Elliott EMC Test Data Job Number: J49585 Client: Broadcom Model: BCM94309MP w/ new higher gain T-Log Number: T49605 Proj Eng: David Bare antenna Contact: David Boldy Emissions Spec: FCC Part 15 B, C & E, RSS-210 Class: -Immunity Spec: N/A Environment: -**EMC** Test Data For The **Broadcom** Model BCM94309MP w/ new higher gain antenna

E	Elliott			EM	IC Test Data			
Client:	Broadcom			Job Number:	J49585			
Model:	BCM94309MP w/ new hig	her gain antenna		T-Log Number: T49605				
			Proj Eng:	David Bare				
Contact:	David Boldy							
Spec:	FCC Part 15 B, C & E, RS	S-210		Class:	-			
		802.11g Radi	ated Emis	ssions				
Test Spe	cifics							
(Dbjective: The objective of the specification	this test session is to pe listed above.	erform engineering	g evaluation testing of t	he EUT with respect to			
Dat	e of Test: 1/7/2003		Config. Used:	1				
Test	Engineer: jmartinez		Config Change:					
Test	Location: SVOATS #1		EUT Voltage:	120V/60Hz				
General ⁻ The EUT	Test Configuration and all local support equip	ment were located on th	e turntable for rac	diated spurious emissic	ons testing.			
For radia	ted emissions testing the n	neasurement antenna w	as located 3 mete	rs from the EUT.				
When me spectrum measurei	easuring the conducted em analyzer or power meter v ments are corrected to allo	issions from the EUT's a ria a suitable attenuator w for the external attenu	intenna port, the a to prevent overloa ators used.	antenna port of the EU ading the measurement	r was connected to the system. All			
Ambient	Conditions:	Temperature: 12°C Rel. Humidity: 44%						
Summary	y of Results							

Run #	Test Performed	Limit	Result	Comment
1	Output Peak Power	15.247(b)	Pass	Refer to run
1a-b	RE, 30 - 24620 MHz - Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	-1.3 dB @ 2483 MHz

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.

Elliott

EMC Test Data

Model: BCM94309MP w/ new higher gain antenna

Job Number: J49585 T-Log Number: T49605

Class: -

Proj Eng: David Bare

Contact: David Boldy

Client: Broadcom

Spec: FCC Part 15 B, C & E, RSS-210

Run #1: Output Power

Channel	Frequency (MHz)	Output Power	Graph reference #
Low	2412	19.4	none
	2417	19.8	none
Mid	2437	19.8	none
	2457	19.7	none
High	2462	19.5	none

Note 1:Measured using peak power meterNote 2:Meaximun ERP is 19.8+1.45 = 21.25 dBm.

Run #1a: Radiated Spurious Emissions, 30-24120 MHz. Low Channel @ 2412 MHz

Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4824.000	48.5	V	74.0	-25.5	Pk	0	1.1	
4824.000	35.7	V	54.0	-18.3	Avg	0	1.1	
7236.000	52.5	V	74.0	-21.5	Pk	232	1.1	
7236.000	39.2	V	54.0	-14.8	Avg	232	1.1	
4824.000	49.7	h	74.0	-24.3	Pk	198	1.1	
4824.000	36.1	h	54.0	-17.9	Avg	198	1.1	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below the level of the fundamental.

Run #1b: Radiated Spurious Emissions, 30-24370 MHz. Center Channel @ 2437 MHz

Frequency	Level	Pol	15.209	15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4874.000	48.2	V	74.0	-25.8	Pk	36	1.1	
4874.000	35.9	V	54.0	-18.1	Avg	36	1.1	
7311.000	52.1	V	74.0	-21.9	Pk	0	1.1	
7311.000	39.0	V	54.0	-15.0	Avg	0	1.1	
4874.000	48.4	h	74.0	-25.6	Pk	40	1.1	
4874.000	35.9	h	54.0	-18.1	Avg	40	1.1	
Noto 1	For emiss	ions in re	estricted bar	ds, the limi	t of 15.209 w	as used. Fo	r all other e	missions, the limit was set 20dB below
Note 1:	the level o	of the fun	damental.					

Client: Broadcom Job Number: J49585 Model: BCM94309MP w/ new higher gain antenna T-Log Number: T49605 Model: BCM94309MP w/ new higher gain antenna T-Log Number: T49605 Contact: David Boldy David Bare Spec: FCC Part 15 B, C & E, RSS-210 Class: Run #1c: Radiated Spurious Emissions, 30-24620 MHz. High Channel @ 2462 MHz

Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4924.000	49.5	V	74.0	-24.5	Pk	0	1.1	
4924.000	36.6	V	54.0	-17.4	Avg	0	1.1	
7386.000	52.3	V	74.0	-21.7	Pk	296	1.1	
7386.000	39.2	V	54.0	-14.8	Avg	296	1.1	
4924.000	49.0	h	74.0	-25.0	Pk	6	1.1	
4924.000	36.4	h	54.0	-17.6	Avg	6	1.1	

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below the level of the fundamental.



