Nemko Test Report:	4L0465RUS1
Applicant:	Cadco Systems 2363 Merritt Drive Garland, TX
Equipment Under Test: (E.U.T.)	Power Access Point 2400
In Accordance With:	**FCC Part 15, Subpart C, 15.247** Direct Sequence Spread Spectrum Transmitters
Tested By:	Nemko Dallas Inc. 802 N. Kealy Lewisville, Texas 75057-3136
Authorized By:	 Tom Tidwell, Frontline Group Manager
Date:	25_Aug_2004
Total Number of Pages:	39

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Section 1. Summary of Test Results

Manufacturer: Cadco Systems

Model No.: Power Access Point 2400

Serial No.: 1000

General: **All measurements are traceable to national standards.**

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, Subpart C, Paragraph 15.247 for Direct Sequence Spread Spectrum devices. Radiated tests were conducted is accordance with ANSI C63.4-2001. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.

☒ New Submission ☒ Production Unit

☐ Class II Permissive Change ☐ Pre-Production Unit

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE. NONE

NVLAP LAB CODE: 100426-0

Summary Of Test Data

NAME OF TEST	PARA. NO.	SPEC.	RESULT
Powerline Conducted Emissions	15.207(a)	48 dBµV	Complies
Minimum 6 dB Bandwidth	15.247(a)(2)	>500 kHz	Complies
Maximum Peak Power Output	15.247(b)(1)	<1 Watt	Complies
Spurious Emissions (Antenna Conducted)	15.247(c)	-20 dBc/100kHz	Complies
Spurious Emissions (Restricted Bands)	15.247(c)	< 74 dBuV/m Peak < 54 dBuV/m Avg	Complies
Peak Power Spectral Density	15.247(d)	+8 dBm/3kHz	Complies

Footnotes:

Section 2. Equipment Under Test (E.U.T.)

General Equipment Information

Frequency Band: 2412 to 2462 MHz

Modulation: DBPSK – 1 Mbps, DQPSK - 2 Mbps (11Msps)

Channel Spacing: 5 MHz

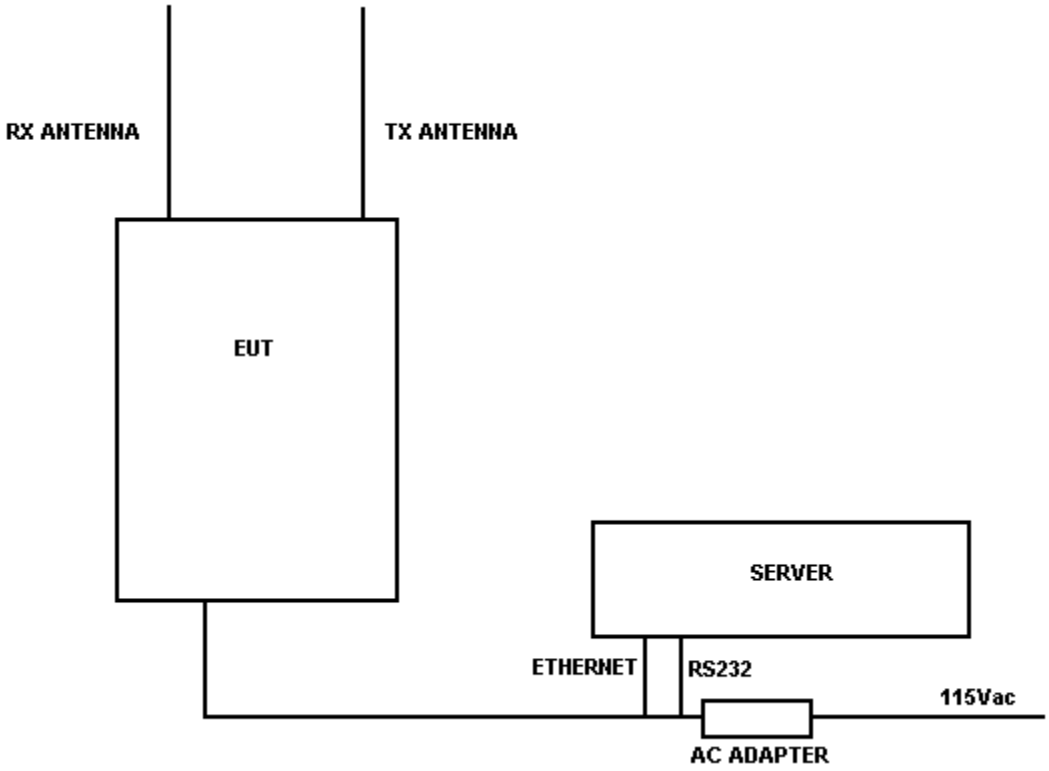
User Frequency Adjustment: Software controlled

Note: It was determined that the worst-case operating mode was 11 Mbps DQPSK. Full testing was performed on three channels at 11 Mbps.

Description of EUT

An 802.11b Access Point with LNA & Power Amp in a weather tight enclosure

System Diagram



Section 3. Powerline Conducted Emissions

NAME OF TEST: Powerline Conducted Emissions	PARA. NO.: 15.207(a)
TESTED BY: Brian Boyea	DATE: 7/6/04

Test Results: Complies.

Measurement Data: See attached plots.

Measurement Uncertainty: +/- 1.7 dB

Test Data – Powerline Conducted Emissions

NEMKO Dallas, Inc.

Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Conducted Emissions
Powerline Voltage Measurement

Complete: X | Job # : 4L0465E | Test # : CEPV-01
Preliminary: | Page 1 of 1

Client Name : Cadco Systems
EUT Name : Power Access Point 2400
EUT Model # : PAP2400
EUT Part # : 776-0000-000
EUT Serial # : 1000
EUT Config. : 802.11b

Specification : FCC 15.207 | Reference :
Transducer # : 1258 | Temp. (deg. C) : 23 | Date : 07/06/04
HP Filter # : 968 | Humidity (%) : 42 | Time : 10:30 A.M.
Cable 1 # : 1551 | EUT Voltage : 120 Vac | Staff : Brian Boyea
Cable 2 # : 1266 | EUT Frequency : 60 Hz | Location : SR
Detector 1 # : 966 | Peak Bandwidth: 10kHz | Photo ID: 4L0465E CEPV-01
Detector 2 # : 1464 | QP Bandwidth 10kHz
Limiter # : N/A | Avg. Bandwidth 10kHz

Meas. Freq. (MHz)	EUT Test Point	Detector Type (P,QP, A)	Limit Type (QP, A)	Meter Reading (dBuV)	Path Loss (dB)	Transducer Factor (dB)	Corrected Reading (dBuV)	Spec.limit (dBuV) Q.P.	Spec.limit (dBuV) Avg.	CR/SL Diff. (dB)	Pass Fail Unc.	Comment
0.1507	N	QP	QP	46.5	0	0	46.5	65.96	55.962	-19.5	Pass	
0.1507	N	A	A	18.0	0	0	18.0	65.96	55.962	-38.0	Pass	
0.1535	N	QP	QP	46.5	0	0	46.5	65.81	55.809	-19.3	Pass	
0.1535	N	A	A	18.0	0	0	18.0	65.81	55.809	-37.8	Pass	
0.1555	N	QP	QP	46.0	0	0	46.0	65.7	55.701	-19.7	Pass	
0.1555	N	A	A	18.5	0	0	18.5	65.7	55.701	-37.2	Pass	
0.1852	N	QP	QP	45.0	0	0	45.0	64.25	54.249	-19.2	Pass	
0.1852	N	A	A	37.5	0	0	37.5	64.25	54.249	-16.7	Pass	
0.1804	H	QP	QP	44.0	0	0	44.0	64.47	54.467	-20.5	Pass	
0.1804	H	A	A	38.0	0	0	38.0	64.47	54.467	-16.5	Pass	
0.1673	H	QP	QP	44.0	0	0	44.0	65.09	55.094	-21.1	Pass	
0.1673	H	A	A	17.0	0	0	17.0	65.09	55.094	-38.1	Pass	
0.1583	H	QP	QP	45.5	0	0	45.5	65.55	55.553	-20.1	Pass	
0.1583	H	A	A	17.0	0	0	17.0	65.55	55.553	-38.6	Pass	
0.1507	H	QP	QP	47.0	0	0	47.0	65.96	55.962	-19.0	Pass	
0.1507	H	A	A	17.0	0	0	17.0	65.96	55.962	-39.0	Pass	
											Scanned	
											15 to 30 MHz	

