Power Spectral Density

Specifications:
FCC Specification: Paragraph: 15.407 (a)
IC Specification: RSS-210, 6.2.2(q1)

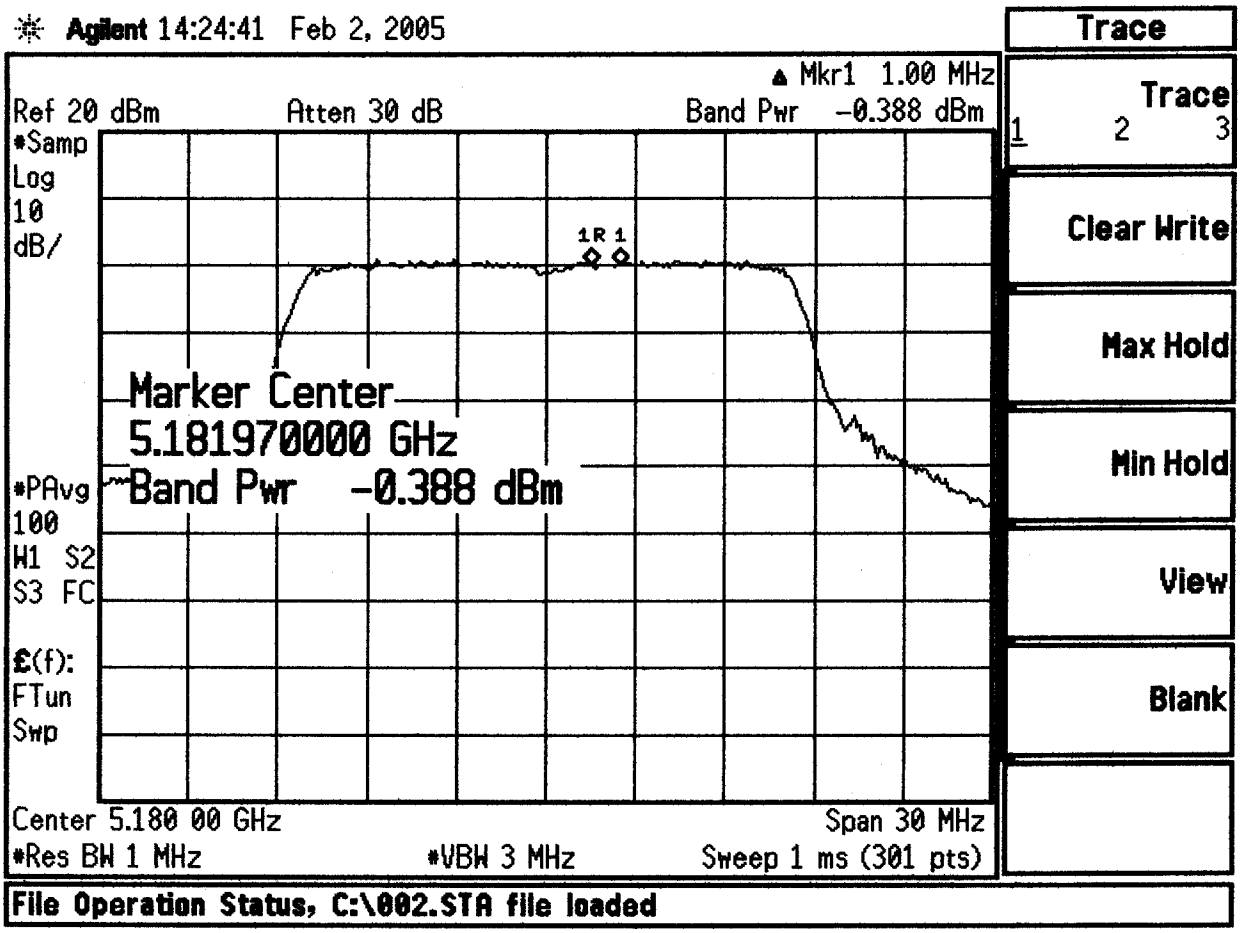
The *Power Spectral Density* measurements were performed at the following test location:

☐ **- Test not applicable**

☐ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)
☐ - Oakwood Lab (Open Area Test Site)
☐ - Wild River Lab Screen Room
■ - Cal Amp

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0

BAND 1



CTL 14dBm

54mBit rate

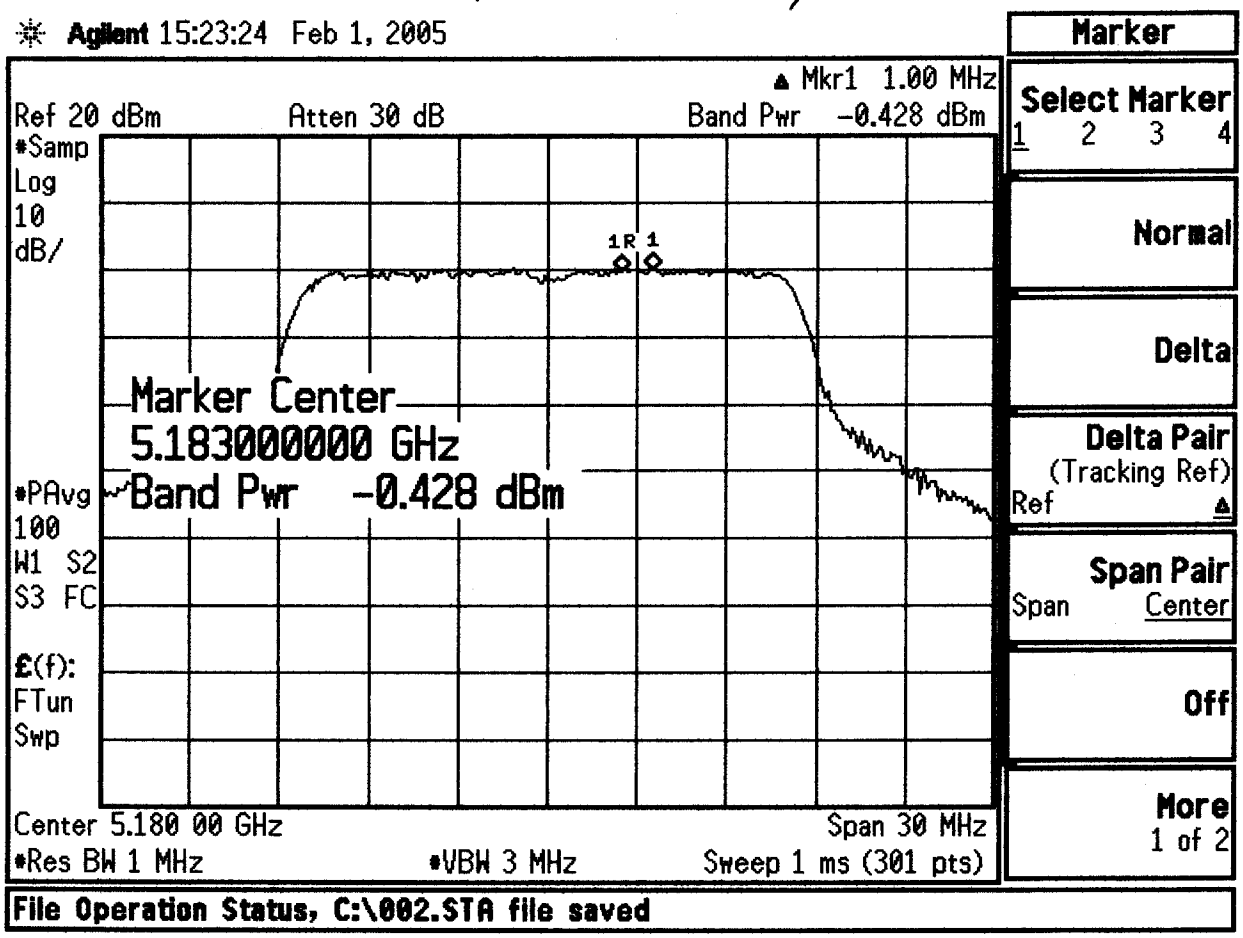
Limit = 4dBm/mHz Conducted and 10dBm/mHz EIRP

Measured = -0.4dBm Conducted

Calculated EIRP = -0.4dBm + 8dBi = +7.6dBm EIRP

BAND 1

Peak Power Spectral Density (In 1MHz BW)



Continuous Tx
FCC Method #2

- Continuous Tx mode
- Detector - sample mode
- power Averaging (Not Video Ave,)
- RBW 1MHz
- VBW 3MHz
- 100 sweep Averaging
- Trace - View
- marker - peak search
- marker - span pair 1MHz
- marker Fctn - Band/Interval Power

CTL 14dBm
6mBit rate

Fcc 15.407 (a).1

Limit = 4dBm/1mHz band

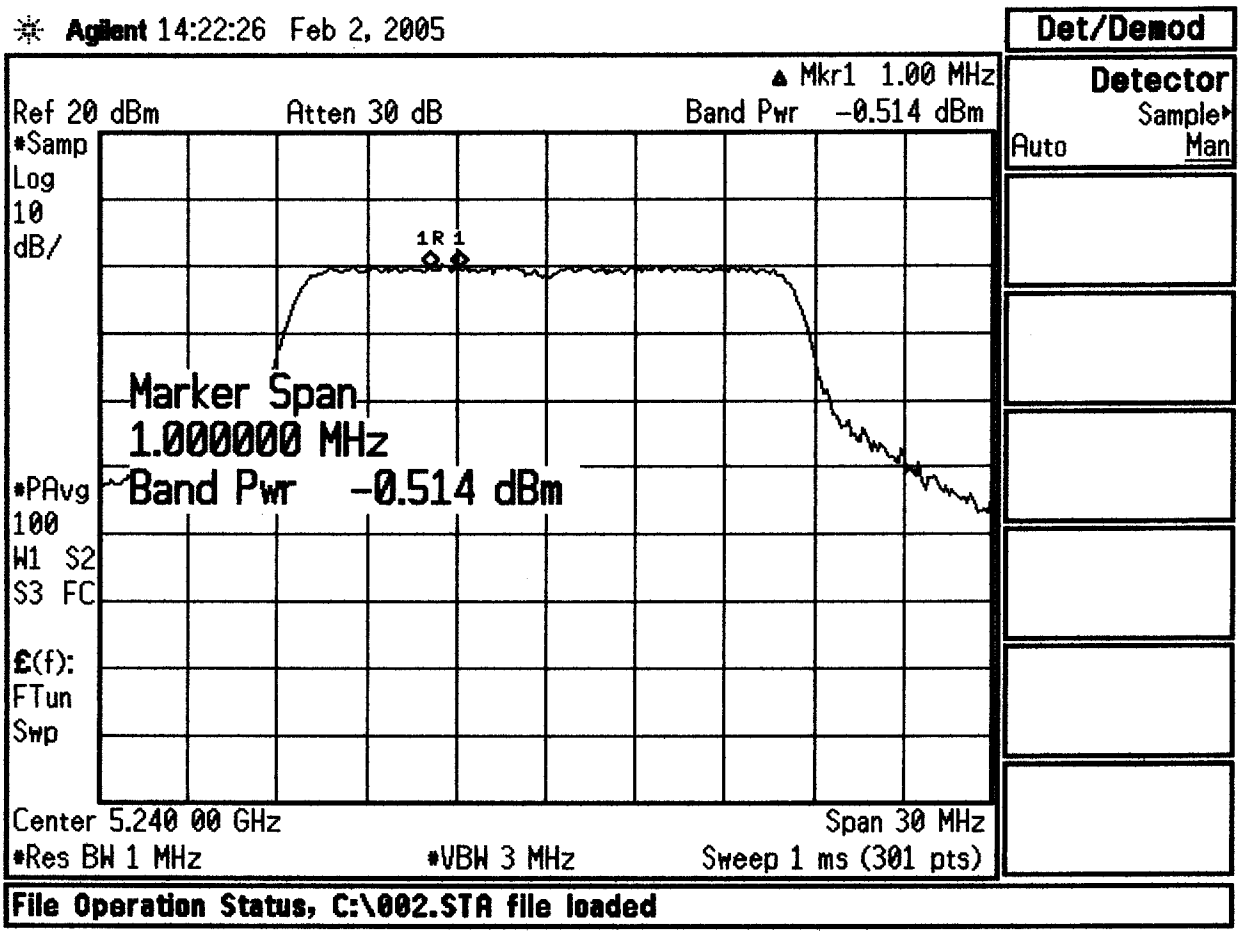
Limit = 10dBm/1mHz EIRP

measured = -0.4 dBm/1mHz

calculated EIRP = 7.6dBm/1mHz EIRP.

BAND 1

Peak Power Spectral Density



CTL 14dBm

54m bit rate

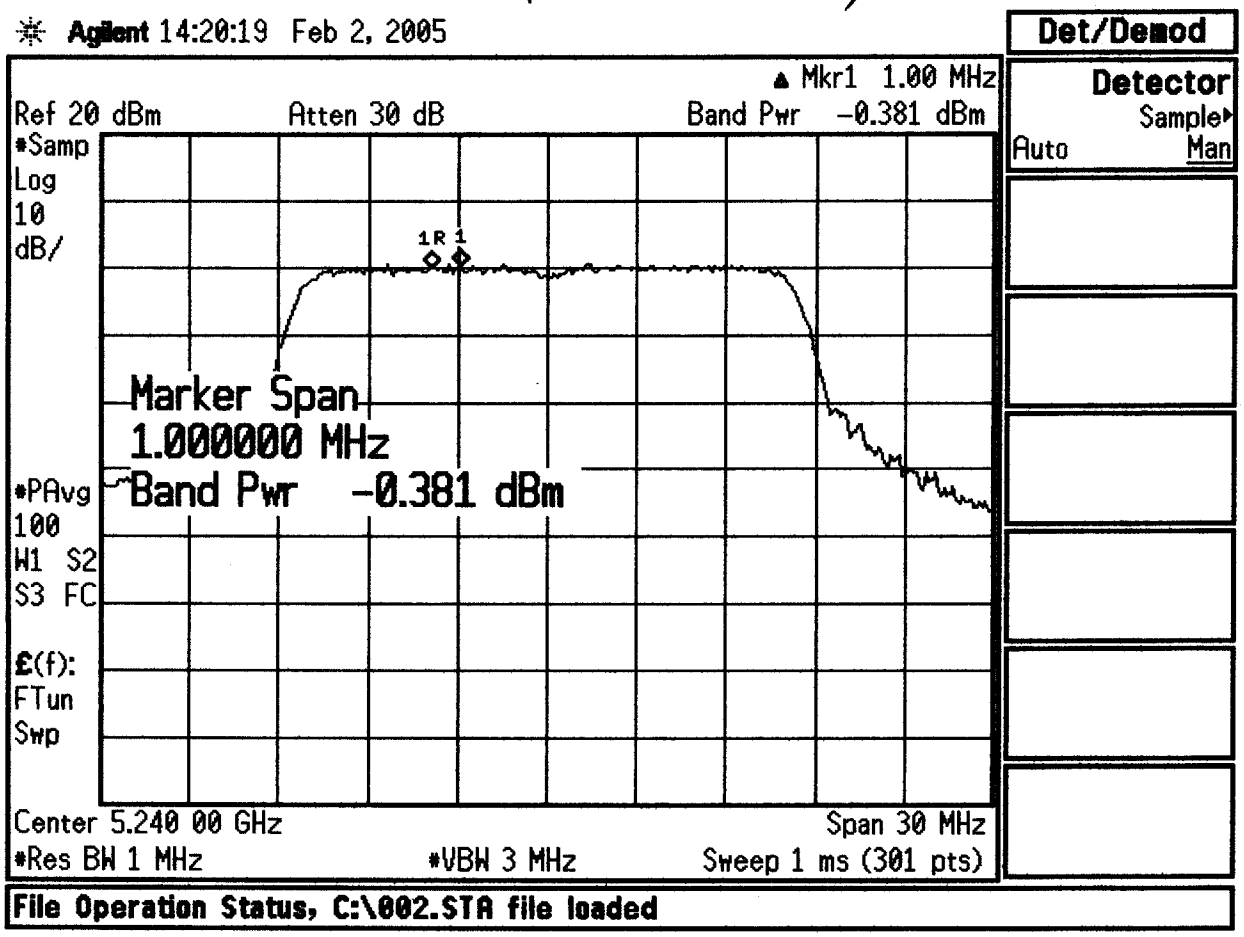
Limit = 4dBm/MHz conducted and 10dBm/MHz ERIP

measured = -0.5dBm/MHz conducted

Calculated = -0.5 dBm/MHz + 8 dBi = +7.5dBm/MHz ERIP

BAND 1

Peak Power Spectral Density



CTL 14 dBm
6 mbit rate

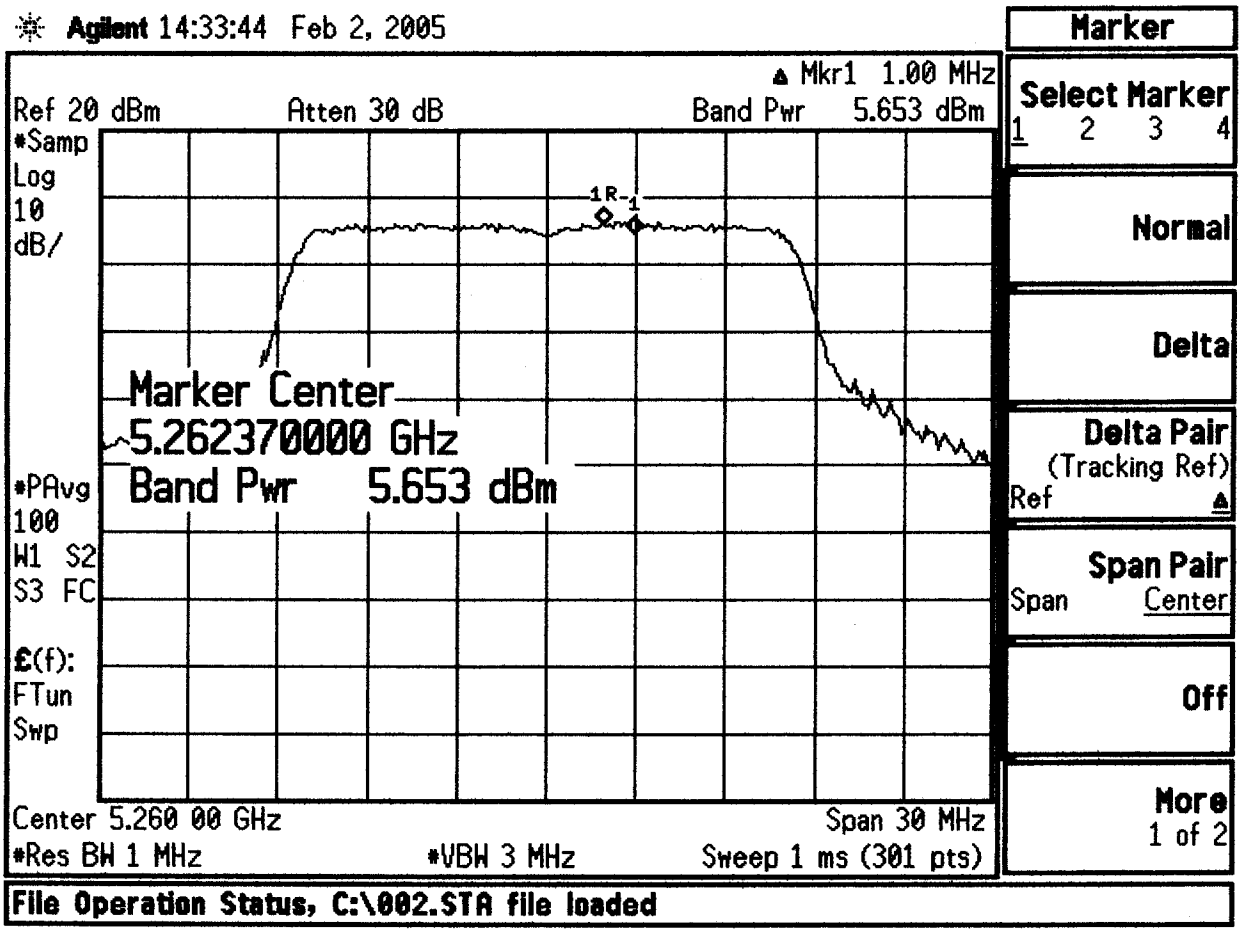
Limit = 4 dBm/MHz Conducted and 10 dBm/MHz EIRP

Measured = -0.4 dBm conducted

Calculated EIRP = -0.4 dBm + 8 dBi = 7.6 dBm/MHz EIRP

BAND 2

Peak Power Spectral Density

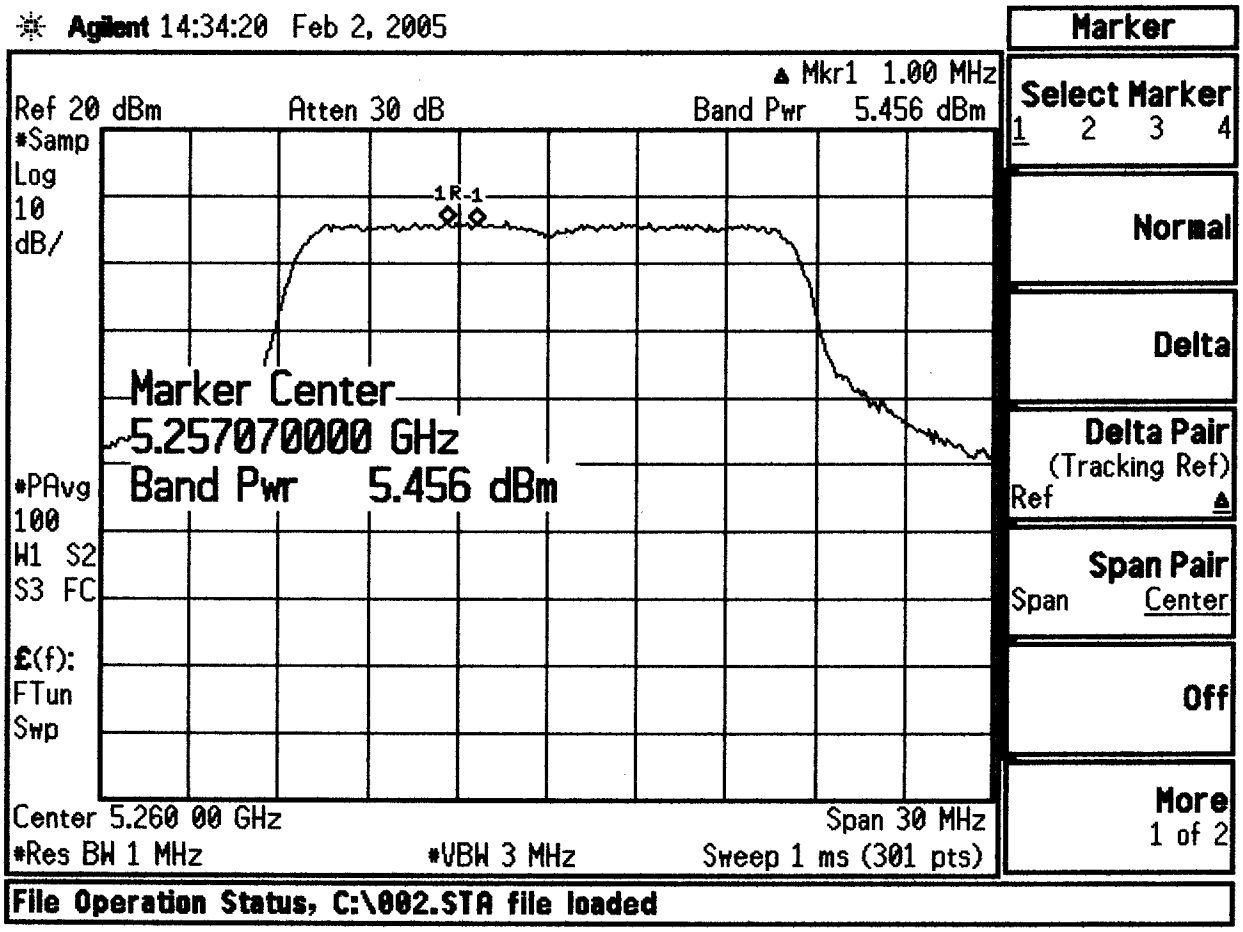


Continuous Tx

CTL 20dBm

6MBit rate

PPSD



Continuous Tx

CTL 20dBm

24MBit rate

Fcc 15.407 (a).2

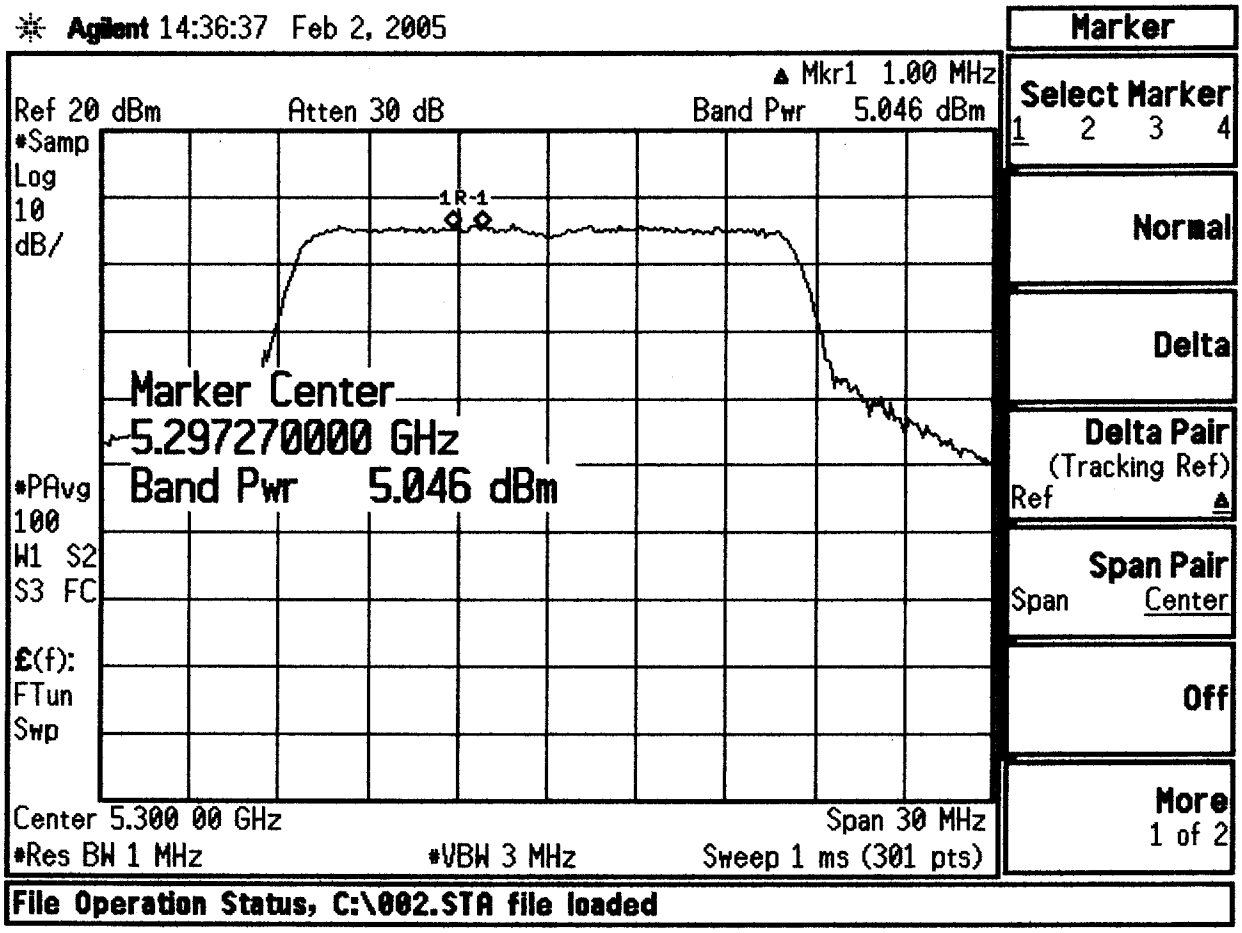
Limit = 11dBm/MHz conducted

= 17dBm/MHz EIRP

Calculated EIRP = 5.5dBm + 8dBi = 13.5dBm/MHz

EIRP

BAND 2 Peak Power Spectral Density



Cont. Tx

CTL 20 dBm

6 MBit rate

FCC 15.407 (a).2

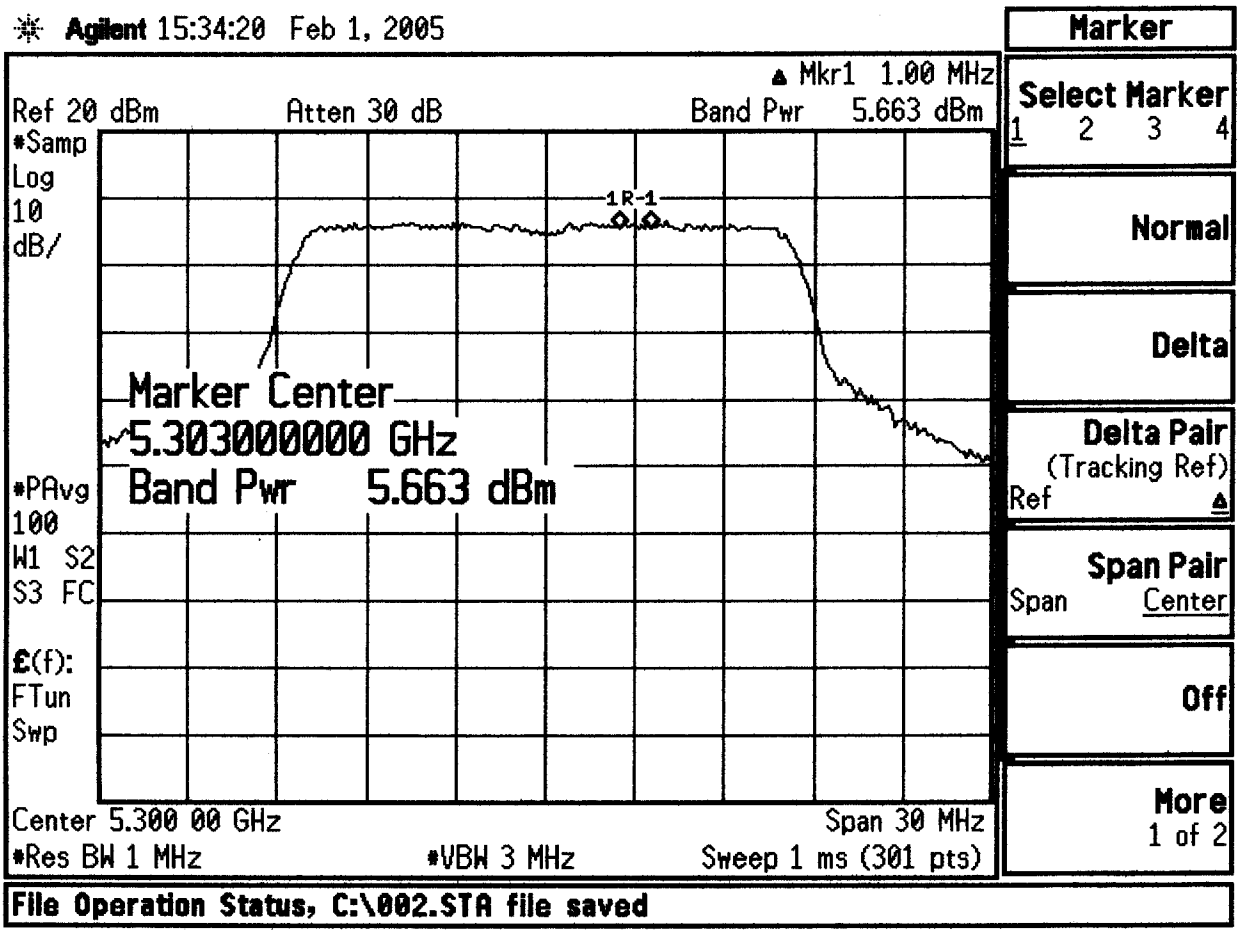
Limit = 11 dBm/mHz conducted

= 17 dBm/mHz EIRP

Calculated EIRP = 5.0 + 8 dBi = 13 dBm/mHz EIRP

BAND 2

Peak Power Spectral Density (In 1 MHz BW)



