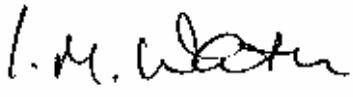
TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: Orthogon Systems.
PTP58600

To: FCC Part 15.247: 2006

Test Report Serial No:
RFI/RPTE1/RP49169JD01A

This Test Report Is Issued Under The Authority Of Michael Derby, Radio Performance Service Leader: 	
Tested By: Ian Watch 	**Checked By: Michael Derby** 
Report Copy No: PDF01	
Issue Date: 02 August 2007	**Test Dates: 04 June 2007 to 05 July 2007**

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1. Client Information

Company Name:	Orthogon Systems.
Address:	Unit A1 Linhay Business Park Eastern Road Ashburton Devon TQ13 7UP UK
Contact Name:	Mr C Fisher

2. Equipment Under Test (EUT)

The following information (with the exception of the Date of Receipt) has been supplied by the client:

2.1. Identification of Equipment Under Test (EUT)

Brand Name:	PTP Range
Model Name or Number:	PTP58600
Unique Type Identification:	ODU
Serial Number:	0004568025CA
FCC ID Number:	QWP58100
Country of Manufacture:	UK
Date of Receipt:	04 June 2007

Brand Name:	PTP Range
Model Name or Number:	PTP600 Series
Unique Type Identification:	Power In Door Unit
Serial Number:	0652503182
FCC ID Number:	QWP58100
Country of Manufacture:	China
Date of Receipt:	04 June 2007

Brand Name:	Mars
Model Name or Number:	MA-WS57-30R Integral antenna
Serial Number:	3138
Country of Manufacture:	Not stated
Date of Receipt:	04 June 2007

2.2. Description of EUT

The equipment under test is a point to point Ethernet Bridge radio equipment operating in the band 5725 MHz to 5850 MHz.

There are 2 parts to the equipment, an indoor unit and an outdoor unit.

Outdoor Unit, which comprises of an electronics enclosure and an integral, dual polarised antenna. The ODU contains all the main electronic components in the system and generates the radio frequency signals. It has two antenna ports, one for the vertical antenna and one for the horizontal antenna. The equipment may be operated in BPSK, QPSK, 16QAM, 64QAM or Acquisition modulation modes, which are selected via software control. All modes of modulation use the same hardware.

Indoor Unit, which provides an interface box between the ODU, the power supply and the end user's LAN network. This unit comprises of connectors, LED's and filters.

The system is inter-connected by CAT5 cables.

The unit is available in two versions. The first version is fitted with an integral antenna and the second is a connectorised version for use with external antennas and is fitted with a cover plate containing two N-type connectors. The product is otherwise identical in both versions.

2.3. Modifications Incorporated in EUT

During the course of testing the EUT was not modified.

2.4. Additional Information Related to Testing

Power Supply Requirement:		Nominal 115 V, 60 Hz, AC Mains supply
Intended Operating Environment:		Residential, Commercial and Light Industry
Equipment Category:		Fixed Link
Type of Unit:		Base Station (Fixed Use)
Interface Ports:		CAT5 Interconnects between RJ45s on both Power IDU and ODU (two on the ODU and one on the Power IDU) Ethernet 10/100baseT via RJ45 connector to external network on the Power IDU. Mains Supply interface on the Power IDU
Maximum Occupied Bandwidth:	5 MHz Channel	4.980 MHz
	10 MHz Channel	9.780 MHz
	15 MHz Channel	14.669 MHz
Maximum Peak Output Power:	5 MHz Channel	25.5 dBm
	10 MHz Channel	25.6 dBm
	15 MHz Channel	25.5 dBm

Additional Information Related to Testing (Continued)

Transmit Frequency Range, 5 MHz channels:	5730 MHz to 5844 MHz		
Transmit Channels Tested:	**Channel ID**	**Number**	**Channel Frequency**
	Bottom	N/A	5730 MHz
	Middle	N/A	5784 MHz
	Top	N/A	5844 MHz
Receive Frequency Range, 5 MHz channels:	5730 MHz to 5844 MHz		
Receive Channels Tested:	**Channel ID**	**Number**	**Channel Frequency**
	Bottom	N/A	5730 MHz
	Middle	N/A	5784 MHz
	Top	N/A	5844 MHz

Transmit Frequency Range, 10 MHz channels:	5732 MHz to 5840 MHz		
Transmit Channels Tested:	**Channel ID**	**Number**	**Channel Frequency**
	Bottom	N/A	5732 MHz
	Middle	N/A	5786 MHz
	Top	N/A	5840 MHz
Receive Frequency Range, 10 MHz channels:	5732 MHz to 5840 MHz		
Receive Channels Tested:	**Channel ID**	**Number**	**Channel Frequency**
	Bottom	N/A	5732 MHz
	Middle	N/A	5786 MHz
	Top	N/A	5840 MHz

Transmit Frequency Range, 15 MHz channels:	5736 MHz to 5838 MHz		
Transmit Channels Tested:	**Channel ID**	**Number**	**Channel Frequency**
	Bottom	N/A	5736 MHz
	Middle	N/A	5784 MHz
	Top	N/A	5838 MHz
Receive Frequency Range, 15 MHz channels:	5736 MHz to 5838 MHz		
Receive Channels Tested:	**Channel ID**	**Number**	**Channel Frequency**
	Bottom	N/A	5736 MHz
	Middle	N/A	5784 MHz
	Top	N/A	5838 MHz

2.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	PTP Range
Brand Name:	PTP58600
Model Name or Number:	ODU
Serial Number:	0004568025CA
Cable Length and Type:	1m, Coaxial (two of)
Connected to Port:	Horizontal / Vertical Antenna Port

Description:	Slave IDU Power Unit
Brand Name:	PTP Range
Model Name or Number:	PTP600 Series
Serial Number:	0652503042
Cable Length and Type:	2m, CAT5
Connected to Port:	Ethernet port on Slave ODU

Description:	RFI Laptop
Brand Name:	Dell
Model Name or Number:	Latitude D610
Serial Number:	PC370NT
Cable Length and Type:	3m, CAT5
Connected to Port:	Ethernet Port on ODU

Description:	TDD Sync Unit / GPS Module
Brand Name:	PTP Range
Model Name or Number:	Not Applicable
Serial Number:	Not Applicable
Cable Length and Type:	2 x 2m, CAT 5 and 1 x 3m, CAT 5
Connected to Port:	1. PIDU+ port on ODU 2. ODU port on PIDU+ 3. Sync port on ODU

3. Test Results

Reference:	FCC Part 15 Subpart C: 2006 (Section 15.247)
Title:	Code of Federal Regulations, Part 15 (47CFR15) Radio Frequency Devices
Purpose of Test:	To determine whether the equipment complied with the requirements of the specification for the purposes of certification.

3.1. Methods and Procedures

The methods and procedures used were as detailed in:

ANSI/TIA-603-B-2003
Land Mobile Communications Equipment, Measurements and performance Standards

ANSI C63.2 (1987)
Title: American National Standard for Instrumentation - Electromagnetic noise and field strength.

ANSI C63.4 (2003)
Title: American National Standard Methods of Measurement of Electromagnetic Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

ANSI C63.5 (1988)
Title: American National Standard for the Calibration of antennas used for Radiated Emission measurements in Electromagnetic Interference (EMI) control.

ANSI C63.7 (1988)
Title: American National Standard Guide for Construction of Open Area Test Sites for performing Radiated Emission Measurements.

CISPR 16-1: (1999)
Title: Specification For Radio Disturbance and Immunity Measuring Apparatus and Methods. Part 1: Radio Disturbance and Immunity Measuring Apparatus.

3.2. Definition of Measurement Equipment

The measurement equipment used complied with the requirements of the standards referenced in the Methods & Procedures section above. Appendix 1 contains a list of the test equipment used.

4. Deviations from the Test Specification

There were no deviations from the test specification.

5. Operation of the EUT During Testing

5.1. Operating Modes

The EUT was tested in the following operating modes, unless otherwise stated:

For all tests, the EUT was operating in a TDD transceiver mode, therefore the transmitter and receiver were active throughout.

AC Mains Conducted Emissions:

Performed with the EUT operating at full power, on the middle channel of the assigned frequency block, with the unit in Acquisition mode.

Radiated Emissions:

All radiated spurious pre-scans were performed with the EUT operating on the middle channel of the assigned frequency block, with the EUT connected to the Mars antenna and set to maximum power.

Final measurements were then performed on any indicated spurious emissions on the top, middle and bottom channels.

The EUT transmitter and receiver were tested at the same time because the EUT works in a continuous TDD operation. The EUT does not have a receive-only mode.

All radiated emissions tests were performed with the EUT in acquisition mode. This mode was requested by the customer and is typical of normal operation.

Operating Modes (Continued)

Conducted RF Antenna Port Measurements:

Tests were performed with the EUT operating on the 5 MHz, 10 MHz and 15 MHz channel bandwidths, unless otherwise stated**.**

The EUT was operating as the Master unit on a link to the support equipment, configured using Symmetric Data Mode.

Investigations were performed of the radio performance from both antenna polarisation ports. The investigations proved that the radio performance and power levels were similar for each port.

Conducted Spurious Emissions tests were performed with the EUT set to BPSK modulation mode because this was found to be the mode which gave the highest output power. Testing was performed on both horizontal and vertical antenna ports.

Preliminary pre-scan tests were performed on the middle channel of the EUT. Final measurements were then performed on the bottom, middle and top channels when an emission was identified.

Band Edge Conducted Emissions tests were performed with the EUT set to BPSK, QPSK, 16QAM, 64QAM, and Acquisition modulation modes, on both the vertical and horizontal ports, on the bottom and top channels.

Peak Output Power tests were performed with the EUT set to BPSK, QPSK, 16QAM, 64QAM, and Acquisition modulation modes, on both the vertical and horizontal ports, on the bottom, middle and top channels at full power.

Peak Power Spectral Density tests were performed with the EUT set to BPSK, QPSK, 16QAM, 64QAM, and Acquisition modulation modes, on both the vertical and horizontal ports, on the bottom, middle and top channels at full power. At the request of Orthogon, the tests were performed only on the 5 MHz and 15 MHz channel bandwidths, which represent the EUT widest and narrowest channel bandwidth options.

The 6 dB bandwidth and 20 dB bandwidth tests were performed with the EUT set to BPSK, QPSK, 16QAM, 64QAM, and Acquisition modulation modes, on the horizontal port, on the middle channel only.

5.2. Configuration and Peripherals

The EUT was tested in the following configuration:

The Outdoor Unit (Master) was connected to the Indoor Unit. Power was supplied by an external 110 V AC, 60 Hz, mains supply.

The TDD Sync unit was connected using a CAT5 cable for all tests.

Radiated Emissions:

The EUT was tested in two configurations. First with the integral antenna connected and then with the external antenna connections fitted and terminated into 50 Ohm loads.

Conducted RF Measurements:

The Outdoor Unit was connected via attenuation to a support Outdoor Unit, to establish a data link. An Orthogon supplied software application was used to verify the data links before and during the testing.

6. Summary of Test Results

Range of Measurements	Specification Reference	Port Type	Compliancy Status
Transmitter AC Conducted Emissions (150 kHz to 30 MHz)	C.F.R. 47 FCC Part 15: 2006 Section 15.207	AC Mains	Complied
Transmitter Minimum 6 dB Bandwidth	C.F.R. 47 FCC Part 15: 2006 Section 15.247(a)(2)	Antenna Terminals	Complied
Transmitter 20 dB Bandwidth	C.F.R. 47 FCC Part 2: 2006 Section 2.1049	Antenna Terminals	Complied
Transmitter Peak Power Spectral Density	C.F.R. 47 FCC Part 15: 2006 Section 15.247(d)	Antenna Terminals	Complied
Transmitter Maximum Peak Output Power	C.F.R. 47 FCC Part 15: 2006 Section 15.247(b)(3)	Antenna Terminals	Complied
Transmitter Conducted Emissions	C.F.R. 47 FCC Part 15: 2006 Section 15.247 (c)	Antenna Terminals	Complied
Transmitter Radiated Emissions	C.F.R. 47 FCC Part 15: 2006 Section 15.247(c)/15.209(a)	Antenna	Complied
Transmitter Band Edge Conducted Emissions	C.F.R. 47 FCC Part 15: 2006 Section 15.247(c)	Antenna Terminals	Complied
Transmitter Band Edge Radiated Emissions	C.F.R. 47 FCC Part 15: 2006 Section 15.247(c)	Antenna Terminals	Complied

6.1. Location of Tests

All the measurements described in this report were performed at the premises of
RFI Global Services Ltd, Ewhurst Park, Ramsdell, Basingstoke, Hampshire, RG26 5RQ, UK.

7. Measurements, Examinations and Derived Results

7.1. General Comments

7.1.1. This section contains test results only.

7.1.2. Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to Section 8 for details of measurement uncertainties.

