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:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

8 Transmitter tests according to 47CFR part 15 subpart C requirements (802.11 b/g and 802.11a)

8.1 Minimum 6 dB bandwidth

8.1.1 General

This test was performed to measure 6 dB bandwidth of the EUT carrier frequency. Specification test limits are given in Table 8.1.1.

Table 8.1.1 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.

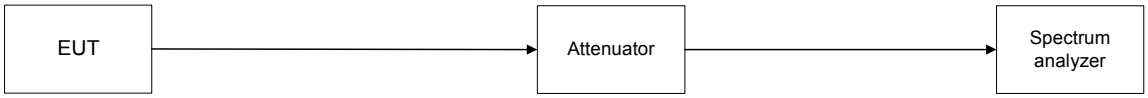
8.1.2 Test procedure

8.1.2.1 The EUT was set up as shown in Figure 8.1.1, energized and its proper operation was checked.

8.1.2.2 The EUT was set to transmit modulated carrier.

8.1.2.3 The transmitter minimum 6 dB bandwidth was measured with spectrum analyzer as frequency delta between reference points on modulation envelope and provided in Table 8.1.2 and associated plot.

Figure 8.1.1 The 6 dB bandwidth test setup



Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Table 8.1.2 The 6 dB bandwidth test results

ASSIGNED FREQUENCY BAND:	2400 – 2483.5 MHz
DETECTOR USED:	Peak
RESOLUTION BANDWIDTH:	100 kHz
VIDEO BANDWIDTH:	300 kHz
MODULATION ENVELOPE REFERENCE POINTS:	-6.0 dBc
MODULATION:	DSSS: (DBPSK) @ 1 Mbps (CCK) @ 11 Mbps OFDM: BPSK @ 6 Mbps 64-QAM @ 54 Mbps
MODULATING SIGNAL:	PRBS

Carrier frequency, MHz	6 dB bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
DSSS, 1 Mbps				
2412	12752	500	-12252	Pass
2437	12566	500	-12066	Pass
2462	11808	500	-11308	Pass
DSSS, 11 Mbps				
2412	12370	500	-11870	Pass
2437	12494	500	-11994	Pass
2462	12283	500	-11783	Pass
OFDM, 6 Mbps				
2412	16207	500	-15707	Pass
2437	16389	500	-15889	Pass
2462	15848	500	-15348	Pass
OFDM, 54 Mbps				
2412	16501	500	-16001	Pass
2437	16484	500	-15984	Pass
2462	15806	500	-15306	Pass

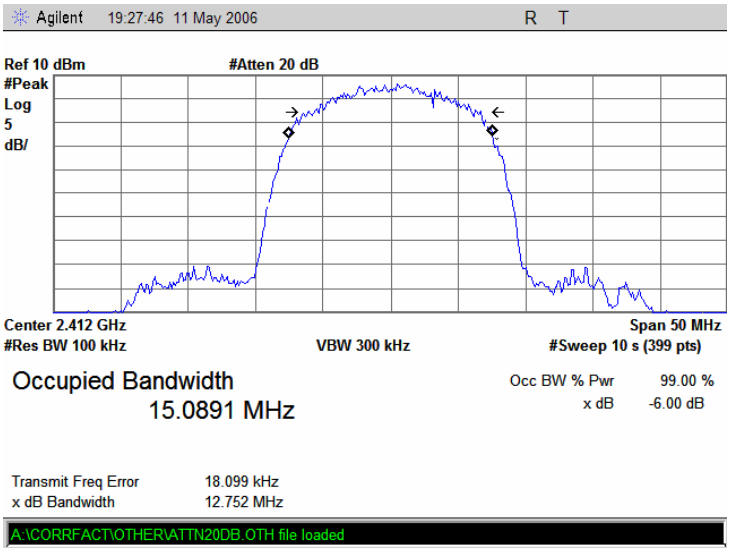
Reference numbers of test equipment used

HL 1650	HL 2867	HL 2909						

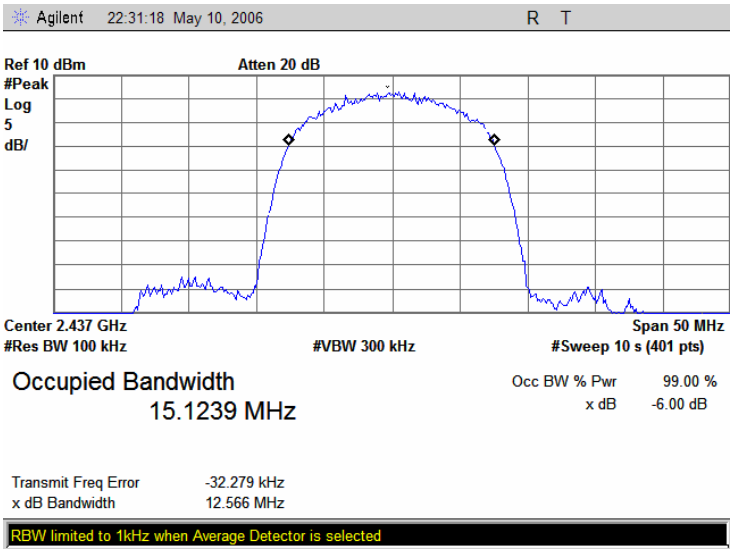
Full description is given in Appendix A.

Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.1.1 The 6 dB bandwidth test result at low frequency, DSSS, 1 Mbps

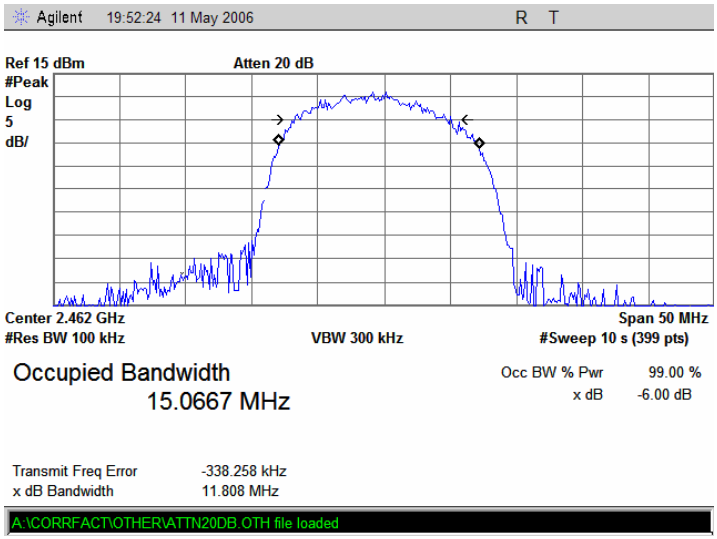


Plot 8.1.2 The 6 dB bandwidth test result at mid frequency, DSSS, 1 Mbps

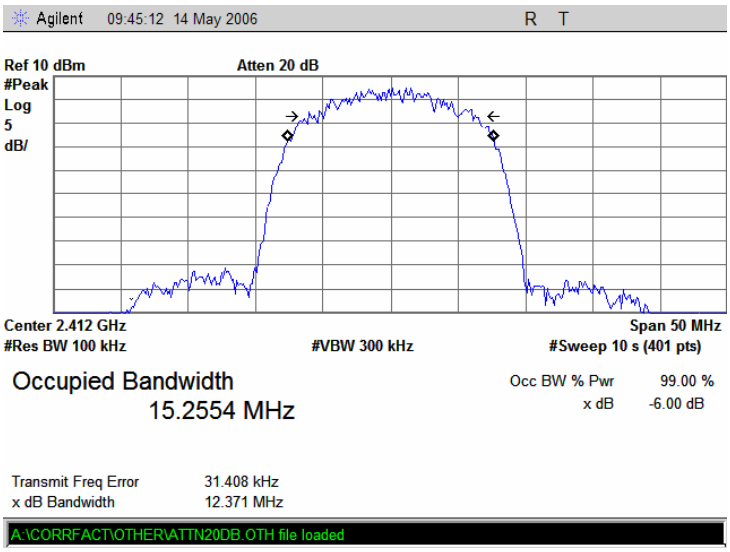


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.1.3 The 6 dB bandwidth test result at high frequency, DSSS, 1 Mbps

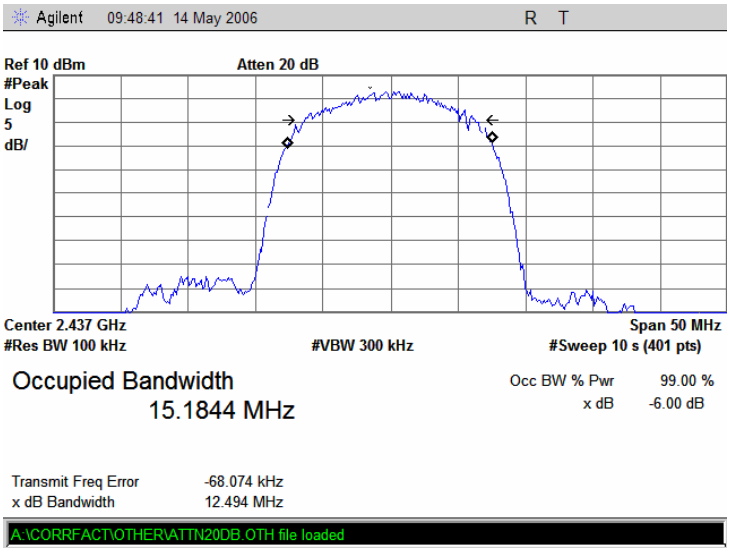


Plot 8.1.4 The 6 dB bandwidth test result at low frequency, DSSS, 11 Mbps

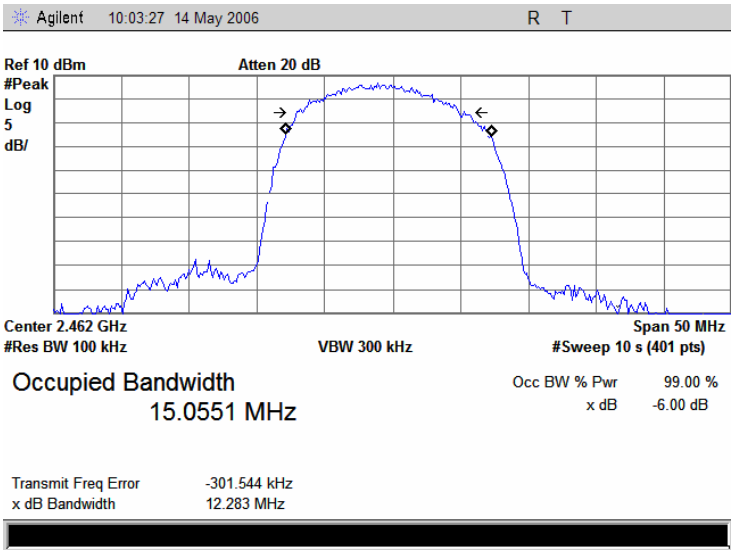


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.1.5 The 6 dB bandwidth test result at mid frequency, DSSS, 11 Mbps

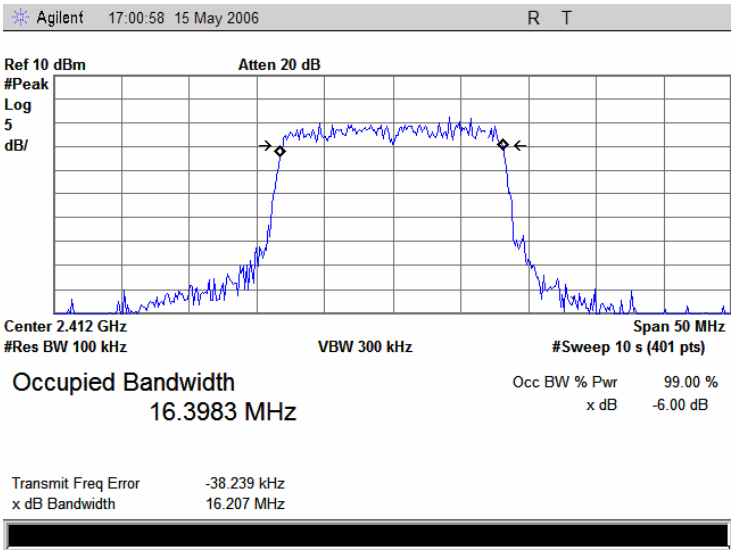


Plot 8.1.6 The 6 dB bandwidth test result at high frequency, DSSS, 11 Mbps

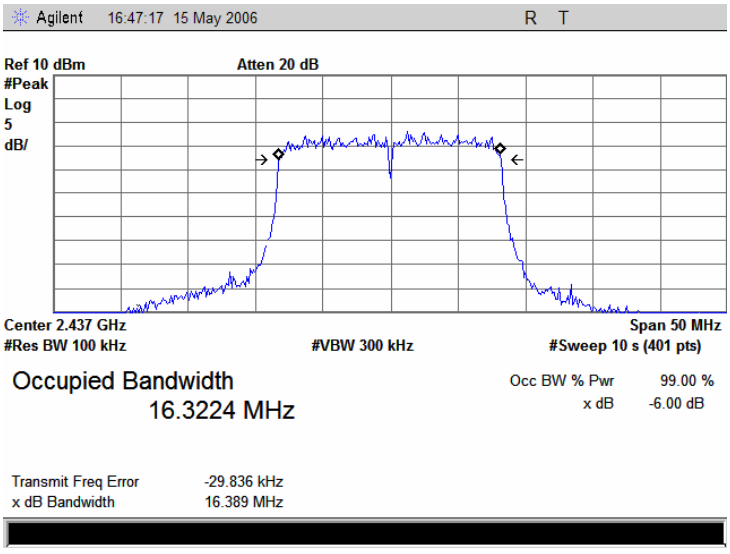


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.1.7 The 6 dB bandwidth test result at low frequency, OFDM, 6 Mbps

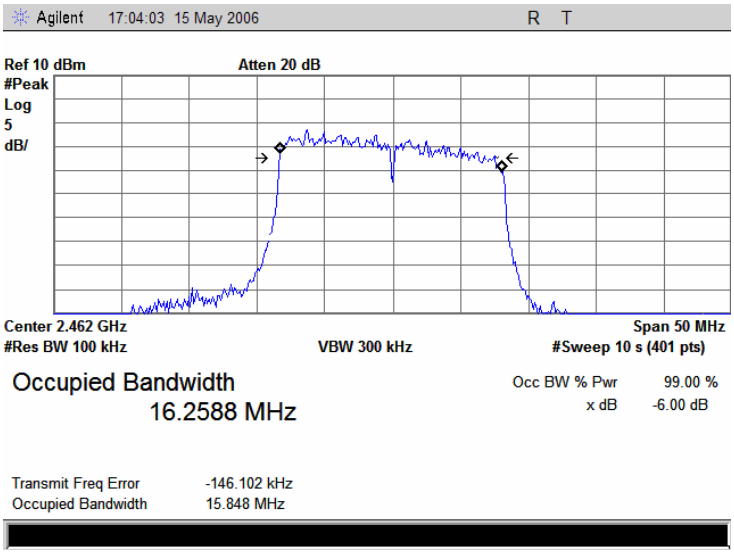


Plot 8.1.8 The 6 dB bandwidth test result at mid frequency, OFDM, 6 Mbps

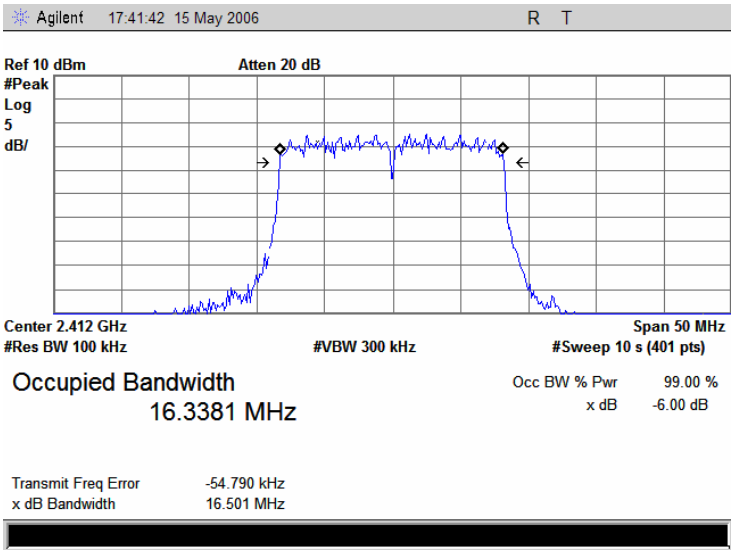


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.1.9 The 6 dB bandwidth test result at high frequency, OFDM, 6 Mbps

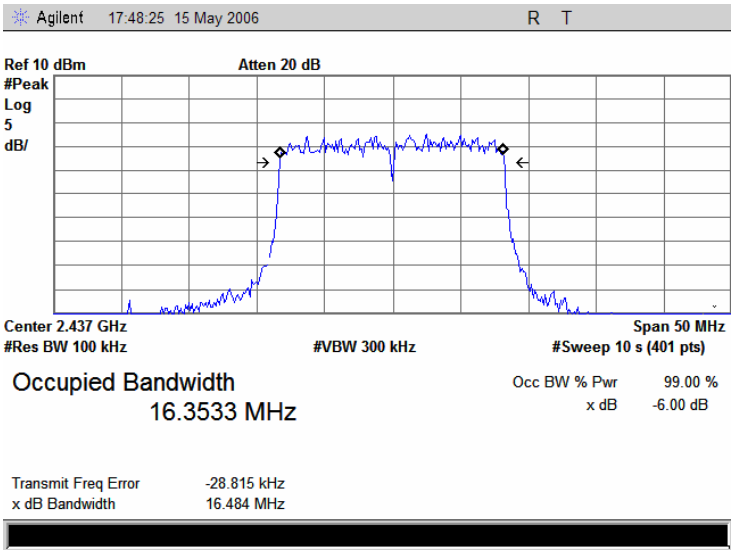


Plot 8.1.10 The 6 dB bandwidth test result at low frequency, OFDM, 54 Mbps

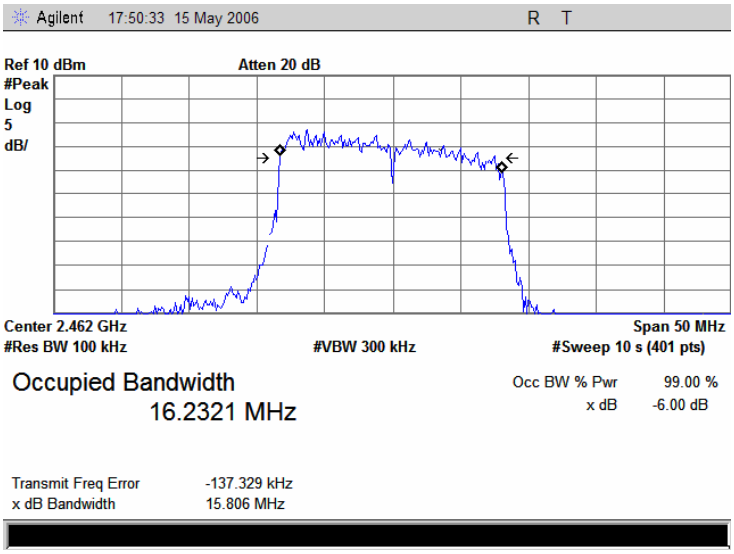


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.1.11 The 6 dB bandwidth test result at mid frequency, OFDM, 54 Mbps



Plot 8.1.12 The 6 dB bandwidth test result at high frequency, OFDM, 54 Mbps



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:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

8.2 Peak output power

8.2.1 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 8.2.1 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.

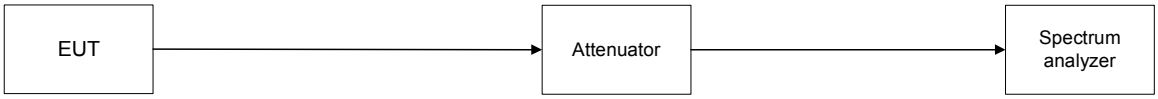
8.2.2 Test procedure

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

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

8.2.2.3 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 8.2.2 and associated plots.

Figure 8.2.1 Peak output power test setup



Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Table 8.2.2 Peak output power test results

ASSIGNED FREQUENCY: 2400.0 – 2483.5 MHz
MODULATION: DBPSK, CCK, BPSK, 64-QAM
MODULATING SIGNAL: PRBS
BIT RATE: 1, 11, 6, 54 Mbps
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
DETECTOR USED: Peak
EUT 6 dB BANDWIDTH: 12.5 MHz (DSSS) / 16.3 MHz (OFDM)
RESOLUTION BANDWIDTH: 100 kHz
VIDEO BANDWIDTH: 300 kHz

Carrier frequency, MHz	Spectrum analyzer reading, dBm	External attenuation, dB	Cable loss, dB	Peak output power, dBm	Limit, dBm	Margin*, dB	Verdict
DSSS, 1 Mbps							
2412	25.23	Included	Included	25.23	30.0	-4.77	Pass
2437	25.05	Included	Included	25.05	30.0	-4.95	Pass
2462	24.96	Included	Included	24.96	30.0	-5.04	Pass
DSSS, 11 Mbps							
2412	25.78	Included	Included	25.78	30.0	-4.22	Pass
2437	26.57	Included	Included	26.57	30.0	-3.43	Pass
2462	26.27	Included	Included	26.27	30.0	-3.73	Pass
OFDM, 6 Mbps							
2412	20.09	Included	Included	20.09	30.0	-9.91	Pass
2437	20.56	Included	Included	20.56	30.0	-9.44	Pass
2462	20.36	Included	Included	20.36	30.0	-9.64	Pass
OFDM, 54 Mbps							
2412	20.39	Included	Included	20.39	30.0	-9.61	Pass
2437	20.92	Included	Included	20.92	30.0	-9.08	Pass
2462	20.41	Included	Included	20.41	30.0	-9.59	Pass

* - Margin = Peak output power – specification limit.

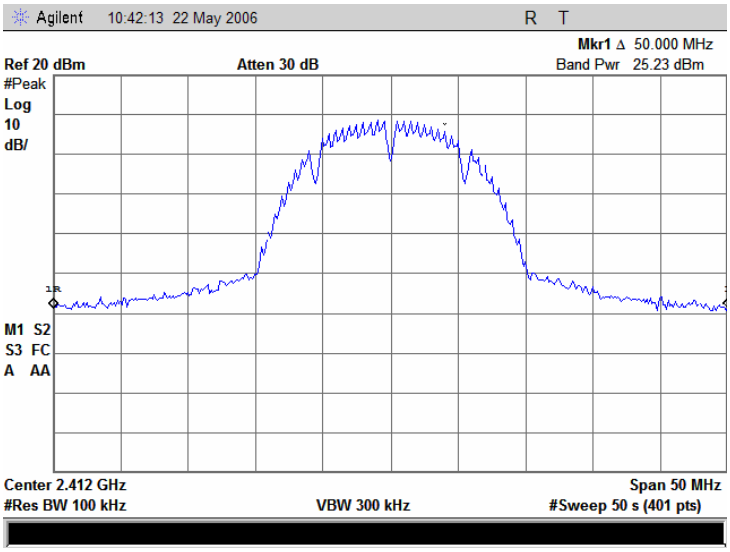
Reference numbers of test equipment used

HL 1650	HL 2867	HL 2909					

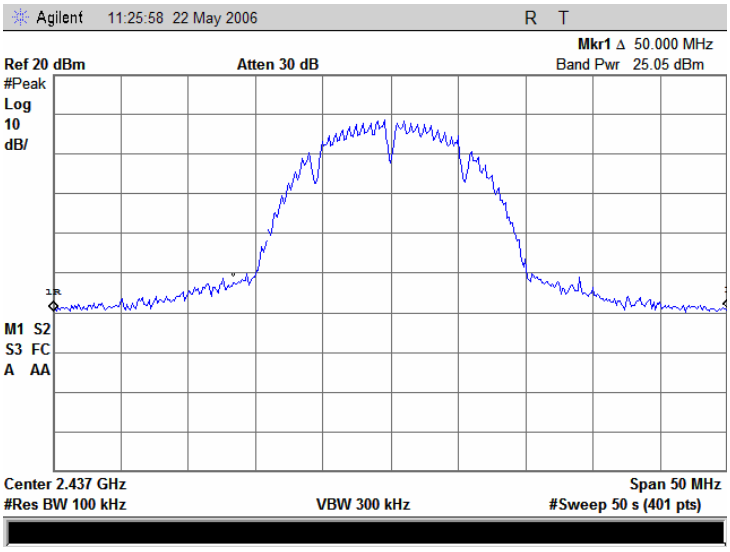
Full description is given in Appendix A.

Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.2.1 Peak output power at low frequency, DSSS, 1 Mbps

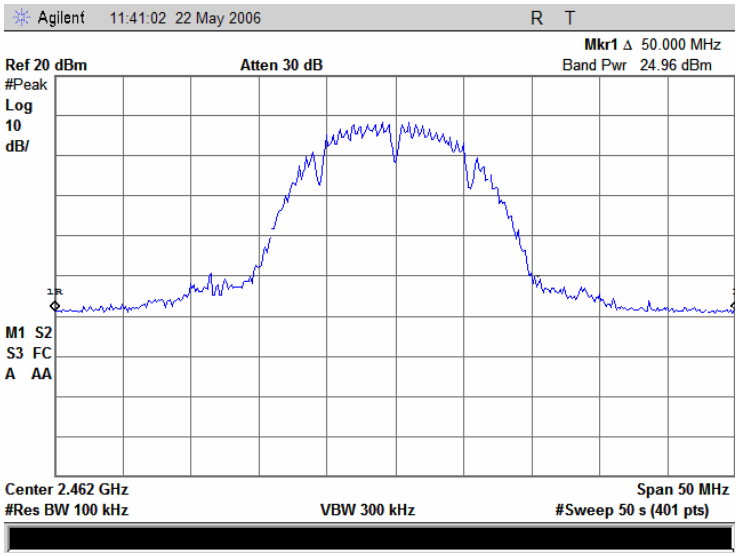


Plot 8.2.2 Peak output power at mid frequency, DSSS, 1 Mbps

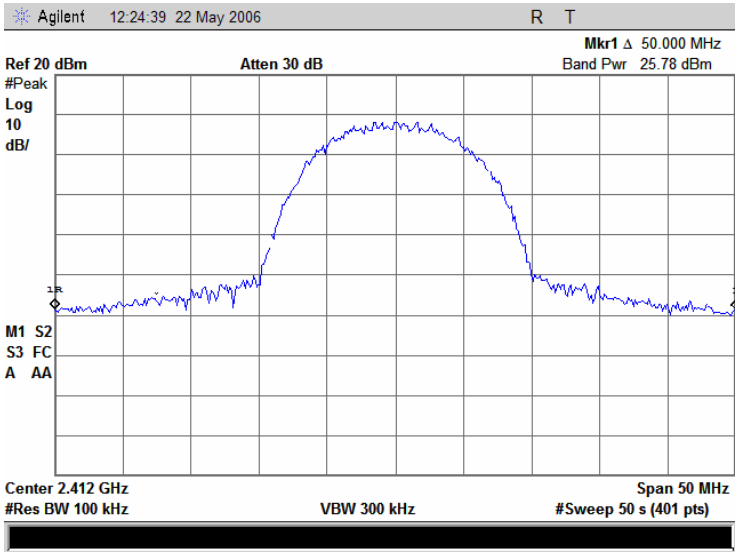


Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.2.3 Peak output power at high frequency, DSSS, 1 Mbps

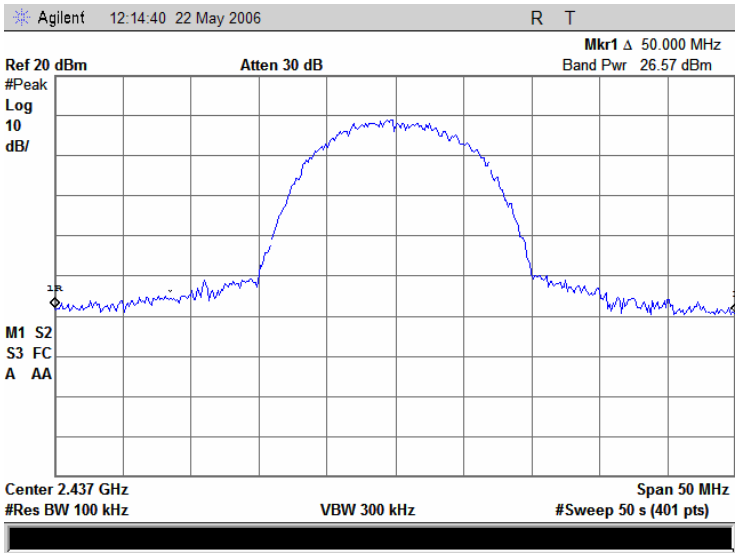


Plot 8.2.4 Peak output power at low frequency, DSSS, 11 Mbps

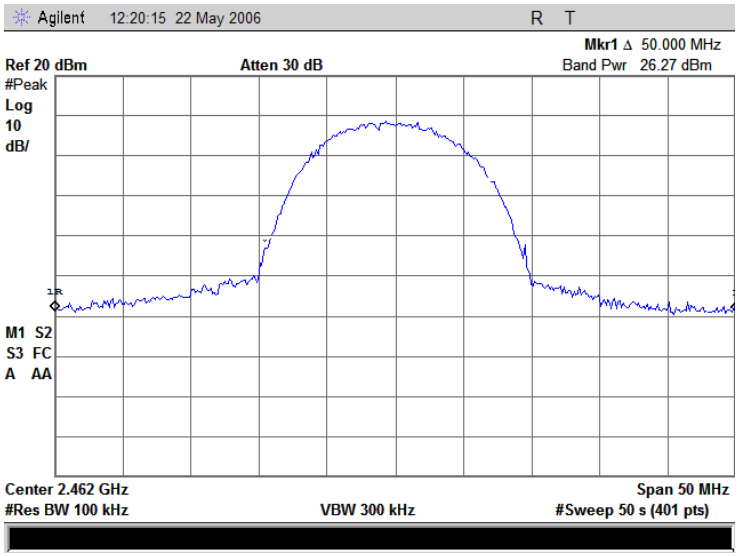


Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.2.5 Peak output power at mid frequency, DSSS, 11 Mbps

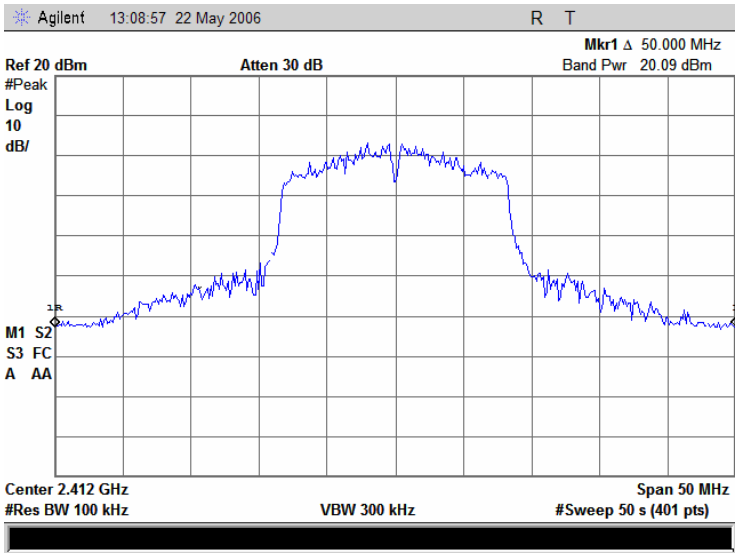


Plot 8.2.6 Peak output power at high frequency, DSSS, 11 Mbps

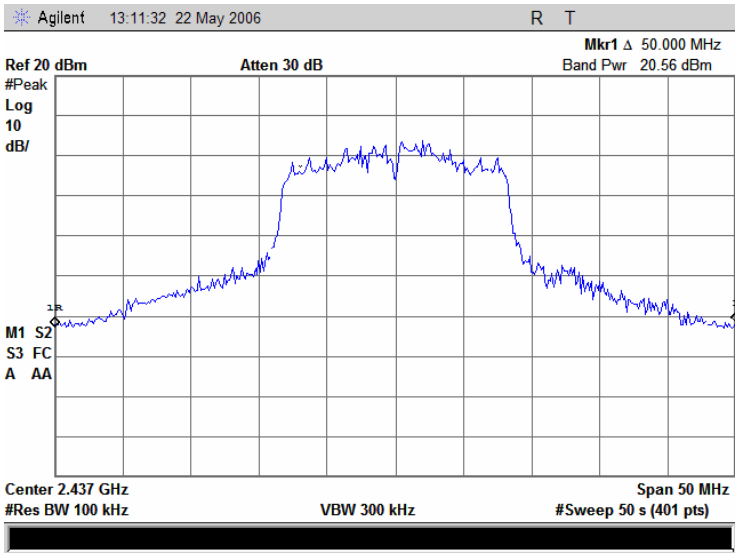


Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.2.7 Peak output power at low frequency, OFDM, 6 Mbps

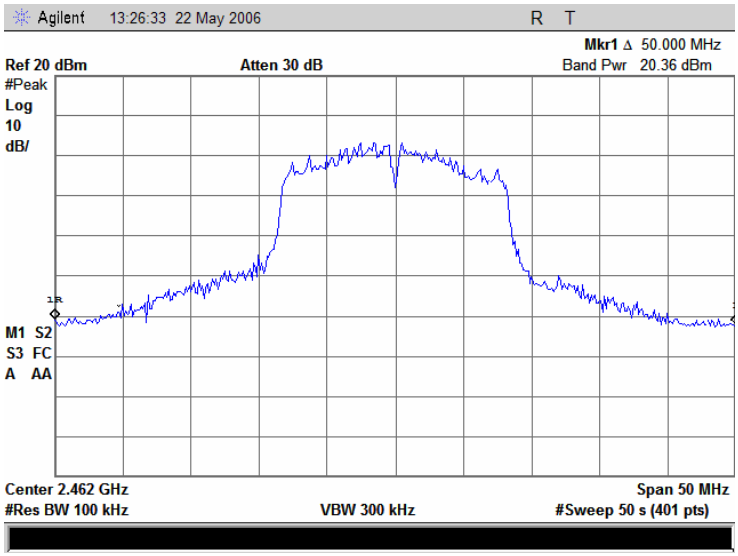


Plot 8.2.8 Peak output power at mid frequency, OFDM, 6 Mbps

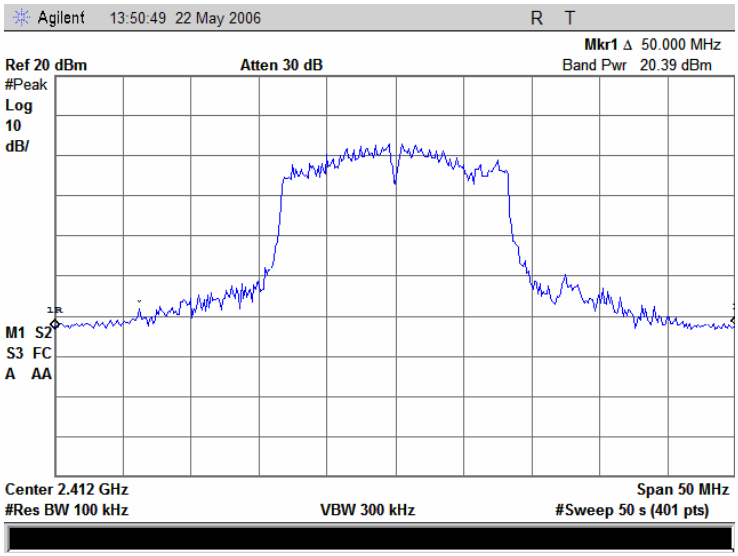


Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.2.9 Peak output power at high frequency, OFDM, 6 Mbps

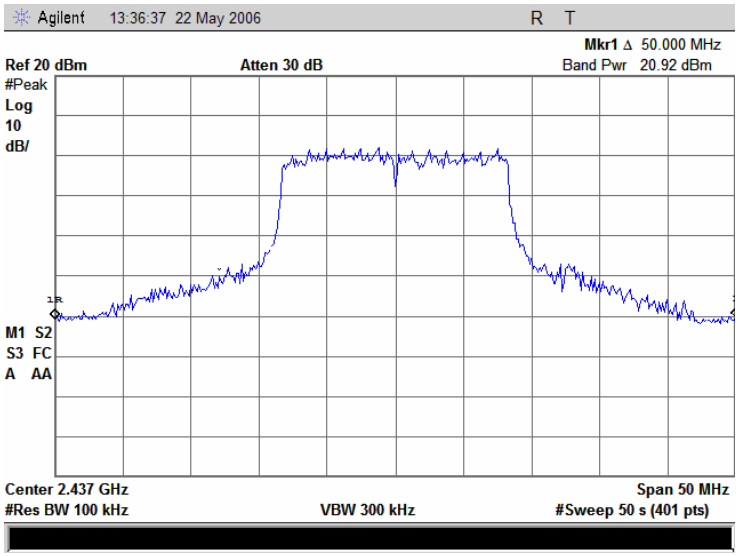


Plot 8.2.10 Peak output power at low frequency, OFDM, 54 Mbps

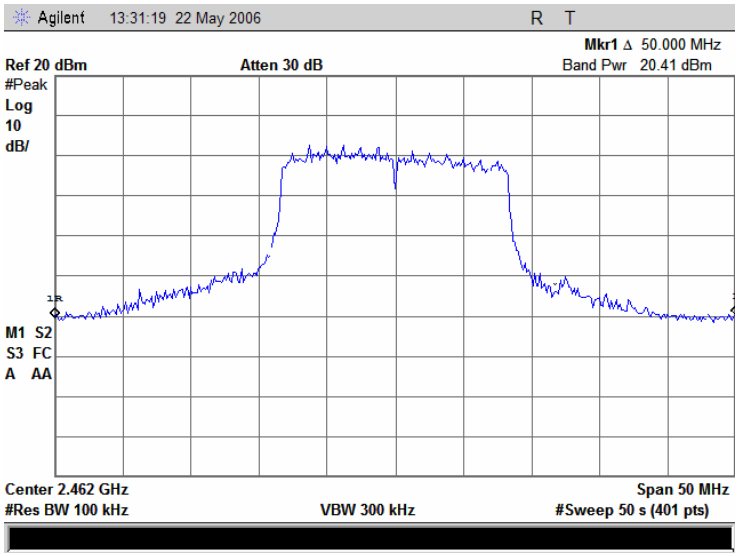


Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.2.11 Peak output power at mid frequency, OFDM, 54 Mbps



Plot 8.2.12 Peak output power at high frequency, OFDM, 54 Mbps



Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

8.3 Spurious emissions at RF antenna connector

8.3.1 General

This test was performed to measure spurious emissions at RF antenna connector. Specification test limits are given in Table 8.3.1.

Table 8.3.1 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.

8.3.2 Test procedure

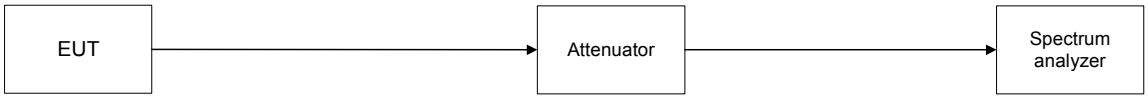
8.3.2.1 The EUT was set up as shown in Figure 8.3.1, energized and its proper operation was checked.

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

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

8.3.2.4 The spurious emission was measured with spectrum analyzer as provided in Table 8.3.2 and associated plots and referenced to the highest emission level measured within the authorized band.

Figure 8.3.1 Spurious emission test setup



Test specification:	**Section 15.247(c), Conducted spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	**Verdict:**	PASS
Date:	5/18/2006		
Temperature: 22 ºC	**Air Pressure:** 1010 hPa	**Relative Humidity:** 42 %	**Power Supply:** 120 V AC
Remarks:			

Table 8.3.2 Spurious emission test results

ASSIGNED FREQUENCY RANGE: 2400 – 2483.5 MHz
INVESTIGATED FREQUENCY RANGE: 0.009 – 25000 MHz
DETECTOR USED: Peak
RESOLUTION BANDWIDTH: 100 kHz
VIDEO BANDWIDTH: 300 kHz
MODULATION: DSSS / OFDM
MODULATING SIGNAL: PRBS
BIT RATE: 1 / 6 Mbps
TRANSMITTER OUTPUT POWER SETTINGS: Maximum

Frequency, MHz	Spurious emission, dBm	Emission at carrier, dBm	Attenuation below carrier, dBc	Limit, dBc	Margin, dB*	Verdict
Modulation DSSS						
Low carrier frequency						
2397	-29.82	6.94	36.76	20.0	16.76	Pass
Mid carrier frequency						
No spurious emissions were found						Pass
High carrier frequency						
2484.8	-40.74	7.70	48.44	20.0	28.44	Pass
Modulation OFDM						
Low carrier frequency						
2396.5	-30.88	6.46	37.34	20.0	17.34	Pass
Mid carrier frequency						
No spurious emissions were found						Pass
High carrier frequency						
2484.8	-43.17	7.66	50.83	20.0	30.83	Pass

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

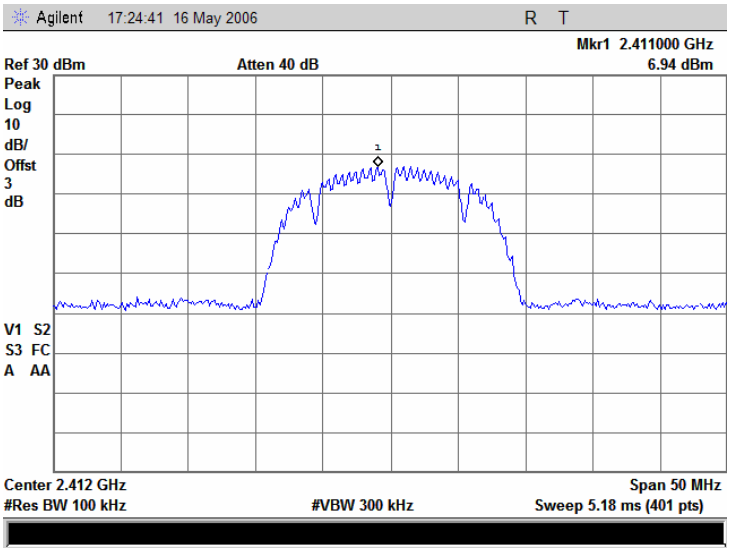
Reference numbers of test equipment used

HL 1424	HL 1652	HL 2399	HL 2867	HL 2909			

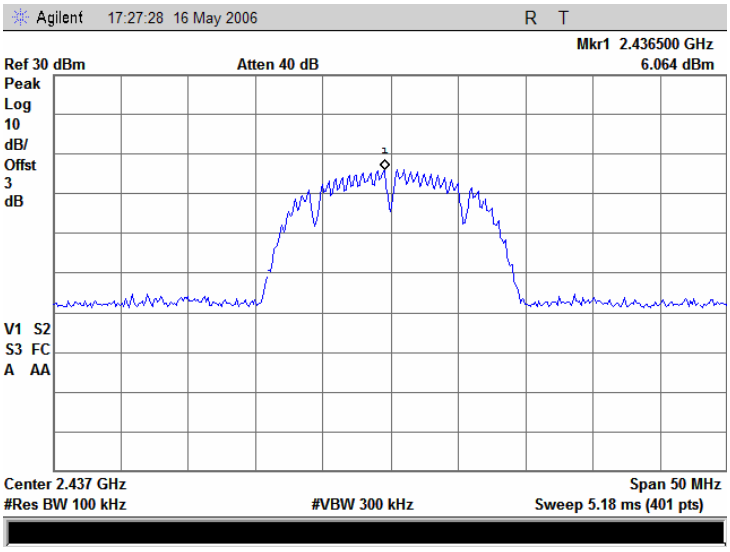
Full description is given in Appendix A.

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.1 The highest emission level within the assigned band at low carrier frequency, DSSS modulation

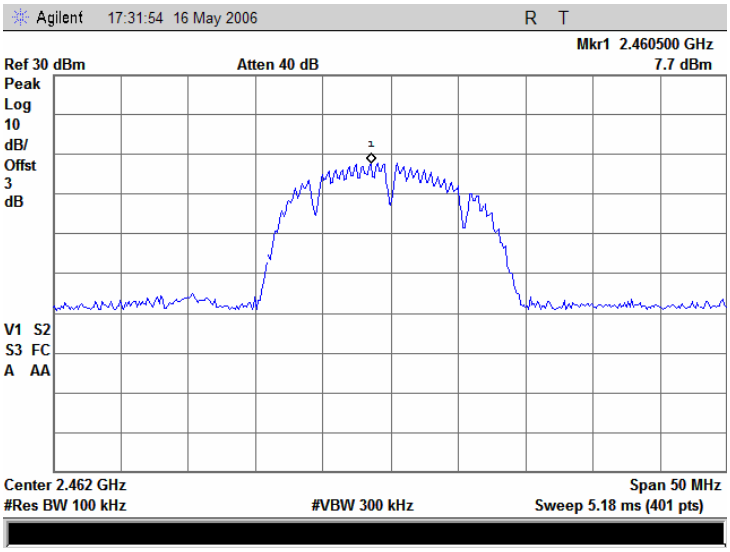


Plot 8.3.2 The highest emission level within the assigned band at mid carrier frequency, DSSS modulation

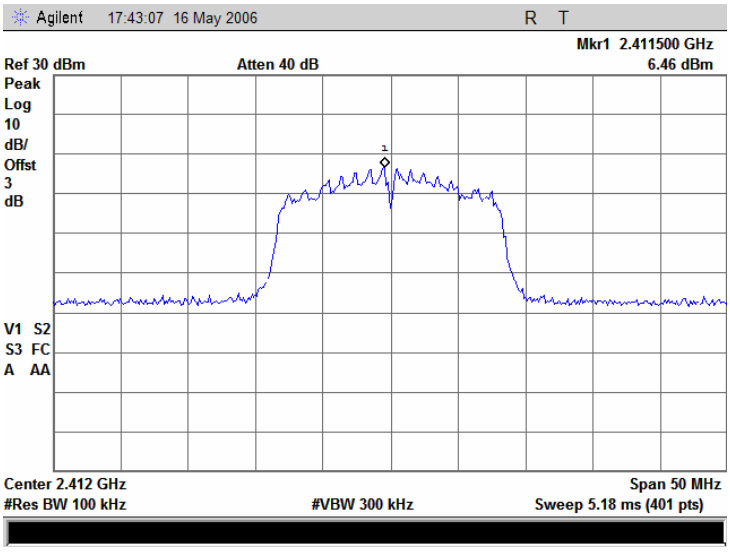


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.3 The highest emission level within the assigned band at high carrier frequency, DSSS modulation

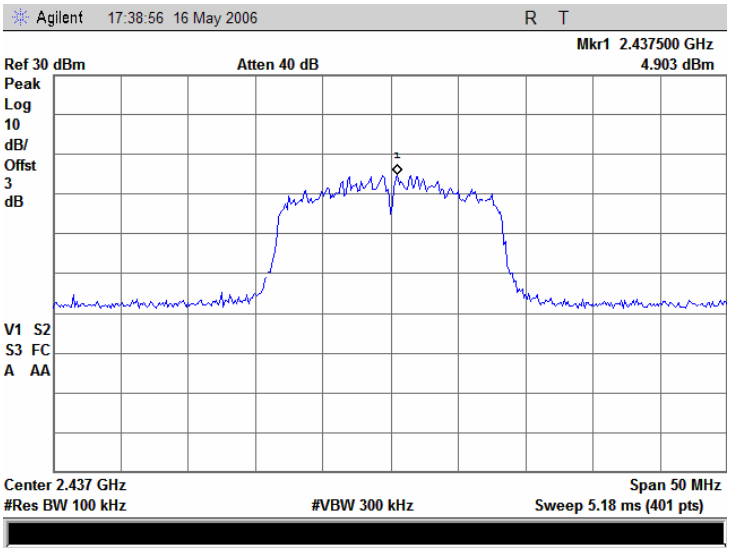


Plot 8.3.4 The highest emission level within the assigned band at low carrier frequency, OFDM modulation

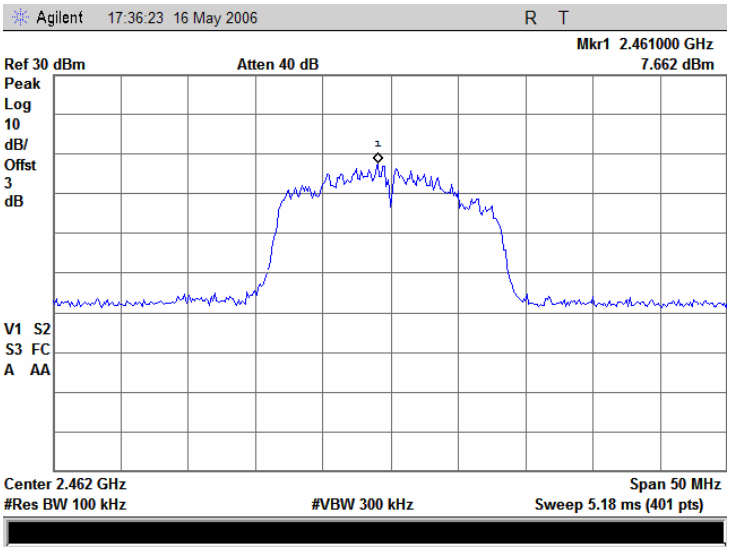


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.5 The highest emission level within the assigned band at mid carrier frequency, OFDM modulation

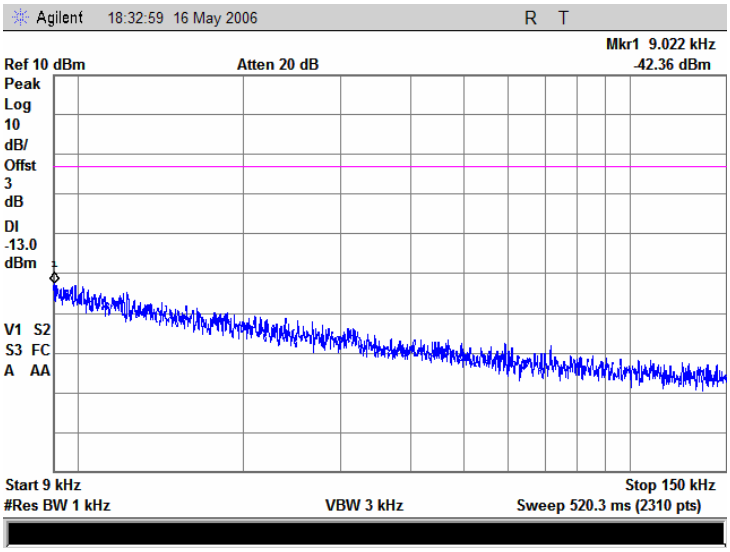


Plot 8.3.6 The highest emission level within the assigned band at high carrier frequency, OFDM modulation

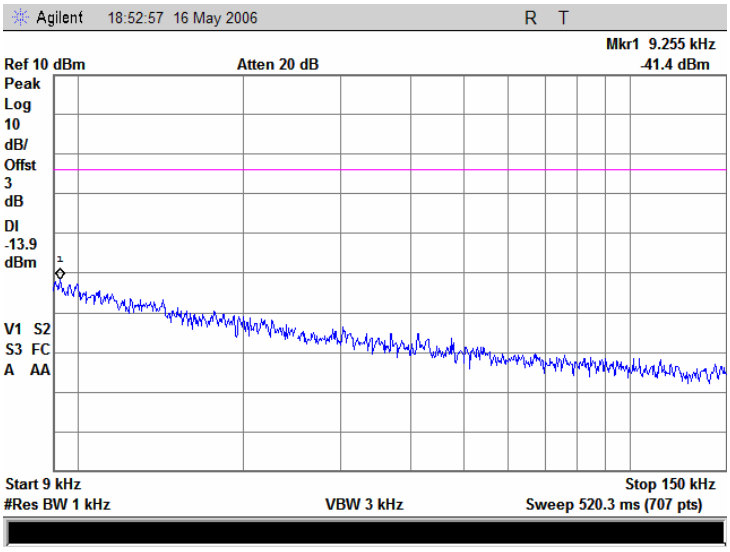


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.7 Spurious emission measurements in 9 - 150 kHz range at low carrier frequency, DSSS modulation

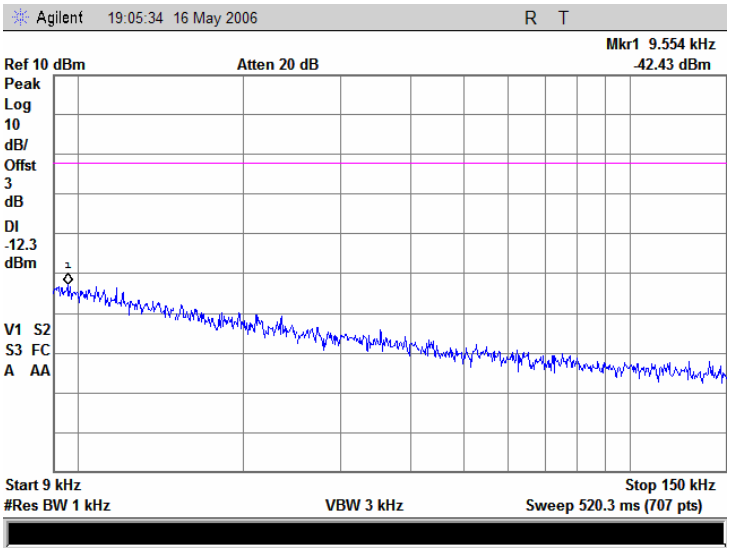


Plot 8.3.8 Spurious emission measurements in 9 - 150 kHz range at mid carrier frequency, DSSS modulation

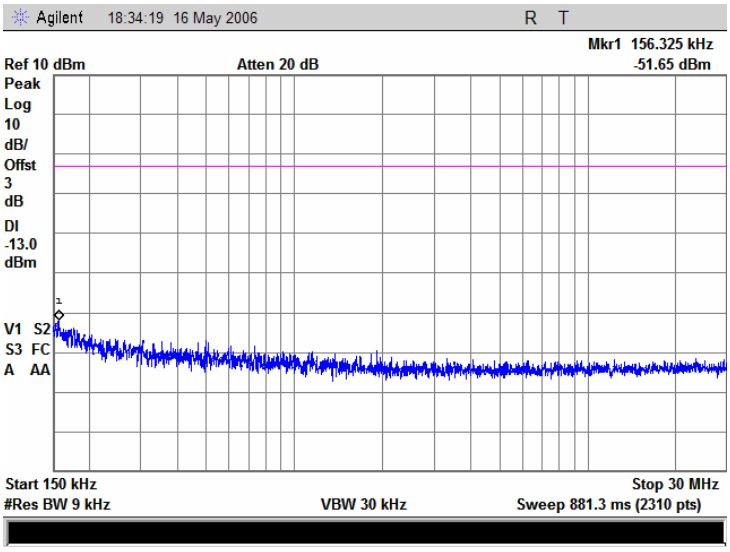


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.9 Spurious emission measurements in 9 - 150 kHz range at high carrier frequency, DSSS modulation

