Elliot	t	EM	C Test Data
Client:	Broadcom	Job Number:	J50065
Model:	BCM94309MP in PP02X Laptop	T-Log Number:	T50131
		Proj Eng:	Juan Martinez
Contact:	Dave Boldy		
Emissions Spec:	FCC 15.247, 15.401	Class:	DSSS / UNII
Immunity Spec:	-	Environment:	-

For The

Broadcom

Model

BCM94309MP in PP02X Laptop



Client:	Broadcom	Job Number:	J50065
Model:	BCM94309MP in PP02X Laptop	T-Log Number:	T50131
		Proj Eng:	Juan Martinez
Contact:	Dave Boldy		
Emissions Spec:	FCC 15.247, 15.401	Class:	DSSS / UNII
Immunity Spec:	-	Environment:	-

EUT INFORMATION

General Description

The EUT is a 802.11a/g/b mini PC card which is designed for wireless internet access for the laptop. Normally, the EUT would be table-top during operation. The EUT was treated as table-top equipment during testing to simulate the end user environment.

Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	PP02X	Laptop	22500	DoC
Broadcom	BCM94309MP	Mini PCI Transceiver	-	TBD

Antenna

The EUT uses the antenna an antenna integral to the laptop with a gain of 4.9 dBi in the 5150 - 5350 MHz band and 2.39 dBi in the 2400 - 2483.5 MHz band.

The antenna connector used is non-standard antenna (Hirose U.FL series) to meet the requirements of FCC Part 15.203 and RSS-210

EUT Enclosure

The EUT does not have an enclosure as it is designed to be installed within the enclosure of a host computer.

Modification History

Mod. #	Test	Date	Modification
1			
2			
3			

Modifications applied are assumed to be used on subsequent tests unless otherwise stated as a further modification.

	El	liott
40 -		

Client:	Broadcom	Job Number:	J50065
Model:	BCM94309MP in PP02X Laptop	T-Log Number:	T50131
		Proj Eng:	Juan Martinez
Contact:	Dave Boldy		
Emissions Spec:	FCC 15.247, 15.401	Class:	DSSS / UNII
Immunity Spec:	-	Environment:	-

Test Configuration #1

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	PP02X	Laptop	22500	
US Robotics	Pilot 1000	PDA	6.0482E+11	MQ90001
HP	Thinkjet 2225C	Printer	2714540166	DS16XU2225

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID		
None						

Interface Cabling and Ports

		Cable(s)		
Port	Connected To	Description	Shielded or Unshielded	Length(m)
Laptop serial	Palm	Multiconductor	Shieleded	1.5
Laptop Parallel	Printer	Multiconductor	Shieleded	1.5
Laptop Power in	AC adapter	2 wire	Unshielded	1
AC Adapter	AC Mains	2 wire	Unshielded	1

EUT Operation During Emissions

The radio was transmitting at full power on the specified channels with a 100 % duty cycle and at a data rates from 1 to 54 Mb/s. The channels were selected since they are at the top, near the center and at the bottom of the allocated bands. The radio uses 8-chip complementary code keying (CCK), 11-chip differential quadrature phase shift keying (DQPSK) modulation for 802.11b operation and Orthogonal Frequency Division Multiplexing (OFDM) for 802.11a and 802.11g operation.

Note: During digital device tests, scrolling H characters were displayed in a window on the laptop display and the radio was set to the channel and data rate that produced the highest output power.

The Card Bus was transmitting on either the low, middle or high channel

FI	Elliott	EM	C Test Data
Client:	Broadcom	Job Number:	J50065
Model:	BCM94309MP in PP02X Laptop	T-Log Number:	T50131
		Proj Eng:	Juan Martinez
Contact:	Dave Boldy		
Spec:	FCC 15.247, 15.401	Class:	DSSS / UNII

Radiated Emissions

Test Specifics

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: 2/11/2003 Config. Used: 1
Test Engineer: jmartinez Config Change: None
Test Location: SVOATS #4 EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated emissions testing.

On the OATS, the measurement antenna was located 3 meters from the EUT for the measurement range 30 - 1000 MHz.

Note, **preliminary** testing indicates that the emissions were maximized by orientation of the EUT and elevation of the measurement antenna. **Maximized** testing indicated that the emissions were maximized by orientation of the EUT, elevation of the measurement antenna, and manipulation of the EUT's interface cables.

Ambient Conditions: Temperature: 19°C

Rel. Humidity: 36%

Summary of Results

Run #	Test Performed	Limit	Result	Margin
2	RE, 30 - 1000MHz - Maximized	FCC B	Pass	-3.7dB @ 153.300MHz
	Emissions			

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard



•			
Client:	Broadcom	Job Number:	J50065
Model:	BCM94309MP in PP02X Laptop	T-Log Number:	T50131
		Proj Eng:	Juan Martinez
Contact:	Dave Boldy		
Spec:	FCC 15.247, 15.401	Class:	DSSS / UNII

Run #1: Preliminary Radiated Emissions, 30-1000 MHz

Frequency	Level	Pol	FC	СВ	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
153.300	39.8	h	43.5	-3.7	QP	360	401.0	
63.984	24.7	٧	40.0	-15.3	QP	106	102.0	
167.980	21.4	V	43.5	-22.1	QP	191	90.0	
239.996	22	h	46.0	-24.0	QP	120	131.0	
138.100	19.3	V	43.5	-24.2	QP	152	89.0	
138.100	18.6	h	43.5	-24.9	QP	291	248.0	
239.996	20.2	٧	46.0	-25.8	QP	227	90.0	
63.984	11.2	h	40.0	-28.8	QP	351	222.0	
167.980	21	h	43.5	-23.3	QP	166	201	

Note 1: Add note here
Note 2:

Run #2: Maximized Readings From Run #1

Frequency	Level	Pol	FC	СВ	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
153.300	39.8	h	43.5	-3.7	QP	360	4.0	
63.984	24.7	٧	40.0	-15.3	QP	106	1.0	
167.980	21.4	V	43.5	-22.1	QP	191	1.0	
167.980	21	h	43.5	-18.8	QP	166	2.0	
239.996	22	h	46.0	-24.0	QP	120	1.3	
138.100	19.3	V	43.5	-24.2	QP	152	1.0	

F	Elliott	EM	C Test Data
Client:	Broadcom	Job Number:	J50065
Model:	BCM94309MP in PP02X Laptop	T-Log Number:	T50131
		Proj Eng:	Juan Martinez
Contact:	Dave Boldy		
Spec:	FCC 15.247, 15.401	Class:	DSSS / UNII

Conducted Emissions - Power Ports

Test Specifics

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: 2/11/2003 Config. Used: 1
Test Engineer: jgonzalez Config Change: None

Test Location: CCA #1 EUT Voltage: Refer to individual run

General Test Configuration

For tabletop equipment, the EUT was located on a wooden table, 40 cm from a vertical coupling plane and 80cm from the LISN. A second LISN was used for all local support equipment.

