

RF Exposure Report

Report No.: SA191202C10

FCC ID: K7SG1S0001

Test Model: G1S0001

Received Date: Dec. 02, 2019

Test Date: Dec. 26, 2019

Issued Date: Jan. 22, 2020

Applicant: Belkin International, Inc

Address: 12045 East Waterfront Drive, Playa Vista, USA, CA 90094

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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FCC Registration / 788550 / TW0003
Designation Number:



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Release Control Record

Issue No.	Description	Date Issued
SA191202C10	Original Release	Jan. 22, 2020

1 Certificate of Conformity

Product: Smart Speaker

Brand: belkin

Test Model: G1S0001

Sample Status: Engineering Sample

Applicant: Belkin International, Inc

Test Date: Dec. 26, 2019

Standards: FCC Part 2 (Section 2.1091)
FCC Part 1 (Section 1.1307(b), Section 1.1310)

References Test Guidance: KDB 680106 D01 RF Exposure Wireless Charging v03

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Gina Liu, **Date:** Jan. 22, 2020
Gina Liu / Specialist

Approved by : Dylan Chiou, **Date:** Jan. 22, 2020
Dylan Chiou / Senior Project Engineer

2 General Information

2.1 General Description of EUT

Product	Smart Speaker
Brand	belkin
Test Model	G1S0001
Status of EUT	Engineering Sample
Power Supply Rating	19.0 Vdc (Adapter)
Modulation Type	FSK
Operating Frequency	127.7 kHz
Dimension for Charging Coil	39.5 * 47.5 mm
Antenna Type	Coil Antenna
Field Strength	90.19 dBuV/m
Accessory Device	Adapter
Data Cable Supplied	N/A
Maximum Power Output for Charging Coil	10 W

Note:

- The EUT contains following accessory devices.

Product	Brand	Model	Description
Switching Adapter	belkin	DSA-65PFB-19 FUS 190342	I/P: 100-240 Vac, 50/60 Hz, 1.5 A O/P: 19 Vdc, 3.42 A 1.45 meter, non-shielded cable, with one ferrite core

- The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

2.2 Description of Test Modes

1 channel is provided to this EUT

Channel	Freq. (kHz)
1	127.7 (Note)

Note: The worse frequency is 127.7kHz.

3 RF Exposure

3.1 Description of Support Units

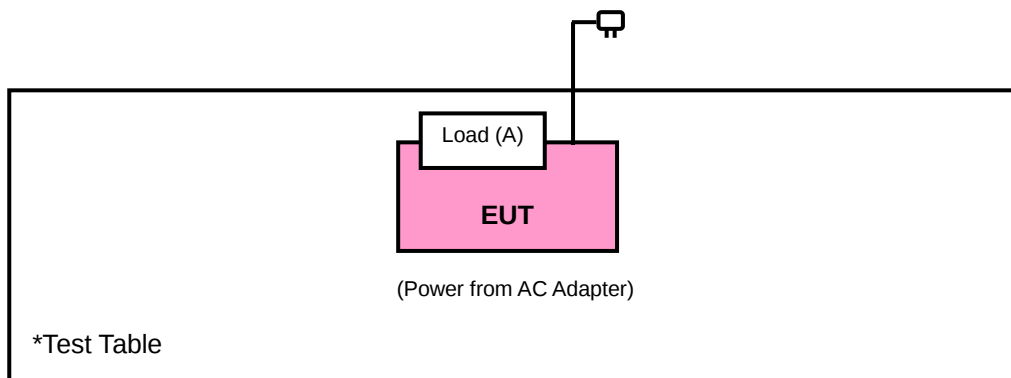
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Load	N/A	N/A	N/A	N/A	Provided by manufacturer (10W max load)