7.2. Transmitter AC Conducted Spurious Emissions: Section 15.207

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

7.2.2. Tests were performed to identify the maximum emission levels on the AC Mains line of the EUT.

Results:

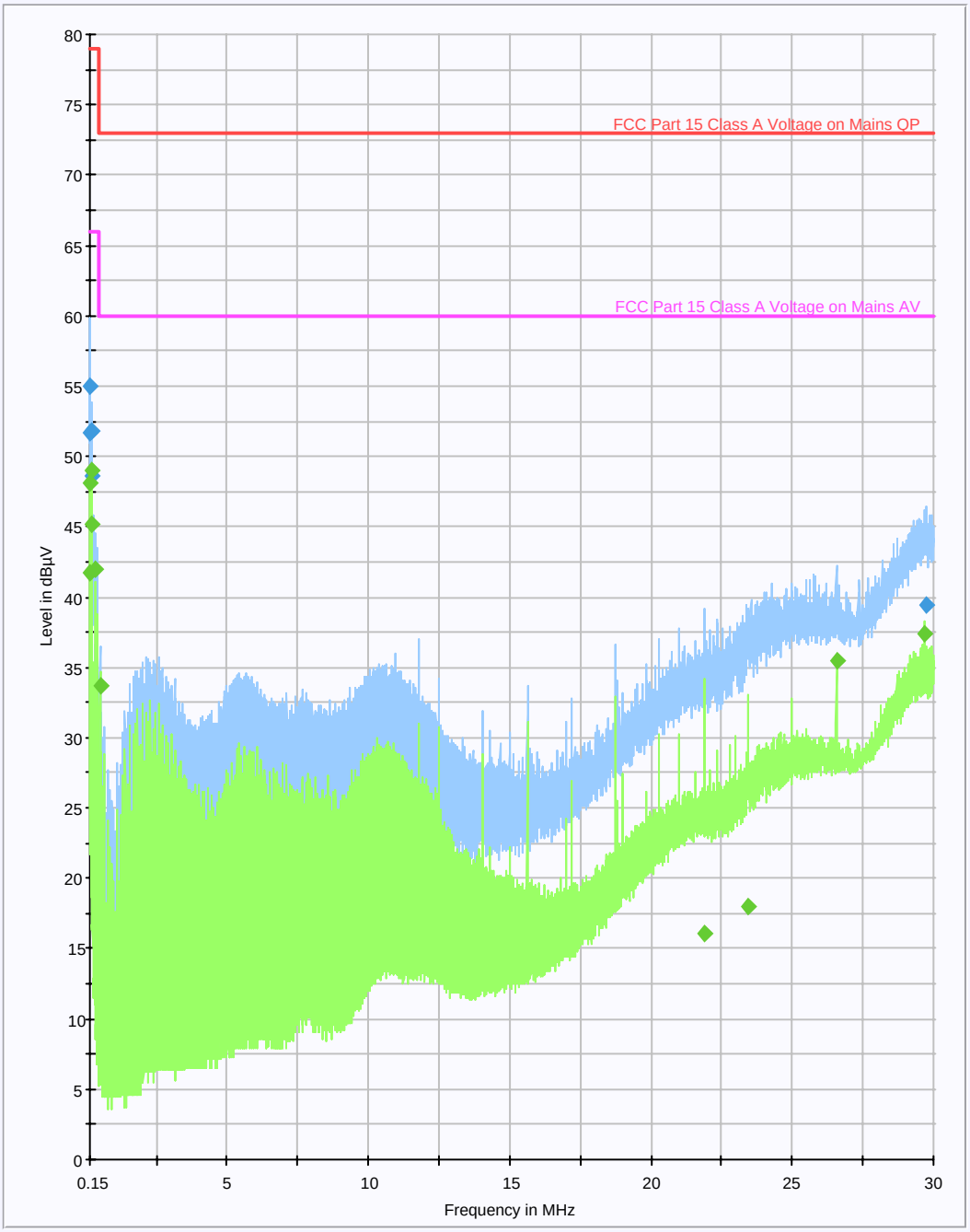
Quasi-Peak Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.166000	Live	55.0	79.0	24.0	Complied
0.174000	Live	51.6	79.0	27.4	Complied
0.222000	Live	48.6	79.0	30.4	Complied
0.226000	Live	51.8	79.0	27.2	Complied
29.742000	Live	39.4	73.0	33.6	Complied

Average Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.170000	Live	48.1	66.0	17.9	Complied
0.174000	Live	41.7	66.0	24.3	Complied
0.222000	Live	45.1	66.0	20.9	Complied
0.226000	Live	49.0	66.0	17.0	Complied
0.338000	Live	42.0	66.0	24.0	Complied
0.506000	Neutral	33.7	60.0	26.3	Complied
21.874000	Neutral	16.1	60.0	43.9	Complied
23.438000	Neutral	18.0	60.0	42.0	Complied
26.562000	Live	35.5	60.0	24.5	Complied
29.686000	Live	37.4	60.0	22.6	Complied

Transmitter AC Conducted Spurious Emissions: Section 15.207 (Continued)



Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

7.3.Transmitter Minimum 6 dB Bandwidth: Section 15.247(a)(2)

7.3.1. The EUT was configured for transmitter minimum bandwidth measurements, as described in Section 9 of this report.

7.3.2. Tests were performed to identify the minimum 6 dB bandwidth of the fundamental signal.

Results for 5 MHz channel width:

Channel	Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
BPSK	Middle	4.499	≥ 0.5	3.998	Complied
QPSK	Middle	4.539	≥ 0.5	4.039	Complied
16QAM	Middle	4.539	≥ 0.5	4.039	Complied
64QAM	Middle	4.539	≥ 0.5	4.039	Complied
Acquisition	Middle	1.433	≥ 0.5	0.932	Complied

Results for 10 MHz channel width:

Channel	Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
BPSK	Middle	8.898	≥ 0.5	8.397	Complied
QPSK	Middle	8.978	≥ 0.5	8.477	Complied
16QAM	Middle	9.058	≥ 0.5	8.558	Complied
64QAM	Middle	8.978	≥ 0.5	8.477	Complied
Acquisition	Middle	2.846	≥ 0.5	2.345	Complied

Results for 15 MHz channel width:

Channel	Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
BPSK	Middle	13.547	≥ 0.5	13.047	Complied
QPSK	Middle	13.427	≥ 0.5	12.926	Complied
16QAM	Middle	13.487	≥ 0.5	12.986	Complied
64QAM	Middle	13.487	≥ 0.5	12.986	Complied
Acquisition	Middle	4.349	≥ 0.5	3.848	Complied

Test of: Orthogon Systems.
PTP58600
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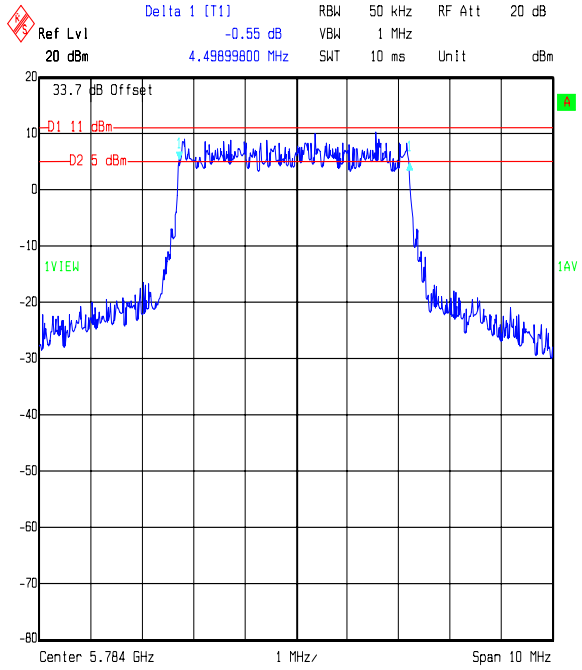
Transmitter Minimum 6 dB Bandwidth: Section 15.247(a)(2) (Continued)

Results for 5 MHz channel width:



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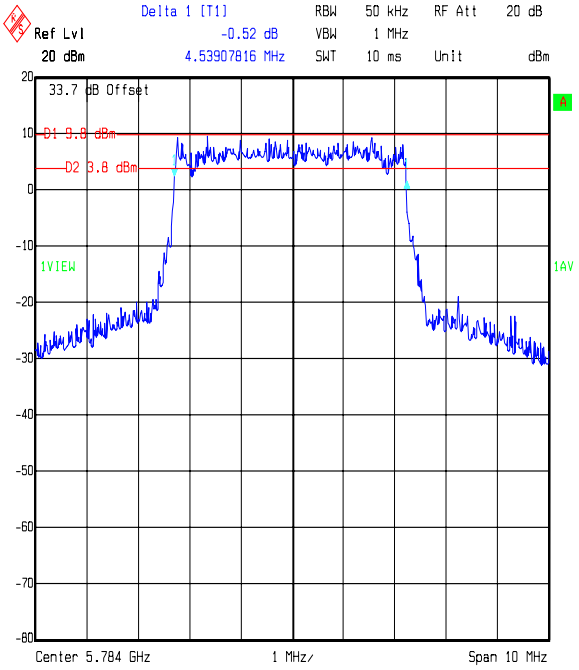

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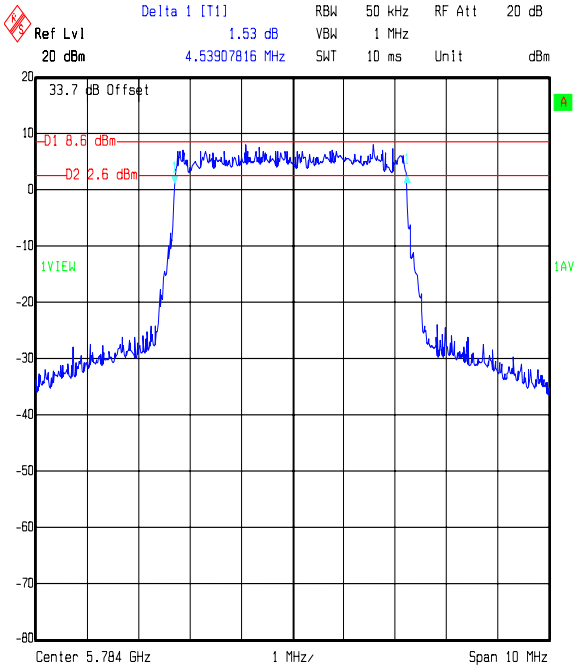
Test of: Orthogon Systems.
PTP58600
To: FCC Part 15.247: 2006

Transmitter Minimum 6 dB Bandwidth: Section 15.247(a)(2) (Continued)

Results for 5 MHz channel width:



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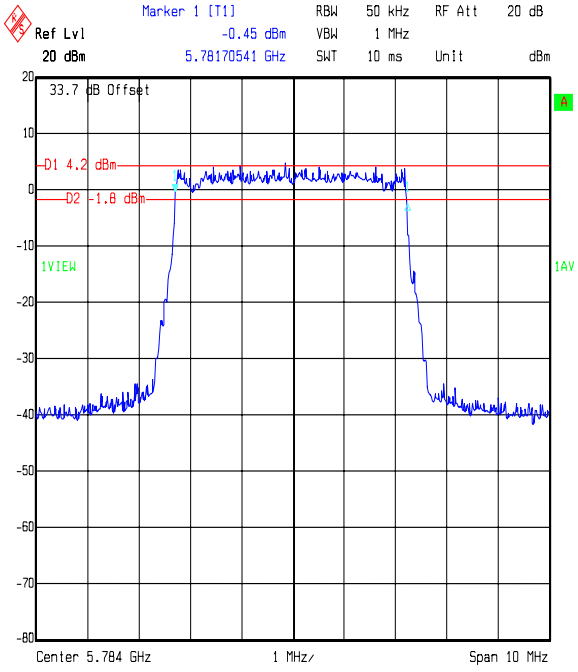

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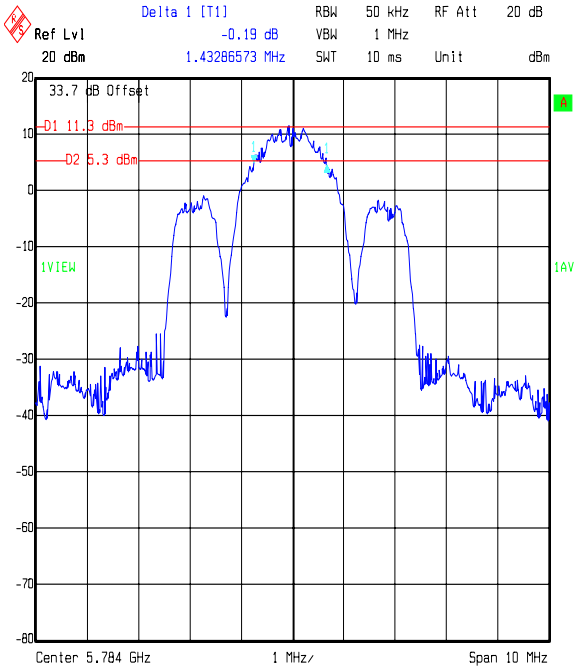