Ambient Conditions: Temperature: 19°C

Rel. Humidity: 36%

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power 120V/60Hz	EN55022 B	Pass	-2.7dB @ 0.623MHz

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

%	Ellic	ott					EM	IC Test Da
	Broadcon						Job Number:	J50065
Model:	BCM9430	9MP in F	PP02X Lapt	ор			T-Log Number:	T50131
			·				Proi Ena:	Juan Martinez
Contact:	Dave Bol	dv					, ,	
	FCC 15.2	,)1				Class:	DSSS / UNII
		Port Cond		ssions, 0.1	5 - 30MHz, Detector	120V/60Hz Comments		
Frequency						Comments		
MHz	dBμV	Line	Limit	Margin	QP/Ave			
0.6234	43.3	Neutra	46	-2.7	AV			
0.6235	41.6	Line 1	46	-4.4	AV			
12.7831	43.8	Line 1	50	-6.2	AV			
0.2077	47	Neutra	53.4	-6.4	AV			
0.2077	46.9	Line 1	53.4	-6.5	AV			
14.2376	43.2	Neutra	50	-6.8	AV			
0.2077	52.3	Line 1	63.4	-11.1	QP			
	51.5	Neutra	63.4	-11.9	QP			
0.2077	42.5	Neutra	56	-13.5	QP			
0.2077 0.6234		1 1 - 4	60	-14.4	QP		·	
	45.6	Line 1						
0.6234		Line 1	56	-15	QP			

	ZIIIOU	EM	C Test Data
Client:	Broadcom	Job Number:	J50065
Model:	BCM94309MP in PP02X Laptop	T-Log Number:	T50131
		Proj Eng:	Juan Martinez
Contact:	Dave Boldy		
Spec:	FCC 15.247, 15.401	Class:	N/A

Radiated Emissions

Test Specifics

CEIL: att

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: 2/10/2003 Config. Used: 1
Test Engineer: Chris Byleckie Config Change:

Test Location: SVOATS #4 EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

When measuring the conducted emissions from the EUT's antenna port, the antenna port of the EUT was connected to the spectrum analyzer or power meter via a suitable attenuator to prevent overloading the measurement system. All measurements are corrected to allow for the external attenuators used.

Ambient Conditions: Temperature: 16°C

Rel. Humidity: 44%

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	Output Power	15.401(a)	Pass	21.8 dBm
2a - 2c	RE, 30 - 40,000 MHz - Spurious Emissions In Restricted Bands	15.401(b)	Pass	-8.2dB @ 15543.60 MHz

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard



Client:	Broadcom	Job Number:	J50065
Model:	BCM94309MP in PP02X Laptop	T-Log Number:	T50131
		Proj Eng:	Juan Martinez
Contact:	Dave Boldy		
Spec:	FCC 15.247, 15.401	Class:	N/A

Run #1: Output Power Data Rate 54Mb/s

The minimum VBW required for power measurements using a spectrum analyzer is 1/T, where T is the pulse transmission rate.

Pulse Transmission Rate: 4.0 uS

nission Rate: 4.0 uS nimum VBW: 250 kHz VBW Used: 300 kHz Minimum VBW:

Antenna Gain: 4.9 dBi

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm) (note 3)	Comments
36	5180	15.0	17.0	
52	5260	21.5	24.0	
64	5320	21.8	24.0	