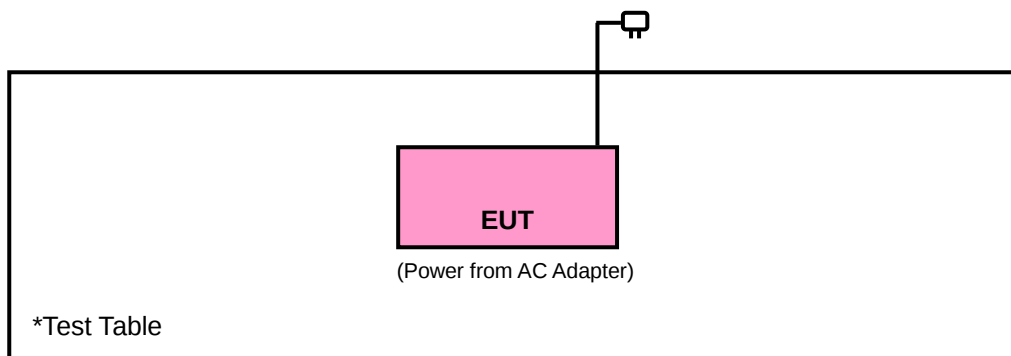
Note: Item A was provided by client

3.1.1 Configuration of System Under Test

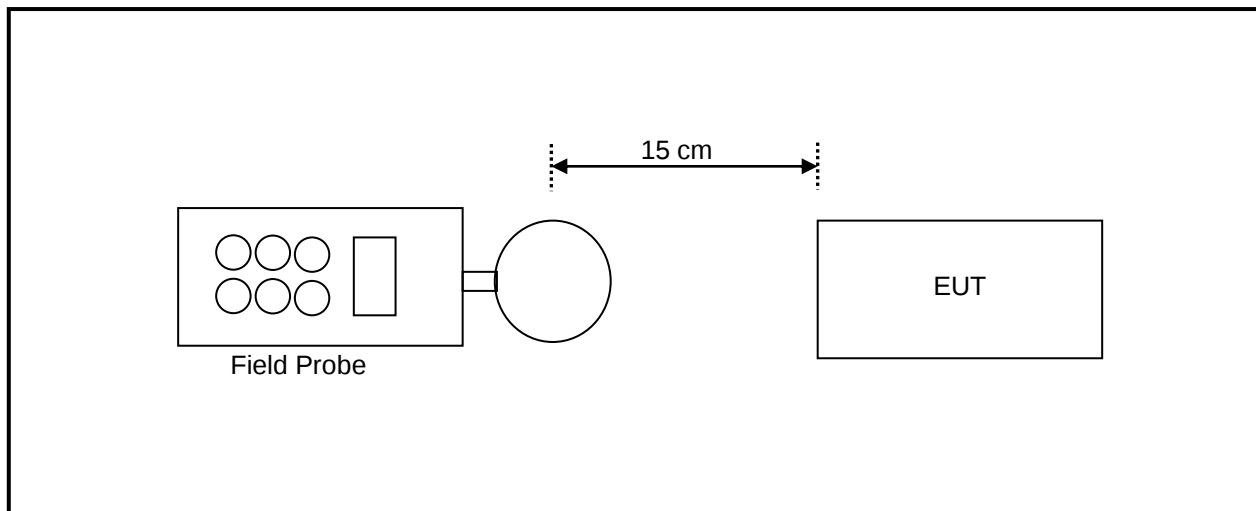
Charging Mode



Standby Mode



3.2 Test Setup



Note: Measurements should be made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device.

3.3 Test Instruments

Description	Brand	Model No.	Frequency Range	Calibrated Date	Calibrated Until
Broadband Field Meter	NARDA	NBM-550	-	Mar. 28, 2018	Mar. 27, 2020
Magnetic Field Meter	NARDA	ELT-400	1 – 400kHz	Apr. 12, 2018	Apr. 11, 2020
Magnetic Probe	NARDA	HF-3061	300kHz – 30MHz	Apr. 16, 2018	Apr. 15, 2020
Magnetic Probe	NARDA	HF-0191	27 – 1000MHz	Apr. 17, 2018	Apr. 16, 2020
Broadband Field Meter	NARDA	NBM-550	-	Mar. 28, 2018	Mar. 27, 2020
Electric Field Meter	COMBINOVA	EFM 200	5Hz – 400kHz	Dec. 6, 2019	Dec. 5, 2020
E-Field Probe	NARDA	EF-0391	100kHz – 3GHz	Mar. 28, 2018	Mar. 27, 2020
E-Field Probe	NARDA	EF-6091	100MHz – 60GHz	Mar. 29, 2018	Mar. 28, 2020

