Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	Test-Log Number:	T67683
		Project Manager:	Dean Ericksen
Contact:	David Boldy		
Emissions Spec:	FCC 15.247	Class:	Radio
Immunity Spec:	-	Environment:	-

EMC Test Data

For The

Broadcom

Model

BCM94321MC

Date of Last Test: 7/18/2007

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	Test-Log Number:	T67683
		Project Manager:	Dean Ericksen
Contact:	David Boldy		
Emissions Spec:	FCC 15.247	Class:	Radio
Immunity Spec:	-	Environment:	-

EUT INFORMATION

The following information was collected during the test sessions(s).
The client agreed provide the following information after the test session(s).

General Description

The EUT is a 802.11ag/Draft 802.11n WLAN PCI-E Minicard that is designed to provide wireless internet and network environments. Since the EUT would be placed on a table top during operation, the EUT was treated as table-top equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 5 Volts. Host device is 120Vac/60Hz.

Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
Broadcom	BCM94321MC	802.11ag/Draft 802.11n	-	QDS-BRCM1022

EUT Antenna (Intentional Radiators Only)

The antenna is integral to the device.

EUT Enclosure

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

Modification History

Mod. #	Test	Date	Modification
1			

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

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Project Manager:	Dean Ericksen
Contact:	David Boldy		
Emissions Spec:	FCC 15.247	Class:	Radio
Immunity Spec:	-	Environment:	-

Test Configuration #1

The following information was collected during the test sessions(s).

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	TD429	Laptop	N/A	DoC

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
-	-	-	-	-

Cabling and Ports

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
RF	Antennas	Coaxial	Shielded	0.5
AC/DC adaptor	AC Mains	Multiwirel	Unshielded	1.8

Radio Operation During Emissions Tests

During emissions testing the EUT was set to transmit conitnously at maximum power at low, middle, and high channels for each band it operates at..

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

RSS 210 and FCC 15.247 Radiated Spurious Emissions

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: 5/7/2007
Test Engineer: Mehran Birgani
Test Location: Fremont Chamber #3

Config. Used: 1
Config Change: None
Host Unit 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.

Ambient Conditions:

Temperature: 22 °C
Rel. Humidity: 41 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1 (802.11b Mode)	RE, 30 - 26500 MHz Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	44.5dBµV/m @ 4824.0MHz (-9.5dB)
2 (802.11g Mode)	RE, 30 - 26500 MHz Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	42.7dBµV/m @ 9747.9MHz (-11.3dB)

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.

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
3500 - 10000 MHz	3	3	0.0
10000 - 26500 MHz	1	3	-9.5

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1: Radiated Spurious Emissions, 30 - 26500 MHz. Operating Mode: 802.11b

Run #1a: Channel 1 @ 2412 MHz (Power setting: 19dBm)

	H	V
Fundamental emission level @ 3m RB=VB=100kHz):	104.8	98.4

Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2387.896	52.7	H	54.0	-1.3	AVG	201	1.1	RB=1MHz, VB=10Hz
2388.046	62.4	H	74.0	-11.6	PK	201	1.1	RB=VB=1MHz
2387.897	48.7	V	54.0	-5.3	AVG	82	1.1	RB=1MHz, VB=10Hz
2387.595	58.4	V	74.0	-15.6	PK	82	1.1	RB=VB=1MHz

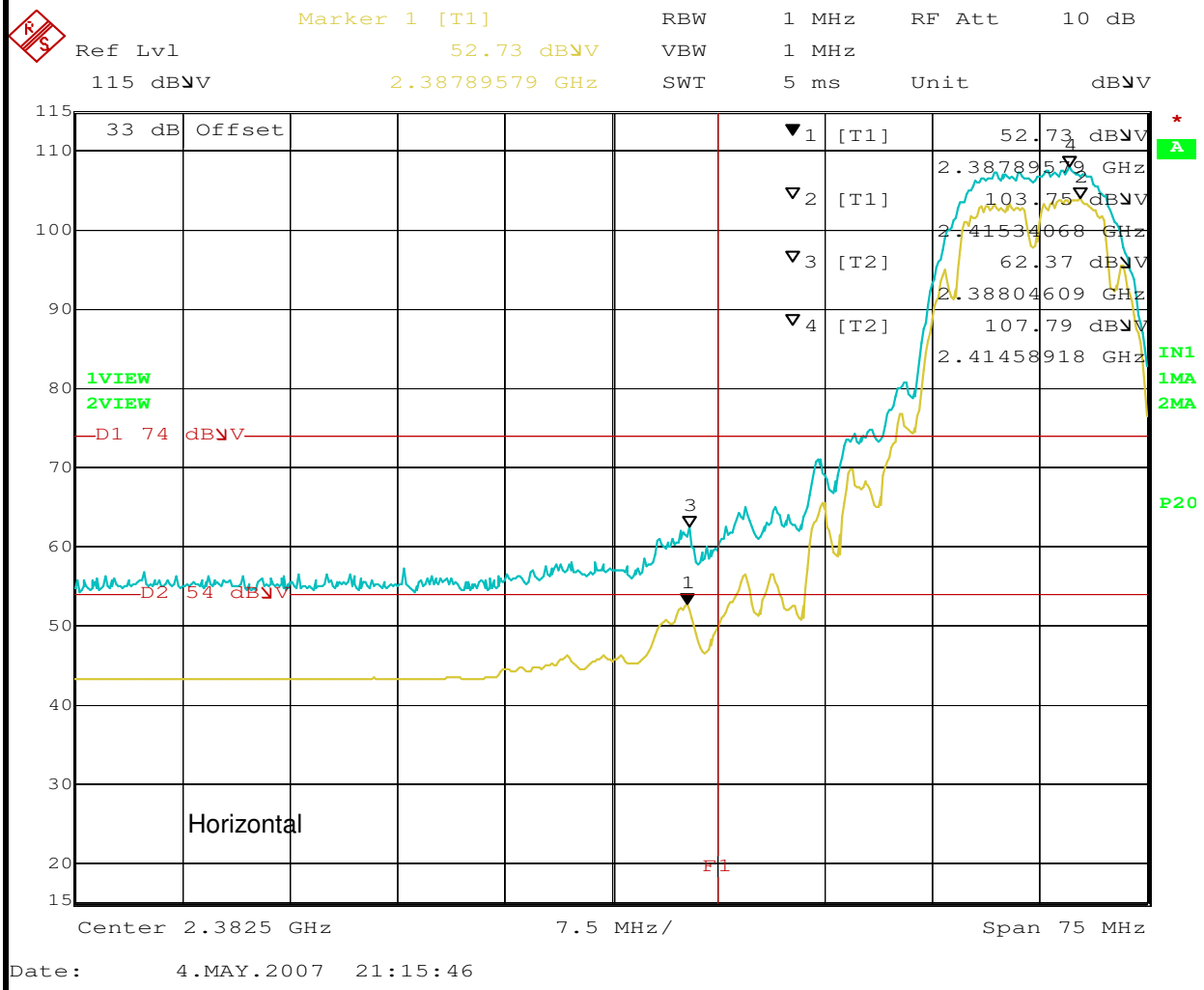
Other Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
4824.010	44.5	V	54.0	-9.5	AVG	232	1.0	
7233.380	40.1	H	54.0	-13.9	AVG	44	1.1	Not restricted with restricted limits
4823.990	40.0	H	54.0	-14.0	AVG	69	1.0	
7239.420	36.7	V	54.0	-17.3	AVG	314	1.0	Not restricted with restricted limits
9647.900	56.9	V	74.8	-17.9	PK	266	1.1	Note 1
9647.950	55.0	H	74.8	-19.8	PK	274	1.0	Note 1
12053.33	34.0	H	54.0	-20.0	Peak	88	1.3	Peak reading with average limit
4824.010	47.3	V	74.0	-26.7	PK	232	1.0	
7233.380	46.9	H	74.0	-27.1	PK	44	1.1	Not restricted with restricted limits
7239.420	44.7	V	74.0	-29.3	PK	314	1.0	Not restricted with restricted limits
4823.990	44.3	H	74.0	-29.7	PK	69	1.0	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	All signals above 18GHz were more than -20dB below the limit.

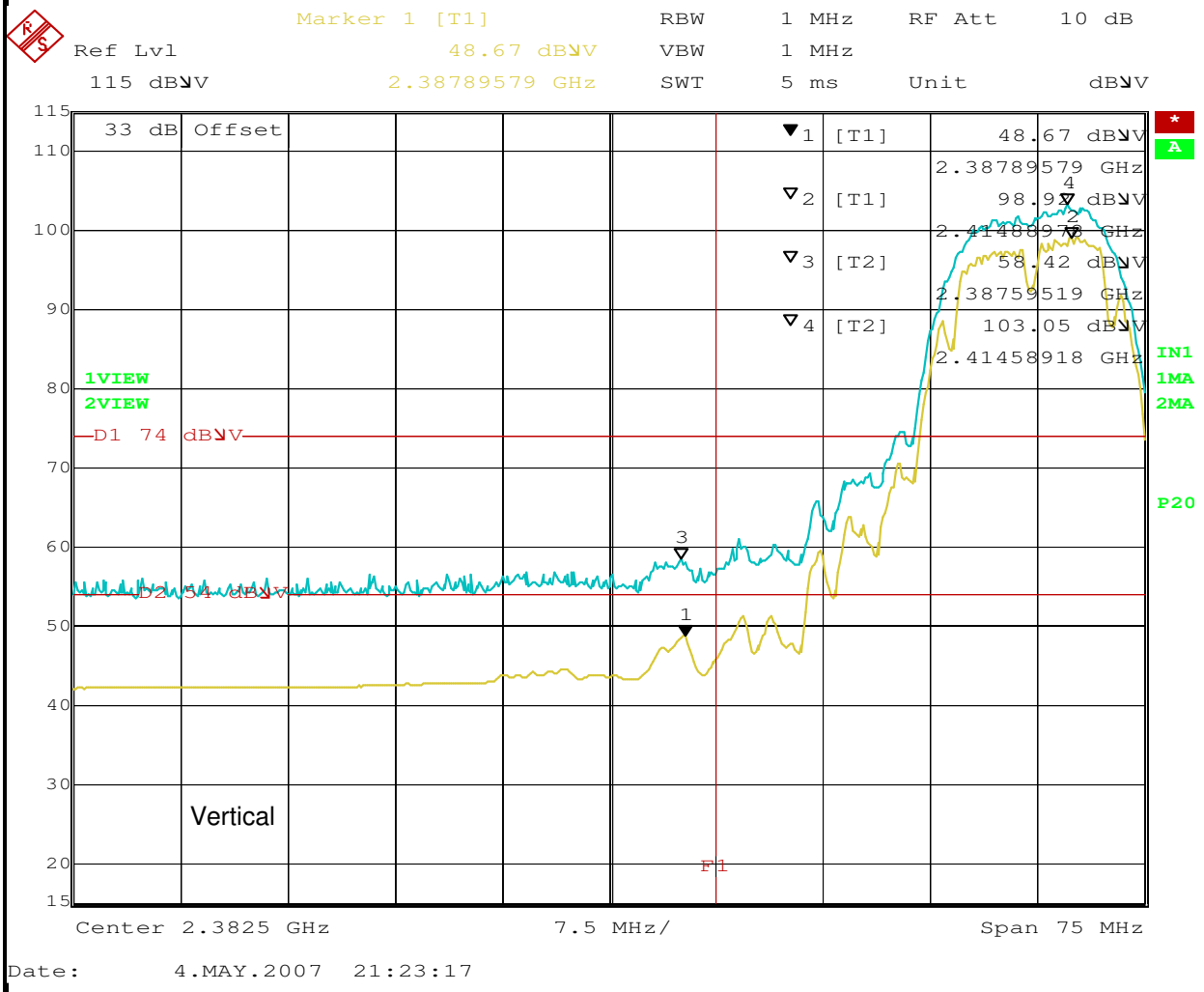
EMC Test Data

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

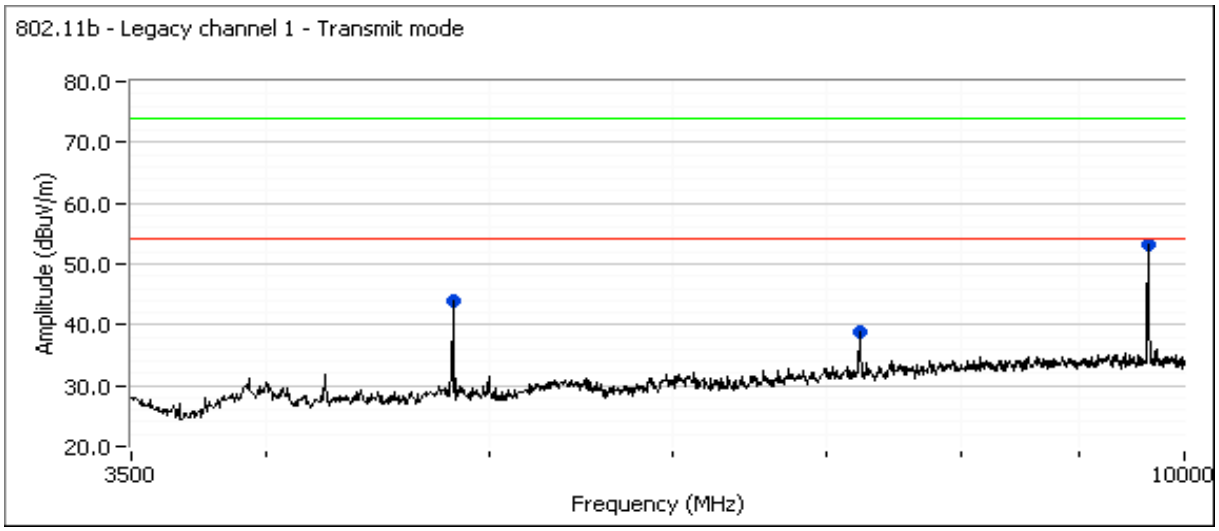


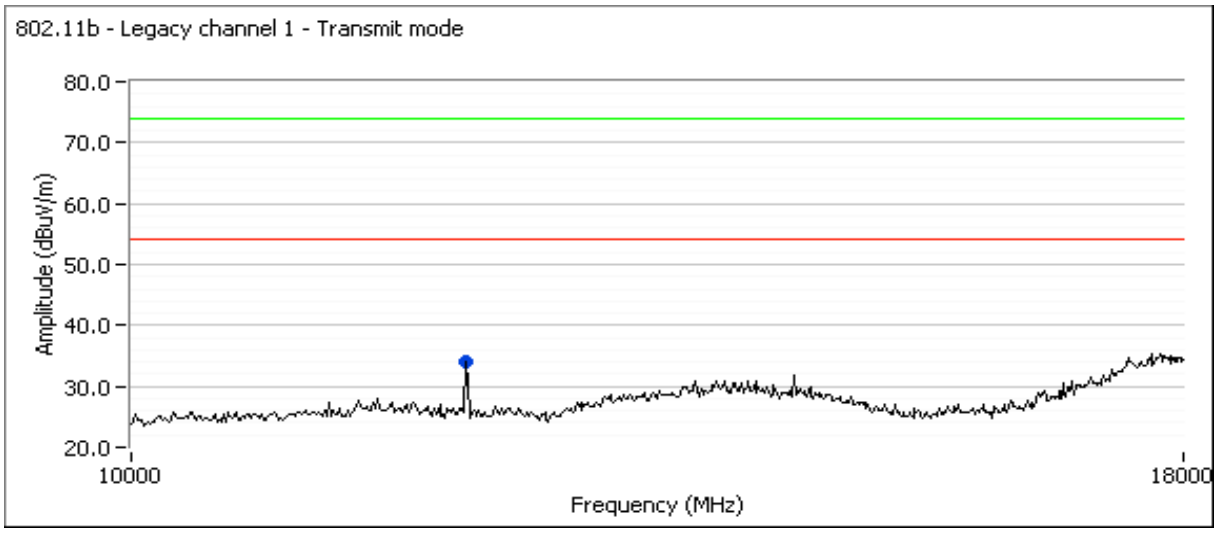
EMC Test Data

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1b: Channel 6 @ 2437 MHz (Power setting: 19dBm)

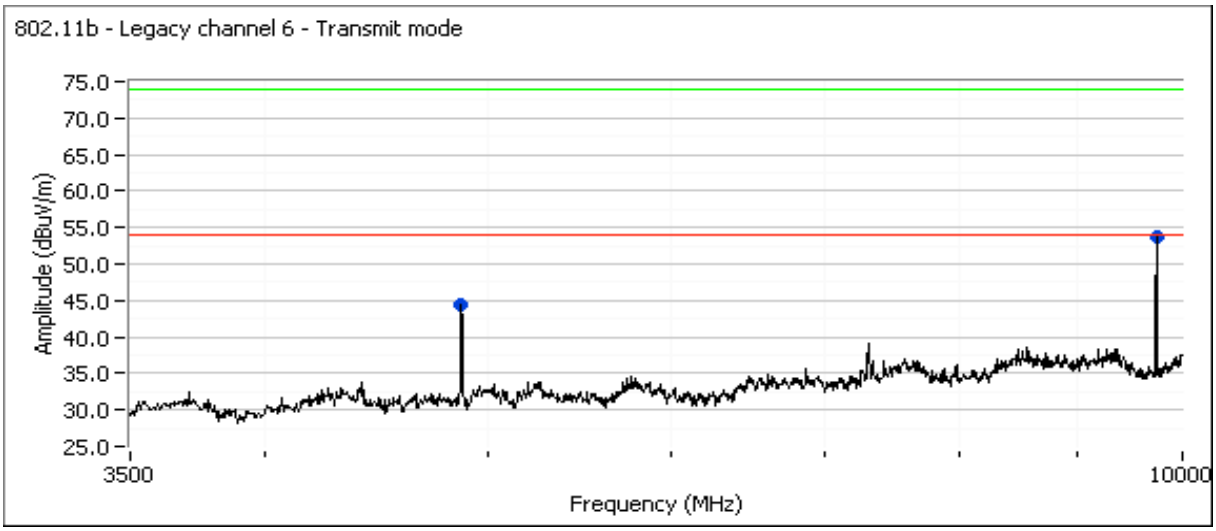
	H	V
Fundamental emission level @ 3m RB=VB=100kHz):	105.2	99.2

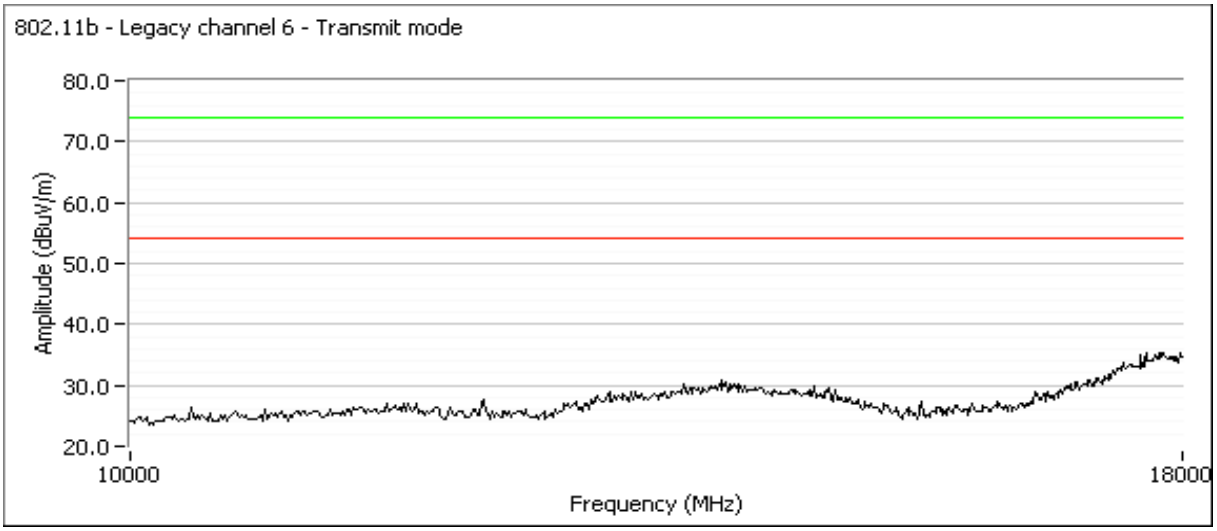
Other Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4873.970	43.8	V	54.0	-10.2	AVG	233	1.0	
7310.030	40.7	H	54.0	-13.3	Peak	62	1.3	Peak reading with average limit
4873.990	40.0	H	54.0	-14.0	AVG	70	1.1	
7310.030	38.7	V	54.0	-15.3	Peak	51	1.0	Peak reading with average limit
9747.970	52.3	V	75.2	-22.9	Peak	267	1.3	Note 1
4873.970	47.3	V	74.0	-26.7	PK	233	1.0	
4873.990	44.9	H	74.0	-29.1	PK	70	1.1	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	All signals above 18GHz were more than -20dB below the limit.

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1c: Channel 11 @ 2462 MHz (Power setting: 19dBm)

	H	V
Fundamental emission level @ 3m RB=VB=100kHz):	103.4	103.4

Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.500	51.1	H	54.0	-2.9	AVG	212	1.6	RB=1MHz, VB=10Hz
2486.807	60.8	H	74.0	-13.2	PK	212	1.6	RB=VB=1MHz
2483.500	50.6	V	54.0	-3.4	AVG	273	1.0	RB=1MHz, VB=10Hz
2487.859	63.5	V	74.0	-10.5	PK	273	1.0	RB=VB=1MHz

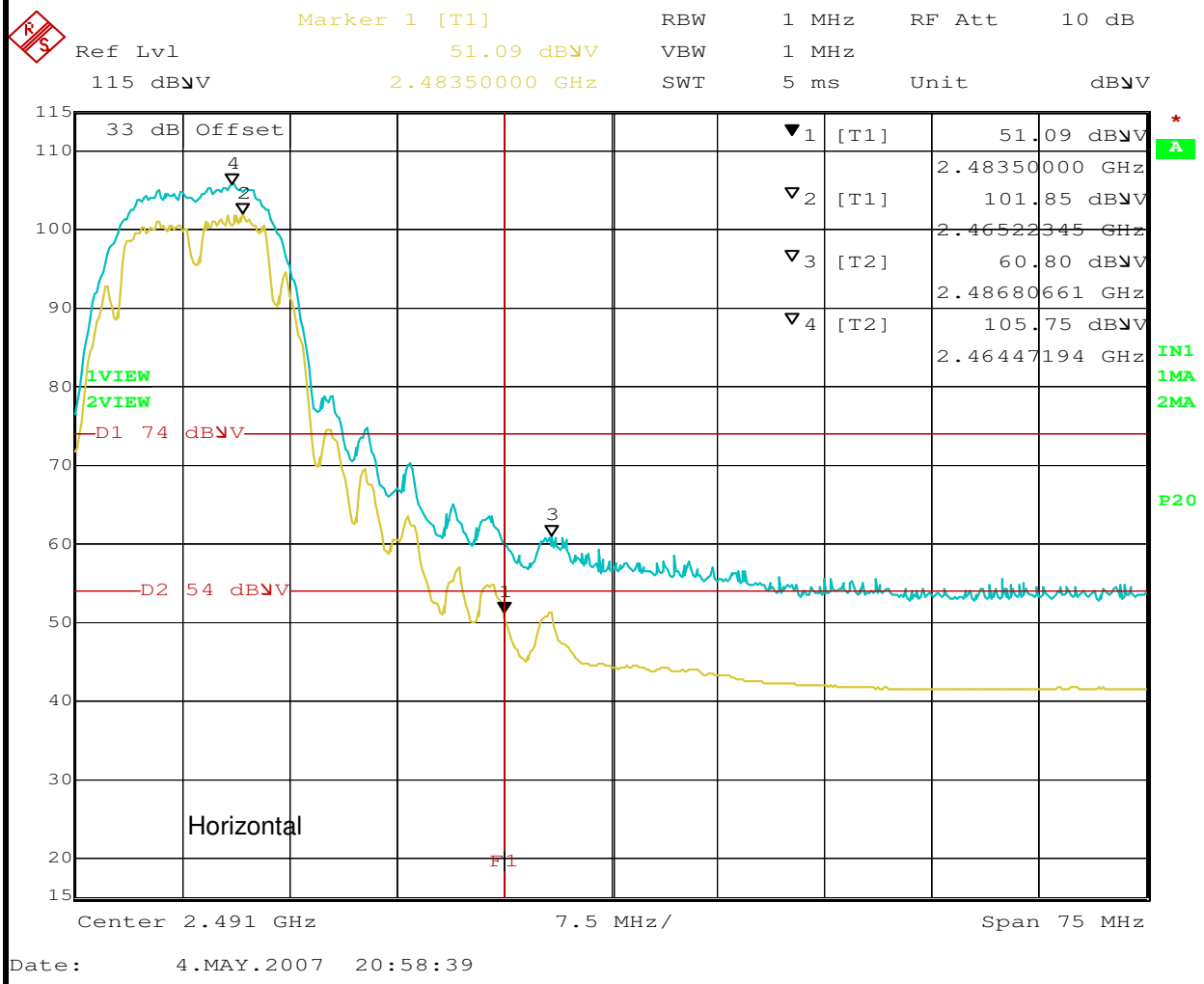
Other Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
7386.010	40.9	H	54.0	-13.1	AVG	164	1.3	
7386.010	39.2	V	54.0	-14.8	AVG	164	1.3	
4923.980	38.0	V	54.0	-16.0	AVG	271	1.4	
9847.980	51.3	H	68.0	-16.7	PK	136	1.3	Note 2
9847.980	51.3	V	68.0	-16.7	PK	136	1.3	Note 2
4923.980	36.5	H	54.0	-17.5	AVG	271	1.4	
7386.010	41.3	H	74.0	-32.7	PK	164	1.3	
7386.010	40.8	V	74.0	-33.2	PK	164	1.3	
4923.980	38.7	V	74.0	-35.3	PK	271	1.4	
4923.980	38.2	H	74.0	-35.8	PK	271	1.4	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	All signals above 18GHz were more than -20dB below the limit.

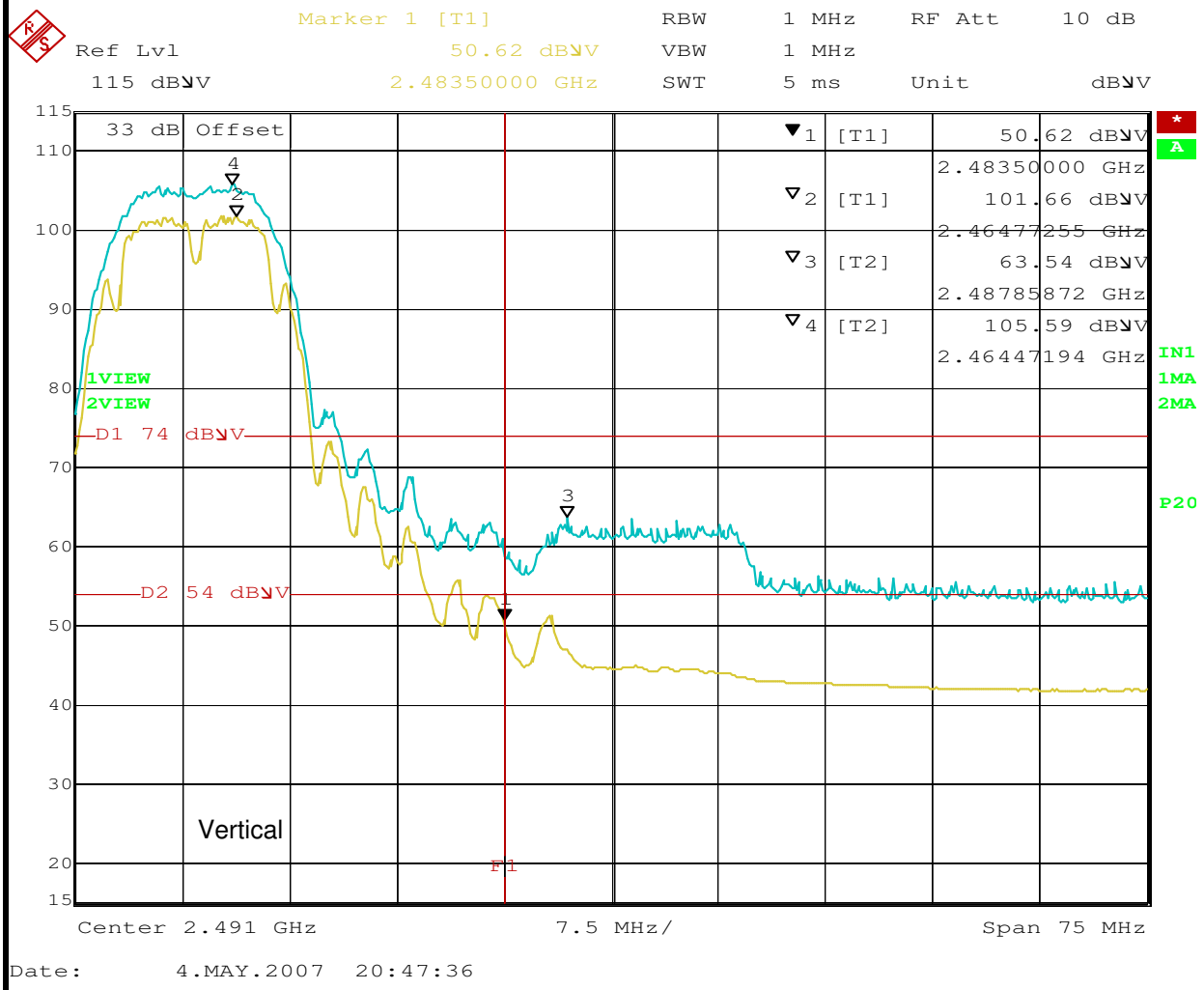
Elliott — EMC Test Data

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

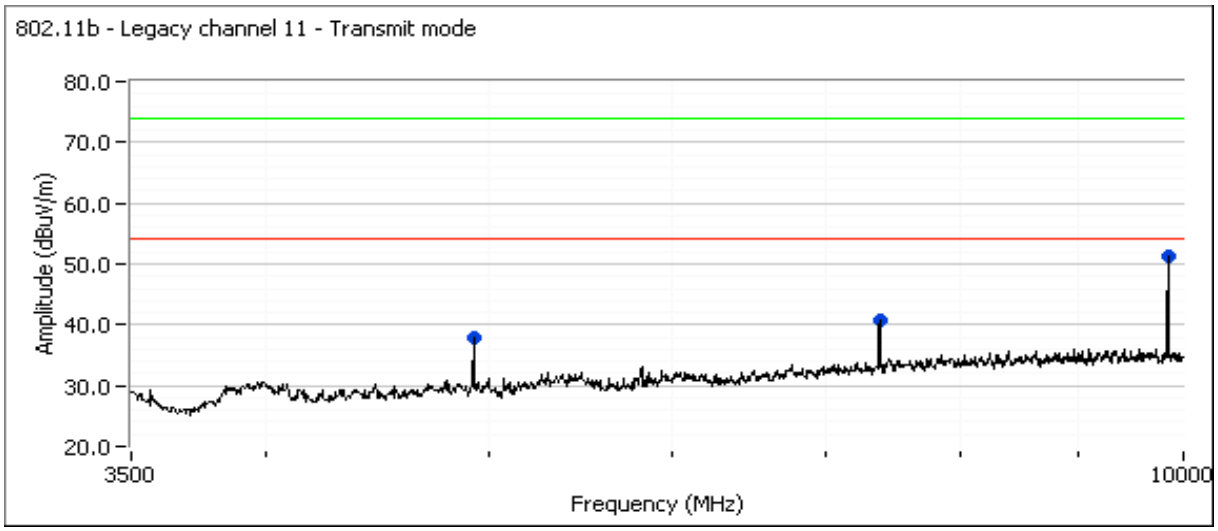


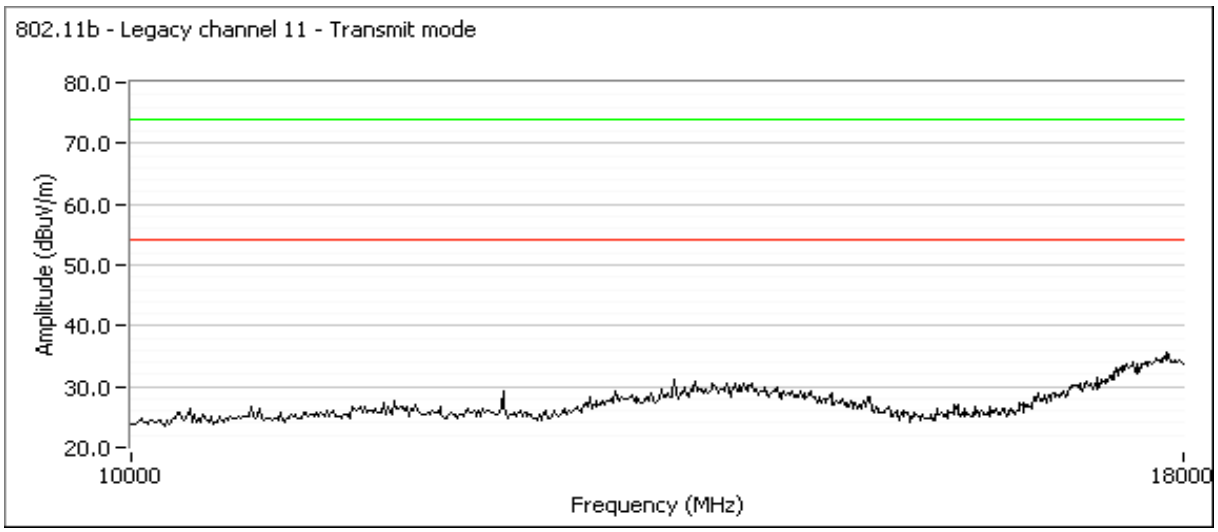
EMC Test Data

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #2: Radiated Spurious Emissions, 30 - 26500 MHz. Operating Mode: 802.11g

Run #2a: Channel 1 @ 2412 MHz (Power setting: 16.5dBm)

	H	V
Fundamental emission level @ 3m RB=VB=100kHz):	108.1	105.1

Band Edge Signal Radiated Field Strength

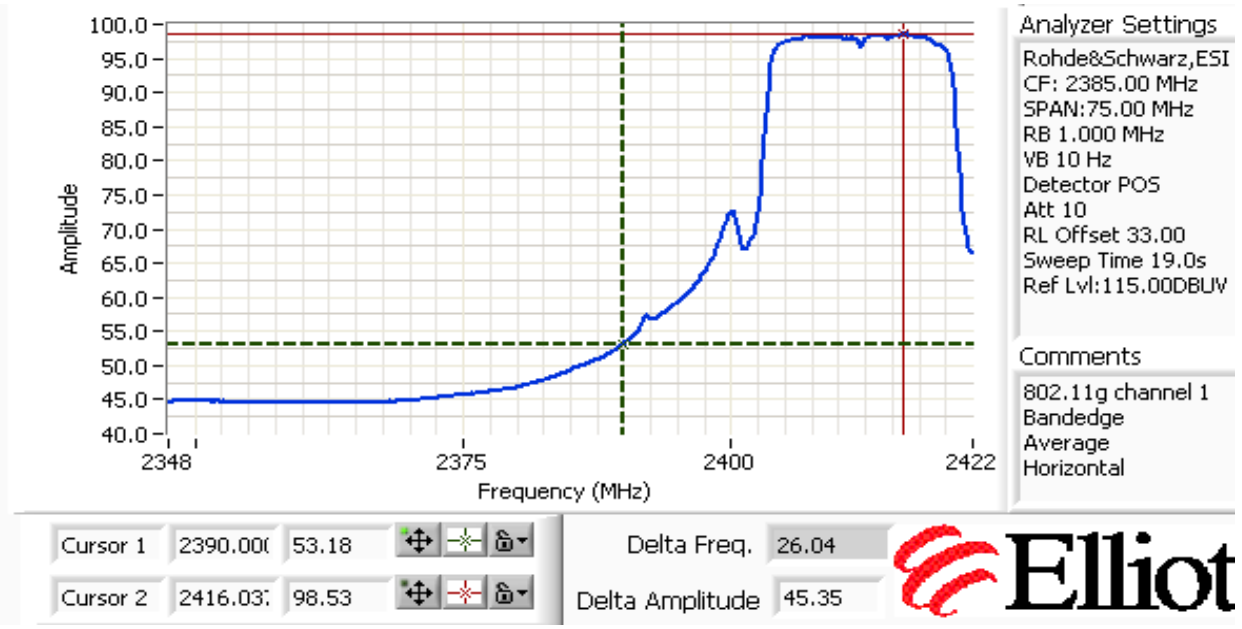
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	53.2	H	54.0	-0.8	AVG	178	1.0	RB=1MHz, VB=10Hz
2390.000	72.8	H	74.0	-1.2	PK	178	1.0	RB=VB=1MHz
2390.000	48.3	V	54.0	-5.7	AVG	298	1.3	RB=1MHz, VB=10Hz
2390.000	68.2	V	74.0	-5.8	PK	298	1.3	RB=VB=1MHz

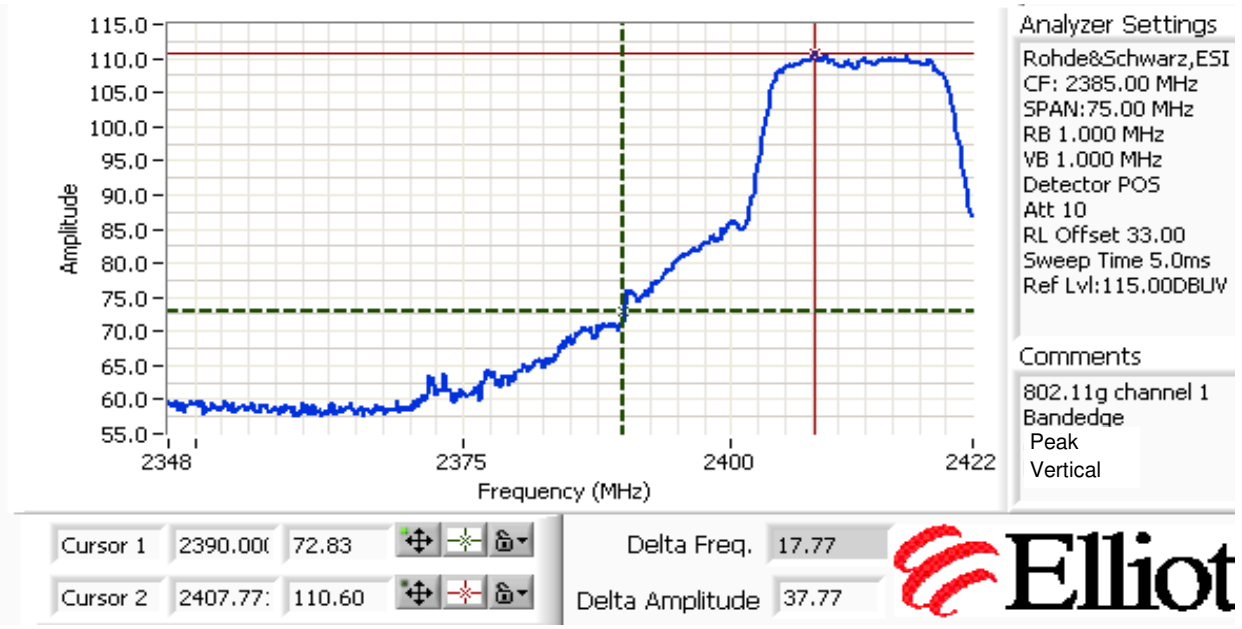
Other Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
9647.970	41.8	V	54.0	-12.2	AVG	190	1.0	Not restricted with restricted limits
9645.970	40.3	H	54.0	-13.7	AVG	139	1.0	Not restricted with restricted limits
12863.890	37.8	V	54.0	-16.2	AVG	182	1.0	Not restricted with restricted limits
12863.890	37.0	H	54.0	-17.0	AVG	182	1.0	Not restricted with restricted limits
4824.020	33.4	H	54.0	-20.6	AVG	115	1.0	
9645.970	53.4	H	74.0	-20.6	PK	139	1.0	Not restricted with restricted limits
4824.020	33.1	V	54.0	-20.9	AVG	0	1.0	
9647.970	51.9	V	74.0	-22.1	PK	190	1.0	Not restricted with restricted limits
12863.890	45.0	V	74.0	-29.0	PK	182	1.0	Not restricted with restricted limits
12863.890	44.7	H	74.0	-29.3	PK	182	1.0	Not restricted with restricted limits
4824.020	44.0	V	74.0	-30.0	PK	0	1.0	
4824.020	43.1	H	74.0	-30.9	PK	115	1.0	

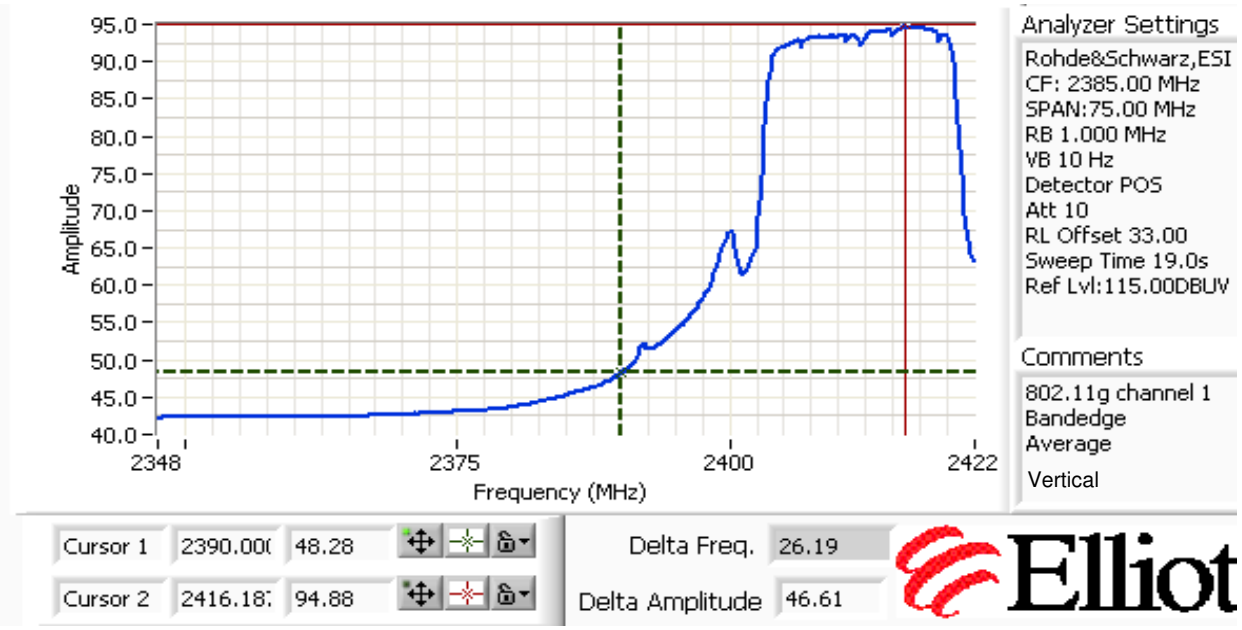
Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	All signals above 18GHz were more than -20dB below the limit.

