



# RF Exposure Evaluation Report

APPLICANT	BRIGHTLOT, INC.
ADDRESS	85 BROAD STREET, 27TH FLOOR NEW YORK NEW YORK 10004 USA
FCC ID	2ARCB-INVERNESS
MODEL NUMBER	J2B
PRODUCT DESCRIPTION	ZIGBEE TRANSMITTER
DATE SAMPLE RECEIVED	10/15/2018
FINAL TEST DATE	10/15/2018
PREPARED BY	Franklin Rose
TEST RESULTS	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL

Report Number	Report Version	Description	Issue Date
1578AZUT18 MPE_TestReport_	Rev1	Initial Issue	10/15/2018

**THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE  
WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.**

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## GENERAL REMARKS

### Summary

The device under test does:

- Fulfill the general approval requirements as identified in this test report and was selected by the customer.
- Not fulfill the general approval requirements as identified in this test report

### Attestations

This equipment has been tested in accordance with the standards identified in this test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report.

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025 requirements.

I attest that the necessary measurements were made at:

**Timco Engineering Inc.**  
**849 NW State Road 45**  
**Newberry, FL 32669**  
**Designation #: US1070**

### Prepared by:

  


<b>Name and Title</b>	Franklin Rose, Project Manager / EMC Testing Technician
<b>Date</b>	11/08/2018

**GENERAL INFORMATION**

<b>EUT Description</b>	ZIGBEE TRANSMITTER		
<b>Model Number</b>	J2B		
<b>EUT Power Source</b>	<input type="checkbox"/> 110–120Vac, 50– 60Hz	<input checked="" type="checkbox"/> DC Power	<input type="checkbox"/> Battery Operated
<b>Test Item</b>	<input type="checkbox"/> Prototype	<input checked="" type="checkbox"/> Pre-Production	<input type="checkbox"/> Production
<b>Type of Equipment</b>	<input type="checkbox"/> Fixed	<input checked="" type="checkbox"/> Mobile	<input type="checkbox"/> Portable
<b>Antenna Connector</b>	SMA		
<b>Test Conditions</b>	The temperature was 26°C Relative humidity of 50%.		
<b>Modification to the EUT</b>	None		
<b>Applicable Standards</b>	FCC CFR 47 Part 2.1091, RSS-102 Table 4 (i5)		
<b>Test Facility</b>	Timco Engineering Inc. at 849 NW State Road 45 Newberry, FL 32669 USA. Designation #: US1070		

**ANTENNA INFORMATION**

<b>Manufacturer Provides Antenna</b>	<b>Type</b>	<b>Max Gain (dBi)</b>
Yes	Integral/PCB Trace	0.0

## MPE CALCULATION

**RF Exposure Exemption Calculation:** RSS-102, s. 2.5.2:

### 2.5.2 Exemption Limits for Routine Evaluation — RF Exposure Evaluation

RF exposure evaluation is required if the 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:

- 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  $1.31 \times 10^{-2} f^{0.6834}$  W (adjusted for tune-up tolerance), where  $f$  is in MHz;

$$1.31 \times 0.01(2480^{0.6834}) = 868.5 \text{ mW}$$

$$180 \text{ mW} \geq 2.735 \text{ W}$$

Result: Device is exempt from Routine RF Exposure Evaluation.

**Power Density Calculation:** Calculated when separation distance < 20 cm

$$S = P * (G-L) / (4 * R^2 * \pi)$$

Where:

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

P = Power input to the antenna (mW)

G = Numeric power gain of the antenna (dBi)

L = Numeric power loss between transmitter and antenna (dB)

R = Distance to the center of antenna radiation (cm)

$$S = 180 * 1 / (4 * (20^2) * 3.141593)$$

$$S = 0.0358 \text{ mW/cm}^2$$

$$S = 0.3581 \text{ W/m}^2$$

## MPE CALCULATION

**FCC: General Uncontrolled Exposure Environment:** FCC 1.1310, Table 1

Variable	Value
Highest Frequency	2480 MHz
Max Power	180 mW
Duty Cycle (at full power)	100%
Max Antenna Gain	0 dBi
Coax Loss	0 dBm
Power Density	0.0358 mW/cm <sup>2</sup>
Minimum Separation Distance	20 cm

**ISED: General Uncontrolled Exposure Environment:** RSS-102, s. 4, Table 4

Variable	Value
Highest Frequency	2480 MHz
Max Power	180 mW
Duty Cycle (at full power)	100%
Max Antenna Gain	0 dBi
Coax Loss	0 dBm
Power Density	0.358 W/m <sup>2</sup>
Minimum Separation Distance	20 cm