

TEST REPORT

ACCORDING TO: FCC 47CFR part 15 subpart C § 15.247

FOR:

RADWIN Ltd.

Wireless Radio Transmission System

Models: WinLink 1000/F24/HE

WL1000-ODU-HE/F24/FCC/INT

WL1000-ODU-HE/F24/FCC/EXT

AirMux-200/ODU-HE/F24F/INT

AirMux-200/ODU-HE/F24F/EXT

48-O-HE-24

48-O-HE-24-EX-AN

MRL-500-ODU-HE/F24/FCC/INT

MRL-500-ODU-HE/F24/FCC/EXT

WB7230_OOU_2.4_HE_INT

WB7230_OOU_2.4_HE_EXT

Aurora2-ODU-HE/F24/FCC/INT

Aurora2-ODU-HE/F24/FCC/EXT

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1 Applicant information

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Telephone: +972-3766 2988
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Contact name: Mr. Shlomo Weiss

2 Equipment under test attributes

Product name: Wireless Radio Transmission System
Product type: Point to point
Model(s): WinLink 1000/F24/HE
Receipt date 10/3/2006

3 Manufacturer information

Manufacturer name: RADWIN Ltd.
Address: 32 HaBarzel street, Ramat Hahayal, Tel Aviv 69710, Israel
Telephone: +972-3766 2988
Fax: +972-3766 2922
E-Mail: shlomo_weiss@radwin.com
Contact name: Mr. Shlomo Weiss

4 Test details





Project ID: 17421
Location: Hermon Laboratories Ltd. P.O.Box 23, Binyamina 30550, Israel
Test started: 10/3/2006
Test completed: 1/19/2007
Test specification(s): FCC 47CFR part 15:2005, subpart C §§15.247
Test suite: FCC_15.247_DTS_with_RF_connector (5/4/2004, modified)

5 Tests summary

Test	Status
Transmitter characteristics	
Section 15.247(a)2, 6 dB bandwidth	Pass
Section 15.247(b)3, Peak output power	Pass
Section 15.247(c), Conducted spurious emissions	Pass
Section 15.247(c), Radiated spurious emissions	Pass
Section 15.247(d), Peak power density	Pass
Section 15.207(a), Conducted emission	Pass
Section 15.203, Antenna requirement	Professional installation is required

Testing was completed against all relevant requirements of the test standard. The results obtained indicate that the product under test does comply in full with the requirements tested.
The test results relate only to the items tested. Pass/ fail decision was based on nominal values.

This test report replaces the previously issued test report identified by Doc ID:RADRAD_FCC.17421_rev1.

	Name and Title	Date	Signature
Tested by:	Mr. S. Samokha, test engineer	January 19, 2007	
	Mr. A. Adelberg, test engineer		
Reviewed by:	Mrs. M. Cherniavsky, certification engineer	January 22, 2007	
Approved by:	Mr. M. Nikishin, EMC and radio group leader	January 23, 2007	

6 EUT description

6.1 General information

The EUT is an outdoor unit of WLAN radio relay system (point-to-point broadband wireless transmission system), comprising ODU (outdoor unit) and IDU (indoor unit). The EUT provides high capacity connectivity of up to 54 Mbps and is powered from the mains via AC/DC power adapter.

According to the manufacturer declaration of identity the following EUT models:

- 1) WinLink 1000/F24/HE;
- 2) WL1000-ODU-HE/F24/FCC/INT, 3) WL1000-ODU-HE/F24/FCC/EXT;
- 4) AirMux-200/ODU-HE/F24F/INT, 5) AirMux-200/ODU-HE/F24F/EXT;
- 6) 48-O-HE-24, 7) 48-O-HE-24-EX-AN;
- 8) MRL-500-ODU-HE/F24/FCC/INT, 9) MRL-500-ODU-HE/F24/FCC/EXT;
- 10) WB7230_OOU_2.4_HE_INT, 11) WB7230_OOU_2.4_HE_EXT;
- 12) Aurora2-ODU-HE/F24/FCC/INT, 13) Aurora2-ODU-HE/F24/FCC/EXT

are electrically/electronically identical and are the commercial names of the same WinLink 1000/F24/HE system. Therefore only the model WinLink 1000/F24/HE (with 24 dBi external and 15.2 dBi integral antennas) was tested.

6.2 Ports and lines

Port type	Port description	Connected		Connector type	Q-ty	Cable type	Cable length, m	Indoor / outdoor
		From	To					
Power	DC power	AC/DC adapter	IDU	Terminal block	1	2 wire	2	Indoor
RF	Antenna	ODU	Load 50Ω	N-type	1	NA	NA	NA
Signal	WAN PoE (power over Ethernet)	IDU	ODU	RJ45	1	See note*	100	Outdoor
Signal	Ethernet	IDU	LAPTOP	RJ45	1	FTP	100	Indoor
Signal	Monitor/RS232	ODU	PC	RJ45	1	Not connected, for configuration and service use only		
Signal	Monitor/RS232	IDU	PC	RJ45	1	Not connected, for configuration and service use only		

*Four-pair category 5e, double jacket 4x2x24 AWG FTP type

6.3 Support and test equipment

Description	Manufacturer	Model number	Serial number
Laptop	Acer	1902	6019A5M
AC/DC adaptor	ELJINTEK Inc.	GPSU15E-8	0610EJ283716
IDU (for configuration with ODU)	Radwin Ltd.	WL1000	DE0000801267
AC/DC adaptor for IDU	Delta Electronics	AD8-60PB	104300CA9M

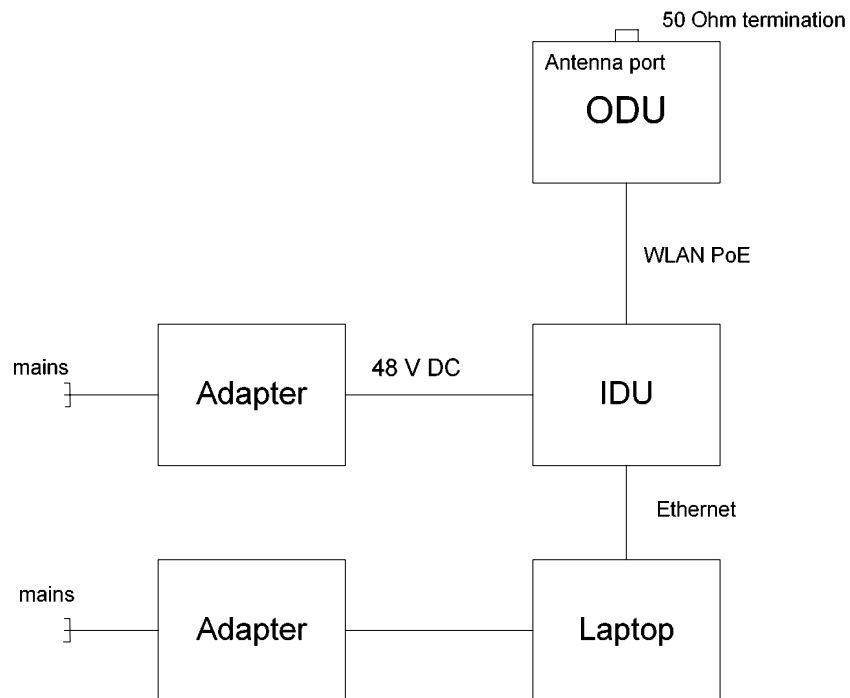
6.4 Operating frequencies

Source	Frequency, MHz			
Digital portion	(clock)	2.048	10	16.38
Receiver	(LO)	40	(IF)	2412 - 2462
Transmitter	(LO)	40	(IF)	2412 - 2462

6.5 Changes made in the EUT

No changes were implemented.

6.6 Test configuration



6.7 Transmitter characteristics

Type of equipment						
X	Stand-alone (Equipment with or without its own control provisions)					
	Combined equipment (Equipment where the radio part is fully integrated within another type of equipment)					
	Plug-in card (Equipment intended for a variety of host systems)					
Intended use		Condition of use				
X	fixed	Always at a distance more than 2 m from all people				
	mobile	Always at a distance more than 20 cm from all people				
	portable	May operate at a distance closer than 20 cm to human body				
Assigned frequency range		2400 – 2483.5 MHz				
Operating frequency range		2412 – 2462 MHz				
RF channel spacing		5 MHz				
Maximum rated output power		At transmitter 50 Ω RF output connector		27 dBm for 15.2 dBi antenna 24 dBm for 24 dBi antenna		
Is transmitter output power variable?		No		continuous variable		
				stepped variable with stepsize		1 dB
		X	Yes	minimum RF power		NA
				maximum RF power		27 dBm for 15.2 dBi antenna 24 dBm for 24 dBi antenna
External antenna connection						
unique coupling	X	standard connector N type				
Antennas technical characteristics						
Type	Manufacturer	Model number		Gain		
Integral	MTI Wireless Edge Ltd.	MT-364023/C/A		15.2 dBi		
External	Kenbotong Communication Ltd.	TDJ-2400A		24 dBi		
Transmitter 99% power bandwidth		5 MHz, 10 MHz, 20 MHz				
Transmitter aggregate data rate/s		5 MHz CBW : 1.5, 2.5, 3, 4.5, 6, 9, 12, 13.5 Mbps 10 MHz CBW : 3, 4.5, 6, 9, 12, 18, 24, 27 Mbps 20 MHz CBW : 6, 9, 12, 18, 24, 36, 48, 54 Mbps				
Type of modulation		BPSK, 4QAM, 16QAM, 64QAM				
Type of multiplexing		OFDM				
Modulating test signal (baseband)		PRBS				
Maximum transmitter duty cycle in normal use		100 %				
Transmitter duty cycle supplied for test		100 %				
Spread spectrum technique used		Digital transmission system (DTS)				
Transmitter power source						
	Battery	Nominal rated voltage	VDC	Battery type		
	DC	Nominal rated voltage	VDC			
X	AC mains	Nominal rated voltage	120 VAC	Frequency	50 Hz	
Common power source for transmitter and receiver		X	yes		no	

Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:39:05 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

7 Transmitter tests according to 47CFR part 15 subpart C requirements

7.1 Minimum 6 dB bandwidth

7.1.1 General

This test was performed to measure 6 dB bandwidth of the EUT carrier frequency. Specification test limits are given in Table 7.1.1.

Table 7.1.1 The 6 dB bandwidth limits

Assigned frequency, MHz	Modulation envelope reference points*, dBc	Minimum bandwidth, kHz
902.0 – 928.0	6.0	500.0
2400.0 – 2483.5		
5725.0 – 5850.0		

* - Modulation envelope reference points provided in terms of attenuation below the peak of modulated carrier.

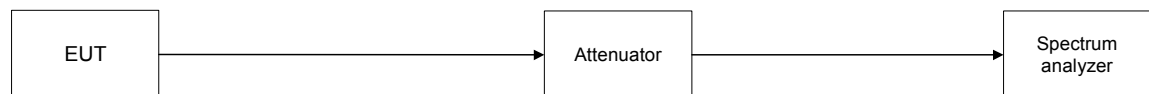
7.1.2 Test procedure

7.1.2.1 The EUT was set up as shown in Figure 7.1.1, energized and its proper operation was checked.

7.1.2.2 The EUT was set to transmit modulated carrier.

7.1.2.3 The transmitter minimum 6 dB bandwidth was measured with spectrum analyzer as frequency delta between reference points on modulation envelope and provided in Table 7.1.2 and associated plot.

Figure 7.1.1 The 6 dB bandwidth test setup



Test specification: Section 15.247(a)2, 6 dB bandwidth	
Test procedure: FR Vol.62, page 26243, Section 15.247(a)2	
Test mode: Compliance	Verdict: PASS
Date & Time: 1/19/2007 9:39:05 AM	
Temperature: 20°C	Air Pressure: 1010hPa
Relative Humidity: 48%	
Power Supply: 120 V AC	
Remarks: EUT with 15.2 dBi integral antenna	

Table 7.1.2 The 6 dB bandwidth test results

ASSIGNED FREQUENCY BAND: 2400 -2483.5 MHz
DETECTOR USED: Peak
SWEEP MODE: Single
SWEEP TIME: Auto
RESOLUTION BANDWIDTH: 100 kHz
VIDEO BANDWIDTH: 300 kHz
MODULATION ENVELOPE REFERENCE POINTS: 6.0 dBc
MODULATION: QAM
MODULATING SIGNAL: PRBS

Carrier frequency, MHz	6 dB bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
Channel spacing: 5 MHz				
Data rate: 1.5 Mbps				
2412	4162.5	500.0	3662.5	Pass
2437	4162.5	500.0	3662.5	Pass
2462	4125.0	500.0	3625.0	Pass
Data rate: 13.5 Mbps				
2412	4187.5	500.0	3687.5	Pass
2437	4170.0	500.0	3670.0	Pass
2462	6162.5	500.0	5662.5	Pass
Channel spacing: 10 MHz				
Data rate: 3 Mbps				
2412	8275.0	500.0	7775.0	Pass
2437	8250.0	500.0	7750.0	Pass
2462	8200.0	500.0	7700.0	Pass
Data rate: 27 Mbps				
2412	8275.0	500.0	7775.0	Pass
2437	8300.0	500.0	7800.0	Pass
2462	8250.0	500.0	7750.0	Pass
Channel spacing: 20 MHz				
Data rate: 6 Mbps				
2412	16400.0	500.0	15900.0	Pass
2437	16550.0	500.0	16050.0	Pass
2462	15800.0	500.0	15300.0	Pass
Data rate: 54 Mbps				
2412	16550.0	500.0	16050.0	Pass
2437	16500.0	500.0	16000.0	Pass
2462	15850.0	500.0	15350.0	Pass

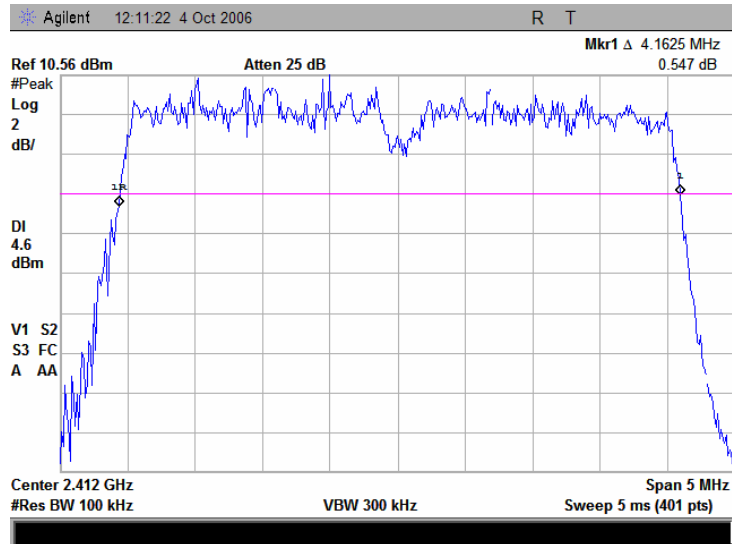
Reference numbers of test equipment used

HL 2869	HL 2909						
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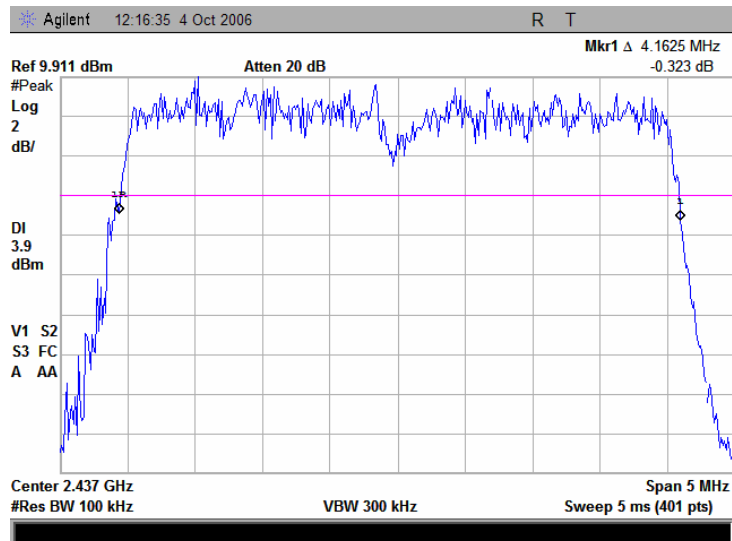
Full description is given in Appendix A.

Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:39:05 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.1.1 The 6 dB bandwidth test result at low frequency, 5 MHz channel spacing, 1.5 Mbps data rate

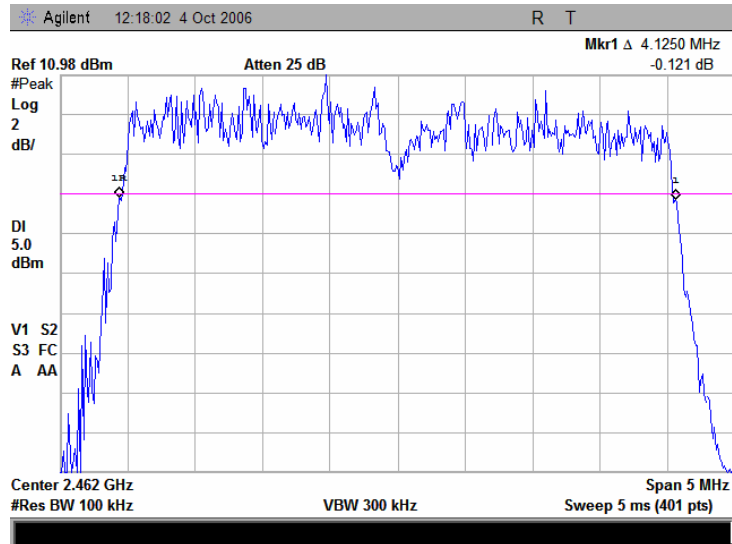


Plot 7.1.2 The 6 dB bandwidth test result at mid frequency, 5 MHz channel spacing, 1.5 Mbps data rate

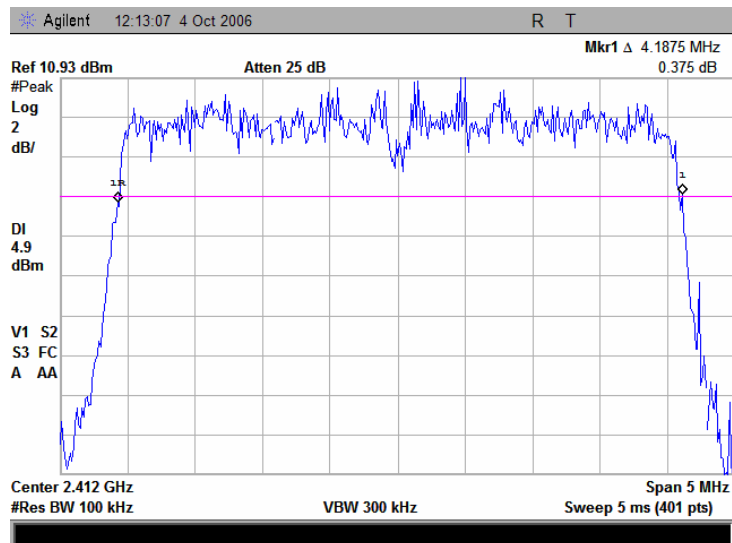


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:39:05 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.1.3 The 6 dB bandwidth test result at high frequency, 5 MHz channel spacing, 1.5 Mbps data rate

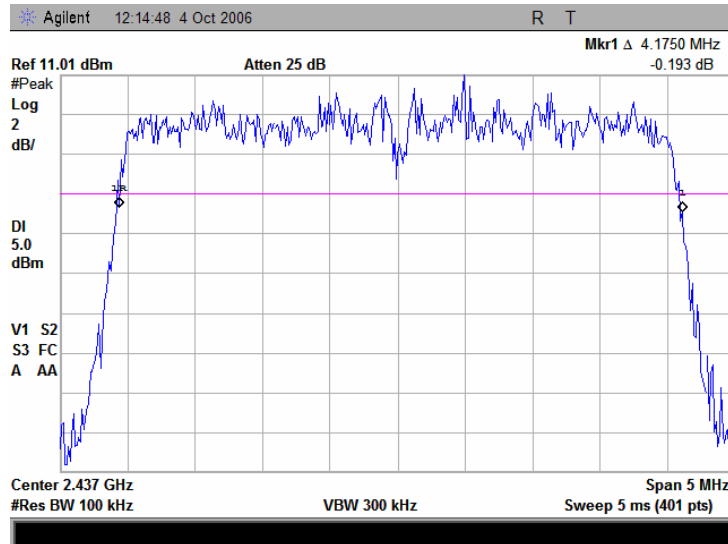


Plot 7.1.4 The 6 dB bandwidth test result at low frequency, 5 MHz channel spacing, 13.5 Mbps data rate

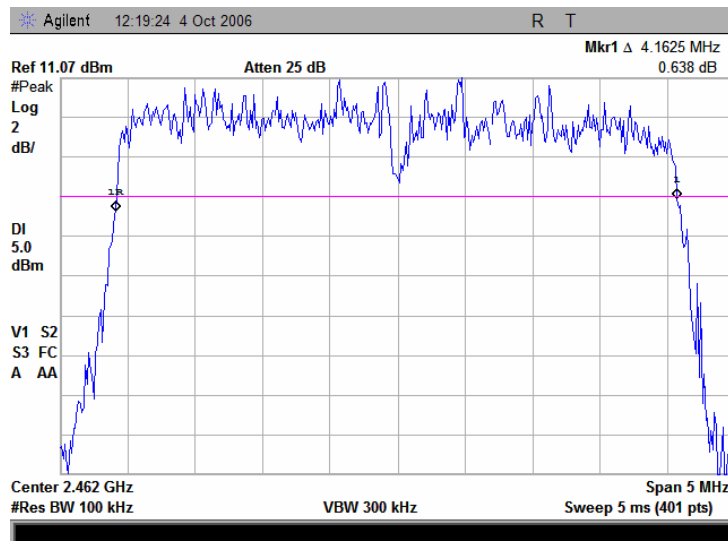


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:39:05 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.1.5 The 6 dB bandwidth test result at mid frequency, 5 MHz channel spacing, 13.5 Mbps data rate

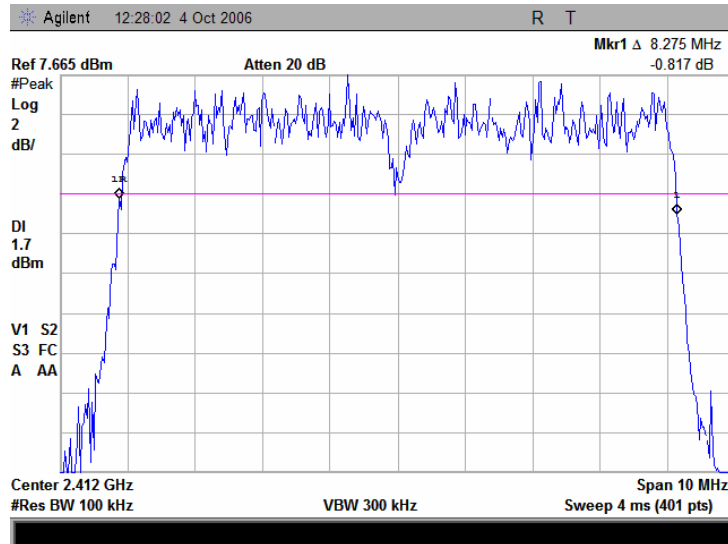


Plot 7.1.6 The 6 dB bandwidth test result at high frequency, 5 MHz channel spacing, 13.5 Mbps data rate

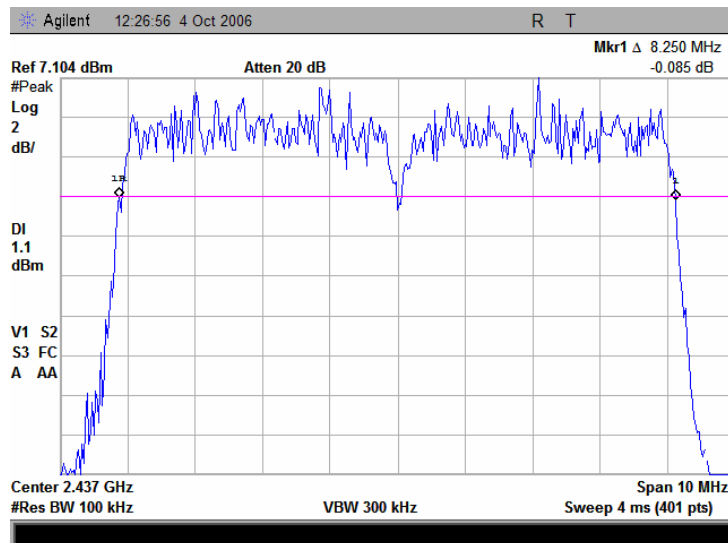


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:39:05 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.1.7 The 6 dB bandwidth test result at low frequency, 10 MHz channel spacing, 3 Mbps data rate

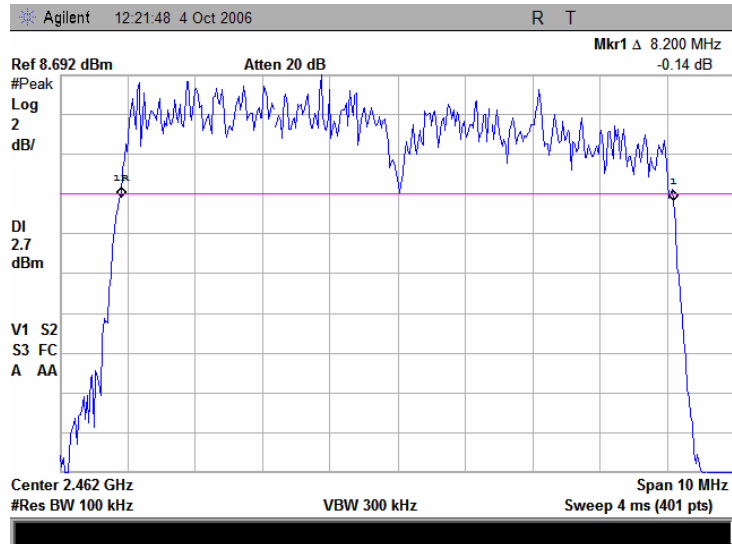


Plot 7.1.8 The 6 dB bandwidth test result at mid frequency, 10 MHz channel spacing, 3 Mbps data rate

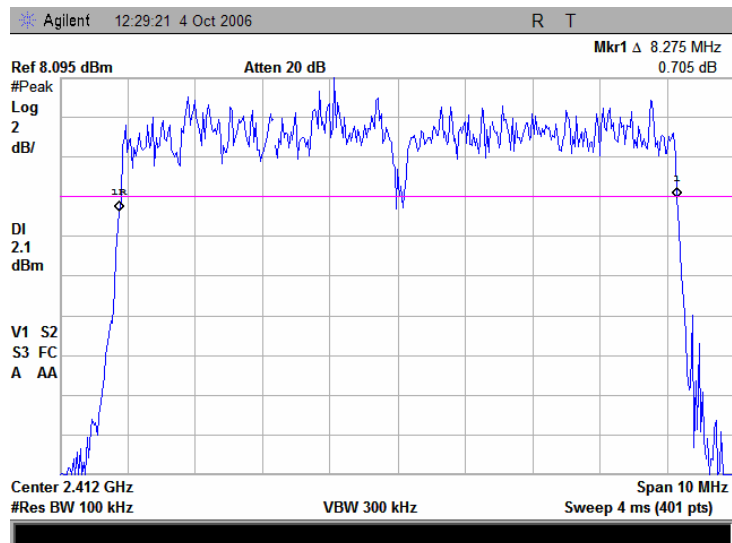


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:39:05 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.1.9 The 6 dB bandwidth test result at high frequency, 10 MHz channel spacing, 3 Mbps data rate

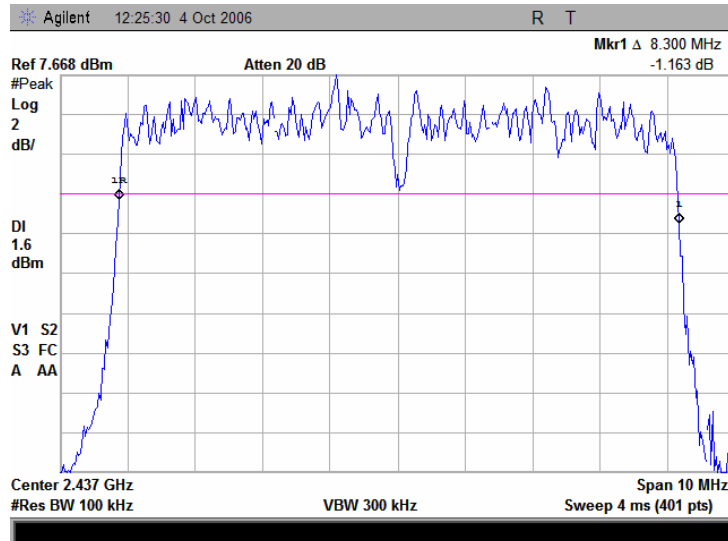


Plot 7.1.10 The 6 dB bandwidth test result at low frequency, 10 MHz channel spacing, 27 Mbps data rate

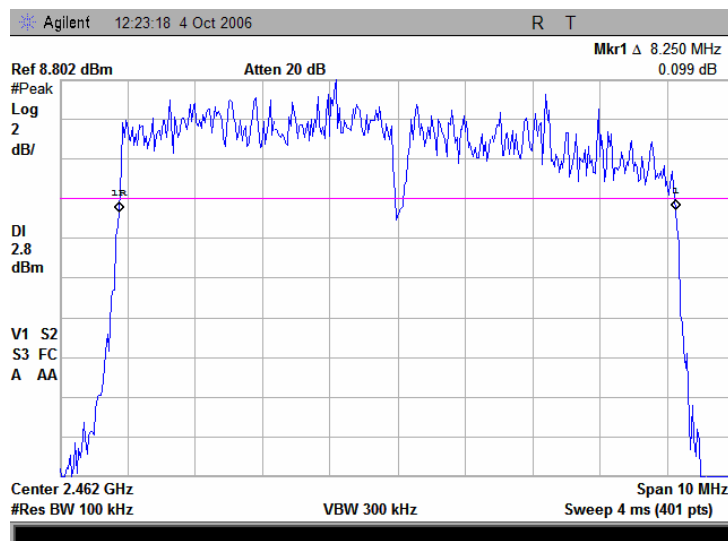


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:39:05 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.1.11 The 6 dB bandwidth test result at mid frequency, 10 MHz channel spacing, 27 Mbps data rate

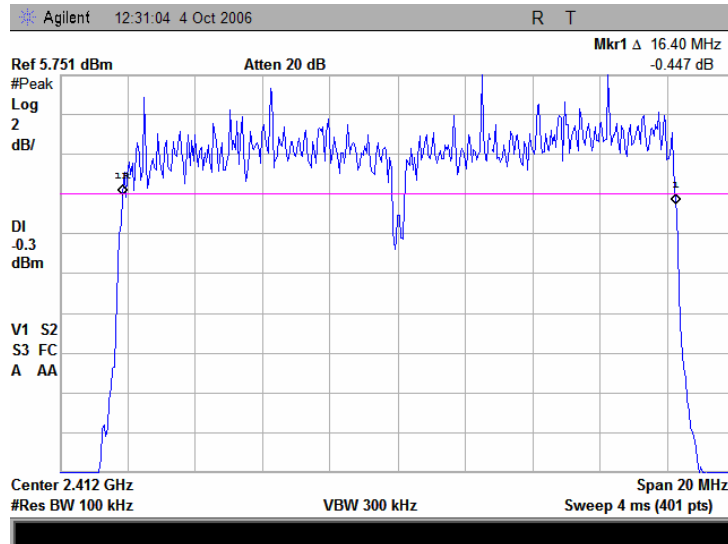


Plot 7.1.12 The 6 dB bandwidth test result at high frequency, 10 MHz channel spacing, 27 Mbps data rate

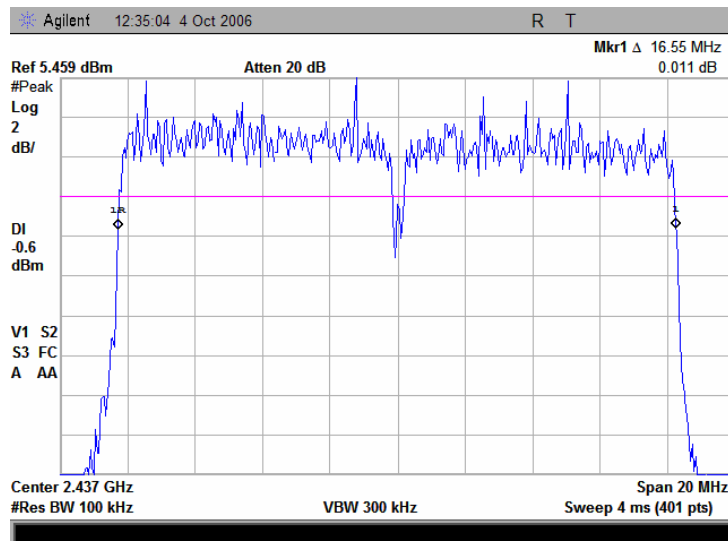


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:39:05 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.1.13 The 6 dB bandwidth test result at low frequency, 20 MHz channel spacing, 6 Mbps data rate

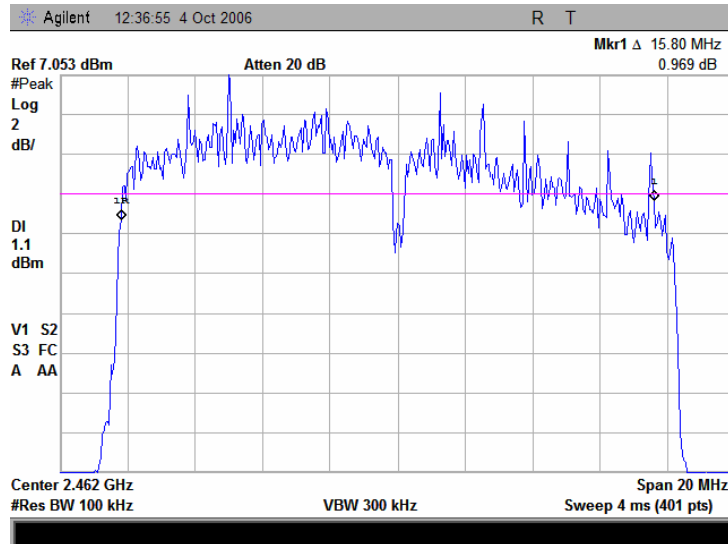


Plot 7.1.14 The 6 dB bandwidth test result at mid frequency, 20 MHz channel spacing, 6 Mbps data rate

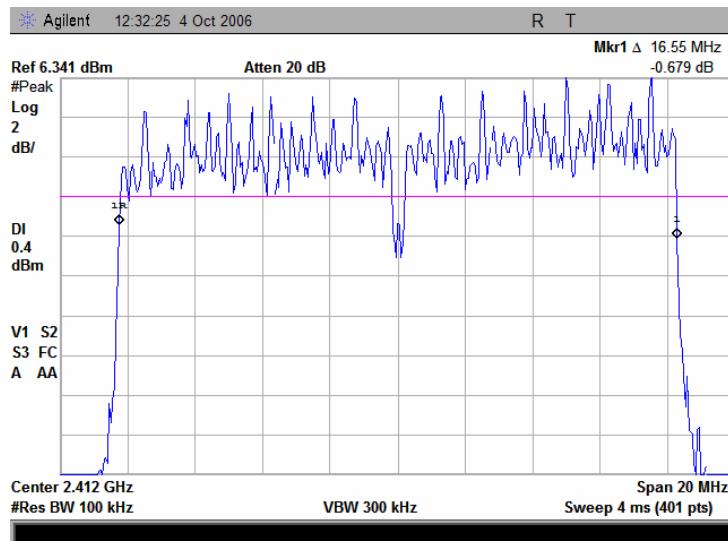


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:39:05 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.1.15 The 6 dB bandwidth test result at high frequency, 20 MHz channel spacing, 6 Mbps data rate

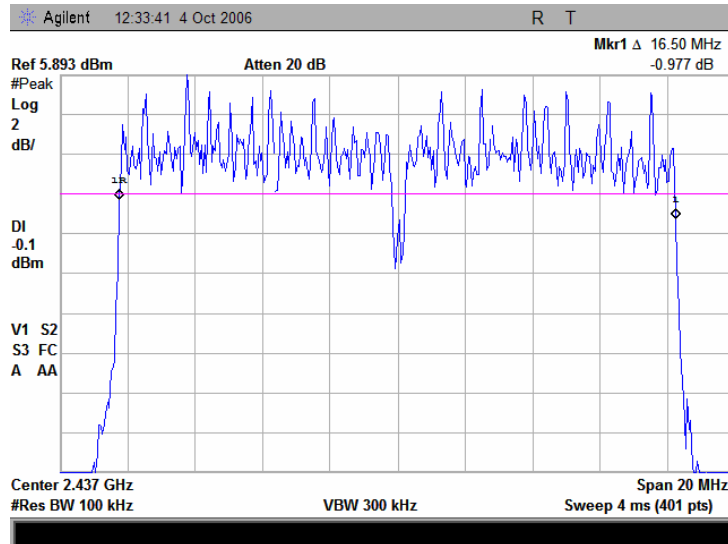


Plot 7.1.16 The 6 dB bandwidth test result at low frequency, 20 MHz channel spacing, 54 Mbps data rate

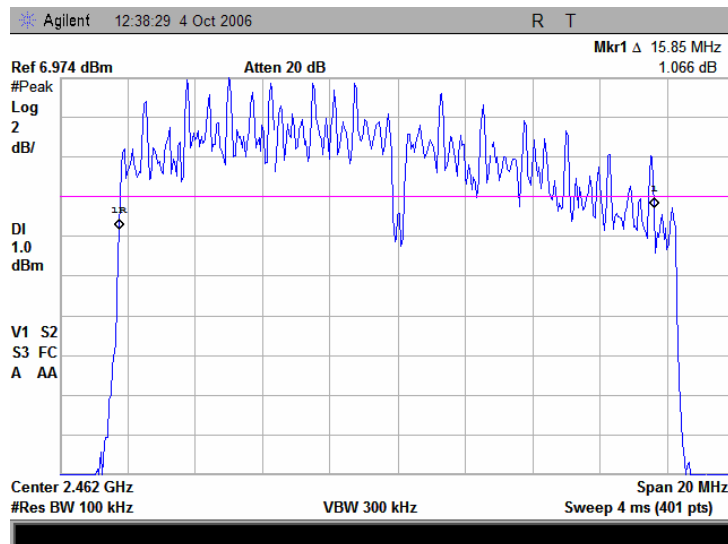


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:39:05 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.1.17 The 6 dB bandwidth test result at mid frequency, 20 MHz channel spacing, 54 Mbps data rate



Plot 7.1.18 The 6 dB bandwidth test result at high frequency, 20 MHz channel spacing, 54 Mbps data rate



Test specification: Section 15.247(a)2, 6 dB bandwidth	
Test procedure: FR Vol.62, page 26243, Section 15.247(a)2	
Test mode: Compliance	Verdict:
Date & Time: 1/19/2007 9:40:08 AM	
Temperature: 20°C	Air Pressure: 1010hPa
Relative Humidity: 48%	
Power Supply: 120 V AC	
Remarks: EUT with 24 dBi external antenna	

Table 7.1.3 The 6 dB bandwidth test results

ASSIGNED FREQUENCY BAND: 2400 -2483.5 MHz
DETECTOR USED: Peak
SWEEP MODE: Single
SWEEP TIME: Auto
RESOLUTION BANDWIDTH: 100 kHz
VIDEO BANDWIDTH: 300 kHz
MODULATION ENVELOPE REFERENCE POINTS: 6.0 dBc
MODULATION: QAM
MODULATING SIGNAL: PRBS

Carrier frequency, MHz	6 dB bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
Channel spacing: 5 MHz				
Data rate: 1.5 Mbps				
2412	4200.0	500.0	3700.0	Pass
2437	4200.0	500.0	3700.0	Pass
2462	4165.0	500.0	3665.0	Pass
Data rate: 13.5 Mbps				
2412	4200.0	500.0	3700.0	Pass
2437	4162.5	500.0	3662.5	Pass
2462	4170.0	500.0	3670.0	Pass
Channel spacing: 10 MHz				
Data rate: 3 Mbps				
2412	8250.0	500.0	7750.0	Pass
2437	8300.0	500.0	7800.0	Pass
2462	8300.0	500.0	7800.0	Pass
Data rate: 27 Mbps				
2412	8300.0	500.0	7800.0	Pass
2437	8300.0	500.0	7800.0	Pass
2462	8250.0	500.0	7750.0	Pass
Channel spacing: 20 MHz				
Data rate: 6 Mbps				
2412	16400.0	500.0	15900.0	Pass
2437	16500.0	500.0	16000.0	Pass
2462	16100.0	500.0	15600.0	Pass
Data rate: 54 Mbps				
2412	16550.0	500.0	16050.0	Pass
2437	16600.0	500.0	16100.0	Pass
2462	16400.0	500.0	15900.0	Pass

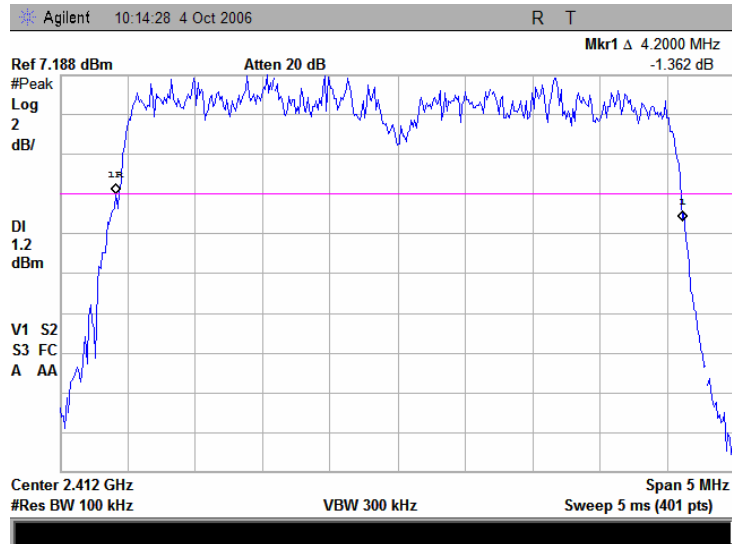
Reference numbers of test equipment used

HL 2869	HL 2909						
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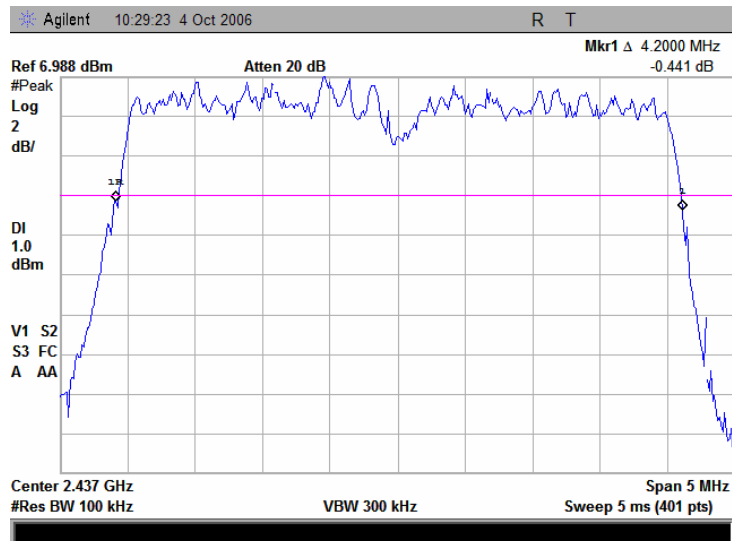
Full description is given in Appendix A.

Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	
Date & Time:	1/19/2007 9:40:08 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks: EUT with 24 dBi external antenna			

Plot 7.1.19 The 6 dB bandwidth test result at low frequency, 5 MHz channel spacing, 1.5 Mbps data rate

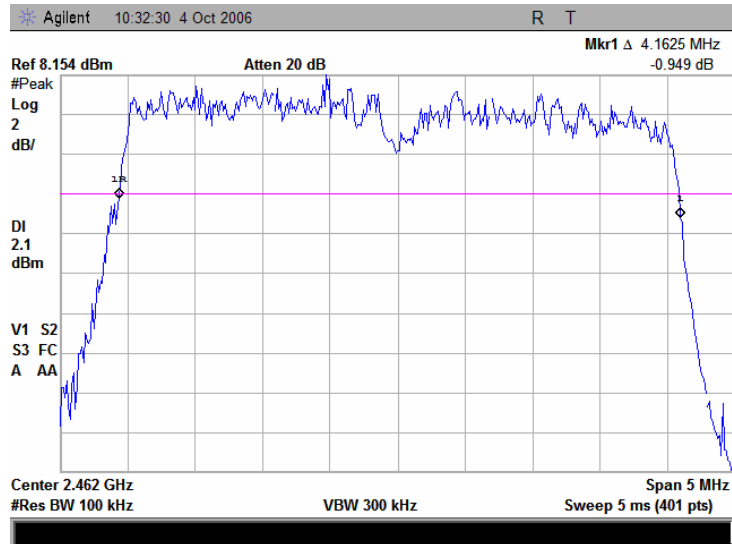


Plot 7.1.20 The 6 dB bandwidth test result at mid frequency, 5 MHz channel spacing, 1.5 Mbps data rate

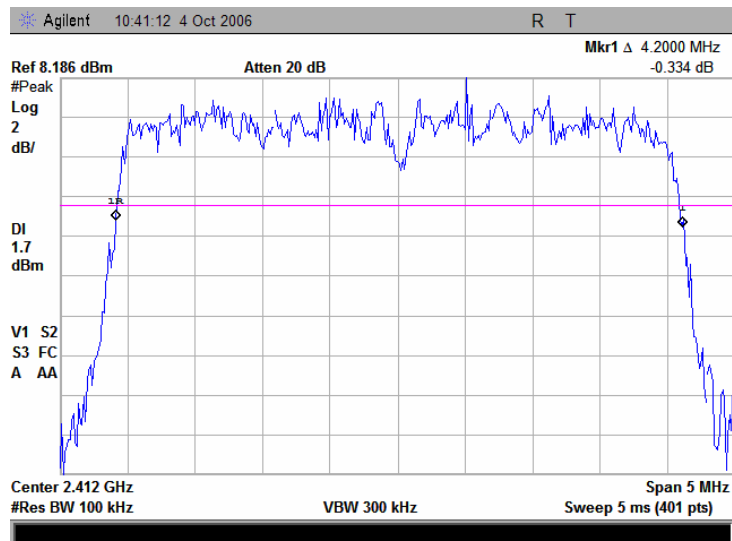


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	
Date & Time:	1/19/2007 9:40:08 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks: EUT with 24 dBi external antenna			

Plot 7.1.21 The 6 dB bandwidth test result at high frequency, 5 MHz channel spacing, 1.5 Mbps data rate

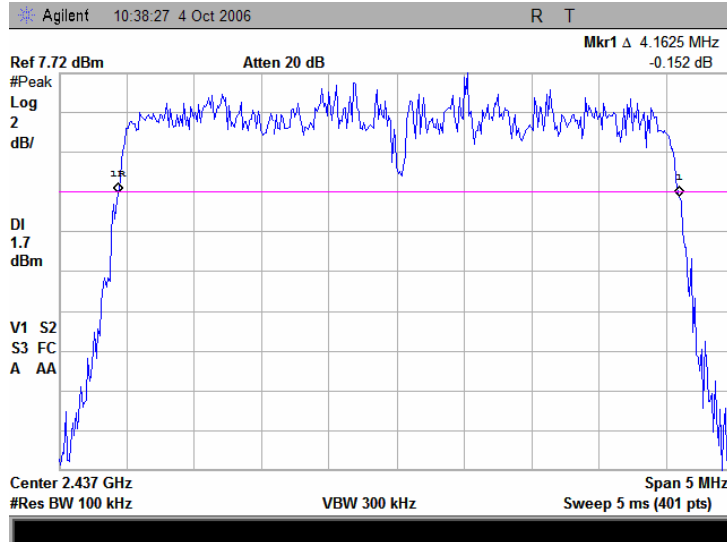


Plot 7.1.22 The 6 dB bandwidth test result at low frequency, 5 MHz channel spacing, 13.5 Mbps data rate

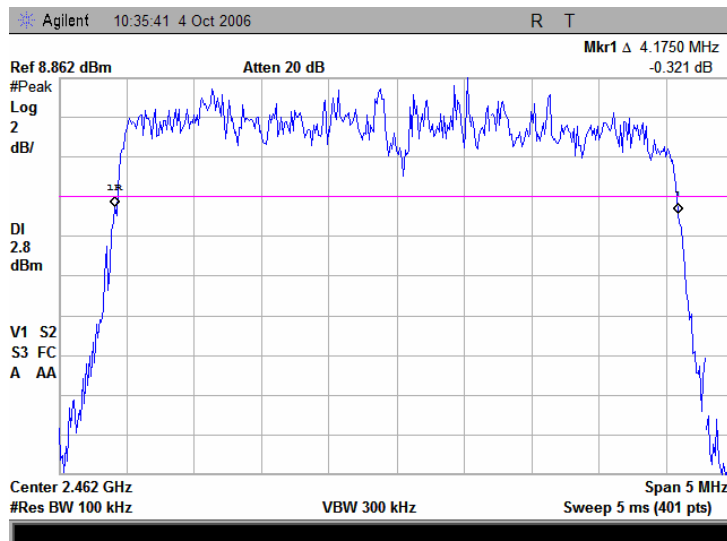


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	
Date & Time:	1/19/2007 9:40:08 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks: EUT with 24 dBi external antenna			

Plot 7.1.23 The 6 dB bandwidth test result at mid frequency, 5 MHz channel spacing, 13.5 Mbps data rate

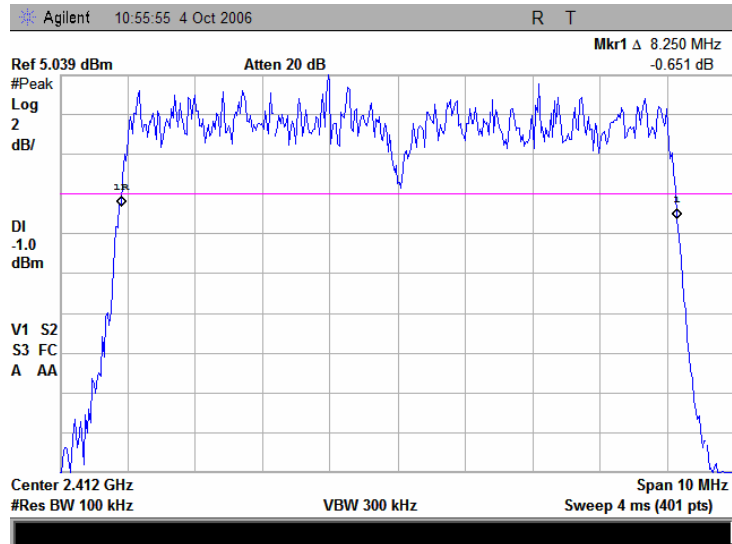


Plot 7.1.24 The 6 dB bandwidth test result at high frequency, 5 MHz channel spacing, 13.5 Mbps data rate

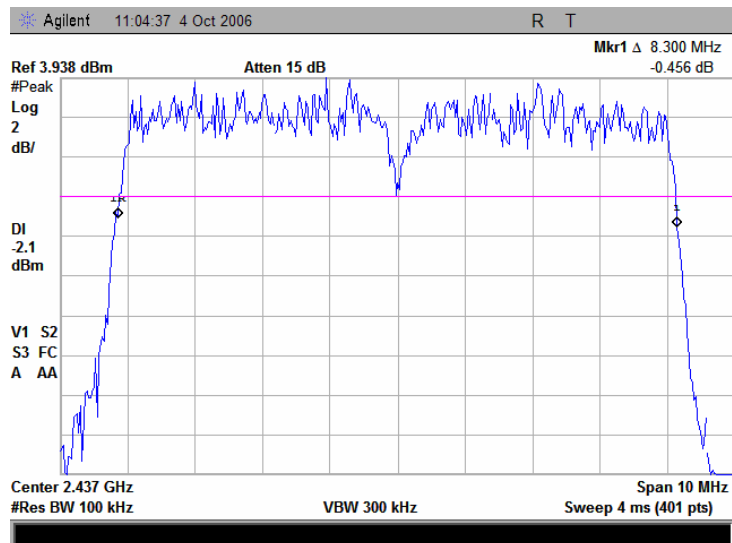


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	
Date & Time:	1/19/2007 9:40:08 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks: EUT with 24 dBi external antenna			

Plot 7.1.25 The 6 dB bandwidth test result at low frequency, 10 MHz channel spacing, 3 Mbps data rate

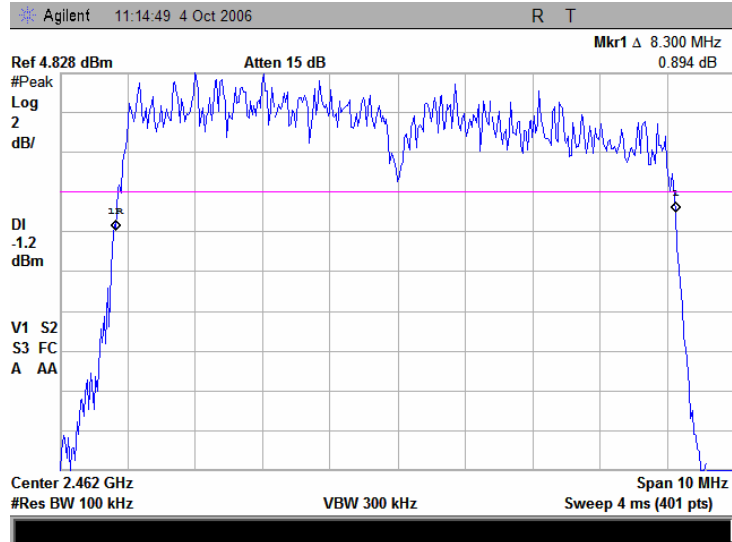


Plot 7.1.26 The 6 dB bandwidth test result at mid frequency, 10 MHz channel spacing, 3 Mbps data rate

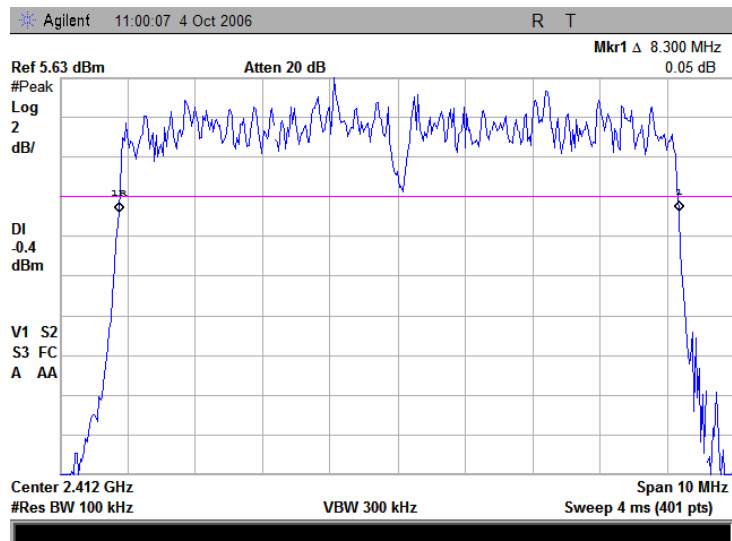


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	
Date & Time:	1/19/2007 9:40:08 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks: EUT with 24 dBi external antenna			

Plot 7.1.27 The 6 dB bandwidth test result at high frequency, 10 MHz channel spacing, 3 Mbps data rate

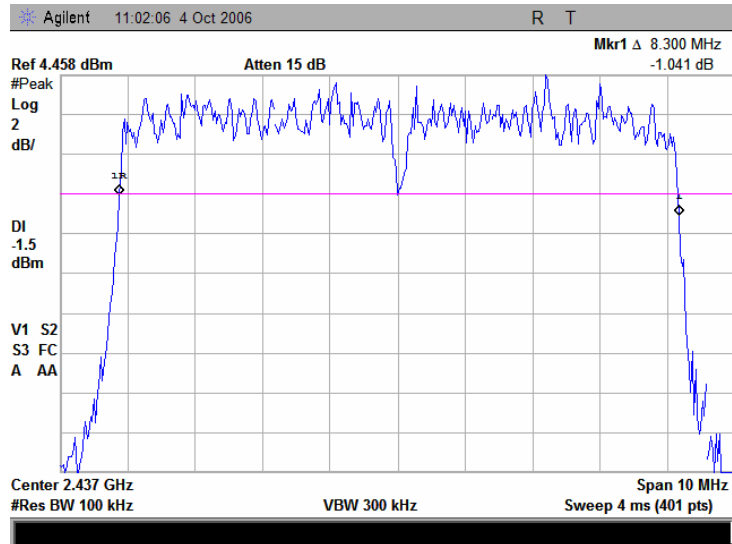


Plot 7.1.28 The 6 dB bandwidth test result at low frequency, 10 MHz channel spacing, 27 Mbps data rate

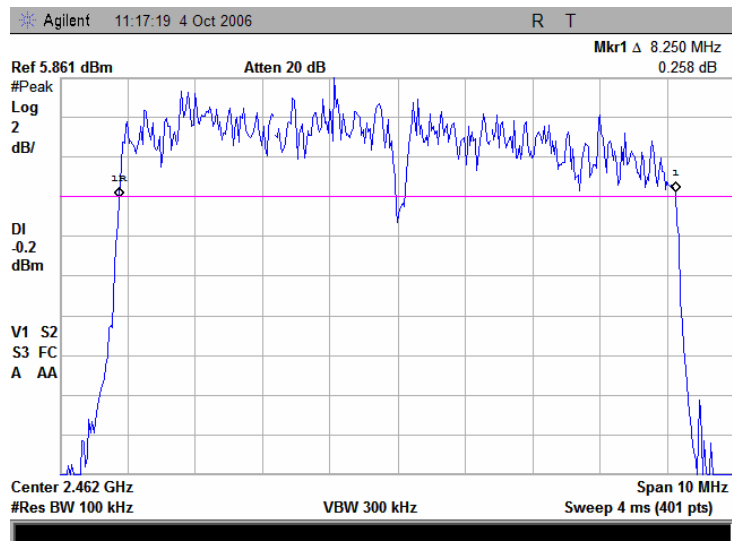


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	
Date & Time:	1/19/2007 9:40:08 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks: EUT with 24 dBi external antenna			

Plot 7.1.29 The 6 dB bandwidth test result at mid frequency, 10 MHz channel spacing, 27 Mbps data rate

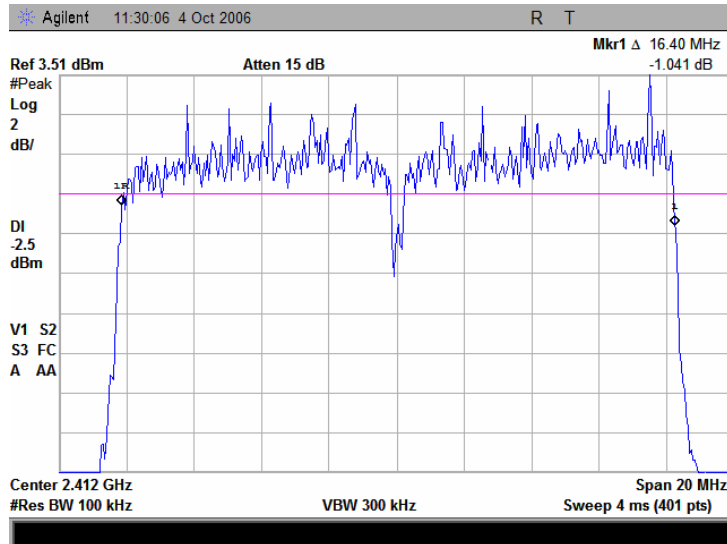


Plot 7.1.30 The 6 dB bandwidth test result at high frequency, 10 MHz channel spacing, 27 Mbps data rate

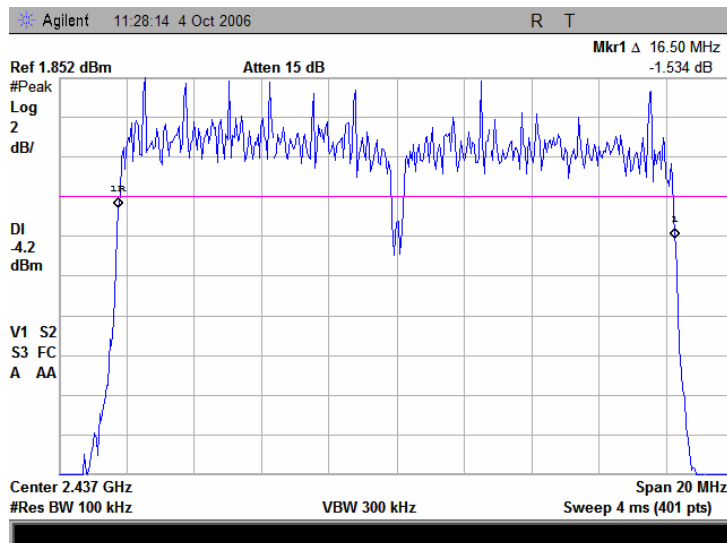


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	
Date & Time:	1/19/2007 9:40:08 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks: EUT with 24 dBi external antenna			

Plot 7.1.31 The 6 dB bandwidth test result at low frequency, 20 MHz channel spacing, 6 Mbps data rate

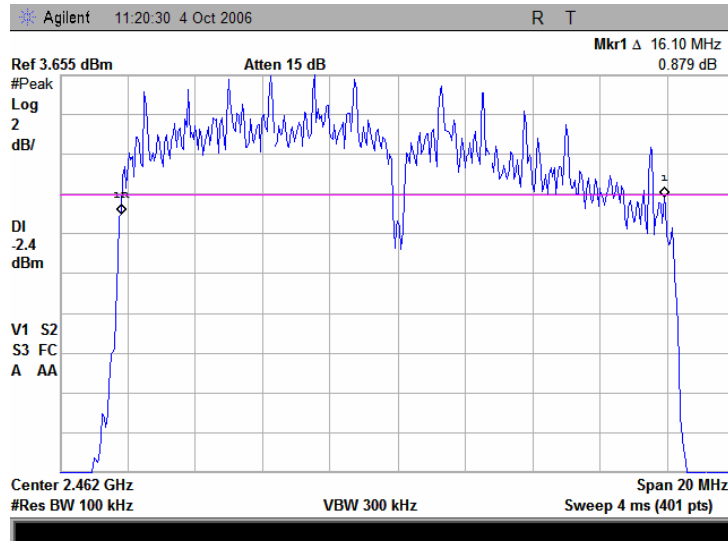


Plot 7.1.32 The 6 dB bandwidth test result at mid frequency, 20 MHz channel spacing, 6 Mbps data rate

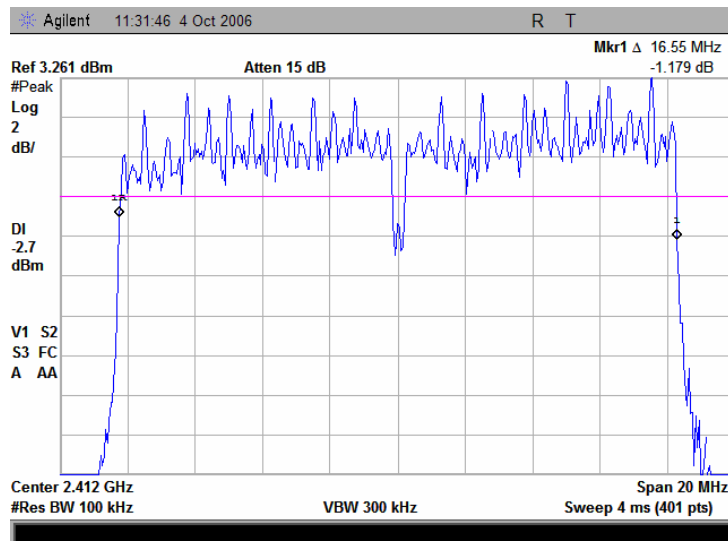


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	
Date & Time:	1/19/2007 9:40:08 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks: EUT with 24 dBi external antenna			

Plot 7.1.33 The 6 dB bandwidth test result at high frequency, 20 MHz channel spacing, 6 Mbps data rate

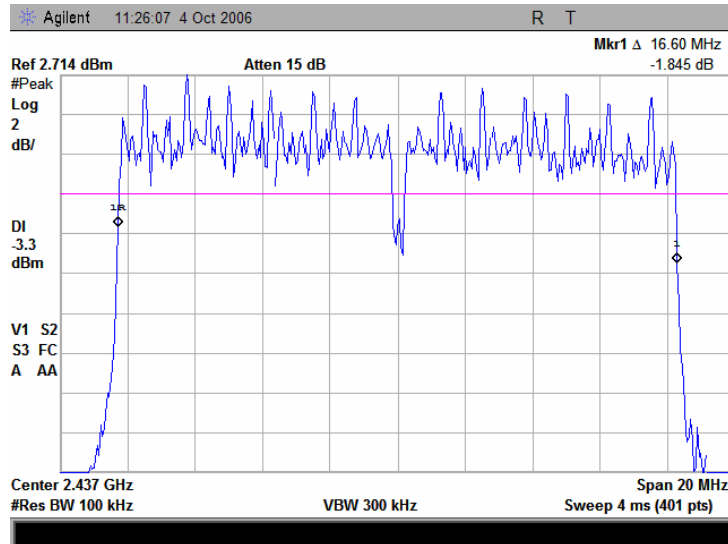


Plot 7.1.34 The 6 dB bandwidth test result at low frequency, 20 MHz channel spacing, 54 Mbps data rate

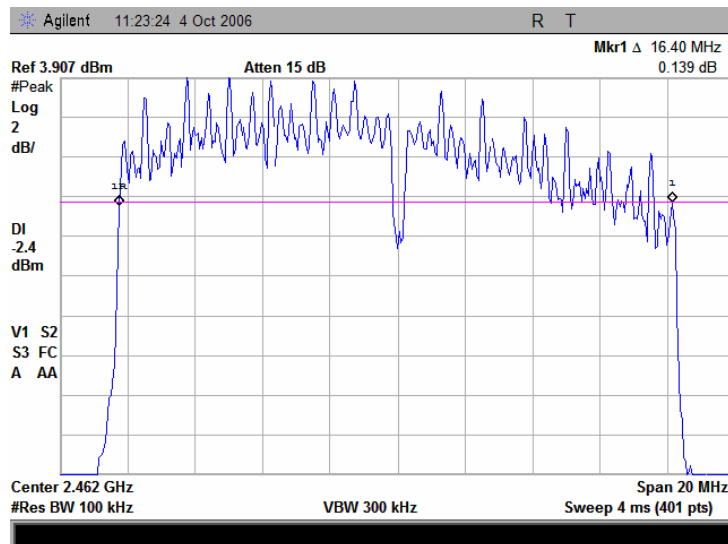


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	
Date & Time:	1/19/2007 9:40:08 AM		
Temperature: 20°C	Air Pressure: 1010hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks: EUT with 24 dBi external antenna			

Plot 7.1.35 The 6 dB bandwidth test result at mid frequency, 20 MHz channel spacing, 54 Mbps data rate



Plot 7.1.36 The 6 dB bandwidth test result at high frequency, 20 MHz channel spacing, 54 Mbps data rate



Test specification: Section 15.247(b)3, Peak output power	
Test procedure: FR Vol.62, page 26243, Section 15.247(b)	
Test mode: Compliance	Verdict: PASS
Date & Time: 10/8/2006 5:43:16 PM	
Temperature: 25°C	Air Pressure: 1012 hPa
Relative Humidity: 39 %	
Power Supply: 120 VAC	
Remarks: EUT with 15.2 dBi integral antenna	

7.2 Peak output power

7.2.1 General

This test was performed to measure the maximum peak output power at the transmitter RF antenna connector. Specification test limits are given in Table 7.2.1.

