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Electrical

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TEST REPORT

ACCORDING TO: FCC part 15 subpart C, §15.247

FOR:

RadWin Ltd.

High power broadband wireless transmission system

Models:

WinLink 1000-F58/HP,
WL1000-AIND/F58/FCC/EXT/4T1
Airmux-200/AIND/F58/FCC/EXT/4T1
FibeAir-48-AIND-58-EX-AN-2FE-4T1
MRL-500- AIND/F58/FCC/EXT/4T1

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1 Applicant information

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Telephone:	+972 3766 2988
Fax:	+972 3766 2922
E-mail:	shlomo_weiss@radwin.com
Contact name:	Mr. Shlomo Weiss

2 Equipment under test attributes

Product name:	High power broadband wireless transmission system
Product type:	Point to point
Model(s):	WinLink 1000-F58/HP (ODU), WL1000-AIND/F58/FCC/EXT/4T1
Receipt date	6/21/2006

3 Manufacturer information

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

4 Test details

Project ID:	17204
Location:	Hermon Laboratories Ltd. P.O.Box 23, Binyamina 30500, Israel
Test started:	6/21/2006
Test completed:	7/19/2006
Test specification(s):	FCC part 15, subpart C, §15.247(DTS)
Test suite:	FCC_15.247_DTS_with_RF_connector (5/4/2004 10:53:46 AM, 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(b)5, RF exposure	Exhibit of Application for certification
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

The results obtained indicate that the product under test complies in full with the requirements tested.
The test results relate only to the items tested. Pass/ fail decision was based on nominal values.

	Name and Title	Date	Signature
Tested by:	Mr. A. Adelberg, test engineer	July 19, 2006	
Reviewed by:	Mrs. M. Cherniavsky, certification engineer	July 31, 2006	
Approved by:	Mr. M. Nikishin, EMC and Radio group leader	July 31, 2006	

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6 EUT description

6.1 General information

The EUT, models ODU and AIND, is a WLAN radio relay system (point-to-point broadband wireless transmission system). The ODU is a separate unit of the system comprising ODU (outdoor unit) and IDU (indoor unit), the AIND contains the same ODU with its enclosure in the 19" IDU cage.
The EUT provides high capacity connectivity of up to 54 Mbps and is powered from the mains via AC/DC power adapter.

6.2 Ports and lines

ODU configuration

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

AIND configuration

Port type	Port description	Connected		Connector type	Qty.	Cable type	Cable length, m	Indoor / outdoor
		From	To					
Power	DC power	AC/DC adapter	AIND	Terminal block	1	2 wire	2	Indoor
RF	Antenna	AIND	Load 50Ω	N-type	1	NA	NA	NA
Signal	LAN	AIND	LAPTOP	RJ45	1	shielded	1.5	Indoor
Signal	TRUNK	AIND	Open circuit	RJ45	2	shielded	1.5	Indoor
Signal	ALARM	AIND	Open circuit	D-type, 9 pin	1	unshielded	1.5	Indoor

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

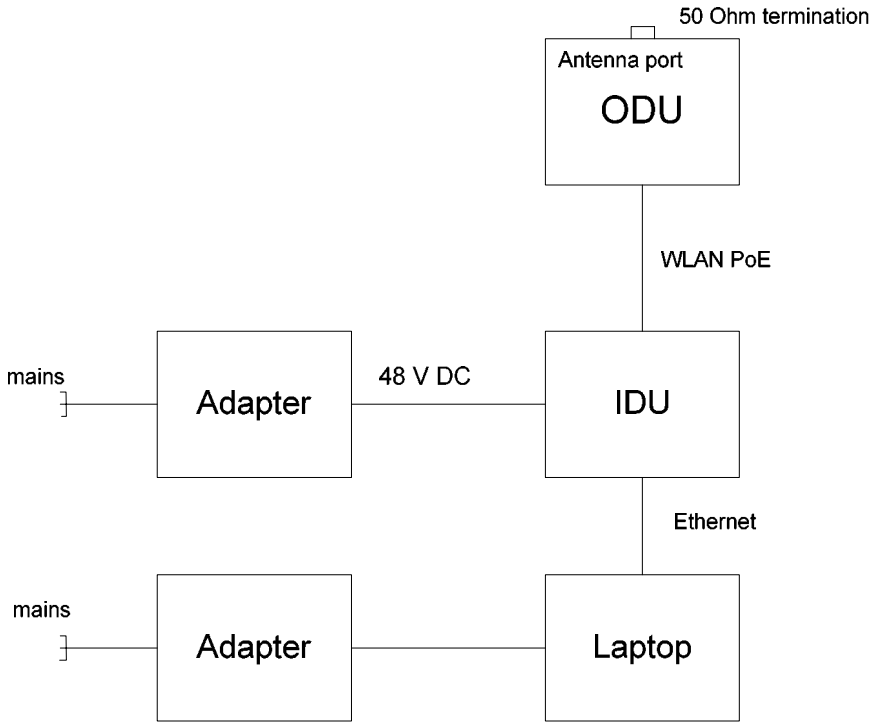
Source	Frequency, MHz			
Digital portion	(clock)	2.048	10	16.38
Receiver	(LO)	40	(IF)	5740 – 5835
Transmitter	(LO)	40	(IF)	5740 – 5835

6.5 Changes made in the EUT

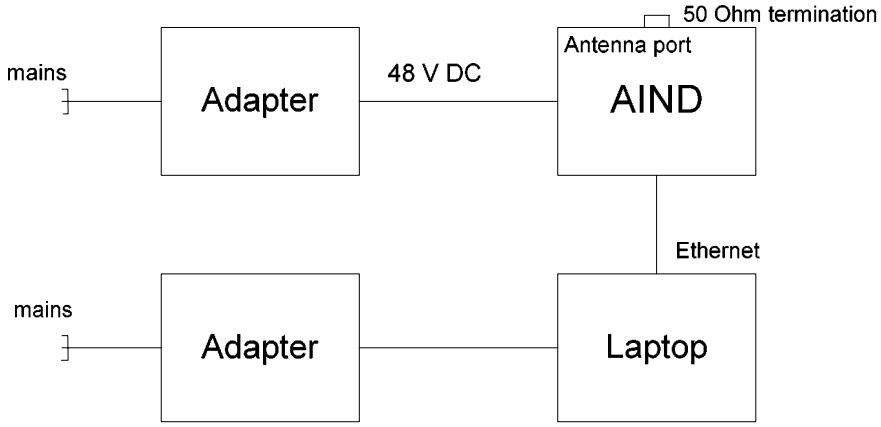
No changes were implemented.

6.6 Test configuration

6.6.1 ODU configuration



6.6.2 AIND configuration



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6.7 Transmitter characteristics

Type of equipment					
X	Stand-alone (Equipment with or without its own control provisions)				
Intended use	**Condition of use**				
X	fixed	Always at a distance more than 2 m from all people			
Assigned frequency range	5725 - 5850 MHz				
Operating frequency range	5740 - 5835 MHz				
Maximum rated output power	At transmitter 50 Ω RF output connector			29.7 dBm	
Antenna connection					
unique coupling	X	standard connector, N-type	integral	X	with temporary RF connector
					without temporary RF connector

Antenna/s technical characteristics			
Type	Manufacturer	Model number	Gain
Planar Array (integral)	MTI	MT-485028\C\A	22 dBi
Planar Array (external)	MTI	MT-486001	28 dBi
Dish	Kenbotong Communication Ltd.	TDJ-5800P9	32.5 dBi

Transmitter 99% power bandwidth	5 MHz, 10 MHz, 20 MHz
Transmitter aggregate data rate/s	5 MHz BW: 1.5; 2.25; 3; 4.5; 6; 9; 12; 13.5 MBps
	10 MHz BW: 3; 4.5; 6; 9; 12; 18; 24; 27 MBps
	20 MHz BW: 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)

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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:	6/22/2006 2:45:22 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	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.

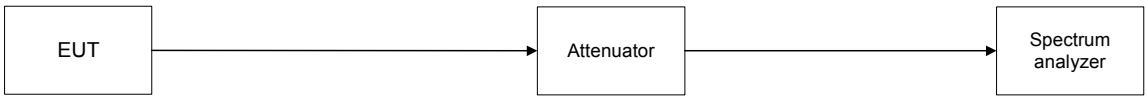
7.1.2 Test procedure

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



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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:	6/22/2006 2:45:22 PM		
Temperature: 26 ºC	**Air Pressure:** 1016 hPa	**Relative Humidity:** 42 %	**Power Supply:** 120 V AC
Remarks:			

Table 7.1.2 The 6 dB bandwidth test results

ASSIGNED FREQUENCY BAND:	5725 – 5850 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 Mpbs				
5740	4150.0	500.0	3650.0	Pass
5785	4150.0	500.0	3650.0	Pass
5835	4162.5	500.0	3662.5	Pass
Data rate: 13.5 Mpbs				
5740	4187.5	500.0	3687.5	Pass
5785	4200.0	500.0	3700.0	Pass
5835	4187.5	500.0	3687.5	Pass
Channel spacing: 10 MHz				
Data rate: 3 Mpbs				
5740	8225.0	500.0	7725.0	Pass
5785	8225.0	500.0	7725.0	Pass
5835	8225.0	500.0	7725.0	Pass
Data rate: 27 Mpbs				
5740	8300.0	500.0	7800.0	Pass
5785	8300.0	500.0	7800.0	Pass
5835	8325.0	500.0	7825.0	Pass
Channel spacing: 20 MHz				
Data rate: 6 Mpbs				
5740	16400.0	500.0	15900.0	Pass
5785	16350.0	500.0	15850.0	Pass
5835	16400.0	500.0	15900.0	Pass
Data rate: 54 Mpbs				
5740	16450.0	500.0	15950.0	Pass
5785	16550.0	500.0	16050.0	Pass
5835	16500.0	500.0	16000.0	Pass

Reference numbers of test equipment used

HL 1650	HL 2254	HL 2780						

Full description is given in Appendix A.

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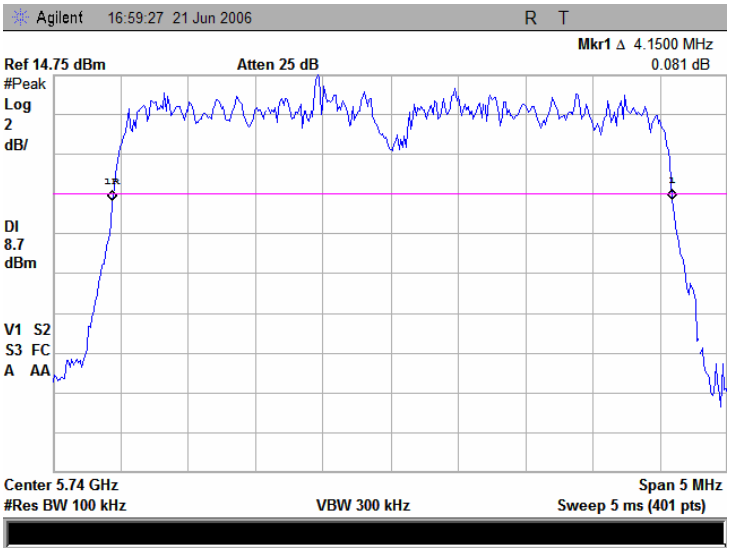
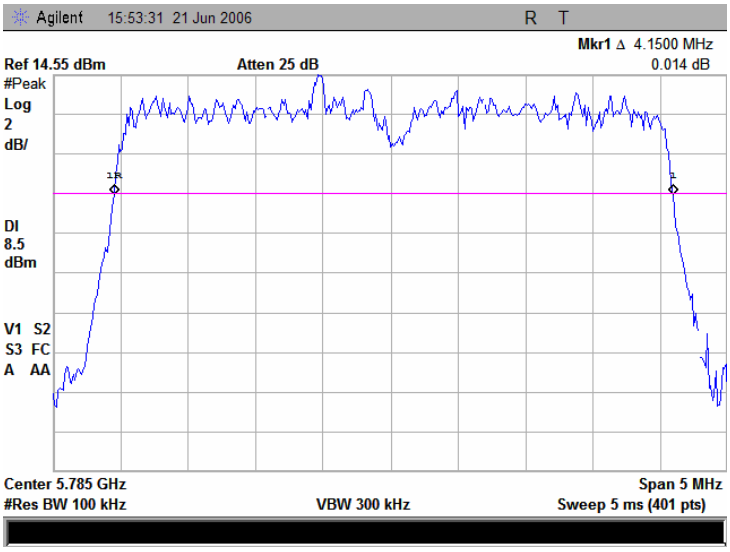
Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/22/2006 2:45:22 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



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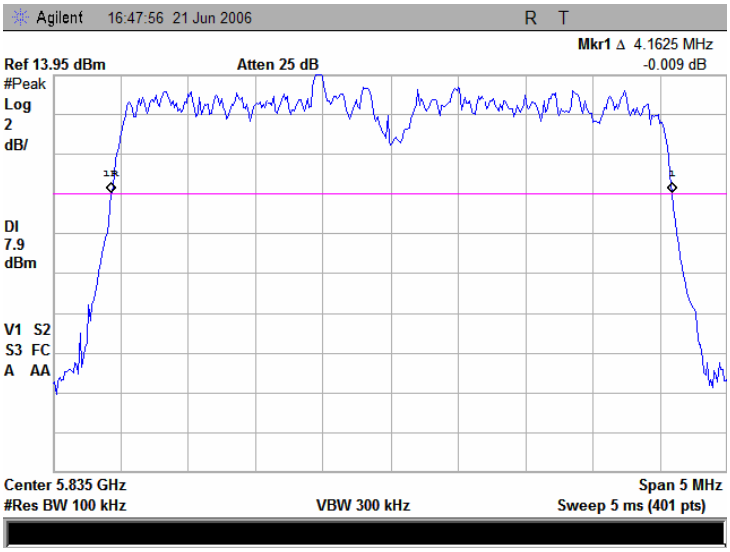
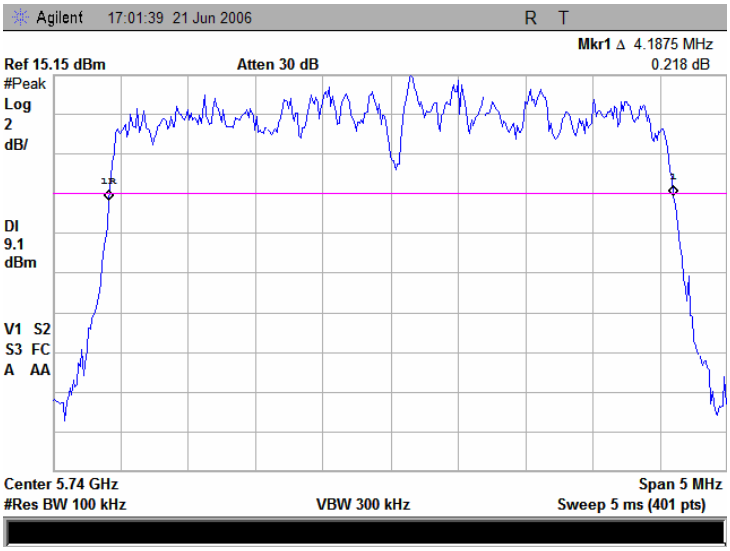
Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/22/2006 2:45:22 PM		
Temperature: 26 °C	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



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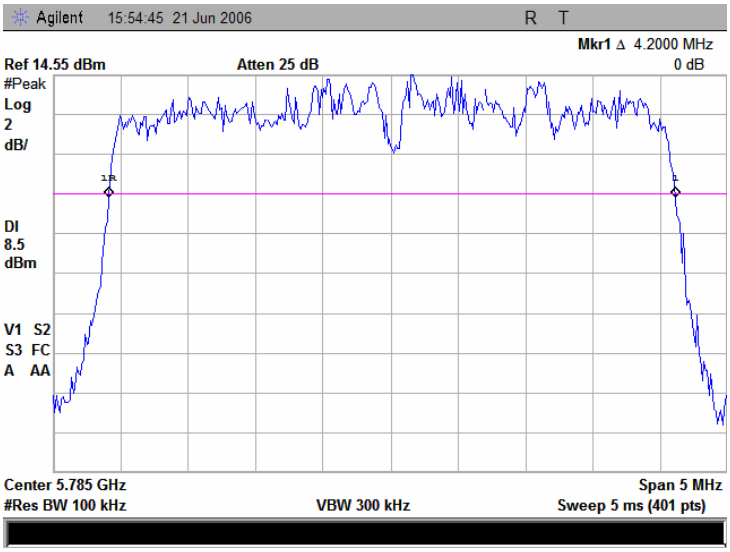
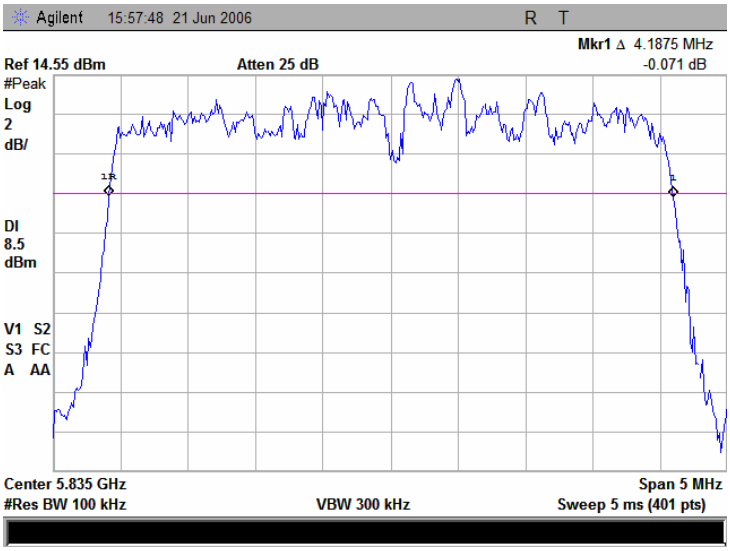
Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/22/2006 2:45:22 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



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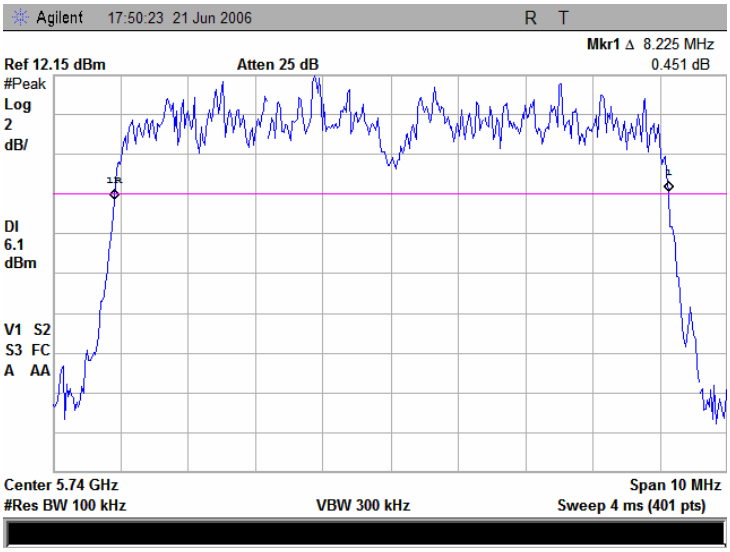
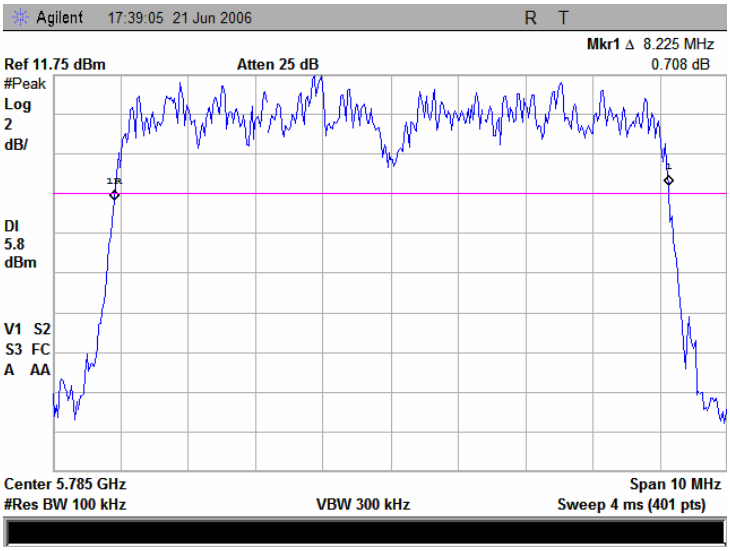
Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/22/2006 2:45:22 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



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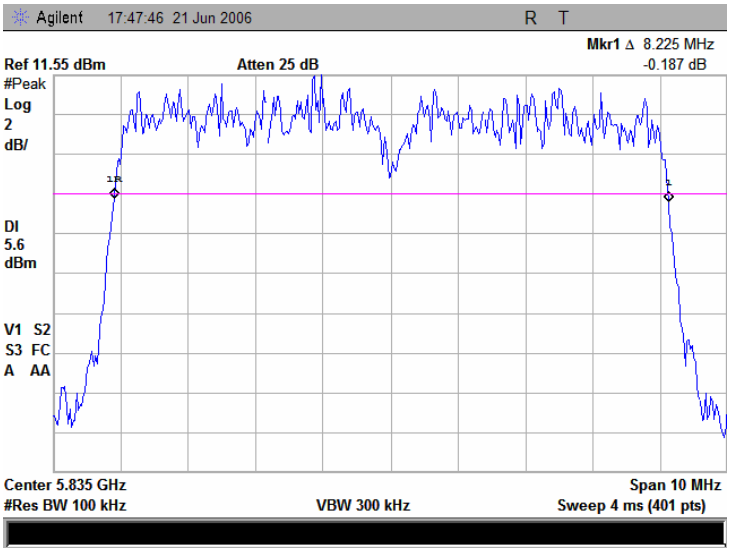
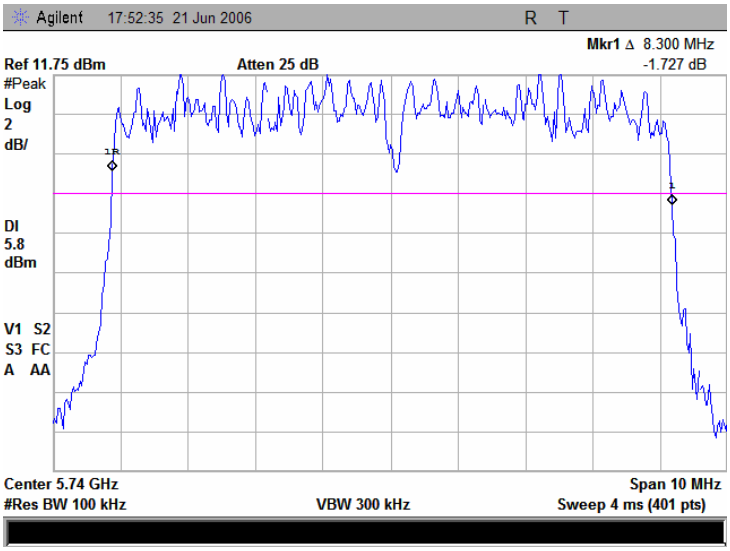
Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/22/2006 2:45:22 PM		
Temperature: 26 °C	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



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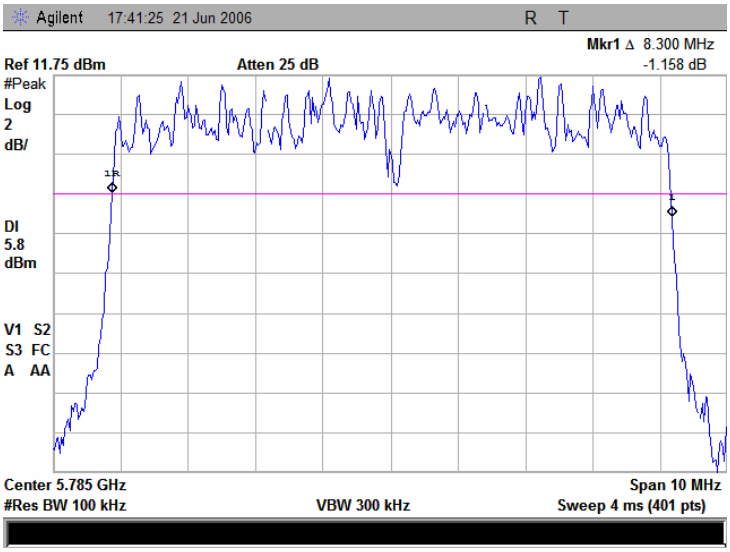
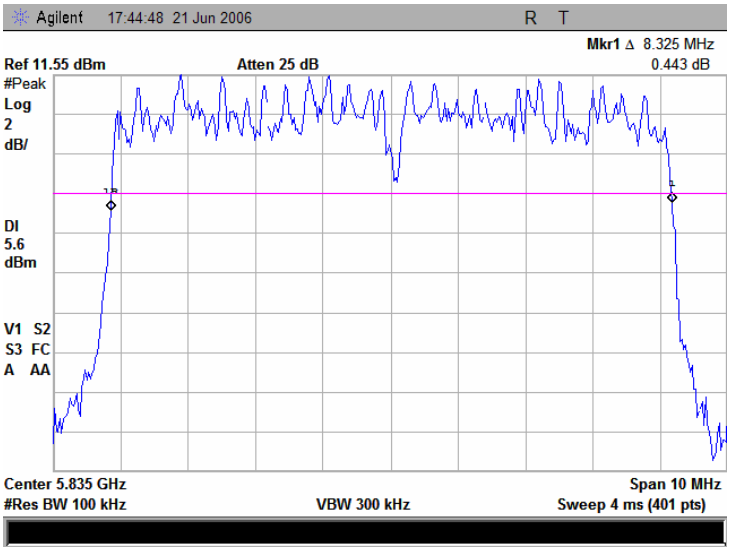
Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/22/2006 2:45:22 PM		
Temperature: 26 °C	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



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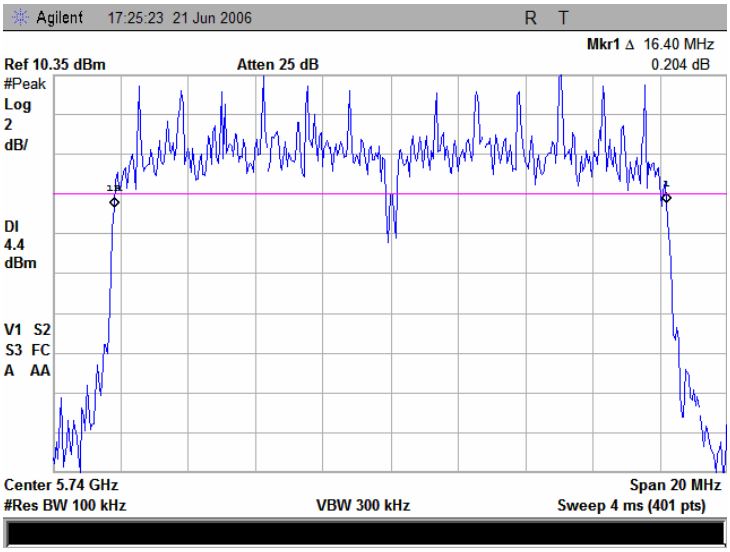
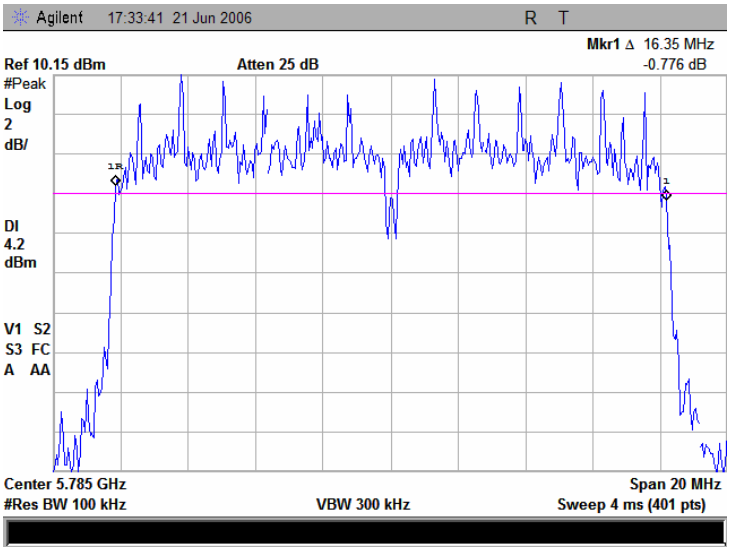
Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/22/2006 2:45:22 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



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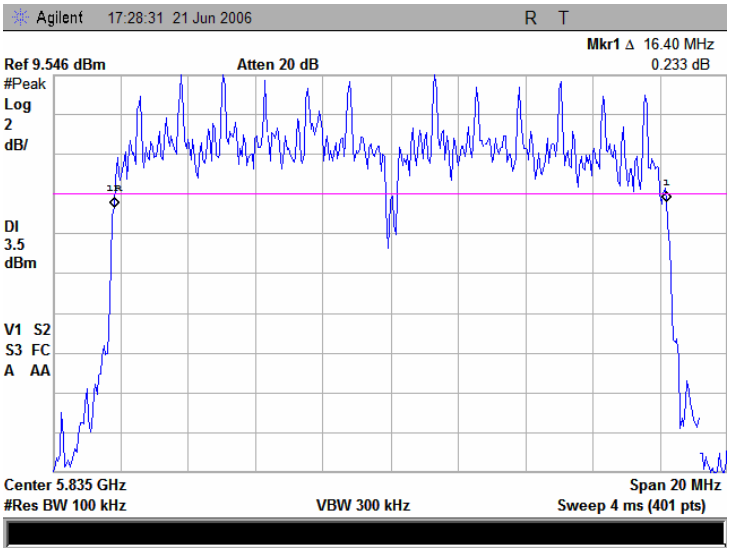
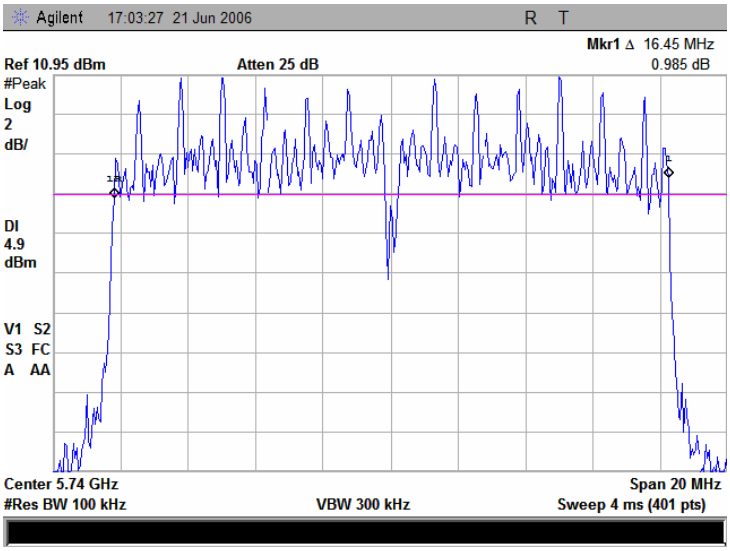
Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/22/2006 2:45:22 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



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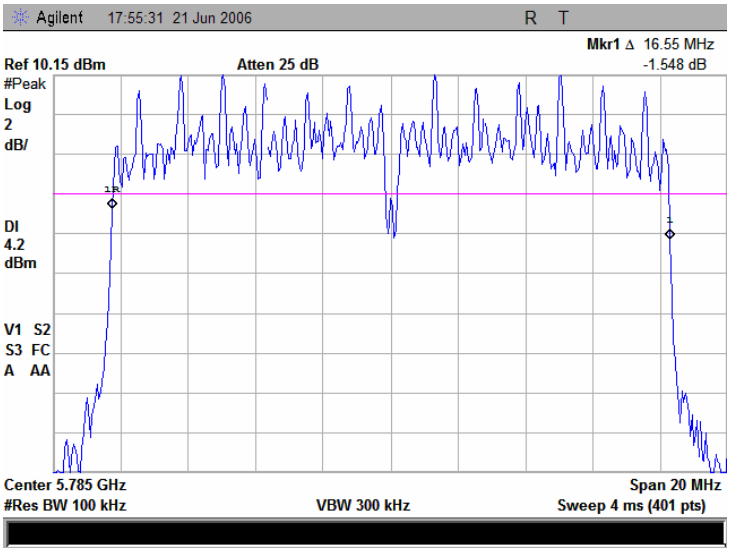
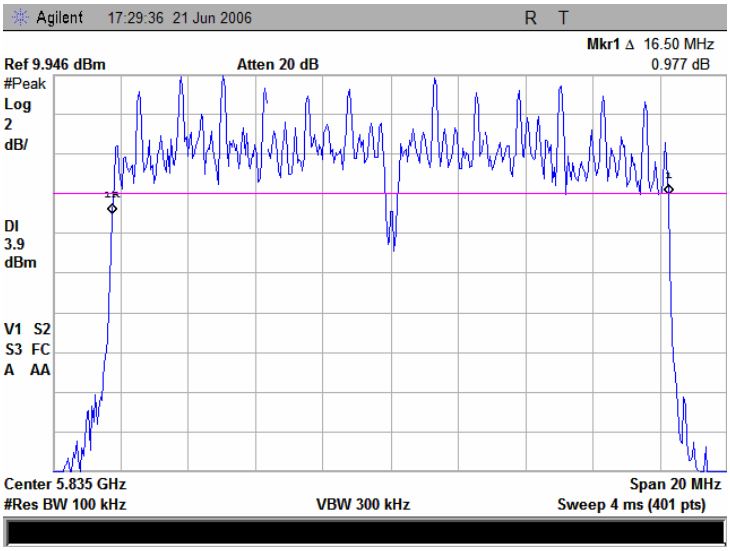
Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/22/2006 2:45:22 PM		
Temperature: 26 °C	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



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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:	6/22/2006 2:45:48 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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.

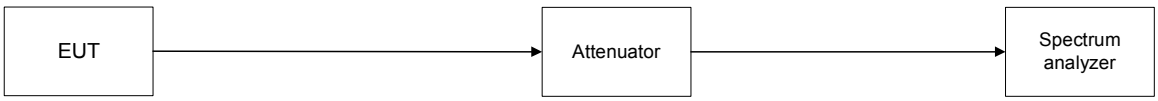
7.2.2 Test procedure

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 resolution bandwidth of spectrum analyzer was set wider than 6 dB bandwidth of the EUT and the maximum peak output power was measured as provided in Table 7.2.2 and associated plots.

Figure 7.2.1 Peak output power test setup



HERMON LABORATORIES

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:	6/22/2006 2:45:48 PM		
Temperature: 26 ºC	**Air Pressure:** 1016 hPa	**Relative Humidity:** 42 %	**Power Supply:** 120 V AC
Remarks:			

Table 7.2.2 Peak output power test results

ASSIGNED FREQUENCY: 5725 – 5850 MHz
MODULATION: QAM
MODULATING SIGNAL: PRBS
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
DETECTOR USED: Peak
RESOLUTION BANDWIDTH: 300 kHz
VIDEO BANDWIDTH: 3000 kHz

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							
5740	29.50	Included	Included	29.50	30.0	-0.50	Pass
5785	29.01	Included	Included	29.01	30.0	-0.99	Pass
5835	28.63	Included	Included	28.63	30.0	-1.37	Pass
Data rate: 13.5 Mbps							
5740	29.53	Included	Included	29.53	30.0	-0.47	Pass
5785	29.14	Included	Included	29.14	30.0	-0.86	Pass
5835	28.98	Included	Included	28.98	30.0	-1.02	Pass
Channel spacing: 10 MHz							
Data rate: 3 Mbps							
5740	29.22	Included	Included	29.22	30.0	-0.78	Pass
5785	28.58	Included	Included	28.58	30.0	-1.42	Pass
5835	28.02	Included	Included	28.02	30.0	-1.98	Pass
Data rate: 27 Mbps							
5740	29.67	Included	Included	29.67	30.0	-0.33	Pass
5785	29.00	Included	Included	29.00	30.0	-1.00	Pass
5835	28.67	Included	Included	28.67	30.0	-1.33	Pass
Channel spacing: 20 MHz							
Data rate: 6 Mbps							
5740	29.24	Included	Included	29.24	30.0	-0.76	Pass
5785	28.57	Included	Included	28.57	30.0	-1.43	Pass
5835	28.23	Included	Included	28.23	30.0	-1.77	Pass
Data rate: 54 Mbps							
5740	29.26	Included	Included	29.26	30.0	-0.74	Pass
5785	28.87	Included	Included	28.87	30.0	-1.13	Pass
5835	28.02	Included	Included	28.02	30.0	-1.98	Pass

* - Margin = Peak output power – specification limit.

Reference numbers of test equipment used

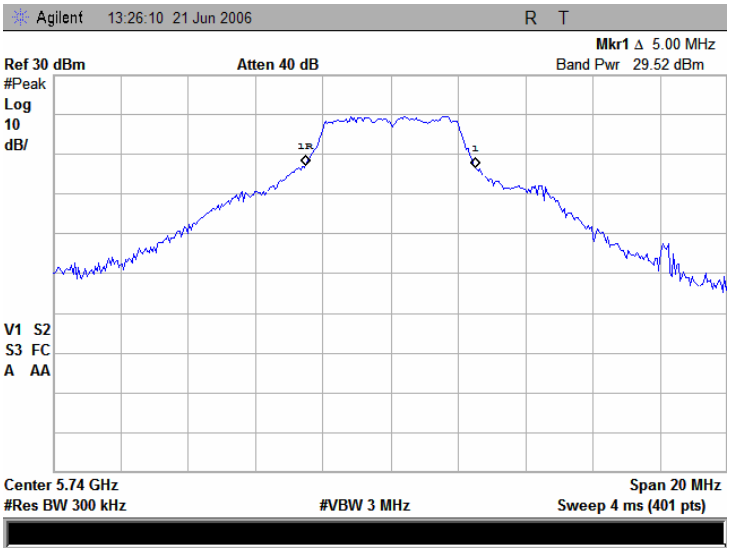
HL 1650	HL 2254	HL 2780					

Full description is given in Appendix A.

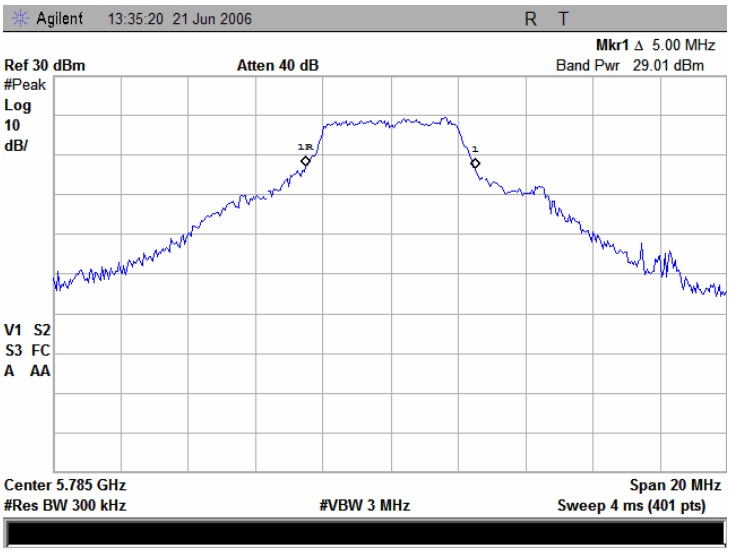
HERMON LABORATORIES

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:	6/22/2006 2:45:48 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



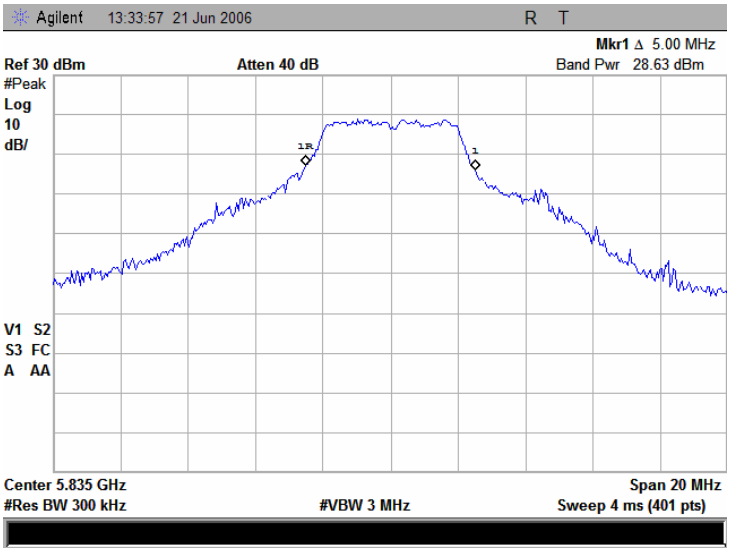
Plot 7.2.2 Peak output power at mid frequency, 5 MHz cannel spacing, 1.5 Mbps data rate



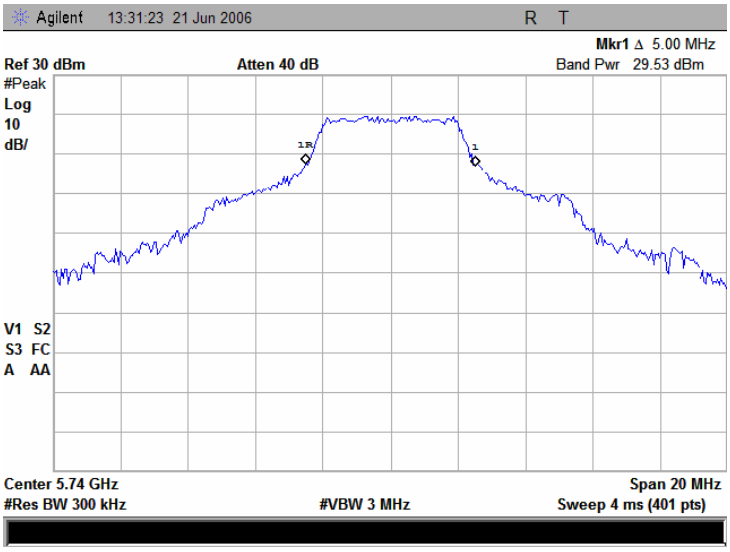
HERMON LABORATORIES

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:	6/22/2006 2:45:48 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



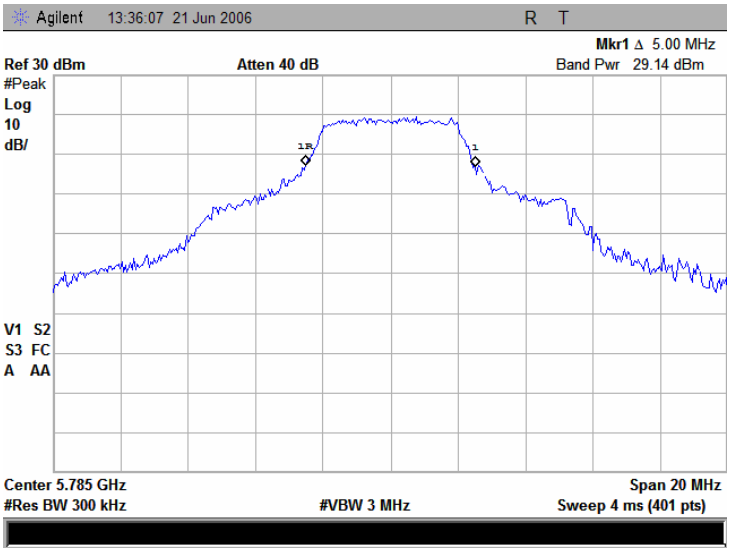
Plot 7.2.4 Peak output power at low frequency, 5 MHz cannel spacing, 13.5 Mbps data rate



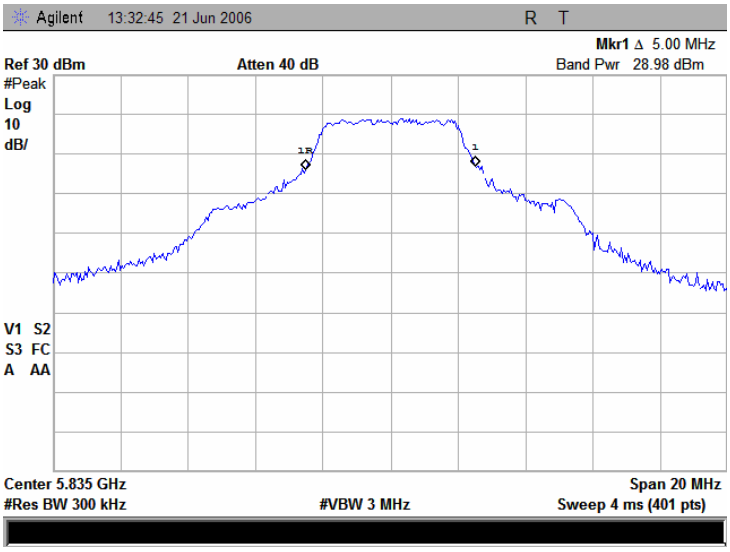
HERMON LABORATORIES

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:	6/22/2006 2:45:48 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



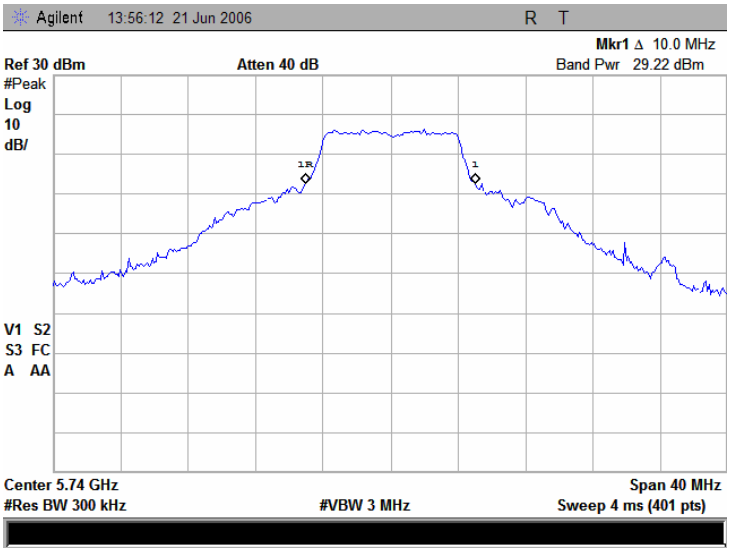
Plot 7.2.6 Peak output power at high frequency, 5 MHz cannel spacing, 13.5 Mbps data rate



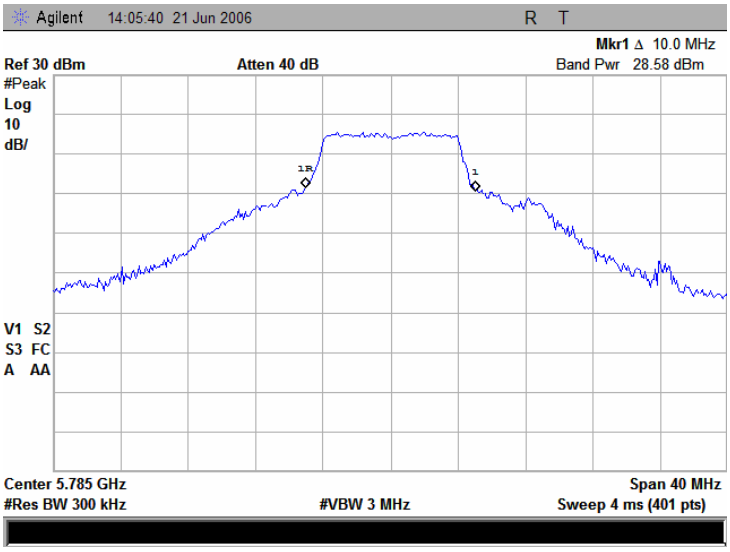
HERMON LABORATORIES

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:	6/22/2006 2:45:48 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



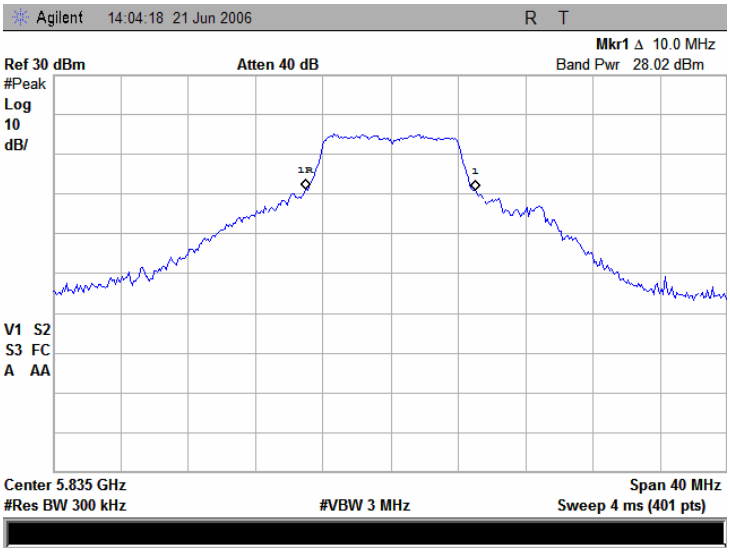
Plot 7.2.8 Peak output power at mid frequency, 10 MHz cannel spacing, 3 Mbps data rate



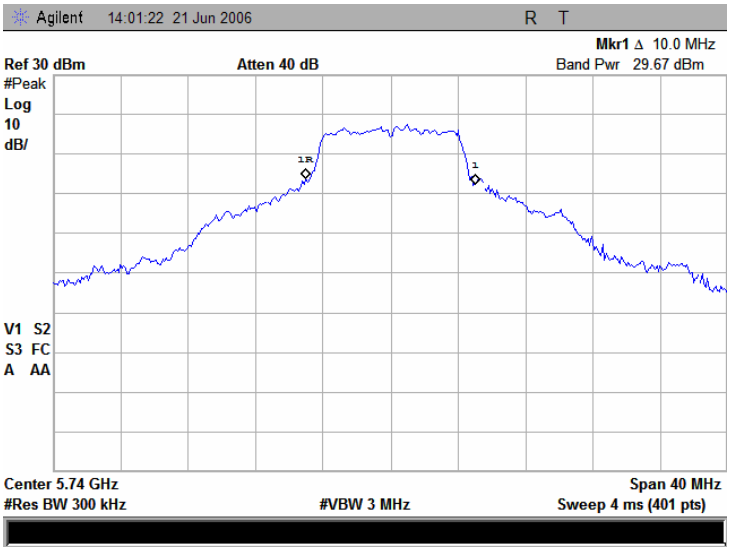
HERMON LABORATORIES

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:	6/22/2006 2:45:48 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



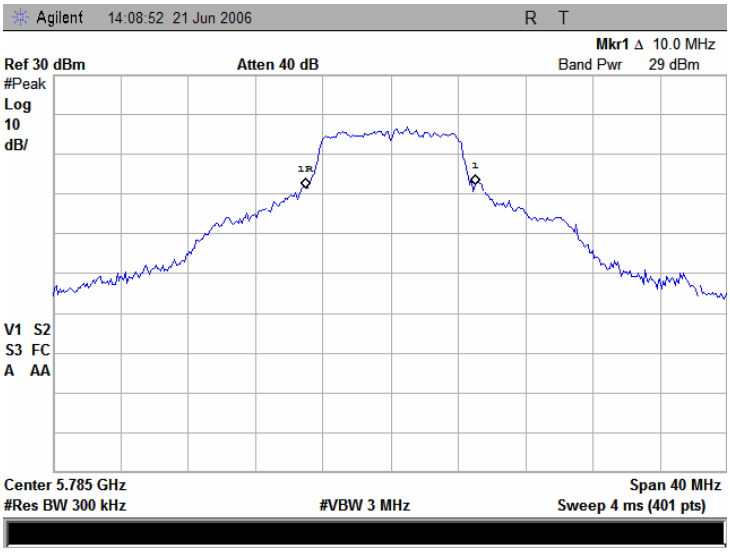
Plot 7.2.10 Peak output power at low frequency, 10 MHz cannel spacing, 27 Mbps data rate



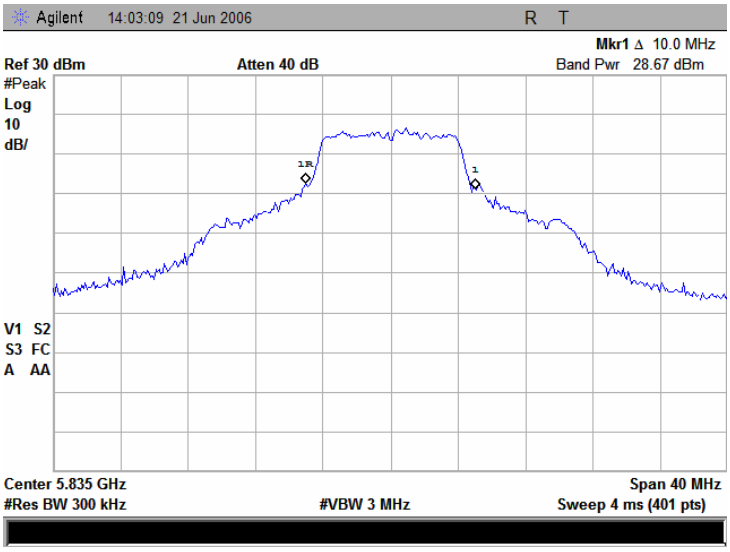
HERMON LABORATORIES

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:	6/22/2006 2:45:48 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



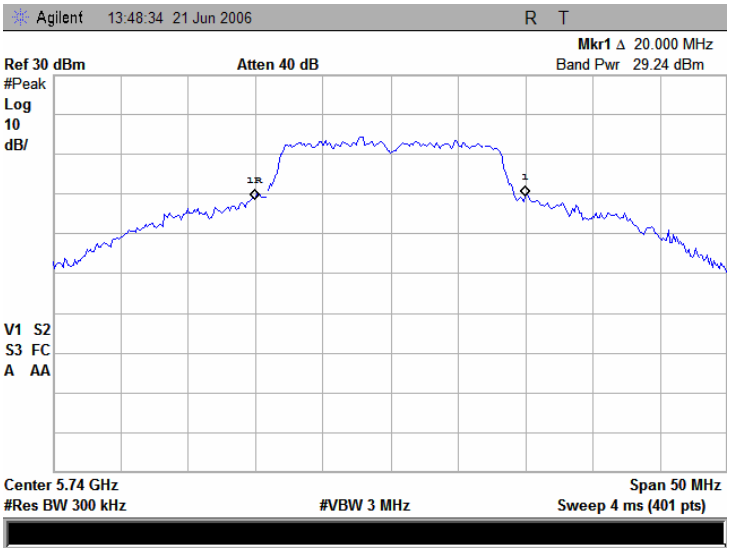
Plot 7.2.12 Peak output power at high frequency, 10 MHz cannel spacing, 27 Mbps data rate



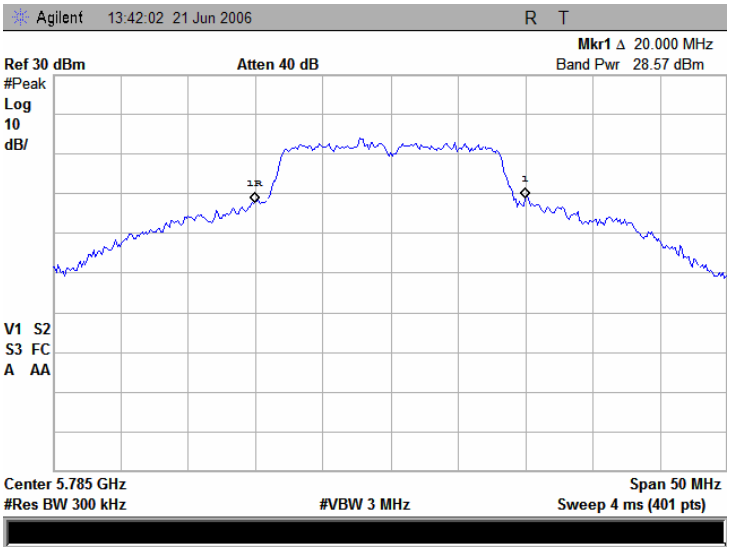
HERMON LABORATORIES

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:	6/22/2006 2:45:48 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



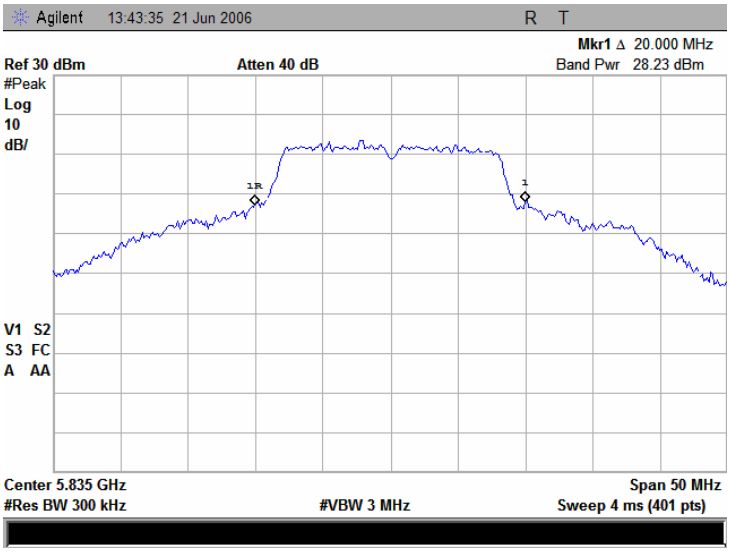
Plot 7.2.14 Peak output power at mid frequency, 20 MHz cannel spacing, 6 Mbps data rate



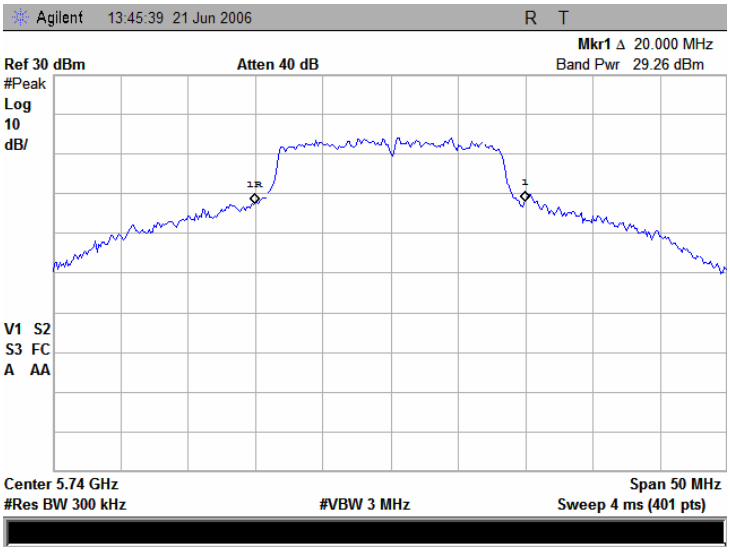
HERMON LABORATORIES

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:	6/22/2006 2:45:48 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



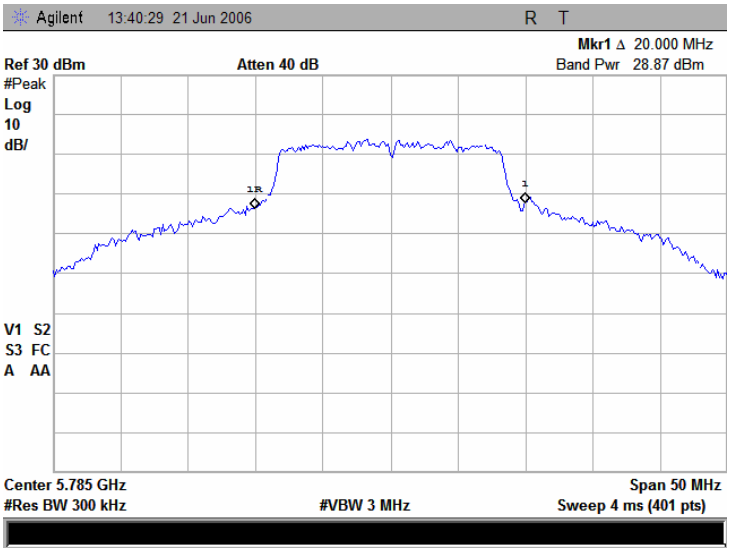
Plot 7.2.16 Peak output power at low frequency, 20 MHz cannel spacing, 54 Mbps data rate



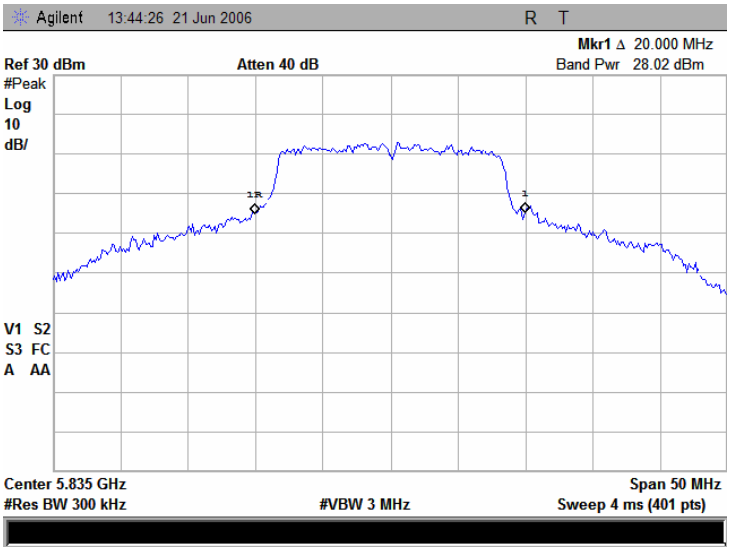
HERMON LABORATORIES

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:	6/22/2006 2:45:48 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



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



HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	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. The test results are provided in Table 7.3.2 and associated plots.

Table 7.3.1 Spurious emission limits

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

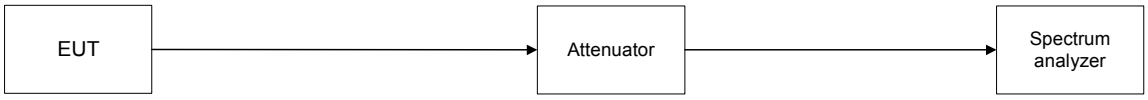
7.3.2.1 The EUT was set up as shown in Figure 7.3.1, energized and its proper operation was checked.

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



HERMON LABORATORIES

Test specification:	**Section 15.247(c), Conducted spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	**Verdict:**	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	**Air Pressure:** 1016 hPa	**Relative Humidity:** 42 %	**Power Supply:** 120 V AC
Remarks:			

Table 7.3.2 Spurious emission test results

ASSIGNED FREQUENCY RANGE: 5725 – 5850 MHz
INVESTIGATED FREQUENCY RANGE: 0.009 – 40000 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						
11479.40	-45.08	14.29	59.37	20.0	39.37	Pass
17220.65	-51.17		65.46		45.46	
22961.45	-65.96		80.25		60.25	
Mid carrier frequency						
11570.60	-43.35	13.78	57.13	20.0	37.13	Pass
17354.60	-50.49		64.27		44.27	
23131.60	-67.24		81.02		61.02	
High carrier frequency						
11669.10	-38.22	13.99	52.21	20.0	32.21	Pass
17503.75	-54.23		68.22		48.22	
23340.80	-64.62		78.61		58.61	

*****- Margin = Attenuation below carrier – specification limit.

Reference numbers of test equipment used

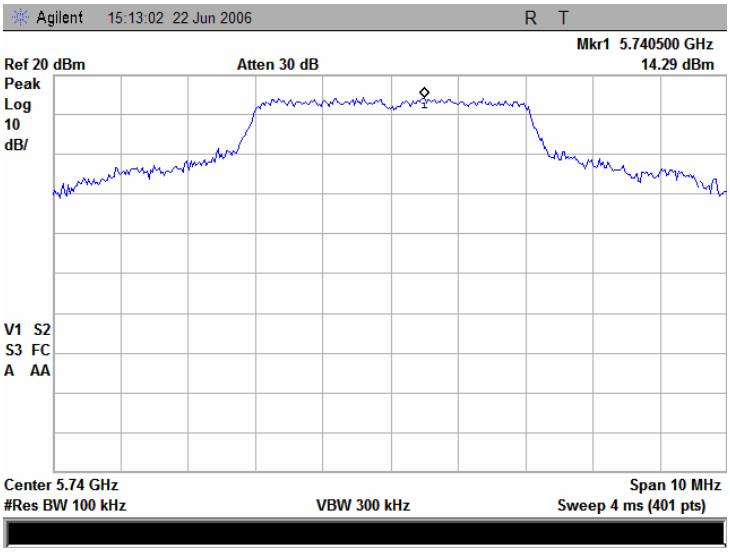
HL 1424	HL 1650	HL 2254	HL 2780				

Full description is given in Appendix A.