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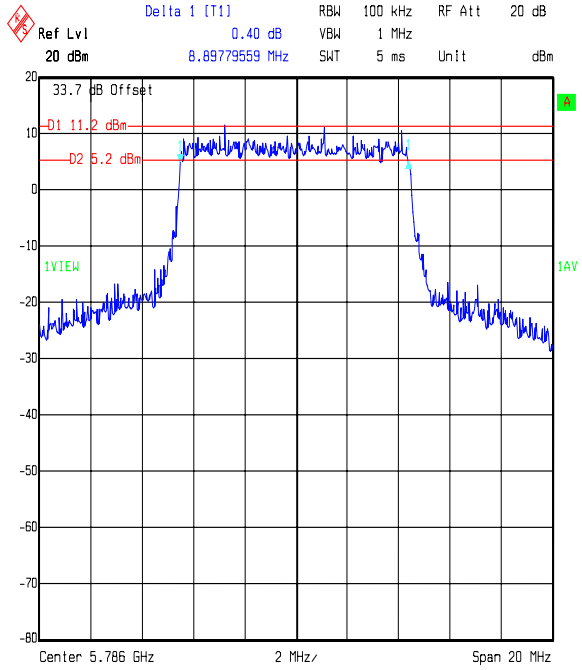
Test of: Orthogon Systems.
PTP58600
To: FCC Part 15.247: 2006

Transmitter Minimum 6 dB Bandwidth: Section 15.247(a)(2) (Continued)

Results for 10 MHz channel width:



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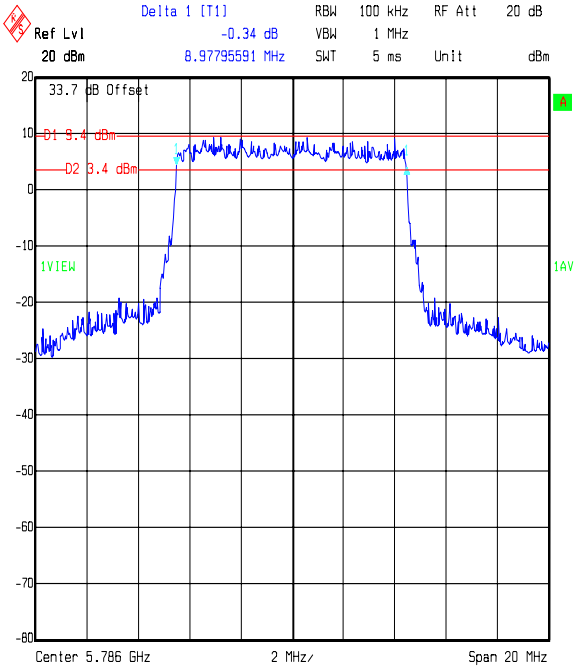

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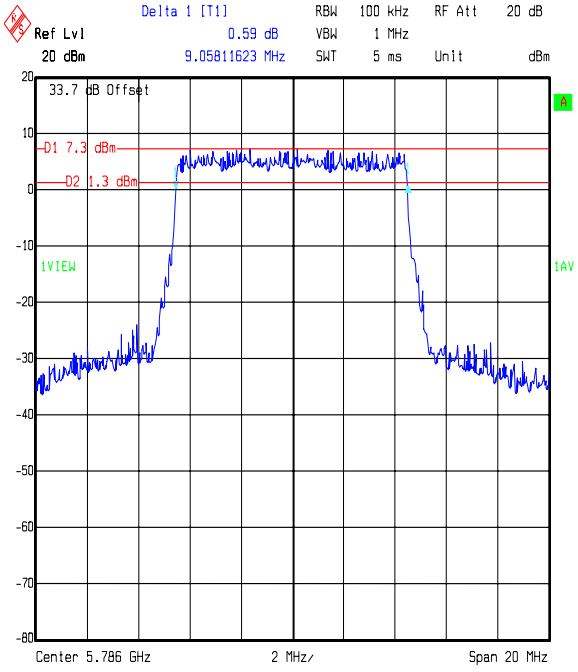
Transmitter Minimum 6 dB Bandwidth: Section 15.247(a)(2) (Continued)

Results for 10 MHz channel width:



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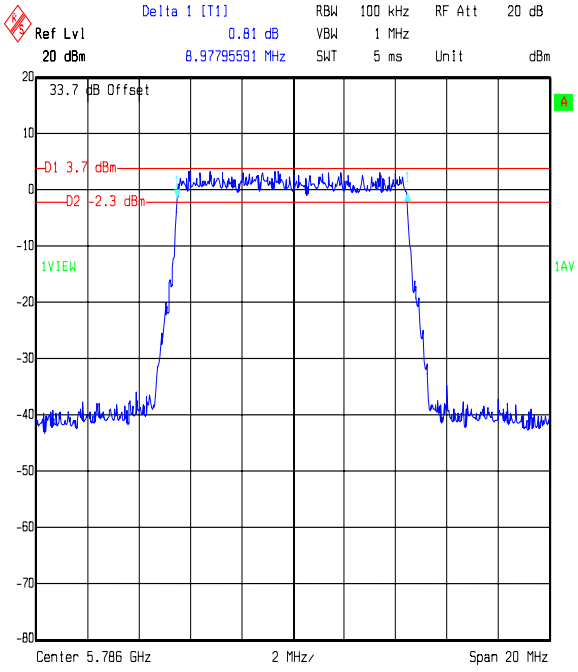

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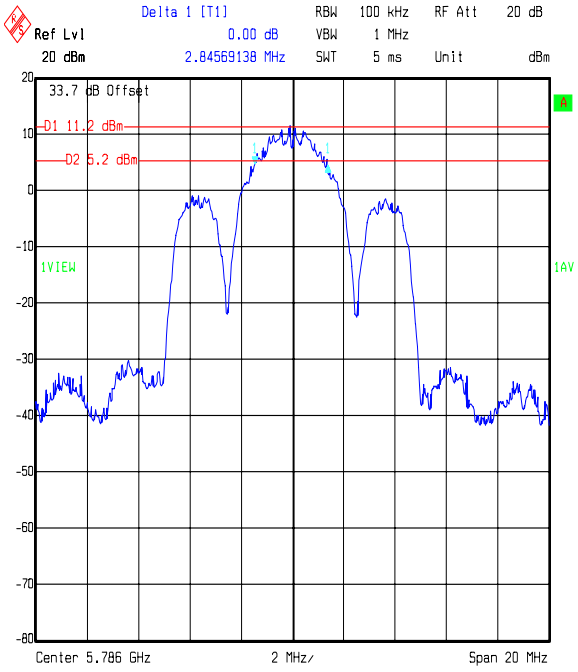

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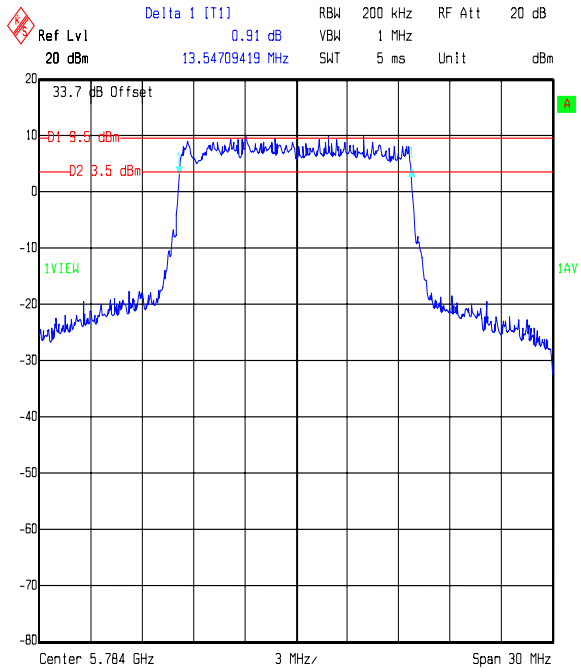
Transmitter Minimum 6 dB Bandwidth: Section 15.247(a)(2) (Continued)

Results for 15 MHz channel width:



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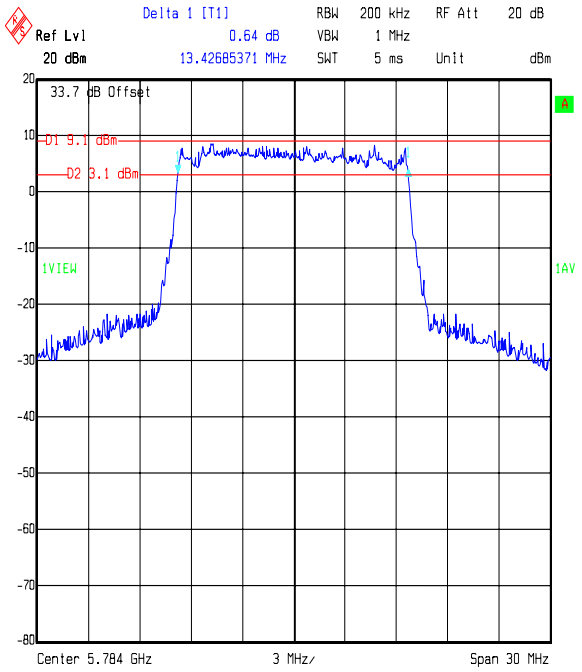

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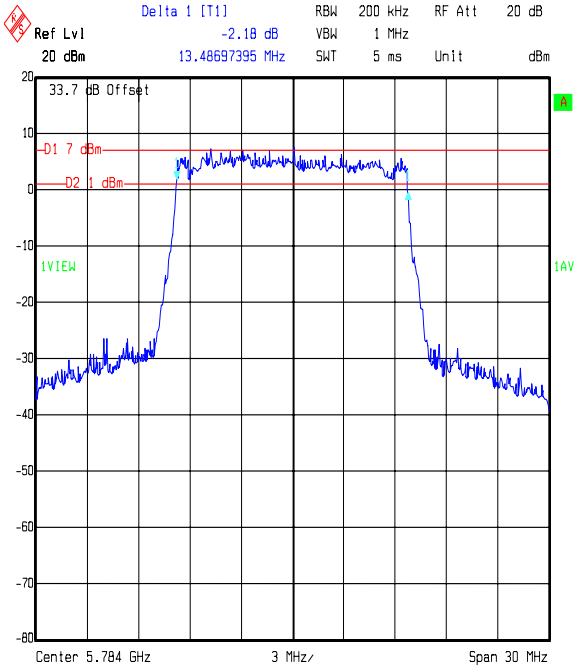
Transmitter Minimum 6 dB Bandwidth: Section 15.247(a)(2) (Continued)

Results for 15 MHz channel width:



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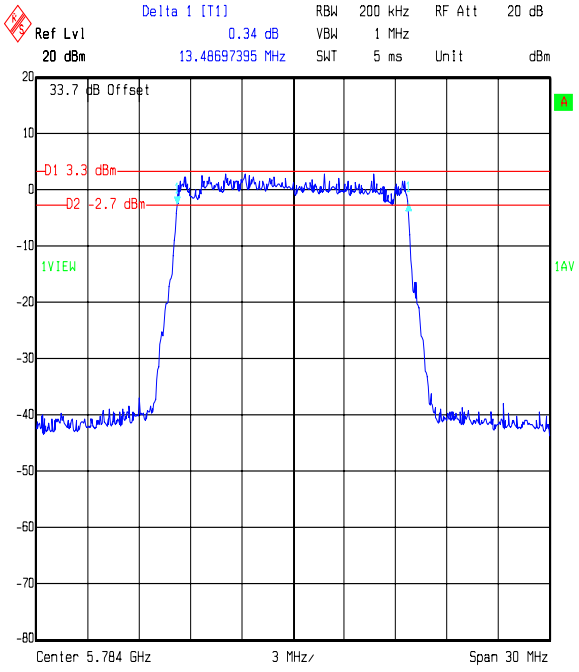

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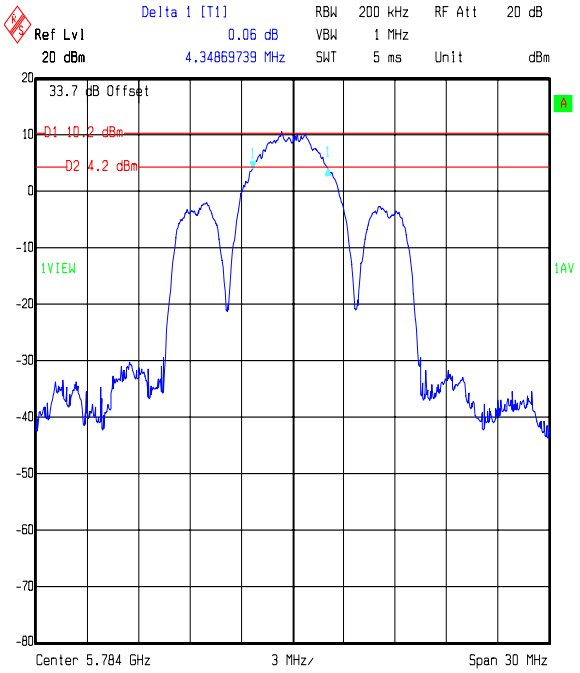

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Date: 06.JUN.2007 18:26:17

7.4.Transmitter 20 dB Bandwidth: Section 2.1049

7.4.1. The EUT was configured for 20 dB bandwidth measurements, as described in Section 9 of this report.

7.4.2. Tests were performed to identify the 20 dB bandwidth.

Results for 5 MHz channel:

Operation Mode	Transmitter 20 dB Bandwidth (MHz)
BPSK	4.960
QPSK	4.980
16 QAM	4.780
64QAM	4.749
Acquisition	4.579

Results for 10 MHz channel:

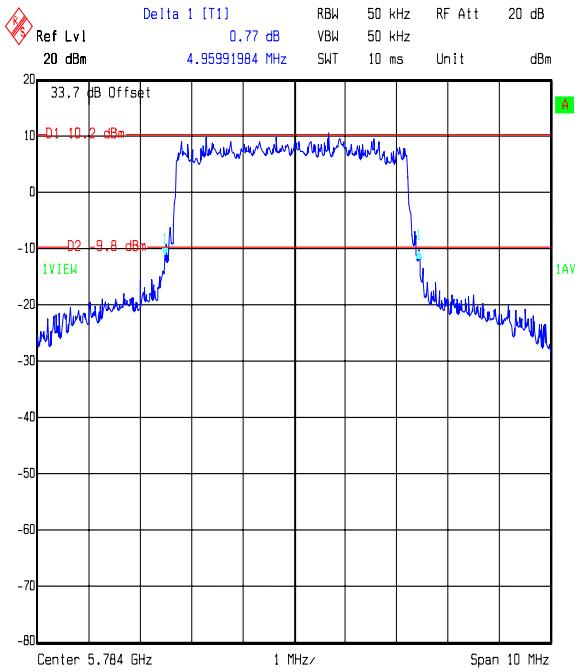
Operation Mode	Transmitter 20 dB Bandwidth (MHz)
BPSK	9.780
QPSK	9.739
16 QAM	9.579
64QAM	9.579
Acquisition	9.098

Results for 15 MHz channel:

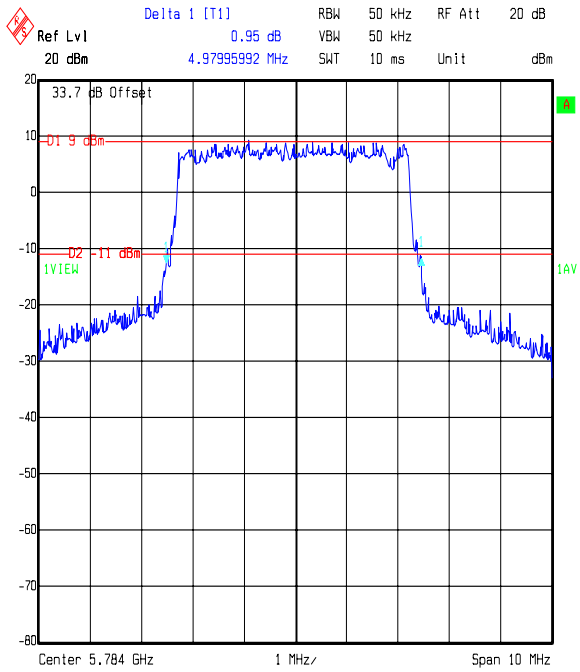
Operation Mode	Transmitter 20 dB Bandwidth (MHz)
BPSK	14.669
QPSK	14.609
16 QAM	14.489
64QAM	14.349
Acquisition	13.687

Transmitter 20 dB Bandwidth: Section 2.1049 (Continued)

Results for 5 MHz channel width:

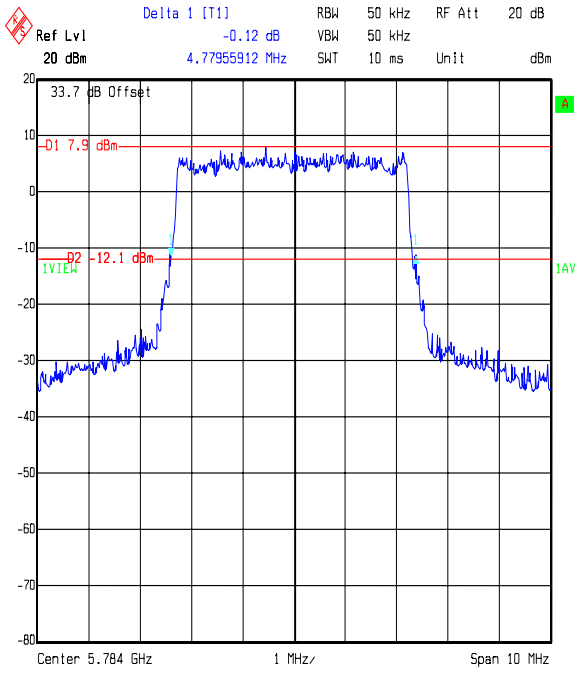


Title: 49169JD01
Comment A: 20dB BANDWIDTH H PORT 5 MHZ CHANNEL BPSK MID CH
Date: 06.JUN.2007 17:05:40

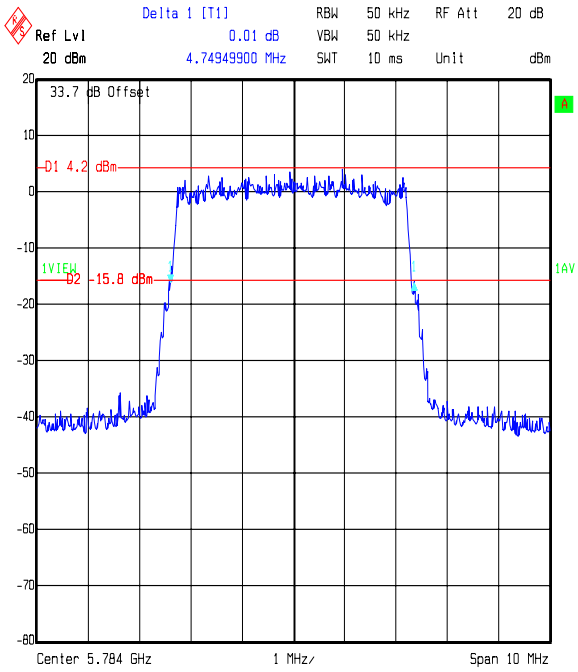


Title: 49169JD01
Comment A: 20dB BANDWIDTH H PORT 5 MHZ CHANNEL QPSK MID CH
Date: 06.JUN.2007 17:03:05

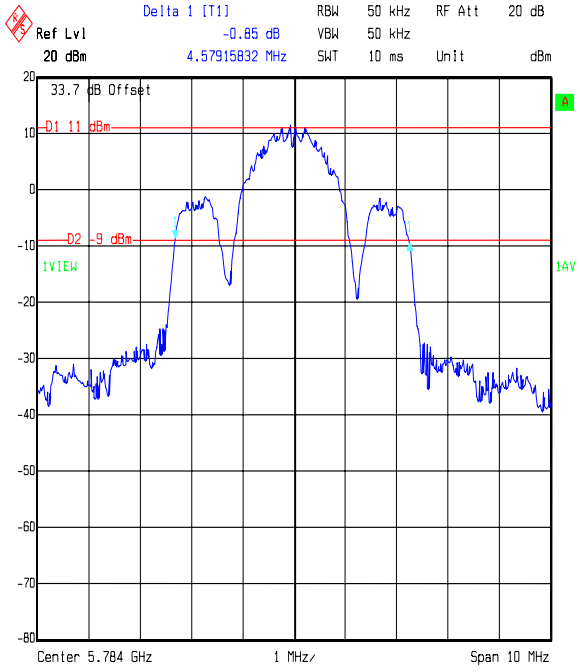
Transmitter 20 dB Bandwidth: Section 2.1049 (Continued)



Title: 49169JD01
Comment A: 20dB BANDWIDTH H PORT 5 MHZ CHANNEL 16QAM MID CH
Date: 06.JUN.2007 17:00:02



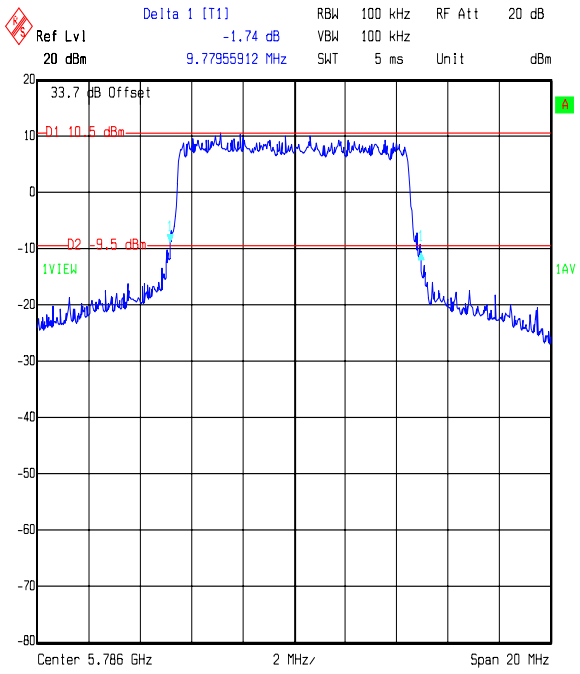
Title: 49169JD01
Comment A: 20dB BANDWIDTH H PORT 5 MHZ CHANNEL 64QAM MID CH
Date: 06.JUN.2007 18:42:37



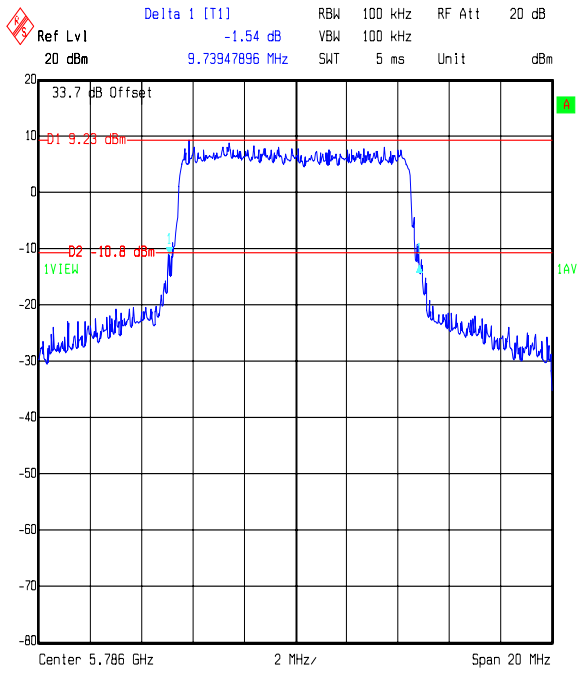
Title: 49169JD01
Comment A: 20dB BANDWIDTH H PORT 5 MHZ CHANNEL AQ MID CH
Date: 06.JUN.2007 17:11:40

Transmitter 20 dB Bandwidth: Section 2.1049 (Continued)

Results for 10 MHz channel width:

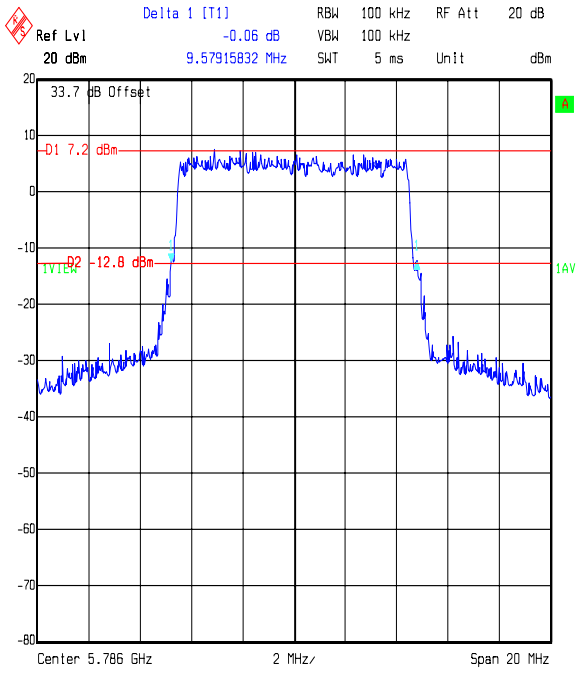


Title: 49169JD01
Comment A: 20dB BANDWIDTH H PORT 10 MHZ CHANNEL BPSK MID CH
Date: 06.JUN.2007 16:33:29

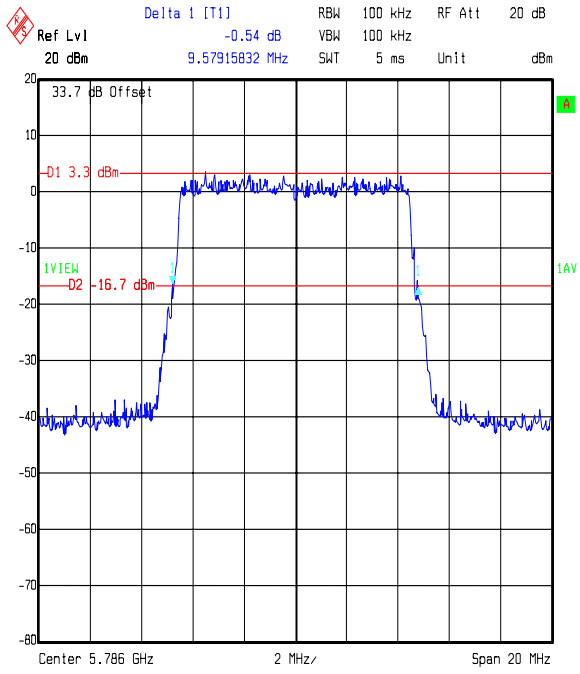


Title: 49169JD01
Comment A: 20dB BANDWIDTH H PORT 10 MHZ CHANNEL QPSK MID CH
Date: 06.JUN.2007 16:29:57

