



America

EMC TEST REPORT

Test Report File No. : **WC703228 Rev A** Date of issue: 07 September 2007

Model / Serial No(s) Tested : 50001380-01 / 0001

Product Type : Digi Connect Wi-Wave

Applicant : Digi International

Manufacturer : Digi International

License holder : Digi International

Address : 11001 Bren Road E
Minnetonka MN 55343

Test Result : **Positive** **Negative**

Test Project Number
References : WC703228 Rev A

Total pages including
Appendices : 74

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Sign Explanations:

- not applicable
- applicable

R E V I S I O N R E C O R D

REVISION	NUMBER OF PAGES	DATE	DESCRIPTION
	73	31 May 2007	Initial Release
A	74	07 September 2007	Revisions include: <ul style="list-style-type: none"> ▪ Replaced radiated emissions test photo with correct photo showing antennas ▪ Added data for occupied bandwidth per RSS-Gen ▪ Added average limit line to radiated bandedge plots ▪ Radiated emissions data sheet note now includes "(Tx and Rx SIMULTANEOUS - TRANSCEIVER)" ▪ Directory & dates revised accordingly

EMC TEST REGULATIONS:

The tests were performed according to the following regulations :

- EN 50081-1 / 1991
- EN 55014-2: 1997 + Amendment A1: 2001 - Category ___
- EN 55024: 1998 + Amendments A1: 2001 + A2: 2003
- EN 60601-1-2: 2001
- EN 61000-6-1: 2001
- EN 61000-6-2: 2001
- EN 61326: 1997 + Amendments A1: 1998 + A2: 2001 + A3: 2003
- EN 61800-3: 1996 + Amendment A11: 2000
- ETS 300 683: 1997
- ETS 300 683: 1997
- ETSI EN 301 489-3 V1.4.1: 2002
- EN 300 220-3 V1.1.1
- EN 300 330-2 V1.1.1
- FCC Part 15 Subpart C Section 15.207
- FCC Part 15 Subpart C Section 15.209
- FCC Part 15 Subpart C Section 15.247
- FCC Part 15 Subpart C Section 15.249
- IC RSS-210 Issue 6
- IC RSS-Gen Issue 1
- IC RSS-Gen Issue 1

ENVIRONMENTAL CONDITIONS IN THE LAB

	<u>Actual</u>
Temperature:	: 21 °C
Atmospheric pressure	: 98 kPa
Relative Humidity	: 34 %

POWER SUPPLY UTILIZED

Power supply system : 3.3 VDC



America

6 dB Bandwidth

FCC 15.247(a)(2), IC RSS-210 A8.2(1)

Test summary

The requirements are: - MET - NOT MET

The minimum 6 dB bandwidth = 10.75 MHz

Test location

- Wild River Lab Large Test Site (Open Area Test Site)

- Wild River Lab Large Test Site - Tech area

- Wild River Lab Small Test Site (Open Area Test Site)

Test equipment

TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
3367	E4440A	Agilent	Spectrum Analyzer	MY42510439	14 Sep 07
3844	61697		HF cable		Code B

Cal Code B = Calibration verification performed internally.

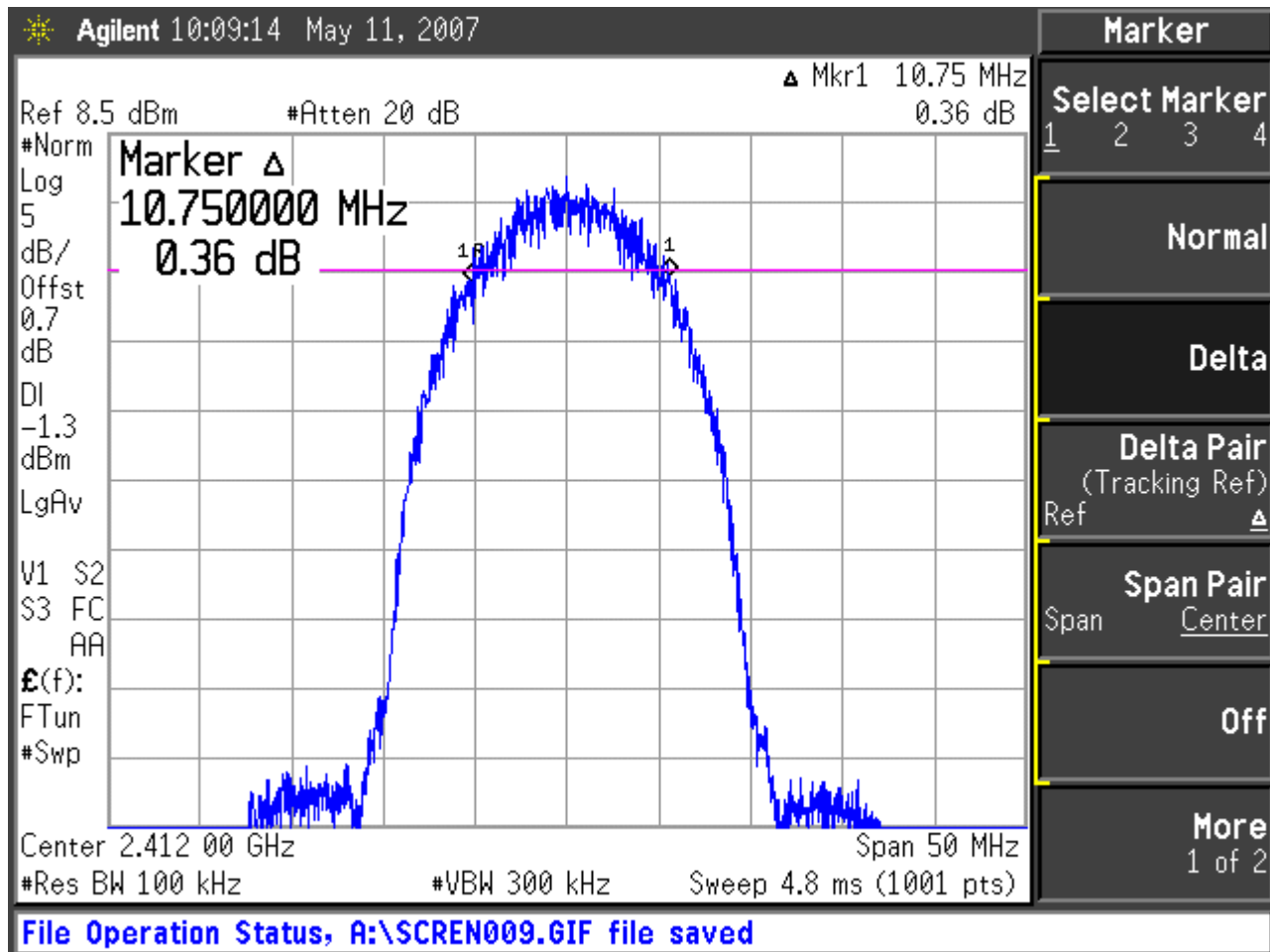
Test limit

Minimum 500 kHz

Test data

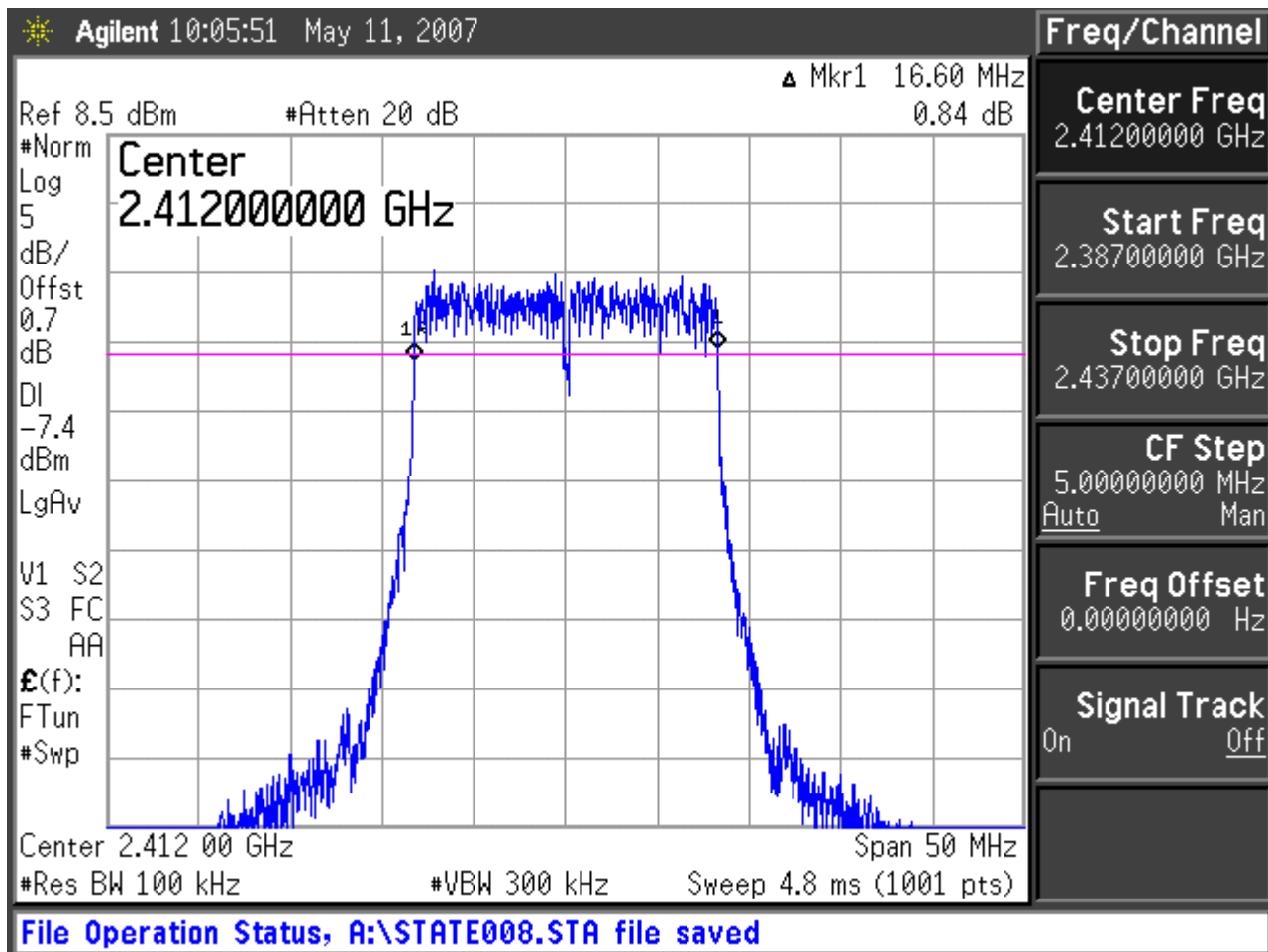
See following pages.

6 dB Bandwidth
channel 1, 11 MB rate



6 dB Bandwidth

channel 1, 54 MB rate



6 dB Bandwidth
channel 6, 11 MB rate

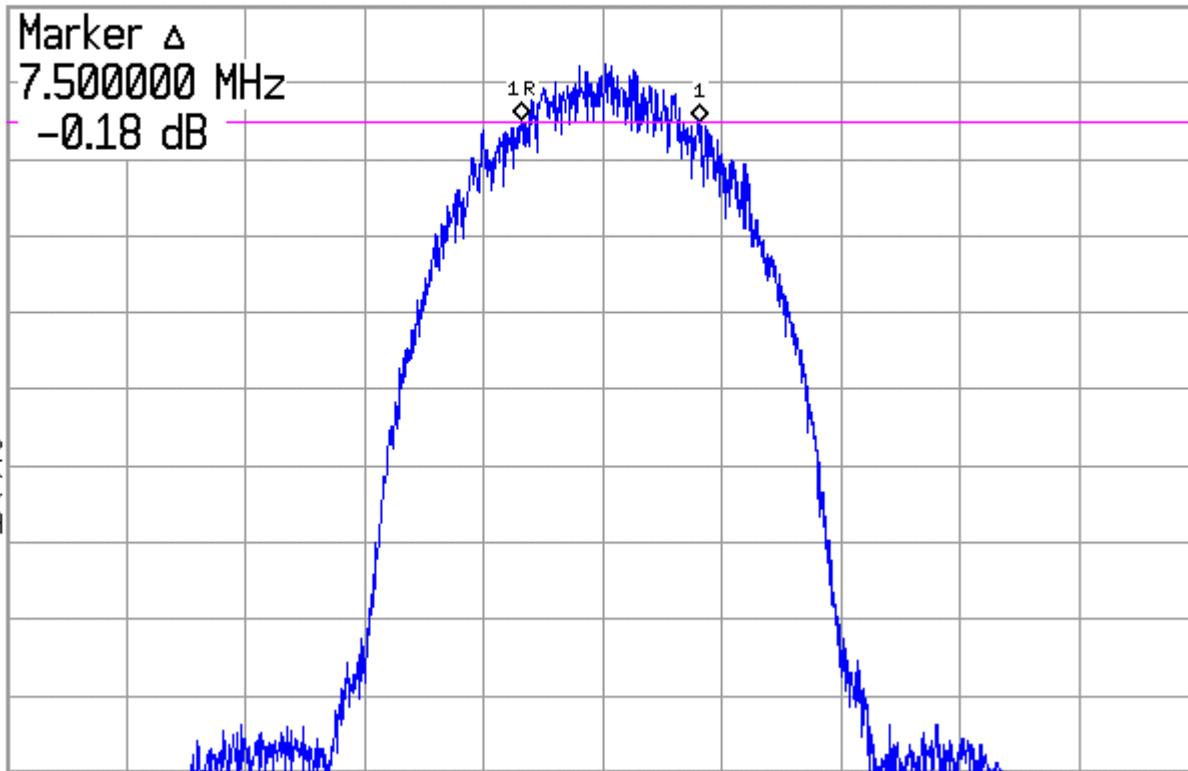
Agilent 10:11:56 May 11, 2007

▲ Mkr1 7.50 MHz
-0.18 dB

Ref 8.5 dBm

#Atten 20 dB

#Norm
Log
5
dB/
Offst
0.7
dB
DI
0.9
dBm
LgAv
V1 S2
S3 FC
AA
£(f):
FTun
#Swp



Center 2.437 00 GHz

Span 50 MHz

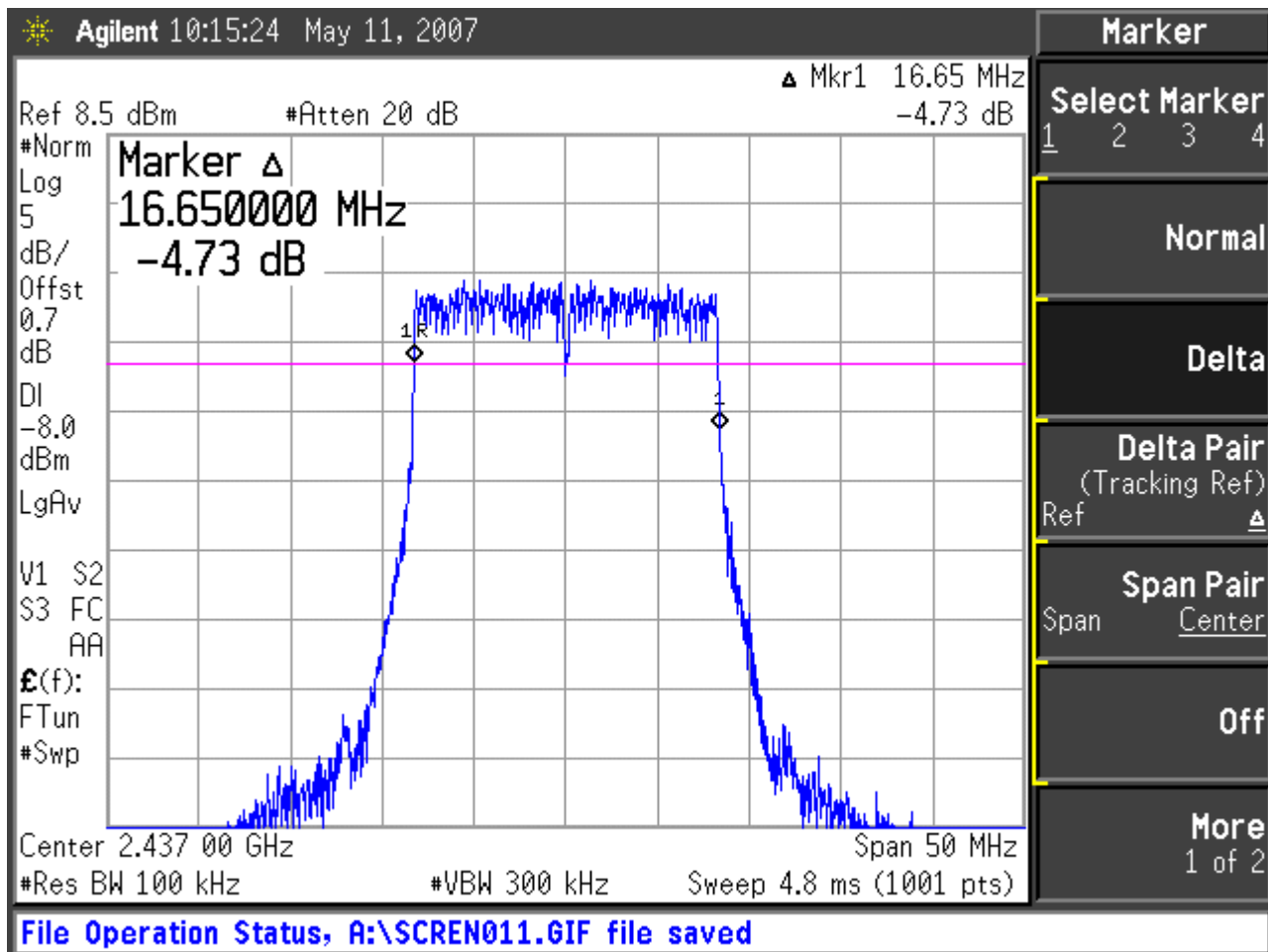
#Res BW 100 kHz

#VBW 300 kHz

Sweep 4.8 ms (1001 pts)

6 dB Bandwidth

channel 6, 54 MB rate



6 dB Bandwidth
channel 11, 11 MB rate

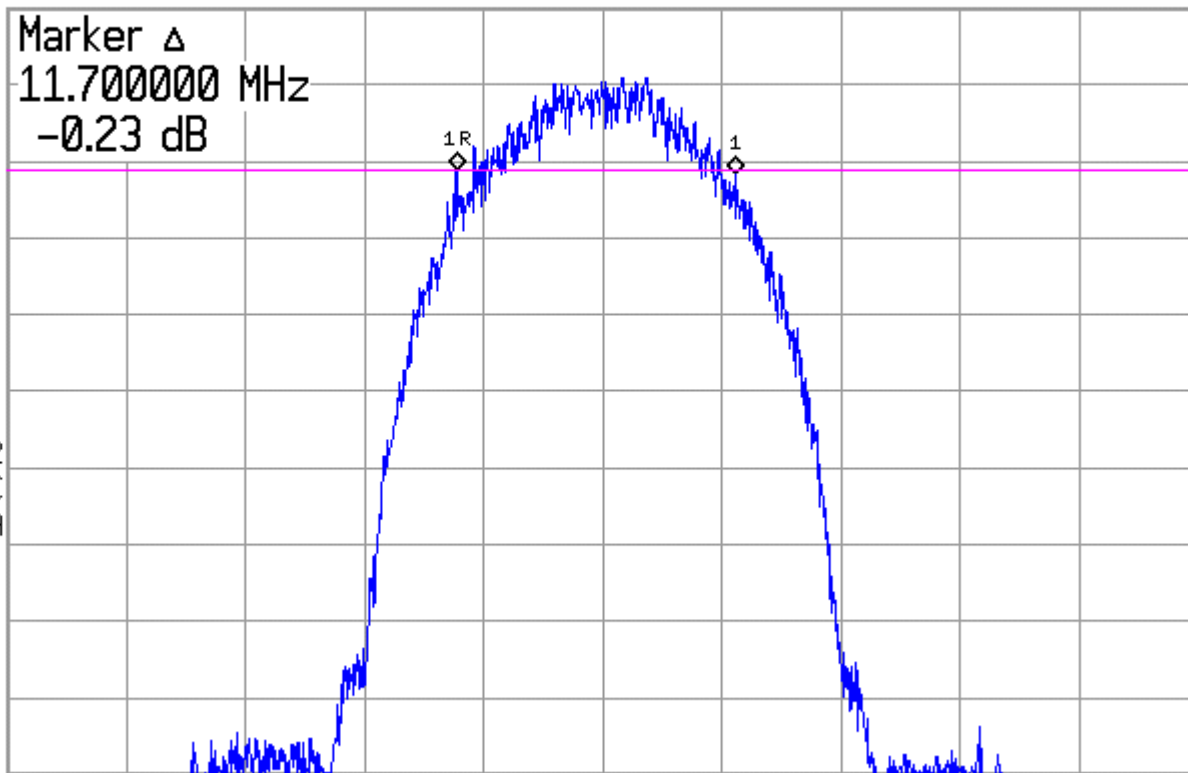
Agilent 10:22:11 May 11, 2007

▲ Mkr1 11.70 MHz
-0.23 dB

Ref 8.5 dBm

#Atten 20 dB

#Norm
Log
5
dB/
Offst
0.7
dB
DI
-2.1
dBm
LgAv
V1 S2
S3 FC
AA
£(f):
FTun
#Swp



Center 2.462 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 4.8 ms (1001 pts)

6 dB Bandwidth

channel 11, 54 MB rate

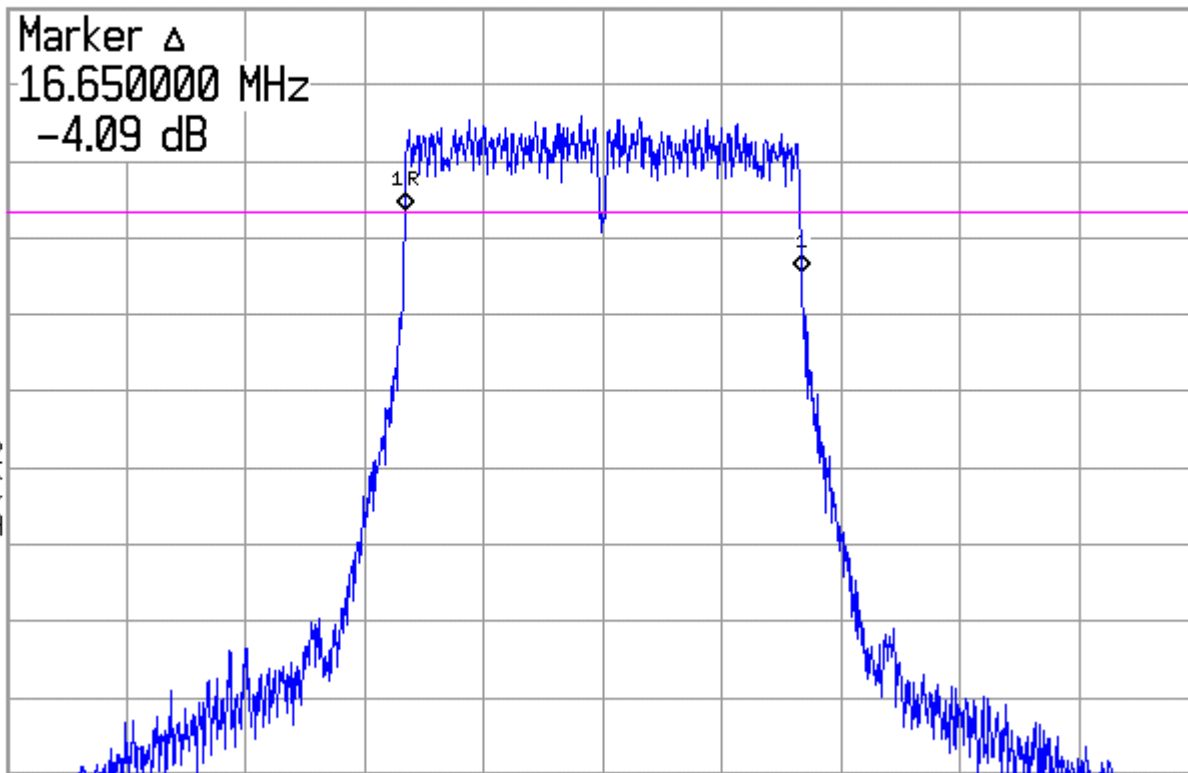
Agilent 10:26:09 May 11, 2007

▲ Mkr1 16.65 MHz
-4.09 dB

Ref 5 dBm

#Atten 20 dB

#Norm
Log
5
dB/
Offst
0.7
dB
DI
-8.3
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
#Swp



Center 2.462 00 GHz

Span 50 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 4.8 ms (1001 pts)



America

Maximum peak output power FCC 15.247(b)(3), IC RSS-210 A8.4(4)

Test summary

The requirements are: - MET - NOT MET
Maximum conducted peak output power is 17.46 dBm, or 56 milliwatts.
Antenna gain < 6 dBi

Test location

- Wild River Lab Large Test Site (Open Area Test Site)
- Wild River Lab Large Test Site - Tech area
- Wild River Lab Small Test Site (Open Area Test Site)

Test equipment

TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
3367	E4440A	Agilent	Spectrum Analyzer	MY42510439	14 Sep 07
3844	61697		HF cable		Code B

Cal Code B = Calibration verification performed internally.