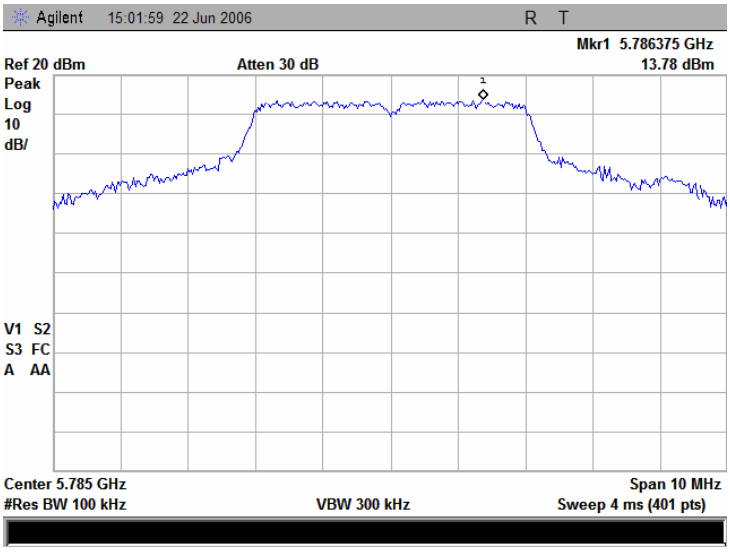
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

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



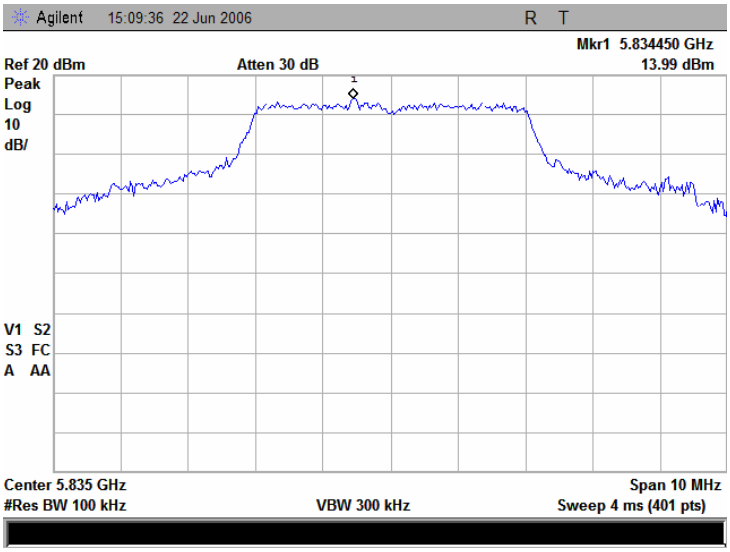
Plot 7.3.2 The highest emission level within the assigned band at mid carrier frequency, 5 MHz channel spacing



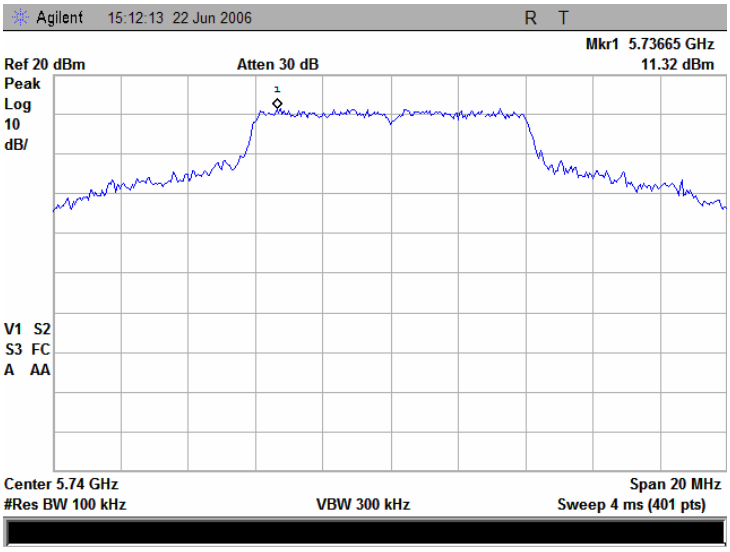
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	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



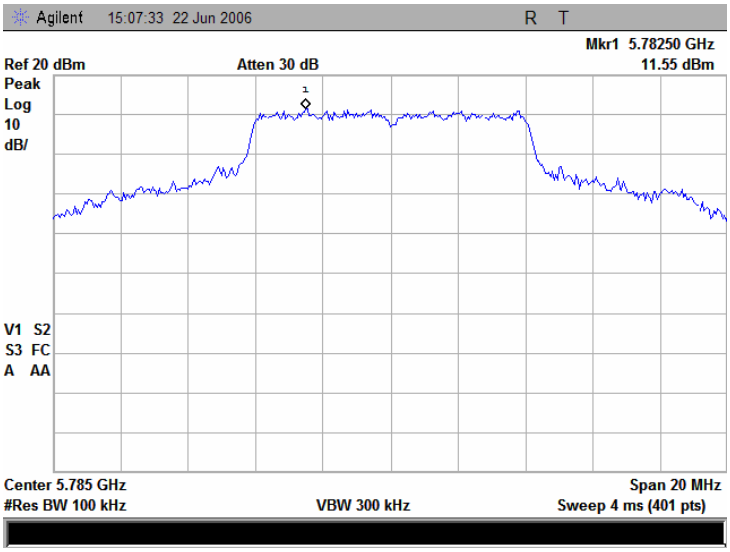
Plot 7.3.4 The highest emission level within the assigned band at low carrier frequency, 10 MHz channel spacing



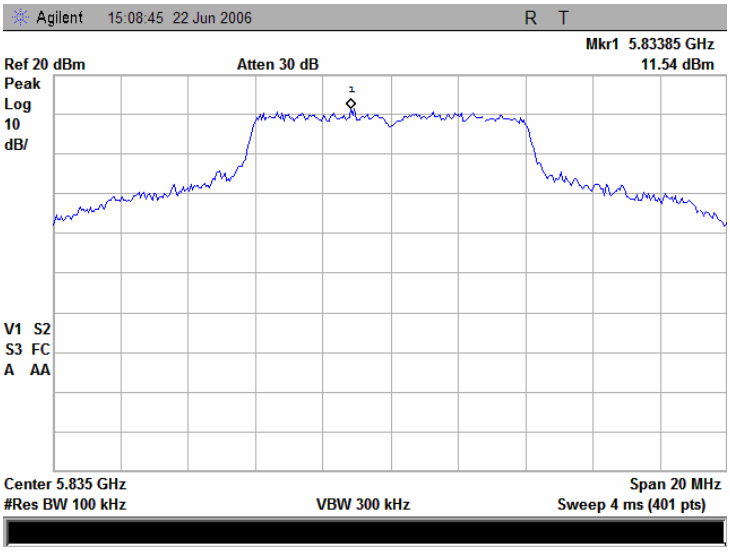
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.5 The highest emission level within the assigned band at mid carrier frequency, 10 MHz channel spacing



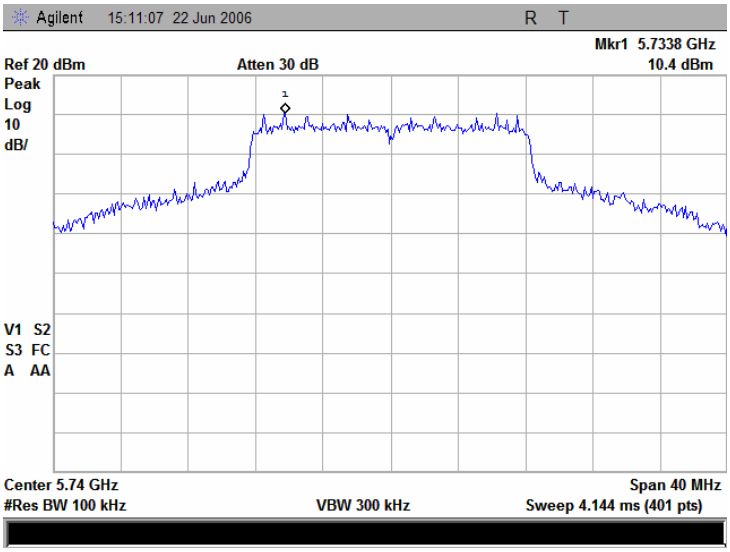
Plot 7.3.6 The highest emission level within the assigned band at high carrier frequency, 10 MHz channel spacing



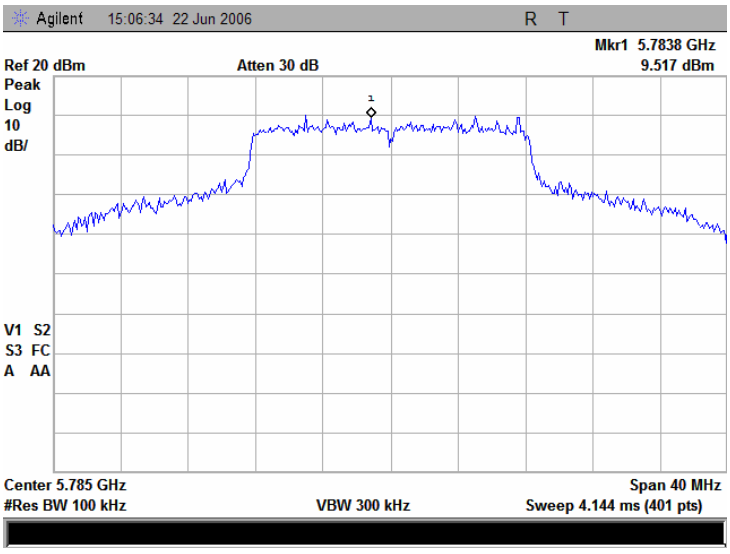
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.7 The highest emission level within the assigned band at low carrier frequency, 20 MHz channel spacing



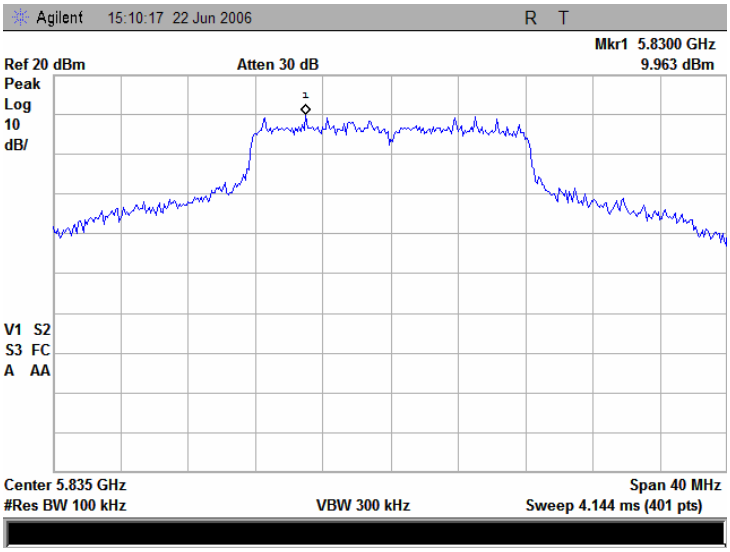
Plot 7.3.8 The highest emission level within the assigned band at mid carrier frequency, 20 MHz channel spacing



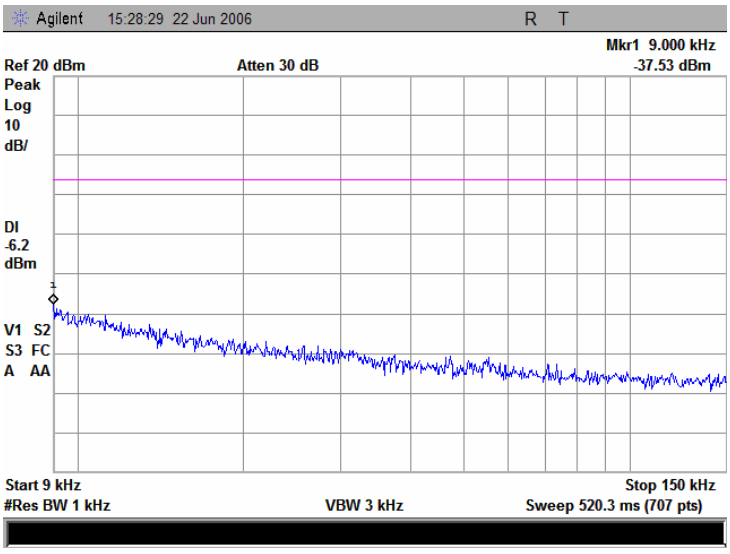
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.9 The highest emission level within the assigned band at high carrier frequency, 20 MHz channel spacing



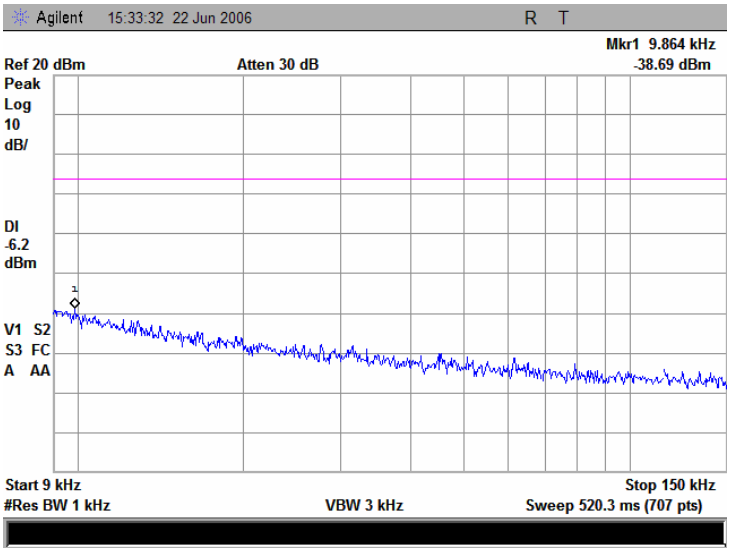
Plot 7.3.10 Spurious emission measurements in 9 - 150 kHz range at low carrier frequency, 5 MHz channel



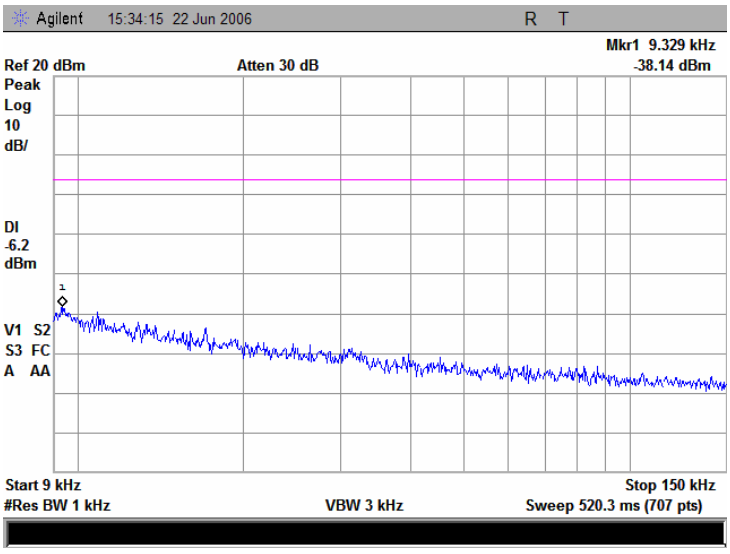
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.11 Spurious emission measurements in 9 - 150 kHz range at mid carrier frequency, 5 MHz channel



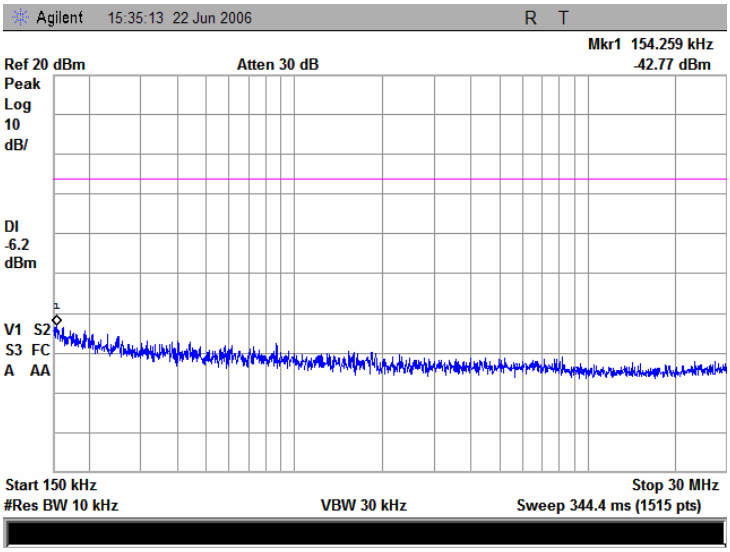
Plot 7.3.12 Spurious emission measurements in 9 - 150 kHz range at high carrier frequency, 5 MHz channel



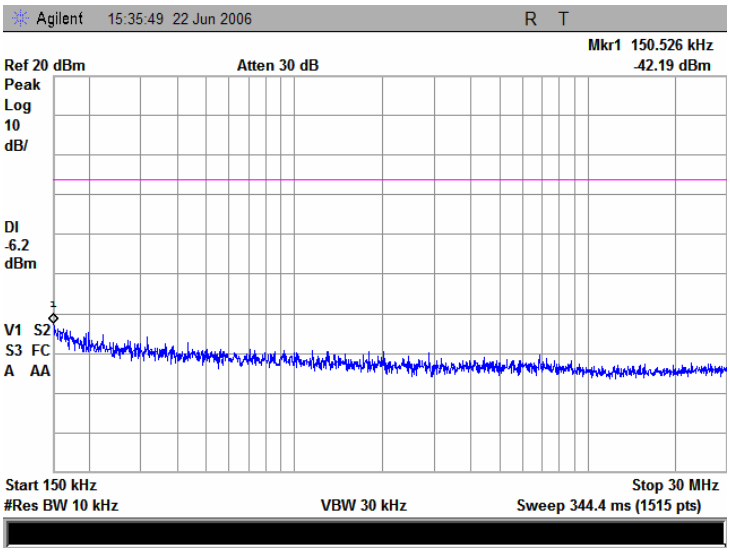
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.13 Spurious emission measurements in 0.15 - 30 MHz range at low carrier frequency, 5 MHz channel



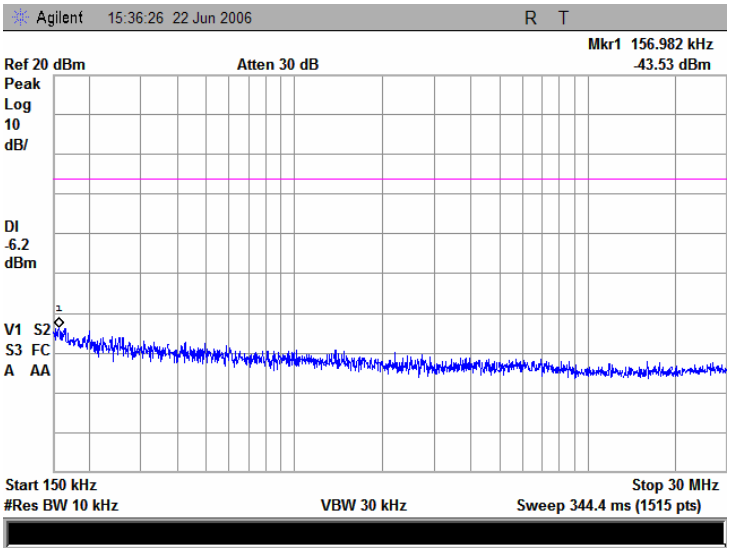
Plot 7.3.14 Spurious emission measurements in 0.15 - 30 MHz range at mid carrier frequency, 5 MHz channel



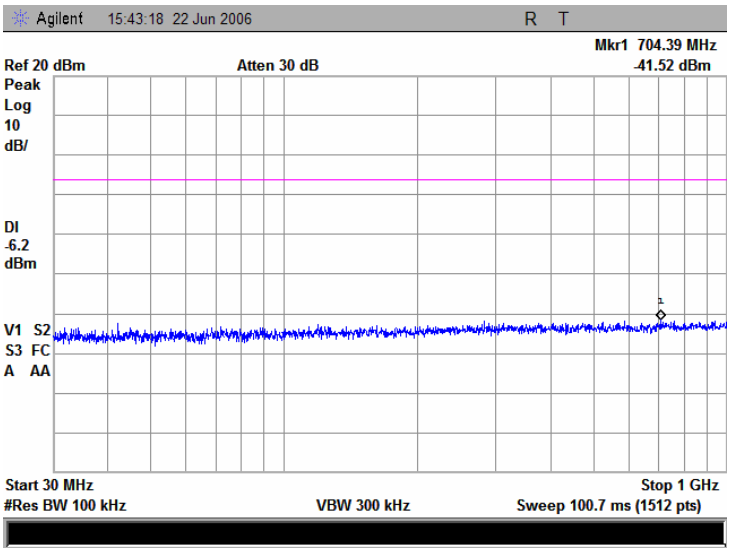
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.15 Spurious emission measurements in 0.15 - 30 MHz range at high carrier frequency, 5 MHz channel



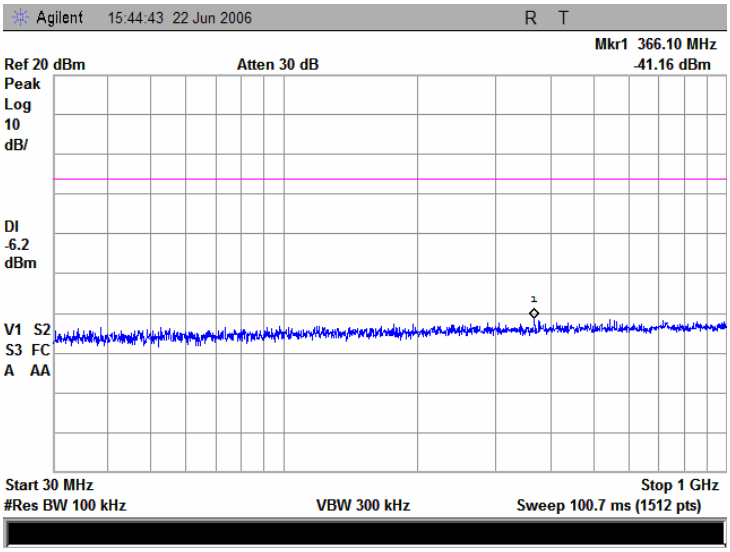
Plot 7.3.16 Spurious emission measurements in 30 - 1000 MHz range at low carrier frequency, 5 MHz channel



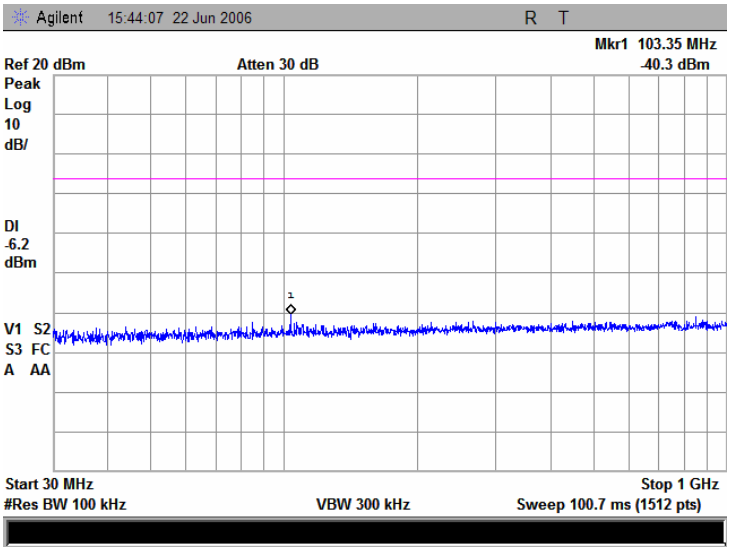
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.17 Spurious emission measurements in 30 - 1000 MHz range at mid carrier frequency, 5 MHz channel



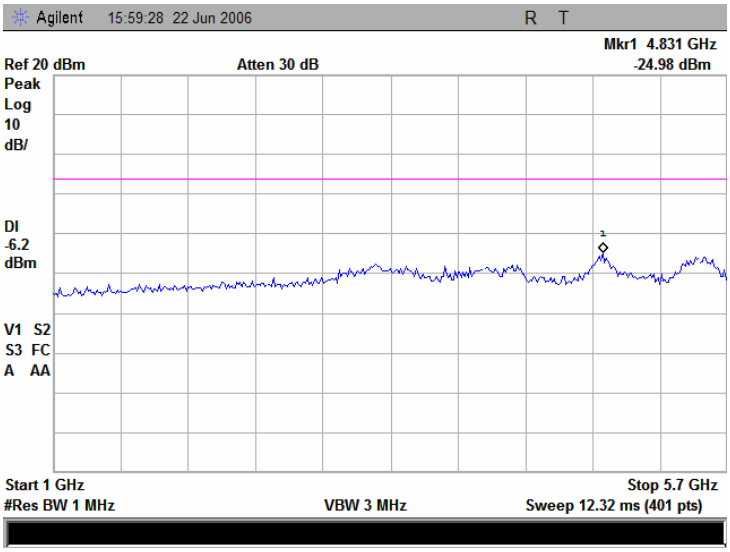
Plot 7.3.18 Spurious emission measurements in 30 - 1000 MHz range at high carrier frequency, 5 MHz channel



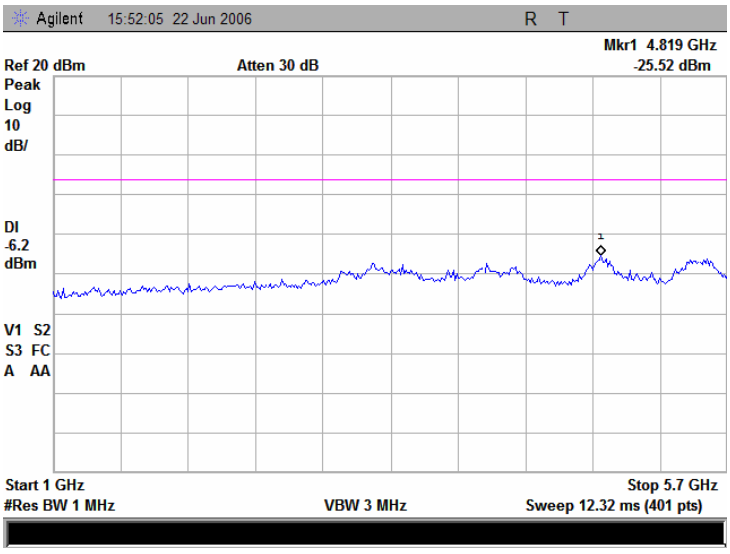
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.19 Spurious emission measurements in 1000 - 5700 MHz range at low carrier frequency, 5 MHz channel



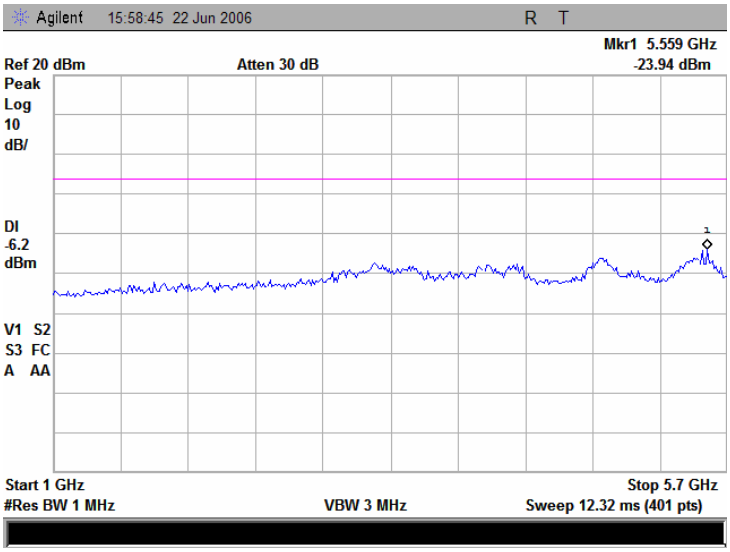
Plot 7.3.20 Spurious emission measurements in 1000 - 5700 MHz range at mid carrier frequency, 5 MHz channel



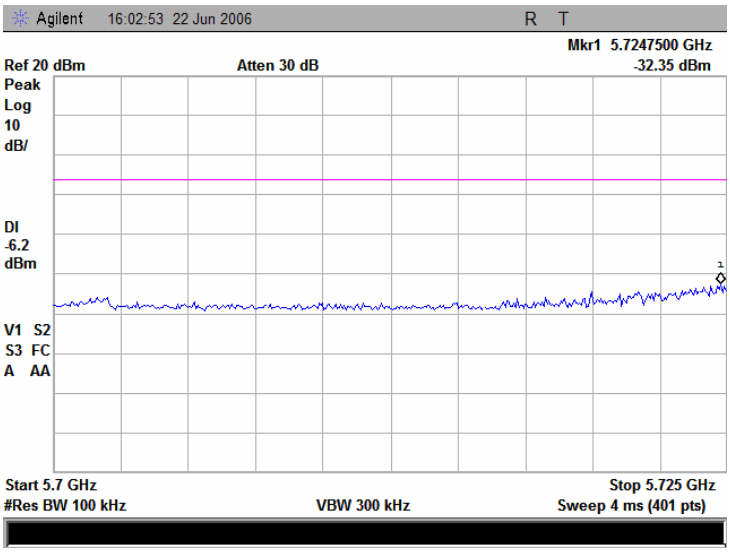
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.21 Spurious emission measurements in 1000 - 5700 MHz range at high carrier frequency, 5 MHz channel



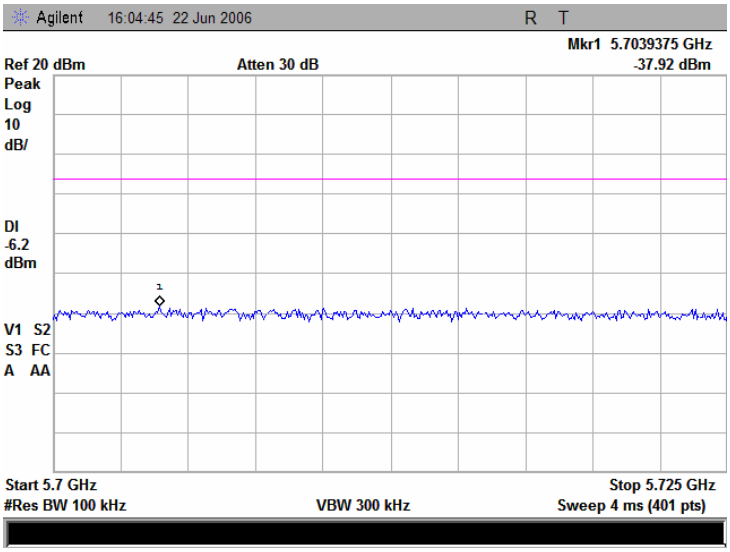
Plot 7.3.22 Spurious emission measurements in 5700 - 5725 MHz range at low carrier frequency, 5 MHz channel



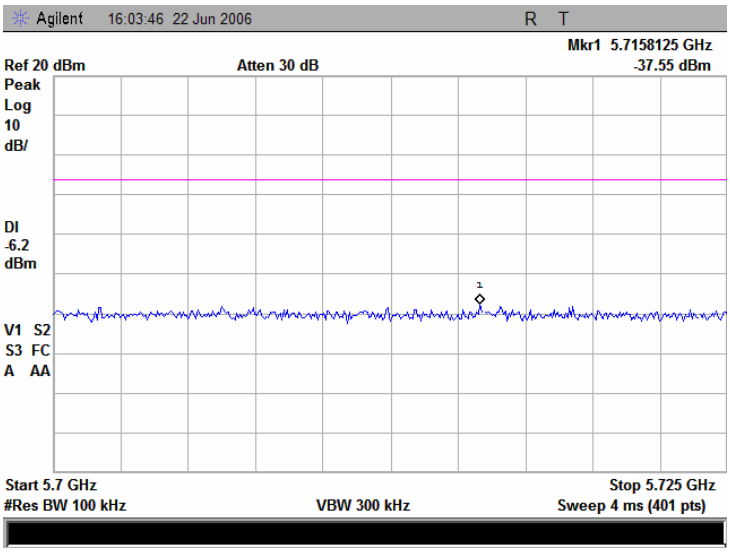
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.23 Spurious emission measurements in 5700 - 5725 MHz range at mid carrier frequency, 5 MHz channel



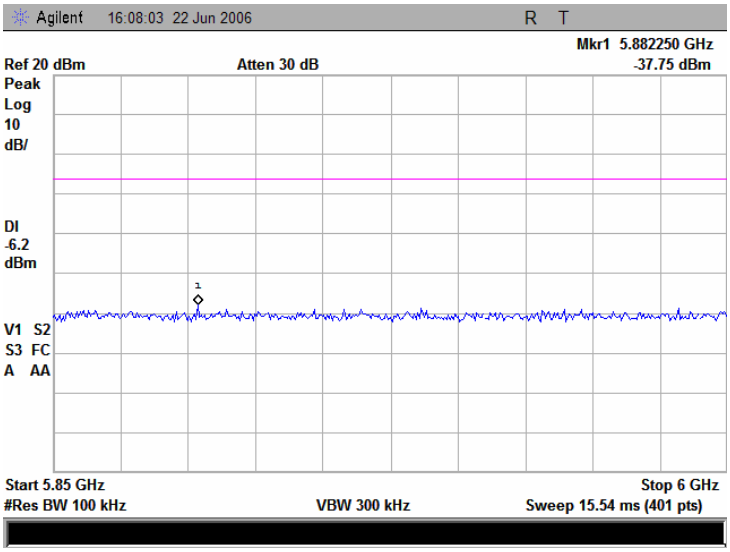
Plot 7.3.24 Spurious emission measurements in 5700 - 5725 MHz range at high carrier frequency, 5 MHz channel



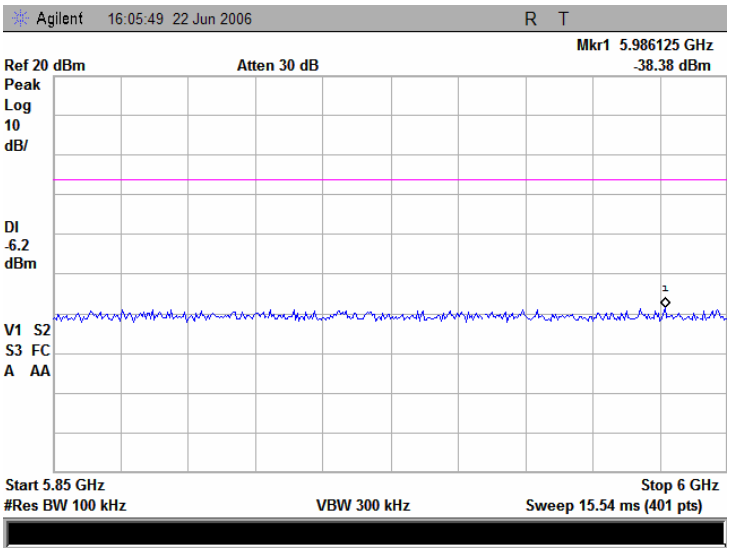
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.25 Spurious emission measurements in 5850 - 6000 MHz range at low carrier frequency, 5 MHz channel



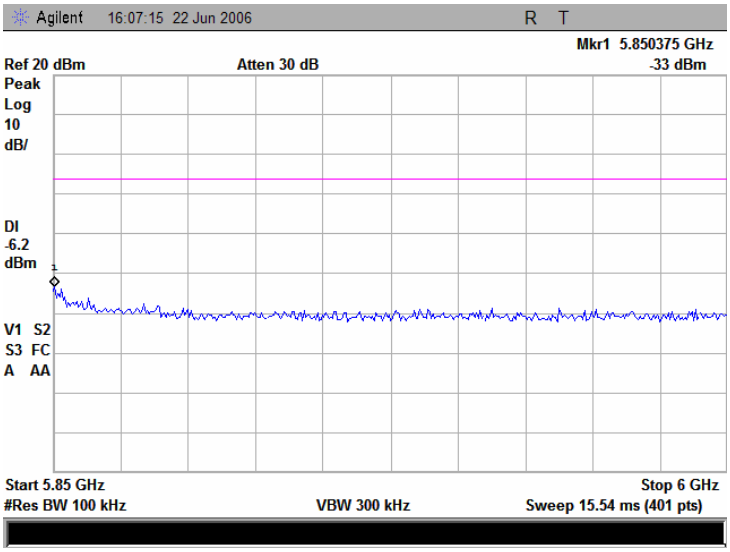
Plot 7.3.26 Spurious emission measurements in 5850 - 6000 MHz range at mid carrier frequency, 5 MHz channel



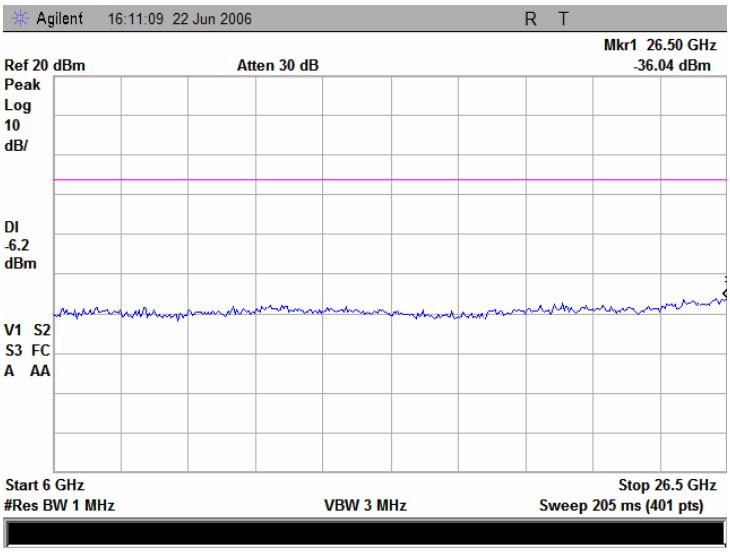
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.27 Spurious emission measurements in 5850 - 6000 MHz range at high carrier frequency, 5 MHz channel



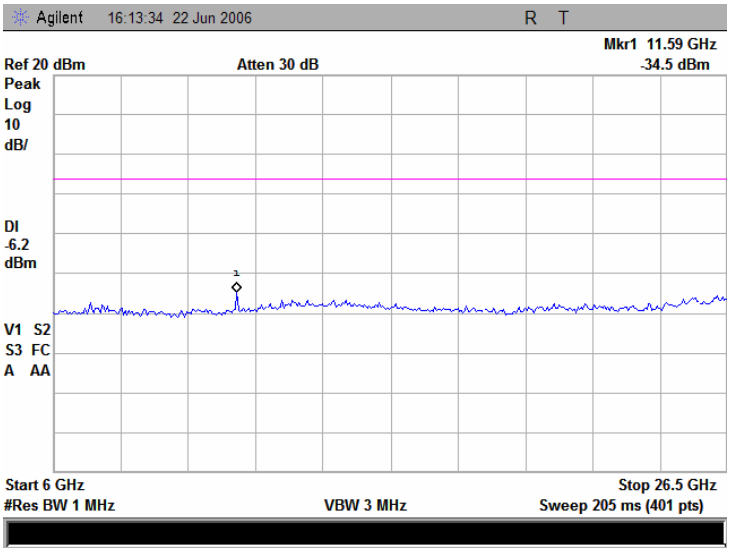
Plot 7.3.28 Spurious emission measurements in 6000 – 26500 MHz range at low carrier frequency, 5 MHz channel



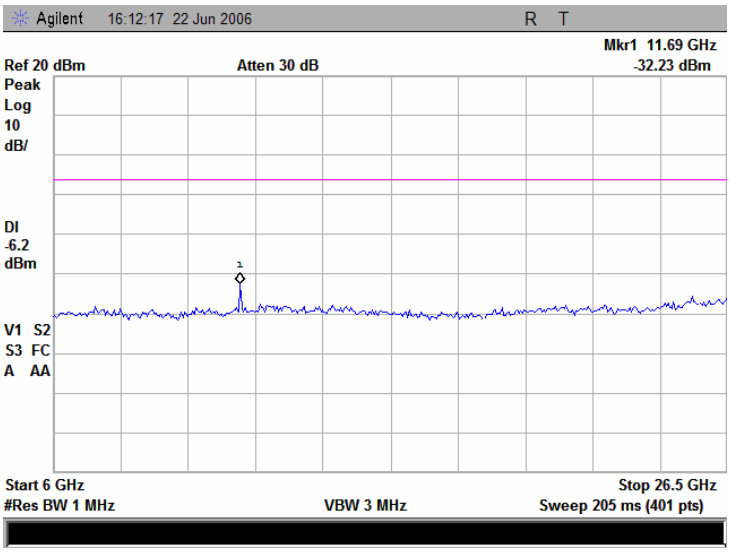
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.29 Spurious emission measurements in 6000 – 26500 MHz range at mid carrier frequency, 5 MHz channel



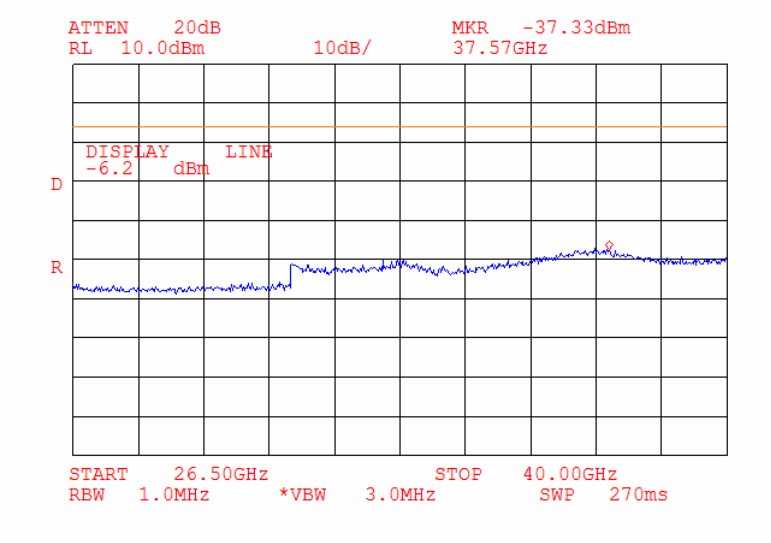
Plot 7.3.30 Spurious emission measurements in 6000 – 26500 MHz range at high carrier frequency, 5 MHz channel



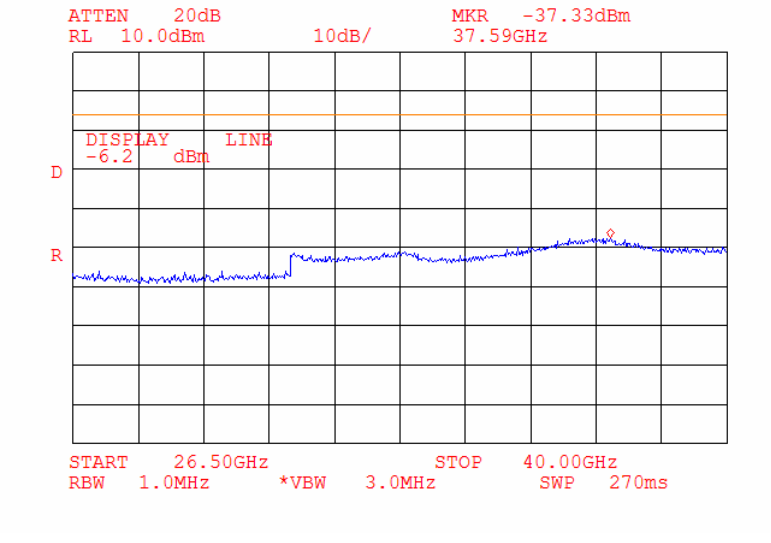
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.31 Spurious emission measurements in 26500 – 40000 MHz range at low carrier frequency, 5 MHz channel



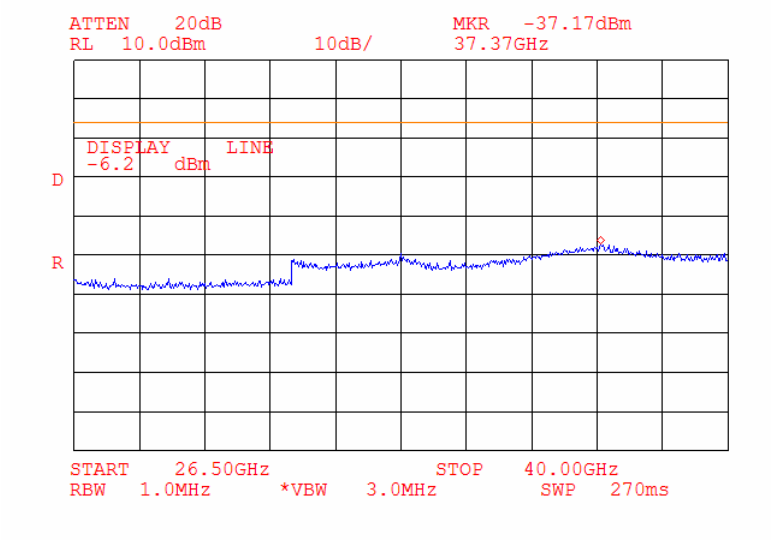
Plot 7.3.32 Spurious emission measurements in 26500 – 40000 MHz range at mid carrier frequency, 5 MHz channel



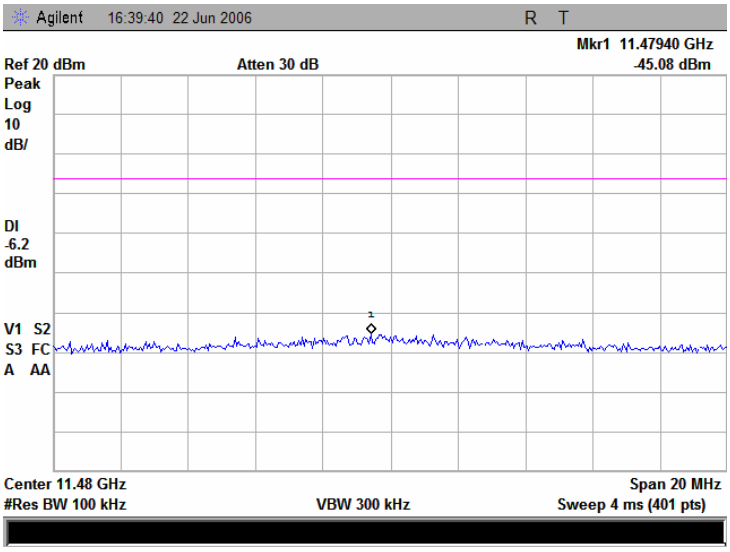
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.33 Spurious emission measurements in 26500 – 40000 MHz range at high carrier frequency, 5 MHz channel



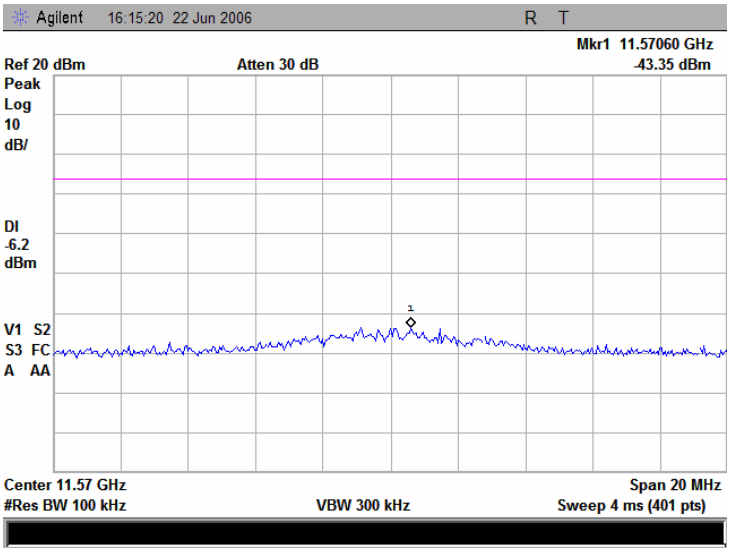
Plot 7.3.34 Conducted spurious emission measurements at the 2nd harmonic of low carrier frequency



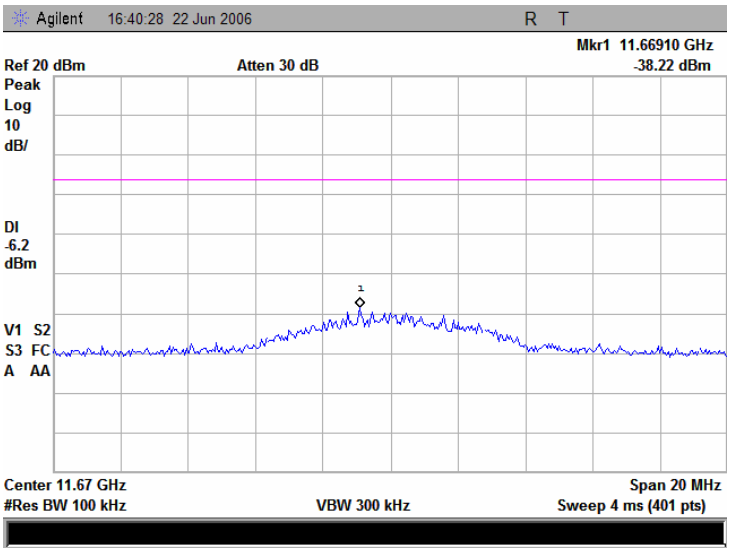
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.35 Conducted spurious emission measurements at the 2nd harmonic of mid carrier frequency



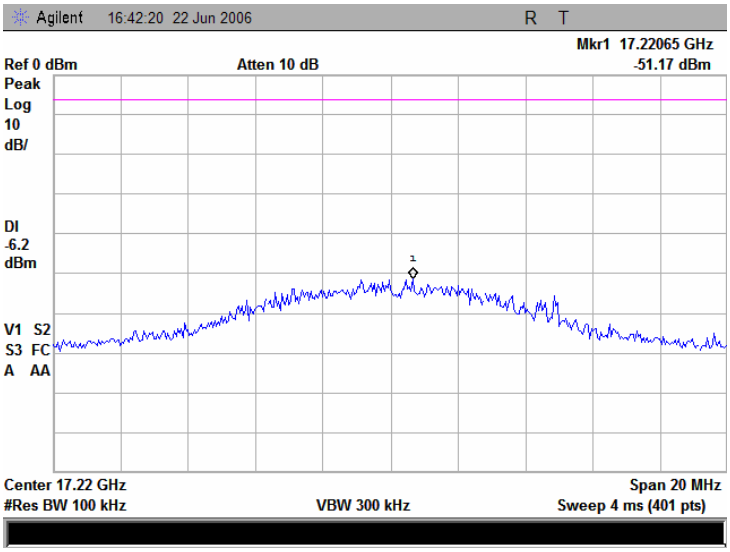
Plot 7.3.36 Conducted spurious emission measurements at the 2nd harmonic of high carrier frequency



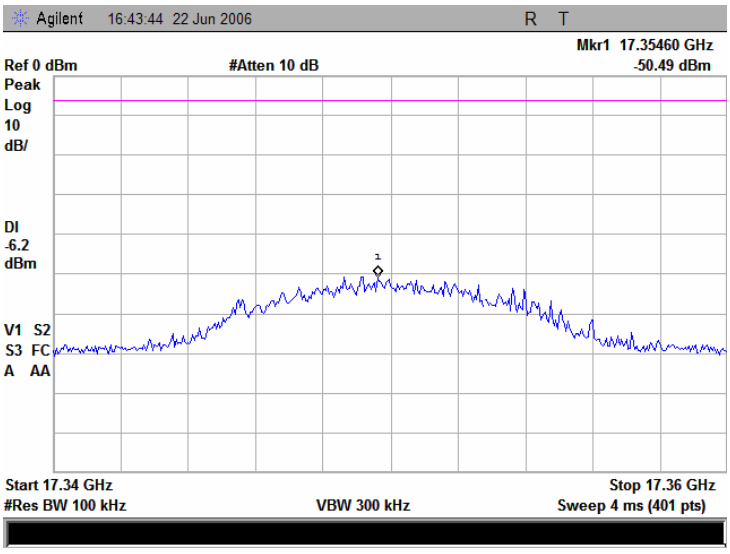
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.37 Conducted spurious emission measurements at the 3rd harmonic of low carrier frequency



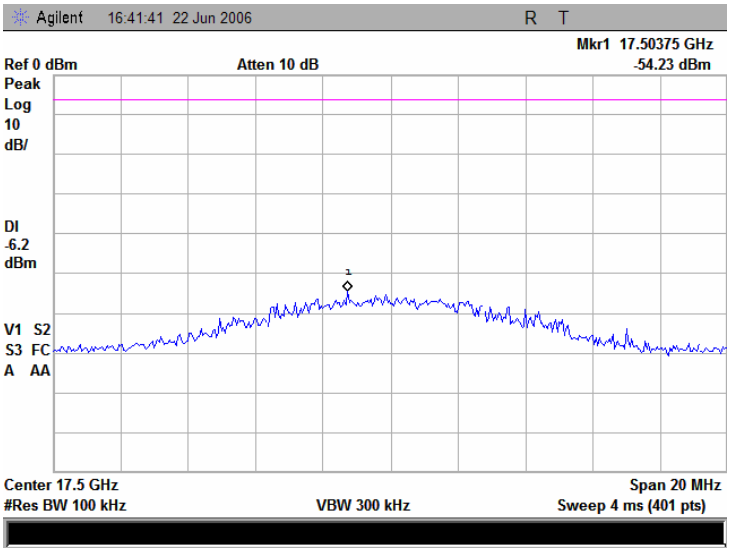
Plot 7.3.38 Conducted spurious emission measurements at the 3rd harmonic of mid carrier frequency



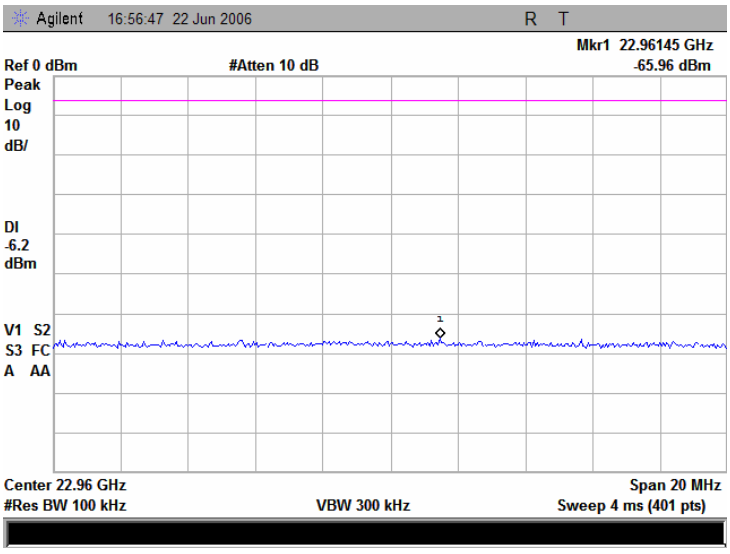
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 °C	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.39 Conducted spurious emission measurements at the 3rd harmonic of high carrier frequency



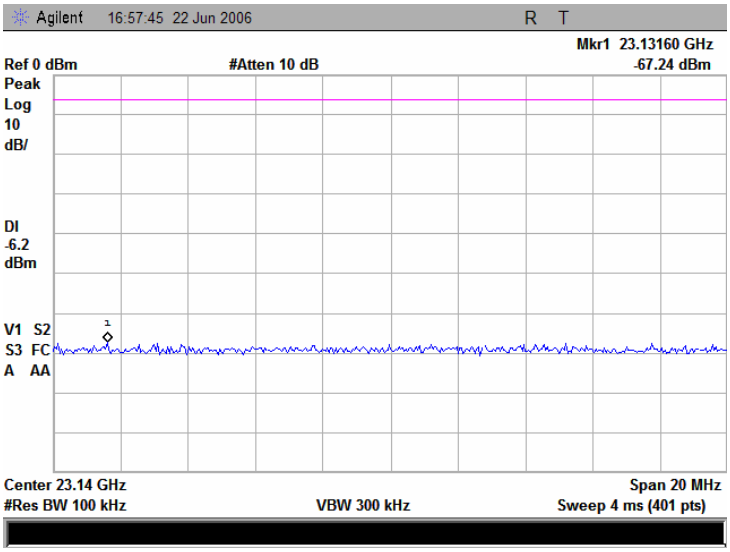
Plot 7.3.40 Conducted spurious emission measurements at the 4th harmonic of low carrier frequency



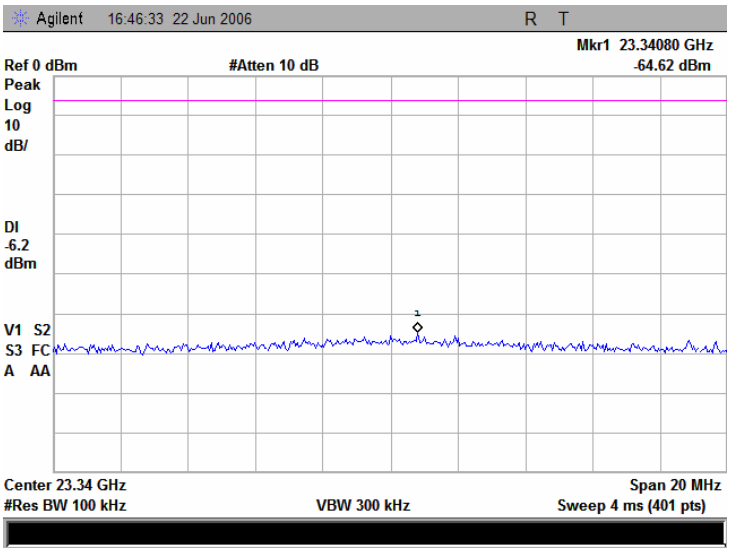
HERMON LABORATORIES

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	
Date & Time:	6/22/2006 2:46:42 PM		
Temperature: 26 ºC	Air Pressure: 1016 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.41 Conducted spurious emission measurements at the 4th harmonic of mid carrier frequency



Plot 7.3.42 Conducted spurious emission measurements at the 4th 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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

7.4 Field strength of spurious emissions of the ODU with 32.5 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 – 10thharmonic	74.0	NA	54.0

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

$$Lim_{S2} = Lim_{S1} + 40 \log (S_1/S_2),$$

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 360^0 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 360^0, 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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

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

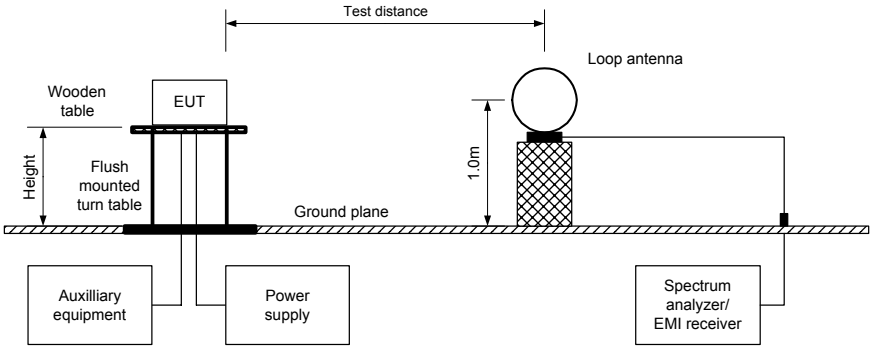
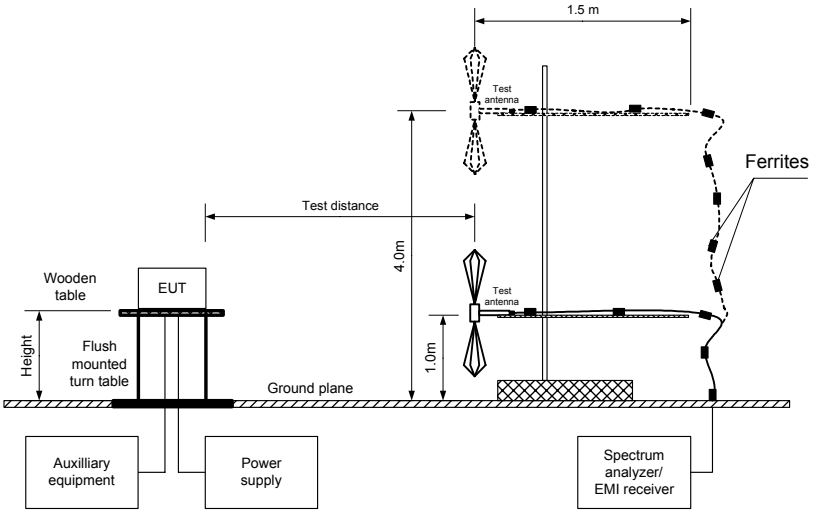


Figure 7.4.2 Setup for spurious emission field strength measurements above 30 MHz



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:**	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	**Air Pressure:** 1007 hPa	**Relative Humidity:** 48 %	**Power Supply:** 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

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

ASSIGNED FREQUENCY:	5725 – 5850 MHz
INVESTIGATED FREQUENCY RANGE:	0.009 - 40000 MHz
TEST DISTANCE:	3 m
MODULATION:	QAM
MODULATING SIGNAL:	PRBS
BIT RATE:	1.5 Mbps
DUTY CYCLE:	100 %
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
EUT CABINET:	ODU High Power
EUT ANTENNA GAIN:	32.5 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)	Limit, dB(µV/m)	Margin, dB**	
Low carrier frequency										
5455.000	Vertical	1.0	78	59.83	74.00	-14.17	47.67	54.00	-6.33	Pass
11479.500	Vertical	1.0	180	57.33	74.00	-16.67	43.17	54.00	-10.83	
Mid carrier frequency										
5445.000	Vertical	1.0	95	59.67	74.00	-14.33	46.33	54.00	-7.67	Pass
11569.430	Vertical	1.1	179	67.17	74.00	-6.83	51.50	54.00	-2.5	
High carrier frequency										
5443.000	Vertical	1.1	83	56.83	74.00	-17.17	42.67	54.00	-11.33	Pass
11669.630	Vertical	1.0	180	64.33	74.00	-9.67	47.67	54.00	-6.33	

*****- EUT front panel refers to 0 degrees position of turntable.
******- Margin = Measured field strength - specification limit.

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:**	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	**Air Pressure:** 1007 hPa	**Relative Humidity:** 48 %	**Power Supply:** 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

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

ASSIGNED FREQUENCY:	5725 – 5850 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:	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*				
Low 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

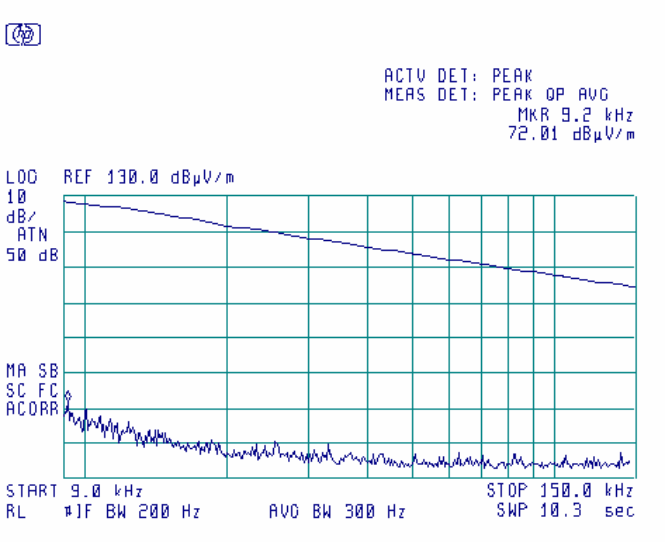
HL 0410	HL 0446	HL 0465	HL 0592	HL 0593	HL 0594	HL 0768	HL 0769
HL 1200	HL 1425	HL 1430	HL 1553	HL 1566	HL 1650	HL 2259	HL 2260
HL 2261	HL 2432	HL 2697	HL 2780	HL 2871	HL 2911		

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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

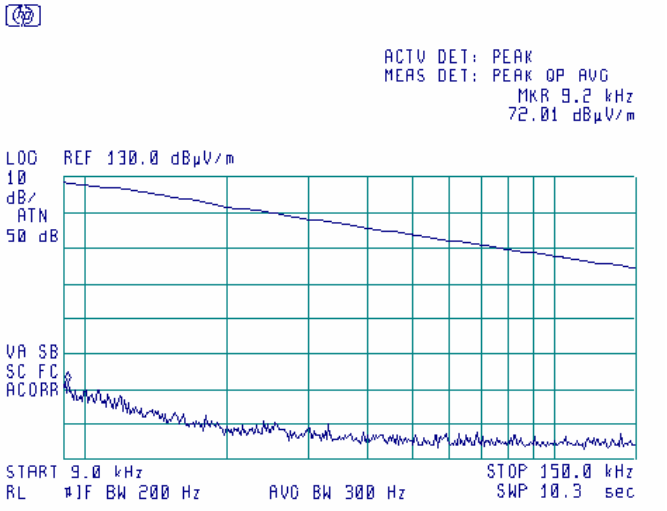
Plot 7.4.1 Radiated emission measurements from 9 to 150 kHz at the low carrier frequency

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



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

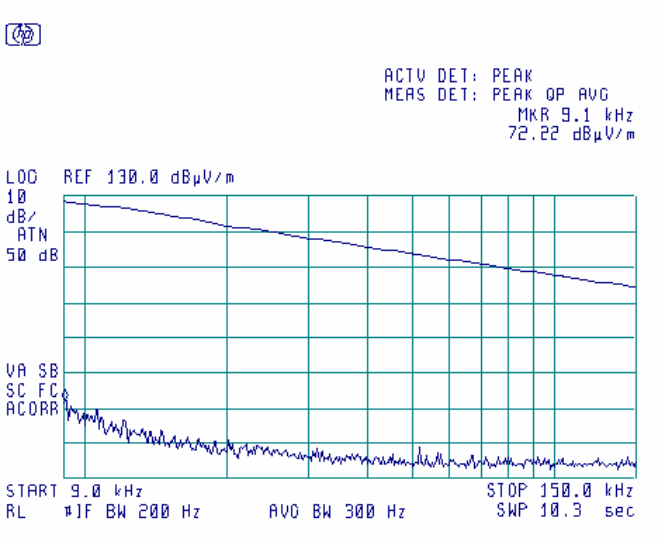
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

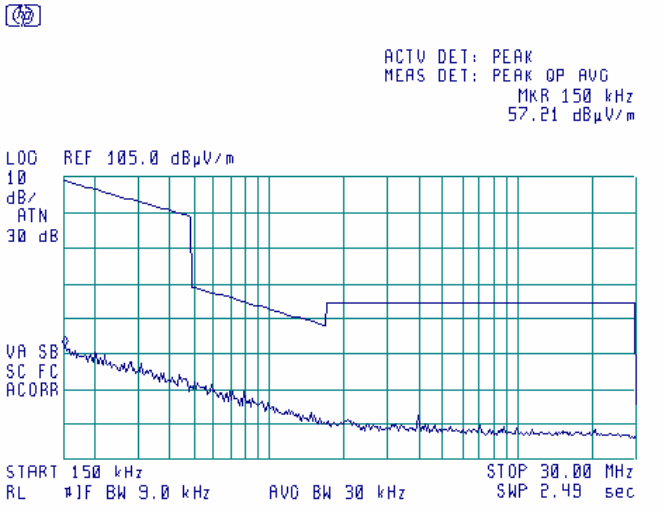
Plot 7.4.3 Radiated emission measurements from 9 to 150 kHz at the high carrier frequency

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



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

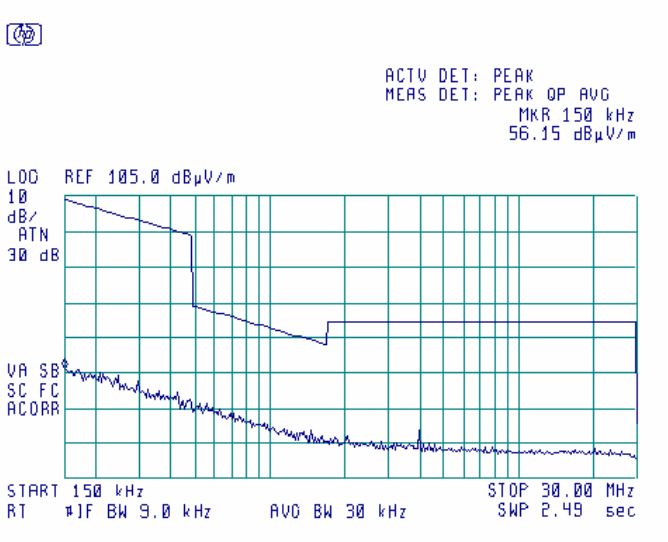
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

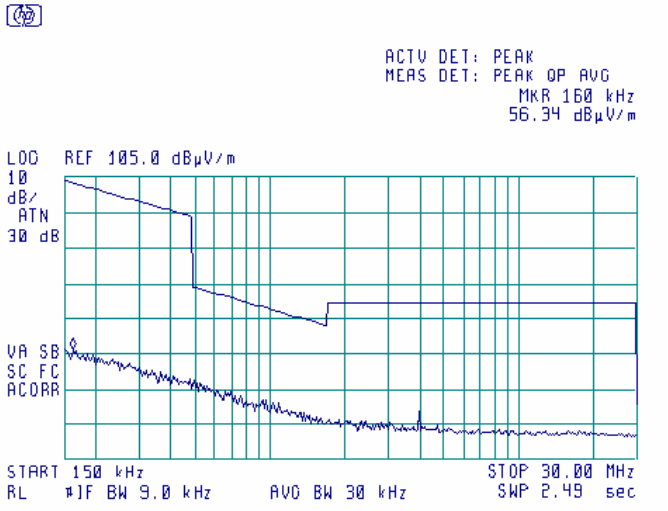
Plot 7.4.5 Radiated emission measurements from 0.15 to 30 MHz at the mid carrier frequency

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



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

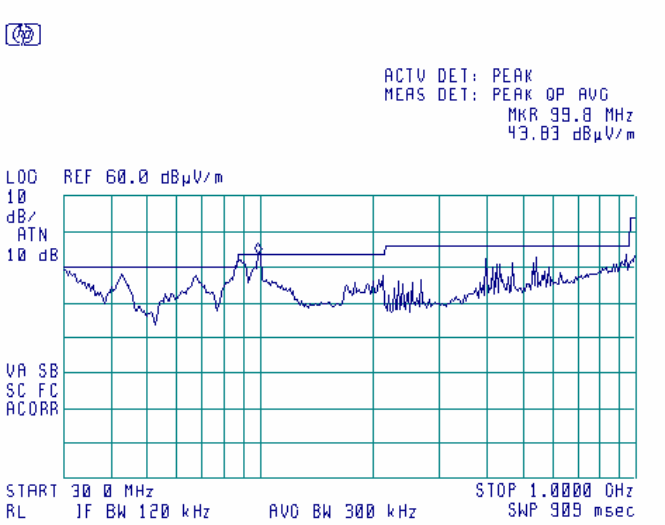
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

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

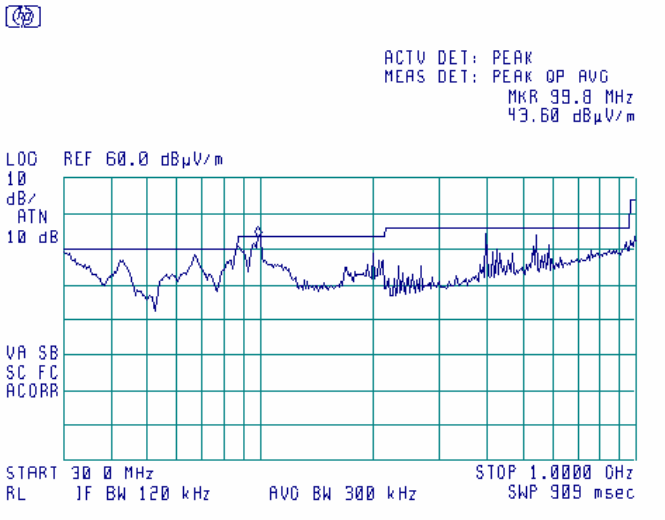
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Note: 75.2 to 108 MHz – "outside restricted band" range, - not tested radiated

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

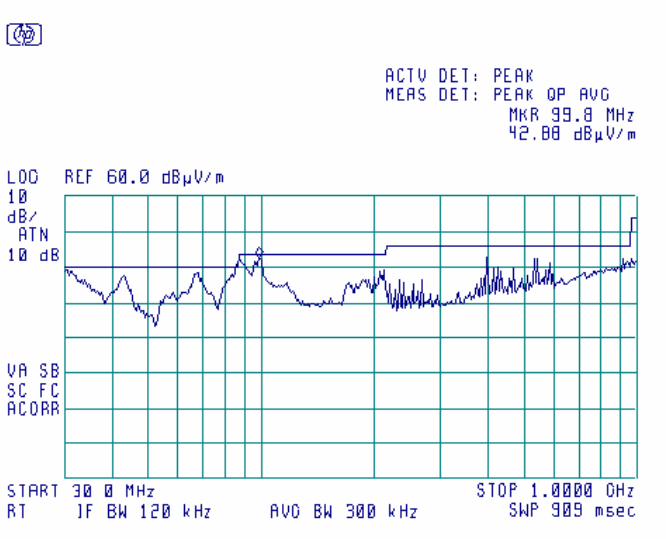
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

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

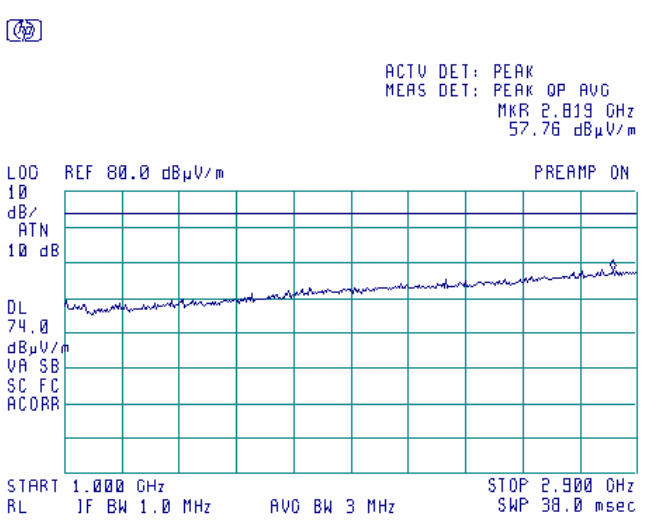
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

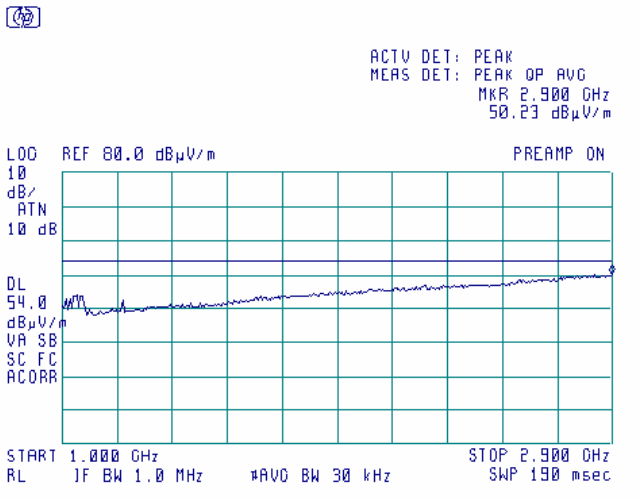
Plot 7.4.10 Radiated emission measurements from 1000 to 2900 MHz at the low carrier frequency