Client:	Broadcom							Job Number: J49585	
Model: BCM94309MP w/ new higher gain antenna							T-Log Number: T49605		
							Proj Eng: David Bare		
Contact: David Boldy							, ,		
Spec: ECC Part 15 B. C & F. RSS-210							Class: -		
Run #3: Ba	and Edge I	ield Stre	ength Calc	ulations					
Frequency	Level	Pol	15.209/	15.407	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
2390.0	67.0	V	74.0	-7.0	Pk	-	-	Note 1	
2390.0	51.9	V	54.0	-2.1	Avg	-	-	Note 1	
2390.0	67.0	h	74.0	-7.0	Pk	-	-	Note 1	
2390.0	52.0	h	54.0	-2.0	Avg	-	-	Note 1	
2483.5	66.4	V	74.0	-7.6	Pk	-	-	Note 2	
2483.5	52.0	V	54.0	-2.0	Avg	-	-	Note 2	
2483.5	66.3	V	74.0	-7.7	Pk	-	-	Note 2	
2483.5	52.7	V	54.0	-1.3	Avg	-	-	Note 2	
Note 2:	average fi EUT opera relative me average fi	easureme eld streng ating on ti easureme eld streng	ents in plots gth measure he lowest cl ents in plots gth measure	(37.5 dBc ements of t hannel ava (38.7 dBc ements of t	for peak and he fundament ilable in the 2 for peak and he fundament	40.3 dBc for tal signal leve .4 - 2.4835 C 40.7 dBc for tal signal leve	average) a el. GHz band. average) a el.	applied to the highest peak and Signal level calculated using the applied to the highest peak and	
Note 2:	average fi EUT opera relative me average fi	easureme eld streng ating on t easureme eld streng	ents in plots gth measure he lowest c ents in plots gth measure	s (37.5 dBc ements of t hannel ava s (38.7 dBc ements of t	for peak and he fundament ilable in the 2 for peak and he fundament	40.3 dBc for tal signal leve .4 - 2.4835 C 40.7 dBc for tal signal leve	average) a el. GHz band. average) a el.	applied to the highest peak and Signal level calculated using the applied to the highest peak and	

	JII			EM	IC Tes
Client: Broadcor	n		Job Number:	J49585	
Model: BCM9430)9MP w/ new higher gain antenna	T-I	_og Number:	T49605	
			Proj Eng:	David Bare	
Contact: David Bo	dy				
Spec: FCC Part	15 B, C & E, RSS-210	Class: -			
Test Specifics	802.11B	Radiated Emi	ssions	S	T with room
Objective:	specification listed above.	i is to perform final qualif	lication test	ing of the EU	I with respe
Date of Test: Test Engineer: Test Location:	1/7/2003 Jmartinez SVOATS #1	Config. Used: Config Change: EUT Voltage:	1 120V/60H	z	
General Test Co The EUT and all lo For radiated emiss	nfiguration cal support equipment were locate ions testing the measurement ant	ed on the turntable for ra enna was located 3 met	adiated spur	rious emissio e EUT.	ns testing
Ambient Conditi	ons: Temperature: Rel. Humidity:	12°C 44%			
Summary of Res			I = .		
Run #	Test Performed	Limit	Result	Ma	argin
А	Output Peak Power	15.247(b)	Pass	Refe	r to run
	RE, 30 - 24620 MHz - Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	Refer to in	dividual runs
37625					

Elliott

EMC Test Data

Client: Broadcom Model: BCM94309MP w/ new higher gain antenna Job Number: J49585 T-Log Number: T49605

Proj Eng: David Bare

Contact: David Boldy Spec: FCC Part 15 B, C & E, RSS-210

Class: -

Run #A: Output Power 1Mb/s

Channel	Frequency (MHz)	Output Power	Graph reference #
Low	2412	17.3	None
Mid	2437	17.0	None
High	2462	16.4	None

Run #B: Output Power 11Mb/s

Channel	Frequency (MHz)	Output Power	Graph reference #
Low	2412	17.6	None
Mid	2437	17.3	None
High	2462	16.8	None

Note 1:	Measured using peak power meter
Note 2:	Meaximun ERP is 17.6+1.45 = 19.05 dBm.



C	Ellic	ott						EM	IC Test Data
Client:	Broadcom							lob Number:	J49585
Model:	BCM9430	9MP w/	new higher o	ain antenn	а		T-Log Number: T49605		
-				Je				Proj Ena:	David Bare
Contact:	ct [.] David Boldy								
Snec:	FCC Part	<u>-</u> 15 R C	& F RSS-21	0				Class	
Band Edge		enath C	alculations	(1 Mh/s)				01035.	•
Frequency	Level	Pol	15,209	15.407	Detector	Azimuth	Height	Comments	
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Ava	dearees	meters	o on informa	
2390.0	61.2	V	74.0	-12.8	Pk	-	-	Note 1	
2390.0	50.7	V	54.0	-3.3	Avg	-	-	Note 1	
2390.0	60.6	h	74.0	-13.4	Pk	-	-	Note 1	
2390.0	49.7	h	54.0	-4.3	Avg	-	-	Note 1	
2483.5	56.4	V	74.0	-17.6	Pk	-	-	Note 2	
2483.5	46.2	V	54.0	-7.8	Avg	-	-	Note 2	
2483.5	57.5	h	74.0	-16.5	Pk	-	-	Note 2	
2483.5	47.2	h	54.0	-6.8	Avg	-	-	Note 2	
	EUT opera	ating on	the lowest c	hannel avai	ilable in the 2	2.4 - 2.4835 0	GHz band.	Signal level	calculated using the
Note 1:	relative m	easurem	ents in plots	(45.3 dBc	for peak and	51.7dBc for	average) aj	oplied to the	highest peak and average
	field stren	gth meas	surements o	, f the fundai	nental siganl	level.	571		5 1 5
	FUT opera	ating on	highest char	nel availat	ble in the 2.4	- 2.4835 GH	z band. Sic	nal level cal	culated using the relative
Note 2 [.]	measurem	nents in i	nlots (44 8 d	Rc for peak	and 50 0dB	c for average	annlied to	the highest	neak and average field
1010 21	strenath m		ments of the	fundament	al sigant leve		y applied to	the highest	pour una avorago nota
	Sucrigaria			Tunuament	ai siyani icvc	1.			
Run #2a⊶ I	Padiated 9	Sourious	Fmissions	30-25000	MHz Low	Channel @ (0412 MH7		
Rate – 1Mł	n/s	punou.		, JU-2JUUU					
	// 3								
Frequency	Level	Pol	15.209	15.247	Detector	Azimuth	Height	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
4824.00	46.2	V	74.0	-27.8	Pk	350	1.1		
4824.00	35.0	V	54.0	-19.0	Avg	350	1.1		
7236.00	49.6	V	74.0	-24.4	Pk	350	1.1		
7236.00	38.4	V	54.0	-15.6	Avg	350	1.1		
7236.00	46.6	h	74.0	-27.4	Pk	350	1.1		
7236.00	39.9	h	54.0	-14.1	Avg	350	1.1		
4824.00	49.7	h	74.0	-24.3	Pk	130	1.2		
4824.00	36.1	h	54.0	-17.9	Avg	130	1.2		
	For emiss	ions in re	estricted bar	ds, the limi	t of 15.209 w	as used. Fo	r all other e	missions, th	e limit was set 20dB below
Note 1:	the level o	of the fun	damental.						

