FCC Part 1 Subpart I
FCC Part 2 Subpart J

CERTIFICATION TEST REPORT

FOR

WIRELESS CHARGER

MODEL NO: F7U050V2

FCC ID: K7SF7U050V2

REPORT NUMBER: 12420402-E2V1

ISSUE DATE: SEPTEMBER 13, 2018

Prepared for
BELKIN INTERNATIONAL, INC.
12045 EAST WATERFRONT DRIVE
PLAYA VISTA, CA 90094, U.S.A.

Prepared by
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	09/13/2018	Initial Issue	Jason Qian

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: BELKIN INTERNATIONAL, INC.
12045 EAST WATERFRONT DRIVE
PLAYA VISTA, CA 90094, U.S.A.

EUT DESCRIPTION: WIRELESS CHARGER

MODEL NUMBER: F7U050V2

SERIAL NUMBER: 26S10EH6825721

DATE TESTED: AUGUST 27 – SEPTEMBER 6, 2018

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 1 SUBPART I & PART 2 SUBPART J	Complies

UL Verification Services Inc. calculated the RF Exposure of the above equipment in accordance with the requirements set forth in the above standards, using test results reported in the test report documents referenced below and/or documentation furnished by the applicant. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations of these calculations. The results show that the equipment is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Verification Services Inc. By:

Chin Pang
Senior Engineer
UL Verification Service Inc.

Prepared By:

Jason Qian
Test Engineer
UL Verification Services Inc.

2. TEST METHODOLOGY

All calculations were made in accordance with FCC OET Bulletin 65 Edition 97-01.

3. REFERENCES

All measurements were made as documented in test report UL Verification Services Inc. Document 12420402-E1V1 for operation in the 127.7 kHz band.

Output power data is excerpted from the applicable test reports.

4. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
☐ Chamber A (IC:2324B-1)	☐ Chamber D (IC:22541-1)
☐ Chamber B (IC:2324B-2)	☐ Chamber E (IC:22541-2)
☐ Chamber C (IC:2324B-3)	☐ Chamber F (IC:22541-3)
☒ Immunity Area	☐ Chamber G (IC:22541-4)
	☐ Chamber H (IC:22541-5)

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at NVLAP Lab Search.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is wireless charging base capable of up to 10 watt power transfer.

5.2. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

SUPPORT EQUIPMENT & PERIPHERALS LIST			
Description	**Manufacturer**	**Model**	**Serial Number**
QI Receiver Simulator	AVID Technologies, Inc.	103-02	000011571817
AC Adapter	Belkin	ADS-26FSG-12 15023EPCU	N/A
Resistor Load	N/A	N/A	N/A
iPhone X	Apple	NMQAQ2LL/A	G6TVJ7H8JCLH

I/O CABLES

N/A

TEST SETUP

The following three configurations are tested:

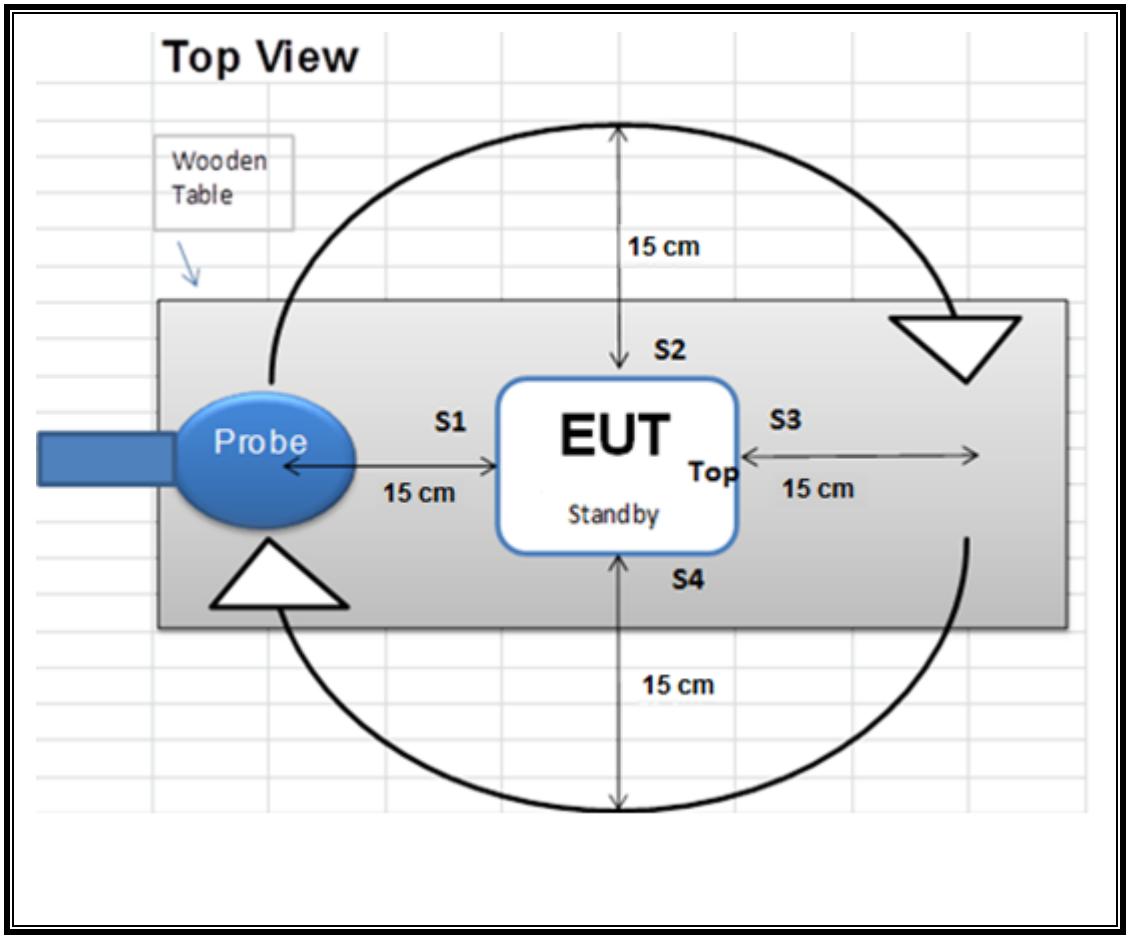
Configuration	Mode	Descriptions
1	Standby (< 10% Power Detecting)	EUT Alone powered by AC/DC adapter
2 (5mm shift L/R/T/B; with & without 3mm airgap)	Operating (Real Phone 5W, ~50% Power Charging) Note: For the configuration 2 operating with real phone, battery level of the phone was at a state of 20 – 50%.	EUT and real phone powered by AC/DC adapter
3 (5mm shift L/R/T/B; with & without 3mm airgap)	Operating (10W Load, >90% Power Charging)	EUT and 10W load powered by AC/DC adapter

Note: For the configuration 2 operating with real phone, battery level of the phone was at a state of 20 – 50%. For the configurations 2 and 3, operating with 5mm shift around four different positions (Right/Left/Top/Bottom) with and without 3mm Airgap between the phone / simulator RX and WPT EUT.