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



Plot 7.4.11 Radiated emission measurements from 1000 to 2900 MHz at the low carrier frequency

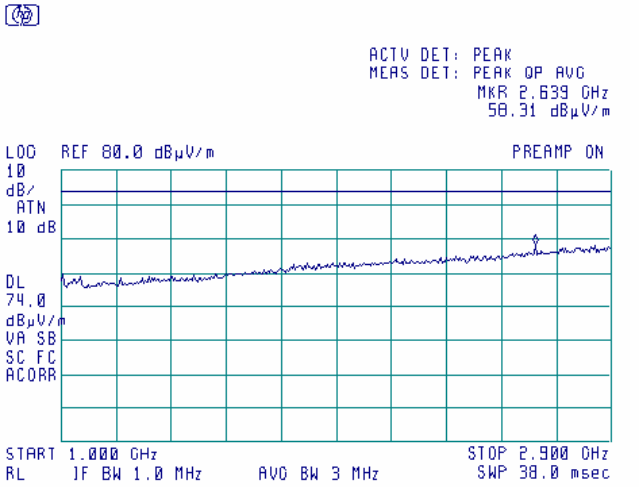
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

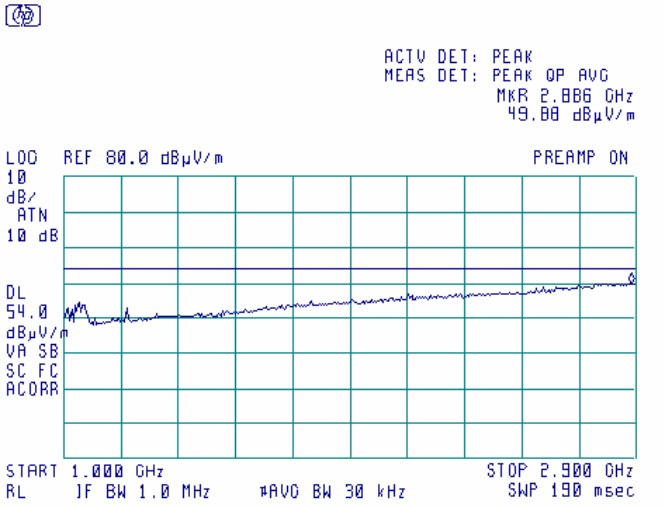
Plot 7.4.12 Radiated emission measurements from 1000 to 2900 MHz at the mid carrier frequency

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



Plot 7.4.13 Radiated emission measurements from 1000 to 2900 MHz at the mid carrier frequency

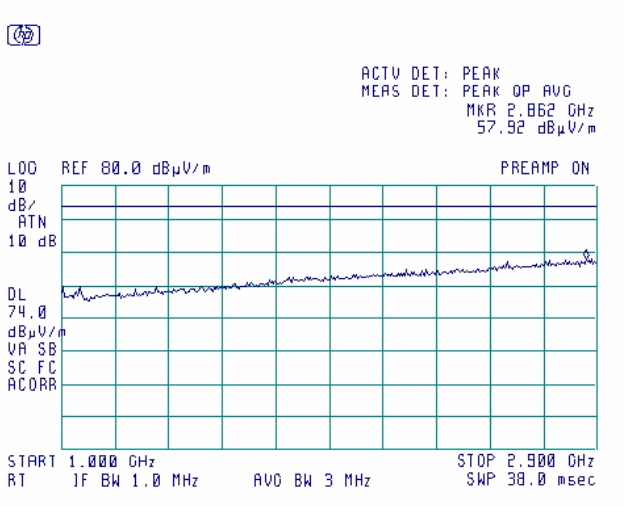
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

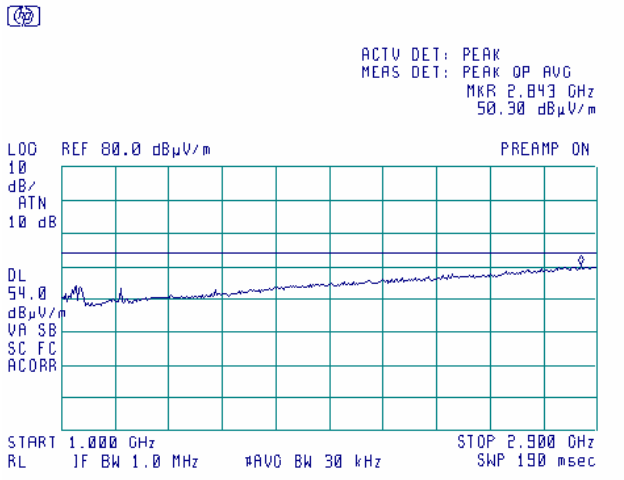
Plot 7.4.14 Radiated emission measurements from 1000 to 2900 MHz at the high carrier frequency

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



Plot 7.4.15 Radiated emission measurements from 1000 to 2900 MHz at the high carrier frequency

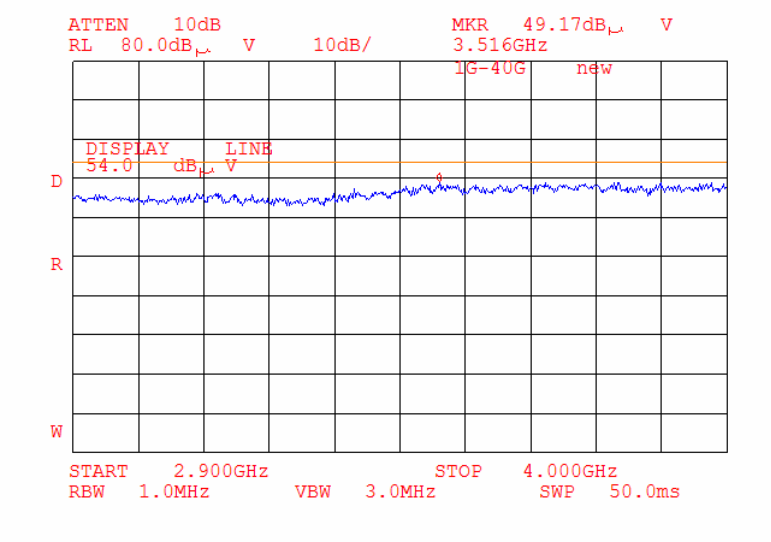
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

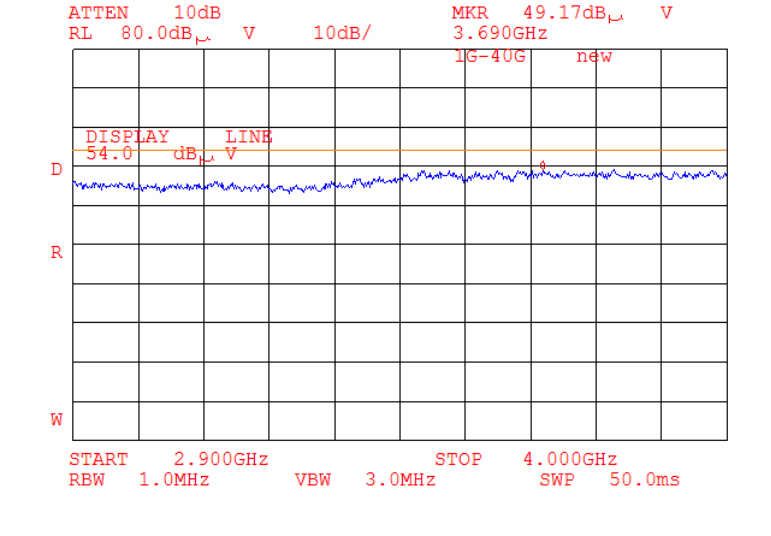
Plot 7.4.16 Radiated emission measurements from 2900 to 4000 MHz at the low carrier frequency

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



Plot 7.4.17 Radiated emission measurements from 2900 to 4000 MHz at the mid carrier frequency

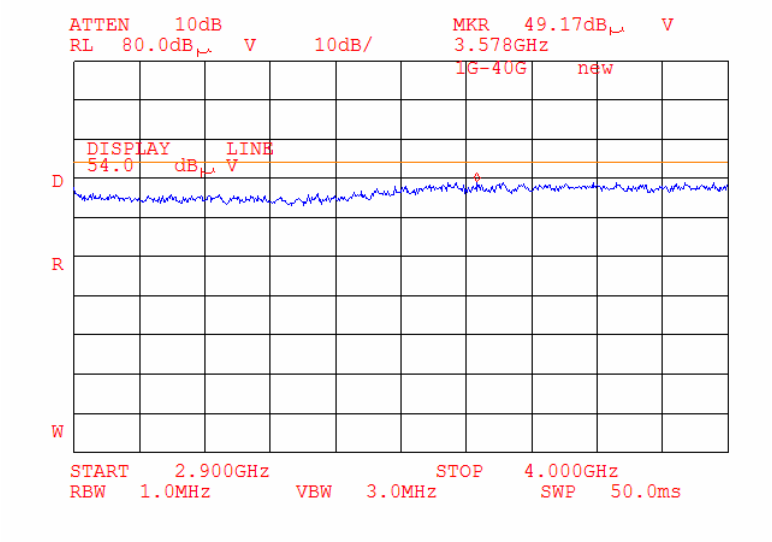
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

Plot 7.4.18 Radiated emission measurements from 2900 to 4000 MHz at the high carrier frequency

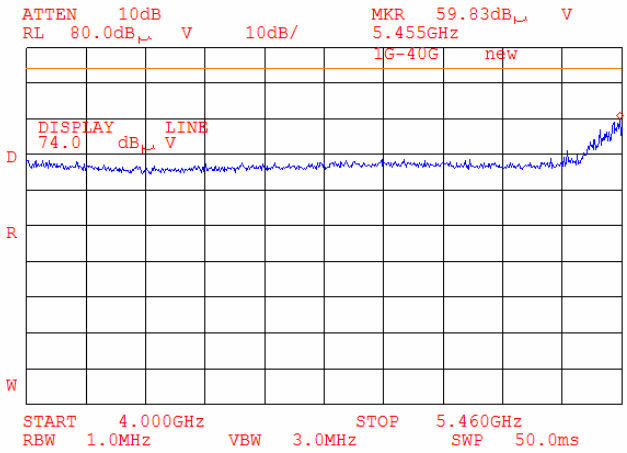
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

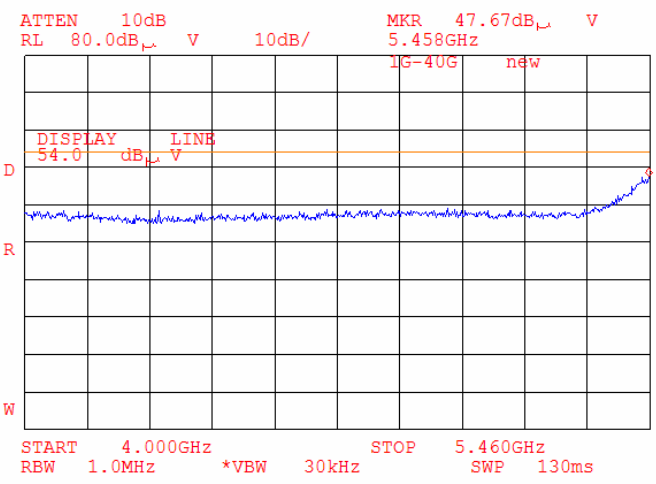
Plot 7.4.19 Radiated emission measurements from 4000 to 5460 MHz at the low carrier frequency

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



Plot 7.4.20 Radiated emission measurements from 4000 to 5460 MHz at the low carrier frequency

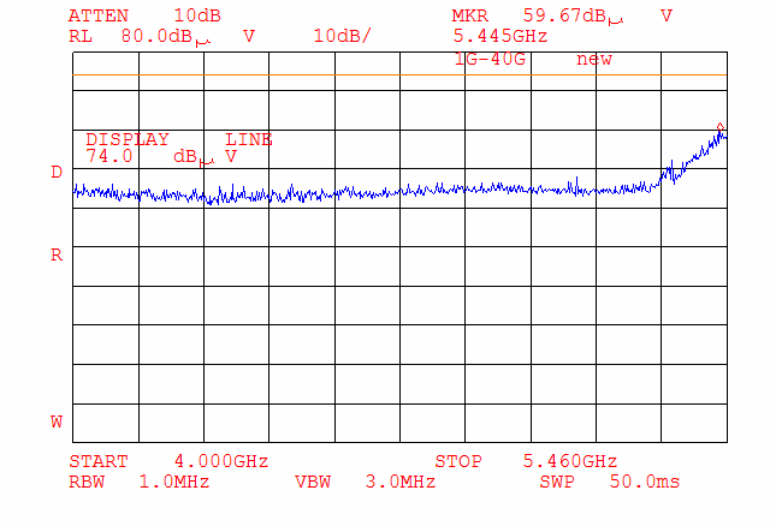
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

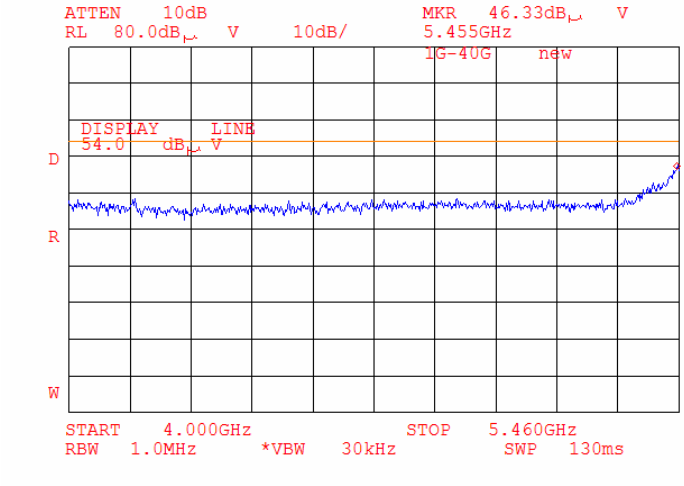
Plot 7.4.21 Radiated emission measurements from 4000 to 5460 MHz at the mid carrier frequency

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



Plot 7.4.22 Radiated emission measurements from 4000 to 5460 MHz at the mid carrier frequency

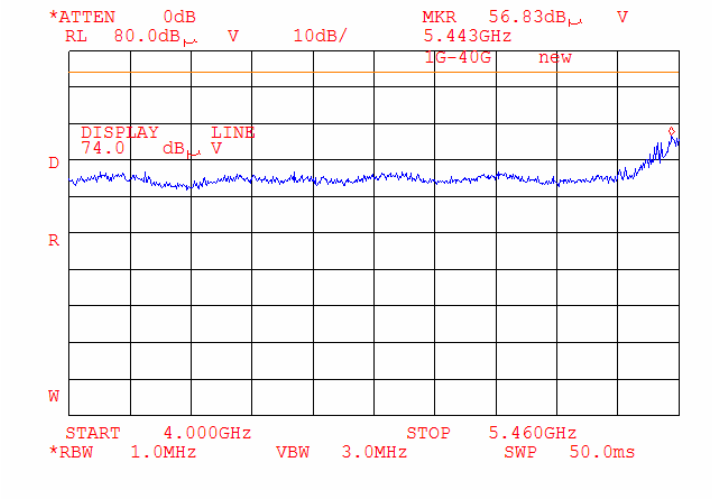
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

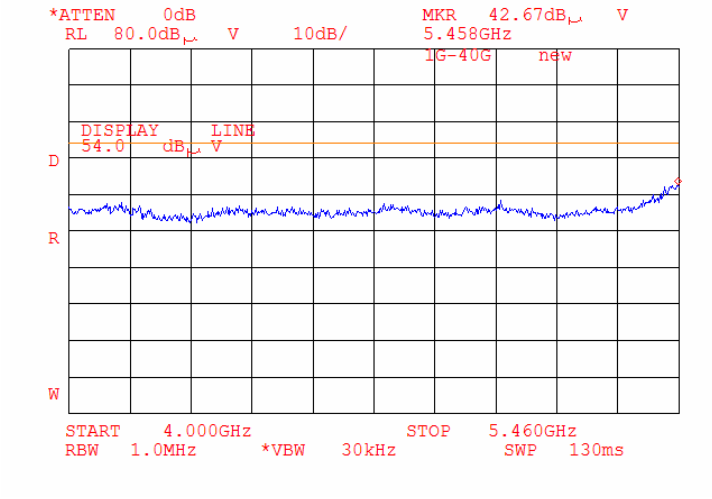
Plot 7.4.23 Radiated emission measurements from 4000 to 5460 MHz at the high carrier frequency

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



Plot 7.4.24 Radiated emission measurements from 4000 to 5460 MHz at the high carrier frequency

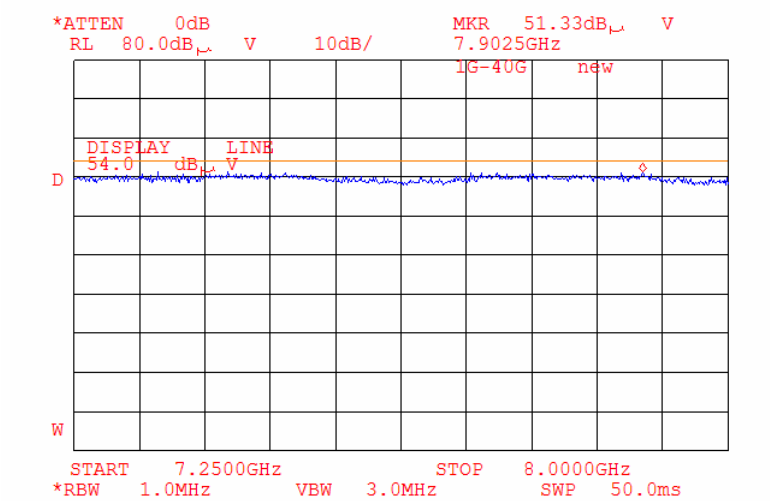
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

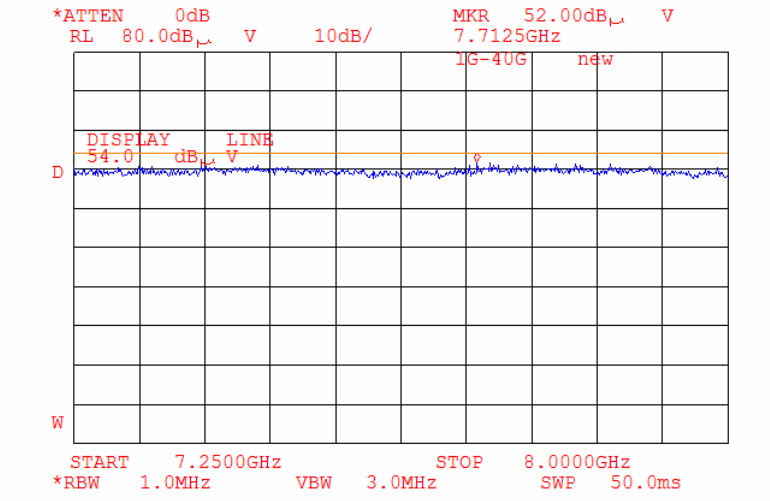
Plot 7.4.25 Radiated emission measurements from 7250 to 8000 MHz at the low carrier frequency

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



Plot 7.4.26 Radiated emission measurements from 7250 to 8000 MHz at the mid carrier frequency

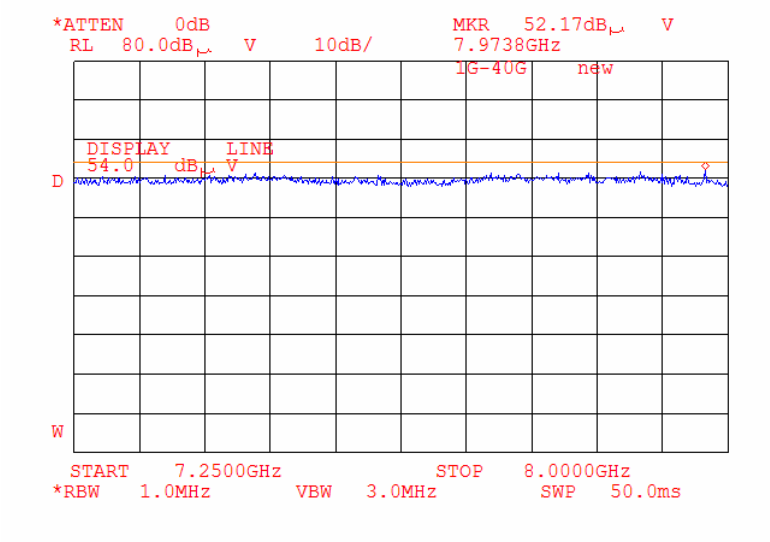
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

Plot 7.4.27 Radiated emission measurements from 7250 to 8000 MHz at the high carrier frequency

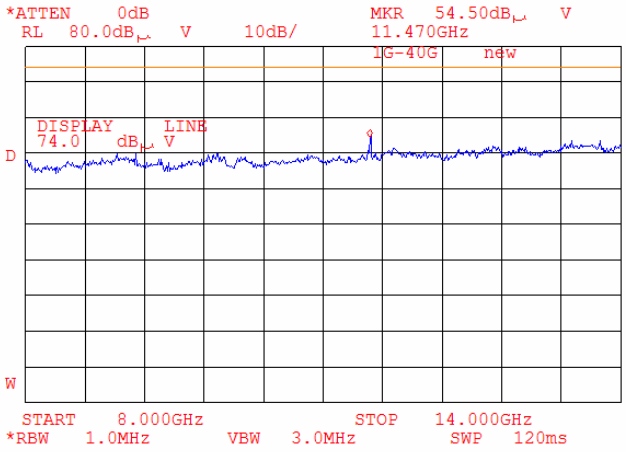
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

Plot 7.4.28 Radiated emission measurements from 8000 to 14000 MHz at the low carrier frequency

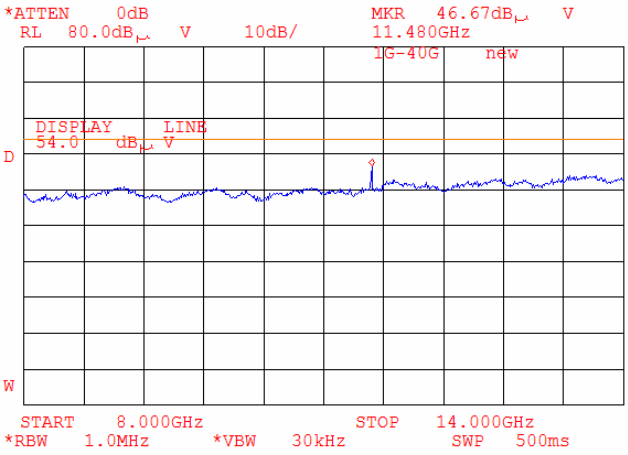
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Note: 2nd harmonic of RF module

Plot 7.4.29 Radiated emission measurements from 8000 to 14000 MHz at the low carrier frequency

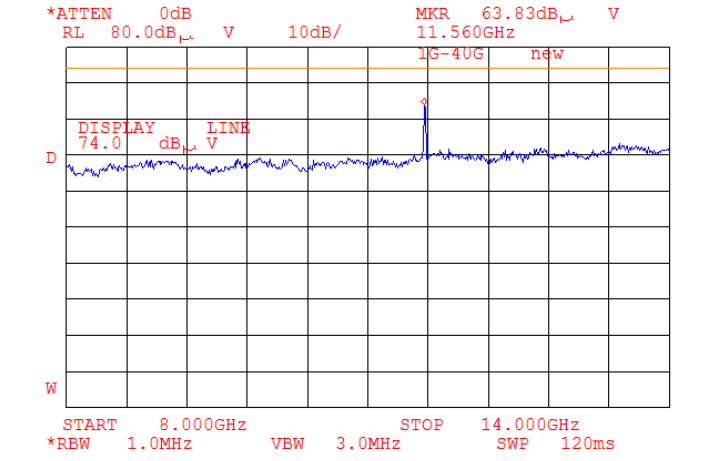
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

Plot 7.4.30 Radiated emission measurements from 8000 to 14000 MHz at the mid carrier frequency

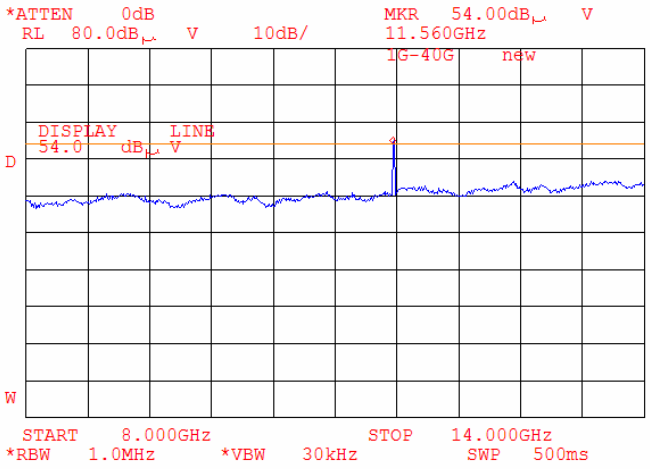
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Note: 2nd harmonic of RF module

Plot 7.4.31 Radiated emission measurements from 8000 to 14000 MHz at the mid carrier frequency

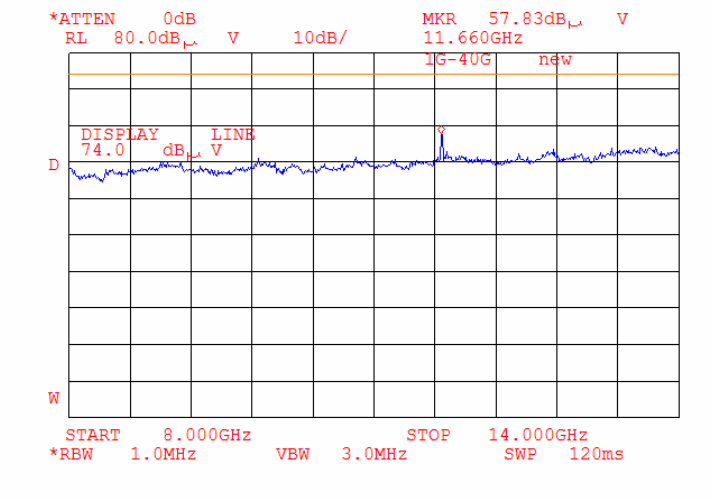
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

Plot 7.4.32 Radiated emission measurements from 8000 to 14000 MHz at the high carrier frequency

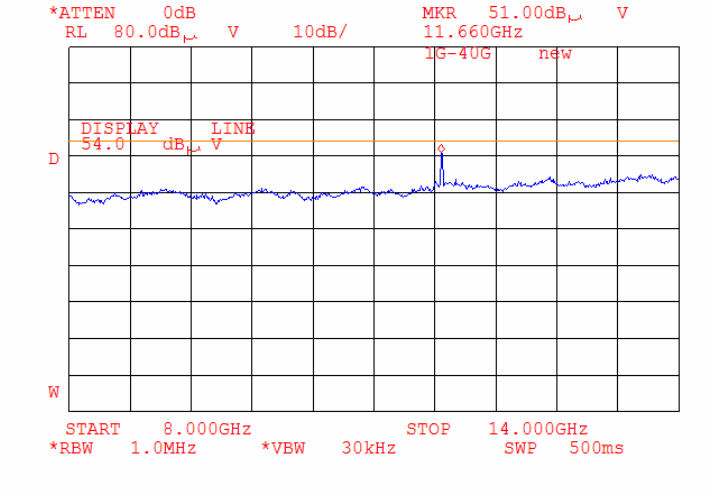
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Note: 2nd harmonic of RF module

Plot 7.4.33 Radiated emission measurements from 8000 to 14000 MHz at the high carrier frequency

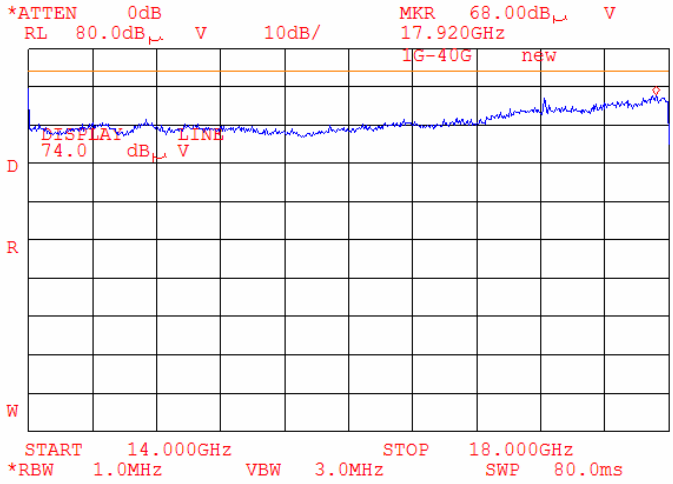
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

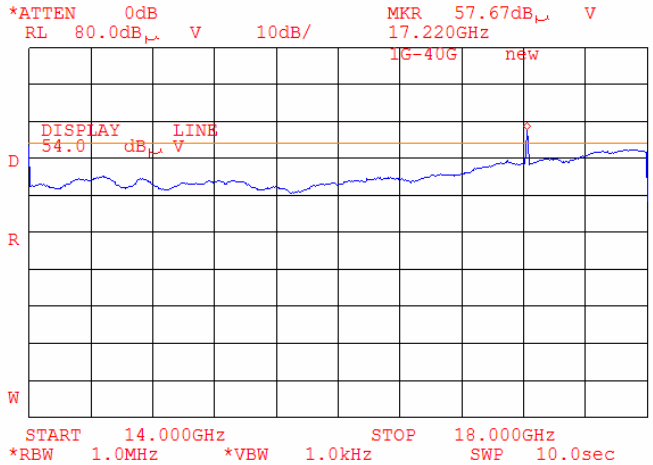
Plot 7.4.34 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency

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



Plot 7.4.35 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency

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

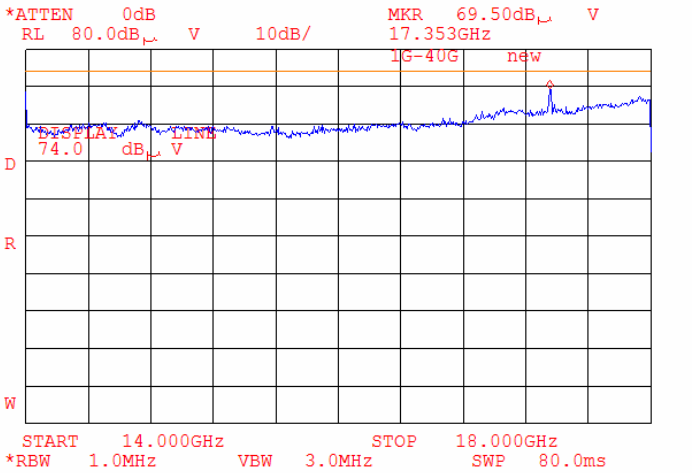


Note: 17.220 GHz – 3rd harmonic of RF module – "outside restricted band" emission, measured conducted

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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

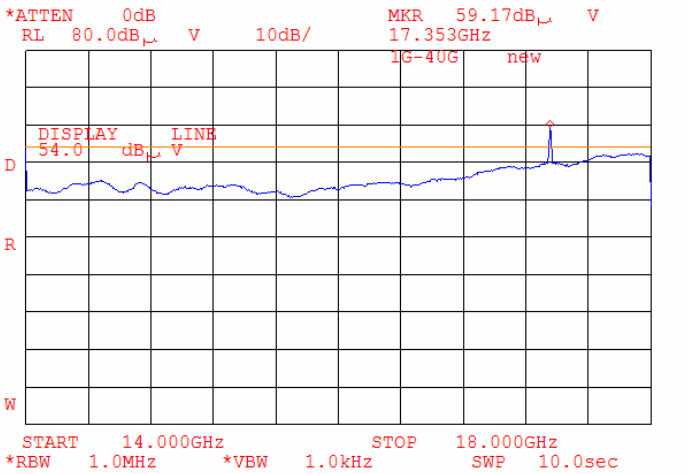
Plot 7.4.36 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency

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



Plot 7.4.37 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency

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

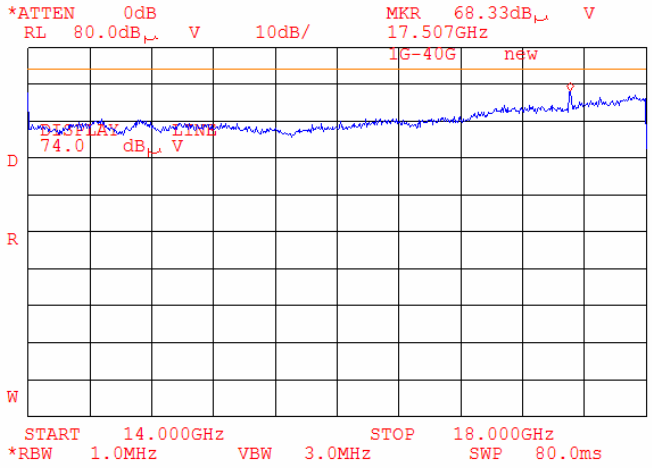


Note: 17.355 GHz – 3rd harmonic of RF module – "outside restricted band" emission, measured conducted

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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

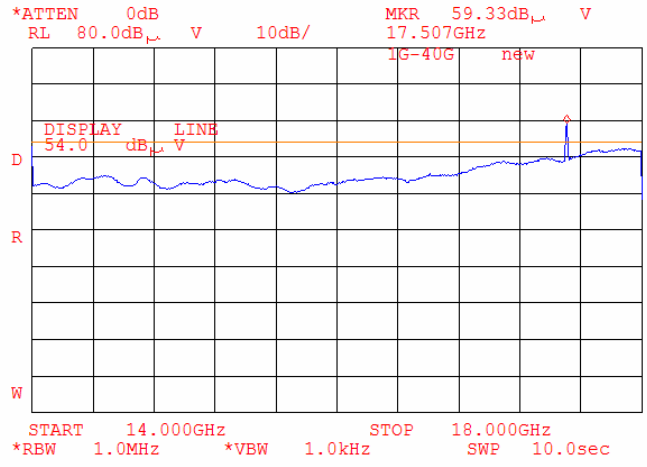
Plot 7.4.38 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency

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



Plot 7.4.39 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency

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

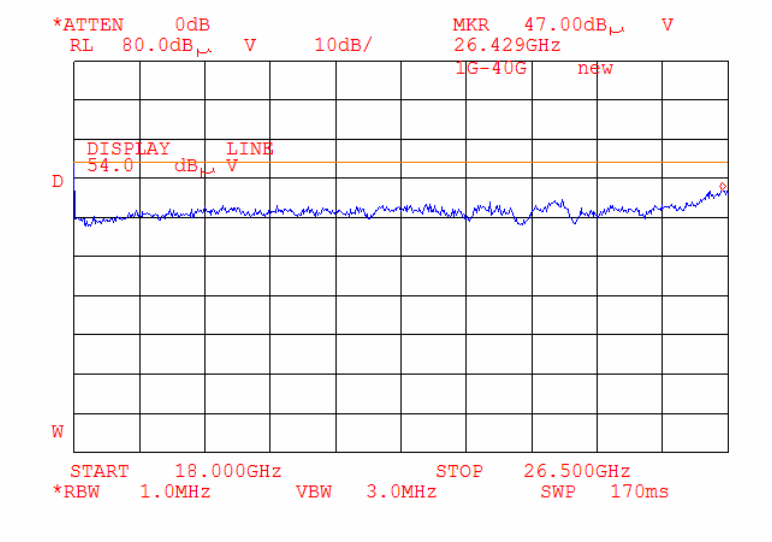


Note: 17.505 GHz – 3rd harmonic of RF module – "outside restricted band" emission, measured conducted

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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

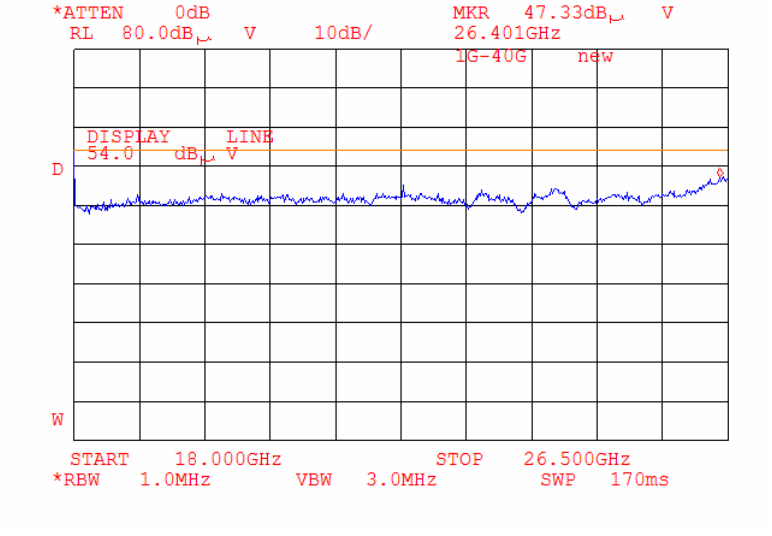
Plot 7.4.40 Radiated emission measurements from 18000 to 26500 MHz at the low carrier frequency

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



Plot 7.4.41 Radiated emission measurements from 18000 to 26500 MHz at the mid carrier frequency

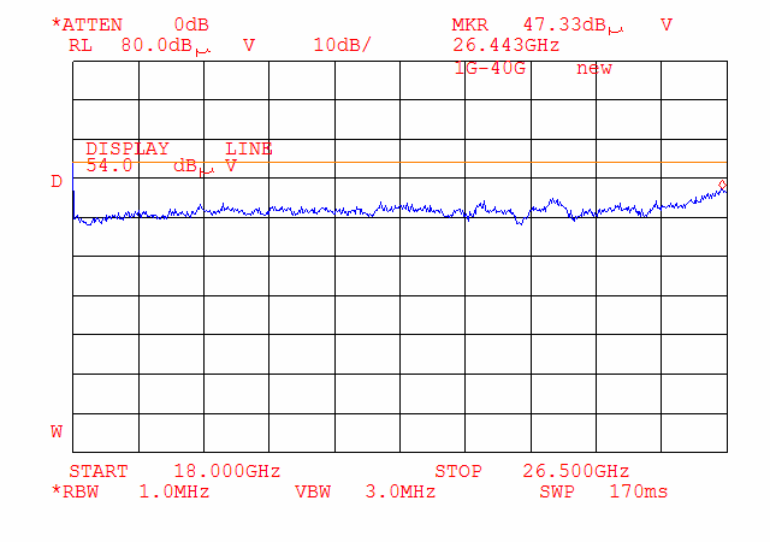
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

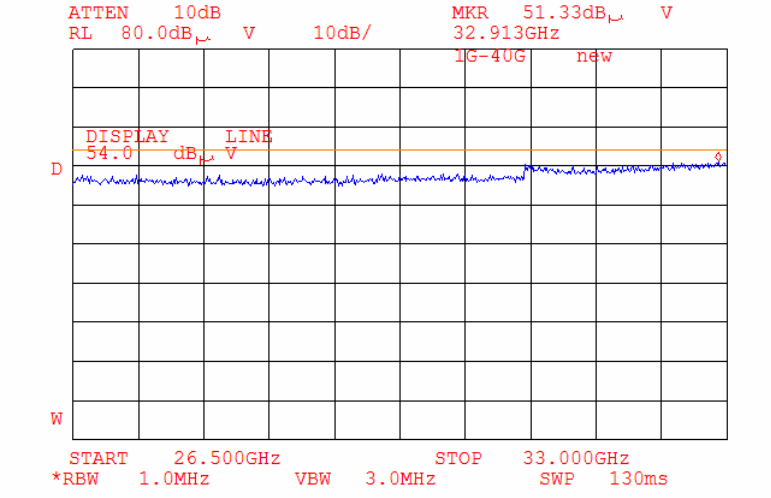
Plot 7.4.42 Radiated emission measurements from 18000 to 26500 MHz at the high carrier frequency

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



Plot 7.4.43 Radiated emission measurements from 26500 to 33000 MHz at the low carrier frequency

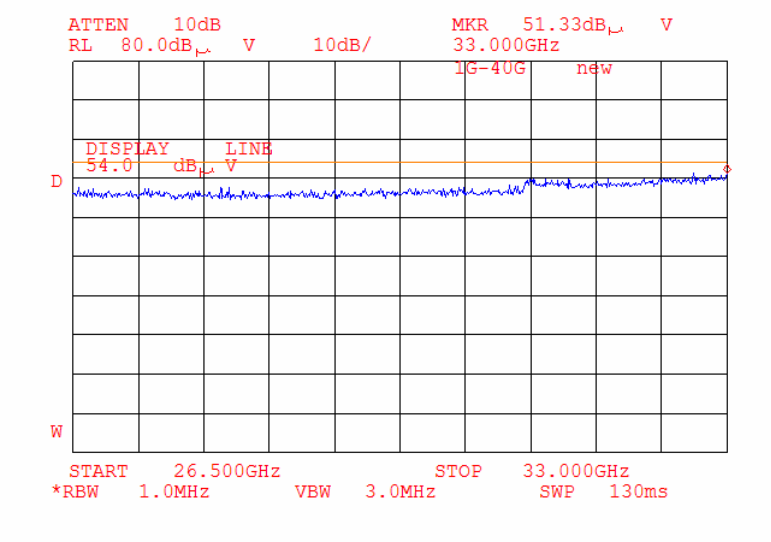
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

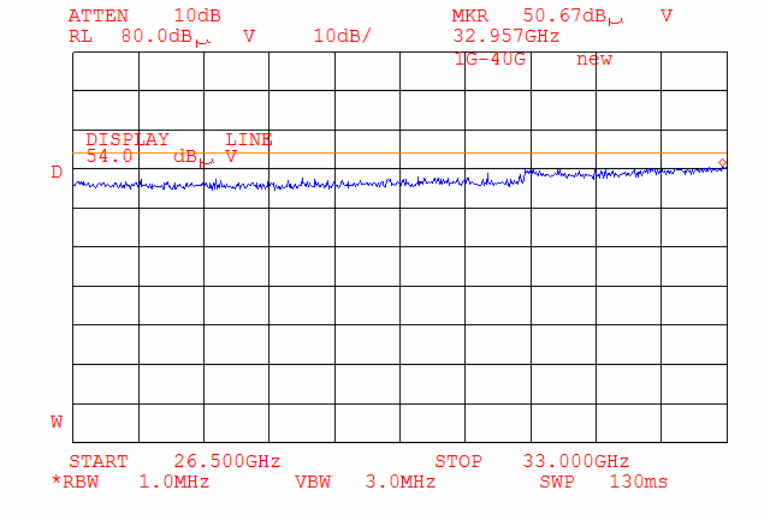
Plot 7.4.44 Radiated emission measurements from 26500 to 33000 MHz at the mid carrier frequency

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



Plot 7.4.45 Radiated emission measurements from 26500 to 33000 MHz at the high carrier frequency

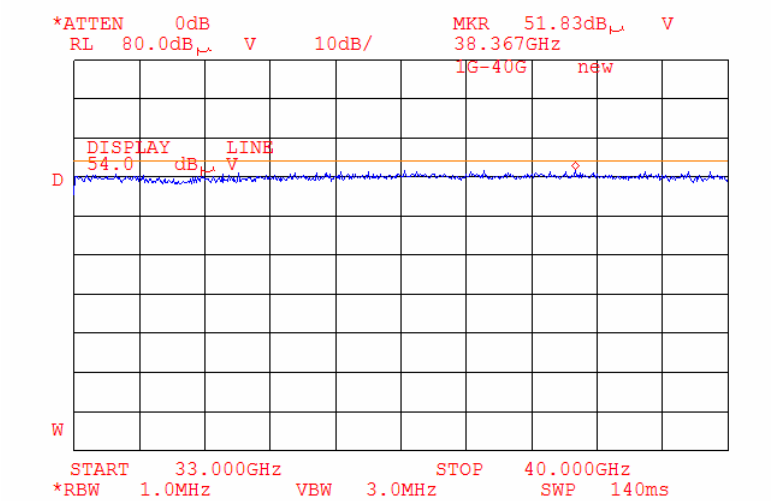
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

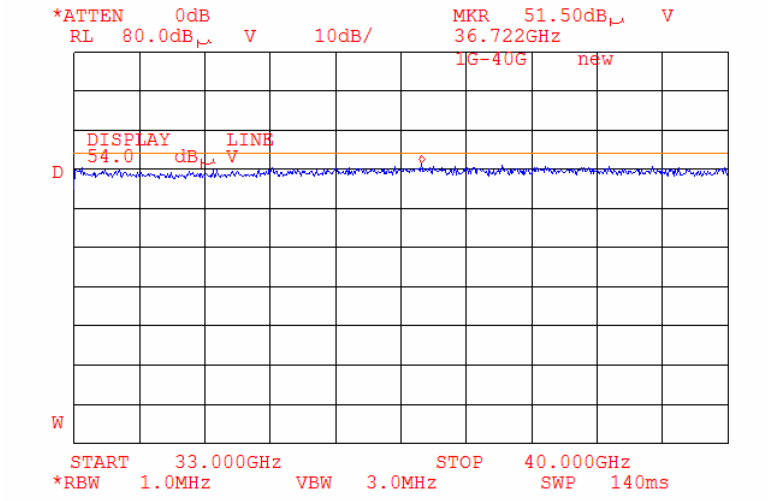
Plot 7.4.46 Radiated emission measurements from 33000 to 40000 MHz at the low carrier frequency

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



Plot 7.4.47 Radiated emission measurements from 33000 to 40000 MHz at the mid carrier frequency

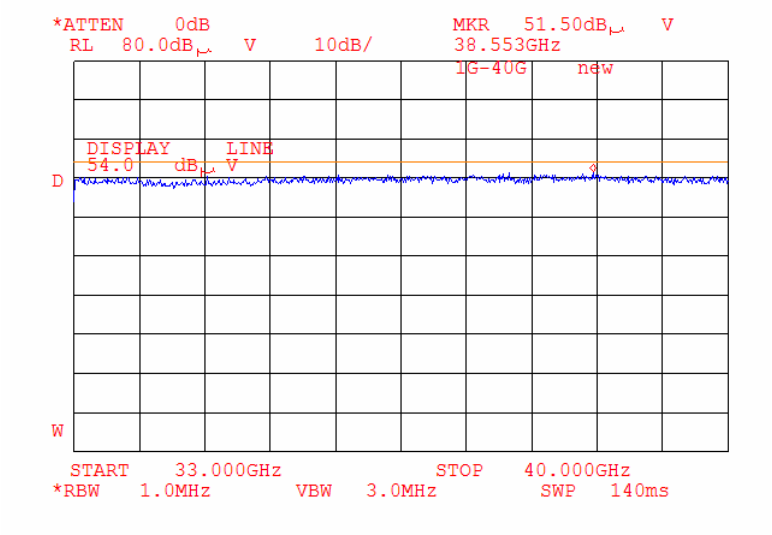
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

Plot 7.4.48 Radiated emission measurements from 33000 to 40000 MHz at the high carrier frequency

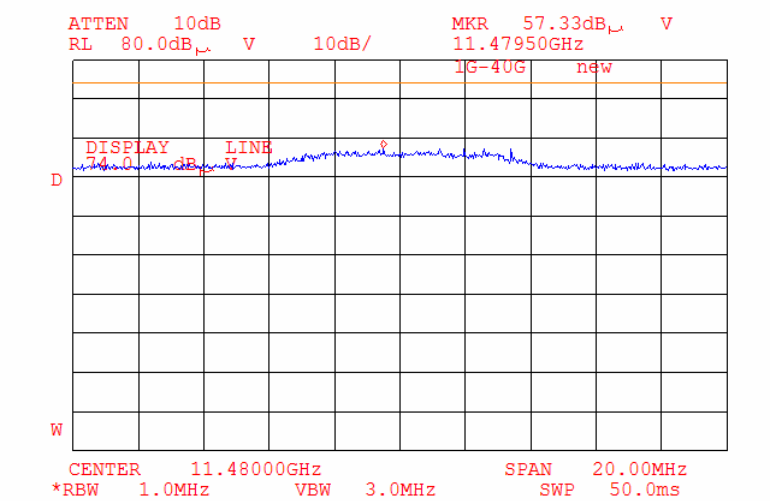
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

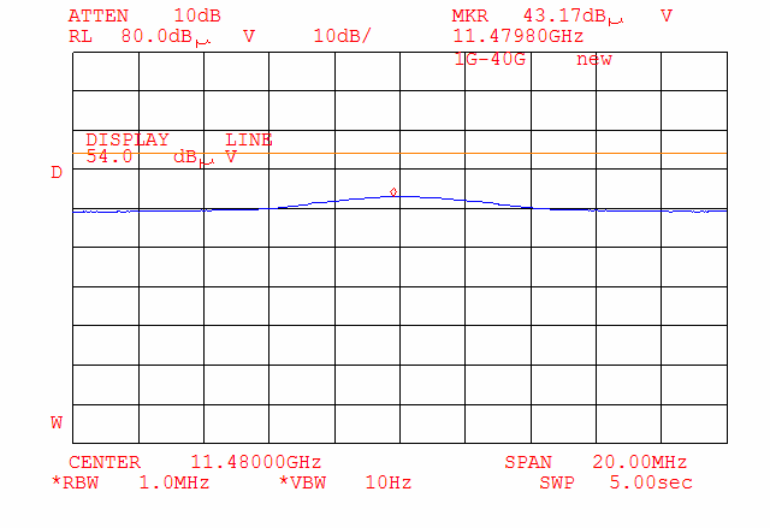
Plot 7.4.49 Radiated emission measurements at the second harmonic of low carrier frequency

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



Plot 7.4.50 Radiated emission measurements at the second harmonic of low carrier frequency

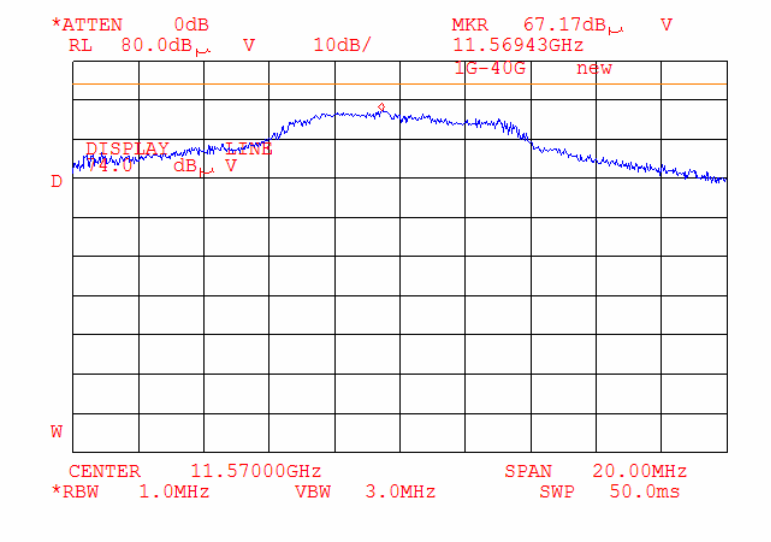
TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Average



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

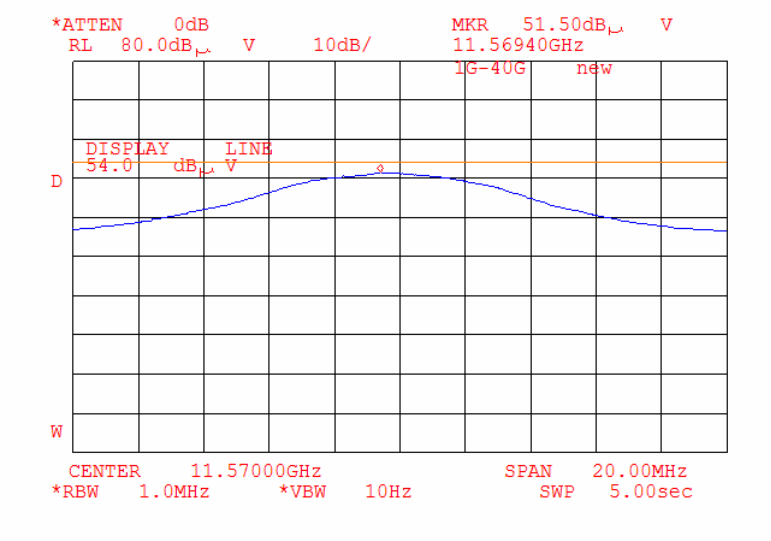
Plot 7.4.51 Radiated emission measurements at the second harmonic of mid carrier frequency

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



Plot 7.4.52 Radiated emission measurements at the second harmonic of mid carrier frequency

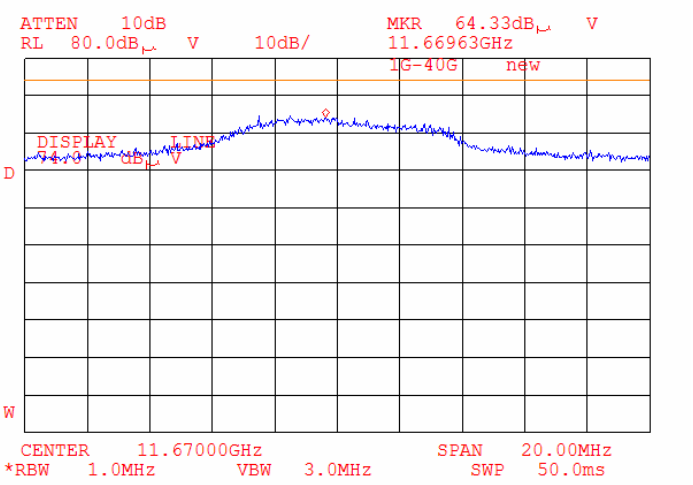
TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Average



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:	
Date & Time:	6/25/2006 8:13:20 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 32.5 dBi antenna			

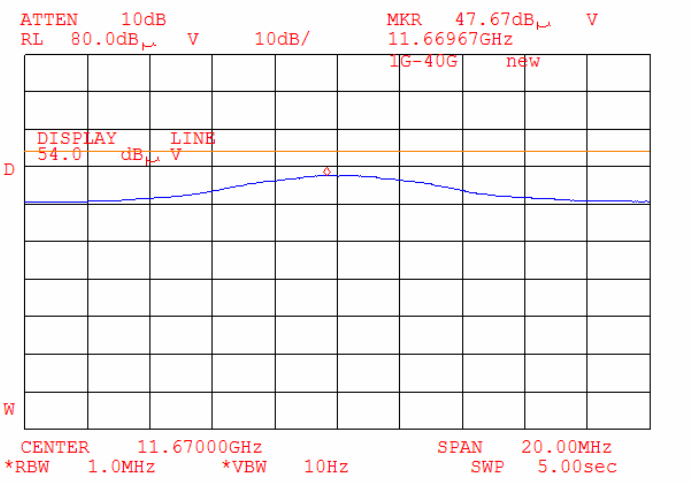
Plot 7.4.53 Radiated emission measurements at the second harmonic of high carrier frequency

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



Plot 7.4.54 Radiated emission measurements at the second harmonic of high carrier frequency

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



HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

7.5 Field strength of spurious emissions of the ODU with 22 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)*		
	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 – 10thharmonic	74.0	NA	54.0

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

$$Lim_{S2} = Lim_{S1} + 40 \log (S_1/S_2),$$

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 Figure 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 360^0 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 Figure 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 360^0, 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.

HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

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

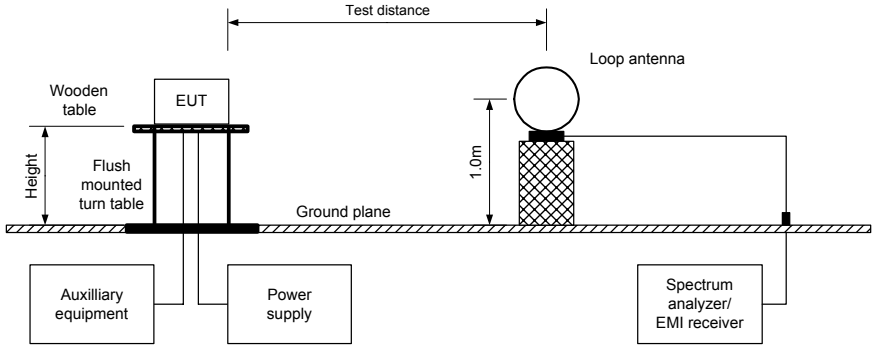
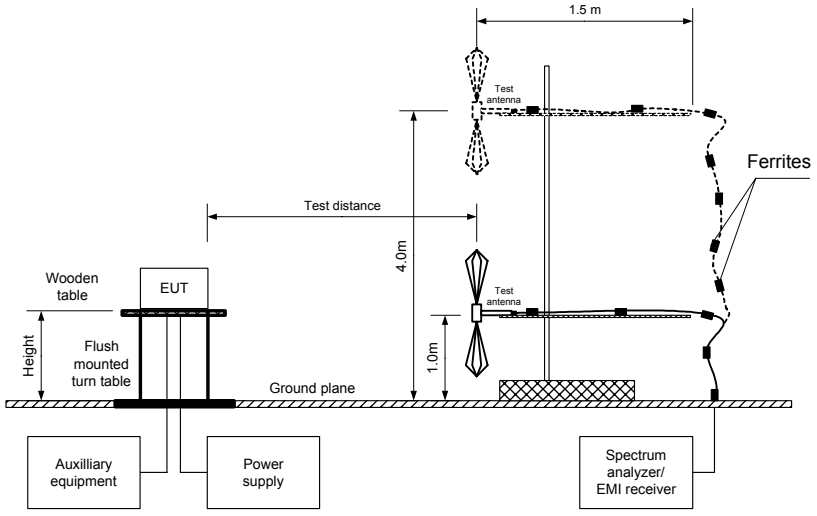


Figure 7.5.2 Setup for spurious emission field strength measurements above 30 MHz



HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

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

ASSIGNED FREQUENCY:	5725 – 5850 MHz
INVESTIGATED FREQUENCY RANGE:	0.009 - 40000 MHz
TEST DISTANCE:	3 m
MODULATION:	QAM
MODULATING SIGNAL:	PRBS
BIT RATE:	1.5 Mbps
DUTY CYCLE:	100 %
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
EUT CABINET:	ODU High Power
EUT ANTENNA GAIN:	22 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											
11483.15	Vertical	1.0	0	57.27	74.00	-16.73	44.96	NA	54.00	-9.04	Pass
Mid carrier frequency											
11565.45	Vertical	1.0	10	63.61	74.00	-10.39	48.83	NA	54.00	-5.17	Pass
High carrier frequency											
11669.85	Vertical	1.0	10	66.20	74.00	-7.80	51.53	NA	54.00	-2.47	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

HERMON LABORATORIES

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:**	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	**Air Pressure:** 1007 hPa	**Relative Humidity:** 48 %	**Power Supply:** 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

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

ASSIGNED FREQUENCY:	5725 – 5850 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:	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*				
All carrier frequency								
No emissions were found								Pass

*****- Margin = Measured emission - specification limit.
******- EUT front panel refer to 0 degrees position of turntable.

Table 7.5.5 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 0768	HL 0769
HL 1200	HL 1425	HL 1430	HL 1553	HL 1566	HL 1650	HL 2259	HL 2260
HL 2261	HL 2432	HL 2697	HL 2780	HL 2871	HL 2911		

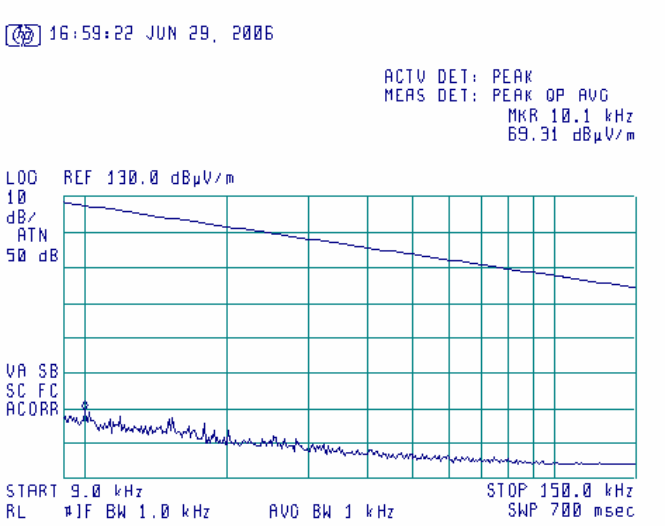
Full description is given in Appendix A.

HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

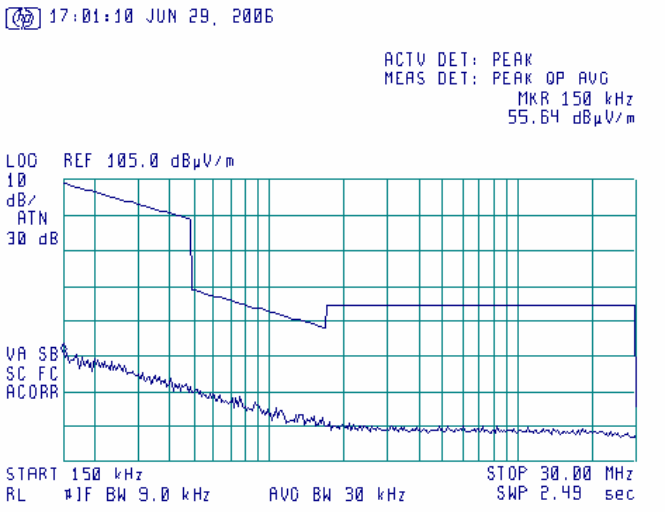
Plot 7.5.1 Radiated emission measurements from 9 to 150 kHz at all carrier frequencies

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



Plot 7.5.2 Radiated emission measurements from 0.15 to 30 MHz at all carrier frequencies

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

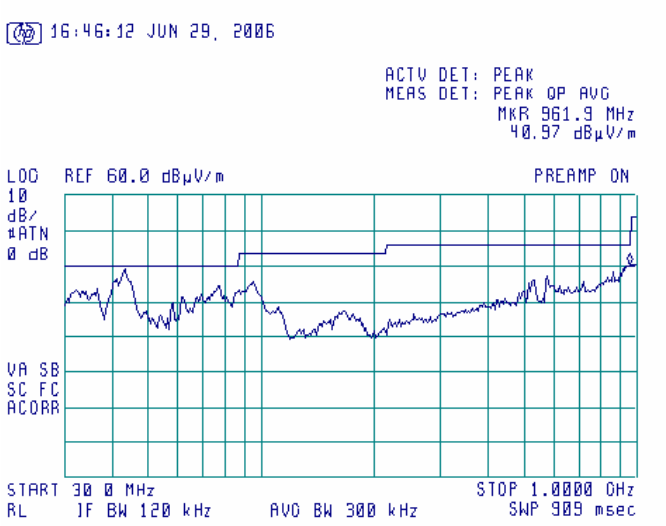


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

Plot 7.5.3 Radiated emission measurements from 30 to 1000 MHz at the low carrier frequency

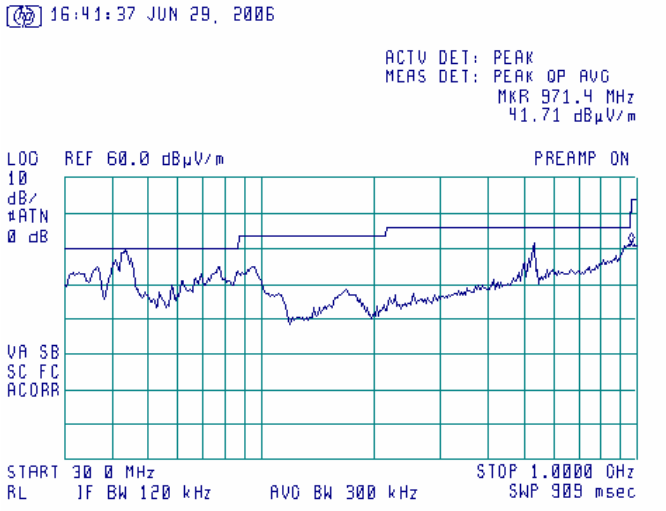
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Note: all emissions are from digital part

Plot 7.5.4 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

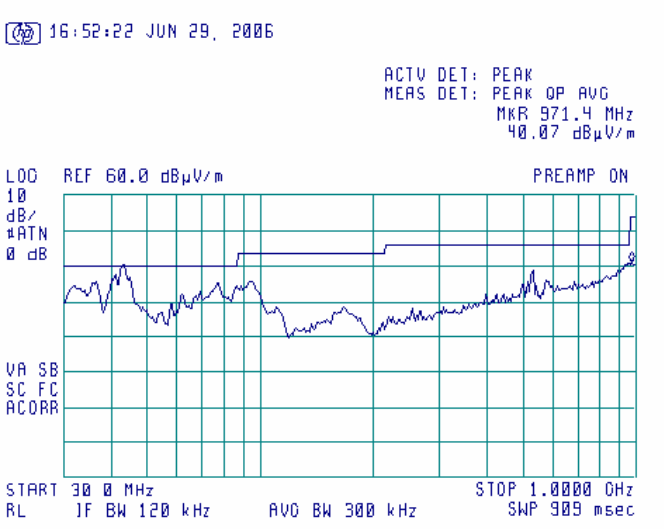


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

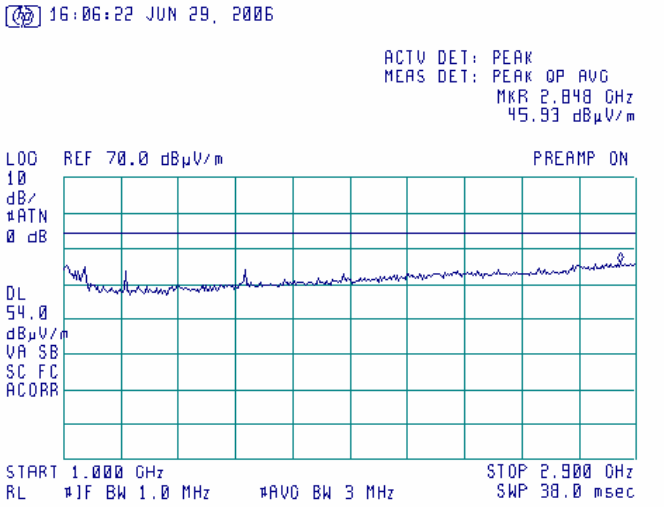
Plot 7.5.5 Radiated emission measurements from 30 to 1000 MHz at the high carrier frequency

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



Plot 7.5.6 Radiated emission measurements from 1000 to 2900 MHz at the low carrier frequency

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

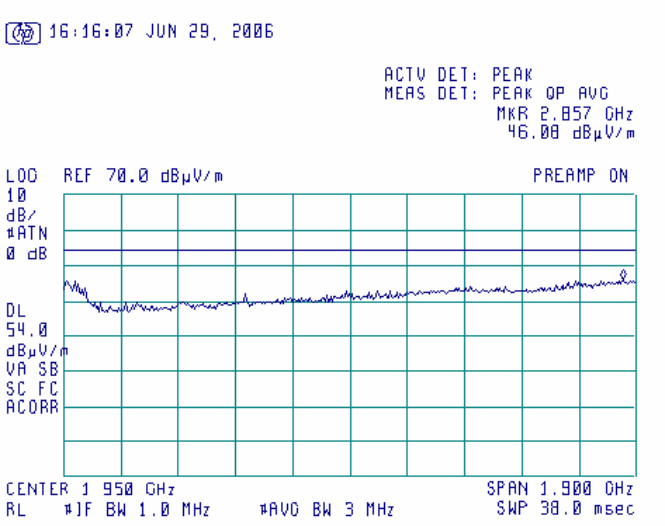


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

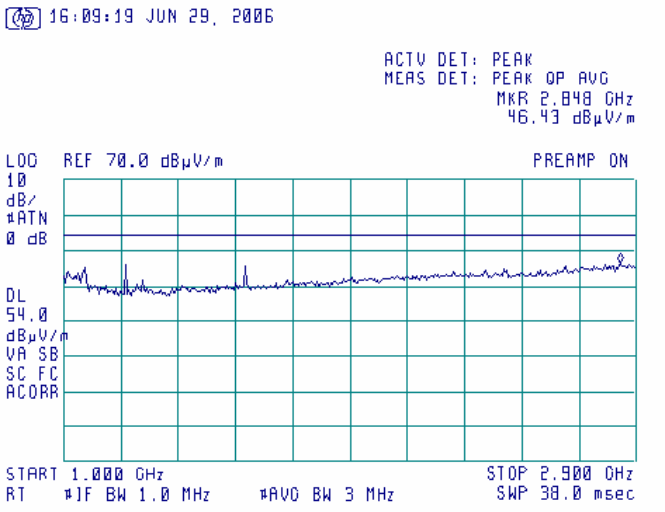
Plot 7.5.7 Radiated emission measurements from 1000 to 2900 MHz at the mid carrier frequency

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



Plot 7.5.8 Radiated emission measurements from 1000 to 2900 MHz at the high carrier frequency

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

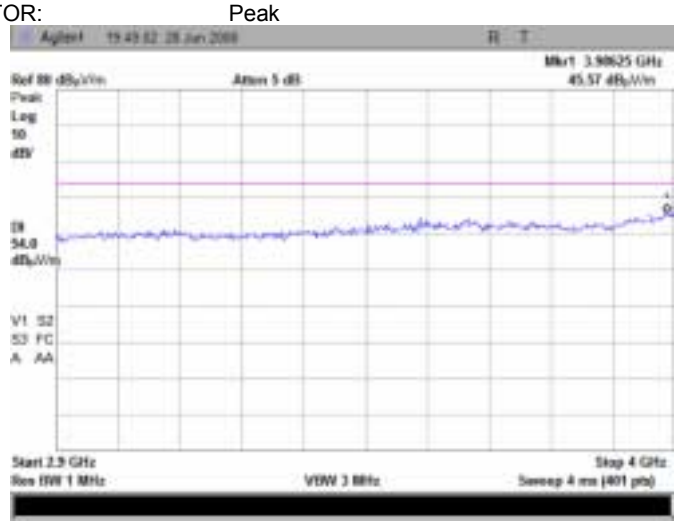


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

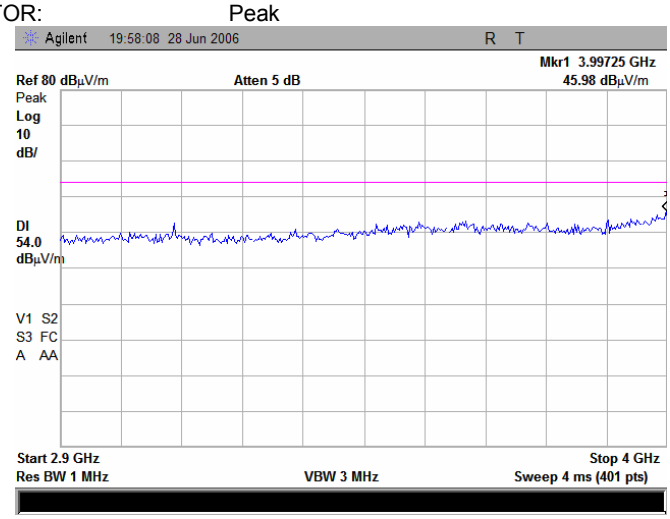
Plot 7.5.9 Radiated emission measurements from 2900 to 4000 MHz at the low carrier frequency

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



Plot 7.5.10 Radiated emission measurements from 2900 to 4000 MHz at the mid carrier frequency

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

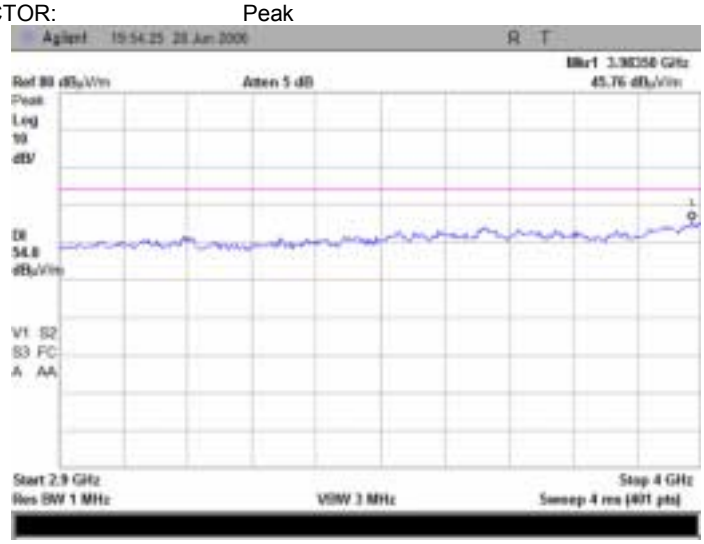


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

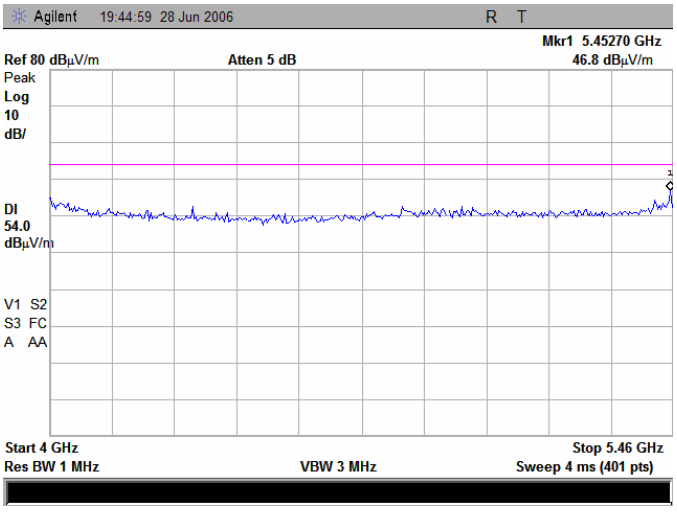
Plot 7.5.11 Radiated emission measurements from 2900 to 4000 MHz at the high carrier frequency

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



Plot 7.5.12 Radiated emission measurements from 4000 to 5460 MHz at the low carrier frequency

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

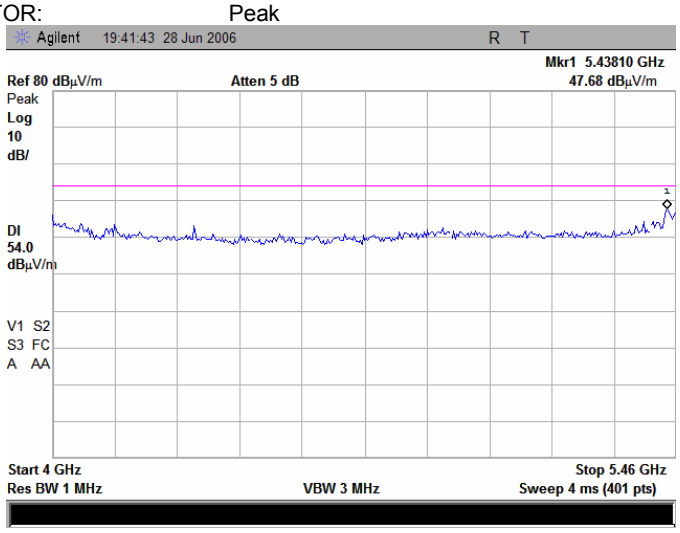


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

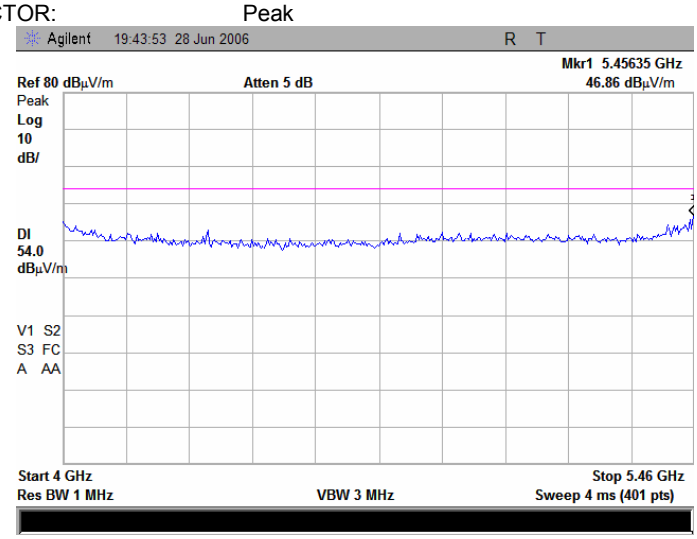
Plot 7.5.13 Radiated emission measurements from 4000 to 5460 MHz at the mid carrier frequency

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



Plot 7.5.14 Radiated emission measurements from 4000 to 5460 MHz at the high carrier frequency

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

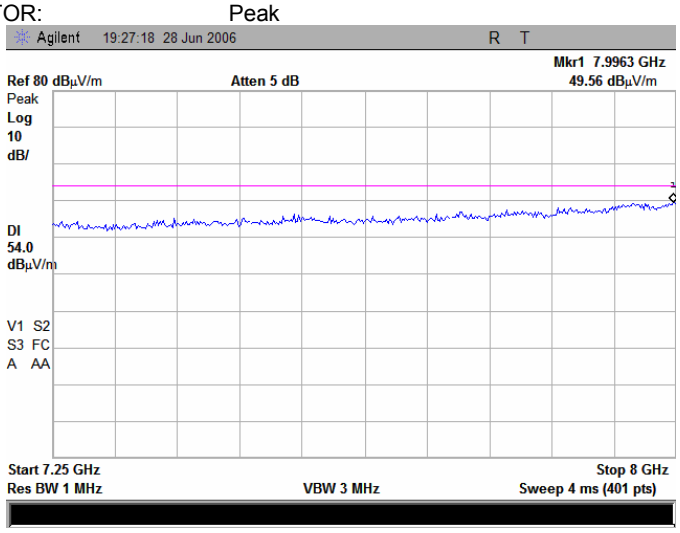


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

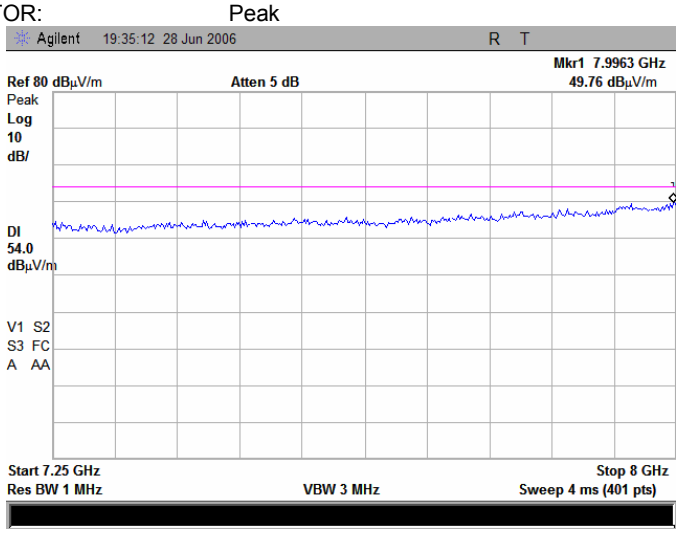
Plot 7.5.15 Radiated emission measurements from 7250 to 8000 MHz at the low carrier frequency

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



Plot 7.5.16 Radiated emission measurements from 7250 to 8000 MHz at the mid carrier frequency

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

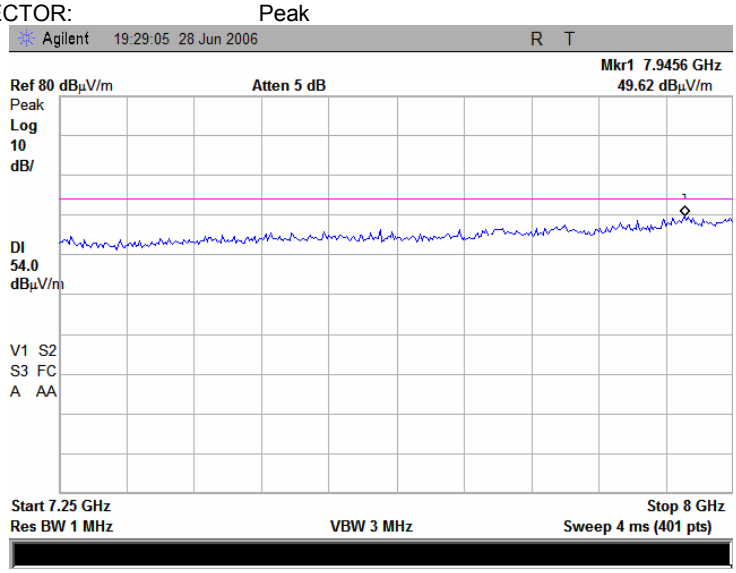


HERMON LABORATORIES

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:**	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	**Air Pressure:** 1007 hPa	**Relative Humidity:** 48 %	**Power Supply:** 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

Plot 7.5.17 Radiated emission measurements from 7250 to 8000 MHz at the high carrier frequency

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

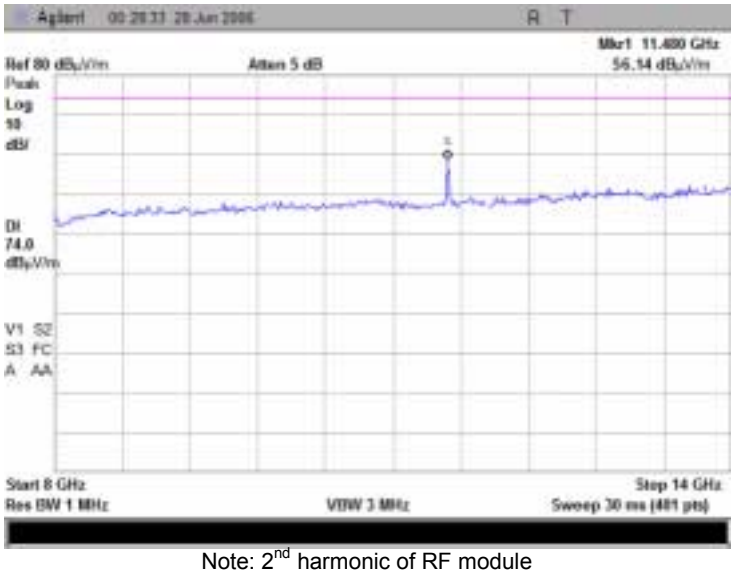


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

Plot 7.5.18 Radiated emission measurements from 8000 to 14000 MHz at the low carrier frequency

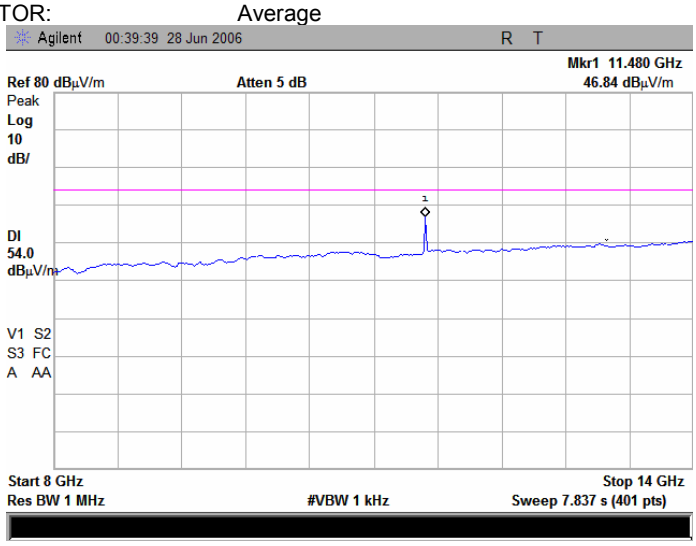
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Note: 2nd harmonic of RF module

Plot 7.5.19 Radiated emission measurements from 8000 to 14000 MHz at the low carrier frequency

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

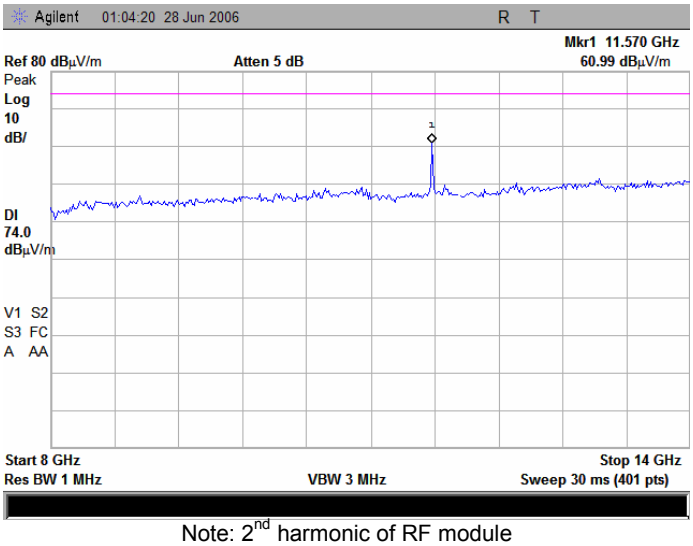


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

Plot 7.5.20 Radiated emission measurements from 8000 to 14000 MHz at the mid carrier frequency

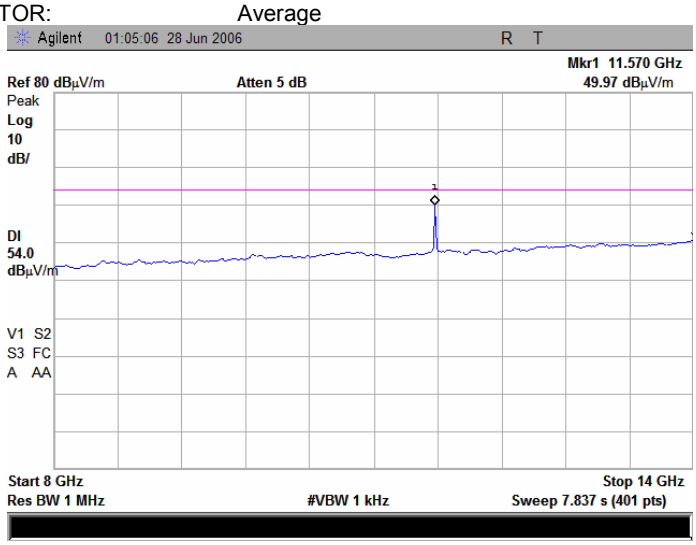
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Note: 2nd harmonic of RF module

Plot 7.5.21 Radiated emission measurements from 8000 to 14000 MHz at the mid carrier frequency

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

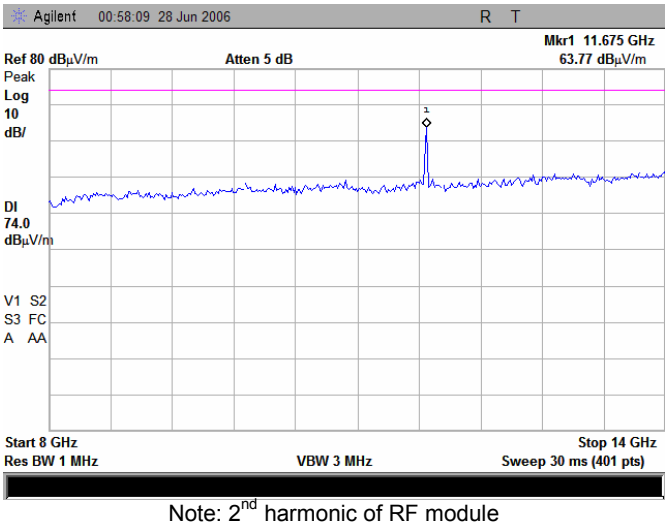


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

Plot 7.5.22 Radiated emission measurements from 8000 to 14000 MHz at the high carrier frequency

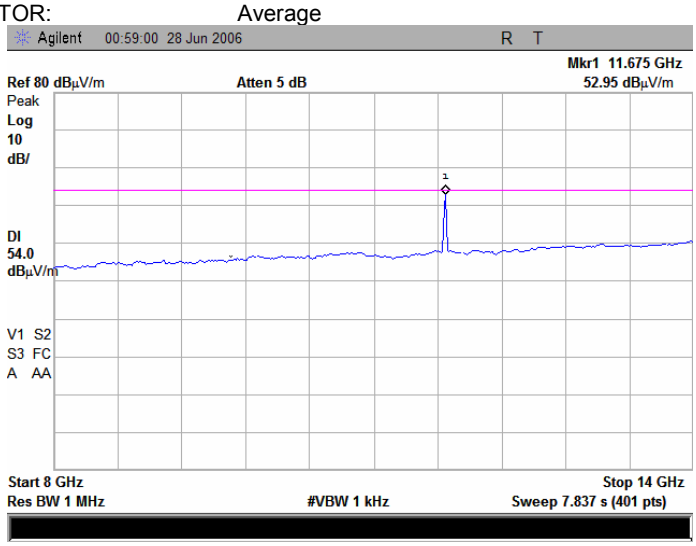
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Note: 2nd harmonic of RF module

Plot 7.5.23 Radiated emission measurements from 8000 to 14000 MHz at the high carrier frequency

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

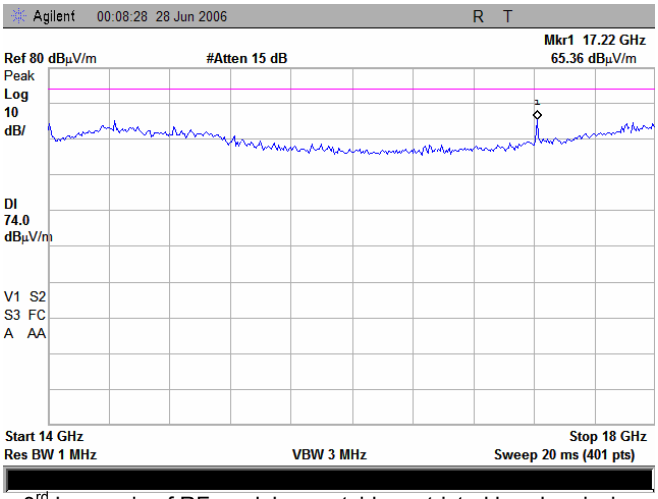


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

Plot 7.5.24 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency

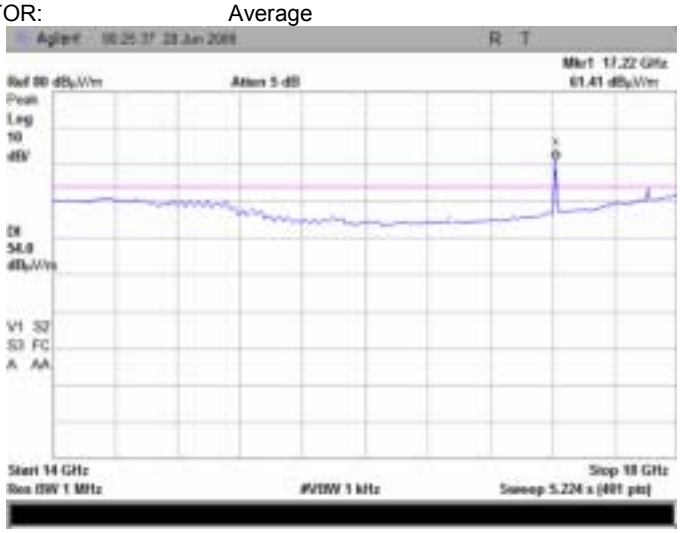
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Note: 17.220 GHz – 3rd harmonic of RF module, - outside restricted band emission, not tested radiated

Plot 7.5.25 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency

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

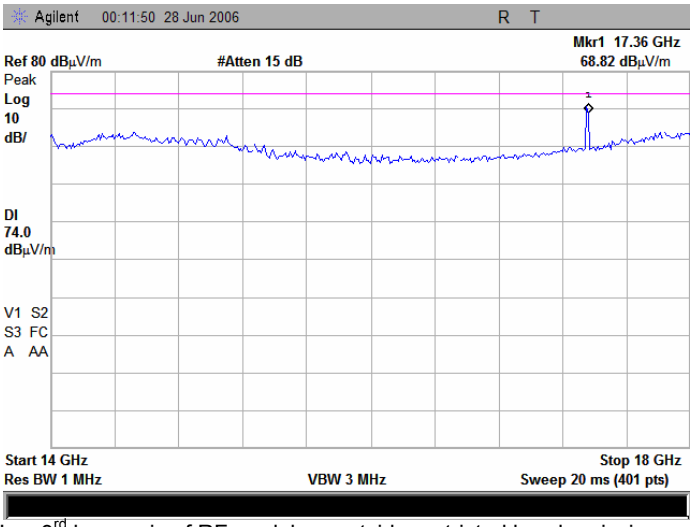


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

Plot 7.5.26 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency

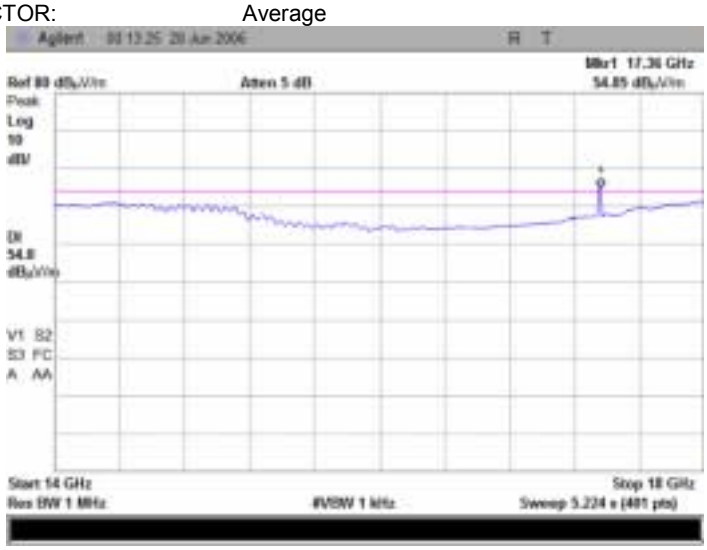
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Note: 17.355 GHz – 3rd harmonic of RF module, - outside restricted band emission, not tested radiated

Plot 7.5.27 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency

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

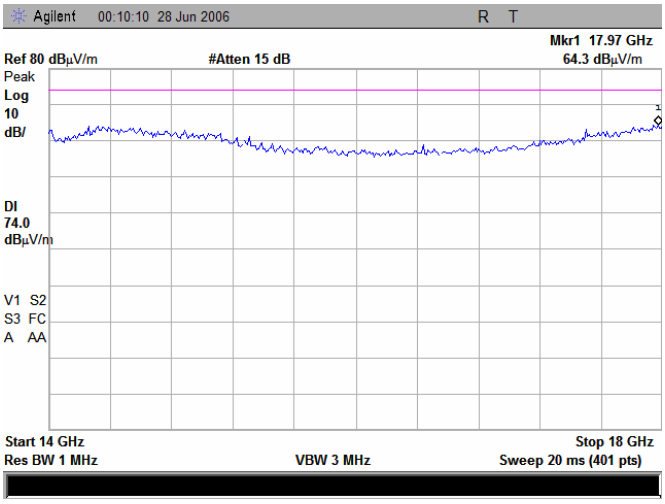


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

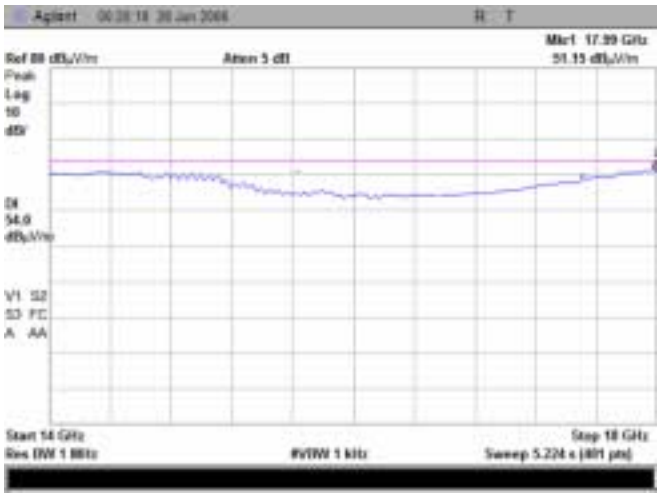
Plot 7.5.28 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency

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



Plot 7.5.29 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency

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

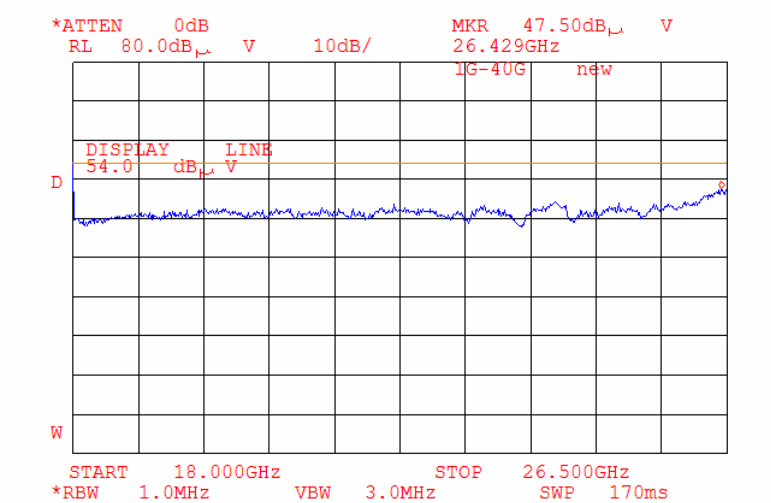


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

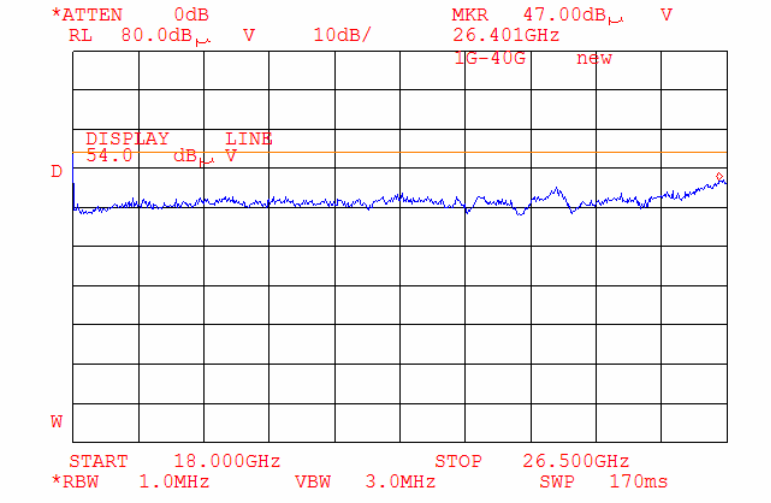
Plot 7.5.30 Radiated emission measurements from 18000 to 26500 MHz at the low carrier frequency

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



Plot 7.5.31 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

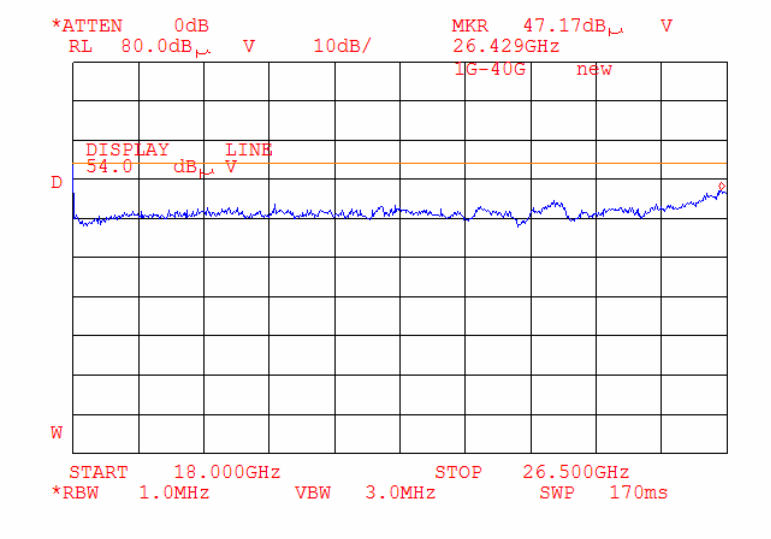


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

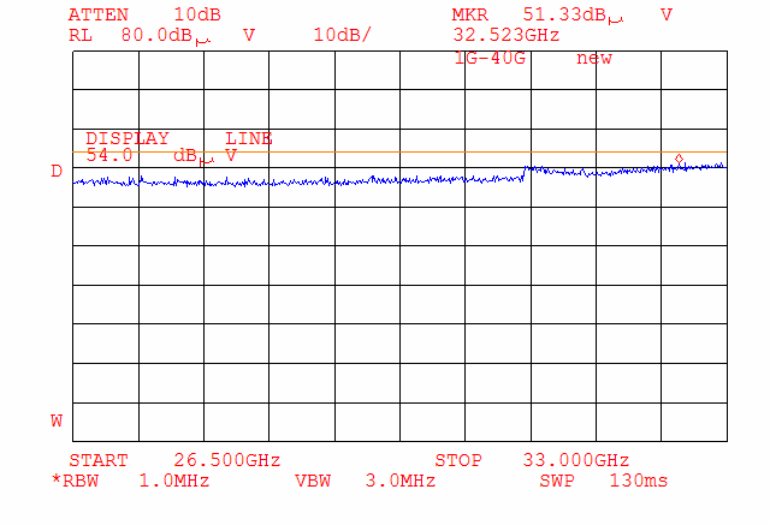
Plot 7.5.32 Radiated emission measurements from 18000 to 26500 MHz at the high carrier frequency

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



Plot 7.5.33 Radiated emission measurements from 26500 to 33000 MHz at the low carrier frequency

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

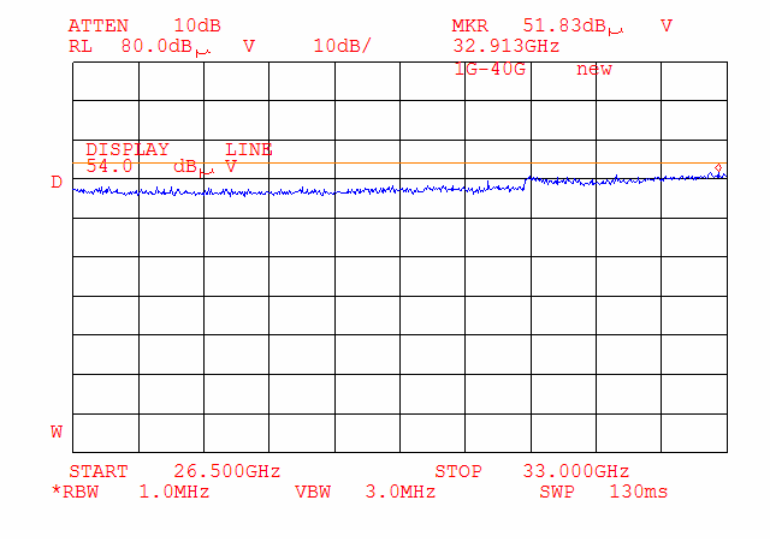


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

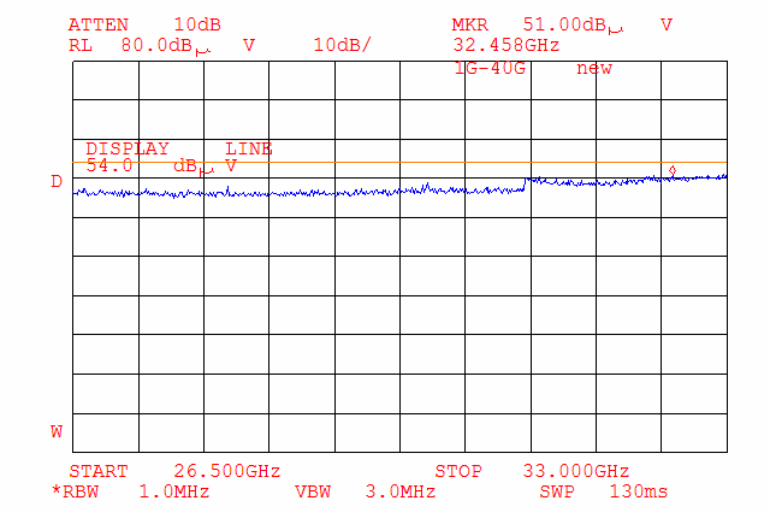
Plot 7.5.34 Radiated emission measurements from 26500 to 33000 MHz at the mid carrier frequency

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



Plot 7.5.35 Radiated emission measurements from 26500 to 33000 MHz at the high carrier frequency

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

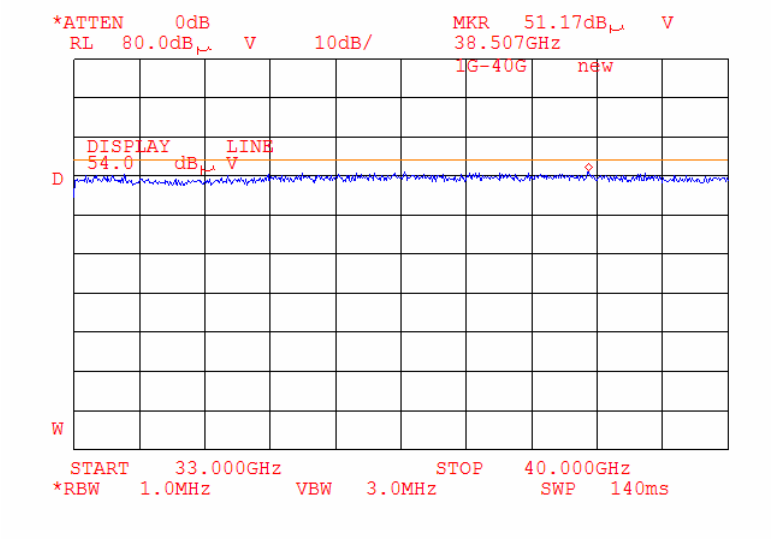


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

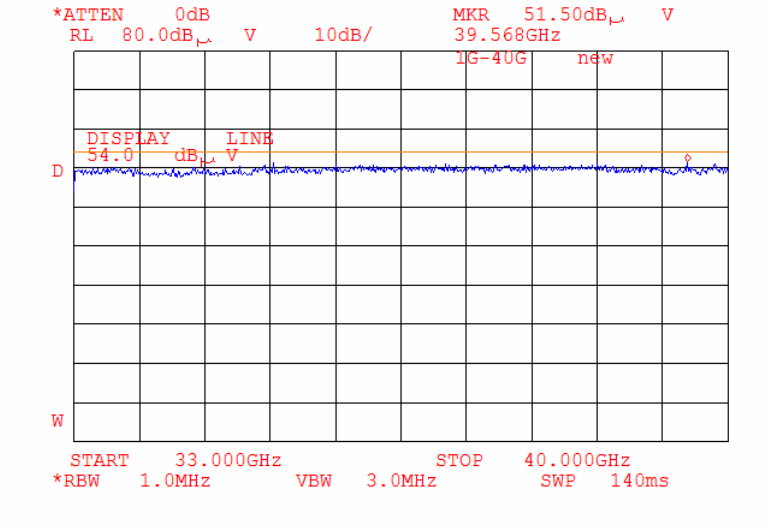
Plot 7.5.36 Radiated emission measurements from 33000 to 40000 MHz at the low carrier frequency

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



Plot 7.5.37 Radiated emission measurements from 33000 to 40000 MHz at the mid carrier frequency

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

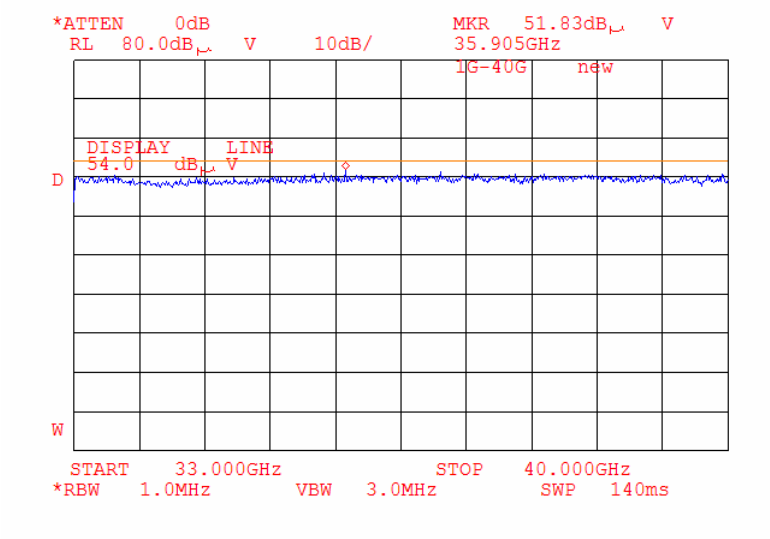


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

Plot 7.5.38 Radiated emission measurements from 33000 to 40000 MHz at the high carrier frequency

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

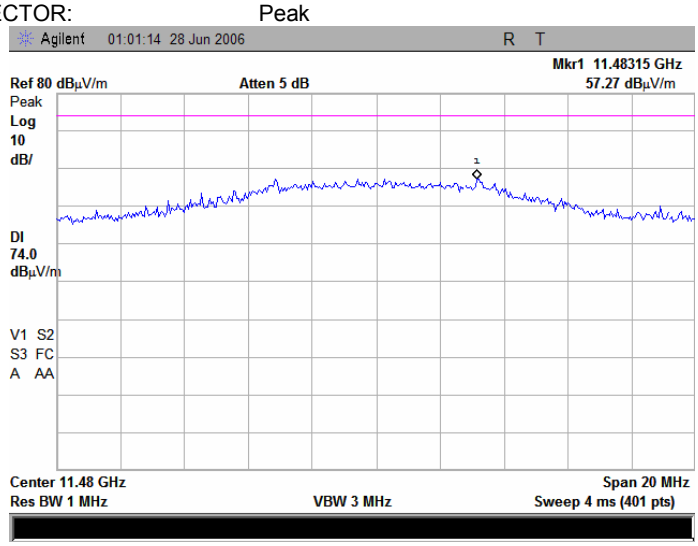


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

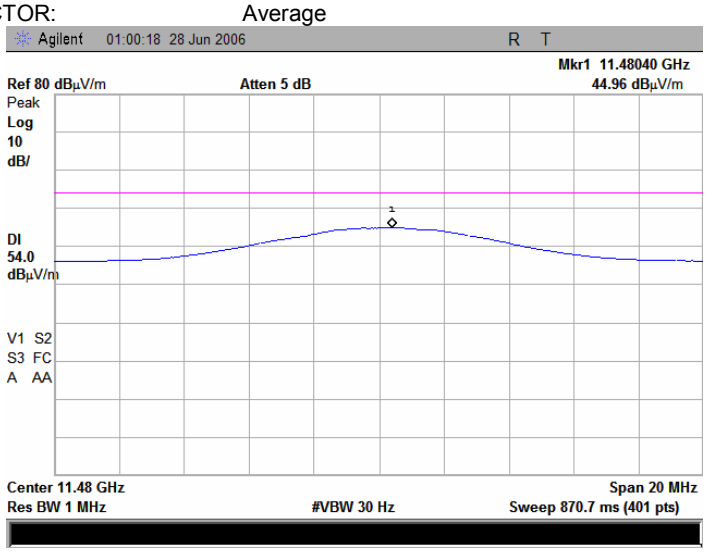
Plot 7.5.39 Radiated emission measurements at the second harmonic of low carrier frequency

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



Plot 7.5.40 Radiated emission measurements at the second harmonic of low carrier frequency

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

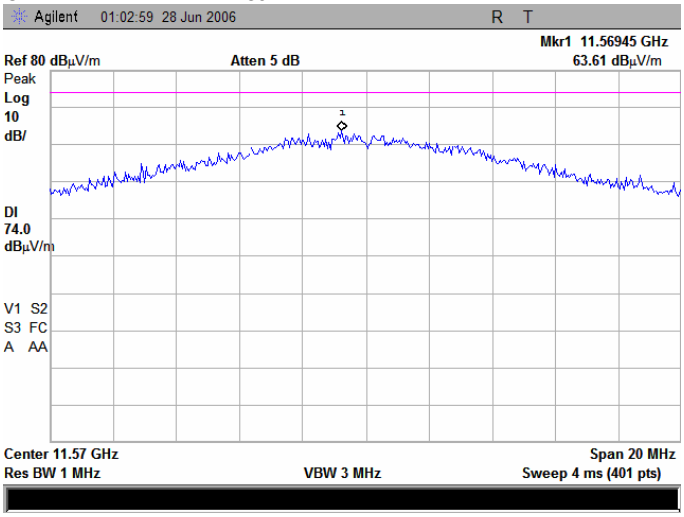


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

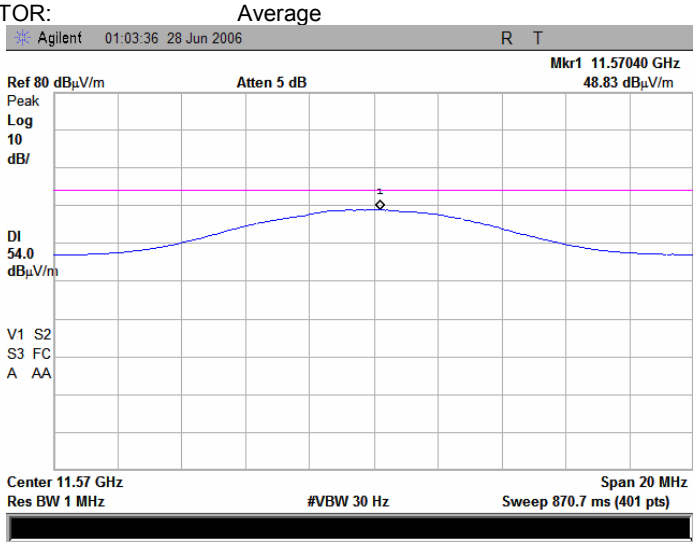
Plot 7.5.41 Radiated emission measurements at the second harmonic of mid carrier frequency

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



Plot 7.5.42 Radiated emission measurements at the second harmonic of mid carrier frequency

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

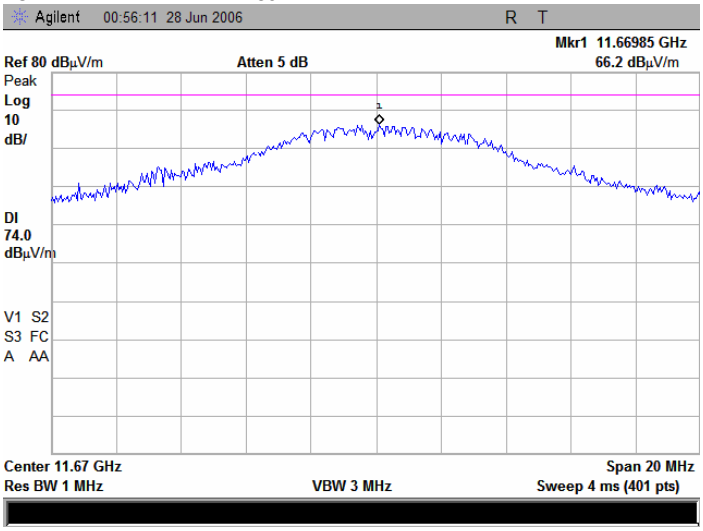


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:06:21 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 22 dBi antenna			

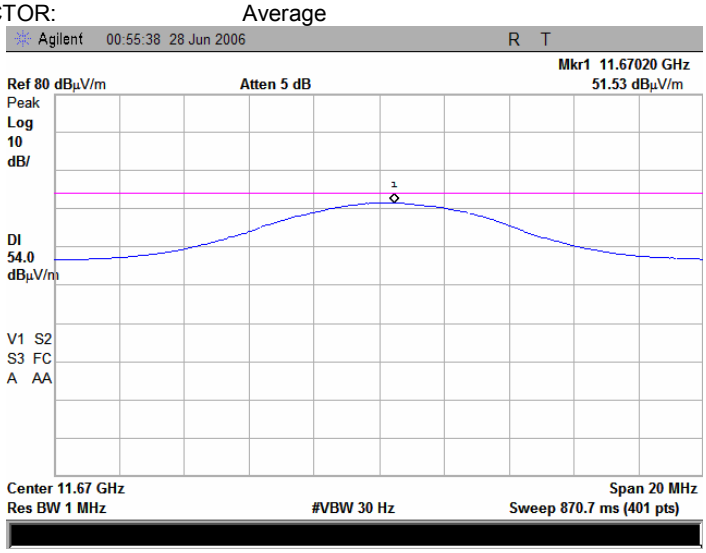
Plot 7.5.43 Radiated emission measurements at the second harmonic of high carrier frequency

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



Plot 7.5.44 Radiated emission measurements at the second harmonic of high carrier frequency

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



HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

7.6 Field strength of spurious emissions of the ODU with 28 dBi antenna

7.6.1 General

This test was performed to measure field strength of spurious emissions from the EUT. Specification test limits are given in Table 7.6.1.

Table 7.6.1 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 – 10thharmonic	74.0	NA	54.0

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

$$Lim_{S2} = Lim_{S1} + 40 \log (S_1/S_2),$$

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.

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

7.6.2.1 The EUT was set up as shown in Figure 7.6.1, energized and the performance check was conducted.

7.6.2.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360^0 and the measuring antenna was rotated around its vertical axis.

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

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

7.6.3.1 The EUT was set up as shown in Figure 7.6.2, energized and the performance check was conducted.

7.6.3.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360^0, the measuring antenna height was changed from 1 to 4 m, its polarization was switched from vertical to horizontal.

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

HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

Figure 7.6.1 Setup for spurious emission field strength measurements below 30 MHz

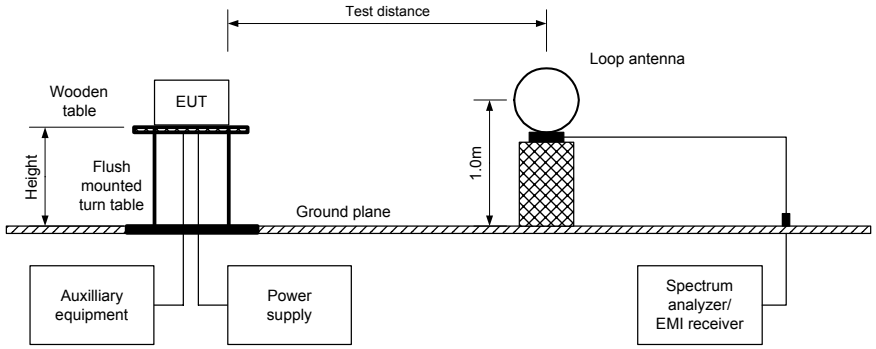
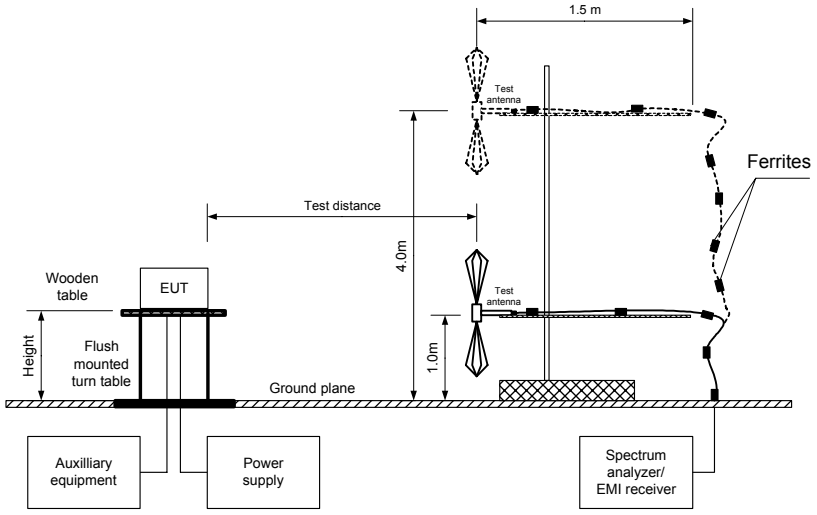


Figure 7.6.2 Setup for spurious emission field strength measurements above 30 MHz



HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

Table 7.6.2 Field strength of spurious emissions above 1 GHz within restricted bands

ASSIGNED FREQUENCY:	5725 – 5850 MHz
INVESTIGATED FREQUENCY RANGE:	0.009 - 40000 MHz
TEST DISTANCE:	3 m
MODULATION:	QAM
MODULATING SIGNAL:	PRBS
BIT RATE:	1.5 Mbps
DUTY CYCLE:	100 %
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
EUT CABINET:	ODU High Power
EUT ANTENNA GAIN:	28 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											
11480.80	Vertical	1.0	150	61.50	74.00	-12.50	47.65	NA	54.00	-6.35	Pass
Mid carrier frequency											
11571.30	Vertical	1.1	180	64.68	74.00	-9.32	47.29	NA	54.00	-6.71	Pass
High carrier frequency											
11669.70	Vertical	1.0	160	63.85	74.00	-10.15	48.44	NA	54.00	-5.56	Pass

*****- EUT front panel refers to 0 degrees position of turntable.
******- Margin = Measured field strength - specification limit.

Table 7.6.3 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

HERMON LABORATORIES

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:**	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	**Air Pressure:** 1007 hPa	**Relative Humidity:** 48 %	**Power Supply:** 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

Table 7.6.4 Field strength of spurious emissions below 1 GHz within restricted bands

ASSIGNED FREQUENCY:	5725 – 5850 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:	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*				
all carrier frequency								
No spurious emissions were found								Pass

*****- Margin = Measured emission - specification limit.
******- EUT front panel refer to 0 degrees position of turntable.

Table 7.6.5 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 0768	HL 0769
HL 1200	HL 1425	HL 1430	HL 1553	HL 1566	HL 1650	HL 2259	HL 2260
HL 2261	HL 2432	HL 2697	HL 2780	HL 2871	HL 2911		

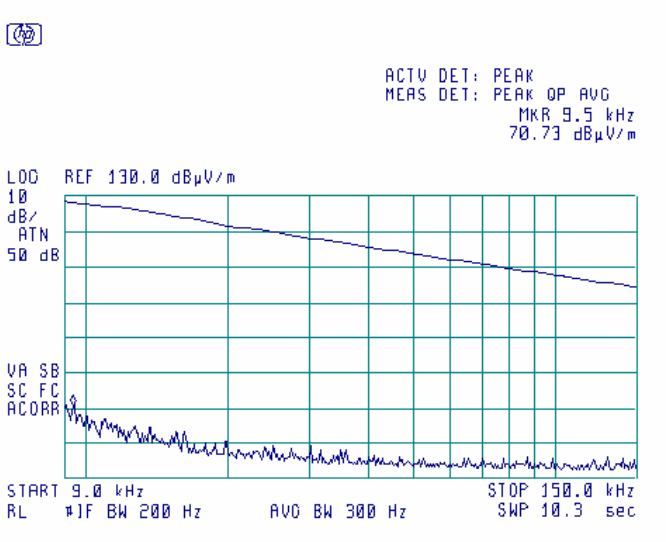
Full description is given in Appendix A.

HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

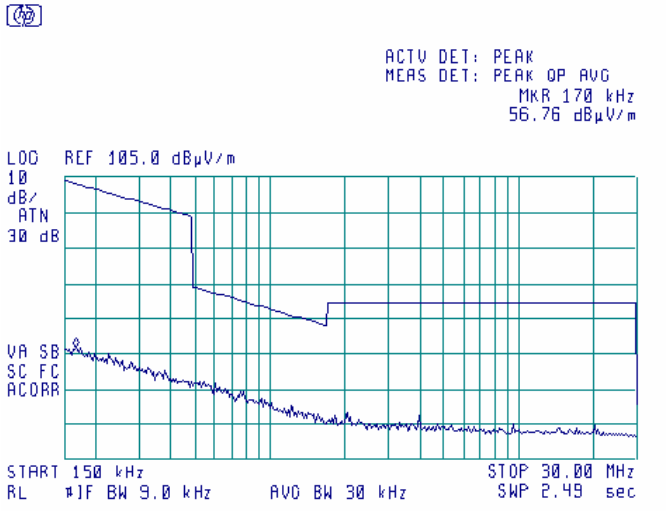
Plot 7.6.1 Radiated emission measurements from 9 to 150 kHz at all carrier frequencies

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



Plot 7.6.2 Radiated emission measurements from 0.15 to 30 MHz at all carrier frequencies

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

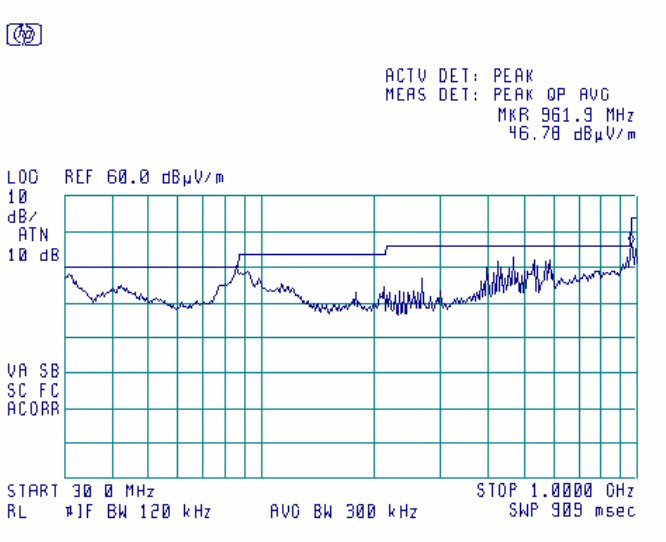


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

Plot 7.6.3 Radiated emission measurements from 30 to 1000 MHz at the low carrier frequency

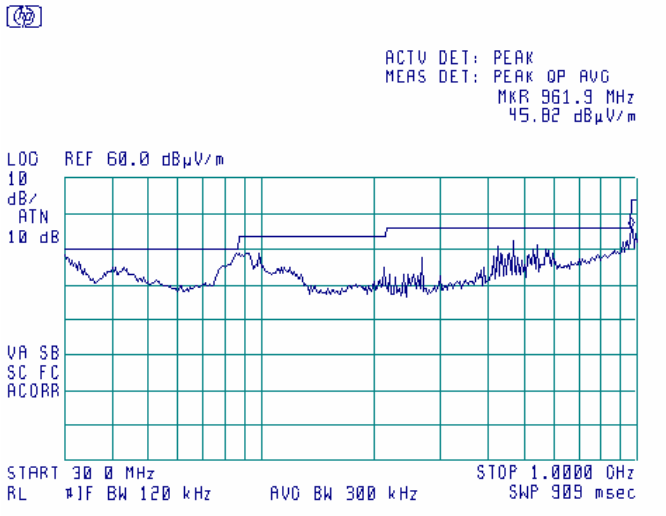
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Note: digital part emissions

Plot 7.6.4 Radiated emission measurements from 30 to 1000 MHz at the mid carrier frequency

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

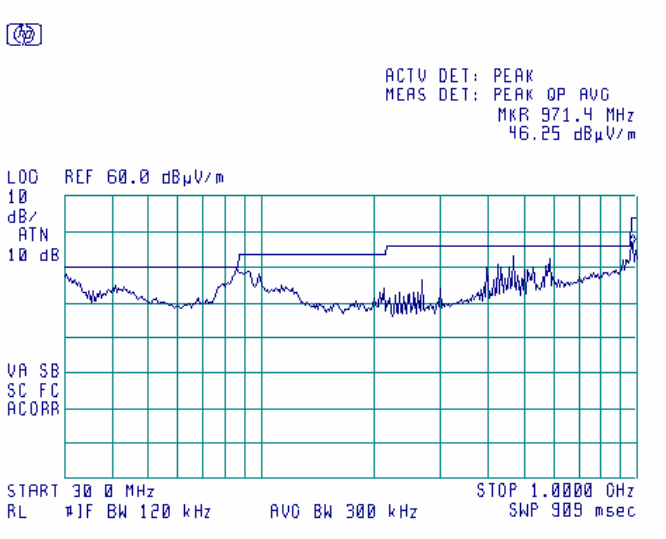


HERMON LABORATORIES

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:**	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	**Air Pressure:** 1007 hPa	**Relative Humidity:** 48 %	**Power Supply:** 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

Plot 7.6.5 Radiated emission measurements from 30 to 1000 MHz at the high carrier frequency

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

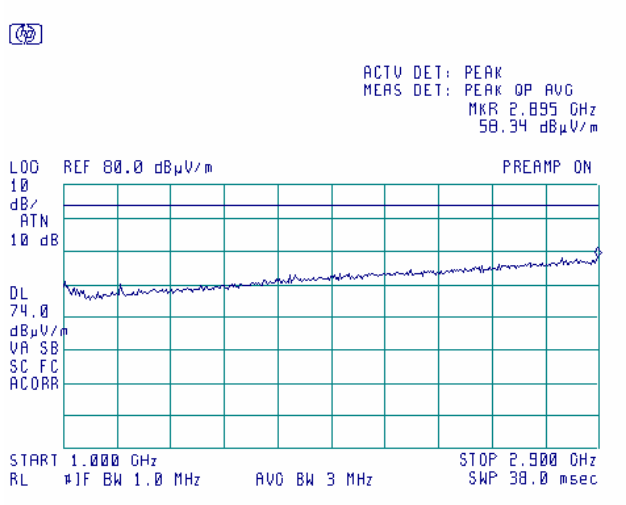


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

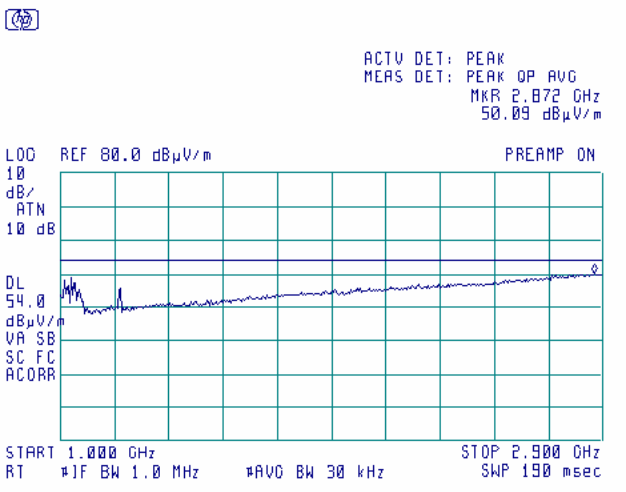
Plot 7.6.6 Radiated emission measurements from 1000 to 2900 MHz at the low carrier frequency

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



Plot 7.6.7 Radiated emission measurements from 1000 to 2900 MHz at the low carrier frequency

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

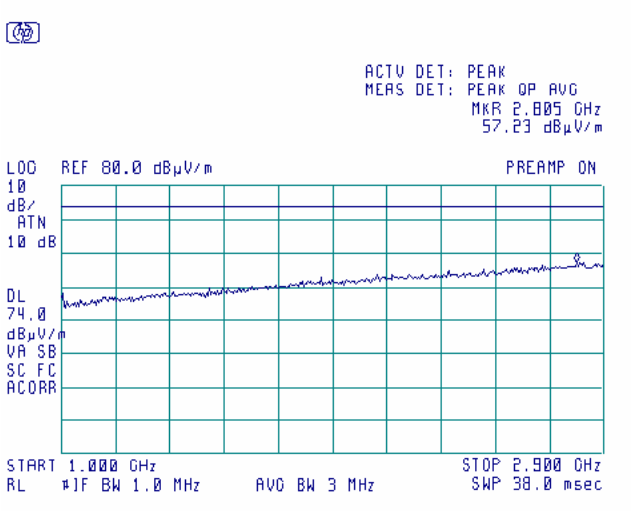


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

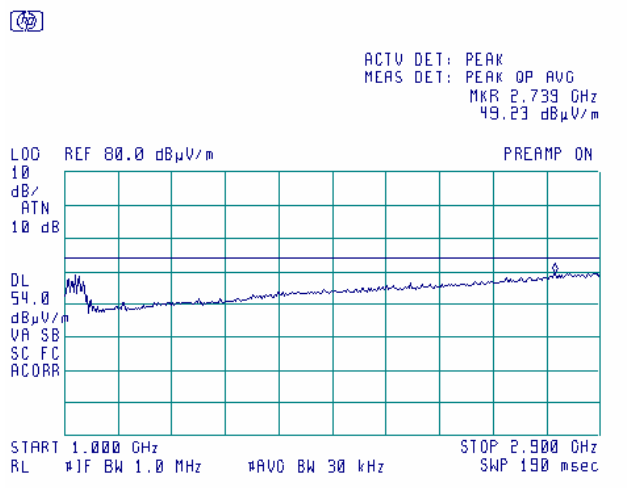
Plot 7.6.8 Radiated emission measurements from 1000 to 2900 MHz at the mid carrier frequency

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



Plot 7.6.9 Radiated emission measurements from 1000 to 2900 MHz at the mid carrier frequency

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

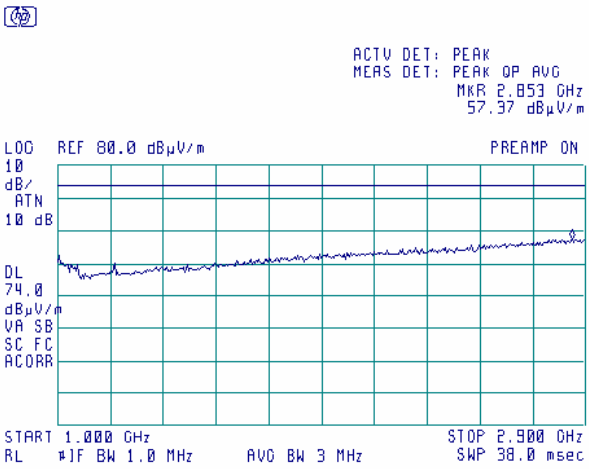


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

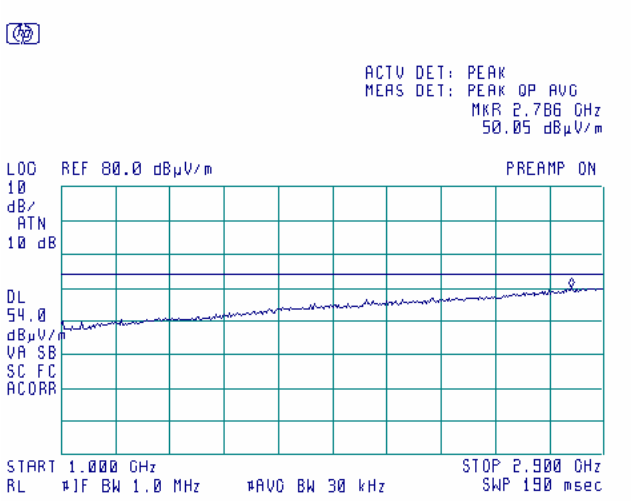
Plot 7.6.10 Radiated emission measurements from 1000 to 2900 MHz at the high carrier frequency

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



Plot 7.6.11 Radiated emission measurements from 1000 to 2900 MHz at the high carrier frequency

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

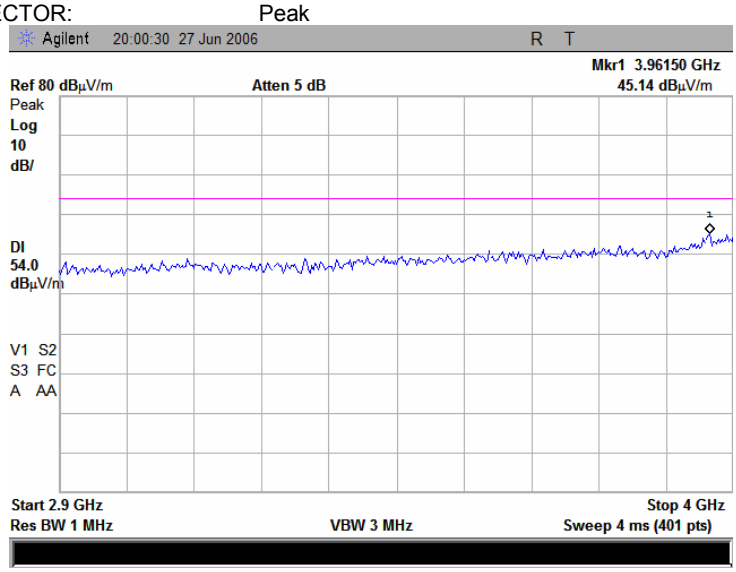


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

Plot 7.6.12 Radiated emission measurements from 2900 to 4000 MHz at the low carrier frequency

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

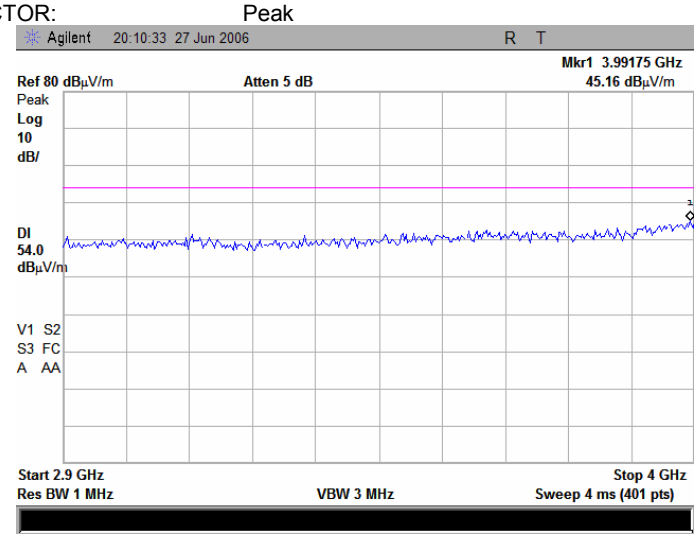


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

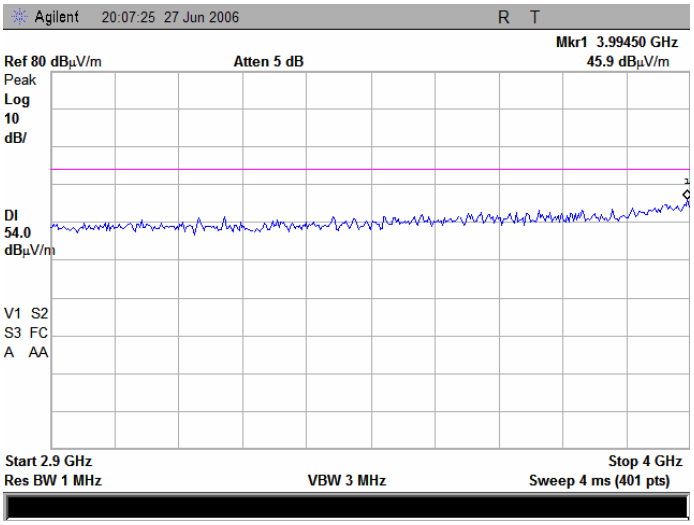
Plot 7.6.13 Radiated emission measurements from 2900 to 4000 MHz at the mid carrier frequency

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



Plot 7.6.14 Radiated emission measurements from 2900 to 4000 MHz at the high carrier frequency

