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Electrical

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TEST REPORT

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

FOR:

Telematics Wireless Ltd.

Water reader

Model: ETMW-SM

Table of contents

1 Applicant information

Client name:	Telematics Wireless Ltd.
Address:	26 Hamelaha, POB 1911, Holon, 58117, Israel
Telephone:	+972 3557 5767
Fax:	+972 3557 5753
E-mail:	slavas@telematics-wireless.com
Contact name:	Mr. Slava Snitkovsky

2 Equipment under test attributes

Product name:	Water meter
Product type:	Transceiver
Model(s):	ETMW-SM
Serial number:	997037700016
Receipt date	1/19/2006

3 Manufacturer information

Manufacturer name:	Telematics Wireless Ltd.
Address:	26 Hamelaha, POB 1911, Holon, 58117, Israel
Telephone:	+972 3557 5767
Fax:	+972 3557 5753
E-Mail:	slavas@telematics-wireless.com
Contact name:	Mr. Slava Snitkovsky

4 Test details

Project ID:	16894
Location:	Hermon Laboratories Ltd. P.O.Box 23, Binyamina 30500, Israel
Test started:	1/20/2006
Test completed:	1/30/2006
Test specification(s):	FCC 47CFR part 15:2005, subpart C §§15.247, 15.209, subpart B § 15.109
Test suite:	FCC_15.247_DTS_without_RF_connector (5/3/2004 5:43:35 PM, modified)

5 Tests summary

Test	Status
Transmitter characteristics	
Section 15.247(a)2, 6 dB bandwidth	Pass
Section 15.247(b)3, Peak output power	Pass
Section 15.247(e)(i), RF exposure	Pass, the exhibit to the application of certification is provided
Section 15.247(d), Radiated spurious emissions	Pass
Section 15.247(e), Peak power density	Pass
Section 15.207(a), Conducted emission	Not required
Unintentional emissions	
Section 15.107, Conducted emission at AC power port	Not required
Section 15.109, Radiated emission	Pass

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

This test report replaces the previously issued test report identified by Doc ID:TELRAD_FCC.16894.

	Name and Title	Date	Signature
Tested by:	Mr. A. Lane, test engineer Mr. A. Adelberg, test engineer	January 30, 2006	
Reviewed by:	Mrs. M. Cherniavsky, certification engineer	February 8, 2006	
Approved by:	Mr. M. Nikishin, EMC and Radio group leader	February 9, 2006	

6 EUT description

6.1 General information

The EUT, ETMW-SM, is actually a water odometer, offering Automatic Meter Reading – AMR.
The device is a 2-Way RF communicator built-in water meter. The RF capabilities enable the transmission of the meter reading and some extra information to a collecting unit. In addition specific parameters can be programmed via the RF link.
The EUT consists of the following units: RF transmitter & receiver with integral antenna and a microcontroller plus simple digital logic and interface (to external reed switches).
The EUT is powered from 3.6 VDC supplied by two lithium internal batteries.

6.2 Ports and lines

Port type	Port description	Connected		Connector type	Qty.	Cable type	Cable length
		From	To				
Signal	8 signal ports	EUT	Open circuit	Terminal block	1	unshielded	1 m

6.3 Changes made in the EUT

To withstand the standard requirements the EUT power in FSK modulation mode was lowered to level 5 by the customer software. It is the manufacturer responsibility to implement the change in the production model.

6.4 EUT view

6.5 Transmitter characteristics

Type of equipment	
	Stand-alone (Equipment with or without its own control provisions)
X	Combined equipment (Equipment where the radio part is fully integrated within another type of equipment)
	Plug-in card (Equipment intended for a variety of host systems)

Intended use		**Condition of use**
	fixed	Always at a distance more than 2 m from all people
X	mobile	Always at a distance more than 20 cm from all people
	portable	May operate at a distance closer than 20 cm to human body

Assigned frequency range	902 - 928 MHz
Operating frequency range	905.43 – 923.55 MHz
RF channel spacing	3.62 MHz
Maximum rated output power	At transmitter 50 Ω RF output connector: dBm
	Equivalent isotropically radiated power (for equipment with no RF connector): 16.33 dBm (FSK), 20.65 dBm (PSK)

Is transmitter output power variable?				
	No			
X	Yes		continuous variable	
			stepped variable with stepsize	1 dB
		minimum RF power		dBm
		maximum RF power		dBm

Antenna connection					
unique coupling	standard connector	X	integral		with temporary RF connector
				X	without temporary RF connector

Antenna/s technical characteristics			
Type	Manufacturer	Model number	Gain
Integral	Telematics Wireless	Printed inverted F antenna	2 dBi

Transmitter aggregate data rate/s	60 kBps (PSK modulated), 120 kBps (FSK modulated)				
Transmitter aggregate symbol (baud) rate/s	0.9 Msymbols (MBaud) per second (PSK modulated)				
Type of modulation	PSK, FSK				
Modulating test signal (baseband)	PRBS				
Maximum transmitter duty cycle in normal use	0.10 %				
Transmitter duty cycle supplied for test	8.4 % (PSK) 2.47 % (FSK)				

Transmitter power source					
X	Battery	**Nominal rated voltage**	3.6 VDC	Battery type	Lithium
	DC	**Nominal rated voltage**	VDC		
	AC mains	**Nominal rated voltage**	VAC	Frequency	Hz

Common power source for transmitter and receiver	X yes	no	
Spread spectrum technique used		Frequency hopping (FHSS)	
	X	Digital transmission system (DTS)	
		Hybrid	

Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/23/2006 6:00:14 PM		
Temperature: 20ºC	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 3.6 V DC
Remarks:			

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

7.1 Minimum 6 dB bandwidth

7.1.1 General

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

Table 7.1.1 The 6 dB bandwidth limits

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

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

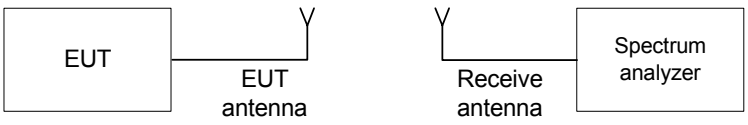
7.1.2 Test procedure

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

7.1.2.2 The EUT was set to transmit modulated carrier.

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

Figure 7.1.1 The 6 dB bandwidth test setup



Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/23/2006 6:00:14 PM		
Temperature: 20ºC	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 3.6 V DC
Remarks:			

Table 7.1.2 The 6 dB bandwidth test results

ASSIGNED FREQUENCY BAND: 902 - 928 MHz
DETECTOR USED: Peak
SWEEP MODE: Single
SWEEP TIME: Auto
RESOLUTION BANDWIDTH: 100 kHz
VIDEO BANDWIDTH: 300 kHz
MODULATION ENVELOPE REFERENCE POINTS: 6.0 dBc

MODULATION: PSK
MODULATING SIGNAL: PRBS
BIT RATE: 60 kBps

Carrier frequency, MHz	6 dB bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
Low frequency				
905.437	1010	500.0	510	Pass
Mid frequency				
916.300	1015	500.0	515	Pass
High frequency				
923.546	1020	500.0	520	Pass

MODULATION: FSK
MODULATING SIGNAL: PRBS
BIT RATE: 120 kBps

Carrier frequency, MHz	6 dB bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
Low frequency				
905.437	830	500.0	330	Pass
Mid frequency				
916.300	765	500.0	265	Pass
High frequency				
923.546	780	500.0	280	Pass

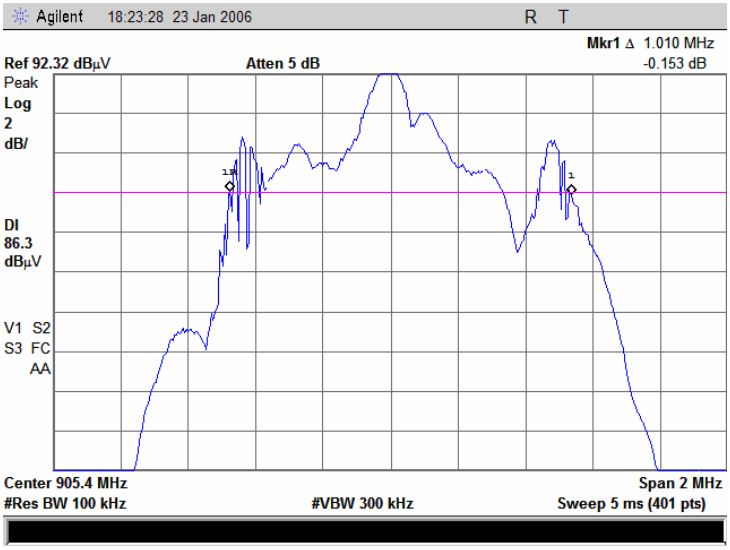
Reference numbers of test equipment used

HL 1474	HL 2780							

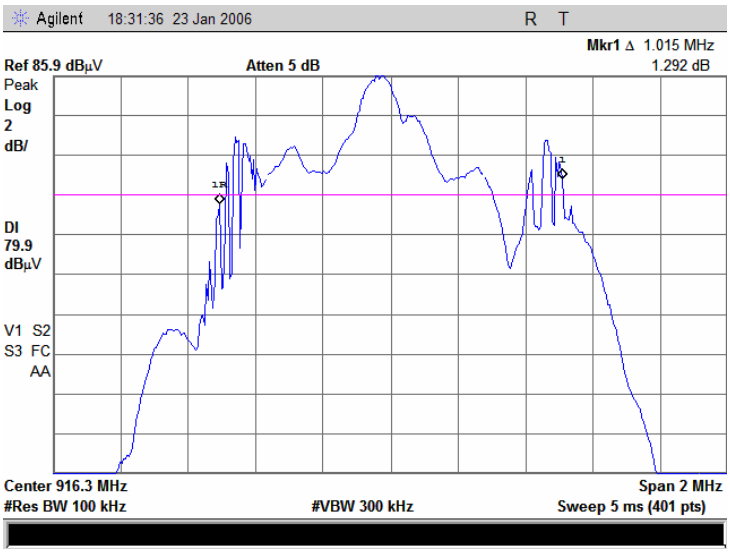
Full description is given in Appendix A.

Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/23/2006 6:00:14 PM		
Temperature: 20ºC	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.1.1 The 6 dB bandwidth test result at low frequency, PSK modulation

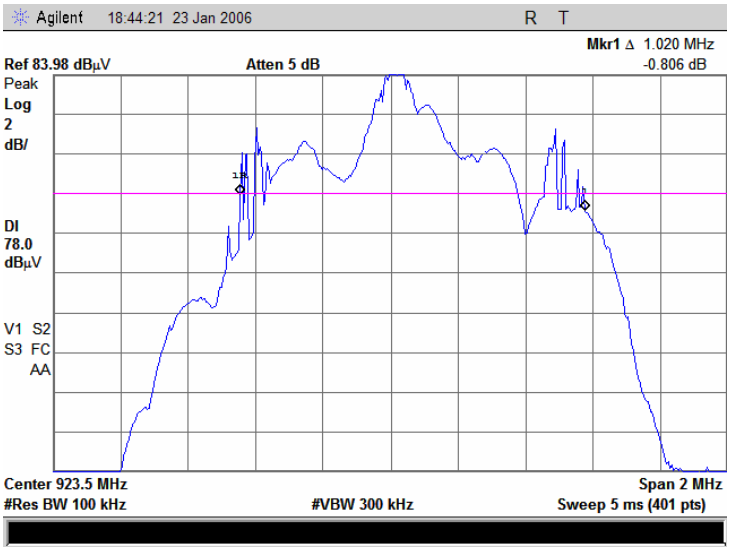


Plot 7.1.2 The 6 dB bandwidth test result at mid frequency, PSK modulation



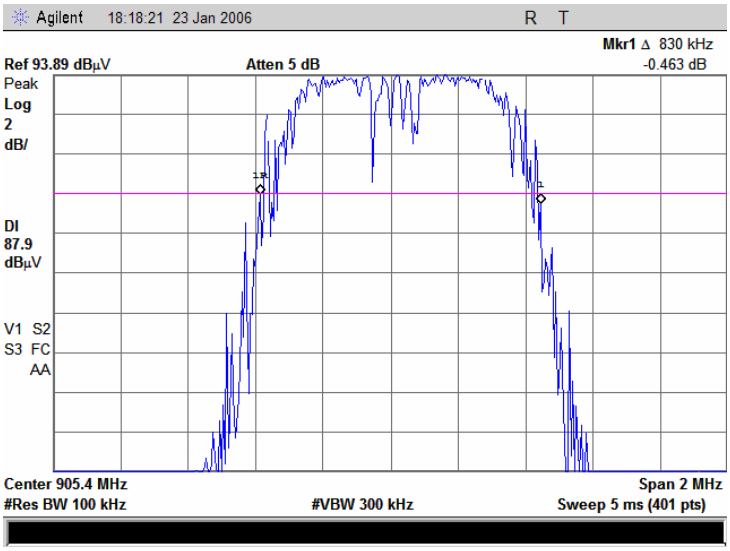
Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/23/2006 6:00:14 PM		
Temperature: 20ºC	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.1.3 The 6 dB bandwidth test result at high frequency, PSK modulation

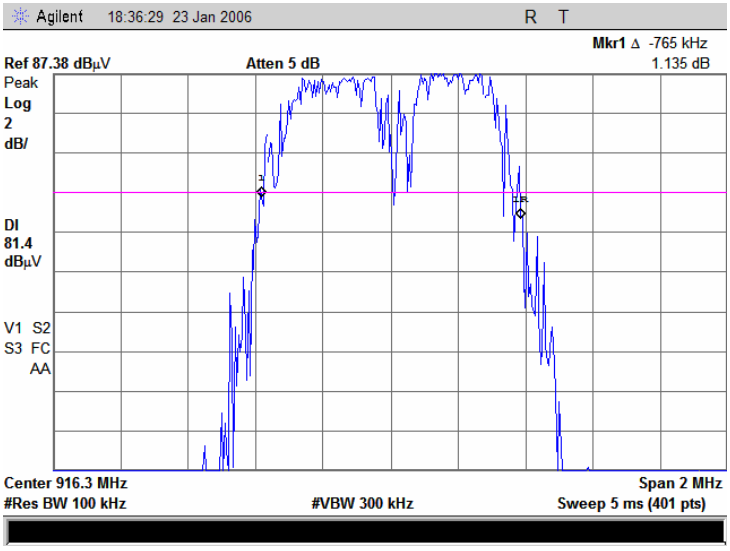


Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/23/2006 6:00:14 PM		
Temperature: 20ºC	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.1.4 The 6 dB bandwidth test result at low frequency, FSK modulation

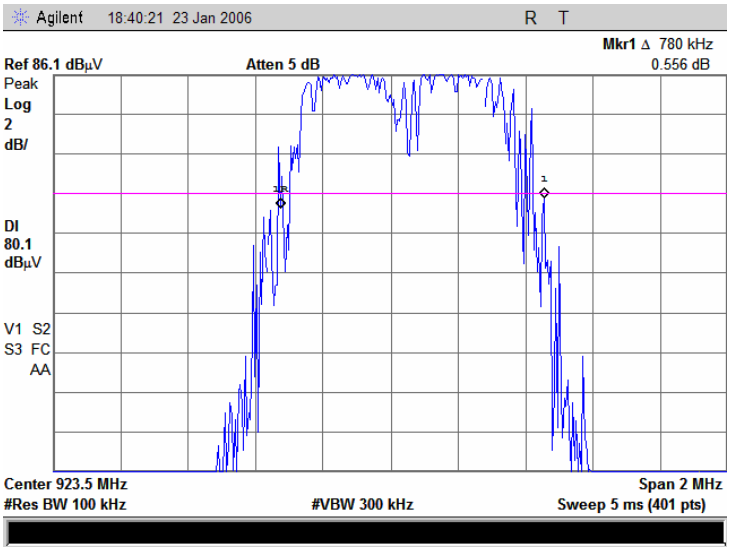


Plot 7.1.5 The 6 dB bandwidth test result at mid frequency, FSK modulation



Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	FR Vol.62, page 26243, Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/23/2006 6:00:14 PM		
Temperature: 20ºC	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.1.6 The 6 dB bandwidth test result at high frequency, FSK modulation



Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/26/2006 2:26:20 PM		
Temperature: 20ºC	Air Pressure: 1015 hPa	Relative Humidity: 45%	Power Supply: 3.6 V DC
Remarks:			

7.2 Peak output power

7.2.1 General

This test was performed to measure the maximum peak output power radiated by transmitter. Specification test limits are given in Table 7.2.1.

Table 7.2.1 Peak output power limits

Assigned frequency range, MHz	Maximum antenna gain, dBi	Peak output power*		Equivalent field strength limit @ 3m, dB(μV/m)**
		W	dBm	
902.0 – 928.0	5.0	1.0	30.0	131.2

*- The limit is provided in terms of conducted RF power at the antenna connector. 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.

**- Equivalent field strength limit was calculated from the peak output power as follows: E=sqrt(30×P×G)/r, where P is peak output power in Watts, r is antenna to EUT distance in meters and G is transmitter antenna gain in dBi.

7.2.2 Test procedure

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

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

7.2.2.3 The resolution bandwidth of spectrum analyzer was set wider than 6 dB bandwidth of the EUT and the field strength of the EUT carrier frequency was measured with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360^0 and the measuring antenna height was swept in both vertical and horizontal polarizations.

7.2.2.4 The maximum field strength of the EUT carrier frequency was measured as provided in Table 7.2.2 and associated plots.

7.2.2.5 The maximum peak output power was calculated from the field strength of carrier as follows:

$$P = (E \times d)^2 / (30 \times G),$$

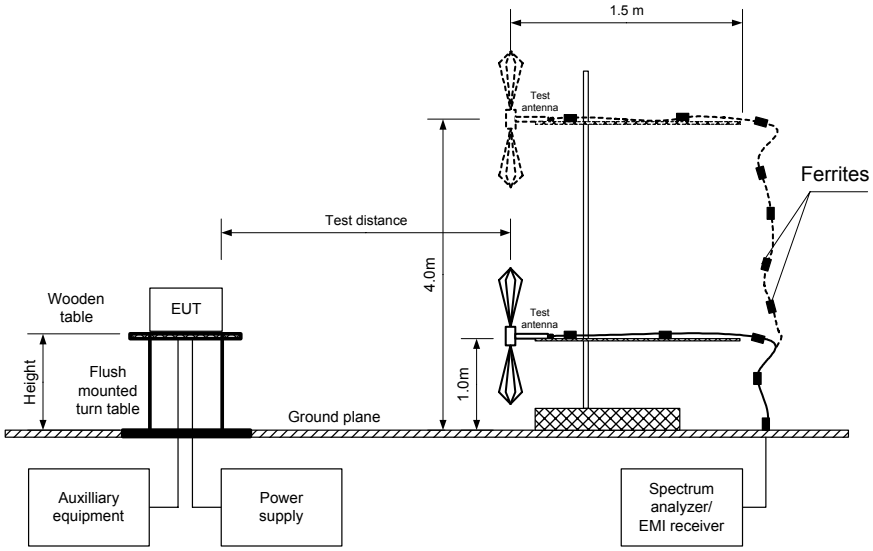
where P is the peak output power in W, E is the field strength in V/m, d is the test distance and G is the transmitter numeric antenna gain over an isotropic radiator.
The above equation was converted in logarithmic units for 3 m test distance:

Peak output power in dBm = Field strength in dB(μV/m) - Transmitter antenna gain in dBi – 95.2 dB

7.2.2.6 The worst test results (the lowest margins) were recorded in Table 7.2.2.

Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/26/2006 2:26:20 PM		
Temperature: 20ºC	Air Pressure: 1015 hPa	Relative Humidity: 45%	Power Supply: 3.6 V DC
Remarks:			

Figure 7.2.1 Setup for carrier field strength measurements



Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/26/2006 2:26:20 PM		
Temperature: 20ºC	Air Pressure: 1015 hPa	Relative Humidity: 45%	Power Supply: 3.6 V DC
Remarks:			

Table 7.2.2 Peak output power test results

ASSIGNED FREQUENCY: 902 - 928 MHz
TEST DISTANCE: 3 m
TEST SITE: Semi anechoic chamber
EUT HEIGHT: 0.8 m
DETECTOR USED: Peak
TEST ANTENNA TYPE: Biconilog
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
DETECTOR USED: Peak
RESOLUTION BANDWIDTH: 3.0 MHz
VIDEO BANDWIDTH: 3.0 MHz

EUT 6 dB BANDWIDTH: 1.020 MHz
MODULATION: PSK
MODULATING SIGNAL: PRBS
BIT RATE: 60 kBps

Frequency, MHz	Field strength, dB(µV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	EUT antenna gain, dBi	Peak output power, dBm**	Limit, dBm	Margin, dB***	Verdict
905.67	115.88	Vertical	1.0	145	2	18.65	30	-11.35	Pass
916.63	114.60	Vertical	1.0	140	2	17.37	30	-12.63	Pass
923.96	113.50	Vertical	1.0	145	2	16.27	30	-13.73	Pass

EUT 6 dB BANDWIDTH: 0.83 MHz
MODULATION: FSK
MODULATING SIGNAL: PRBS
BIT RATE: 120 kBps

Frequency, MHz	Field strength, dB(µV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	EUT antenna gain, dBi	Peak output power, dBm**	Limit, dBm	Margin, dB***	Verdict
905.65	111.56	Vertical	1.0	144	2	14.33	30	-15.67	Pass
916.48	111.39	Vertical	1.0	144	2	14.16	30	-15.84	Pass
923.70	110.66	Vertical	1.0	150	2	13.43	30	-16.57	Pass

*****- EUT front panel refer to 0 degrees position of turntable.
******- Peak output power was calculated from the field strength of carrier as follows: $P = (E \times d)^2 / (30 \times G)$,
where P is the peak output power in W, E is the field strength in V/m, d is the test distance in meters and G is the transmitter numeric antenna gain over an isotropic radiator. The above equation was converted in logarithmic units for 3 m test distance: *Peak output power in dBm = Field strength in dB(µV/m) - Transmitter antenna gain in dBi – 95.2 dB*
***- Margin = Peak output power – specification limit.

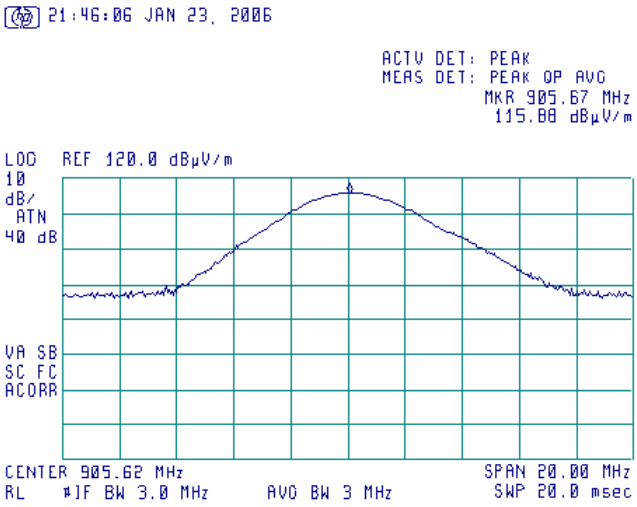
Reference numbers of test equipment used

HL 0521	HL 0589	HL 0604	HL 2009				

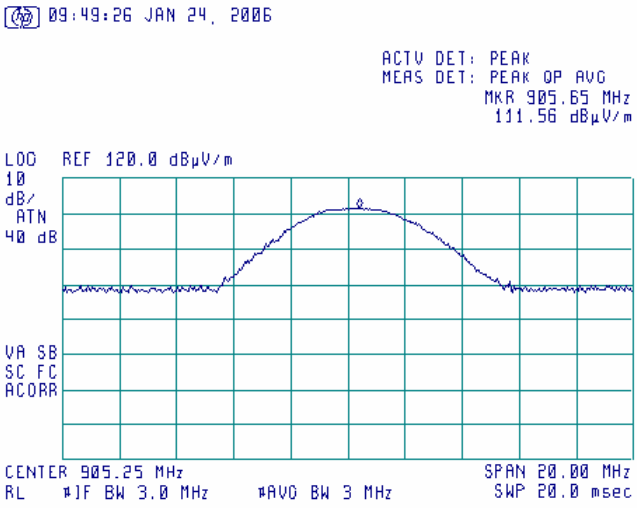
Full description is given in Appendix A.

Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/26/2006 2:26:20 PM		
Temperature: 20ºC	Air Pressure: 1015 hPa	Relative Humidity: 45%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.2.1 Field strength of carrier at low frequency, PSK modulation

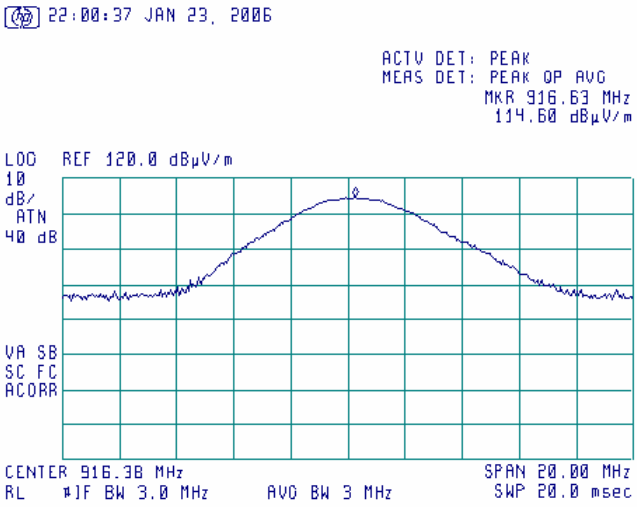


Plot 7.2.2 Field strength of carrier at low frequency, FSK modulation



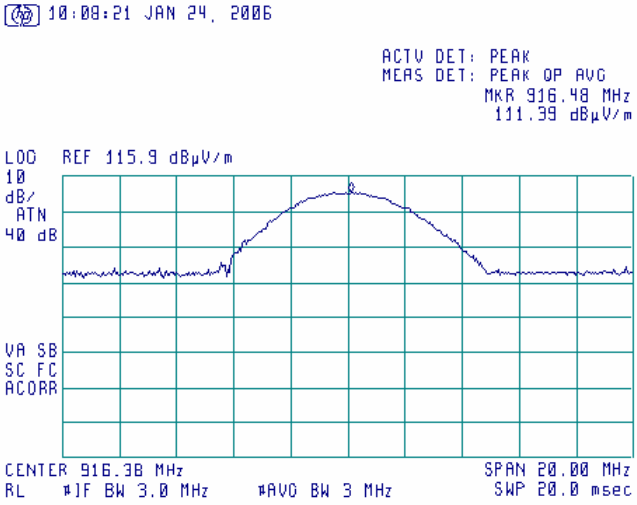
Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/26/2006 2:26:20 PM		
Temperature: 20ºC	Air Pressure: 1015 hPa	Relative Humidity: 45%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.2.3 Field strength of carrier at mid frequency, PSK modulation

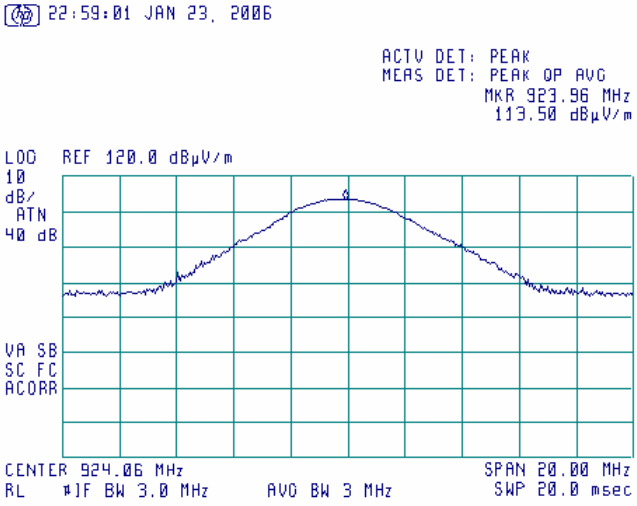


Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/26/2006 2:26:20 PM		
Temperature: 20ºC	Air Pressure: 1015 hPa	Relative Humidity: 45%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.2.4 Field strength of carrier at mid frequency, FSK modulation

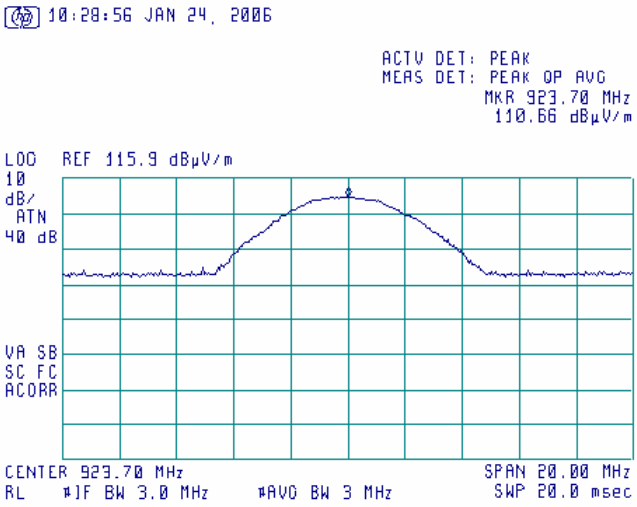


Plot 7.2.5 Field strength of carrier at high frequency, FSK modulation



Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	FR Vol.62, page 26243, Section 15.247(b)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/26/2006 2:26:20 PM		
Temperature: 20ºC	Air Pressure: 1015 hPa	Relative Humidity: 45%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.2.6 Field strength of carrier at high frequency, FSK modulation



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

7.3 Field strength of spurious emissions

7.3.1 General

This test was performed to measure field strength of spurious emissions from the EUT. Specification test limits are given in Table 7.3.1.

Table 7.3.1 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.

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

7.3.2.1 The EUT was set up as shown in Figure 7.3.1, energized and the performance check was conducted.

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

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

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

7.3.3.1 The EUT was set up as shown in Figure 7.3.2, energized and the performance check was conducted.

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

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

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

Figure 7.3.1 Setup for spurious emission field strength measurements below 30 MHz

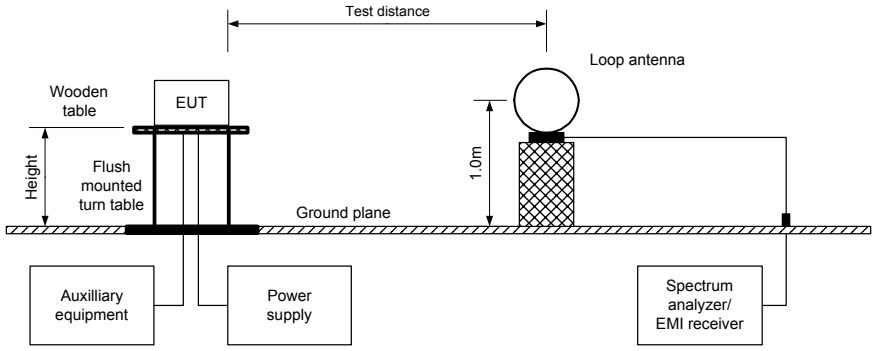
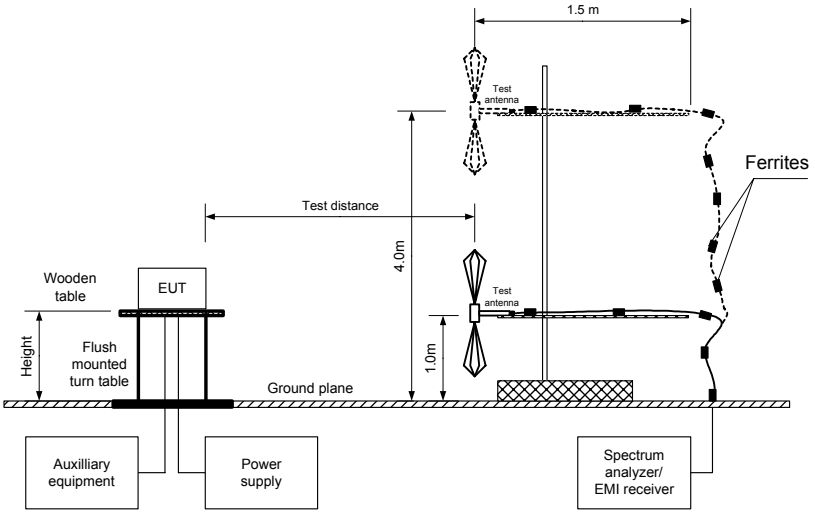


Figure 7.3.2 Setup for spurious emission field strength measurements above 30 MHz



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

Table 7.3.2 Field strength of emissions outside restricted bands

ASSIGNED FREQUENCY:	902-928 MHz
INVESTIGATED FREQUENCY RANGE:	0.009 – 9500 MHz
TEST DISTANCE:	3 m
MODULATION:	PSK
MODULATING SIGNAL:	PRBS
BIT RATE:	60 kBps
DUTY CYCLE:	8.4%
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) Biconical (30 MHz – 200 MHz) Log periodic (200 MHz – 1000 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
Low carrier frequency									
1810.86	73.87	V	1.40	120	114.07	40.20	20.0	20.20	Pass
6337.86	55.83	H	1.10	277		58.24		38.24	
7243.32	59.83	V	1.00	220		54.24		34.24	
Mid carrier frequency									
1832.58	69.55	V	1.40	115	112.69	43.14	20.0	23.14	Pass
5497.85	55.67	H	1.00	216		57.02		37.02	
6413.9	55.50	H	1.00	310		57.19		37.19	
High carrier frequency									
1847.08	68.81	V	1.40	120	111.52	42.71	20.0	22.71	Pass
5541.08	59.33	H	1.20	310		52.19		32.19	
6464.64	55.00	V	1.30	144		56.52		36.52	
9235.11	46.67	V	1.20	99		64.85		44.85	

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

Table 7.3.2 Field strength of emissions outside restricted bands (continued)

MODULATION: FSK
MODULATING SIGNAL: PRBS
BIT RATE: 120 kBps
DUTY CYCLE: 2.47%
TRANSMITTER OUTPUT POWER SETTINGS: Maximum

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
Low carrier frequency									
1810.87	75.39	H	1.90	17	110.90	35.51	20.0	15.51	Pass
6339.36	56.17	H	1.00	280		54.73		34.73	
7243.55	55.50	V	1.20	180		55.40		35.40	
Mid carrier frequency									
1832.57	70.69	V	1.40	115	110.64	39.95	20.0	19.95	Pass
5497.72	53.83	H	1.10	220		56.81		36.81	
6415.15	54.33	V	1.20	140		56.31		36.31	
High carrier frequency									
1846.66	71.74	V	1.40	120	110.03	38.29	20.0	18.29	Pass
5541.19	56.67	H	1.00	310		53.36		33.36	
6463.91	53.17	V	1.30	144		56.86		36.86	
9235.18	50.33	V	1.10	100		59.70		39.70	

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

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

Table 7.3.3 Field strength of spurious emissions above 1 GHz within restricted bands

