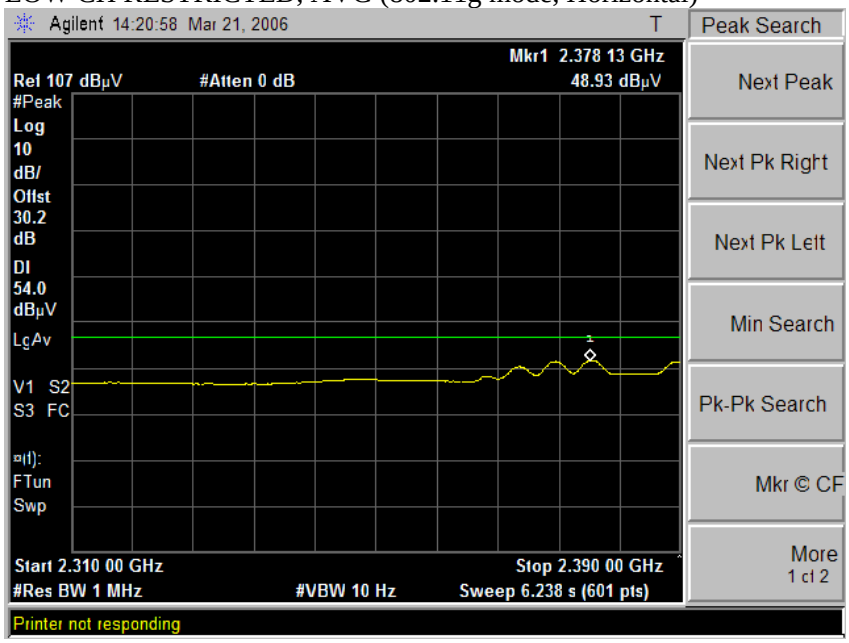
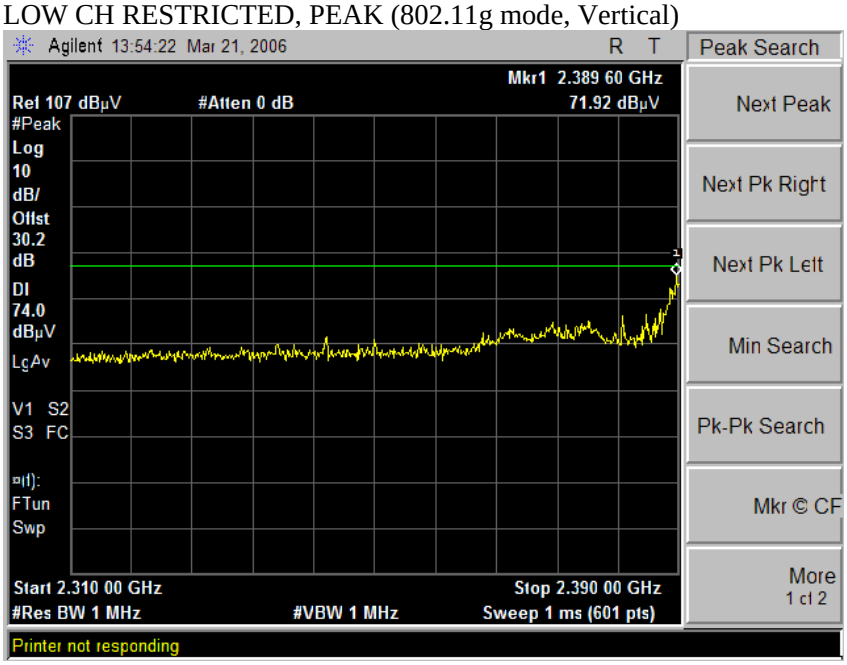
LOW CH RESTRICTED, AVG (802.11g mode, Horizontal)

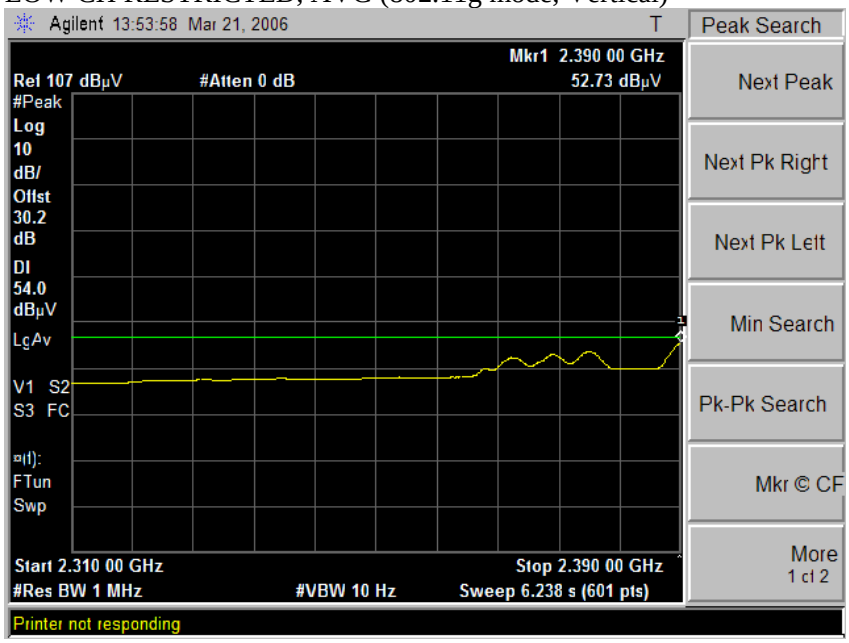


RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, VERTICAL)

LOW CH RESTRICTED, PEAK (802.11g mode, Vertical)

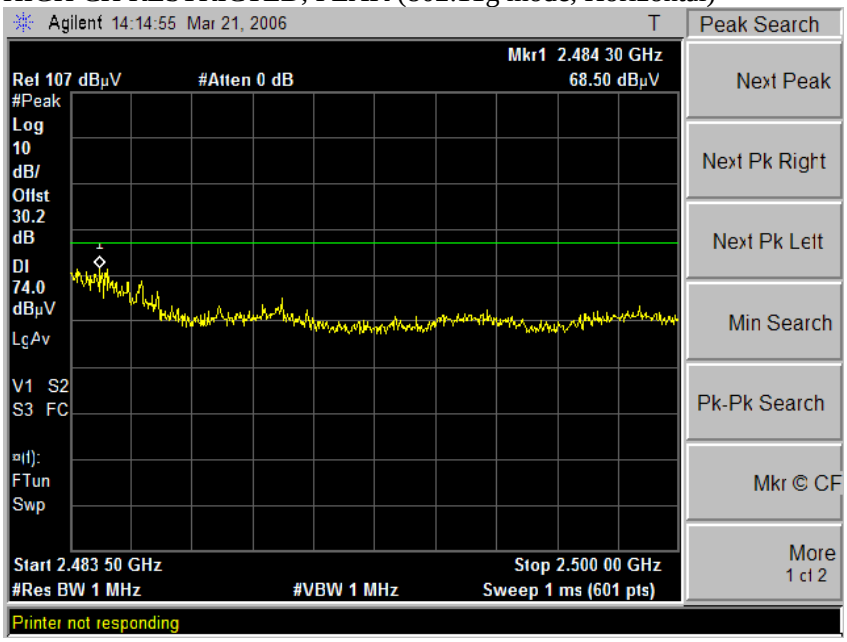


LOW CH RESTRICTED, AVG (802.11g mode, Vertical)

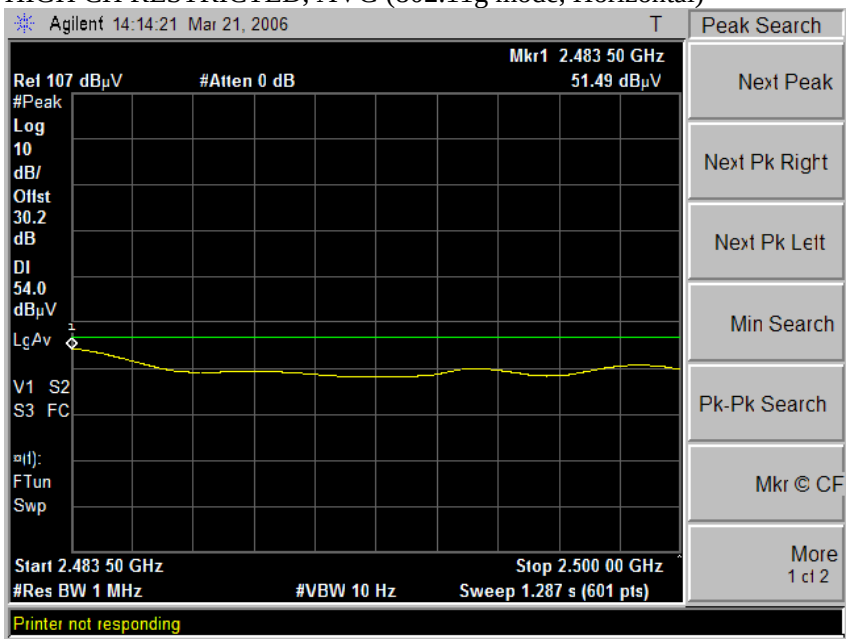


RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, HORIZONTAL)

HIGH CH RESTRICTED, PEAK (802.11g mode, Horizontal)

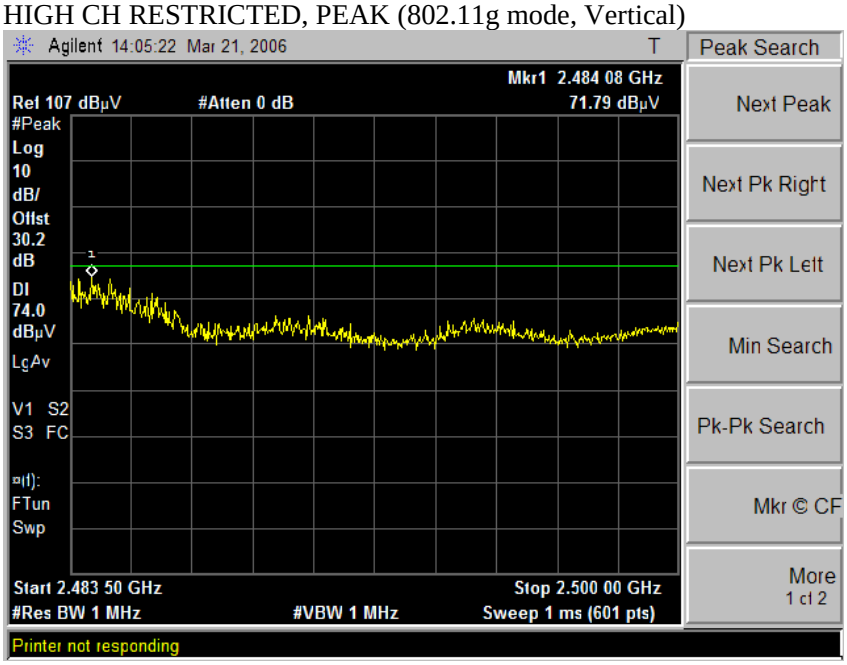


HIGH CH RESTRICTED, AVG (802.11g mode, Horizontal)

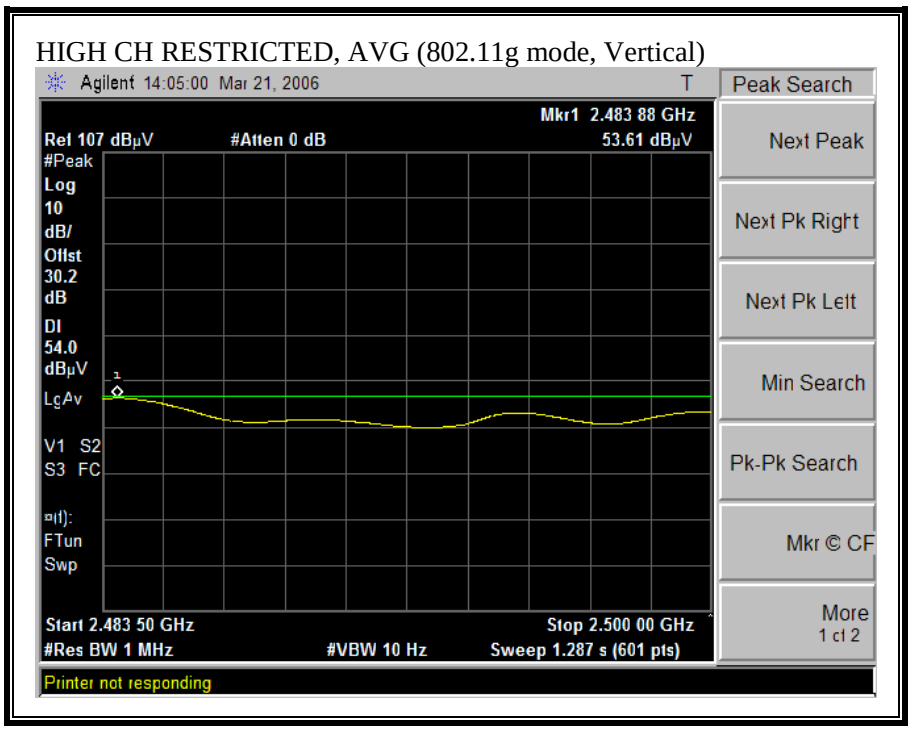


RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, VERTICAL)

HIGH CH RESTRICTED, PEAK (802.11g mode, Vertical)



HIGH CH RESTRICTED, AVG (802.11g mode, Vertical)



HARMONICS AND SPURIOUS EMISSIONS (g MODE)

03/21/06 **High Frequency Measurement**

Compliance Certification Services, Morgan Hill Open Field Site

Test Engineer:Chin Pang
Project #:06U10183
Company:Atheros
EUT Description:802.11n MIMO Cardbus
EUT M/N:CB71
Test Target:FCC 15.247
Mode Of Operation:TX, g mode
Average Power Meter: Low = 17 dBm, Mid = 20.7dBm, High = 18.2dBm

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T87 Miteq 924342			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Chin 197538001	Chin 200354001		R_001

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

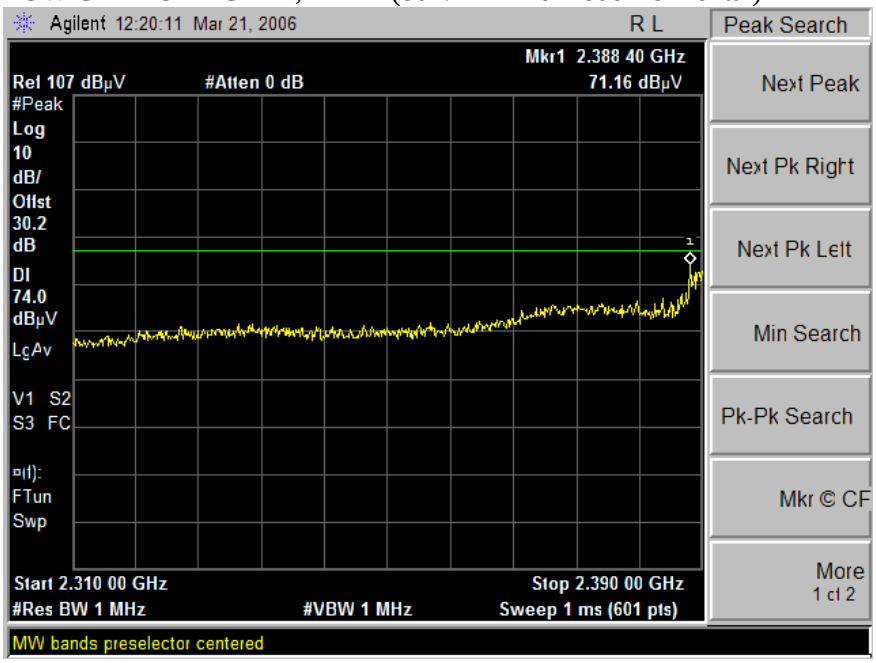
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch, 2412MHz															
4.824	3.0	59.0	45.5	33.7	3.2	-45.3	0.0	0.0	50.6	37.1	74	54	-23.4	-16.9	V
4.842	3.0	53.2	42.0	33.7	3.2	-45.3	0.0	0.0	44.8	33.6	74	54	-29.2	-20.4	H
Mid Ch, 2437MHz															
4.874	3.0	63.0	51.2	33.8	3.2	-45.3	0.0	0.0	54.7	42.9	74	54	-19.3	-11.1	V
7.311	3.0	66.5	55.0	35.5	3.6	-43.2	0.0	0.0	62.4	50.9	74	54	-11.6	-3.1	V
4.874	3.0	56.0	43.2	33.8	3.2	-45.3	0.0	0.0	47.7	34.9	74	54	-26.3	-19.1	H
7.311	3.0	61.0	48.0	35.5	3.6	-43.2	0.0	0.0	56.9	43.9	74	54	-17.1	-10.1	H
High Ch, 2462MHz															
4.924	3.0	61.1	48.0	33.8	3.2	-45.4	0.0	0.0	52.8	39.7	74	54	-21.2	-14.3	V
7.386	3.0	64.3	52.0	35.6	3.6	-43.1	0.0	0.0	60.4	48.1	74	54	-13.6	-5.9	V
4.924	3.0	56.0	40.5	33.8	3.2	-45.4	0.0	0.0	47.7	32.2	74	54	-26.3	-21.8	H
7.386	3.0	62.0	49.0	35.6	3.6	-43.1	0.0	0.0	58.1	45.1	74	54	-15.9	-8.9	H

Note: No other emissions were detected above the system noise floor.