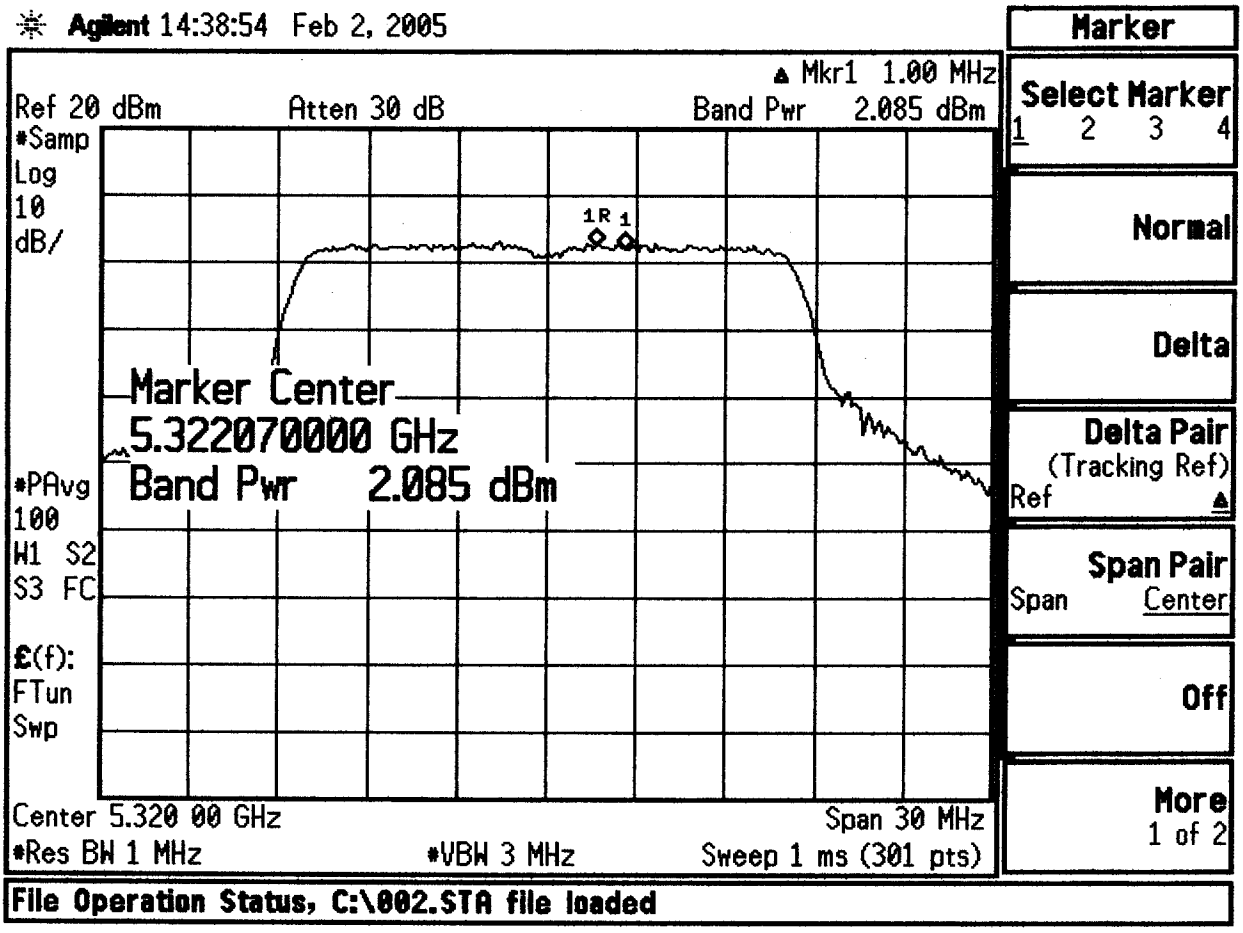
Continuous Tx

CTL 20 dBm

24 M Bits rate

BAND 2

Peak Power Spectral Density



Cont. Tx

CTL 17dBm

6 MBit rate

Limit = 11dBm/MHz conducted

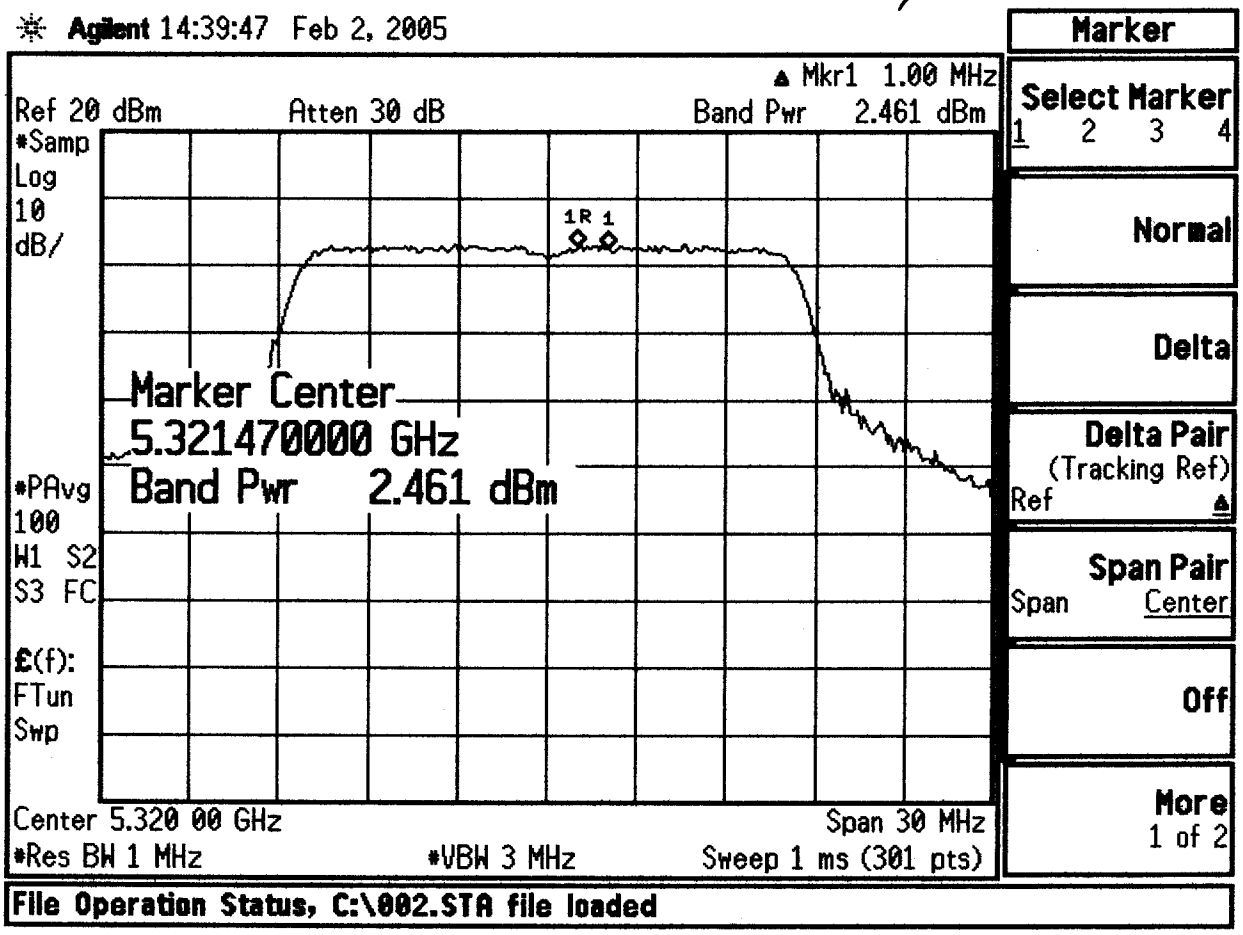
= 17dBm/MHz EIRP

Conducted Measured = 2.1 dBm conducted (Bp. for Restricted band)

Calculated EIRP = 2.1 dBm + 8 dBi = 10.1 dBm/MHz EIRP

BAND 2

Peak Power Spectral density

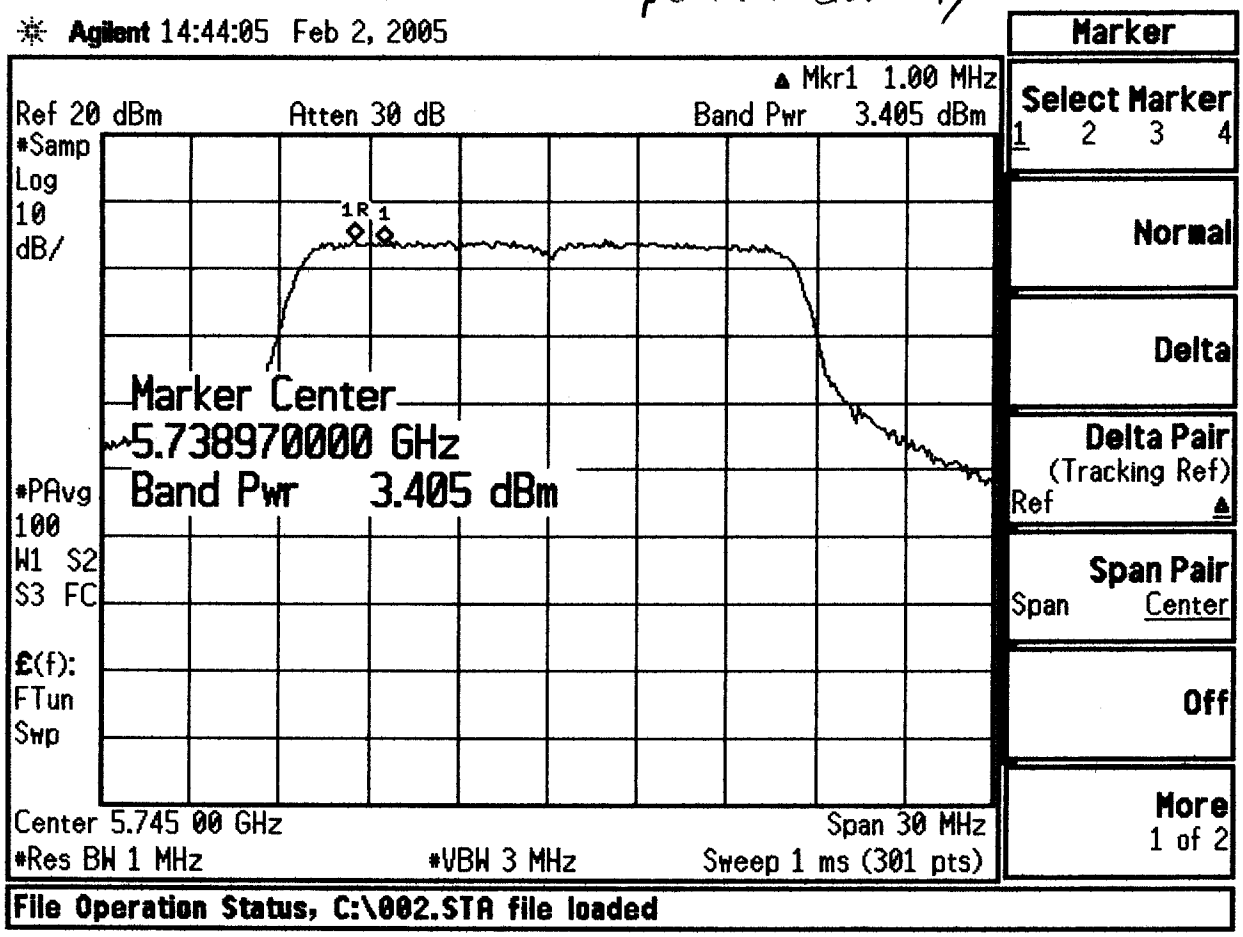


Cont. Tx

CTL 17dBm

54MBit rate

Peak Power Spectral density 15.407 (a).3



Cont. Tx

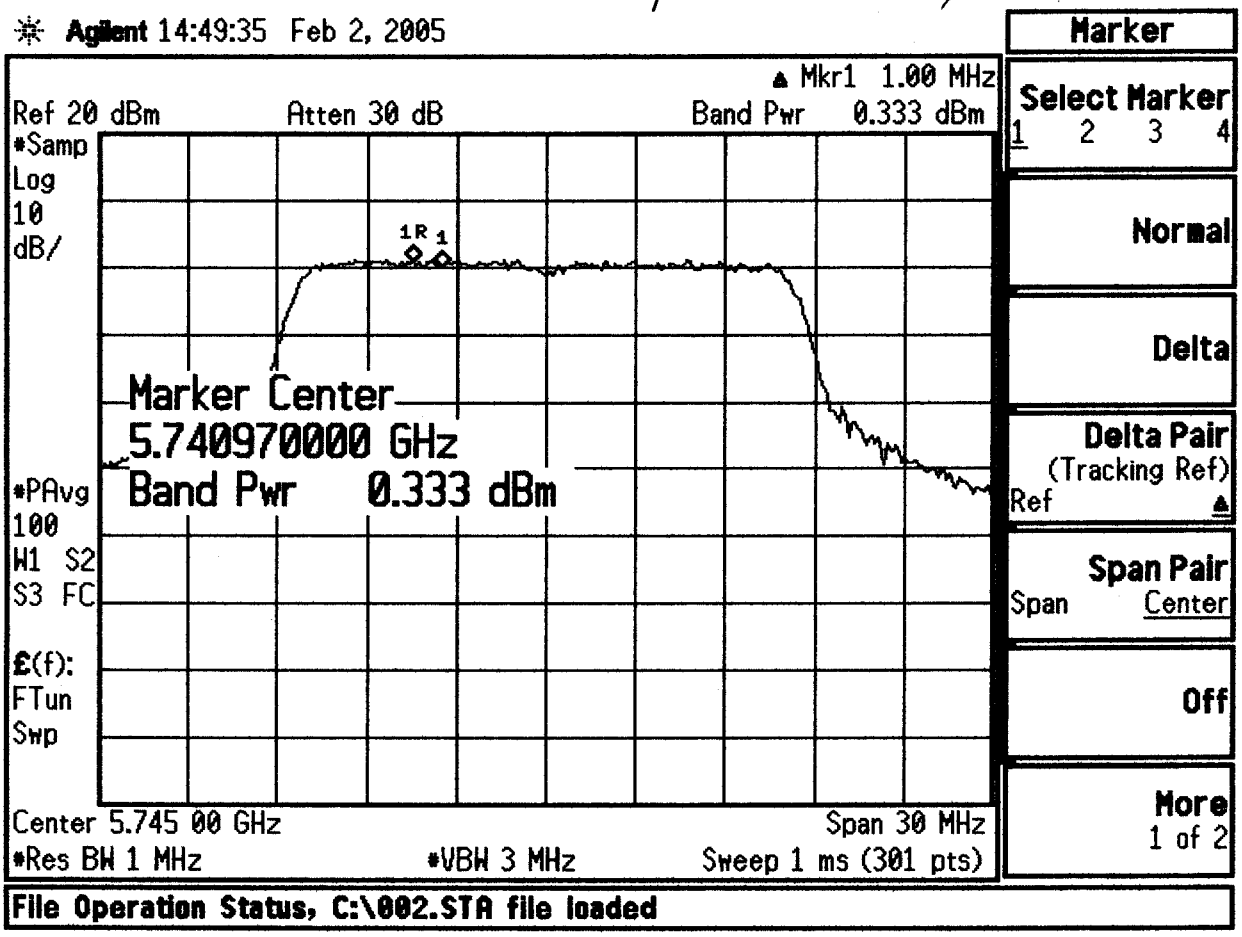
CTL 18dBm

6MBit rate

15.407 (a).3 Limit 17 dBm/1MHz Band

Measured = 3.4 dBm/MHz

Peak Power Spectral desity



Cont. Tx

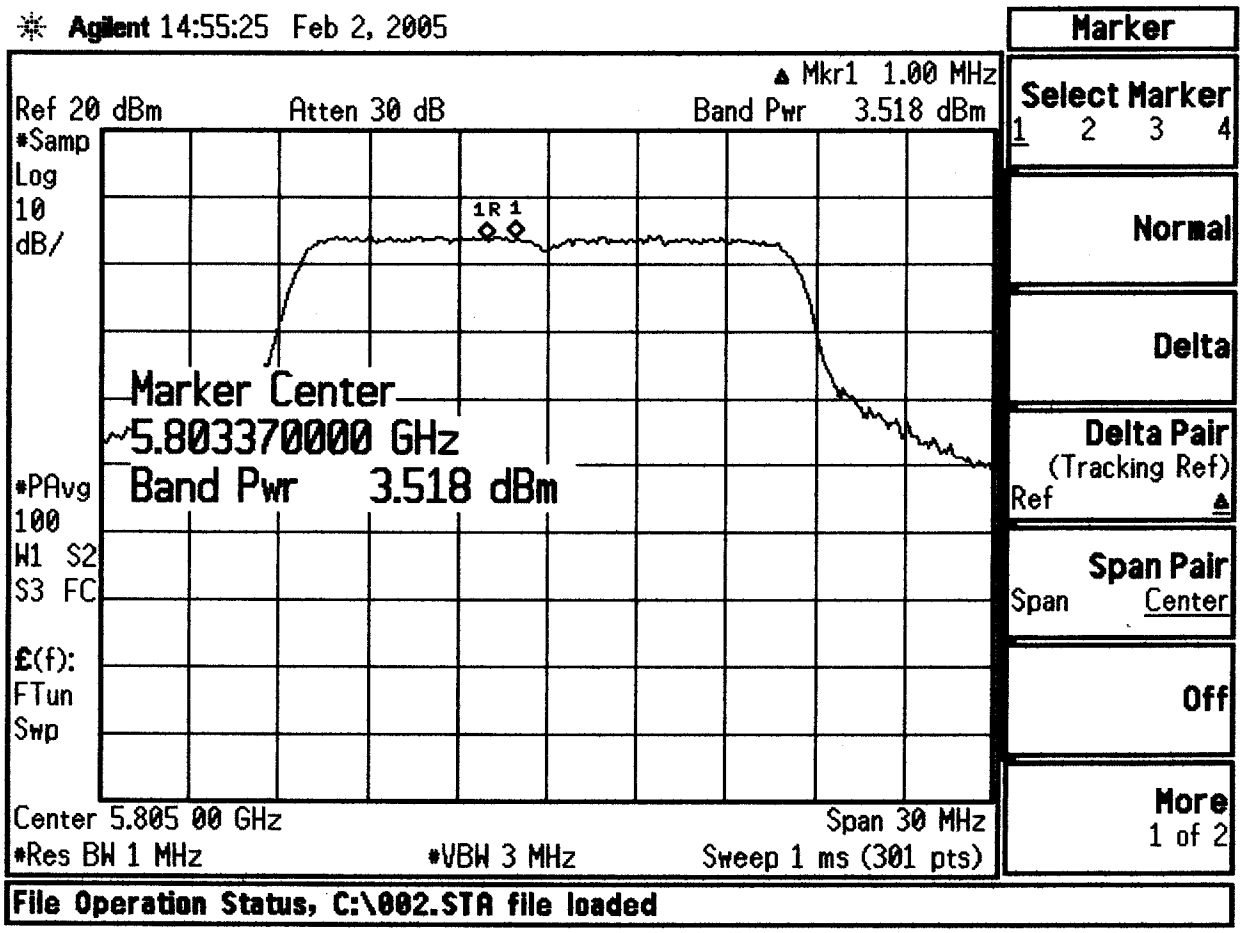
CTL 15dBm

54MBit rate

15.407 (a).3 Limit 17dBm/1MHz Band

measured = 0.3 dBm/MHz

PPSD

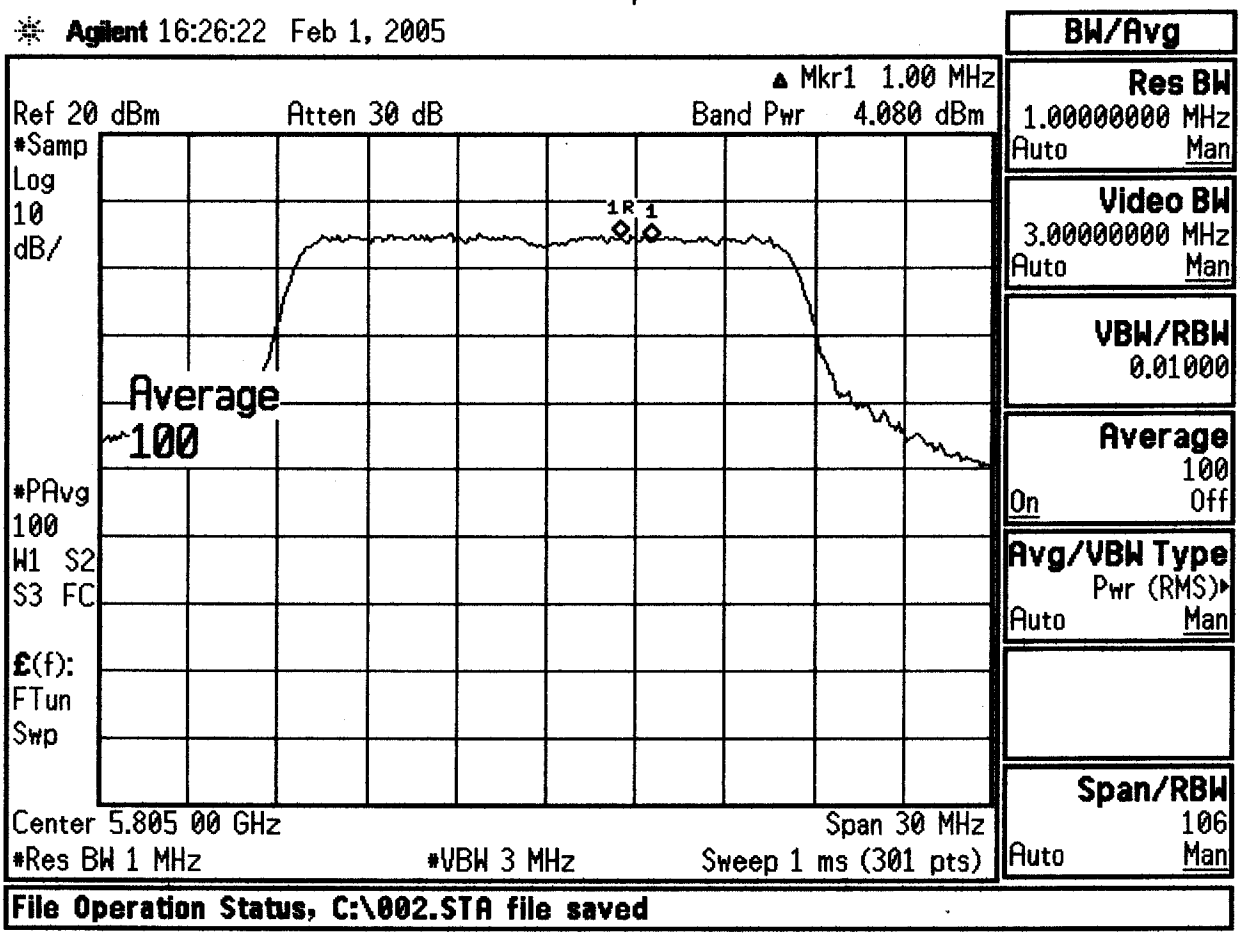


Cont. Tx
CTL 18dBm
6MBit rate

15.407 (a).3 Limit 17dBm/1MHz Band

Measured = 3.5 dBm/MHz

Peak Power Spectral density (In 1 MHz BW)



Continuous TX

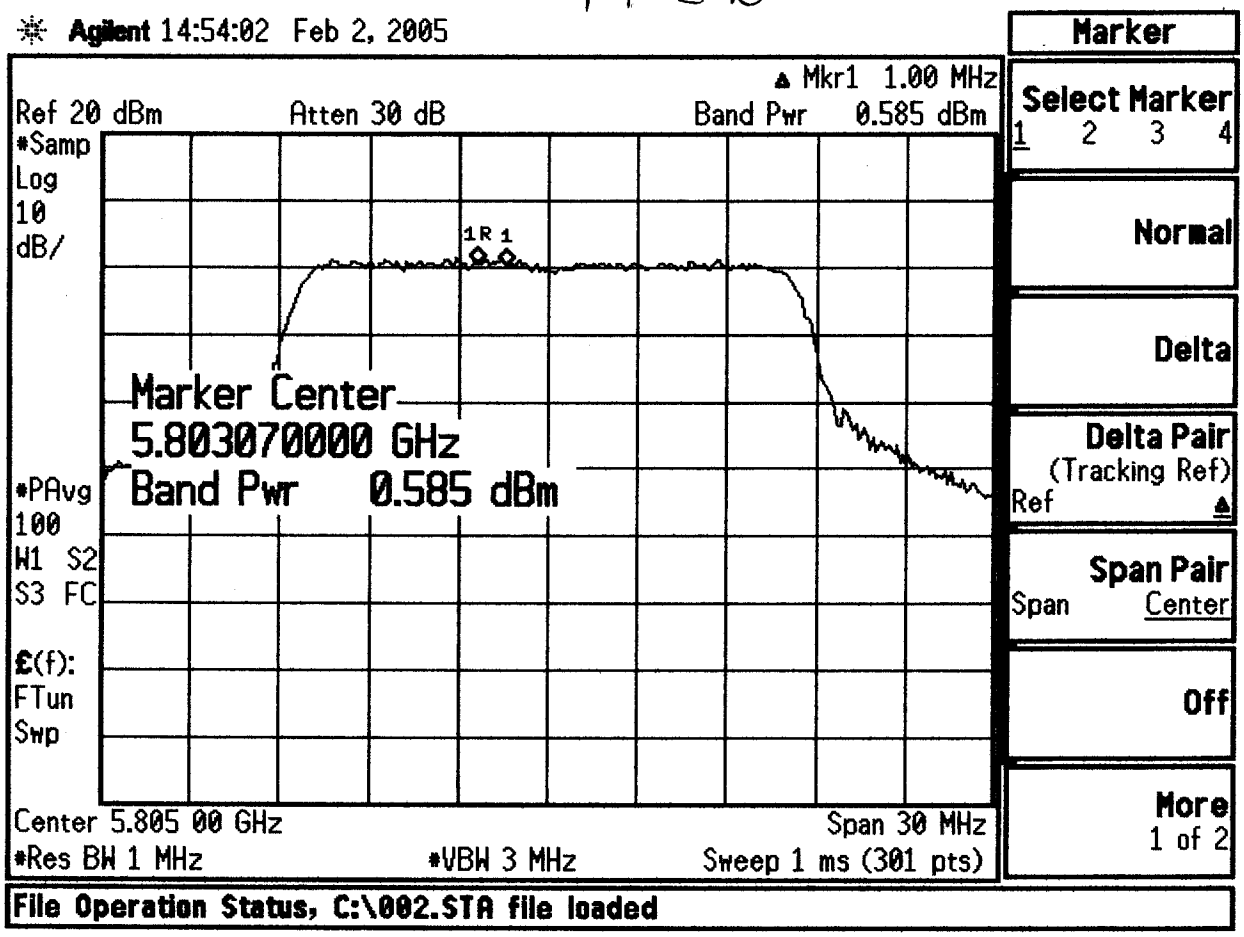
CTL 18dBm

24MBits rate

15.407 (a).3 Limit = 17dBm/1MHz band

Measured = 4.1dBm/MHz

PPSD



Cont. TX

CTL 15dBm

54MBit rate

15.407 (a).3 Limit = 17dBm/MHz

Measured = 0.6 dBm/MHz

Conducted Out of Band Emissions

Specifications:
FCC Specification: Paragraph: 15.407 (b)
IC Specification: RSS-210, 6.2.2(q1)

The *Out of Band Emission* measurements were performed at the following test location:

☐ **- Test not applicable**

☐ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)
☐ - Oakwood Lab (Open Area Test Site)
☐ - Wild River Lab Screen Room
■ - Cal Amp

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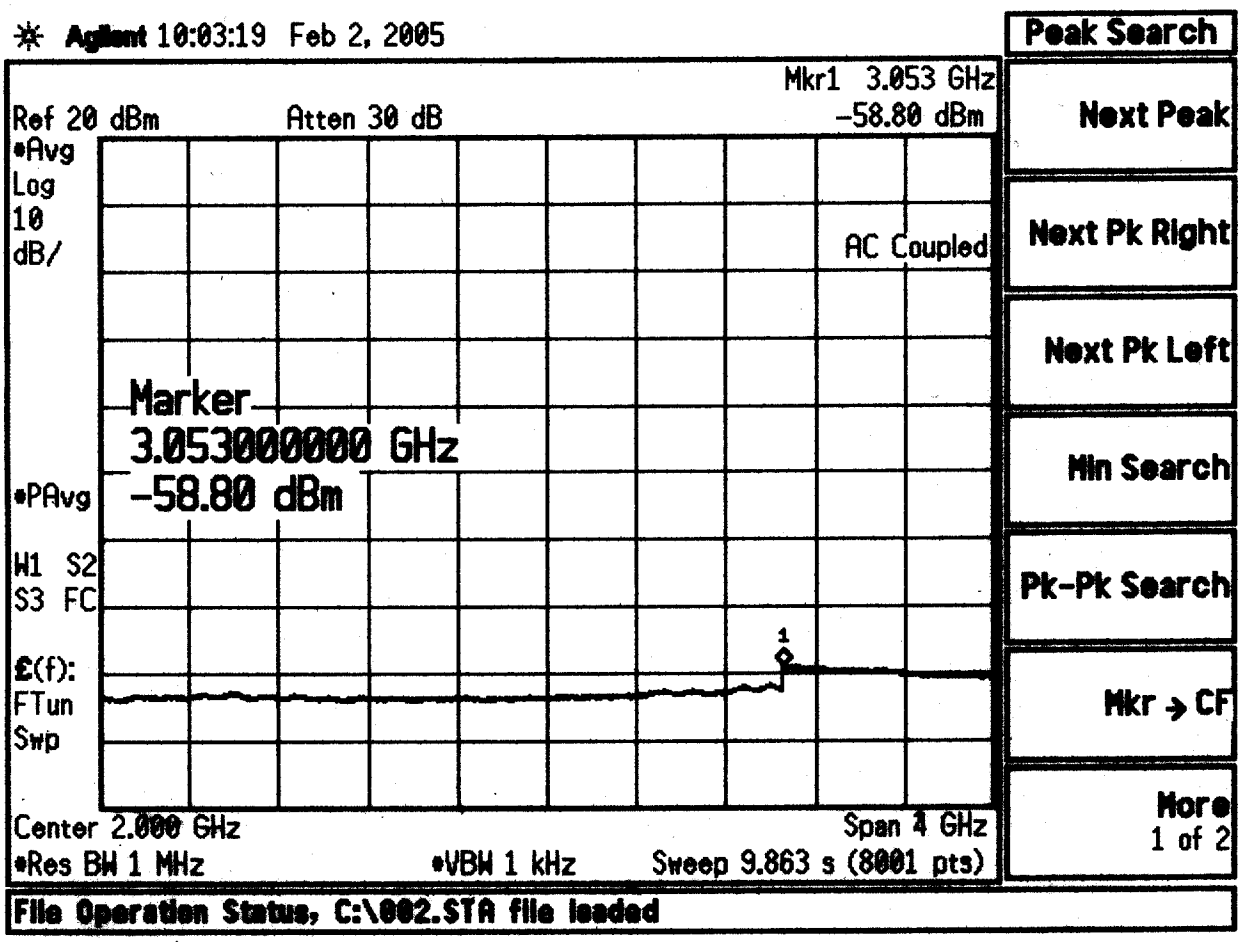
Conducted Out-of-Band.



