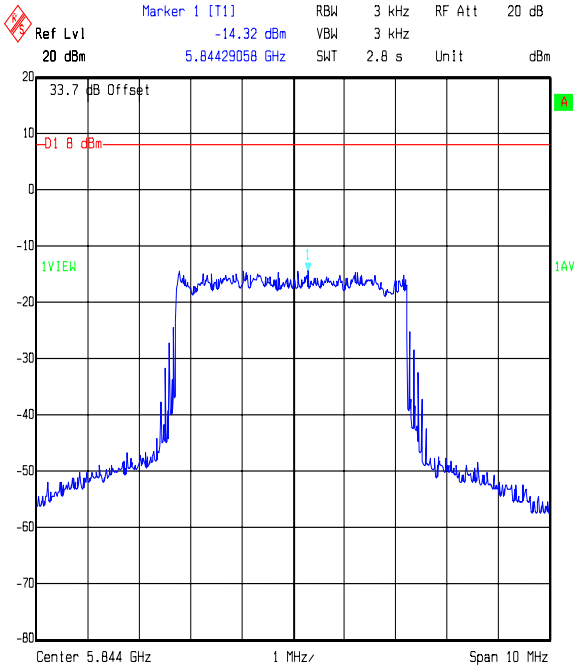


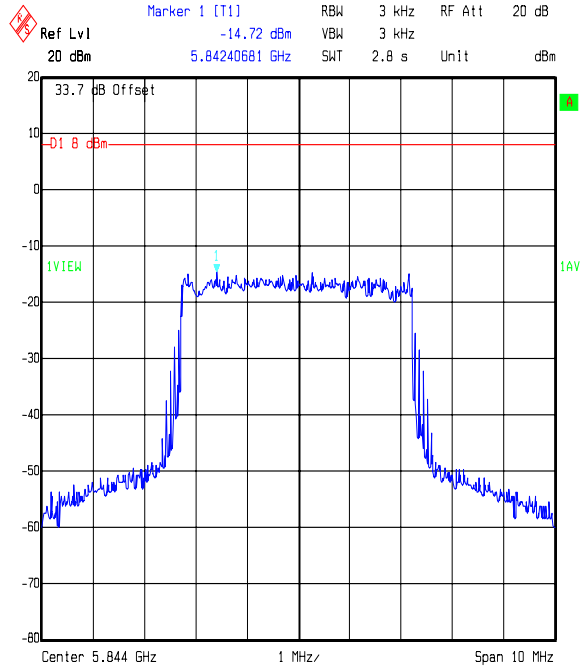
Test of: Orthogon Systems.
PTP58600
To: FCC Part 15.247: 2006

Transmitter Peak Power Spectral Density: Section (Continued)

Results for 16QAM 5 MHz channel



Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY H PORT 5 MHz CHANNEL 16QAM TOP CH
Date: 06.JUN.2007 09:46:11

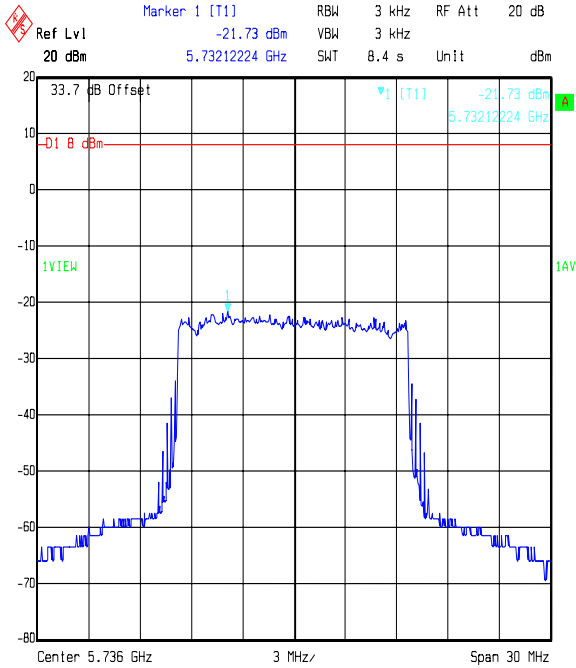


Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 5 MHz CHANNEL 16QAM TOP CH
Date: 06.JUN.2007 08:43:53

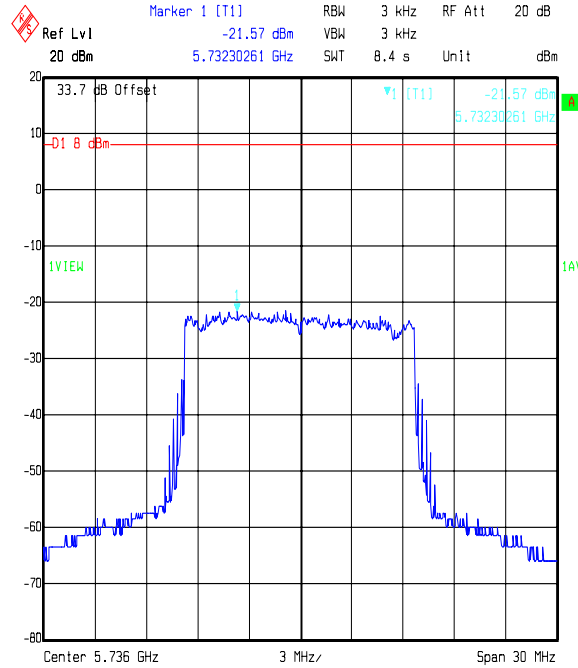
Test of: Orthogon Systems.
 PTP58600
 To: FCC Part 15.247: 2006

Transmitter Peak Power Spectral Density: Section (Continued)

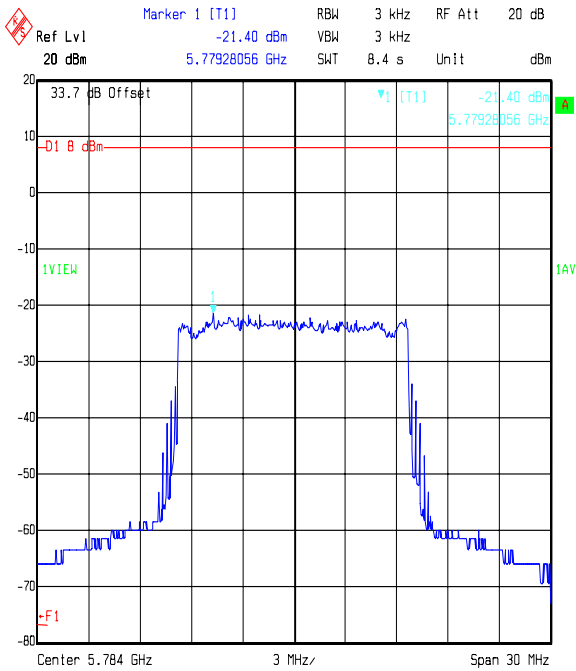
Results for 16QAM 15 MHz channel



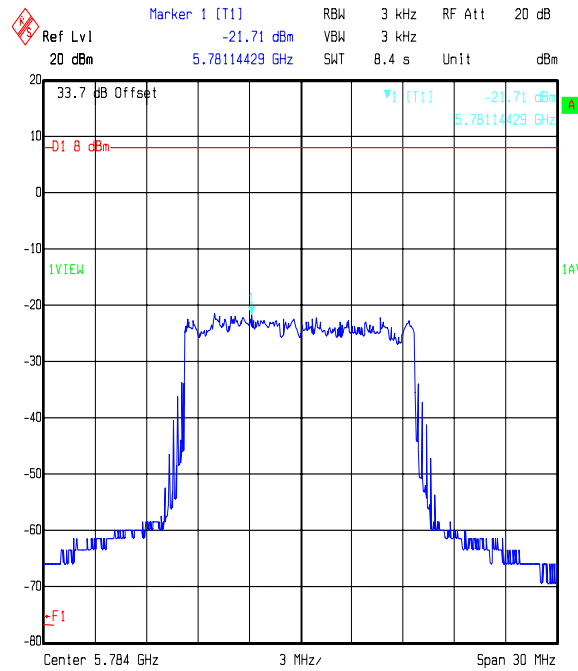
Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY H PORT 15 MHZ CHANNEL 16QAM BOTTOM CH
 Date: 05.JUN.2007 10:54:07



Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY V PORT 15 MHZ CHANNEL 16QAM BOTTOM CH
 Date: 05.JUN.2007 10:51:08



Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY H PORT 15 MHZ CHANNEL 16QAM CENTRE CH
 Date: 05.JUN.2007 09:52:08

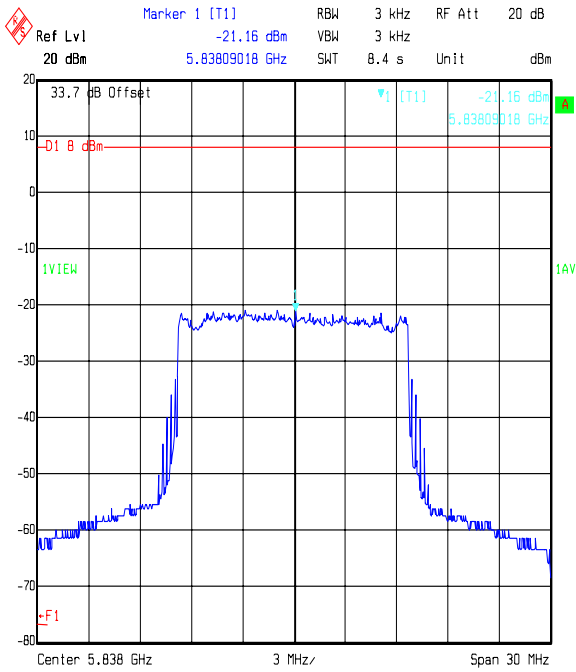


Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY V PORT 15 MHZ CHANNEL 16QAM CENTRE CH
 Date: 05.JUN.2007 09:49:31

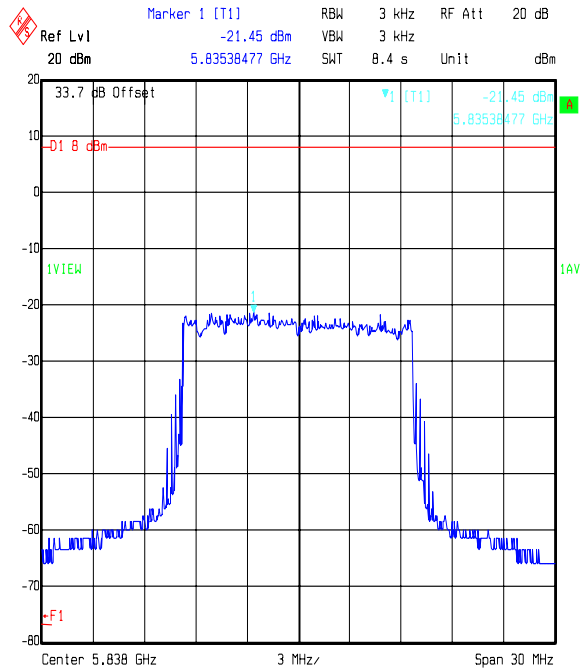
Test of: Orthogon Systems.
PTP58600
To: FCC Part 15.247: 2006

Transmitter Peak Power Spectral Density: Section (Continued)

Results for 16QAM 15 MHz channel



Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY H PORT 15 MHz CHANNEL 16QAM TOP CH
Date: 05.JUN.2007 10:31:32



Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 15 MHz CHANNEL 16QAM TOP CH
Date: 05.JUN.2007 10:33:45

Test of: Orthogon Systems.
PTP58600

To: FCC Part 15.247: 2006

Transmitter Peak Power Spectral Density (Continued)

Results for 64QAM 5 MHz channel

Channel	Antenna Polarity (H/V)	Output Power (dBm / 3 kHz)	Limit (dBm / 3 kHz)	Margin (dB)	Result
Bottom	Vertical	-19.7	8.0	27.7	Complied
Bottom	Horizontal	-18.5	8.0	26.5	Complied
Middle	Vertical	-18.9	8.0	26.8	Complied
Middle	Horizontal	-19.6	8.0	27.6	Complied
Top	Vertical	-18.9	8.0	26.9	Complied
Top	Horizontal	-19.0	8.0	27.0	Complied

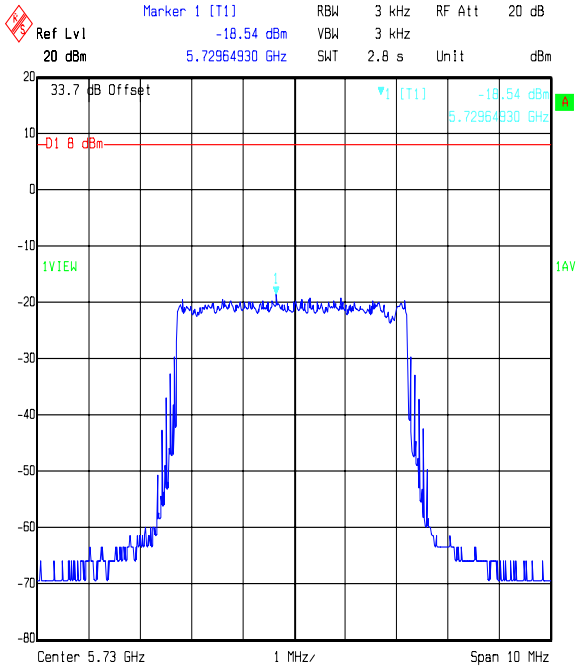
Results for 64QAM 15 MHz channel

Channel	Antenna Polarity (H/V)	Output Power (dBm / 3 kHz)	Limit (dBm / 3 kHz)	Margin (dB)	Result
Bottom	Vertical	-25.2	8.0	33.2	Complied
Bottom	Horizontal	-25.7	8.0	33.7	Complied
Middle	Vertical	-25.4	8.0	33.4	Complied
Middle	Horizontal	-25.7	8.0	33.7	Complied
Top	Vertical	-24.9	8.0	33.0	Complied
Top	Horizontal	-24.9	8.0	33.0	Complied

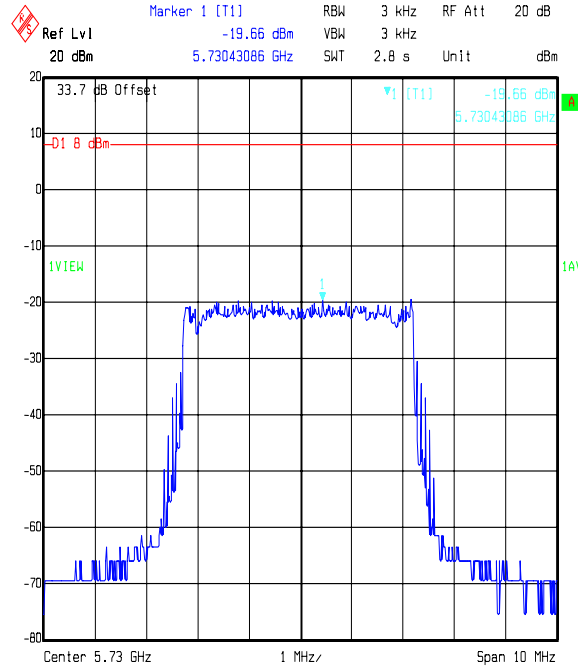
Test of: Orthogon Systems.
 PTP58600
 To: FCC Part 15.247: 2006

Transmitter Peak Power Spectral Density: Section (Continued)

