

Nemko Test Report:	4L0613RUS1Rev3
Applicant:	Motion Computing, Inc. 8601 RR 2222 Bldg 2 Building 1, Suite 250 Austin, TX 78730
Equipment Under Test: (E.U.T.)	LE1600 Series, Model T004
In Accordance With:	FCC Part 15, Subpart C, 15.247 Digital Transmission System Transceiver
Tested By:	Nemko Dallas Inc. 802 N. Kealy Lewisville, Texas 75057-3136
Authorized By:	Tom Tidwell, Frontline Group Manager
Date:	March 13, 2006

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EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Section 1. Summary of Test Results

Manufacturer: Motion Computing, Inc.

Model No.: T004

Serial No.: None

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.

\boxtimes	New Submission	\boxtimes	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 See "Summary of Test Data".



NVLAP LAB CODE: 100426-0

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EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Summary Of Test Data

NAME OF TEST	PARA. NO.	RESULT
Powerline Conducted Emissions	15.207(a)	Complies
Minimum 6 dB Bandwidth	15.247(a)(2)	Complies
Channel Separation	15.247(a)(1)	Complies
Pseudorandom Hopping Algorithm	15.247(a)(1)	Complies
Time of Occupancy	15.247(a)(1)(ii)	Complies
20 dB Occupied Bandwidth	15.247(a)(1)	Complies
Maximum Peak Power Output	15.247(b)(1)	Complies
Spurious Emissions (Antenna Conducted)	15.247(c)	Complies
Spurious Emissions (Restricted Bands)	15.247(c)	Complies
Peak Power Spectral Density	15.247(d)	Complies

Footnotes:

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EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

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

General Equipment Information

Frequency Band: 902 – 928 MHz

2400 – 2483.5 MHz

∑ 5725 – 5850 MHz

Channel Spacing: 5 MHz

User Frequency Adjustment: Software controlled

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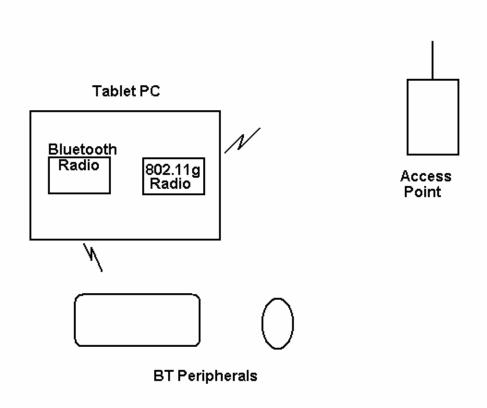
EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Description of EUT

The T004 is a portable computer platform based on ultra-portable tablet PC technology utilizing Microsoft's Tablet version of Windows XP. The PC is compatible with 802.11a, b and g technologies.

The PC also has Bluetooth capability.

System Diagram



FCC PART 15, SUBPART C

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EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Section 3. Powerline Conducted Emissions

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

TESTED BY: Kevin Rose DATE: 12/20/04

Test Results: Complies.

Measurement Data: See attached plots.

Measurement Uncertainty: +/- 1.7 dB

NOTE: The device was tested with both radio modules transmitting simultaneously (Bluetooth and WiLAN).

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Test Data - Powerline Conducted Emissions



Dallas Headquarters:

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Conducted Emissions Powerline Voltage Measurement

Job #: 4I0613e Test #: CEPV-01 Page

Motion Computing Inc. Client Name:

EUT Name: LE1600 Series

EUT Model #: T004 EUT Part #: EDX20

EUT Serial #:

Complete

Preliminary

EUT Config. : transmitting max power and DVD operating

Specification: FCC B Transducer #: 969

Temp. (deg. C): 20 HP Filter #: 1433 Humidity (%): 19 Cable 1 #: EUT Voltage: 1998 120 Cable 2 #: EUT Frequency: 1129 60 Detector 1 #: 718 Peak Bandwidth: 10 kHz

QP Bandwidth

Avg. Bandwidth 10 kHz

Detector 2 #: 966 Limiter #:

