RF Exposure / MPE Calculation

No.	:	13554183S
Applicant	:	Sony Corporation, Japan and Sony Group Companies
Type of Equipment	:	CONTROL BOX
Model No.	:	TMR-A9WT
FCC ID	:	AK8TMRA9WT

Sony Corporation, Japan and Sony Group Companies declares that Model: TMR-A9WT 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 "TMR-A9WT" 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.

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:

$$S = (P * G) / (4*\pi * r^2)$$

S single : case of singe transmission
P : Maximum avarage output power
Bluetooth : Time average was used for the above value in consideration of 6-minutes time-average
Other than Bluetooth : Burst power average was used for the above value in consideration of worst condition
G : Numerical Antenna gain
r: 20.0 cm

No	Module model No.		P(mW)	G	G(dBi)	S single (mW/cm^2)
1	WM-BAC-AT-49	Bluetooth	2.69	2.259	3.54	0.00121
2	WM-BAC-AT-49	Bluetooth Low Energy	3.26	2.259	3.54	0.00147
3	WM-BAC-AT-49	Wireless LAN 2.4 GHz band	42.93	2.911	4.64	0.02486
4	WM-BAC-AT-49	Wireless LAN 5 GHz band	18.12	6.053	7.82	0.02182
5	1PJ	Wireless LAN 5 GHz band	13.68	2.992	4.76	0.00814

Cases of simultaneous transmission

- 1.Bluetooth + 3.Wireless LAN 2.4 GHz band + 5.Wireless LAN 5GHz band
- 1.Bluetooth + 4.Wireless LAN 5 GHz band + 5.Wireless LAN 5 GHz band
- 2.Bluetooth Low Energy + 3.Wireless LAN 2.4 GHz band + 5.Wireless LAN 5GHz band * Worst case
- 2.Bluetooth Low Energy + 4.Wireless LAN 5 GHz band + 5.Wireless LAN 5 GHz band

This calculation is

$S = ((P1 * G1) + (P2 * G2) + (P3 * G3)) / (4*\pi * r^2)$

For: TMR-A9WT (Bluetooth Low Energy and Wireless LAN) S = 0.03447 mW /cm2

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