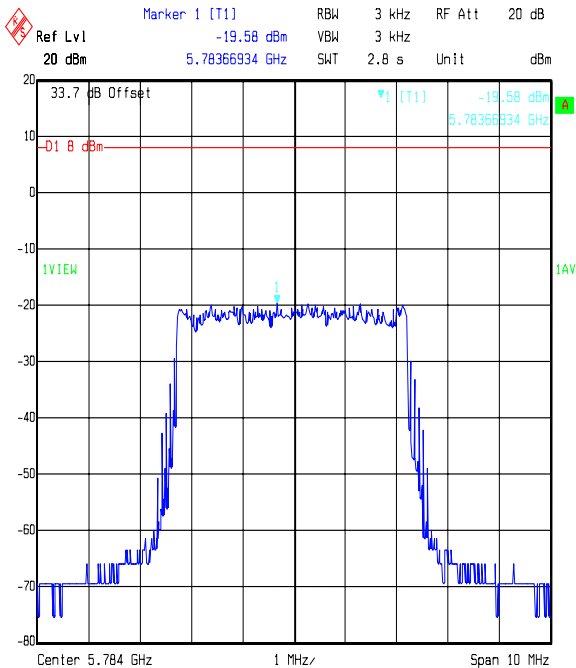
Results for 64QAM 5 MHz channel



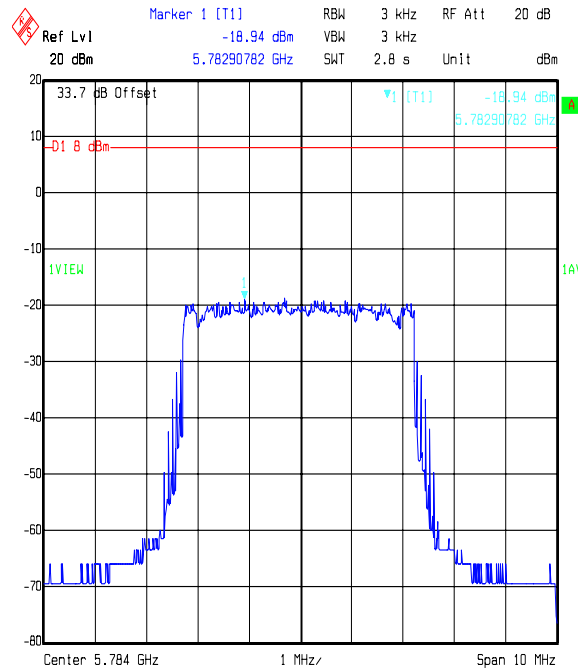
Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY H PORT 5 MHZ CHANNEL 64QAM BOTTOM CH
 Date: 05.JUN.2007 14:57:47



Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY V PORT 5 MHZ CHANNEL 64QAM BOTTOM CH
 Date: 05.JUN.2007 15:21:27



Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY H PORT 5 MHZ CHANNEL 64QAM CENTRE CH
 Date: 05.JUN.2007 14:31:53

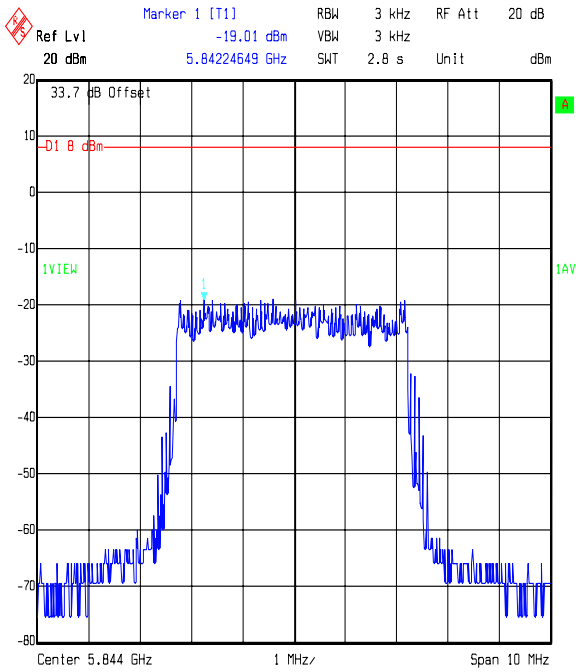


Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY V PORT 5 MHZ CHANNEL 64QAM CENTRE CH
 Date: 05.JUN.2007 14:28:06

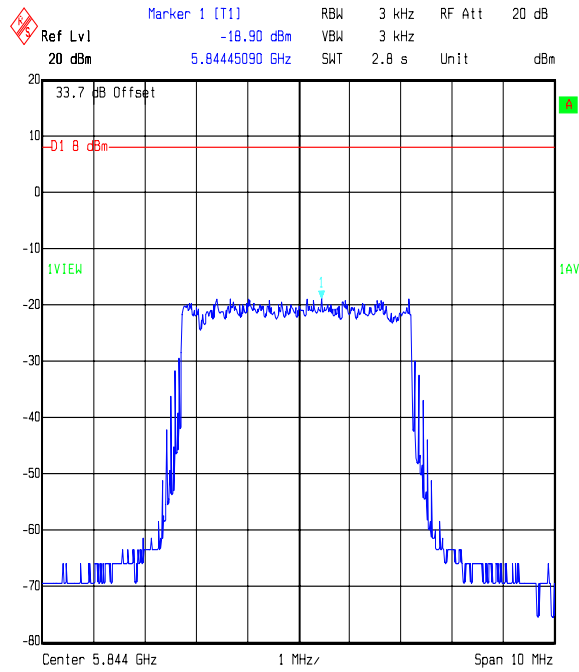
Test of: Orthogon Systems.
PTP58600
To: FCC Part 15.247: 2006

Transmitter Peak Power Spectral Density: Section (Continued)

Results for 64QAM 5 MHz channel



Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY H PORT 5 MHZ CHANNEL 64QAM TOP CH
Date: 06.JUN.2007 09:33:06

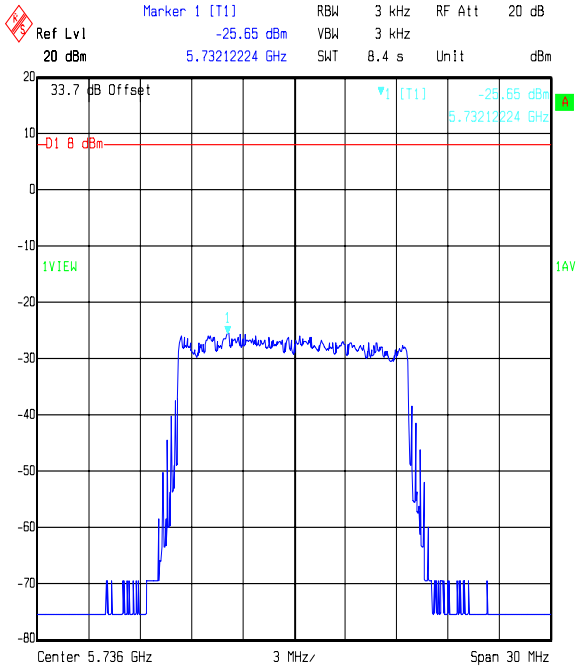


Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 5 MHZ CHANNEL 64QAM TOP CH
Date: 06.JUN.2007 08:36:43

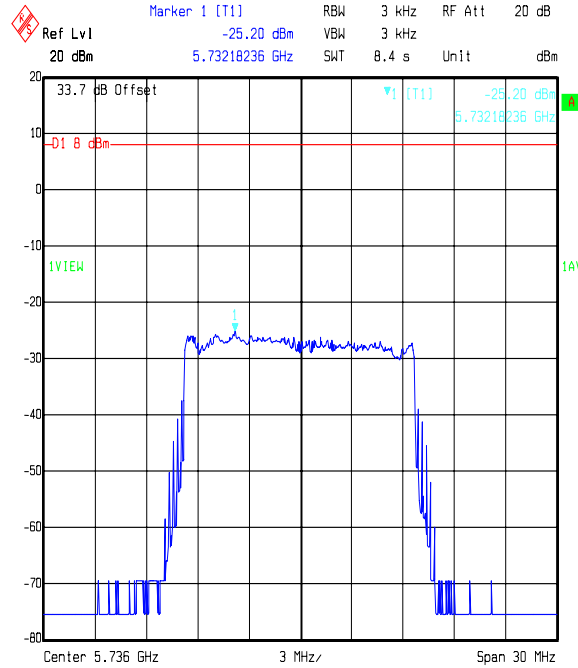
Test of: Orthogon Systems.
 PTP58600
 To: FCC Part 15.247: 2006

Transmitter Peak Power Spectral Density: Section (Continued)

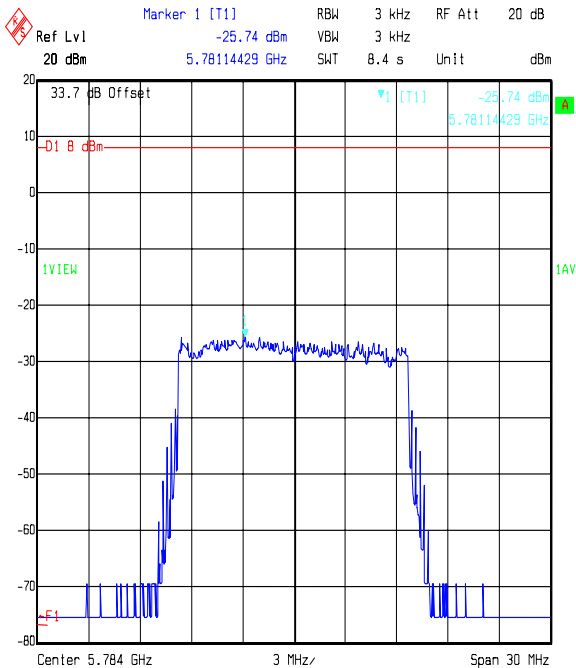
Results for 64QAM 15 MHz channel



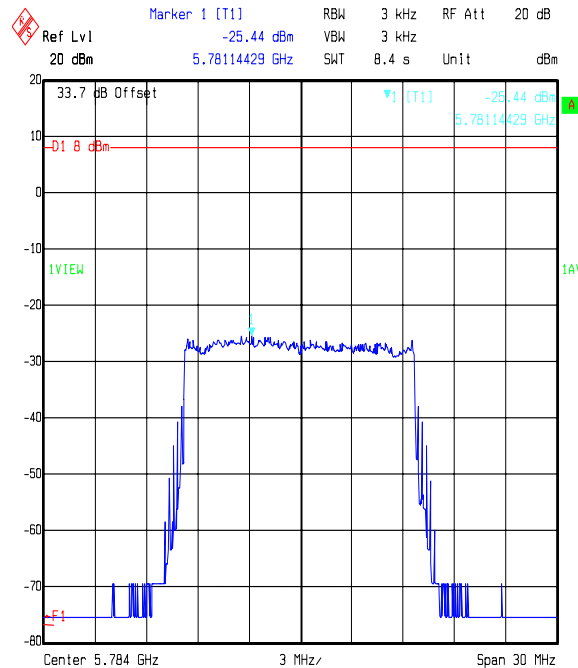
Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY H PORT 15 MHZ CHANNEL 64QAM BOTTOM CH
 Date: 05.JUN.2007 10:41:33



Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY V PORT 15 MHZ CHANNEL 64QAM BOTTOM CH
 Date: 05.JUN.2007 10:44:07



Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY H PORT 15 MHZ CHANNEL 64QAM CENTRE CH
 Date: 05.JUN.2007 09:28:43

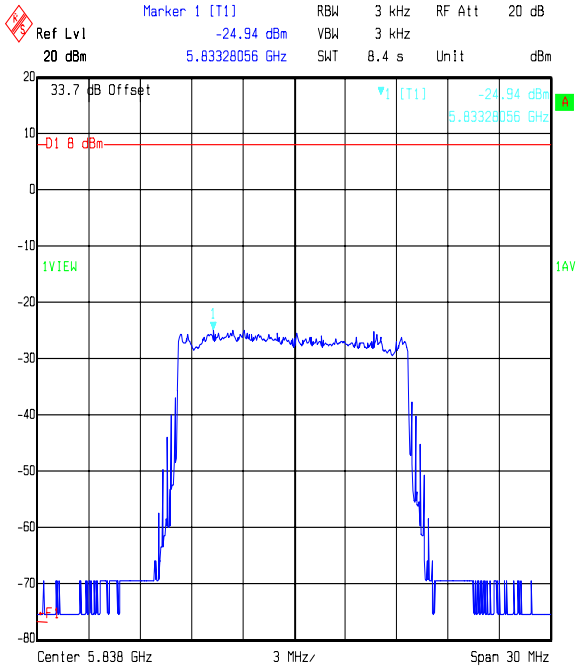


Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY V PORT 15 MHZ CHANNEL 64QAM CENTRE CH
 Date: 05.JUN.2007 09:32:30

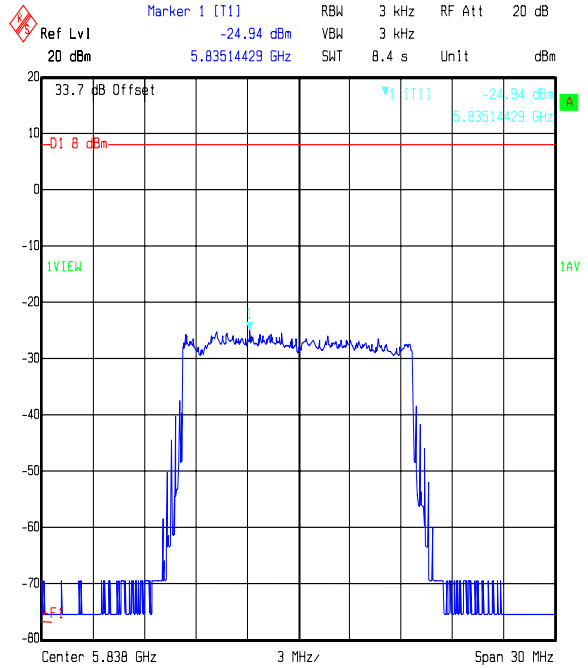
Test of: Orthogon Systems.
PTP58600
To: FCC Part 15.247: 2006

Transmitter Peak Power Spectral Density: Section (Continued)

Results for 64QAM 15 MHz channel



Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY H PORT 15 MHz CHANNEL 64QAM TOP CH
Date: 05.JUN.2007 10:38:36



Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 15 MHz CHANNEL 64QAM TOP CH
Date: 05.JUN.2007 10:36:13

Test of: Orthogon Systems.
 PTP58600
 To: FCC Part 15.247: 2006

Transmitter Peak Power Spectral Density (Continued)

Results for Acquisition Mode 5 MHz channel

Channel	Antenna Polarity (H/V)	Output Power (dBm / 3 kHz)	Limit (dBm / 3 kHz)	Margin (dB)	Result
Bottom	Vertical	-8.7	8.0	16.7	Complied
Bottom	Horizontal	-8.4	8.0	16.4	Complied
Middle	Vertical	-8.5	8.0	16.5	Complied
Middle	Horizontal	-8.4	8.0	16.4	Complied
Top	Vertical	-7.6	8.0	15.6	Complied
Top	Horizontal	-7.2	8.0	15.2	Complied

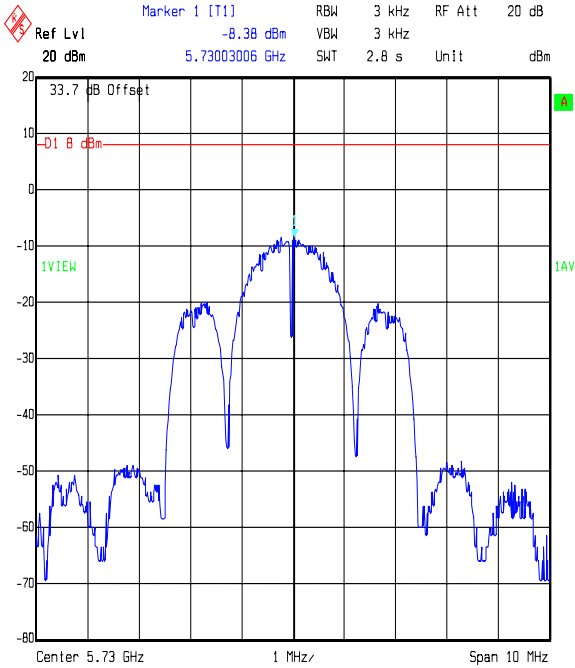
Results for Acquisition Mode 15 MHz channel

