

Client:	Broadcom Corporation	Job Number:	J79248
Model:	BCM94322HM8L	T-Log Number:	T79249
Contact:	Pin Wen	Account Manager:	Sheareen Washington
Standard:	15.209 / 15.247 / 15.E / RSS-210	Class:	N/A

Maximum Permissible Exposure

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: 5/17/2010

Test Engineer: Mark Hill

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
Worst Case Power Density (S) in mW/cm^2	0.147

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Note - Calculations use the worse case antenna from original testing or from this change.

Client:	Broadcom Corporation	Job Number:	J79248
Model:	BCM94322HM8L	T-Log Number:	T79249
Contact:	Pin Wen	Account Manager:	Sheareen Washington
Standard:	15.209 / 15.247 / 15.E / RSS-210	Class:	N/A

Run #1: MPE for 2.4GHz band transmission - 802.11b and 802.11g

Use: General

Antenna: 3.9 dBi

2.4 GHz band - 802.11b and 802.11g mode worse case

Freq. MHz	EUT Power		Cable Loss	Ant Gain	Power at Ant	EIRP	Power Density (S) at 20 cm	MPE Limit at 20 cm
	dBm	mW*	dB	dBi	dBm	mW	mW/cm ²	mW/cm ²
2412	22.0	158.5	0	3.9	22.0	389.05	0.077	1.000
2437	21.9	154.9	0	3.9	21.9	380.19	0.076	1.000
2462	21.6	144.5	0	3.9	21.6	354.81	0.071	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	0.077	1.000	5.6cm
2437	0.076	1.000	5.5cm
2462	0.071	1.000	5.3cm

Run #2: MPE for 2.4GHz band transmission - 802.11n 20 MHz CDD

Use: General

Antenna: 3.9 dBi - Effective gain 6.9 dBi

2.4 GHz band - 802.11n 20MHz CDD

Freq. MHz	EUT Power		Cable Loss	Ant Gain	Power at Ant	EIRP	Power Density (S) at 20 cm	MPE Limit at 20 cm
	dBm	mW*	dB	dBi	dBm	mW	mW/cm ²	mW/cm ²
2412	17.0	50.1	0	6.9	17.0	245.47	0.049	1.000
2437	21.8	151.4	0	6.9	21.8	741.31	0.147	1.000
2462	16.7	46.8	0	6.9	16.7	229.09	0.046	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	0.049	1.000	4.4cm
2437	0.147	1.000	7.7cm
2462	0.046	1.000	4.3cm

Client:	Broadcom Corporation	Job Number:	J79248
Model:	BCM94322HM8L	T-Log Number:	T79249
Contact:	Pin Wen	Account Manager:	Sheareen Washington
Standard:	15.209 / 15.247 / 15.E / RSS-210	Class:	N/A

Run #3: MPE for 2.4GHz band transmission - 802.11n 40 MHz CDD

Use: General

Antenna: 3.9 dBi - Effective gain 6.9 dBi

2.4 GHz band - 802.11n 40MHz CDD

Freq. MHz	EUT Power		Cable Loss	Ant Gain	Power at Ant	EIRP	Power Density (S) at 20 cm	MPE Limit at 20 cm
	dBm	mW*	dB	dBi	dBm	mW	mW/cm ²	mW/cm ²
2422	16.1	40.7	0	6.9	16.1	199.53	0.040	1.000
2437	16.8	47.9	0	6.9	16.8	234.42	0.047	1.000
2452	14.8	30.2	0	6.9	14.8	147.91	0.029	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
2422	0.040	1.000	4.0cm
2437	0.047	1.000	4.3cm
2452	0.029	1.000	3.4cm

Run #4: MPE for 5.7GHz band transmission - 802.11a Legacy

Use: General

Antenna: 5.8

5.7 GHz band - 802.11a Legacy

Freq. MHz	EUT Power		Cable Loss	Ant Gain	Power at Ant	EIRP	Power Density (S) at 20 cm	MPE Limit at 20 cm
	dBm	mW*	dB	dBi	dBm	mW	mW/cm ²	mW/cm ²
5745	16.6	45.7	0	5.8	16.6	173.78	0.035	1.000
5785	16.6	45.7	0	5.8	16.6	173.78	0.035	1.000
5825	16.7	46.8	0	5.8	16.7	177.83	0.035	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
5745	0.035	1.000	3.7cm
5785	0.035	1.000	3.7cm
5825	0.035	1.000	3.8cm

Client:	Broadcom Corporation	Job Number:	J79248
Model:	BCM94322HM8L	T-Log Number:	T79249
Contact:	Pin Wen	Account Manager:	Sheareen Washington
Standard:	15.209 / 15.247 / 15.E / RSS-210	Class:	N/A

Run #5: MPE for 5.7GHz band transmission - 802.11n 20MHz CDD

Use: General

Antenna: Two 5.8 antenna - Effective 8.8 dBi

5.7 GHz band - 802.11n 20MHz CDD

Freq. MHz	EUT Power		Cable 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*						
5745	19.8	95.5	0	8.8	19.8	724.44	0.144	1.000
5785	19.4	87.1	0	8.8	19.4	660.69	0.131	1.000
5825	19.6	91.2	0	8.8	19.6	691.83	0.138	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
5745	0.144	1.000	7.6cm
5785	0.131	1.000	7.3cm
5825	0.138	1.000	7.4cm

Run #6: MPE for 5.7GHz band transmission - 802.11n 40MHz CDD

Use: General

Antenna: Two 5.8 antenna - Effective 8.8 dBi

5.7 GHz band - 802.11n 40MHz CDD

Freq. MHz	EUT Power		Cable 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*						
5755	19.9	97.7	0	8.8	19.9	741.31	0.147	1.000
5795	19.7	93.3	0	8.8	19.7	707.95	0.141	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
5755	0.147	1.000	7.7cm
5795	0.141	1.000	7.5cm