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

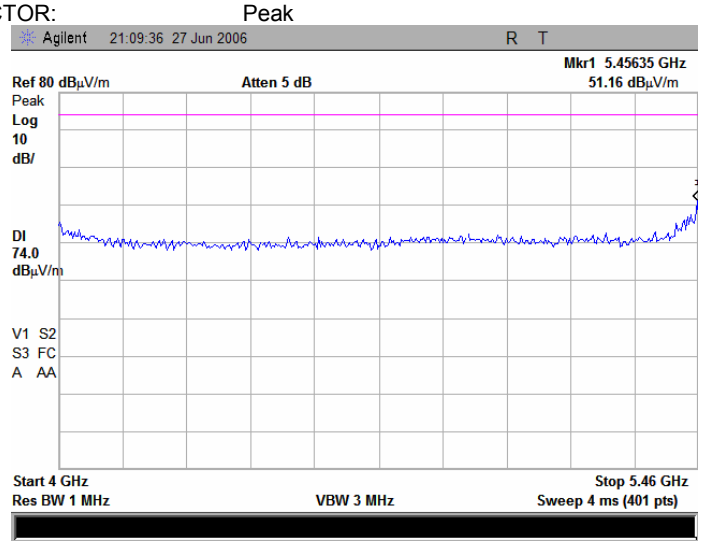


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

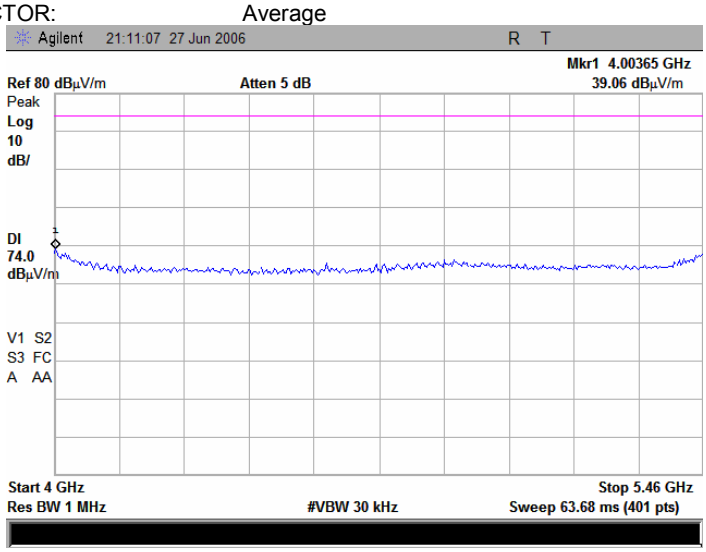
Plot 7.6.15 Radiated emission measurements from 4000 to 5460 MHz at the low carrier frequency

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



Plot 7.6.16 Radiated emission measurements from 4000 to 5460 MHz at the low carrier frequency

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

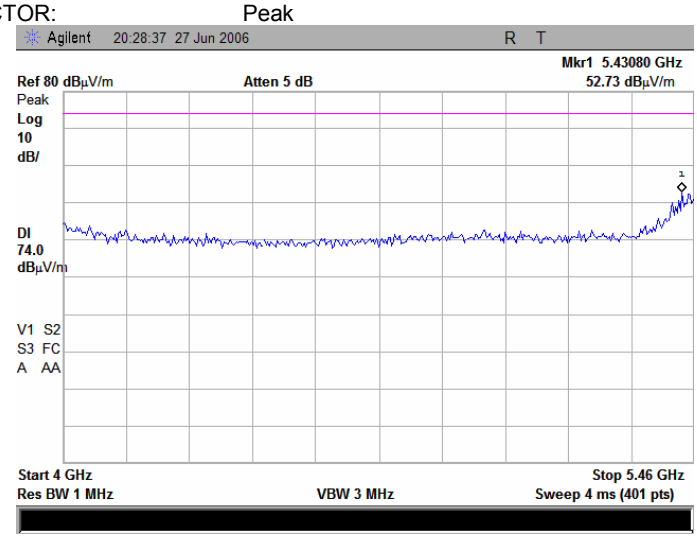


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

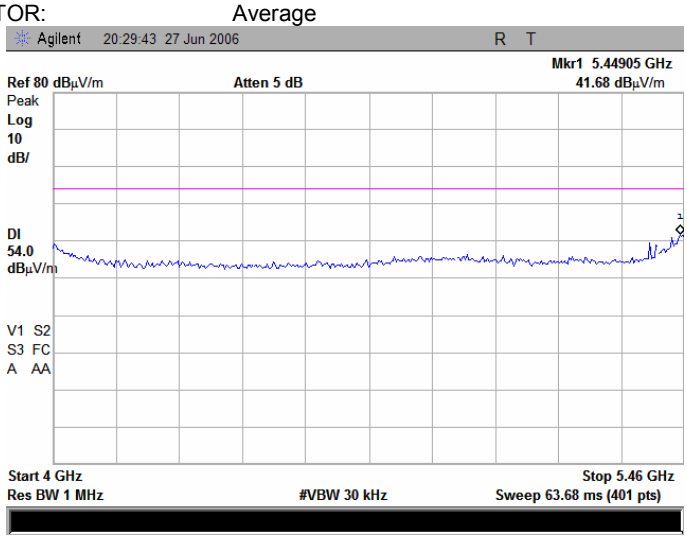
Plot 7.6.17 Radiated emission measurements from 4000 to 5460 MHz at the mid carrier frequency

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



Plot 7.6.18 Radiated emission measurements from 4000 to 5460 MHz at the mid carrier frequency

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

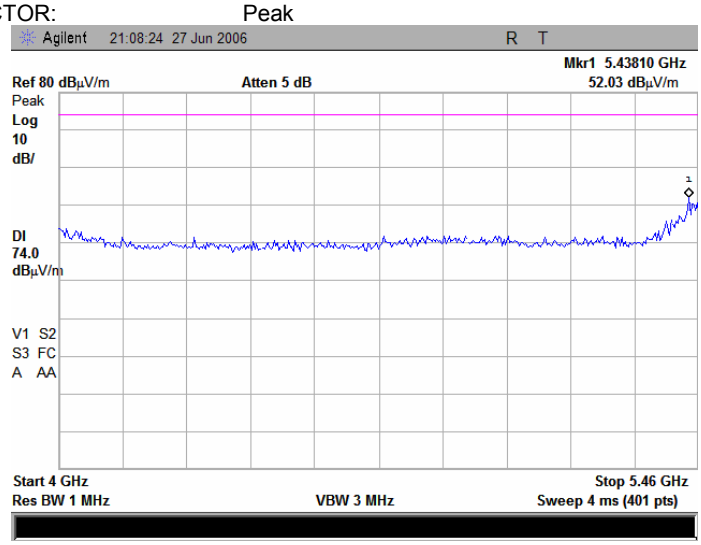


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

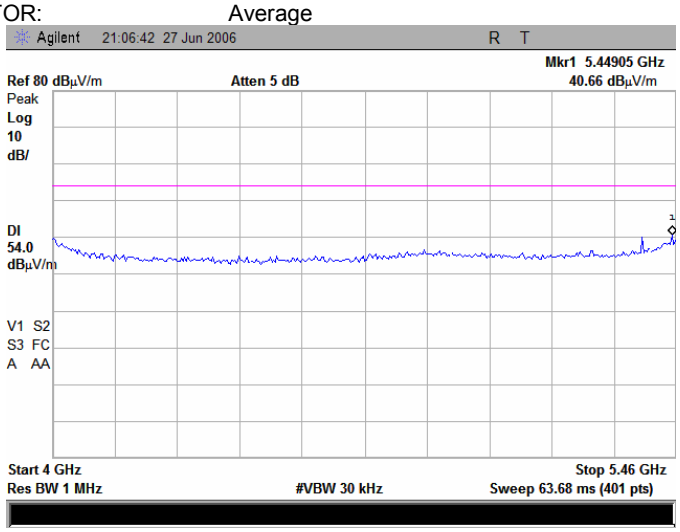
Plot 7.6.19 Radiated emission measurements from 4000 to 5460 MHz at the high carrier frequency

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



Plot 7.6.20 Radiated emission measurements from 4000 to 5460 MHz at the high carrier frequency

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

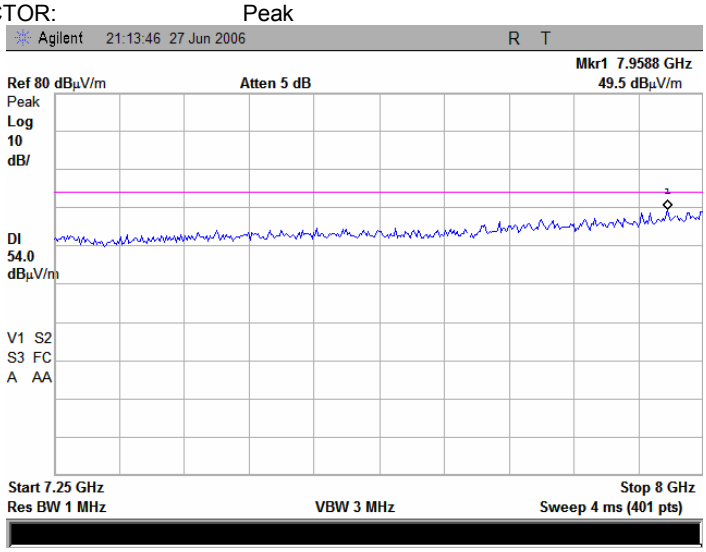


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

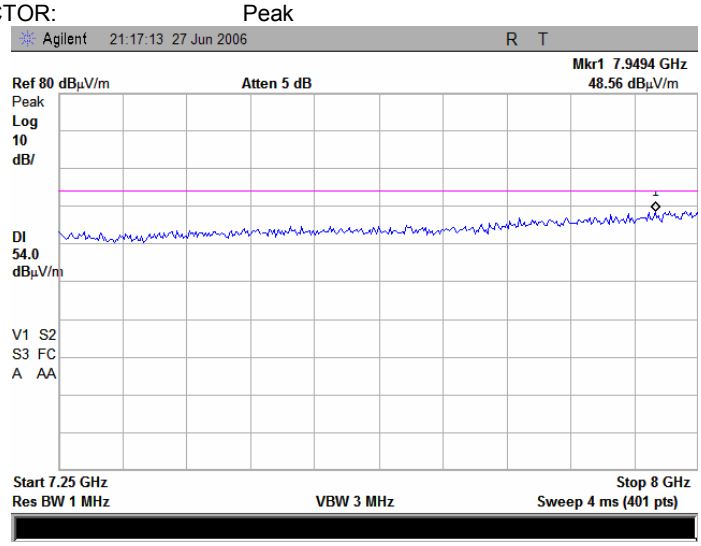
Plot 7.6.21 Radiated emission measurements from 7250 to 8000 MHz at the low carrier frequency

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



Plot 7.6.22 Radiated emission measurements from 7250 to 8000 MHz at the mid carrier frequency

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

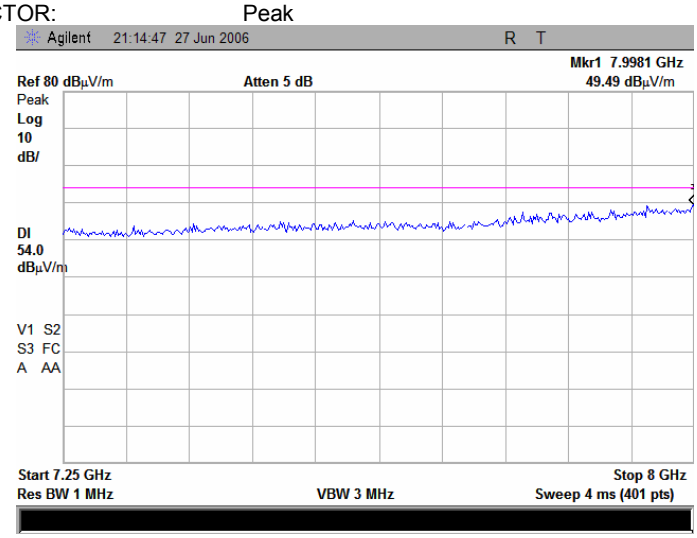


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

Plot 7.6.23 Radiated emission measurements from 7250 to 8000 MHz at the high carrier frequency

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

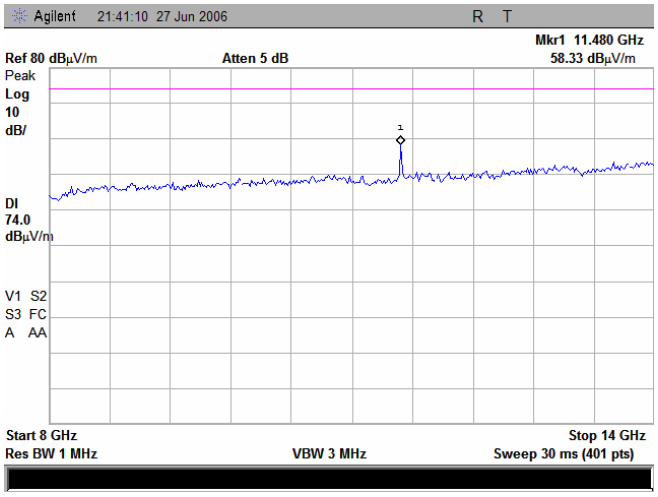


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

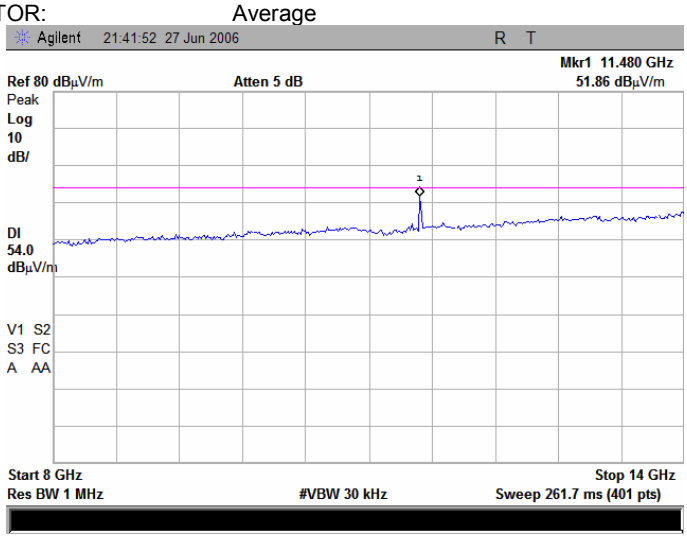
Plot 7.6.24 Radiated emission measurements from 8000 to 14000 MHz at the low carrier frequency

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



Plot 7.6.25 Radiated emission measurements from 8000 to 14000 MHz at the low carrier frequency

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

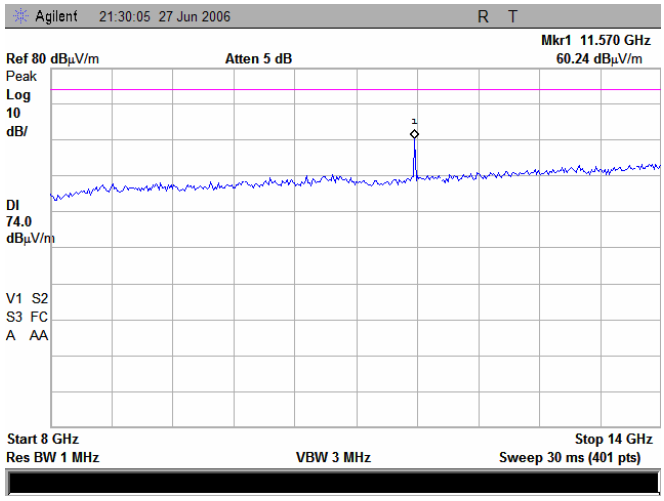


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

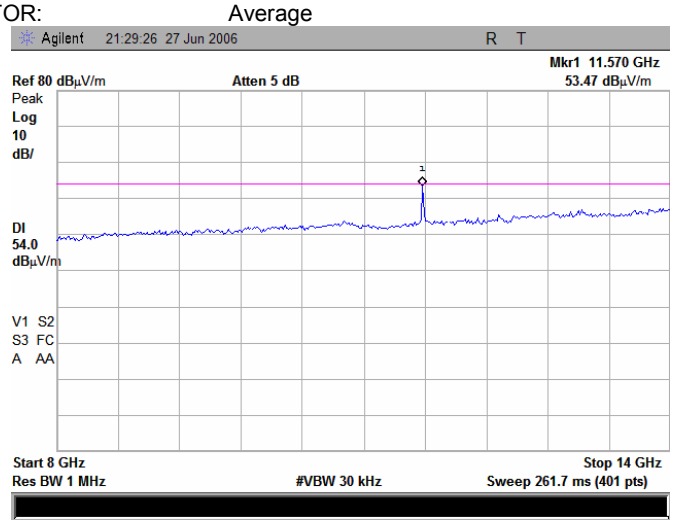
Plot 7.6.26 Radiated emission measurements from 8000 to 14000 MHz at the mid carrier frequency

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



Plot 7.6.27 Radiated emission measurements from 8000 to 14000 MHz at the mid carrier frequency

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

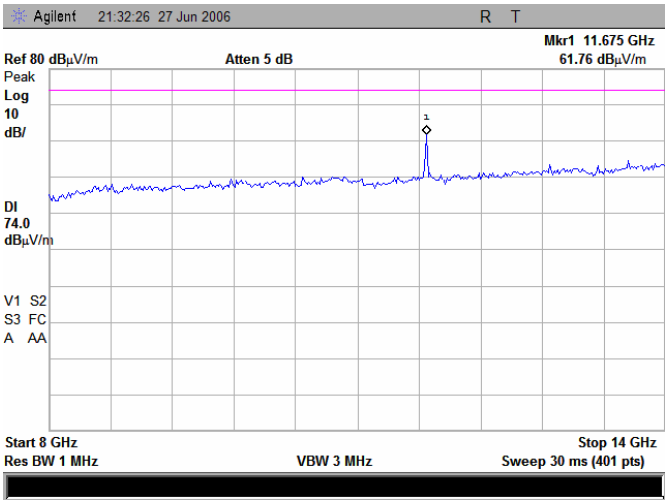


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

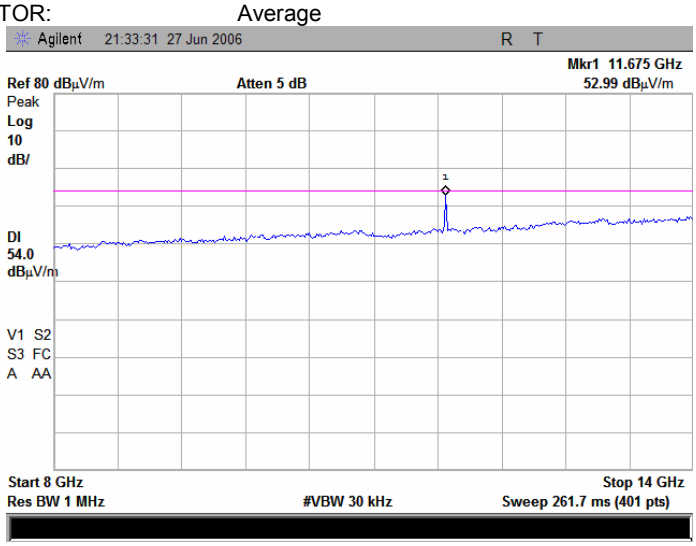
Plot 7.6.28 Radiated emission measurements from 8000 to 14000 MHz at the high carrier frequency

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



Plot 7.6.29 Radiated emission measurements from 8000 to 14000 MHz at the high carrier frequency

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

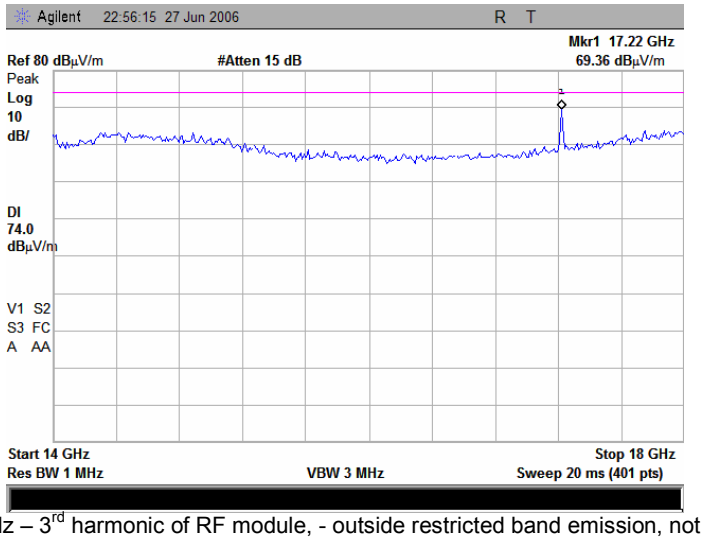


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

Plot 7.6.30 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency

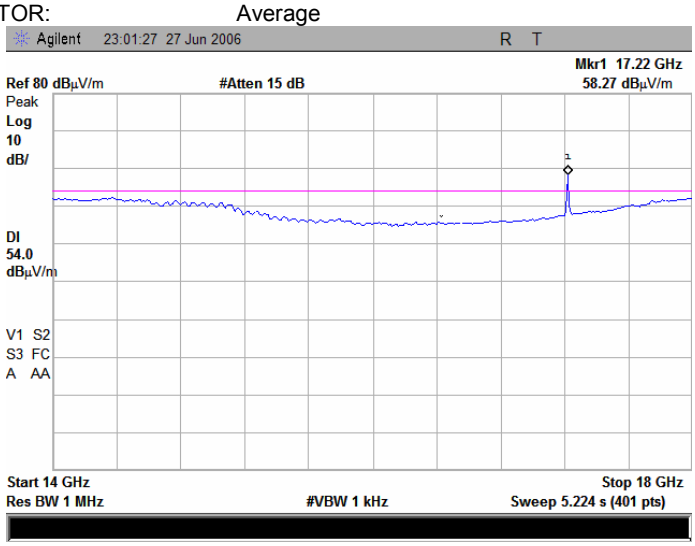
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Note: 17.220 GHz – 3rd harmonic of RF module, - outside restricted band emission, not tested radiated

Plot 7.6.31 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency

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

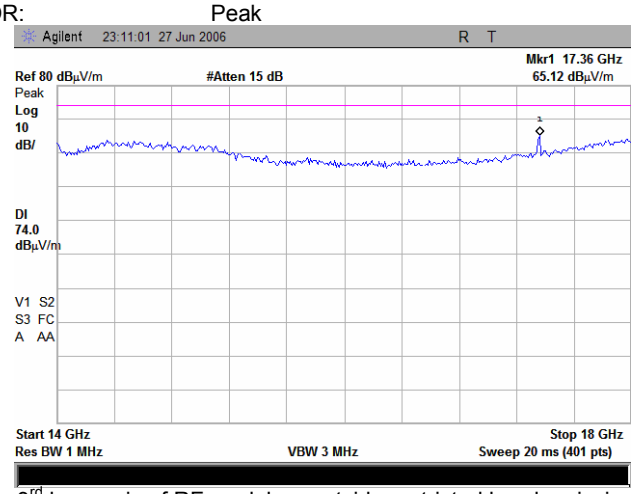


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

Plot 7.6.32 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency

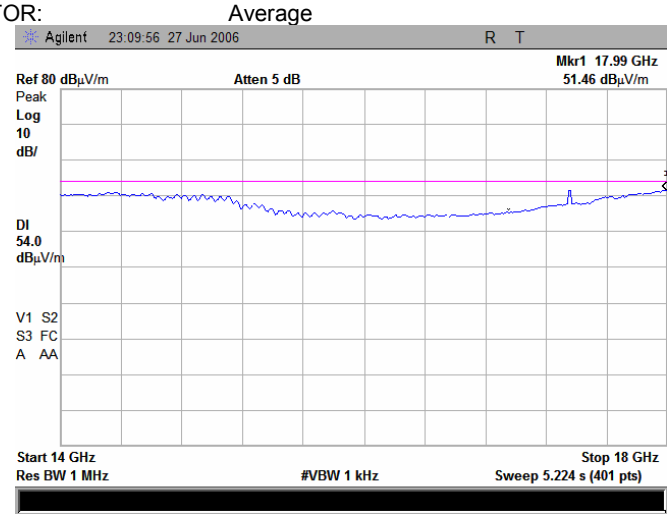
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Note: 17.355 GHz – 3rd harmonic of RF module, - outside restricted band emission, not tested radiated

Plot 7.6.33 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency

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

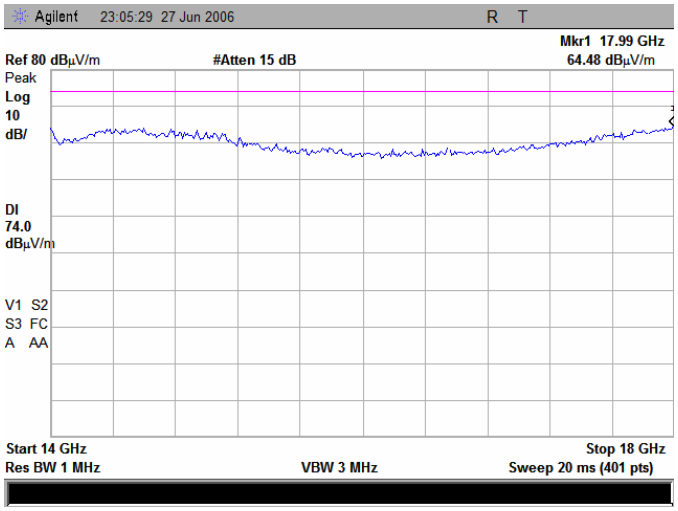


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

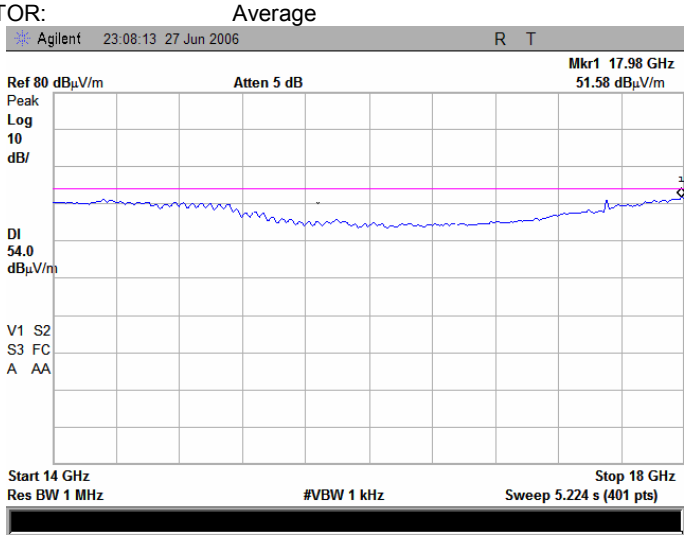
Plot 7.6.34 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency

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



Plot 7.6.35 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency

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

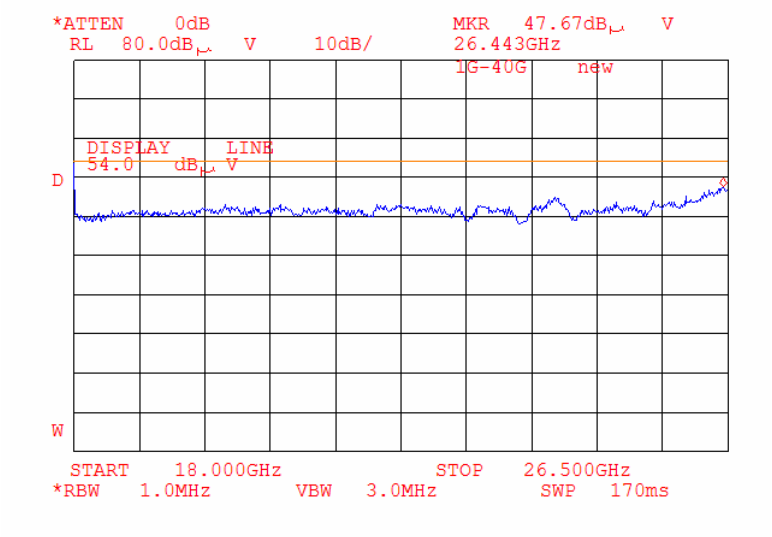


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

Plot 7.6.36 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

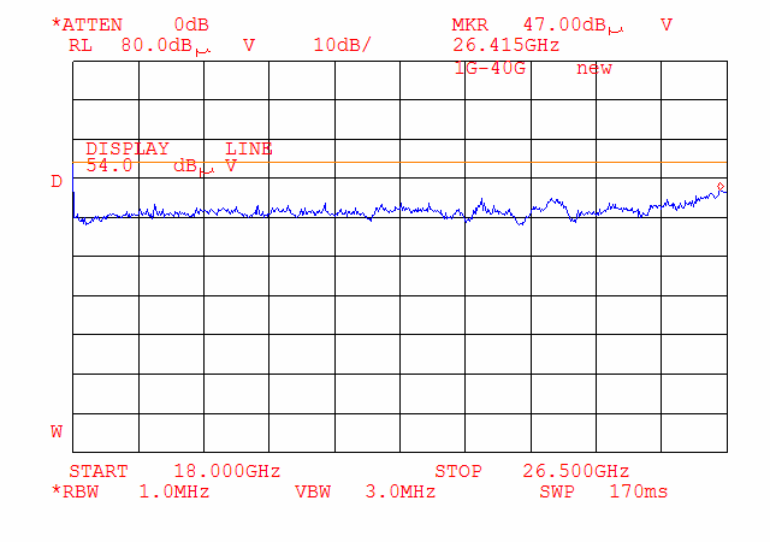


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

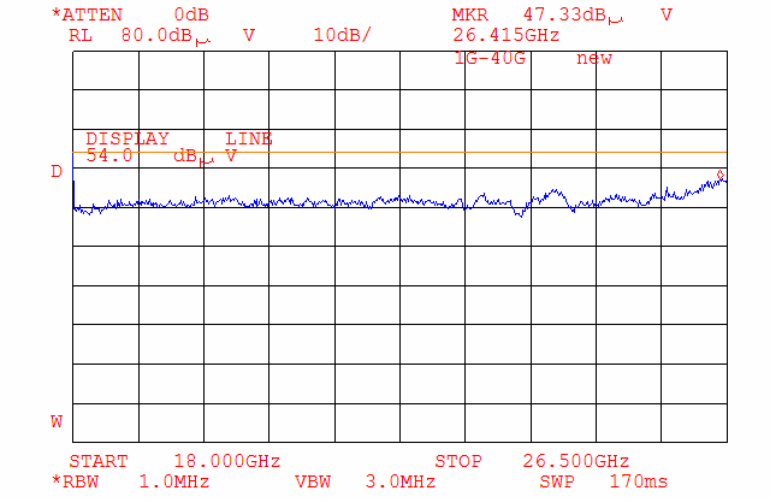
Plot 7.6.37 Radiated emission measurements from 18000 to 26500 MHz at the mid carrier frequency

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



Plot 7.6.38 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

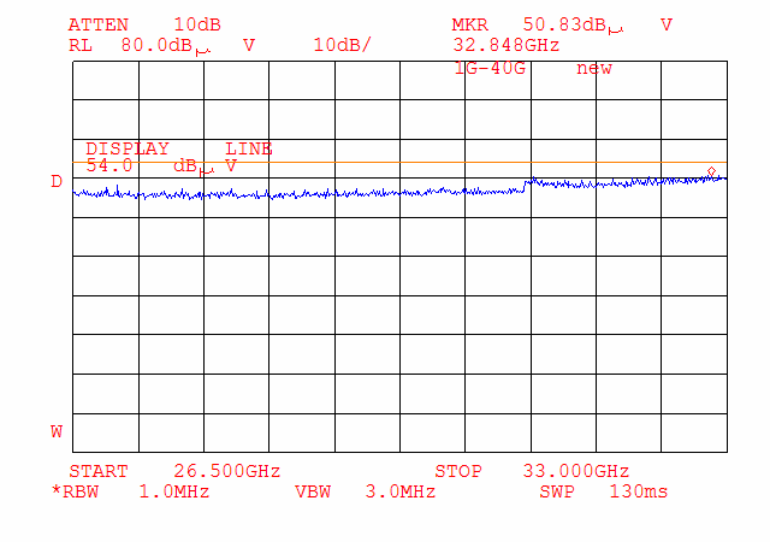


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

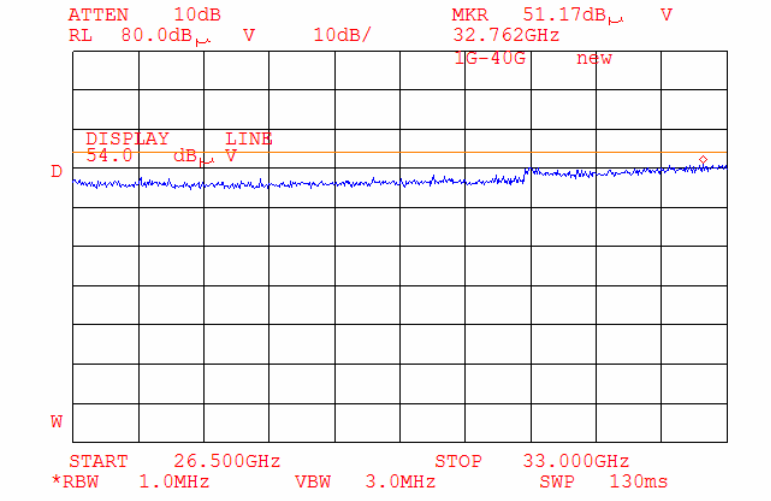
Plot 7.6.39 Radiated emission measurements from 26500 to 33000 MHz at the low carrier frequency

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



Plot 7.6.40 Radiated emission measurements from 26500 to 33000 MHz at the mid carrier frequency

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

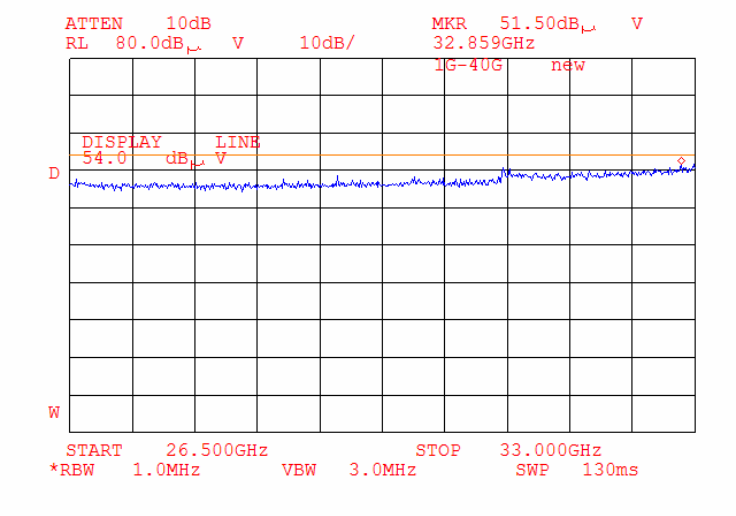


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

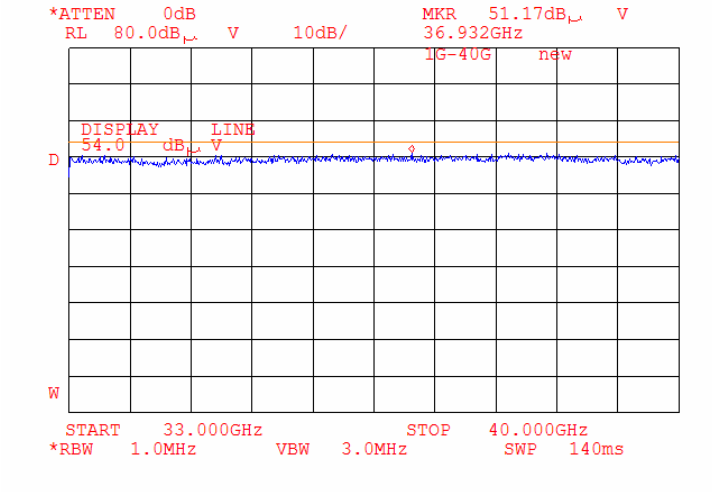
Plot 7.6.41 Radiated emission measurements from 26500 to 33000 MHz at the high carrier frequency

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



Plot 7.6.42 Radiated emission measurements from 33000 to 40000 MHz at the low carrier frequency

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

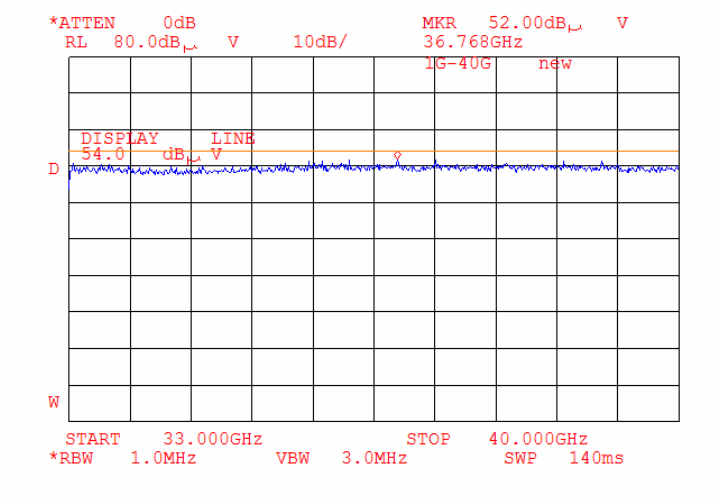


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

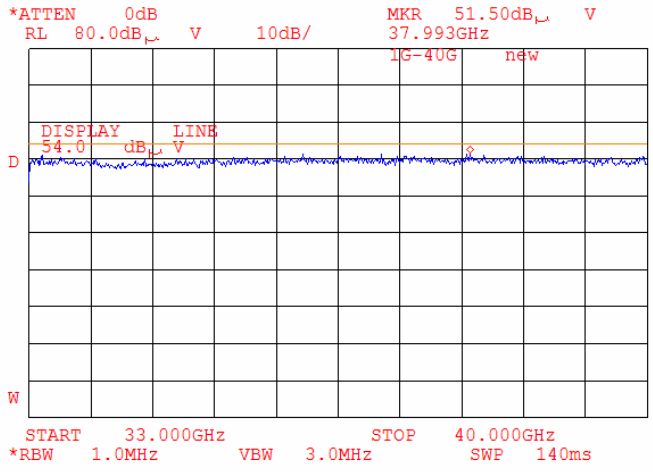
Plot 7.6.43 Radiated emission measurements from 33000 to 40000 MHz at the mid carrier frequency

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



Plot 7.6.44 Radiated emission measurements from 33000 to 40000 MHz at the high carrier frequency

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

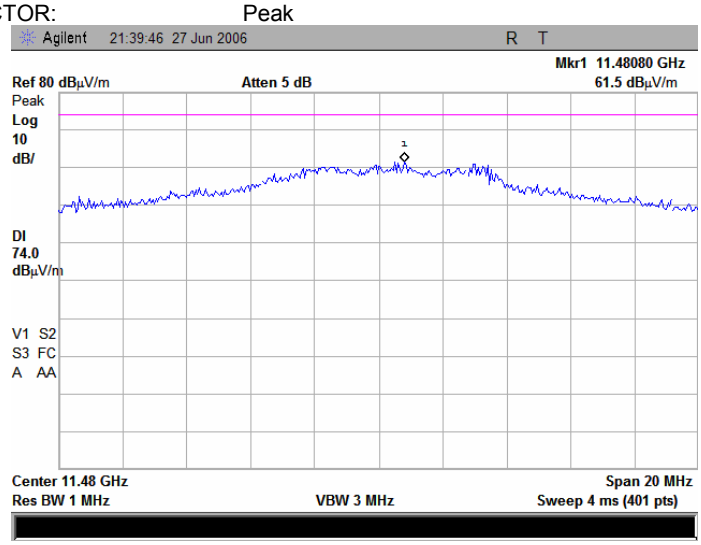


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

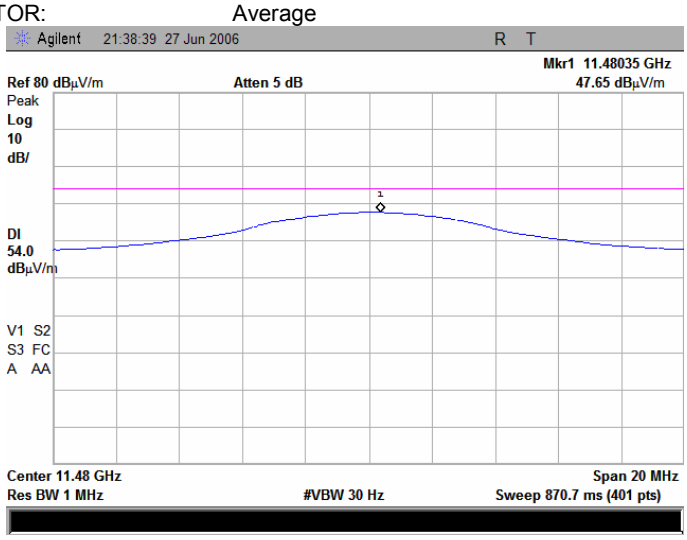
Plot 7.6.45 Radiated emission measurements at the second harmonic of low carrier frequency

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



Plot 7.6.46 Radiated emission measurements at the second harmonic of low carrier frequency

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

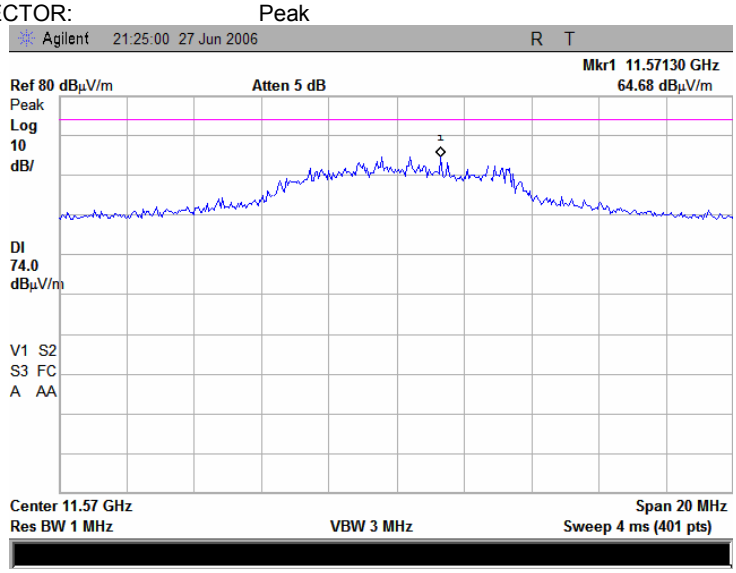


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

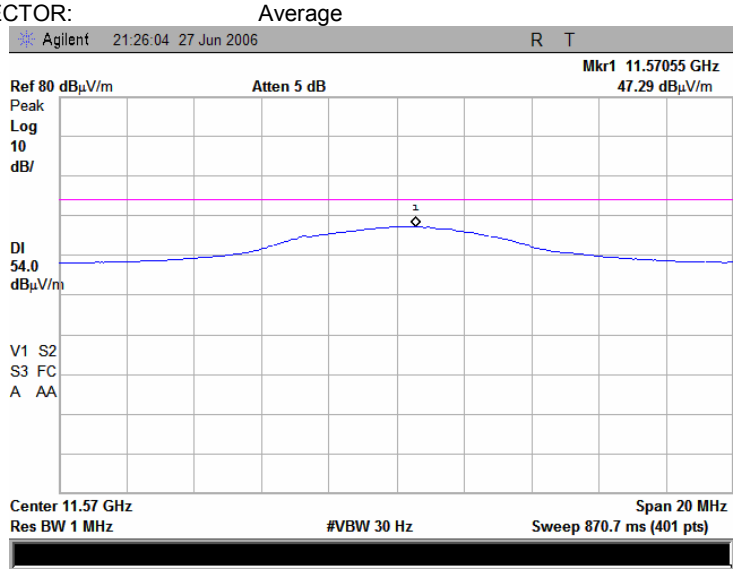
Plot 7.6.47 Radiated emission measurements at the second harmonic of mid carrier frequency

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



Plot 7.6.48 Radiated emission measurements at the second harmonic of mid carrier frequency

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

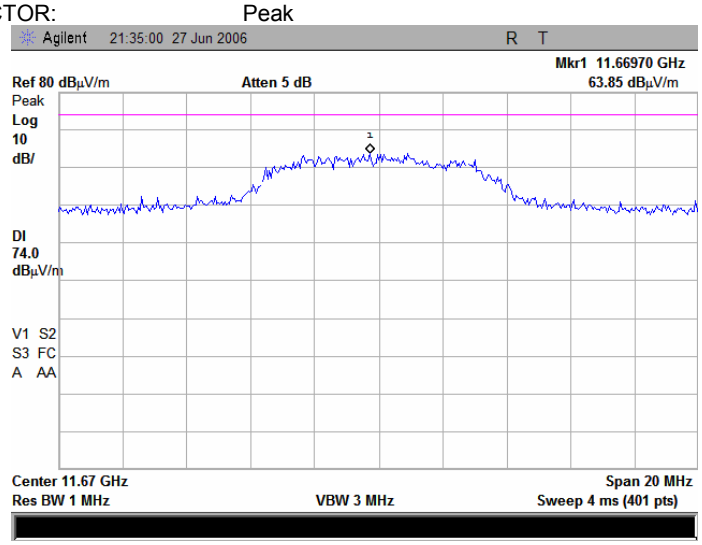


HERMON LABORATORIES

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:	
Date & Time:	6/25/2006 9:08:03 PM		
Temperature: 25 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks: EUT - ODU HP with 28 dBi antenna			

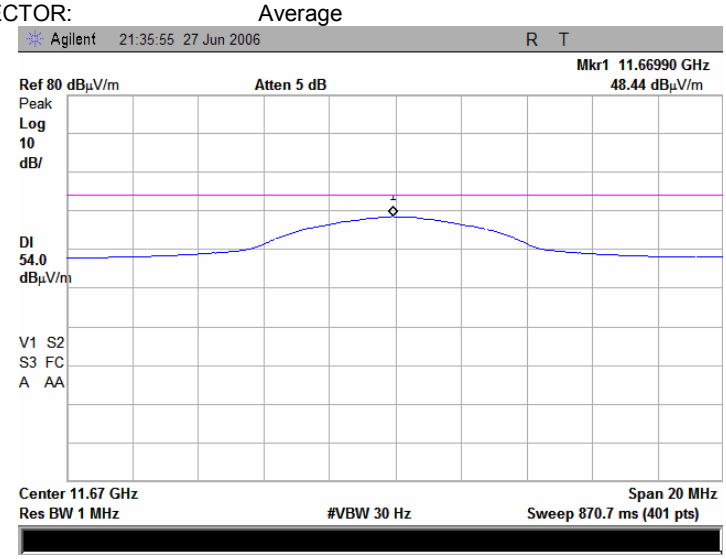
Plot 7.6.49 Radiated emission measurements at the second harmonic of high carrier frequency

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



Plot 7.6.50 Radiated emission measurements at the second harmonic of high carrier frequency

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



HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

7.7 Field strength of spurious emissions of the AIND with 28 dBi antenna

7.7.1 General

This test was performed to measure field strength of spurious emissions from the EUT. Specification test limits are given in Table 7.7.1.

Table 7.7.1 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 – 10thharmonic	74.0	NA	54.0

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

$$Lim_{S2} = Lim_{S1} + 40 \log (S_1/S_2),$$

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.

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

7.7.2.1 The EUT was set up as shown in Figure 7.7.1, energized and the performance check was conducted.

7.7.2.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360^0 and the measuring antenna was rotated around its vertical axis.

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

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

7.7.3.1 The EUT was set up as shown in Figure 7.7.2, energized and the performance check was conducted.

7.7.3.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360^0, the measuring antenna height was changed from 1 to 4 m, its polarization was switched from vertical to horizontal.

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

HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

Figure 7.7.1 Setup for spurious emission field strength measurements below 30 MHz

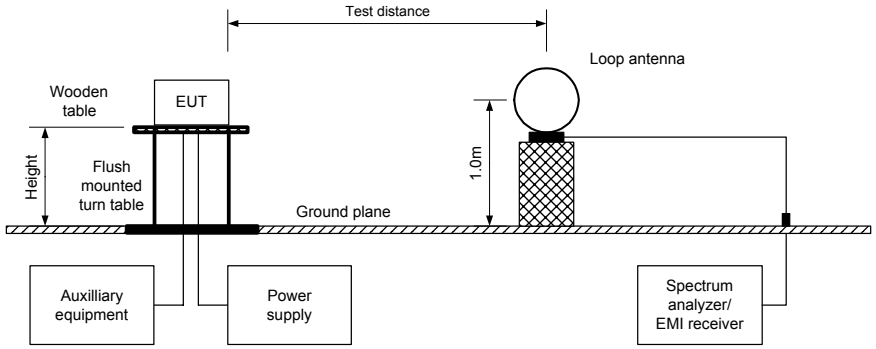
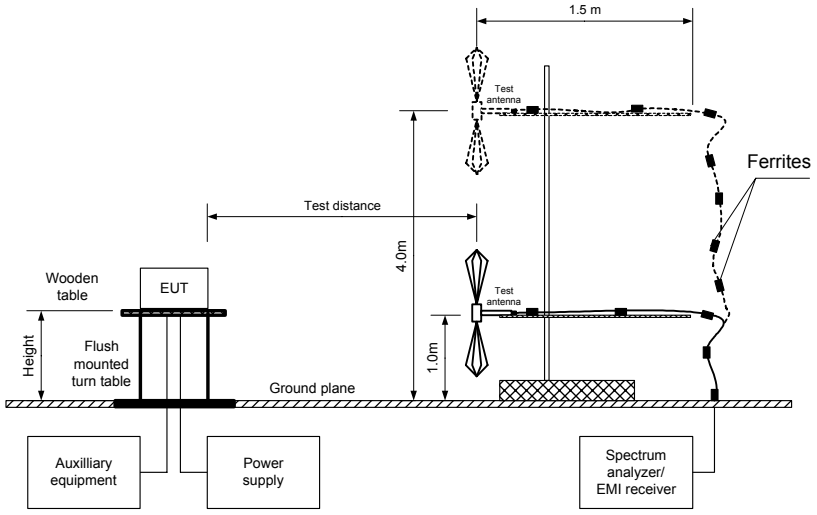


Figure 7.7.2 Setup for spurious emission field strength measurements above 30 MHz



HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

Table 7.7.2 Field strength of spurious emissions above 1 GHz within restricted bands

ASSIGNED FREQUENCY:	5725 – 5850 MHz
INVESTIGATED FREQUENCY RANGE:	0.009 - 40000 MHz
TEST DISTANCE:	3 m
MODULATION:	QAM
MODULATING SIGNAL:	PRBS
BIT RATE:	1.5 Mbps
DUTY CYCLE:	100 %
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
EUT CABINET:	AIND
EUT ANTENNA GAIN:	28 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											
11480.75	Vertical	1.0	0	61.12	74.00	-12.88	48.08	NA	54.00	-5.92	
22965.33	Vertical	1.0	0	51.67	74.00	-22.33	36.83	NA	54.00	-17.17	
Mid carrier frequency											
11567.55	Vertical	1.0	0	61.43	74.00	-12.57	47.38	NA	54.00	-6.62	
High carrier frequency											
11668.45	Vertical	1.0	0	66.39	74.00	-7.61	51.48	NA	54.00	-2.52	

*****- 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 7.7.3 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

HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

Table 7.7.4 Field strength of spurious emissions below 1 GHz within restricted bands

ASSIGNED FREQUENCY:	5725 – 5850 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:	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*				
all carrier frequency								
No emissions were found								Pass

*- Margin = Measured emission - specification limit.
**- EUT front panel refer to 0 degrees position of turntable.

Table 7.7.5 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 0768	HL 0769
HL 1200	HL 1425	HL 1430	HL 1553	HL 1566	HL 1650	HL 2259	HL 2260
HL 2261	HL 2432	HL 2697	HL 2780	HL 2871	HL 2911		

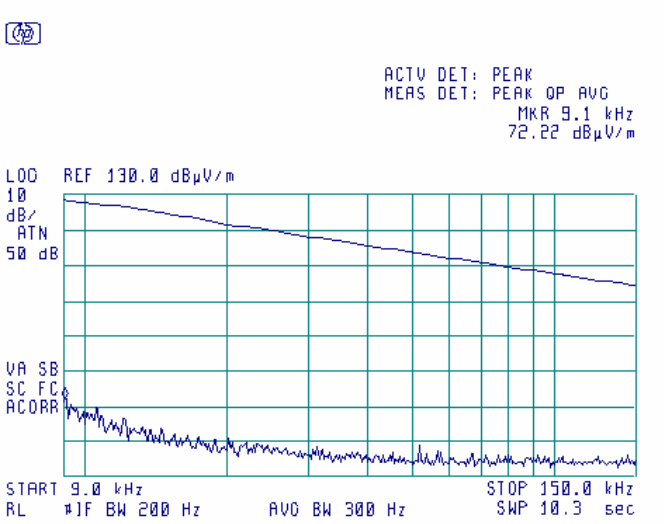
Full description is given in Appendix A.

HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

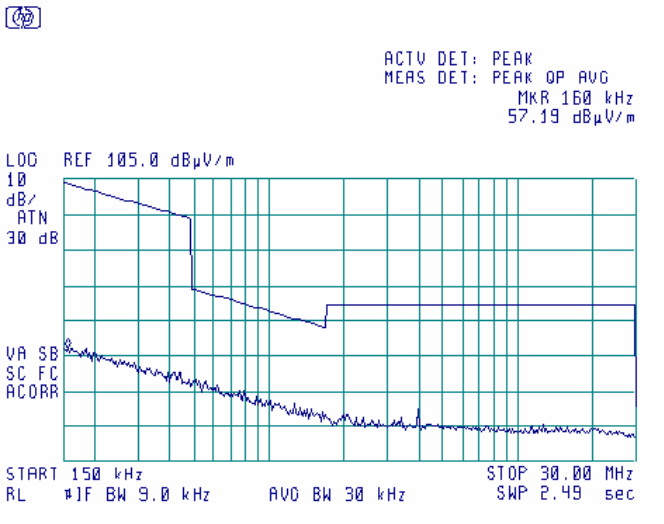
Plot 7.7.1 Radiated emission measurements from 9 to 150 kHz at all carrier frequencies

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



Plot 7.7.2 Radiated emission measurements from 0.15 to 30 MHz at all carrier frequencies

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

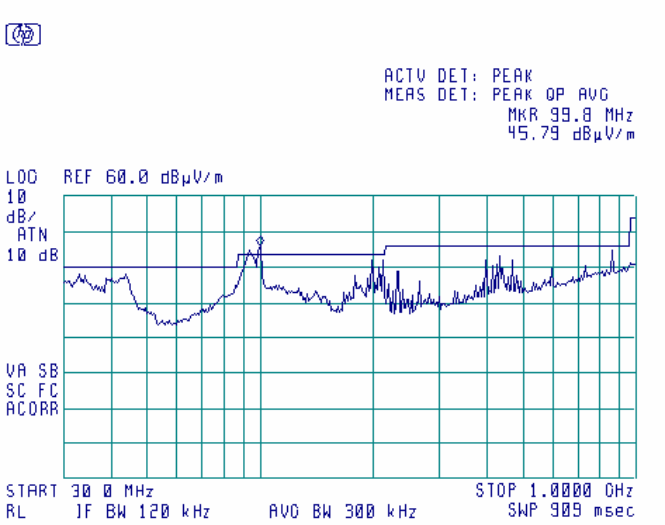


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

Plot 7.7.3 Radiated emission measurements from 30 to 1000 MHz at the low carrier frequency

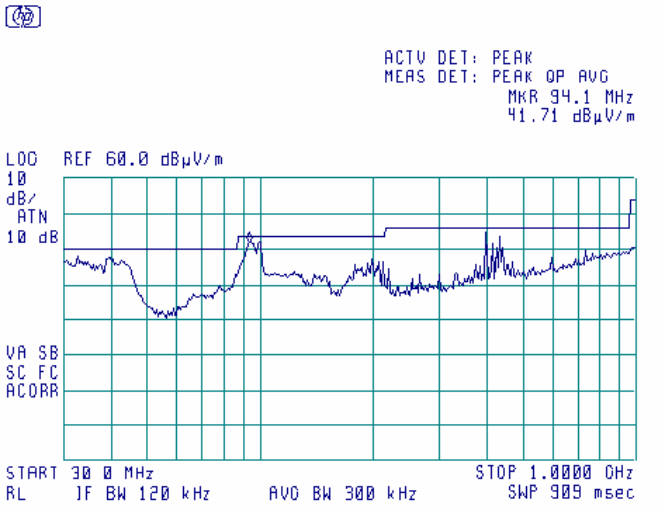
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Note: Digital part emissions, 75.2 – 108 MHz range is outside restricted band (FM band)

Plot 7.7.4 Radiated emission measurements from 30 to 1000 MHz at the mid carrier frequency

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

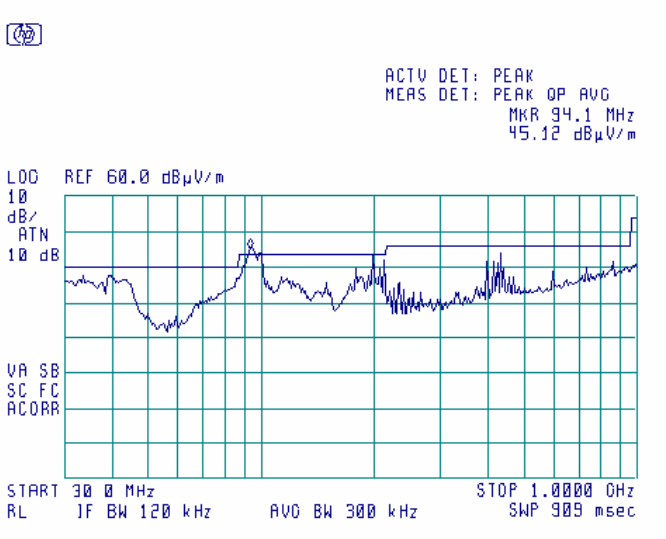


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

Plot 7.7.5 Radiated emission measurements from 30 to 1000 MHz at the high carrier frequency

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

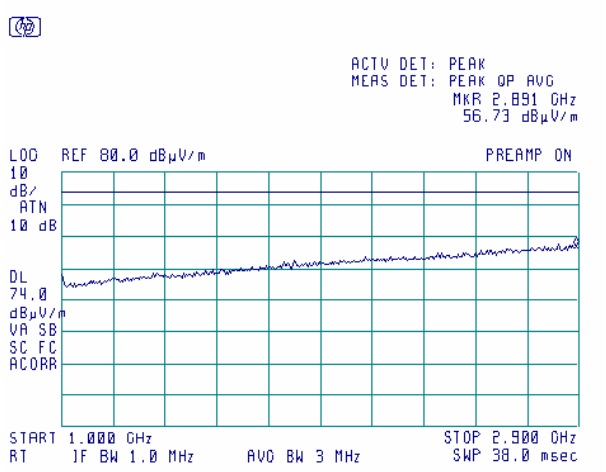


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

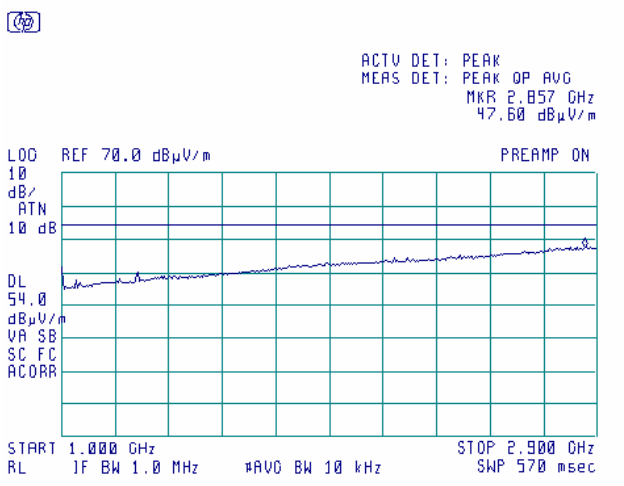
Plot 7.7.6 Radiated emission measurements from 1000 to 2900 MHz at the low carrier frequency

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



Plot 7.7.7 Radiated emission measurements from 1000 to 2900 MHz at the low carrier frequency

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

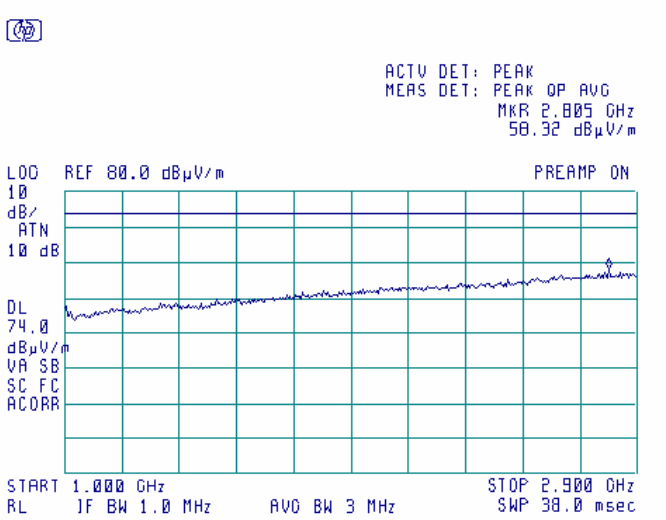


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

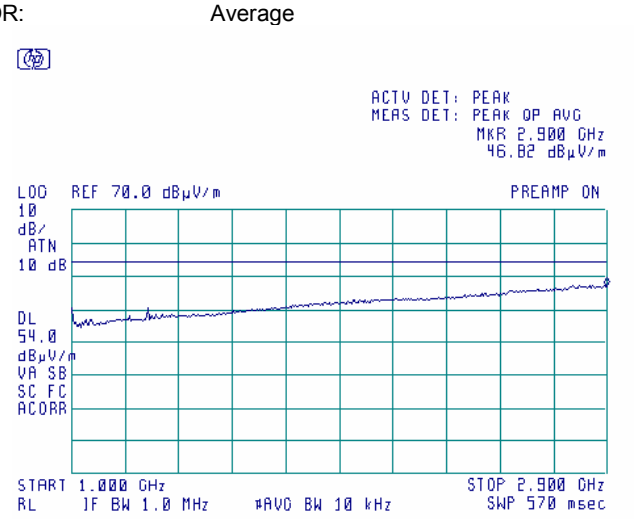
Plot 7.7.8 Radiated emission measurements from 1000 to 2900 MHz at the mid carrier frequency

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



Plot 7.7.9 Radiated emission measurements from 1000 to 2900 MHz at the mid carrier frequency

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

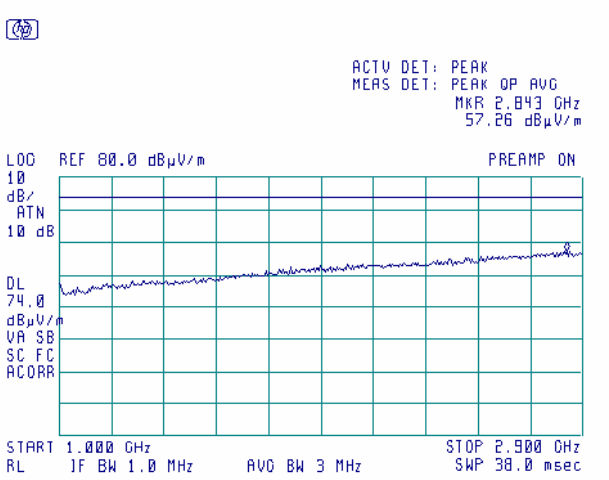


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

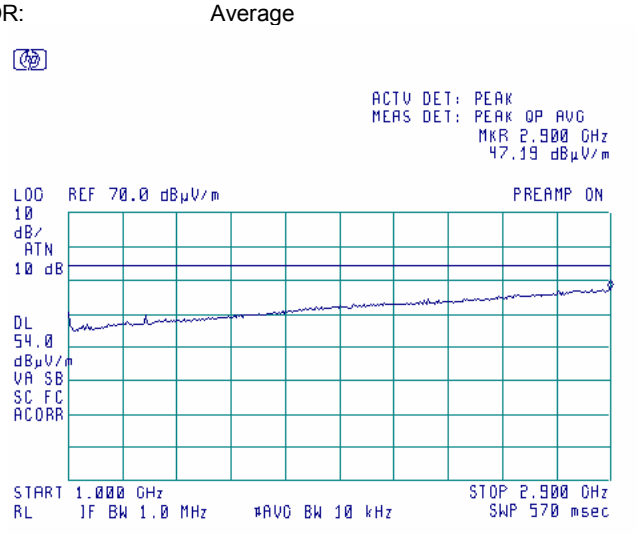
Plot 7.7.10 Radiated emission measurements from 1000 to 2900 MHz at the high carrier frequency

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



Plot 7.7.11 Radiated emission measurements from 1000 to 2900 MHz at the high carrier frequency

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

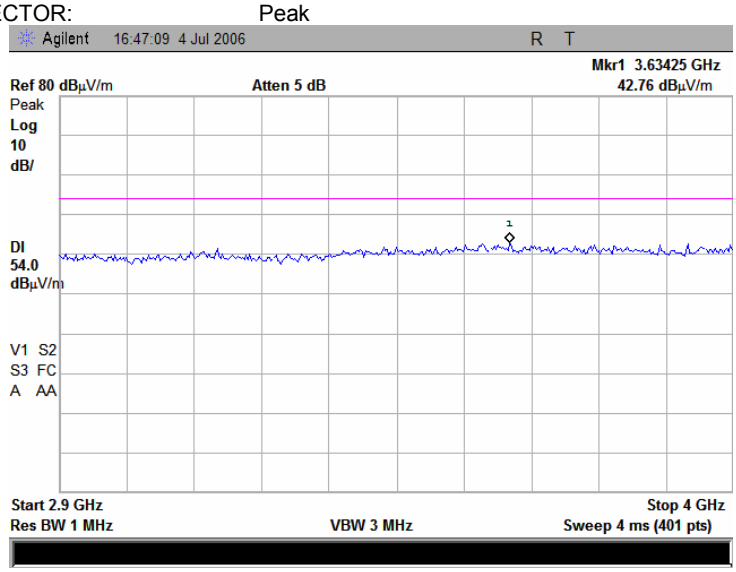


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

Plot 7.7.12 Radiated emission measurements from 2900 to 4000 MHz at the low carrier frequency

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

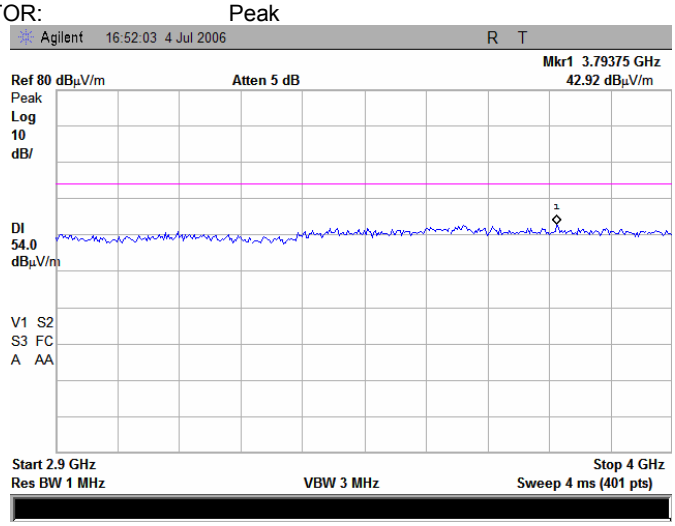


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

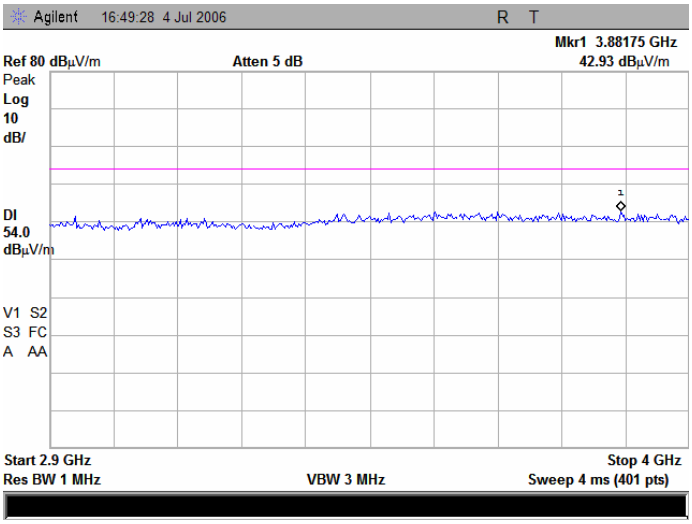
Plot 7.7.13 Radiated emission measurements from 2900 to 4000 MHz at the mid carrier frequency

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



Plot 7.7.14 Radiated emission measurements from 2900 to 4000 MHz at the high carrier frequency

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

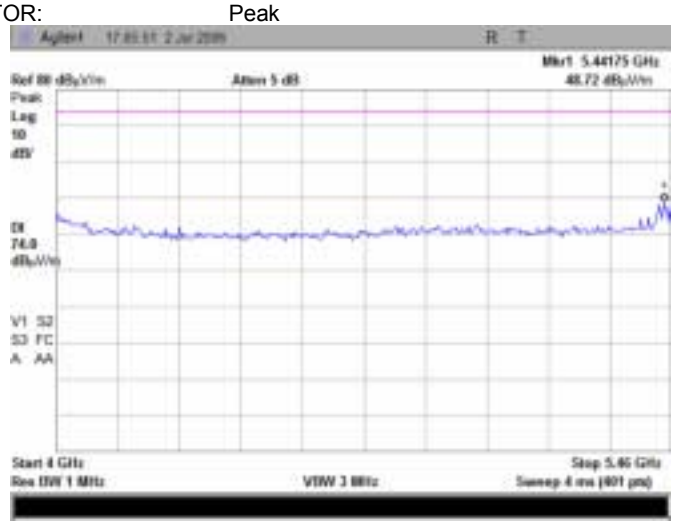


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

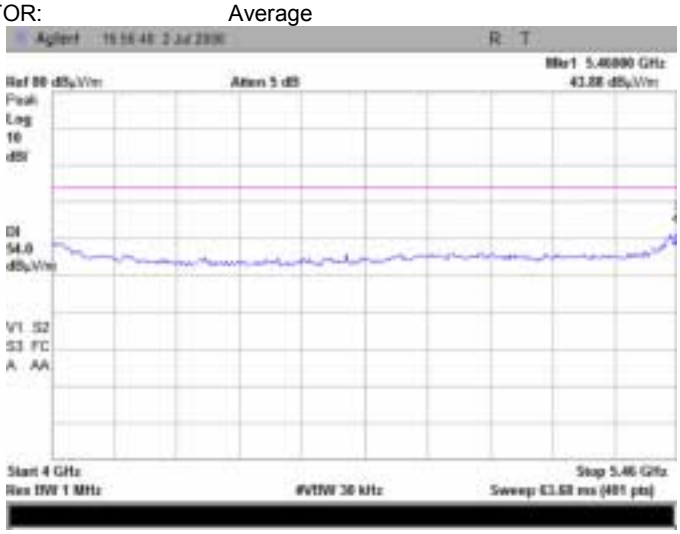
Plot 7.7.15 Radiated emission measurements from 4000 to 5460 MHz at the low carrier frequency