Client:	Broadcom							lob Number:	1500	65	
			PP02X Lapto	nn				og Number:			
Model.	DCIVI7430	71VII 111 I	ι υΖΑ Εαριι	ρþ			1-L	Proj Eng:			
Cantast	Dava Dala							Pluj Elig.	Juan	IVIAIUIIEZ	
	Dave Bold	•	\ <u>1</u>					01	N 1 / A		
	FCC 15.24	47, 15.40)[Class:	N/A		
_aptop S/N											
Data rate 5											
Antenna -F	itachi										
≀un #2a R	adiated Sp	ourious	Emissions,	1-40 GHz.	Low Chann	el @ 5180 N	ЛHz				
	Laval	Pol	15 200	/ 15.247	Detector	Azimuth	l l o i mla t	Comments			
Frequency MHz	Level dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	Height meters	Comments			
	ubμν/III	V	74.0	-15.9	Pk	0	1.0				
					1 1	U					
15543.80	58.1				Δνα	0	1.0				
15543.80 15543.60	58.1 45.8	V	54.0	-8.2	Avg Pk	0	1.0				
15543.80 15543.60 15544.23	58.1 45.8 58.5				Pk	0 0	1.0 1.0 1.0				<u>—</u>
15543.80 15543.60	58.1 45.8 58.5	V	54.0 74.0	-8.2 -15.5	· · ·	0	1.0				
15543.80 15543.60 15544.23 15544.04	58.1 45.8 58.5 45.8	V H H	54.0 74.0 54.0	-8.2 -15.5 -8.2	Pk Avg	0	1.0 1.0	missions, the	e limit	was set 20	ldB b
15543.80 15543.60 15544.23 15544.04	58.1 45.8 58.5 45.8	V H H	54.0 74.0 54.0 estricted bar	-8.2 -15.5 -8.2	Pk Avg	0	1.0 1.0	missions, the	e limit	was set 20)dB b
15543.80 15543.60 15544.23 15544.04 Note 1:	58.1 45.8 58.5 45.8 For emiss the level of	V H H ions in re	54.0 74.0 54.0 estricted bardamental.	-8.2 -15.5 -8.2 nds, the limi	Pk Avg	0 0 as used. Fo	1.0 1.0	missions, the	e limit	was set 20)dB bo
15543.80 15543.60 15544.23 15544.04 Note 1:	58.1 45.8 58.5 45.8 For emiss the level of	V H H ions in re	54.0 74.0 54.0 estricted bardamental.	-8.2 -15.5 -8.2 nds, the limi	Pk Avg t of 15.209 w	0 0 as used. Fo	1.0 1.0	missions, the	e limit	was set 20)dB b
15543.80 15543.60 15544.23 15544.04 Note 1:	58.1 45.8 58.5 45.8 For emiss the level on No emissi	V H H ions in ref f the fun	54.0 74.0 54.0 estricted bar damental. le above the	-8.2 -15.5 -8.2 ads, the limi	Pk Avg t of 15.209 w	0 0 as used. Fo	1.0 1.0 r all other e	missions, the	e limit	was set 20)dB b
15543.80 15543.60 15544.23 15544.04 Note 1: Note 2:	58.1 45.8 58.5 45.8 For emiss the level of No emissi	V H H ions in ref the fun	54.0 74.0 54.0 estricted bar damental. le above the semissions	-8.2 -15.5 -8.2 ads, the limi e noise floor	Pk Avg t of 15.209 w beyond 16 0	0 0 as used. Fo GHz annel @ 52	1.0 1.0 r all other e		e limit	was set 20)dB b
15543.80 15543.60 15544.23 15544.04 Note 1: Note 2: Run #2b:	58.1 45.8 58.5 45.8 For emiss the level of No emissi	V H H ions in ref the fun	54.0 74.0 54.0 estricted bar damental. le above the s Emissions	-8.2 -15.5 -8.2 ads, the limi e noise floor s, 1-40 GHz	Pk Avg t of 15.209 w r beyond 16 c c. Center Ch	0 0 as used. Fo GHz annel @ 52	1.0 1.0 r all other e 60 MHz	missions, the	e limit	was set 20)dB b
15543.80 15543.60 15544.23 15544.04 Note 1: Note 2: Run #2b: Frequency MHz	58.1 45.8 58.5 45.8 For emiss the level of No emissi Radiated S Level dBµV/m	V H H ions in ref the fun ons visib	54.0 74.0 54.0 setricted bardamental. le above the semissions 15.209 Limit	-8.2 -15.5 -8.2 nds, the limi e noise floor s, 1-40 GHz / 15.247 Margin	Pk Avg t of 15.209 w r beyond 16 0 Center Ch Detector Pk/QP/Avg	0 0 as used. Fo GHz annel @ 52 Azimuth degrees	1.0 1.0 r all other e 60 MHz Height meters		e limit	was set 20)dB b
15543.80 15543.60 15544.23 15544.04 Note 1: Note 2: Run #2b: Frequency MHz 15779.47	58.1 45.8 58.5 45.8 For emiss the level of No emissi Radiated S Level dBμV/m 57.3	V H H ions in ref the fun ons visib Spurious Pol v/h H	54.0 74.0 54.0 setricted bardamental. le above the semissions 15.209 / Limit 74.0	-8.2 -15.5 -8.2 nds, the limi e noise floor s, 1-40 GHz / 15.247 Margin -16.7	Pk Avg t of 15.209 w r beyond 16 of c. Center Ch Detector Pk/QP/Avg Pk	0 0 as used. Fo GHz annel @ 52 Azimuth degrees 0	1.0 1.0 r all other e 60 MHz Height meters 1.0		e limit	was set 20)dB b
15543.80 15543.60 15544.23 15544.04 Note 1: Note 2: Run #2b: Frequency MHz 15779.47 15779.33	58.1 45.8 58.5 45.8 For emiss the level of No emissi Radiated S Level dBμV/m 57.3 44.6	V H H H sions in ref the fun ons visib Spurious Pol v/h H H	54.0 74.0 54.0 setricted bardamental. le above the semissions 15.209 Limit 74.0 54.0	-8.2 -15.5 -8.2 nds, the limi e noise floor s, 1-40 GHz / 15.247 Margin -16.7 -9.4	Pk Avg t of 15.209 w r beyond 16 of C. Center Ch Detector Pk/QP/Avg Pk Avg	0 0 as used. Fo GHz annel @ 52 Azimuth degrees 0 0	1.0 1.0 1.0 r all other e 60 MHz Height meters 1.0 1.0		e limit	was set 20)dB b
15543.80 15543.60 15544.23 15544.04 Note 1: Note 2: Run #2b: Frequency MHz 15779.47	58.1 45.8 58.5 45.8 For emiss the level of No emissi Radiated S Level dBμV/m 57.3 44.6	V H H ions in ref the fun ons visib Spurious Pol v/h H	54.0 74.0 54.0 setricted bardamental. le above the semissions 15.209 / Limit 74.0	-8.2 -15.5 -8.2 nds, the limi e noise floor s, 1-40 GHz / 15.247 Margin -16.7	Pk Avg t of 15.209 w r beyond 16 of c. Center Ch Detector Pk/QP/Avg Pk	0 0 as used. Fo GHz annel @ 52 Azimuth degrees 0	1.0 1.0 r all other e 60 MHz Height meters 1.0		e limit	was set 20	o)dB b

