	Weon-Seo Lee / Senior Engineer
Telephone	:	+82-43-530-8554
Received Date	:	April 03, 2015
Test period	:	Start : April 06, 2015 End : April 29, 2015
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: April 30, 2015

Reviewed by

Y. J. Park

Young-Joon, Park
Technical Manager
Date: April 30, 2015

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

REPORT REVISION HISTORY

Date	Revision	Page No
April 30, 2015	Issued (CTK-2015-00483)	All

This report shall not be reproduced except in full, without the written approval of CTK Co., Ltd. This document may be altered or revised by CTK Co., Ltd. personnel only, and shall be noted in the revision section of the document. Any alteration of this document not carried out by CTK Co., Ltd. will constitute fraud and shall nullify the document.

TABLE OF CONTENTS

REPORT REVISION HISTORY 2
1.0 General Product Description 4
1.1 Model Differences 4
1.2 Device Modifications 4
1.3 Peripheral Devices 4
1.4 EUT Operating Modes 5
1.5 Test Modes 5
1.6 Calibration Details of Equipment Used for Measurement 7
1.7 Test Facility 7
1.8 Laboratory Accreditations and Listings 7
2.0 Summary of tests 8
2.1 Power line conducted emissions (Section 15.207) 9
2.2 Radiated emissions (Section 15.209) 23
APPENDIX A – Test Equipment Used For Tests 33

This Report shall not be reproduced except in full without the written approval of CTK

1.0 General Product Description

Type of equipment	Dual Wireless Charging Pad
Equipment model name	B100T
Frequency Range	110 kHz – 205 kHz
Antenna type	Coil antenna
Power Source	Input : AC 100 - 240 V, 50/60 Hz, 0.5 A Output : DC 19 V, 850 mA Test Voltage and Frequency : DC 19 V, -

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
SWITCHING POWER SUPPLY	PERFECT POWER CO., LTD.	PA-19085LS	-	-
Test Jig	OPENTECH Inc.	-	-	-
Wireless Charging Receiver	OPENTECH Inc.	OWS-303R	-	-
Mobile Phone	Samsung Electronics Co., Ltd.	SCH-I535	-	A3LSCHI535

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

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. 11.98 dBuV/m (Frequency 114.5 kHz, Test Distance 3 m)

TX Duty Cycle : 100 % by measurement

1.5 Test Modes

This device has been tested below conditions:

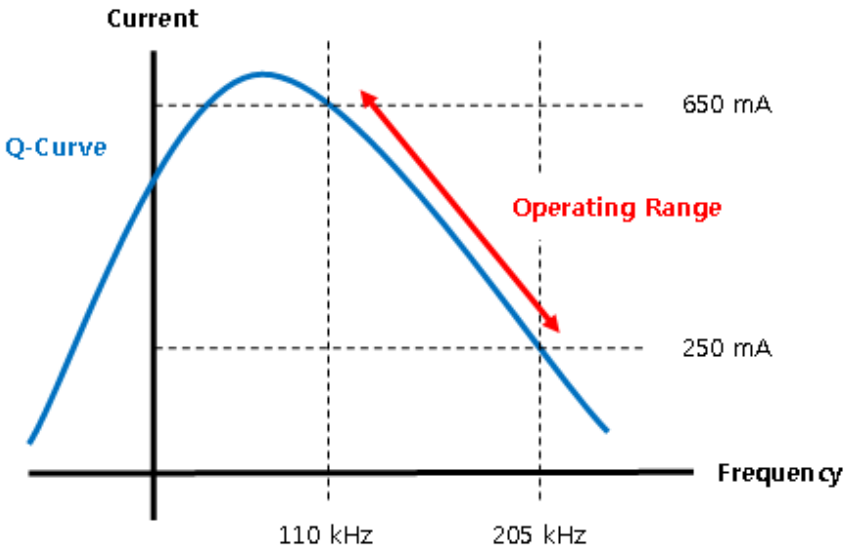
[Test Mode #1]

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.



This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

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 : $I = \frac{V}{R}$, $0.65\,A = \frac{5\,V}{R}$, $R = \frac{5\,V}{0.65\,A}$, $R \approx 7.69\,\Omega$

8) Test Jig #2
Operating Frequency : 157.5 kHz, Output Voltage : DC 5 V, Output Current : 0.425 A
Calculation of resistor value : $I = \frac{V}{R}$, $0.425\,A = \frac{5\,V}{R}$, $R = \frac{5\,V}{0.425\,A}$, $R \approx 11.76\,\Omega$

9) Test Jig #3
Operating Frequency : 205 kHz, Output Voltage : DC 5 V, Output Current : 0.25 A
Calculation of resistor value : $I = \frac{V}{R}$, $0.25\,A = \frac{5\,V}{R}$, $R = \frac{5\,V}{0.25\,A}$, $R = 20\,\Omega$

[Test Mode #2]

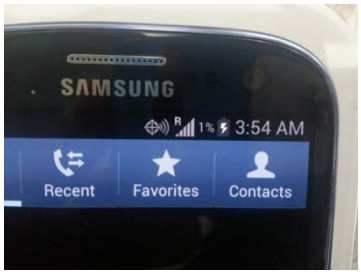
Support Equipment	Battery status	Note
Mobile Phone	< 1%	Max. Load
Mobile Phone	50 %	Medium Load

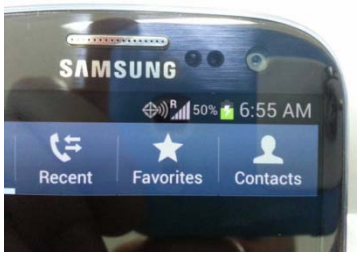
Note : The Charging is not operation when 100% fully charged status.

This device has been tested with the Mobile phone.

Mobile phone is on Airplane Mode.

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





This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

[Test Mode #3]

Support Equipment	Battery status	Note
Bluetooth Speaker (B100S) + Bluetooth Lighting (B100L)	< 1%	Max. Load

This device has been tested with the package product.

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 (Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea.

1.8 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Registration Number	Logo
USA	FCC	FCC Part 15 & 18 EMI (Electromagnetic Interference / Emission)	805871	
JAPAN	VCCI	VCCI V-3 EMI (Electromagnetic Interference / Emission)	C-986 T-1843 R-3627 G-387	
KOREA	MSIP	EMI (Electromagnetic Interference / Emission) EMS (Electromagnetic Susceptibility / Immunity)	KR0025	

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

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.

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

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.

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.

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

Test Results

The requirements are:

☒ Complies

[Test Mode #1]

[Operating Frequency : 110 kHz]

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
1.108	35.3	10.7	Average

[Operating Frequency : 157.5 kHz]

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
1.513	36.0	10.0	Average

[Operating Frequency : 205 kHz]

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
2.598	38.1	7.9	Average

[Test Mode #2]

[< 1 % Battery Status]

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
0.600	42.5	3.5	Average

[50 % Battery Status]

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
0.600	42.7	3.3	Average

[Test Mode #3]

[Bluetooth Speaker (B100S)+Bluetooth Lighting (B100L)]

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
0.154	54.6	11.1	Quasi-peak

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

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	54.0	1000.0	9.000	On	L1	9.7	12.0	66.0
0.150000	53.6	1000.0	9.000	On	L1	9.7	12.4	66.0
0.154500	52.9	1000.0	9.000	On	L1	9.7	12.8	65.8
0.195000	49.5	1000.0	9.000	On	L1	9.8	14.3	63.8
0.262500	43.5	1000.0	9.000	On	L1	9.6	17.9	61.4
1.108500	40.4	1000.0	9.000	On	L1	9.7	15.6	56.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.474000	35.2	1000.0	9.000	On	L1	9.9	11.3	46.4
0.793500	34.1	1000.0	9.000	On	L1	9.8	11.9	46.0
1.108500	35.3	1000.0	9.000	On	L1	9.7	10.7	46.0
1.423500	35.0	1000.0	9.000	On	L1	9.7	11.0	46.0
2.058000	34.9	1000.0	9.000	On	L1	9.8	11.1	46.0
3.007500	33.8	1000.0	9.000	On	L1	9.8	12.2	46.0

[NEUTRAL : AC 0 V]

Final Result 1

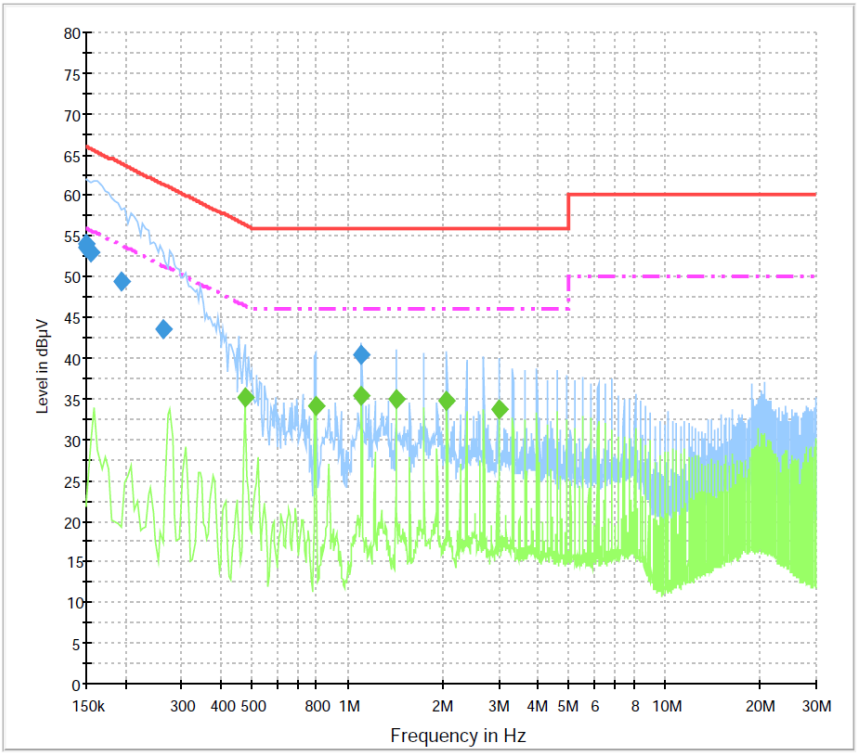
Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	53.3	1000.0	9.000	On	N	9.7	12.7	66.0
0.150000	53.4	1000.0	9.000	On	N	9.7	12.6	66.0
0.150000	53.0	1000.0	9.000	On	N	9.7	13.0	66.0
0.195000	48.5	1000.0	9.000	On	N	9.8	15.3	63.8
0.276000	42.1	1000.0	9.000	On	N	9.7	18.8	60.9
1.738500	36.5	1000.0	9.000	On	N	9.7	19.5	56.0