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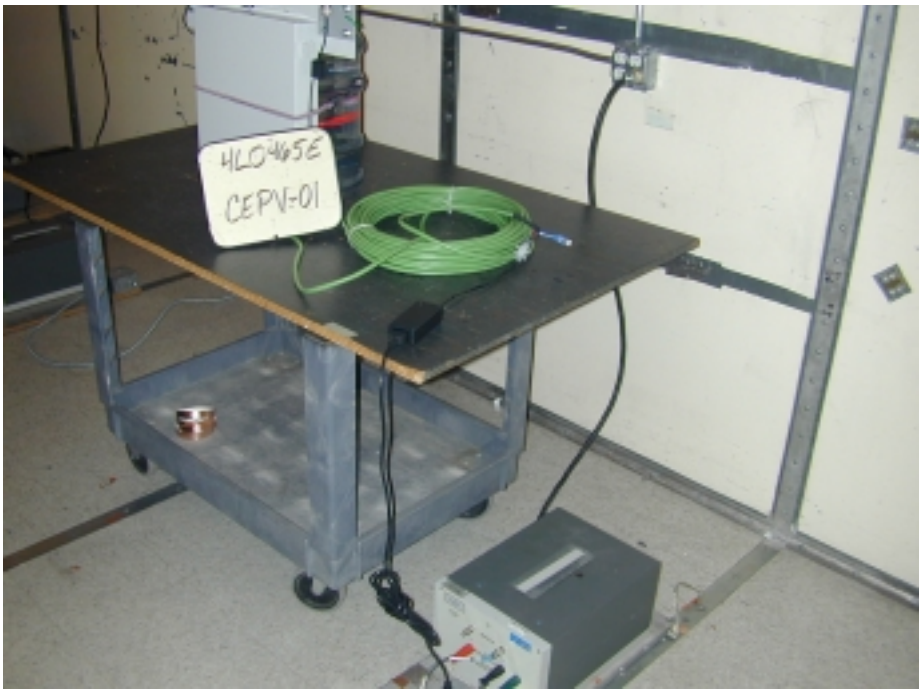
Photos – Powerline Conducted Emissions

Front



Side

Section 4. Minimum 6 dB Bandwidth

NAME OF TEST: Minimum 6 dB Bandwidth	PARA. NO.: 15.247(a)(2)
TESTED BY: David Light	DATE: 7/21/04

Test Results: Complies.

Measurement Data: See 6 dB BW plot

Measured 6 dB bandwidth:	10.2 MHz Max
Channel Separation:	5 MHz

Measurement Uncertainty: +/- 0.7 dB

Occupied Bandwidth

Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Nemko Dallas, Inc.

Data Plot **Occupied Bandwidth**

Page 1 of 3 Complete X

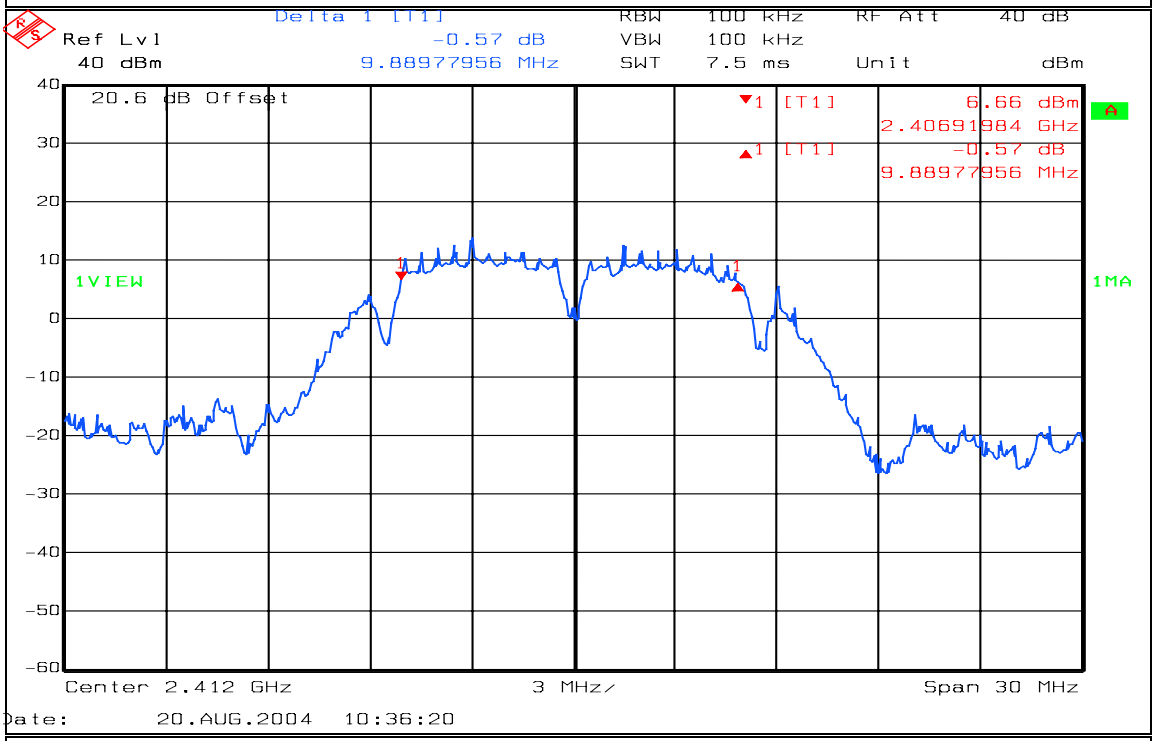
Job No.:	4L0465	Date:	7/20/2004	Preliminary:	
Specification:	15.247 (a)(2)	Temperature(°C):	22		
Tested By:	David Light	Relative Humidity(%)	45		
E.U.T.:	PAP2400				
Configuration:	TX 11 Mb/s				
Sample Number:	1				
Location:	Lab 1	RBW:	100 kHz	Measurement	
Detector Type:	Peak	VBW:	100 kHz	Distance:	NA m

Test Equipment Used

Antenna:		Directional Coupler:	
Pre-Amp:		Cable #1:	1045
Filter:		Cable #2:	
Receiver:	1036	Cable #3:	
Attenuator #1	1064	Cable #4:	
Attenuator #2:		Mixer:	

Additional equipment used:

Measurement Uncertainty: +/-1.7 dB



Notes: **Channel 1**

Occupied Bandwidth

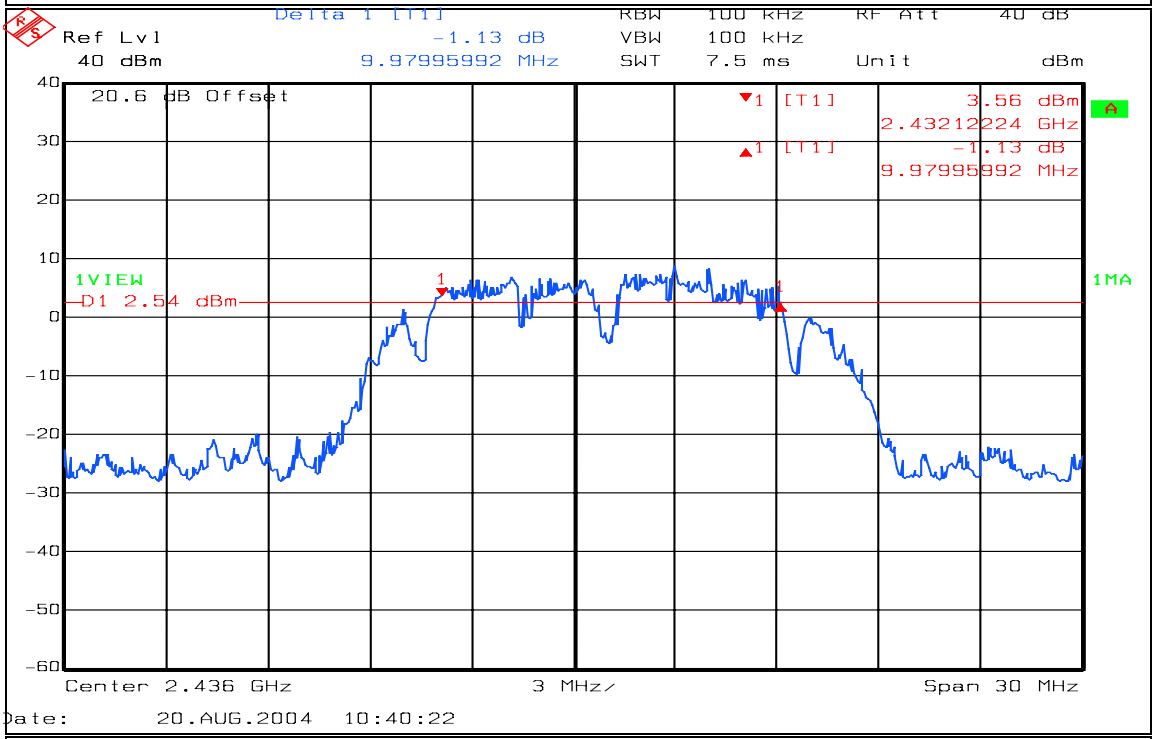
Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Nemko Dallas, Inc.