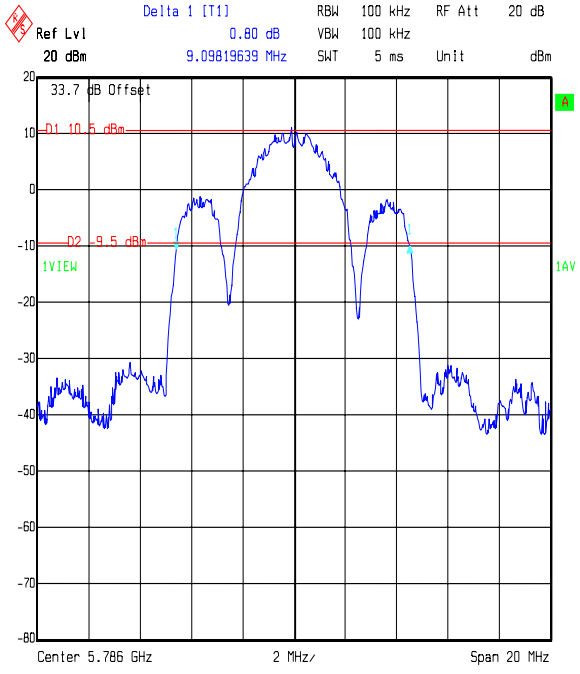
Transmitter 20 dB Bandwidth: Section 2.1049 (Continued)



Title: 49169JD01
Comment A: 20dB BANDWIDTH H PORT 10 MHZ CHANNEL 16 QAM MID CH
Date: 06.JUN.2007 16:27:15



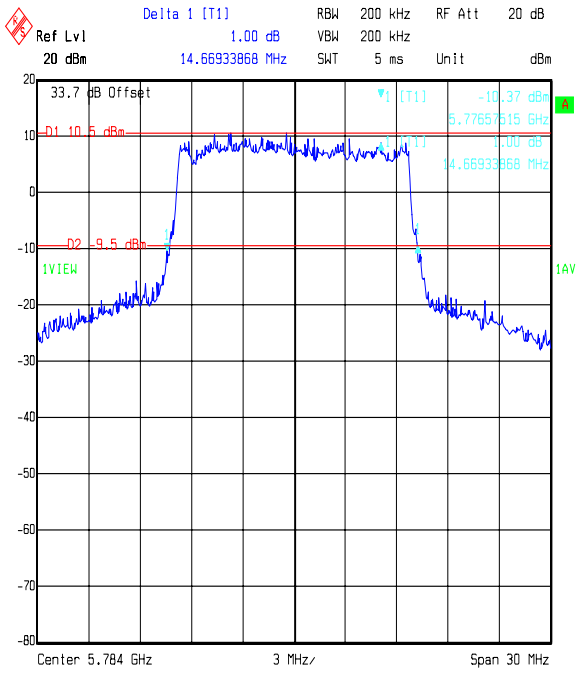
Title: 49169JD01
Comment A: 20dB BANDWIDTH H PORT 10 MHZ CHANNEL 64 QAM MID CH
Date: 06.JUN.2007 16:23:28



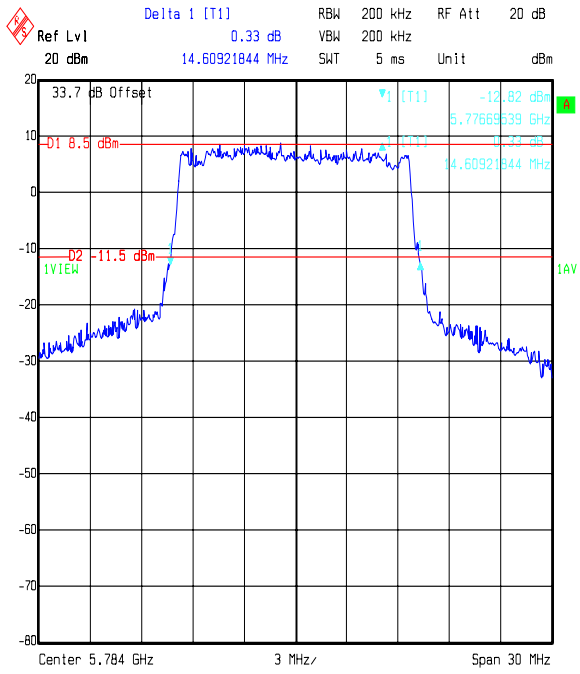
Title: 49169JD01
Comment A: 20dB BANDWIDTH H PORT 10 MHZ CHANNEL AQ MID CH
Date: 06.JUN.2007 16:36:20

Transmitter 20 dB Bandwidth: Section 2.1049 (Continued)

Results for 15 MHz channel width:

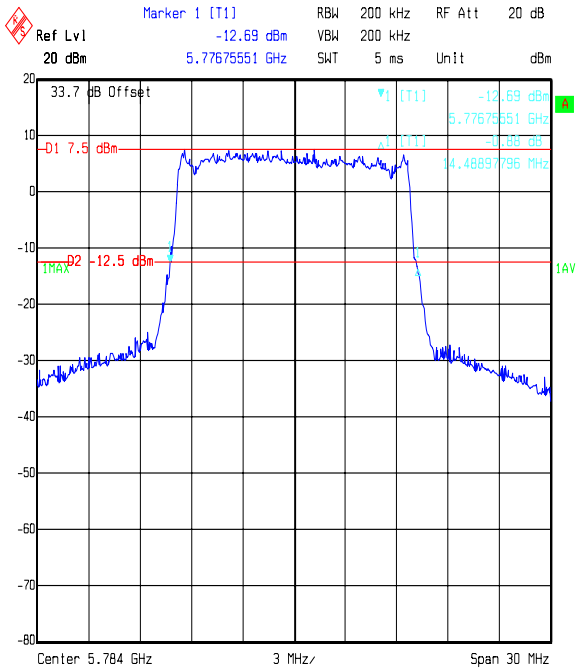


Title: 49169JD01
Comment A: 20dB BANDWIDTH H PORT 15 MHz CHANNEL BPSK MID CH
Date: 06.JUN.2007 15:37:36

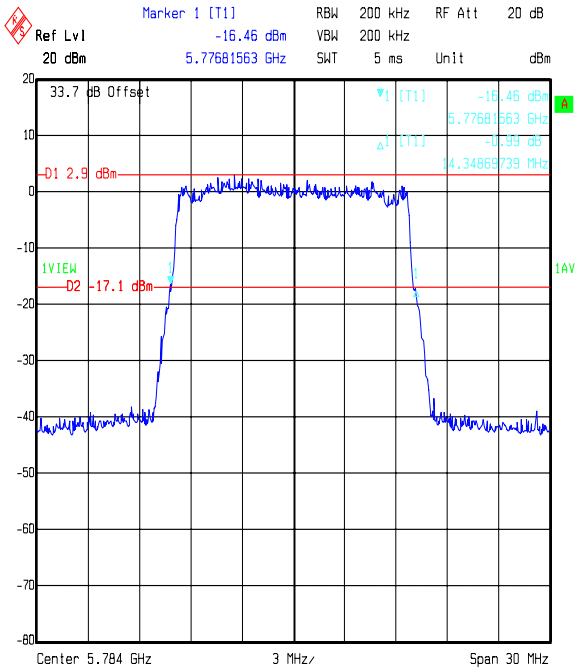


Title: 49169JD01
Comment A: 20dB BANDWIDTH H PORT 15 MHz CHANNEL QPSK MID CH
Date: 06.JUN.2007 15:34:43

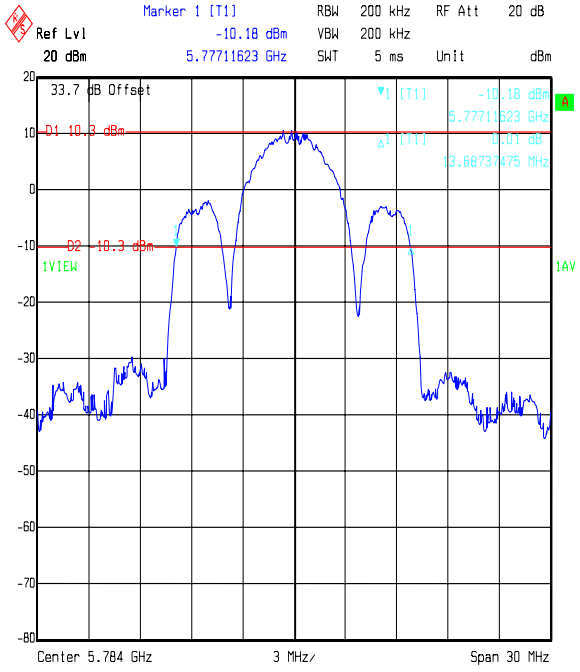
Transmitter 20 dB Bandwidth: Section 2.1049 (Continued)



Title: 49169JD01
Comment A: 20dB BANDWIDTH H PORT 15 MHz CHANNEL 16QAM MID CH
Date: 06.JUN.2007 15:32:02



Title: 49169JD01
Comment A: 20dB BANDWIDTH H PORT 15 MHz CHANNEL 64QAM MID CH
Date: 06.JUN.2007 15:16:31



Title: 49169JD01
Comment A: 20dB BANDWIDTH H PORT 15 MHz CHANNEL AQ MID CH
Date: 06.JUN.2007 15:28:36

7.5. Transmitter Peak Power Spectral Density: Section 15.247(e)

7.5.1. The EUT was configured for transmitter peak power spectral density measurements, as described in Section 9 of this report.

7.5.2. Tests were performed to identify the maximum power spectral density of the fundamental.

7.5.3. Tests were performed on the widest and narrowest channel width options, 5 MHz and 15 MHz.

7.5.4. Tests were performed on the vertical and horizontal antenna ports.

Results for BPSK 5 MHz channel

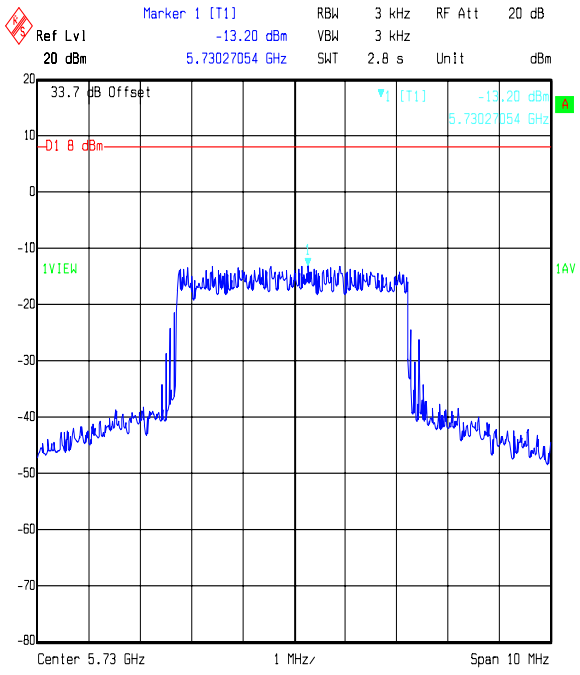
Channel	Antenna Polarity	Output Power (dBm / 3 kHz)	Limit (dBm / 3 kHz)	Margin (dB)	Result
Bottom	Vertical	-10.7	8.0	18.7	Complied
Bottom	Horizontal	-13.2	8.0	21.2	Complied
Middle	Vertical	-12.0	8.0	20.0	Complied
Middle	Horizontal	-12.3	8.0	20.3	Complied
Top	Vertical	-11.9	8.0	19.9	Complied
Top	Horizontal	-10.9	8.0	18.9	Complied

Results for BPSK 15 MHz channel

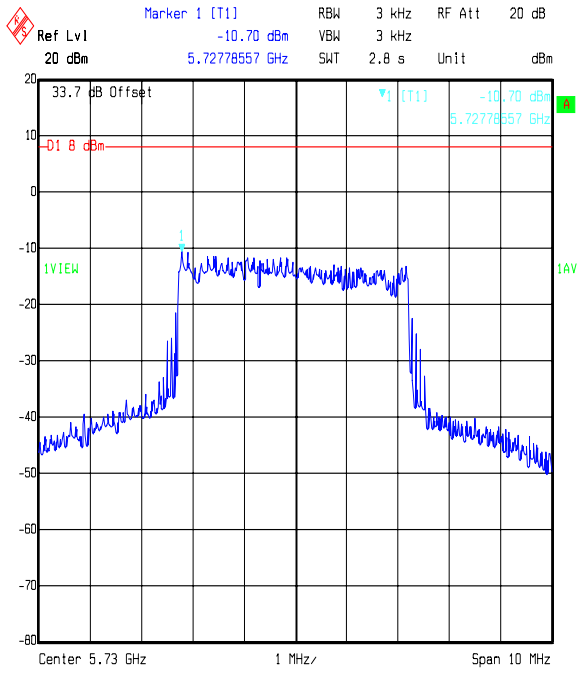
Channel	Antenna Polarity	Output Power (dBm / 3 kHz)	Limit (dBm / 3 kHz)	Margin (dB)	Result
Bottom	Vertical	-17.8	8.0	25.8	Complied
Bottom	Horizontal	-18.1	8.0	26.1	Complied
Middle	Vertical	-19.0	8.0	27.0	Complied
Middle	Horizontal	-18.1	8.0	26.1	Complied
Top	Vertical	-17.1	8.0	25.1	Complied
Top	Horizontal	-16.9	8.0	24.9	Complied