Continuous Tx

5.18 GHz

14dBm

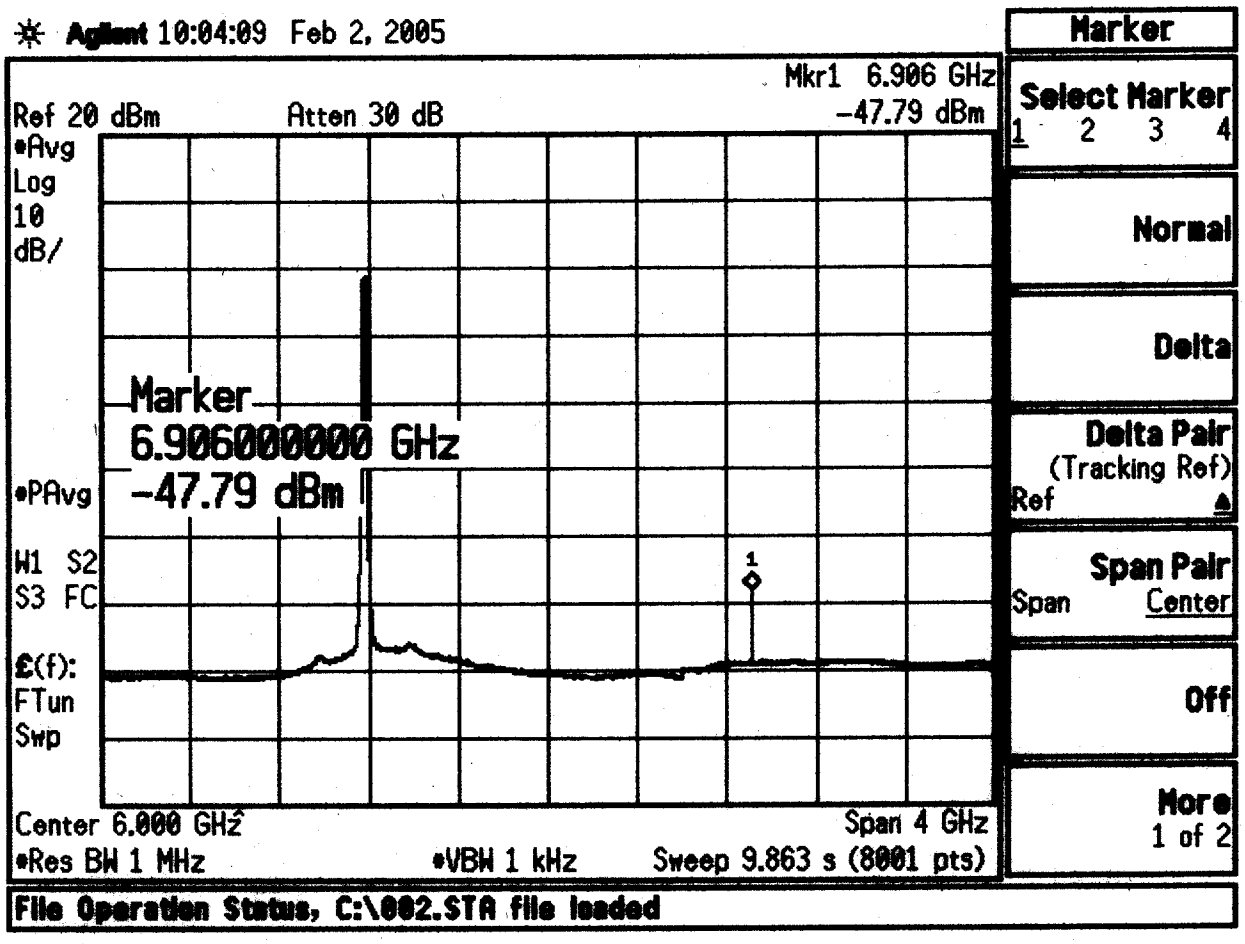
6MBit

FCC Requirement: Section 15.407 (B) (1)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -58.8 dBm Limit = -35 dBm (measured in a 1MHz RBW)



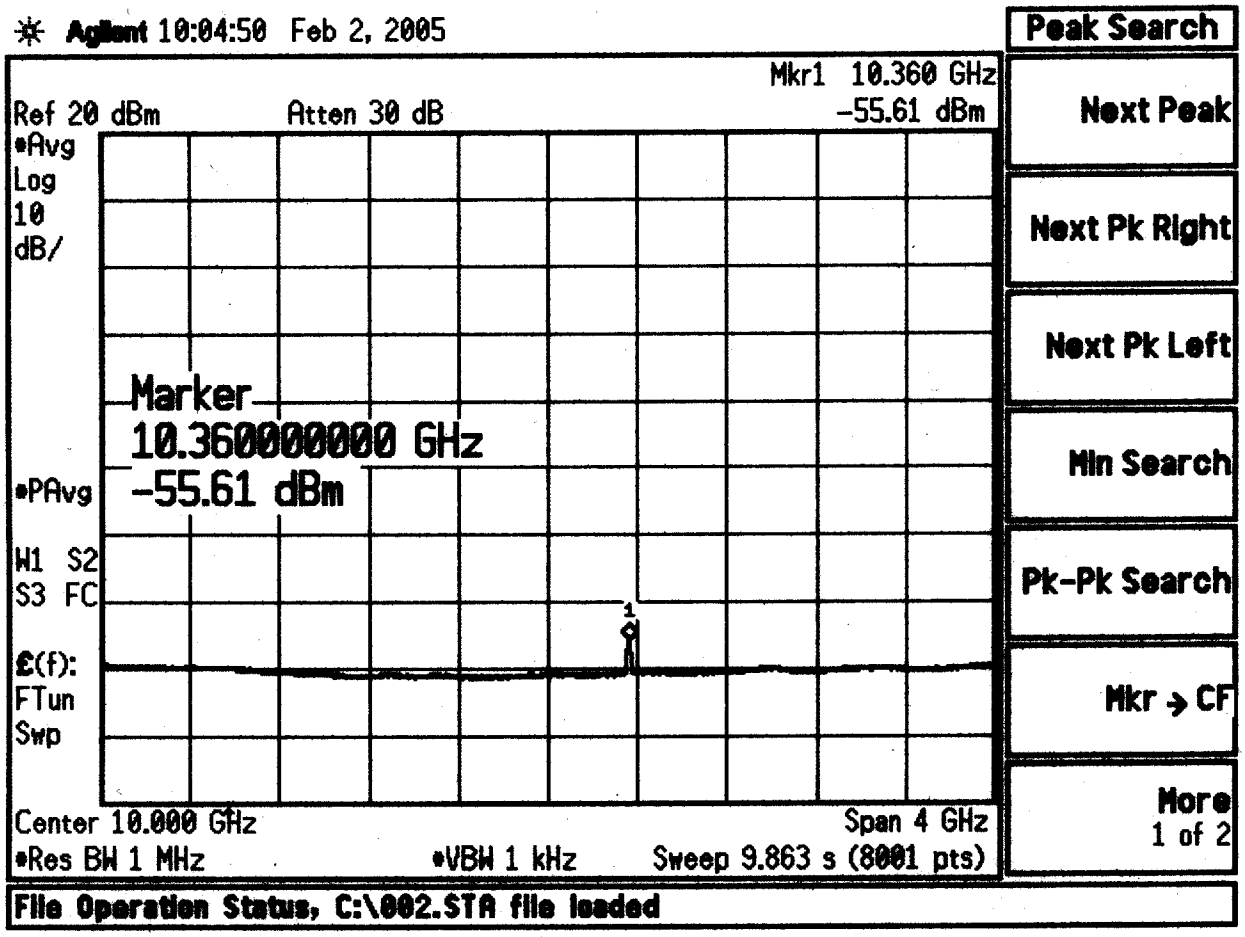
Continuous TX
5.18 GHz
14 dBm
6MBit

FCC Requirement: Section 15.407 (B) (1)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -47.8 dBm Limit = -35 dBm (measured in a 1MHz RBW)



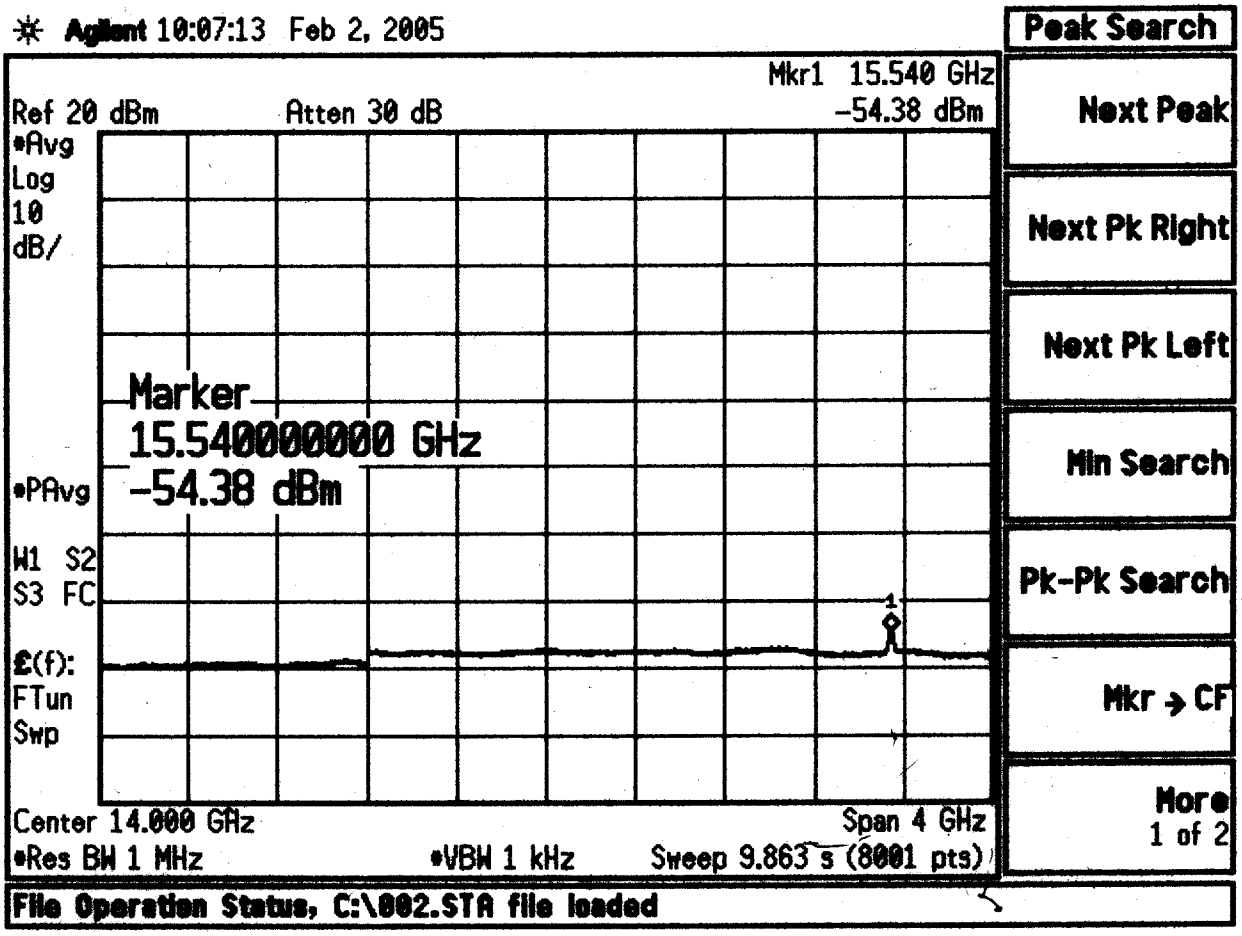
Continuous Tx
5.18 GHz
14 dBm
6 MBit

FCC Requirement: Section 15.407 (B) (1)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -55.6 dBm Limit = -35 dBm (measured in a 1MHz RBW)



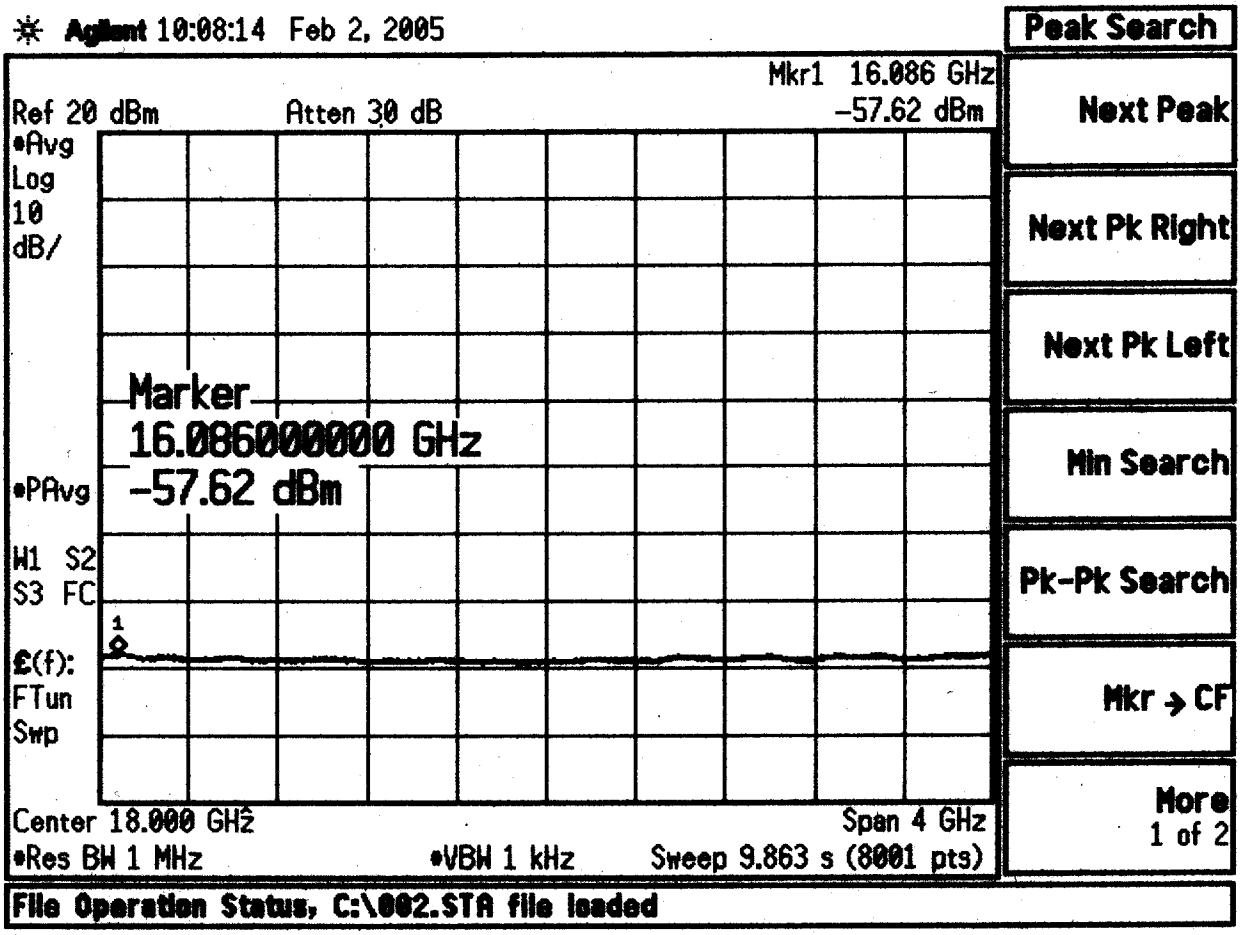
Continuous Tx
5.18 GHz
14 dBm
6MBit

FCC Requirement: Section 15.407 (B) (1)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -54.4 dBm Limit = -35 dBm (measured in a 1MHz RBW)



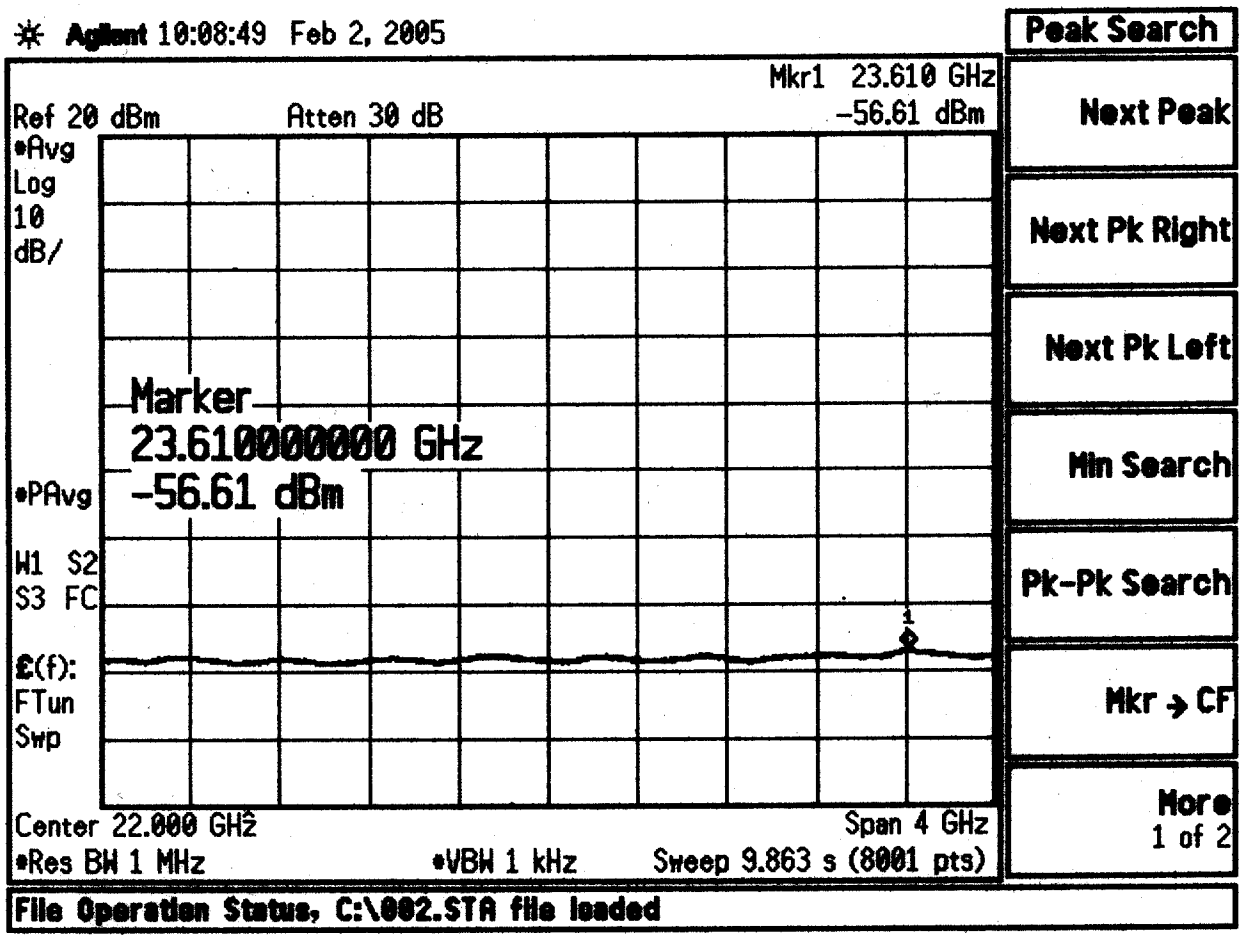
Continuous Tx
5.18 GHz
14 dBm
6 MBit

FCC Requirement: Section 15.407 (B) (1)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -57.6 dBm Limit = -35 dBm (measured in a 1MHz RBW)



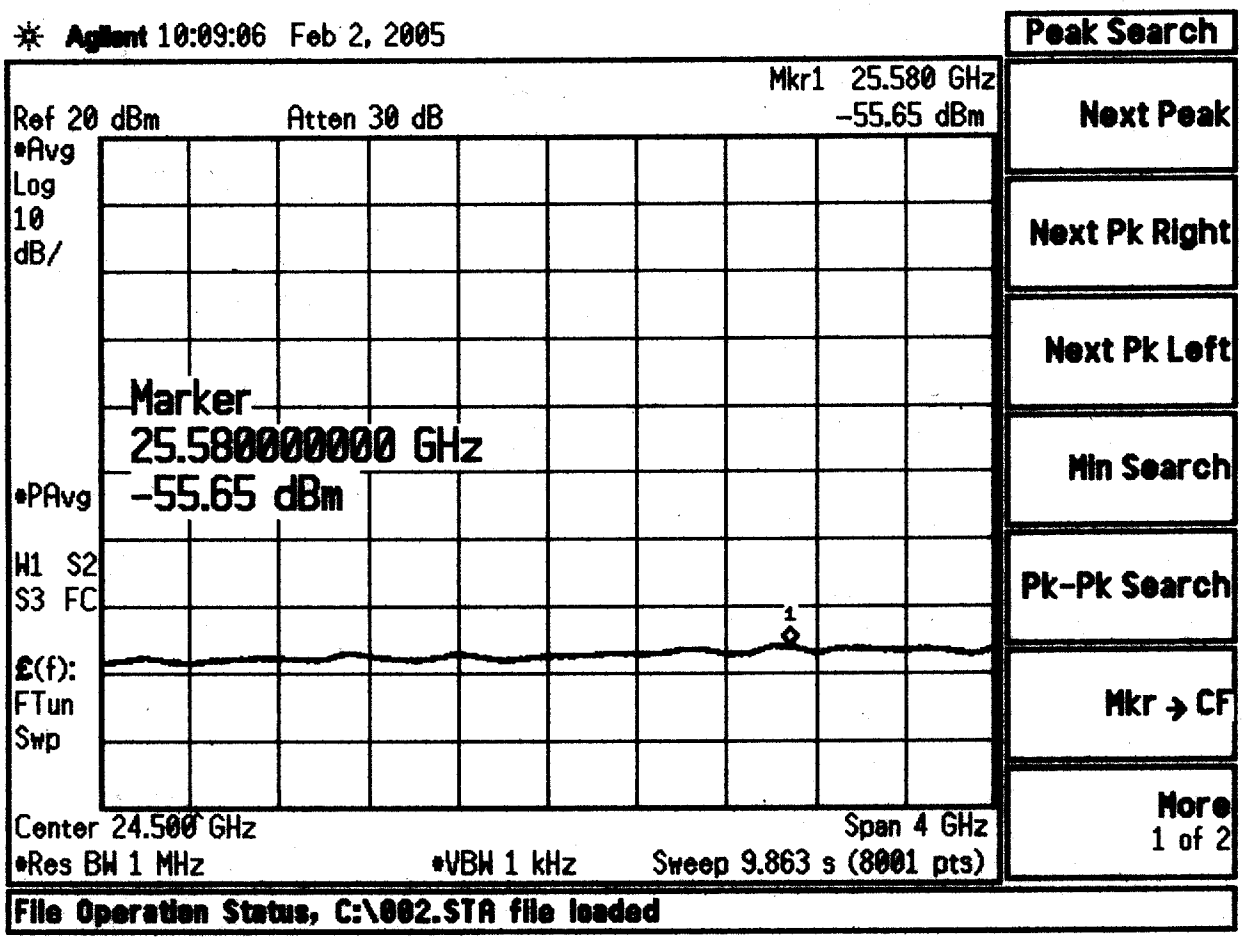
Continuous Tx
5.18 GHz
14 dBm
6 MBit

FCC Requirement: Section 15.407 (B) (1)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -56.6 dBm Limit = -35 dBm (measured in a 1MHz RBW)



Continuous Tx

5.18 GHz

14 dBm

6 MBit

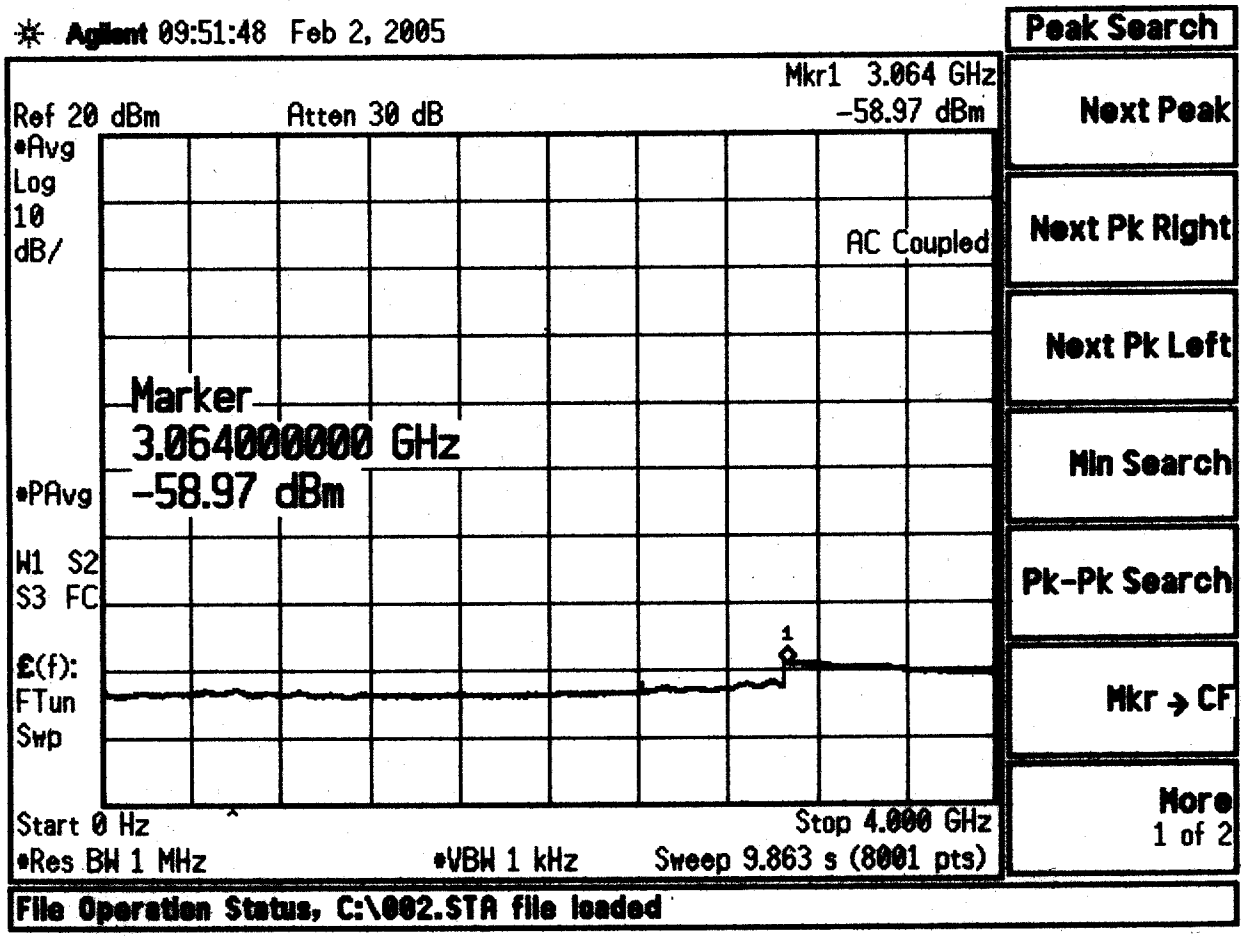
FCC Requirement: Section 15.407 (B) (1)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -55.6 dBm Limit = -35 dBm (measured in a 1MHz RBW)

Conducted out-of-band.