Client: Broadcom Model: BCM94309MP in PP02X Laptop Contact: Dave Boldy Spec: FCC 15.247, 15.401 In #2c: Radiated Spurious Emissions, 1-40 GHz equency Level Pol 15.209 / 15.247 MHz dBμV/m v/h Limit Margin 0640.05 56.7 H 74.0 -17.3 0639.80 43.7 H 54.0 -10.3 5960.47 58.1 H 74.0 -15.9 5960.28 45.7 H 54.0 -8.3 0640.01 61.0 H 74.0 -13.0 0639.61 46.1 H 54.0 -7.9 5960.58 58.1 H 74.0 -15.9 5960.58 58.1 H 74.0 -15.9 5960.36 45.7 H 54.0 -8.3 te 1: For emissions in restricted bands, the limithe level of the fundamental. No emissions visible above the noise floor	Detector Pk/QP/Avg Pk Avg Pk Avg Pk Avg Pk Avg Avg Order Avg Avg Avg Avg Avg Avg Avg Avg	Azimuth degrees 0 0 0 0 0 0 0 0 0 0 as used. For	MHz Height meters 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Class:	T50131 Juan Martinez N/A
Contact: Dave Boldy Spec: FCC 15.247, 15.401 In #2c: Radiated Spurious Emissions, 1-40 GHz equency Level Pol 15.209 / 15.247 MHz dBμV/m v/h Limit Margin 0640.05 56.7 H 74.0 -17.3 0639.80 43.7 H 54.0 -10.3 5960.47 58.1 H 74.0 -15.9 5960.28 45.7 H 54.0 -8.3 0640.01 61.0 H 74.0 -13.0 0639.61 46.1 H 54.0 -7.9 5960.58 58.1 H 74.0 -15.9 5960.36 45.7 H 54.0 -8.3	Detector Pk/QP/Avg Pk Avg Pk Avg Pk Avg Pk Avg Avg Order Avg Avg Avg Avg Avg Avg Avg Avg	Azimuth degrees 0 0 0 0 0 0 0 0 0 0 as used. For	MHz Height meters 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Proj Eng: Class:	Juan Martinez N/A
Spec: FCC 15.247, 15.401 In #2c: Radiated Spurious Emissions, 1-40 GHz equency Level Pol 15.209 / 15.247 MHz dBμV/m v/h Limit Margin 0640.05 56.7 H 74.0 -17.3 0639.80 43.7 H 54.0 -10.3 5960.47 58.1 H 74.0 -15.9 5960.28 45.7 H 54.0 -8.3 0640.01 61.0 H 74.0 -13.0 0639.61 46.1 H 54.0 -7.9 5960.58 58.1 H 74.0 -15.9 5960.36 45.7 H 54.0 -8.3 For emissions in restricted bands, the limit the level of the fundamental.	Detector Pk/QP/Avg Pk Avg Pk Avg Pk Avg Pk Avg Avg Order Avg Avg Avg Avg Avg Avg Avg Avg	Azimuth degrees 0 0 0 0 0 0 0 0 0 0 as used. For	Height meters 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Class:	N/A
Spec: FCC 15.247, 15.401 In #2c: Radiated Spurious Emissions, 1-40 GHz equency Level Pol 15.209 / 15.247 MHz dBμV/m v/h Limit Margin 0640.05 56.7 H 74.0 -17.3 0639.80 43.7 H 54.0 -10.3 5960.47 58.1 H 74.0 -15.9 5960.28 45.7 H 54.0 -8.3 0640.01 61.0 H 74.0 -13.0 0639.61 46.1 H 54.0 -7.9 5960.58 58.1 H 74.0 -15.9 5960.36 45.7 H 54.0 -8.3 For emissions in restricted bands, the limit the level of the fundamental.	Detector Pk/QP/Avg Pk Avg Pk Avg Pk Avg Pk Avg Avg Order Avg Avg Avg Avg Avg Avg Avg Avg	Azimuth degrees 0 0 0 0 0 0 0 0 0 0 as used. For	Height meters 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Comments	
rin #2c: Radiated Spurious Emissions, 1-40 GHz equency Level Pol 15.209 / 15.247 MHz dBμV/m v/h Limit Margin 0640.05 56.7 H 74.0 -17.3 0639.80 43.7 H 54.0 -10.3 5960.47 58.1 H 74.0 -15.9 5960.28 45.7 H 54.0 -8.3 0640.01 61.0 H 74.0 -13.0 0639.61 46.1 H 54.0 -7.9 5960.58 58.1 H 74.0 -15.9 5960.36 45.7 H 54.0 -8.3	Detector Pk/QP/Avg Pk Avg Pk Avg Pk Avg Pk Avg Avg Order Avg Avg Avg Avg Avg Avg Avg Avg	Azimuth degrees 0 0 0 0 0 0 0 0 0 0 as used. For	Height meters 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Comments	
equency Level Pol 15.209 / 15.247 MHz dBμV/m v/h Limit Margin 0640.05 56.7 H 74.0 -17.3 0639.80 43.7 H 54.0 -10.3 5960.47 58.1 H 74.0 -15.9 5960.28 45.7 H 54.0 -8.3 0640.01 61.0 H 74.0 -13.0 0639.61 46.1 H 54.0 -7.9 5960.58 58.1 H 74.0 -15.9 5960.36 45.7 H 54.0 -8.3	Detector Pk/QP/Avg Pk Avg Pk Avg Pk Avg Pk Avg Avg Order Avg Avg Avg Avg Avg Avg Avg Avg	Azimuth degrees 0 0 0 0 0 0 0 0 0 0 as used. For	Height meters 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0		
MHz dBμV/m v/h Limit Margin 0640.05 56.7 H 74.0 -17.3 0639.80 43.7 H 54.0 -10.3 5960.47 58.1 H 74.0 -15.9 5960.28 45.7 H 54.0 -8.3 0640.01 61.0 H 74.0 -13.0 0639.61 46.1 H 54.0 -7.9 5960.58 58.1 H 74.0 -15.9 5960.36 45.7 H 54.0 -8.3	Pk/QP/Avg Pk Avg Pk Avg Pk Avg Pk Avg Pk Avg Order Avg Avg Avg Avg	degrees 0 0 0 0 0 0 0 0 0 0 0 as used. For	meters 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0		
MHz dBμV/m v/h Limit Margin 0640.05 56.7 H 74.0 -17.3 0639.80 43.7 H 54.0 -10.3 5960.47 58.1 H 74.0 -15.9 5960.28 45.7 H 54.0 -8.3 0640.01 61.0 H 74.0 -13.0 0639.61 46.1 H 54.0 -7.9 5960.58 58.1 H 74.0 -15.9 5960.36 45.7 H 54.0 -8.3	Pk Avg Pk Avg Pk Avg Pk Avg Pk Avg Order Avg Avg Avg Avg	0 0 0 0 0 0 0 0	1.0 1.0 1.0 1.0 1.0 1.0 1.0	missions, the	e limit was set 20d
0639.80 43.7 H 54.0 -10.3 5960.47 58.1 H 74.0 -15.9 5960.28 45.7 H 54.0 -8.3 0640.01 61.0 H 74.0 -13.0 0639.61 46.1 H 54.0 -7.9 5960.58 58.1 H 74.0 -15.9 5960.36 45.7 H 54.0 -8.3 Ter emissions in restricted bands, the limithe level of the fundamental.	Avg Pk Avg Pk Avg Pk Avg Avg Pk Avg Order Avg Avg Avg	0 0 0 0 0 0 0	1.0 1.0 1.0 1.0 1.0 1.0	missions, the	e limit was set 20d
5960.47 58.1 H 74.0 -15.9 5960.28 45.7 H 54.0 -8.3 0640.01 61.0 H 74.0 -13.0 0639.61 46.1 H 54.0 -7.9 5960.58 58.1 H 74.0 -15.9 5960.36 45.7 H 54.0 -8.3 Ter emissions in restricted bands, the limithe level of the fundamental.	Pk Avg Pk Avg Pk Avg Avg it of 15.209 wa	0 0 0 0 0 0	1.0 1.0 1.0 1.0 1.0 1.0	missions, the	e limit was set 20c
5960.28 45.7 H 54.0 -8.3 0640.01 61.0 H 74.0 -13.0 0639.61 46.1 H 54.0 -7.9 5960.58 58.1 H 74.0 -15.9 5960.36 45.7 H 54.0 -8.3 Ter emissions in restricted bands, the limithe level of the fundamental.	Avg Pk Avg Pk Avg Avg it of 15.209 wa	0 0 0 0 0	1.0 1.0 1.0 1.0 1.0	missions, the	e limit was set 20c
0640.01 61.0 H 74.0 -13.0 0639.61 46.1 H 54.0 -7.9 5960.58 58.1 H 74.0 -15.9 5960.36 45.7 H 54.0 -8.3 Term emissions in restricted bands, the limitate level of the fundamental.	Pk Avg Pk Avg Avg it of 15.209 wa	0 0 0 0	1.0 1.0 1.0 1.0	missions, the	e limit was set 20d
0639.61 46.1 H 54.0 -7.9 5960.58 58.1 H 74.0 -15.9 5960.36 45.7 H 54.0 -8.3 te 1: For emissions in restricted bands, the limitate level of the fundamental.	Avg Pk Avg it of 15.209 wa	0 0 0 as used. For	1.0 1.0 1.0	nissions, the	e limit was set 20d
960.58 58.1 H 74.0 -15.9 960.36 45.7 H 54.0 -8.3 e 1: For emissions in restricted bands, the limithe level of the fundamental.	Pk Avg it of 15.209 wa	0 0 as used. For	1.0 1.0	missions, the	e limit was set 20d
For emissions in restricted bands, the limithe level of the fundamental.	Avg it of 15.209 wa	0 as used. For	1.0	missions, the	e limit was set 20d
For emissions in restricted bands, the limithe level of the fundamental.	it of 15.209 wa	as used. For		l missions, the	e limit was set 20o
the level of the fundamental.			r all other ei	missions, the	e limit was set 20

