FCC RF EXPOSURE REPORT

EUT	WIFI Smart Plug & Night Light
FCC ID:	2AP9Z-SWN03
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	26.08dBm (405.509mW)
Antenna gain (Max)	3.23dBi(Numeric gain:2.1)
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A

TEST RESULTS

No non-compliance noted.

Calculation

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

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

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ ***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	**22.26**	**168.2674061**	**3.23**	**2.10**	**20**	**0.07044547**	**1**
802.11g	2412-2462	**25.65**	**367.2823005**	**3.23**	**2.10**	**20**	**0.15376344**	**1**
802.11n HT20	2412-2462	**26.08**	**405.5085354**	**3.23**	**2.10**	**20**	**0.16976692**	**1**