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Electrical

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TEST REPORT

ACCORDING TO: FCC part 15 subpart C, §15.247

FOR:

Airspan Networks (Israel) Ltd.

Base station hybrid transceiver

Model: BSR-2.4

Table of contents

1 Applicant information

Client name:	Airspan Networks (Israel) Ltd.
Address:	1, Harava street, "Unitronics" building, POB 199, Airport City, 70100, Israel
Telephone:	+972 3977 7444
Fax:	+972 3977 7400
E-mail:	zlevi@Airspan.com
Contact name:	Mr. Zion Levi

2 Equipment under test attributes

Product name:	Base station hybrid transceiver
Product type:	2.4 GHz
Model(s):	BSR-2.4
Serial number:	026C430090
Receipt date	7/5/2004 10:04:00 AM

3 Manufacturer information

Manufacturer name:	Airspan Networks (Israel) Ltd.
Address:	1, Harava street, "Unitronics" building, POB 199, Airport City, 70100, Israel
Telephone:	+972 3977 7444
Fax:	+972 3977 7400
E-Mail:	zlevi@Airspan.com
Contact name:	Mr. Zion Levi

4 Test details

Project ID:	14551
Location:	Hermon Laboratories Ltd. P.O.Box 23, Binyamina 30500, Israel
Test started:	7/5/2004
Test completed:	7/5/2004
Test specification(s):	FCC part 15 subpart C, §15.247(d); subpart B, , §15.207, §15.107
Test suite:	FCC_15.247_DTS_with_RF_connector (5/4/2004 10:53:46 AM, modified)

5 Tests summary

Test	Status
Transmitter characteristics	
Section 15.247(a)2, 6 dB bandwidth	Provided in MARRAD_FCC.14551
Section 15.247(b)3, Peak output power	Provided in MARRAD_FCC.14551
Section 15.247(b)5, RF exposure	Provided in MARRAD_FCC.14551
Section 15.247(c), Conducted spurious emissions	Provided in MARRAD_FCC.14551
Section 15.247(c), Radiated spurious emissions	Provided in MARRAD_FCC.14551
Section 15.247(d), Peak power density	Pass
Section 15.207(a), Conducted emission	Pass
Section 15.203, Antenna requirement	Not required (permanently attached antenna)
Unintentional emissions	
Section 15.107, Conducted emission at AC power port	Pass
Section 15.109, Radiated emission	Provided in MARRAD_FCC.14551
Section 15.111, Conducted emission at receiver antenna port	Not required

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

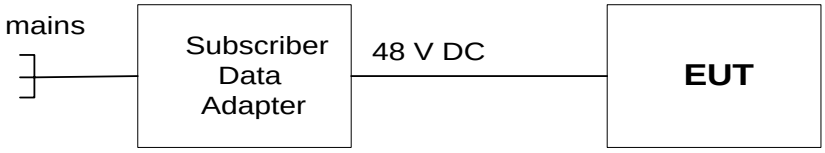
	Name and Title	Date	Signature
Tested by:	Mr. M. Nikishin, test engineer	August 3, 2004	
Reviewed by:	Mrs. M. Cherniavsky, certification engineer	September 13, 2004	
	Mr. M. Nikishin, EMC group leader	September 13, 2004	
Approved by:	Mr. A. Usoskin, C.E.O.	September 14, 2004	

6 EUT description

6.1 General information

A base station radio, BSR-2.4, is a part of a broadband fixed cellular wireless access system WipLL. The system provides a radio link between an end-user of the telecom network (a subscriber) and a network itself to give high-speed data access. The EUT is an outdoor unit comprising a hybrid system transceiver (8FSK digital modulation with frequency hopping, data rate 1, 2, 3 Mbps and 1.33, 4 Mbps) that controls the WipLL sector and has several roles. The transceiver operates in 2402 MHz to 2480 MHz frequency range and is equipped with an 11 dBi gain flat plane internal antenna.
Each BSR is a controller of the PPMA (Pre-emptive Polling Multiple Access) protocol within its sector. It polls SPRs according to requirements that are determined by applications, availability of resources and pre-defined policy. Policy is based on defining allowed delays and maximum bandwidth according to packet types, determination of priorities between applications and mode of polling mechanism – preemptive or time bounded.
Each BSR is optionally physically connected to a base station distribution unit, which provides 48 V DC power, data connectivity and local switching functionality as well synchronization between the BSRs. A BSDU can serve up to six BSRs, each BSR capacity is up to 3 Mbps, therefore a 6-BSR base-station-site capacity is about 18 Mbps.
Throughout testing the BSR was connected to a subscriber data adapter (SDA), provided 48 V DC power.

6.2 Test configuration



Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	7/5/2004 4:03:01 PM		
Temperature: 25,4 ºC	Air Pressure: 1006 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks:			

7 Measurements

7.1 Peak spectral power density

7.1.1 General

This test was performed to measure the peak spectral power density at the transmitter RF antenna connector. Specification test limits are given in Table 7.1.1.

Table 7.1.1 Peak spectral power density limits

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

7.1.2 Test procedure

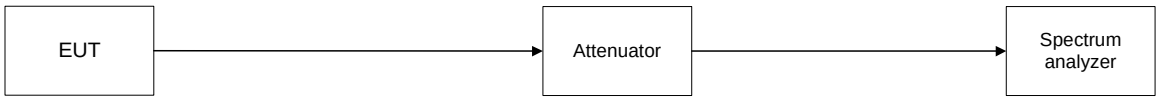
7.1.2.1 The EUT was set up as shown in Figure 7.1.1, energized and its proper operation was checked.