	ZIIIOTT	EM	C Test Data
Client:	Broadcom	Job Number:	J50065
Model:	BCM94309MP in PP02X Laptop	T-Log Number:	T50131
		Proj Eng:	Juan Martinez
Contact:	Dave Boldy		
Spec:	FCC 15.247, 15.401	Class:	N/A

Radiated Emissions

Test Specifics

C [11]

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: 2/10/2003 Config. Used: 1
Test Engineer: Chris Byleckie Config Change: None
Test Location: SVOATS #4 EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

When measuring the conducted emissions from the EUT's antenna port, the antenna port of the EUT was connected to the spectrum analyzer or power meter via a suitable attenuator to prevent overloading the measurement system. All measurements are corrected to allow for the external attenuators used.

Ambient Conditions: Temperature: 16°C

Rel. Humidity: 44%

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	Output Power	15.247(b)	Pass	19.8 dBm
2a-2c	RE, 30 - 26,000 MHz - Spurious Emissions In	FCC Part 15.209 / 15.247(c)	Pass	-1.6dB @ 14471.41 MHz

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

%	Elliott	EM	C Test Data
Client:	Broadcom	Job Number:	J50065
Model:	BCM94309MP in PP02X Laptop	T-Log Number:	T50131
		Proj Eng:	Juan Martinez
Contact:	Dave Boldy		
Spec:	FCC 15.247, 15.401	Class:	N/A
- "4 -			

Run #1: Output Power

Antenna Gain: 2.39 dBi

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



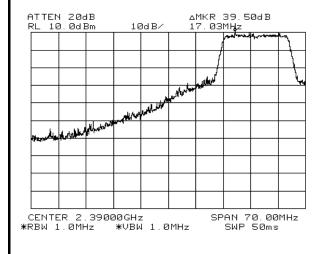
Client:	Broadcom	Job Number:	J50065
Model:	BCM94309MP in PP02X Laptop	T-Log Number:	T50131
		Proj Eng:	Juan Martinez
Contact:	Dave Boldy		
Spec:	FCC 15.247, 15.401	Class:	N/A

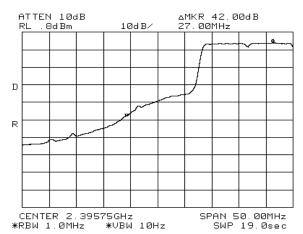
Laptop S/N 22500 Data rate 54 M/bs Antenna -Wistron NeWeb

Run #2a: Radiated Spurious Emissions, 1-26.5GHz. Low Channel @ 2412 MHz

Fundamental Field Strength Measurements used for bandedge field strength calculations

Frequency	Level	Pol	15.209	/ 15.407	Detector	Azimuth	Height	Comments
MHz	$dB\mu V/m$	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2416.900	106.8	Н	-	•	Pk	-	-	
2416.427	91.0	Н	-	•	Avg	-	-	
2416.598	104.1	V	-	•	Pk	-	-	
2415.259	88.3	V	-	-	Avg	-	-	





Band Edge Field Strength Calculations (54 Mb/s)

Frequency	Level	Pol	15.209	/ 15.407	Detector	Azimuth	Height	Comments
MHz	$dB\mu V/m$	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.0	67.3	V	74.0	-6.7	Pk	-	-	Note 1
2390.0	49.0	V	54.0	-5.0	Avg	-	-	Note 1
2390.0	64.6	h	74.0	-9.4	Pk	-	-	Note 1
2390.0	46.3	h	54.0	-7.7	Avg	-	-	Note 1

Note 1:

EUT operating on the lowest channel available in the 2.39 - 2.412 GHz band. Signal level calculated using the relative measurements in plots (39.5dBc for peak and 42dBc for average) applied to the highest peak and average field strength measurements of the fundamental signal level.