ASSIGNED FREQUENCY:	902-928MHz
INVESTIGATED FREQUENCY RANGE:	1000 -9500MHz
TEST DISTANCE:	3 m
MODULATION:	PSK
MODULATING SIGNAL:	PRBS
BIT RATE:	60 kbps
DUTY CYCLE:	8.4%
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=300Hz)				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											
2716.21	H	1.8	240	66.00	74.00	-8.00	51.89	30.38	54.00	-23.62	Pass
3621.62	H	1.1	127	61.17	74.00	-12.83	49.00	27.49	54.00	-26.51	
4526.47	H	1.0	122	53.83	74.00	-20.17	37.33	15.82	54.00	-38.16	
5432.79	H	1.2	110	62.33	74.00	-11.67	49.33	27.82	54.00	-26.18	
8148.67	V	1.2	201	58.33	74.00	-15.67	48.33	26.82	54.00	-27.18	
9053.94	V	1.0	120	57.17	74.00	-16.83	42.50	20.99	54.00	-33.01	
Mid carrier frequency											
2748.93	H	1.8	260	68.35	74.00	-5.65	53.61	32.10	54.00	-21.90	Pass
3664.70	H	1.0	133	59.50	74.00	-14.50	53.67	32.16	54.00	-21.84	
4581.37	H	1.1	123	56.00	74.00	-18.00	42.83	21.32	54.00	-32.68	
7330.32	V	1.3	178	61.67	74.00	-12.33	50.33	28.82	54.00	-25.18	
8246.52	V	1.2	296	60.00	74.00	-14.00	52.67	31.16	54.00	-22.84	
9162.63	V	1.0	95	54.83	74.00	-19.17	45.33	23.82	54.00	-30.18	
High carrier frequency											
2770.64	H	1.8	240	69.78	74.00	-4.22	54.62	33.11	54.00	-20.89	Pass
3694.07	H	1.1	130	55.33	74.00	-18.67	50.83	29.32	54.00	-24.68	
4617.43	H	1.2	122	54.83	74.00	-19.17	42.17	20.66	54.00	-33.34	
7388.59	V	1.1	180	61.83	74.00	-12.17	48.17	26.66	54.00	-27.34	
8311.42	V	1.0	126	54.83	74.00	-19.17	47.00	25.49	54.00	-28.51	

*****- 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.

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

Table 7.3.3 Field strength of spurious emissions above 1 GHz within restricted bands (continued)

MODULATION: FSK
MODULATING SIGNAL: PRBS
BIT RATE: 120 kbps
DUTY CYCLE: 2.47%
TRANSMITTER OUTPUT POWER SETTINGS: Maximum

Frequency, MHz	Antenna		Azimuth, degrees*	Peak field strength(VBW=3 MHz)			Average field strength(VBW=1kHz)				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											
2716.86	H	1.8	236	67.01	74.00	-6.99	50.76	18.64	54.00	-35.36	Pass
3622.49	H	1.1	127	56.67	74.00	-17.33	46.00	13.88	54.00	-40.12	
4528.17	H	1.0	122	50.50	74.00	-23.50	36.17	4.05	54.00	-49.95	
5432.72	H	1.2	110	57.67	74.00	-16.33	42.67	10.55	54.00	-43.45	
8146.59	V	1.2	201	51.50	74.00	-22.50	40.83	8.71	54.00	-45.29	
9056.18	V	1.0	120	54.67	74.00	-19.33	43.00	10.88	54.00	-43.12	
Mid carrier frequency											
2749.93	H	1.8	240	68.79	74.00	-5.21	50.30	18.18	54.00	-35.82	Pass
3664.08	H	1.0	133	55.33	74.00	-18.67	47.67	15.55	54.00	-38.45	
4580.27	H	1.1	123	53.50	74.00	-20.50	38.00	5.88	54.00	-48.12	
7328.60	V	1.3	178	57.17	74.00	-16.83	48.33	16.21	54.00	-37.79	
8249.15	V	1.2	296	54.17	74.00	-19.83	44.33	12.21	54.00	-41.79	
9165.63	V	1.0	95	50.67	74.00	-23.33	39.67	7.55	54.00	-46.45	
High carrier frequency											
2769.91	H	1.8	266	69.05	74.00	-4.95	52.92	20.80	54.00	-33.20	Pass
3693.42	H	1.1	130	56.17	74.00	-17.83	47.17	15.05	54.00	-38.95	
4618.32	H	1.2	122	53.67	74.00	-20.33	40.50	8.38	54.00	-45.62	
7386.43	V	1.1	180	57.00	74.00	-17.00	45.33	13.21	54.00	-40.79	
8309.75	V	1.0	126	55.00	74.00	-19.00	44.17	12.05	54.00	-41.95	

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

Table 7.3.4 Average factor calculation

Transmission burst		Transmission train duration, ms	Average factor, dB
Duration, ms	Period, ms		
PSK modulated signal			
4.2	79.108	continuous	-21.51
FSK modulated signal			
1.238	79.629	continuous	-32.12

*- Average factor was calculated as follows

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

AF = 20 log {1 x 4.2/100 x 2} = -21.51 dB (PSK)
AF = 20 log {1 x 1.238/100 x 2} = -32.12 dB (PSK)

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

Table 7.3.5 Field strength of spurious emissions below 1 GHz within restricted bands

ASSIGNED FREQUENCY:	902-928 MHz
INVESTIGATED FREQUENCY RANGE:	0.009 – 1000 MHz
TEST DISTANCE:	3 m
MODULATION:	FSK / PSK
MODULATING SIGNAL:	PRBS
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) Biconical (30 MHz – 200 MHz) Log periodic (200 MHz – 1000 MHz) Biconilog (30 MHz – 1000 MHz)

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

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

Table 7.3.6 Restricted bands

MHz	MHz	MHz	MHz	MHz	GHz
0.09 - 0.11	8.37625 - 8.38675	73 - 74.6	399.9 - 410	2655 - 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

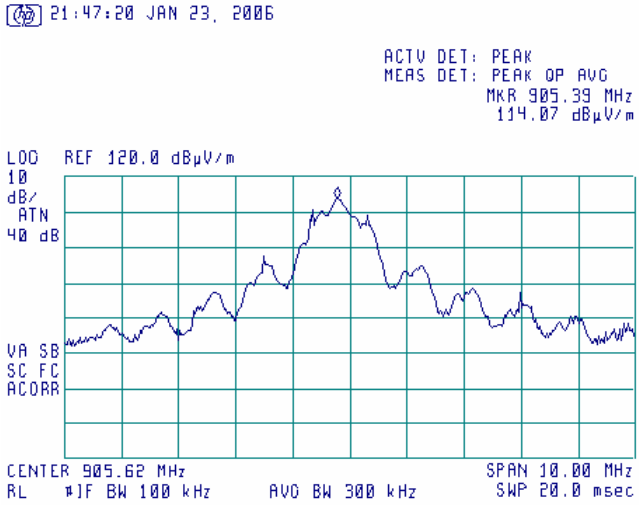
HL 0287	HL 0410	HL 0446	HL 0465	HL 0521	HL 0589	HL 0593	HL 0594
HL 0604	HL 0813	HL 1004	HL 1200	HL 1424	HL 1430	HL 1552	HL 1848
HL 1941	HL 1947	HL 1984	HL 2009	HL 2254	HL 2259	HL 2387	HL 2499

Full description is given in Appendix A.

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

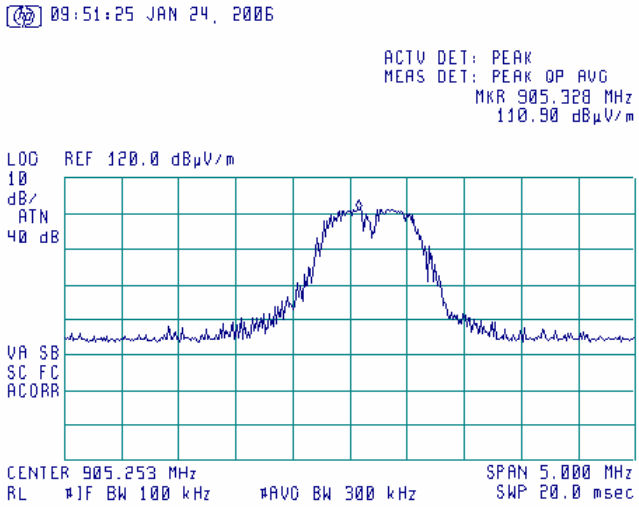
Plot 7.3.1 Radiated emission measurements at the low carrier frequency

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



Plot 7.3.2 Radiated emission measurements at the low carrier frequency

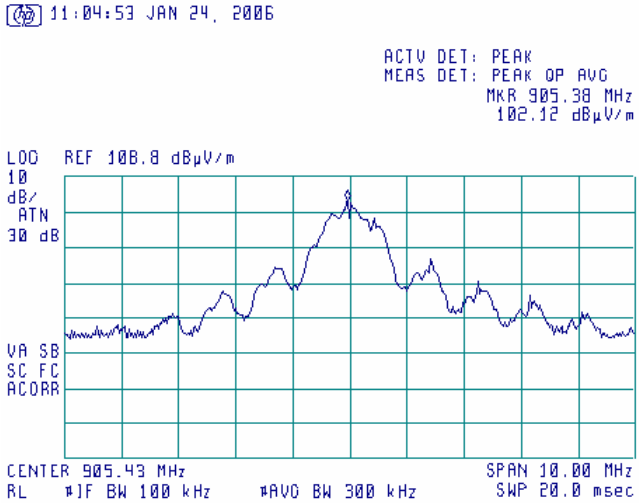
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

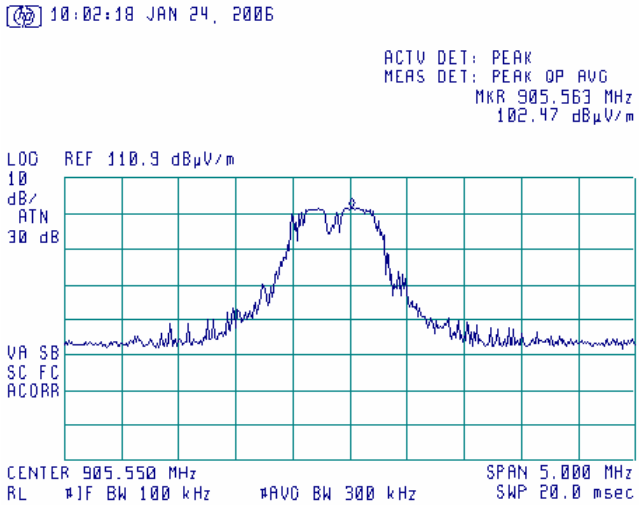
Plot 7.3.3 Radiated emission measurements at the low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Horizontal
MODULATION: PSK



Plot 7.3.4 Radiated emission measurements at the low carrier frequency

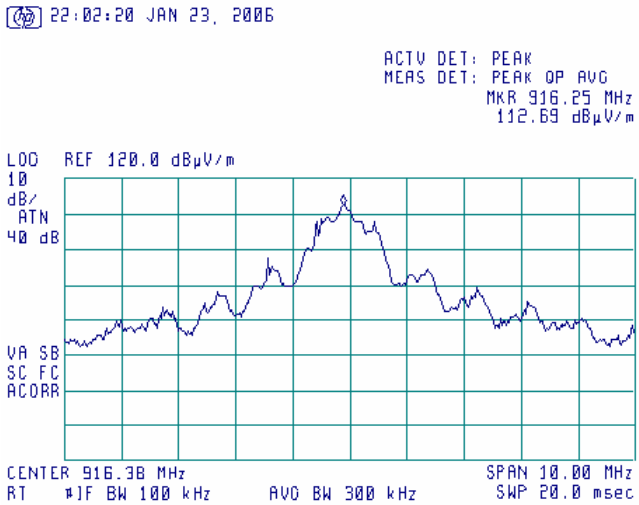
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Horizontal
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

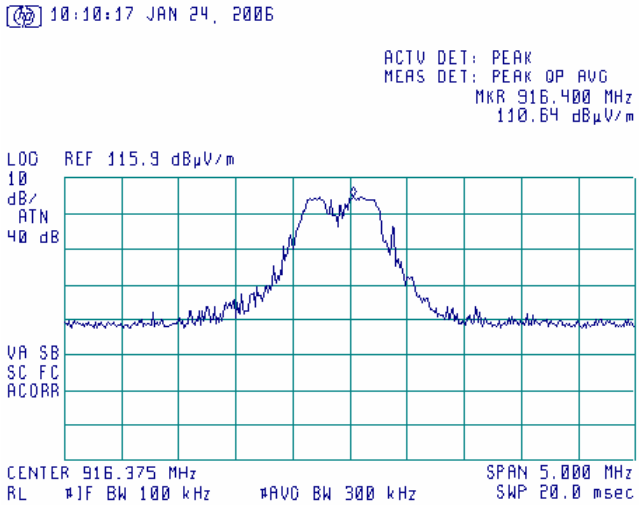
Plot 7.3.5 Radiated emission measurements at the mid carrier frequency

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



Plot 7.3.6 Radiated emission measurements at the mid carrier frequency

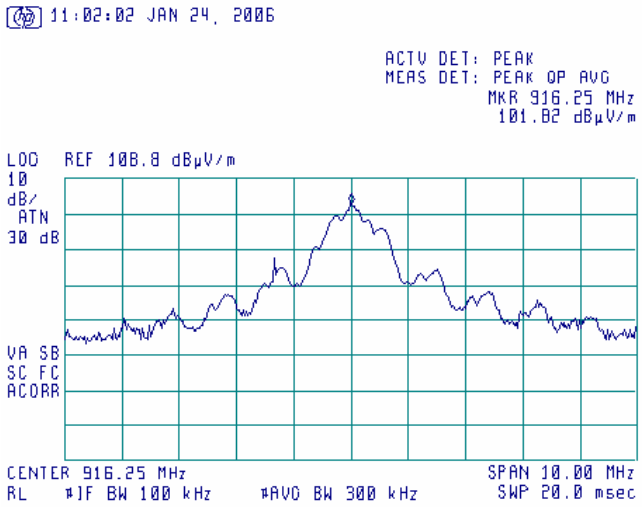
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

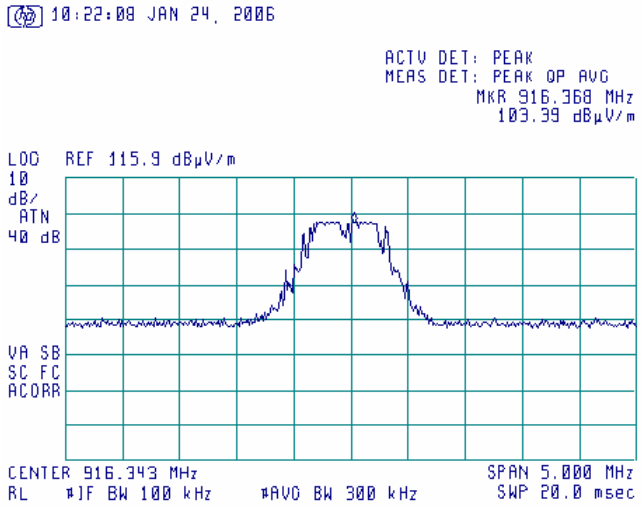
Plot 7.3.7 Radiated emission measurements at the mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Horizontal
MODULATION: PSK



Plot 7.3.8 Radiated emission measurements at the mid carrier frequency

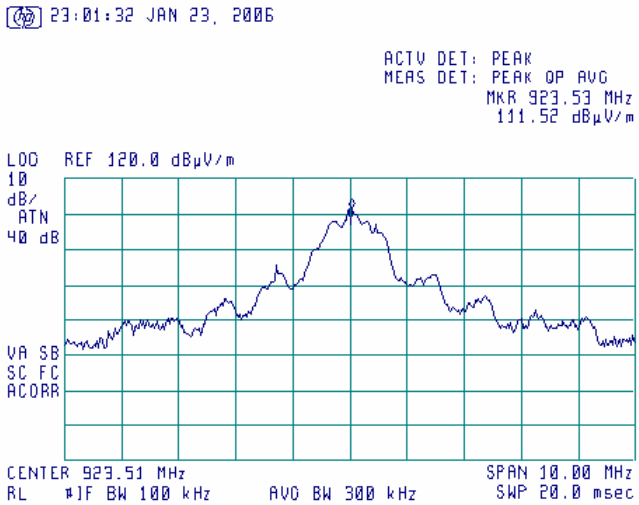
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Horizontal
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

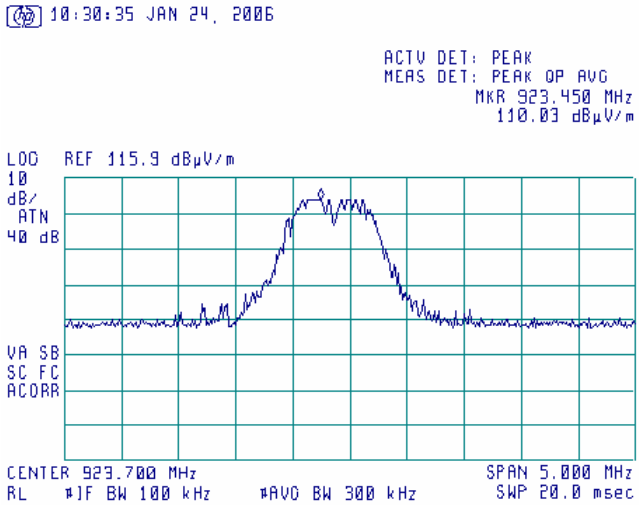
Plot 7.3.9 Radiated emission measurements at the high carrier frequency

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



Plot 7.3.10 Radiated emission measurements at the high carrier frequency

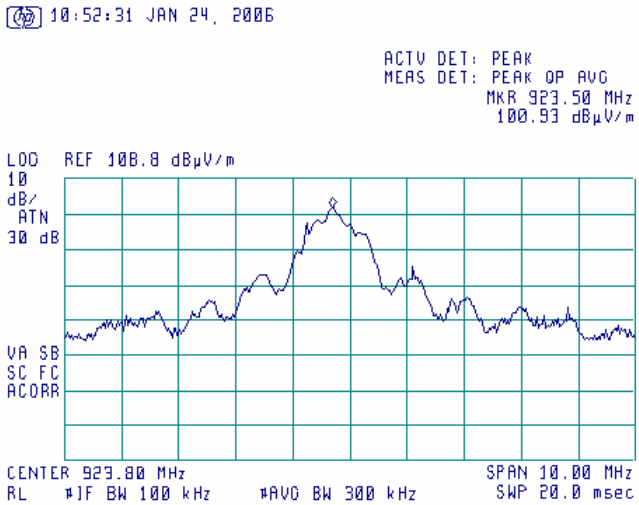
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

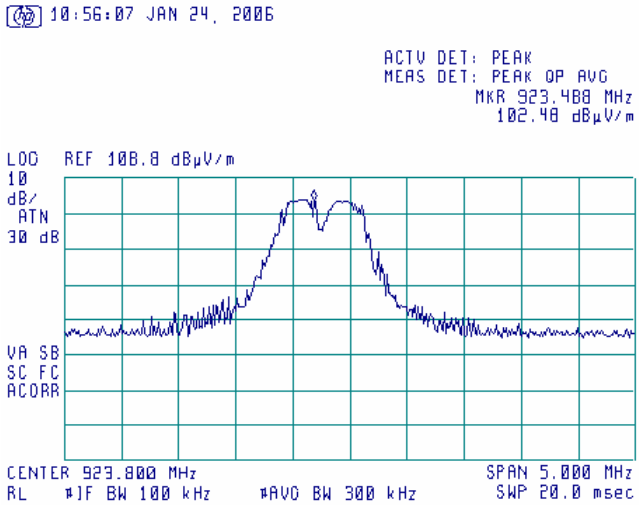
Plot 7.3.11 Radiated emission measurements at the high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Horizontal
MODULATION: PSK



Plot 7.3.12 Radiated emission measurements at the high carrier frequency

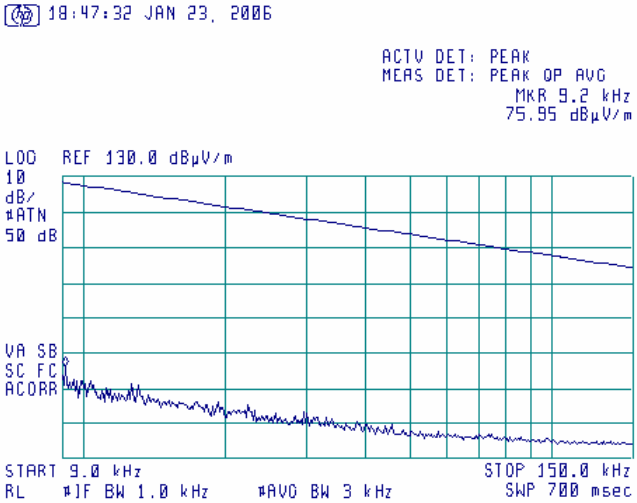
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Horizontal
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

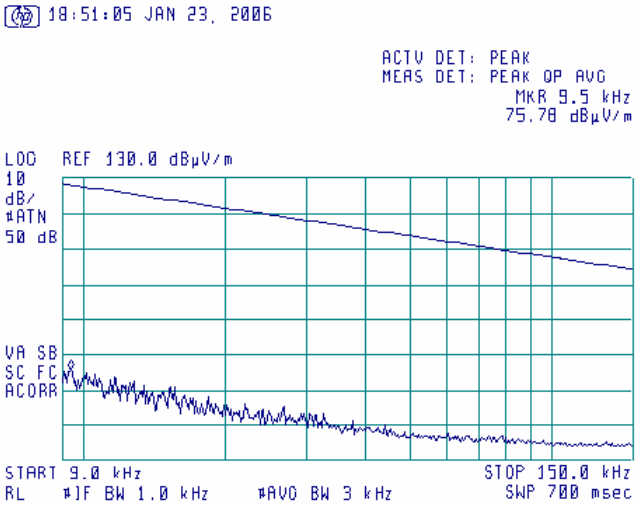
Plot 7.3.13 Radiated emission measurements from 9 to 150 kHz at the low carrier frequency

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



Plot 7.3.14 Radiated emission measurements from 9 to 150 kHz at the low carrier frequency

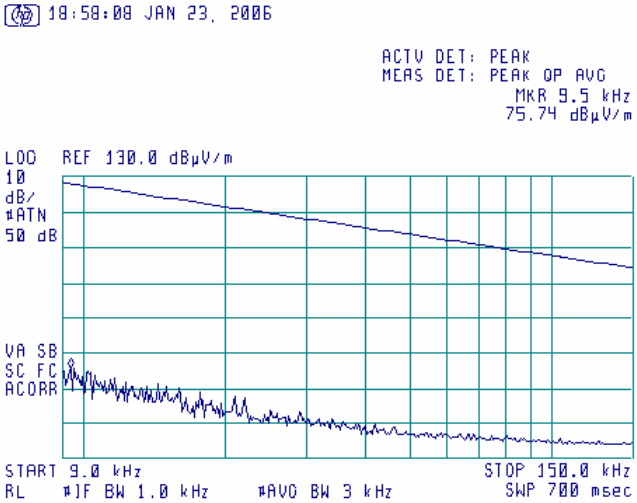
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

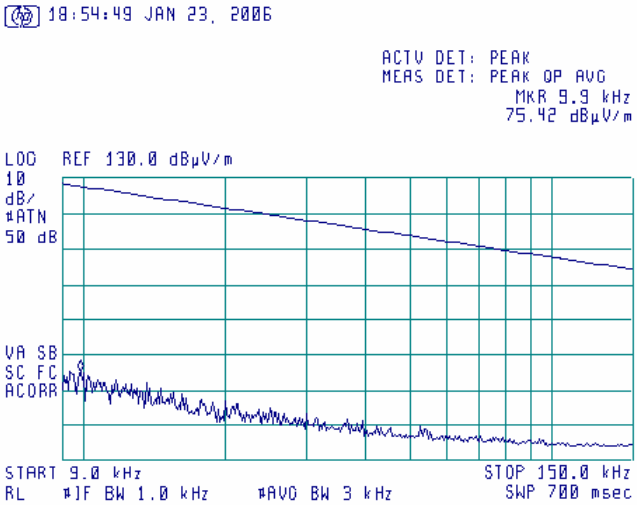
Plot 7.3.15 Radiated emission measurements from 9 to 150 kHz at the mid carrier frequency

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



Plot 7.3.16 Radiated emission measurements from 9 to 150 kHz at the mid carrier frequency

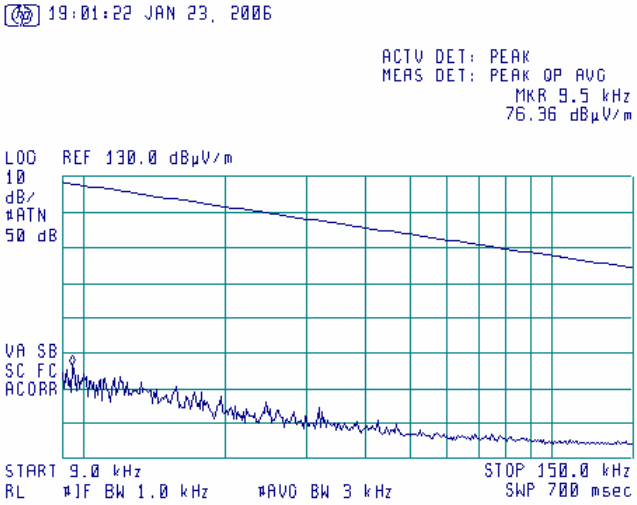
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

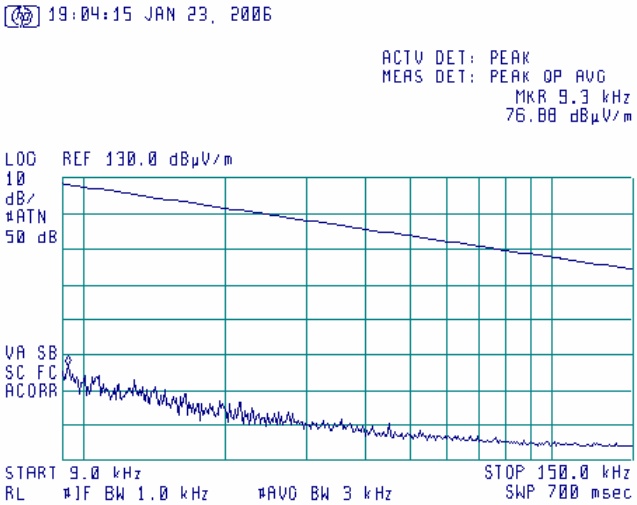
Plot 7.3.17 Radiated emission measurements from 9 to 150 kHz at the high carrier frequency

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



Plot 7.3.18 Radiated emission measurements from 9 to 150 kHz at the high carrier frequency

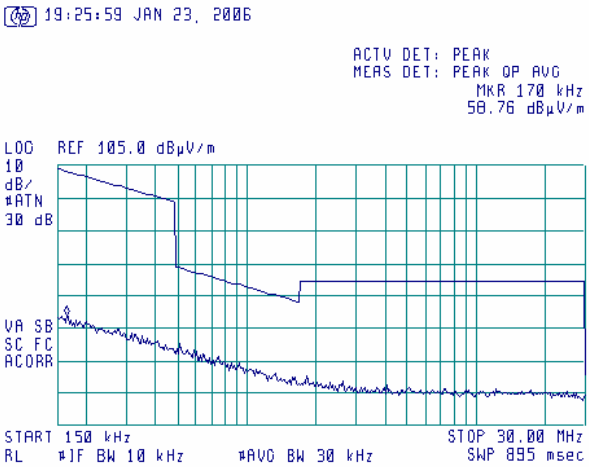
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

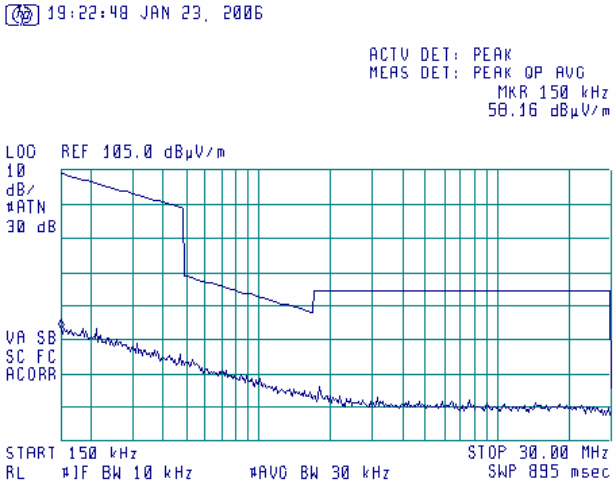
Plot 7.3.19 Radiated emission measurements from 0.15 to 30 MHz at the low carrier frequency

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



Plot 7.3.20 Radiated emission measurements from 0.15 to 30 MHz at the low carrier frequency

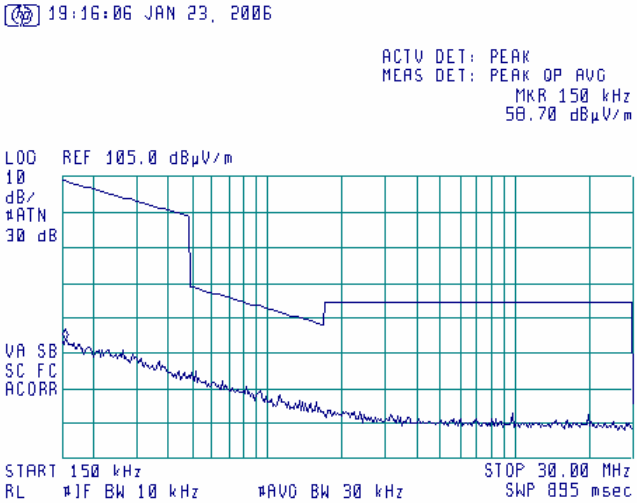
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

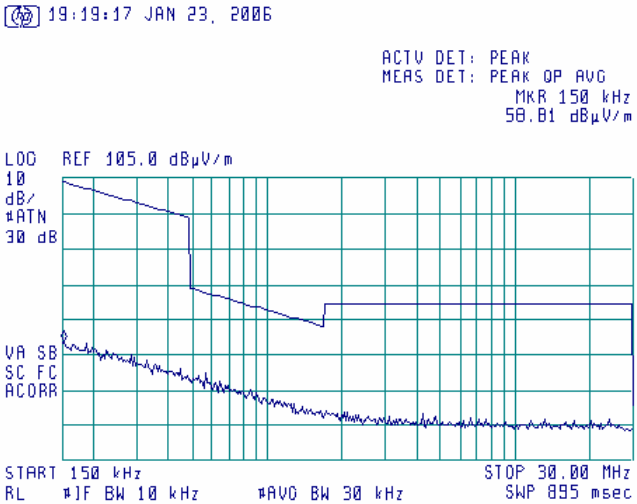
Plot 7.3.21 Radiated emission measurements from 0.15 to 30 MHz at the mid carrier frequency

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



Plot 7.3.22 Radiated emission measurements from 0.15 to 30 MHz at the mid carrier frequency

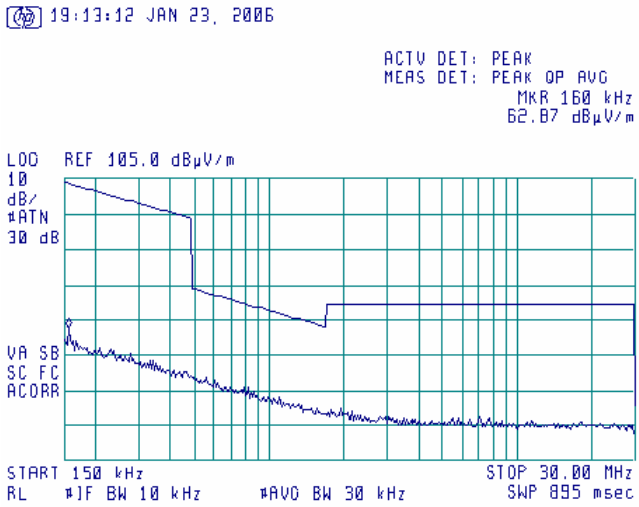
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

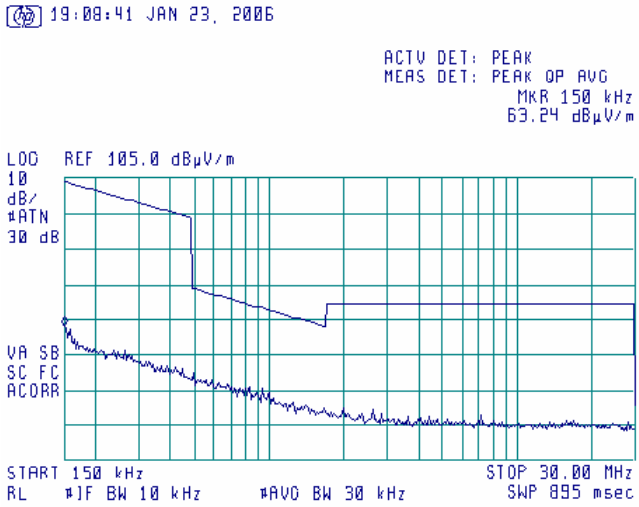
Plot 7.3.23 Radiated emission measurements from 0.15 to 30 MHz at the high carrier frequency

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



Plot 7.3.24 Radiated emission measurements from 0.15 to 30 MHz at the high carrier frequency

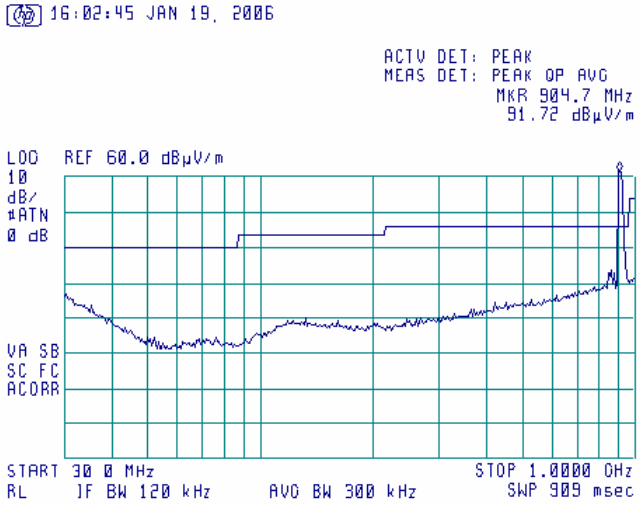
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

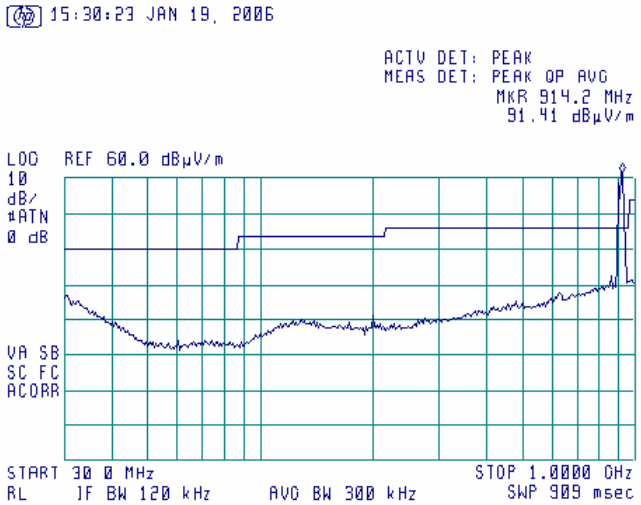
Plot 7.3.25 Radiated emission measurements from 30 to 1000 MHz at the low carrier frequency

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



Plot 7.3.26 Radiated emission measurements from 30 to 1000 MHz at the mid carrier frequency