Channel	Antenna Polarity (H/V)	Output Power (dBm / 3 kHz)	Limit (dBm / 3 kHz)	Margin (dB)	Result
Bottom	Vertical	-20.2	8.0	28.2	Complied
Bottom	Horizontal	-20.2	8.0	28.2	Complied
Middle	Vertical	-19.2	8.0	27.2	Complied
Middle	Horizontal	-20.2	8.0	28.2	Complied
Top	Vertical	-19.0	8.0	27.0	Complied
Top	Horizontal	-19.0	8.0	27.0	Complied

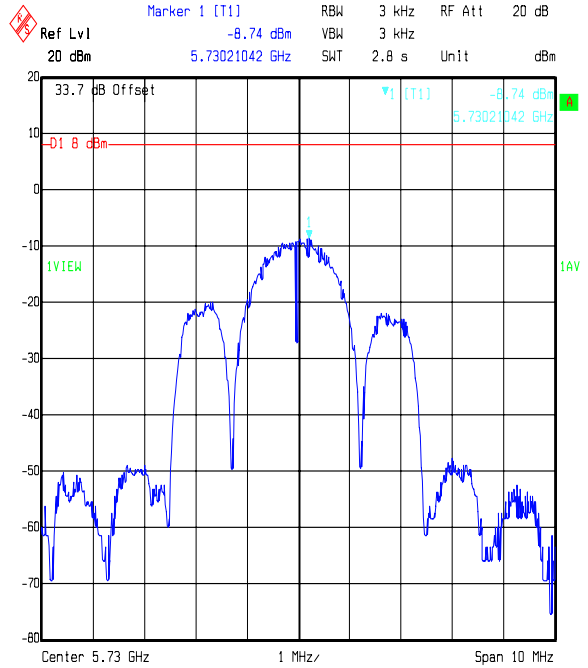
Test of: Orthogon Systems.
 PTP58600
 To: FCC Part 15.247: 2006

Transmitter Peak Power Spectral Density: Section (Continued)

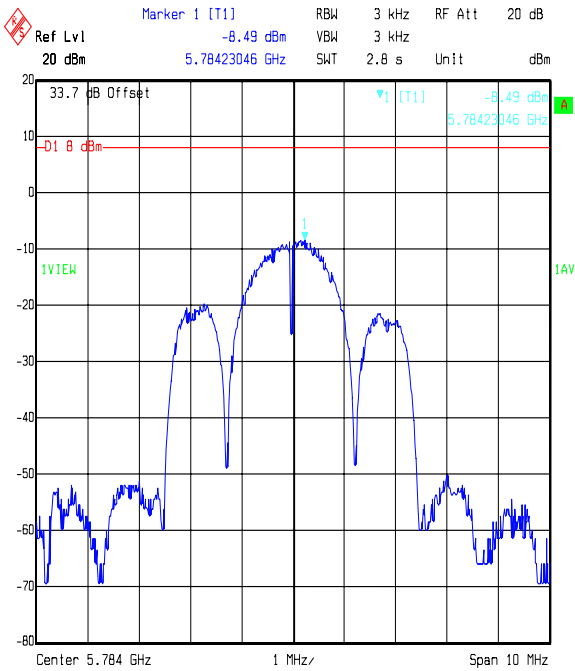
Results for Acquisition Mode 5 MHz channel



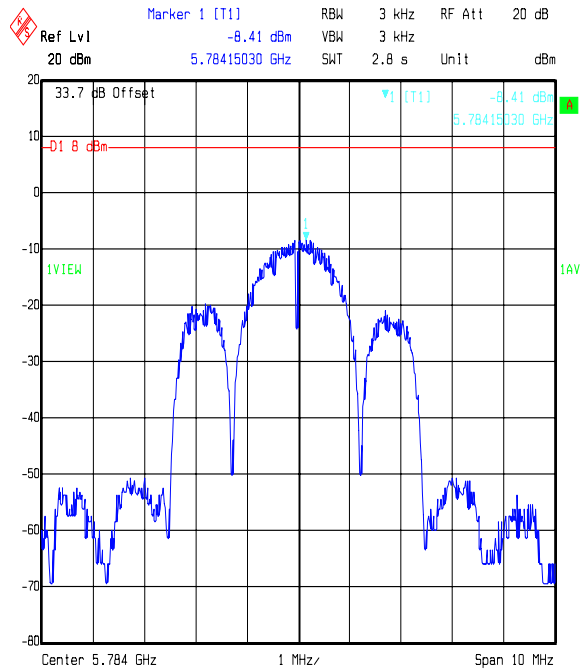
Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY H PORT 5 MHZ CHANNEL AQ BOTTOM CH
 Date: 06.JUN.2007 08:22:41



Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY V PORT 5 MHZ CHANNEL AQ BOTTOM CH
 Date: 05.JUN.2007 15:15:08



Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY H PORT 5 MHZ CHANNEL AQ CENTRE CH
 Date: 05.JUN.2007 11:59:24

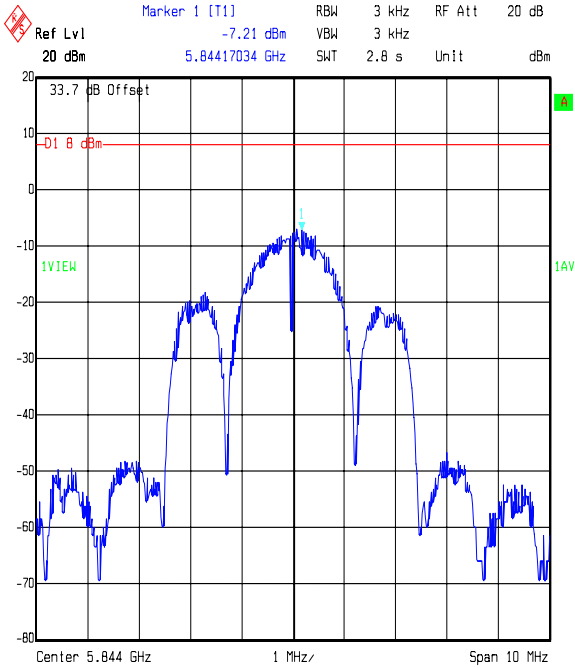


Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY V PORT 5 MHZ CHANNEL AQ CENTRE CH
 Date: 05.JUN.2007 11:57:18

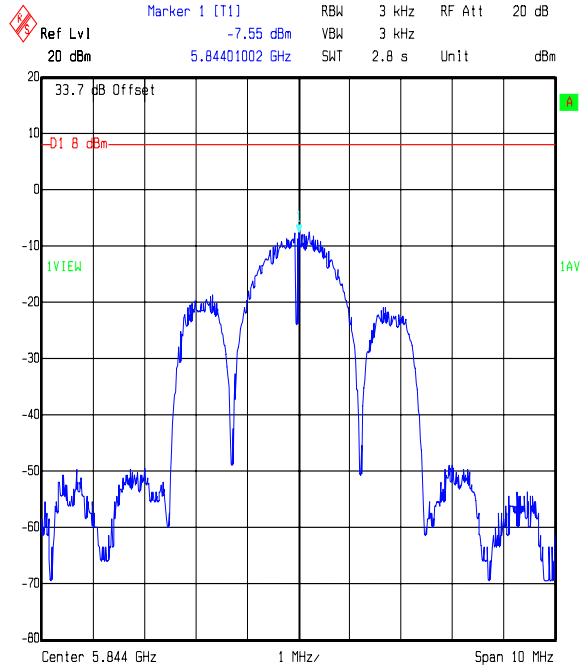
Test of: Orthogon Systems.
PTP58600
To: FCC Part 15.247: 2006

Transmitter Peak Power Spectral Density: Section (Continued)

Results for Acquisition Mode 5 MHz channel



Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY H PORT 5 MHZ CHANNEL AQ TOP CH
Date: 06.JUN.2007 09:29:32

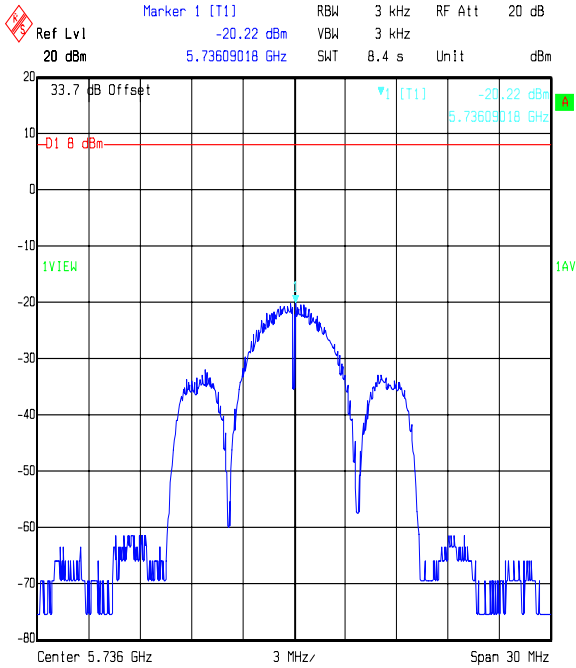


Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 5 MHZ CHANNEL AQ TOP CH
Date: 06.JUN.2007 09:12:50

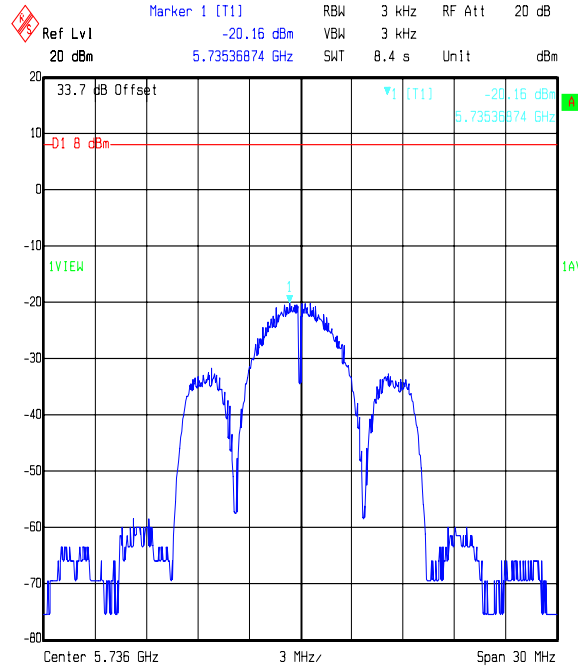
Test of: Orthogon Systems.
 PTP58600
 To: FCC Part 15.247: 2006

Transmitter Peak Power Spectral Density: Section (Continued)

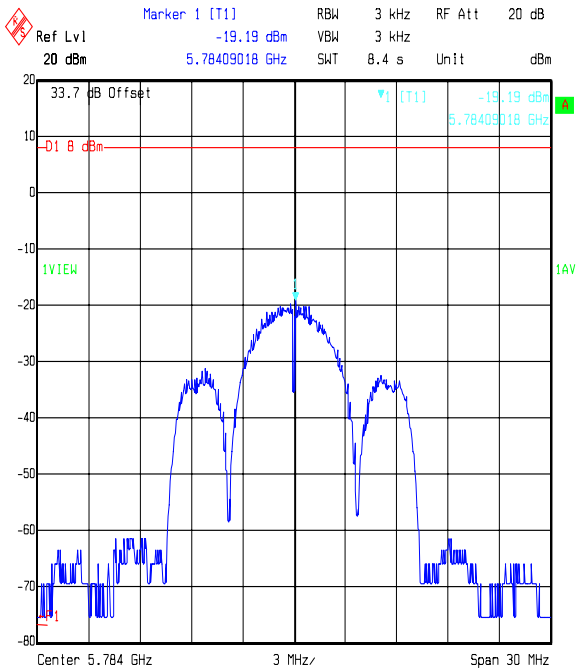
Results for Acquisition Mode 15 MHz channel



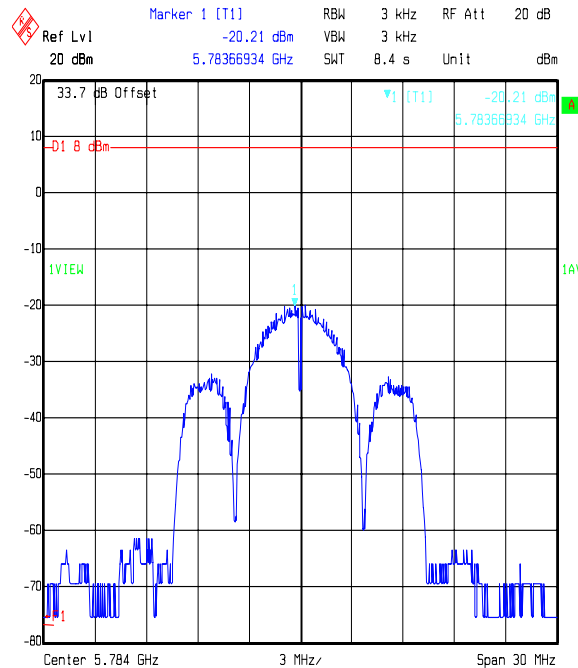
Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY H PORT 15 MHZ CHANNEL AQ BOTTOM CH
 Date: 05.JUN.2007 11:07:36



Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY V PORT 15 MHZ CHANNEL AQ BOTTOM CH
 Date: 05.JUN.2007 11:09:25



Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY V PORT 15 MHZ CHANNEL AQ CENTRE CH
 Date: 05.JUN.2007 10:08:05

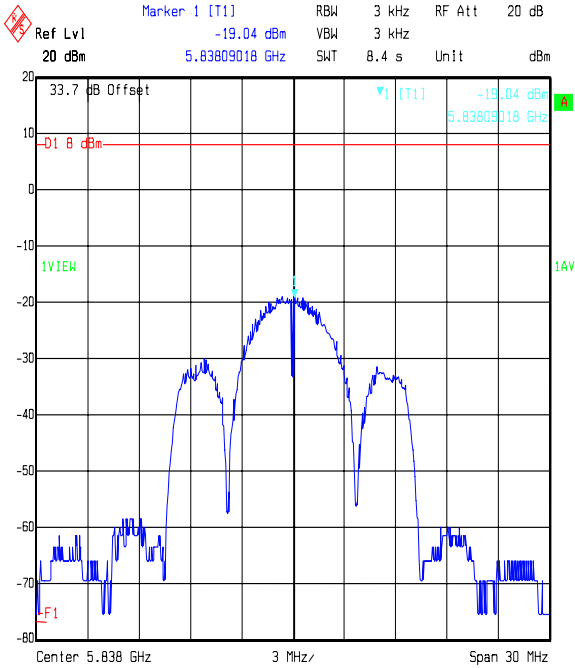


Title: 49169JD01
 Comment A: SPECTRAL POWER DENSITY H PORT 15 MHZ CHANNEL AQ CENTRE CH
 Date: 05.JUN.2007 10:05:41

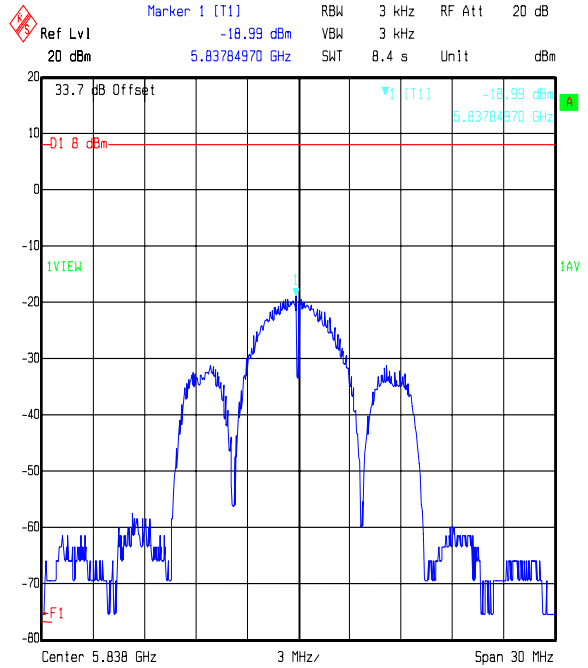
Test of: Orthogon Systems.
PTP58600
To: FCC Part 15.247: 2006

