



EMC Test Data

Client:	Aruba, a Hewlett Packard Enterprise company	Job Number:	PR077654
Model:	APIN0534 and APIN0535	T-Log Number:	TL077654-RA-FCC
Contact:	Mark Hill	Project Manager:	Christine Krebill
Standard:	FCC §15.247 & 15.407	Project Coordinator:	David Bare
		Class:	N/A

Maximum Permissible Exposure / SAR Exclusion

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test:

Test Engineer:

General Test Configuration

Calculation uses the free space transmission formula:

$$S = (PG)/(4 \pi d^2)$$

Where: S is power density (W/m^2), P is output power (W), G is antenna gain relative to isotropic, d is separation distance from the transmitting antenna (m).

Summary of Results

Device complies with Power Density requirements at 20cm separation:	Yes
If not, required separation distance (in cm):	-

Deviations From The Standard

No deviations were made from the requirements of the standard.

Note:	The power density calculation will be the same for all antennas as the power is reduced by the difference between the lowest gain antenna listed and all the other antennas that will be used.
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FCC MPE Calculation (5 GHz Wi-Fi)

Use: General

Antenna: 2 dBi

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 20 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²
	dBm	mW*						
5260	20.1	102.7	0	2	20.1	162.78	0.032	1.000
5290	20.6	115.6	0	2	20.6	183.21	0.036	1.000
5320	20.2	104.2	0	2	20.2	165.15	0.033	1.000
5510	20.8	119.7	0	2	20.8	189.71	0.038	1.000
5610	21.3	134.4	0	2	21.3	213.01	0.042	1.000
5690	20.9	124.4	0	2	20.9	197.16	0.039	1.000

For the cases where S > the MPE Limit

Freq. MHz	S @ 20 cm mW/cm ²	MPE Limit mW/cm ²	Distance where S ≤ MPE Limit
5260	0.032	1.000	3.6cm
5290	0.036	1.000	3.8cm
5320	0.033	1.000	3.6cm
5510	0.038	1.000	3.9cm
5610	0.042	1.000	4.1cm
5690	0.039	1.000	4.0cm

FCC MPE Calculation (2.4 GHz Wi-Fi)

Use: General

Antenna: 2 dBi

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 20 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²
	dBm	mW*						
2412	26.4	440.5	0	2	26.4	698.13	0.139	1.000
2437	26.8	473.8	0	2	26.8	750.95	0.149	1.000
2462	26.1	409.0	0	2	26.1	648.15	0.129	1.000

For the cases where S > the MPE Limit

Freq. MHz	S @ 20 cm mW/cm ²	MPE Limit mW/cm ²	Distance where S ≤ MPE Limit
2412	0.139	1.000	7.5cm
2437	0.149	1.000	7.7cm
2462	0.129	1.000	7.2cm



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		Class:	N/A

FCC MPE Calculation (BLE/ZigBee)

Use: General

Antenna: 5.0 dBi

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 20 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²
2402	dBm	mW*	0	5	7.9	19.50	0.004	1.000
2440	8.0	6.3	0	5	8.0	19.95	0.004	1.000
2480	8.1	6.5	0	5	8.1	20.42	0.004	1.000

For the cases where S > the MPE Limit

Freq. MHz	S @ 20 cm mW/cm ²	MPE Limit mW/cm ²	Distance where S ≤ MPE Limit
2402	0.004	1.000	1.2cm
2440	0.004	1.000	1.3cm
2480	0.004	1.000	1.3cm



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		Class:	N/A

Innovation Science and Economic Development Canada MPE Calculation (5 GHz Wi-Fi)

Use: General

Antenna: 2 dBi

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 20 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²
	dBm	mW*						
5260	20.1	102.7	0	2	20.1	162.74	0.032	0.914
5290	20.6	115.6	0	2	20.6	183.23	0.036	0.918
5320	20.2	104.2	0	2	20.2	165.20	0.033	0.921
5510	20.8	119.7	0	2	20.8	189.67	0.038	0.944
5690	20.9	124.4	0	2	20.9	197.11	0.039	0.965

For the cases where S > the MPE Limit

Freq. MHz	Power Density (S) at 20 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²	Distance where S <= MPE Limit cm
5260	0.032	0.914	3.8
5290	0.036	0.918	4.0
5320	0.033	0.921	3.8
5510	0.038	0.944	4.0
5690	0.039	0.965	4.0

Innovation Science and Economic Development Canada MPE Calculation (2.4 GHz Wi-Fi)

Use: General

Antenna: 2 dBi

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 20 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²
	dBm	mW*						
2412	26.4	440.5	0	2	26.4	698.13	0.139	0.537
2437	26.8	473.8	0	2	26.8	750.95	0.149	0.540
2462	26.1	409.0	0	2	26.1	648.15	0.129	0.544

For the cases where S > the MPE Limit

Freq. MHz	Power Density (S) at 20 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²	Distance where S <= MPE Limit cm
2412	0.139	0.537	10.2
2437	0.149	0.540	10.5
2462	0.129	0.544	9.7



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Innovation Science and Economic Development Canada MPE Calculation (BLE/ZigBee)

Use: General

Antenna: 5.0 dBi

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 20 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²
2402	7.9	6.2	0	5	7.9	19.50	0.004	0.535
2440	8.0	6.3	0	5	8.0	19.95	0.004	0.541
2480	8.1	6.5	0	5	8.1	20.42	0.004	0.547

For the cases where S > the MPE Limit

Freq. MHz	Power Density (S) at 20 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²	Distance where S ≤ MPE Limit cm
2402	0.004	0.535	1.7
2440	0.004	0.541	1.7
2480	0.004	0.547	1.7

Combined exposure from all 3 radios (highest contribution from each radio) as a percentage of the corresponding limit

FCC

5 GHz	4.2%	
2.4 GHz	14.9%	
BLE/ZigBee	0.4%	
Total	19.6%	Complies

ISED

5 GHz	4.1%	
2.4 GHz	27.6%	
BLE/ZigBee	0.7%	
Total	32.5%	Complies