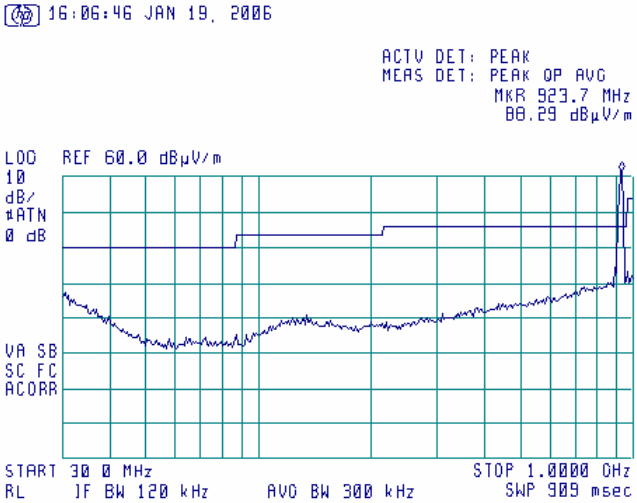
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

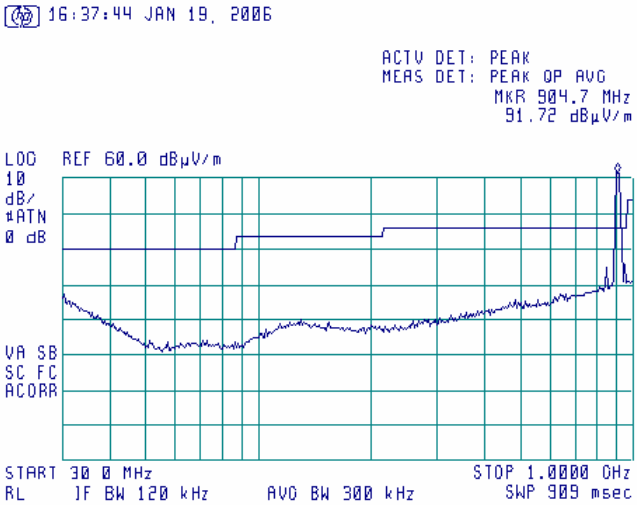
Plot 7.3.27 Radiated emission measurements from 30 to 1000 MHz at the high carrier frequency

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



Plot 7.3.28 Radiated emission measurements from 30 to 1000 MHz at the low carrier frequency

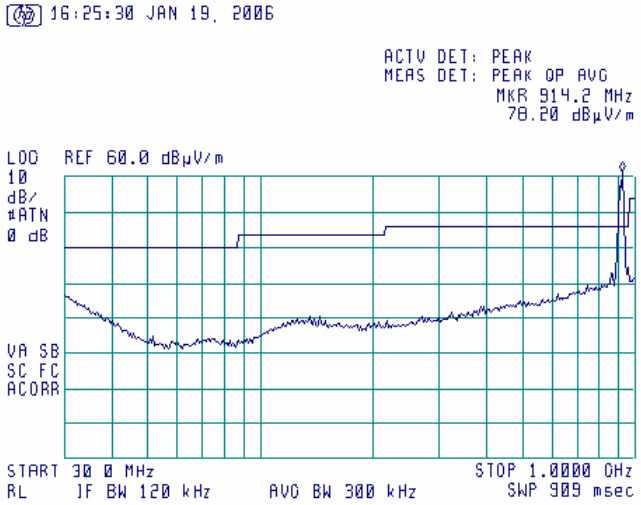
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

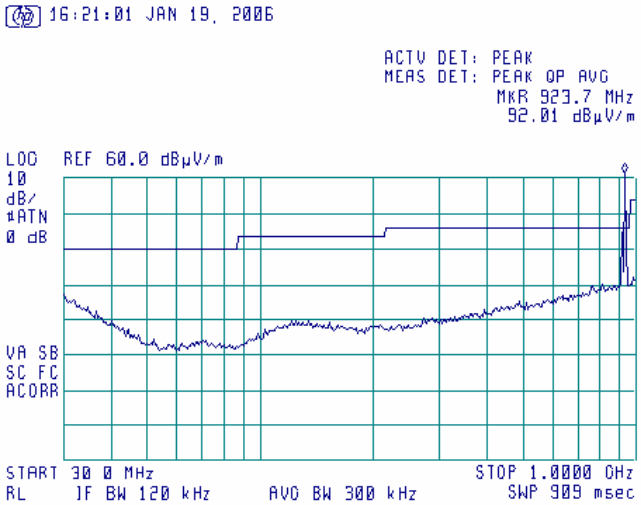
Plot 7.3.29 Radiated emission measurements from 30 to 1000 MHz at the mid carrier frequency

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



Plot 7.3.30 Radiated emission measurements from 30 to 1000 MHz at the high carrier frequency

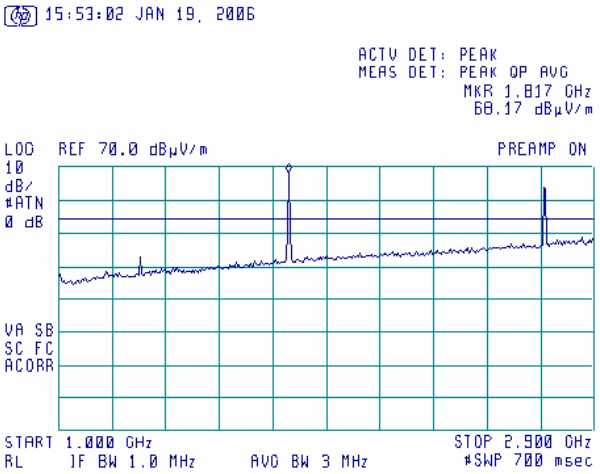
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

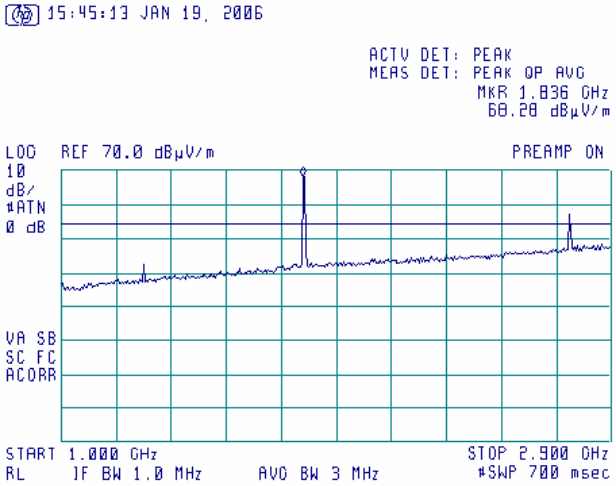
Plot 7.3.31 Radiated emission measurements from 1000 to 2900 MHz at the low carrier frequency

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



Plot 7.3.32 Radiated emission measurements from 1000 to 2900 MHz at the mid carrier frequency

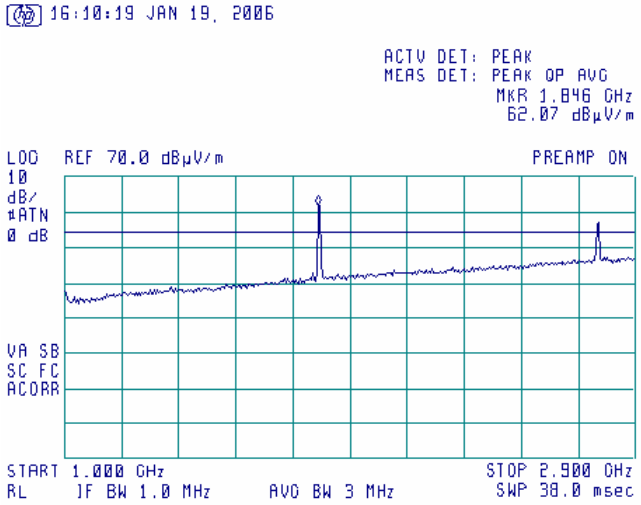
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

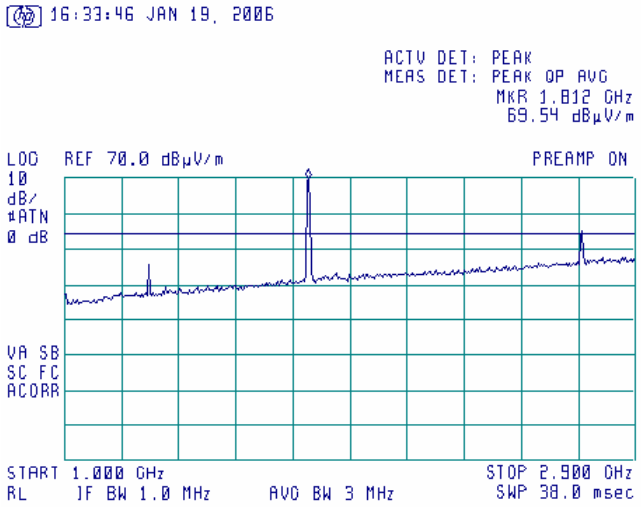
Plot 7.3.33 Radiated emission measurements from 1000 to 2900 MHz at the high carrier frequency

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



Plot 7.3.34 Radiated emission measurements from 1000 to 2900 MHz at the low carrier frequency

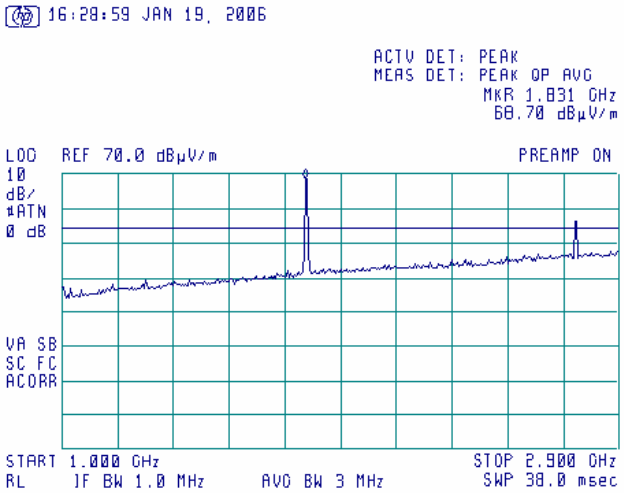
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

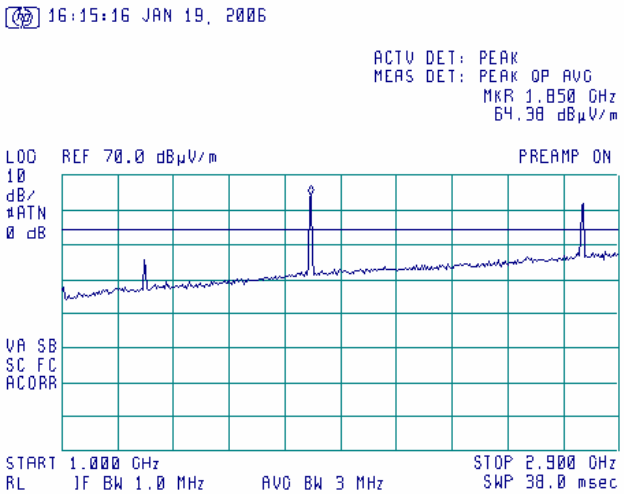
Plot 7.3.35 Radiated emission measurements from 1000 to 2900 MHz at the mid carrier frequency

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



Plot 7.3.36 Radiated emission measurements from 1000 to 2900 MHz at the high carrier frequency

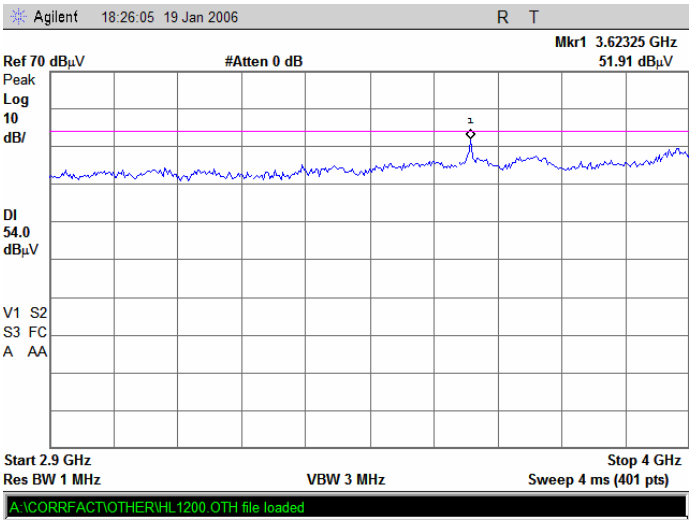
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

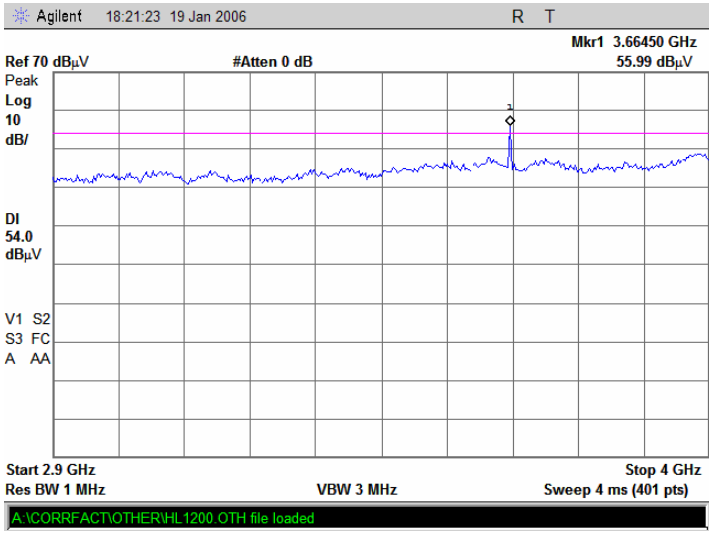
Plot 7.3.37 Radiated emission measurements from 2900 to 4000 MHz at the low carrier frequency

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



Plot 7.3.38 Radiated emission measurements from 2900 to 4000 MHz at the mid carrier frequency

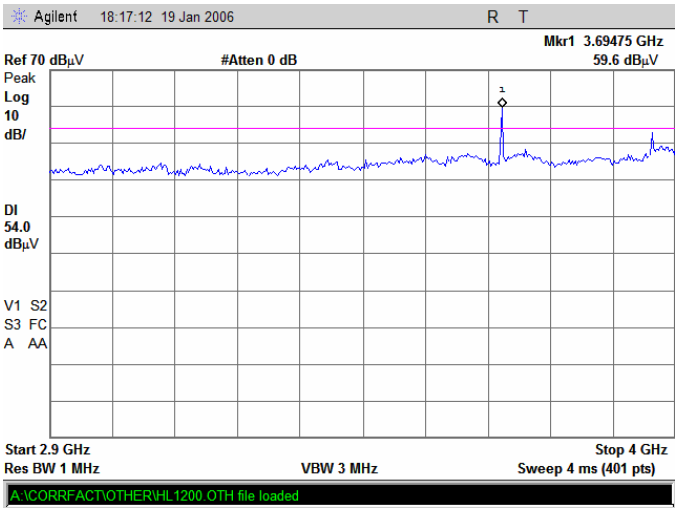
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

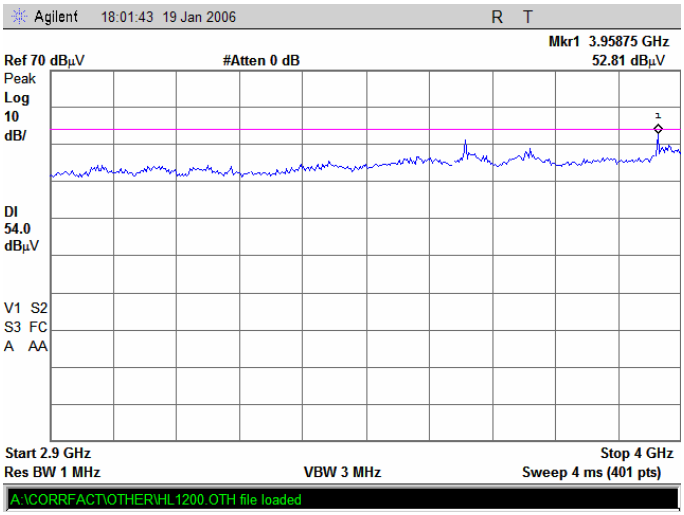
Plot 7.3.39 Radiated emission measurements from 2900 to 4000 MHz at the high carrier frequency

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



Plot 7.3.40 Radiated emission measurements from 2900 to 4000 MHz at the low carrier frequency

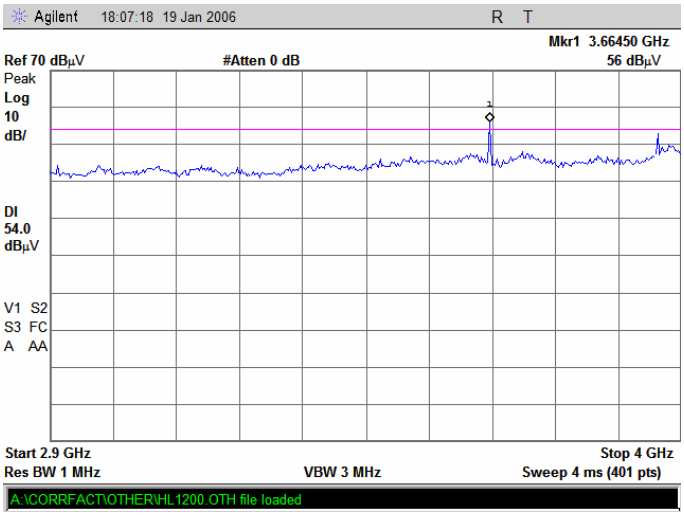
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

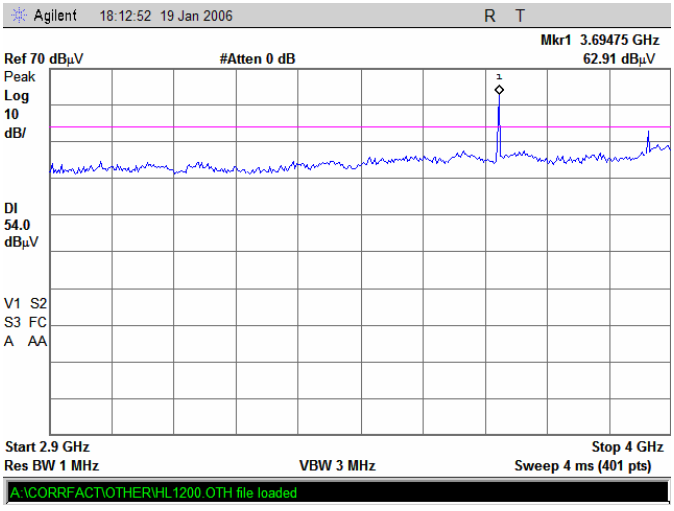
Plot 7.3.41 Radiated emission measurements from 2900 to 4000 MHz at the mid carrier frequency

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



Plot 7.3.42 Radiated emission measurements from 2900 to 4000 MHz at the high carrier frequency

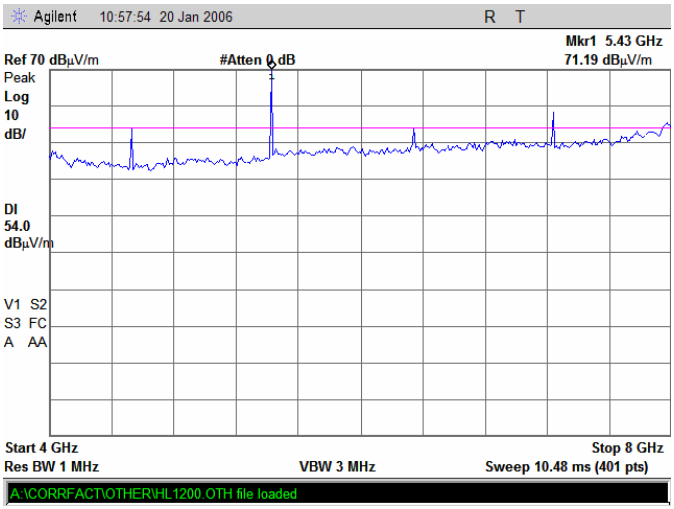
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

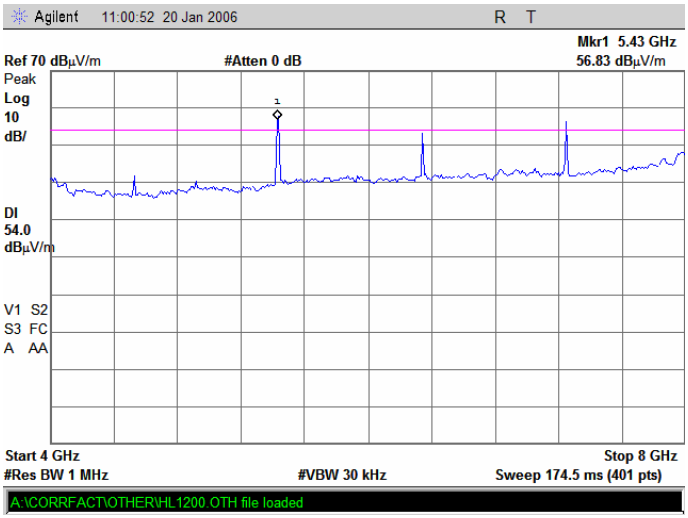
Plot 7.3.43 Radiated emission measurements from 4000 to 8000 MHz at the low carrier frequency

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



Plot 7.3.44 Radiated emission measurements from 4000 to 8000 MHz at the low carrier frequency

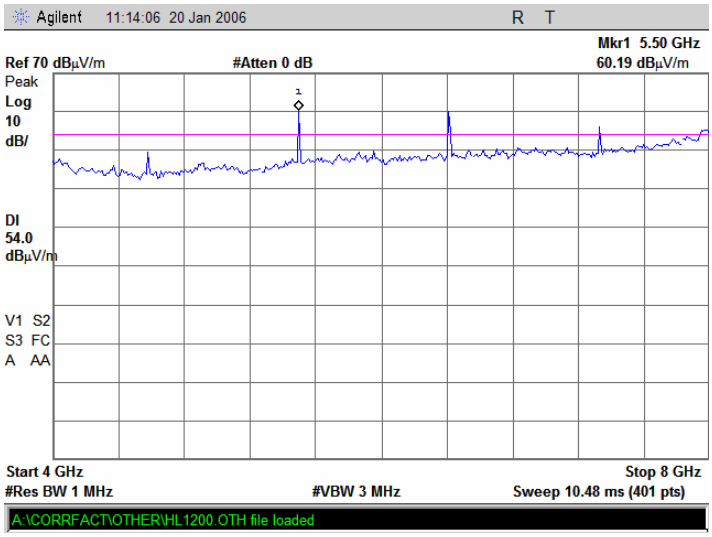
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

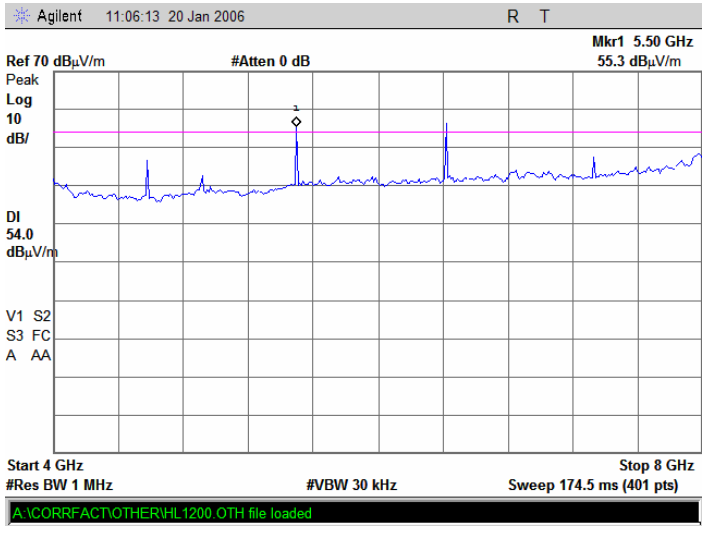
Plot 7.3.45 Radiated emission measurements from 4000 to 8000 MHz at the mid carrier frequency

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



Plot 7.3.46 Radiated emission measurements from 4000 to 8000 MHz at the mid carrier frequency

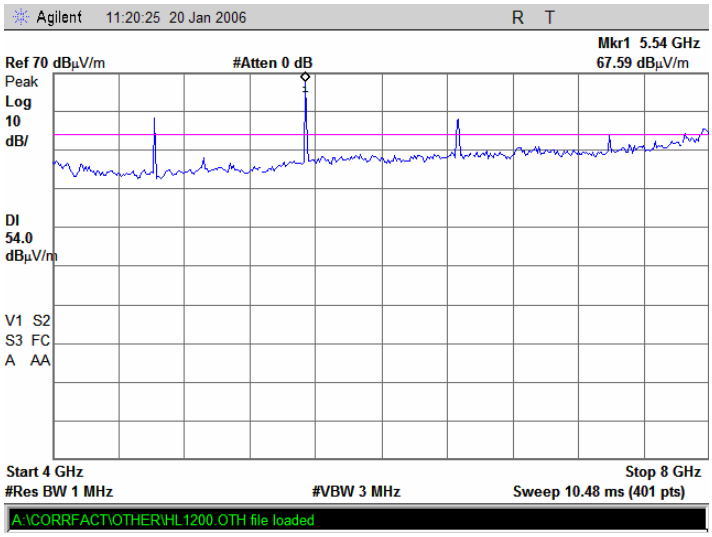
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

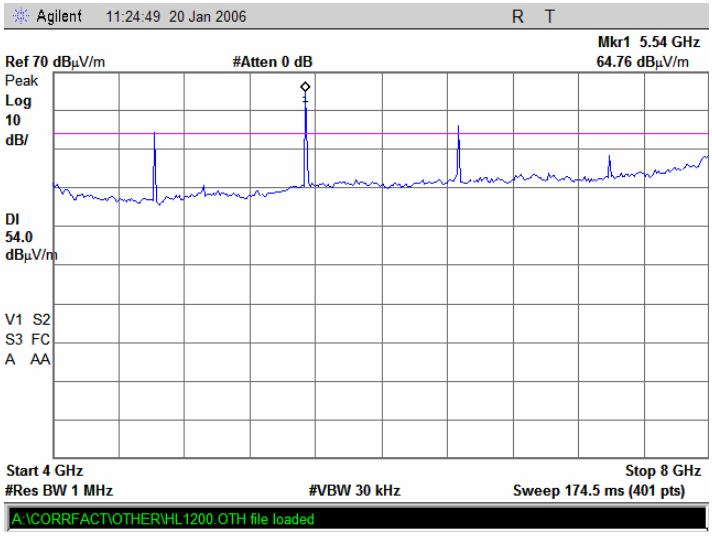
Plot 7.3.47 Radiated emission measurements from 4000 to 8000 MHz at the high carrier frequency

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



Plot 7.3.48 Radiated emission measurements from 4000 to 8000 MHz at the high carrier frequency

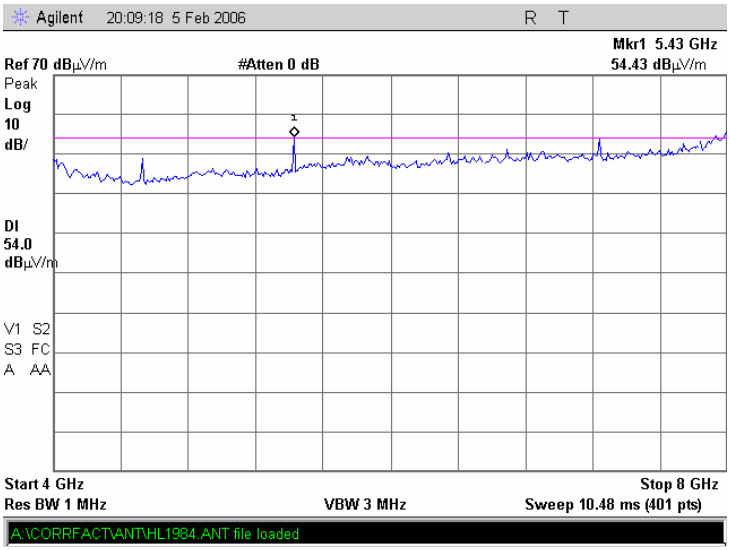
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

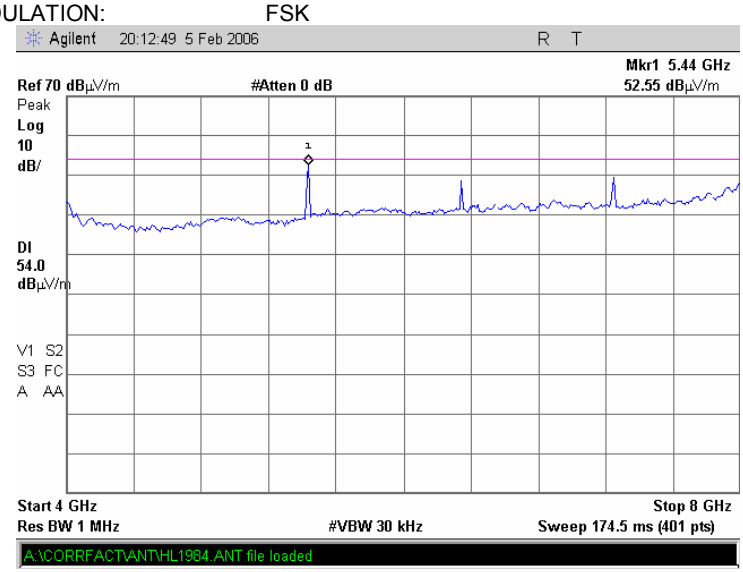
Plot 7.3.49 Radiated emission measurements from 4000 to 8000 MHz at the low carrier frequency

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



Plot 7.3.50 Radiated emission measurements from 4000 to 8000 MHz at the low carrier frequency

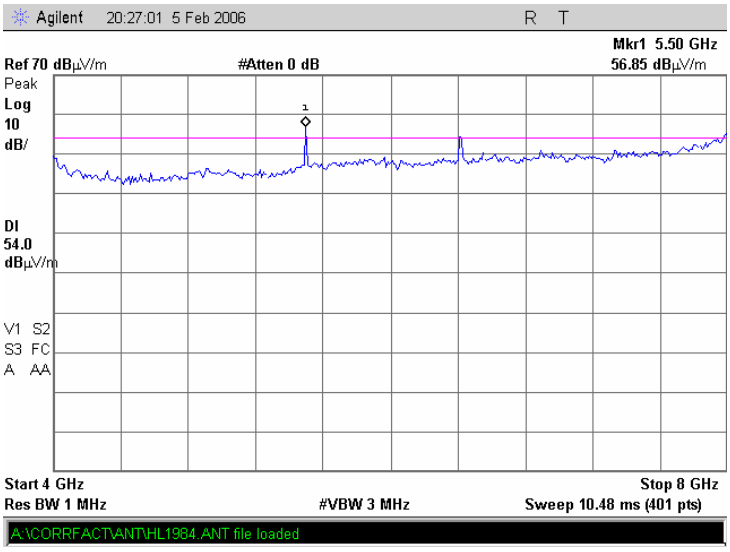
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

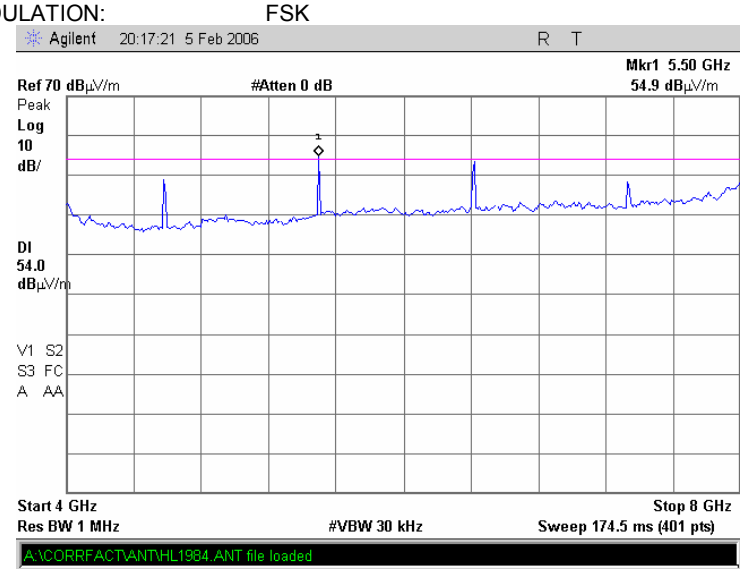
Plot 7.3.51 Radiated emission measurements from 4000 to 8000 MHz at the mid carrier frequency

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



Plot 7.3.52 Radiated emission measurements from 4000 to 8000 MHz at the mid carrier frequency

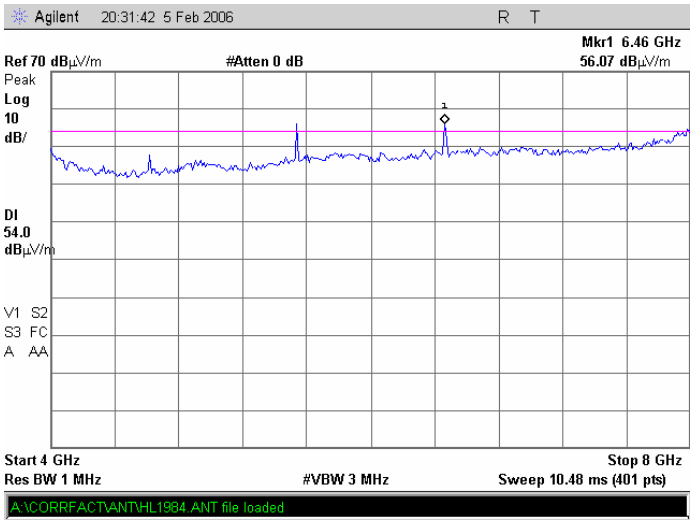
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

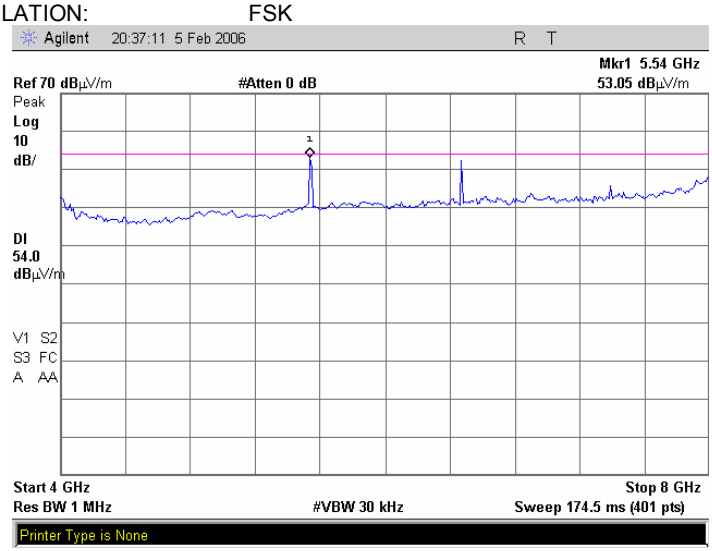
Plot 7.3.53 Radiated emission measurements from 4000 to 8000 MHz at the high carrier frequency