Continuous TX

5.32 GHz

17 dBm

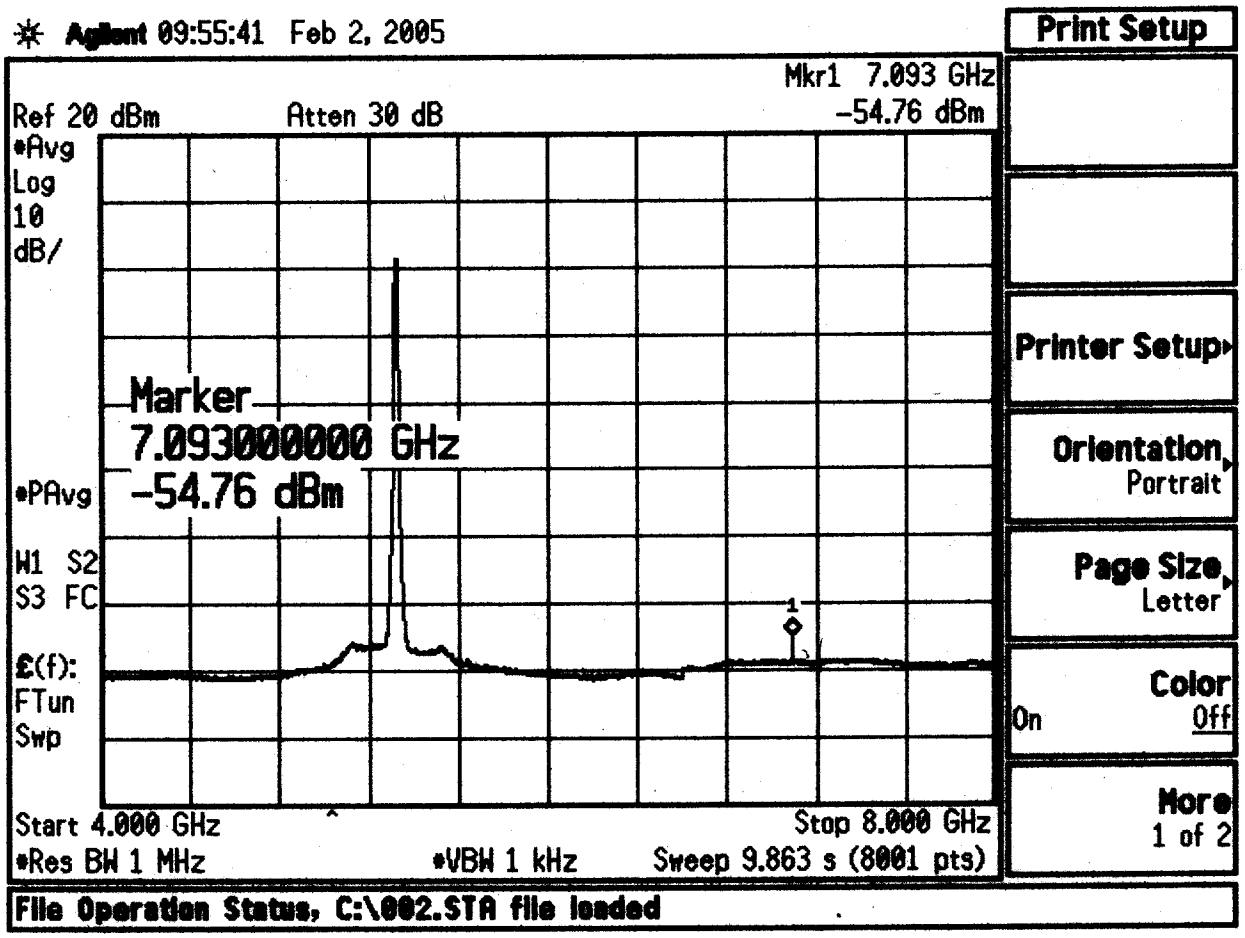
6 MBit

FCC Requirement: Section 15.407 (B) (2)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -59 dBm Limit = -35 dBm (measured in a 1MHz RBW)



Continuous Tx

5.32 GHz

17dBm

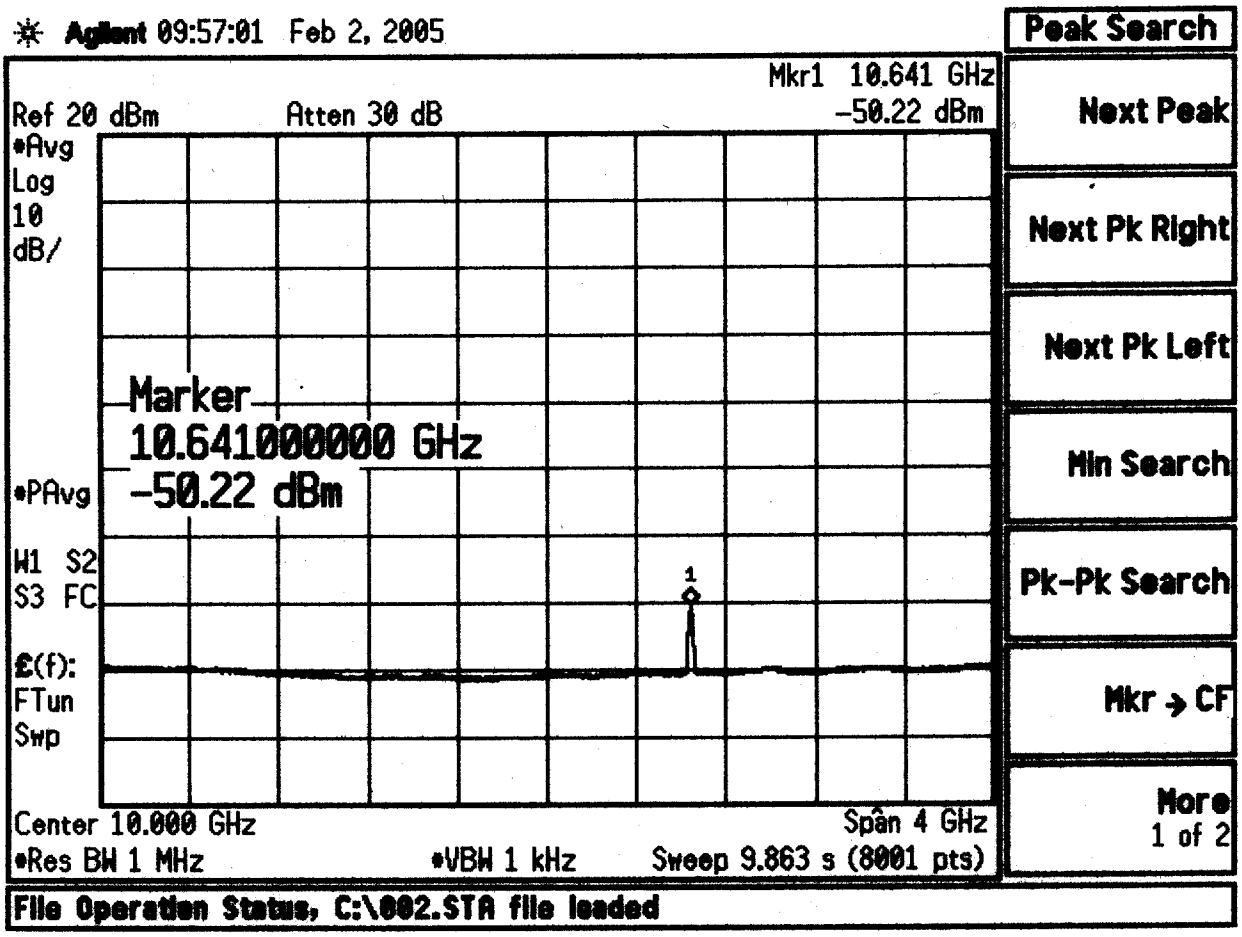
6MBit

FCC Requirement: Section 15.407 (B) (2)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -54.8dBm Limit = -35 dBm (measured in a 1MHz RBW)



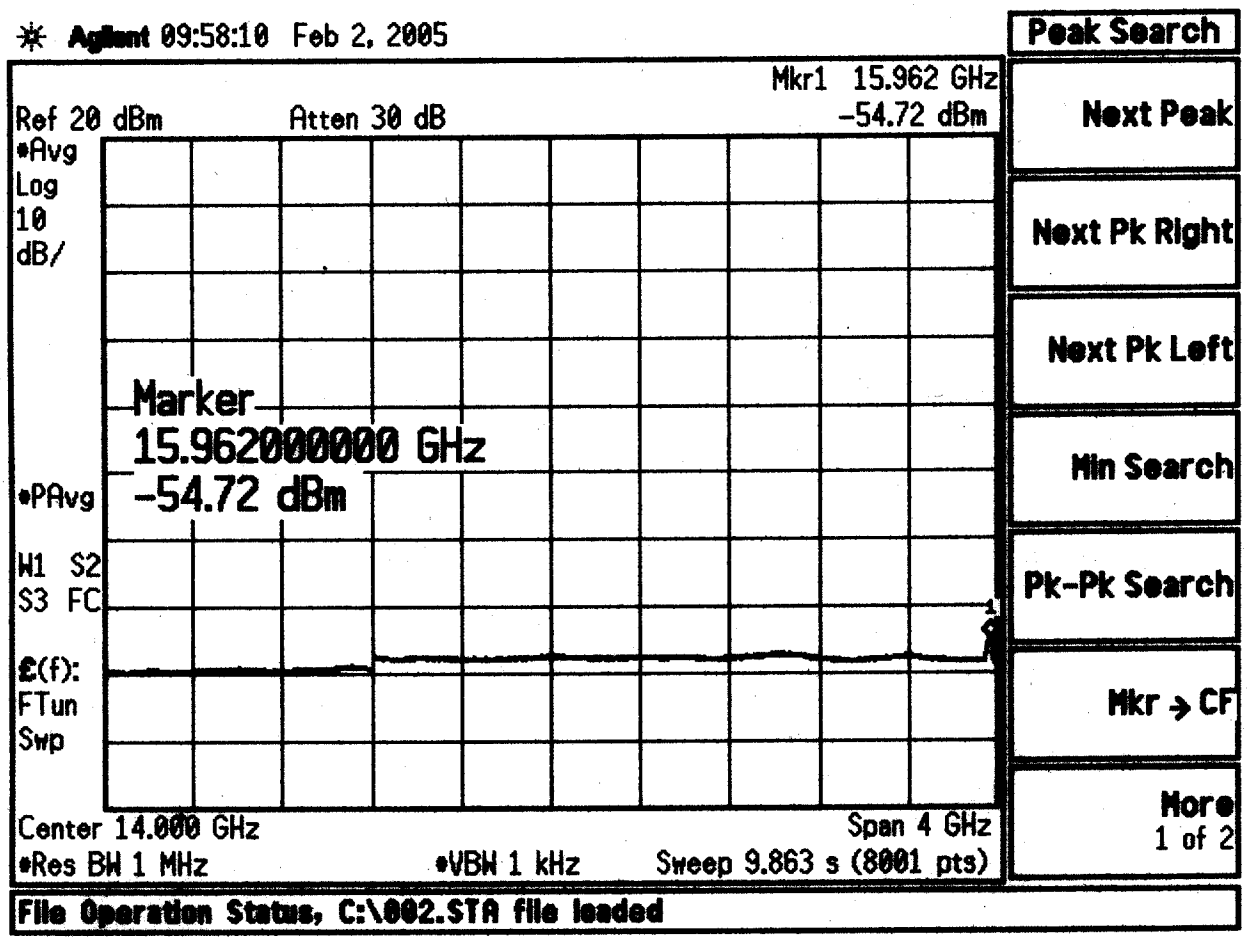
Continuous Tx
5.32 GHz
17dBm
6MBit

FCC Requirement: Section 15.407 (B) (2)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -50.2 dBm Limit = -35 dBm (measured in a 1MHz RBW)



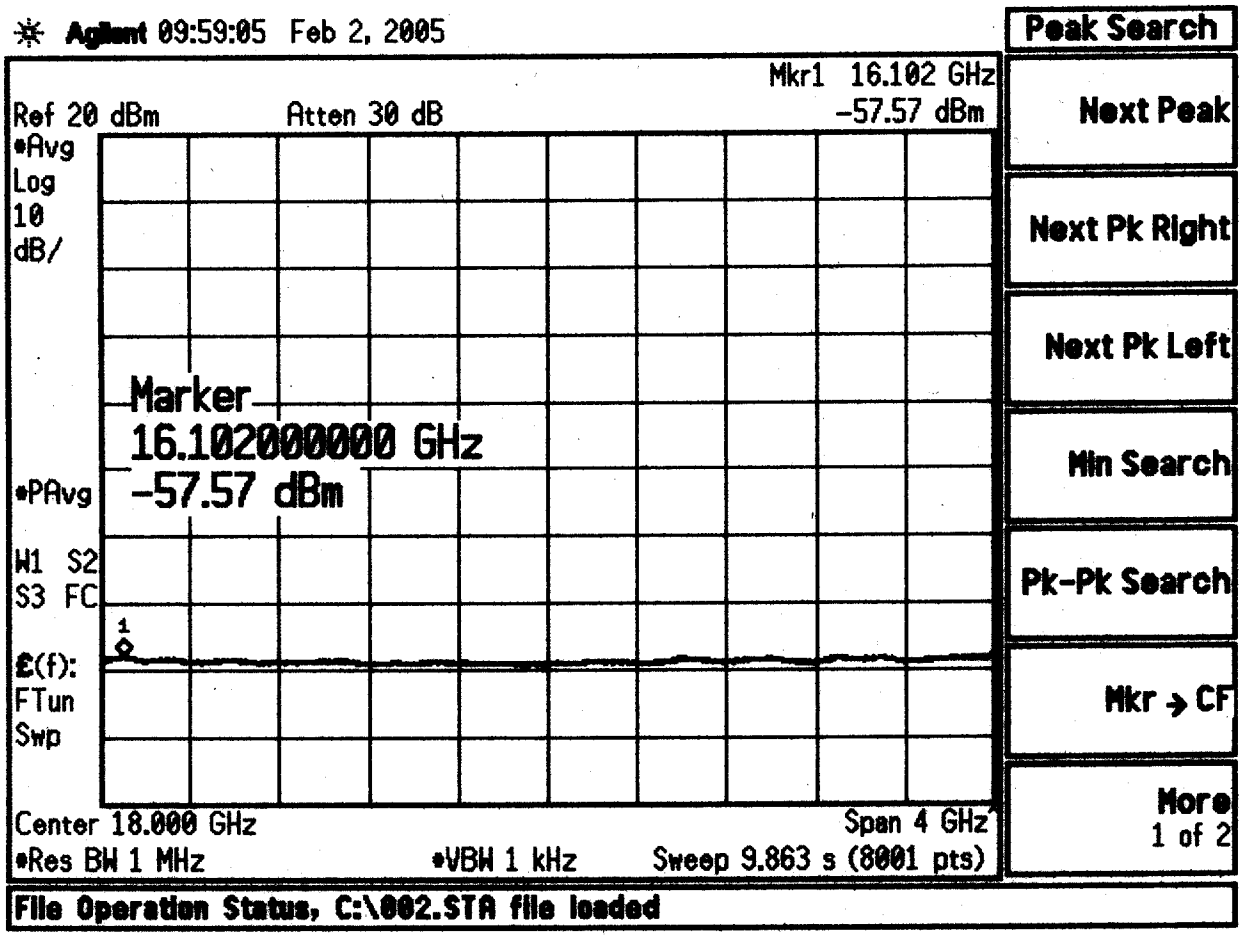
Continuous Tx
5.32 GHz
17dBm
6 MBit

FCC Requirement: Section 15.407 (B) (2)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -54.7dBm Limit = -35 dBm (measured in a 1MHz RBW)



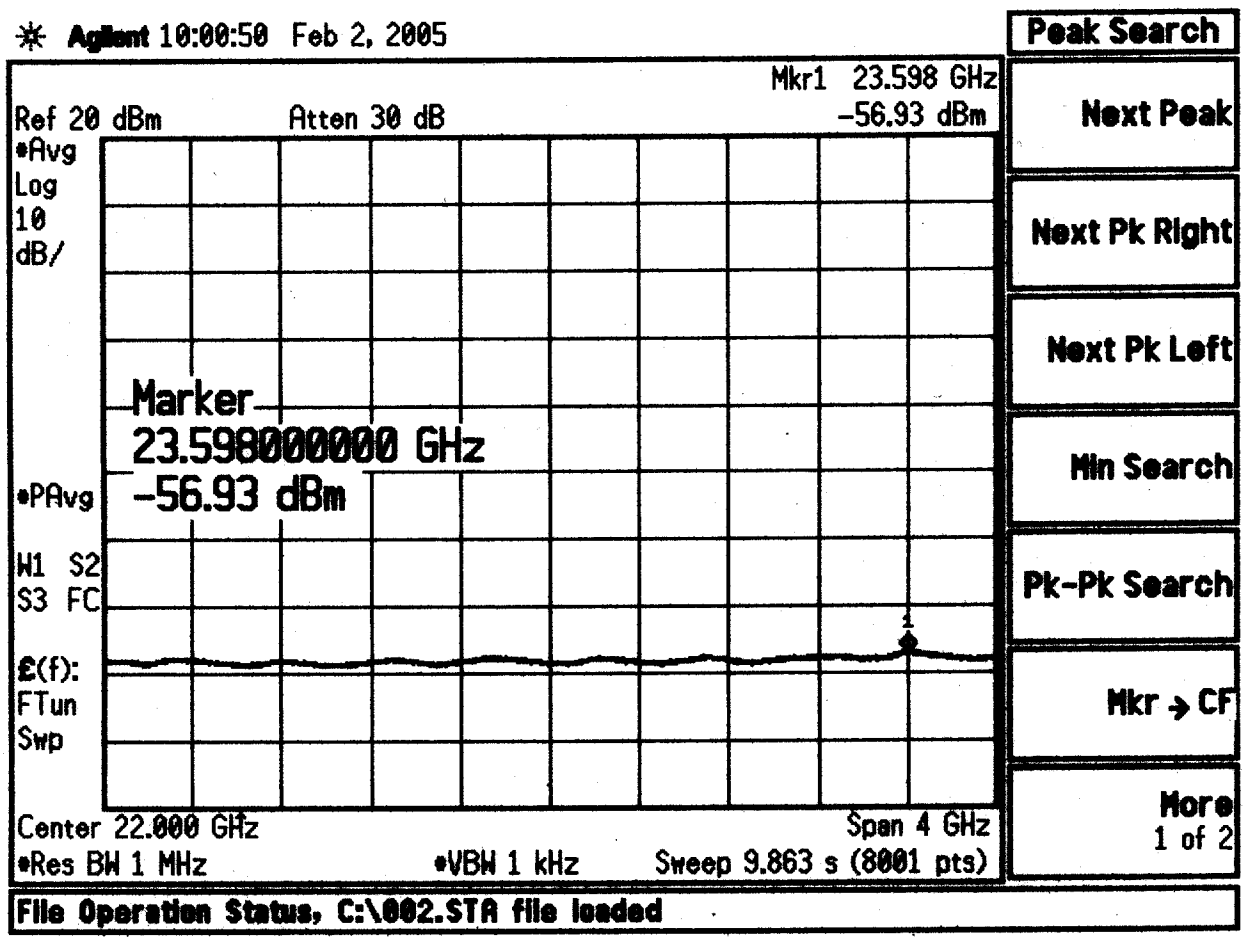
Continuous Tx
5.32 GHz
17dBm
6MBit

FCC Requirement: Section 15.407 (B) (2)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -57.6 dBm Limit = -35 dBm (measured in a 1MHz RBW)



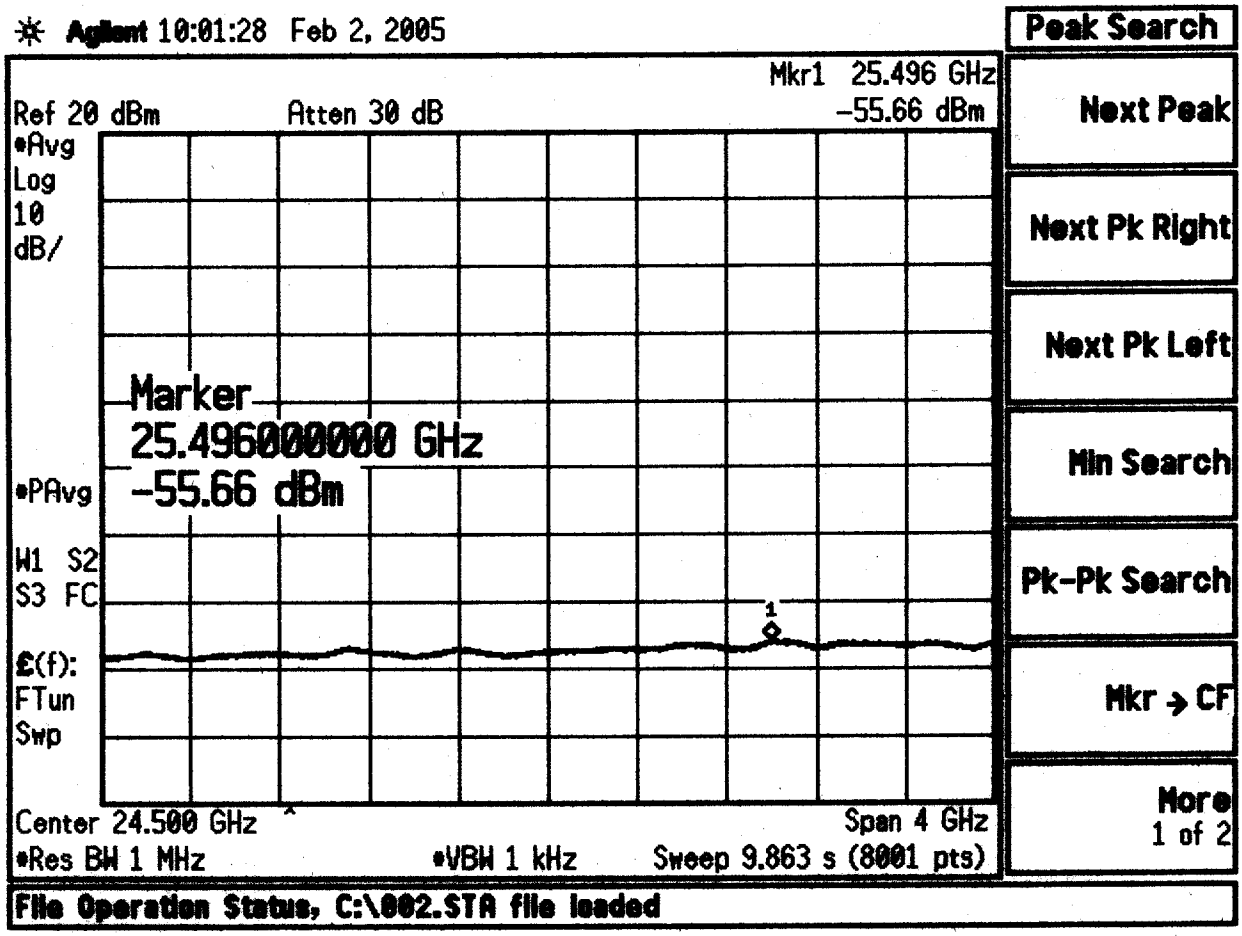
Continuous Tx
5.32 GHz
17 dBm
6 MBit

FCC Requirement: Section 15.407 (B) (2)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -56.9 dBm Limit = -35 dBm (measured in a 1MHz RBW)



Continuous Tx
5.32 GHz
17dBm
6M Bit

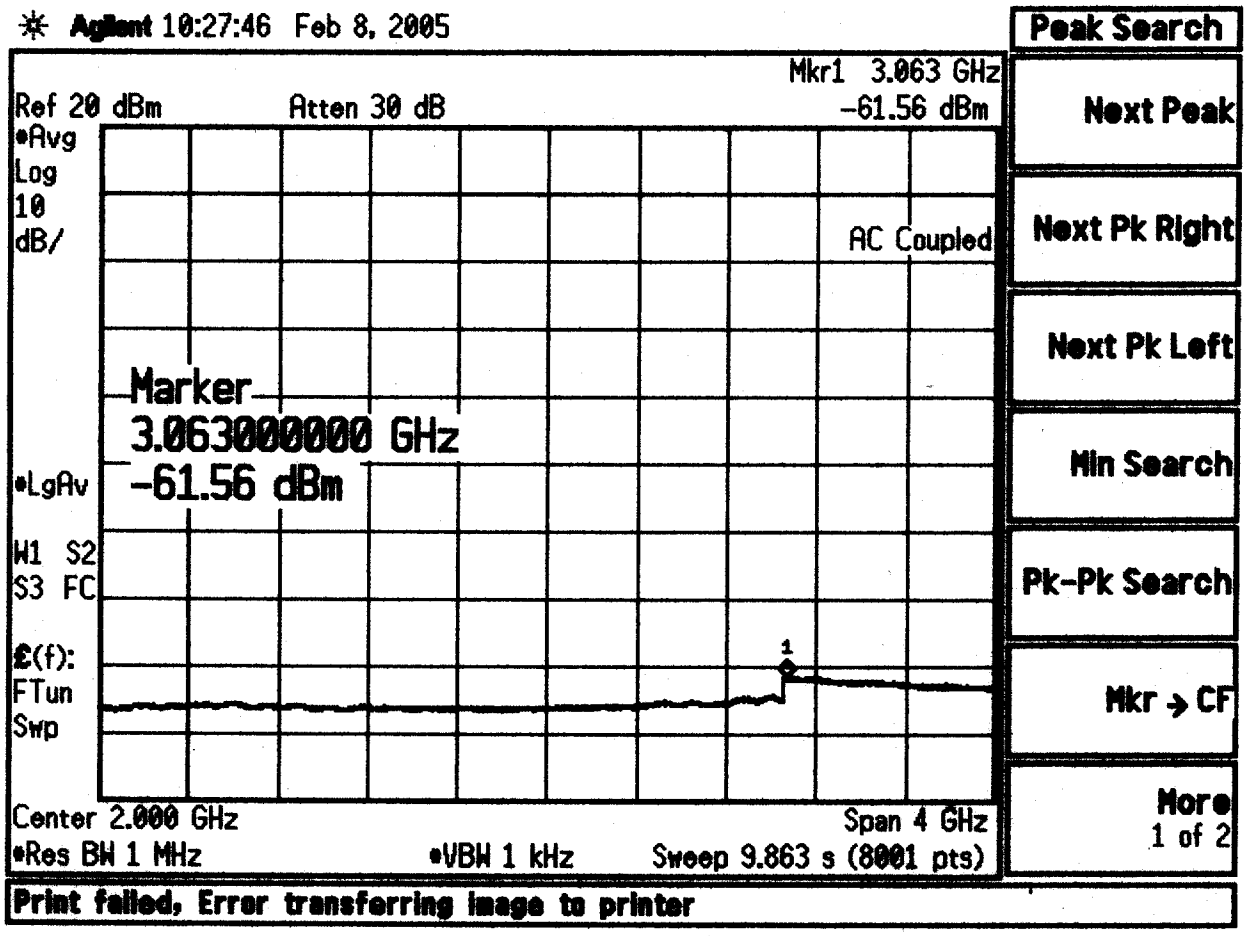
FCC Requirement: Section 15.407 (B) (2)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -55.7dBm Limit = -35 dBm (measured in a 1MHz RBW)

Conducted Out-of-band Emissions



Cont. Tx FCC 15.205(a) FCC 15.209(a)

5.745 GHz

18dBm

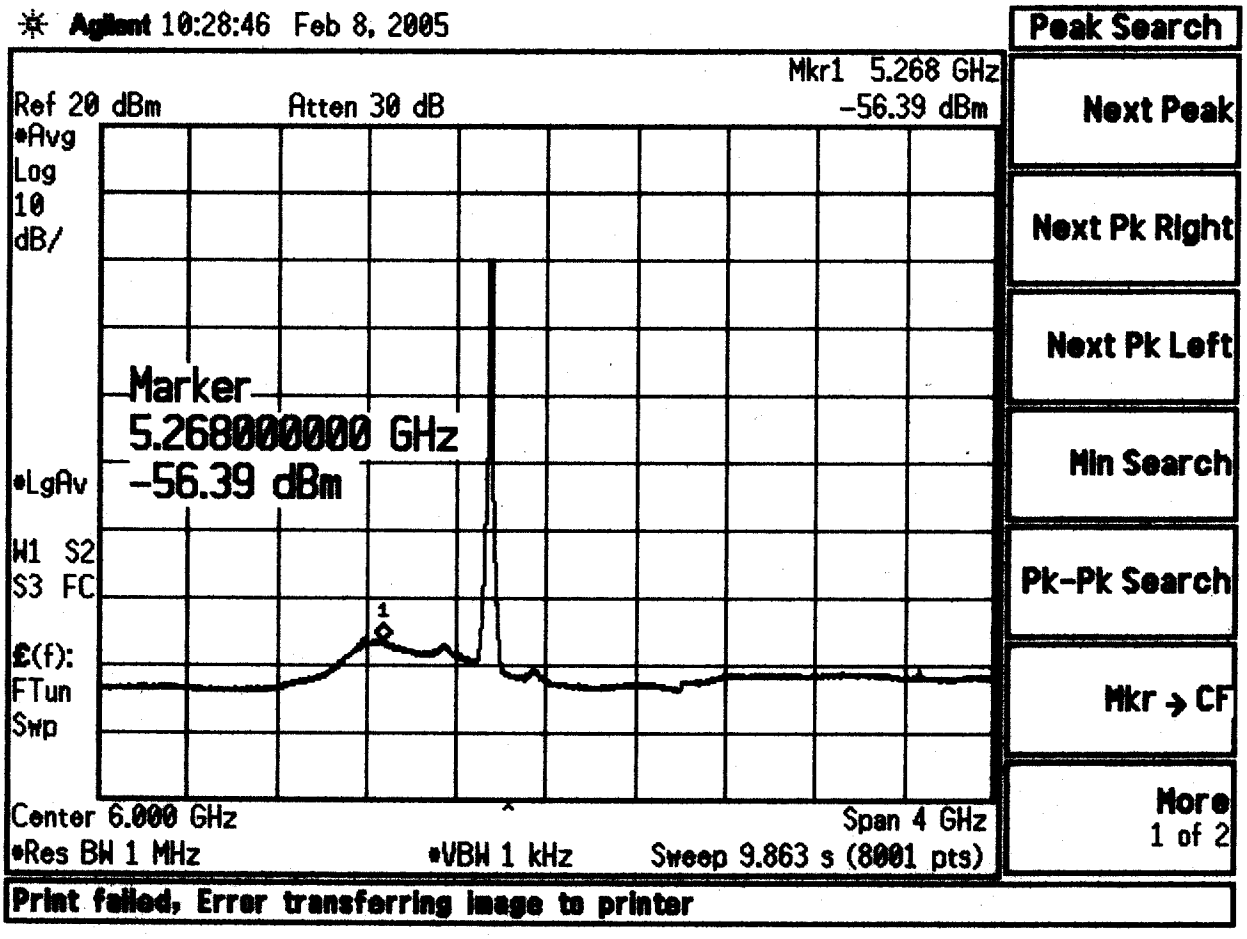
6MBit

FCC Requirement: Section 15.407 (B) (4)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -61.6 dBm Limit = -35 dBm (measured in a 1MHz RBW)



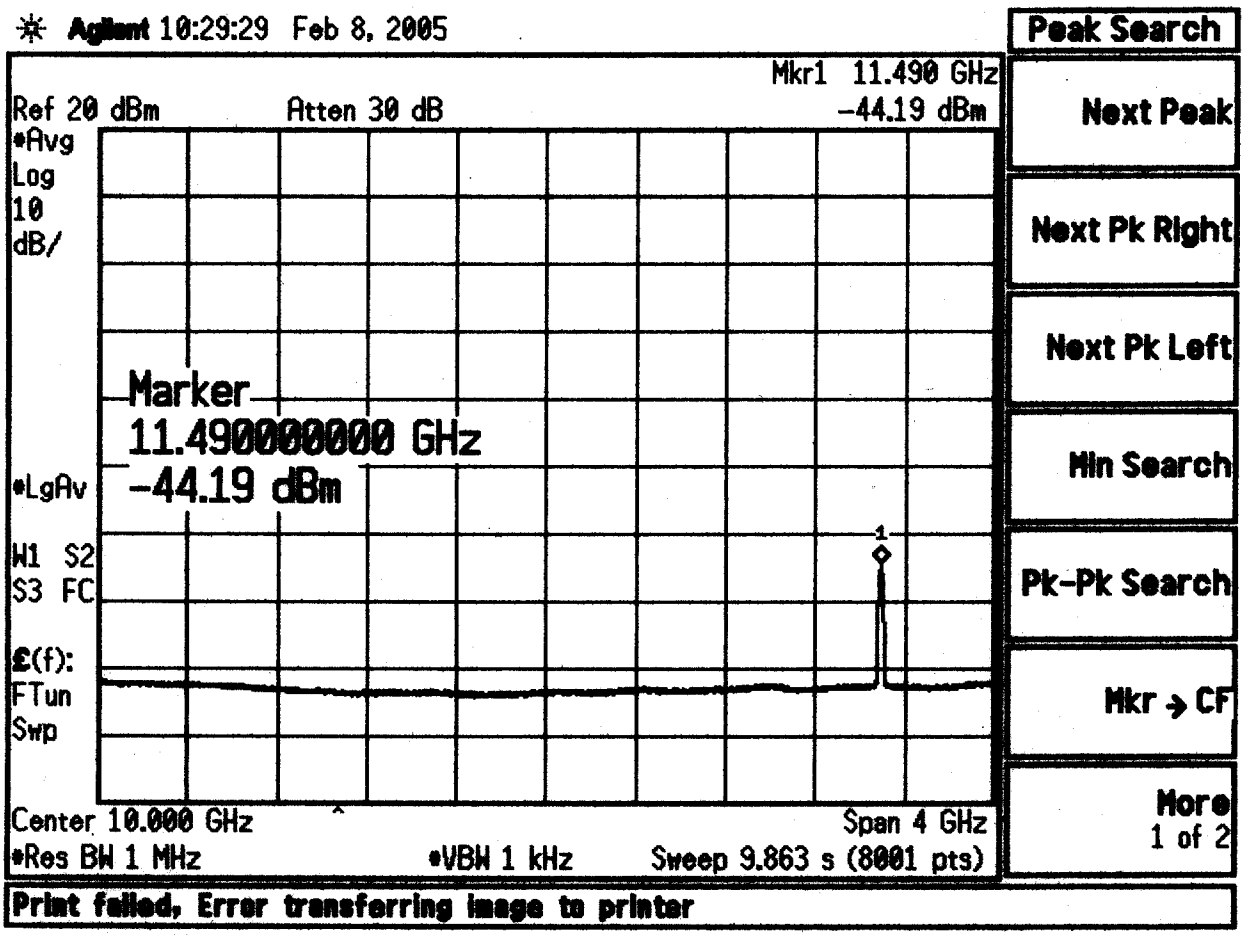
Cont. Tx
5.745 GHz
18dBm
6MBits

FCC Requirement: Section 15.407 (B) (4)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -56.4dBm Limit = -35 dBm (measured in a 1MHz RBW)