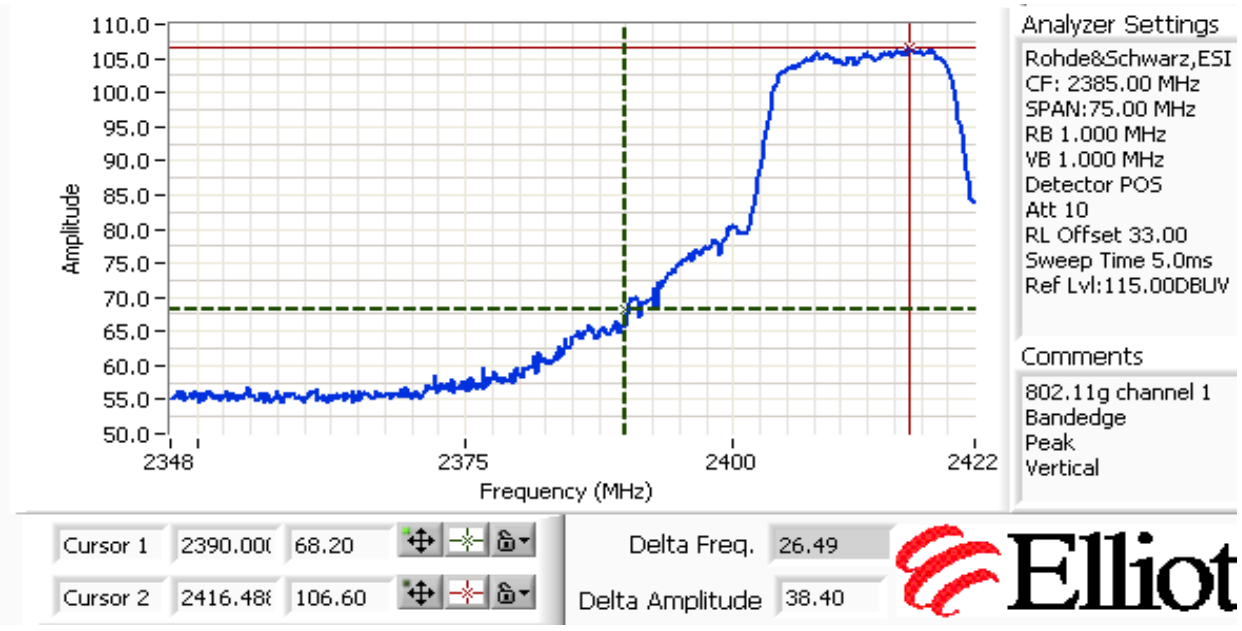
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



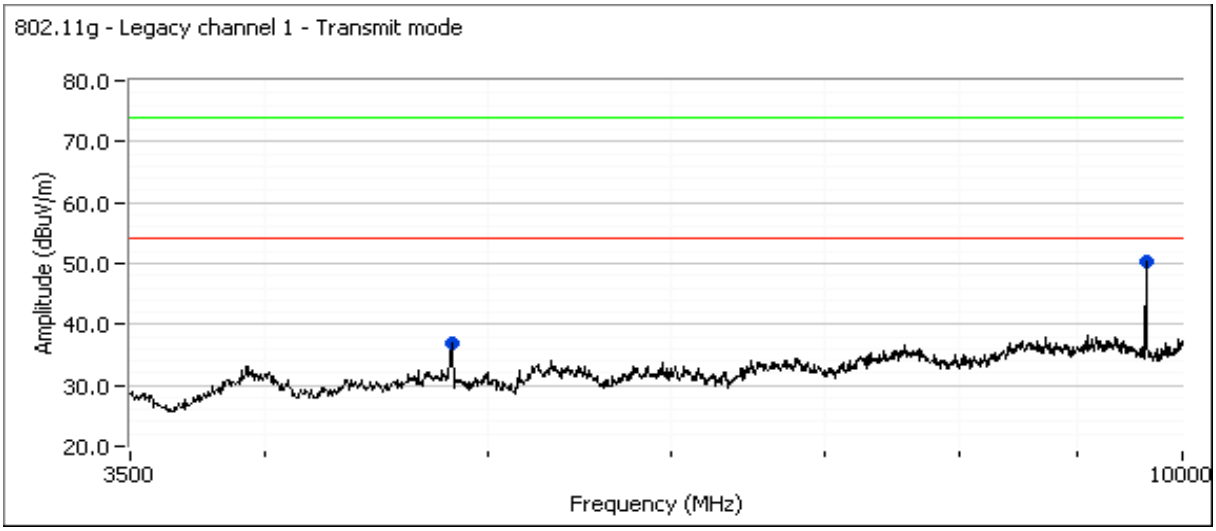


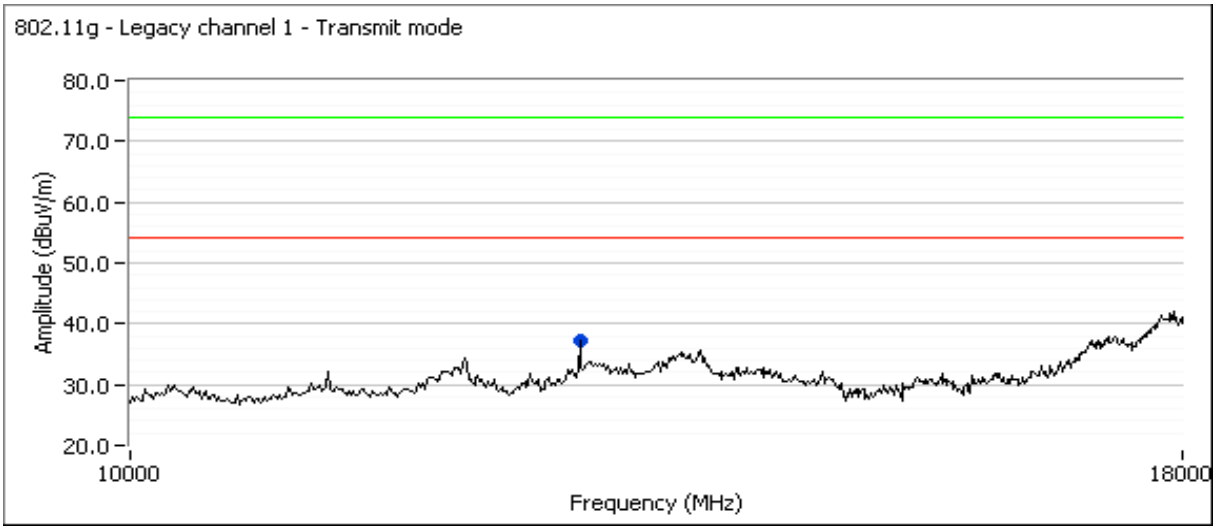
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

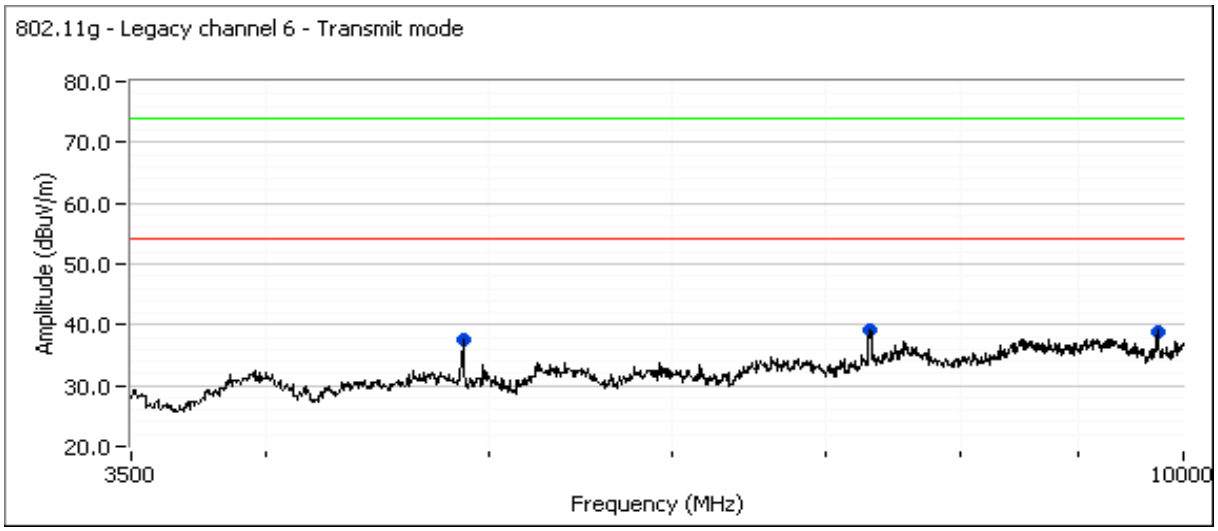
Run #2b: Channel 6 @ 2437 MHz (Power setting: 19dBm)

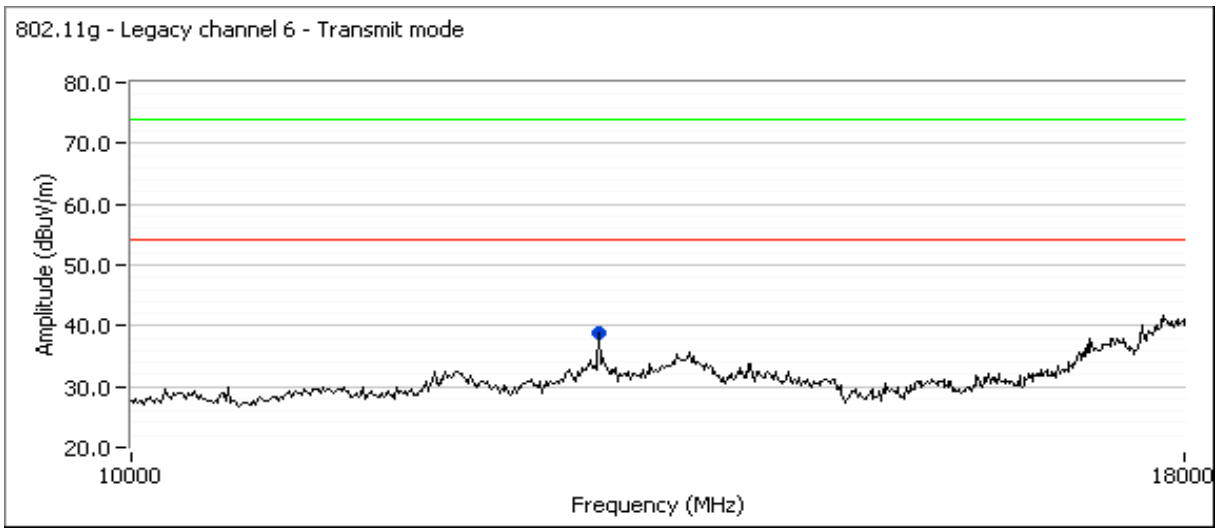
	H	V
Fundamental emission level @ 3m RB=VB=100kHz):	115.8	114.2

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
9747.930	42.7	V	54.0	-11.3	AVG	194	1.0	Not restricted with restricted limits
7309.060	40.0	H	54.0	-14.0	AVG	32	1.0	
12997.380	39.6	V	54.0	-14.4	AVG	176	1.0	Not restricted with restricted limits
12997.375	38.1	H	54.0	-15.9	AVG	15	1.0	Not restricted with restricted limits
7317.860	34.5	V	54.0	-19.5	AVG	304	1.0	
7309.060	54.2	H	74.0	-19.8	PK	32	1.0	
9747.930	53.0	V	74.0	-21.0	PK	194	1.0	Not restricted with restricted limits
4874.000	32.5	H	54.0	-21.5	AVG	296	1.0	
4868.330	32.0	V	54.0	-22.0	AVG	277	1.0	
12997.380	45.8	V	74.0	-28.2	PK	176	1.0	Not restricted with restricted limits
12997.375	45.2	H	74.0	-28.8	PK	15	1.0	Not restricted with restricted limits
4868.330	45.1	V	74.0	-28.9	PK	277	1.0	
7317.860	45.0	V	74.0	-29.0	PK	304	1.0	
4874.000	42.9	H	74.0	-31.1	PK	296	1.0	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	All signals above 18GHz were more than -20dB below the limit.

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #2c: Channel 11 @ 2462 MHz (Power setting: 15.5dBm)

	H	V
Fundamental emission level @ 3m RB=VB=100kHz):	106.6	105.4

Band Edge Signal Radiated Field Strength

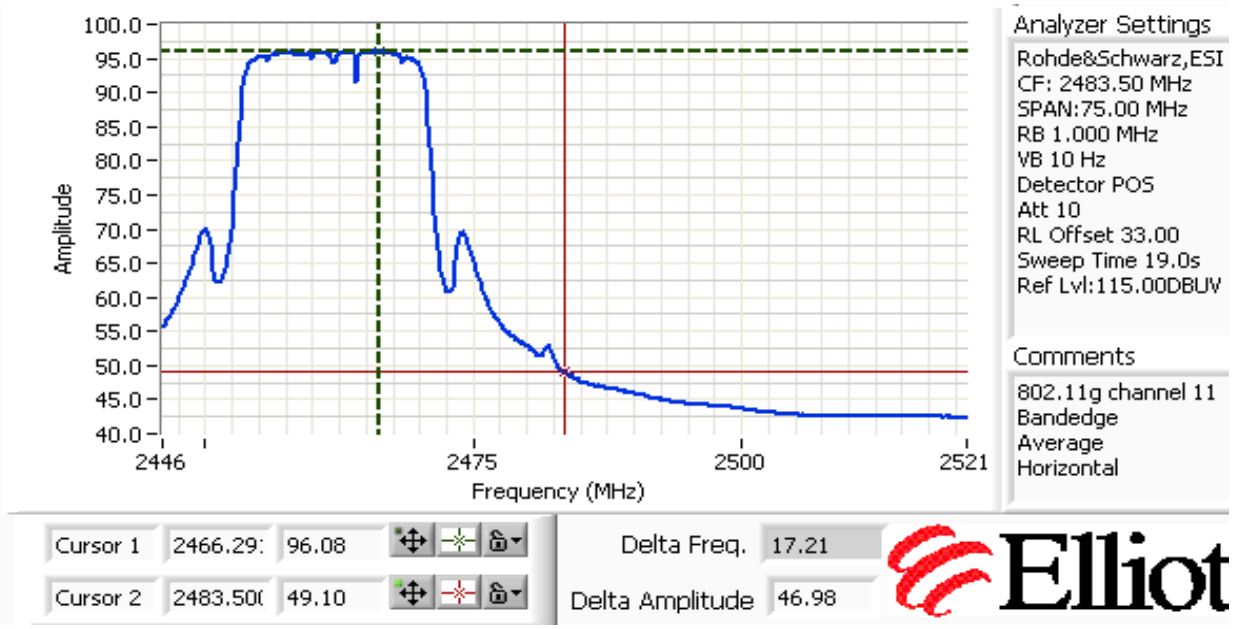
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.500	49.1	H	54.0	-4.9	AVG	360	1.0	RB=1MHz, VB=10Hz
2483.500	66.5	H	74.0	-7.5	PK	360	1.0	RB=VB=1MHz
2483.500	47.3	V	54.0	-6.7	AVG	296	1.3	RB=1MHz, VB=10Hz
2483.500	63.9	V	74.0	-10.1	PK	296	1.3	RB=VB=1MHz

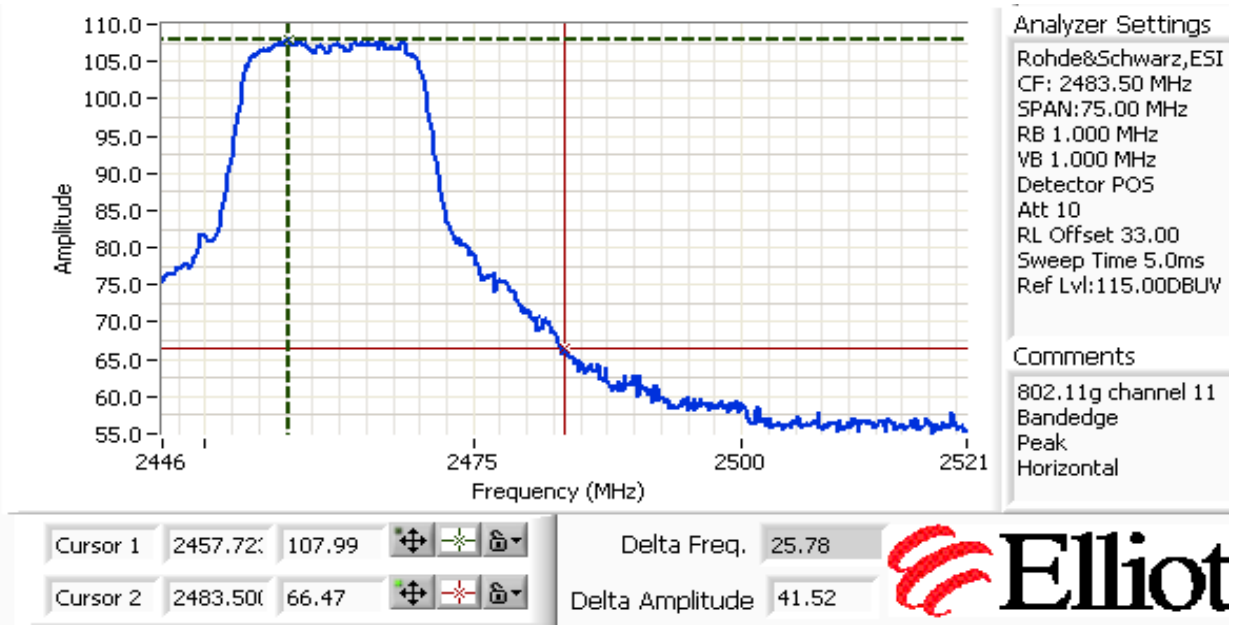
Other Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
13130.573	38.0	V	54.0	-16.0	AVG	189	1.0	Not restricted with restricted limits
13130.570	36.0	H	54.0	-18.0	AVG	10	1.0	Not restricted with restricted limits
13130.573	44.8	V	74.0	-29.2	PK	189	1.0	Not restricted with restricted limits
13130.570	43.5	H	74.0	-30.5	PK	10	1.0	Not restricted with restricted limits

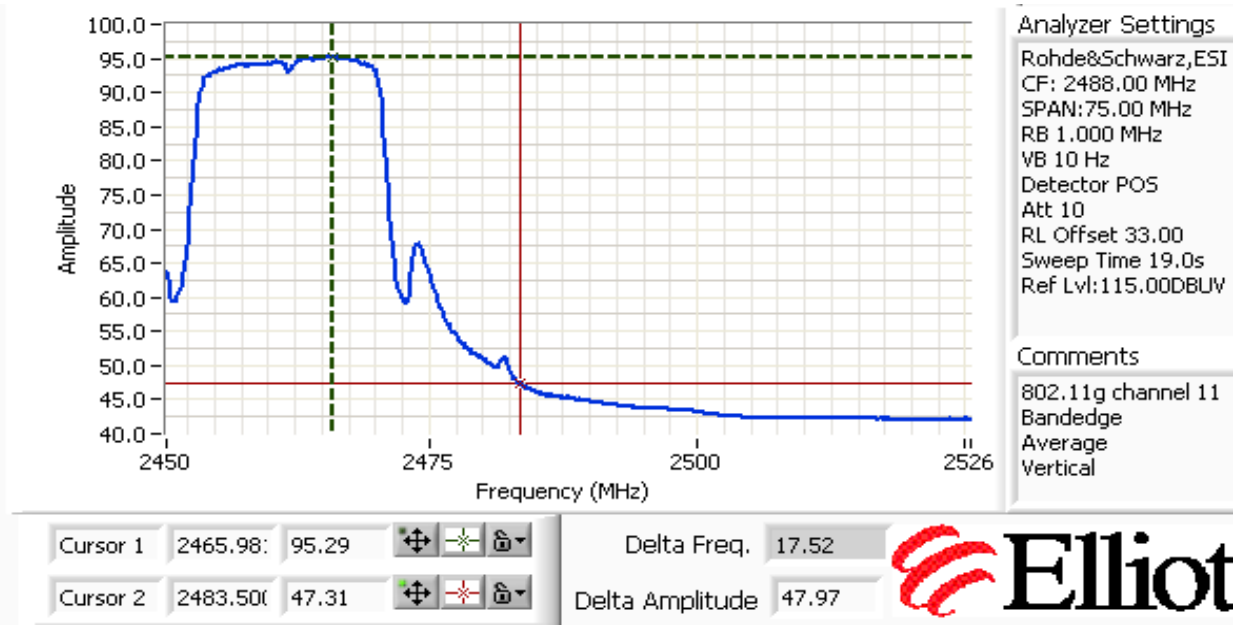
Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	All signals above 18GHz were more than -20dB below the limit.

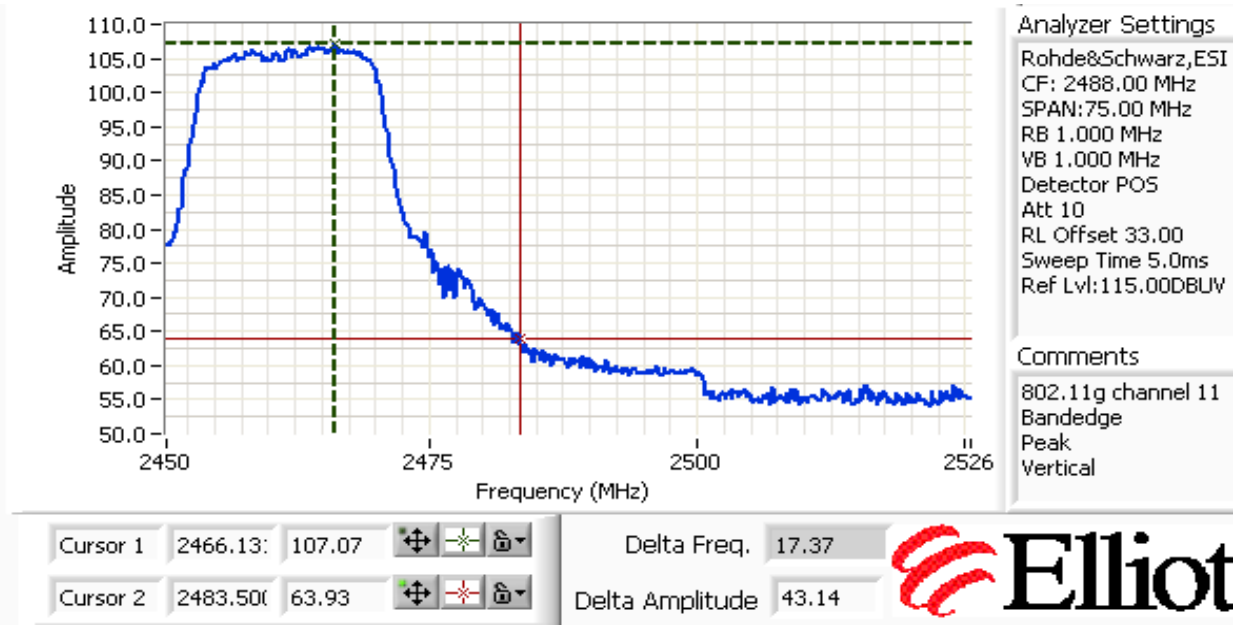
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



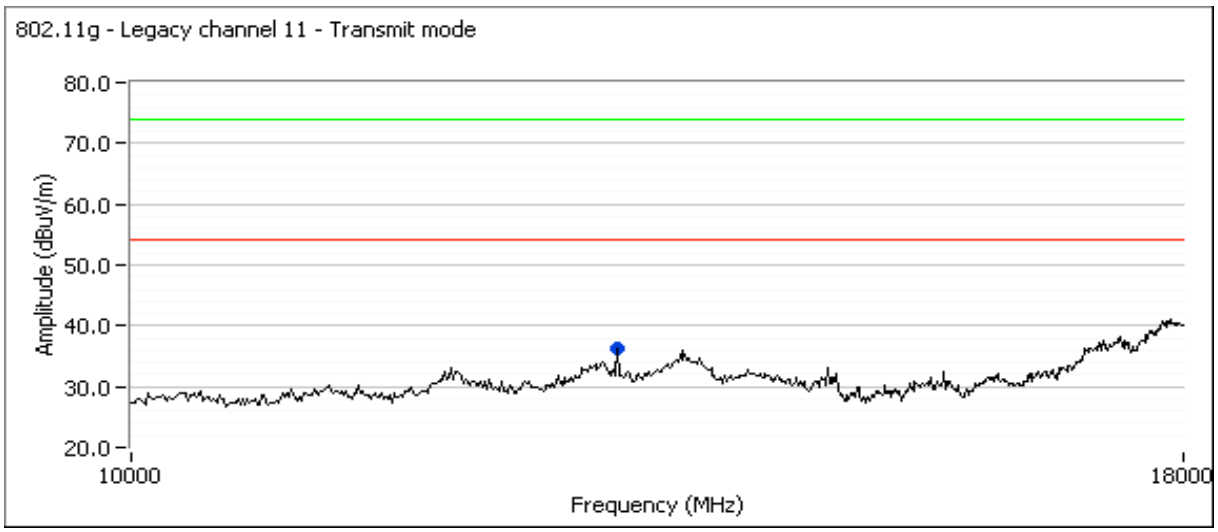


Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

RSS 210 and FCC 15.247 Radiated Spurious Emissions

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: 5/8/2007
Test Engineer: Mehran Birgani
Test Location: Fremont Chamber #4

Config. Used: 1
Config Change: None
Host Unit 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.

Ambient Conditions:

Temperature: 22 °C
Rel. Humidity: 41 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	RE, 30 - 26500 MHz Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	43.8dBµV/m @ 9756.1MHz (-10.2dB)

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.

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
3500 - 10000 MHz	3	3	0.0
10000 - 26500 MHz	1	3	-9.5

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1: Radiated Spurious Emissions, 30 - 26500 MHz. Operating Mode: 802.11n 20MHz

Run #1a: Channel 1 @ 2412 MHz (Power setting: 14dBm)

	H	V
Fundamental emission level @ 3m RB=VB=100kHz):	108.5	101.9

Band Edge Signal Radiated Field Strength

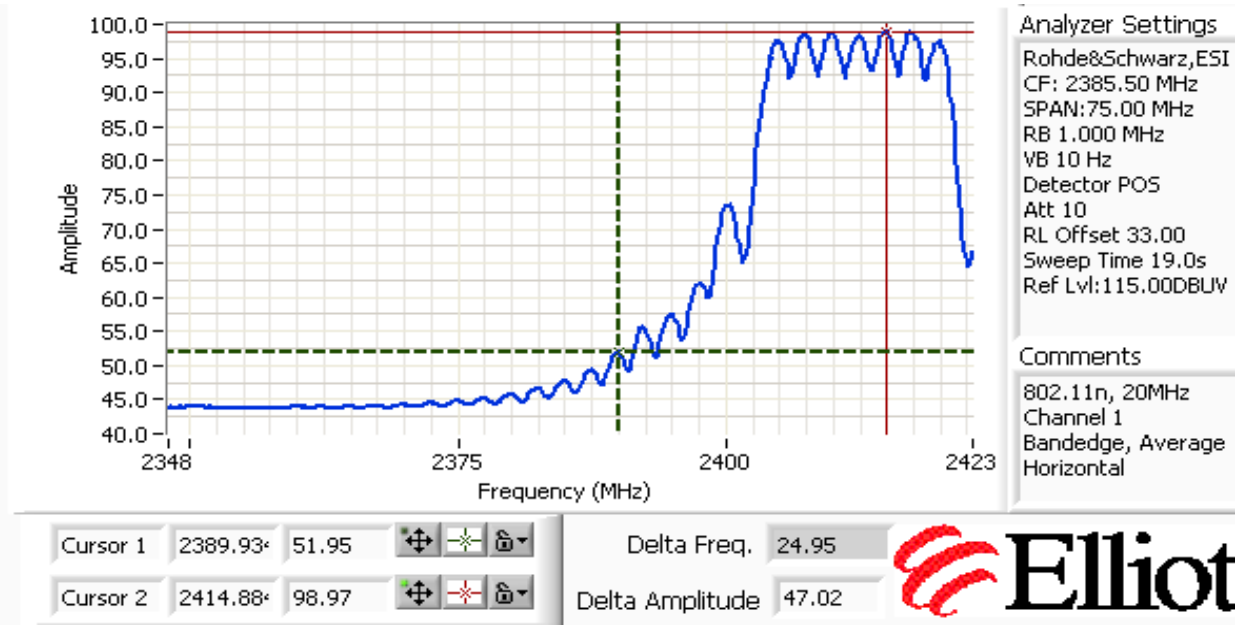
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2389.934	52.0	H	54.0	-2.1	AVG	187	1.0	RB=1MHz, VB=10Hz
2389.783	71.3	H	74.0	-2.7	PK	187	1.0	RB=VB=1MHz
2389.934	47.7	V	54.0	-6.3	AVG	244	1.0	RB=1MHz, VB=10Hz
2389.934	67.0	V	74.0	-7.0	PK	244	1.0	RB=VB=1MHz

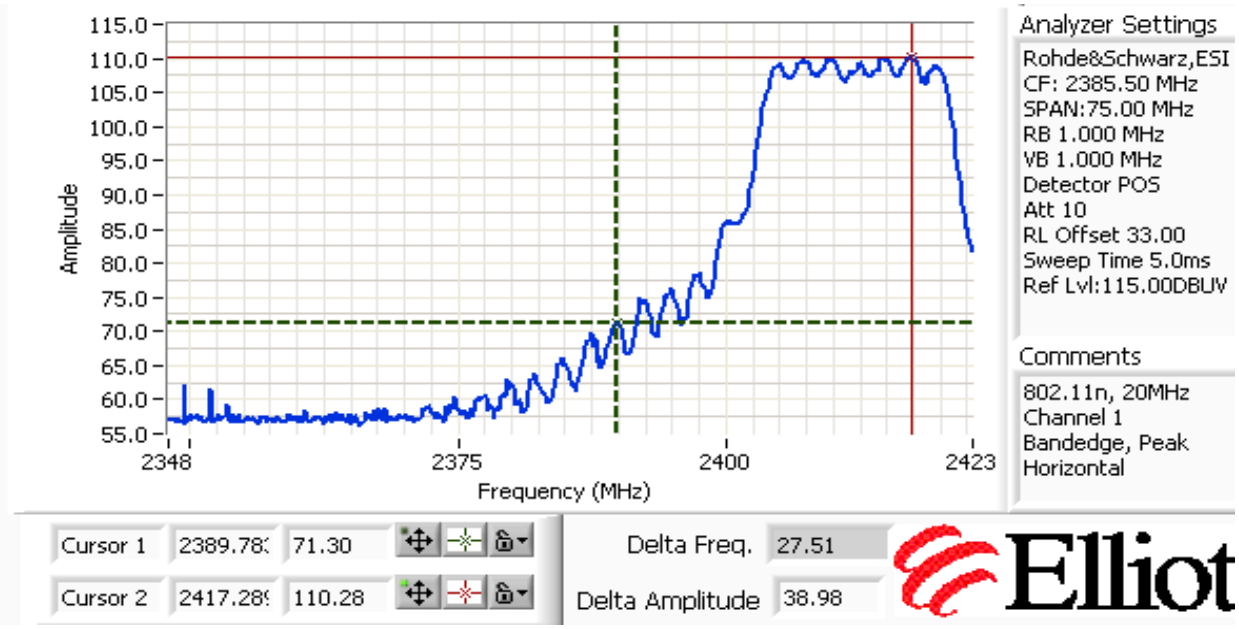
Other Spurious Emissions

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	29.8	V	54.0	-24.2	AVG	344	1.0	
4824.012	29.5	H	54.0	-24.5	AVG	10	1.0	
4824.000	40.6	V	74.0	-33.4	PK	344	1.0	
4824.012	40.2	H	74.0	-33.8	PK	10	1.0	

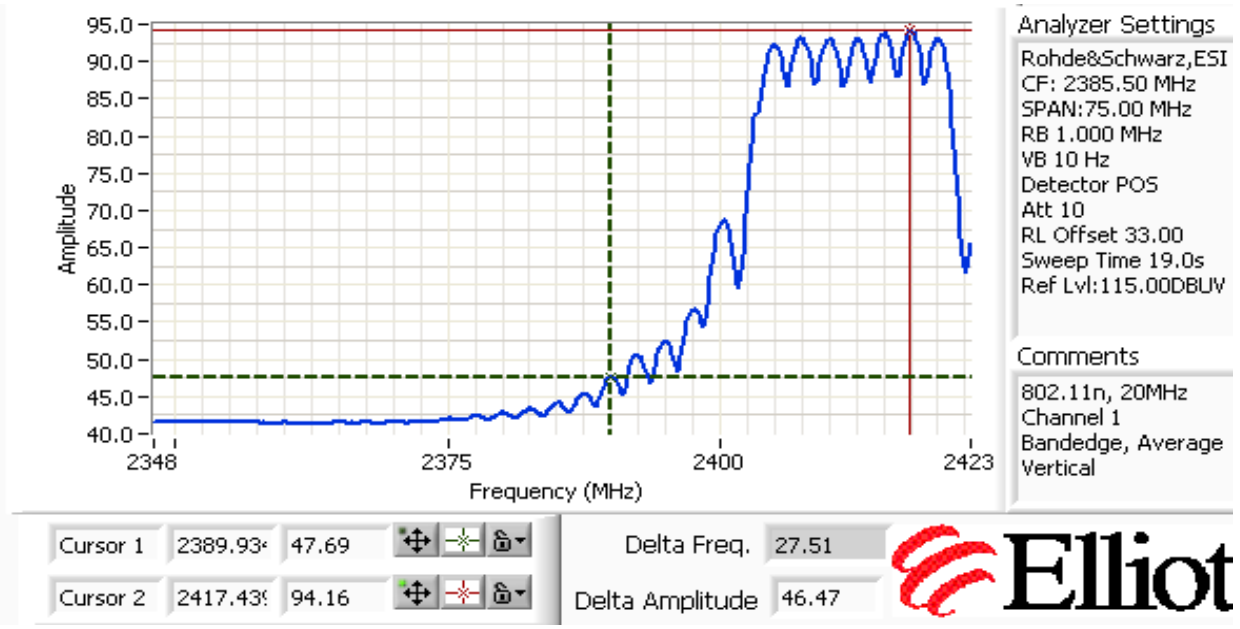
Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	All signals above 18GHz were more than -20dB below the limit.

