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Spectrum Brands
MPE REPORT

SCOPE OF WORK
MPE CALCULATION – 959-3000-GIG

REPORT NUMBER
104193999LAX-003

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March 25, 2020

PAGES
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DOCUMENT CONTROL NUMBER
Non-Specific Radio Report Shell Rev. December 2017

MPE REPORT

(FULL COMPLIANCE)

Report Number: 104193999LAX-003
Project Number: G104193999

Report Issue Date: March 25, 2020

Model(s) Tested: 959-3000-GIG (Kwikset 959 / Weiser GED3000)

Standards: **FCC Part 1 Subpart I, October 2019**
Procedures Implementing the National Environmental Policy Act of 1969
§1.1307 Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared.

ISED RSS-102 Issue 5, March 19, 2015
Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)

Tested by:
Intertek
25791 Commercentre Drive
Lake Forest, CA 92630
USA

Client:
Spectrum Brands
19701 DaVinci
Foothill Ranch, CA 92610
USA

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1 Introduction and Conclusion

This evaluation report covers for a mobile device subject to routine environmental evaluation for RF exposure. A mobile device is defined as a transmitting device designed to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structurer(s) and the body of the user or nearby persons.

The evaluation indicated in section 2.0 were performed on the product constructed as described in section 4.0. The remaining sections are the verbatim text from the actual evaluation during the investigation. These sections include the evaluation name, the specified Method, and Results. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product evaluated **complies** with the requirements of the standard(s) indicated. The results obtained in this report pertain only to the item(s) evaluated. Intertek does not make any claims of compliance for samples or variants which were not evaluated.

2 Evaluation Summary

Section	Test full name	Result
3	Client Information	-
4	Description of Equipment Under Evaluation and Variant Models	-
5	System Setup and Method	-
6	Power Density Calculation (FCC §1.1310; ISED RSS-102 Issue 5)	Compliant
7	Revision History	-

3 Client Information

This EUT was evaluated at the request of:

Client: Spectrum Brands (formerly Kwikset Corp.)
19701 DaVinci
Foothill Ranch, CA 92610
USA

Contact: Christopher Aiello
Telephone: 949 672-4372
Email: Christopher.Aiello@spectrumbrands.com

4 Description of Equipment Under Test and Variant Models

Manufacturer: Spectrum Brands (formerly Kwikset Corp.)
19701 DaVinci
Foothill Ranch, CA 92610
USA

Description of Equipment Under Test (provided by client)
The equipment under test is a wireless deadbolt with integrated Bluetooth Low Energy (BLE) transceiver and containing a certified Wi-Fi transmitter module (FCC ID: Z64-CC3220MOD, IC: 451I-CC3220MOD).

Equipment Under Test Power Configuration			
Rated Voltage	**Rated Current**	**Rated Frequency**	**Number of Phases**
6 Vdc	-	-	-

Variant Models:

The following variant models have been identified by the manufacturer as being electrically identical models, depopulated models, or with reasonable similarity to the model(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

- The model name of "959-3000-GIG" represents tow models: Kwikset 959 and Weiser GED3000
- Kwikset 959 is identical to Weiser GED3000. Different model names are for different markets.

5 Power Density Calculation

5.1 Requirement(s)

FCC §1.1310 Radiofrequency radiation exposure limits

Table 1 below sets forth limits for Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic field.

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 Exposure				
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
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	842/f	2.19/f	$*180/f^2$	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

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

ISED RSS-102 Issue 5

Table 2 below sets forth limits for the RF field strength.

Table 2 – RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

Frequency range (MHz)	Electric field strength (V/m rms)	Magnetic field strength (A/m rms)	Power Density (W/m^2)	Reference Period (minutes)
0.003-10	83	90	-	Instantaneous*
0.1-10	-	$0.73/f$	-	6**
1.1-10	$87/f^{0.5}$	-	-	6**
10-20	27.46	0.0728	-2	6
20-48	$58.07/f^{0.25}$	$0.1540/f^{0.25}$	$8.944/f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	$3.142 f^{0.3417}$	$0.008335 f^{0.3417}$	$0.02619 f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000/f^{1.2}$
150000-300000	$0.158 f^{0.5}$	$4.21 \times 10^{-4} f^{0.5}$	$6.67 \times 10^{-5} f$	$616000/f^{1.2}$

Note: f is frequency in MHz. *Based on nerve stimulation (NS) **Based on specific absorption rate (SAR)

5.2 Method

An MPE evaluation was performed in order to show that the device was compliant with FCC §2.1091 and ISED RSS-102. The maximum power density was calculated for each transmitter at a separation distance of 20 cm. The calculation was performed using the maximum gain from the internal and external antennas declared by the manufacturer.

The maximum permissible exposure (MPE) is predicted by using the following equation:

$$S = PG/4\pi R^2$$

where: S = power density (in appropriate units, e.g. mW/cm^2)
P = power input to the antenna (in appropriate units, e.g., mW)
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

5.3 Results:

The sample tested was found to Comply. The calculated maximum power density at 20 cm distance is less than the limits for general population / uncontrolled exposure.

5.4 Data:

For the BLE transmitter: P = 14.52[a)] mW, G = 2 dBi (1.59), R = 20 cm,

$S = [(14.52)*(1.59)]/(4*\pi*20^2) = 0.0046\ mW/cm^2 = 0.046\ W/m^2$

For the Wi-Fi 2.4 GHz IEEE 802.11b/g/n transmitter:

$S = 0.018$[b)] $mW/cm^2 = 0.18\ W/m^2$

FCC: $\Sigma(S_i/MPE_i) = (0.0046/1) + (0.018/1) = 0.0226$ < 1

ISED Canada: $\Sigma(S_i/MPE_i) = (0.046/5.351) + (0.18/5.366) = 0.0421$ < 1

a): Date was taken from Intertek test report number: 104044098LAX-001
b): Data was taken from the FCC filing, FCC ID: Z64-CC3220MOD (provided by Spectrum Brands). Intertek takes no responsibility for the accuracy of the data

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	March 25, 2020	104193999LAX-003	GL	SK	Original Issue