RF Exposure / MPE Calculation

No.	:	12622648S-B, 12622648S-C, 12622648S-D
Applicant	:	JVC KENWOOD Corporation
Type of Equipment	:	GPS NAVIGATION SYSTEM
Model No.	:	DNX996XR
FCC ID	:	IOMJ5220

JVC KENWOOD Corporation declares that Model: DNX996XR complies with FCC radiation exposure requirement specified in the FCC Rule 2.1091 (for mobile).

RF Exposure Calculations:

The following information provides the minimum separation distance for the highest gain antenna provided with the "DNX996XR" as calculated from (B) Limits for General Population / Uncontrolled Exposure of TABLE 1- LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE) of §1.1310 Radiofrequency radiation exposure limits.

Bluetooth part:

This calculation is based on the highest EIRP possible from the system, considering maximum power and antenna gain, and considering a 1mW/cm^2 uncontrolled exposure limit. The Friis formula used was:

$$S = \frac{P \times G}{4 \times \pi \times r^2}$$

Where

P = 1.00 mW (Maximum average output power)

☑ Time average was used for the above value in consideration of 6-minutes time-averaging

☐ Burst power average was used for the above value in consideration of worst condition.

G = 0.589 Numerical Antenna gain; equal to -2.3 dBi

r = 20 cm (Separation distance)

Power Density Result S = **0.00012 mW/cm^2**

WLAN (2.4 GHz) part:

This calculation is based on the highest EIRP possible from the system, considering maximum power and antenna gain, and considering a 1mW/cm^2 uncontrolled exposure limit. The Friis formula used was:

$$S = \frac{P \times G}{4 \times \pi \times r^2}$$

Where

P = 36.73 mW (Maximum average output power)

☐ Time average was used for the above value in consideration of 6-minutes time-ave

☑ Burst power average was used for the above value in consideration of worst condit

G = 0.363 Numerical Antenna gain; equal to -4.4dBi

r = 20 cm (Separation distance)

Power Density Result S = **0.00265 mW/cm^2**

WLAN (5 GHz) part:

This calculation is based on the highest EIRP possible from the system, considering maximum power and antenna gain, and considering a 1mW/cm^2 uncontrolled exposure limit. The Friis formula used was:

$$S = \frac{P \times G}{4 \times \pi \times r^2}$$

Where

P = 20.13 mW (Maximum average output power)

☐ Time average was used for the above value in consideration of 6-minutes time-averaging

☑ Burst power average was used for the above value in consideration of worst condition.

G = 0.525 Numerical Antenna gain; equal to -2.8 dBi

r = 20 cm (Separation distance)

Power Density Result S = **0.00210 mW/cm^2**

Therefore, if Bluetooth and WLAN 2.4 GHz transmit simultaneously,
S=0.00012 mW/cm2 + 0.00265 mW/cm2
=0.00277 mW/cm2

Even taking into account the tolerance, this device can be satisfied with the limits.

Therefore, if Bluetooth and WLAN 5 GHz transmit simultaneously,
S=0.00012 mW/cm2 + 0.00210 mW/cm2
=0.00222 mW/cm2

Even taking into account the tolerance, this device can be satisfied with the limits.