Final Result 2

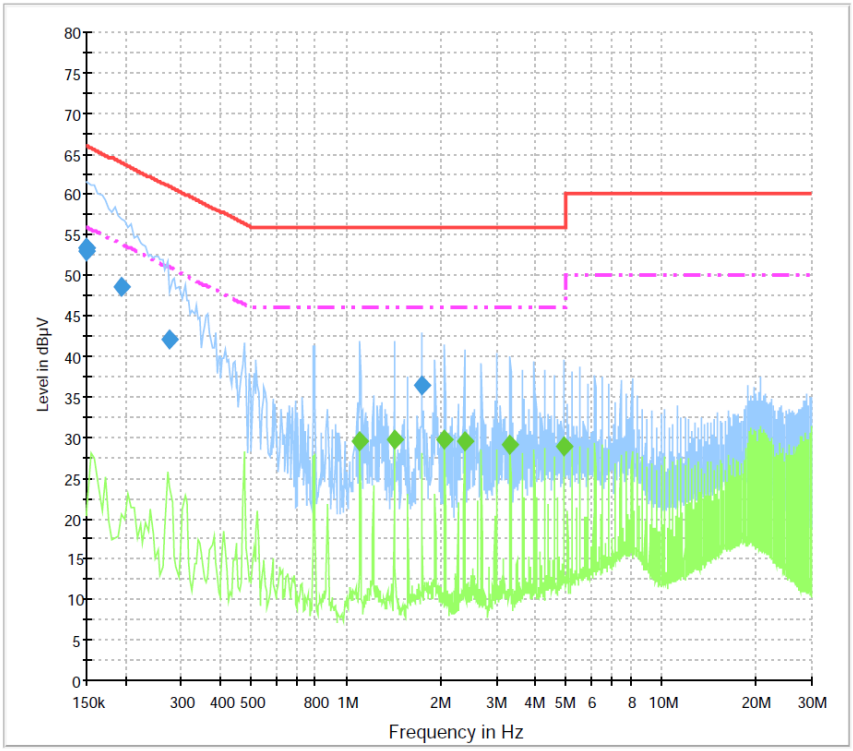
Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
1.108500	29.5	1000.0	9.000	On	N	9.7	16.5	46.0
1.423500	29.8	1000.0	9.000	On	N	9.7	16.2	46.0
2.058000	29.6	1000.0	9.000	On	N	9.8	16.4	46.0
2.373000	29.4	1000.0	9.000	On	N	9.8	16.6	46.0
3.322500	29.0	1000.0	9.000	On	N	9.7	17.0	46.0
4.906500	28.8	1000.0	9.000	On	N	9.7	17.2	46.0

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

[HOT : AC 120 V]



[NEUTRAL : AC 0 V]



This Report shall not be reproduced except in full without the written approval of CTK

[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	53.2	1000.0	9.000	On	L1	9.7	12.8	66.0
0.150000	52.6	1000.0	9.000	On	L1	9.7	13.4	66.0
0.154500	52.9	1000.0	9.000	On	L1	9.7	12.9	65.8
0.195000	48.9	1000.0	9.000	On	L1	9.8	14.9	63.8
0.505500	40.1	1000.0	9.000	On	L1	9.9	15.9	56.0
1.513500	41.9	1000.0	9.000	On	L1	9.7	14.1	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.505500	35.2	1000.0	9.000	On	L1	9.9	10.8	46.0
0.843000	34.8	1000.0	9.000	On	L1	9.8	11.2	46.0
1.176000	35.2	1000.0	9.000	On	L1	9.7	10.8	46.0
1.513500	36.0	1000.0	9.000	On	L1	9.7	10.0	46.0
1.851000	35.8	1000.0	9.000	On	L1	9.7	10.2	46.0
2.521500	34.9	1000.0	9.000	On	L1	9.8	11.1	46.0

.

[NEUTRAL : AC 0 V]

Final Result 1

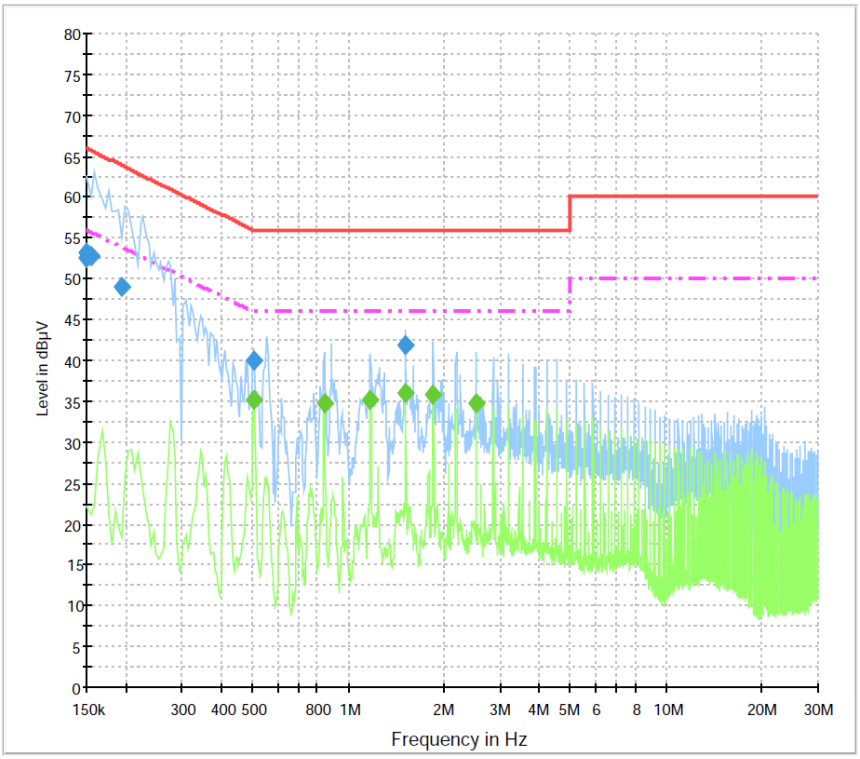
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	54.6	1000.0	9.000	On	N	9.7	11.4	66.0
0.150000	52.1	1000.0	9.000	On	N	9.7	13.9	66.0
0.154500	54.0	1000.0	9.000	On	N	9.7	11.8	65.8
0.195000	48.3	1000.0	9.000	On	N	9.8	15.5	63.8
0.429000	29.2	1000.0	9.000	On	N	9.9	28.0	57.3
2.188500	38.0	1000.0	9.000	On	N	9.8	18.0	56.0

Final Result 2

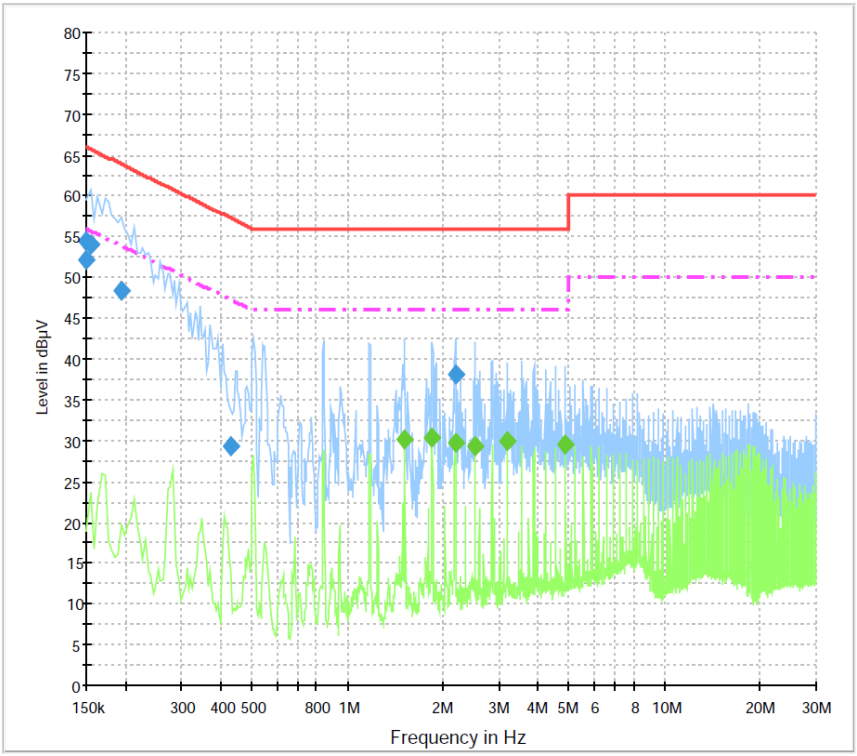
Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.513500	30.2	1000.0	9.000	On	N	9.7	15.8	46.0
1.851000	30.3	1000.0	9.000	On	N	9.7	15.7	46.0
2.188500	29.8	1000.0	9.000	On	N	9.8	16.2	46.0
2.521500	29.3	1000.0	9.000	On	N	9.8	16.7	46.0
3.196500	30.0	1000.0	9.000	On	N	9.7	16.0	46.0
4.879500	29.5	1000.0	9.000	On	N	9.7	16.5	46.0