Data Plot **Occupied Bandwidth**

Page 2 of 3

Job No.:	4L0465	Date:	7/20/2004
Specification:	~~15.247~~ (a)(2)	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%)	45
E.U.T.:	PAP2400		
Configuration:	TX 11 Mb/s		



Notes: **Channel 6**

Occupied Bandwidth

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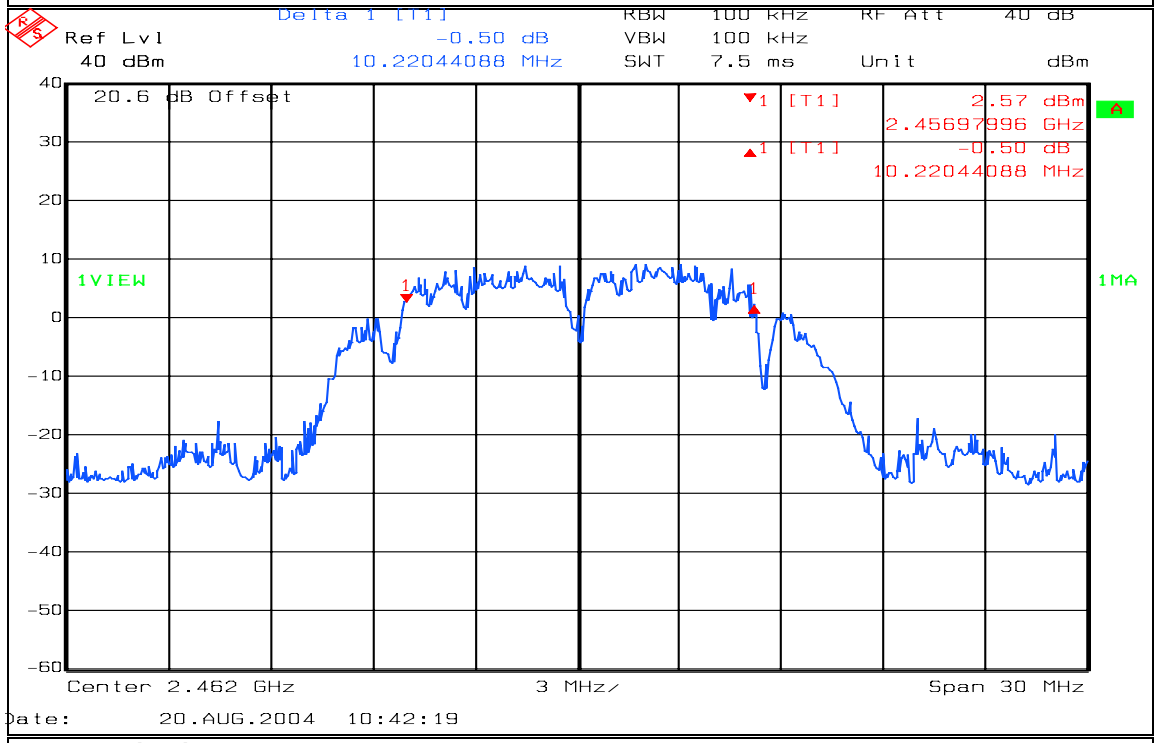
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Nemko Dallas, Inc.

Data Plot **Occupied Bandwidth**

Page 3 of 3

Job No.: 4L0465 Date: 7/20/2004
Specification: 15.247 (a)(2) Temperature(°C): 22
Tested By: David Light Relative Humidity(%) 45
E.U.T.: PAP2400
Configuration: TX 11 Mb/s



Notes: **Channel 11**

Section 5. Maximum Peak Output Power

NAME OF TEST: Maximum Peak Output power	PARA. NO.: 15.247(b)(1)
TESTED BY: David Light	DATE: 9/20/04

Test Results: Complies.

Measurement Data:

Antennas:

Model	Type	Manufacturer	Frequency (MHz)	Gain (dBi)	E.I.R.P. (dBm)
HGV-2409U	OMNI	HyperLink Technologies	2412	8	36
HGV-2409U	OMNI	HyperLink Technologies	2436	8	34.3
HGV-2409U	OMNI	HyperLink Technologies	2462	8	34.7
Peak power output at antenna port(dBm): 28 dBm @ 2412 MHz (Lowest channel)					

Note: The supply voltage was varied +/-15% with no effect on output power.

Equipment Used: 1029-1030

Measurement Uncertainty: +/- 0.7 dB

Temperature: 22 °C

Relative Humidity: 45 %

Section 6. Spurious Emissions (Conducted)

NAME OF TEST: Spurious Emissions (Conducted)	PARA. NO.: 15.247(c)
TESTED BY: David Light	DATE: 7/20/04

Test Results: Complies.

Measurement Data: See attached plots.

Spurious Emissions at Antenna Terminals

Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Nemko Dallas, Inc.

Data Plot **Spurious Emissions at Antenna Terminals**

Page 1 of 4 Complete X

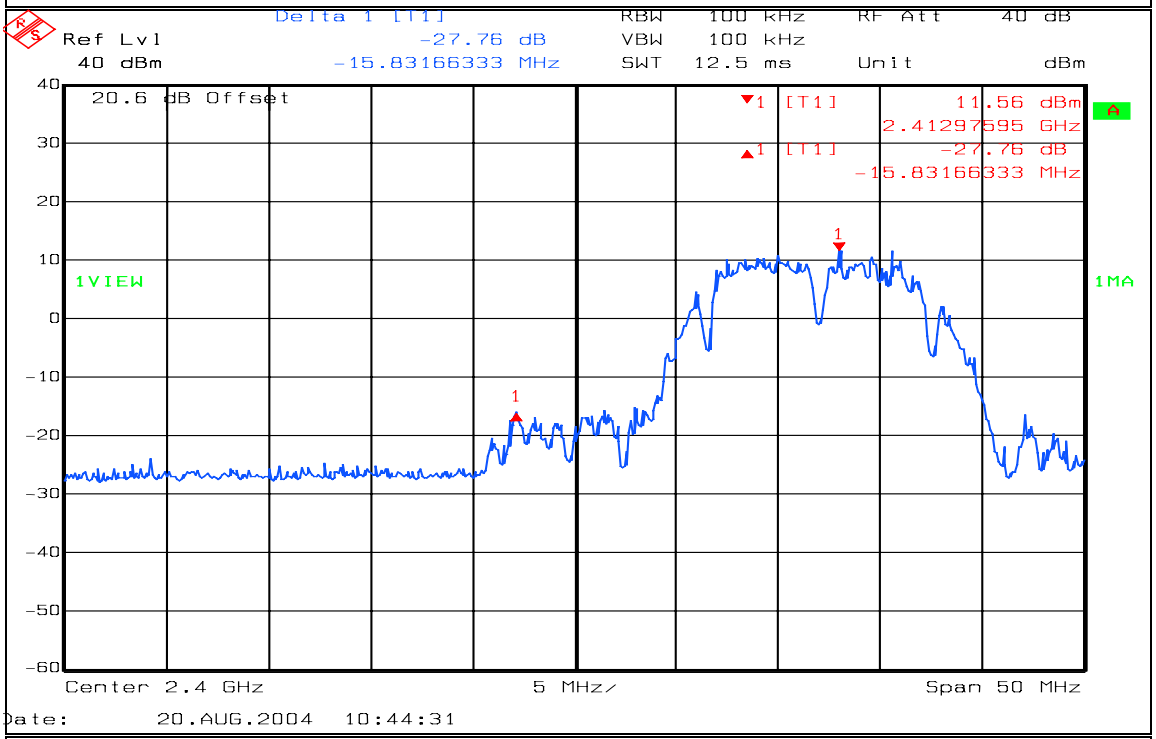
Job No.:	4L0465	Date:	7/20/2004	Preliminary:	
Specification:	15.247 (c)	Temperature(°C):	22		
Tested By:	David Light	Relative Humidity(%)	45		
E.U.T.:	PAP2400				
Configuration:	TX 11 MB/s				
Sample Number:	1				
Location:	Lab 1	RBW:	100 kHz	Measurement	
Detector Type:	Peak	VBW:	100 kHz	Distance:	NA m

Test Equipment Used

Antenna:		Directional Coupler:	
Pre-Amp:		Cable #1:	1045
Filter:		Cable #2:	
Receiver:	1036	Cable #3:	
Attenuator #1	1064	Cable #4:	
Attenuator #2:		Mixer:	

Additional equipment used:

Measurement Uncertainty: +/-1.7 dB



Notes: **Channel 1**
Lower bandedge

Spurious Emissions at Antenna Terminals

Nemko

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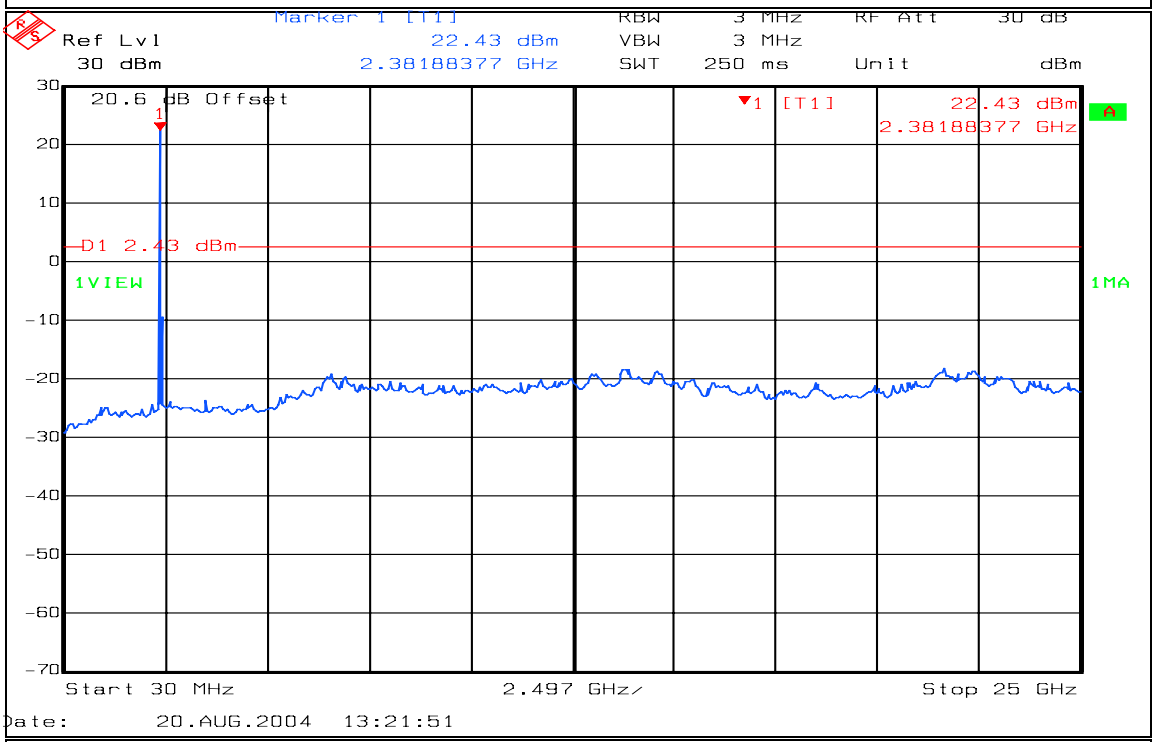
Tel: (972) 436-9600
Fax: (972) 436-2667

Nemko Dallas, Inc.

Data Plot — **Spurious Emissions at Antenna Terminals**

Page 2 of 4

Job No.:	4L0465	Date:	7/20/2004
Specification:	15.247 (c)	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%)	45
E.U.T.:	PAP2400		
Configuration:	TX 11 MB/s		



Notes: **Channel 1**

Spurious Emissions at Antenna Terminals

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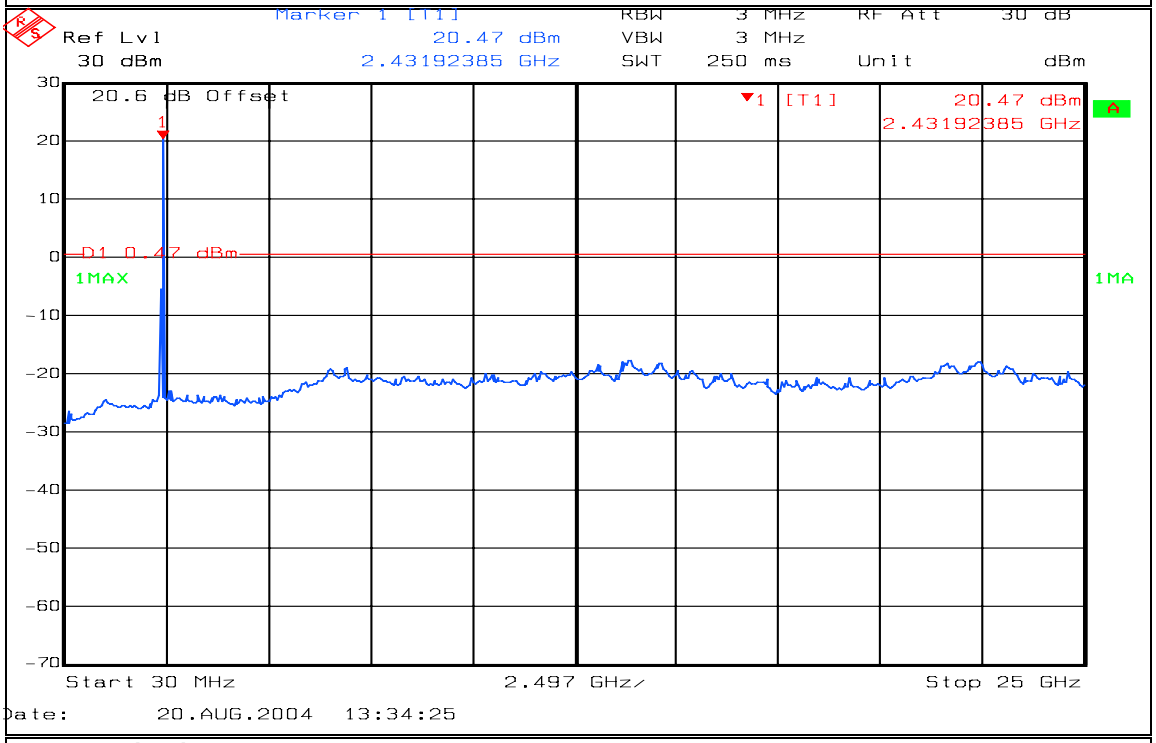
Fax: (972) 436-2667

Nemko Dallas, Inc.

Data Plot **Spurious Emissions at Antenna Terminals**

Page 3 of 4

Job No.:	4L0465	Date:	7/20/2004
Specification:	15.247 (c)	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%)	45
E.U.T.:	PAP2400		
Configuration:	TX 11 MB/s		



Notes: **Channel 6**

Spurious Emissions at Antenna Terminals

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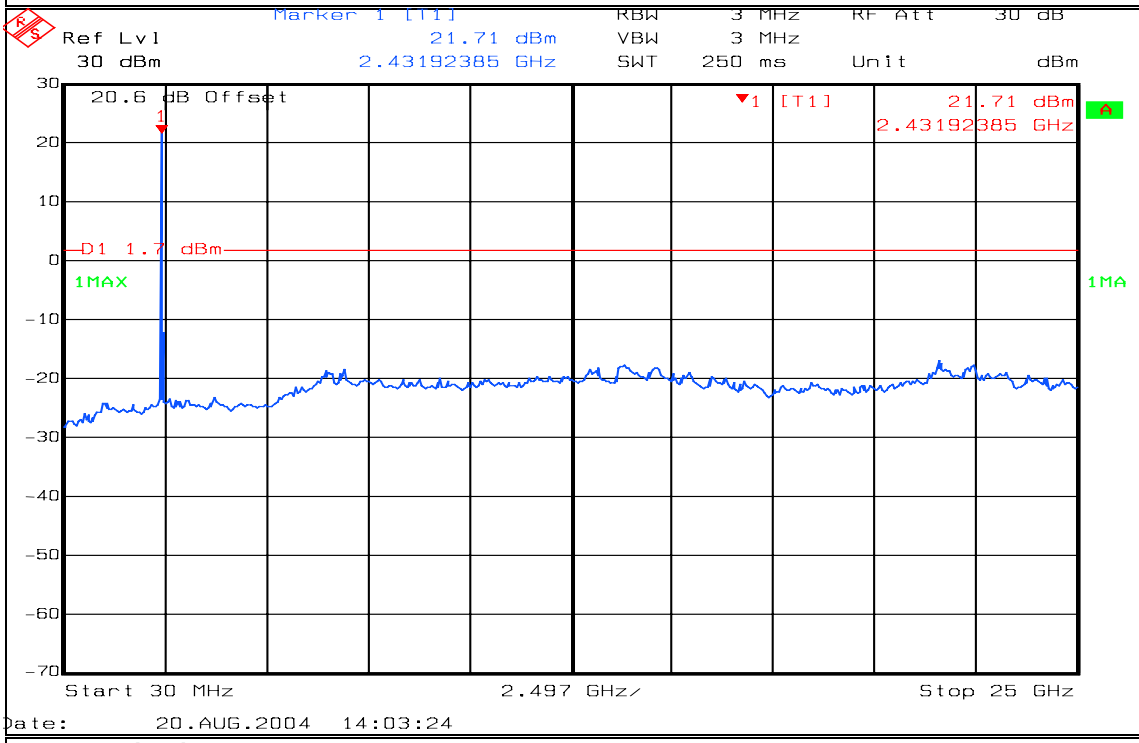
Fax: (972) 436-2667

Nemko Dallas, Inc.