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

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

7.1.2.4 The peak of emission was zoomed with span set just wide enough to capture the emission peak area and sweep time was set equal to span width divided by resolution bandwidth. Spectrum analyzer was set in peak hold mode, sufficient number of sweeps was allowed for trace stabilization and peak spectral power density was measured as provided in Table 7.1.2 and associated plots.

Figure 7.1.1 Peak spectral power density test setup



Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	7/5/2004 4:03:01 PM		
Temperature: 25,4 ºC	Air Pressure: 1006 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks:			

Photograph 7.1.1 Peak spectral power density test setup

Test specification:	**Section 15.247(d), Peak power density**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	7/5/2004 4:03:01 PM		
Temperature: 25,4 ºC	**Air Pressure:** 1006 hPa	**Relative Humidity:** 39 %	**Power Supply:** 120 VAC
Remarks:			

Table 7.1.2 Peak spectral power density test results

ASSIGNED FREQUENCY: 2400.0 - 2483.5 MHz
MODULATION: FSK
MODULATING SIGNAL: PRBS
BIT RATE: 1.0, 2.0, 3.0 and 1.33, 4.0 Mbps
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
TRANSMITTER OUTPUT POWER: For 3.0 Mbps:
23.3 dBm at low carrier frequency
23.3 dBm at mid carrier frequency
23.3 dBm at high carrier frequency
For 1.33 Mbps:
23.2 dBm at low carrier frequency
23.2 dBm at mid carrier frequency
23.2 dBm at high carrier frequency
DETECTOR USED: Peak
RESOLUTION BANDWIDTH: 3 kHz
VIDEO BANDWIDTH: 10 kHz

Carrier frequency, MHz	Spectrum analyzer reading, dBm	External attenuation, dB	Cable loss, dB	Peak power density, dB(mW/3 kHz)	Limit, dBm	Margin*, dB	Verdict
3.0 Mbps data rate (the worst case from 1.0, 2.0 and 3.0 Mbps which correspond to 1.0 Msymbol per second)							
2402.0	5.0	Included	Included	5.0	8.0	-3.0	Pass
2441.0	5.3	Included	Included	5.3	8.0	-2.7	Pass
2480.0	5.0	Included	Included	5.0	8.0	-3.0	Pass
1.33 Mbps data rate(the worst case from 1.33, and 4.0 Mbps which correspond to 1.33 Msymbol per second)							
2403.0	2.0	Included	Included	2.0	8.0	-6.0	Pass
2441.0	1.3	Included	Included	1.3	8.0	-6.7	Pass
2477.0	1.3	Included	Included	1.3	8.0	-6.7	Pass

* - Margin = Peak power density – specification limit.

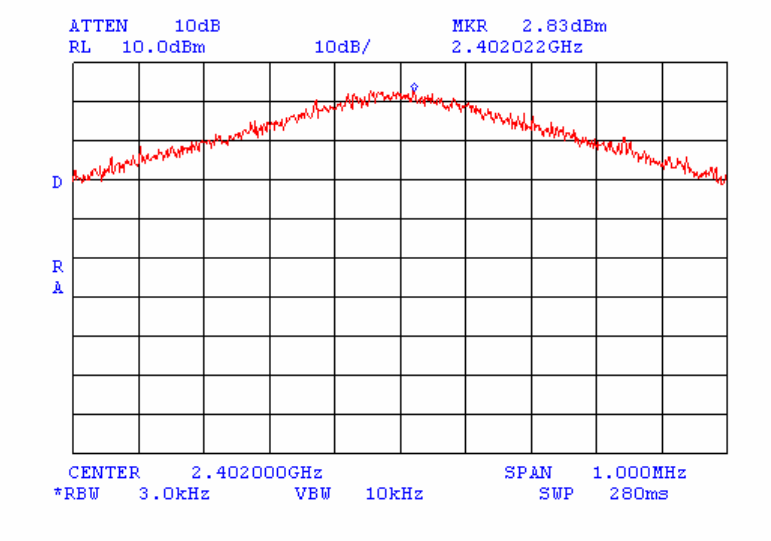
Reference numbers of test equipment used

HL 1424	HL 1651	HL 2254	HL 2524				

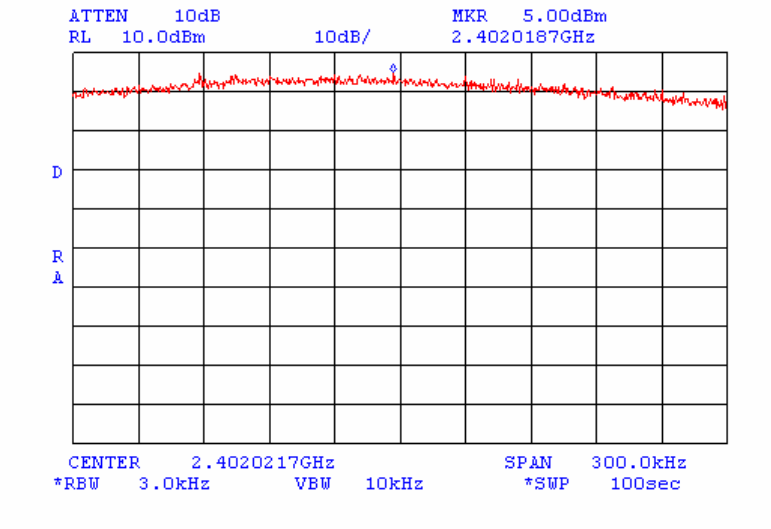
Full description is given in Appendix A.

Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	7/5/2004 4:03:01 PM		
Temperature: 25,4 ºC	Air Pressure: 1006 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks:			

Plot 7.1.1 Peak spectral power density at low frequency within 6 dB band. 3.0 Mbps data rate.