Test limits

1 watt

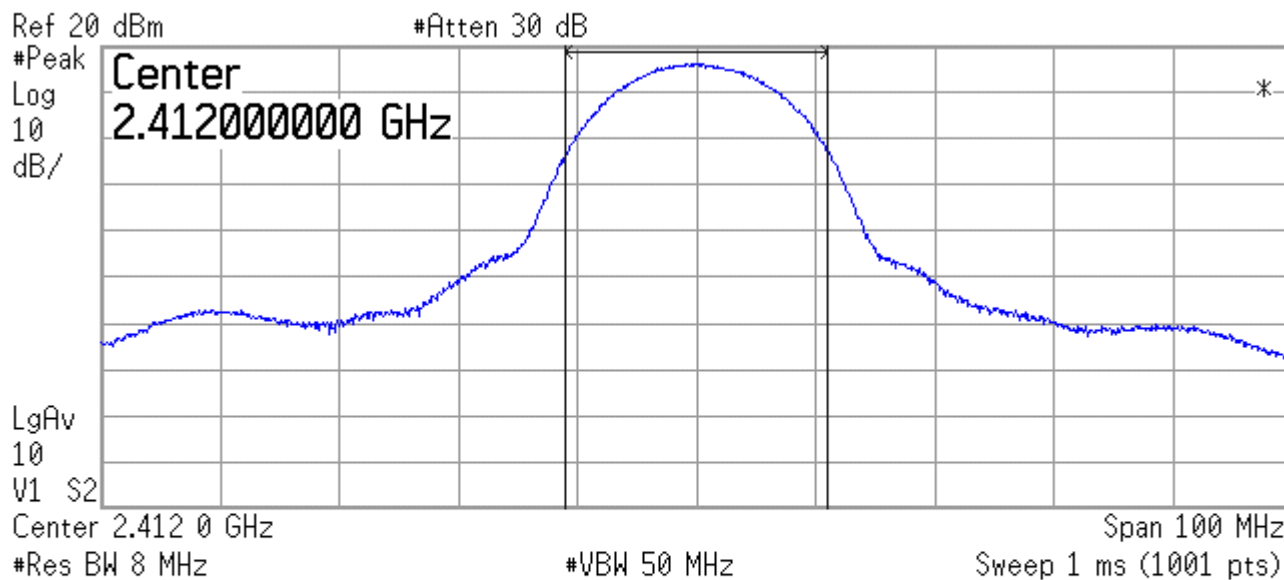
Test data

See following pages.

Maximum peak output power

channel 1, 11 MB rate

Agilent 10:49:58 May 11, 2007



Channel Power

17.46 dBm /22.0000 MHz

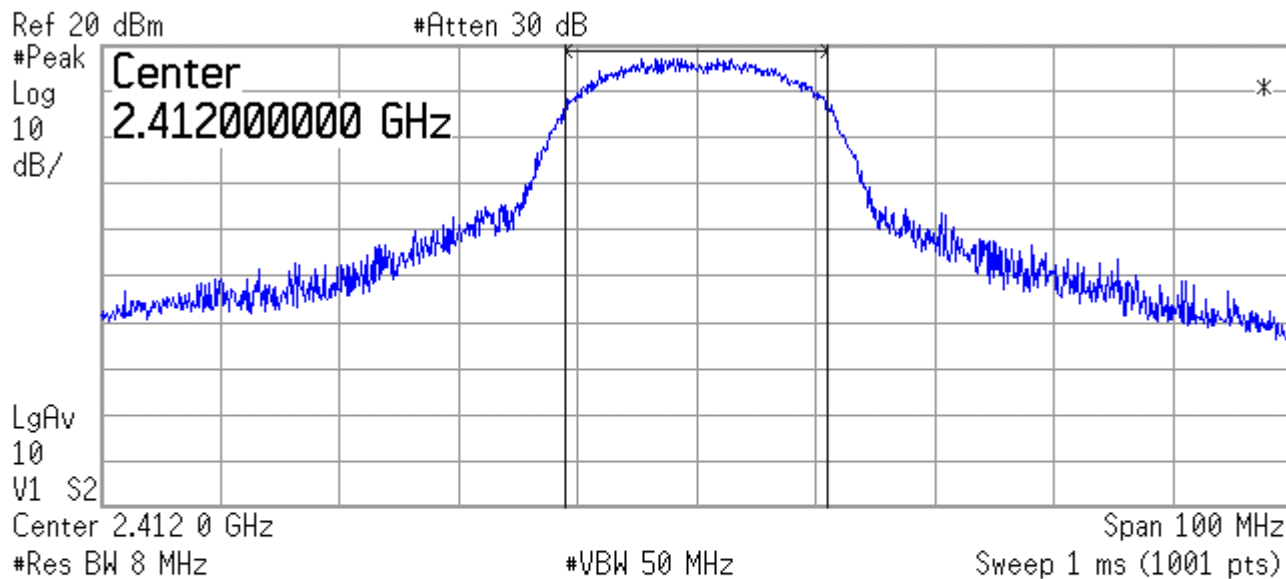
Power Spectral Density

-55.96 dBm/Hz

Maximum peak output power

channel 1, 54 MB rate

Agilent 10:51:58 May 11, 2007



Channel Power

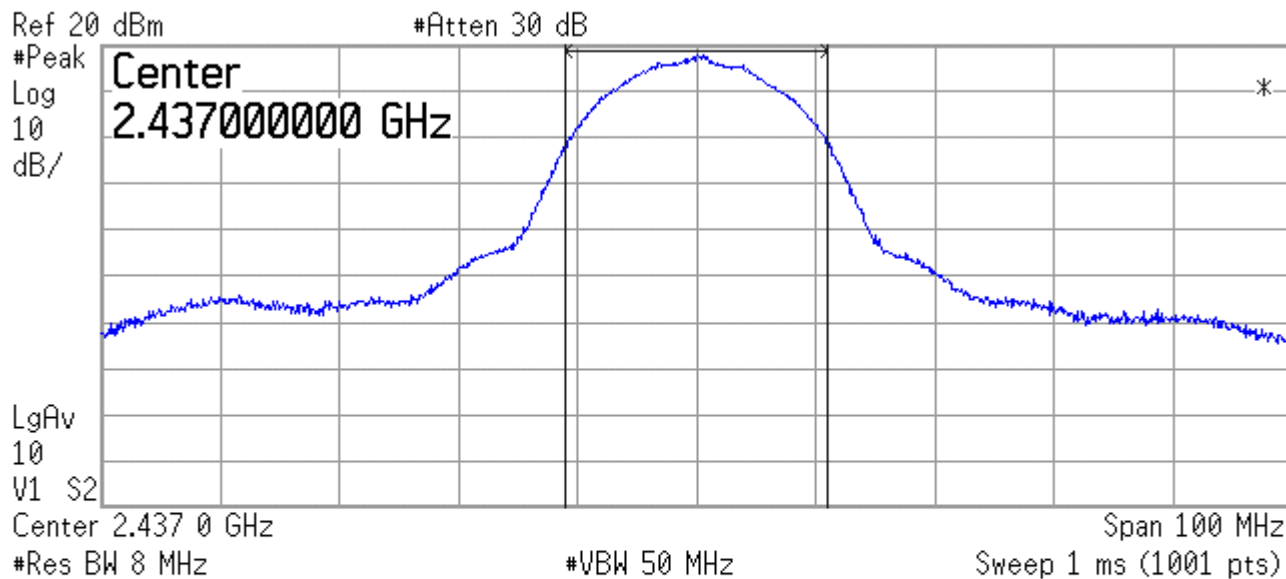
15.31 dBm /22.0000 MHz

Power Spectral Density

-58.12 dBm/Hz

Maximum peak output power
channel 6, 11 MB rate

Agilent 10:55:41 May 11, 2007



Channel Power

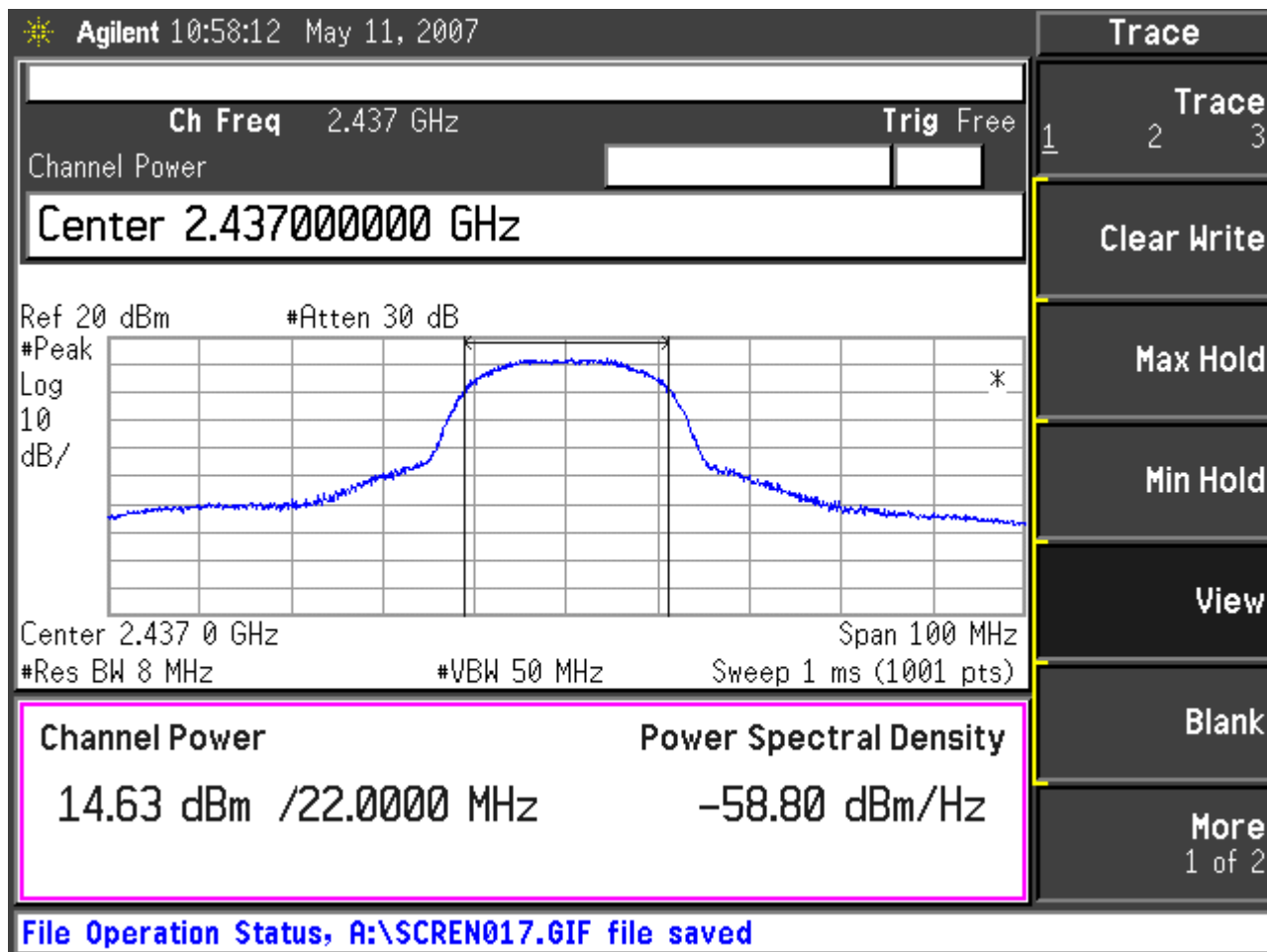
16.83 dBm /22.0000 MHz

Power Spectral Density

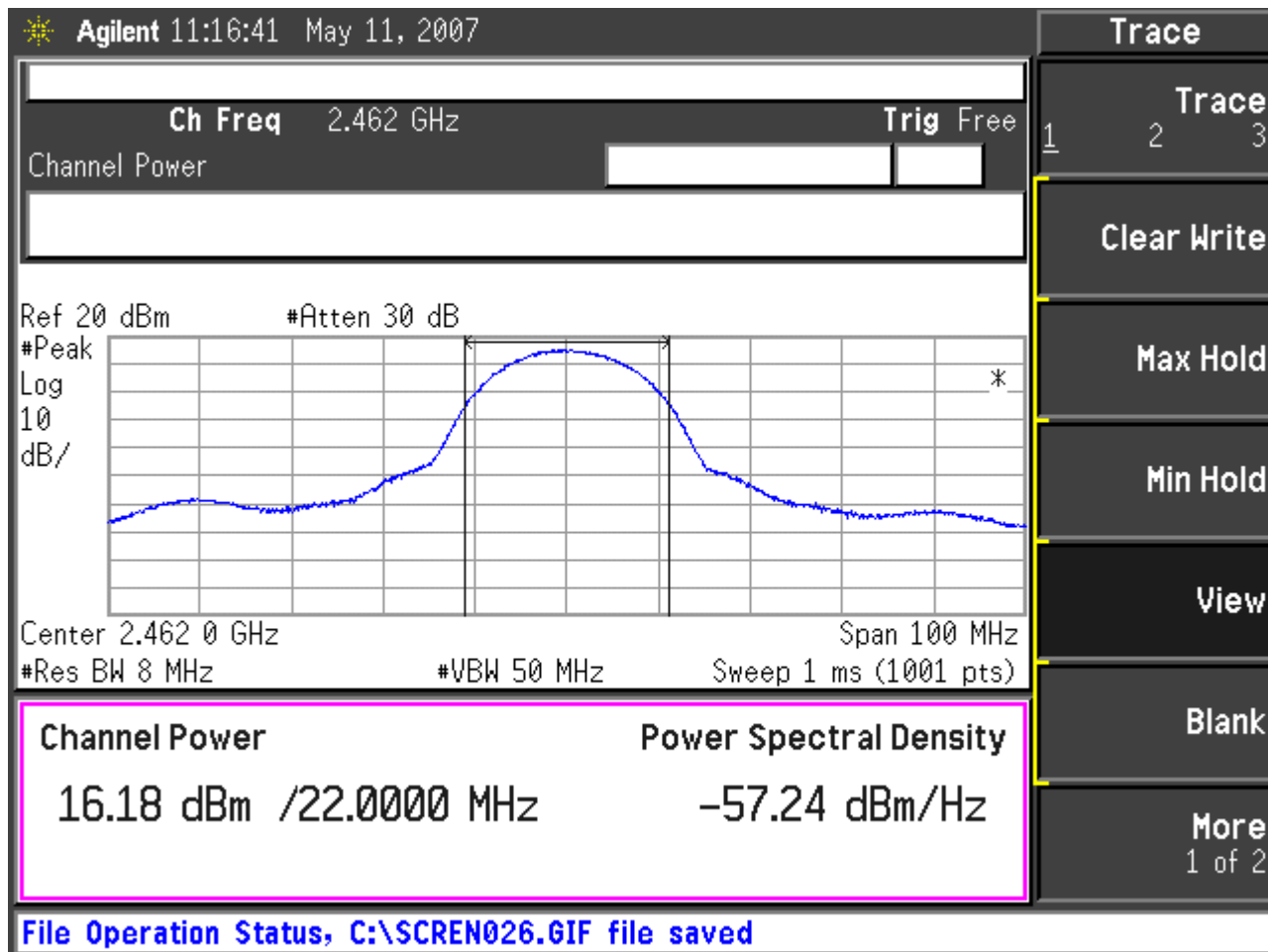
-56.59 dBm/Hz

Maximum peak output power

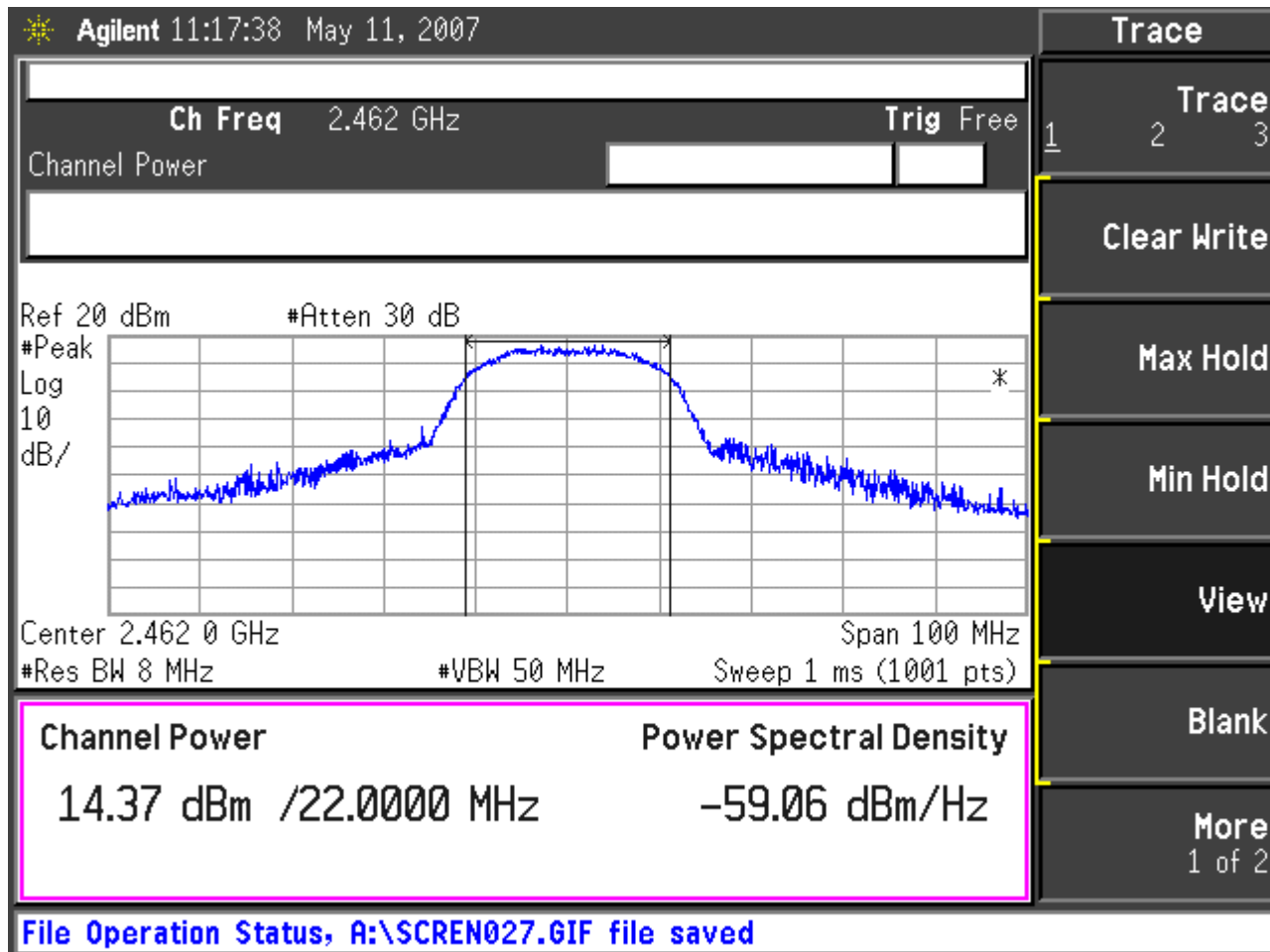
channel 6, 54 MB rate



Maximum peak output power
channel 11, 11 MB rate



Maximum peak output power
channel 11, 54 MB rate



Spurious emissions – Conducted (including band edges) FCC 15.247(d), IC RSS-210 A8.5

Test summary

The requirements are: - MET - NOT MET

Test location

- Wild River Lab Large Test Site (Open Area Test Site)
- Wild River Lab Large Test Site - Tech area
- Wild River Lab Small Test Site (Open Area Test Site)

Test equipment

TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
3367	E4440A	Agilent	Spectrum Analyzer	MY42510439	14 Sep 07
3844	61697		HF cable		Code B

Cal Code B = Calibration verification performed internally.

Test limit

-20 dBc

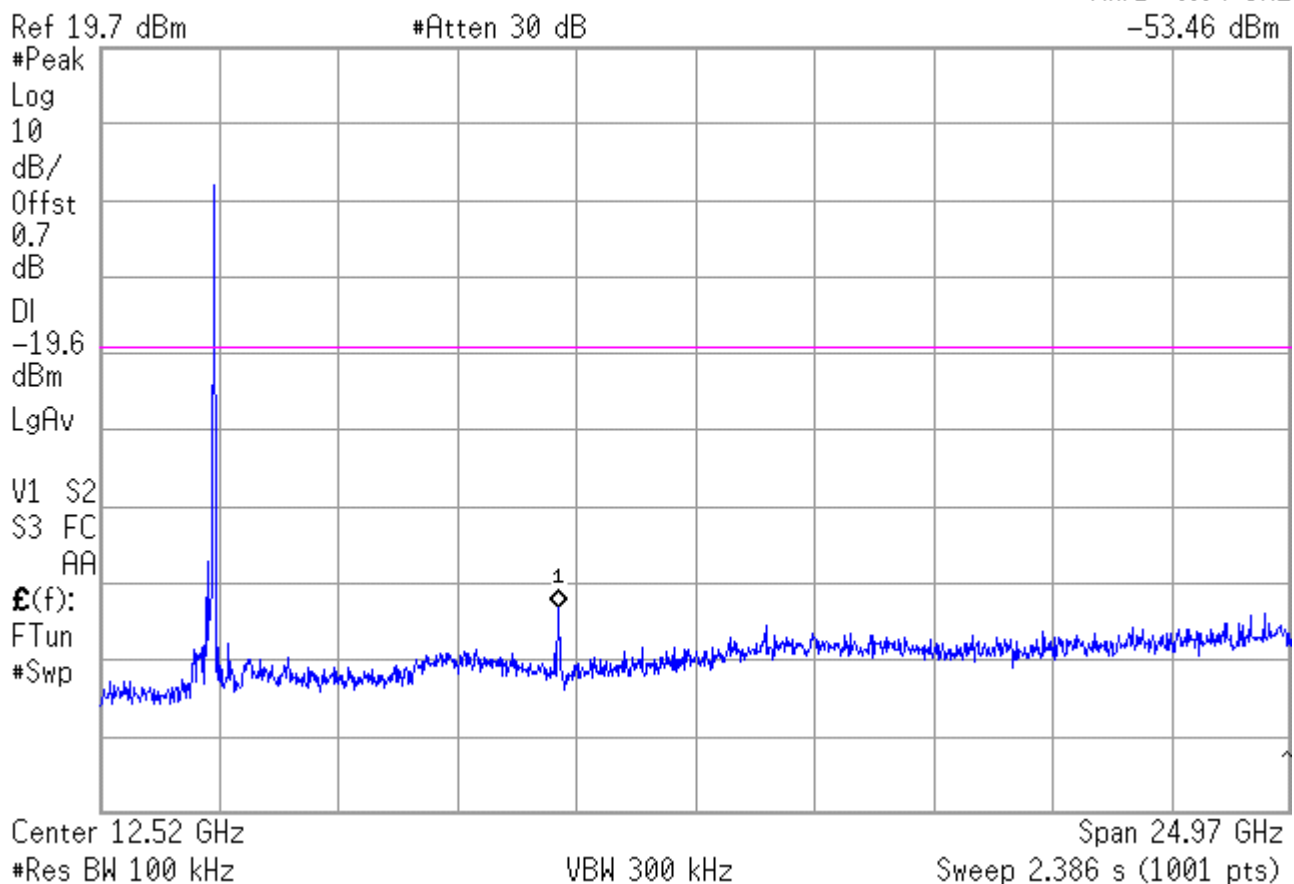
Test data

See following pages.