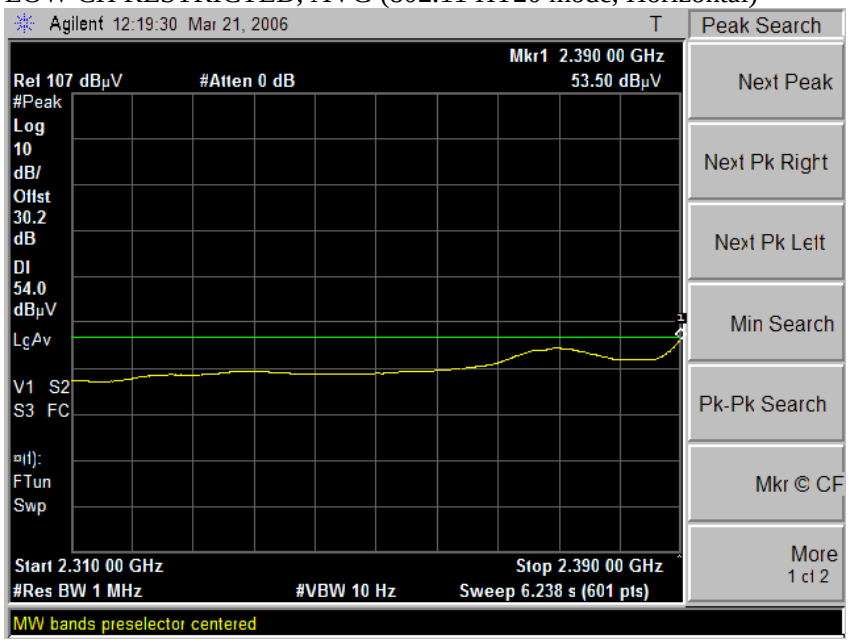
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

RESTRICTED BANDEDGE 802.11 (HT20 MODE, LOW CHANNEL, HORIZONTAL

LOW CH RESTRICTED, PEAK (802.11 HT20 mode Horizontal)

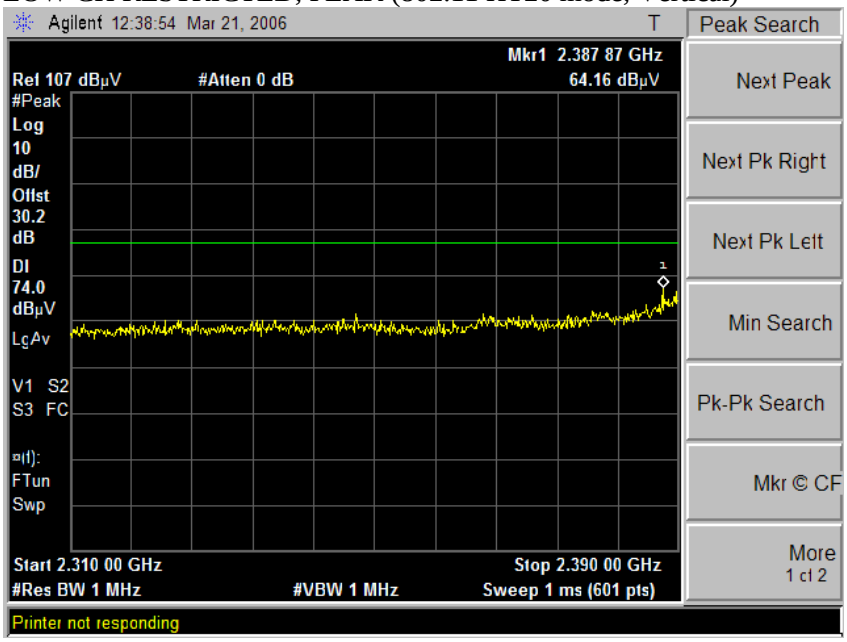


LOW CH RESTRICTED, AVG (802.11 HT20 mode, Horizontal)

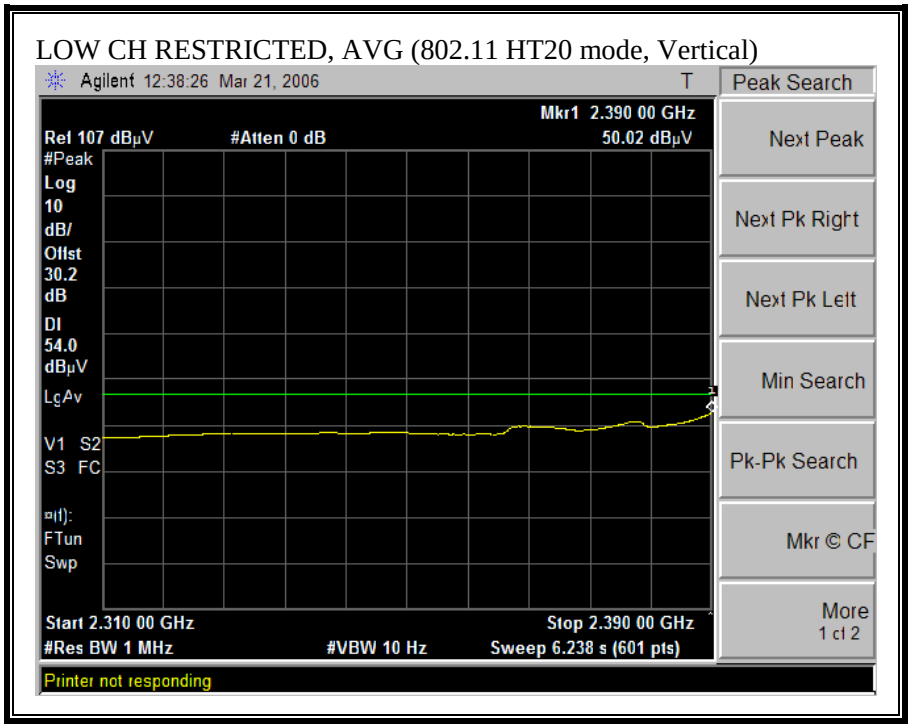


RESTRICTED BANDEDGE (802.11 HT20 MODE, LOW CHANNEL, VERTICAL)

LOW CH RESTRICTED, PEAK (802.11 HT20 mode, Vertical)

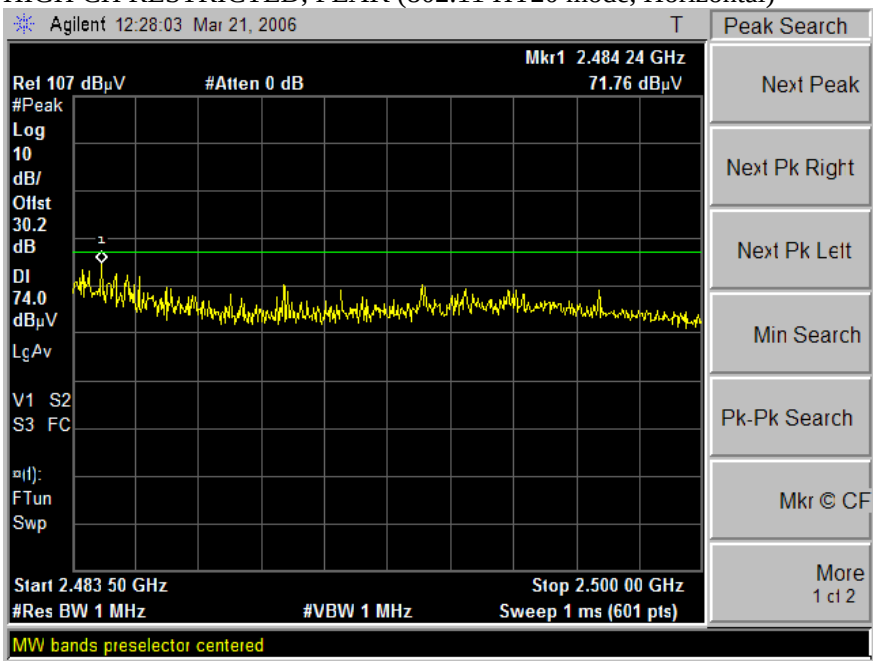


LOW CH RESTRICTED, AVG (802.11 HT20 mode, Vertical)

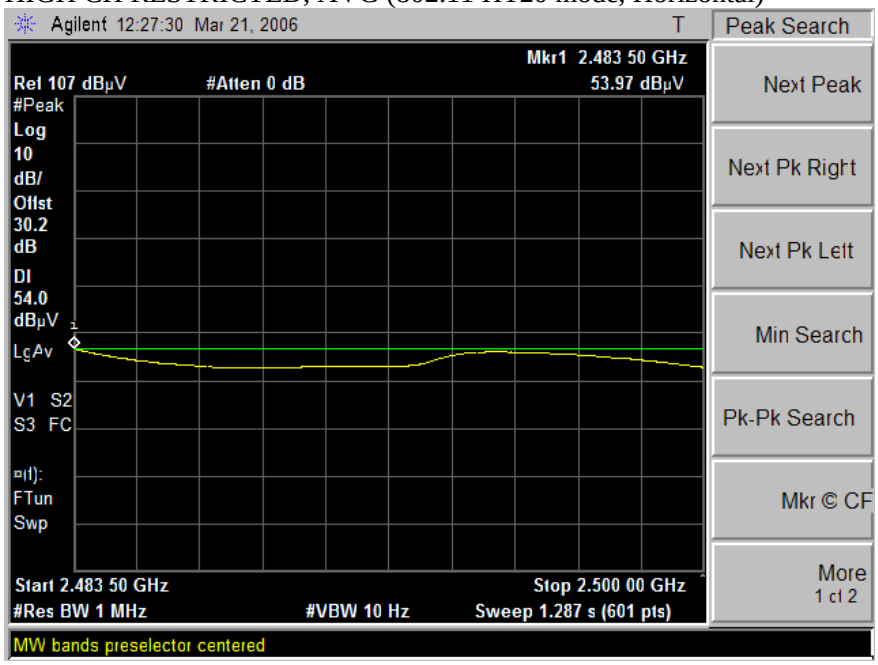


RESTRICTED BANDEDGE (802.11 HT20 MODE, HIGH CHANNEL, HORIZONTAL)

HIGH CH RESTRICTED, PEAK (802.11 HT20 mode, Horizontal)

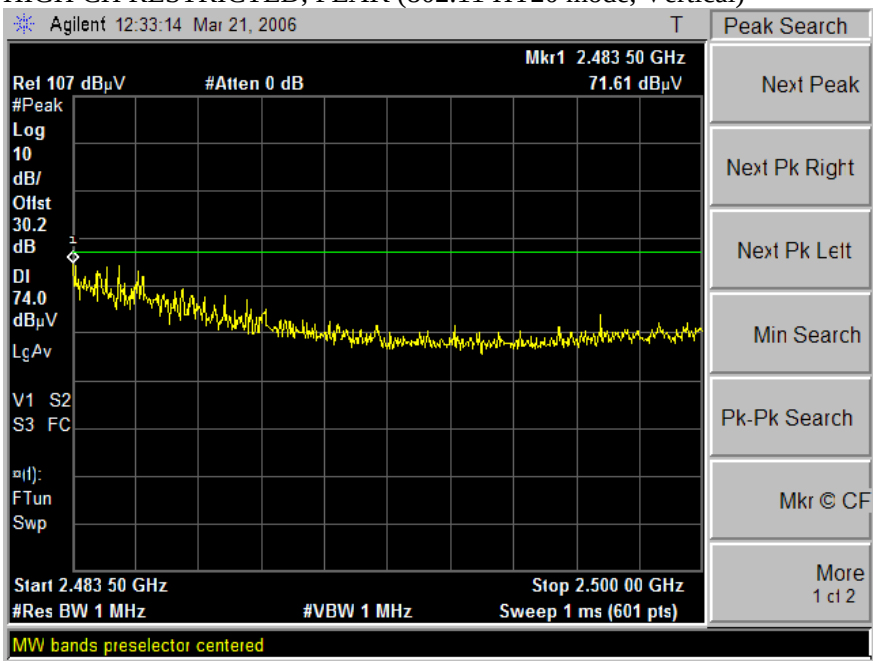


HIGH CH RESTRICTED, AVG (802.11 HT20 mode, Horizontal)

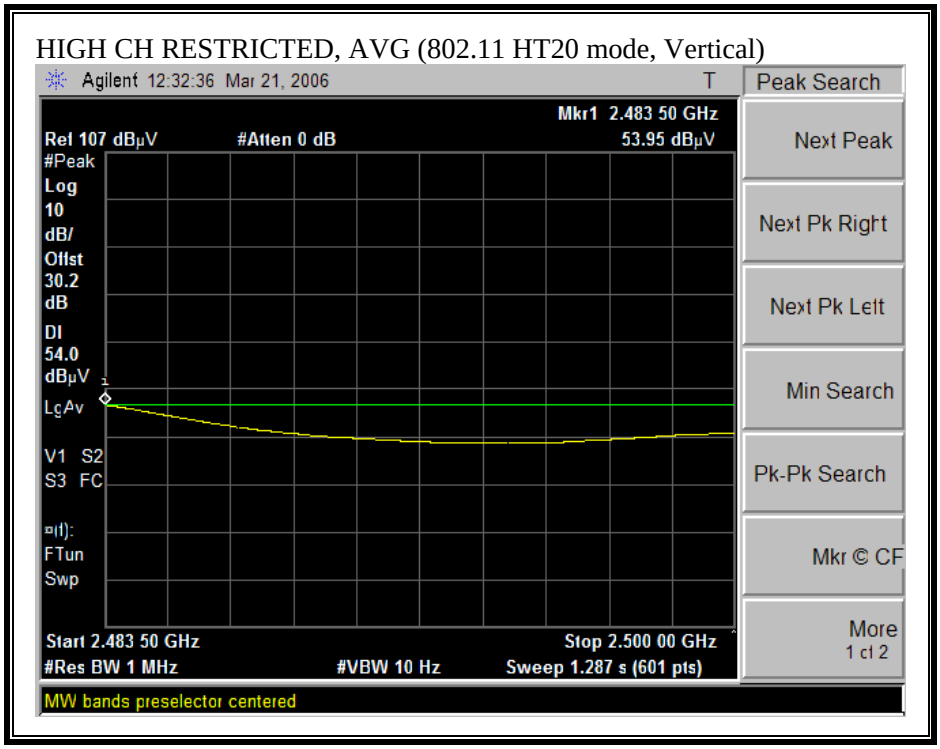


RESTRICTED BANDEDGE (802.11 HT20 MODE, HIGH CHANNEL, VERTICAL)

HIGH CH RESTRICTED, PEAK (802.11 HT20 mode, Vertical)



HIGH CH RESTRICTED, AVG (802.11 HT20 mode, Vertical)



HARMONICS AND SPURIOUS EMISSIONS (HT20 MODE)

03/21/06 **High Frequency Measurement**

Compliance Certification Services, Morgan Hill Open Field Site

Test Engineer:Chin Pang
Project #:06U10183
Company:Atheros
EUT Description:802.11n MIMO Cardbus
EUT M/N:CB71
Test Target:FCC 15.247
Mode Of Operation:TX, HT20
Average Power Meter: Low = 16.5 dBm, Mid = 20.8dBm, High = 17.8 dBm

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T87 Miteq 924342			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Chin 197538001	Chin 200354001		R_001

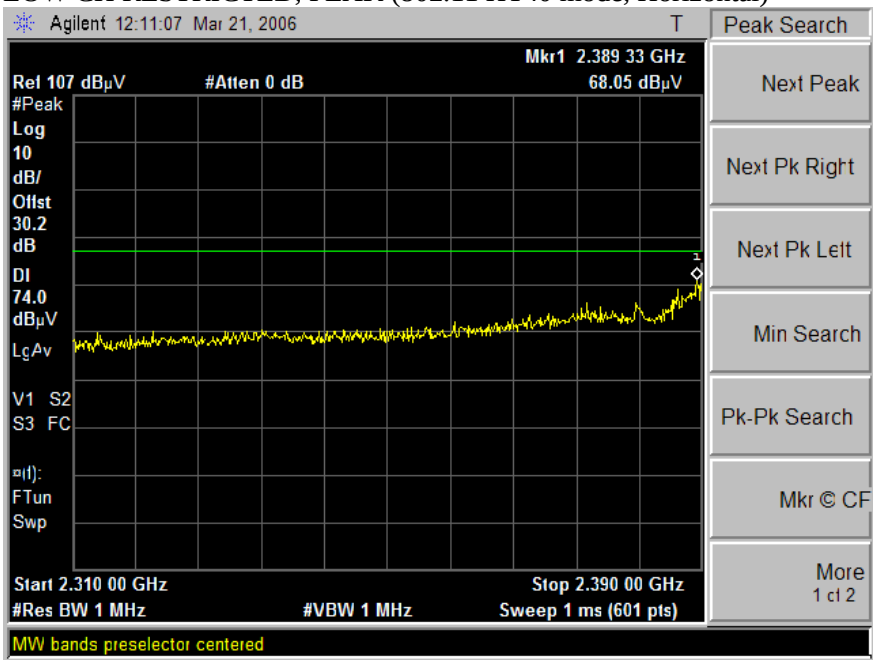
Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch, 2412)Hz															
4.824	3.0	58.4	45.3	33.7	3.2	-45.3	0.0	0.0	50.0	36.9	74	54	-24.0	-17.1	V
4.824	3.0	55.0	42.0	33.7	3.2	-45.3	0.0	0.0	46.6	33.6	74	54	-27.4	-20.4	H
Mid Ch, 2437MHz															
4.874	3.0	61.0	47.3	33.8	3.2	-45.3	0.0	0.0	52.7	39.0	74	54	-21.3	-15.0	V
7.311	3.0	68.0	56.0	35.5	3.6	-43.2	0.0	0.0	63.9	51.9	74	54	-10.1	-2.1	V
4.874	3.0	54.0	45.0	33.8	3.2	-45.3	0.0	0.0	45.7	36.7	74	54	-28.3	-17.3	H
7.311	3.0	60.0	47.8	35.5	3.6	-43.2	0.0	0.0	55.9	43.7	74	54	-18.1	-10.3	H
High Ch, 2462MHz															
4.924	3.0	61.0	47.5	33.8	3.2	-45.4	0.0	0.0	52.7	39.2	74	54	-21.3	-14.8	V
7.386	3.0	60.7	48.0	35.6	3.6	-43.1	0.0	0.0	56.8	44.1	74	54	-17.2	-9.9	V
4.924	3.0	56.0	44.0	33.8	3.2	-45.4	0.0	0.0	47.7	35.7	74	54	-26.3	-18.3	H
7.386	3.0	62.6	48.5	35.6	3.6	-43.1	0.0	0.0	58.7	44.6	74	54	-15.3	-9.4	H
Note: No other emissions were detected above the system noise floor.															