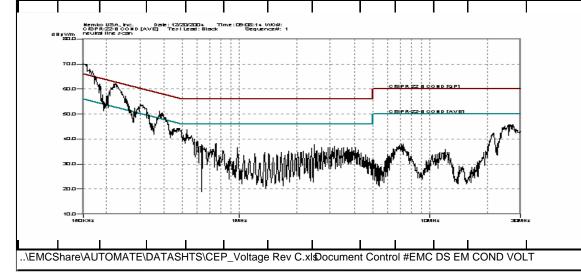
Reference: EN 55022 Class B

Date : 12/20/04 Time : 10:26 Staff : KEVIN ROSE Location : ROOM 2

Photo ID: 4L0613E CEPV-01

Meas.	EUT	Detector	Limit	Meter	Path	Transducer	Corrected	Spec.limit		CR/SL	Pass	
Freq.	Test	Type	Type	Reading	Loss	Factor	Reading	(dE	BuV)	Diff.	Fail	
(MHz)	Point	(P,QP, A)	(QP, A)	(dBuV)	(dB)	(dB)	(dBuV)	Q.P.	Avg.	(dB)	Unc.	Comment
0.1527	Neutral	Α	Α	47.0	0	0	47.0	65.85	55.852	-8.9	Pass	
0.1527	Neutral	QP	QP	56.8	0	0	56.8	65.85	55.852	-9.1	Pass	
0.2298	Neutral	Α	Α	36.0	0	0	36.0	62.46	52.457	-16.5	Pass	
0.2298	Neutral	QP	QP	45.2	0	0	45.2	62.46	52.457	-17.3	Pass	
0.4568	Neutral	Α	Α	32.5	0	0	32.5	56.75	46.751	-14.3	Pass	
0.4568	Neutral	QP	QP	36.2	0	0	36.2	56.75	46.751	-20.6	Pass	

10 kHz



EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Test Data - Powerline Conducted Emissions



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Conducted Emissions
Powerline Voltage Measurement

 Complete
 X
 Job # :4I0613e
 Test # : CEPV-01

 Preliminary
 Page 2
 of 2

Client Name: Motion Computing Inc.

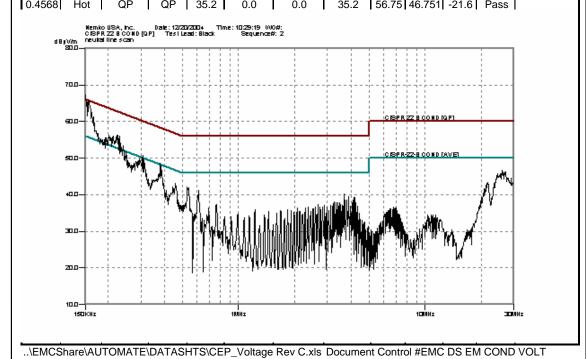
EUT Name : LE1600 Series

EUT Model #: T004 EUT Part #: EDX20

EUT Serial #: 56
EUT Config.: transmitting max power and DVD operating

Specification : FCC B Reference : EN 55022 Class B

Meas.	EUT	Detector	Limit	Meter	Path	Transducer	Corrected	Spec	c.limit	CR/SL	Pass	
Freq.	Test	Type	Type	Reading	Loss	Factor	Reading	(dE	BuV)	Diff.	Fail	
(MHz)	Point	(P,QP, A)	(QP, A)	(dBuV)	(dB)	(dB)	(dBuV)	Q.P.	Avg.	(dB)	Unc.	Comment
0.1527	Hot	Α	Α	46.0	0.0	0.0	46.0	65.85	55.852	-9.9	Pass	
0.1527	Hot	QP	QP	57.2	0.0	0.0	57.2	65.85	55.852	-8.7	Pass	
0.2298	Hot	Α	Α	38.0	0.0	0.0	38.0	62.46	52.457	-14.5	Pass	
0.2298	Hot	QP	QP	47.0	0.0	0.0	47.0	62.46	52.457	-15.5	Pass	
0.4568	Hot	Α	Α	25.6	0.0	0.0	25.6	56.75	46.751	-21.2	Pass	
0.4569	Llot	ΛD	ΩD	25.2	0.0	0.0	25.2	EG 7E	16 751	21.6	Door	1



EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Photos – Powerline Conducted Emissions

Front



Side



Nemko Dallas FCC PART 15, SUBPART C

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Section 4. Occupied Bandwidth

NAME OF TEST: Occupied Bandwidth PARA. NO.: 15.247(a)(2)

TESTED BY: David Light DATE: 12/21/04

Test Results: Complies.

802.11g

Measurement Data: See 6 dB BW plot

Measured 6 dB bandwidth: 16.5 MHz
Channel Separation: 5 MHz

802.11b

Measurement Data: See 6 dB BW plot

Measured 6 dB bandwidth: 10 MHz Channel Separation: 5 MHz

802.11a

Measurement Data: See 6 dB BW plot

Measured 6 dB bandwidth: 16.5 MHz
Channel Separation: 5 MHz

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

802.11g



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Complete X

Nemko Dallas, Inc.		
Data Plot	Occupied Bandwidth	
Page <u>1</u> of <u>4</u>		Complete
Job No.: 4L0613	Date: 12/21/2004	Preliminary:

Date: 12/21/2004 Job No.: 4L0613 Specification: 15.247 Temperature(°C): 22 Tested By: David Light Relative Humidity(%) E.U.T.: TABLET PC