Table 7.2.1 Peak output power limits

Assigned frequency range, MHz	Maximum antenna gain, dBi	Peak output power*	
		W	dBm
902.0 – 928.0	6.0	1.0	30.0
2400.0 – 2483.5			
5725.0 – 5850.0			

*- If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power limit shall be reduced below the stated value as follows:

by 1 dB for every 3 dB that the directional gain of antenna exceeds 6 dBi for fixed point-to-point transmitters operate in 2400-2483.5 MHz band;

without any corresponding reduction for fixed point-to-point transmitters operate in 5725-5850 MHz band;

by the amount in dB that the directional gain of antenna exceeds 6 dBi for the rest of transmitters.

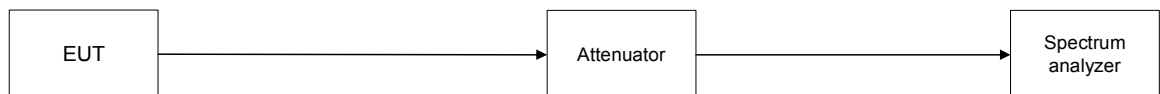
7.2.2 Test procedure

7.2.2.1 The EUT was set up as shown in Figure 7.2.1, energized and its proper operation was checked.

7.2.2.2 The EUT was adjusted to produce maximum available for end user RF output power.

7.2.2.3 The rate VBW/resolution bandwidth of spectrum analyzer was set to 10 (3 MHz/300 kHz). The integration was performed using the spectrum analyzer's band power measurement function with band limits set equal to the EBW band edges. The maximum peak output power was computed by integrating the spectrum across the 6 dB entire bandwidth of the EUT as provided in Table 7.2.2 and associated plots.

Figure 7.2.1 Peak output power test setup



Test specification: Section 15.247(b)3, Peak output power	
Test procedure: FR Vol.62, page 26243, Section 15.247(b)	
Test mode: Compliance	Verdict: PASS
Date & Time: 10/8/2006 5:43:16 PM	
Temperature: 25°C	Air Pressure: 1012 hPa
Relative Humidity: 39 %	
Power Supply: 120 VAC	
Remarks: EUT with 15.2 dBi integral antenna	

Table 7.2.2 Peak output power test results

ASSIGNED FREQUENCY: 2400 – 2483.5 MHz
 MODULATION: QAM
 MODULATING SIGNAL: PRBS
 TRANSMITTER OUTPUT POWER SETTINGS: Maximum
 DETECTOR USED: Peak
 RESOLUTION BANDWIDTH: 300 kHz
 VIDEO BANDWIDTH: 3000 kHz
 SOFTWARE WORD: 8.5 dBm

Carrier frequency, MHz	Spectrum analyzer reading, dBm	External attenuation, dB	Cable loss, dB	Peak output power, dBm	Limit*, dBm	Margin**, dB	Verdict
Channel spacing: 5 MHz							
Data rate: 1.5 Mbps							
2412	25.72	Included	Included	25.72	26.93	-1.21	Pass
2437	25.91	Included	Included	25.91	26.93	-1.02	Pass
2462	26.66	Included	Included	26.66	26.93	-0.27	Pass
Data rate: 13.5 Mbps							
2412	25.54	Included	Included	25.54	26.93	-1.39	Pass
2437	26.34	Included	Included	26.34	26.93	-0.59	Pass
2462	26.98	Included	Included	26.45	26.93	-0.48	Pass
Channel spacing: 10 MHz							
Data rate: 3 Mbps							
2412	24.96	Included	Included	24.96	26.93	-1.97	Pass
2437	24.57	Included	Included	24.57	26.93	-2.36	Pass
2462	25.52	Included	Included	25.52	26.93	-1.41	Pass
Data rate: 27 Mbps							
2412	25.41	Included	Included	25.41	26.93	-1.52	Pass
2437	26.15	Included	Included	26.15	26.93	-0.78	Pass
2462	26.73	Included	Included	26.73	26.93	-0.20	Pass
Channel spacing: 20 MHz							
Data rate: 6 Mbps							
2412	25.03	Included	Included	25.03	26.93	-1.90	Pass
2437	25.13	Included	Included	25.13	26.93	-1.80	Pass
2462	25.39	Included	Included	25.39	26.93	-1.54	Pass
Data rate: 54 Mbps							
2412	24.47	Included	Included	24.47	26.93	-2.46	Pass
2437	25.48	Included	Included	25.48	26.93	-1.45	Pass
2462	25.95	Included	Included	25.95	26.93	-0.98	Pass

* - Limit was calculated according to antenna gain of 15.2 dBi as follows:

For each 3 dB of antenna gain that exceeds 6 dBi, output power limit reduced by 1 dB:

15.2 dBi – 6 dBi = 9.2 dB, → 3 steps of 3 dB was encountered, meaning limit shall be reduced by 3 dB, i.e. 27 dBm.

Residual 0.2 dB were linearly extrapolated to extra 0.07 dB reduction.

** - Margin = Peak output power – specification limit.

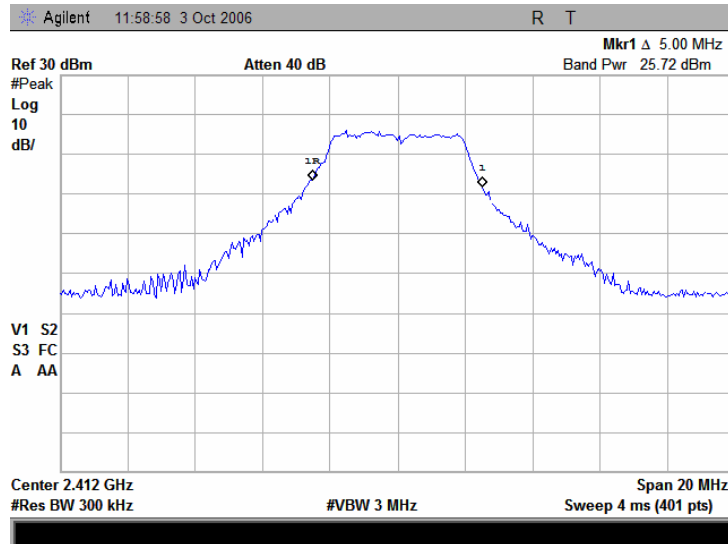
Reference numbers of test equipment used

HL 1650	HL 2869	HL 2909					
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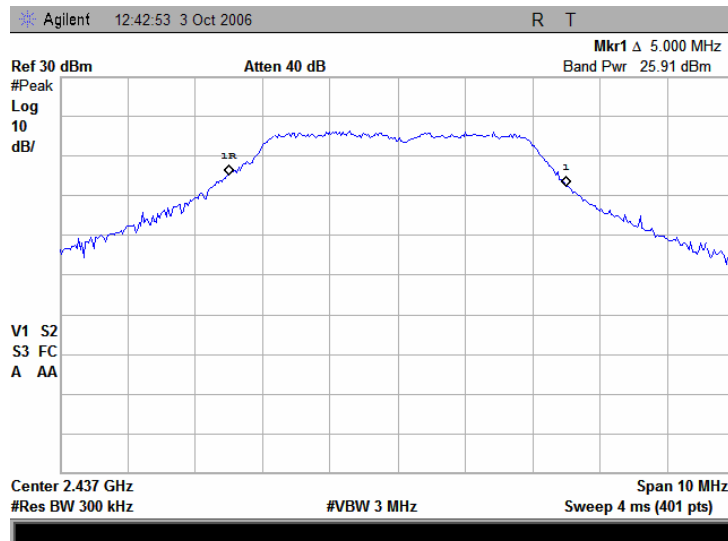
Full description is given in Appendix A.

Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:43:16 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.2.1 Peak output power at low frequency, 5 MHz channel spacing, 1.5 Mbps data rate

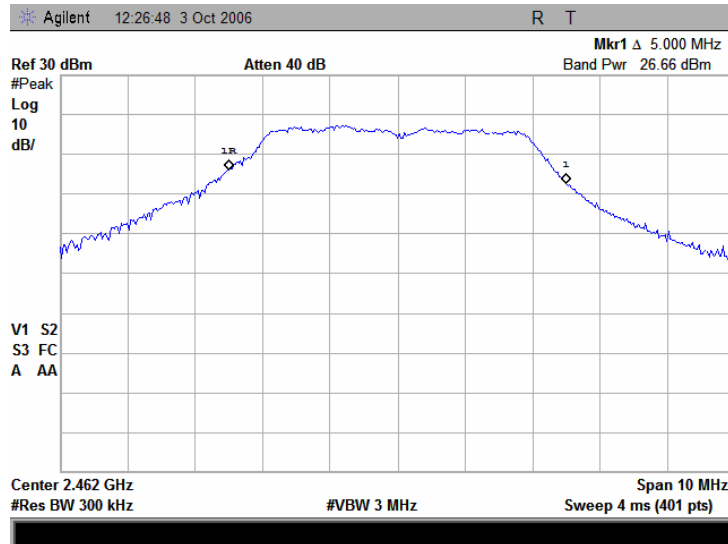


Plot 7.2.2 Peak output power at mid frequency, 5 MHz channel spacing, 1.5 Mbps data rate

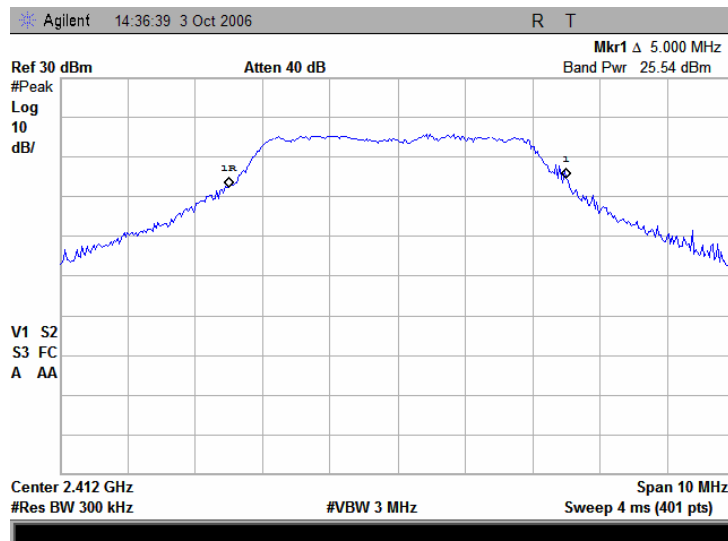


Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:43:16 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.2.3 Peak output power at high frequency, 5 MHz channel spacing, 1.5 Mbps data rate

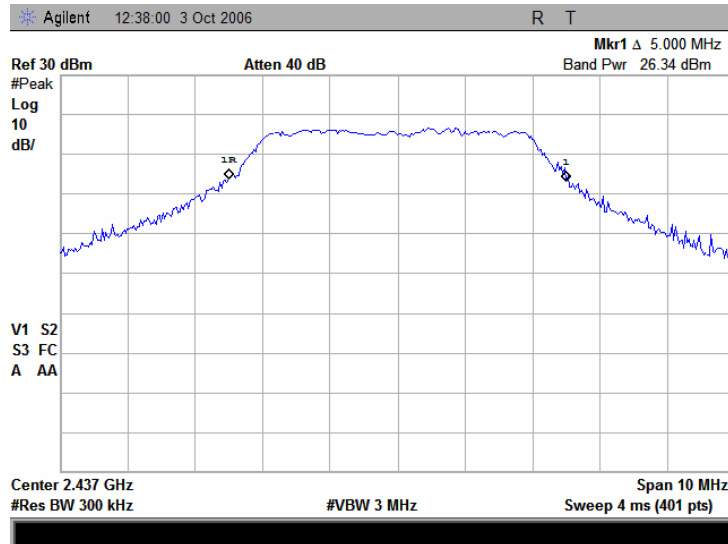


Plot 7.2.4 Peak output power at low frequency, 5 MHz channel spacing, 13.5 Mbps data rate

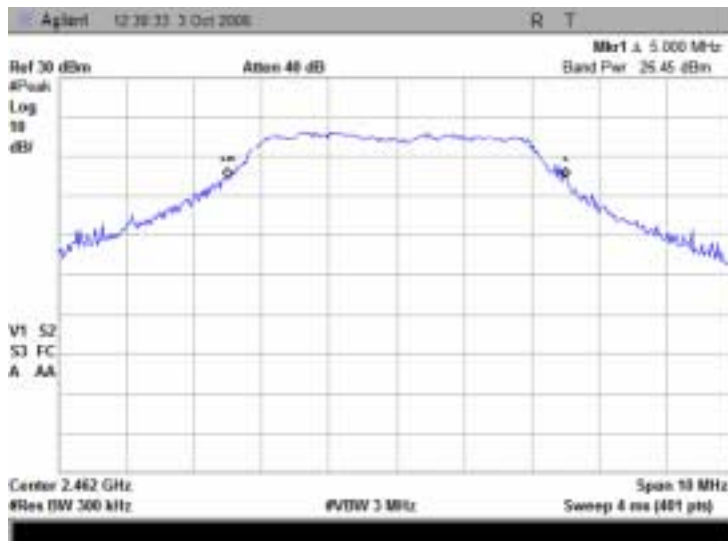


Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:43:16 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.2.5 Peak output power at mid frequency, 5 MHz channel spacing, 13.5 Mbps data rate

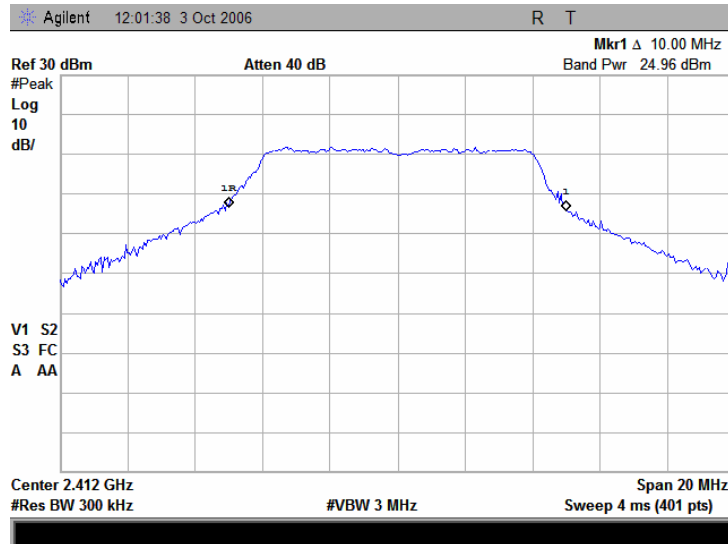


Plot 7.2.6 Peak output power at high frequency, 5 MHz channel spacing, 13.5 Mbps data rate

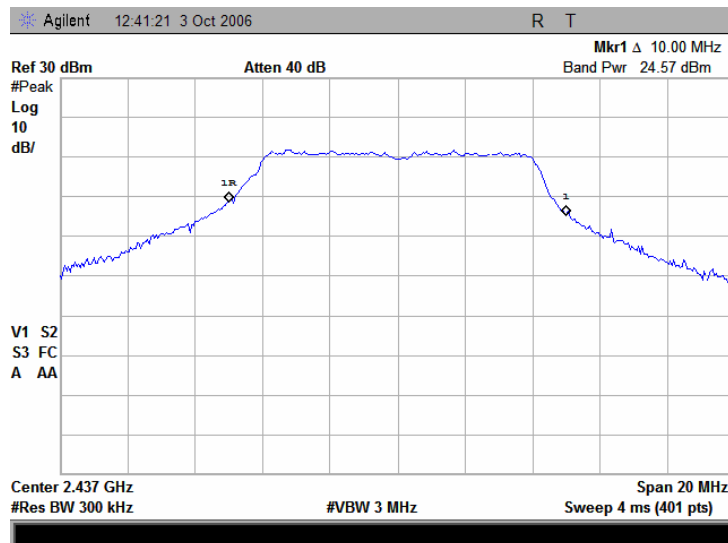


Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:43:16 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.2.7 Peak output power at low frequency, 10 MHz channel spacing, 3 Mbps data rate

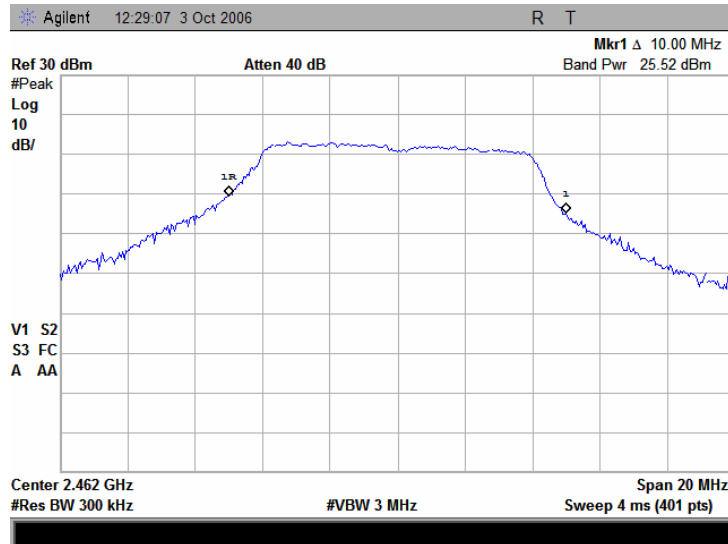


Plot 7.2.8 Peak output power at mid frequency, 10 MHz channel spacing, 3 Mbps data rate

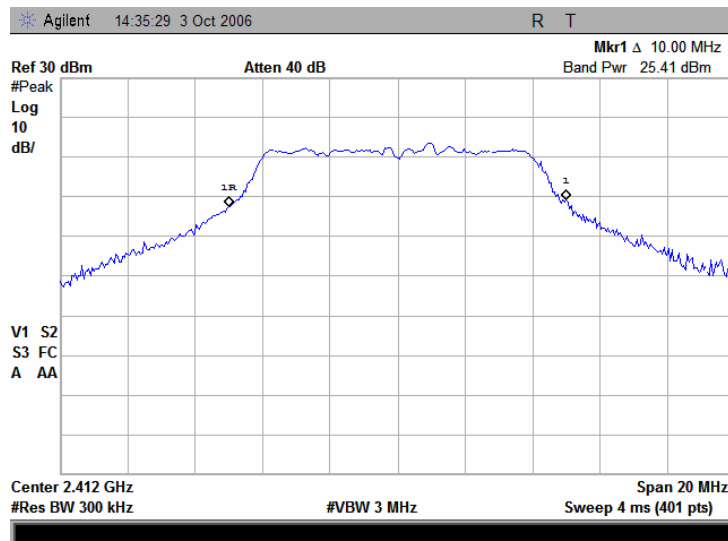


Test specification:		Section 15.247(b)3, Peak output power	
Test procedure:		FR Vol.62, page 26243, Section 15.247(b)	
Test mode:		Compliance	Verdict: PASS
Date & Time:		10/8/2006 5:43:16 PM	
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.2.9 Peak output power at high frequency, 10 MHz channel spacing, 3 Mbps data rate

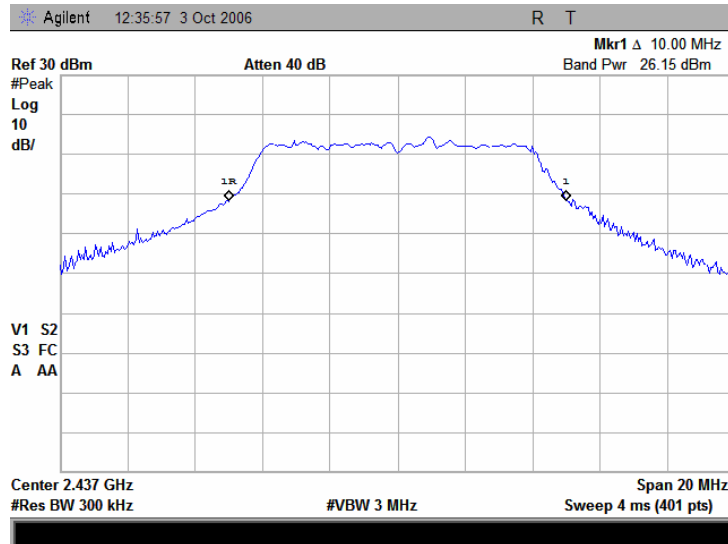


Plot 7.2.10 Peak output power at low frequency, 10 MHz channel spacing, 27 Mbps data rate

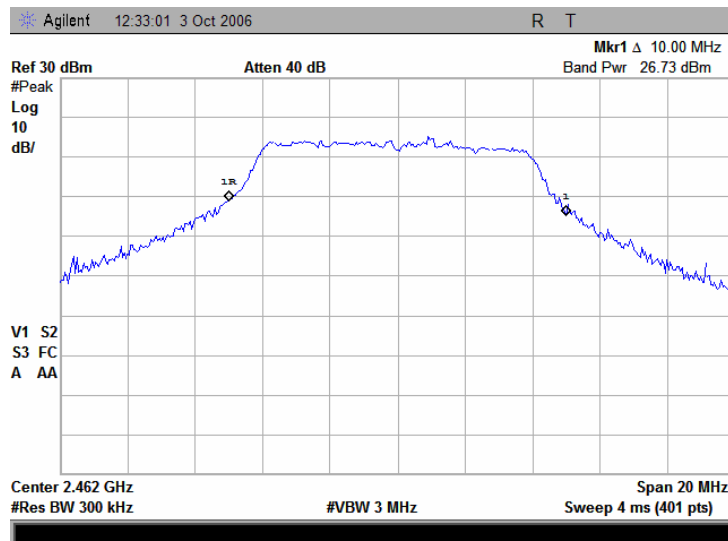


Test specification: Section 15.247(b)3, Peak output power			
Test procedure: FR Vol.62, page 26243, Section 15.247(b)			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/8/2006 5:43:16 PM			
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.2.11 Peak output power at mid frequency, 10 MHz channel spacing, 27 Mbps data rate

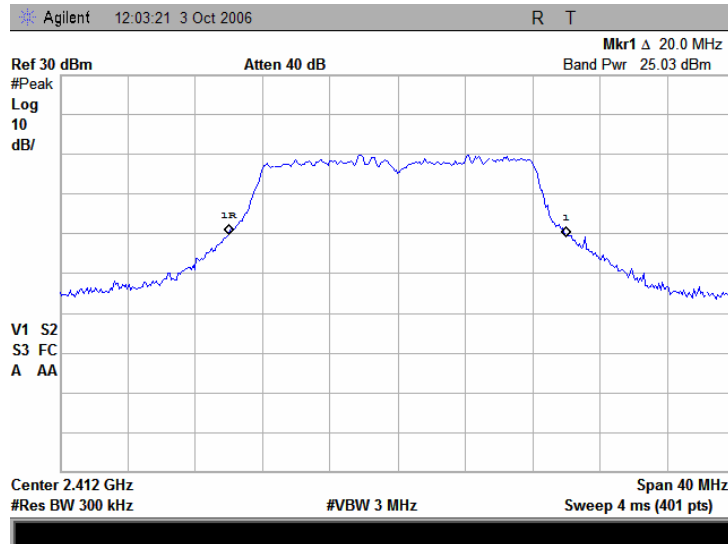


Plot 7.2.12 Peak output power at high frequency, 10 MHz channel spacing, 27 Mbps data rate

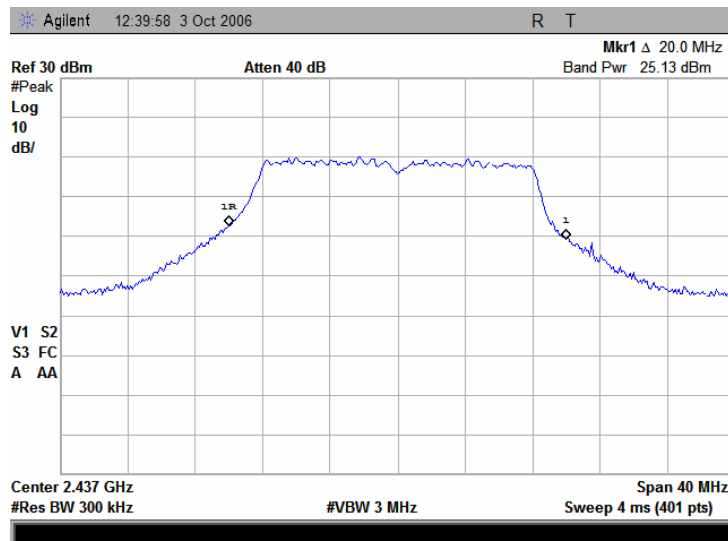


Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:43:16 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.2.13 Peak output power at low frequency, 20 MHz channel spacing, 6 Mbps data rate

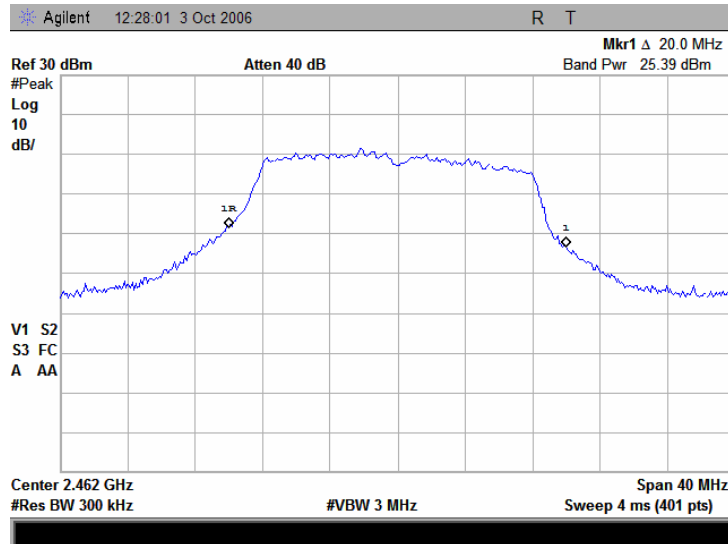


Plot 7.2.14 Peak output power at mid frequency, 20 MHz channel spacing, 6 Mbps data rate

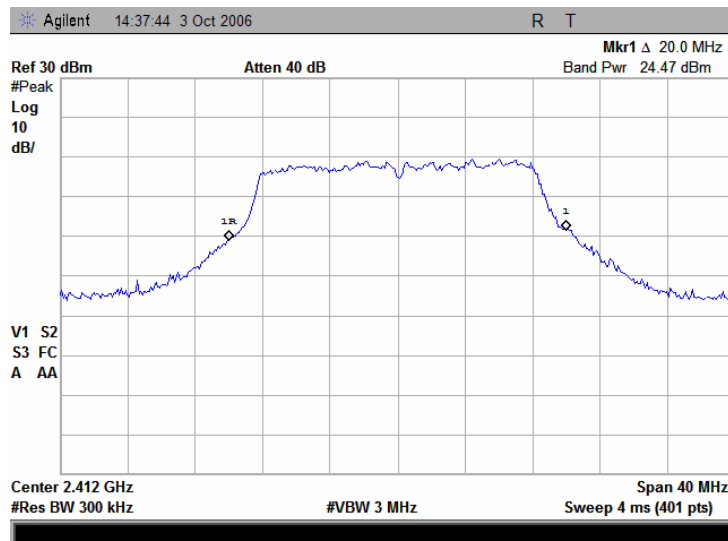


Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:43:16 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.2.15 Peak output power at high frequency, 20 MHz channel spacing, 6 Mbps data rate

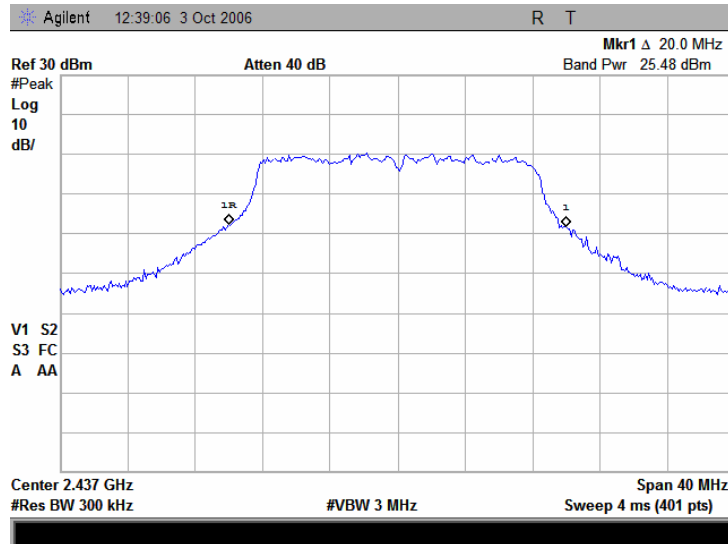


Plot 7.2.16 Peak output power at low frequency, 20 MHz channel spacing, 54 Mbps data rate

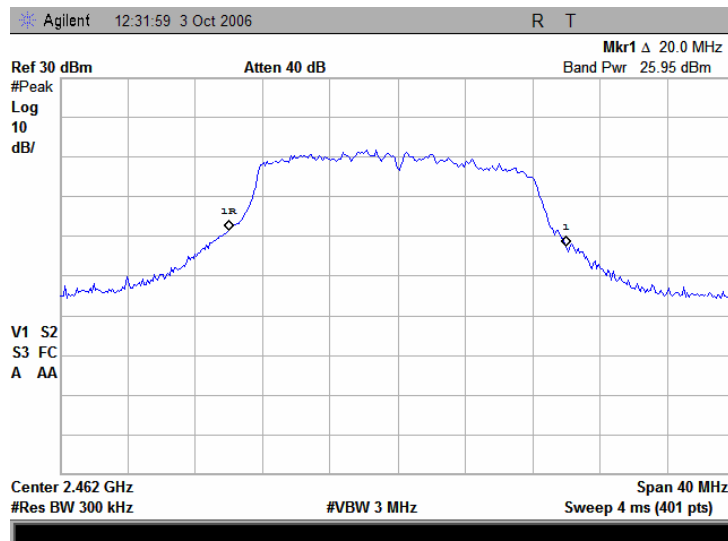


Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:43:16 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.2.17 Peak output power at mid frequency, 20 MHz channel spacing, 54 Mbps data rate



Plot 7.2.18 Peak output power at high frequency, 20 MHz channel spacing, 54 Mbps data rate



Test specification: Section 15.247(b)3, Peak output power	
Test procedure: FR Vol.62, page 26243, Section 15.247(b)	
Test mode: Compliance	Verdict: PASS
Date & Time: 10/8/2006 5:45:11 PM	
Temperature: 25°C	Air Pressure: 1012 hPa
Relative Humidity: 39 %	
Power Supply: 120 VAC	
Remarks: EUT with 24 dBi external antenna	

Table 7.2.3 Peak output power test results

ASSIGNED FREQUENCY: 2400 – 2483.5 MHz
 MODULATION: QAM
 MODULATING SIGNAL: PRBS
 TRANSMITTER OUTPUT POWER SETTINGS: Maximum
 DETECTOR USED: Peak
 RESOLUTION BANDWIDTH: 300 kHz
 VIDEO BANDWIDTH: 3000 kHz
 SOFTWARE WORD: 6 dBm

Carrier frequency, MHz	Spectrum analyzer reading, dBm	External attenuation, dB	Cable loss, dB	Peak output power, dBm	Limit*, dBm	Margin**, dB	Verdict
Channel spacing: 5 MHz							
Data rate: 1.5 Mbps							
2412	22.70	Included	Included	22.70	24.00	-1.30	Pass
2437	23.42	Included	Included	23.42	24.00	-0.58	Pass
2462	23.61	Included	Included	23.61	24.00	-0.39	Pass
Data rate: 13.5 Mbps							
2412	23.16	Included	Included	23.16	24.00	-0.84	Pass
2437	23.17	Included	Included	23.17	24.00	-0.83	Pass
2462	23.97	Included	Included	23.97	24.00	-0.03	Pass
Channel spacing: 10 MHz							
Data rate: 3 Mbps							
2412	22.10	Included	Included	22.10	24.00	-1.90	Pass
2437	21.84	Included	Included	21.84	24.00	-2.16	Pass
2462	22.39	Included	Included	22.39	24.00	-1.61	Pass
Data rate: 27 Mbps							
2412	23.68	Included	Included	23.68	24.00	-0.32	Pass
2437	22.85	Included	Included	22.85	24.00	-1.15	Pass
2462	23.11	Included	Included	23.11	24.00	-0.89	Pass
Channel spacing: 20 MHz							
Data rate: 6 Mbps							
2412	22.02	Included	Included	22.02	24.00	-1.98	Pass
2437	22.65	Included	Included	22.65	24.00	-1.35	Pass
2462	22.72	Included	Included	22.72	24.00	-1.28	Pass
Data rate: 54 Mbps							
2412	23.17	Included	Included	23.17	24.00	-0.83	Pass
2437	22.24	Included	Included	22.24	24.00	-1.76	Pass
2462	23.08	Included	Included	23.08	24.00	-0.92	Pass

* - Limit was calculated according to antenna gain of 24 dBi as follows:

For each 3 dB of antenna gain that exceeds 6 dBi, output power limit reduced by 1 dB:

24 dBi – 6 dBi = 18 dB, → 6 steps of 3 dB was encountered, meaning limit shall be reduce by 6 dB, i.e. 24 dBm.

** - Margin = Peak output power – specification limit.

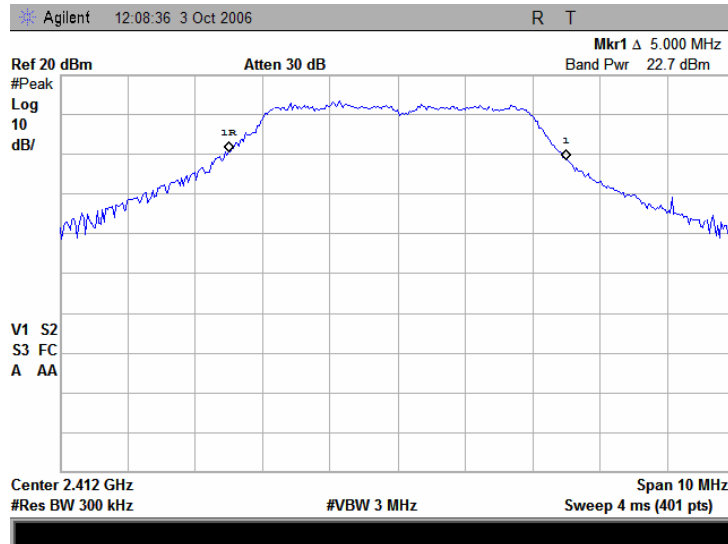
Reference numbers of test equipment used

HL 1650	HL 2869	HL 2909					
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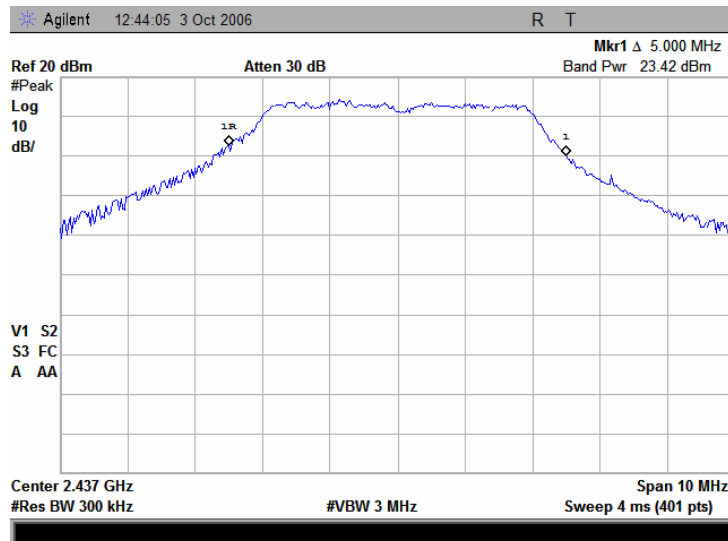
Full description is given in Appendix A.

Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:45:11 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.2.19 Peak output power at low frequency, 5 MHz channel spacing, 1.5 Mbps data rate

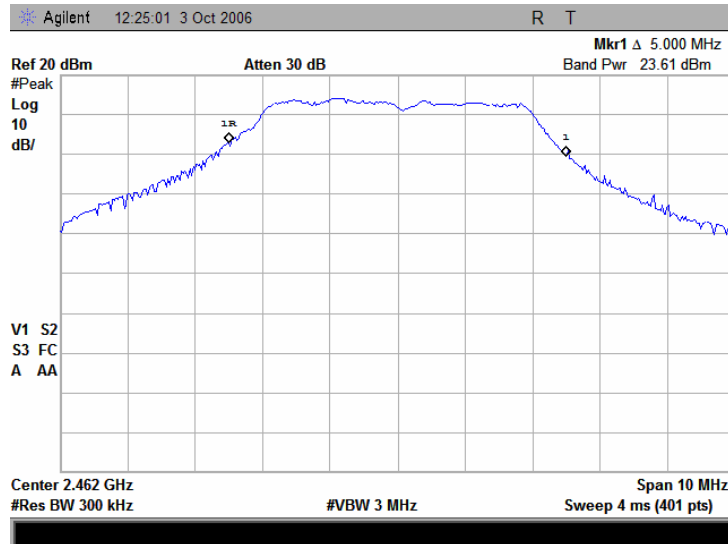


Plot 7.2.20 Peak output power at mid frequency, 5 MHz channel spacing, 1.5 Mbps data rate

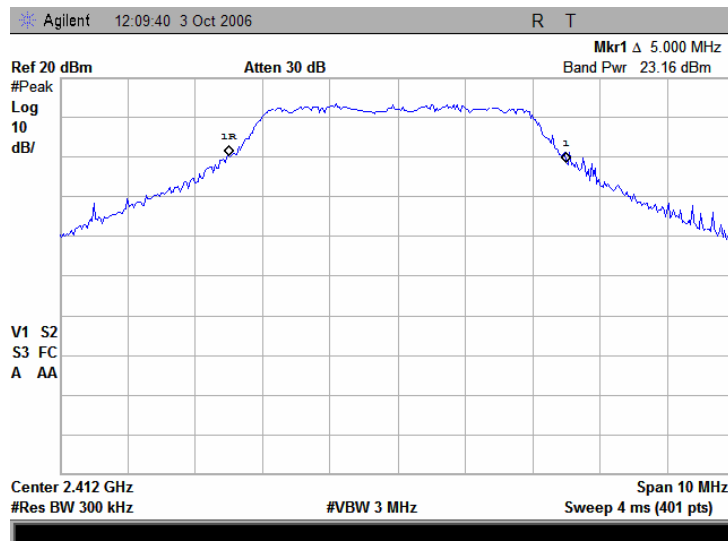


Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:45:11 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.2.21 Peak output power at high frequency, 5 MHz channel spacing, 1.5 Mbps data rate

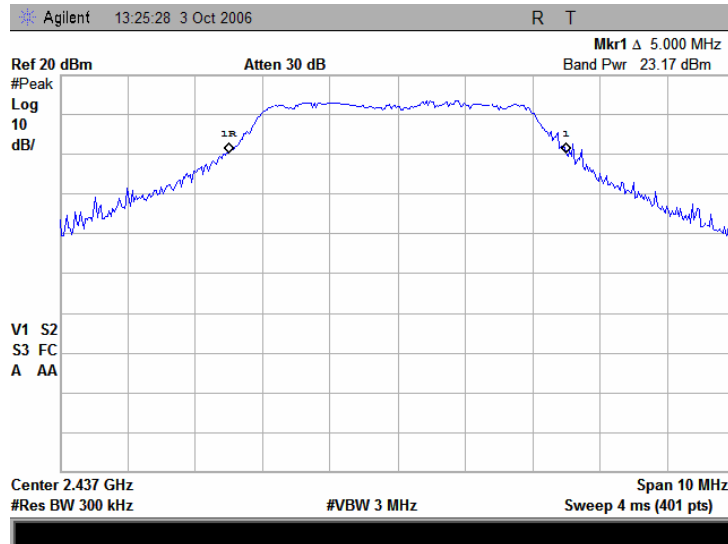


Plot 7.2.22 Peak output power at low frequency, 5 MHz channel spacing, 13.5 Mbps data rate

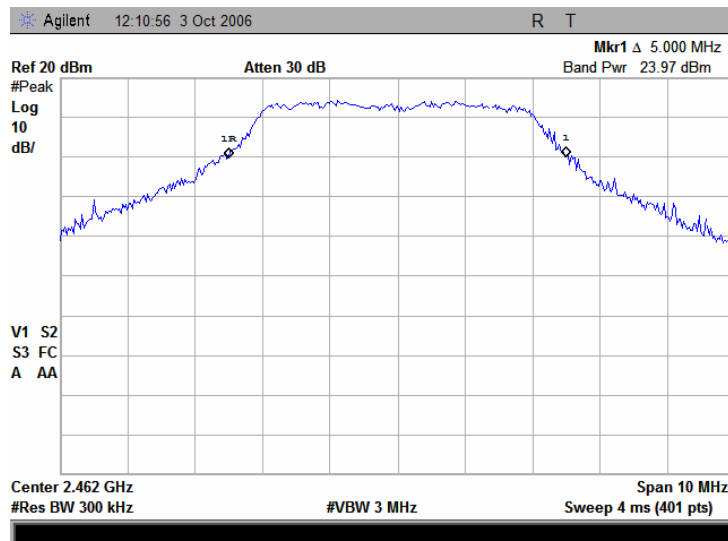


Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:45:11 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.2.23 Peak output power at mid frequency, 5 MHz channel spacing, 13.5 Mbps data rate

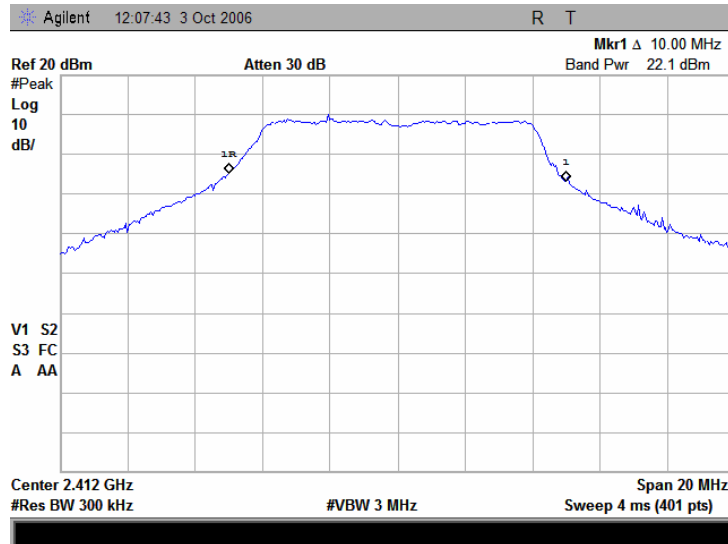


Plot 7.2.24 Peak output power at high frequency, 5 MHz channel spacing, 13.5 Mbps data rate

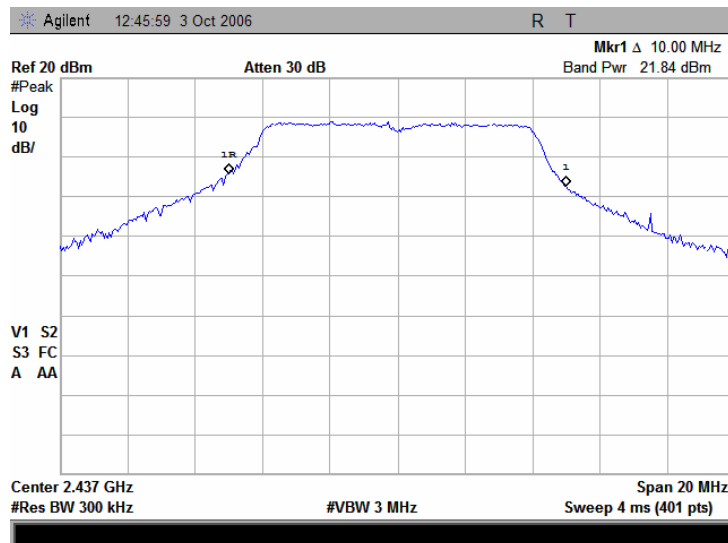


Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:45:11 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.2.25 Peak output power at low frequency, 10 MHz channel spacing, 3 Mbps data rate

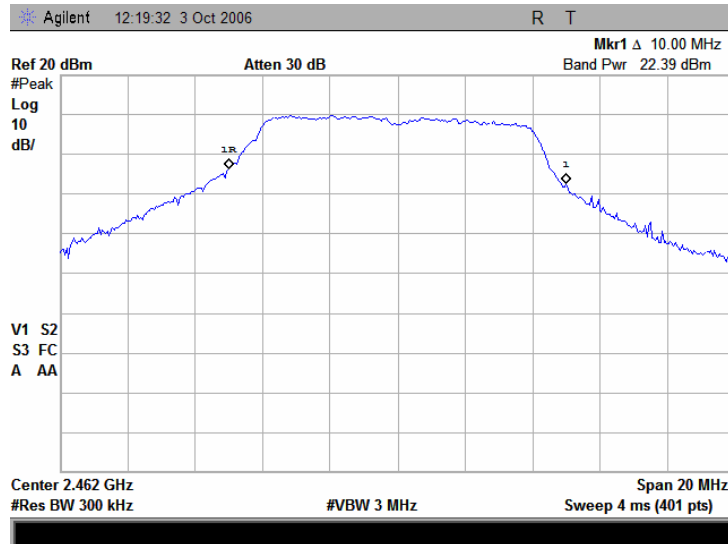


Plot 7.2.26 Peak output power at mid frequency, 10 MHz channel spacing, 3 Mbps data rate

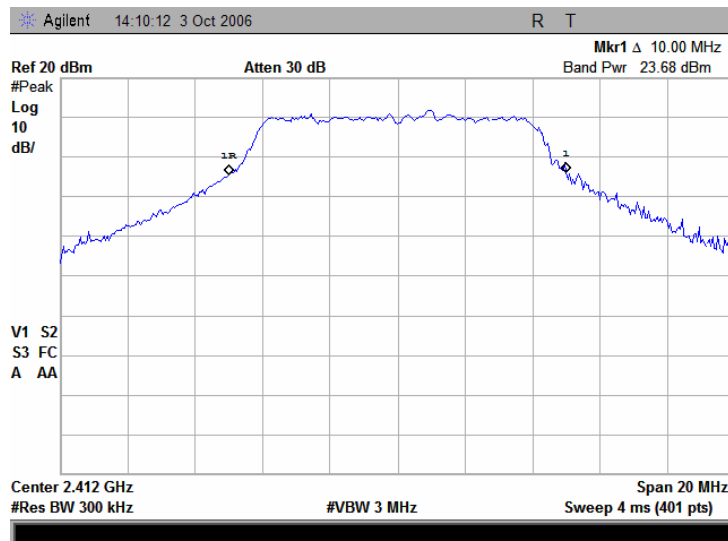


Test specification:		Section 15.247(b)3, Peak output power	
Test procedure:		FR Vol.62, page 26243, Section 15.247(b)	
Test mode:		Compliance	Verdict: PASS
Date & Time:		10/8/2006 5:45:11 PM	
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.2.27 Peak output power at high frequency, 10 MHz channel spacing, 3 Mbps data rate

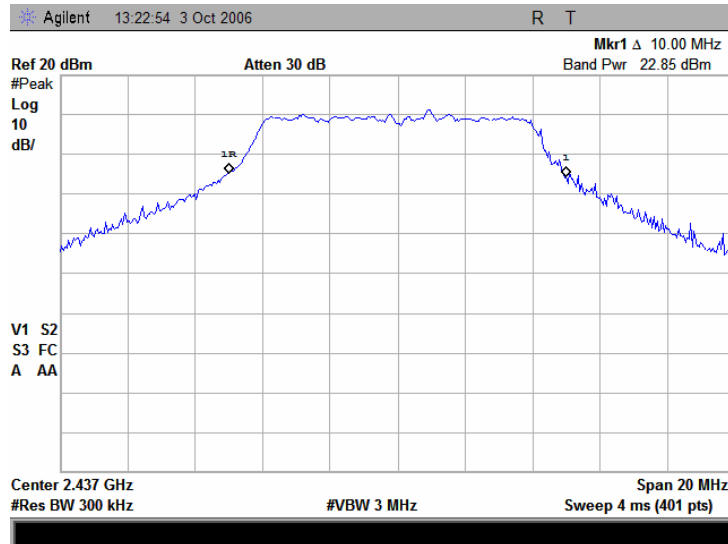


Plot 7.2.28 Peak output power at low frequency, 10 MHz channel spacing, 27 Mbps data rate

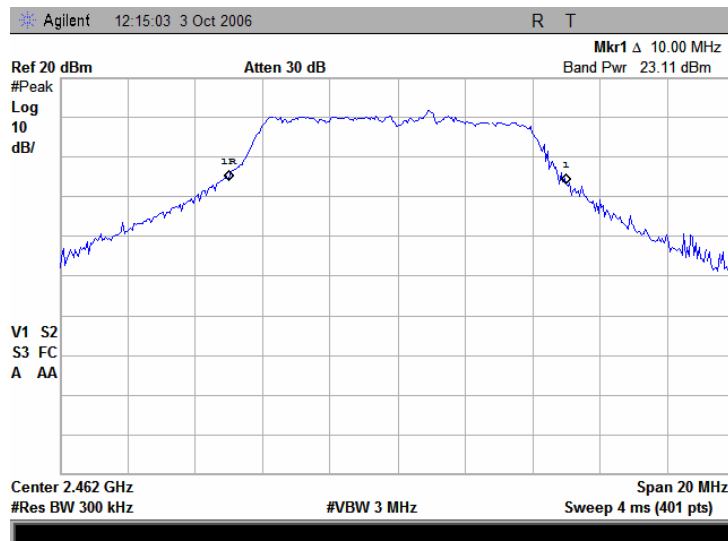


Test specification:		Section 15.247(b)3, Peak output power	
Test procedure:		FR Vol.62, page 26243, Section 15.247(b)	
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:45:11 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.2.29 Peak output power at mid frequency, 10 MHz channel spacing, 27 Mbps data rate

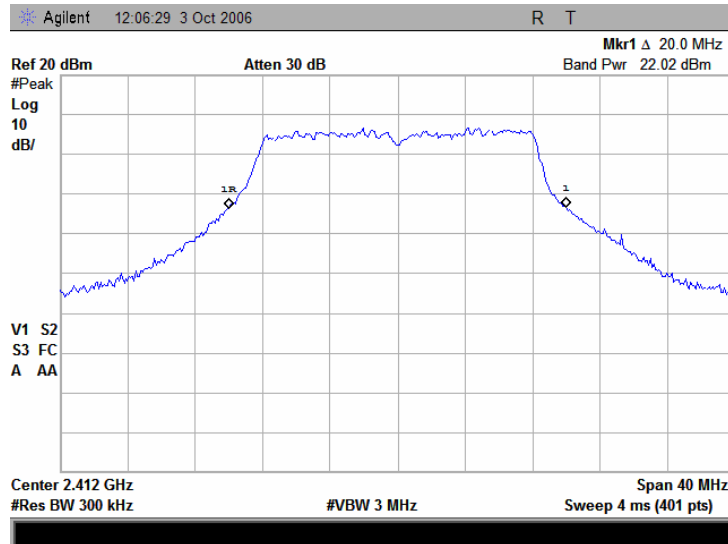


Plot 7.2.30 Peak output power at high frequency, 10 MHz channel spacing, 27 Mbps data rate

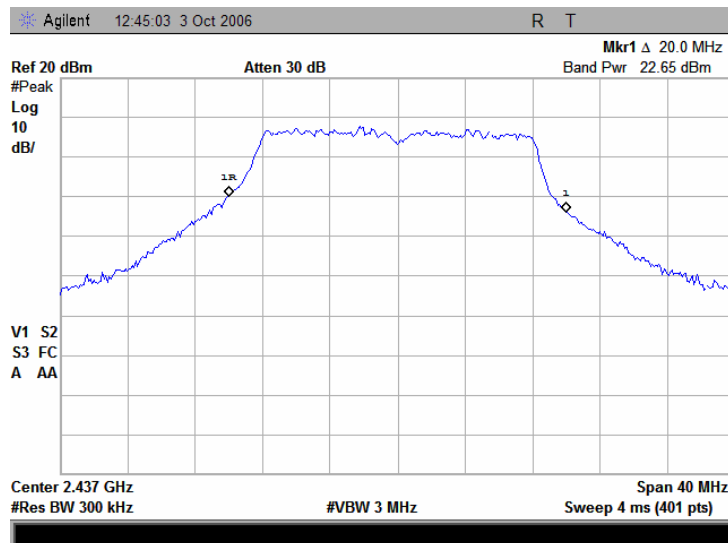


Test specification: Section 15.247(b)3, Peak output power			
Test procedure: FR Vol.62, page 26243, Section 15.247(b)			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/8/2006 5:45:11 PM			
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.2.31 Peak output power at low frequency, 20 MHz channel spacing, 6 Mbps data rate

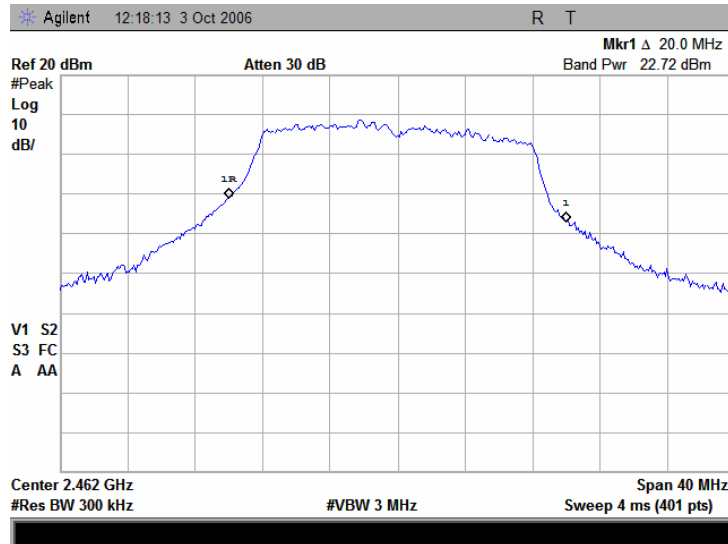


Plot 7.2.32 Peak output power at mid frequency, 20 MHz channel spacing, 6 Mbps data rate

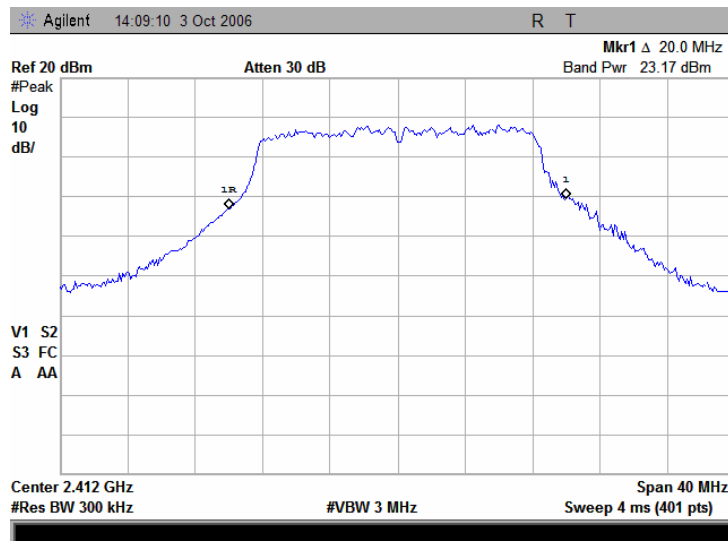


Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:45:11 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.2.33 Peak output power at high frequency, 20 MHz channel spacing, 6 Mbps data rate

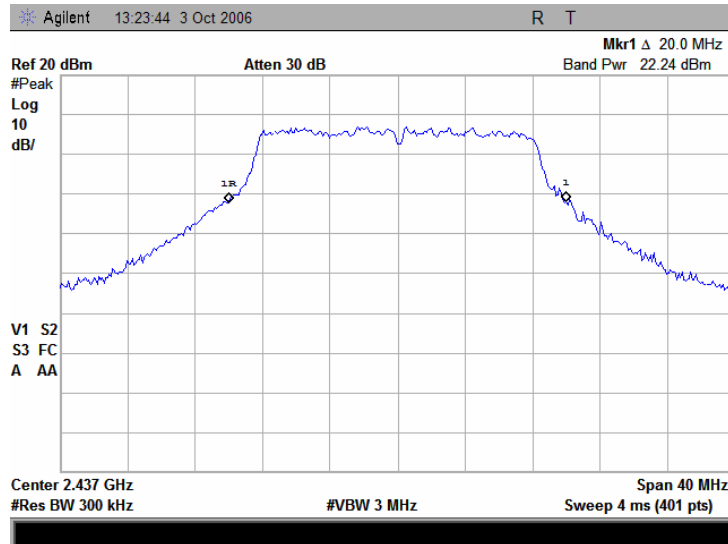


Plot 7.2.34 Peak output power at low frequency, 20 MHz channel spacing, 54 Mbps data rate

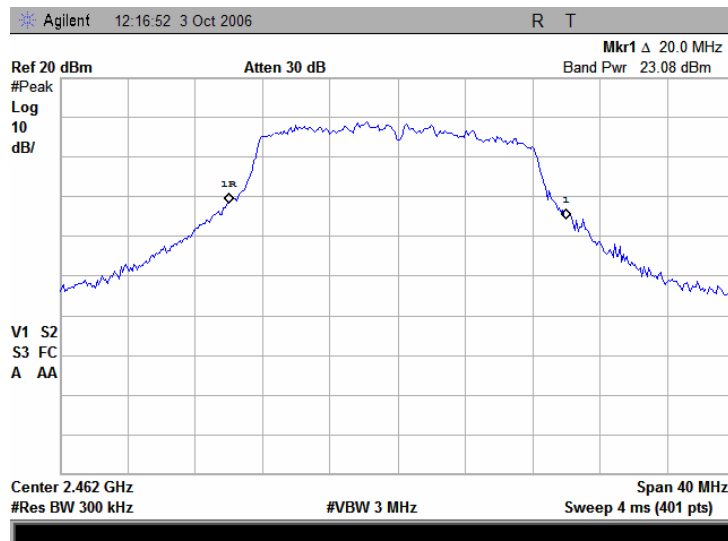


Test specification: Section 15.247(b)3, Peak output power			
Test procedure: FR Vol.62, page 26243, Section 15.247(b)			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/8/2006 5:45:11 PM			
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.2.35 Peak output power at mid frequency, 20 MHz channel spacing, 54 Mbps data rate



Plot 7.2.36 Peak output power at high frequency, 20 MHz channel spacing, 54 Mbps data rate



Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

7.3 Spurious emissions at RF antenna connector

7.3.1 General

This test was performed to measure spurious emissions at RF antenna connector. Specification test limits are given in Table 7.3.1.