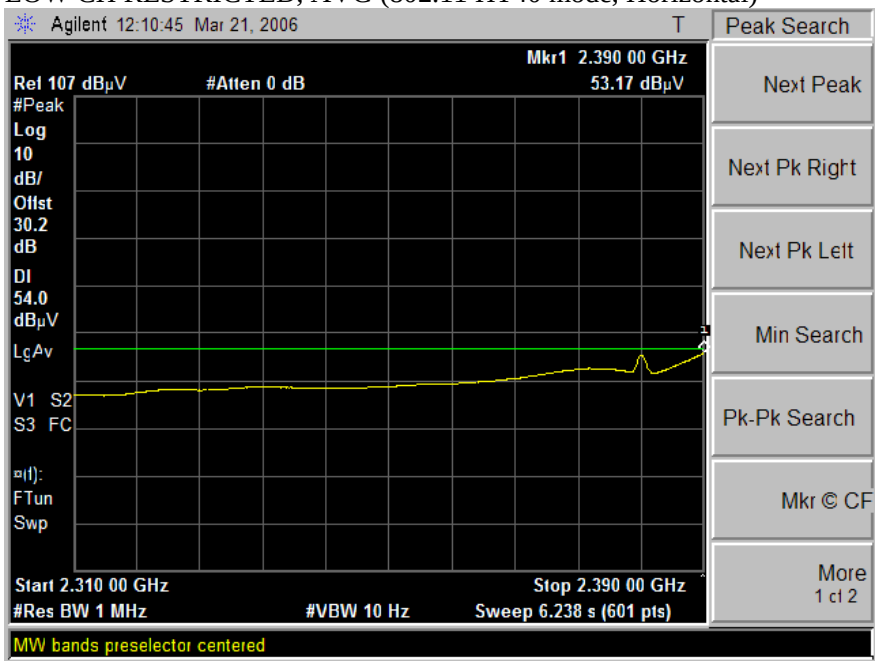
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

LOW CH, 2422MHz RESTRICTED BANDEDGE (802.11 HT40 MODE, LOW CHANNEL, HORIZONTAL

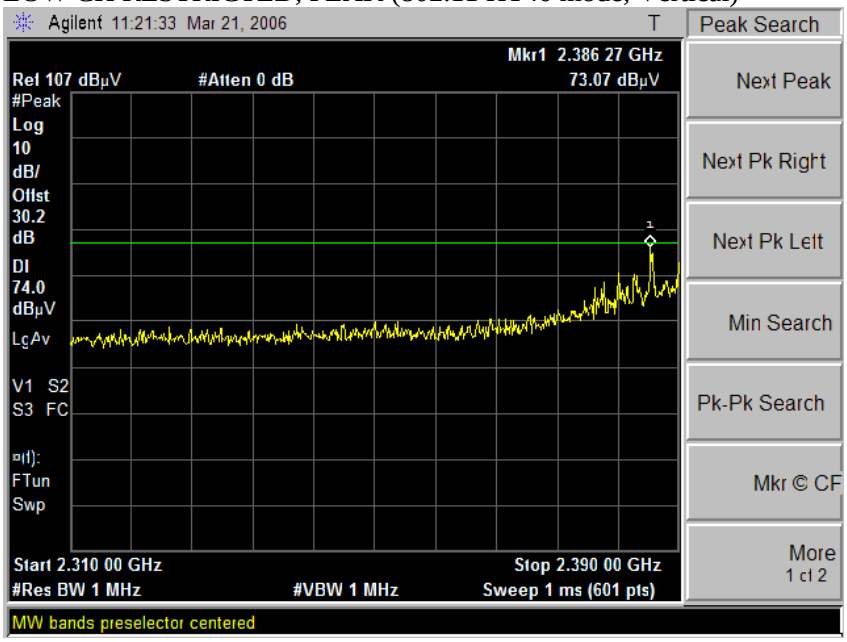
LOW CH RESTRICTED, PEAK (802.11 HT40 mode, Horizontal)



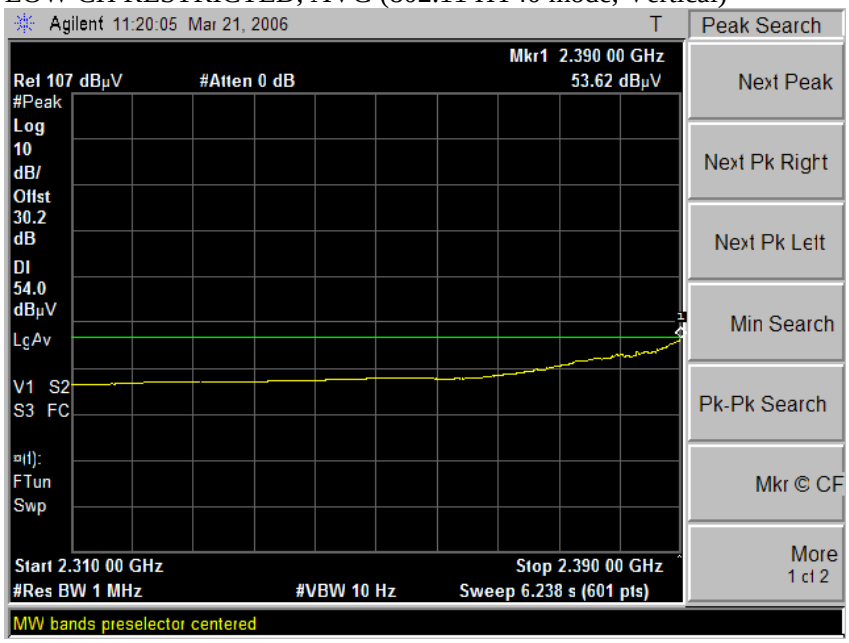
LOW CH RESTRICTED, AVG (802.11 HT40 mode, Horizontal)



LOW CH RESTRICTED, PEAK (802.11 HT40 mode, Vertical)

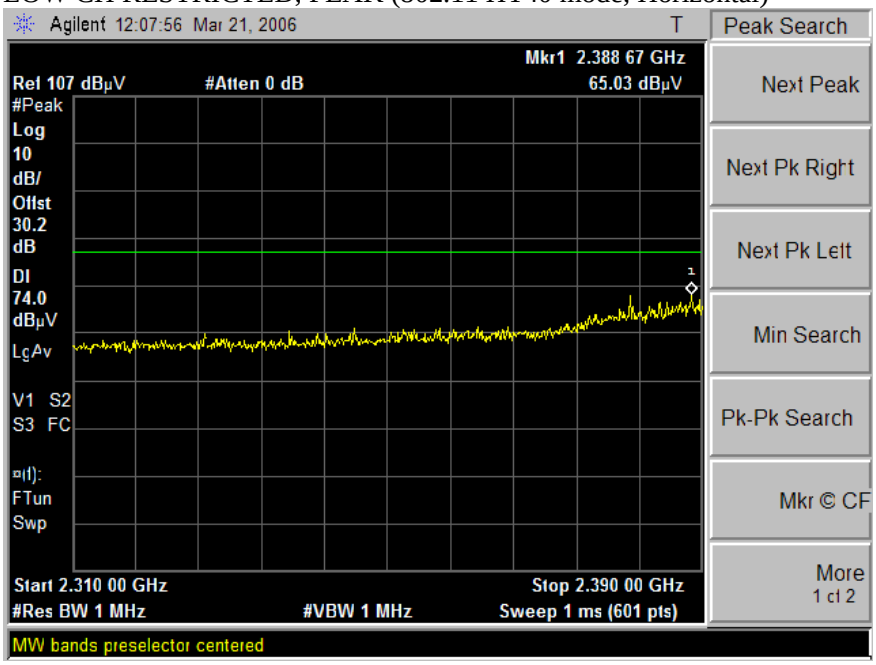


LOW CH RESTRICTED, AVG (802.11 HT40 mode, Vertical)

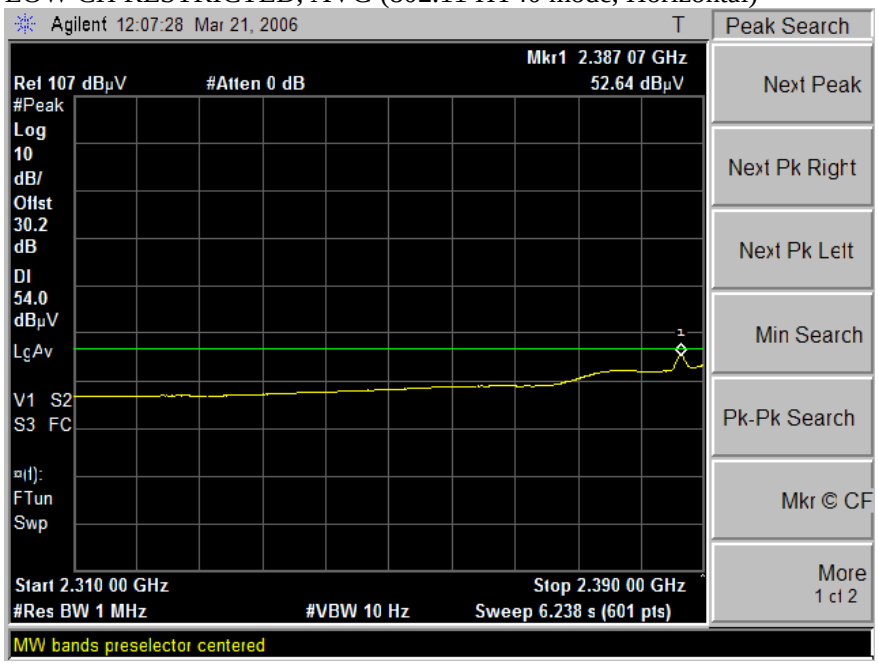


SECOND LOW CH, 2427MHz RESTRICTED BANDEDGE (802.11 HT40 MODE, LOW CHANNEL, HORIZONTAL

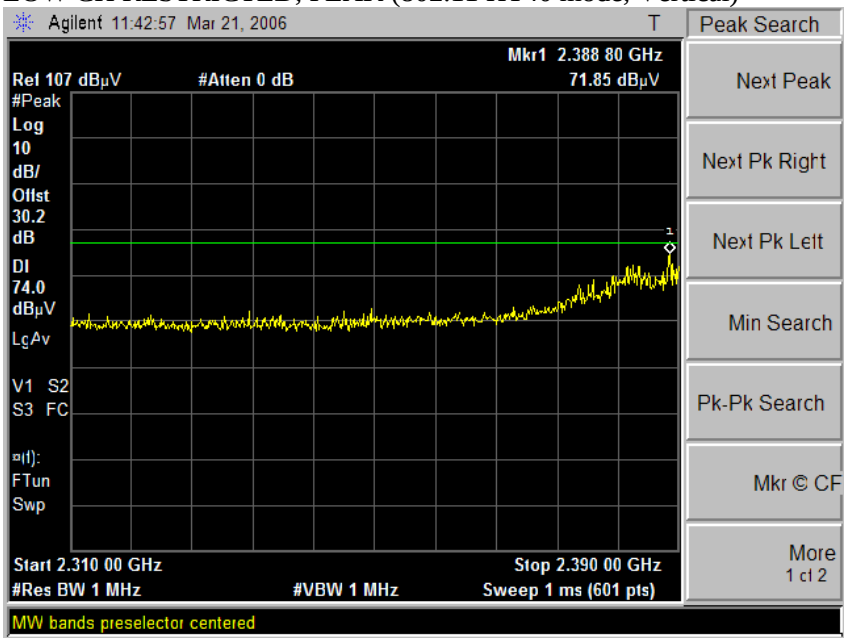
LOW CH RESTRICTED, PEAK (802.11 HT40 mode, Horizontal)



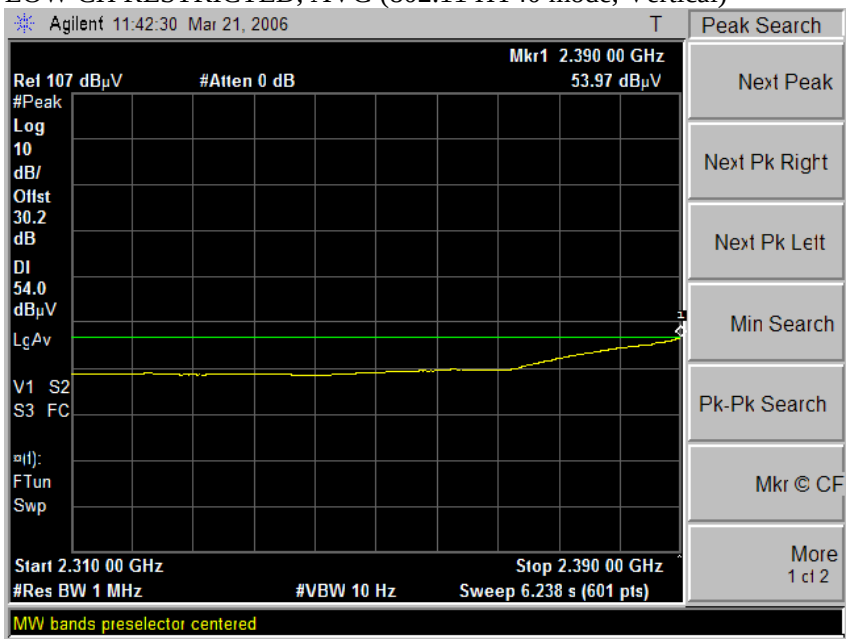
LOW CH RESTRICTED, AVG (802.11 HT40 mode, Horizontal)



LOW CH RESTRICTED, PEAK (802.11 HT40 mode, Vertical)

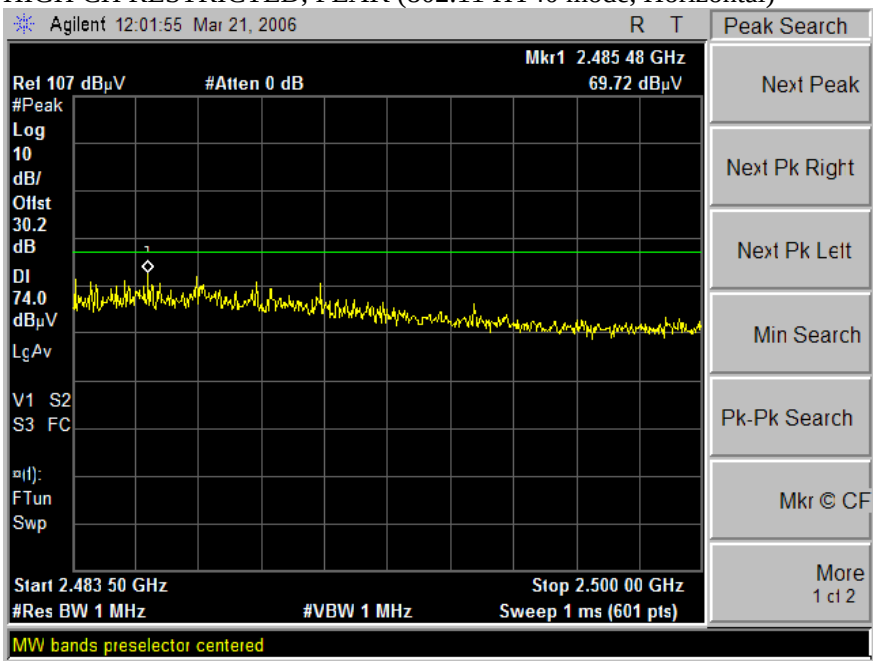


LOW CH RESTRICTED, AVG (802.11 HT40 mode, Vertical)

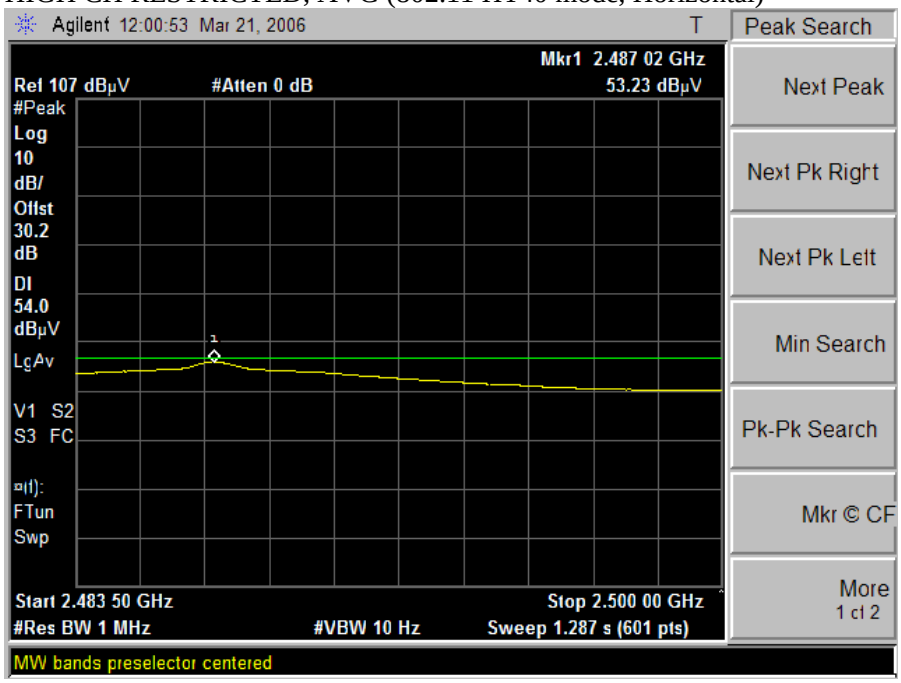


SECOND HIGH CH, 2447MHz RESTRICTED BANDEDGE (HT40 MODE, HIGH CHANNEL, Horizontal)

HIGH CH RESTRICTED, PEAK (802.11 HT40 mode, Horizontal)

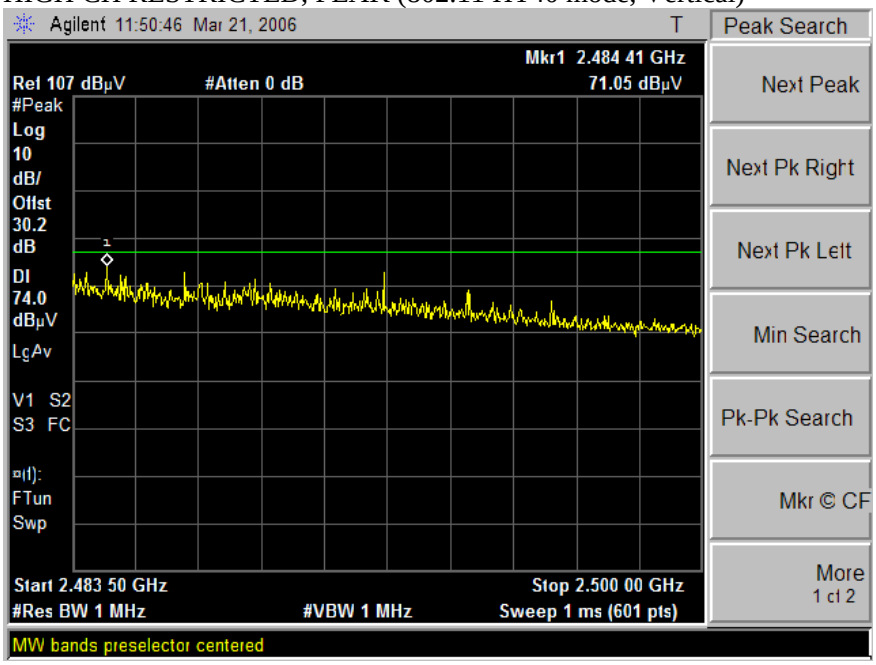


HIGH CH RESTRICTED, AVG (802.11 HT40 mode, Horizontal)