Transmitter Peak Power Spectral Density: Section (Continued)

Results for Acquisition Mode 15 MHz channel



Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 15 MHz CHANNEL AQ TOP CH
Date: 05.JUN.2007 10:14:31



Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY H PORT 15 MHz CHANNEL AQ TOP CH
Date: 05.JUN.2007 10:16:48

Test of: Orthogon Systems.
 PTP58600
 To: FCC Part 15.247: 2006

7.6. Transmitter Maximum Peak Output Power: Section 15.247(b)(3)

7.6.1. The EUT was configured for transmitter peak output power measurements, as described in Section 9 of this report.

7.6.2. Tests were performed to identify the transmitter maximum peak output power of the EUT.

Results for BPSK (5 MHz channel bandwidth)

Channel	Conducted RF Power Horizontal (dBm)	Conducted RF Power Vertical (dBm)	Combined Conducted RF Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	22.3	22.6	25.5	30.0	4.5	Complied
Middle	21.8	22.0	24.9	30.0	5.1	Complied
Top	22.0	22.1	25.1	30.0	4.9	Complied

Results for BPSK (10 MHz channel bandwidth)

Channel	Conducted RF Power Horizontal (dBm)	Conducted RF Power Vertical (dBm)	Combined Conducted RF Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	20.4	19.9	23.2	30.0	6.8	Complied
Middle	22.3	22.8	25.6	30.0	4.4	Complied
Top	22.1	22.1	25.1	30.0	4.9	Complied

Results for BPSK (15 MHz channel bandwidth)

Channel	Conducted RF Power Horizontal (dBm)	Conducted RF Power Vertical (dBm)	Combined Conducted RF Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	19.9	19.8	22.8	30.0	7.2	Complied
Middle	22.4	22.5	25.5	30.0	4.5	Complied
Top	22.2	22.0	25.1	30.0	4.9	Complied

Note(s):

1. The Peak Output Power was measured with the AC supply voltage to the EUT set to 110 V AC. Further measurements were made with the EUT input varied between 85% and 115% of the nominal value, therefore 93.5 and 126.5 Volts. The variation of input voltage had no effect on the Peak Output Power. The results given above represent the Peak Output Power at 93.5 V, 110 V and 126.5 V.

Test of: Orthogon Systems.
PTP58600
To: FCC Part 15.247: 2006

Transmitter Maximum Peak Output Power: Section 15.247(b)(3) (Continued)

Results for QPSK (5 MHz channel bandwidth)

Channel	Conducted RF Power Horizontal (dBm)	Conducted RF Power Vertical (dBm)	Combined Conducted RF Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	21.3	21.5	24.4	30.0	5.6	Complied
Middle	20.8	21.1	24.0	30.0	6.0	Complied
Top	21.1	21.4	24.3	30.0	5.7	Complied

Results for QPSK (10 MHz channel bandwidth)

Channel	Conducted RF Power Horizontal (dBm)	Conducted RF Power Vertical (dBm)	Combined Conducted RF Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	20.4	20.0	23.2	30.0	6.8	Complied
Middle	21.2	21.3	24.3	30.0	5.7	Complied
Top	21.4	21.3	24.4	30.0	5.6	Complied

Results for QPSK (15 MHz channel bandwidth)

Channel	Conducted RF Power Horizontal (dBm)	Conducted RF Power Vertical (dBm)	Combined Conducted RF Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	20.0	19.8	22.9	30.0	7.1	Complied
Middle	20.7	21.0	23.9	30.0	6.1	Complied
Top	21.2	20.9	24.1	30.0	5.9	Complied

Note(s):

1. The Peak Output Power was measured with the AC supply voltage to the EUT set to 110 V AC. Further measurements were made with the EUT input varied between 85% and 115% of the nominal value, therefore 93.5 and 126.5 Volts. The variation of input voltage had no effect on the Peak Output Power. The results given above represent the Peak Output Power at 93.5 V, 110 V and 126.5 V.

Test of: Orthogon Systems.
PTP58600
To: FCC Part 15.247: 2006

Transmitter Maximum Peak Output Power: Section 15.247(b)(3) (Continued)

Results for 16 QAM (5 MHz channel bandwidth)

Channel	Conducted RF Power Horizontal (dBm)	Conducted RF Power Vertical (dBm)	Combined Conducted RF Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	19.5	19.9	22.7	30.0	7.3	Complied
Middle	18.9	19.3	22.1	30.0	7.9	Complied
Top	19.4	19.7	22.6	30.0	7.4	Complied

Results for 16 QAM (10 MHz channel bandwidth)

Channel	Conducted RF Power Horizontal (dBm)	Conducted RF Power Vertical (dBm)	Combined Conducted RF Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	19.1	19.2	22.2	30.0	7.8	Complied
Middle	18.9	19.1	22.0	30.0	8.0	Complied
Top	19.5	19.5	22.5	30.0	7.5	Complied

Results for 16 QAM (15 MHz channel bandwidth)

Channel	Conducted RF Power Horizontal (dBm)	Conducted RF Power Vertical (dBm)	Combined Conducted RF Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	19.1	19.0	22.1	30.0	7.9	Complied
Middle	18.8	19.0	21.9	30.0	8.1	Complied
Top	19.3	18.9	22.1	30.0	7.9	Complied

Note(s):

1. The Peak Output Power was measured with the AC supply voltage to the EUT set to 110 V AC. Further measurements were made with the EUT input varied between 85% and 115% of the nominal value, therefore 93.5 and 126.5 Volts. The variation of input voltage had no effect on the Peak Output Power. The results given above represent the Peak Output Power at 93.5 V, 110 V and 126.5 V.

Test of: Orthogon Systems.
PTP58600
To: FCC Part 15.247: 2006

Transmitter Maximum Peak Output Power: Section 15.247(b)(3) (Continued)

Results for 64 QAM (5 MHz channel bandwidth)

Channel	Conducted RF Power Horizontal (dBm)	Conducted RF Power Vertical (dBm)	Combined Conducted RF Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	15.5	16.0	18.8	30.0	11.2	Complied
Middle	15.2	15.5	18.4	30.0	11.6	Complied
Top	15.7	15.7	18.7	30.0	11.3	Complied

Results for 64 QAM (10 MHz channel bandwidth)

Channel	Conducted RF Power Horizontal (dBm)	Conducted RF Power Vertical (dBm)	Combined Conducted RF Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	15.6	15.3	18.5	30.0	11.5	Complied
Middle	15.3	15.5	18.4	30.0	11.6	Complied
Top	15.5	15.5	18.5	30.0	11.5	Complied

Results for 64 QAM (15 MHz channel bandwidth)

Channel	Conducted RF Power Horizontal (dBm)	Conducted RF Power Vertical (dBm)	Combined Conducted RF Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	15.4	15.3	18.4	30.0	11.6	Complied
Middle	15.1	15.5	18.3	30.0	11.7	Complied
Top	15.4	15.2	18.3	30.0	11.7	Complied

Note(s):

1. The Peak Output Power was measured with the AC supply voltage to the EUT set to 110 V AC. Further measurements were made with the EUT input varied between 85% and 115% of the nominal value, therefore 93.5 and 126.5 Volts. The variation of input voltage had no effect on the Peak Output Power. The results given above represent the Peak Output Power at 93.5 V, 110 V and 126.5 V.

Test of: Orthogon Systems.
 PTP58600
 To: FCC Part 15.247: 2006

Transmitter Maximum Peak Output Power: Section 15.247(b)(3) (Continued)

Results for Acquisition (5 MHz channel bandwidth)

Channel	Conducted RF Power Horizontal (dBm)	Conducted RF Power Vertical (dBm)	Combined Conducted RF Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	21.0	20.1	23.6	30.0	6.4	Complied
Middle	21.4	21.7	24.6	30.0	5.4	Complied
Top	21.2	21.0	24.1	30.0	5.9	Complied

Results for Acquisition (10 MHz channel bandwidth)

Channel	Conducted RF Power Horizontal (dBm)	Conducted RF Power Vertical (dBm)	Combined Conducted RF Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	20.7	20.1	23.4	30.0	6.6	Complied
Middle	21.1	21.3	24.2	30.0	5.8	Complied
Top	20.7	20.9	23.8	30.0	6.2	Complied

Results for Acquisition (15 MHz channel bandwidth)

Channel	Conducted RF Power Horizontal (dBm)	Conducted RF Power Vertical (dBm)	Combined Conducted RF Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	19.1	19.3	22.2	30.0	7.8	Complied
Middle	20.6	20.7	23.7	30.0	6.3	Complied
Top	20.5	20.2	23.4	30.0	6.6	Complied

Note(s):

1. The Peak Output Power was measured with the AC supply voltage to the EUT set to 110 V AC. Further measurements were made with the EUT input varied between 85% and 115% of the nominal value, therefore 93.5 and 126.5 Volts. The variation of input voltage had no effect on the Peak Output Power. The results given above represent the Peak Output Power at 93.5 V, 110 V and 126.5 V.

Test of: Orthogon Systems.
PTP58600
To: FCC Part 15.247: 2006

7.6.3. Transmitter Conducted Emissions: Section 15.247(c)

7.6.4. The EUT was configured for transmitter conducted emissions measurements, as described in Section 9 of this report.

7.6.5. Tests were performed to identify the maximum transmitter conducted emission levels.

7.6.6. The limit was set to a level 30 dB below the measured highest fundamental peak power in a 100 kHz bandwidth.

Results:

Middle Channel

Frequency (GHz)	Antenna Port	Average Emission Level (dBm)	Average Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
37.499	Horizontal	-23.7	-34.6	-30.0	4.6	Complied

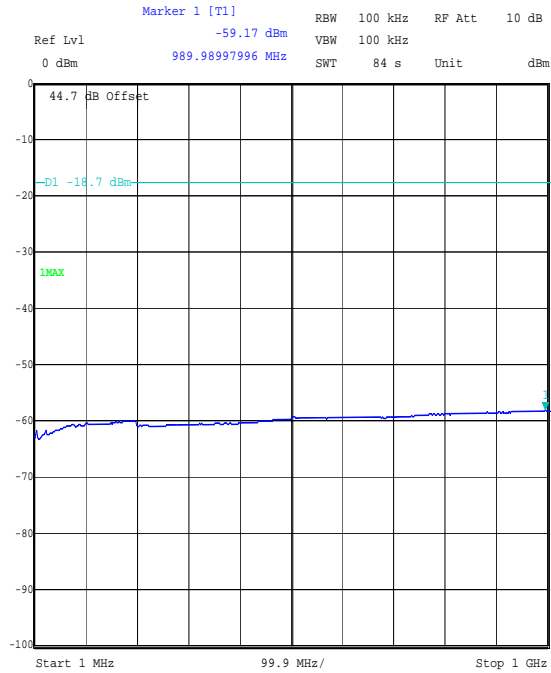
Note(s):

- 1. No emissions were found above the noise floor of the test system; therefore the highest noise floor level was recorded above.*
- 2. Measurements were made with the EUT transmitting on the centre channel, using a 5 MHz channel and BPSK modulation. This mode was declared as worst case and requested by Orthogon. BPSK modulation mode was confirmed by RFI to give the highest output power level.*

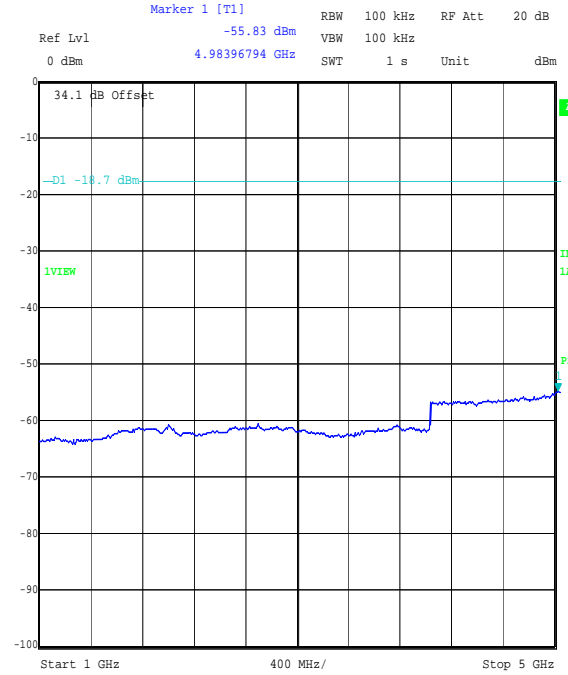
Test of: Orthogon Systems.
PTP58600
To: FCC Part 15.247: 2006

Transmitter Conducted Emissions: Section 15.247(c) (Continued)

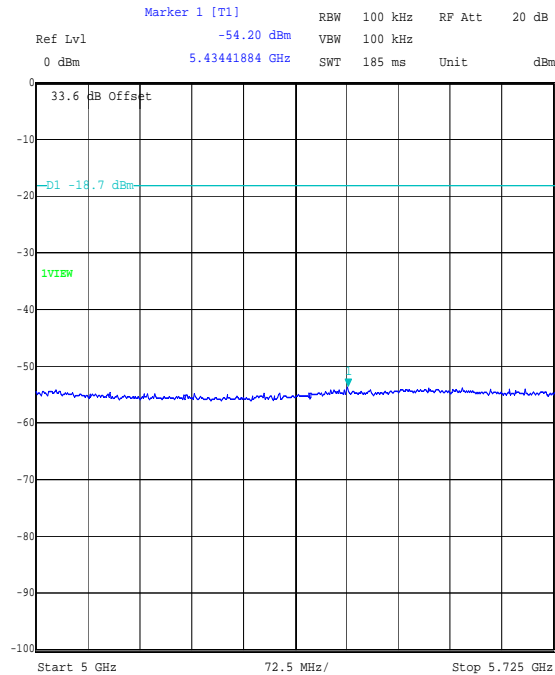
Horizontal Antenna Port



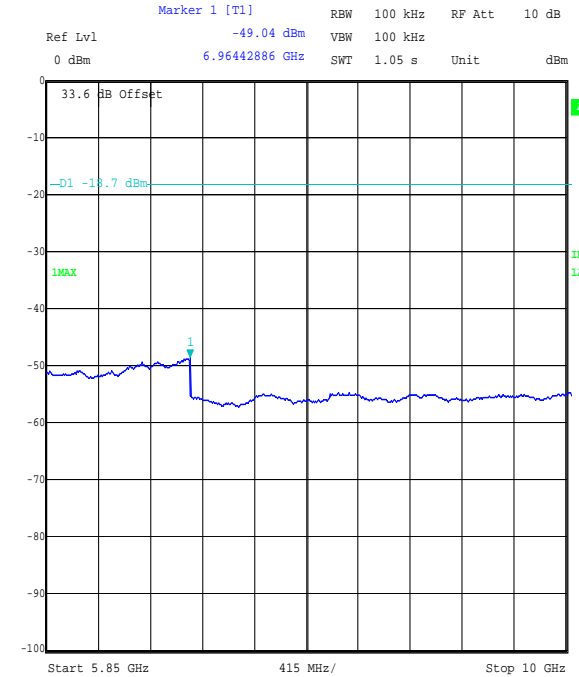
Title: 49169JD01
Comment A: TX CONDUCTED EMISSIONS H PORT 5 MHZ CHANNEL BPSK MID CH
Date: 12.JUN.2007 09:30:14



