RF Exposure / MPE Calculation

No.	14337815S
Customer	Panasonic Automotive Systems Co., Ltd.
Description of EUT	AV Control Unit for In-Vehicle Infotainment
Model Number of EUT	AM2201
FCC ID	ACJ932AM2201

Panasonic Automotive Systems Co., Ltd. declares that Model: AM2201 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 "AM2201" 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 = 4.00 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 = 1.585 Numerical Antenna gain; equal to 2 dBi

r = 20 cm (Separation distance)

Power Density Result S = **0.00126 mW/cm^2**

[WLAN 2.4 GHz band part]

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

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

Where

P = 16.48 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 = 1.585 Numerical Antenna gain; equal to 2 dBi

r = 20 cm (Separation distance)

Power Density Result S = **0.00520 mW/cm^2**

[WLAN 5 GHz band 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 = 3.17 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 = 3.162 Numerical Antenna gain; equal to 5 dBi

r = 20 cm (Separation distance)

Power Density Result S = **0.00199 mW/cm^2**

Therefore, if WLAN (2.4 GHz band) and Bluetooth (BR/EDR) transmit simultaneously,

S= 0.00520 mW/cm^2 + 0.00126 mW/cm^2

= 0.00646 mW/cm^2

Therefore, if WLAN (5 GHz band) and Bluetooth (BR/EDR) transmit simultaneously,

S= 0.00199 mW/cm^2 + 0.00126 mW/cm^2

= 0.00325 mW/cm^2