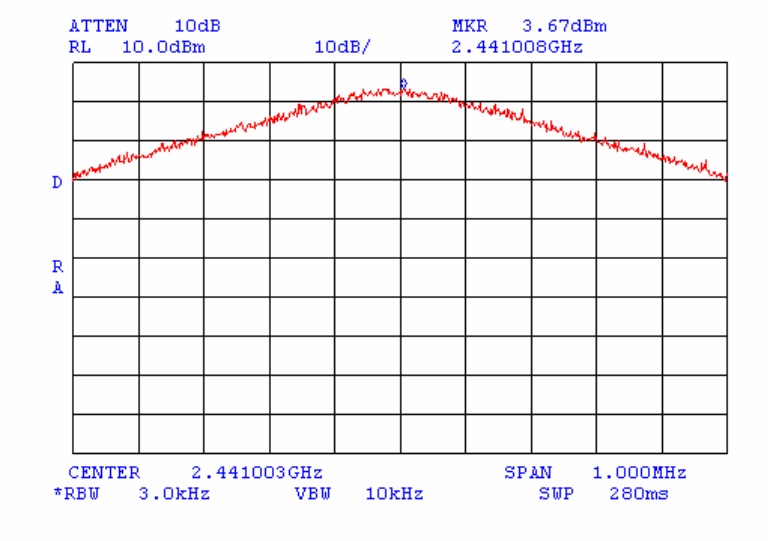


Plot 7.1.2 Peak spectral power density at low frequency zoomed at the peak. 3.0 Mbps data rate.

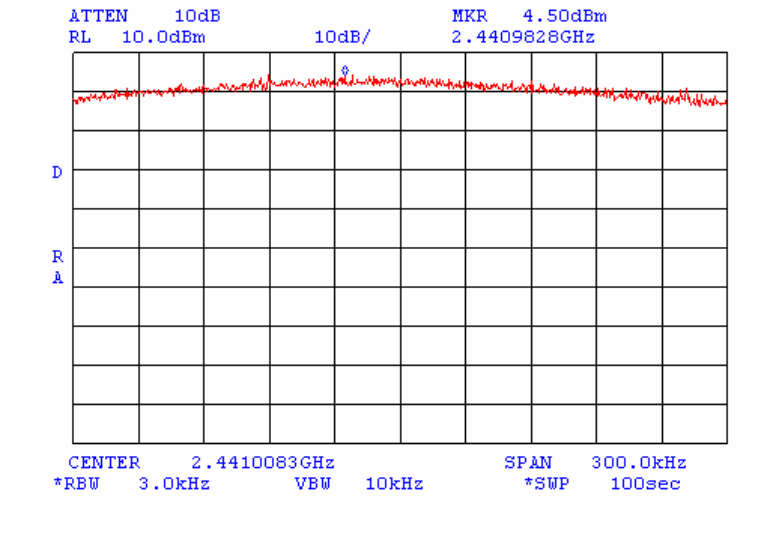


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	7/5/2004 4:03:01 PM		
Temperature: 25,4 ºC	Air Pressure: 1006 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks:			

Plot 7.1.3 Peak spectral power density at mid frequency within 6 dB band. 1.0 Mbps data rate.

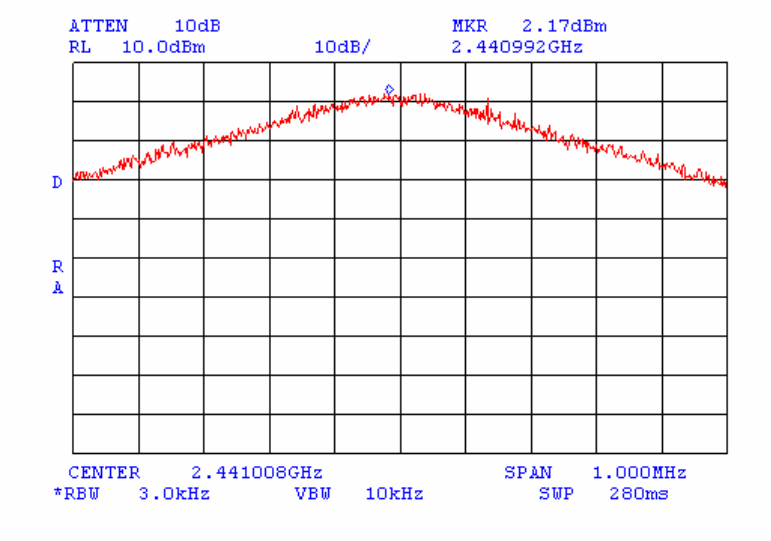


Plot 7.1.4 Peak spectral power density at mid frequency zoomed at the peak. 1.0 Mbps data rate.

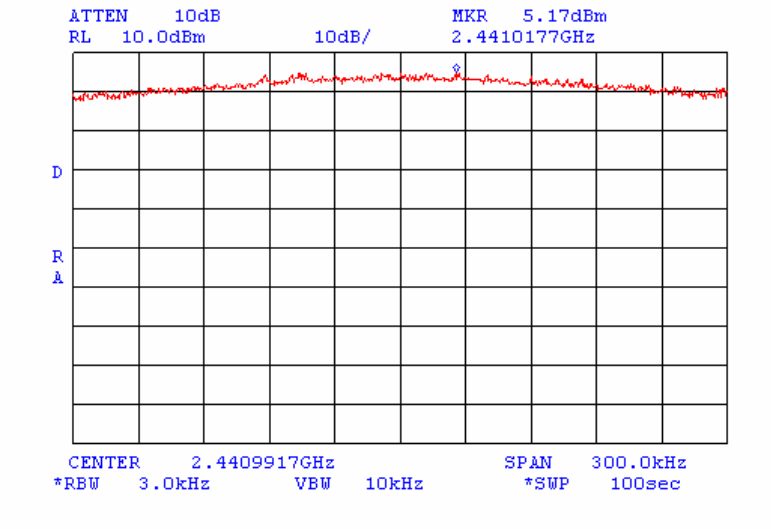


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	7/5/2004 4:03:01 PM		
Temperature: 25,4 ºC	Air Pressure: 1006 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks:			

Plot 7.1.5 Peak spectral power density at mid frequency within 6 dB band. 2.0 Mbps data rate.