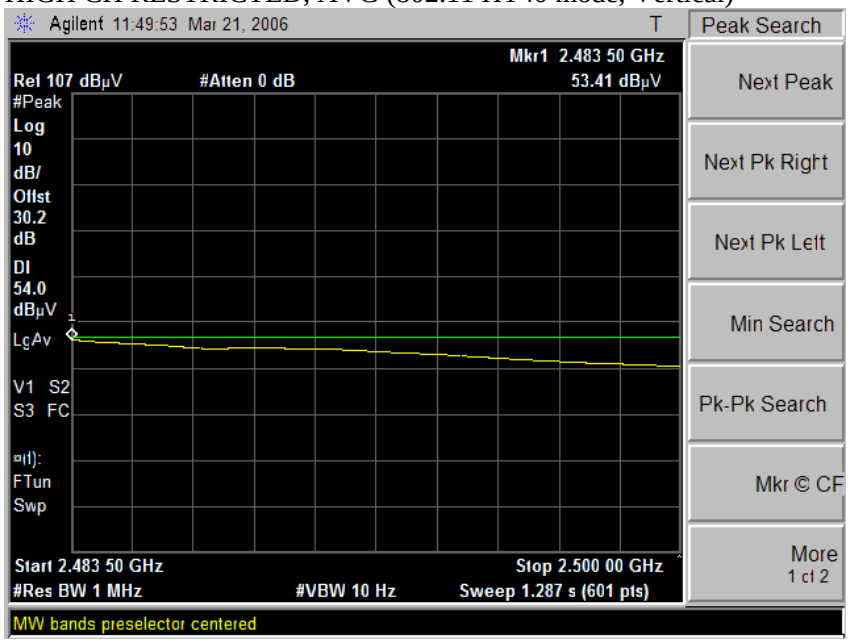


RESTRICTED BANDEDGE (802.11 HT40 MODE, HIGH CHANNEL, Vertical)

HIGH CH RESTRICTED, PEAK (802.11 HT40 mode, Vertical)

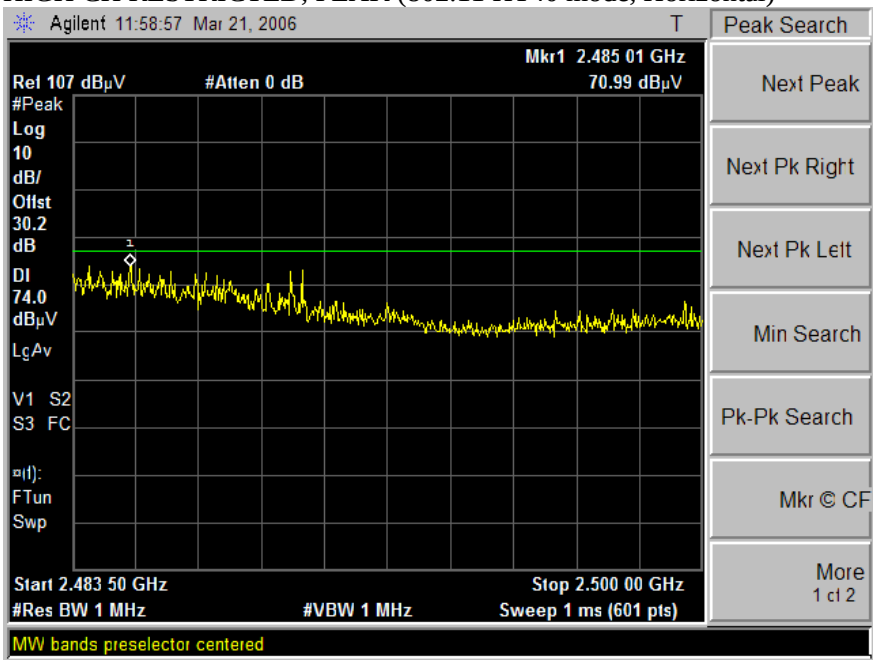


HIGH CH RESTRICTED, AVG (802.11 HT40 mode, Vertical)

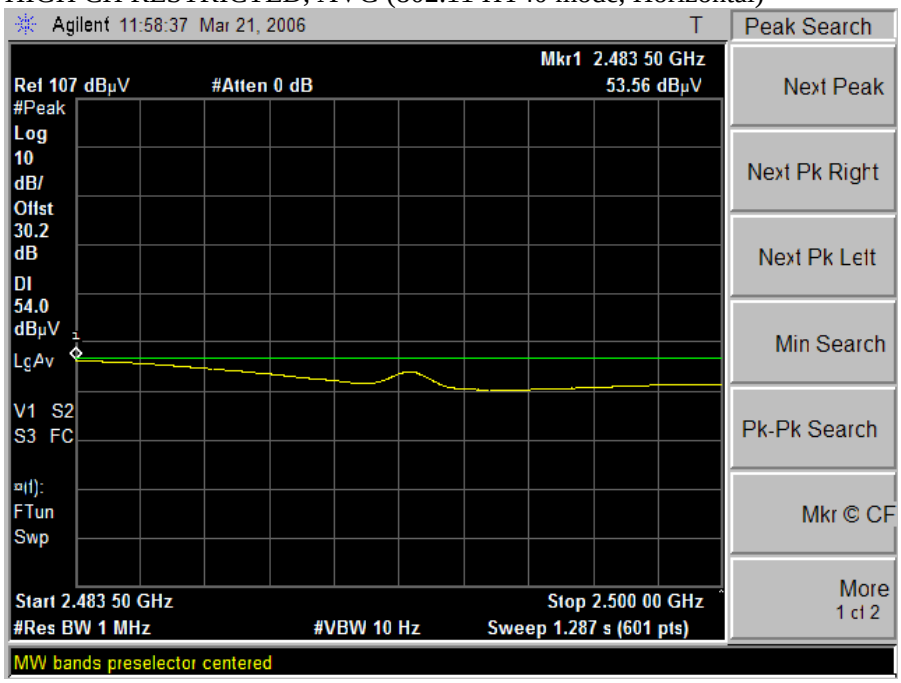


HIGH CH, 2452MHz RESTRICTED BANDEDGE (802.11 HT40 MODE, HIGH CHANNEL, Horizontal)

HIGH CH RESTRICTED, PEAK (802.11 HT40 mode, Horizontal)

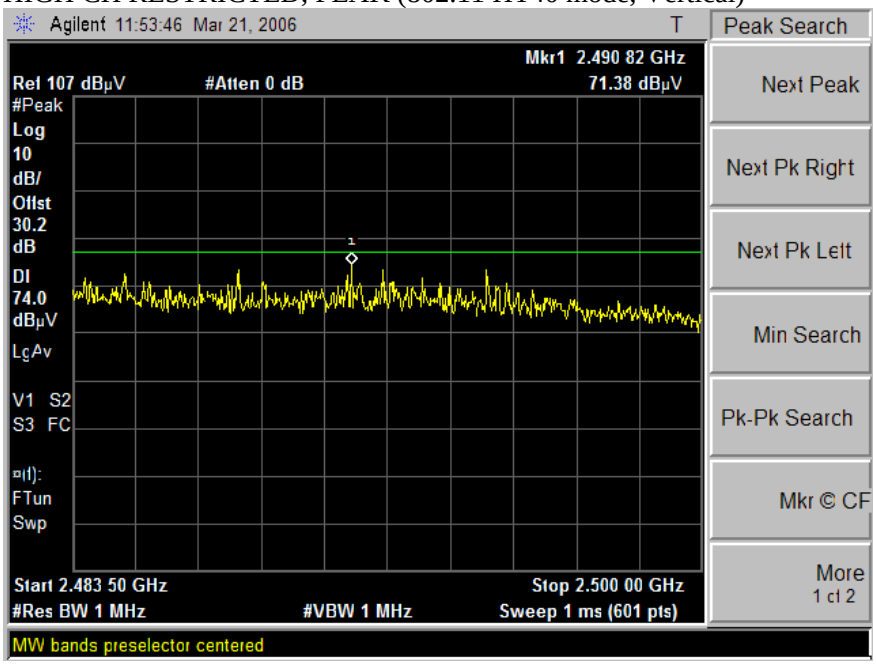


HIGH CH RESTRICTED, AVG (802.11 HT40 mode, Horizontal)

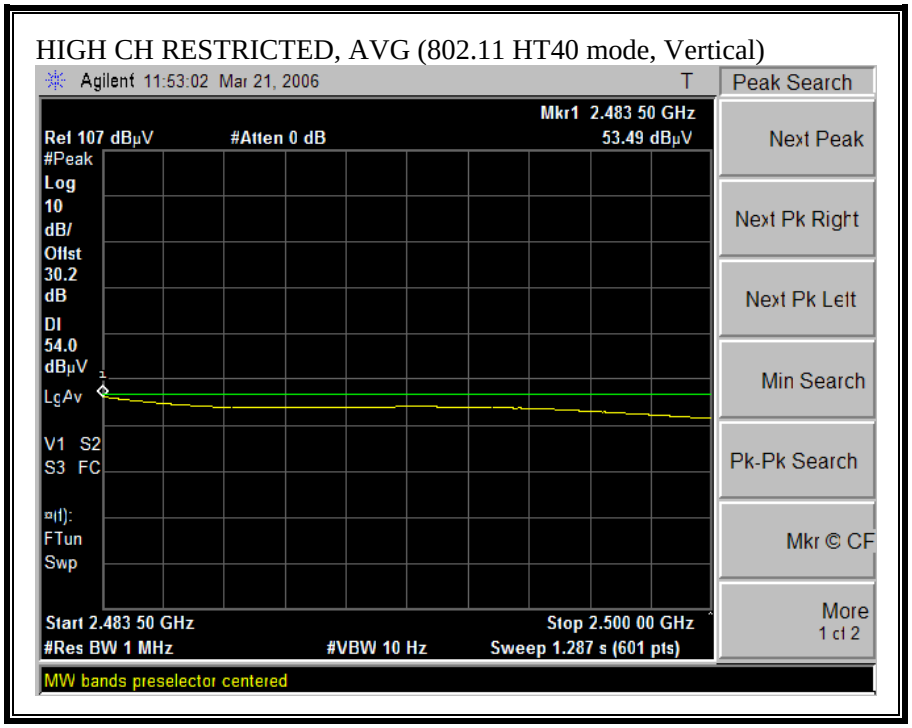


RESTRICTED BANDEDGE (802.11 HT40 MODE, HIGH CHANNEL, Vertical)

HIGH CH RESTRICTED, PEAK (802.11 HT40 mode, Vertical)



HIGH CH RESTRICTED, AVG (802.11 HT40 mode, Vertical)



HARMONICS AND SPURIOUS EMISSIONS (802.11 HT40 MODE)

03/21/06 **High Frequency Measurement**

Compliance Certification Services, Morgan Hill Open Field Site

Test Engineer:Chin Pang
Project #:06U10183
Company:Atheros
EUT Description:802.11n MIMO Cardbus
EUT M/N:CB71
Test Target:FCC 15.247
Mode Of Operation:TX, HT40
Average Power Meter: Low = 15.2 dBm, Mid = 19.9 dBm, High = 16.5dBm

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T87 Miteq 924342			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Chin 197538001	Chin 200354001		R_001

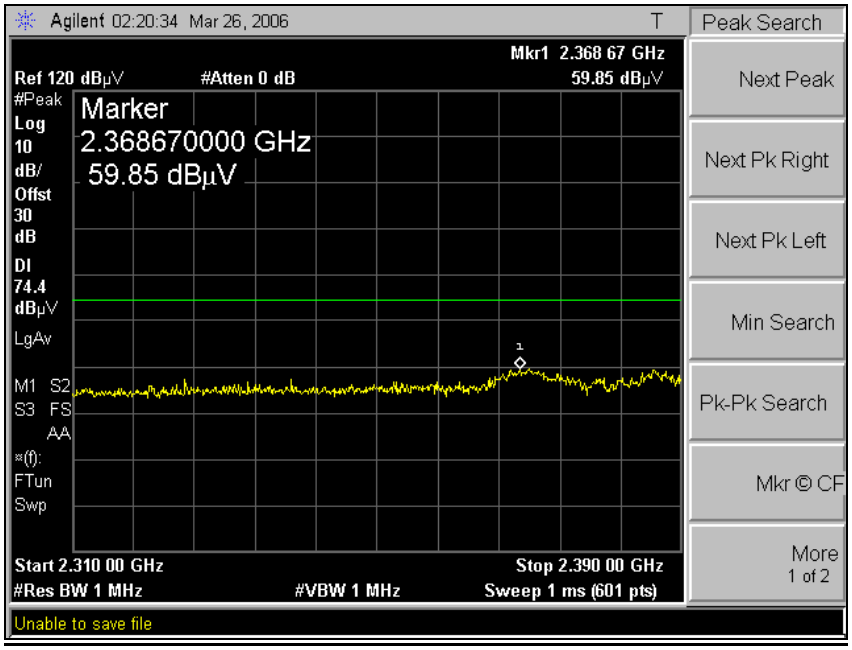
Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

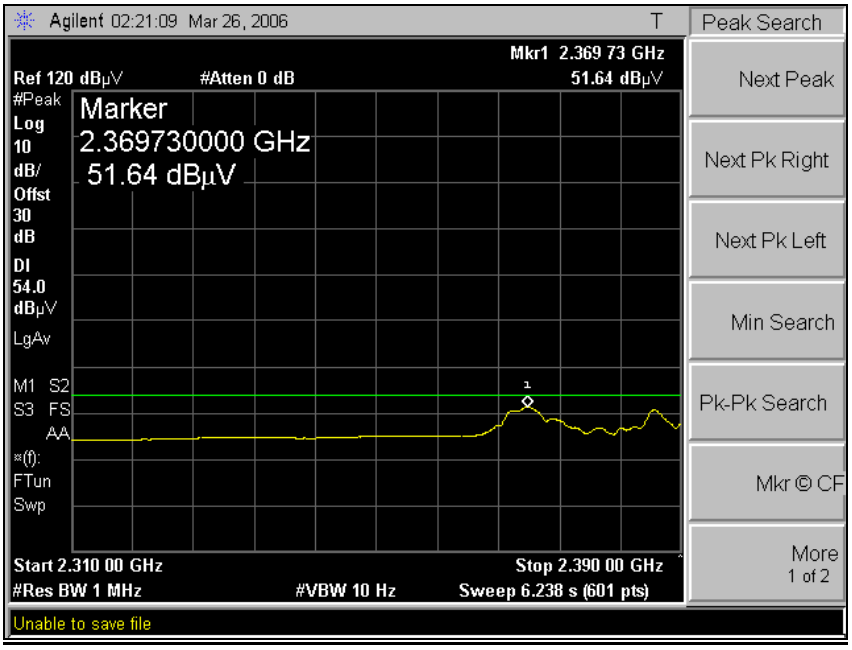
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch, 2422)Hz															
4.842	3.0	55.0	42.0	33.7	3.2	-45.3	0.0	0.0	46.6	33.6	74	54	-27.4	-20.4	V
7.266	3.0	60.5	47.0	35.4	3.6	-43.3	0.0	0.0	56.2	42.7	74	54	-17.8	-11.3	V
4.842	3.0	53.0	40.0	33.7	3.2	-45.3	0.0	0.0	44.6	31.6	74	54	-29.4	-22.4	H
7.266	3.0	55.0	42.0	35.4	3.6	-43.3	0.0	0.0	50.7	37.7	74	54	-23.3	-16.3	H
Mid Ch, 2437MHz															
4.874	3.0	57.0	45.0	33.8	3.2	-45.3	0.0	0.0	48.7	36.7	74	54	-25.3	-17.3	V
7.311	3.0	64.0	51.4	35.5	3.6	-43.2	0.0	0.0	59.9	47.3	74	54	-14.1	-6.7	V
4.874	3.0	56.0	44.0	33.8	3.2	-45.3	0.0	0.0	47.7	35.7	74	54	-26.3	-18.3	H
7.311	3.0	62.7	50.5	35.5	3.6	-43.2	0.0	0.0	58.6	46.4	74	54	-15.4	-7.6	H
High Ch, 2452MHz															
4.904	3.0	57.0	44.6	33.8	3.2	-45.3	0.0	0.0	48.7	36.3	74	54	-25.3	-17.7	V
7.356	3.0	58.0	45.5	35.6	3.6	-43.1	0.0	0.0	54.0	41.5	74	54	-20.0	-12.5	V
4.904	3.0	54.0	41.0	33.8	3.2	-45.3	0.0	0.0	45.7	32.7	74	54	-28.3	-21.3	H
7.356	3.0	56.3	45.1	35.6	3.6	-43.1	0.0	0.0	52.3	41.1	74	54	-21.7	-12.9	H
Note: No other emissions were detected above the system noise floor.															