Client.	Ellic							Job Number: J50065			
		9MP in P	PP02X Lapt	on				og Number: T50131			
wodci.	DCIVI7430	/IVII III I	1 OZA Lapi	ор			Proj Eng: Juan Martinez				
011	Davis Dald							Proj Erig. Juan Martinez			
	Dave Bold						Class N/A				
	FCC 15.24	17, 15.40)1				Class: N/A				
un #2a co	ontinued										
requency	Level	Pol	15.209	/ 15.247	Detector	Azimuth	Height	Comments			
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters				
4823.708	46.8	Н	74.0	-27.2	Pk	0	1.0				
4823.634	33.9	Н	54.0	-20.1	Avg	0	1.0				
12060.50	56.1	Н	74.0	-17.9	Pk	0	1.0				
12059.66	43.1	Н	54.0	-10.9	Avg	0	1.0				
14471.75	64.9	Н	74.0	-9.1	Pk	0	1.0				
14471.34	52.4	Н	54.0	-1.6	Avg	0	1.0				
	47.1	V	74.0	-26.9	Pk	0	1.0				
4824.612	47.1	- 1				•	1.0				
	33.7	V	54.0	-20.3	Avg	0	1.0				
4823.042			54.0 74.0	-20.3 -17.4	Avg Pk	0	1.0				
4824.612 4823.042 12059.97 12059.89	33.7	V									
4823.042 12059.97 12059.89	33.7 56.6	V	74.0	-17.4	Pk	0	1.0				
4823.042 12059.97	33.7 56.6 43.1 64.7 52.4	V V V V ons in re	74.0 54.0 74.0 54.0 estricted bar	-17.4 -10.9 -9.3 -1.6	Pk Avg Pk Avg	0 0 0	1.0 1.0 1.0 1.0	missions, the limit was set 2			
4823.042 12059.97 12059.89 14471.70 14471.44 ote 1:	33.7 56.6 43.1 64.7 52.4 For emissi the level or	V V V V ons in re	74.0 54.0 74.0 54.0 estricted bardamental.	-17.4 -10.9 -9.3 -1.6	Pk Avg Pk Avg	0 0 0 0	1.0 1.0 1.0 1.0	missions, the limit was set 2			
4823.042 12059.97 12059.89 14471.70 14471.44	33.7 56.6 43.1 64.7 52.4 For emissi the level or	V V V V ons in re	74.0 54.0 74.0 54.0 estricted bardamental.	-17.4 -10.9 -9.3 -1.6	Pk Avg Pk Avg	0 0 0 0	1.0 1.0 1.0 1.0	missions, the limit was set 2			
4823.042 12059.97 12059.89 14471.70 14471.44 ote 1:	33.7 56.6 43.1 64.7 52.4 For emissi the level or	V V V V ons in re	74.0 54.0 74.0 54.0 estricted bardamental.	-17.4 -10.9 -9.3 -1.6	Pk Avg Pk Avg	0 0 0 0	1.0 1.0 1.0 1.0	missions, the limit was set 2			
4823.042 12059.97 12059.89 14471.70 14471.44 ote 1:	33.7 56.6 43.1 64.7 52.4 For emissi the level or	V V V V ons in re	74.0 54.0 74.0 54.0 estricted bardamental.	-17.4 -10.9 -9.3 -1.6	Pk Avg Pk Avg	0 0 0 0	1.0 1.0 1.0 1.0	missions, the limit was set 2			
4823.042 12059.97 12059.89 14471.70 14471.44 ote 1:	33.7 56.6 43.1 64.7 52.4 For emissi the level or	V V V V ons in re	74.0 54.0 74.0 54.0 estricted bardamental.	-17.4 -10.9 -9.3 -1.6	Pk Avg Pk Avg	0 0 0 0	1.0 1.0 1.0 1.0	missions, the limit was set 2			
4823.042 12059.97 12059.89 14471.70 14471.44 ote 1:	33.7 56.6 43.1 64.7 52.4 For emissi the level or	V V V V ons in re	74.0 54.0 74.0 54.0 estricted bardamental.	-17.4 -10.9 -9.3 -1.6	Pk Avg Pk Avg	0 0 0 0	1.0 1.0 1.0 1.0	missions, the limit was set 2			
4823.042 12059.97 12059.89 14471.70 14471.44 ote 1:	33.7 56.6 43.1 64.7 52.4 For emissi the level or	V V V V ons in re	74.0 54.0 74.0 54.0 estricted bardamental.	-17.4 -10.9 -9.3 -1.6	Pk Avg Pk Avg	0 0 0 0	1.0 1.0 1.0 1.0	missions, the limit was set 2			
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4823.042 12059.97 12059.89 14471.70 14471.44 ote 1:	33.7 56.6 43.1 64.7 52.4 For emissi the level or	V V V V ons in re	74.0 54.0 74.0 54.0 estricted bardamental.	-17.4 -10.9 -9.3 -1.6	Pk Avg Pk Avg	0 0 0 0	1.0 1.0 1.0 1.0	missions, the limit was set 2			
4823.042 12059.97 12059.89 14471.70 14471.44 ote 1:	33.7 56.6 43.1 64.7 52.4 For emissi the level or	V V V V ons in re	74.0 54.0 74.0 54.0 estricted bardamental.	-17.4 -10.9 -9.3 -1.6	Pk Avg Pk Avg	0 0 0 0	1.0 1.0 1.0 1.0	missions, the limit was set 2			
4823.042 12059.97 12059.89 14471.70 14471.44 ote 1:	33.7 56.6 43.1 64.7 52.4 For emissi the level or	V V V V ons in re	74.0 54.0 74.0 54.0 estricted bardamental.	-17.4 -10.9 -9.3 -1.6	Pk Avg Pk Avg	0 0 0 0	1.0 1.0 1.0 1.0	missions, the limit was set 2			
823.042 2059.97 2059.89 4471.70 4471.44 ote 1:	33.7 56.6 43.1 64.7 52.4 For emissi the level or	V V V V ons in re	74.0 54.0 74.0 54.0 estricted bardamental.	-17.4 -10.9 -9.3 -1.6	Pk Avg Pk Avg	0 0 0 0	1.0 1.0 1.0 1.0	missions, the limit was set 2			
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96.948	Client:	Broadcom	ott						Job Number: .	J50065
Proj Eng. Juan Martine: Juan Martine: Juan Martine: Juan Martine: Juan Martine: Spec: FCC 15.247, 15.401 Class: N/A	Model:	BCM9430	9MP in P	P02X Lapt	ор			T-I	Log Number:	T50131
Spec: FCC 15.247, 15.401 Class: N/A #2b: Radiated Spurious Emissions, 1-26.5 GHz. Center Channel @ 2432 MHz Spec: FCC 15.247, 15.401 Class: N/A #2b: Radiated Spurious Emissions, 1-26.5 GHz. Center Channel @ 2432 MHz Spec: FCC 15.247, 15.401 Class: N/A Speci FCC 15.247, 15.247 Class: N/A S				•	•					
Spec: FCC 15.247, 15.401 Class: N/A #2b: Radiated Spurious Emissions, 1-26.5 GHz. Center Channel @ 2432 MHz Spec: FCC 15.247, 15.401 Detector Azimuth Height Comments Spec: FCC 15.247, 15.407 Detector Azimuth Height Comments Spec: FC 15.247, 15.247 Detector Azimuth Height Comments Special Provided Azimuth Detector Azimuth Height Comments Special Provided Azimuth Azimuth Height Comments S	Contact:	Dave Bold	ly						, 3	
#2b: Radiated Spurious Emissions, 1-26.5 GHz. Center Channel @ 2432 MHz				 1					Class:	N/A
MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters										
MHz dBµV/m v/h Limit Margin Pk/QP/Avg degrees meters	1		<u> </u>	45.000	145.047	15	A		To .	
55.575									Comments	
64.058 33.7 H 54.0 -20.3 Avg 0 1.0 97.790 54.2 H 74.0 -19.8 Pk 0 1.0 97.544 41.3 H 54.0 -12.7 Avg 0 1.0 162.96 56.3 H 74.0 -17.7 Pk 0 1.0 162.71 42.9 H 54.0 -11.1 Avg 0 1.0 55.288 47.0 V 74.0 -27.0 Pk 0 1.0 64.780 33.6 V 54.0 -20.4 Avg 0 1.0 97.180 53.8 V 74.0 -20.2 Pk 0 1.0 96.948 41.3 V 54.0 -12.7 Avg 0 1.0 161.69 42.8 V 74.0 -17.6 Pk 0 1.0 161.69 42.8 V 54.0 -11.2 Avg <						<u> </u>				
97.790 54.2 H 74.0 -19.8 Pk 0 1.0 97.544 41.3 H 54.0 -12.7 Avg 0 1.0 162.96 56.3 H 74.0 -17.7 Pk 0 1.0 162.71 42.9 H 54.0 -11.1 Avg 0 1.0 165.288 47.0 V 74.0 -27.0 Pk 0 1.0 164.780 33.6 V 54.0 -20.4 Avg 0 1.0 17.180 53.8 V 74.0 -20.2 Pk 0 1.0 161.93 56.4 V 74.0 -17.6 Pk 0 1.0 161.69 42.8 V 54.0 -11.2 Avg 0 1.0										
97.544 41.3 H 54.0 -12.7 Avg 0 1.0 162.96 56.3 H 74.0 -17.7 Pk 0 1.0 162.71 42.9 H 54.0 -11.1 Avg 0 1.0 55.288 47.0 V 74.0 -27.0 Pk 0 1.0 64.780 33.6 V 54.0 -20.4 Avg 0 1.0 97.180 53.8 V 74.0 -20.2 Pk 0 1.0 96.948 41.3 V 54.0 -12.7 Avg 0 1.0 161.93 56.4 V 74.0 -17.6 Pk 0 1.0 161.69 42.8 V 54.0 -11.2 Avg 0 1.0										
162.96 56.3 H 74.0 -17.7 Pk 0 1.0 162.71 42.9 H 54.0 -11.1 Avg 0 1.0 55.288 47.0 V 74.0 -27.0 Pk 0 1.0 54.780 33.6 V 54.0 -20.4 Avg 0 1.0 97.180 53.8 V 74.0 -20.2 Pk 0 1.0 96.948 41.3 V 54.0 -12.7 Avg 0 1.0 161.93 56.4 V 74.0 -17.6 Pk 0 1.0 161.69 42.8 V 54.0 -11.2 Avg 0 1.0 For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set the level of the fundamental.						+				
162.71 42.9 H 54.0 -11.1 Avg 0 1.0 65.288 47.0 V 74.0 -27.0 Pk 0 1.0 64.780 33.6 V 54.0 -20.4 Avg 0 1.0 97.180 53.8 V 74.0 -20.2 Pk 0 1.0 96.948 41.3 V 54.0 -12.7 Avg 0 1.0 161.93 56.4 V 74.0 -17.6 Pk 0 1.0 161.69 42.8 V 54.0 -11.2 Avg 0 1.0 For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set the level of the fundamental.										
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For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set the level of the fundamental.	2161.93									
For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set the level of the fundamental.	2161.69					Ava	0			
	te 2:				e noise floo	r beyond 13 (GHz			