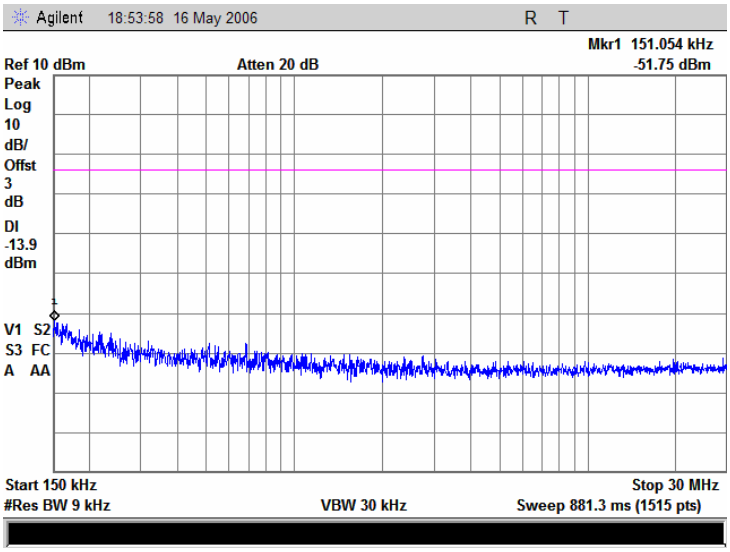


Plot 8.3.10 Spurious emission measurements in 0.15 - 30 MHz range at low carrier frequency, DSSS modulation

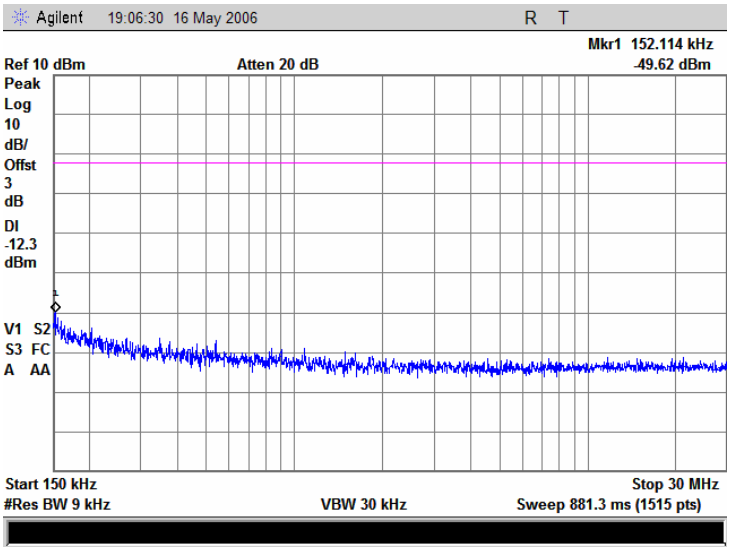


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.11 Spurious emission measurements in 0.15 - 30 MHz range at mid carrier frequency, DSSS modulation

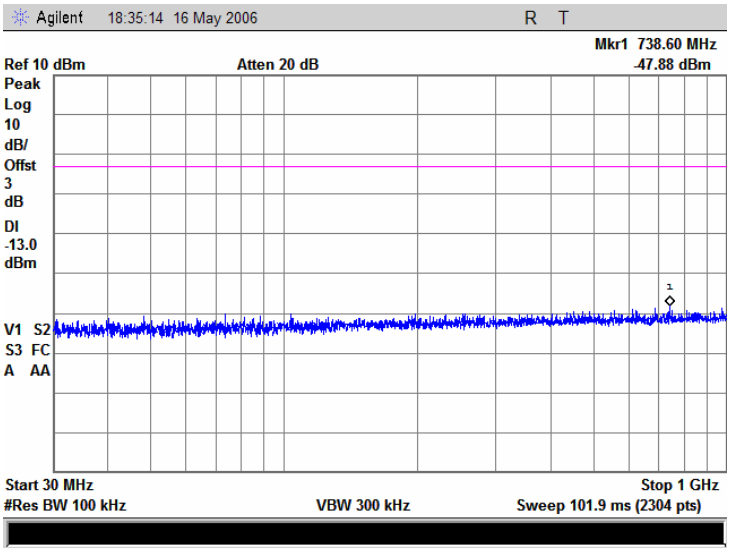


Plot 8.3.12 Spurious emission measurements in 0.15 - 30 MHz range at high carrier frequency, DSSS modulation

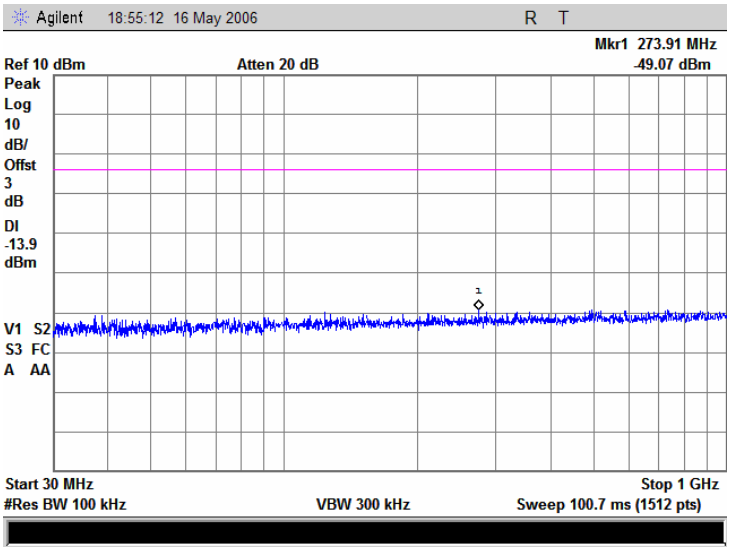


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.13 Spurious emission measurements in 30 - 1000 MHz range at low carrier frequency, DSSS modulation

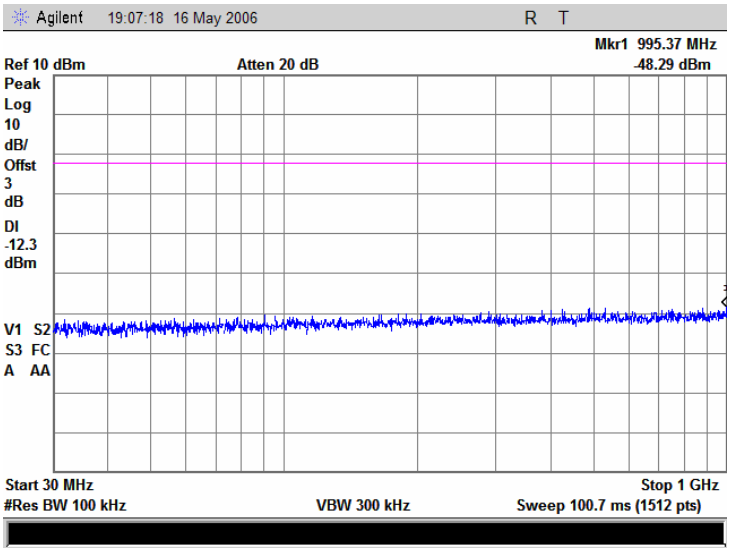


Plot 8.3.14 Spurious emission measurements in 30 - 1000 MHz range at mid carrier frequency, DSSS modulation

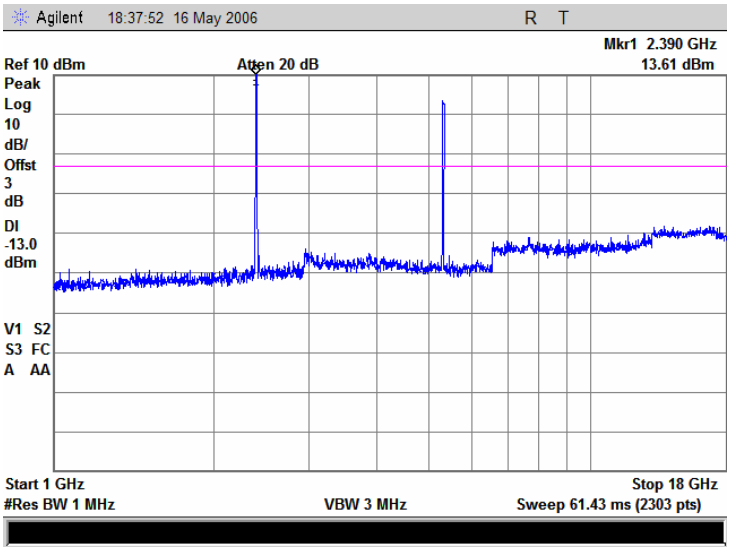


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.15 Spurious emission measurements in 30 - 1000 MHz range at high carrier frequency, DSSS modulation



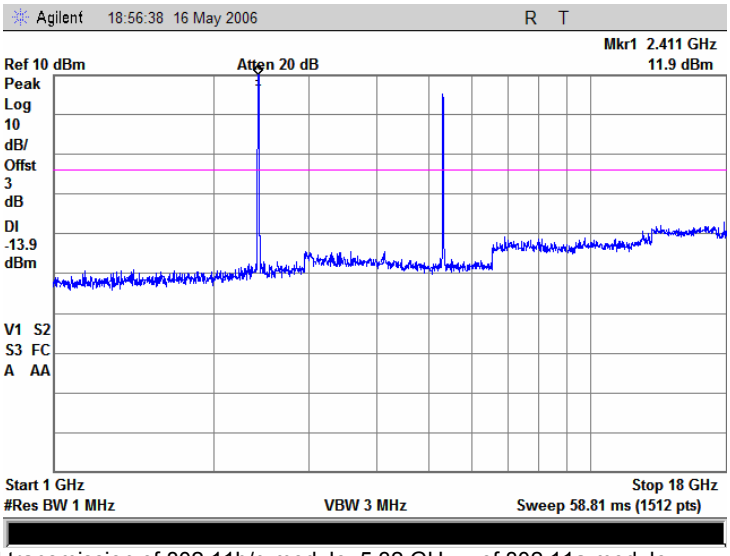
Plot 8.3.16 Spurious emission measurements in 1000 - 18000 MHz range at low carrier frequency, DSSS modulation



Note:2.4 GHz - intentional transmission of 802.11b/g module, 5.32 GHz – of 802.11a module.

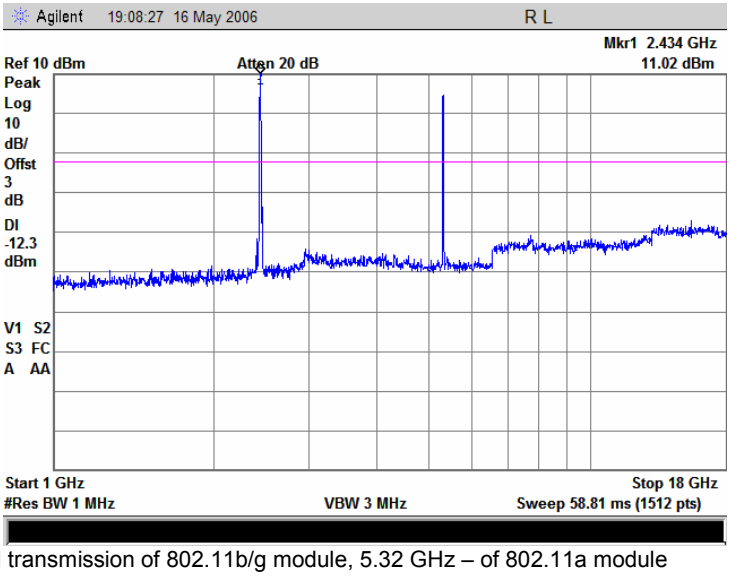
Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.17 Spurious emission measurements in 1000 - 18000 MHz range at mid carrier frequency, DSSS modulation



Note:2.4 GHz - intentional transmission of 802.11b/g module, 5.32 GHz – of 802.11a module

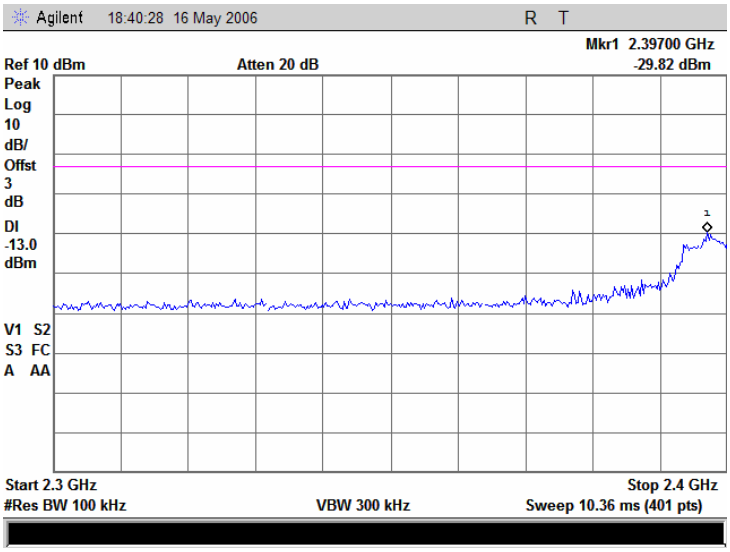
Plot 8.3.18 Spurious emission measurements in 1000 - 18000 MHz range at high carrier frequency, DSSS modulation



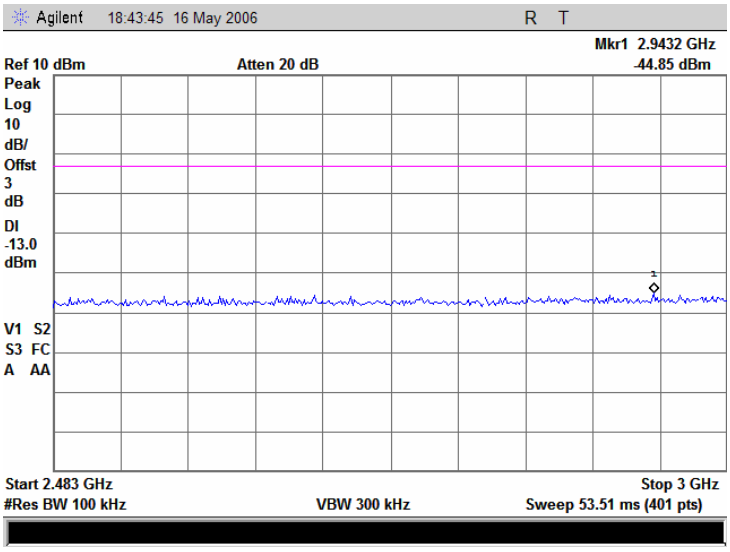
Note:2.4 GHz - intentional transmission of 802.11b/g module, 5.32 GHz – of 802.11a module

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.19 Spurious emission measurements in 2300 - 2400 MHz range at low carrier frequency, DSSS modulation

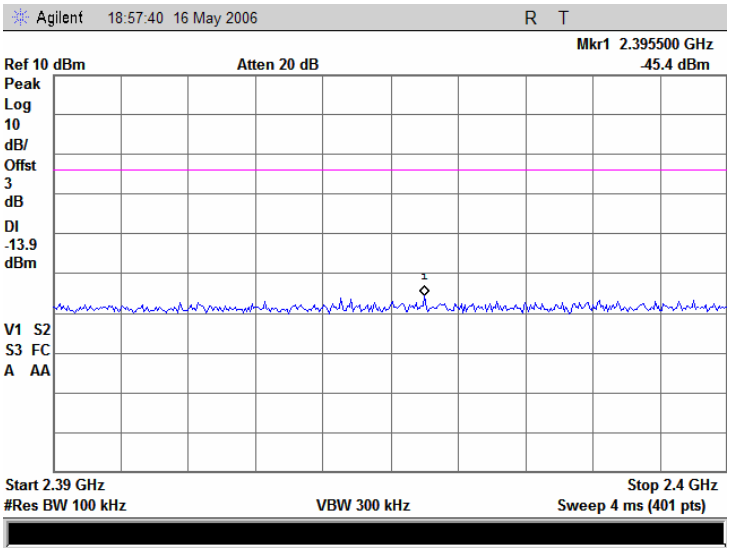


Plot 8.3.20 Spurious emission measurements in 2483.5 - 3000 MHz range at low carrier frequency, DSSS modulation

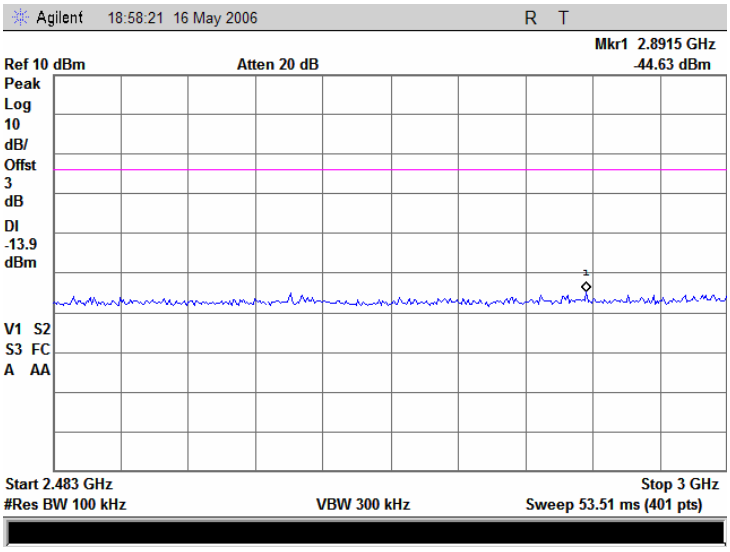


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.21 Spurious emission measurements in 2390 - 2400 MHz range at mid carrier frequency, DSSS modulation

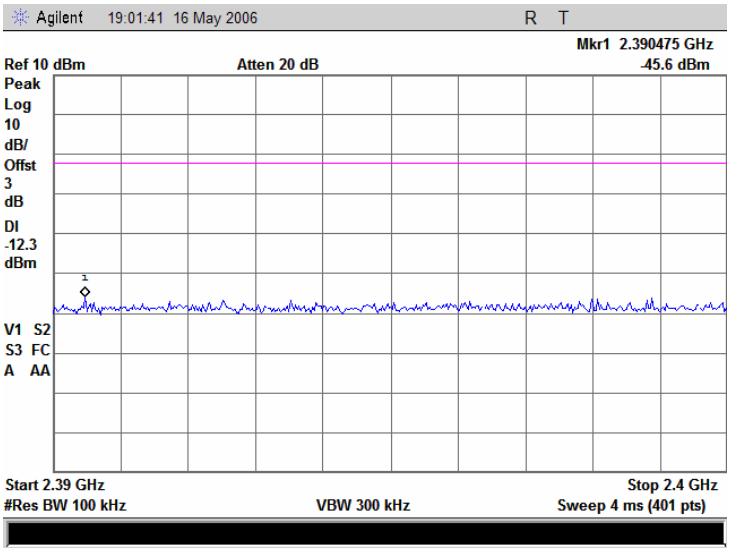


Plot 8.3.22 Spurious emission measurements in 2483.5 - 3000 MHz range at mid carrier frequency, DSSS modulation

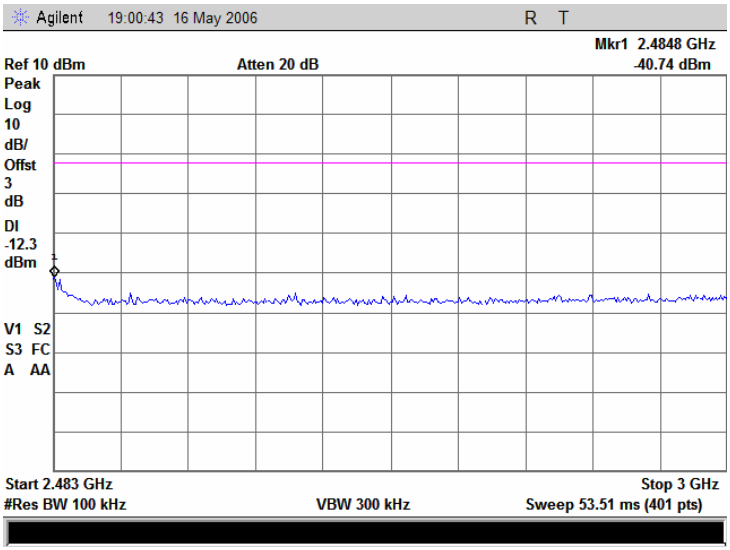


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.23 Spurious emission measurements in 2390 - 2400 MHz range at high carrier frequency, DSSS modulation

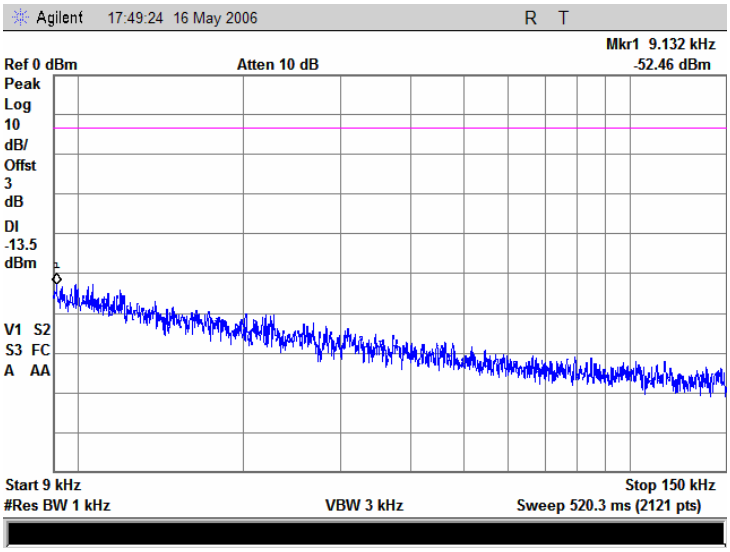


Plot 8.3.24 Spurious emission measurements in 2483.5 - 3000 MHz range at high carrier frequency, DSSS modulation

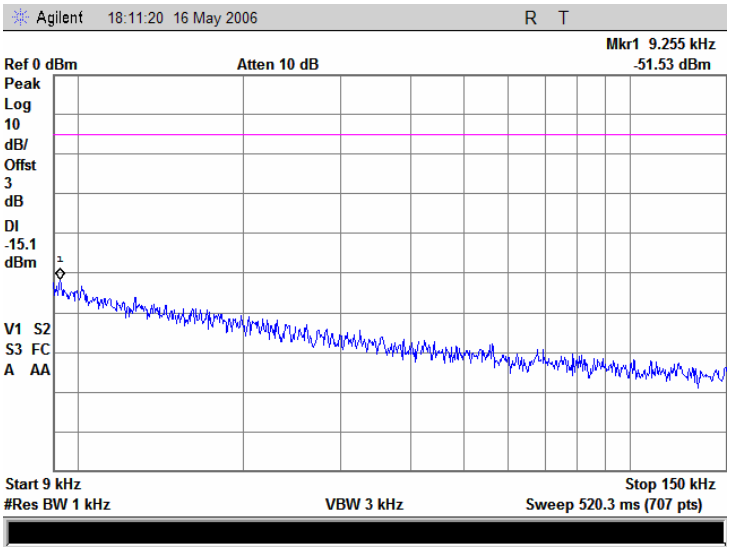


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.25 Spurious emission measurements in 9 - 150 kHz range at low carrier frequency, OFDM modulation

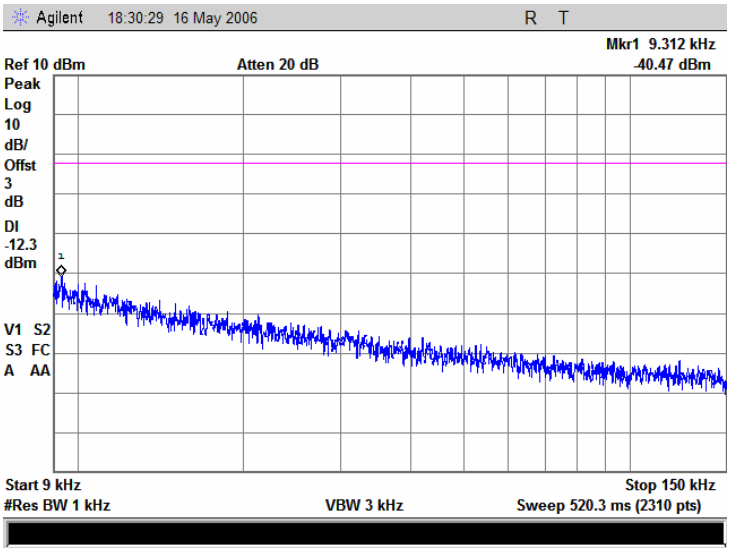


Plot 8.3.26 Spurious emission measurements in 9 - 150 kHz range at mid carrier frequency, OFDM modulation

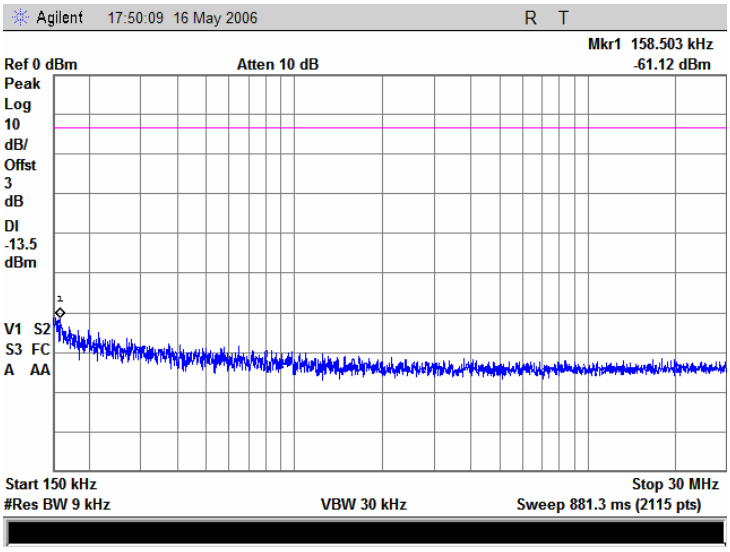


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.27 Spurious emission measurements in 9 - 150 kHz range at high carrier frequency, OFDM modulation

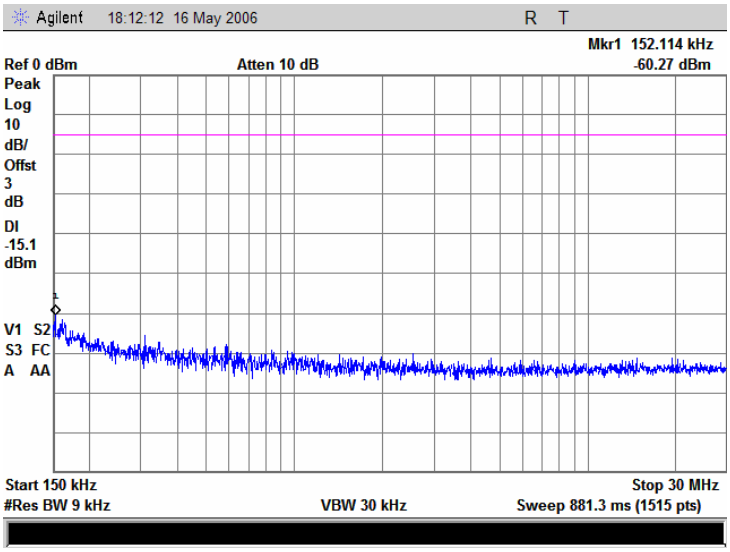


Plot 8.3.28 Spurious emission measurements in 0.15 - 30 MHz range at low carrier frequency, OFDM modulation

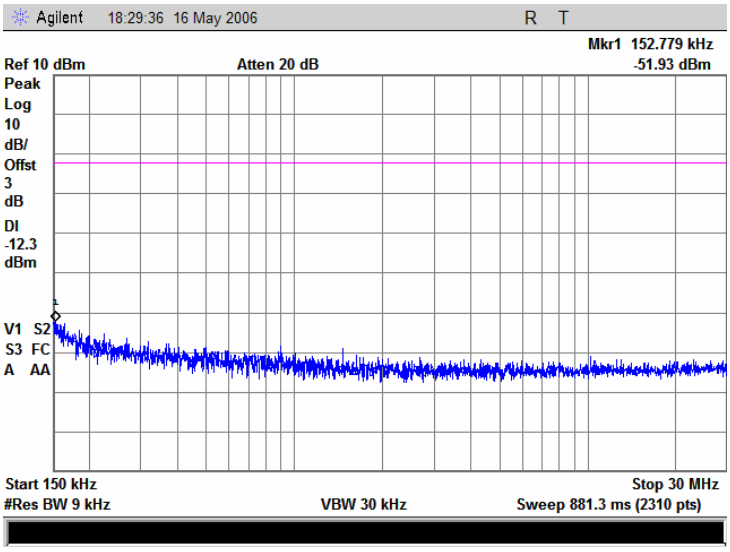


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.29 Spurious emission measurements in 0.15 - 30 MHz range at mid carrier frequency, OFDM modulation

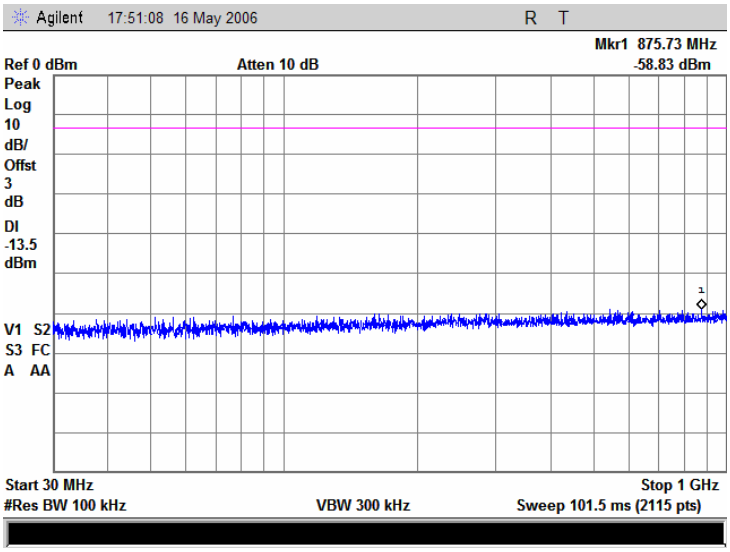


Plot 8.3.30 Spurious emission measurements in 0.15 - 30 MHz range at high carrier frequency, OFDM modulation

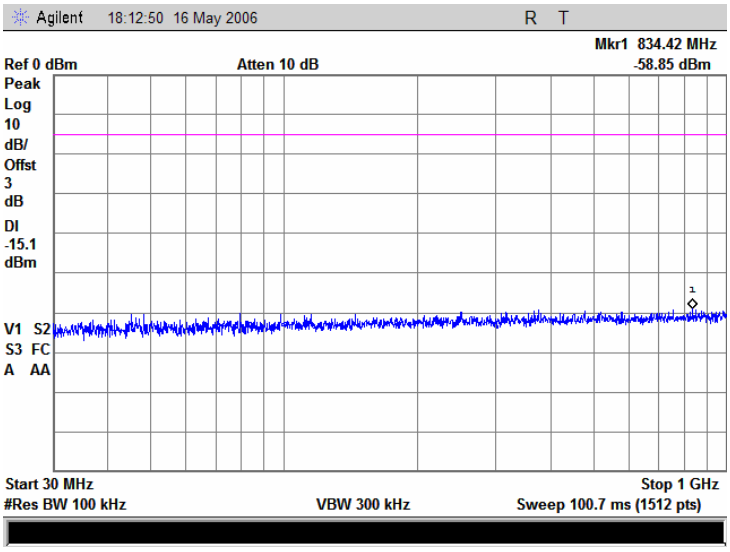


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.31 Spurious emission measurements in 30 - 1000 MHz range at low carrier frequency, OFDM modulation

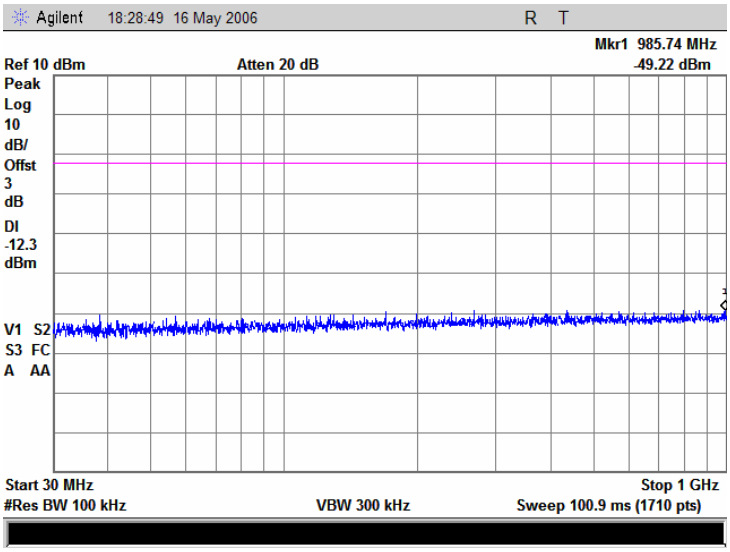


Plot 8.3.32 Spurious emission measurements in 30 - 1000 MHz range at mid carrier frequency, OFDM modulation

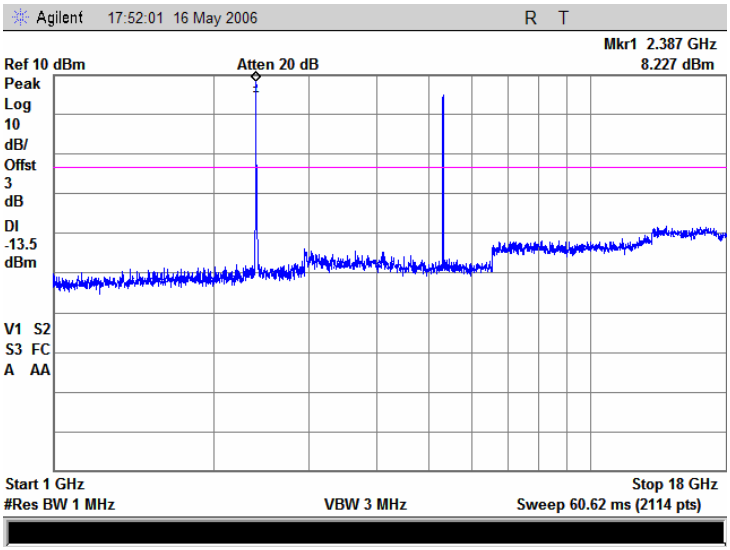


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.33 Spurious emission measurements in 30 - 1000 MHz range at high carrier frequency, OFDM modulation



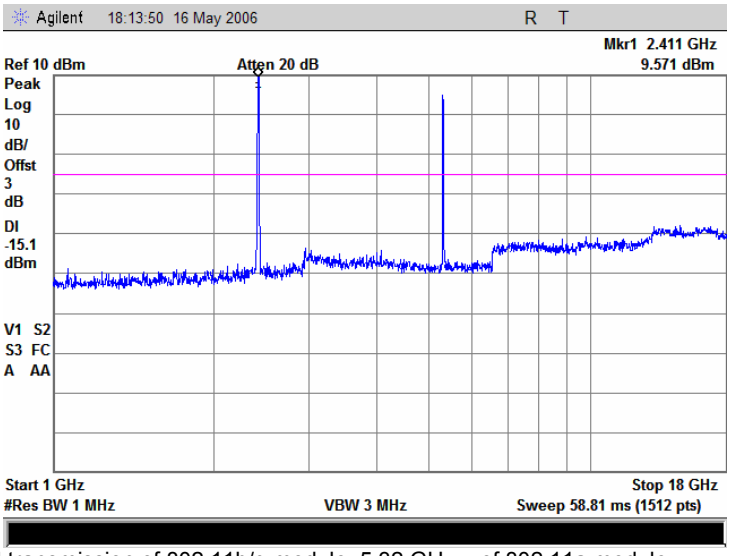
Plot 8.3.34 Spurious emission measurements in 1000 - 18000 MHz range at low carrier frequency, OFDM modulation



Note:2.4 GHz - intentional transmission of 802.11b/g module, 5.32 GHz – of 802.11a module.

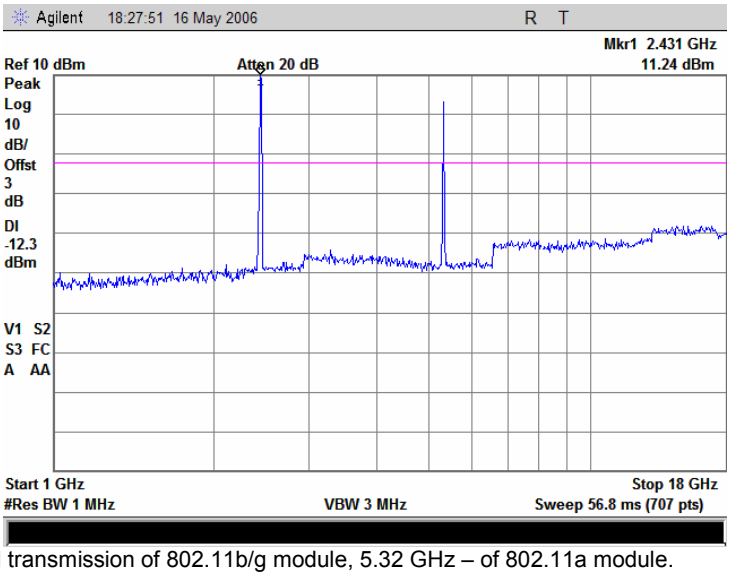
Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.35 Spurious emission measurements in 1000 - 18000 MHz range at mid carrier frequency, OFDM modulation



Note:2.4 GHz - intentional transmission of 802.11b/g module, 5.32 GHz – of 802.11a module.

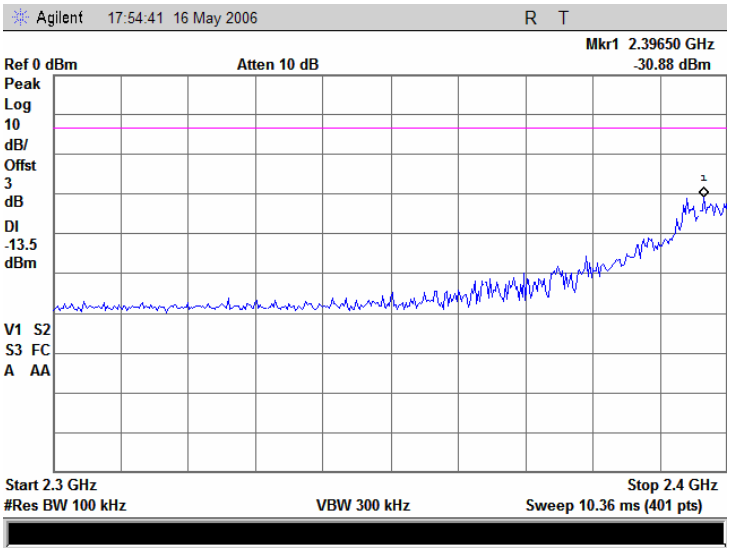
Plot 8.3.36 Spurious emission measurements in 1000 - 18000 MHz range at high carrier frequency, OFDM modulation



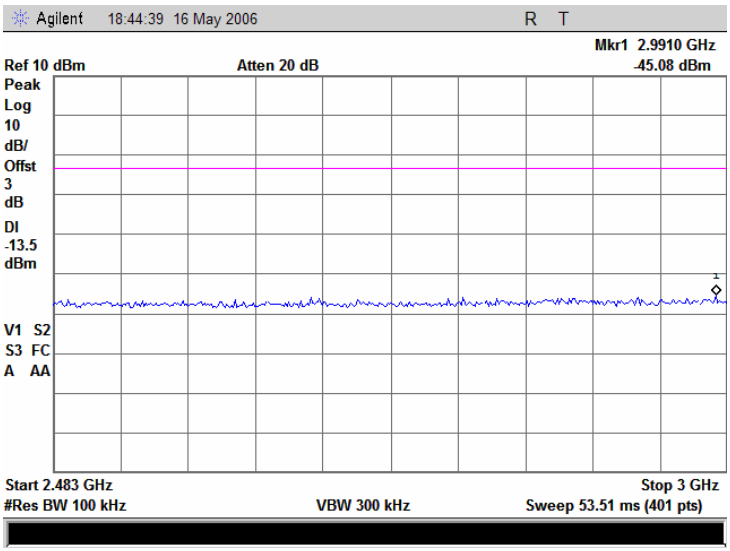
Note:2.4 GHz - intentional transmission of 802.11b/g module, 5.32 GHz – of 802.11a module.

Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.37 Spurious emission measurements in 2300 - 2400 MHz range at low carrier frequency, OFDM modulation

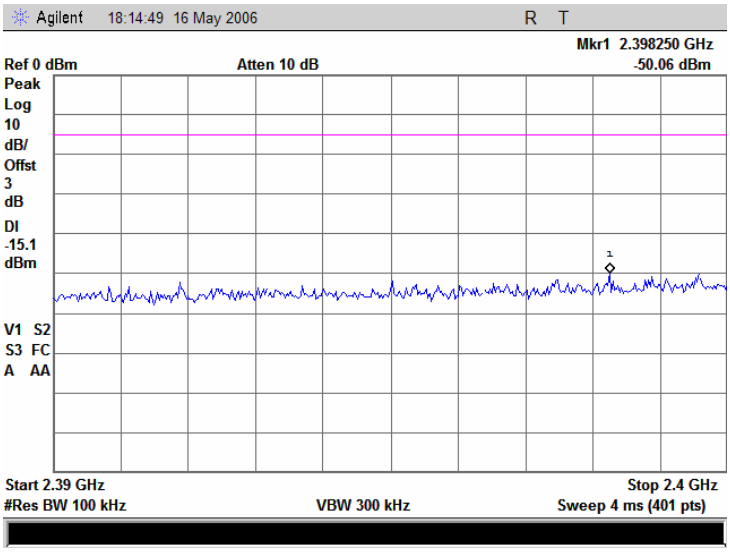


Plot 8.3.38 Spurious emission measurements in 2483.5 - 3000 MHz range at low carrier frequency, OFDM modulation

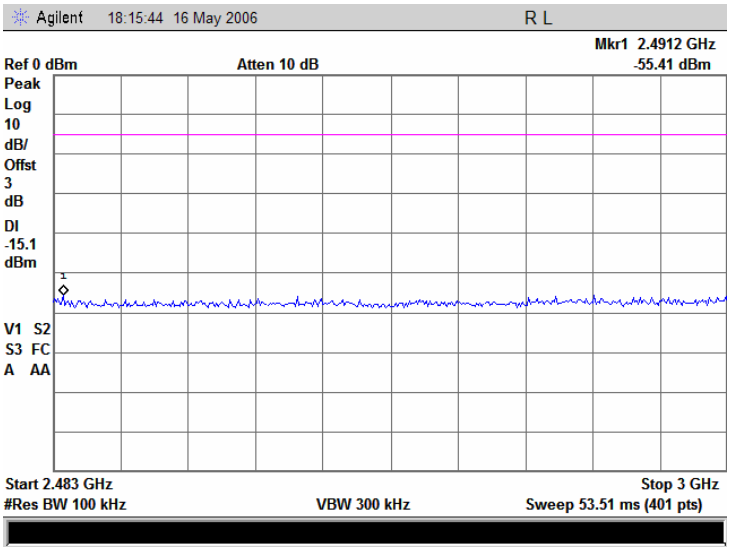


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.39 Spurious emission measurements in 2390 - 2400 MHz range at mid carrier frequency, OFDM modulation

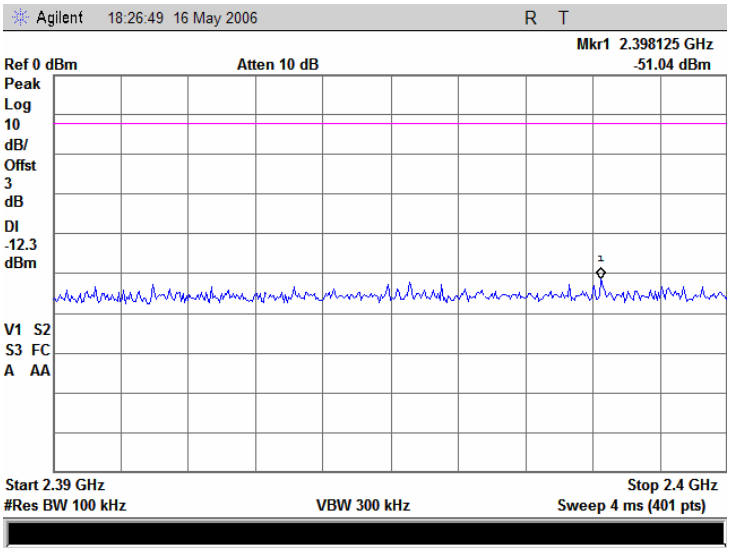


Plot 8.3.40 Spurious emission measurements in 2483.5 - 3000 MHz range at mid carrier frequency, OFDM modulation

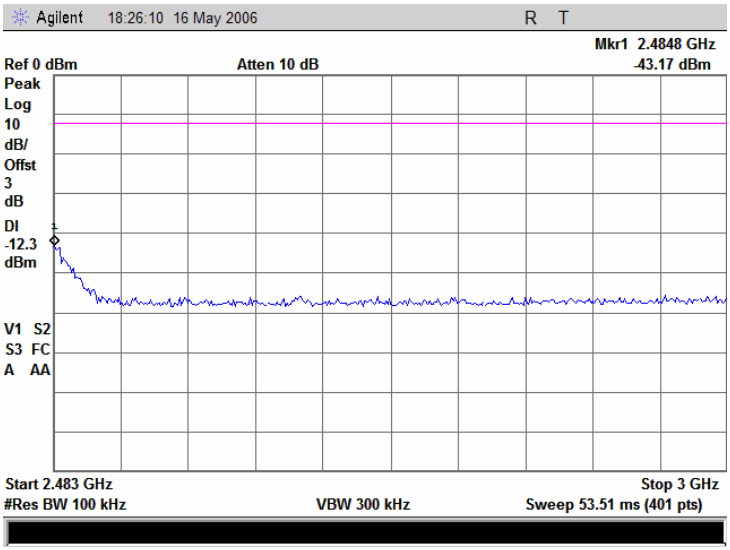


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.41 Spurious emission measurements in 2300 - 2400 MHz range at high carrier frequency, OFDM modulation

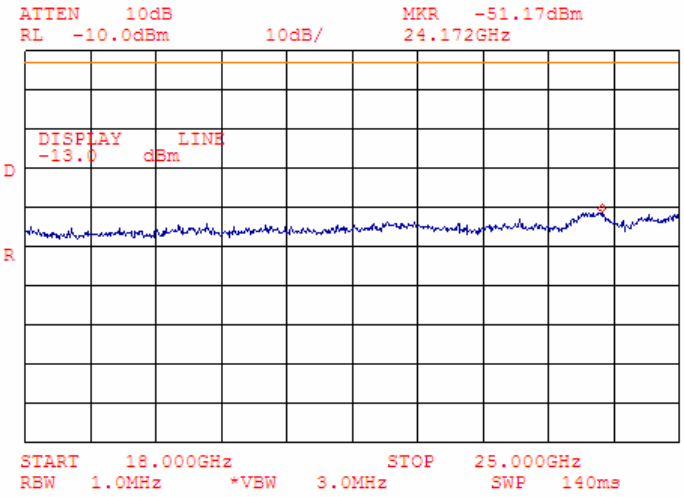


Plot 8.3.42 Spurious emission measurements in 2483.5 - 2300 MHz range at high carrier frequency, OFDM modulation

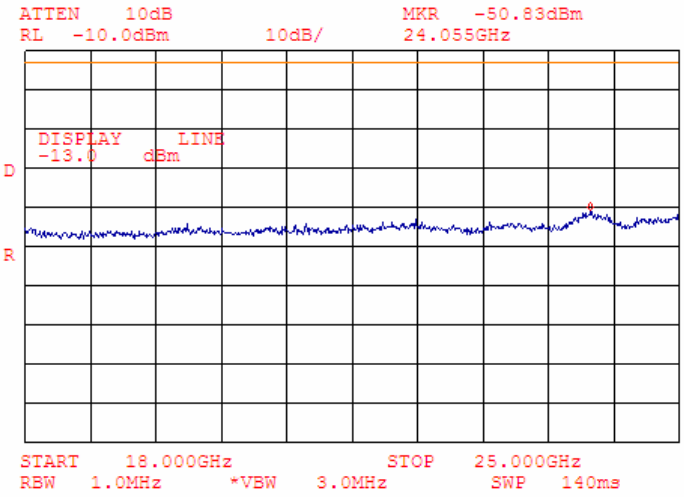


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.43 Spurious emission measurements in 18 - 25 GHz range at low carrier frequency, DSSS modulation

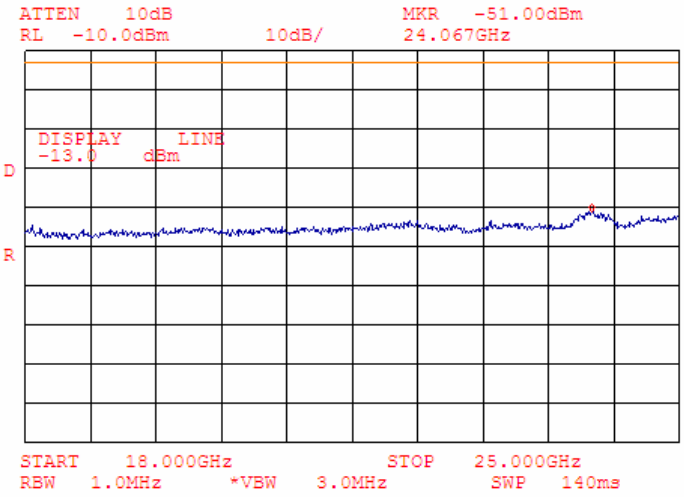


Plot 8.3.44 Spurious emission measurements in 18 - 25 GHz range at mid carrier frequency, DSSS modulation

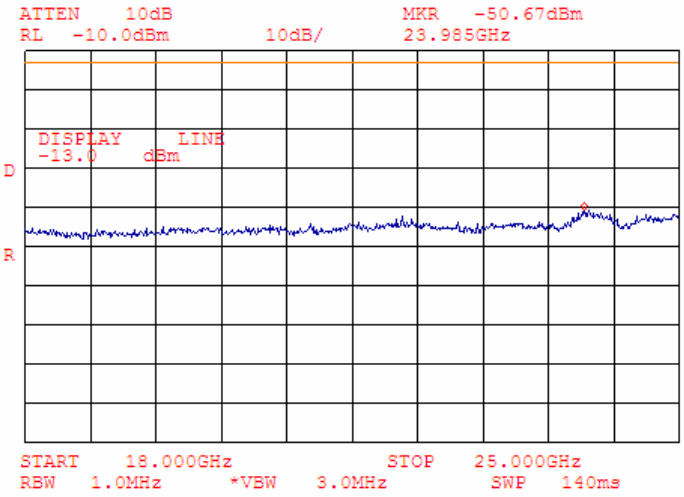


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.45 Spurious emission measurements in 18 - 25 GHz range at high carrier frequency, DSSS modulation

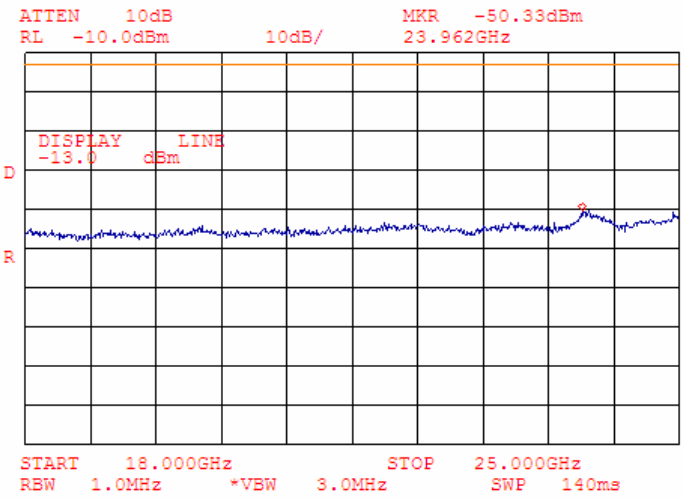


Plot 8.3.46 Spurious emission measurements in 18 - 25 GHz range at low carrier frequency, OFDM modulation

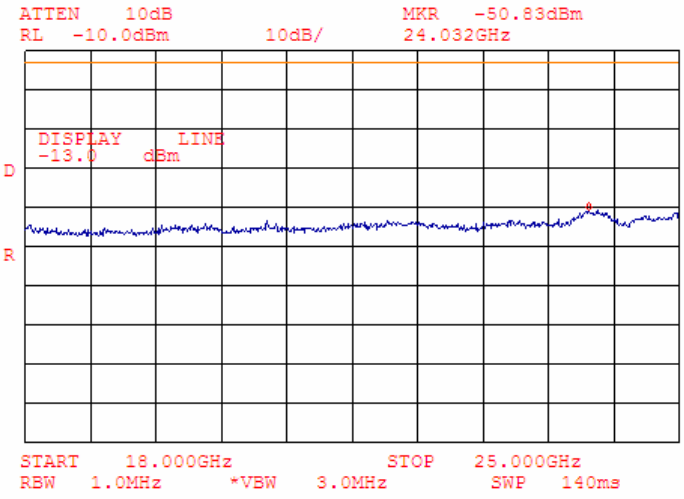


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.47 Spurious emission measurements in 18 - 25 GHz range at mid carrier frequency, OFDM modulation

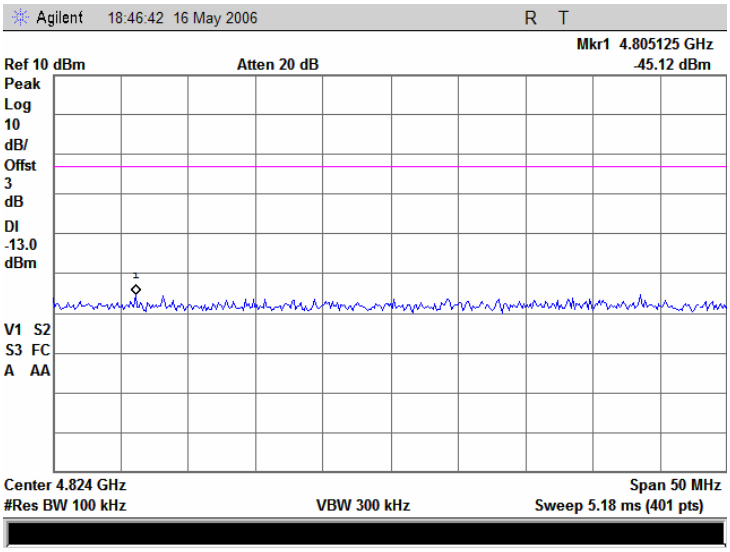


Plot 8.3.48 Spurious emission measurements in 18 - 25 GHz range at high carrier frequency, OFDM modulation