Configuration: TX W/ TX UTILITY SET TO 25 POWER

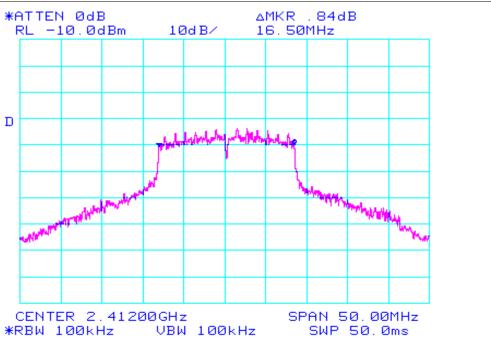
+/-1.7 dB

___1 Sample Number: Location: AC 3 RBW: 100 kHz Detector Type: Peak VBW: 100 kHz

Test Equipment Used

Measurement Uncertainty:

Directional Coupler: Antenna: Pre-Amp: Filter: 1485 Cable #2: Receiver: Cable #3: Attenuator #1 Cable #4: Attenuator #2: Mixer: Additional equipment used:



Notes: Channel 1 802.11g @ 54 Mbps

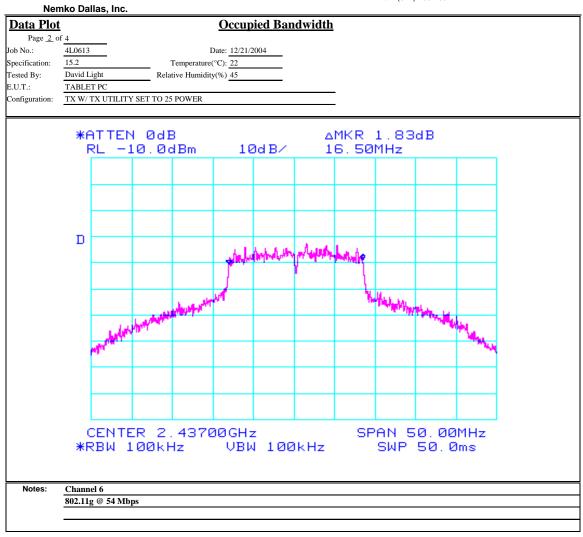
EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

802.11g



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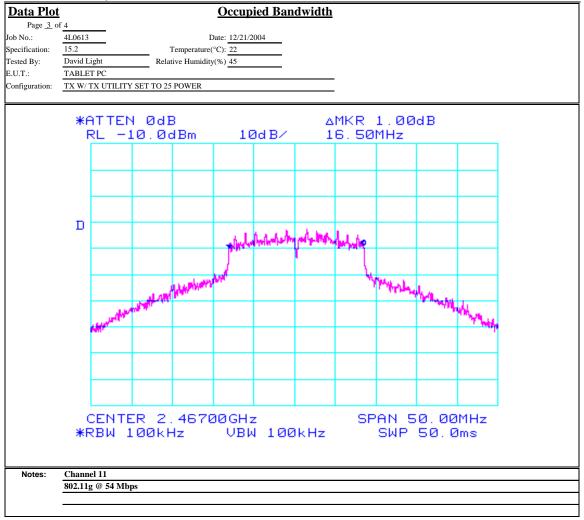
EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

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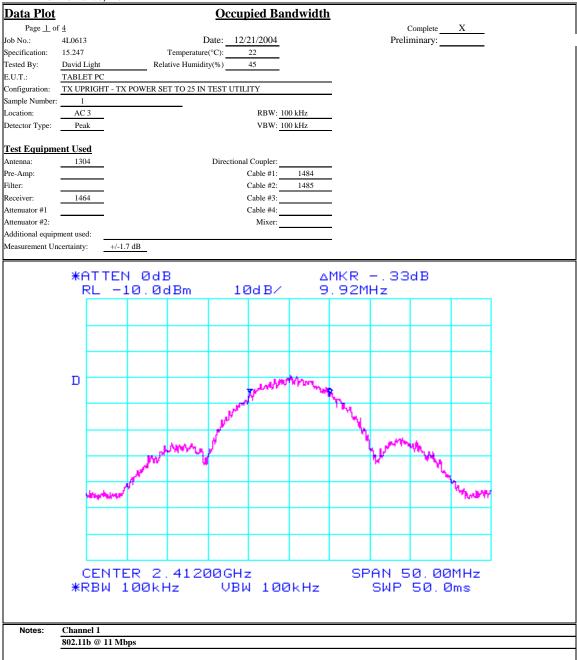
EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

