RF Exposure Report

Report No.:	SA191202C10-2
FCC ID:	K7SG1S0001
Test Model:	G1S0001
Received Date:	Dec. 02, 2019
Date of Evaluation:	Jan. 17, 2020
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 Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
SA191202C10-2	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
Date of Evaluation:	Jan. 17, 2020
Standards:	FCC Part 2 (Section 2.1091)
References Test Guidance:	KDB 447498 D01 General RF Exposure Guidance v06 IEEE C95.3 -2002

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 : , **Date:** Jan. 22, 2020

Dylan Chiou / Senior Project Engineer

2 RF Exposure

2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
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

2.2 MPE Calculation Formula

$Pd = (Pout*G) / (4*pi*r^2)$

where

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

pi = 3.1416

r = distance between observation point and center of the radiator in cm

2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

The antenna information is listed as below.

Antenna Type		Frequency (MHz)						
		2400	2450	2500	5150	5470	5725	5850
Dipole	Peak Gain (dBi) Antenna 1	3.75	4.16	4.34	4.38	4.13	3.59	3.96
	Peak Gain (dBi) Antenna 2	2.64	2.64	2.67	2.75	3.81	3.26	2.54

2.5 Calculation Result of Maximum Conducted Power

Band	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
WLAN	2412-2462	20.00	6.56	20	0.090	1.00
	5180-5240	19.83	6.61	20	0.088	1.00
	5260-5320	19.75	6.61	20	0.086	1.00
	5500-5700	20.00	6.98	20	0.099	1.00
	5745-5825	19.34	6.63	20	0.079	1.00
BT	2402-2480	7.91	4.34	20	0.003	1.00

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. 2.4GHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \ldots. + 10^{GN/20})^2 / N_{ANT}] = 6.56$
   For U-NII-1, U-NII-2A Band:
   Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \ldots. + 10^{GN/20})^2 / N_{ANT}] = 6.61$ dBi
   For U-NII-2C Band:
   Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \ldots. + 10^{GN/20})^2 / N_{ANT}] = 6.98$ dBi
   For U-NII-3:
   Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2 / N_{ANT}] = 6.63$
3. The worst MPE result of Qi shall refer to BV CPS report no.: SA191202C10.

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz = 0.090 / 1.00 + 0.099 / 1.00 = 0.189

Therefore the maximum calculations of above situations are less than the "1" limit.

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