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

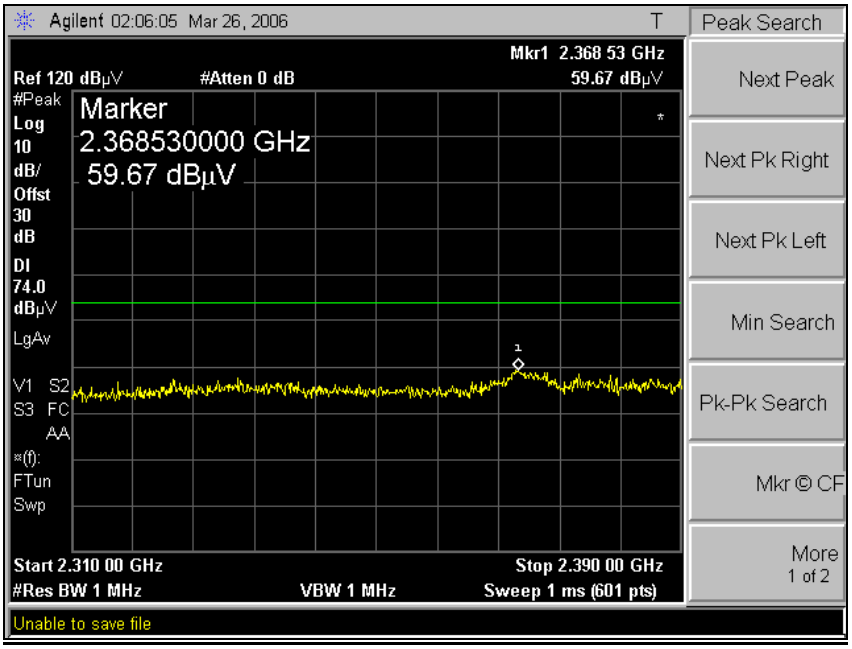
7.2.3. TRANSMITTER ABOVE 1 GHz FOR 2400 TO 2483.5 MHz BAND (Alternate Housing)

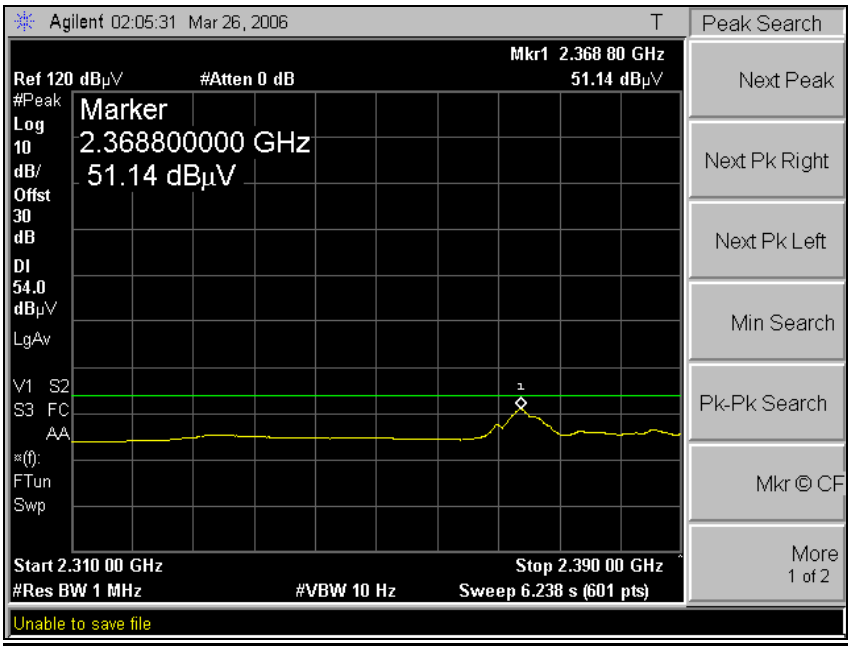
RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, HORIZONTAL)



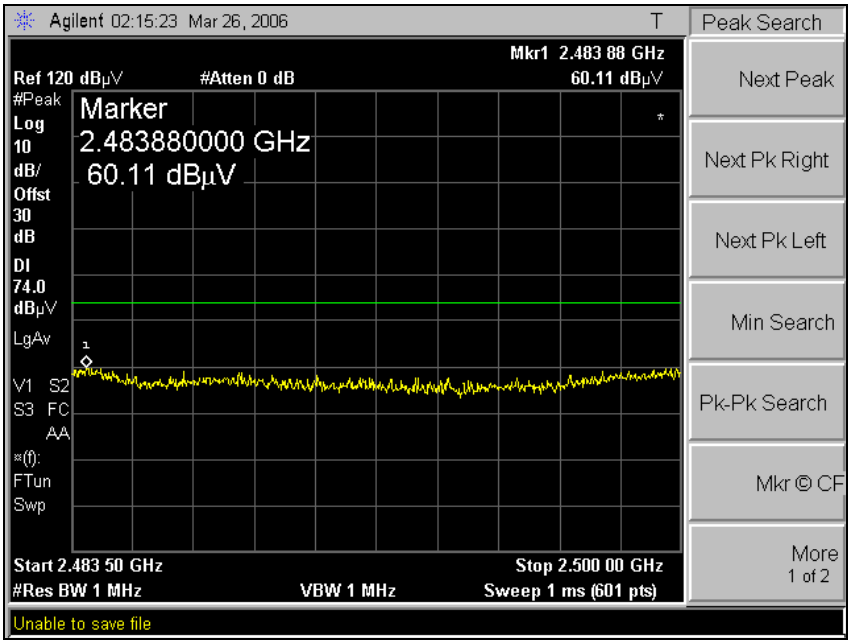


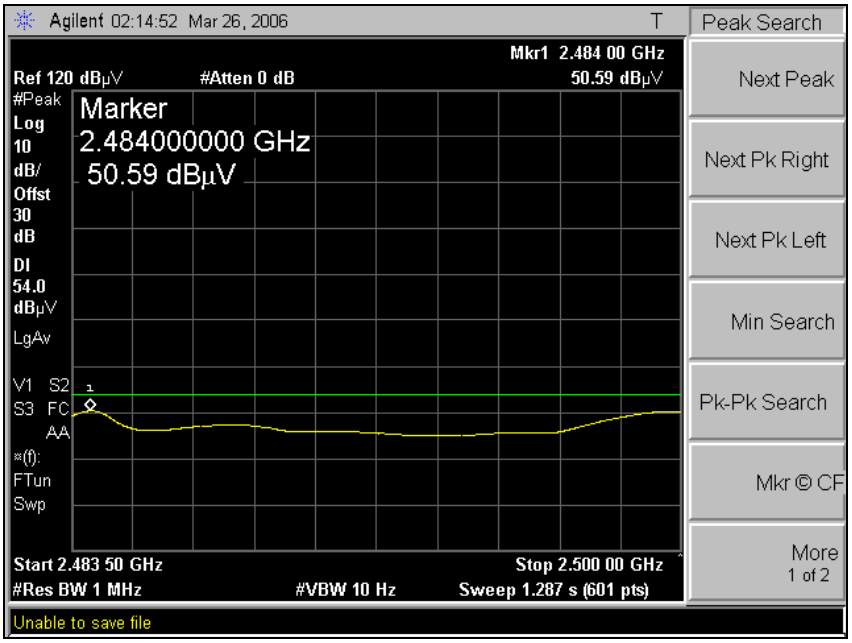
RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, VERTICAL)



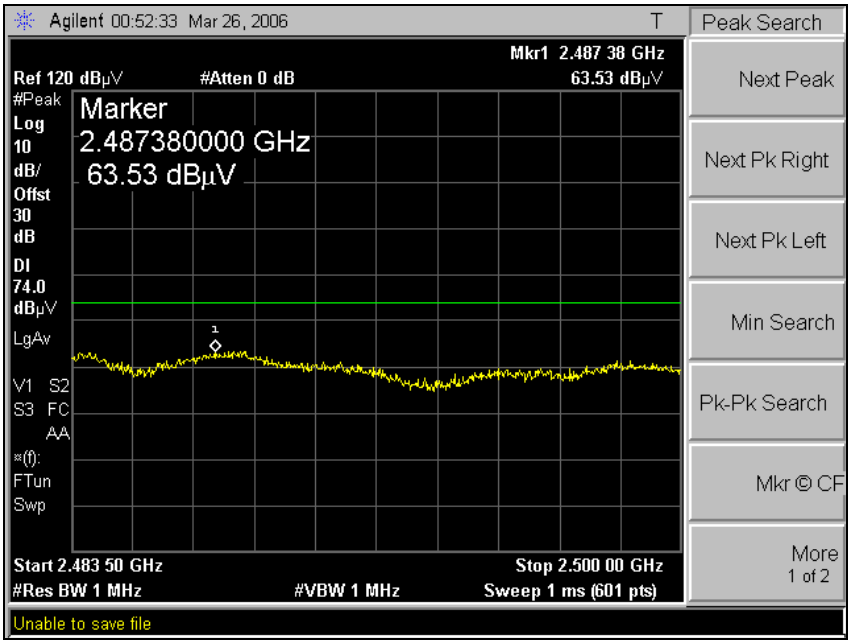


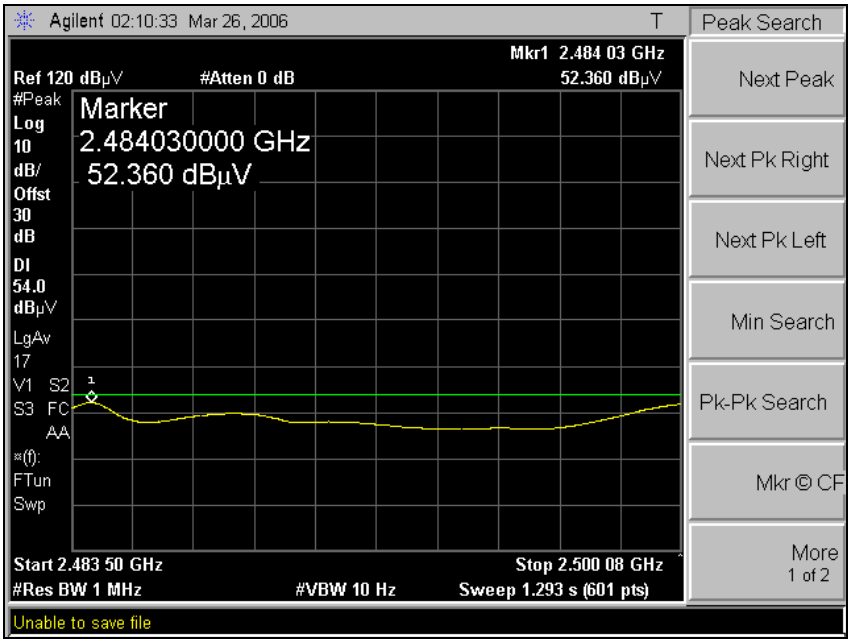
RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS (b MODE)

04/01/06 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engineer: David Garcia
Project #: 06U10183
Company: Atheros
EUT Description: 802.11n WLAN card, w/shield gasket installed
EUT M/N: CB71
EUT S/N: CB71-CB34
Test Target: 802.11n
Mode Of Operation: Tx, b mode
Average Power Meter: Low = 21.3 dBm, High = 20 dBm
Verify compliance of alternate case with RF gasketing added.

Test Equipment:

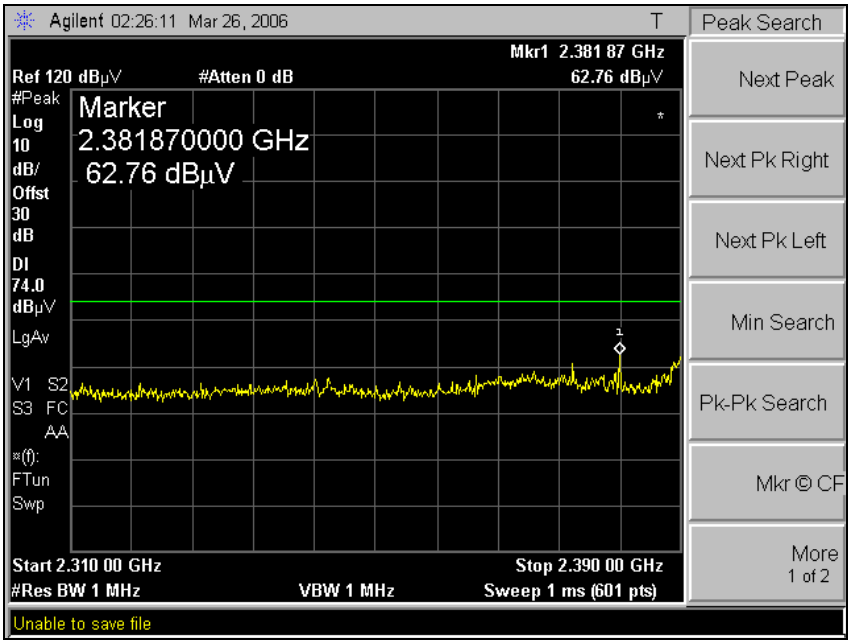
Horn 1-18GHz: T73; S/N: 6717 @3m
Pre-amplifer 1-26GHz: T144 Miteq 3008A00931
Pre-amplifer 26-40GHz:
Horn > 18GHz:
Hi Frequency Cables
2 foot cable:
3 foot cable: Gordon 177080004
12 foot cable: Gordon 203134001
HPF:
Reject Filter: R_001

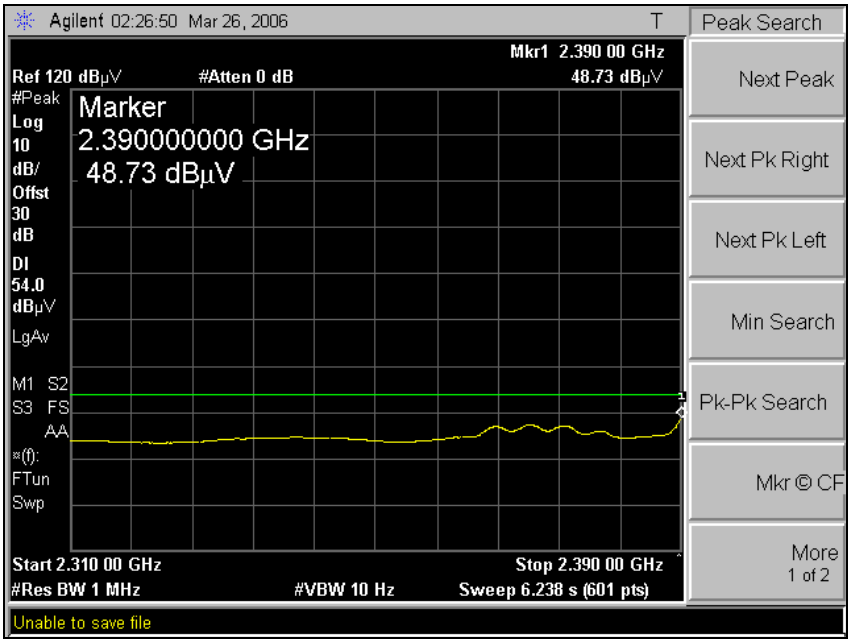
Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
2412 Channel															
4.824	3.0	54.4	52.3	33.7	3.3	-36.5	0.0	0.0	54.9	52.8	74	54	-19.1	-1.2	V
4.824	3.0	52.9	49.0	33.7	3.3	-36.5	0.0	0.0	53.4	49.5	74	54	-20.6	-4.5	H
2462 Channel															
4.924	3.0	56.7	50.3	33.8	3.3	-36.5	0.0	0.0	57.4	51.0	74	54	-16.6	-3.0	H
7.386	3.0	50.3	44.6	35.6	3.8	-36.2	0.0	0.0	53.5	47.8	74	54	-20.5	-6.2	H
4.924	3.0	51.7	49.0	33.8	3.3	-36.5	0.0	0.0	52.4	49.7	74	54	-21.6	-4.3	V
7.386	3.0	48.0	41.5	35.6	3.8	-36.2	0.0	0.0	51.2	44.7	74	54	-22.8	-9.3	V

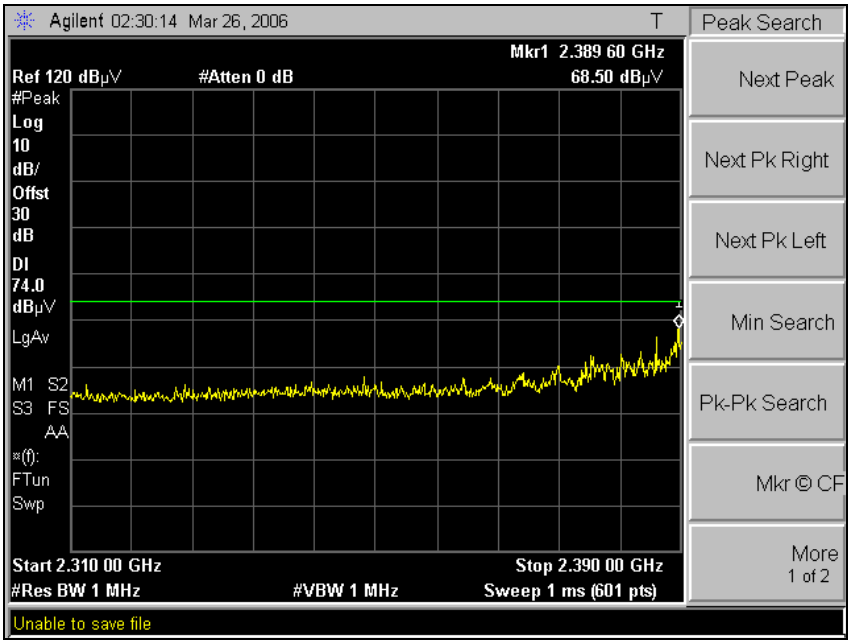
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

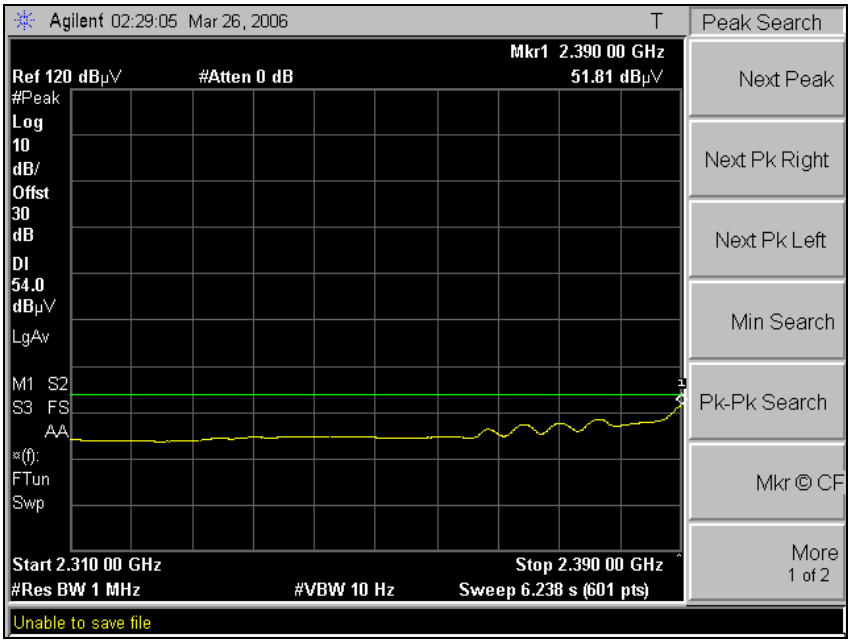
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, HORIZONTAL)