802.11b



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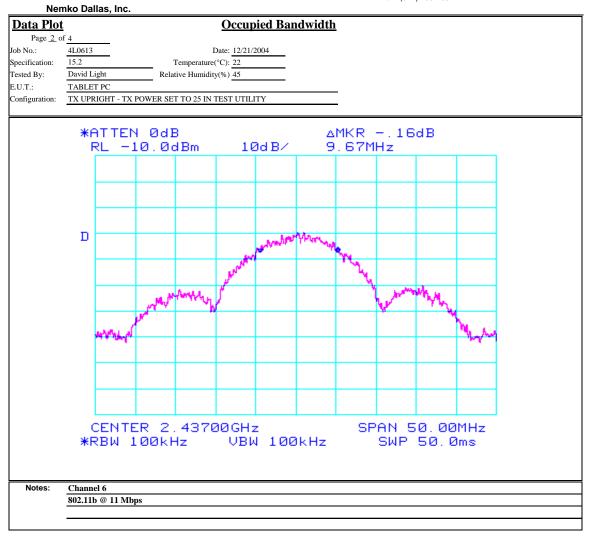
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802.11b



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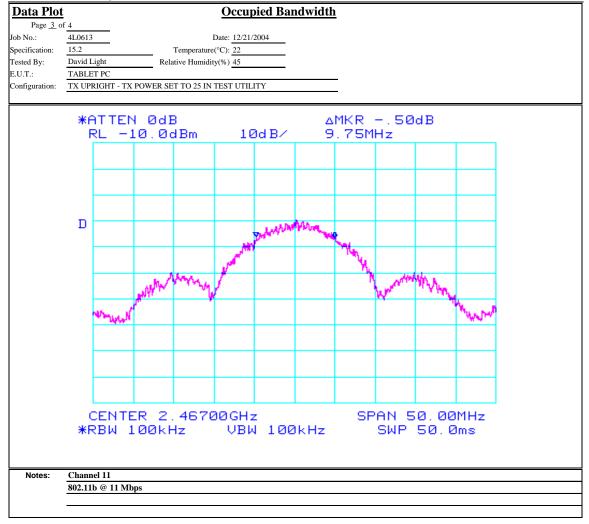
EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

802.11b



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802.11a



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Data Plot		nao, moi	S	purious	Emissi	ons at A	ntenna	Termiı	ıals			
Page <u>1</u> of	4		5							Complete	X	
Job No.:	4L0613			D	ate: 12/2	21/2004			Preli	minary:		
Specification:	15.247			Temperature(22			1101			
Tested By:	David I	ight		tive Humidity		45						
E.U.T.:	TABLE		KCI	arve rrainanty		43						
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Configuration:	IXUF	KIGITI - FO	WER SET I	O 25 USING	11231 011	LIII		-				
Sample Number:	Y -1-	1				DDW 10	0.1.11					
Location:	Lab					RBW: 10		-				
Detector Type:	Pea	<u>K</u>				VBW: 10	0 KHZ	-				
Test Equipme	ent Use	<u>d</u>										
Antenna:	130	4			Directional	Coupler:						
Pre-Amp:						Cable #1:	1484	_				
Filter:						Cable #2:	1485	_				
Receiver:	146	4				Cable #3:		-				
Attenuator #1						Cable #4:		-				
Attenuator #2:						Mixer:		-				
Additional equip	ment use	1:				_		-				
Measurement Un			/ dB					-				
measurement on	cortainity											
		ATTEN RL -1			10	3d B∕		MKR 6.50	3.00 MHz	dB		
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Notes:		t Channel										
	002.11	a @ 54 Mb	ps									

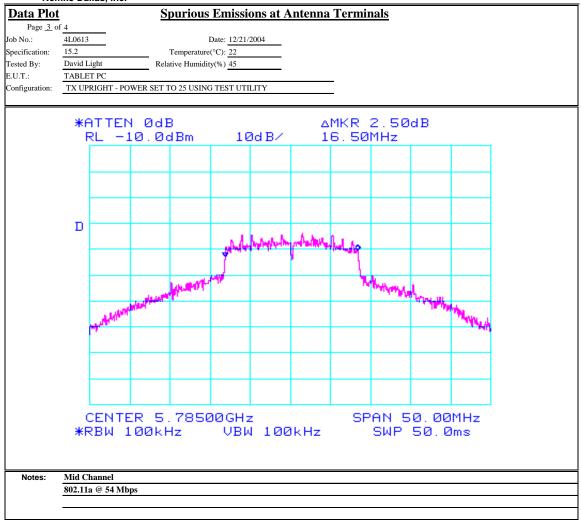
EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

802.11a



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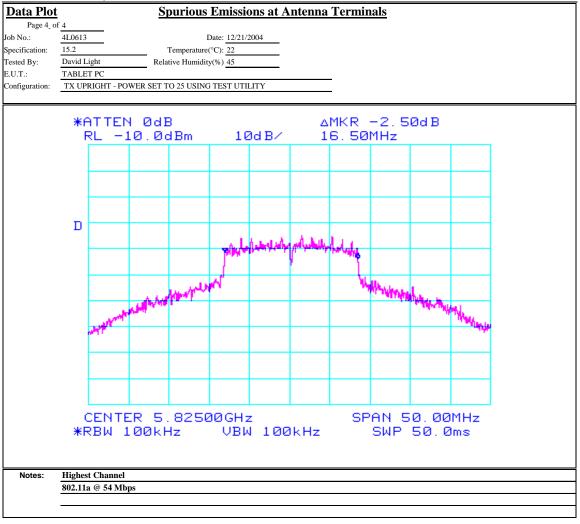
EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

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EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Section 5. Maximum Peak Output Power

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

TESTED BY: Abe Cox DATE: 1/16/06

Test Results: Complies.