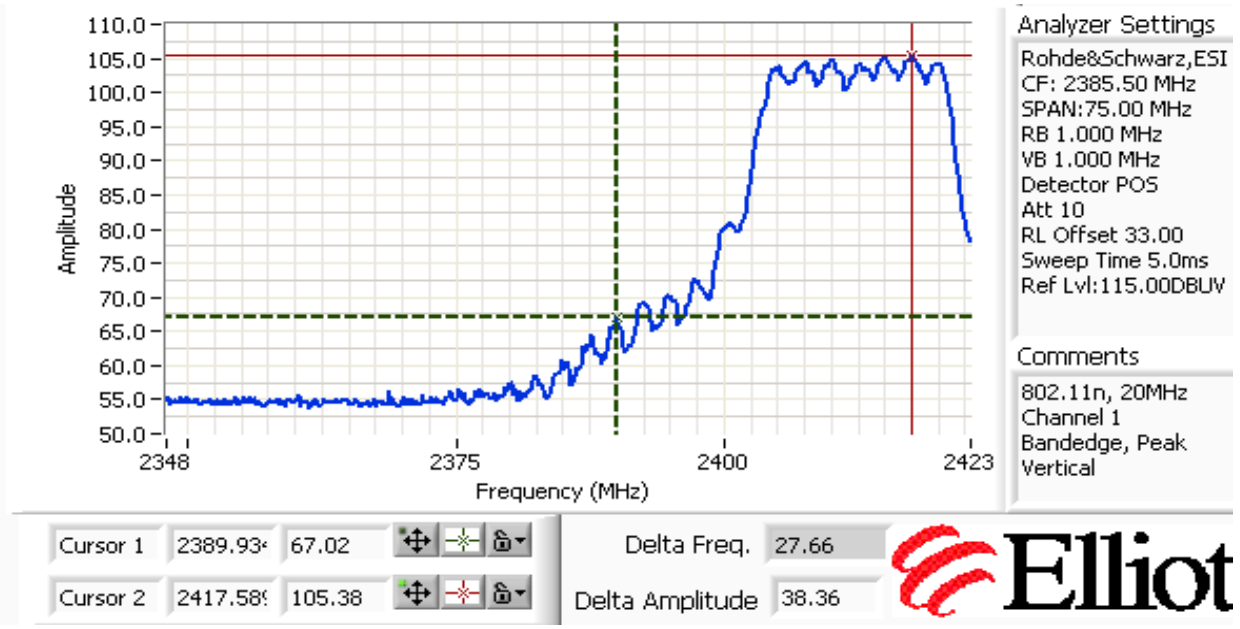
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



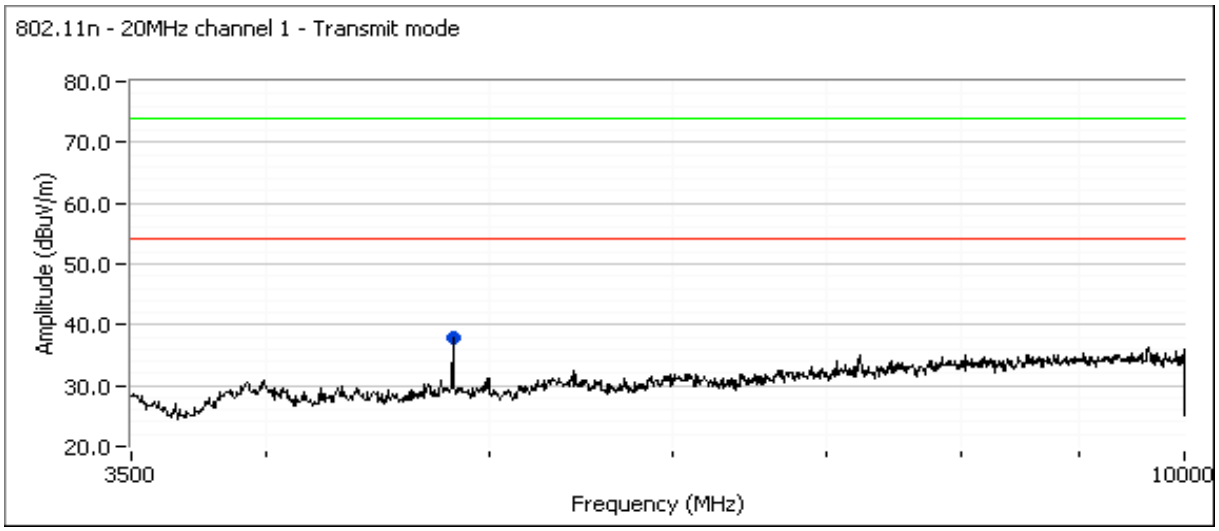


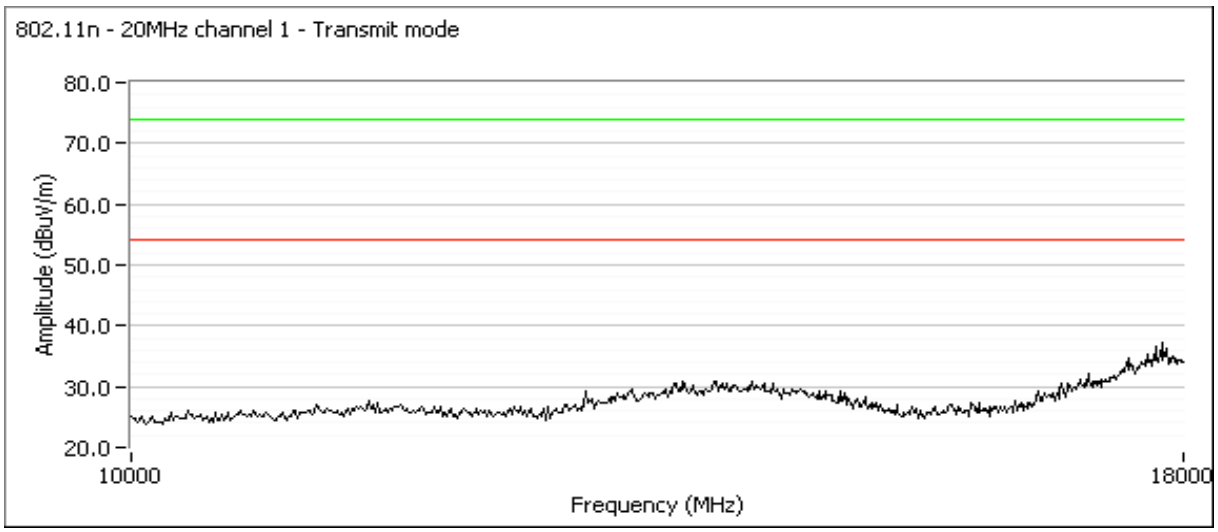
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1b: Channel 6 @ 2437 MHz (Power setting: 19dBm)

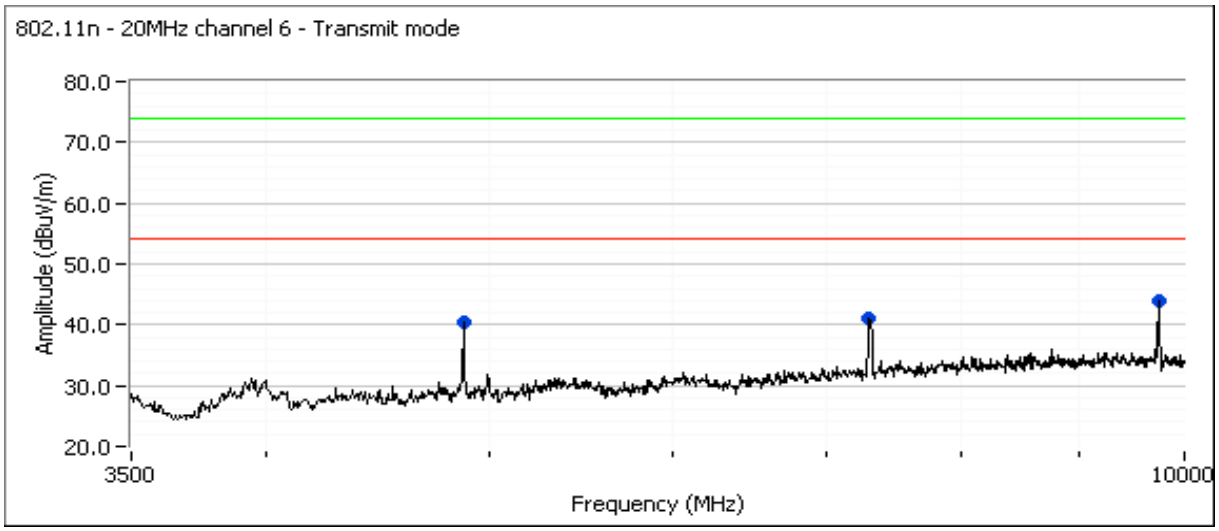
	H	V
Fundamental emission level @ 3m RB=VB=100kHz):	116.2	109.6

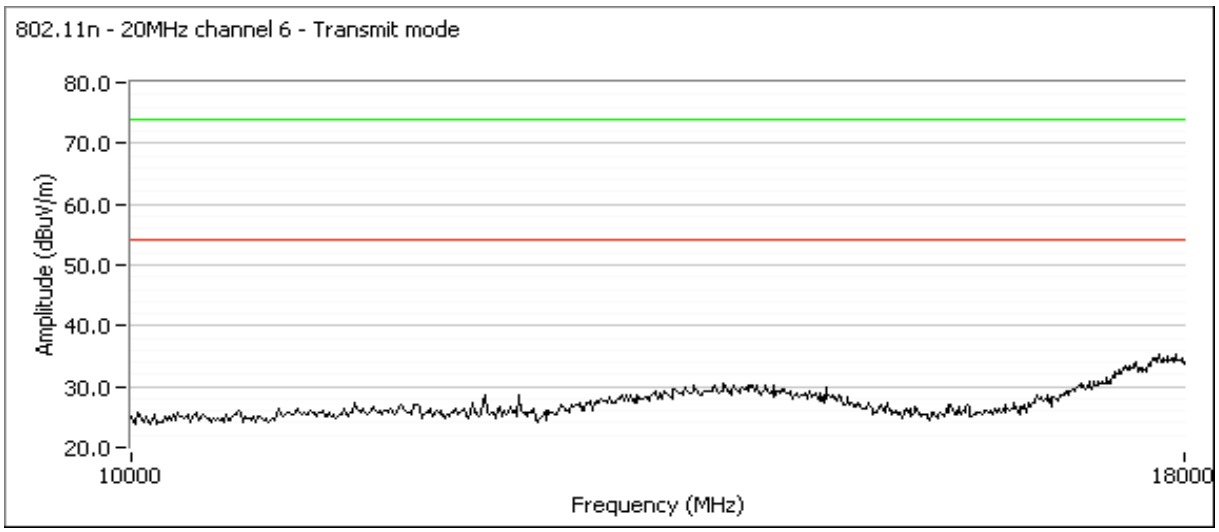
Other Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
9756.110	43.8	V	54.0	-10.2	Peak	27	1.0	Not restricted with restricted limits
9756.110	41.7	H	54.0	-12.3	Peak	44	1.0	Not restricted with restricted limits
7307.400	41.2	H	54.0	-12.8	Peak	33	1.0	
7307.400	40.8	V	54.0	-13.2	Peak	62	1.0	
4874.000	40.4	V	54.0	-13.6	AVG	260	1.0	
9756.110	39.8	V	54.0	-14.2	AVG	27	1.0	Not restricted with restricted limits
7307.400	39.4	H	54.0	-14.6	AVG	33	1.0	
7307.400	39.2	V	54.0	-14.8	AVG	62	1.0	
9756.110	38.6	H	54.0	-15.4	AVG	44	1.0	Not restricted with restricted limits
4874.000	38.1	H	54.0	-15.9	AVG	299	1.0	
4874.000	41.4	V	74.0	-32.6	Peak	260	1.0	
4874.000	39.8	H	74.0	-34.2	Peak	299	1.0	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	All signals above 18GHz were more than -20dB below the limit.

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1c: Channel 11 @ 2462 MHz (Power setting: 13.5dBm)

	H	V
Fundamental emission level @ 3m RB=VB=100kHz):	109.1	102.3

Band Edge Signal Radiated Field Strength

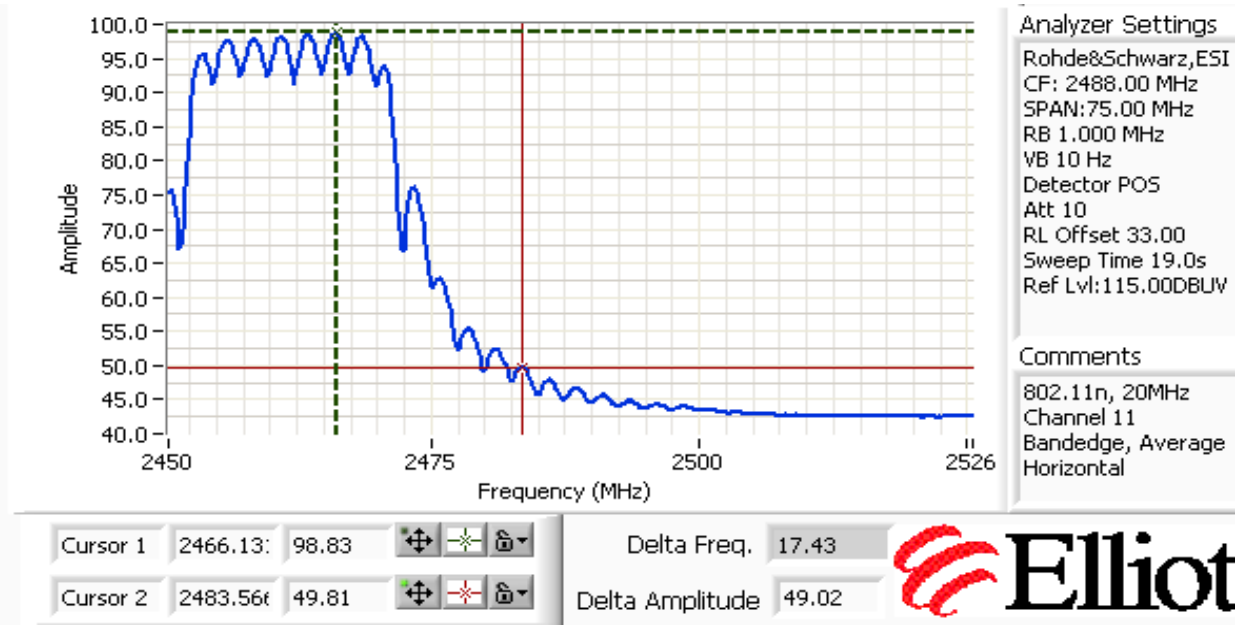
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.500	49.8	H	54.0	-4.2	AVG	198	1.1	RB=1MHz, VB=10Hz
2483.500	67.4	H	74.0	-6.6	PK	198	1.1	RB=VB=1MHz
2483.500	46.3	V	54.0	-7.7	AVG	313	1.3	RB=1MHz, VB=10Hz
2483.500	61.9	V	74.0	-12.1	PK	313	1.3	RB=VB=1MHz

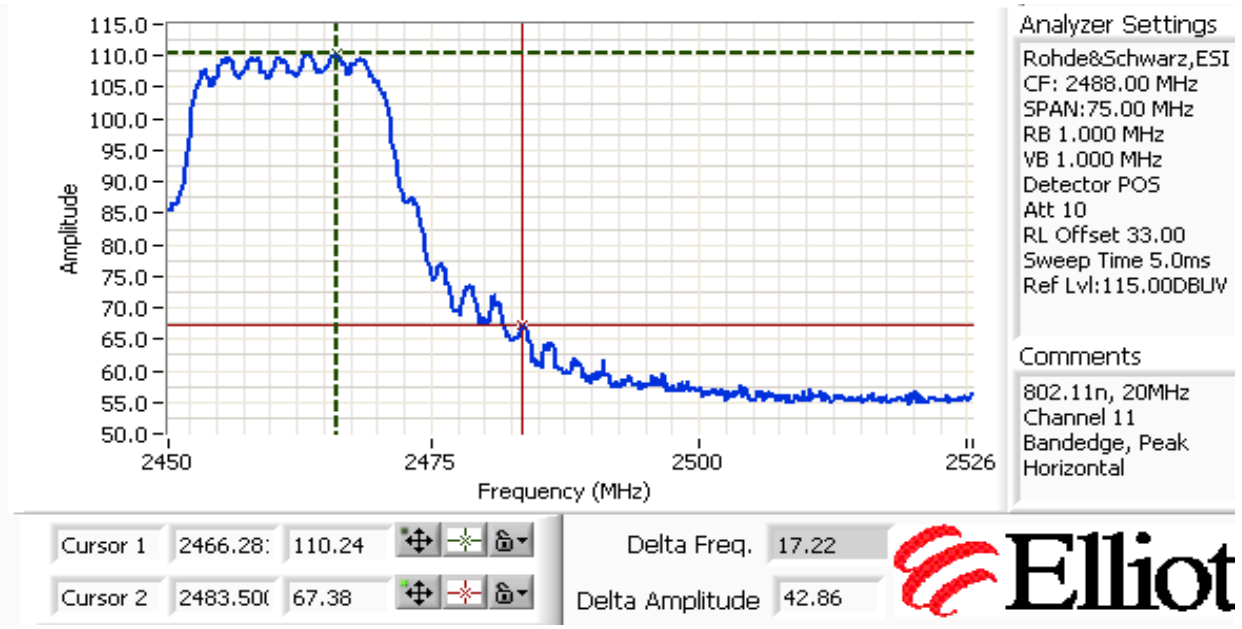
Other Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
None								

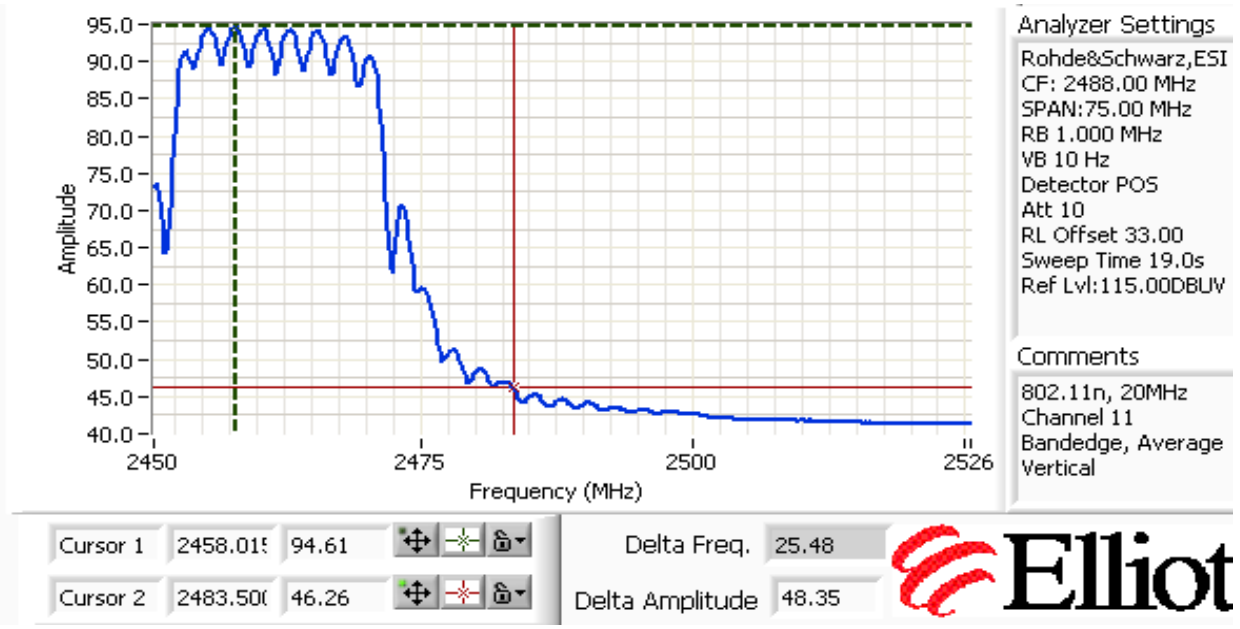
Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	All signals above 18GHz were more than -20dB below the limit.

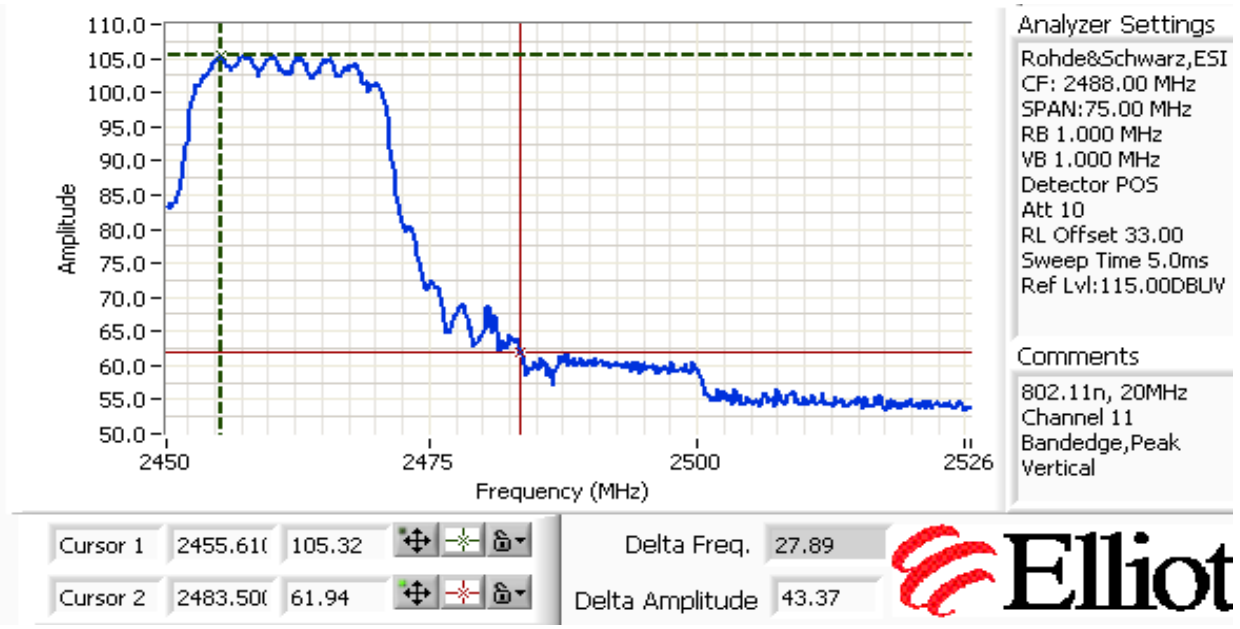
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



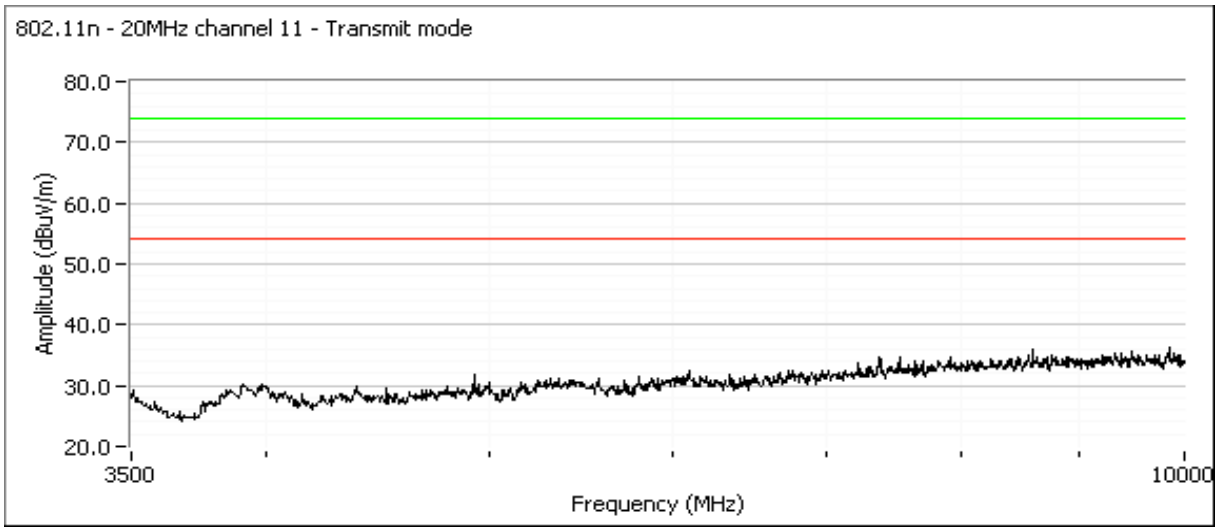


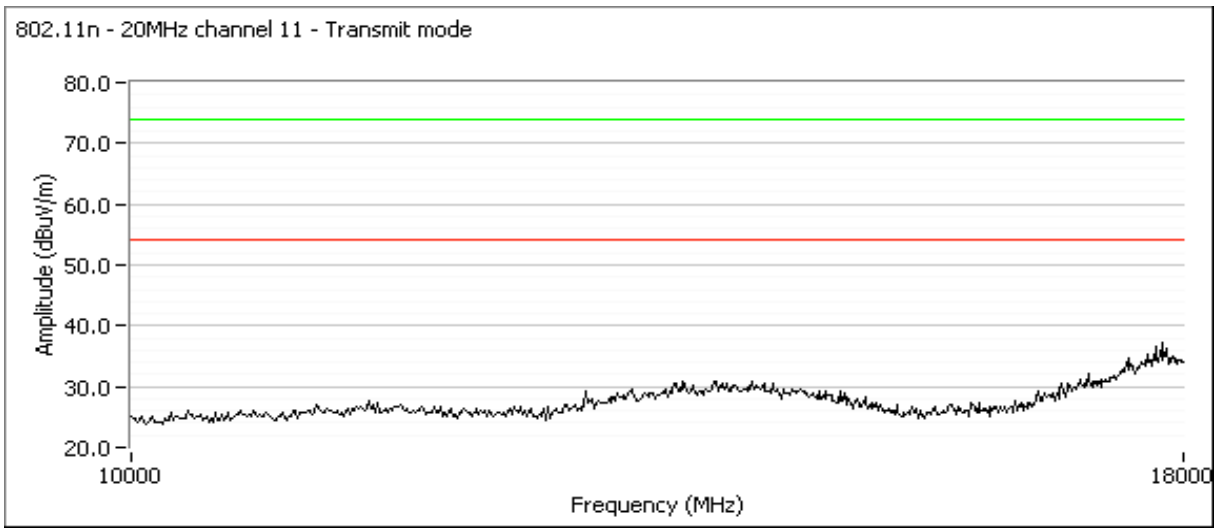
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

RSS 210 and FCC 15.247 Radiated Spurious Emissions

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: 5/8/2007
Test Engineer: Mehran Birgani
Test Location: Fremont Chamber #4

Config. Used: 1
Config Change: None
Host Unit 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.

Ambient Conditions:

Temperature: 22 °C
Rel. Humidity: 41 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
802.11n 40MHz (MCS0)	RE, 30 - 26500 MHz Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	41.2dBµV/m @ 9807.5MHz (-12.8dB)
802.11n 40MHz (MCS15)	RE, 30 - 26500 MHz Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	45.8dBµV/m (195.0µV/m) @ 7264.8MHz (-8.2dB)

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.

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
3500 - 10000 MHz	3	3	0.0
10000 - 26500 MHz	1	3	-9.5

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1: Radiated Spurious Emissions, 30 - 26500 MHz. Operating Mode: 802.11n 40MHz (MCS0)

Run #1a: Channel 3 @ 2422 MHz

	H	V
Fundamental emission level @ 3m RB=VB=100kHz):	95.6	91.8

Band Edge Signal Radiated Field Strength

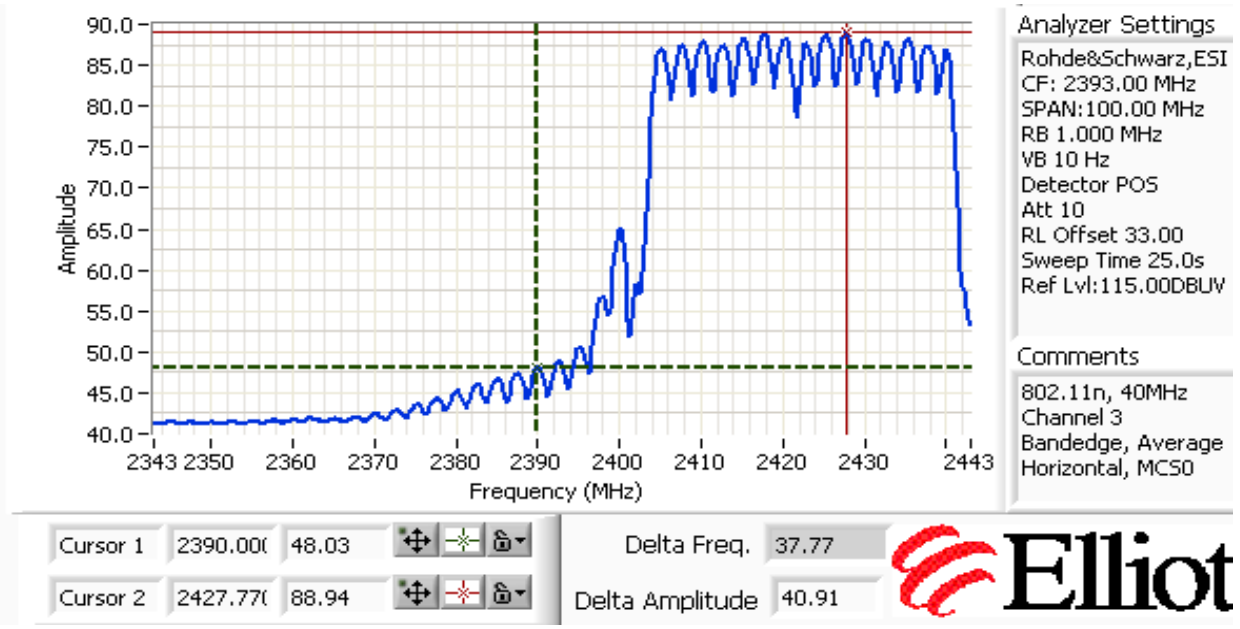
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	48.0	H	54.0	-6.0	AVG	180	1.0	RB=1MHz, VB=10Hz
2389.693	65.3	H	74.0	-8.7	PK	180	1.0	RB=VB=1MHz
2389.493	42.7	V	54.0	-11.3	AVG	241	1.0	RB=1MHz, VB=10Hz
2389.292	59.0	V	74.0	-15.0	PK	241	1.0	RB=VB=1MHz

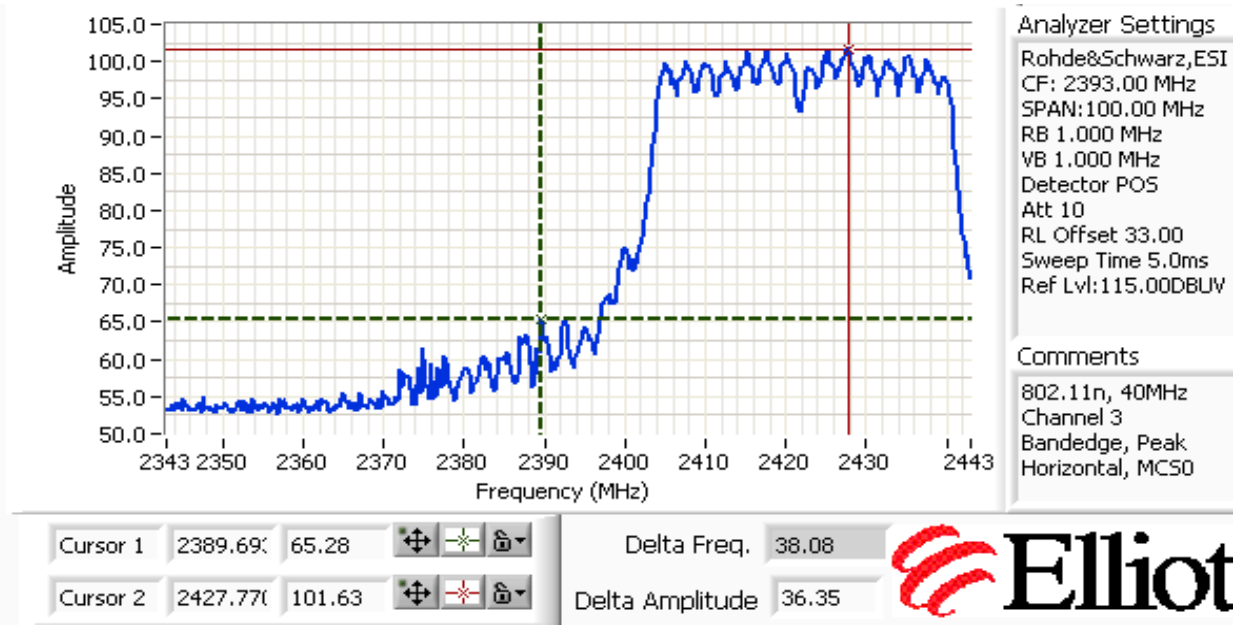
Other Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
None								

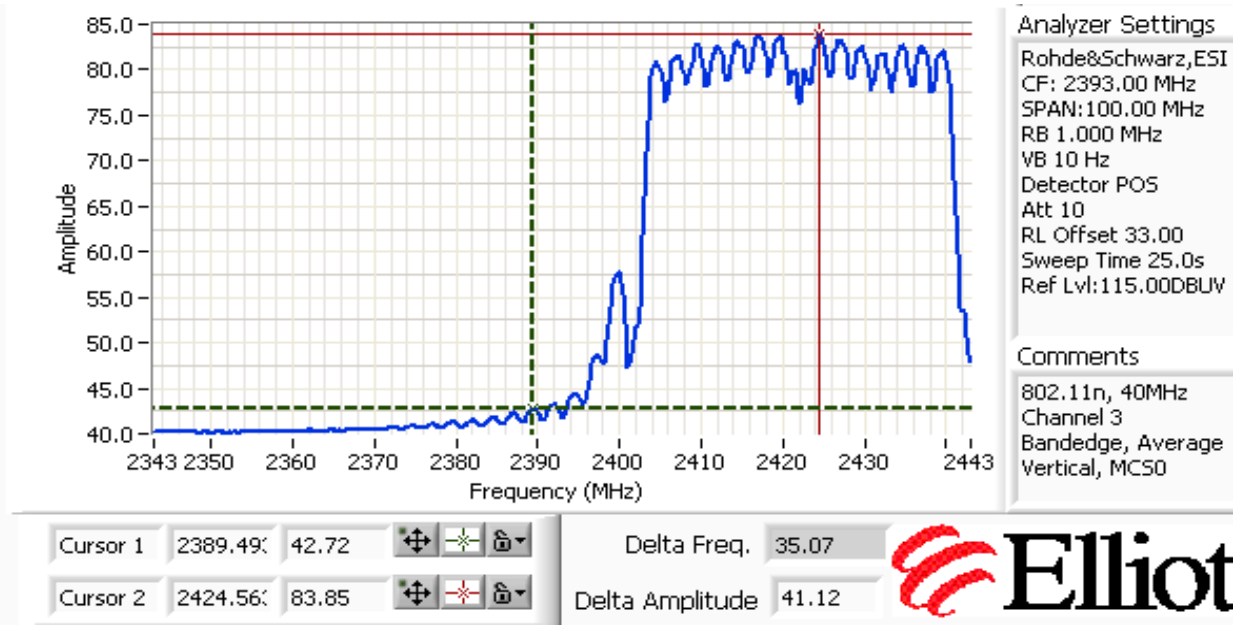
Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	All signals above 18GHz were more than -20dB below the limit.