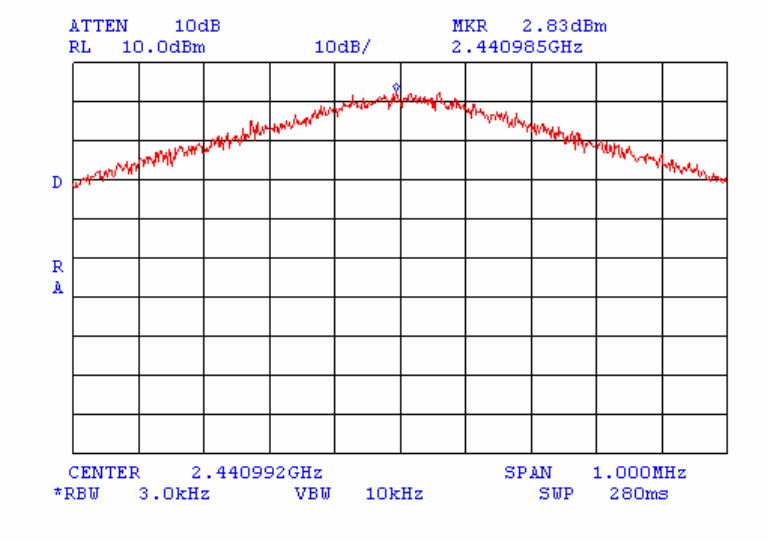


Plot 7.1.6 Peak spectral power density at mid frequency zoomed at the peak. 2.0 Mbps data rate.

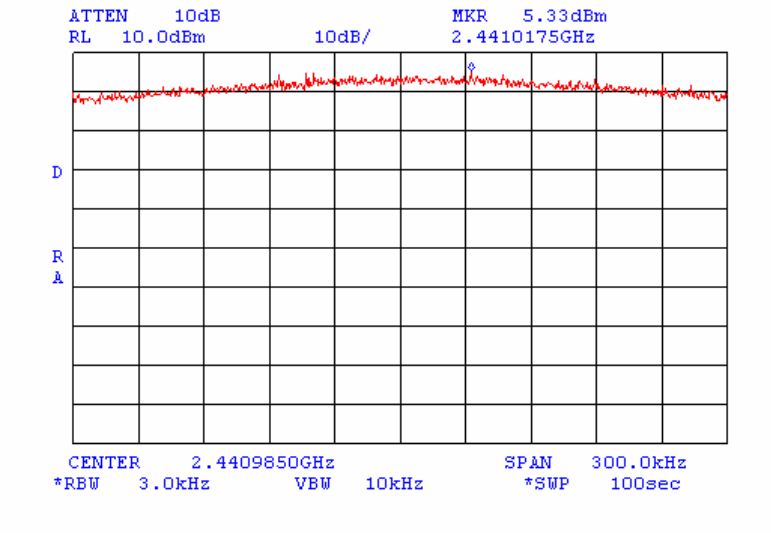


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	7/5/2004 4:03:01 PM		
Temperature: 25,4 ºC	Air Pressure: 1006 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks:			

Plot 7.1.7 Peak spectral power density at mid frequency within 6 dB band. 3.0 Mbps data rate.

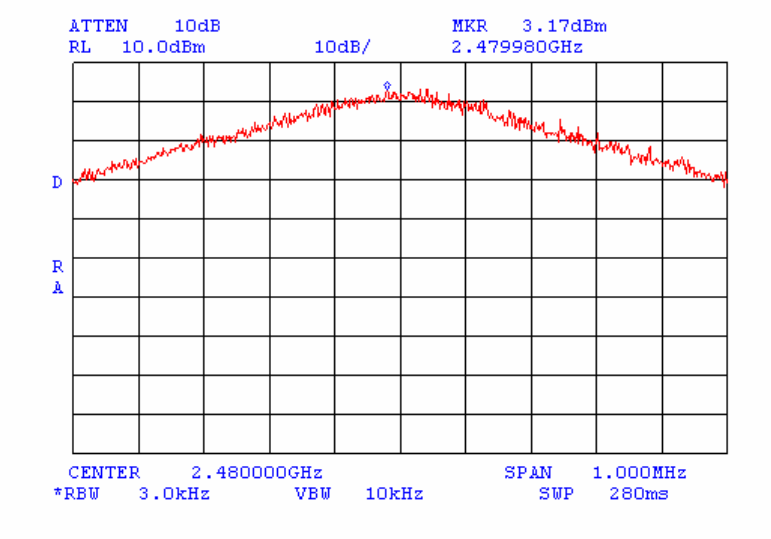


Plot 7.1.8 Peak spectral power density at mid frequency zoomed at the peak. 3.0 Mbps data rate.