Table 7.3.1 Spurious emission limits

Frequency*, MHz	Attenuation below carrier*, dBc
0.009 – 10 th harmonic	20.0

* - The above limits applied from the lowest radio frequency generated in the device, without going below 9 kHz up to the tenth harmonic of the highest fundamental frequency.

** - Spurious emission limit is provided in terms of attenuation below the peak of modulated carrier measured with the same resolution bandwidth.

7.3.2 Test procedure

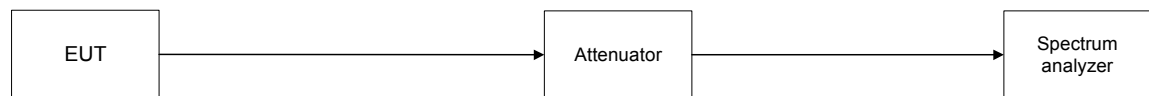
7.3.2.1 The EUT was set up as shown in Figure 7.3.1, energized and its proper operation was checked.

7.3.2.2 The EUT was adjusted to produce maximum available to end user RF output power.

7.3.2.3 The highest emission level within the authorized band was measured.

7.3.2.4 The spurious emission was measured with spectrum analyzer as provided in Table 7.3.2 and associated plots and referenced to the highest emission level measured within the authorized band.

Figure 7.3.1 Spurious emission test setup



Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Table 7.3.2 Spurious emission test results

ASSIGNED FREQUENCY RANGE: 2400 – 2483.5 MHz
 INVESTIGATED FREQUENCY RANGE: 0.009 – 26500 MHz
 DETECTOR USED: Peak
 RESOLUTION BANDWIDTH: 100 kHz
 VIDEO BANDWIDTH: 300 kHz
 MODULATION: QAM
 MODULATING SIGNAL: PRBS
 CHANNEL SPACING: 5 MHz (worst case)
 BIT RATE: 1.5 Mbps
 TRANSMITTER OUTPUT POWER SETTINGS: Maximum

Frequency, MHz	Spurious emission, dBm	Emission at carrier, dBm	Attenuation below carrier, dBc	Limit, dBc**	Margin, dB*	Verdict
Low carrier frequency						
No spurious were found						Pass
Mid carrier frequency						
No spurious were found						Pass
High carrier frequency						
No spurious were found						Pass

*- Margin = Attenuation below carrier – specification limit.

** - Limit was calculated in situation when transmitter output power was installed according to 6 dBm software word (antenna gain 24 dBi)

Reference numbers of test equipment used

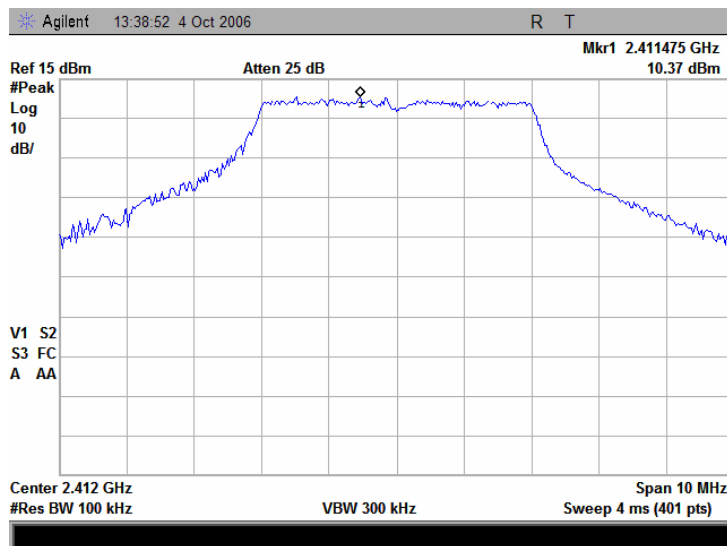
HL 2856	HL 2909					
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Full description is given in Appendix A.

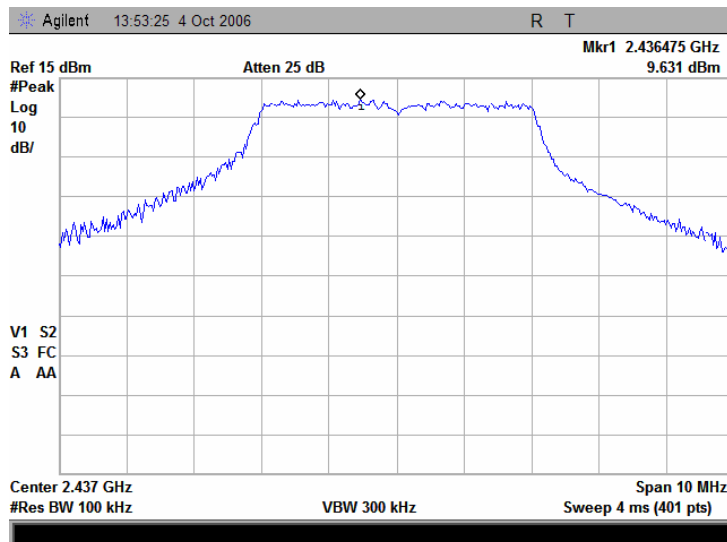
Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

8.5 dBm software word for output power (max power)

Plot 7.3.1 The highest emission level within the assigned band at low carrier frequency, 5 MHz channel spacing, 1.5 Mbps data rate

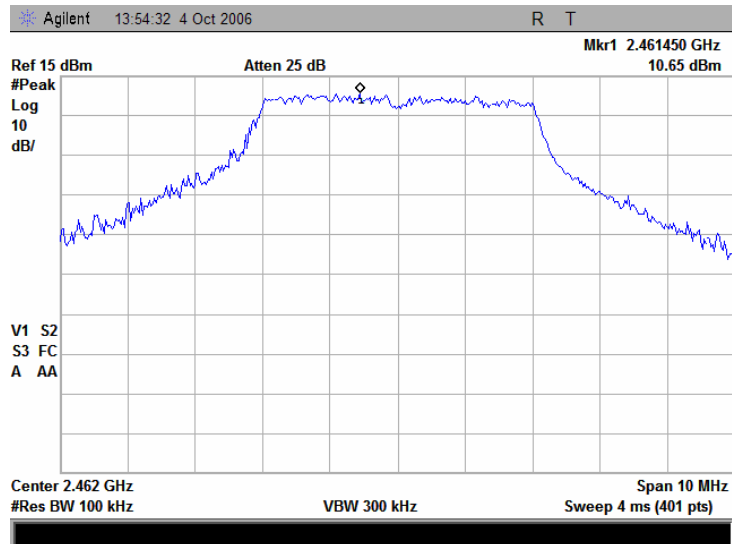


Plot 7.3.2 The highest emission level within the assigned band at mid carrier frequency, 5 MHz channel spacing, 1.5 Mbps data rate



Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

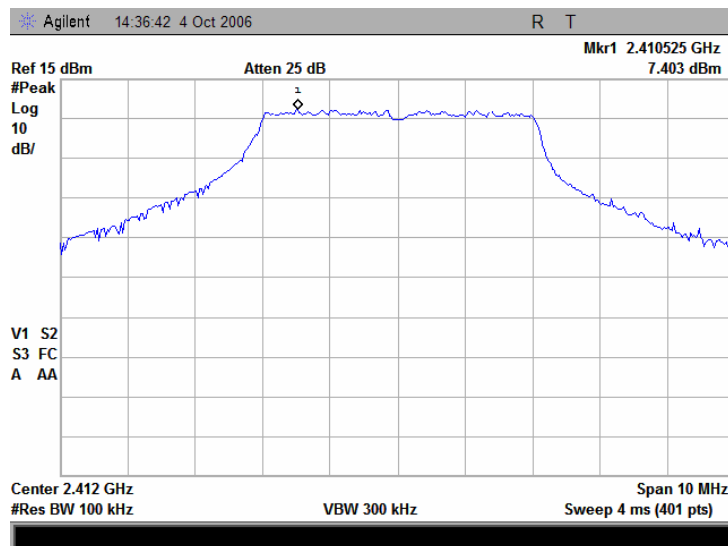
Plot 7.3.3 The highest emission level within the assigned band at high carrier frequency, 5 MHz channel spacing, 1.5 Mbps data rate



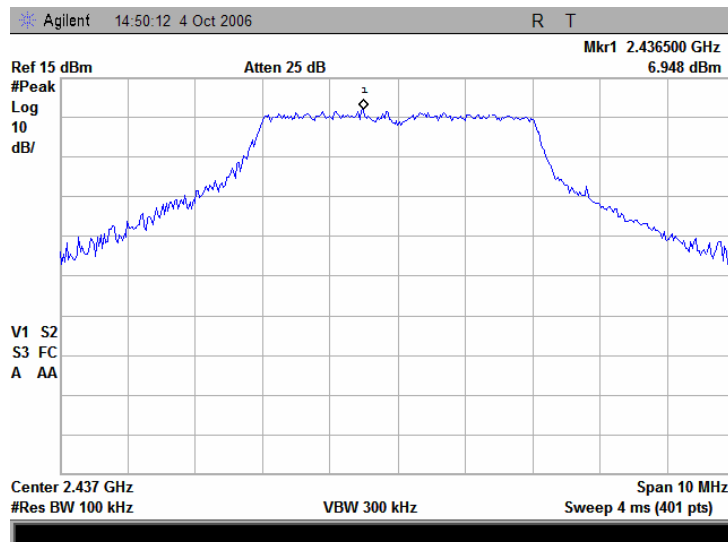
Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

6 dBm software word for output power (min power)

Plot 7.3.4 The highest emission level within the assigned band at low carrier frequency, 5 MHz channel spacing, 1.5 Mbps data rate

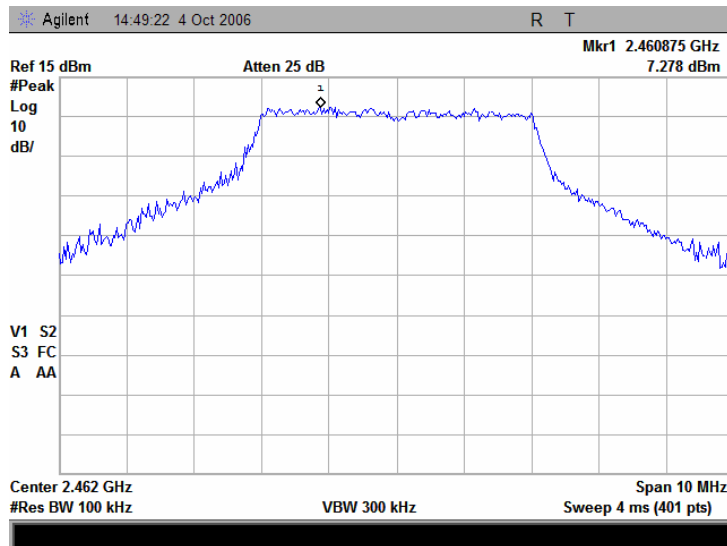


Plot 7.3.5 The highest emission level within the assigned band at mid carrier frequency, 5 MHz channel spacing, 1.5 Mbps data rate



Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

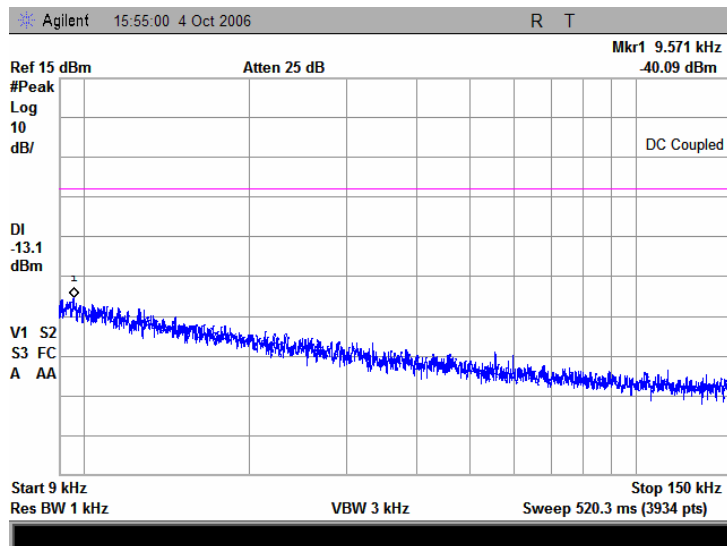
Plot 7.3.6 The highest emission level within the assigned band at high carrier frequency, 5 MHz channel spacing, 1.5 Mbps data rate



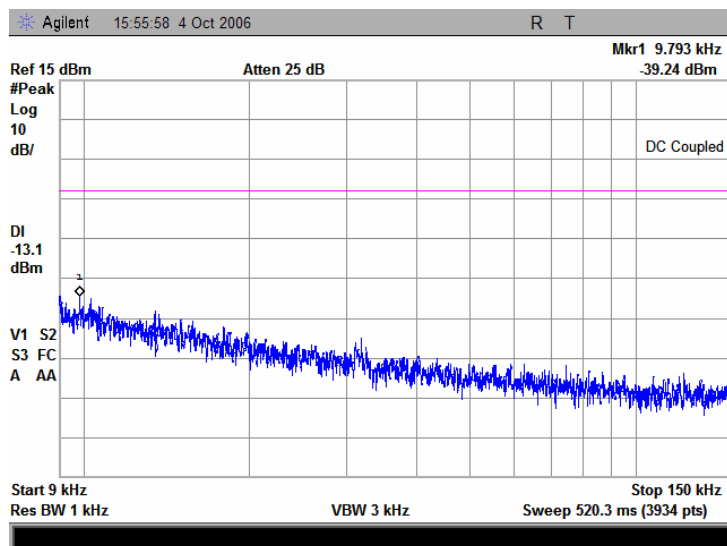
Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

8.5 dBm software word for output power (max power)

Plot 7.3.7 Spurious emission measurements in 9 - 150 kHz range at low carrier frequency, 5 MHz channel

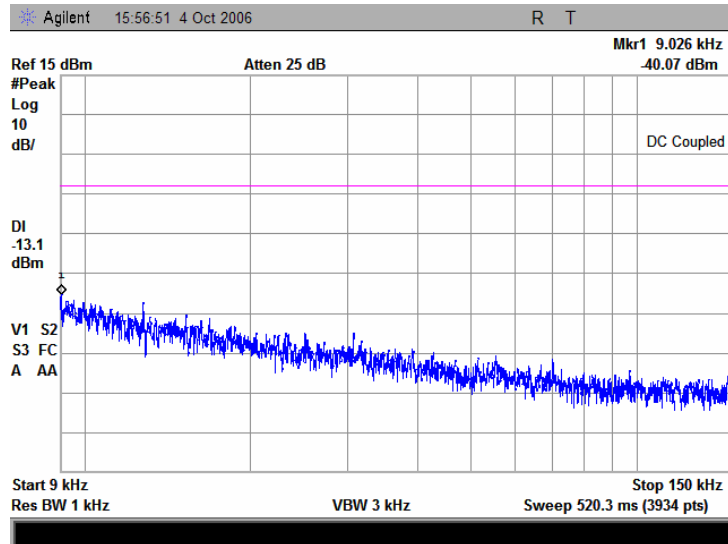


Plot 7.3.8 Spurious emission measurements in 9 - 150 kHz range at mid carrier frequency, 5 MHz channel

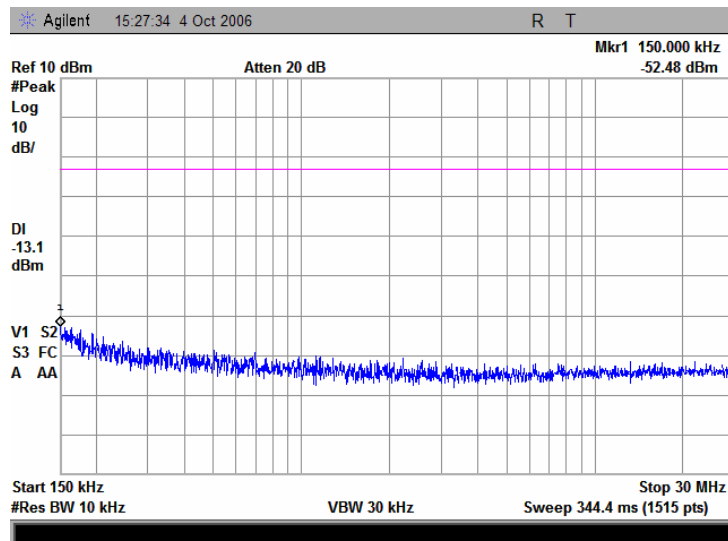


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Plot 7.3.9 Spurious emission measurements in 9 - 150 kHz range at high carrier frequency, 5 MHz channel

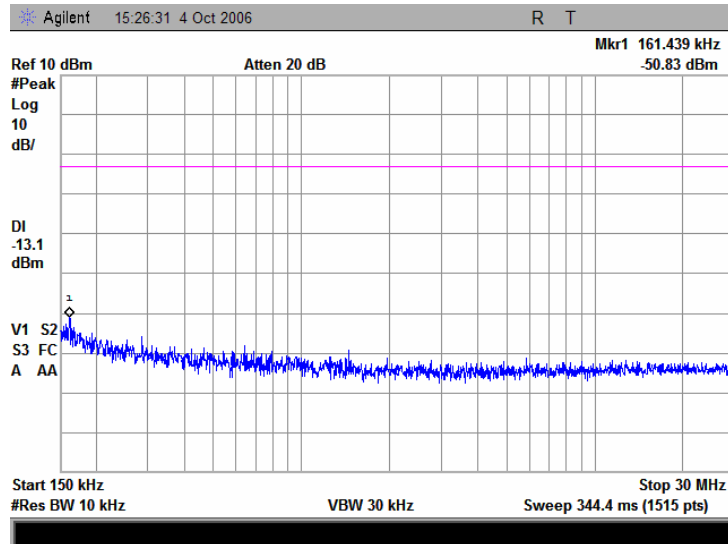


Plot 7.3.10 Spurious emission measurements in 0.15 - 30 MHz range at low carrier frequency, 5 MHz channel

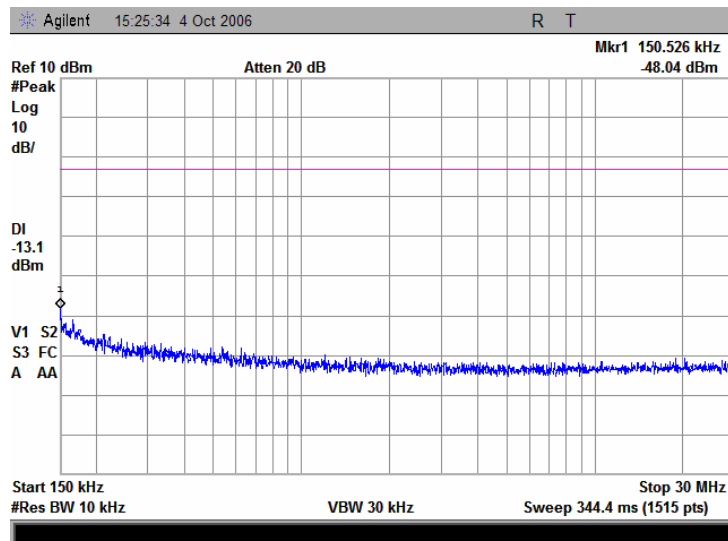


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Plot 7.3.11 Spurious emission measurements in 0.15 - 30 MHz range at mid carrier frequency, 5 MHz channel

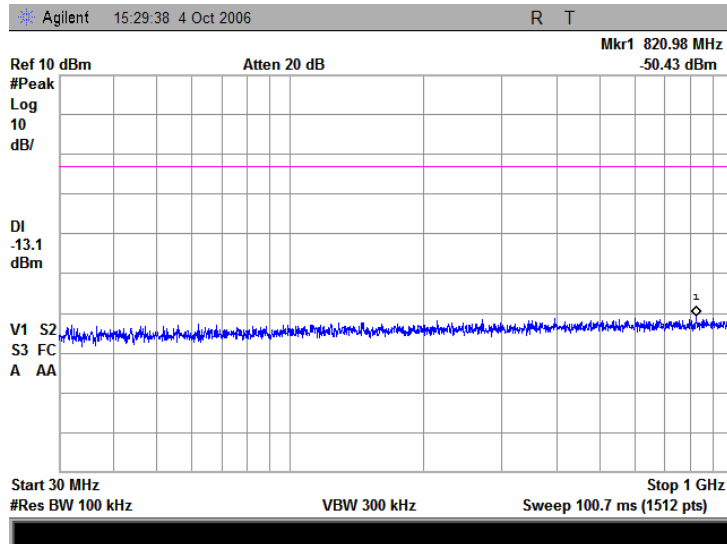


Plot 7.3.12 Spurious emission measurements in 0.15 - 30 MHz range at high carrier frequency, 5 MHz channel

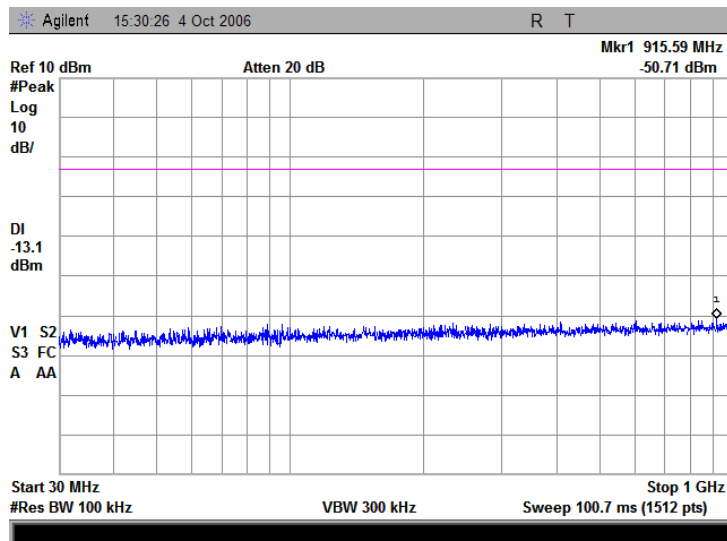


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Plot 7.3.13 Spurious emission measurements in 30 - 1000 MHz range at low carrier frequency, 5 MHz channel

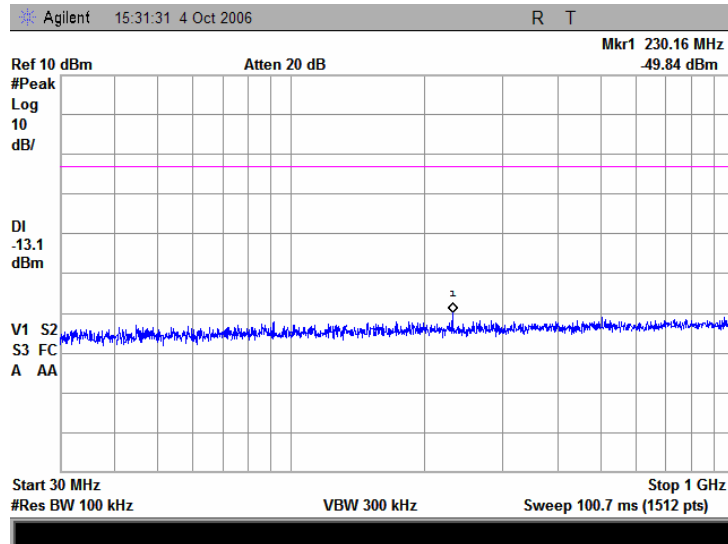


Plot 7.3.14 Spurious emission measurements in 30 - 1000 MHz range at mid carrier frequency, 5 MHz channel

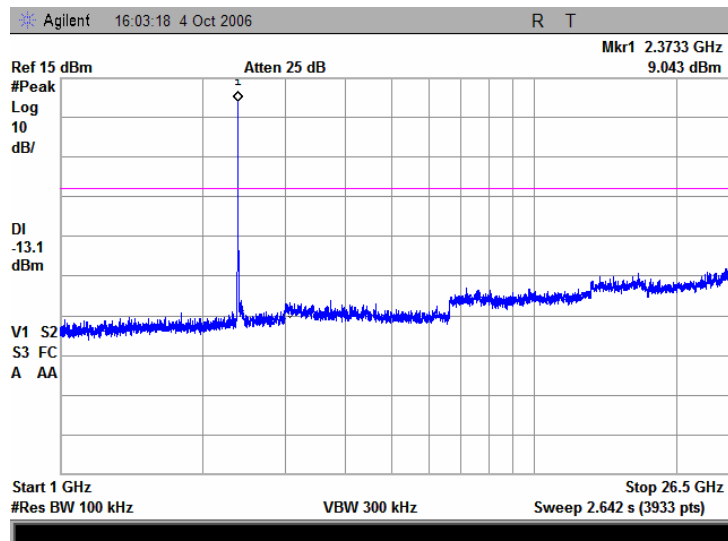


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Plot 7.3.15 Spurious emission measurements in 30 - 1000 MHz range at high carrier frequency, 5 MHz channel

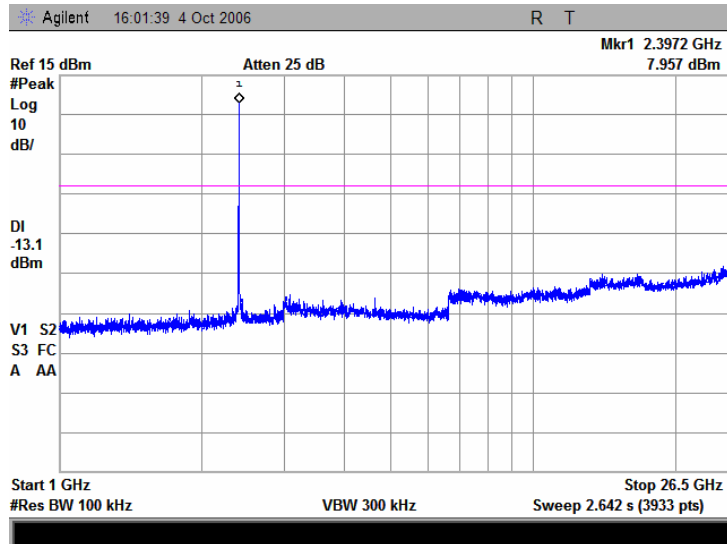


Plot 7.3.16 Spurious emission measurements in 1000 - 26500 MHz range at low carrier frequency, 5 MHz channel

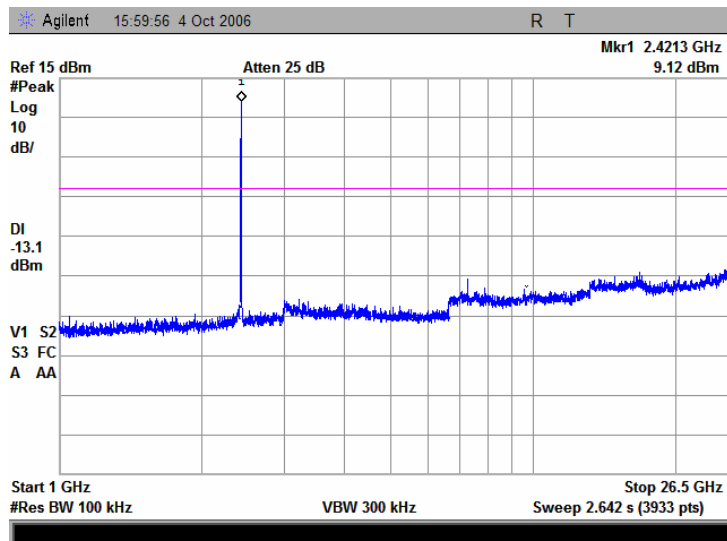


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Plot 7.3.17 Spurious emission measurements in 1000 - 26500 MHz range at mid carrier frequency, 5 MHz channel

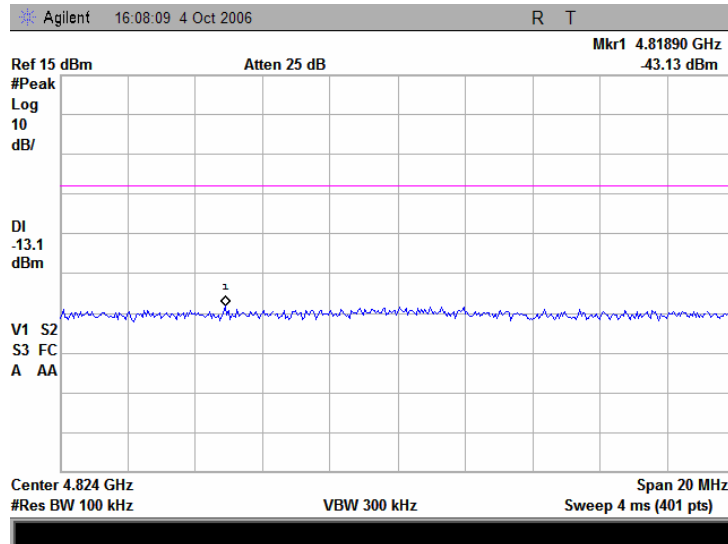


Plot 7.3.18 Spurious emission measurements in 1000 - 26500 MHz range at high carrier frequency, 5 MHz channel

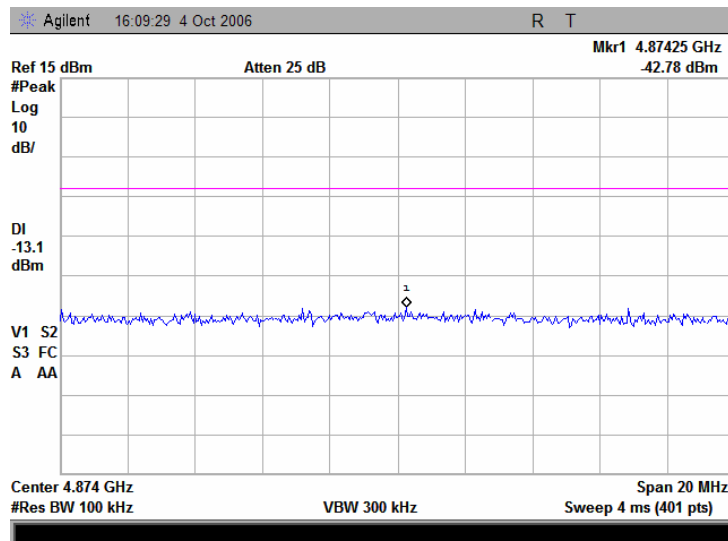


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Plot 7.3.19 Conducted spurious emission measurements at the 2nd harmonic of low carrier frequency

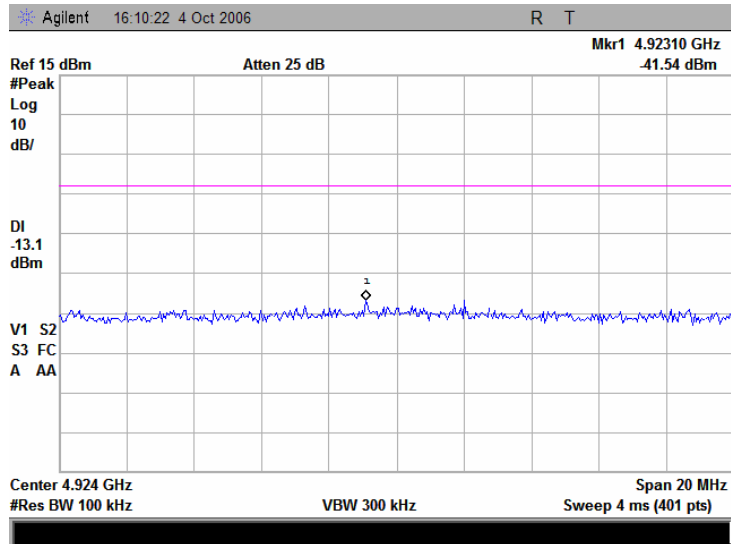


Plot 7.3.20 Conducted spurious emission measurements at the 2nd harmonic of mid carrier frequency

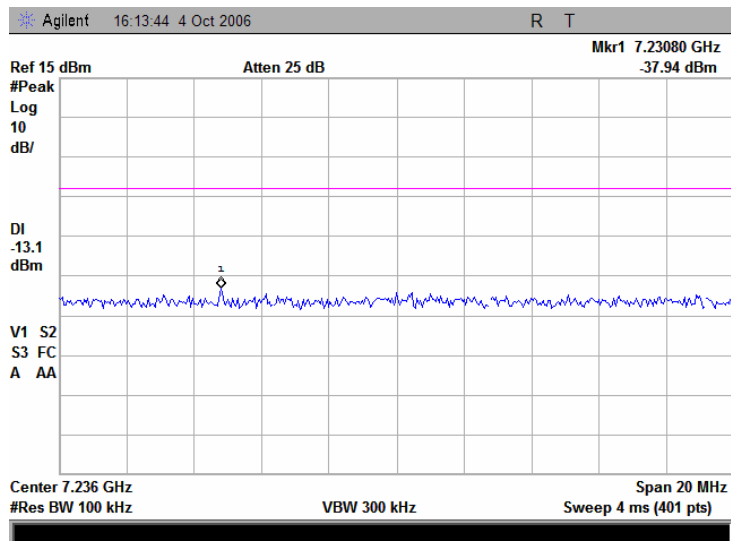


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Plot 7.3.21 Conducted spurious emission measurements at the 2nd harmonic of high carrier frequency

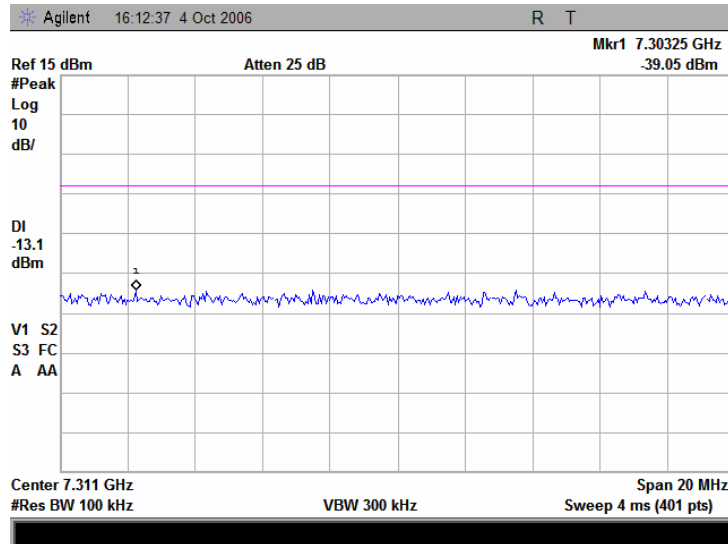


Plot 7.3.22 Conducted spurious emission measurements at the 3rd harmonic of low carrier frequency

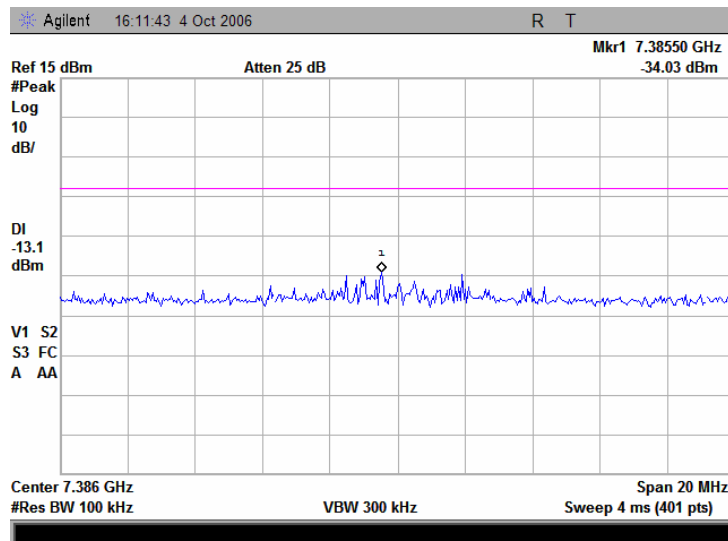


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Plot 7.3.23 Conducted spurious emission measurements at the 3rd harmonic of mid carrier frequency

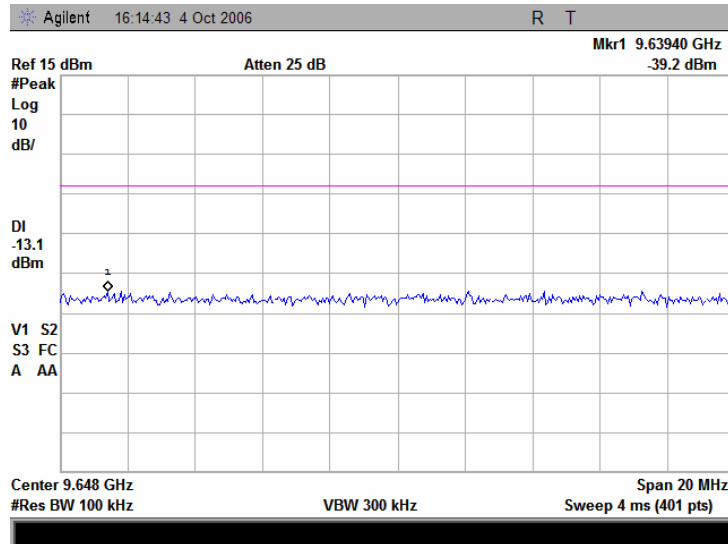


Plot 7.3.24 Conducted spurious emission measurements at the 3rd harmonic of high carrier frequency

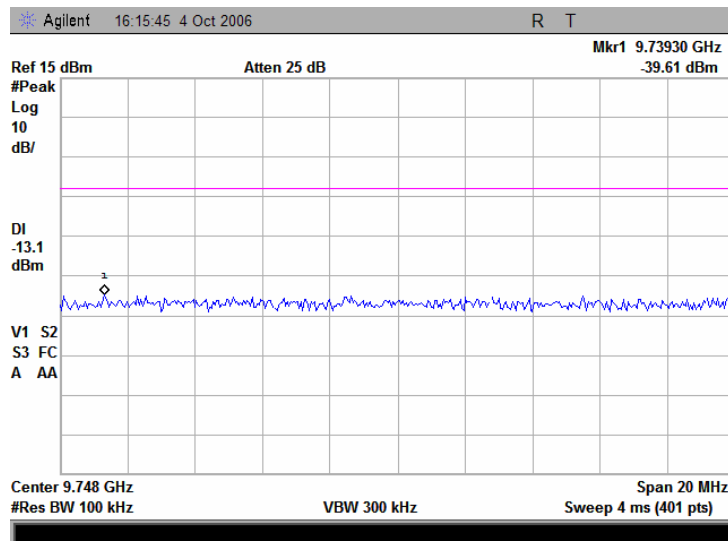


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Plot 7.3.25 Conducted spurious emission measurements at the 4th harmonic of low carrier frequency

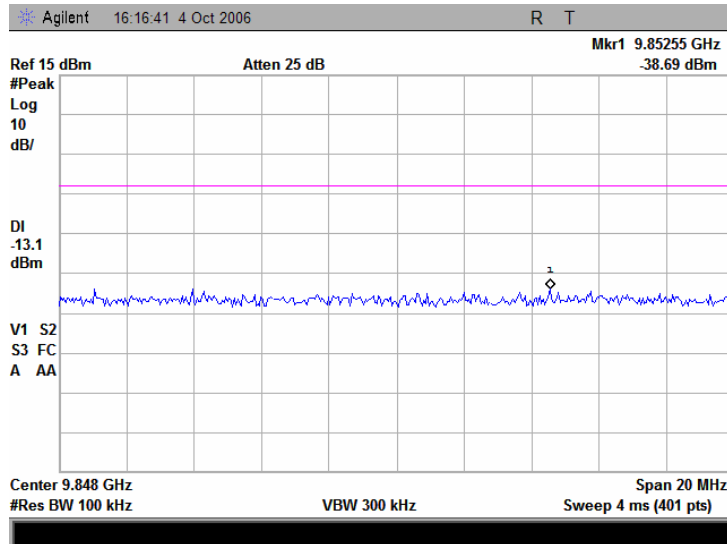


Plot 7.3.26 Conducted spurious emission measurements at the 4th harmonic of mid carrier frequency

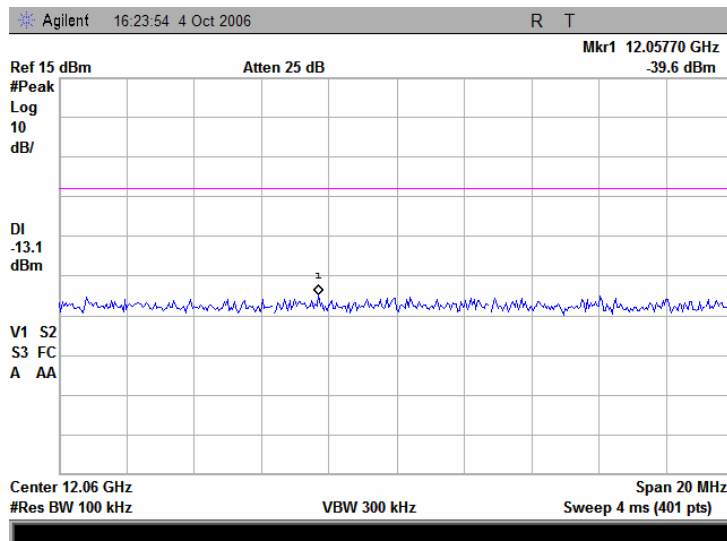


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Plot 7.3.27 Conducted spurious emission measurements at the 4th harmonic of high carrier frequency

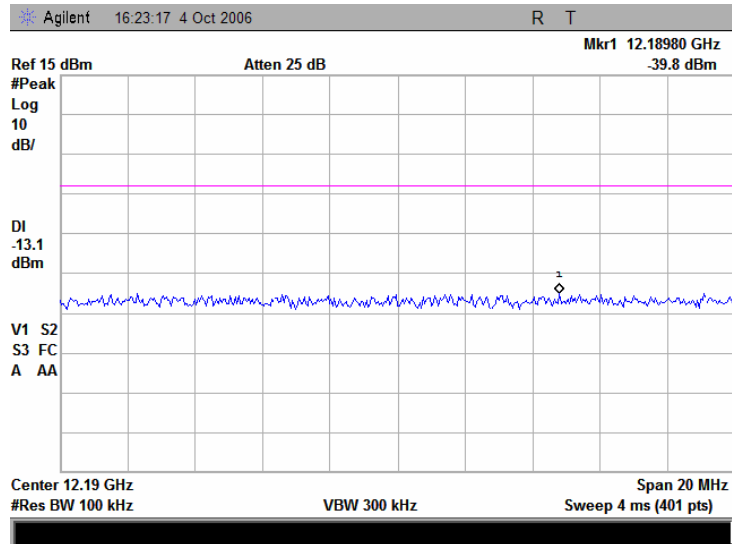


Plot 7.3.28 Conducted spurious emission measurements at the 5th harmonic of low carrier frequency

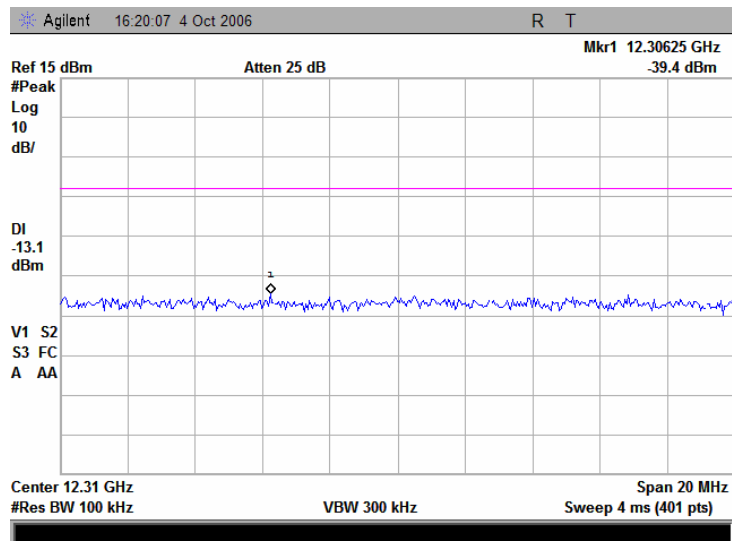


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Plot 7.3.29 Conducted spurious emission measurements at the 5th harmonic of mid carrier frequency

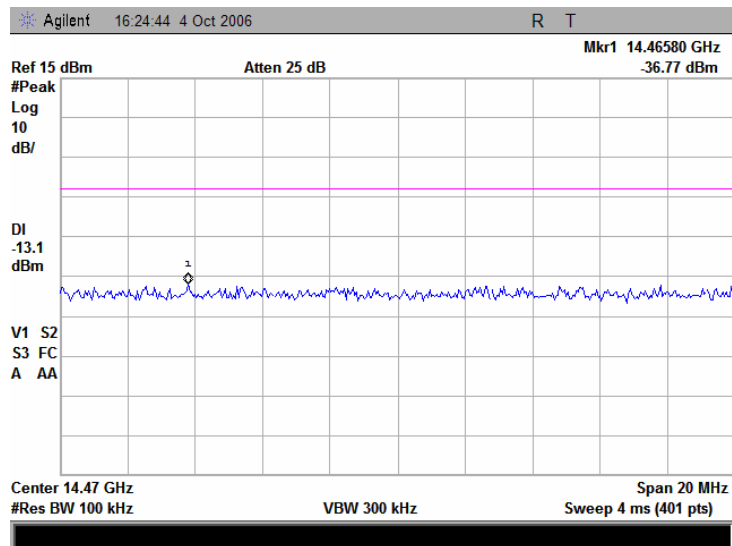


Plot 7.3.30 Conducted spurious emission measurements at the 5th harmonic of high carrier frequency

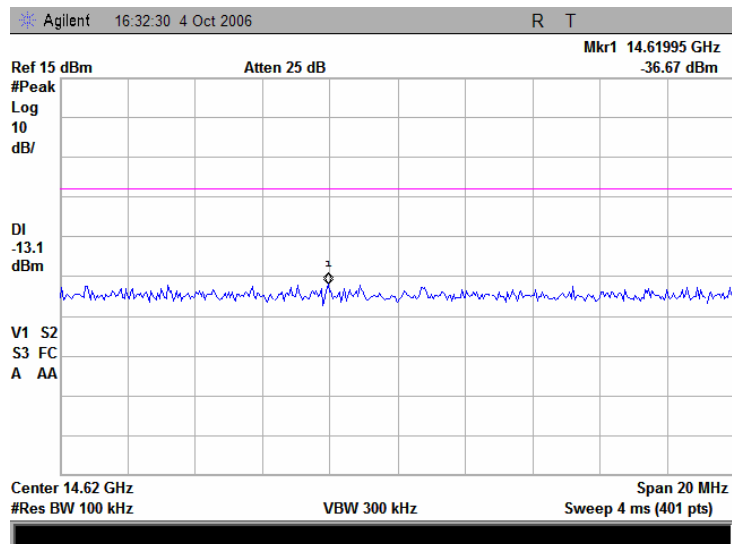


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Plot 7.3.31 Conducted spurious emission measurements at the 6th harmonic of low carrier frequency

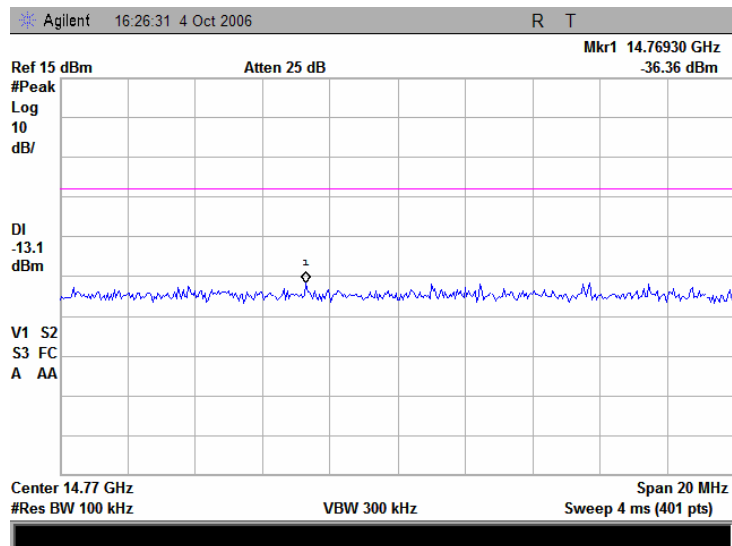


Plot 7.3.32 Conducted spurious emission measurements at the 6th harmonic of mid carrier frequency

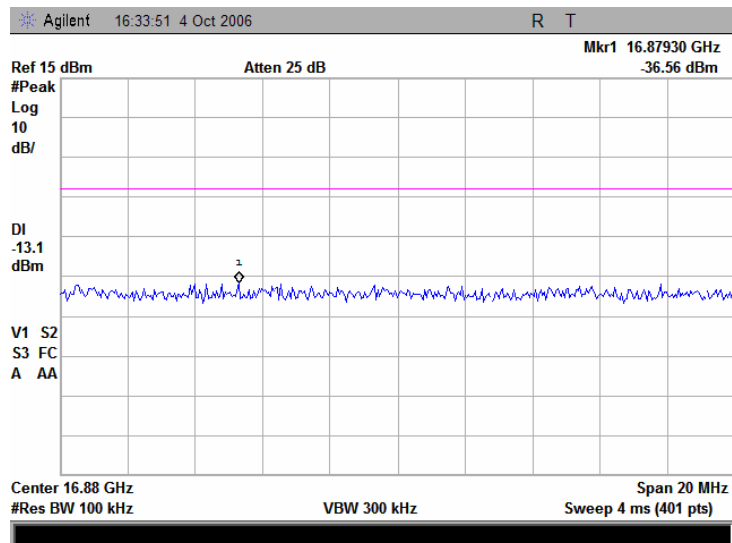


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Plot 7.3.33 Conducted spurious emission measurements at the 6th harmonic of high carrier frequency

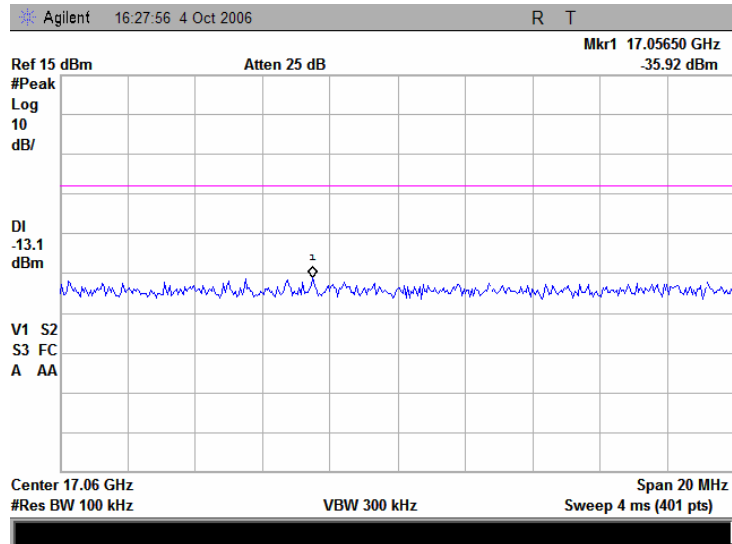


Plot 7.3.34 Conducted spurious emission measurements at the 7th harmonic of low carrier frequency

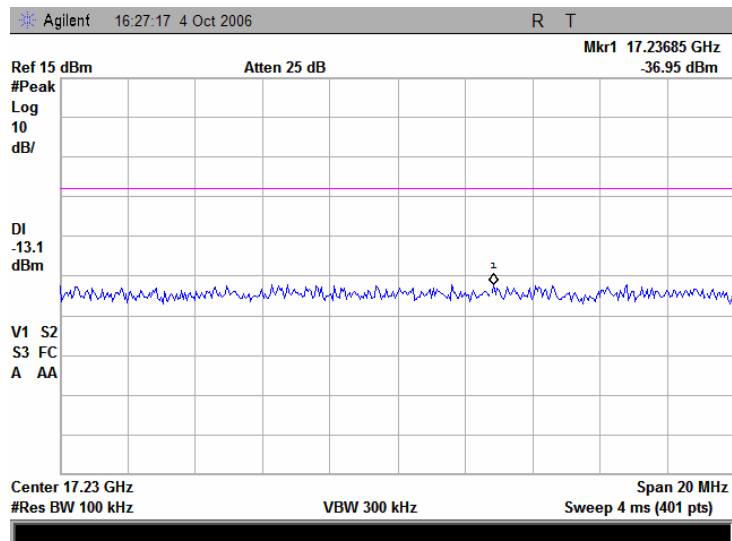


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:43:44 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Plot 7.3.35 Conducted spurious emission measurements at the 7th harmonic of mid carrier frequency



Plot 7.3.36 Conducted spurious emission measurements at the 7th harmonic of high carrier frequency



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

7.4 Field strength of spurious emissions with 15.2 dBi antenna

7.4.1 General

This test was performed to measure field strength of spurious emissions from the EUT. Specification test limits are given in Table 7.4.1.

Table 7.4.1 Radiated spurious emissions limits

Frequency, MHz	Field strength at 3 m within restricted bands, dB(μV/m)*		
	Peak	Quasi Peak	Average
0.009 – 0.090	148.5 – 128.5	NA	128.5 – 108.5**
0.090 – 0.110	NA	108.5 – 106.8**	NA
0.110 – 0.490	126.8 – 113.8	NA	106.8 – 93.8**
0.490 – 1.705	NA	73.8 – 63.0**	NA
1.705 – 30.0*		69.5	
30 – 88		40.0	
88 – 216		43.5	
216 – 960		46.0	
960 – 1000		54.0	
1000 – 10 th harmonic	74.0	NA	54.0

*- The limit for 3 m test distance was calculated using the inverse square distance extrapolation factor as follows:

$$\text{Lims}_2 = \text{Lims}_1 + 40 \log(S_1/S_2),$$

where S_1 and S_2 – standard defined and test distance respectively in meters.

** - The limit decreases linearly with the logarithm of frequency.

*** - The field strength limits applied from the lowest radio frequency generated in the device, without going below 9 kHz up to the tenth harmonic of the highest fundamental frequency.

7.4.2 Test procedure for spurious emission field strength measurements in 9 kHz to 30 MHz band

7.4.2.1 The EUT was set up as shown in Figure 7.4.1, energized and the performance check was conducted.

7.4.2.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360° and the measuring antenna was rotated around its vertical axis.

7.4.2.3 The worst test results (the lowest margins) were recorded and shown in the associated plots.

7.4.3 Test procedure for spurious emission field strength measurements above 30 MHz

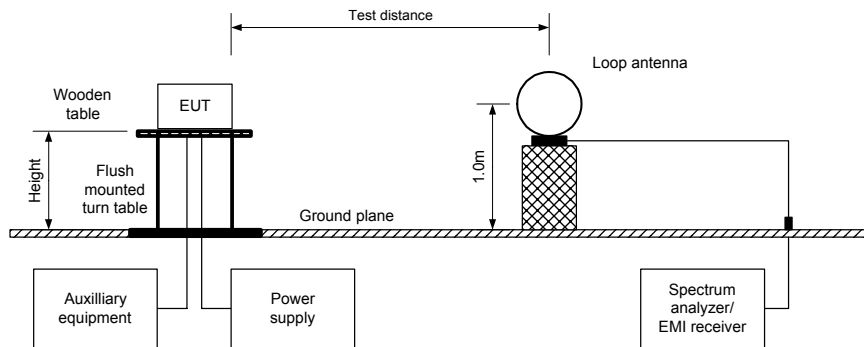
7.4.3.1 The EUT was set up as shown in Figure 7.4.2, energized and the performance check was conducted.

7.4.3.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360°, the measuring antenna height was changed from 1 to 4 m, its polarization was switched from vertical to horizontal.

7.4.3.3 The worst test results (the lowest margins) were recorded and shown in the associated plots.

Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/18/2007 4:55:20 PM		
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Figure 7.4.1 Setup for spurious emission field strength measurements below 30 MHz

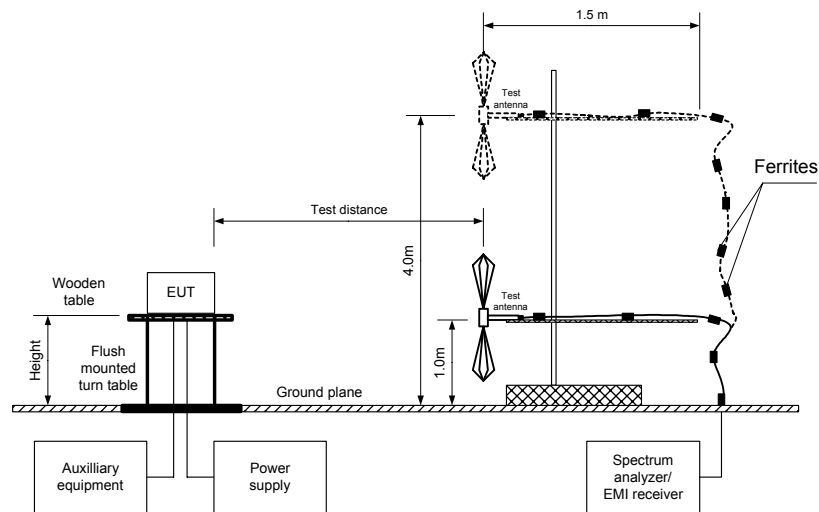


Photograph 7.4.1 Setup for spurious emission field strength measurements below 30 MHz



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Figure 7.4.2 Setup for spurious emission field strength measurements above 30 MHz



Photograph 7.4.2 Setup for spurious emission field strength measurements from 30 to 1000 MHz



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/18/2007 4:55:20 PM		
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Photograph 7.4.3 Setup for spurious emission field strength measurements above 1000 MHz



Test specification:		Section 15.247(c), Radiated spurious emissions	
Test procedure:		FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4	
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/18/2007 4:55:20 PM		
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Table 7.4.2 Field strength of spurious emissions above 1 GHz within restricted bands

ASSIGNED FREQUENCY: 2400 – 2483.5 MHz
 INVESTIGATED FREQUENCY RANGE: 0.009 - 26500 MHz
 TEST DISTANCE: 3 m
 MODULATION: QAM
 MODULATING SIGNAL: PRBS
 BIT RATE: 1.5 Mbps
 DUTY CYCLE: 100 %
 TRANSMITTER OUTPUT POWER SETTINGS: Maximum
 EUT ANTENNA GAIN: 16 dBi
 DETECTOR USED: Peak
 RESOLUTION BANDWIDTH: 1000 kHz
 TEST ANTENNA TYPE: Double ridged guide (1 GHz – 18 GHz)
 Standard gain horn (above 18 GHz)

Frequency, MHz	Antenna		Azimuth, degrees*	Peak field strength(VBW=3 MHz)			Average field strength(VBW=10 Hz)				Verdict	
	Polarization	Height, m		Measured, dB(μV/m)	Limit, dB(μV/m)	Margin, dB**	Measured, dB(μV/m)	Calculated, dB(μV/m)	Limit, dB(μV/m)	Margin, dB***		
Low carrier frequency												
4823.73	V	1.2	0	58.67	74.0	-15.33	43.00	43.00	54.0	-11.0	Pass	
7236.50	V	1.2	0	70.00	74.0	-4.00	40.17	40.17	54.0	-13.83	Pass	
Mid carrier frequency												
4873.83	V	1.2	0	61.33	74.0	-12.67	45.83	45.83	54.0	-8.17	Pass	
7309.53	V	1.2	0	68.00	74.0	-6.00	38.83	38.83	54.0	-15.17	Pass	
High carrier frequency												
4923.83	V	1.2	0	63.67	74.0	-10.33	46.50	46.50	54.0	-7.50	Pass	
7383.20	V	1.2	0	70.67	74.0	-3.33	38.33	38.33	54.0	-15.67	Pass	

*- EUT front panel refers to 0 degrees position of turntable.
 **- Margin = Measured field strength - specification limit.
 ***- Margin = Calculated field strength - specification limit,
 where Calculated field strength = Measured field strength + average factor.

Table 7.4.3 Average factor calculation

Transmission pulse		Transmission burst		Transmission train duration, ms	Average factor, dB
Duration, ms	Period, ms	Duration, ms	Period, ms		
100% duty cycle					NA

Test specification:		Section 15.247(c), Radiated spurious emissions	
Test procedure:		FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4	
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/18/2007 4:55:20 PM		
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Table 7.4.4 Field strength of spurious emissions below 1 GHz within restricted bands

ASSIGNED FREQUENCY: 2400 – 2483.5 MHz
 INVESTIGATED FREQUENCY RANGE: 0.009 – 1000 MHz
 TEST DISTANCE: 3 m
 MODULATION: QAM
 MODULATING SIGNAL: PRBS
 BIT RATE: 1.5 Mbps
 DUTY CYCLE: 100 %
 TRANSMITTER OUTPUT POWER SETTINGS: Maximum
 RESOLUTION BANDWIDTH: 1 kHz (9 kHz – 150 kHz)
 9.0 kHz (150 kHz – 30 MHz)
 120 kHz (30 MHz – 1000 MHz)
 VIDEO BANDWIDTH: > Resolution bandwidth
 TEST ANTENNA TYPE: Active loop (9 kHz – 30 MHz)
 Biconilog (30 MHz – 1000 MHz)

Frequency, MHz	Peak emission, dB(μV/m)	Quasi-peak			Antenna polarization	Antenna height, m	Turn-table position**, degrees	Verdict
		Measured emission, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*				
All carrier frequency								
No emissions were found								Pass

*- Margin = Measured emission - specification limit.

** - EUT front panel refer to 0 degrees position of turntable.

Table 7.4.5 Restricted bands

MHz	MHz	MHz	MHz	MHz	GHz
0.09 - 0.11	8.37625 - 8.38675	73 - 74.6	399.9 - 410	2690 - 2900	10.6 - 12.7
0.495 - 0.505	8.41425 - 8.41475	74.8 - 75.2	608 - 614	3260 - 3267	13.25 - 13.4
2.1735 - 2.1905	12.29 - 12.293	108 - 121.94	960 - 1240	3332 - 3339	14.47 - 14.5
4.125 - 4.128	12.51975 - 12.52025	123 - 138	1300 - 1427	3345.8 - 3358	15.35 - 16.2
4.17725 - 4.17775	12.57675 - 12.57725	149.9 - 150.05	1435 - 1626.5	3600 - 4400	17.7 - 21.4
4.20725 - 4.20775	13.36 - 13.41	156.52475 - 156.52525	1645.5 - 1646.5	4500 - 5150	22.01 - 23.12
6.215 - 6.218	16.42 - 16.423	156.7 - 156.9	1660 - 1710	5350 - 5460	23.6 - 24
6.26775 - 6.26825	16.69475 - 16.69525	162.0125 - 167.17	1718.8 - 1722.2	7250 - 7750	31.2 - 31.8
6.31175 - 6.31225	16.80425 - 16.80475	167.72 - 173.2	2200 - 2300	8025 - 8500	36.43 - 36.5
8.291 - 8.294	25.5 - 25.67	240 - 285	2310 - 2390	9000 - 9200	Above 38.6
8.362 - 8.366	37.5 - 38.25	322 - 335.4	2483.5 - 2500	9300 - 9500	

Reference numbers of test equipment used

HL 0410	HL 0446	HL 0465	HL 0592	HL 0593	HL 0594	HL 0604	HL 0768
HL 0769	HL 1200	HL 1425	HL 1430	HL 1553	HL 1566	HL 1650	HL 1984
HL 2259	HL 2260	HL 2261	HL 2387	HL 2780	HL 2825	HL 2871	HL 2911

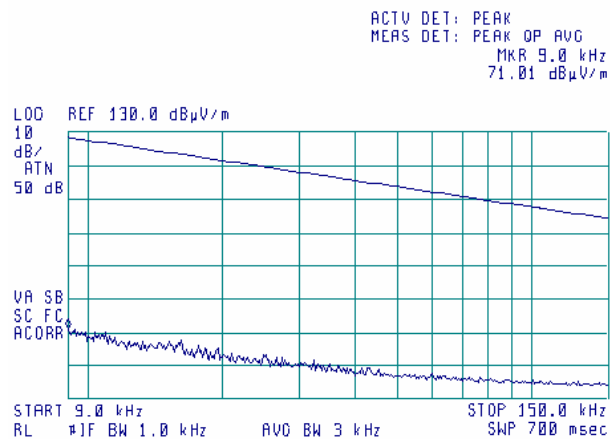
Full description is given in Appendix A.

Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.1 Radiated emission measurements from 9 to 150 kHz at the low carrier frequencies

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

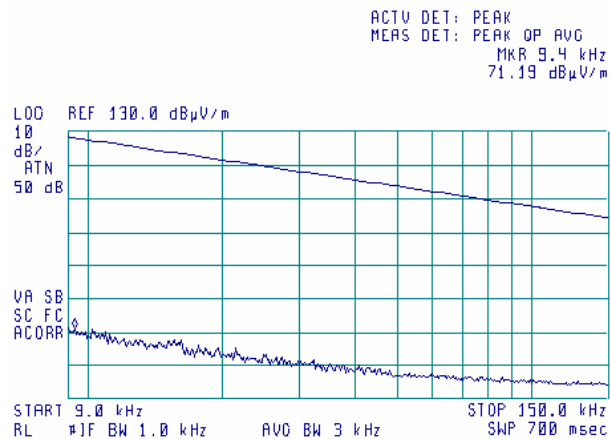
19:50:04 OCT 08, 2006



Plot 7.4.2 Radiated emission measurements from 9 to 150 kHz at the mid carrier frequencies

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

19:52:29 OCT 08, 2006

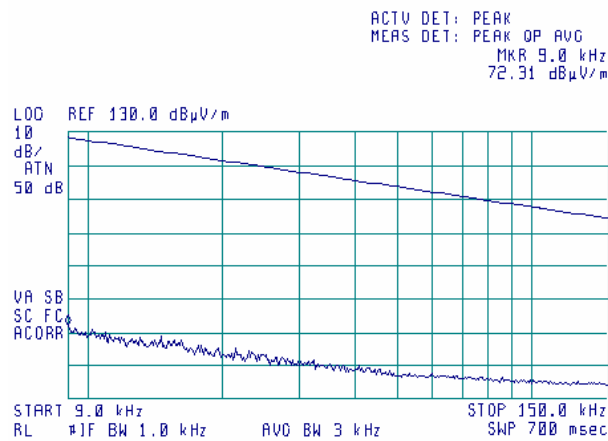


Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/18/2007 4:55:20 PM		
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.3 Radiated emission measurements from 9 to 150 kHz at the high carrier frequencies

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

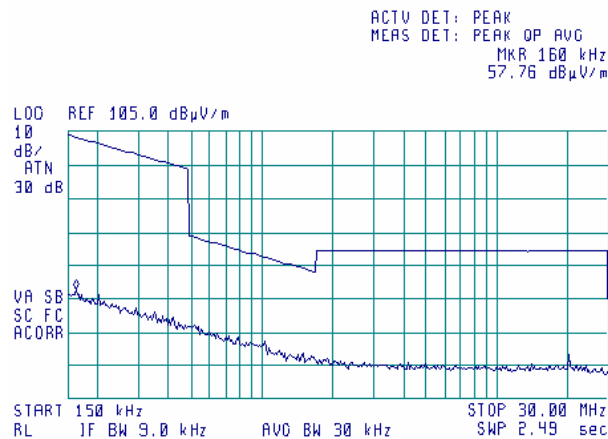
19:55:34 OCT 08, 2006



Plot 7.4.4 Radiated emission measurements from 0.15 to 30 MHz at low carrier frequencies

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

20:05:38 OCT 08, 2006

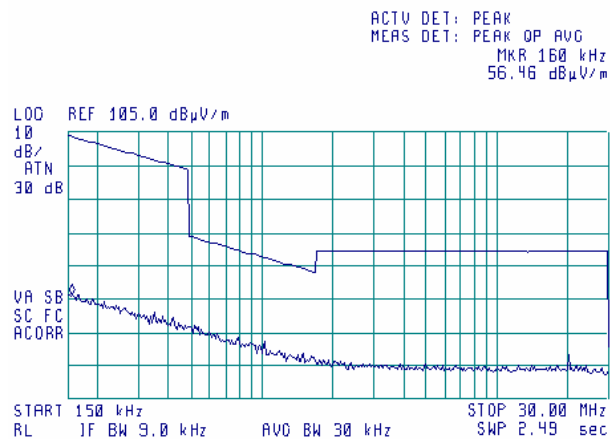


Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.5 Radiated emission measurements from 0.15 to 30 MHz at mid carrier frequencies

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

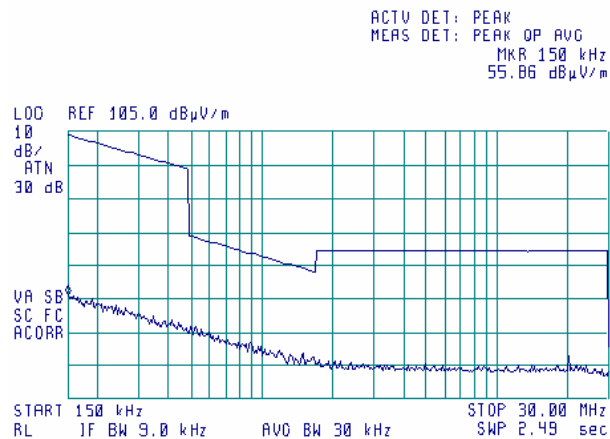
20:02:41 OCT 08, 2006



Plot 7.4.6 Radiated emission measurements from 0.15 to 30 MHz at high carrier frequencies

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

19:59:59 OCT 08, 2006

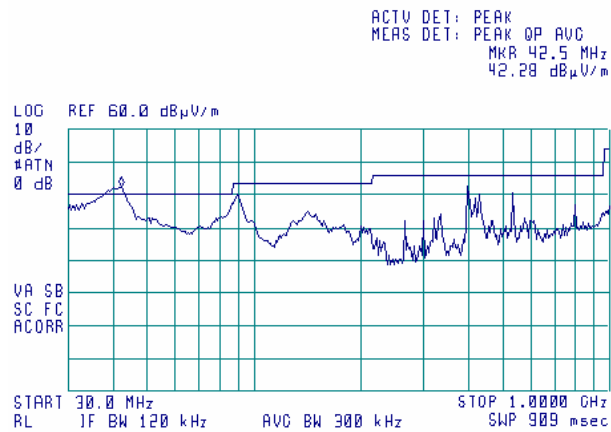


Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.7 Radiated emission measurements from 30 to 1000 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

17:14:23 05 OCT 2006

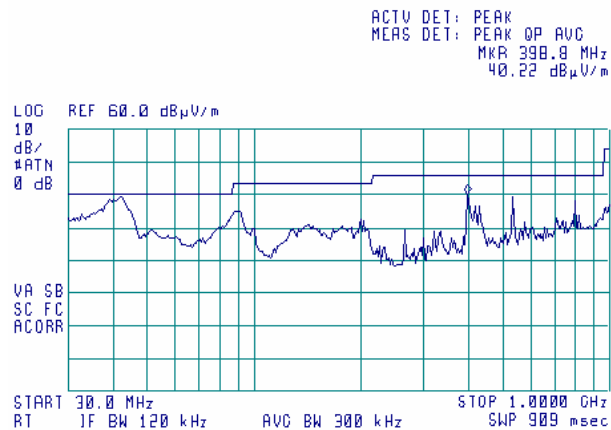


Note: all emissions are from digital part

Plot 7.4.8 Radiated emission measurements from 30 to 1000 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Horizontal

17:04:40 05 OCT 2006



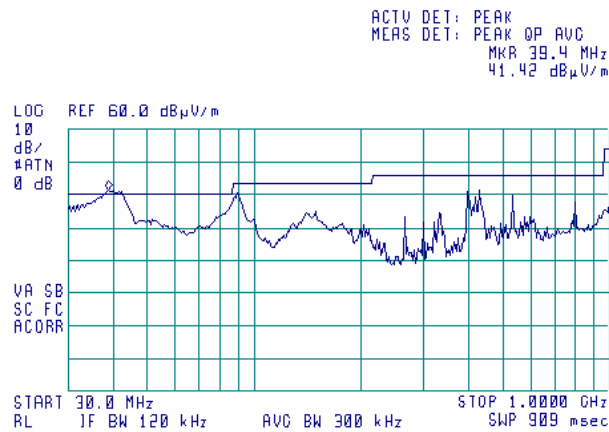
Note: all emissions are from digital part

Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.9 Radiated emission measurements from 30 to 1000 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

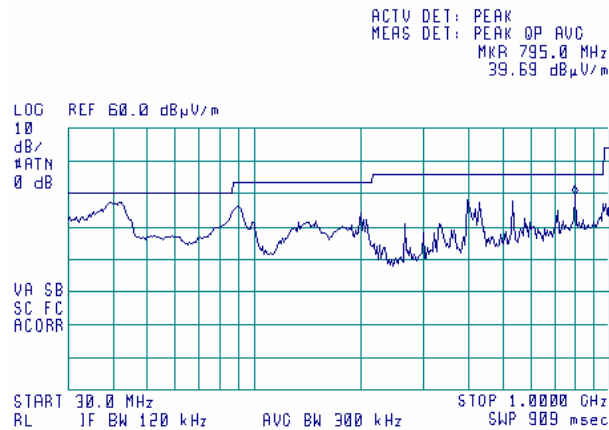
17:17:48 05 OCT 2006



Plot 7.4.10 Radiated emission measurements from 30 to 1000 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Horizontal

17:01:28 05 OCT 2006

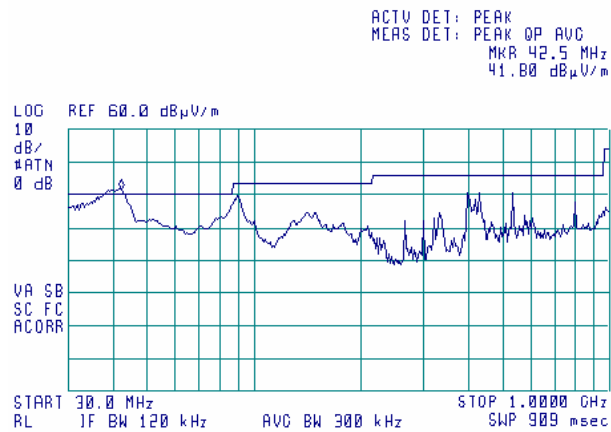


Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.11 Radiated emission measurements from 30 to 1000 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

17:20:27 05 OCT 2006

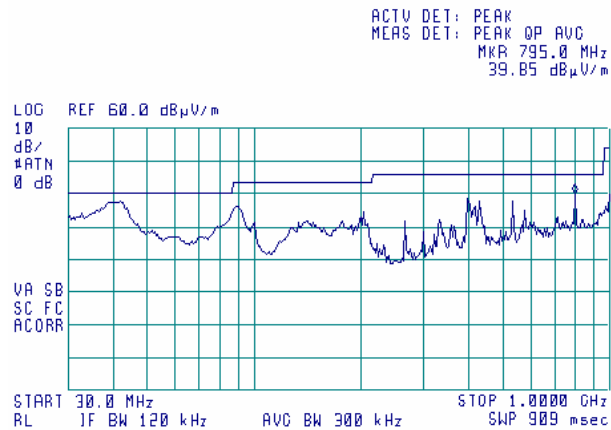


Note: all emissions are from digital part

Plot 7.4.12 Radiated emission measurements from 30 to 1000 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Horizontal

16:58:19 05 OCT 2006

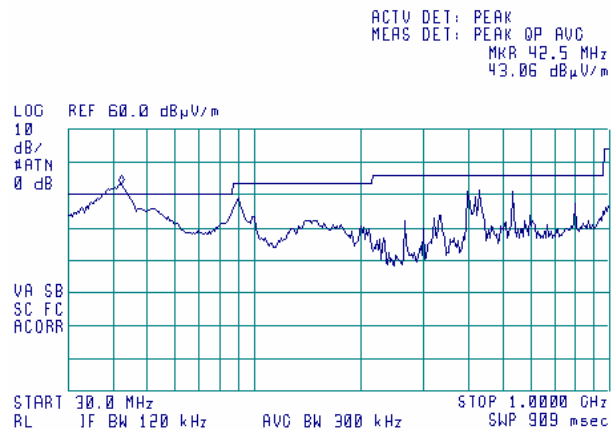


Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.13 Radiated emission measurements from 30 to 1000 MHz at the all carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

17:11:37 05 OCT 2006

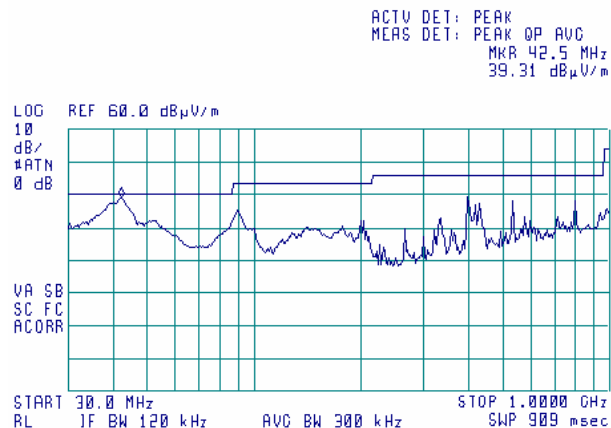


Note: all emissions are from digital part

Plot 7.4.14 Radiated emission measurements from 30 to 1000 MHz at the all carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Horizontal

17:07:53 05 OCT 2006



Note: all emissions are from digital part

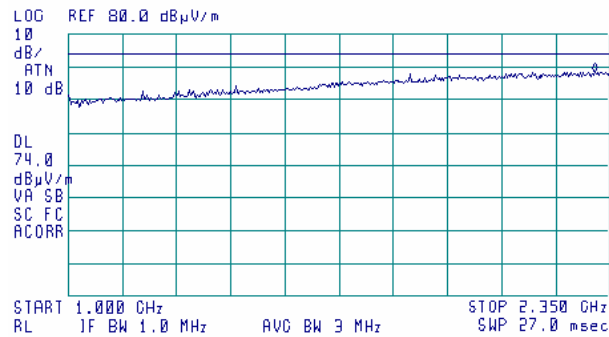
Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.15 Radiated emission measurements from 1000 to 2350 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak

18:00:49 05 OCT 2006

ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKR 2.313 CHz
68.46 dB μ V/m

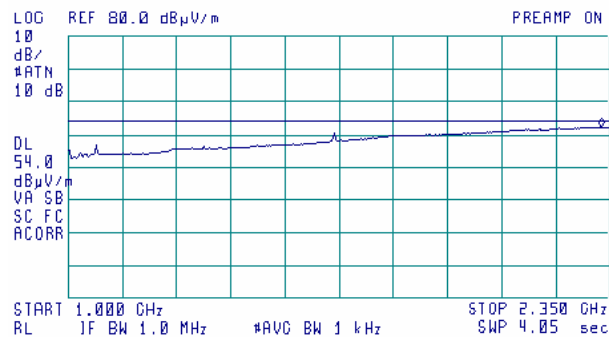


Plot 7.4.16 Radiated emission measurements from 1000 to 2350 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average

18:07:35 05 OCT 2006

ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKR 2.330 CHz
52.16 dB μ V/m

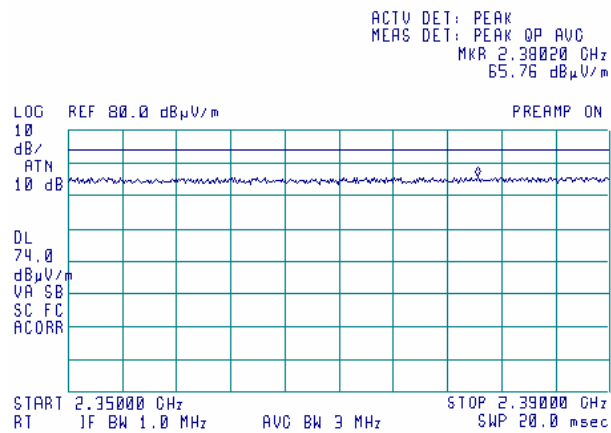


Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.17 Radiated emission measurements from 2350 to 2390 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak

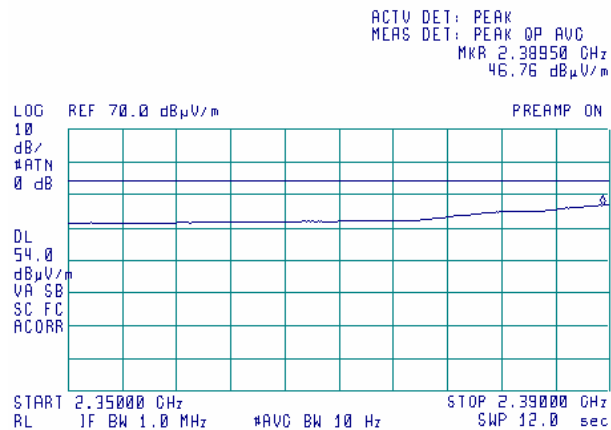
18:18:36 05 OCT 2006



Plot 7.4.18 Radiated emission measurements from 2350 to 2390 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average

18:14:44 05 OCT 2006



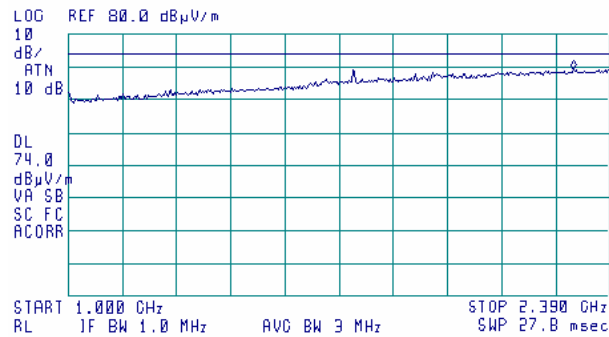
Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.19 Radiated emission measurements from 1000 to 2390 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak

18:24:22 05 OCT 2006

ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKR 2.296 CHz
69.21 dB μ V/m

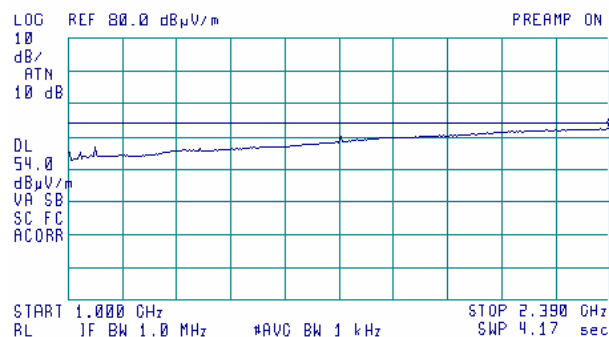


Plot 7.4.20 Radiated emission measurements from 1000 to 2390 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average

19:21:13 05 OCT 2006

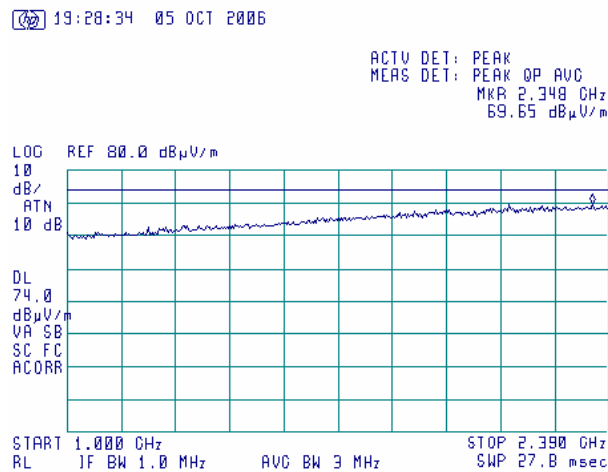
ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKR 2.390 CHz
53.00 dB μ V/m



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

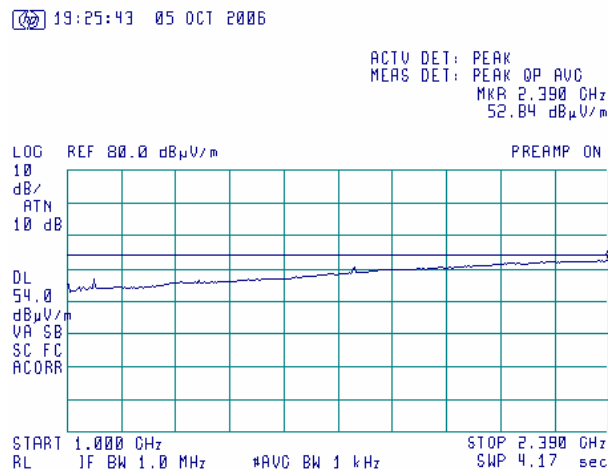
Plot 7.4.21 Radiated emission measurements from 1000 to 2390 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Plot 7.4.22 Radiated emission measurements from 1000 to 2390 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average

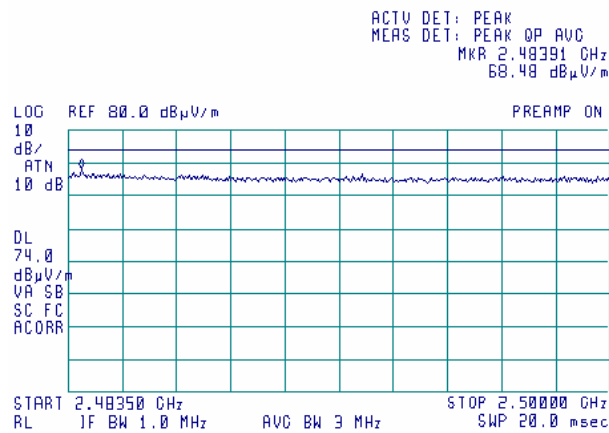


Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.23 Radiated emission measurements from 2483.5 to 2500 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak

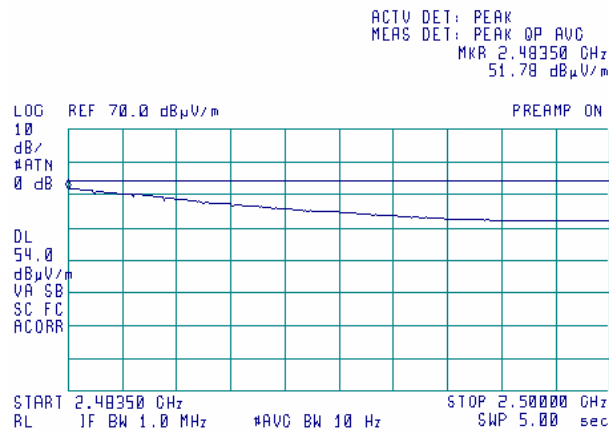
19:44:14 05 OCT 2006



Plot 7.4.24 Radiated emission measurements from 2483.5 to 2500 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average

19:45:51 05 OCT 2006

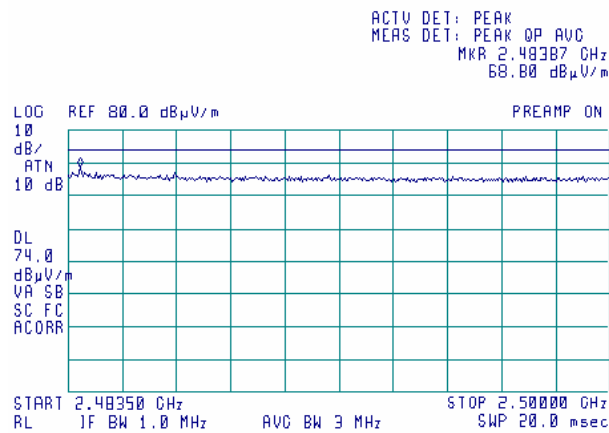


Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.25 Radiated emission measurements from 2483.5 to 2500 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak

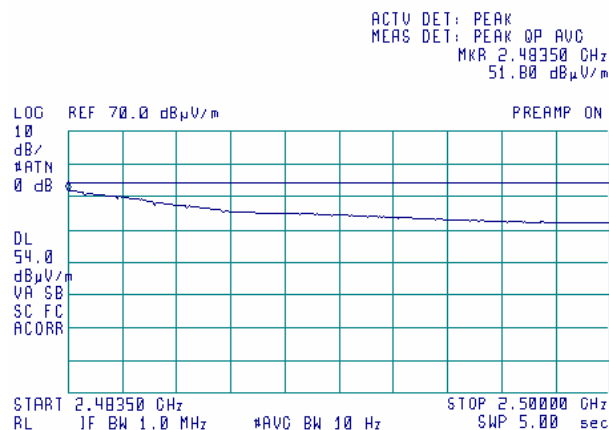
19:42:17 05 OCT 2006



Plot 7.4.26 Radiated emission measurements from 2483.5 to 2500 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average

19:38:20 05 OCT 2006

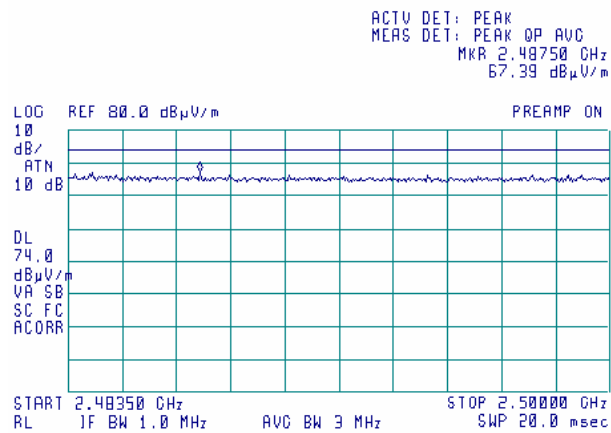


Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.27 Radiated emission measurements from 2483.5 to 2500 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak

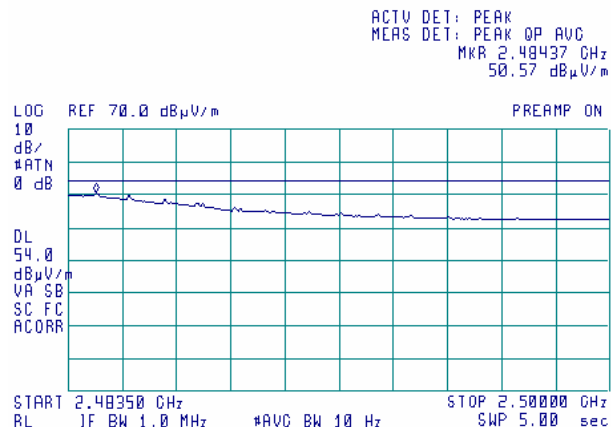
19:32:00 05 OCT 2006



Plot 7.4.28 Radiated emission measurements from 2483.5 to 2500 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average

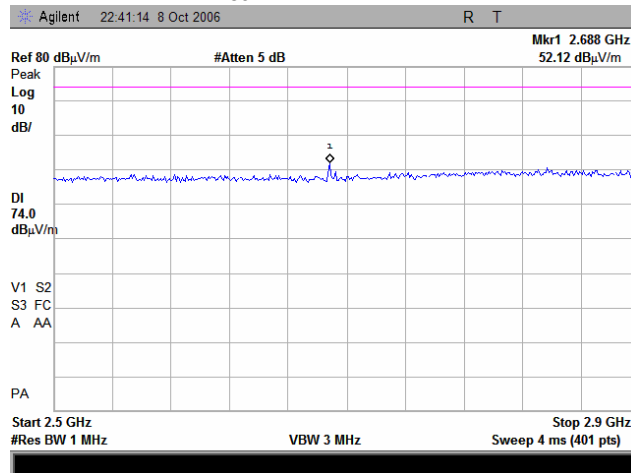
19:54:56 05 OCT 2006



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

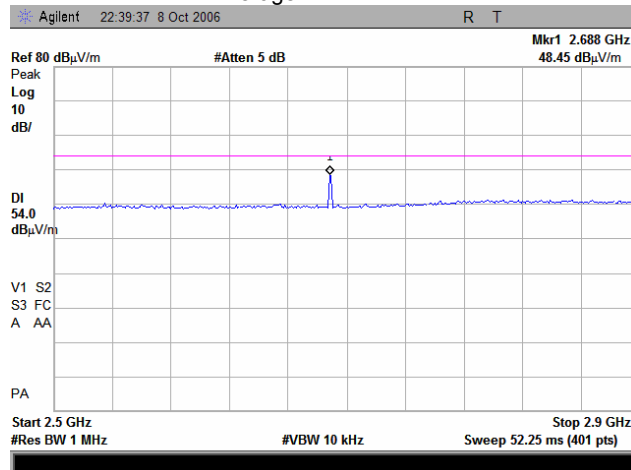
Plot 7.4.29 Radiated emission measurements from 2500 to 2900 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.4.30 Radiated emission measurements from 2500 to 2900 MHz at the low carrier frequency

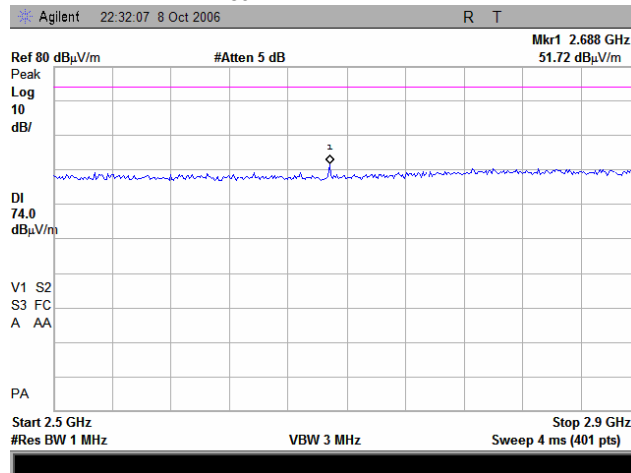
TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

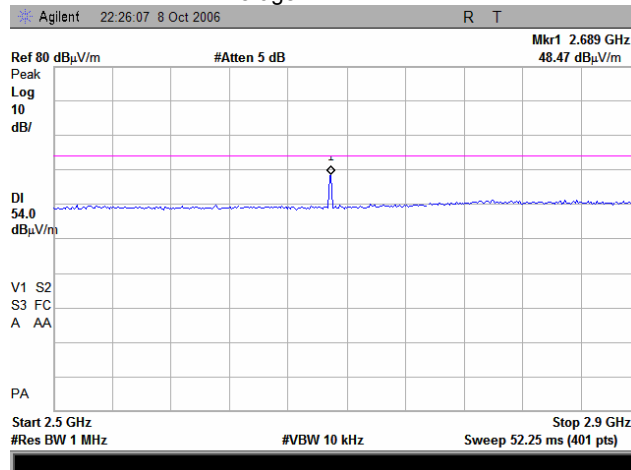
Plot 7.4.31 Radiated emission measurements from 2500 to 2900 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Plot 7.4.32 Radiated emission measurements from 2500 to 2900 MHz at the mid carrier frequency

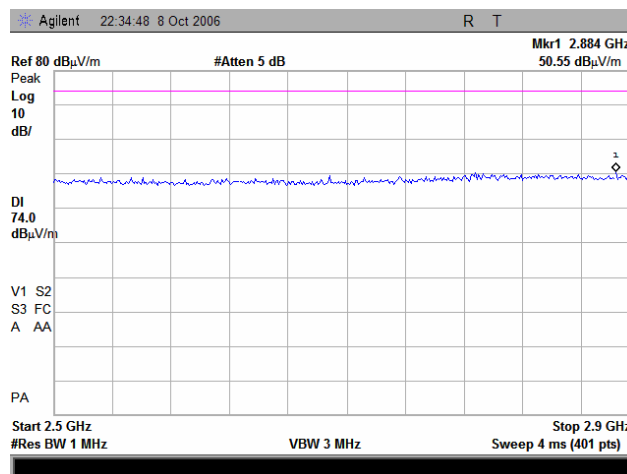
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

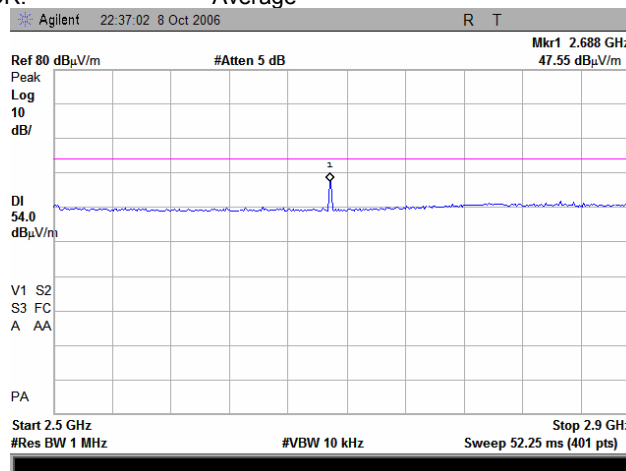
Plot 7.4.33 Radiated emission measurements from 2500 to 2900 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Plot 7.4.34 Radiated emission measurements from 2500 to 2900 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average

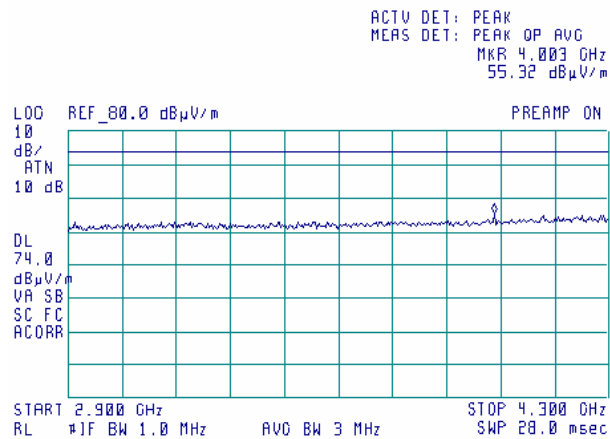


Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.35 Radiated emission measurements from 2900 to 4300 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak

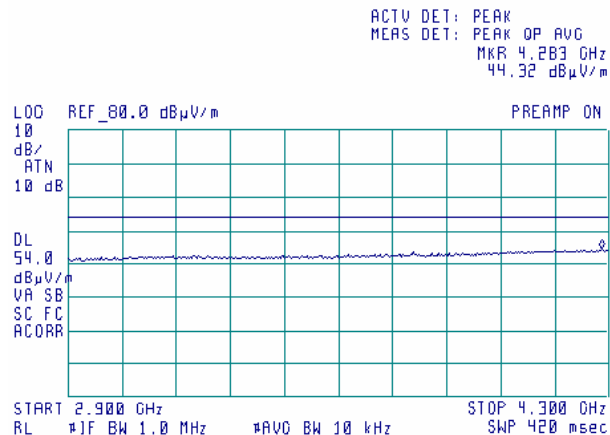
23:04:03 OCT 08, 2006



Plot 7.4.36 Radiated emission measurements from 2900 to 4300 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average

23:05:50 OCT 08, 2006

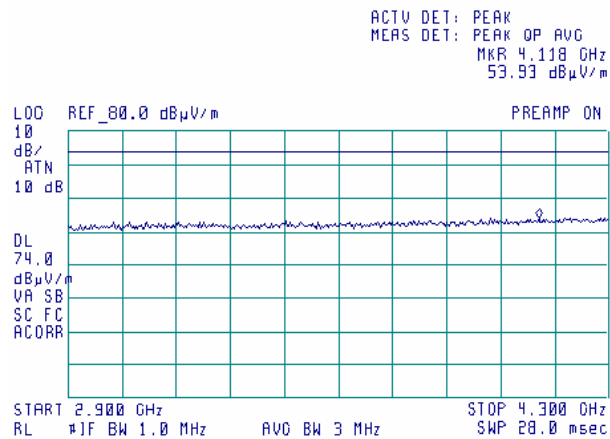


Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.37 Radiated emission measurements from 2900 to 4300 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak

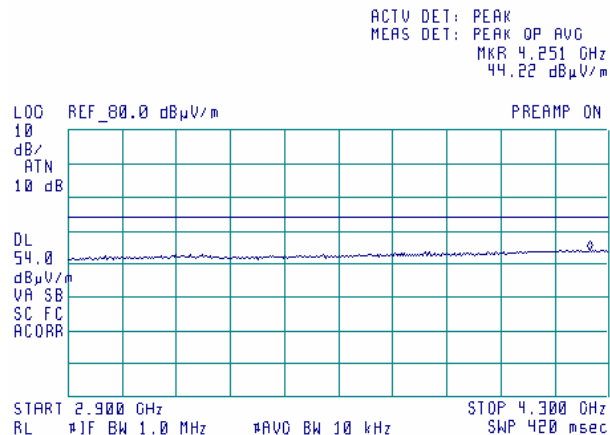
23:23:19 OCT 08, 2006



Plot 7.4.38 Radiated emission measurements from 2900 to 4300 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average

23:21:15 OCT 08, 2006

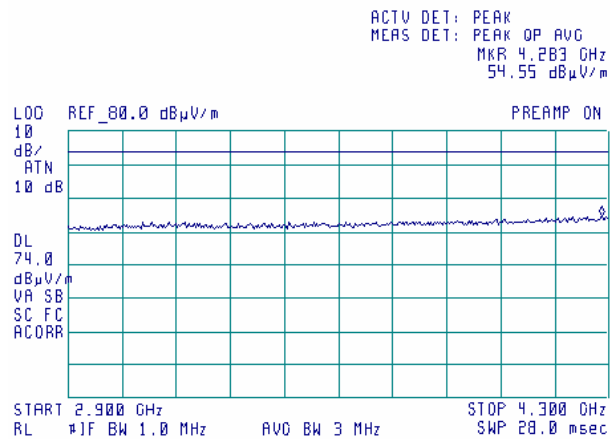


Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.39 Radiated emission measurements from 2900 to 4300 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak

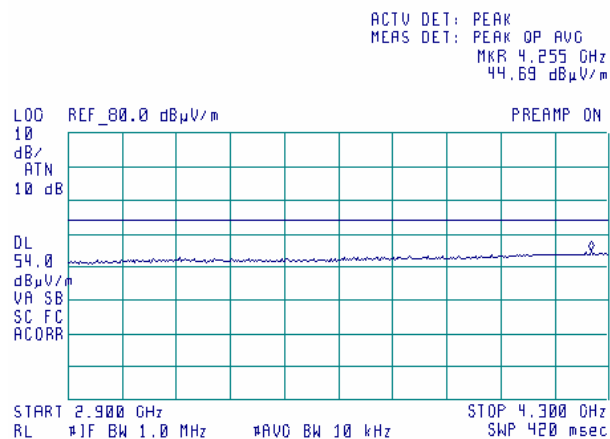
23:26:45 OCT 08, 2006



Plot 7.4.40 Radiated emission measurements from 2900 to 4300 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average

23:28:14 OCT 08, 2006

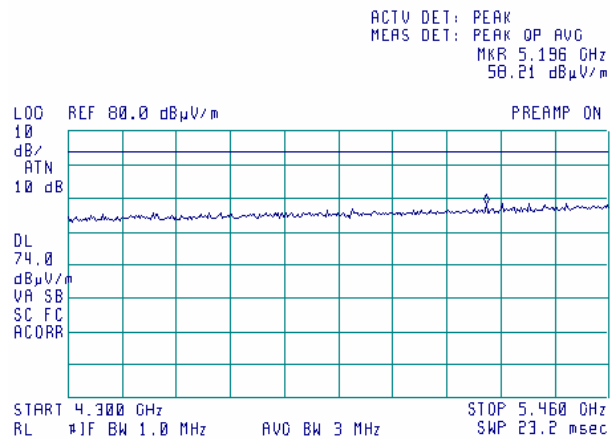


Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.41 Radiated emission measurements from 4300 to 5460 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak

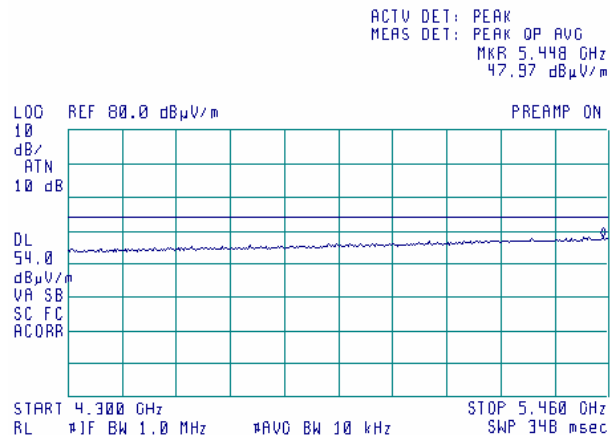
23:50:51 OCT 08, 2006



Plot 7.4.42 Radiated emission measurements from 4300 to 5460 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average

23:52:42 OCT 08, 2006

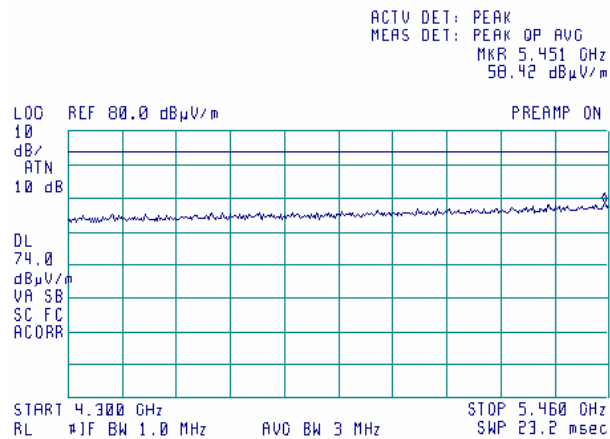


Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.43 Radiated emission measurements from 4300 to 5460 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak

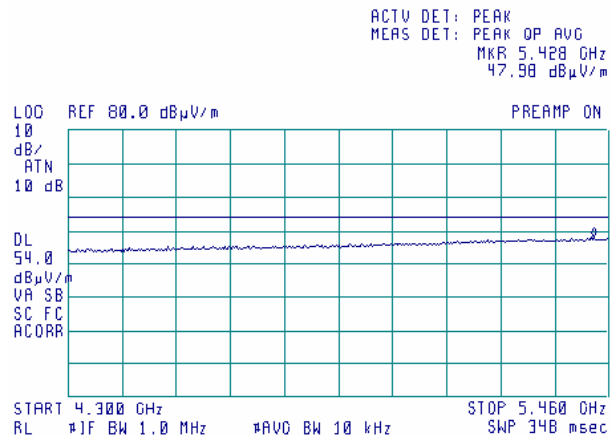
23:56:01 OCT 08, 2006



Plot 7.4.44 Radiated emission measurements from 4300 to 5460 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average

23:54:40 OCT 08, 2006

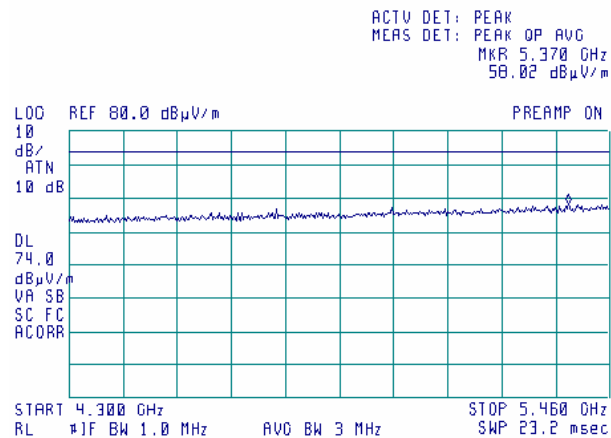


Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.45 Radiated emission measurements from 4300 to 5460 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak

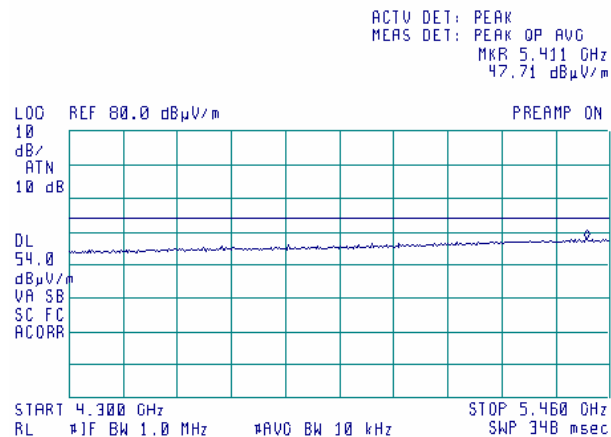
23:57:46 OCT 08, 2006



Plot 7.4.46 Radiated emission measurements from 4300 to 5460 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average

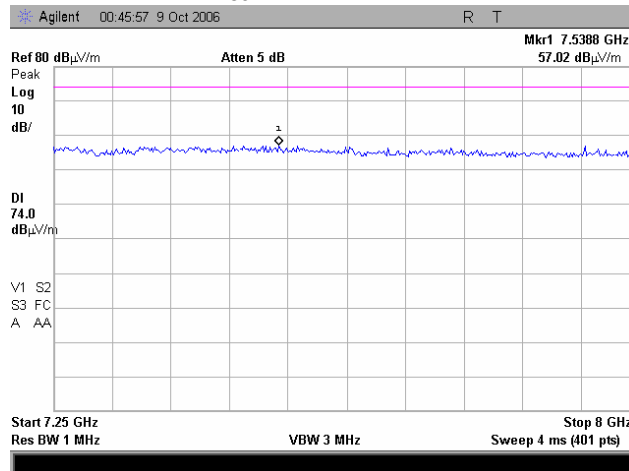
23:59:19 OCT 08, 2006



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

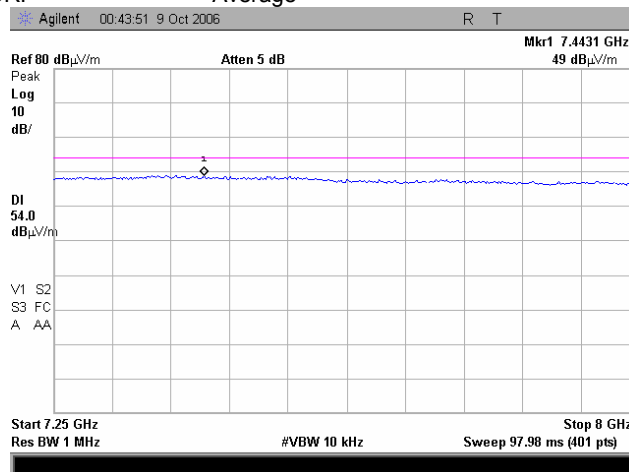
Plot 7.4.47 Radiated emission measurements from 7250 to 8000 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.4.48 Radiated emission measurements from 7250 to 8000 MHz at the low carrier frequency

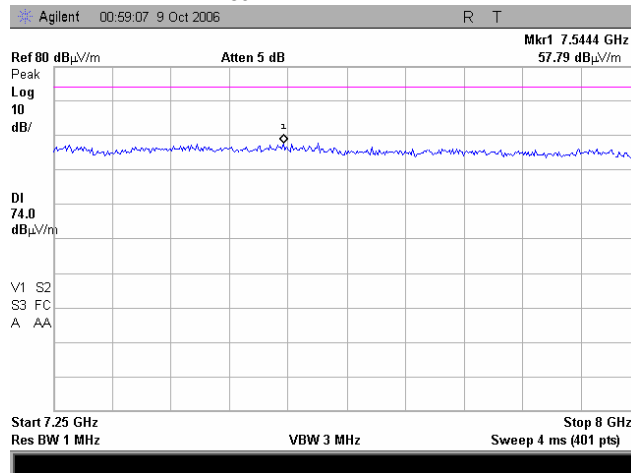
TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

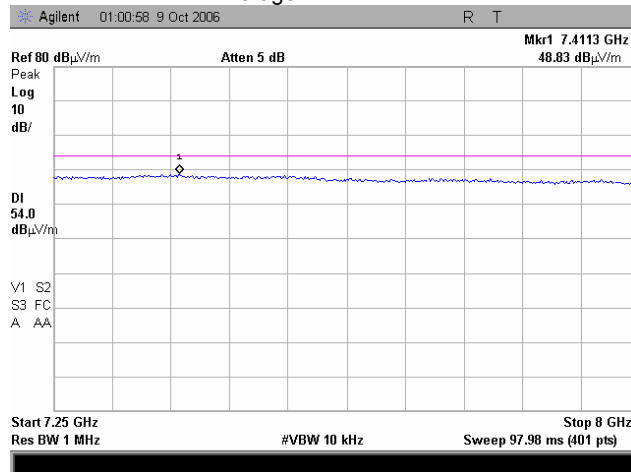
Plot 7.4.49 Radiated emission measurements from 7250 to 8000 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.4.50 Radiated emission measurements from 7250 to 8000 MHz at the mid carrier frequency

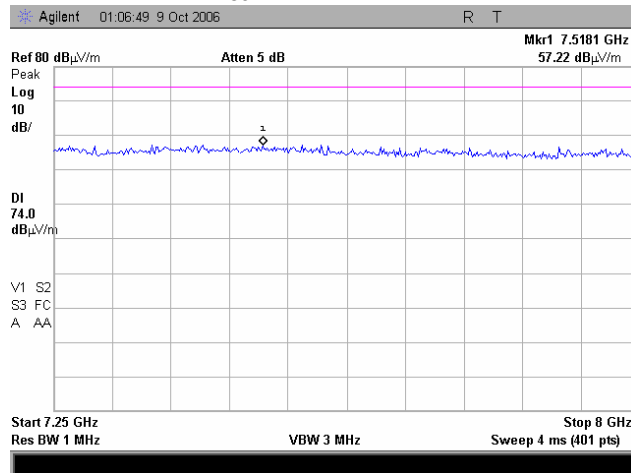
TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

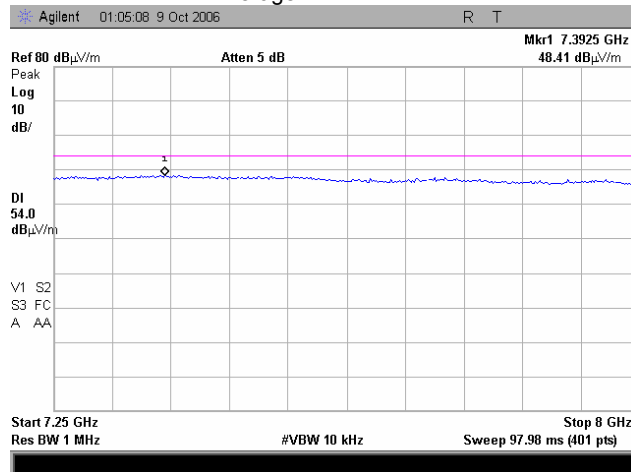
Plot 7.4.51 Radiated emission measurements from 7250 to 8000 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.4.52 Radiated emission measurements from 7250 to 8000 MHz at the high carrier frequency

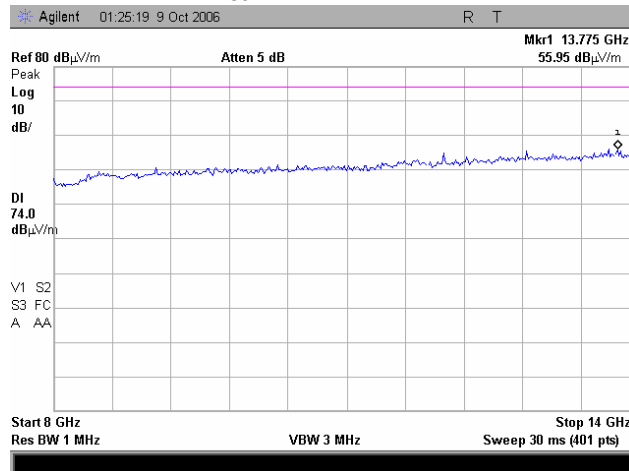
TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/18/2007 4:55:20 PM		
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

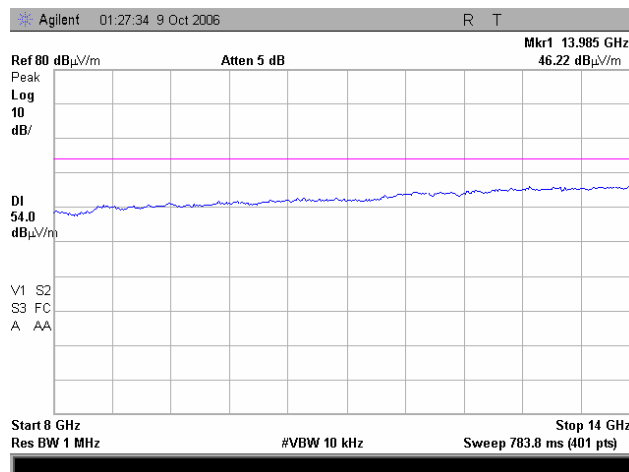
Plot 7.4.53 Radiated emission measurements from 8000 to 14000 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Plot 7.4.54 Radiated emission measurements from 8000 to 14000 MHz at the low carrier frequency

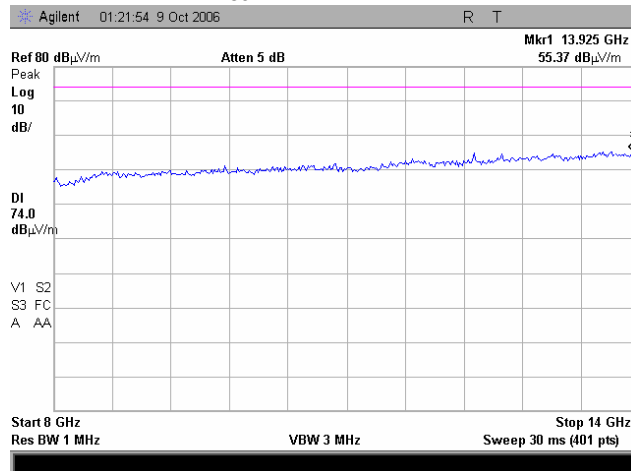
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

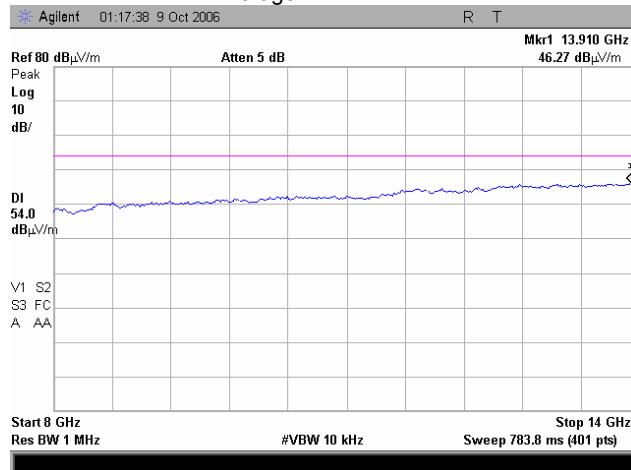
Plot 7.4.55 Radiated emission measurements from 8000 to 14000 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.4.56 Radiated emission measurements from 8000 to 14000 MHz at the mid carrier frequency

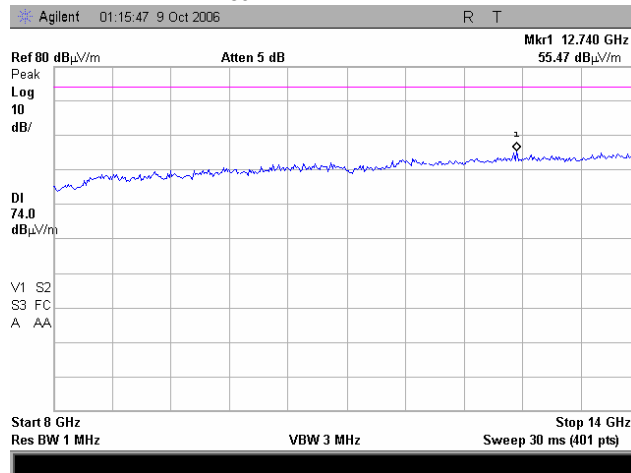
TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/18/2007 4:55:20 PM		
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

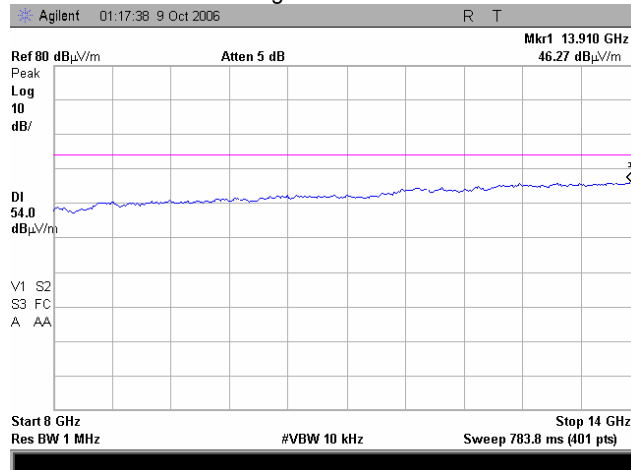
Plot 7.4.57 Radiated emission measurements from 8000 to 14000 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.4.58 Radiated emission measurements from 8000 to 14000 MHz at the high carrier frequency

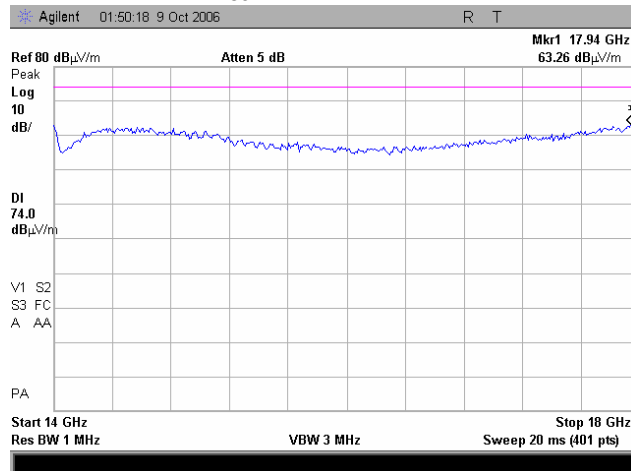
TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

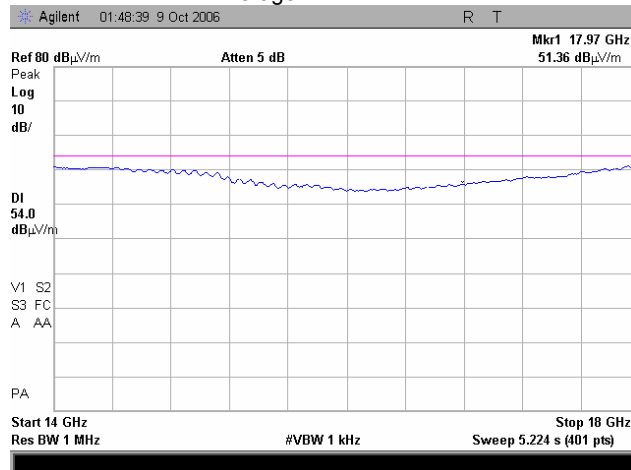
Plot 7.4.59 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Plot 7.4.60 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency

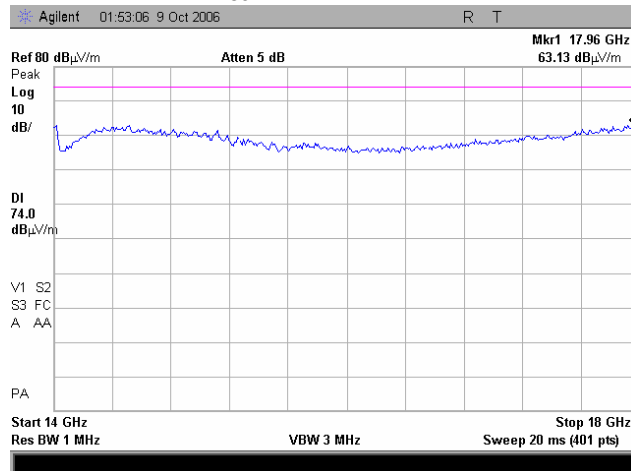
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

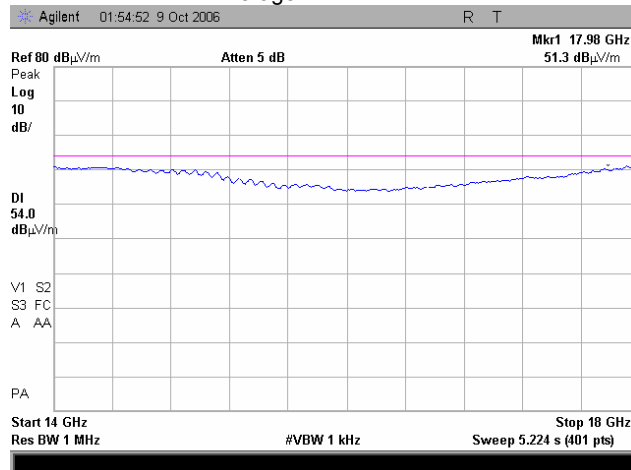
Plot 7.4.61 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.4.62 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency

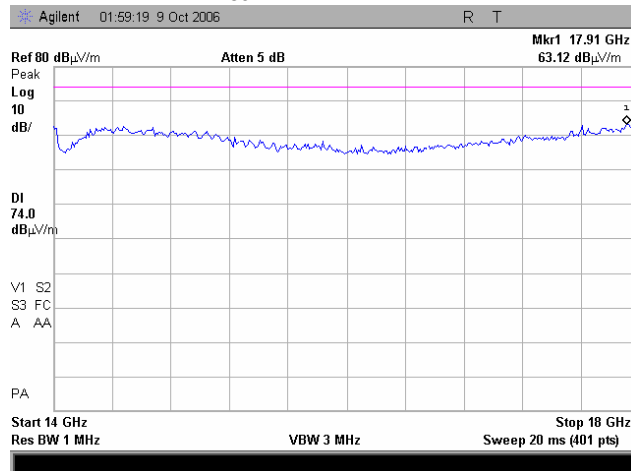
TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

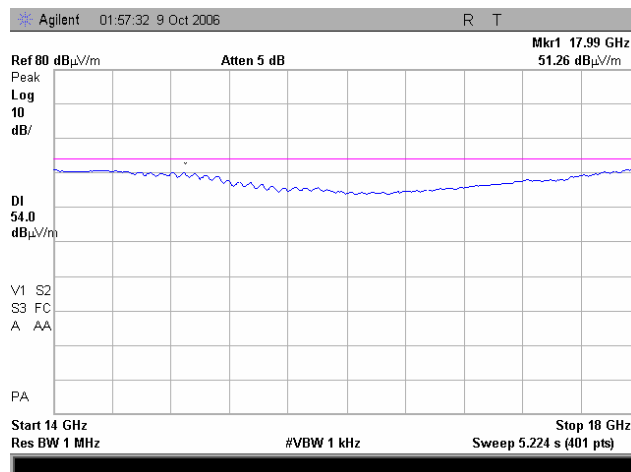
Plot 7.4.63 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Plot 7.4.64 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency

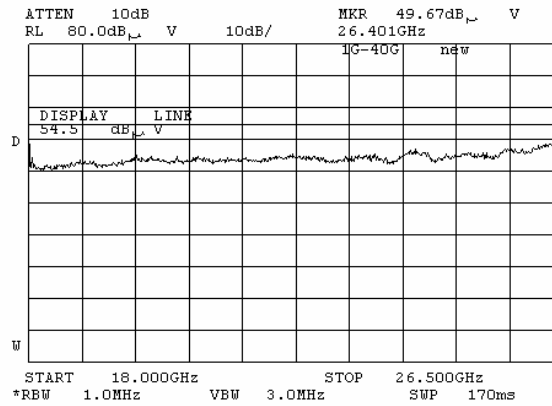
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/18/2007 4:55:20 PM		
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

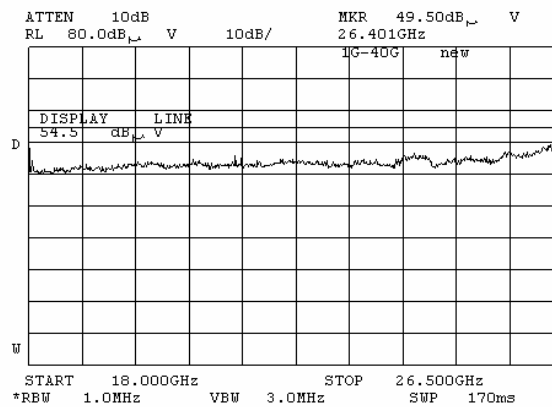
Plot 7.4.65 Radiated emission measurements from 18000 to 26500 MHz at the low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 7.4.66 Radiated emission measurements from 18000 to 26500 MHz at the mid carrier frequency

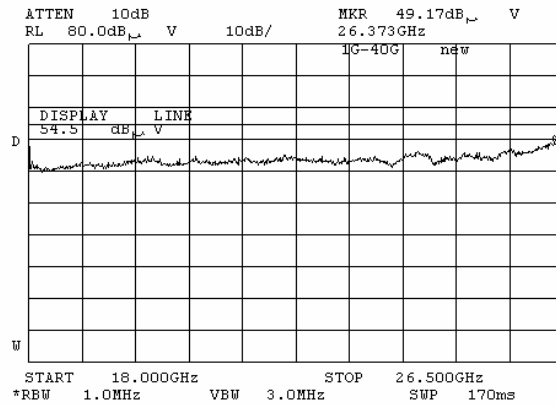
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/18/2007 4:55:20 PM		
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.4.67 Radiated emission measurements from 18000 to 26500 MHz at the high carrier frequency

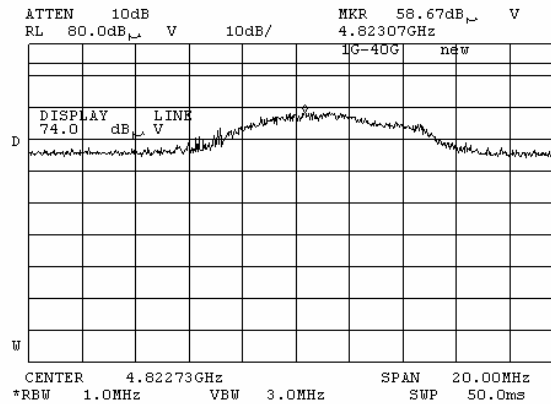
TEST SITE: OATS
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/18/2007 4:55:20 PM		
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

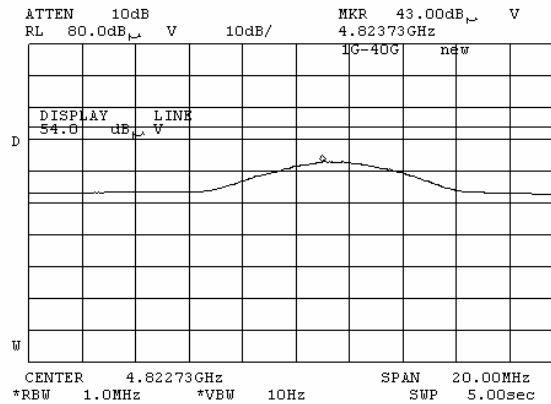
Plot 7.4.68 Radiated emission measurements at the second harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Peak



Plot 7.4.69 Radiated emission measurements at the second harmonic of low carrier frequency

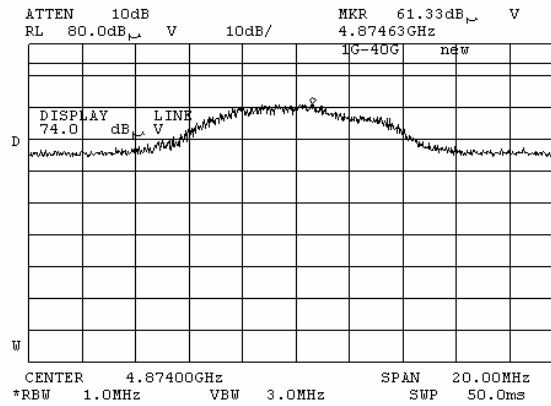
TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/18/2007 4:55:20 PM		
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

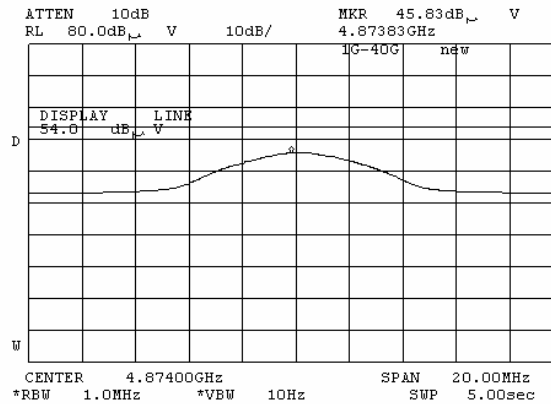
Plot 7.4.70 Radiated emission measurements at the second harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Peak



Plot 7.4.71 Radiated emission measurements at the second harmonic of mid carrier frequency

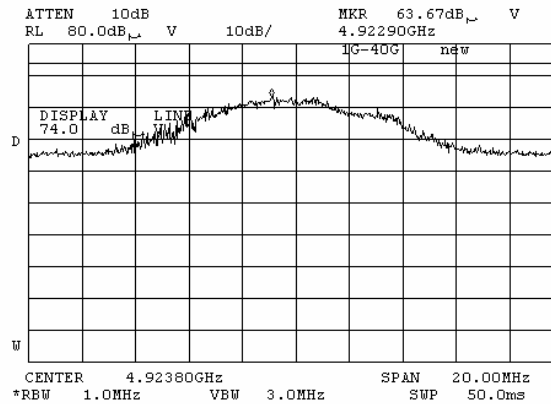
TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/18/2007 4:55:20 PM		
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

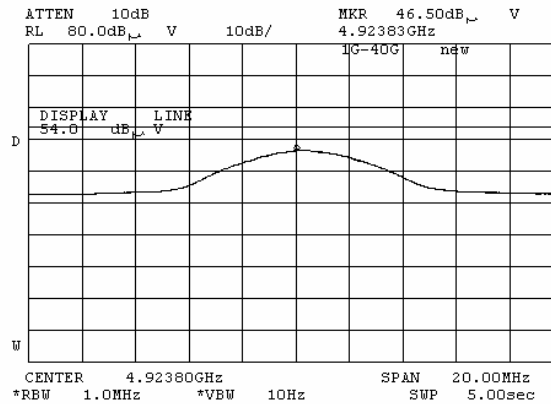
Plot 7.4.72 Radiated emission measurements at the second harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Peak



Plot 7.4.73 Radiated emission measurements at the second harmonic of high carrier frequency

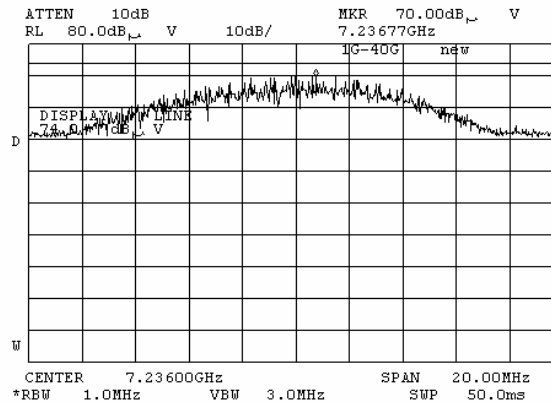
TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/18/2007 4:55:20 PM		
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

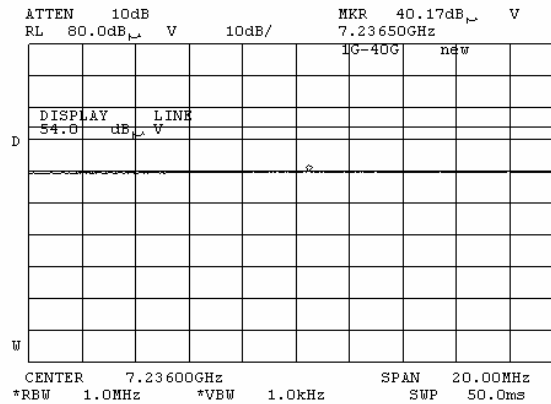
Plot 7.4.74 Radiated emission measurements at the third harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Peak



Plot 7.4.75 Radiated emission measurements at the third harmonic of low carrier frequency

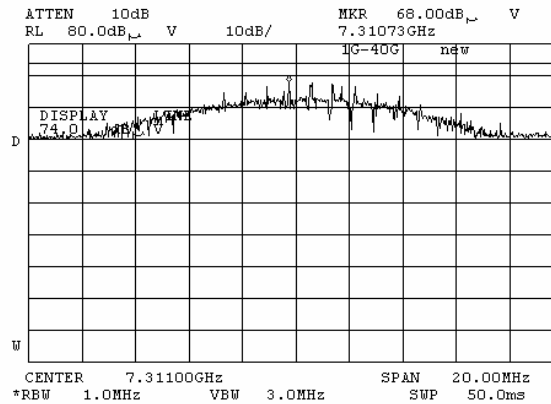
TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict: PASS	
Date & Time:	1/18/2007 4:55:20 PM		
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

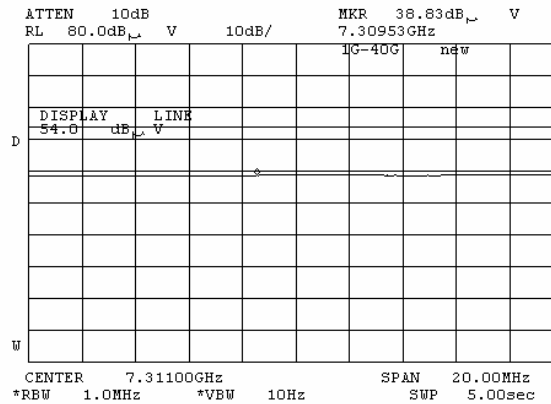
Plot 7.4.76 Radiated emission measurements at the third harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Peak



Plot 7.4.77 Radiated emission measurements at the third harmonic of mid carrier frequency

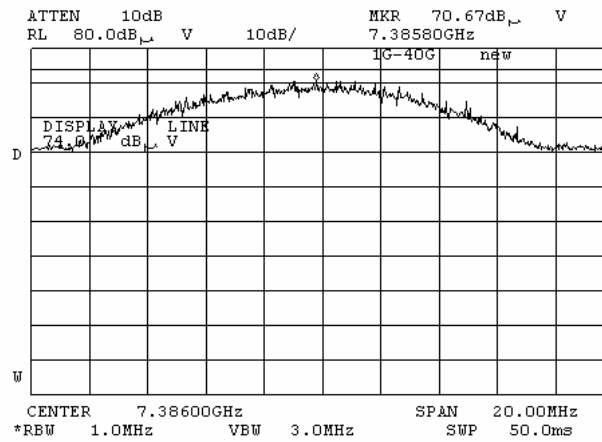
TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Average



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/18/2007 4:55:20 PM			
Temperature: 20°C	Air Pressure: 1008 hPa	Relative Humidity: 46%	Power Supply: 120 V AC
Remarks: EUT with 15.2 dBi integral antenna			

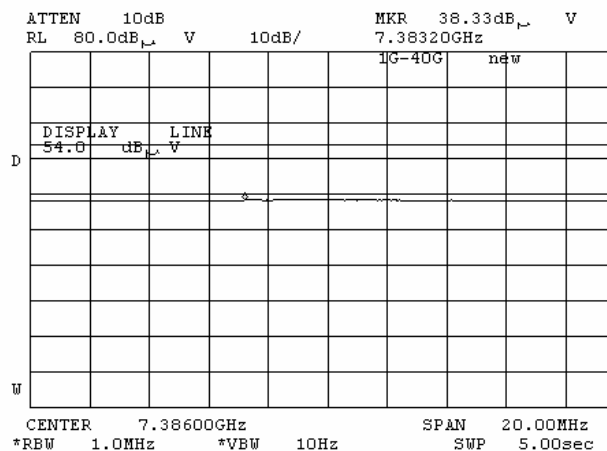
Plot 7.4.78 Radiated emission measurements at the third harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Peak



Plot 7.4.79 Radiated emission measurements at the third harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Average



Test specification: Section 15.247(c), Radiated spurious emissions	
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4	
Test mode: Compliance	Verdict: PASS
Date & Time: 10/22/2006 7:32:40 PM	
Temperature: 24°C	Air Pressure: 1012 hPa
Relative Humidity: 42 %	
Power Supply: 120 VAC	
Remarks: EUT with 24 dBi external antenna	

7.5 Field strength of spurious emissions with 24 dBi antenna

7.5.1 General

This test was performed to measure field strength of spurious emissions from the EUT. Specification test limits are given in Table 7.5.1.

Table 7.5.1 Radiated spurious emissions limits

Frequency, MHz	Field strength at 3 m within restricted bands, dB(μV/m)*			Attenuation of field strength of spurious versus carrier outside restricted bands, dBc***
	Peak	Quasi Peak	Average	
0.009 – 0.090	148.5 – 128.5	NA	128.5 – 108.5**	20.0
0.090 – 0.110	NA	108.5 – 106.8**	NA	
0.110 – 0.490	126.8 – 113.8	NA	106.8 – 93.8**	
0.490 – 1.705	NA	73.8 – 63.0**	NA	
1.705 – 30.0*		69.5		
30 – 88		40.0		
88 – 216		43.5		
216 – 960		46.0		
960 – 1000		54.0		
1000 – 10 th harmonic	74.0	NA	54.0	

*- The limit for 3 m test distance was calculated using the inverse square distance extrapolation factor as follows:

$$\text{Lim}_{S_2} = \text{Lim}_{S_1} + 40 \log(S_1/S_2),$$

where S_1 and S_2 – standard defined and test distance respectively in meters.

** - The limit decreases linearly with the logarithm of frequency.

*** - The field strength limits applied from the lowest radio frequency generated in the device, without going below 9 kHz up to the tenth harmonic of the highest fundamental frequency.

7.5.2 Test procedure for spurious emission field strength measurements in 9 kHz to 30 MHz band

7.5.2.1 The EUT was set up as shown in Table 7.5.1, energized and the performance check was conducted.

7.5.2.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360° and the measuring antenna was rotated around its vertical axis.

7.5.2.3 The worst test results (the lowest margins) were recorded and shown in the associated plots.

7.5.3 Test procedure for spurious emission field strength measurements above 30 MHz

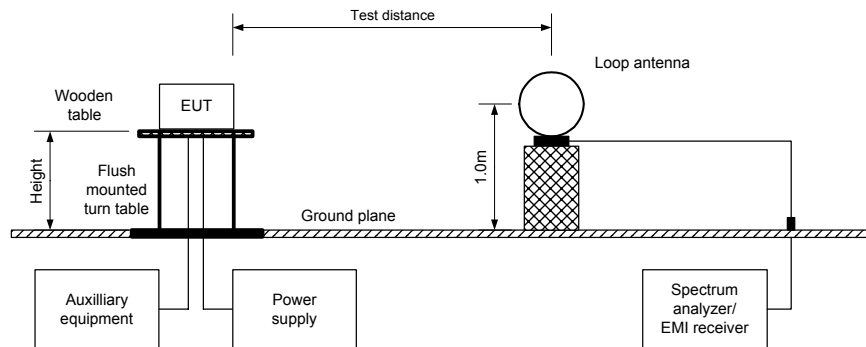
7.5.3.1 The EUT was set up as shown in Table 7.5.2, energized and the performance check was conducted.

7.5.3.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360°, the measuring antenna height was changed from 1 to 4 m, its polarization was switched from vertical to horizontal.

7.5.3.3 The worst test results (the lowest margins) were recorded and shown in the associated plots.

Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/22/2006 7:32:40 PM			
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Figure 7.5.1 Setup for spurious emission field strength measurements below 30 MHz

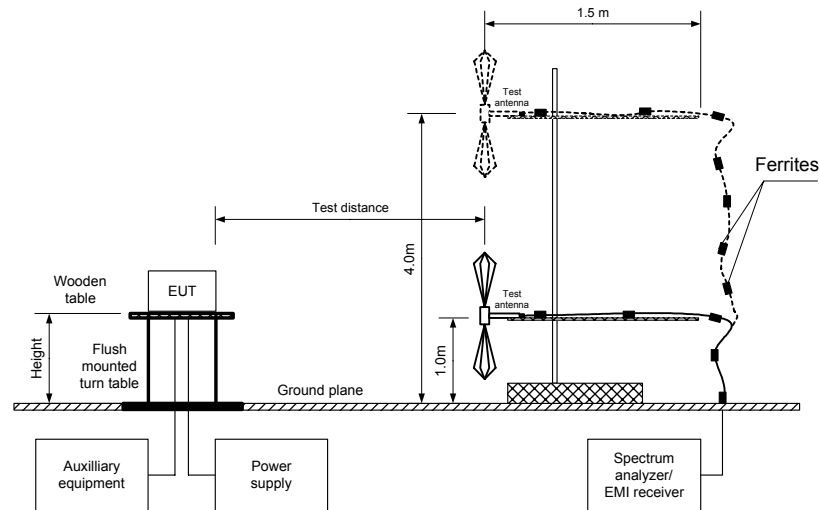


Photograph 7.5.1 Setup for spurious emission field strength measurements below 30 MHz



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance		Verdict: PASS	
Date & Time: 10/22/2006 7:32:40 PM			
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Figure 7.5.2 Setup for spurious emission field strength measurements above 30 MHz



Photograph 7.5.2 Setup for spurious emission field strength measurements from 30 to 1000 MHz



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Photograph 7.5.3 Setup for spurious emission field strength measurements above 1000 MHz



Test specification:		Section 15.247(c), Radiated spurious emissions	
Test procedure:		FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4	
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Table 7.5.2 Field strength of spurious emissions above 1 GHz within restricted bands

ASSIGNED FREQUENCY: 2400 – 2483.5 MHz
 INVESTIGATED FREQUENCY RANGE: 0.009 - 26500 MHz
 TEST DISTANCE: 3 m
 MODULATION: QAM
 MODULATING SIGNAL: PRBS
 BIT RATE: 1.5 Mbps
 DUTY CYCLE: 100 %
 TRANSMITTER OUTPUT POWER SETTINGS: Maximum
 EUT ANTENNA GAIN: 24 dBi
 DETECTOR USED: Peak
 RESOLUTION BANDWIDTH: 1000 kHz
 TEST ANTENNA TYPE: Double ridged guide (1 GHz – 18 GHz)
 Standard gain horn (above 18 GHz)

Frequency, MHz	Antenna		Azimuth, degrees*	Peak field strength(VBW=3 MHz)			Average field strength(VBW=10 Hz)				Verdict
	Polarization	Height, m		Measured, dB(μV/m)	Limit, dB(μV/m)	Margin, dB**	Measured, dB(μV/m)	Calculated, dB(μV/m)	Limit, dB(μV/m)	Margin, dB***	
Low carrier frequency											
4824.33	H	1.4	0	62.50	74.0	-11.50	48.33	48.33	54.0	-5.67	Pass
7236.27	H	1.4	0	60.17	74.0	-13.83	45.83	45.83	54.0	-8.17	Pass
Mid carrier frequency											
4874.00	H	1.4	0	59.67	74.0	-14.33	47.00	47.00	54.0	-7.00	Pass
7311.43	H	1.4	0	55.33	74.0	-18.67	42.67	42.67	54.0	-11.33	Pass
High carrier frequency											
4923.93	H	1.4	0	60.00	74.0	-14.00	45.83	45.83	54.0	-8.17	Pass
7385.77	H	1.4	0	54.83	74.0	-19.17	41.00	41.00	54.0	-13.00	Pass

*- EUT front panel refers to 0 degrees position of turntable.

** - Margin = Measured field strength - specification limit.

*** - Margin = Calculated field strength - specification limit,

where Calculated field strength = Measured field strength + average factor.

Table 7.5.3 Average factor calculation

Transmission pulse		Transmission burst		Transmission train duration, ms	Average factor, dB
Duration, ms	Period, ms	Duration, ms	Period, ms		
100% duty cycle					NA

*- Average factor was calculated as follows

for pulse train shorter than 100 ms:

$$Average\ factor = 20 \times \log_{10} \left(\frac{Pulse\ duration}{Pulse\ period} \times \frac{Burst\ duration}{Train\ duration} \times Number\ of\ bursts\ within\ pulse\ train \right)$$

for pulse train longer than 100 ms:

$$Average\ factor = 20 \times \log_{10} \left(\frac{Pulse\ duration}{Pulse\ period} \times \frac{Burst\ duration}{100\ ms} \times Number\ of\ bursts\ within\ 100\ ms \right)$$

Test specification:		Section 15.247(c), Radiated spurious emissions	
Test procedure:		FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4	
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Table 7.5.4 Field strength of spurious emissions below 1 GHz within restricted bands

ASSIGNED FREQUENCY:	2400 – 2483.5 MHz
INVESTIGATED FREQUENCY RANGE:	0.009 – 1000 MHz
TEST SITE:	OATS
TEST DISTANCE:	3 m
MODULATION:	QAM
MODULATING SIGNAL:	PRBS
BIT RATE:	1.5 Mbps
DUTY CYCLE:	100 %
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
RESOLUTION BANDWIDTH:	0.2 kHz (9 kHz – 150 kHz) 9.0 kHz (150 kHz – 30 MHz) 120 kHz (30 MHz – 1000 MHz)
VIDEO BANDWIDTH:	> Resolution bandwidth
TEST ANTENNA TYPE:	Active loop (9 kHz – 30 MHz) Biconilog (30 MHz – 1000 MHz)

Frequency, MHz	Peak emission, dB(μV/m)	Quasi-peak			Antenna polarization	Antenna height, m	Turn-table position**, degrees	Verdict
		Measured emission, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*				
38.113350	41.08	35.89	40	-4.11	V	1.0	135	Pass
73.113300	44.81	33.98	40	-6.02	V	1.0	184	

The recorded test results were obtained from EUT digital part.

*- Margin = Measured emission - specification limit.

** - EUT front panel refer to 0 degrees position of turntable.

Table 7.5.5 Restricted bands

MHz	MHz	MHz	MHz	MHz	GHz
0.09 - 0.11	8.37625 - 8.38675	73 - 74.6	399.9 - 410	2690 - 2900	10.6 - 12.7
0.495 - 0.505	8.41425 - 8.41475	74.8 - 75.2	608 - 614	3260 - 3267	13.25 - 13.4
2.1735 - 2.1905	12.29 - 12.293	108 - 121.94	960 - 1240	3332 - 3339	14.47 - 14.5
4.125 - 4.128	12.51975 - 12.52025	123 - 138	1300 - 1427	3345.8 - 3358	15.35 - 16.2
4.17725 - 4.17775	12.57675 - 12.57725	149.9 - 150.05	1435 - 1626.5	3600 - 4400	17.7 - 21.4
4.20725 - 4.20775	13.36 - 13.41	156.52475 - 156.52525	1645.5 - 1646.5	4500 - 5150	22.01 - 23.12
6.215 - 6.218	16.42 - 16.423	156.7 - 156.9	1660 - 1710	5350 - 5460	23.6 - 24
6.26775 - 6.26825	16.69475 - 16.69525	162.0125 - 167.17	1718.8 - 1722.2	7250 - 7750	31.2 - 31.8
6.31175 - 6.31225	16.80425 - 16.80475	167.72 - 173.2	2200 - 2300	8025 - 8500	36.43 - 36.5
8.291 - 8.294	25.5 - 25.67	240 - 285	2310 - 2390	9000 - 9200	Above 38.6
8.362 - 8.366	37.5 - 38.25	322 - 335.4	2483.5 - 2500	9300 - 9500	

Reference numbers of test equipment used

HL 0410	HL 0446	HL 0465	HL 0592	HL 0593	HL 0594	HL 0604	HL 0768
HL 0769	HL 1200	HL 1425	HL 1430	HL 1553	HL 1566	HL 1650	HL 1984
HL 2259	HL 2260	HL 2261	HL 2387	HL 2780	HL 2825	HL 2871	HL 2911

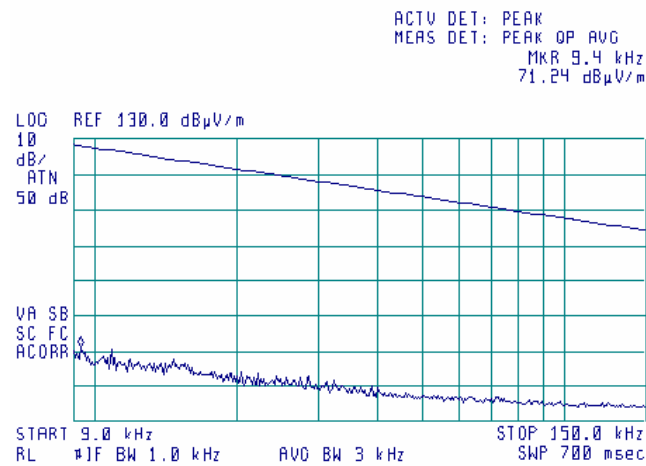
Full description is given in Appendix A.

Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/22/2006 7:32:40 PM			
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.5.1 Radiated emission measurements from 9 to 150 kHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

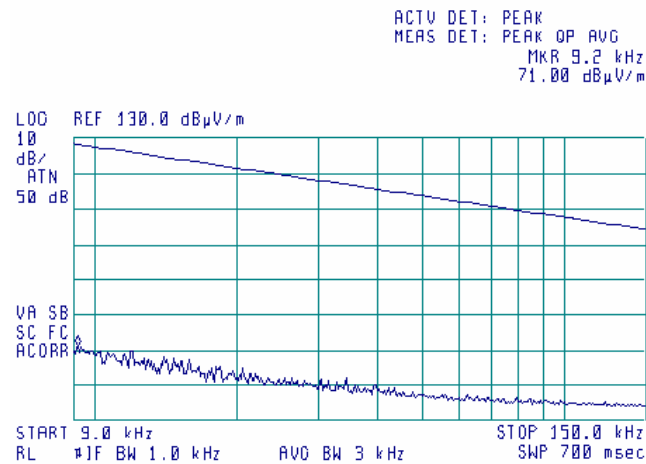
20:27:13 OCT 10, 2006



Plot 7.5.2 Radiated emission measurements from 9 to 150 kHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

20:35:55 OCT 10, 2006

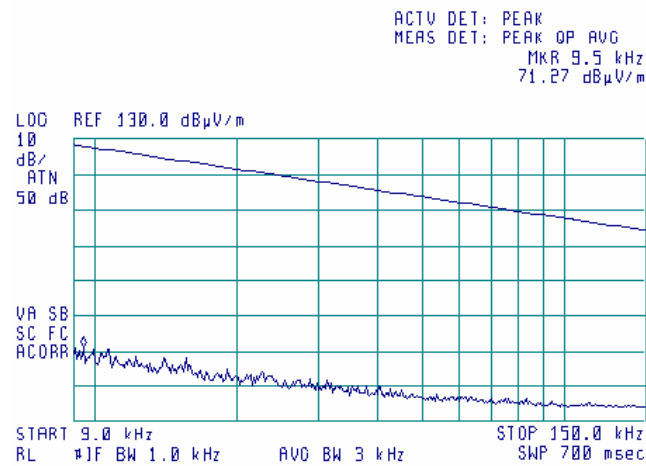


Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/22/2006 7:32:40 PM			
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.5.3 Radiated emission measurements from 9 to 150 kHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

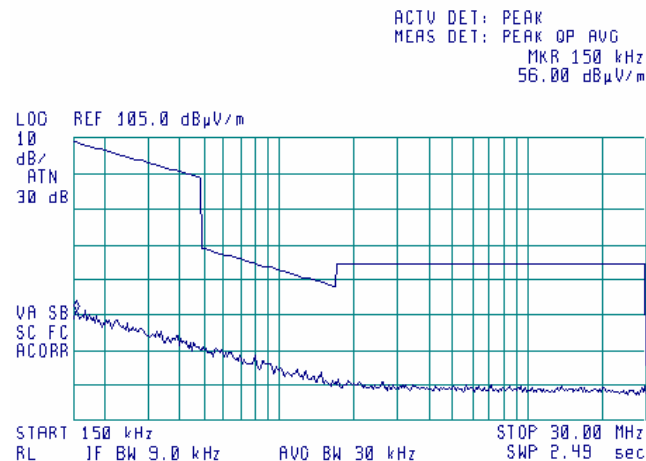
20:38:06 OCT 10, 2006



Plot 7.5.4 Radiated emission measurements from 0.15 to 30 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

20:31:03 OCT 10, 2006

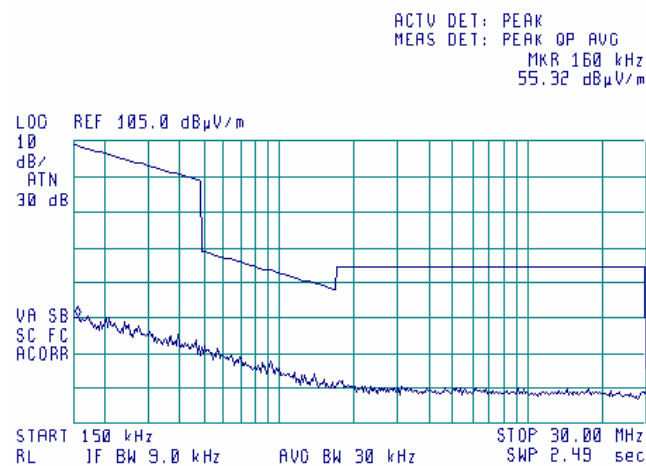


Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/22/2006 7:32:40 PM			
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.5.5 Radiated emission measurements from 0.15 to 30 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

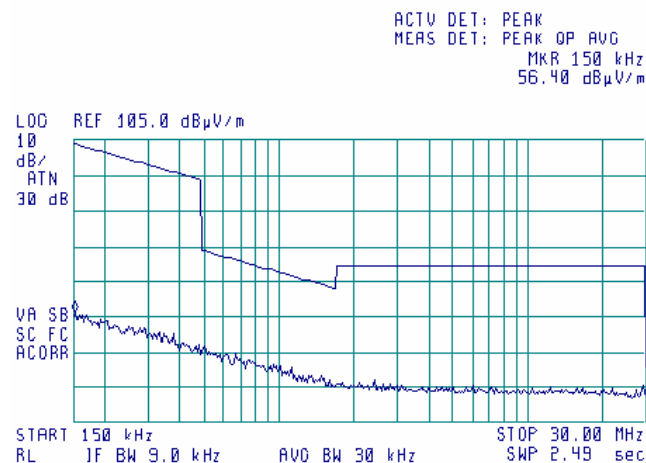
20:33:49 OCT 10, 2006



Plot 7.5.6 Radiated emission measurements from 0.15 to 30 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

20:39:52 OCT 10, 2006

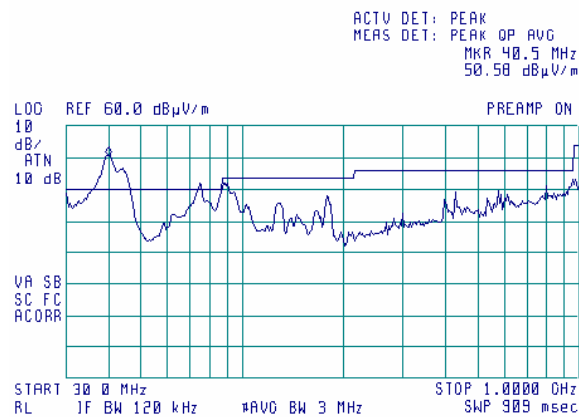


Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/22/2006 7:32:40 PM			
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.5.7 Radiated emission measurements from 30 to 1000 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

19:29:30 OCT 10, 2006

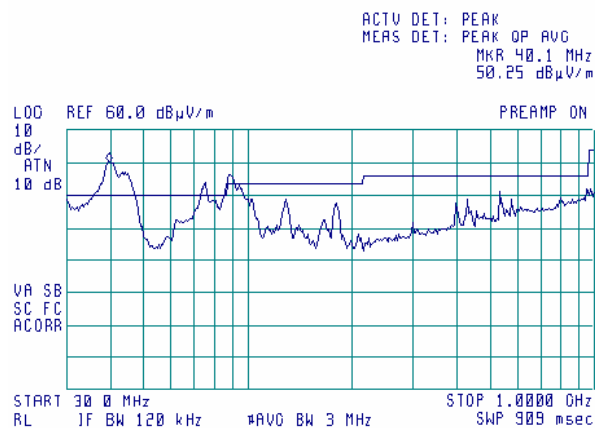


Note: all emissions are from digital part

Plot 7.5.8 Radiated emission measurements from 30 to 1000 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

19:36:58 OCT 10, 2006



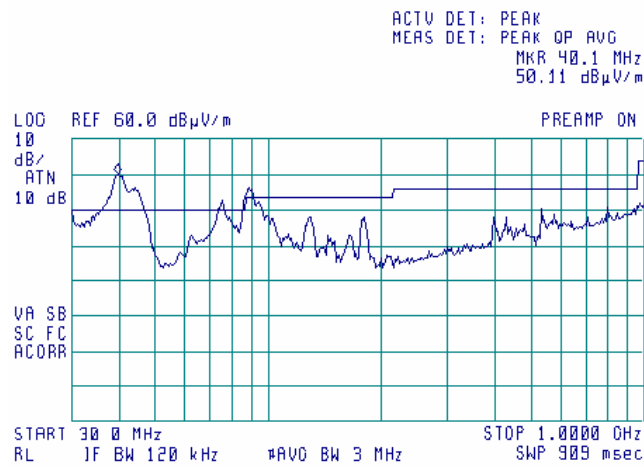
Note: all emissions are from digital part

Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/22/2006 7:32:40 PM			
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.5.9 Radiated emission measurements from 30 to 1000 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

19:42:18 OCT 10, 2006

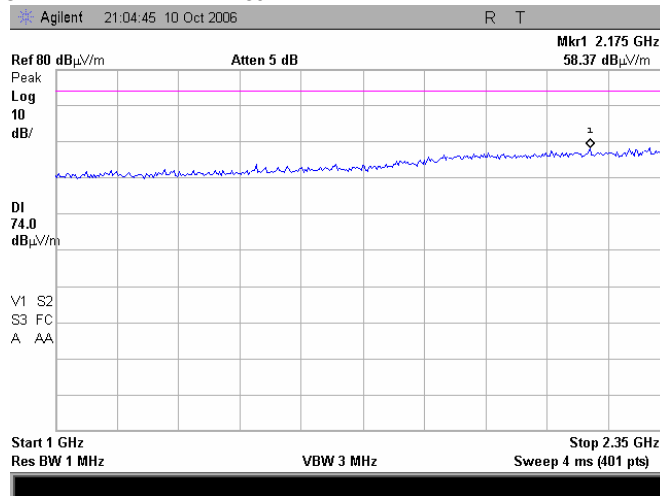


Note: all emissions are from digital part

Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.5.10 Radiated emission measurements from 1000 to 2350 MHz at the low carrier frequency

TEST SITE: Anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.5.11 Radiated emission measurements from 1000 to 2350 MHz at the low carrier frequency

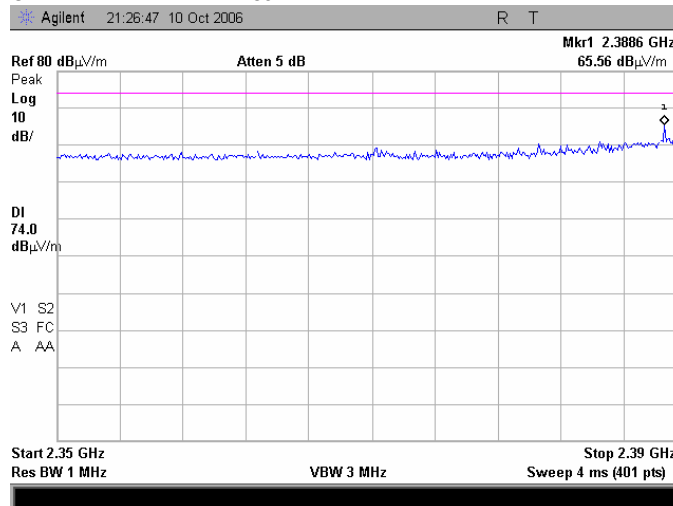
TEST SITE: Anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/22/2006 7:32:40 PM			
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

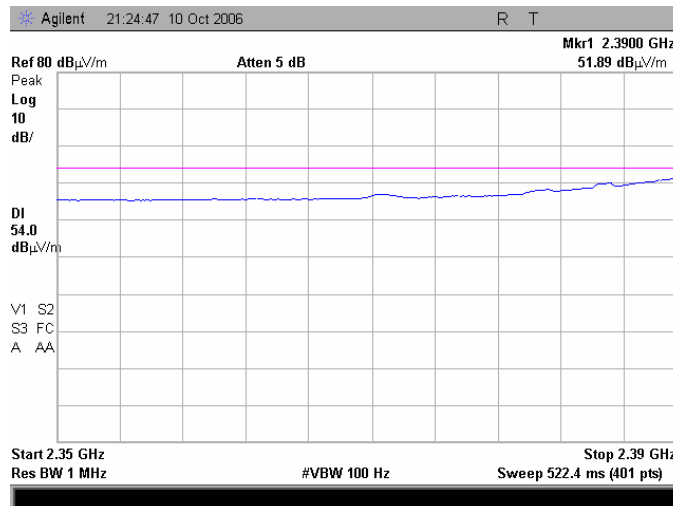
Plot 7.5.12 Radiated emission measurements from 2350 to 2390 MHz at the low carrier frequency

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Plot 7.5.13 Radiated emission measurements from 2350 to 2390 MHz at the low carrier frequency

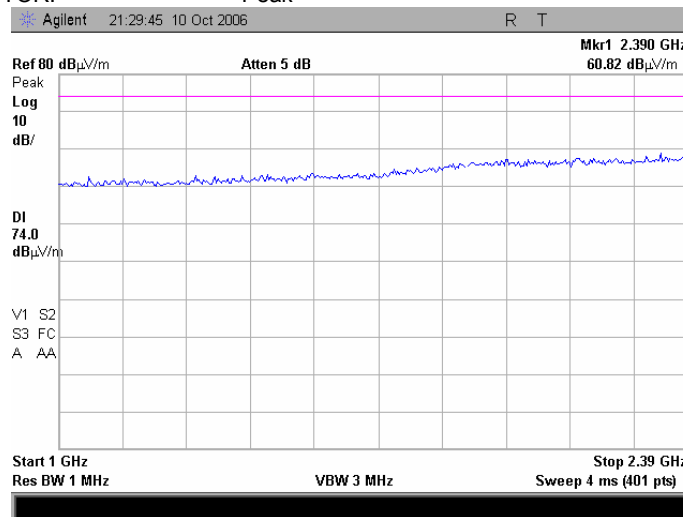
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

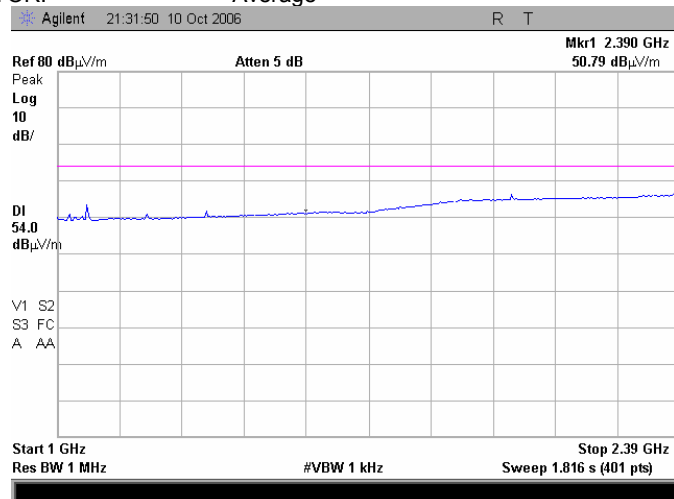
Plot 7.5.14 Radiated emission measurements from 1000 to 2390 MHz at the mid carrier frequency

TEST SITE: Anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.5.15 Radiated emission measurements from 1000 to 2390 MHz at the mid carrier frequency

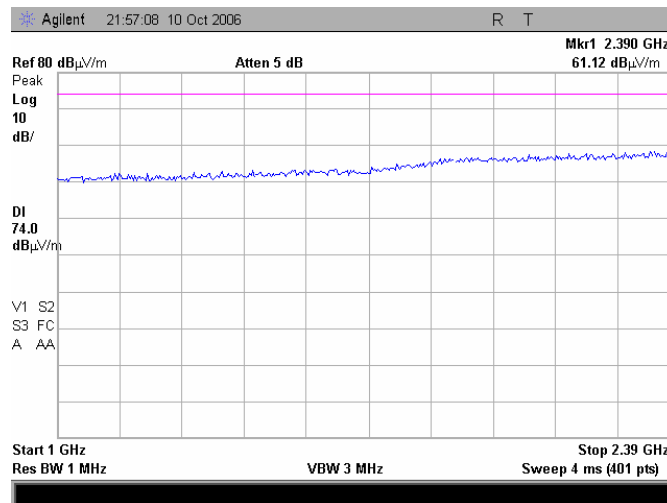
TEST SITE: Anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

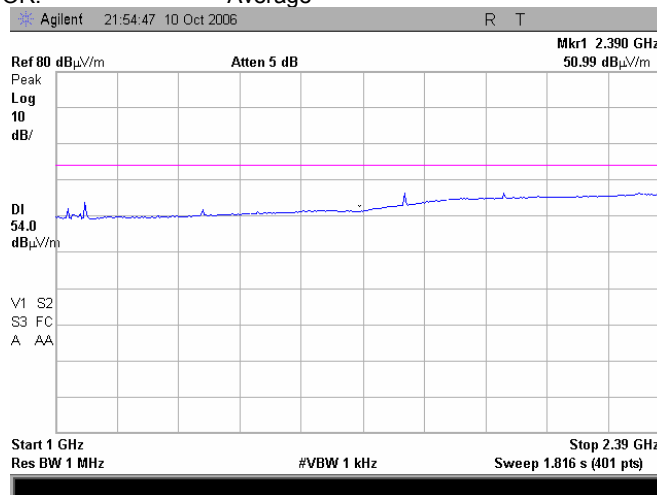
Plot 7.5.16 Radiated emission measurements from 1000 to 2390 MHz at the high carrier frequency

TEST SITE: Anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.5.17 Radiated emission measurements from 1000 to 2390 MHz at the high carrier frequency

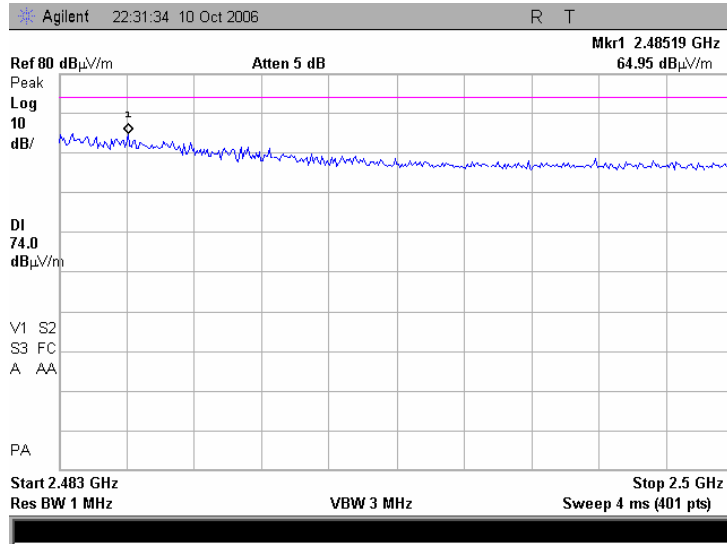
TEST SITE: Anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/22/2006 7:32:40 PM			
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

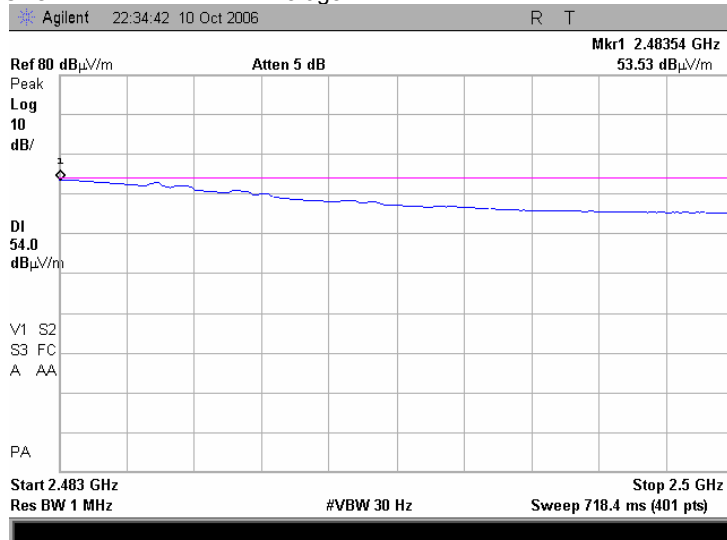
Plot 7.5.18 Radiated emission measurements from 2483.5 to 2500 MHz at the low carrier frequency

TEST SITE: Anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.5.19 Radiated emission measurements from 2483.5 to 2500 MHz at the low carrier frequency

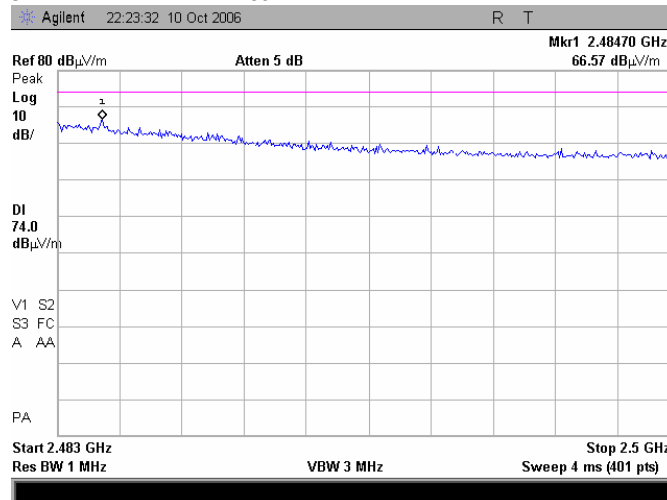
TEST SITE: Anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

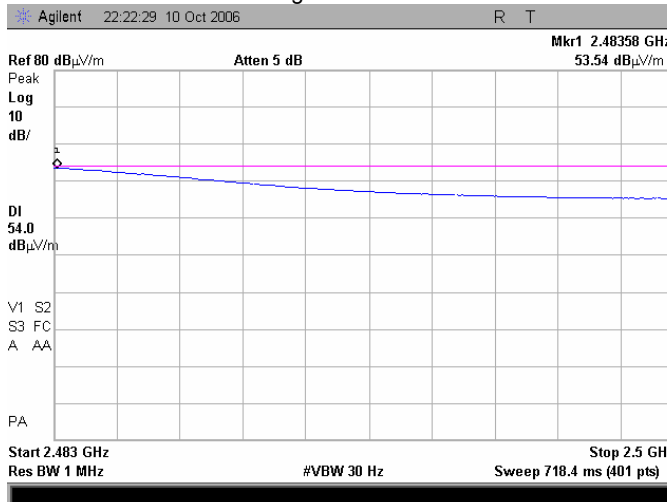
Plot 7.5.20 Radiated emission measurements from 2483.5 to 2500 MHz at the mid carrier frequency

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Plot 7.5.21 Radiated emission measurements from 2483.5 to 2500 MHz at the mid carrier frequency

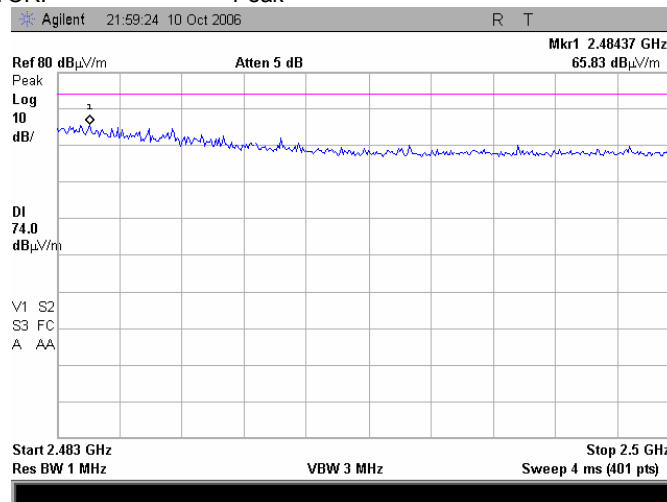
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/22/2006 7:32:40 PM			
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

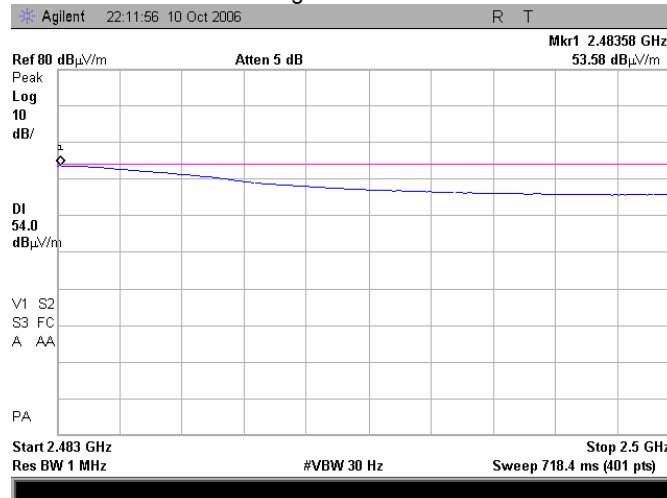
Plot 7.5.22 Radiated emission measurements from 2483.5 to 2500 MHz at the high carrier frequency

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Plot 7.5.23 Radiated emission measurements from 2483.5 to 2500 MHz at the high carrier frequency

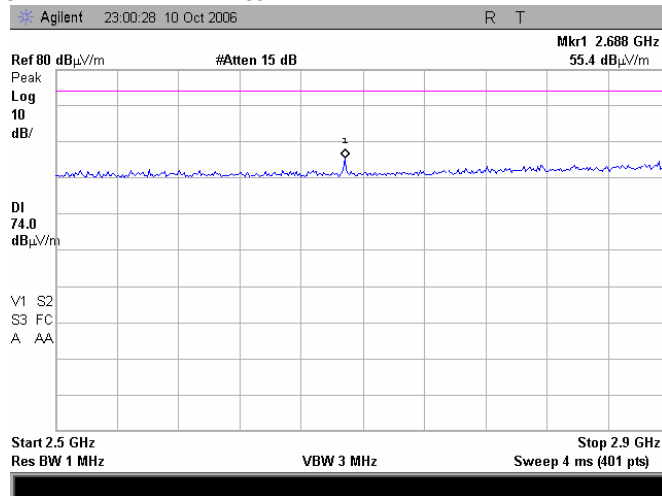
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

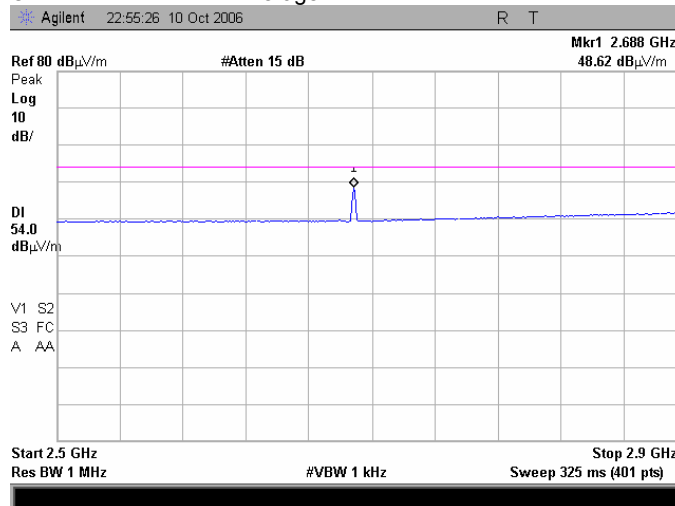
Plot 7.5.24 Radiated emission measurements from 2500 to 2900 MHz at the low carrier frequency

TEST SITE: Semi Anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.5.25 Radiated emission measurements from 2500 to 2900 MHz at the low carrier frequency

TEST SITE: Semi Anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average

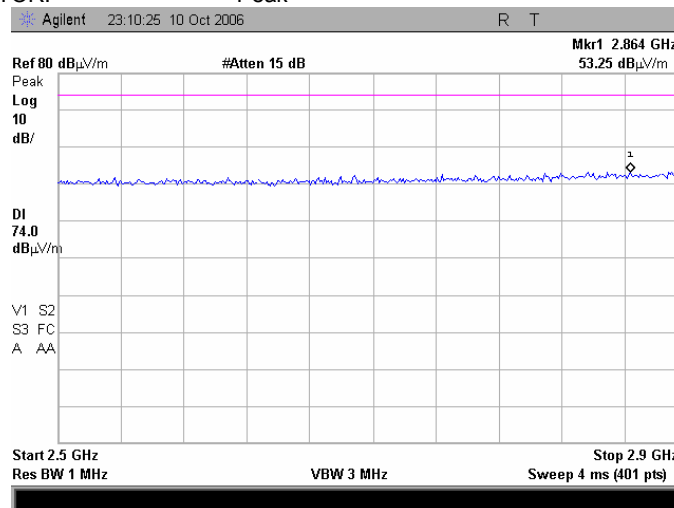


Note: The frequency 2688 MHz was found outside restricted bands

Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

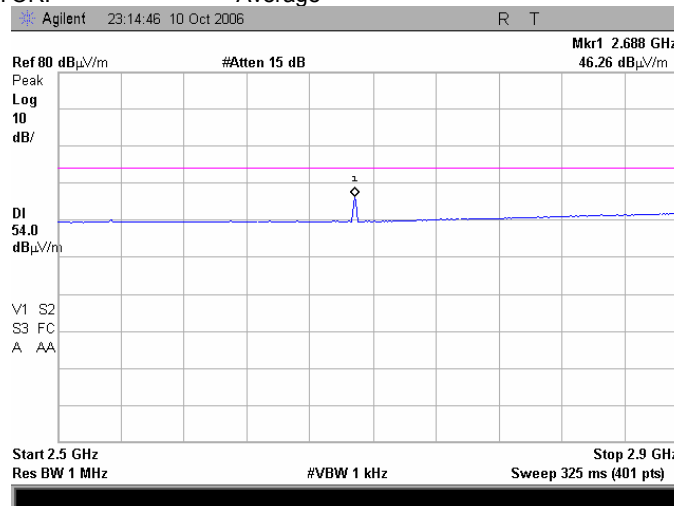
Plot 7.5.26 Radiated emission measurements from 2500 to 2900 MHz at the mid carrier frequency

TEST SITE: Semi Anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.5.27 Radiated emission measurements from 2500 to 2900 MHz at the mid carrier frequency

TEST SITE: Semi Anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average

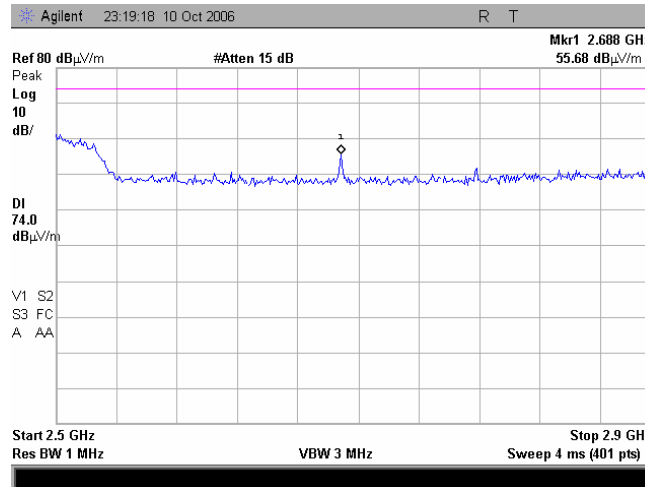


Note: The frequency 2688 MHz was found outside restricted bands

Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.5.28 Radiated emission measurements from 2500 to 2900 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.5.29 Radiated emission measurements from 2500 to 2900 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average

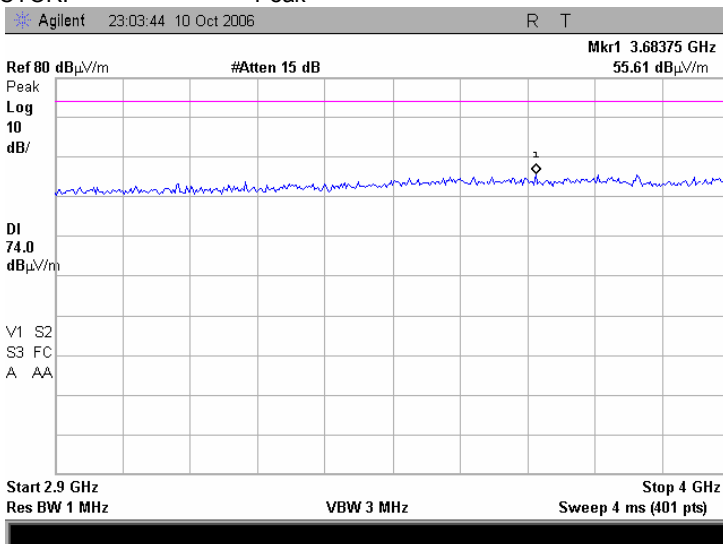


Note: The frequency 2688 MHz was found outside restricted bands

Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

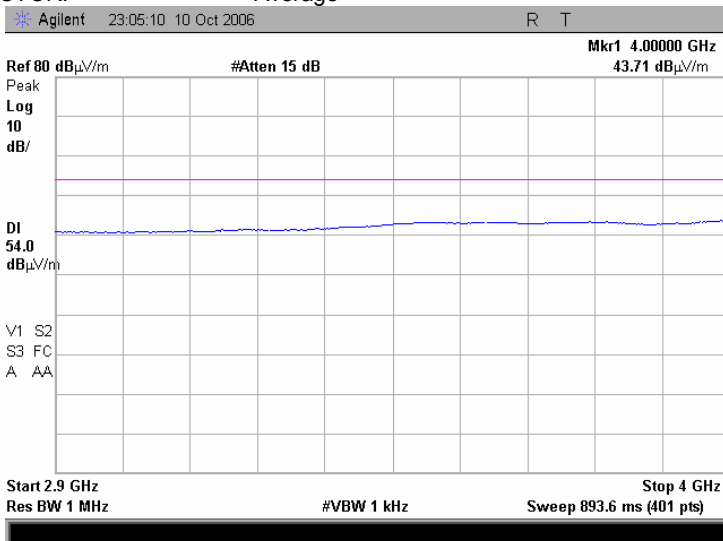
Plot 7.5.30 Radiated emission measurements from 2900 to 4000 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.5.31 Radiated emission measurements from 2900 to 4000 MHz at the low carrier frequency

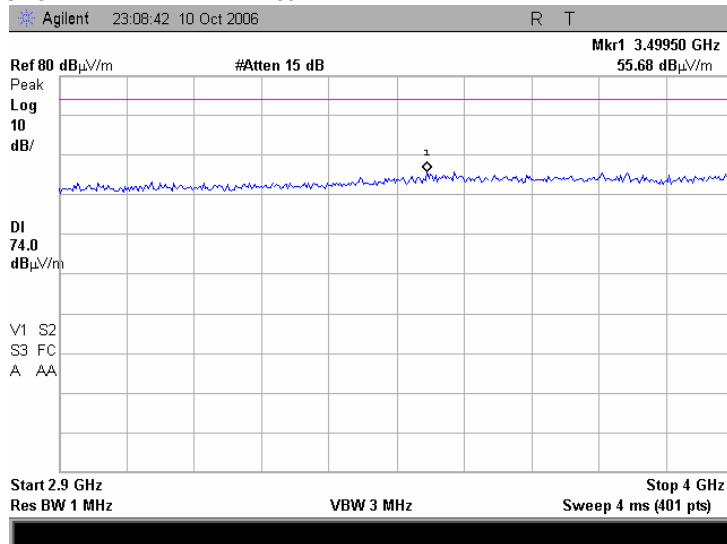
TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

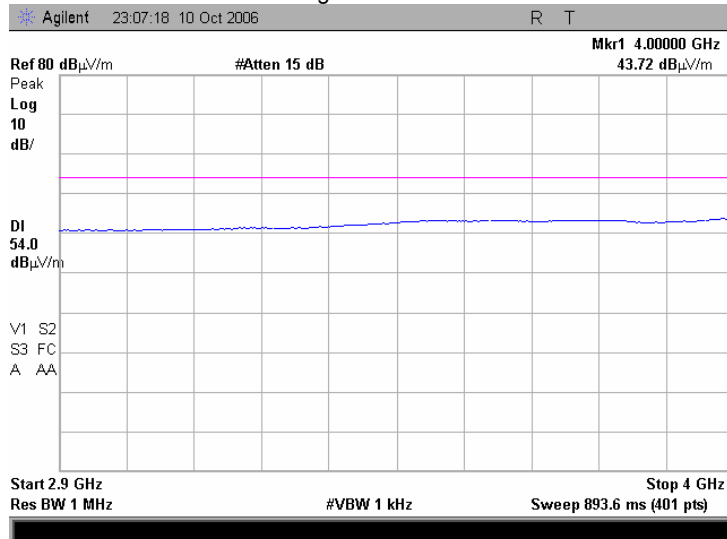
Plot 7.5.32 Radiated emission measurements from 2900 to 4000 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.5.33 Radiated emission measurements from 2900 to 4000 MHz at the mid carrier frequency