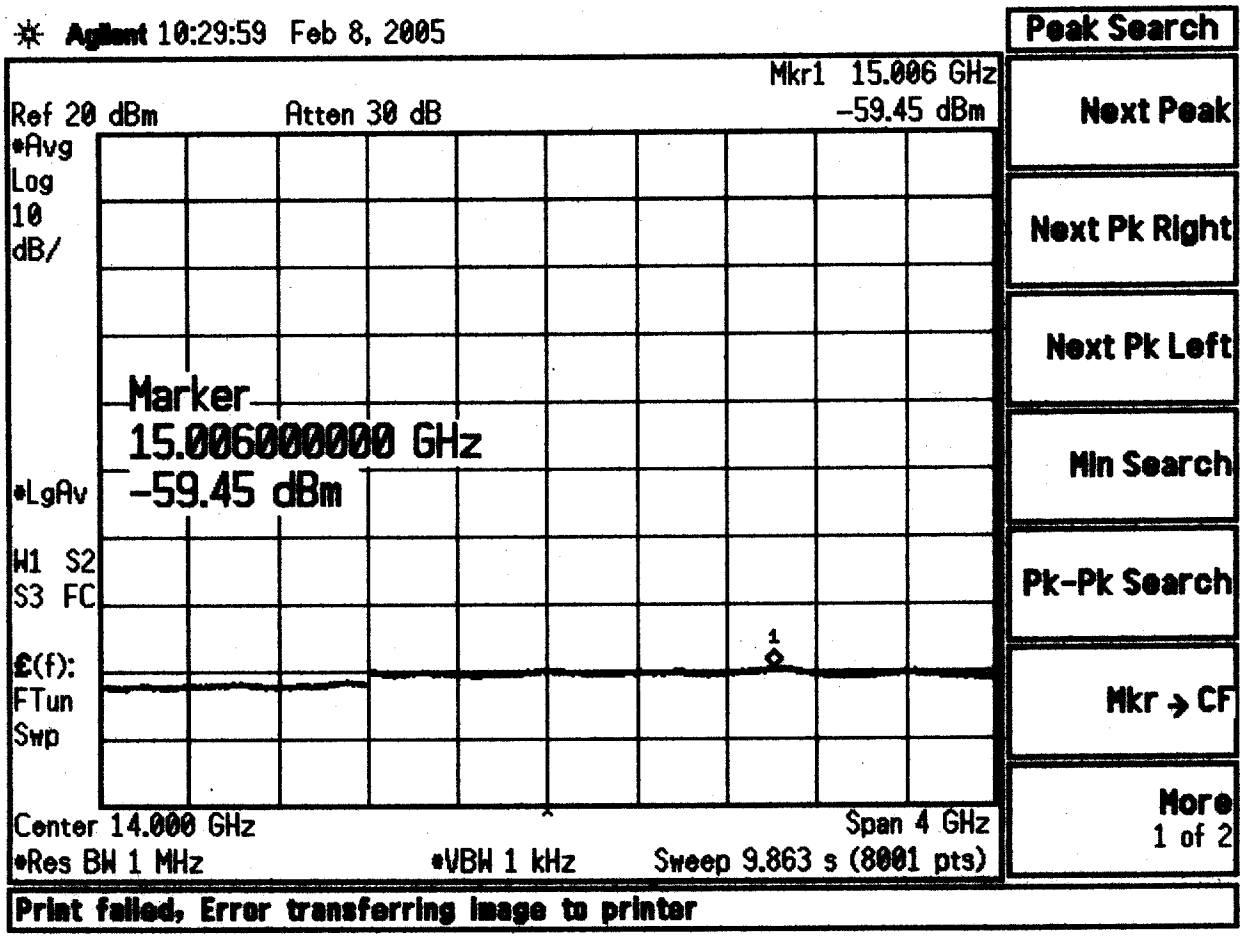
Cont. Tx
5.745 GHz
18dBm
6MBit

FCC Requirement: Section 15.407 (B) (4)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -44.2 dBm Limit = -35 dBm (measured in a 1MHz RBW)



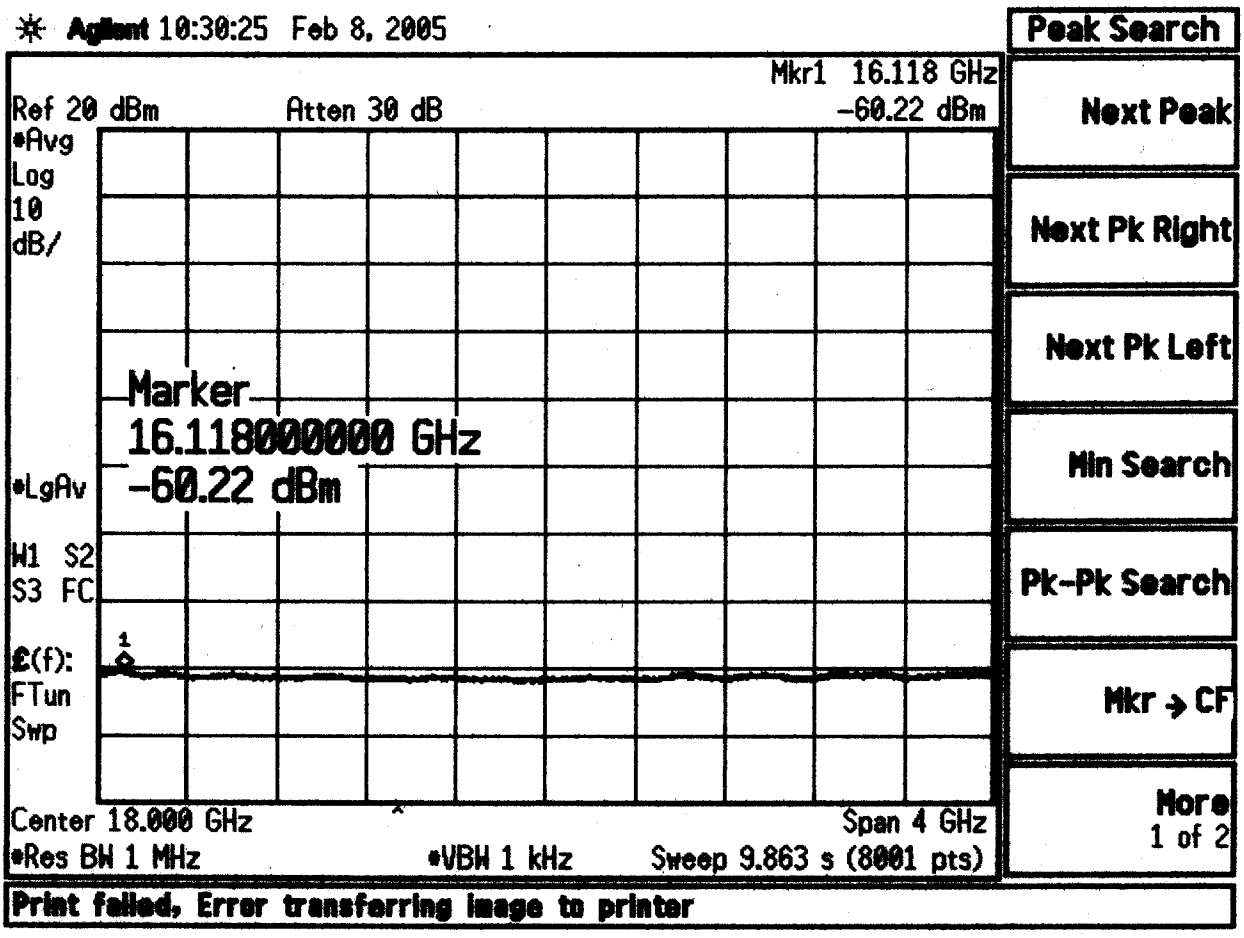
Cont. TX
5.745 GHz
18 dBm
6 MBit

FCC Requirement: Section 15.407 (B) (4)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -59.5 dBm Limit = -35 dBm (measured in a 1MHz RBW)



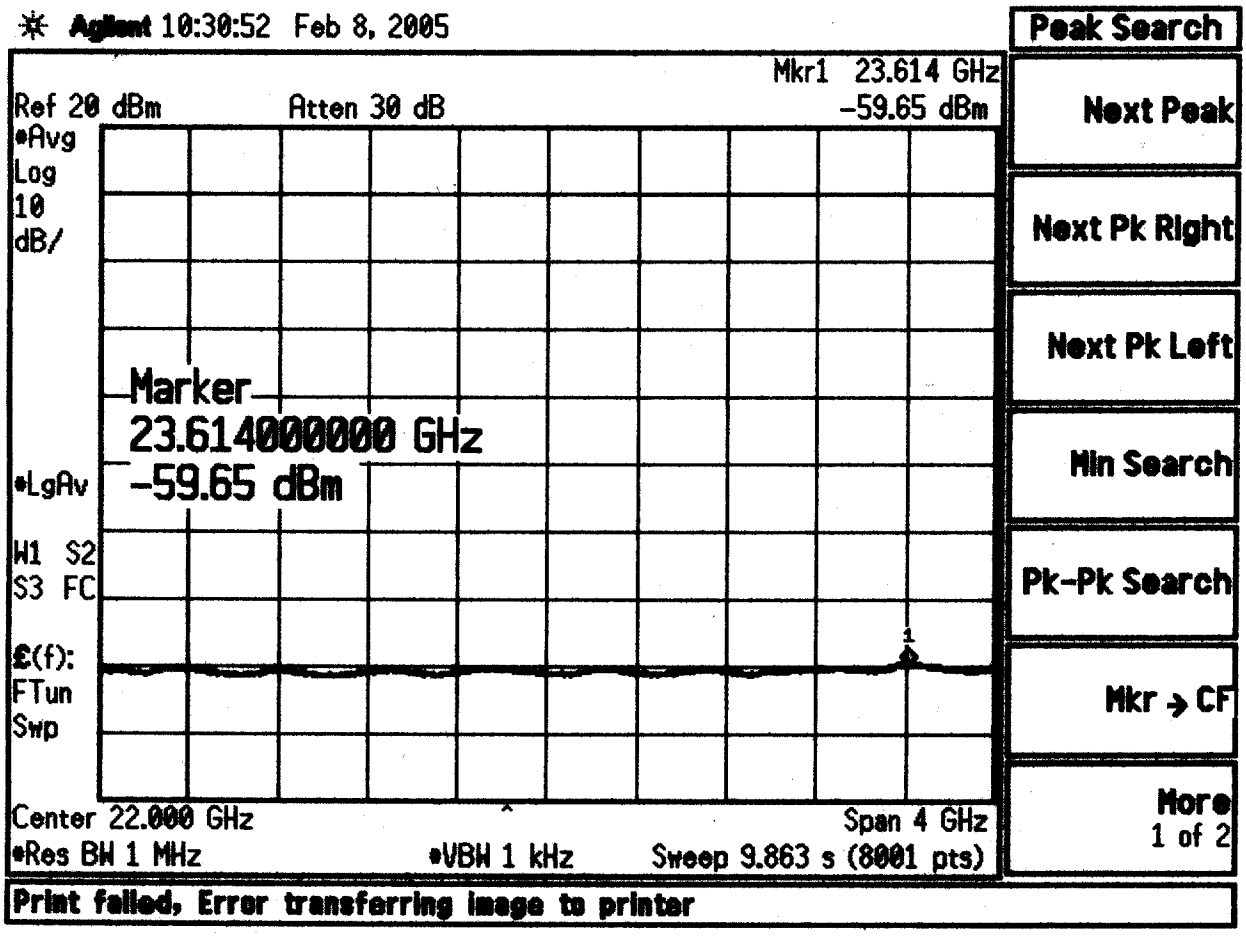
Cont. Tx
5.745 GHz
18dBm
6MBit

FCC Requirement: Section 15.407 (B) (4)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -60.2dBm Limit = -35 dBm (measured in a 1MHz RBW)



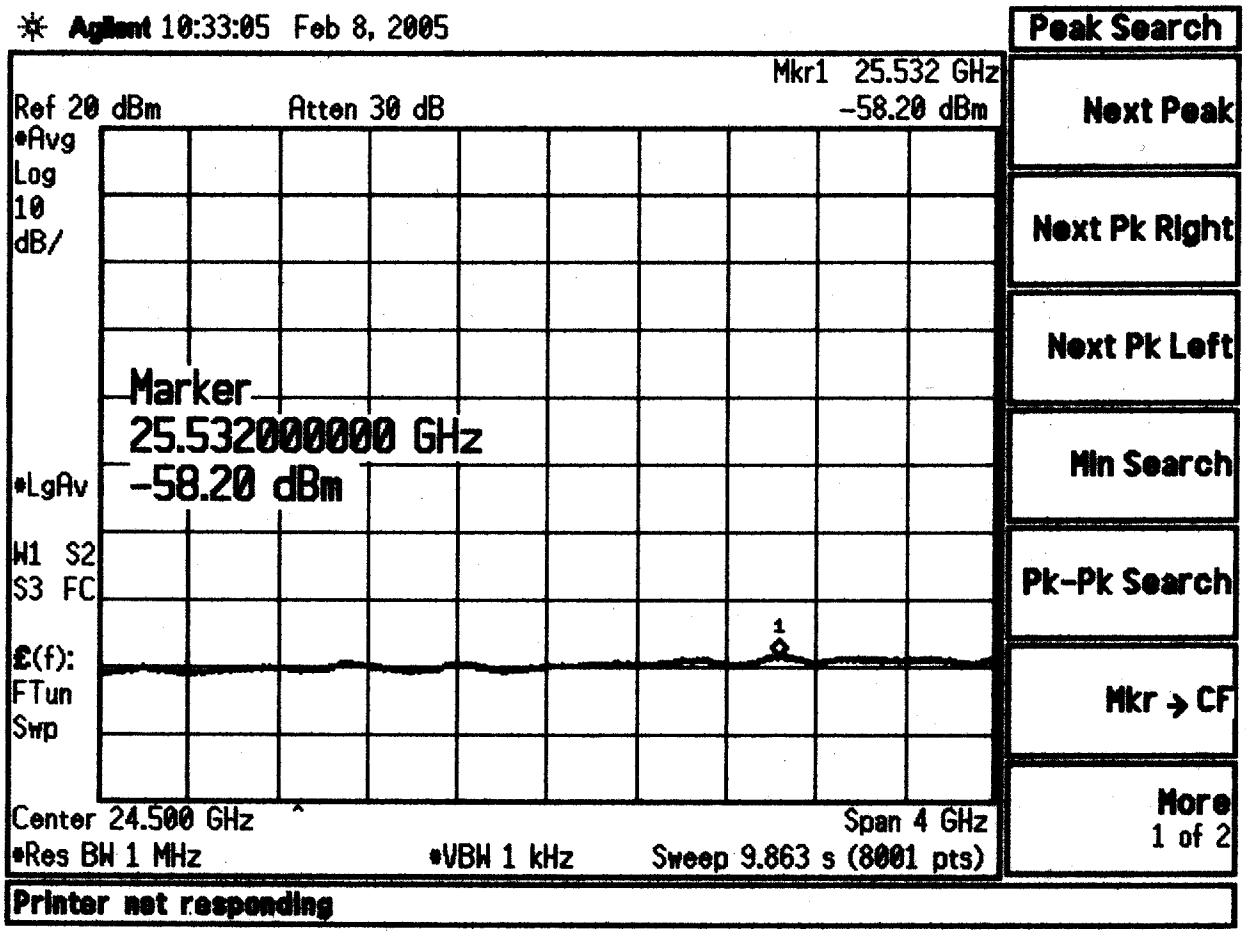
Cont. Tx
5.745 GHz
18dBm
6MBit

FCC Requirement: Section 15.407 (B) (4)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -59.7dBm Limit = -35 dBm (measured in a 1MHz RBW)



Cont. Tx
5.745 GHz
18 dBm
6MBit

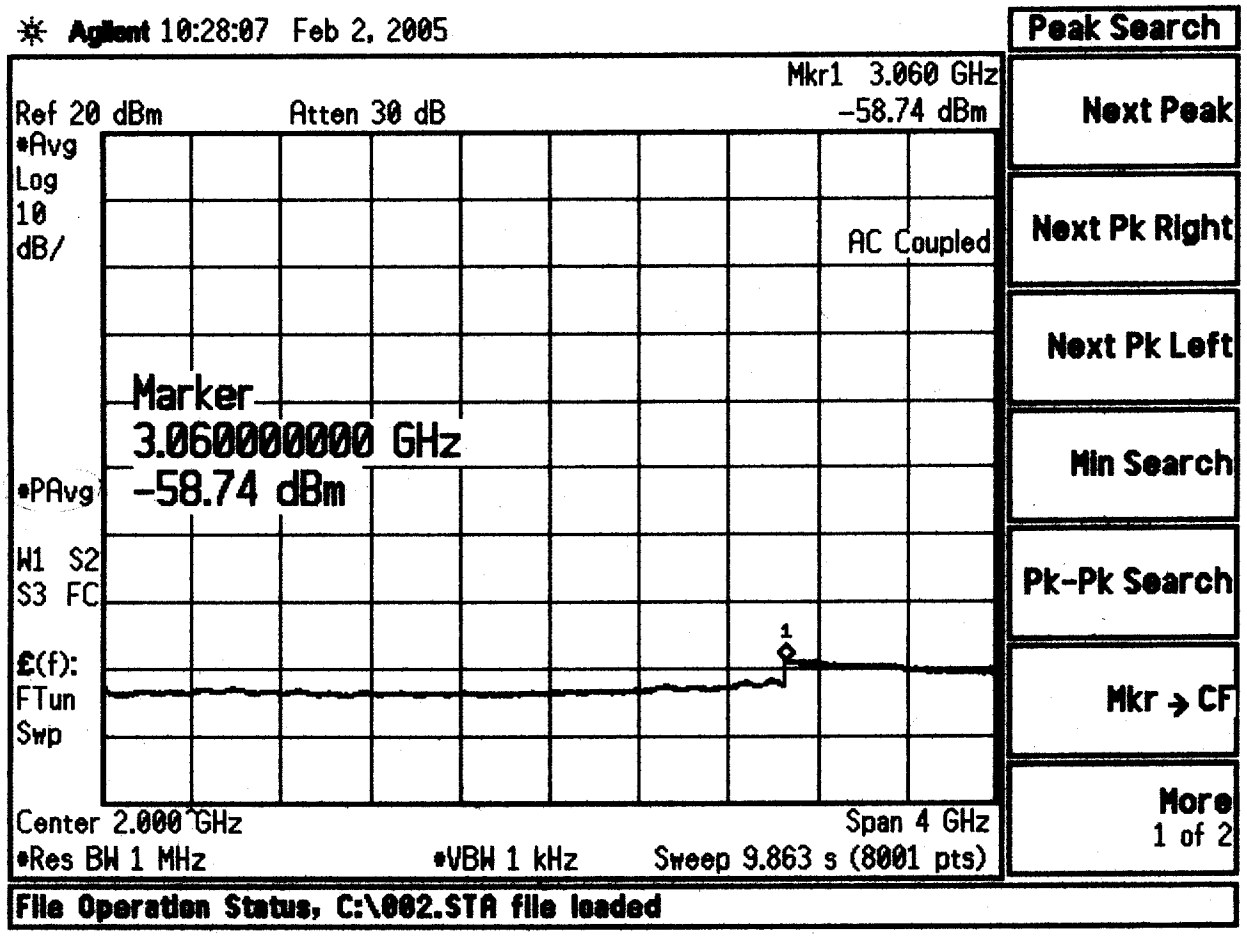
FCC Requirement: Section 15.407 (B) (4)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -58.2 dBm Limit = -35 dBm (measured in a 1MHz RBW)

Conducted Out-of-band Emissions



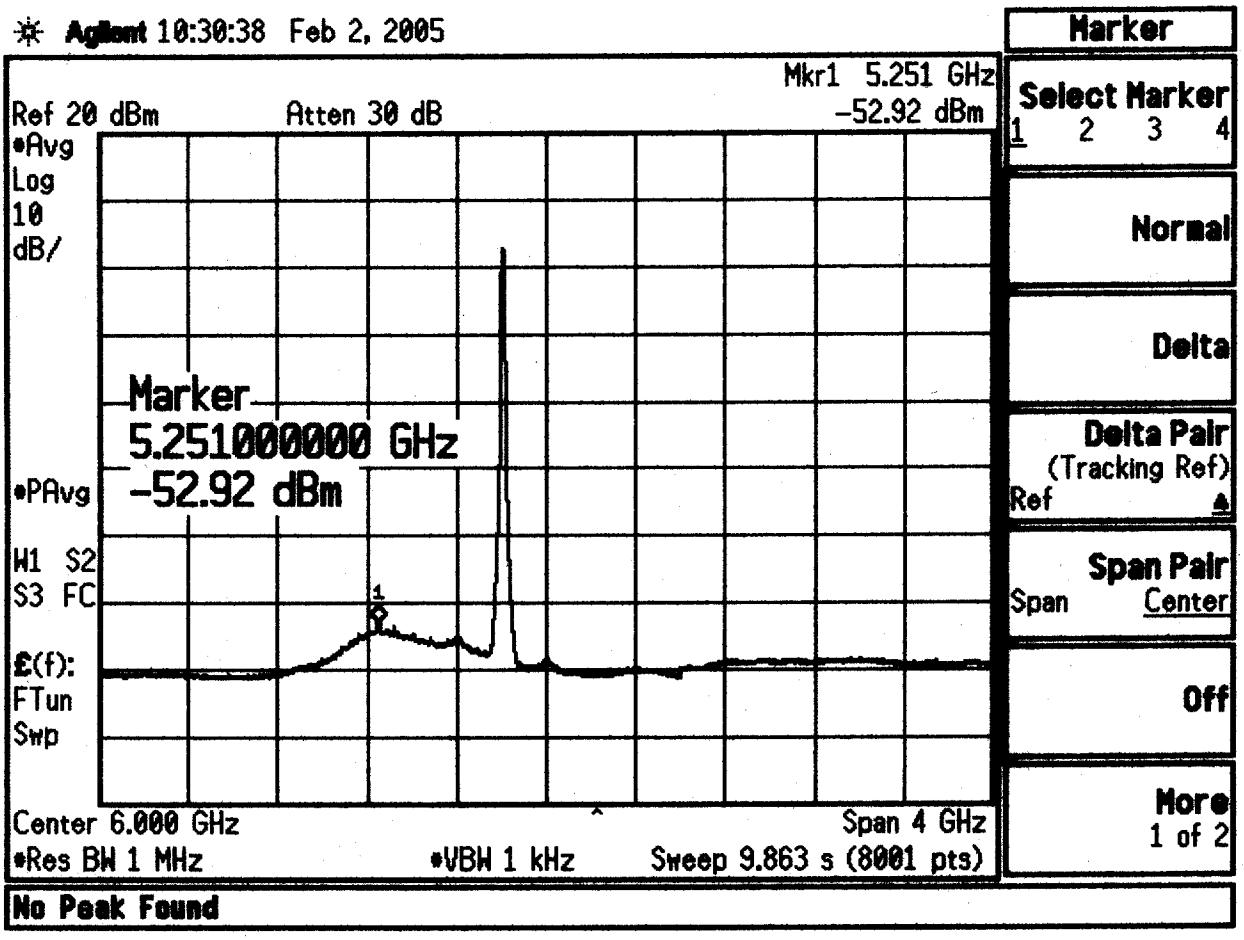
Continuous TX
5.805 GHz
18 dBm
6 MBit

FCC Requirement: Section 15.407 (B) (4)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -58.7 dBm Limit = -35 dBm (measured in a 1MHz RBW)



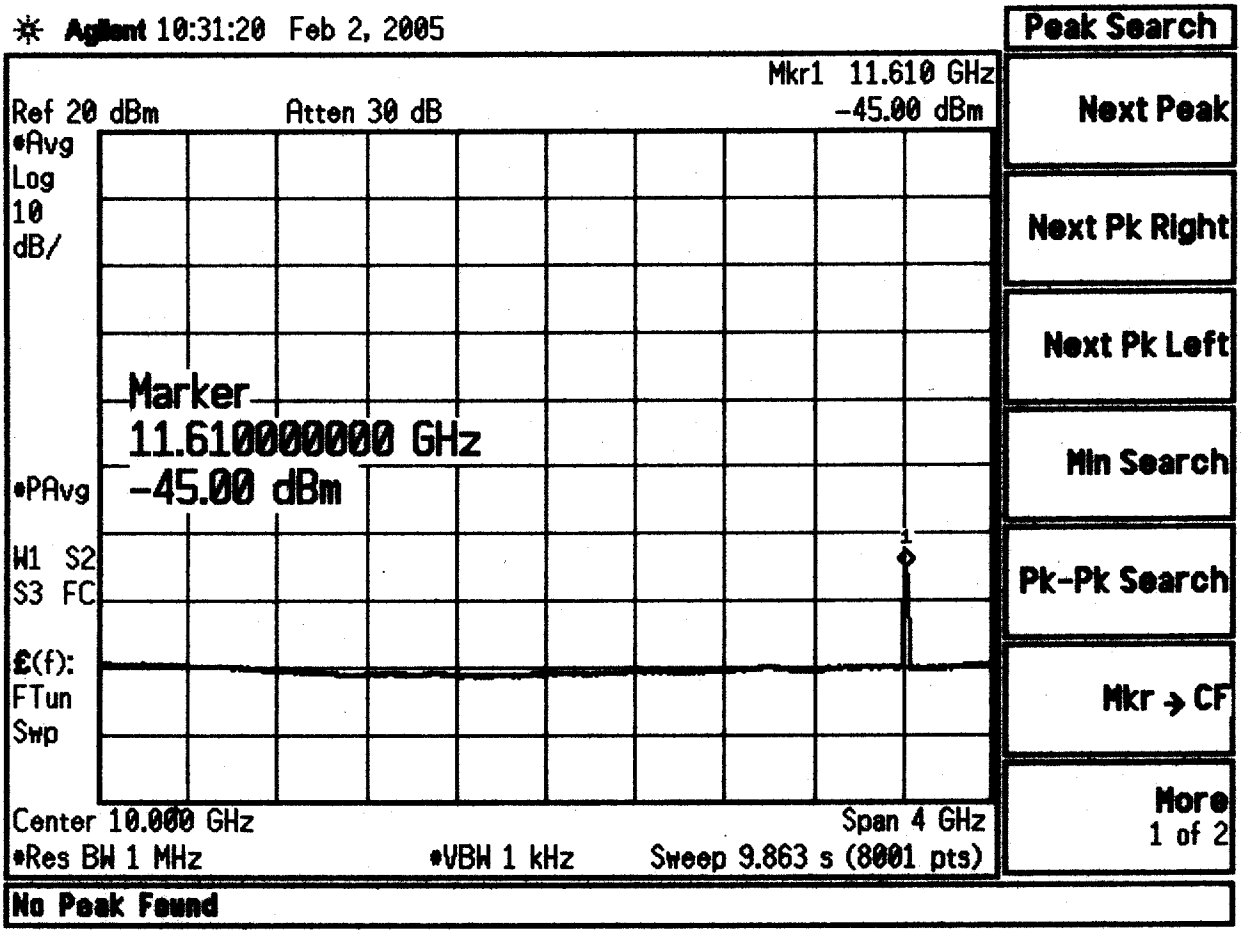
Continuous TX
5.805 GHz
18 dBm
6 M Bit

FCC Requirement: Section 15.407 (B) (4)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -52.9 dBm Limit = -35 dBm (measured in a 1MHz RBW)



Continuous TX

5.805 GHz

18dBm

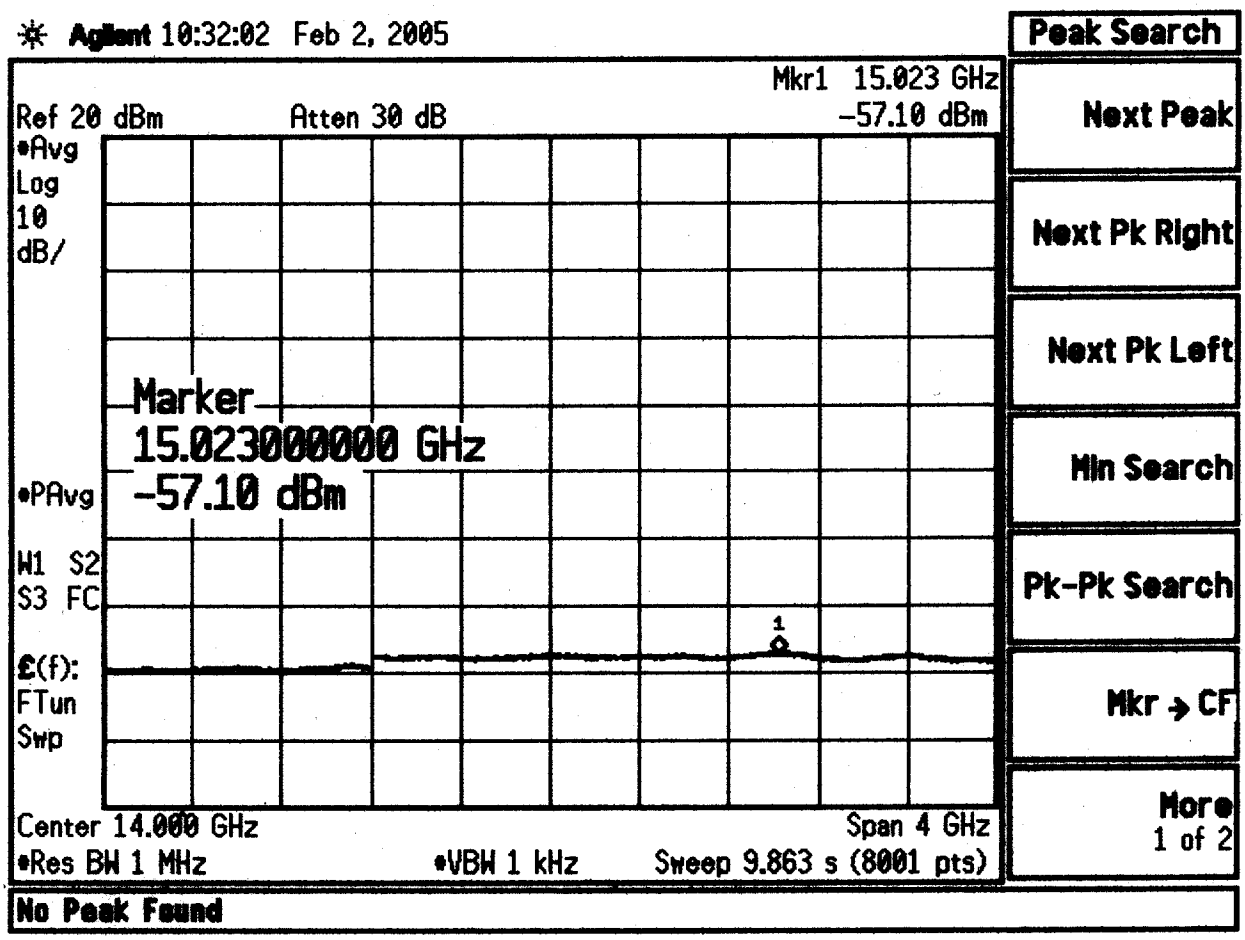
6 MBit

FCC Requirement: Section 15.407 (B) (4)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -45 dBm Limit = -35 dBm (measured in a 1MHz RBW)