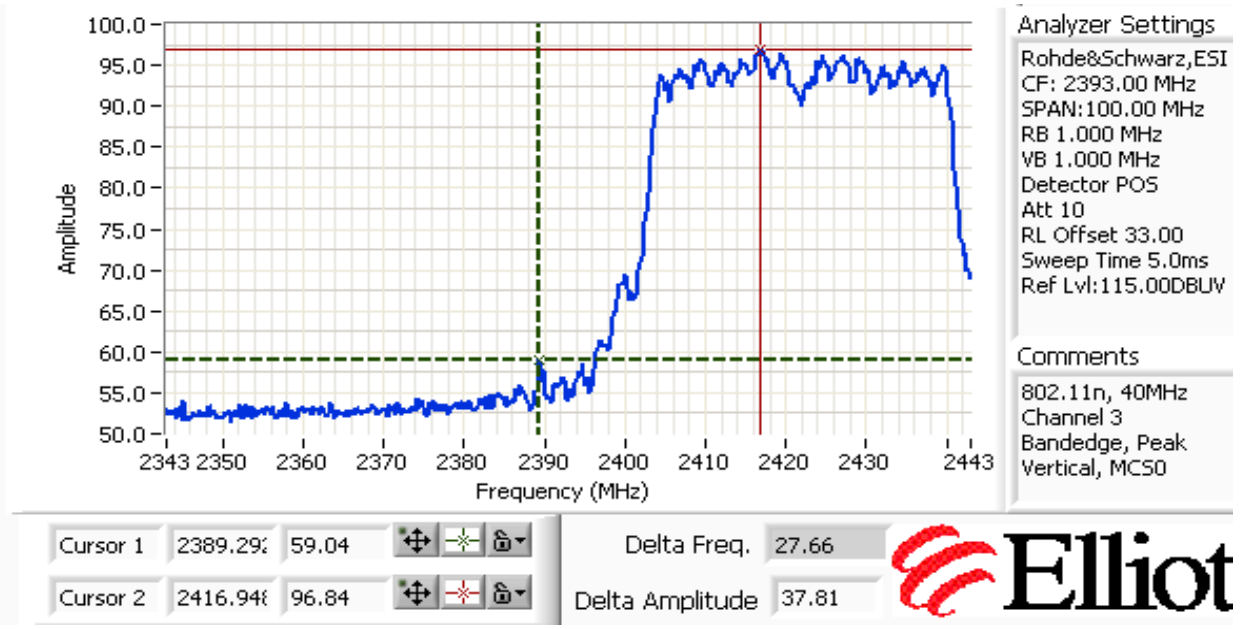
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



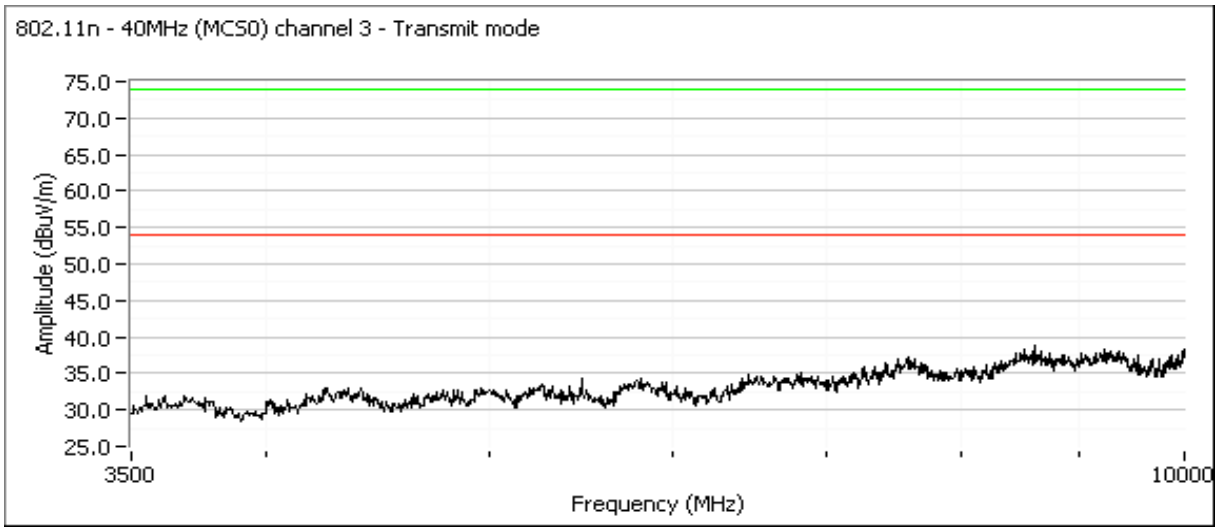


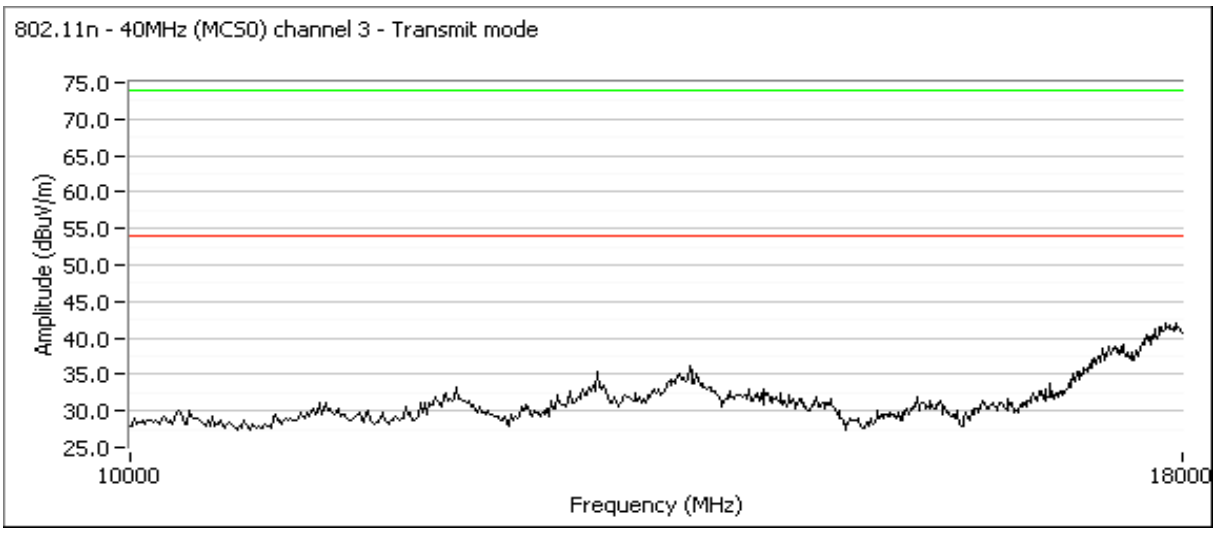
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





EMC Test Data

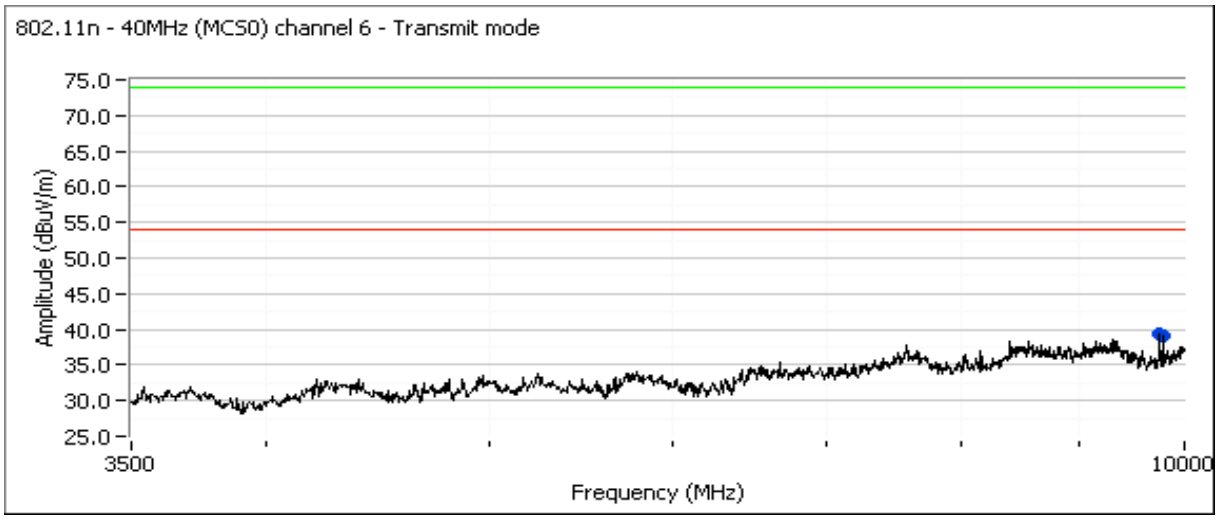
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

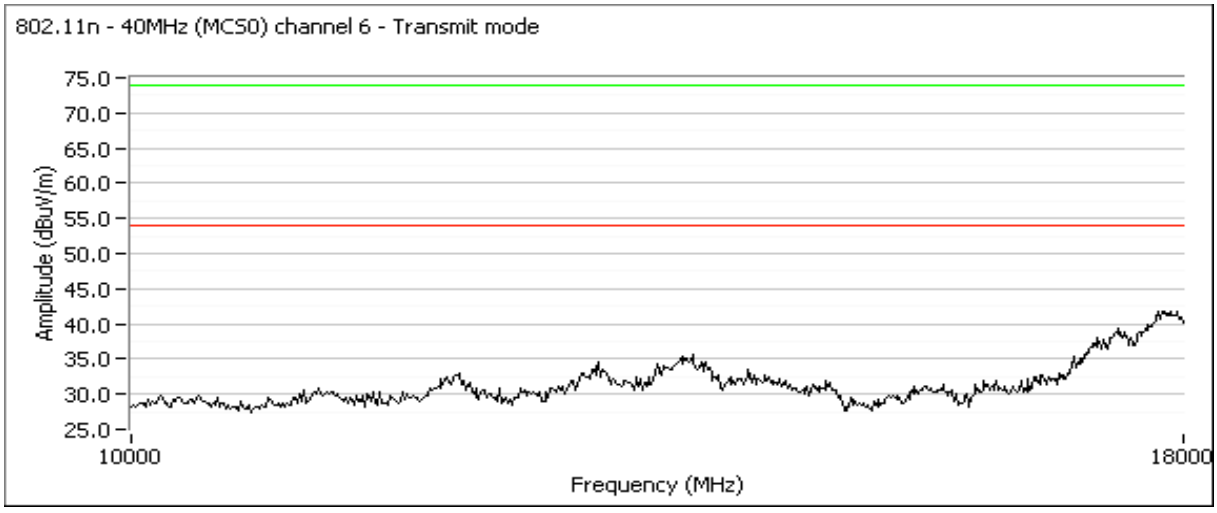
Run #1b: Channel 6 @ 2437 MHz

	H	V
Fundamental emission level @ 3m RB=VB=100kHz):	101.2	88.9

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
9749.170	39.3	V	54.0	-14.7	Peak	231	1.0	Peak reading with average limit
9784.170	39.2	H	54.0	-14.8	Peak	189	1.0	Peak reading with average limit

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	All signals above 18GHz were more than -20dB below the limit.





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1c: Channel 9 @ 2452 MHz

	H	V
Fundamental emission level @ 3m RB=VB=100kHz):	96.2	94.3

Band Edge Signal Radiated Field Strength

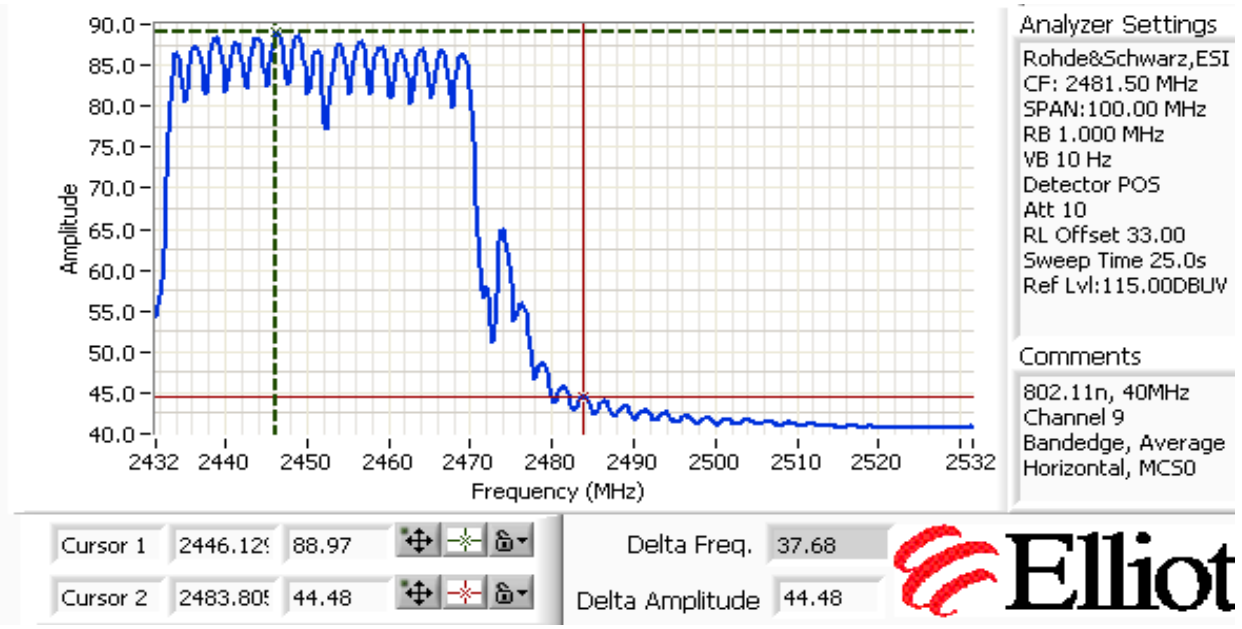
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.805	44.5	H	54.0	-9.5	AVG	180	1.0	RB=1MHz, VB=10Hz
2484.205	59.2	H	74.0	-14.8	PK	180	1.0	RB=VB=1MHz
2485.208	42.1	V	54.0	-11.9	AVG	258	1.0	RB=1MHz, VB=10Hz
2487.612	59.1	V	74.0	-14.9	PK	258	1.0	RB=VB=1MHz

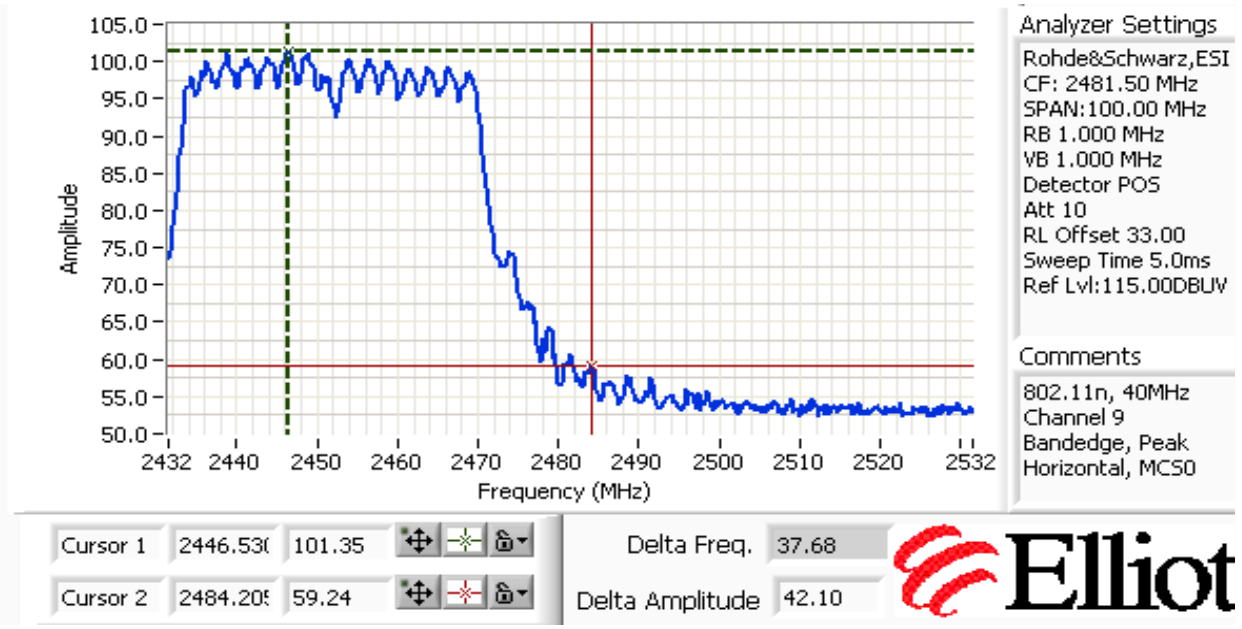
Other Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
9807.500	41.2	H	54.0	-12.8	Peak	216	1.0	Peak reading with average limit
9807.588	37.5	V	54.0	-16.5	Peak	360	1.0	Peak reading with average limit

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	All signals above 18GHz were more than -20dB below the limit.

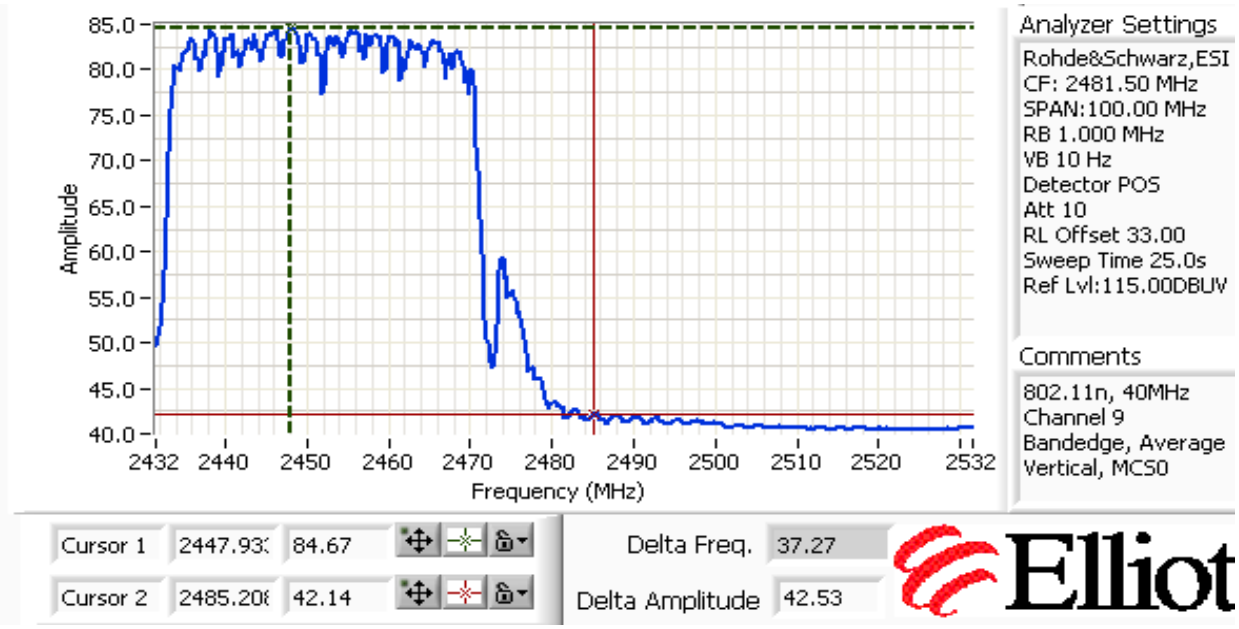
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

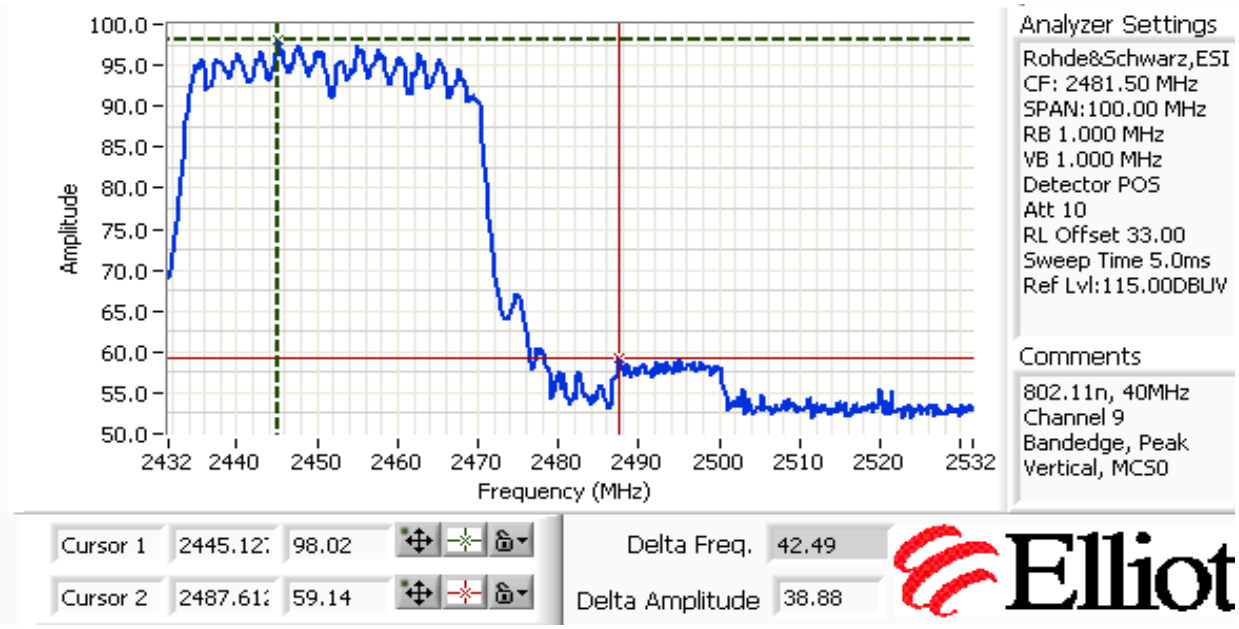




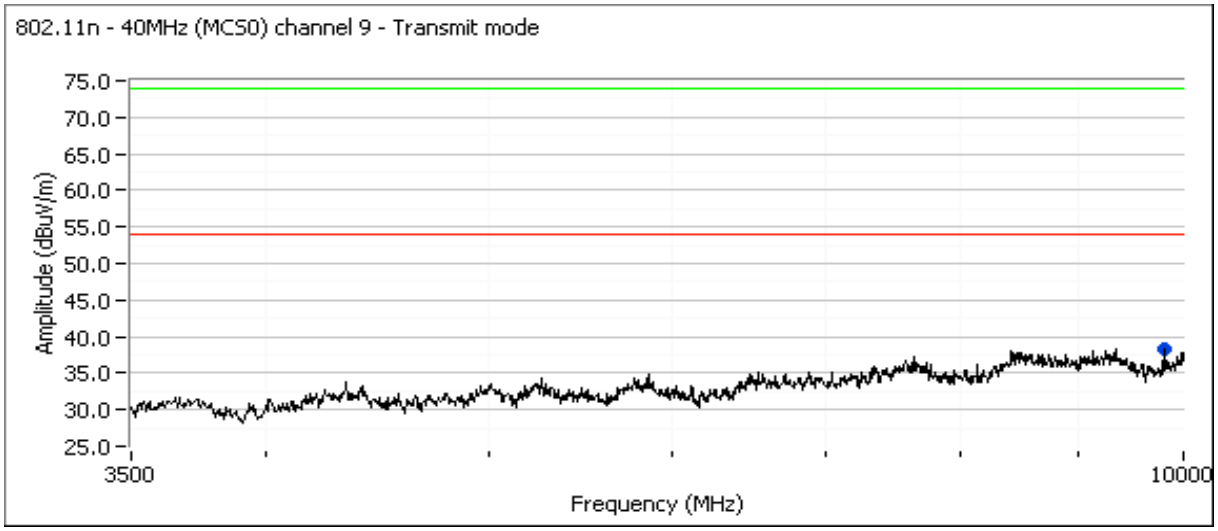
EMC Test Data

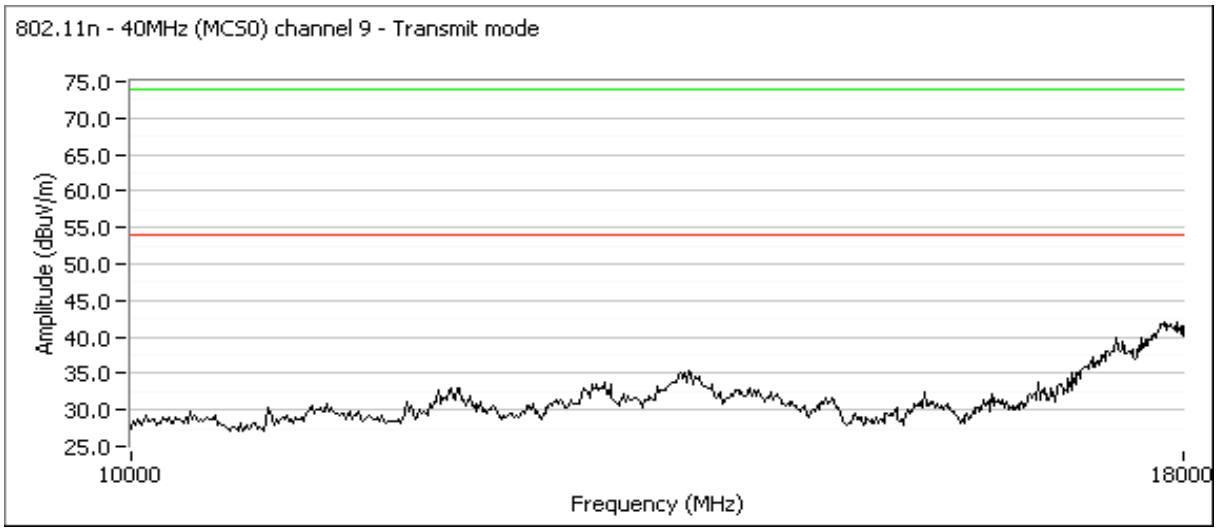
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #2: Radiated Spurious Emissions, 30 - 26500 MHz. Operating Mode: 802.11n 40MHz (MCS15)

Run #1a: Channel 3 @ 2422 MHz

	H	V
Fundamental emission level @ 3m RB=VB=100kHz):	96.9	93.8

Band Edge Signal Radiated Field Strength

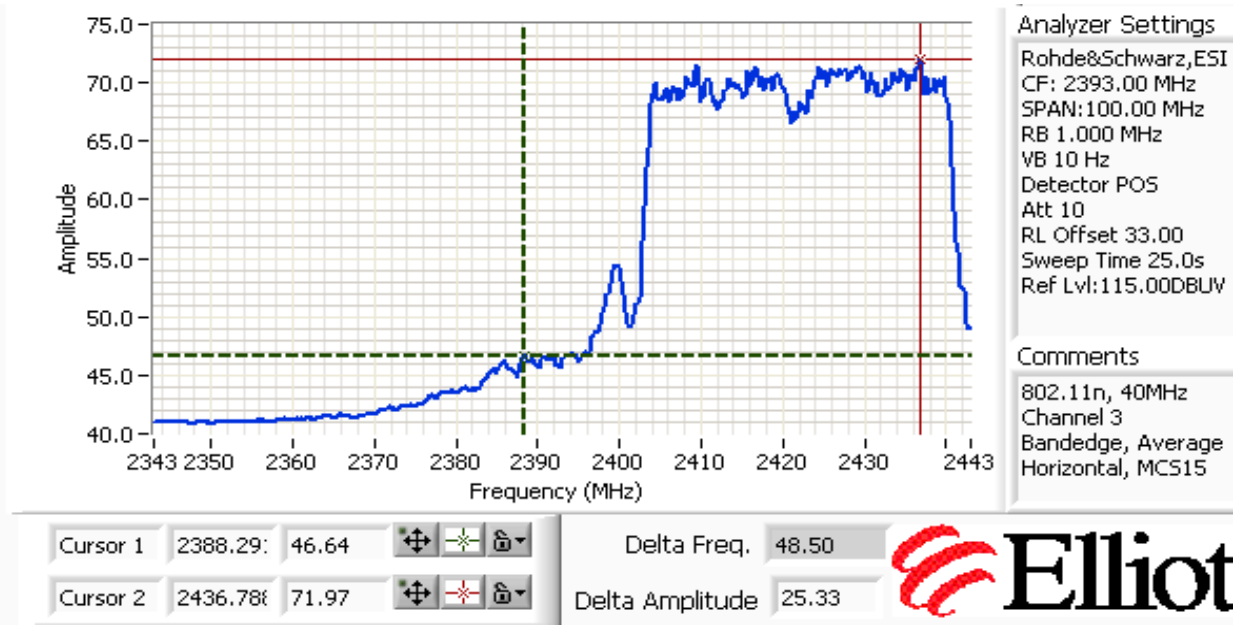
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2388.293	46.6	H	54.0	-7.4	AVG	175	1.0	RB=1MHz, VB=10Hz
2386.482	65.7	H	74.0	-8.3	PK	175	1.0	RB=VB=1MHz
2388.493	42.6	V	54.0	-11.4	AVG	240	1.0	RB=1MHz, VB=10Hz
2385.485	58.4	V	74.0	-15.6	PK	240	1.0	RB=VB=1MHz

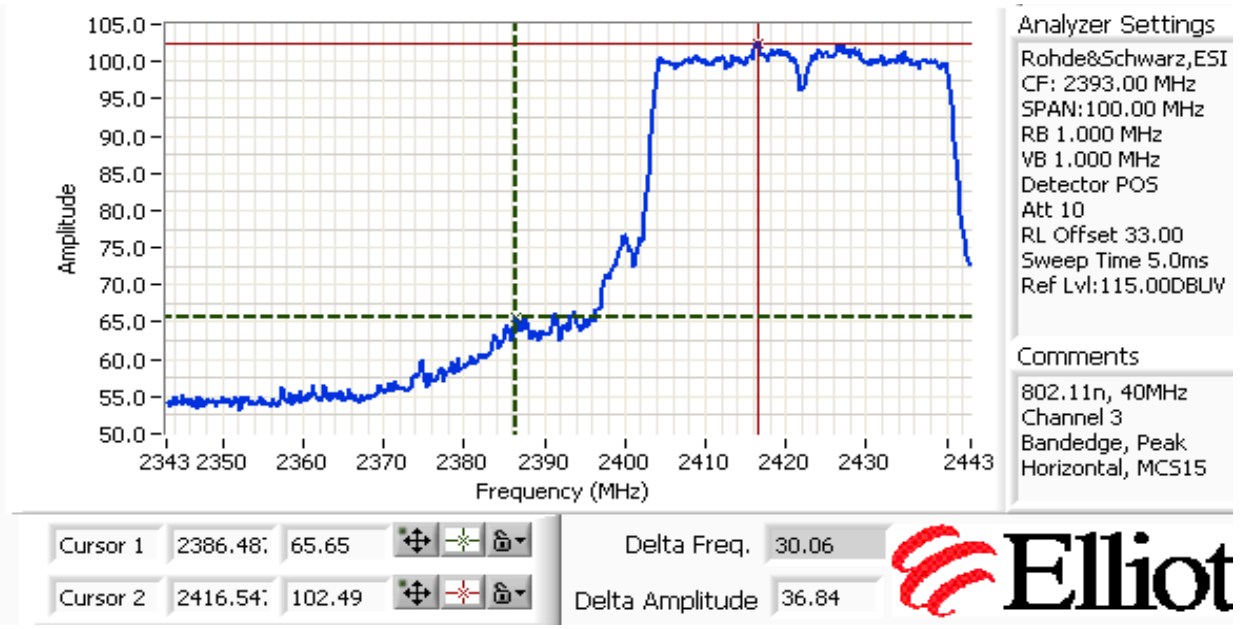
Other Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
7264.810	45.8	H	54.0	-8.2	PK	200	1.0	Peak reading with average limit
7264.940	45.5	V	54.0	-8.5	PK	0	1.0	Peak reading with average limit
4843.800	41.5	V	54.0	-12.5	PK	9	1.0	Peak reading with average limit
4844.170	40.8	H	54.0	-13.2	PK	81	1.0	Peak reading with average limit
9688.140	39.9	V	54.0	-14.1	AVG	74	1.0	Not restricted with restricted limits
9686.420	35.3	H	54.0	-18.7	AVG	70	1.0	Not restricted with restricted limits
9688.140	48.5	V	74.0	-25.5	PK	74	1.0	Not restricted with restricted limits
9686.420	46.7	H	74.0	-27.3	PK	70	1.0	Not restricted with restricted limits

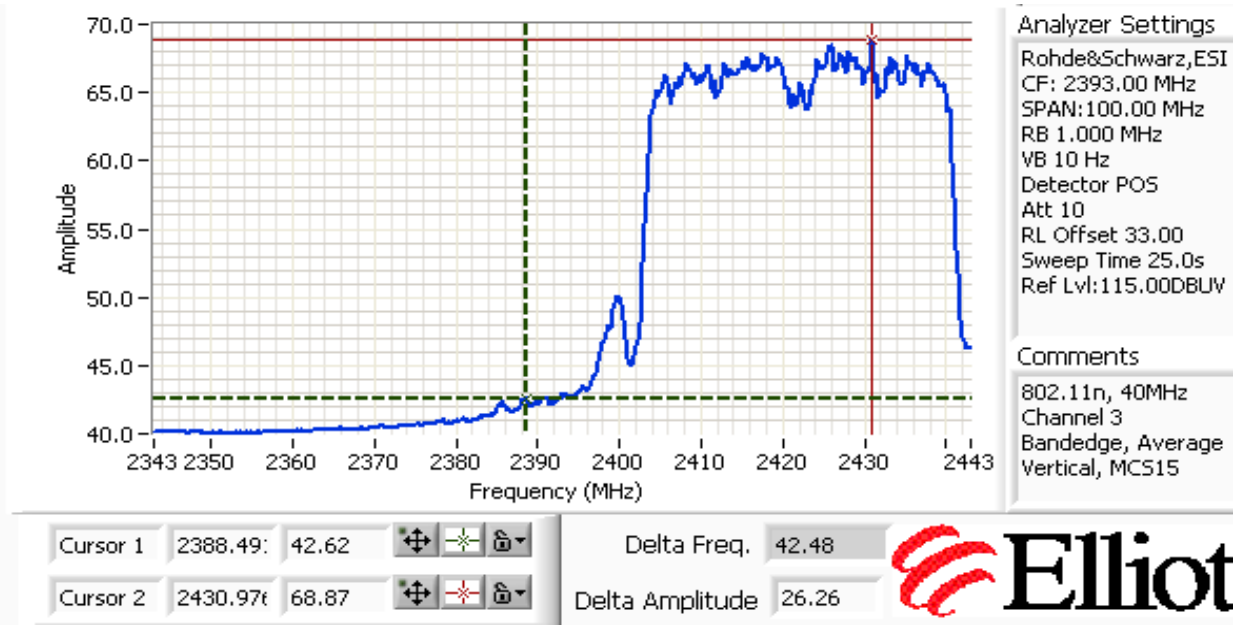
Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	All signals above 18GHz were more than -20dB below the limit.