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

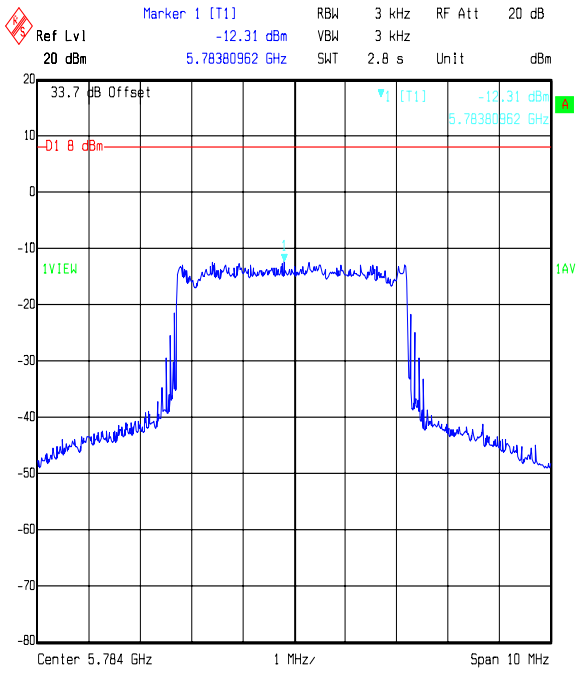
Results for BPSK 5 MHz channel



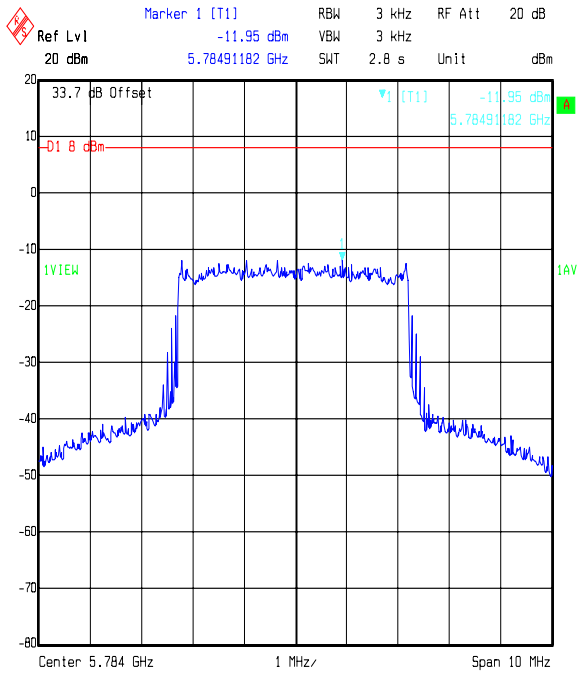
Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY H PORT 5 MHZ CHANNEL BPSK BOTTOM CH
Date: 05.JUN.2007 15:08:30



Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 5 MHZ CHANNEL BPSK BOTTOM CH
Date: 05.JUN.2007 15:32:19



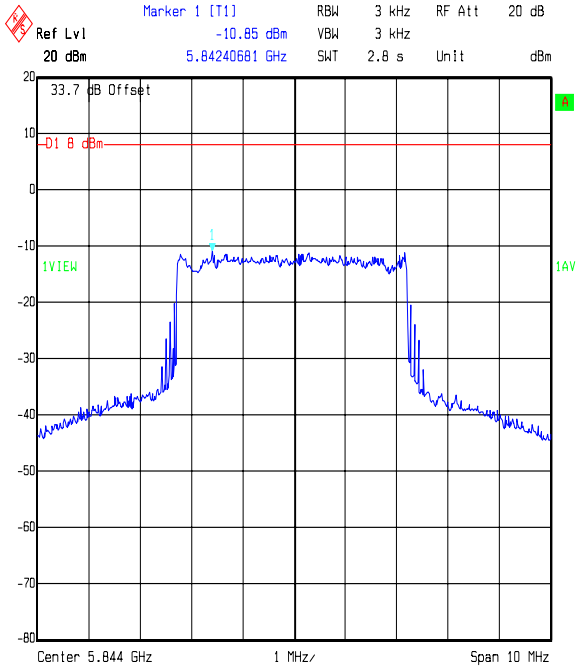
Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY H PORT 5 MHZ CHANNEL BPSK CENTRE CH
Date: 05.JUN.2007 13:22:49



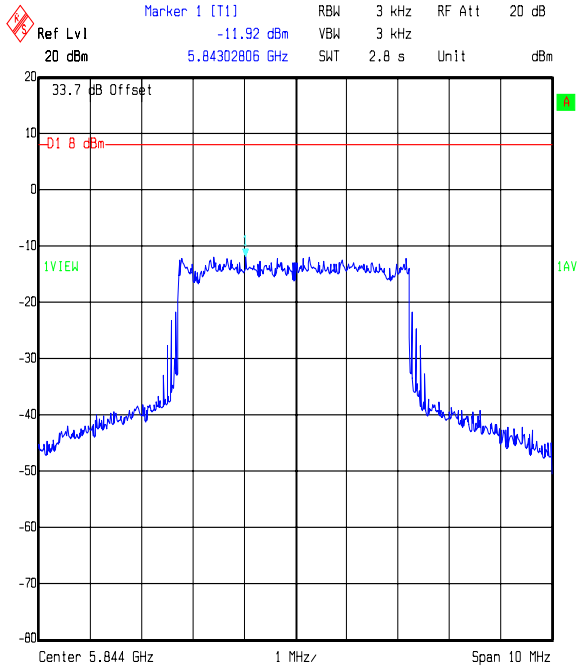
Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 5 MHZ CHANNEL BPSK CENTRE CH
Date: 05.JUN.2007 13:33:56

Transmitter Peak Power Spectral Density: Section 15.247(d) (Continued)

Results for BPSK 5 MHz channel



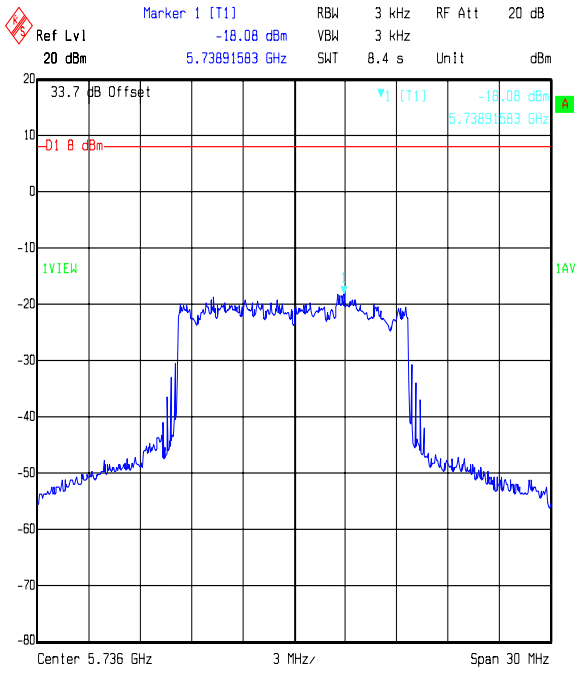
Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY H PORT 5 MHZ CHANNEL BPSK TOP CH
Date: 06.JUN.2007 10:33:11



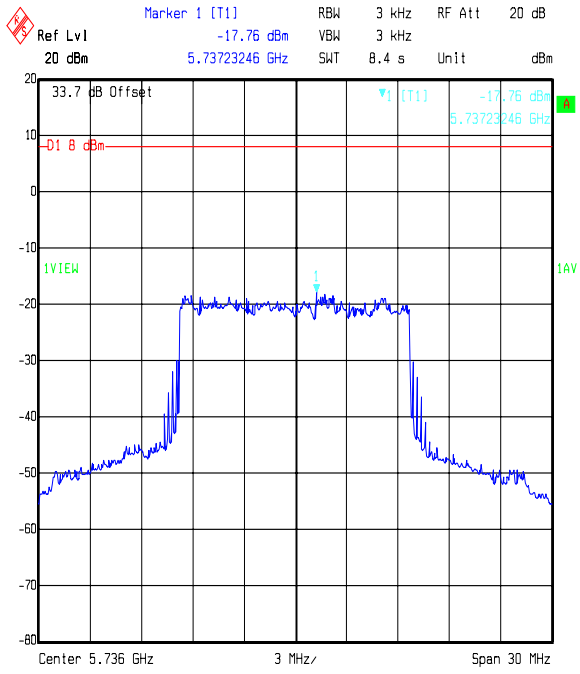
Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 5 MHZ CHANNEL BPSK TOP CH
Date: 06.JUN.2007 08:55:53

Transmitter Peak Power Spectral Density: Section 15.247(d) (Continued)

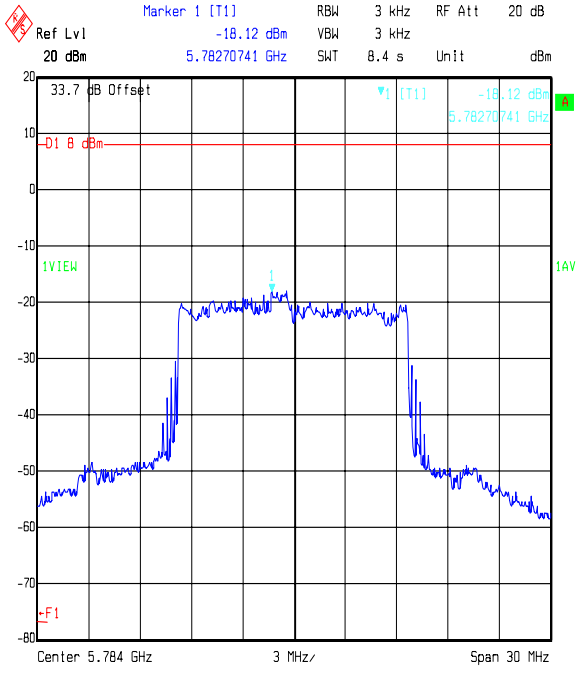
Results for BPSK 15 MHz channel



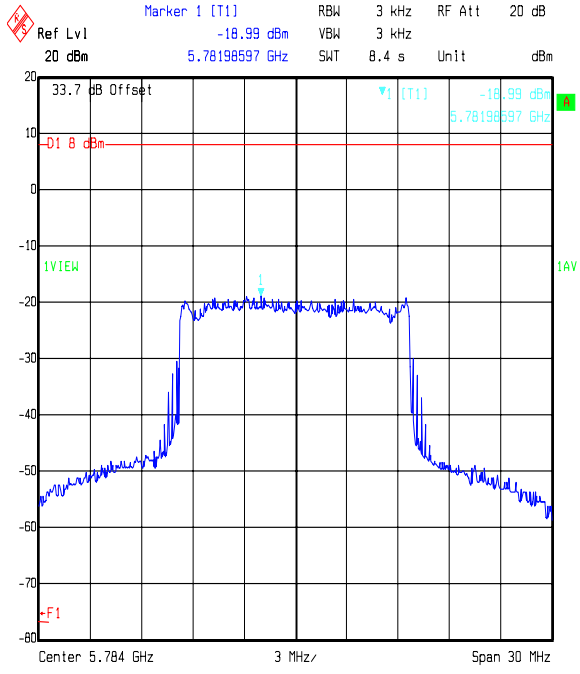
Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY H PORT 15 MHZ CHANNEL BPSK BOTTOM CH
Date: 05.JUN.2007 11:05:23



Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 15 MHZ CHANNEL BPSK BOTTOM CH
Date: 05.JUN.2007 11:03:25



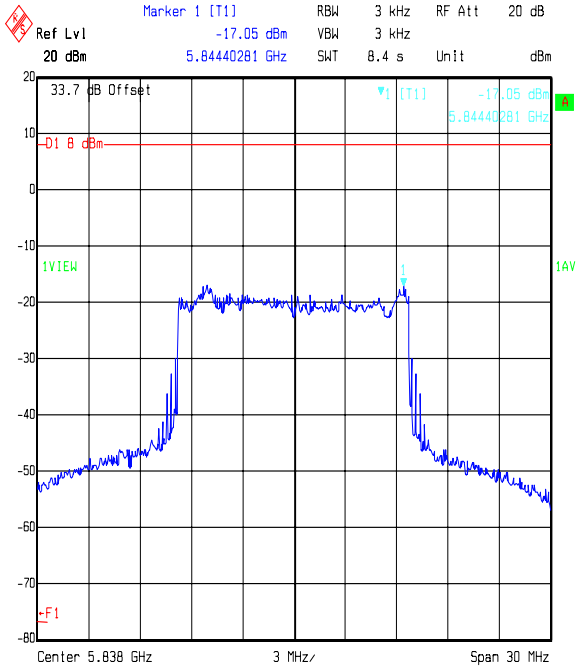
Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY H PORT 15 MHZ CHANNEL BPSK CENTRE CH
Date: 05.JUN.2007 10:02:40