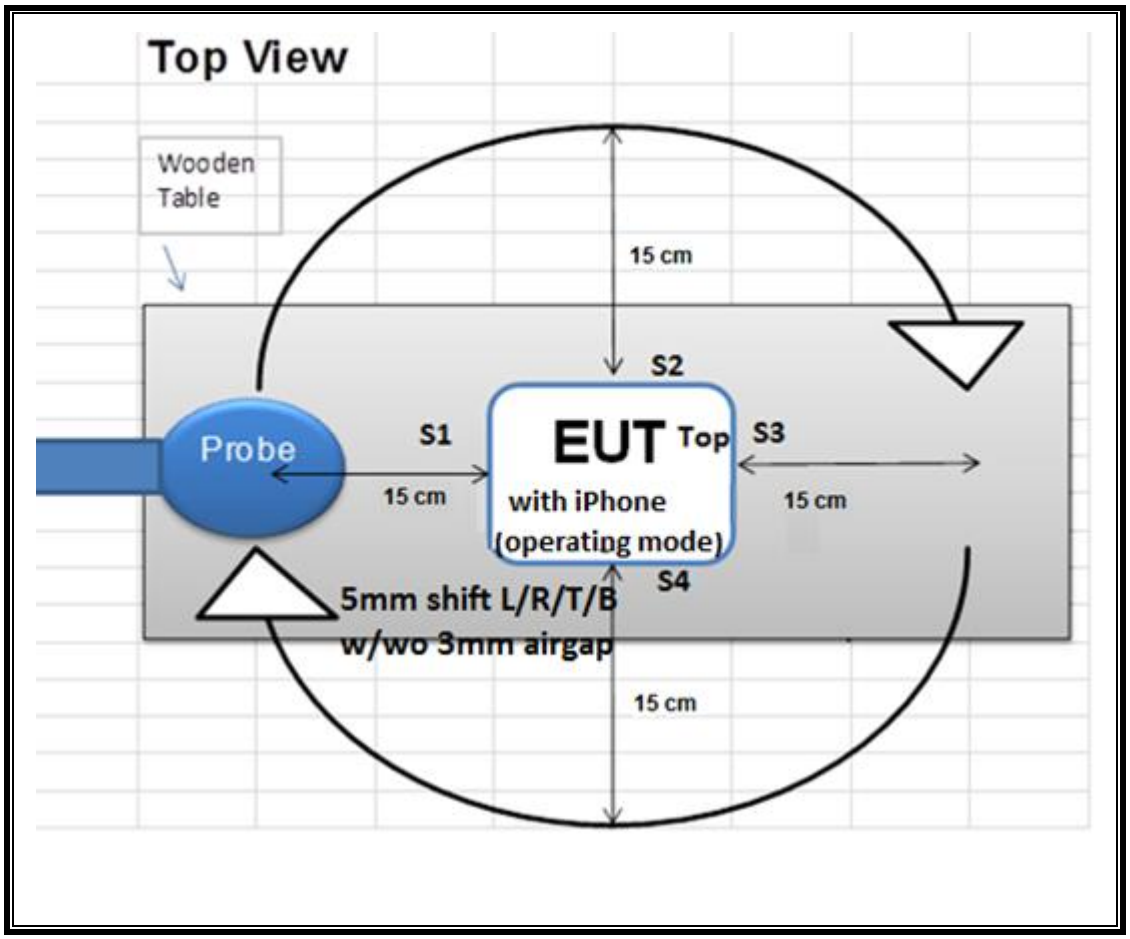
MEASUREMENT SETUP

The measurement was taken using a probe placed 15cm surrounding the device and 20cm above the top surface of the EUT. Measurements were taken from the top and all sides of the EUT per KDB680106 D01 v03.