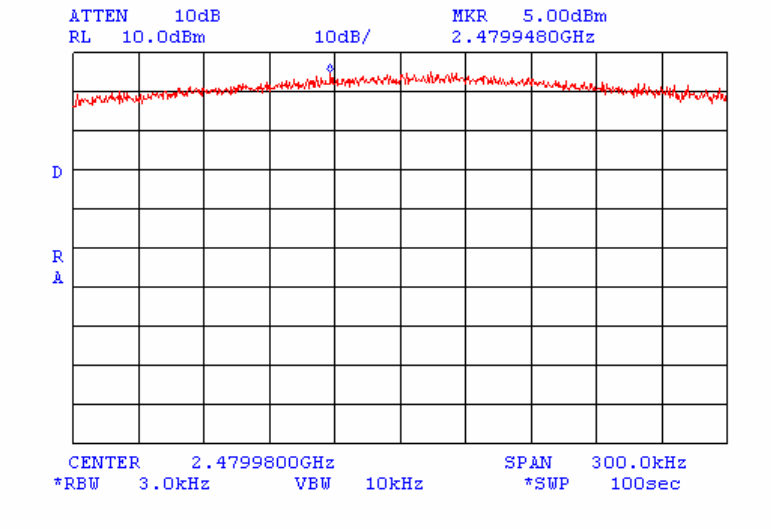


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	7/5/2004 4:03:01 PM		
Temperature: 25,4 ºC	Air Pressure: 1006 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks:			

Plot 7.1.9 Peak spectral power density at high frequency within 6 dB band. 3.0 Mbps data rate.

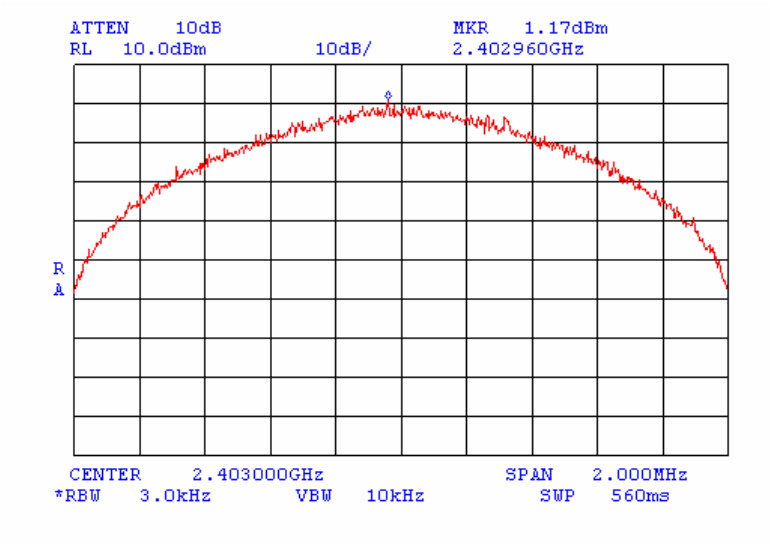


Plot 7.1.10 Peak spectral power density at high frequency zoomed at the peak. 3.0 Mbps data rate.

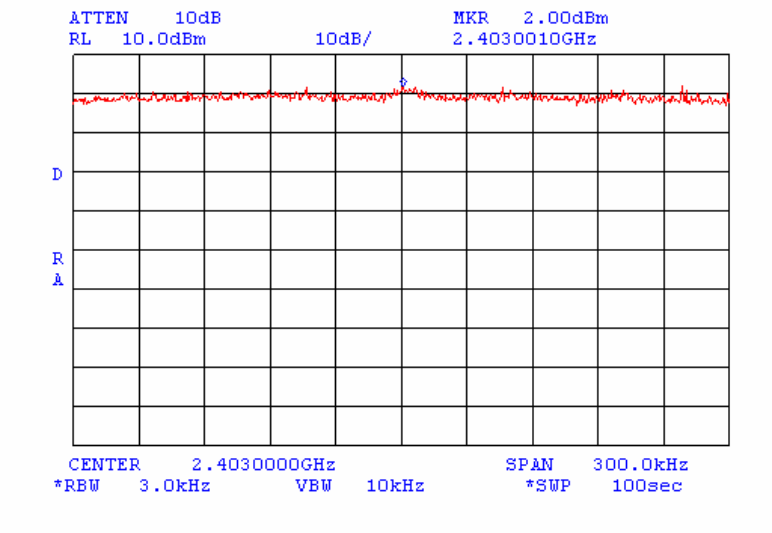


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	7/5/2004 4:03:01 PM		
Temperature: 25,4 ºC	Air Pressure: 1006 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks:			

Plot 7.1.11 Peak spectral power density at low frequency within 6 dB band. 1.33 Mbps data rate.

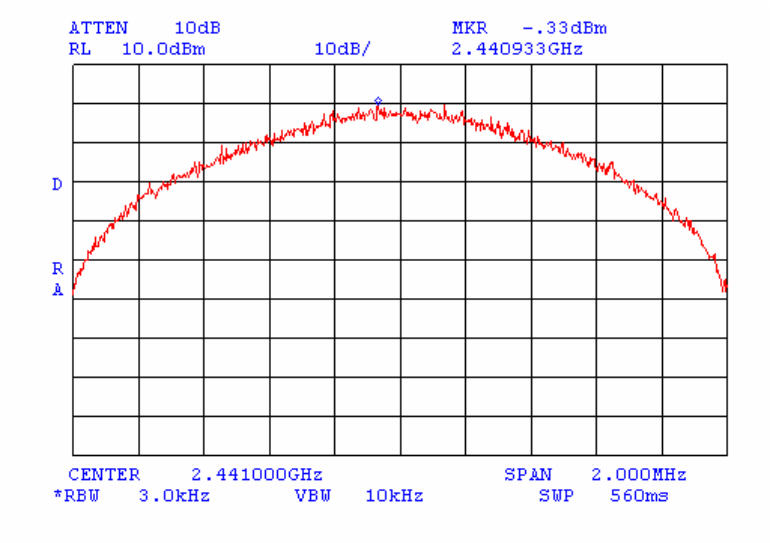


Plot 7.1.12 Peak spectral power density at low frequency zoomed at the peak. 1.33 Mbps data rate.