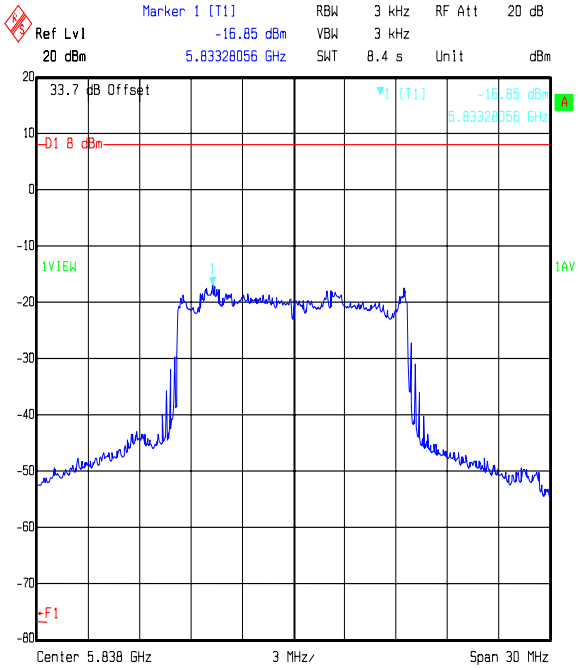
Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 15 MHZ CHANNEL BPSK CENTRE CH
Date: 05.JUN.2007 10:00:54

Transmitter Peak Power Spectral Density: Section 15.247(d) (Continued)

Results for BPSK 15 MHz channel



Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 15 MHZ CHANNEL BPSK TOP CH
Date: 05.JUN.2007 10:22:12



Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY H PORT 15 MHZ CHANNEL BPSK TOP CH
Date: 05.JUN.2007 10:20:04

Transmitter Peak Power Spectral Density (Continued)

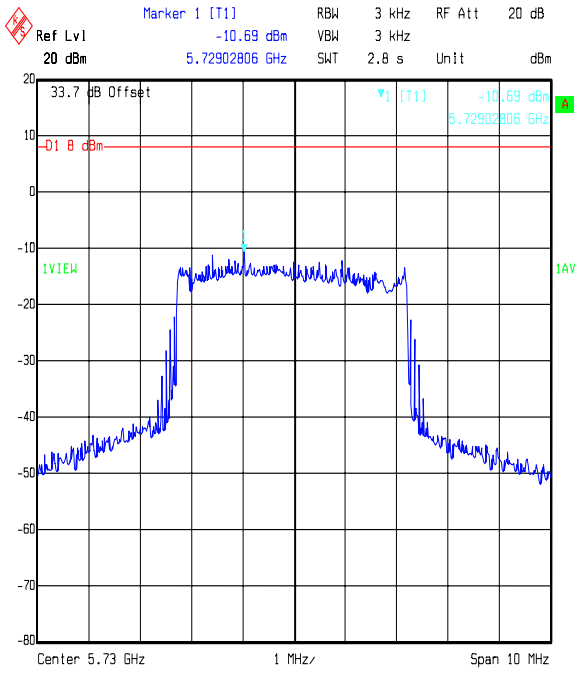
Results for QPSK 5 MHz channel

Channel	Antenna Polarity	Output Power (dBm / 3 kHz)	Limit (dBm / 3 kHz)	Margin (dB)	Result
Bottom	Vertical	-11.2	8.0	19.2	Complied
Bottom	Horizontal	-10.7	8.0	18.7	Complied
Middle	Vertical	-13.0	8.0	21.0	Complied
Middle	Horizontal	-13.1	8.0	21.1	Complied
Top	Vertical	-13.0	8.0	21.0	Complied
Top	Horizontal	-12.0	8.0	20.0	Complied

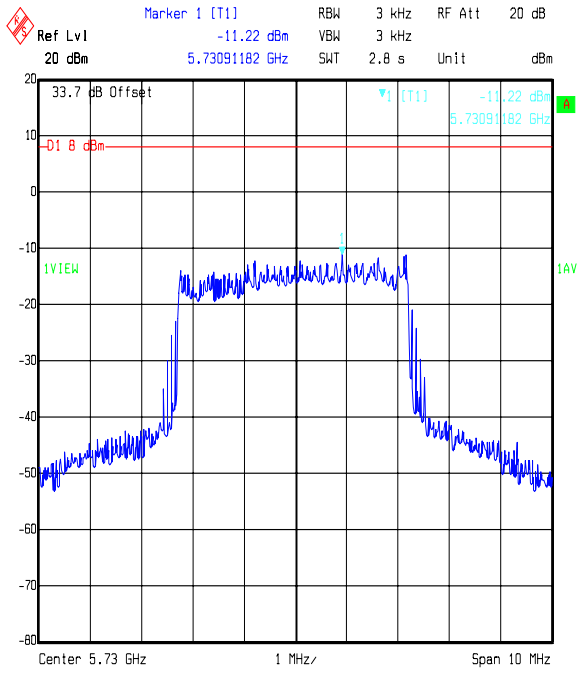
Results for QPSK 15 MHz channel

Channel	Antenna Polarity	Output Power (dBm / 3 kHz)	Limit (dBm / 3 kHz)	Margin (dB)	Result
Bottom	Vertical	-19.8	8.0	27.8	Complied
Bottom	Horizontal	-19.2	8.0	27.2	Complied
Middle	Vertical	-19.7	8.0	27.4	Complied
Middle	Horizontal	-20.5	8.0	28.5	Complied
Top	Vertical	-18.8	8.0	26.8	Complied
Top	Horizontal	-19.5	8.0	27.5	Complied

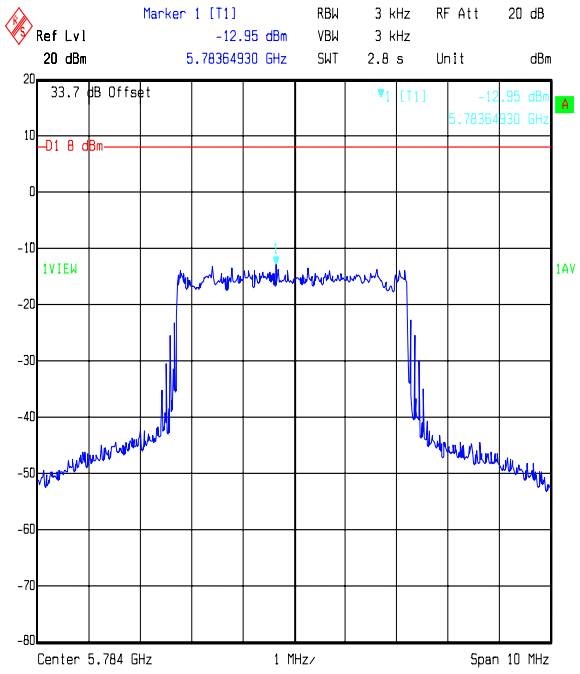
Results for QPSK 5 MHz channel



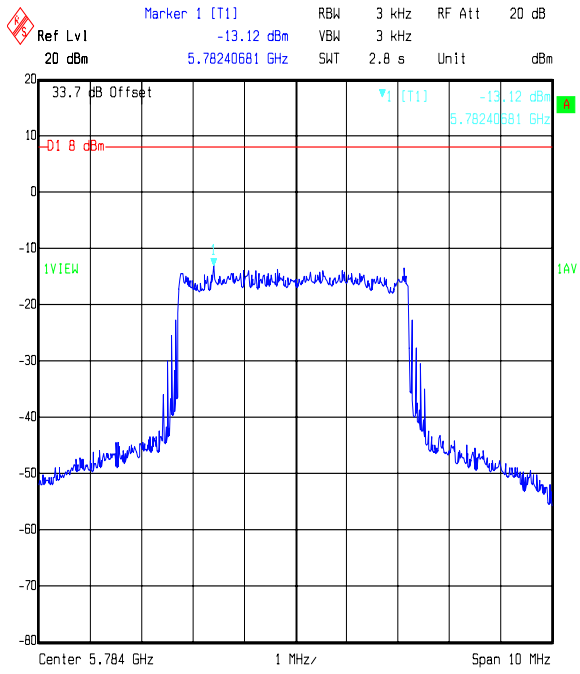
Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY H PORT 5 MHZ CHANNEL QPSK BOTTOM CH
Date: 05.JUN.2007 15:05:15



Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 5 MHZ CHANNEL QPSK BOTTOM CH
Date: 05.JUN.2007 15:29:08



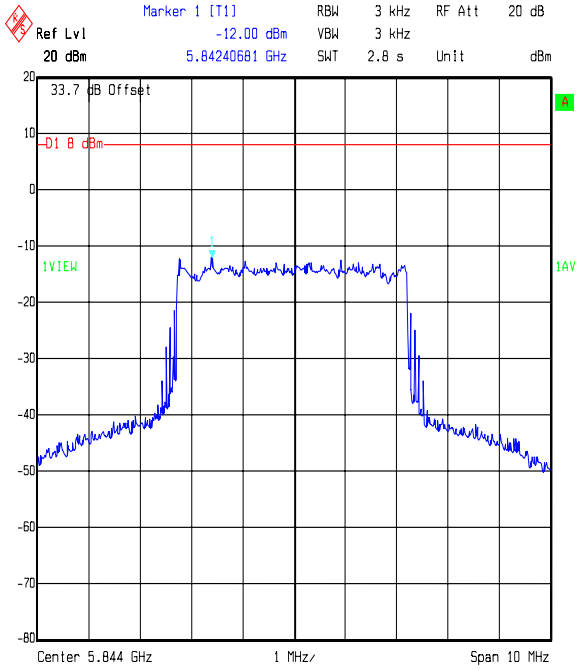
Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 5 MHZ CHANNEL QPSK CENTRE CH
Date: 05.JUN.2007 14:14:26



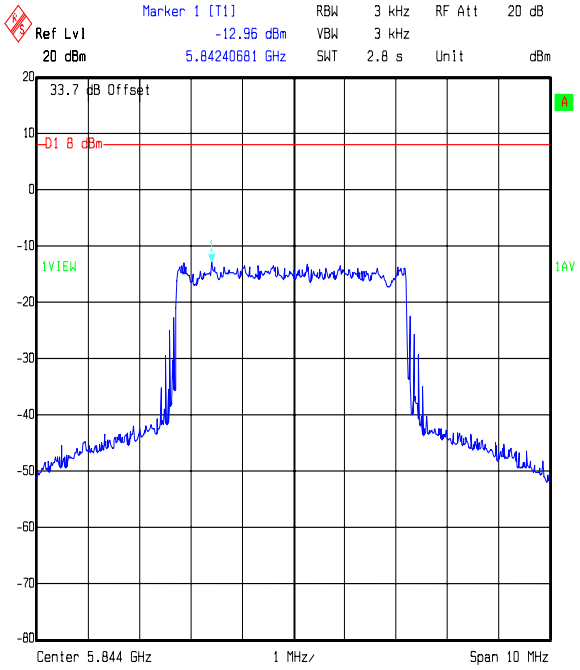
Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY H PORT 5 MHZ CHANNEL QPSK CENTRE CH
Date: 05.JUN.2007 14:17:37

Transmitter Peak Power Spectral Density: Section (Continued)

Results for QPSK 5 MHz channel



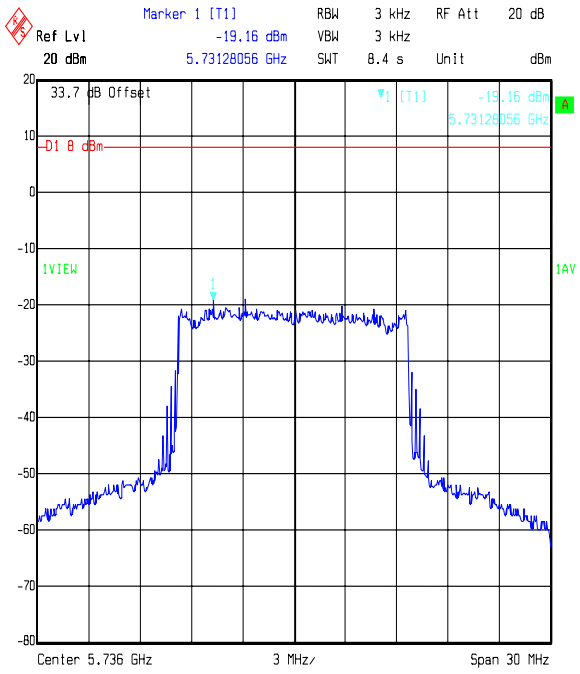
Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY H PORT 5 MHZ CHANNEL QPSK TOP CH
Date: 06.JUN.2007 09:59:55



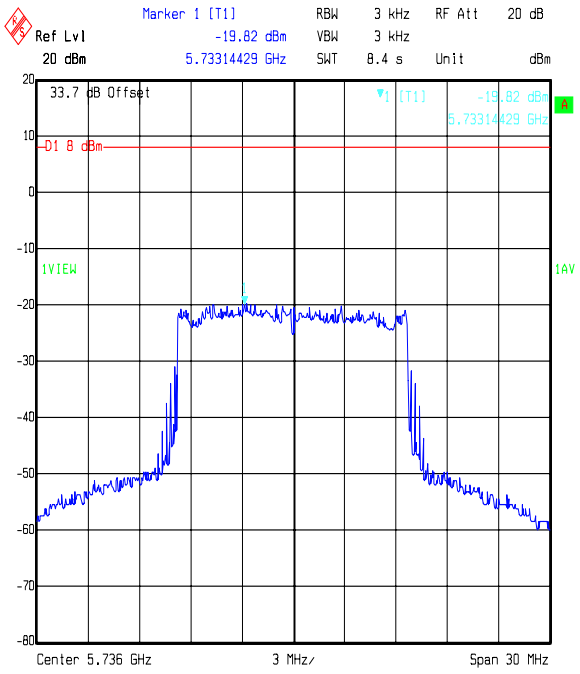
Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 5 MHZ CHANNEL QPSK TOP CH
Date: 06.JUN.2007 08:53:31

