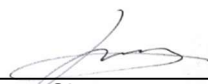


# FCC RF EXPOSURE TEST REPORT

**Project Number** : EA2206C-023  
**Test Report Number** : TR-W2208-012  
**Type of Equipment** : In-vehicle Infortainment System  
**Model Name** : XS90116CA  
**FCC ID** : YE4XSG4V2B  
**Multiple Model Name** : -  
**Applicant** : Glosys Inc.  
**Address** : B2535, 27, Dongtancheomdansaneop 1-ro, Hwaseong-si,  
Gyeonggi-do, Republic of Korea  
**Manufacturer** : Glosys Inc.  
**Address** : B2535, 27, Dongtancheomdansaneop 1-ro, Hwaseong-si,  
Gyeonggi-do, Republic of Korea  
**Regulation** : FCC CFR 47 Chapter I Subpart A Part 1 Clause 1.1310  
**Total page of Report** : 7 Pages  
**Date of Receipt** : 2022-06-14  
**Date of Issue** : 2022-08-04  
**Test Result** : PASS

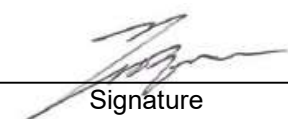
This test report only contains the result of a single test of the sample supplied for the examination.  
 It is not a generally valid assessment of the features of the respective products of the mass-production.

Prepared by Song, In-yong / Senior Engineer

  
 Signature

2022-08-04  
 Date

Reviewed by Choi, Yeong-min / Technical Manager

  
 Signature

2022-08-04  
 Date

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### Release Control Record

| Issue Report No. | Issued Date | Revisions       | Effect Section |
|------------------|-------------|-----------------|----------------|
| TR-W2208-012     | 2022-08-04  | Initial Release | All            |
|                  |             |                 |                |

## 1. EUT (Equipment Under Test) INFORMATION

### 1.1 General Description

The Glosys Inc., Model XS90116CA (referred to as the EUT in this report) is an In-vehicle Infotainment System, which has Bluetooth, BR and EDR function. The product specification described herein was obtained from product data sheet or user's manual.

|                                |                                                                                                                   |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Kind of Class                  | DSS – Part15 Spread Spectrum Transmitter                                                                          |
| Operating Frequency            | 2 402 MHz ~ 2 480 MHz                                                                                             |
| Max. RF Output Power           | 5.36 dBm                                                                                                          |
| Modulation Types               | GFSK, $\pi/4$ DQPSK / 8DPSK                                                                                       |
| Number of Channels             | 79 channels                                                                                                       |
| Channel Spacing                | 1 MHz                                                                                                             |
| Generated or used Freq. in EUT | 32.768 kHz, 8 MHz, 12 MHz, 14.318118 MHz, 24 MHz, 24.576 MHz, 25 MHz, 27 MHz                                      |
| Type of Antenna                | <input type="checkbox"/> Integrated Type <input checked="" type="checkbox"/> Dedicated Type (PCB Pattern antenna) |
| Antenna Gain                   | Peak gain: -7.7 dBi                                                                                               |
| Normal Test Voltage            | DC 12 V                                                                                                           |
| Electrical Rating              | DC 11 ~ 16 V                                                                                                      |
| Consumption in Sleep mode      | <5 mA                                                                                                             |
| Dimensions                     | 218 x 60 x 161 mm                                                                                                 |
| Weight                         | 810 g                                                                                                             |

### 1.2 Additional Model

None

## 2. TEST RESULT

### 2.1 Measured RF Output Level

| Operating Mode                            | Data Rate | Channel     | Frequency (MHz) | Output Power (dBm) |
|-------------------------------------------|-----------|-------------|-----------------|--------------------|
| Basic Rate<br>(GFSK)                      | 1 Mbps    | Low         | 2 402           | 2.05               |
|                                           |           | Middle      | 2 441           | 3.87               |
|                                           |           | <b>High</b> | <b>2 480</b>    | <b>5.36</b>        |
| Enhanced<br>Data Rate<br>( $\pi/4$ DQPSK) | 2 Mbps    | Low         | 2 402           | 0.52               |
|                                           |           | Middle      | 2 441           | 2.78               |
|                                           |           | High        | 2 480           | 4.35               |
| Enhanced<br>Data Rate<br>(8DPSK)          | 3 Mbps    | Low         | 2 402           | 0.94               |
|                                           |           | Middle      | 2 441           | 3.18               |
|                                           |           | High        | 2 480           | 4.64               |

### 2.2 Separation Distance between the antenna in the EUT and human body

Acc. to the applicant's declaration, the distance is 20 cm.