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



Plot 7.3.54 Radiated emission measurements from 4000 to 8000 MHz at the high carrier frequency

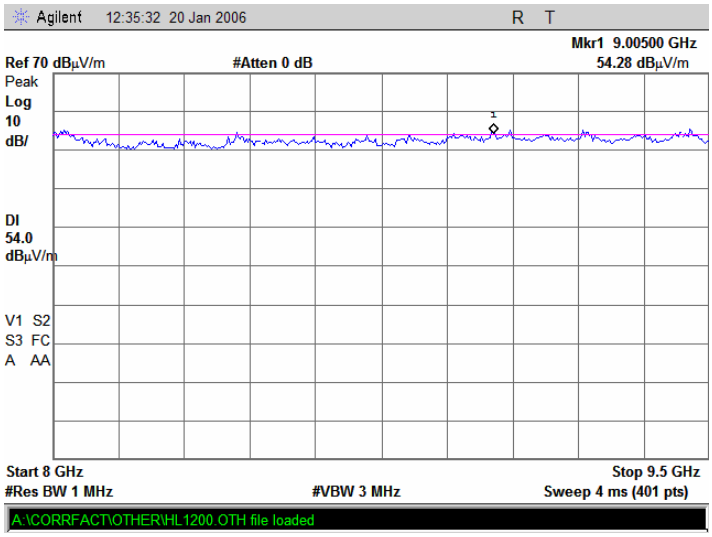
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

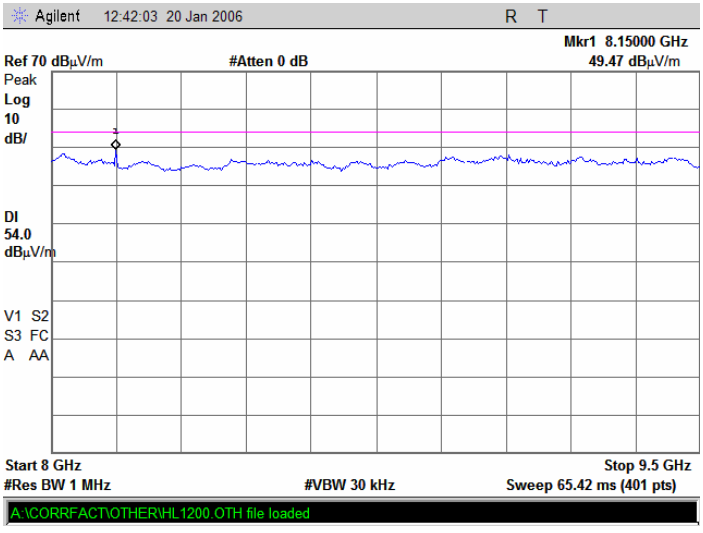
Plot 7.3.55 Radiated emission measurements from 8000 to 9500 MHz at the low carrier frequency

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



Plot 7.3.56 Radiated emission measurements from 8000 to 9500 MHz at the low carrier frequency

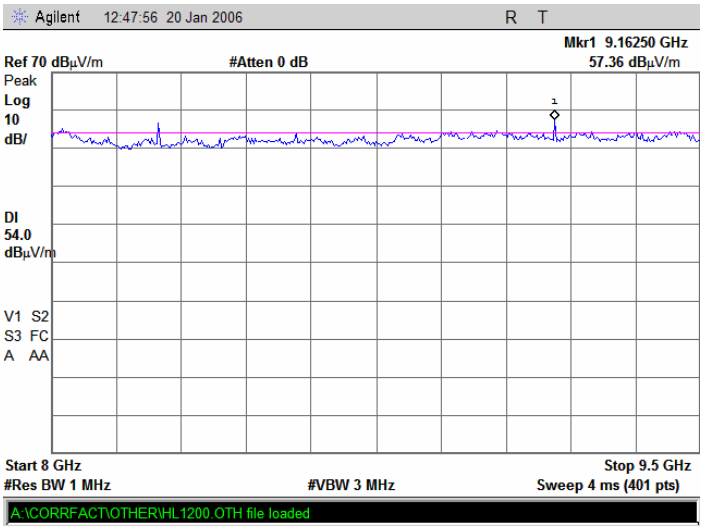
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

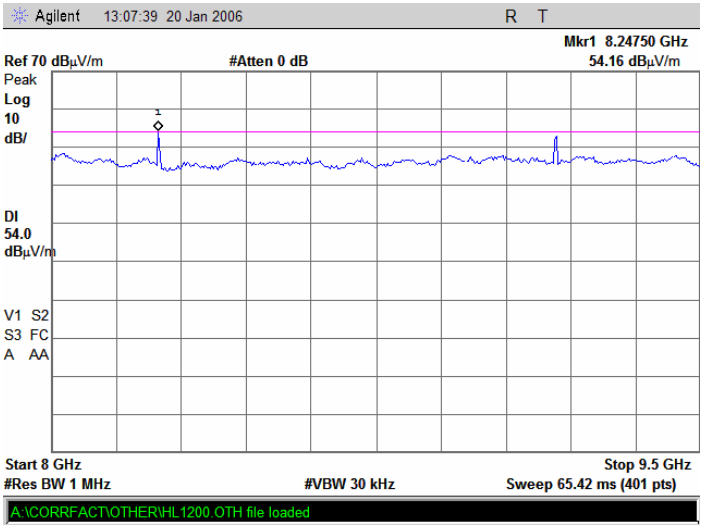
Plot 7.3.57 Radiated emission measurements from 8000 to 9500 MHz at the mid carrier frequency

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



Plot 7.3.58 Radiated emission measurements from 8000 to 9500 MHz at the mid carrier frequency

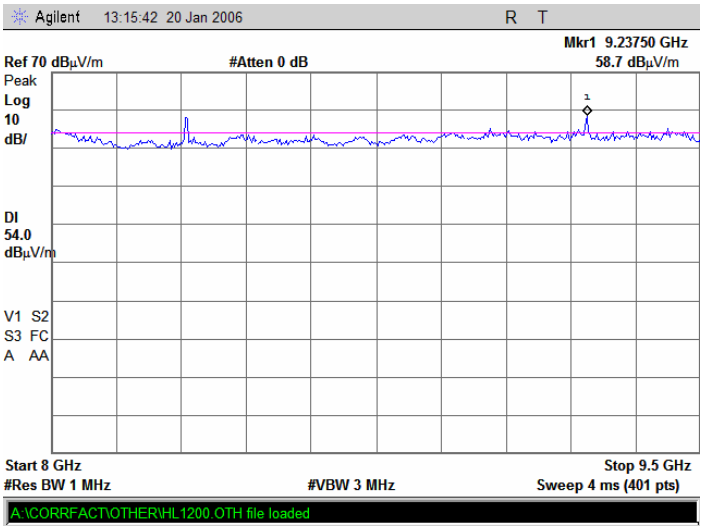
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

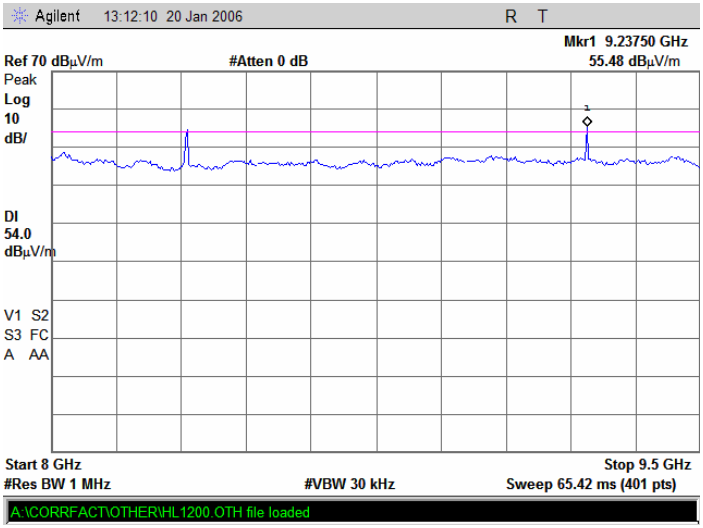
Plot 7.3.59 Radiated emission measurements from 8000 to 9500 MHz at the high carrier frequency

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



Plot 7.3.60 Radiated emission measurements from 8000 to 9500 MHz at the high carrier frequency

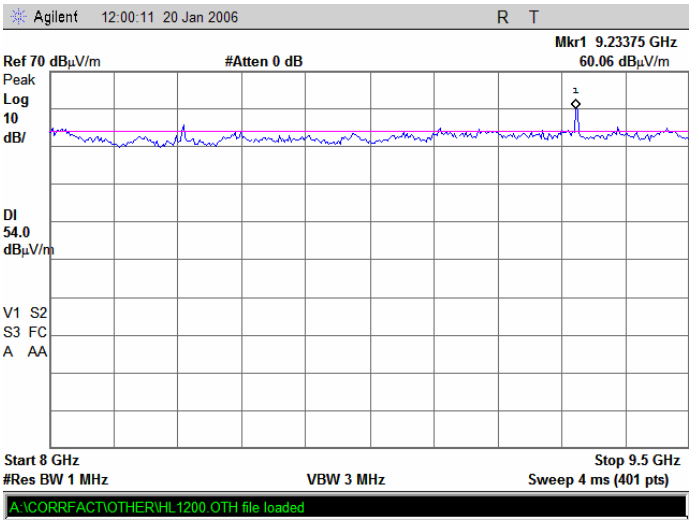
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

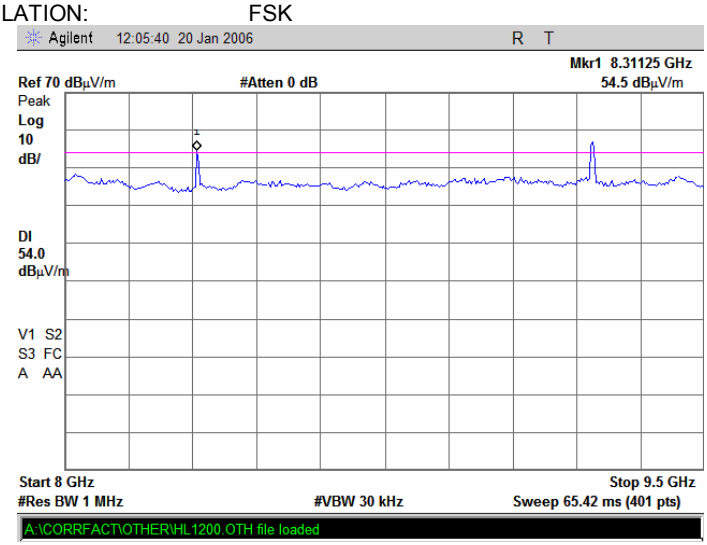
Plot 7.3.61 Radiated emission measurements from 8000 to 9500 MHz at the low carrier frequency

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



Plot 7.3.62 Radiated emission measurements from 8000 to 9500 MHz at the low carrier frequency

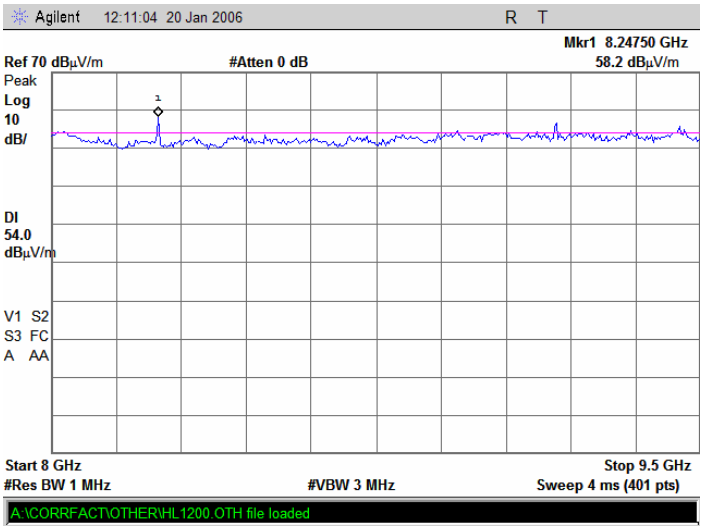
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

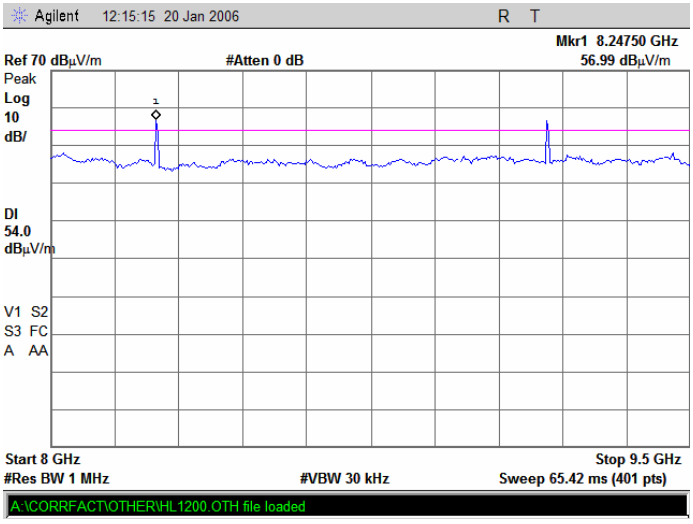
Plot 7.3.63 Radiated emission measurements from 8000 to 9500 MHz at the mid carrier frequency

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



Plot 7.3.64 Radiated emission measurements from 8000 to 9500 MHz at the mid carrier frequency

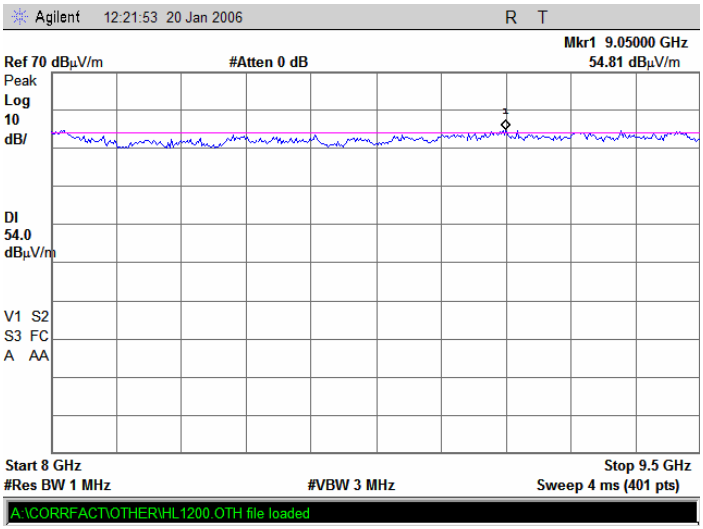
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

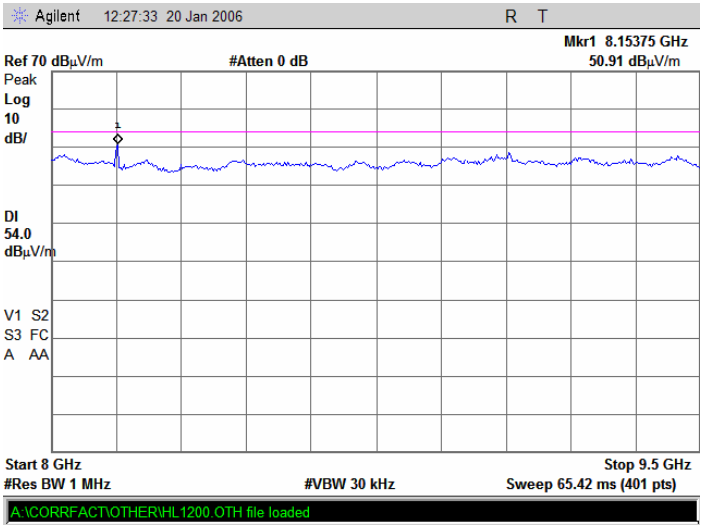
Plot 7.3.65 Radiated emission measurements from 8000 to 9500 MHz at the high carrier frequency

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



Plot 7.3.66 Radiated emission measurements from 8000 to 9500 MHz at the high carrier frequency

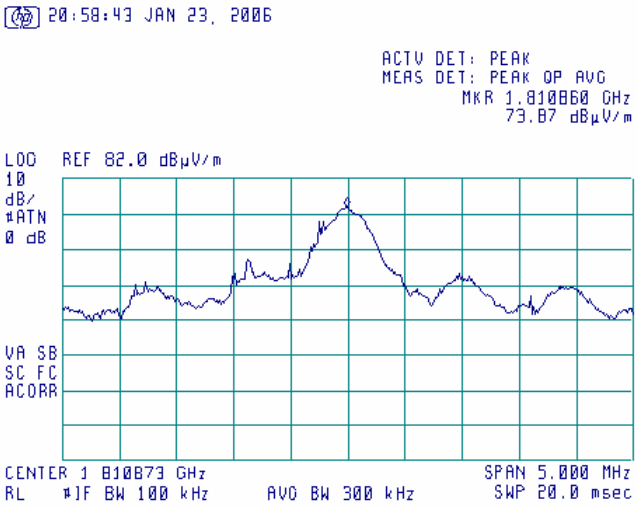
TEST SITE: Anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

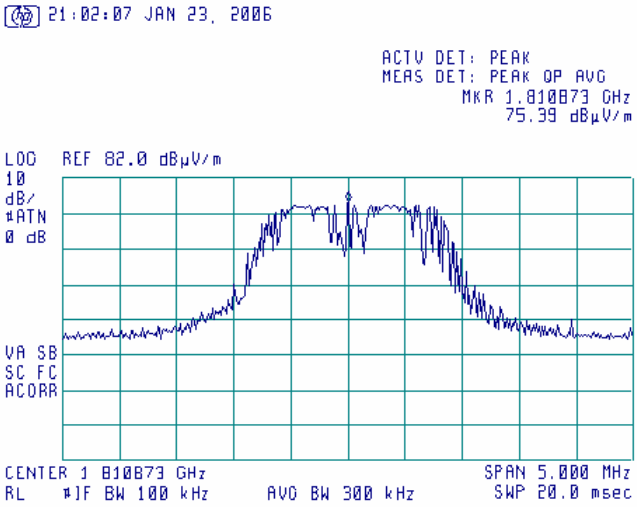
Plot 7.3.67 Radiated emission measurements at the second harmonic of low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.68 Radiated emission measurements at the second harmonic of low carrier frequency

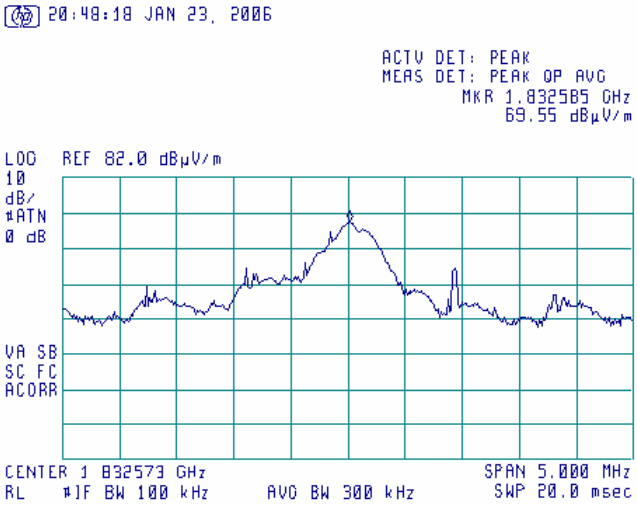
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

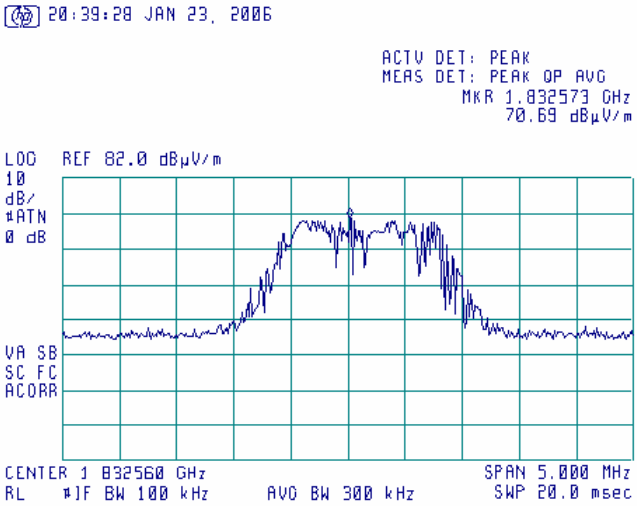
Plot 7.3.69 Radiated emission measurements at the second harmonic of mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.70 Radiated emission measurements at the second harmonic of mid carrier frequency

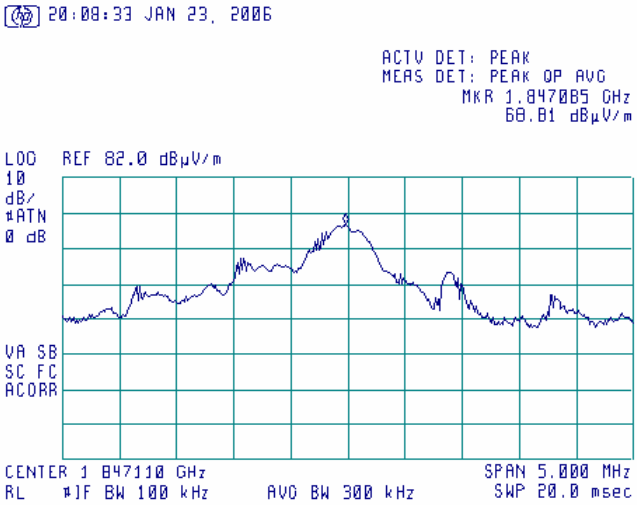
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

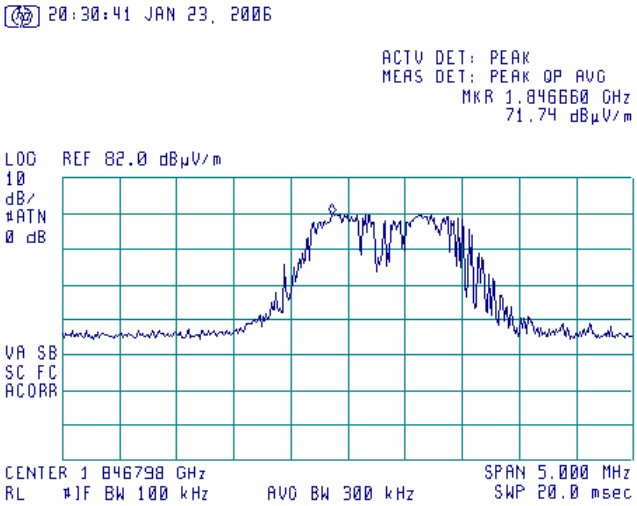
Plot 7.3.71 Radiated emission measurements at the second harmonic of high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.72 Radiated emission measurements at the second harmonic of high carrier frequency

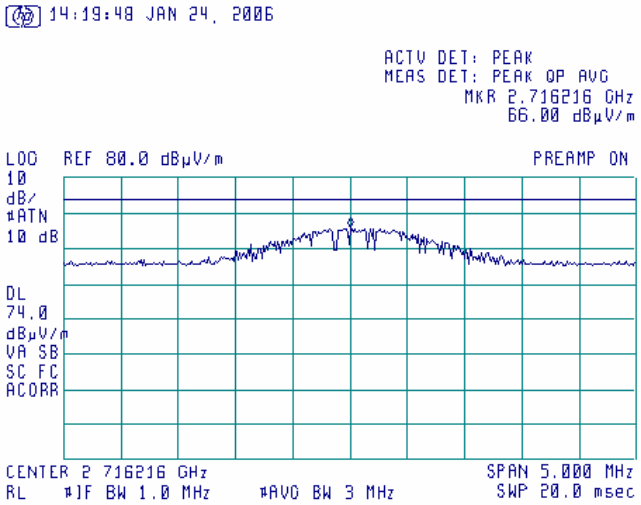
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

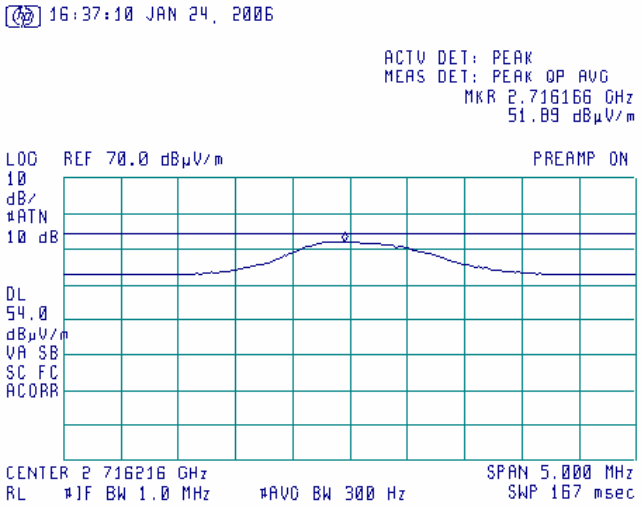
Plot 7.3.73 Radiated emission measurements at the third harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.74 Radiated emission measurements at the third harmonic of low carrier frequency

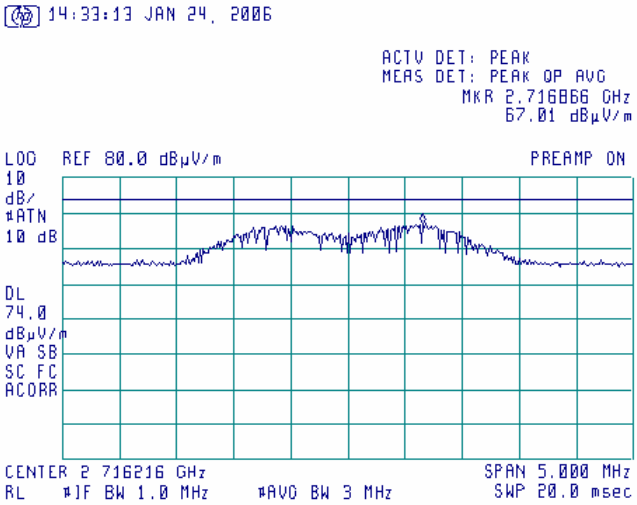
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

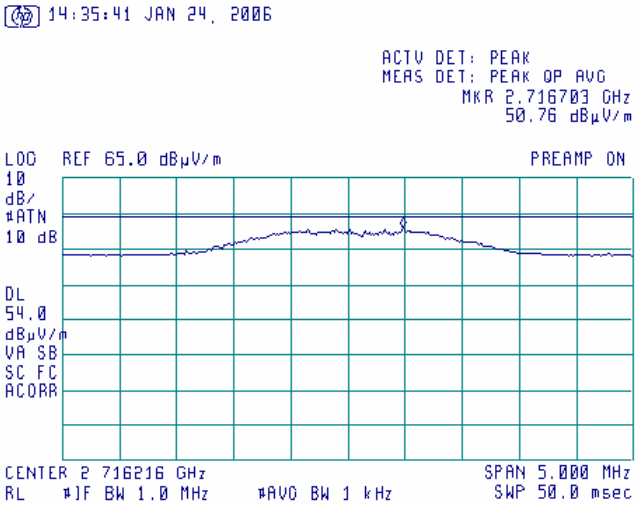
Plot 7.3.75 Radiated emission measurements at the third harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Plot 7.3.76 Radiated emission measurements at the third harmonic of low carrier frequency

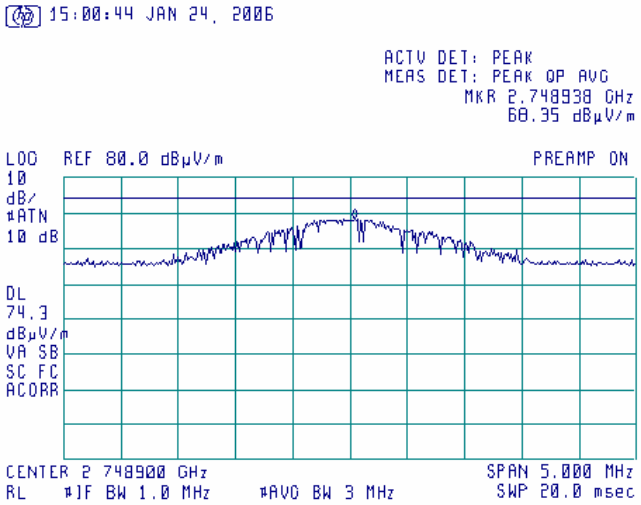
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

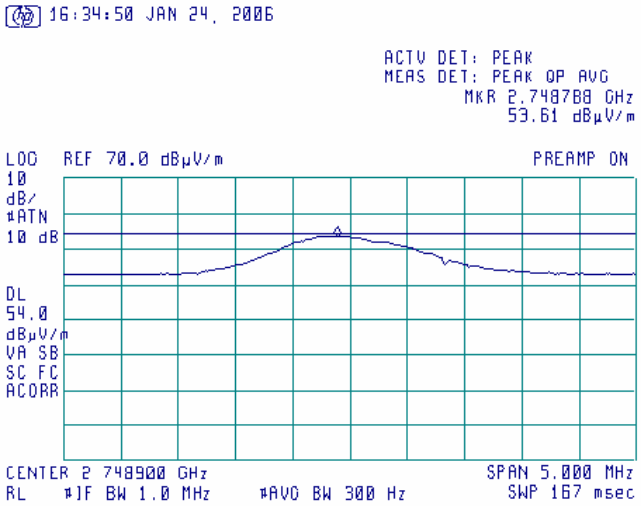
Plot 7.3.77 Radiated emission measurements at the third harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.78 Radiated emission measurements at the third harmonic of mid carrier frequency

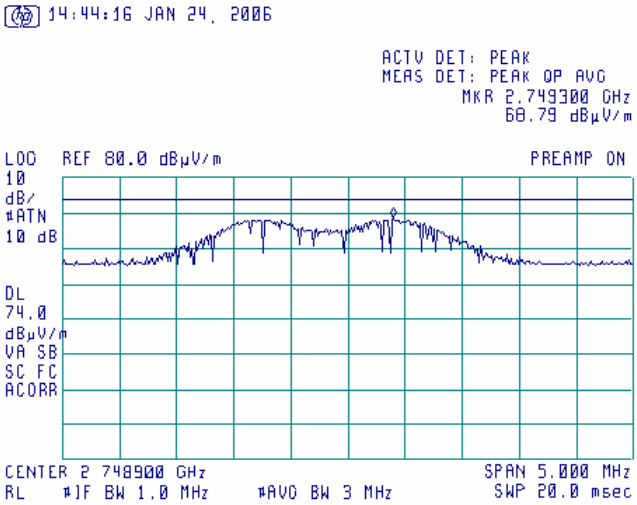
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

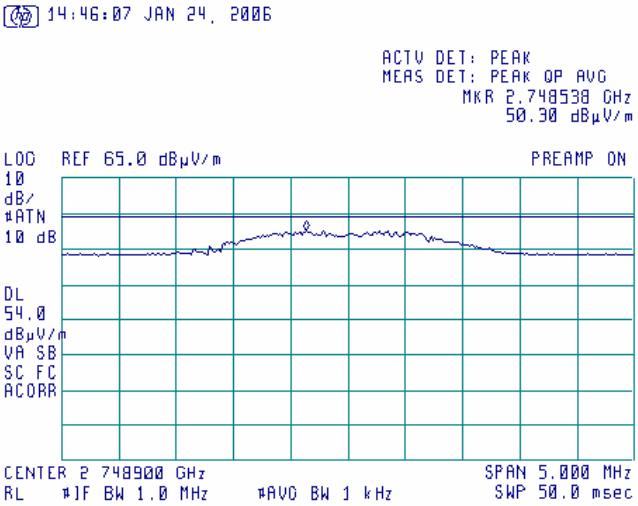
Plot 7.3.79 Radiated emission measurements at the third harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Plot 7.3.80 Radiated emission measurements at the third harmonic of mid carrier frequency

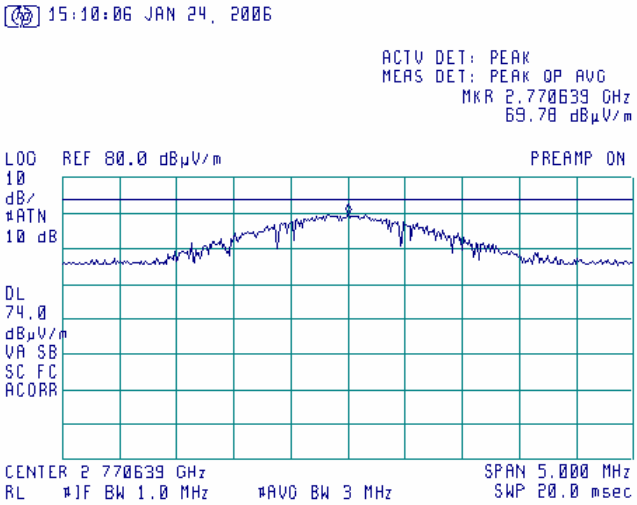
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

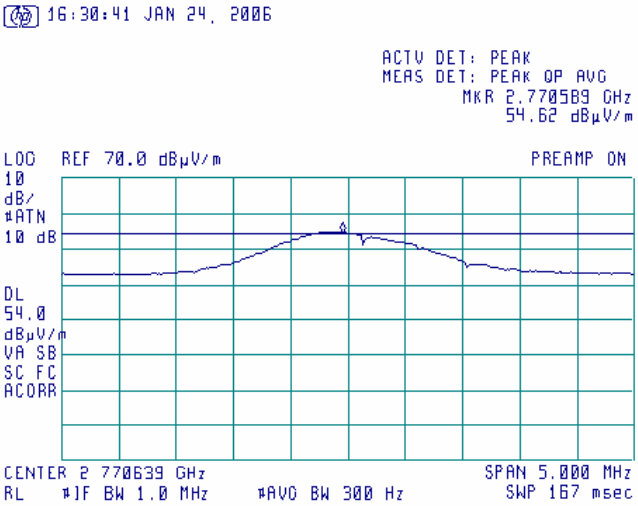
Plot 7.3.81 Radiated emission measurements at the third harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.82 Radiated emission measurements at the third harmonic of high carrier frequency

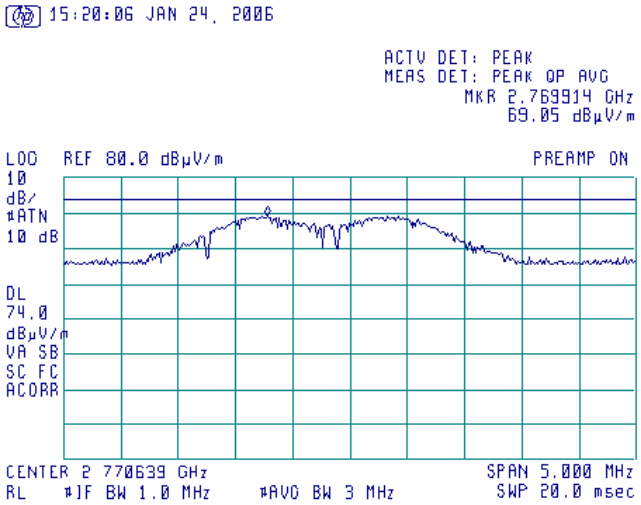
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