Note: 1. The calibration interval of the above test instruments is 12/24 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa RF Chamber

3.4 Limits for Maximum Permissible Exposure (MPE)

§ 1.1310 The criteria listed in table 1 shall be used to evaluate the environmental impact of human exposure to radiofrequency(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
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

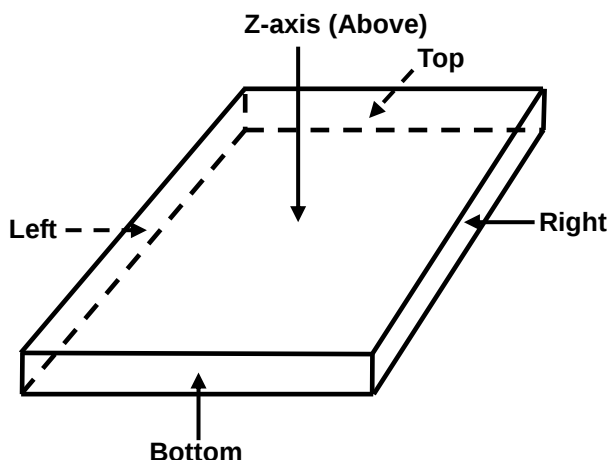
NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply 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.

680106 D01 RF Exposure Wireless Charging Apps v02

Aggregate leakage fields at 15 cm surrounding the device from all simultaneous transmitting coils are demonstrated to be less than 30% of the MPE limit.

3.5 Test Point Description



4 Calculation Result Of Maximum Conducted Power

Charging Mode

Charging Mode with 10% Load (without airgap)

E-Field Measurement (15cm)					E-Field (15cm)		E-Field (20cm)
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)	Z-axis (Below)	Z-axis (Above)
Max E-field (V/m)	2.5800	1.4200	1.7600	0.4100	2.1900	2.1800	1.4400
Limit (V/m)	614	614	614	614	614	614	614
Margin (V/m)	-611.4200	-612.5800	-612.2400	-613.5900	-611.8100	-611.8200	-612.5600
50 % Limit (V/m)	307	307	307	307	307	307	307
50 % Margin (V/m)	-304.4200	-305.5800	-305.2400	-306.5900	-304.8100	-304.8200	-305.5600

H-Field Measurement (15cm)					H-Field (15cm)		H-Field (20cm)
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)	Z-axis (Below)	Z-axis (Above)
Max H-field (uT)	0.2960	0.3360	0.2810	0.4470	0.5210	0.2850	0.4160
Max H-field (A/m)	0.2368	0.2688	0.2248	0.3576	0.4168	0.2280	0.3328
Limit (A/m)	1.63	1.63	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.3932	-1.3612	-1.4052	-1.2724	-1.2132	-1.4020	-1.2972
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.5782	-0.5462	-0.5902	-0.4574	-0.3982	-0.5870	-0.4822

Measurements were made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device, with the 20 cm measured from the center of the probe(s) to the edge of the device. Z-axis(Above). The highest emission level was recorded.

Charging Mode with 50% Load (without airgap)

E-Field Measurement (15cm)					E-Field (15cm)		E-Field (20cm)
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)	Z-axis (Below)	Z-axis (Above)
Max E-field (V/m)	2.6500	1.5700	1.4300	0.5700	2.0200	2.1800	1.1400
Limit (V/m)	614	614	614	614	614	614	614
Margin (V/m)	-611.3500	-612.4300	-612.5700	-613.4300	-611.9800	-611.8200	-612.8600
50 % Limit (V/m)	307	307	307	307	307	307.0000	307
50 % Margin (V/m)	-304.3500	-305.4300	-305.5700	-306.4300	-304.9800	-304.8200	-305.8600