## 2.3 MPE Evaluation

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user.

The MPE sample calculation for this exposure is shown below.

$$S = \text{EIRP} / (4 \times R^2 \times \pi)$$

**Note:** S = Power density in mW/cm<sup>2</sup>

$$= 5.36 / (4 \times 20^2 \times \pi)$$

EIRP = Equivalent Isotropic Radiated Power in mW

$$= 0.0034 \text{ mW/cm}^2$$

R = Distance to the center of the radiation of the antenna

$$\pi \approx 3.141592$$

### FCC LIMIT

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), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of this chapter.

[Table – Limits for Maximum Permissible Exposure (MPE)]

| Frequency Range<br>[MHz]                                                | Electric Field<br>Strength [V/m] | Magnetic Field<br>Strength [A/m] | Power Density<br>[mW/cm <sup>2</sup> ] | Average Time<br>[minutes] |
|-------------------------------------------------------------------------|----------------------------------|----------------------------------|----------------------------------------|---------------------------|
| <b>(A) Limits for Occupational / Control Exposures (Note 1)</b>         |                                  |                                  |                                        |                           |
| 0.3 – 3.0                                                               | 614                              | 1.63                             | *(100)                                 | 6                         |
| 3.0 – 30                                                                | 1 842/f                          | 4.89/f                           | *(900/f <sup>2</sup> )                 | 6                         |
| 30 – 300                                                                | 61.4                             | 0.163                            | 1.0                                    | 6                         |
| 300 – 1,500                                                             |                                  |                                  | f/300                                  | 6                         |
| 1,500 – 100,000                                                         |                                  |                                  | 5                                      | 6                         |
| <b>(B) Limits for General Population/Uncontrolled Exposure (Note 2)</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 – 1,500                                                             |                                  |                                  | f/1 500                                | 30                        |
| <b><u>1,500 – 100,000</u></b>                                           |                                  |                                  | <b><u>1.0</u></b>                      | <b><u>30</u></b>          |

f = frequency in MHz, \* = Plane wave equivalent power density

### 2.3.1 MPE Calculation Result

| Mode                                      | Frequency<br>(MHz) | P (dBm) | P (mW) | G (dBi)<br>Log | G (dBi)<br>Linear | Distance<br>(m) | S<br>(mW/cm <sup>2</sup> ) | Limit<br>(mW/cm <sup>2</sup> ) |
|-------------------------------------------|--------------------|---------|--------|----------------|-------------------|-----------------|----------------------------|--------------------------------|
| Basic Rate<br>(GFSK)                      | 2 402              | 2.05    | 1.60   | -7.70          | 0.17              | 0.2             | 0.000 1                    | 1.00                           |
|                                           | 2 441              | 3.87    | 2.44   | -7.70          | 0.17              | 0.2             | 0.000 1                    | 1.00                           |
|                                           | 2 480              | 5.36    | 3.44   | -7.70          | 0.17              | 0.2             | 0.000 1                    | 1.00                           |
| Enhanced<br>Data Rate<br>( $\pi/4$ DQPSK) | 2 402              | 0.52    | 1.13   | -7.70          | 0.17              | 0.2             | 0.000 0                    | 1.00                           |
|                                           | 2 441              | 2.78    | 1.90   | -7.70          | 0.17              | 0.2             | 0.000 1                    | 1.00                           |
|                                           | 2 480              | 4.35    | 2.72   | -7.70          | 0.17              | 0.2             | 0.000 1                    | 1.00                           |
| Enhanced<br>Data Rate<br>(8DPSK)          | 2 402              | 0.94    | 1.24   | -7.70          | 0.17              | 0.2             | 0.000 0                    | 1.00                           |
|                                           | 2 441              | 3.18    | 2.08   | -7.70          | 0.17              | 0.2             | 0.000 1                    | 1.00                           |
|                                           | 2 480              | 4.64    | 2.91   | -7.70          | 0.17              | 0.2             | 0.000 1                    | 1.00                           |