

## RF Exposure Report

**Report No.:** SA191008C34

**FCC ID:** 2AAFX-JDCGNUS3110

**Test Model:** ROBOTIC MOWER CONNECTIVITY MODULE

**Received Date:** Oct. 08, 2019

**Date of Evaluation:** Nov. 29, 2019

**Issued Date:** Feb. 24, 2020

**Applicant:** Deere & Company

**Address:** One John Deere Place, Moline, IL 61265

**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   |
|-------------|------------------|---------------|
| SA191008C34 | Original Release | Feb. 24, 2020 |

## 1 Certificate of Conformity

**Product:** Robotic Mower Connectivity Module

**Brand:** John Deere

**Test Model:** ROBOTIC MOWER CONNECTIVITY MODULE

**Sample Status:** Production Unit

**Applicant:** Deere & Company

**Date of Evaluation:** Nov. 29, 2019

**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 :**

*Lena Wang*

**Date:** Feb. 24, 2020

Lena Wang / Specialist

**Approved by :**

*Dylan Chiou*

**Date:** Feb. 24, 2020

Dylan Chiou / 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 <sup>2</sup> ) | 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 <sup>2</sup> )*              | 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

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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 Calculation Result of Maximum Conducted Power

| Band     | Frequency Band (MHz) | Output Power ERP / EIRP (dBm) | Output Power ERP / EIRP (mW) | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) |
|----------|----------------------|-------------------------------|------------------------------|---------------|-------------------------------------|-----------------------------|
| GSM850   | 824-849              | 27.30                         | 537.032                      | 20            | 0.107                               | 0.55                        |
| PCS1900  | 1850-1910            | 32.60                         | 1819.701                     | 20            | 0.362                               | 1.00                        |
| WCDMA II | 1850-1910            | 30.00                         | 1000.000                     | 20            | 0.199                               | 1.00                        |
| WCDMA IV | 1710-1755            | 28.00                         | 630.957                      | 20            | 0.126                               | 1.00                        |
| WCDMA V  | 824-849              | 21.5                          | 141.254                      | 20            | 0.028                               | 0.55                        |
| LTE 2    | 1850-1910            | 25.60                         | 363.078                      | 20            | 0.072                               | 1.00                        |
| LTE 4    | 1710-1755            | 26.20                         | 416.869                      | 20            | 0.083                               | 1.00                        |
| LTE 12   | 699-716              | 21.10                         | 128.825                      | 20            | 0.026                               | 0.47                        |
| WLAN     | 2412-2462            | 26.52                         | 448.745                      | 20            | 0.089                               | 1.00                        |
| BT       | 2402-2480            | 9.64                          | 9.204                        | 20            | 0.002                               | 1.00                        |

Note:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

### Conclusion:

The formula of calculated the MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

$$WWAN + WLAN + BT = 0.362/1 + 0.089/1 + 0.002/1 = 0.453$$

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

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