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

[HOT : AC 120 V]



[NEUTRAL : AC 0 V]



This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

[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)
0.150000	54.6	1000.0	9.000	On	L1	9.7	11.4	66.0
0.150000	54.6	1000.0	9.000	On	L1	9.7	11.4	66.0
0.186000	50.7	1000.0	9.000	On	L1	9.8	13.5	64.2
0.204000	48.8	1000.0	9.000	On	L1	9.8	14.7	63.4
1.797000	42.6	1000.0	9.000	On	L1	9.7	13.4	56.0
2.598000	42.4	1000.0	9.000	On	L1	9.8	13.6	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.000500	37.1	1000.0	9.000	On	L1	9.7	8.9	46.0
1.797000	38.0	1000.0	9.000	On	L1	9.7	8.0	46.0
2.598000	38.1	1000.0	9.000	On	L1	9.8	7.9	46.0
3.399000	36.3	1000.0	9.000	On	L1	9.8	9.7	46.0
4.195500	35.9	1000.0	9.000	On	L1	9.8	10.1	46.0
19.783500	38.3	1000.0	9.000	On	L1	9.9	11.7	50.0

[NEUTRAL : AC 0 V]

Final Result 1

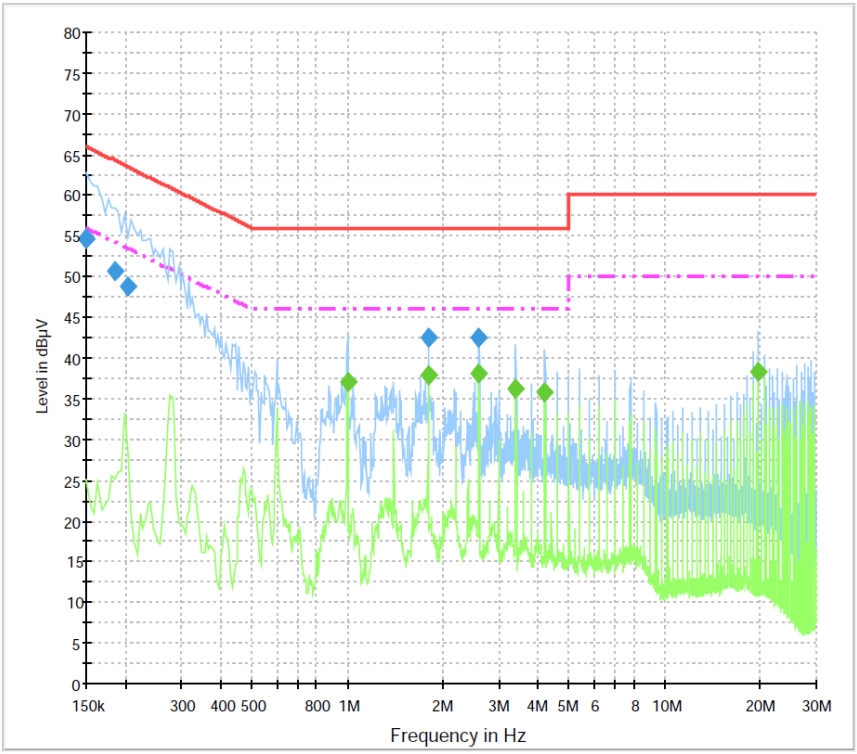
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	54.7	1000.0	9.000	On	N	9.7	11.3	66.0
0.150000	54.7	1000.0	9.000	On	N	9.7	11.3	66.0
0.150000	54.9	1000.0	9.000	On	N	9.7	11.1	66.0
0.195000	50.7	1000.0	9.000	On	N	9.8	13.2	63.8
0.271500	45.4	1000.0	9.000	On	N	9.7	15.7	61.1
2.598000	39.8	1000.0	9.000	On	N	9.7	16.2	56.0

Final Result 2

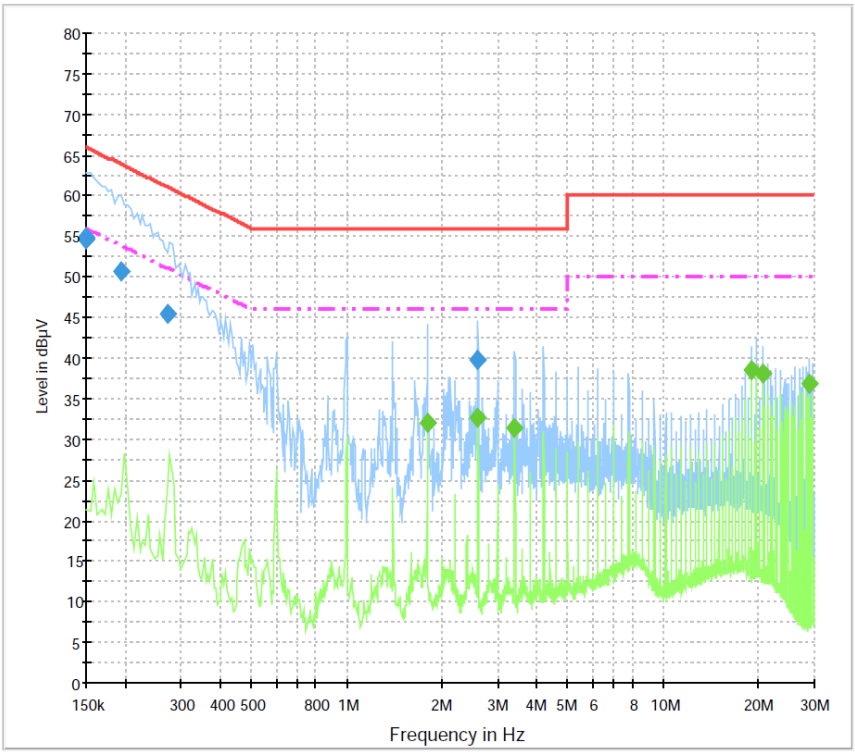
Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.797000	32.1	1000.0	9.000	On	N	9.7	13.9	46.0
2.598000	32.7	1000.0	9.000	On	N	9.7	13.3	46.0
3.399000	31.4	1000.0	9.000	On	N	9.7	14.6	46.0
18.987000	38.5	1000.0	9.000	On	N	10.0	11.5	50.0
20.580000	38.0	1000.0	9.000	On	N	10.1	12.0	50.0
28.977000	36.9	1000.0	9.000	On	N	10.1	13.1	50.0

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

[HOT : AC 120 V]



[NEUTRAL : AC 0 V]



This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

[< 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	54.8	1000.0	9.000	On	L1	9.7	11.2	66.0
0.150000	55.3	1000.0	9.000	On	L1	9.7	10.7	66.0
0.154500	53.0	1000.0	9.000	On	L1	9.7	12.7	65.8
0.600000	47.8	1000.0	9.000	On	L1	9.8	8.2	56.0
1.401000	45.2	1000.0	9.000	On	L1	9.7	10.8	56.0
1.797000	46.9	1000.0	9.000	On	L1	9.7	9.1	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.600000	42.5	1000.0	9.000	On	L1	9.8	3.5	46.0
1.401000	39.7	1000.0	9.000	On	L1	9.7	6.3	46.0
1.797000	41.6	1000.0	9.000	On	L1	9.7	4.4	46.0
2.598000	40.6	1000.0	9.000	On	L1	9.8	5.4	46.0
2.998500	40.4	1000.0	9.000	On	L1	9.8	5.6	46.0
3.799500	39.3	1000.0	9.000	On	L1	9.8	6.7	46.0

[NEUTRAL : AC 0 V]

Final Result 1

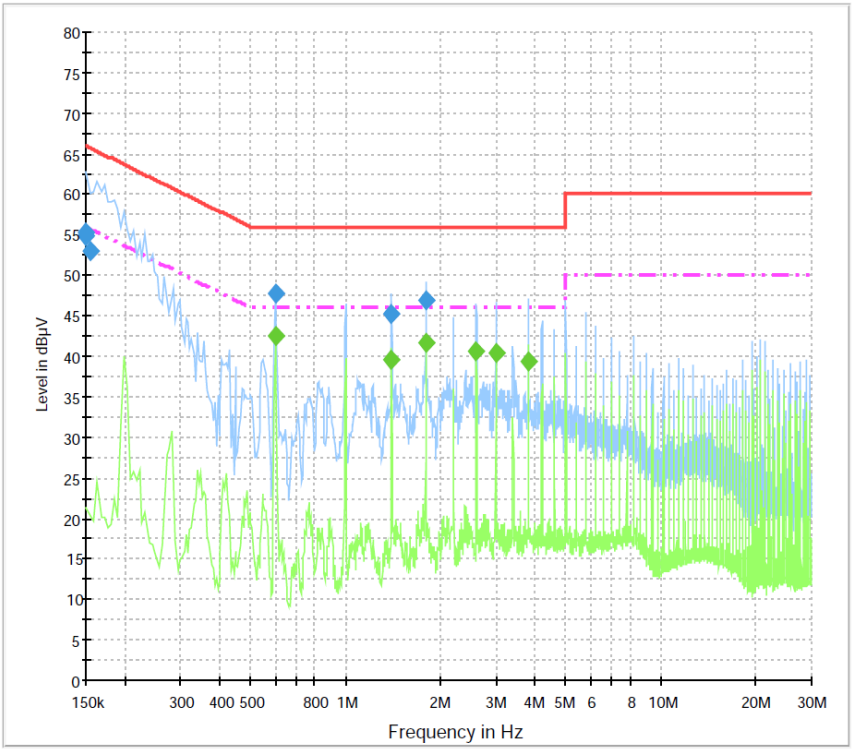
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	55.6	1000.0	9.000	On	N	9.7	10.4	66.0
0.159000	54.6	1000.0	9.000	On	N	9.7	10.9	65.5
0.177000	53.7	1000.0	9.000	On	N	9.7	10.9	64.6
0.244500	51.1	1000.0	9.000	On	N	9.6	10.9	61.9
0.600000	42.2	1000.0	9.000	On	N	9.8	13.8	56.0
1.797000	42.3	1000.0	9.000	On	N	9.7	13.7	56.0

