FCC RF EXPOSURE REPORT

EUT	Smart Outdoor Outlet
FCC ID:	2AP9Z-SOP02
Frequency band (Operating)	☒ WLAN: 2.412GHz ~ 2.462GHz ☐ WLAN: 2.422GHz ~ 2.452GHz ☐ WLAN: 5.180GHz ~ 5.240GHz ☐ WLAN: 5.260GHz ~ 5.320GHz ☐ WLAN: 5.500GHz ~ 5.700GHz ☐ BLE: 2.402GHz ~ 2.480GHz ☐ Bluetooth: 2.402GHz ~ 2.480GHz
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation)
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm^2) ☒ General Population/Uncontrolled exposure (S=1mW/cm^2)
Antenna diversity	☒ Single antenna ☐ Multiple antennas 　　☐ Tx diversity 　　☐ Rx diversity 　　☐ Tx/Rx diversity
Max. output power	23.48dBm (222.844mW)
Antenna gain (Max)	3.23.0dBi(Numeric gain:2.1)
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A

TEST RESULTS

No non-compliance noted.

Calculation

Given $\quad E = \dfrac{\sqrt{30 \times P \times G}}{d}$ & $S = \dfrac{E^2}{3770}$

> Where E = Field strength in Volts / meter
> P = Power in Watts
> G = Numeric antenna gain
> d = Distance in meters
> S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770 d^2}$$

Changing to units of mW and cm, using:

> P (mW) = P (W) / 1000 and
> d (cm) = d(m) /100

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \qquad \textbf{\textit{Equation 1}}$$

> Where d = Distance in cm
> P = Power in mW
> G = Numeric antenna gain
> S = Power density in mW / cm^2

Maximum Permissible Exposure

Modulation Mode	Frequency band (MHz)	Peak output power(dBm)	Peak output power(mW)	Antenna Gain (dBi)	Antenna gain (*Numeric*)	Distance (cm)	Power density (mW/cm2)	Limit (mW/cm2)
802.11b	2412-2462	20.50	112.2018454	3.23	2.10	20	0.046973517	1
802.11g	2412-2462	23.48	222.8435149	3.23	2.10	20	0.093293863	1
802.11n HT20	2412-2462	23.46	221.819642	3.23	2.10	20	0.092865217	1