

## MPE CALCULATION

**For Datel Design & Development, Inc; Model: AS159/AS161**

**FCCID:WLE-XA10009**

RF Exposure Requirements: 47CFR§1.1307(b)  
 RF Radiation Exposure Limits: 47CFR§1.1310  
 RF Radiation Exposure Guidelines: 47CFR§2.1091  
 EUT Frequency Band: 2412 – 2462MHz & 5745 –5825MHz & 5180 –5240MHz  
 Limits for General Population/Uncontrolled Exposure in the band of: 1500 – 100000MHz  
 Power Density Limit: 1.0mW/cm<sup>2</sup>;

Equation:  $S = PG/4\pi R^2$   
 Where, S=Power Density  
 P=Power Input to Antenna  
 G=Antenna Gain  
 R=distance to the center of radiated antenna

		Channel	Conducted	Antenna	Power	Power	
Channel		Frequency	Power	Gain	density at	density	
		(MHz)	(mW)	(dBi)	20cm	Limits	
					(mW/cm <sup>2</sup> )	(mW/cm <sup>2</sup> )	
2412 - 2462 MHz	802.11b	Low	2412	66.07	2	0.020778	1
		Mid	2437	83.18	2	0.026159	1
		High	2462	109.65	2	0.034484	1
	802.11g	Low	2412	28.18	2	0.008862	1
		Mid	2437	35.48	2	0.011158	1
		High	2462	47.86	2	0.015052	1
	802.11n- 20MHz	Low	2412	38.90	2	0.012234	1
		Mid	2437	44.67	2	0.014048	1
		High	2462	53.70	2	0.016888	1
802.11n- 40MHz	Low	2422	35.48	2	0.011158	1	
	Mid	2437	38.90	2	0.012234	1	
	High	2452	46.77	2	0.014709	1	

		Channel	Conducted	Antenna	Power	Power	
Channel		Frequency	Power	Gain	density at	density	
		(MHz)	(mW)	(dBi)	20cm	Limits	
					(mW/cm²)	(mW/cm²)	
5745 - 5825 MHz	802.11a	Low	5745	10.23	2	0.003217	1
		Mid	5785	10.96	2	0.003447	1
		High	5825	10.72	2	0.003371	1
	802.11n- 20MHz 40MHz	Low	5745	6.31	2	0.001984	1
		Mid	5785	6.03	2	0.001896	1
		High	5825	5.62	2	0.001767	1
		Low	5755	7.08	2	0.002227	1
		Mid	5785	6.46	2	0.002032	1
		High	5815	7.08	2	0.002227	1

		Channel	Conducted	Antenna	Power	Power	
Channel		Frequency	Power	Gain	density	at	
		(MHz)	(mW)	(dBi)	20cm	density	
					(mW/cm <sup>2</sup> )	Limits	
						(mW/cm <sup>2</sup> )	
5180 - 5240 MHz	802.11a	Low	5180	7.24	2	0.002277	1
		Mid	5200	8.13	2	0.002557	1
		High	5240	9.77	2	0.003073	1
	802.11n- 20MHz 40MHz	Low	5180	5.25	2	0.001651	1
		Mid	5200	5.50	2	0.001730	1
		High	5240	6.31	2	0.001984	1
		Low	5190	4.90	2	0.001541	1
		Mid	5210	5.50	2	0.001730	1
		High	5230	5.89	2	0.001852	1

## Result

The above result had shown that device complied with 1.0mW/cm<sup>2</sup> Power density requirement for distance of 20 cm.

Completed By: Peter Cai

Data: November 29, 2010