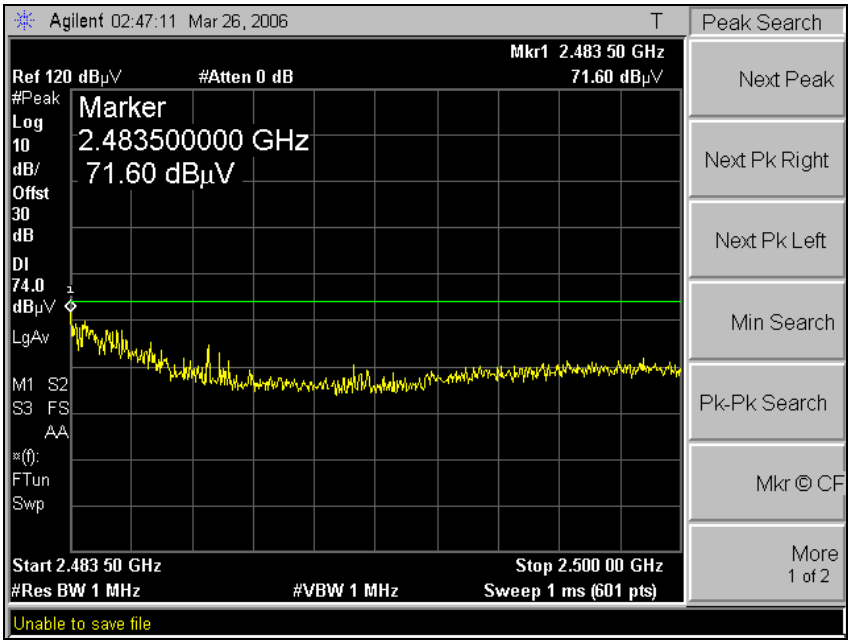


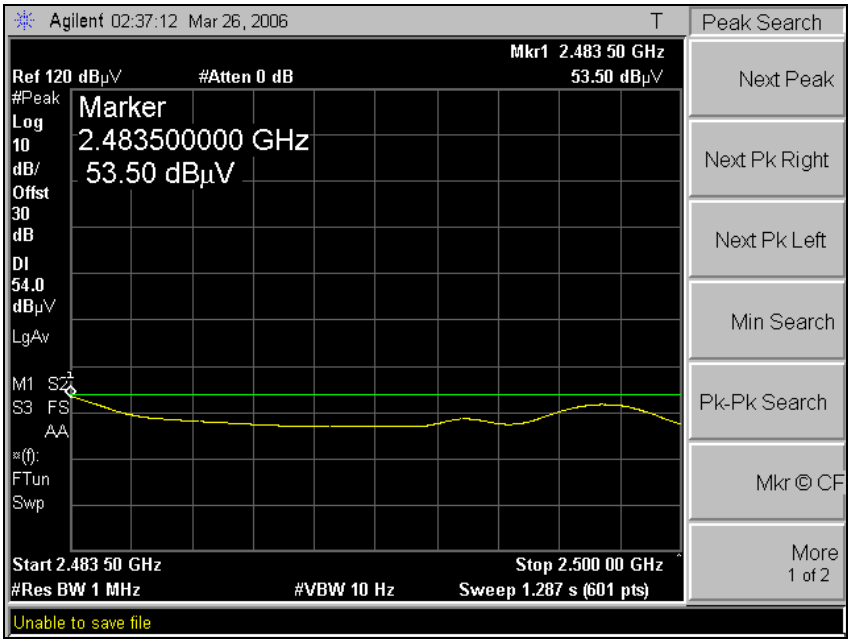
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, VERTICAL)



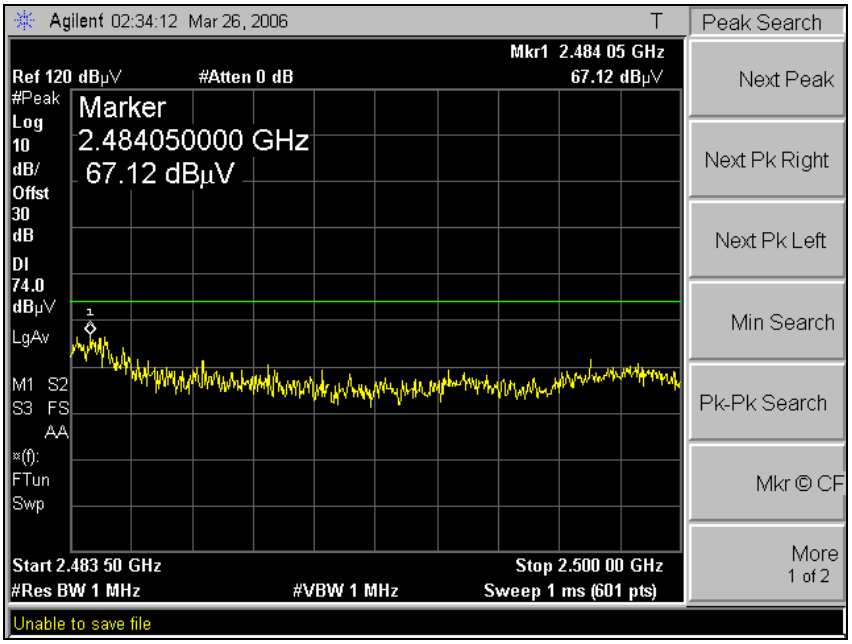


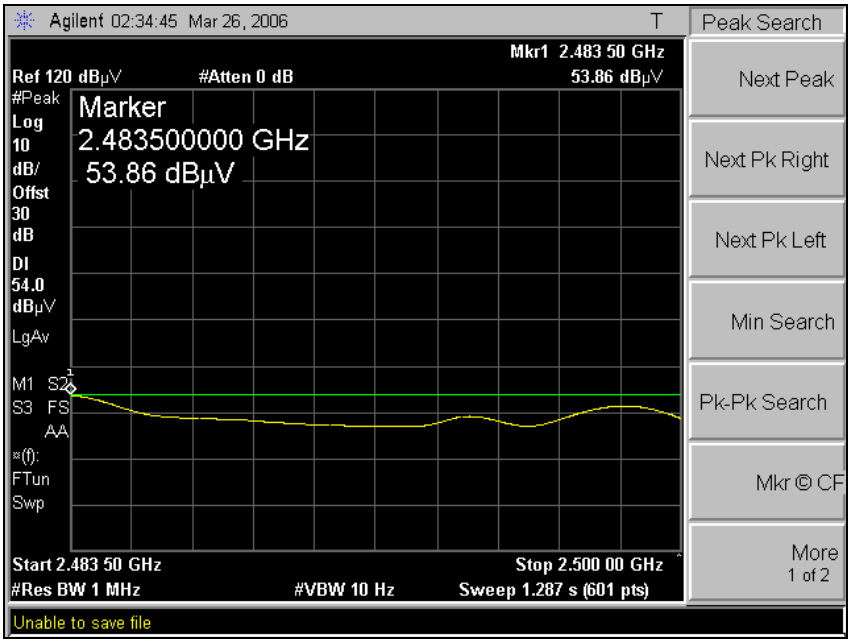
RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS (g MODE)

04/01/06 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engineer: David Garcia
Project #: 06U10183
Company: Atheros
EUT Description: 802.11n WLAN card, w/shield gasket installed
EUT M/N: CB71
EUT S/N: CB71-CB34
Test Target: 802.11n
Mode Of Operation: Tx, g mode
Average Power Meter: Low = 17 dBm, High = 18.2 dBm
Verify compliance of alternate case with RF gasketing added.

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz
T73; S/N: 6717 @3m	T144 Miteq 3008A00931		

Hi Frequency Cables

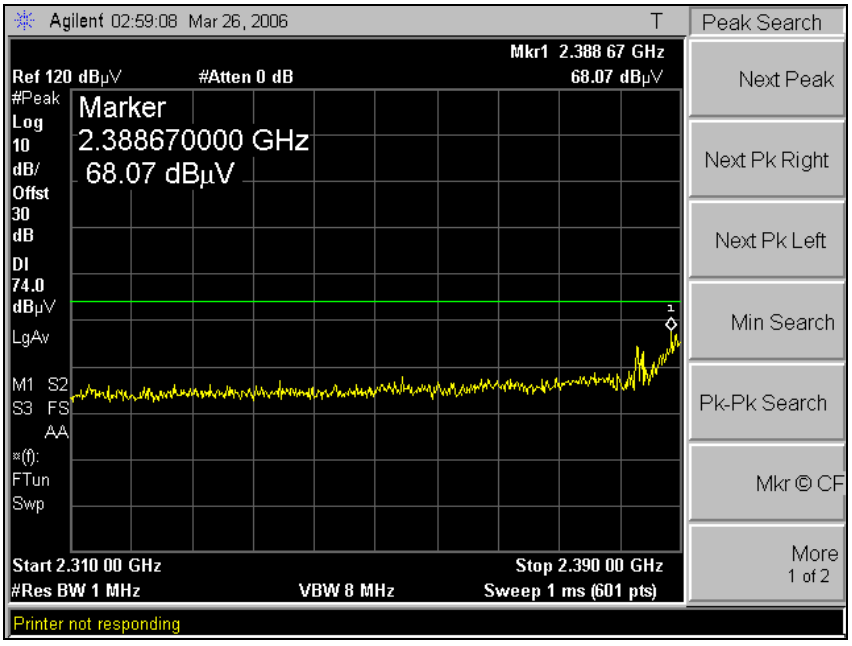
2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Gordon 177080004	Gordon 203134001		R_001

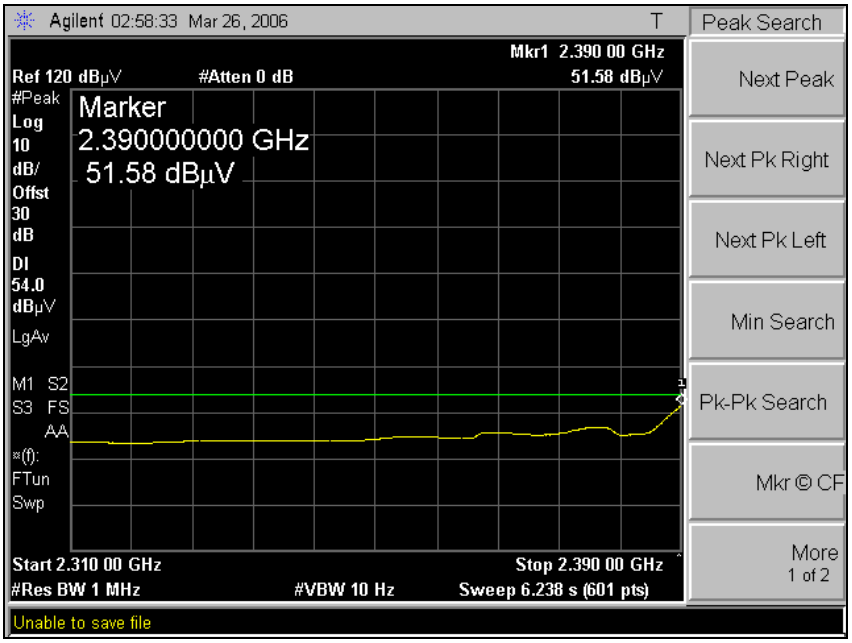
Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
2412 Channel															
4.824	3.0	49.9	38.0	33.7	3.3	-36.5	0.0	0.0	50.4	38.5	74	54	-23.6	-15.5	V
4.824	3.0	51.6	40.9	33.7	3.3	-36.5	0.0	0.0	52.1	41.4	74	54	-21.9	-12.6	H
2462 Channel															
4.924	3.0	50.7	40.6	33.8	3.3	-36.5	0.0	0.0	51.4	41.3	74	54	-22.6	-12.7	H
7.386	3.0	47.2	35.8	35.6	3.8	-36.2	0.0	0.0	50.4	39.0	74	54	-23.6	-15.0	H
4.924	3.0	51.7	49.0	33.8	3.3	-36.5	0.0	0.0	52.4	49.7	74	54	-21.6	-4.3	V
7.386	3.0	48.0	41.5	35.6	3.8	-36.2	0.0	0.0	51.2	44.7	74	54	-22.8	-9.3	V

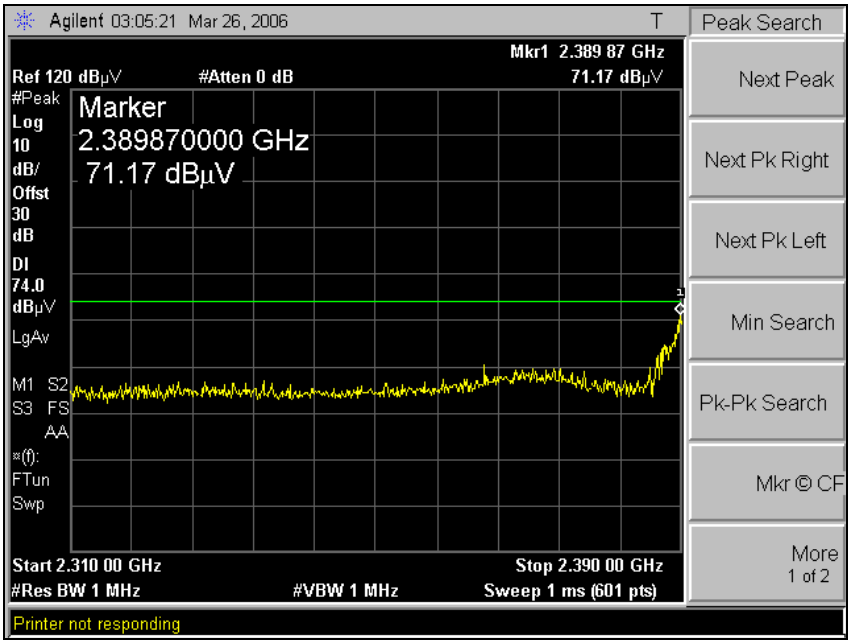
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

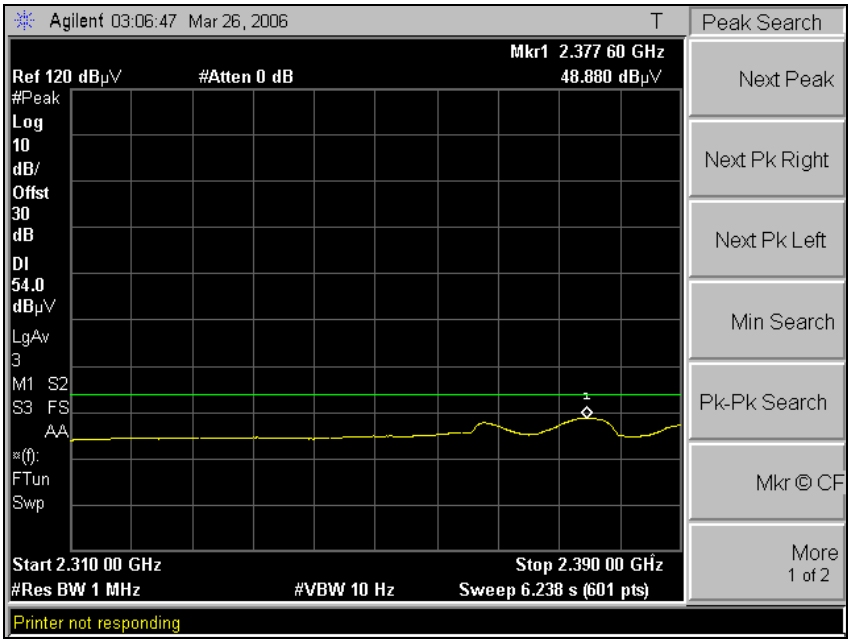
RESTRICTED BANDEDGE 802.11 (HT20 MODE, LOW CHANNEL, HORIZONTAL



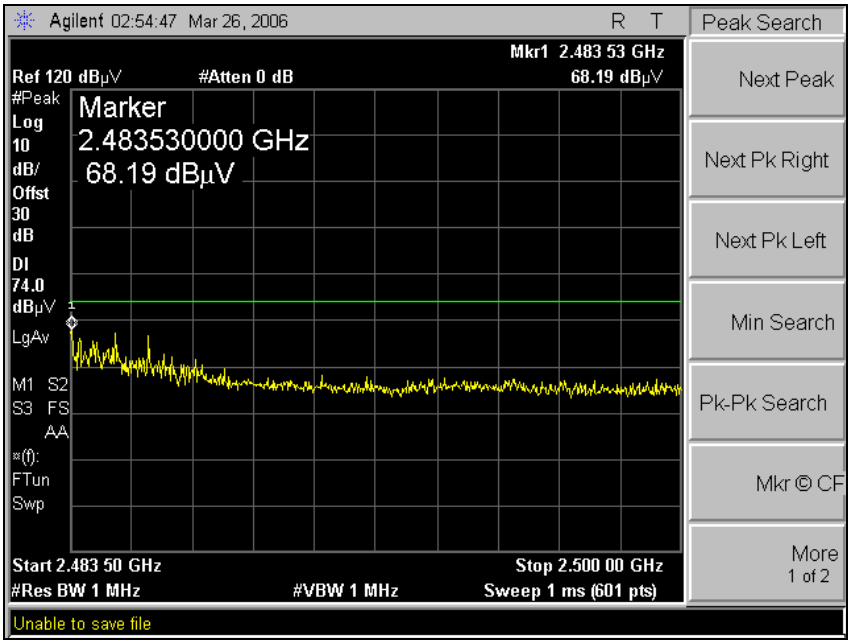


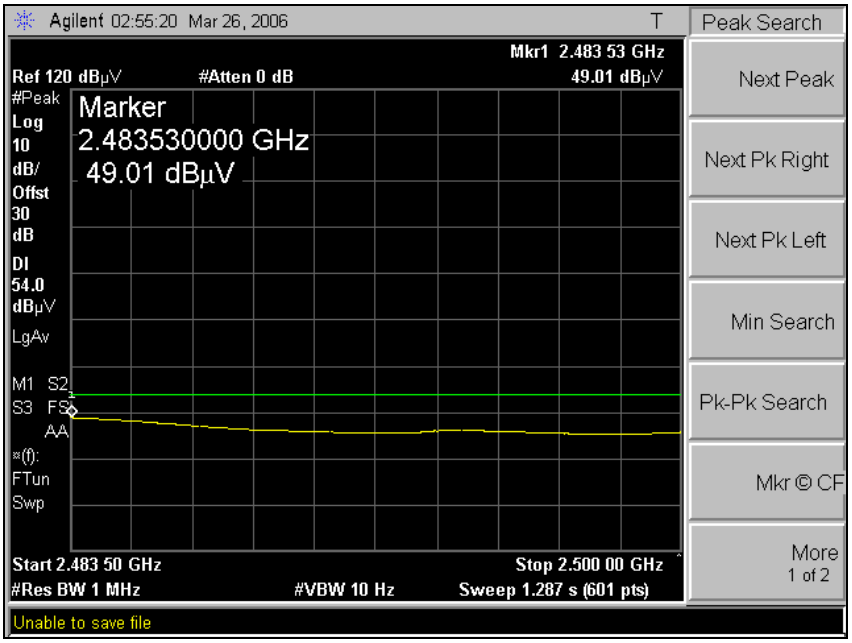
RESTRICTED BANDEDGE 802.11 (HT20 MODE, LOW CHANNEL, VERTICAL