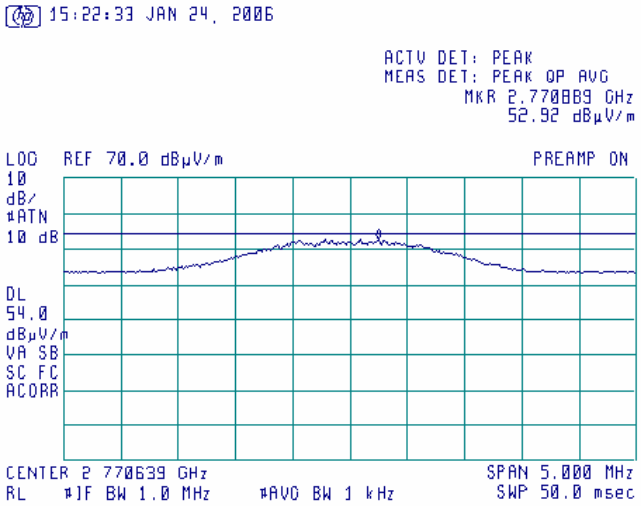
Plot 7.3.83 Radiated emission measurements at the third harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Plot 7.3.84 Radiated emission measurements at the third harmonic of high carrier frequency

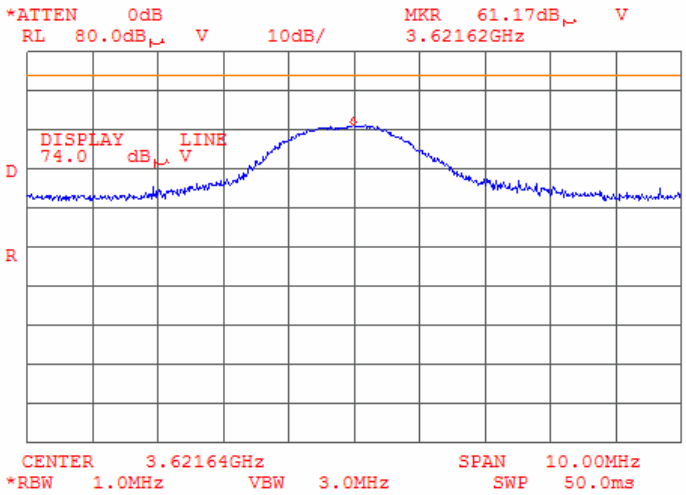
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

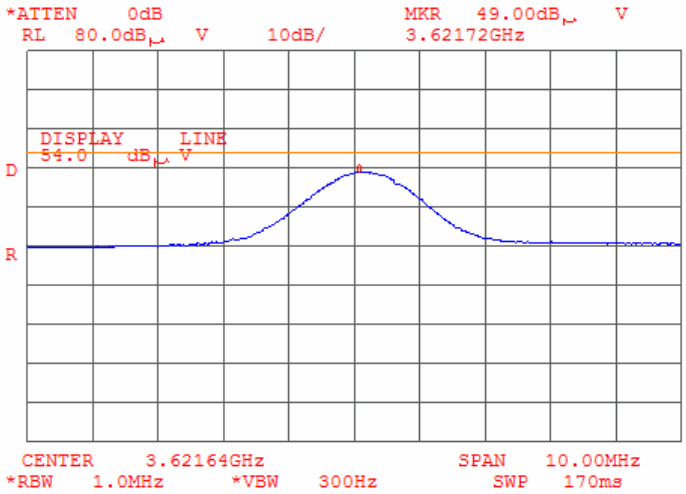
Plot 7.3.85 Radiated emission measurements at the forth harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.86 Radiated emission measurements at the forth harmonic of low carrier frequency

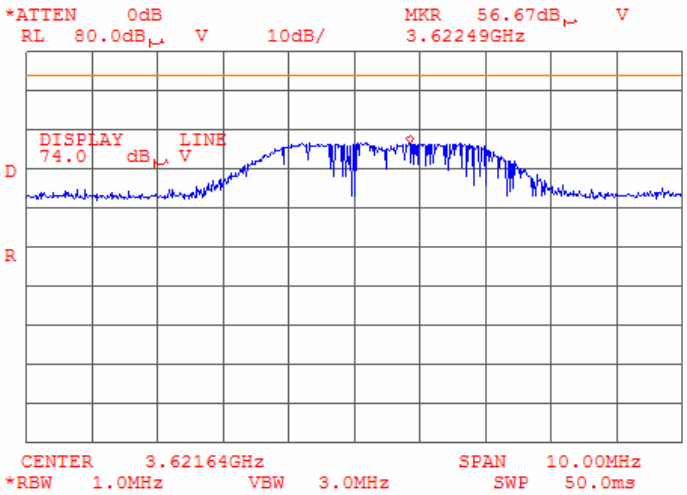
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

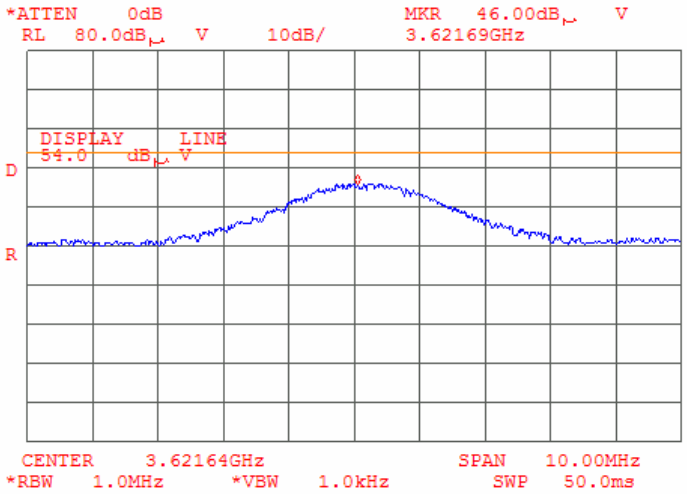
Plot 7.3.87 Radiated emission measurements at the forth harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Plot 7.3.88 Radiated emission measurements at the forth harmonic of low carrier frequency

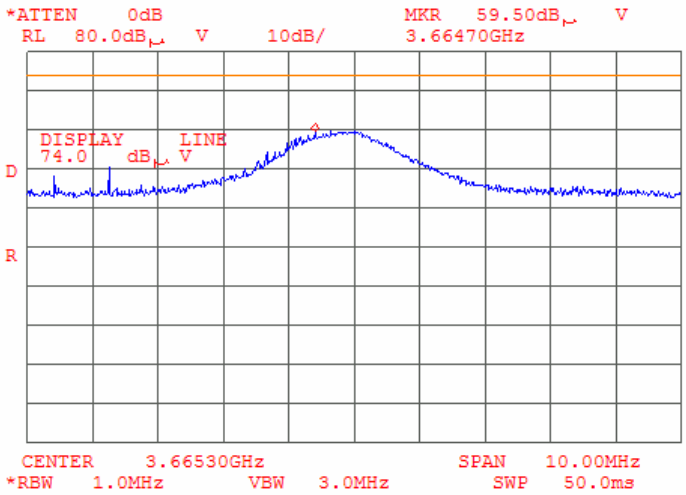
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

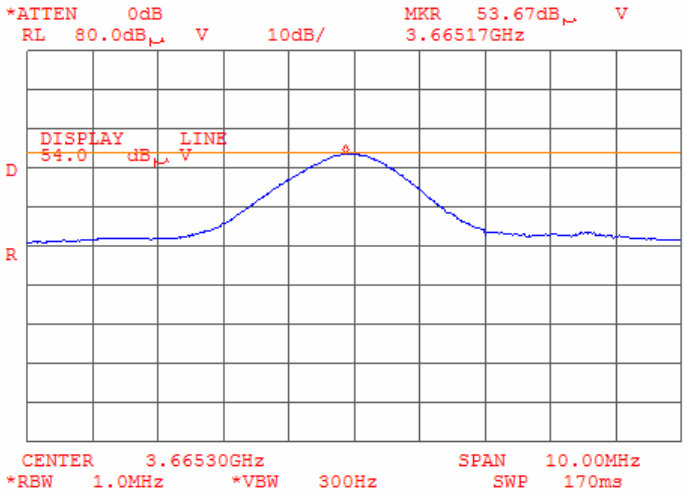
Plot 7.3.89 Radiated emission measurements at the forth harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.90 Radiated emission measurements at the forth harmonic of mid carrier frequency

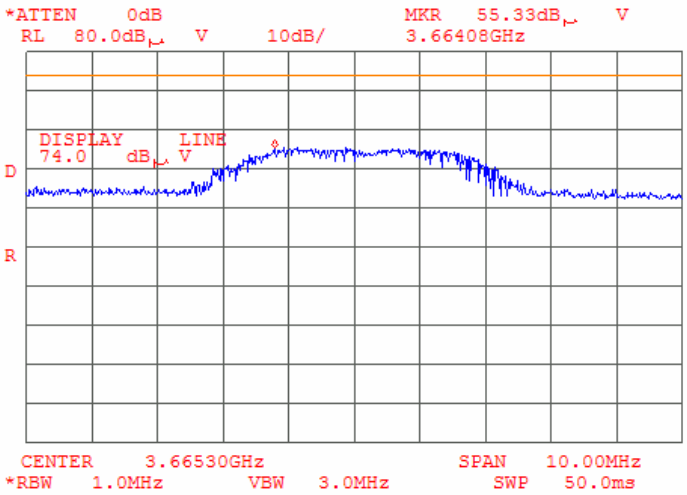
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

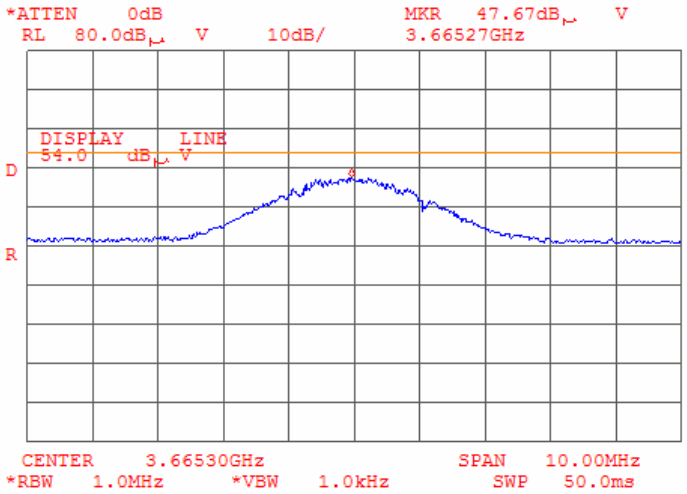
Plot 7.3.91 Radiated emission measurements at the forth harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Plot 7.3.92 Radiated emission measurements at the forth harmonic of mid carrier frequency

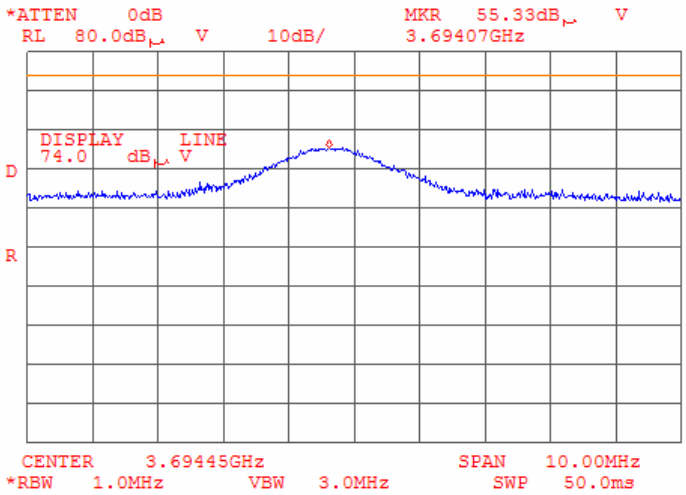
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

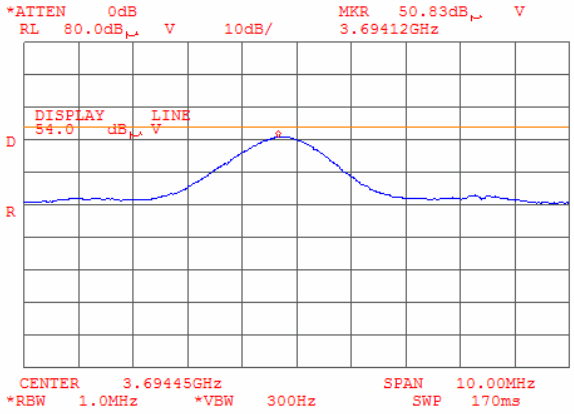
Plot 7.3.93 Radiated emission measurements at the forth harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.94 Radiated emission measurements at the forth harmonic of high carrier frequency

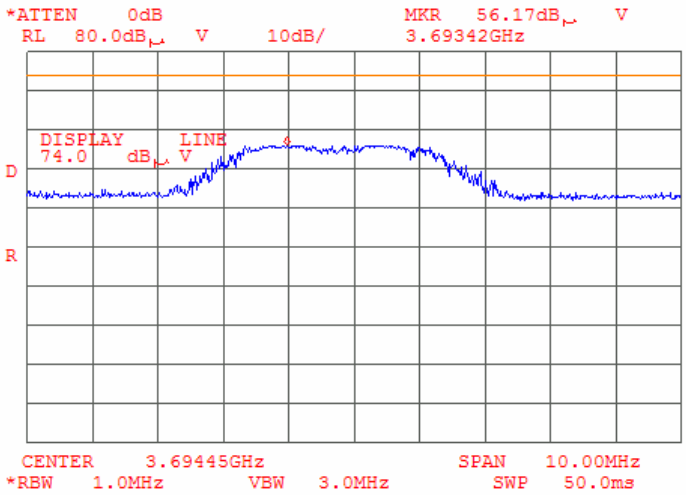
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

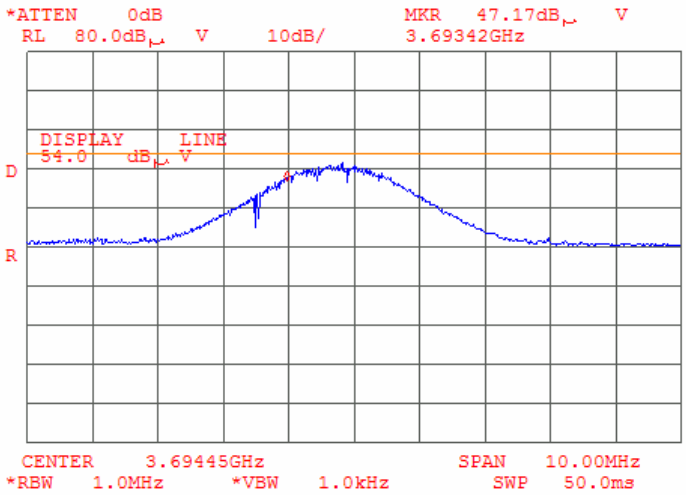
Plot 7.3.95 Radiated emission measurements at the forth harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Plot 7.3.96 Radiated emission measurements at the forth harmonic of high carrier frequency

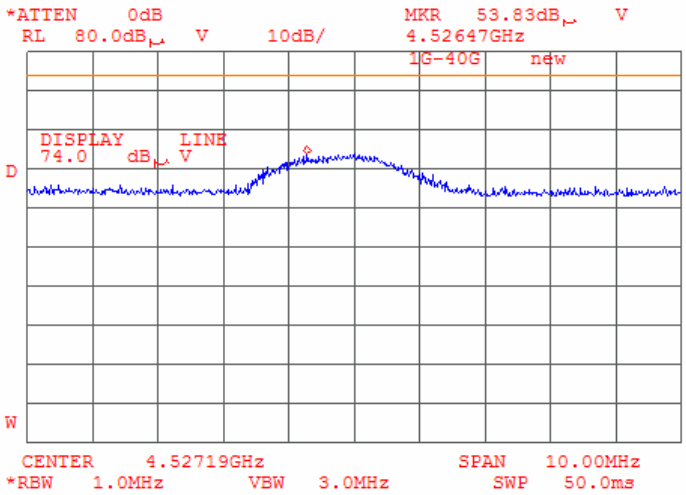
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

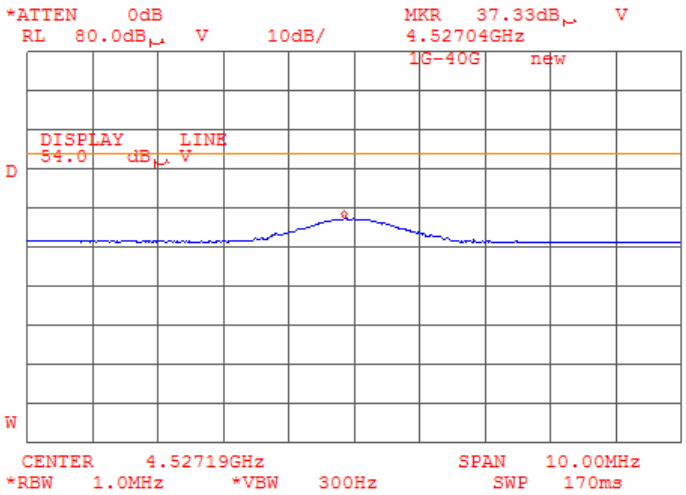
Plot 7.3.97 Radiated emission measurements at the fifth harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.98 Radiated emission measurements at the fifth harmonic of low carrier frequency

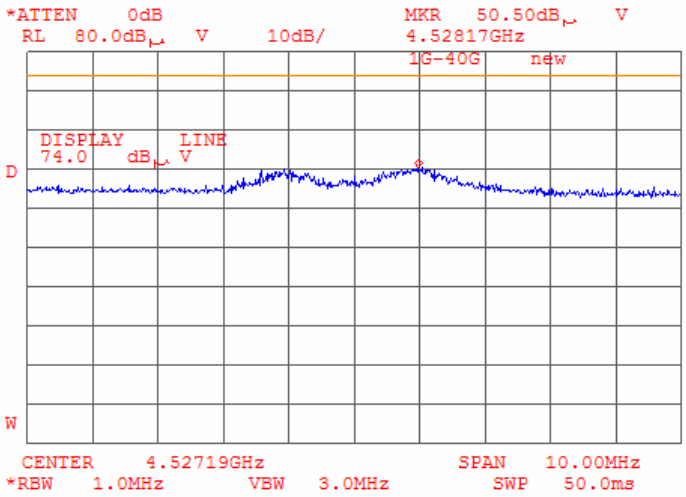
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

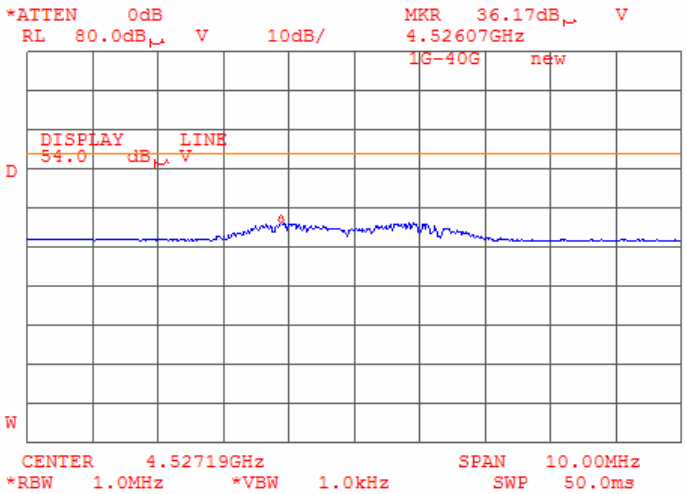
Plot 7.3.99 Radiated emission measurements at the fifth harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Plot 7.3.100 Radiated emission measurements at the fifth harmonic of low carrier frequency

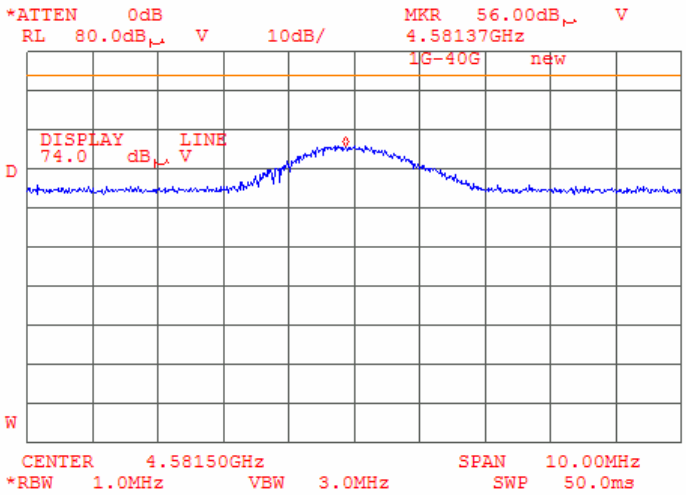
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

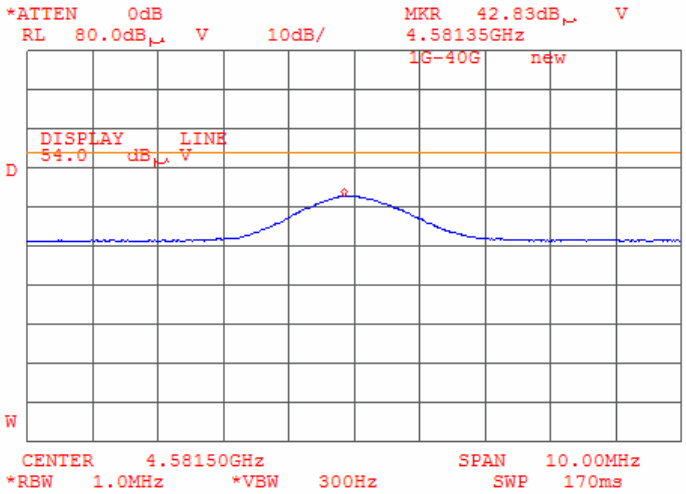
Plot 7.3.101 Radiated emission measurements at the fifth harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.102 Radiated emission measurements at the fifth harmonic of mid carrier frequency

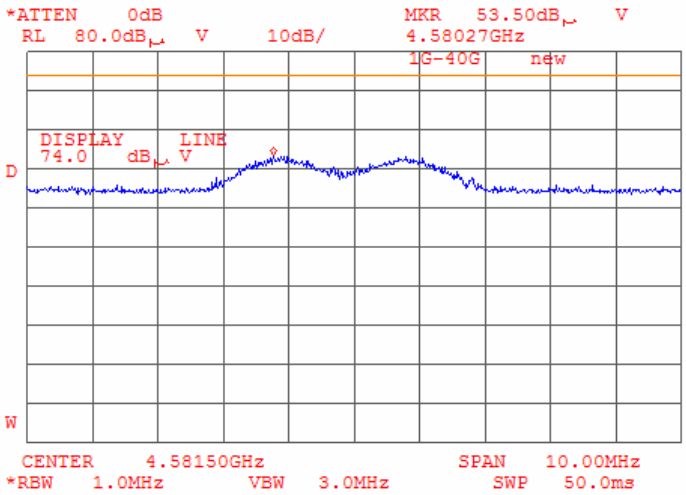
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

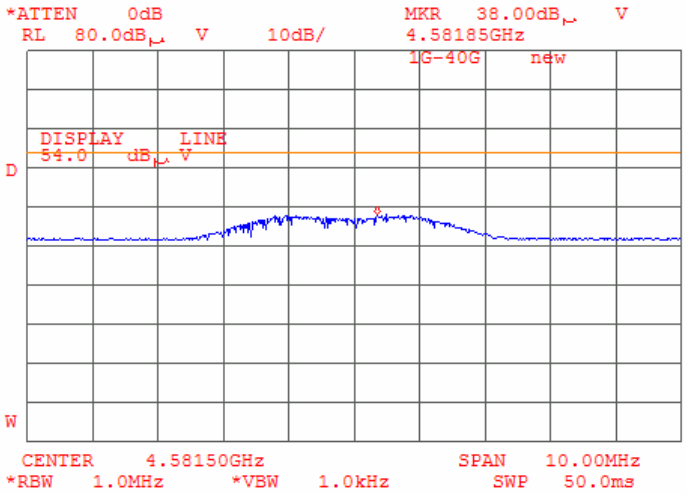
Plot 7.3.103 Radiated emission measurements at the fifth harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Plot 7.3.104 Radiated emission measurements at the fifth harmonic of mid carrier frequency

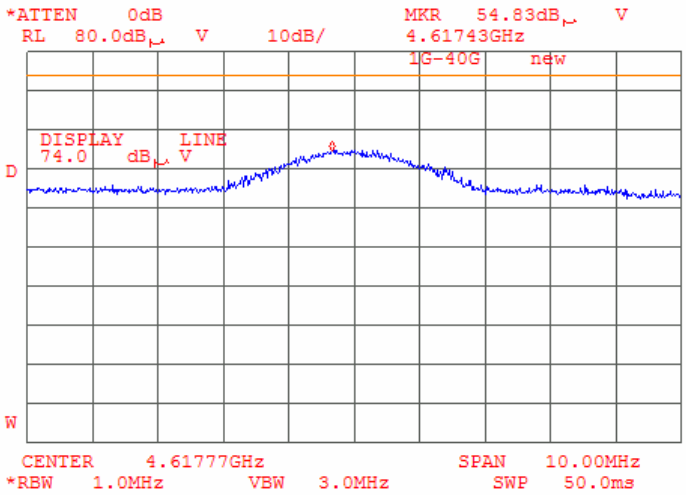
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

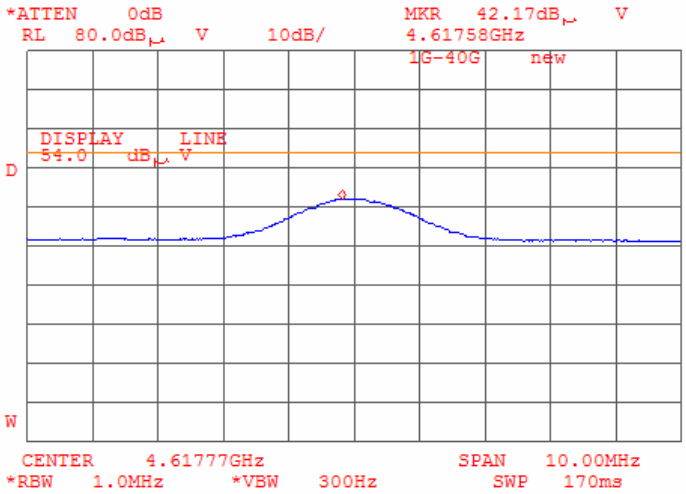
Plot 7.3.105 Radiated emission measurements at the fifth harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.106 Radiated emission measurements at the fifth harmonic of high carrier frequency

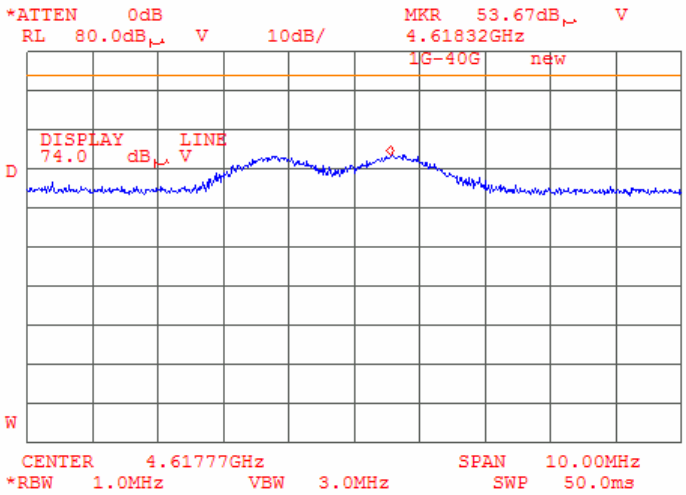
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

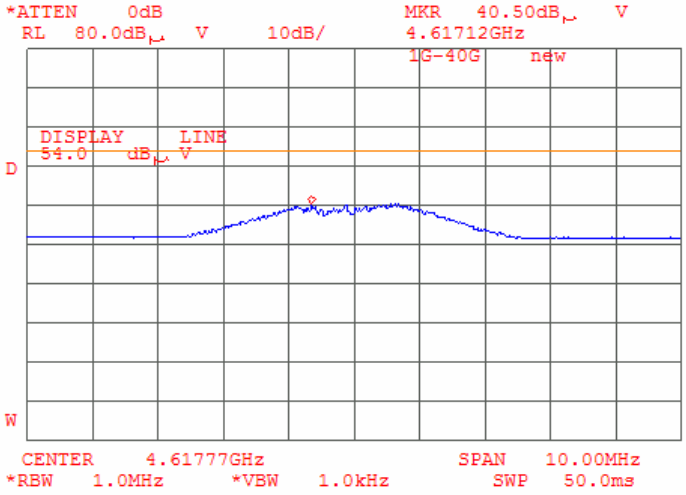
Plot 7.3.107 Radiated emission measurements at the fifth harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Plot 7.3.108 Radiated emission measurements at the fifth harmonic of high carrier frequency

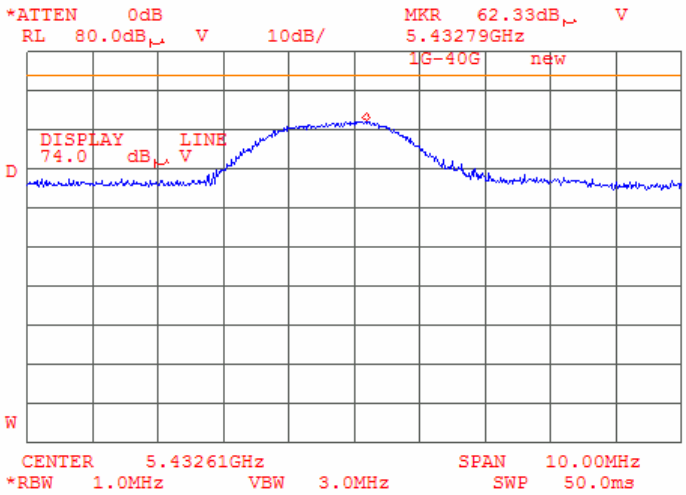
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

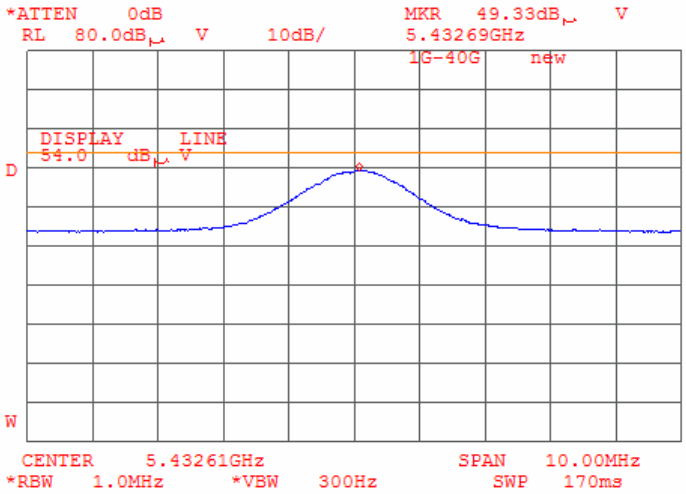
Plot 7.3.109 Radiated emission measurements at the sixth harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.110 Radiated emission measurements at the sixth harmonic of low carrier frequency

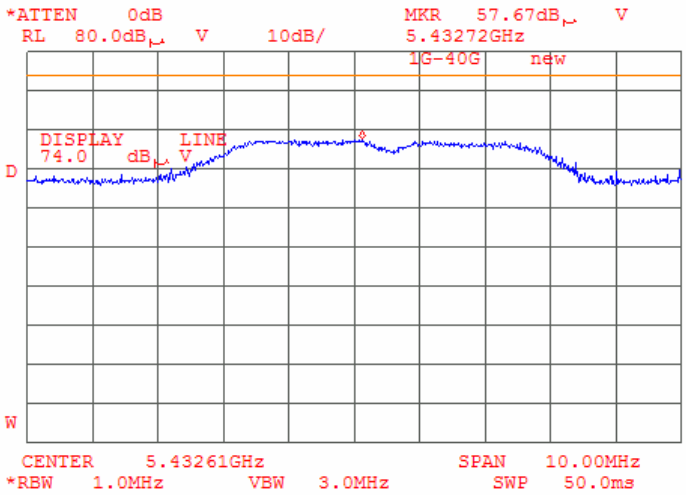
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

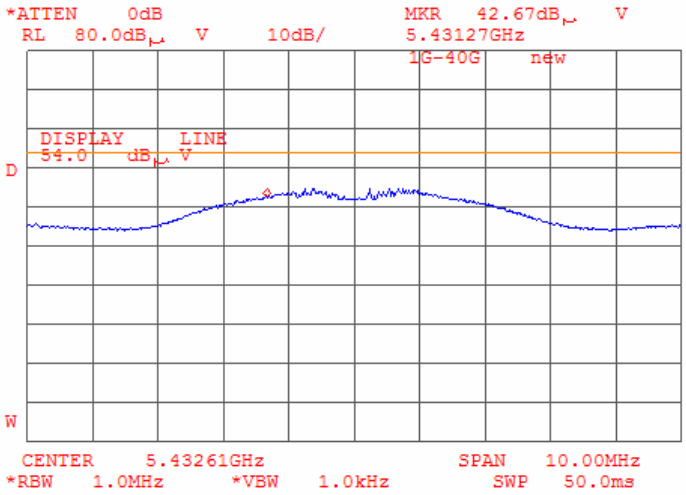
Plot 7.3.111 Radiated emission measurements at the sixth harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Plot 7.3.112 Radiated emission measurements at the sixth harmonic of low carrier frequency

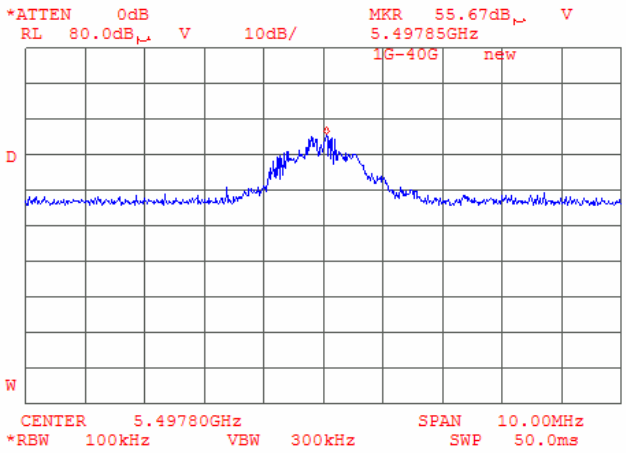
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.3.113 Radiated emission measurements at the sixth harmonic of mid carrier frequency

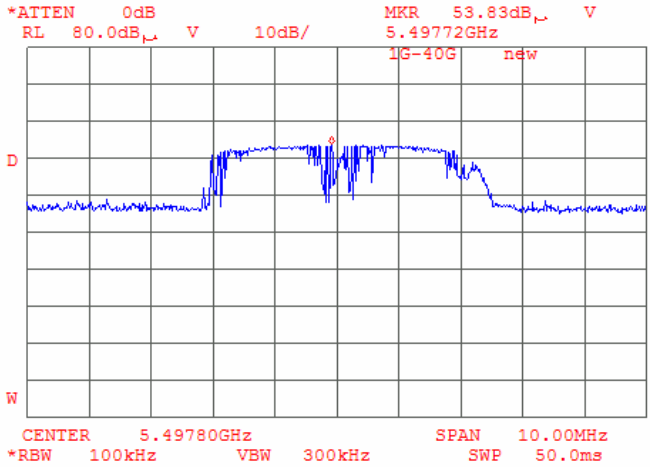
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Note: Outside restricted band spurious emission under limit 81.82 dBµV/m

Plot 7.3.114 Radiated emission measurements at the sixth harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK

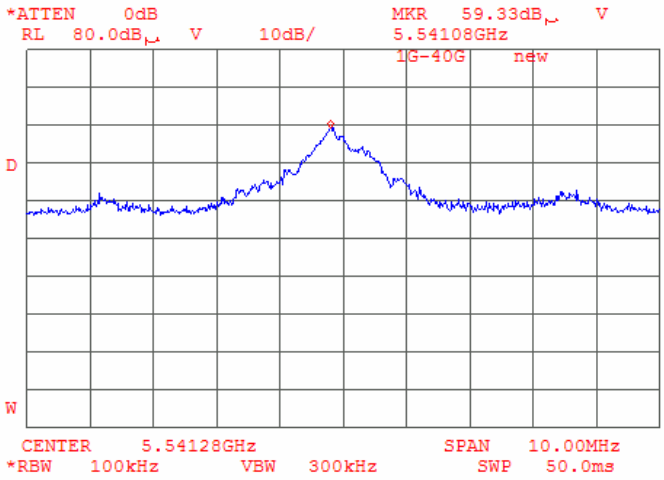


Note: Outside restricted band spurious emission under limit 83.39 dBµV/m

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.3.115 Radiated emission measurements at the sixth harmonic of high carrier frequency

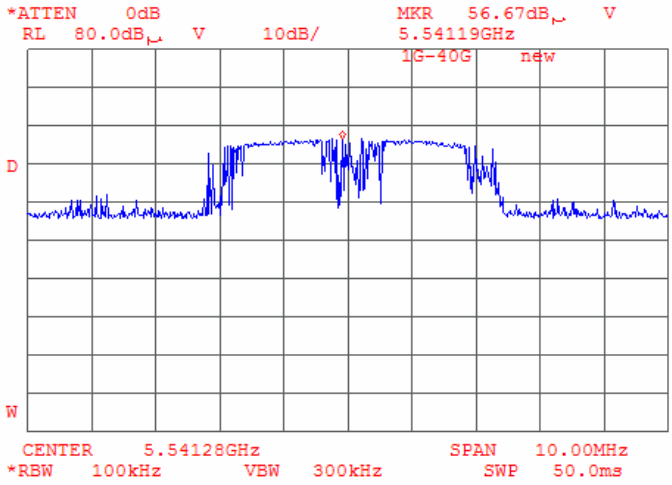
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Note: Outside restricted band spurious emission under limit 80.93 dBµV/m.

