



FCC Part 1 Subpart I
FCC Part 2 Subpart J

RF EXPOSURE REPORT

FOR

WIRELESS CHARGER

MODEL NUMBER: A010

REPORT NUMBER: 13U15612-4

FCC ID: A4R-A010

ISSUE DATE: SEPTEMBER 17, 2013

Prepared for
GOOGLE INC.
1600 AMPHITHEATRE PARKWAY
MOUNTAIN VIEW CA, 94043, U.S.A

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Revision History

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--	09/17/13	Initial Issue	T. LEE

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: GOOGLE INC.
1600 AMPHITHEATRE PARKWAY
MOUNTAIN VIEW CA, 94043, U.S.A

EUT DESCRIPTION: Wireless charger

MODEL: A010

SERIAL NUMBER: 488, 548

DATE TESTED: JULY 23 - JULY 29, 2013

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC Part 1 Subpart I	Pass
FCC Part 2 Subpart J	Pass

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

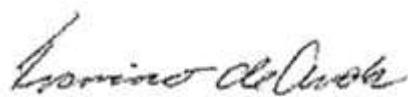
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. 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:



TIM LEE
PROJECT MANAGER
UL Verification Services Inc.

Tested By:



FRANCISCO DE ANDA
PROJECT LEAD
UL Verification Services Inc

2. TEST METHODOLOGY

All calculations were made in accordance with FCC OET Bulletin 65 Edition 97-01 and RF Exposure Wireless Charging Apps v02.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Magnetic Field, 2 to 400 kHz	+/- 21 %

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Wireless charger intended for mobile device. The wireless charger operates between 111 to 134 kHz.

GENERAL INFORMATION

Input Power	100-240 VAC, 9 W
Output Power(Load)	5 VDC, 5W
Frequencies generated or used by the EUT.	111-134 KHz Charger 16 MHz USB
Power supply - USB charger	Model:WOO9A050 S/N: PVT #4

5.2. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an internal loop antenna (Circular Coil).

5.3. WORST-CASE CONFIGURATION AND MODE

EUT was placed on a turntable, and the measurement probe was placed at a distance of 10 cm from the EUT, the probe was moved from 0 to 90 degrees angle as the diagram below shows, and the turn table was rotated 360 degrees to capture the highest signal.

The signal trace was put on max hold and the highest reading was recorded.

EUT Configuration	Description
Charging Mode - worst case	EUT with AC Adapter @1A Load(5W)
Cell Phone	EUT with AC Adapter and Cell Phone