Data Plot **Spurious Emissions at Antenna Terminals**

Page 4 of 4

Job No.:	4L0465	Date:	7/20/2004
Specification:	15.247 (c)	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%)	45
E.U.T.:	PAP2400		
Configuration:	TX 11 MB/s		



Notes: **Channel 11**

The spectrum was searched in detail. The plots are representative of the data observed.

Section 7. Spurious Emissions (Radiated)

NAME OF TEST: Spurious Emissions (Radiated)	PARA. NO.: 15.247 (c)
TESTED BY: Brian Boyea	DATE: 7/24/04

Test Results: Complies.

Measurement Data: See attached table.

Test Data – Radiated Emissions

Nemko Dallas, Inc.

Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Radiated Emissions

Page 1 of 1

Job No.: 4L0465R Date: 8/24/2004
Specification: 15.247© & 15.205 Temperature(°C):23
Tested By: Brian Boyea Relative Humidity(%)34
E.U.T.: PAP2400
Configuration: TX FULL DATA RATE
Sample Number: 1
Location: AC 3 RBW: 1 MHz
Detector Type: Peak VBW: 1 MHz

Test Equipment Used

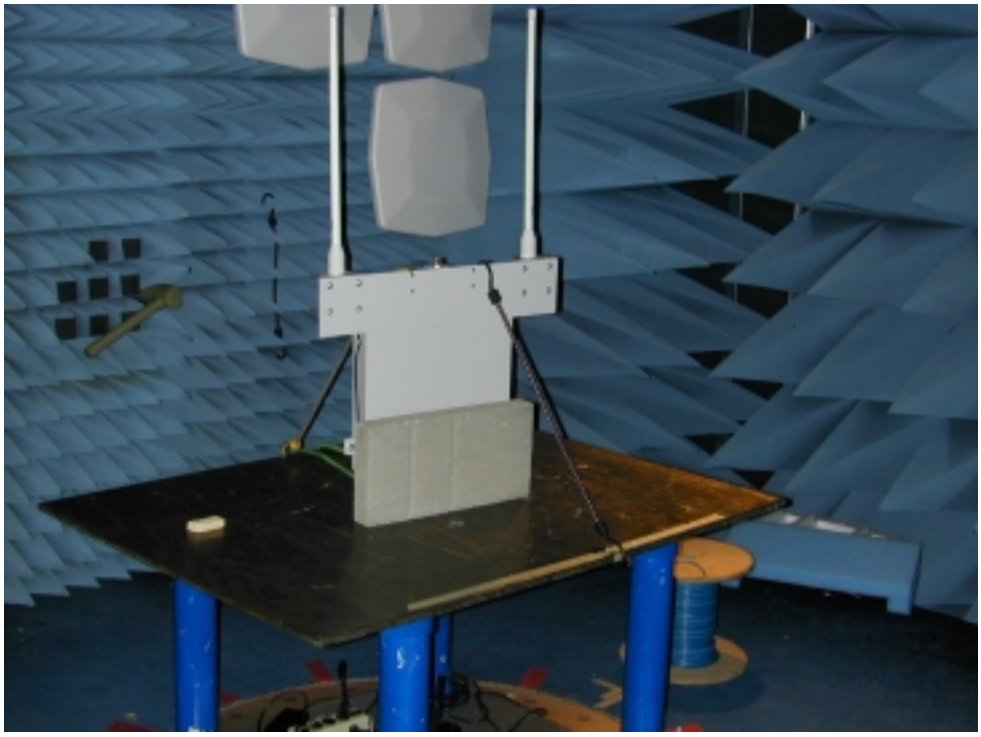
Antenna: 1304 Directional Coupler: #N/A
Pre-Amp: 1016 Cable #1: 1484
Filter: #N/A Cable #2: 1485
Receiver: 1464 Cable #3: #N/A
Attenuator #1 #N/A Cable #4: #N/A
Attenuator #2: #N/A Mixer: #N/A
Measurement Uncertainty: +/- 3.6 dB

Frequency (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Pre-Amp Gain (dB)	Corrected Reading (dBuV/m)	Limit (dBuV/m)	Delta (dB)	Comment
4.824	47.8	33.3	4.2	30.1	55.2	74	-18.8	Vertical Channel 1
4.8240	31.3	33.3	4.2	30.1	38.7	54	-15.3	
4.8240	55.2	33.3	4.2	30.1	62.6	74	-11.4	Horizontal
4.824	30.3	33.3	4.2	30.1	37.7	54	-16.3	
4.873	53.7	33.5	4.3	29.9	61.6	74	-12.4	Horizontal Channel 6
4.873	30.3	33.5	4.3	29.9	38.2	54	-15.8	
7.308	41.5	36.1	5.2	34.2	48.6	54	-5.4	
4.8730	52.8	33.5	4.3	29.9	60.7	74	-13.3	Vertical
4.8730	30.3	33.5	4.3	29.9	38.2	54	-15.8	
7.308	46	36.1	5.2	34.2	53.1	54	-0.9	
2.4835	39.3	28.2	3.1	0	70.6	74	-3.4	Vertical Channel 11
2.4835	22	28.2	3.1	0	53.3	54	-0.7	
4.924	52.7	33.7	4.3	29.7	61.0	74	-13.0	
4.924	30.5	33.7	4.3	29.7	38.8	54	-15.2	
7.3860	41.2	36.2	5.2	34.1	48.5	54	-5.5	
2.4835	32.7	28.2	3.1	0.0	64.0	74	-10.0	Horizontal
2.4835	21.5	28.2	3.1	0.0	52.8	54	-1.2	
4.9240	44	33.7	4.3	29.7	52.3	54	-1.7	
7.3860	43.3	36.2	5.2	34.1	50.6	54	-3.4	

Notes:

Average measurements were made using 1 MHz RBW / 30 kHz VBW.

Radiated Photographs



Section 8. Peak Power Spectral Density

NAME OF TEST: Peak Power Spectral Density	PARA. NO.: 15.247(d)
TESTED BY: David Light	DATE: 7/20/04

Test Results: Complies.

Measurement Data: See attached plots.

Test Data – Spectral Density

Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Nemko Dallas, Inc.

Data Plot **Peak Power Spectral Density**

Page 1 of 3 Complete X

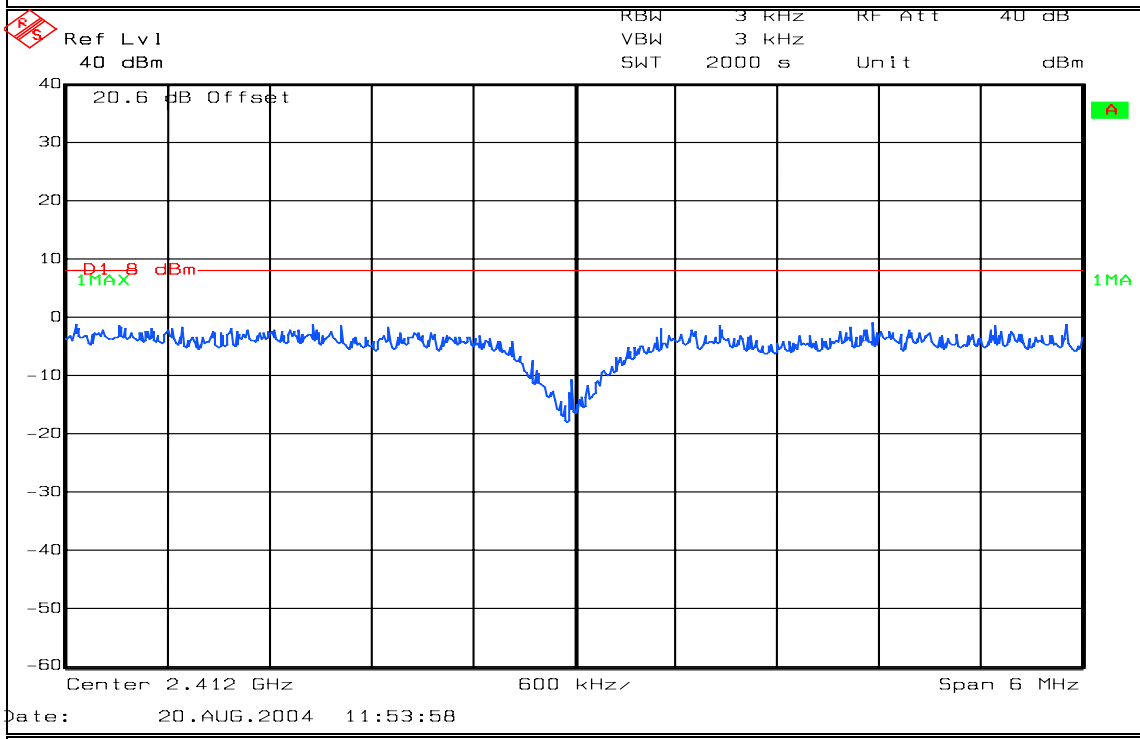
Job No.:	4L0465	Date:	7/20/2004	Preliminary:	
Specification:	15.247 (d)	Temperature(°C):	22		
Tested By:	David Light	Relative Humidity(%)	45		
E.U.T.:	PAP2400				
Configuration:	TX 11 Mb/s				
Sample Number:	1				
Location:	Lab 1	RBW:	3 kHz	Measurement	
Detector Type:	Peak	VBW:	3 kHz	Distance:	NA m