Final Result 2

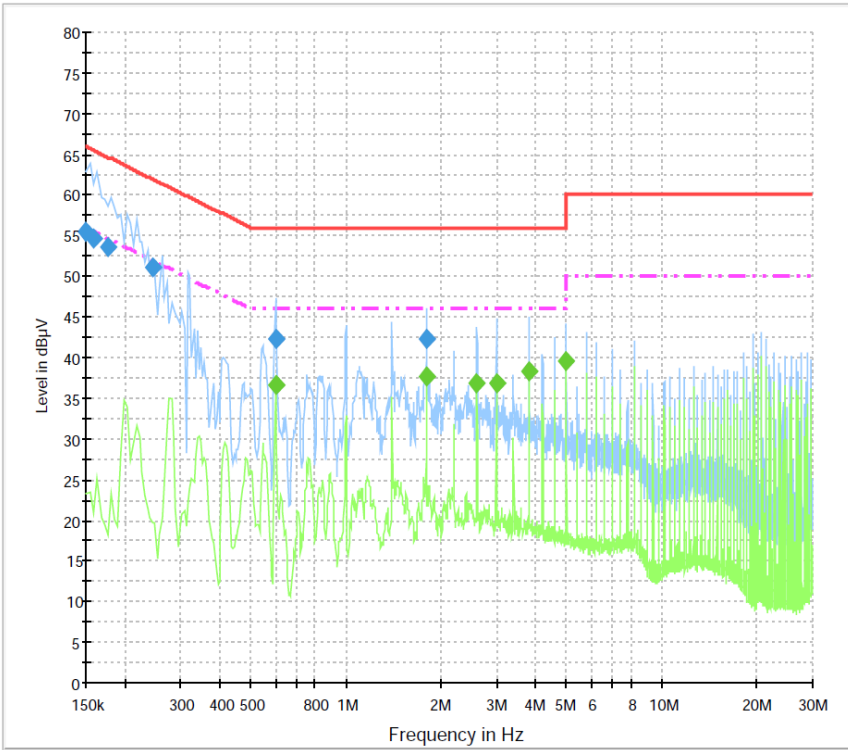
Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.600000	36.7	1000.0	9.000	On	N	9.8	9.3	46.0
1.797000	37.7	1000.0	9.000	On	N	9.7	8.3	46.0
2.598000	36.9	1000.0	9.000	On	N	9.7	9.1	46.0
2.998500	36.9	1000.0	9.000	On	N	9.7	9.1	46.0
3.795000	38.2	1000.0	9.000	On	N	9.7	7.8	46.0
4.996500	39.5	1000.0	9.000	On	N	9.7	6.5	46.0

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

[HOT : AC 120 V]



[NEUTRAL : AC 0 V]



This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

[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	54.6	1000.0	9.000	On	L1	9.7	11.4	66.0
0.159000	53.9	1000.0	9.000	On	L1	9.8	11.6	65.5
0.163500	54.0	1000.0	9.000	On	L1	9.8	11.3	65.3
0.600000	47.9	1000.0	9.000	On	L1	9.8	8.1	56.0
1.000500	47.3	1000.0	9.000	On	L1	9.7	8.7	56.0
1.401000	45.9	1000.0	9.000	On	L1	9.7	10.1	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.600000	42.7	1000.0	9.000	On	L1	9.8	3.3	46.0
1.000500	41.9	1000.0	9.000	On	L1	9.7	4.1	46.0
1.401000	40.4	1000.0	9.000	On	L1	9.7	5.6	46.0
1.797000	39.7	1000.0	9.000	On	L1	9.7	6.3	46.0
2.197500	38.8	1000.0	9.000	On	L1	9.8	7.2	46.0
4.996500	37.9	1000.0	9.000	On	L1	9.8	8.1	46.0

[NEUTRAL : AC 0 V]

Final Result 1

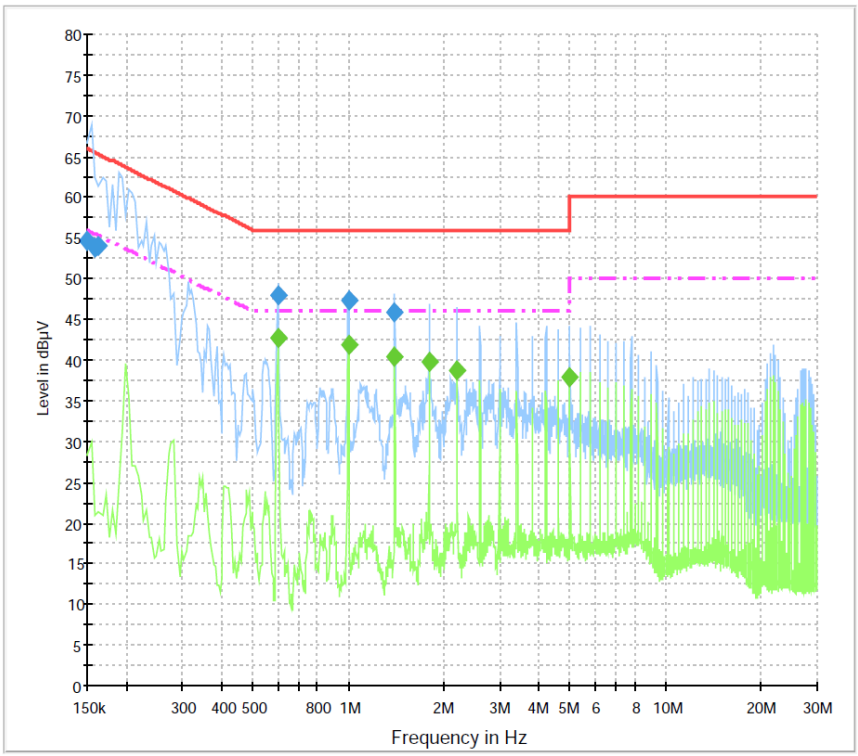
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	56.3	1000.0	9.000	On	N	9.7	9.7	66.0
0.168000	53.0	1000.0	9.000	On	N	9.7	12.1	65.1
0.172500	51.4	1000.0	9.000	On	N	9.7	13.4	64.8
0.600000	42.4	1000.0	9.000	On	N	9.8	13.6	56.0
1.000500	41.6	1000.0	9.000	On	N	9.7	14.4	56.0
1.401000	40.6	1000.0	9.000	On	N	9.7	15.4	56.0

Final Result 2

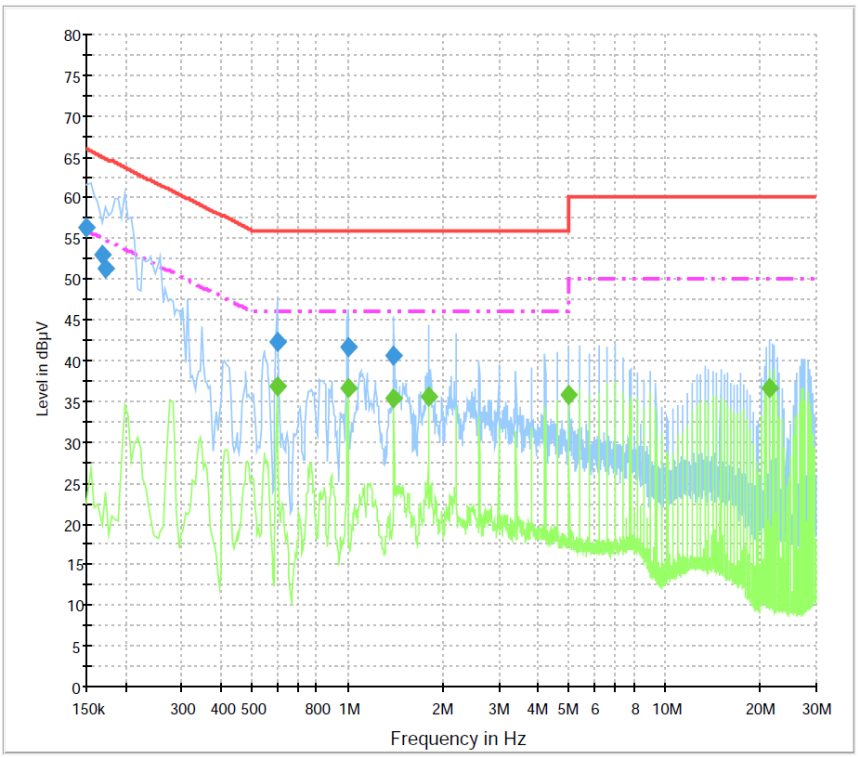
Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.600000	36.8	1000.0	9.000	On	N	9.8	9.2	46.0
1.000500	36.6	1000.0	9.000	On	N	9.7	9.4	46.0
1.401000	35.4	1000.0	9.000	On	N	9.7	10.6	46.0
1.797000	35.5	1000.0	9.000	On	N	9.7	10.5	46.0
4.996500	35.8	1000.0	9.000	On	N	9.7	10.2	46.0
21.381000	36.7	1000.0	9.000	On	N	10.1	13.3	50.0

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

[HOT : AC 120 V]



[NEUTRAL : AC 0 V]



This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

[Bluetooth Speaker (B100S) + Bluetooth Lighting (B100L)]

