FCC Part 1 Subpart I
FCC Part 2 Subpart J

CERTIFICATION TEST REPORT

FOR

POWERED WIRELESS CHARGING STAND

MODEL NO: F-00005

FCC ID: DZLF00005

REPORT NUMBER: 12356722-E2V1

ISSUE DATE: JULY 20, 2018

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	07/20/2018	Initial Issue	

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LOGITECH INC.

EUT DESCRIPTION: POWERED WIRELESS CHARGING STAND

MODEL NUMBER: F-00005

SERIAL NUMBER: 1806LZN0BTA8

DATE TESTED: JUNE 20 - JUNE 22, 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.

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2. TEST METHODOLOGY

All calculations were made in accordance with FCC OET Bulletin 65 Edition 97-01 and IC Safety Code 6.

3. 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.

4. EQUIPMENT UNDER TEST

4.1. DESCRIPTION OF EUT

The EUT is a wireless charging stand capable to charge cell phone batteries at 7.5 watt power transfer. Operating Frequency = 127.7728 kHz.

4.2. KDB 680106 D01 SECTION 5b EQUIPMENT APPROVAL CONSIDERATIONS

Requirement	Device
1) Power transfer frequency is less than 1 MHz.	Yes. Operating frequency is 127.77 kHz.
2) Output power from each primary coil is less than or equal to 15 watts.	Yes. The maximum power is 7.5 watts.
3) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.	Yes. The system includes one single primary and secondary coils and the device is designed to charge a single client.
4) Client device is inserted in or placed directly in contact with the transmitter .	Yes. The client device is placed directly in contact with the transmitter. The device is a stand on which the client device is placed (close coupling)
5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).	Yes. Mobile exposure conditions apply.
6) The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.	Yes. The aggregate fields at 15cm from the device are ~ 14.42% of the FCC H field limit.

4.3. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

SUPPORT EQUIPMENT & PERIPHERALS LIST			
Description	**Manufacturer**	**Model**	**Serial Number**
Phone	Apple	iPhone 8 Plus	C39VQVJYJCM2
Phone	Apple	iPhone 8 Plus	F2LVCLV2JCLY
Phone	Apple	iPhone 8 Plus	F2LW24TAJCM3
AC Adapter	PI Electronics (H.K.) Ltd.	AD2119X20	N/A

NOTE: Cell Phones were exchanged to ensure the EUT is at the maximum power transfer during testing.

I/O CABLES

N/A

TEST SETUP

The following three configurations are tested:

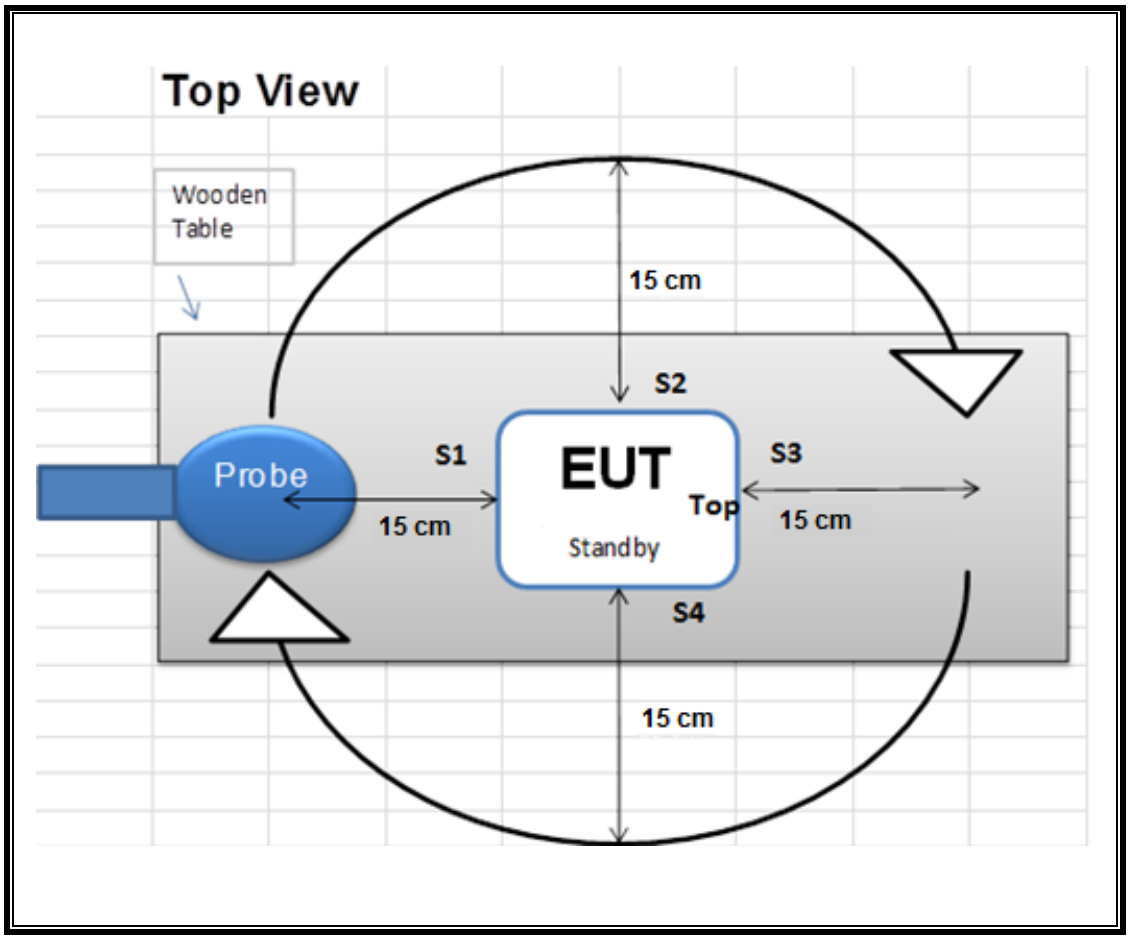
Configuration	Mode	Descriptions
1	Standby	EUT Alone powered by AC/DC adapter
2	Operating (Real Phone 7.5W, ~10% Power Charging)	EUT and real phone powered by AC/DC adapter
	Operating (Real Phone 7.5W, ~50% Power Charging) Note: For the configuration 2 operating with real phone, battery level of the phone was at a state of 20 – 50%.	EUT and real phone powered by AC/DC adapter
	Operating (Real Phone 7.5W, >90% Power Charging)	EUT and real phone powered by AC/DC adapter