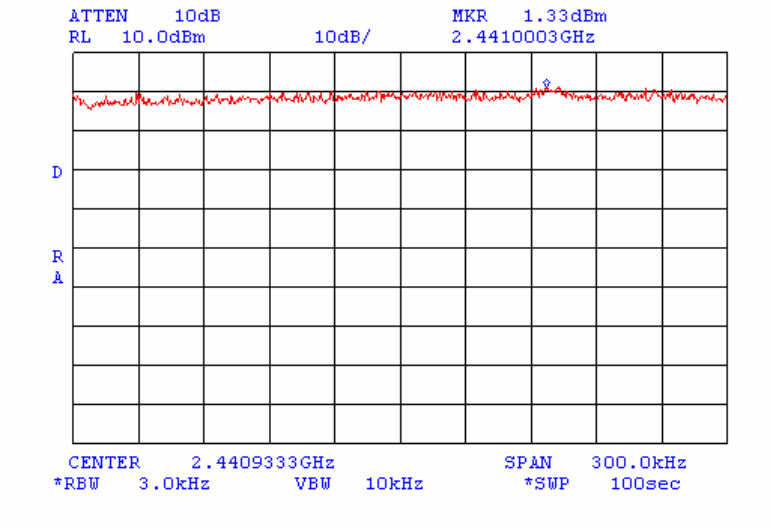


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	7/5/2004 4:03:01 PM		
Temperature: 25,4 ºC	Air Pressure: 1006 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks:			

Plot 7.1.13 Peak spectral power density at mid frequency within 6 dB band. 1.33 Mbps data rate.

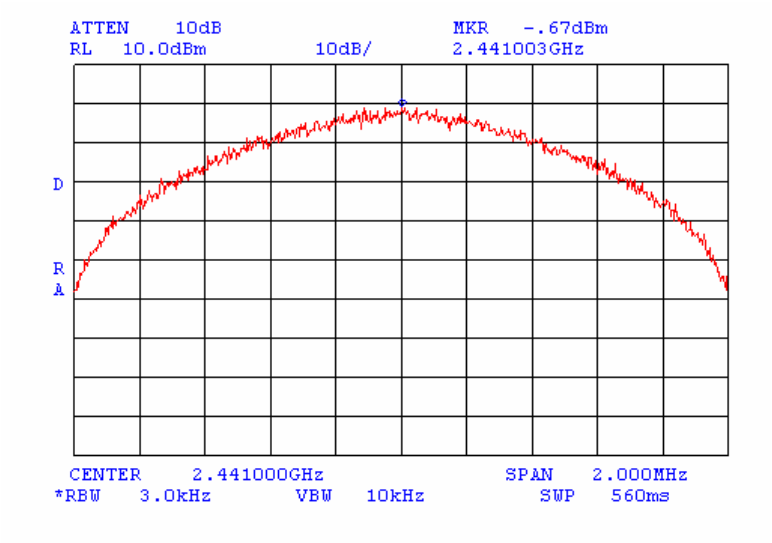


Plot 7.1.14 Peak spectral power density at mid frequency zoomed at the peak. 1.33 Mbps data rate.

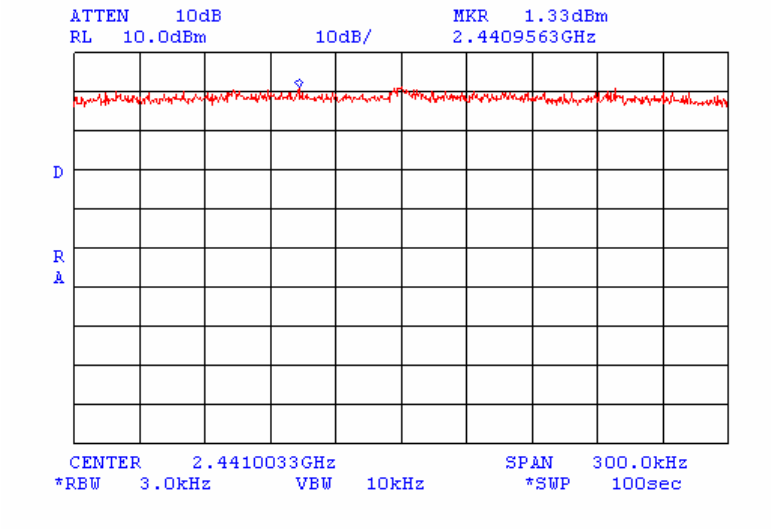


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	7/5/2004 4:03:01 PM		
Temperature: 25,4 ºC	Air Pressure: 1006 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks:			

Plot 7.1.15 Peak spectral power density at mid frequency within 6 dB band. 4.0 Mbps data rate.

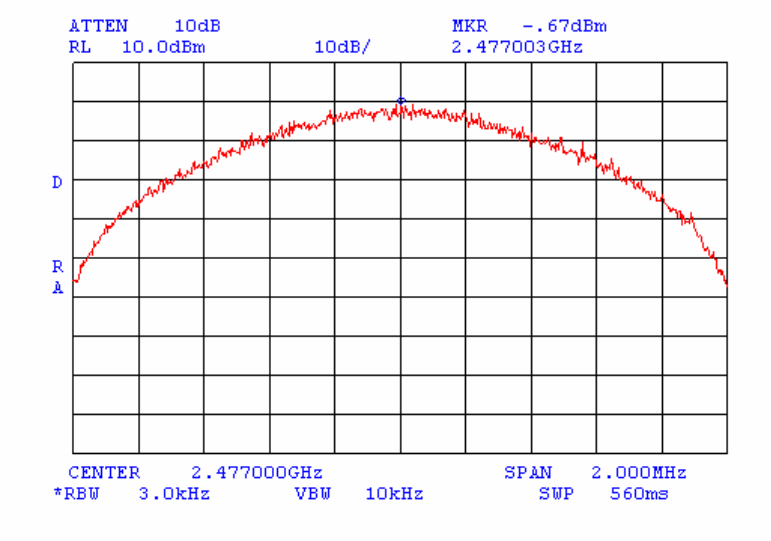


Plot 7.1.16 Peak spectral power density at mid frequency zoomed at the peak. 4.0 Mbps data rate.