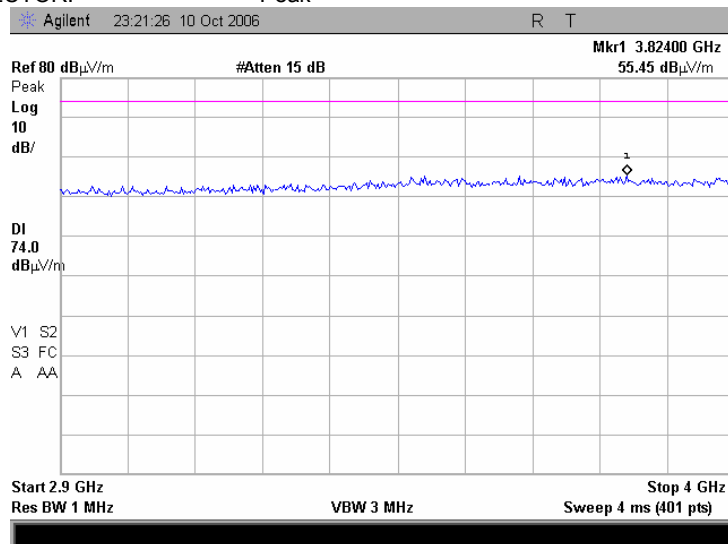
TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

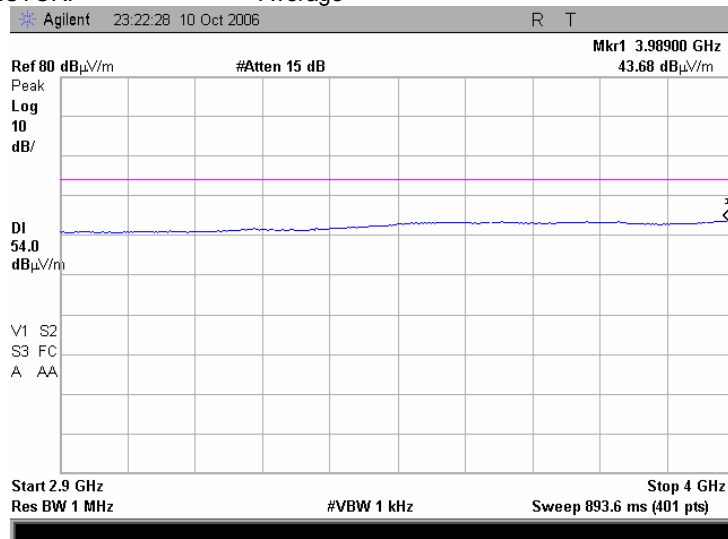
Plot 7.5.34 Radiated emission measurements from 2900 to 4000 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Plot 7.5.35 Radiated emission measurements from 2900 to 4000 MHz at the high carrier frequency

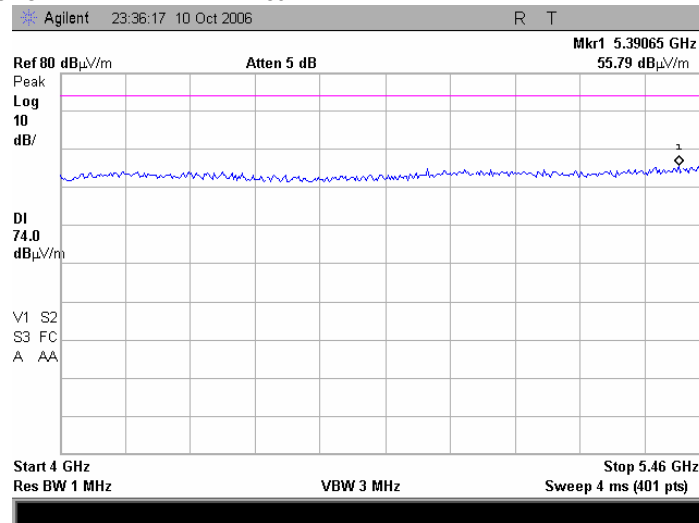
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

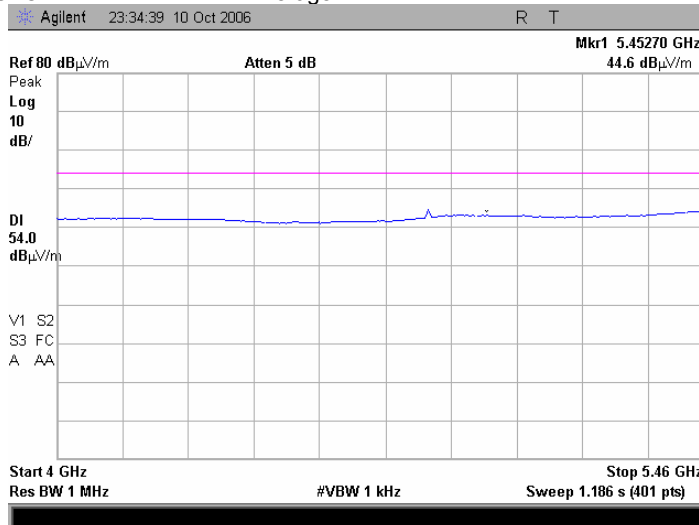
Plot 7.5.36 Radiated emission measurements from 4000 to 5460 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.5.37 Radiated emission measurements from 4000 to 5460 MHz at the low carrier frequency

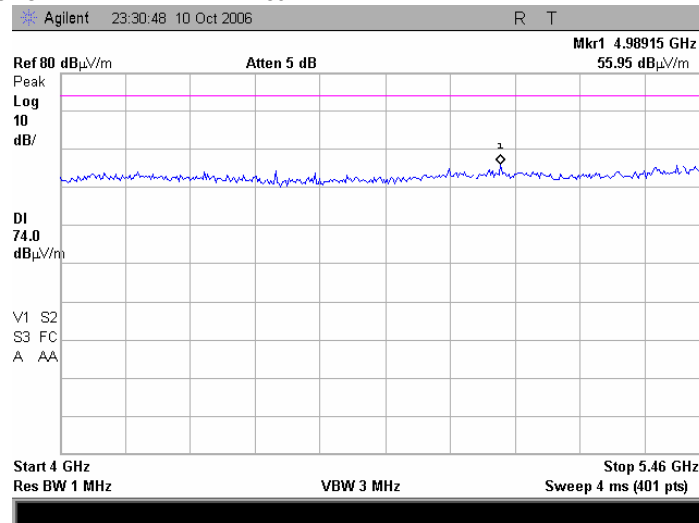
TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

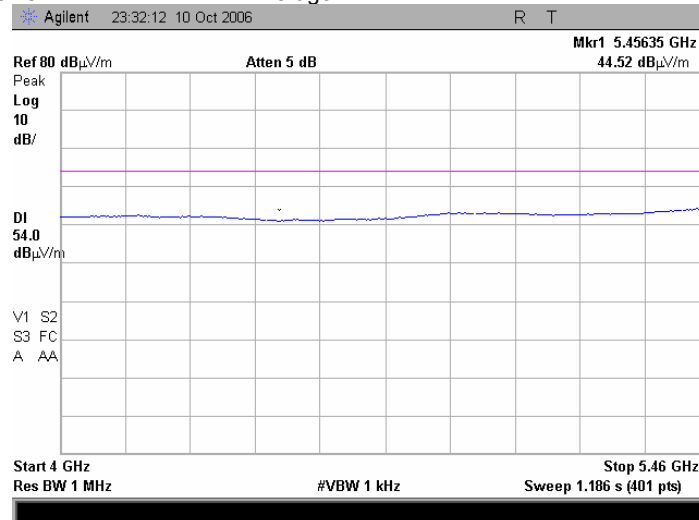
Plot 7.5.38 Radiated emission measurements from 4000 to 5460 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.5.39 Radiated emission measurements from 4000 to 5460 MHz at the mid carrier frequency

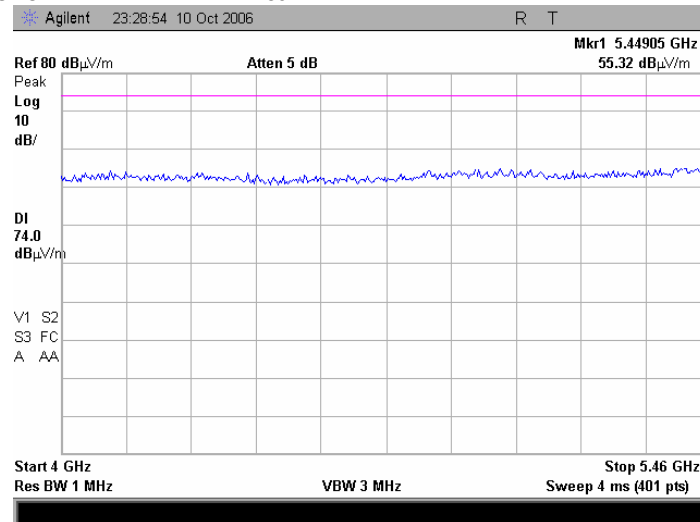
TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/22/2006 7:32:40 PM			
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

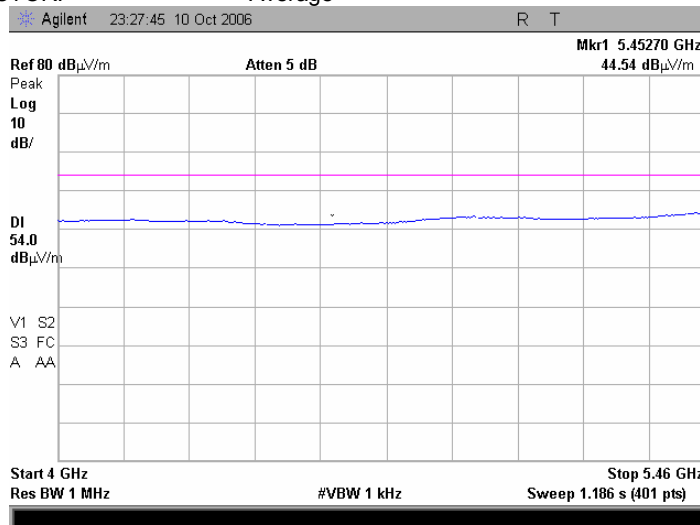
Plot 7.5.40 Radiated emission measurements from 4000 to 5460 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Plot 7.5.41 Radiated emission measurements from 4000 to 5460 MHz at the high carrier frequency

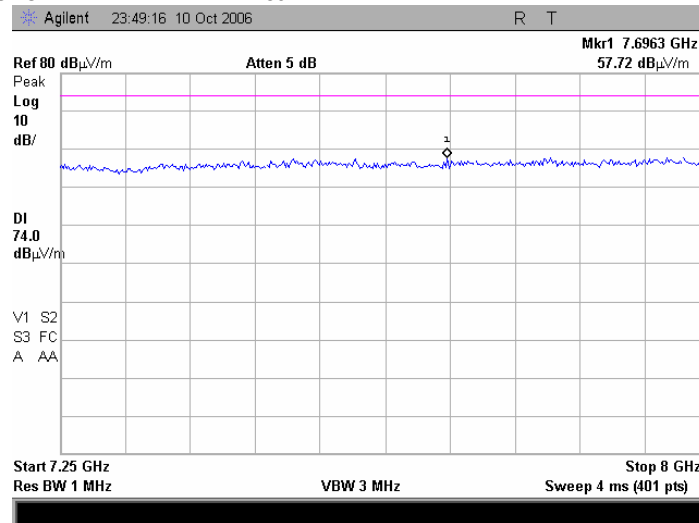
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

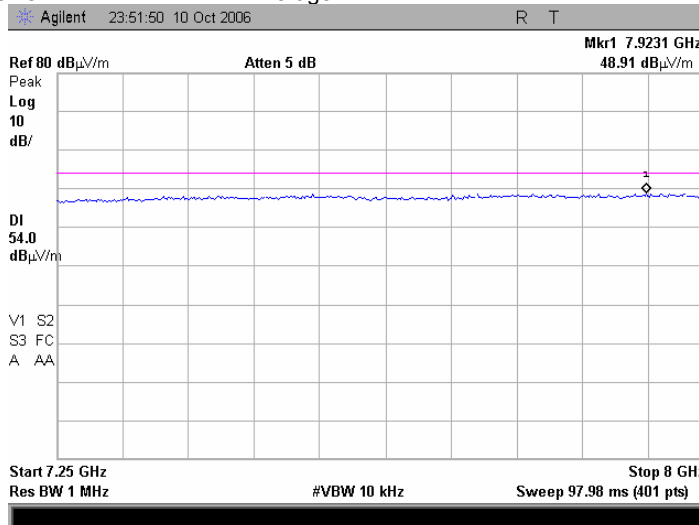
Plot 7.5.42 Radiated emission measurements from 7250 to 8000 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.5.43 Radiated emission measurements from 7250 to 8000 MHz at the low carrier frequency

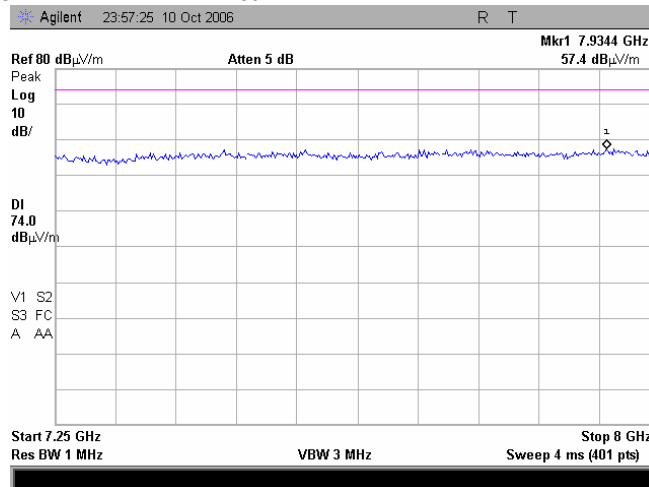
TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

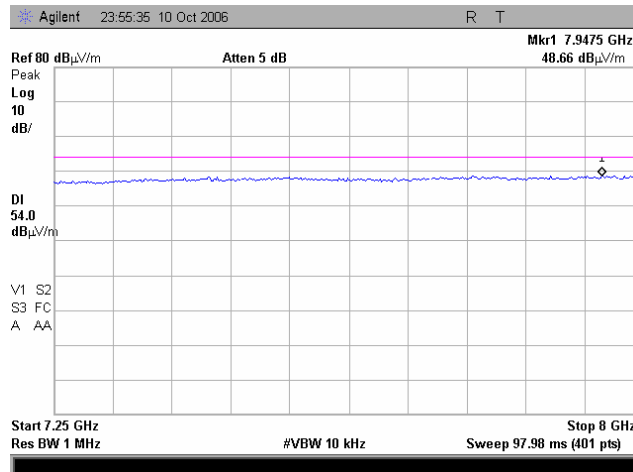
Plot 7.5.44 Radiated emission measurements from 7250 to 8000 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.5.45 Radiated emission measurements from 7250 to 8000 MHz at the mid carrier frequency

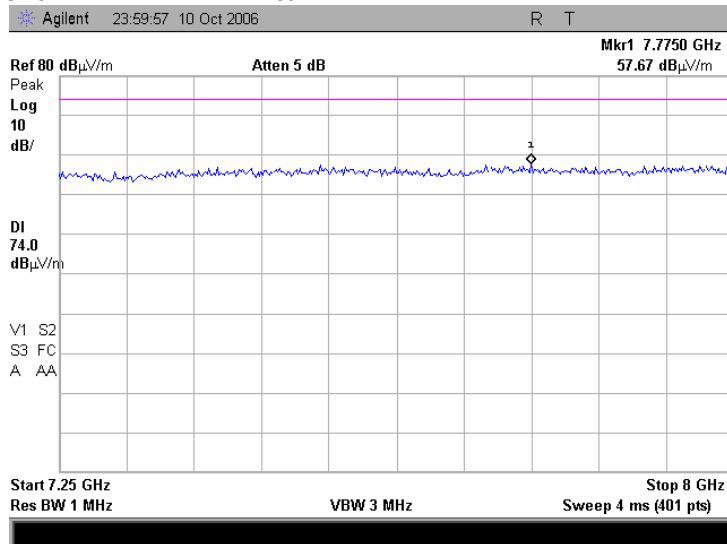
TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

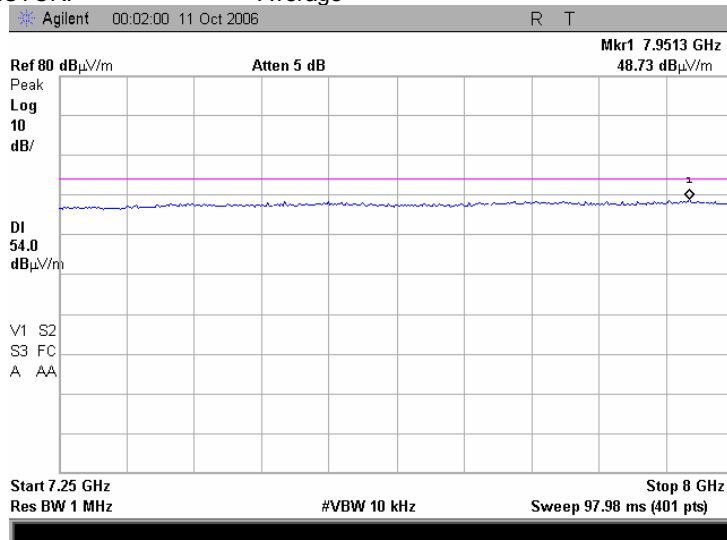
Plot 7.5.46 Radiated emission measurements from 7250 to 8000 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.5.47 Radiated emission measurements from 7250 to 8000 MHz at the high carrier frequency

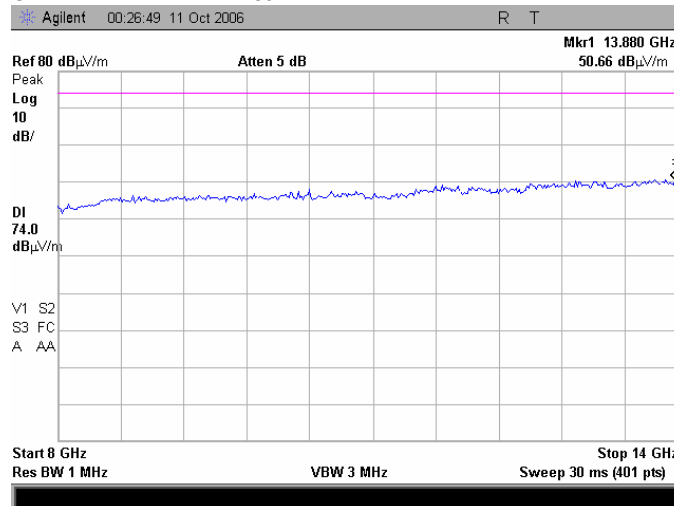
TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/22/2006 7:32:40 PM			
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

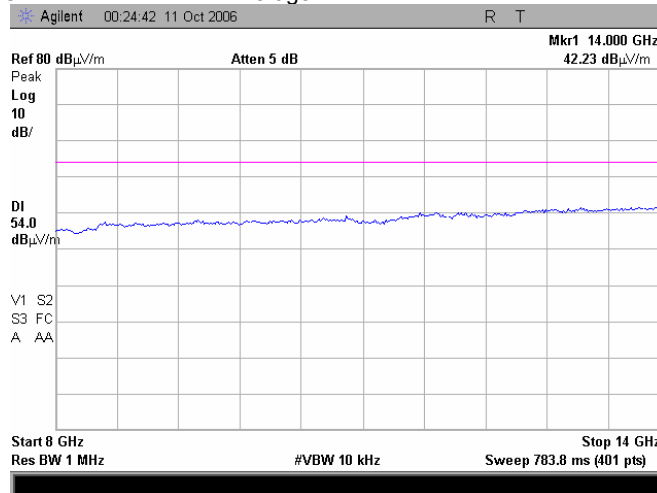
Plot 7.5.48 Radiated emission measurements from 8000 to 14000 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.5.49 Radiated emission measurements from 8000 to 14000 MHz at the low carrier frequency

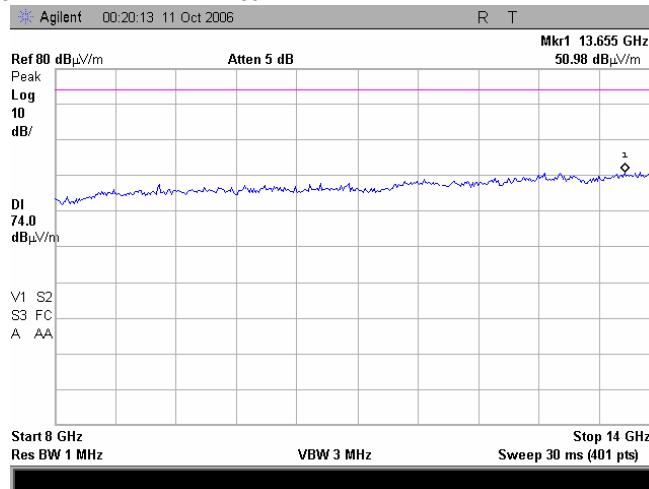
TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

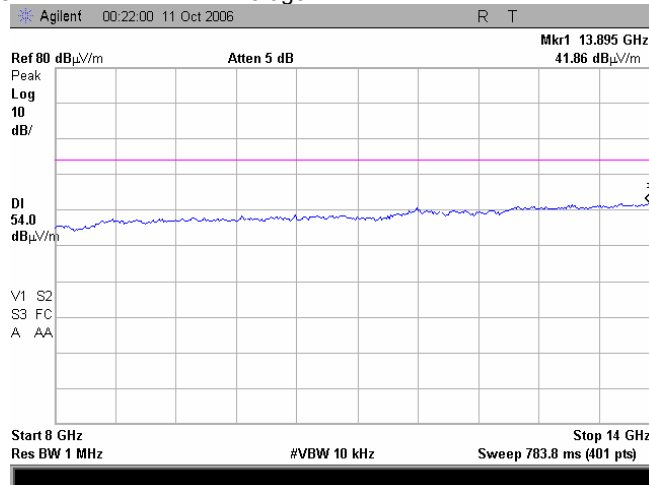
Plot 7.5.50 Radiated emission measurements from 8000 to 14000 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.5.51 Radiated emission measurements from 8000 to 14000 MHz at the mid carrier frequency

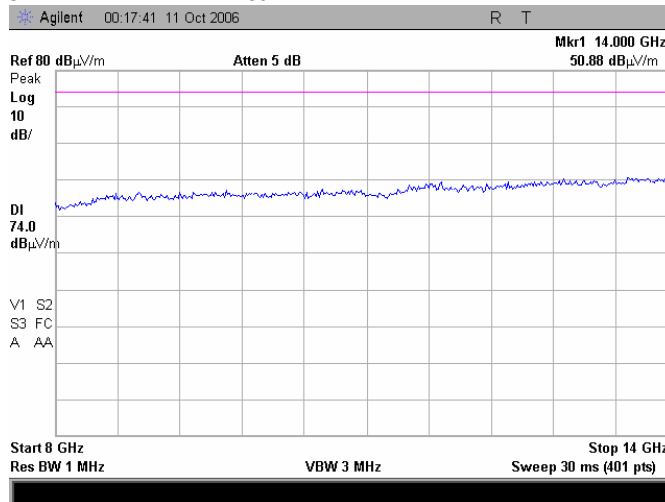
TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/22/2006 7:32:40 PM			
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

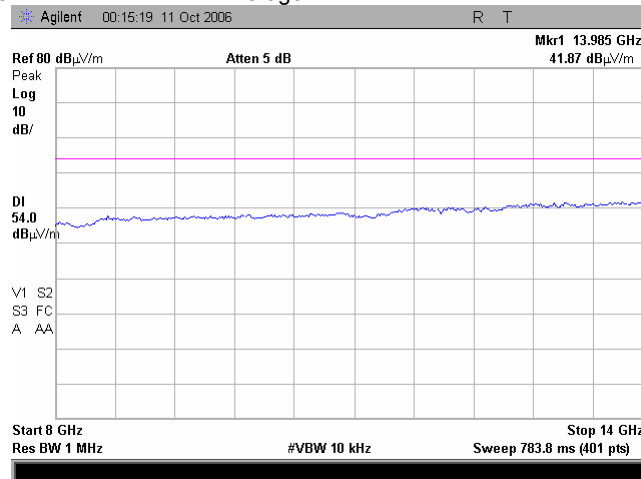
Plot 7.5.52 Radiated emission measurements from 8000 to 14000 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.5.53 Radiated emission measurements from 8000 to 14000 MHz at the high carrier frequency

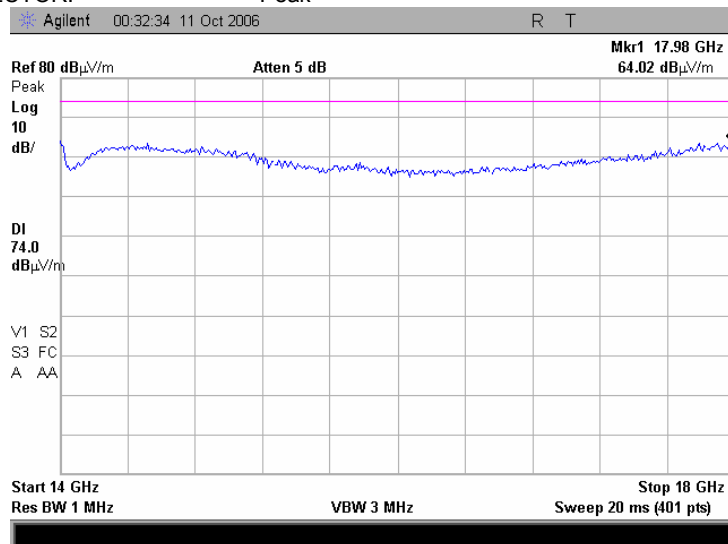
TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

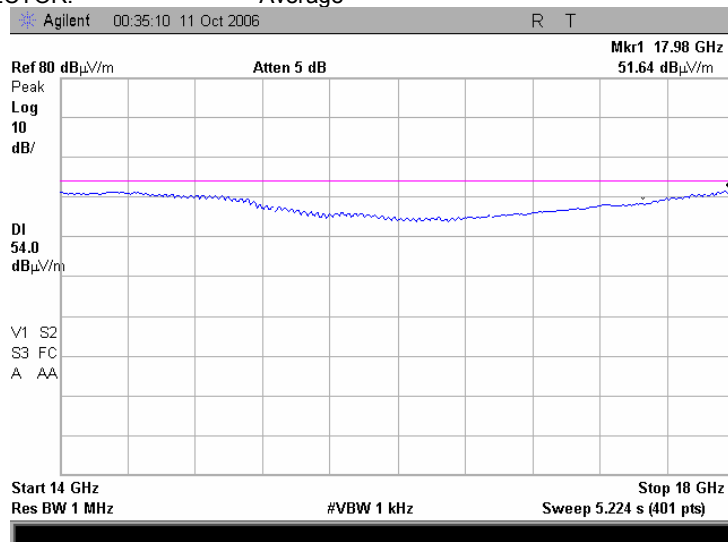
Plot 7.5.54 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Plot 7.5.55 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency

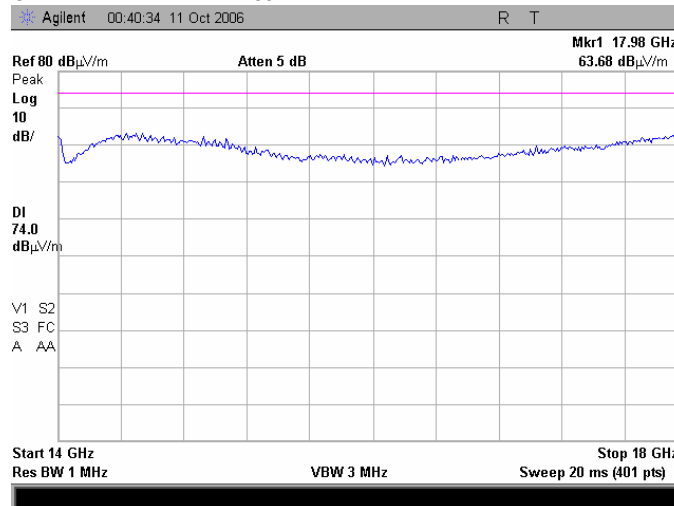
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/22/2006 7:32:40 PM			
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

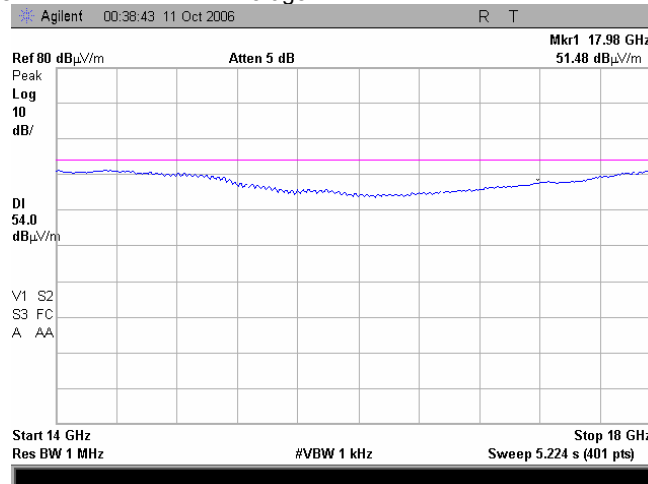
Plot 7.5.56 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Plot 7.5.57 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency

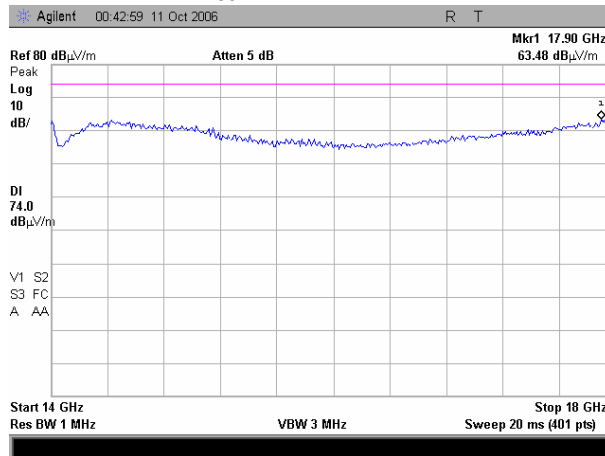
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification: Section 15.247(c), Radiated spurious emissions			
Test procedure: FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/22/2006 7:32:40 PM			
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

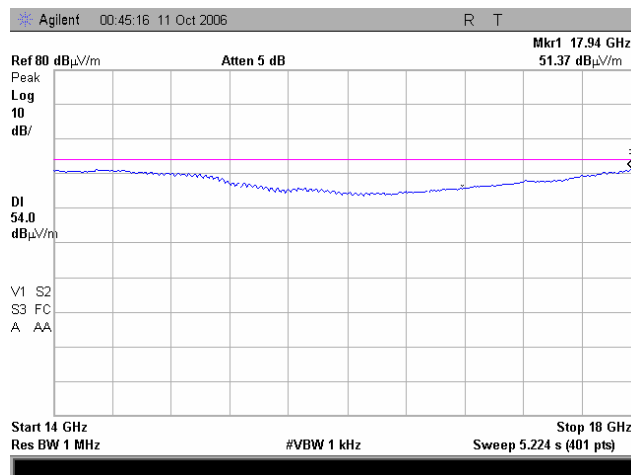
Plot 7.5.58 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Peak



Plot 7.5.59 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency

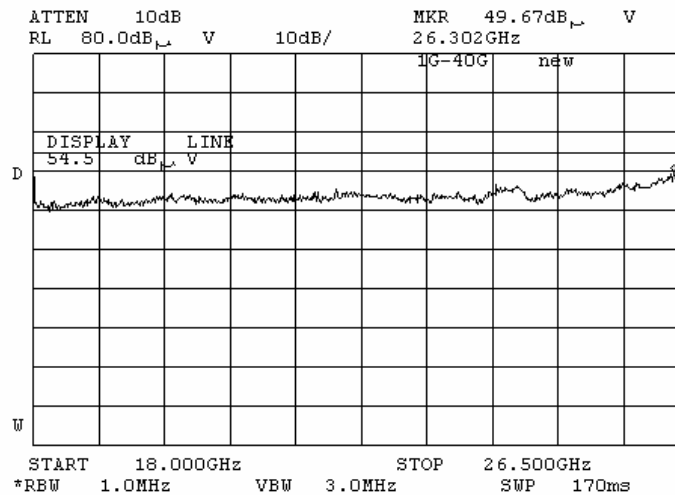
TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

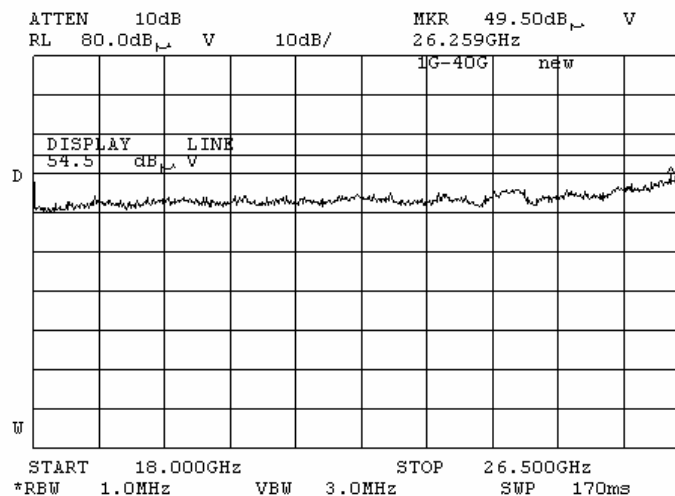
Plot 7.5.60 Radiated emission measurements from 18000 to 26500 MHz at the low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 7.5.61 Radiated emission measurements from 18000 to 26500 MHz at the mid carrier frequency

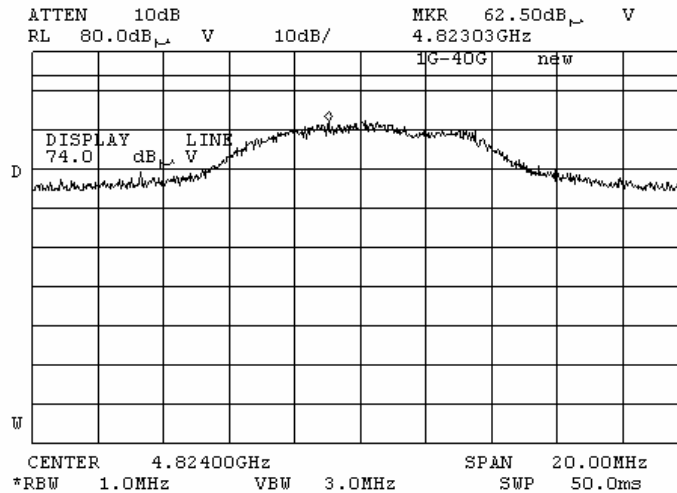
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

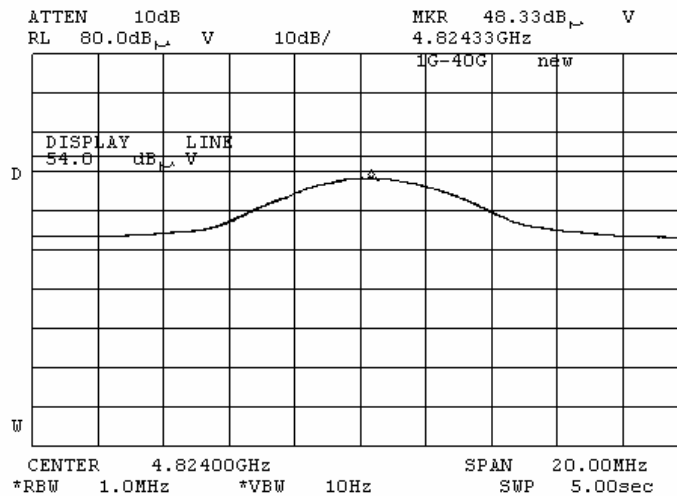
Plot 7.5.63 Radiated emission measurements at the second harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Peak



Plot 7.5.64 Radiated emission measurements at the second harmonic of low carrier frequency

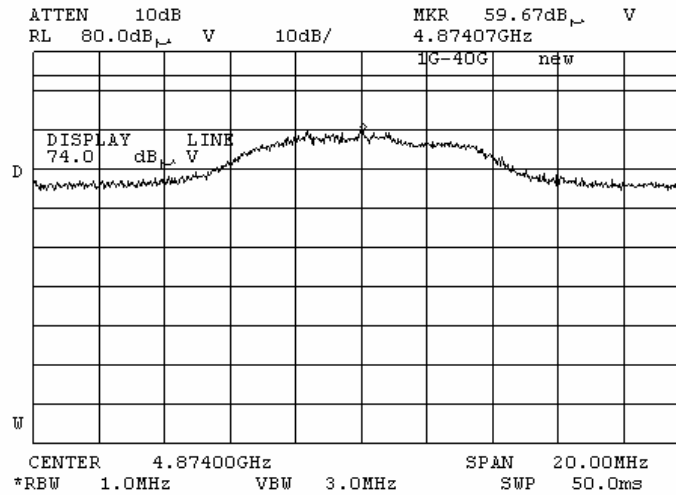
TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

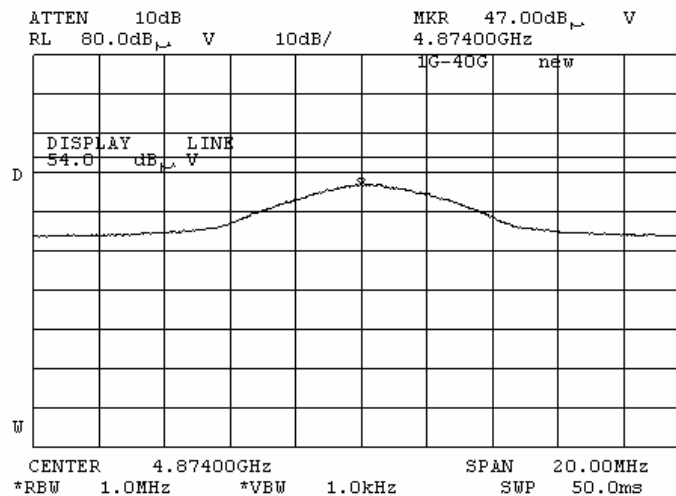
Plot 7.5.65 Radiated emission measurements at the second harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Peak



Plot 7.5.66 Radiated emission measurements at the second harmonic of mid carrier frequency

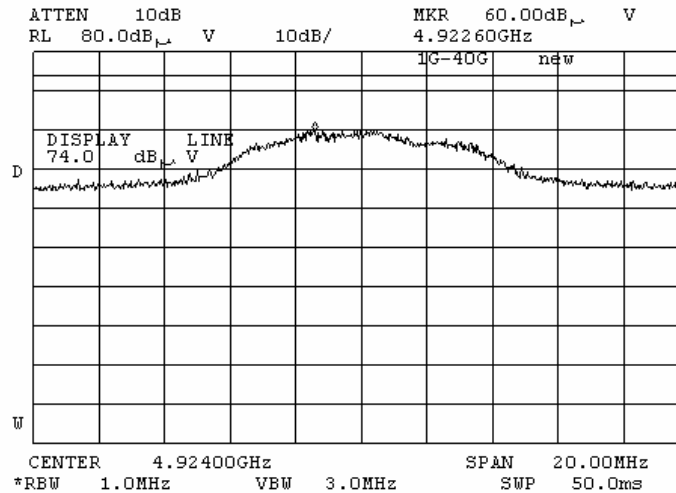
TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

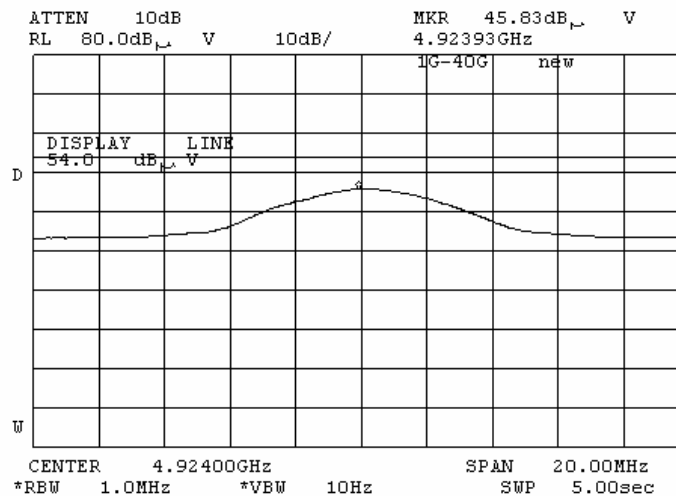
Plot 7.5.67 Radiated emission measurements at the second harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Peak



Plot 7.5.68 Radiated emission measurements at the second harmonic of high carrier frequency

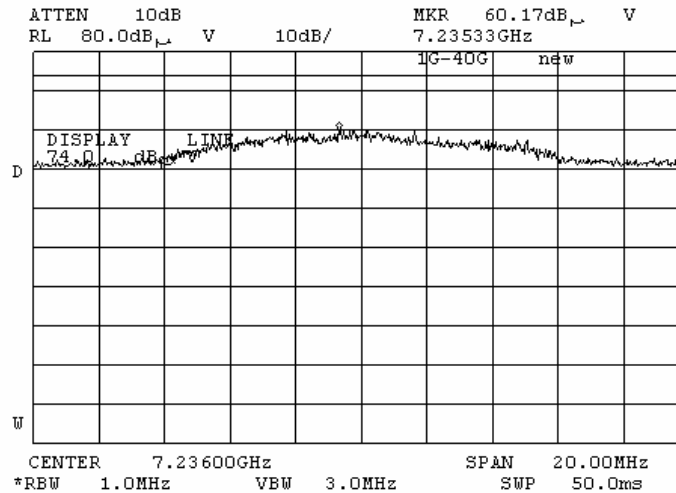
TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

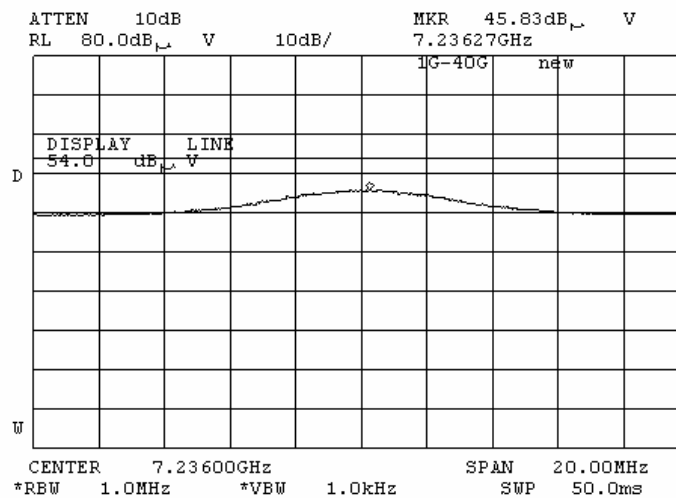
Plot 7.5.69 Radiated emission measurements at the third harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Peak



Plot 7.5.70 Radiated emission measurements at the third harmonic of low carrier frequency

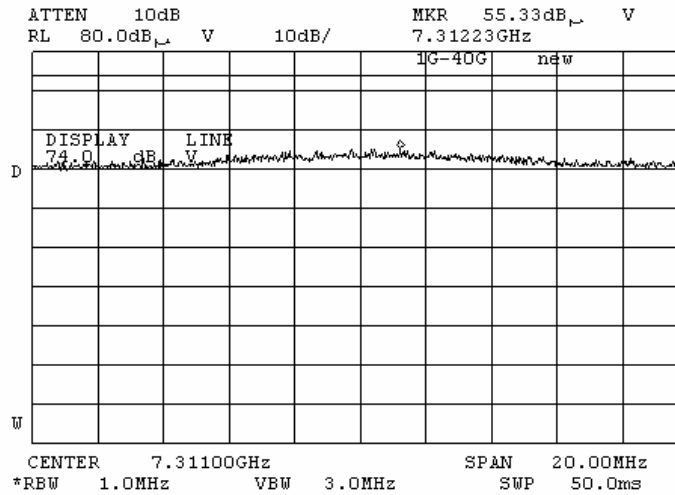
TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

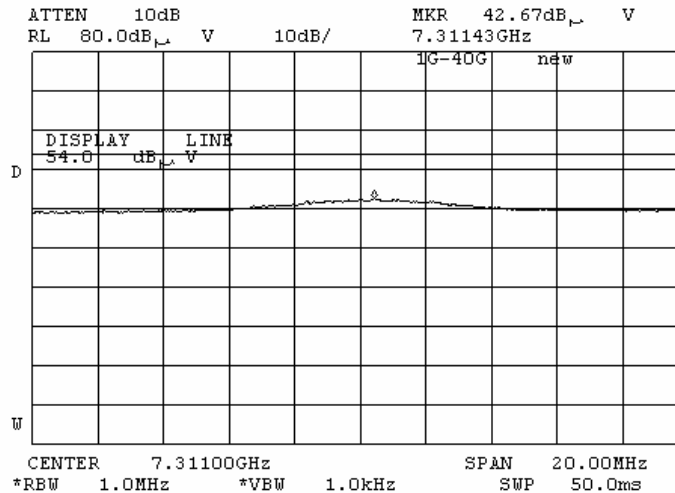
Plot 7.5.71 Radiated emission measurements at the third harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Peak



Plot 7.5.72 Radiated emission measurements at the third harmonic of mid carrier frequency

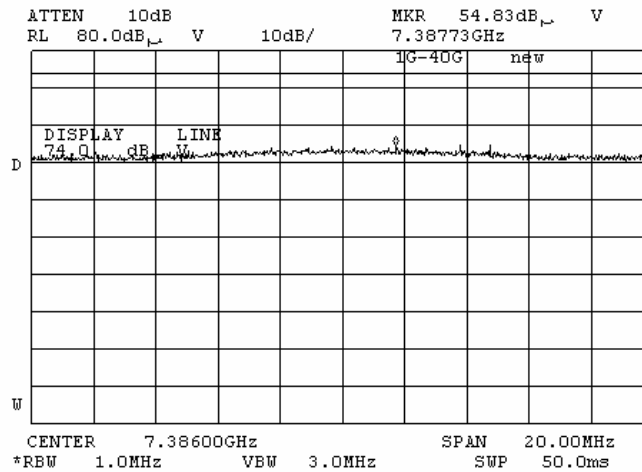
TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/22/2006 7:32:40 PM		
Temperature: 24°C	Air Pressure: 1012 hPa	Relative Humidity: 42 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

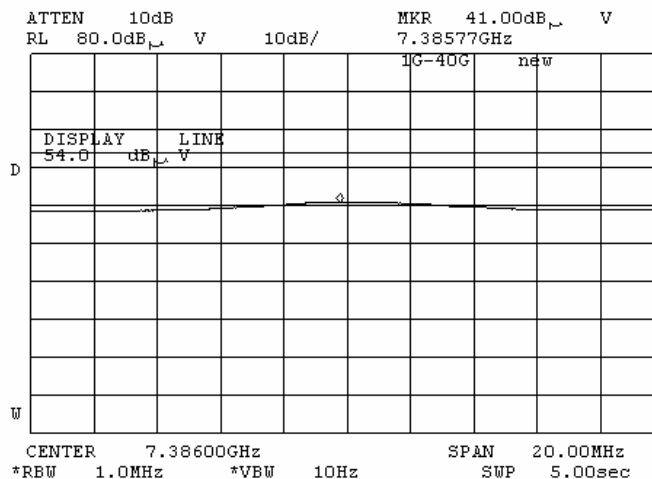
Plot 7.5.73 Radiated emission measurements at the third harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Peak



Plot 7.5.74 Radiated emission measurements at the third harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Average



Test specification: Section 15.247(d), Peak power density			
Test procedure: FR Vol. 62, page 26243, Section 15.247(d)			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/8/2006 5:50:26 PM			
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

7.6 Peak spectral power density

7.6.1 General

This test was performed to measure the peak spectral power density at the transmitter RF antenna connector. Specification test limits are given in Table 7.6.1.

Table 7.6.1 Peak spectral power density limits

Assigned frequency range, MHz	Measurement bandwidth, kHz	Peak spectral power density, dBm
2400.0 – 2483.5	3.0	8.0

7.6.2 Test procedure

- 7.6.2.1** The EUT was set up as shown in Figure 7.6.1, energized and its proper operation was checked.
- 7.6.2.2** The EUT was adjusted to produce maximum available to end user RF output power.
- 7.6.2.3** The frequency span of spectrum analyzer was set to capture the entire 6 dB band of the transmitter, in peak hold mode with resolution bandwidth set to 3.0 kHz, video bandwidth wider than resolution bandwidth, auto sweep time and sufficient number of sweeps was allowed for trace stabilization. The spectrum lines spacing was verified to be wider than 3 kHz. Otherwise the resolution bandwidth was reduced until individual spectrum lines were resolved and the power of individual spectrum lines was integrated over 3 kHz band.
- 7.6.2.4** The peak of emission was zoomed with span set just wide enough to capture the emission peak area and sweep time was set equal to span width divided by resolution bandwidth. Spectrum analyzer was set in peak hold mode, sufficient number of sweeps was allowed for trace stabilization and peak spectral power density was measured as provided in Table 7.6.2 and associated plots.

Figure 7.6.1 Peak spectral power density test setup



Test specification:		Section 15.247(d), Peak power density	
Test procedure:		FR Vol. 62, page 26243, Section 15.247(d)	
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Table 7.6.2 Peak spectral power density test results

ASSIGNED FREQUENCY: 2400 – 2483.5 MHz
 MODULATION: QAM
 MODULATING SIGNAL: PRBS
 TRANSMITTER OUTPUT POWER SETTINGS: Maximum
 DETECTOR USED: Peak
 RESOLUTION BANDWIDTH: 3 kHz
 VIDEO BANDWIDTH: 10 kHz

Carrier frequency, MHz	Spectrum analyzer reading, dBm	External attenuation, dB	Cable loss, dB	Peak power density, dB(mW/3 kHz)	Limit, dBm	Margin*, dB	Verdict
Channel spacing: 5 MHz							
Data rate: 1.5 Mbps							
2413.42477	-3.067	Included	Included	-3.067	8.00	-11.067	Pass
2436.70491	-1.200	Included	Included	-1.200	8.00	-9.200	Pass
2461.70561	-0.778	Included	Included	-0.778	8.00	-8.778	Pass
Data rate: 13.5 Mbps							
2410.45278	-2.103	Included	Included	-2.103	8.00	-10.103	Pass
2435.45195	-1.917	Included	Included	-1.917	8.00	-9.917	Pass
2460.76046	-1.694	Included	Included	-1.694	8.00	-9.694	Pass
Channel spacing: 10 MHz							
Data rate: 3 Mbps							
2415.76779	-5.479	Included	Included	-5.479	8.00	-13.479	Pass
2437.01864	-5.491	Included	Included	-5.491	8.00	-13.491	Pass
2458.89379	-3.584	Included	Included	-3.584	8.00	-11.584	Pass
Data rate: 27 Mbps							
2415.76351	-5.848	Included	Included	-5.848	8.00	-13.848	Pass
2433.28324	-5.567	Included	Included	-5.567	8.00	-13.567	Pass
2459.35124	-4.458	Included	Included	-4.458	8.00	-12.458	Pass
Channel spacing: 20 MHz							
Data rate: 6 Mbps							
2412.01879	-6.597	Included	Included	-6.597	8.00	-14.597	Pass
2437.01872	-6.419	Included	Included	-6.419	8.00	-14.419	Pass
2462.01947	-5.951	Included	Included	-5.951	8.00	-13.951	Pass
Data rate: 54 Mbps							
2412.01917	-6.881	Included	Included	-6.881	8.00	-14.881	Pass
2437.01917	-6.508	Included	Included	-6.508	8.00	-14.508	Pass
2455.76119	-6.461	Included	Included	-6.461	8.00	-14.461	Pass

* - Margin = Peak power density – specification limit.

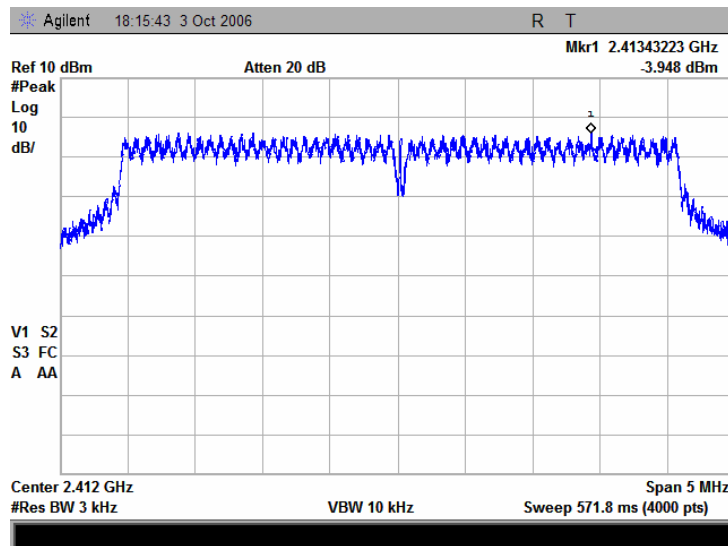
Reference numbers of test equipment used

HL 1650	HL 2869	HL 2909				
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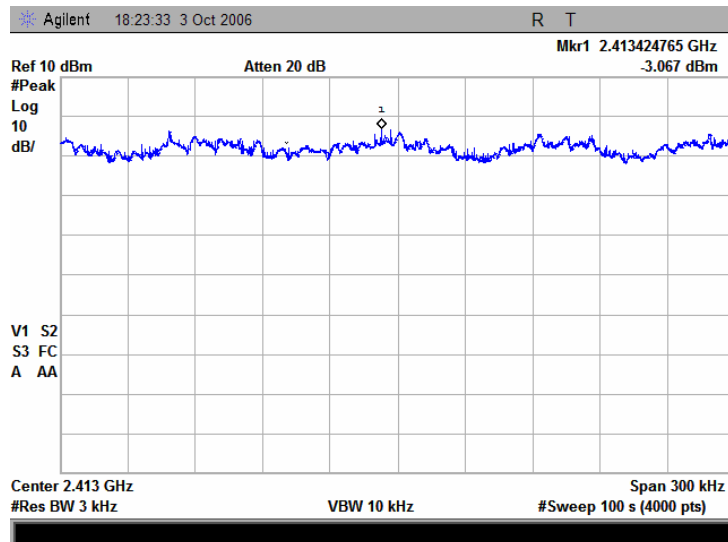
Full description is given in Appendix A.

Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.6.1 Peak spectral power density at low frequency within 6 dB band, channel spacing 5 MHz and data rate 1.5 Mbps

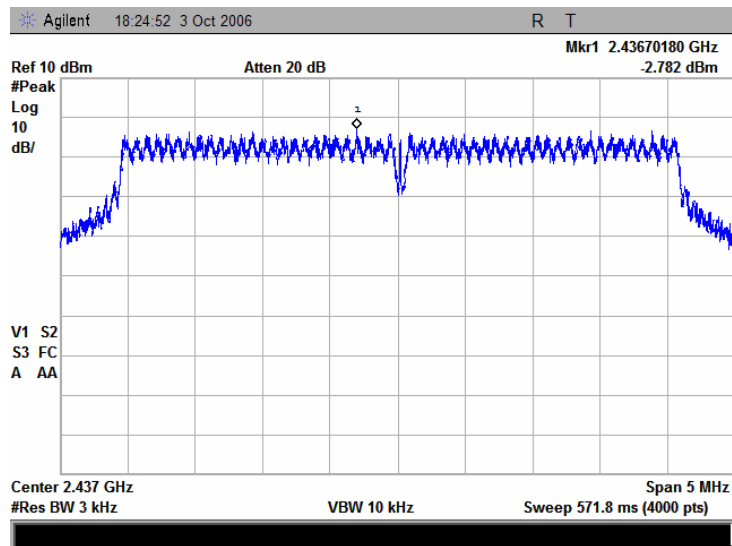


Plot 7.6.2 Peak spectral power density at low frequency zoomed at the peak, channel spacing 5 MHz and data rate 1.5 Mbps

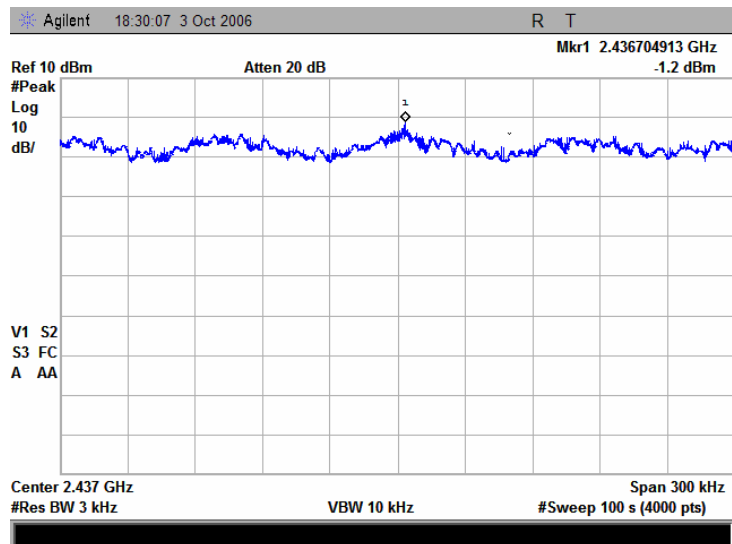


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.6.3 Peak spectral power density at mid frequency within 6 dB band, channel spacing 5 MHz and data rate 1.5 Mbps

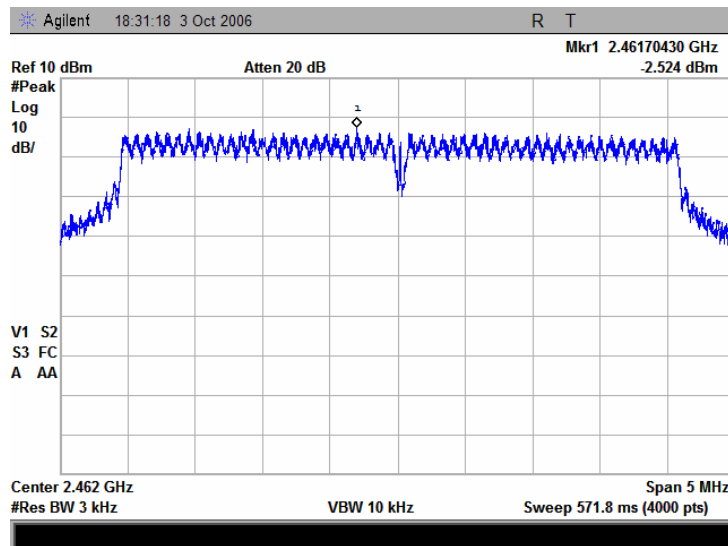


Plot 7.6.4 Peak spectral power density at mid frequency zoomed at the peak, channel spacing 5 MHz and data rate 1.5 Mbps

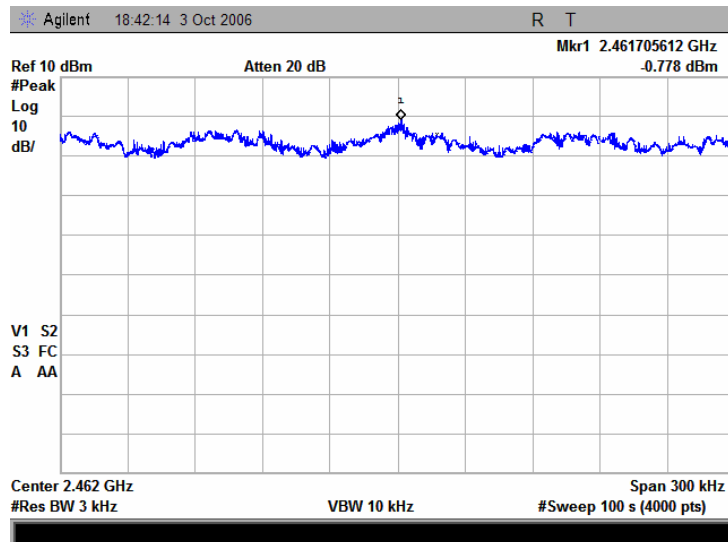


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.6.5 Peak spectral power density at high frequency within 6 dB band, channel spacing 5 MHz and data rate 1.5 Mbps

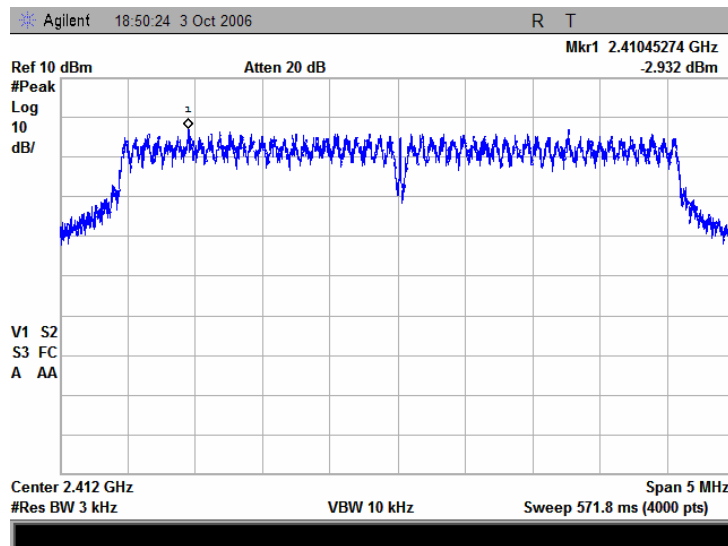


Plot 7.6.6 Peak spectral power density at high frequency zoomed at the peak, channel spacing 5 MHz and data rate 1.5 Mbps

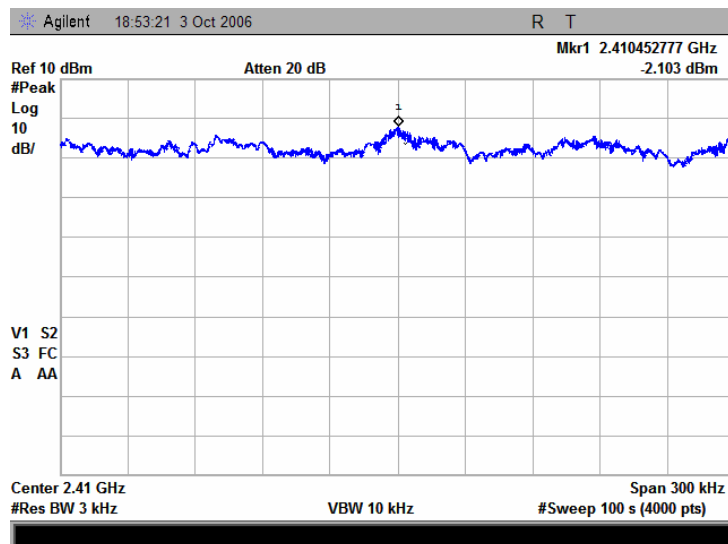


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.6.7 Peak spectral power density at low frequency within 6 dB band, channel spacing 5 MHz and data rate 13.5 Mbps

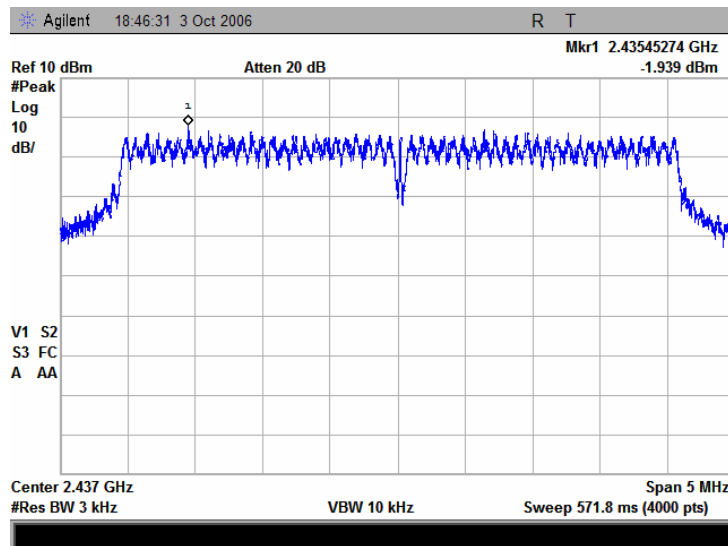


Plot 7.6.8 Peak spectral power density at low frequency zoomed at the peak, channel spacing 5 MHz and data rate 13.5 Mbps

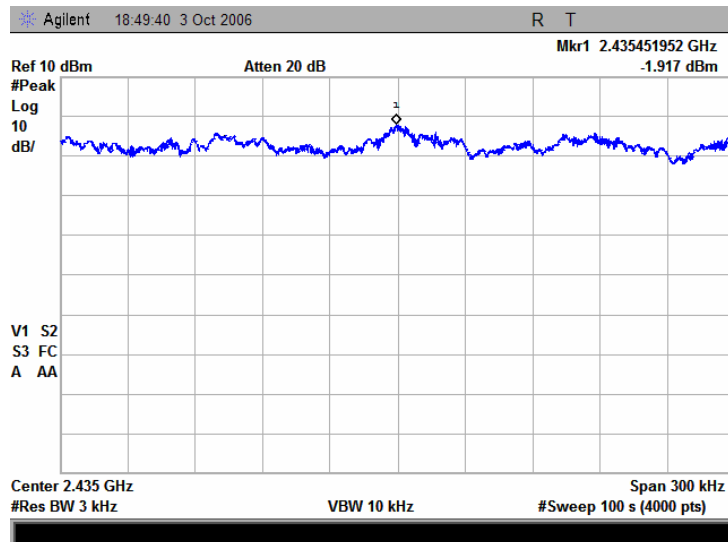


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.6.9 Peak spectral power density at mid frequency within 6 dB band, channel spacing 5 MHz and data rate 13.5 Mbps

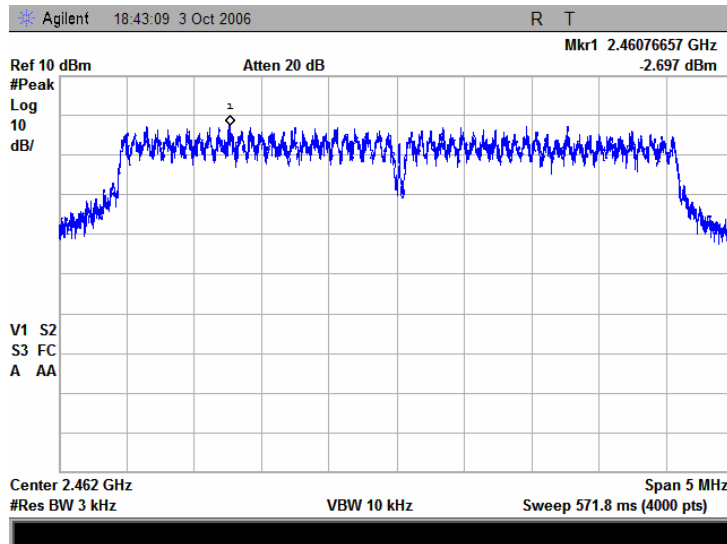


Plot 7.6.10 Peak spectral power density at mid frequency zoomed at the peak, channel spacing 5 MHz and data rate 13.5 Mbps

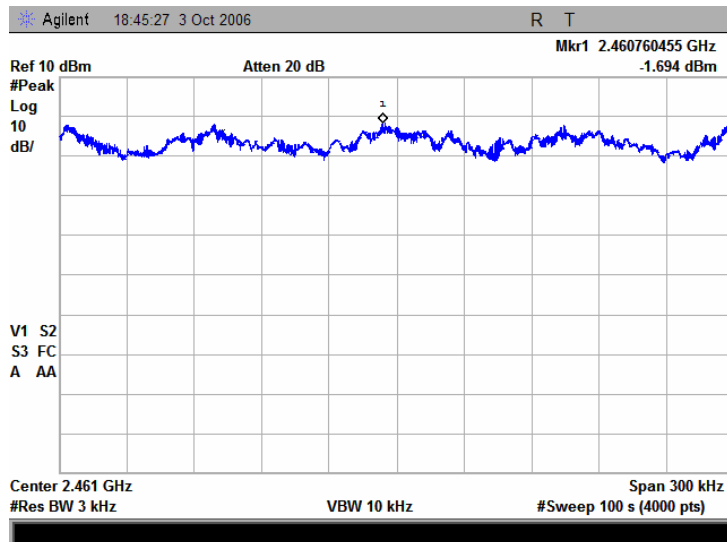


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.6.11 Peak spectral power density at high frequency within 6 dB band, channel spacing 5 MHz and data rate 13.5 Mbps

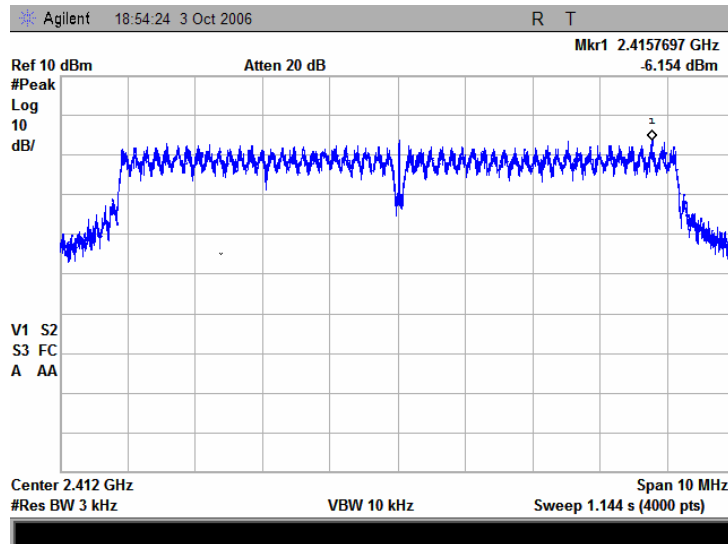


Plot 7.6.12 Peak spectral power density at high frequency zoomed at the peak, channel spacing 5 MHz and data rate 13.5 Mbps

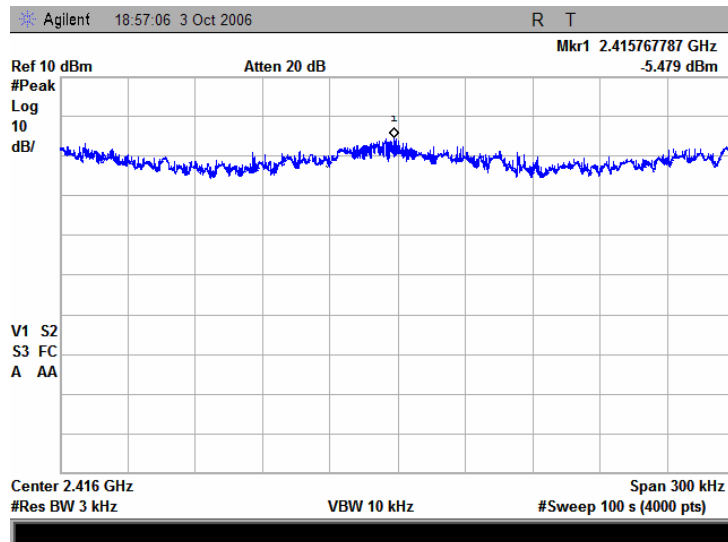


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.6.13 Peak spectral power density at low frequency within 6 dB band, channel spacing 10 MHz and data rate 3 Mbps

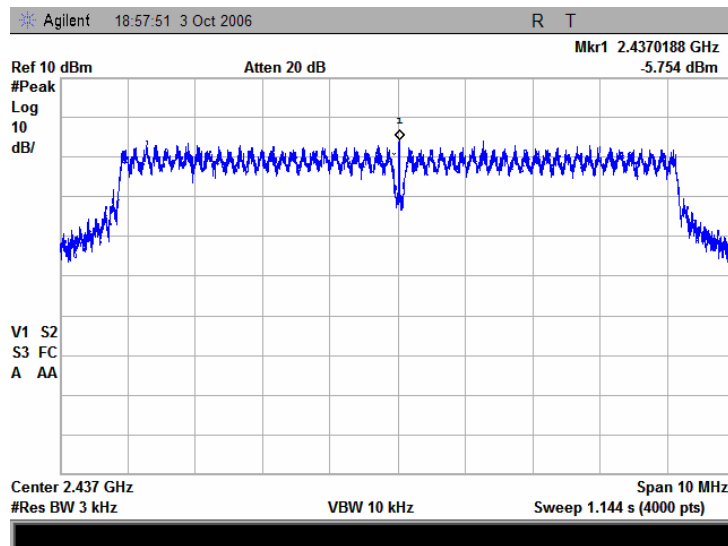


Plot 7.6.14 Peak spectral power density at low frequency zoomed at the peak, channel spacing 10 MHz and data rate 3 Mbps

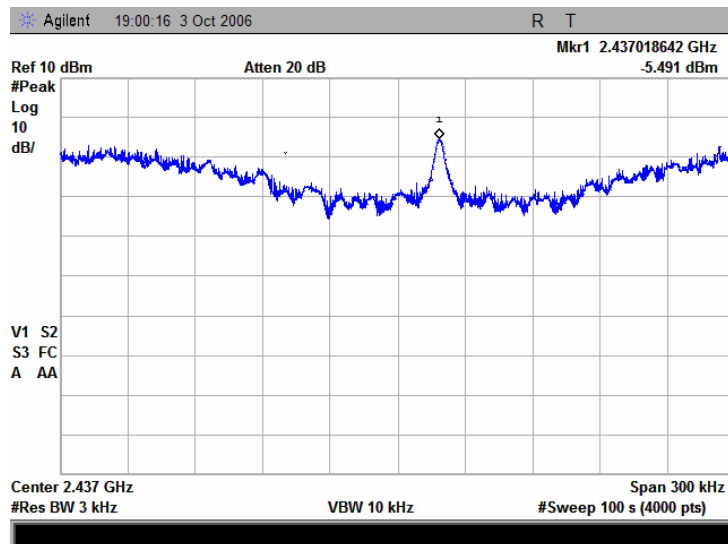


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.6.15 Peak spectral power density at mid frequency within 6 dB band, channel spacing 10 MHz and data rate 3 Mbps

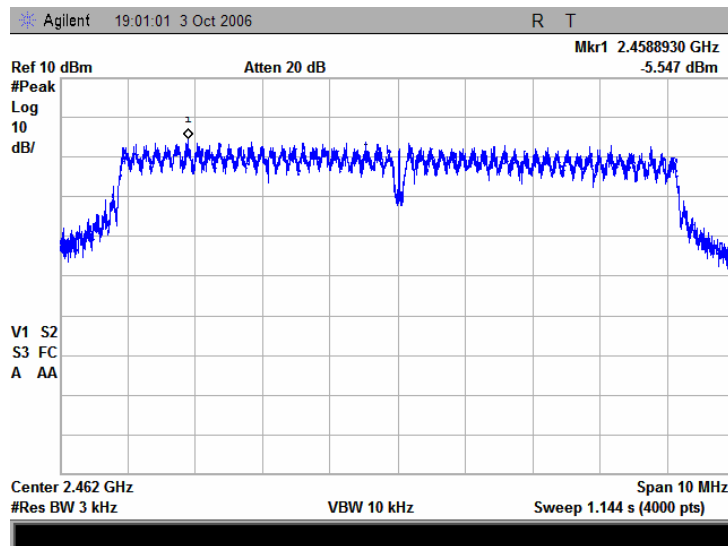


Plot 7.6.16 Peak spectral power density at mid frequency zoomed at the peak, channel spacing 10 MHz and data rate 3 Mbps

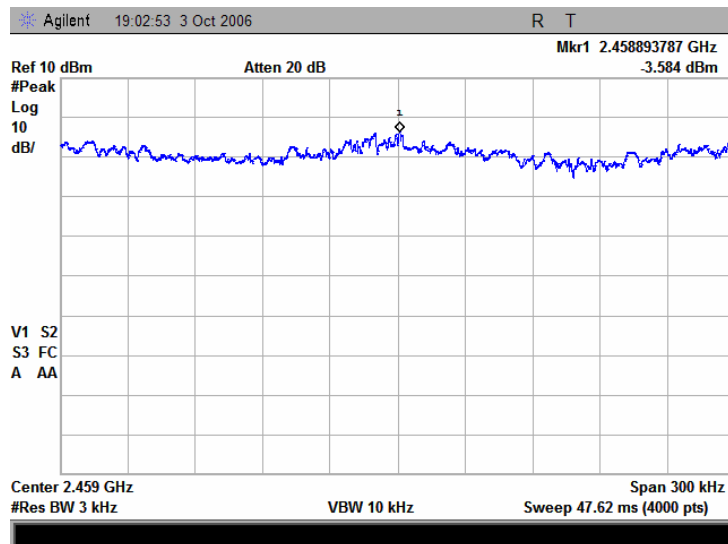


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.6.17 Peak spectral power density at high frequency within 6 dB band, channel spacing 10 MHz and data rate 3 Mbps

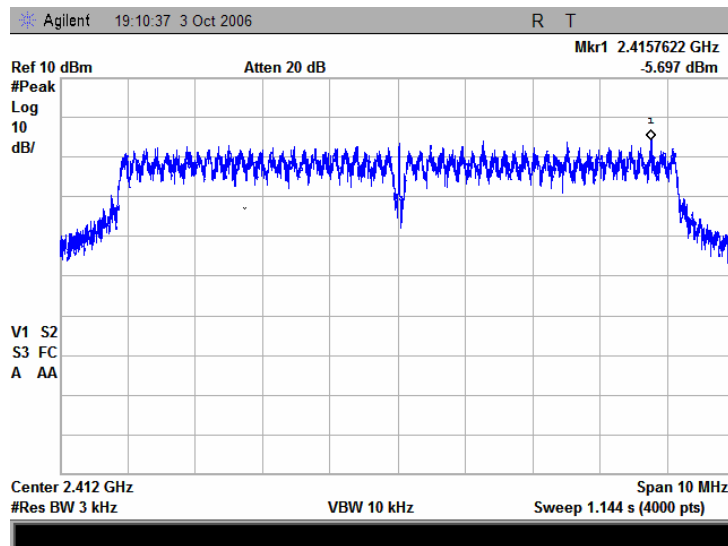


Plot 7.6.18 Peak spectral power density at high frequency zoomed at the peak, channel spacing 10 MHz and data rate 3 Mbps

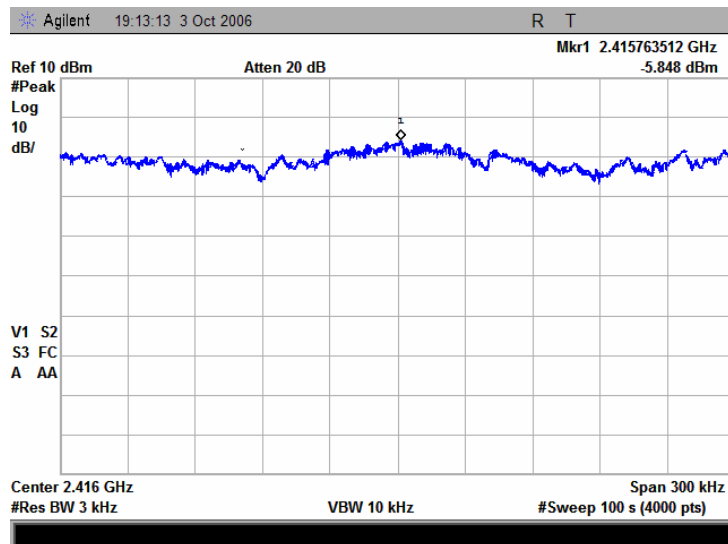


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.6.19 Peak spectral power density at low frequency within 6 dB band, channel spacing 10 MHz and data rate 27 Mbps

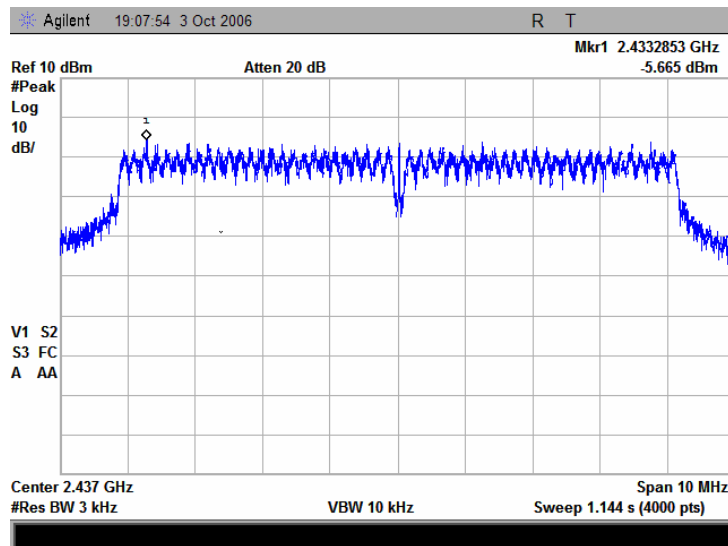


Plot 7.6.20 Peak spectral power density at low frequency zoomed at the peak, channel spacing 10 MHz and data rate 27 Mbps

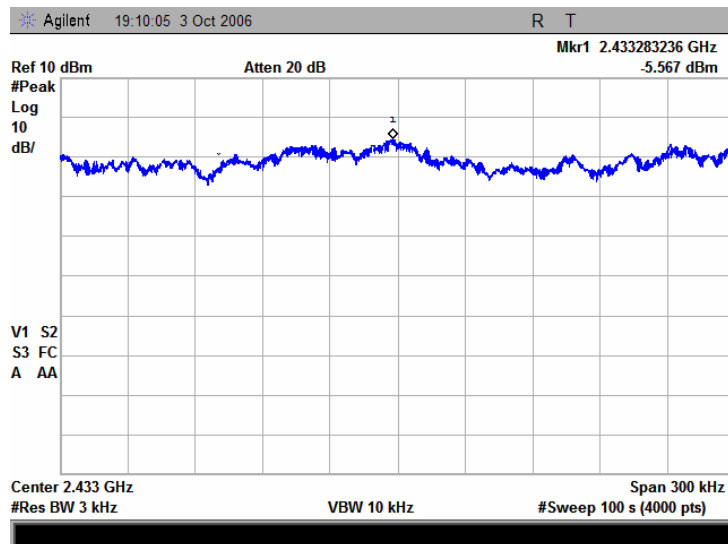


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.6.21 Peak spectral power density at mid frequency within 6 dB band, channel spacing 10 MHz and data rate 27 Mbps

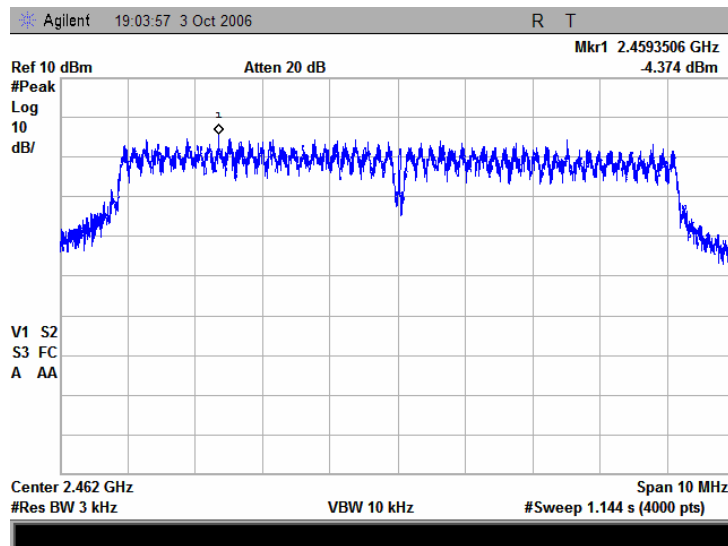


Plot 7.6.22 Peak spectral power density at mid frequency zoomed at the peak, channel spacing 10 MHz and data rate 27 Mbps

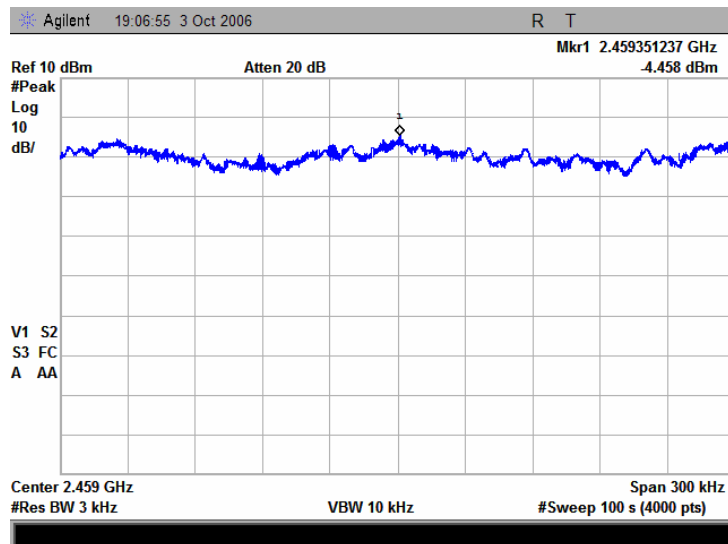


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.6.23 Peak spectral power density at high frequency within 6 dB band, channel spacing 10 MHz and data rate 27 Mbps

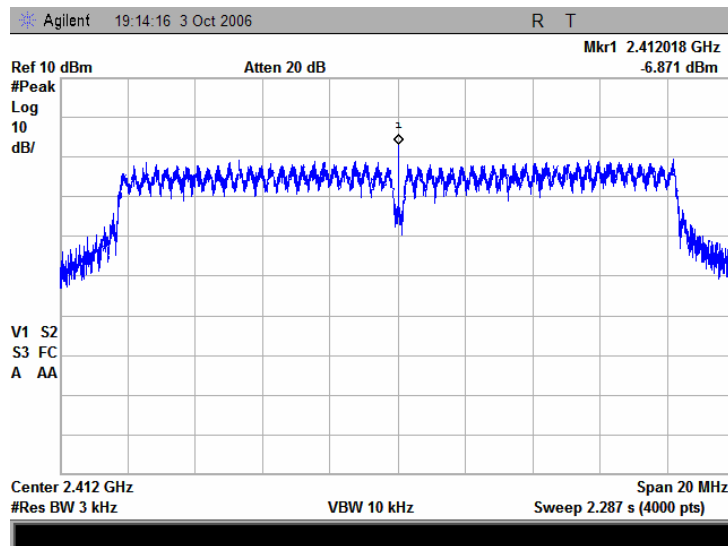


Plot 7.6.24 Peak spectral power density at high frequency zoomed at the peak, channel spacing 10 MHz and data rate 27 Mbps

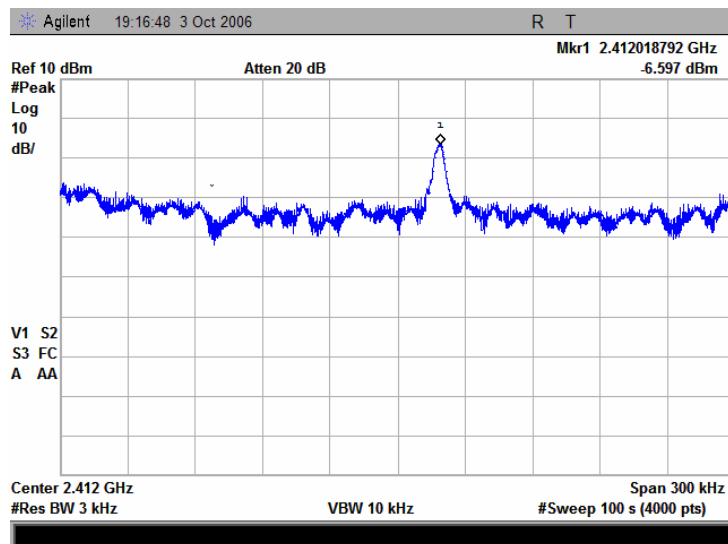


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.6.25 Peak spectral power density at low frequency within 6 dB band, channel spacing 20 MHz and data rate 6 Mbps

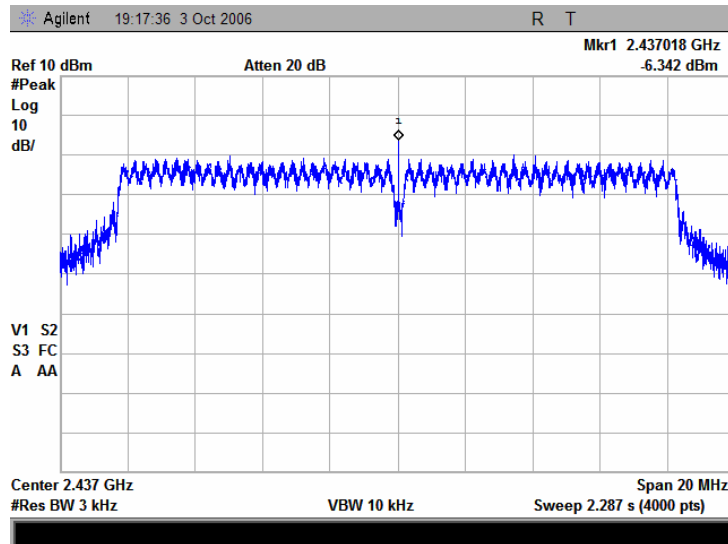


Plot 7.6.26 Peak spectral power density at low frequency zoomed at the peak, channel spacing 20 MHz and data rate 6 Mbps

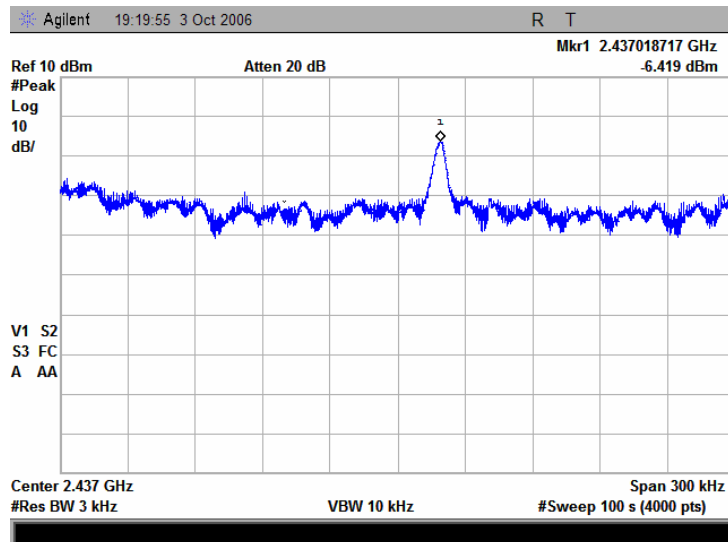


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.6.27 Peak spectral power density at mid frequency within 6 dB band, channel spacing 20 MHz and data rate 6 Mbps

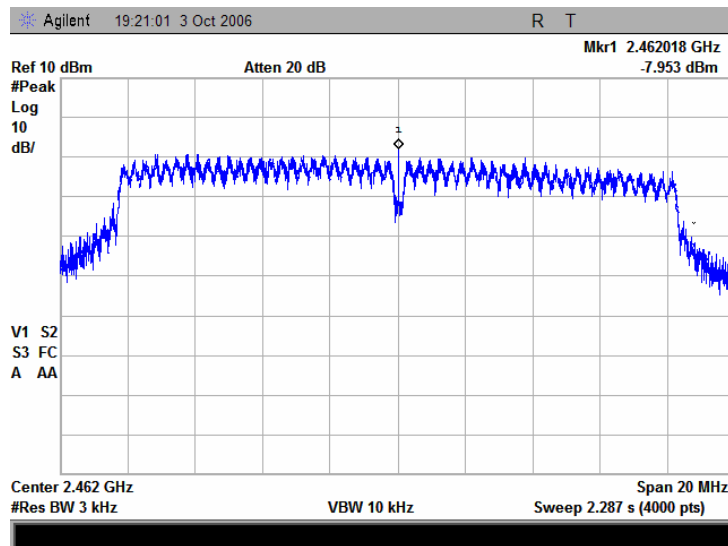


Plot 7.6.28 Peak spectral power density at mid frequency zoomed at the peak, channel spacing 20 MHz and data rate 6 Mbps

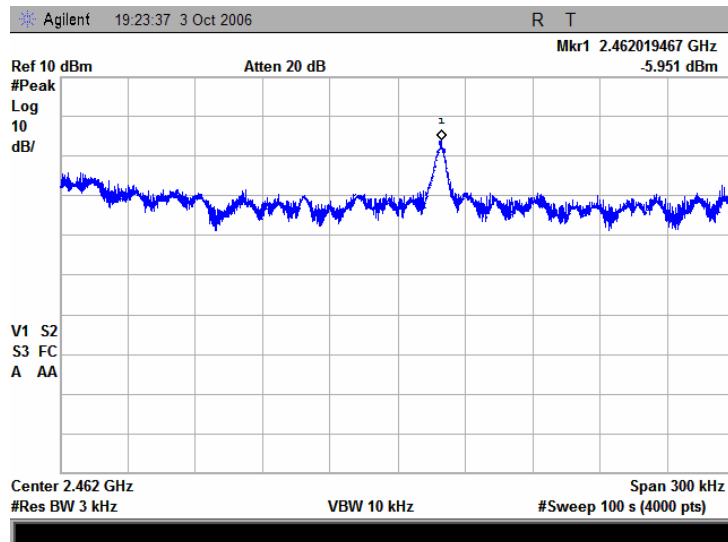


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.6.29 Peak spectral power density at high frequency within 6 dB band, channel spacing 20 MHz and data rate 6 Mbps

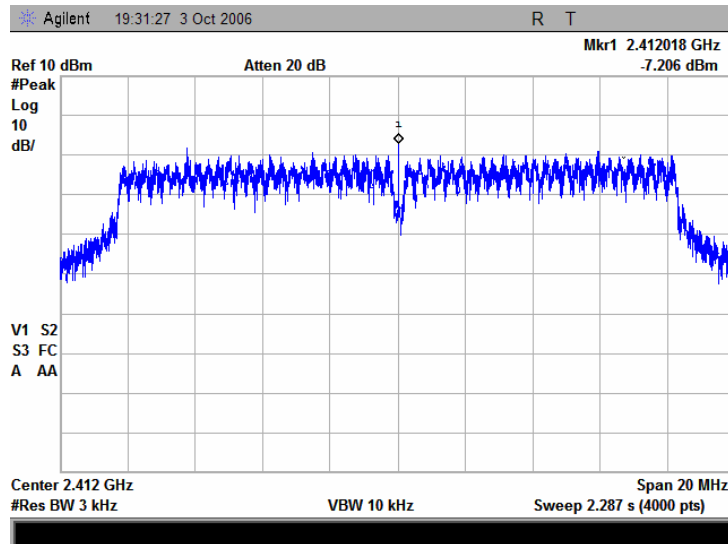


Plot 7.6.30 Peak spectral power density at high frequency zoomed at the peak, channel spacing 20 MHz and data rate 6 Mbps

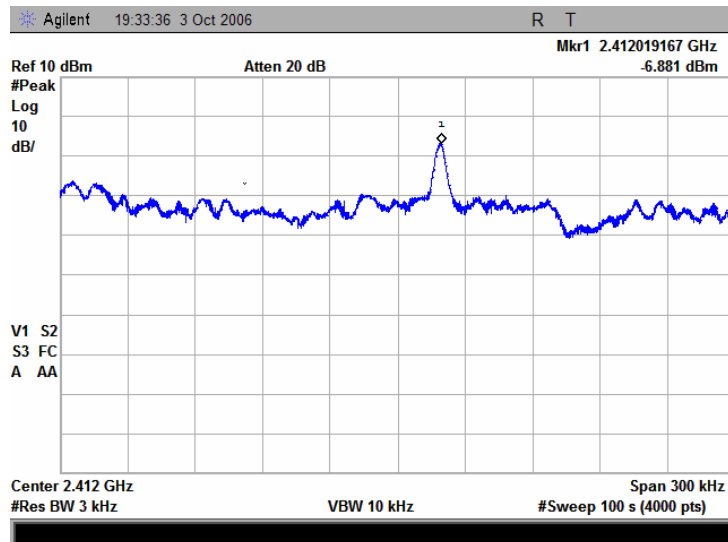


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.6.31 Peak spectral power density at low frequency within 6 dB band, channel spacing 20 MHz and data rate 54 Mbps

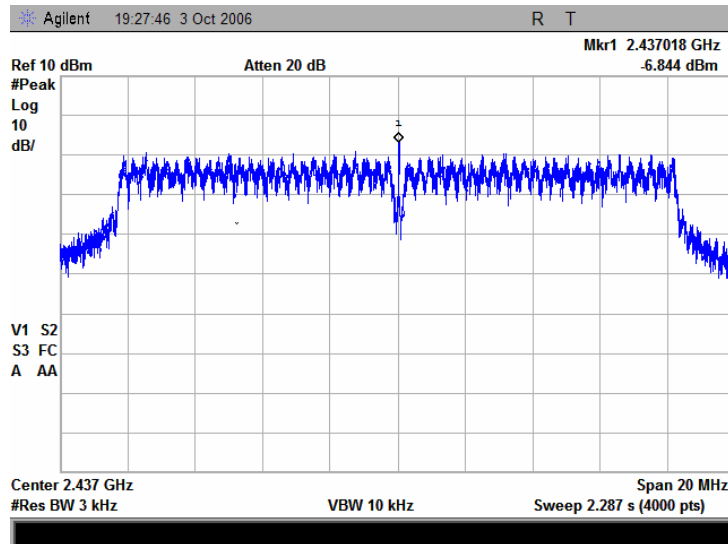


Plot 7.6.32 Peak spectral power density at low frequency zoomed at the peak, channel spacing 20 MHz and data rate 54 Mbps

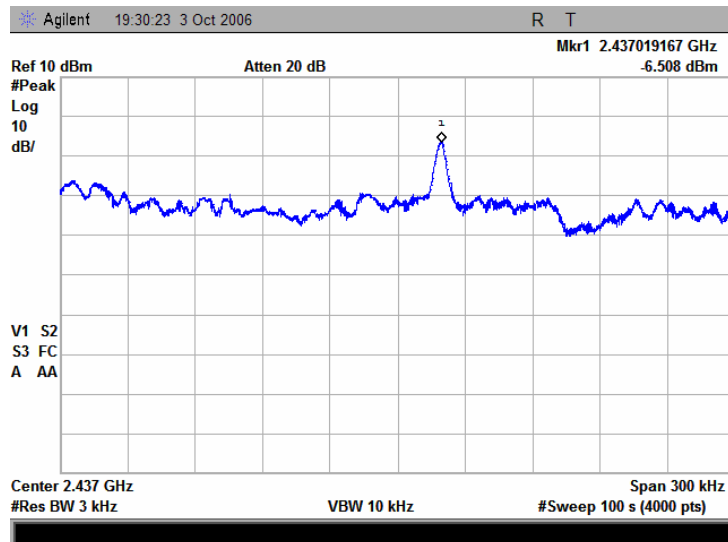


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.6.33 Peak spectral power density at mid frequency within 6 dB band, channel spacing 20 MHz and data rate 54 Mbps

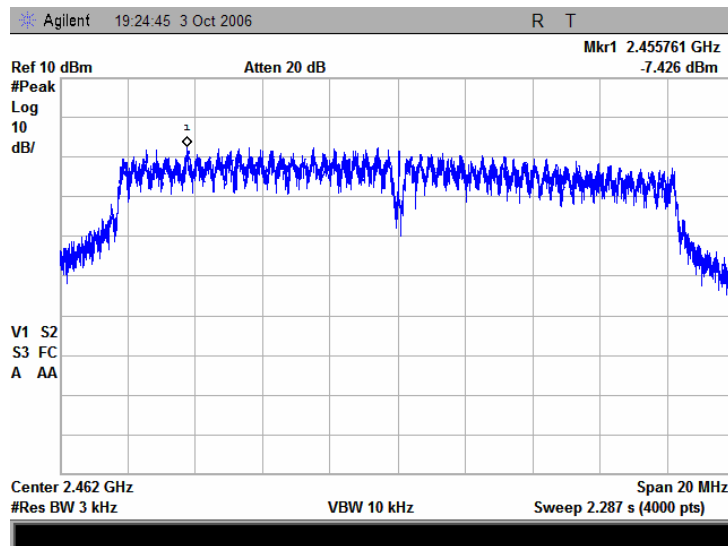


Plot 7.6.34 Peak spectral power density at mid frequency zoomed at the peak, channel spacing 20 MHz and data rate 54 Mbps

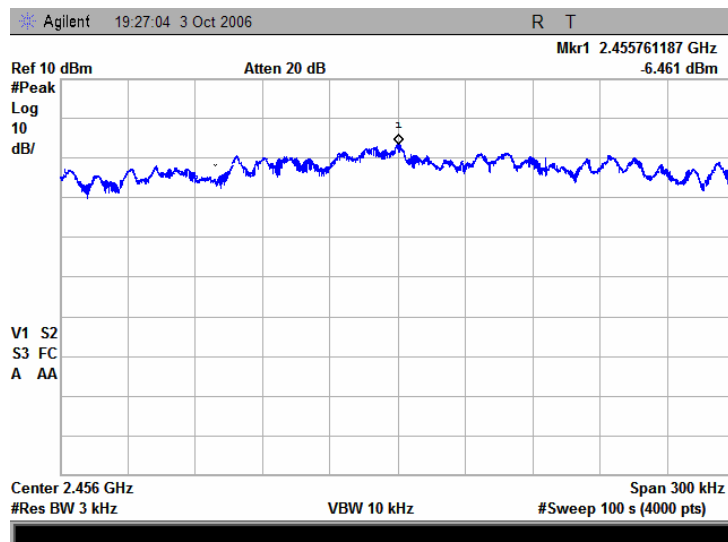


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:50:26 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 15.2 dBi integral antenna			

Plot 7.6.35 Peak spectral power density at high frequency within 6 dB band, channel spacing 20 MHz and data rate 54 Mbps



Plot 7.6.36 Peak spectral power density at high frequency zoomed at the peak, channel spacing 20 MHz and data rate 54 Mbps



Test specification: Section 15.247(d), Peak power density			
Test procedure: FR Vol. 62, page 26243, Section 15.247(d)			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/8/2006 5:53:06 PM			
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

7.7 Peak spectral power density

7.7.1 General

This test was performed to measure the peak spectral power density at the transmitter RF antenna connector. Specification test limits are given in Table 7.7.1.

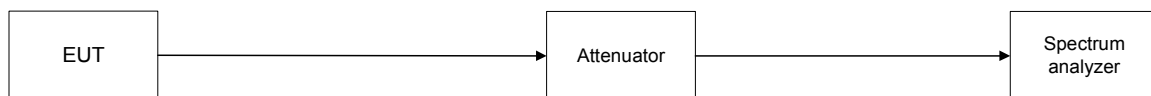
Table 7.7.1 Peak spectral power density limits

Assigned frequency range, MHz	Measurement bandwidth, kHz	Peak spectral power density, dBm
2400.0 – 2483.5	3.0	8.0

7.7.2 Test procedure

- 7.7.2.1 The EUT was set up as shown in Figure 7.7.1, energized and its proper operation was checked.
- 7.7.2.2 The EUT was adjusted to produce maximum available to end user RF output power.
- 7.7.2.3 The frequency span of spectrum analyzer was set to capture the entire 6 dB band of the transmitter, in peak hold mode with resolution bandwidth set to 3.0 kHz, video bandwidth wider than resolution bandwidth, auto sweep time and sufficient number of sweeps was allowed for trace stabilization. The spectrum lines spacing was verified to be wider than 3 kHz. Otherwise the resolution bandwidth was reduced until individual spectrum lines were resolved and the power of individual spectrum lines was integrated over 3 kHz band.
- 7.7.2.4 The peak of emission was zoomed with span set just wide enough to capture the emission peak area and sweep time was set equal to span width divided by resolution bandwidth. Spectrum analyzer was set in peak hold mode, sufficient number of sweeps was allowed for trace stabilization and peak spectral power density was measured as provided in Table 7.7.2 and associated plots.

Figure 7.7.1 Peak spectral power density test setup



Test specification:		Section 15.247(d), Peak power density	
Test procedure:		FR Vol. 62, page 26243, Section 15.247(d)	
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:53:06 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Table 7.7.2 Peak spectral power density test results

ASSIGNED FREQUENCY: 2400 – 2483.5 MHz
 MODULATION: QAM
 MODULATING SIGNAL: PRBS
 TRANSMITTER OUTPUT POWER SETTINGS: Maximum
 DETECTOR USED: Peak
 RESOLUTION BANDWIDTH: 3 kHz
 VIDEO BANDWIDTH: 10 kHz

Carrier frequency, MHz	Spectrum analyzer reading, dBm	External attenuation, dB	Cable loss, dB	Peak power density, dB(mW/3 kHz)	Limit, dBm	Margin*, dB	Verdict
Channel spacing: 5 MHz							
Data rate: 1.5 Mbps							
2410.92269	-3.461	Included	Included	-3.461	8.00	-11.461	Pass
2435.15060	-6.394	Included	Included	-6.394	8.00	-14.394	Pass
2460.92449	-3.457	Included	Included	-3.457	8.00	-11.457	Pass
Data rate: 13.5 Mbps							
2410.45015	-3.883	Included	Included	-3.883	8.00	-11.883	Pass
2435.45043	-4.667	Included	Included	-4.667	8.00	-12.667	Pass
2460.14775	-3.178	Included	Included	-3.178	8.00	-11.178	Pass
Channel spacing: 10 MHz							
Data rate: 3 Mbps							
2413.26444	-7.673	Included	Included	-7.673	8.00	-15.673	Pass
2433.89256	-6.914	Included	Included	-6.914	8.00	-14.914	Pass
2458.89431	-6.560	Included	Included	-6.560	8.00	-14.560	Pass
Data rate: 27 Mbps							
2416.08221	-7.846	Included	Included	-7.846	8.00	-15.846	Pass
2433.88851	-6.797	Included	Included	-6.797	8.00	-14.797	Pass
2458.28274	-6.297	Included	Included	-6.297	8.00	-14.297	Pass
Channel spacing: 20 MHz							
Data rate: 6 Mbps							
2412.01774	-7.857	Included	Included	-7.857	8.00	-15.857	Pass
2437.01827	-7.697	Included	Included	-7.697	8.00	-15.697	Pass
2462.01872	-7.196	Included	Included	-7.196	8.00	-15.196	Pass
Data rate: 54 Mbps							
2419.50826	-10.130	Included	Included	-10.130	8.00	-18.130	Pass
2431.70006	-11.550	Included	Included	-11.550	8.00	-19.550	Pass
2459.54456	-9.334	Included	Included	-9.334	8.00	-17.334	Pass

* - Margin = Peak power density – specification limit.

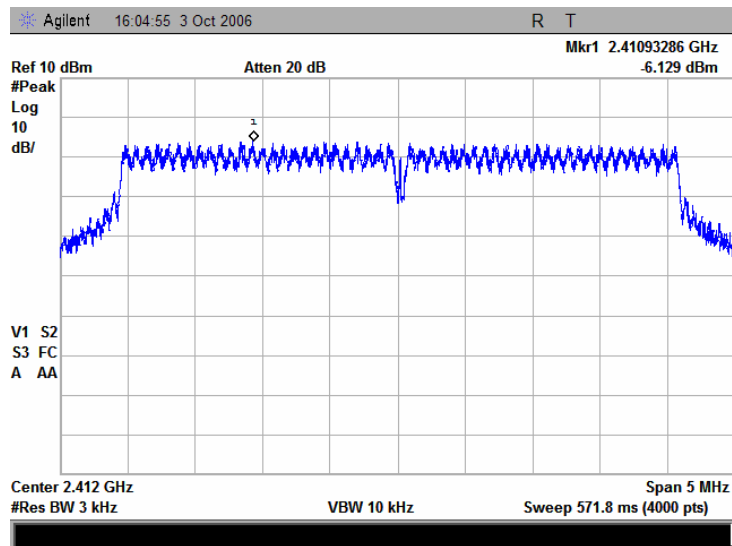
Reference numbers of test equipment used

HL 1650	HL 2869	HL 2909				
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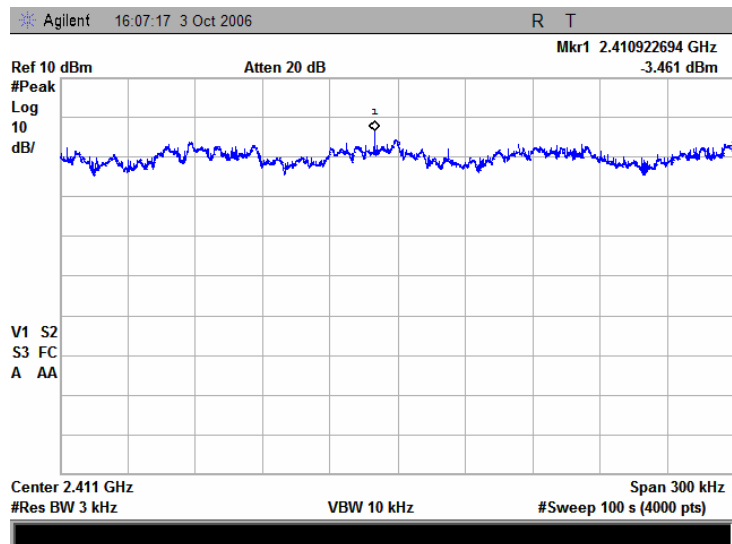
Full description is given in Appendix A.

Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:53:06 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.7.1 Peak spectral power density at low frequency within 6 dB band, channel spacing 5 MHz and data rate 1.5 Mbps

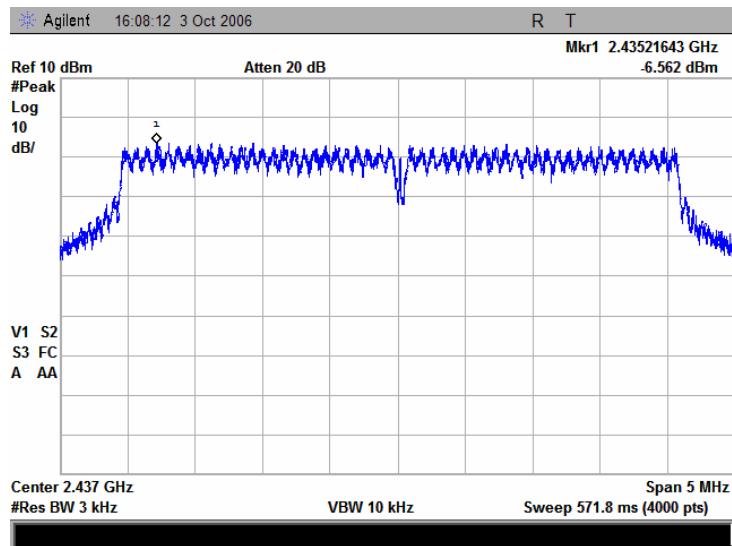


Plot 7.7.2 Peak spectral power density at low frequency zoomed at the peak, channel spacing 5 MHz and data rate 1.5 Mbps

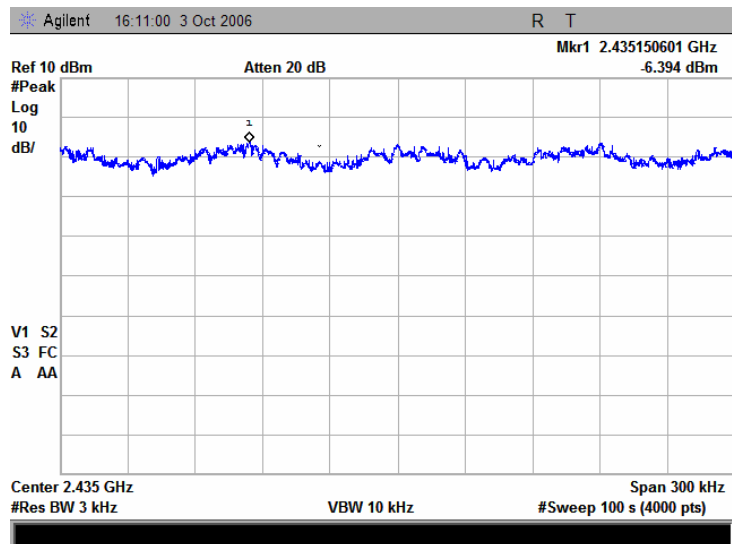


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:53:06 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.7.3 Peak spectral power density at mid frequency within 6 dB band, channel spacing 5 MHz and data rate 1.5 Mbps

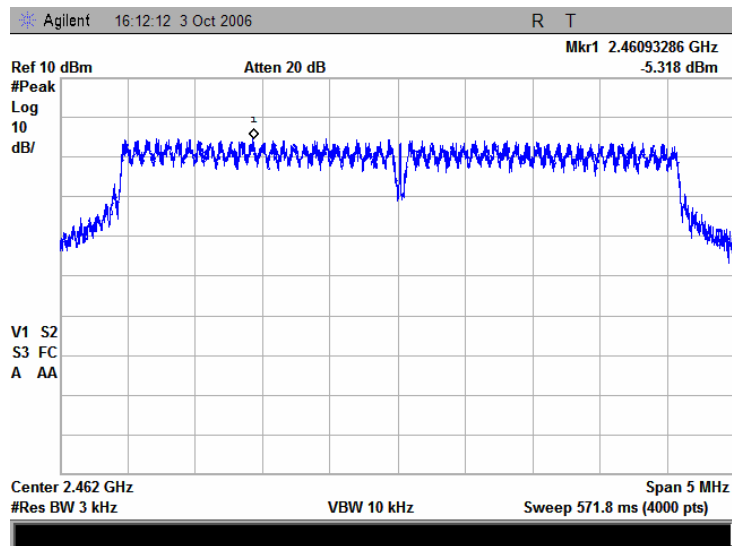


Plot 7.7.4 Peak spectral power density at mid frequency zoomed at the peak, channel spacing 5 MHz and data rate 1.5 Mbps

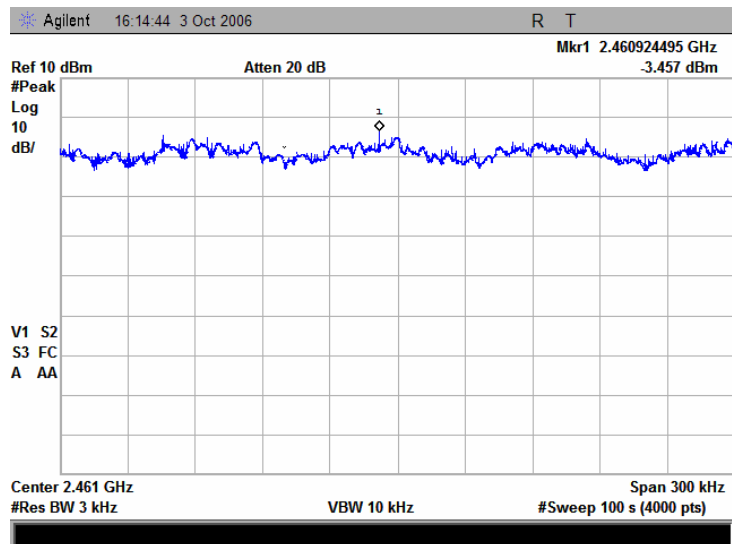


Test specification: Section 15.247(d), Peak power density			
Test procedure: FR Vol. 62, page 26243, Section 15.247(d)			
Test mode: Compliance	Verdict: PASS		
Date & Time: 10/8/2006 5:53:06 PM			
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.7.5 Peak spectral power density at high frequency within 6 dB band, channel spacing 5 MHz and data rate 1.5 Mbps

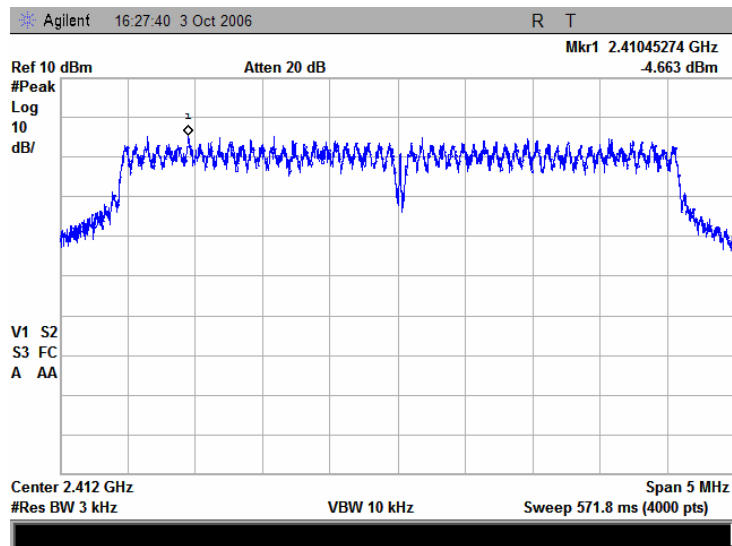


Plot 7.7.6 Peak spectral power density at high frequency zoomed at the peak, channel spacing 5 MHz and data rate 1.5 Mbps

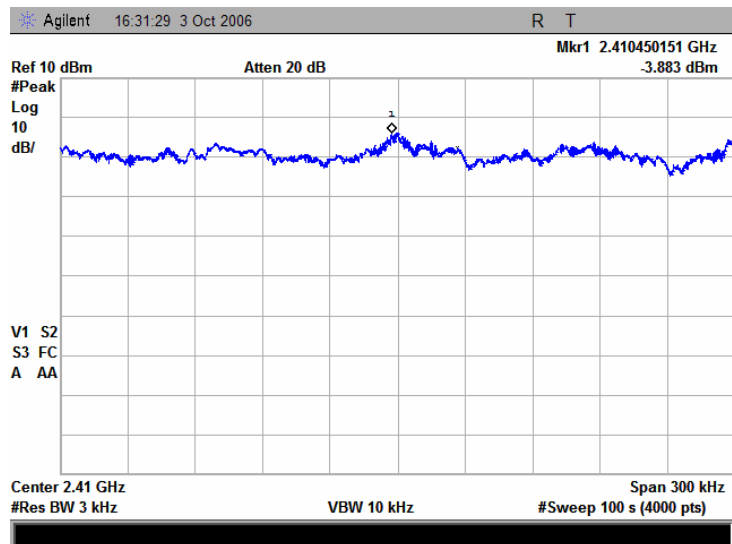


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:53:06 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.7.7 Peak spectral power density at low frequency within 6 dB band, channel spacing 5 MHz and data rate 13.5 Mbps

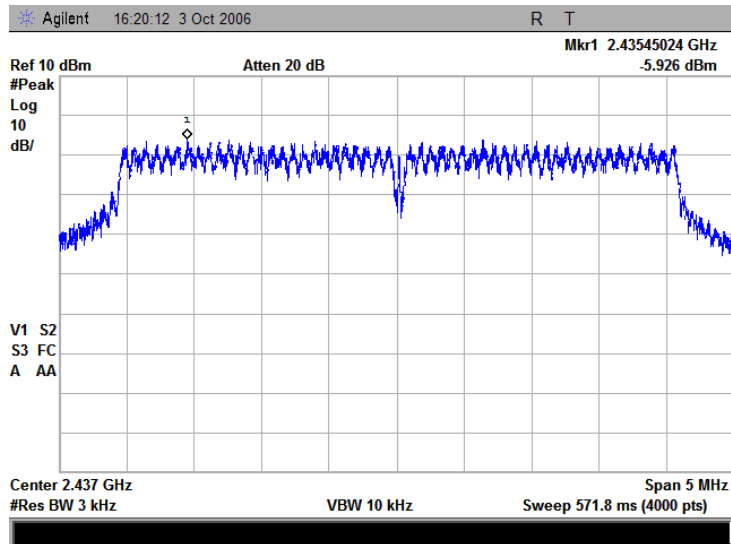


Plot 7.7.8 Peak spectral power density at low frequency zoomed at the peak, channel spacing 5 MHz and data rate 13.5 Mbps

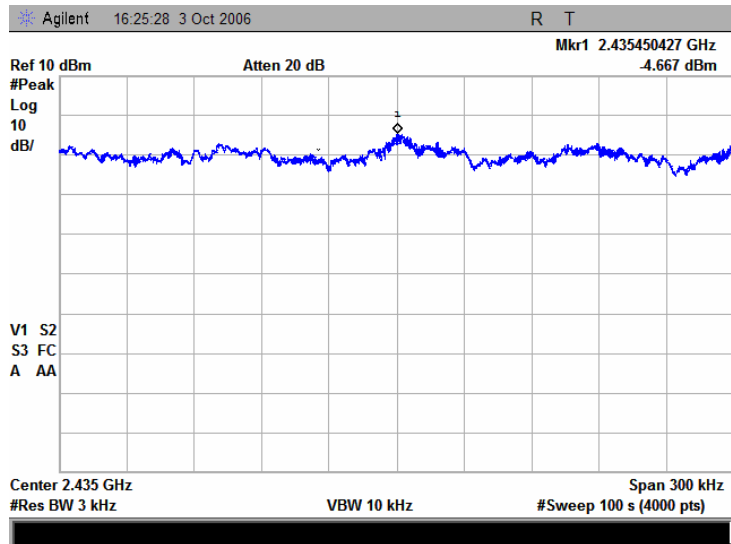


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:53:06 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.7.9 Peak spectral power density at mid frequency within 6 dB band, channel spacing 5 MHz and data rate 13.5 Mbps

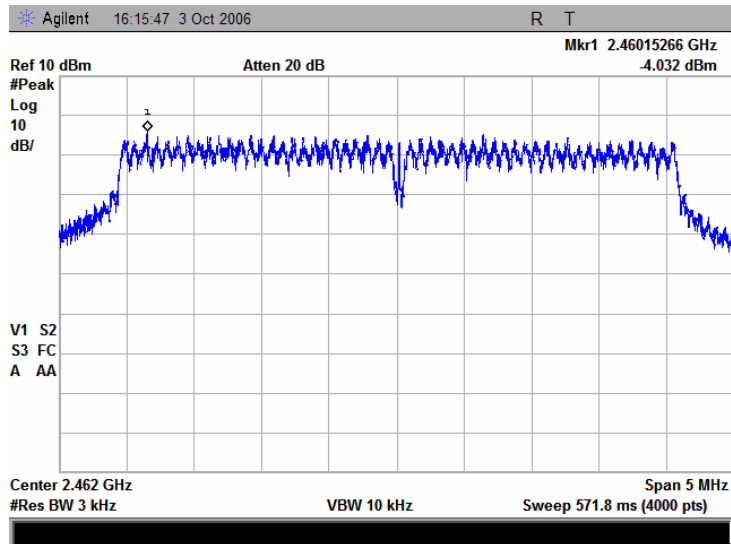


Plot 7.7.10 Peak spectral power density at mid frequency zoomed at the peak, channel spacing 5 MHz and data rate 13.5 Mbps

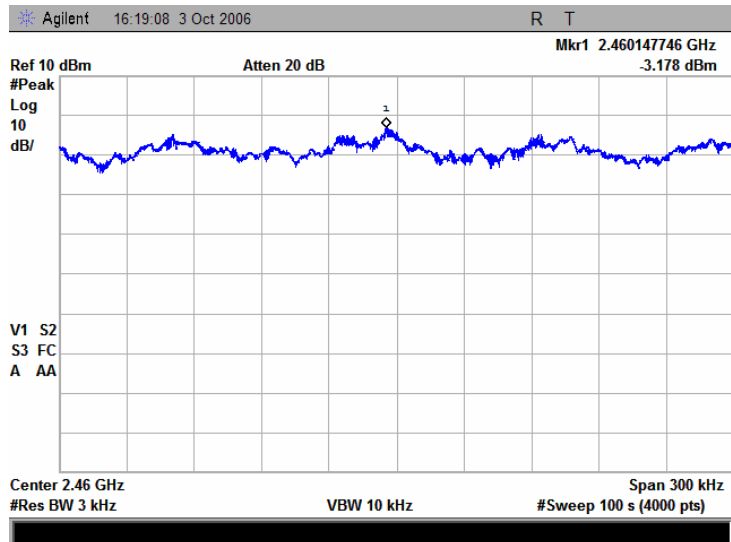


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:53:06 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.7.11 Peak spectral power density at high frequency within 6 dB band, channel spacing 5 MHz and data rate 13.5 Mbps

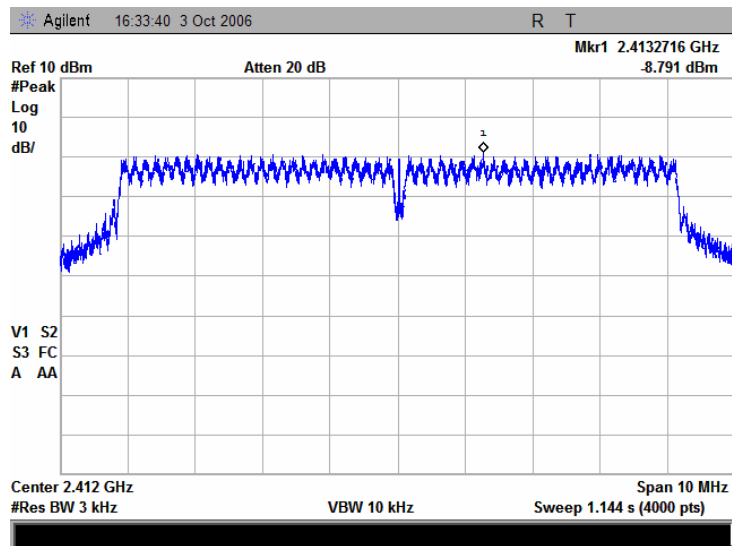


Plot 7.7.12 Peak spectral power density at high frequency zoomed at the peak, channel spacing 5 MHz and data rate 13.5 Mbps