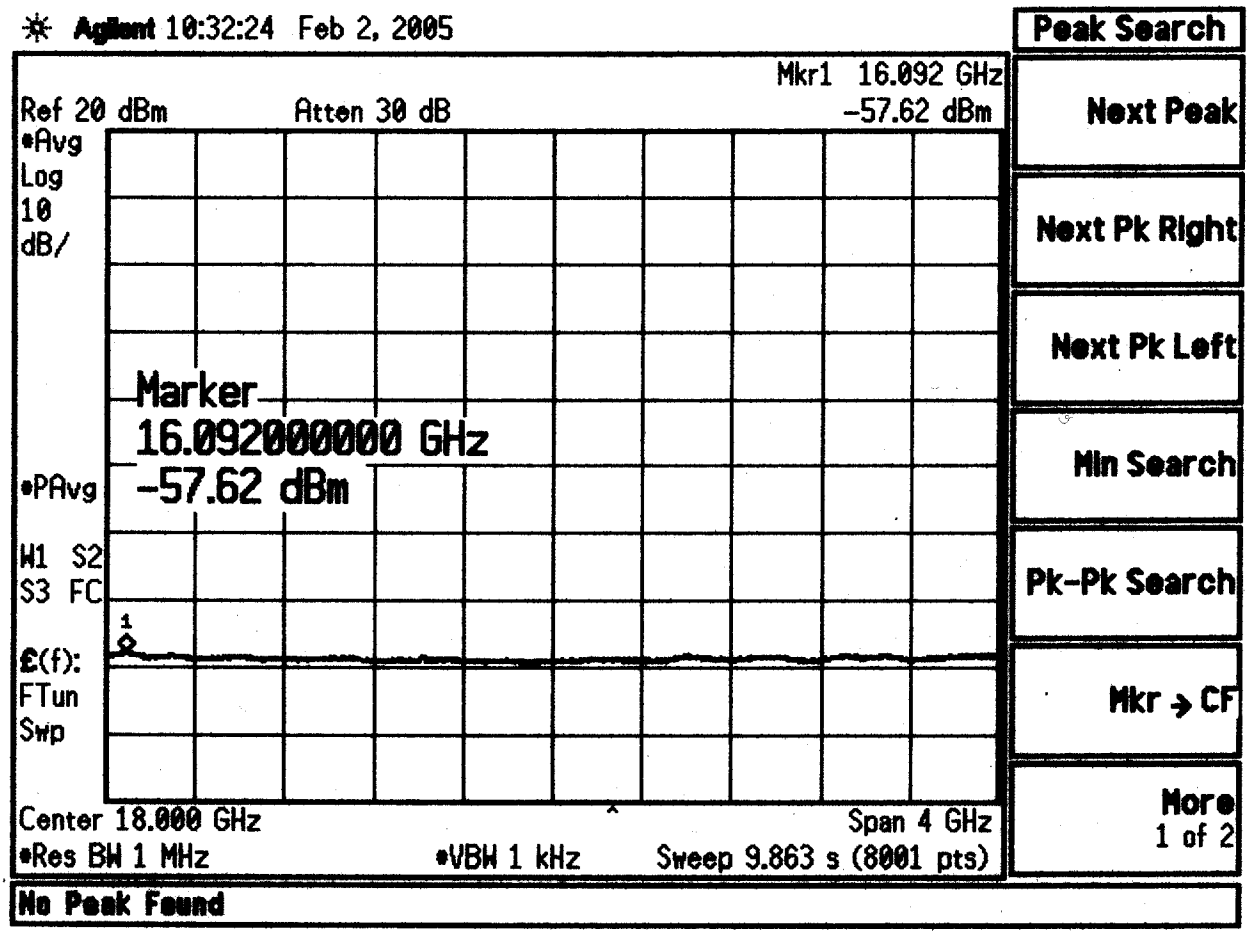
Continuous TX
5.805 GHz
18dBm
6MBit

FCC Requirement: Section 15.407 (B) (4)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -57.1 dBm Limit = -35 dBm (measured in a 1MHz RBW)



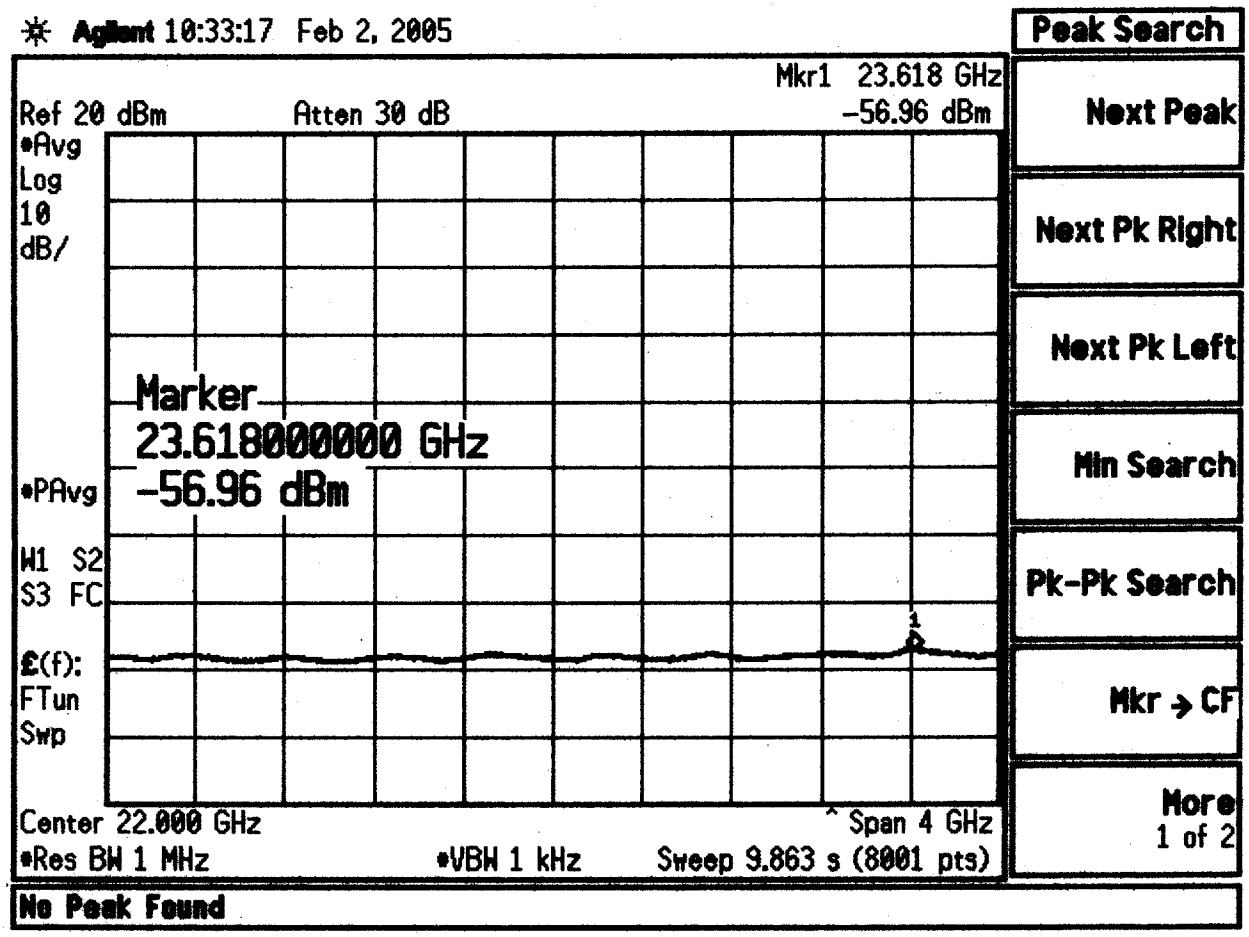
Continuous Tx
5.805 GHz
18dBm
6MBit

FCC Requirement: Section 15.407 (B) (4)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -57.6 dBm Limit = -35 dBm (measured in a 1MHz RBW)



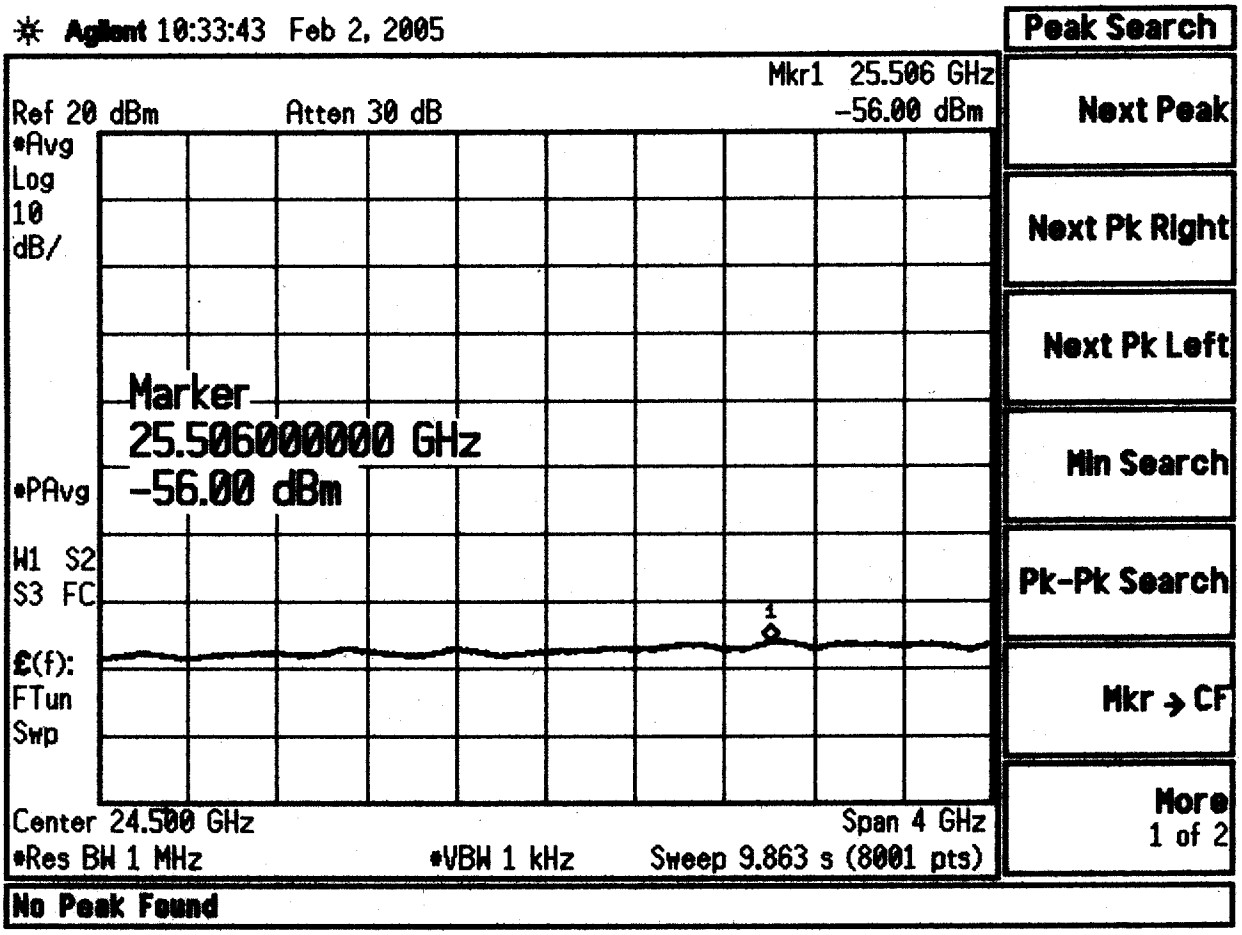
Continuous Tx
5.805 GHz
18dBm
6MBit

FCC Requirement: Section 15.407 (B) (4)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -57dBm Limit = -35 dBm (measured in a 1MHz RBW)



Continuous Tx
5.805 GHz
18dBm
6MBit

FCC Requirement: Section 15.407 (B) (4)
Out of band emissions shall not exceed -27 dBm/MHz EIRP

Using in-band antenna gain of 8 dBi, transmitter out-of-band conducted emissions shall not exceed -35 dBm/MHz.

For compliance in the restricted bands, see radiated emissions measurements.

Measured = -56dBm Limit = -35 dBm (measured in a 1MHz RBW)

Peak Excursion

Specifications:
FCC Specification: Paragraph: 15.407 (a)(6)
Public Notice DA 02-2138: Aug 30, 2002

The *Peak Excursion* measurements were performed at the following test location:

☐ **- Test not applicable**

☐ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)
☐ - Oakwood Lab (Open Area Test Site)
☐ - Wild River Lab Screen Room
■ - Cal Amp

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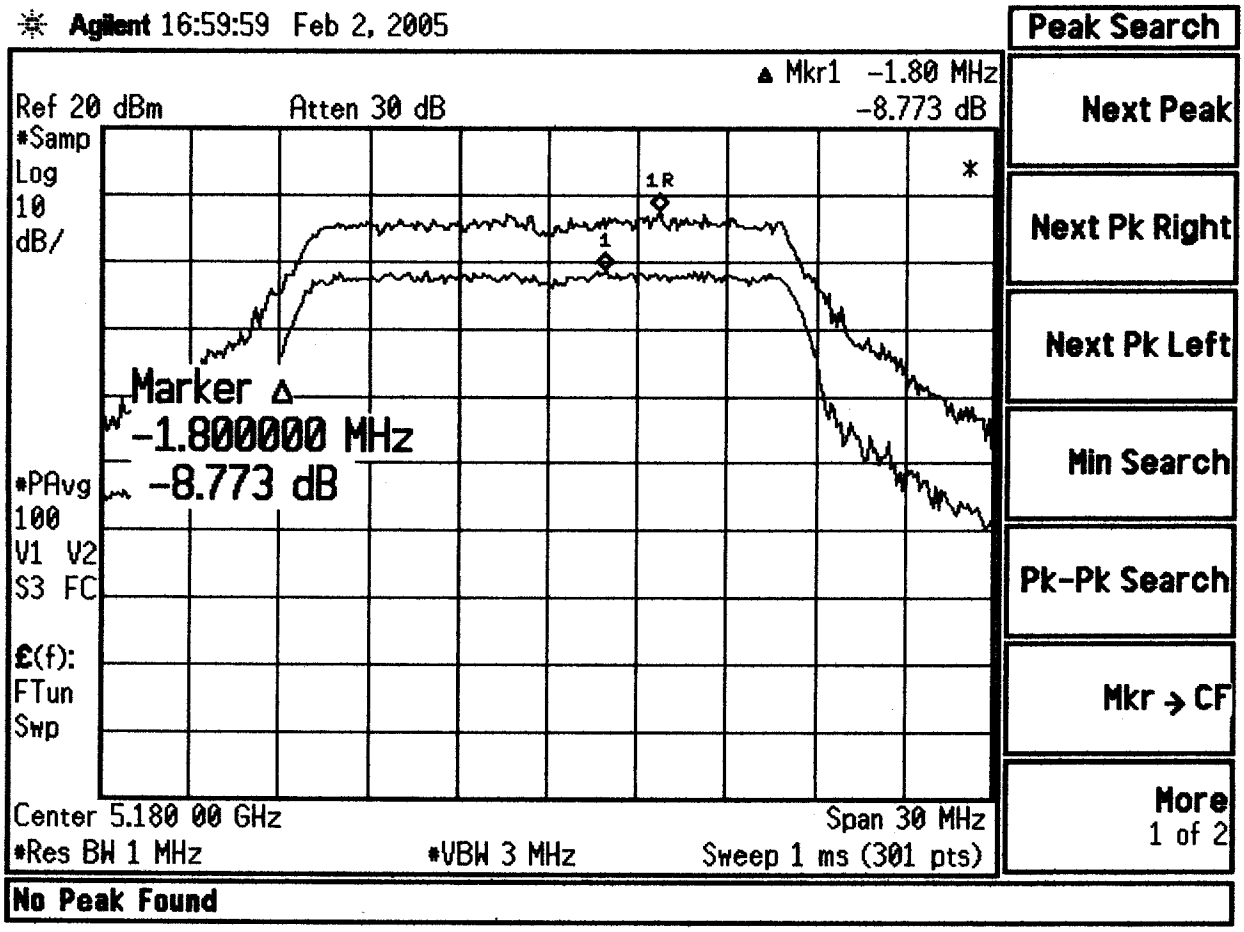
Peak Excursion to Ave. Ratio



Limit = peak − RMS ≤ 13dB

Trace 1

- RBW = 1MHz
- VBW = 3MHz
- Detector = peak mode
- max hold
- No averaging
- View trace

Trace 2

- RBW 1MHz
- VBW 3MHz
- Detector = Sample mode
- power averaging (not video)
- 100 trace Ave.
- View trace

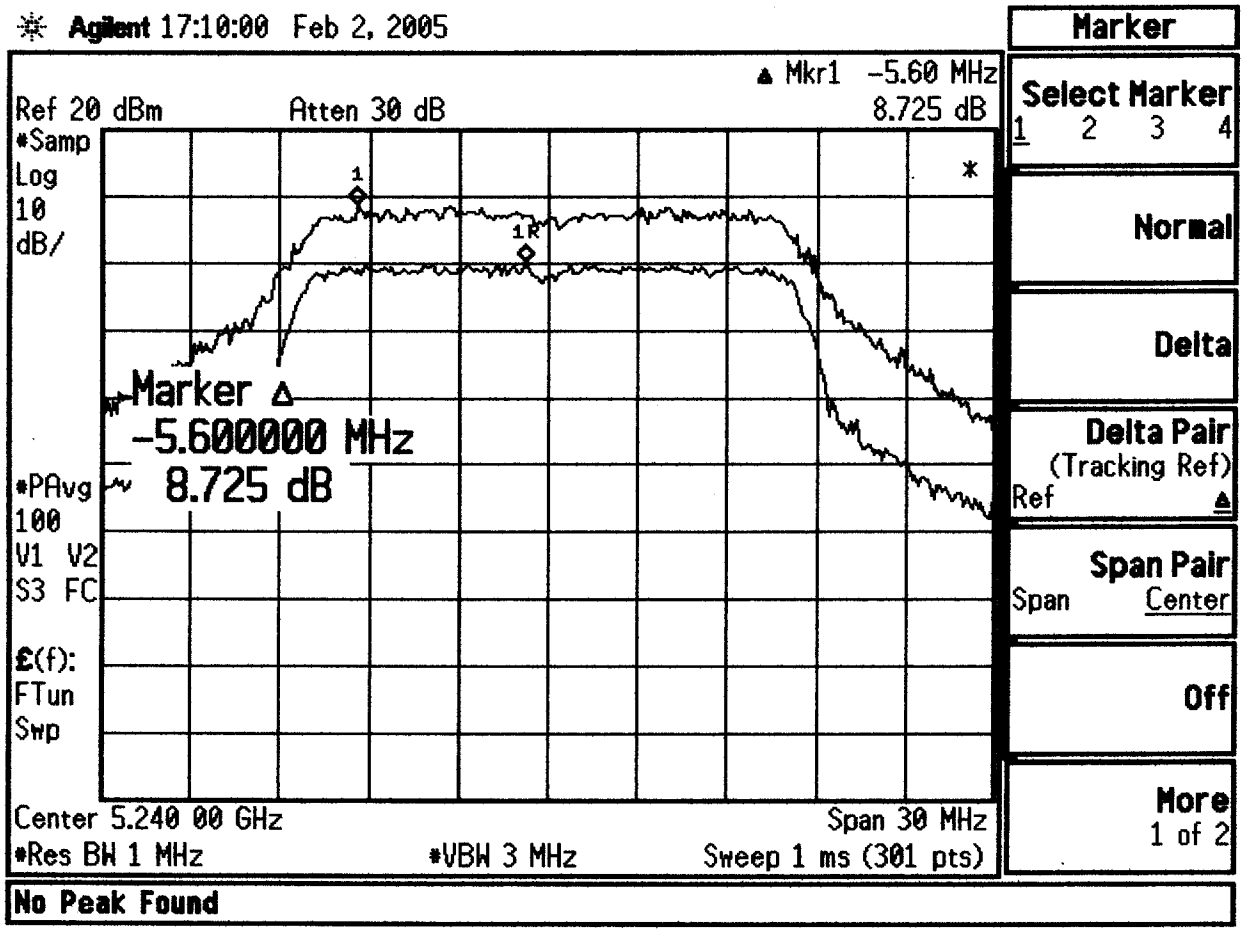
54MBit rate

CTL 14dBm

Cont. Tx

Test Procedure per Public Notice DA 02-2138, Aug 30, 2002

Peak Excursion to Ave. Ratio



Limit = peak-RMS ≤ 13dB

trace 1

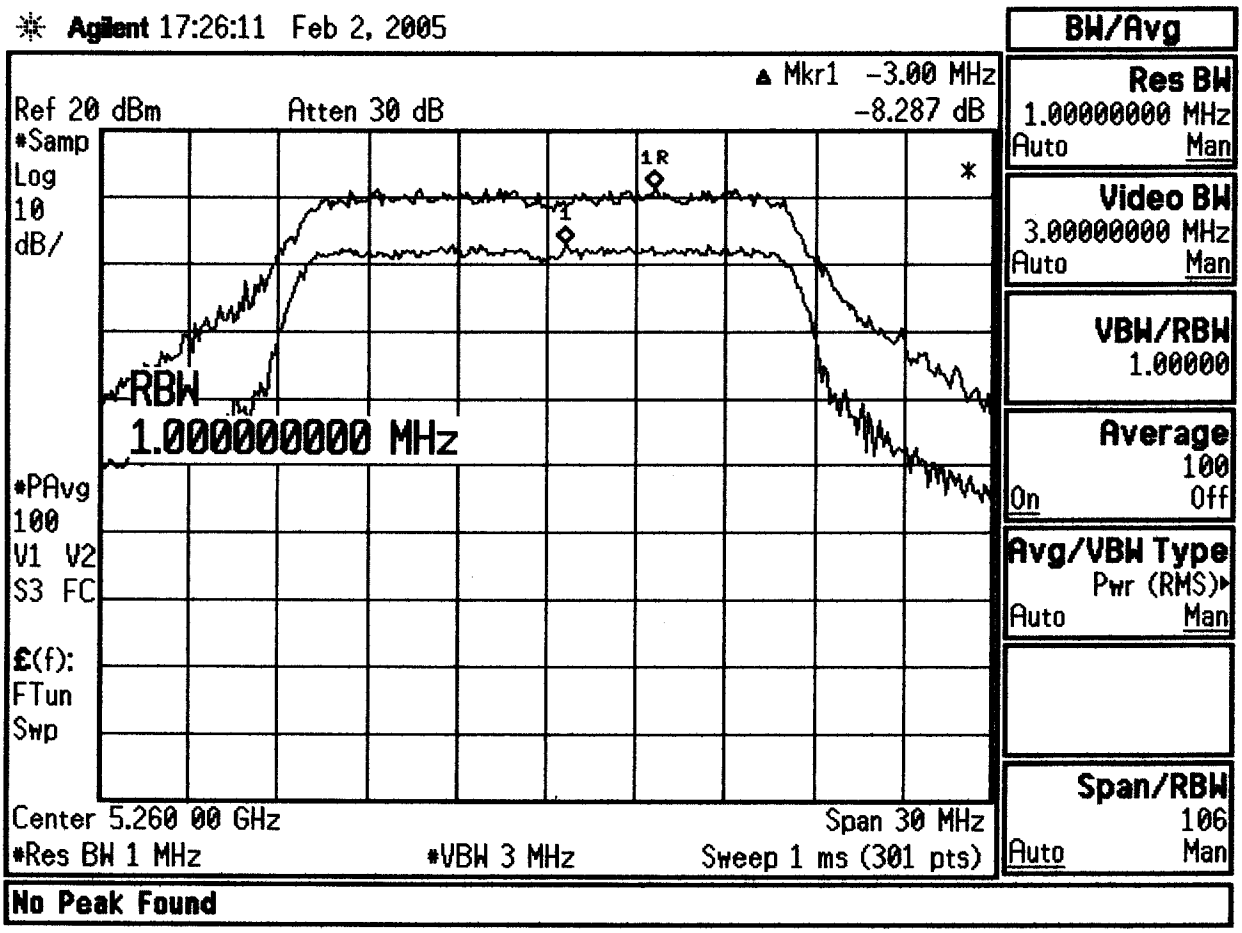
RBW = 1MHz
VBW = 3MHz
Detector = Peak mode
Max hold
No Averaging
View trace

trace 2

RBW = 1 MHz
VBW = 3MHz
Detector = Sample mode
power averaging (not video)
100 trace Ave.
View trace

54MBit rate
CTL 14dBm
Cont. Tx

Peak Excursion to Ave. Ratio



Limit = peak - RMS ≤ 13 dB

trace 1

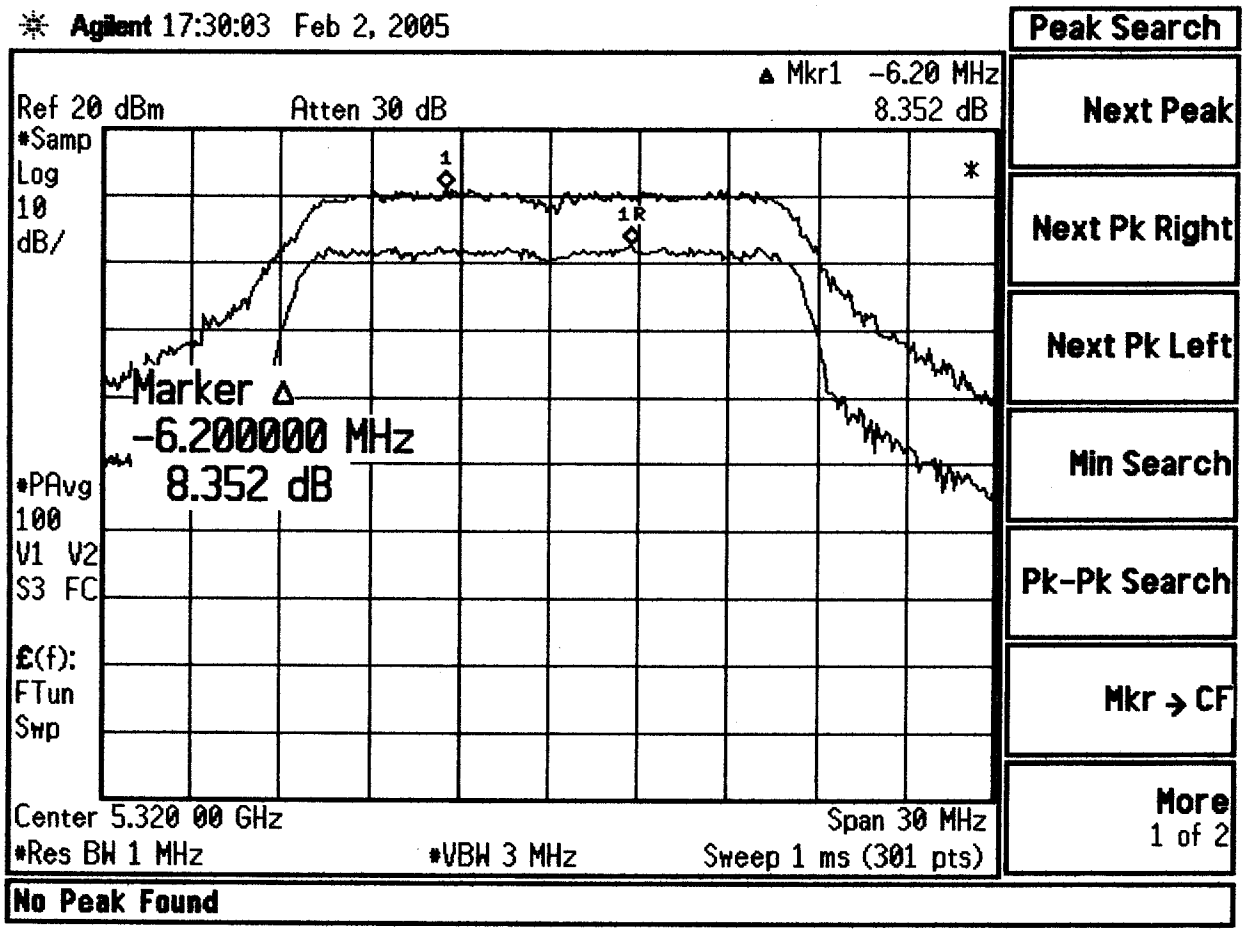
RBW = 1 MHz
VBW = 3 MHz
Det = Peak mode
Max hold
No Averaging
View Trace

trace 2

RBW = 1 MHz
VBW = 3 MHz
Det = Sample mode
Power averaging (not video)
100 trace Ave.
View trace