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



Plot 7.7.16 Radiated emission measurements from 4000 to 5460 MHz at the low carrier frequency

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

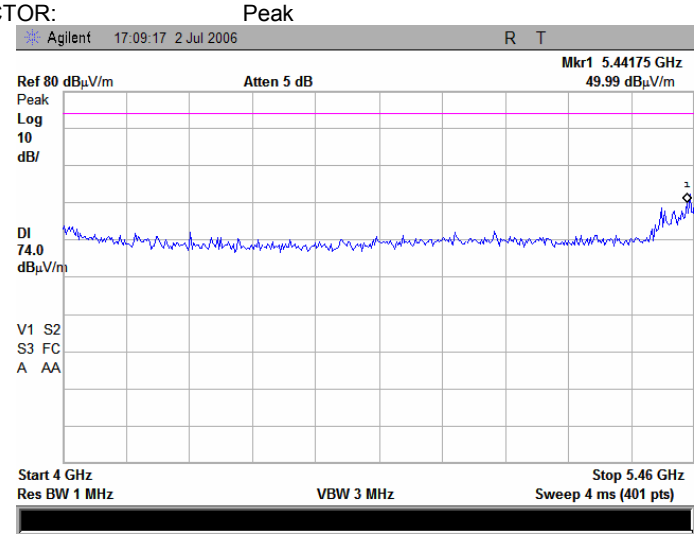


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

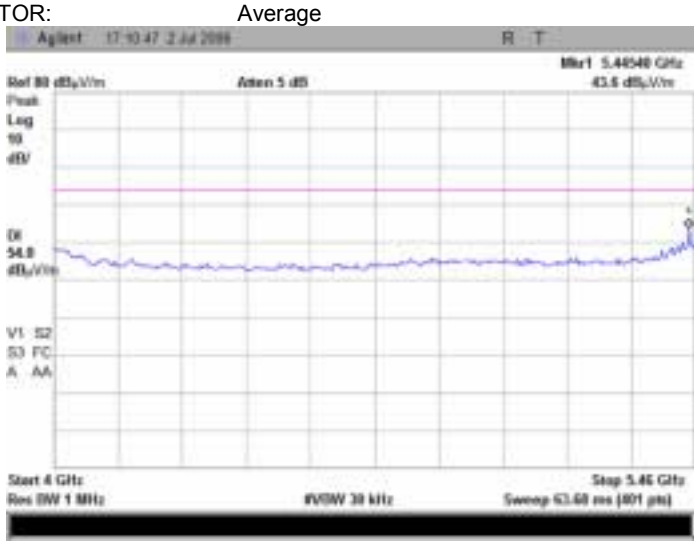
Plot 7.7.17 Radiated emission measurements from 4000 to 5460 MHz at the mid carrier frequency

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



Plot 7.7.18 Radiated emission measurements from 4000 to 5460 MHz at the mid carrier frequency

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

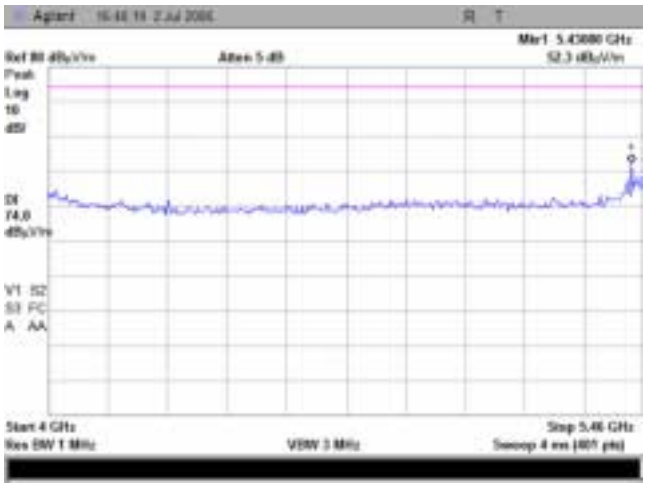


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

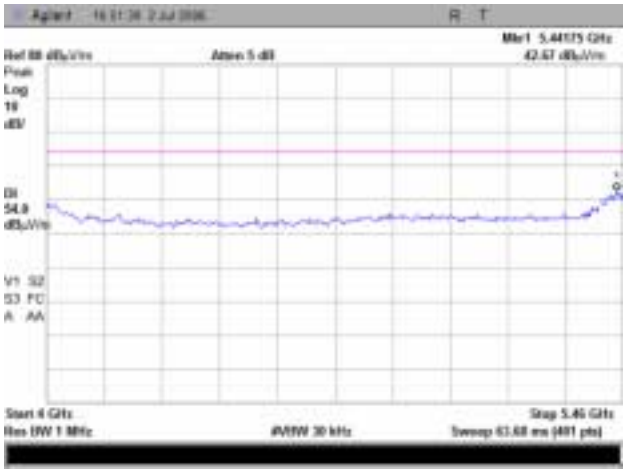
Plot 7.7.19 Radiated emission measurements from 4000 to 5460 MHz at the high carrier frequency

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



Plot 7.7.20 Radiated emission measurements from 4000 to 5460 MHz at the high carrier frequency

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

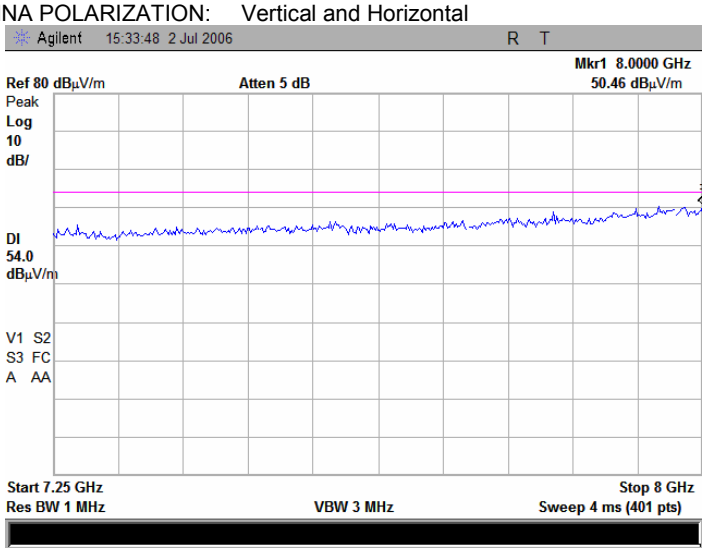


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

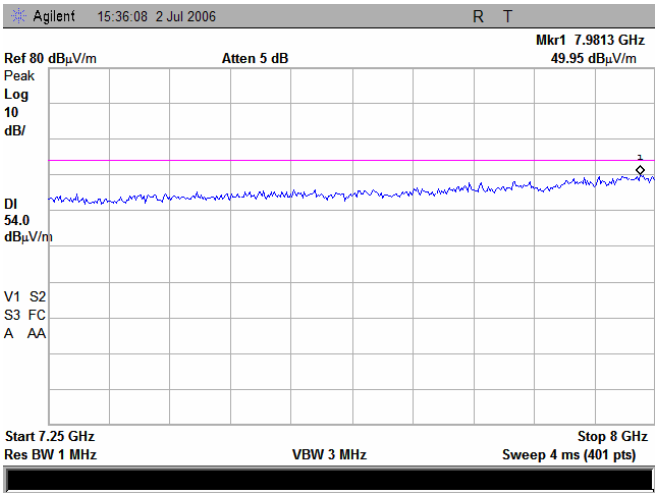
Plot 7.7.21 Radiated emission measurements from 7250 to 8000 MHz at the low carrier frequency

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



Plot 7.7.22 Radiated emission measurements from 7250 to 8000 MHz at the mid carrier frequency

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

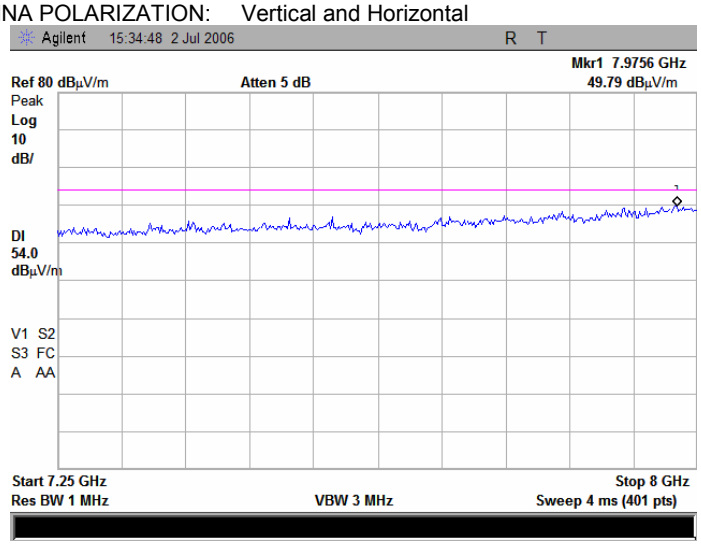


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

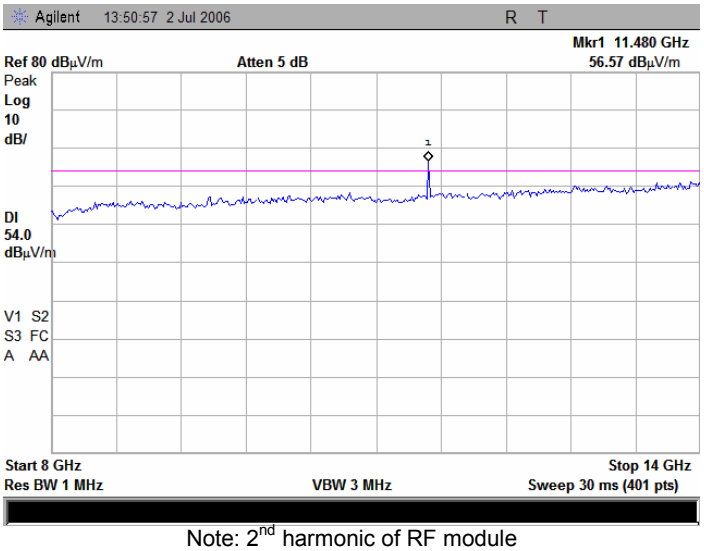
Plot 7.7.23 Radiated emission measurements from 7250 to 8000 MHz at the high carrier frequency

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



Plot 7.7.24 Radiated emission measurements from 8000 to 14000 MHz at the low carrier frequency

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



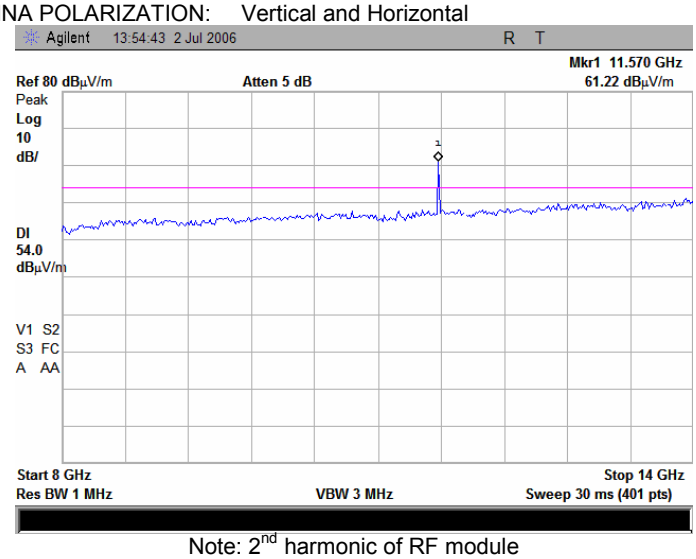
Note: 2nd harmonic of RF module

HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

Plot 7.7.25 Radiated emission measurements from 8000 to 14000 MHz at the mid carrier frequency

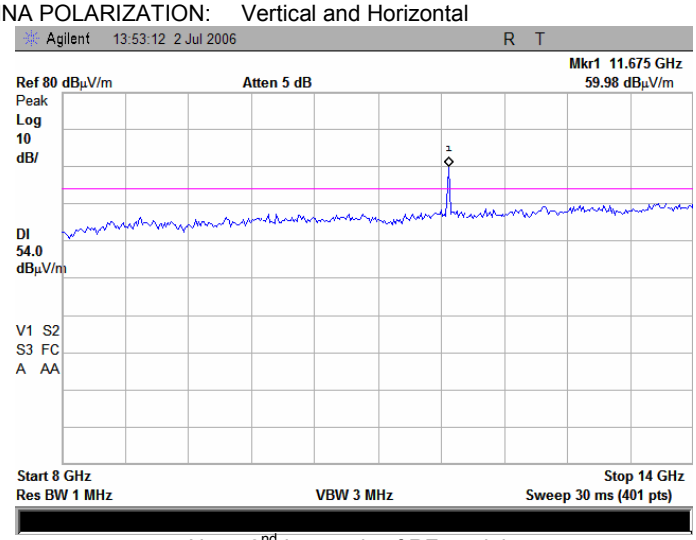
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Note: 2nd harmonic of RF module

Plot 7.7.26 Radiated emission measurements from 8000 to 14000 MHz at the high carrier frequency

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



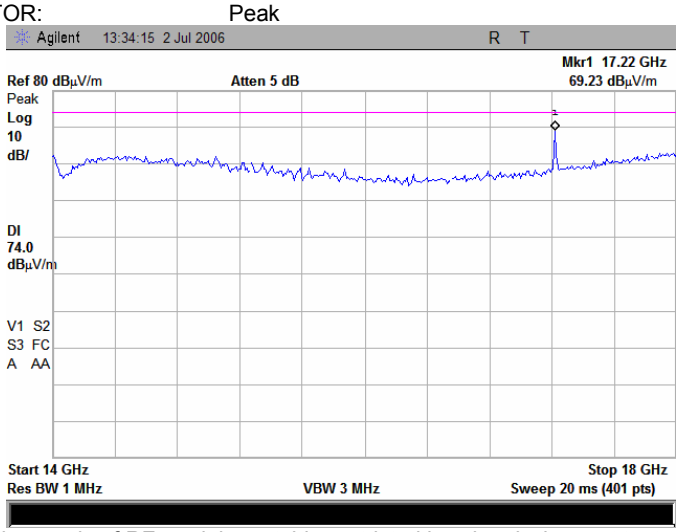
Note: 2nd harmonic of RF module

HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

Plot 7.7.27 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency

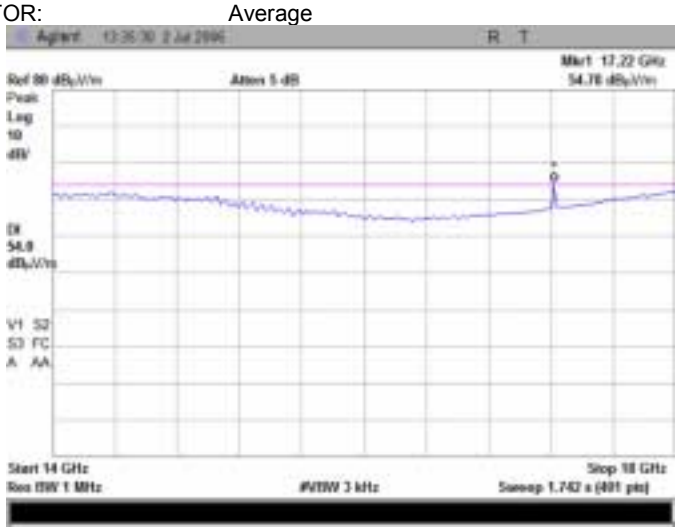
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Note: 3rd harmonic of RF module, outside restricted band emission, not tested radiated

Plot 7.7.28 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency

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

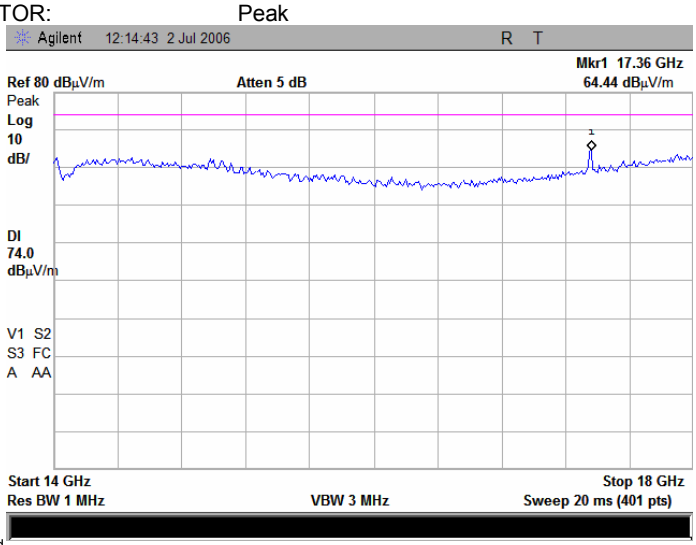


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

Plot 7.7.29 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency

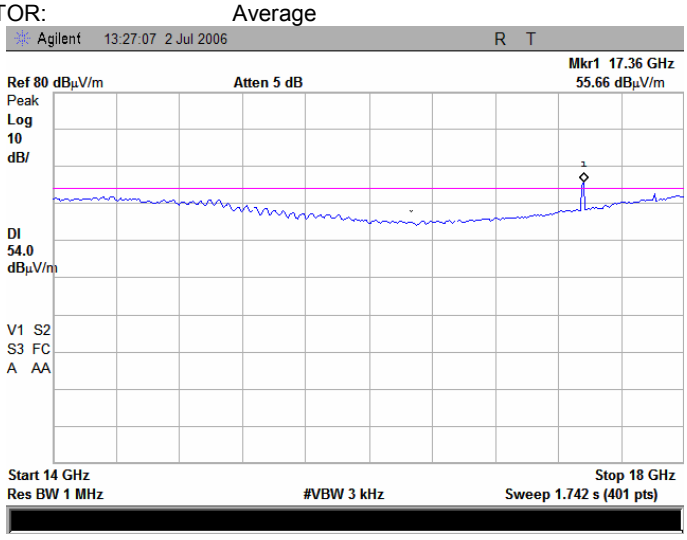
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Note: 3rd harmonic of RF module, outside restricted band emission, not tested radiated

Plot 7.7.30 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency

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

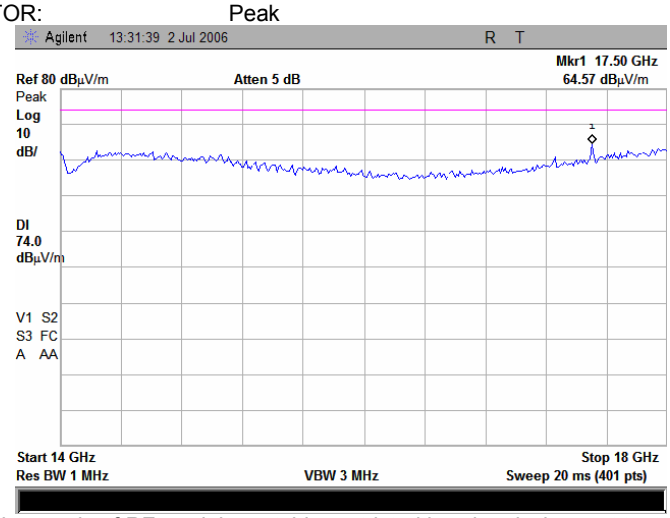


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

Plot 7.7.31 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency

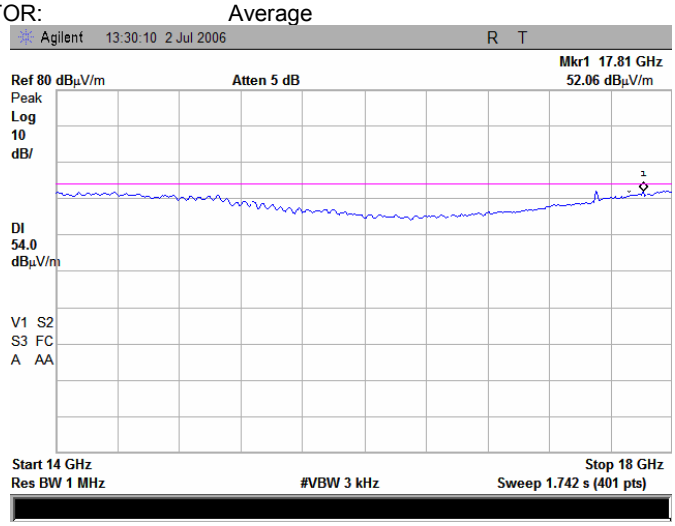
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Note: 3rd harmonic of RF module, outside restricted band emission, not tested radiated

Plot 7.7.32 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency

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

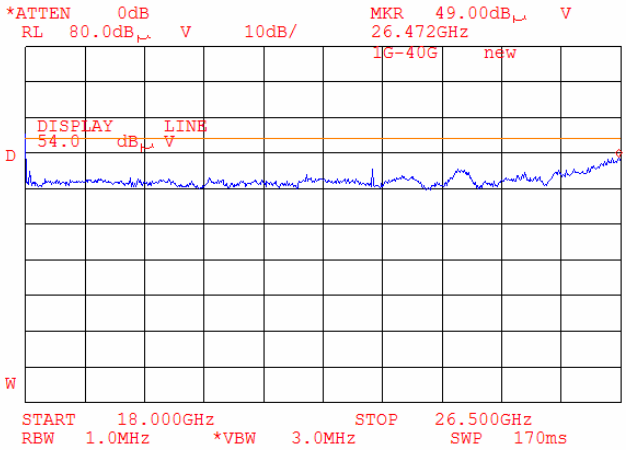


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

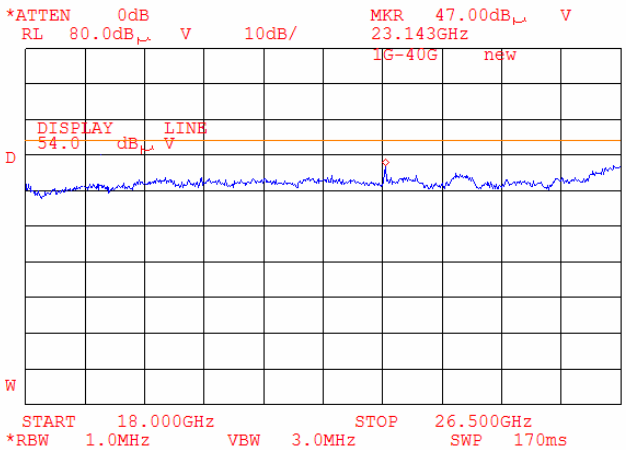
Plot 7.7.33 Radiated emission measurements from 18000 to 26500 MHz at the low carrier frequency

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



Plot 7.7.34 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



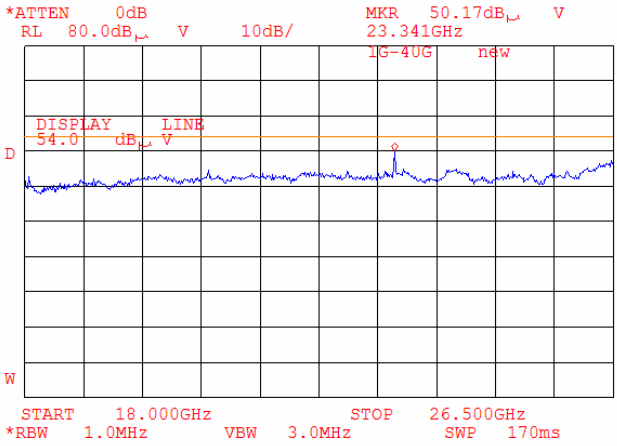
Note: 4th harmonic of RF module, outside restricted band emission, not tested radiated

HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

Plot 7.7.35 Radiated emission measurements from 18000 to 26500 MHz at the high carrier frequency

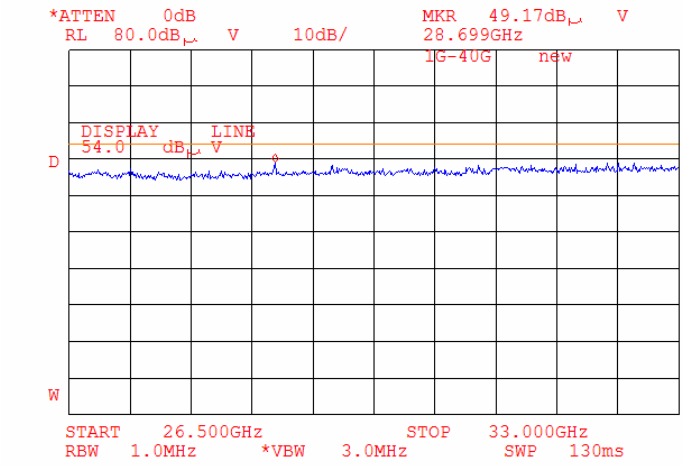
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Note: 4th harmonic of RF module, outside restricted band emission, not tested radiated

Plot 7.7.36 Radiated emission measurements from 26500 to 33000 MHz at the low carrier frequency

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



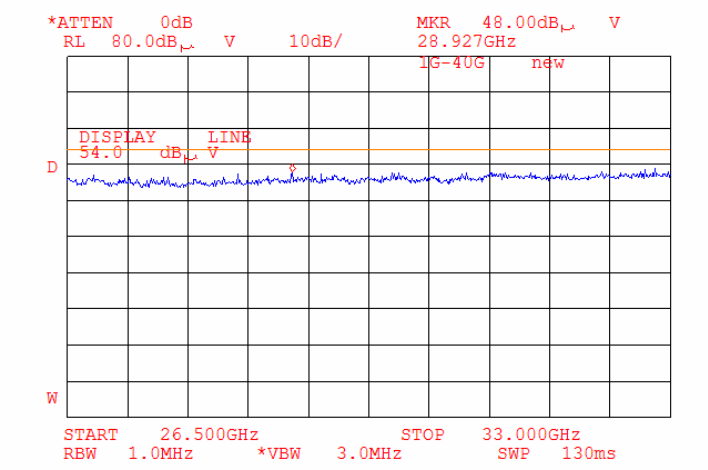
Note: 5th harmonic of RF module, outside restricted band emission, not tested radiated

HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

Plot 7.7.37 Radiated emission measurements from 26500 to 33000 MHz at the mid carrier frequency

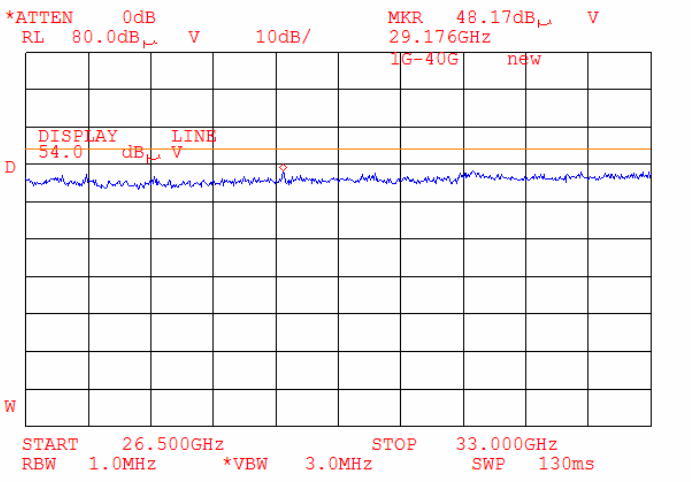
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Note: 5th harmonic of RF module, outside restricted band emission, not tested radiated

Plot 7.7.38 Radiated emission measurements from 26500 to 33000 MHz at the high carrier frequency

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



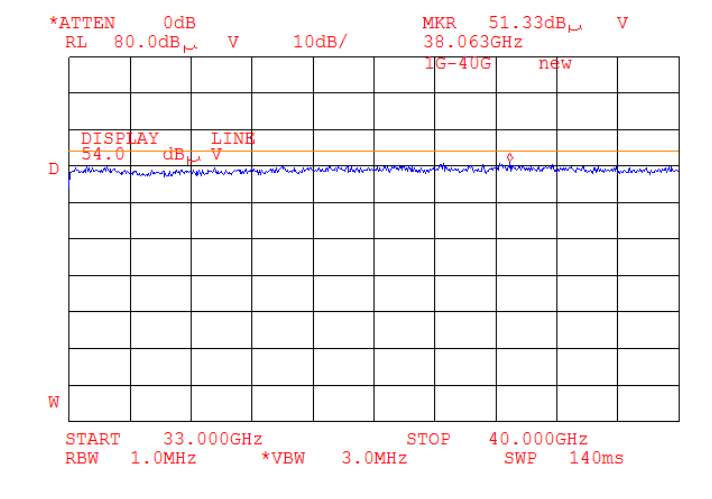
Note: 5th harmonic of RF module, outside restricted band emission, not tested radiated

HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

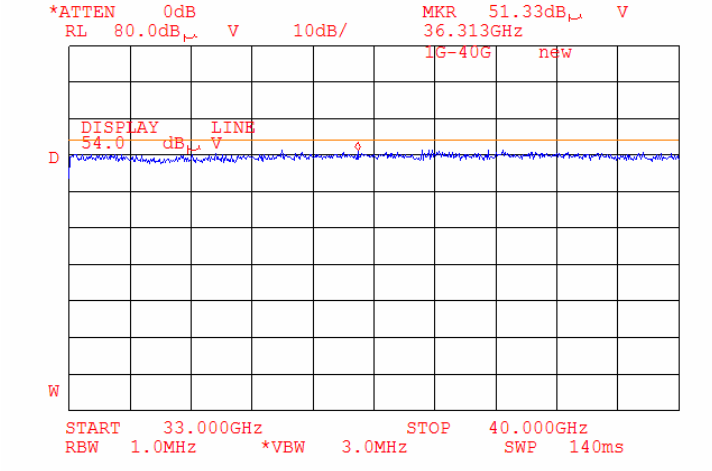
Plot 7.7.39 Radiated emission measurements from 33000 to 40000 MHz at the low carrier frequency

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



Plot 7.7.40 Radiated emission measurements from 33000 to 40000 MHz at the mid carrier frequency

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

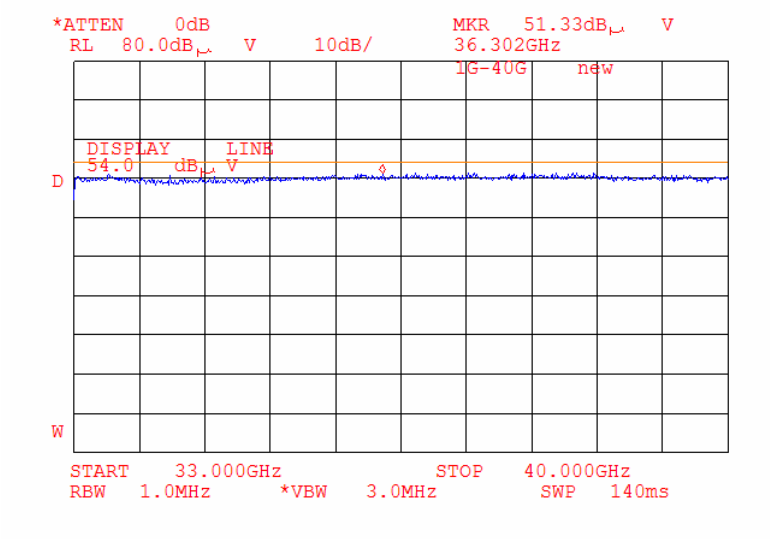


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

Plot 7.7.41 Radiated emission measurements from 33000 to 40000 MHz at the high carrier frequency

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

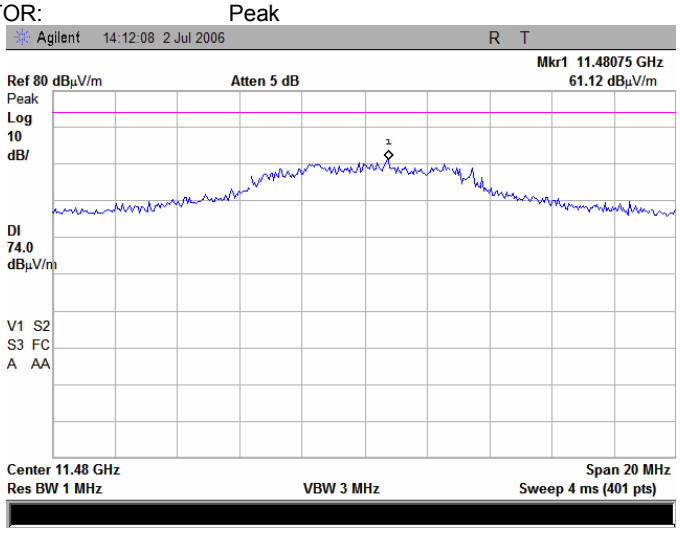


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

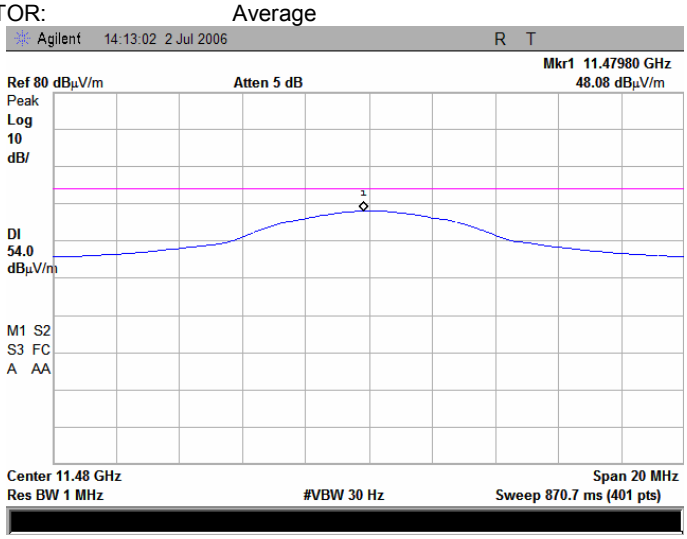
Plot 7.7.42 Radiated emission measurements at the second harmonic of low carrier frequency

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



Plot 7.7.43 Radiated emission measurements at the second harmonic of low carrier frequency

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

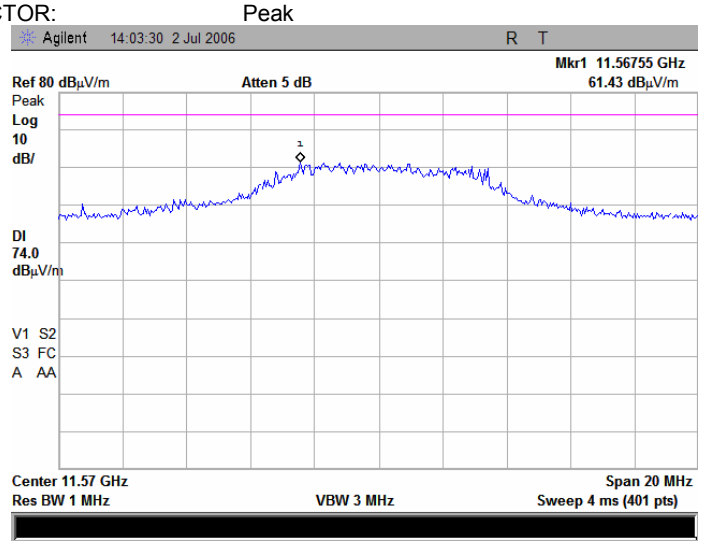


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

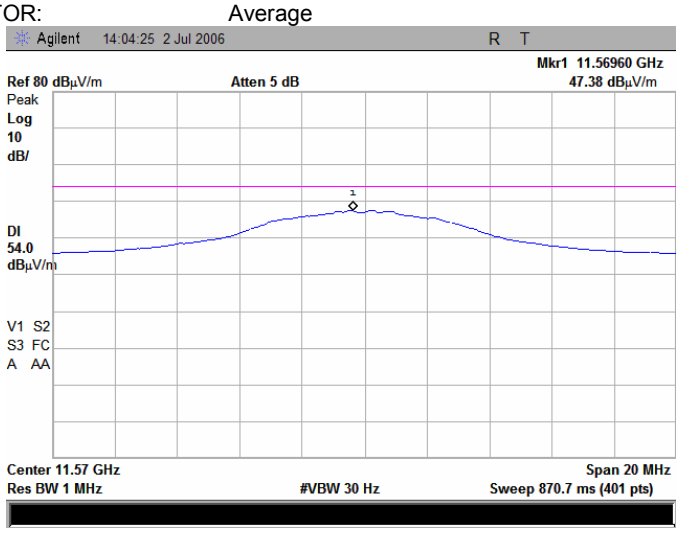
Plot 7.7.44 Radiated emission measurements at the second harmonic of mid carrier frequency

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



Plot 7.7.45 Radiated emission measurements at the second harmonic of mid carrier frequency

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

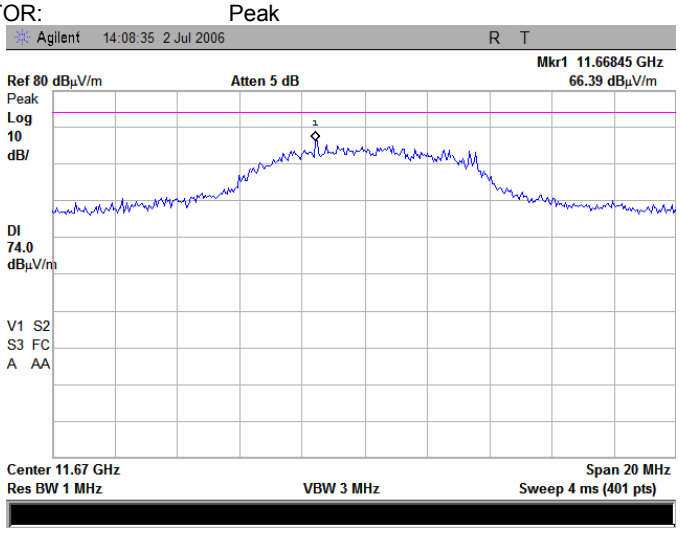


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

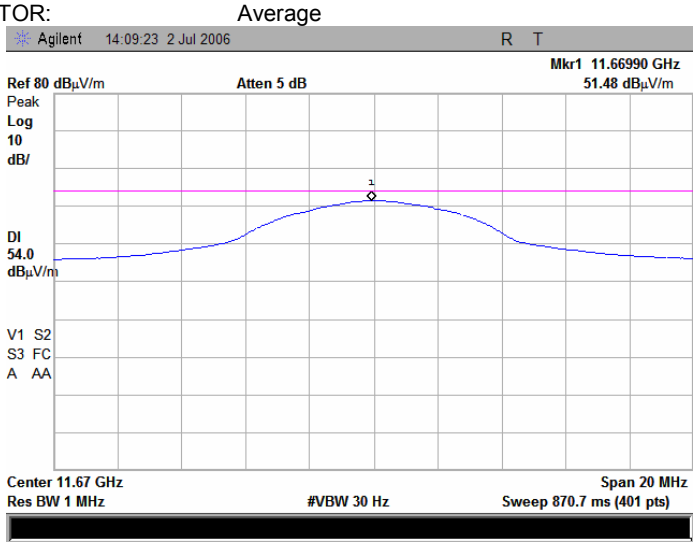
Plot 7.7.46 Radiated emission measurements at the second harmonic of high carrier frequency

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



Plot 7.7.47 Radiated emission measurements at the second harmonic of high carrier frequency

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

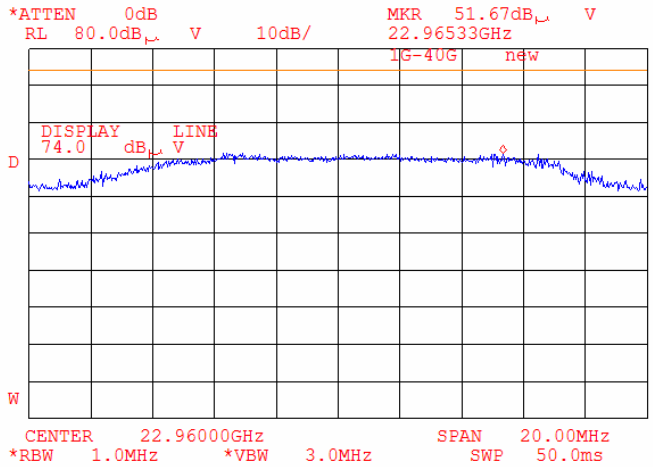


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:18:07 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 28 dBi antenna			

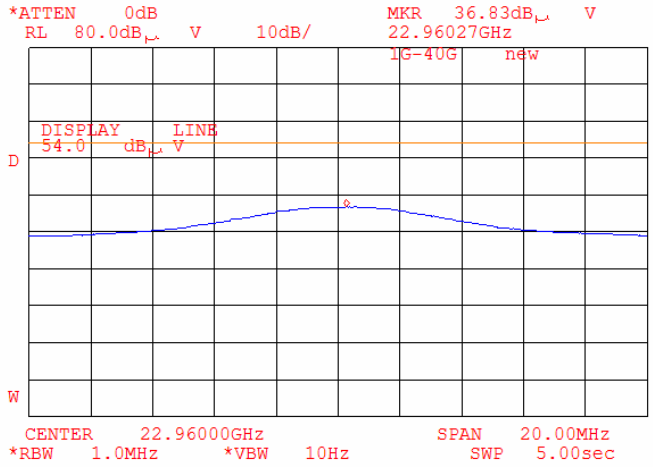
Plot 7.7.48 Radiated emission measurements at the forth harmonic of low carrier frequency

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



Plot 7.7.49 Radiated emission measurements at the forth harmonic of low carrier frequency

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



HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

7.8 Field strength of spurious emissions of the AIND with 32.5 dBi antenna

7.8.1 General

This test was performed to measure field strength of spurious emissions from the EUT. Specification test limits are given in Table 7.8.1.

Table 7.8.1 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 – 10thharmonic	74.0	NA	54.0

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

$$Lim_{S2} = Lim_{S1} + 40 \log (S_1/S_2),$$

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.

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

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 specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360^0 and the measuring antenna was rotated around its vertical axis.

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

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

7.8.3.1 The EUT was set up as shown in Figure 7.8.2, energized and the performance check was conducted.

7.8.3.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360^0, the measuring antenna height was changed from 1 to 4 m, its polarization was switched from vertical to horizontal.

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

HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

Figure 7.8.1 Setup for spurious emission field strength measurements below 30 MHz

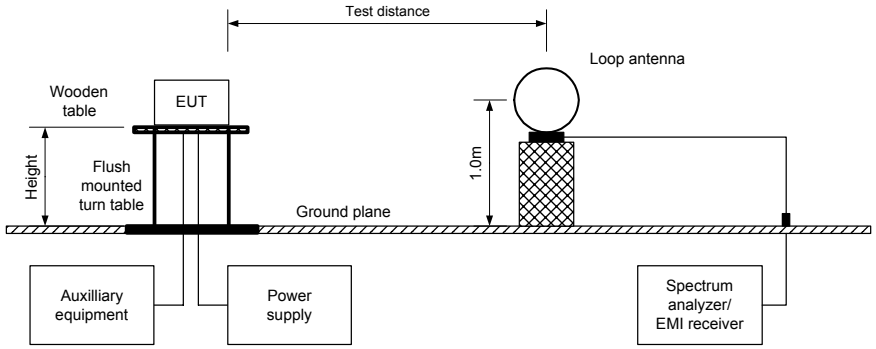
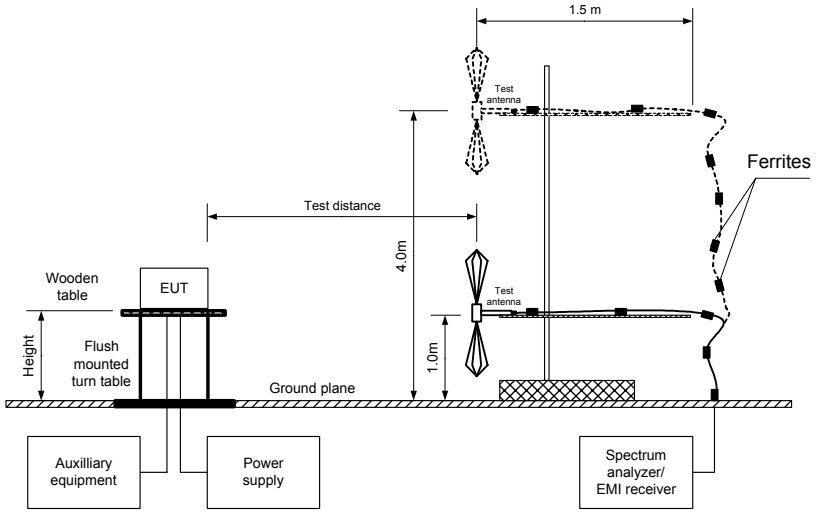


Figure 7.8.2 Setup for spurious emission field strength measurements above 30 MHz



HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

Table 7.8.2 Field strength of spurious emissions above 1 GHz within restricted bands

ASSIGNED FREQUENCY:	5725 – 5850 MHz
INVESTIGATED FREQUENCY RANGE:	0.009 - 40000 MHz
TEST DISTANCE:	3 m
MODULATION:	QAM
MODULATING SIGNAL:	PRBS
BIT RATE:	1.5 Mbps
DUTY CYCLE:	100 %
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
EUT CABINET:	AIND
EUT ANTENNA GAIN:	32.5 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											
11480.80	Vertical	1.0	0	56.86	74.00	-17.14	42.57	NA	54.00	-11.43	Pass
Mid carrier frequency											
11570.05	Vertical	1.0	10	58.99	74.00	-15.01	45.30	NA	54.00	-8.70	Pass
High carrier frequency											
11668.90	Vertical	1.0	0	59.94	74.00	-14.06	46.84	NA	54.00	-7.16	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 7.8.3 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

HERMON LABORATORIES

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:**	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	**Air Pressure:** 1011 hPa	**Relative Humidity:** 46 %	**Power Supply:** 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

Table 7.8.4 Field strength of spurious emissions below 1 GHz within restricted bands

ASSIGNED FREQUENCY:	5725 – 5850 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:	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*				
All carrier frequencies								
No emissions were found								Pass

*****- Margin = Measured emission - specification limit.
******- EUT front panel refer to 0 degrees position of turntable.

Table 7.8.5 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 0768	HL 0769
HL 1200	HL 1425	HL 1430	HL 1553	HL 1566	HL 1650	HL 2259	HL 2260
HL 2261	HL 2432	HL 2697	HL 2780	HL 2871	HL 2911		

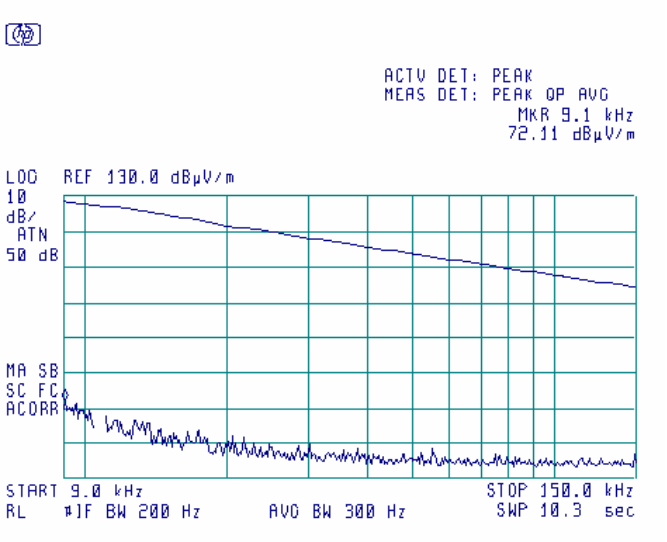
Full description is given in Appendix A.

HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

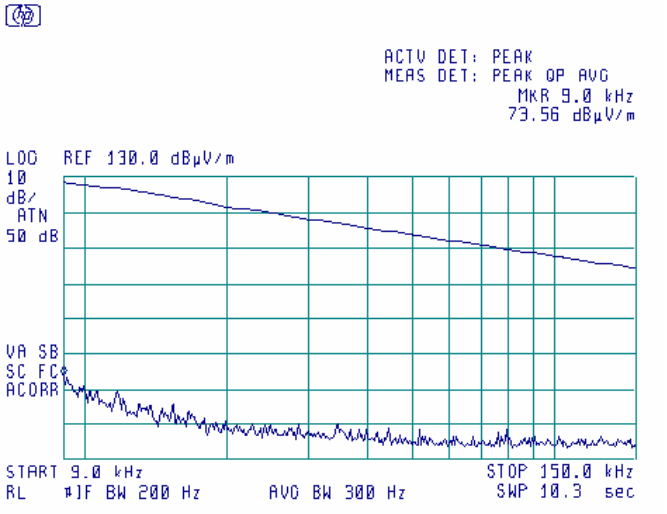
Plot 7.8.1 Radiated emission measurements from 9 to 150 kHz at the low carrier frequency

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



Plot 7.8.2 Radiated emission measurements from 9 to 150 kHz at the mid carrier frequency

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

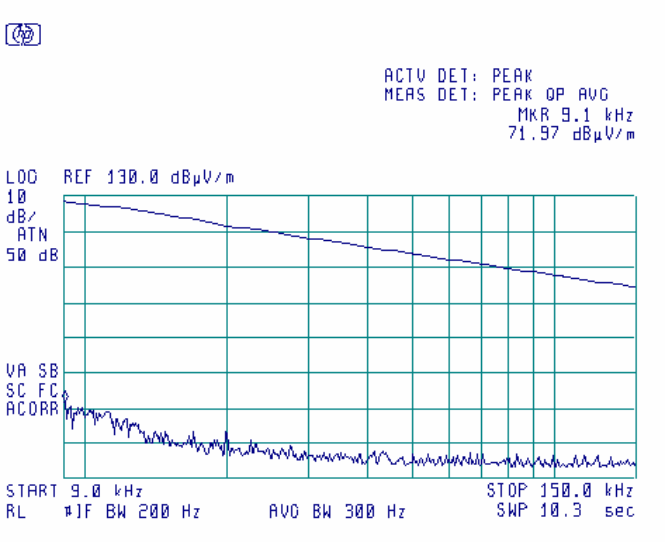


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

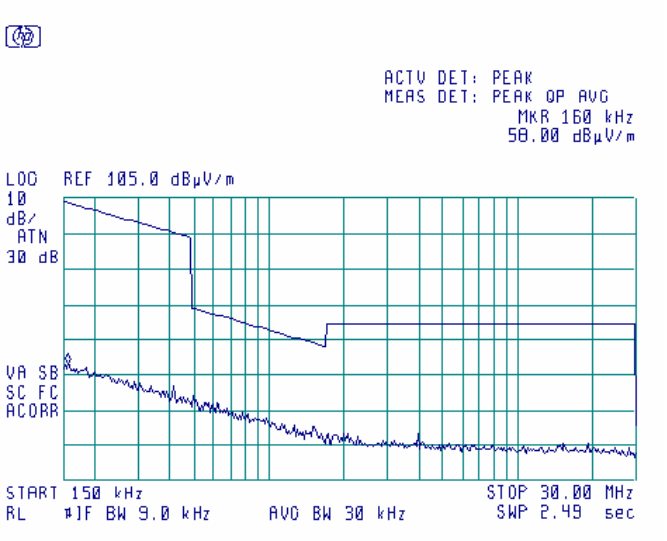
Plot 7.8.3 Radiated emission measurements from 9 to 150 kHz at the high carrier frequency

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



Plot 7.8.4 Radiated emission measurements from 0.15 to 30 MHz at the low carrier frequency

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

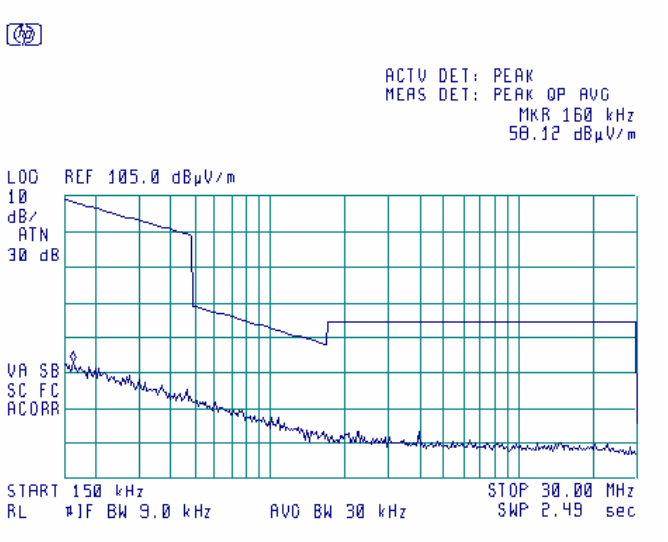


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

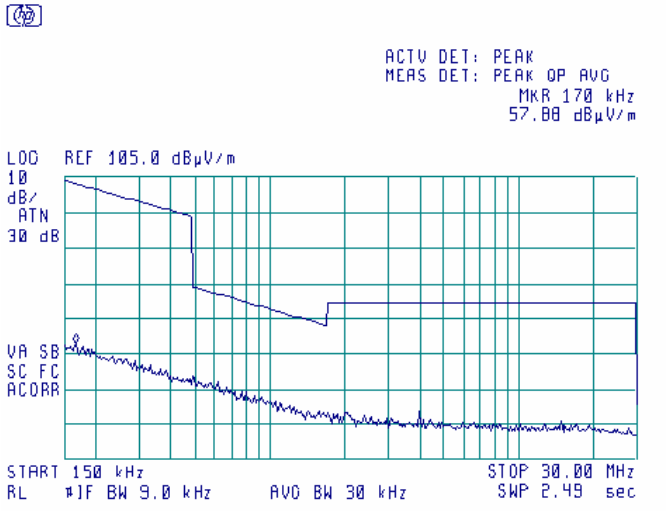
Plot 7.8.5 Radiated emission measurements from 0.15 to 30 MHz at the mid carrier frequency

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



Plot 7.8.6 Radiated emission measurements from 0.15 to 30 MHz at the high carrier frequency

TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

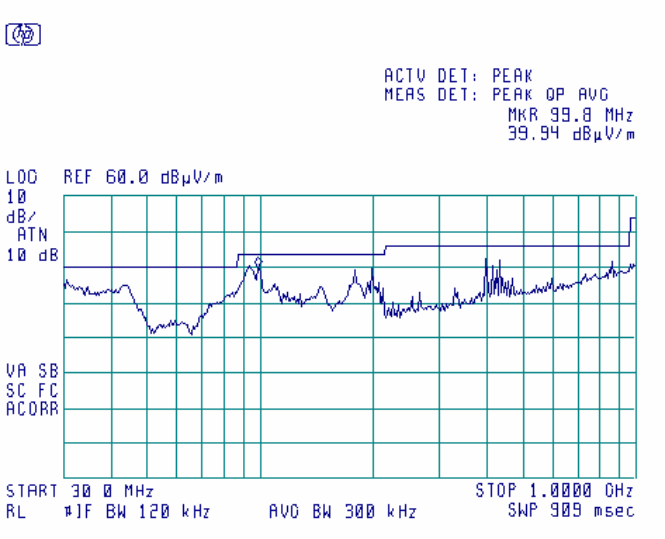


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

Plot 7.8.7 Radiated emission measurements from 30 to 1000 MHz at the low carrier frequency

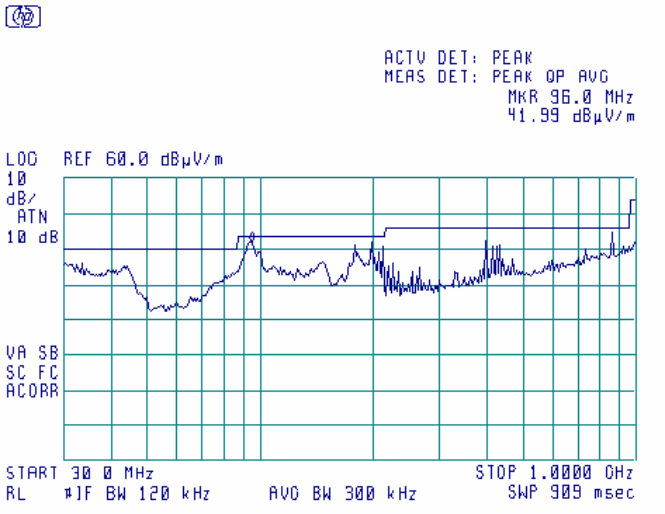
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Note: digital part emissions

Plot 7.8.8 Radiated emission measurements from 30 to 1000 MHz at the mid carrier frequency

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

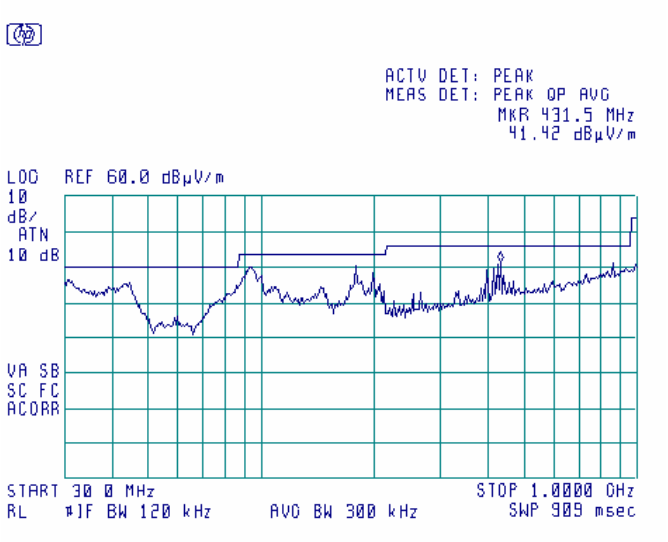


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

Plot 7.8.9 Radiated emission measurements from 30 to 1000 MHz at the high carrier frequency

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

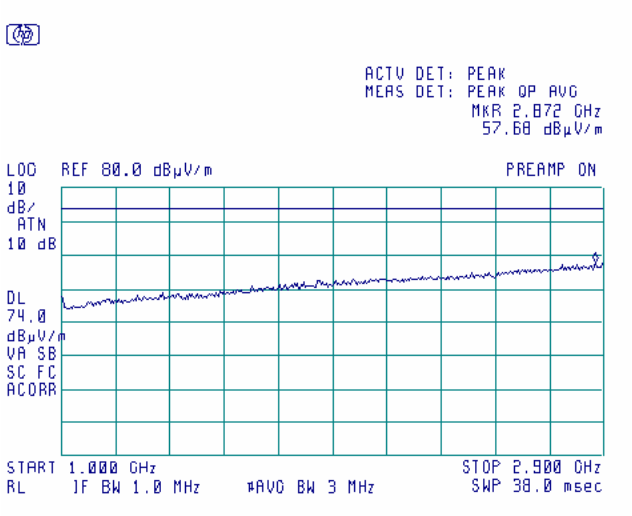


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

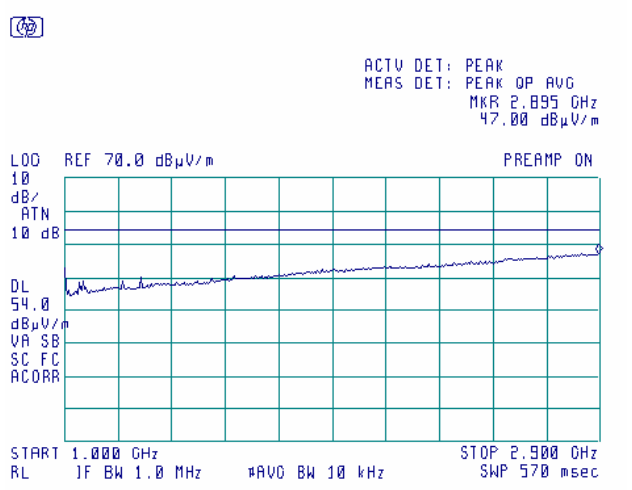
Plot 7.8.10 Radiated emission measurements from 1000 to 2900 MHz at the low carrier frequency

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



Plot 7.8.11 Radiated emission measurements from 1000 to 2900 MHz at the low carrier frequency

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

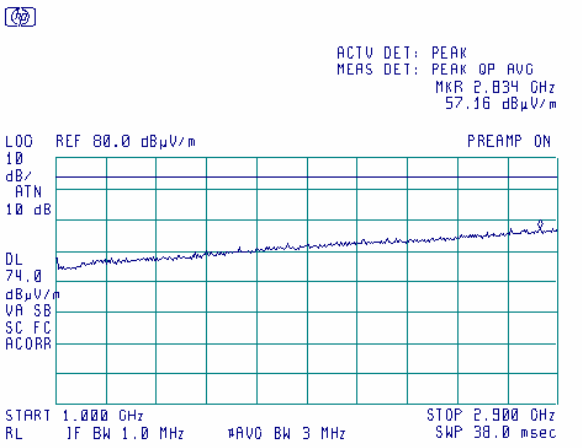


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

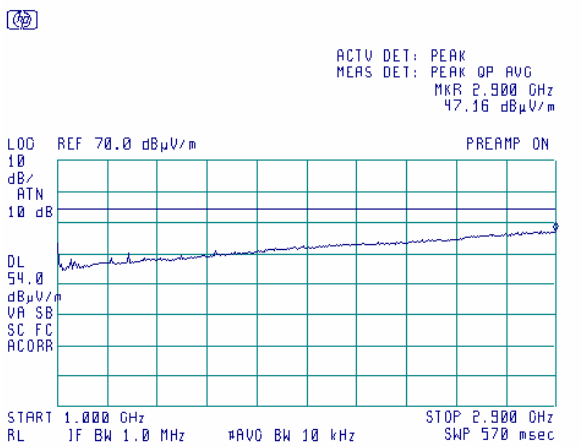
Plot 7.8.12 Radiated emission measurements from 1000 to 2900 MHz at the mid carrier frequency

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



Plot 7.8.13 Radiated emission measurements from 1000 to 2900 MHz at the mid carrier frequency

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

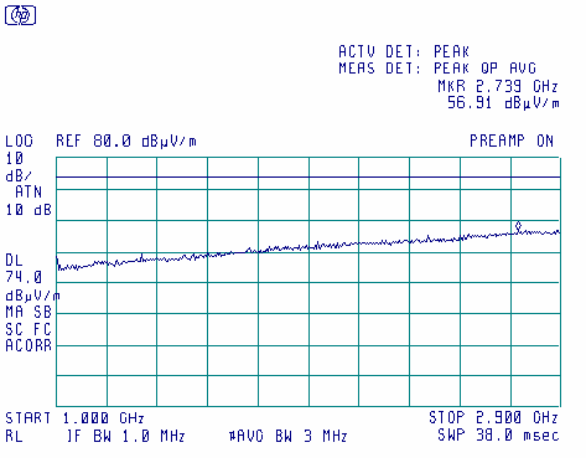


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

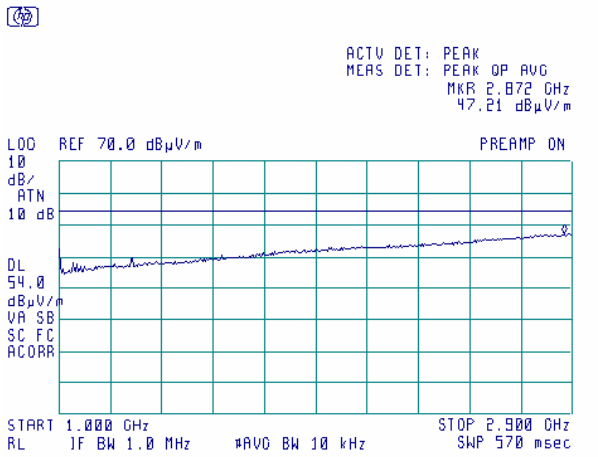
Plot 7.8.14 Radiated emission measurements from 1000 to 2900 MHz at the high carrier frequency

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



Plot 7.8.15 Radiated emission measurements from 1000 to 2900 MHz at the high carrier frequency

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

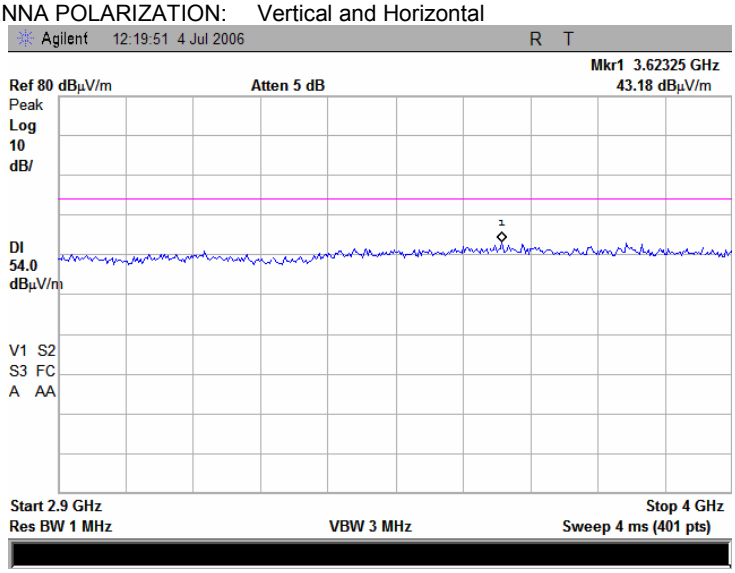


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

Plot 7.8.16 Radiated emission measurements from 2900 to 4000 MHz at the low carrier frequency

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

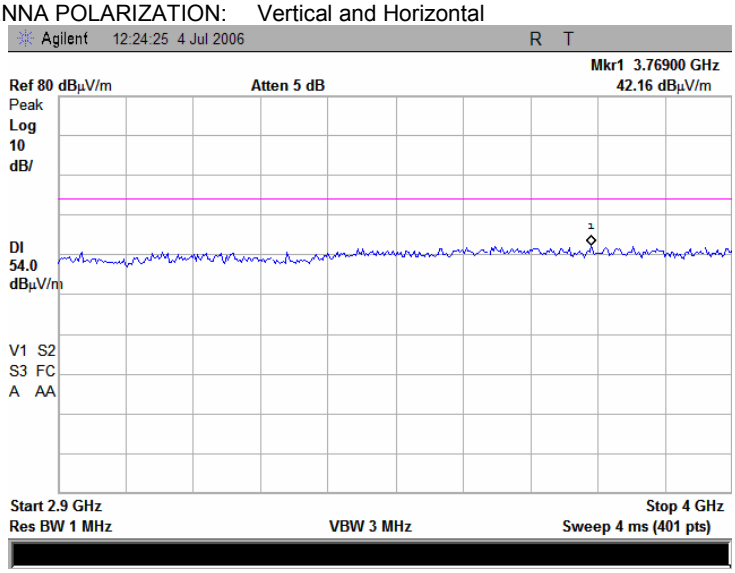


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

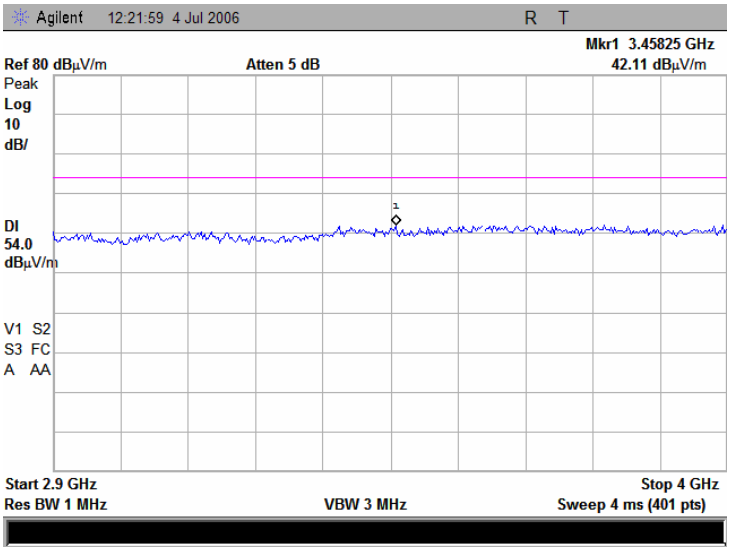
Plot 7.8.17 Radiated emission measurements from 2900 to 4000 MHz at the mid carrier frequency

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



Plot 7.8.18 Radiated emission measurements from 2900 to 4000 MHz at the high carrier frequency

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

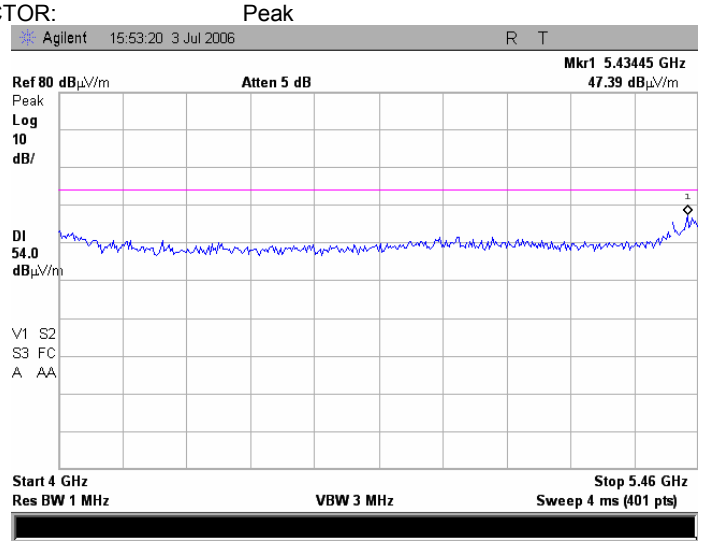


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

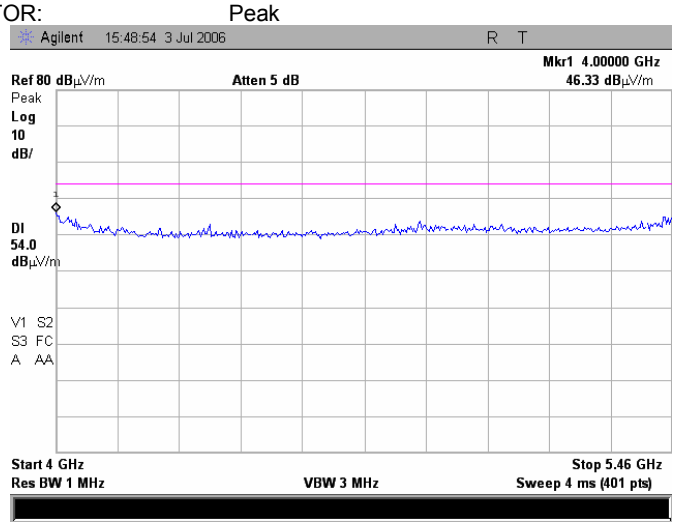
Plot 7.8.19 Radiated emission measurements from 4000 to 5460 MHz at the low carrier frequency