Spurious emissions
channel 1, 11 MB rate

Agilent 11:27:03 May 11, 2007

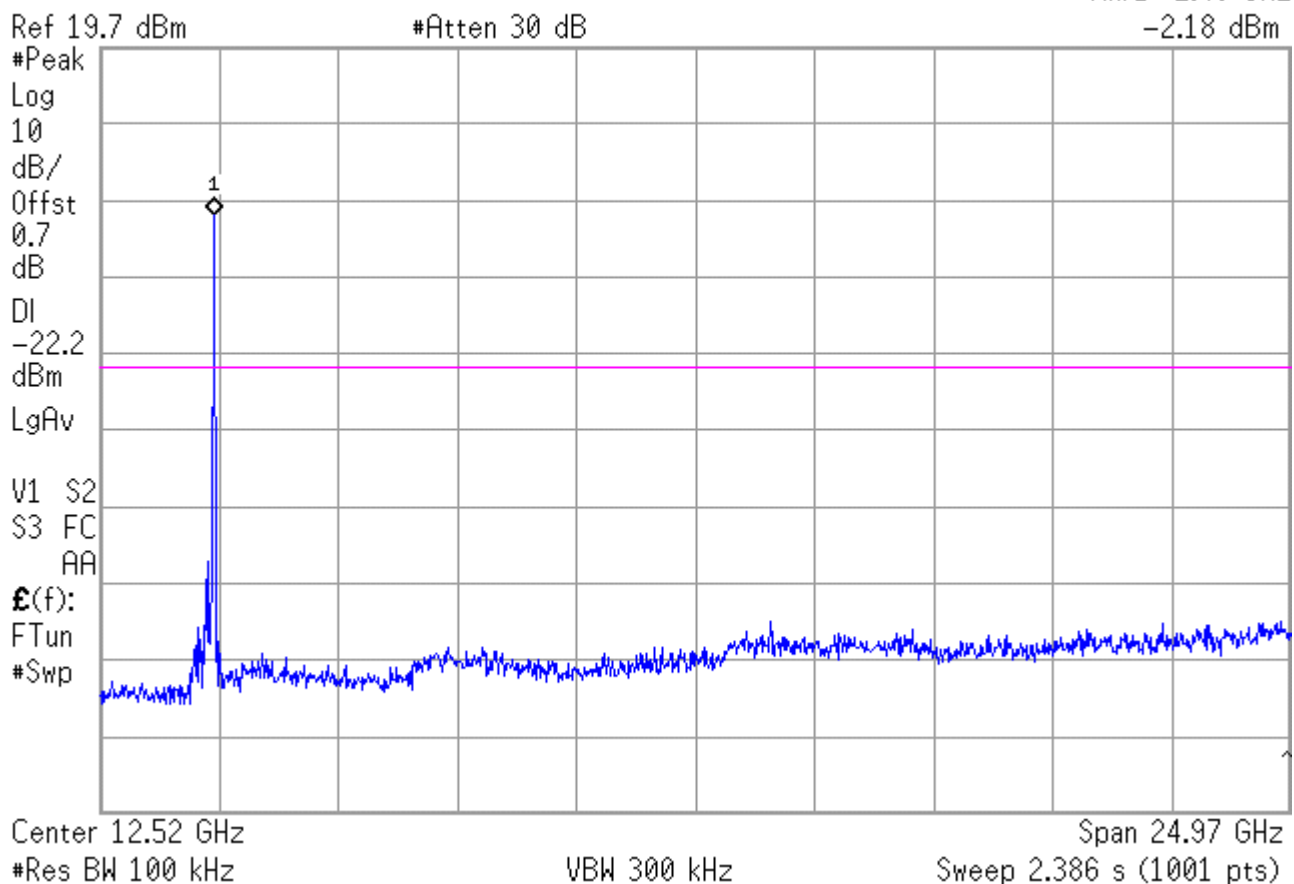
Mkr1 9.64 GHz
-53.46 dBm



Spurious emissions
channel 1, 54 MB rate

Agilent 11:32:15 May 11, 2007

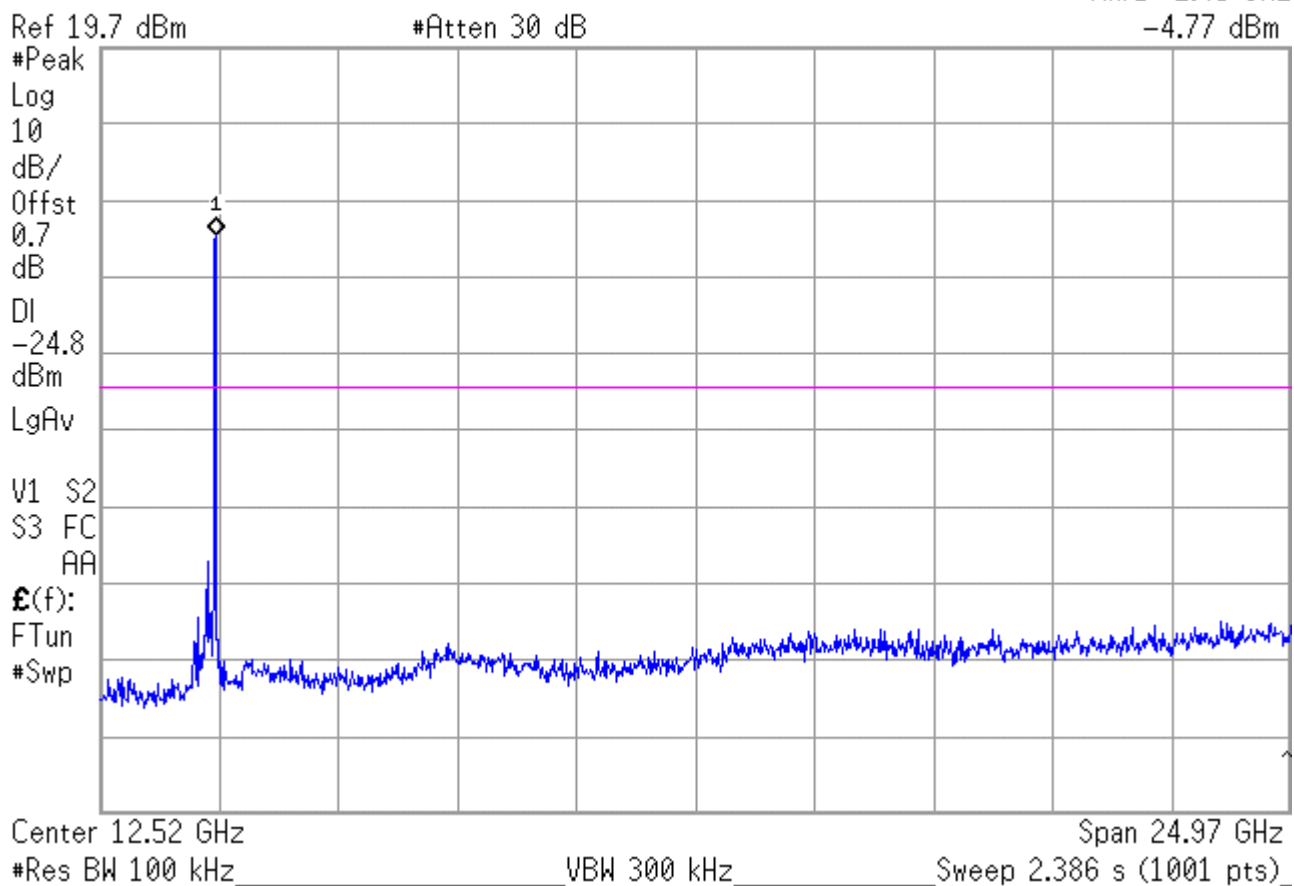
Mkr1 2.40 GHz
-2.18 dBm



Spurious emissions
channel 6, 11 MB rate

Agilent 11:39:29 May 11, 2007

Mkr1 2.45 GHz
-4.77 dBm



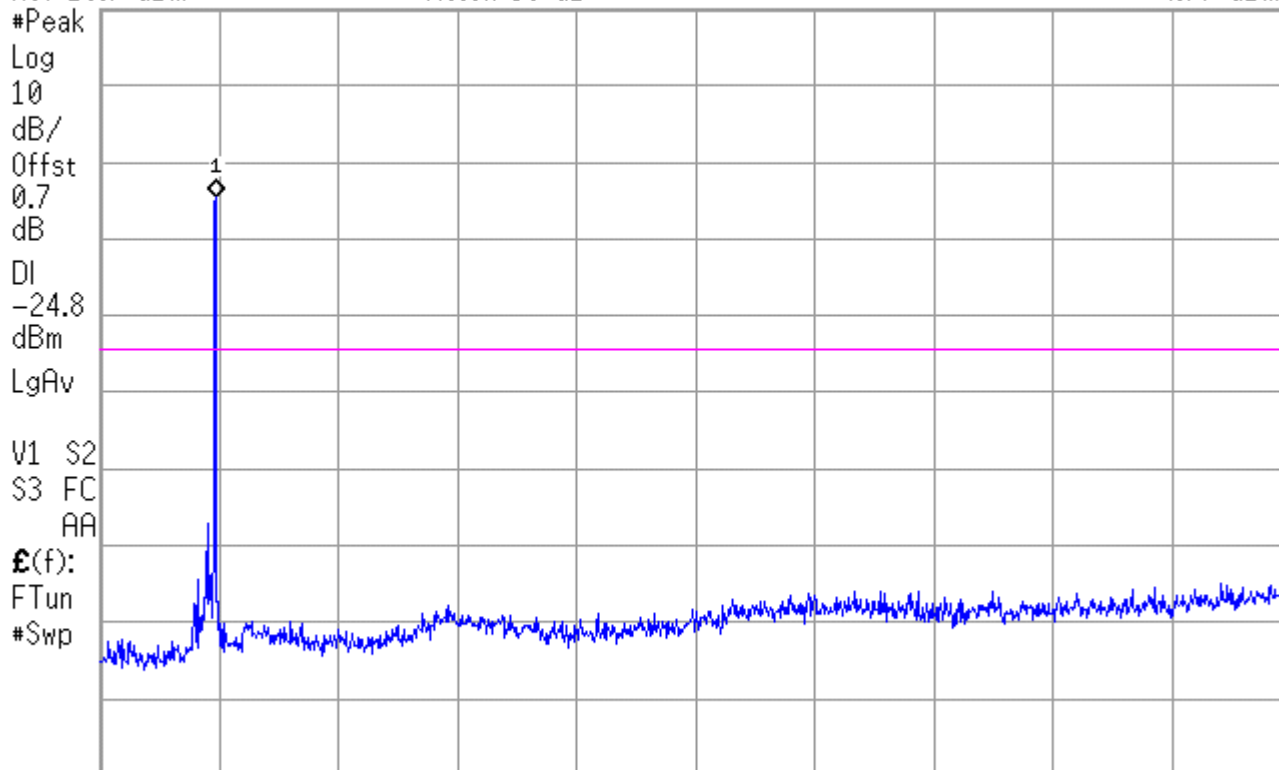
Spurious emissions
channel 6, 54 MB rate

Agilent 11:41:11 May 11, 2007

Mkr1 2.45 GHz
-4.77 dBm

Ref 19.7 dBm

#Atten 30 dB



Center 12.52 GHz

Span 24.97 GHz

#Res BW 100 kHz

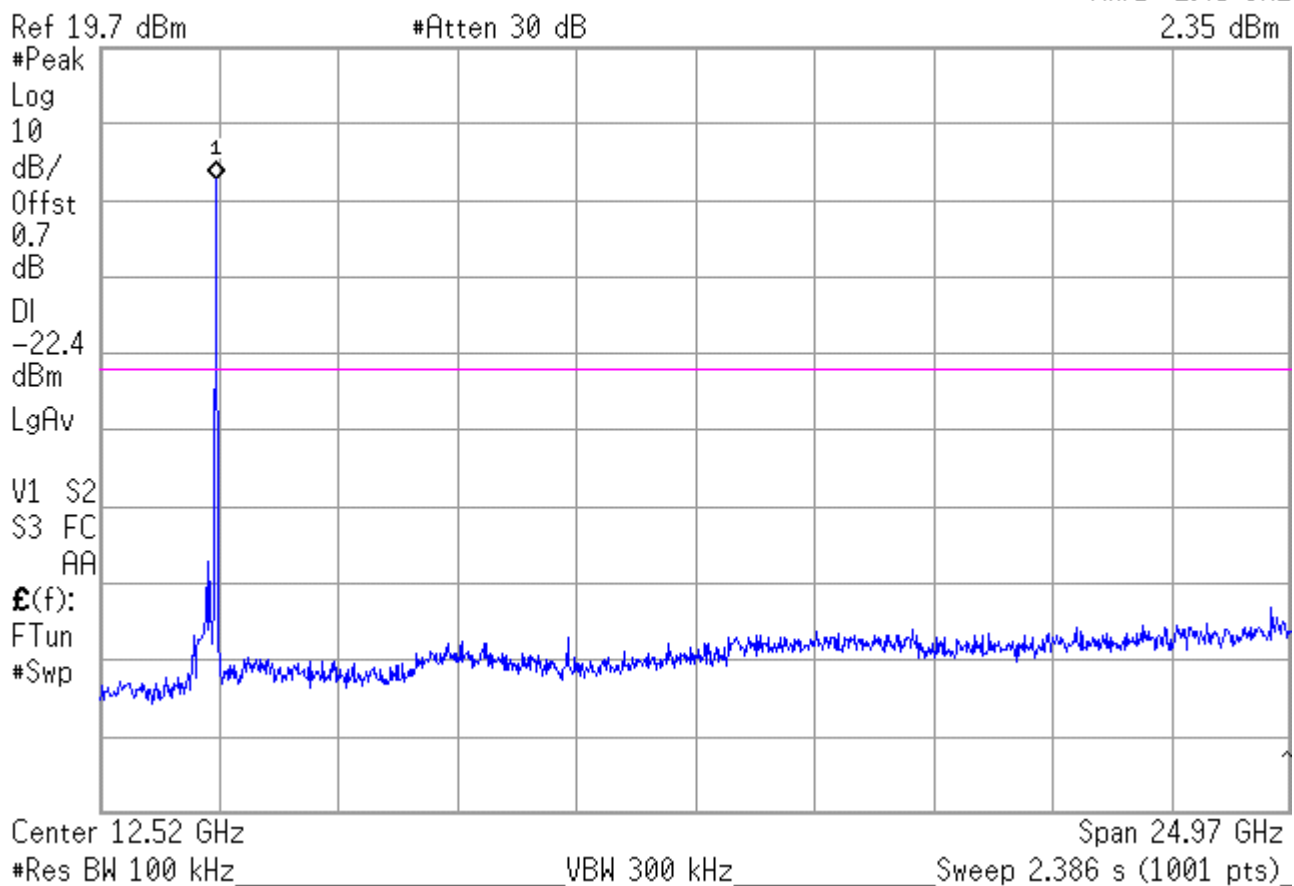
VBW 300 kHz

Sweep 2.386 s (1001 pts)

Spurious emissions
channel 11, 11 MB rate

Agilent 11:48:53 May 11, 2007

Mkr1 2.45 GHz
2.35 dBm



Spurious emissions
channel 11, 54 MB rate

Agilent 11:55:56 May 11, 2007

Mkr1 24.75 GHz
-53.83 dBm

Ref 19.7 dBm

#Atten 30 dB

#Peak

Log

10

dB/

Offst

0.7

dB

DI

-23.8

dBm

LgAv

V1 S2

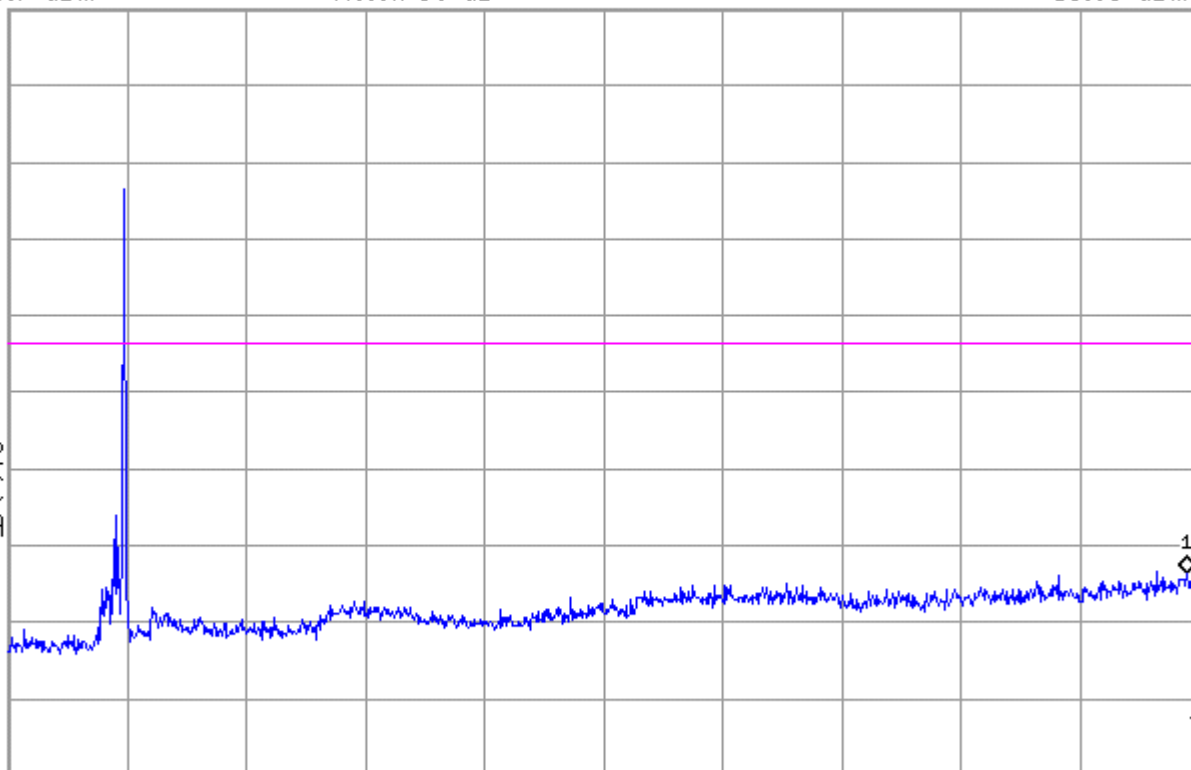
S3 FC

AA

E(f):

FTun

#Swp



Center 12.52 GHz

Span 24.97 GHz

#Res BW 100 kHz

VBW 300 kHz

Sweep 2.386 s (1001 pts)

Spurious emissions - band edge

channel 1, 11 MB rate

Agilent 13:03:40 May 11, 2007

Mkr1 2.397 2 GHz
-37.51 dBm

Ref 19.7 dBm

#Atten 30 dB

#Peak

Log

10

dB/

Offst

0.7

dB

DI

-15.5

dBm

LgAv

V1 S2

S3 FC

AA

f(f):

FTun

#Swp

Marker

2.397200000 GHz

-37.51 dBm

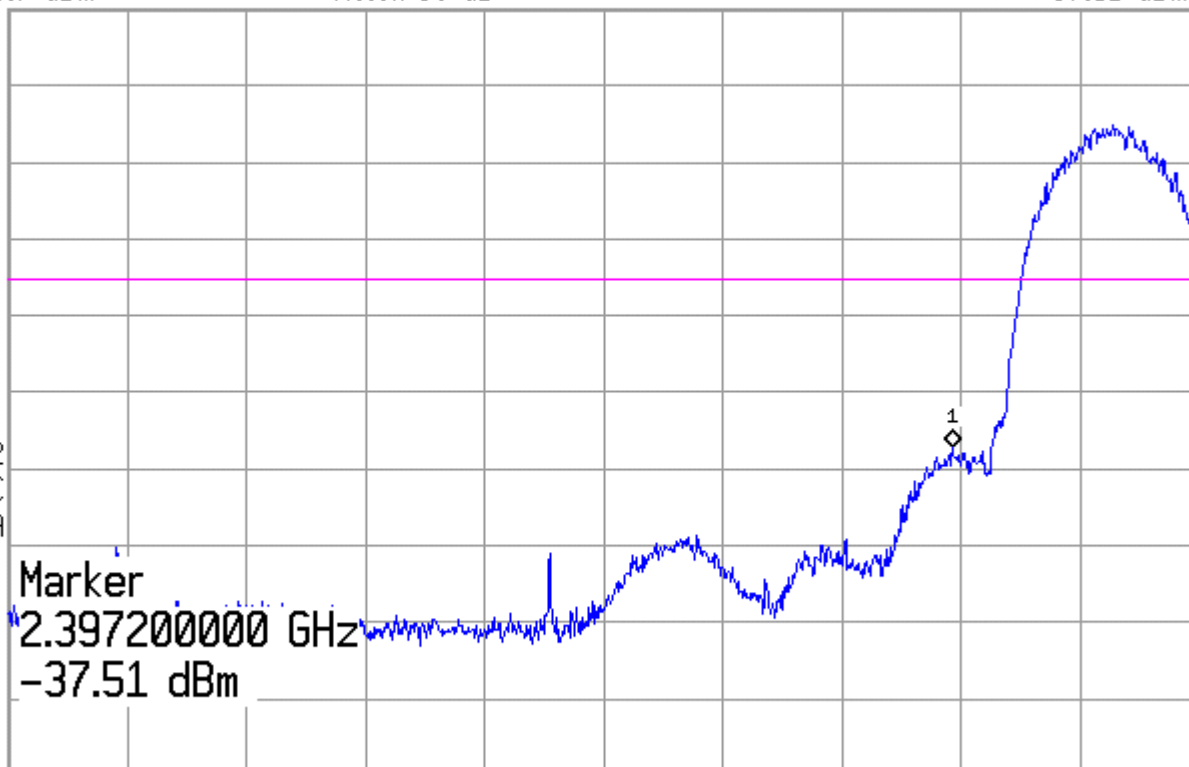
Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 100 kHz

VBW 300 kHz

Sweep 10.53 ms (1001 pts)



Spurious emissions - band edge

channel 1, 54 MB rate

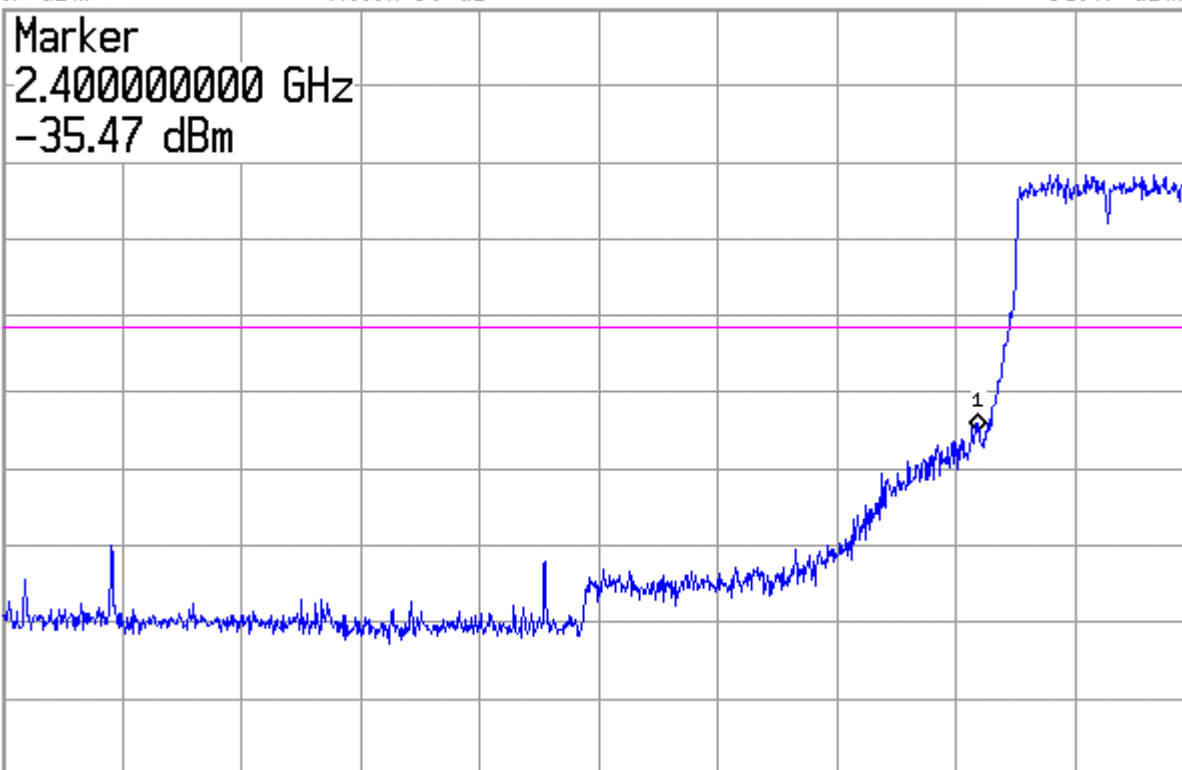
Agilent 13:12:24 May 11, 2007

Mkr1 2.400 0 GHz
-35.47 dBm

Ref 19.7 dBm

#Atten 30 dB

#Peak
Log
10
dB/
Offst
0.7
dB
DI
-21.9
dBm
LgAv
V1 S2
S3 FC
AA
£(f):
FTun
#Swp



Start 2.310 0 GHz

Stop 2.420 0 GHz

#Res BW 100 kHz VBW 300 kHz Sweep 10.53 ms (1001 pts)

