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TEST REPORT #: 315334-1
LSR Job #: C-2509

Compliance Testing of:
Bluetooth LED Large Area Light with Built-in Charger

Prepared For:
Stanley Black and Decker
Attn: Kirwan Magdamo and Crystal Young
708 E. Joppa Road
Towson, MD 21286

This Test Report is issued under the Authority of:
John Johnston, EMC Engineer

Signature: 

Date: 8/30/16

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EUT: Bluetooth LED Large Area Light with Built-in Charger	Serial #: 000070; 000281; 000048	LSR Job #: C-2509

EXHIBIT 1 INTRODUCTION

1.1 Client Information

Manufacturer Name:	Stanley Black and Decker
Address:	701 E Joppa Road Towson, MD 21286
Contact Name:	Kirwan Magdamo and Crystal Young

1.2 Equipment Under Test (EUT) Information

Product Name:	Bluetooth LED Large Area Light with Built-In Charger
Model Number:	DCL070
Serial Number:	000070; 000281; 000048

1.3 Product Description

The DCL070 Bluetooth (BLE) LED Area Light with Built-in Charger is a corded and cordless light or charger used to illuminate work areas. The unit is capable of operating on a 20 V battery or AC power. Additionally, the DCL070 may charge the 20 V battery when connected to AC power. Users can connect to and communicate with the DCL070 via the DEWALT Tool Connect App using a smartphone or tablet. The DCL070 can be programmed to turn on or off at scheduled time or intervals automatically.

1.4 Compliance Statement

The Bluetooth LED Large Area Light with Built-in Charger was evaluated against the limits of OET Bulletin 65. As such, the Bluetooth LED Large Area Light with Built-in Charger is found to be compliant as a mobile device.

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EXHIBIT 2 MPE Calculations

A. Mobile (MPE)

OET Bulletin 65 limits for General population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
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

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RSS 102 limits for General population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m ²)	Reference Period (minutes)
0.003-10 ²¹	83	90	-	Instantaneous*
0.1-10	-	0.73/ <i>f</i>	-	6**
1.1-10	87/ <i>f</i> ^{0.5}	-	-	6**
10-20	27.46	0.0728	2	6
20-48	58.07/ <i>f</i> ^{0.25}	0.1540/ <i>f</i> ^{0.25}	8.944/ <i>f</i> ^{0.5}	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 <i>f</i> ^{0.3417}	0.008335 <i>f</i> ^{0.3417}	0.02619 <i>f</i> ^{0.6834}	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ <i>f</i> ^{1.2}
150000-300000	0.158 <i>f</i> ^{0.5}	4.21 x 10 ⁻⁴ <i>f</i> ^{0.5}	6.67 x 10 ⁻⁵ <i>f</i>	616000/ <i>f</i> ^{1.2}
Note: <i>f</i> is frequency in MHz. *Based on nerve stimulation (NS). ** Based on specific absorption rate (SAR).				

Per RSS 102 issue 5 section 2.5.2, RF exposure evaluation is required if a separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 22.48/*f*^{0.5}W (adjusted for tune-up tolerance), where *f* is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1.31 x 10⁻² *f*^{0.6834} W (adjusted for tune-up tolerance), where *f* is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

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The following MPE calculations are based on the -0.726 dBm measured, peak conducted output provided to the antenna. The peak gain of the antenna is 0 dBi.

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density

P = power input to the antenna

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

Maximum peak output power at antenna input terminal:	-0.73 (dBm)
Maximum peak output power at antenna input terminal:	0.845 (mW)
Antenna gain(typical):	0 (dBi)
Maximum antenna gain:	1.000 (numeric)
Prediction distance:	20 (cm)
Prediction frequency:	2402 (MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1 (mW/cm ²)
Power density at prediction frequency:	0.000168 (mW/cm ²)
Maximum allowable antenna gain:	37.7 (dBi)
Margin of Compliance at 20 cm =	37.7 dB

Power Density = 0.000168 mW/cm² = 0.00168 W/m²

RF Exposure Evaluation:

Evaluated against exposure limits: General Public Use ☒ Controlled Use ☐

Duty cycle used in evaluation: 100 %

Standard(s)/Procedure(s) used for evaluation (e.g. IEEE C95.3): OET Bulletin 65 and RSS 102

Measurement distance: 20 cm

RF field strength value: 0.00168 V/m ☐ A/m ☐ W/m² ☒

Measured ☐ Computed ☐ Calculated ☒

The calculated power density of the EUT was found to be below the 1.0 mW/cm² OET Bulletin 65 MPE Limit. Per RSS 102 issue 5 section 2.5.2, since the EUT operates at 0.846 mW, which is less than

$$1.31 \times 10^{-2} * (2402)^{0.6834} \text{ W} = 2.676 \text{ W}$$

The EUT is excluded from routine evaluation.

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