Measurement Data: Refer to Table Below

Frequency	Mode	Peak Power	Peak Power	Antenna Gain
(MHz)		(dBm)	(mW)	(dBi)
2412	802.11b	16.8	47.86	0
2437	802.11b	17.05	50.7	0
2462	802.11b	17.27	53.33	0
2412	802.11g	15.45	35.08	0
2437	802.11g	15.11	32.43	0
2462	802.11g	14.98	31.48	0
5745	802.11a	13.63	23.07	1
5785	802.11a	13.57	22.75	1
5825	802.11a	13.27	21.23	1

The measurement was repeated at +/- 15% of nominal supply voltage with no variation noted in rf power output.

Nemko Dallas FCC PART 15, SUBPART C

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Section 6. RF Exposure

NAME OF TEST: RF Exposure PARA. NO.: 15.247(b)(4)

TESTED BY: DATE:

Test Results: Please refer to SAR report for body SAR results.

Measurement Data:

Page 22 of 61

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Section 7 Spurious Emissions at Antenna Terminals

NAME OF TEST: Spurious Emissions at Antenna Terminals PARA. NO.: 15.247 (c)

TESTED BY: David Light DATE: 1/5/05

Test Results: Complies.

Measurement Data: See attached plots.

The spectrum was thoroughly searched from 30 MHz to 40 GHz in all modes on three channels. There were no emissions detected within 20 dB of the specification limit of -20 dBc in any 100 kHz bandwidth. Plots are presented to demonstrate compliance at the band edges.

Test Equipment: 1464-1626-1470-988-989

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Test Data – Spurious Emissions at Antenna Terminals

802.11a



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Data Plot Spurious Emissions at Antenna Terminals Page 2 of 4 Date: 12/21/2004 Job No.: 4L0613 Specification: 15.2 Temperature(°C): 22 David Light Tested By: Relative Humidity(%) 45 E.U.T.: TABLET PC TX UPRIGHT - POWER SET TO 25 USING TEST UTILITY Configuration: ATTEN 10dB ΔMKR 27.67dB RL ØdBm 15.17MHz 10dB/ \mathbf{D} CENTER 5.72500GHz SPAN 50.00MHz *RBW 100kHz VBW 100kHz SWP 50.0ms Notes: **Lowest Channel** 802.11a @ 54 Mbps Lower bandedge

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

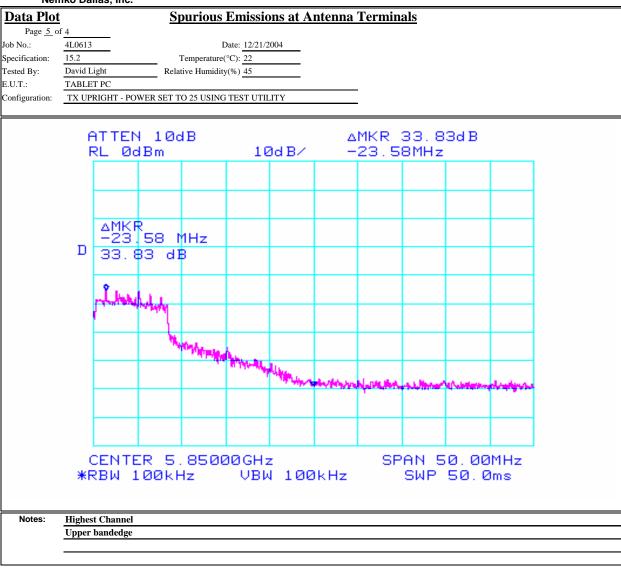
Test Data – Spurious Emissions at Antenna Terminals

802.11a



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EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