Title: 49169JD01
Comment A: TX CONDUCTED EMISSIONS H PORT 5 MHZ CHANNEL BPSK MID CH
Date: 12.JUN.2007 09:37:24



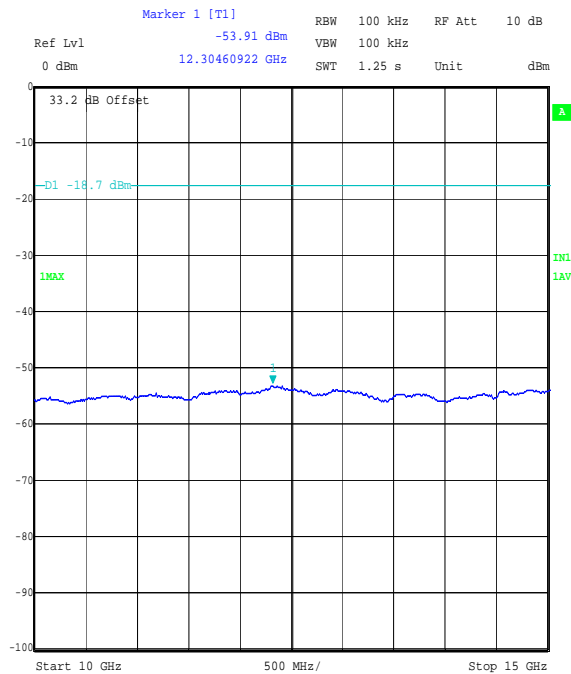
Title: 49169JD01
Comment A: TX CONDUCTED EMISSIONS H PORT 5 MHZ CHANNEL BPSK MID CH
Date: 12.JUN.2007 09:40:08



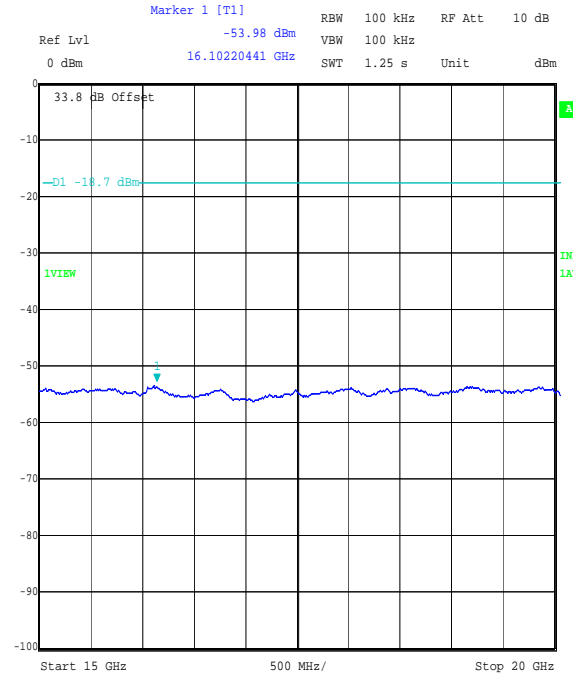
Title: 49169JD01
Comment A: TX CONDUCTED EMISSIONS H PORT 5 MHZ CHANNEL BPSK MID CH
Date: 12.JUN.2007 09:43:30

Test of: Orthogon Systems.
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To: FCC Part 15.247: 2006

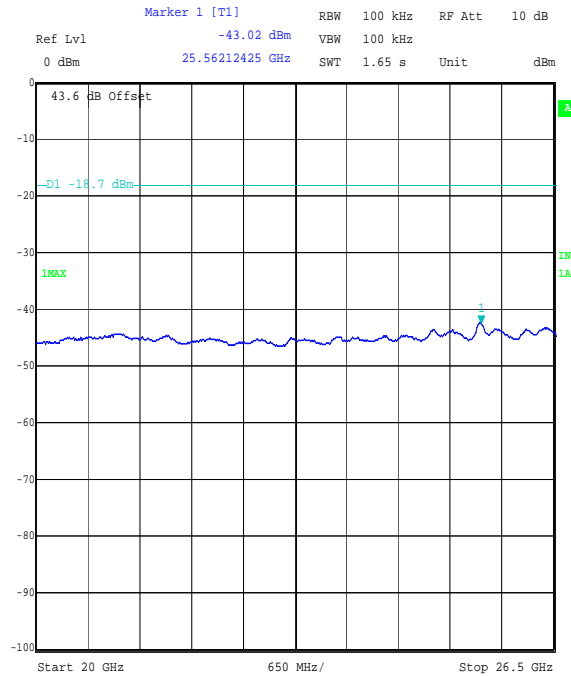
Transmitter Conducted Emissions: Section 15.247(c) (Continued)



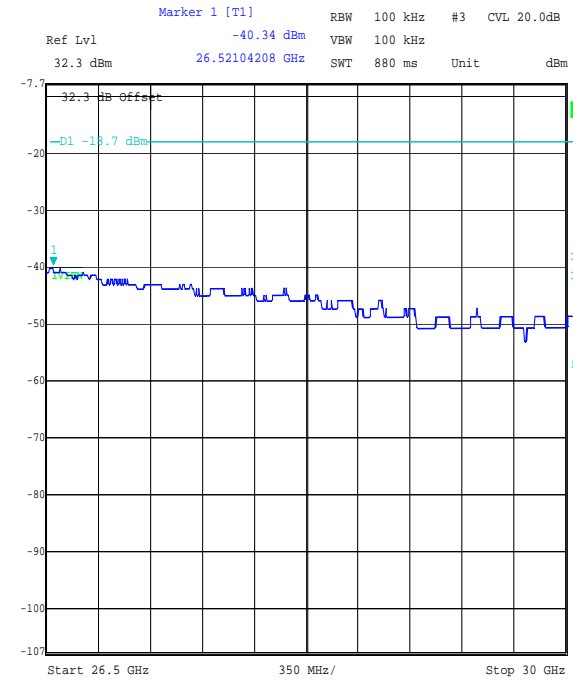
Title: 49169JD01
Comment A: TX CONDUCTED EMISSIONS H PORT 5 MHZ CHANNEL BPSK MID CH
Date: 12.JUN.2007 09:45:03



Title: 49169JD01
Comment A: TX CONDUCTED EMISSIONS H PORT 5 MHZ CHANNEL BPSK MID CH
Date: 12.JUN.2007 09:47:13



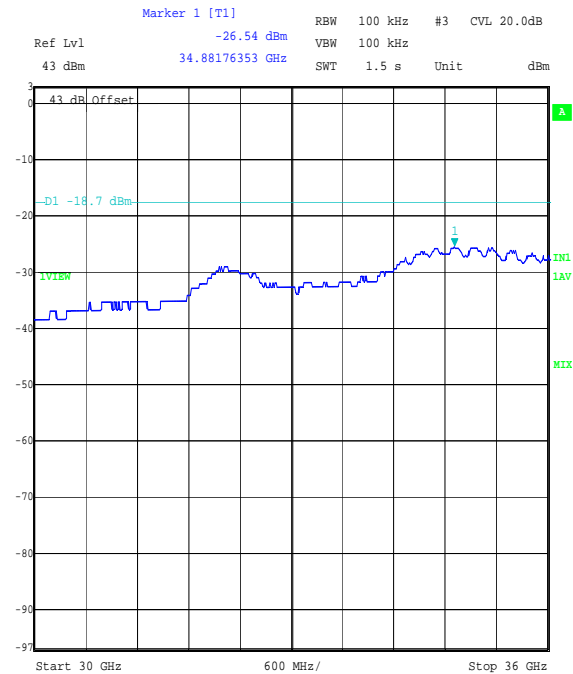
Title: 49169JD01
Comment A: TX CONDUCTED EMISSIONS H PORT 5 MHZ CHANNEL BPSK MID CH
Date: 12.JUN.2007 09:50:25



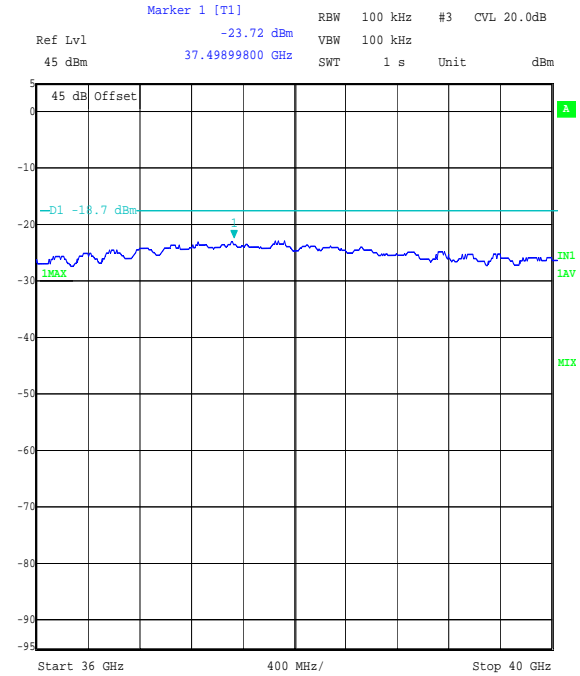
Title: 49169JD01
Comment A: TX CONDUCTED EMISSIONS H PORT 5 MHZ CHANNEL BPSK MID CHANNEL
Date: 12.JUN.2007 12:22:35

Test of: Orthogon Systems.
 PTP58600
 To: FCC Part 15.247: 2006

Transmitter Conducted Emissions: Section 15.247(c) (Continued)



Title: 49169JD01
 Comment A: TX CONDUCTED EMISSIONS H PORT 5 MHZ CHANNEL BPSK MID CHANNEL
 Date: 12.JUN.2007 12:24:22

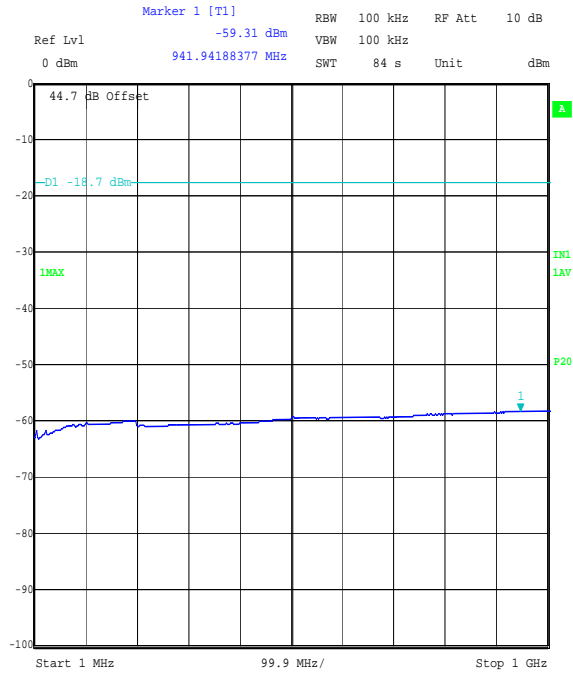


Title: 49169JD01
 Comment A: TX CONDUCTED EMISSIONS H PORT 5 MHZ CHANNEL BPSK MID CHANNEL
 Date: 12.JUN.2007 12:26:00

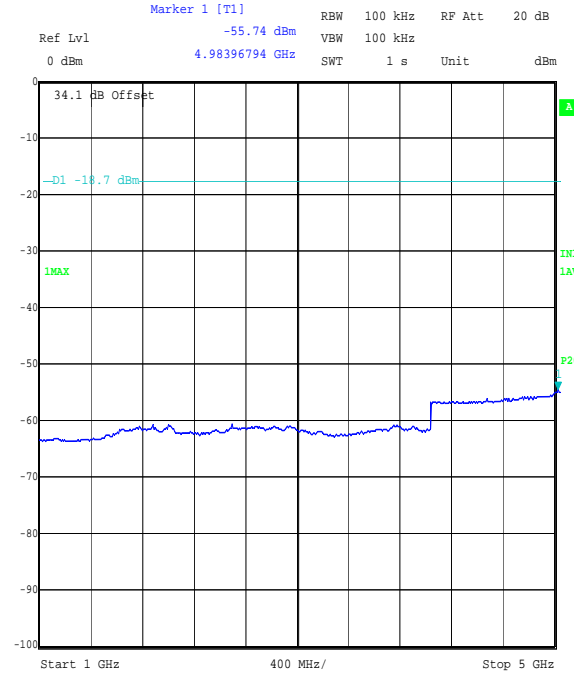
Test of: Orthogon Systems.
PTP58600
To: FCC Part 15.247: 2006

Transmitter Conducted Emissions: Section 15.247(c) (Continued)

Vertical Antenna Port



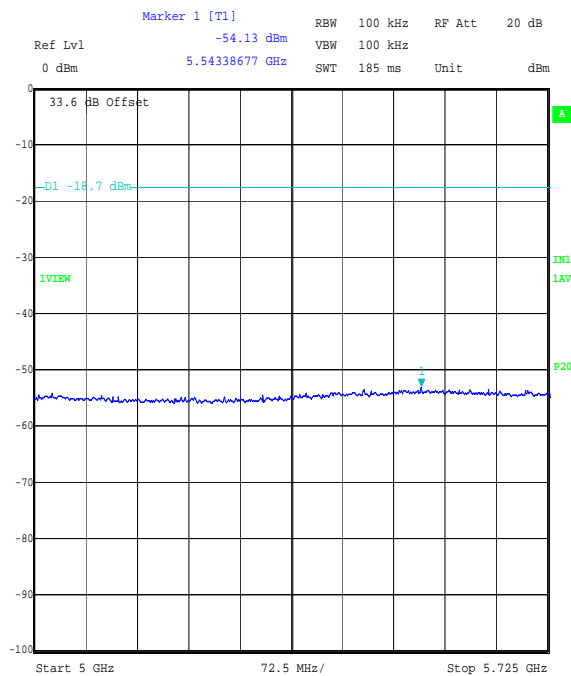
Title: 49169JD01
Comment A: TX CONDUCTED EMISSIONS V PORT 5 MHZ CHANNEL BPSK MID CH
Date: 12.JUN.2007 10:21:20



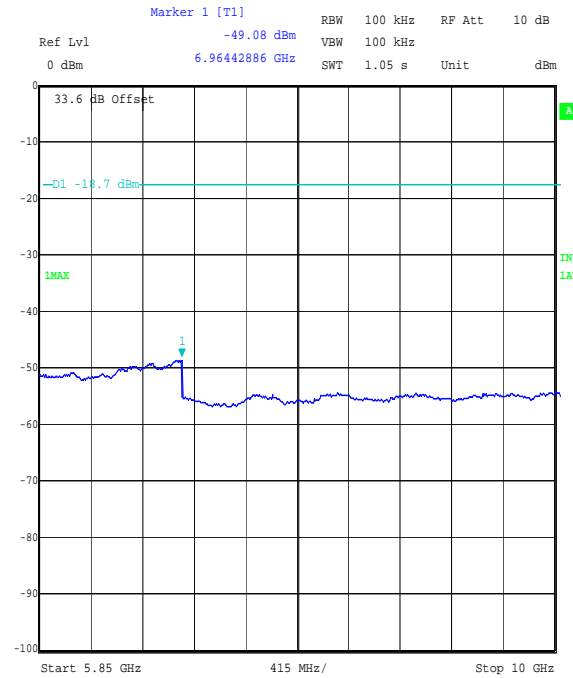
Title: 49169JD01
Comment A: TX CONDUCTED EMISSIONS V PORT 5 MHZ CHANNEL BPSK MID CH
Date: 12.JUN.2007 10:23:30