Spurious emissions - band edge

channel 11, 11 MB rate

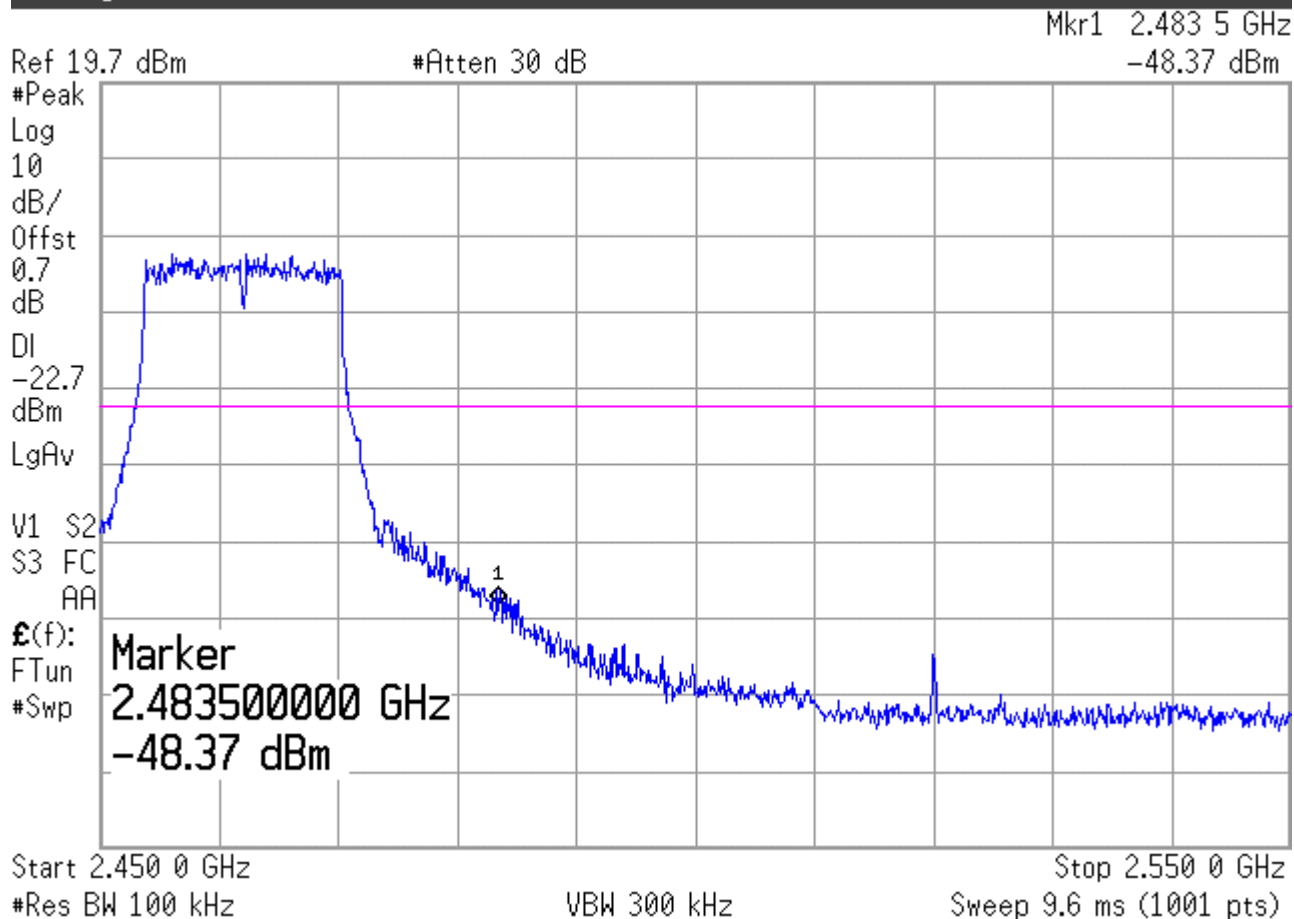
Agilent 13:19:42 May 11, 2007



Spurious emissions - band edge

channel 11, 54 MB rate

Agilent 13:21:39 May 11, 2007



Spurious emissions - Radiated in restricted bands (including band edges) FCC 15.247(d), IC RSS-210 A8.5

Test summary

The requirements are: - MET - NOT MET
Minimum margin of compliance is 2 dB at 575.9 MHz

Test location

- Wild River Lab Large Test Site (Open Area Test Site)
- Wild River Lab Large Test Site - Tech area
- Wild River Lab Small Test Site (Open Area Test Site)

Test distance

- 3 meters
- 10 meters

Test equipment

TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
3203	EM-6917B	Electro-Metrics	Biconicalog Periodic	106	02-May-07
2690	8566B	Hewlett-Packard	Spectrum Analyzer	2430A00930	12 May 07
2673	85662A	Hewlett-Packard	Analyzer Display	2152A03687	12 May 07
2684	85650A	Hewlett-Packard	Quasi-Peak Adapter	2521A01006	15 Mar 07
3229	3115	Electro-Mechanics (EMCO)	Ridge Guide Antenna	2483	17-May-07
3958	SL18B4020	Phase One Microwave	Preamplifier 1 – 18 GHz	0002	Code B
3847	ZHL-1042J	Mini-Circuits	Preamplifier 10 - 3000 MHz	0607	Code B
3371	E4440A	Agilent	Spectrum Analyzer	MY43362222	29 Nov 07
6717	3116	EMCO	RidgeGuideAnt 18-40 GHz	2005	05 Oct 07

Cal Code B = Calibration verification performed internally.

Test limit (in restricted bands)

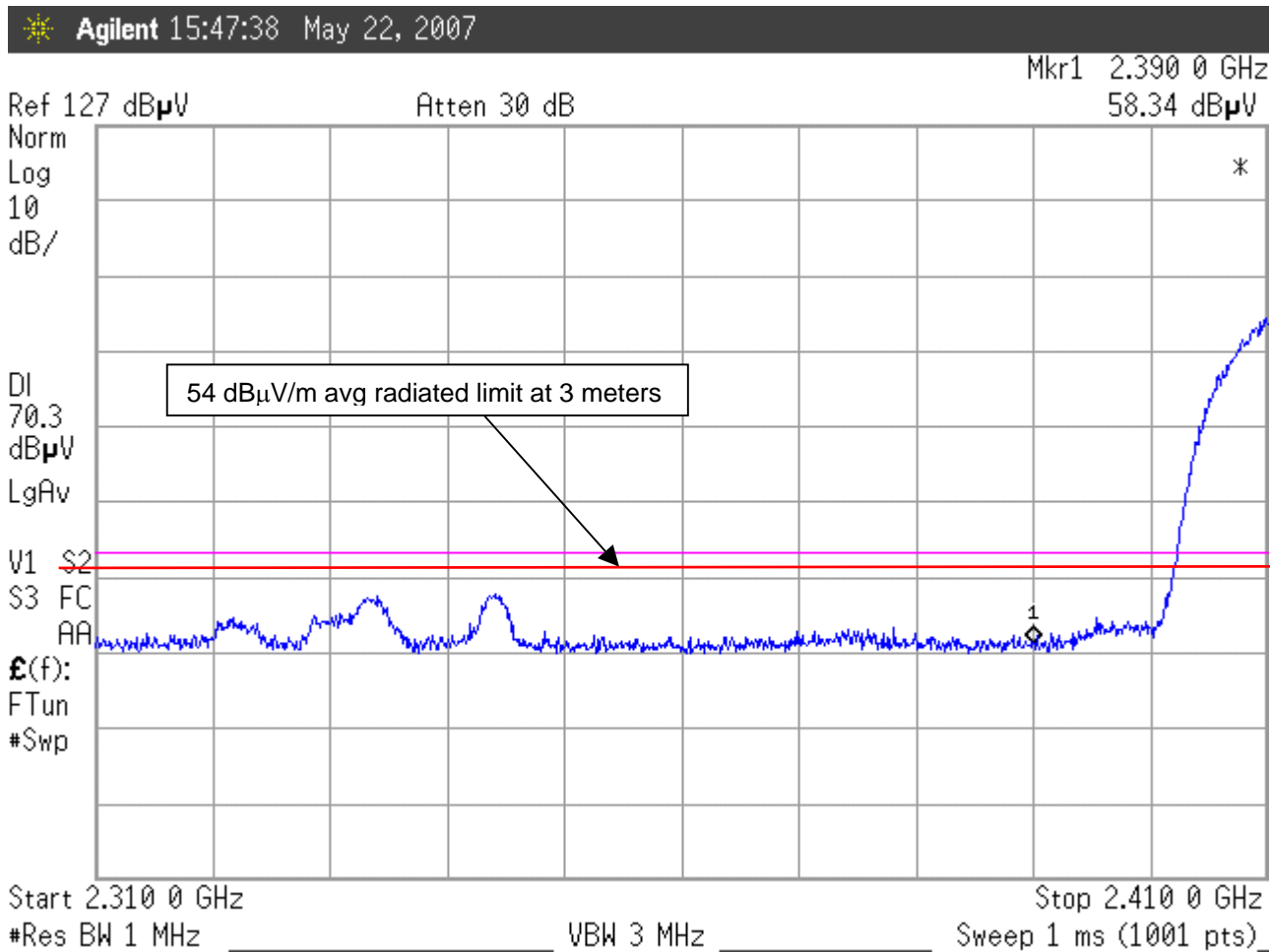
Frequency (MHz)	Field strength (μ V/meter)	Field strength (dB μ V/meter)
30 - 88	100 – QP	40.0
88 - 216	150 – QP	43.5
216 - 960	200 – QP	46.0
960-1000	500 – QP	54.0
>1000	500 – AV	54.0
	5000 – PK	74.0

Test data

See following pages – measurements made with 5 dBi gain antenna installed.

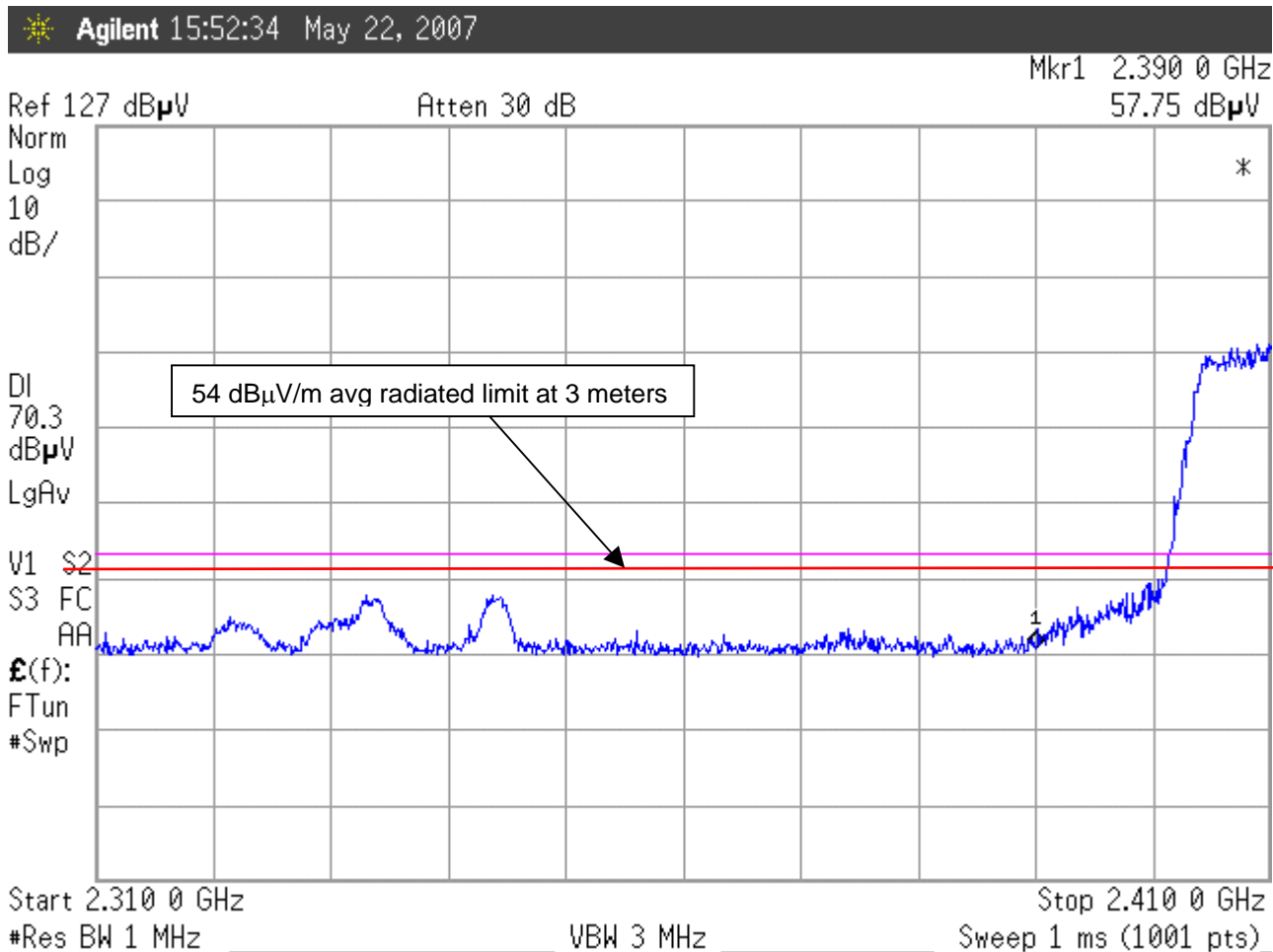
Spurious emissions - band edge

channel 1, 11 MB rate



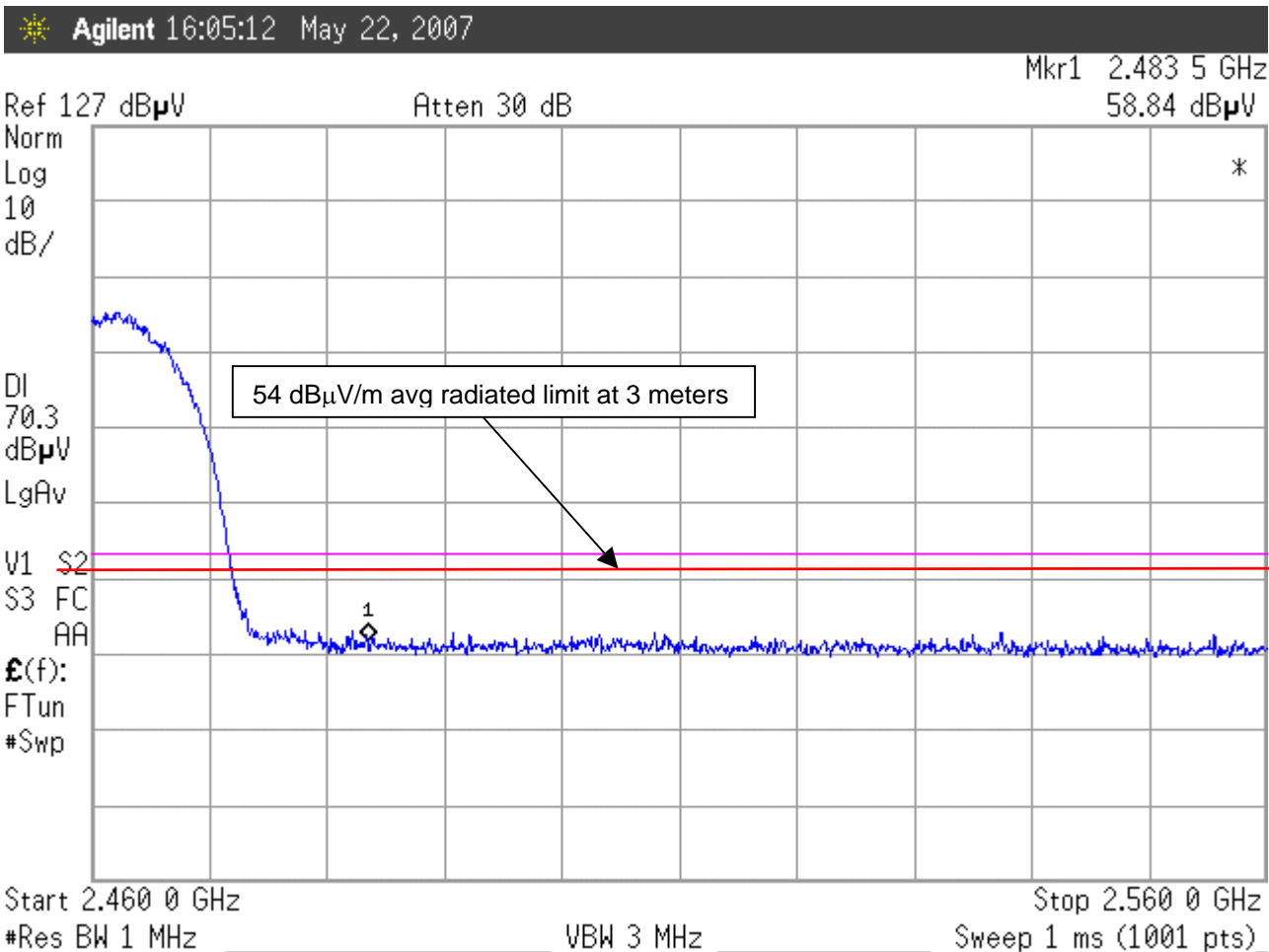
Spurious emissions - band edge

channel 1, 54 MB rate



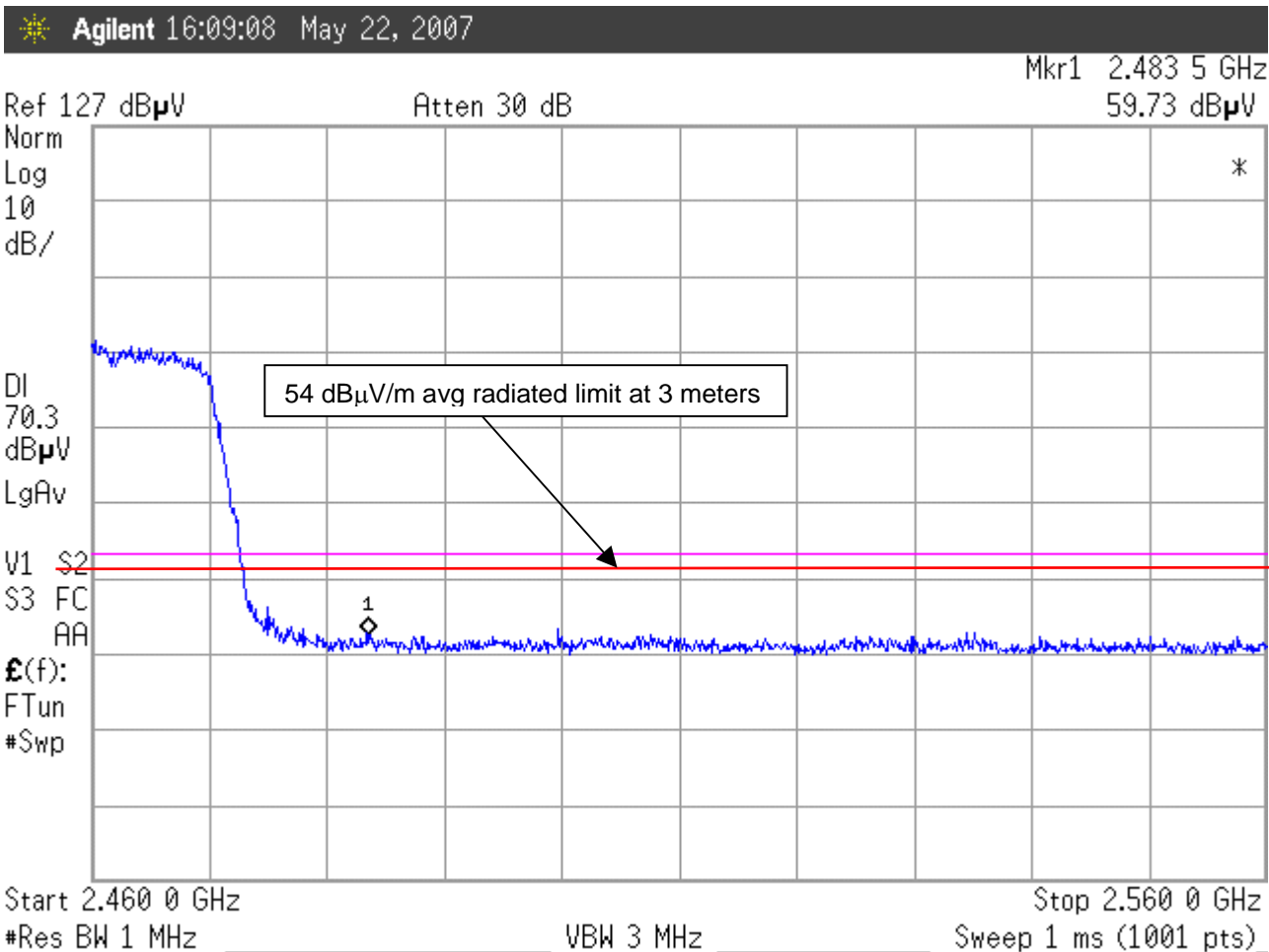
Spurious emissions - band edge

channel 11, 11 MB rate



Spurious emissions - band edge

channel 11, 54 MB rate



RADIATED EMISSIONS



America

Test Report #: WC703228 Run 1 Test Area: LTS

EUT Model #: 50001380 WI-WAVE Date: 5/9/2007

EUT Serial #: 1 EUT Power: 50Hz/230VAC Temperature: 21.0 °C

Test Method: FCC 15.247 Air Pressure: 98.0 kPa

Customer: DIGI INT'L Rel. Humidity: 34.0 %


EUT Description: 802.11B/G TO USB RADIO MODULE

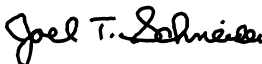
Notes: SPURIOUS EMISSIONS (5dBi GAIN DIPOLE ANTENNAS) – (Tx and Rx SIMULTANEOUS - TRANSCEIVER)

Data File Name: 3228.dat Page: 1 of 11

List of measurements for run #: 1

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
1.104 GHz	54.0 Pk	3.27 / 25.16 / 50.35 / 0.0	32.08	V / 1.00 / 0	n/a	-21.92*
1.104 GHz	51.81 Av	3.27 / 25.16 / 50.35 / 0.0	29.89	V / 1.00 / 0	n/a	-24.11
1.152 GHz	54.3 Pk	3.4 / 25.14 / 50.56 / 0.0	32.28	V / 1.00 / 0	n/a	-21.72*
1.152 GHz	52.29 Av	3.4 / 25.14 / 50.56 / 0.0	30.27	V / 1.00 / 0	n/a	-23.73
1.159 GHz	62.3 Pk	3.41 / 25.14 / 50.59 / 0.0	40.26	V / 1.00 / 0	n/a	-13.74*
1.159 GHz	47.67 Av	3.41 / 25.14 / 50.59 / 0.0	25.63	V / 1.00 / 0	n/a	-28.37
1.256 GHz	66.5 Pk	3.6 / 25.1 / 50.82 / 0.0	44.39	V / 1.00 / 0	n/a	-9.61*
1.256 GHz	47.69 Av	3.6 / 25.1 / 50.82 / 0.0	25.58	V / 1.00 / 0	n/a	-28.42
1.6 GHz	52.85 Pk	4.03 / 25.62 / 50.59 / 0.0	31.92	V / 1.00 / 0	n/a	-22.08*
1.6 GHz	51.58 Av	4.03 / 25.62 / 50.59 / 0.0	30.65	V / 1.00 / 0	n/a	-23.35
1.958 GHz	57.45 Pk	4.43 / 27.84 / 50.5 / 0.0	39.21	V / 1.00 / 0	n/a	-14.79*
1.958 GHz	47.97 Av	4.43 / 27.84 / 50.5 / 0.0	29.73	V / 1.00 / 0	n/a	-24.27
4.874 GHz	45.95 Pk	7.63 / 32.95 / 47.37 / 0.59	39.74	V / 1.00 / 90	n/a	-14.26*
4.874 GHz	43.51 Av	7.63 / 32.95 / 47.37 / 0.59	37.3	V / 1.00 / 90	n/a	-16.7
1.152 GHz	58.3 Av	3.4 / 25.14 / 50.56 / 0.0	36.28	V / 1.00 / 90	n/a	-17.72
1.159 GHz	49.6 Av	3.41 / 25.14 / 50.59 / 0.0	27.56	V / 1.00 / 90	n/a	-26.44
1.256 GHz	49.02 Av	3.6 / 25.1 / 50.82 / 0.0	26.91	V / 1.00 / 90	n/a	-27.09
1.6 GHz	48.04 Av	4.03 / 25.62 / 50.59 / 0.0	27.11	V / 1.00 / 90	n/a	-26.89
1.104 GHz	56.34 Av	3.27 / 25.16 / 50.35 / 0.0	34.42	V / 1.00 / 270	n/a	-19.58
1.094 GHz	47.39 Av	3.25 / 25.16 / 50.31 / 0.0	25.49	V / 1.00 / 270	n/a	-28.51
MAXIMIZED.						
1.104 GHz	57.48 Av	3.27 / 25.16 / 50.35 / 0.0	35.56	V / 1.00 / 278	n/a	-18.44
1.256 GHz	49.87 Av	3.6 / 25.1 / 50.82 / 0.0	27.76	V / 1.00 / 300	n/a	-26.24

Tested by: R. M. Johnson 
Printed Signature

Reviewed by: J. T. Schneider 
Printed Signature

RADIATED EMISSIONS



Test Report #: WC703228 Run 1 Test Area: LTS
 EUT Model #: 50001380 WI-WAVE Date: 5/9/2007
 EUT Serial #: 1 EUT Power: 50Hz/230VAC Temperature: 21.0 °C
 Test Method: FCC 15.247 Air Pressure: 98.0 kPa
 Customer: DIGI INT'L Rel. Humidity: 34.0 %

EUT Description: 802.11B/G TO USB RADIO MODULE

Notes: SPURIOUS EMISSIONS (5dBi GAIN DIPOLE ANTENNAS) – (Tx and Rx SIMULTANEOUS - TRANSCEIVER)