54 MBit rate
CTL 17 dBm
Cont. Tx

Peak Excursion to Ave. Ratio



Limit = peak - RMS ≤ 13 dB

trace 1

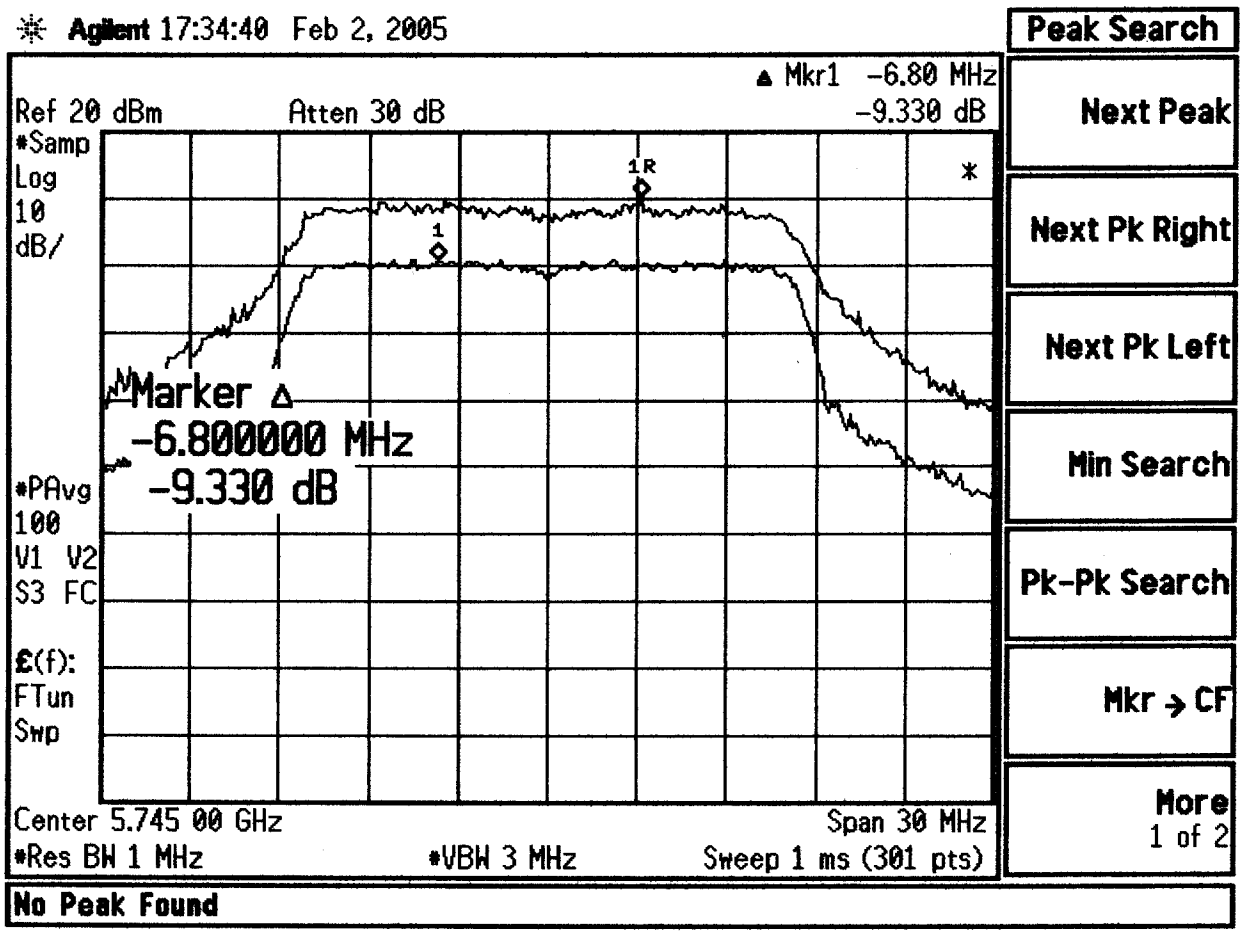
RBW = 1 MHz
VBW = 3 MHz
Det = Peak mode
Max hold
No Ave.
View trace

trace 2

RBW = 1 MHz
VBW = 3 MHz
Det = Sample mode
Power Ave. (not video)
100 trace Ave.
View trace

54 MBit rate
CTL 17 dBm
Cont. Tx

Peak Excursion to Ave. Ratio



Limit = peak - RMS ≤ 13 dB

trace 1

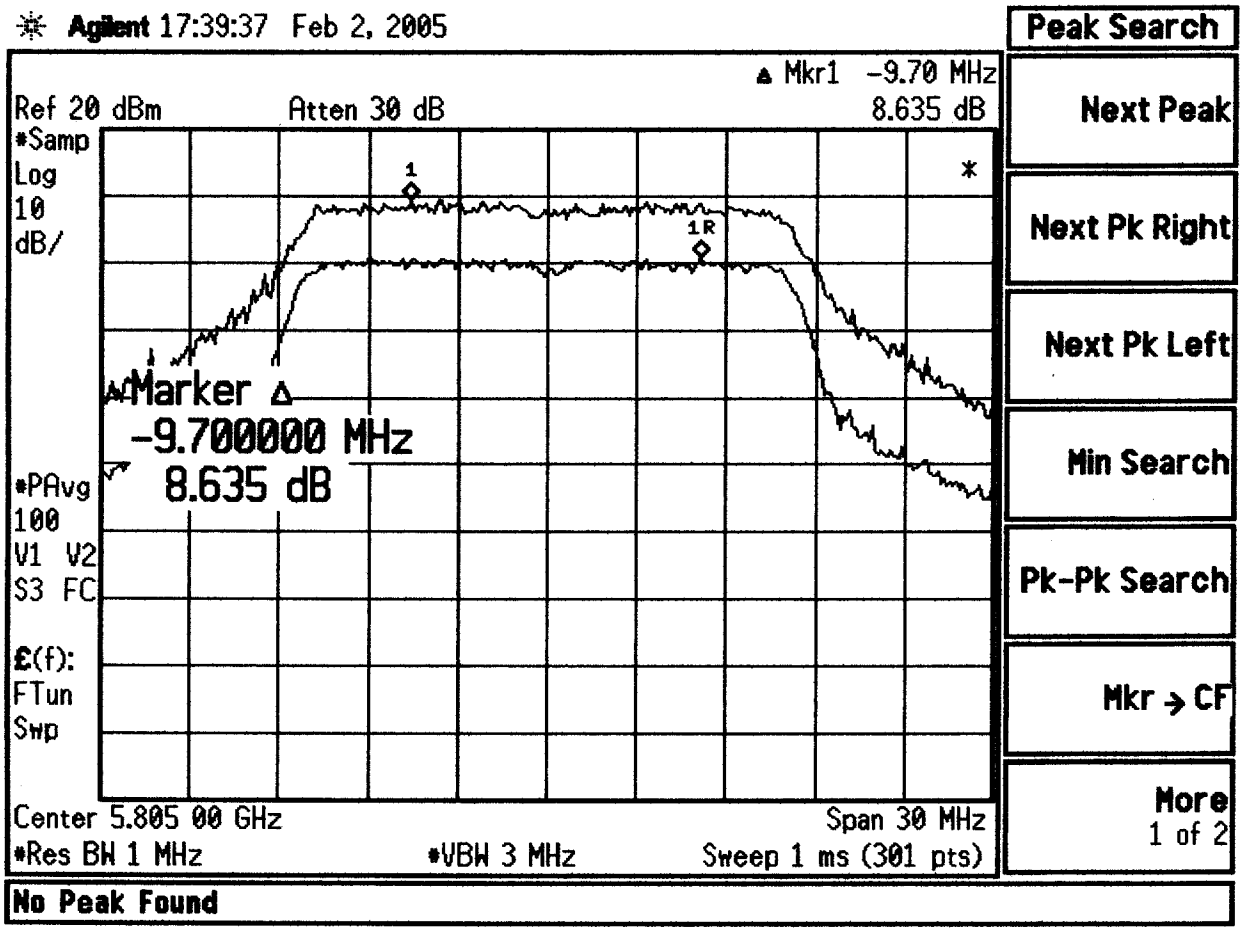
RBW = 1 MHz
VBW = 3 MHz
Det = Peak mode
Max hold
No Ave.
View trace

trace 2

RBW = 1 MHz
VBW = 3 MHz
Det = Sample mode
Power Ave. (not video)
100 trace Ave.
View trace

54 MBit rate
CTL 15 dBm
Cont. Tx

Peak Excursion to Ave. Ratio



Limit = peak − RMS ≤ 13dB

trace 1

RBW = 1MHz
VBW = 3MHz
Det = Peak mode
Max hold
No Ave.
View trace

trace 2

RBW = 1MHz
VBW = 3MHz
Det = Sample mode
Power Ave. (not video)
100 trace Ave.
View trace

54MBit rate
CTL 15dBm
Cont. Tx

Radiated Emissions in Restricted Bands

Specifications:
FCC Specification: Paragraph: 15.407 (b)(7)
IC Specification: RSS-210, 6.2.2(q1)

The *Radiated Emissions in Restricted Band* measurements were performed at the following test location:

☐ **- Test not applicable**

■ - TUV America Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)
☐ - Oakwood Lab (Open Area Test Site)
☐ - Wild River Lab Screen Room
☐ - Cal Amp

Test Equipment Used:

	TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
■ -	3204	EM-6917B	Electro-Metrics	Biconicalog Periodic	102	21-Oct-05
■	2682	85650A	Hewlett-Packard	Quasi-Peak Adapter	2811A01127	14-Aug-05
■-	2689	8566B	Hewlett-Packard	Spectrum Analyzer	2416A00321	31-Jan-05
■ -	2674	85662A	Hewlett-Packard	Analyzer Display	2050A02007	31-Jan-05
■-	3962	ZHL-1042J	Mini-Circuits	Preamplifier	D120403-2	Code B 08-Feb-05
■-	3957	SL18B4020	Phase One Microwave	Preamplifier 1 – 18 GHz	0001	Code B 17-Oct-05
■ -	2075	3115	Electro-Mechanics (EMCO)	Ridge Guide Ant. 1-18 GHz	9001-3275	24-Nov-05
■ -	2478	AWT-18037	Avantek	Preamplifier 8-18 GHz	1001-9226	Code B 24-May-05
■ -	2862	8491A	Hewlett Packard	6 dB Attenuator	7268	Code B 21-Jun-05
■ -	2835	8491A	Hewlett Packard	3 dB Attenuator	8021	Code B 21-Jun-05
■ -	3933	F551B-1	Acronetics	8 – 12 GHz Bandpass Filter	010	Code B 17-Oct-05
■ -	3997	EWT-14-0066	EWT	2.4 GHz Notch Filter	E2	Code B 19Jan-06
■ -	3935	F548B-1	Acronetics	1 – 2 GHz Bandpass Filter	010	Code B 17-Oct-05
■ -	2127	11975A	Hewlett Packard	Amplifier 2- 8 GHz	2738A01200	Code B 25-May-05
■ -	2661	11970A	Hewlett-Packard	Harm Mixer – 26.5-40 GHz	2332A01861	11-Jul-06
■ -	2662	11970K	Hewlett-Packard	Harm Mixer – 18-26.5 GHz	2332A01170	11-Jul-06
■ -	2919	11970U	Hewlett-Packard	Harm Mixer – 40-60 GHz	3003A01395	11-Jul-06
■ -	2788	3116	Electro-Mechanics (EMCO)	Ridge Guide Ant 18-40 GHz	2005	27-Sep-05
■ -	2918	19-7025	Hewlett-Packard	Horn Antenna – 40-60 GHz		N/A

Cal Code B = Calibration verification performed internally. Cal Code Y = Calibration not required when used with other calibrated equipment.

All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST) and is calibrated annually.

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RADIATED EMISSIONS

TÜV SÜD America

Test Report #: WC500164 Run 6 | Test Area: LTS

EUT Model #: DIRECTED AP | Date: 1/27/05

EUT Serial #: Unit "A" | EUT Power: 48VDC via p/s | Temperature: 23.0 °C

Test Method: FCC B | Air Pressure: 99.0 kPa

Customer: CALAMP | Rel. Humidity: 20.0 %

EUT Description: WIRELESS ACCESS POINT (802.11A). TRXing

Notes: Transmitting B, & G Modes. See notes on data sheets for each mode.

Data File Name: 0164.dat | Page: 1 of 3

List of measurements for run #: 6

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-B <1GHz 3m	DELTA2 FCC B >1GHz 3m
Transmitting on G mode. Directional Antenna:						
2.457 GHz:						
LO:						
2.688 GHz maxed:						
2.688 GHz	52.52 Av	4.47 / 29.18 / 44.6 / 0.4	41.97	V / 1.60 / 42	n/a	-12.03
2.688 GHz	58.1 Pk	4.47 / 29.18 / 44.6 / 0.4	47.55	V / 1.60 / 42	n/a	-6.45*
2.688 GHz	41.39 Av	4.47 / 29.18 / 44.6 / 0.4	30.84	H / 1.00 / 0	n/a	-23.16
2.688 GHz	49.8 Pk	4.47 / 29.18 / 44.6 / 0.4	39.25	H / 1.00 / 0	n/a	-14.75*
Harmonic						
4.914 GHz	43.95 Av	6.42 / 33.21 / 44.61 / 0.14	39.12	V / 1.05 / 340	n/a	-14.88
4.914 GHz	52.45 Pk	6.42 / 33.21 / 44.61 / 0.14	47.62	V / 1.05 / 340	n/a	-6.38*
4.914 GHz	39.77 Av	6.42 / 33.21 / 44.61 / 0.14	34.94	H / 1.05 / 0	n/a	-19.06
4.914 GHz	46.8 Pk	6.42 / 33.21 / 44.61 / 0.14	41.97	H / 1.05 / 0	n/a	-12.03*
spurious:						
3.94 GHz	57.84 Av	5.79 / 32.3 / 45.28 / 0.13	50.77	V / 1.00 / 248	n/a	-3.23
3.94 GHz	60.15 Pk	5.79 / 32.3 / 45.28 / 0.13	53.08	V / 1.00 / 248	n/a	-0.92*
3.94 GHz	50.22 Av	5.79 / 32.3 / 45.28 / 0.13	43.15	H / 2.30 / 341	n/a	-10.85
3.94 GHz	55.9 Pk	5.79 / 32.3 / 45.28 / 0.13	48.83	H / 2.30 / 341	n/a	-5.17*
Above emission at 3.94 is a Rx LO frequency.						
NOTE!!!						
TRX set to 5.32 GHz mode:						
10.64 GHz	40.59 Av	9.95 / 38.07 / 44.49 / 0.6	44.73	V / 1.38 / 7	n/a	-9.27
10.64 GHz	48.65 Pk	9.95 / 38.07 / 44.49 / 0.6	52.79	V / 1.38 / 7	n/a	-1.21*
10.64 GHz	39.24 Av	9.95 / 38.07 / 44.49 / 0.6	43.38	H / 1.46 / 315	n/a	-10.62
10.64 GHz	47.45 Pk	9.95 / 38.07 / 44.49 / 0.6	51.59	H / 1.46 / 315	n/a	-2.41*

Tested by: J. C. Sausen/J. T. Schneider — Printed | J C Sausen — Signature

Reviewed by: T. K. Swanson — Printed | Thomas K. Swanson — Signature

RADIATED EMISSIONS

Test Report #:	WC500164 Run 6	Test Area:	LTS		
EUT Model #:	DIRECTED AP	Date:	1/27/05		
EUT Serial #:	Unit "A"	EUT Power:	48VDC via p/s	Temperature:	23.0 °C
Test Method:	FCC B			Air Pressure:	99.0 kPa
Customer:	CALAMP			Rel. Humidity:	20.0 %
EUT Description:	WIRELESS ACCESS POINT (802.11A). TRXing				
Notes:	Transmitting B, & G Modes. See notes on data sheets for each mode.				
Data File Name:	0164.dat			Page:	2 of 3

List of measurements for run #: 6

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-B <1GHz 3m	DELTA2 FCC B >1GHz 3m
1.12 GHz	59.84 Av	2.91 / 25.53 / 40.34 / 0.3	48.24	H / 1.46 / 315	n/a	-5.76
1.12 GHz	55.03 Av	2.91 / 25.53 / 40.34 / 0.3	43.43	V / 1.35 / 127	n/a	-10.57
1.12 GHz	57.1 Pk	2.91 / 25.53 / 40.34 / 0.3	45.5	V / 1.35 / 127	n/a	-8.5*
1.36 GHz	49.68 Av	3.19 / 25.25 / 41.21 / 0.32	37.23	V / 1.35 / 127	n/a	-16.77
1.36 GHz	53.65 Pk	3.19 / 25.25 / 41.21 / 0.32	41.2	V / 1.35 / 127	n/a	-12.8*
1.54 GHz	51.23 Av	3.47 / 25.35 / 42.14 / 0.46	38.36	V / 1.35 / 127	n/a	-15.64
1.54 GHz	55.0 Pk	3.47 / 25.35 / 42.14 / 0.46	42.13	V / 1.35 / 127	n/a	-11.87*
Note: no emissions 2-4 GHz.						
AP mode, Wlan0 & Wlan1 min power, tx at min power:						
following readings made 2/5/2005 by jts - 5 ghz transmitter on						
11.82 GHz is 5 GHz receiver spur						
7.973 GHz	37.7 Pk	8.39 / 36.89 / 44.23 / 0.0	38.75	V / 1.70 / 355	n/a	-15.25*
last reading demonstrating noise level						
no spurious emissions detected in 4-8 GHz restricted bands						
changed to 8-18 GHz preamplifier						
added 9 dB attenuation in front of preamplifier						
moved antenna into 1 meter, transmitter off, 10 dB analyzer input attenuation						
15.956 GHz	42.28 Av	12.04 / 37.77 / 45.83 / 9.1	55.36	V / 1.01 / 11	n/a	-8.64
transmitter on - 1 meter antenna distance						
15.956 GHz	47.1 Av	12.04 / 37.77 / 45.83 / 9.1	60.18	V / 1.01 / 11	n/a	-3.82
no other signals in 12-18 ghz restricted bands						
no signals from 2.4 ghz transmitter in 12-18 ghz restricted bands						
no signals from 2.4 ghz transmitter in 18-25 GHz restricted bands						
no signals from 5 ghz transmitters in 18-60 GHz restricted bands						

Tested by: J. C. Sausen/J. T. Schneider

Printed — Signature

Reviewed by: T. K. Swanson

Printed — Signature

RADIATED EMISSIONS

Test Report #:	WC500164 Run 6	Test Area:	LTS		
EUT Model #:	DIRECTED AP	Date:	1/27/05		
EUT Serial #:	Unit "A"	EUT Power:	48VDC via p/s	Temperature:	23.0 °C
Test Method:	FCC B			Air Pressure:	99.0 kPa
Customer:	CALAMP			Rel. Humidity:	20.0 %
EUT Description:	WIRELESS ACCESS POINT (802.11A). TRXing				
Notes:	Transmitting B, & G Modes. See notes on data sheets for each mode.				
Data File Name:	0164.dat			Page:	3 of 3

Measurement summary for limit2: FCC B >1GHz 3m (Av)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA2 FCC B >1GHz 3m
15.956 GHz	47.1 Av	12.04 / 37.77 / 45.83 / 9.1	60.18	V / 1.01 / 11	-3.82
3.94 GHz	57.84 Av	5.79 / 32.3 / 45.28 / 0.13	50.77	V / 1.00 / 248	-3.23
1.12 GHz	59.84 Av	2.91 / 25.53 / 40.34 / 0.3	48.24	H / 1.46 / 315	-5.76
10.64 GHz	40.59 Av	9.95 / 38.07 / 44.49 / 0.6	44.73	V / 1.38 / 7	-9.27
2.688 GHz	52.52 Av	4.47 / 29.18 / 44.6 / 0.4	41.97	V / 1.60 / 42	-12.03
4.914 GHz	43.95 Av	6.42 / 33.21 / 44.61 / 0.14	39.12	V / 1.05 / 340	-14.88
1.54 GHz	51.23 Av	3.47 / 25.35 / 42.14 / 0.46	38.36	V / 1.35 / 127	-15.64
1.36 GHz	49.68 Av	3.19 / 25.25 / 41.21 / 0.32	37.23	V / 1.35 / 127	-16.77
2.688 GHz	58.1 Pk	4.47 / 29.18 / 44.6 / 0.4	47.55	V / 1.60 / 42	-6.45*
4.914 GHz	52.45 Pk	6.42 / 33.21 / 44.61 / 0.14	47.62	V / 1.05 / 340	-6.38*
3.94 GHz	60.15 Pk	5.79 / 32.3 / 45.28 / 0.13	53.08	V / 1.00 / 248	-0.92*
10.64 GHz	48.65 Pk	9.95 / 38.07 / 44.49 / 0.6	52.79	V / 1.38 / 7	-1.21*
1.12 GHz	57.1 Pk	2.91 / 25.53 / 40.34 / 0.3	45.5	V / 1.35 / 127	-8.5*
1.36 GHz	53.65 Pk	3.19 / 25.25 / 41.21 / 0.32	41.2	V / 1.35 / 127	-12.8*
1.54 GHz	55.0 Pk	3.47 / 25.35 / 42.14 / 0.46	42.13	V / 1.35 / 127	-11.87*
7.973 GHz	37.7 Pk	8.39 / 36.89 / 44.23 / 0.0	38.75	V / 1.70 / 355	-15.25*

Note: 3.94 GHz is a Rx LO frequency emission.

* Denotes a peak measurement compared to an average limit.

Tested by: J. C. Sausen/J. T. Schneider

Printed — Signature

Reviewed by: T. K. Swanson

Printed — Signature

RADIATED EMISSIONS

Test Report #:	WC500164 Run 9	Test Area:	LTS		
EUT Model #:	DIRECTED AP	Date:	3/17/05		
EUT Serial #:	Unit "A"	EUT Power:	48VDC via p/s	Temperature:	23.0 °C
Test Method:	FCC B			Air Pressure:	99.0 kPa
Customer:	CALAMP			Rel. Humidity:	20.0 %
EUT Description:	WIRELESS ACCESS POINT (802.11A). TRXing BOTH 2.437 AND 5.28 GHz				
Notes:	Radiated emissions in restricted bands.				
Data File Name:	0164.dat			Page:	1 of 4

List of measurements for run #: 9

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC B >1GHz 3m	DELTA2
*** Denotes a peak measurement compared to the average limit.**						
1.0 GHz	31.98 Av	2.74 / 25.66 / 27.56 / 0.1	32.93	V / 1.00 / 0	-21.07	n/a
1.0 GHz	33.95 Pk	2.74 / 25.66 / 27.56 / 0.1	34.9	V / 1.00 / 0	-19.1*	n/a
1.125 GHz	30.33 Av	2.91 / 25.52 / 27.59 / 0.0	31.18	V / 1.00 / 0	-22.82	n/a
1.125 GHz	34.1 Pk	2.91 / 25.52 / 27.59 / 0.0	34.95	V / 1.00 / 0	-19.05*	n/a
1.16 GHz	27.42 Av	2.96 / 25.48 / 27.54 / 0.1	28.41	V / 1.00 / 0	-25.59	n/a
1.18 GHz	29.79 Av	2.98 / 25.46 / 27.52 / 0.12	30.83	V / 1.00 / 0	-23.17	n/a
1.2 GHz	27.91 Av	3.01 / 25.44 / 27.5 / 0.0	28.85	V / 1.00 / 0	-25.15	n/a
1.36 GHz	31.54 Av	3.19 / 25.25 / 27.59 / 0.08	32.47	V / 1.00 / 0	-21.53	n/a
1.375 GHz	29.31 Av	3.21 / 25.24 / 27.6 / 0.39	30.54	V / 1.00 / 0	-23.46	n/a
1.5 GHz	27.41 Av	3.43 / 25.1 / 27.57 / 0.08	28.45	V / 1.00 / 0	-25.55	n/a
1.52 GHz	27.73 Av	3.45 / 25.22 / 27.55 / 0.37	29.22	V / 1.00 / 0	-24.78	n/a
1.625 GHz	28.51 Av	3.54 / 25.88 / 27.59 / 0.0	30.35	V / 1.00 / 0	-23.65	n/a
1.1 GHz	34.97 Av	2.88 / 25.55 / 27.58 / 0.1	35.92	V / 1.00 / 0	-18.08	n/a
1.1 GHz	39.5 Pk	2.88 / 25.55 / 27.58 / 0.1	40.45	V / 1.00 / 0	-13.55*	n/a
1.12 GHz	30.93 Av	2.91 / 25.53 / 27.59 / 0.0	31.77	V / 1.00 / 0	-22.23	n/a
1.21 GHz	29.84 Av	3.02 / 25.42 / 27.5 / 0.0	30.78	V / 1.00 / 0	-23.22	n/a
2688 MHz maxed						
2.688 GHz	28.27 Av	4.47 / 29.18 / 27.56 / 0.4	34.76	V / 1.90 / 201	-19.24	n/a
2.688 GHz	30.4 Pk	4.47 / 29.18 / 27.56 / 0.4	36.89	V / 1.90 / 201	-17.11*	n/a
1100 MHz maxed						
1.1 GHz	44.56 Av	2.88 / 25.55 / 27.58 / 0.1	45.51	V / 1.00 / 222	-8.49	n/a
1.1 GHz	47.85 Pk	2.88 / 25.55 / 27.58 / 0.1	48.8	V / 1.00 / 222	-5.2*	n/a

Tested by: TKS — Thomas K. Swanson

Printed — Signature

Reviewed by: JTS — Joel T. Schneider

Printed — Signature

RADIATED EMISSIONS

Test Report #:	WC500164 Run 9	Test Area:	LTS		
EUT Model #:	DIRECTED AP	Date:	3/17/05		
EUT Serial #:	Unit "A"	EUT Power:	48VDC via p/s	Temperature:	23.0 °C
Test Method:	FCC B			Air Pressure:	99.0 kPa
Customer:	CALAMP			Rel. Humidity:	20.0 %
EUT Description:	WIRELESS ACCESS POINT (802.11A). TRXing BOTH 2.437 AND 5.28 GHz				
Notes:	Radiated emissions in restricted bands.				
Data File Name:	0164.dat			Page:	2 of 4

List of measurements for run #: 9

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC B >1GHz 3m	DELTA2
1120 MHz Maxed						
1.12 GHz	40.45 Av	2.91 / 25.53 / 27.59 / 0.0	41.29	V / 1.00 / 222	-12.71	n/a
1.12 GHz	41.5 Pk	2.91 / 25.53 / 27.59 / 0.0	42.34	V / 1.00 / 222	-11.66*	n/a
1.08 GHz	28.16 Av	2.85 / 25.57 / 27.55 / 0.0	29.03	V / 1.00 / 222	-24.97	n/a
All above frequencies between 1 and 2 GHz still present with transmitter off. Deleting these frequencies from summary.						
No further emissions detected 2 to 4 GHz						
No emissions detected 4 to 5 GHz						
7717 MHz Maxed						
7.718 GHz	43.89 Av	8.22 / 36.73 / 41.18 / 1.32	48.98	H / 1.10 / 85	-5.02	n/a
7.718 GHz	44.5 Pk	8.22 / 36.73 / 41.18 / 1.32	49.59	H / 1.10 / 85	-4.41*	n/a
7.718 GHz	44.39 Av	8.22 / 36.73 / 41.18 / 1.32	49.48	V / 1.30 / 30	-4.52	n/a
7.718 GHz	44.05 Pk	8.22 / 36.73 / 41.18 / 1.32	49.14	V / 1.30 / 30	-4.86*	n/a
No further emissions detected 5 to 8 GHz						
10.1 GHz	45.97 Av	9.75 / 38.05 / 47.43 / 0.6	46.94	V / 1.30 / 30	-7.06	n/a
above emission is NOT in restricted band - will not include in summary						
10.56 GHz	49.08 Av	9.93 / 38.02 / 46.8 / 0.6	50.82	V / 1.30 / 30	-3.18	n/a
above emission is NOT in restricted band – will not include in summary						

Tested by: TKS — Printed; Thomas K. Swanson — Signature

Reviewed by: JTS — Printed; Joel T. Schneider — Signature

RADIATED EMISSIONS

Test Report #:	WC500164 Run 9	Test Area:	LTS			
EUT Model #:	DIRECTED AP	Date:	3/17/05			
EUT Serial #:	Unit "A"	EUT Power:	48VDC via p/s	Temperature:	23.0	°C
Test Method:	FCC B			Air Pressure:	99.0	kPa
Customer:	CALAMP			Rel. Humidity:	20.0	%
EUT Description:	WIRELESS ACCESS POINT (802.11A). TRXing BOTH 2.437 AND 5.28 GHz					
Notes:	Radiated emissions in restricted bands.					
Data File Name:	0164.dat			Page:	3 of 4	

List of measurements for run #: 9

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC B >1GHz 3m	DELTA2
15 GHz Maxed						
15.838 GHz	55.46 Av	12.0 / 37.78 / 45.68 / 0.0	59.56	V / 1.30 / 30	5.56	n/a
Transmitter off						
noise floor						
15.838 GHz	44.95 Pk	12.0 / 37.78 / 45.68 / 0.0	49.05	V / 1.30 / 30	-4.95*	n/a
added 6 dB attenuator						
noise floor						
15.838 GHz	45.55 Pk	12.0 / 37.78 / 45.68 / 0.0	49.65	V / 1.30 / 30	-4.35*	n/a
transmitter on						
15.838 GHz	47.55 Pk	12.0 / 37.78 / 45.68 / 0.0	51.65	V / 1.30 / 30	-2.35*	n/a
with 5 GHz on only						
15.838 GHz	48.6 Pk	12.0 / 37.78 / 45.68 / 0.0	52.7	V / 1.30 / 30	-1.3*	n/a
With 9 dB attenuation						
both transmitters off - noise floor						
15.838 GHz	44.64 Av	12.0 / 37.78 / 45.68 / 0.0	48.74	V / 1.30 / 30	-5.26	n/a
both transmitters back on - spurious emission plus noise floor						
15.838 GHz	45.39 Av	12.0 / 37.78 / 45.68 / 0.0	49.49	V / 1.30 / 30	-4.51	n/a
preamp is overloading						
Noise floor correction factor is 8dB which means spurious emission is 12.5 minus 9 (for atten) = 3.5 dB below limit						
same result for 15.838 GHz as in run #6 with transmitters running separately						
no further emissions detected 18 GHz – 55 GHz.						

Tested by:	TKS	Thomas K. Swanson
	Printed	Signature
Reviewed by:	JTS	Joel T. Schneider
	Printed	Signature

RADIATED EMISSIONS

Test Report #:	WC500164 Run 9	Test Area:	LTS			
EUT Model #:	DIRECTED AP	Date:	3/17/05			
EUT Serial #:	Unit "A"	EUT Power:	48VDC via p/s	Temperature:	23.0	°C
Test Method:	FCC B			Air Pressure:	99.0	kPa
Customer:	CALAMP			Rel. Humidity:	20.0	%
EUT Description:	WIRELESS ACCESS POINT (802.11A). TRXing BOTH 2.437 AND 5.28 GHz					
Notes:	Radiated emissions in restricted bands.					
Data File Name:	0164.dat			Page:	4 of 4	

Measurement summary for limit1: FCC B >1GHz 3m (Av)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC B >1GHz 3m
15.838 GHz	46.39 Av	12.0 / 37.78 / 45.68 / 0.0	50.49	V / 1.30 / 30	-3.51
7.718 GHz	44.39 Av	8.22 / 36.73 / 41.18 / 1.32	49.48	V / 1.30 / 30	-4.52
2.688 GHz	28.27 Av	4.47 / 29.18 / 27.56 / 0.4	34.76	V / 1.90 / 201	-19.24
2.688 GHz	30.4 Pk	4.47 / 29.18 / 27.56 / 0.4	36.89	V / 1.90 / 201	-17.11*
7.718 GHz	44.5 Pk	8.22 / 36.73 / 41.18 / 1.32	49.59	H / 1.10 / 85	-4.41*
15.838 GHz	48.6 Pk	12.0 / 37.78 / 45.68 / 0.0	52.7	V / 1.30 / 30	-1.3*

* Denotes peak measurement compared to average limit.