Client: Broadcom Job Number: J49585 Model: BCM94309MP w/ new higher gain antenna T-Log Number: T49605 Contact: David Boldy Proj Eng: David Bare Contact: David Boldy Class: - Run #2b: Radiated Spurious Emissions, 30-25000 MHz. Center Channel @ 2437 MHz Rate = 1Mb/s Frequency Level Pol 15.209 / 15.247 Detector Azimuth Height Comments MHz dBµU/m v/h Limit Margin Pk/QP/Avg degrees meters	t Data	C Test	ЕМ						ott	±111 0	6
Model:BCM94309MP w/ new higher gain antennaT-Log Number:T49605Proj Eng:David BareContact:David BoldySpec:FCC Part 15 B, C & E, RSS-210Class: -Run #2b:Radiated Spurious Emissions, 30-25000 MHz.Center Channel @ 2437 MHzRate = 1Mb/sFrequencyLevelPol15.209 / 15.247DetectorMHzdBµV/mv/hLimitMarginPk/QP/Avgdegreesmeters4874.0046.8v74.0-27.2Pk941.17311.0050.4v74.0-23.6Pk2991.17311.0050.4v74.0-25.6Pk01.17311.0038.9v54.0-15.1Avg2991.14874.0048.4h74.0-22.7Pk3601.17311.0051.3h74.0-22.7Pk3601.17311.0039.0h54.0-15.0Avg3601.1For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was se the level of the fundamental.Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was se the level of the fundamental.Note 2:Frequency Level Pol15.209 / 15.247DetectorAzimuth HeightCommentsMHzdBµV/mV/hLimitMarginPk/		J49585	ob Number:	J						Broadcom	Client:
Proj Eng: David Bare Contact: David Boldy		T49605	og Number:	T-Le		а	gain antenn	new higher o	9MP w/ n	BCM94309	Model:
Contact: David Boldy Class: Spec: FCC Part 15 B, C & E, RSS-210 Class: Run #2b: Radiated Spurious Emissions, 30-25000 MHz. Center Channel @ 2437 MHz Rate = 1Mb/s Frequency Level Pol 15.209 / 15.247 Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 4874.00 46.8 v 74.0 -27.2 Pk 94 1.1 4874.00 35.2 v 54.0 -18.8 Avg 94 1.1 7311.00 50.4 v 74.0 -27.6 Pk 099 1.1 7311.00 38.9 v 54.0 -15.1 Avg 299 1.1 7311.00 38.9 v 54.0 -18.1 Avg 0 1.1 7311.00 51.3 h 74.0 -22.7 Pk 360 1.1 7311.00 39.0 h <td></td> <td>David Bare</td> <td>Proj Eng:</td> <td></td> <td>-</td> <td></td> <td></td> <td>0</td> <td></td> <td></td> <td></td>		David Bare	Proj Eng:		-			0			
Spec: FCC Part 15 B, C & E, RSS-210 Class: - Class: - Run #2b: Radiated Spurious Emissions, 30-25000 MHz. Center Channel @ 2437 MHz Rate = 1Mb/s Frequency Level Pol 15.209 / 15.247 Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 4874.00 46.8 v 74.0 -27.2 Pk 94 1.1 4874.00 35.2 v 54.0 -18.8 Avg 94 1.1 7311.00 38.9 v 54.0 -15.1 Avg 299 1.1 4874.00 48.4 h 74.0 -22.6 Pk 0 1.1 4874.00 35.9 h 54.0 -18.1 Avg 0 1.1 7311.00 51.3 h 74.0 -22.7 Pk 360 1.1 7311.00 39.0 h 54.0			- J - J						v	David Bold	Contact:
Run #2b: Radiated Spurious Emissions, 30-25000 MHz. Center Channel @ 2437 MHz Rate = 1Mb/s Frequency Level Pol 15.209 / 15.247 Detector Azimuth Height Comments MHz dBµU/m v/h Limit Margin Pk/QP/Avg degrees meters 4874.00 46.8 v 74.0 -27.2 Pk 94 1.1 4874.00 35.2 v 54.0 -18.8 Avg 94 1.1 7311.00 50.4 v 74.0 -23.6 Pk 299 1.1 4874.00 48.4 h 74.0 -25.6 Pk 0 1.1 4874.00 35.9 h 54.0 -18.1 Avg 0 1.1 7311.00 51.3 h 74.0 -22.7 Pk 360 1.1 7311.00 51.3 h 74.0 -22.7 Pk 360 1.1 7311.00 39.0 h <t< td=""><td></td><td></td><td>Class[.]</td><td></td><td></td><td></td><td>10</td><td>E RSS-21</td><td>15 B C 8</td><td>FCC Part 1</td><td>Spec</td></t<>			Class [.]				10	E RSS-21	15 B C 8	FCC Part 1	Spec
Rate = 1Mb/s Frequency Level Pol 15.209 / 15.247 Detector Azimuth Height Comments MHz dB μ V/m v/h Limit Margin Pk/QP/Avg degrees meters 4874.00 46.8 v 74.0 -27.2 Pk 94 1.1 4874.00 35.2 v 54.0 -18.8 Avg 94 1.1 7311.00 50.4 v 74.0 -23.6 Pk 299 1.1 7311.00 38.9 v 54.0 -15.1 Avg 299 1.1 4874.00 48.4 h 74.0 -25.6 Pk 0 1.1 4874.00 35.9 h 54.0 -18.1 Avg 0 1.1 7311.00 51.3 h 74.0 -22.7 Pk 360 1.1 7311.00 39.0 h 54.0 -15.0 Avg 360 1.1 Tote missions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was so the level of the			01033.	2437 MH	er Channel @	MHz. Cente	30-25000	E Fmissions	purious	Radiated S	Run #2b:
Frequency Level Pol 15.209 / 15.247 Detector Azimuth Height Comments MHz dBμV/m v/h Limit Margin Pk/QP/Avg degrees meters 4874.00 46.8 v 74.0 -27.2 Pk 94 1.1 4874.00 35.2 v 54.0 -18.8 Avg 94 1.1 7311.00 50.4 v 74.0 -23.6 Pk 299 1.1 7311.00 38.9 v 54.0 -15.1 Avg 299 1.1 4874.00 48.4 h 74.0 -22.6 Pk 0 1.1 4874.00 35.9 h 54.0 -18.1 Avg 0 1.1 7311.00 51.3 h 74.0 -22.7 Pk 360 1.1 7311.00 39.0 h 54.0 -15.0 Avg 360 1.1 Note 1: For emissions in restricted bands, the limit of 15			-	2107 1111			,		purious	o/s	Rate = 1Mb
MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 4874.00 46.8 v 74.0 -27.2 Pk 94 1.1 4874.00 35.2 v 54.0 -18.8 Avg 94 1.1 7311.00 50.4 v 74.0 -23.6 Pk 299 1.1 7311.00 38.9 v 54.0 -15.1 Avg 299 1.1 4874.00 48.4 h 74.0 -25.6 Pk 0 1.1 4874.00 35.9 h 54.0 -18.1 Avg 0 1.1 4874.00 35.9 h 54.0 -18.1 Avg 0 1.1 7311.00 51.3 h 74.0 -22.7 Pk 360 1.1 7311.00 39.0 h 54.0 -15.0 Avg 360 1.1 Note 1: For emissions in restricted bands, the l			Comments	Height	Azimuth	Detector	/ 15.247	15.209	Pol	Level	Frequency
4874.00 46.8 v 74.0 -27.2 Pk 94 1.1 4874.00 35.2 v 54.0 -18.8 Avg 94 1.1 7311.00 50.4 v 74.0 -23.6 Pk 299 1.1 7311.00 50.4 v 74.0 -23.6 Pk 299 1.1 7311.00 38.9 v 54.0 -15.1 Avg 299 1.1 4874.00 48.4 h 74.0 -25.6 Pk 0 1.1 4874.00 35.9 h 54.0 -18.1 Avg 0 1.1 4874.00 35.9 h 54.0 -18.1 Avg 0 1.1 7311.00 51.3 h 74.0 -22.7 Pk 360 1.1 7311.00 39.0 h 54.0 -15.0 Avg 360 1.1 For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was so the level of the fundamental. Note 2: Rate = 1Mb/s				meters	degrees	Pk/QP/Avg	Margin	Limit	v/h	dBµV/m	MHz
4874.00 35.2 v 54.0 -18.8 Avg 94 1.1 7311.00 50.4 v 74.0 -23.6 Pk 299 1.1 7311.00 38.9 v 54.0 -15.1 Avg 299 1.1 4874.00 48.4 h 74.0 -25.6 Pk 0 1.1 4874.00 35.9 h 54.0 -18.1 Avg 0 1.1 4874.00 35.9 h 54.0 -18.1 Avg 0 1.1 7311.00 51.3 h 74.0 -22.7 Pk 360 1.1 7311.00 39.0 h 54.0 -15.0 Avg 360 1.1 7311.00 39.0 h 54.0 -15.0 Avg 360 1.1 Tote emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was so the level of the fundamental. Note 2: Run #2c: Radiated Spurious Emissions, $30-25000$ MHz. High Channel @ 2462 MHz <td></td> <td></td> <td></td> <td>1.1</td> <td>94</td> <td>Pk</td> <td>-27.2</td> <td>74.0</td> <td>V</td> <td>46.8</td> <td>4874.00</td>				1.1	94	Pk	-27.2	74.0	V	46.8	4874.00
7311.00 50.4 v 74.0 -23.6 Pk 299 1.1 7311.00 38.9 v 54.0 -15.1 Avg 299 1.1 4874.00 48.4 h 74.0 -25.6 Pk 0 1.1 4874.00 35.9 h 54.0 -18.1 Avg 0 1.1 7311.00 51.3 h 74.0 -22.7 Pk 360 1.1 7311.00 51.3 h 74.0 -22.7 Pk 360 1.1 7311.00 39.0 h 54.0 -15.0 Avg 360 1.1 7311.00 39.0 h 54.0 -15.0 Avg 360 1.1 Tor emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set the level of the fundamental. Note 1: For emissions Emissions, 30-25000 MHz. High Channel @ 2462 MHz Rate = 1Mb/s Frequency Level Pol 15.209 / 15.247 Detector Azimuth Height Comments MHz dBµV/m v/h Limit<				1.1	94	Avg	-18.8	54.0	V	35.2	4874.00
7311.00 38.9 v 54.0 -15.1 Avg 299 1.1 4874.00 48.4 h 74.0 -25.6 Pk 0 1.1 4874.00 35.9 h 54.0 -18.1 Avg 0 1.1 7311.00 51.3 h 74.0 -22.7 Pk 360 1.1 7311.00 51.3 h 74.0 -22.7 Pk 360 1.1 7311.00 39.0 h 54.0 -15.0 Avg 360 1.1 7311.00 39.0 h 54.0 -15.0 Avg 360 1.1 7311.00 39.0 h 54.0 -15.0 Avg 360 1.1 Termissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was so the level of the fundamental. Note 1: For emissions Emissions, 30-25000 MHz. High Channel @ 2462 MHz Rate = 1Mb/s Frequency Level Pol 15.209 / 15.247 Detector Azimuth Height Comments MHz dBµV/m v/h Limit <td></td> <td></td> <td></td> <td>1.1</td> <td>299</td> <td>Pk</td> <td>-23.6</td> <td>74.0</td> <td>V</td> <td>50.4</td> <td>7311.00</td>				1.1	299	Pk	-23.6	74.0	V	50.4	7311.00
