

# RF Exposure Evaluation Report

Product Name : Smart Dashcam

Model No. : DC-100

FCC ID : ZOQDC-100

Applicant : Verizon Connect

Address : 5055 North Point Pkwy 14 Floor Room 1406 Alpharetta Georgia United States

Date of Receipt : Mar. 26, 2021

Date of Declaration : June 08, 2021

Report No. : 2131050R-E3082100013

Report Version : V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

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Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Issued Date: June 08, 2021

Report No.: 2131050R-E3082100013



|                     |   |   |
|---------------------|---|---|
| Product Name        | Smart Dashcam   |   |
| Applicant           | Verizon Connect   |   |
| Address             | 5055 North Point Pkwy 14 Floor Room 1406 Alpharetta Georgia United States |   |
| Manufacturer        | Wistron NeWeb Corp.   |   |
| Model No.           | DC-100  |   |
| FCC ID.             | ZOQDC-100   |   |
| Applicable Standard | KDB 447498 D01 v06  | <input checked="" type="checkbox"/> Minimum test separation distance $\geq$ 20 cm<br><input type="checkbox"/> For low power devices |
| Test Result         | Complied  |   |

Documented By

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Approved By

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**Revision History**

| <b>Report No.</b>    | <b>Version</b> | <b>Description</b>       | <b>Issued Date</b> |
|----------------------|----------------|--------------------------|--------------------|
| 2131050R-E3082100013 | V1.0           | Initial issue of report. | 2021-06-08         |

## 1. GENERAL INFORMATION

### 1.1. EUT Description

|                    |   |
|--------------------|---|
| Product Name       | Smart Dashcam   |
| Model No.          | DC-100  |
| FCC ID.            | ZOQDC-100   |
| Frequency Range    | 802.11b/g/n-20MHz: 2412-2462MHz, 802.11n40: 2422-2452MHz<br>802.11a/n/ac-20MHz: 5180-5240MHz, 5745-5825MHz<br>802.11n/ac-40MHz: 5190-5230MHz, 5755-5795MHz<br>802.11ac-80MHz: 5210MHz, 5775MHz<br>BLE: 2402 – 2480MHz |
| Channel Number     | 802.11b/g/n-20MHz: 11, 802.11n40: 7CH<br>802.11a/n/ac-20MHz: 9; 802.11n/ac-40MHz: 4, 802.11ac-80MHz: 2<br>BLE: V4.2: 40CH   |
| Type of Modulation | 802.11b:DSSS (DBPSK, DQPSK, CCK)<br>802.11a/g/n/ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)<br>BLE: V4.2: GFSK(1Mbps)   |
| Channel Control    | Auto  |
| Antenna Type       | PIFA Antenna  |
| Antenna Gain       | Refer to the table “Antenna List”   |

### 1.2. Antenna List

| No. | Manufacturer | Part No. | Antenna Type | Peak Gain   |
|-----|--------------|----------|--------------|---|
| 1   | WNC          | DC-100   | PIFA Antenna | 2.18dBi for 2.4 GHz<br>2.95dBi for 5.150-5.250 GHz<br>2.73dBi for 5.725~5.85GHz |

## 2. RF Exposure Evaluation

### 2.1. Standard Applicable

According to KDB 447498 D01 (7.1), A minimum test separation distance  $\geq 20$  cm is required between the antenna and radiating structures of the device and nearby persons to apply mobile device exposure limits.

### 2.2. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

#### 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) |
|---|-------------------------------|-------------------------------|-------------------------------------|------------------------|
| (A) Limits for Occupational/ Control Exposures            |                               |                               |                                     |                        |
| 300-1500  | --                            | --                            | F/300                               | 6                      |
| 1500-100,000  | --                            | --                            | 5                                   | 6                      |
| (B) Limits for General Population/ Uncontrolled Exposures |                               |                               |                                     |                        |
| 300-1500  | --                            | --                            | F/1500                              | 6                      |
| 1500-100,000  | --                            | --                            | 1                                   | 30                     |

F= Frequency in MHz

Friis Formula

Friis transmission formula:  $P_d = (P_{out} * G) / (4 * \pi * r^2)$

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. Test Result of RF Exposure Evaluation

Product : Smart Dashcam  
 Test Item : RF Exposure Evaluation

#### WLAN 2.4G Peak Gain: 2.18dBi

| Channel | Frequency | Conducted Peak Power (dBm) | Output Power to Antenna (mW) | Power Density at R = 20 cm (mW/cm <sup>2</sup> ) | Limit (mWc/m <sup>2</sup> ) | Pass/Fail |
|---------|-----------|----------------------------|------------------------------|--|-----------------------------|-----------|
| 06      | 2462      | 22.92                      | 195.884                      | 0.0644   | 1                           | Pass      |

Note: The conducted output power is refer to report No.: 2131050R-E3032110116, 2131050R-E3032110118 from the DEKRA.

#### WLAN 5G Peak Gain: 2.95dBi

| Channel | Frequency | Conducted AV Power (dBm) | Output Power to Antenna (mW) | Power Density at R = 20 cm (mW/cm <sup>2</sup> ) | Limit (mWc/m <sup>2</sup> ) | Pass/Fail |
|---------|-----------|--------------------------|------------------------------|--|-----------------------------|-----------|
| 165     | 5240      | 13.97                    | 24.946                       | 0.0098   | 1                           | Pass      |

Note: The conducted output power is refer to report No.: 2131050R-E3032110129 from the DEKRA.