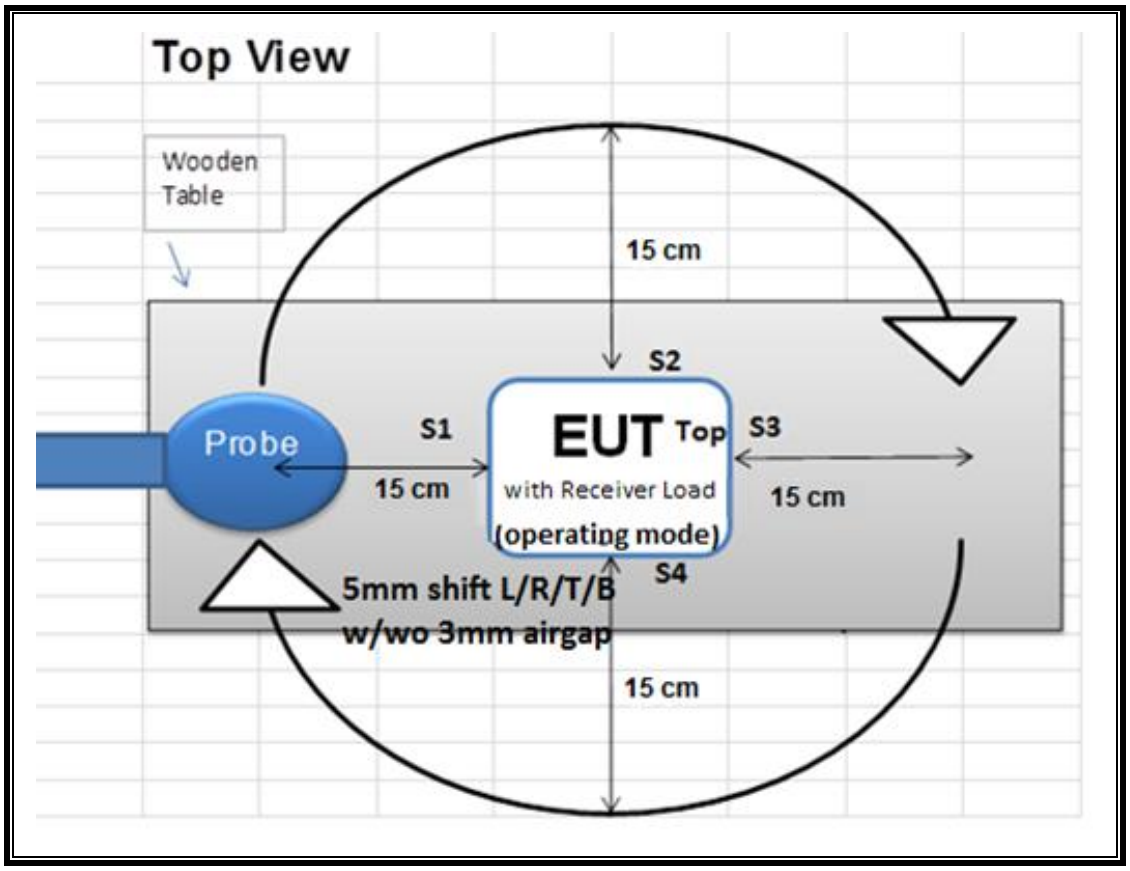
CONFIGURATION 1



CONFIGURATIONS 2



CONFIGURATIONS 3



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was used for the tests documented in this report:

Test Equipment List					
Description	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
Electric and Magnetic Field Probe	Narda	EHP-200A	170WX80318	04/06/2018	04/06/19

7. DUTY CYCLE

LIMITS

None; for reporting purposes only.

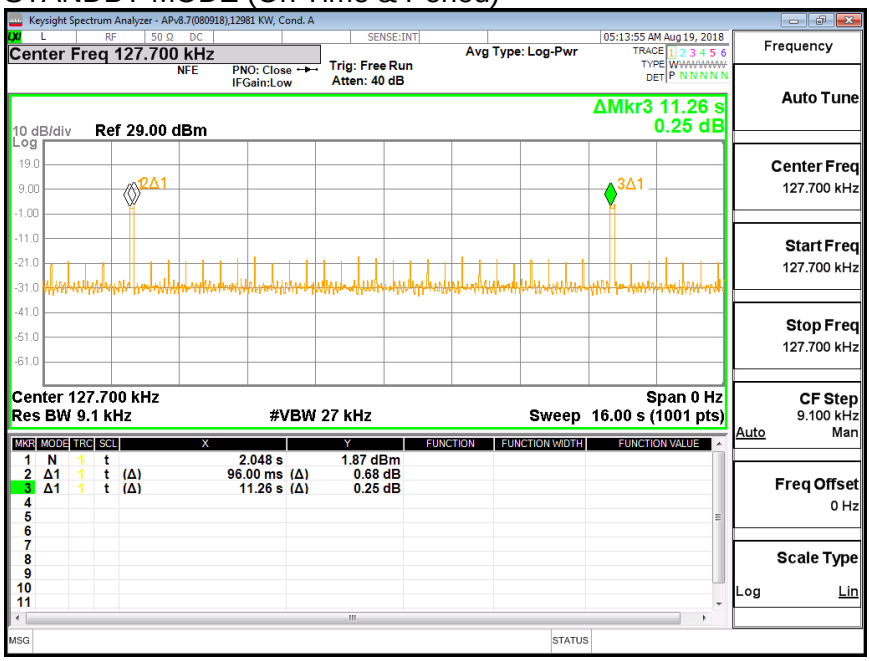
PROCEDURE

Zero-Span Spectrum Analyzer Method.