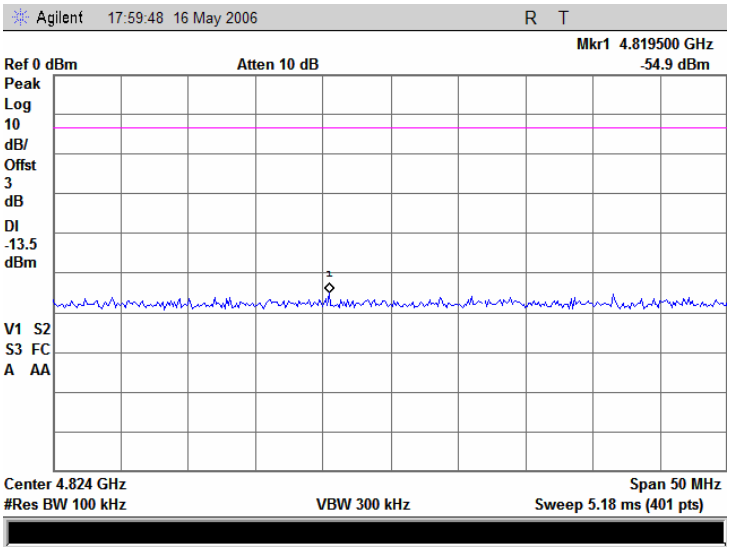


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.49 Conducted spurious emission measurements at the 2nd harmonic of low carrier frequency, DSSS

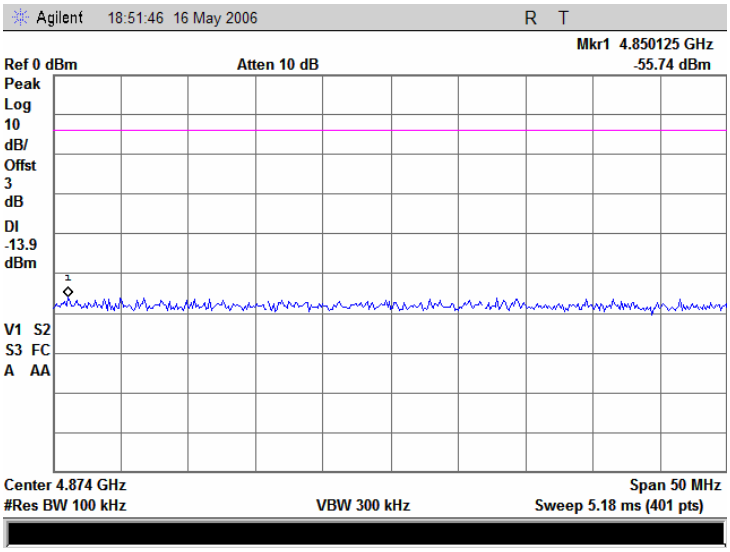


Plot 8.3.50 Conducted spurious emission measurements at the 2nd harmonic of low carrier frequency, OFDM

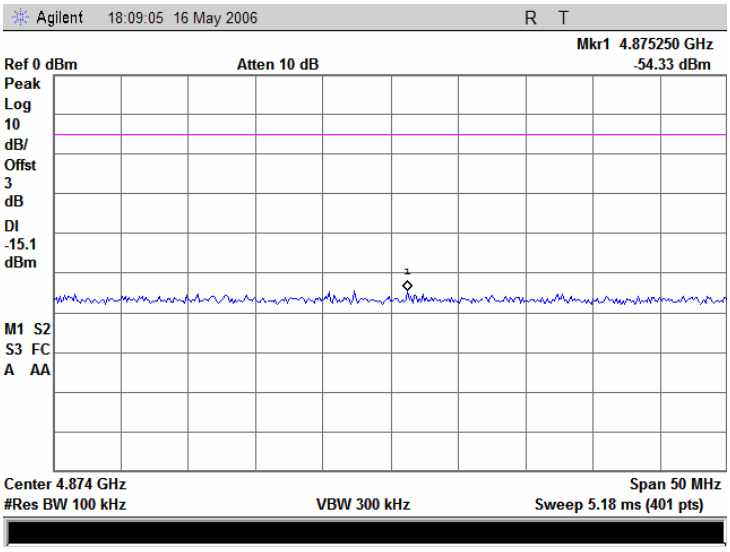


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.51 Conducted spurious emission measurements at the 2nd harmonic of mid carrier frequency, DSSS

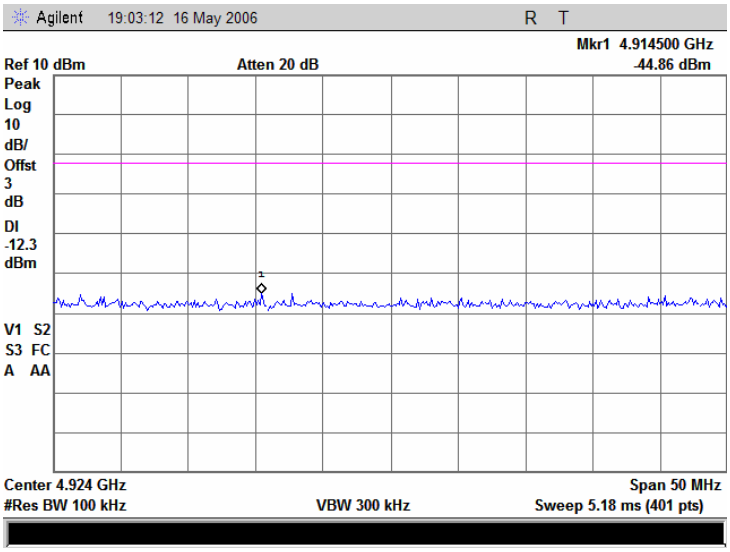


Plot 8.3.52 Conducted spurious emission measurements at the 2nd harmonic of mid carrier frequency, OFDM

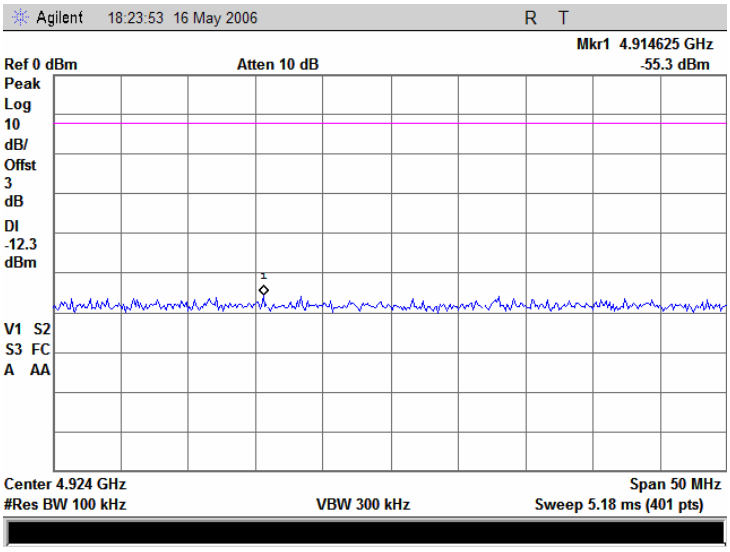


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.53 Conducted spurious emission measurements at the 2nd harmonic of high carrier frequency, DSSS

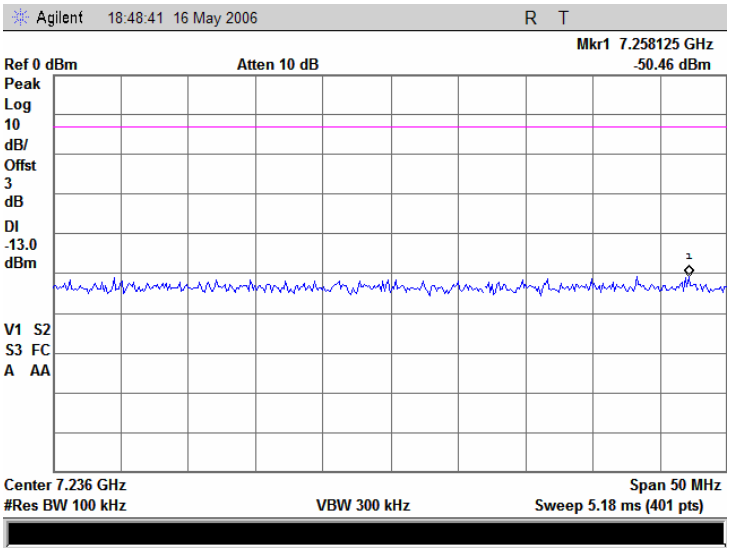


Plot 8.3.54 Conducted spurious emission measurements at the 2nd harmonic of high carrier frequency, OFDM

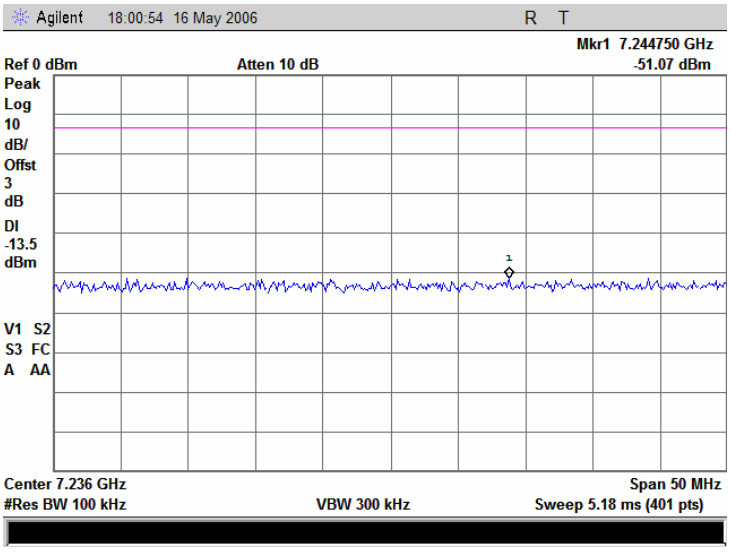


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.55 Conducted spurious emission measurements at the 3rd harmonic of low carrier frequency, DSSS

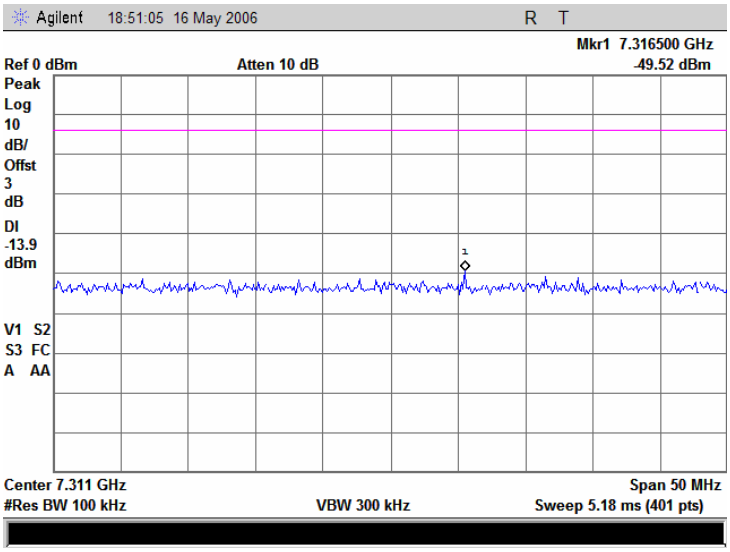


Plot 8.3.56 Conducted spurious emission measurements at the 3rd harmonic of low carrier frequency, OFDM

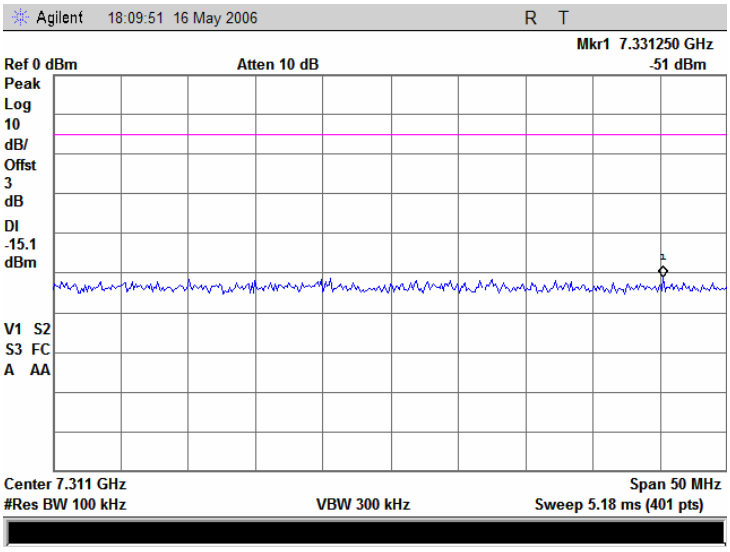


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.57 Conducted spurious emission measurements at the 3rd harmonic of mid carrier frequency, DSSS

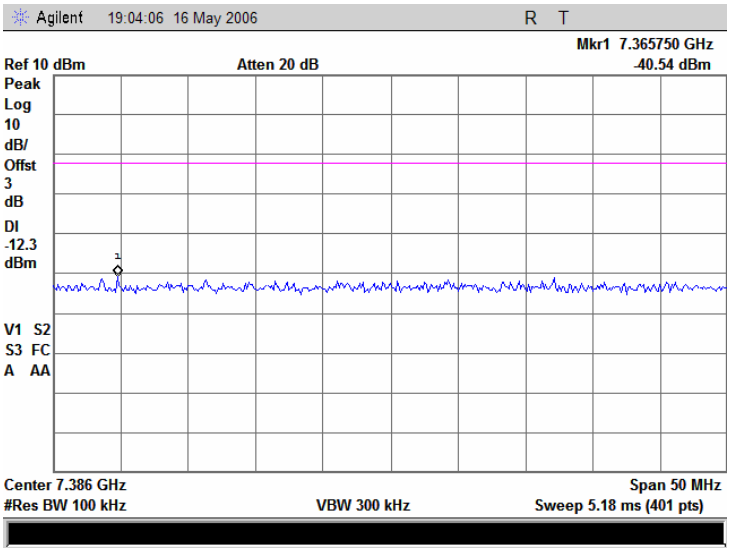


Plot 8.3.58 Conducted spurious emission measurements at the 3rd harmonic of mid carrier frequency, OFDM

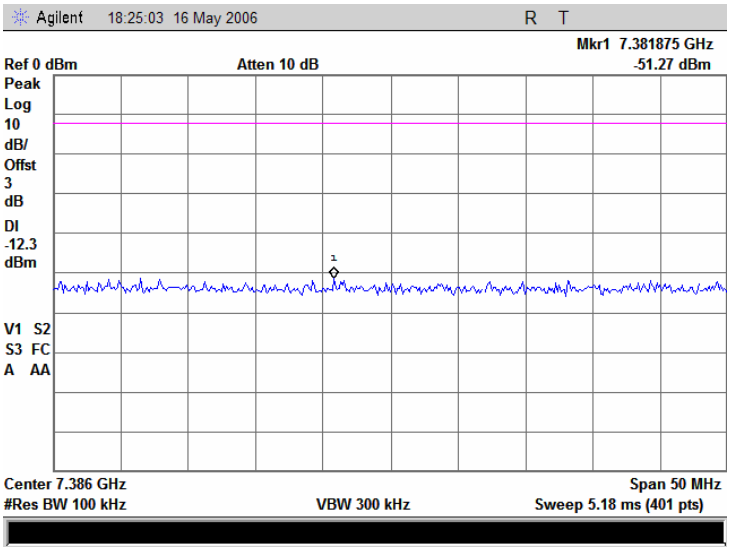


Test specification:	Section 15.247(c), Conducted spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.3.59 Conducted spurious emission measurements at the 3rd harmonic of high carrier frequency, DSSS



Plot 8.3.60 Conducted spurious emission measurements at the 3rd harmonic of high carrier frequency, OFDM



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

8.4 Field strength of spurious emissions

8.4.1 General

This test was performed to measure field strength of spurious emissions from the EUT. Specification test limits are given in Table 8.4.1.

Table 8.4.1 Radiated spurious emissions limits

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

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

8.4.2.1 The EUT was set up as shown in Figure 8.4.1, energized and the performance check was conducted.

8.4.2.2 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.

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

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

8.4.3.1 The EUT was set up as shown in Figure 8.4.2, energized and the performance check was conducted.

8.4.3.2 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.

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

Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Figure 8.4.1 Setup for spurious emission field strength measurements below 30 MHz

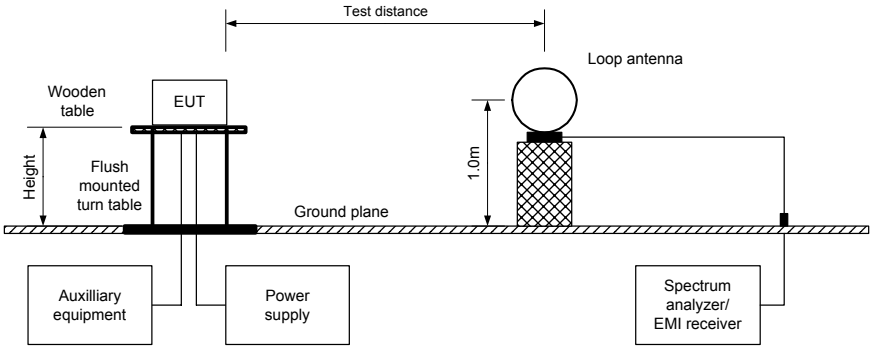
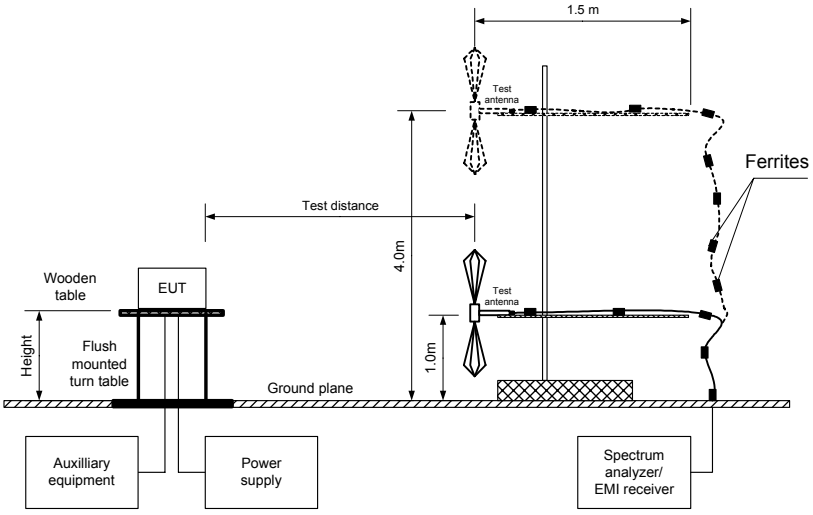


Figure 8.4.2 Setup for spurious emission field strength measurements above 30 MHz



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:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Table 8.4.2 Field strength of emissions outside restricted bands

ASSIGNED FREQUENCY:	2400 – 2483.5 MHz
INVESTIGATED FREQUENCY RANGE:	0.009 - 25000 MHz
TEST DISTANCE:	3 m
MODULATION:	DSSS
MODULATING SIGNAL:	PRBS
BIT RATE:	1 Mbps
DUTY CYCLE:	100 %
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
DETECTOR USED:	Peak
RESOLUTION BANDWIDTH:	100 kHz
VIDEO BANDWIDTH:	300 kHz
TEST ANTENNA TYPE:	Active loop (9 kHz – 30 MHz) Biconilog (30 MHz – 1000 MHz) Double ridged guide (above 1000 MHz)

Frequency, MHz	Field strength of spurious, dB(µV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	Field strength of carrier, dB(µV/m)	Attenuation below carrier, dBc	Limit, dBc	Margin, dB**	Verdict
all carrier frequencies									
78.16885	48.50	H	1.2	120	105.96	57.46	20.0	37.46	Pass
81.59630	46.85	H	1.5	100		59.11		39.11	
83.00370	50.12	H	1.2	160		55.84		35.84	
84.81325	48.37	H	1.0	210		57.59		37.59	
86.32570	48.92	H	1.0	220		57.04		37.04	
131.6313	44.96	V	1.2	150		61.00		41.00	
436.1000	40.21	V	1.2	32		65.75		45.75	
Low carrier frequency									
2397.48	68.19	V	1.0	119	106.96	38.77	20.0	18.77	Pass
7234.58	53.50	V	1.1	331		53.46		33.46	
9647.83	46.50	V	1.0	278		60.46		40.46	
Mid carrier frequency									
9747.83	47.83	V	1.1	277	105.96	58.13	20.0	38.13	Pass
High carrier frequency									
1731.63	56.00	V	1.1	221	106.98	50.98	20.0	30.98	Pass
9847.85	46.33	V	1.0	214		60.65		40.65	

*****- EUT front panel refers to 0 degrees position of turntable.
******- Margin = Attenuation below carrier – specification limit.

Test specification:	**Section 15.247(c), Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	5/01/2006		
Temperature: 23 ºC	**Air Pressure:** 1012 hPa	**Relative Humidity:** 46 %	**Power Supply:** 120 VAC
Remarks:			

Table 8.4.3 Field strength of spurious emissions above 1 GHz within restricted bands

ASSIGNED FREQUENCY:	2400 – 2483.5 MHz
INVESTIGATED FREQUENCY RANGE:	1000 - 25000 MHz
TEST DISTANCE:	3 m
MODULATION:	DSSS
MODULATING SIGNAL:	PRBS
BIT RATE:	1 Mbps
DUTY CYCLE:	100 %
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
DETECTOR USED:	Peak
RESOLUTION BANDWIDTH:	1000 kHz
TEST ANTENNA TYPE:	Double ridged guide

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											
2390.00	V	1.1	129	72.58	74.0	-1.42	50.47	50.47	54.0	-3.53	Pass
2492.20	V	1.0	110	68.23	74.0	-5.77	42.13	42.13	54.0	-11.87	
4824.00	V	1.0	190	61.48	74.0	-12.52	48.26	48.26	54.0	-5.74	
Mid carrier frequency											
2223.00	V	1.0	118	55.77	74.0	-18.23	45.72	45.72	54.0	-8.28	Pass
4874.08	V	1.0	119	58.98	74.0	-15.02	51.64	51.64	54.0	-2.36	
7306.67	V	1.0	317	61.00	74.0	-13.00	44.00	44.00	54.0	-10.00	
High carrier frequency											
2484.40	V	1.1	327	68.87	74.0	-5.13	53.09	53.09	54.0	-0.91	Pass
4923.90	V	1.0	110	59.91	74.0	-14.09	51.19	51.19	54.0	-2.81	
7384.33	V	1.0	234	61.83	74.0	-12.17	45.83	45.83	54.0	-8.17	

*****- 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 8.4.4 Average factor calculation

Transmission pulse		Transmission burst		Transmission train duration, ms	Average factor, dB
Duration, ms	Period, ms	Duration, ms	Period, ms		
Duty cycle 100%					0

*- Average factor was calculated as follows

for pulse train shorter than 100 ms: $$Average\ factor = 20 \times \log_{10}\left(\frac{Pulse\ duration}{Pulse\ period} \times \frac{Burst\ duration}{Train\ duration} \times Number\ of\ bursts\ within\ pulse\ train\right)$$

for pulse train longer than 100 ms: $$Average\ factor = 20 \times \log_{10}\left(\frac{Pulse\ duration}{Pulse\ period} \times \frac{Burst\ duration}{100\,ms} \times Number\ of\ bursts\ within\ 100\,ms\right)$$

Test specification:	**Section 15.247(c), Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	5/01/2006		
Temperature: 23 ºC	**Air Pressure:** 1012 hPa	**Relative Humidity:** 46 %	**Power Supply:** 120 VAC
Remarks:			

Table 8.4.5 Field strength of spurious emissions below 1 GHz within restricted bands

ASSIGNED FREQUENCY:	2400 – 2483.5 MHz
INVESTIGATED FREQUENCY RANGE:	0.009 – 1000 MHz
TEST DISTANCE:	3 m
MODULATION:	DSSS
MODULATING SIGNAL:	PRBS
BIT RATE:	1 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								
98.55000	48.11	40.40	43.50	-3.10	V	1.2	320	Pass
114.6000	48.56	38.56	43.50	-4.94	V	1.2	310	

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

Table 8.4.6 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

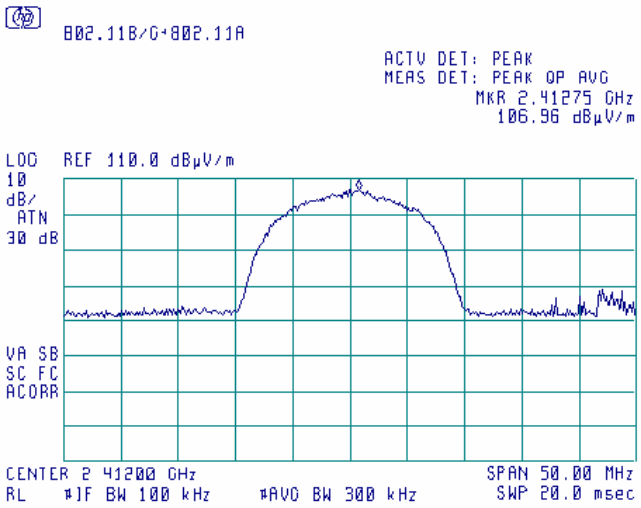
HL 0410	HL 0446	HL 0521	HL 0589	HL 0604	HL 0678	HL 1424	HL 1425
HL 1553	HL 1566	HL 1984	HL 2009	HL 2259	HL 2399	HL 2697	HL 2780

Full description is given in Appendix A.

Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

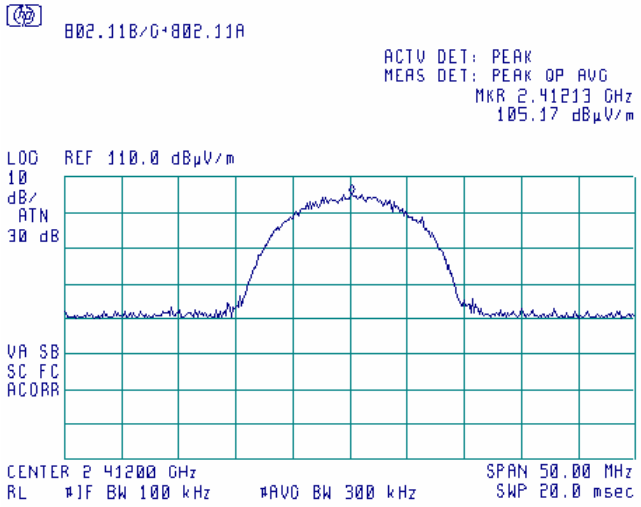
Plot 8.4.1 Radiated emission measurements at the low carrier frequency

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



Plot 8.4.2 Radiated emission measurements at the low carrier frequency

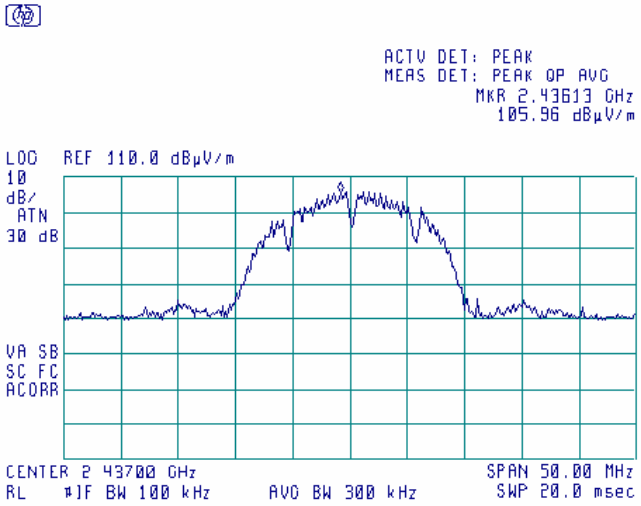
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Horizontal



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

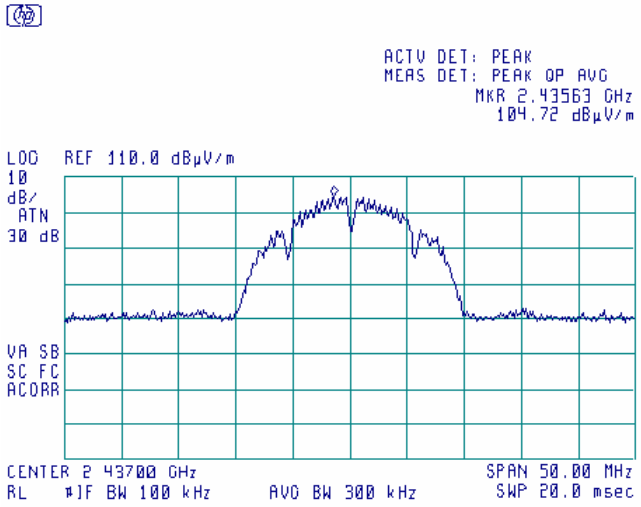
Plot 8.4.3 Radiated emission measurements at the mid carrier frequency

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



Plot 8.4.4 Radiated emission measurements at the mid carrier frequency

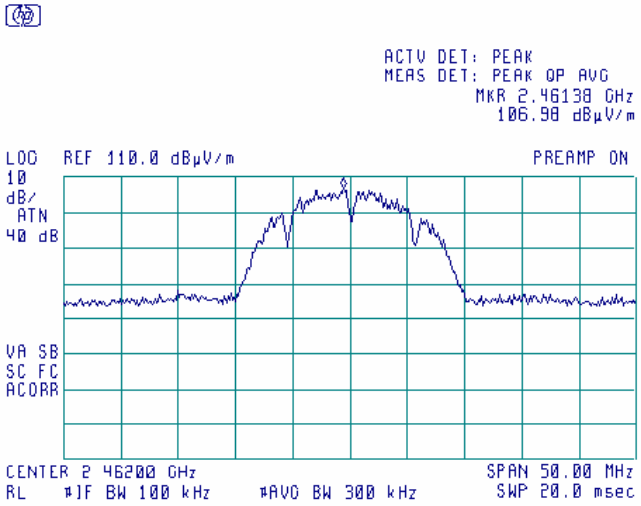
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Horizontal



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

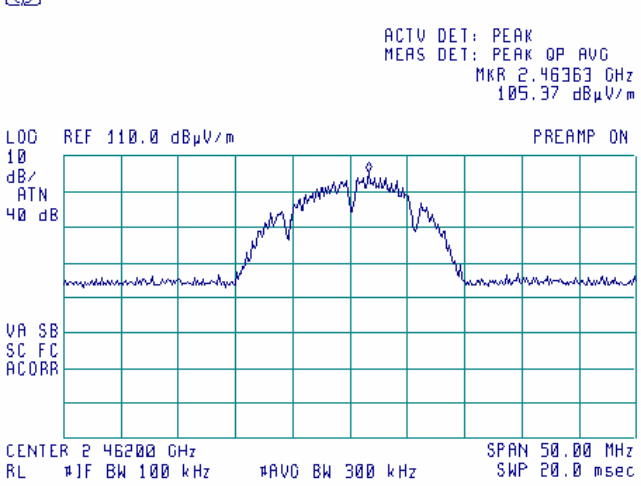
Plot 8.4.5 Radiated emission measurements at the high carrier frequency

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



Plot 8.4.6 Radiated emission measurements at the high carrier frequency

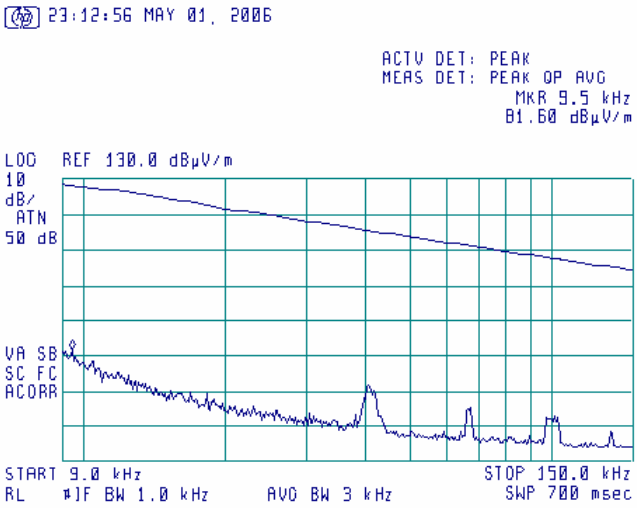
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Horizontal



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

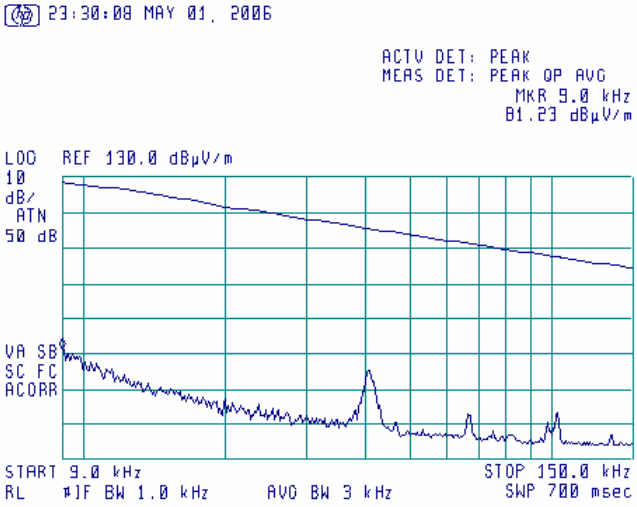
Plot 8.4.7 Radiated emission measurements from 9 to 150 kHz at the low carrier frequency

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



Plot 8.4.8 Radiated emission measurements from 9 to 150 kHz at the mid carrier frequency

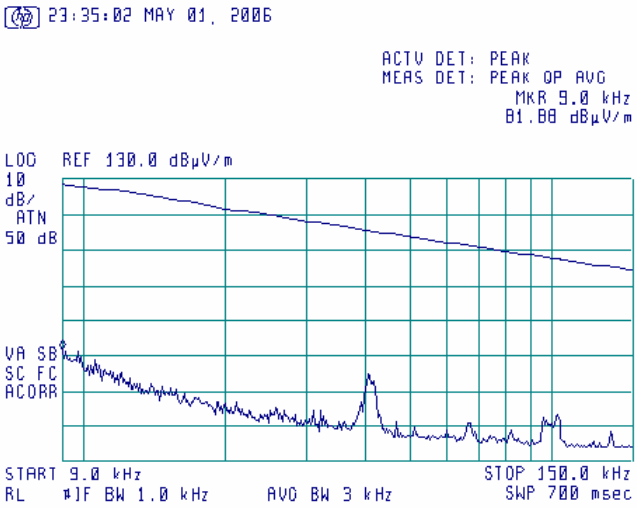
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



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:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

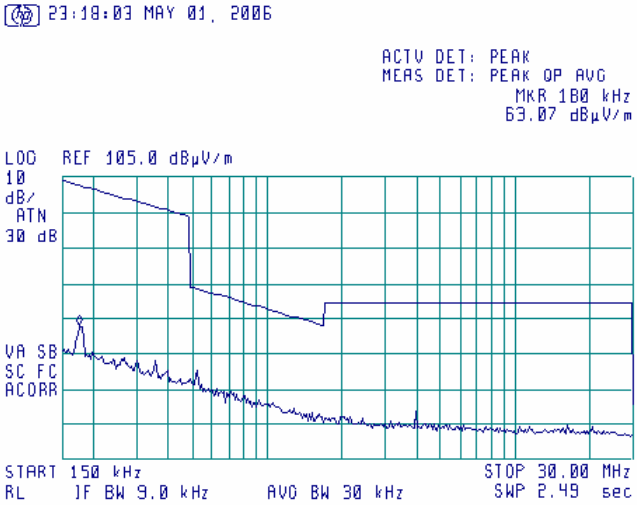
Plot 8.4.9 Radiated emission measurements from 9 to 150 kHz at the high carrier frequency

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



Plot 8.4.10 Radiated emission measurements from 0.15 to 30 MHz at the low carrier frequency

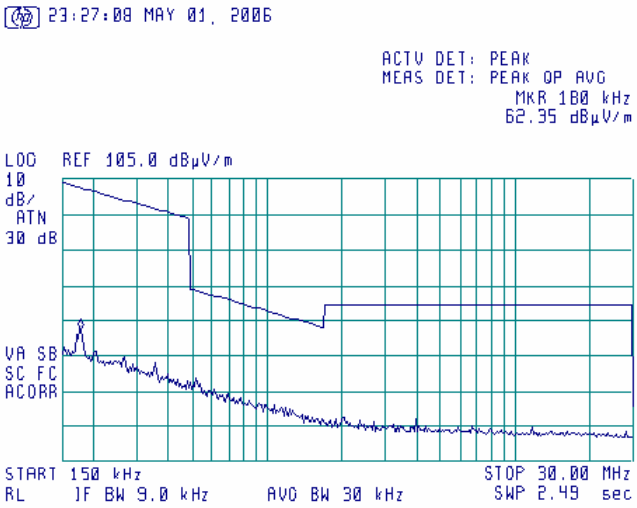
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



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:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

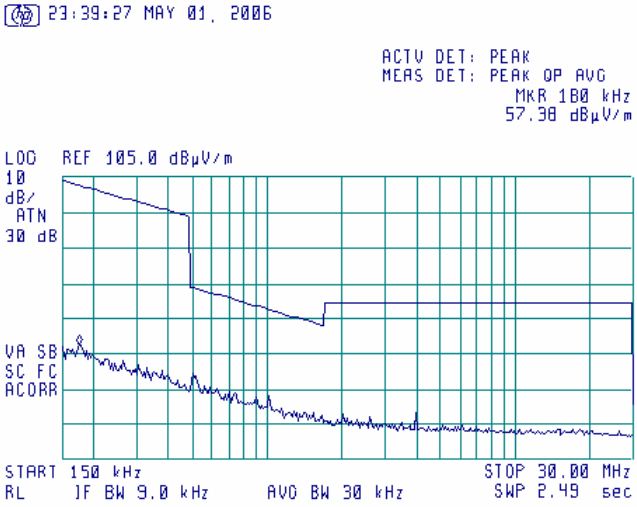
Plot 8.4.11 Radiated emission measurements from 0.15 to 30 MHz at the mid carrier frequency

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



Plot 8.4.12 Radiated emission measurements from 0.15 to 30 MHz at the high carrier frequency

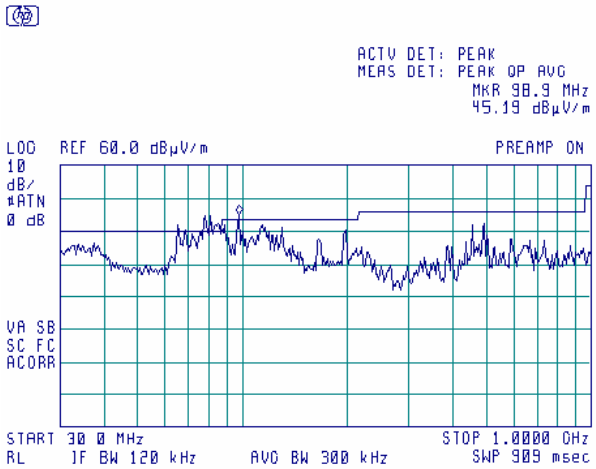
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



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:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 8.4.13 Radiated emission measurements from 30 to 1000 MHz at the low carrier frequency

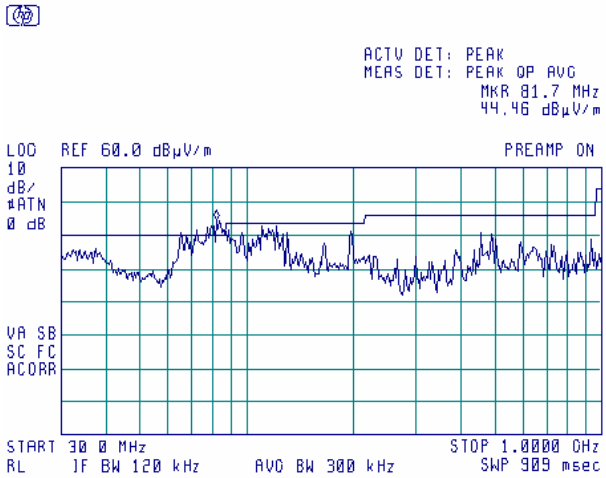
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Note: Emissions in 80-100 MHz range are from the digital part, the test results in tabular data are submitted in section 10.1 of this test report.

Plot 8.4.14 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

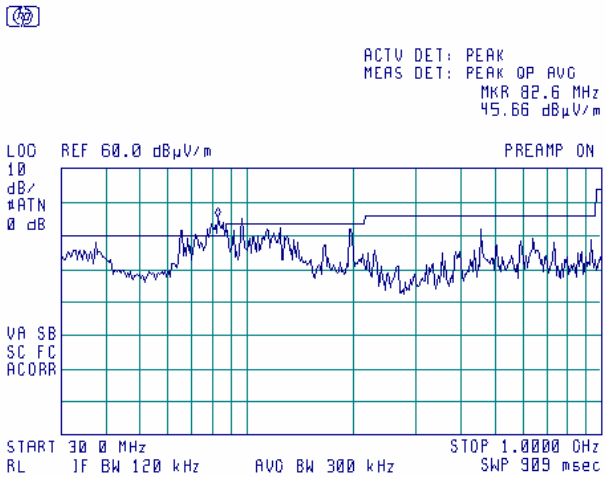


Note: Emissions in 80-100 MHz range are from the digital part, the test results in tabular data are submitted in section 10.1 of this test report.

Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 8.4.15 Radiated emission measurements from 30 to 1000 MHz at the high carrier frequency

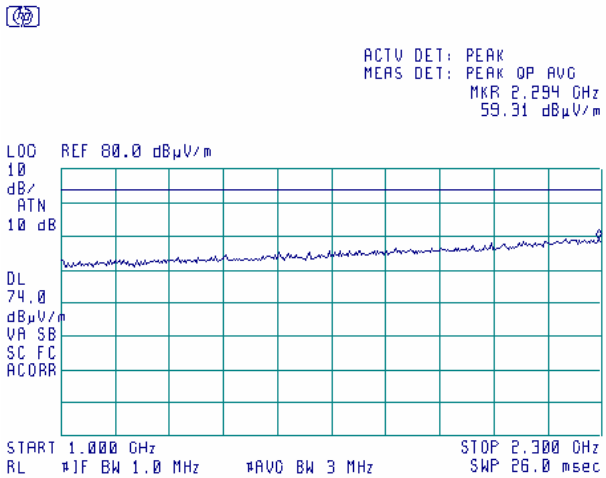
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Note: Emissions in 80-100 MHz range are from the digital part, the test results in tabular data are submitted in section 10.1 of this test report.

Plot 8.4.16 Radiated emission measurements from 1000 to 2300 MHz at the low carrier frequency

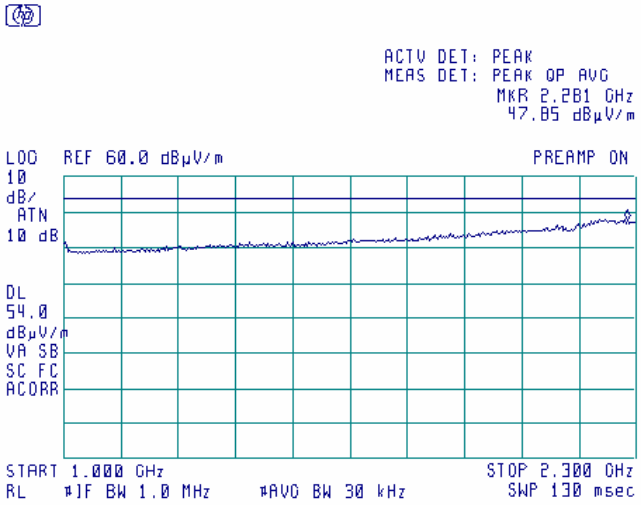
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 8.4.17 Radiated emission measurements from 1000 to 2300 MHz at the low carrier frequency

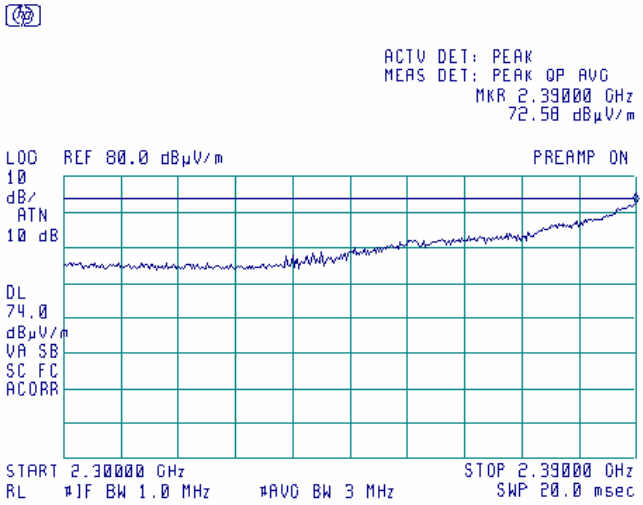
TEST SITE:	Semi anechoic chamber
TEST DISTANCE:	3 m
ANTENNA POLARIZATION:	Vertical and Horizontal
DETECTOR:	Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

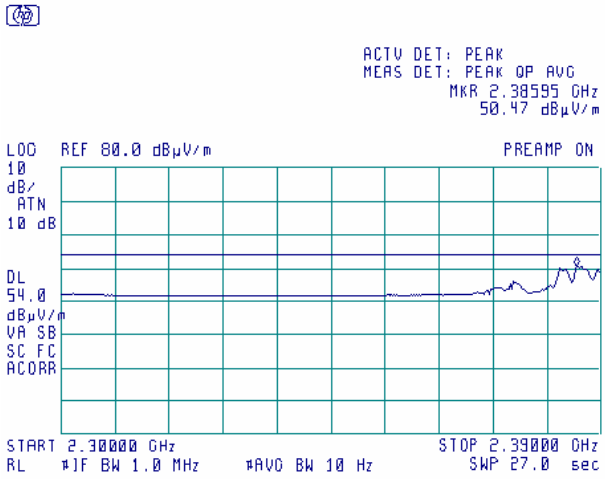
Plot 8.4.18 Radiated emission measurements from 2300 to 2390 MHz at the low carrier frequency

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



Plot 8.4.19 Radiated emission measurements from 2300 to 2390 MHz at the low carrier frequency

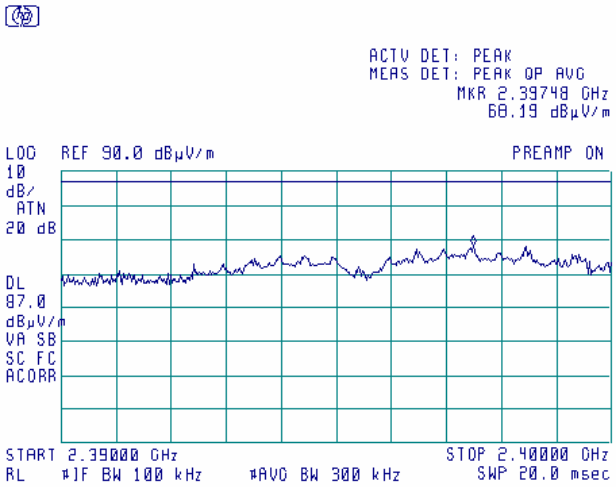
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 8.4.20 Radiated emission measurements from 2390 to 2400 MHz at the low carrier frequency

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

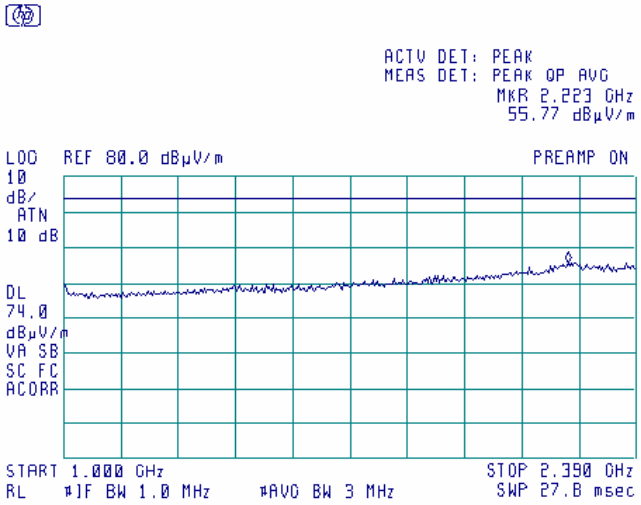


Note: outside restricted band emission. Limit is: 106.98 dBµV/m – 20 dB = 86.96dBµV/m

Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

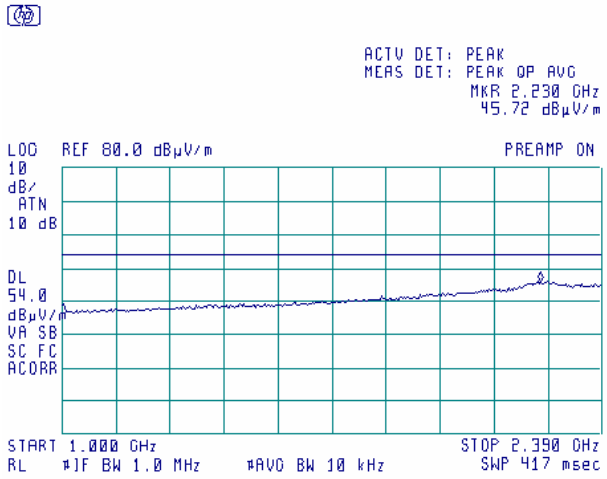
Plot 8.4.21 Radiated emission measurements from 1000 to 2390 MHz at the mid carrier frequency

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



Plot 8.4.22 Radiated emission measurements from 1000 to 2390 MHz at the mid carrier frequency

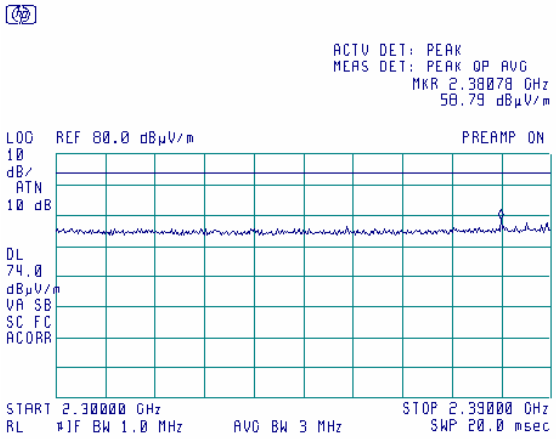
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

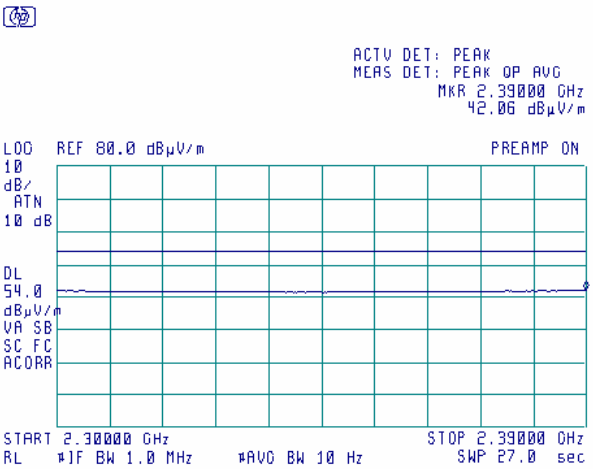
Plot 8.4.23 Radiated emission measurements from 2300 to 2390 MHz at the mid carrier frequency

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



Plot 8.4.24 Radiated emission measurements from 2300 to 2390 MHz at the mid carrier frequency

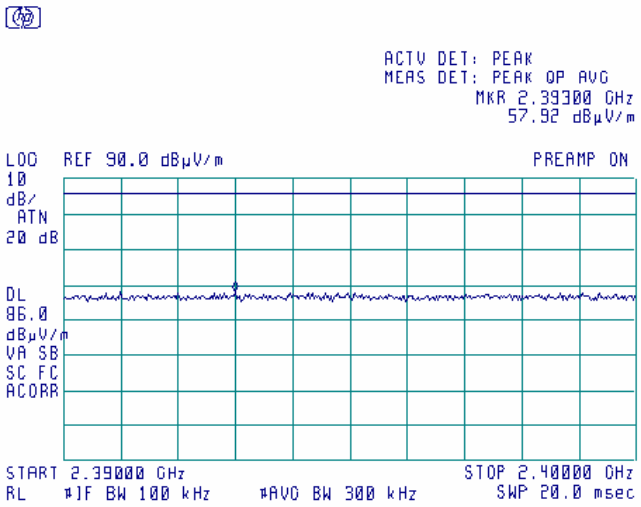
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 8.4.25 Radiated emission measurements from 2390 to 2400 MHz at the mid carrier frequency

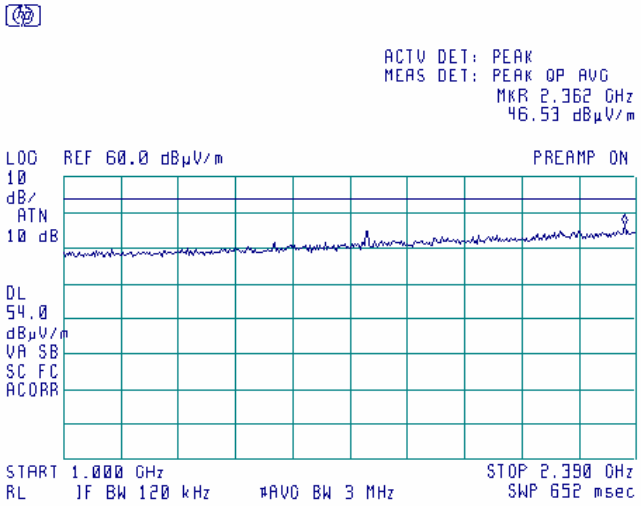
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

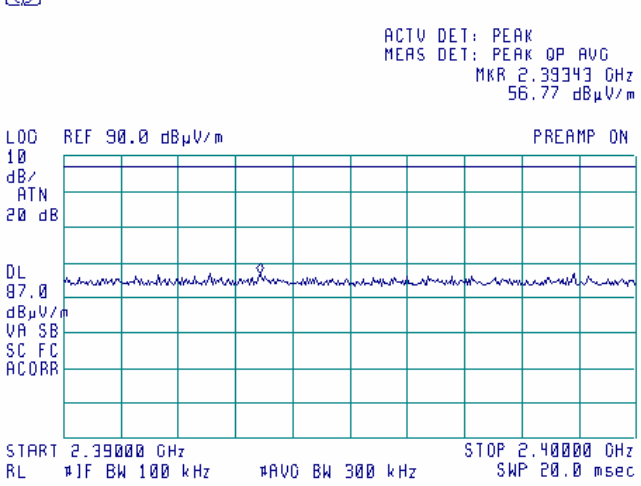
Plot 8.4.26 Radiated emission measurements from 1000 to 2390 MHz at the high carrier frequency