MEASUREMENT SETUP

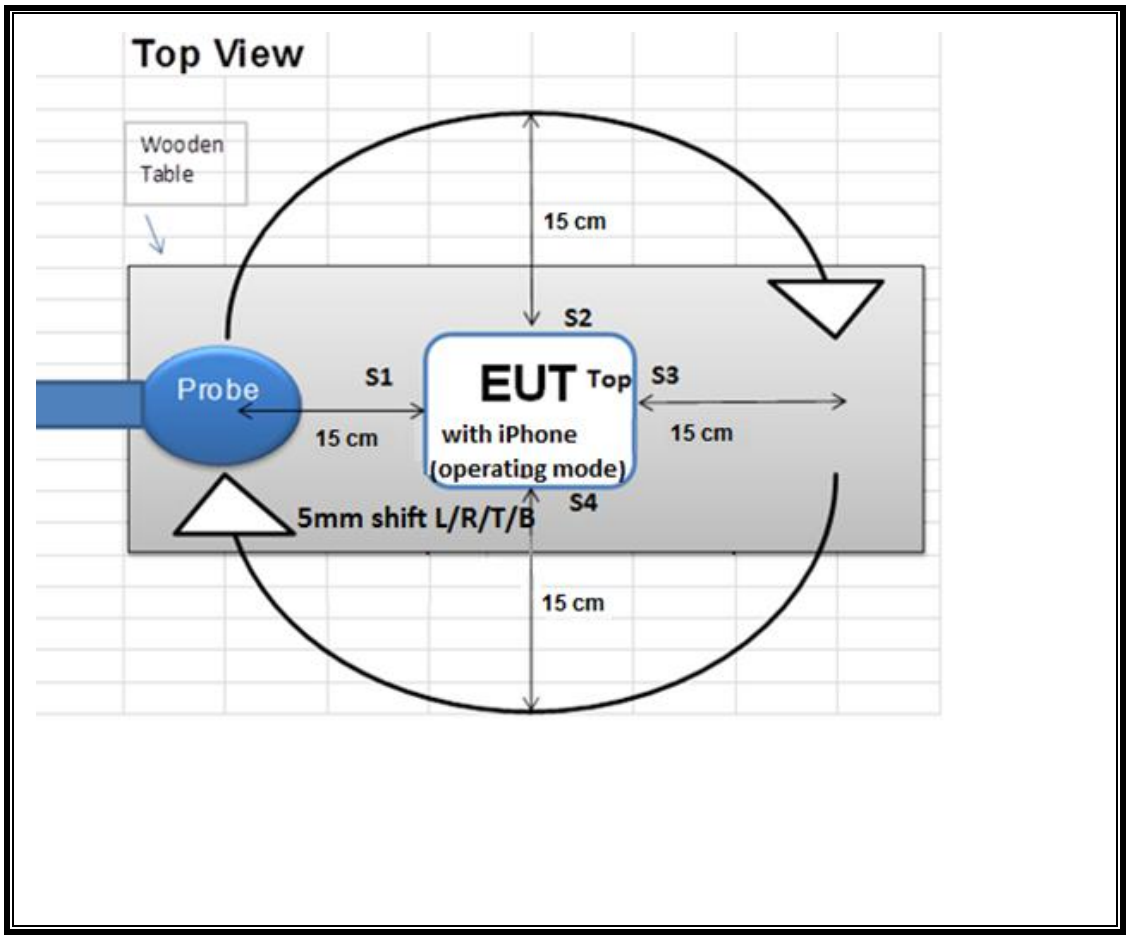
The measurement was taken using a probe placed15 cm surrounding the device and 20 cm above the top surface of the EUT. Measurements were taken from the top and all sides of the EUT per KDB680106 D01 v03.