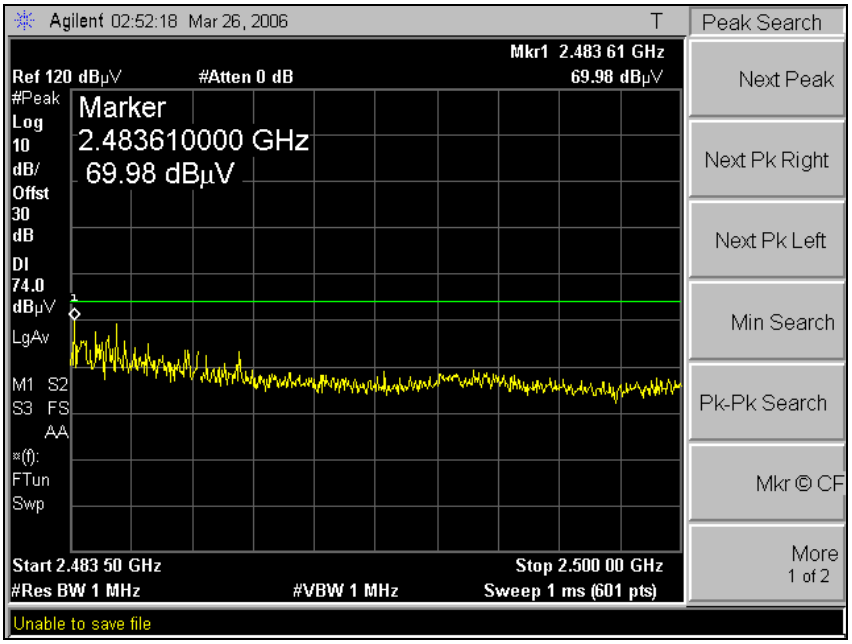


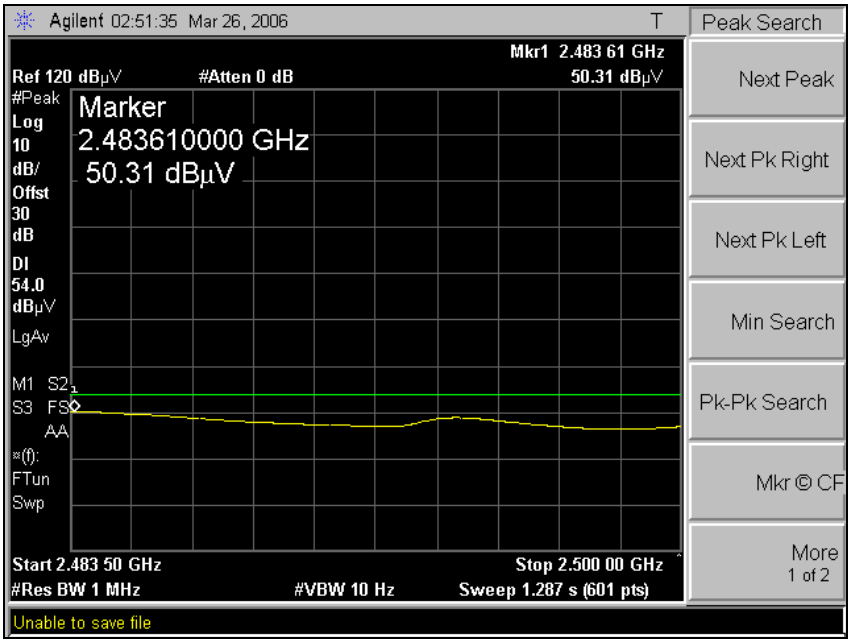
RESTRICTED BANDEDGE 802.11 (HT20 MODE, HIGH CHANNEL, HORIZONTAL





RESTRICTED BANDEDGE 802.11 (HT20 MODE, HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS (H20 MODE)

04/01/06 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engineer: David Garcia
Project #: 06U10183
Company: Atheros
EUT Description: 802.11n WLAN card, w/shield gasket installed
EUT M/N: CB71
EUT S/N: CB71-CB34
Test Target: 802.11n
Mode Of Operation: Tx, HT20 mode
Average Power Meter: Low = 16.5 dBm, High = 17.8 dBm
Verify compliance of alternate case with RF gasketing added.

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz
T73; S/N: 6717 @3m	T144 Miteq 3008A00931		

Hi Frequency Cables

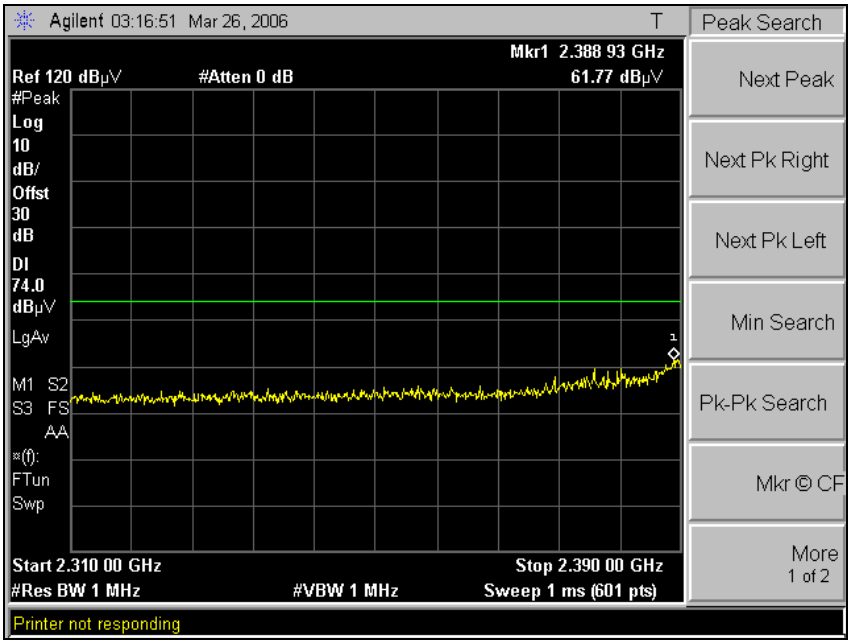
2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
	Gordon 177080004	Gordon 203134001		R_001

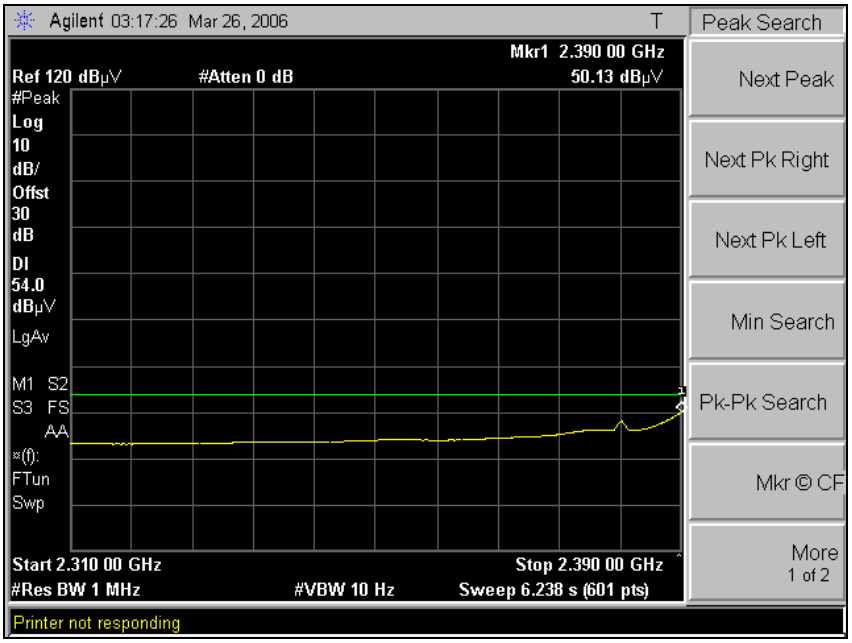
Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
2412 Channel															
4.824	3.0	49.6	39.1	33.7	3.3	-36.5	0.0	0.0	50.1	39.6	74	54	-23.9	-14.4	V
4.824	3.0	52.8	38.8	33.7	3.3	-36.5	0.0	0.0	53.3	39.3	74	54	-20.7	-14.7	H
2462 Channel															
4.924	3.0	48.0	37.9	33.8	3.3	-36.5	0.0	0.0	48.7	38.6	74	54	-25.3	-15.4	V
7.386	3.0	44.3	33.4	35.6	3.8	-36.2	0.0	0.0	47.5	36.6	74	54	-26.5	-17.4	V
4.924	3.0	52.7	43.0	33.8	3.3	-36.5	0.0	0.0	53.4	43.7	74	54	-20.6	-10.3	H
7.386	3.0	46.7	34.9	35.6	3.8	-36.2	0.0	0.0	49.9	38.1	74	54	-24.1	-15.9	H

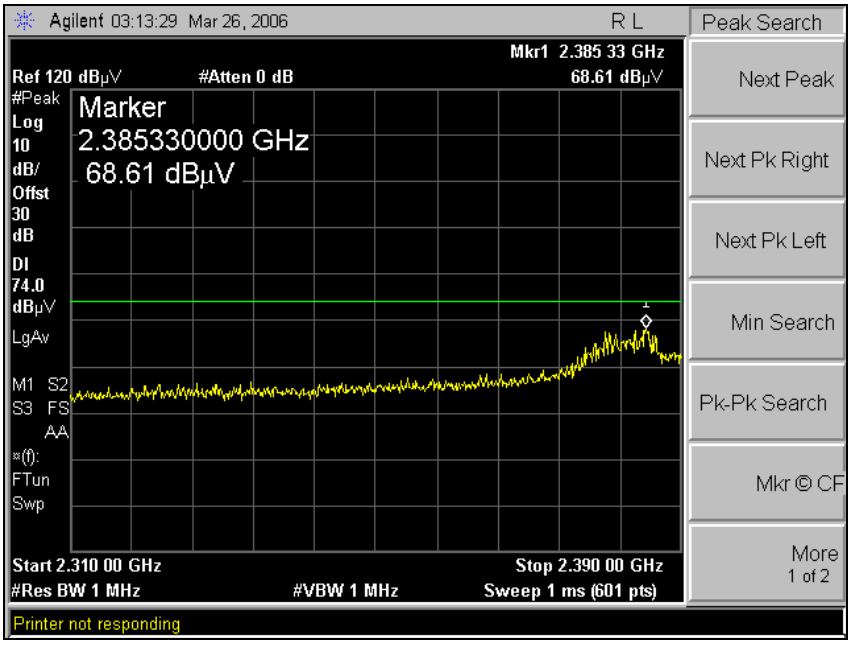
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

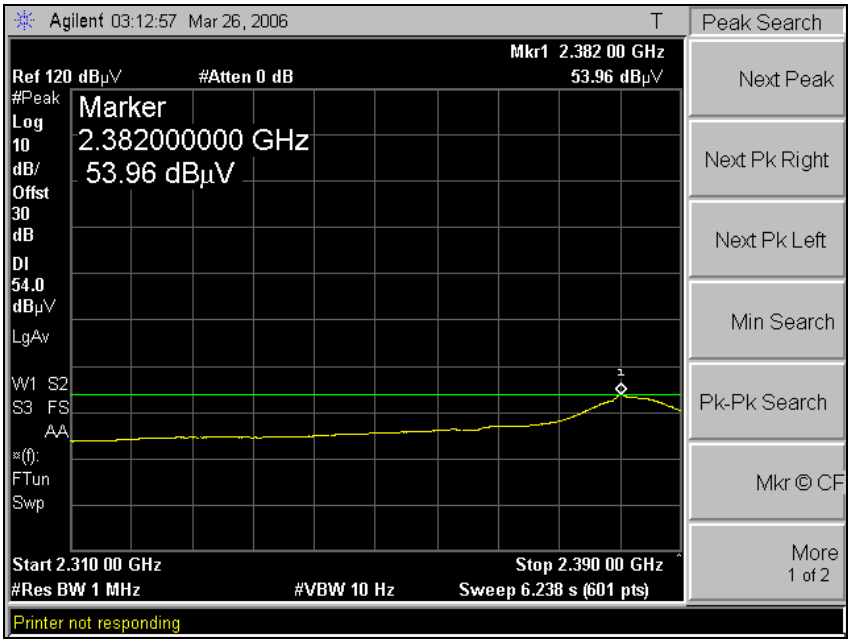
RESTRICTED BANDEDGE 802.11 (HT40 MODE, LOW CHANNEL, HORIZONAL)



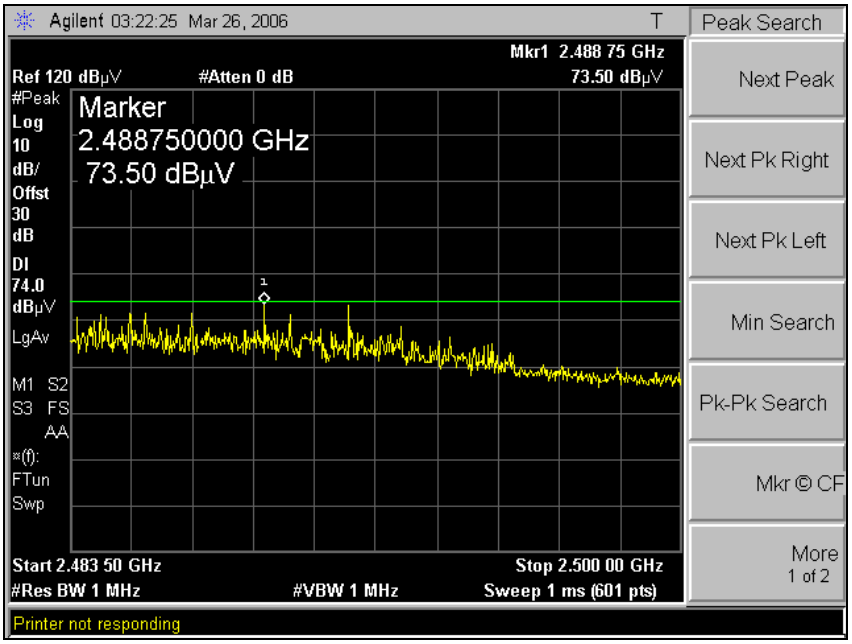


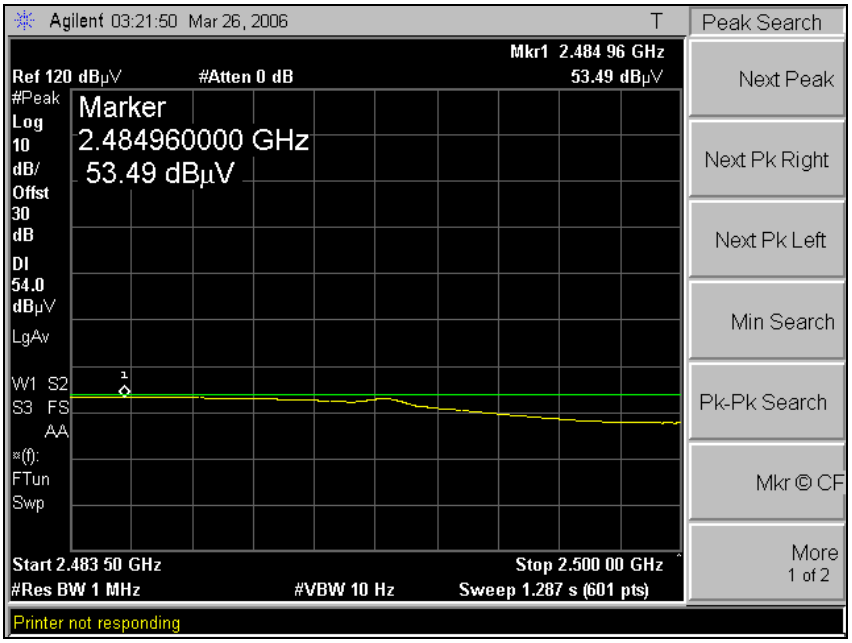
RESTRICTED BANDEDGE 802.11 (HT40 MODE, LOW CHANNEL, VERTICAL)



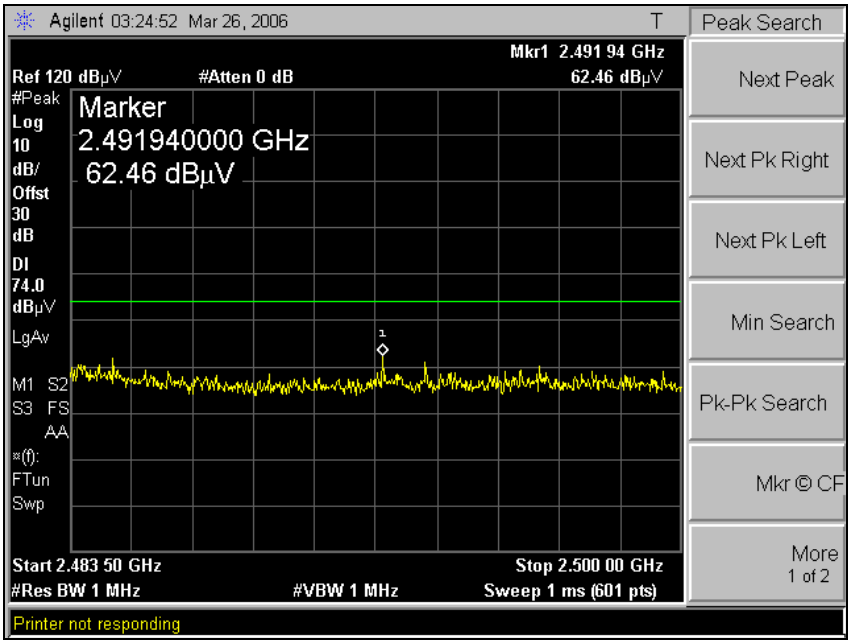


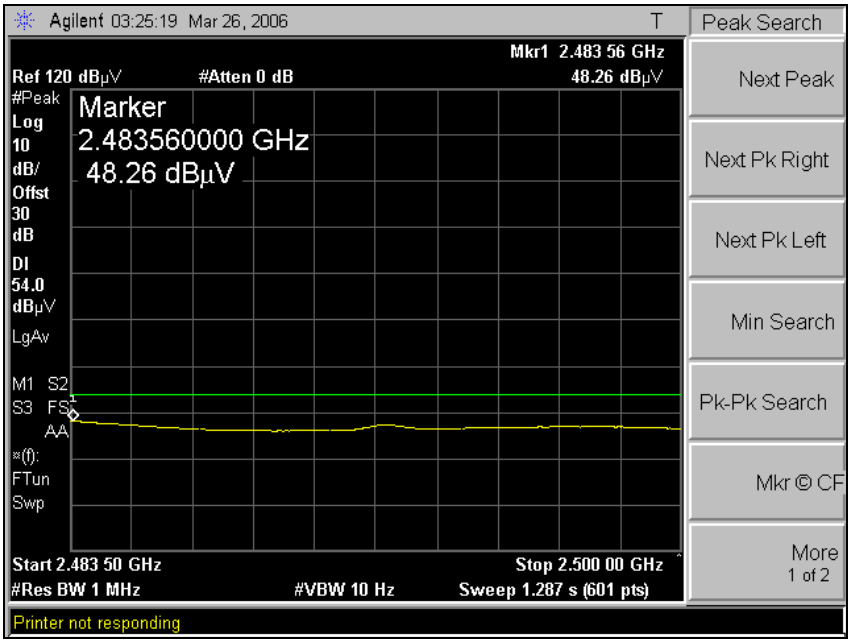
RESTRICTED BANDEDGE 802.11 (HT40 MODE, HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE 802.11 (HT40 MODE, HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS (H40 MODE)

04/01/06 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engineer: David Garcia
Project #: 06U10183
Company: Atheros
EUT Description: 802.11n WLAN card, w/shield gasket installed
EUT M/N: CB71
EUT S/N: CB71-CB34
Test Target: 802.11n
Mode Of Operation: Tx, HT 40
Average Power Meter: Low = 15.2 dBm, High = 16.5 dBm
Verify compliance of alternate case with RF gasketing added.