Test Equipment Used

Antenna:		Directional Coupler:	
Pre-Amp:		Cable #1:	1045
Filter:		Cable #2:	
Receiver:	1036	Cable #3:	
Attenuator #1	1064	Cable #4:	
Attenuator #2:		Mixer:	

Additional equipment used:

Measurement Uncertainty: +/-1.7 dB



Notes: **Channel 1**

Test Data – Spectral Density

Nemko

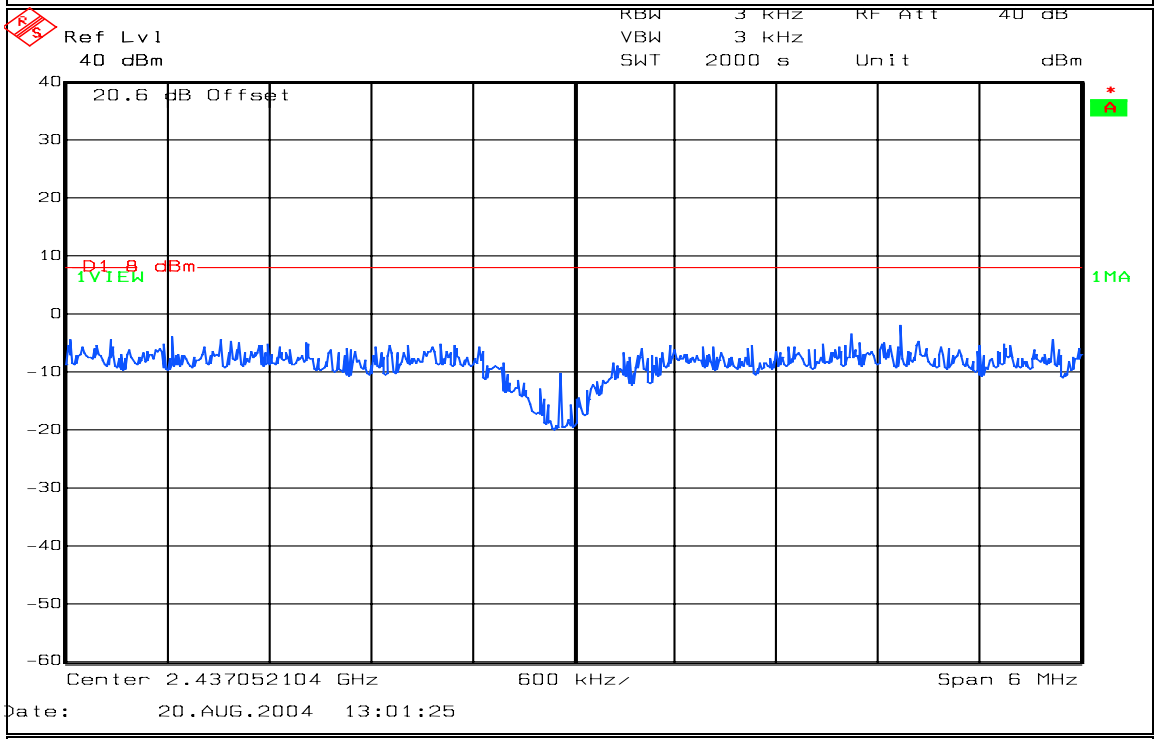
Dallas Headquarters:
802 N. Kealy
Lewisville, TX 75057
Tel: (972) 436-9600
Fax: (972) 436-2667

Nemko Dallas, Inc.

Data Plot **Peak Power Spectral Density**

Page 2 of 3

Job No.:	4L0465	Date:	7/20/2004
Specification:	15.247 (d)	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%)	45
E.U.T.:	PAP2400		
Configuration:	TX 11 Mb/s		



Notes: **CHANNEL 6**

Test Data – Spectral Density

Dallas Headquarters:
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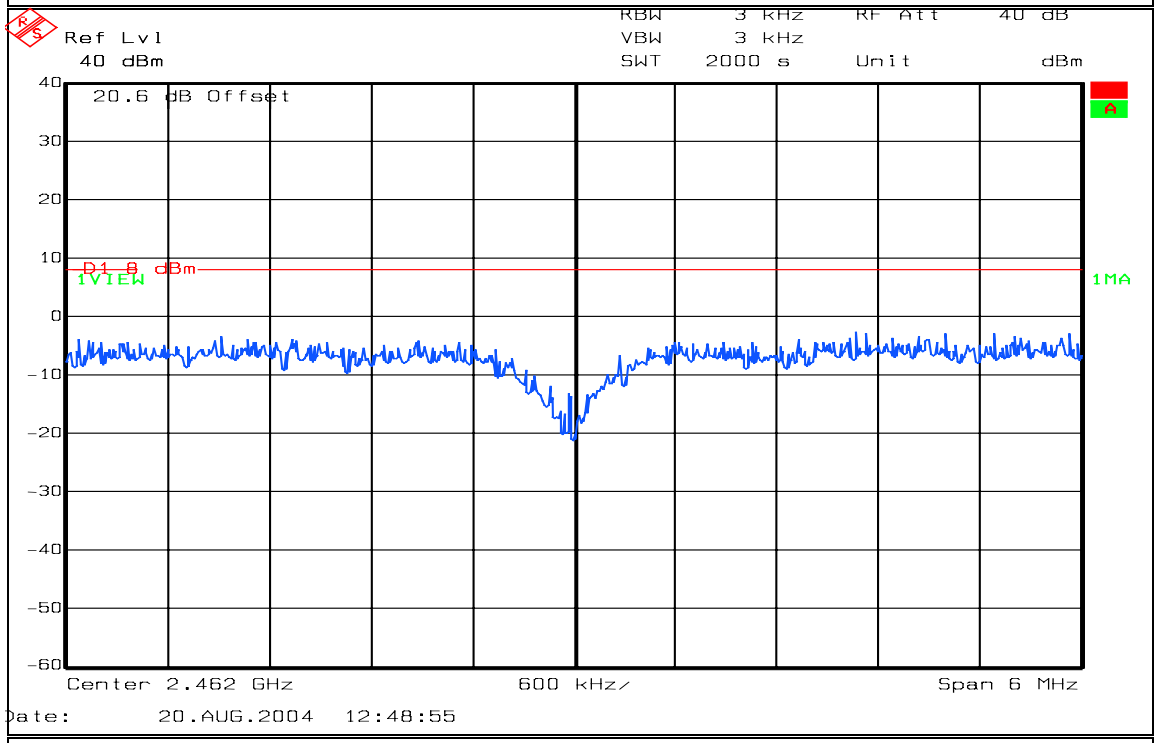
Tel: (972) 436-9600
Fax: (972) 436-2667

Nemko Dallas, Inc.

Data Plot **Peak Power Spectral Density**

Page 3 of 3

Job No.: 4L0465 Date: 7/20/2004
Specification: 15.247 (d) Temperature(°C): 22
Tested By: David Light Relative Humidity(%) 45
E.U.T.: PAP2400
Configuration: TX 11 Mb/s



Notes: **CHANNEL 11**

Section 9. Test Equipment List

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
1304	HORN ANTENNA	ELECTRO METRICS RGA-60	6151	09/22/03	09/22/05
1464	Spectrum analyzer	Hewlett Packard 8563E	3551A04428	07/30/04	07/31/06
1484	Cable 2.0-18.0 Ghz	Storm PR90-010-072	N/A	07/24/04	07/24/05
1485	Cable 2.0-18.0 Ghz	Storm PR90-010-216	N/A	07/24/04	07/24/05
1016	Pre-Amp	HEWLETT PACKARD 8449A	2749A00159	10/27/03	10/26/04
1036	SPECTRUM ANALYZER	ROHDE & SCHWARZ FSEK30	830844/006	03/22/04	03/23/06
1064	ATTENUATOR	NARDA 776B-20	NONE	CBU	N/A
1045	CABLE 2m	Astrolab Inc. 32027-2-29094-72TC	N/A	07/29/03	07/28/04
1258	LISN .15mhz-30mhz	EMCO 0	1305	09/15/03	09/14/04
968	Filter, High pass 5khz	Solartron 7930-5.0	933124	08/08/03	08/07/04
1551	CABLE .5m	KTL RG223	N/A	11/05/03	11/04/04
1266	CABLE, 10m	KTL RG223	N/A	06/09/04	06/09/05
760	Antenna biconical	Electro Metrics MFC-25	477	06/22/04	06/22/05
1311	ANTENNA, LOG PERIODIC	EMCO 3146	1753	06/04/04	06/04/05
1983	CABLE	KTL Site A OATS	N/A	03/11/04	03/11/05
1025	PREAMP, 25dB	ICC LNA25	399	06/09/04	06/09/05
765	RECEIVER (20-1000 MHz)	ROHDE & SCHWARZ ESVS 30	843710/0001	09/12/03	09/11/04
A OATS	Open Area Test Site	KTL None	A	03/11/04	03/11/05