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



Plot 8.4.27 Radiated emission measurements from 2390 to 2400 MHz at the high carrier frequency

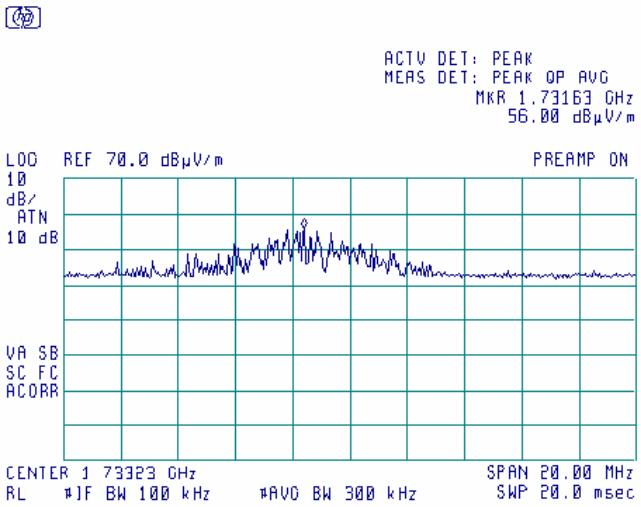
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 8.4.28 Radiated emission measurements at 1731 MHz at the high carrier frequency

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

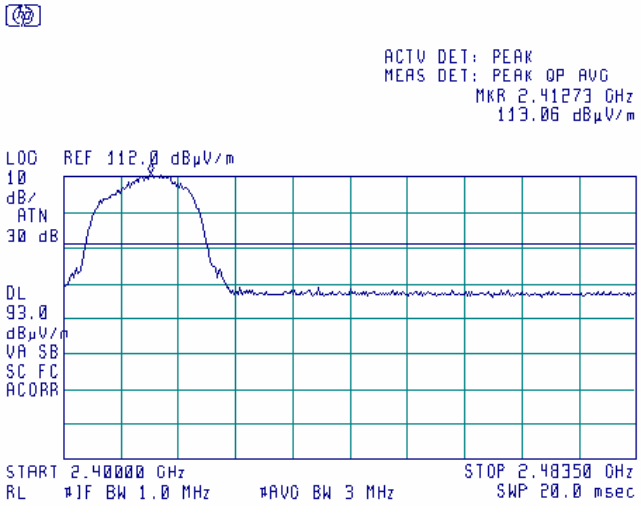


Note: an outside restricted band emission with limit of (106.98 dBµV/m – 20 dB) 86.98 dBµV/m

Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

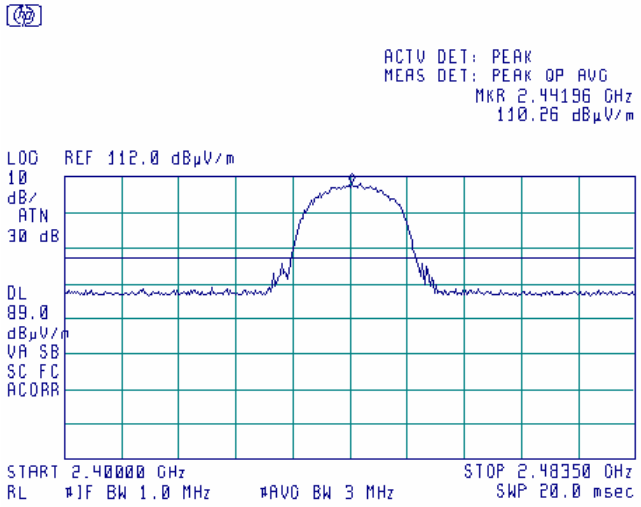
Plot 8.4.29 Radiated emission measurements from 2400 to 2483.5 MHz at the low carrier frequency

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



Plot 8.4.30 Radiated emission measurements from 2400 to 2483.5 MHz at the mid carrier frequency

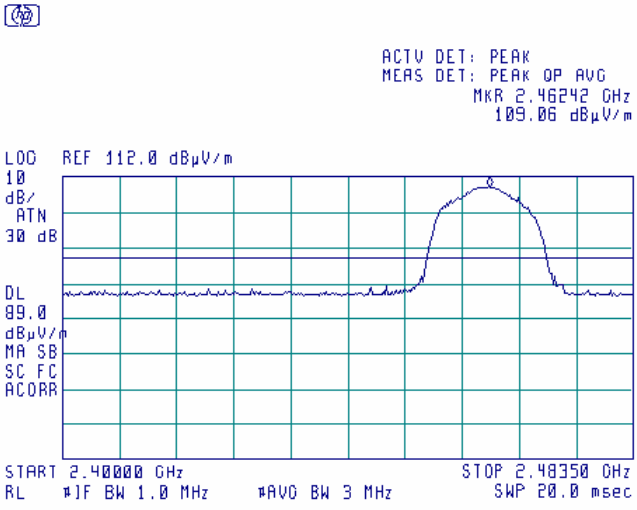
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 8.4.31 Radiated emission measurements from 2400 to 2483.5 MHz at the high carrier frequency

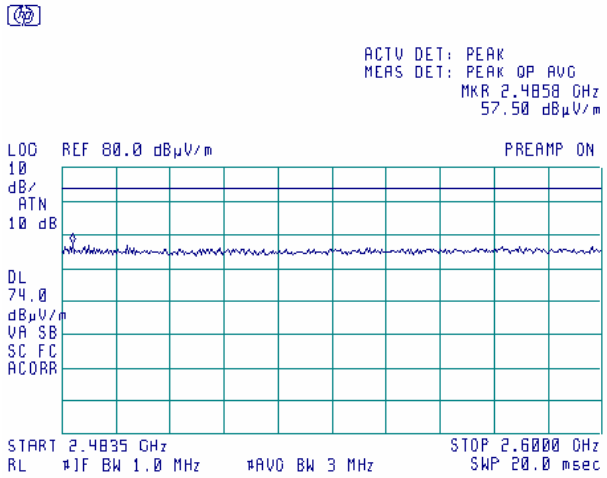
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

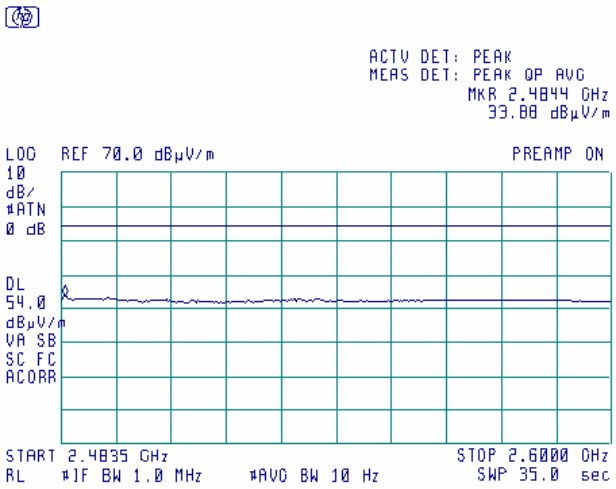
Plot 8.4.32 Radiated emission measurements from 2483.5 to 2600 MHz at the low carrier frequency

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



Plot 8.4.33 Radiated emission measurements from 2483.5 to 2600 MHz at the low carrier frequency

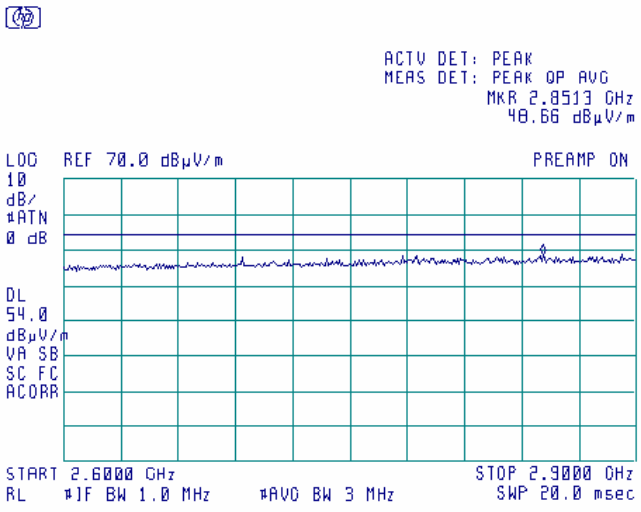
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 8.4.34 Radiated emission measurements from 2600 to 2900 MHz at the low carrier frequency

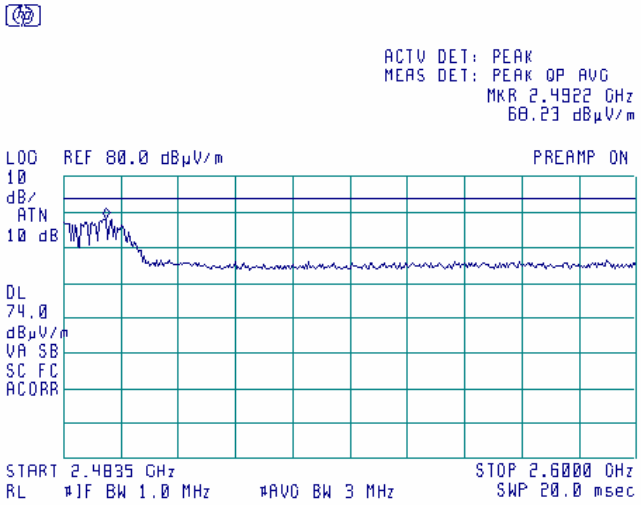
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

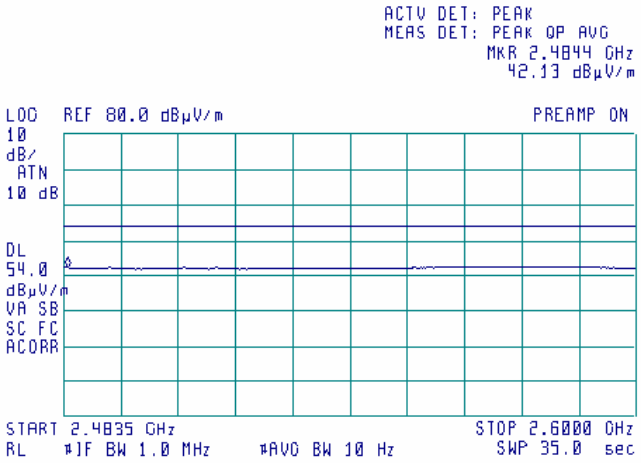
Plot 8.4.35 Radiated emission measurements from 2483.5 to 2600 MHz at the mid carrier frequency

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



Plot 8.4.36 Radiated emission measurements from 2483.5 to 2600 MHz at the mid carrier frequency

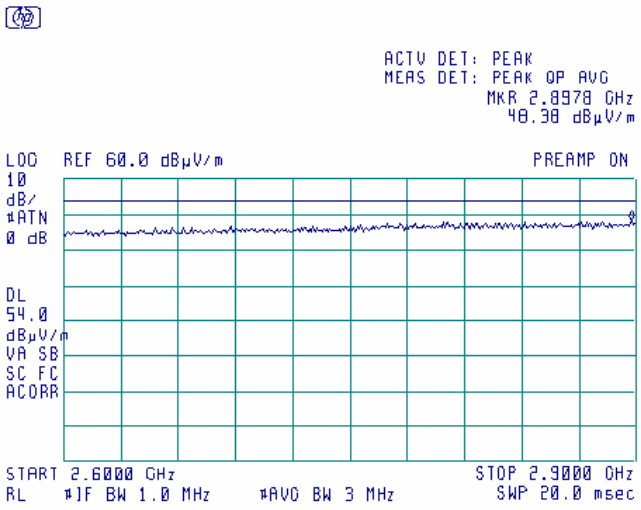
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 8.4.37 Radiated emission measurements from 2600 to 2900 MHz at the mid carrier frequency

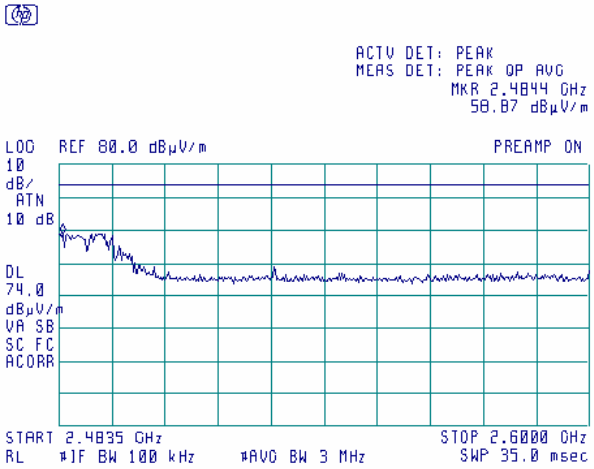
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 8.4.38 Radiated emission measurements from 2483.5 to 2600 MHz at the high carrier frequency

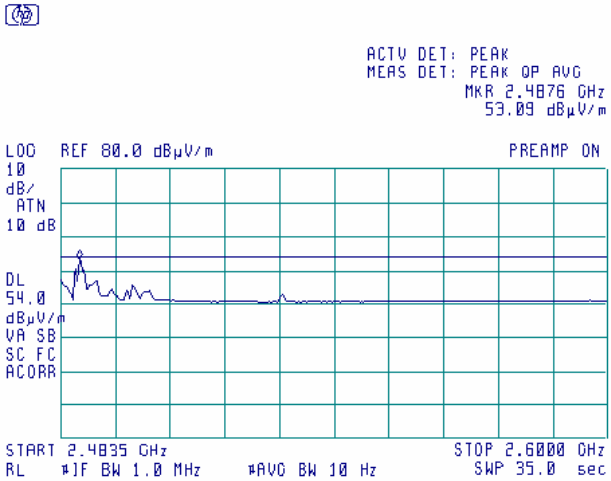
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Note: Field Strength of signal = SA reading + BW factor = 58.87 dBµV/m + 10***log***(1MHz/100kHz) = 58.87 dBµV/m + 10 dB = 68.87 dBµV/m

Plot 8.4.39 Radiated emission measurements from 2483.5 to 2600 MHz at the high carrier frequency

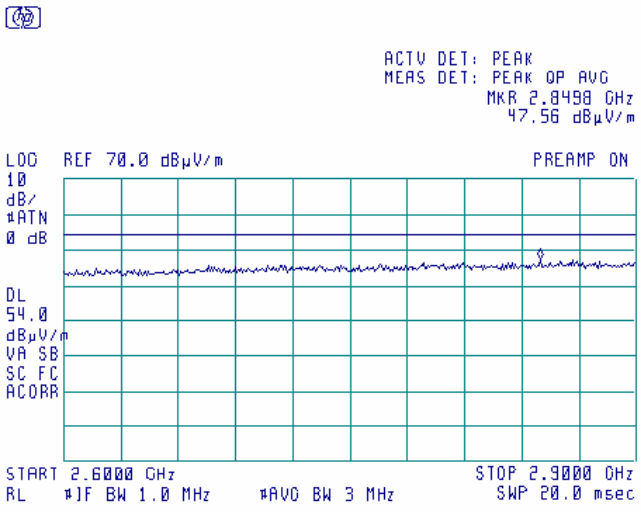
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 8.4.40 Radiated emission measurements from 2600 to 2900 MHz at the high carrier frequency

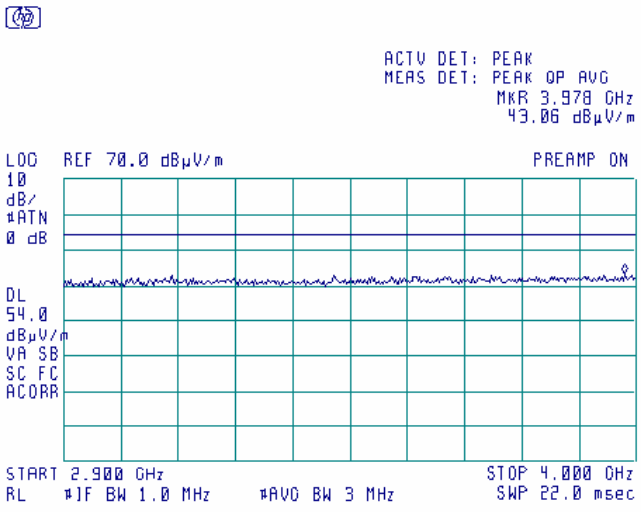
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 8.4.41 Radiated emission measurements from 2900 to 4000 MHz at the low carrier frequency

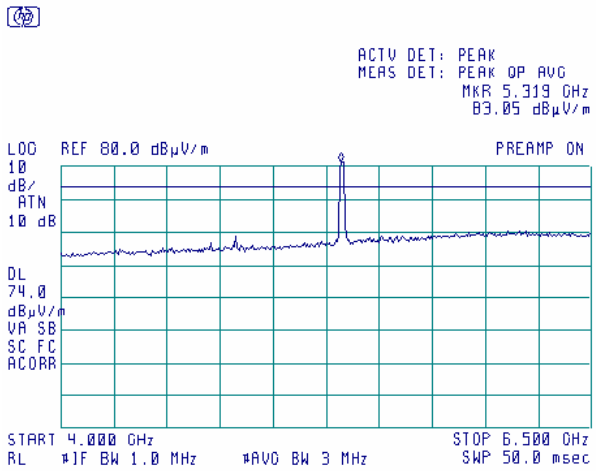
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

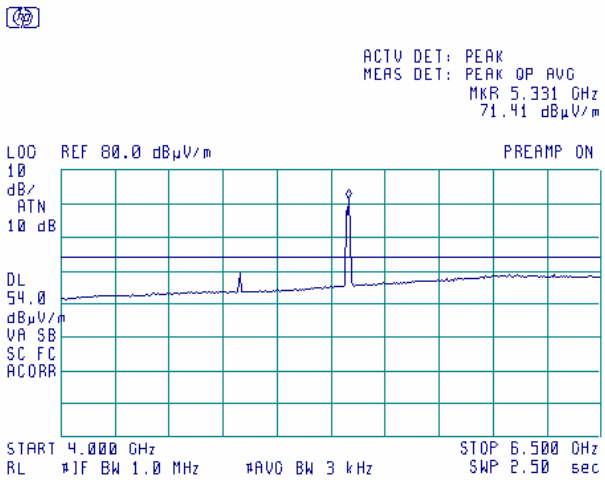
Plot 8.4.42 Radiated emission measurements from 4000 to 6500 MHz at the low carrier frequency

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



Plot 8.4.43 Radiated emission measurements from 4000 to 6500 MHz at the low carrier frequency

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

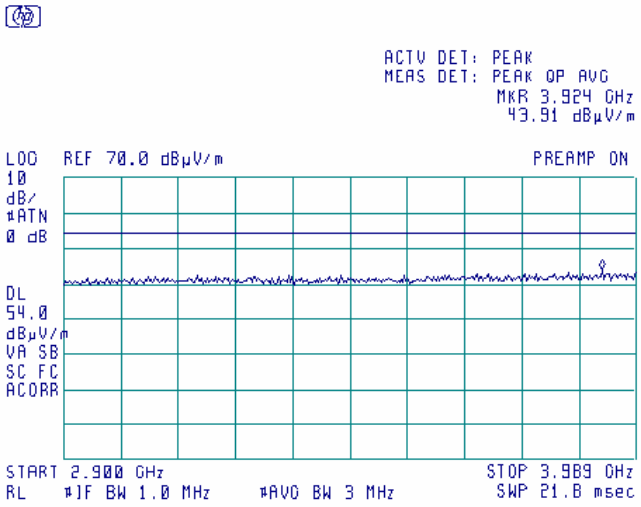


Note: 4.82 GHz – second harmonic of 802.11b/g module, 5.32 GHz – intended emission of 802.11a module

Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 8.4.44 Radiated emission measurements from 2900 to 4000 MHz at the mid carrier frequency

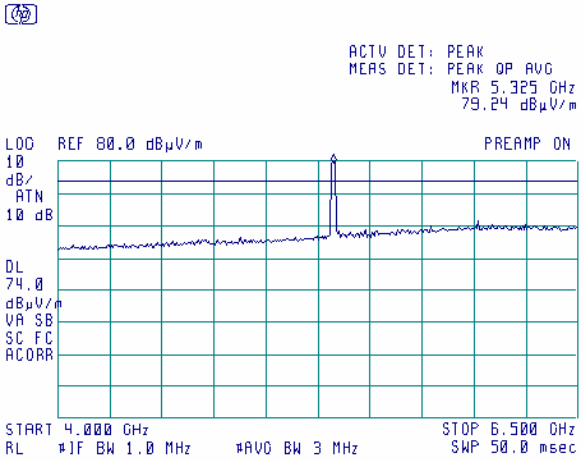
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

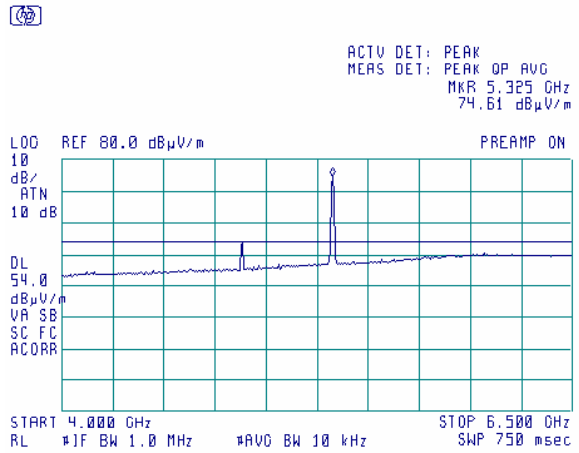
Plot 8.4.45 Radiated emission measurements from 4000 to 6500 MHz at the mid carrier frequency

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



Plot 8.4.46 Radiated emission measurements from 4000 to 6500 MHz at the mid carrier frequency

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

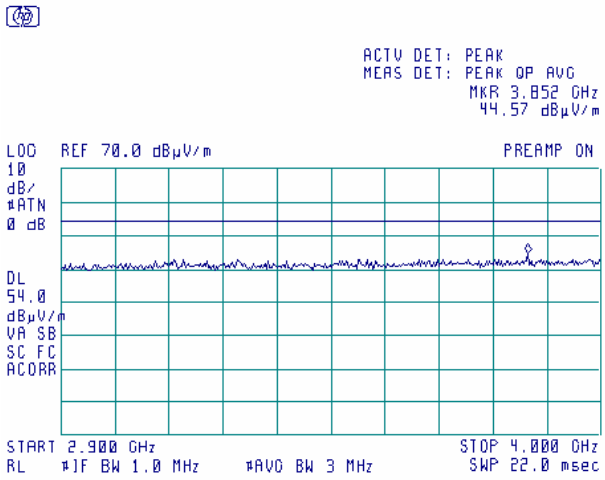


Note: 4.87 GHz – second harmonic of 802.11b/g module, 5.32 GHz – intended emission of 802.11a module

Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 8.4.47 Radiated emission measurements from 2900 to 4000 MHz at the high carrier frequency

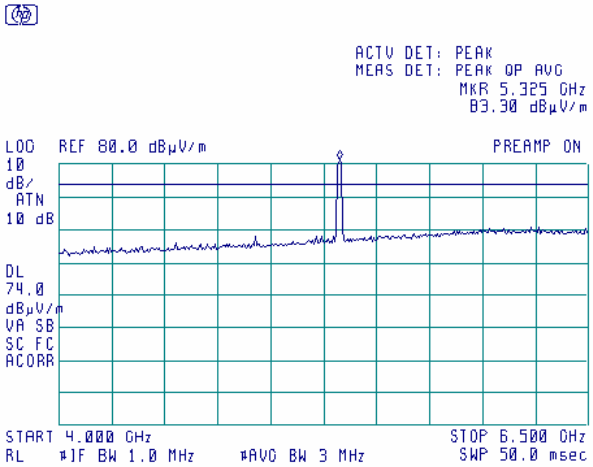
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

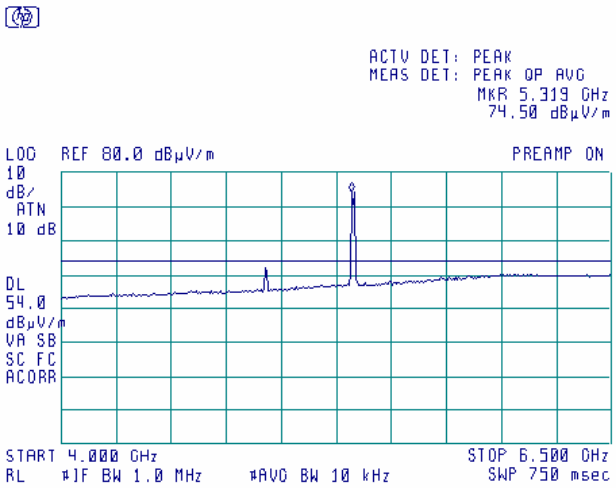
Plot 8.4.48 Radiated emission measurements from 4000 to 6500 MHz at the high carrier frequency

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



Plot 8.4.49 Radiated emission measurements from 4000 to 6500 MHz at the high carrier frequency

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

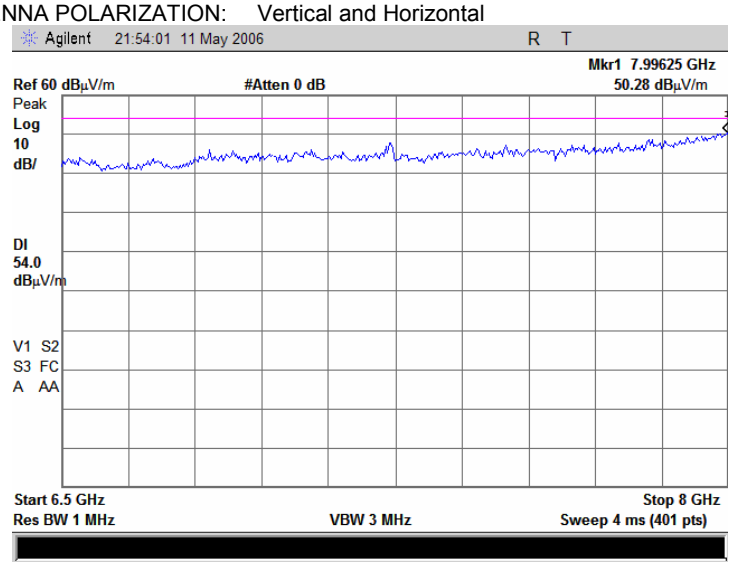


Note: 4.92 GHz – second harmonic of 802.11b/g module, 5.32 GHz – intended emission of 802.11a module

Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

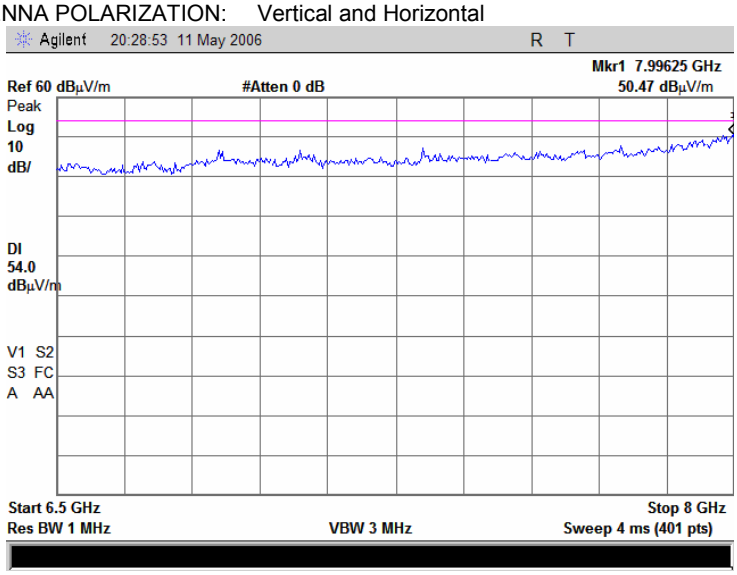
Plot 8.4.50 Radiated emission measurements from 6500 to 8000 MHz at the low carrier frequency

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



Plot 8.4.51 Radiated emission measurements from 6500 to 8000 MHz at the mid carrier frequency

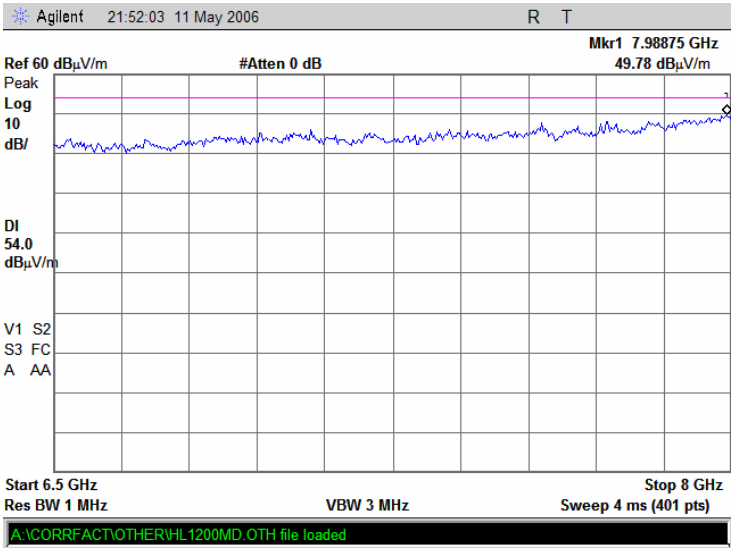
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

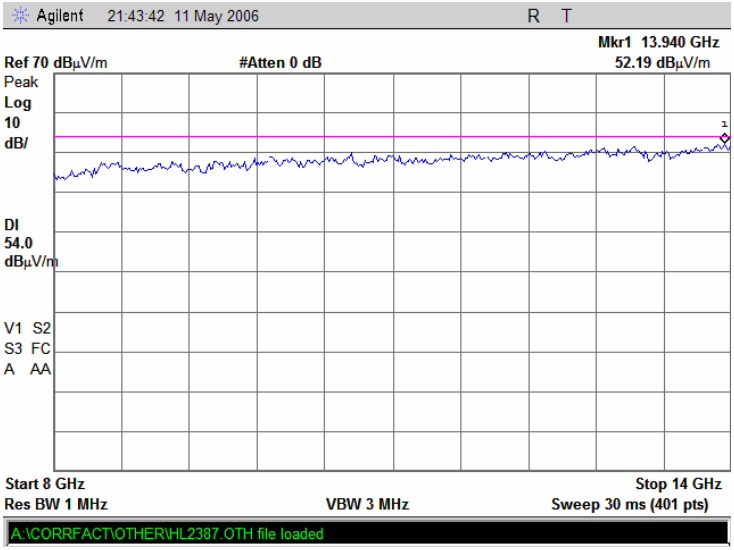
Plot 8.4.52 Radiated emission measurements from 6500 to 8000 MHz at the high carrier frequency

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



Plot 8.4.53 Radiated emission measurements from 8000 to 14000 MHz at the low carrier frequency

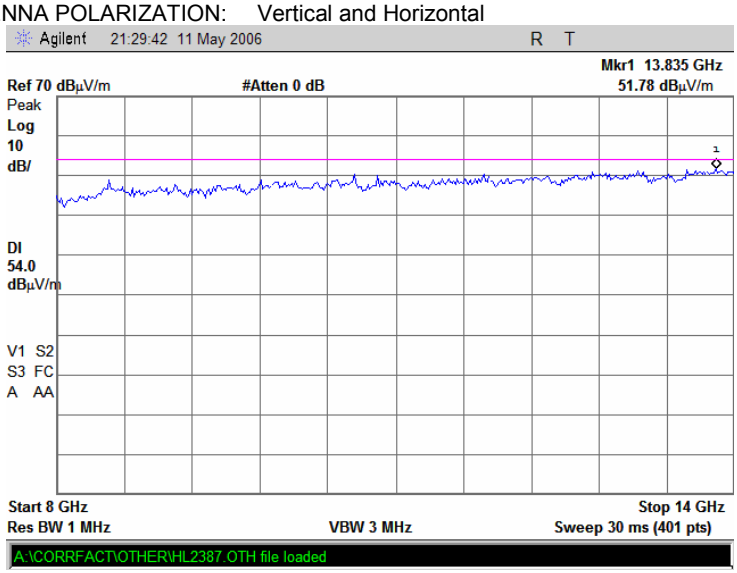
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

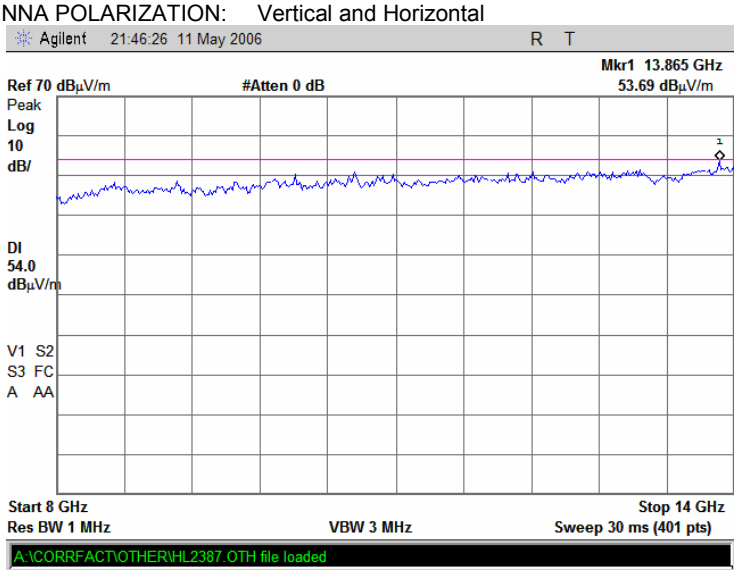
Plot 8.4.54 Radiated emission measurements from 8000 to 14000 MHz at the mid carrier frequency

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



Plot 8.4.55 Radiated emission measurements from 8000 to 14000 MHz at the high carrier frequency

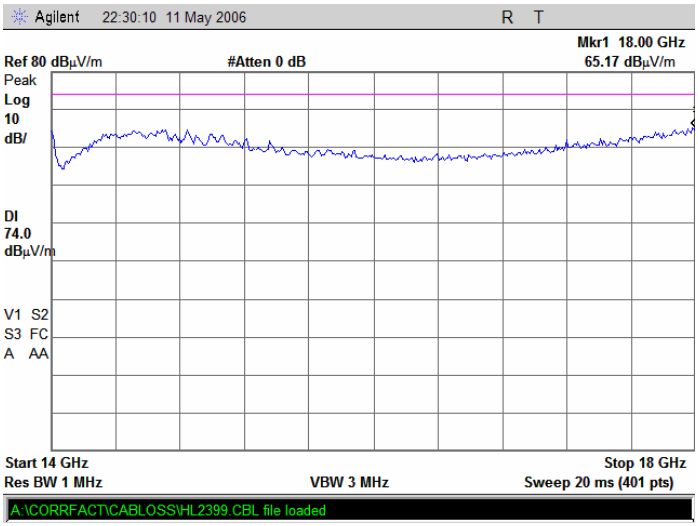
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

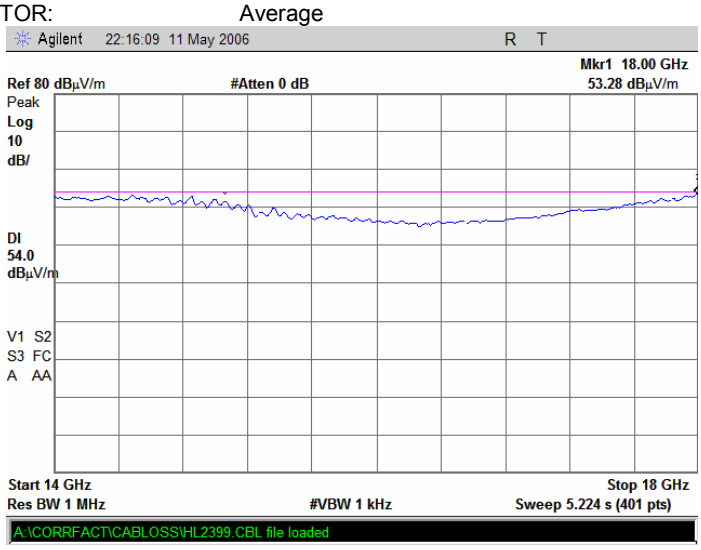
Plot 8.4.56 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency

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



Plot 8.4.57 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency

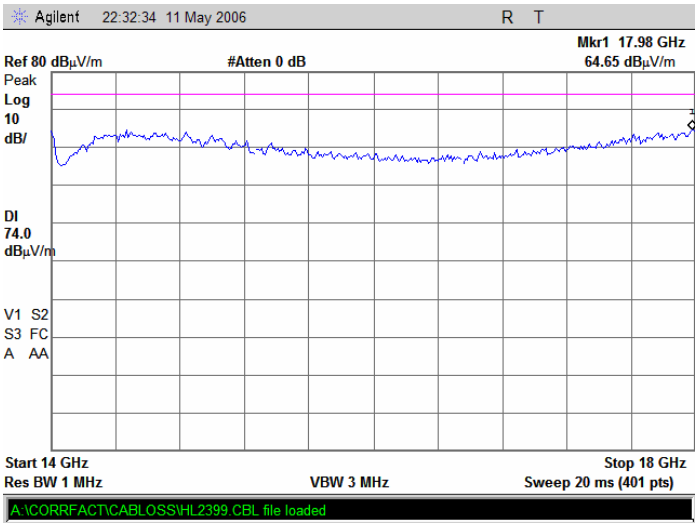
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

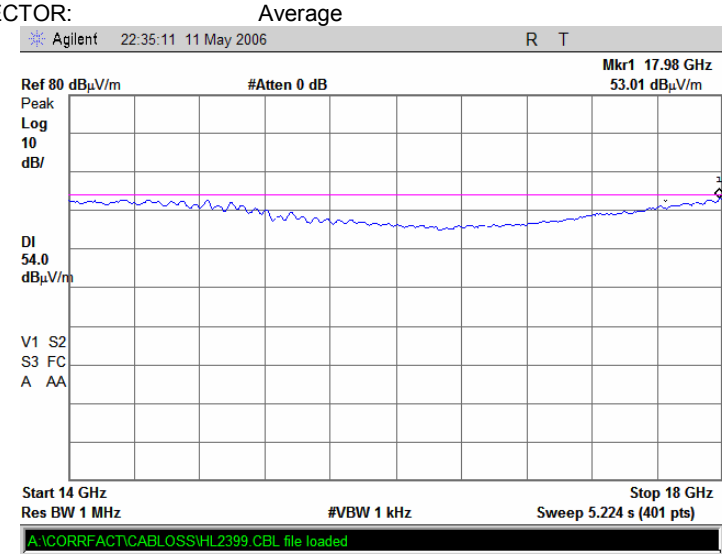
Plot 8.4.58 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency

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



Plot 8.4.59 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency

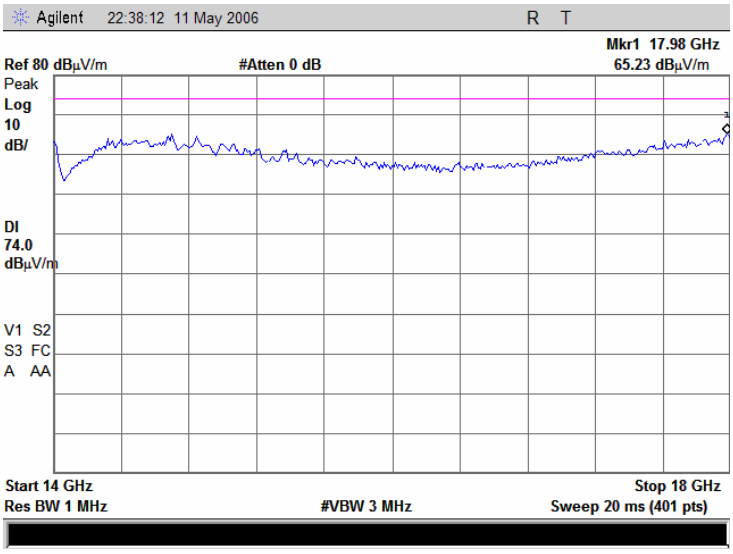
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

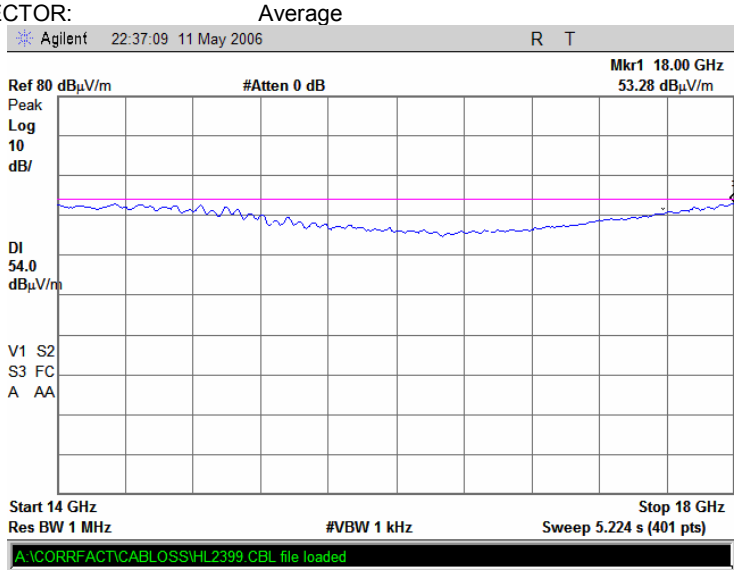
Plot 8.4.60 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency

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



Plot 8.4.61 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency

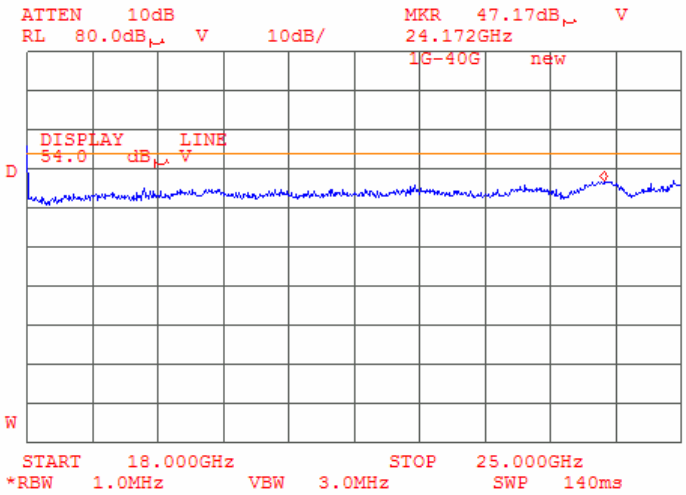
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

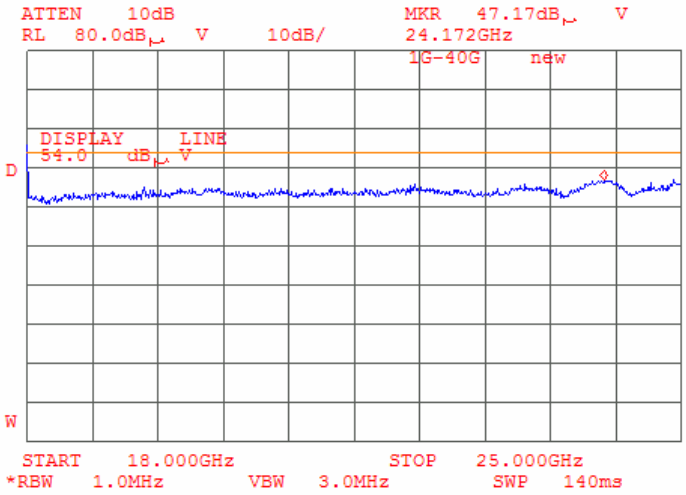
Plot 8.4.62 Radiated emission measurements from 18000 to 25000 MHz at the low carrier frequency

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



Plot 8.4.63 Radiated emission measurements from 18000 to 25000 MHz at the mid carrier frequency

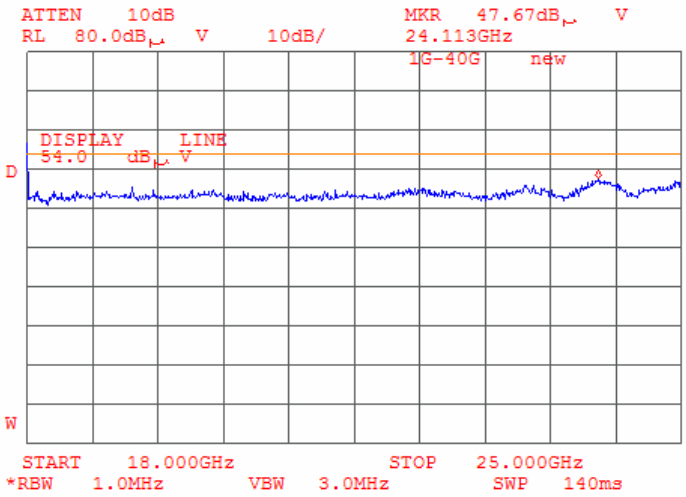
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 8.4.64 Radiated emission measurements from 18000 to 25000 MHz at the high carrier frequency

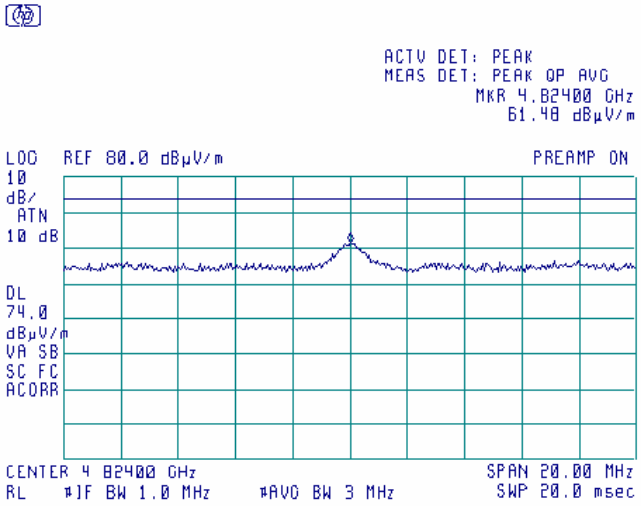
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



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:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

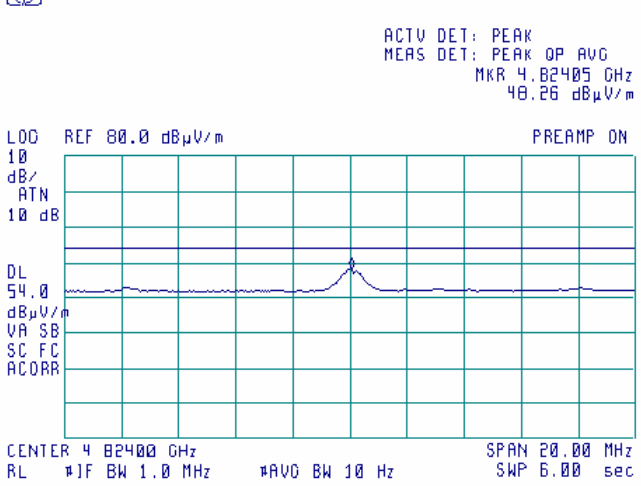
Plot 8.4.65 Radiated emission measurements at the second harmonic of low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
DETECTOR: Peak



Plot 8.4.66 Radiated emission measurements at the second harmonic of low carrier frequency

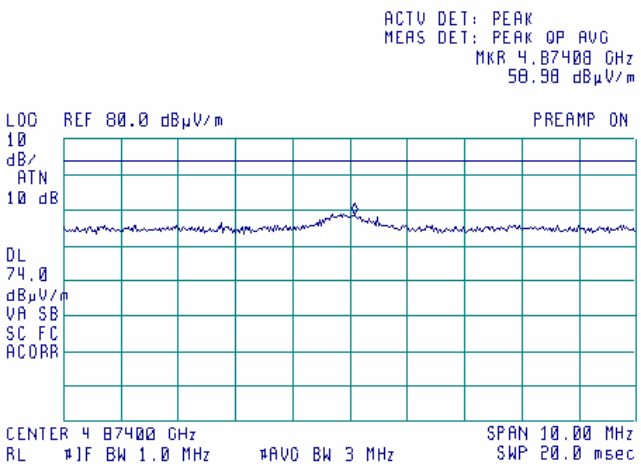
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

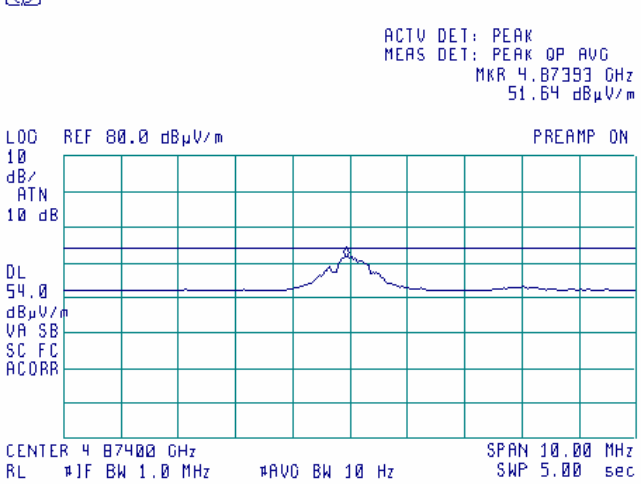
Plot 8.4.67 Radiated emission measurements at the second harmonic of mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
DETECTOR: Peak



Plot 8.4.68 Radiated emission measurements at the second harmonic of mid carrier frequency

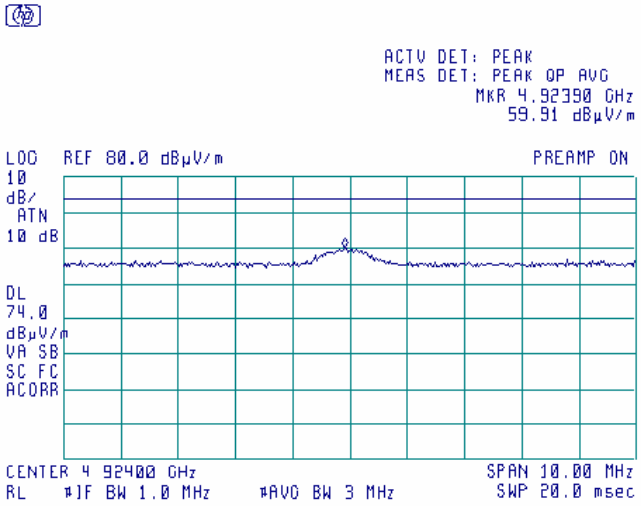
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

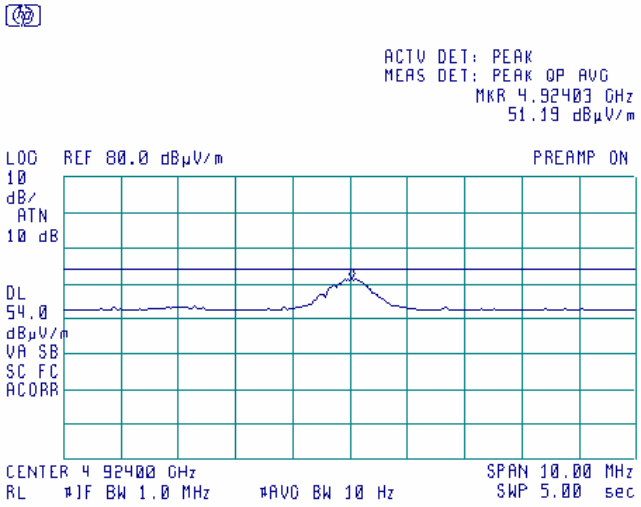
Plot 8.4.69 Radiated emission measurements at the second harmonic of high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
DETECTOR: Peak



Plot 8.4.70 Radiated emission measurements at the second harmonic of high carrier frequency

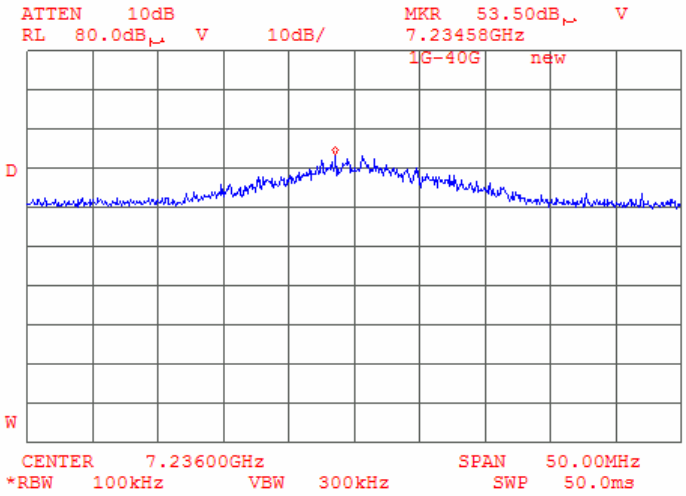
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
DETECTOR: Average



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

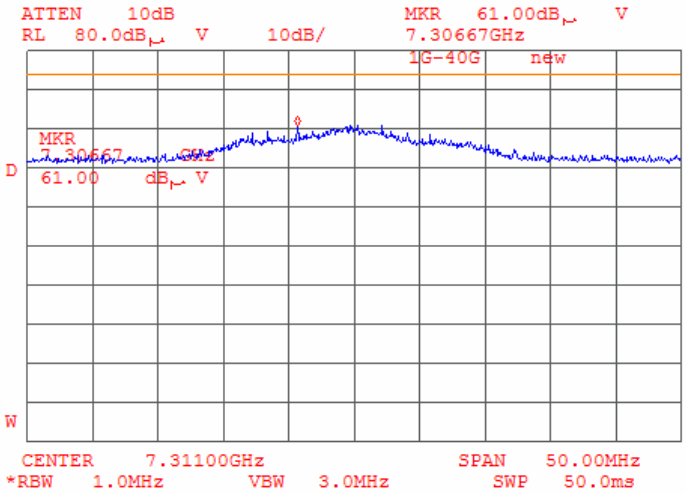
Plot 8.4.71 Radiated emission measurements at the third harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m



Plot 8.4.72 Radiated emission measurements at the third harmonic of mid carrier frequency