The charger can be used with the charger lying flat on a table or with the charger in an “easel” mode with it vertically orientated. Both positions were evaluated for RF exposure filed levels.

CONFIGURATION 1



CONFIGURATIONS 2



5. 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**	**Local ID T No.)**	**Cal Date**	**Cal Due**
Electric and Magnetic Field Probe	Narda	EHP-200A	T1085	07/05/2017	07/05/2018

6. DUTY CYCLE

LIMITS

None; for reporting purposes only.

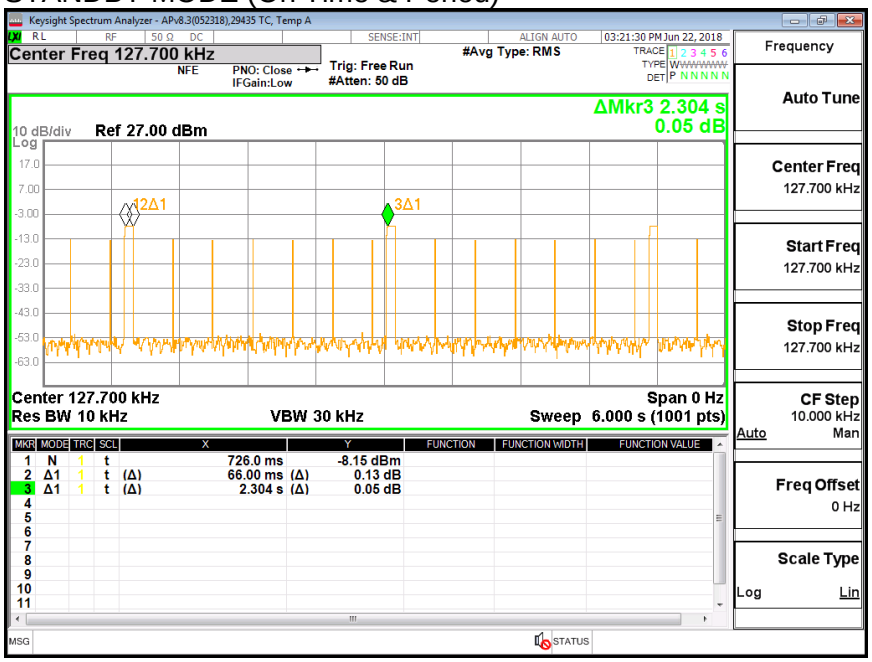
PROCEDURE

Zero-Span Spectrum Analyzer Method.

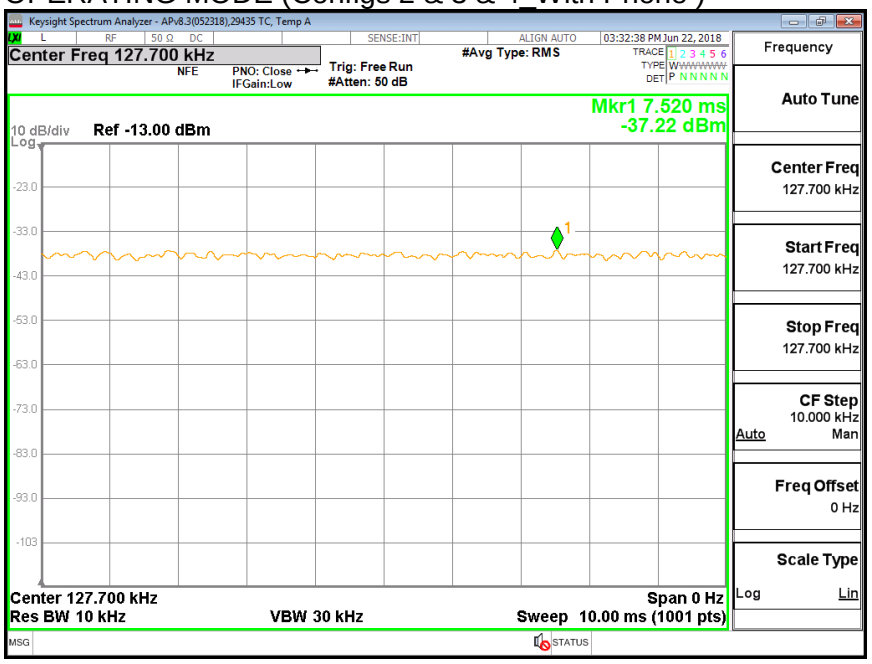
ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
Standby (Config 1)	66.00	2304.00	0.03	2.86%	15.43
Operating(Config 2)	100.00	100.00	1.00	100.00%	0.00