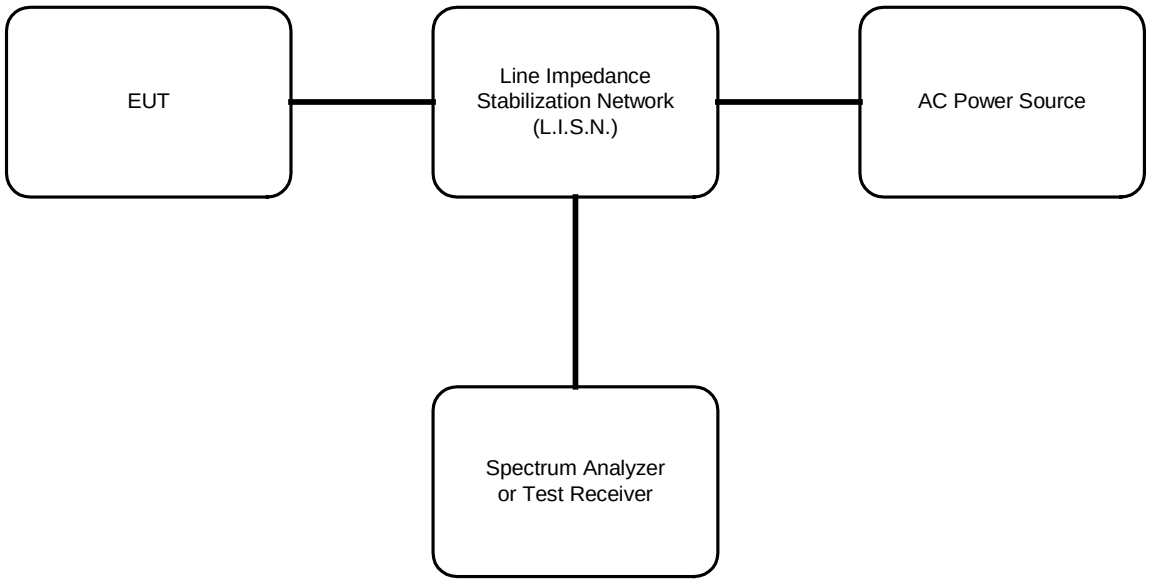
ANNEX A - TEST DETAILS

NAME OF TEST: Powerline Conducted Emissions	PARA. NO.: 15.207(a)

Conducted Emissions (Mains Ports)

- Applicable Test Standard: CFR 47, FCC Pt 15.107
- The test set-up is as per the test configuration diagram.
- The E.U.T. is configured as typically used.
- The E.U.T. and any accessories are operated with typical load conditions.
- Conducted powerline measurements are made from 150 kHz to 30 MHz.
- For each current carrying conductor of each power cord associated with the E.U.T., the emission closest to the limit is recorded.
- Final measurements are made using a spectrum analyzer with 10 kHz RBW, peak detector.
- Any emissions that are close to the limit are measured using a test receiver with 10 kHz bandwidth, CISPR quasi-peak detector.

Test Configuration - Powerline Conducted Emissions:



NAME OF TEST: Minimum 6 dB bandwidth	PARA. NO.: 15.247(a)(2)

Minimum Standard: The minimum 6 dB bandwidth shall be at least 500 kHz

NAME OF TEST: Maximum Peak Output Power	PARA. NO.: 15.247(b)(1)

Minimum Standard: The maximum peak output power shall not exceed 1 watt.

If transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point to point operation may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceed 6 dBi.

Systems operating in the 5725 – 5850 MHz band that are used exclusively for fixed, point-to-point operation may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter peak output power.

Direct Measurement Method For Detachable Antennas:
If the antenna is detachable, a peak power meter is used to measure the power output with the transmitter operating into a 50 ohm load. The dBi gain of the antenna(s) employed shall be reported.

Calculation Of EIRP For Integral Antenna:
If the antenna is not detachable from the circuit then the Peak Power Output is derived from the peak radiated field strength of the fundamental emission by using the plane wave relation $GP/4\pi R^2 = E^2/120\pi$ and proceeding as follows:

$$P = \frac{E^2 R^2}{30G} = \frac{E^2 3^2}{30G}$$

where,

P = the equivalent isotropic radiated power in watts
E = the maximum measured field strength in V/m
R = the measurement range (3 meters)
G = the numeric gain of the transmit antenna in relation to an isotropic radiator

The RBW of the spectrum analyzer shall be set to a value greater than the measured 6 dB occupied bandwidth of the E.U.T.

Number of channels tested:

Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

NAME OF TEST: Spurious Emissions(conducted) PARA. NO.: 15.247(c)

Minimum Standard: In any 100kHz bandwidth outside the frequency band in which the transmitter is operating, emissions shall be at least 20 dB below the fundamental emission or shall not exceed the following field strength limits. Emissions falling in the restricted bands of 15.205 shall not exceed the following field strength limits:

Frequency (MHz)	Field Strength (µV/m @ 3m)	Field Strength (dB @ 3m)
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

THE SPECTRUM IS SEARCHED TO THE 10th HARMONIC OF THE HIGHEST FREQUENCY GENERATED IN THE EUT.

Method Of Measurement:

30 MHz - 10th harmonic plot
RBW: 100 kHz
VBW: 100 kHz
Sweep: Auto
Display line: -20 dBc

Lower Band Edge
RBW: At least 1% of span/div.
VBW: >RBW
Span: As necessary to display any spurious at band edge.
Sweep: Auto
Center Frequency: 902 MHz, 2400 MHz, or 5725 MHz
Marker: Peak of fundamental emission
Marker Δ: Peak of highest spurious level below center frequency.

Upper Band Edge
RBW: At least 1% of span/div.
VBW: >RBW
Span: As necessary to display any spurious at band edge.
Sweep: Auto
Center Frequency: 928 MHz, 2483.5 MHz, or 5850 MHz
Marker: Peak of fundamental emission
Marker Δ: Peak of highest spurious level above center frequency.

Number of channels tested:

Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

NAME OF TEST: Radiated Spurious Emissions PARA. NO.: 15.247(c)

Minimum Standard: In any 100kHz bandwidth outside the frequency band in which the transmitter is operating, emissions shall be at least 20 dB below the fundamental emission or shall not exceed the following field strength limits:

Emissions falling in the restricted bands of 15.205 shall not exceed the following field strength limits:

Frequency (MHz)	Field Strength (µV/m @ 3m)	Field Strength (dB @ 3m)
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

THE SPECTRUM WAS SEARCHED TO THE 10th HARMONIC

15.205 Restricted Bands

MHz	MHz	MHz	GHz
0.09-0.11	16.42-16.423	399.9-410	4.5-5.25
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.125-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2655-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41	1718		

Number of channels tested:

Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

NAME OF TEST: Transmitter Power Density	PARA. NO.: 15.247(d)

Minimum Standard: The transmitted power density averaged over any 1 second interval shall not be greater than +8 dBm in any 3 kHz bandwidth.

Method Of Measurement: The spectrum analyzer is set as follows:

RBW: 3 kHz
VBW: >3 kHz
Span: => measured 6 dB bandwidth
Sweep: Span(kHz)/3 (i.e. for a span of 1.5 MHz the sweep rate is 1500/3 = 500 sec.
LOG dB/div.: 2 dB

Note: For devices with spectrum line spacing =< 3 kHz, the RBW of the analyzer is reduced until the spectral lines are resolved. The measurement data is normalized to 3 kHz by summing the power of all the individual spectral lines within a 3 kHz band in linear power units.