4874.00 48.4 h 74.0 -25.6 Pk 0 1.1 4874.00 35.9 h 54.0 -18.1 Avg 0 1.1 7311.00 51.3 h 74.0 -22.7 Pk 360 1.1 7311.00 51.3 h 74.0 -22.7 Pk 360 1.1 7311.00 39.0 h 54.0 -15.0 Avg 360 1.1 7311.00 39.0 h 54.0 -15.0 Avg 360 1.1 Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was so the level of the fundamental. Note 2: Run #2c: Radiated Spurious Emissions, 30-25000 MHz. High Channel @ 2462 MHz Rate = 1Mb/s Frequency Level Pol 15.209 / 15.247 Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 4924.00 46.0 v 74.0 -28.0 Pk 0 1.1				1.1	299	Avg	-15.1	54.0	V	38.9	7311.00
4874.00 35.9 h 54.0 -18.1 Avg 0 1.1 7311.00 51.3 h 74.0 -22.7 Pk 360 1.1 7311.00 39.0 h 54.0 -15.0 Avg 360 1.1 7311.00 39.0 h 54.0 -15.0 Avg 360 1.1 Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was so the level of the fundamental. Note 2:				1.1	0	Pk	-25.6	74.0	h	48.4	4874.00
7311.00 51.3 h 74.0 -22.7 Pk 360 1.1 7311.00 39.0 h 54.0 -15.0 Avg 360 1.1 Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was so the level of the fundamental. Note 2: Run #2c: Radiated Spurious Emissions, 30-25000 MHz. High Channel @ 2462 MHz Rate = 1Mb/s Frequency Level Pol 15.209 / 15.247 Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 4924.00 46.0 v 74.0 -28.0 Pk 0 1.1				1.1	0	Avg	-18.1	54.0	h	35.9	4874.00
7311.00 39.0 h 54.0 -15.0 Avg 360 1.1 Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was so the level of the fundamental. Note 2: Run #2c: Radiated Spurious Emissions, 30-25000 MHz. High Channel @ 2462 MHz Rate = 1Mb/s Frequency Level Pol 15.209 / 15.247 Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 4924.00 46.0 v 74.0 -28.0 Pk 0 1.1				1.1	360	Pk	-22.7	74.0	h	51.3	7311.00
Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was so the level of the fundamental. Note 2: Run #2c: Radiated Spurious Emissions, 30-25000 MHz. High Channel @ 2462 MHz Rate = 1Mb/s Frequency Level Pol 15.209 / 15.247 Detector Azimuth Height Comments MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters 4924.00 46.0 v 74.0 -28.0 Pk 0 1.1				1.1	360	Avg	-15.0	54.0	h	39.0	7311.00
FrequencyLevelPol15.209 / 15.247DetectorAzimuthHeightCommentsMHzdBμV/mv/hLimitMarginPk/QP/Avgdegreesmeters4924.0046.0v74.0-28.0Pk01.1				462 MHz	Channel @ 2	MHz. High	s, 30-25000	Emissions	purious	Radiated S b/s	Run #2c: F Rate = 1Mb
MHz dBμV/m v/h Limit Margin Pk/QP/Avg degrees meters 4924.00 46.0 v 74.0 -28.0 Pk 0 1.1			Commonts	Hoight	Azimuth	Dotoctor	15 247	15 200	Dol	Lovol	Froquoncy
4924.00 46.0 v 74.0 -28.0 Pk 0 1.1			COMMENTS	motors	dogroos		15.247 Margin	15.2097	r0i v/h	dBuV/m	MH ₇
				11	uegrees 0	Pk	-28.0	74.0	V	46 0	4924.00
4924.00 34.8 v 54.0 -19.2 Avg 0 1.1				1.1	0	Ανα	-19.2	54.0	v	34.8	4924.00
4924.00 51.0 h 74.0 -23.0 Pk 200 1.1				1.1	200	Pk	-23.0	74.0	h	51.0	4924.00
4924.00 38.6 h 54.0 -15.4 Avg 200 1.1				1.1	200	Avg	-15.4	54.0	h	38.6	4924.00
7386.00 48.7 v 74.0 -25.3 Pk 0 1.1				1.1	0	Pk	-25.3	74.0	V	48.7	7386.00
7386.00 36.4 v 54.0 -17.6 Avg 0 1.1				1.1	0	Avg	-17.6	54.0	V	36.4	7386.00
7386.00 51.9 h 74.0 -22.1 Pk 0 1.1				1.1	0	Pk	-22.1	74.0	h	51.9	7386.00
7386.00 38.1 h 54.0 -15.9 Avg 0 1.1				1.1	0	Avg	-15.9	54.0	h	38.1	7386.00
Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was so	et 20dB belov	limit was set	nissions, the	all other er	as used. For	t of 15.209 wa	ids, the limi	stricted bar	ons in re	For emission	Note 1:



E	Ellic	ott						EMC Test Data
Client:	Broadcom						J	ob Number: J49585
Model:	BCM9430	9MP w/ i	new higher o	gain antenn	а		T-L	og Number: T49605
			0					Proj Eng: David Bare
Contact:	David Bolo	dy						
Spec:	FCC Part	15 B, C a	& E, RSS-21	0				Class: -
Fundamen	tal Field S	trength	Measureme	ents used f	or bandedg	e field stren	egth calcul	ations
Frequency	Level	Pol	15.209/	15.407	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2412.000	106.4	V	-	-	Pk	-	-	RBW = VBW = 1 MHz
2412.000	97.6	V	-	-	Avg	-	-	RBW = 1MHz, VBW = 10Hz
2412.000	109.0	Н	-	-	Pk	-	-	RBW = VBW = 1 MHz
2412.000	99.8	Н	-	-	Avg	-	-	RBW = 1MHz, VBW = 10Hz
2462.000	109.6	V	-	-	Pk	-	-	RBW = VBW = 1 MHz
2462.000	98.0	V	-	-	Avg	-	-	RBW = 1MHz, VBW = 10Hz
2462.000	105.7	Н	-	-	Pk	-	-	RBW = VBW = 1 MHz
2462.000	96.0	Н	-	-	Avg	-	-	RBW = 1MHz, VBW = 10Hz
Band Edge	e Field Stre	ength Ca	alculations	(11 Mb/s)				
Frequency	Level	Pol	15.209	15.407	Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.0	56.9	V	74.0	-17.1	Pk	-	-	Note 1
2390.0	46.7	V	54.0	-7.3	Avg	-	-	Note 1
2390.0	59.5	h	74.0	-14.5	Pk	-	-	Note 1
2390.0	48.9	h	54.0	-5.1	Avg	-	-	Note 1
2483.5	61.2	V	74.0	-12.8	Pk	-	-	Note 2
2483.5	49.3	V	54.0	-4.7	Avg	-	-	Note 2
2483.5	57.3	h	74.0	-16.7	Pk	-	-	Note 2
2483.5	47.3	h	54.0	-6.7	Avg	-	-	Note 2
Note 1:	EUT opera relative me average fi	ating on t easurem eld stren	the lowest c ents in plots gth measure	hannel avai (49.5 dBc ements of th	ilable in the 2 for peak and ne fundamen	2.4 - 2.4835 (50.9 dBc for tal siganl lev	GHz band. S average) a el.	Signal level calculated using the pplied to the highest peak and
Note 2:	EUT opera measurem strength m	ating on l nents in p neasuren	highest char plots (48.4 d nents of the	nnel availab Bc for peak <u>fundament</u> a	le in the 2.4 and 48.7 dE al siganl leve	- 2.4835 GH; 3c for average I.	z band. Sig e) applied to	nal level calculated using the relative the highest peak and average field