6. TEST AND MEASUREMENT EQUIPMENT

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

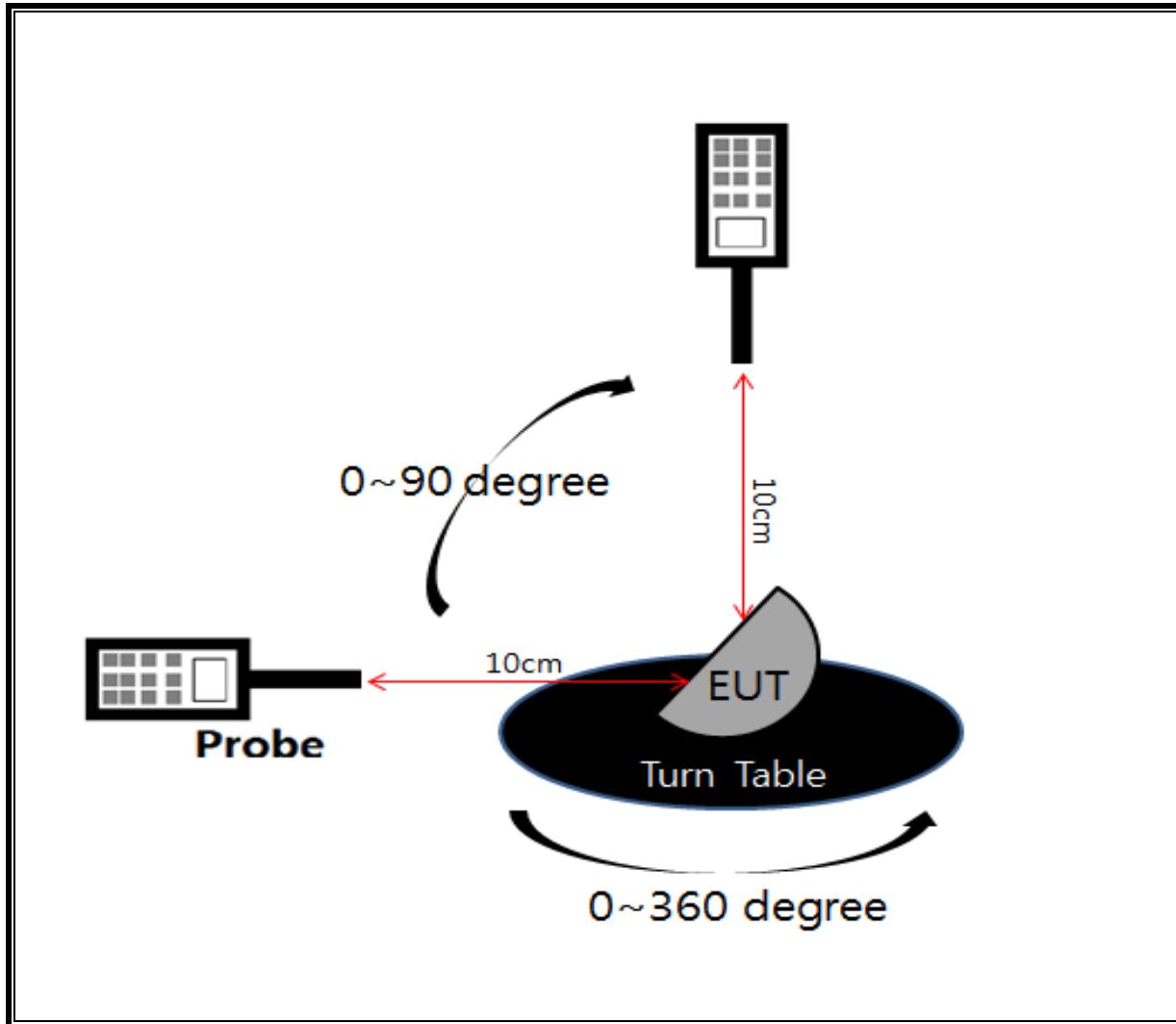
Test Equipment List				
Description	Manufacturer	Model	Asset	Cal Due
Closed Field Probe, 9K-30MHz	Agilent / HP	11941A	NA	08/15/14
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01179	02/26/14
3-AXIS VLF Magnetic Field Probe	Holaday	HI-3637	C01010	09/12/14
3-AXIS Magnetic Field Meter	Holaday	HI-3637	NA	09/12/14

