

Client:	Broadcom	Job Number:	J74037
Model:	BCM943224HMS	T-Log Number:	T74077
Contact:	Anne Liang	Account Manager:	Dean Eriksen
Standard:	FCC 15.247 & 15.205	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: 3/11/2009

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/No
Worst Case Power Density (S) in mW/cm^2	0.535

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.

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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 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	22.4	173.8	0	3.9	22.4	426.58	0.085	1.000
2437	24.4	275.4	0	3.9	24.4	676.08	0.135	1.000
2462	21.4	138.0	0	3.9	21.4	338.84	0.067	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	0.085	1.000	5.8cm
2437	0.135	1.000	7.3cm
2462	0.067	1.000	5.2cm

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 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	16.3	42.7	0	6.9	16.3	208.93	0.042	1.000
2437	20.7	117.5	0	6.9	20.7	575.44	0.114	1.000
2462	11.7	14.8	0	6.9	11.7	72.44	0.014	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	0.042	1.000	4.1cm
2437	0.114	1.000	6.8cm
2462	0.014	1.000	2.4cm

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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 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*						
2422	21.1	128.8	0	6.9	21.1	630.96	0.126	1.000
2447	21.4	138.0	0	6.9	21.4	676.08	0.135	1.000
2452	19.7	93.3	0	6.9	19.7	457.09	0.091	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	0.126	1.000	7.1cm
2447	0.135	1.000	7.3cm
2452	0.091	1.000	6.0cm

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 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	22.1	162.2	0	5.8	22.1	616.60	0.123	1.000
5785	22.1	162.2	0	5.8	22.1	616.60	0.123	1.000
5825	22.5	177.8	0	5.8	22.5	676.08	0.135	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	0.123	1.000	7.0cm
5785	0.123	1.000	7.0cm
5825	0.135	1.000	7.3cm

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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
5745	24.9	309.0	0	8.8	24.9	2344.23	0.466	1.000
5785	25.5	354.8	0	8.8	25.5	2691.53	0.535	1.000
5825	25.4	346.7	0	8.8	25.4	2630.27	0.523	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	0.466	1.000	13.7cm
5785	0.535	1.000	14.6cm
5825	0.523	1.000	14.5cm

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
5755	24.7	295.1	0	8.8	24.7	2238.72	0.445	1.000
5795	25.1	323.6	0	8.8	25.1	2454.71	0.488	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	0.445	1.000	13.3cm
5795	0.488	1.000	14.0cm