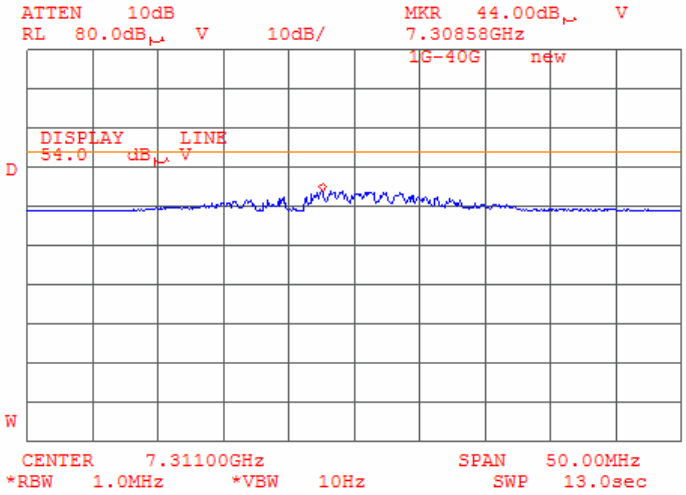
TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Peak



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

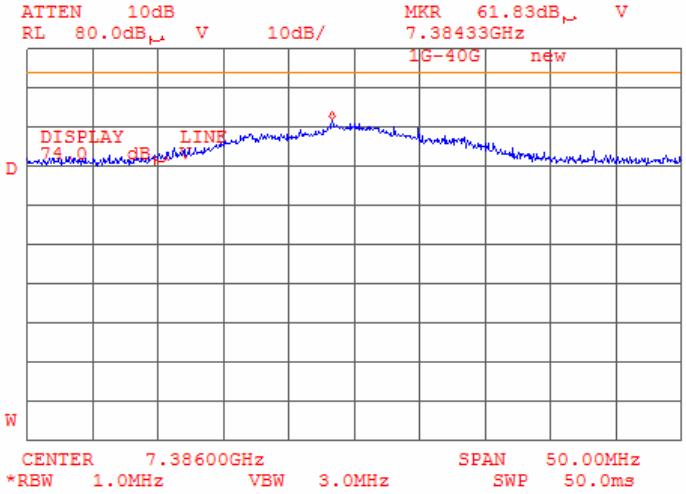
Plot 8.4.73 Radiated emission measurements at the third harmonic of mid carrier frequency

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



Plot 8.4.74 Radiated emission measurements at the third harmonic of high carrier frequency

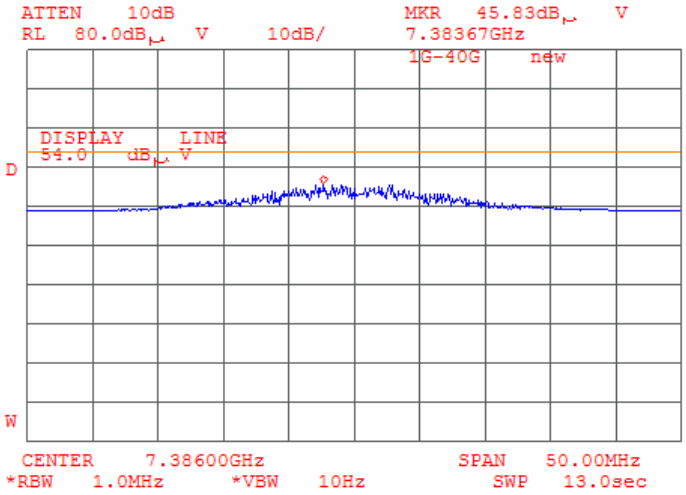
TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTOR: Peak



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

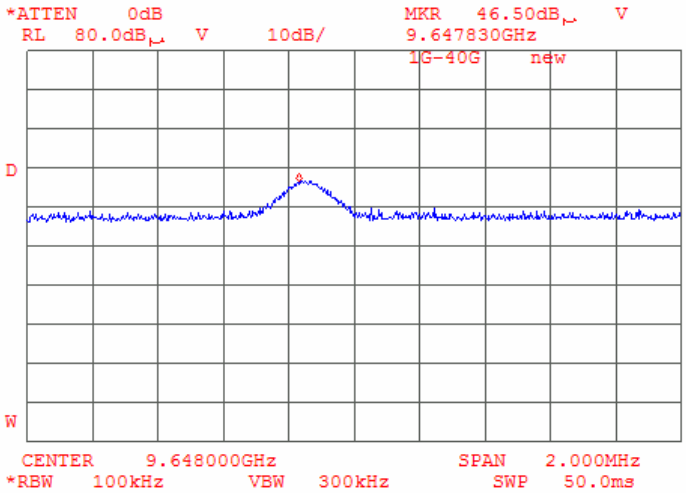
Plot 8.4.75 Radiated emission measurements at the third harmonic of high carrier frequency

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



Plot 8.4.76 Radiated emission measurements at the forth harmonic of low carrier frequency

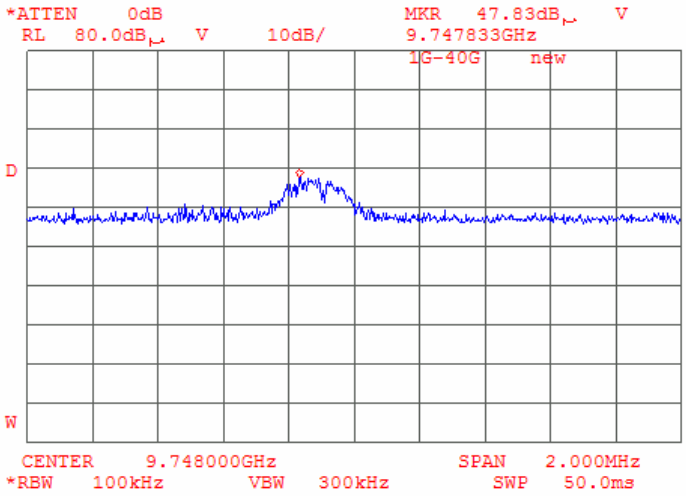
TEST SITE: OATS
TEST DISTANCE: 3 m



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

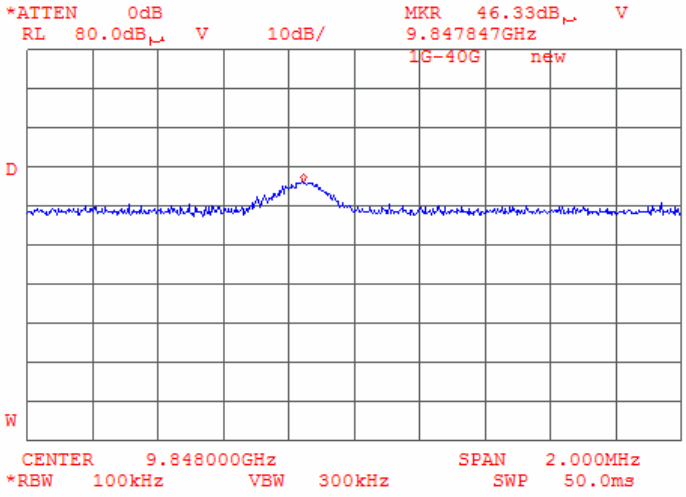
Plot 8.4.77 Radiated emission measurements at the forth harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m



Plot 8.4.78 Radiated emission measurements at the forth harmonic of high carrier frequency

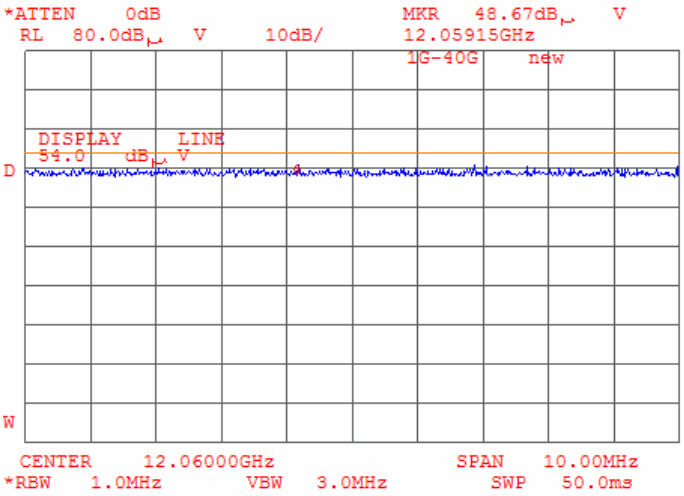
TEST SITE: OATS
TEST DISTANCE: 3 m



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

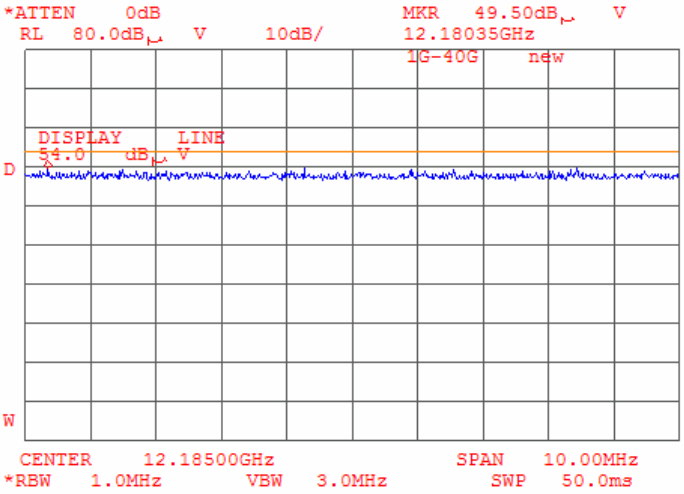
Plot 8.4.79 Radiated emission measurements at the fifth harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m



Plot 8.4.80 Radiated emission measurements at the fifth harmonic of mid carrier frequency

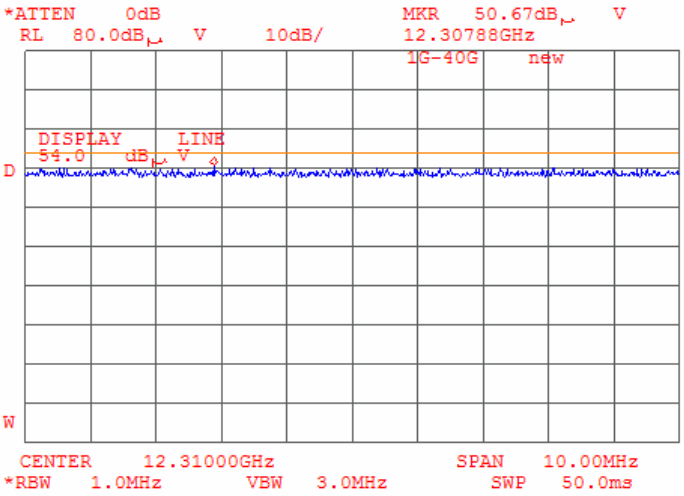
TEST SITE: OATS
TEST DISTANCE: 3 m



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

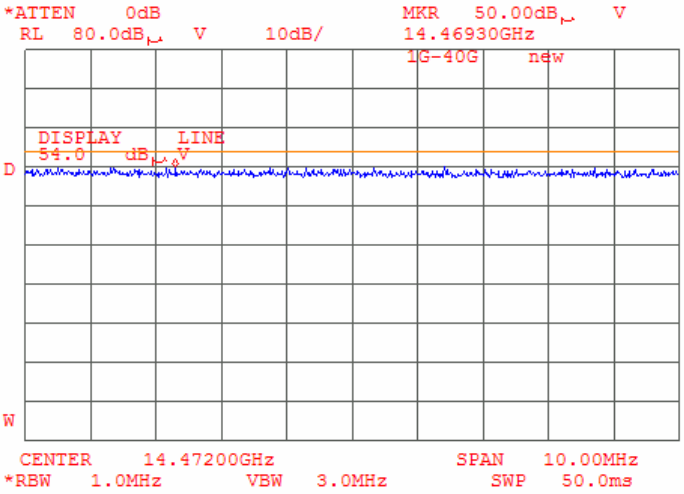
Plot 8.4.81 Radiated emission measurements at the fifth harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m



Plot 8.4.82 Radiated emission measurements at the sixth harmonic of low carrier frequency

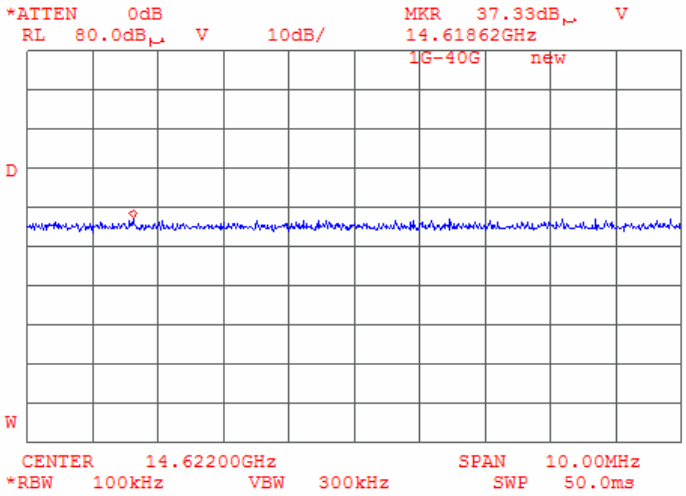
TEST SITE: OATS
TEST DISTANCE: 3 m



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

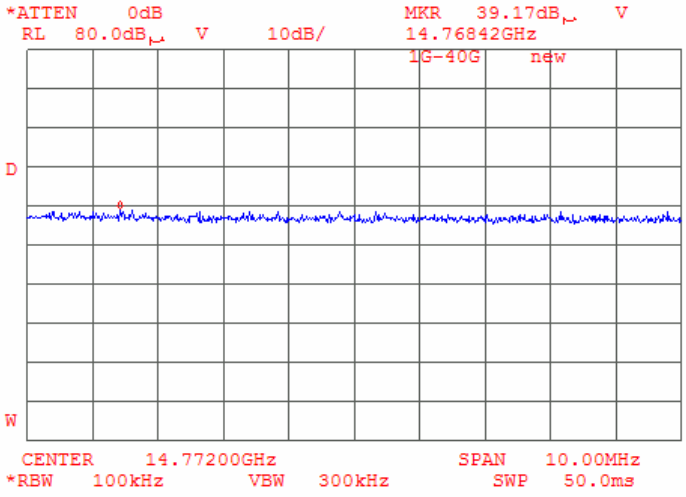
Plot 8.4.83 Radiated emission measurements at the sixth harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m



Plot 8.4.84 Radiated emission measurements at the sixth harmonic of high carrier frequency

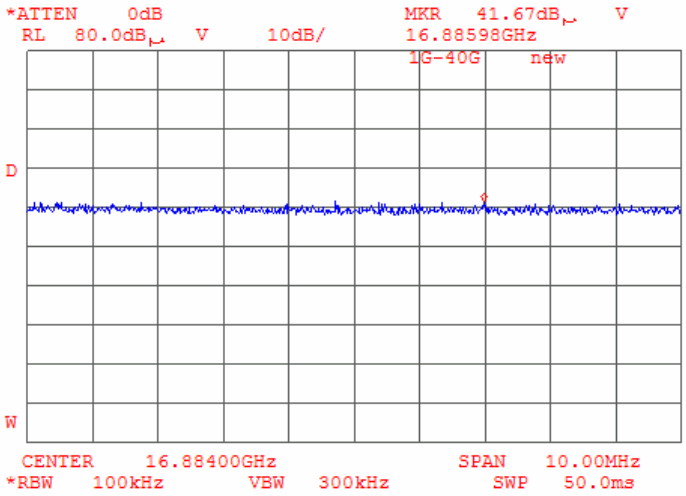
TEST SITE: OATS
TEST DISTANCE: 3 m



Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

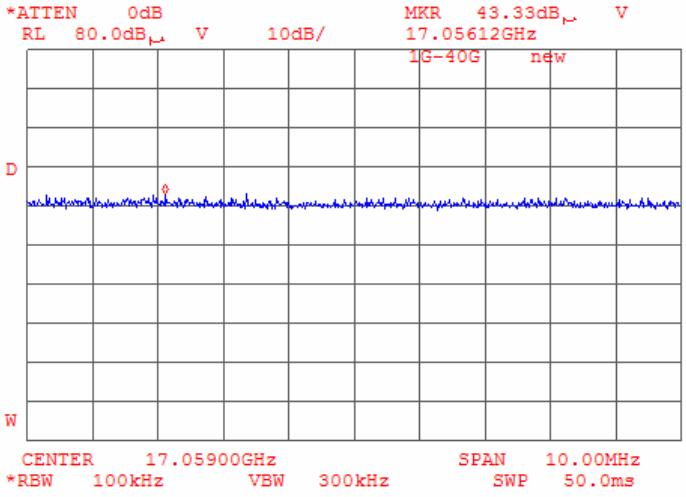
Plot 8.4.85 Radiated emission measurements at the seventh harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m



Plot 8.4.86 Radiated emission measurements at the seventh harmonic of mid carrier frequency

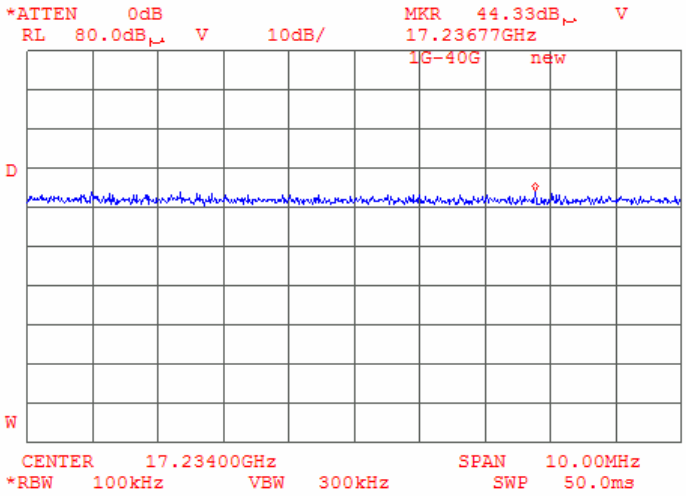
TEST SITE: OATS
TEST DISTANCE: 3 m



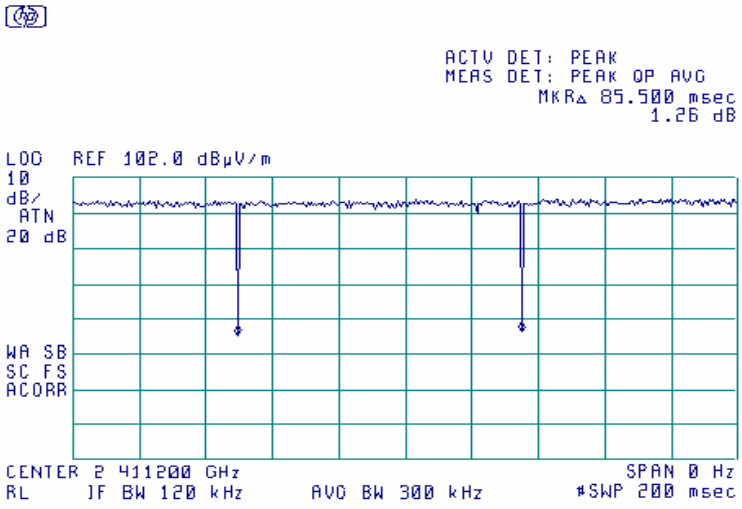
Test specification:	Section 15.247(c), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 8.4.87 Radiated emission measurements at the seventh harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m



Plot 8.4.88 Transmission duration



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:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

8.5 Peak spectral power density

8.5.1 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 8.5.1.

Table 8.5.1 Peak spectral power density limits

Assigned frequency range, MHz	Measurement bandwidth, kHz	Peak spectral power density, dBm
2400 – 2483.5	3.0	8.0

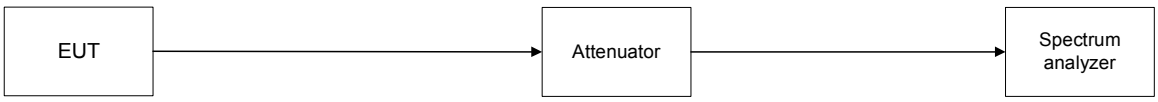
8.5.2 Test procedure

8.5.2.1 The EUT was set up as shown in Figure 8.5.1, energized and its proper operation was checked.

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

8.5.2.3 The frequency span of spectrum analyzer was set to capture the entire band of the transmission, in peak hold mode. The peak spectral power density was measured and calculated as provided in Table 8.5.2.

Figure 8.5.1 Peak spectral power density test setup



Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 ºC	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Table 8.5.2 Peak spectral power density test results

ASSIGNED FREQUENCY: 2400.0 – 2483.5 MHz
MODULATION: DBPSK, CCK, BPSK, 64-QAM
MODULATING SIGNAL: PRBS
BIT RATE: 1, 11, 6 ,54 Mbps
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
DETECTOR USED: Peak

Carrier frequency, MHz	Spectrum analyzer reading, dBm/Hz	External attenuation, dB	Cable loss, dB	Peak power density, dB(mW/3 kHz)**	Limit, dBm	Margin*, dB	Verdict
DSSS, 1 Mbps							
2412	-38.88	Included	Included	-3.88	8.0	-11.88	Pass
2437	-40.63	Included	Included	-5.63	8.0	-13.63	Pass
2462	-40.33	Included	Included	-5.33	8.0	-13.33	Pass
DSSS, 11 Mbps							
2412	-40.48	Included	Included	-5.48	8.0	-13.48	Pass
2437	-39.77	Included	Included	-4.77	8.0	-12.77	Pass
2462	-40.60	Included	Included	-5.60	8.0	-13.60	Pass
OFDM, 6 Mbps							
2412	-13.18	Included	Included	-13.18	8.0	-21.18	Pass
2437	-13.15	Included	Included	-13.15	8.0	-21.15	Pass
2462	-13.91	Included	Included	-13.91	8.0	-21.91	Pass
OFDM, 54 Mbps							
2412	-13.58	Included	Included	-13.58	8.0	-21.58	Pass
2437	-14.09	Included	Included	-14.09	8.0	-22.09	Pass
2462	-13.24	Included	Included	-13.24	8.0	-21.24	Pass

* - Margin = Peak power density – specification limit.
** - DSSS measurements: Peak power density = Spectrum analyzer reading + BW factor = Spectrum analyzer reading + 10log(3kHz / 1 Hz) = Spectrum analyzer reading + 35 dB

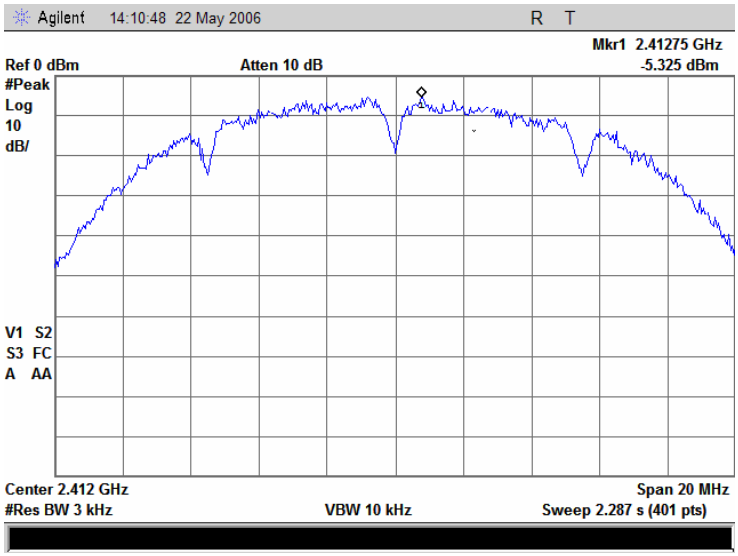
Reference numbers of test equipment used

HL 1650	HL 2867	HL 2909					

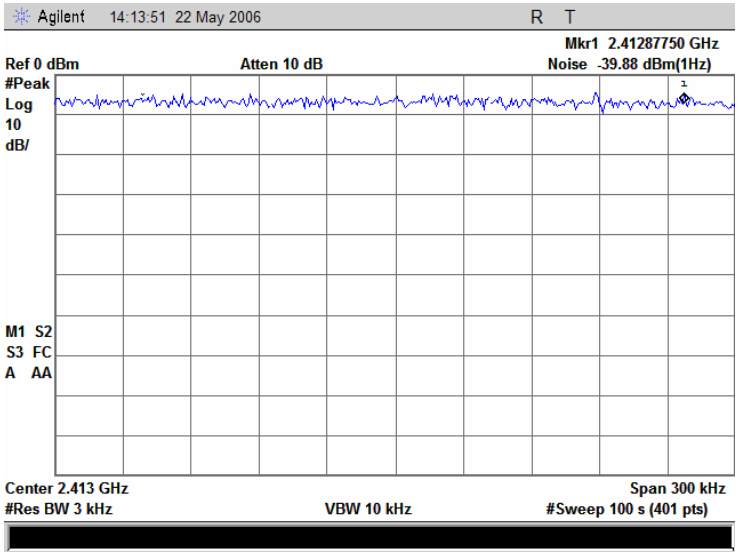
Full description is given in Appendix A.

Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.5.1 Peak spectral power density at low frequency within 6 dB band at 1 Mbps DSSS

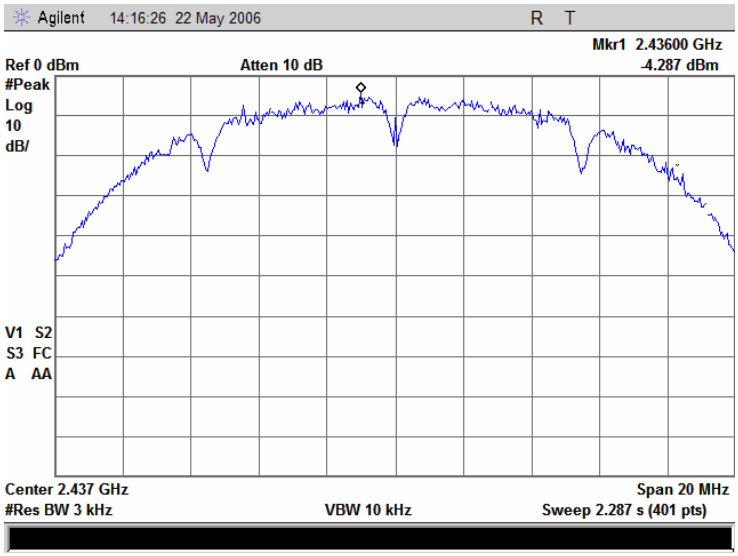


Plot 8.5.2 Peak spectral power density at low frequency zoomed at the peak at 1 Mbps DSSS

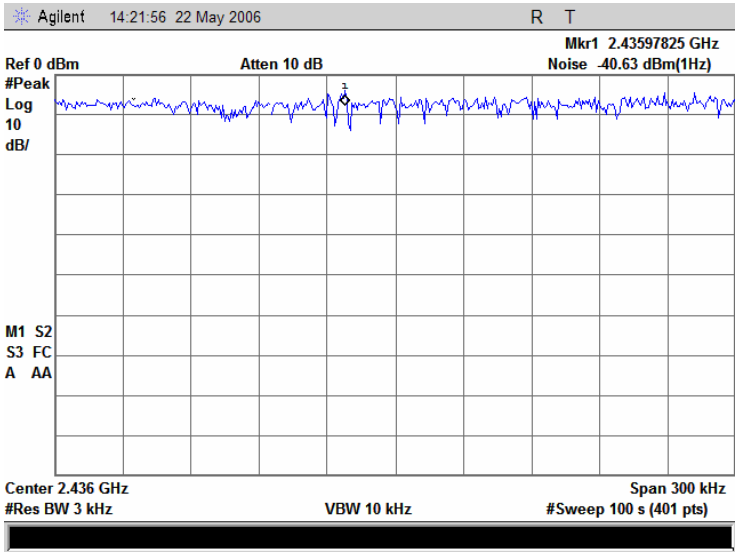


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.5.3 Peak spectral power density at mid frequency within 6 dB band at 1 Mbps DSSS

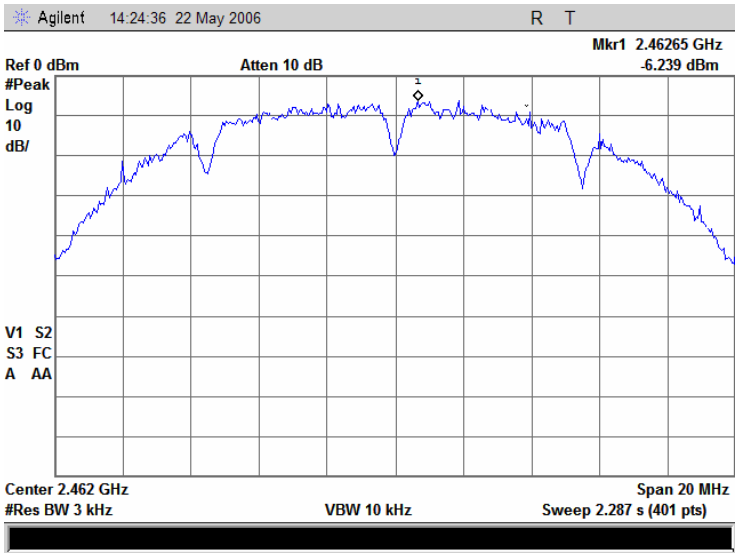


Plot 8.5.4 Peak spectral power density at mid frequency zoomed at the peak at 1 Mbps DSSS

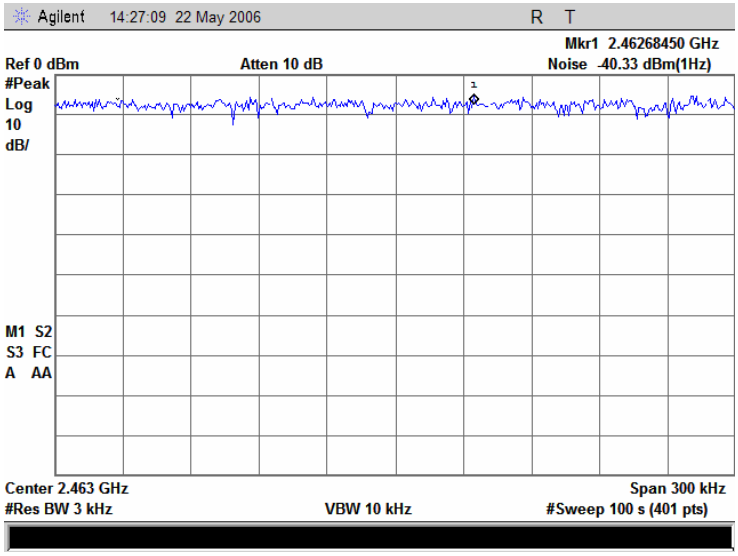


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.5.5 Peak spectral power density at high frequency within 6 dB band at 1 Mbps DSSS

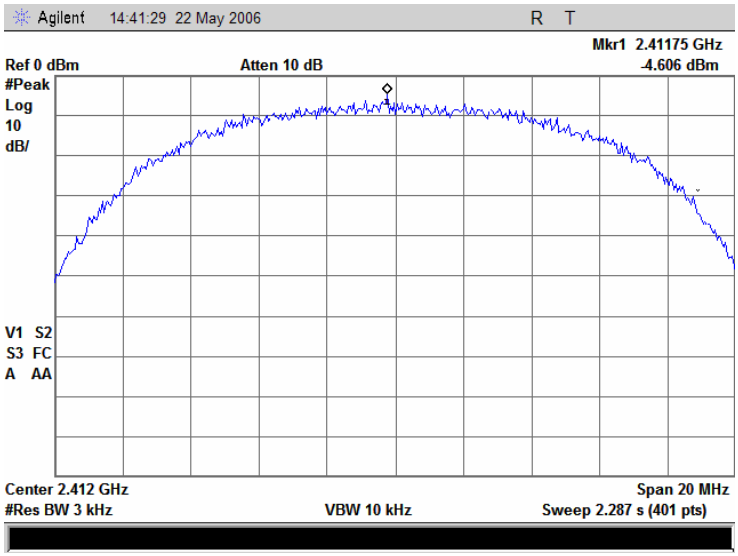


Plot 8.5.6 Peak spectral power density at high frequency zoomed at the peak at 1 Mbps DSSS

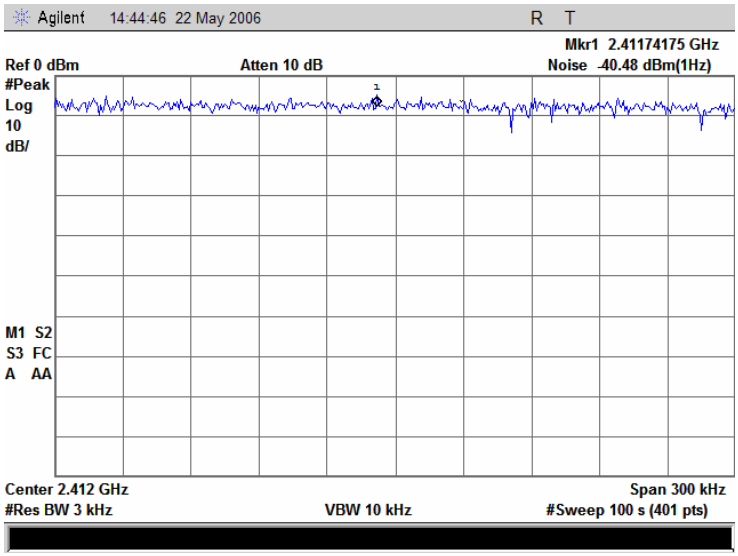


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.5.7 Peak spectral power density at low frequency within 6 dB band at 11 Mbps DSSS

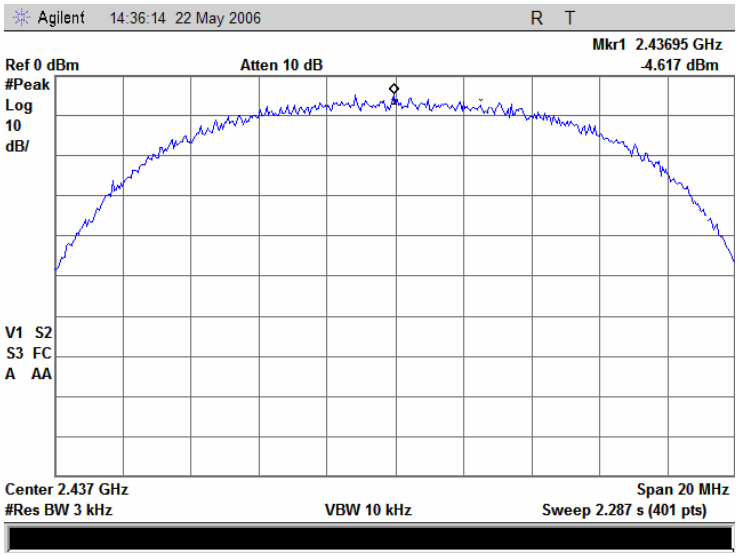


Plot 8.5.8 Peak spectral power density at low frequency zoomed at the peak at 11 Mbps DSSS

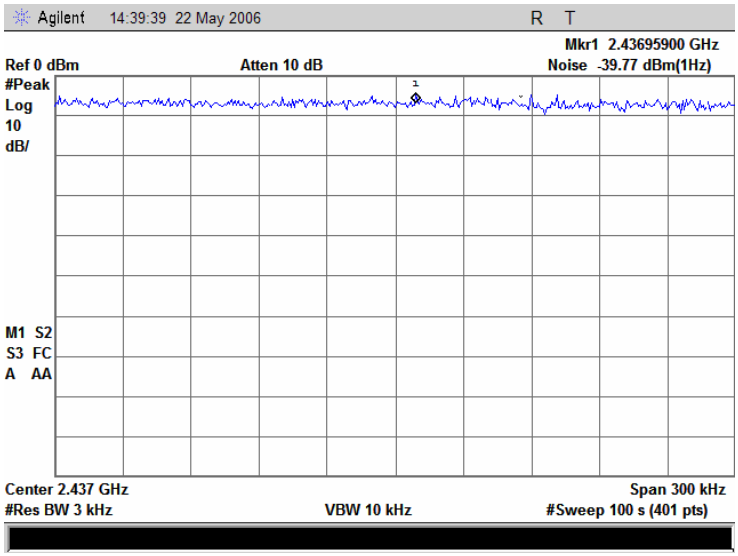


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.5.9 Peak spectral power density at mid frequency within 6 dB band at 11 Mbps DSSS

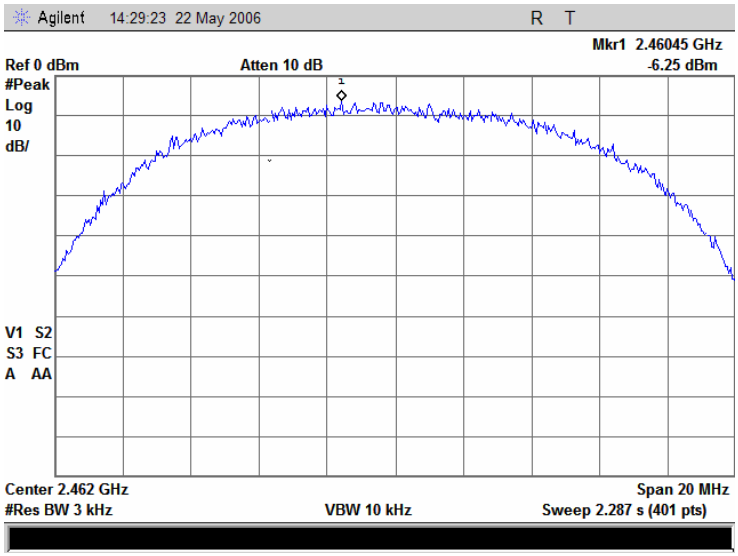


Plot 8.5.10 Peak spectral power density at mid frequency zoomed at the peak at 11 Mbps DSSS

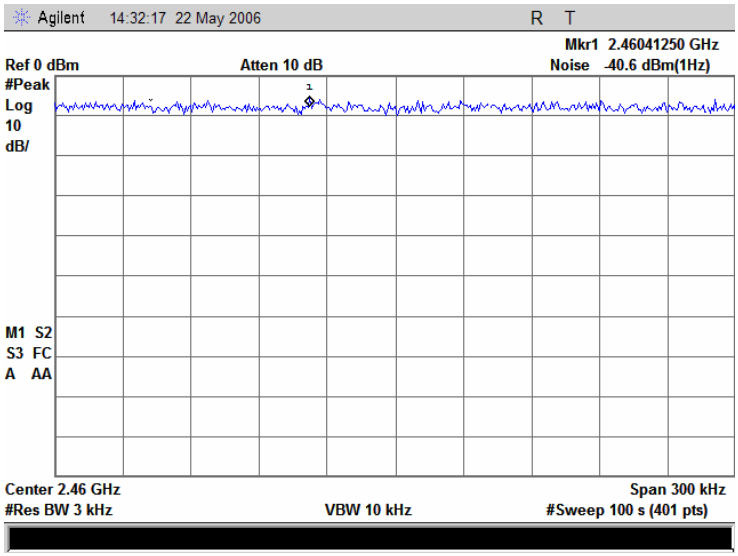


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.5.11 Peak spectral power density at high frequency within 6 dB band at 11 Mbps DSSS

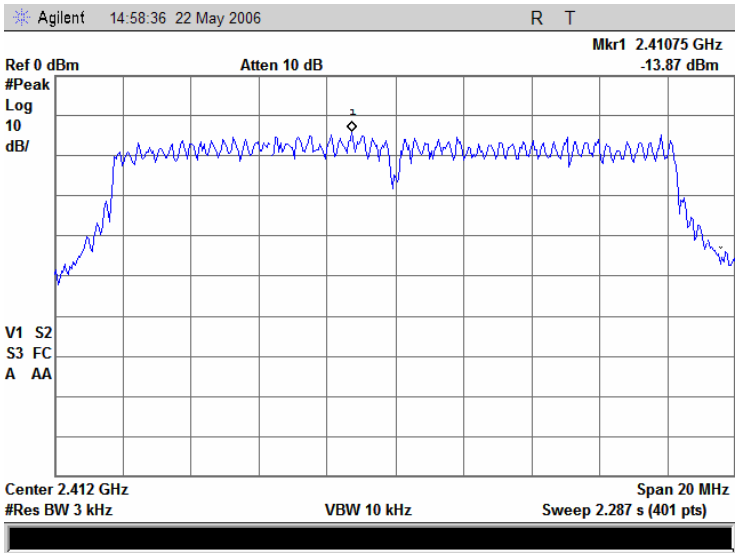


Plot 8.5.12 Peak spectral power density at high frequency zoomed at the peak at 11 Mbps DSSS

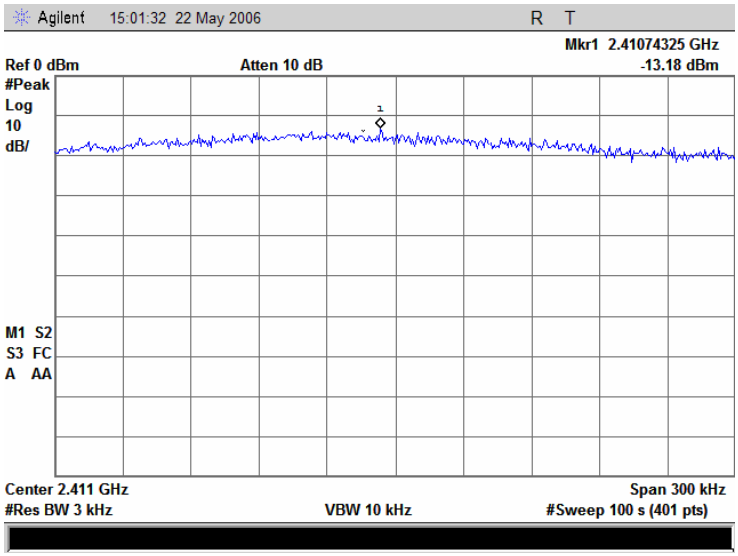


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.5.13 Peak spectral power density at low frequency within 6 dB band at 6 Mbps OFDM

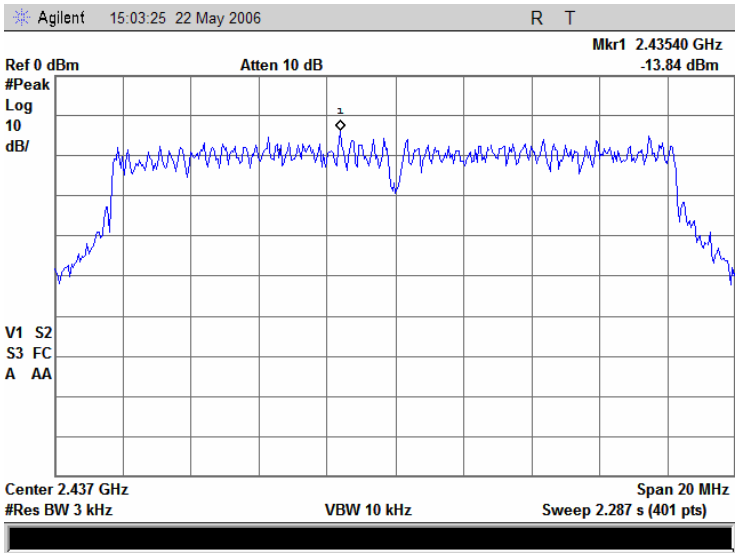


Plot 8.5.14 Peak spectral power density at low frequency zoomed at the peak at 6 Mbps OFDM

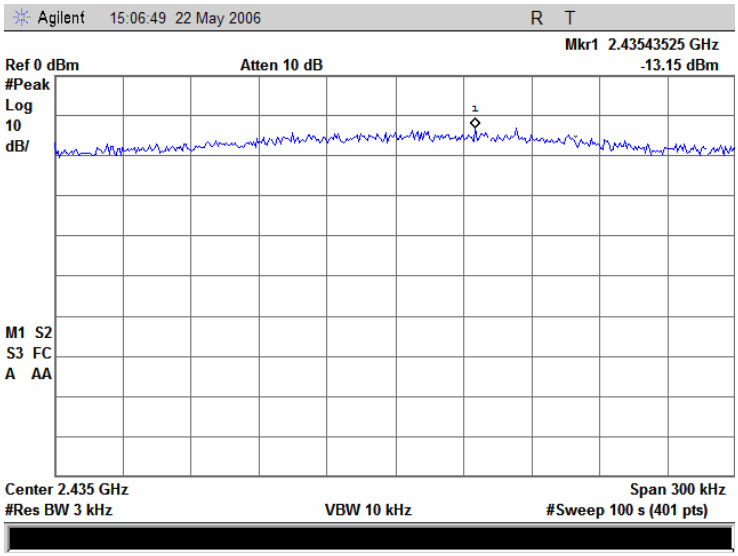


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.5.15 Peak spectral power density at mid frequency within 6 dB band at 6 Mbps OFDM

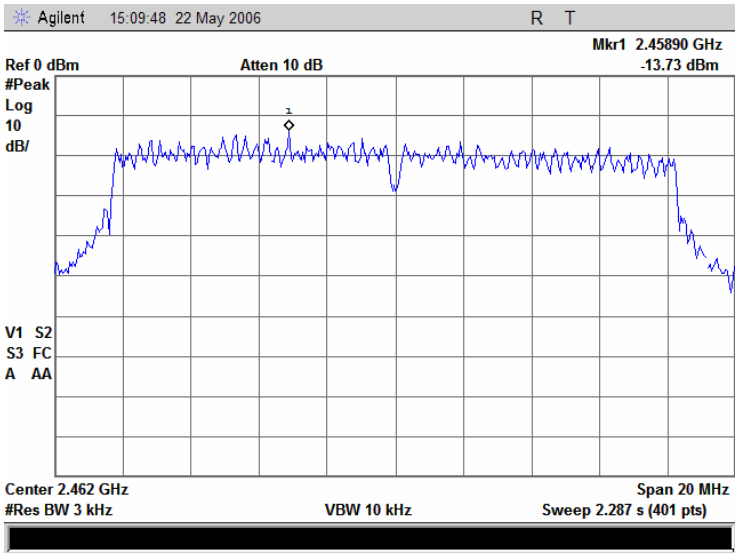


Plot 8.5.16 Peak spectral power density at mid frequency zoomed at the peak at 6 Mbps OFDM

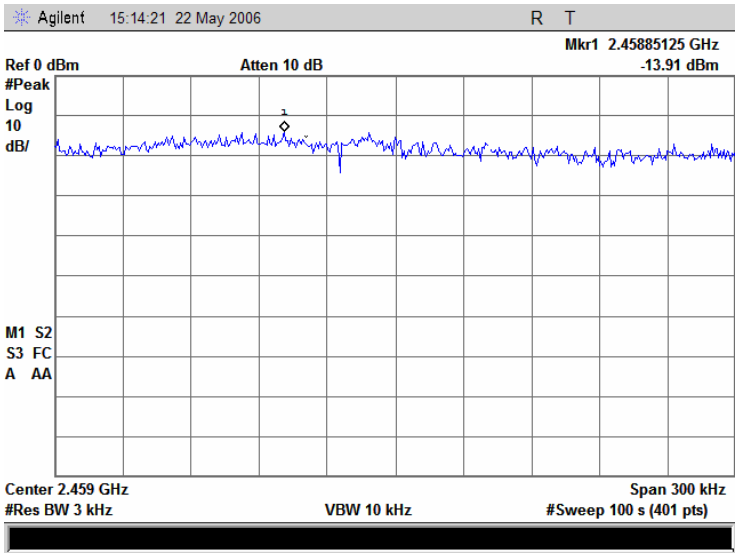


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.5.17 Peak spectral power density at high frequency within 6 dB band at 6 Mbps OFDM

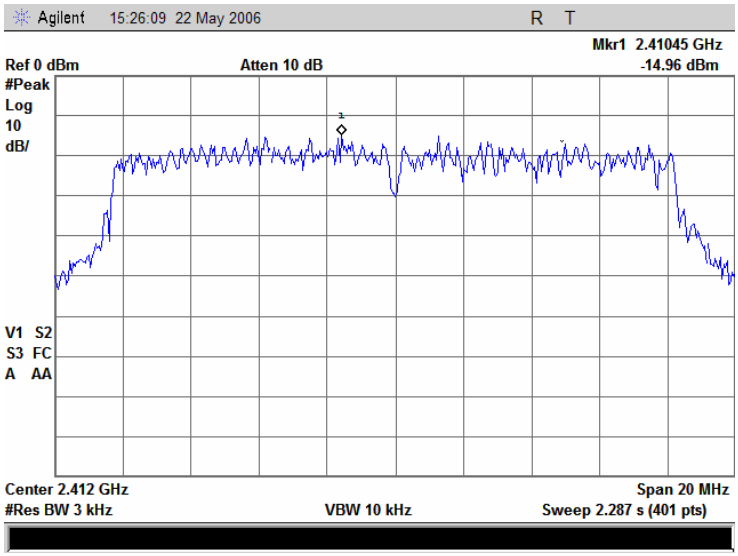


Plot 8.5.18 Peak spectral power density at high frequency zoomed at the peak at 6 Mbps OFDM

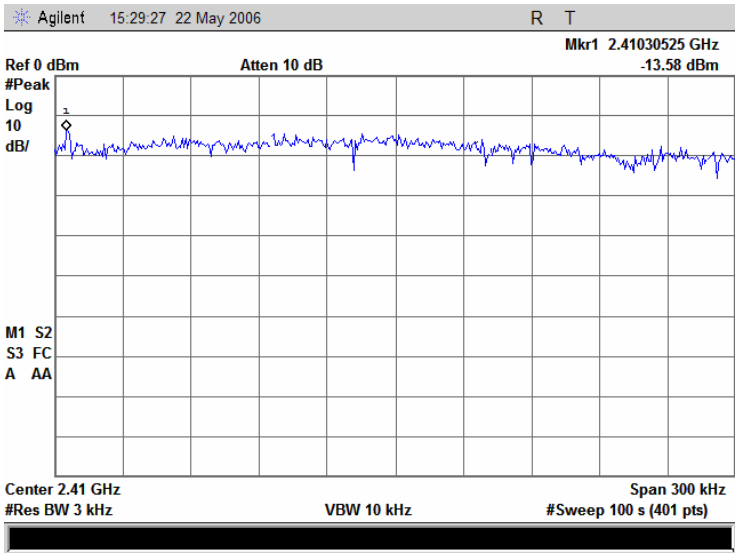


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.5.19 Peak spectral power density at low frequency within 6 dB band at 54 Mbps OFDM

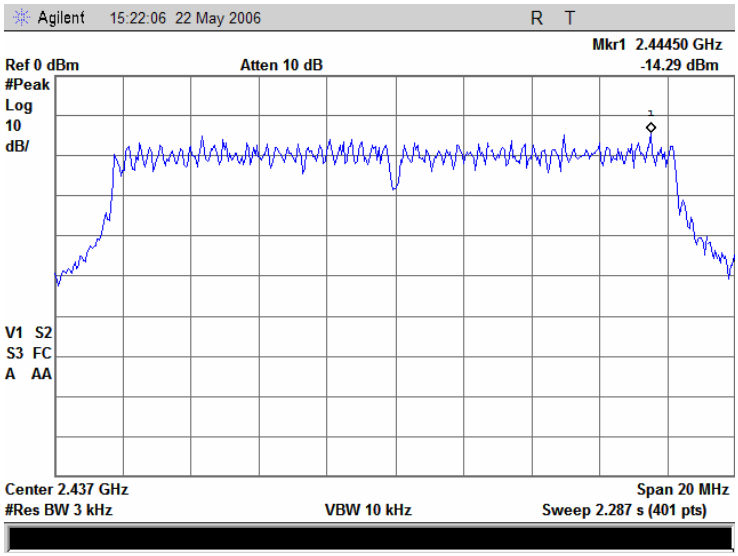


Plot 8.5.20 Peak spectral power density at low frequency zoomed at the peak at 54 Mbps OFDM

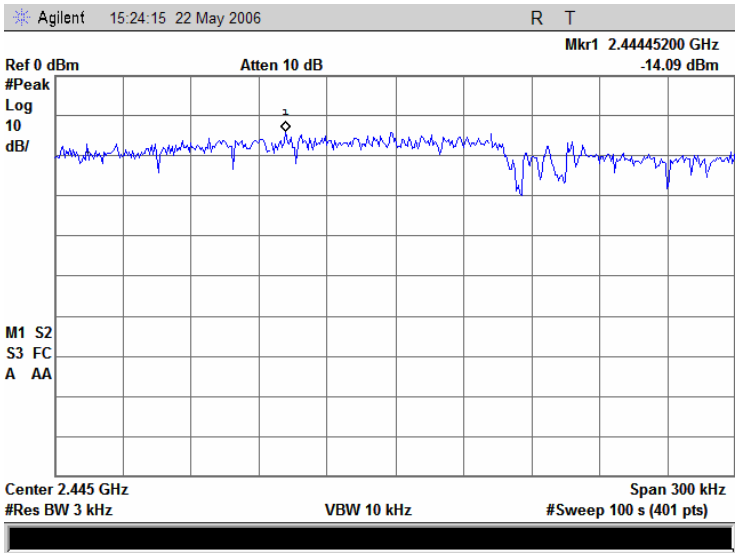


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.5.21 Peak spectral power density at mid frequency within 6 dB band at 54 Mbps OFDM

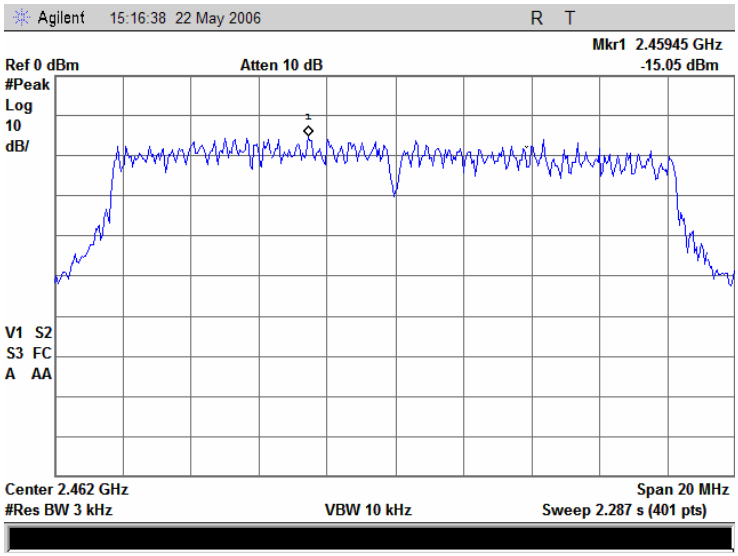


Plot 8.5.22 Peak spectral power density at mid frequency zoomed at the peak at 54 Mbps OFDM

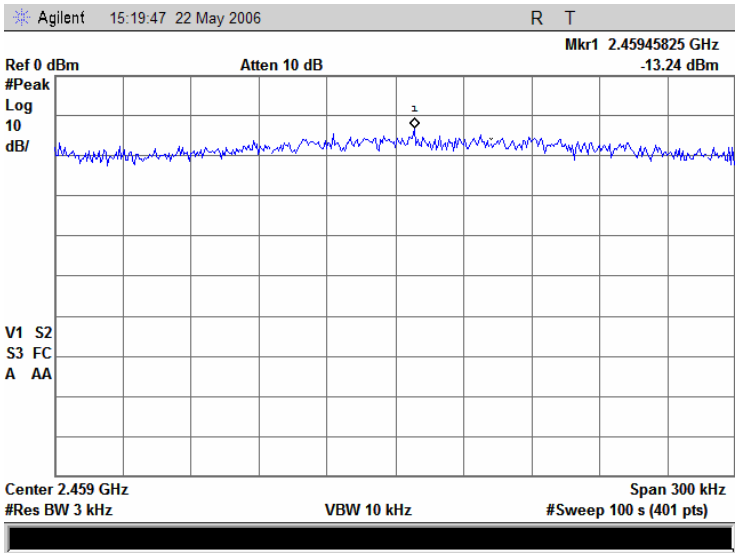


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date:	5/18/2006		
Temperature: 22 °C	Air Pressure: 1010 hPa	Relative Humidity: 42 %	Power Supply: 120 V AC
Remarks:			

Plot 8.5.23 Peak spectral power density at high frequency within 6 dB band at 54 Mbps OFDM



Plot 8.5.24 Peak spectral power density at high frequency zoomed at the peak at 54 Mbps OFDM



Test specification:	Section 15.207(a), 15.107 Conducted emission		
Test procedure:	ANSI C63.4, Section 13.1.3; Sections 11.5 and 12.1.3		
Test mode:	Compliance	Verdict:	PASS
Date:	8/18/2005		
Temperature: 24 ºC	Air Pressure: 1011 hPa	Relative Humidity: 44 %	Power Supply: 120 V AC
Remarks:			

8.6 Conducted emissions

8.6.1 General

This test was performed to measure common mode conducted emissions at the power port. Specification test limits are given in Table 8.6.1. The worst test results (the lowest margins) were recorded in Table 8.6.2, Table 8.6.3, Table 8.6.4 and shown in the associated plots.