Test of: Orthogon Systems.
 PTP58600
 To: FCC Part 15.247: 2006

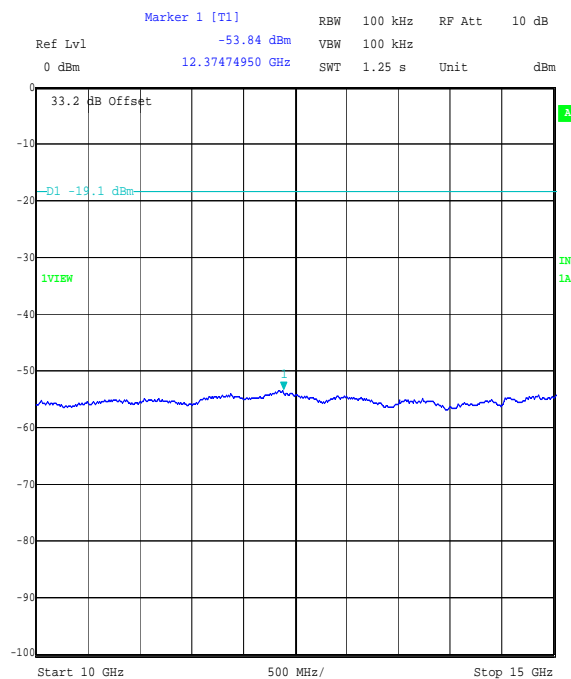
Transmitter Conducted Emissions: Section 15.247(c) (Continued)



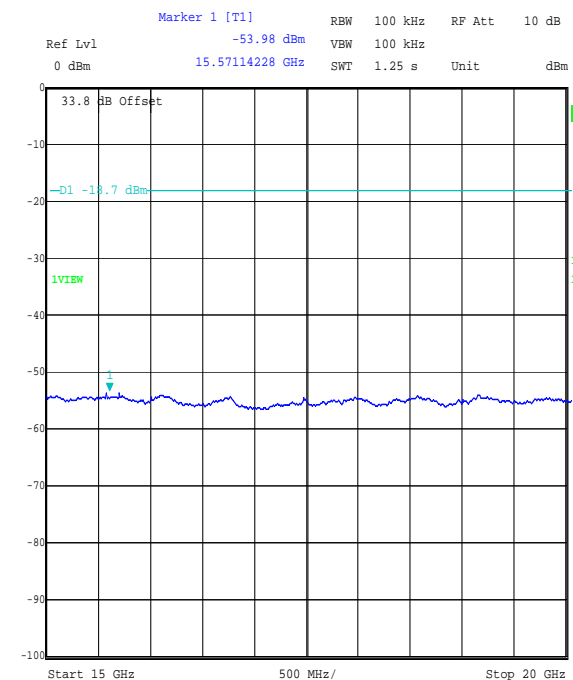
Title: 49169JD01
 Comment A: TX CONDUCTED EMISSIONS V PORT 5 MHZ CHANNEL BPSK MID CH
 Date: 12.JUN.2007 10:25:28



Title: 49169JD01
 Comment A: TX CONDUCTED EMISSIONS V PORT 5 MHZ CHANNEL BPSK MID CH
 Date: 12.JUN.2007 10:26:40



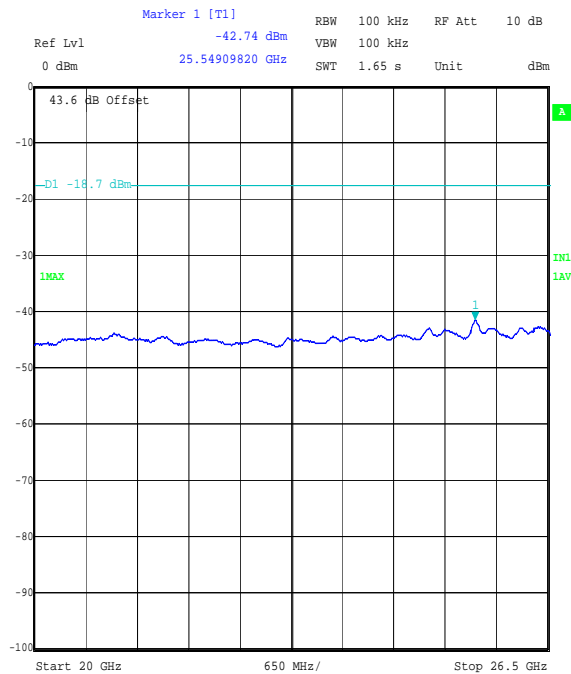
Title: 49169JD01
 Comment A: TX CONDUCTED EMISSIONS V PORT 5 MHZ CHANNEL BPSK MID CH
 Date: 12.JUN.2007 10:28:49



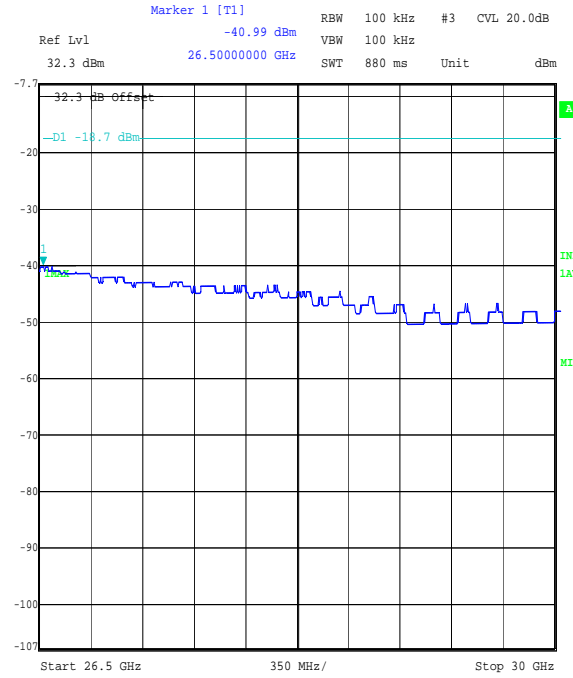
Title: 49169JD01
 Comment A: TX CONDUCTED EMISSIONS V PORT 5 MHZ CHANNEL BPSK MID CH
 Date: 12.JUN.2007 10:46:02

Test of: Orthogon Systems.
 PTP58600
 To: FCC Part 15.247: 2006

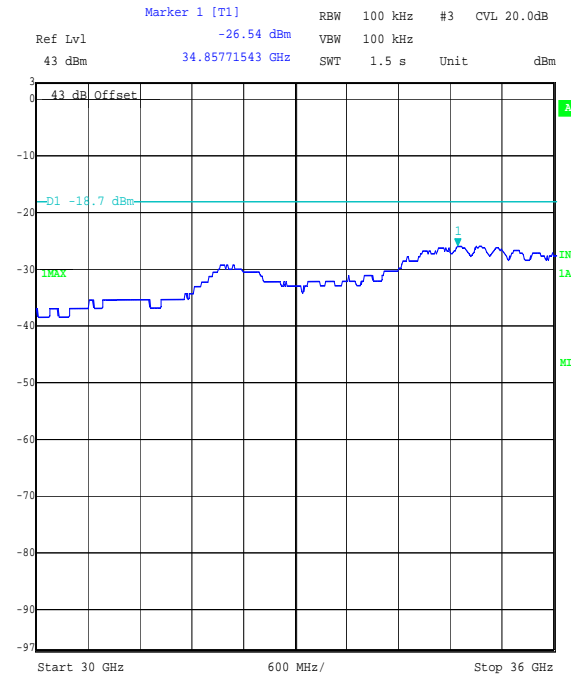
Transmitter Conducted Emissions: Section 15.247(c) (Continued)



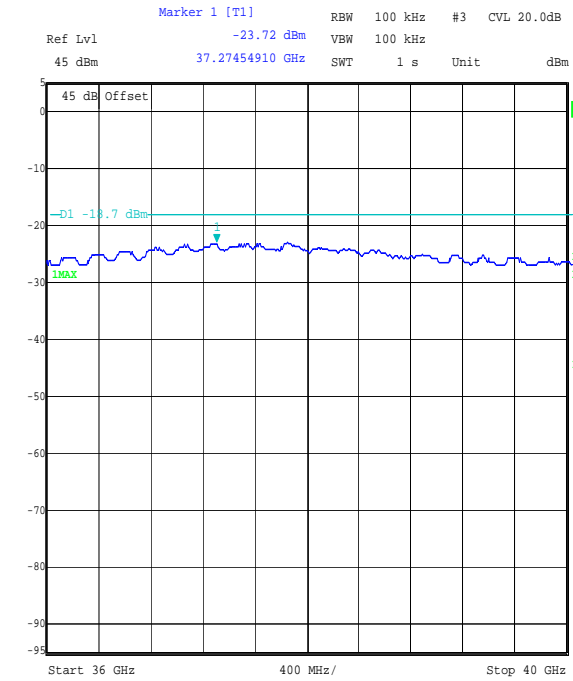
Title: 49169JD01
 Comment A: TX CONDUCTED EMISSIONS V PORT 5 MHZ CHANNEL BPSK MID CH
 Date: 12.JUN.2007 10:33:10



Title: 49169JD01
 Comment A: TX CONDUCTED EMISSIONS V PORT 5 MHZ CHANNEL BPSK MID CHANNEL
 Date: 12.JUN.2007 12:15:02



Title: 49169JD01
 Comment A: TX CONDUCTED EMISSIONS V PORT 5 MHZ CHANNEL BPSK MID CHANNEL
 Date: 12.JUN.2007 12:12:52



Title: 49169JD01
 Comment A: TX CONDUCTED EMISSIONS V PORT 5 MHZ CHANNEL BPSK MID CHANNEL
 Date: 12.JUN.2007 12:10:59

Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test of: Orthogon Systems.
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 To: FCC Part 15.247: 2006

7.7. Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a)

7.7.1. Electric Field Strength Measurements: 30 MHz to 1000 MHz (Emissions Occurring in the Restricted Bands)

7.7.1.1. The EUT was configured for radiated emissions testing, as described in Section 9 of this report.

7.7.1.2. Tests were performed to identify the maximum transmitter radiated emission levels.

7.7.1.3. The test was performed with the integral antenna configuration, and with the antenna ports terminated.

Top Channel with Mars MA-WS57-30R antenna fitted

Frequency (MHz)	Antenna Port	Quasi-Peak Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
163.406	Horizontal	29.3	43.5	14.2	Complied

Top Channel Results for external antenna (terminated N type connectors)

Frequency (MHz)	Antenna Port	Quasi-Peak Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
279.994	Vertical	26.0	46.0	20	Complied

Note(s):

1. *The preliminary scans showed similar emission levels for each mode below 1 GHz; therefore final radiated emissions measurements were performed with the EUT set to the middle channel only.*

Test of: Orthogon Systems.
 PTP58600
 To: FCC Part 15.247: 2006

Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a) (Continued)

**7.7.2. Electric Field Strength Measurements (Frequency Range: 30 MHz to 1000 MHz)
 (Emissions Outside the Restricted Bands)**

7.7.2.1. The EUT was configured for radiated emissions testing, as described in Section 9 of this report.

7.7.2.2. Tests were performed to identify the maximum transmitter radiated emission levels.

7.7.2.3. The test was performed with the integral antenna configuration, and with the antenna ports terminated.

7.7.2.4. The limit shown is -30 dBc of the carrier power, measured in 100 kHz.

Top Channel with Mars MA-WS57-30R antenna fitted

Frequency (MHz)	Antenna Port	Average Level (dB μ V/m)	-30 dBc Limit (dB μ V/m)	Margin (dB)	Result
805.200	Horizontal	39.5	92.9	53.4	Complied
874.338	Horizontal	40.7	92.9	52.2	Complied

Top channel Results for external antenna (terminated antenna port)

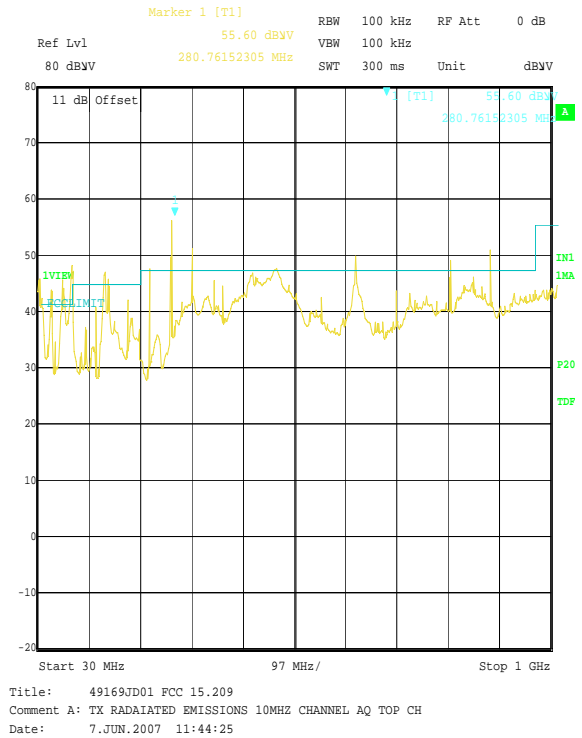
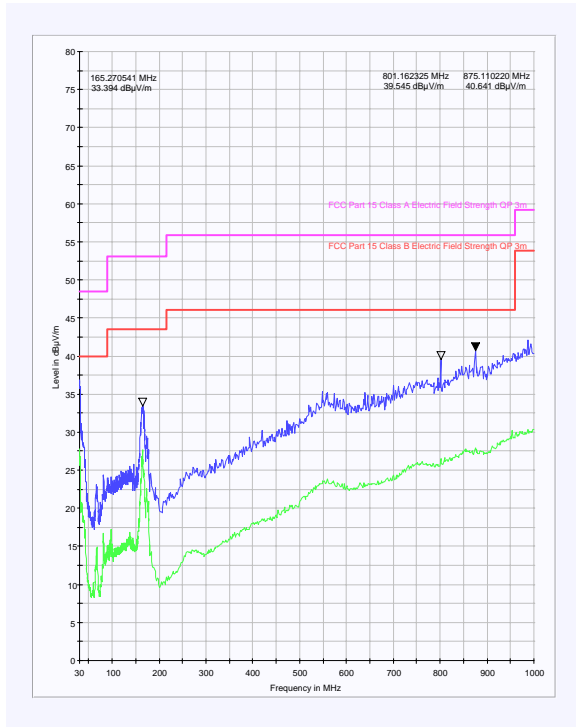
Frequency (MHz)	Antenna Port	Average Level (dB μ V/m)	-30 dBc Limit (dB μ V/m)	Margin (dB)	Result
56.993	Vertical	14.9	92.9	78.0	Complied
81.001	Vertical	21.7	92.9	71.2	Complied
159.999	Vertical	26.7	92.9	66.2	Complied
239.994	Vertical	23.8	92.9	69.1	Complied
319.994	Vertical	27.1	92.9	65.8	Complied
374.994	Horizontal	29.6	92.9	63.3	Complied
427.479	Vertical	31.5	92.9	61.4	Complied
461.006	Vertical	32.8	92.9	60.1	Complied
800.009	Horizontal	41.7	92.9	51.2	Complied
874.994	Horizontal	45.9	92.9	47.0	Complied

Note(s):

1. The preliminary scans showed similar emission levels for each mode below 1 GHz, therefore final radiated emission measurements were performed with the EUT set to the middle channel only.