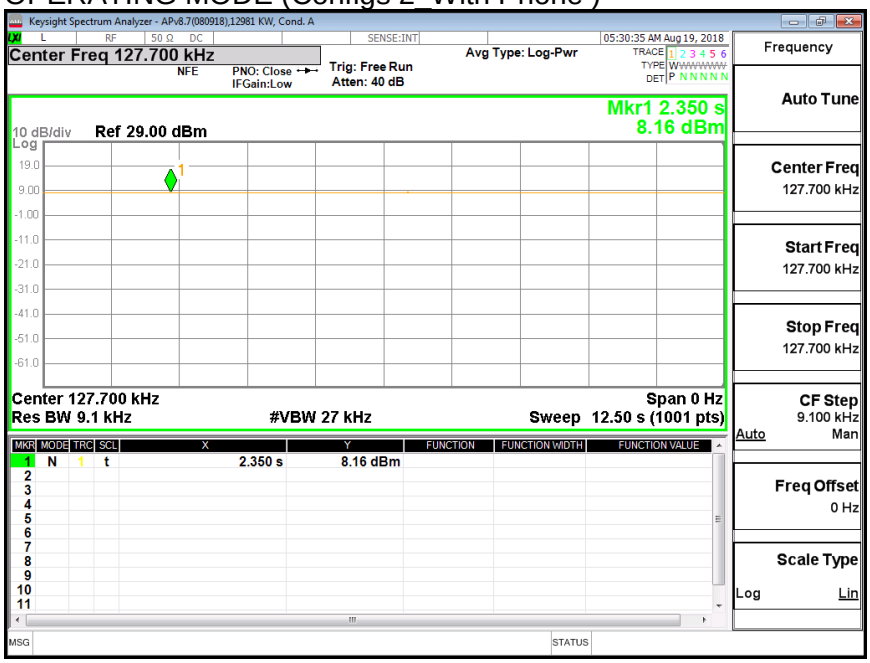
ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)
Standby (Config 1)	96.00	11260.00	0.01	0.85%
Operating(Config 2)	100.00	100.00	1.00	100.00%
Operating(Config 3)	100.00	100.00	1.00	100.00%

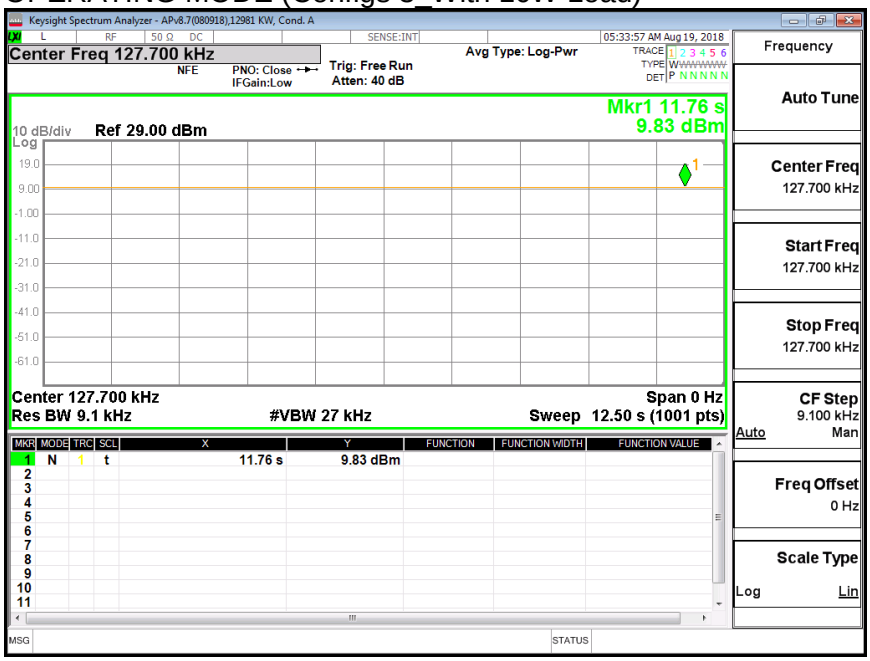
STANDBY MODE (On Time & Period)



OPERATING MODE (Configs 2_With Phone)



OPERATING MODE (Configs 3_With 10W Load)



8. MAXIMUM PERMISSIBLE RF EXPOSURE

8.1. FCC LIMITS AND SUMMARY

8.1.1. FCC LIMITS

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f^2)	6
30–300	61.4	0.163	1.0	6
300–1500	.....	.....	f/300	6
1500–100,000	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f^2)	30

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
30–300	27.5	0.073	0.2	30
300–1500	.....	.....	f/1500	30
1500–100,000	.....	.....	1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequenoe of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

8.1.2. FCC SUMMARY OF RESULTS

RESULTS

ID:	12981	Date:	9/1/18

Note: Both magnetic and electric field strengths have been investigated from 9 kHz to 30 MHz at 15cm surrounding the device and 20cm above the top surface of the EUT operation frequency is at 127.7 kHz.