Test Equipment:

Horn 1-18GHz: T73; S/N: 6717 @3m
Pre-amplifer 1-26GHz: T144 Miteq 3008A00931
Pre-amplifer 26-40GHz:
Horn > 18GHz:

Hi Frequency Cables
2 foot cable:
3 foot cable: Gordon 177080004
12 foot cable: Gordon 203134001
HPF:
Reject Filter: R_001

Peak Measurements RBW=VBW=1MHz
Average Measurements RBW=1MHz ; VBW=10Hz

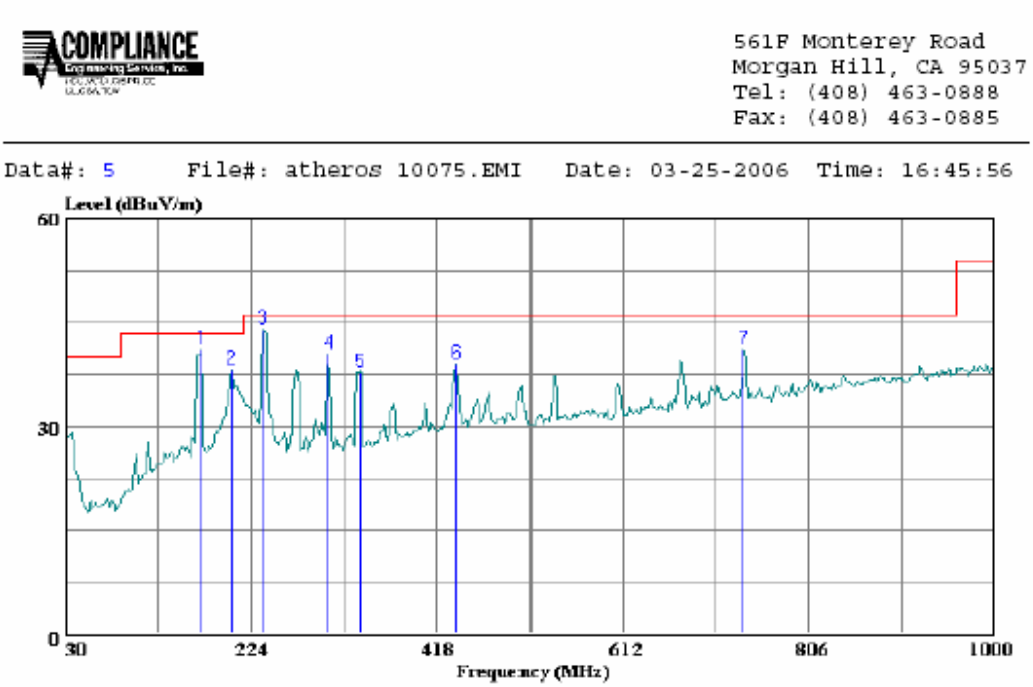
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
2422 Channel															
4.844	3.0	49.8	32.6	33.7	3.3	-36.5	0.0	0.0	50.4	33.2	74	54	-23.6	-20.8	V
7.266	3.0	40.7	30.3	35.4	3.8	-36.2	0.0	0.0	43.7	33.3	74	54	-30.3	-20.7	V
4.844	3.0	45.6	33.0	33.7	3.3	-36.5	0.0	0.0	46.2	33.6	74	54	-27.8	-20.4	H
7.266	3.0	38.7		35.4	3.8	-36.2	0.0	0.0	41.7	3.0	74	54	-32.3	-51.0	H
2452 Channel															
4.904	3.0	46.0	34.9	33.8	3.3	-36.5	0.0	0.0	46.7	35.6	74	54	-27.3	-18.4	V
7.356	3.0	42.3	33.0	35.6	3.8	-36.2	0.0	0.0	45.4	36.1	74	54	-28.6	-17.9	V
4.904	3.0	44.7	32.9	33.8	3.3	-36.5	0.0	0.0	45.4	33.6	74	54	-28.6	-20.4	H
7.356	3.0	43.3	31.9	35.6	3.8	-36.2	0.0	0.0	46.4	35.0	74	54	-27.6	-19.0	H

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

7.2.4. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



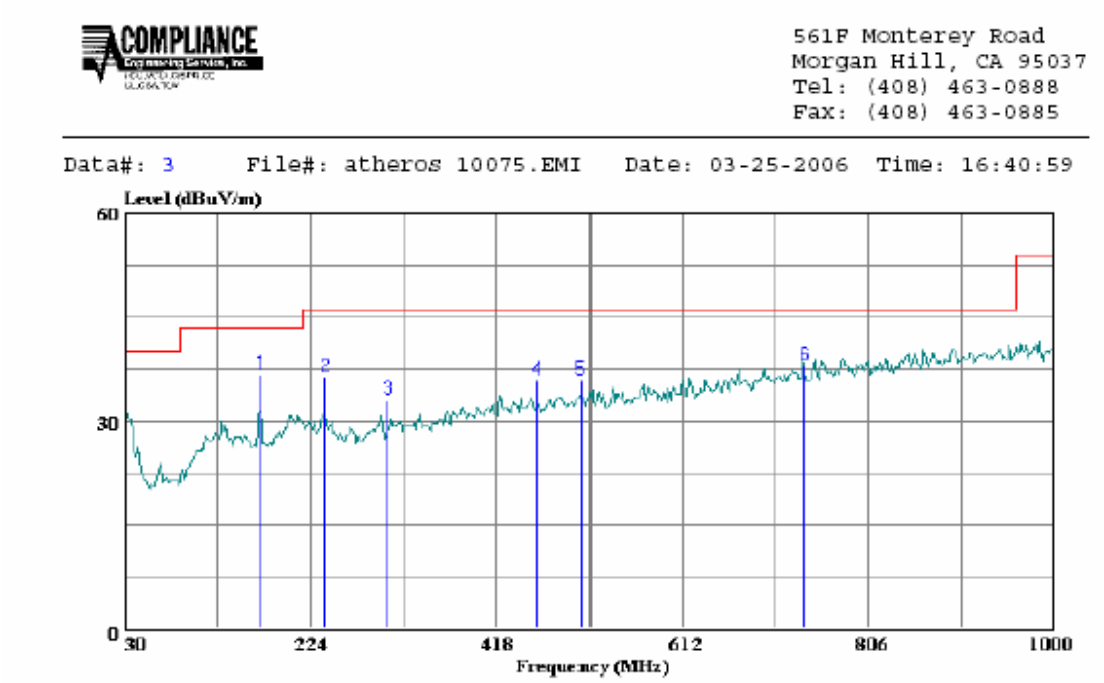
HORIZONTAL DATA

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	172.590	27.86	13.31	41.17	43.50	-2.33	Peak
2	203.630	24.25	14.01	38.26	43.50	-5.24	Peak
3	237.580	30.71	13.39	44.10	46.00	-1.90	Peak
4	305.480	24.75	15.80	40.55	46.00	-5.45	Peak
5	338.460	21.31	16.59	37.90	46.00	-8.10	Peak
6	439.340	20.07	18.96	39.03	46.00	-6.97	Peak
7	737.130	17.36	23.67	41.03	46.00	-4.97	Peak

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



VERTICAL DATA

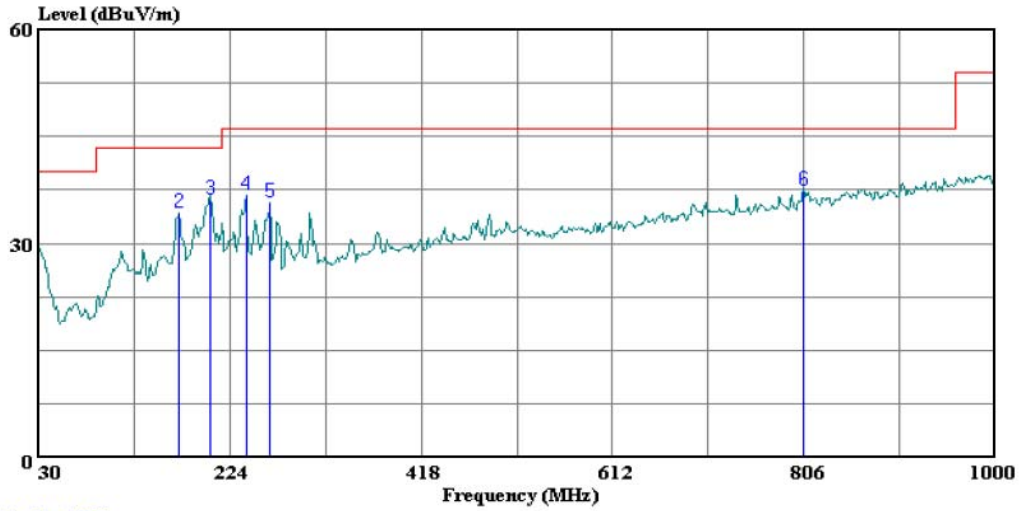
Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	172.590	23.44	13.31	36.75	43.50	-6.75	Peak
2	239.520	22.97	13.47	36.44	46.00	-9.56	Peak
3	305.480	17.29	15.80	33.09	46.00	-12.91	Peak
4	460.680	16.54	19.44	35.98	46.00	-10.02	Peak
5	507.240	15.53	20.31	35.84	46.00	-10.16	Peak
6	739.070	14.38	23.70	38.07	46.00	-7.93	Peak

7.2.5. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz (With alternate housing)

COMPLIANCE Engineering Services, Inc.
561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 7 File#: rad0330.EMI Date: 04-01-2006 Time: 15:12:22



(Audix ATC)

Trace: 6 Ref Trace:

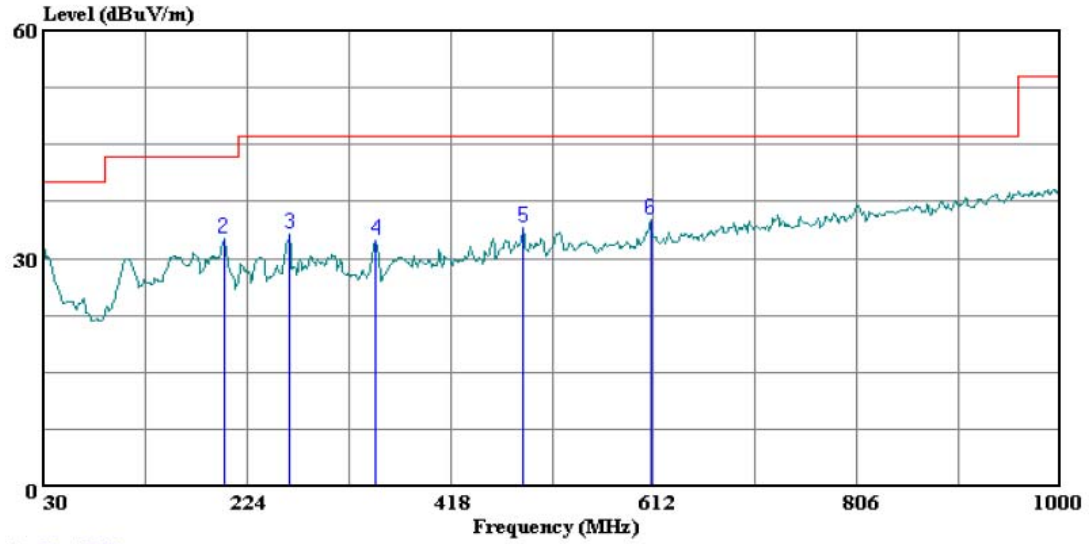
Condition: FCC CLASS-B HORIZONTAL
Test Operator : David Garcia
Project # : 06U10183
Company : Atheros
EUT : 2.4 GHz 802.11n Cardbus
Model No : AR5BCB-00071
S/N : 034
Configuration : EUT, Host Laptop Computer
Mode of operation: TX ON at Mid Channel (2437 MHz) in 11b
: mode.
Target of Test : 802.11n, FCC Class B
: Shield gasket sample

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	8.96	20.45	29.41	40.00	-10.59	Peak
2	172.590	21.03	13.31	34.34	43.50	-9.16	Peak
3	204.600	22.20	13.91	36.11	43.50	-7.39	Peak
4	240.490	23.19	13.54	36.73	46.00	-9.27	Peak
5	264.740	21.24	14.39	35.63	46.00	-10.37	Peak
6	806.000	12.71	24.64	37.34	46.00	-8.66	Peak

561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 9 File#: rad0330.EMI Date: 04-01-2006 Time: 15:17:26



(Audix ATC)

Trace: 8 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator : David Garcia
Project # : 06U10183
Company : Atheros
EUT : 2.4 GHz 802.11n Cardbus
Model No : AR5BCB-00071
S/N : 034
Configuration : EUT, Host Laptop Computer
Mode of operation: TX ON at Mid Channel (2437 MHz) in 11b
: mode.
Target of Test : 802.11n, FCC Class B
: Shield gasket sample

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	10.95	20.45	31.40	40.00	-8.60	Peak
2	201.690	18.25	14.32	32.57	43.50	-10.93	Peak
3	264.740	18.78	14.39	33.17	46.00	-12.83	Peak
4	347.190	15.61	16.85	32.46	46.00	-13.54	Peak
5	487.840	14.01	20.00	34.01	46.00	-11.99	Peak
6	609.090	13.49	21.66	35.15	46.00	-10.85	Peak

7.2.6. POWERLINE CONDUCTED EMISSIONS

LIMIT

§15.207 (a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

The lower limit applies at the boundary between the frequency ranges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The resolution bandwidth is set to 9 kHz for both peak detection and quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

Line conducted data is recorded for both NEUTRAL and HOT lines.

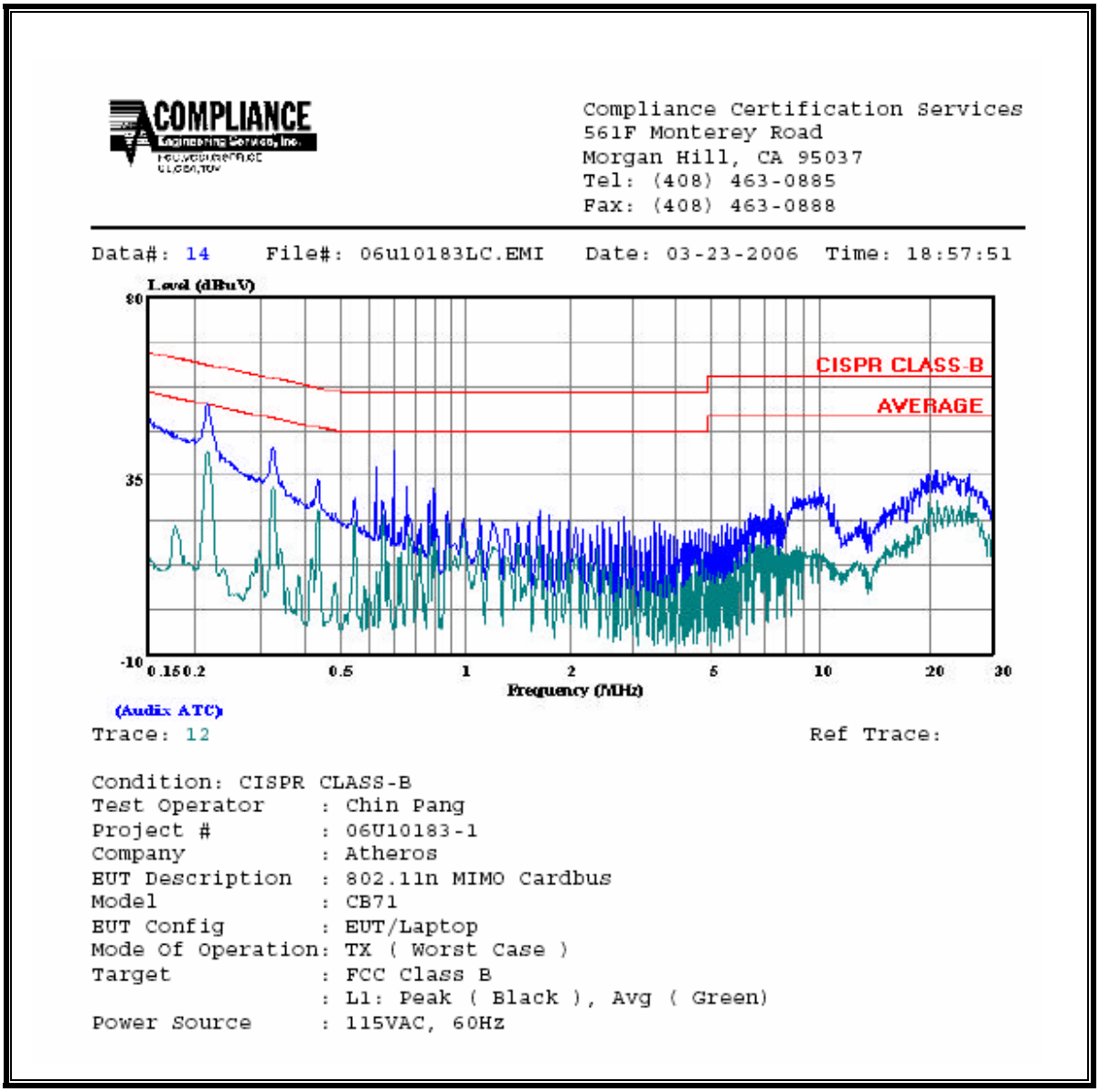
RESULTS

No non-compliance noted:

6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.22	53.20	--	40.60	0.00	62.93	52.93	-9.73	-12.33	L1
0.70	41.48	--	30.51	0.00	56.00	46.00	-14.52	-15.49	L1
20.81	36.32	--	29.60	0.00	60.00	50.00	-23.68	-20.40	L1
0.22	51.62	--	39.56	0.00	62.97	52.97	-11.35	-13.41	L2
0.33	41.70	--	31.11	0.00	59.53	49.53	-17.83	-18.42	L2
1.25	38.16	--	29.45	0.00	56.00	46.00	-17.84	-16.55	L2
6 Worst Data									

LINE 1 RESULTS



LINE 2 RESULTS