APPENDIX I RADIO FREQUENCY EXPOSURE

LIMIT

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

EUT

EUT Name	:	BlacX Urban Wi-Fi Edition HDD Docking Station
Model Number	:	ST-001-D31COE-A1
FCC ID	:	2AAUCST001D31COUA1
Device category	:	☐Portable (<20cm separation)
		☑Mobile(>20cm separation)
		☐Others
Exposure classification	:	☐Occupational/Controlled exposure (S=5mW/cm^2)
		☑General Population/Uncontrolled exposure
Antenna gain	:	3dBi
Evaluation applied	:	☑MPE Evaluation
		☐SAR Evaluation
		☐N/A

802.11(B)

Frequency	Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	from dBi to linear	4*PI*cm^2	Measure Value
2422	19.22	83.6	3	2.0	5026.5	0.033

802.11(G)

Frequency	Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	from dBi to linear	4*PI*cm^2	Measure Value
2450	23.05	201.8	3	2.0	5026.5	0.080

802.11(N20)

Frequency	Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	from dBi to linear	4*PI*cm^2	Measure Value
2450	23.24	210.9	3	2.0	5026.5	0.084

802.11(N40)

Frequency	Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	from dBi to linear	4*PI*cm^2	Measure Value
2422	23.22	209.9	3	2.0	5026.5	0.083

No non-compliance noted.

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{377}$

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:

$$S = \frac{30 \times P \times G}{377 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and

d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ ***Equation 1***

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

Substituting the MPE safe distance using d = 20 cm into Equation 1:

$$S = 0.000199 \times P \times G$$

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