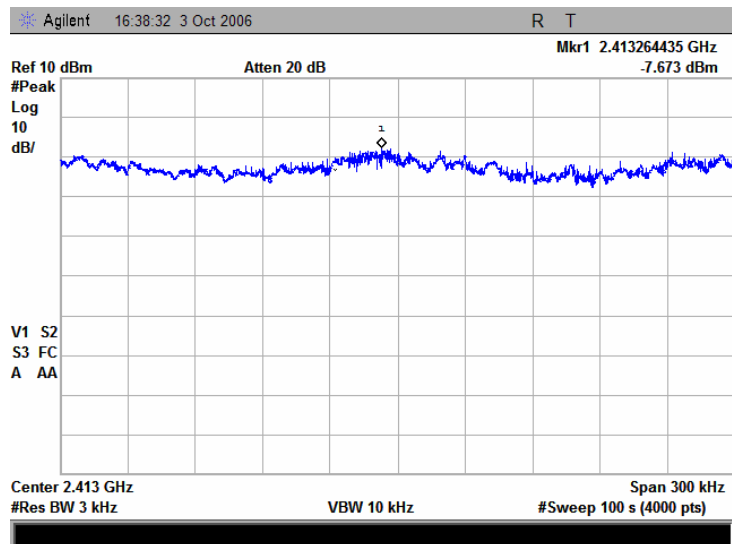


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:53:06 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.7.13 Peak spectral power density at low frequency within 6 dB band, channel spacing 10 MHz and data rate 3 Mbps

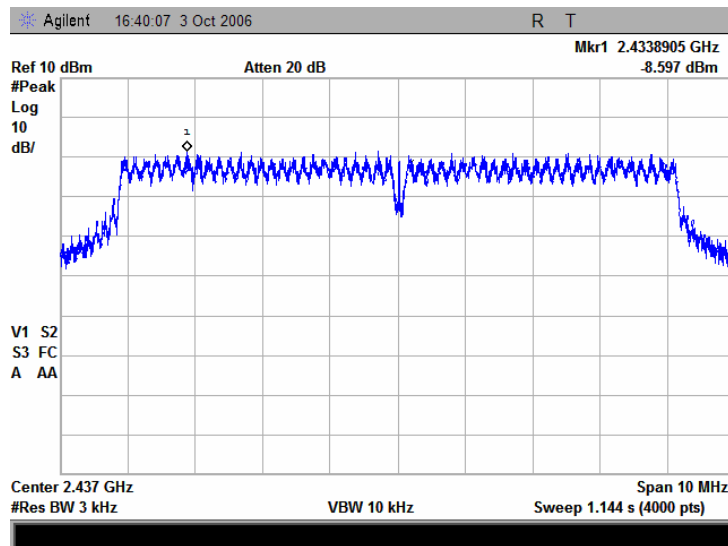


Plot 7.7.14 Peak spectral power density at low frequency zoomed at the peak, channel spacing 10 MHz and data rate 3 Mbps

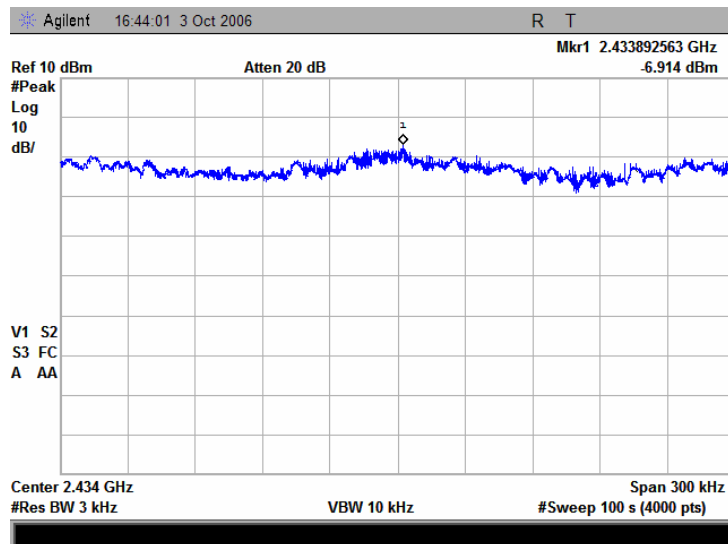


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:53:06 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.7.15 Peak spectral power density at mid frequency within 6 dB band, channel spacing 10 MHz and data rate 3 Mbps

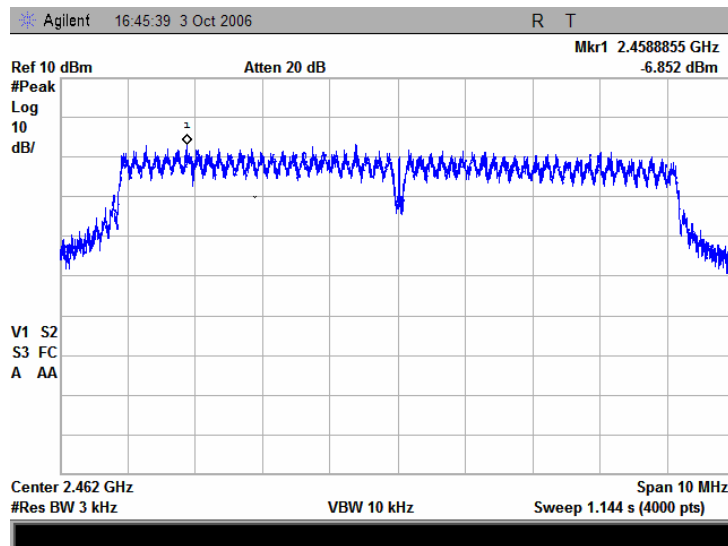


Plot 7.7.16 Peak spectral power density at mid frequency zoomed at the peak, channel spacing 10 MHz and data rate 3 Mbps

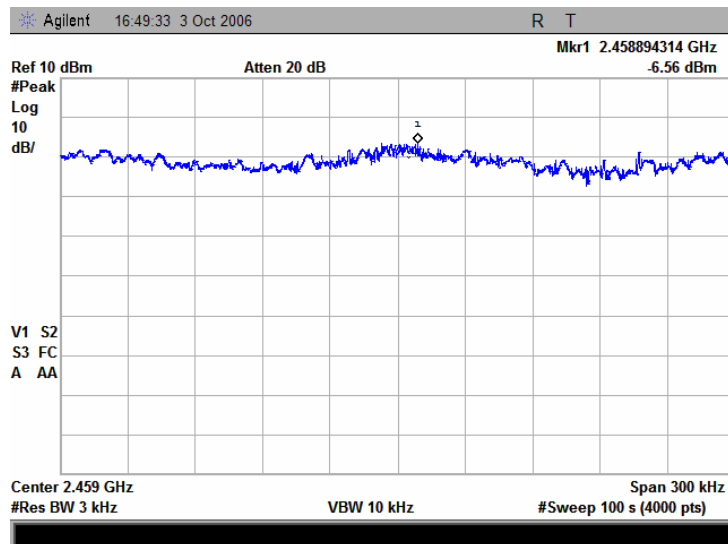


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:53:06 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.7.17 Peak spectral power density at high frequency within 6 dB band, channel spacing 10 MHz and data rate 3 Mbps

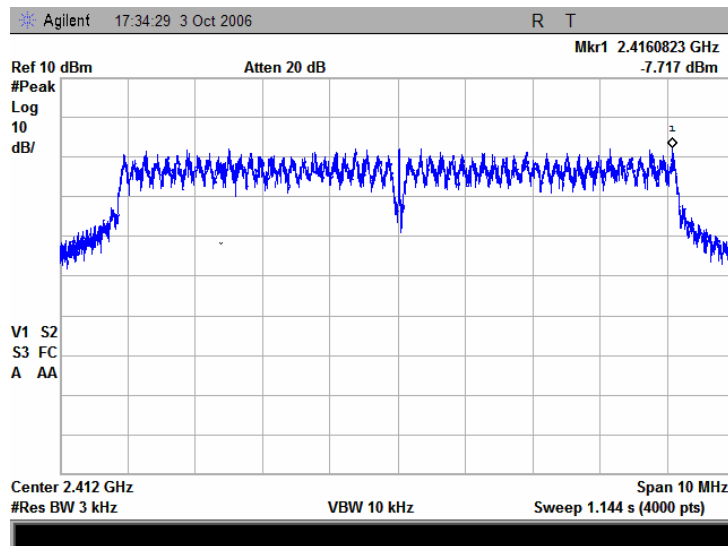


Plot 7.7.18 Peak spectral power density at high frequency zoomed at the peak, channel spacing 10 MHz and data rate 3 Mbps

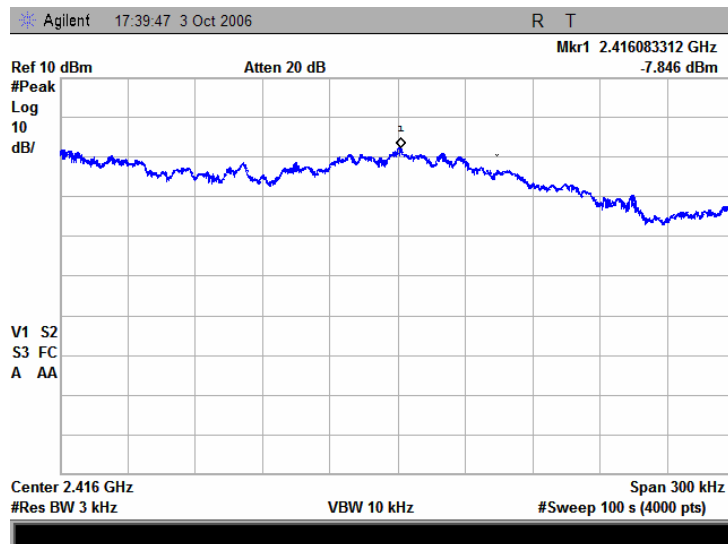


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:53:06 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.7.19 Peak spectral power density at low frequency within 6 dB band, channel spacing 10 MHz and data rate 27 Mbps

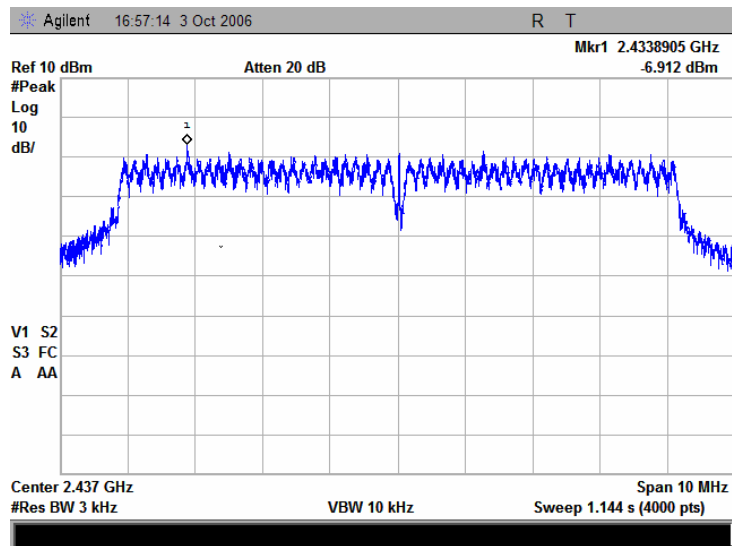


Plot 7.7.20 Peak spectral power density at low frequency zoomed at the peak, channel spacing 10 MHz and data rate 27 Mbps

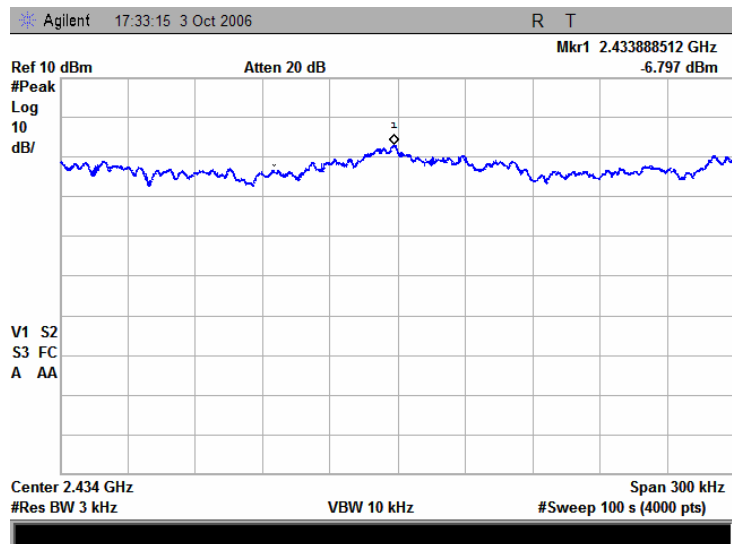


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:53:06 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.7.21 Peak spectral power density at mid frequency within 6 dB band, channel spacing 10 MHz and data rate 27 Mbps

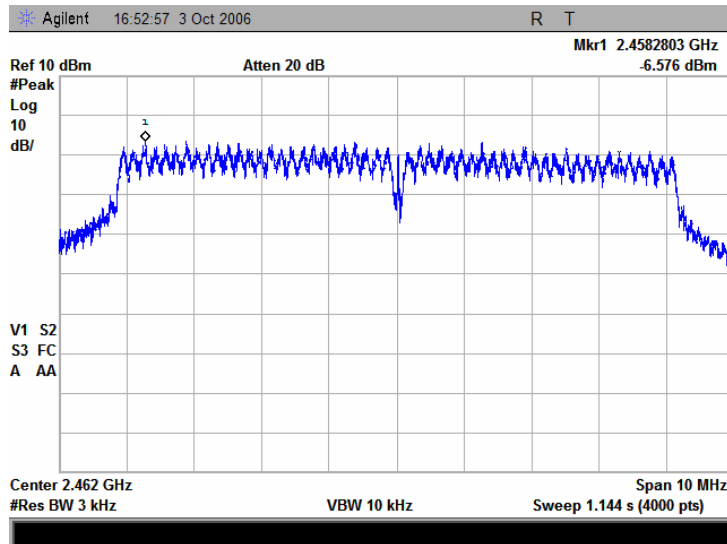


Plot 7.7.22 Peak spectral power density at mid frequency zoomed at the peak, channel spacing 10 MHz and data rate 27 Mbps

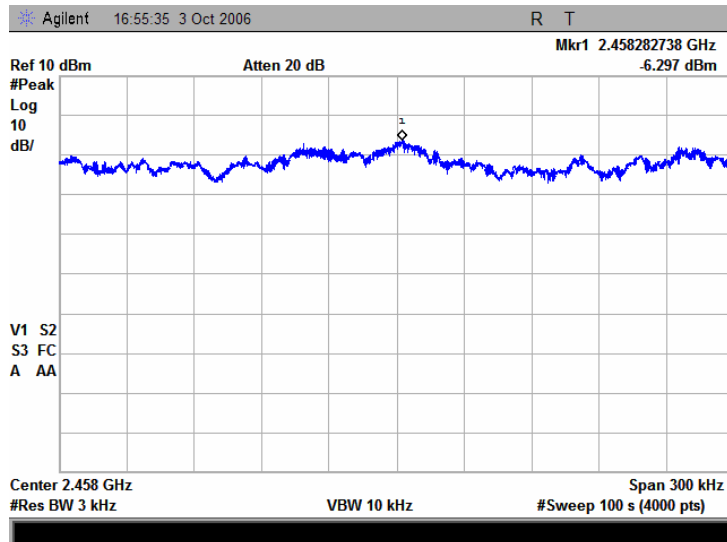


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:53:06 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.7.23 Peak spectral power density at high frequency within 6 dB band, channel spacing 10 MHz and data rate 27 Mbps

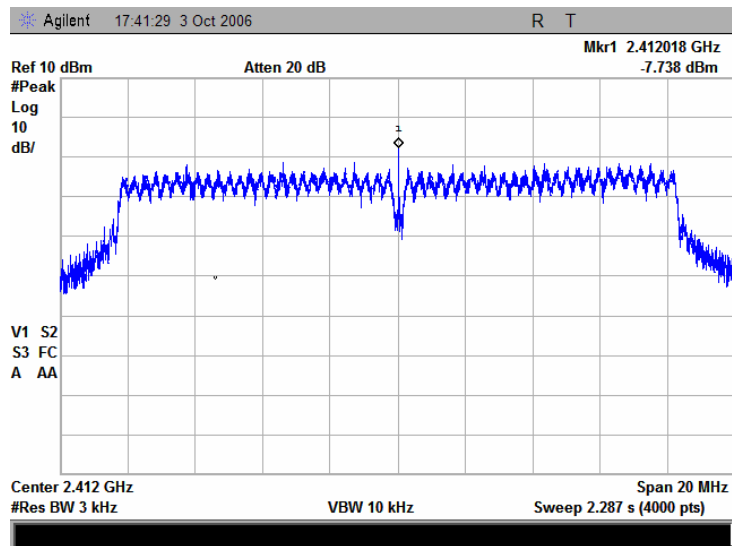


Plot 7.7.24 Peak spectral power density at high frequency zoomed at the peak, channel spacing 10 MHz and data rate 27 Mbps

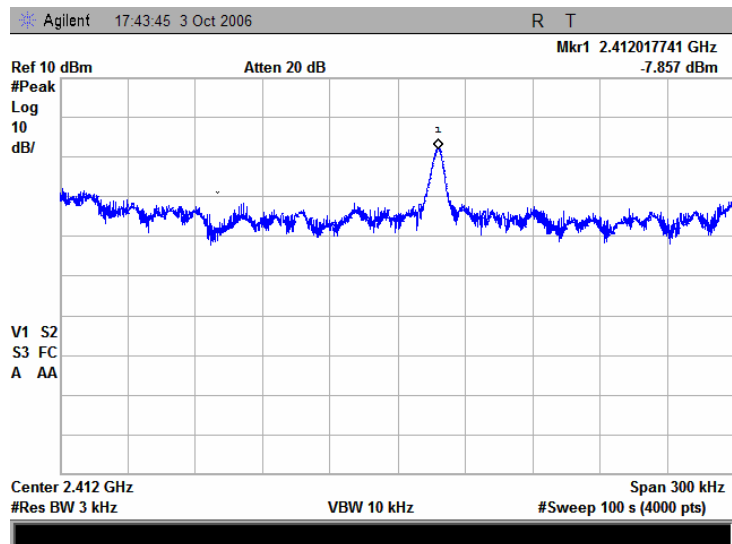


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:53:06 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.7.25 Peak spectral power density at low frequency within 6 dB band, channel spacing 20 MHz and data rate 6 Mbps

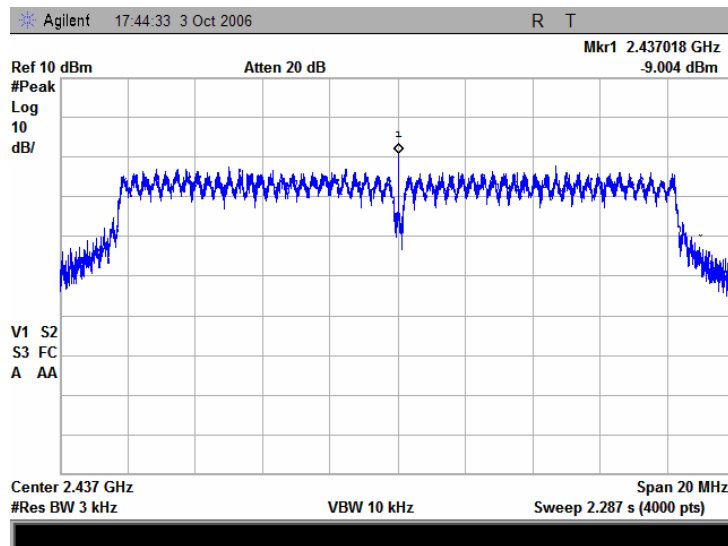


Plot 7.7.26 Peak spectral power density at low frequency zoomed at the peak, channel spacing 20 MHz and data rate 6 Mbps

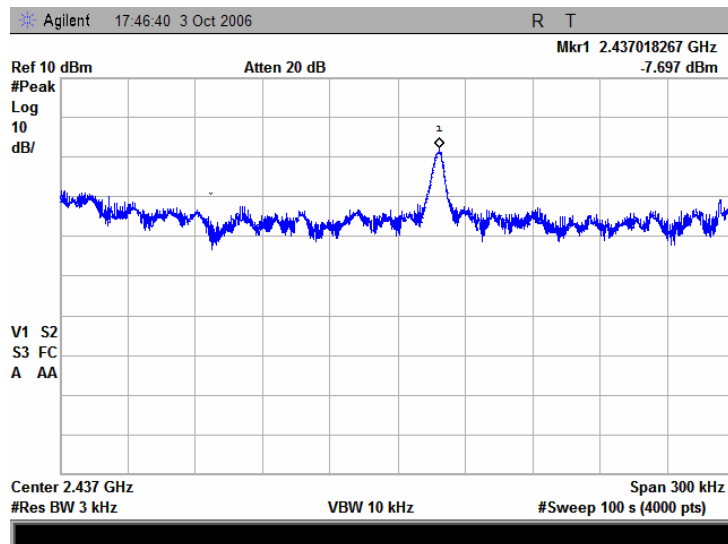


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:53:06 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.7.27 Peak spectral power density at mid frequency within 6 dB band, channel spacing 20 MHz and data rate 6 Mbps

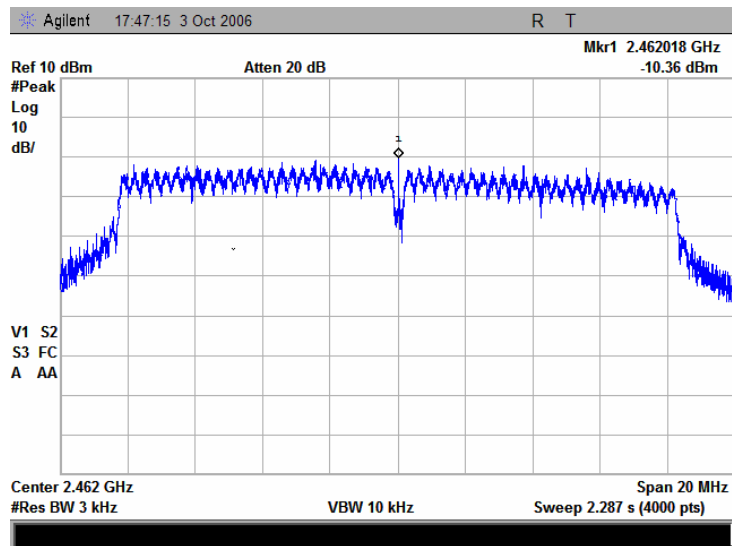


Plot 7.7.28 Peak spectral power density at mid frequency zoomed at the peak, channel spacing 20 MHz and data rate 6 Mbps

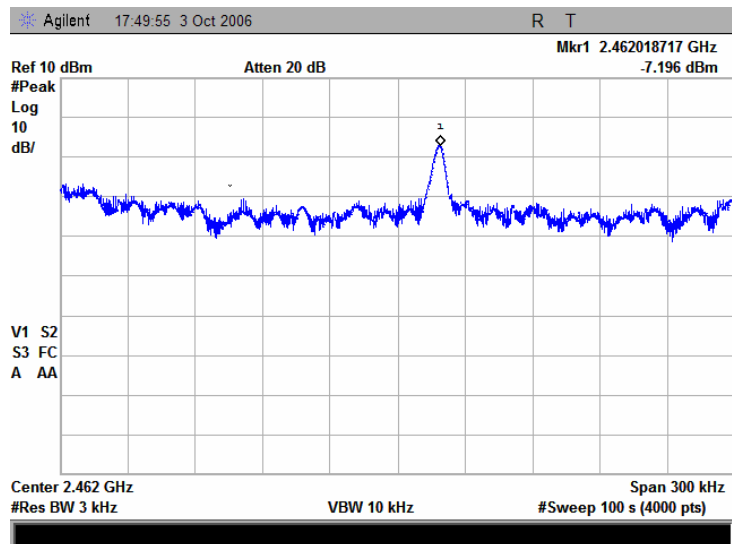


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:53:06 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.7.29 Peak spectral power density at high frequency within 6 dB band, channel spacing 20 MHz and data rate 6 Mbps

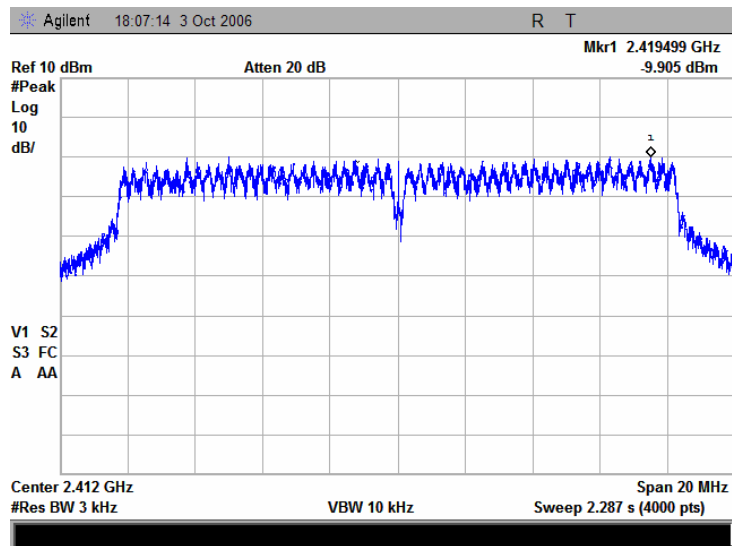


Plot 7.7.30 Peak spectral power density at high frequency zoomed at the peak, channel spacing 20 MHz and data rate 6 Mbps

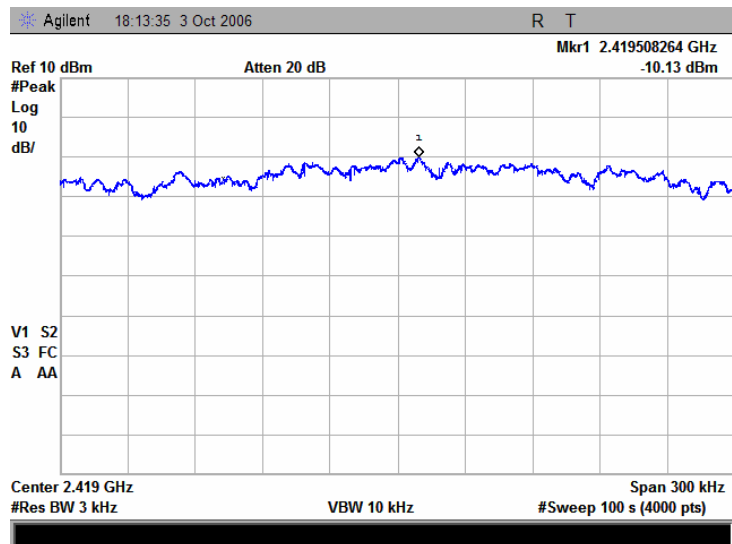


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:53:06 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.7.31 Peak spectral power density at low frequency within 6 dB band, channel spacing 20 MHz and data rate 54 Mbps

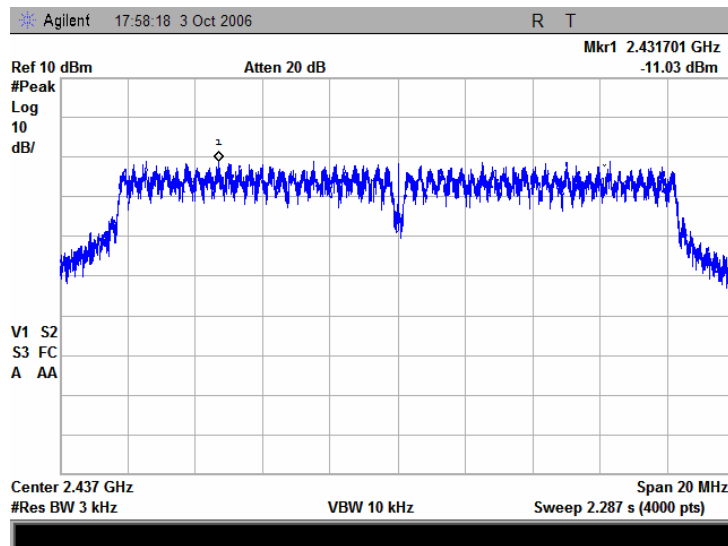


Plot 7.7.32 Peak spectral power density at low frequency zoomed at the peak, channel spacing 20 MHz and data rate 54 Mbps

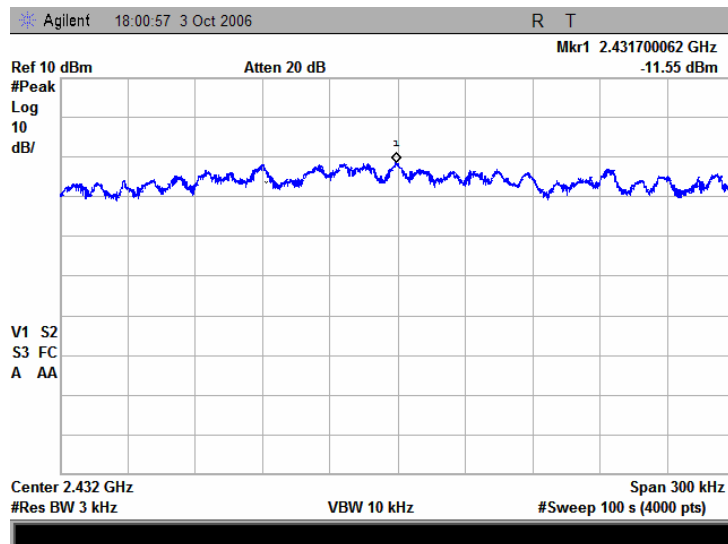


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:53:06 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.7.33 Peak spectral power density at mid frequency within 6 dB band, channel spacing 20 MHz and data rate 54 Mbps

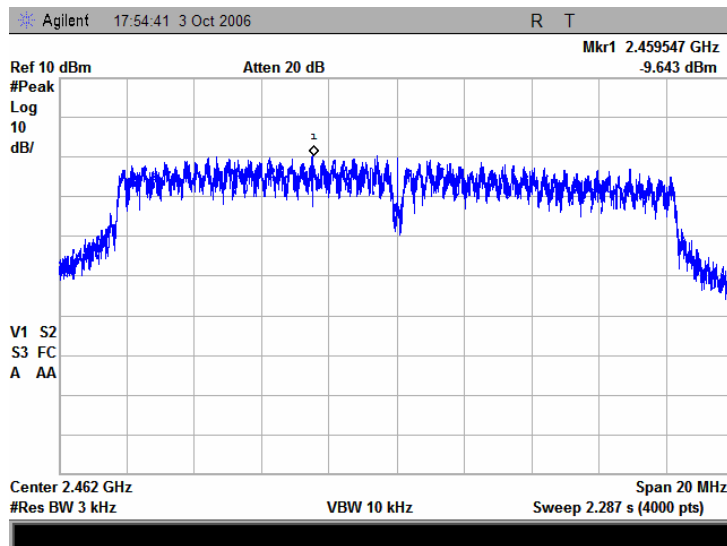


Plot 7.7.34 Peak spectral power density at mid frequency zoomed at the peak, channel spacing 20 MHz and data rate 54 Mbps

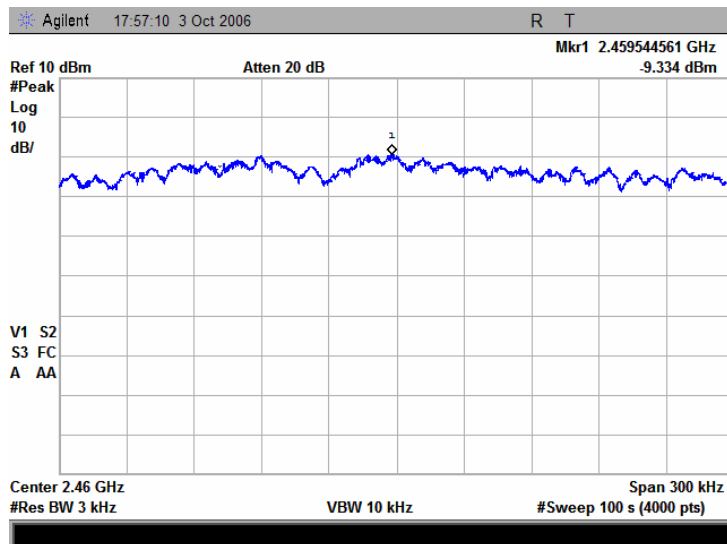


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	10/8/2006 5:53:06 PM		
Temperature: 25°C	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks: EUT with 24 dBi external antenna			

Plot 7.7.35 Peak spectral power density at high frequency within 6 dB band, channel spacing 20 MHz and data rate 54 Mbps



Plot 7.7.36 Peak spectral power density at high frequency zoomed at the peak, channel spacing 20 MHz and data rate 54 Mbps



Test specification:	Section 15.207(a), Conducted emission		
Test procedure:	ANSI C63.4, Section 13.1.3		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:47:49 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

7.8 Conducted emissions

7.8.1 General

This test was performed to measure common mode conducted emissions at the power port. Specification test limits are given in Table 7.8.1.

Table 7.8.1 Limits for conducted emissions

Frequency, MHz	Class B limit, dB(μ V)	
	QP	AVRG
0.15 - 0.5	66 - 56*	56 - 46*
0.5 - 5.0	56	46
5.0 - 30	60	50

* The limit decreases linearly with the logarithm of frequency.

7.8.2 Test procedure

7.8.2.1 The EUT was set up as shown in Figure 7.8.1, energized and the performance check was conducted.

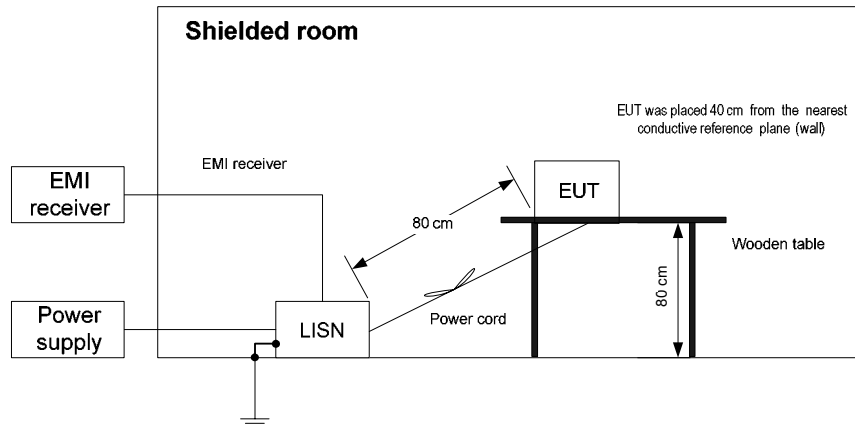
7.8.2.2 The measurements were performed at power terminals with the LISN, connected to a spectrum analyzer in the frequency range referred to in Table 7.8.2. Unused coaxial connector of the LISN was terminated with 50 Ohm. Quasi-peak and average detectors were used throughout the testing.

7.8.2.3 The position of the device cables was varied to determine maximum emission level.

7.8.2.4 The worst test results (the lowest margins) were recorded in Table 7.8.2 and shown in the associated plots.

Test specification:	Section 15.207(a), Conducted emission		
Test procedure:	ANSI C63.4, Section 13.1.3		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:47:49 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Figure 7.8.1 Setup for conducted emission measurements, table-top equipment



Test specification:		Section 15.207(a), Conducted emission	
Test procedure:		ANSI C63.4, Section 13.1.3	
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/19/2007 9:47:49 AM		
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Table 7.8.2 Conducted emission test results

LINE: AC mains
 EUT OPERATING MODE: Transmit
 EUT SET UP: TABLE-TOP
 TEST SITE: SHIELDED ROOM
 DETECTORS USED: PEAK / QUASI-PEAK / AVERAGE
 FREQUENCY RANGE: 150 kHz - 30 MHz
 RESOLUTION BANDWIDTH: 9 kHz

Frequency, MHz	Peak emission, dB(μV)	Quasi-peak			Average			Line ID	Verdict
		Measured emission, dB(μV)	Limit, dB(μV)	Margin, dB*	Measured emission, dB(μV)	Limit, dB(μV)	Margin, dB*		
ODU cabinet									
1.143717	48.05	44.86	56.00	-11.14	28.53	46.00	-17.47	L1	Pass
2.185744	49.30	45.66	56.00	-10.34	21.30	46.00	-24.70		
2.373562	52.23	49.91	56.00	-6.09	30.47	46.00	-15.53		
2.781835	56.38	53.85	56.00	-2.15	33.58	46.00	-12.42		
3.133389	56.75	54.62	56.00	-1.38	37.88	46.00	-8.12		
3.361881	51.60	48.55	56.00	-7.45	29.57	46.00	-16.43	L2	Pass
0.558989	50.23	49.45	56.00	-6.55	40.79	46.00	-5.21		
1.379471	50.22	48.63	56.00	-7.37	32.54	46.00	-13.46		
1.552180	50.83	48.80	56.00	-7.20	34.18	46.00	-11.82		
1.961153	51.80	49.34	56.00	-6.66	32.31	46.00	-13.69		
2.194757	51.77	49.62	56.00	-6.38	29.86	46.00	-16.14	L2	Pass
2.981223	57.50	55.00	56.00	-1.00	38.95	46.00	-7.05		
3.131921	56.67	53.99	56.00	-2.01	37.02	46.00	-8.98		
Laptop									
0.206071	50.93	46.86	63.42	-16.56	36.68	53.42	-16.74	L1	Pass
0.274032	44.17	41.08	61.06	-19.98	32.92	51.06	-18.14		
0.344077	40.38	39.33	59.16	-19.83	33.99	49.16	-15.17		
0.481771	37.25	36.46	56.34	-19.88	33.38	46.34	-12.96	L2	Pass
0.203896	44.17	41.07	63.50	-22.43	34.70	53.50	-18.80		
0.275804	40.27	38.85	61.01	-22.16	33.81	51.01	-17.20		
0.344360	38.45	36.41	59.16	-22.75	33.69	49.16	-15.47		
0.482385	35.60	34.37	56.33	-21.96	33.13	46.33	-13.20		
4.542051	31.29	27.40	56.00	-28.60	14.82	46.00	-31.18	L2	Pass
27.776864	38.46	34.42	60.00	-25.58	30.37	50.00	-19.63		

*- Margin = Measured emission - specification limit.

Reference numbers of test equipment used

HL 0163	HL 0447	HL 0787	HL 1430	HL 1502	HL 1510		
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Full description is given in Appendix A.

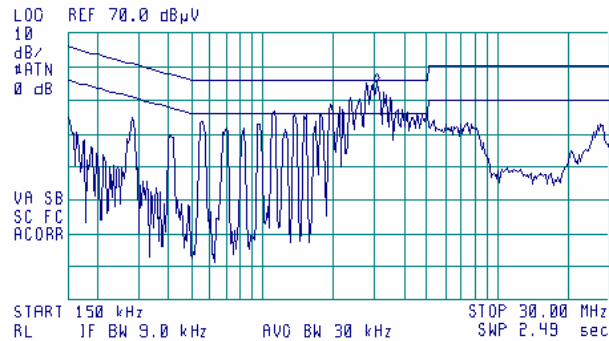
Test specification: Section 15.207(a), Conducted emission			
Test procedure: ANSI C63.4, Section 13.1.3			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/19/2007 9:47:49 AM			
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Plot 7.8.1 Conducted emission measurements on the EUT power lines

LINE: L1
EUT OPERATING MODE: Transmit
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK

17:23:29 04 OCT 2006

ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKR 3.10 MHz
55.05 dBµV

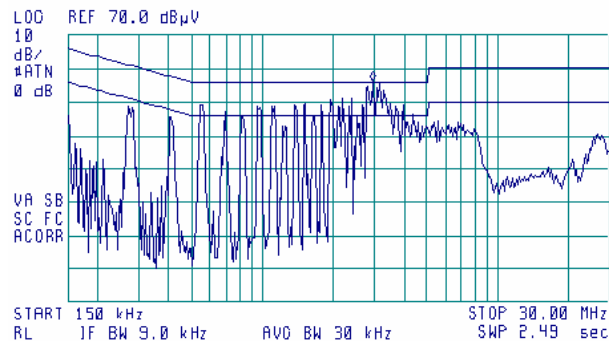


Plot 7.8.2 Conducted emission measurements on the EUT power lines

LINE: L2
EUT OPERATING MODE: Transmit
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK

17:34:05 04 OCT 2006

ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKR 2.97 MHz
56.42 dBµV



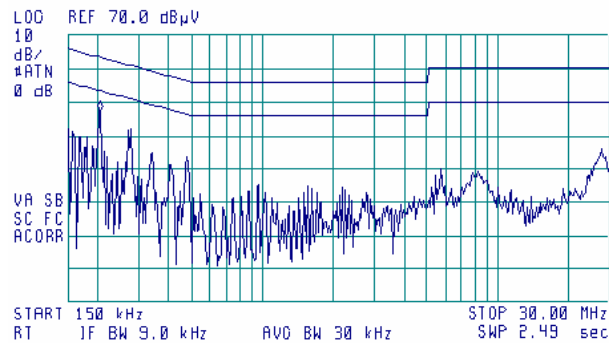
Test specification: Section 15.207(a), Conducted emission			
Test procedure: ANSI C63.4, Section 13.1.3			
Test mode: Compliance	Verdict: PASS		
Date & Time: 1/19/2007 9:47:49 AM			
Temperature: 20°C	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 120 V AC
Remarks:			

Plot 7.8.3 Conducted emission measurements on the laptop power lines

LINE: L1
EUT OPERATING MODE: Transmit
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK

18:17:30 04 OCT 2006

ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKR 210 kHz
47.36 dBµV

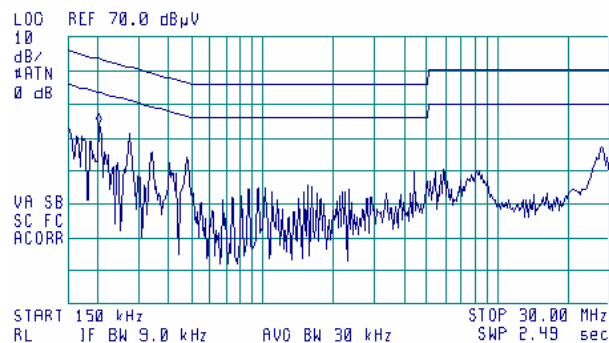


Plot 7.8.4 Conducted emission measurements on the laptop power lines

LINE: L2
EUT OPERATING MODE: Transmit
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK

18:11:13 04 OCT 2006

ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKR 200 kHz
44.16 dBµV



8 APPENDIX A Test facility description

Tests were performed at Hermon Laboratories Ltd., which is a fully independent, private, EMC, safety, environmental and telecommunication testing facility. Hermon Laboratories is listed by the Federal Communications Commission (USA) for all parts of Code of Federal Regulations 47 (CFR 47) and by Industry Canada for electromagnetic emissions (file numbers IC 2186-1 for OATS and IC 2186-2 for anechoic chamber), certified by VCCI, Japan (the registration numbers are R-808 for OATS, R-1082 for anechoic chamber, C-845 for conducted emissions site), assessed by TNO Certification EP&S (Netherlands) for a number of EMC, telecommunications, environmental, safety standards, and by AMTAC (UK) for safety of medical devices. The laboratory is accredited by American Association for Laboratory Accreditation (USA) according to ISO/IEC 17025 for electromagnetic compatibility, product safety, telecommunications testing and environmental simulation (for exact scope please refer to Certificate No. 839.01) and approved by Israel Ministry of environmental protection, radiation hazards department (Permit number 1158).

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website: www.hermonlabs.com

Person for contact: Mr. Alex Usoskin, CEO.

9 APPENDIX B Test equipment and ancillaries used for tests

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal.	Due Cal.
0163	LISN FCC/VDE/50 Ohm/50 uH + 5 Ohm, MIL-STD-461E, CISPR 16-1	Electro-Metrics	ANS 25/2	1314	01-Oct-06	01-Oct-07
0410	Cable, Coax, Microwave, DC-18 GHz, N-N, 1 m	Gore	PFP01P0 1039.4	9338767	17-Oct-06	17-Oct-07
0446	Antenna, Loop, Active, 10 kHz - 30 MHz	EMCO	6502	2857	28-Jun-06	28-Jun-07
0447	LISN, 16/2, 300V RMS, 50 Ohm/50 uH + 5 Ohm, STD CISPR 16-1	HL	LISN 16 - 1	066	03-Nov-06	03-Nov-07
0465	Anechoic Chamber 9(L) x 6.5(W) x 5.5(H) m	HL	AC - 1	023	23-Aug-05	23-Aug-08
0592	Position Controller	HL	L2-SR3000 (HL CRL-3)	100	18-May-06	18-May-07
0593	Antenna Mast, 1-4 m Pneumatic	Madgesh	AM-F1	101	02-Feb-06	02-Feb-07
0594	Turn Table FOR ANECHOIC CHAMBER flush mount d=1.2 m Pneumatic	HL	TT-WDC1	102	26-Jan-06	26-Jan-07
0604	Antenna BiconiLog Log-Periodic/T Bow-TIE 26 - 2000 MHz	EMCO	3141	9611-1011	10-Jan-07	10-Jan-08
0768	Antenna Standard Gain Horn, 18-26.5 GHz, WR-42, 25 dB gain	Quinstar Technology	QWH-4200-BA	110	08-Dec-06	08-Dec-08
0769	Antenna Standard Gain Horn, 26.5-40 GHz, WR28, 25 dB gain	Quinstar Technology	QWH-2800-BA	112	08-Dec-06	08-Dec-08
0787	Transient Limiter 9 kHz-200 MHz	Hewlett Packard	11947A	3107A01877	21-Nov-06	21-Nov-07
1200	Quadruplexer 1-12 GHz (1-2 GHz; 2-4GHz;4-8 GHz; 8-12GHz)	Eletronica S.p.A. - Roma	UE 84	D/00240	10-Feb-05	10-Feb-07
1425	EMI Receiver, 9 kHz - 2.9 GHz, System: HL1426, HL1427	Agilent Technologies	8542E	3710A00222, 3705A00204	01-Sep-06	01-Sep-07
1430	EMI Receiver, 9 kHz - 2.9 GHz, System: HL1431, HL1432	Agilent Technologies	8542E	3807A00262,3705A00217	01-Sep-06	01-Sep-07
1502	Cable RF, 6 m, BNC/BNC	Belden	M17/167 MIL-C-17	1502	27-Nov-06	27-Nov-07
1510	Cable RF, 8 m, BNC/BNC	Belden	M17/167 MIL-C-17	1510	02-Dec-06	02-Dec-07
1553	Cable RF, 3.5 m	Alpha Wire	RG-214	1553	02-Dec-06	02-Dec-07
1566	Cable RF, 2 m	Huber-Suhner	Sucoflex 104PE	13094/4PE	02-Dec-06	02-Dec-07
1650	Attenuators Set (2, 3, 5, 20 dB), DC-18 GHz	M/A-COM	2082	1650	03-Jan-07	03-Jan-08
1984	Antenna, Double-Ridged Waveguide Horn, 1-18 GHz, 300 W, N-type	EMC Test Systems	3115	9911-5964	03-Mar-06	03-Mar-07
2259	Amplifier Low Noise 2-20 GHz	Sophia Wireless	LNA0220-C	0223	05-Nov-06	05-Nov-07

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal.	Due Cal.
2260	Amplifier Low Noise 14-33 GHz	Sophia Wireless	LNA28-B	0233	05-Nov-06	05-Nov-07
2261	Amplifier Low Noise 33-40 GHz	Sophia Wireless	LNA38-B	0234	05-Nov-06	05-Nov-07
2387	Filter Bandpass, 8-14 GHz	HL	FBP8-14	2387	05-Jun-05	05-Jun-07
2780	EMC analyzer, 100 Hz to 26.5 GHz	Agilent Technologies	E7405A	MY4510246	11-Jun-06	11-Jun-07
2825	Bandpass filter 2.5 to 4.3 GHz	HL	BPF2.5-4.3	2825	01-Nov-05	01-Nov-07
2856	Bulk Current Injection Probe, 10kHz - 230 kHz	Fisher Custom Communications INC.	F-120-9A	448	01-Jan-01	01-Jan-02
2869	Cable, 18 GHz, 1.2 m, SMA - SMA, Right Angle	Gore	NA	91P72073	16-Feb-06	16-Feb-07
2871	Microwave Cable Assembly, 18 GHz, 6.4 m, SMA - SMA	Huber-Suhner	198-8155-00	2871	16-Feb-06	16-Feb-07
2909	Spectrum analyzer, ESA-E, 100 Hz to 26.5 GHz	Agilent Technologies	E4407B	MY41444762	10-Apr-06	10-Apr-07
2911	Cable 18 GHz, 1.5 m, SMA-SMA	Gore	NA	89386	07-May-06	07-May-07

10 APPENDIX C Measurement uncertainties

Expanded uncertainty at 95% confidence in Hermon Labs EMC measurements

Test description	Expanded uncertainty
Conducted carrier power at RF antenna connector	Below 12.4 GHz: ± 1.7 dB 12.4 GHz to 40 GHz: ± 2.3 dB
Conducted emissions at RF antenna connector	9 kHz to 2.9 GHz: ± 2.6 dB 2.9 GHz to 6.46 GHz: ± 3.5 dB 6.46 GHz to 13.2 GHz: ± 4.3 dB 13.2 GHz to 22.0 GHz: ± 5.0 dB 22.0 GHz to 26.8 GHz: ± 5.5 dB 26.8 GHz to 40.0 GHz: ± 4.8 dB
Occupied bandwidth	± 8.0 %
Duty cycle, timing (Tx ON / OFF) and average factor measurements	± 1.0 %
Conducted emissions with LISN	9 kHz to 150 kHz: ± 3.9 dB 150 kHz to 30 MHz: ± 3.8 dB
Radiated emissions at 3 m measuring distance Horizontal polarization Vertical polarization	Biconilog antenna: ± 5.3 dB Biconical antenna: ± 5.0 dB Log periodic antenna: ± 5.3 dB Double ridged horn antenna: ± 5.3 dB Biconilog antenna: ± 6.0 dB Biconical antenna: ± 5.7 dB Log periodic antenna: ± 6.0 dB Double ridged horn antenna: ± 6.0 dB

Hermon Laboratories is accredited by A2LA for calibration according to present requirements of ISO/IEC 17025 and NCSL Z540-1. The accreditation is granted to perform calibration of parameters that are listed in the Scope of Hermon Laboratories Accreditation.

Hermon Laboratories calibrates its reference and transfer standards by calibration laboratories accredited to ISO/IEC 17025 by a mutually recognized Accreditation Body or by a recognized national metrology institute. All reference and transfer standards used in the calibration system are traceable to national or international standards.

In-house calibration of all test and measurement equipment is performed on a regular basis according to Hermon Laboratories calibration procedures, manufacturer calibration/verification procedures or procedures defined in the relevant standards. The Hermon Laboratories test and measurement equipment is calibrated within the tolerances specified by the manufacturers and/or by the relevant standards.

11 APPENDIX D Abbreviations and acronyms

A	ampere
AC	alternating current
AM	amplitude modulation
AVRG	average (detector)
BB	broad band
cm	centimeter
dB	decibel
dBm	decibel referred to one milliwatt
dB(μ V)	decibel referred to one microvolt
dB(μ V/m)	decibel referred to one microvolt per meter
dB(μ A)	decibel referred to one microampere
dB Ω	decibel referred to one Ohm
DC	direct current
DTS	digital transmission system
EIRP	equivalent isotropically radiated power
ERP	effective radiated power
EUT	equipment under test
F	frequency
GHz	gigahertz
GND	ground
H	height
HL	Hermon laboratories
Hz	hertz
k	kilo
kHz	kilohertz
LISN	line impedance stabilization network
LO	local oscillator
m	meter
Mbps	Mega bit per second
MHz	megahertz
min	minute
mm	millimeter
ms	millisecond
μ s	microsecond
NA	not applicable
NB	narrow band
NT	not tested
OATS	open area test site
Ω	Ohm
PM	pulse modulation
PS	power supply
ppm	part per million (10^{-6})
QP	quasi-peak
RE	radiated emission
RF	radio frequency
rms	root mean square
Rx	receive
s	second
T	temperature
Tx	transmit
V	volt
VA	volt-ampere
WB	wideband

12 APPENDIX E Test equipment correction factors

Correction factor
Line impedance stabilization network
Model ANS-25/2
Electro-Metrics

Frequency, MHz	Correction factor, dB	Frequency, MHz	Correction factor, dB
0.01	4.7	3.0	0.1
0.02	2.1	4.0	0.1
0.03	1.1	5.0	0.1
0.04	0.7	6.0	0.1
0.05	0.5	10.0	0.1
0.1	0.2	12.0	0.1
0.2	0.1	16.0	0.1
0.4	0.1	18.0	0.1
0.6	0.1	20.0	0.1
0.8	0.1	25.0	0.1
1.0	0.1	28.0	0.1
2.0	0.1	30.0	0.1

The correction factor in dB is to be added to meter readings of an interference analyzer or a spectrum analyzer.

Correction factor
Line impedance stabilization network
Model LISN 16 - 1
Hermon Laboratories

Frequency, MHz	Correction factor, dB	Frequency, MHz	Correction factor, dB
0.01	5.0	3.0	0.1
0.02	2.2	4.0	0.1
0.03	1.1	5.0	0.1
0.04	0.7	6.0	0.2
0.05	0.5	10.0	0.3
0.1	0.2	12.0	0.4
0.2	0.1	16.0	0.5
0.4	0.1	18.0	0.6
0.6	0.1	20.0	0.7
0.8	0.1	25.0	0.9
1.0	0.1	28.0	1.2
2.0	0.1	30.0	1.3

The correction factor in dB is to be added to meter readings of an interference analyzer or a spectrum analyzer.

Antenna factor
Active loop antenna
Model 6502, S/N 2857, HL 0446

Frequency, MHz	Magnetic antenna factor, dB	Electric antenna factor, dB
0.009	-32.8	18.7
0.010	-33.8	17.7
0.020	-38.3	13.2
0.050	-41.1	10.4
0.075	-41.3	10.2
0.100	-41.6	9.9
0.150	-41.7	9.8
0.250	-41.6	9.9
0.500	-41.8	9.8
0.750	-41.9	9.7
1.000	-41.4	10.1
2.000	-41.5	10.0
3.000	-41.4	10.2
4.000	-41.4	10.1
5.000	-41.5	10.1
10.000	-41.9	9.6
15.000	-41.9	9.6
20.000	-42.2	9.3
25.000	-42.8	8.7
30.000	-44.0	7.5

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB(μ V) to convert it into field intensity in dB(μ V/m).

Antenna factor
Standard gain horn antenna
Quinstar Technology
Model QWH
Ser.No.112, HL 0768, 0769

Frequency min, GHz	Frequency max, GHz	Antenna factor, dB(1/m)
18.000	26.500	32.01
26.500	40.000	35.48
40.000	60.000	39.03
60.000	90.000	42.55
90.000	140.000	46.23
140.000	220.000	50.11

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB(μ V) to convert it into field intensity in dB(μ V/m).

Antenna factor
Biconilog antenna EMCO Model 3141
Ser.No.1011, HL 0604

Frequency, MHz	Antenna Factor, dB(1/m)	Frequency, MHz	Antenna Factor, dB(1/m)
26	7.8	940	24.0
28	7.8	960	24.1
30	7.8	980	24.5
40	7.2	1000	24.9
60	7.1	1020	25.0
70	8.5	1040	25.2
80	9.4	1060	25.4
90	9.8	1080	25.6
100	9.7	1100	25.7
110	9.3	1120	26.0
120	8.8	1140	26.4
130	8.7	1160	27.0
140	9.2	1180	27.0
150	9.8	1200	26.7
160	10.2	1220	26.5
170	10.4	1240	26.5
180	10.4	1260	26.5
190	10.3	1280	26.6
200	10.6	1300	27.0
220	11.6	1320	27.8
240	12.4	1340	28.3
260	12.8	1360	28.2
280	13.7	1380	27.9
300	14.7	1400	27.9
320	15.2	1420	27.9
340	15.4	1440	27.8
360	16.1	1460	27.8
380	16.4	1480	28.0
400	16.6	1500	28.5
420	16.7	1520	28.9
440	17.0	1540	29.6
460	17.7	1560	29.8
480	18.1	1580	29.6
500	18.5	1600	29.5
520	19.1	1620	29.3
540	19.5	1640	29.2
560	19.8	1660	29.4
580	20.6	1680	29.6
600	21.3	1700	29.8
620	21.5	1720	30.3
640	21.2	1740	30.8
660	21.4	1760	31.1
680	21.9	1780	31.0
700	22.2	1800	30.9
720	22.2	1820	30.7
740	22.1	1840	30.6
760	22.3	1860	30.6
780	22.6	1880	30.6
800	22.7	1900	30.6
820	22.9	1920	30.7
840	23.1	1940	30.9
860	23.4	1960	31.2
880	23.8	1980	31.6
900	24.1	2000	32.0
920	24.1		

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB(μV) to convert it into field intensity in dB(μV/m).

Antenna factor
Double-ridged wave guide horn antenna
Model 3115, S/N 9911-5964, HL1984

Frequency, MHz	Antenna factor, dB(1/m)
1000.0	24.7
1500.0	25.7
2000.0	27.6
2500.0	28.9
3000.0	31.2
3500.0	32.0
4000.0	32.5
4500.0	32.7
5000.0	33.6
5500.0	35.1
6000.0	35.4
6500.0	34.9
7000.0	36.1
7500.0	37.8
8000.0	38.0
8500.0	38.1
9000.0	39.1
9500.0	38.3
10000.0	38.6
10500.0	38.2
11000.0	38.7
11500.0	39.5
12000.0	40.0
12500.0	40.4
13000.0	40.5
13500.0	41.1
14000.0	41.6
14500.0	41.7
15000.0	38.7
15500.0	38.2
16000.0	38.8
16500.0	40.5
17000.0	42.5
17500.0	45.9
18000.0	49.4

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB(μ V) to convert it into field intensity in dB(μ V/m).

Cable loss
Cable GORE, HL 0410

No.	Frequency, GHz	Cable loss, dB
1	0.5	0.16
2	1	0.28
3	2	0.38
4	4	0.55
5	6	0.85
6	8	0.90
7	10	1.07
8	12	1.11
9	14	1.29
10	16	1.41
11	18	1.73

Cable loss
Cable coaxial, 6 m, model: M17/167 MIL-C-17, HL 1502

Frequency, MHz	Cable loss, dB
0.1	0.02
1	0.07
3	0.15
5	0.17
10	0.26
30	0.43
50	0.57
80	0.72
100	0.81
300	1.48
500	2.00
800	2.70
1000	3.09

Cable loss
Cable M17/167 MIL-C-17, HL 1510

No.	Frequency, MHz	Cable loss, dB
1	0.1	0.05
2	1	0.09
3	3	0.16
4	5	0.18
5	10	0.27
6	30	0.44
7	50	0.58
8	80	0.69
9	100	0.82
10	300	1.48
11	500	2.01
12	800	2.65
13	1000	3.12

Cable loss
RF cable 3.5 m, Alpha Wire, model RG-214, S/N 149, HL 1553

No.	Frequency, MHz	Cable loss, dB	Measurement uncertainty, dB
1	1	0.01	±0.05
2	10	0.07	
3	30	0.12	
4	50	0.22	
5	100	0.26	
6	200	0.40	
7	300	0.52	
8	400	0.60	
9	500	0.70	
10	600	0.77	
11	700	0.84	
12	800	1.00	
13	900	1.00	
14	1000	1.05	
15	2000	1.70	

Cable loss
Cable RF, 2m, model: Sucoflex 104PE, S/N 13094/4PE, HL 1566

No.	Frequency, MHz	Cable loss, dB	Tolerance, dB	Measurement uncertainty, dB
1	30	0.10	≤ 5.0	±0.12
2	50	0.13		
3	100	0.20		
4	300	0.33		
5	500	0.45		
6	800	0.60		
7	1000	0.65		
8	1500	0.91		
9	2000	1.08		
10	2500	1.19		
11	3000	1.28		
12	3500	1.49		
13	4000	1.63		
14	4500	1.63	≤ 5.0	±0.17
15	5000	1.66		
16	5500	1.88		
17	6000	1.96		
18	6500	1.93		
19	7000	2.07		
20	7500	2.37		
21	8000	2.34		
22	8500	2.64		
23	9000	2.68		
24	9500	2.64		
25	10000	2.70		
26	10500	2.84		
27	11000	2.88		
28	11500	3.19		
29	12000	3.15	≤ 5.0	±0.26
30	12500	3.20		
31	13000	3.22		
32	13500	3.47		
33	14000	3.41		
34	14500	3.59		
35	15000	3.79		
36	15500	4.24		
37	16000	4.12		
38	16500	4.46		
39	17000	4.50		
40	17500	4.49		
41	18000	4.45		

Cable loss
Cable coaxial, Gore, 18 GHz, 1.1 m, SMA - SMA, model Right Angle, S/N 91P72071
HL 2869

Frequency, GHz	Cable loss, dB	Frequency, GHz	Cable loss, dB	Frequency, GHz	Cable loss, dB
10	0.06	5750	0.87	12000	1.30
30	0.06	6000	0.87	12250	1.33
100	0.10	6250	0.89	12500	1.35
250	0.18	6500	0.92	12750	1.36
500	0.25	6750	0.94	13000	1.38
750	0.27	7000	0.98	13250	1.41
1000	0.34	7250	0.99	13500	1.39
1250	0.35	7500	1.02	13750	1.41
1500	0.42	7750	1.03	14000	1.42
1750	0.44	8000	1.04	14250	1.46
2000	0.49	8250	1.04	14500	1.39
2250	0.52	8500	1.08	14750	1.46
2500	0.55	8750	1.08	15000	1.40
2750	0.59	9000	1.12	15250	1.47
3000	0.61	9250	1.12	15500	1.36
3250	0.64	9500	1.15	15750	1.49
3500	0.67	9750	1.14	16000	1.51
3750	0.69	10000	1.19	16250	1.60
4000	0.70	10250	1.20	16500	1.56
4250	0.74	10500	1.23	16750	1.66
4500	0.76	10750	1.24	17000	1.71
4750	0.77	11000	1.24	17250	1.78
5000	0.79	11250	1.25	17500	1.75
5250	0.82	11500	1.28	17750	1.77
5500	0.84	11750	1.29	18000	1.86

Cable loss
Cable coaxial, Gore, 18 GHz, 1.5 m, SMA-SMA, S/N 89386
HL 2911

Frequency, GHz	Cable loss, dB	Frequency, GHz	Cable loss, dB	Frequency, GHz	Cable loss, dB
10	0.06	5750	1.32	12000	2.04
30	0.09	6000	1.34	12250	2.04
100	0.16	6250	1.41	12500	2.07
250	0.27	6500	1.43	12750	1.96
500	0.38	6750	1.46	13000	1.97
750	0.49	7000	1.49	13250	2.01
1000	0.55	7250	1.52	13500	2.04
1250	0.62	7500	1.56	13750	2.12
1500	0.68	7750	1.66	14000	2.16
1750	0.74	8000	1.69	14250	2.16
2000	0.78	8250	1.78	14500	2.28
2250	0.83	8500	1.73	14750	2.26
2500	0.88	8750	1.71	15000	2.22
2750	0.97	9000	1.72	15250	2.34
3000	1.00	9250	1.74	15500	2.41
3250	1.03	9500	1.76	15750	2.45
3500	1.05	9750	1.80	16000	2.57
3750	1.09	10000	1.89	16250	2.54
4000	1.14	10250	1.94	16500	2.55
4250	1.17	10500	1.99	16750	2.52
4500	1.21	10750	1.92	17000	2.42
4750	1.22	11000	1.96	17250	2.49
5000	1.24	11250	1.97	17500	2.62
5250	1.28	11500	2.02	17750	2.70
5500	1.30	11750	2.07	18000	2.76