Data File Name: 3228.dat

Page: 2 of 11

List of measurements for run #: 1

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
LOW CHANNEL - 2412MHz.						
4.824 GHz	46.05 Pk	7.61 / 32.85 / 47.43 / 0.54	39.63	V / 1.00 / 90	n/a	-14.37*
4.824 GHz	43.6 Av	7.61 / 32.85 / 47.43 / 0.54	37.18	V / 1.00 / 90	n/a	-16.82
MAXIMIZED.						
4.824 GHz	47.69 Av	7.61 / 32.85 / 47.43 / 0.54	41.27	V / 1.00 / 132	n/a	-12.73
HIGH CHANNEL - 2462MHz						
4.924 GHz	45.6 Pk	7.64 / 33.05 / 47.32 / 0.57	39.54	V / 1.00 / 132	n/a	-14.46*
4.924 GHz	43.38 Av	7.64 / 33.05 / 47.32 / 0.57	37.32	V / 1.00 / 132	n/a	-16.68
MAXIMIZED.						
4.924 GHz	48.73 Av	7.64 / 33.05 / 47.32 / 0.57	42.67	V / 1.00 / 160	n/a	-11.33
END OF VERTICAL SCAN > 1GHz.						
NO NEW OR HIGHER EMISSIONS FOUND WITH HORIZONTAL POLARIZATION AT ALL AZIMUTHS.						
LOW CHANNEL - 2412MHz						
214.151 MHz	41.55 Qp	1.41 / 12.04 / 29.7 / 0.0	25.29	V / 1.00 / 0	-18.21	n/a
239.981 MHz	46.4 Qp	1.46 / 11.89 / 29.5 / 0.0	30.25	V / 1.00 / 0	-15.75	n/a
279.977 MHz	35.3 Qp	1.6 / 13.84 / 29.74 / 0.0	21.0	V / 1.00 / 0	-25.0	n/a
287.971 MHz	33.5 Qp	1.65 / 14.23 / 29.82 / 0.0	19.55	V / 1.00 / 0	-26.45	n/a
319.987 MHz	33.6 Qp	1.8 / 15.25 / 29.77 / 0.0	20.88	V / 1.00 / 0	-25.12	n/a
329.974 MHz	32.45 Qp	1.84 / 15.1 / 29.68 / 0.0	19.71	V / 1.00 / 0	-26.29	n/a
335.974 MHz	28.9 Qp	1.87 / 14.97 / 29.63 / 0.0	16.11	V / 1.00 / 0	-29.89	n/a
399.977 MHz	39.75 Qp	2.01 / 16.23 / 29.93 / 0.0	28.06	V / 1.00 / 0	-17.94	n/a

Tested by: R. M. Johnson

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Reviewed by: J. T. Schneider

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RADIATED EMISSIONS



Test Report #: WC703228 Run 1 Test Area: LTS
 EUT Model #: 50001380 WI-WAVE Date: 5/9/2007
 EUT Serial #: 1 EUT Power: 50Hz/230VAC Temperature: 21.0 °C
 Test Method: FCC 15.247 Air Pressure: 98.0 kPa
 Customer: DIGI INT'L Rel. Humidity: 34.0 %

EUT Description: 802.11B/G TO USB RADIO MODULE

Notes: SPURIOUS EMISSIONS (5dBi GAIN DIPOLE ANTENNAS) – (Tx and Rx SIMULTANEOUS - TRANSCEIVER)

Data File Name: 3228.dat

Page: 3 of 11

List of measurements for run #: 1

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
431.968 MHz	36.35 Qp	2.04 / 16.78 / 29.85 / 0.0	25.32	V / 1.00 / 0	-20.68	n/a
483.334 MHz	40.4 Qp	2.1 / 18.16 / 30.08 / 0.0	30.58	V / 1.00 / 0	-15.42	n/a
527.972 MHz	45.25 Qp	2.22 / 19.0 / 29.97 / 0.0	36.5	V / 1.00 / 0	-9.5	n/a
559.974 MHz	44.7 Qp	2.31 / 18.95 / 30.08 / 0.0	35.89	V / 1.00 / 0	-10.11	n/a
575.97 MHz	43.1 Qp	2.39 / 18.88 / 30.04 / 0.0	34.33	V / 1.00 / 0	-11.67	n/a
623.97 MHz	34.5 Qp	2.53 / 19.81 / 30.0 / 0.0	26.84	V / 1.00 / 0	-19.16	n/a
695.237 MHz	38.0 Qp	2.62 / 21.01 / 29.9 / 0.0	31.73	V / 1.00 / 0	-14.27	n/a
959.981 MHz	34.85 Qp	3.04 / 24.98 / 29.4 / 0.0	33.47	V / 1.00 / 0	-12.53	n/a
759.981 MHz	31.75 Qp	2.72 / 21.9 / 29.84 / 0.0	26.53	V / 1.00 / 0	-19.47	n/a
599.981 MHz	41.4 Qp	2.5 / 19.26 / 30.0 / 0.0	33.16	V / 1.00 / 0	-12.84	n/a
519.981 MHz	39.55 Qp	2.2 / 19.4 / 29.93 / 0.0	31.22	V / 1.00 / 0	-14.78	n/a
439.981 MHz	38.75 Qp	2.05 / 17.05 / 29.87 / 0.0	27.98	V / 1.00 / 0	-18.02	n/a
239.981 MHz	46.35 Qp	1.46 / 11.89 / 29.5 / 0.0	30.2	V / 1.00 / 0	-15.8	n/a
287.971 MHz	37.75 Qp	1.65 / 14.23 / 29.82 / 0.0	23.8	V / 1.00 / 90	-22.2	n/a
319.987 MHz	35.9 Qp	1.8 / 15.25 / 29.77 / 0.0	23.18	V / 1.00 / 90	-22.82	n/a
335.974 MHz	33.05 Qp	1.87 / 14.97 / 29.63 / 0.0	20.26	V / 1.00 / 90	-25.74	n/a
399.977 MHz	40.7 Qp	2.01 / 16.23 / 29.93 / 0.0	29.01	V / 1.00 / 90	-16.99	n/a
483.334 MHz	45.0 Qp	2.1 / 18.16 / 30.08 / 0.0	35.18	V / 1.00 / 90	-10.82	n/a
519.981 MHz	41.05 Qp	2.2 / 19.4 / 29.93 / 0.0	32.72	V / 1.00 / 90	-13.28	n/a
527.972 MHz	47.0 Qp	2.22 / 19.0 / 29.97 / 0.0	38.25	V / 1.00 / 90	-7.75	n/a
559.974 MHz	48.25 Qp	2.31 / 18.95 / 30.08 / 0.0	39.44	V / 1.00 / 90	-6.56	n/a
575.97 MHz	50.55 Qp	2.39 / 18.88 / 30.04 / 0.0	41.78	V / 1.00 / 90	-4.22	n/a
599.981 MHz	47.15 Qp	2.5 / 19.26 / 30.0 / 0.0	38.91	V / 1.00 / 90	-7.09	n/a
623.97 MHz	42.8 Qp	2.53 / 19.81 / 30.0 / 0.0	35.14	V / 1.00 / 90	-10.86	n/a
959.981 MHz	36.55 Qp	3.04 / 24.98 / 29.4 / 0.0	35.17	V / 1.00 / 90	-10.83	n/a

Tested by: R. M. Johnson

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Reviewed by: J. T. Schneider

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RADIATED EMISSIONS



Test Report #: WC703228 Run 1 Test Area: LTS
 EUT Model #: 50001380 WI-WAVE Date: 5/9/2007
 EUT Serial #: 1 EUT Power: 50Hz/230VAC Temperature: 21.0 °C
 Test Method: FCC 15.247 Air Pressure: 98.0 kPa
 Customer: DIGI INT'L Rel. Humidity: 34.0 %

EUT Description: 802.11B/G TO USB RADIO MODULE

Notes: SPURIOUS EMISSIONS (5dBi GAIN DIPOLE ANTENNAS) – (Tx and Rx SIMULTANEOUS - TRANSCEIVER)

Data File Name: 3228.dat

Page: 4 of 11

List of measurements for run #: 1

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-B <1GHz 3m	DELTA2 FCC B >1GHz 3m
287.971 MHz	39.35 Qp	1.65 / 14.23 / 29.82 / 0.0	25.4	V / 1.00 / 180	-20.6	n/a
319.987 MHz	43.95 Qp	1.8 / 15.25 / 29.77 / 0.0	31.23	V / 1.00 / 180	-14.77	n/a
329.974 MHz	42.0 Qp	1.84 / 15.1 / 29.68 / 0.0	29.26	V / 1.00 / 180	-16.74	n/a
335.974 MHz	47.3 Qp	1.87 / 14.97 / 29.63 / 0.0	34.51	V / 1.00 / 180	-11.49	n/a
431.968 MHz	39.7 Qp	2.04 / 16.78 / 29.85 / 0.0	28.67	V / 1.00 / 180	-17.33	n/a
439.981 MHz	39.8 Qp	2.05 / 17.05 / 29.87 / 0.0	29.03	V / 1.00 / 180	-16.97	n/a
527.972 MHz	48.2 Qp	2.22 / 19.0 / 29.97 / 0.0	39.45	V / 1.00 / 180	-6.55	n/a
MAXIMIZED.						
575.97 MHz	51.15 Qp	2.39 / 18.88 / 30.04 / 0.0	42.38	V / 1.00 / 203	-3.62	n/a
END OF VERTICAL SCAN < 1GHz						
214.151 MHz	42.0 Qp	1.41 / 12.04 / 29.7 / 0.0	25.74	H / 1.00 / 0	-17.76	n/a
279.977 MHz	36.1 Qp	1.6 / 13.84 / 29.74 / 0.0	21.8	H / 1.00 / 0	-24.2	n/a
479.98 MHz	42.3 Qp	2.09 / 17.98 / 30.1 / 0.0	32.27	H / 1.00 / 0	-13.73	n/a
735.963 MHz	34.2 Qp	2.7 / 21.52 / 29.88 / 0.0	28.54	H / 1.00 / 0	-17.46	n/a
767.967 MHz	36.75 Qp	2.73 / 21.9 / 29.82 / 0.0	31.56	H / 1.00 / 0	-14.44	n/a
214.151 MHz	44.3 Qp	1.41 / 12.04 / 29.7 / 0.0	28.04	H / 1.00 / 90	-15.46	n/a
239.981 MHz	53.9 Qp	1.46 / 11.89 / 29.5 / 0.0	37.75	H / 1.00 / 90	-8.25	n/a
279.977 MHz	46.05 Qp	1.6 / 13.84 / 29.74 / 0.0	31.75	H / 1.00 / 90	-14.25	n/a
287.971 MHz	46.55 Qp	1.65 / 14.23 / 29.82 / 0.0	32.6	H / 1.00 / 90	-13.4	n/a
319.987 MHz	44.8 Qp	1.8 / 15.25 / 29.77 / 0.0	32.08	H / 1.00 / 90	-13.92	n/a
735.963 MHz	35.2 Qp	2.7 / 21.52 / 29.88 / 0.0	29.54	H / 1.00 / 180	-16.46	n/a

Tested by: R. M. Johnson

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RADIATED EMISSIONS



America

Test Report #: WC703228 Run 1 Test Area: LTS

EUT Model #: 50001380 WI-WAVE Date: 5/9/2007

EUT Serial #: 1 EUT Power: 50Hz/230VAC Temperature: 21.0 °C

Test Method: FCC 15.247 Air Pressure: 98.0 kPa

Customer: DIGI INT'L Rel. Humidity: 34.0 %

EUT Description: 802.11B/G TO USB RADIO MODULE

Notes: SPURIOUS EMISSIONS (5dBi GAIN DIPOLE ANTENNAS) – (Tx and Rx SIMULTANEOUS - TRANSCEIVER)

Data File Name: 3228.dat Page: 5 of 11

List of measurements for run #: 1

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
MAXIMIZED.						
239.981 MHz	54.7 Qp	1.46 / 11.89 / 29.5 / 0.0	38.55	H / 1.20 / 83	-7.45	n/a
MIDDLE CHANNEL - 2437MHz						
479.98 MHz	44.85 Qp	2.09 / 17.98 / 30.1 / 0.0	34.82	V / 1.00 / 90	-11.18	n/a
623.97 MHz	44.35 Qp	2.53 / 19.81 / 30.0 / 0.0	36.69	V / 1.00 / 90	-9.31	n/a
335.974 MHz	48.9 Qp	1.87 / 14.97 / 29.63 / 0.0	36.11	V / 1.00 / 180	-9.89	n/a
431.968 MHz	40.65 Qp	2.04 / 16.78 / 29.85 / 0.0	29.62	V / 1.00 / 180	-16.38	n/a
250.007 MHz	42.4 Qp	1.48 / 12.38 / 29.5 / 0.0	26.76	V / 1.00 / 270	-19.24	n/a
MAXIMIZED.						
623.97 MHz	47.45 Qp	2.53 / 19.81 / 30.0 / 0.0	39.79	V / 1.00 / 203	-6.21	n/a
335.974 MHz	49.2 Qp	1.87 / 14.97 / 29.63 / 0.0	36.41	V / 1.00 / 168	-9.59	n/a
END OF VERTICAL SCAN.						
250.007 MHz	46.35 Qp	1.48 / 12.38 / 29.5 / 0.0	30.71	H / 1.00 / 90	-15.29	n/a
319.987 MHz	45.35 Qp	1.8 / 15.25 / 29.77 / 0.0	32.63	H / 1.00 / 270	-13.37	n/a
329.974 MHz	42.15 Qp	1.84 / 15.1 / 29.68 / 0.0	29.41	H / 1.00 / 270	-16.59	n/a
MAXIMIZED.						
319.987 MHz	46.2 Qp	1.8 / 15.25 / 29.77 / 0.0	33.48	H / 1.00 / 76	-12.52	n/a
HIGH CHANNEL - 2462MHz.						

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Joel T. Schneider

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RADIATED EMISSIONS



Test Report #: WC703228 Run 1 Test Area: LTS
 EUT Model #: 50001380 WI-WAVE Date: 5/9/2007
 EUT Serial #: 1 EUT Power: 50Hz/230VAC Temperature: 21.0 °C
 Test Method: FCC 15.247 Air Pressure: 98.0 kPa
 Customer: DIGI INT'L Rel. Humidity: 34.0 %

EUT Description: 802.11B/G TO USB RADIO MODULE

Notes: SPURIOUS EMISSIONS (5dBi GAIN DIPOLE ANTENNAS) – (Tx and Rx SIMULTANEOUS - TRANSCEIVER)

Data File Name: 3228.dat

Page: 6 of 11

List of measurements for run #: 1

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
329.974 MHz	44.0 Qp	1.84 / 15.1 / 29.68 / 0.0	31.26	V / 1.00 / 0	-14.74	n/a
575.97 MHz	51.45 Qp	2.39 / 18.88 / 30.04 / 0.0	42.68	V / 1.00 / 200	-3.32	n/a
623.97 MHz	48.8 Qp	2.53 / 19.81 / 30.0 / 0.0	41.14	V / 1.00 / 200	-4.86	n/a
479.98 MHz	46.6 Qp	2.09 / 17.98 / 30.1 / 0.0	36.57	V / 1.00 / 90	-9.43	n/a
MAXIMIZED.						
575.97 MHz	52.7 Qp	2.39 / 18.88 / 30.04 / 0.0	43.93	V / 1.00 / 209	-2.07	n/a
623.97 MHz	49.25 Qp	2.53 / 19.81 / 30.0 / 0.0	41.59	V / 1.00 / 209	-4.41	n/a
END OF VERTICAL SCAN.						
263.969 MHz	41.6 Qp	1.52 / 13.06 / 29.57 / 0.0	26.61	H / 1.00 / 0	-19.39	n/a
383.97 MHz	43.55 Qp	1.98 / 15.75 / 29.95 / 0.0	31.32	H / 1.00 / 0	-14.68	n/a
518.292 MHz	45.05 Qp	2.2 / 19.49 / 29.92 / 0.0	36.81	H / 1.00 / 0	-9.19	n/a
250.007 MHz	47.9 Qp	1.48 / 12.38 / 29.5 / 0.0	32.26	H / 1.00 / 90	-13.74	n/a
263.969 MHz	52.85 Qp	1.52 / 13.06 / 29.57 / 0.0	37.86	H / 1.00 / 90	-8.14	n/a
518.292 MHz	46.25 Qp	2.2 / 19.49 / 29.92 / 0.0	38.01	H / 1.00 / 90	-7.99	n/a
383.97 MHz	43.5 Qp	1.98 / 15.75 / 29.95 / 0.0	31.27	H / 1.00 / 90	-14.73	n/a
518.292 MHz	46.65 Qp	2.2 / 19.49 / 29.92 / 0.0	38.41	H / 1.00 / 90	-7.59	n/a
329.974 MHz	44.75 Qp	1.84 / 15.1 / 29.68 / 0.0	32.01	H / 1.00 / 270	-13.99	n/a
383.97 MHz	45.0 Qp	1.98 / 15.75 / 29.95 / 0.0	32.77	H / 1.00 / 270	-13.23	n/a
MAXIMIZED.						
518.292 MHz	46.05 Qp	2.2 / 19.49 / 29.92 / 0.0	37.81	H / 1.00 / 90	-8.19	n/a

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RADIATED EMISSIONS



America

Test Report #: WC703228 Run 1 Test Area: LTS

EUT Model #: 50001380 WI-WAVE Date: 5/9/2007

EUT Serial #: 1 EUT Power: 50Hz/230VAC Temperature: 21.0 °C

Test Method: FCC 15.247 Air Pressure: 98.0 kPa

Customer: DIGI INT'L Rel. Humidity: 34.0 %

EUT Description: 802.11B/G TO USB RADIO MODULE

Notes: SPURIOUS EMISSIONS (5dBi GAIN DIPOLE ANTENNAS) – (Tx and Rx SIMULTANEOUS - TRANSCEIVER)

Data File Name: 3228.dat Page: 7 of 11

List of measurements for run #: 1

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
MIDDLE CHANNEL 2437MHz.						
164.592 MHz	39.7 Qp	1.22 / 12.21 / 29.4 / 0.0	23.73	V / 1.00 / 0	-19.77	n/a
199.986 MHz	40.65 Qp	1.36 / 14.2 / 29.64 / 0.0	26.57	V / 1.00 / 0	-16.93	n/a
81.431 MHz	42.85 Qp	0.87 / 8.21 / 29.34 / 0.0	22.6	V / 1.00 / 0	-17.4	n/a
MAXIMIZED.						
199.986 MHz	43.4 Qp	1.36 / 14.2 / 29.64 / 0.0	29.32	V / 1.00 / 250	-14.18	n/a
END OF VERTICAL SCAN.						
164.592 MHz	42.55 Qp	1.22 / 12.21 / 29.4 / 0.0	26.58	H / 1.00 / 0	-16.92	n/a
MAXIMIZED.						
164.592 MHz	44.2 Qp	1.22 / 12.21 / 29.4 / 0.0	28.23	H / 1.00 / 8	-15.27	n/a
LOW CHANNEL 2412MHz.						
NO NEW OR HIGHER EMISSIONS FOUND WITH LOW CHANNEL.						
END OF SCAN 30 - 25000MHz.						

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R. M. Johnson
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Reviewed by: J. T. Schneider
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RADIATED EMISSIONS



Test Report #: WC703228 Run 1 Test Area: LTS
 EUT Model #: 50001380 WI-WAVE Date: 5/9/2007
 EUT Serial #: 1 EUT Power: 50Hz/230VAC Temperature: 21.0 °C
 Test Method: FCC 15.247 Air Pressure: 98.0 kPa
 Customer: DIGI INT'L Rel. Humidity: 34.0 %

EUT Description: 802.11B/G TO USB RADIO MODULE

Notes: SPURIOUS EMISSIONS (5dBi GAIN DIPOLE ANTENNAS) – (Tx and Rx SIMULTANEOUS - TRANSCEIVER)

Data File Name: 3228.dat

Page: 8 of 11

Measurement summary for limit1: FCC-B <1GHz 3m (Qp)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-B <1GHz 3m
575.97 MHz	52.7 Qp	2.39 / 18.88 / 30.04 / 0.0	43.93	V / 1.00 / 209	-2.07
623.97 MHz	49.25 Qp	2.53 / 19.81 / 30.0 / 0.0	41.59	V / 1.00 / 209	-4.41
527.972 MHz	48.2 Qp	2.22 / 19.0 / 29.97 / 0.0	39.45	V / 1.00 / 180	-6.55
559.974 MHz	48.25 Qp	2.31 / 18.95 / 30.08 / 0.0	39.44	V / 1.00 / 90	-6.56
599.981 MHz	47.15 Qp	2.5 / 19.26 / 30.0 / 0.0	38.91	V / 1.00 / 90	-7.09
239.981 MHz	54.7 Qp	1.46 / 11.89 / 29.5 / 0.0	38.55	H / 1.20 / 83	-7.45
518.292 MHz	46.65 Qp	2.2 / 19.49 / 29.92 / 0.0	38.41	H / 1.00 / 90	-7.59
263.969 MHz	52.85 Qp	1.52 / 13.06 / 29.57 / 0.0	37.86	H / 1.00 / 90	-8.14
479.98 MHz	46.6 Qp	2.09 / 17.98 / 30.1 / 0.0	36.57	V / 1.00 / 90	-9.43
335.974 MHz	49.2 Qp	1.87 / 14.97 / 29.63 / 0.0	36.41	V / 1.00 / 168	-9.59
483.334 MHz	45.0 Qp	2.1 / 18.16 / 30.08 / 0.0	35.18	V / 1.00 / 90	-10.82
959.981 MHz	36.55 Qp	3.04 / 24.98 / 29.4 / 0.0	35.17	V / 1.00 / 90	-10.83
319.987 MHz	46.2 Qp	1.8 / 15.25 / 29.77 / 0.0	33.48	H / 1.00 / 76	-12.52
383.97 MHz	45.0 Qp	1.98 / 15.75 / 29.95 / 0.0	32.77	H / 1.00 / 270	-13.23
519.981 MHz	41.05 Qp	2.2 / 19.4 / 29.93 / 0.0	32.72	V / 1.00 / 90	-13.28
287.971 MHz	46.55 Qp	1.65 / 14.23 / 29.82 / 0.0	32.6	H / 1.00 / 90	-13.4
250.007 MHz	47.9 Qp	1.48 / 12.38 / 29.5 / 0.0	32.26	H / 1.00 / 90	-13.74
329.974 MHz	44.75 Qp	1.84 / 15.1 / 29.68 / 0.0	32.01	H / 1.00 / 270	-13.99
199.986 MHz	43.4 Qp	1.36 / 14.2 / 29.64 / 0.0	29.32	V / 1.00 / 250	-14.18
279.977 MHz	46.05 Qp	1.6 / 13.84 / 29.74 / 0.0	31.75	H / 1.00 / 90	-14.25
695.237 MHz	38.0 Qp	2.62 / 21.01 / 29.9 / 0.0	31.73	V / 1.00 / 0	-14.27
767.967 MHz	36.75 Qp	2.73 / 21.9 / 29.82 / 0.0	31.56	H / 1.00 / 0	-14.44
164.592 MHz	44.2 Qp	1.22 / 12.21 / 29.4 / 0.0	28.23	H / 1.00 / 8	-15.27
214.151 MHz	44.3 Qp	1.41 / 12.04 / 29.7 / 0.0	28.04	H / 1.00 / 90	-15.46
431.968 MHz	40.65 Qp	2.04 / 16.78 / 29.85 / 0.0	29.62	V / 1.00 / 180	-16.38
735.963 MHz	35.2 Qp	2.7 / 21.52 / 29.88 / 0.0	29.54	H / 1.00 / 180	-16.46

Tested by: R. M. Johnson

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America

Test Report #: WC703228 Run 1 Test Area: LTS

EUT Model #: 50001380 WI-WAVE Date: 5/9/2007

EUT Serial #: 1 EUT Power: 50Hz/230VAC Temperature: 21.0 °C

Test Method: FCC 15.247 Air Pressure: 98.0 kPa

Customer: DIGI INT'L Rel. Humidity: 34.0 %

EUT Description: 802.11B/G TO USB RADIO MODULE

Notes: SPURIOUS EMISSIONS (5dBi GAIN DIPOLE ANTENNAS) – (Tx and Rx SIMULTANEOUS - TRANSCEIVER)

Data File Name: 3228.dat Page: 9 of 11

Measurement summary for limit1: FCC-B <1GHz 3m (Qp)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-B <1GHz 3m
439.981 MHz	39.8 Qp	2.05 / 17.05 / 29.87 / 0.0	29.03	V / 1.00 / 180	-16.97
399.977 MHz	40.7 Qp	2.01 / 16.23 / 29.93 / 0.0	29.01	V / 1.00 / 90	-16.99
81.431 MHz	42.85 Qp	0.87 / 8.21 / 29.34 / 0.0	22.6	V / 1.00 / 0	-17.4
759.981 MHz	31.75 Qp	2.72 / 21.9 / 29.84 / 0.0	26.53	V / 1.00 / 0	-19.47

Tested by: R. M. Johnson

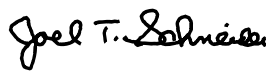
Printed



Signature

Reviewed by: J. T. Schneider

Printed



Signature

RADIATED EMISSIONS



Test Report #: WC703228 Run 1 Test Area: LTS
 EUT Model #: 50001380 WI-WAVE Date: 5/9/2007
 EUT Serial #: 1 EUT Power: 50Hz/230VAC Temperature: 21.0 °C
 Test Method: FCC 15.247 Air Pressure: 98.0 kPa
 Customer: DIGI INT'L Rel. Humidity: 34.0 %

EUT Description: 802.11B/G TO USB RADIO MODULE

Notes: SPURIOUS EMISSIONS (5dBi GAIN DIPOLE ANTENNAS) – (Tx and Rx SIMULTANEOUS - TRANSCEIVER)