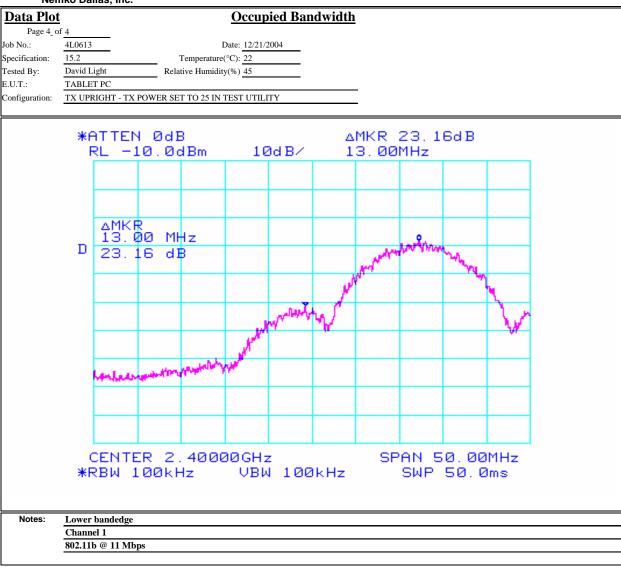
Test Data – Spurious Emissions at Antenna Terminals

802.11b



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EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

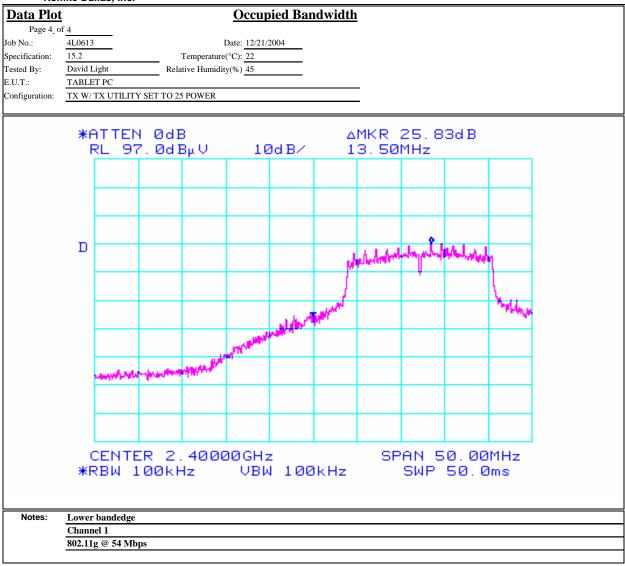
Test Data – Spurious Emissions at Antenna Terminals

802.11g



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Nemko Dallas FCC PART 15, SUBPART C

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Section 8. Radiated Emissions

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

TESTED BY: David Light DATE: 1/29/04

Test Results: Complies.

Measurement Data: See attached table.

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EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Radiated Emissions - 802.11a



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Radiated Emissions

Page $\underline{\mathbf{1}}$ of $\underline{\mathbf{1}}$

 Job No.:
 4L0613
 Date: 12/28/2004

 Specification:
 15.247/15.205
 Temperature(°C): 20

 Tested By:
 David Light
 Relative Humidity(%) 50

E.U.T.: TABLET PC

Configuration: Upright on long edge - Continuous transmit @ 54 Mbps - 802.11a

Sample Number: 1

 Location:
 AC 3
 RBW:
 1 MHz

 Detector Type:
 Peak
 Peak VBW:
 1 MHz

Avg VBW 10 Hz

Test Equipment Used

1304 Directional Coupler: #N/A Antenna: Pre-Amp: 1016 1484 Cable #1: Filter: 1650 Cable #2: 1485 Receiver: 1464 #N/A Cable #3: #N/A Attenuator #1 #N/A Cable #4: Attenuator #2: #N/A #N/A Mixer:

Additional test equipment: 988-983-991-992

Measurement Uncertainty: +/- 3.6 dB

Frequency (MHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Pre-Amp Gain (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector / Polarity
								Tx 5825 MHz
11650	47.0	39.0	7.2	35.4	57.8	74	54	Peak/Horizontal
11650	36.0	39.0	7.2	35.4	46.8	74	54	Avg/Horizontal
11650	47.0	39.0	7.2	35.4	57.8	74	54	Peak/Vertical
11650	35.6	39.0	7.2	35.4	46.4	74	54	Avg/Vertical
								Tx 5785 MHz
11570	45.0	39.0	7.2	35.4	55.8	74	54	Peak/Horizontal
11570	36.5	39.0	7.2	35.4	47.3	74	54	Avg/Horizontal
11570	45.0	39.0	7.2	35.4	55.8	74	54	Peak/Vertical
11570	34.2	39.0	7.2	35.4	45.0	74	54	Avg/Vertical
								Tx 5745 MHz
11490	45.0	39.0	7.2	35.4	55.8	74	54	Peak/Horizontal
11490	34.6	39.0	7.2	35.4	45.4	74	54	Avg/Horizontal
11490	45.0	39.0	7.2	35.4	55.8	74	54	Peak/Vertical
11490	34.6	39.0	7.2	35.4	45.4	74	54	Avg/Vertical
								<u> </u>
Notes:	Scanne	ed all em	issions	s from 3	0 MHz to	40 GHz		
	No emi	ssions w	ere de	etected a	above the	e noise flo	or	