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



Plot 7.8.20 Radiated emission measurements from 4000 to 5460 MHz at the mid carrier frequency

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

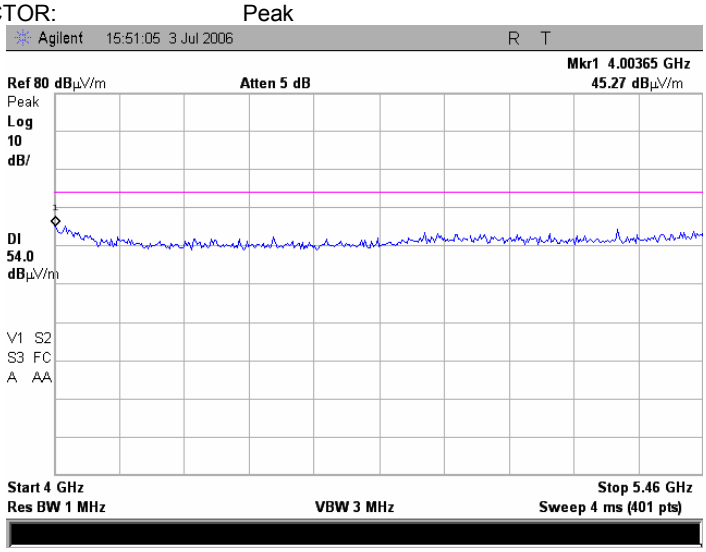


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

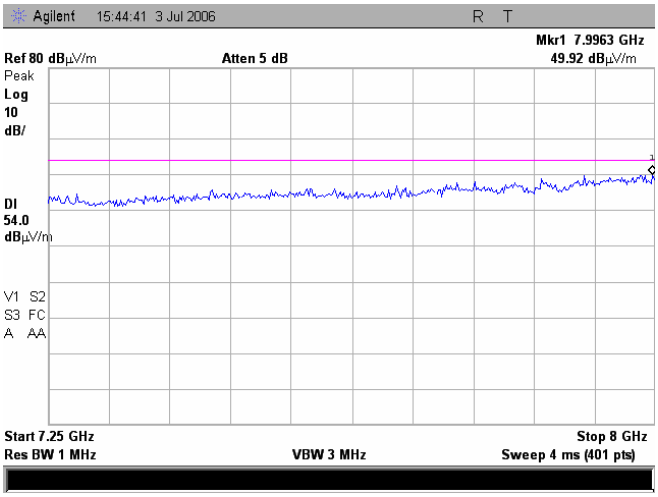
Plot 7.8.21 Radiated emission measurements from 4000 to 5460 MHz at the high carrier frequency

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



Plot 7.8.22 Radiated emission measurements from 7250 to 8000 MHz at the low carrier frequency

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

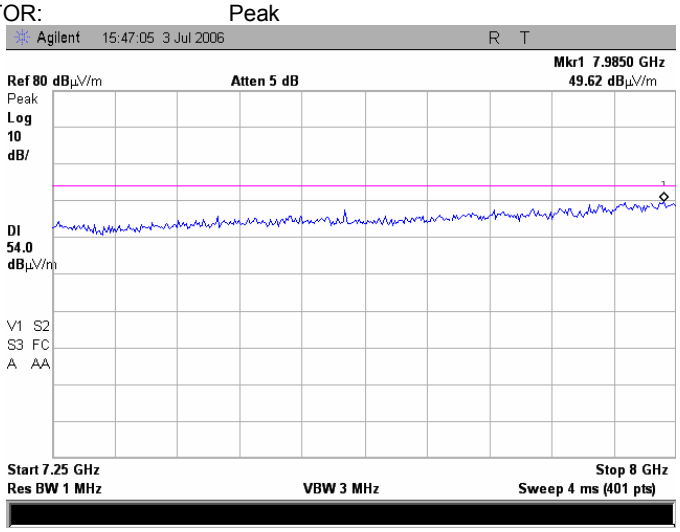


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

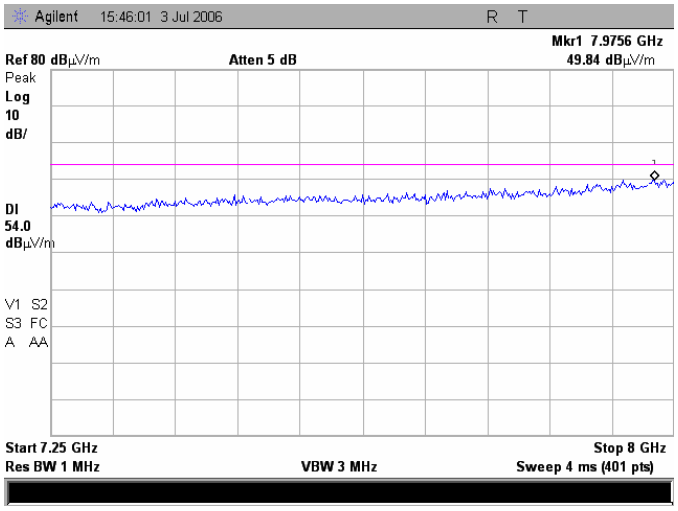
Plot 7.8.23 Radiated emission measurements from 7250 to 8000 MHz at the mid carrier frequency

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



Plot 7.8.24 Radiated emission measurements from 7250 to 8000 MHz at the high carrier frequency

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

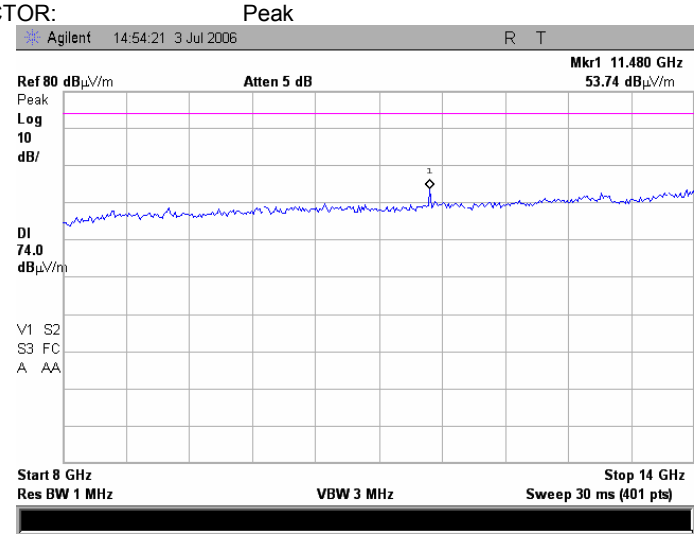


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

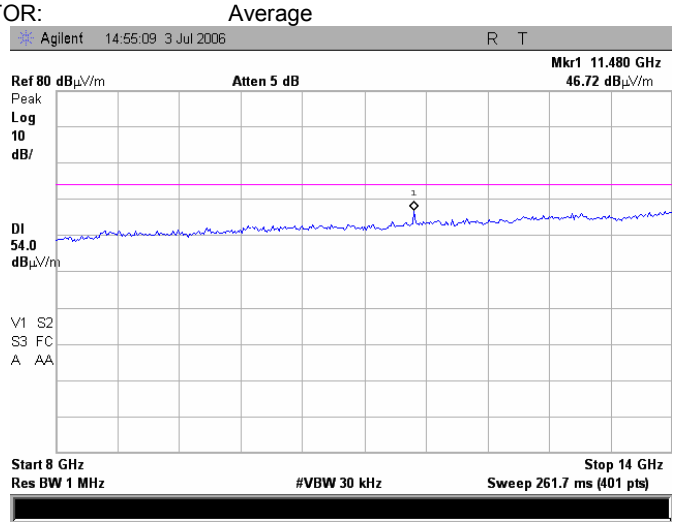
Plot 7.8.25 Radiated emission measurements from 8000 to 14000 MHz at the low carrier frequency

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



Plot 7.8.26 Radiated emission measurements from 8000 to 14000 MHz at the low carrier frequency

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

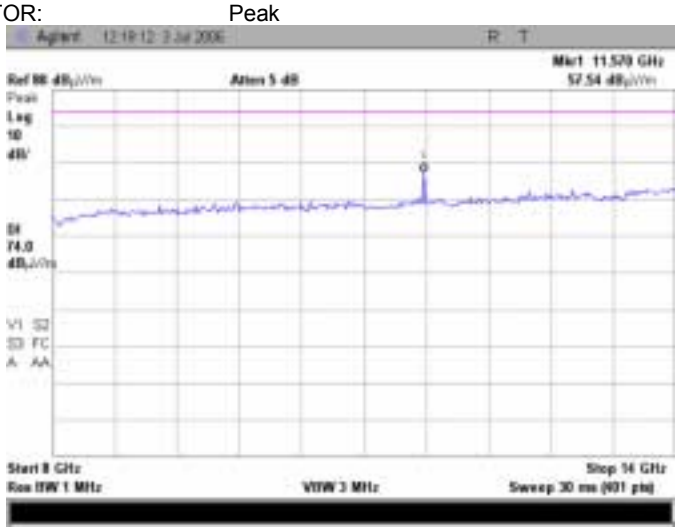


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

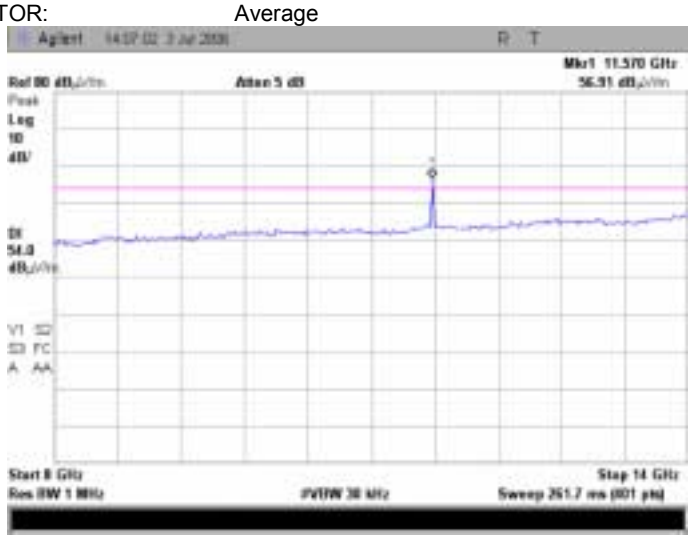
Plot 7.8.27 Radiated emission measurements from 8000 to 14000 MHz at the mid carrier frequency

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



Plot 7.8.28 Radiated emission measurements from 8000 to 14000 MHz at the mid carrier frequency

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

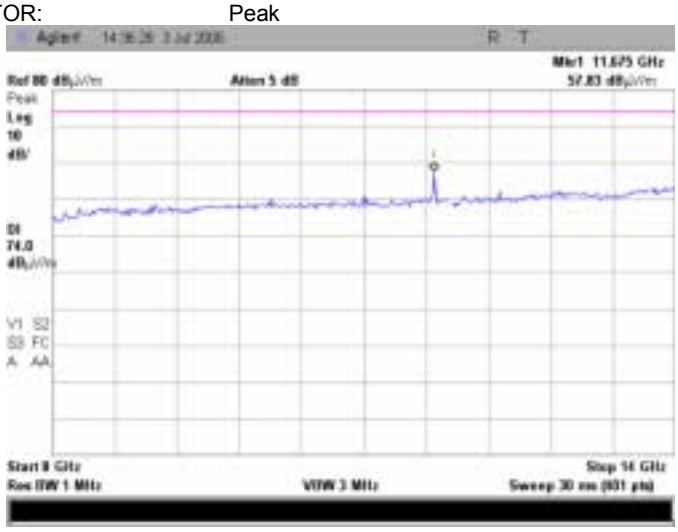


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

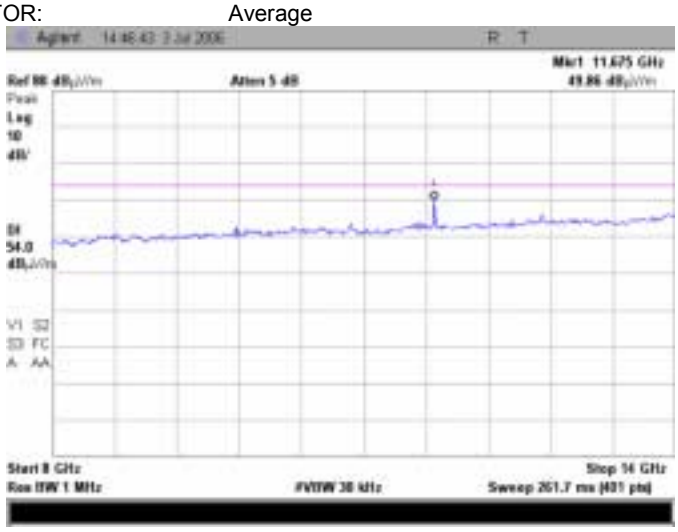
Plot 7.8.29 Radiated emission measurements from 8000 to 14000 MHz at the high carrier frequency

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



Plot 7.8.30 Radiated emission measurements from 8000 to 14000 MHz at the high carrier frequency

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

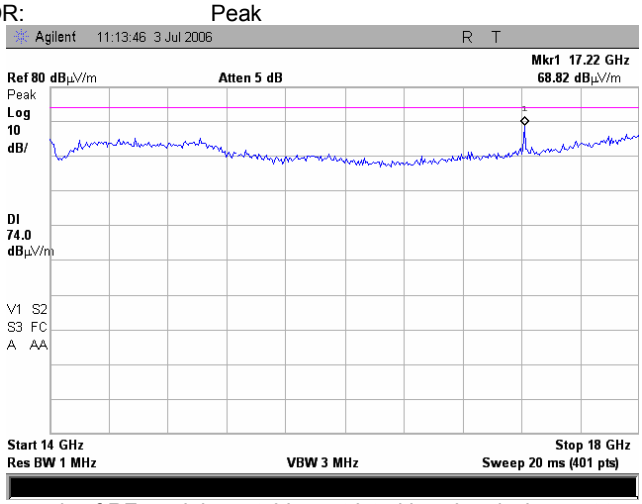


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

Plot 7.8.31 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency

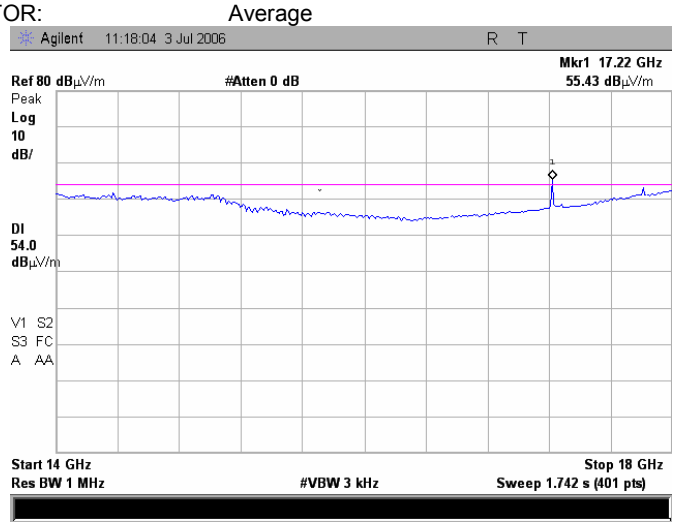
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Note: 3rd harmonic of RF module, outside restricted band emission, not tested radiated

Plot 7.8.32 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency

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

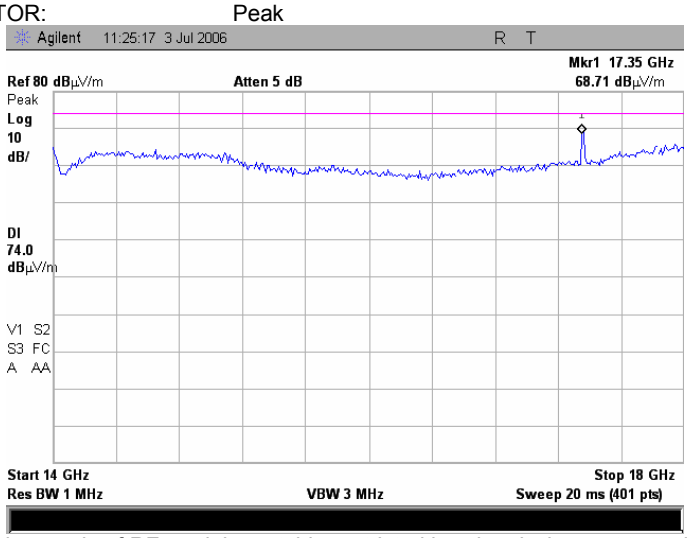


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

Plot 7.8.33 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency

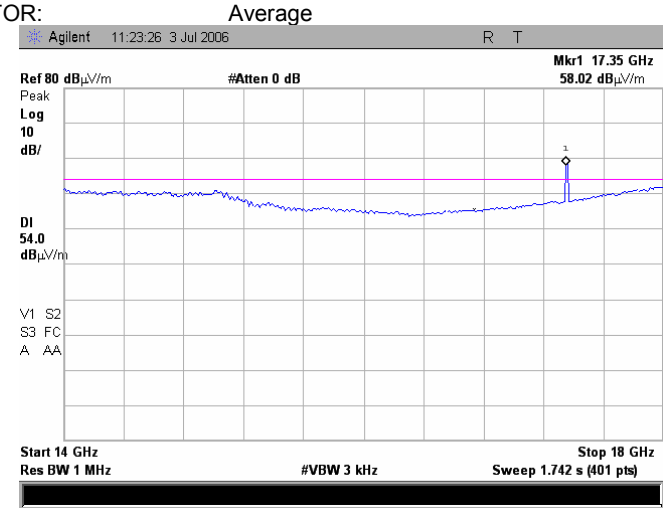
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Note: 3rd harmonic of RF module, outside restricted band emission, not tested radiated

Plot 7.8.34 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency

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

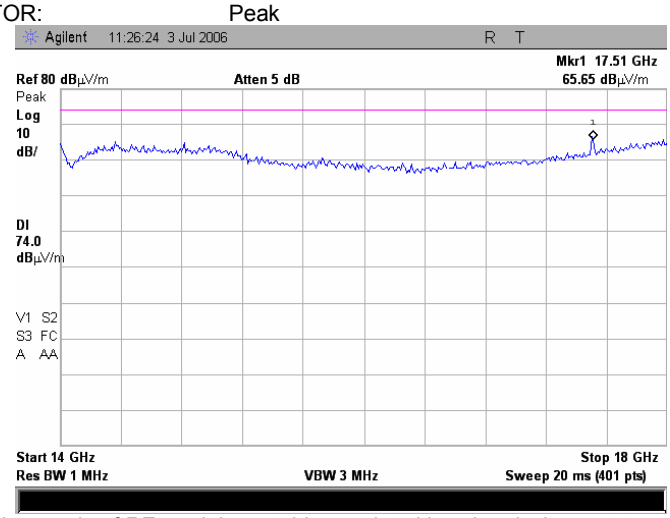


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

Plot 7.8.35 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency

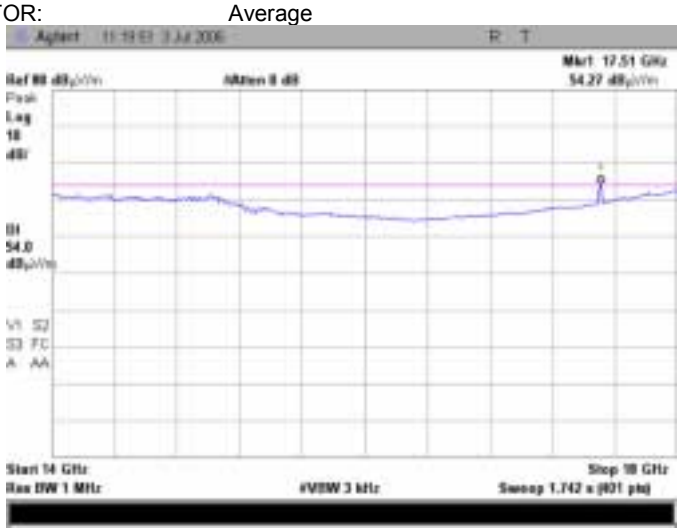
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Note: 3rd harmonic of RF module, outside restricted band emission, not tested radiated

Plot 7.8.36 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency

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

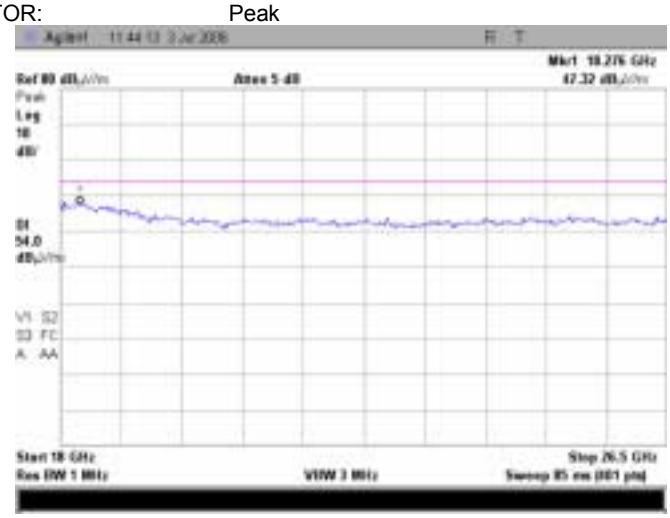


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

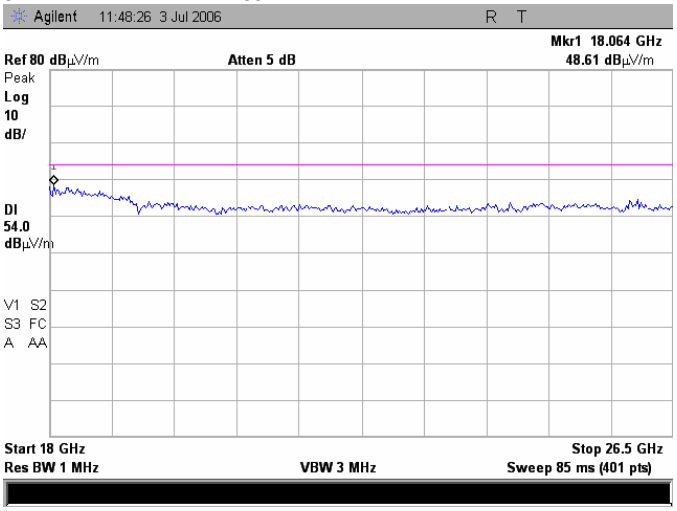
Plot 7.8.37 Radiated emission measurements from 18000 to 26500 MHz at the low carrier frequency

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



Plot 7.8.38 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
DETECTOR: Peak

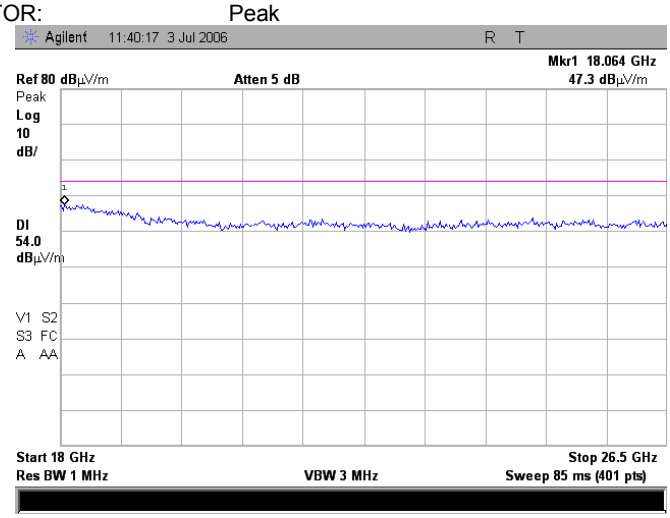


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

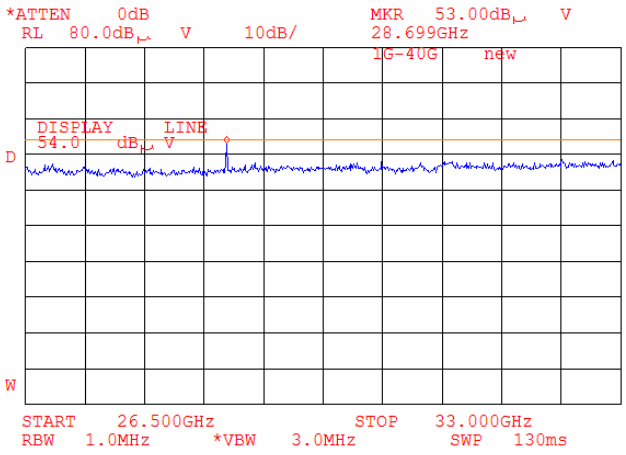
Plot 7.8.39 Radiated emission measurements from 18000 to 26500 MHz at the high carrier frequency

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



Plot 7.8.40 Radiated emission measurements from 26500 to 33000 MHz at the low carrier frequency

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



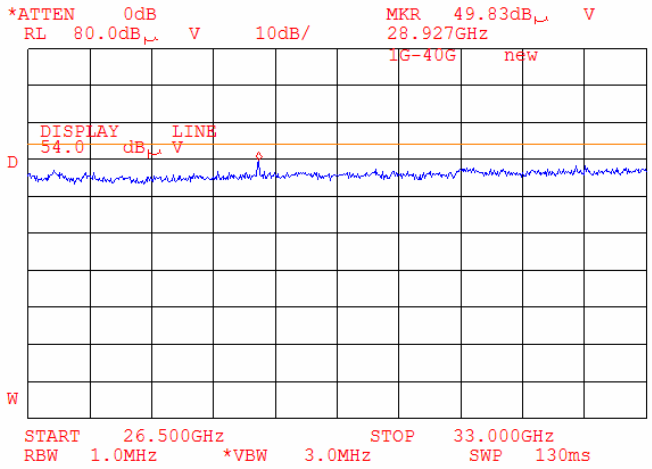
Note: 5th harmonic of RF module, not tested radiated

HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 °C	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

Plot 7.8.41 Radiated emission measurements from 26500 to 33000 MHz at the mid carrier frequency

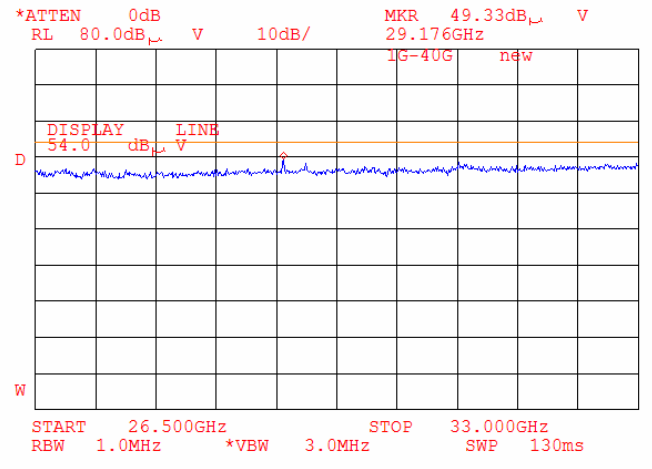
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Note: 5th harmonic of RF module, not tested radiated

Plot 7.8.42 Radiated emission measurements from 26500 to 33000 MHz at the high carrier frequency

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



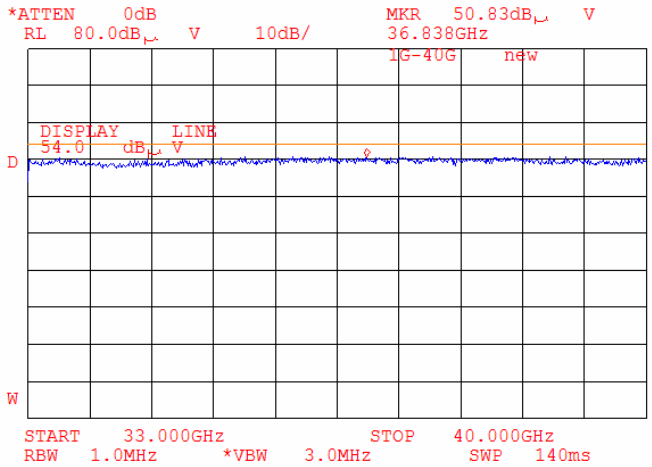
Note: 5th harmonic of RF module, not tested radiated

HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

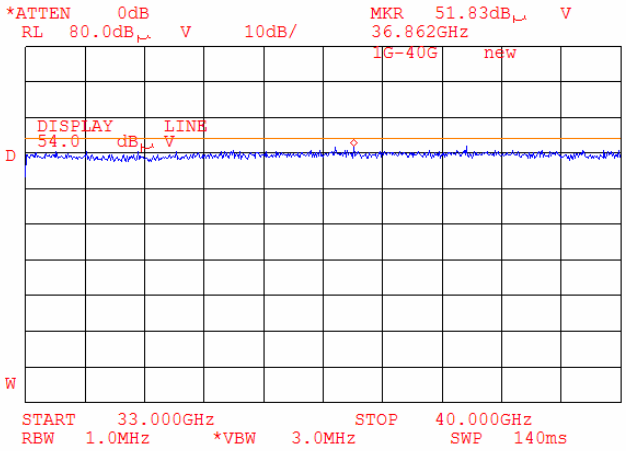
Plot 7.8.43 Radiated emission measurements from 33000 to 40000 MHz at the low carrier frequency

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



Plot 7.8.44 Radiated emission measurements from 33000 to 40000 MHz at the mid carrier frequency

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

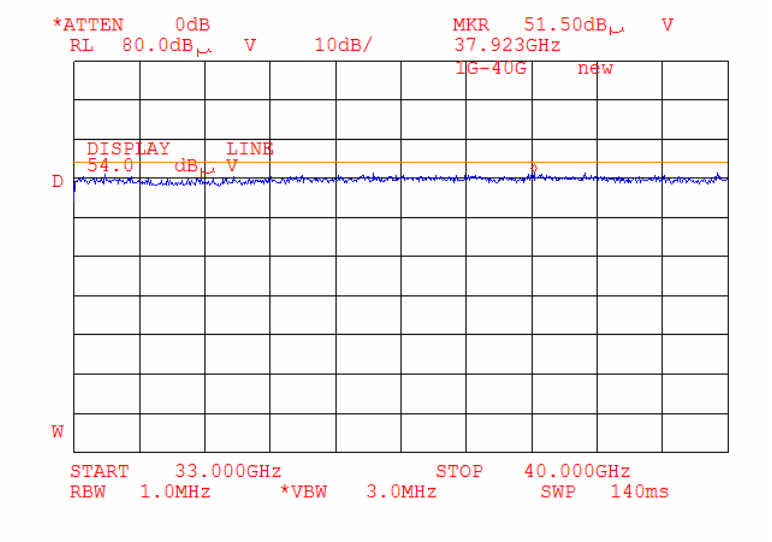


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

Plot 7.8.45 Radiated emission measurements from 33000 to 40000 MHz at the high carrier frequency

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

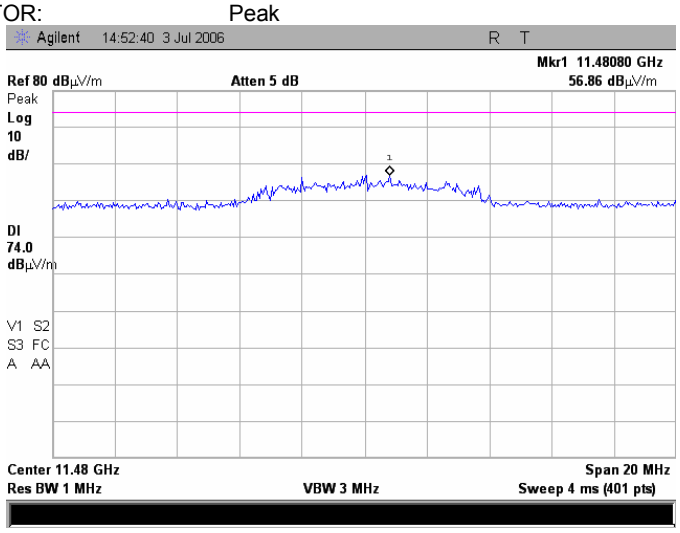


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

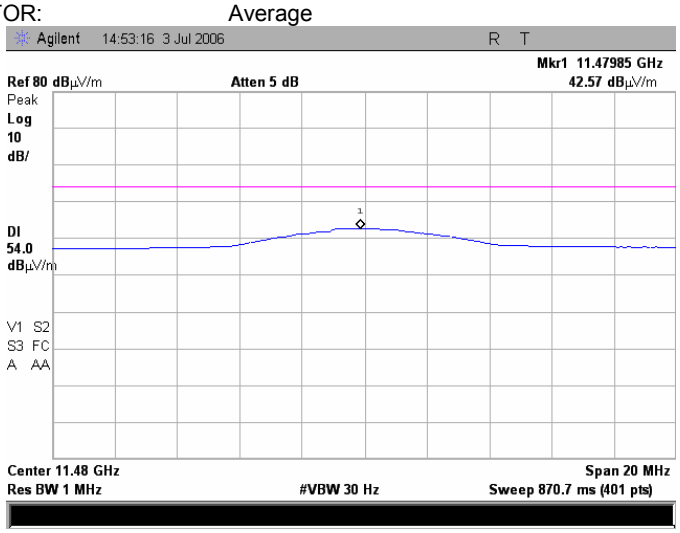
Plot 7.8.46 Radiated emission measurements at the second harmonic of low carrier frequency

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



Plot 7.8.47 Radiated emission measurements at the second harmonic of low carrier frequency

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

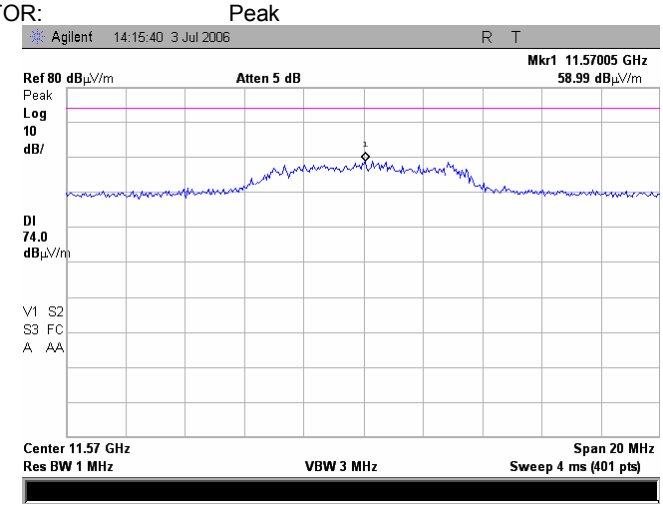


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

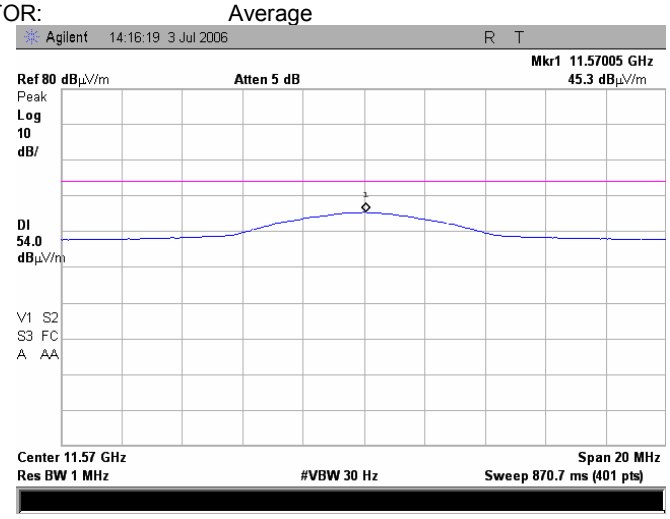
Plot 7.8.48 Radiated emission measurements at the second harmonic of mid carrier frequency

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



Plot 7.8.49 Radiated emission measurements at the second harmonic of mid carrier frequency

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

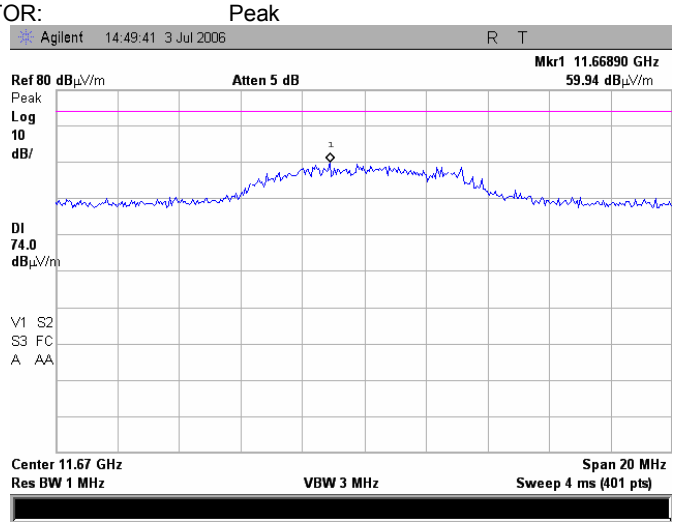


HERMON LABORATORIES

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:	
Date & Time:	7/2/2006 10:37:42 AM		
Temperature: 27 ºC	Air Pressure: 1011 hPa	Relative Humidity: 46 %	Power Supply: 120 V AC
Remarks: EUT - AIND with 32.5 dBi antenna			

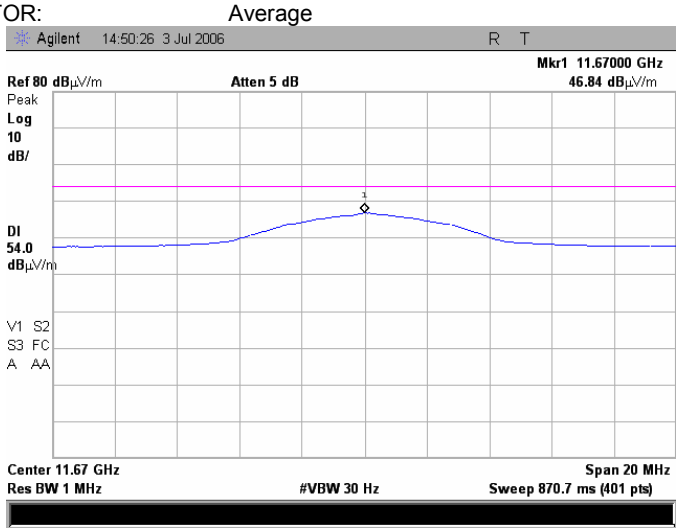
Plot 7.8.50 Radiated emission measurements at the second harmonic of high carrier frequency

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



Plot 7.8.51 Radiated emission measurements at the second harmonic of high carrier frequency

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



HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 ºC	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

7.9 Peak spectral power density

7.9.1 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 7.9.1.

Table 7.9.1 Peak spectral power density limits

Assigned frequency range, MHz	Measurement bandwidth, kHz	Peak spectral power density, dBm
5725 – 5850	3.0	8.0

7.9.2 Test procedure

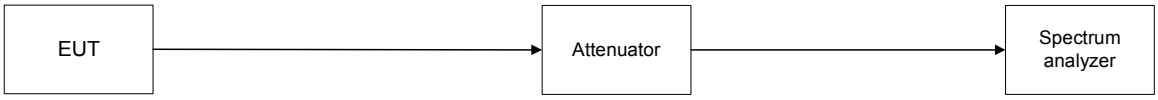
7.9.2.1 The EUT was set up as shown in Figure 7.9.1, energized and its proper operation was checked.

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

7.9.2.3 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.

7.9.2.4 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 7.9.2 and associated plots.

Figure 7.9.1 Peak spectral power density test setup



HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 ºC	**Air Pressure:** 1010 hPa	**Relative Humidity:** 45 %	**Power Supply:** 120 V AC
Remarks:			

Table 7.9.2 Peak spectral power density test results

ASSIGNED FREQUENCY: 5725 – 5850 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							
5738.77225	3.286	Included	Included	3.286	8	-4.714	Pass
5784.70300	2.957	Included	Included	2.957	8	-5.043	Pass
5834.70000	1.737	Included	Included	1.737	8	-6.263	Pass
Data rate: 13.5 Mbps							
5738.45525	3.611	Included	Included	3.611	8	-4.389	Pass
5786.26325	2.823	Included	Included	2.823	8	-5.177	Pass
5836.26475	2.256	Included	Included	2.256	8	-5.744	Pass
Channel spacing: 10 MHz							
Data rate: 3 Mbps							
5740.02175	0.601	Included	Included	0.601	8	-7.399	Pass
5785.01875	0.025	Included	Included	0.025	8	-7.975	Pass
5834.39475	0.665	Included	Included	0.665	8	-7.335	Pass
Data rate: 27 Mbps							
5735.38400	0.507	Included	Included	0.507	8	-7.493	Pass
5786.90600	-0.464	Included	Included	-0.464	8	-8.464	Pass
5836.26725	0.087	Included	Included	0.087	8	-7.913	Pass
Channel spacing: 20 MHz							
Data rate: 6 Mbps							
5746.31125	-3.246	Included	Included	-3.246	8	-11.246	Pass
5785.01575	-0.399	Included	Included	-0.399	8	-8.399	Pass
5835.01875	-1.245	Included	Included	-1.245	8	-9.245	Pass
Data rate: 54 Mbps							
5738.75675	-2.687	Included	Included	-2.687	8	-10.687	Pass
5785.02175	-1.320	Included	Included	-1.320	8	-9.320	Pass
5835.01500	-1.462	Included	Included	-1.462	8	-9.462	Pass

* - Margin = Peak power density – specification limit.

Reference numbers of test equipment used

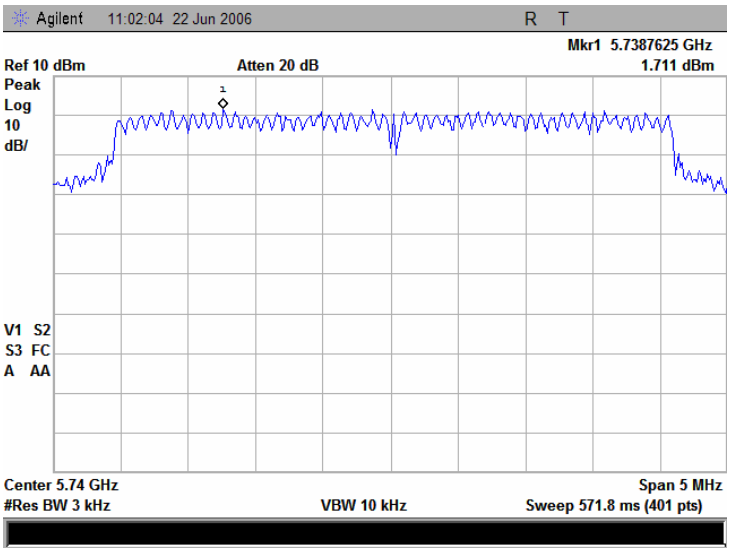
HL 1650	HL 2254	HL 2780					

Full description is given in Appendix A.

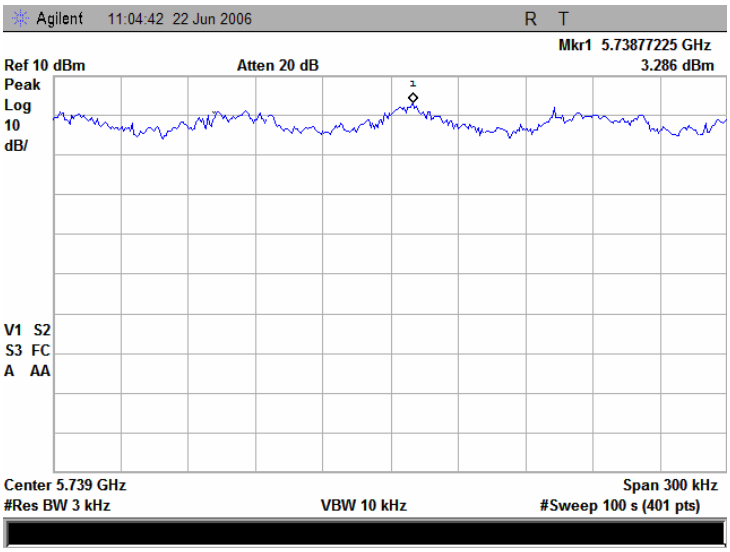
HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 ºC	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Plot 7.9.1 Peak spectral power density at low frequency within 6 dB band, channel spacing 5 MHz and data rate 1.5 Mbps



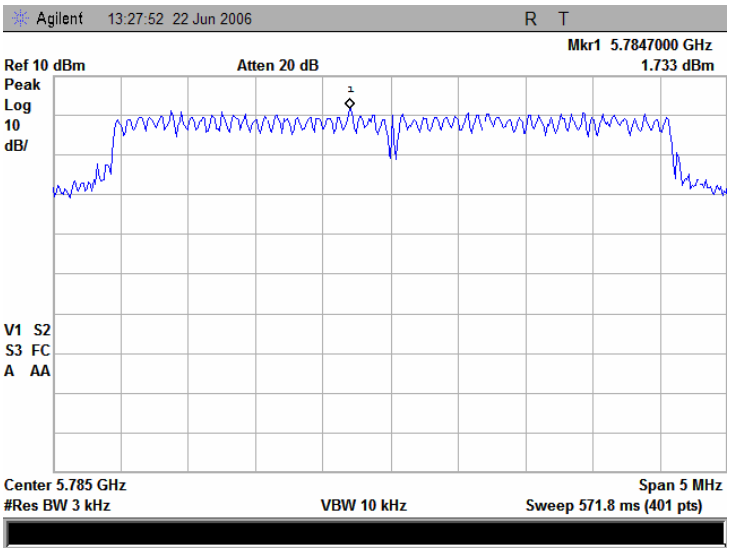
Plot 7.9.2 Peak spectral power density at low frequency zoomed at the peak, channel spacing 5 MHz and data rate 1.5 Mbps



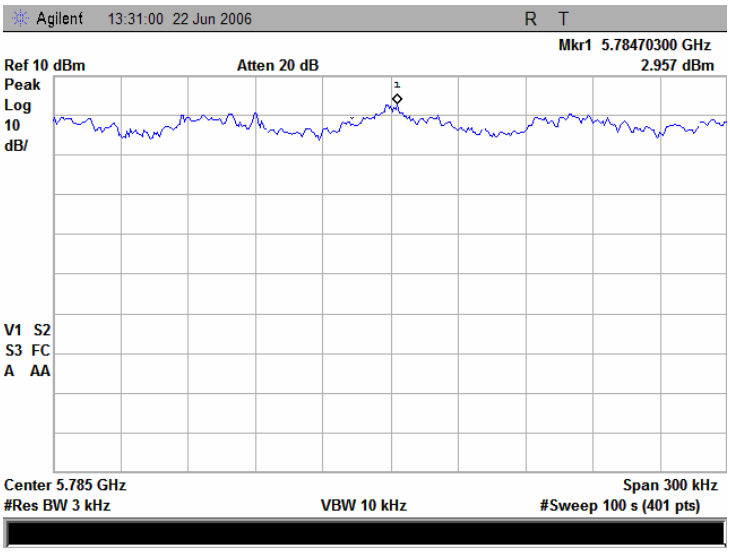
HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 ºC	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Plot 7.9.3 Peak spectral power density at mid frequency within 6 dB band, channel spacing 5 MHz and data rate 1.5 Mbps



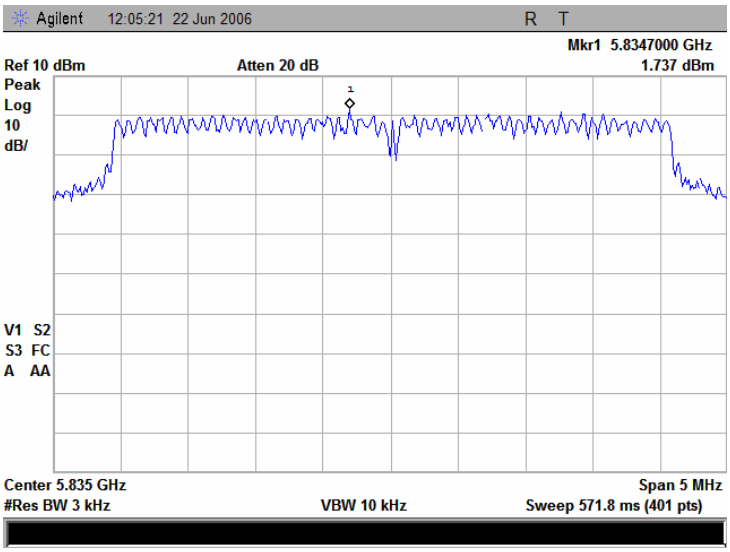
Plot 7.9.4 Peak spectral power density at mid frequency zoomed at the peak, channel spacing 5 MHz and data rate 1.5 Mbps



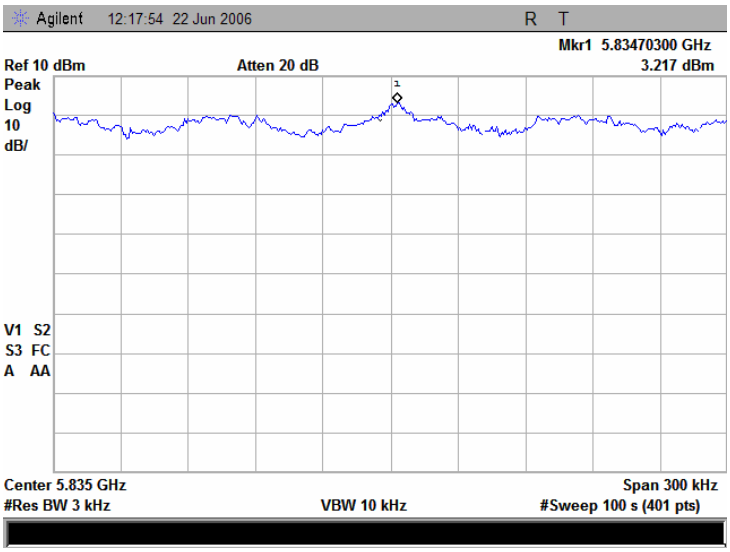
HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 °C	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Plot 7.9.5 Peak spectral power density at high frequency within 6 dB band, channel spacing 5 MHz and data rate 1.5 Mbps



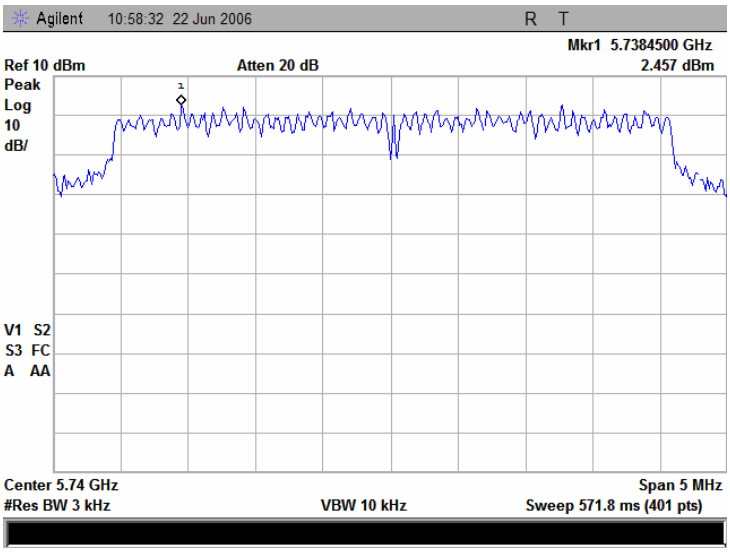
Plot 7.9.6 Peak spectral power density at high frequency zoomed at the peak, channel spacing 5 MHz and data rate 1.5 Mbps



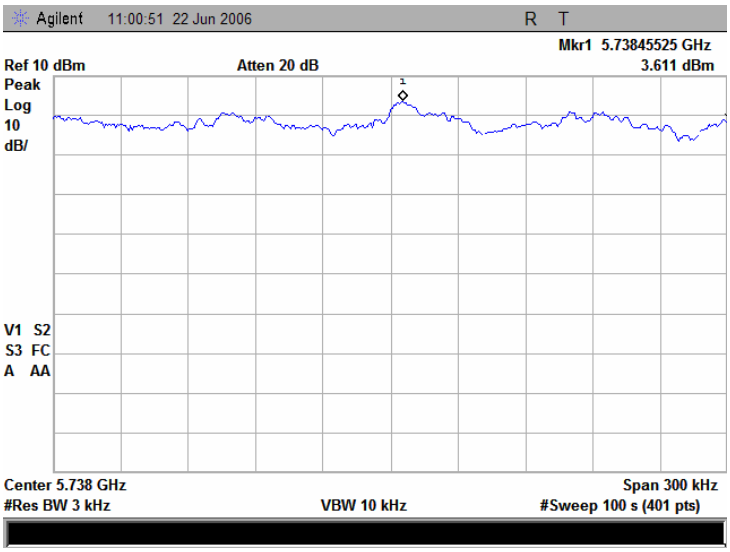
HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 °C	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Plot 7.9.7 Peak spectral power density at low frequency within 6 dB band, channel spacing 5 MHz and data rate 13.5 Mbps



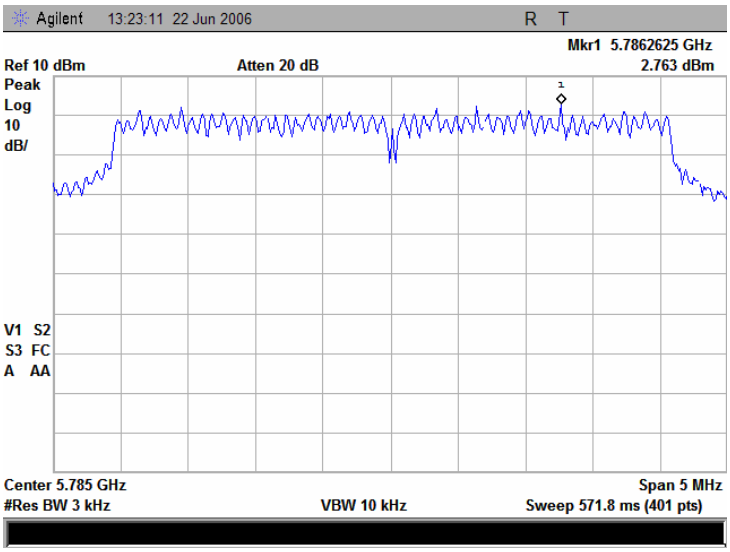
Plot 7.9.8 Peak spectral power density at low frequency zoomed at the peak, channel spacing 5 MHz and data rate 13.5 Mbps



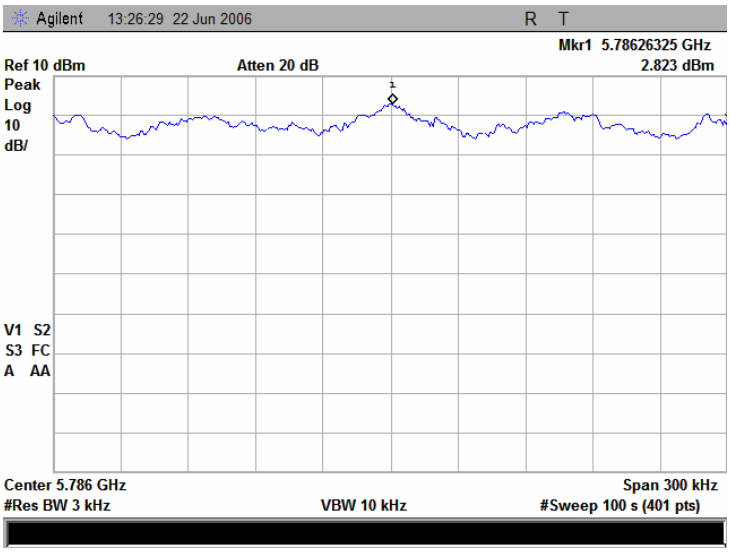
HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 °C	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Plot 7.9.9 Peak spectral power density at mid frequency within 6 dB band, channel spacing 5 MHz and data rate 13.5 Mbps



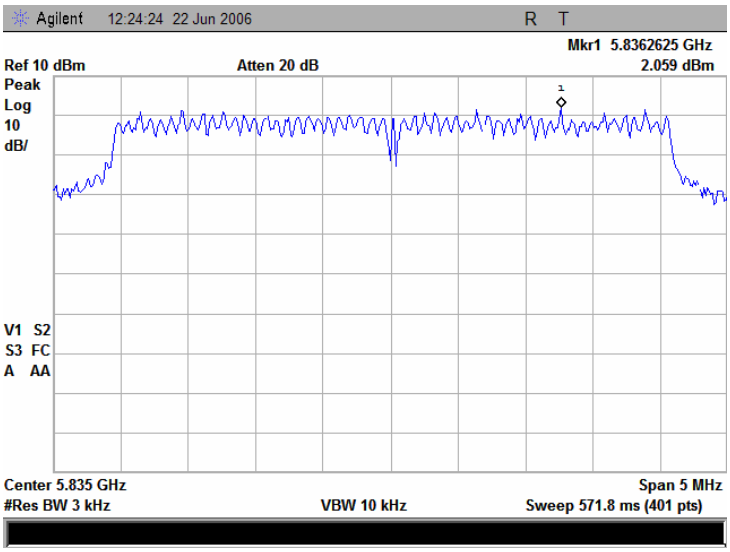
Plot 7.9.10 Peak spectral power density at mid frequency zoomed at the peak, channel spacing 5 MHz and data rate 13.5 Mbps



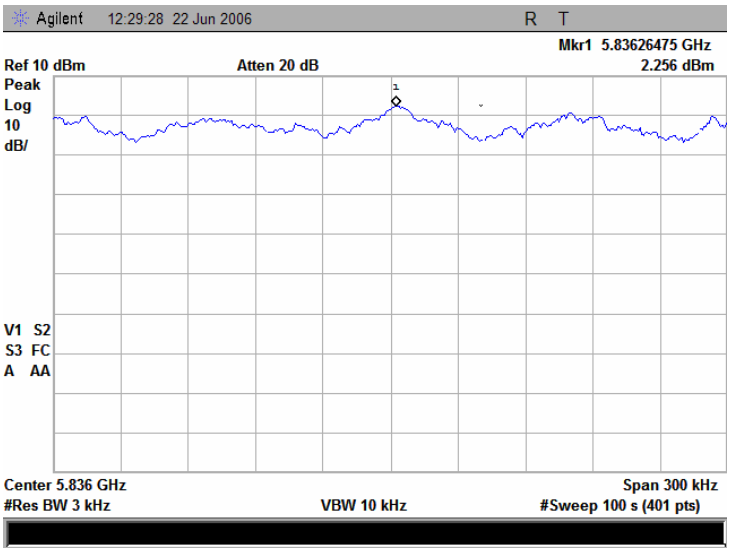
HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 °C	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Plot 7.9.11 Peak spectral power density at high frequency within 6 dB band, channel spacing 5 MHz and data rate 13.5 Mbps



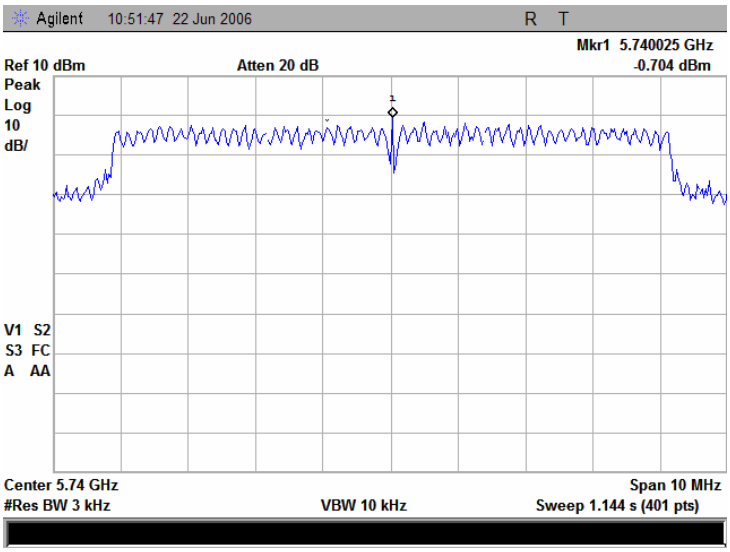
Plot 7.9.12 Peak spectral power density at high frequency zoomed at the peak, channel spacing 5 MHz and data rate 13.5 Mbps



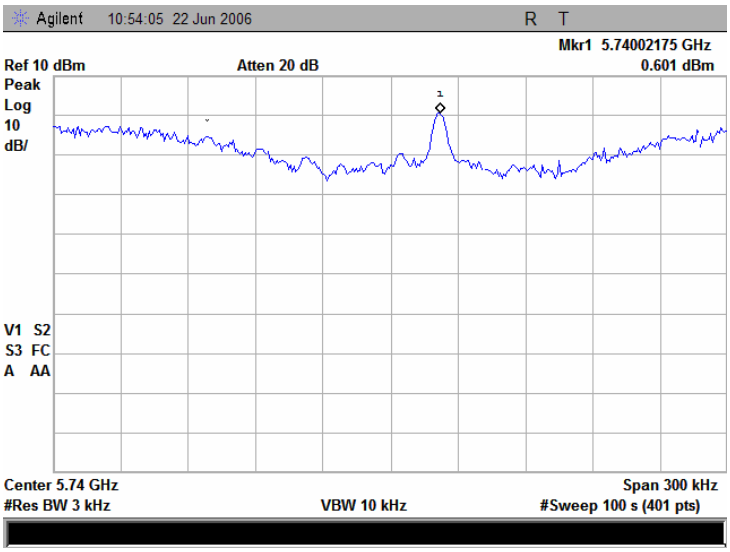
HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 °C	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Plot 7.9.13 Peak spectral power density at low frequency within 6 dB band, channel spacing 10 MHz and data rate 3 Mbps



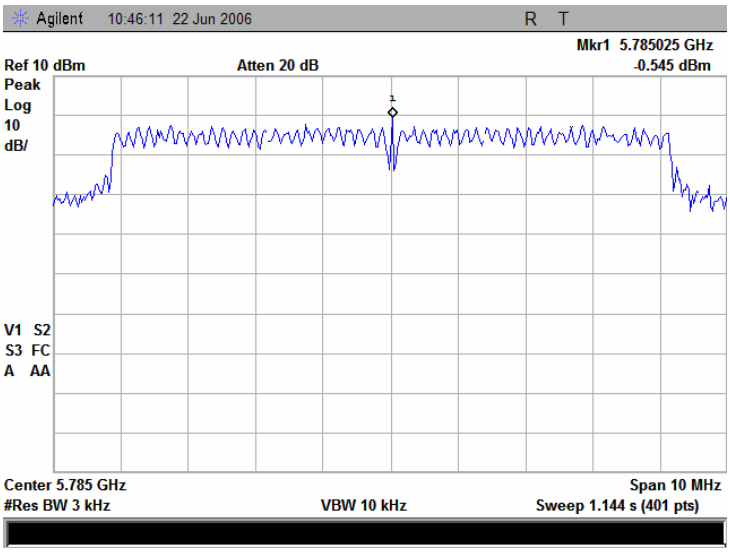
Plot 7.9.14 Peak spectral power density at low frequency zoomed at the peak, channel spacing 10 MHz and data rate 3 Mbps



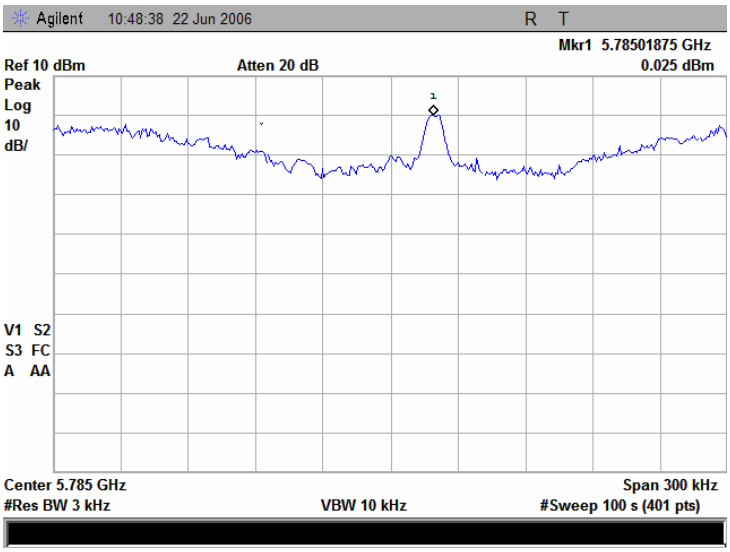
HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 °C	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Plot 7.9.15 Peak spectral power density at mid frequency within 6 dB band, channel spacing 10 MHz and data rate 3 Mbps



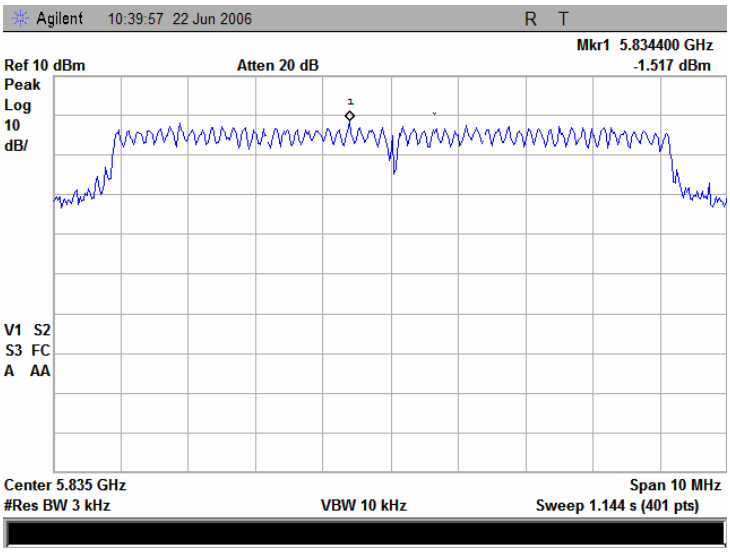
Plot 7.9.16 Peak spectral power density at mid frequency zoomed at the peak, channel spacing 10 MHz and data rate 3 Mbps



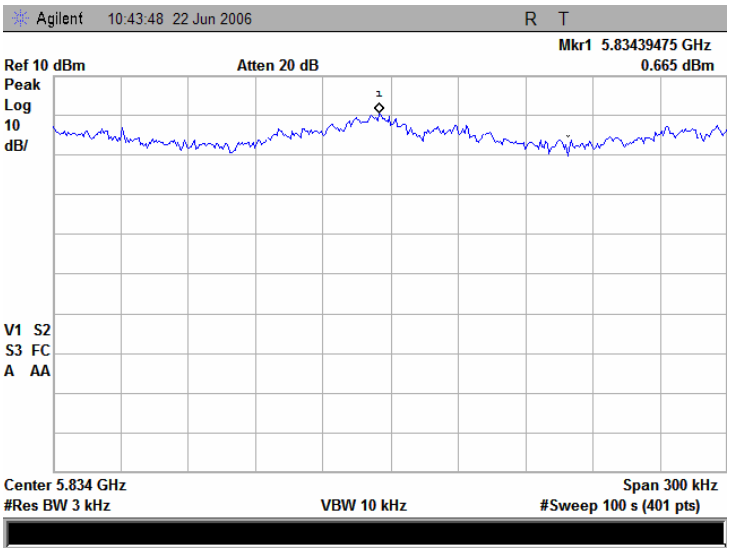
HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 °C	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Plot 7.9.17 Peak spectral power density at high frequency within 6 dB band, channel spacing 10 MHz and data rate 3 Mbps



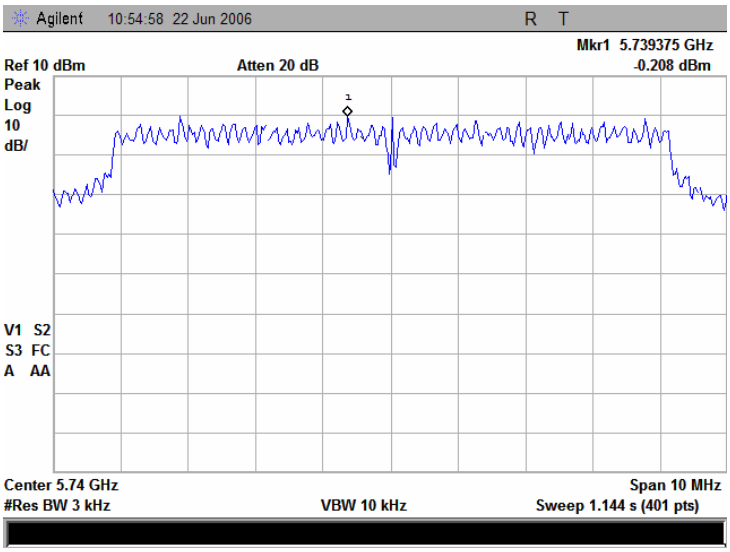
Plot 7.9.18 Peak spectral power density at high frequency zoomed at the peak, channel spacing 10 MHz and data rate 3 Mbps