Data File Name: 3228.dat

Page: 10 of 11

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
4.924 GHz	48.73 Av	7.64 / 33.05 / 47.32 / 0.57	42.67	V / 1.00 / 160	-11.33
4.824 GHz	47.69 Av	7.61 / 32.85 / 47.43 / 0.54	41.27	V / 1.00 / 132	-12.73
4.874 GHz	43.51 Av	7.63 / 32.95 / 47.37 / 0.59	37.3	V / 1.00 / 90	-16.7
1.152 GHz	58.3 Av	3.4 / 25.14 / 50.56 / 0.0	36.28	V / 1.00 / 90	-17.72
1.104 GHz	57.48 Av	3.27 / 25.16 / 50.35 / 0.0	35.56	V / 1.00 / 278	-18.44
1.6 GHz	51.58 Av	4.03 / 25.62 / 50.59 / 0.0	30.65	V / 1.00 / 0	-23.35
1.958 GHz	47.97 Av	4.43 / 27.84 / 50.5 / 0.0	29.73	V / 1.00 / 0	-24.27
1.256 GHz	49.87 Av	3.6 / 25.1 / 50.82 / 0.0	27.76	V / 1.00 / 300	-26.24
1.159 GHz	49.6 Av	3.41 / 25.14 / 50.59 / 0.0	27.56	V / 1.00 / 90	-26.44
1.094 GHz	47.39 Av	3.25 / 25.16 / 50.31 / 0.0	25.49	V / 1.00 / 270	-28.51
1.104 GHz	54.0 Pk	3.27 / 25.16 / 50.35 / 0.0	32.08	V / 1.00 / 0	-21.92*
1.152 GHz	54.3 Pk	3.4 / 25.14 / 50.56 / 0.0	32.28	V / 1.00 / 0	-21.72*
1.159 GHz	62.3 Pk	3.41 / 25.14 / 50.59 / 0.0	40.26	V / 1.00 / 0	-13.74*
1.256 GHz	66.5 Pk	3.6 / 25.1 / 50.82 / 0.0	44.39	V / 1.00 / 0	-9.61*
1.6 GHz	52.85 Pk	4.03 / 25.62 / 50.59 / 0.0	31.92	V / 1.00 / 0	-22.08*
1.958 GHz	57.45 Pk	4.43 / 27.84 / 50.5 / 0.0	39.21	V / 1.00 / 0	-14.79*
4.874 GHz	45.95 Pk	7.63 / 32.95 / 47.37 / 0.59	39.74	V / 1.00 / 90	-14.26*
4.824 GHz	46.05 Pk	7.61 / 32.85 / 47.43 / 0.54	39.63	V / 1.00 / 90	-14.37*
4.924 GHz	45.6 Pk	7.64 / 33.05 / 47.32 / 0.57	39.54	V / 1.00 / 132	-14.46*

Tested by: R. M. Johnson

Printed

Signature

Reviewed by: J. T. Schneider

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Signature

RADIATED EMISSIONS



America

Test Report #: WC703228 Run 1 Test Area: LTS
EUT Model #: 50001380 WI-WAVE Date: 5/9/2007
EUT Serial #: 1 EUT Power: 50Hz/230VAC Temperature: 21.0 °C
Test Method: FCC 15.247 Air Pressure: 98.0 kPa
Customer: DIGI INT'L Rel. Humidity: 34.0 %

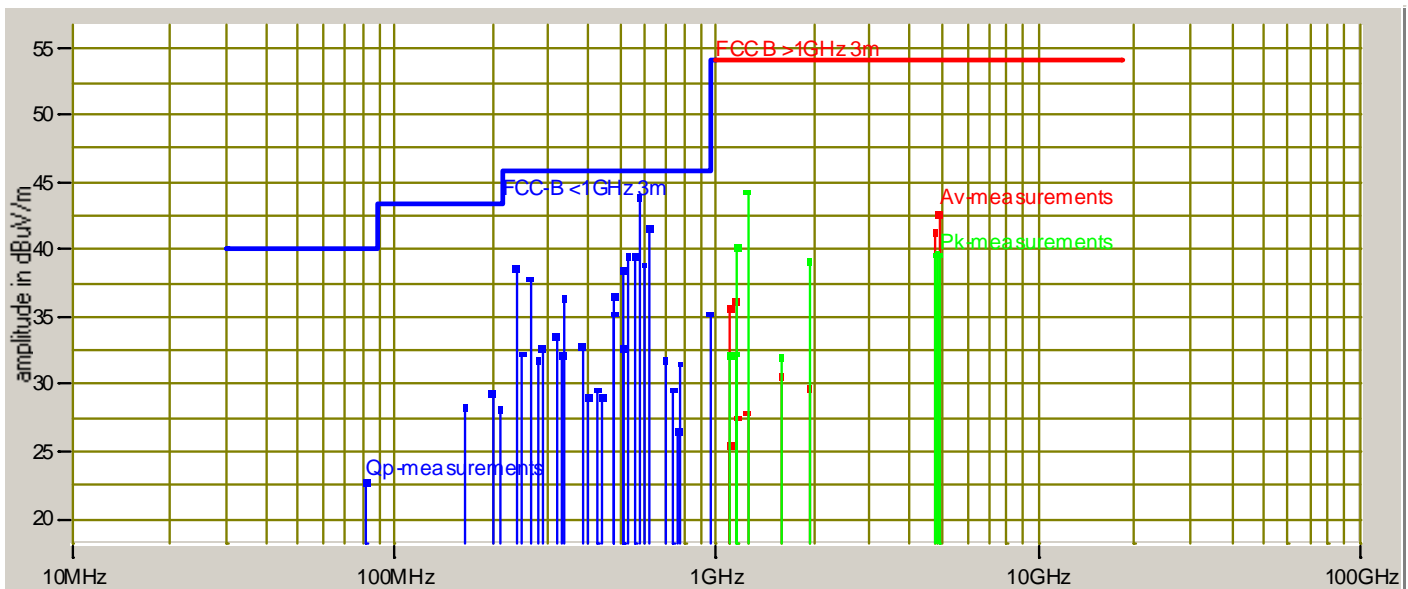
EUT Description: 802.11B/G TO USB RADIO MODULE

Notes: SPURIOUS EMISSIONS (5dBi GAIN DIPOLE ANTENNAS) – (Tx and Rx SIMULTANEOUS - TRANSCEIVER)

Data File Name: 3228.dat

Page: 11 of 11

Graph:



Tested by: R. M. Johnson
Printed

R. M. Johnson
Signature

Reviewed by: J. T. Schneider
Printed

Joel T. Schneider
Signature

Power spectral density
FCC 15.247(e), IC RSS-210 A8.2(2)

Test summary

The requirements are: - MET - NOT MET
 Maximum power spectral density is -7.3 dBm / 3 kHz.

Test location

- Wild River Lab Large Test Site (Open Area Test Site)
- Wild River Lab Large Test Site - Tech area
- Wild River Lab Small Test Site (Open Area Test Site)

Test equipment

TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
3367	E4440A	Agilent	Spectrum Analyzer	MY42510439	14 Sep 07
3844	61697		HF cable		Code B

Cal Code B = Calibration verification performed internally.

Test limit

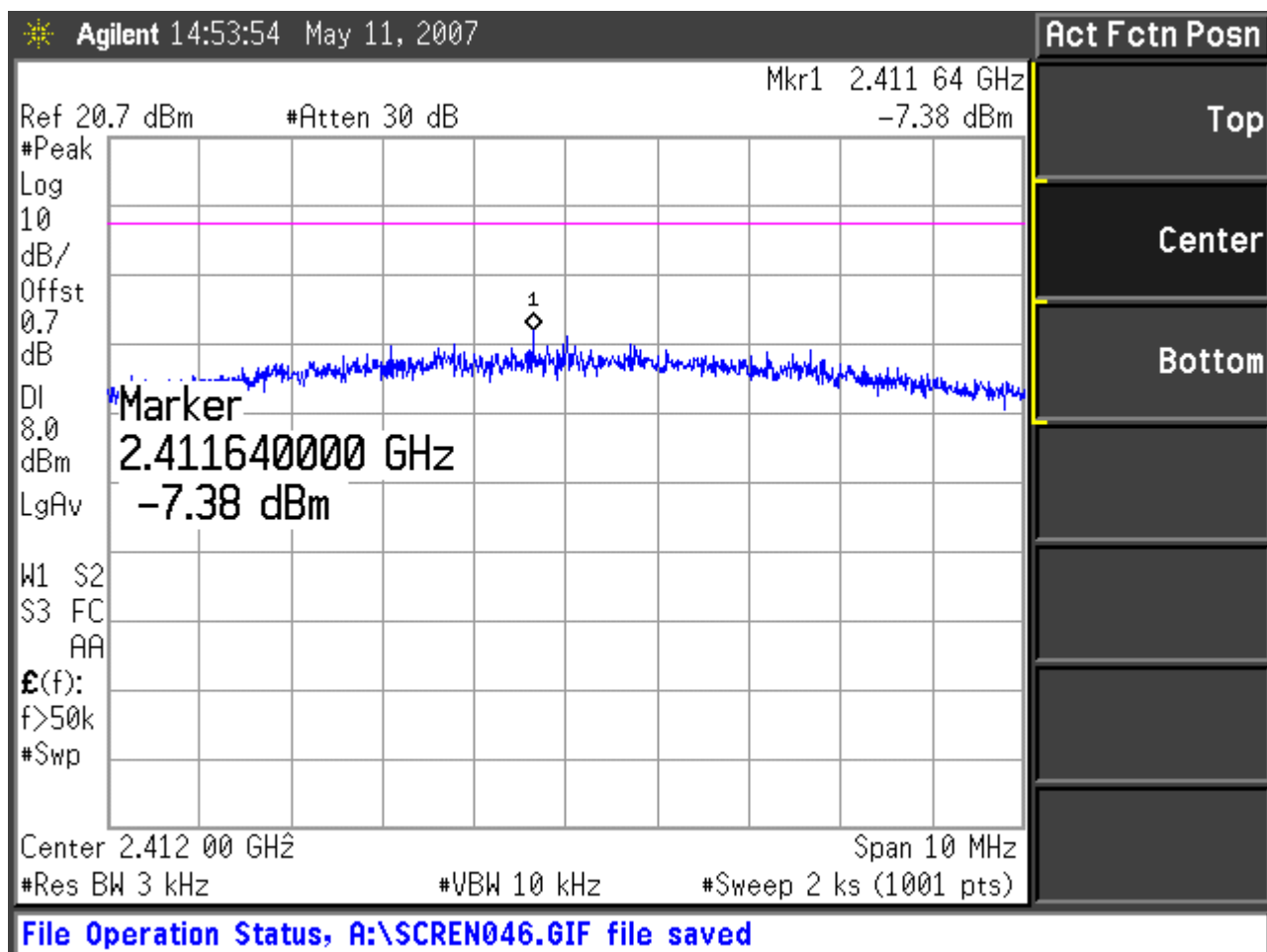
No greater than 8 dBm in any 3 kHz band

Test data

See following pages.