Tested by:	TKS	Thomas K. Swanson
	Printed	Signature
Reviewed by:	JTS	Joel T. Schneider
	Printed	Signature

Radiated Emissions in Restricted Bands (5 GHz Band Edges)

Specifications:
FCC Specification: Paragraph: 15.247 (c)
IC Specification: RSS-210, 6.2.2(q1)

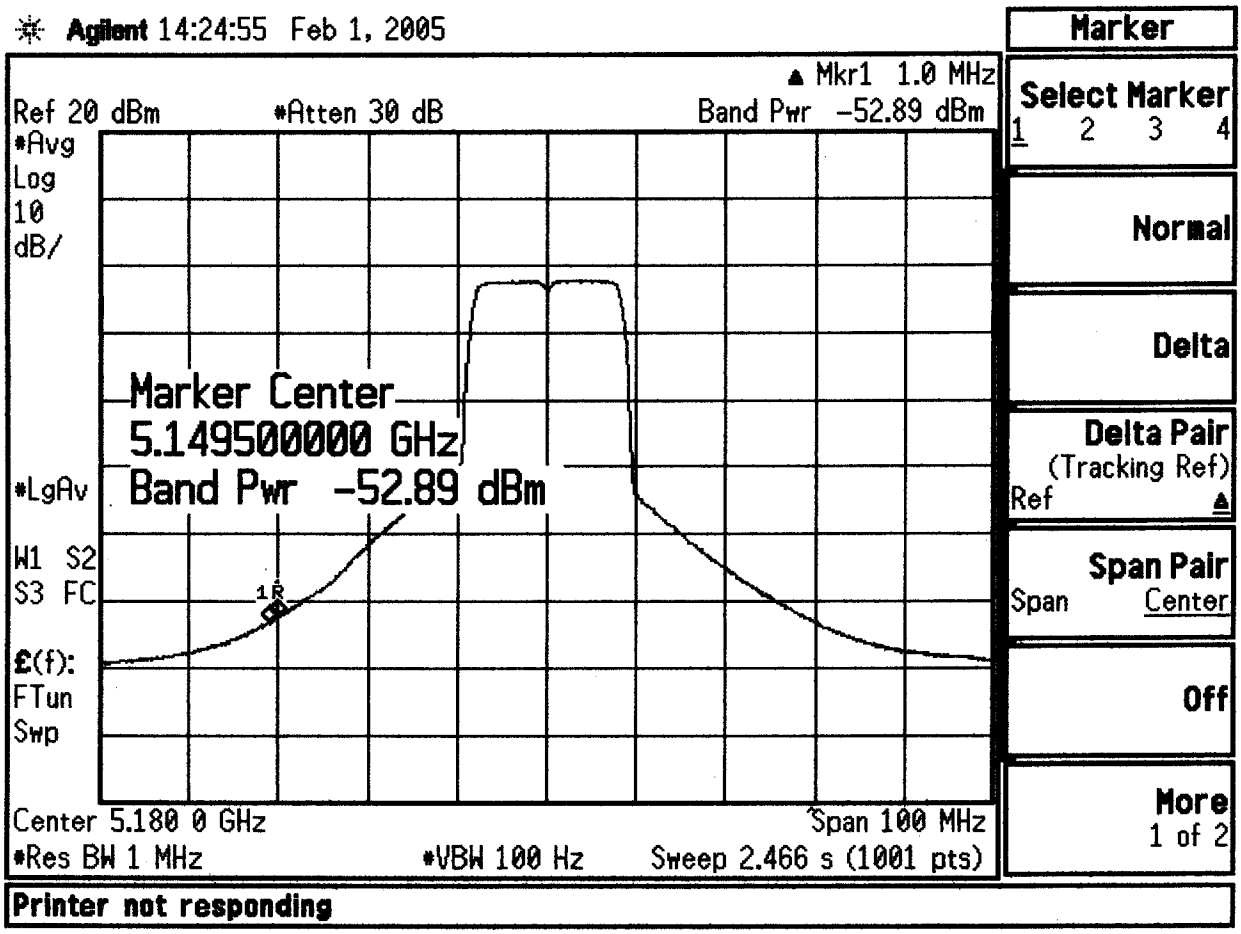
The *Radiated Emissions in Restricted Band* – Band Edge measurements were performed at the following test location:

☐ **- Test not applicable**

☐ - TUV America Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)
☐ - Oakwood Lab (Open Area Test Site)
☐ - Wild River Lab Screen Room
■ - Cal Amp

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0

Restricted Band 4.5 - 5.15 GHz (Band Edge)

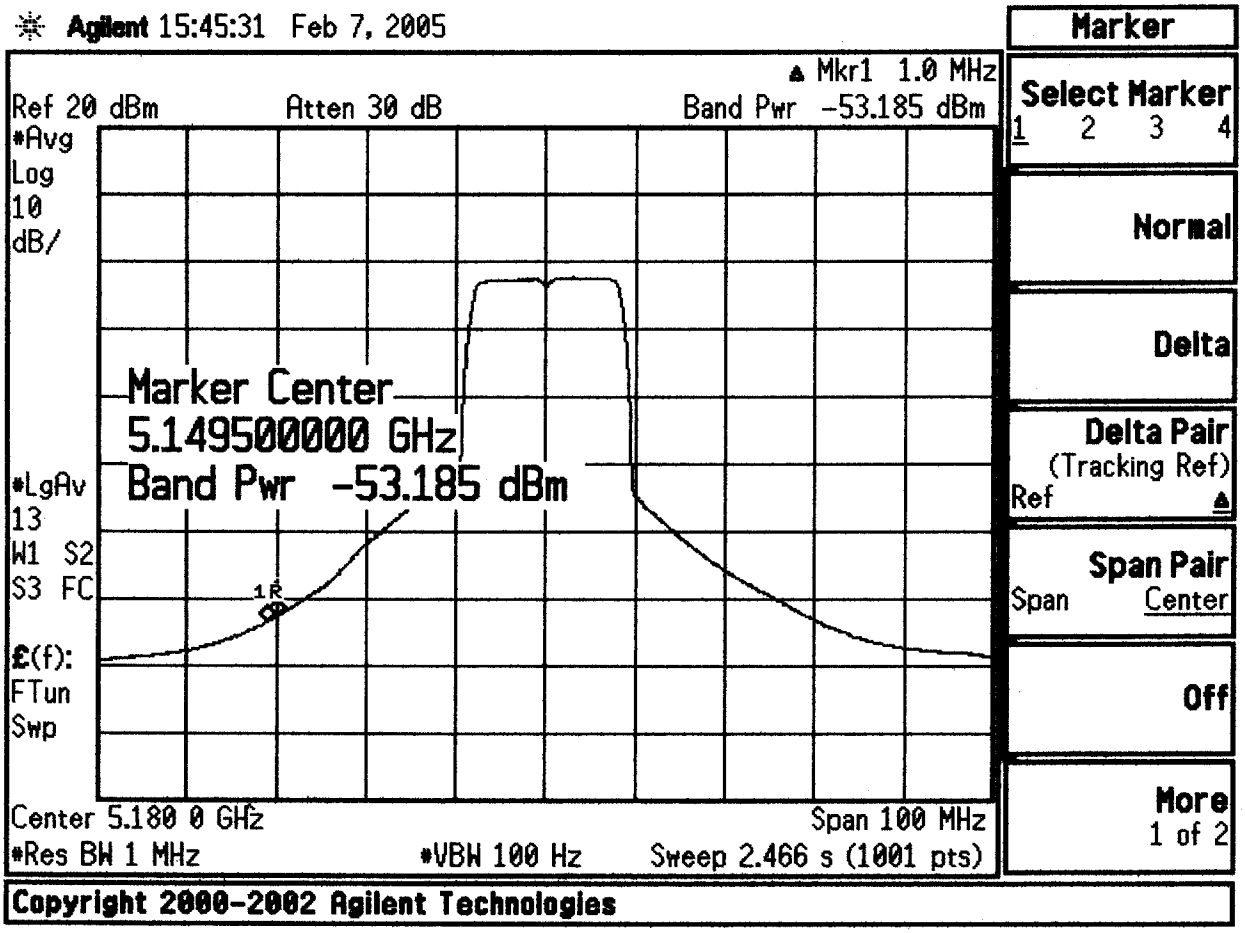


Continuous Tx
CTL 14dBm
54 MBits rate

Limit -41.3 dBm EIRP

Measured = -52.9 + 8dBi = -44.9 dBm EIRP

Restricted Band 4.5 – 5.95 GHz (Band Edge)



Cont Tx.

CTL 14 dBm

6 mBits

500 µV/meter 3 meters

Limit EIRP (dBm) = 20 Log (E(V/m) * r(m)) + 15.2

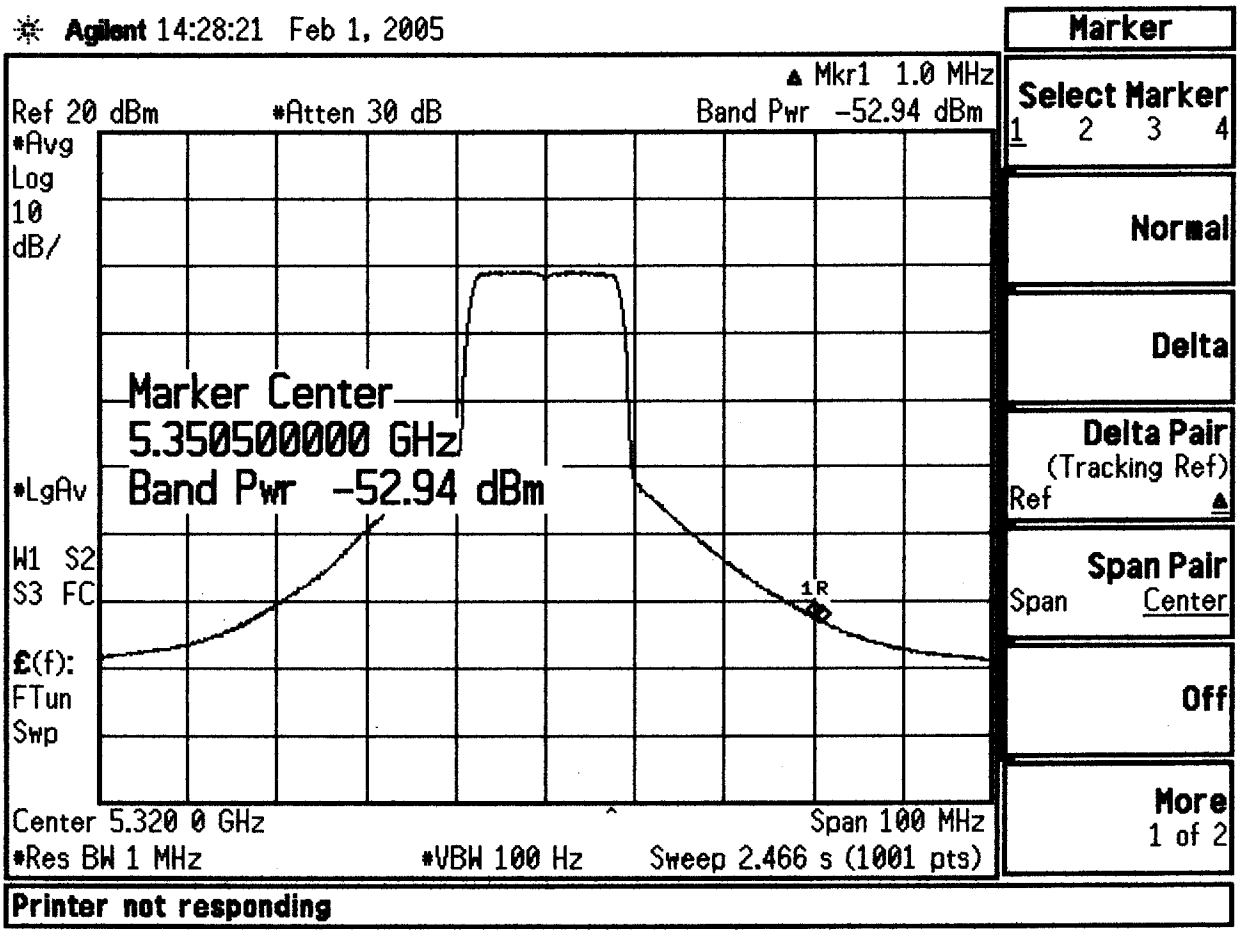
See Atheros Regulatory Compliance Guide page 1-11, Note 1.

Limit EIRP (dBm) = -41.3 dBm EIRP

Measured = -53.2 dBm Conducted.

Calculated EIRP = -53.2 dBm + 8 dBi = -45.2 dBm EIRP

Restricted Band 5.35 - 5.46 GHz

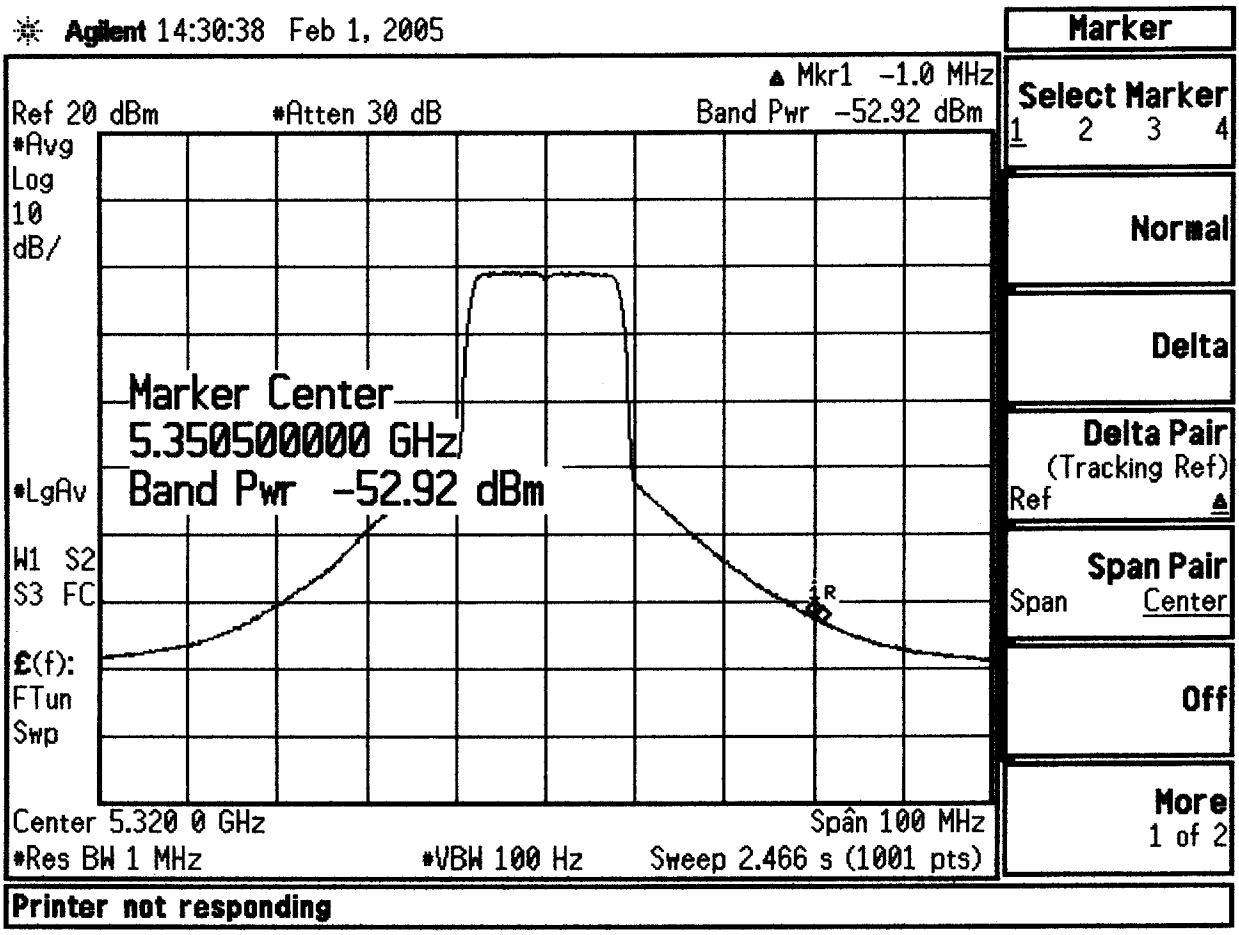


Continuous Tx
CTL 17dBm
6MBit rate

Limit -41.3 dBm EIRP

Measured -52.9 + 8dBi = -44.9 dBm EIRP

Restricted Band 5.35 - 5.46GHz (Band Edge)



Continuous Tx

CTL 17dBm

54 MBit rate

Limit -41.3 dBm EIRP

Measured -52.9 dBm + 8dBi = -44.9 dBm ERIP

AC Line Conducted Emissions

Specifications:
FCC Specification: Paragraph: 15.207
IC Specification: CISPR 22

The *AC Line Conducted Emission* measurements were performed at the following test location:

☐ **- Test not applicable**

■ - TUV America Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)
☐ - Oakwood Lab (Open Area Test Site)
☐ - Wild River Lab Screen Room
☐ - Cal Amp

Test Equipment Used:

	TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
■ -	2416	3825/2	Electro-Mechanics (EMCO)	50 Ω LISN	8812-1437	Code B 05-Jan-06
■ -	3990	3816/2	ETS Lindgren	50 Ω LISN	00035359	Code B 27-May-05
■ -	3800	ESCS 30	Rhode & Schwarz	EMI Receiver	100312	18-Jan-06
■ -	2741	11947A	Hewlett-Packard	Transient Limiter	3107A00779	Code B 07-Dec-05

Cal Code B = Calibration verification performed internally. Cal Code Y = Calibration not required when used with other calibrated equipment.

All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST) and is calibrated annually.

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0

CONDUCTED EMISSIONS

Test Report #:	WC500164 Run 8	Test Area:	LTS		
EUT Model #:	DIRECTED AP	Date:	2/5/05		
EUT Serial #:	Unit "A"	EUT Power:	60 Hz 110 VAC	Temperature:	23.0 °C
Test Method:	FCC B			Air Pressure:	99.0 kPa
Customer:	CALAMP			Rel. Humidity:	20.0 %
EUT Description:	WIRELESS ACCESS POINT TRXing				
Notes:	Bothhand Enterprise Inc. SA06L48-V power supply				
Data File Name:	0164.dat			Page:	1 of 5

List of measurements for run #: 8

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	EUT Lead	DELTA1 EN55022 B Qp	DELTA2 EN55022 B Avg
150.0 kHz	40.84 Qp	0.0 / 0.05 / 0.0 / 10.0	50.89	N	-15.11	n/a
159.21 kHz	49.05 Qp	0.0 / 0.05 / 0.0 / 10.0	59.1	N	-6.41	n/a
234.02 kHz	42.33 Qp	0.0 / 0.04 / 0.0 / 9.9	52.27	N	-10.04	n/a
316.0 kHz	37.16 Qp	0.0 / 0.04 / 0.0 / 9.8	47.0	N	-12.81	n/a
702.22 kHz	30.97 Qp	0.0 / 0.04 / 0.0 / 10.0	41.01	N	-14.99	n/a
936.85 kHz	29.39 Qp	0.0 / 0.04 / 0.0 / 10.0	39.43	N	-16.57	n/a
1.48 MHz	30.95 Qp	0.0 / 0.04 / 0.0 / 10.0	40.99	N	-15.01	n/a
1.95 MHz	29.99 Qp	0.1 / 0.05 / 0.0 / 9.99	40.13	N	-15.87	n/a
2.03 MHz	30.13 Qp	0.1 / 0.05 / 0.0 / 9.94	40.22	N	-15.78	n/a
3.9 MHz	27.38 Qp	0.1 / 0.08 / 0.0 / 10.01	37.57	N	-18.43	n/a
5.07 MHz	32.24 Qp	0.1 / 0.09 / 0.0 / 10.02	42.45	N	-17.55	n/a
7.64 MHz	27.24 Qp	0.18 / 0.1 / 0.0 / 10.02	37.54	N	-22.46	n/a
10.69 MHz	33.74 Qp	0.2 / 0.23 / 0.0 / 10.0	44.17	N	-15.83	n/a
15.92 MHz	35.9 Qp	0.3 / 0.32 / 0.0 / 10.0	46.52	N	-13.48	n/a
19.4 MHz	35.22 Qp	0.3 / 0.39 / 0.0 / 10.04	45.95	N	-14.05	n/a
24.41 MHz	33.81 Qp	0.35 / 0.49 / 0.0 / 10.1	44.75	N	-15.25	n/a
150.0 kHz	25.41 Av	0.0 / 0.05 / 0.0 / 10.0	35.46	N	n/a	-20.54
159.21 kHz	32.52 Av	0.0 / 0.05 / 0.0 / 10.0	42.57	N	n/a	-12.94
234.02 kHz	26.28 Av	0.0 / 0.04 / 0.0 / 9.9	36.22	N	n/a	-16.09
316.0 kHz	23.16 Av	0.0 / 0.04 / 0.0 / 9.8	33.0	N	n/a	-16.81
702.22 kHz	27.78 Av	0.0 / 0.04 / 0.0 / 10.0	37.82	N	n/a	-8.18
936.85 kHz	27.2 Av	0.0 / 0.04 / 0.0 / 10.0	37.24	N	n/a	-8.76
1.48 MHz	28.26 Av	0.0 / 0.04 / 0.0 / 10.0	38.3	N	n/a	-7.7
1.95 MHz	26.28 Av	0.1 / 0.05 / 0.0 / 9.99	36.42	N	n/a	-9.58
2.03 MHz	24.83 Av	0.1 / 0.05 / 0.0 / 9.94	34.92	N	n/a	-11.08
3.9 MHz	22.45 Av	0.1 / 0.08 / 0.0 / 10.01	32.64	N	n/a	-13.36

Tested by: J. T. Schneider

Printed — Signature

Reviewed by: TKS

Printed — Signature

CONDUCTED EMISSIONS

Test Report #:	WC500164 Run 8	Test Area:	LTS		
EUT Model #:	DIRECTED AP	Date:	2/5/05		
EUT Serial #:	Unit "A"	EUT Power:	60 Hz 110 VAC	Temperature:	23.0 °C
Test Method:	FCC B			Air Pressure:	99.0 kPa
Customer:	CALAMP			Rel. Humidity:	20.0 %
EUT Description:	WIRELESS ACCESS POINT TRXing				
Notes:	Bothhand Enterprise Inc. SA06L48-V power supply				
Data File Name:	0164.dat			Page:	2 of 5

List of measurements for run #: 8

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	EUT Lead	DELTA1 EN55022 B Qp	DELTA2 EN55022 B Avg
5.07 MHz	27.47 Av	0.1 / 0.09 / 0.0 / 10.02	37.68	N	n/a	-12.32
7.64 MHz	22.99 Av	0.18 / 0.1 / 0.0 / 10.02	33.29	N	n/a	-16.71
15.92 MHz	14.23 Av	0.3 / 0.32 / 0.0 / 10.0	24.85	N	n/a	-25.15
19.4 MHz	36.01 Av	0.3 / 0.39 / 0.0 / 10.04	46.74	N	n/a	-3.26
24.41 MHz	35.11 Av	0.35 / 0.49 / 0.0 / 10.1	46.05	N	n/a	-3.95
936.85 kHz	30.78 Qp	0.0 / 0.04 / 0.0 / 10.0	40.82	L1	-15.18	n/a

Tested by: J. T. Schneider

Printed — Signature

Reviewed by: TKS

Printed — Signature

CONDUCTED EMISSIONS

Test Report #:	WC500164 Run 8	Test Area:	LTS			
EUT Model #:	DIRECTED AP	Date:	2/5/05			
EUT Serial #:	Unit "A"	EUT Power:	60 Hz 110 VAC	Temperature:	23.0	°C
Test Method:	FCC B			Air Pressure:	99.0	kPa
Customer:	CALAMP			Rel. Humidity:	20.0	%
EUT Description:	WIRELESS ACCESS POINT TRXing					
Notes:	Bothhand Enterprise Inc. SA06L48-V power supply					
Data File Name:	0164.dat			Page:	3 of 5	

Measurement summary for limit1: EN55022 B Qp (Qp)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	EUT Lead	DELTA1 EN55022 B Qp
159.21 kHz	49.05 Qp	0.0 / 0.05 / 0.0 / 10.0	59.1	N	-6.41
234.02 kHz	42.33 Qp	0.0 / 0.04 / 0.0 / 9.9	52.27	N	-10.04
316.0 kHz	37.16 Qp	0.0 / 0.04 / 0.0 / 9.8	47.0	N	-12.81
15.92 MHz	35.9 Qp	0.3 / 0.32 / 0.0 / 10.0	46.52	N	-13.48
19.4 MHz	35.22 Qp	0.3 / 0.39 / 0.0 / 10.04	45.95	N	-14.05
702.22 kHz	30.97 Qp	0.0 / 0.04 / 0.0 / 10.0	41.01	N	-14.99
1.48 MHz	30.95 Qp	0.0 / 0.04 / 0.0 / 10.0	40.99	N	-15.01
150.0 kHz	40.84 Qp	0.0 / 0.05 / 0.0 / 10.0	50.89	N	-15.11
936.85 kHz	30.78 Qp	0.0 / 0.04 / 0.0 / 10.0	40.82	L1	-15.18
24.41 MHz	33.81 Qp	0.35 / 0.49 / 0.0 / 10.1	44.75	N	-15.25
2.03 MHz	30.13 Qp	0.1 / 0.05 / 0.0 / 9.94	40.22	N	-15.78
10.69 MHz	33.74 Qp	0.2 / 0.23 / 0.0 / 10.0	44.17	N	-15.83
1.95 MHz	29.99 Qp	0.1 / 0.05 / 0.0 / 9.99	40.13	N	-15.87
5.07 MHz	32.24 Qp	0.1 / 0.09 / 0.0 / 10.02	42.45	N	-17.55
3.9 MHz	27.38 Qp	0.1 / 0.08 / 0.0 / 10.01	37.57	N	-18.43
7.64 MHz	27.24 Qp	0.18 / 0.1 / 0.0 / 10.02	37.54	N	-22.46

Tested by: J. T. Schneider

Printed — Signature

Reviewed by: TKS

Printed — Signature

CONDUCTED EMISSIONS

Test Report #:	WC500164 Run 8	Test Area:	LTS			
EUT Model #:	DIRECTED AP	Date:	2/5/05			
EUT Serial #:	Unit "A"	EUT Power:	60 Hz 110 VAC	Temperature:	23.0	°C
Test Method:	FCC B			Air Pressure:	99.0	kPa
Customer:	CALAMP			Rel. Humidity:	20.0	%
EUT Description:	WIRELESS ACCESS POINT TRXing					
Notes:	Bothhand Enterprise Inc. SA06L48-V power supply					
Data File Name:	0164.dat			Page:	4 of 5	

Measurement summary for limit2: EN55022 B Avg (Av)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	EUT Lead	DELTA2 EN55022 B Avg
19.4 MHz	36.01 Av	0.3 / 0.39 / 0.0 / 10.04	46.74	N	-3.26
24.41 MHz	35.11 Av	0.35 / 0.49 / 0.0 / 10.1	46.05	N	-3.95
1.48 MHz	28.26 Av	0.0 / 0.04 / 0.0 / 10.0	38.3	N	-7.7
702.22 kHz	27.78 Av	0.0 / 0.04 / 0.0 / 10.0	37.82	N	-8.18
936.85 kHz	27.2 Av	0.0 / 0.04 / 0.0 / 10.0	37.24	N	-8.76
1.95 MHz	26.28 Av	0.1 / 0.05 / 0.0 / 9.99	36.42	N	-9.58
2.03 MHz	24.83 Av	0.1 / 0.05 / 0.0 / 9.94	34.92	N	-11.08
5.07 MHz	27.47 Av	0.1 / 0.09 / 0.0 / 10.02	37.68	N	-12.32
159.21 kHz	32.52 Av	0.0 / 0.05 / 0.0 / 10.0	42.57	N	-12.94
3.9 MHz	22.45 Av	0.1 / 0.08 / 0.0 / 10.01	32.64	N	-13.36
234.02 kHz	26.28 Av	0.0 / 0.04 / 0.0 / 9.9	36.22	N	-16.09
7.64 MHz	22.99 Av	0.18 / 0.1 / 0.0 / 10.02	33.29	N	-16.71
316.0 kHz	23.16 Av	0.0 / 0.04 / 0.0 / 9.8	33.0	N	-16.81
150.0 kHz	25.41 Av	0.0 / 0.05 / 0.0 / 10.0	35.46	N	-20.54
15.92 MHz	14.23 Av	0.3 / 0.32 / 0.0 / 10.0	24.85	N	-25.15

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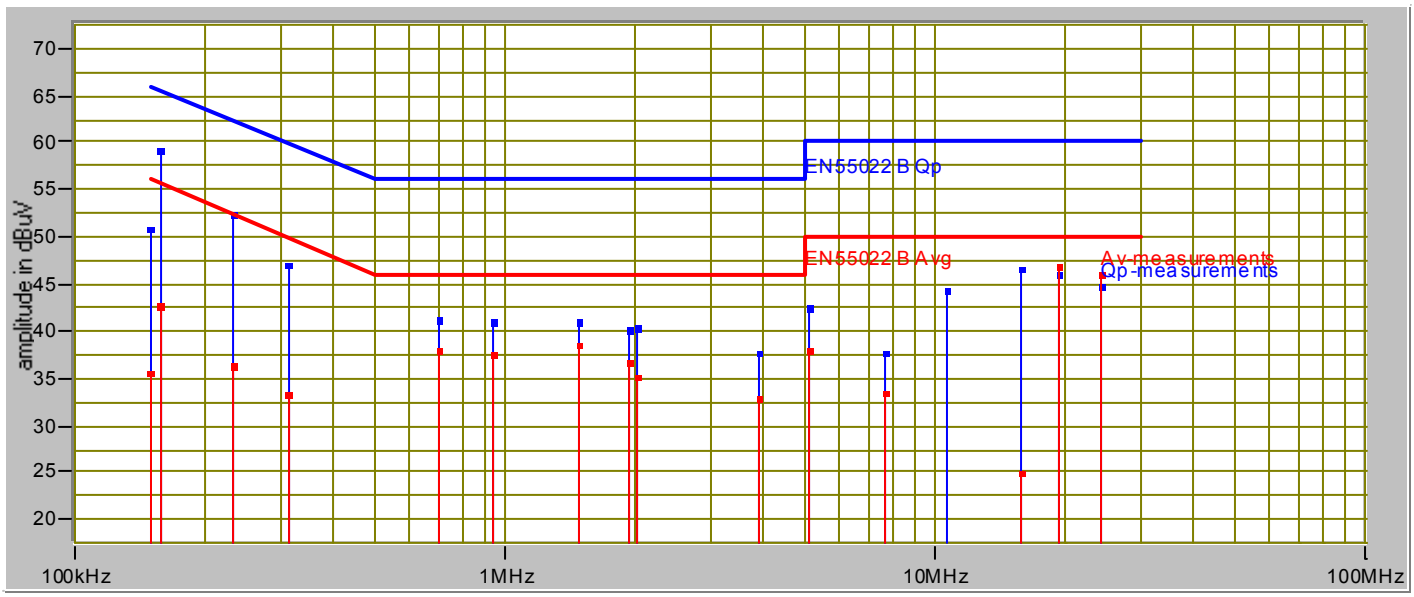
CONDUCTED EMISSIONS

Test Report #:	WC500164 Run 8	Test Area:	LTS		
EUT Model #:	DIRECTED AP	Date:	2/5/05		
EUT Serial #:	Unit "A"	EUT Power:	60 Hz 110 VAC	Temperature:	23.0 °C
Test Method:	FCC B			Air Pressure:	99.0 kPa
Customer:	CALAMP			Rel. Humidity:	20.0 %
EUT Description:	WIRELESS ACCESS POINT TRXing				
Notes:	Bothhand Enterprise Inc. SA06L48-V power supply				
Data File Name:	0164.dat			Page:	5 of 5

Graph:



Tested by: J. T. Schneider

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Reviewed by: TKS

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