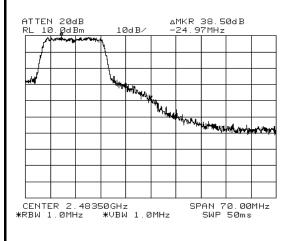


Client:	Broadcom	Job Number:	J50065
Model:	BCM94309MP in PP02X Laptop	T-Log Number:	T50131
		Proj Eng:	Juan Martinez
Contact:	Dave Boldy		
Spec:	FCC 15.247, 15.401	Class:	N/A

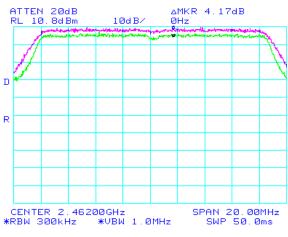
Run #2c: Radiated Spurious Emissions, 1-26.5 GHz. High Channel @ 2462 MHz

Fundamental Field Strength Measurements used for bandedge field strength calculations 54m/bs

Frequency	Level	Pol	15.209 /	15.407	Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2466.841	105.1	Н	-	•	Pk	-	-	
2466.888	90.2	Н	-	•	Avg	-	-	
2466.700	104.4	V	-	•	Pk	-	-	
2466.549	89.7	V	-	•	Avg	-	-	