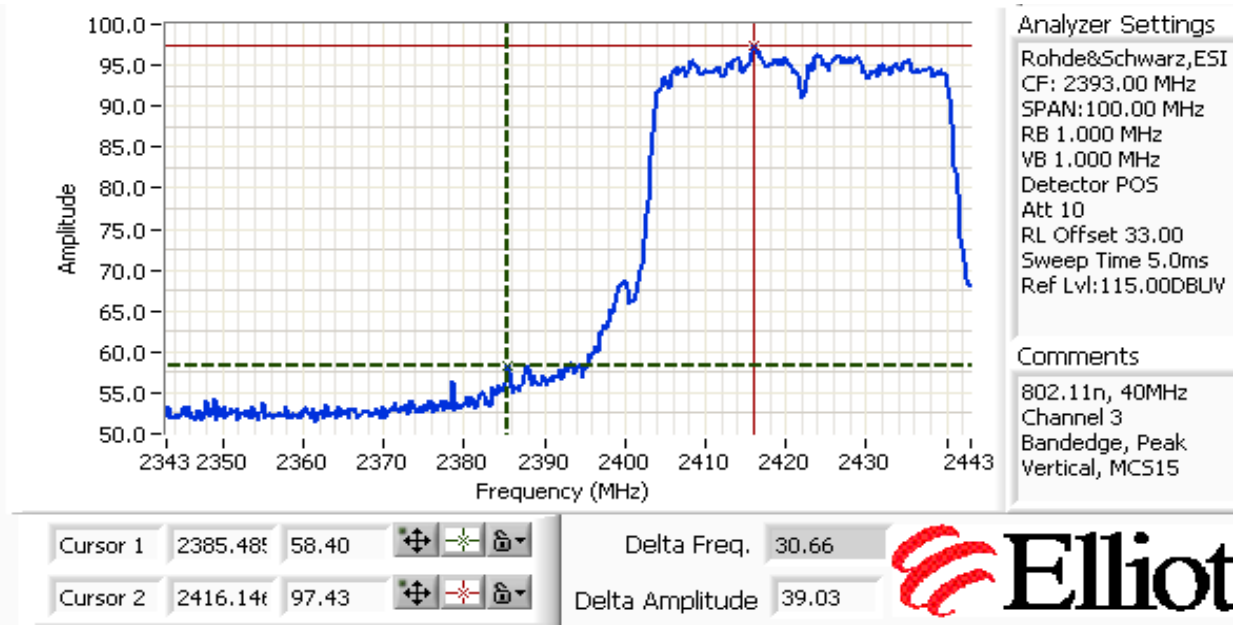
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



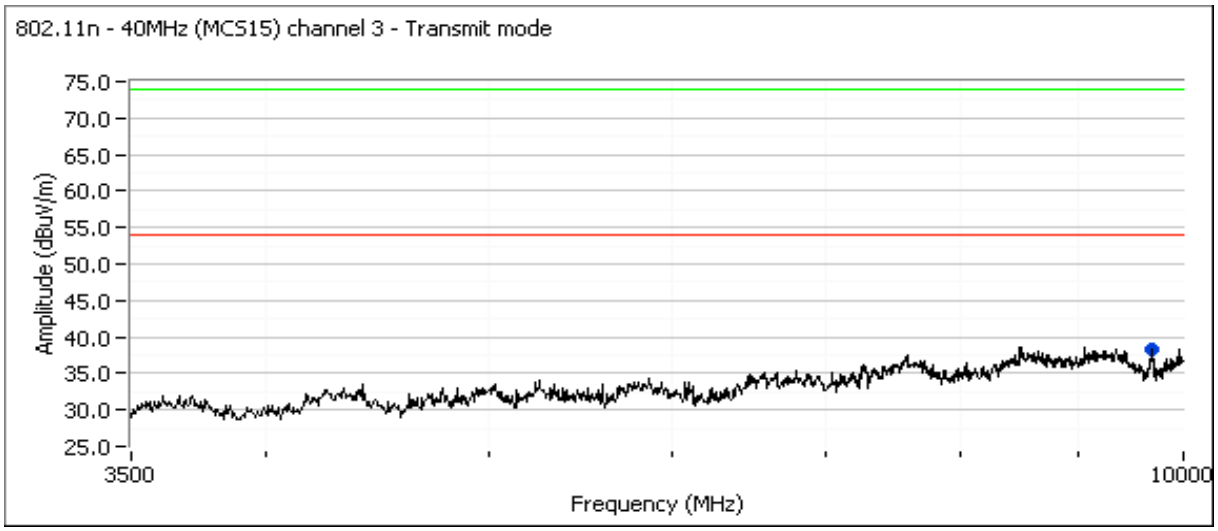


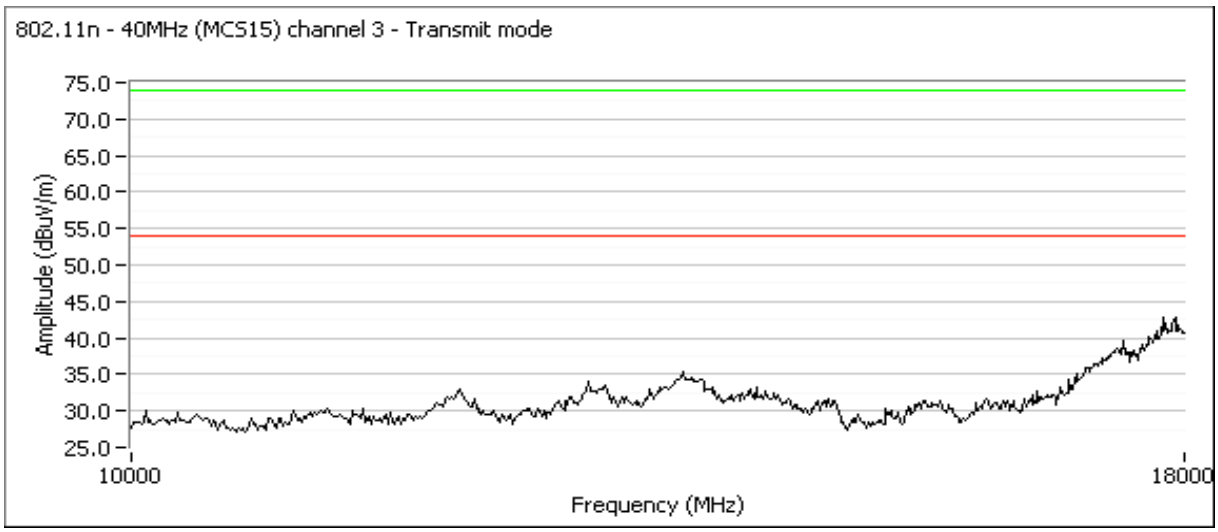
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





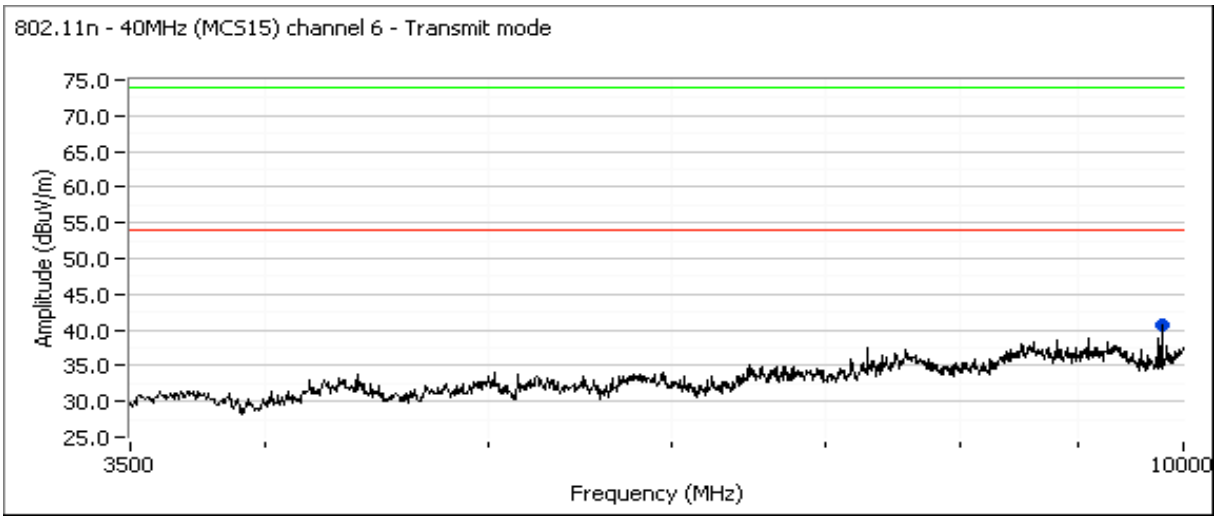
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

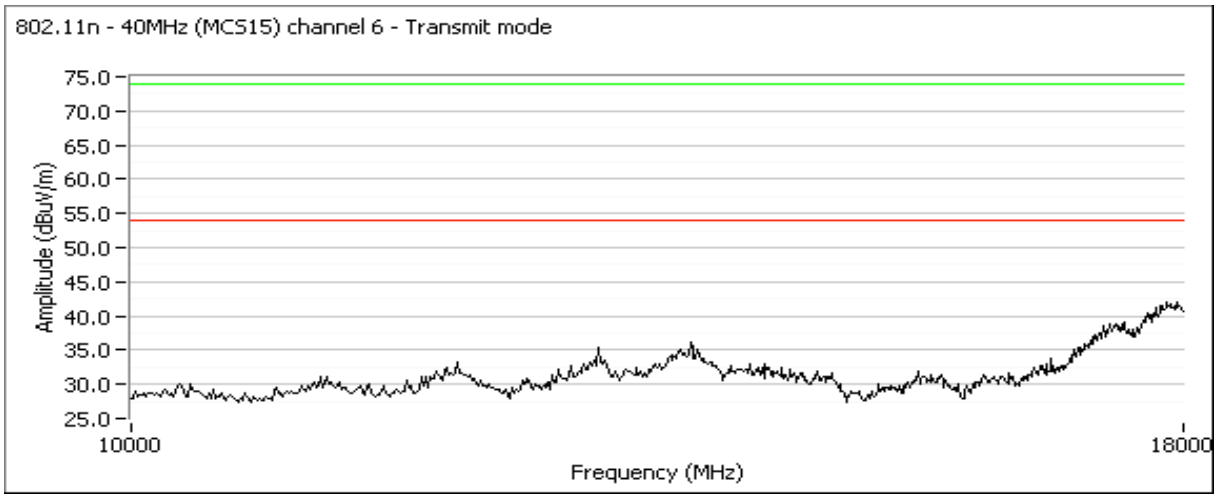
Run #2b: Channel 6 @ 2437 MHz

	H	V
Fundamental emission level @ 3m RB=VB=100kHz):	99.6	89.2

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
9762.240	41.6	H	54.0	-12.4	Peak	207	1.0	Peak reading with average limit
9792.840	40.7	V	54.0	-13.3	Peak	10	1.0	Peak reading with average limit

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	All signals above 18GHz were more than -20dB below the limit.





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #2c: Channel 9 @ 2452 MHz

	H	V
Fundamental emission level @ 3m RB=VB=100kHz):	100.5	94.9

Band Edge Signal Radiated Field Strength

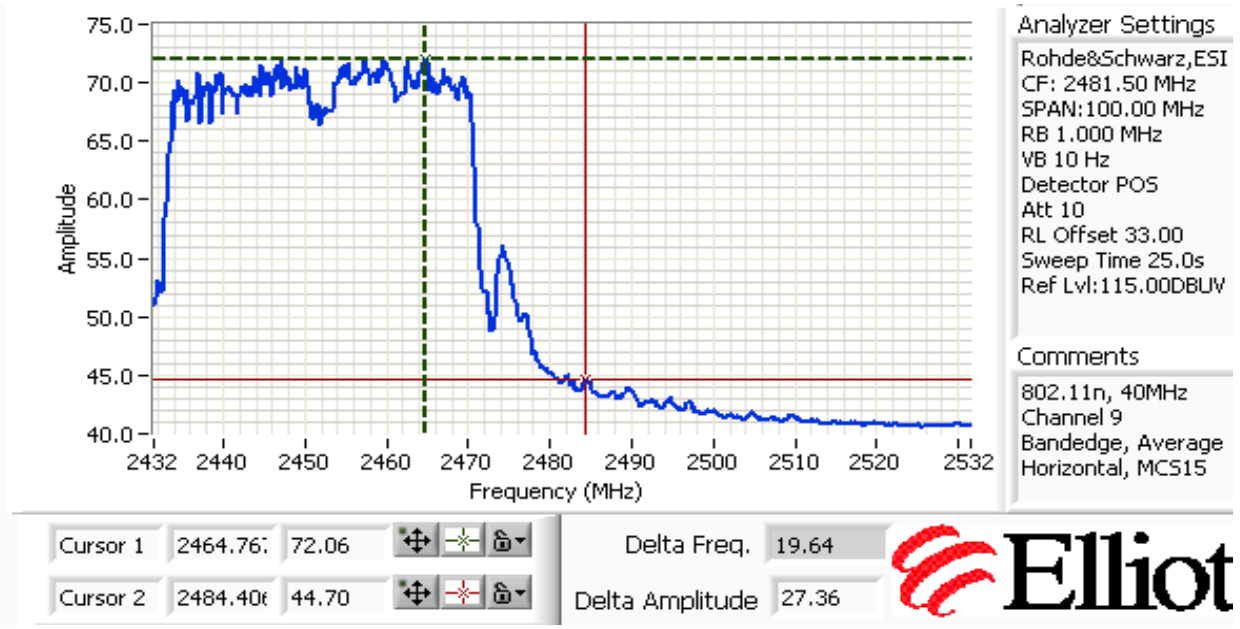
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2484.406	44.7	H	54.0	-9.3	AVG	180	1.0	RB=1MHz, VB=10Hz
2484.606	61.8	H	74.0	-12.2	PK	180	1.0	RB=VB=1MHz
2484.803	42.0	V	54.0	-12.0	AVG	241	1.1	RB=1MHz, VB=10Hz
2489.416	57.3	V	74.0	-16.7	PK	241	1.1	RB=VB=1MHz

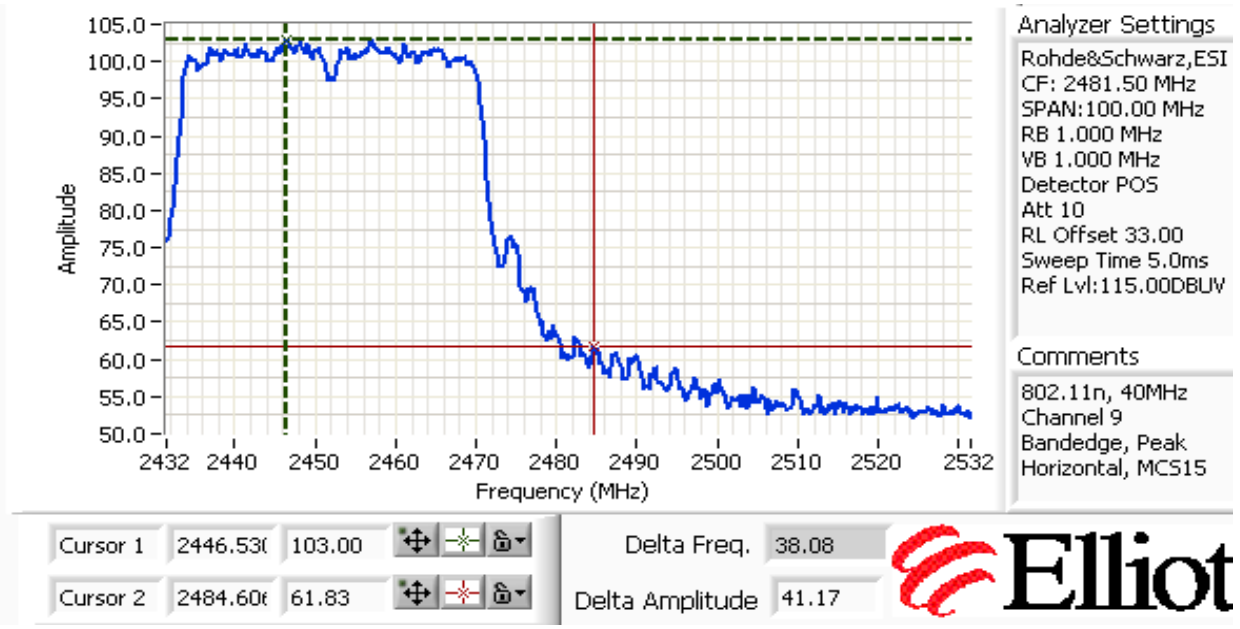
Other Spurious Emissions

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
9807.500	37.8	H	54.0	-16.2	Peak	216	1.0	Peak reading with average limit
9807.578	37.8	V	54.0	-16.2	Peak	350	1.0	Peak reading with average limit

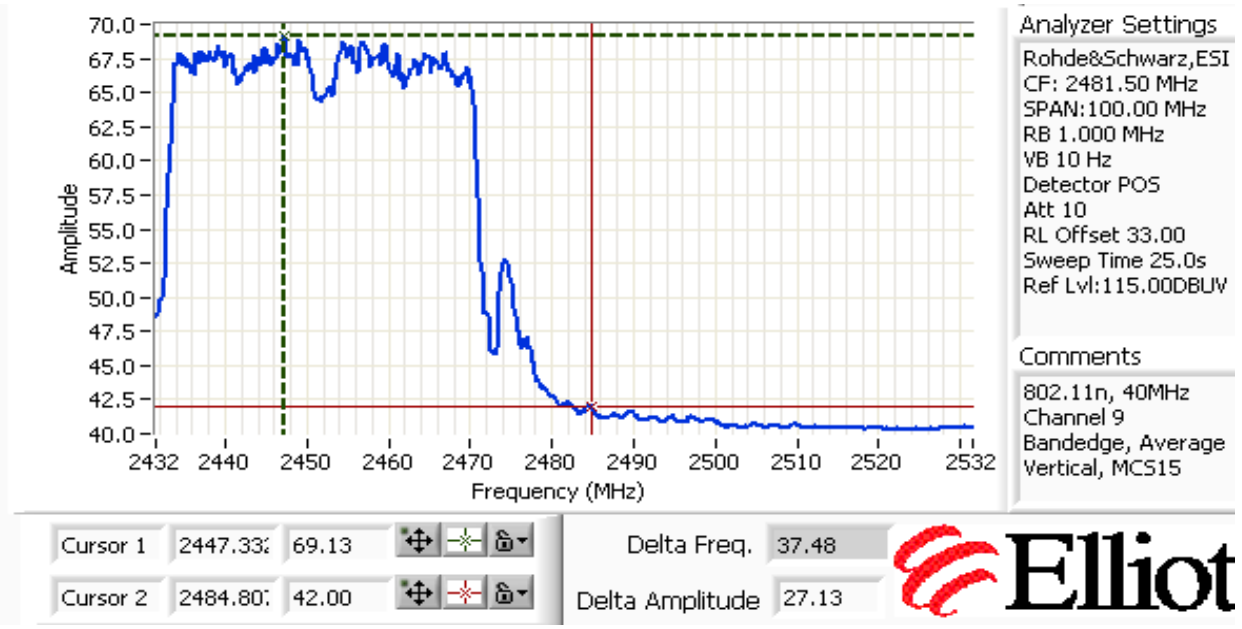
Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 2:	All signals above 18GHz were more than -20dB below the limit.

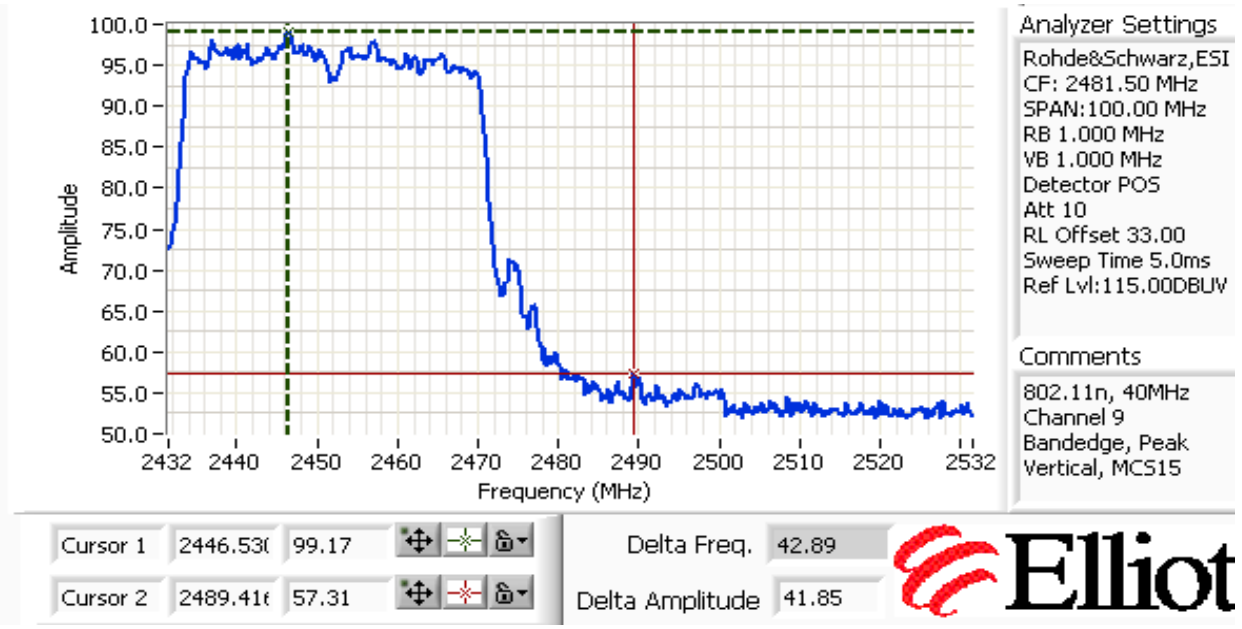
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



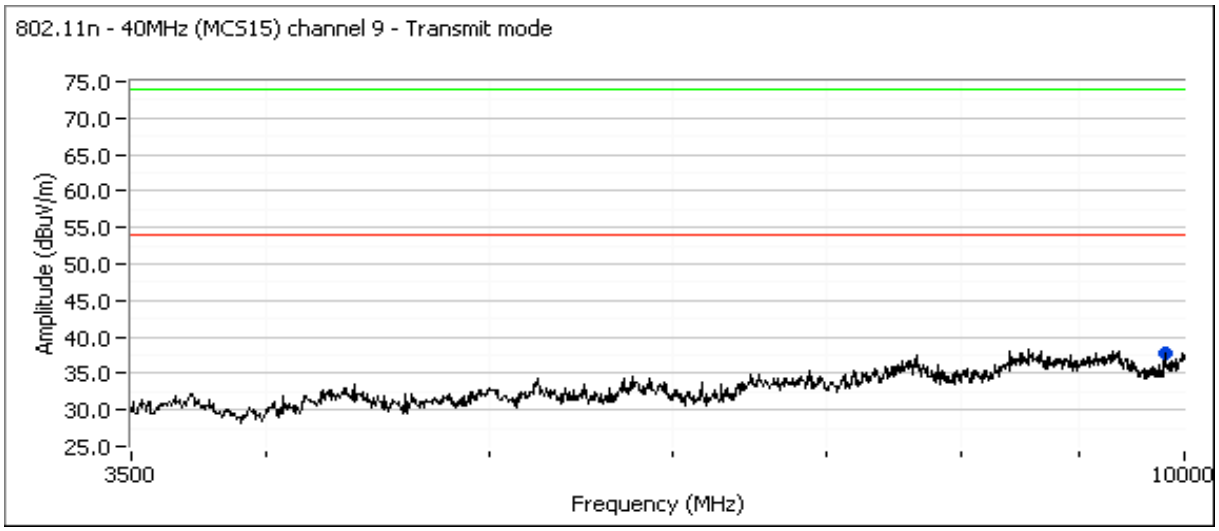


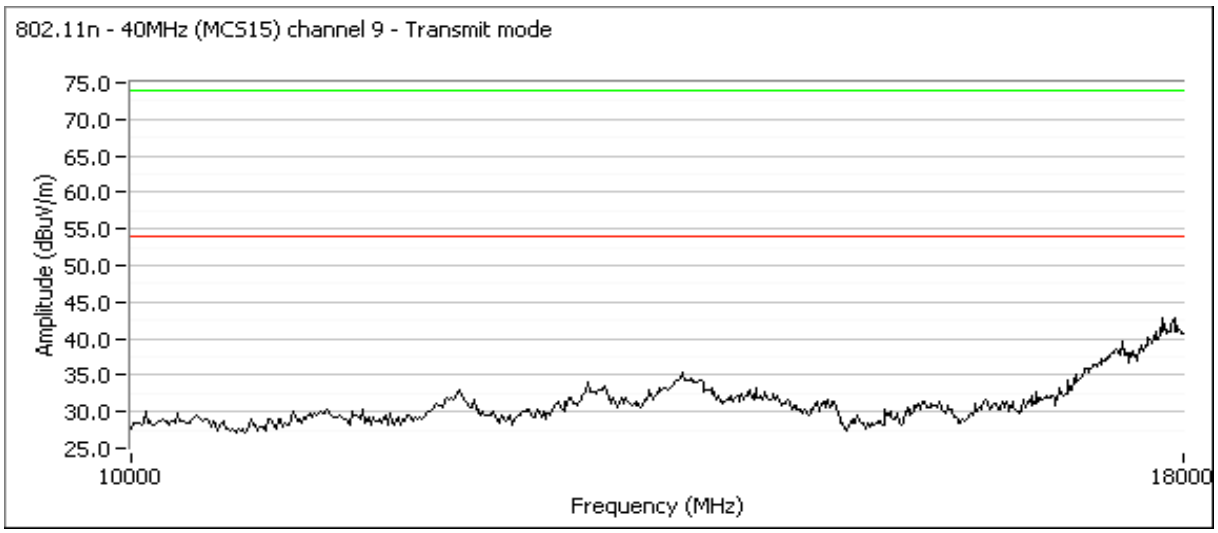
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Radiated Emissions

Test standard(s)ifics

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: 5/2/2007
Test Engineer: Mehran Birgani
Test Location: Fremont Chamber #4

Config. Used: 1
Config Change: None
Host Unit 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.

Ambient Conditions:

Temperature: 22 °C
Rel. Humidity: 40 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1a - c	RE, 30 - 40000 MHz Spurious Emissions	FCC Part 15.209 / 15.407	Pass	47.6dBµV/m @ 10640.6MHz (-6.4dB)

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.

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
8000 - 40000 MHz	1	3	-9.5

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1a: Radiated Spurious Emissions, 30 - 40000 MHz. Channel 36 @ 5180 MHz

	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	83.2	95.0	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	72.2	83.9	Average Measurement (RB=1MHz, VB=10Hz)

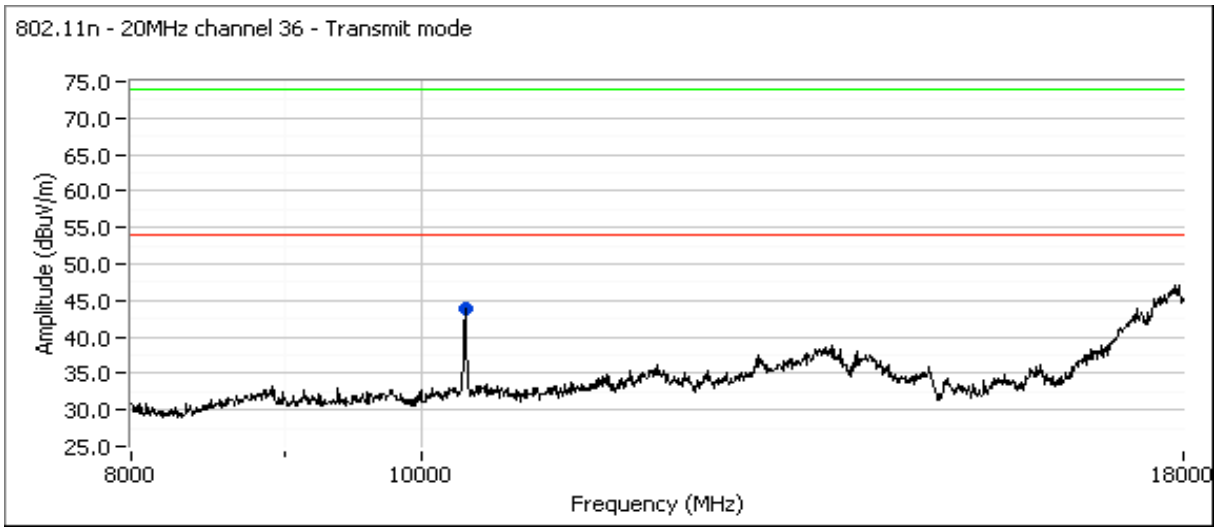
Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
5140.701	51.3	V	54.0	-2.7	AVG	184	1.1	RB=1MHz, VB=10Hz
5146.393	64.7	V	74.0	-9.3	PK	184	1.1	RB=VB=1MHz

Other Spurious Radiated Emissions:

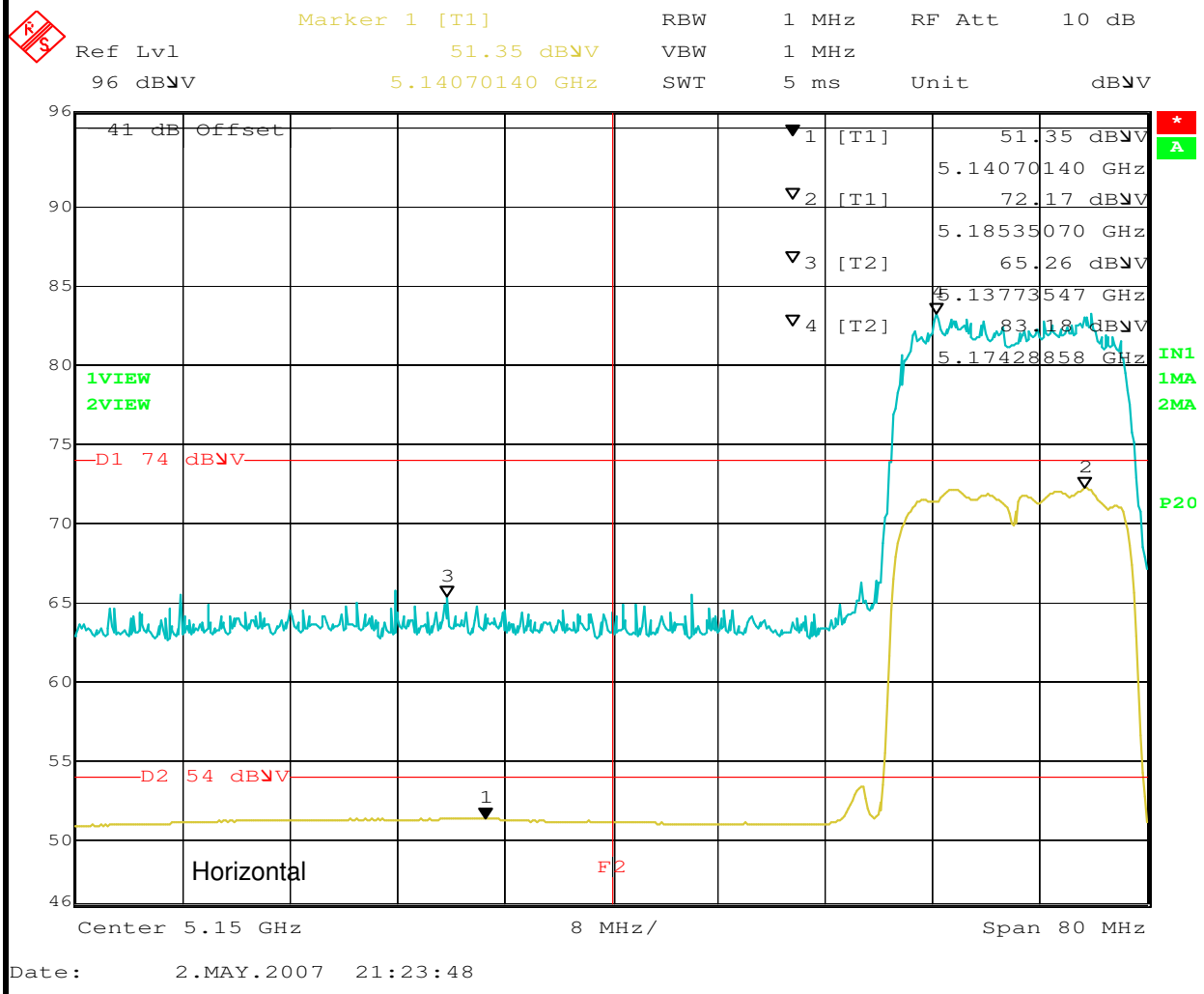
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
10360.080	44.4	V	54.0	-9.6	AVG	89	1.0	
10359.220	39.5	H	54.0	-14.5	AVG	43	1.0	
10360.080	51.6	V	74.0	-22.4	PK	89	1.0	
10359.220	51.1	H	74.0	-22.9	PK	43	1.0	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm/MHz (~68dBuV/m).
Note 2:	All signals above 18GHz were more than -20dB below the limit.



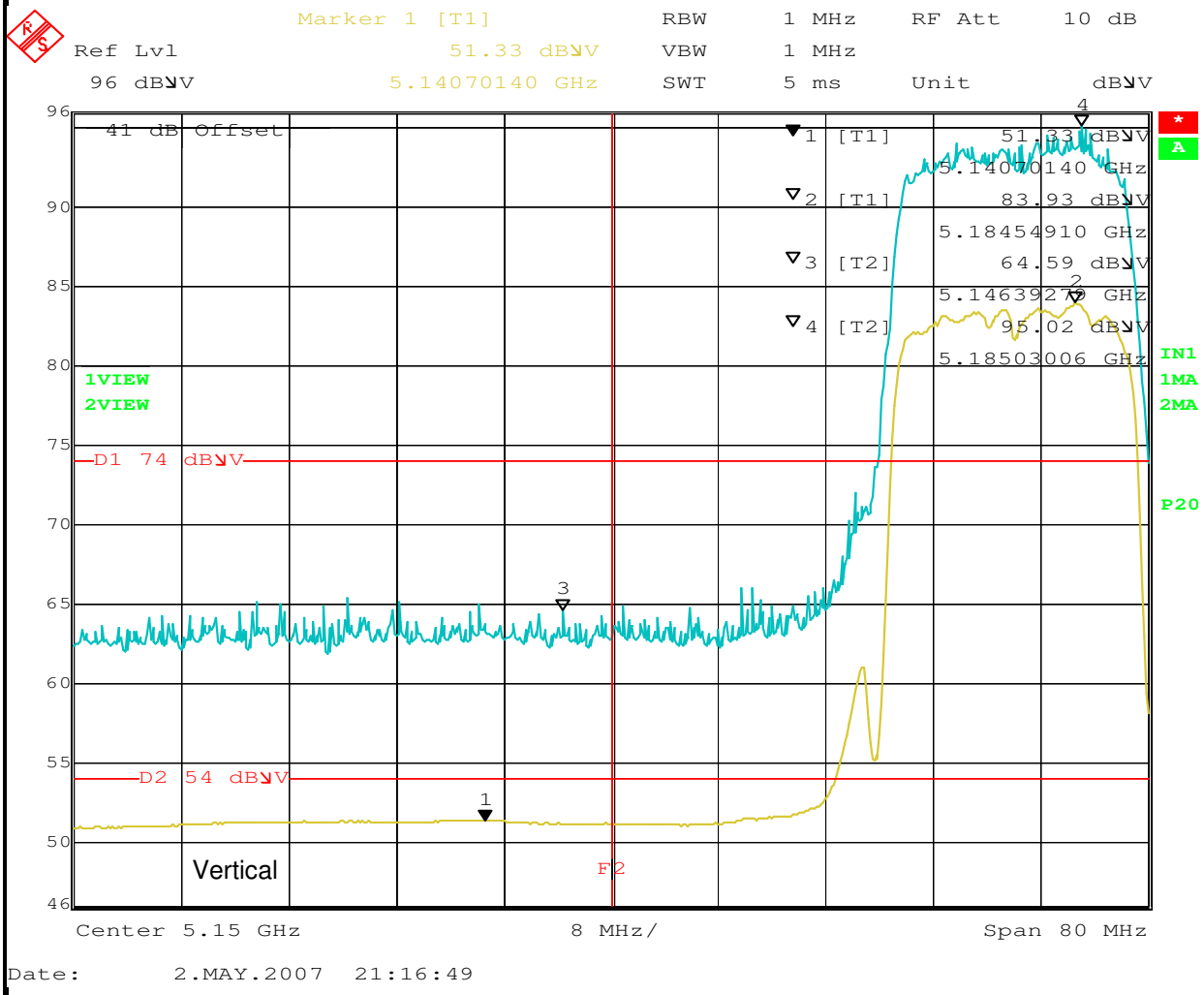
EMC Test Data

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



EMC Test Data

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



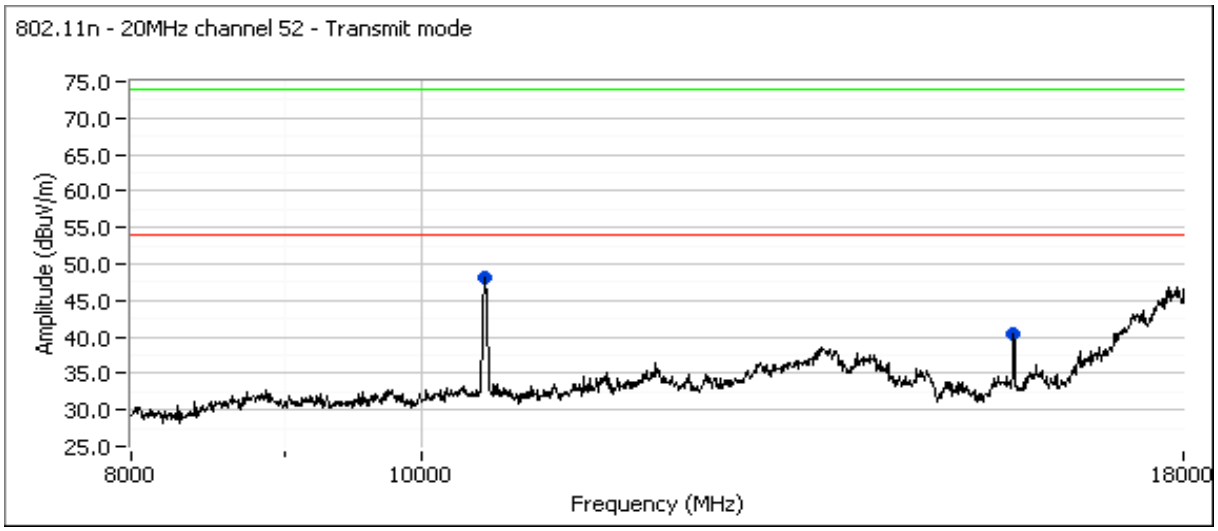
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1b: Radiated Spurious Emissions, 30 - 40000 MHz. Channel 52 @ 5260 MHz

Other Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
10524.710	44.6	V	54.0	-9.4	AVG	87	1.0	
10520.110	42.7	H	54.0	-11.3	AVG	126	1.0	
10524.710	58.6	V	74.0	-15.4	PK	87	1.0	
15782.480	36.6	H	54.0	-17.4	AVG	333	1.0	
15774.840	35.8	V	54.0	-18.2	AVG	61	1.0	
10520.110	54.6	H	74.0	-19.4	PK	126	1.0	
15774.840	50.3	V	74.0	-23.7	PK	61	1.0	
15782.480	49.4	H	74.0	-24.6	PK	333	1.0	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm/MHz (~68dBuV/m).
Note 2:	All signals above 18GHz were more than -20dB below the limit.



Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1c: Radiated Spurious Emissions, 30 - 40000 MHz. Channel 64 @ 5320 MHz

	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	88.5	97.1	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	76.9	85.4	Average Measurement (RB=1MHz, VB=10Hz)

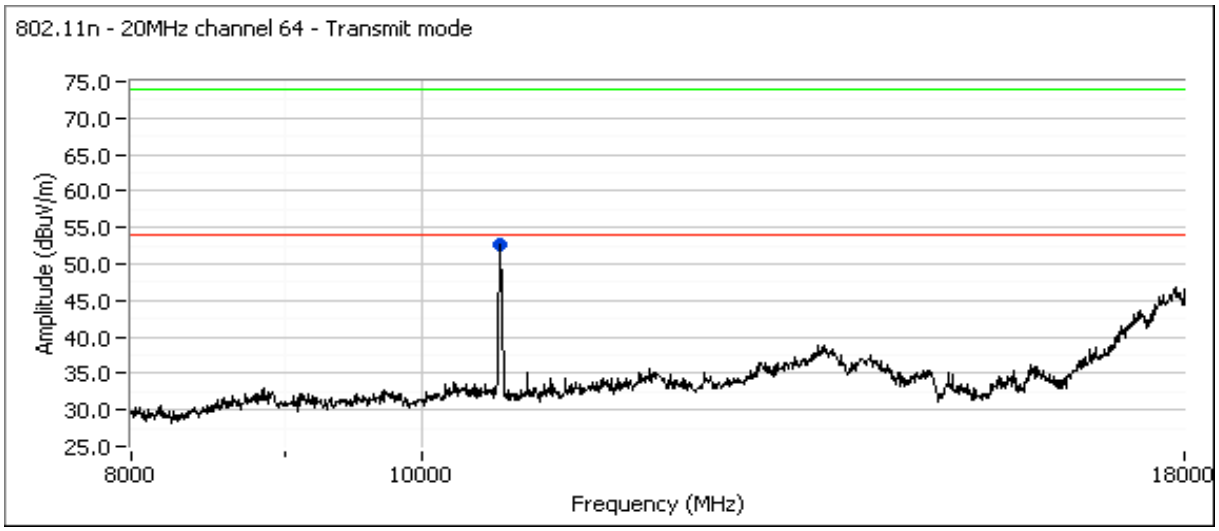
Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
5369.880	50.7	V	54.0	-3.3	AVG	161	1.4	RB=1MHz, VB=10Hz
5361.222	64.5	V	74.0	-9.5	PK	161	1.4	RB=VB=1MHz

Other Spurious Radiated Emissions:

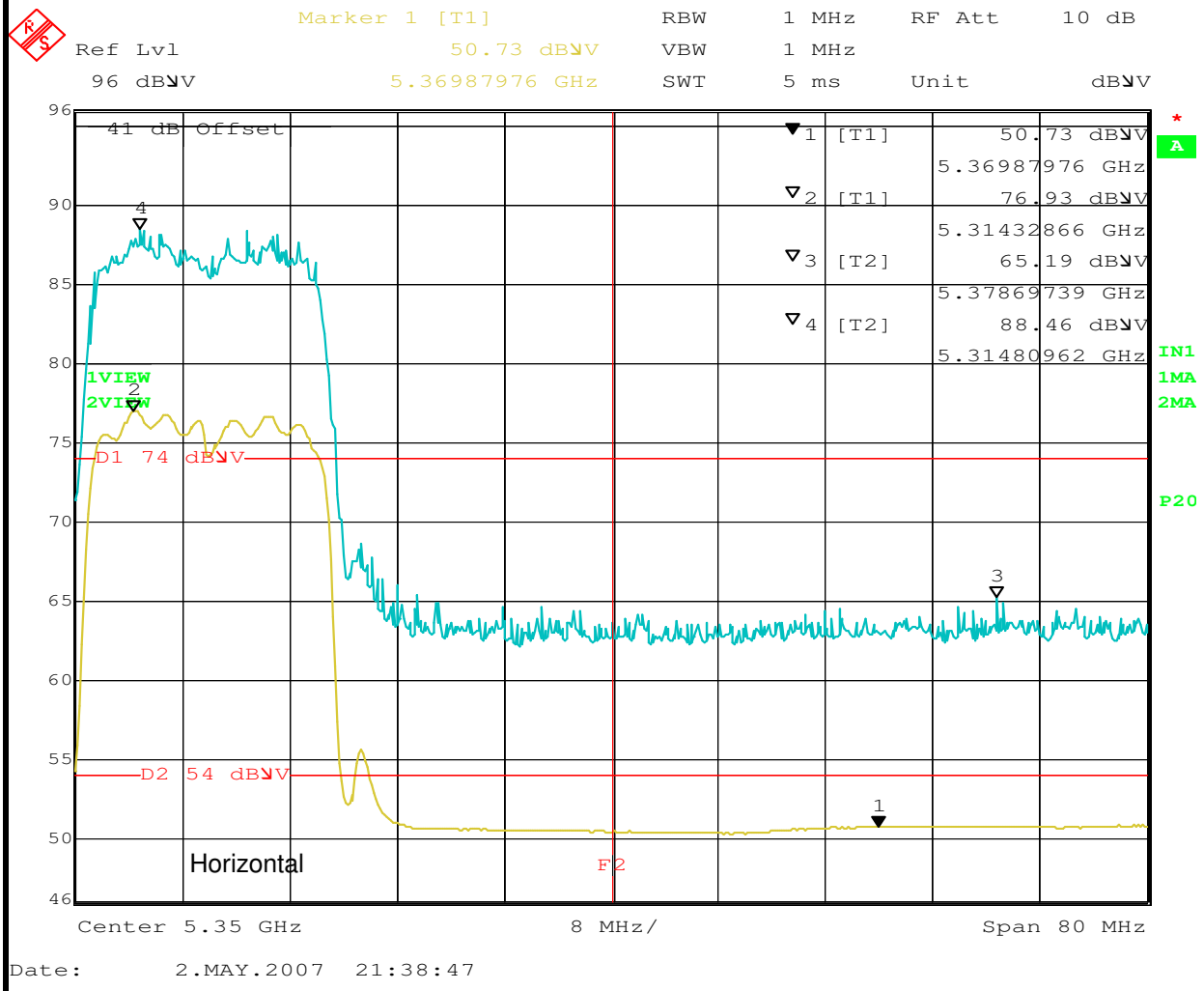
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
10640.560	47.6	V	54.0	-6.4	AVG	86	1.0	
10640.560	58.7	V	74.0	-15.3	PK	86	1.0	
10640.730	35.6	H	54.0	-18.4	AVG	0	1.0	
10640.730	46.6	H	74.0	-27.4	PK	0	1.0	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm/MHz (~68dBuV/m).
Note 2:	All signals above 18GHz were more than -20dB below the limit.



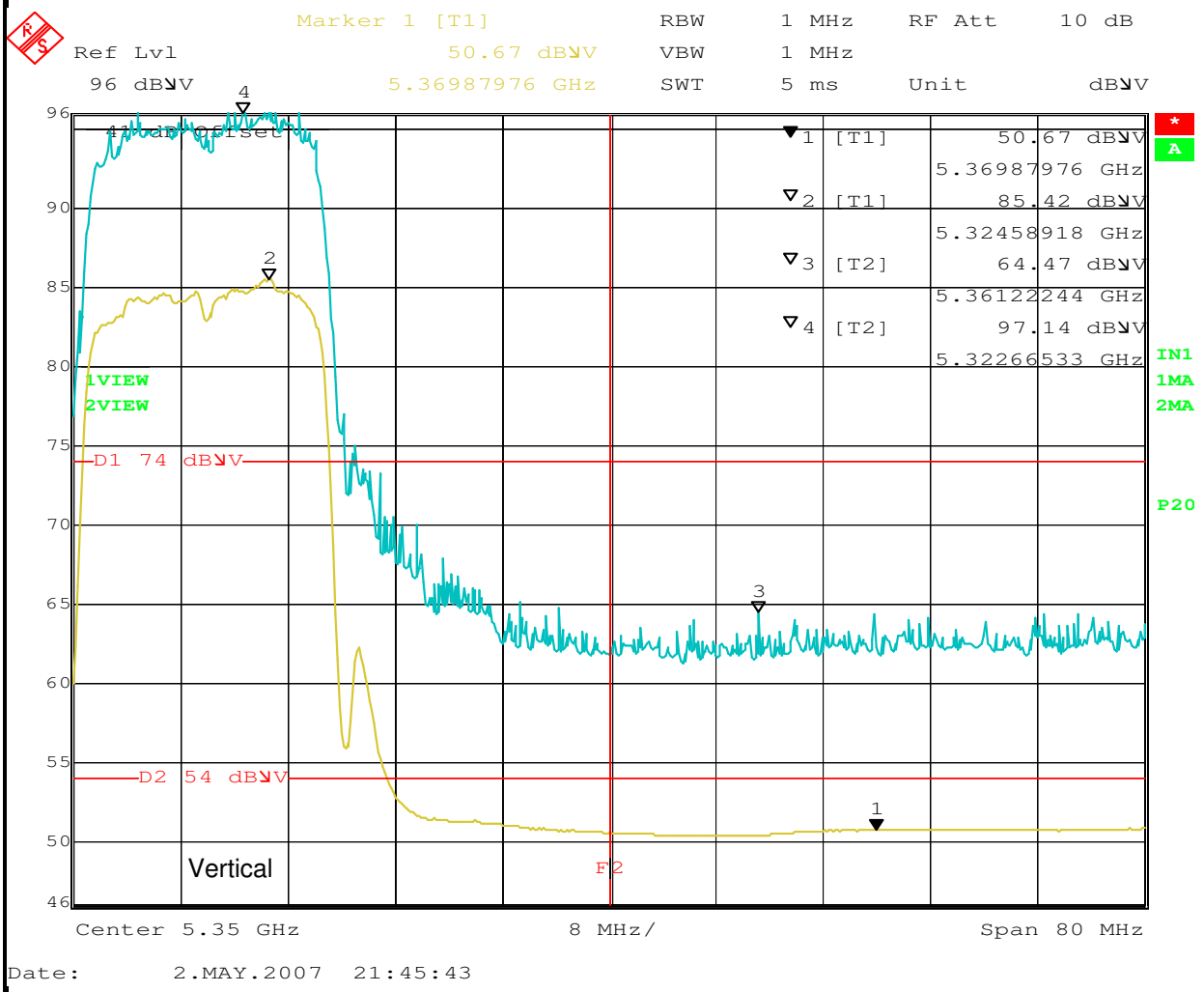
EMC Test Data

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



EMC Test Data

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Radiated Emissions

Test standard(s)ifics

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: 5/2/2007
Test Engineer: Mehran Birgani
Test Location: Fremont Chamber #3

Config. Used: 1
Config Change: None
Host Unit 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.

Ambient Conditions:

Temperature: 22 °C
Rel. Humidity: 40 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1a - c (MCS0)	RE, 30 - 40000 MHz Spurious Emissions	FCC Part 15.209 / 15.407	Pass	48.1dBµV/m @ 10619.9MHz (-5.9dB)
2a (MCS15)	RE, 30 - 40000 MHz Spurious Emissions	FCC Part 15.209 / 15.407	Pass	39.5dBµV/m @ 10380.0MHz (-14.5dB)

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.

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
8000 - 40000 MHz	1	3	-9.5

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1a: Radiated Spurious Emissions, 30 - 40000 MHz. Channel 38 @ 5190 MHz (MCS0)

	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	84.5	95.5	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	72.8	82.1	Average Measurement (RB=1MHz, VB=10Hz)

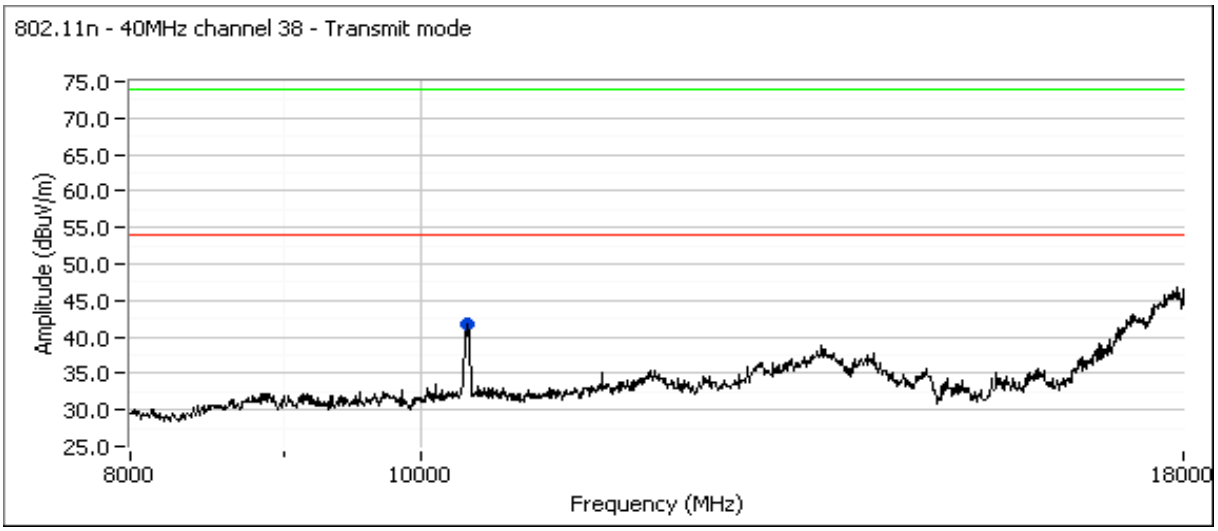
Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
5150.000	51.7	V	54.0	-2.3	AVG	184	1.1	RB=1MHz, VB=10Hz
5148.798	65.2	V	74.0	-8.8	PK	184	1.1	RB=VB=1MHz

Other Spurious Radiated Emissions:

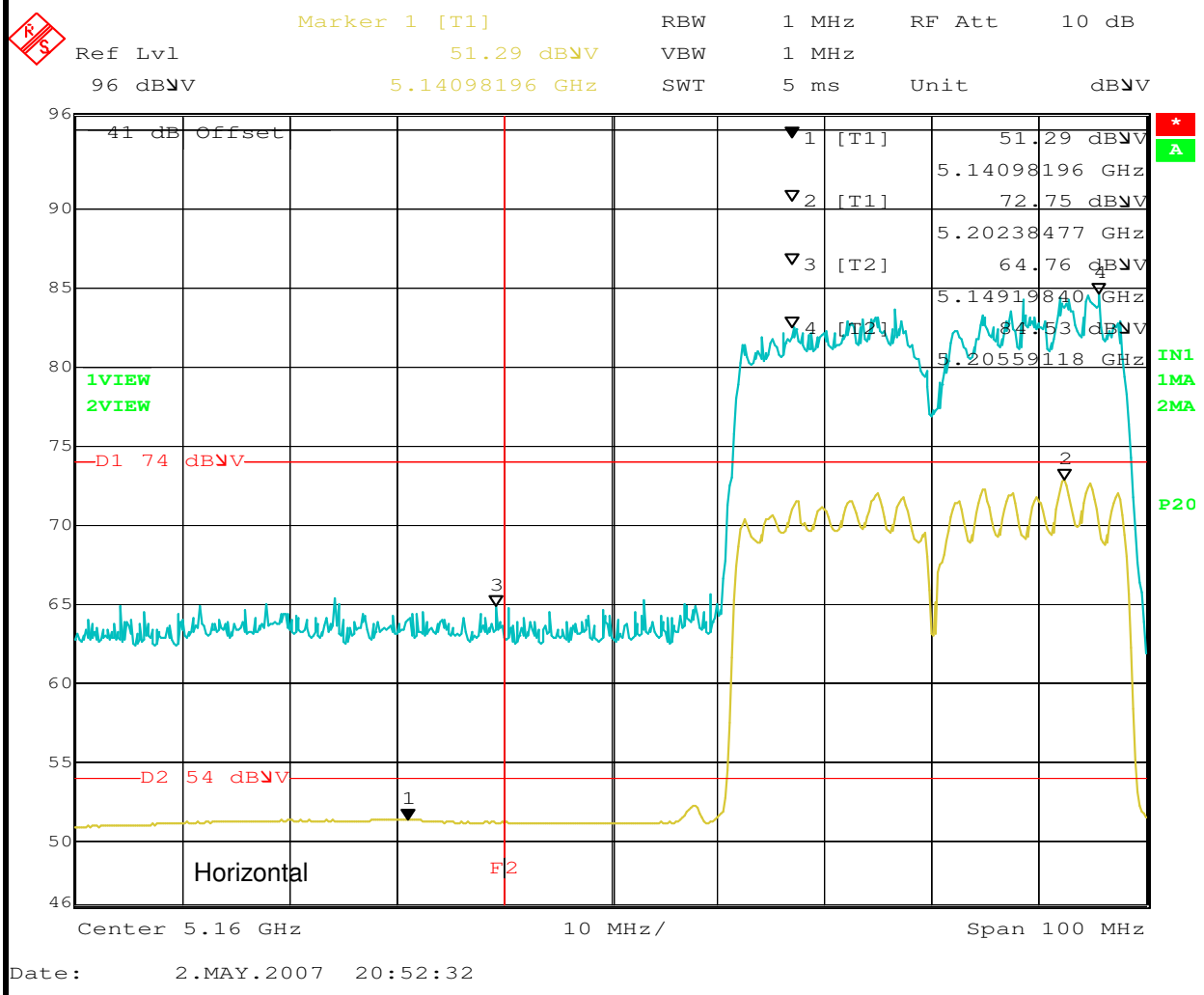
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
10379.870	39.8	H	54.0	-14.2	AVG	39	1.0	
10374.870	38.6	V	54.0	-15.4	AVG	86	1.0	
10379.870	52.5	H	74.0	-21.5	PK	39	1.0	
10374.870	50.6	V	74.0	-23.4	PK	86	1.0	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm/MHz (~68dBuV/m).
Note 2:	All signals above 18GHz were more than -20dB below the limit.



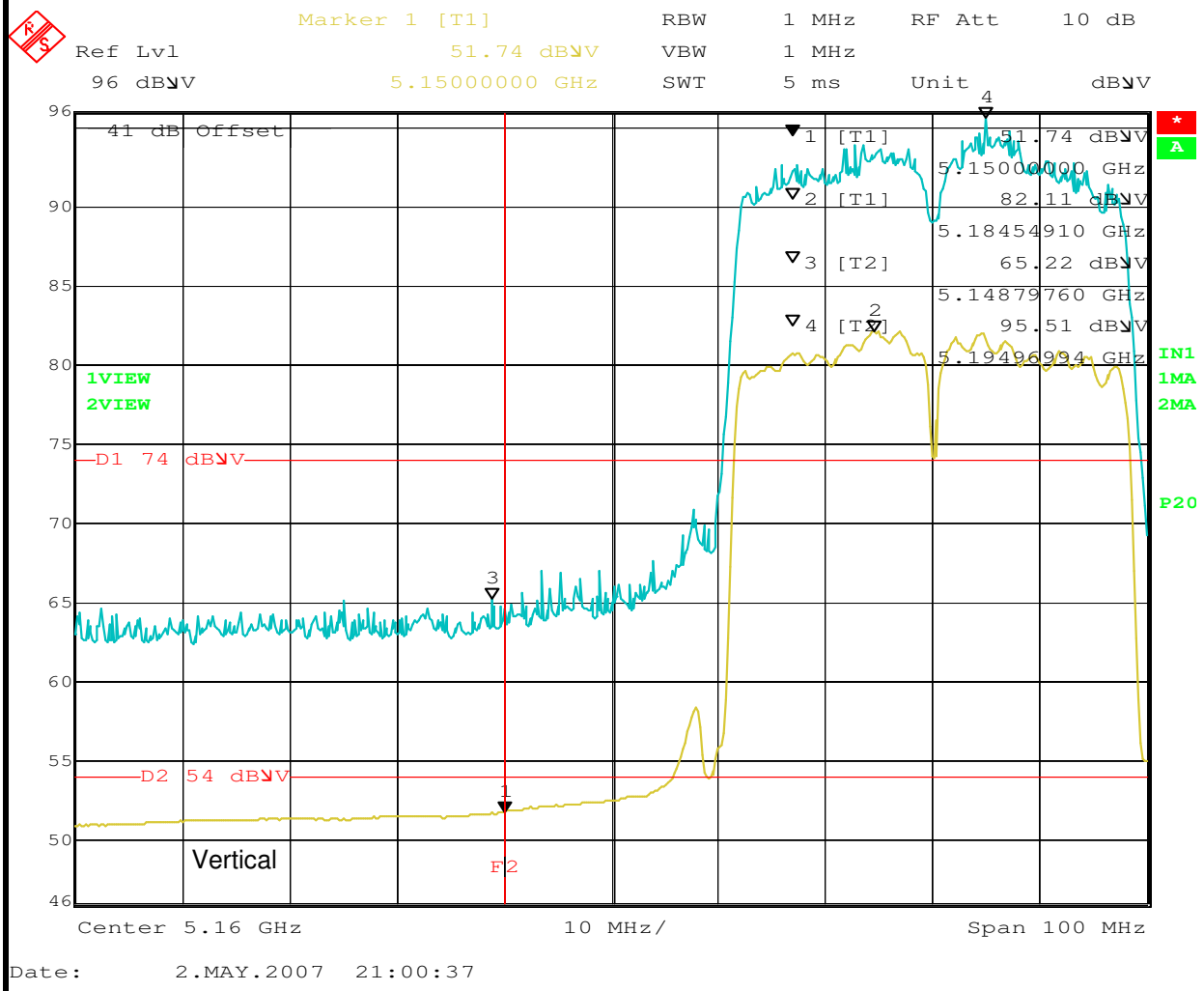
Elliott — EMC Test Data

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



EMC Test Data

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



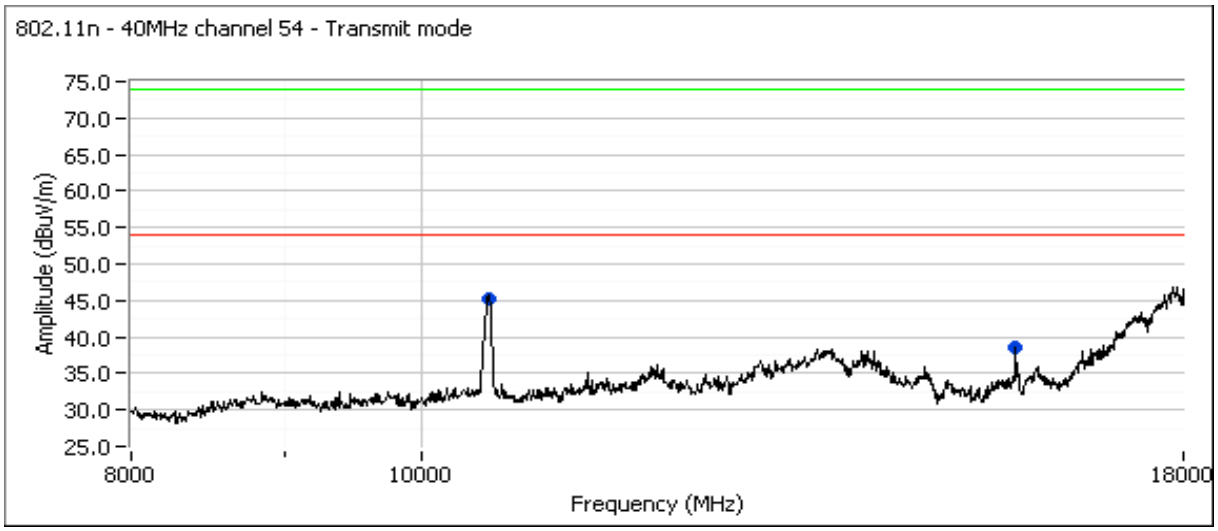
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1b: Radiated Spurious Emissions, 30 - 40000 MHz. Channel 54 @ 5270 MHz (MCS0)

Other Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
10540.160	45.9	V	54.0	-8.1	AVG	85	1.0	
10540.100	42.9	H	54.0	-11.1	AVG	124	1.0	
10540.160	55.7	V	74.0	-18.3	PK	85	1.0	
15811.070	34.4	H	54.0	-19.6	AVG	131	1.0	
15810.930	33.8	V	54.0	-20.2	AVG	90	1.1	
10540.100	52.6	H	74.0	-21.4	PK	124	1.0	
15811.070	46.4	H	74.0	-27.6	PK	131	1.0	
15810.930	45.5	V	74.0	-28.5	PK	90	1.1	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm/MHz (~68dBuV/m).
Note 2:	All signals above 18GHz were more than -20dB below the limit.



Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1c: Radiated Spurious Emissions, 30 - 40000 MHz. Channel 62 @ 5310 MHz (MCS0)

	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	81.3	95.5	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	50.7	50.6	Average Measurement (RB=1MHz, VB=10Hz)

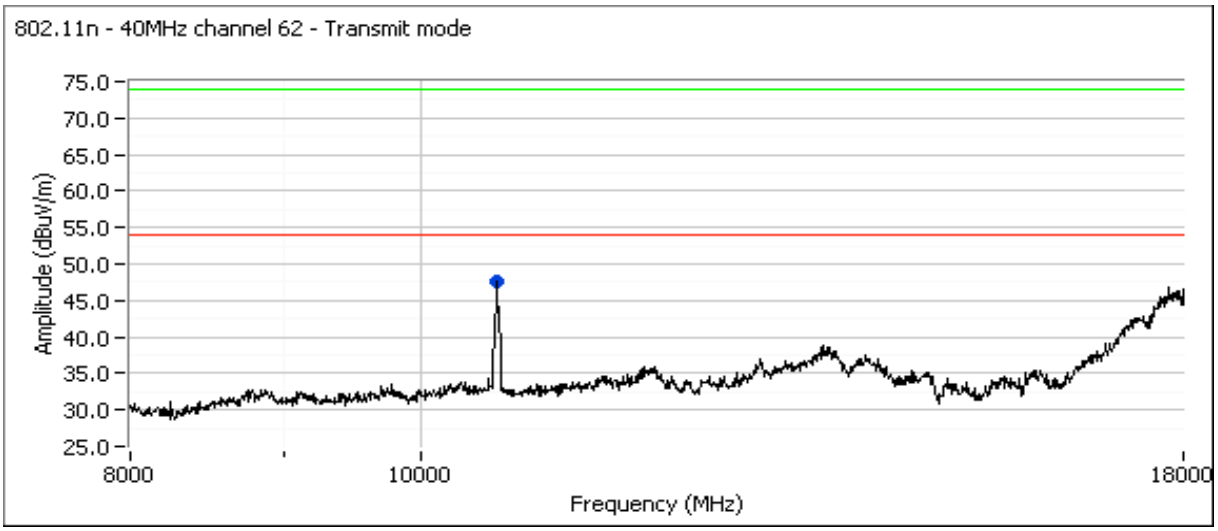
Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
5350.000	50.6	V	54.0	-3.4	AVG	87	1.1	RB=1MHz, VB=10Hz
5352.405	64.3	V	74.0	-9.7	PK	87	1.1	RB=VB=1MHz

Other Spurious Radiated Emissions:

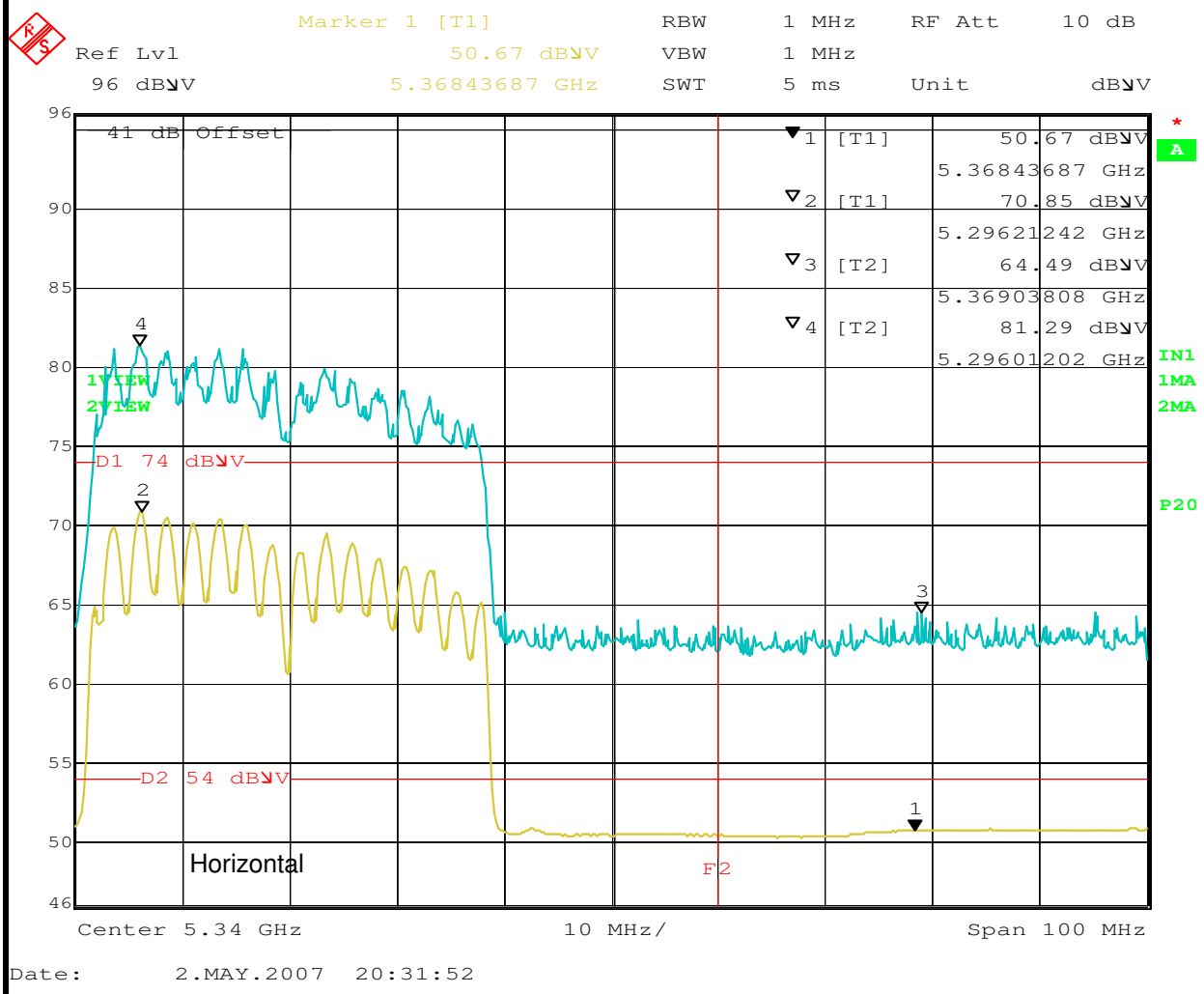
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
10619.920	48.1	V	54.0	-5.9	AVG	86	1.0	
10620.020	41.8	H	54.0	-12.2	AVG	126	1.0	
10619.920	53.9	V	74.0	-20.1	PK	86	1.0	
10620.020	46.7	H	74.0	-27.3	PK	126	1.0	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm/MHz (~68dBuV/m).
Note 2:	All signals above 18GHz were more than -20dB below the limit.

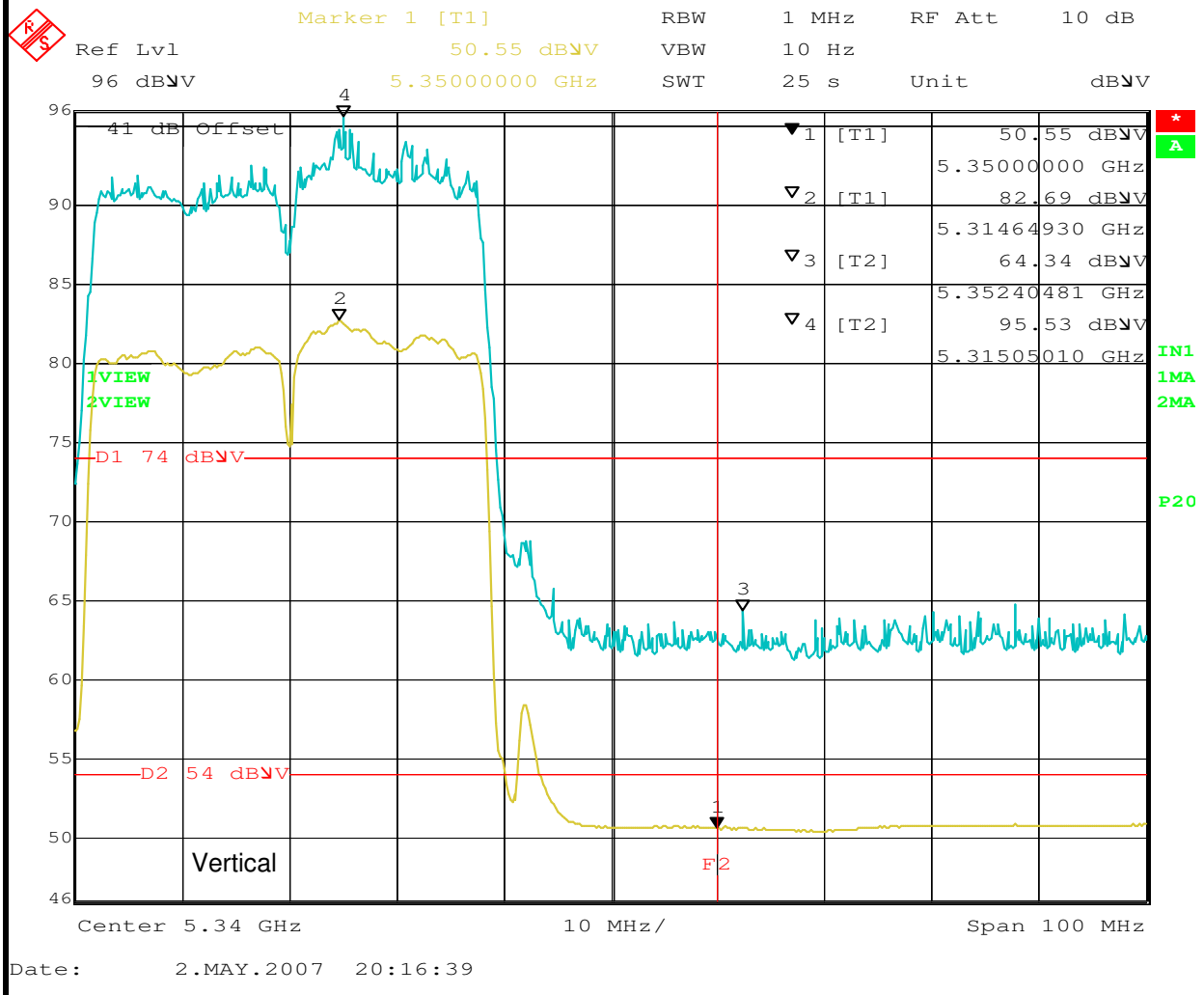


EMC Test Data

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #2a: Radiated Spurious Emissions, 30 - 40000 MHz. Channel 38 @ 5190 MHz (MCS15)

	H	V	
Fundamental emission level @ 3m in 1MHz RBW:	90.9	100.0	Peak Measurement (RB=VB=1MHz)
Fundamental emission level @ 3m in 1MHz RBW:	68.6	75.1	Average Measurement (RB=1MHz, VB=10Hz)

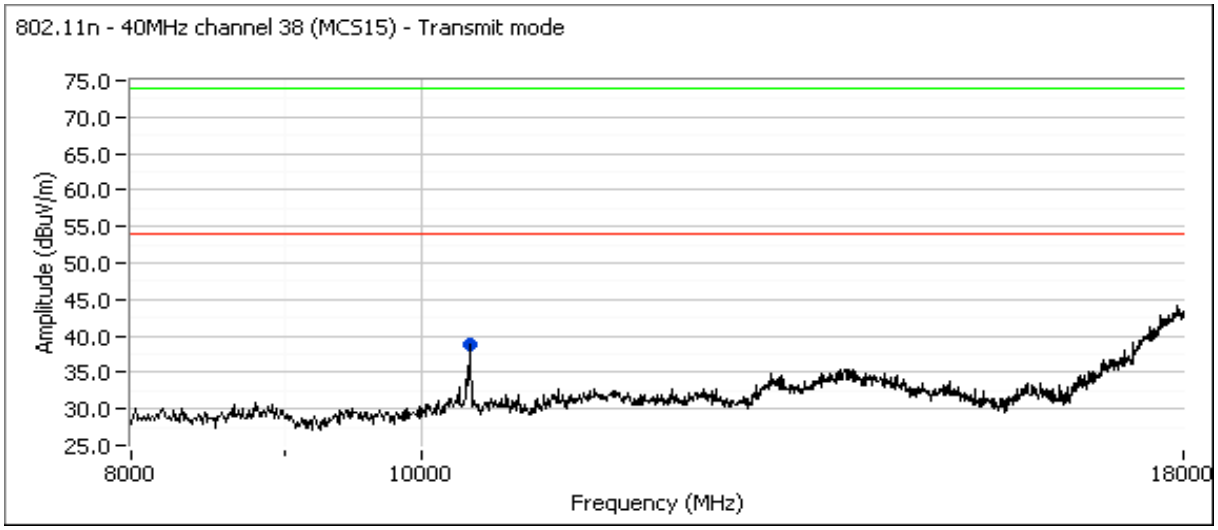
Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
5150.000	49.3	V	54.0	-4.7	AVG	174	1.0	RB=1MHz, VB=10Hz
5149.880	65.7	V	74.0	-8.3	PK	174	1.0	RB=VB=1MHz
5150.000	47.5	H	54.0	-6.5	AVG	17	1.0	RB=1MHz, VB=10Hz
5121.223	61.6	H	74.0	-12.4	PK	17	1.0	RB=VB=1MHz

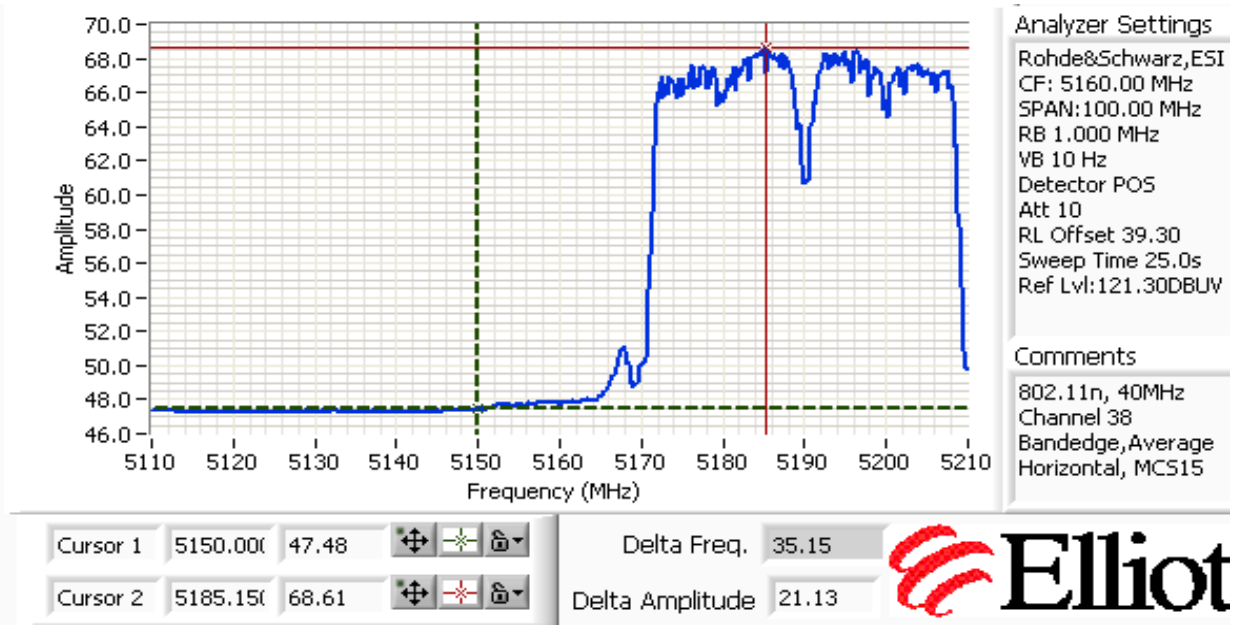
Other Spurious Radiated Emissions:

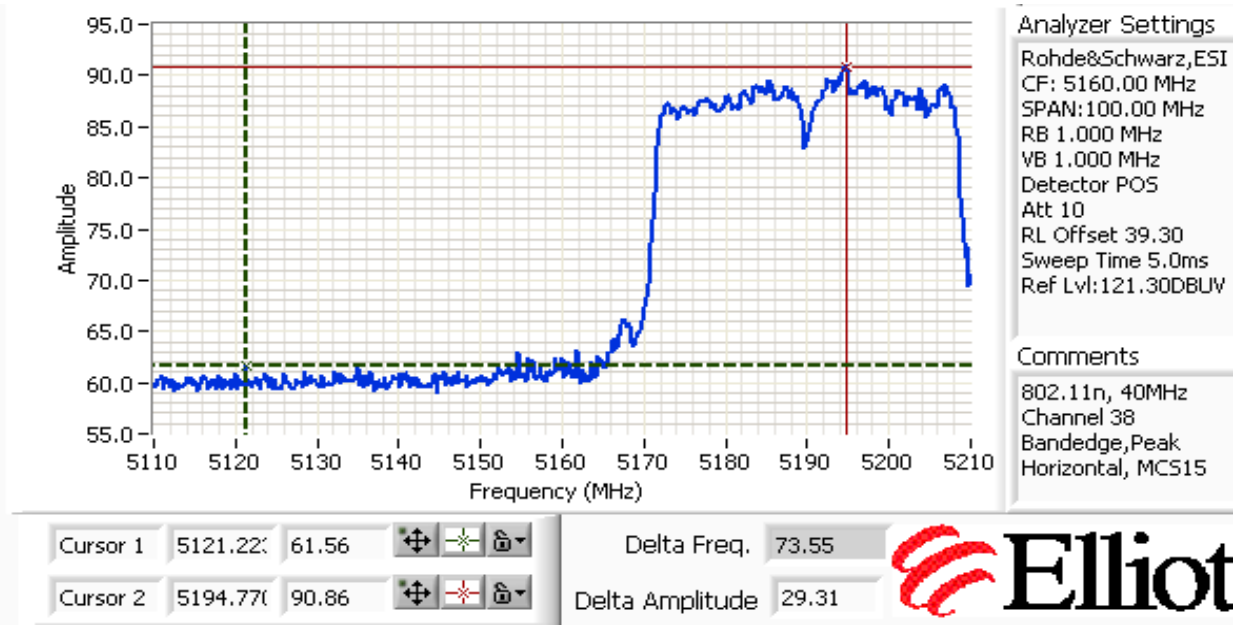
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
10379.990	39.5	V	54.0	-14.5	AVG	57	1.0	
10379.920	37.7	H	54.0	-16.3	AVG	134	1.1	
10379.990	44.7	V	74.0	-29.3	PK	57	1.0	
10379.920	44.6	H	74.0	-29.4	PK	134	1.1	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm/MHz (~68dBuV/m).
Note 2:	All signals above 18GHz were more than -20dB below the limit.