Test of: Orthogon Systems.
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Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a) (Continued)



Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test of: Orthogon Systems.
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To: FCC Part 15.247: 2006

Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a) (Continued)

7.7.3. Electric Field Strength Measurements (Frequency Range: 1 GHz to 40 GHz)
(Emissions Occurring in the Restricted Bands)

Results for external antenna configuration (terminated antenna ports)

Highest Peak Level:

Frequency (GHz)	Antenna Port	Detector Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
<i>Note 1</i>								

Highest Average Level:

Frequency (GHz)	Antenna Port	Detector Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
<i>Note 1</i>								

Note:

1. No emissions were measured above the system noise floor.

Test of: Orthogon Systems.
 PTP58600
 To: FCC Part 15.247: 2006

Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a) (Continued)

**7.7.4. Electric Field Strength Measurements (Frequency Range: 1 GHz to 40 GHz)
 (Emissions Outside the Restricted Bands)**

7.7.4.1. The limit shown is -30 dBc of the carrier power, measured in 100 kHz.

Results for external antenna configuration (terminated antenna ports)

Bottom Channel

Frequency (GHz)	Antenna Port	Average Level (dB μ V/m)	-30 dBc Limit (dB μ V/m)	Margin (dB)	Result
1.266066	Horizontal	72.2	92.9	20.7	Complied
1.884067	Horizontal	38.7	92.9	54.2	Complied
2.531748	Vertical	53.4	92.9	39.5	Complied
3.077864	Horizontal	47.0	92.9	45.9	Complied

Middle Channel

Frequency (GHz)	Antenna Port	Average Level (dB μ V/m)	-30 dBc Limit (dB μ V/m)	Margin (dB)	Result
1.266066	Horizontal	72.2	92.9	20.7	Complied
1.884067	Horizontal	38.7	92.9	54.2	Complied
2.531748	Vertical	53.4	92.9	39.5	Complied
3.077864	Horizontal	47.0	92.9	45.9	Complied

Top Channel

Frequency (GHz)	Antenna Port	Average Level (dB μ V/m)	-30 dBc Limit (dB μ V/m)	Margin (dB)	Result
1.266066	Horizontal	72.2	92.9	20.7	Complied
1.884067	Horizontal	38.7	92.9	54.2	Complied
2.531748	Vertical	53.4	92.9	39.5	Complied
3.077864	Horizontal	47.0	92.9	45.9	Complied

Note:

1. All other emissions observed on the pre-scans were from the GPS box, which was removed from the test site for the final measurements.

Test of: Orthogon Systems.
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 To: FCC Part 15.247: 2006

Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a) (Continued)

7.7.5. Electric Field Strength Measurements (Frequency Range: 1 GHz to 40 GHz)
(Emissions Occurring in the Restricted Bands)

Results for integral antenna configuration

Highest Peak Level: Bottom Channel

Frequency (GHz)	Antenna Port	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4.8499	Horizontal	57.1	-6.3	50.8	74.0	23.2	Complied
10.6878	Horizontal	58.0	-0.5	57.5	74.0	16.5	Complied
11.6873	Horizontal	48.1	2.0	50.1	74.0	23.9	Complied

Highest Average Level: Bottom Channel

Frequency (GHz)	Antenna Port	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4.8499	Horizontal	53.7	-6.3	47.4	54.0	6.6	Complied
10.6878	Horizontal	36.1	-0.5	35.6	54.0	18.4	Complied
11.6873	Horizontal	48.1	2.0	50.1	54.0	3.9	Complied

Highest Peak Level: Middle Channel

Frequency (GHz)	Antenna Port	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4.9040	Vertical	54.5	-6.3	48.2	74.0	25.8	Complied
10.6878	Horizontal	58.0	-0.5	57.5	74.0	16.5	Complied
11.6873	Horizontal	48.1	2.0	50.1	74.0	23.9	Complied

Highest Average Level: Middle Channel

Frequency (GHz)	Antenna Port	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4.9040	Vertical	49.1	-6.3	42.8	54.0	11.2	Complied
10.6878	Horizontal	36.1	-0.5	35.6	54.0	18.4	Complied
11.6873	Horizontal	48.1	2.0	50.1	54.0	3.9	Complied

Test of: Orthogon Systems.
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Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a) (Continued)

Highest Peak Level: Top Channel

Frequency (GHz)	Antenna Port	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4.9579	Horizontal	53.2	-6.3	46.9	74.0	27.1	Complied
10.6878	Horizontal	58.0	-0.5	57.5	74.0	16.5	Complied
11.6873	Horizontal	48.1	2.0	50.1	74.0	23.9	Complied

Highest Average Level: Top Channel

Frequency (GHz)	Antenna Port	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4.9579	Horizontal	47.2	-6.3	40.9	54.0	13.1	Complied
10.6878	Horizontal	36.1	-0.5	35.6	54.0	18.4	Complied
11.6873	Horizontal	48.1	2.0	50.1	54.0	3.9	Complied

Note:

1. All other emissions observed on the pre-scans were from the GPS box, which was removed from the test site for the final measurements.

Test of: Orthogon Systems.
 PTP58600
 To: FCC Part 15.247: 2006

Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a) (Continued)

7.7.6. Electric Field Strength Measurements (Frequency Range: 1 MHz to 40 GHz)
(Emissions Outside the Restricted Bands)

Results for integral antenna configuration

Bottom Channel:

Frequency (GHz)	Antenna Port (H/V)	Peak Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
1.637	Vertical	48.0	92.9	44.9	Complied
1.869	Vertical	59.3	92.9	33.6	Complied
14.874	Vertical	53.8	92.9	39.1	Complied

Middle Channel:

Frequency (GHz)	Antenna Port (H/V)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
1.637	Vertical	48.0	92.9	44.9	Complied
1.869	Vertical	59.3	92.9	33.6	Complied
14.874	Vertical	53.8	92.9	39.1	Complied

Top Channel:

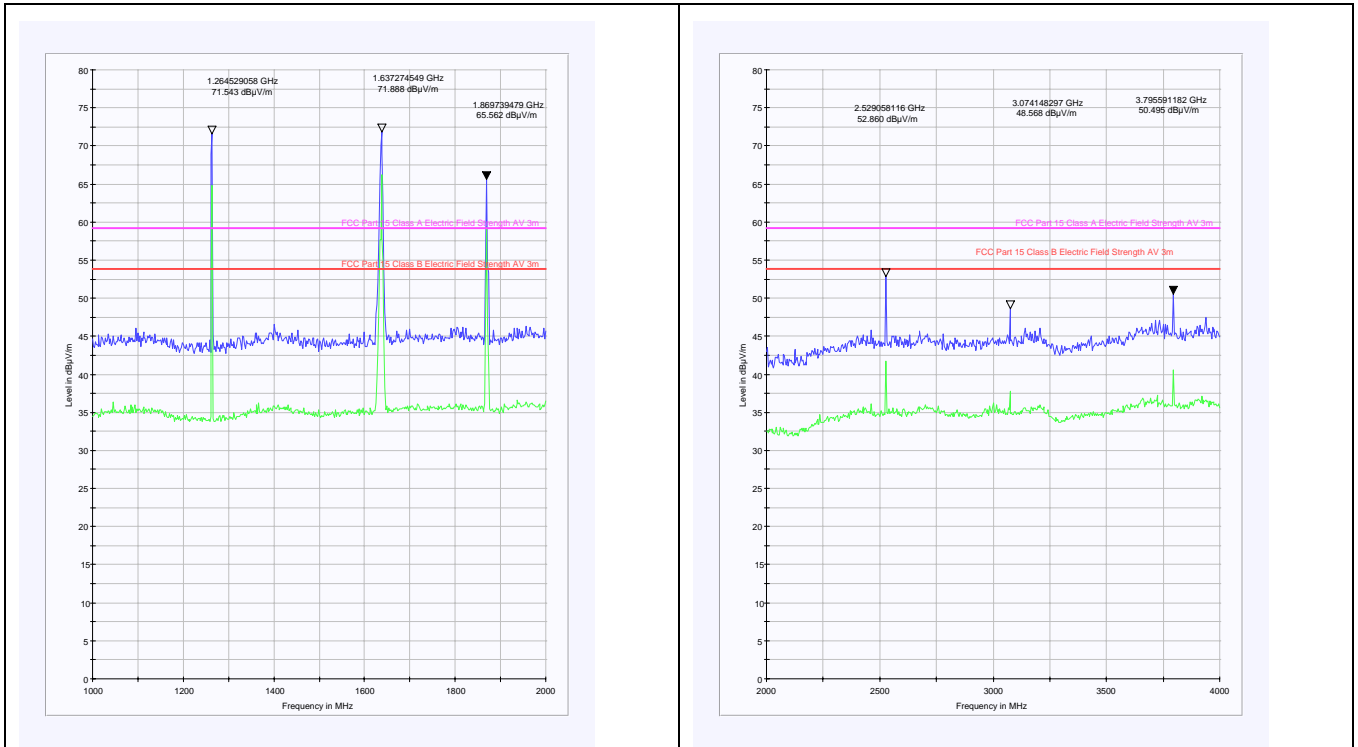
Frequency (GHz)	Antenna Port (H/V)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
1.637	Vertical	48.0	92.9	44.9	Complied
1.869	Vertical	59.3	92.9	33.6	Complied
14.874	Vertical	53.8	92.9	39.1	Complied

Note:

1. All other emissions observed on the pre-scans were from the GPS box, which was removed from the test site for the final measurements.

Test of: Orthogon Systems.
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To: FCC Part 15.247: 2006

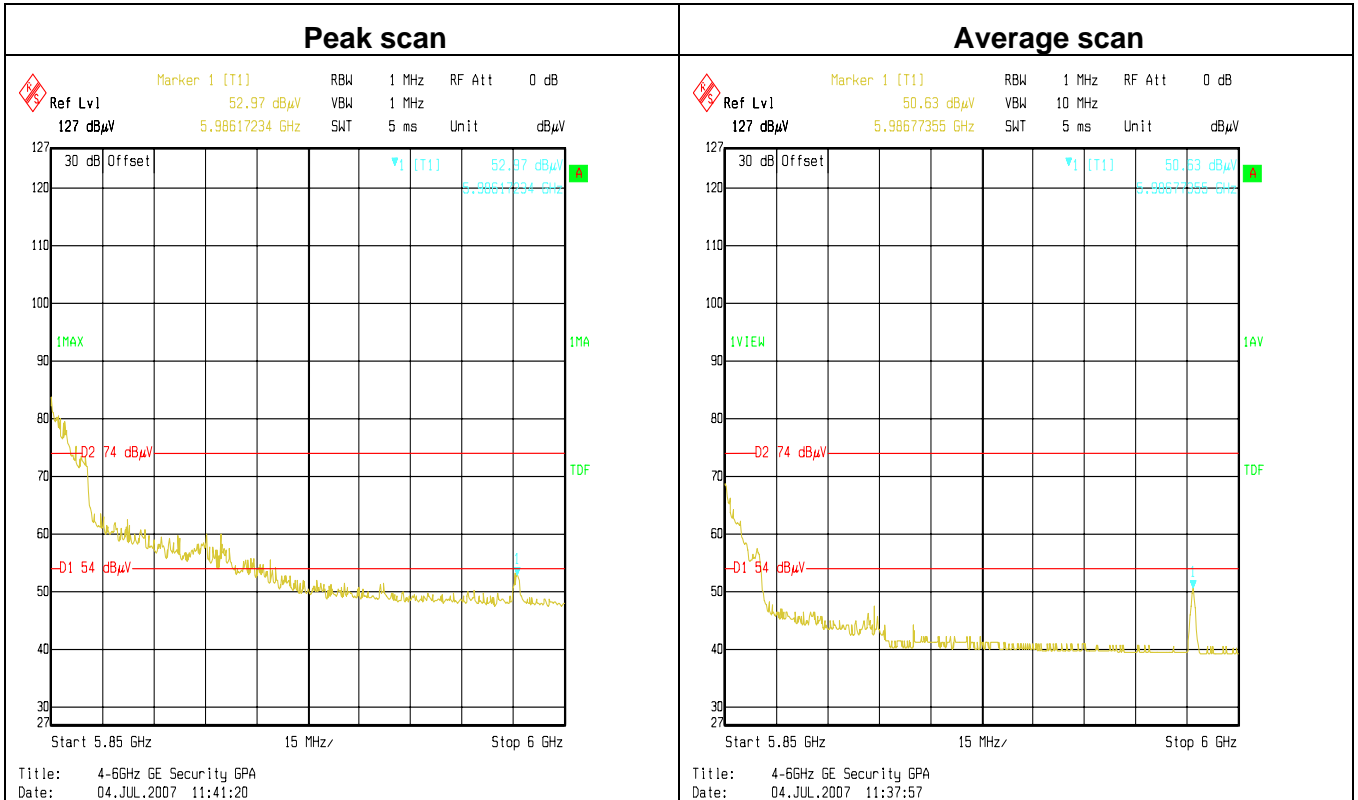
Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a) (Continued)



Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test of: Orthogon Systems.
 PTP58600
 To: FCC Part 15.247: 2006

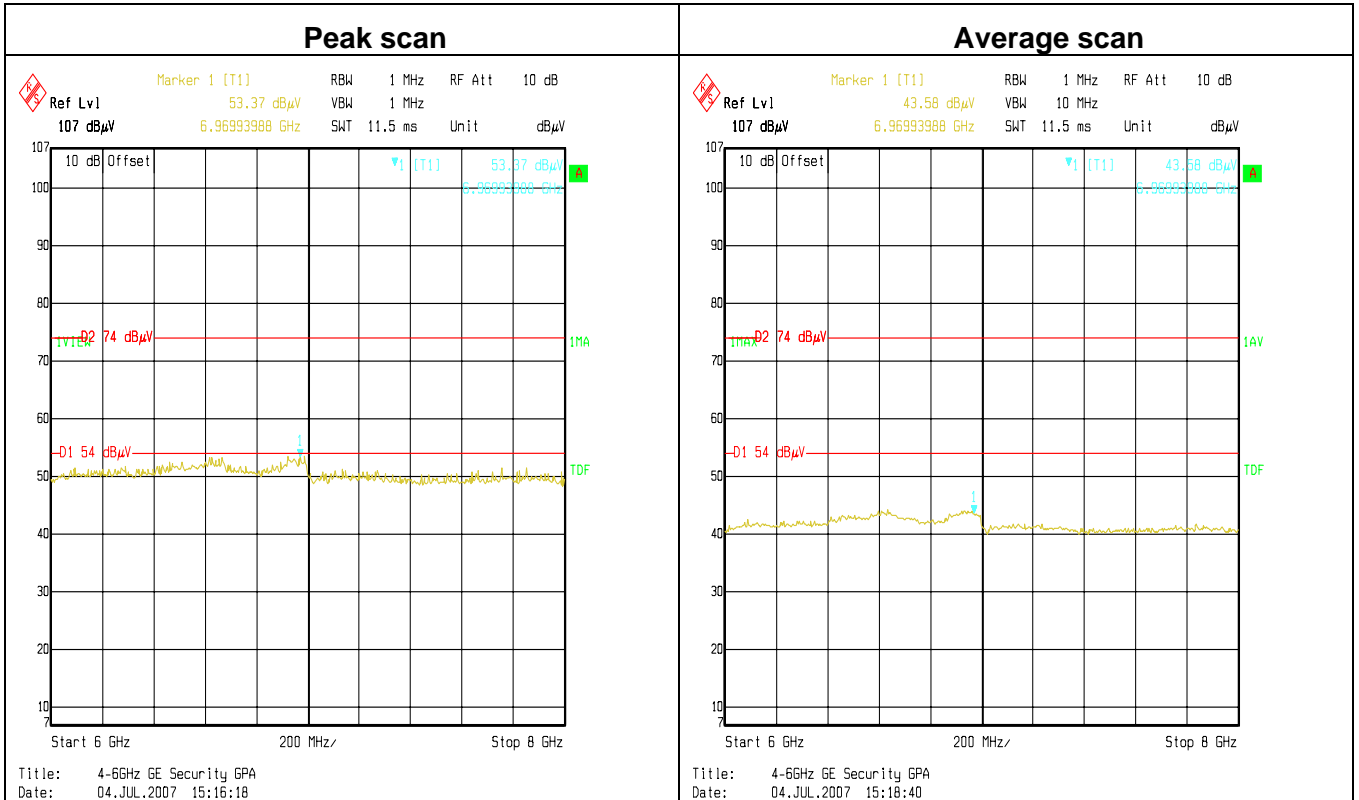
Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a) (Continued)



Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test of: Orthogon Systems.
 PTP58600
 To: FCC Part 15.247: 2006

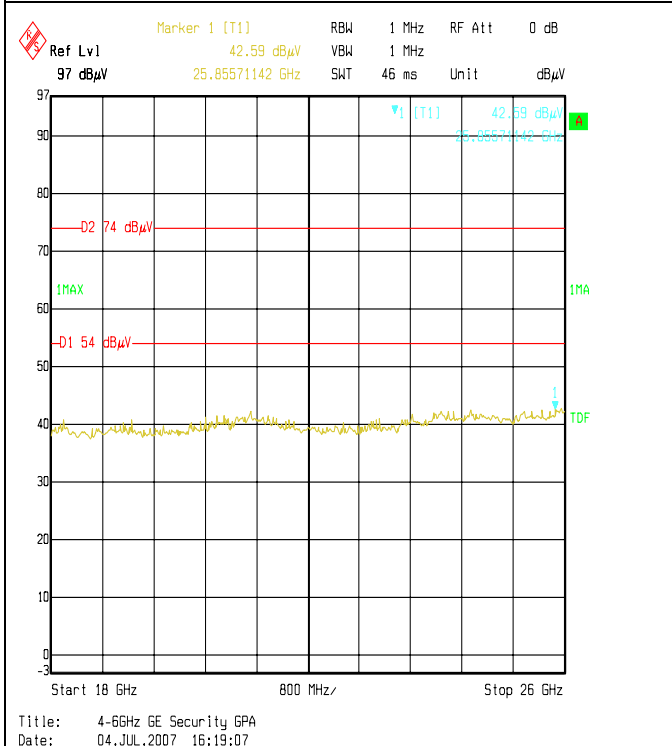
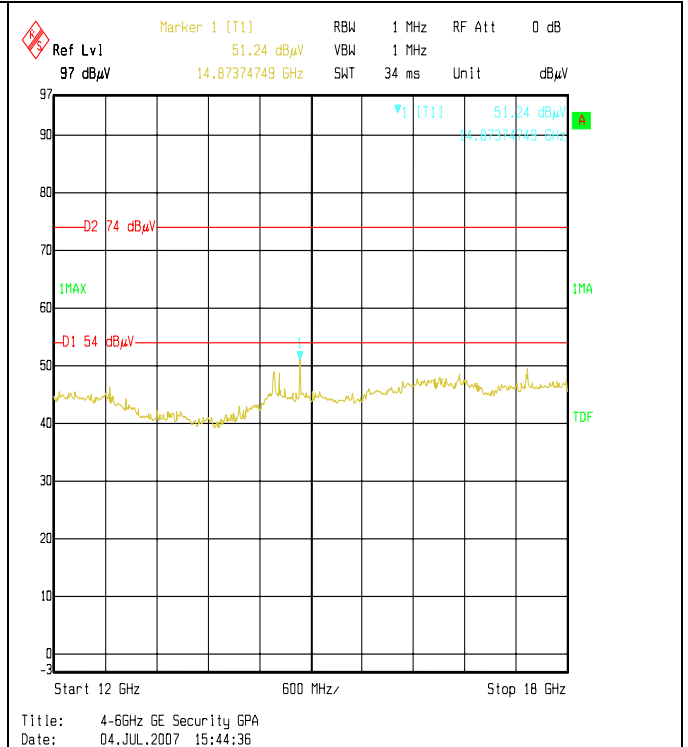
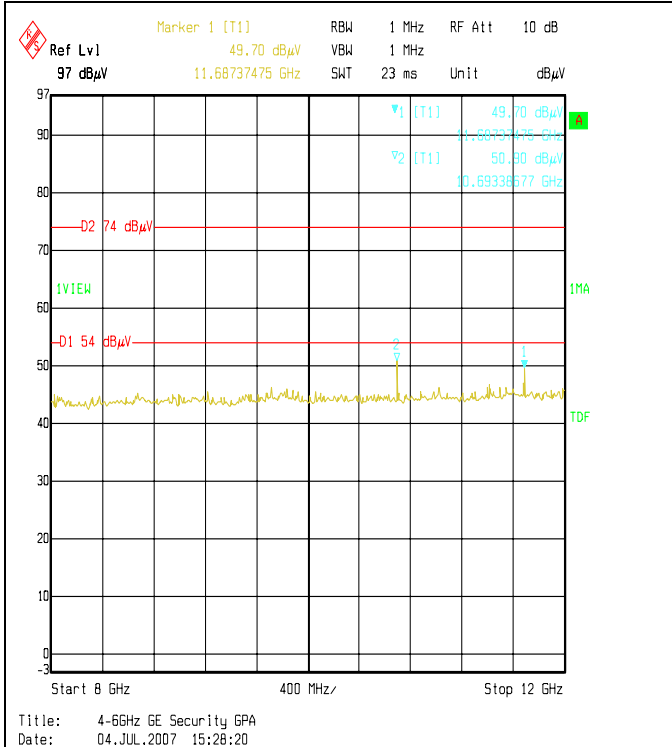
Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a) (Continued)



Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test of: Orthogon Systems.
 PTP58600
 To: FCC Part 15.247: 2006

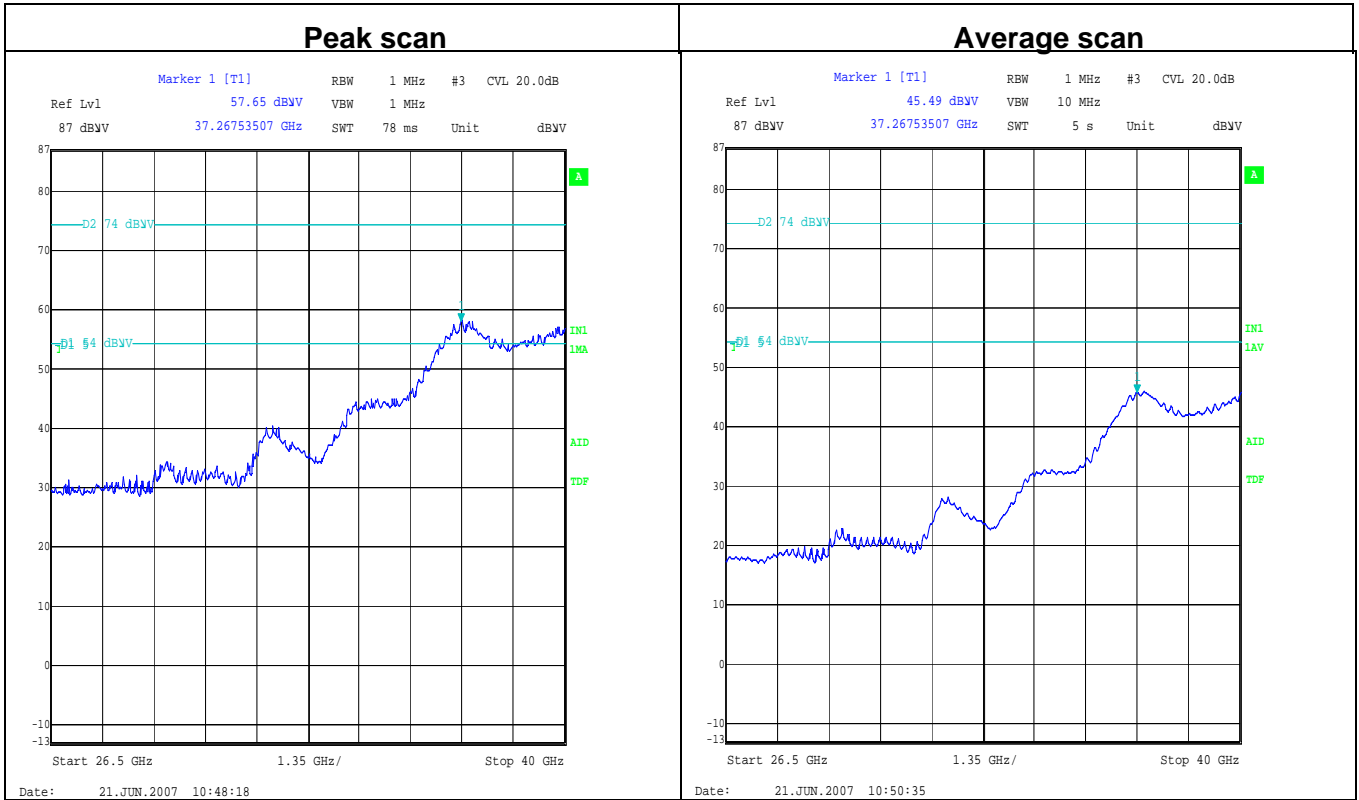
Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a) (Continued)



Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

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Transmitter Radiated Emissions: Section 15.247(c) and 15.209(a) (Continued)



Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Note: Pre-scans were performed with the GPS box connected.

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7.7.6.1. Transmitter Band Edge Conducted Emissions: Section 15.247(c)

7.7.6.2. The EUT was configured for transmitter conducted emission measurements, as described in Section 9 of this report.

7.7.6.3. Tests were performed to identify the maximum conducted band edge emission levels.

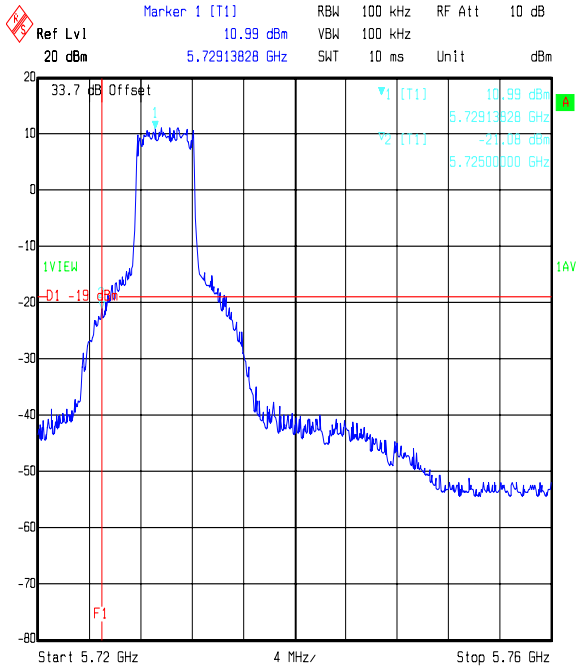
7.7.6.4. The limit lines shown in the plots below are set to a level 30 dB below the measured fundamental peak power of the channels closest to the lower and upper band edges.

Results: BPSK (5 MHz channel width)

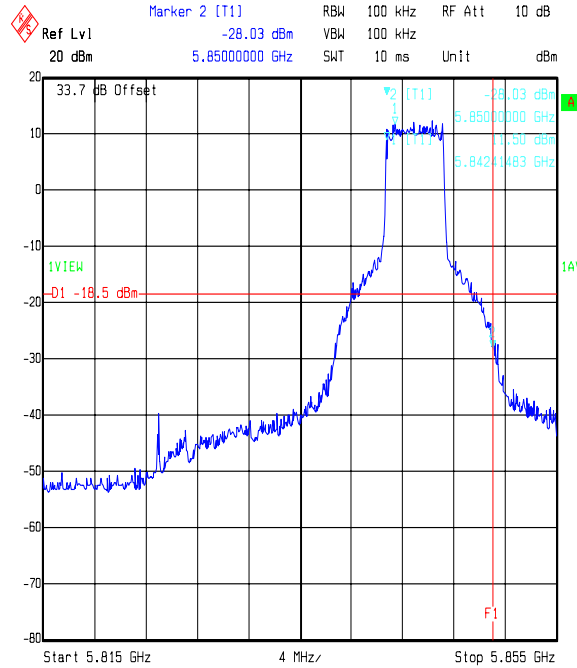
Frequency (MHz)	Antenna Port	Emission Level (dBm)	Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
5725	Horizontal	-21.1	-32.1	-30.0	2.1	Complied
5850	Horizontal	-28.0	-39.5	-30.0	9.5	Complied
5725	Vertical	-20.6	-32.9	-30.0	2.9	Complied
5850	Vertical	-29.6	-41.3	-30.0	11.3	Complied

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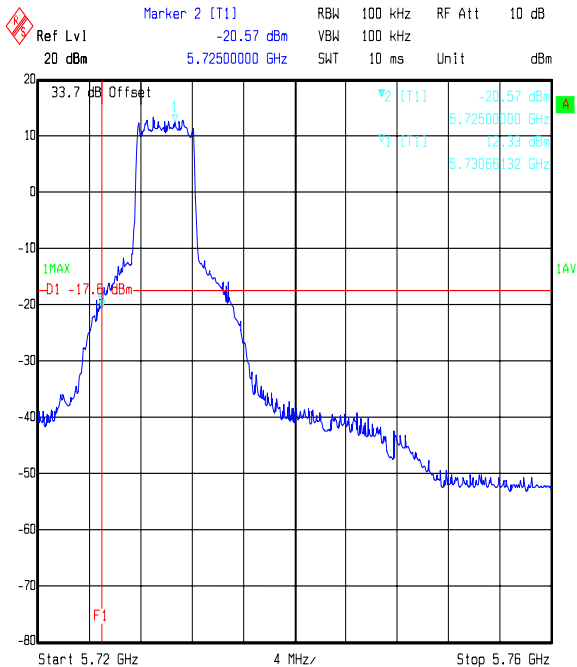
Transmitter Band Edge Conducted Emissions: Section 15.247(c) (Continued)



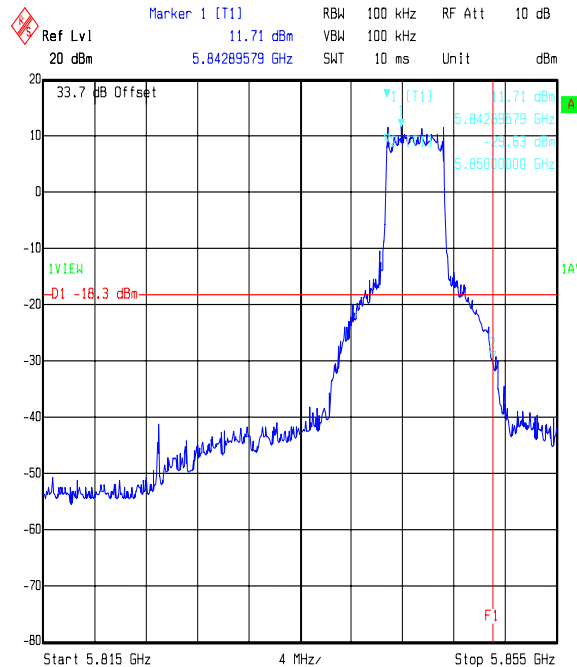
Title: 49169JD01
 Comment A: LOWER BAND EDGE H PORT 5 MHz CHANNEL BPSK
 Date: 04.JUN.2007 14:44:45



Title: 49169JD01
 Comment A: UPPER BAND EDGE H PORT 5 MHz CHANNEL BPSK
 Date: 04.JUN.2007 15:09:08



Title: 49169JD01
 Comment A: LOWER BAND EDGE V PORT 5 MHz CHANNEL BPSK
 Date: 04.JUN.2007 14:25:17



Title: 49169JD01
 Comment A: UPPER BAND EDGE V PORT 5 MHz CHANNEL BPSK
 Date: 04.JUN.2007 15:17:29

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Transmitter Band Edge Conducted Emissions: Section 15.247(c) (Continued)

Results: BPSK (10 MHz channel width)

Frequency (MHz)	Antenna Port	Emission Level (dBm)	Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
5725	Horizontal	-28.5	32.1	-30.0	2.1	Complied
5850	Horizontal	-22.9	31.3	-30.0	1.3	Complied
5725	Vertical	-27.4	34.0	-30.0	4.0	Complied
5850	Vertical	-25.2	34.4	-30.0	4.4	Complied