FCC RF Exposure Summary of Results

Single Unit:

Electric Field Limit			Magnetic Field Limit		
FCC	Maximum Average (V/m)	Percentage (%)	FCC	Maximum Average (A/m)	Percentage (%)
614	4.309	0.70%	1.63	0.202	12.39%

8.2. TEST RESULTS

8.2.1. FCC RF EXPOSURE

E- FIELD AND H- FIELD MEASUREMENTS

Note: Peak measurements were performed. RMS values (except for the testing for 6 mins.), were calculated from the peak measurement. Please refer to the formula for calculating the RMS values: [Field Strength x √Duty Cycle].

Configuration	Test Mode	Measuring Distance (cm)	Electric Field Limit (V/m)	Electric Field Reading (V/m)				Magnetic Field Limit (A/m)	Magnetic Field Reading (A/m)			
			FCC	Location	Peak	Duty Cycle %	FCC Average	FCC	Location	Peak	Duty Cycle %	FCC Average
1	Standby power < 10% detecting	15 cm surrounding the device (S1 - S4) and 20 cm above the top surface of the EUT	614	S1	0.316	0.85	0.003	1.63	S1	0.042	0.85	0.000
				S2	0.317		0.003		S2	0.038		0.000
				S3	0.300		0.003		S3	0.046		0.000
				S4	0.317		0.003		S4	0.043		0.000
				Top	0.535		0.005		Top	0.045		0.000
				Max	0.544		0.005		Max	0.046		0.000
				6 mins	0.466		0.004		6 mins	0.042		0.000
2	Operating, 5W Real Product (Center) Power ~ 50% Charging			S1	0.401	100.00	0.003		S1	0.046	100	0.046
				S2	0.423		0.004		S2	0.046		0.046
				S3	0.433		0.004		S3	0.051		0.051
				S4	0.521		0.004		S4	0.053		0.053
				Top	0.589		0.005		Top	0.055		0.055
				Max	0.595		0.005		Max	0.058		**0.058**
	Operating, 5W Real Product (Shift 5mm to Right) Power ~ 50% Charging			S1	0.465	100.00	0.004		S1	0.035	100	0.035
				S2	0.532		0.005		S2	0.043		0.043
				S3	0.648		0.006		S3	0.048		0.048
				S4	0.482		0.004		S4	0.035		0.035
				Top	0.749		0.006		Top	0.051		0.051
				Max	0.755		**0.006**		Max	0.052		0.052
	Operating, 5W Real Product (Shift 5mm to Left) Power ~ 50% Charging			S1	0.451	100.00	0.004		S1	0.044	100	0.044
				S2	0.651		0.006		S2	0.041		0.041
				S3	0.513		0.004		S3	0.048		0.048
				S4	0.598		0.005		S4	0.052		0.052
				Top	0.649		0.006		Top	0.054		0.054
				Max	0.688		0.006		Max	0.054		0.054
	Operating, 5W Real Product (Shift 5mm to Top) Power ~ 50% Charging			S1	0.495	100.00	0.004		S1	0.043	100	0.043
				S2	0.462		0.004		S2	0.049		0.049
				S3	0.512		0.004		S3	0.047		0.047
				S4	0.532		0.005		S4	0.052		0.052
				Top	0.715		0.006		Top	0.054		0.054
				Max	0.722		0.006		Max	0.056		0.056
	Operating, 5W Real Product (Shift 5mm to Bottom) Power ~ 50% Charging			S1	0.521	100.00	0.004		S1	0.048	100	0.048
				S2	0.536		0.005		S2	0.042		0.042
				S3	0.455		0.004		S3	0.049		0.049
				S4	0.481		0.004		S4	0.047		0.047
				Top	0.689		0.006		Top	0.052		0.052
				Max	0.712		0.006		Max	0.053		0.053

