



## RF Exposure Evaluation Report

**Application No.:** SZEM1910019217CR  
**Applicant:** JVCKENWOOD Corporation  
**Address of Applicant:** 2967-3, Ishikawa-machi Hachioji-shi, Tokyo, Japan 192-8525  
**Manufacturer:** JVCKENWOOD Corporation  
**Address of Manufacturer:** 2967-3, Ishikawa-machi, Hachioji-shi, Tokyo 192-8525, Japan  
**Factory:** Cansonic Company Limited  
**Address of Factory:** 3/F, Building 1, Guanlan Industrial Park, Grain Group, 299 Guanping Road, Dafu Community, Guanlan South, Longhua New District, Shenzhen, China

**Equipment Under Test (EUT):**

**Product Name:** Dashboard Camera  
**Model No.:** DRV-A700W  
**Trade mark:** KENWOOD  
**FCC ID:** IOMDRVA700W  
**Standards:** 47 CFR Part 1.1310  
47 CFR Part 2.1091  
**Date of Receipt:** 2019-10-12  
**Date of Test:** 2019-10-15 to 2019-11-21  
**Date of Issue:** 2019-11-25

|                      |              |
|----------------------|--------------|
| <b>Test Result :</b> | <b>PASS*</b> |
|----------------------|--------------|

\* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu

Keny Xu  
EMC Laboratory Manager



SGS-CSTC Standards Technical Services Co., Ltd.  
Shenzhen Branch, EMC Laboratory

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## 2 Version

| Revision Record |         |            |          |          |
|-----------------|---------|------------|----------|----------|
| Version         | Chapter | Date       | Modifier | Remark   |
| 01              |         | 2019-11-25 |          | Original |
|                 |         |            |          |          |
|                 |         |            |          |          |

|                          |  |                                                                                     |  |
|--------------------------|--|-------------------------------------------------------------------------------------|--|
| Authorized for issue by: |  |                                                                                     |  |
|                          |  |   |  |
|                          |  | Calvin Weng /Project Engineer                                                       |  |
|                          |  |  |  |
|                          |  | Eric Fu /Reviewer                                                                   |  |





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## 4 General Information

### 4.1 General Description of EUT

|                      |                                                                                                                                                                                                       |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Supply:        | Camera input: DC5V/2A<br>Car charger input: DC12V/24V, 2A<br>Car charger output: DC5V/2A                                                                                                              |
| Cable:               | Car charger cable(CA-DR1033): 4m unshielded cable with a ferrite core<br>Car charger cableCA-DR1030):4m unshielded cable with a ferrite core<br>USB cable: 1.2m shielded cable with two ferrite cores |
| Operation Frequency: | 802.11b/g/n(HT20): 2412MHz to 2462MHz<br>802.11n(HT40): 2422MHz to 2452MHz                                                                                                                            |
| Modulation Type:     | 802.11b: DSSS (CCK, DQPSK, DBPSK)<br>802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)                                                                                                                       |
| Number of Channels:  | 802.11b/g/n(HT20):11<br>802.11n(HT40):7                                                                                                                                                               |
| Channel Spacing:     | 5MHz                                                                                                                                                                                                  |
| Antenna Type:        | Integral                                                                                                                                                                                              |
| Antenna Gain:        | 2dBi                                                                                                                                                                                                  |



## 4.2 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China  
518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

## 4.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

## 4.4 Deviation from Standards

None.

## 4.5 Abnormalities from Standard Conditions

None.

## 4.6 Other Information Requested by the Customer

None.



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## 5 RF Exposure Evaluation

### 5.1 RF Exposure Compliance Requirement

#### 5.1.1 Limits

According to FCC Part1.1310: 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 part1.1307(b)

**TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

| Frequency range<br>(MHz)                                       | Electric field<br>strength<br>(V/m) | Magnetic field<br>strength<br>(A/m) | Power density<br>(mW/cm <sup>2</sup> ) | Averaging time<br>(minutes) |
|----------------------------------------------------------------|-------------------------------------|-------------------------------------|----------------------------------------|-----------------------------|
| <b>(A) Limits for Occupational/Controlled Exposures</b>        |                                     |                                     |                                        |                             |
| 0.3–3.0 .....                                                  | 614                                 | 1.63                                | *(100)                                 | 6                           |
| 3.0–30 .....                                                   | 1842/f                              | 4.89/f                              | *(900/f <sup>2</sup> )                 | 6                           |
| 30–300 .....                                                   | 61.4                                | 0.163                               | 1.0                                    | 6                           |
| 300–1500 .....                                                 | .....                               | .....                               | f/300                                  | 6                           |
| 1500–100,000 .....                                             | .....                               | .....                               | 5                                      | 6                           |
| <b>(B) Limits for General Population/Uncontrolled Exposure</b> |                                     |                                     |                                        |                             |
| 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

Friis Formula

Friis transmission 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

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

#### 5.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.





#### 4.1.3 EUT RF Exposure Evaluation

Antenna Gain: 2dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.58in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

| Channel | Frequency<br>(MHz) | Max Conducted<br>Peak Output<br>Power (dBm) | Output Power<br>to Antenna<br>(mW) | Power Density<br>at R = 20 cm<br>(mW/cm <sup>2</sup> ) | Limit<br>(mW/cm <sup>2</sup> ) | Result |
|---------|--------------------|---------------------------------------------|------------------------------------|--------------------------------------------------------|--------------------------------|--------|
| Highest | 2462               | 20.39                                       | 109.40                             | 0.0344                                                 | 1.0                            | PASS   |

Note: Refer to report No. SZEM191001921702 for EUT test Max Conducted Peak Output Power value.

The distance r (4th column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement.

- End of the Report -

