RF EXPOSURE REPORT

Equipment Under Test	**Car AVN**
Model Name	**DGU-12T5-Y461A-2**
Variant Model Name	**DGU-12T5-Y461A-1, DGU-12T5-Q261A-1, DGU-12T5-Q261A-2, DGU-12T5-Y461SA-1, DGU-12T5-Q261SA-1, DGU-12T5-Y461SA-2, DGU-12T5-Q261SA-2, DGU-12T5-Y461SA-3, DGU-12T5-Q261SA-3 DGU-12T5-Y461SA-4, DGU-12T5-Q261SA-4**
FCC ID	**2AE77-DGU12T5Y461A2**
Applicant	**DIGEN**
Manufacturer	**DIGEN**
Date of Test(s)	**2023. 06. 12 ~ 2023. 06. 28**
Date of Issue	**2023. 07. 03**

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

Issue to	Issue by
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RF EXPOSURE

1. Regulation

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this Chapter.

Limits for Maximum Permissive Exposure: RF exposure is calculated.

Frequency Range	Electric Field Strength [V/m]	Magnetic Field Strength [A/m]	Power Density [mW/cm^2]	Averaging Time [minute]
Limits for General Population / Uncontrolled Exposure				
0.3 ~ 1.34	614	1.63	*(100)	30
1.34 ~ 30	824/f	2.19/f	*(180/f2)	30
30 ~ 300	27.5	0.073	0.2	30
300 ~ 1 500	/	/	f/1 500	30
1 500 ~ 15 000	/	/	1	30

f=frequency in MHz, *= plane-wave equivalent power density

MPE (Maximum Permissive Exposure) Prediction

Predication of MPE limit at a given distance: Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2 \quad \left(\Rightarrow R = \sqrt{PG/4\pi S}\right)$$

S = power density [mW/cm^2]
P = Power input to antenna [mW]
G = Power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna [cm]

2. RF Exposure Compliance Issue

The information should be included in the user's manual:
This appliance and its antenna must not be co-located or operation in conjunction with any other antenna or transmitter. A minimum separation distance of 20 cm must be maintained between the antenna and the person for this appliance to satisfy the RF exposure requirements.

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MPE Calculations : Bluetooth BDR

- Frequency Range : 2 402 MHz ~ 2 480 MHz

- Measured RF Output Power (Peak) : -0.09 dBm

- Target Power & Tolerance 0.00 dBm & ± 1.00 dB

(Maximum : 1.00 dBm & Minimum : -1.00 dBm)

- Maximum Peak Antenna Gain : 3.40 dBi

- Maximum Output Power for the Calculation : 1.00 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = 1.00 dBm + 3.40 dBi = 4.40 dBm = 2.75 mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)

Power Density at the specific separation

- S = EIRP / (4 X $R^2\pi$) = 2.75 / (4 X 20^2 X π) = **0.000 548** mW/cm^2	- NOTE S : Maximum Power Density (mW/cm^2) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (20 cm)

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MPE Calculations : Bluetooth EDR

- Frequency Range : 2 402 MHz ~ 2 480 MHz

- Measured RF Output Power (Peak) : 1.73 dBm

- Target Power & Tolerance 0.75 dBm & ± 1.00 dB

(Maximum : 1.75 dBm & Minimum : -0.25 dBm)

- Maximum Peak Antenna Gain : 3.40 dBi

- Maximum Output Power for the Calculation : 1.75 dBm

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the
The MPE calculation for this exposure is shown below.

- EIRP = P + G = 1.75 dBm + 3.40 dBi = 5.15 dBm = 3.27 mW	- NOTE P : Max tuneup Power (dBm) G : Maximum Peak Antenna Gain (dBi)

Power Density at the specific separation

- S = EIRP / (4 X $R^2\pi$) = 3.27 / (4 X 20^2 X π) = **0.000 651** mW/cm^2	- NOTE S : Maximum Power Density (mW/cm^2) EIRP : Equivalent Isotropic Radiated Power (mW) R : Distance to the center of the radiation of the antenna (20 cm)

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