[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	54.5	1000.0	9.000	On	L1	9.7	11.5	66.0
0.150000	54.4	1000.0	9.000	On	L1	9.7	11.6	66.0
0.154500	54.1	1000.0	9.000	On	L1	9.7	11.6	65.8
0.208500	48.4	1000.0	9.000	On	L1	9.8	14.9	63.3
0.892500	40.4	1000.0	9.000	On	L1	9.8	15.6	56.0
1.248000	40.0	1000.0	9.000	On	L1	9.7	16.0	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.537000	32.7	1000.0	9.000	On	L1	9.9	13.3	46.0
0.892500	34.4	1000.0	9.000	On	L1	9.8	11.6	46.0
1.248000	34.4	1000.0	9.000	On	L1	9.7	11.6	46.0
1.963500	32.7	1000.0	9.000	On	L1	9.7	13.3	46.0
2.674500	33.4	1000.0	9.000	On	L1	9.8	12.6	46.0
3.745500	32.3	1000.0	9.000	On	L1	9.8	13.7	46.0

[NEUTRAL : AC 0 V]

Final Result 1

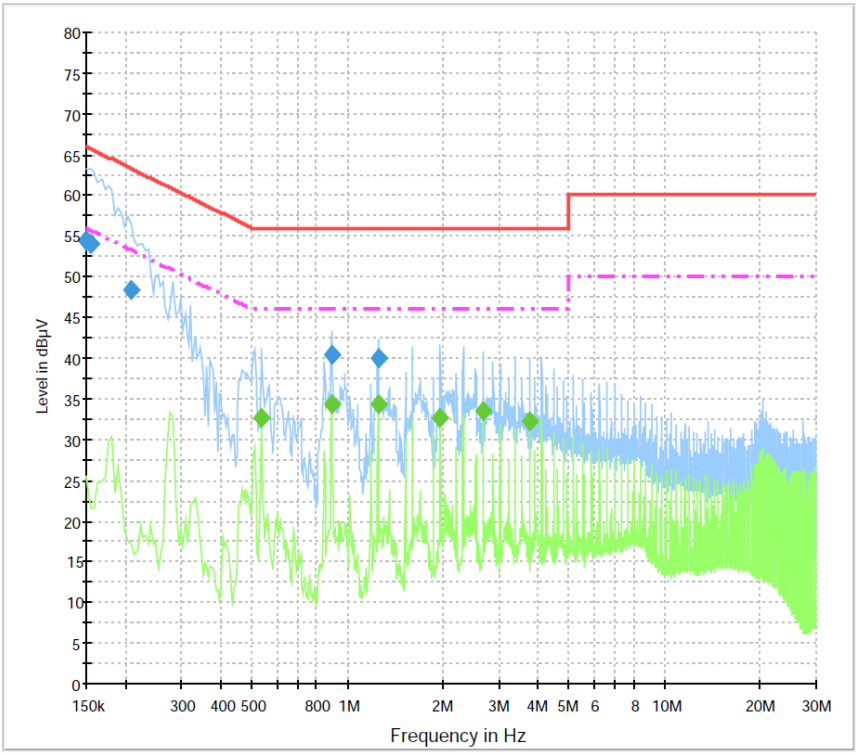
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	54.7	1000.0	9.000	On	N	9.7	11.3	66.0
0.150000	54.8	1000.0	9.000	On	N	9.7	11.2	66.0
0.154500	54.6	1000.0	9.000	On	N	9.7	11.1	65.8
0.199500	48.3	1000.0	9.000	On	N	9.8	15.4	63.6
0.460500	36.7	1000.0	9.000	On	N	9.9	20.0	56.7
0.465000	37.0	1000.0	9.000	On	N	9.9	19.6	56.6

Final Result 2

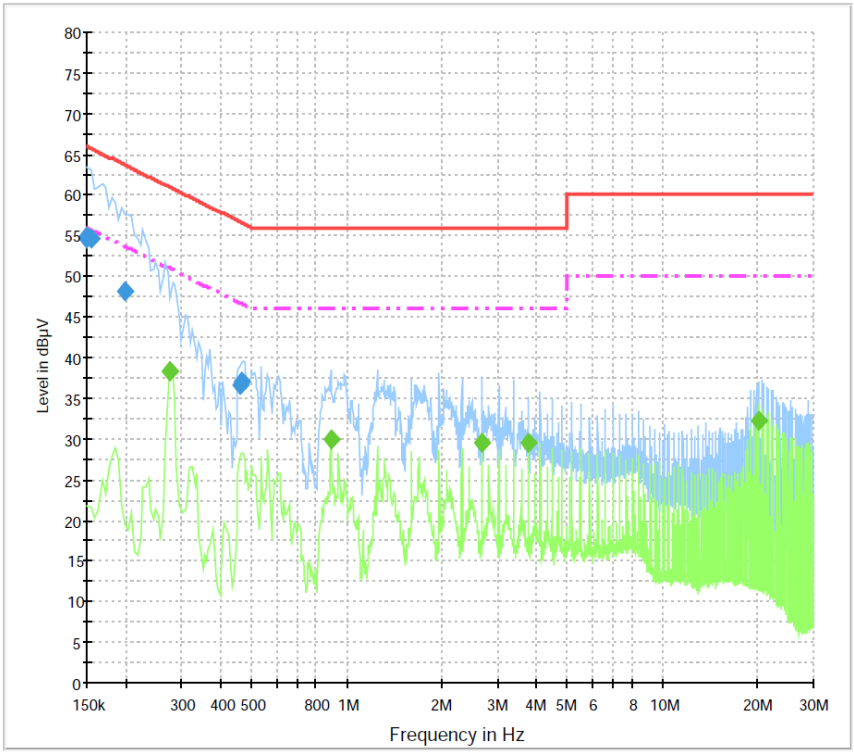
Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.276000	38.3	1000.0	9.000	On	N	9.7	12.6	50.9
0.276000	38.3	1000.0	9.000	On	N	9.7	12.6	50.9
0.892500	30.0	1000.0	9.000	On	N	9.7	16.0	46.0
2.674500	29.5	1000.0	9.000	On	N	9.7	16.5	46.0
3.745500	29.5	1000.0	9.000	On	N	9.7	16.5	46.0
20.206500	32.3	1000.0	9.000	On	N	10.1	17.7	50.0

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

[HOT : AC 120 V]



[NEUTRAL : AC 0 V]



This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

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 rage 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 ≥ RBW
Sweep = Auto

Limit

- **15.209(a)**

Frequency [MHz]	Field Strength [uV/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

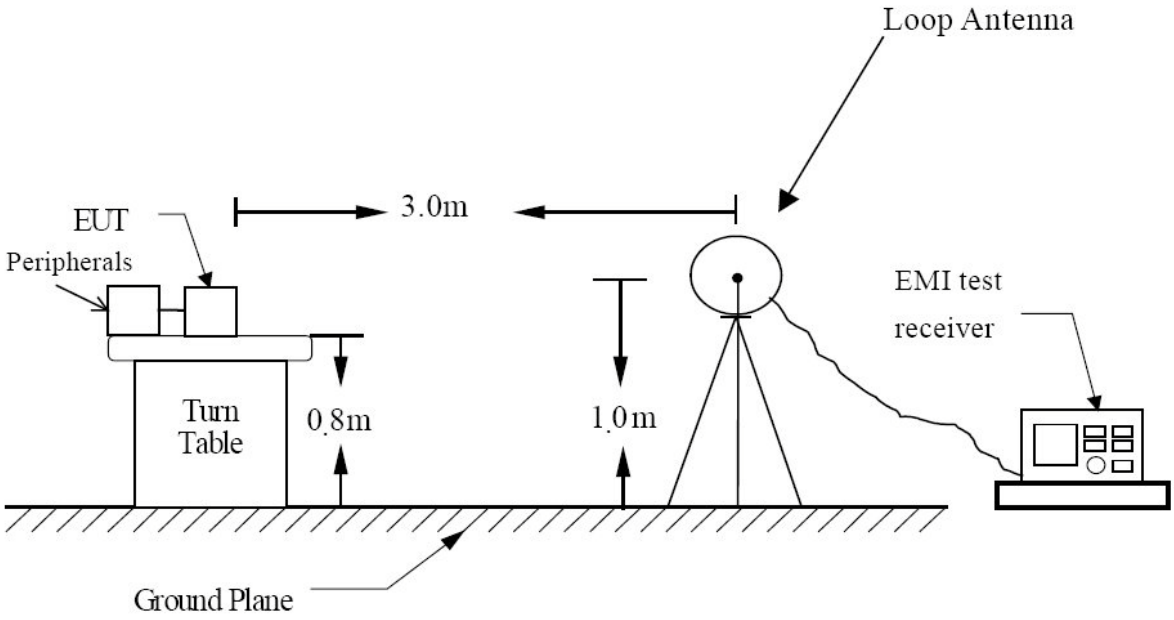
** Except as provided in 15.209(g).fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72MHz, 76-88MHz, 174-216MHz, 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g.15.231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

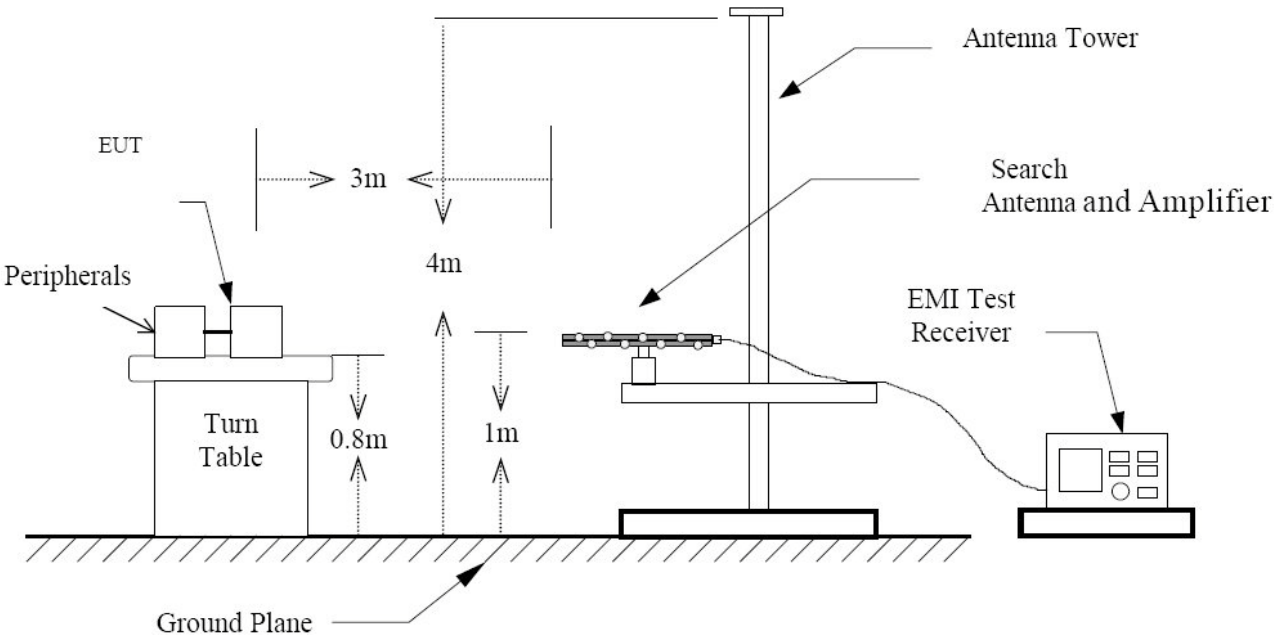
This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