Plot 7.3.116 Radiated emission measurements at the sixth harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK

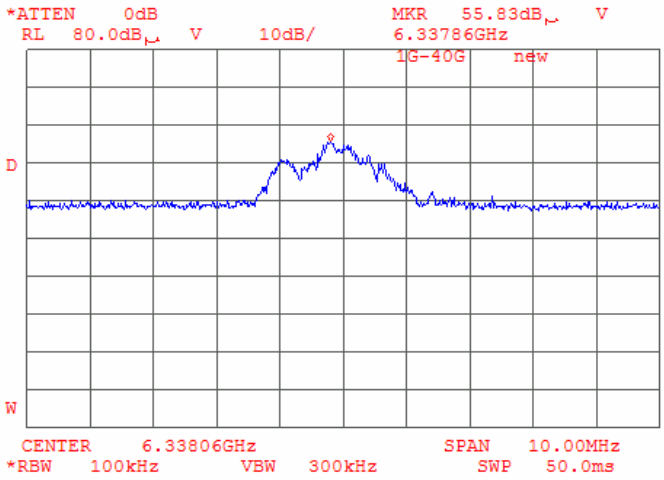


Note: Outside restricted band spurious emission under limit 82.48 dBµV/m

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.3.117 Radiated emission measurements at the seventh harmonic of low carrier frequency

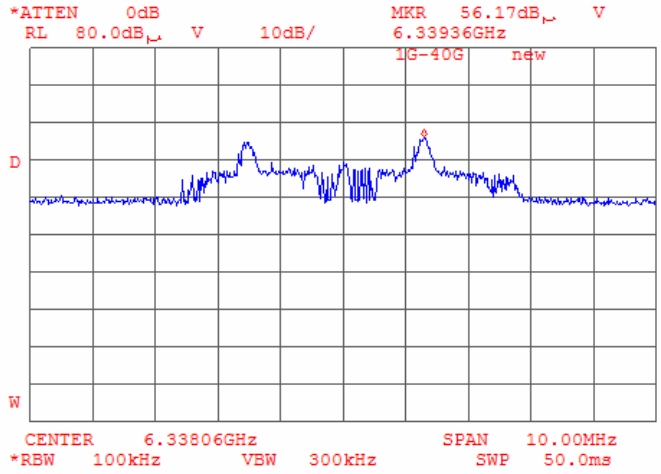
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Note: Outside restricted band spurious emission under limit 82.12 dBµV/m.

Plot 7.3.118 Radiated emission measurements at the seventh harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK

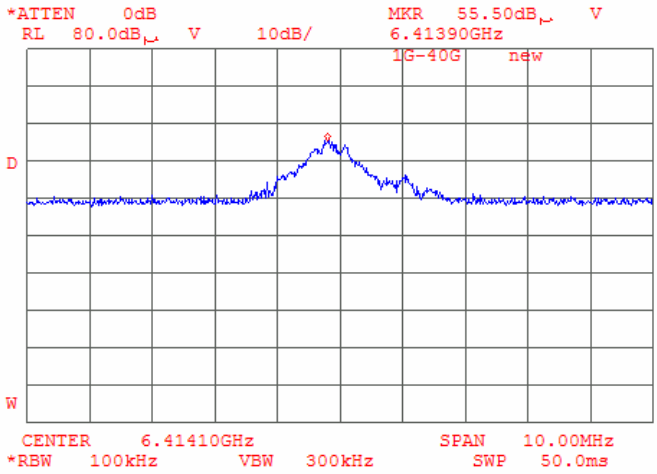


Note: Outside restricted band spurious emission under limit 82.47 dBµV/m

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.3.119 Radiated emission measurements at the seventh harmonic of mid carrier frequency

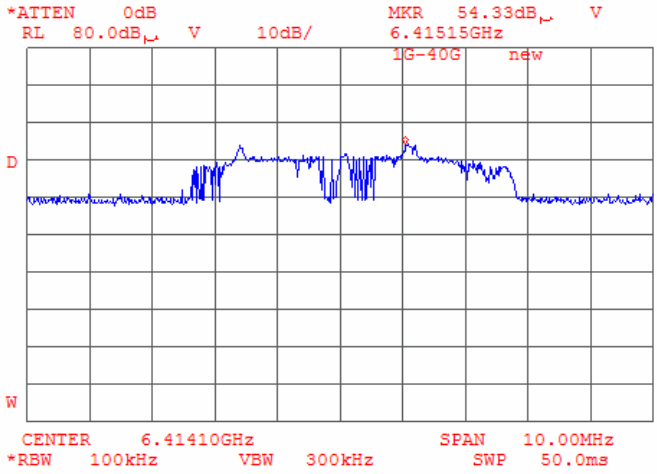
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Note: Outside restricted band spurious emission under limit 81.82 dBµV/m.

Plot 7.3.120 Radiated emission measurements at the seventh harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK

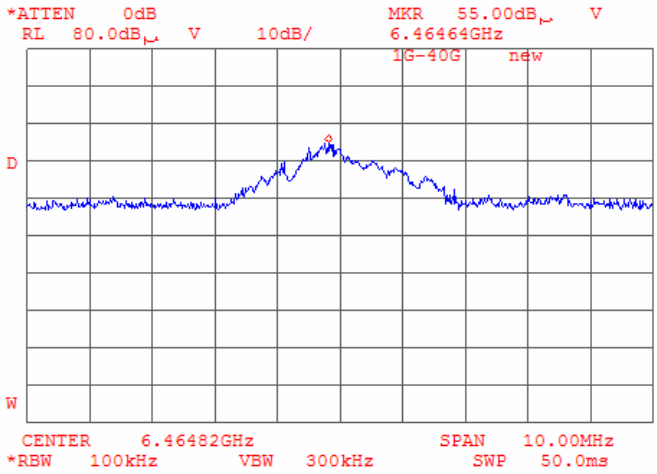


Note: Outside restricted band spurious emission under limit 83.39 dBµV/m

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.3.121 Radiated emission measurements at the seventh harmonic of high carrier frequency

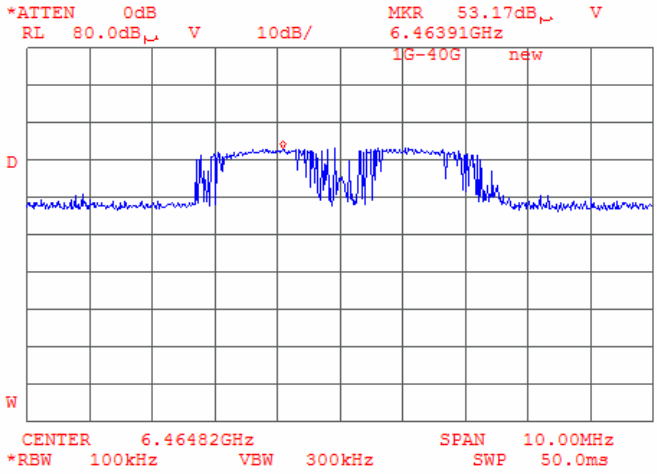
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Note: Outside restricted band spurious emission under limit 80.93 dBµV/m.

Plot 7.3.122 Radiated emission measurements at the seventh harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK

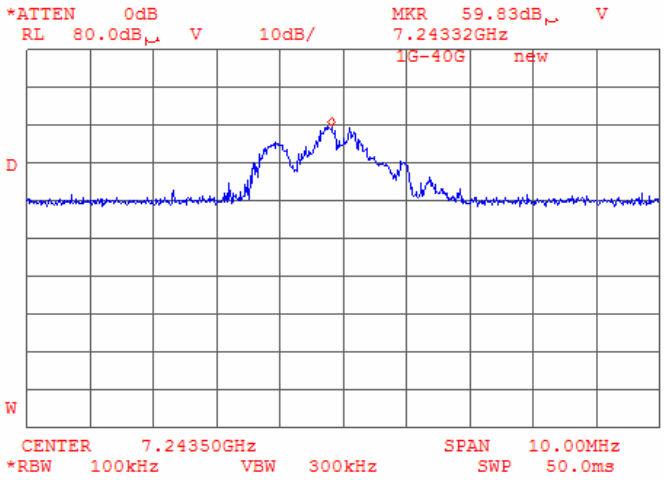


Note: Outside restricted band spurious emission under limit 82.48 dBµV/m

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.3.123 Radiated emission measurements at the eighth harmonic of low carrier frequency

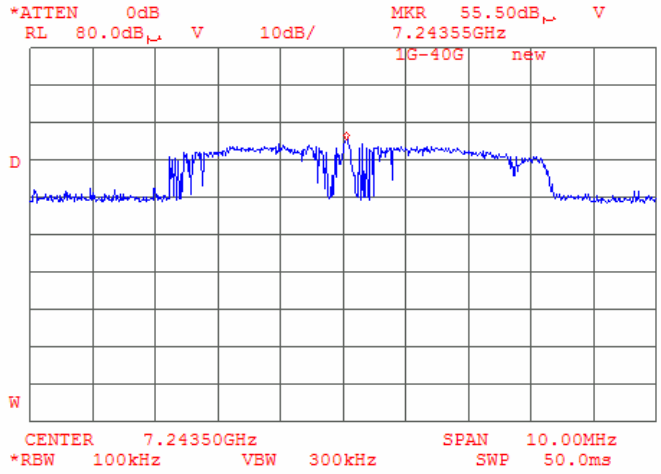
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Note: Outside restricted band spurious emission under limit 82.12 dBµV/m.

Plot 7.3.124 Radiated emission measurements at the eighth harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK

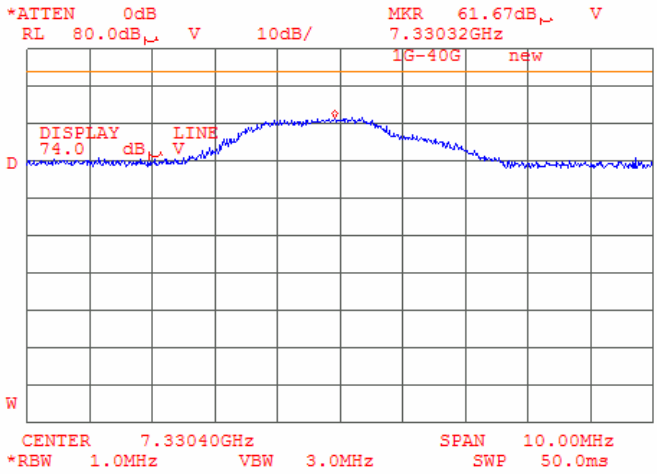


Note: Outside restricted band spurious emission under limit 82.47 dBµV/m.

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

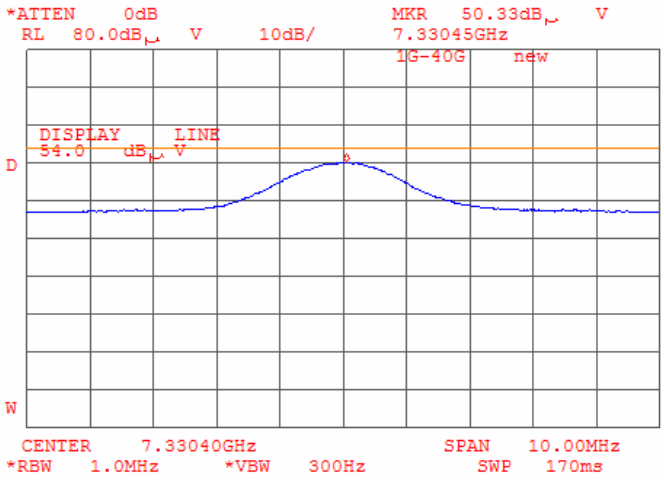
Plot 7.3.125 Radiated emission measurements at the eighth harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.126 Radiated emission measurements at the eighth harmonic of mid carrier frequency

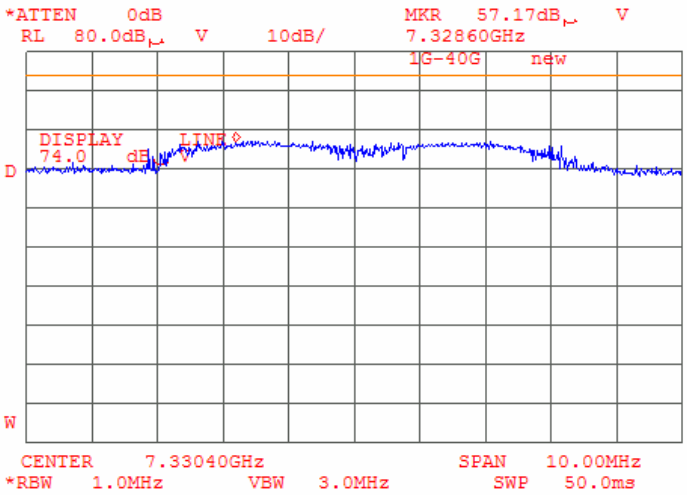
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

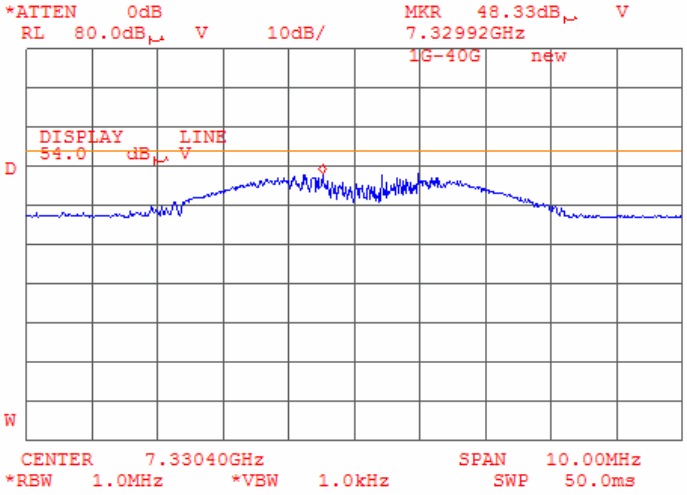
Plot 7.3.127 Radiated emission measurements at the eighth harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Plot 7.3.128 Radiated emission measurements at the eighth harmonic of mid carrier frequency

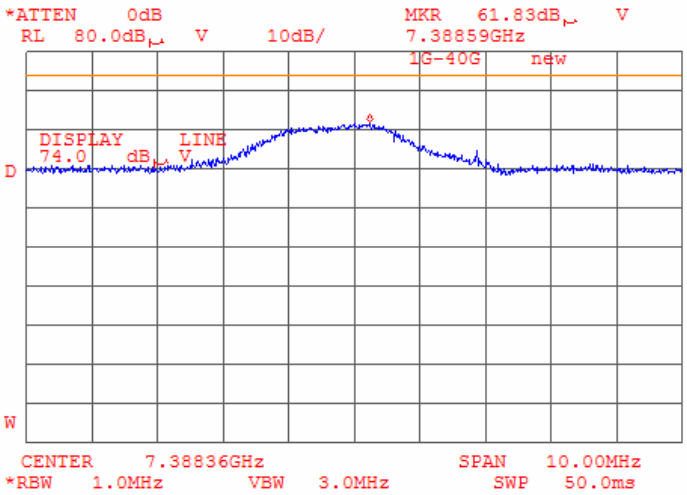
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

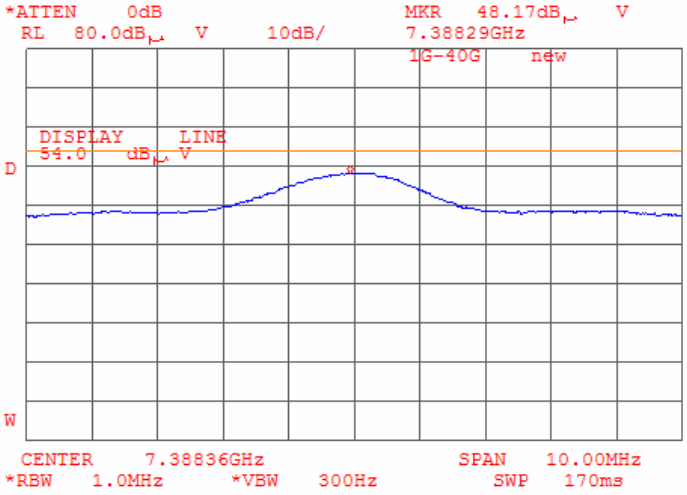
Plot 7.3.129 Radiated emission measurements at the eighth harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.130 Radiated emission measurements at the eighth harmonic of high carrier frequency

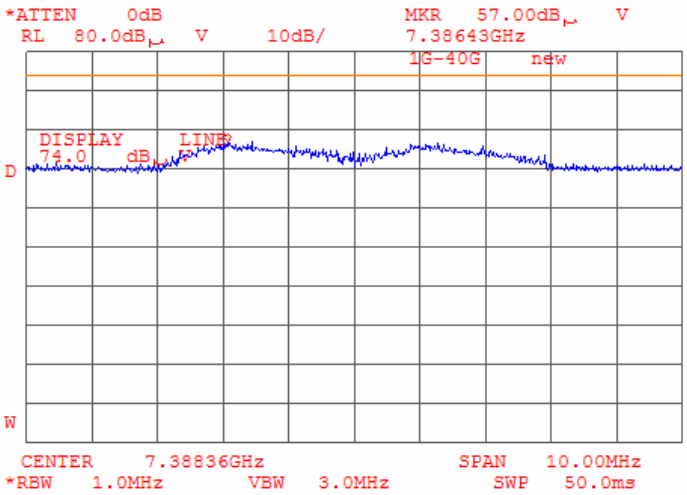
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

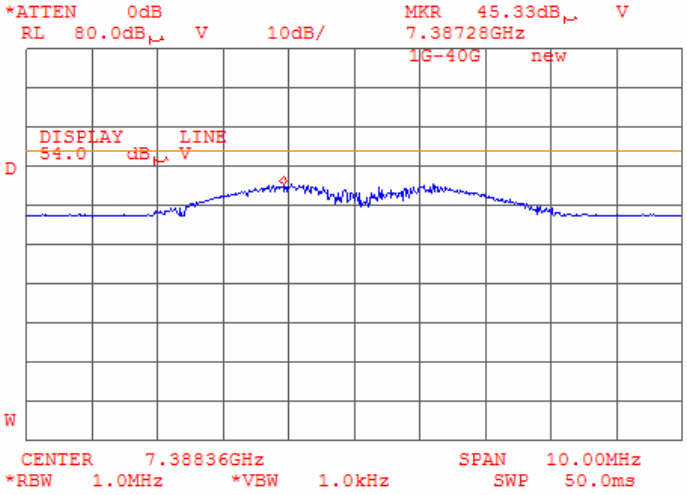
Plot 7.3.131 Radiated emission measurements at the eighth harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Plot 7.3.132 Radiated emission measurements at the eighth harmonic of high carrier frequency

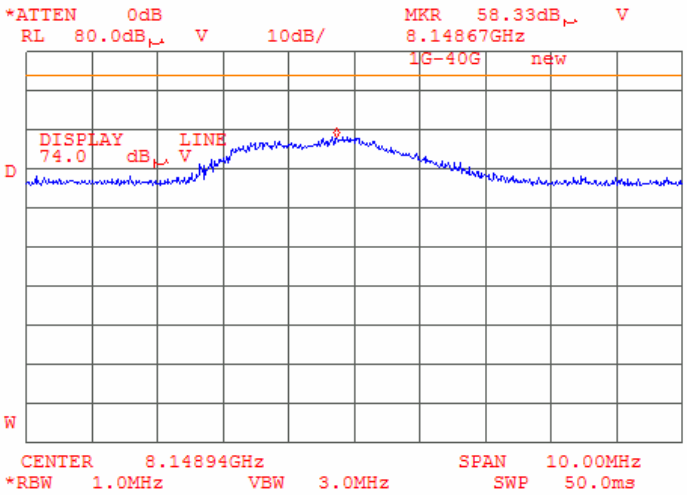
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

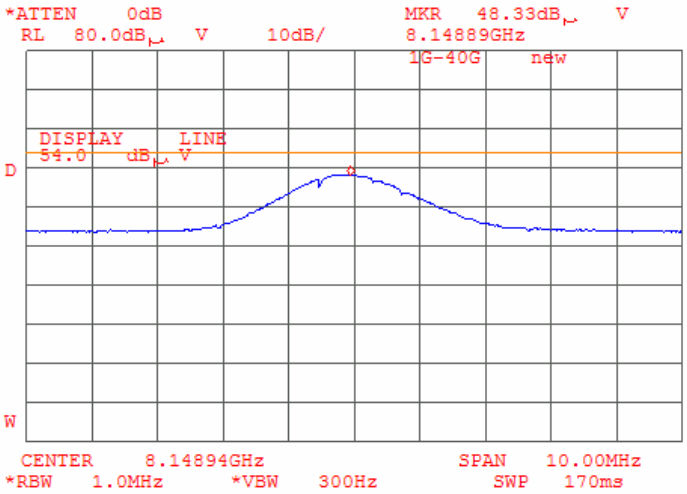
Plot 7.3.133 Radiated emission measurements at the ninth harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.134 Radiated emission measurements at the ninth harmonic of low carrier frequency

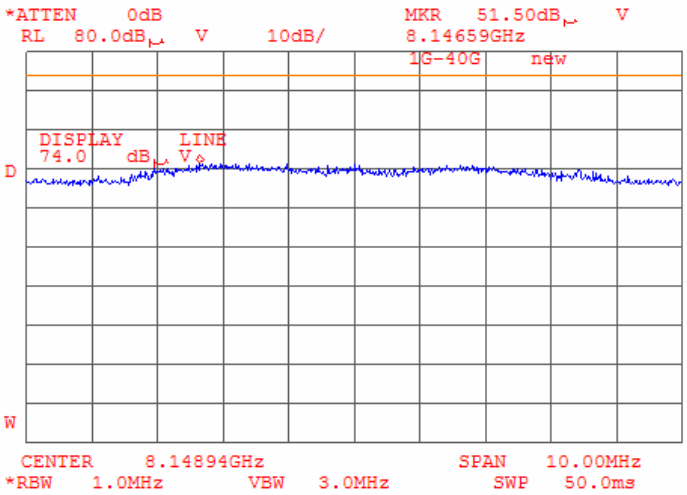
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

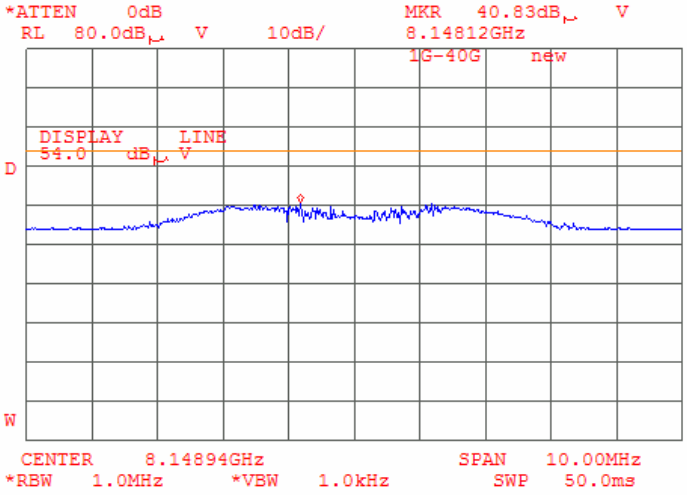
Plot 7.3.135 Radiated emission measurements at the ninth harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Plot 7.3.136 Radiated emission measurements at the ninth harmonic of low carrier frequency

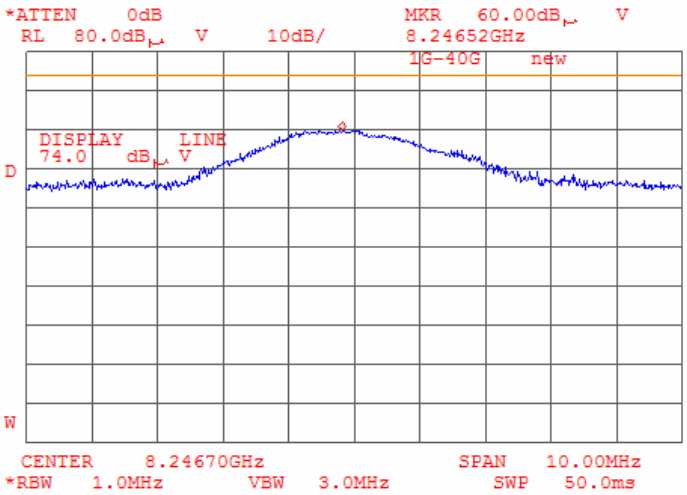
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

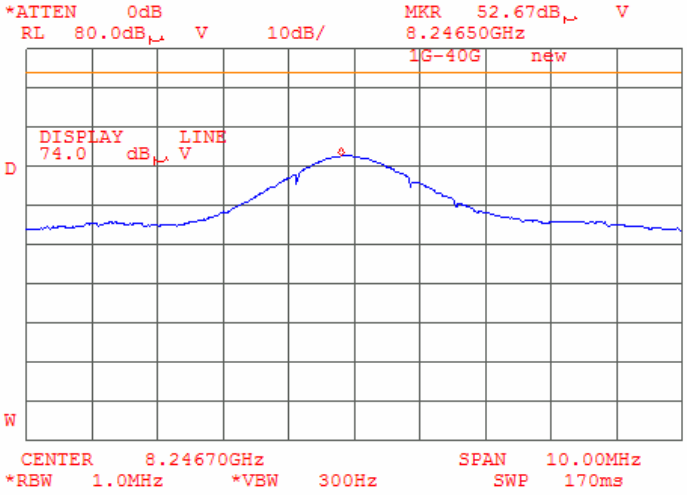
Plot 7.3.137 Radiated emission measurements at the ninth harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.138 Radiated emission measurements at the ninth harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK

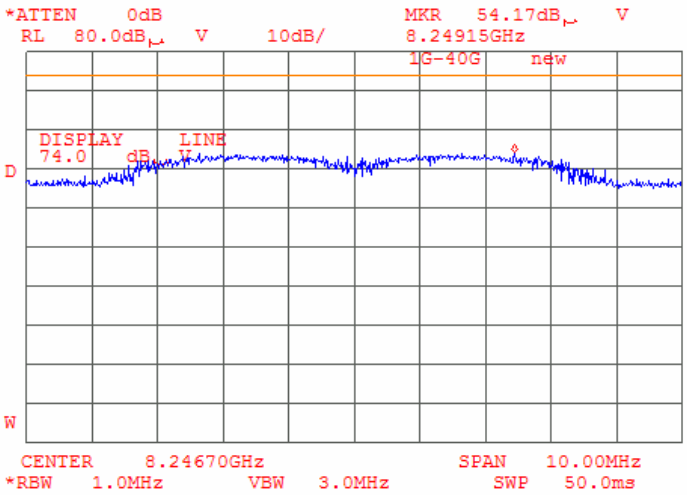


Note: Average limit is 54 dBµV/m

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

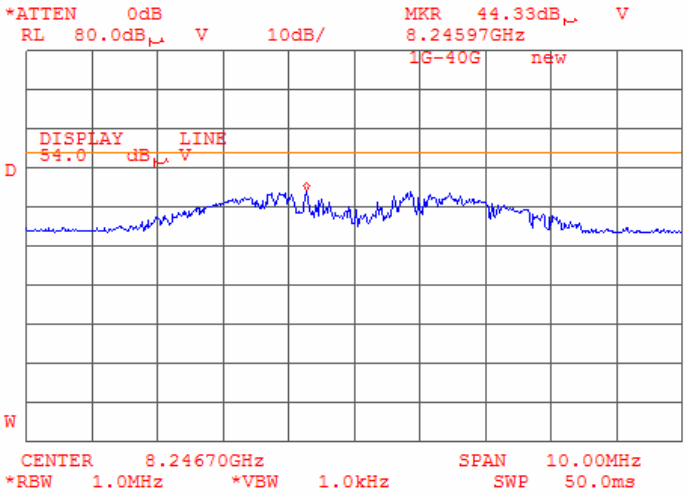
Plot 7.3.139 Radiated emission measurements at the ninth harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Plot 7.3.140 Radiated emission measurements at the ninth harmonic of mid carrier frequency

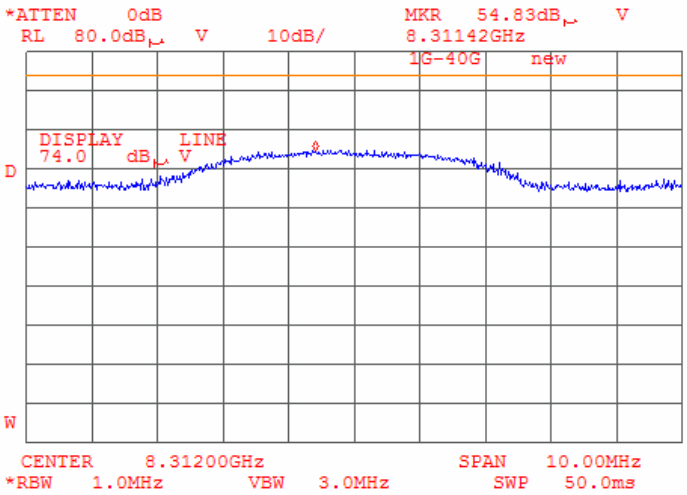
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

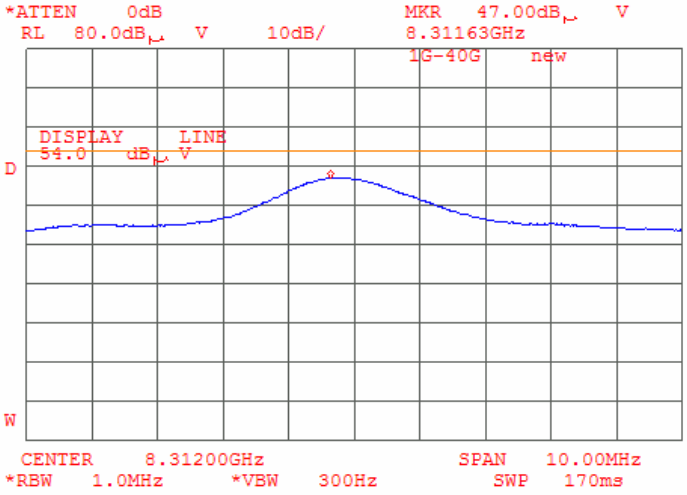
Plot 7.3.141 Radiated emission measurements at the ninth harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.142 Radiated emission measurements at the ninth harmonic of high carrier frequency

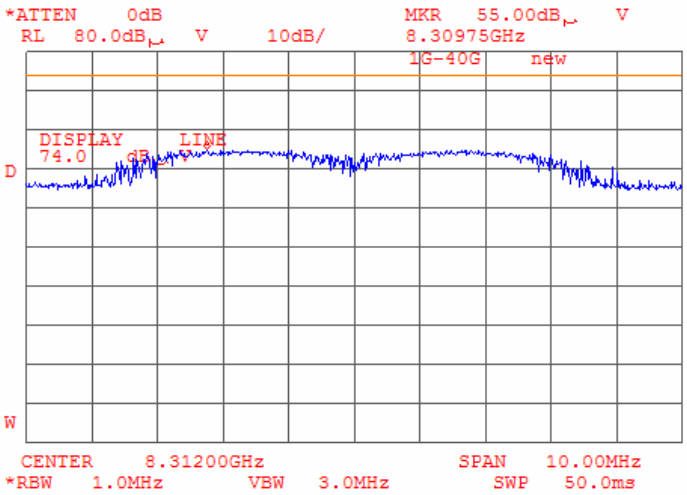
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

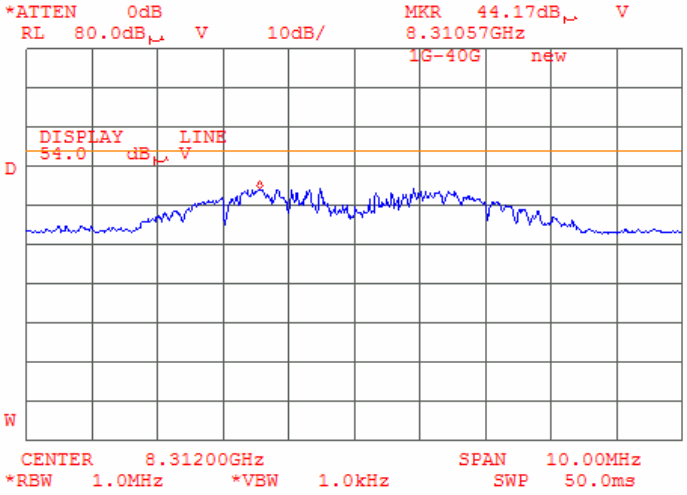
Plot 7.3.143 Radiated emission measurements at the ninth harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Plot 7.3.144 Radiated emission measurements at the ninth harmonic of high carrier frequency