SUPPORT EQUIPMENT

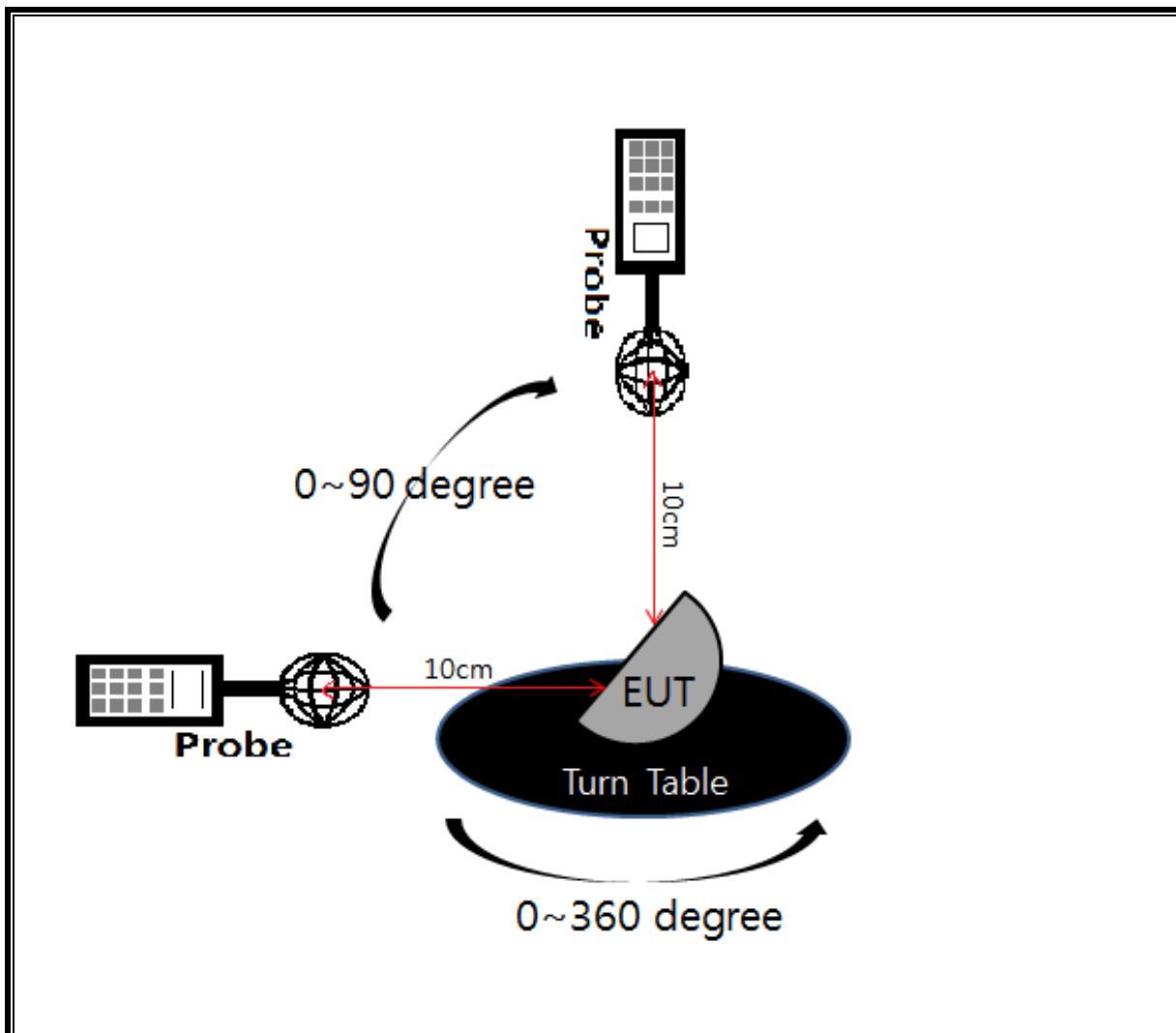
Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Google	WOO9A050	PVT #4	N/A
Test board (load)	Texas Instruments	BQ52013AEVM-764	3368022WBG	N/A
Cell Phone	LG	LG-E960	0053EE724DD21087	N/A

RF EXPOSURE SETUP

E-Field Measurement:



Magnetic Field Measurement:



7. MAXIMUM PERMISSIBLE RF EXPOSURE

7.1. FCC RULES

§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	1842f	4.89f	*(900f 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	824f	2.19f	*(180f 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 consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

7.1.1. CLOSED FIELD PROBE, 9 kHz – 30 MHz

EUT AND AC ADAPTER WITH 1000mA LOAD

Frequency Range (KHz)	Separation Distance (m)	Measured Voltage (dBuV)	Antenna Factor (dBuA/m/uV)	E-field (V/m)	E-field Limit (V/m)
116.50	0.10	37.17	70.90	95.17	614
120.13	0.10	37.32	70.90	96.83	614
124.13	0.10	37.42	70.90	97.95	614

EUT AND AC ADAPTER WITH LG NEXUS #LG-E960

Frequency Range (KHz)	Separation Distance (m)	Measured Voltage (dBuV)	Antenna Factor (dBuA/m/uV)	E-field (V/m)	E-field Limit (V/m)
116.85	0.10	33.28	70.90	60.81	614
120.38	0.10	30.25	70.90	42.90	614

7.1.2. 3-AXIS VLF MAGNETIC FIELD PROBE

EUT AND AC ADAPTER WITH 1000mA LOAD

Separation Distance (m)	H-Field (A/m)	H-Field Limit (A/m)
0.10	0.0993	1.63

EUT AND AC ADAPTER WITH LG NEXUS #LG-E960

Separation Distance (m)	H-Field (A/m)	H-Field Limit (A/m)
0.10	0.0280	1.63