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



This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

Test Results

EUT	Dual Wireless Charging Pad	Model	B100T
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
114.50	65.90	20.18	5.9	-80	11.98	46.43	34.45	Peak
114.50	65.50	20.18	5.9	-80	11.58	26.43	14.85	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
157.82	58.77	20.18	5.9	-80	4.85	43.64	38.79	Peak
157.82	58.56	20.18	5.9	-80	4.64	23.64	19.00	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
205.12	53.55	20.18	5.9	-80	-0.37	41.36	41.73	Peak
205.12	53.19	20.18	5.9	-80	-0.73	21.36	22.09	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
135.69	57.19	20.18	5.9	-80	3.27	44.95	41.68	Peak
135.69	57.03	20.18	5.9	-80	3.11	24.95	21.84	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
163.28	46.12	20.18	5.9	-80	-7.80	43.35	51.15	Peak
163.28	46.00	20.18	5.9	-80	-7.92	23.35	31.27	Average

[Test Mode #3]

Bluetooth Speaker (B100S)+Bluetooth Lighting (B100L)

Freq. (kHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Distance Correction	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	Detect Mode
156.88	49.23	20.18	5.9	-80	-4.69	43.69	48.38	Peak
156.88	49.10	20.18	5.9	-80	-4.82	23.69	28.51	Average

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

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
343.50	37.28	20.18	5.9	-80	-16.64	36.89	53.53	Peak
343.50	37.09	20.18	5.9	-80	-16.83	16.89	33.72	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
473.46	33.63	20.18	5.9	-80	-20.29	34.10	54.39	Peak
473.46	33.15	20.18	5.9	-80	-20.77	14.10	34.87	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
615.36	30.45	20.18	5.9	-80	-23.47	31.82	55.29	Peak
615.36	30.33	20.18	5.9	-80	-23.59	11.82	35.41	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
407.07	34.18	20.18	5.9	-80	-19.74	35.41	55.15	Peak
407.07	34.11	20.18	5.9	-80	-19.81	15.41	35.22	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
489.84	24.98	20.18	5.9	-80	-28.94	33.80	62.74	Peak
489.84	24.29	20.18	5.9	-80	-29.63	13.80	43.43	Average

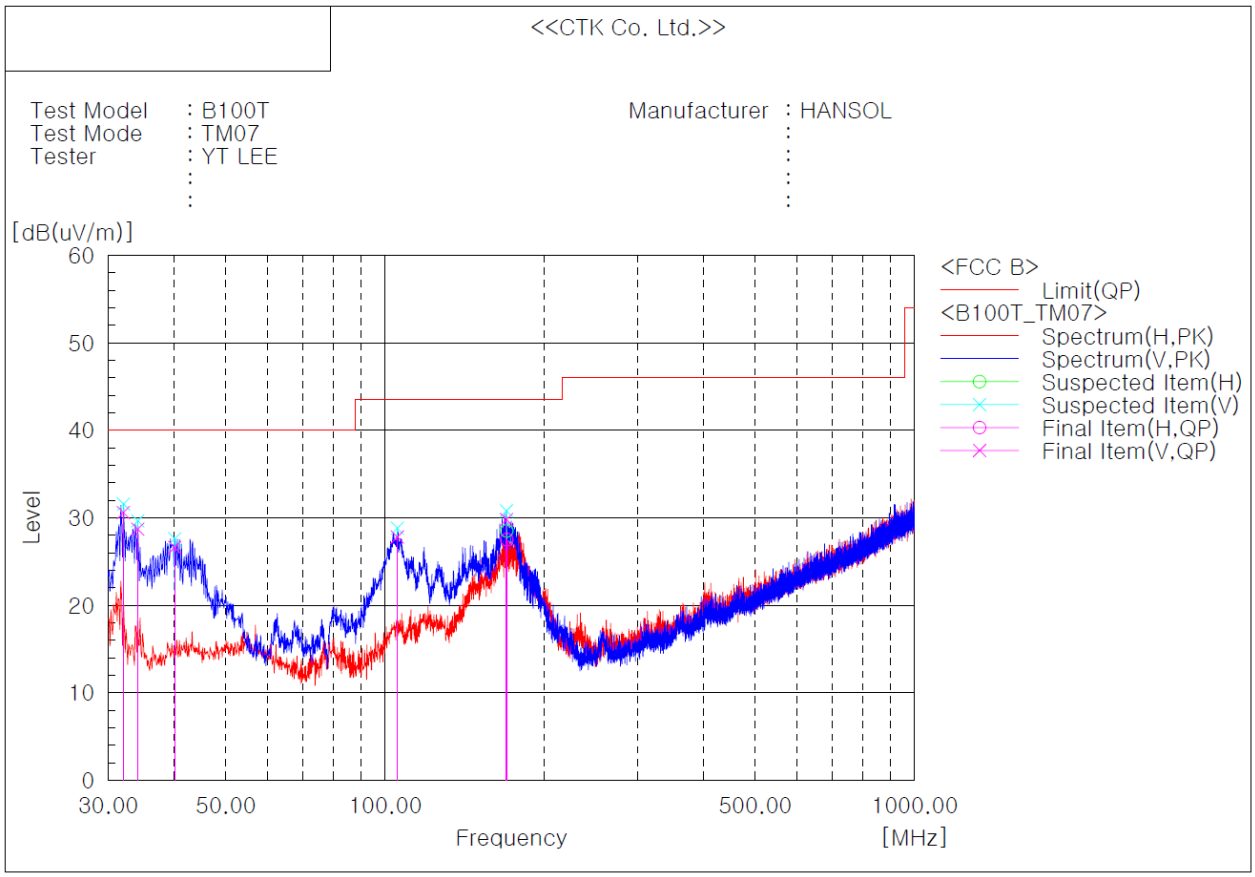
[Test Mode #3]

Bluetooth Speaker (B100S)+Bluetooth Lighting (B100L)

Freq. (kHz)	Reading (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Distance Correction	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	Detect Mode
470.64	28.33	20.18	5.9	-80	-25.59	34.15	59.74	Peak
470.64	28.03	20.18	5.9	-80	-25.89	14.15	40.04	Average

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

[Operating Frequency : 110 kHz]