	Elli(Broadcom						J	ob Number: J50065	
		9MP in F	PP02X Lapto	n				og Number: T50131	
	20, 100		. 02/ 24/0	۲۳			Proj Eng: Juan Martinez		
Contact	Dave Bold	v						1 Toj Erig. Juan Martinez	
			11					Class N/A	
	FCC 15.24			/C / Mb/a\				Class: N/A	
		Pol	alculations 15.209 /		Detector	Azimuth	Hoight	Comments	
Frequency MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	Height meters	Comments	
2483.5		V/11 V	74.0	-7.4	Pk	uegrees	meters	Note 1	
2483.5		V	54.0	-5.0	Avg		_	Note 1	
2483.5		h	74.0	-8.1	Pk		_	Note 1	
2483.5		h	54.0	-5.5	Avg		_	Note 1	
	EUT opera	iting on	highest char	nel availab	ole in the 2.46	52 - 2.4835 C	SHz band. S	Signal level calculated using t	
Note 1:								applied to the highest peak a	
			•	•	ne fundamen		0 ,		
	J		<u>d</u>			<u> </u>	-		
requency	Level	Pol	15.209 /	15.247	Detector	Azimuth	Height	Comments	
requeries									
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters		
MHz	dBμV/m 46.5	v/h H	Limit 74.0	Margin -27.5	Pk/QP/Avg Pk	degrees 0	meters 1.0		
MHz 4924.027	46.5 34.0		74.0 54.0	-27.5 -20.0	U				
	46.5 34.0	H H H	74.0	-27.5 -20.0 -19.9	Pk	0	1.0		
MHz 4924.027 4923.132 7386.010 7385.919	46.5 34.0 54.1 41.4	H H H	74.0 54.0 74.0 54.0	-27.5 -20.0 -19.9 -12.6	Pk Avg Pk Avg	0	1.0 1.0 1.0 1.0		
MHz 4924.027 4923.132 7386.010 7385.919 12310.66	46.5 34.0 54.1 41.4 56.7	H H H H	74.0 54.0 74.0 54.0 74.0	-27.5 -20.0 -19.9 -12.6 -17.3	Pk Avg Pk	0 0 0 0 0	1.0 1.0 1.0 1.0 1.0		
MHz 4924.027 4923.132 7386.010 7385.919 12310.66 12310.43	46.5 34.0 54.1 41.4 56.7 43.5	H H H H	74.0 54.0 74.0 54.0 74.0 54.0	-27.5 -20.0 -19.9 -12.6 -17.3 -10.5	Pk Avg Pk Avg Pk Avg Pk Avg	0 0 0 0 0	1.0 1.0 1.0 1.0 1.0 1.0		
MHz 4924.027 4923.132 7386.010 7385.919 12310.66 12310.43 4924.040	46.5 34.0 54.1 41.4 56.7 43.5 46.3	H H H H V	74.0 54.0 74.0 54.0 74.0 54.0 74.0	-27.5 -20.0 -19.9 -12.6 -17.3 -10.5 -27.7	Pk Avg Pk Avg Pk Avg Pk Avg	0 0 0 0 0 0	1.0 1.0 1.0 1.0 1.0 1.0 1.0		
MHz 4924.027 4923.132 7386.010 7385.919 12310.66 12310.43 4924.040 4923.797	46.5 34.0 54.1 41.4 56.7 43.5 46.3 33.8	H H H H V V	74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0	-27.5 -20.0 -19.9 -12.6 -17.3 -10.5 -27.7 -20.2	Pk Avg Pk Avg Pk Avg Pk Avg Avg Pk Avg	0 0 0 0 0 0 0	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0		
MHz 4924.027 4923.132 7386.010 7385.919 12310.66 12310.43 4924.040 4923.797 7386.223	46.5 34.0 54.1 41.4 56.7 43.5 46.3 33.8 54.6	H H H H V V	74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0	-27.5 -20.0 -19.9 -12.6 -17.3 -10.5 -27.7 -20.2 -19.4	Pk Avg Pk Avg Pk Avg Pk Avg Pk Avg	0 0 0 0 0 0 0 0	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0		
MHz 4924.027 4923.132 7386.010 7385.919 12310.66 12310.43 4924.040 4923.797 7386.223 7386.034	46.5 34.0 54.1 41.4 56.7 43.5 46.3 33.8 54.6 41.4	H H H H V V V	74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0	-27.5 -20.0 -19.9 -12.6 -17.3 -10.5 -27.7 -20.2 -19.4 -12.6	Pk Avg Pk Avg Pk Avg Pk Avg Pk Avg Pk Avg Avg	0 0 0 0 0 0 0 0	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0		
MHz 4924.027 4923.132 7386.010 7385.919 12310.66 12310.43 4924.040 4923.797 7386.223 7386.034 12310.30	46.5 34.0 54.1 41.4 56.7 43.5 46.3 33.8 54.6 41.4 56.3	H H H H V V V V V V V	74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0	-27.5 -20.0 -19.9 -12.6 -17.3 -10.5 -27.7 -20.2 -19.4 -12.6 -17.7	Pk Avg	0 0 0 0 0 0 0 0 0	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0		
MHz 4924.027 4923.132 7386.010 7385.919 12310.66 12310.43 4924.040 4923.797 7386.223 7386.034	46.5 34.0 54.1 41.4 56.7 43.5 46.3 33.8 54.6 41.4 56.3	H H H H V V V	74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0	-27.5 -20.0 -19.9 -12.6 -17.3 -10.5 -27.7 -20.2 -19.4 -12.6	Pk Avg Pk Avg Pk Avg Pk Avg Pk Avg Pk Avg Avg	0 0 0 0 0 0 0 0	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0		
MHz 4924.027 4923.132 7386.010 7385.919 12310.66 12310.43 4924.040 4923.797 7386.223 7386.034 12310.30	46.5 34.0 54.1 41.4 56.7 43.5 46.3 33.8 54.6 41.4 56.3 43.5	H H H H V V V V	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	-27.5 -20.0 -19.9 -12.6 -17.3 -10.5 -27.7 -20.2 -19.4 -12.6 -17.7 -10.5	Pk Avg Avg Avg	0 0 0 0 0 0 0 0 0	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	missions the limit was set 20	
MHz 4924.027 4923.132 7386.010 7385.919 12310.66 12310.43 4924.040 4923.797 7386.223 7386.034 12310.30	46.5 34.0 54.1 41.4 56.7 43.5 46.3 33.8 54.6 41.4 56.3 43.5	H H H H V V V V V	74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0 74.0 54.0	-27.5 -20.0 -19.9 -12.6 -17.3 -10.5 -27.7 -20.2 -19.4 -12.6 -17.7 -10.5	Pk Avg Avg Avg	0 0 0 0 0 0 0 0 0	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	missions, the limit was set 20	
MHz 4924.027 4923.132 7386.010 7385.919 12310.66 12310.43 4924.040 4923.797 7386.223 7386.034 12310.07	46.5 34.0 54.1 41.4 56.7 43.5 46.3 33.8 54.6 41.4 56.3 43.5	H H H H V V V V V V Ons in ref	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 setricted bandamental.	-27.5 -20.0 -19.9 -12.6 -17.3 -10.5 -27.7 -20.2 -19.4 -12.6 -17.7 -10.5	Pk Avg Avg Avg	0 0 0 0 0 0 0 0 0 0 0	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	missions, the limit was set 20	

Radiated Emissions, 1 - 40GHz, 10-Feb-03

Engineer: Chris

<u>Manufacturer</u>	Description	Model #	Assett #	Cal interval	Last Calibrated	Cal Due
EMCO	Horn Antenna, D. Ridge 1-18GHz	3115	868	12	3/11/2002	3/11/2003
Hewlett Packard	Spectrum Analyzer 30Hz - 40 GHz	8564E (84125C)	1148	12	4/2/2002	4/2/2003
Hewlett Packard	Spectrum Analyzer 9KHz - 26.5GHz, non programable	8563E	284	12	3/21/2002	3/21/2003
Miteq	Preamplifier, 1-18GHz	AFS44	1346	12	1/6/2003	1/6/2004
Narda West	High Pass Filter 4.0 GHz,	60583 HXF370	247	12	3/14/2002	3/14/2003
Hewlett Packard	High Pass filter, 8.2GHz	P/N 84300-80039	1156	12	3/25/2002	2/25/2003