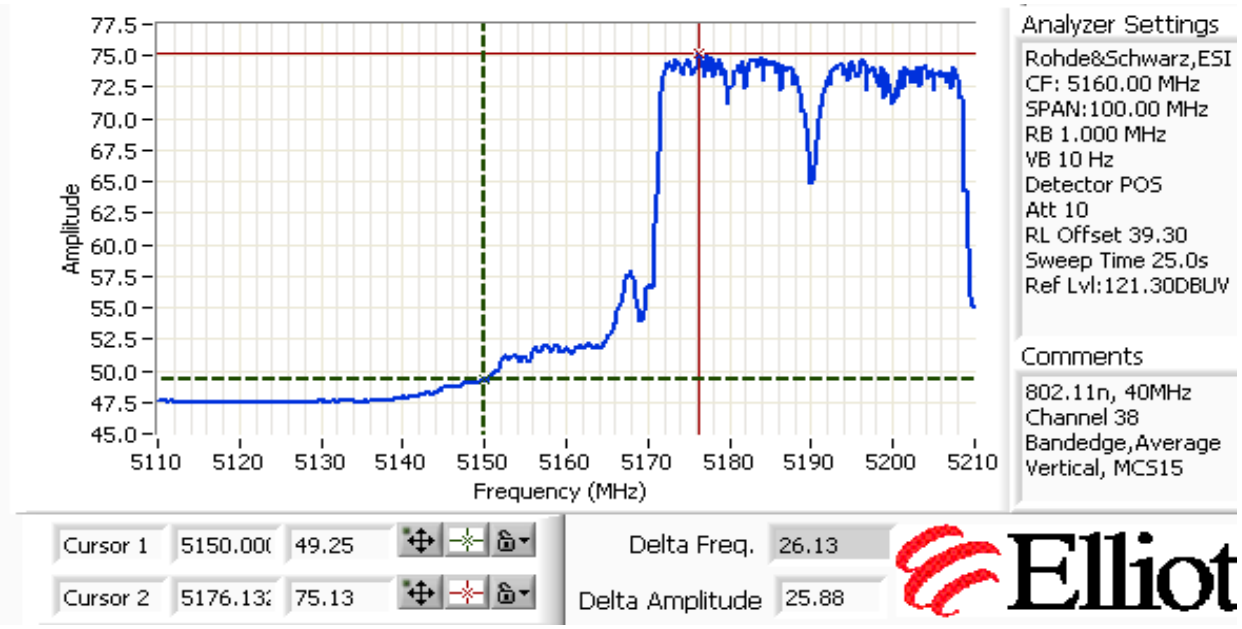


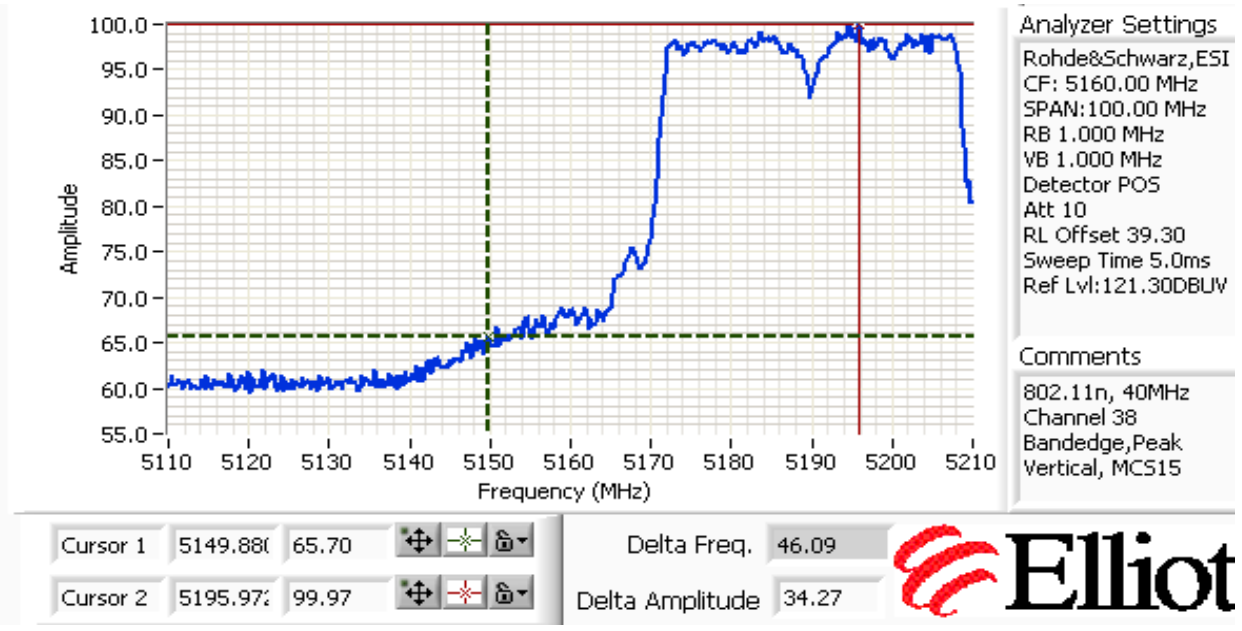
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Radiated Emissions

Test standard(s)ifics

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: 4/24/2007
Test Engineer: Mehran Birgani
Test Location: Fremont Chamber #4

Config. Used: 1
Config Change: None
Host Unit 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.

Ambient Conditions:

Temperature: 20 °C
Rel. Humidity: 42 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1a - c	RE, 30 - 40000 MHz Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	52.3dBµV/m @ 11569.0MHz (-1.7dB)

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.

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
8000 - 40000 MHz	1	3	-9.5

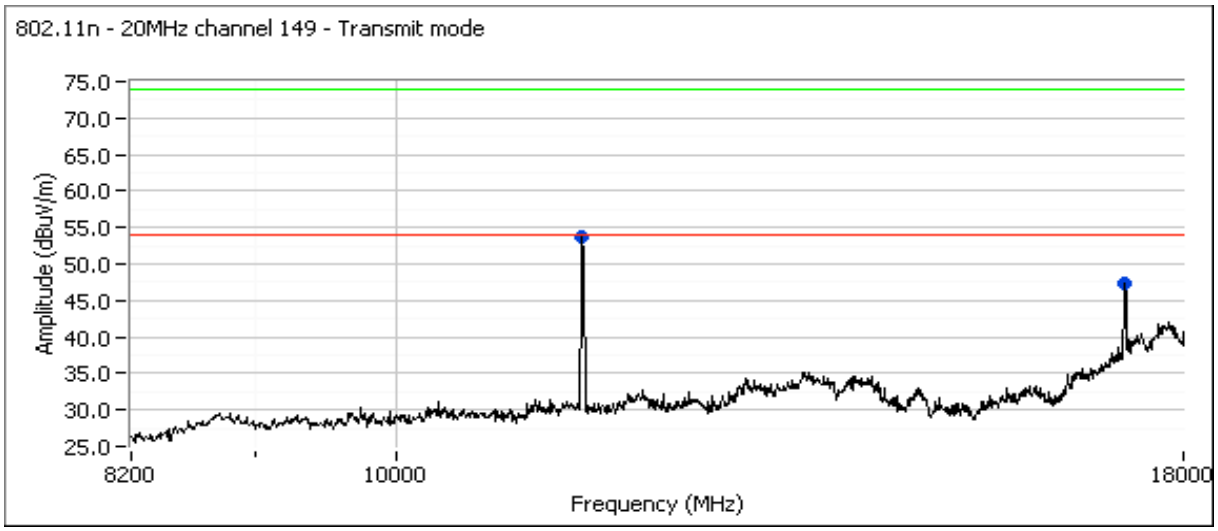
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1a: Radiated Spurious Emissions, 30 - 40000 MHz. Channel 149 @ 5745 MHz

Other Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
11490.140	51.9	V	54.0	-2.1	AVG	307	1.0	
11488.010	51.1	H	54.0	-2.9	AVG	143	1.0	
17237.360	48.5	V	54.0	-5.5	AVG	112	1.0	Not restricted with restricted limits
17232.720	45.9	H	54.0	-8.1	AVG	307	1.0	Not restricted with restricted limits
11490.140	65.6	V	74.0	-8.4	PK	307	1.0	
11488.010	63.0	H	74.0	-11.0	PK	143	1.0	
17237.360	61.0	V	74.0	-13.0	PK	112	1.0	Not restricted with restricted limits
17232.720	58.8	H	74.0	-15.2	PK	307	1.0	Not restricted with restricted limits

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm/MHz (~68dBuV/m).
Note 2:	All signals above 18GHz were more than -20dB below the limit.



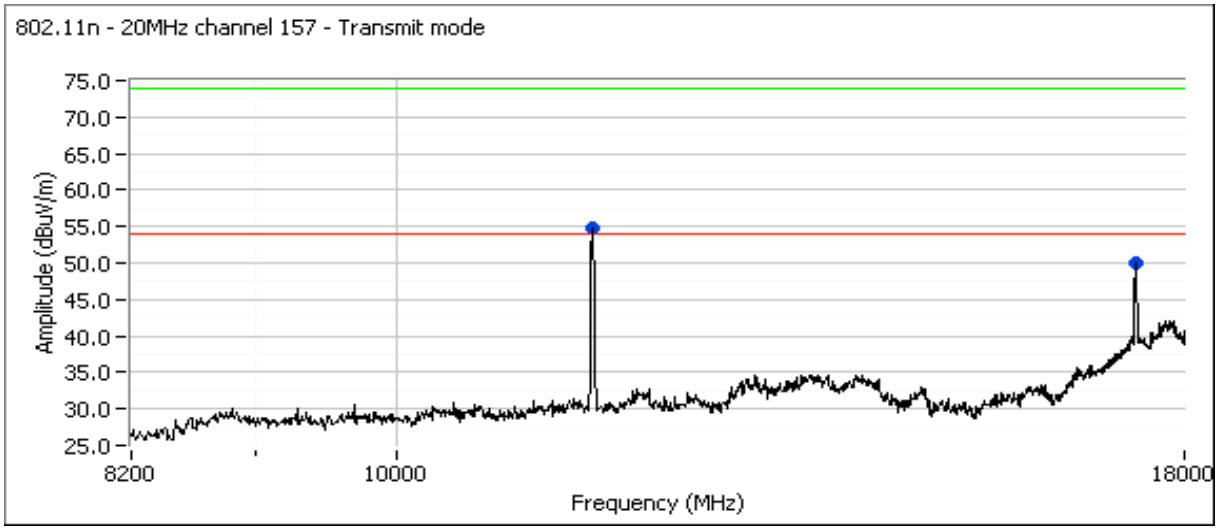
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1b: Radiated Spurious Emissions, 30 - 40000 MHz. Channel 157 @ 5785 MHz

Other Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
11569.030	52.3	V	54.0	-1.7	AVG	125	1.1	Note 3
11569.030	65.7	V	74.0	-8.3	PK	125	1.1	Note 3
11569.370	52.5	H	54.0	-1.5	AVG	274	1.0	Note 3
11569.370	65.0	H	74.0	-9.0	PK	274	1.0	Note 3
17352.570	50.2	V	54.0	-3.8	AVG	115	1.0	Not restricted with restricted limits
17349.970	48.4	H	54.0	-5.6	AVG	56	1.3	Not restricted with restricted limits
17352.570	63.0	V	74.0	-11.0	PK	115	1.0	Not restricted with restricted limits
17349.970	61.8	H	74.0	-12.2	PK	56	1.3	Not restricted with restricted limits

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm/MHz (~68dBuV/m).
Note 2:	All signals above 18GHz were more than -20dB below the limit.
Note 3:	Power was set to 15dBm on 6/15/2007



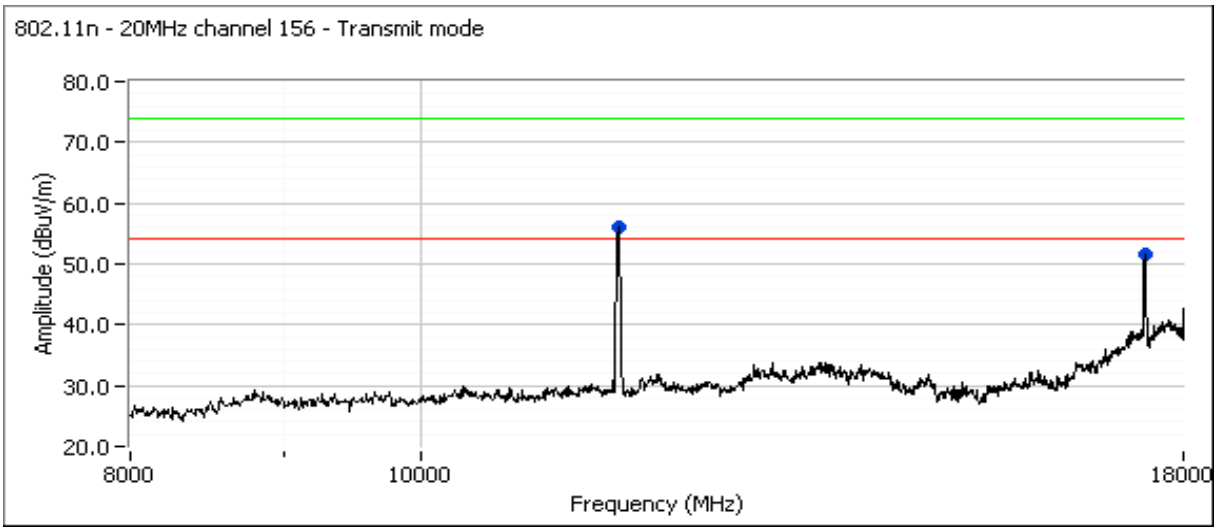
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1c: Radiated Spurious Emissions, 30 - 40000 MHz. Channel 165 @ 5825 MHz

Other Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
17472.420	52.1	H	54.0	-1.9	AVG	106	1.0	Not restricted with restricted limits
11651.370	51.5	H	54.0	-2.5	AVG	12	1.0	Note 3
11651.270	48.7	V	54.0	-5.3	AVG	65	1.1	Note 3
17477.250	46.3	V	54.0	-7.7	AVG	164	1.0	Not restricted with restricted limits
17472.420	65.3	H	74.0	-8.7	PK	106	1.0	Not restricted with restricted limits
11651.370	63.3	H	74.0	-10.7	PK	12	1.0	Note 3
11651.270	60.2	V	74.0	-13.8	PK	65	1.1	Note 3
17477.250	58.6	V	74.0	-15.4	PK	164	1.0	Not restricted with restricted limits

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm/MHz (~68dBuV/m).
Note 2:	All signals above 18GHz were more than -20dB below the limit.



Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Radiated Emissions

Test standard(s)ifics

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: 4/24/2007
Test Engineer: Mehran Birgani
Test Location: Fremont Chamber #5

Config. Used: 1
Config Change: None
Host Unit 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.

Ambient Conditions:

Temperature: 19 °C
Rel. Humidity: 42 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1a - b	RE, 30 - 40000 MHz Spurious Emissions	FCC Part 15.209 / 15.247(c)	Pass	53.5dBµV/m (473.2µV/m) @ 11590.4MHz (-0.5dB)

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.

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
8000 - 40000 MHz	1	3	-9.5

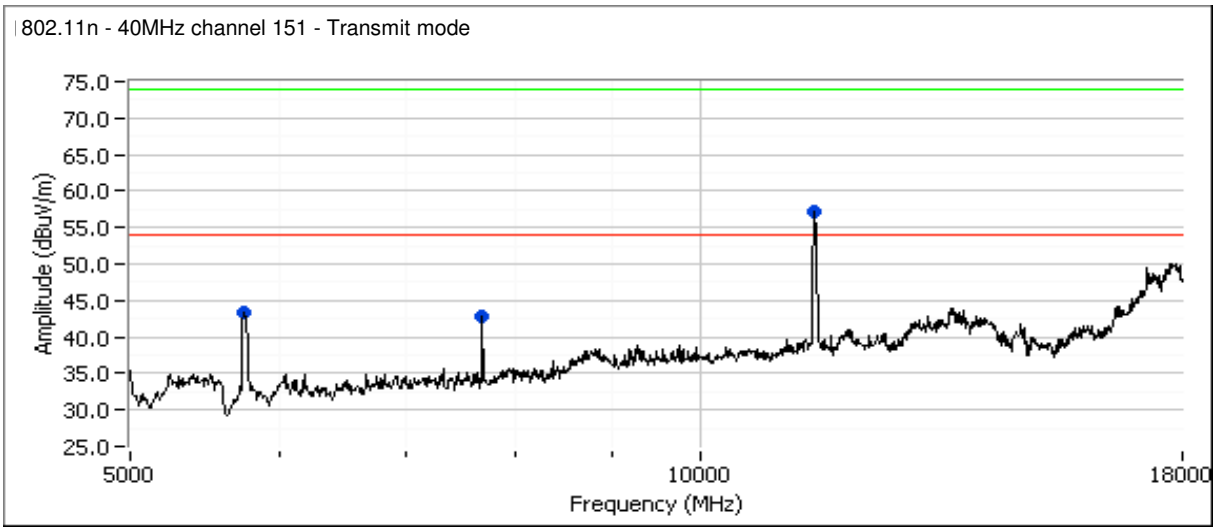
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1a: Radiated Spurious Emissions, 30 - 40000 MHz. Channel 151 @ 5755 MHz

Other Spurious Radiated Emissions:

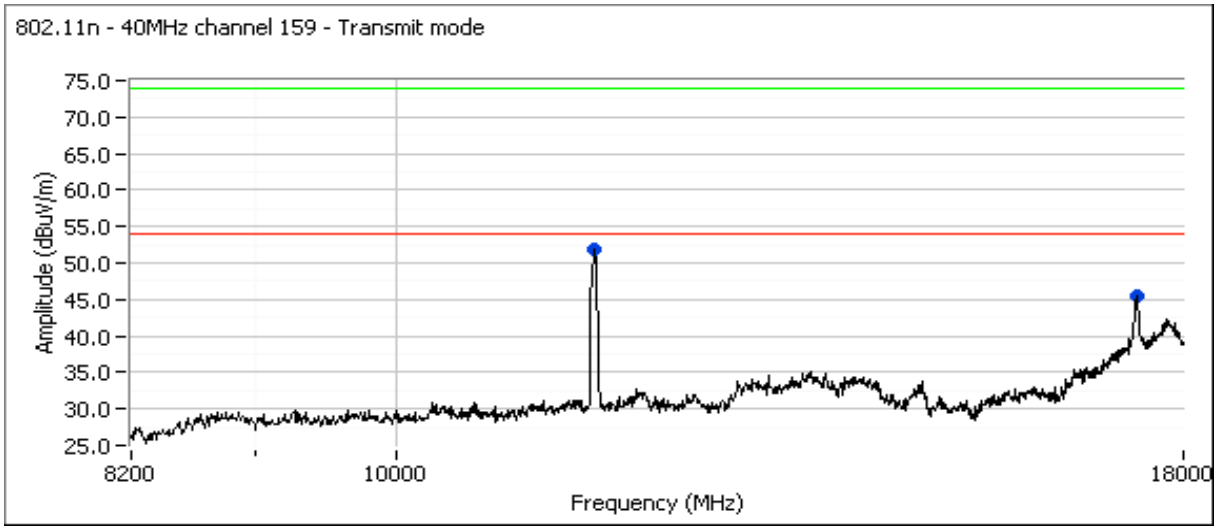
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
11511.370	50.2	H	54.0	-3.8	AVG	236	1.0	Note 3
11501.730	49.6	V	54.0	-4.4	AVG	272	1.0	Note 3
11511.370	63.0	H	74.0	-11.0	PK	236	1.0	Note 3
11501.730	60.7	V	74.0	-13.3	PK	272	1.0	Note 3

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm/MHz (~68dBuV/m).
Note 2:	All signals above 18GHz were more than -20dB below the limit.
Note 3:	Power was set to 15dBm on 6/15/2007



Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #1b: Radiated Spurious Emissions, 30 - 40000 MHz. Channel 159 @ 5795 MHz



Other Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
11590.370	53.5	H	54.0	-0.5	AVG	144	1.1	
11590.440	53.1	V	54.0	-0.9	AVG	149	1.0	
11590.370	64.9	H	74.0	-9.1	PK	144	1.1	
17387.620	44.4	V	54.0	-9.6	AVG	268	1.0	Not restricted with restricted limits
11590.440	62.8	V	74.0	-11.2	PK	149	1.0	Not restricted with restricted limits
17380.850	38.8	H	54.0	-15.2	AVG	252	1.0	
17387.620	56.3	V	74.0	-17.7	PK	268	1.0	Not restricted with restricted limits
17380.850	50.0	H	74.0	-24.0	PK	252	1.0	Not restricted with restricted limits

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm/MHz (~68dBuV/m).
Note 2:	All signals above 18GHz were more than -20dB below the limit.

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	Radio

Radiated Emissions

Test standard(s)ifics

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: 4/24/2007
Test Engineer: Mehran Birgani
Test Location: Fremont Chamber #4
Config. Used: -
Config Change: -
Host Unit Voltage 120V/60Hz

General Test Configuration

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

The test distance and extrapolation factor (if applicable) are detailed under each run description.

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: 18 °C
Rel. Humidity: 35 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1 (802.11n 20MHz) Channel 120	RE, 1000 - 18000 MHz Maximized Emissions	FCC Class B	Pass	50.2dBµV/m (323.6µV/m) @ 11199.9MHz (-3.8dB)
2 (802.11n 40MHz) Channel 118	RE, 1000 - 18000 MHz Maximized Emissions	FCC Class B	Pass	53.9dBµV/m (495.5µV/m) @ 11179.9MHz (-0.1dB)

Modifications Made During Testing:

No modifications were made to the EUT during testing

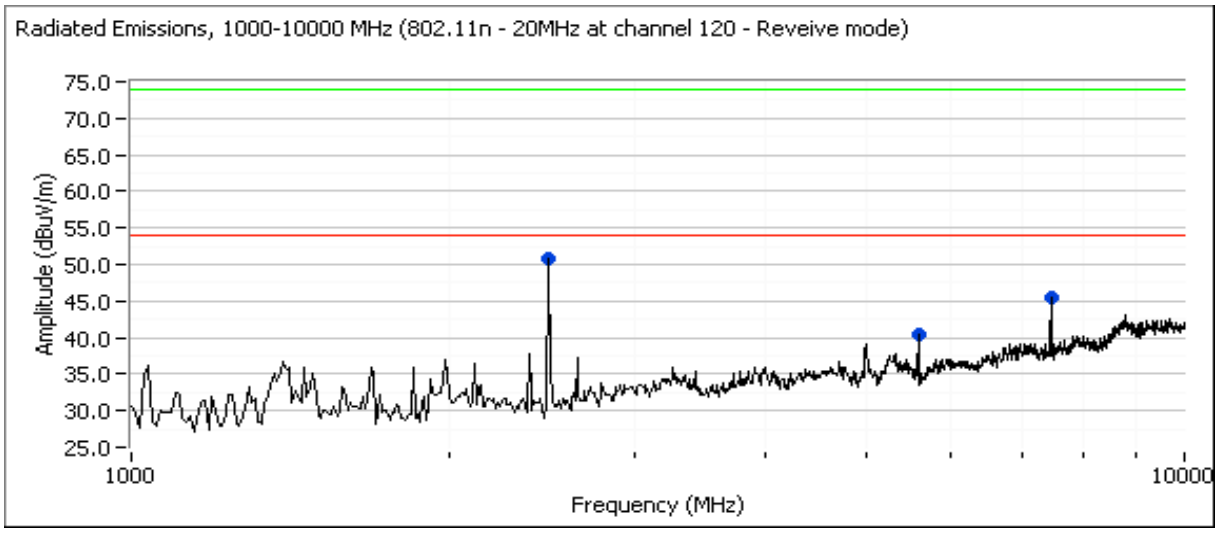
Deviations From The Standard

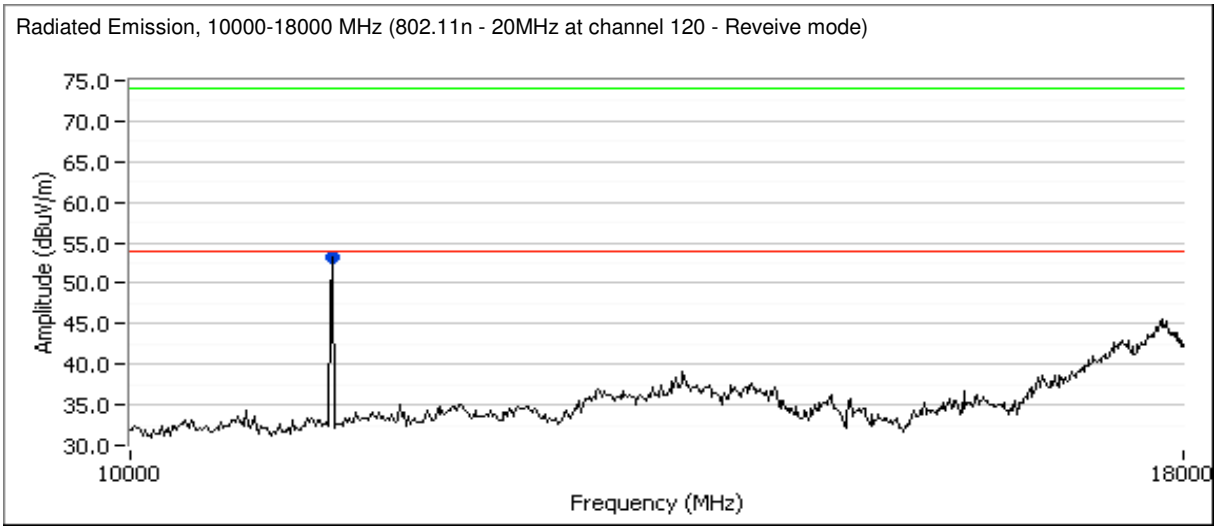
No deviations were made from the requirements of the standard.

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
1000 - 10000 MHz	3	3	0.0
10000 - 18000 MHz	1	3	-9.5

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	Radio

Run #1: Radiated Emissions, 1000-18000 MHz (802.11n - 20MHz at channel 120 - Receive mode)





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	Radio

Run #1: Radiated Emissions, 1000-18000 MHz (802.11n - 20MHz at channel 120 - Receive mode)
Preliminary peak readings captured during pre-scan

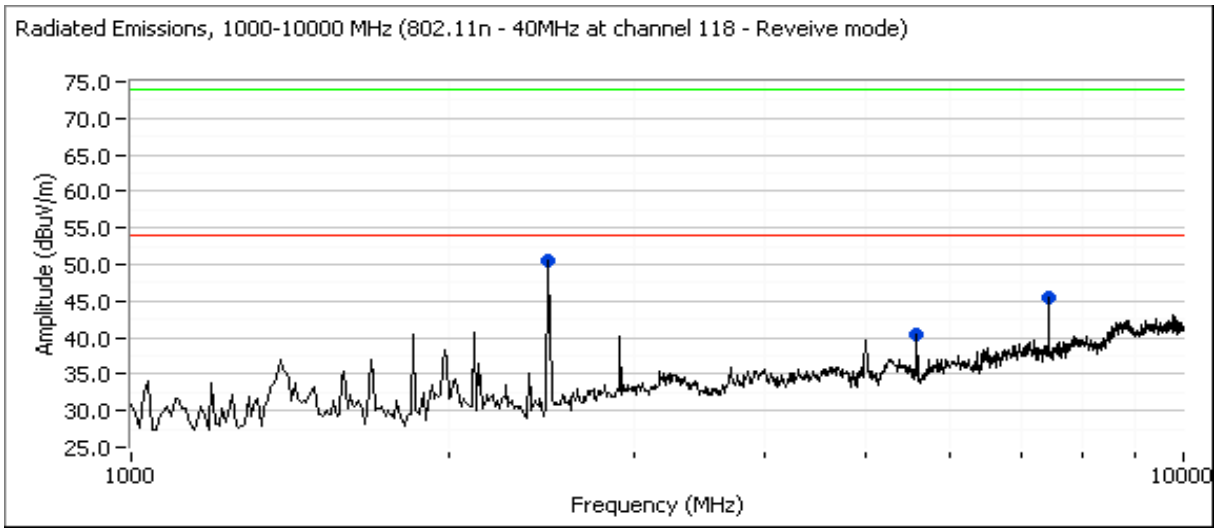
Frequency	Level	Pol	FCC Class B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
2499.290	50.9	H	54.0	-3.1	Peak	34	2.0	
5600.000	40.3	H	54.0	-13.7	Peak	229	1.0	
7466.670	45.4	H	54.0	-8.6	Peak	285	1.4	
11200.070	53.2	H	54.0	-0.8	Peak	146	1.1	

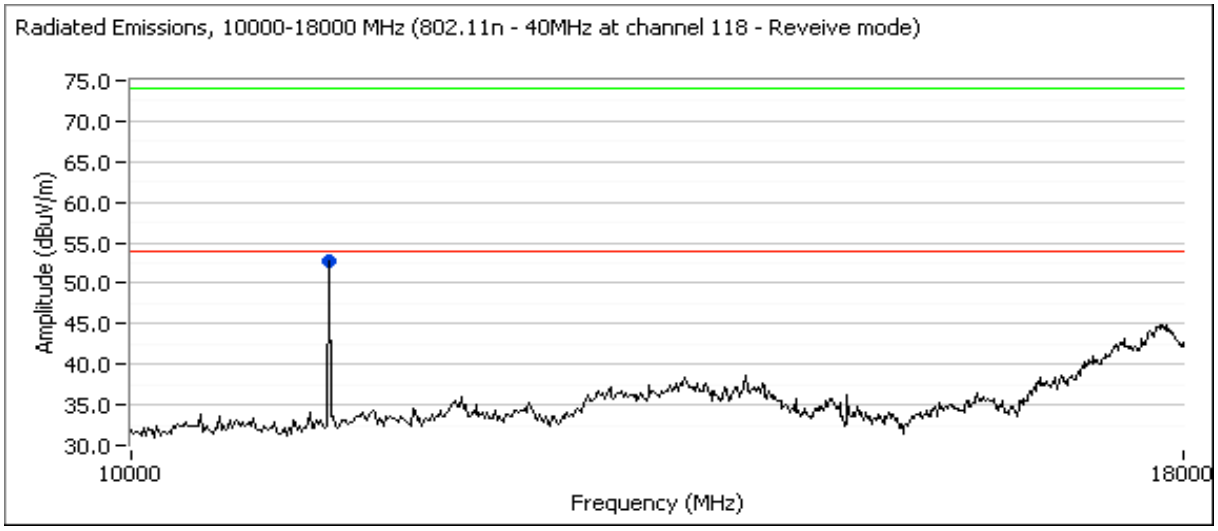
Final peak and average readings

Frequency	Level	Pol	FCC Class B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
11199.920	50.2	H	54.0	-3.8	AVG	111	1.0	
2489.890	55.8	H	74.0	-18.2	PK	47	1.3	
7466.670	34.8	H	54.0	-19.2	AVG	318	1.3	
11199.920	51.5	H	74.0	-22.5	PK	111	1.0	
2489.890	20.5	H	54.0	-33.5	AVG	47	1.3	
7466.670	40.2	H	74.0	-33.8	PK	318	1.3	

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	Radio

Run #2: Radiated Emissions, 1000-18000 MHz (802.11n - 40MHz at channel 118 - Receive mode)





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	Radio

Run #2: Radiated Emissions, 1000-18000 MHz (802.11n - 40MHz at channel 118 - Receive mode)
Preliminary peak readings captured during pre-scan

Frequency	Level	Pol	FCC Class B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
11180.250	52.7	H	54.0	-1.3	Peak	145	1.1	
2488.710	50.4	V	54.0	-3.6	Peak	282	1.6	
7453.360	45.4	H	54.0	-8.6	Peak	230	1.1	
5589.960	40.4	H	54.0	-13.6	Peak	249	2.0	

Final peak and average readings

Frequency	Level	Pol	FCC Class B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
11179.900	53.9	H	54.0	-0.1	AVG	62	1.0	
7453.270	43.3	H	54.0	-10.7	AVG	227	1.1	
2495.440	59.5	V	74.0	-14.5	PK	356	1.1	
11179.900	56.5	H	74.0	-17.5	PK	62	1.0	
7453.270	48.5	H	74.0	-25.5	PK	227	1.1	
2495.440	27.6	V	54.0	-26.4	AVG	356	1.1	

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Antenna Port Measurements
Power, Bandwidth and Spurious Emissions

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: 4/18/2007 Config. Used: -
Test Engineer: Mehran Birgani Config Change: -
Test Location: Fremont Chamber #5 Host Unit Voltage 120V/60Hz

General Test Configuration

The EUT was connected to the spectrum analyzer or power meter via a suitable attenuator. All measurements were made on a single chain.

All measurements have been corrected to allow for the external attenuators used.

Ambient Conditions:

Temperature: 17 °C
Rel. Humidity: 39 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Output Power	15.247(b)	Pass	20.9 dBm
2	Power spectral Density (PSD)	15.247(d)	Pass	3.5 dBm/3kHz
3	6dB Bandwidth	15.247(a)	Pass	10.3 MHz
3	99% Bandwidth	RSS GEN	-	13.2 MHz
4	Spurious emissions	15.247(b)	Pass	> -30dBc

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

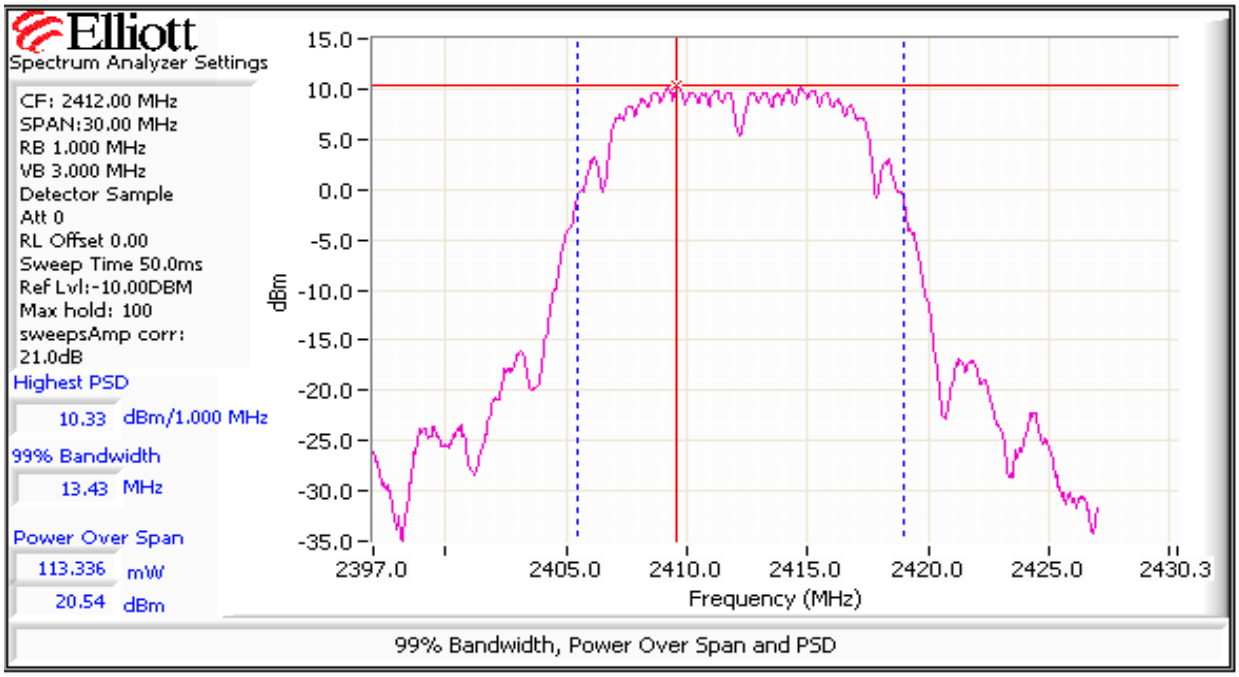
No deviations were made from the requirements of the standard.

Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

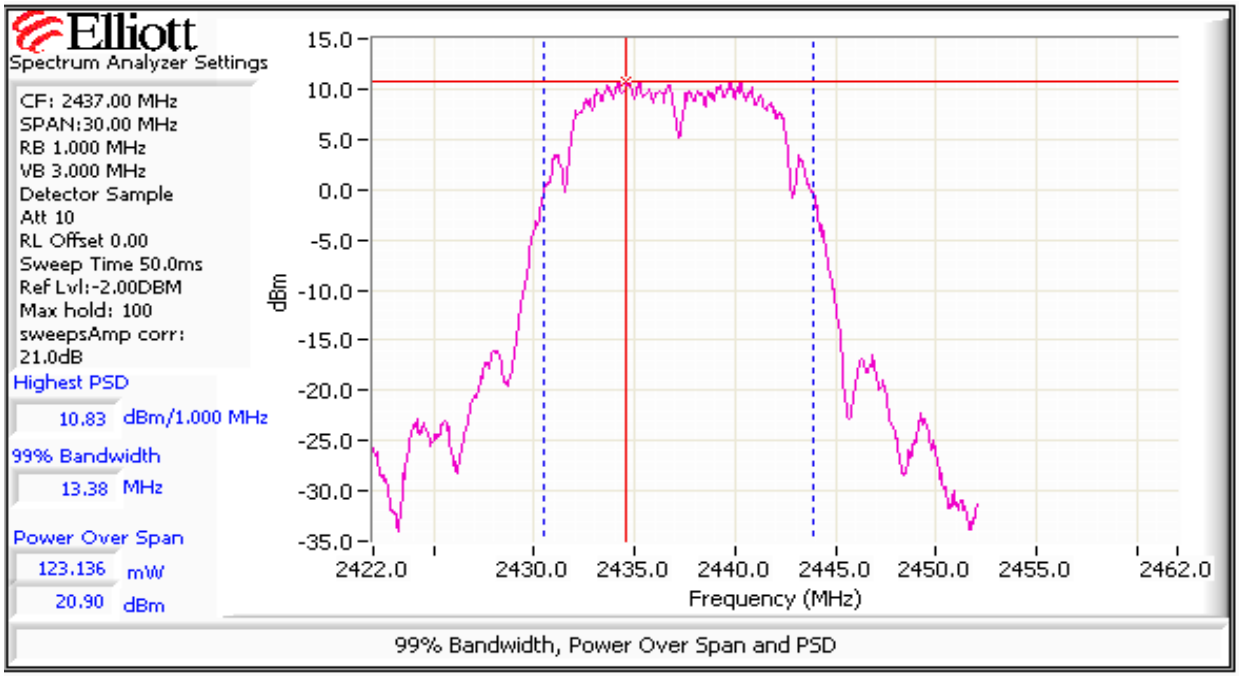
Run #1: Output Power

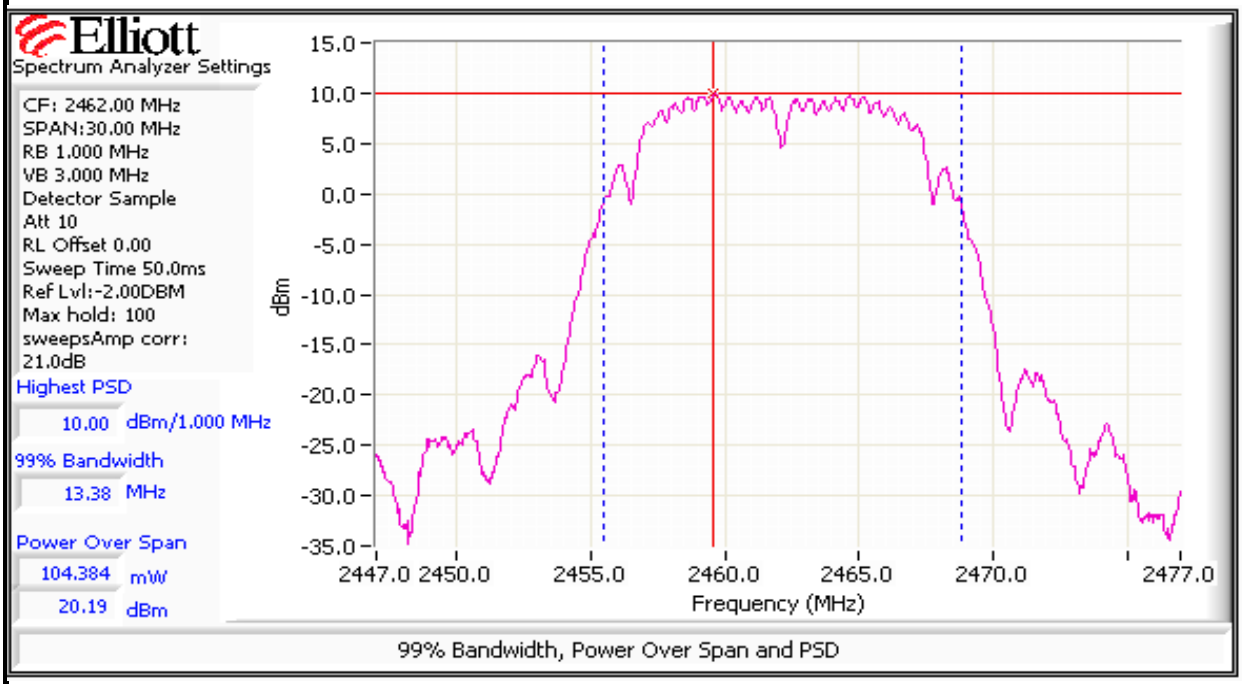
Power Setting[2]	Frequency (MHz)	Output Power (dBm)[1]	Output Power mW	Antenna Gain (dBi)	Result	EIRP[Note 2] dBm	EIRP[Note 2] W	Output Power (dBm)[3]	Output Power mW
19	2412	20.5	113.2	3.4	Pass	23.9	0.245	18.2	65.3
19	2437	20.9	123.0	3.4	Pass	24.3	0.267	18.1	63.8
19	2462	20.2	104.5	3.4	Pass	23.6	0.226	17.7	58.9

Note 1:	RBW=1MHz, VB=3 MHz, sample detector, max hold (transmitted signal was not continuous) and power integration over 30 MHz.
Note 2:	Power setting - the software power setting used during testing, included for reference only.
Note 3:	Power measured using average power meter and is included for reference only.



Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



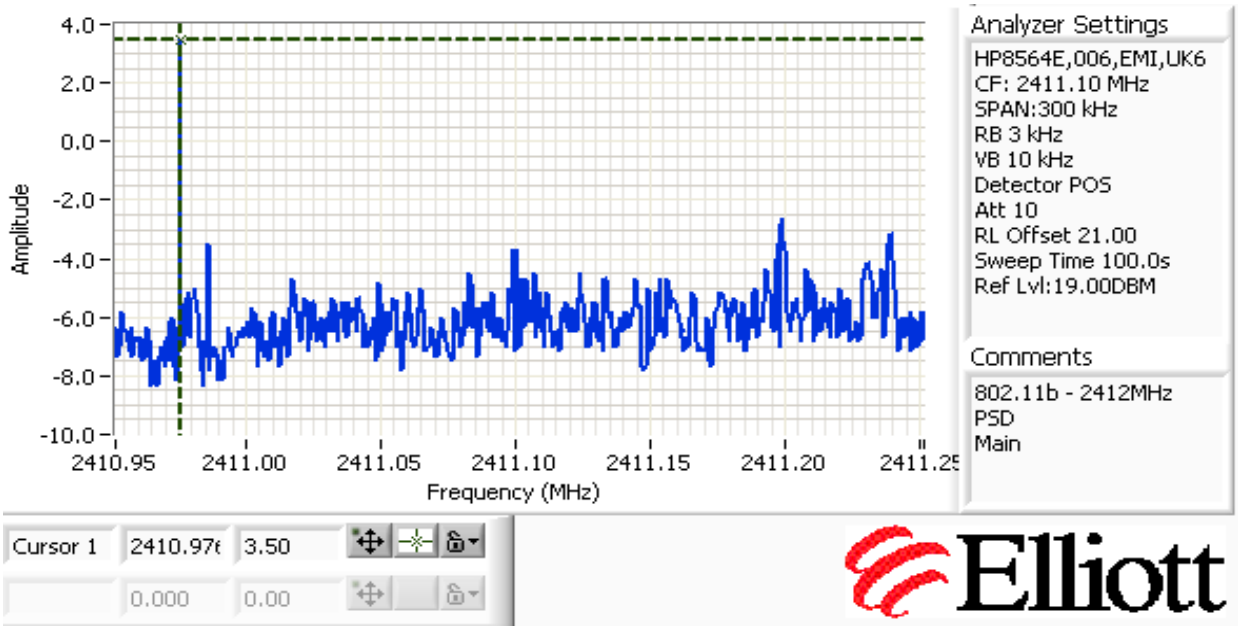


Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

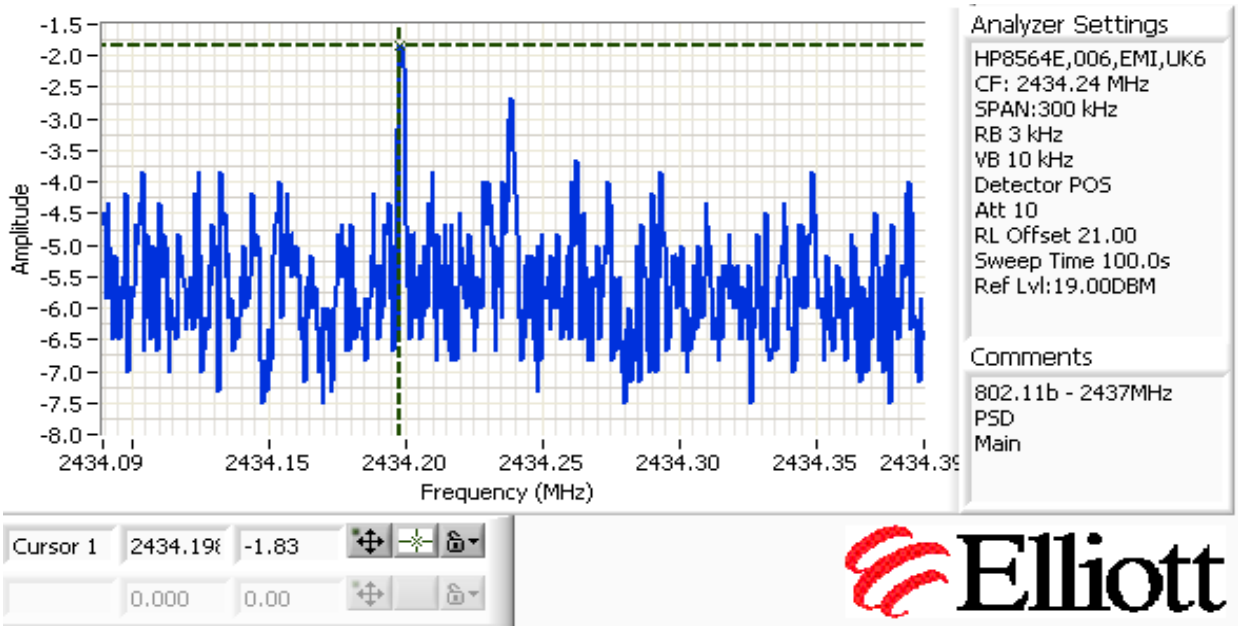
Run #2: Power spectral Density

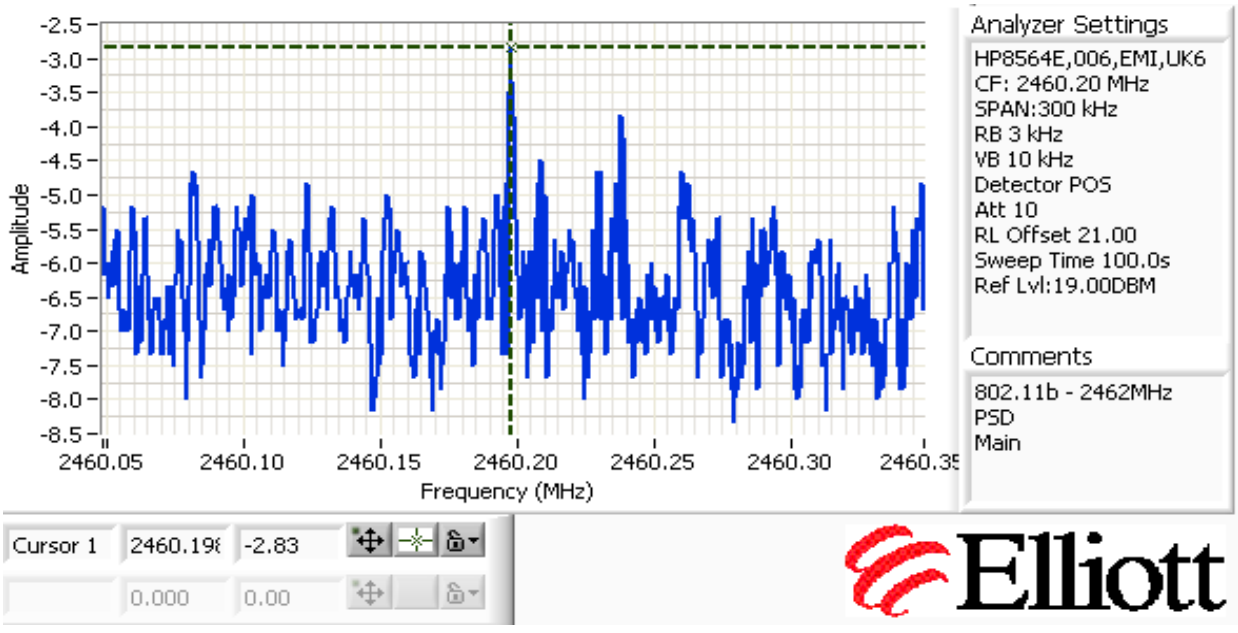
Power Setting	Frequency (MHz)	PSD (dBm/3kHz) Note 1	Limit dBm/3kHz	Result
19	2412	3.50	8.0	Pass
19	2437	-1.83	8.0	Pass
19	2462	-2.83	8.0	Pass

Note 1:	Power spectral density measured using RB=3 kHz, VB=10kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 1 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal.



Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



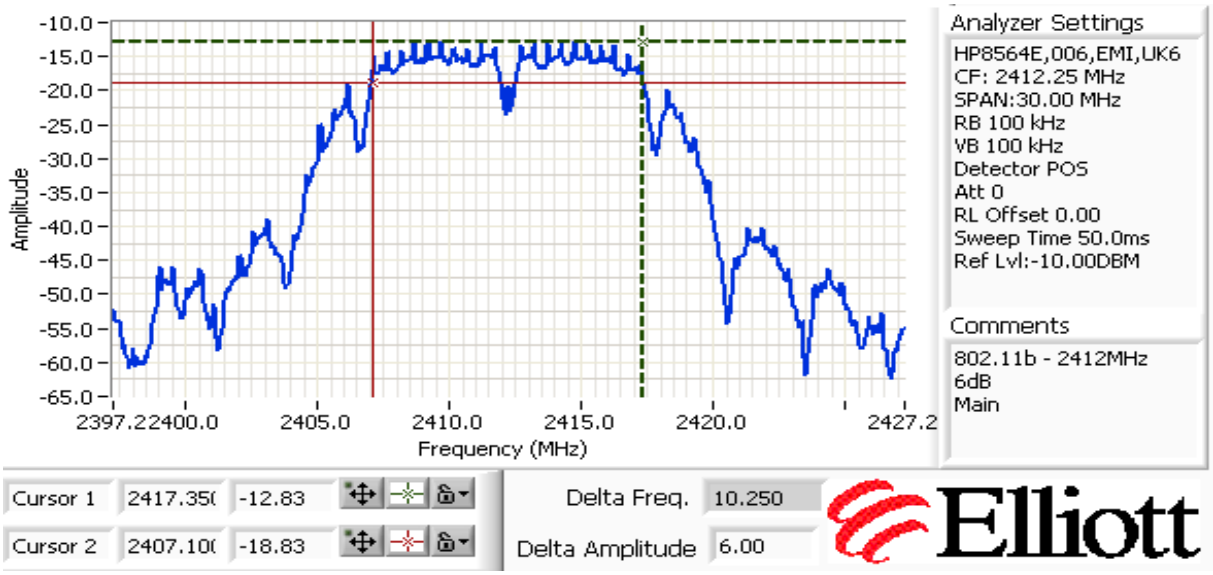


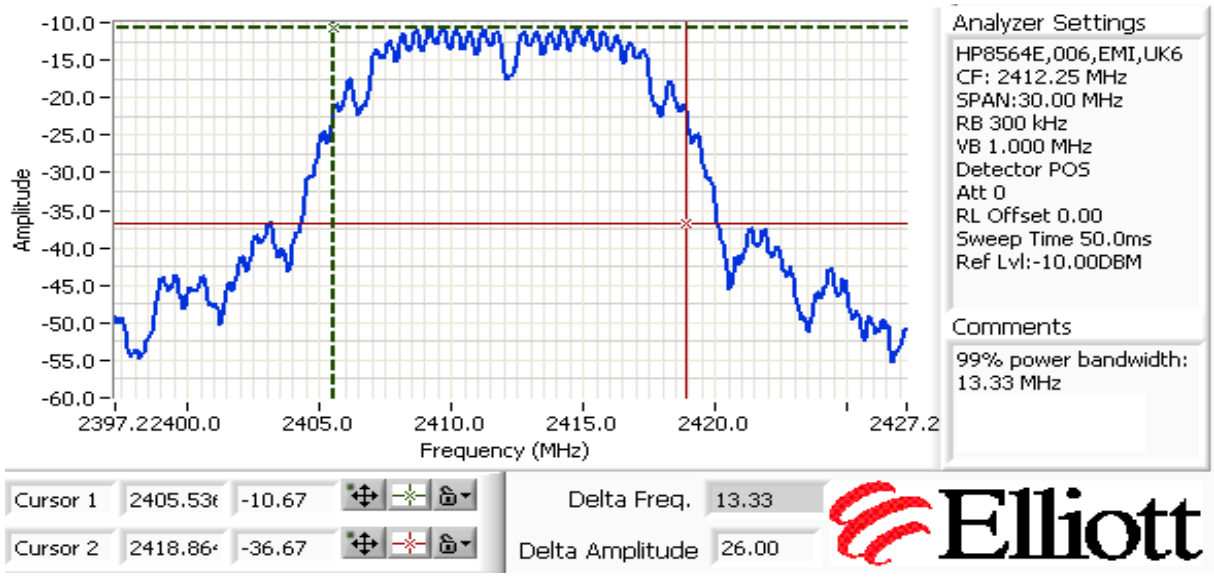
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Run #3: Signal Bandwidth

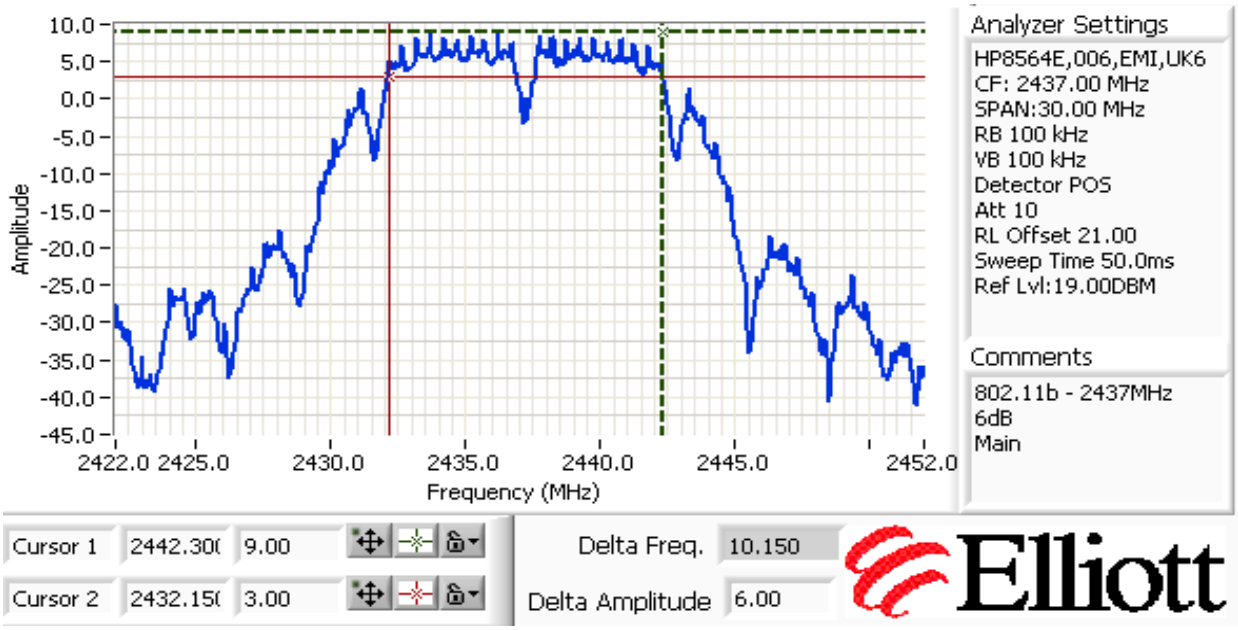
Power Setting	Frequency (MHz)	Resolution Bandwidth	Bandwidth (MHz) 6dB	99%
19	2412	100kHz	10.3	13.3
19	2437	100kHz	10.2	13.3
19	2462	100kHz	10.2	13.2

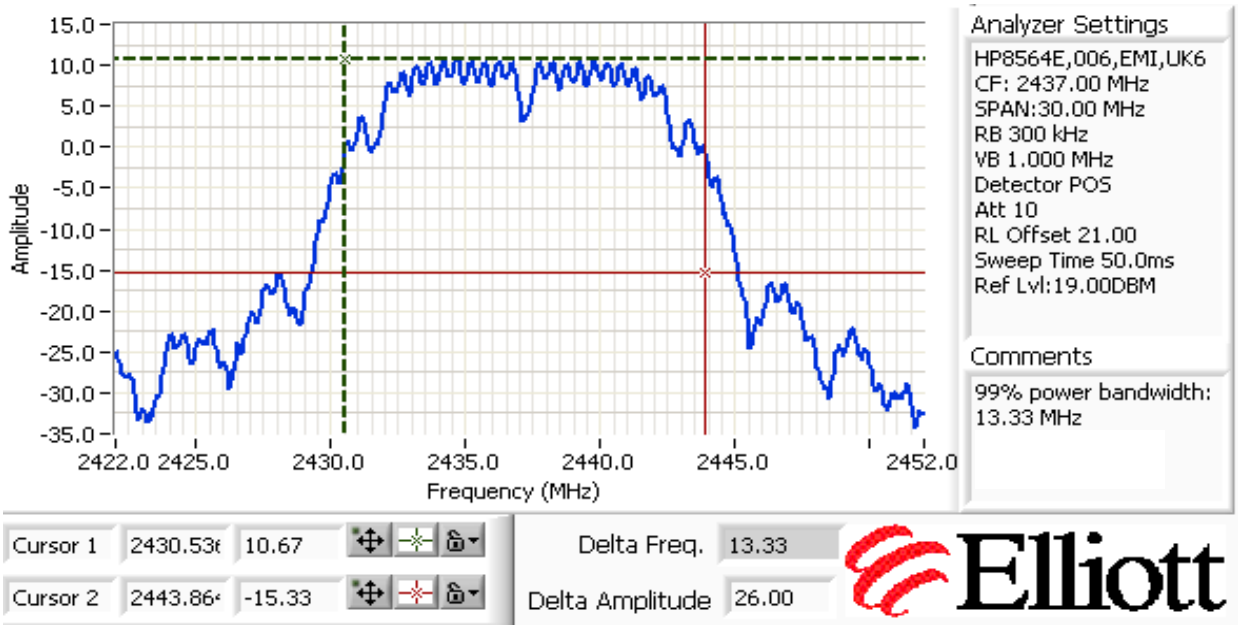
Note 1:	99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB



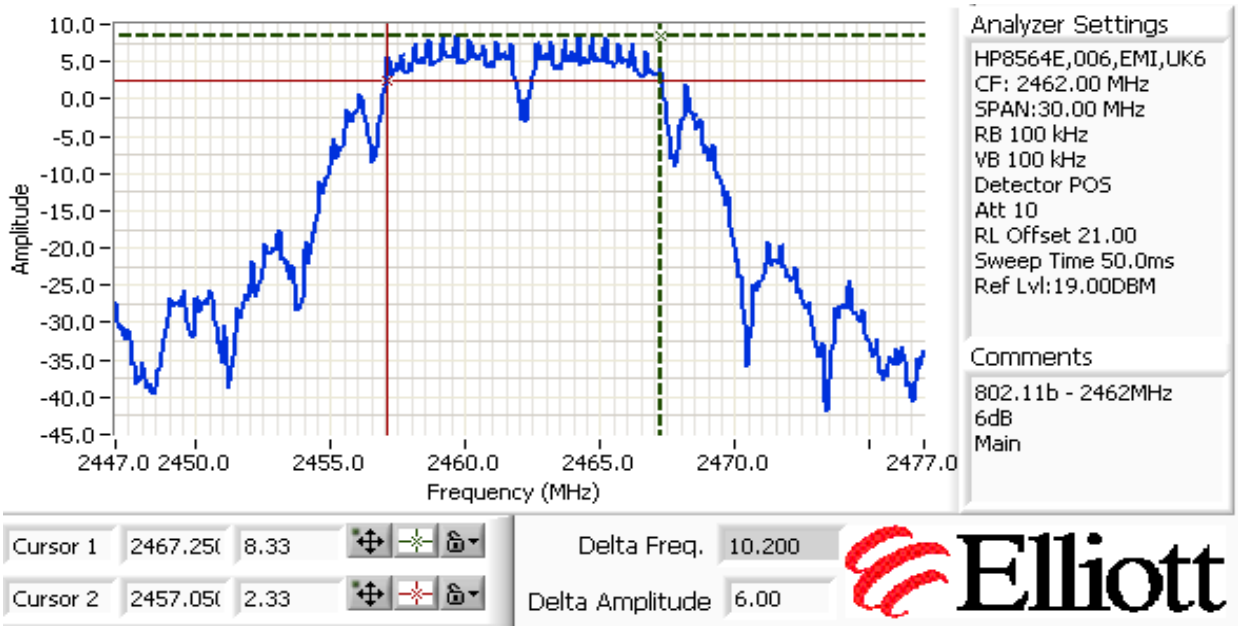


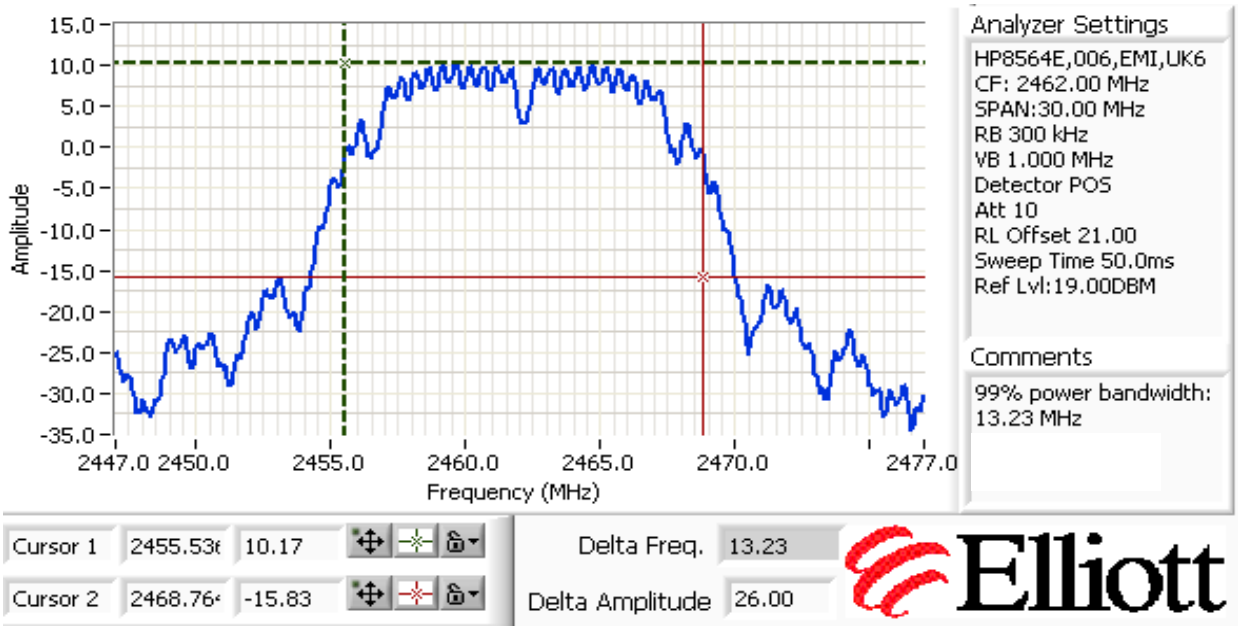
Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A





Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A



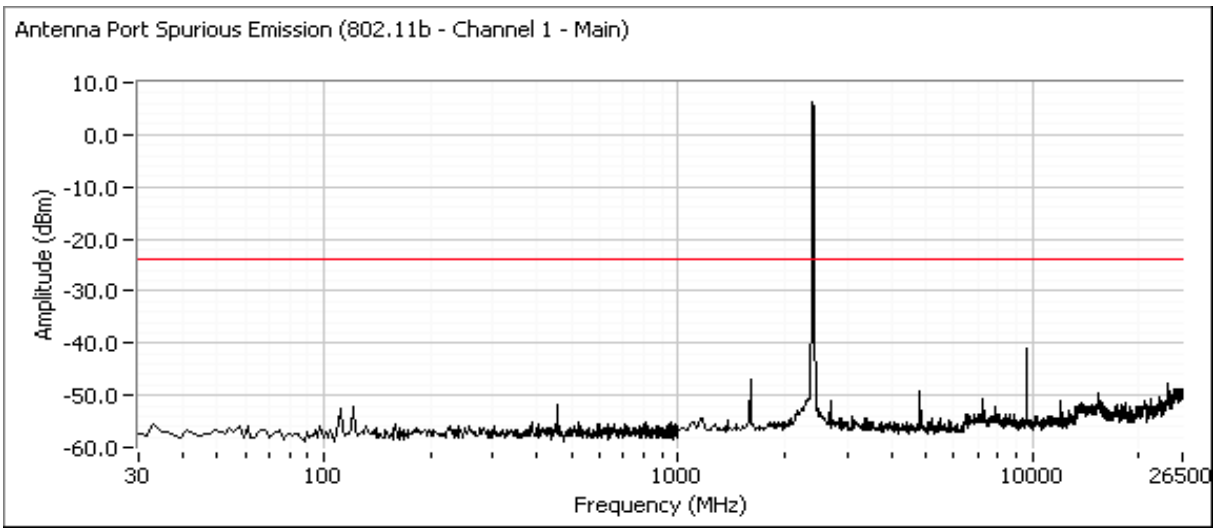


Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

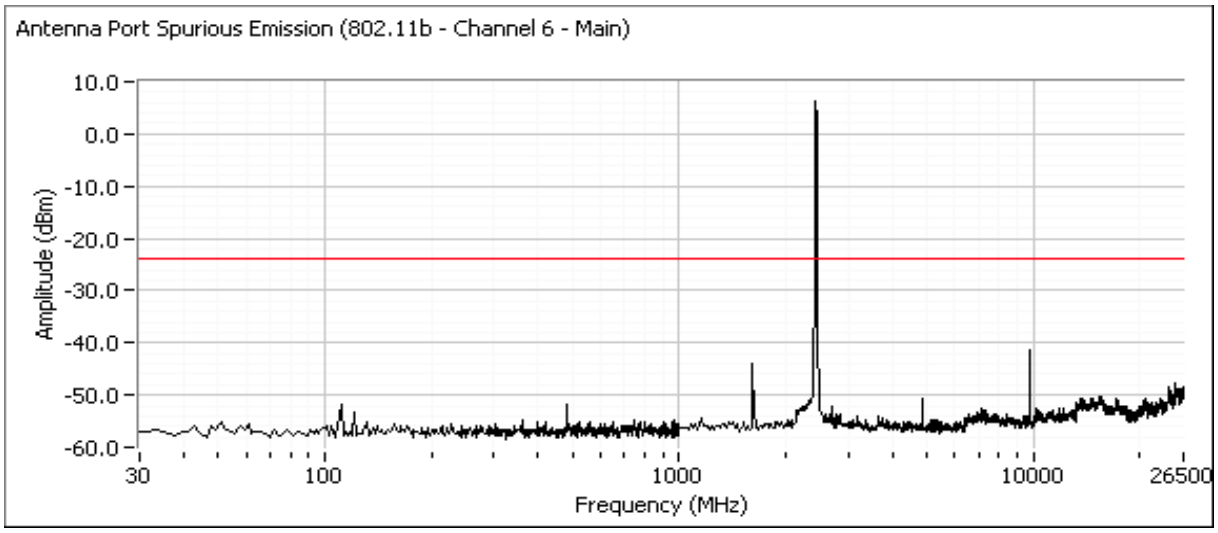
Run #4: Out of Band Spurious Emissions

Frequency (MHz)	Limit	Result
2412	-30dBc	Pass
2437	-30dBc	Pass
2462	-30dBc	Pass

Plots for low channel, power setting(s) = 19

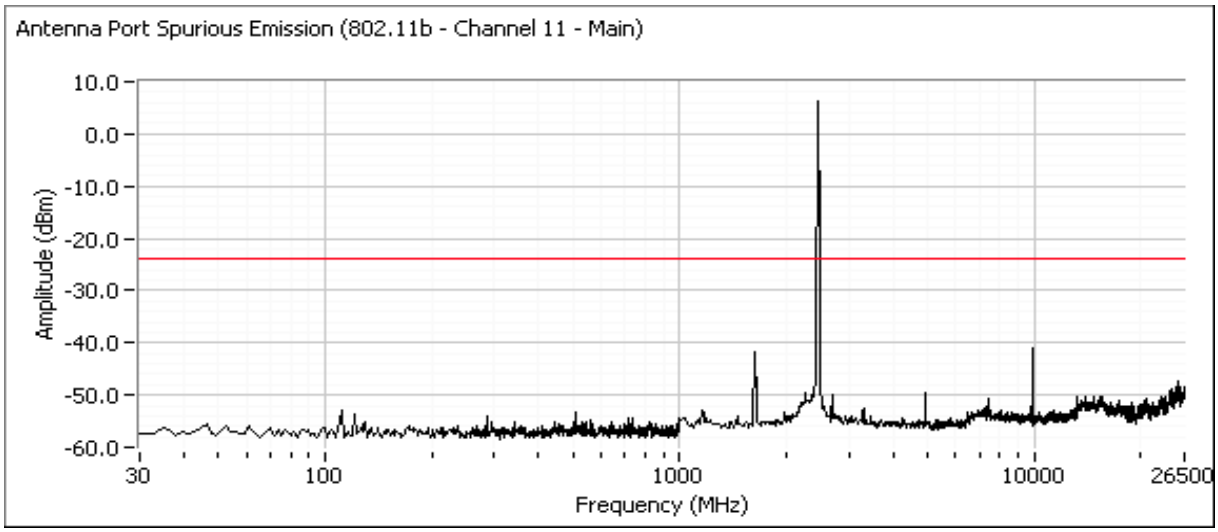


Plots for center channel, power setting(s) = 19



Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

Plots for high channel, power setting(s) = 19



Client:	Broadcom	Job Number:	J67652
Model:	BCM94321MC	T-Log Number:	T67683
		Account Manager:	Dean Ericksen
Contact:	David Boldy		
Standard:	FCC 15.247	Class:	N/A

RSS 210 and FCC 15.247 (DTS) Antenna Port Measurements
Power, Bandwidth and Spurious Emissions

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: 4/18/2007 Config. Used: -
Test Engineer: Mehran Birgani Config Change: -
Test Location: Fremont Chamber #5 Host Unit Voltage 120V/60Hz

General Test Configuration

The EUT was connected to the spectrum analyzer or power meter via a suitable attenuator. All measurements were made on a single chain.

All measurements have been corrected to allow for the external attenuators used.

Ambient Conditions:

Temperature: 17 °C
Rel. Humidity: 39 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Output Power	15.247(b)	Pass	22.5 dBm
2	Power spectral Density (PSD)	15.247(d)	Pass	-4.5 dBm/3kHz
3	6dB Bandwidth	15.247(a)	Pass	16.6 MHz
3	99% Bandwidth	RSS GEN	-	17.1 MHz
4	Spurious emissions	15.247(b)	Pass	> -30dBc

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.