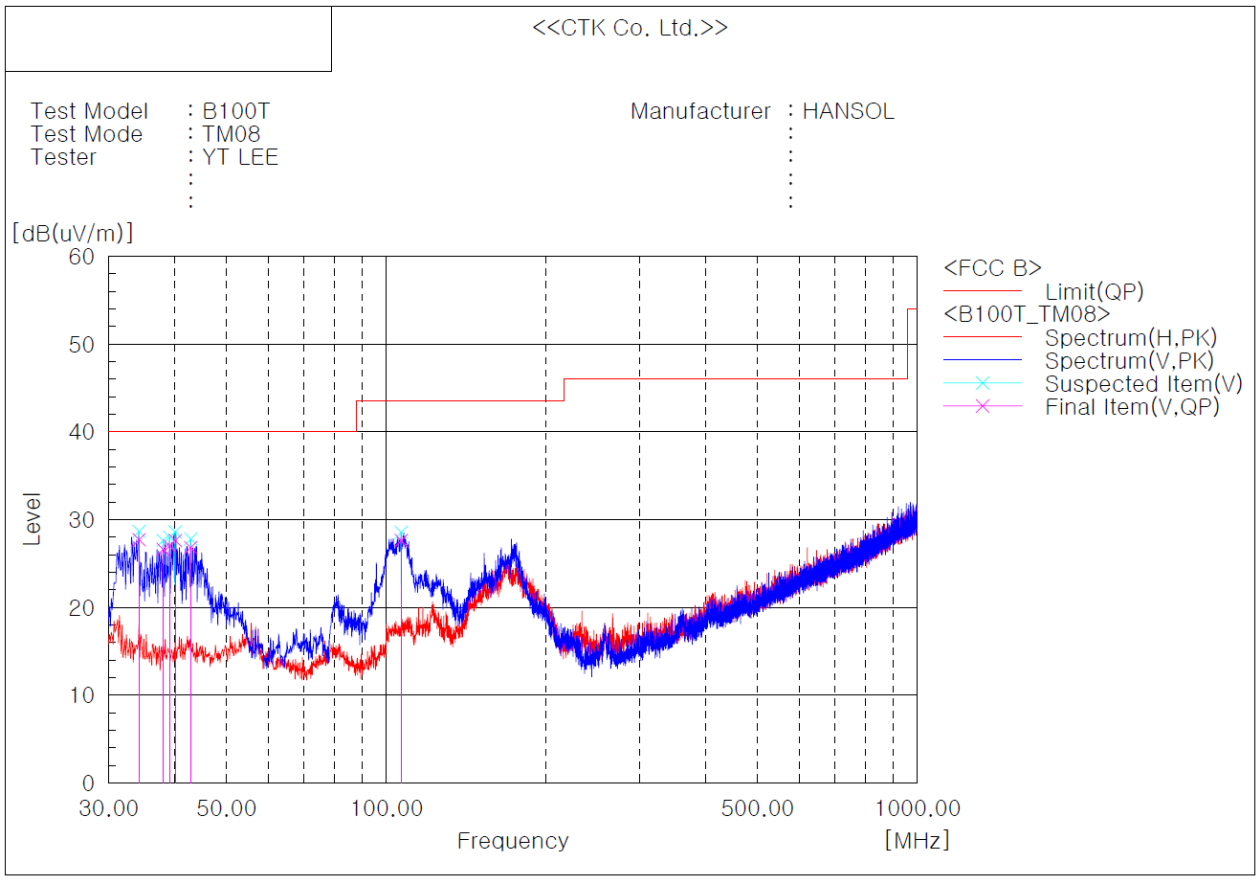


Final Result

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	32.061	V	44.1	-13.5	30.6	40.0	9.4	100.0	174.0
2	34.123	V	41.9	-13.2	28.7	40.0	11.3	100.0	62.0
3	40.064	V	38.7	-12.1	26.6	40.0	13.4	100.0	248.0
4	105.539	V	42.0	-14.2	27.8	43.5	15.7	100.0	62.0
5	169.559	V	35.3	-5.5	29.8	43.5	13.7	209.0	0.0
6	169.801	H	33.0	-5.5	27.5	43.5	16.0	193.0	62.0

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

[Operating Frequency : 157.5 kHz]

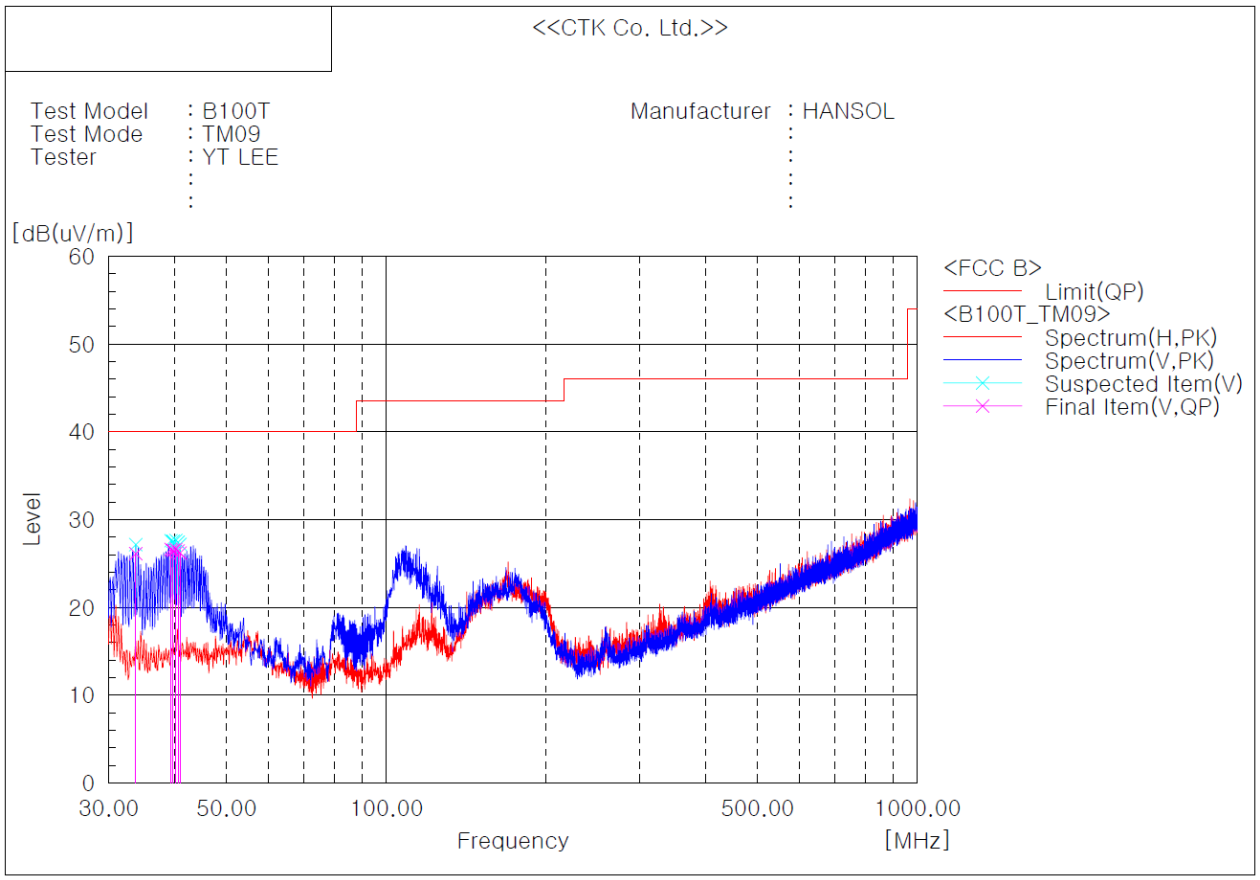


Final Result

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	34.244	V	40.9	-13.2	27.7	40.0	12.3	100.0	224.0
2	40.064	V	39.7	-12.1	27.6	40.0	12.4	100.0	299.0
3	39.094	V	39.2	-12.2	27.0	40.0	13.0	100.0	262.0
4	42.853	V	38.9	-12.1	26.8	40.0	13.2	100.0	187.0
5	38.003	V	39.0	-12.4	26.6	40.0	13.4	100.0	262.0
6	106.751	V	41.7	-14.1	27.6	43.5	15.9	100.0	2.0

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

[Operating Frequency : 205 kHz]

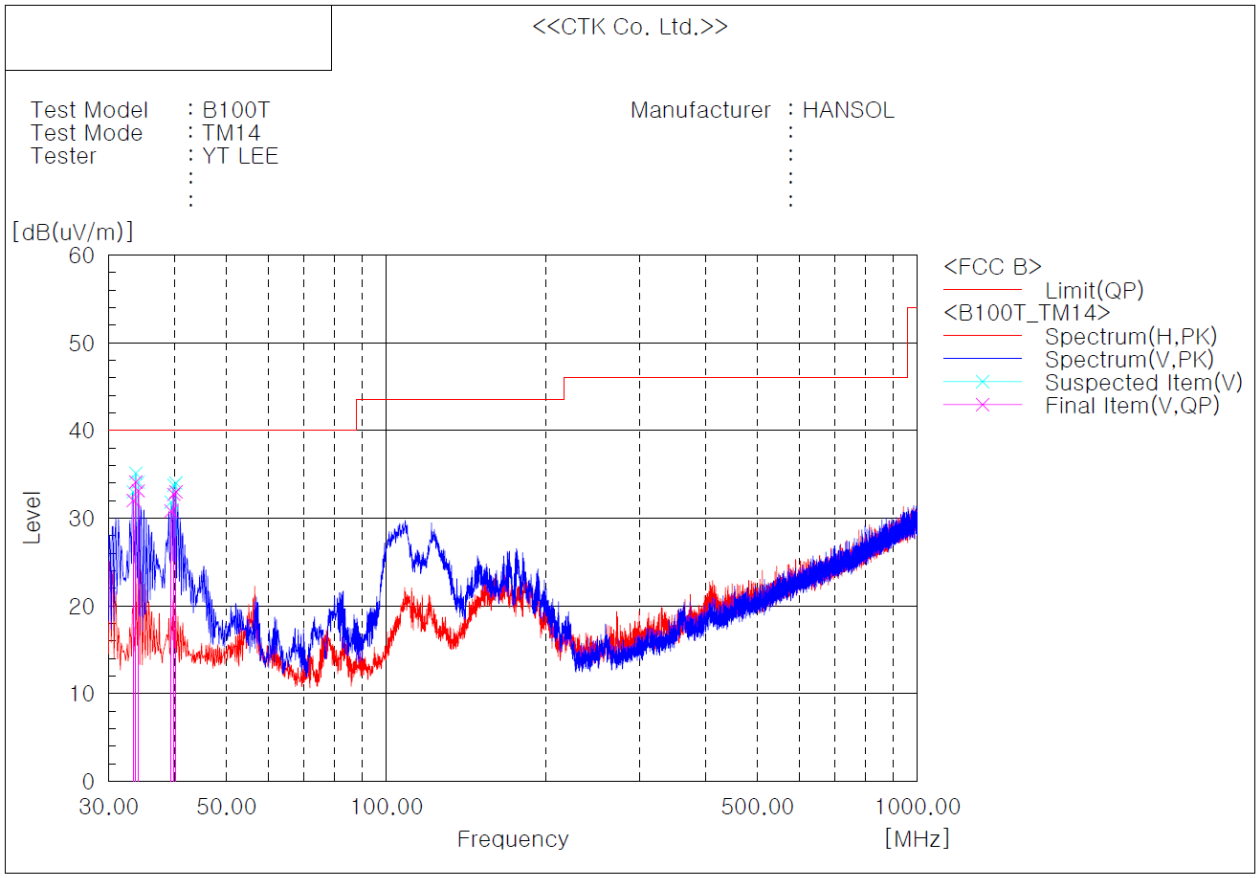


Final Result

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	33.759	V	39.4	-13.3	26.1	40.0	13.9	100.0	2.0
2	39.336	V	38.8	-12.2	26.6	40.0	13.4	100.0	187.0
3	39.700	V	38.7	-12.2	26.5	40.0	13.5	100.0	262.0
4	40.185	V	38.7	-12.1	26.6	40.0	13.4	100.0	2.0
5	40.549	V	38.5	-12.1	26.4	40.0	13.6	100.0	150.0
6	40.913	V	38.3	-12.1	26.2	40.0	13.8	100.0	262.0