H-Field Measurement (15cm)					H-Field (15cm)		H-Field (20cm)
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)	Z-axis (Below)	Z-axis (Above)
Max H-field (uT)	0.5860	0.5960	0.5010	0.4870	0.4010	0.1450	0.1760
Max H-field (A/m)	0.4688	0.4768	0.4008	0.3896	0.3208	0.1160	0.1408
Limit (A/m)	1.63	1.63	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.1612	-1.1532	-1.2292	-1.2404	-1.3092	-1.5140	-1.4892
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.3462	-0.3382	-0.4142	-0.4254	-0.4942	-0.6990	-0.6742

Measurements were made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device, with the 20 cm measured from the center of the probe(s) to the edge of the device. Z-axis(Above). The highest emission level was recorded.

Charging Mode with Maximum Load (without airgap)

E-Field Measurement (15cm)					E-Field (15cm)		E-Field (20cm)
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)	Z-axis (Below)	Z-axis (Above)
Max E-field (V/m)	2.6600	1.5700	1.6100	0.6900	1.8300	1.9400	1.3800
Limit (V/m)	614	614	614	614	614	614	614
Margin (V/m)	-611.3400	-612.4300	-612.3900	-613.3100	-612.1700	-612.0600	-612.6200
50 % Limit (V/m)	307	307	307	307	307	307	307
50 % Margin (V/m)	-304.3400	-305.4300	-305.3900	-306.3100	-305.1700	-305.0600	-305.6200

H-Field Measurement (15cm)					H-Field (15cm)		H-Field (20cm)
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)	Z-axis (Below)	Z-axis (Above)
Max H-field (uT)	0.2560	0.4460	0.2610	0.4470	0.6010	0.3650	0.1260
Max H-field (A/m)	0.2048	0.3568	0.2088	0.3576	0.4808	0.2920	0.1008
Limit (A/m)	1.63	1.63	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.4252	-1.2732	-1.4212	-1.2724	-1.1492	-1.3380	-1.5292
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.6102	-0.4582	-0.6062	-0.4574	-0.3342	-0.5230	-0.7142

Measurements were made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device, with the 20 cm measured from the center of the probe(s) to the edge of the device. Z-axis(Above). The highest emission level was recorded.

Charging Mode with 10% Load (with airgap)

E-Field Measurement (15cm)					E-Field (15cm)		E-Field (20cm)
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)	Z-axis (Below)	Z-axis (Above)
Max E-field (V/m)	2.5400	1.3400	2.0000	1.3400	2.2600	2.5800	1.3400
Limit (V/m)	614	614	614	614	614	614	614
Margin (V/m)	-611.4600	-612.6600	-612.0000	-612.6600	-611.7400	-611.4200	-612.6600
50 % Limit (V/m)	307	307	307	307	307	307	307
50 % Margin (V/m)	-304.4600	-305.6600	-305.0000	-305.6600	-304.7400	-304.4200	-305.6600

H-Field Measurement (15cm)					H-Field (15cm)		H-Field (20cm)
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)	Z-axis (Below)	Z-axis (Above)
Max H-field (uT)	0.4160	0.4060	0.2610	0.1670	0.3310	0.2050	0.2160
Max H-field (A/m)	0.3328	0.3248	0.2088	0.1336	0.2648	0.1640	0.1728
Limit (A/m)	1.63	1.63	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.2972	-1.3052	-1.4212	-1.4964	-1.3652	-1.4660	-1.4572
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.4822	-0.4902	-0.6062	-0.6814	-0.5502	-0.6510	-0.6422

Measurements were made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device, with the 20 cm measured from the center of the probe(s) to the edge of the device. Z-axis(Above). The highest emission level was recorded.