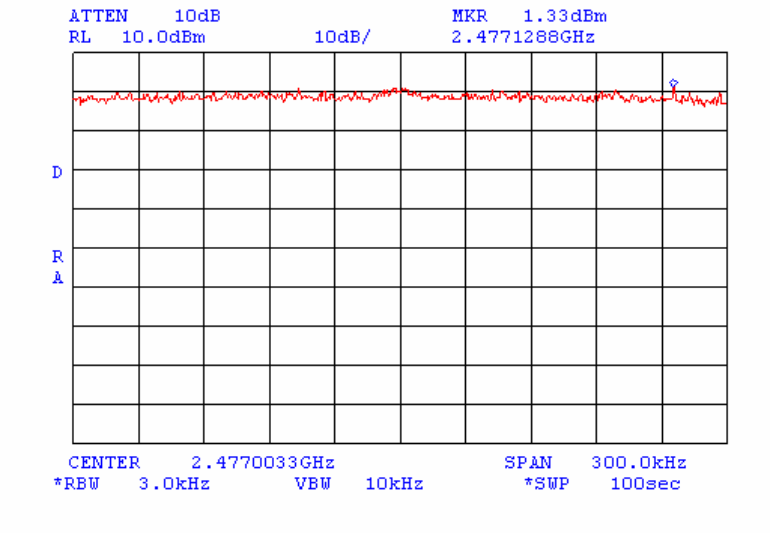


Test specification:	Section 15.247(d), Peak power density		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	7/5/2004 4:03:01 PM		
Temperature: 25,4 ºC	Air Pressure: 1006 hPa	Relative Humidity: 39 %	Power Supply: 120 VAC
Remarks:			

Plot 7.1.17 Peak spectral power density at high frequency within 6 dB band. 1.33 Mbps data rate.



Plot 7.1.18 Peak spectral power density at high frequency zoomed at the peak. 1.33 Mbps data rate.



7.2 Conducted emissions

7.2.1 General

This test was performed to measure common mode conducted emissions at the power ports. The EUT antenna connector was terminated with 50 Ohm dummy load.
Specification test limits are given in Table 7.2.1. The worst test results (the lowest margins) were recorded in Table 7.2.2 and shown in the associated plots.

Table 7.2.1

Limits for conducted emissions

Frequency, MHz	Class B limit, dB(µV)	
	QP	AVRG
0.15 - 0.5	66 - 56*	56 - 46*
0.5 - 5.0	56	46
5.0 - 30	60	50

The limit decreases linearly with the logarithm of frequency.

7.2.2 Test procedure

7.2.2.1 The EUT was set up as shown in Figure 7.2.1, energized and the performance check was conducted.

7.2.2.2 The measurements were performed at SDA power terminals of BSR unit with the LISN, connected to a spectrum analyzer in the frequency range referred to in Table 7.2.2. Unused coaxial connector of the LISN was terminated with 50 Ohm. Quasi-peak and average detectors were used throughout the testing.

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

Figure 7.2.1 Setup for conducted emission measurements, table-top equipment

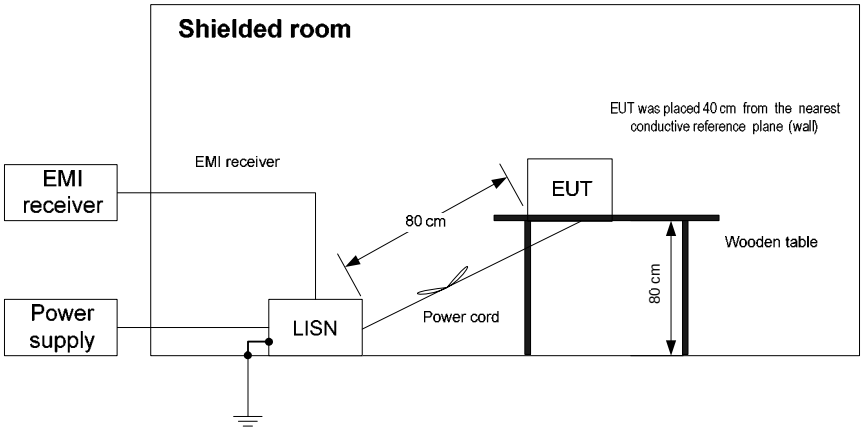


Table 7.2.2

Conducted emission test results at the BSR power terminal

DATE of TEST:	March 22, 2004
AMBIENT TEMPERATURE:	23°C
RELATIVE HUMIDITY:	34 %
AIR PRESSURE:	1020 hPa
LINE:	AC mains
EUT OPERATING MODE:	Transmit, receive
EUT SET UP:	TABLE-TOP
TEST SITE:	SHIELDED ROOM
DETECTORS USED:	PEAK / QUASI-PEAK / AVERAGE
FREQUENCY RANGE:	150 kHz - 30 MHz
RESOLUTION BANDWIDTH:	9 kHz