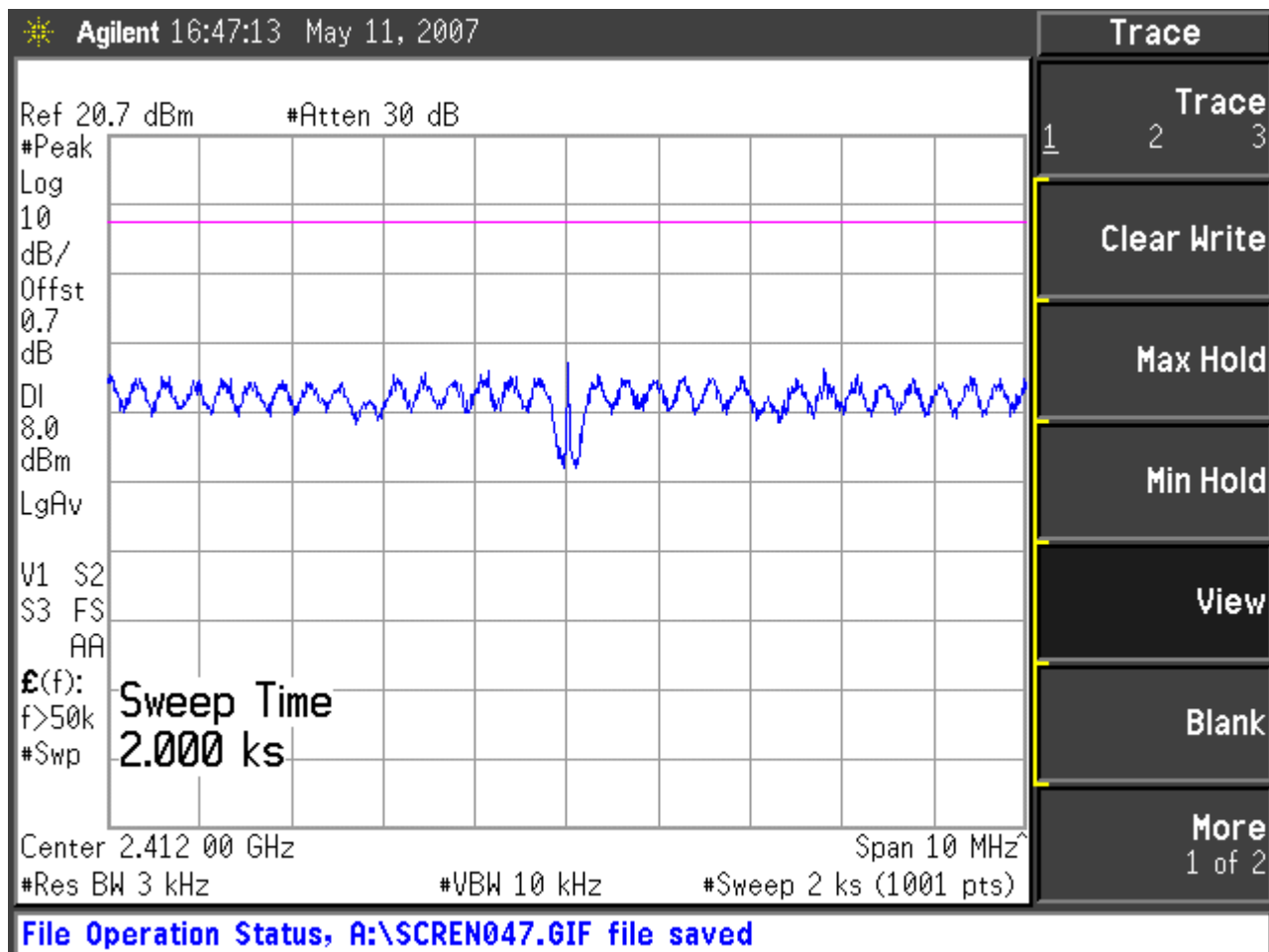
Power spectral Density

channel 1, 11 MB rate



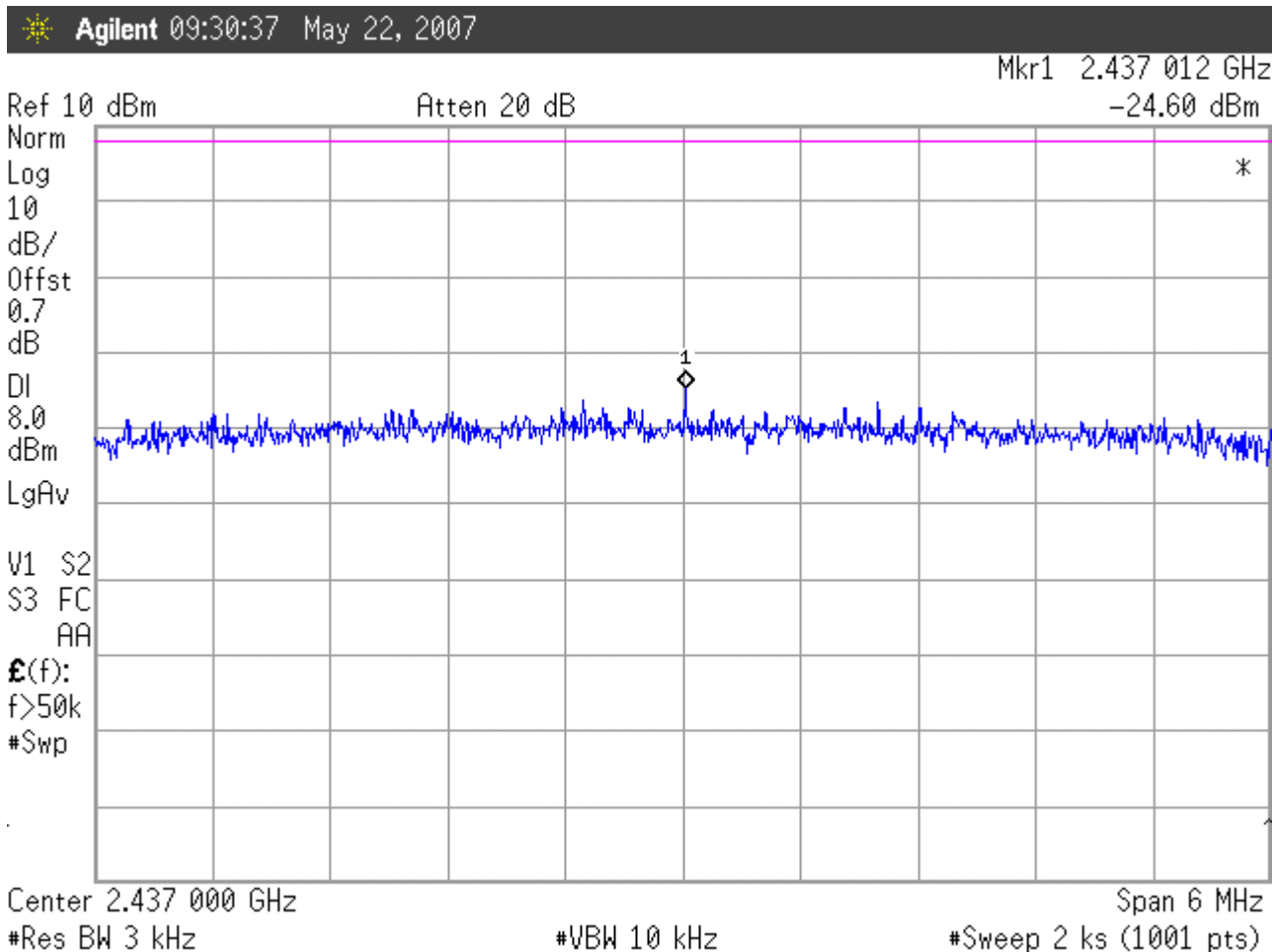
Power spectral Density

channel 1, 54 MB rate



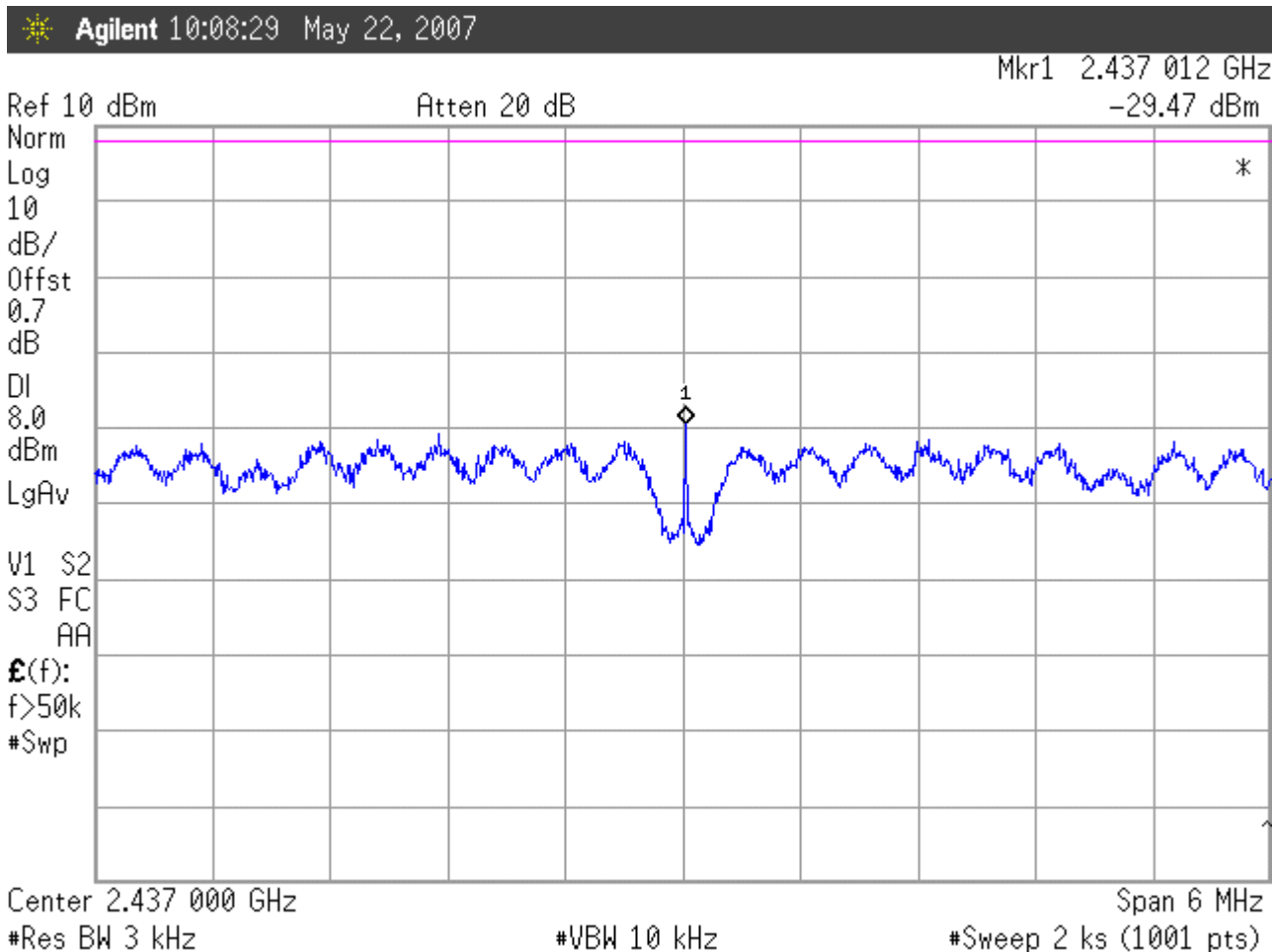
Power spectral Density

channel 6, 11 MB rate



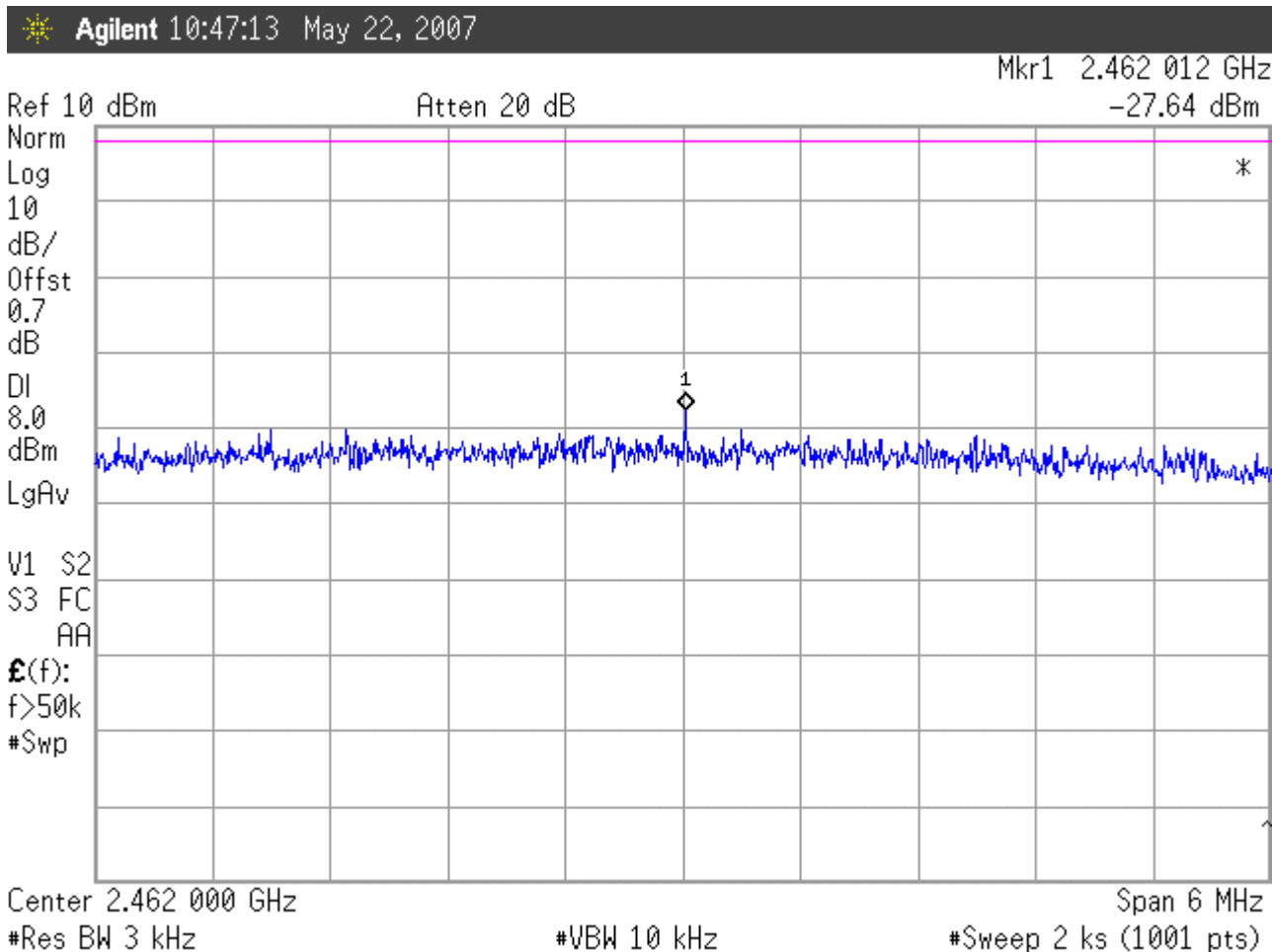
Power spectral Density

channel 6, 54 MB rate



Power spectral Density

channel 11, 11 MB rate

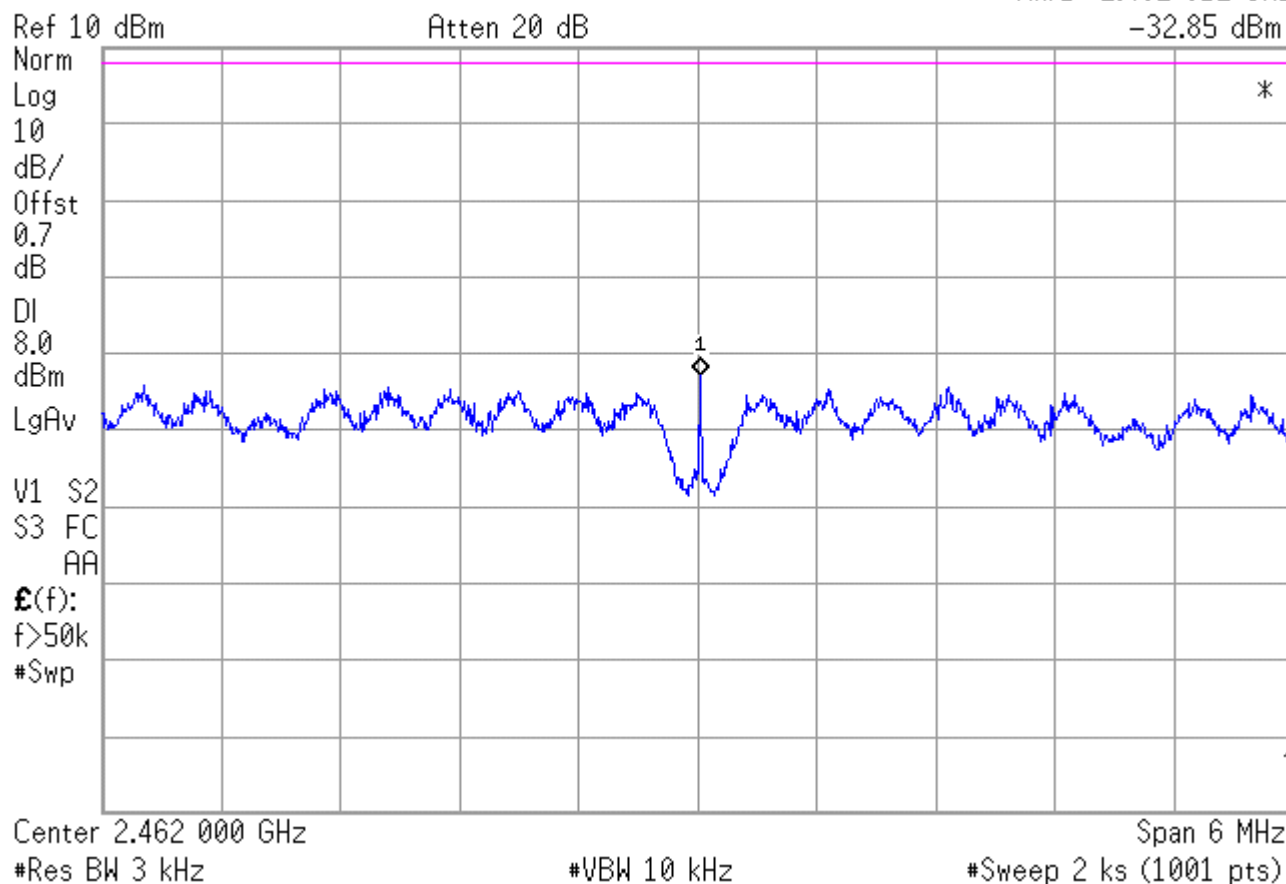


Power spectral Density

channel 11, 54 MB rate

Agilent 11:24:24 May 22, 2007

Mkr1 2.462 012 GHz
-32.85 dBm



Occupied Bandwidth IC RSS-Gen 4.4.1

Test summary

The requirements are: - MET - NOT MET
99% Occupied Bandwidth = 20.2 MHz

Test location

- Wild River Lab Large Test Site (Open Area Test Site)
- Wild River Lab Large Test Site - Tech area
- Wild River Lab Small Test Site (Open Area Test Site)

Test equipment

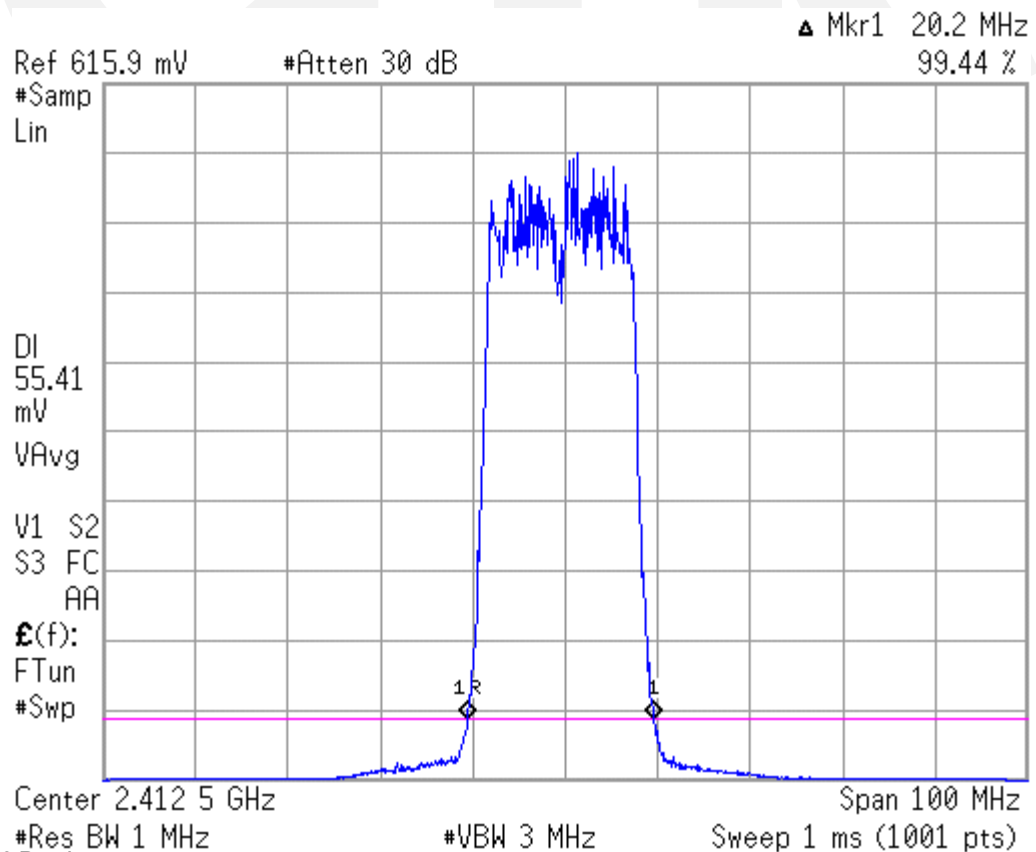
TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
3367	E4440A	Agilent	Spectrum Analyzer	MY42510439	14 Sep 07
3844	61697		HF cable		Code B

Cal Code B = Calibration verification performed internally.

Test limit

No limit specified

Test data



Conducted Limits - AC Power lines

FCC 15.207(a), IC RSS-Gen 7.2.2

Test summary

The requirements are: - MET - NOT MET

Minimum margin of compliance = 11 dB at 268.6 kHz

Test location

- Wild River Lab Large Test Site (Open Area Test Site)

- Wild River Lab Large Test Site (Shield room)

- Wild River Lab Small Test Site (Open Area Test Site)

Test equipment

TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
2534	ESHS-20	Rhode & Schwarz	EMI Receiver	837055/003	27-Feb-07
2417	3825/2	Electro-Mechanics (EMCO)	50 Ω LISN (yellow tape*)	8812-1439	Code B

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

Test limit

Frequency (MHz)	Quasi Peak (dBμV)	Average (dBμV)
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 data

See data on following pages

CONDUCTED EMISSIONS



America

Test Report #: WC703228 Run 5 Test Area: SCREENROOM
 EUT Model #: 5001380 WI-WAVE Date: 5/23/2007
 EUT Serial #: 1 EUT Power: 60Hz/110VAC Temperature: 22.0 °C
 Test Method: EN300-328 Air Pressure: 99.0 kPa
 Customer: DIGI INT'L Rel. Humidity: 30.0 %

EUT Description: 802.11B/G TO USB RADIO MODULE

Notes: _____

Data File Name: 3228.dat

Page: 1 of 5

List of measurements for run #: 5

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV)	EUT Lead	DELTA1 EN55022 B Qp	DELTA2 EN55022 B Avg
60 Hz 110 VAC						
150.0 kHz	38.33 Qp	0.02 / 0.1 / 0.0 / 0.0	38.45	N	-27.55	n/a
225.0 kHz	23.47 Qp	0.03 / 0.1 / 0.0 / 0.0	23.6	N	-39.04	n/a
272.73 kHz	46.97 Qp	0.03 / 0.04 / 0.0 / 0.0	47.04	N	-14.0	n/a
413.53 kHz	36.84 Qp	0.05 / 0.15 / 0.0 / 0.0	37.04	N	-20.54	n/a
544.64 kHz	41.95 Qp	0.06 / 0.07 / 0.0 / 0.0	42.09	N	-13.91	n/a
678.8 kHz	43.83 Qp	0.08 / 0.03 / 0.0 / 0.0	43.94	N	-12.06	n/a
829.59 kHz	39.86 Qp	0.1 / 0.08 / 0.0 / 0.0	40.03	N	-15.97	n/a
1.09 MHz	43.48 Qp	0.11 / 0.04 / 0.0 / 0.0	43.62	N	-12.38	n/a
1.64 MHz	40.94 Qp	0.12 / 0.07 / 0.0 / 0.0	41.13	N	-14.87	n/a
2.05 MHz	41.63 Qp	0.13 / 0.06 / 0.0 / 0.0	41.82	N	-14.18	n/a
3.01 MHz	38.03 Qp	0.15 / 0.05 / 0.0 / 0.0	38.23	N	-17.77	n/a
4.16 MHz	35.0 Qp	0.18 / 0.1 / 0.0 / 0.0	35.28	N	-20.72	n/a
6.06 MHz	22.87 Qp	0.22 / 0.14 / 0.0 / 0.0	23.23	N	-36.77	n/a
11.83 MHz	34.7 Qp	0.31 / 0.06 / 0.0 / 0.0	35.07	N	-24.93	n/a
12.33 MHz	36.92 Qp	0.31 / 0.05 / 0.0 / 0.0	37.28	N	-22.72	n/a
16.03 MHz	31.73 Qp	0.34 / 0.02 / 0.0 / 0.0	32.09	N	-27.91	n/a
24.16 MHz	29.53 Qp	0.4 / 0.22 / 0.0 / 0.0	30.16	N	-29.84	n/a
150.0 kHz	11.23 Av	0.02 / 0.1 / 0.0 / 0.0	11.35	N	n/a	-44.65
225.0 kHz	-0.52 Av	0.03 / 0.1 / 0.0 / 0.0	-0.39	N	n/a	-53.03
268.6 kHz	39.62 Av	0.03 / 0.04 / 0.0 / 0.0	39.69	N	n/a	-11.47
272.73 kHz	39.19 Av	0.03 / 0.04 / 0.0 / 0.0	39.26	N	n/a	-11.78
398.18 kHz	21.13 Av	0.05 / 0.13 / 0.0 / 0.0	21.31	N	n/a	-26.58
413.53 kHz	22.58 Av	0.05 / 0.15 / 0.0 / 0.0	22.78	N	n/a	-24.8
544.64 kHz	34.11 Av	0.06 / 0.07 / 0.0 / 0.0	34.25	N	n/a	-11.75
678.8 kHz	34.06 Av	0.08 / 0.03 / 0.0 / 0.0	34.17	N	n/a	-11.83
829.59 kHz	23.53 Av	0.1 / 0.08 / 0.0 / 0.0	23.7	N	n/a	-22.3

Tested by: J. T. Schneider

 Printed

Joel T. Schneider

 Signature

Reviewed by: R. M. Johnson

 Printed

R. M. Johnson

 Signature

CONDUCTED EMISSIONS



America

Test Report #: WC703228 Run 5 Test Area: SCREENROOM
 EUT Model #: 5001380 WI-WAVE Date: 5/23/2007
 EUT Serial #: 1 EUT Power: 60Hz/110VAC Temperature: 22.0 °C
 Test Method: EN300-328 Air Pressure: 99.0 kPa
 Customer: DIGI INT'L Rel. Humidity: 30.0 %

EUT Description: 802.11B/G TO USB RADIO MODULE

Notes: _____

Data File Name: 3228.dat

Page: 2 of 5

List of measurements for run #: 5

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV)	EUT Lead	DELTA1 EN55022 B Qp	DELTA2 EN55022 B Avg
1.09 MHz	30.27 Av	0.11 / 0.04 / 0.0 / 0.0	30.41	N	n/a	-15.59
1.64 MHz	24.45 Av	0.12 / 0.07 / 0.0 / 0.0	24.64	N	n/a	-21.36
2.05 MHz	23.97 Av	0.13 / 0.06 / 0.0 / 0.0	24.16	N	n/a	-21.84
3.01 MHz	17.86 Av	0.15 / 0.05 / 0.0 / 0.0	18.06	N	n/a	-27.94
4.16 MHz	12.83 Av	0.18 / 0.1 / 0.0 / 0.0	13.11	N	n/a	-32.89
6.06 MHz	4.06 Av	0.22 / 0.14 / 0.0 / 0.0	4.42	N	n/a	-45.58
11.83 MHz	24.28 Av	0.31 / 0.06 / 0.0 / 0.0	24.65	N	n/a	-25.35
12.33 MHz	28.6 Av	0.31 / 0.05 / 0.0 / 0.0	28.96	N	n/a	-21.04
16.03 MHz	22.45 Av	0.34 / 0.02 / 0.0 / 0.0	22.81	N	n/a	-27.19
24.16 MHz	18.52 Av	0.4 / 0.22 / 0.0 / 0.0	19.15	N	n/a	-30.85
6.06 MHz	26.51 Qp	0.22 / 0.14 / 0.0 / 0.0	26.87	L1	-33.13	n/a
6.06 MHz	8.63 Av	0.22 / 0.14 / 0.0 / 0.0	8.99	L1	n/a	-41.01

Tested by: J. T. Schneider

 Printed

Joel T. Schneider

 Signature

Reviewed by: R. M. Johnson

 Printed

R. M. Johnson

 Signature

CONDUCTED EMISSIONS



America

Test Report #: WC703228 Run 5 Test Area: SCREENROOM
 EUT Model #: 5001380 WI-WAVE Date: 5/23/2007
 EUT Serial #: 1 EUT Power: 60Hz/110VAC Temperature: 22.0 °C
 Test Method: EN300-328 Air Pressure: 99.0 kPa
 Customer: DIGI INT'L Rel. Humidity: 30.0 %

EUT Description: 802.11B/G TO USB RADIO MODULE

Notes: _____

Data File Name: 3228.dat

Page: 3 of 5

Measurement summary for limit1: EN55022 B Qp (Qp)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV)	EUT Lead	DELTA1 EN55022 B Qp
678.8 kHz	43.83 Qp	0.08 / 0.03 / 0.0 / 0.0	43.94	N	-12.06
1.09 MHz	43.48 Qp	0.11 / 0.04 / 0.0 / 0.0	43.62	N	-12.38
544.64 kHz	41.95 Qp	0.06 / 0.07 / 0.0 / 0.0	42.09	N	-13.91
272.73 kHz	46.97 Qp	0.03 / 0.04 / 0.0 / 0.0	47.04	N	-14.0
2.05 MHz	41.63 Qp	0.13 / 0.06 / 0.0 / 0.0	41.82	N	-14.18
1.64 MHz	40.94 Qp	0.12 / 0.07 / 0.0 / 0.0	41.13	N	-14.87
829.59 kHz	39.86 Qp	0.1 / 0.08 / 0.0 / 0.0	40.03	N	-15.97
3.01 MHz	38.03 Qp	0.15 / 0.05 / 0.0 / 0.0	38.23	N	-17.77
413.53 kHz	36.84 Qp	0.05 / 0.15 / 0.0 / 0.0	37.04	N	-20.54
4.16 MHz	35.0 Qp	0.18 / 0.1 / 0.0 / 0.0	35.28	N	-20.72
12.33 MHz	36.92 Qp	0.31 / 0.05 / 0.0 / 0.0	37.28	N	-22.72
11.83 MHz	34.7 Qp	0.31 / 0.06 / 0.0 / 0.0	35.07	N	-24.93
150.0 kHz	38.33 Qp	0.02 / 0.1 / 0.0 / 0.0	38.45	N	-27.55
16.03 MHz	31.73 Qp	0.34 / 0.02 / 0.0 / 0.0	32.09	N	-27.91
24.16 MHz	29.53 Qp	0.4 / 0.22 / 0.0 / 0.0	30.16	N	-29.84
6.06 MHz	26.51 Qp	0.22 / 0.14 / 0.0 / 0.0	26.87	L1	-33.13
225.0 kHz	23.47 Qp	0.03 / 0.1 / 0.0 / 0.0	23.6	N	-39.04

Tested by: J. T. Schneider

Printed

Joel T. Schneider

Signature

Reviewed by: R. M. Johnson

Printed

R. M. Johnson

Signature

CONDUCTED EMISSIONS



America

Test Report #: WC703228 Run 5 Test Area: SCREENROOM
 EUT Model #: 5001380 WI-WAVE Date: 5/23/2007
 EUT Serial #: 1 EUT Power: 60Hz/110VAC Temperature: 22.0 °C
 Test Method: EN300-328 Air Pressure: 99.0 kPa
 Customer: DIGI INT'L Rel. Humidity: 30.0 %

EUT Description: 802.11B/G TO USB RADIO MODULE

Notes: _____

Data File Name: 3228.dat

Page: 4 of 5

Measurement summary for limit2: EN55022 B Avg (Av)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV)	EUT Lead	DELTA2 EN55022 B Avg
268.6 kHz	39.62 Av	0.03 / 0.04 / 0.0 / 0.0	39.69	N	-11.47
544.64 kHz	34.11 Av	0.06 / 0.07 / 0.0 / 0.0	34.25	N	-11.75
678.8 kHz	34.06 Av	0.08 / 0.03 / 0.0 / 0.0	34.17	N	-11.83
1.09 MHz	30.27 Av	0.11 / 0.04 / 0.0 / 0.0	30.41	N	-15.59
12.33 MHz	28.6 Av	0.31 / 0.05 / 0.0 / 0.0	28.96	N	-21.04
1.64 MHz	24.45 Av	0.12 / 0.07 / 0.0 / 0.0	24.64	N	-21.36
2.05 MHz	23.97 Av	0.13 / 0.06 / 0.0 / 0.0	24.16	N	-21.84
829.59 kHz	23.53 Av	0.1 / 0.08 / 0.0 / 0.0	23.7	N	-22.3
413.53 kHz	22.58 Av	0.05 / 0.15 / 0.0 / 0.0	22.78	N	-24.8
11.83 MHz	24.28 Av	0.31 / 0.06 / 0.0 / 0.0	24.65	N	-25.35
398.18 kHz	21.13 Av	0.05 / 0.13 / 0.0 / 0.0	21.31	N	-26.58
16.03 MHz	22.45 Av	0.34 / 0.02 / 0.0 / 0.0	22.81	N	-27.19
3.01 MHz	17.86 Av	0.15 / 0.05 / 0.0 / 0.0	18.06	N	-27.94
24.16 MHz	18.52 Av	0.4 / 0.22 / 0.0 / 0.0	19.15	N	-30.85
4.16 MHz	12.83 Av	0.18 / 0.1 / 0.0 / 0.0	13.11	N	-32.89
6.06 MHz	8.63 Av	0.22 / 0.14 / 0.0 / 0.0	8.99	L1	-41.01
150.0 kHz	11.23 Av	0.02 / 0.1 / 0.0 / 0.0	11.35	N	-44.65
225.0 kHz	-0.52 Av	0.03 / 0.1 / 0.0 / 0.0	-0.39	N	-53.03

Tested by: J. T. Schneider

Printed

Joel T. Schneider

Signature

Reviewed by: R. M. Johnson

by:

Printed

Ron M. Johnson

Signature

CONDUCTED EMISSIONS



America

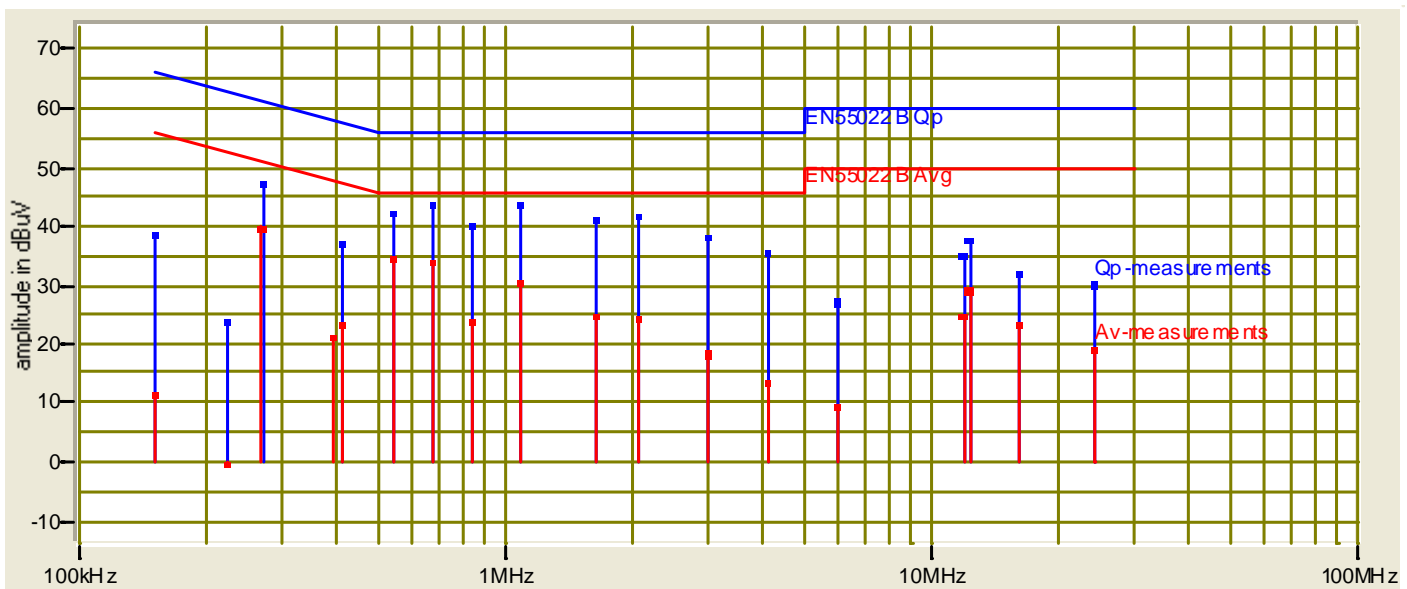
Test Report #: WC703228 Run 5 Test Area: SCREENROOM
 EUT Model #: 5001380 WI-WAVE Date: 5/23/2007
 EUT Serial #: 1 EUT Power: 60Hz/110VAC Temperature: 22.0 °C
 Test Method: EN300-328 Air Pressure: 99.0 kPa
 Customer: DIGI INT'L Rel. Humidity: 30.0 %

EUT Description: 802.11B/G TO USB RADIO MODULE

Notes: _____

Data File Name: 3228.dat Page: 5 of 5

Graph:



Tested by: J. T. Schneider
 Printed

Joel T. Schneider
 Signature

Reviewed by: R. M. Johnson
 Printed

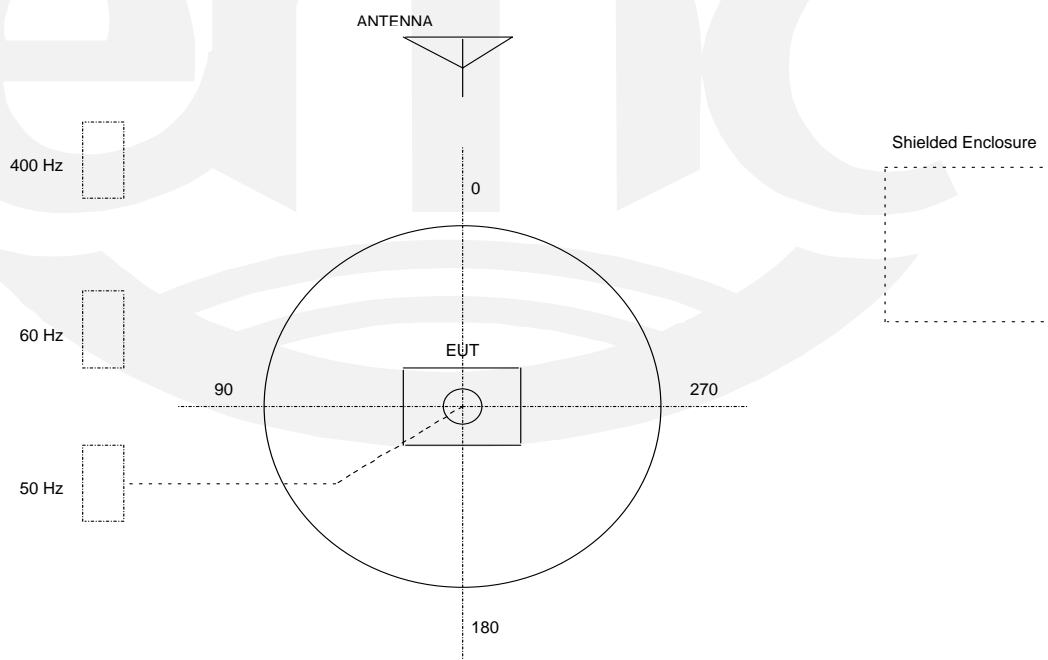
R. M. Johnson
 Signature

TEST SETUP FOR EMISSIONS TESTING

WILD RIVER LAB Large Test Site

Notes:

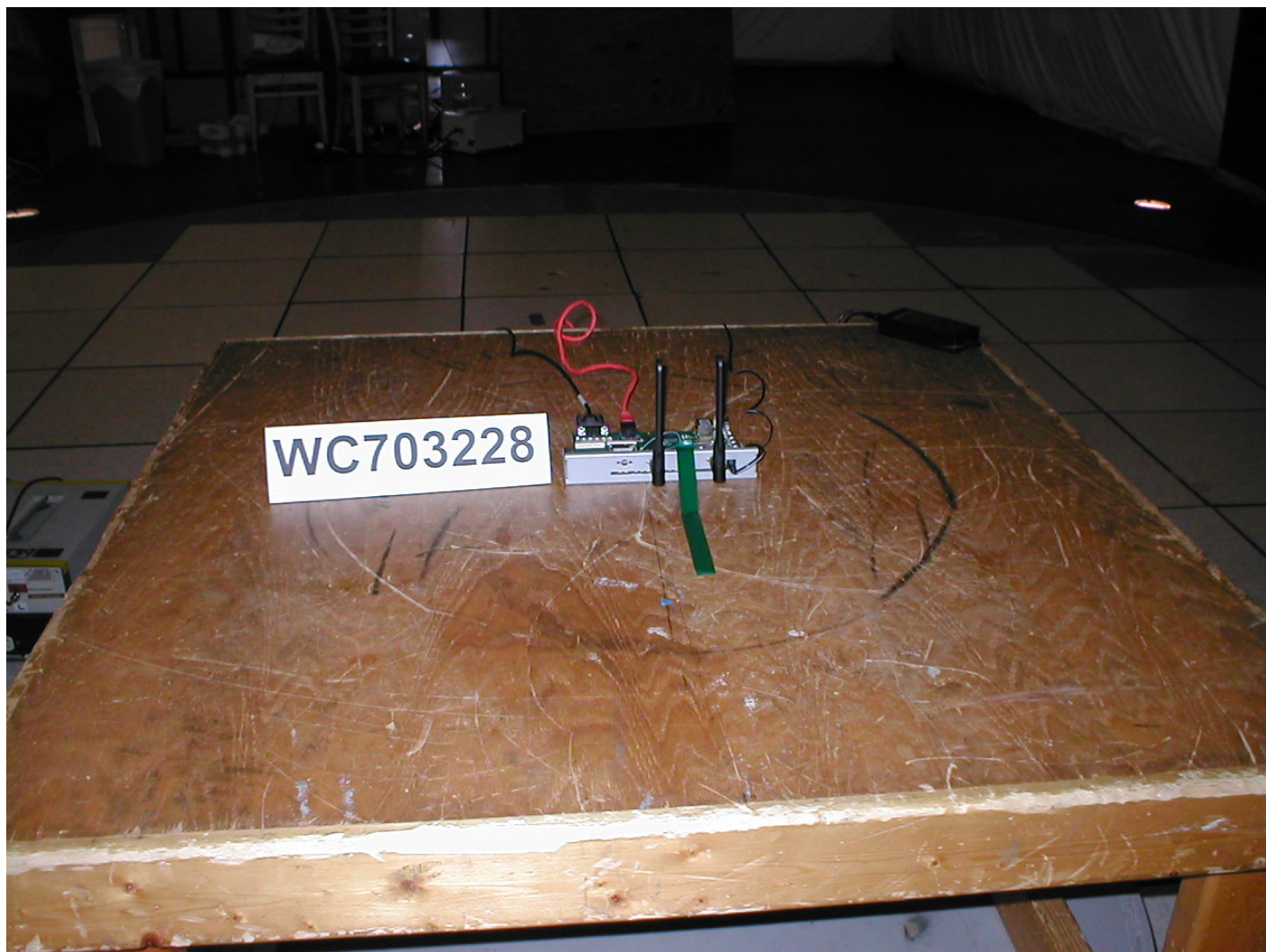
1. Items shown in dotted lines are located on the floor below the test area. It is 5 meters vertically from the ground floor to the test area.
2. 50 Hz, 60 Hz, and 400 Hz are power panels for alternating current.
3. The antenna may be positioned horizontally 3, 10 or 30 meters from the center of the turntable.
4. The circle is a 6.7 meter diameter turntable.
5. A ground plane is in the plane of this sheet.
6. The test sample is shown in the azimuthal position representing zero degrees.



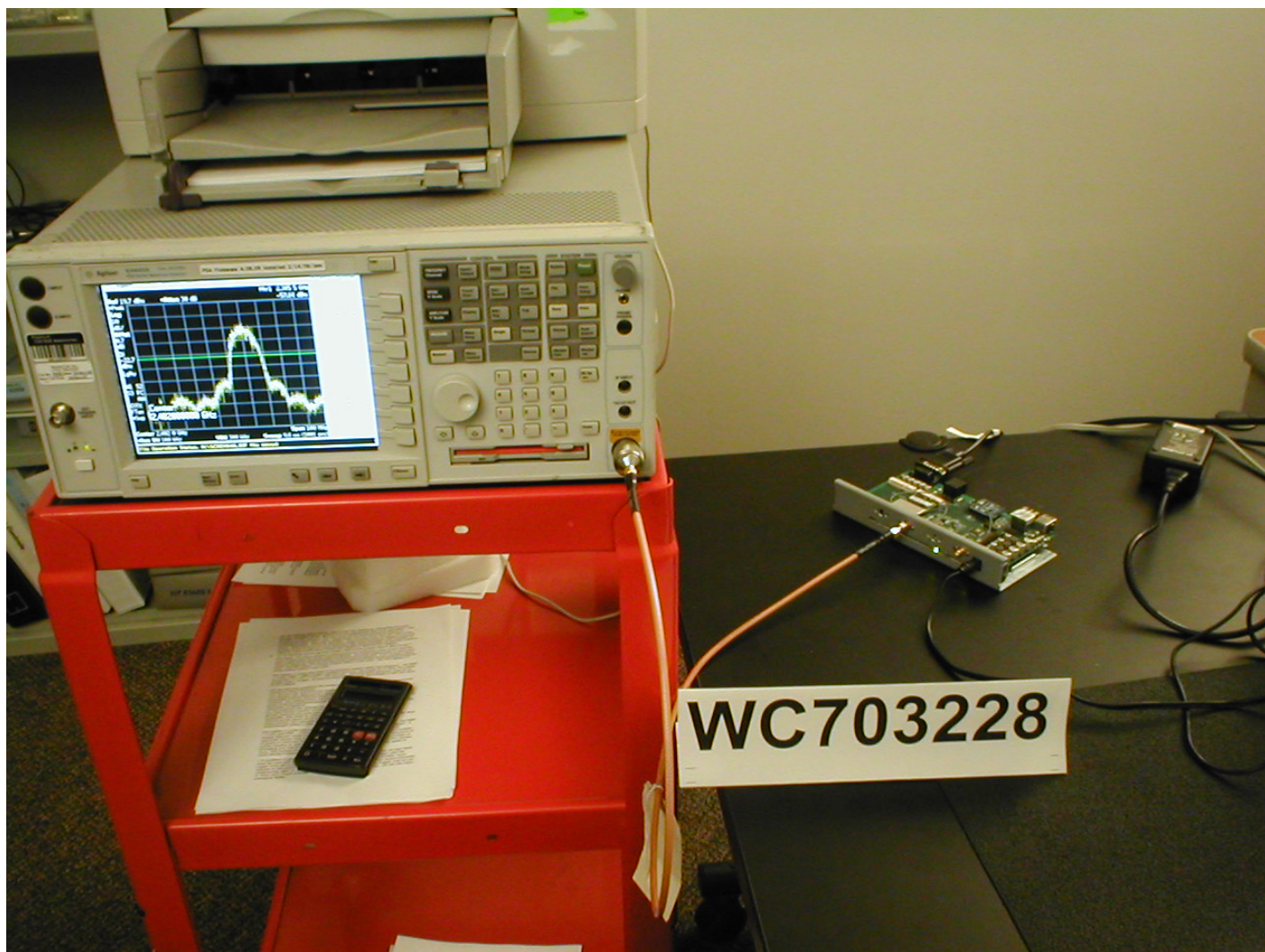
Test-setup photo(s):
Conducted emissions on AC power lines



Test-setup photo(s):
Radiated emissions



Test-setup photo(s):
Conducted measurements



Equipment Under Test (EUT) Test Operation Mode:

The device under test was operated under the following conditions during immunity testing :

- Standby
- Test program (H - Pattern)
- Test program (color bar)
- Test program (customer specific)
- Practice operation
- Normal operating mode
- Standard digi EOS with fcc application running. The eut will use digi's standard operation system and a special fcc driver that passes data via the USB port over the 802.11b/g radio.
- Transmit frequency locked at low, mid or high channel as needed
- Both unmodulated & modulated as needed

Configuration of the device under test:

- See Appendix B and test setup photo(s)
- See Product Information Form(s) in Appendix B

DEVIATIONS FROM STANDARD:

None.

GENERAL REMARKS:

None

Modifications required to pass:

- None
- As indicated on the data sheet(s)

Test Specification Deviations: Additions to or Exclusions from:

- None
- As indicated in the Test Plan

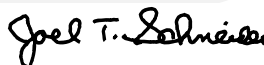
SUMMARY:

The requirements according to the technical regulations are

- met and the device under test does fulfill the general approval requirements.
- **not** met and the device under test does **not** fulfill the general approval requirements..

EUT Received Date: 10 May 2007Condition of EUT: NormalTesting Start Date: 10 May 2007Testing End Date: 21 August 2007

TÜV AMERICA INC

Ross Johnson
EMC TechnicianJoel Schneider
Senior EMC Engineer

Appendix A

Constructional Data Form

and

Block Diagram





EMC Test Plan and Constructional Data Form

America

PLEASE COMPLETE THIS DOCUMENT IN FULL, ENTERING N/A IF THE FIELD IS NOT APPLICABLE. IF TESTING RESULTS IN MODIFICATIONS TO THE EQUIPMENT, PLEASE SUBMIT A REVISED TP/CDF INDICATING THOSE MODIFICATIONS.
NOTE: This information will be input into your test report as shown below. Press the F1 key at any time to get HELP for the current field selected.

Company: Digi International
 Address: 11001 Bren Rd E.
Minnetonka, MN 55343
 Contact: Greg Dettro Position: Eng
 Phone: 630-799-0941 Fax: _____
 E-mail Address: gdettro@digi.com

General Equipment Description -- NOTE: This information will be input into your test report as shown below.

EUT Description PClexpress MiniCard 802.11b/g Module with USB interface
 EUT Name Digi Connect Wi-Wave
 Model No.: 50001380-01 Serial No.: 0001
 Product Options: _____
 Configurations to be tested: _____

Equipment Modification (If applicable, indicate modifications since EUT was last tested. If modifications are made during this testing, submit revised TP/CDF after testing is complete.)

Modifications since last test: _____
 Modifications made during test: _____

Test Objective(s): Please indicate the tests to be performed, entering the applicable standard(s) where noted.

- | | |
|--|--|
| <input checked="" type="checkbox"/> EMC Directive 89/336/EEC (EMC)
Std: <u>listed on quote 281014106476</u> | <input checked="" type="checkbox"/> FCC: Class <input type="checkbox"/> A <input checked="" type="checkbox"/> B Part <u>15</u> |
| <input type="checkbox"/> Machinery Directive 89/392/EEC (EMC)
Std: _____ | <input checked="" type="checkbox"/> VCCI: Class <input type="checkbox"/> A <input checked="" type="checkbox"/> B |
| <input type="checkbox"/> Medical Device Directive 93/42/EEC (EMC)
Std: _____ | <input type="checkbox"/> BSMI: Class <input type="checkbox"/> A <input type="checkbox"/> B |
| <input type="checkbox"/> Vehicle Directive 72/245/EEC (EMC)
Std: _____ | <input checked="" type="checkbox"/> Canada: Class <input type="checkbox"/> A <input type="checkbox"/> B |
| <input type="checkbox"/> FDA Reviewers Guidance for Premarket Notification Submissions (EMC) | <input checked="" type="checkbox"/> Australia: Class <input type="checkbox"/> A <input type="checkbox"/> B |
| | <input type="checkbox"/> Other: <u>EN55022, EN55024, EU and FCC/IC standards for wireless radio.</u> |

Third Party Certification, if applicable (*Signature on Page 6 Required)

- | | |
|---|---|
| <input type="checkbox"/> Attestation of Conformity (AoC)* | <input type="checkbox"/> EMC Certification (used with Octagon Mark)* |
| <input type="checkbox"/> Certificate of Conformity (CoC)* | <input type="checkbox"/> Compliance Document* |
| Protection Class (N/A for vehicles) | <input type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III |
- (Press F1 when field is selected to show additional information on Protection Class.)



America

EMC Test Plan and Constructional Data Form

- FCC / TCB Certification
- E-Mark Certification

- Industry Canada / FCB Certification
- Taiwan Certification

Attendance

Test will be: Attended by the customer Unattended by the customer

Failure - Complete this section if testing will not be attended by the customer.

If a failure occurs, TÜV America should:

- Call contact listed above, if not available then stop testing. (After hrs phone): _____
- Continue testing to complete test series.
- Continue testing to define corrective action.
- Stop testing.

EUT Specifications and Requirements

Length: 50.95mm Width: 30.00mm Height: 4.75mm Weight: 0.25oz

Power Requirements

Regulations require testing to be performed at typical power ratings in the countries of intended use. (i.e., European power is typically 230 VAC 50 Hz or 400 VAC 50 Hz, single and three phase, respectively)

Voltage: 3.3V DC (If battery powered, make sure battery life is sufficient to complete testing.)

of Phases: _____

Current (Amps/phase(max)): 0.75A Current (Amps/phase(nominal)): 0.50A

Other _____

Other Special Requirements

Typical Installation and/or Operating Environment

(ie. Hospital, Small Business, Industrial/Factory, etc.)

EUT Power Cable

- Permanent OR Removable Length (in meters): _____
- Shielded OR Unshielded
- Not Applicable



EMC Test Plan and Constructional Data Form

America

EUT Interface Ports and Cables														
Type	Analog	Digital	During Test		Qty	Shielding		Termination	Connector Type	Port Termination	Length tested (in meters)	Removable	Permanent	
			Active	Passive		Yes	No							Type
EXAMPLE:														
RS232	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Foil over braid	Coaxial	Metallized 9-pin D-Sub	Characteristic Impedance	6	<input checked="" type="checkbox"/>	<input type="checkbox"/>
USB	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Foil/Braid		USB	100	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ethernet	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>			RJ45	100	10	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>



EMC Test Plan and Constructional Data Form

America

EUT Software.

Revision Level:

Description: standard digi EOS with fcc application running

Equipment Under Test (EUT) Operating Modes to be Tested -- list the operating modes to be used during test. It is recommended the equipment be tested while operating in a typical operation mode. FCC testing of personal computers and/or peripherals requires that a simple program generate a complete line of upper case H's. Provide a general description of all software, firmware, and PLD algorithms used in the equipment. List all code modules as described above, with the revision level used during testing. Consult with your TÜV Product Service Representative if additional assistance is required.

1. the eut will use digi's standard operation system and a special fcc driver that passes data via the USB port over the 802.11b/g radio
- 2.
- 3.

Equipment Under Test (EUT) System Components -- List and describe all components which are part of the EUT. For FCC & Taiwan testing a minimum configuration is required. (ie. Mouse, Printer, Monitor, External Disk Drive, Motherboard, etc)

Description	Model #	Serial #	FCC ID #
special digi supplied carrier board that supplies the eut's power and USB interface	55001197-01	na	none



EMC Test Plan and Constructional Data Form

Support Equipment -- List and describe all support equipment which is not part of the EUT. (i.e. peripherals, simulators, etc)
This information is required for FCC & Taiwan testing.

<i>Description</i>	<i>Model #</i>	<i>Serial #</i>	<i>FCC ID #</i>
laptop computer -Micron	transport gx+	2966486	NBK001627-04
access point/hub - D-Link	Di-524	B296153006075	KA2DI524C1

Oscillator Frequencies

<i>Frequency</i>	<i>Derived Frequency</i>	<i>Component # / Location</i>	<i>Description of Use</i>
12.00 MHz		X1	USB clock
40.00 MHz		U14	CPLD clock, RF reference clock

Power Supply

<i>Manufacturer</i>	<i>Model #</i>	<i>Serial #</i>	<i>Type</i>
			<input type="checkbox"/> Switched-mode: (Frequency) _____ <input type="checkbox"/> Linear <input type="checkbox"/> Other: _____
			<input type="checkbox"/> Switched-mode: (Frequency) _____ <input type="checkbox"/> Linear <input type="checkbox"/> Other: _____

Power Line Filters

<i>Manufacturer</i>	<i>Model #</i>	<i>Location in EUT</i>



EMC Test Plan and Constructional Data Form

Critical EMI Components (Capacitors, ferrites, etc.)				
<i>Description</i>	<i>Manufacturer</i>	<i>Part # or Value</i>	<i>Qty</i>	<i>Component # / Location</i>

EMC Critical Detail -- Describe other EMC Design details used to reduce high frequency noise.

EUT is an unenclosed module that does not use any special EMC shielding except for a shield that surrounds the radio's rf section.

(PLEASE INSERT "ELECTRONIC SIGNATURE" BELOW IF POSSIBLE)

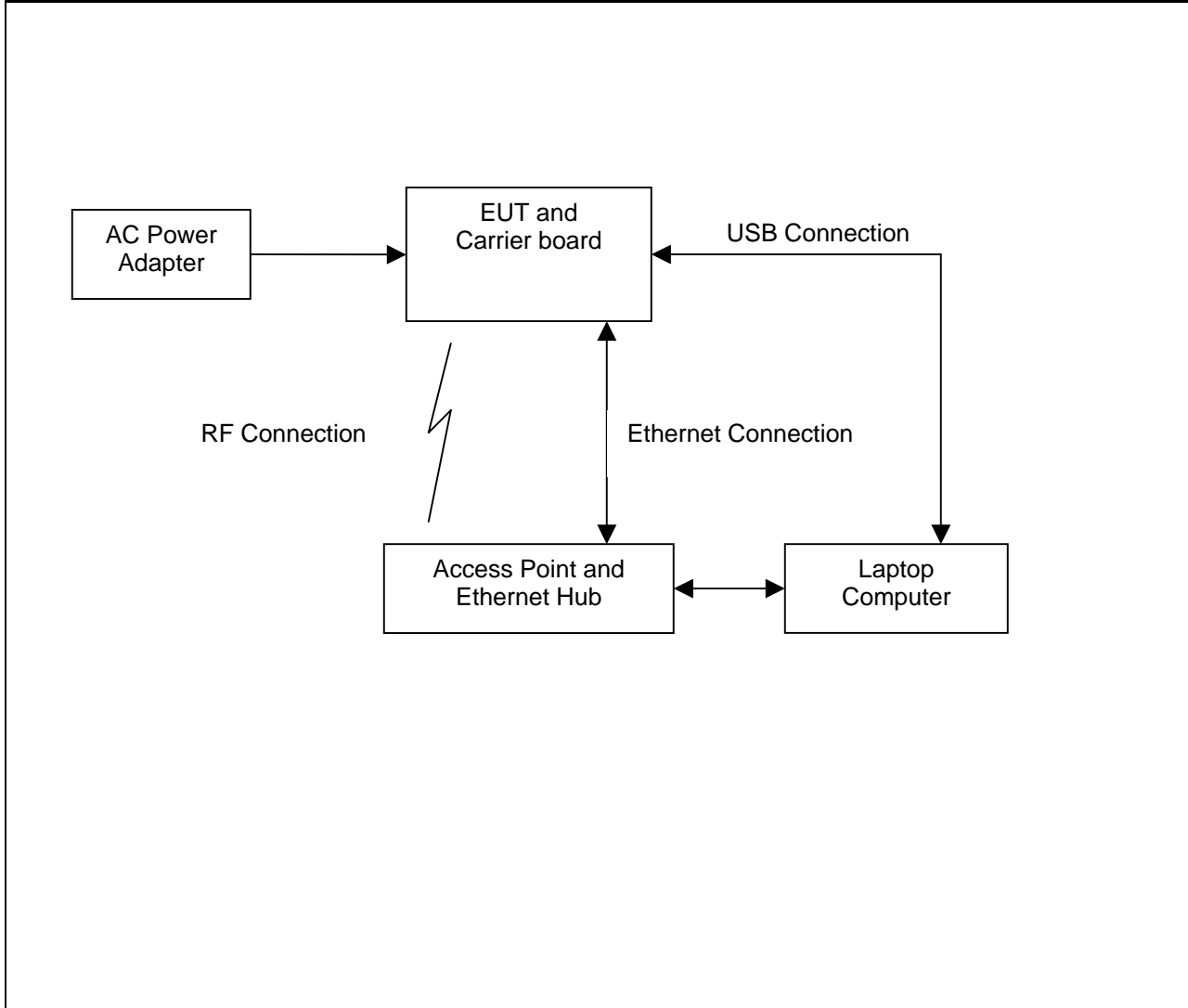
Authorization Signatures (Signature Required for Certifications checked on pg 1)

Customer authorization to perform tests according to this test plan.	Date
Test Plan/CDF Prepared By (please print)	Date



EMC Block Diagram Form

System Configuration Block Diagram -- Provide a line drawing identifying the EUT, simulators, support equipment, I/O cables, power cables, and any other pertinent components to be used during testing. Use a dashed line to separate the equipment in the testing field versus equipment outside testing field.



Authorization Signatures

Customer authorization to perform tests according to this test plan.

Date

Test Plan/CDF Prepared By (please print)

Date

Appendix B

Measurement Protocol



MEASUREMENT PROTOCOL

GENERAL INFORMATION

Test Methodology

Emissions testing is performed according to the procedures in ANSI C63.4-2003.

Measurement Uncertainty

The test system for conducted emissions is defined as the LISN, tuned receiver or spectrum analyzer, and coaxial cable. The test system has a measurement uncertainty of ± 1.8 dB. The test system for radiated emissions is defined as the antenna, the pre-amplifier, the spectrum analyzer and the coaxial cable. The test system has a measurement uncertainty of ± 4.8 dB. The equipment comprising the test systems is calibrated on an annual basis.

Justification

The Equipment Under Test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions. A cable is connected to each available port and either terminated with a peripheral into its characteristic impedance or left unterminated. When appropriate, the cables are manually manipulated with respect to each other to obtain maximum emissions from the unit.

Conducted Emissions

The final level, in $\text{dB}\mu\text{V}$, equals the EMI receiver level plus the cable loss and LISN factor.

Radiated Emissions

The final level, in $\text{dB}\mu\text{V}/\text{m}$, equals the reading from the spectrum analyzer (Level $\text{dB}\mu\text{V}$), adding the antenna correction factor and cable loss factor (Factor dB) to it, and subtracting the preamp gain (and duty cycle correction factor, if applicable). This result then has the limit subtracted from it to provide the Delta, which gives the tabular data as shown in the data sheets in Attachment A. Intentional radiators are rotated through 3 orthogonal axes to determine the test position yielding the maximum emission levels.

Example:

FREQ (MHz)	LEVEL ($\text{dB}\mu\text{V}$)	CABLE/ANT/PREAMP (dB)	FINAL ($\text{dB}\mu\text{V}/\text{m}$)	POL/HGT/AZ (m) (deg)	DELTA1
60.80	42.5Qp +	1.2 + 10.9 - 25.5 =	29.1	V 1.0 0.0	-10.9

Test Equipment

All measurement instrumentation is traceable to the National Institute of Standards and Technology and is calibrated according to internal procedure.