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Radiated Emissions – 802.11b



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Radiated Emissions

Page $\underline{1}$ of $\underline{1}$

 Job No.:
 4L0050
 Date: 12/28/2004

 Specification:
 15.247/15.205
 Temperature(°C): 20

Tested By: David Light Relative Humidity(%) 50

E.U.T.: TABLET PC w/802.11b

Configuration: Upright on long edge - Continuous transmit @ 11 Mbps Tx utility set at 25

Sample Number: 1

 Location:
 AC 3
 RBW:
 1 MHz

 Detector Type:
 Peak
 Peak VBW:
 1 MHz

Avg VBW 10 Hz

Test Equipment Used

Antenna: 1304 Directional Coupler: #N/A Pre-Amp: 1016 Cable #1: 1484 Filter: 1650 1485 Cable #2: Receiver: 1464 Cable #3: #N/A #N/A #N/A Attenuator #1 Cable #4: Attenuator #2: #N/A Mixer: #N/A

Additional test equipment: 988-983-991-992

Measurement Uncertainty: +/- 3.6 dB

Frequency (MHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Pre-Amp Gain (dB)		Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector / Polarity			
								Tx 2462 MHz			
2483.5	41.0	28.2	3.1	0.0	72.3	74	54	Peak/Horizontal			
2483.5	22.3	28.2	3.1	0.0	53.6	74	54	Average/Horizontal			
2483.5	38.0	28.2	3.1	0.0	69.3	74	54	Peak/Vertical			
2483.5	22.0	28.2	3.1	0.0	53.3	74	54	Average/Vertical			
Notes:	The device was tested on 3 channels.										
	No emiss	ions were	detecte	d above th	ne noise flo	or. Bandedo	ge data prov	vided.			

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Radiated Emissions – 802.11g



Nemko Dallas, Inc.

Dallas Headquarters:

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

Radiated Emissions

Radiated Emissi

Page $\underline{1}$ of $\underline{1}$

 Job No.:
 4L0613
 Date: 12/28/2004

 Specification:
 15.247/15.205
 Temperature(°C): 20

 Tested By:
 David Light
 Relative Humidity(%) 50

E.U.T.: TABLET PC w/802.11g

Configuration: Upright on long edge - Continuous transmit @ 54 Mbps Tx utility set at 25

Sample Number: 1

 Location:
 AC 3
 RBW:
 1 MHz

 Detector Type:
 Peak
 Peak VBW:
 1 MHz

Avg VBW: 10 Hz

Test Equipment Used

Antenna: 1304 Directional Coupler: #N/A Pre-Amp: 1016 Cable #1: 1484 Filter: 1650 1485 Cable #2: Receiver: 1464 Cable #3: #N/A #N/A #N/A Attenuator #1 Cable #4: Attenuator #2: #N/A Mixer: #N/A

Additional test equipment: 988-983-991-992

Measurement Uncertainty: +/- 3.6 dB

Frequency (MHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Pre-Amp Gain (dB)		Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector / Polarity			
								Tx 2462 MHz			
2483.5	34.5	28.2	3.1	0.0	65.8	74	54	Peak/Horizontal			
2483.5	22.6	28.2	3.1	0.0	53.9	74	54	Average/Horizontal			
2483.5	33.0	28.2	3.1	0.0	64.3	74	54	Peak/Vertical			
2483.5	22.4	28.2	3.1	0.0	53.7	74	54	Average/Vertical			
Notes:	The device was tested on 3 channels.										
	No emiss	ions were	detecte	d above n	oise floor. E	Band edge o	data provide	ed			

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Radiated Photographs





FCC PART 15, SUBPART C

Nemko Dallas

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Section 9. Peak Power Spectral Density

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

TESTED BY: David Light DATE: 1/4/05

Test Results: Complies.

Measurement Data: See attached data..

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Peak Power Spectral Density

802.11a



Dallas Headquarters:

