



**TÜVRheinland®**  
Precisely Right.

# RF Exposure Report

## FCC Part 2.1091

**EUT Name:** Smart Power Cord  
**Model No.:** CS-SC-01

*Prepared for:*

Grid Connect  
1630 W Diehl Rd  
Naperville, IL, 60563

*Prepared by:*

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# Statement of Compliance

*Manufacturer:* Grid Connect  
1630 W Diehl Rd  
Naperville, IL, 60563  
*Name of Equipment:* Smart Power Cord  
*Model No.* CS-SC-01  
*Application of Regulations:* FCC Part 2.1091

*Guidance Documents:*

FCC Part 2.1091

*Test Methods:*

FCC Part 1.1310, KDB 447498 D01

The electromagnetic compatibility test and documented data described in this report has been performed and recorded by TUV Rheinland, in accordance with the standards and procedures listed herein. As the responsible authorized agent of the EMC laboratory, I hereby declare that the equipment described above has been shown to be compliant with the EMC requirements of the stated regulations and standards based on these results. If any special accessories and/or modifications were required for compliance, they are listed in this report.

This report must not be used to claim product endorsement by A2LA or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written authorization of TUV Rheinland of North America.

Osvaldo Casorla December 10, 2020

Test Engineer Date

Rachana Khanduri December 10, 2020

Laboratory Signatory Date



**Test Cert. # 3331.02**

## 1 Product Specifications

### 1.1 Product Description

### 1.2 Product Specifications

EUT Specifications	
Exposure Type	<input checked="" type="checkbox"/> General Population / Uncontrolled <input type="checkbox"/> Occupational / Controlled
Multiple Antenna Feeds:	<input type="checkbox"/> Yes and how many 1 <input checked="" type="checkbox"/> No
Hardware Version	GC-SCBL-PCBA rev 0.3
Software Version	N/A
Note:	

### 1.3 Air Interfaces

Air Interface	Supported Capabilities	Modulation	Maximum Duty Cycle	Band	Frequency Range (MHz)	Maximum Output Power Including Tolerance (dBm)
WLAN: 802.11 b/g/n	<ul style="list-style-type: none"><li>• b/g mode</li><li>• n mode, HT20</li><li>• n mode, HT40</li></ul>	<ul style="list-style-type: none"><li>• QPSK</li></ul>	100%	N/A	2400 – 2483.5	17.46
Bluetooth	<ul style="list-style-type: none"><li>• Low Energy</li></ul>	<ul style="list-style-type: none"><li>• GFSK</li></ul>	83%	N/A	2400 – 2483.5	4.94

## 2 RF Exposure Evaluation

### 2.1 Purpose

This report will demonstrate the compliance of RF exposure to the human body of the CS-SC-01 according to FCC rule part 2.1091. All transmitters, regardless if it is categorically excluded, are assessed to ensure the product can operate in manners that meet or exceed the minimum test separation distance as required by KDB 447498.

### 2.2 Categorical Exclusion Assessment

Air Interface	Band	Frequency Range (MHz)	FCC Rule Part	Categorically Excluded according to FCC 1.1307 (b)(1)
WLAN: 802.11 b/g/n	N/A	2400 – 2483.5	15.247	Yes
Bluetooth	N/A	2400 – 2483.5	15.247	Yes

### 2.3 Maximum Permissible Exposure Limit

The Maximum Permissible Exposure (MPE) limits according to FCC rule part 1.1310 for general population/uncontrolled exposure is as follows:

Frequency Range (MHz)	E-field strength (V/m)	H-field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f <sup>2</sup>	30
30-300	27.5	0.073	0.2	30
300-1,500	-	-	f/1500	30
1,500-100,000	-	-	1.0	30

\* = Plane-wave equivalent power density

## 2.4 Assessment Methods

The power density is calculated according to the following equation

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

Where

S = Power Density (mW/cm<sup>2</sup>)

EIRP = Effective Isotropic Radiated Power (mW)

R = Minimum distance between the human body and antenna (cm)

When the calculated power density exceeds the MPE limits, the power density is measured.

## 2.5 Assessment Calculation

The maximum output power and antenna gain is declared by the manufacturer and used in this assessment.

The minimum RF exposure distance during normal operation is 20 cm.

### Stand Alone Analysis

Frequency Band	Operating Mode	Max. Conducted Power (mW)	Numeric Antenna Gain	EIRP (mW)	Power Density (mW/cm <sup>2</sup> )	Power Density Limit (mW/cm <sup>2</sup> )	Percentage of Limit
2.4 GHz (OFDM)	802.11n HT40	55.72	0.11	6.01	0.0012	1	0.120
2.4 GHz BLE	BT5.0	3.12	0.11	0.34	0.0001	1	0.007

## 2.6 Conclusion

The EUT was found to be compliant to the requirements of FCC part 1.1310 and part 2.1091 with a minimum distance of 20 cm.