Table 8.6.1 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.

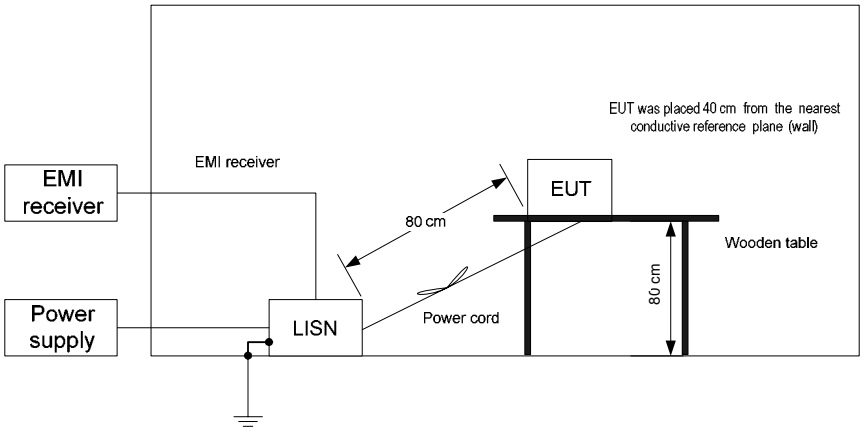
8.6.2 Test procedure

8.6.2.1 The EUT was set up as shown in Figure 8.6.1 and associated photographs, energized and the performance check was conducted.

8.6.2.2 The measurements were performed at power terminals with the LISN, connected to a spectrum analyzer in the frequency range referred to in Table 8.6.2, Table 8.6.3, Table 8.6.4. Unused coaxial connector of the LISN was terminated with 50 Ohm. Quasi-peak and average detectors were used throughout the testing.

8.6.2.3 The position of the device cables was varied to determine maximum emission level.

Figure 8.6.1 Setup for conducted emission measurements, table-top equipment



Test specification:	**Section 15.207(a), 15.107 Conducted emission**		
Test procedure:	ANSI C63.4, Section 13.1.3; Sections 11.5 and 12.1.3		
Test mode:	Compliance	**Verdict:**	PASS
Date:	8/18/2005		
Temperature: 24 ºC	**Air Pressure:** 1011 hPa	**Relative Humidity:** 44 %	**Power Supply:** 120 V AC
Remarks:			

Table 8.6.2 Conducted emission test results

LINE:	**EUT power lines**
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*		
0.271292	47.15	44.69	61.14	-16.45	38.21	51.14	-12.93	L1	Pass
0.388911	49.87	45.70	58.10	-12.40	36.36	48.10	-11.74		
0.391176	49.60	46.72	58.04	-11.32	37.44	48.04	-10.60		
0.551485	47.79	46.35	56.00	-9.65	34.81	46.00	-11.19		
0.658984	43.17	40.41	56.00	-15.59	30.17	46.00	-15.83		
0.749547	47.99	46.43	56.00	-9.57	45.97	46.00	-0.03		
1.308994	40.32	37.58	56.00	-18.42	30.15	46.00	-15.85		
0.262950	43.98	41.37	61.40	-20.03	29.30	51.40	-22.10	L2	Pass
0.389773	46.33	42.58	58.08	-15.50	35.13	48.08	-12.95		
0.499698	47.41	44.85	56.01	-11.16	38.94	46.01	-7.07		
0.650169	42.23	38.71	56.00	-17.29	26.27	46.00	-19.73		
0.749388	47.56	46.13	56.00	-9.87	45.64	46.00	-0.36		
0.998525	39.47	37.76	56.00	-18.24	37.36	46.00	-8.64		

Test specification:	**Section 15.207(a), 15.107 Conducted emission**		
Test procedure:	ANSI C63.4, Section 13.1.3; Sections 11.5 and 12.1.3		
Test mode:	Compliance	**Verdict:**	PASS
Date:	8/18/2005		
Temperature: 24 ºC	**Air Pressure:** 1011 hPa	**Relative Humidity:** 44 %	**Power Supply:** 120 V AC
Remarks:			

Table 8.6.3 Conducted emission test results

LINE:	**laptop computer power lines**
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*		
0.219345	51.01	50.42	62.91	-12.49	43.76	52.91	-9.15	L1	Pass
0.501122	46.08	43.78	56.00	-12.22	43.70	46.00	-2.30		
0.734071	51.37	50.08	56.00	-5.92	43.17	46.00	-2.83		
0.798769	45.64	43.35	56.00	-12.65	37.20	46.00	-8.80		
0.861504	47.37	45.79	56.00	-10.21	38.53	46.00	-7.47		
0.988929	46.69	44.43	56.00	-11.57	37.59	46.00	-8.41		
5.275292	42.15	39.00	60.00	-21.00	26.35	50.00	-23.65		
0.219268	51.75	51.15	62.91	-11.76	42.85	52.91	-10.06	L2	Pass
0.249145	44.24	42.49	61.81	-19.32	42.34	51.81	-9.47		
0.327135	44.06	40.40	59.57	-19.17	35.82	49.57	-13.75		
0.329691	43.98	42.61	59.51	-16.90	37.59	49.51	-11.92		
0.499588	45.53	43.75	56.01	-12.26	43.67	46.01	-2.34		
0.500272	45.01	43.56	56.00	-12.44	43.48	46.00	-2.52		
19.450011	40.77	38.49	60.00	-21.51	33.73	50.00	-16.27		

Test specification:	**Section 15.207(a), 15.107 Conducted emission**		
Test procedure:	ANSI C63.4, Section 13.1.3; Sections 11.5 and 12.1.3		
Test mode:	Compliance	**Verdict:**	PASS
Date:	8/18/2005		
Temperature: 24 ºC	**Air Pressure:** 1011 hPa	**Relative Humidity:** 44 %	**Power Supply:** 120 V AC
Remarks:			

Table 8.6.4 Conducted emission test results

LINE: **Access Point power lines**
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*		
0.265854	46.58	44.61	61.31	-16.70	32.86	51.31	-18.45	L1	Pass
0.403669	47.00	44.87	57.80	-12.93	37.91	47.80	-9.89		
0.672569	48.25	46.42	56.00	-9.58	36.52	46.00	-9.48		
0.827242	44.13	42.05	56.00	-13.95	29.88	46.00	-16.12		
1.247481	46.10	43.74	56.00	-12.26	29.54	46.00	-16.46		
2.616618	44.54	40.85	56.00	-15.15	23.04	46.00	-22.96		
4.958258	46.14	42.49	56.00	-13.51	25.08	46.00	-20.92		
0.266610	47.02	45.24	61.28	-16.04	34.45	51.28	-16.83	L2	Pass
0.409389	47.30	45.26	57.69	-12.43	38.61	47.69	-9.08		
0.674821	48.17	46.65	56.00	-9.35	36.55	46.00	-9.45		
1.246675	46.25	44.12	56.00	-11.88	29.82	46.00	-16.18		
1.590981	45.57	43.08	56.00	-12.92	22.80	46.00	-23.20		
2.194150	43.46	40.51	56.00	-15.49	21.71	46.00	-24.29		
4.998888	50.63	46.90	56.00	-9.10	43.17	46.00	-2.83		

*****- Margin = Measured emission - specification limit.

Reference numbers of test equipment used

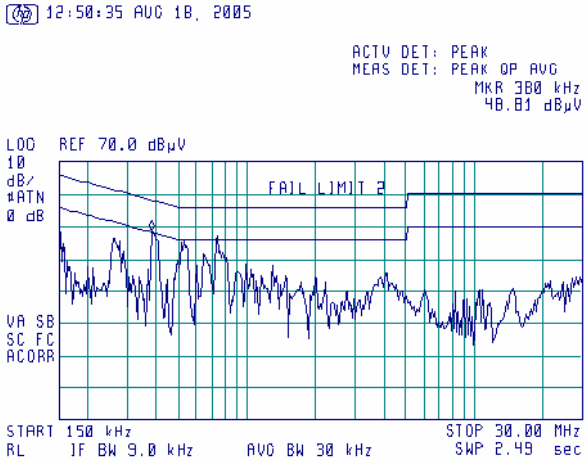
HL 0163	HL 0447	HL 1206	HL 1430	HL 1502	HL 1510		

Full description is given in Appendix A.

Test specification:	Section 15.207(a), 15.107 Conducted emission		
Test procedure:	ANSI C63.4, Section 13.1.3; Sections 11.5 and 12.1.3		
Test mode:	Compliance	Verdict:	PASS
Date:	8/18/2005		
Temperature: 24 °C	Air Pressure: 1011 hPa	Relative Humidity: 44 %	Power Supply: 120 V AC
Remarks:			

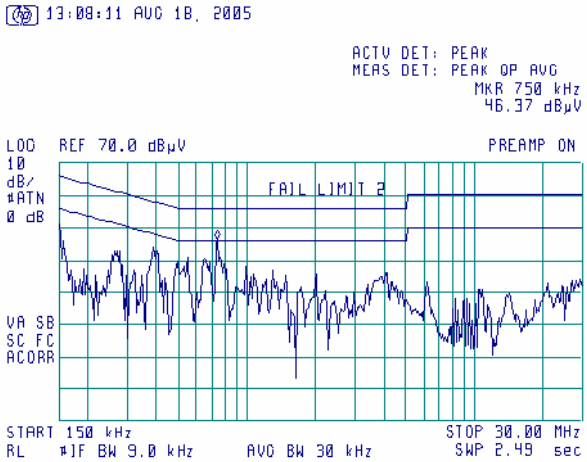
Plot 8.6.1 Conducted emission measurements on the EUT power lines

LINE: L1
EUT OPERATING MODE: Transmit
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK



Plot 8.6.2 Conducted emission measurements on the EUT power lines

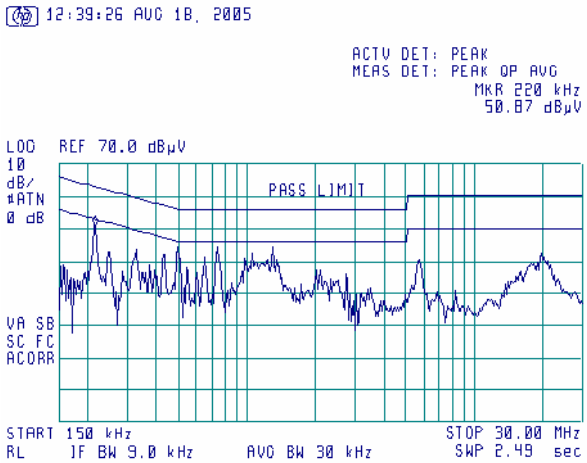
LINE: L2
EUT OPERATING MODE: Transmit
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK



Test specification:	Section 15.207(a), 15.107 Conducted emission		
Test procedure:	ANSI C63.4, Section 13.1.3; Sections 11.5 and 12.1.3		
Test mode:	Compliance	Verdict:	PASS
Date:	8/18/2005		
Temperature: 24 °C	Air Pressure: 1011 hPa	Relative Humidity: 44 %	Power Supply: 120 V AC
Remarks:			

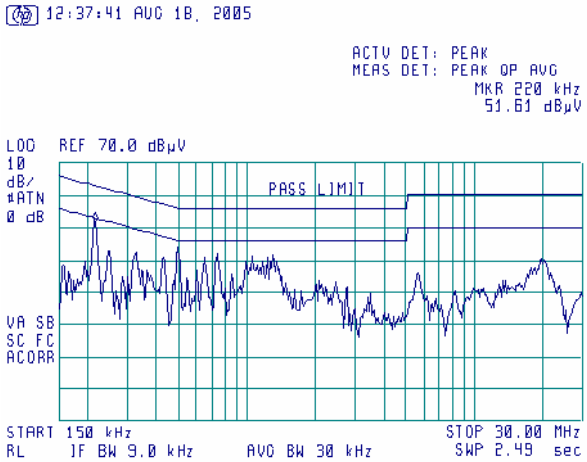
Plot 8.6.3 Conducted emission measurements on the laptop computer power lines

LINE:	L1
EUT OPERATING MODE:	Transmit
LIMIT:	QUASI-PEAK, AVERAGE
DETECTOR:	PEAK



Plot 8.6.4 Conducted emission measurements on the laptop computer power lines

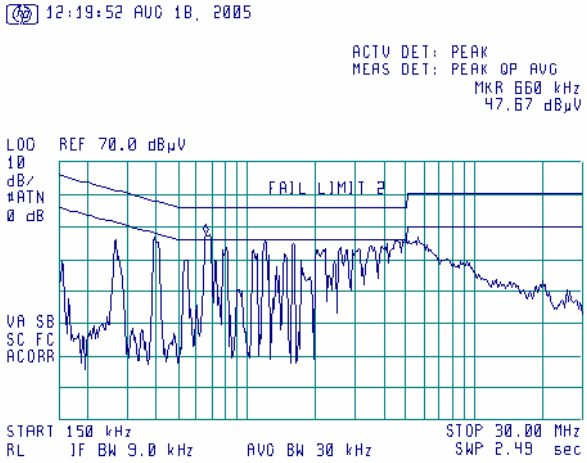
LINE:	L2
EUT OPERATING MODE:	Transmit
LIMIT:	QUASI-PEAK, AVERAGE
DETECTOR:	PEAK



Test specification:	Section 15.207(a), 15.107 Conducted emission		
Test procedure:	ANSI C63.4, Section 13.1.3; Sections 11.5 and 12.1.3		
Test mode:	Compliance	Verdict:	PASS
Date:	8/18/2005		
Temperature: 24 °C	Air Pressure: 1011 hPa	Relative Humidity: 44 %	Power Supply: 120 V AC
Remarks:			

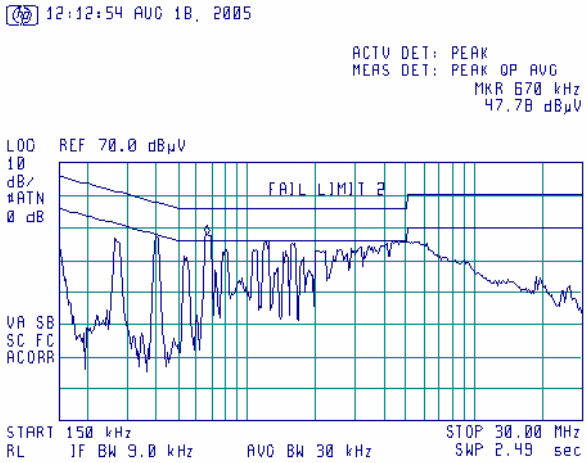
Plot 8.6.5 Conducted emission measurements on the Access Point power lines

LINE: L1
EUT OPERATING MODE: Transmit
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK



Plot 8.6.6 Conducted emission measurements on the Access Point power lines

LINE: L2
EUT OPERATING MODE: Transmit
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK



Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

9 Antenna conducted tests

9.1 Spurious emissions at RF antenna connector test according to 47CFR part 15 subpart E requirements with 802.11 b/g and 802.11a

9.1.1 General

This test was performed to measure spurious emissions at RF antenna connector. Specification test limits are given in Table 9.1.1.

Table 9.1.1 EIRP of undesirable emissions limits outside restricted bands

Frequency band, GHz	Out of band EIRP, dBm/MHz
5.15 – 5.25	-27
5.25 – 5.35	
5.47 – 5.725	
5.725 – 5.825	-27 (below 5.715 and above 5.835 GHz)
	-17 (in 5.715 – 5.725 GHz and 5.825 – 5.835 GHz)

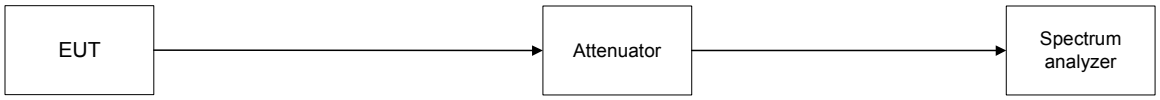
9.1.2 Test procedure for conducted spurious emission

9.1.2.1 The EUT was set up as shown in Figure 9.1.1, energized and its proper operation was checked.

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

9.1.2.3 The spurious emission was measured with spectrum analyzer as provided in Table 9.1.2 and associated plots.

Figure 9.1.1 Setup for conducted spurious emission measurements



Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Table 9.1.2 Conducted spurious emissions test results

ASSIGNED FREQUENCY:	5.12-5.35GHz, 5.725-5.825GHz
INVESTIGATED FREQUENCY RANGE:	0.009 – 40000 MHz
MODULATION:	OFDM
MODULATING SIGNAL:	CCK and BPSK
BIT RATE:	6 Mbps
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
RESOLUTION BANDWIDTH:	1 MHz
VIDEO BANDWIDTH:	1 kHz

Frequency, MHz	Peak emission, dBm	Limit, dBm/MHz**	Margin, dB*	Verdict
Carrier frequency 5.26 MHz				
5250.00	-38.23	-34.0	-4.23	Pass
Carrier frequency 5.745 MHz				
5725.00	-43.59	-24.0	-19.59	Pass

*- Margin = Peak emission – limit.
**- The limit was reduced by the gain of antenna, because the limit is EIRP limit.

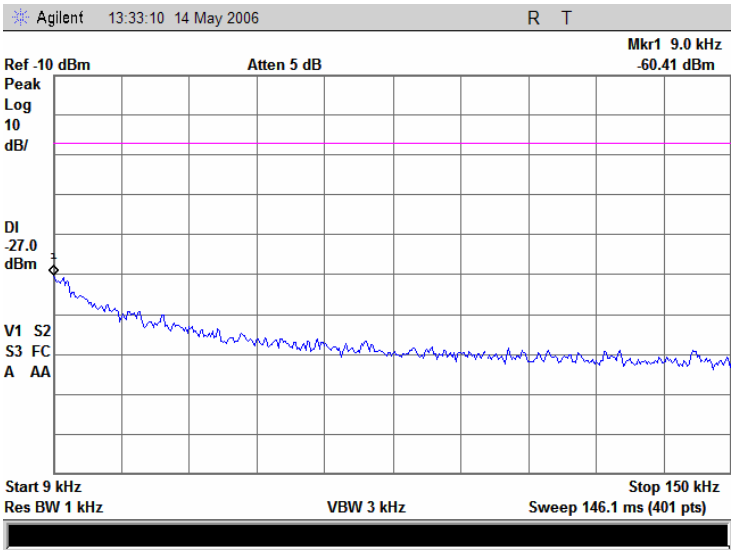
Reference numbers of test equipment used

HL 1424	HL 1652	HL 2399	HL 2867	HL 2909			

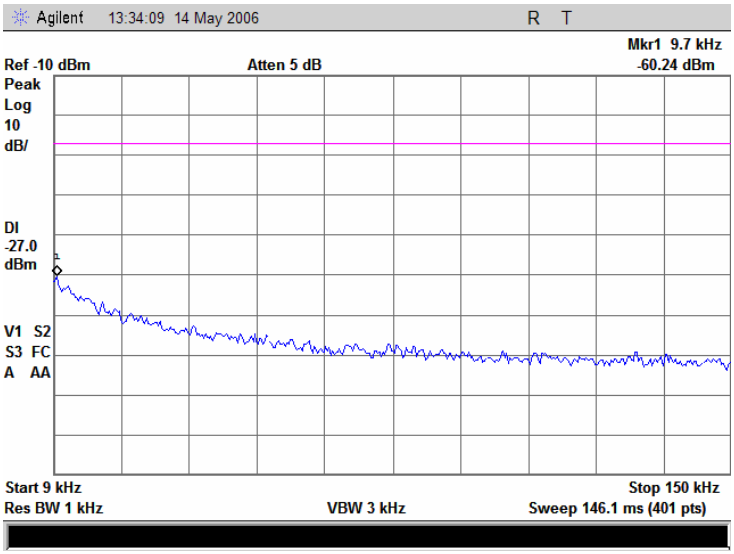
Full description is given in Appendix A.

Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.1 Conducted emission measurements from 9 to 150 kHz at the 5.18GHz carrier frequency

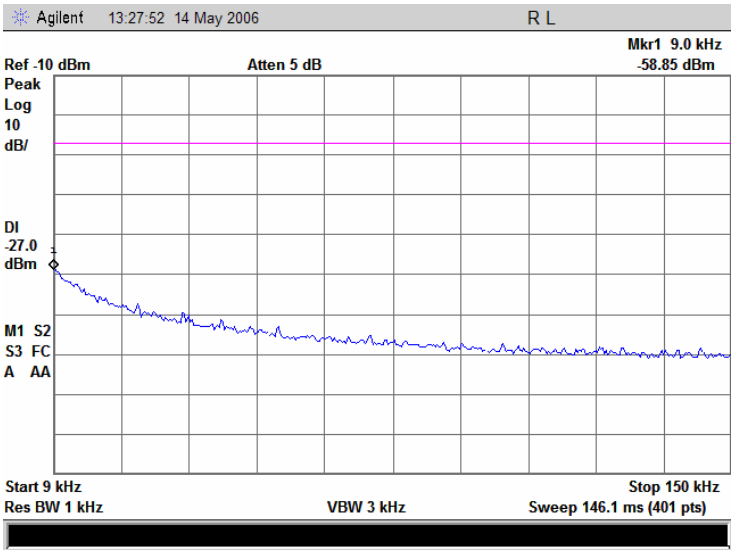


Plot 9.1.2 Conducted emission measurements from 9 to 150 kHz at the 5.26GHz carrier frequency

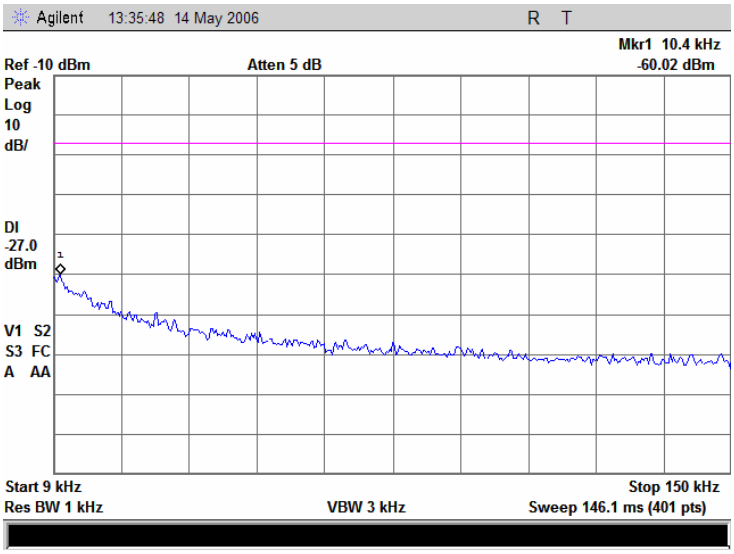


Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.3 Conducted emission measurements from 9 to 150 kHz at the 5.32GHz carrier frequency

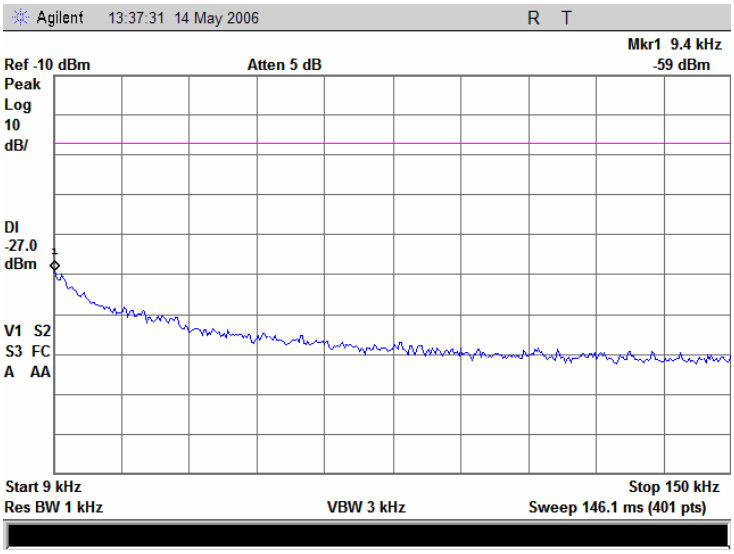


Plot 9.1.4 Conducted emission measurements from 9 to 150 kHz at the 5.745GHz carrier frequency

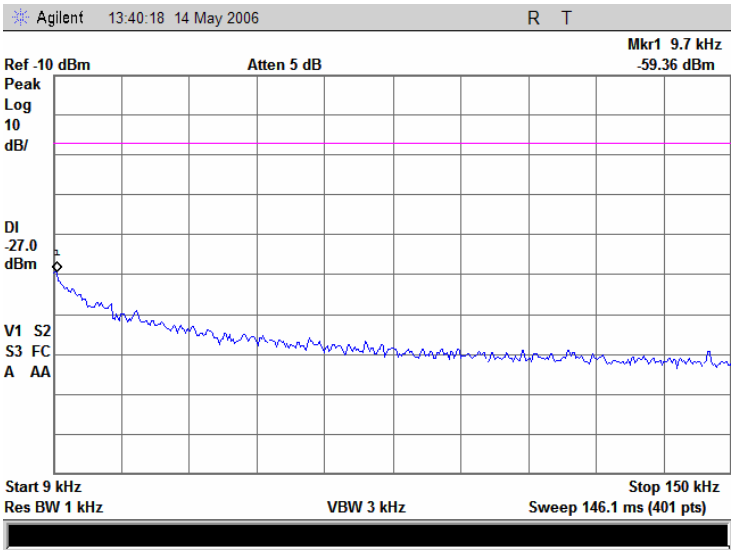


Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.5 Conducted emission measurements from 9 to 150 kHz at the 5.785GHz carrier frequency

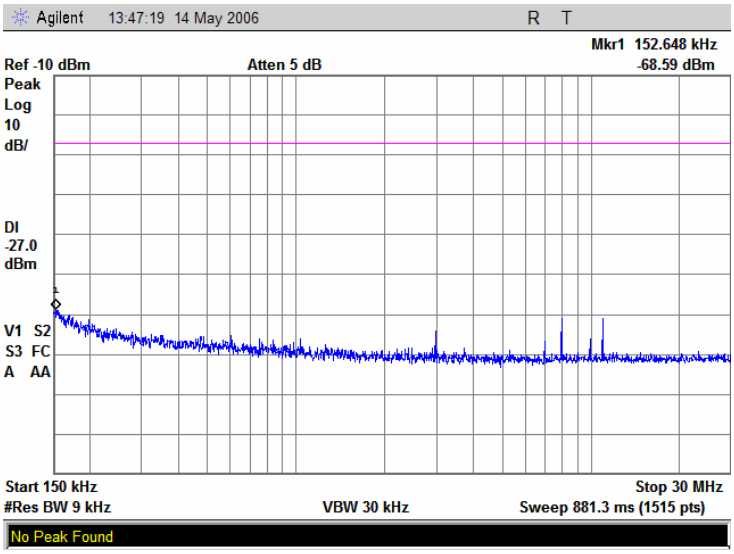


Plot 9.1.6 Conducted emission measurements from 9 to 150 kHz at the 5.805GHz carrier frequency

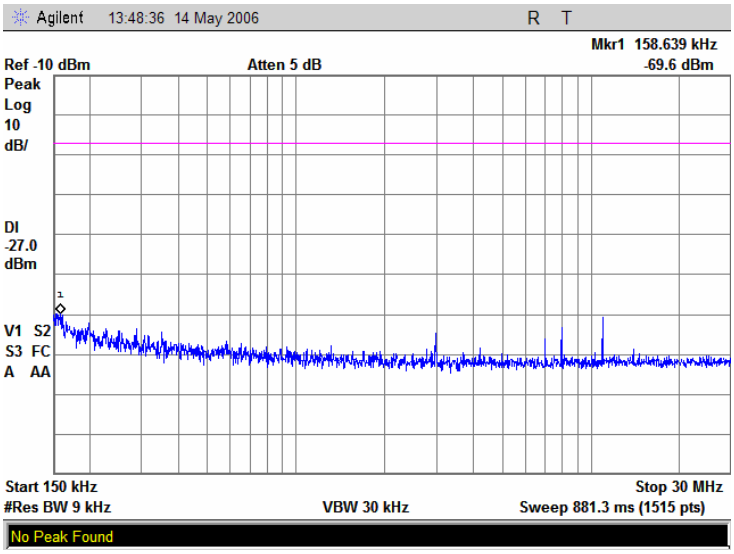


Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.7 Conducted emission measurements from 0.15 to 30 MHz at the 5.18GHz carrier frequency

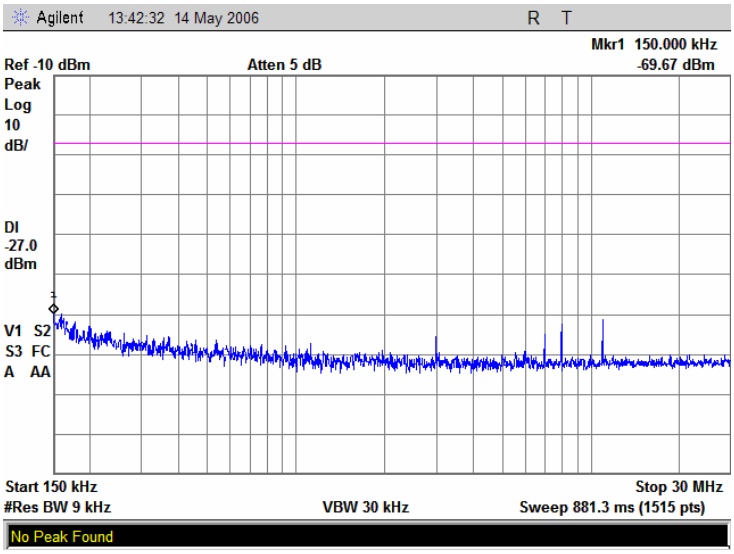


Plot 9.1.8 Conducted emission measurements from 0.15 to 30 MHz at the 5.26GHz carrier frequency

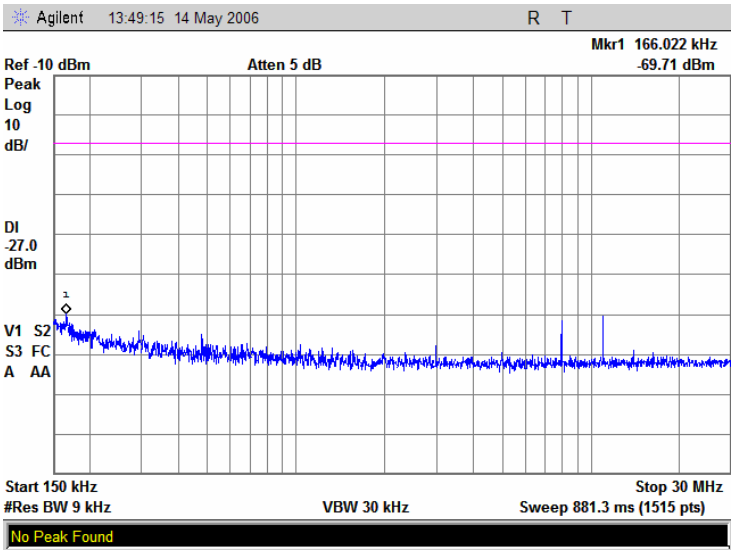


Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.9 Conducted emission measurements from 0.15 to 30 MHz at the 5.32GHz carrier frequency

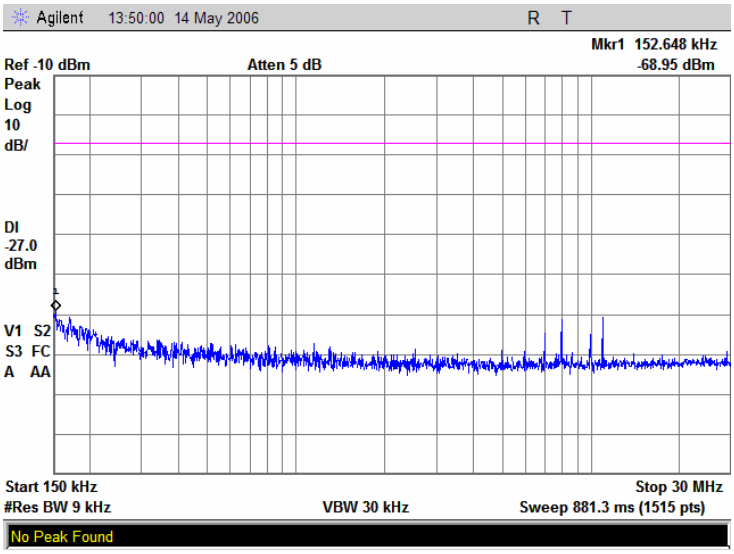


Plot 9.1.10 Conducted emission measurements from 0.15 to 30 MHz at the 5.745GHz carrier frequency

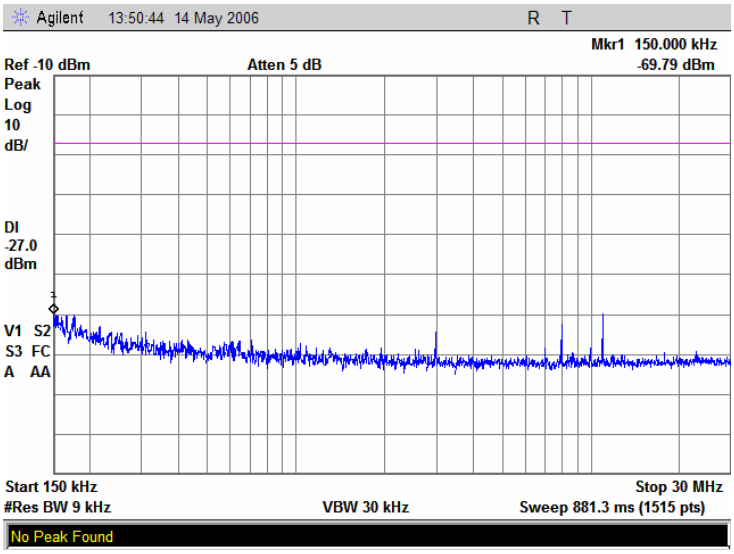


Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.11 Conducted emission measurements from 0.15 to 30 MHz at the 5.785GHz carrier frequency

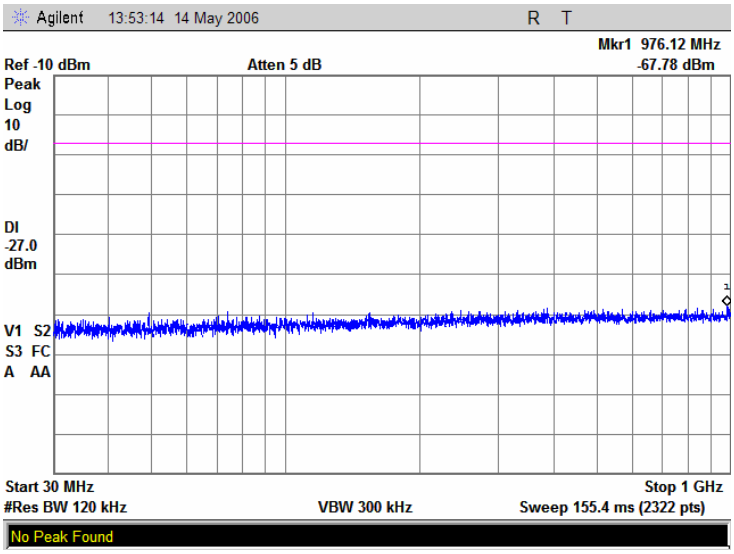


Plot 9.1.12 Conducted emission measurements from 0.15 to 30 MHz at the 5.805GHz carrier frequency

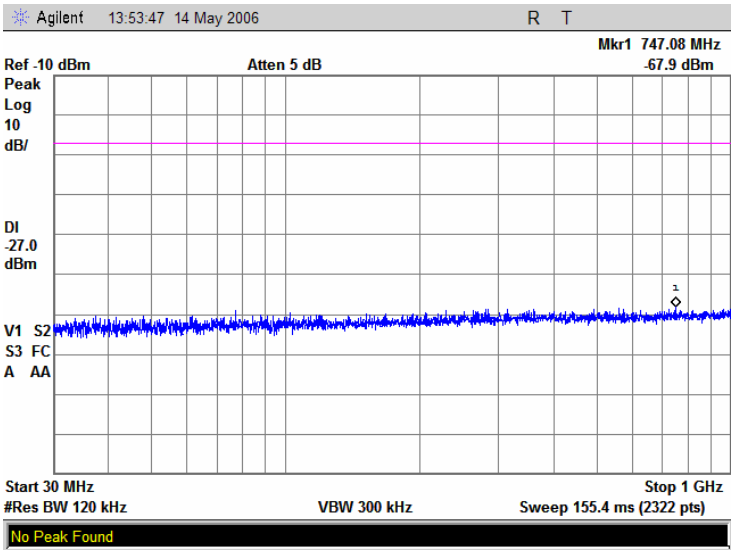


Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.13 Conducted emission measurements from 30 to 1000 MHz at the 5.18GHz carrier frequency

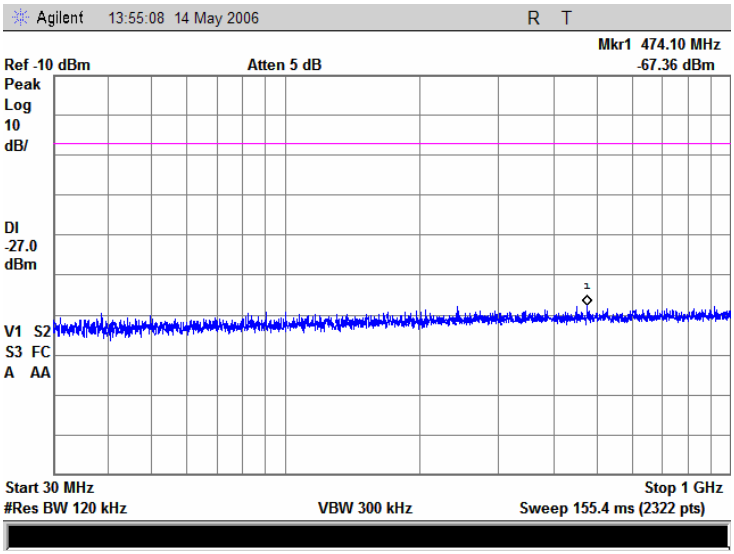


Plot 9.1.14 Conducted emission measurements from 30 to 1000 MHz at the 5.26GHz carrier frequency

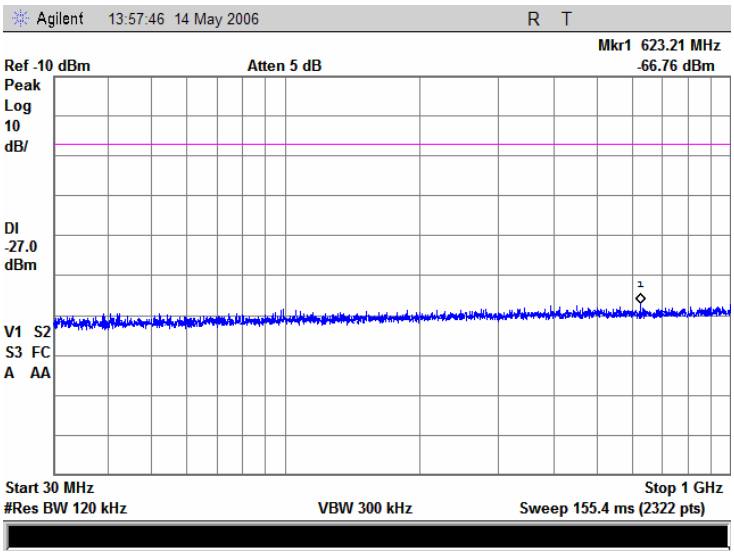


Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.15 Conducted emission measurements from 30 to 1000 MHz at the 5.32GHz carrier frequency

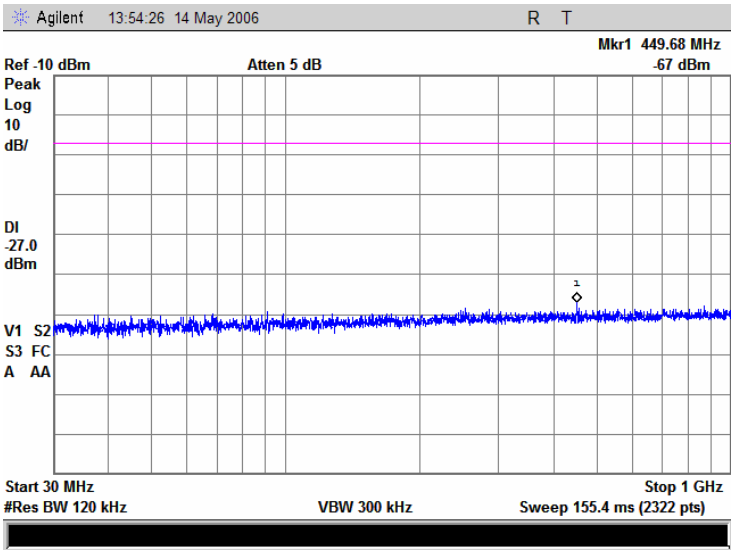


Plot 9.1.16 Conducted emission measurements from 30 to 1000 MHz at the 5.745GHz carrier frequency

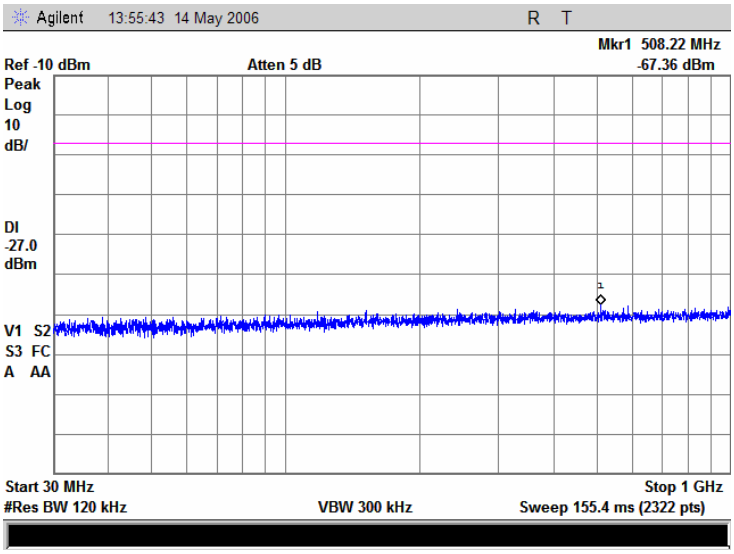


Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.17 Conducted emission measurements from 30 to 1000 MHz at the 5.785GHz carrier frequency

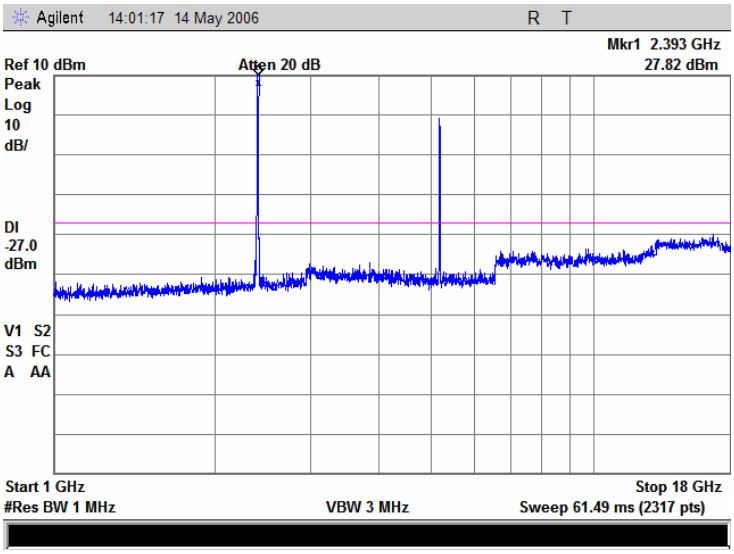


Plot 9.1.18 Conducted emission measurements from 30 to 1000 MHz at the 5.805GHz carrier frequency

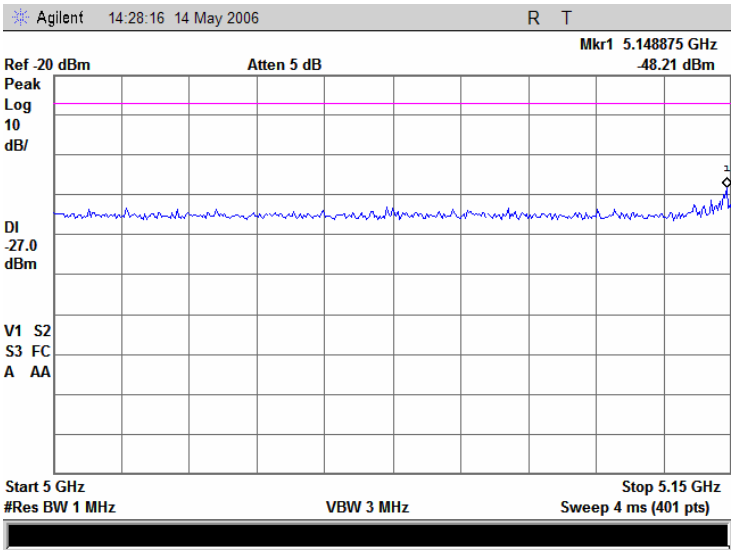


Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.19 Conducted emission measurements from 1.0 to 18 GHz at the 5.18 GHz carrier frequency

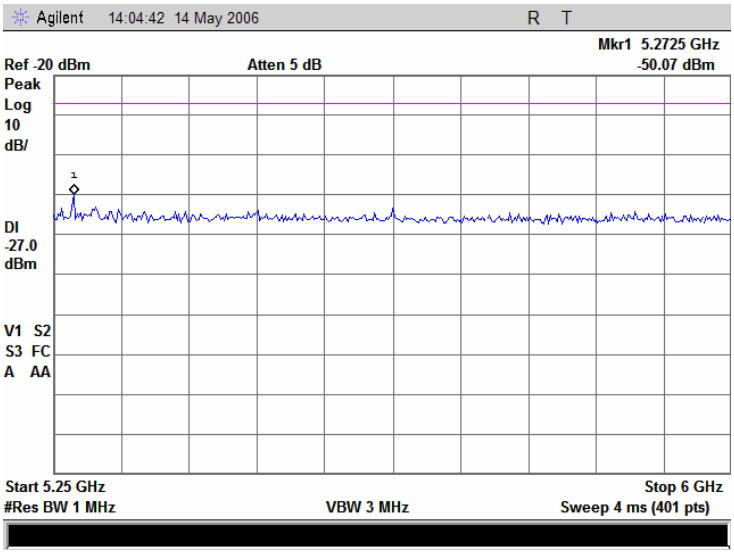


Plot 9.1.20 Conducted emission measurements from 5.0 to 5.15 GHz at the 5.18 GHz carrier frequency

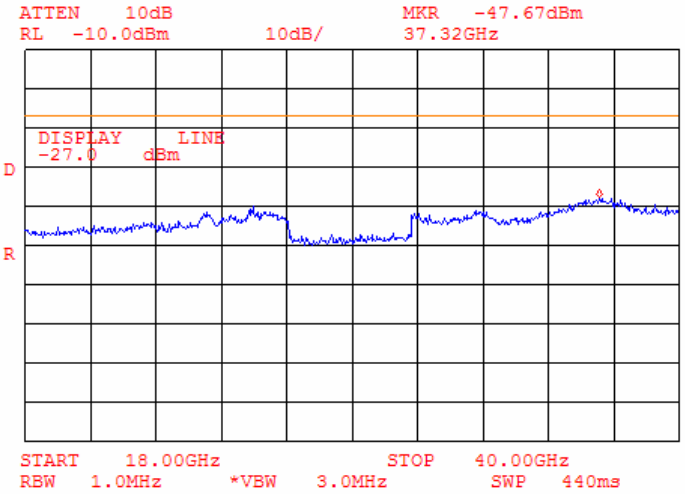


Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.21 Conducted emission measurements from 5.25 to 6.0 GHz at the 5.18 GHz carrier frequency

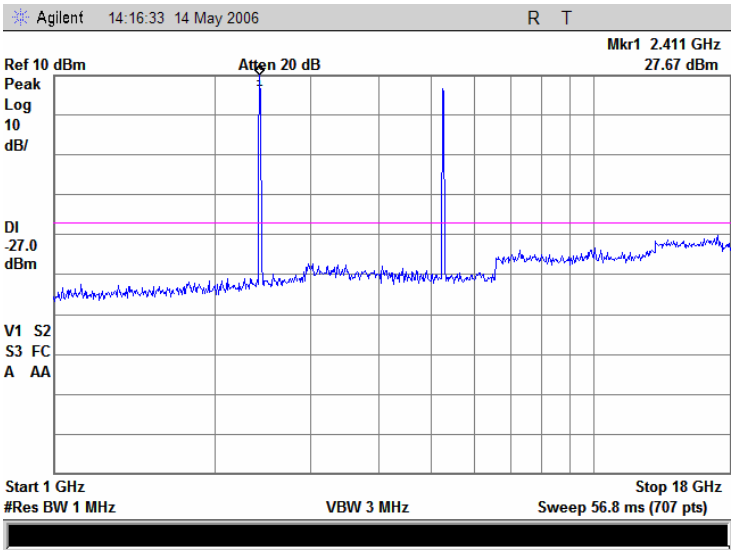


Plot 9.1.22 Conducted emission measurements from 18 to 40 GHz at the 5.18GHz carrier frequency

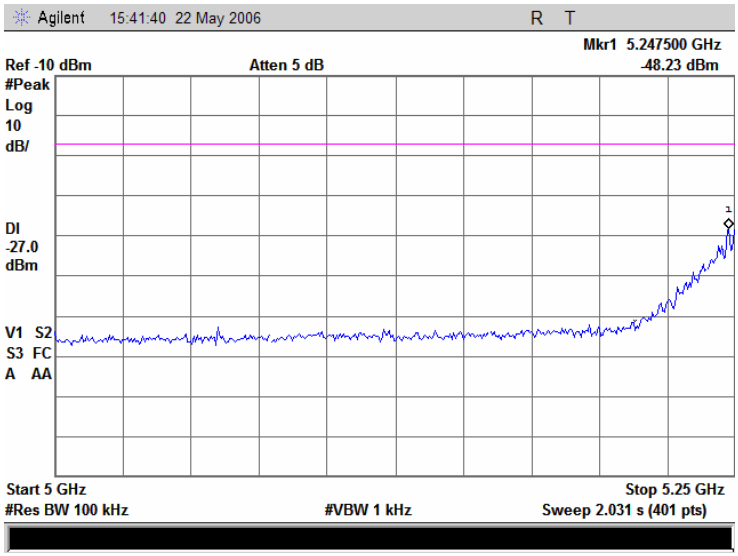


Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.23 Conducted emission measurements from 1.0 to 18 GHz at the 5.26 GHz carrier frequency



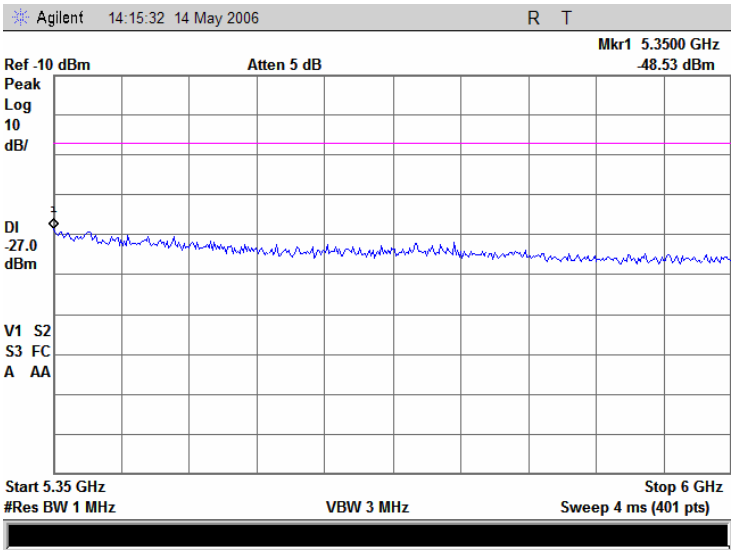
Plot 9.1.24 Conducted emission measurements from 5.0 to 5.25 GHz at the 5.26 GHz carrier frequency



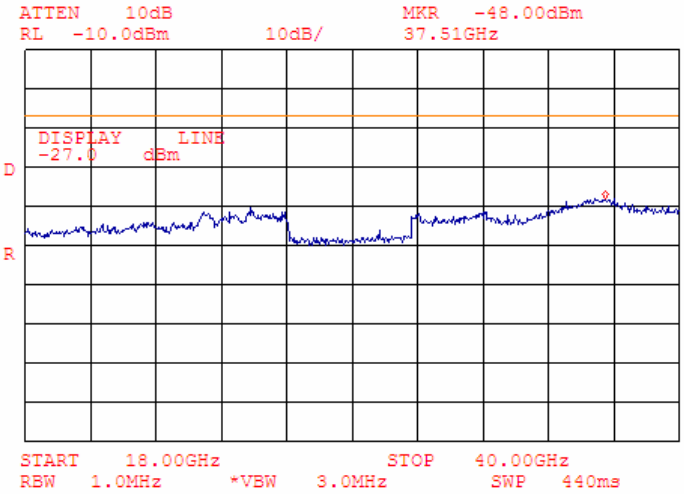
Note: Emission = SA reading + BW factor = -48.23 + 10log(1M/100k) = -48.23 + 10 dB = -38.23 dBm

Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.25 Conducted emission measurements from 5.35 to 6.0 GHz at the 5.26 GHz carrier frequency

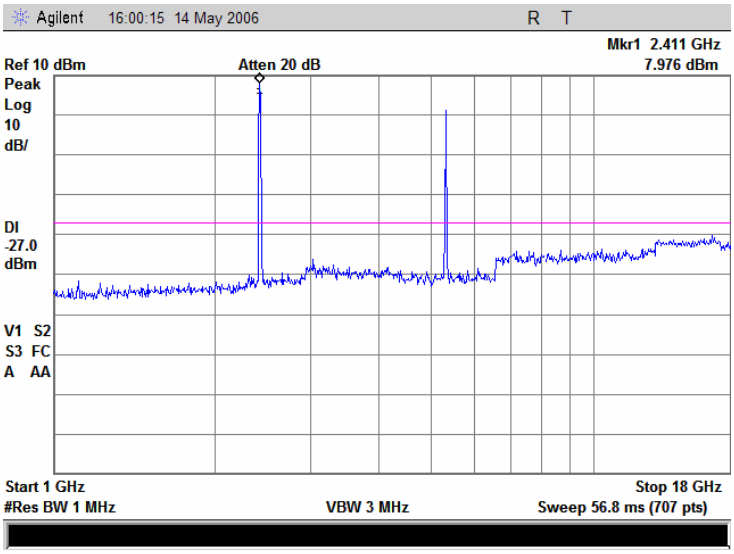


Plot 9.1.26 Conducted emission measurements from 18 to 40 GHz at the 5.26 GHz carrier frequency

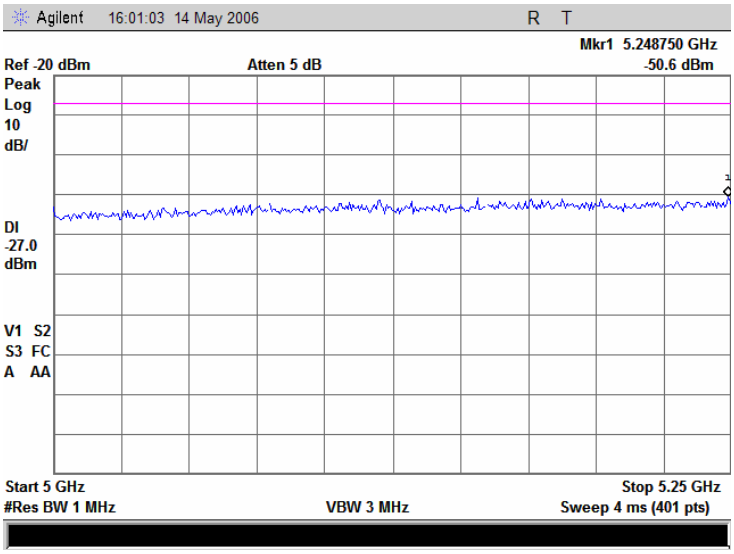


Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.27 Conducted emission measurements from 1.0 to 18 GHz at the 5.32 GHz carrier frequency

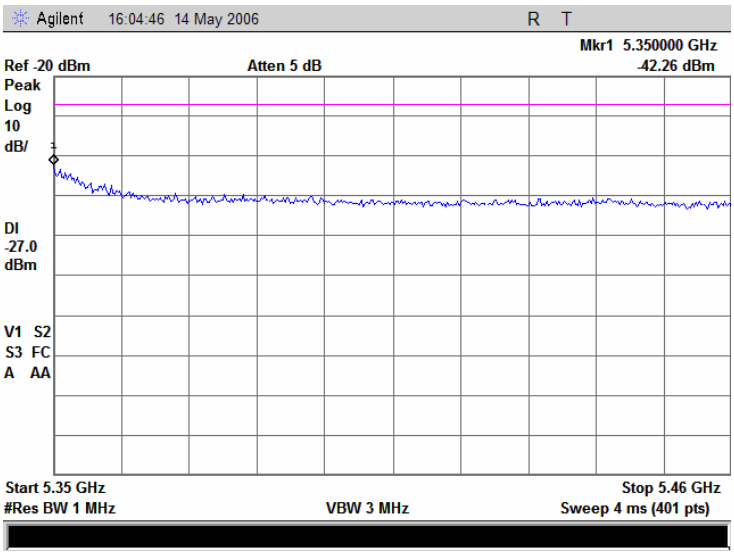


Plot 9.1.28 Conducted emission measurements from 5.0 to 5.25 GHz at the 5.32 GHz carrier frequency

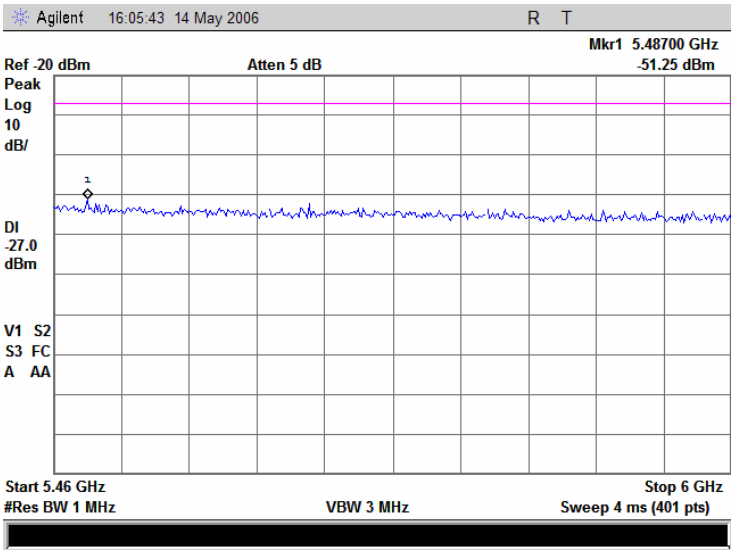


Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.29 Conducted emission measurements from 5.35 to 5.46 GHz at the 5.32 GHz carrier frequency

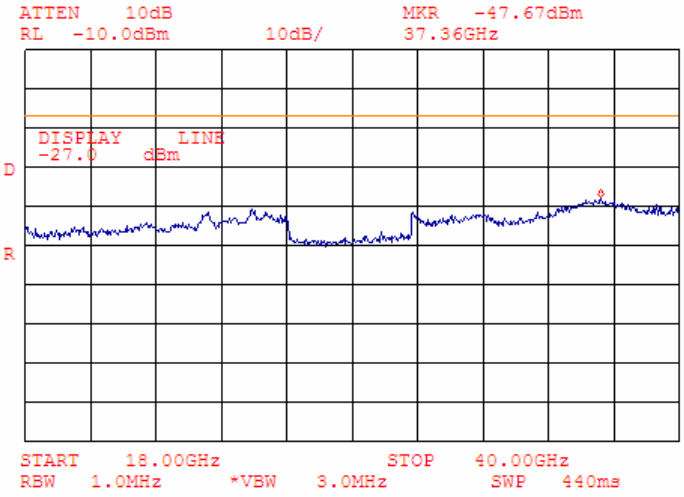


Plot 9.1.30 Conducted emission measurements from 5.46 to 6.0 GHz at the 5.32 GHz carrier frequency



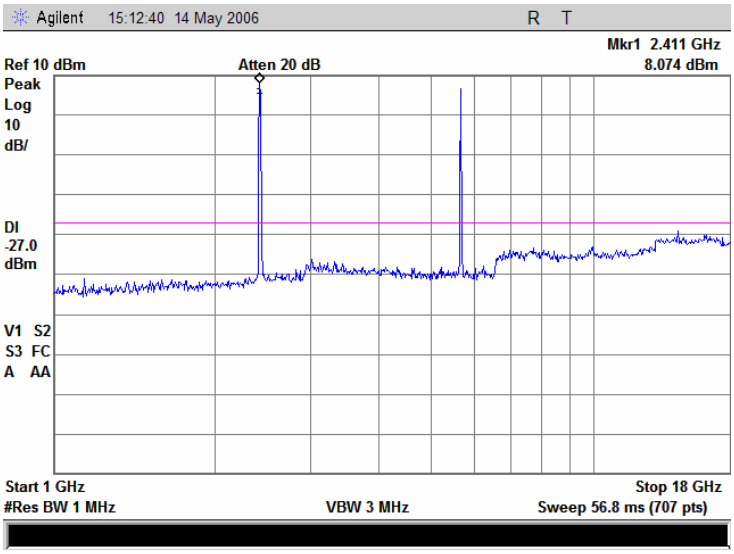
Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.31 Conducted emission measurements from 18 to 40 GHz at the 5.32GHz carrier frequency

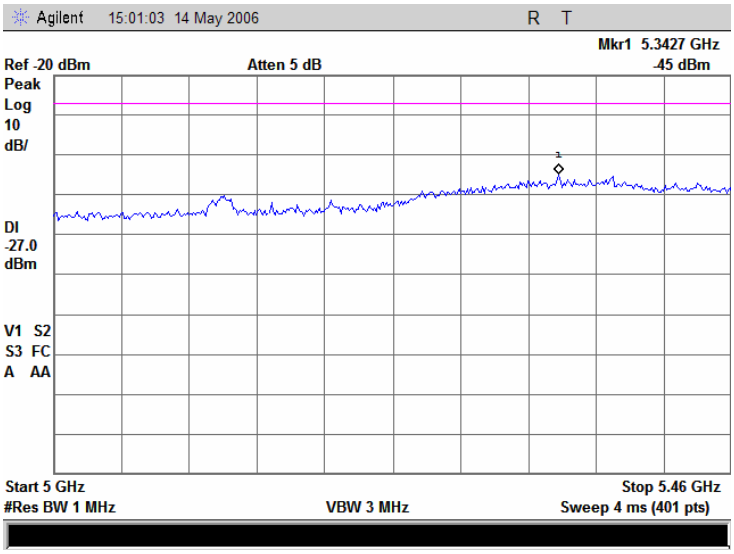


Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.32 Conducted emission measurements from 1.0 to 18.0 GHz at the 5.745 GHz carrier frequency

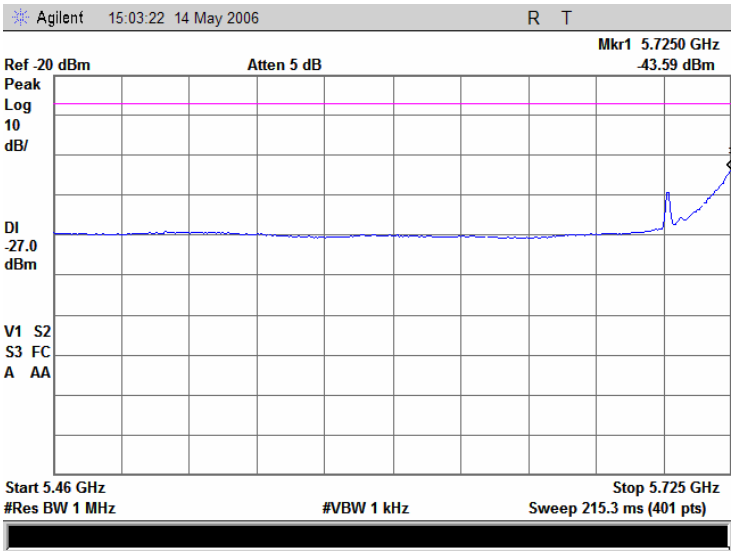


Plot 9.1.33 Conducted emission measurements from 5.0 to 5.46 GHz at the 5.745 GHz carrier frequency



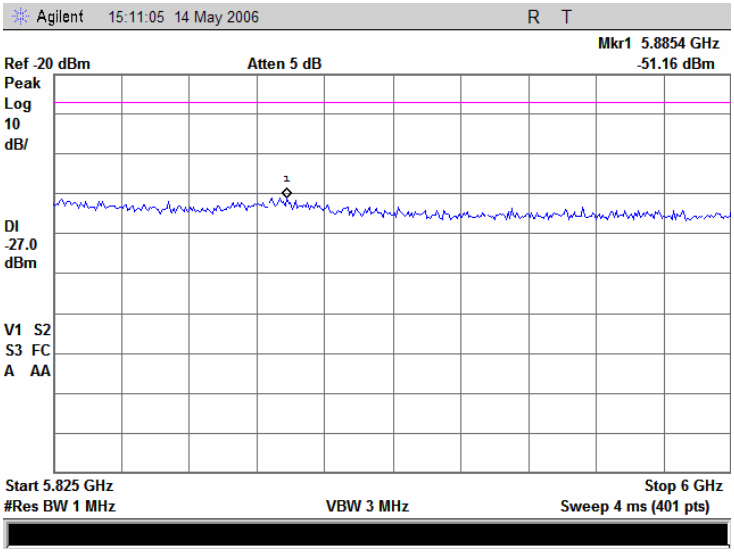
Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.34 Conducted emission measurements from 5.46 to 5.725 GHz at the 5.745 GHz carrier frequency



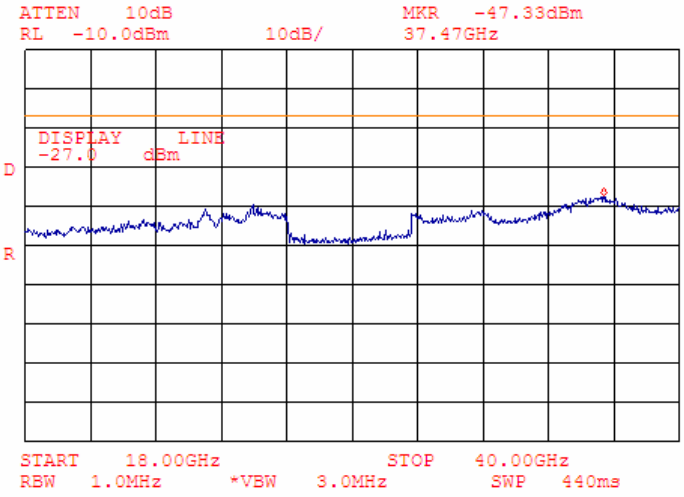
Note: The limit is -17dBm/MHz between 5.715 GHz and 5.725 GHz; -27 dBm/MHz below 5.715 GHz

Plot 9.1.35 Conducted emission measurements from 5.825 to 6.0 GHz at the 5.745 GHz carrier frequency



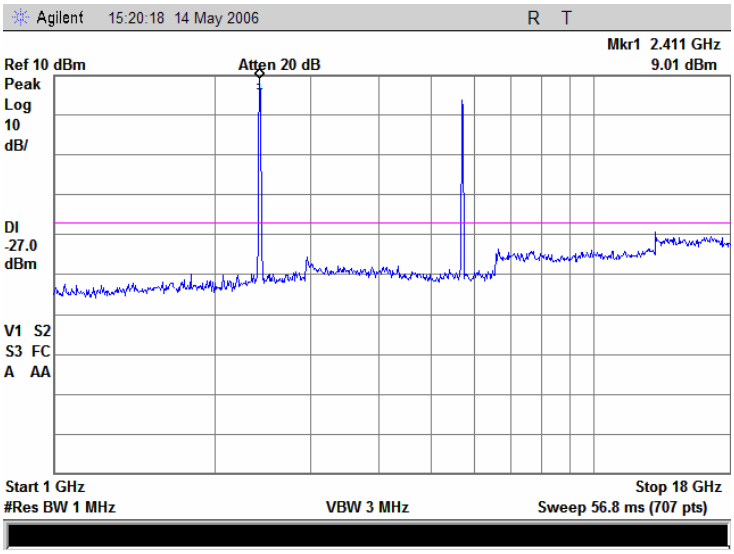
Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.36 Conducted emission measurements from 18 to 40 GHz at the 5.745GHz carrier frequency

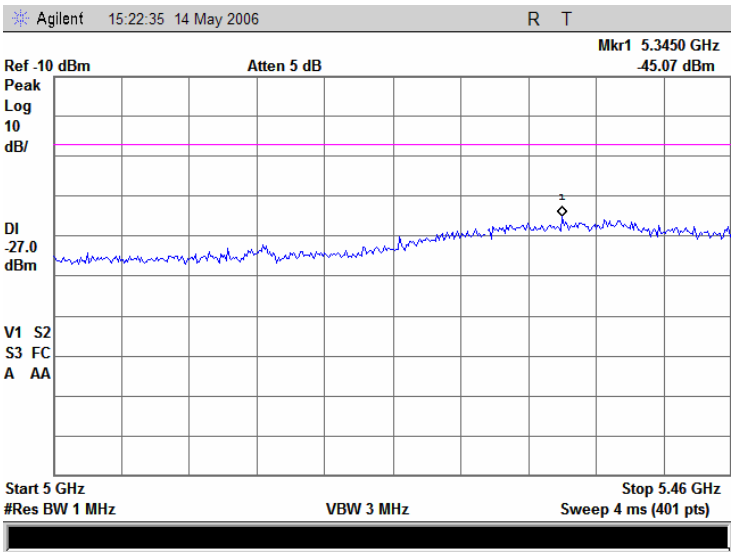


Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.37 Conducted emission measurements from 1.0 to 18 GHz at the 5.785 GHz carrier frequency

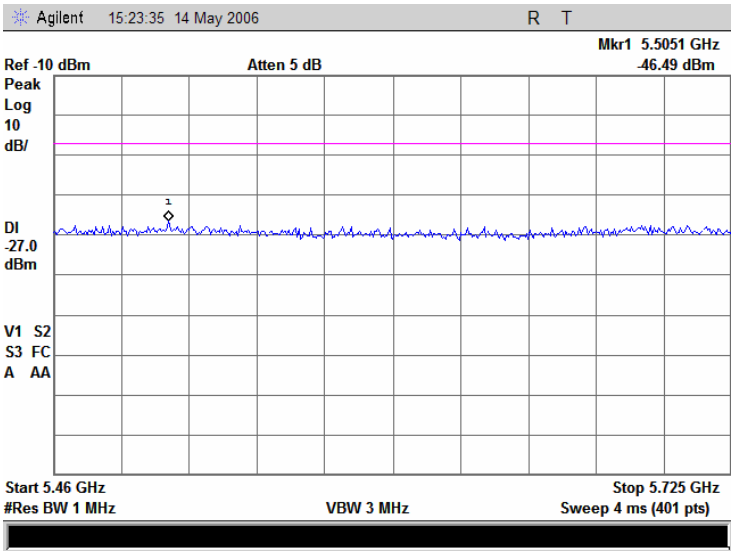


Plot 9.1.38 Conducted emission measurements from 5.0 to 5.46 GHz at the 5.785 GHz carrier frequency

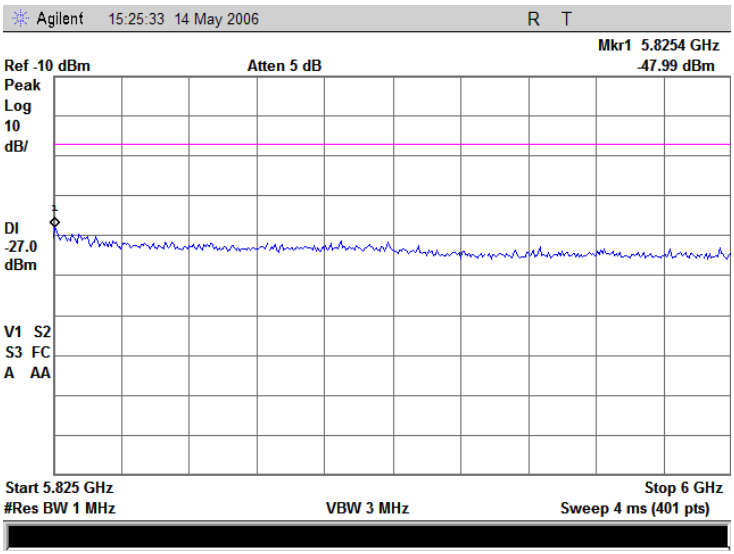


Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.39 Conducted emission measurements from 5.46 to 5.725 GHz at the 5.785 GHz carrier frequency

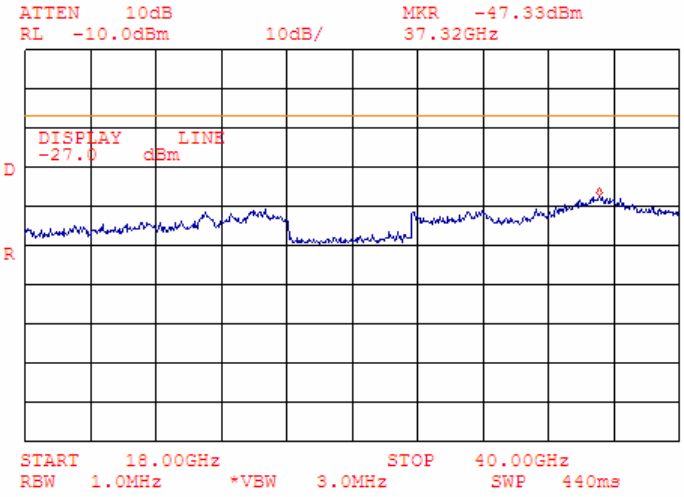


Plot 9.1.40 Conducted emission measurements from 5.825 to 6.0 GHz at the 5.785 GHz carrier frequency



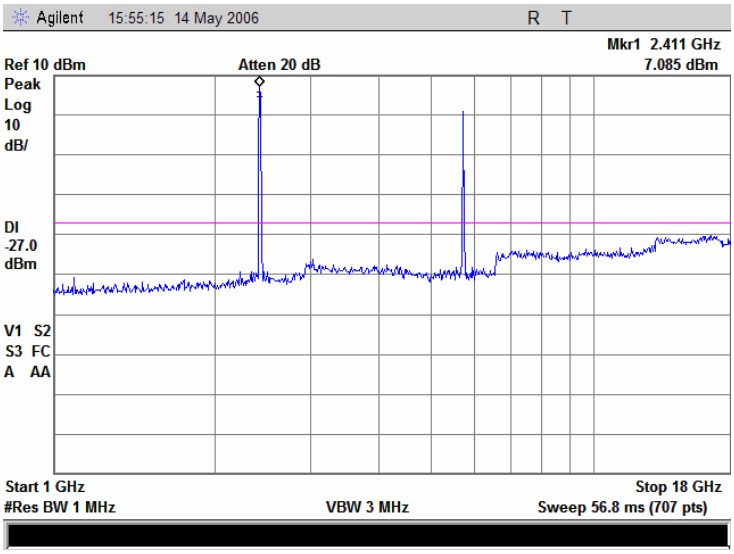
Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.41 Conducted emission measurements from 18 to 40 GHz at the 5.785GHz carrier frequency

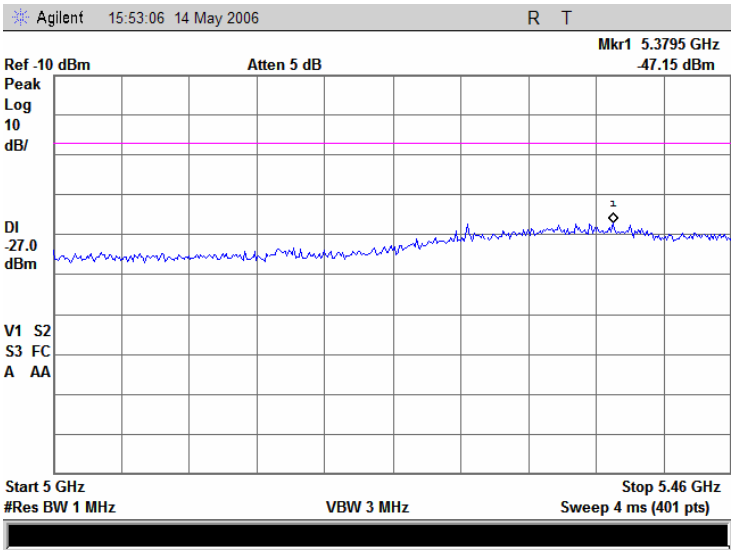


Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.42 Conducted emission measurements from 1.0 to 18 GHz at the 5.805 GHz carrier frequency

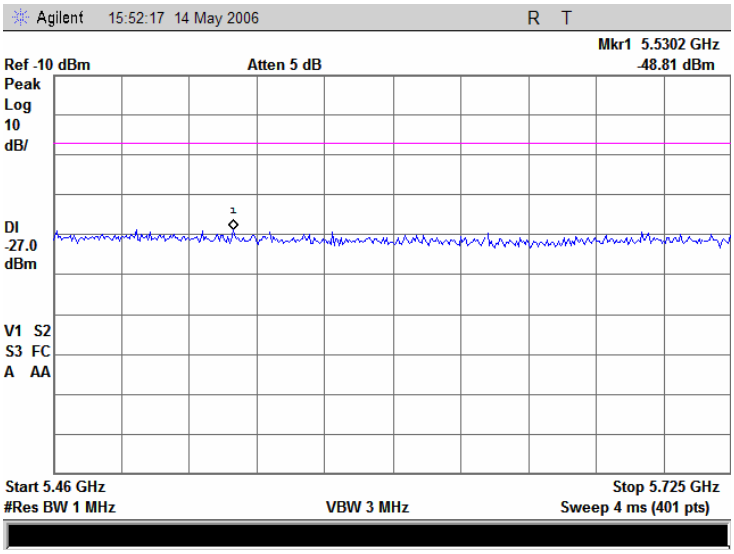


Plot 9.1.43 Conducted emission measurements from 5.0 to 5.46 GHz at the 5.805 GHz carrier frequency

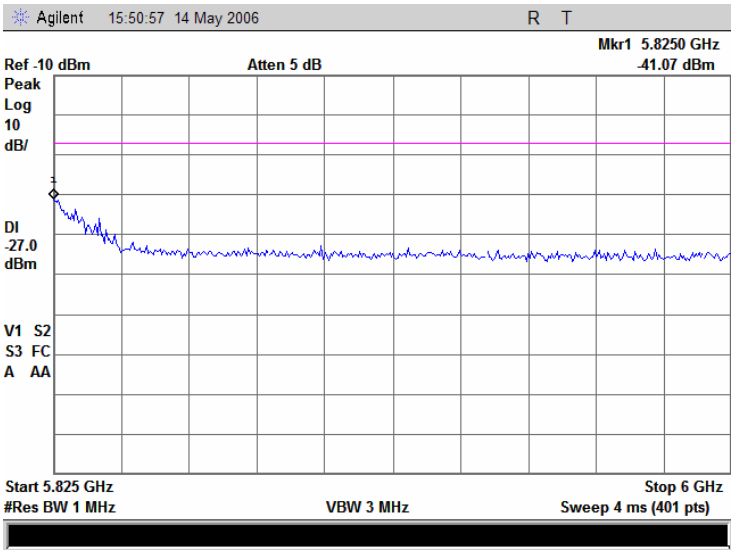


Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 °C	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.44 Conducted emission measurements from 5.46 to 5.725 GHz at the 5.805 GHz carrier frequency

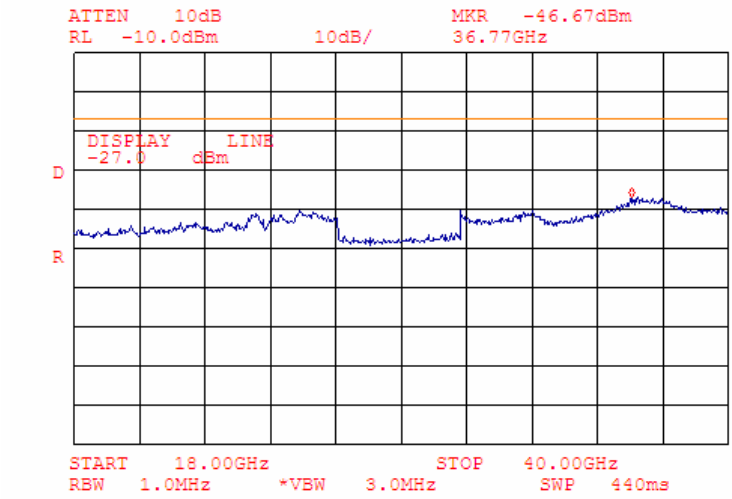


Plot 9.1.45 Conducted emission measurements from 5.825 to 6.0 GHz at the 5.805 GHz carrier frequency



Test specification:	Section 15.407(b), Out of band undesirable emissions		
Test procedure:	Public notice DA02-2138		
Test mode:	Compliance	Verdict:	PASS
Date:	5/01/2006		
Temperature: 23 ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 120 VAC
Remarks:			

Plot 9.1.46 Conducted emission measurements from 18 to 40 GHz at the 5.805GHz carrier frequency



Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

9.2 Spurious emissions at RF antenna connector test according to 47CFR parts 22, 24 with 802.11 b/g and 802.11a

9.2.1 General

This test was performed to measure spurious emissions at RF antenna connector. Specification test limits are given in Table 9.2.1.

Table 9.2.1 EIRP of undesirable emissions limits outside Tx bands

Frequency, MHz	Limit, dBc	Limit dBm
0.009 – 25000	43 + 10log(P)	-13

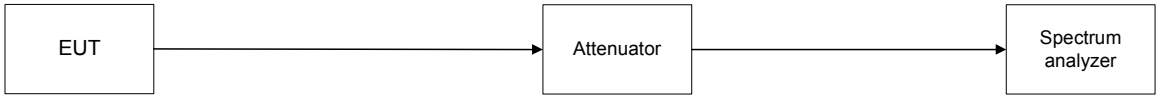
9.2.2 Test procedure for conducted spurious emission

9.2.2.1 The EUT was set up as shown Figure 9.2.1, energized and its proper operation was checked.

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

9.2.2.3 The spurious emission was measured with spectrum analyzer as provided in Table 9.2.2 and associated plots.

Figure 9.2.1 Setup for conducted spurious emission measurements



Test specification:	**Paer 22, 24, spurious emissions at antenna terminal**		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	**Verdict:**	PASS
Date:	5/16/2006		
Temperature: 23 ºC	**Air Pressure:** 1007 hPa	**Relative Humidity:** 48 %	**Power Supply:** 120 VAC
Remarks:			

Table 9.2.2 Conducted spurious emissions test results

INVESTIGATED FREQUENCY RANGE:	0.009 – 25000 MHz
MODULATION:	OFDM
MODULATING SIGNAL:	CCK and BPSK
BIT RATE:	6 Mbps
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
VIDEO BANDWIDTH:	> Resolution BW

Frequency, MHz	Peak emission, dBm	Limit, dBm	Margin, dB*	Verdict
Low Carrier frequency				
1930.00	-32.42	-13.0	-19.42	Pass
2400.00	-23.48	-13.0	-10.48	
Mid Carrier frequency				
869.00	-21.24	-13.0	-8.24	Pass
High Carrier frequency				
894.00	-34.91	-13.0	-21.91	Pass
1990.00	-21.35	-13.0	-8.35	

*****- EUT front panel refers to 0 degrees position of turntable.
******- Margin = Attenuation below carrier – specification limit.

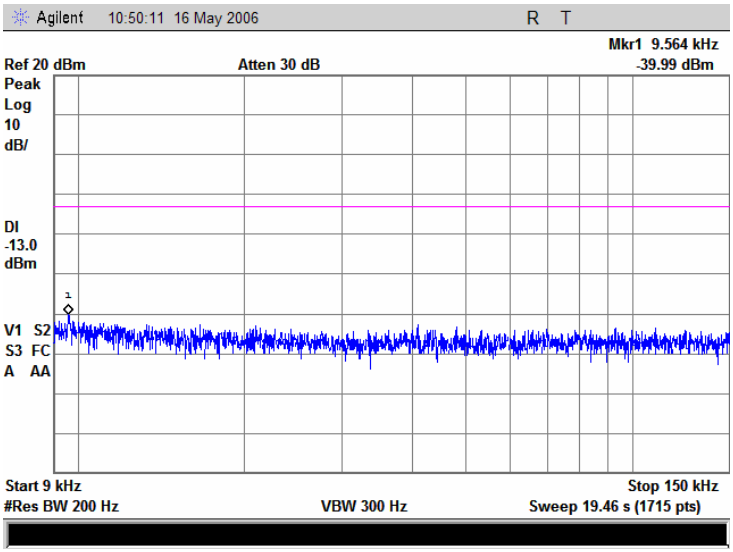
Reference numbers of test equipment used

HL 1424	HL 1652	HL 2399	HL 2867	HL 2909			

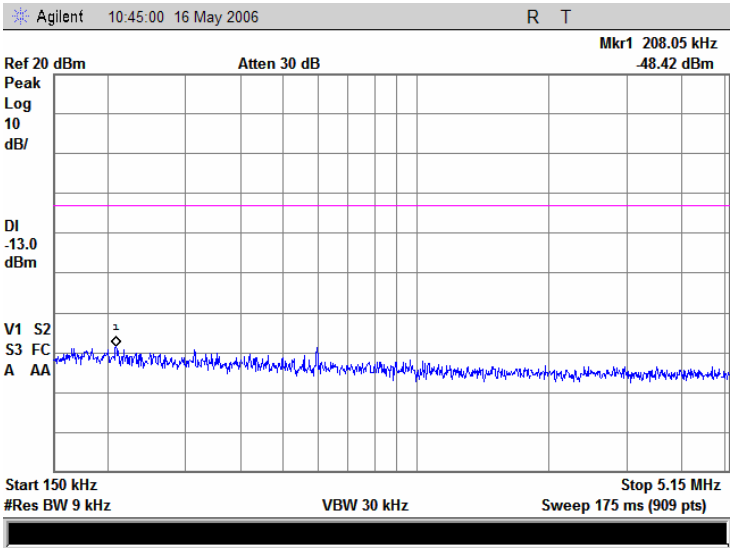
Full description is given in Appendix A.

Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 °C	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.1 Conducted emission measurements from 9 to 150 kHz at low carrier frequency

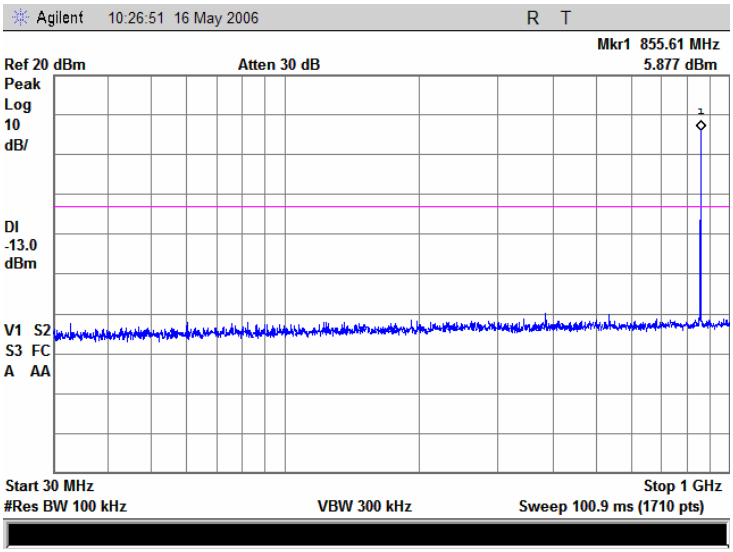


Plot 9.2.2 Conducted emission measurements from 0.15 to 30 MHz at low carrier frequency

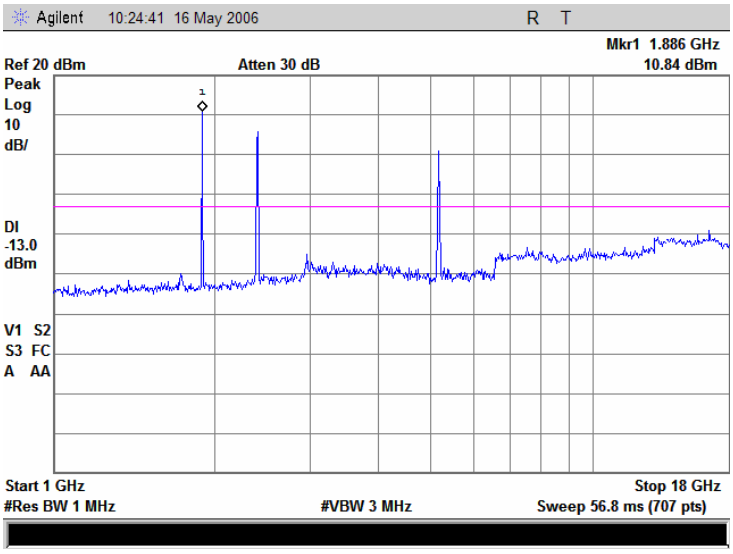


Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.3 Conducted emission measurements from 30 to 1000 MHz at low carrier frequency

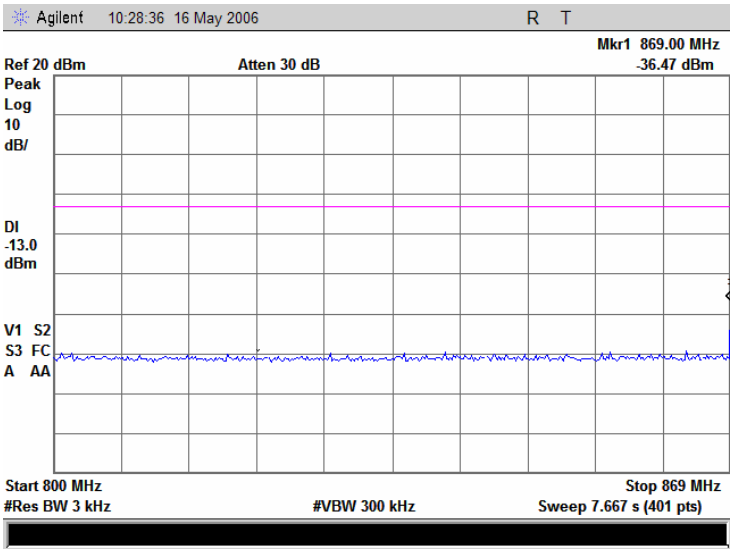


Plot 9.2.4 Conducted emission measurements from 1.0 to 18 GHz at low carrier frequency



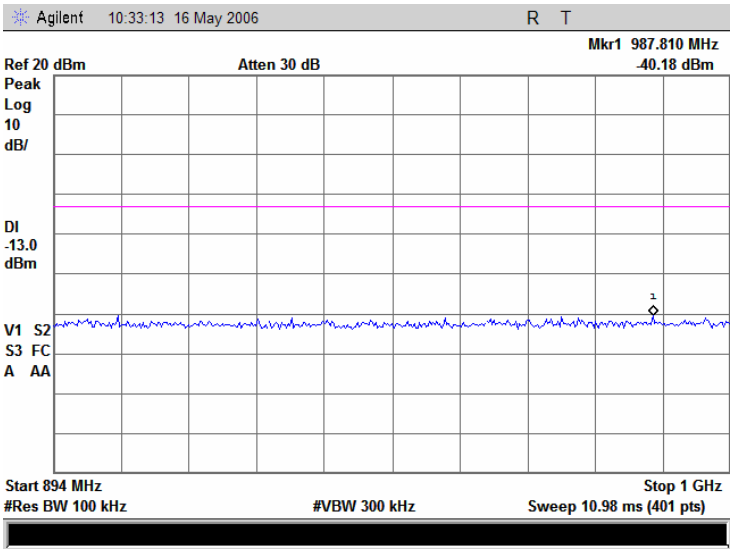
Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.5 Conducted emission measurements from 800 to 869 MHz at low carrier frequency



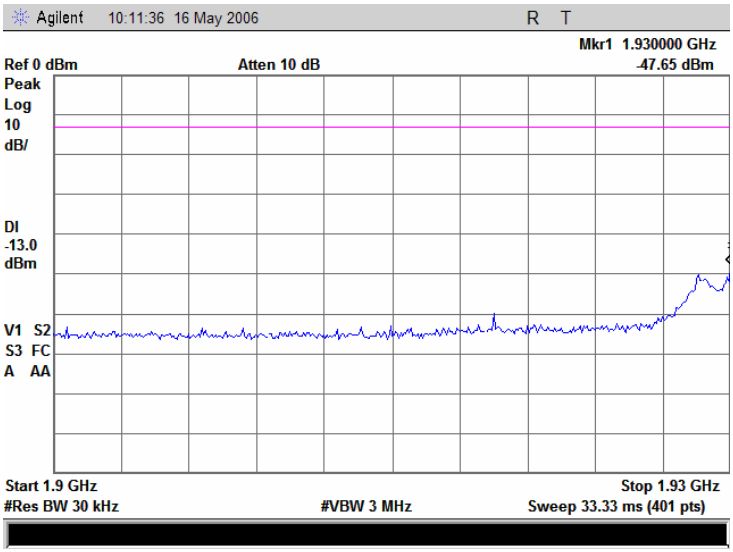
Note: Signal power = SA reading + BW factor = -36.47 + 10log (100 kHz/3 kHz) = -36.47 + 15.22 dB = -21.24 dBm

Plot 9.2.6 Conducted emission measurements from 894 to 1000 MHz at low carrier frequency



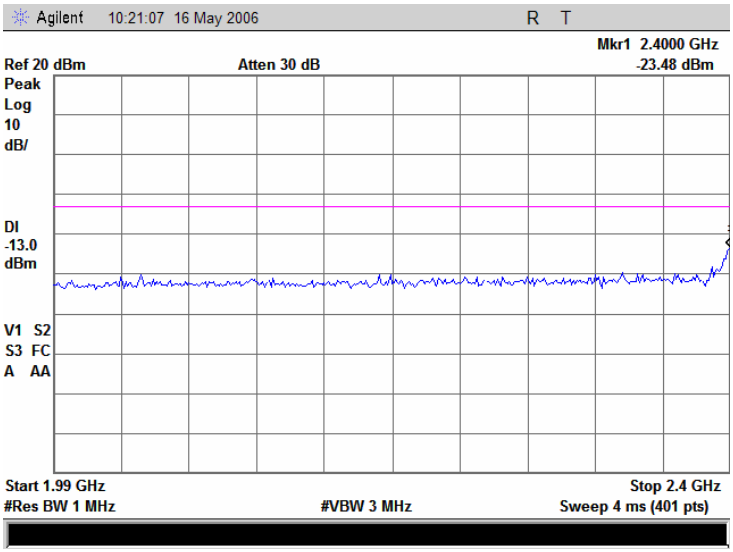
Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.7 Conducted emission measurements from 1900 to 1930 MHz at low carrier frequency



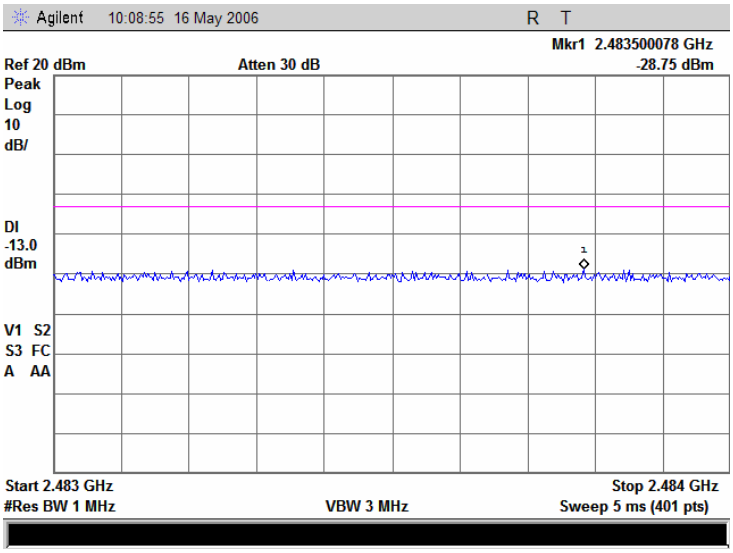
Note: Signal power = SA reading + BW factor = -47.65 + 10log (1 MHz/30 kHz) = -47.65 + 15.22 dB = -32.42 dBm

Plot 9.2.8 Conducted emission measurements from 1990 to 2400 MHz at low carrier frequency

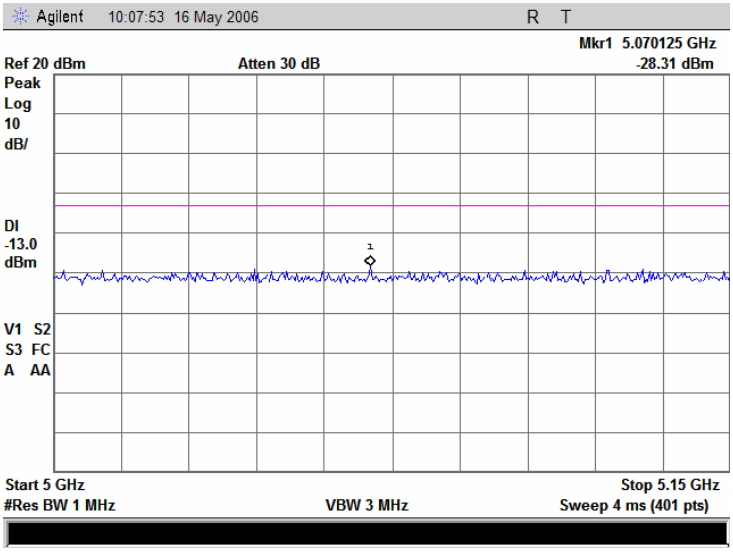


Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.9 Conducted emission measurements from 2483.5 to 3000 MHz at low carrier frequency

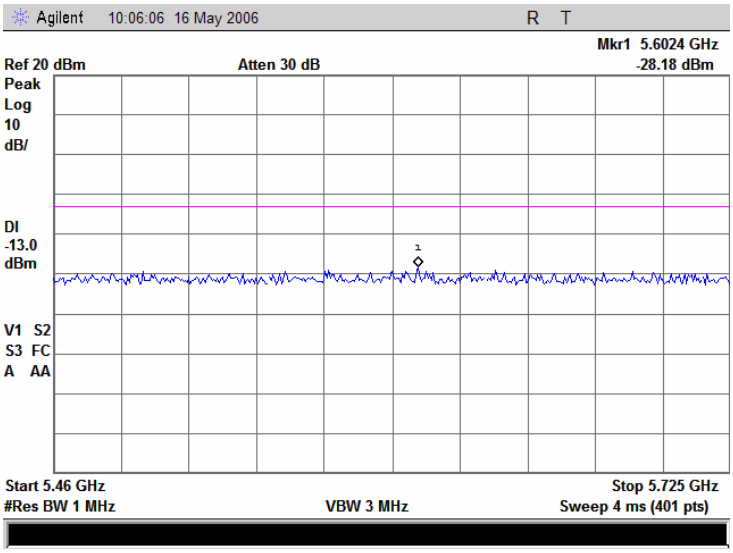


Plot 9.2.10 Conducted emission measurements from 5000 to 5150 MHz at low carrier frequency

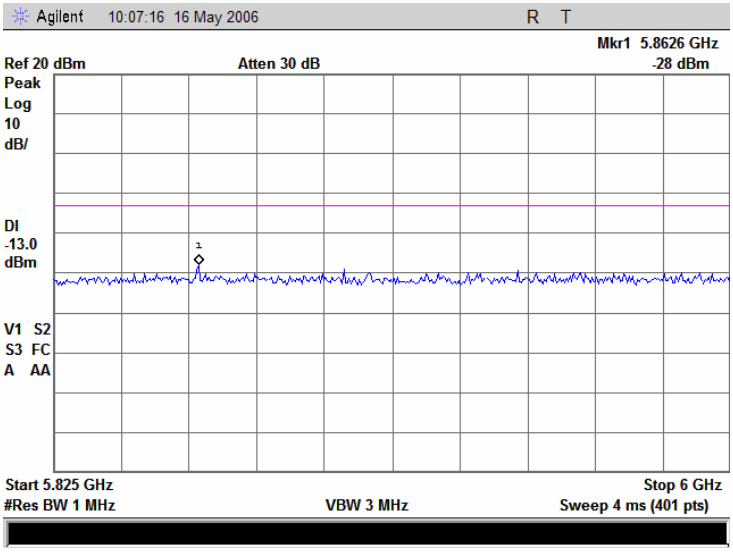


Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.11 Conducted emission measurements from 5460 to 5725 MHz at low carrier frequency

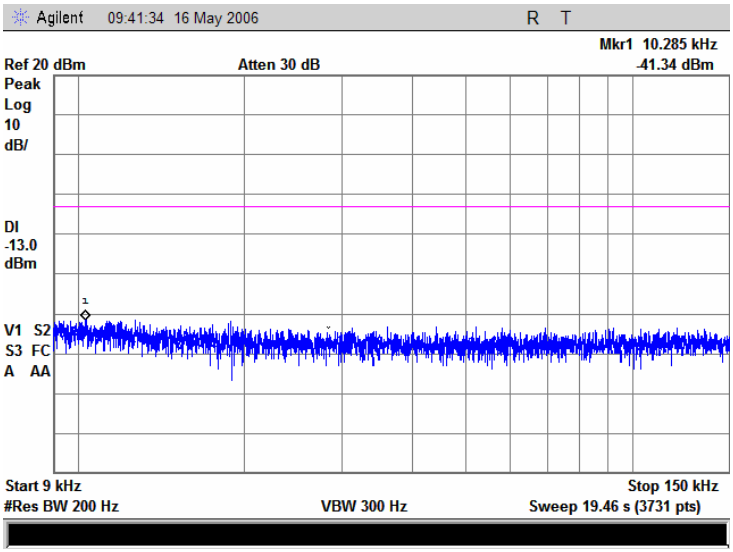


Plot 9.2.12 Conducted emission measurements from 5825 to 6000 MHz at low carrier frequency

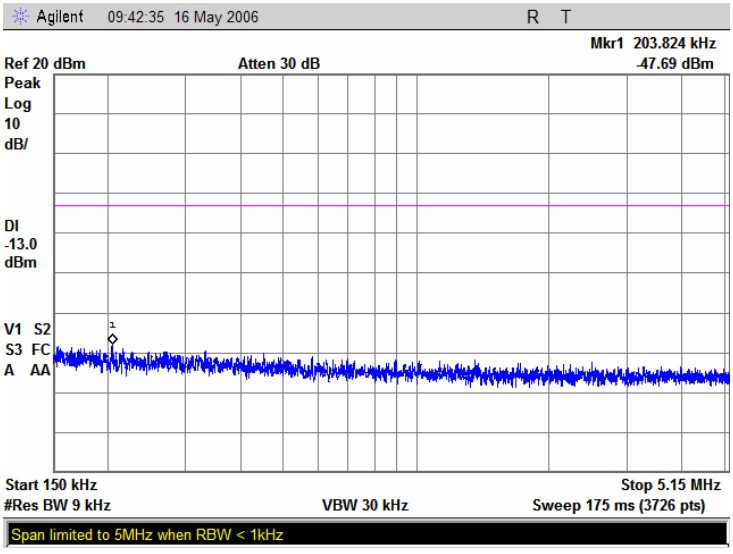


Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 °C	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.13 Conducted emission measurements from 9 to 150 kHz at mid carrier frequency

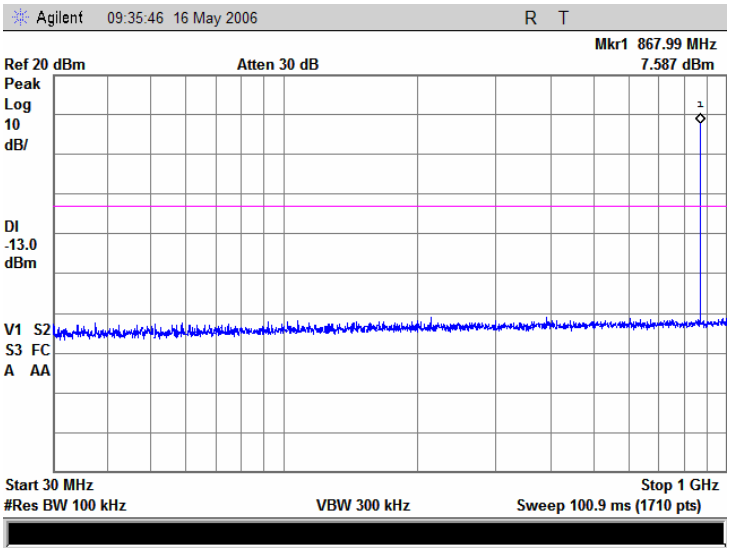


Plot 9.2.14 Conducted emission measurements from 0.15 to 30 MHz at mid carrier frequency

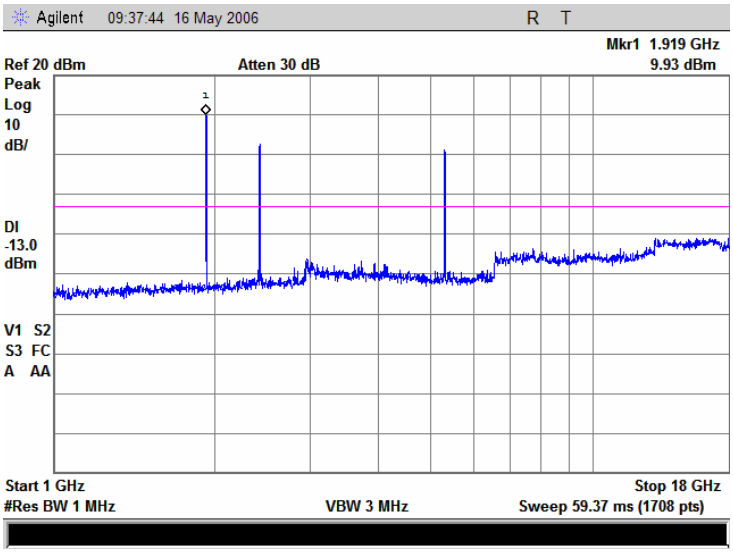


Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.15 Conducted emission measurements from 30 to 1000 MHz at mid carriers frequency

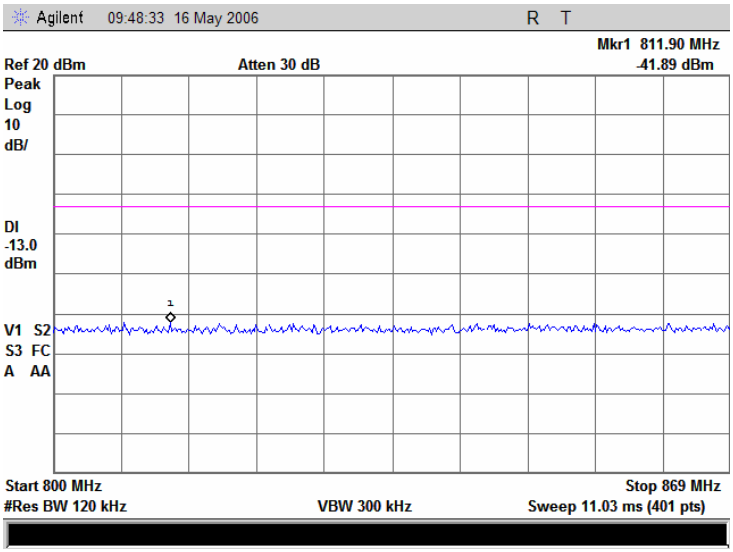


Plot 9.2.16 Conducted emission measurements from 1.0 to 18 GHz at mid carrier frequency