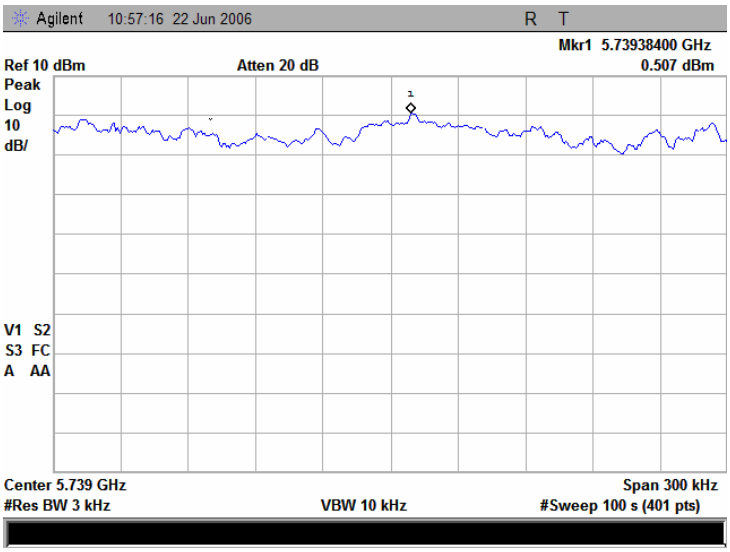
HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 °C	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Plot 7.9.19 Peak spectral power density at low frequency within 6 dB band, channel spacing 10 MHz and data rate 27 Mbps



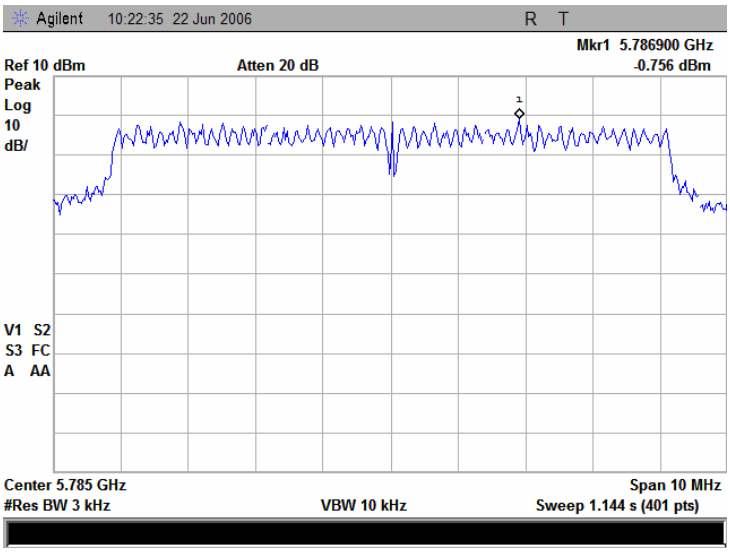
Plot 7.9.20 Peak spectral power density at low frequency zoomed at the peak, channel spacing 10 MHz and data rate 27 Mbps



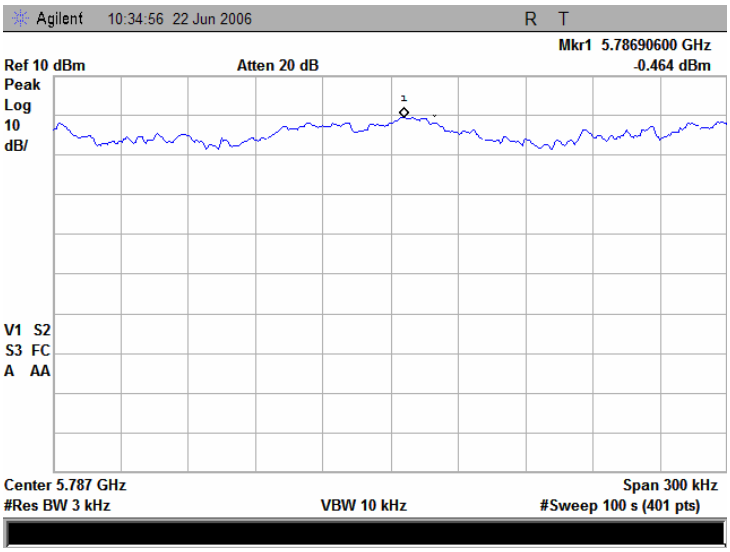
HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 °C	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Plot 7.9.21 Peak spectral power density at mid frequency within 6 dB band, channel spacing 10 MHz and data rate 27 Mbps



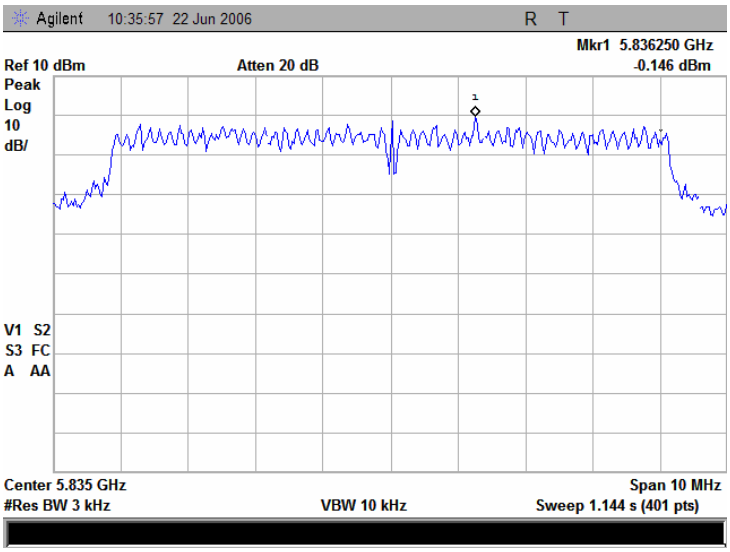
Plot 7.9.22 Peak spectral power density at mid frequency zoomed at the peak, channel spacing 10 MHz and data rate 27 Mbps



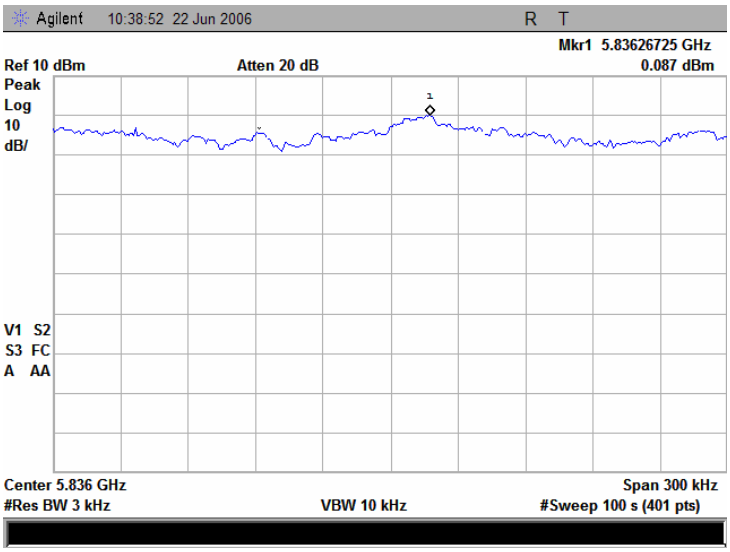
HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 °C	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Plot 7.9.23 Peak spectral power density at high frequency within 6 dB band, channel spacing 10 MHz and data rate 27 Mbps



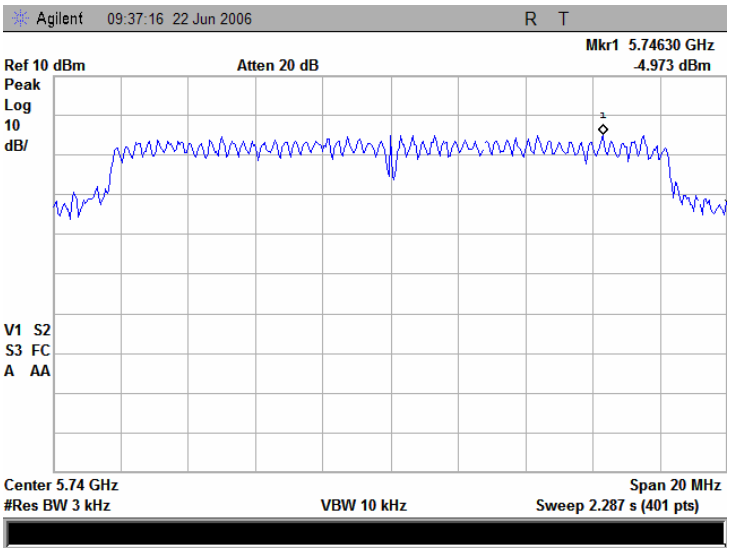
Plot 7.9.24 Peak spectral power density at high frequency zoomed at the peak, channel spacing 10 MHz and data rate 27 Mbps



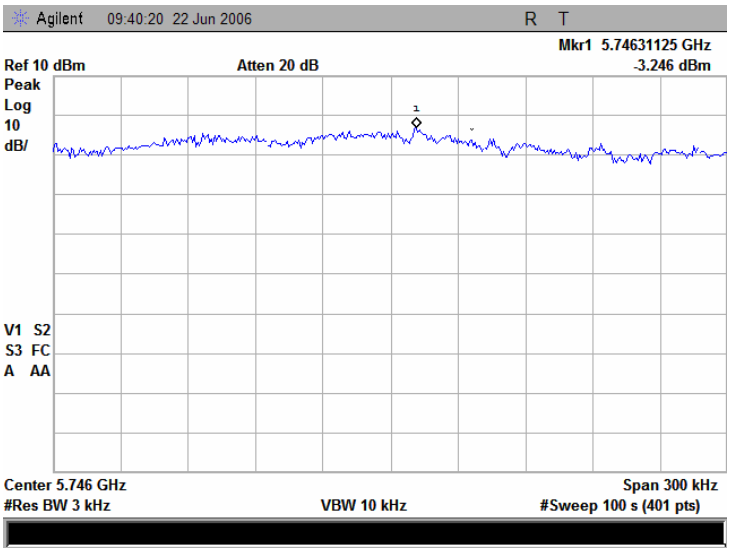
HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 °C	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Plot 7.9.25 Peak spectral power density at low frequency within 6 dB band, channel spacing 20 MHz and data rate 6 Mbps



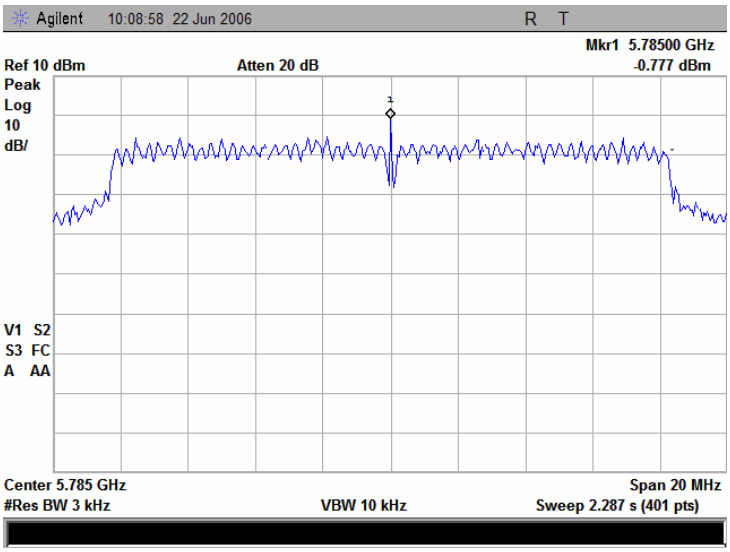
Plot 7.9.26 Peak spectral power density at low frequency zoomed at the peak, channel spacing 20 MHz and data rate 6 Mbps



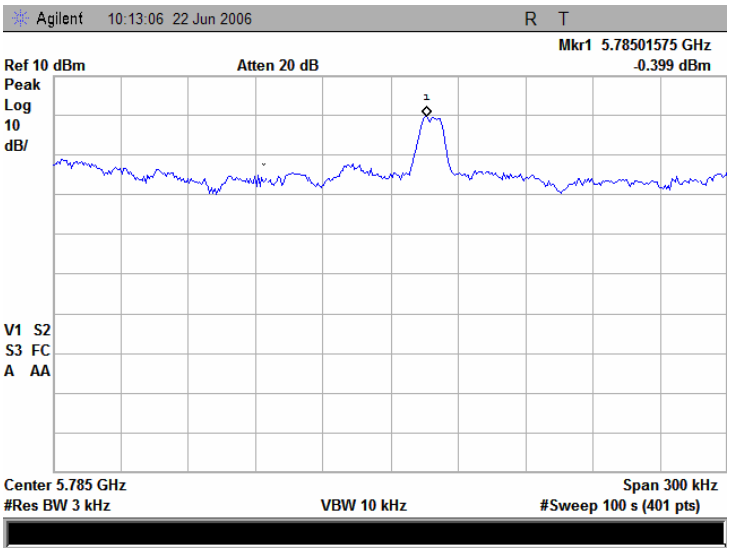
HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 °C	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Plot 7.9.27 Peak spectral power density at mid frequency within 6 dB band, channel spacing 20 MHz and data rate 6 Mbps



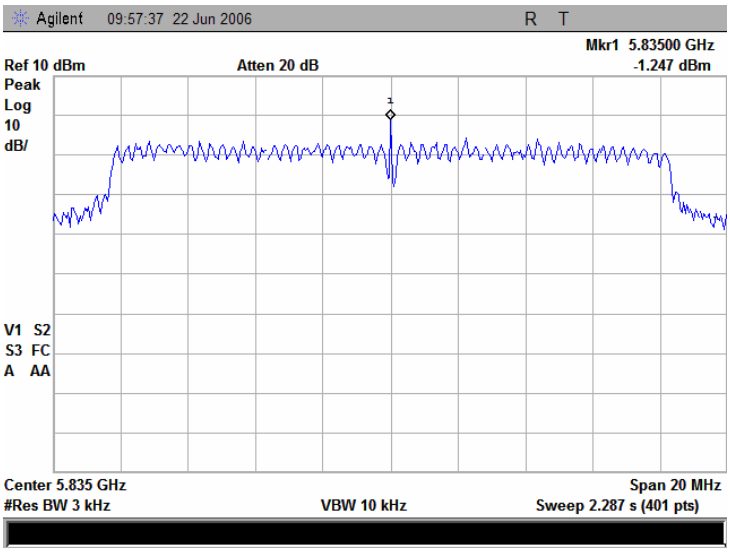
Plot 7.9.28 Peak spectral power density at mid frequency zoomed at the peak, channel spacing 20 MHz and data rate 6 Mbps



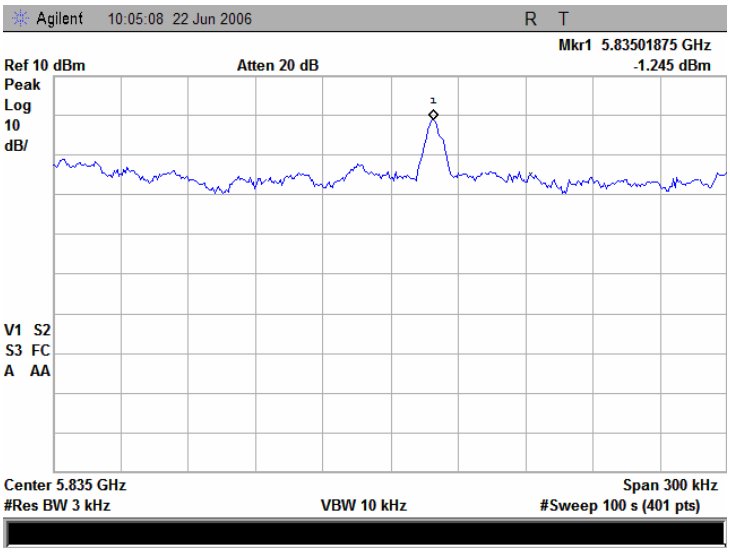
HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 °C	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Plot 7.9.29 Peak spectral power density at high frequency within 6 dB band, channel spacing 20 MHz and data rate 6 Mbps



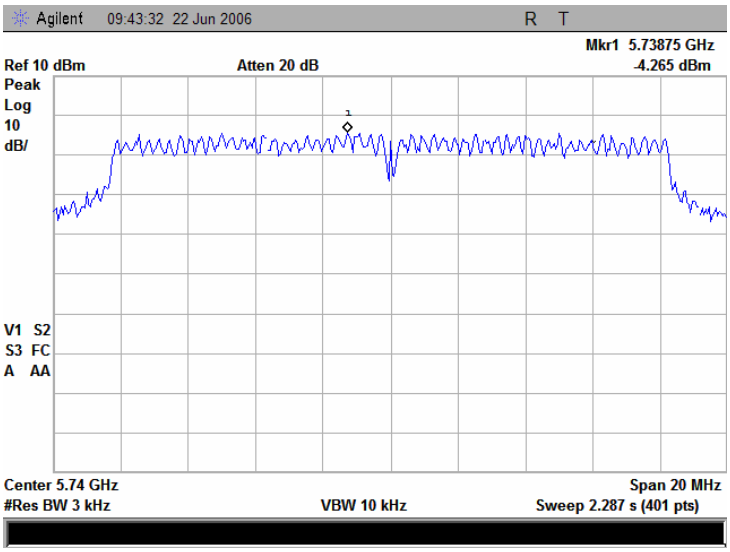
Plot 7.9.30 Peak spectral power density at high frequency zoomed at the peak, channel spacing 20 MHz and data rate 6 Mbps



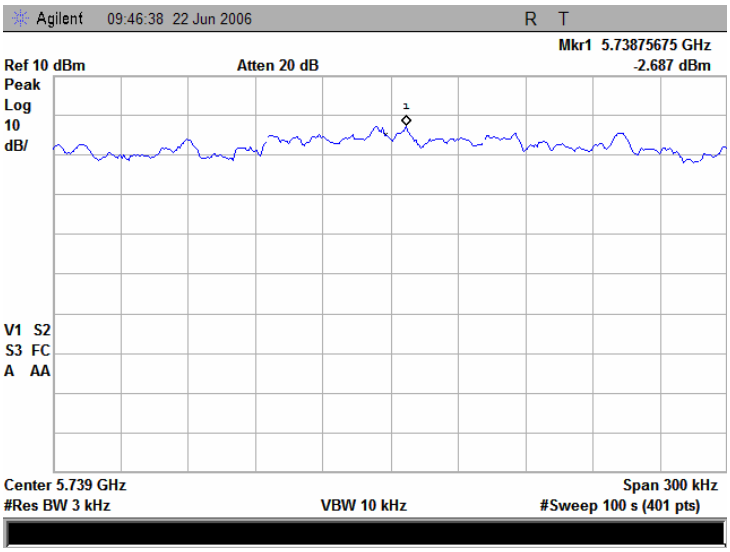
HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 °C	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Plot 7.9.31 Peak spectral power density at low frequency within 6 dB band, channel spacing 20 MHz and data rate 54 Mbps



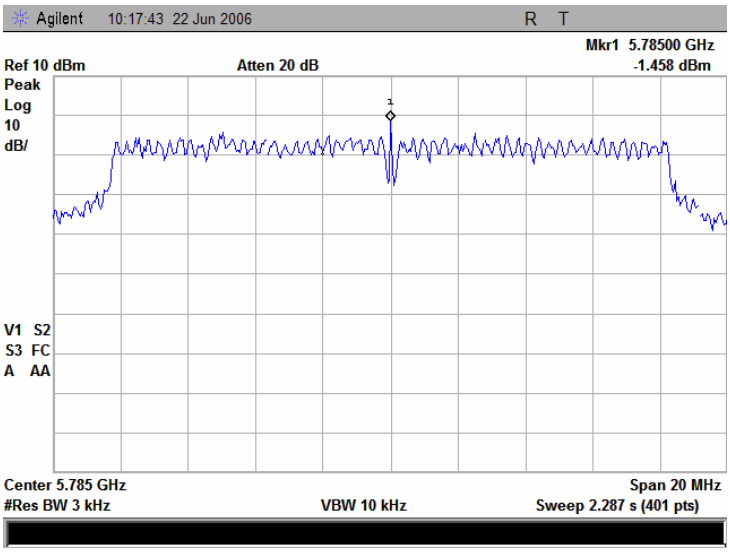
Plot 7.9.32 Peak spectral power density at low frequency zoomed at the peak, channel spacing 20 MHz and data rate 54 Mbps



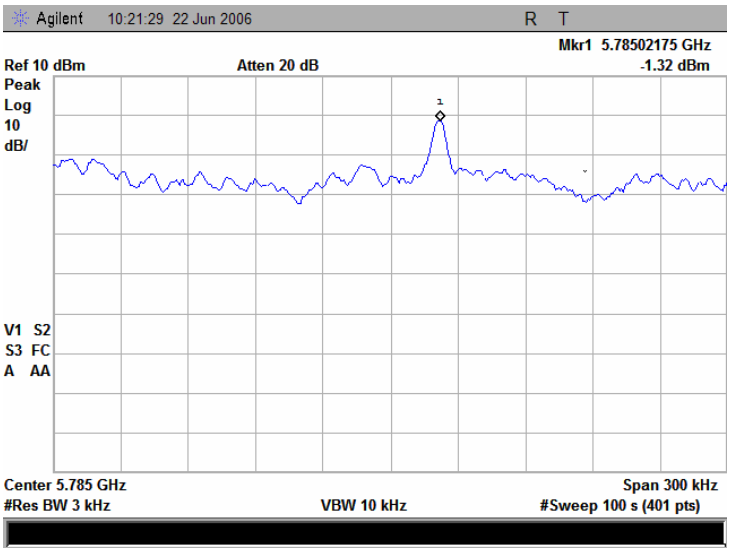
HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 °C	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Plot 7.9.33 Peak spectral power density at mid frequency within 6 dB band, channel spacing 20 MHz and data rate 54 Mbps



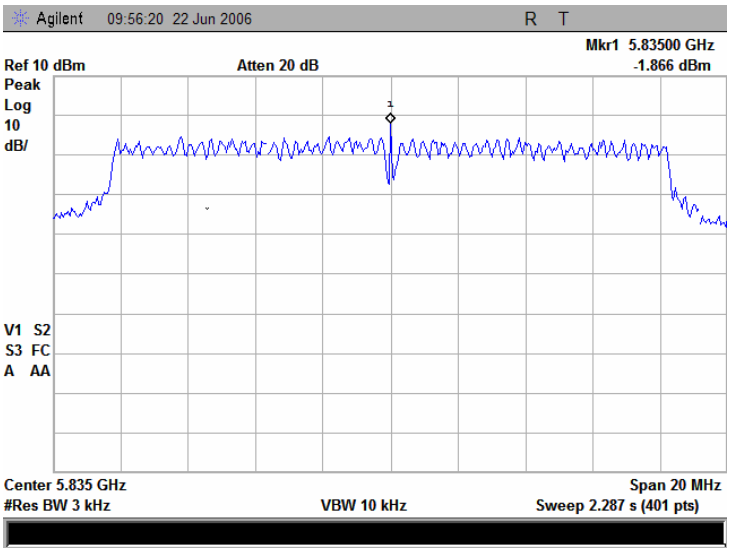
Plot 7.9.34 Peak spectral power density at mid frequency zoomed at the peak, channel spacing 20 MHz and data rate 54 Mbps



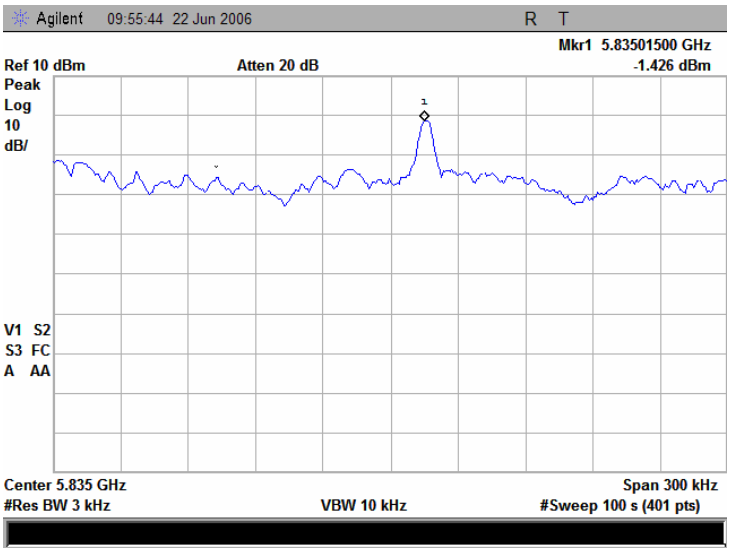
HERMON LABORATORIES

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:	6/22/2006 2:46:08 PM		
Temperature: 26 ºC	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Plot 7.9.35 Peak spectral power density at high frequency within 6 dB band, channel spacing 20 MHz and data rate 54 Mbps



Plot 7.9.36 Peak spectral power density at high frequency zoomed at the peak, channel spacing 20 MHz and data rate 54 Mbps



HERMON LABORATORIES

Test specification:	Section 15.207(a), Conducted emission		
Test procedure:	ANSI C63.4, Section 13.1.3		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	7/5/2006 4:38:11 PM		
Temperature: 26 ºC	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

7.10 Conducted emissions

7.10.1 General

This test was performed to measure common mode conducted emissions at the power port. Specification test limits are given in Table 7.10.1. The worst test results (the lowest margins) were recorded in Table 7.10.2 and shown in the associated plots.

Table 7.10.1 Limits for conducted emissions

Frequency, MHz	Class B limit, dB(µV)	
	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.

7.10.2 Test procedure

7.10.2.1 The EUT was set up as shown in Figure 7.10.1, energized and the performance check was conducted.

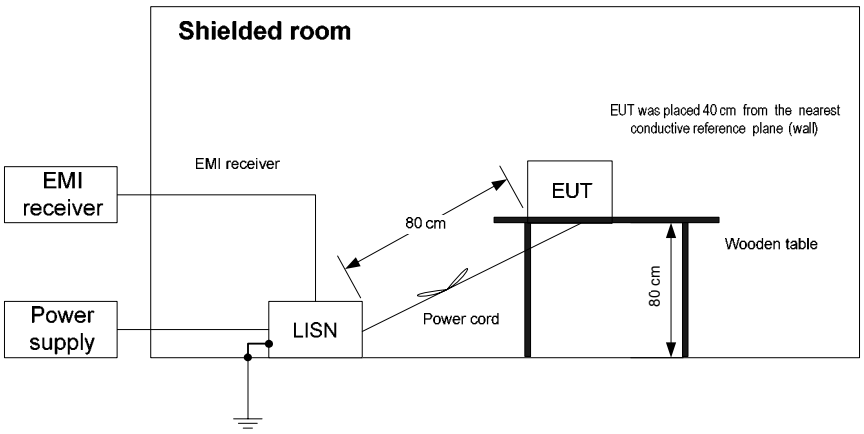
7.10.2.2 The measurements were performed at power terminals with the LISN, connected to a spectrum analyzer in the frequency range referred to in Table 7.10.2. Unused coaxial connector of the LISN was terminated with 50 Ohm. Quasi-peak and average detectors were used throughout the testing.

7.10.2.3 The position of the device cables was varied to determine maximum emission level.

HERMON LABORATORIES

Test specification:	Section 15.207(a), Conducted emission		
Test procedure:	ANSI C63.4, Section 13.1.3		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	7/5/2006 4:38:11 PM		
Temperature: 26 ºC	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Figure 7.10.1 Setup for conducted emission measurements, table-top equipment



HERMON LABORATORIES

Test specification:	Section 15.207(a), Conducted emission		
Test procedure:	ANSI C63.4, Section 13.1.3		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	7/5/2006 4:38:11 PM		
Temperature: 26 ºC	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

Table 7.10.2 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*		
AIND cabinet									
0.206786	47.47	46.84	63.39	-16.55	42.35	53.39	-11.04	L1	Pass
0.551568	47.22	46.47	56.00	-9.53	45.82	46.00	-0.18		
0.689761	47.87	47.09	56.00	-8.91	45.87	46.00	-0.13		
0.758677	46.66	45.51	56.00	-10.49	44.33	46.00	-1.67		
2.620498	46.80	45.94	56.00	-10.06	41.22	46.00	-4.78		
6.967082	51.22	49.82	60.00	-10.18	48.12	50.00	-1.88		
19.452231	47.55	44.96	60.00	-15.04	42.80	50.00	-7.20		
0.206572	49.89	49.27	63.40	-14.13	43.29	53.40	-10.11	L2	Pass
0.551744	47.15	46.36	56.00	-9.64	45.73	46.00	-0.27		
0.688956	47.04	46.09	56.00	-9.91	44.69	46.00	-1.31		
0.757846	46.64	45.15	56.00	-10.85	43.09	46.00	-2.91		
2.275944	46.47	45.30	56.00	-10.70	40.04	46.00	-5.96		
3.241337	47.40	45.09	56.00	-10.91	38.22	46.00	-7.78		
7.309151	52.29	50.47	60.00	-9.53	48.60	50.00	-1.40		
ODU cabinet									
1.082617	47.53	46.08	56.00	-9.92	33.08	46.00	-12.92	L1	Pass
1.484880	47.83	45.95	56.00	-10.05	32.48	46.00	-13.52		
1.687352	46.85	44.79	56.00	-11.21	25.89	46.00	-20.11		
1.864067	49.13	46.83	56.00	-9.17	29.06	46.00	-16.94		
2.264629	51.30	48.15	56.00	-7.85	28.85	46.00	-17.15		
3.025461	56.16	53.35	56.00	-2.65	32.31	46.00	-13.69		
0.272343	50.77	49.87	61.11	-11.24	44.10	51.11	-7.01	L2	Pass
0.539204	48.83	47.93	56.00	-8.07	41.01	46.00	-4.99		
0.678418	47.88	46.53	56.00	-9.47	37.27	46.00	-8.73		
1.876595	50.17	47.84	56.00	-8.16	31.35	46.00	-14.65		
2.270018	51.62	49.02	56.00	-6.98	29.88	46.00	-16.12		
2.659164	53.36	50.93	56.00	-5.07	30.82	46.00	-15.18		
2.861983	54.96	52.42	56.00	-3.58	36.13	46.00	-9.87		
Laptop									
0.206187	49.14	45.05	63.42	-18.37	37.68	53.42	-15.74	L1	Pass
0.274778	42.90	40.75	61.04	-20.29	36.35	51.04	-14.69		
0.343872	38.40	37.47	59.17	-21.70	34.56	49.17	-14.61		
0.481456	35.29	33.92	56.35	-22.43	32.68	46.35	-13.67		
0.208224	47.85	47.79	63.34	-15.55	36.69	53.34	-16.65	L2	Pass
0.274060	43.86	42.92	61.06	-18.14	35.72	51.06	-15.34		
0.343576	40.94	40.09	59.18	-19.09	34.61	49.18	-14.57		
0.481270	37.30	35.90	56.35	-20.45	32.51	46.35	-13.84		

*- Margin = Measured emission - specification limit.

Reference numbers of test equipment used

HL 0163	HL 0447	HL 0787	HL 1430	HL 1502	HL 1510		

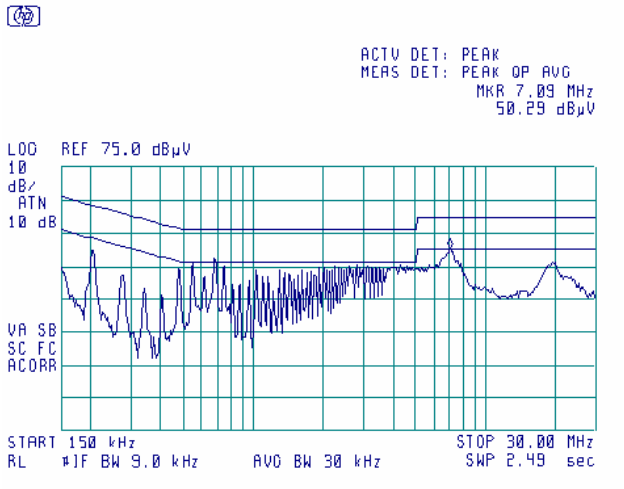
Full description is given in Appendix A.

HERMON LABORATORIES

Test specification:	Section 15.207(a), Conducted emission		
Test procedure:	ANSI C63.4, Section 13.1.3		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	7/5/2006 4:38:11 PM		
Temperature: 26 ºC	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

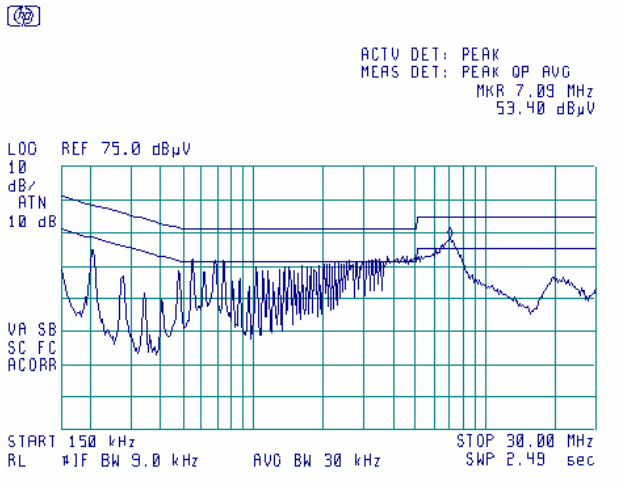
Plot 7.10.1 Conducted emission measurements

LINE: L1
EUT OPERATING MODE: Transmit
EUT CABINET: AIND
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK



Plot 7.10.2 Conducted emission measurements

LINE: L2
EUT OPERATING MODE: Transmit
EUT CABINET: AIND
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK

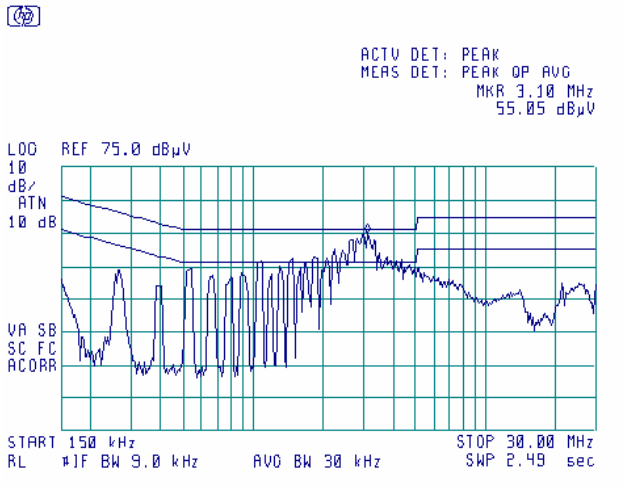


HERMON LABORATORIES

Test specification:	Section 15.207(a), Conducted emission		
Test procedure:	ANSI C63.4, Section 13.1.3		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	7/5/2006 4:38:11 PM		
Temperature: 26 ºC	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

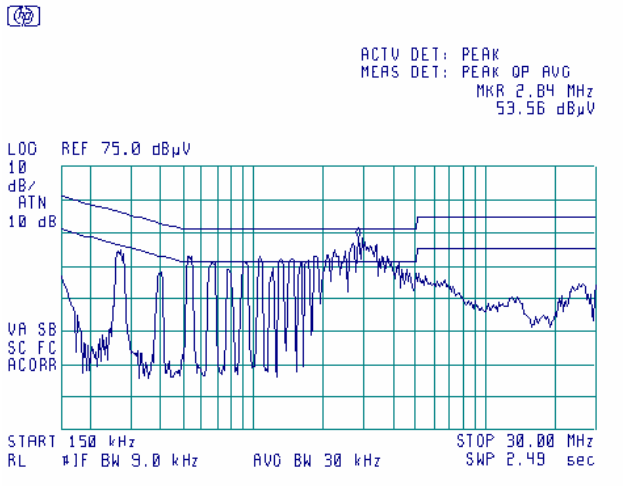
Plot 7.10.3 Conducted emission measurements

LINE:	L1
EUT OPERATING MODE:	Transmit
EUT CABINET:	ODU
LIMIT:	QUASI-PEAK, AVERAGE
DETECTOR:	PEAK



Plot 7.10.4 Conducted emission measurements

LINE:	L2
EUT OPERATING MODE:	Transmit
EUT CABINET:	ODU
LIMIT:	QUASI-PEAK, AVERAGE
DETECTOR:	PEAK

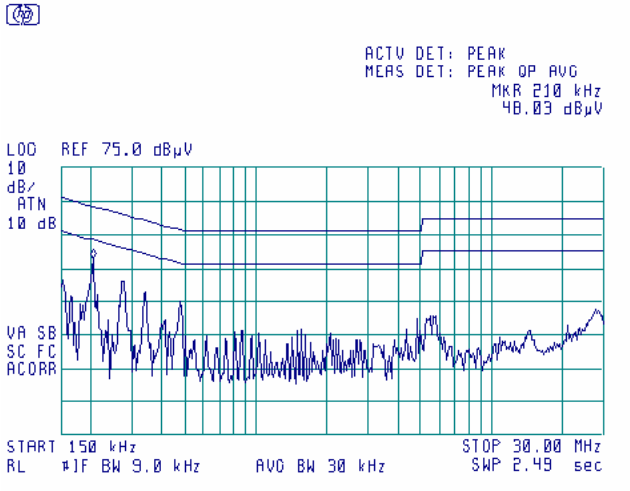


HERMON LABORATORIES

Test specification:	Section 15.207(a), Conducted emission		
Test procedure:	ANSI C63.4, Section 13.1.3		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	7/5/2006 4:38:11 PM		
Temperature: 26 ºC	Air Pressure: 1010 hPa	Relative Humidity: 45 %	Power Supply: 120 V AC
Remarks:			

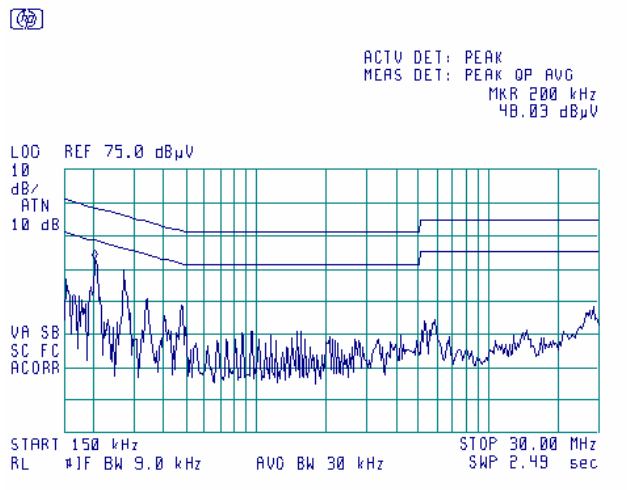
Plot 7.10.5 Conducted emission measurements

LINE: L1
EUT OPERATING MODE: Transmit
EUT: Laptop
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK



Plot 7.10.6 Conducted emission measurements

LINE: L2
EUT OPERATING MODE: Transmit
EUT: Laptop
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK



HERMON LABORATORIES

8 APPENDIX A Test equipment and ancillaries used for tests

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal.	Due Cal.
0163	LISN FCC/VDE/MIL-STD	Electro-Metrics	ANS 25/2	1314	01-Oct-05	01-Oct-06
0410	Cable, Coax, Microwave, DC-18 GHz, N-N, 1 m	Gore	PFP01P01039.4	9338767	17-Oct-05	17-Oct-06
0446	Antenna, Loop active, 10kHz-30MHz	EMCO	6502	2857	28-Jun-06	28-Jun-07
0447	LISN, 16/2, 300V RMS	HL	LISN 16 - 1	066	03-Nov-05	03-Nov-06
0465	Anechoic Chamber 9(L) x 6.5(W) x 5.5(H) m	HL	AC - 1	023	11-Nov-05	11-Nov-06
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
0768	Antenna Standard Gain Horn,18-26.5 GHz, WR-42, K-band, Gain - 25 dB	Quinstar Technology	QWH-4200-BA	110	21-Jul-04	21-Jul-07
0769	Antenna Standard Gain Horn, 26.5-40 GHz, WR28, Ka band, Gain 25 dB	Quinstar Technology	QWH-2800-BA	112	21-Jul-04	21-Jul-07
0787	Transient Limiter	Hewlett Packard	11947A	3107A01877	21-Nov-05	21-Nov-06
1200	Quadruplexer 1-12 GHz (1-2 GHz; 2-4GHz;4-8 GHz; 8-12GHz)	Elettronica S.p.A. - Roma	UE 84	D/00240	10-Feb-05	10-Feb-07
1424	Spectrum Analyzer, 30 Hz- 40 GHz	Agilent Technologies	8564EC	3946A00219	30-Aug-05	30-Aug-06
1425	EMI Receiver, 9 kHz - 2.9 GHz, System: HL1426, HL1427	Agilent Technologies	8542E	3710A00222, 3705A00204	01-Sep-05	01-Sep-06
1430	EMI Receiver, 9 kHz - 2.9 GHz, System: HL1431, HL1432	Agilent Technologies	8542E	3807A00262,3705A00217	01-Sep-05	01-Sep-06
1502	Cable RF, 6 m	Belden	M17/167 MIL-C-17	1502	02-Dec-05	02-Dec-06
1510	Cable RF, 8 m	Belden	M17/167 MIL-C-17	1510	02-Dec-05	02-Dec-06
1553	Cable RF, 3.5 m	Alpha Wire	RG-214	1553	02-Dec-05	02-Dec-06
1566	Cable RF, 2 m	Huber-Suhner	Sucoflex 104PE	13094/4PE	02-Dec-05	02-Dec-06
1650	Attenuators Set (2, 3, 5, 20 dB), DC-18 GHz	M/A-COM	2082	1650	03-Jan-06	03-Jan-07
2254	Cable 40GHz, 0.8 m, blue	Rhophase Microwave Limited	KPS-1503A-800-KPS	W4907	21-Jun-06	21-Jun-07
2259	Amplifier Low Noise 2-20 GHz	Sophia Wireless	LNA0220-C	0223	05-Nov-05	05-Nov-06
2260	Amplifier Low Noise 14-33 GHz	Sophia Wireless	LNA28-B	0233	05-Nov-05	05-Nov-06
2261	Amplifier Low Noise 33-40 GHz	Sophia Wireless	LNA38-B	0234	05-Nov-05	05-Nov-06
2432	Antenna, Double-Ridged Waveguide Horn 1-18 GHz	EMC Test Systems	3115	00027177	03-Mar-06	03-Mar-07

HERMON LABORATORIES

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal.	Due Cal.
2697	Antenna, 30 MHz - 3.0 GHz,	Sunol Sciences. Corp. Pleasanton, California USA	JB3	A022805	10-Jan-06	10-Jan-07
2780	EMS analyzer, 100 Hz to 26.5 GHz	Agilent Technologies	E7405A	MY45102466	11-Jun-06	11-Jun-07
2871	Microwave Cable Assembly, 18 GHz, 6.4 m, SMA - SMA	Huber-Suhner	198-8155-00	2871	16-Feb-06	16-Feb-07
2911	Cable 18 GHz, 1.5 m, SMA-SMA	Gore	NA	89386	07-May-06	07-May-07

HERMON LABORATORIES

9 APPENDIX B 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

The test equipment has been calibrated according to its recommended procedures and is within the manufacturer's published limit of error. The standards and instruments used in the calibration system conform to the present requirements of ISO/IEC 17025 (or alternately ANSI/NCSL Z540-1).
The laboratory calibrates its measurement standards by a third party (traceable to NIST, USA) on a regular basis according to equipment manufacturer requirements. The Hermon Labs EMC measurements uncertainty is given in the table above.

HERMON LABORATORIES

10 APPENDIX C 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).

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Person for contact: Mr. Alex Usoskin, QA manager.

11 APPENDIX D Specification references

47CFR part 15: 2005	Radio Frequency Devices.
FR Vol.62	Federal Register, Volume 62, May 13, 1997
ANSI C63.2: 1996	American National Standard for Instrumentation-Electromagnetic Noise and Field Strength, 10 kHz to 40 GHz-Specifications.
ANSI C63.4: 2003	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

HERMON LABORATORIES

12 APPENDIX E Abbreviations and acronyms

A	ampere
AC	alternating current
A/m	ampere per meter
AM	amplitude modulation
AVRG	average (detector)
cm	centimeter
dB	decibel
dBm	decibel referred to one milliwatt
dB(μV)	decibel referred to one microvolt
dB(μV/m)	decibel referred to one microvolt per meter
dB(μA)	decibel referred to one microampere
dBΩ	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
FHSS	frequency hopping spread spectrum
GHz	gigahertz
GND	ground
H	height
HL	Hermon laboratories
Hz	hertz
ITE	information technology equipment
k	kilo
kHz	kilohertz
LISN	line impedance stabilization network
LO	local oscillator
m	meter
MHz	megahertz
min	minute
mm	millimeter
ms	millisecond
μs	microsecond
NA	not applicable
NT	not tested
OATS	open area test site
Ω	Ohm
PCB	printed circuit board
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

HERMON LABORATORIES

13 APPENDIX F 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.

HERMON LABORATORIES

Antenna Factor
Active Loop Antenna
EMC Test Systems, model 6502, S/N 2857, HL 0446

Frequency, MHz	Magnetic Antenna Factor, dB(S/m)	Electric Antenna Factor, dB(1/m)
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	9.7
0.750	-41.9	9.6
1.000	-41.4	10.1
2.000	-41.5	10.0
3.000	-41.4	10.1
4.000	-41.4	10.1
5.000	-41.5	10.0
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(S/m) is to be added to receiver meter reading in dB(μV) to convert it into field intensity in dB(μA/m).
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
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(μV) to convert it into field intensity in dB(μV/m).

HERMON LABORATORIES

Antenna factor
Double-ridged wave guide horn antenna
EMC Test Systems, model 3115, serial no: 00027177, HL2432

Frequency, MHz	Antenna gain, dBi	Antenna factor. dB(1/m)
1000.0	5.5	24.7
1500.0	8.0	25.7
2000.0	8.4	27.8
2500.0	9.3	28.9
3000.0	9.0	30.7
3500.0	9.3	31.8
4000.0	9.3	33.0
4500.0	10.4	32.8
5000.0	10.0	34.2
5500.0	10.1	34.9
6000.0	10.6	35.2
6500.0	11.0	35.4
7000.0	10.8	36.3
7500.0	10.4	37.3
8000.0	10.8	37.5
8500.0	10.8	38.0
9000.0	11.0	38.3
9500.0	11.5	38.3
10000.0	11.5	38.7
10500.0	11.9	38.7
11000.0	12.2	38.9
11500.0	11.9	39.5
12000.0	12.3	39.5
12500.0	12.7	39.4
13000.0	12.0	40.5
13500.0	12.0	40.8
14000.0	11.6	41.5
14500.0	12.2	41.3
15000.0	13.6	40.2
15500.0	15.3	38.7
16000.0	15.8	38.5
16500.0	14.8	39.8
17000.0	12.9	41.9
17500.0	9.2	45.8
18000.0	6.2	49.1

Antenna factor is to be added to receiver meter reading in dB(μV) to convert it into field intensity in dB(μV/m).

Antenna calibration
Sunol Sciences Inc., model JB3, serial number A022805, HL 2697

Frequency, MHz	ACF, dB	Gain, dBi	Num gain	Frequency, MHz	ACF, dB	Gain, dBi	Num gain	Frequency, MHz	ACF, dB	Gain, dBi	Num gain	Frequency, MHz	ACF, dB	Gain, dBi	Num gain	Frequency, MHz	ACF, dB	Gain, dBi	Num gain
30	22.2	-22.5	0.01	620	19.7	6.3	4.27	1215	24.9	7.0	5.05	1810	28.3	7.1	5.08	2405	30.9	6.9	4.93
35	18.5	-17.4	0.02	625	19.7	6.5	4.42	1220	24.9	7.0	4.99	1815	28.5	6.9	4.91	2410	30.9	6.9	4.89
40	14.7	-12.5	0.06	630	19.6	6.6	4.57	1225	25.1	6.9	4.91	1820	28.6	6.8	4.74	2415	31.0	6.9	4.85
45	11.3	-8.1	0.16	635	19.7	6.5	4.48	1230	25.2	6.8	4.82	1825	28.7	6.8	4.75	2420	31.0	6.8	4.82
45	11.3	-8.1	0.16	640	19.9	6.4	4.40	1235	25.1	7.0	4.96	1830	28.7	6.8	4.76	2425	31.1	6.8	4.81
50	8.9	-4.7	0.34	645	19.9	6.5	4.45	1240	25.0	7.1	5.09	1835	28.7	6.7	4.72	2430	31.0	6.9	4.87
60	7.8	-2.1	0.62	655	19.9	6.6	4.60	1250	25.0	7.1	5.15	1845	28.6	6.9	4.90	2440	31.2	6.8	4.74
65	8.5	-2.0	0.63	660	19.9	6.7	4.69	1255	25.0	7.2	5.25	1850	28.4	7.1	5.12	2445	31.1	6.9	4.91
70	9.0	-1.9	0.64	665	19.9	6.7	4.70	1260	24.9	7.3	5.36	1855	28.5	7.0	5.07	2450	31.0	7.0	4.96
75	8.8	-1.1	0.78	670	20.0	6.7	4.71	1265	25.0	7.3	5.31	1860	28.6	7.0	5.01	2455	31.0	7.0	5.01
80	8.4	-0.2	0.97	675	20.1	6.7	4.71	1270	25.1	7.2	5.26	1865	28.5	7.1	5.17	2460	30.9	7.2	5.19
90	8.2	1.1	1.29	685	20.1	6.8	4.79	1280	25.5	6.8	4.84	1875	28.4	7.2	5.28	2470	31.3	6.8	4.76
95	9.2	0.5	1.13	690	20.1	6.9	4.88	1285	25.4	7.0	4.97	1880	28.5	7.2	5.22	2475	31.4	6.7	4.69
100	10.6	-0.4	0.92	695	20.2	6.8	4.82	1290	25.3	7.1	5.10	1885	28.5	7.2	5.22	2480	31.3	6.8	4.79
110	12.6	-1.6	0.70	705	20.4	6.8	4.75	1300	25.2	7.3	5.33	1895	28.6	7.2	5.24	2490	31.1	7.0	4.99
115	13.3	-1.9	0.65	710	20.5	6.8	4.75	1305	25.3	7.2	5.21	1900	28.6	7.2	5.27	2495	31.2	7.0	4.99
120	13.9	-2.1	0.62	715	20.5	6.8	4.80	1310	25.5	7.1	5.09	1905	28.5	7.3	5.36	2500	30.9	7.2	5.27
125	14.2	-2.0	0.63	720	20.5	6.9	4.85	1315	25.4	7.2	5.23	1910	28.5	7.4	5.45	2505	31.1	7.1	5.15
130	14.2	-1.7	0.68	725	20.6	6.8	4.81	1320	25.3	7.3	5.36	1915	28.5	7.3	5.38	2510	31.0	7.2	5.22
140	13.4	-0.3	0.94	735	20.9	6.7	4.65	1330	25.6	7.0	5.06	1925	28.6	7.3	5.35	2520	31.2	7.0	5.05
145	13.1	0.3	1.08	740	21.0	6.6	4.53	1335	25.7	7.1	5.07	1930	28.6	7.3	5.39	2525	30.8	7.4	5.54
150	12.9	0.8	1.21	745	21.0	6.6	4.59	1340	25.7	7.1	5.09	1935	28.5	7.4	5.54	2530	31.0	7.3	5.37
155	12.7	1.3	1.34	750	21.0	6.7	4.64	1345	25.7	7.1	5.13	1940	28.4	7.6	5.70	2535	31.2	7.0	5.06
160	12.7	1.6	1.44	755	21.0	6.8	4.74	1350	25.7	7.1	5.17	1945	28.5	7.5	5.59	2540	31.2	7.1	5.09
165	12.5	2.0	1.59	760	21.0	6.8	4.83	1355	25.8	7.0	5.06	1950	28.6	7.4	5.48	2545	31.0	7.3	5.43
170	12.2	2.6	1.83	765	21.1	6.8	4.73	1360	25.9	6.9	4.95	1955	28.6	7.5	5.57	2550	31.0	7.3	5.39
175	11.8	3.3	2.13	770	21.3	6.7	4.64	1365	26.0	6.9	4.95	1960	28.6	7.5	5.65	2555	31.1	7.2	5.30
180	11.6	3.7	2.36	775	21.3	6.7	4.68	1370	26.0	7.0	4.96	1965	28.7	7.4	5.47	2560	31.0	7.4	5.47
185	11.5	4.0	2.54	780	21.3	6.7	4.72	1375	26.0	7.0	5.01	1970	28.9	7.2	5.29	2565	30.8	7.6	5.70
190	11.6	4.2	2.61	785	21.3	6.8	4.77	1380	26.0	7.0	5.06	1975	28.9	7.2	5.22	2570	31.1	7.3	5.37
200	13.1	3.2	2.07	795	21.4	6.8	4.79	1390	26.1	6.9	4.92	1985	29.1	7.1	5.11	2580	31.6	6.9	4.87
205	12.0	4.4	2.76	800	21.5	6.8	4.77	1395	26.2	6.9	4.94	1990	29.1	7.0	5.06	2585	31.6	6.8	4.79
210	11.0	5.6	3.66	805	21.6	6.7	4.71	1400	26.2	7.0	4.96	1995	29.1	7.1	5.09	2590	31.6	6.9	4.88
215	11.3	5.6	3.59	810	21.7	6.7	4.65	1405	26.1	7.0	5.02	2000	29.1	7.1	5.11	2595	31.5	7.0	4.97
220	11.6	5.5	3.52	815	21.7	6.7	4.72	1410	26.1	7.1	5.09	2005	29.1	7.1	5.16	2600	31.6	6.9	4.86
225	11.7	5.5	3.55	820	21.7	6.8	4.80	1415	26.2	7.0	5.02	2010	29.1	7.1	5.15	2605	31.3	7.2	5.30
230	11.9	5.5	3.57	825	21.7	6.8	4.82	1420	26.3	7.0	4.96	2015	29.2	7.1	5.13	2610	31.4	7.1	5.15
240	12.3	5.5	3.54	835	21.8	6.8	4.82	1430	26.1	7.2	5.25	2025	29.3	7.1	5.08	2620	31.6	7.0	4.97
245	12.3	5.7	3.71	840	21.9	6.8	4.80	1435	26.1	7.2	5.24	2030	29.3	7.0	5.05	2625	31.4	7.1	5.17
250	12.3	5.9	3.88	845	21.9	6.8	4.83	1440	26.2	7.2	5.24	2035	29.3	7.1	5.07	2630	31.6	7.0	5.00
255	12.5	5.9	3.85	850	21.9	6.9	4.86	1445	26.3	1	5.11	2040	29.3	7.1	5.13	2635	31.8	6.8	4.82
260	12.7	5.8	3.83	855	22.0	6.8	4.80	1450	26.5	7.0	4.98	2045	29.2	7.2	5.23	2640	31.7	7.0	4.98
265	13.2	5.5	3.54	860	22.1	6.8	4.74	1455	26.4	7.1	5.07	2050	29.2	7.2	5.27	2645	31.7	6.9	4.93
270	13.7	5.2	3.27	865	22.0	6.9	4.92	1460	26.4	7.1	5.17	2055	29.3	7.2	5.21	2650	31.8	6.9	4.85
275	13.7	5.3	3.39	870	21.9	7.1	5.11	1465	26.4	7.2	5.19	2060	29.5	7.0	5.02	2655	31.8	6.9	4.85
280	13.7	5.4	3.50	875	22.0	7.1	5.08	1470	26.4	7.2	5.22	2065	29.4	7.1	5.08	2660	31.7	7.0	5.02
285	13.7	5.6	3.61	880	22.1	7.0	5.05	1475	26.4	7.1	5.17	2070	29.4	7.1	5.10	2665	32.0	6.7	4.71
290	13.7	5.7	3.72	885	22.1	7.0	5.06	1480	26.5	7.1	5.12	2075	29.5	7.0	5.01	2670	32.0	6.7	4.67
300	13.9	5.8	3.81	895	22.2	7.1	5.09	1490	26.5	7.1	5.17	2085	29.7	6.9	4.89	2680	31.7	7.0	5.04
305	14.0	5.9	3.85	900	22.2	7.1	5.12	1495	26.5	7.2	5.24	2090	29.7	6.9	4.86	2685	31.9	6.8	4.83
310	14.1	5.9	3.88	905	22.3	7.1	5.09	1500	26.5	7.2	5.31	2095	29.8	6.8	4.78	2690	32.1	6.7	4.72
315	14.3	5.9	3.89	910	22.3	7.0	5.05	1505	26.5	7.2	5.27	2100	29.9	6.8	4.75	2695	32.1	6.7	4.71
320	14.4	5.9	3.90	915	22.4	7.0	4.99	1510	26.6	7.2	5.23	2105	29.8	6.8	4.81	2700	32.0	6.8	4.81
325	14.5	5.9	3.92	920	22.6	6.9	4.92	1515	26.6	7.2	5.30	2110	29.9	6.8	4.78	2705	32.0	6.8	4.80
330	14.6	5.9	3.93	925	22.7	6.9	4.85	1520	26.5	7.3	5.38	2115	29.9	6.8	4.76	2710	32.1	6.8	4.79
335	14.7	6.0	4.02	930	22.8	6.8	4.77	1525	26.6	7.3	5.37	2120	29.9	6.8	4.84	2715	32.1	6.7	4.71
340	14.7	6.2	4.12	935	22.8	6.8	4.83	1530	26.6	7.3	5.36	2125	29.9	6.9	4.89	2720	32.4	6.5	4.47
345	14.9	6.1	4.06	940	22.8	6.9	4.89	1535	26.6	7.4	5.44	2130	29.9	6.9	4.90	2725	32.2	6.7	4.63
350	15.1	6.0	3.99	945	22.8	6.9	4.87	1540	26.5	7.4	5.53	2135	29.8	6.9	4.94	2730	31.9	7.0	5.05
355	15.3	5.9	3.88	950	22.9	6.9	4.85	1545	26.5	7.5	5.58	2140	29.8	7.1	5.08	2735	31.6	7.4	5.44
360	15.6	5.8	3.78	955	23.0	6.8	4.81	1550	26.5	7.5	5.63	2145	29.9	6.9	4.92	2740	31.6	7.1	5.46
365	15.5	5.9	3.89	960	23.1	6.8	4.77	1555	26.7	7.3	5.39	2150	29.9	7.0	4.98	2745	31.9	7.0	5.06
370	15.5	6.0	4.01	965	23.1	6.7	4.73	1560	26.9	7.1	5.16	2155	29.8	7.1	5.10	2750	32.0	6.9	4.94
375	15.6	6.1	4.03	970	23.2	6.7	4.69	1565	26.9	7.2	5.23	2160	29.8	7.1	5.09	2755	32.0	7.0	4.98
380	15.7	6.1	4.05	975	23.3	6.6	4.62	1570	26.9	7.2	5.30	2165	29.9	7.0	5.00	2760	32.0	7.0	5.06
385	15.7	6.2	4.15	980	23.5	6.6	4.54	1575	27.0	7.2	5.23	2170	29.9	7.1	5.07	2765	32.2	6.8	4.80
390	15.7	6.3	4.25	985	23.5	6.6	4.52	1580	27.0	7.1	5.17	2175	29.8	7.2	5.20	2770	32.3	6.8	4.73
395	15.9	6.3	4.22	990	23.6	6.5	4.50	1585	27.0	7.2	5.20	2180	29.8	7.2	5.27	2775	32.3	6.8	4.77
400	16.0	6.2	4.18	995	23.6	6.5	4.48	1590	27.0	7.2	5.22	2185	29.8	7.2	5.27	2780	32.3	6.8	4.82
405	16.3	6.1	4.07	1000	23.7	6.5	4.46	1595	27.0	7.2	5.29	2190	29.8	7.2	5.28	2785	32.7	6.4	4.41
410	16.5	6.0	3.96	1005	23.7	6.5	4.51	1600	27.0	7.3	5.36	2195	29.8	7.2	5.30	2790	32.8	6.3	4.25
415	16.5	6.0	4.00	1010	23.7	6.6	4.57	1605	27.0	7.3	5.38	2200	29.7	7.3	5.38	2795	32.8	6.4	4.33
420	16.6	6.1	4.03	1015	23.7	6.6	4.55	1610	27.0	7.3	5.41	2205	29.7	7.3	5.41	2800	32.5	6.7	4.66
425	16.6	6.1	4.10	1020	23.8	6.6	4.54	1615	27.1	7.3	5.33	2210	29.7	7.4	5.47	2805	32.5	6.6	4.62
430	16.7	6.2	4.16	1025	23.8	6.6	4.62	1620	27.2	7.2	5.27	2215	29.7	7.4	5.54	2810	32.5	6.7	4.70
435	16.9	6.1	4.05	1030	23.7	6.7	4.70	1625	27.2	7.2	5.30	2220	29.7	7.5	5.57	2815	32.3	6.9	4.85
440	17.1	5.9	3.93	1035	23.7	6.8	4.81	1630	27.2	7.3	5.33	2225	29.8	7.3	5.43	2820	32.2	7.0	5.01
445	17.2	6.0	3.97	1040	23.6	6.9	4.92	1635	27.2	7.3	5.35	2230	29.8	7.4	5.45	2825	32.3	7.0	4.96
450	17.2	6.0	4.00	1045	23.7	6.9	4.91	1640	27.2	7.3	5.36	2235	29.7	7.5	5.61	2830	32.4	6.8	4.80
455	17.3	6.1	4.04	1050	23.7	6.9	4.91	1645	27.3	7.2	5.22	2240	29.5	7.7	5.86	2835	32.5	6.7	4.68
460	17.4	6.1	4.07	1055	23.7	7.0	5.01	1650	27.5	7.1	5.09	2245	29.8	7.4	5.53	2840	32.5	6.8	4.78
465	17.5	6.1	4.05	1060	23.6	7.1	5.11	1655	27.5	7.1	5.11	2250	30.0	7.3	5.35	2845	32.6	6.6	4.62
470	17.6	6.1	4.04	1065	23.7	7.0	5.06	1660	27.5	7.1	5.13	2255	30.0	7.2	5.28	2850	32.6	6.7	4.70
475	17.7	6.0	3.99	1070	23.8	7.0	5.01	1665	27.6	7.0	5.06	2260	30.1	7.2	5.24	2855	32.4	6.9	4.88
480	17.9	5.9	3.93	1075	23.8	7.0	5.01	1670	27.7	7.0	4.99	2265	30.1	7.2	5.20	2860	32.4	7.0	4.98
485	18.0	5.9	3.88	1080	23.9	7.0	5.01	1675	27.7	7.0	5.02	2270	30.2	7.1	5.12	2865	32.8	6.5	4.52
490	18.2	5.8	3.82	1085	24.0	7.0	4.96	1680	27.7	7.0	5.05	2275	30.3	7.0	5.05	2870	33.0	6.3	4.30
495	18.0	6.0	4.02	1090	24.0	6.9	4.91	1685	27.7	7.0	5.01	2280	30.0	7.0	5.06	2875	33.0	6.4	4.38
500	17.9	6.3	4.23	1095	24.1	6.9	4.86	1690	27.8	7.0	4.98	2285	30.3	7.0	5.05	2880	32.5	6.9	4.87
505	17.9	6.3	4.29	1100	24.2	6.8	4.82	1695	27.8	7.0	5.01	2290	30.3	7.1	5.07	2885	33.0	6.4	4.40
510	18.0	6.4	4.36	1105	24.3	6.8	4.80	1700	27.8	7.0	5.03	2295	30.3	7.1	5.13	2890	33.1	6.3	4.28
515	18.1	6.4	4.34	1110	24.3	6.8	4.78	1705	27.8	7.1	5.09	2300	30.2	7.2	5.23	2895	33.1	6.4	4.34
520	18.2	6.4	4.32	1115	24.3	6.8	4.79	1710	27.7	7.1	5.16	2305	30.3	7.2	5.20	2900	33.0	6.4	4.41
525	18.2	6.4	4.36	1120	24.4	6.8	4.80	1715	27.8	7.1	5.08	2310	30.2	7.3	5.35	2905	32.9	6.6	4.58
530	18.3	6.4	4.39	1125	24.3	6.9	4.90	1720	27.9	7.0	5.00	2315	30.1	7.4	5.45	2910	32.9	6.5	4.51
535	18.3	6.4	4.41	1130	24.3	7.0	5.00	1725	28.0	7.0	4.99	2320	30.3	7.2	5.27	2915	33.1	6.4	4.33
540	18.4	6.4	4.41	1135	24.4	6.9	4.90	1730	28.0	7.0	4.98	2325	304	7.2	5.22	2920	33.3	6.2	4.16
545	18.4	6.5	4.47	1140	24.5	6.8	4.81	1735	28.0	7.0	5.02	2330	30.4	7.1	5.13	2925	33.0	6.5	4.45
550	18.4	6.6	4.53	1145	24.6	6.8	4.76	1740	28.0	7.1	5.07	2335	30.5	7.0	5.07	2930	33.0	6.5	4.51
555	18.6	6.5	4.45	1150	24.7	6.7	4.71	1745	28.0	7.0	5.04	2340	30.5	7.1	5.11	2935	33.0	6.5	4.48
560	18.8	6.4	4.37	1155	24.7	6.8	4.76	1750	28.1	7.0	5.01	2345	30.6	7.0	5.07	2940	33.0	6.5	4.52
565	18.9	6.4	4.33	1160	24.7	6.8	4.80	1755	27.9	7.1	5.17	2350	30.5	7.1	5.12	2945	33.1	6.5	4.42
570	19.0	6.3	4.28	1165	24.7	6.8	4.81	1760	27.8	7.3	5.34	2355	30.6	7.1	5.08	2950	33.2	6.4	4.32
575	19.1	6.3	4.31	1170	24.7	6.8	4.81	1765	27.9	7.3	5.31	2360	30.9	6.8	4.79	2955	33.3	6.3	4.27
580	19.1	6.4	4.33	1175	24.8	6.8	4.84	1770	27.9	7.2	5.28	2365	31.0	6.7	4.66	2960	33.3	6.3	4.30
585	19.1	6.5	4.43	1180	24.8	6.9	4.86	1775	27.9	7.3	5.32	2370	31.1	6.6	4.61	2965	33.4	6.2	4.21
590	19.1	6.6	4.52	1185	24.8	6.9	4.92	1780	27.9	7.3	5.35	2375	31.1	6.6	4.60	2970	33.3	6.4	4.36
595	19.0	6.6	4.62	1190	24.7	7.0	4.99	1785	28.1	7.2	5.21	2380	31.1	6.6	4.61	2975	33.0	6.6	4.60
600	19.0	6.7	4.72	1195	24.7	7.0	5.02	1790	28.2	7.0	5.07	2385	31.1	6.7	4.62	2980	32.9	6.8	4.74
605	19.1	6.8	4.74	1200	24.7	7.0	5.05	1795	28.2	7.0	5.07	2390	31.2	6.6	4.56	2985	32.8	6.9	4.93
610	19.1	6.8	4.76	1205	24.08	7.1	5.08	1800	28.3	7.0	5.06	2395	31.2	6.6	4.60	2990	32.9	6.8	4.82
615	19.4	6.5	4.51	1210	24.8	7.1	5.11	1805	28.3	7.1	5.07	2400	30.9	6.9	4.93	3000	33.4	6.4	4.33

HERMON LABORATORIES

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

HERMON LABORATORIES

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	

HERMON LABORATORIES

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		
30	12500	3.20	≤ 5.0	±0.26
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		

HERMON LABORATORIES

Cable loss
Cable 40 GHz, 0.8 m, blue, model: KPS-1503A-800-KPS, S/N W4907, HL 2254

Frequency, GHz	Cable loss, dB	Frequency, GHz	Cable loss, dB	Frequency, GHz	Cable loss, dB
0.03	0.04	5.10	0.80	15.00	1.49
0.05	0.07	5.30	0.83	15.50	1.49
0.10	0.09	5.50	0.83	16.00	1.46
0.20	0.15	5.70	0.84	16.50	1.47
0.30	0.19	5.90	0.87	17.00	1.50
0.40	0.25	6.10	0.86	17.50	1.57
0.50	0.29	6.30	0.89	18.00	1.63
0.60	0.33	6.50	0.90	18.50	1.57
0.70	0.37	6.70	0.89	19.00	1.63
0.80	0.41	6.90	0.93	19.50	1.65
0.90	0.44	7.10	0.92	20.00	1.64
1.00	0.45	7.30	0.95	20.50	1.75
1.10	0.48	7.50	0.96	21.00	1.72
1.20	0.51	7.70	0.97	21.50	1.78
1.30	0.53	7.90	1.01	22.00	1.76
1.40	0.54	8.10	1.00	22.50	1.72
1.50	0.57	8.30	1.05	23.00	1.83
1.60	0.59	8.50	1.04	23.50	1.80
1.70	0.04	8.70	1.07	24.00	1.90
1.80	0.07	8.90	1.11	24.50	1.81
1.90	0.09	9.10	1.09	25.00	1.98
2.00	0.15	9.30	1.14	25.50	1.91
2.10	0.19	9.50	1.12	26.00	2.02
2.20	0.25	9.70	1.15	26.50	1.92
2.30	0.29	9.90	1.16	27.00	1.97
2.40	0.33	10.10	1.16	28.00	2.02
2.50	0.37	10.30	1.19	29.00	1.95
2.60	0.41	10.50	1.14	30.00	1.94
2.70	0.44	10.70	1.19	31.00	2.11
2.80	0.45	10.90	1.17	32.00	2.17
2.90	0.48	11.10	1.13	33.00	2.27
3.10	0.61	11.30	1.20	34.00	2.27
3.30	0.64	11.50	1.13	35.00	2.29
3.50	0.65	11.70	1.20	36.00	2.35
3.70	0.68	11.90	1.18	37.00	2.37
3.90	0.69	12.10	1.14	38.00	2.40
4.10	0.71	12.40	1.19	39.00	2.57
4.30	0.73	13.00	1.34	40.00	2.36
4.50	0.75	13.50	1.33		
4.70	0.77	14.00	1.48		
4.90	0.79	14.50	1.45		