Frequency, MHz	Peak emission, dB(µV)	Quasi-peak			Average			Line ID	Verdict
		Measured emission, dB(µV)	Limit, dB(µV)	Margin, dB*	Measured emission, dB(µV)	Limit, dB(µV)	Margin, dB*		
0.185950	38.44	36.47	64.25	27.78	34.48	54.25	19.77	L2	Pass
0.231496	38.58	37.08	62.44	25.36	36.88	52.44	15.56	L1	
0.278177	36.83	35.79	60.93	25.14	31.33	50.93	19.60	L1	
0.604375	34.30	32.78	56.00	23.22	29.94	46.00	16.06	L1	
0.652115	34.16	32.69	56.00	23.31	29.10	46.00	16.90	L1	
0.882063	33.66	32.04	56.00	23.96	28.52	46.00	17.48	L1	

*****- Margin = Specification limit - measured emission.

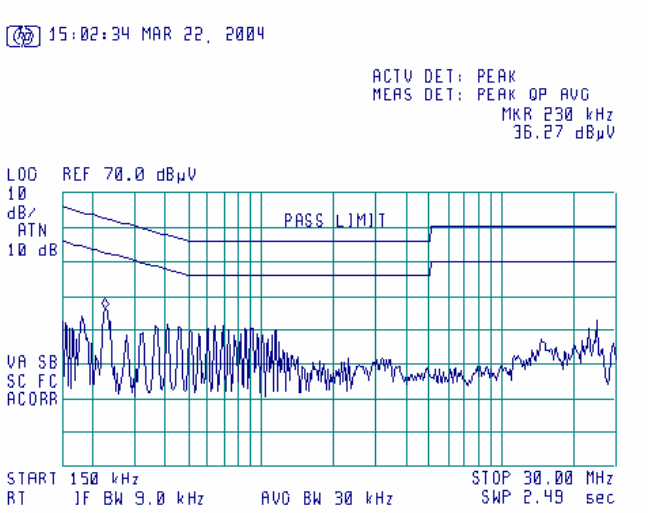
Reference numbers of test equipment used

HL 0163	HL 0672	HL 0787	HL 1204	HL 1430	HL 1502	HL 1510	

Full description is given in Appendix A.

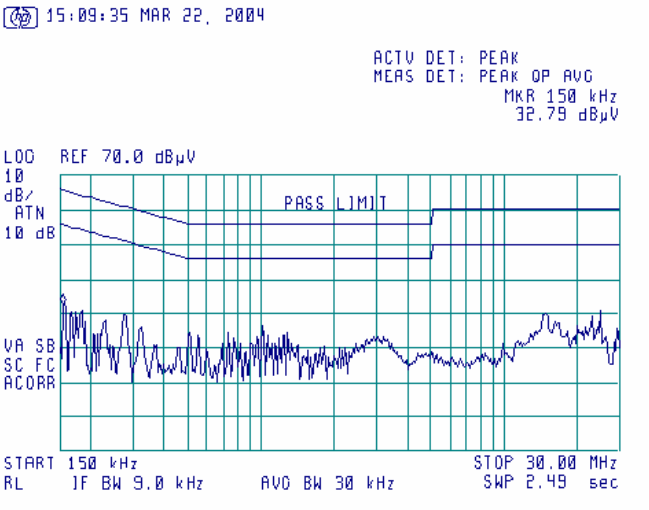
Plot 7.2.1 Conducted emission measurements at the BSR power terminal

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



Plot 7.2.2 Conducted emission measurements at the BSR power terminal

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



8 APPENDIX A Test equipment and ancillaries used for tests

HL No.	Description	Manufacturer information			Due calibr. Month/Year
		Name	Model No.	Serial No.	
0163	LISN FCC/VDE/MIL -STD	Electro-Metrics	ANS-25/2	1314	10/04
0447	LISN, 16/2, 300 V RMS	Hermon Labs	LISN 16-1	0447	11/04
0672	Shielded room 4.6(L) x 4.2(W) x 2.4(H) m	Hermon Labs	SR-3	027	11/04 check
0787	Transient limiter	Hewlett Packard	11947A-8ZE	3107A01877	11/04
1204	One phase voltage regulator, 2kVA, 0-250V	Hermon Labs	TDGC-2	99	6/05 check
1424	Spectrum analyzer, 30 Hz - 40 GHz	Agilent Technologies	8564EC	3946A00219	8/05
1430	EMI receiver system, 9 kHz - 2.9 GHz	Agilent Technologies	8542E	3807A00262	9/05
1502	Cable RF, 6 m	Belden	M17/167 MIL-C-17	1502	12/04 check
1510	Cable RF, 8 m	Belden	M17/167 MIL-C-17	1510	12/04 check
1651	Attenuators set (2, 3, 5, 20 dB), DC – 18 GHz	M/A –COM	2082	1651	3/05
2254	Cable 40 GHz, 0.8 m, blue	Rhophase Microwave Ltd.	KPS-1503A-800-KPS	W4907	11/04
2524	Attenuator, 10 dB, DC-18 GHz	Midwest Microwave	263-10	2524	3/05

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

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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11 APPENDIX D Specification references

47CFR part 15: 2004	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: 2001	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
DC	direct current
DTS	digital transmission system
EIRP	equivalent isotropically radiated power
ERP	effective radiated power
EUT	equipment under test
F	frequency
GHz	gigahertz
GND	ground
H	height
HL	Hermon laboratories
Hz	hertz
k	kilo
kHz	kilohertz
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
QP	quasi-peak
RE	radiated emission
RF	radio frequency
rms	root mean square
Rx	receive
s	second
T	temperature
Tx	transmit
V	volt

13 APPENDIX F Test equipment correction factors

Cable loss of 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		

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

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

Correction factor
Line impedance stabilization network
Model LISN 16 - 1
Hermon Laboratories

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

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