Charging Mode with 50% Load (with airgap)

E-Field Measurement (15cm)					E-Field (15cm)		E-Field (20cm)
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)	Z-axis (Below)	Z-axis (Above)
Max E-field (V/m)	2.5000	1.6900	1.1500	0.7000	2.2800	2.5500	1.9400
Limit (V/m)	614	614	614	614	614	614	614
Margin (V/m)	-611.5000	-612.3100	-612.8500	-613.3000	-611.7200	-611.4500	-612.0600
50 % Limit (V/m)	307	307	307	307	307	307.0000	307
50 % Margin (V/m)	-304.5000	-305.3100	-305.8500	-306.3000	-304.7200	-304.4500	-305.0600

H-Field Measurement (15cm)					H-Field (15cm)		H-Field (20cm)
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)	Z-axis (Below)	Z-axis (Above)
Max H-field (uT)	0.3460	0.4560	0.1810	0.5470	0.2710	0.2550	0.4360
Max H-field (A/m)	0.2768	0.3648	0.1448	0.4376	0.2168	0.2040	0.3488
Limit (A/m)	1.63	1.63	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.3532	-1.2652	-1.4852	-1.1924	-1.4132	-1.4260	-1.2812
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.5382	-0.4502	-0.6702	-0.3774	-0.5982	-0.6110	-0.4662

Measurements were made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device, with the 20 cm measured from the center of the probe(s) to the edge of the device. Z-axis(Above). The highest emission level was recorded.

Charging Mode with Maximum Load (with airgap)

E-Field Measurement (15cm)					E-Field (15cm)		E-Field (20cm)
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)	Z-axis (Below)	Z-axis (Above)
Max E-field (V/m)	2.1600	1.5100	2.1000	1.3000	2.7100	2.1600	0.9700
Limit (V/m)	614	614	614	614	614	614	614
Margin (V/m)	-611.8400	-612.4900	-611.9000	-612.7000	-611.2900	-611.8400	-613.0300
50 % Limit (V/m)	307	307	307	307	307	307	307
50 % Margin (V/m)	-304.8400	-305.4900	-304.9000	-305.7000	-304.2900	-304.8400	-306.0300

H-Field Measurement (15cm)					H-Field (15cm)		H-Field (20cm)
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)	Z-axis (Below)	Z-axis (Above)
Max H-field (uT)	0.5060	0.2460	0.5610	0.2370	0.6010	0.3550	0.1660
Max H-field (A/m)	0.4048	0.1968	0.4488	0.1896	0.4808	0.2840	0.1328
Limit (A/m)	1.63	1.63	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.2252	-1.4332	-1.1812	-1.4404	-1.1492	-1.3460	-1.4972
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.4102	-0.6182	-0.3662	-0.6254	-0.3342	-0.5310	-0.6822

Measurements were made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device, with the 20 cm measured from the center of the probe(s) to the edge of the device. Z-axis(Above). The highest emission level was recorded.

Standby Mode

E-Field Measurement (15cm)					E-Field (15cm)		E-Field (20cm)
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)	Z-axis (Below)	Z-axis (Above)
Max E-field (V/m)	1.4600	1.1900	1.2700	0.4500	1.1400	0.3100	0.8700
Limit (V/m)	614	614	614	614	614	614	614
Margin (V/m)	-612.5400	-612.8100	-612.7300	-613.5500	-612.8600	-613.6900	-613.1300
50 % Limit (V/m)	307	307	307	307	307	307	307
50 % Margin (V/m)	-305.5400	-305.8100	-305.7300	-306.5500	-305.8600	-306.6900	-306.1300

H-Field Measurement (15cm)					H-Field (15cm)		H-Field (20cm)
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)	Z-axis (Below)	Z-axis (Above)
Max H-field (uT)	0.2340	0.2370	0.5400	0.2330	0.2640	0.2330	0.2310
Max H-field (A/m)	0.1872	0.1896	0.4320	0.1864	0.2112	0.1864	0.1848
Limit (A/m)	1.63	1.63	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.4428	-1.4404	-1.1980	-1.4436	-1.4188	-1.4436	-1.4452
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.6278	-0.6254	-0.3830	-0.6286	-0.6038	-0.6286	-0.6302

Measurements were made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device, with the 20 cm measured from the center of the probe(s) to the edge of the device. Z-axis(Above). The highest emission level was recorded.

5 Photographs of the Test Configuration

Please refer to the attached file (Test Setup Photo).

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