Client:	Broadcom							Job Number:	J49585
Model:	BCM9430	9MP w/ 1	new higher g	gain antenr	na		T-l	_og Number:	T49605
						-		Proj Eng:	David Bare
Contact:	David Bolo	dy							
Spec:	FCC Part	15 B, C	& E, RSS-2 ²	10				Class:	-
Run #4a: Rate = 11N	Radiated S /Ib/s	Spurious	s Emissions	s, 30-25000) MHz. Low (Channel @ 2	412 MHz		
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Heiaht	Comments	
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	e en interne	
4824.00	47.2	V	74.0	-26.8	Pk	350	1.1		
4824.00	36.0	٧	54.0	-18.0	Avg	350	1.1		
7236.00	52.7	V	74.0	-21.3	Pk	350	1.1		
7236.00	41.5	V	54.0	-12.5	Avg	350	1.1		
7236.00	56.0	h	74.0	-18.0	Pk	350	1.1		
700/00	42.4	h	54.0	-11.6	Avg	350	1.1		
/236.00									
4824.00	54.6	h	74.0	-19.4	Pk	130	1.2		
4824.00 4824.00 4824.00	54.6 42.3 For emiss the level o	h h ions in re f the fun	74.0 54.0 estricted bar damental.	-19.4 -11.7 nds, the lim	Pk Avg it of 15.209 w	130 130 as used. For	1.2 1.2	missions, th	e limit was set 20dB b
4824.00 4824.00 Jote 1: Run #4b: Rate = 11M	54.6 42.3 For emiss the level o Radiated S	h h ions in re f the fun	74.0 54.0 estricted bar damental.	-19.4 -11.7 nds, the lim s, 30-25000	Pk Avg it of 15.209 w	130 130 as used. For er Channel @	1.2 1.2	missions, th	e limit was set 20dB b
4824.00 4824.00 4824.00 Note 1: Run #4b: Rate = 11M	54.6 42.3 For emiss the level o Radiated S Ib/s	h h ions in re f the fun Spurious	74.0 54.0 estricted bar damental. s Emissions	-19.4 -11.7 nds, the lim 5, 30-25000	Pk Avg it of 15.209 w.	130 130 as used. For er Channel @ Azimuth	1.2 1.2 r all other e 2437 MH Height	missions, the	e limit was set 20dB b
4824.00 4824.00 4824.00 Jote 1: Run #4b: Rate = 11M Frequency MHz	54.6 42.3 For emiss the level o Radiated S Ib/s Level dBuV/m	h h ions in re f the fun Spurious Pol v/h	74.0 54.0 estricted bar damental. s Emissions 15.209 / Limit	-19.4 -11.7 ids, the lim s, 30-25000 / 15.247 Margin	Pk Avg it of 15.209 w. D MHz. Cente Detector	130 130 as used. For er Channel @ Azimuth degrees	1.2 1.2 → all other e → 2437 MH Height meters	missions, the	e limit was set 20dB b
7236.00 4824.00 4824.00 lote 1: Run #4b: Rate = 11M Frequency MHz 4874.00	54.6 42.3 For emiss the level o Radiated S Ib/s Level dBµV/m 47.4	h h ions in re f the fun Spurious Pol V/h V	74.0 54.0 estricted bar damental. s Emissions 15.209 Limit 74.0	-19.4 -11.7 ids, the lim 5, 30-25000 / 15.247 Margin -26.6	Pk Avg it of 15.209 w O MHz. Cente Detector Pk/QP/Avg Pk	130 130 as used. For er Channel @ Azimuth degrees 0	1.2 1.2 ⁷ all other e 2437 MH <u>Height</u> <u>meters</u> 1.1	missions, the	e limit was set 20dB b
7236.00 4824.00 4824.00 lote 1: lote 1: Rate = 11N requency MHz 4874.00 4874.00	54.6 42.3 For emiss the level o Radiated S Ib/s Level dBμV/m 47.4 35.7	h h ions in re f the fun Spurious Spurious V v/h v v	74.0 54.0 estricted bar damental. s Emissions 15.209 Limit 74.0 54.0	-19.4 -11.7 nds, the lim 5, 30-25000 / 15.247 Margin -26.6 -18.3	Pk Avg it of 15.209 w. DMHz. Cente Detector Pk/QP/Avg Pk Avg	130 130 as used. For er Channel @ Azimuth degrees 0 0	1.2 1.2 r all other e 2437 MH Height Meters 1.1 1.1	missions, the	e limit was set 20dB b
7236.00 4824.00 4824.00 lote 1: lote 1: Run #4b: Rate = 11M requency MHz 4874.00 4874.00 7311.00	54.6 42.3 For emiss the level o Radiated S Ib/s Level dBμV/m 47.4 35.7 49.9	h h ions in re f the fun Spurious Spurious V/h V V V	74.0 54.0 estricted bar damental. s Emissions 15.209 Limit 74.0 54.0 74.0	-19.4 -11.7 ids, the lim 5, 30-25000 / 15.247 Margin -26.6 -18.3 -24.1	Pk Avg it of 15.209 w DMHz. Cente Detector Pk/QP/Avg Pk Avg Pk	130 130 as used. For er Channel @ Azimuth degrees 0 0 321	1.2 1.2 all other e 2437 MH Height Meters 1.1 1.1 1.1	Comments	e limit was set 20dB b
7236.00 4824.00 4824.00 lote 1: lote 1: Run #4b: Rate = 11M requency MHz 4874.00 7311.00 7311.00	54.6 42.3 For emiss the level of Radiated S Ib/s Level dBμV/m 47.4 35.7 49.9 38.5	h h ions in re f the fun Spurious Spurious V V V V V V V	74.0 54.0 estricted bar damental. s Emissions 15.209 / Limit 74.0 54.0 74.0 54.0	-19.4 -11.7 ids, the lim 5, 30-25000 / 15.247 Margin -26.6 -18.3 -24.1 -15.5	Pk Avg it of 15.209 w DMHz. Cente Detector Pk/QP/Avg Pk Avg Pk Avg Pk Avg	130 130 as used. For er Channel @ Azimuth degrees 0 0 321 321	1.2 1.2 all other e 2437 MH 2437 MH Height meters 1.1 1.1 1.1 1.1	Comments	e limit was set 20dB b