STANDBY MODE (On Time & Period)



OPERATING MODE (Configs 2 & 3 & 4_With Phone)



7. MAXIMUM PERMISSIBLE RF EXPOSURE

7.1. FCC LIMITS AND SUMMARY

7.1.1. 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.

7.1.2. FCC SUMMARY OF RESULTS

RESULTS

ID:	10629	Date:	6/21/18

Note: Both magnetic and electric field strengths have been investigated from 9 kHz to 30 MHz at 10cm to find that the EUT operation frequency is at 127.7 kHz.

FCC RF Exposure Summary of Results

Electric Field Limit			Magnetic Field Limit		
FCC	Maximum RMS (V/m)	Percentage (%)	FCC	Maximum RMS (A/m)	Percentage (%)
614	0.381	0.06%	1.63	0.235	14.42%

7.2. TEST RESULTS

7.2.1. 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	0.381	2.86	**0.011**	1.63	S1	0.055	2.86	0.002
				S2	0.371		0.011		S2	0.055		0.002
				S3	0.381		**0.011**		S3	0.055		0.002
				S4	0.334		0.010		S4	0.064		0.002
				Top	0.371		0.011		Top	0.066		0.002
				Max	0.381		**0.011**		Max	0.066		**0.002**
				6 mins	0.312		0.009		6 mins	0.053		0.002
2	Operating, 9.5W Real Product (Center_Hori) Power ~ 20% Charging			S1	0.362	100.00	0.362		S1	0.227	100	**0.227**
				S2	0.371		0.371		S2	0.122		0.122
				S3	0.362		0.362		S3	0.204		0.204
				S4	0.354		0.354		S4	0.117		0.117
				Top	0.371		0.371		Top	0.057		0.057
				Max	0.378		**0.378**		Max	0.227		**0.227**
	Operating, 9.5W Real Product (Center_Vert) Power ~ 20% Charging			S1	0.362	100.00	0.362		S1	0.103	100	0.103
				S2	0.363		0.363		S2	0.221		**0.221**
				S3	0.363		0.363		S3	0.101		0.101
				S4	0.362		0.362		S4	0.106		0.106
				Top	0.362		0.362		Top	0.055		0.055
				Max	0.366		**0.366**		Max	0.221		**0.221**
	Operating, 9.5W Real Product (Center_Hori) Power ~ 50% Charging			S1	0.371	100.00	0.371		S1	0.225	100	0.225
				S2	0.373		0.373		S2	0.119		0.119
				S3	0.371		0.371		S3	0.231		0.231
				S4	0.376		0.376		S4	0.109		0.109
				Top	0.362		0.362		Top	0.055		0.055
				Max	0.381		**0.381**		Max	0.233		**0.233**
	Operating, 9.5W Real Product (Center_Vert) Power ~ 50% Charging			S1	0.365	100.00	0.365		S1	0.104	100	0.104
				S2	0.374		0.374		S2	0.218		0.218
				S3	0.367		0.367		S3	0.110		0.110
				S4	0.378		0.378		S4	0.221		**0.221**
				Top	0.362		0.362		Top	0.055		0.055
				Max	0.379		**0.379**		Max	0.221		**0.221**
	Operating, 9.5W Real Product (Center_Hori) Power ~ 90% Charging			S1	0.371	100.00	0.371		S1	0.227	100	0.227
				S2	0.372		0.372		S2	0.113		0.113
				S3	0.371		0.371		S3	0.235		**0.235**
				S4	0.370		0.370		S4	0.110		0.110
				Top	0.363		0.363		Top	0.054		0.054
				Max	0.374		**0.374**		Max	0.235		**0.235**
	Operating, 9.5W Real Product (Center_Vert) Power ~ 90% Charging			S1	0.362	100.00	0.362		S1	0.103	100	0.103
				S2	0.374		**0.374**		S2	0.211		0.211
				S3	0.371		0.371		S3	0.108		0.108
				S4	0.373		0.373		S4	0.221		**0.221**
				Top	0.362		0.362		Top	0.054		0.054
				Max	0.374		**0.374**		Max	0.221		**0.221**