Transmitter Peak Power Spectral Density: Section (Continued)

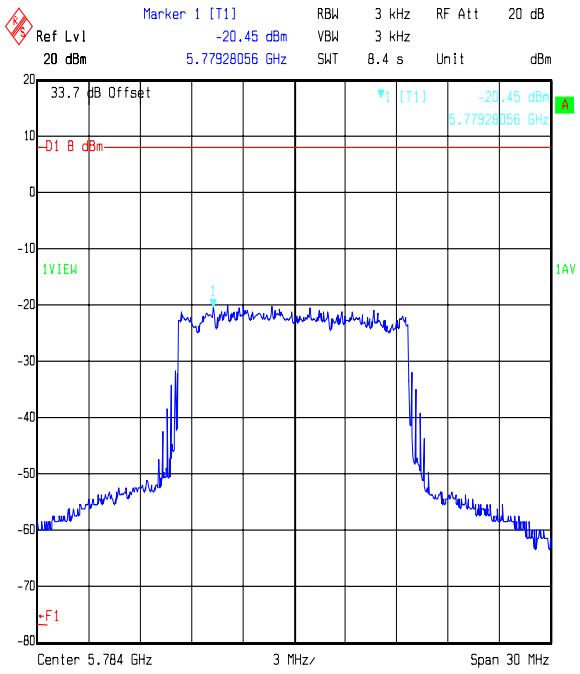
Results for QPSK 15 MHz channel



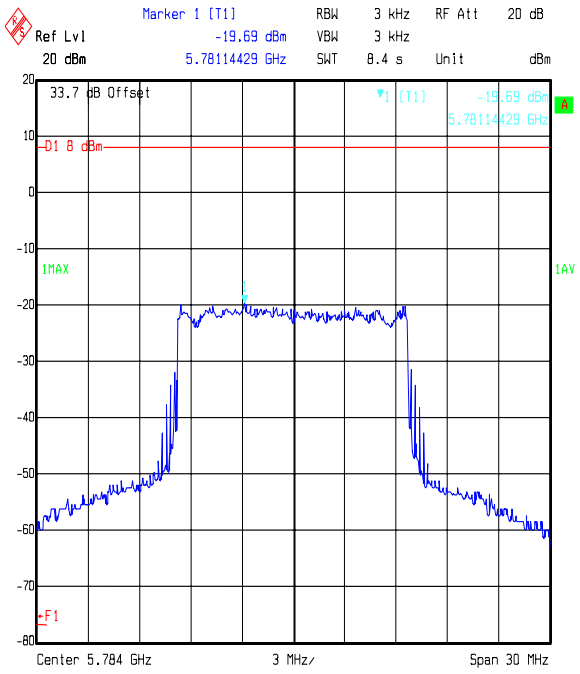
Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY H PORT 15 MHZ CHANNEL QPSK BOTTOM CH
Date: 05.JUN.2007 10:57:15



Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 15 MHZ CHANNEL QPSK BOTTOM CH
Date: 05.JUN.2007 10:59:51



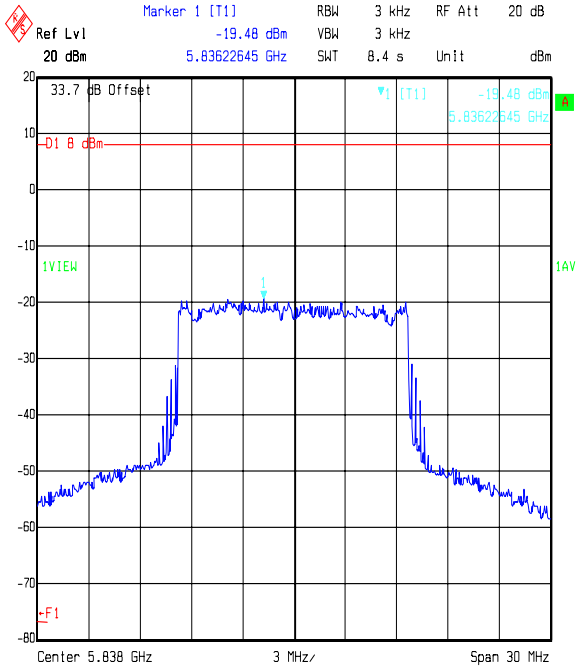
Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY H PORT 15 MHZ CHANNEL QPSK CENTRE CH
Date: 05.JUN.2007 09:56:19



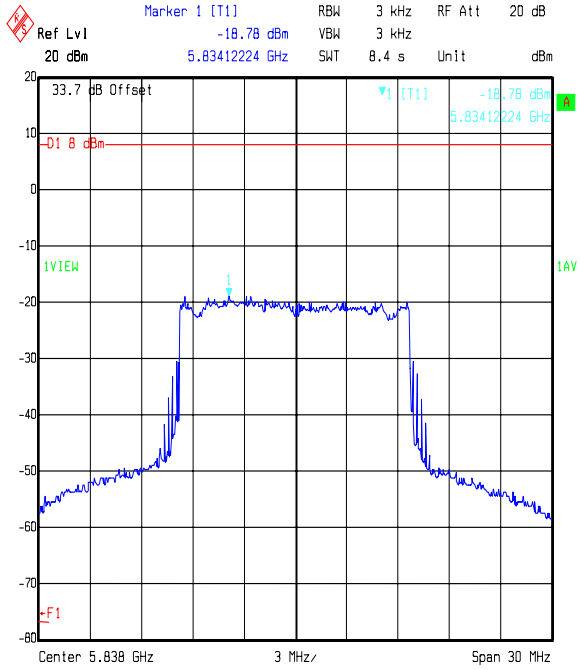
Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 15 MHZ CHANNEL QPSK CENTRE CH
Date: 05.JUN.2007 09:57:58

Transmitter Peak Power Spectral Density: Section (Continued)

Results for QPSK 15 MHz channel



Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY H PORT 15 MHZ CHANNEL QPSK TOP CH
Date: 05.JUN.2007 10:27:21



Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 15 MHZ CHANNEL QPSK TOP CH
Date: 05.JUN.2007 10:24:09

Transmitter Peak Power Spectral Density (Continued)

Results for 16QAM 5 MHz channel

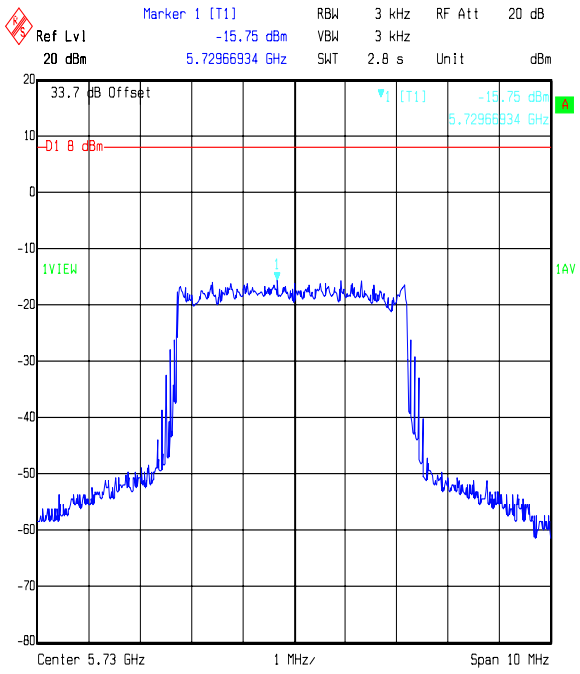
Channel	Antenna Polarity (H/V)	Output Power (dBm / 3 kHz)	Limit (dBm / 3 kHz)	Margin (dB)	Result
Bottom	Vertical	-15.3	8.0	23.3	Complied
Bottom	Horizontal	-15.8	8.0	23.8	Complied
Middle	Vertical	-14.3	8.0	22.3	Complied
Middle	Horizontal	-14.3	8.0	22.3	Complied
Top	Vertical	-14.7	8.0	22.7	Complied
Top	Horizontal	-14.3	8.0	22.3	Complied

Results for 16QAM 15 MHz channel

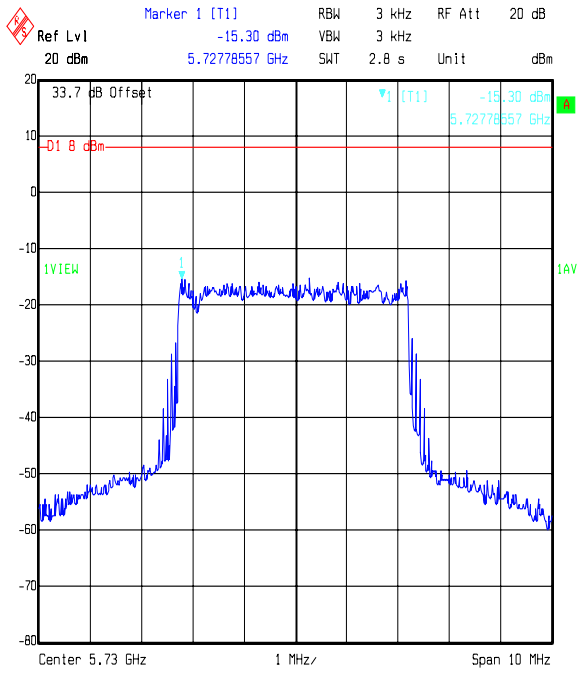
Channel	Antenna Polarity (H/V)	Output Power (dBm / 3 kHz)	Limit (dBm / 3 kHz)	Margin (dB)	Result
Bottom	Vertical	-21.6	8.0	29.6	Complied
Bottom	Horizontal	-21.7	8.0	29.7	Complied
Middle	Vertical	-21.7	8.0	29.7	Complied
Middle	Horizontal	-21.4	8.0	29.4	Complied
Top	Vertical	-21.5	8.0	29.5	Complied
Top	Horizontal	-21.2	8.0	29.2	Complied

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 BOTTOM CH
Date: 05.JUN.2007 15:02:05



Title: 49169JD01
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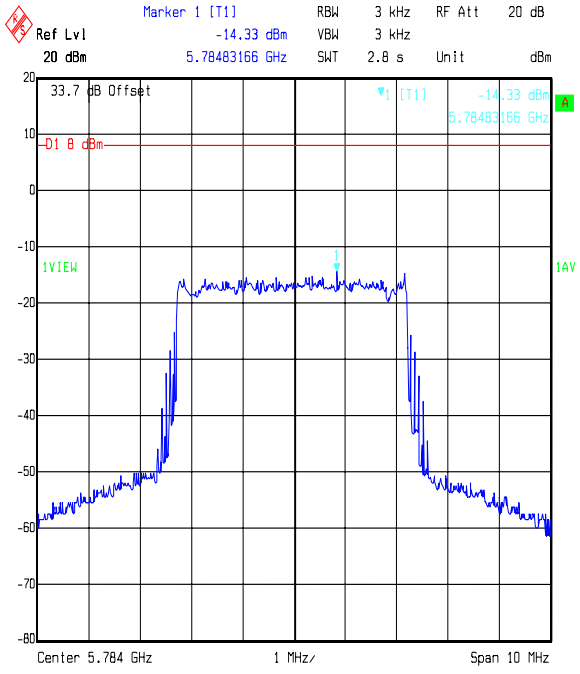
Date: 05.JUN.2007 15:26:28



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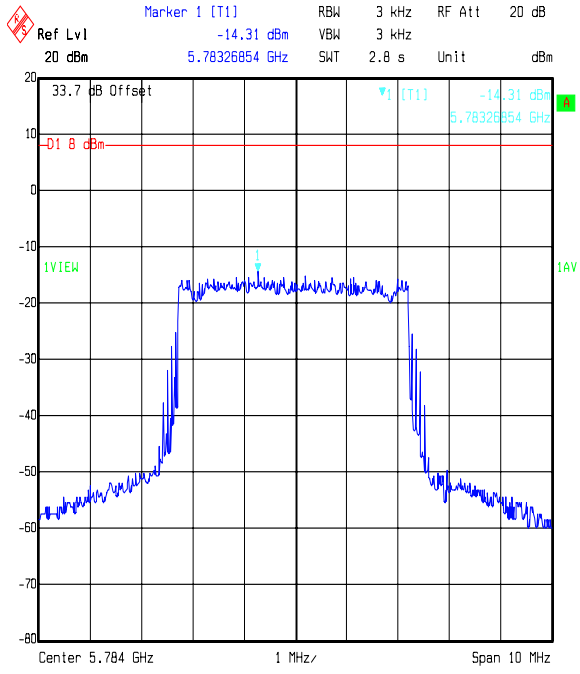
Date: 05.JUN.2007 14:22:28



Title: 49169JD01
Comment A: SPECTRAL POWER DENSITY V PORT 5 MHZ CHANNEL 16QAM CENTRE CH
Date: 05.JUN.2007 14:25:09