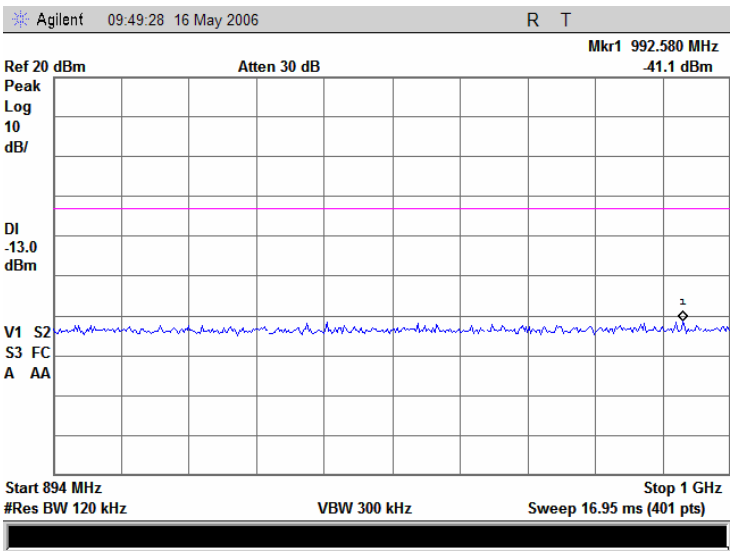


Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.17 Conducted emission measurements from 800 to 869 MHz at mid carrier frequency

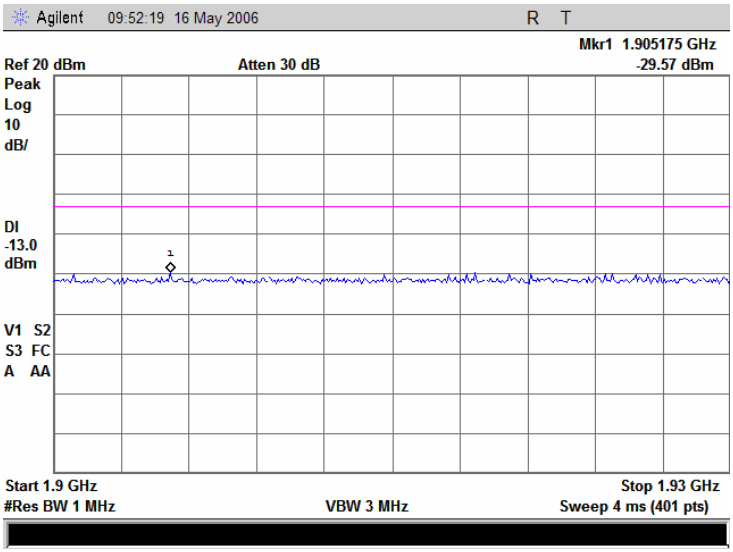


Plot 9.2.18 Conducted emission measurements from 894 to 1000 MHz at mid carrier frequency

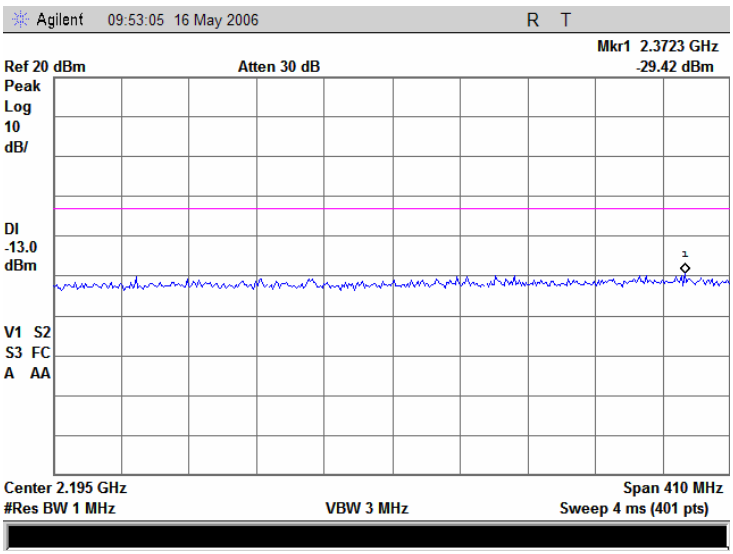


Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.19 Conducted emission measurements from 1900 to 1930 MHz at mid carrier frequency

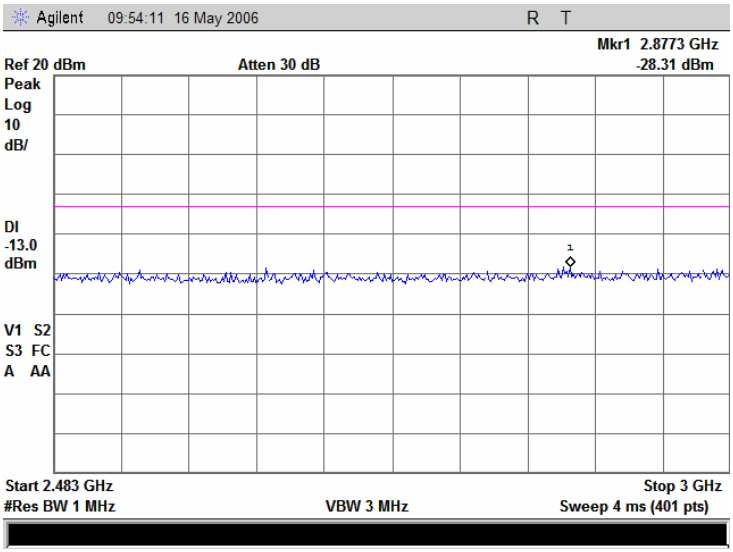


Plot 9.2.20 Conducted emission measurements from 1990 to 2400 MHz at mid carrier frequency

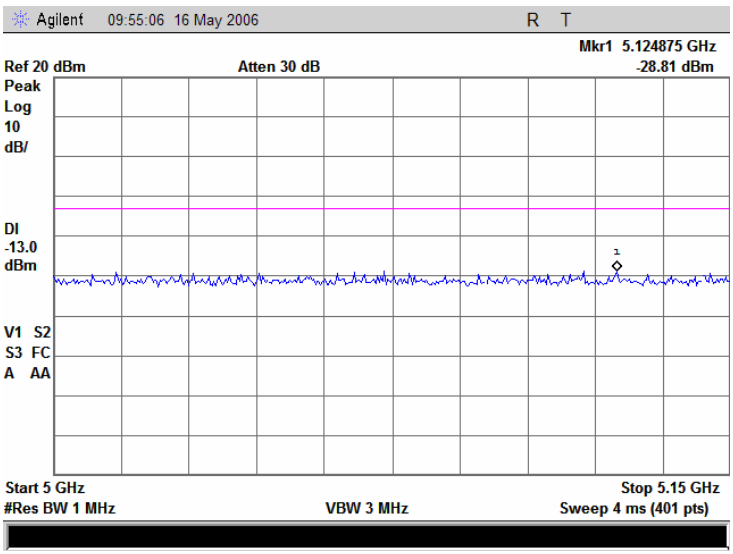


Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.21 Conducted emission measurements from 2483.5 to 3000 MHz at mid carrier frequency

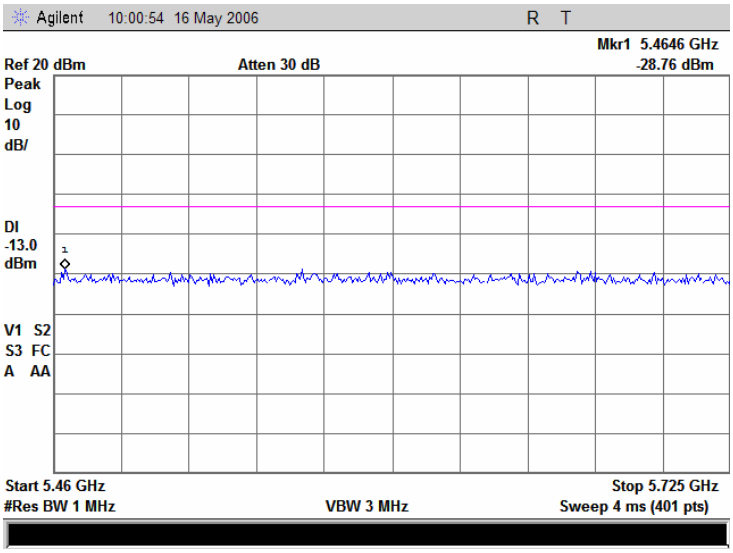


Plot 9.2.22 Conducted emission measurements from 5000 to 5150 MHz at mid carrier frequency

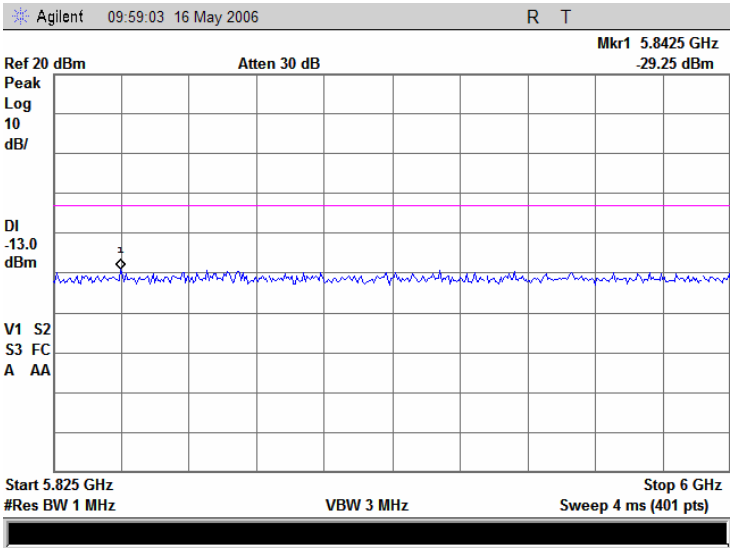


Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.23 Conducted emission measurements from 5460 to 5725 MHz at mid carrier frequency

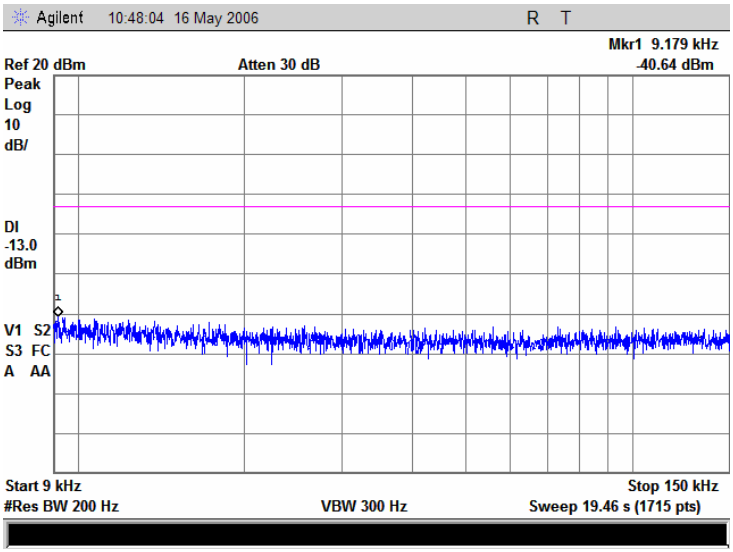


Plot 9.2.24 Conducted emission measurements from 5825 to 6000 MHz at mid carrier frequency

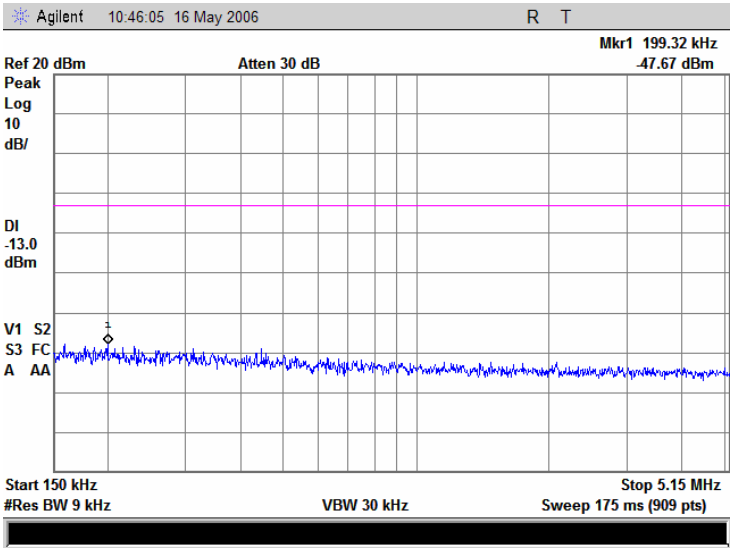


Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 °C	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.25 Conducted emission measurements from 9 to 150 kHz at high carrier frequency

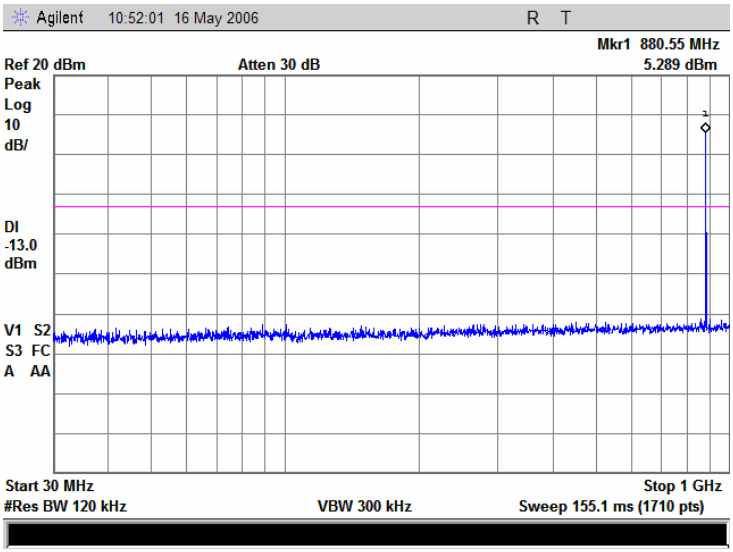


Plot 9.2.26 Conducted emission measurements from 0.15 to 30 MHz at high carrier frequency

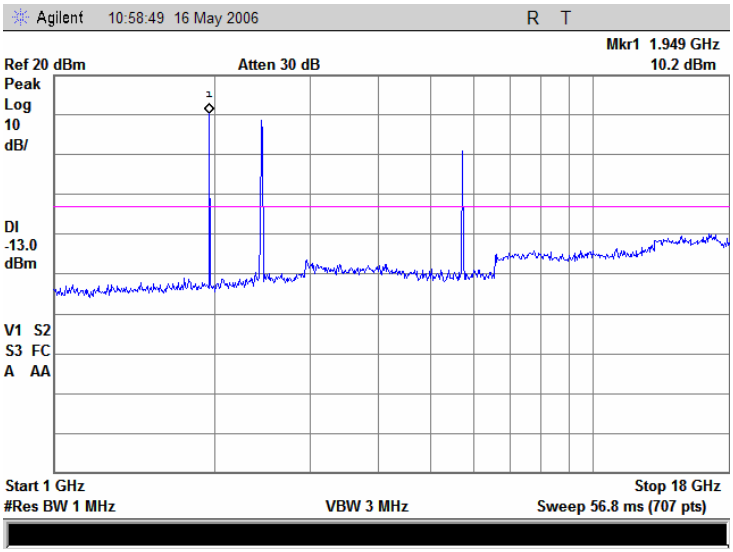


Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.27 Conducted emission measurements from 30 to 1000 MHz at high carrier frequency

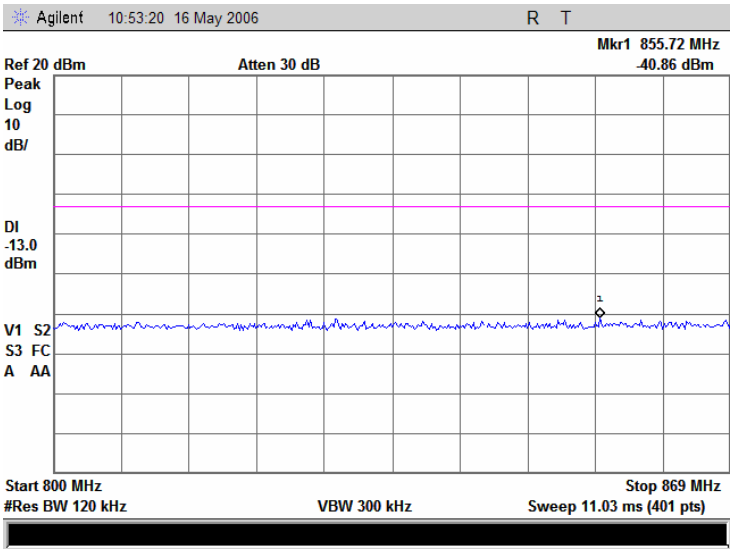


Plot 9.2.28 Conducted emission measurements from 1.0 to 18 GHz at high carrier frequency

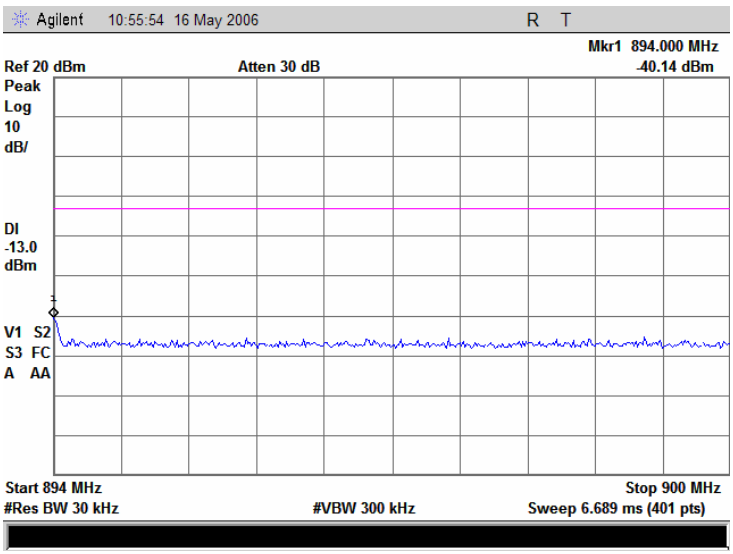


Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 °C	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.29 Conducted emission measurements from 800 to 869 MHz at high carrier frequency



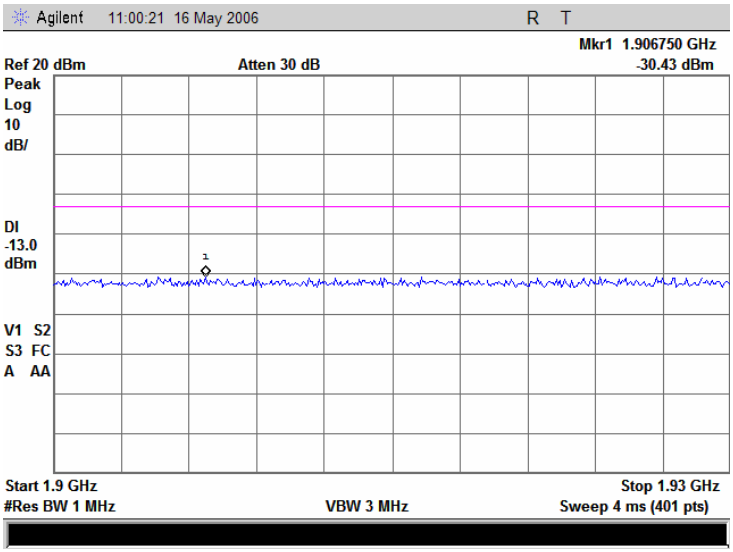
Plot 9.2.30 Conducted emission measurements from 894 to 1000 MHz at high carrier frequency



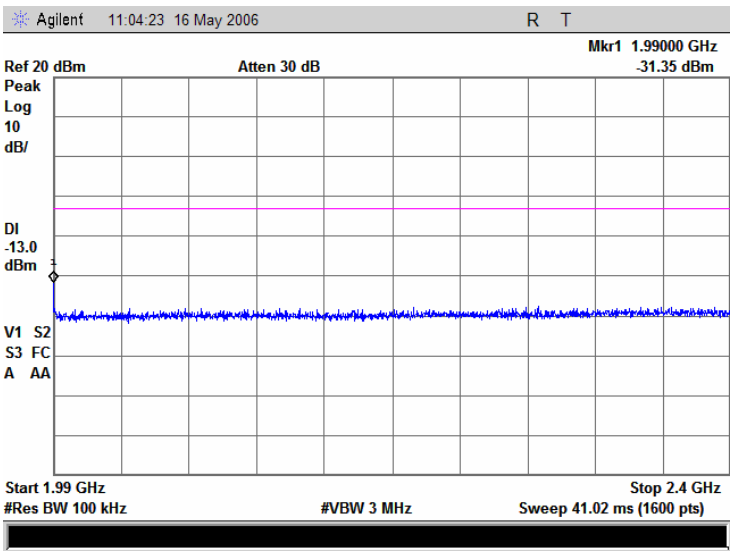
Note: Signal power = SA reading + BW factor = -40.14 + 10log (100 kHz/30 kHz) = -40.14 + 5.22 dB = -34.91 dBm

Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.31 Conducted emission measurements from 1900 to 1930 MHz at high carrier frequency



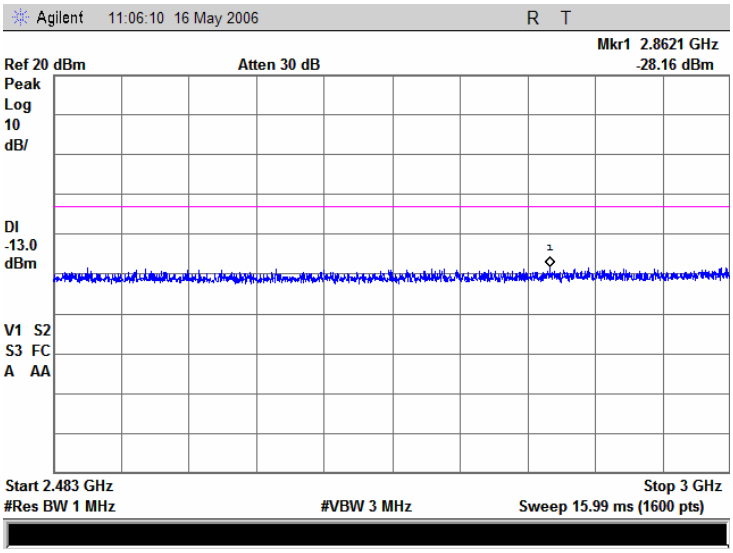
Plot 9.2.32 Conducted emission measurements from 1990 to 2400 MHz at high carrier frequency



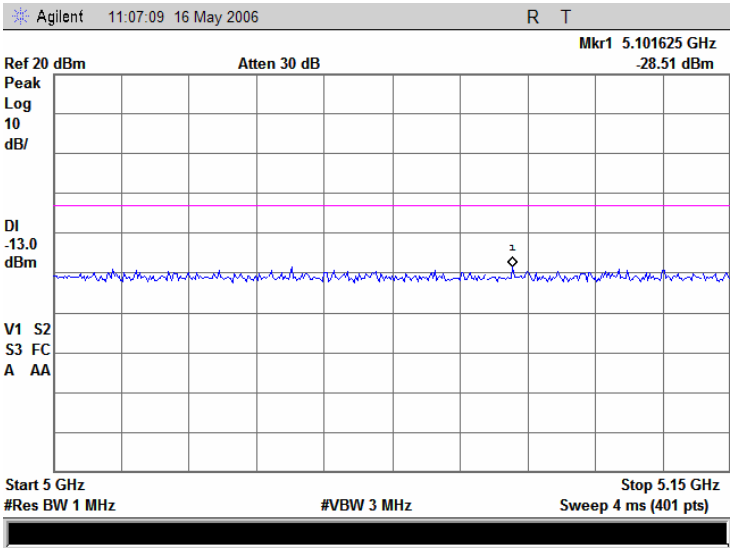
Note: Signal power = SA reading + BW factor = -31.35 + 10log (1 MHz/100 kHz) = -31.35 + 10 dB = -21.35 dBm

Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 °C	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.33 Conducted emission measurements from 2483.5 to 3000 MHz at high carrier frequency

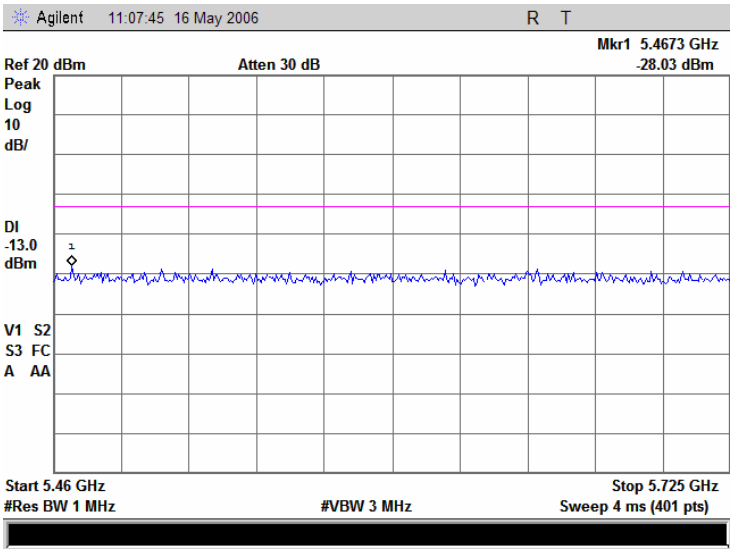


Plot 9.2.34 Conducted emission measurements from 5000 to 5150 MHz at high carrier frequency

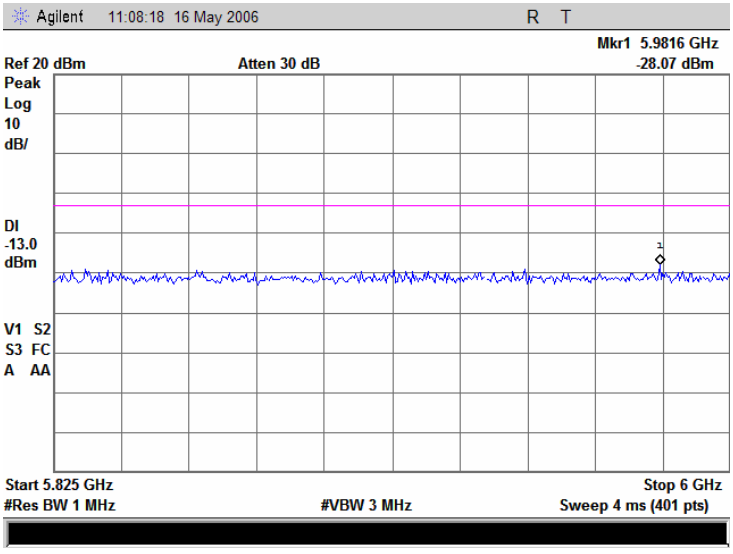


Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 °C	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.35 Conducted emission measurements from 5460 to 5725 MHz at high carrier frequency

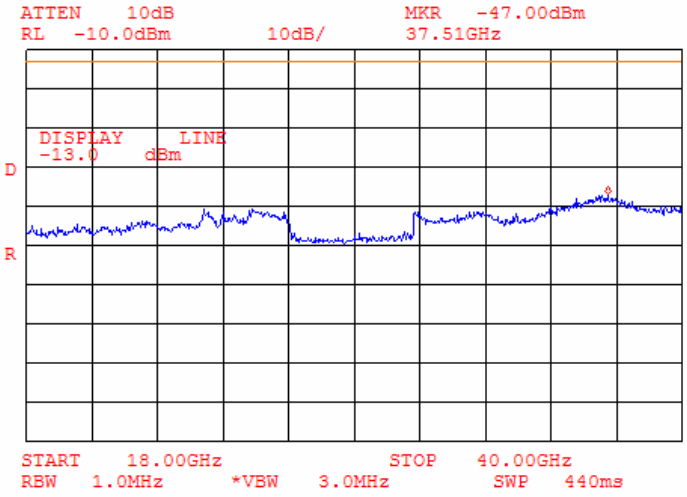


Plot 9.2.36 Conducted emission measurements from 5825 to 6000 MHz at high carrier frequency

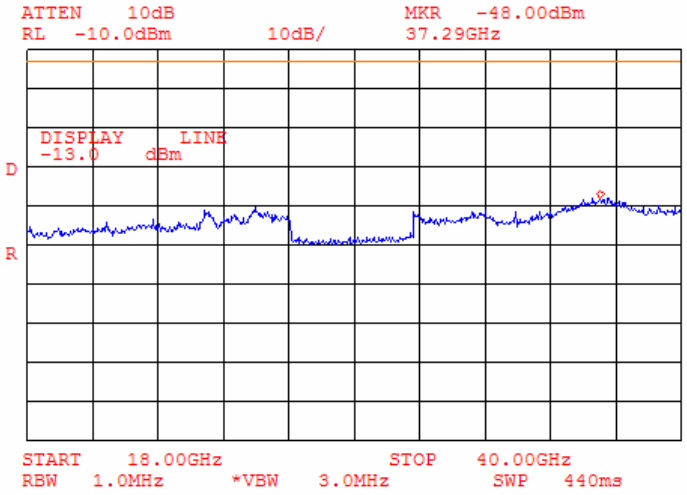


Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.37 Conducted emission measurements from 18 to 40 GHz at low carrier frequency

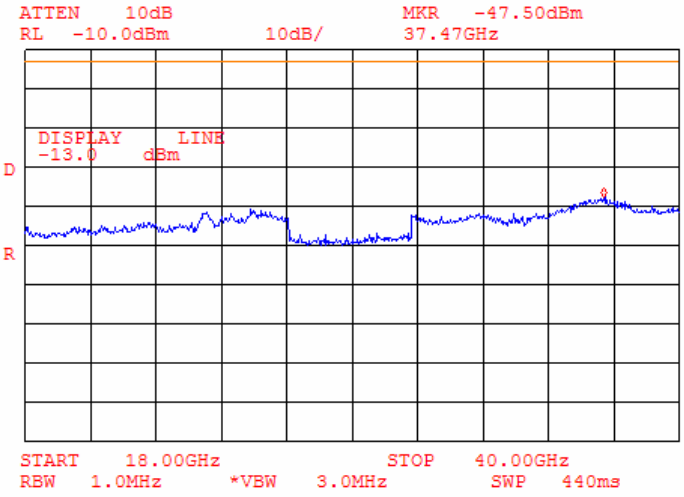


Plot 9.2.38 Conducted emission measurements from 18 to 40 GHz at mid carrier frequency



Test specification:	Paer 22, 24, spurious emissions at antenna terminal		
Test procedure:	FCC part 22, Section 22.917; part 24, Section 24.238		
Test mode:	Compliance	Verdict:	PASS
Date:	5/16/2006		
Temperature: 23 ºC	Air Pressure: 1007 hPa	Relative Humidity: 48 %	Power Supply: 120 VAC
Remarks:			

Plot 9.2.39 Conducted emission measurements from 18 to 40 GHz at high carrier frequency



Test specification:	Section 15.109, Radiated emission		
Test procedure:	ANSI C63.4, Sections 11.6 and 12.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	10/25/2004		
Temperature: 24 ºC	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks:			

10 Tests according to 47CFR part 15 subpart B requirements

10.1 Radiated emissions

10.1.1 General

This test was performed to measure radiated emissions from the EUT enclosure. Specification test limits are given in Table 10.1.1.

Table 10.1.1 Radiated emission test limits

Frequency, MHz	Class B limit, dB(μV/m)		Class A limit, dB(μV/m)	
	10 m distance	3 m distance	10 m distance	3 m distance
30 - 88	29.5*	40.0	39.0	49.5*
88 - 216	33.0*	43.5	43.5	54.0*
216 - 960	35.5*	46.0	46.4	56.9*
Above 960	43.5*	54.0	49.5	60.0*

* The limit for test distance other than specified was calculated using the inverse linear distance extrapolation factor as follows: $Lim_{S2} = Lim_{S1} + 20 \log (S_1/S_2)$,
where S_1 and S_2 – standard defined and test distance respectively in meters.

10.1.2 Test procedure for measurements in semi-anechoic chamber

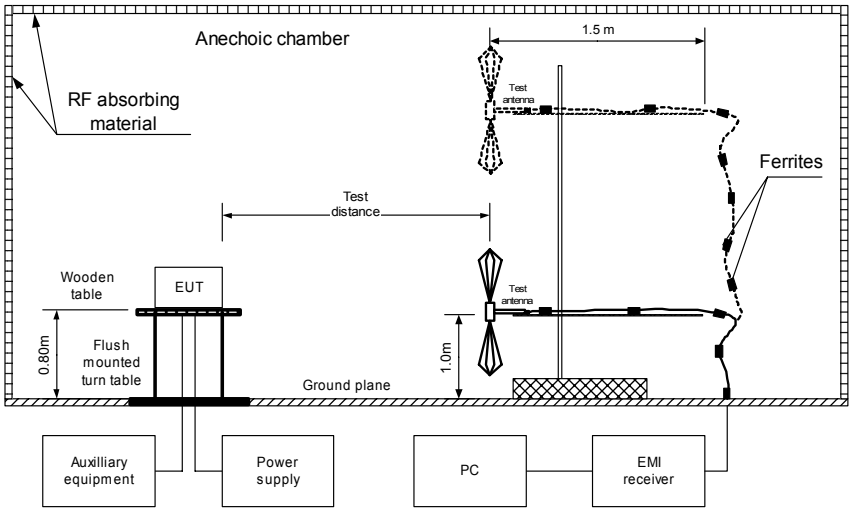
10.1.2.1 The EUT was set up as shown in Figure 10.1.1, energized and the performance check was conducted.

10.1.2.2 The specified frequency range was investigated with biconilog antenna connected to 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 and the EUT cables position was varied.

10.1.2.3 The worst test results (the lowest margins) were recorded in Table 10.1.2. The plots are shown in section 7.5 of this test report.

Test specification:	Section 15.109, Radiated emission		
Test procedure:	ANSI C63.4, Sections 11.6 and 12.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	10/25/2004		
Temperature: 24 ºC	Air Pressure: 1012 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks:			

Figure 10.1.1 Setup for radiated emission measurements in anechoic chamber, table-top equipment



Test specification:	**Section 15.109, Radiated emission**		
Test procedure:	ANSI C63.4, Sections 11.6 and 12.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	10/25/2004		
Temperature: 24 ºC	**Air Pressure:** 1012 hPa	**Relative Humidity:** 39 %	**Power Supply:** 120 VAC
Remarks:			

Table 10.1.2 Radiated emission test results

EUT SETUP: TABLE-TOP
LIMIT: Class B
EUT OPERATING MODE: Receive
TEST SITE: SEMI ANECHOIC CHAMBER
TEST DISTANCE: 3 m
DETECTORS USED: PEAK / QUASI-PEAK
FREQUENCY RANGE: 30 MHz – 1000 MHz
RESOLUTION BANDWIDTH: 120 kHz

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*				
76.84045	40.56	19.87	40.00	-20.13	H	2.5	270	Pass
79.17130	44.16	21.82	40.00	-18.18	H	2.5	270	
83.02170	49.07	27.22	40.00	-12.78	H	2.5	270	
83.02170	49.07	27.22	40.00	-12.78	H	2.5	270	
85.24630	49.81	26.21	40.00	-13.79	H	2.5	270	
88.45150	51.26	27.74	43.50	-15.76	H	2.5	270	
90.62970	51.90	26.38	43.50	-17.12	H	2.5	270	
98.45000	46.94	41.43	43.50	-2.07	H	2.5	0	
99.99130	42.29	38.07	43.50	-5.43	V	1.7	20	
139.1327	42.81	32.52	43.50	-10.98	V	2.7	250	
143.7636	38.44	33.26	43.50	-10.24	V	2.7	250	
591.0678	45.10	41.90	46.00	-4.10	V	1.8	30	

TEST SITE: OATS
TEST DISTANCE: 3 m
DETECTORS USED: PEAK / AVERAGE
FREQUENCY RANGE: 1000 MHz – 40 GHz
RESOLUTION BANDWIDTH: 1000 kHz

Frequency, MHz	Peak emission, dB(µV/m)	Average			Antenna polarization	Antenna height, m	Turn-table position**, degrees	Verdict
		Measured emission, dB(µV/m)	Limit, dB(µV/m)	Margin, dB*				
17235.000	64.50	34.83	54.00	-19.17	H	1.5	120	Pass
17355.000	66.50	37.50	54.00	-16.50	H	1.5	270	
17355.000	66.50	37.50	54.00	-16.50	H	1.5	270	

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

Reference numbers of test equipment used

HL 0421	HL 0465	HL 0589	HL 0604	HL 1947	HL 1984	HL 2009	

Full description is given in Appendix A.

11 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-05	28-Jun-06
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
0521	EMI Receiver (Spectrum Analyzer) with RF filter section 9 kHz-6.5 GHz	Hewlett Packard	8546A	3617A00319, 3448A00253	26-Sep-05	26-Sep-06
0589	Cable Coaxial, GORE A2P01POL118, 2.3 m	HL	GORE-3	176	02-Dec-05	02-Dec-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
0604	Antenna BiconiLog Log-Periodic/T Bow-TIE 26 - 2000 MHz	EMCO	3141	9611-1011	10-Jan-06	10-Jan-07
0678	Amplifier Pulse Power 4 kW, 10-86 kHz	ENI	LPI-40EL	507	01-Jan-06	01-Jan-07
1206	One phase voltage regulator, 2kVA, 0-250V	HL	TDGC-2	142	04-Jun-05	04-Jun-06
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
1651	Attenuators Set (2, 3, 5, 20 dB), DC-18 GHz	M/A-COM	2082	1651	03-Jan-06	03-Jan-07
1652	Attenuators Set (1-30 dB), DC-18 GHz	M/A-COM	2082	1652	03-Jan-06	03-Jan-07
1947	Cable 18GHz, 6.5 m, blue	Rhophase Microwave Limited	NPS-1803A-6500-NPS	T4974	17-Oct-05	17-Oct-06
1984	Antenna, Double-Ridged Waveguide Horn, 1-18 GHz, 300 W, N-type	EMC Test Systems	3115	9911-5964	03-Mar-06	03-Mar-07
2009	Cable RF, 8 m	Alpha Wire	RG-214	C-56	02-Dec-05	02-Dec-06
2254	Cable 40GHz, 0.8 m, blue	Rhophase Microwave	KPS-1503A-	W4907	24-Jun-05	24-Jun-06

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal.	Due Cal.
		Limited	800-KPS			
2259	Amplifier Low Noise 2-20 GHz	Sophia Wireless	LNA0220-C	0223	05-Nov-05	05-Nov-06
2399	Cable 40GHz, 1.5 m, blue	Rhophase Microwave Limited	KPS-1503A-1500-KPS	X2945	24-Jun-05	24-Jun-06
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	MY45102406	11-Jun-05	11-Jun-06
2867	Cable, 18 GHz, 0.9 m, SMA - SMA, Right Angle	Gore	NA	91P72076	16-Feb-06	16-Feb-07
2909	Spectrum analyzer, ESA-E, 100 Hz to 26.5 GHz	Agilent Technologies	E4407B	MY41444762	10-Apr-06	10-Apr-07

12 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.

13 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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14 APPENDIX D Specification references

47CFR part 15: 2005	Radio Frequency Devices.
FCC Public Notice DA 02-2138 August 30, 2002	Measurement procedure updated for peak transmit power in U-NII bands
47CFR part 22:2005	Public Mobile Services
47CFR part 24: 2005	Personal Communications Services
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.

15 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

16 APPENDIX F Test equipment correction factors

Correction factor
Line impedance stabilization network
Model ANS-25/2
Electro-Metrics, HL 0163

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, kHz	Correction factor, dB
10	4.9
15	2.86
20	1.83
25	1.25
30	0.91
35	0.69
40	0.53
50	0.35
60	0.25
70	0.18
80	0.14
90	0.11
100	0.09
125	0.06
150	0.04

The correction factor in dB is to be added to meter readings of an interference analyzer or a spectrum analyzer.

Antenna factor

Biconilog antenna EMCO, model 3141, serial number 1011, HL 0604

Frequency, MHz	Antenna factor, dB(1/m)	Frequency, MHz	Antenna factor, dB(1/m)	Frequency, MHz	Antenna factor, dB(1/m)
26	7.8	560	19.8	1300	27.0
28	7.8	580	20.6	1320	27.8
30	7.8	600	21.3	1340	28.3
40	7.2	620	21.5	1360	28.2
60	7.1	640	21.2	1380	27.9
70	8.5	660	21.4	1400	27.9
80	9.4	680	21.9	1420	27.9
90	9.8	700	22.2	1440	27.8
100	9.7	720	22.2	1460	27.8
110	9.3	740	22.1	1480	28.0
120	8.8	760	22.3	1500	28.5
130	8.7	780	22.6	1520	28.9
140	9.2	800	22.7	1540	29.6
150	9.8	820	22.9	1560	29.8
160	10.2	840	23.1	1580	29.6
170	10.4	860	23.4	1600	29.5
180	10.4	880	23.8	1620	29.3
190	10.3	900	24.1	1640	29.2
200	10.6	920	24.1	1660	29.4
220	11.6	940	24.0	1680	29.6
240	12.4	960	24.1	1700	29.8
260	12.8	980	24.5	1720	30.3
280	13.7	1000	24.9	1740	30.8
300	14.7	1020	25.0	1760	31.1
320	15.2	1040	25.2	1780	31.0
340	15.4	1060	25.4	1800	30.9
360	16.1	1080	25.6	1820	30.7
380	16.4	1100	25.7	1840	30.6
400	16.6	1120	26.0	1860	30.6
420	16.7	1140	26.4	1880	30.6
440	17.0	1160	27.0	1900	30.6
460	17.7	1180	27.0	1920	30.7
480	18.1	1200	26.7	1940	30.9
500	18.5	1220	26.5	1960	31.2
520	19.1	1240	26.5	1980	31.6
540	19.5	1260	26.5	2000	32.0
		1280	26.6		

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB(μV) to convert it into field intensity in dB(μV/m).

Antenna factor
Double-ridged wave guide horn antenna
EMC Test Systems, model 3115, serial no: 9911-5964, HL 1984

Frequency, MHz	Antenna gain, dBi	Antenna factor. dB(1/m)
1000.0	5.8	24.5
1500.0	9.0	24.8
2000.0	8.6	27.7
2500.0	9.5	28.7
3000.0	8.9	30.8
3500.0	8.2	32.9
4000.0	9.6	32.7
4500.0	11.2	32.1
5000.0	10.6	33.6
5500.0	9.8	35.3
6000.0	10.1	35.7
6500.0	10.7	35.8
7000.0	10.9	36.2
7500.0	10.5	37.2
8000.0	11.1	37.2
8500.0	10.8	38.1
9000.0	10.7	38.6
9500.0	11.5	38.3
10000.0	11.8	38.4
10500.0	12.3	38.3
11000.0	12.3	38.8
11500.0	11.5	39.9
12000.0	12.2	39.6
12500.0	12.6	39.5
13000.0	12.0	40.5
13500.0	11.7	41.1
14000.0	11.7	41.5
14500.0	12.7	40.8
15000.0	14.2	39.5
15500.0	16.0	38.1
16000.0	16.2	38.1
16500.0	14.5	40.1
17000.0	12.2	42.6
17500.0	9.7	45.4
18000.0	6.6	48.7

Antenna factor is to be added to receiver meter reading in dB(μV) to convert it into field intensity in dB(μV/m).

Antenna Factor
Active Loop Antenna
EMC Test Systems, model 6502, serial number 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 calibration
Sunol Sciences Inc., model JB3, serial number A022805

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
55	7.9	-2.8	0.52	650	19.9	6.5	4.51	1245	25.0	7.1	5.12	1840	28.8	6.7	4.69	2435	31.0	6.9	4.88
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
85	8.0	0.8	1.20	680	20.1	6.7	4.71	1275	25.3	7.0	5.05	1870	28.4	7.3	5.33	2465	31.1	6.9	4.95
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
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
105	11.7	-1.1	0.78	700	20.3	6.8	4.76	1295	25.3	7.2	5.22	1890	28.6	7.2	5.21	2485	31.1	7.0	5.00
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
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
135	13.8	-1.0	0.79	730	20.7	6.8	4.77	1325	25.5	7.2	5.21	1920	28.6	7.3	5.31	2515	31.0	7.2	5.26
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
235	12.1	5.5	3.56	830	21.7	6.9	4.85	1425	26.2	7.1	5.10	2020	29.2	7.1	5.18	2615	31.7	6.9	4.88
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
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
295	13.8	5.8	3.77	890	22.1	7.0	5.06	1485	26.5	7.1	5.14	2080	29.8	6.8	4.76	2675	31.9	6.8	4.81
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
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
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
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

Cable loss
Cable Coaxial, GORE A2P01POL118, 2.3 m, model:GORE-3, HL 0589
+ Cable Coaxial, ANDREW PSWJ4, 6m, model: ANDREW-6, HL 1004

No.	Frequency, MHz	Cable loss, dB	Tolerance (Specification), dB	Measurement uncertainty, dB
1	30	0.33	≤ 6.5	±0.12
2	50	0.40		
3	100	0.57		
4	300	0.97		
5	500	1.25		
6	800	1.59		
7	1000	1.81		
8	1200	1.97		
9	1400	2.15		
10	1600	2.28		
11	1800	2.43		
12	2000	2.61		
13	2200	2.75		
14	2400	2.89		
15	2600	2.97		
16	2800	3.21	≤ 6.5	±0.12
17	3000	3.32		
18	3300	3.47		
19	3600	3.62		
20	3900	3.84		
21	4200	3.92		±0.17
22	4500	4.07		
23	4800	4.36		
24	5100	4.62		
25	5400	4.78		
26	5700	5.16		
27	6000	5.67		
28	6500	5.99		

Cable loss
Cable GORE, HL 0410

No.	Frequency, GHz	Cable loss, dB
1	0.5	0.16
2	1	0.28
3	2	0.38
4	4	0.55
5	6	0.85
6	8	0.90
7	10	1.07
8	12	1.11
9	14	1.29
10	16	1.41
11	18	1.73

Cable loss
Cable coaxial, 6 m, model: M17/167 MIL-C-17, HL 1502

Frequency, MHz	Cable loss, dB
0.1	0.02
1	0.07
3	0.15
5	0.17
10	0.26
30	0.43
50	0.57
80	0.72
100	0.81
300	1.48
500	2.00
800	2.70
1000	3.09

Cable loss
Cable M17/167 MIL-C-17, HL 1510

No.	Frequency, MHz	Cable loss, dB
1	0.1	0.05
2	1	0.09
3	3	0.16
4	5	0.18
5	10	0.27
6	30	0.44
7	50	0.58
8	80	0.69
9	100	0.82
10	300	1.48
11	500	2.01
12	800	2.65
13	1000	3.12

Cable loss
RF cable 3.5 m, Alpha Wire, model RG-214, S/N 149, HL 1553

No.	Frequency, MHz	Cable loss, dB	Measurement uncertainty, dB
1	1	0.01	±0.05
2	10	0.07	
3	30	0.12	
4	50	0.22	
5	100	0.26	
6	200	0.40	
7	300	0.52	
8	400	0.60	
9	500	0.70	
10	600	0.77	
11	700	0.84	
12	800	1.00	
13	900	1.00	
14	1000	1.05	
15	2000	1.70	

Cable loss
Cable RF, 2m, model: Sucoflex 104PE, S/N 13094/4PE, HL 1566

No.	Frequency, MHz	Cable loss, dB	Tolerance, dB	Measurement uncertainty, dB
1	30	0.10	≤ 5.0	±0.12
2	50	0.13		
3	100	0.20		
4	300	0.33		
5	500	0.45		
6	800	0.60		
7	1000	0.65		
8	1500	0.91		
9	2000	1.08		
10	2500	1.19		
11	3000	1.28		
12	3500	1.49		
13	4000	1.63		
14	4500	1.63	≤ 5.0	±0.17
15	5000	1.66		
16	5500	1.88		
17	6000	1.96		
18	6500	1.93		
19	7000	2.07		
20	7500	2.37		
21	8000	2.34		
22	8500	2.64		
23	9000	2.68		
24	9500	2.64		
25	10000	2.70		
26	10500	2.84		
27	11000	2.88		
28	11500	3.19		
29	12000	3.15		
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		

Cable loss
Cable 18 GHz, 6.5 m, blue, model: NPS-1803A-6500-NPS, S/N T4974, HL 1947

Frequency, GHz	Cable loss, dB
0.03	0.30
0.05	0.38
0.10	0.53
0.20	0.74
0.30	0.91
0.40	1.05
0.50	1.18
0.60	1.29
0.70	1.40
0.80	1.50
0.90	1.59
1.00	1.68
1.10	1.77
1.20	1.86
1.30	1.94
1.40	2.01
1.50	2.08
1.60	2.16
1.70	2.22
1.80	2.29
1.90	2.36
2.00	2.42
2.10	2.48
2.20	2.54
2.30	2.60
2.40	2.66
2.50	2.71
2.60	2.77
2.70	2.83
2.80	2.89
2.90	2.95
3.10	3.06
3.30	3.17
3.50	3.28
3.70	3.39
3.90	3.51
4.10	3.62
4.30	3.76
4.50	3.87
4.70	4.01
4.90	4.10
5.10	4.21
5.30	4.31
5.50	4.43
5.70	4.56
5.90	4.71

Frequency, GHz	Cable loss, dB
6.10	4.87
6.30	4.95
6.50	4.94
6.70	4.88
6.90	4.87
7.10	4.83
7.30	4.85
7.50	4.86
7.70	4.91
7.90	4.96
8.10	5.03
8.30	5.08
8.50	5.13
8.70	5.21
8.90	5.22
9.10	5.34
9.30	5.35
9.50	5.52
9.70	5.51
9.90	5.66
10.10	5.70
10.30	5.78
10.50	5.79
10.70	5.82
10.90	5.86
11.10	5.94
11.30	6.06
11.50	6.21
11.70	6.44
11.90	6.61
12.10	6.76
12.40	6.68
13.00	6.66
13.50	6.81
14.00	6.90
14.50	6.90
15.00	6.97
15.50	7.17
16.00	7.28
16.50	7.27
17.00	7.38
17.50	7.68
18.00	7.92

Cable loss
RF cable 8 m, model RG-214, HL 2009

No.	Frequency, MHz	Cable loss, dB	Tolerance (Specification), dB	Measurement uncertainty, dB
1	1	0.10	NA	±0.12
2	10	0.14		
3	30	0.25		
4	50	0.34		
5	100	0.53		
6	300	0.99		
7	500	1.31		
8	800	1.73		
9	1000	1.98		
10	1100	2.11		
11	1200	2.21		
12	1300	2.35		
13	1400	2.46		
14	1500	2.55		
15	1600	2.68		
16	1700	2.78		
17	1800	2.88		
18	1900	2.98		
19	2000	3.09		

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		

Cable loss
Cable coaxial, 40GHz, 1.5 m, Blue, Rhophase Microwave Limited, model: KPS-1503A-1500-KPS, HL 2399

Frequency, GHz	Cable loss, dB	Frequency, GHz	Cable loss, dB	Frequency, GHz	Cable loss, dB
0.03	0.07	6.5	1.57	15.50	2.50
0.05	0.10	6.7	1.60	16.00	2.51
0.1	0.16	6.9	1.55	16.50	2.58
0.2	0.26	7.1	1.65	17.00	2.65
0.3	0.33	7.3	1.65	17.50	2.73
0.5	0.38	7.5	1.70	18.00	2.74
0.7	0.41	7.7	1.71	18.50	2.67
0.9	0.58	7.9	1.73	19.00	2.67
1.1	0.64	8.1	1.79	19.50	2.74
1.3	0.70	8.3	1.81	20.00	2.69
1.5	0.75	8.5	1.84	20.50	2.80
1.7	0.79	8.7	1.85	21.00	2.82
1.9	0.83	8.9	1.90	21.50	2.87
2.1	0.88	9.1	1.95	22.00	2.87
2.3	0.93	9.3	1.93	22.50	2.92
2.5	0.97	9.5	1.98	23.50	3.04
2.7	1.01	9.7	1.96	24.00	3.05
2.9	1.04	9.9	2.03	24.50	3.03
3.1	1.08	10.1	1.99	25.00	3.11
3.3	1.14	10.30	2.02	25.50	3.10
3.5	1.17	10.50	2.02	26.00	3.17
3.7	1.21	10.70	2.02	26.50	3.11
3.9	1.24	10.90	2.08	27.00	3.16
4.1	1.26	11.10	2.02	28.00	3.19
4.3	1.26	11.30	2.09	29.00	3.19
4.5	1.29	11.50	2.05	30.00	3.30
4.7	1.34	11.70	2.11	31.00	3.31
4.9	1.34	11.90	2.11	32.00	3.35
5.1	1.40	12.10	2.12	33.00	3.46
5.3	1.43	12.40	2.17	34.00	3.45
5.5	1.45	13.00	2.29	35.00	3.49
5.7	1.47	13.50	2.31	36.00	3.54
5.9	1.40	14.00	2.43	37.00	3.62
6.1	1.53	14.50	2.43	39.00	3.69
6.3	1.55	15.00	2.46	40.00	3.75

Cable loss
Cable coaxial, Gore, 18 GHz, 0.9 m, SMA - SMA, model Right Angle, HL 2867

Frequency, GHz	Cable loss, dB	Frequency, GHz	Cable loss, dB	Frequency, GHz	Cable loss, dB
10	0.06	5750	0.68	12000	1.06
30	0.04	6000	0.69	12250	1.07
100	0.07	6250	0.70	12500	1.09
250	0.14	6500	0.73	12750	1.09
500	0.19	6750	0.74	13000	1.15
750	0.22	7000	0.78	13250	1.17
1000	0.26	7250	0.77	13500	1.16
1250	0.27	7500	0.79	13750	1.17
1500	0.31	7750	0.81	14000	1.14
1750	0.35	8000	0.86	14250	1.13
2000	0.38	8250	0.86	14500	1.06
2250	0.41	8500	0.87	14750	1.12
2500	0.43	8750	0.87	15000	1.16
2750	0.46	9000	0.88	15250	1.11
3000	0.48	9250	0.89	15500	1.06
3250	0.51	9500	0.90	15750	1.12
3500	0.53	9750	0.94	16000	1.20
3750	0.55	10000	1.00	16250	1.25
4000	0.56	10250	1.01	16500	1.24
4250	0.58	10500	1.02	16750	1.34
4500	0.60	10750	1.01	17000	1.35
4750	0.62	11000	1.01	17250	1.35
5000	0.64	11250	1.01	17500	1.36
5250	0.67	11500	1.01	17750	1.40
5500	0.68	11750	1.05	18000	1.51