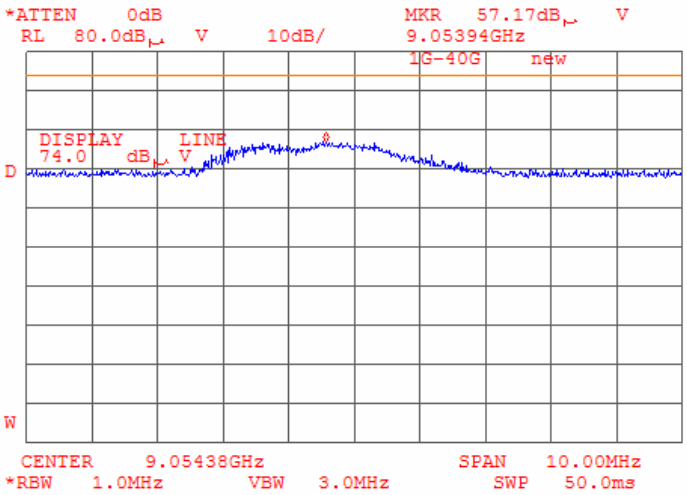
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

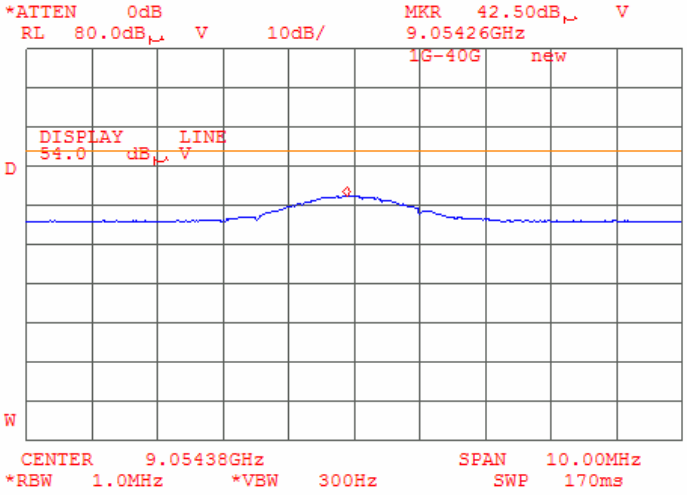
Plot 7.3.145 Radiated emission measurements at the tenth harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.146 Radiated emission measurements at the tenth harmonic of low carrier frequency

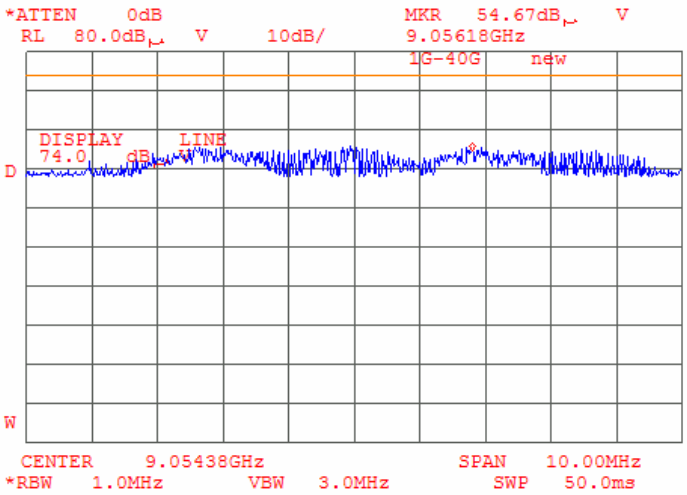
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

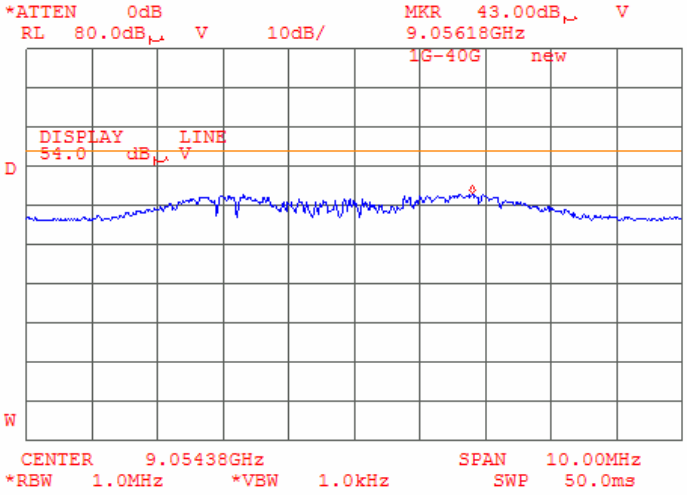
Plot 7.3.147 Radiated emission measurements at the tenth harmonic of low carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Plot 7.3.148 Radiated emission measurements at the tenth harmonic of low carrier frequency

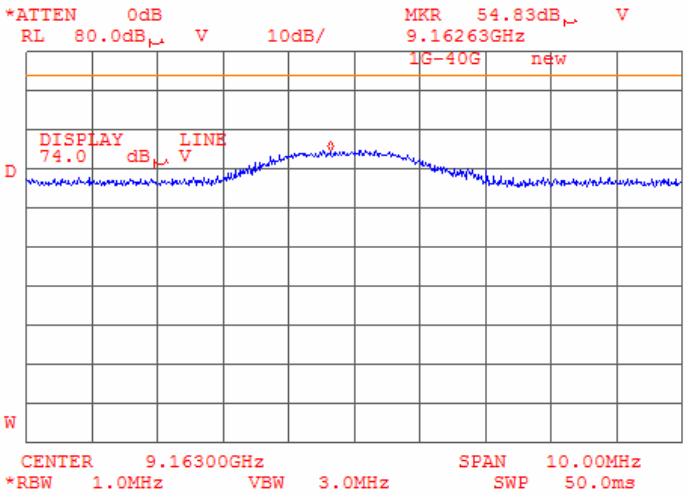
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

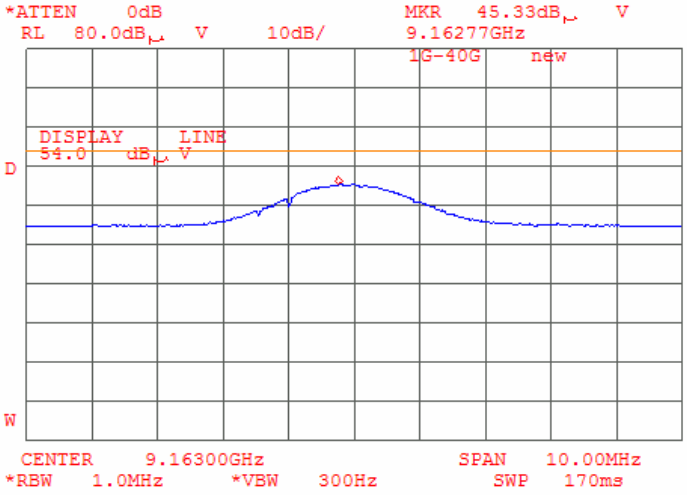
Plot 7.3.149 Radiated emission measurements at the tenth harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Plot 7.3.150 Radiated emission measurements at the tenth harmonic of mid carrier frequency

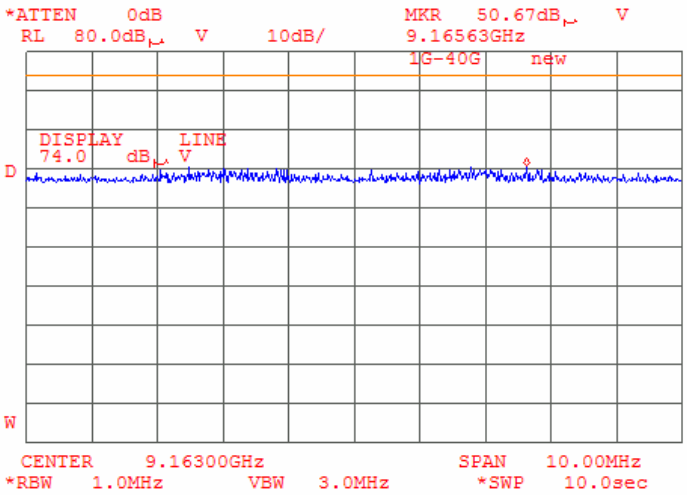
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

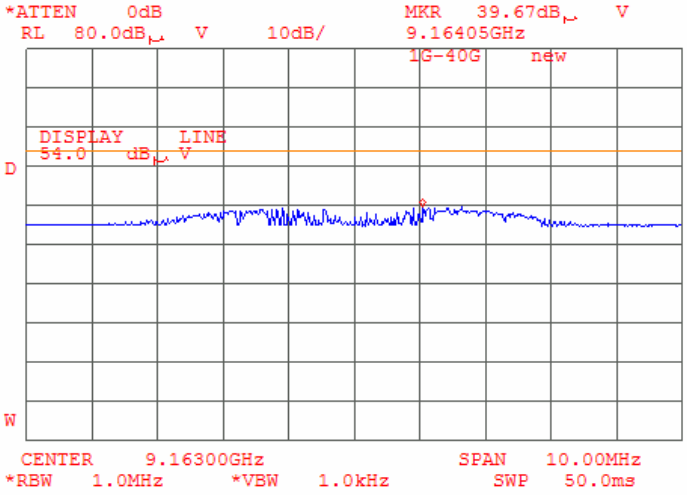
Plot 7.3.151 Radiated emission measurements at the tenth harmonic of mid carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Plot 7.3.152 Radiated emission measurements at the tenth harmonic of mid carrier frequency

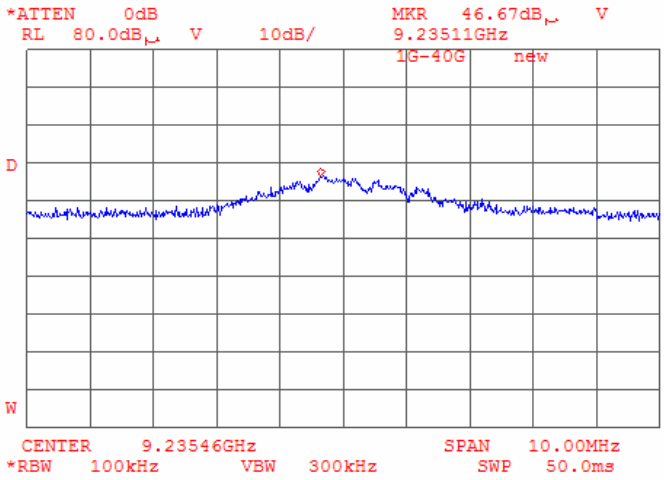
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21°C	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.3.153 Radiated emission measurements at the tenth harmonic of high carrier frequency

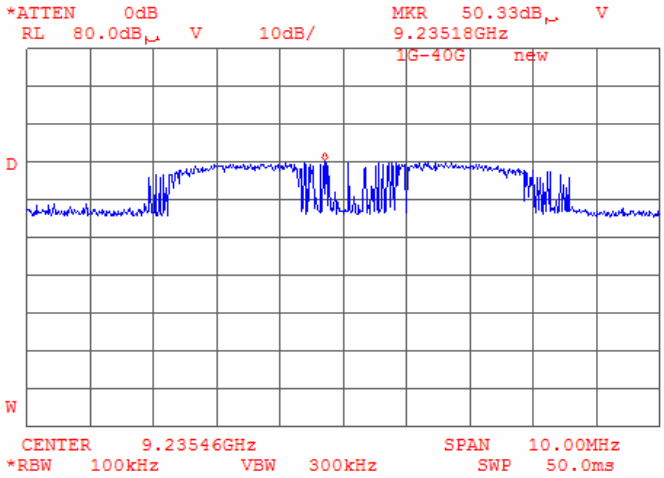
TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: PSK



Note: Outside restricted band spurious emission under limit 80.93 dBµV/m.

Plot 7.3.154 Radiated emission measurements at the tenth harmonic of high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
MODULATION: FSK

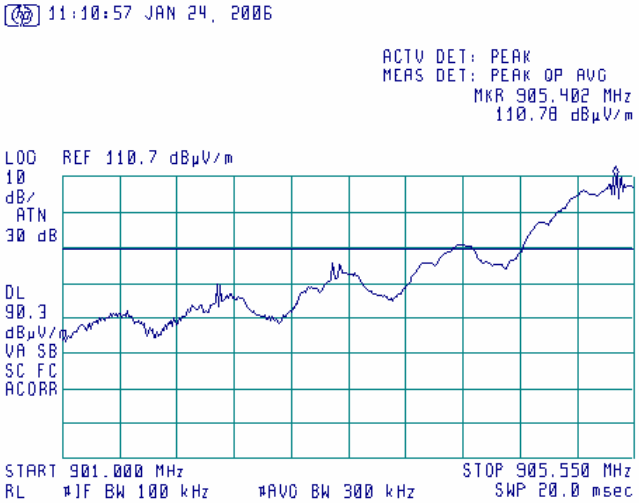


Note: Outside restricted band spurious emission under limit 82.48 dBµV/m

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

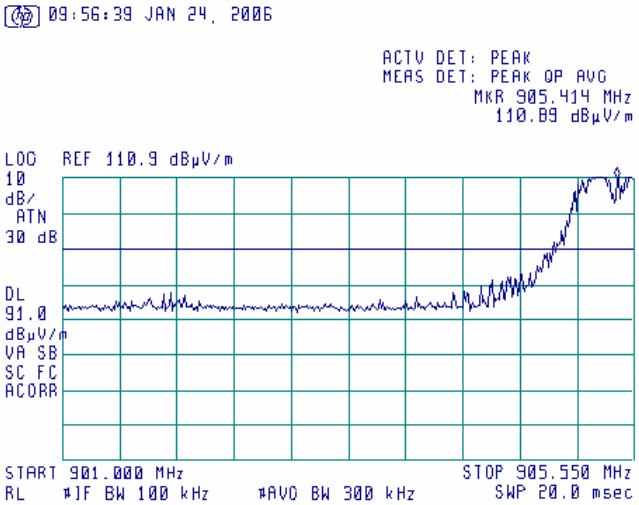
Plot 7.3.155 Radiated emission measurements from 901 to 905.55 MHz at the low carrier frequency

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



Plot 7.3.156 Radiated emission measurements from 901 to 905.55 MHz at the low carrier frequency

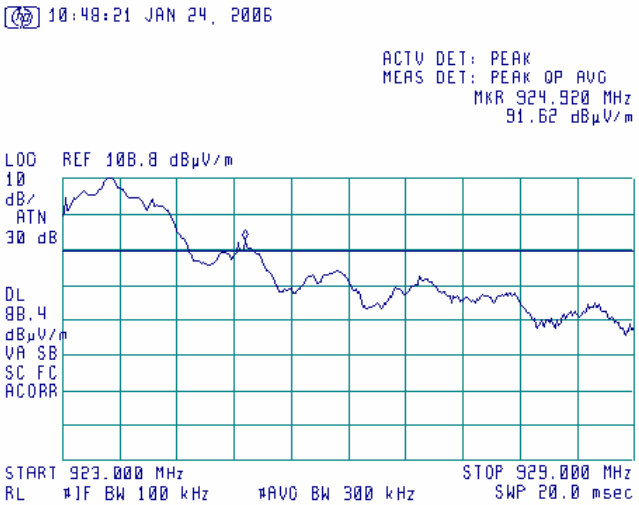
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
MODULATION: FSK



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

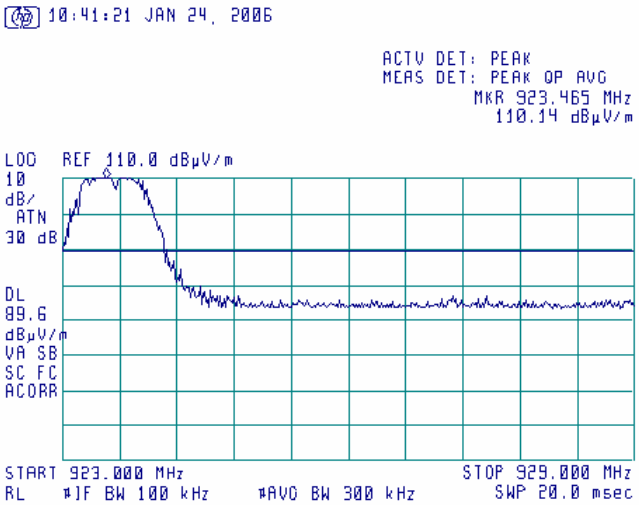
Plot 7.3.157 Radiated emission measurements from 923 to 929 MHz at the high carrier frequency

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



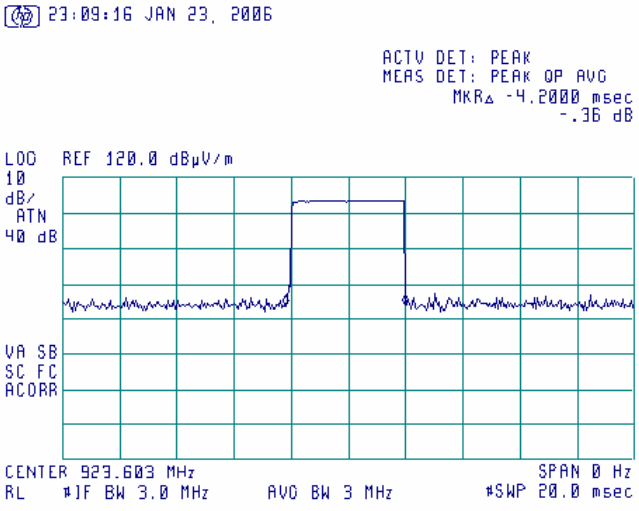
Plot 7.3.158 Radiated emission measurements from 923 to 929 MHz at the high carrier frequency

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

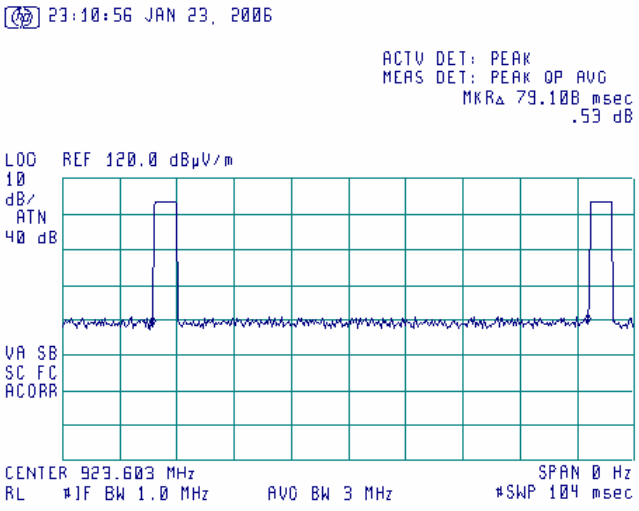


Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.3.159 Transmission pulse duration, PSK modulation

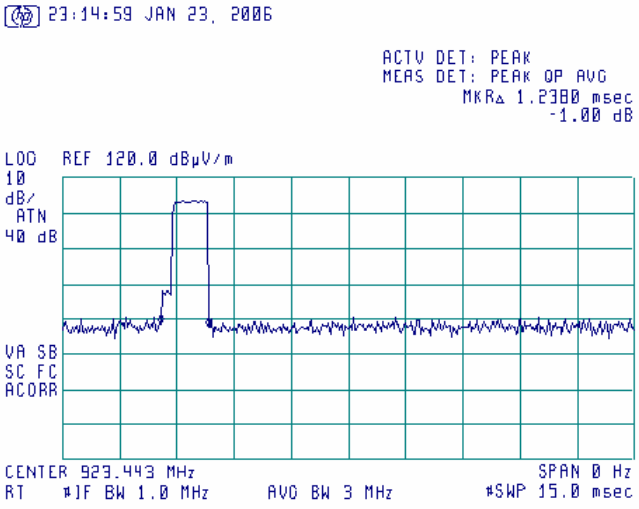


Plot 7.3.160 Transmission pulse period, PSK modulation

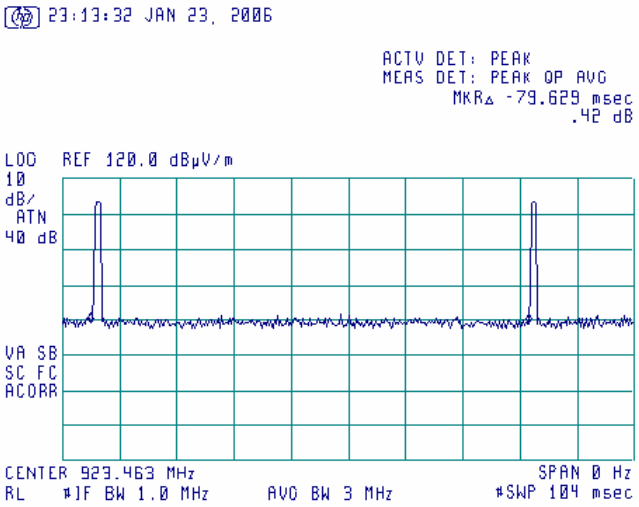


Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/30/2006 9:44:08 AM		
Temperature: 21ºC	Air Pressure: 1007 hPa	Relative Humidity: 42%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.3.161 Transmission pulse duration, FSK modulation



Plot 7.3.162 Transmission pulse period, FSK modulation



Test specification:	Section 15.247(e), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/24/2006 11:38:12 AM		
Temperature: 20ºC	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 3.6 V DC
Remarks:			

7.4 Peak spectral power density

7.4.1 General

This test was performed to measure the peak spectral power density radiated by the transmitter RF antenna. Specification test limits are given in Table 7.4.1.

Table 7.4.1 Peak spectral power density limits

Assigned frequency range, MHz	Measurement bandwidth, kHz	Peak spectral power density, dBm	Equivalent field strength limit @ 3m, dB(µV/m)*
902.0 – 928.0	3.0	8.0	103.2
2400.0 – 2483.5			
5725.0 – 5850.0			

* - Equivalent field strength limit was calculated from the peak spectral power density as follows: E=sqrt(30×P)/r, where P is peak spectral power density and r is antenna to EUT distance in meters.

7.4.2 Test procedure for field strength measurements

7.4.2.1 The EUT was set up as shown in Figure 7.4.1, energized and its proper operation was checked.

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

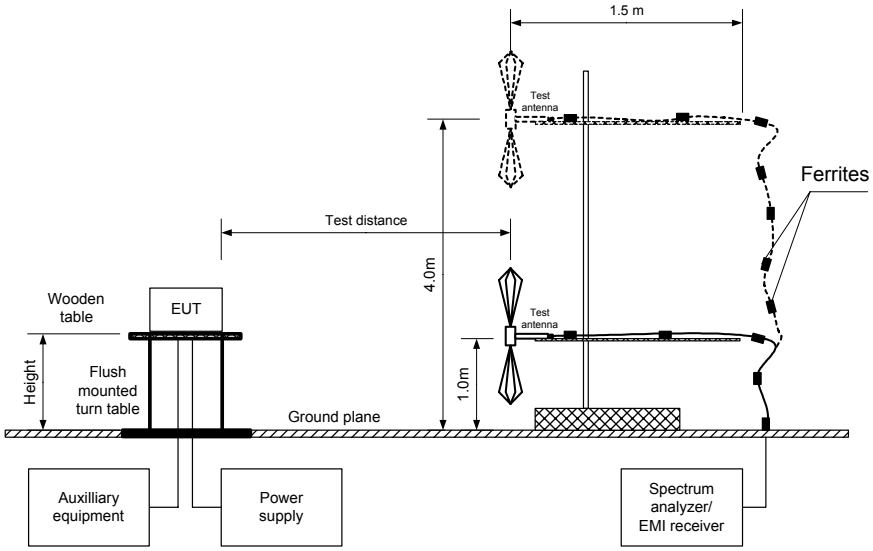
7.4.2.3 The field strength of the EUT carrier frequency was measured with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360^0 and the measuring antenna height was swept in both vertical and horizontal polarizations.

7.4.2.4 The frequency span of spectrum analyzer was set to capture the entire 6 dB band of the transmitter, in peak hold mode with resolution bandwidth set to 3.0 kHz, video bandwidth wider than resolution bandwidth, auto sweep time and sufficient number of sweeps was allowed for trace stabilization. The spectrum lines spacing was verified to be wider than 3 kHz. Otherwise the resolution bandwidth was reduced until individual spectrum lines were resolved and the power of individual spectrum lines was integrated over 3 kHz band.

7.4.2.5 The peak of emission was zoomed with span set just wide enough to capture the emission peak area and sweep time was set equal to span width divided by resolution bandwidth. Spectrum analyzer was set in peak hold mode, sufficient number of sweeps was allowed for trace stabilization and peak spectral power density was measured as provided in Table 7.4.2 and associated plots.

Test specification:	Section 15.247(e), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/24/2006 11:38:12 AM		
Temperature: 20ºC	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 3.6 V DC
Remarks:			

Figure 7.4.1 Setup for carrier field strength measurements



Test specification:	Section 15.247(e), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/24/2006 11:38:12 AM		
Temperature: 20ºC	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 3.6 V DC
Remarks:			

Table 7.4.2 Field strength measurement of peak spectral power density

ASSIGNED FREQUENCY RANGE: 902 – 928 MHz
TEST DISTANCE: 3 m
TEST SITE: Semi anechoic chamber
EUT HEIGHT: 0.8 m
DETECTOR USED: Peak
RESOLUTION BANDWIDTH: 3 kHz
VIDEO BANDWIDTH: 10 kHz
TEST ANTENNA TYPE: Biconilog (30 MHz – 1000 MHz)
TRANSMITTER OUTPUT POWER SETTINGS: Maximum

MODULATION: PSK
MODULATING SIGNAL: PRBS
BIT RATE: 60 kbps
TRANSMITTER OUTPUT POWER: 18.65 dBm at low carrier frequency
17.37 dBm at mid carrier frequency
16.27 dBm at high carrier frequency

Frequency, MHz	Field strength, dB(µV/m)	EUT antenna gain, dBi	Limit, dB(µV/m)	Margin, dB*	Antenna polarization	Antenna height, m	Turn-table position**, degrees
905.4943	103.80	2	103. 23	-1.43	Vertical	1.0	145
916.1855	101.44	2	103. 23	-3.79	Vertical	1.0	144
923.6025	101.00	2	103. 23	-4.23	Vertical	1.0	150

MODULATION: FSK
MODULATING SIGNAL: PRBS
BIT RATE: 120 kbps
TRANSMITTER OUTPUT POWER: 14.33 dBm at low carrier frequency
14.16 dBm at mid carrier frequency
13.43 dBm at high carrier frequency

Frequency, MHz	Field strength, dB(µV/m)	EUT antenna gain, dBi	Limit, dB(µV/m)	Margin, dB*	Antenna polarization	Antenna height, m	Turn-table position**, degrees
905.607	102.86	2	103.23	-2.37	Vertical	1.0	147
916.480	101.98	2	103.23	-3.25	Vertical	1.0	145
923.619	99.89	2	103.23	-5.34	Vertical	1.0	150

*****- Margin = Field strength - EUT antenna gain - calculated field strength limit.
******- EUT front panel refer to 0 degrees position of turntable.

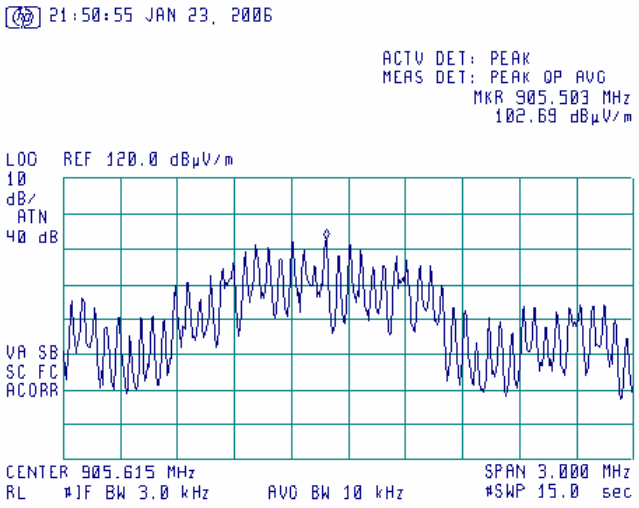
Reference numbers of test equipment used

HL 0521	HL 0589	HL 0604	HL 2009				

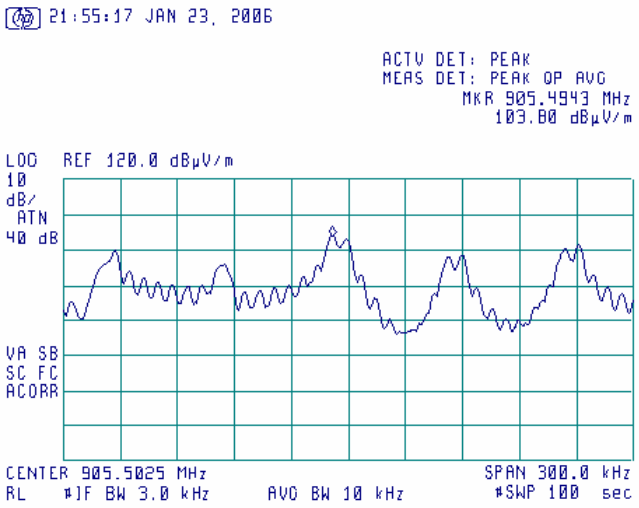
Full description is given in Appendix A.

Test specification:	Section 15.247(e), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/24/2006 11:38:12 AM		
Temperature: 20ºC	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.4.1 Peak spectral power density at low frequency within 6 dB band, PSK modulation

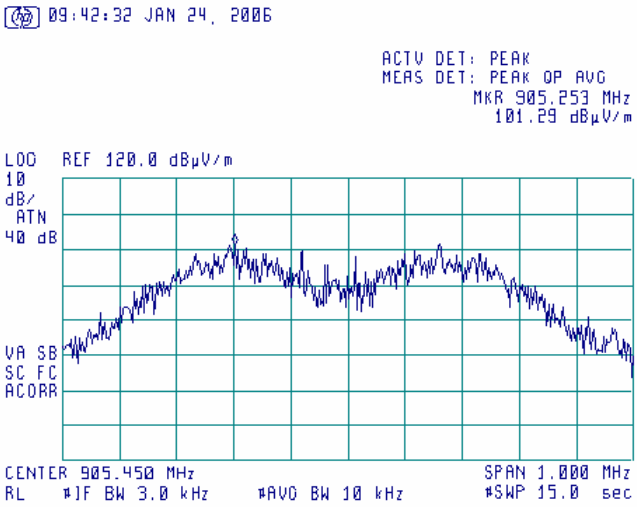


Plot 7.4.2 Peak spectral power density at low frequency zoomed at the peak, PSK modulation

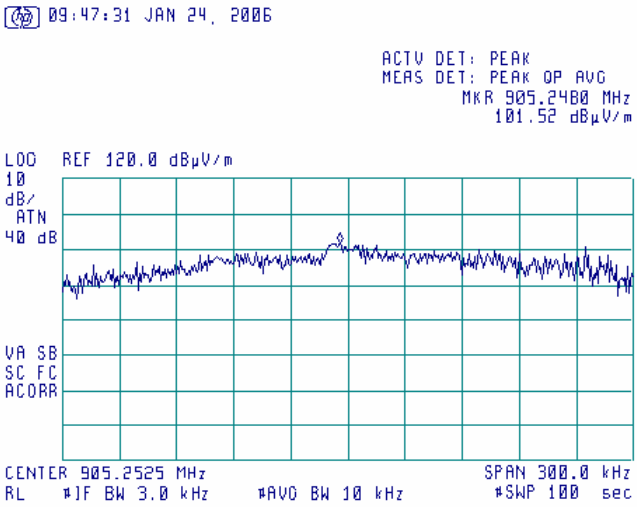


Test specification:	Section 15.247(e), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/24/2006 11:38:12 AM		
Temperature: 20ºC	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.4.3 Peak spectral power density at low frequency within 6 dB band, FSK modulation

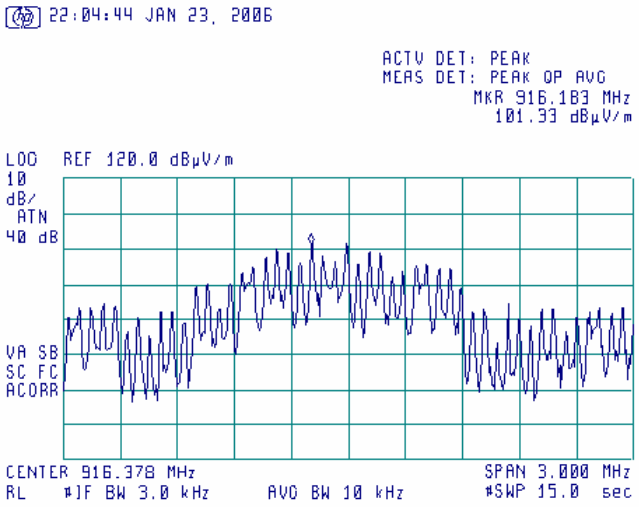


Plot 7.4.4 Peak spectral power density at low frequency zoomed at the peak, FSK modulation

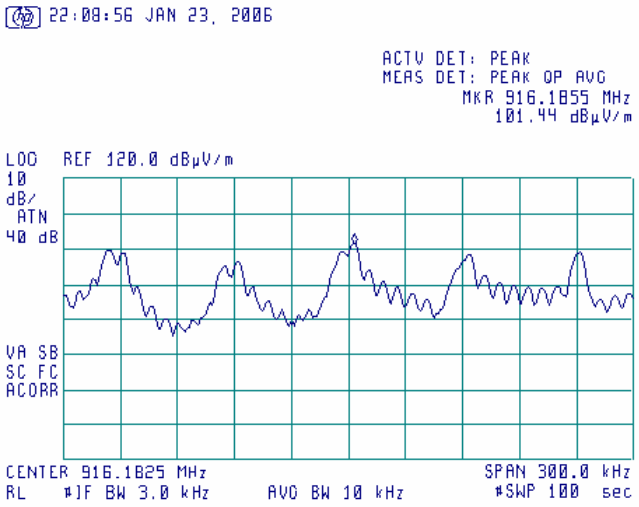


Test specification:	Section 15.247(e), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/24/2006 11:38:12 AM		
Temperature: 20ºC	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.4.5 Peak spectral power density at mid frequency within 6 dB band, PSK modulation

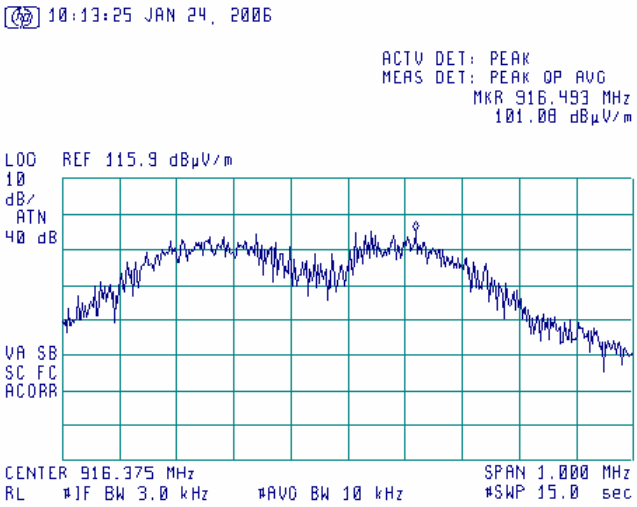


Plot 7.4.6 Peak spectral power density at mid frequency zoomed at the peak, PSK modulation