Configuration	Test Mode	Measuring Distance (cm)	Electric Field Limit (V/m)	Electric Field Reading (V/m)				Magnetic Field Limit (A/m)	Magnetic Field Reading (A/m)			
			FCC	Location	Peak	Duty Cycle %	FCC Average	FCC	Location	Peak	Duty Cycle %	FCC Average
2	Operating, 5W Real Product (3mm Airgap at Center) Power > 50% Charging	15 cm surrounding the device (S1 - S4) and 20 cm above the top surface of the EUT	614	S1	0.427	100.00	0.427	1.63	S1	0.055	100	0.055
				S2	0.423		0.423		S2	0.059		0.059
				S3	0.467		0.467		S3	0.069		0.069
				S4	0.413		0.413		S4	0.065		0.065
				Top	0.427		0.427		Top	0.089		0.089
				Max	0.493		0.493		Max	0.091		0.091
	Operating, 5W Real Product (3mm Airgap & 5mm Shift to the Right) Power > 50% Charging			S1	0.312	100.00	0.312		S1	0.068	100	0.068
				S2	0.557		0.557		S2	0.066		0.066
				S3	0.435		0.435		S3	0.043		0.043
				S4	0.526		0.526		S4	0.046		0.046
				Top	0.536		0.536		Top	0.053		0.053
				Max	0.612		0.612		Max	0.073		0.073
	Operating, 5W Real Product (3mm Airgap & 5mm Shift to the Left) Power > 50% Charging			S1	0.475	100.00	0.475		S1	0.079	100	0.079
				S2	0.522		0.522		S2	0.060		0.060
				S3	0.543		0.543		S3	0.083		0.083
				S4	0.532		0.532		S4	0.067		0.067
				Top	0.561		0.561		Top	0.083		0.083
				Max	0.588		0.588		Max	0.086		0.086
	Operating, 5W Real Product (3mm Airgap & 5mm Shift to the Top) Power > 50% Charging			S1	0.439	100.00	0.439		S1	0.053	100	0.053
				S2	0.465		0.465		S2	0.053		0.053
				S3	0.563		0.563		S3	0.075		0.075
				S4	0.521		0.521		S4	0.090		0.090
				Top	0.641		0.641		Top	0.078		0.078
				Max	0.655		**0.655**		Max	0.102		0.102
	Operating, 5W Real Product (3mm Airgap & 5mm Shift to the Bottom) Power > 50% Charging			S1	0.423	100.00	0.423		S1	0.044	100	0.044
				S2	0.613		0.613		S2	0.539		**0.539**
				S3	0.523		0.523		S3	0.079		0.079
				S4	0.575		0.575		S4	0.050		0.050
				Top	0.569		0.569		Top	0.041		0.041
				Max	0.613		0.613		Max	0.078		0.078