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

[< 1 % Battery Status]

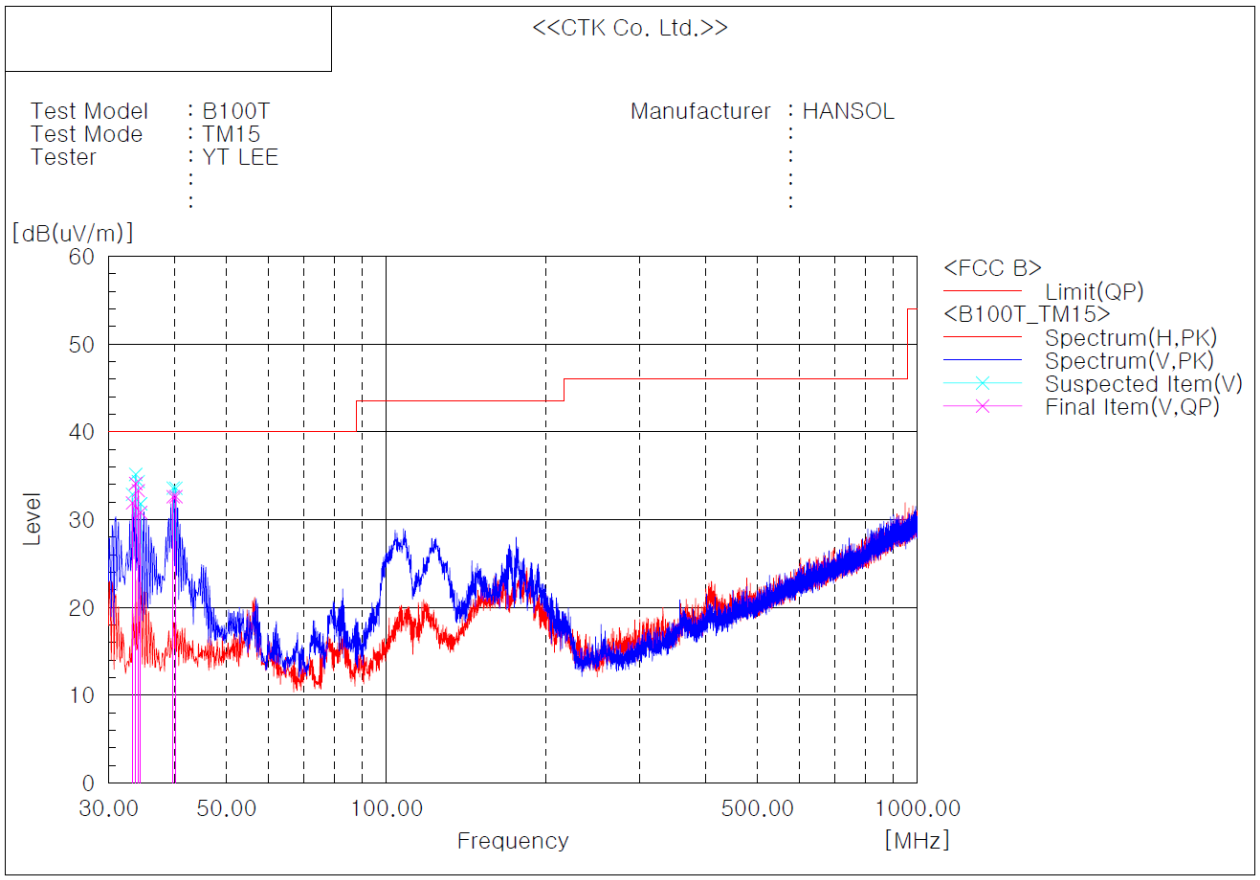


Final Result

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	33.395	V	45.4	-13.4	32.0	40.0	8.0	100.0	163.0
2	33.759	V	47.4	-13.3	34.1	40.0	5.9	100.0	237.0
3	34.123	V	46.3	-13.2	33.1	40.0	6.9	100.0	125.0
4	39.336	V	43.0	-12.2	30.8	40.0	9.2	100.0	200.0
5	39.821	V	44.9	-12.2	32.7	40.0	7.3	100.0	274.0
6	40.185	V	45.1	-12.1	33.0	40.0	7.0	100.0	163.0

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

[50 % Battery Status]

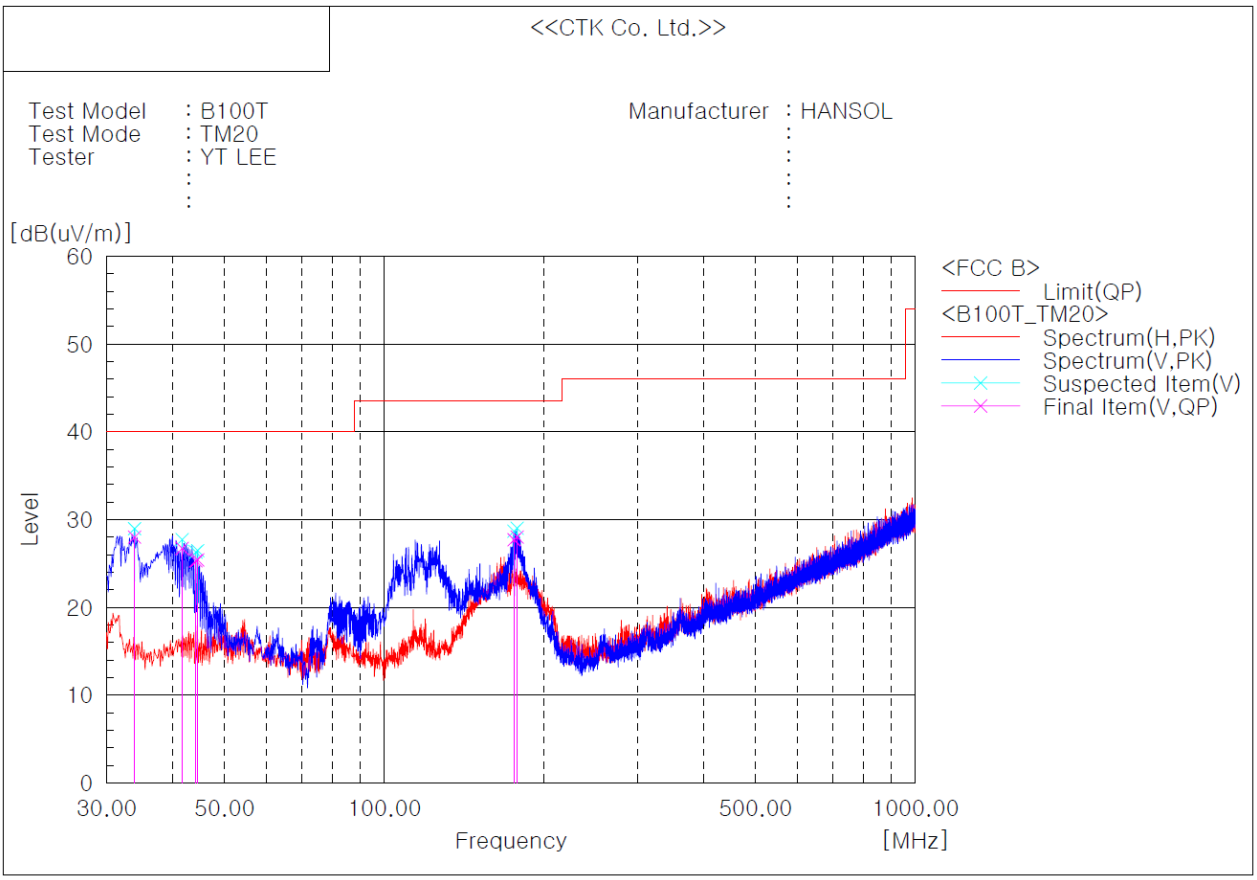


Final Result

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	33.274	V	45.3	-13.4	31.9	40.0	8.1	100.0	82.0
2	33.759	V	47.4	-13.3	34.1	40.0	5.9	100.0	82.0
3	34.123	V	46.5	-13.2	33.3	40.0	6.7	100.0	157.0
4	34.486	V	44.0	-13.2	30.8	40.0	9.2	100.0	194.0
5	39.700	V	44.8	-12.2	32.6	40.0	7.4	100.0	120.0
6	40.185	V	44.7	-12.1	32.6	40.0	7.4	100.0	305.0

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

[Bluetooth Speaker (B100S)+Bluetooth Lighting (B100L)]



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	33.880	V	41.3	-13.3	28.0	40.0	12.0	100.0	353.0
2	41.640	V	38.8	-12.1	26.7	40.0	13.3	100.0	316.0
3	44.186	V	37.4	-12.1	25.3	40.0	14.7	100.0	279.0
4	44.550	V	37.5	-12.1	25.4	40.0	14.6	100.0	279.0
5	175.500	V	34.9	-7.2	27.7	43.5	15.8	100.0	93.0
6	177.925	V	36.0	-8.0	28.0	43.5	15.5	100.0	130.0

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)

APPENDIX A – Test Equipment Used For Tests

	Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
1	EMI Test Receiver	Rohde & Schwarz	ESCI7	100814	2015-12-05
2	Active Loop Antenna	SCHWARZBECK	FMZB 1513	1513-125	2015-06-13
3	Bilog Antenna	Schaffner	CBL6111C	2551	2015-05-08
4	6dB Attenuator	Rohde & Schwarz	DNF	272.4110.50	2015-11-20
5	AMPLIFIER	Sonoma Instrument Co.	310	291721	2016-02-02
6	Radio Communication Tester	Rohde & Schwarz	CMU200	106765	2016-02-06

This Report shall not be reproduced except in full without the written approval of CTK
Form No.: CTK-RF-EF-Part15 Subpart C(Rev.1)