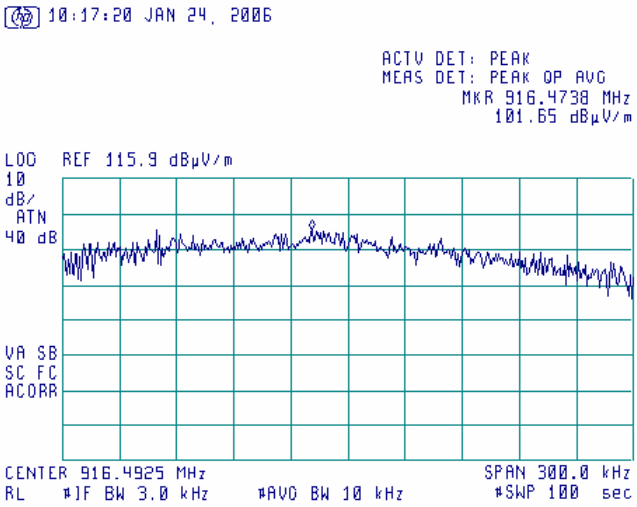


Test specification:	Section 15.247(e), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/24/2006 11:38:12 AM		
Temperature: 20ºC	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.4.7 Peak spectral power density at mid frequency within 6 dB band, FSK modulation

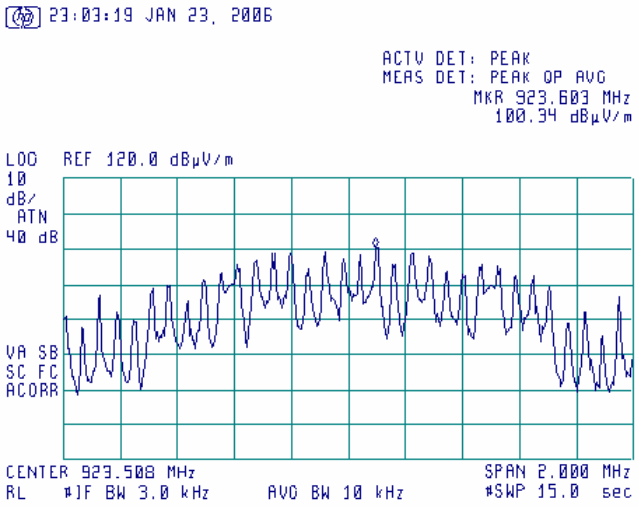


Plot 7.4.8 Peak spectral power density at mid frequency zoomed at the peak, FSK modulation

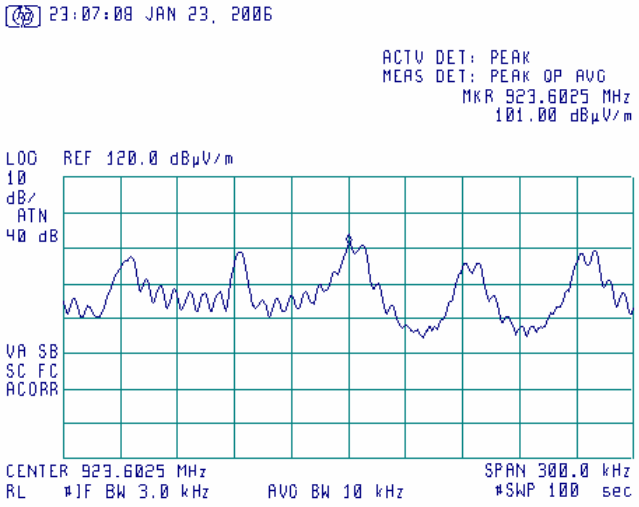


Test specification:	Section 15.247(e), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/24/2006 11:38:12 AM		
Temperature: 20ºC	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.4.9 Peak spectral power density at high frequency within 6 dB band, PSK modulation

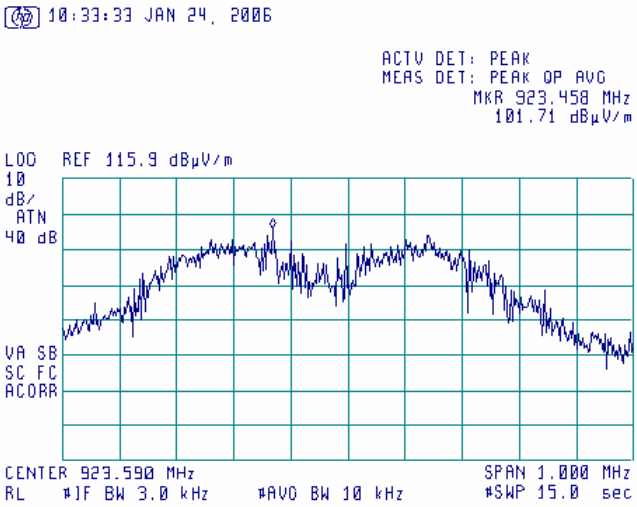


Plot 7.4.10 Peak spectral power density at high frequency zoomed at the peak, PSK modulation

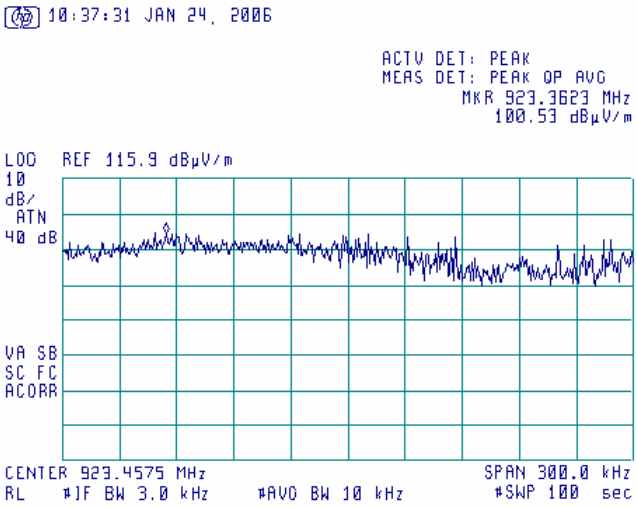


Test specification:	Section 15.247(e), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	1/24/2006 11:38:12 AM		
Temperature: 20ºC	Air Pressure: 1010 hPa	Relative Humidity: 48%	Power Supply: 3.6 V DC
Remarks:			

Plot 7.4.11 Peak spectral power density at high frequency within 6 dB band, FSK modulation



Plot 7.4.12 Peak spectral power density at high frequency zoomed at the peak, FSK modulation



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 & Time:	1/20/2006 12:58:48 PM		
Temperature: 20ºC	**Air Pressure:** 1007 hPa	**Relative Humidity:** 52%	**Power Supply:** 3.6 V DC
Remarks:			

7.5 Radiated emission measurements

7.5.1 General

This test was performed to measure radiated emissions from the EUT enclosure. Specification test limits are given in Table 7.5.1.

Table 7.5.1 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.

7.5.2 Test procedure for measurements in semi-anechoic chamber

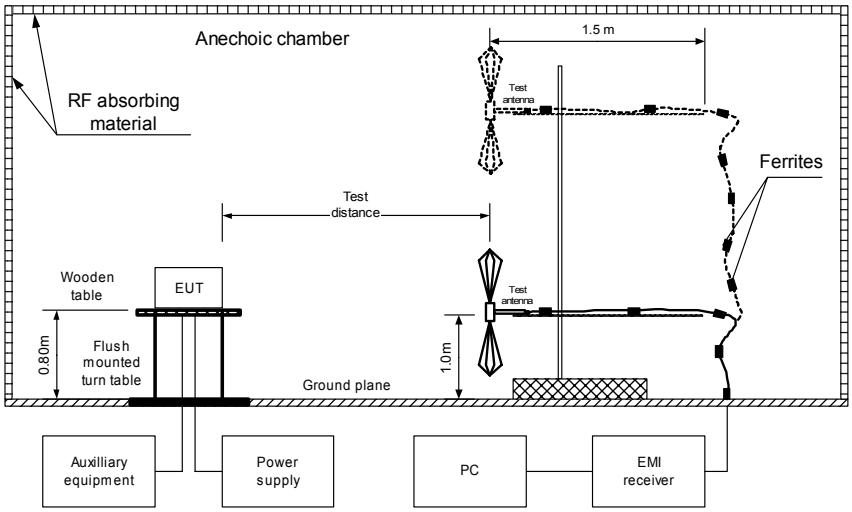
7.5.2.1 The EUT was set up as shown in Figure 7.5.1 and associated photograph/s, energized and the performance check was conducted.

7.5.2.2 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.

7.5.2.3 The worst test results (the lowest margins) were recorded in Table 7.5.2 and shown in the associated plots.

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 & Time:	1/20/2006 12:58:48 PM		
Temperature: 20ºC	Air Pressure: 1007 hPa	Relative Humidity: 52%	Power Supply: 3.6 V DC
Remarks:			

Figure 7.5.1 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 & Time:	1/20/2006 12:58:48 PM		
Temperature: 20ºC	**Air Pressure:** 1007 hPa	**Relative Humidity:** 52%	**Power Supply:** 3.6 V DC
Remarks:			

Table 7.5.2 Radiated emission test results

EUT SET UP: TABLE-TOP
LIMIT: Class B
EUT OPERATING MODE: Receive / Stand-by
TEST SITE: 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*				
No spurious were found								Pass

TEST SITE: ANECHOIC CHAMBER
TEST DISTANCE: 3 m
DETECTORS USED: PEAK / AVERAGE
FREQUENCY RANGE: 1000 MHz – 5000 MHz
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*				
No spurious were found								Pass

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

Reference numbers of test equipment used

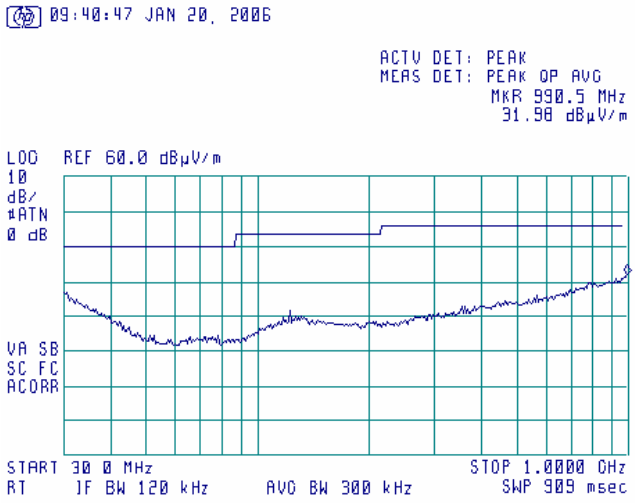
HL 1425	HL1553	HL 1556	HL 1941	HL 1984	HL 2259	HL 2697	HL 2780

Full description is given in Appendix A.

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 & Time:	1/20/2006 12:58:48 PM		
Temperature: 20ºC	Air Pressure: 1007 hPa	Relative Humidity: 52%	Power Supply: 3.6 V DC
Remarks:			

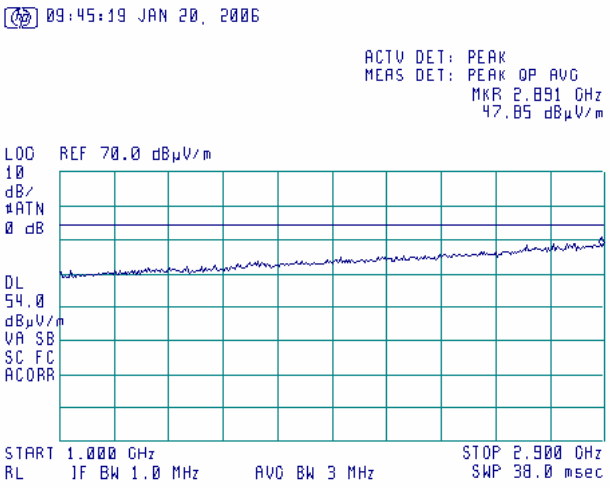
Plot 7.5.1 Radiated emission measurements in 30 - 1000 MHz range, vertical & horizontal antenna polarization

TEST SITE:	Anechoic chamber
LIMIT:	Class B
TEST DISTANCE:	3 m
EUT OPERATING MODE:	Receive / Stand-by



Plot 7.5.2 Radiated emission measurements in 1000 – 2900 MHz range, vertical & horizontal antenna polarization

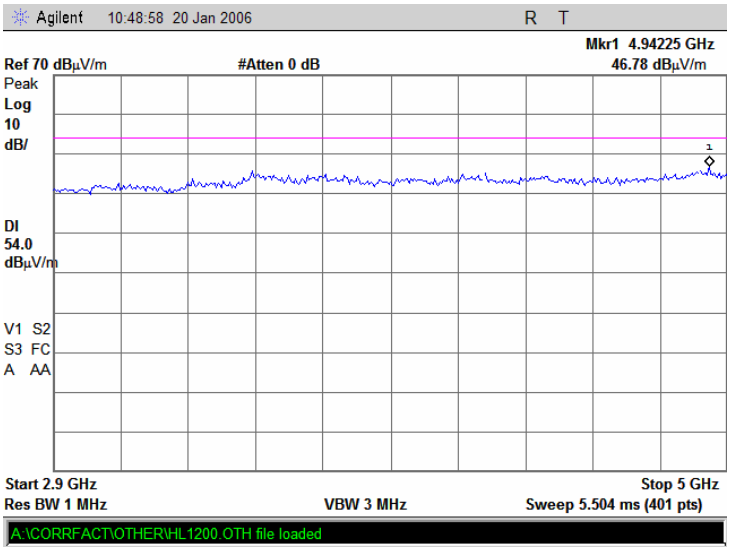
TEST SITE:	Anechoic chamber
LIMIT:	Class B
TEST DISTANCE:	3 m
EUT OPERATING MODE:	Receive / Stand-by



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 & Time:	1/20/2006 12:58:48 PM		
Temperature: 20ºC	**Air Pressure:** 1007 hPa	**Relative Humidity:** 52%	**Power Supply:** 3.6 V DC
Remarks:			

Plot 7.5.3 Radiated emission measurements in 2.9 - 5 GHz range, vertical & horizontal antenna polarization

TEST SITE:	Anechoic chamber
LIMIT:	Class B
TEST DISTANCE:	3 m
EUT OPERATING MODE:	Receive / Stand-by



8 APPENDIX A Test equipment and ancillaries used for tests

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal.	Due Cal.
0287	Turntable, Motorized Diameter, 2 m (OATS)	HL	TMD-2	042	11-Nov-05	11-Nov-06
0410	Cable, Coax, Microwave, DC-18 GHz, N-N, 1 m	Gore	PFP01P01039.4	9338767	11-Nov-05	11-Nov-06
0446	Antenna, Loop active, 10kHz-30MHz	EMCO	6502	2857	28-Jun-05	28-Jun-06
0465	Anechoic Chamber 9(L) x 6.5(W) x 5.5(H) m	HL	AC - 1	023	10-Oct-05	10-Oct-06
0521	EMI Receiver (Spectrum Analyzer) with RF filter section 9 kHz-6.5 GHz	Hewlett Packard	8546A	3617A00319, 3448A00253	10-Oct-05	10-Oct-06
0589	Cable Coaxial, GORE A2P01POL118, 2.3 m	HL	GORE-3	176	10-Oct-05	10-Oct-06
0593	Antenna Mast, 1-4 m Pneumatic	Madgesh	AM-F1	101	03-Feb-06	03-Feb-07
0594	Turn Table FOR ANECHOIC CHAMBER flush mount d=1.2 m Pneumatic	HL	TT-WDC1	102	27-Jan-06	27-Jan-07
0604	Antenna BiconiLog Log-Periodic/T Bow-TIE 26 - 2000 MHz	EMCO	3141	9611-1011	27-Jan-06	27-Jan-07
0813	Cable Coax, RG-214, 12 m, N-type connectors	HL	C214-12	149	27-Jan-06	27-Jan-07
1004	Cable Coaxial , ANDREW PSWJ4 , 6m	HL	ANDREW-6	163	27-Jan-06	27-Jan-07
1200	Quadruplexer 1-12 GHz (1-2 GHz; 2-4GHz;4-8 GHz; 8-12GHz)	Elettronica S.p.A. - Roma	UE 84	D/00240	10-Feb-05	10-Feb-06
1424	Spectrum Analyzer, 30 Hz- 40 GHz	Agilent Technologies (HP)	8564EC	3946A00219	27-Jan-06	27-Jan-07
1425	EMI Receiver, 9 kHz - 2.9 GHz, System: HL1426, HL1427	Agilent Technologies (HP)	8542E	3710A00222, 3705A00204	27-Jan-06	27-Jan-07
1430	EMI Receiver, 9 kHz - 2.9 GHz, System: HL1431, HL1432	Agilent Technologies (HP)	8542E	3807A00262,3705A00217	27-Jan-06	27-Jan-07
1474	Cable, 1 m	Harbour Industries	MIL 17/60-RG142	1474	11-Sep-05	11-Sep-06
1552	Cable RF, 8 m	Alpha Wire	RG-214	1552	11-Sep-05	11-Sep-06
1553	Cable RF, 3.5 m	Alpha Wire	RG-214	1553	11-Sep-05	11-Sep-06
1556	Cable RF, 0.5 m	Telequis	MIL-C-17F-RG 058 CU	1556	11-Sep-05	11-Sep-06
1848	Antenna mast 4m/6m with polarity control (OATS)	Sh. I. Machines	AM-5	1	19-Apr-05	19-Apr-06
1941	Cable 18GHz, 4 m, green	Rhophase Microwave Limited	SPS-1803A-4000-NPS	T4657	19-Apr-05	19-Apr-06
1947	Cable 18GHz, 6.5 m, blue	Rhophase Microwave Limited	NPS-1803A-6500-NPS	T4974	19-Apr-05	19-Apr-06
1984	Antenna, Double-Ridged Waveguide Horn, 1-18 GHz, 300 W, N-type	EMC Test Systems	3115	9911-5964	19-Apr-05	19-Apr-06
2009	Cable RF, 8 m	Alpha Wire	RG-214	C-56	19-Apr-05	19-Apr-06

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal.	Due Cal.
2254	Cable 40 GHz, 0.8 m, blue	Rhophase Microwave Limited	KPS-1503A-800-KPS	W4907	24-Jun-05	24-Jun-06
2259	Amplifier Low Noise 2-20 GHz	Sophia Wireless	LNA0220-C	0223	19-Apr-05	19-Apr-06
2387	Filter Bandpass, 8-14 GHz	HL	FBP8-14	2387	05-Jun-05	05-Jun-06
2499	Quadruplexer 1-12 GHz (1-2 GHz; 2-4GHz;4-8 GHz; 8-12GHz)	Elettronica S.p.A. - Roma	UE 84	D/00239	19-Apr-05	19-Apr-06
2697	Antenna, 30 MHz - 3.0 GHz,	Sunol Sciences. Corp. Pleasanton, California USA	JB3	A022805	19-Apr-05	19-Apr-06
2780	EMS analyzer, 100 Hz to 26.5 GHz	Agilent Technologies (HP)	E7405A	MY45102466	11-Jun-05	11-Jun-06

9 APPENDIX B Measurement uncertainties

Expanded uncertainty at 95% confidence in Hermon Labs EMC measurements

Test description	Expanded uncertainty
Conducted carrier power at RF antenna connector	Below 12.4 GHz: ± 1.7 dB 12.4 GHz to 40 GHz: ± 2.3 dB
Conducted emissions at RF antenna connector	9 kHz to 2.9 GHz: ± 2.6 dB 2.9 GHz to 6.46 GHz: ± 3.5 dB 6.46 GHz to 13.2 GHz: ± 4.3 dB 13.2 GHz to 22.0 GHz: ± 5.0 dB 22.0 GHz to 26.8 GHz: ± 5.5 dB 26.8 GHz to 40.0 GHz: ± 4.8 dB
Occupied bandwidth	± 8.0 %
Duty cycle, timing (Tx ON / OFF) and average factor measurements	± 1.0 %
Conducted emissions with LISN	9 kHz to 150 kHz: ± 3.9 dB 150 kHz to 30 MHz: ± 3.8 dB
Radiated emissions at 3 m measuring distance Horizontal polarization Vertical polarization	 Biconilog antenna: ± 5.3 dB Biconical antenna: ± 5.0 dB Log periodic antenna: ± 5.3 dB Double ridged horn antenna: ± 5.3 dB Biconilog antenna: ± 6.0 dB Biconical antenna: ± 5.7 dB Log periodic antenna: ± 6.0 dB Double ridged horn antenna: ± 6.0 dB

The test equipment has been calibrated according to its recommended procedures and is within the manufacturer's published limit of error. The standards and instruments used in the calibration system conform to the present requirements of ISO/IEC 17025 (or alternately ANSI/NCSL Z540-1).
The laboratory calibrates its measurement standards by a third party (traceable to NIST, USA) on a regular basis according to equipment manufacturer requirements. The Hermon Labs EMC measurements uncertainty is given in the table above.

10 APPENDIX C Test facility description

Tests were performed at Hermon Laboratories Ltd., which is a fully independent, private, EMC, safety, environmental and telecommunication testing facility. Hermon Laboratories is listed by the Federal Communications Commission (USA) for all parts of Code of Federal Regulations 47 (CFR 47) and by Industry Canada for electromagnetic emissions (file numbers IC 2186-1 for OATS and IC 2186-2 for anechoic chamber), certified by VCCI, Japan (the registration numbers are R-808 for OATS, R-1082 for anechoic chamber, C-845 for conducted emissions site), assessed by TNO Certification EP&S (Netherlands) for a number of EMC, telecommunications, environmental, safety standards, and by AMTAC (UK) for safety of medical devices. The laboratory is accredited by American Association for Laboratory Accreditation (USA) according to ISO/IEC 17025 for electromagnetic compatibility, product safety, telecommunications testing and environmental simulation (for exact scope please refer to Certificate No. 839.01).

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e-mail: mail@hermonlabs.com
website: www.hermonlabs.com

Person for contact: Mr. Alex Usoskin, QA manager.

11 APPENDIX D Specification references

47CFR part 15: 2005	Radio Frequency Devices.
FR Vol.62	Federal Register, Volume 62, May 13, 1997
ANSI C63.2: 1996	American National Standard for Instrumentation-Electromagnetic Noise and Field Strength, 10 kHz to 40 GHz-Specifications.
ANSI C63.4: 2003	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

12 APPENDIX E Abbreviations and acronyms

A	ampere
AC	alternating current
A/m	ampere per meter
AM	amplitude modulation
AVRG	average (detector)
cm	centimeter
dB	decibel
dBm	decibel referred to one milliwatt
dB(μV)	decibel referred to one microvolt
dB(μV/m)	decibel referred to one microvolt per meter
dB(μA)	decibel referred to one microampere
dBΩ	decibel referred to one Ohm
DC	direct current
DTS	digital transmission system
EIRP	equivalent isotropically radiated power
ERP	effective radiated power
EUT	equipment under test
F	frequency
FHSS	frequency hopping spread spectrum
GHz	gigahertz
GND	ground
H	height
HL	Hermon laboratories
Hz	hertz
ITE	information technology equipment
k	kilo
kHz	kilohertz
LISN	line impedance stabilization network
LO	local oscillator
m	meter
MHz	megahertz
min	minute
mm	millimeter
ms	millisecond
μs	microsecond
NA	not applicable
NT	not tested
OATS	open area test site
Ω	Ohm
PCB	printed circuit board
PM	pulse modulation
PS	power supply
ppm	part per million (10^{-6})
QP	quasi-peak
RE	radiated emission
RF	radio frequency
rms	root mean square
Rx	receive
s	second
T	temperature
Tx	transmit
V	volt
VA	volt-ampere

13 APPENDIX F Test equipment correction factors

Antenna Factor
Active Loop Antenna
EMC Test Systems, model 6502, serial number 2857

Frequency, MHz	Magnetic Antenna Factor, dB(S/m)	Electric Antenna Factor, dB(1/m)
0.009	-32.8	18.7
0.010	-33.8	17.7
0.020	-38.3	13.2
0.050	-41.1	10.4
0.075	-41.3	10.2
0.100	-41.6	9.9
0.150	-41.7	9.8
0.250	-41.6	9.9
0.500	-41.8	9.7
0.750	-41.9	9.6
1.000	-41.4	10.1
2.000	-41.5	10.0
3.000	-41.4	10.1
4.000	-41.4	10.1
5.000	-41.5	10.0
10.000	-41.9	9.6
15.000	-41.9	9.6
20.000	-42.2	9.3
25.000	-42.8	8.7
30.000	-44.0	7.5

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

Antenna factor

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
Model 3115, S/N 9911-5964, HL1984

Frequency, MHz	Antenna factor, dB(1/m)
1000.0	24.7
1500.0	25.7
2000.0	27.6
2500.0	28.9
3000.0	31.2
3500.0	32.0
4000.0	32.5
4500.0	32.7
5000.0	33.6
5500.0	35.1
6000.0	35.4
6500.0	34.9
7000.0	36.1
7500.0	37.8
8000.0	38.0
8500.0	38.1
9000.0	39.1
9500.0	38.3
10000.0	38.6
10500.0	38.2
11000.0	38.7
11500.0	39.5
12000.0	40.0
12500.0	40.4
13000.0	40.5
13500.0	41.1
14000.0	41.6
14500.0	41.7
15000.0	38.7
15500.0	38.2
16000.0	38.8
16500.0	40.5
17000.0	42.5
17500.0	45.9
18000.0	49.4

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB(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: 00027177, HL 2432

Frequency, MHz	Antenna gain, dBi	Antenna factor. dB(1/m)
1000.0	5.5	24.7
1500.0	8.0	25.7
2000.0	8.4	27.8
2500.0	9.3	28.9
3000.0	9.0	30.7
3500.0	9.3	31.8
4000.0	9.3	33.0
4500.0	10.4	32.8
5000.0	10.0	34.2
5500.0	10.1	34.9
6000.0	10.6	35.2
6500.0	11.0	35.4
7000.0	10.8	36.3
7500.0	10.4	37.3
8000.0	10.8	37.5
8500.0	10.8	38.0
9000.0	11.0	38.3
9500.0	11.5	38.3
10000.0	11.5	38.7
10500.0	11.9	38.7
11000.0	12.2	38.9
11500.0	11.9	39.5
12000.0	12.3	39.5
12500.0	12.7	39.4
13000.0	12.0	40.5
13500.0	12.0	40.8
14000.0	11.6	41.5
14500.0	12.2	41.3
15000.0	13.6	40.2
15500.0	15.3	38.7
16000.0	15.8	38.5
16500.0	14.8	39.8
17000.0	12.9	41.9
17500.0	9.2	45.8
18000.0	6.2	49.1

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

Antenna calibration
Sunol Sciences Inc., model JB3, serial number A022805

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
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
95	9.2	0.5	1.13	690	20.1	6.9	4.88	1285	25.4	7.0	4.97	1880	28.5	7.2	5.22	2475	31.4	6.7	4.69
100	10.6	-0.4	0.92	695	20.2	6.8	4.82	1290	25.3	7.1	5.10	1885	28.5	7.2	5.22	2480	31.3	6.8	4.79
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
115	13.3	-1.9	0.65	710	20.5	6.8	4.75	1305	25.3	7.2	5.21	1900	28.6	7.2	5.27	2495	31.2	7.0	4.99
120	13.9	-2.1	0.62	715	20.5	6.8	4.80	1310	25.5	7.1	5.09	1905	28.5	7.3	5.36	2500	30.9	7.2	5.27
125	14.2	-2.0	0.63	720	20.5	6.9	4.85	1315	25.4	7.2	5.23	1910	28.5	7.4	5.45	2505	31.1	7.1	5.15
130	14.2	-1.7	0.68	725	20.6	6.8	4.81	1320	25.3	7.3	5.36	1915	28.5	7.3	5.38	2510	31.0	7.2	5.22
140	13.4	-0.3	0.94	735	20.9	6.7	4.65	1330	25.6	7.0	5.06	1925	28.6	7.3	5.35	2520	31.2	7.0	5.05
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
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
195	12.1	3.9	2.47	790	21.3	6.8	4.82	1385	26.0	7.0	4.99	1980	29.0	7.1	5.16	2575	31.5	7.0	4.96
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
255	12.5	5.9	3.85	850	21.9	6.9	4.86	1445	26.3	1	5.11	2040	29.3	7.1	5.13	2635	31.8	6.8	4.82
260	12.7	5.8	3.83	855	22.0	6.8	4.80	1450	26.5	7.0	4.98	2045	29.2	7.2	5.23	2640	31.7	7.0	4.98
265	13.2	5.5	3.54	860	22.1	6.8	4.74	1455	26.4	7.1	5.07	2050	29.2	7.2	5.27	2645	31.7	6.9	4.93
270	13.7	5.2	3.27	865	22.0	6.9	4.92	1460	26.4	7.1	5.17	2055	29.3	7.2	5.21	2650	31.8	6.9	4.85
275	13.7	5.3	3.39	870	21.9	7.1	5.11	1465	26.4	7.2	5.19	2060	29.5	7.0	5.02	2655	31.8	6.9	4.85
280	13.7	5.4	3.50	875	22.0	7.1	5.08	1470	26.4	7.2	5.22	2065	29.4	7.1	5.08	2660	31.7	7.0	5.02
285	13.7	5.6	3.61	880	22.1	7.0	5.05	1475	26.4	7.1	5.17	2070	29.4	7.1	5.10	2665	32.0	6.7	4.71
290	13.7	5.7	3.72	885	22.1	7.0	5.06	1480	26.5	7.1	5.12	2075	29.5	7.0	5.01	2670	32.0	6.7	4.67
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
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
540	18.4	6.4	4.41	1135	24.4	6.9	4.90	1730	28.0	7.0	4.98	2325	304	7.2	5.22	2920	33.3	6.2	4.16
545	18.4	6.5	4.47	1140	24.5	6.8	4.81	1735	28.0	7.0	5.02	2330	30.4	7.1	5.13	2925	33.0	6.5	4.45
550	18.4	6.6	4.53	1145	24.6	6.8	4.76	1740	28.0	7.1	5.07	2335	30.5	7.0	5.07	2930	33.0	6.5	4.51
555	18.6	6.5	4.45	1150	24.7	6.7	4.71	1745	28.0	7.0	5.04	2340	30.5	7.1	5.11	2935	33.0	6.5	4.48
560	18.8	6.4	4.37	1155	24.7	6.8	4.76	1750	28.1	7.0	5.01	2345	30.6	7.0	5.07	2940	33.0	6.5	4.52
565	18.9	6.4	4.33	1160	24.7	6.8	4.80	1755	27.9	7.1	5.17	2350	30.5	7.1	5.12	2945	33.1	6.5	4.42
570	19.0	6.3	4.28	1165	24.7	6.8	4.81	1760	27.8	7.3	5.34	2355	30.6	7.1	5.08	2950	33.2	6.4	4.32
575	19.1	6.3	4.31	1170	24.7	6.8	4.81	1765	27.9	7.3	5.31	2360	30.9	6.8	4.79	2955	33.3	6.3	4.27
580	19.1	6.4	4.33	1175	24.8	6.8	4.84	1770	27.9	7.2	5.28	2365	31.0	6.7	4.66	2960	33.3	6.3	4.30
585	19.1	6.5	4.43	1180	24.8	6.9	4.86	1775	27.9	7.3	5.32	2370	31.1	6.6	4.61	2965	33.4	6.2	4.21
590	19.1	6.6	4.52	1185	24.8	6.9	4.92	1780	27.9	7.3	5.35	2375	31.1	6.6	4.60	2970	33.3	6.4	4.36
595	19.0	6.6	4.62	1190	24.7	7.0	4.99	1785	28.1	7.2	5.21	2380	31.1	6.6	4.61	2975	33.0	6.6	4.60
600	19.0	6.7	4.72	1195	24.7	7.0	5.02	1790	28.2	7.0	5.07	2385	31.1	6.7	4.62	2980	32.9	6.8	4.74
605	19.1	6.8	4.74	1200	24.7	7.0	5.05	1795	28.2	7.0	5.07	2390	31.2	6.6	4.56	2985	32.8	6.9	4.93
610	19.1	6.8	4.76	1205	24.08	7.1	5.08	1800	28.3	7.0	5.06	2395	31.2	6.6	4.60	2990	32.9	6.8	4.82
615	19.4	6.5	4.51	1210	24.8	7.1	5.11	1805	28.3	7.1	5.07	2400	30.9	6.9	4.93	3000	33.4	6.4	4.33

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 RG-214, HL 0813

No.	Frequency, MHz	Cable loss, dB
1	10	0.15
2	20	0.40
3	30	0.51
4	40	0.61
5	50	0.68
6	60	0.76
7	70	0.80
8	80	0.92
9	90	0.96
10	100	0.99
11	200	1.60
12	300	1.85
13	400	2.25
14	500	2.43
15	600	2.80
16	700	3.14
17	800	3.34
18	900	3.75
19	1000	4.05
20	1200	4.41
21	1400	4.81
22	1600	5.18
23	1800	5.58
24	2000	6.09
25	2500	7.27
26	2900	8.01

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
RF cable 8 m, model RG-214-8m, HL 1552

No.	Frequency, MHz	Cable loss, dB	Measurement uncertainty, dB	Notes
1	0.010	0.01		
2	0.1	0.01		
3	1	0.03		
4	10	0.12		
5	20	0.23		
6	30	0.30		
7	40	0.32		
8	50	0.34		
9	60	0.39		
10	70	0.43		
11	80	0.48		
12	90	0.50		
13	100	0.55		
14	200	0.78	±0.05	
15	300	1.04		
16	400	1.16		
17	500	1.33		
18	600	1.51		
19	700	1.65		
20	800	1.77		
21	900	1.92		
22	1000	2.04		
23	1200	2.26		
24	1400	2.49		
25	1600	2.74		
26	1800	2.94		
27	2000	3.18		
28	2500	3.65		
29	2900	4.08		

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 18 GHz, 4 m, green, model: SPS-1803A-4000-NPS, S/N T4657, HL 1941

Frequency, GHz	Cable loss, dB
0.03	0.39
0.05	0.49
0.1	0.68
0.2	0.95
0.3	1.30
0.5	1.58
0.7	1.84
0.9	2.08
1.1	2.28
1.3	2.56
1.5	2.91
1.7	2.95
1.9	3.17
2.1	3.22
2.3	3.25
2.5	3.39
2.7	3.51
2.9	3.67
3.1	3.81
3.3	3.92
3.5	4.05
3.7	4.14
3.9	4.30
4.1	4.44
4.3	4.55
4.5	4.68
4.7	4.75
4.9	4.84
5.1	4.86
5.3	4.89
5.5	5.00
5.7	5.05
5.9	5.19
6.1	5.28
7.7	5.58

Frequency, GHz	Cable loss, dB
7.9	5.63
8.1	5.67
8.3	5.70
8.5	5.74
8.7	5.78
8.9	5.84
9.1	5.89
9.3	5.94
9.5	6.02
9.7	6.10
9.9	6.12
10.1	6.09
10.3	6.03
10.5	6.01
10.7	6.05
10.9	6.08
11.1	6.10
11.3	6.18
11.5	6.23
11.7	6.20
11.9	6.16
12.1	6.18
12.4	6.33
13.0	6.51
13.5	6.51
14.0	6.75
14.5	6.82
15.0	6.93
15.5	7.16
16.0	7.10
16.5	7.18
17.0	7.67
17.5	7.71
18.0	7.61

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		