7236.00 4824.00 4824.00 lote 1: Run #4b: Rate = 11M Frequency MHz 4874.00 4874.00 7311.00 7311.00 4874.00	54.6 42.3 For emiss the level o Radiated S Ib/s Level dBμV/m 47.4 35.7 49.9 38.5 50.3	h h ions in re f the fun Spurious Spurious V V V V V V V V V	74.0 54.0 estricted bar damental. s Emissions 15.209 / Limit 74.0 54.0 74.0 54.0 74.0 54.0 74.0	-19.4 -11.7 ids, the lim 5, 30-25000 / 15.247 Margin -26.6 -18.3 -24.1 -15.5 -23.7	Pk Avg it of 15.209 w DMHz. Cente Detector Pk/QP/Avg Pk Avg Pk Avg Pk Avg Pk	130 130 as used. For er Channel @ Azimuth degrees 0 0 0 321 321 321 360	1.2 1.2 [•] all other e [●] 2437 MH <u>Height</u> <u>meters</u> 1.1 1.1 1.1 1.1 1.1	Comments	e limit was set 20dB b
7236.00 4824.00 4824.00 Jote 1: Jote 1: Run #4b: Rate = 11M Frequency MHz 4874.00 4874.00 7311.00 4874.00 4874.00	54.6 42.3 For emiss the level o Radiated S Ib/s Level dBμV/m 47.4 35.7 49.9 38.5 50.3 37.9	h h ions in re f the fun Spurious Spurious V/h V V V V V V V V V	74.0 54.0 estricted bar damental. s Emissions 15.209 Limit 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0	-19.4 -11.7 ids, the lim 5, 30-25000 / 15.247 Margin -26.6 -18.3 -24.1 -15.5 -23.7 -16.1	Pk Avg it of 15.209 w DMHz. Cente Detector Pk/QP/Avg Pk Avg Pk Avg Pk Avg Pk Avg	130 130 as used. For er Channel @ Azimuth degrees 0 0 0 321 321 360 360 360	1.2 1.2 r all other e 2437 MH Height meters 1.1 1.1 1.1 1.1 1.1	Z Comments	e limit was set 20dB b
7236.00 4824.00 4824.00 lote 1: lote 1: Run #4b: Rate = 11M requency MHz 4874.00 4874.00 7311.00 4874.00 4874.00 7311.00	54.6 42.3 For emiss the level of Radiated S Ib/s Level dBμV/m 47.4 35.7 49.9 38.5 50.3 37.9 52.1	h h ions in re f the fun Spurious Spurious V V V V V V V V V h h h	74.0 54.0 estricted bar damental. s Emissions 15.209 Limit 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0	-19.4 -11.7 ids, the lim 5, 30-25000 / 15.247 Margin -26.6 -18.3 -24.1 -15.5 -23.7 -16.1 -21.9	Pk Avg it of 15.209 w. DMHz. Cente Detector Pk/QP/Avg Pk Avg Pk Avg Pk Avg Pk Avg Pk Avg Pk Avg Pk	130 130 as used. For er Channel @ Azimuth degrees 0 0 321 321 321 360 360 2	1.2 1.2 [→] all other e [→] 2437 MH <u>Height</u> <u>meters</u> 1.1 1.1 1.1 1.1 1.1 1.1 1.1	Comments	e limit was set 20dB b
7236.00 4824.00 4824.00 ote 1: un #4b: ate = 11N requency MHz 4874.00 7311.00 7311.00 4874.00 7311.00 7311.00	54.6 42.3 For emiss the level of Radiated S /b/s Level dBμV/m 47.4 35.7 49.9 38.5 50.3 37.9 52.1 39.6	h h ions in re f the fun Spurious Spurious V V V V V V V V V h h h h	74.0 54.0 estricted bar damental. s Emissions 15.209 / Limit 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0	-19.4 -11.7 ids, the lim 5, 30-25000 / 15.247 Margin -26.6 -18.3 -24.1 -15.5 -23.7 -16.1 -21.9 -14.4	Pk Avg it of 15.209 w. DMHz. Center Detector Pk/QP/Avg Pk Avg	130 130 as used. For er Channel @ Azimuth degrees 0 0 0 321 321 321 321 360 360 360 2 2	1.2 1.2 ⁷ all other e ² 2437 MH ² 2437 MH ² 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1	Z Comments	e limit was set 20dB b
7236.00 4824.00 4824.00 4824.00 lote 1: Run #4b: Rate = 11M Frequency MHz 4874.00 7311.00 7311.00 4874.00 7311.00 7311.00 7311.00 Jote 1: lote 2:	54.6 42.3 For emiss the level of Radiated S Ib/s Level dBμV/m 47.4 35.7 49.9 38.5 50.3 37.9 52.1 39.6 For emiss the level of	h h ions in re f the fun Spurious Spurious Pol V/h V V V V V V V h h h h h h h h h	74.0 54.0 estricted bar damental. s Emissions 15.209 Limit 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0	-19.4 -11.7 ids, the lim 5, 30-25000 / 15.247 Margin -26.6 -18.3 -24.1 -15.5 -23.7 -16.1 -21.9 -14.4 ids, the lim	Pk Avg it of 15.209 w. DMHz. Center Detector Pk/QP/Avg Pk Avg Pk Avg	130 130 130 as used. For er Channel @ Azimuth degrees 0 0 321 321 321 360 360 360 2 2 as used. For	1.2 1.2 1.2 r all other e 2437 MH Height meters 1.1	Comments	e limit was set 20dB be

		Л				1		EIVI	C I est Da	ta
Client:	Broadcom							IOD Number:	J49585	
Model:	BCM9430	9MP w/ i	new higher	gain antenr	ia	-	T-L	og Number:	T49605	
								Proj Eng:	David Bare	
Contact:	David Bold	ły								
Spec:	FCC Part	15 B, C a	& E, RSS-2	10				Class:	-	
Run #4c: I Rate = 11N	Radiated S Ib/s	purious	Emission	s, 30-25000) MHz. High	Channel @ 2	2462 MHz			
Frequency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments		
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters			
4924.00	47.0	V	74.0	-27.0	Pk	0	1.1			
4924.00	35.7	V	54.0	-18.3	Avg	0	1.1			
4924.00	50.1	h	74.0	-23.9	Pk	361	1.1			
4924.00	38.2	h	54.0	-15.8	Avg	361	1.1			
7386.00	52.3	V	74.0	-21.7	Pk	0	1.1			
7386.00	40.9	V	54.0	-13.1	Avg	0	1.1			
7386.00	50.5	h	74.0	-23.5	Pk	0	1.1			
7386.00	38.6	h	54.0	-15.4	Avg	0	1.1			
			damental.							pelov
			damental.							Delov