For Devices With Integral Antenna:

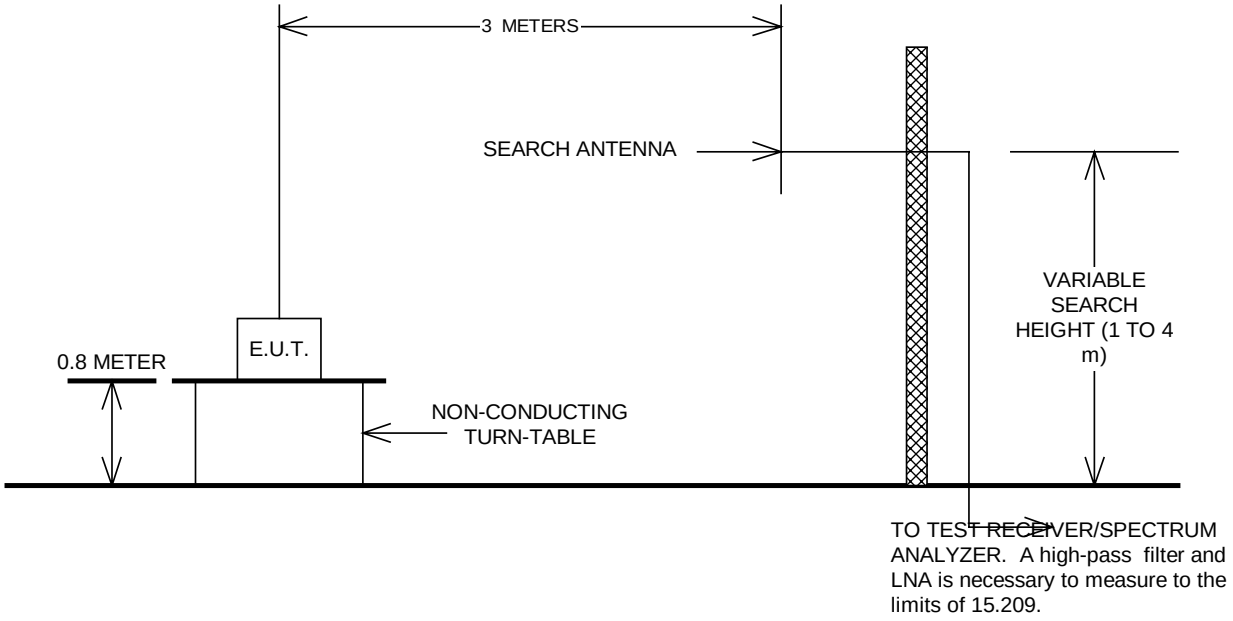
For devices with non-detachable antennas, the received field strength is peaked and the spectrum analyzer is set as above. The peak emission level is then measured and converted to a field strength by adding the appropriate antenna factor and cable loss. This field strength is then converted to an equivalent isotropic radiated power using the same method as described for Peak Power output.

Number of channels tested:

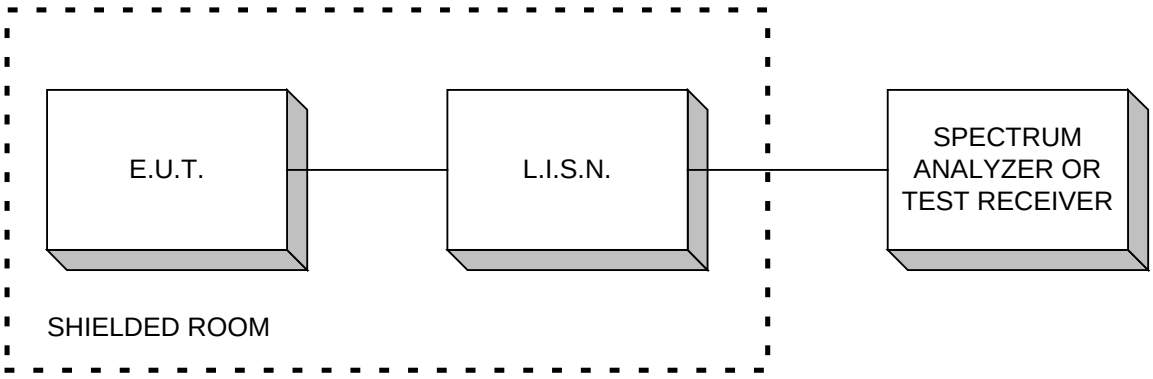
Tuning Range	Number Of Channels Tested	Channel Location In Band
1 MHz or Less	1	Middle
1 to 10 MHz	2	Top And Bottom
More Than 10 MHz	3	Top, Middle, Bottom

ANNEX B - TEST DIAGRAMS

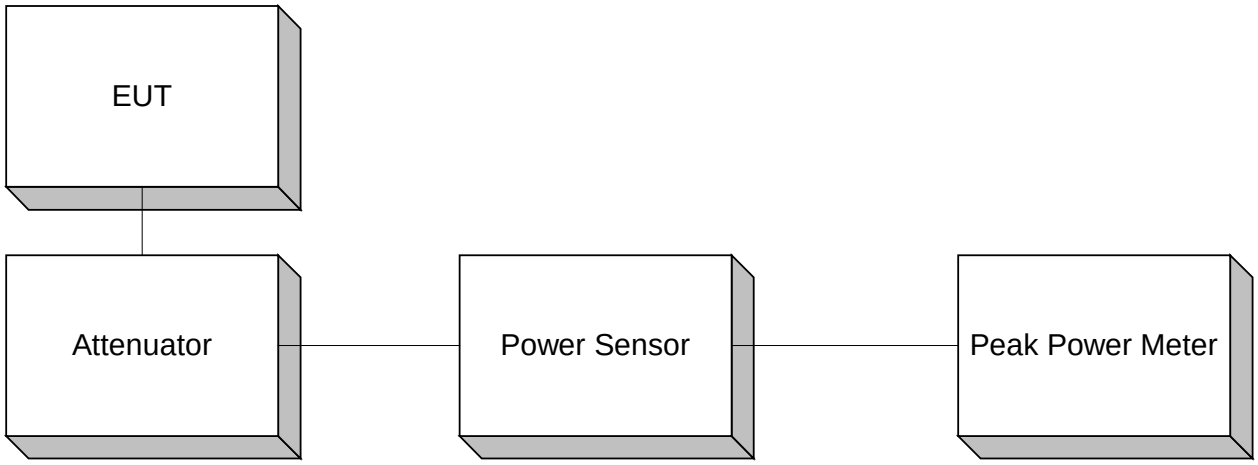
Test Site For Radiated Emissions



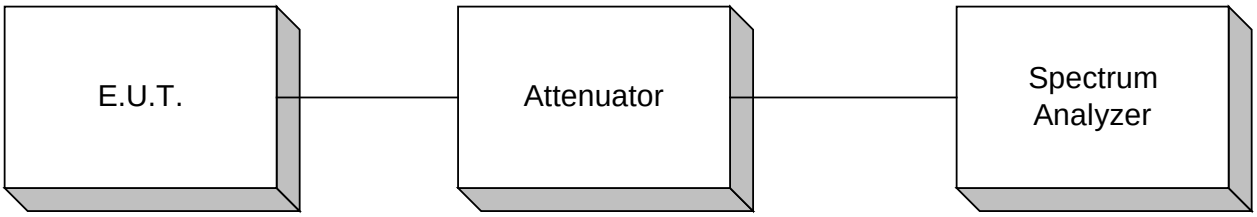
Conducted Emissions



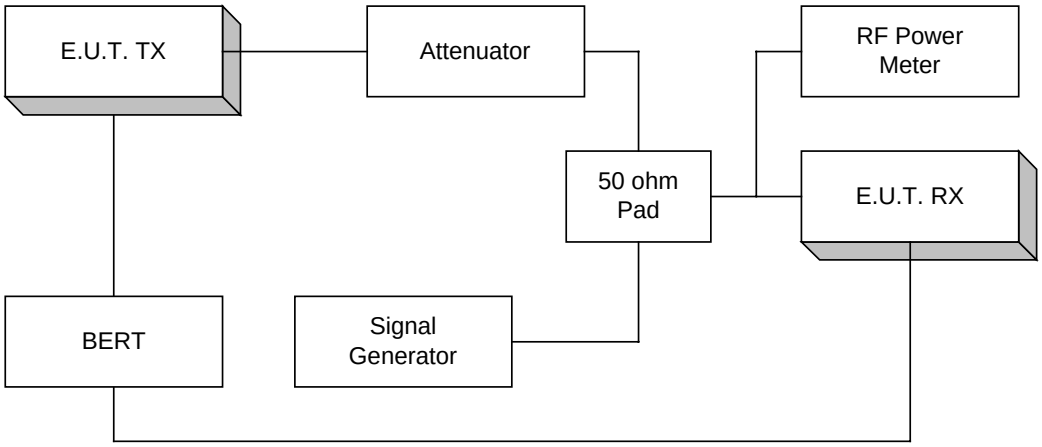
Peak Power At Antenna Terminals



Minimum 6 dB Bandwidth
Peak Power Spectral Density
Spurious Emissions (conducted)



Processing Gain



NOTE: This is a typical setup. The setup may vary slightly since many devices have BER test functions built into the device.