Configuration	Test Mode	Measuring Distance (cm)	Electric Field Limit (V/m)	Electric Field Reading (V/m)				Magnetic Field Limit (A/m)	Magnetic Field Reading (A/m)			
			FCC	Location	Peak	Duty Cycle %	FCC Average	FCC	Location	Peak	Duty Cycle %	FCC Average
3	Operating, 10W Load (Center) Power > 90% Charging	15 cm surrounding the device (S1 - S4) and 20 cm above the top surface of the EUT	614	S1	1.139	100.00	1.139	1.63	S1	0.055	100	0.055
				S2	1.733		1.733		S2	0.052		0.052
				S3	3.636		3.636		S3	0.047		0.047
				S4	1.337		1.337		S4	0.051		0.051
				Top	3.168		3.168		Top	0.130		0.130
				Max	3.680		3.680		Max	0.130		0.130
	Operating, 10W Load (Shift 5mm to Right) Power > 90% Charging			S1	4.309	100.00	4.309		S1	0.148	100	0.148
				S2	2.007		2.007		S2	0.063		0.063
				S3	1.477		1.477		S3	0.127		0.127
				S4	1.758		1.758		S4	0.044		0.044
				Top	4.031		4.031		Top	0.084		0.084
				Max	4.309		**4.309**		Max	0.148		0.148
	Operating, 10W Load (Shift 5mm to Left) Power > 90% Charging			S1	1.512	100.00	1.512		S1	0.051	100	0.051
				S2	3.521		3.521		S2	0.126		0.126
				S3	2.156		2.156		S3	0.085		0.085
				S4	1.846		1.846		S4	0.135		0.135
				Top	3.954		3.954		Top	0.136		0.136
				Max	4.051		4.051		Max	0.137		0.137
	Operating, 10W Load (Shift 5mm to Top) Power > 90% Charging			S1	1.749	100.00	1.749		S1	0.084	100	0.084
				S2	1.432		1.432		S2	0.062		0.062
				S3	1.681		1.681		S3	0.075		0.075
				S4	3.548		3.548		S4	0.145		0.145
				Top	3.225		3.225		Top	0.125		0.125
				Max	3.784		3.784		Max	0.145		0.145
	Operating, 10W Load (Shift 5mm to Bottom) Power > 90% Charging			S1	1.334	100.00	1.334		S1	0.046	100	0.046
				S2	1.380		1.380		S2	0.202		**0.202**
				S3	1.959		1.959		S3	0.082		0.082
				S4	0.967		0.967		S4	0.114		0.114
				Top	3.892		3.892		Top	0.136		0.136
				Max	4.221		4.221		Max	0.202		0.202

Configuration	Test Mode	Measuring Distance (cm)	Electric Field Limit (V/m)	Electric Field Reading (V/m)				Magnetic Field Limit (A/m)	Magnetic Field Reading (A/m)			
			FCC	Location	Peak	Duty Cycle %	FCC Average	FCC	Location	Peak	Duty Cycle %	FCC Average
3	Operating, 10W Load (3mm Airgap at Center) Power > 90% Charging	15 cm surrounding the device (S1 - S4) and 20 cm above the top surface of the EUT	614	S1	1.381	100.00	1.381	1.63	S1	0.084	100	0.084
				S2	1.444		1.444		S2	0.084		0.084
				S3	1.433		1.433		S3	0.084		0.084
				S4	1.385		1.385		S4	0.068		0.068
				Top	3.452		3.452		Top	0.164		**0.164**
				Max	3.512		3.512		Max	0.164		0.164
	Operating, 10W Load (3mm Airgap & 5mm Shift to the Right) Power > 90% Charging			S1	1.485	100.00	1.485		S1	0.078	100	0.078
				S2	1.354		1.354		S2	0.078		0.078
				S3	1.512		1.512		S3	0.095		0.095
				S4	1.452		1.452		S4	0.144		0.144
				Top	3.245		3.245		Top	0.160		0.160
				Max	3.354		3.354		Max	0.162		0.162
	Operating, 10W Load (3mm Airgap & 5mm Shift to the Left) Power > 90% Charging			S1	1.512	100.00	1.512		S1	0.065	100	0.065
				S2	1.354		1.354		S2	0.071		0.071
				S3	1.412		1.412		S3	0.082		0.082
				S4	1.628		1.628		S4	0.076		0.076
				Top	3.784		3.784		Top	0.156		0.156
				Max	3.785		3.785		Max	0.157		0.157
	Operating, 10W Load (3mm Airgap & 5mm Shift to the Top) Power > 90% Charging			S1	1.528	100.00	1.528		S1	0.077	100	0.077
				S2	1.482		1.482		S2	0.081		0.081
				S3	1.354		1.354		S3	0.065		0.065
				S4	1.482		1.482		S4	0.145		0.145
				Top	3.865		3.865		Top	0.156		0.156
				Max	3.875		**3.875**		Max	0.157		0.157
	Operating, 10W Load (3mm Airgap & 5mm Shift to the Bottom) Power > 90% Charging			S1	1.754	100.00	1.754		S1	0.069	100	0.069
				S2	1.689		1.689		S2	0.074		0.074
				S3	1.721		1.721		S3	0.082		0.082
				S4	1.354		1.354		S4	0.068		0.068
				Top	3.832		3.832		Top	0.149		0.149
				Max	3.844		3.844		Max	0.153		0.153