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Page of 3	Data Plot	into Du	1143, 1116.		Pe	ak Pow	er Speci	ral Den	sitv			
Packed By: David Light Relative Humidity(%) 60		3			10	un I O	ст Бресс	rui Den	BICY	(Complete	X
Packed By: David Light Relative Humidity(%) 60	Job No.:				D	Date: 1/4/2005				Prelir	ninary:	
Table PC	Specification:											
Table PC	-											
RBW: 3 kHz	E.U.T.:					<u></u>						
RBW: 3 kHz	Configuration:	Upright	on long edge	e-Tx @ 54 M	lbps-802.11a				-			
Peak VBW: 3 kHz	Sample Number:	1							_			
Pest Equipment Used Nate Nate	Location:	Lab	1				RBW: 3 k	Hz				
Directional Coupler:	Detector Type:	Pea	k				VBW: 3 k	Hz	- -			
Cable #1: 1626	Test Equipme	ent Use	<u>d</u>									
Cable #1: 1626	Antenna:		_			Directiona	l Coupler:					
Cable #2:	Pre-Amp:							-				
Receiver: 1464	Filter:								-			
Attenuator #1		1464										
Mixer:	Attenuator #1											
Additional equipment used:									=			
### ATTEN 20dB RL 20.0dBm 10dB/ DISPLAY LINE		ment use	1:						=			
ATTEN 20dB RL 20.0dBm 10dB/ DISPLAY LINE 8.0 dBm CENTER 5.745000GHz SPAN 6.000MHz **RBW 3.0kHz VBW 3.0kHz **SWP 2.0ksec				7 dB					-			
RL 20.0dBm 10dB/ DISPLAY LINE 8.0 dBm CENTER 5.745000GHz SPAN 6.000MHz *RBW 3.0kHz VBW 3.0kHz *SWP 2.0ksec												
DISPLAY LINE 8. Ø dBm CENTER 5.745000GHz *RBW 3. ØkHz VBW 3. ØkHz SPAN 6. Ø00MHz *SWP 2. Øksec												
CENTER 5.745000GHz SPAN 6.000MHz *RBW 3.0kHz VBW 3.0kHz *SWP 2.0ksec		- 1	RL 26	1. Udl	3m	1	0d B/					
CENTER 5.745000GHz SPAN 6.000MHz *RBW 3.0kHz VBW 3.0kHz *SWP 2.0ksec												
CENTER 5.745000GHz SPAN 6.000MHz *RBW 3.0kHz VBW 3.0kHz *SWP 2.0ksec												
CENTER 5.745000GHz SPAN 6.000MHz *RBW 3.0kHz VBW 3.0kHz *SWP 2.0ksec												
CENTER 5.745000GHz SPAN 6.000MHz *RBW 3.0kHz VBW 3.0kHz *SWP 2.0ksec												
CENTER 5.745000GHz SPAN 6.000MHz *RBW 3.0kHz VBW 3.0kHz *SWP 2.0ksec			DIC	DI 0V	LINE	-						
CENTER 5.745000GHz SPAN 6.000MHz *RBW 3.0kHz VBW 3.0kHz *SWP 2.0ksec			1819,	15B.	LIII	-						
CENTER 5.745000GHz SPAN 6.000MHz **RBW 3.0kHz VBW 3.0kHz **SWP 2.0ksec			0.0	abiii								
CENTER 5.745000GHz SPAN 6.000MHz **RBW 3.0kHz VBW 3.0kHz **SWP 2.0ksec												
CENTER 5.745000GHz SPAN 6.000MHz *RBW 3.0kHz VBW 3.0kHz *SWP 2.0ksec												
CENTER 5.745000GHz SPAN 6.000MHz *RBW 3.0kHz VBW 3.0kHz *SWP 2.0ksec			Marie 1,		. A A	در بالأند را	Mar. 1	4	السا	Mar. 🛍	de la company	المارية
CENTER 5.745000GHz SPAN 6.000MHz *RBW 3.0kHz VBW 3.0kHz *SWP 2.0ksec			ा प	100	-т Па	411	4		T	नः ग		
**RBW 3.0kHz VBW 3.0kHz **SWP 2.0ksec Notes: Lowest Channel		R										
**RBW 3.0kHz VBW 3.0kHz **SWP 2.0ksec Notes: Lowest Channel												
**RBW 3.0kHz VBW 3.0kHz **SWP 2.0ksec Notes: Lowest Channel												
**RBW 3.0kHz VBW 3.0kHz **SWP 2.0ksec Notes: Lowest Channel				1.							111	
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*RBW 3.0kHz VBW 3.0kHz *SWP 2.0ksec Notes: Lowest Channel			Citabilia	11, 11,	1111	741171		**	<u>u lilk mili</u> li	117 1 1 1 1 1 1 1	rinnii Pil	1.000
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*RBW 3.0kHz VBW 3.0kHz *SWP 2.0ksec Notes: Lowest Channel								, I	141		'	
**RBW 3.0kHz VBW 3.0kHz **SWP 2.0ksec Notes: Lowest Channel								I				
**RBW 3.0kHz VBW 3.0kHz **SWP 2.0ksec Notes: Lowest Channel												
*RBW 3.0kHz VBW 3.0kHz *SWP 2.0ksec Notes: Lowest Channel		100	PENT	- Q	7450	agac	H→		ep.	AN E	aaa	мы⊸
Notes: Lowest Channel								0.10				
		*	KBM 3	3. UKH	1Z	OBL	и З.И	KHZ	*	SWP	2. Øk	sec
	Notes:	Lowes	t Channel									
<u> </u>		_		ps								

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

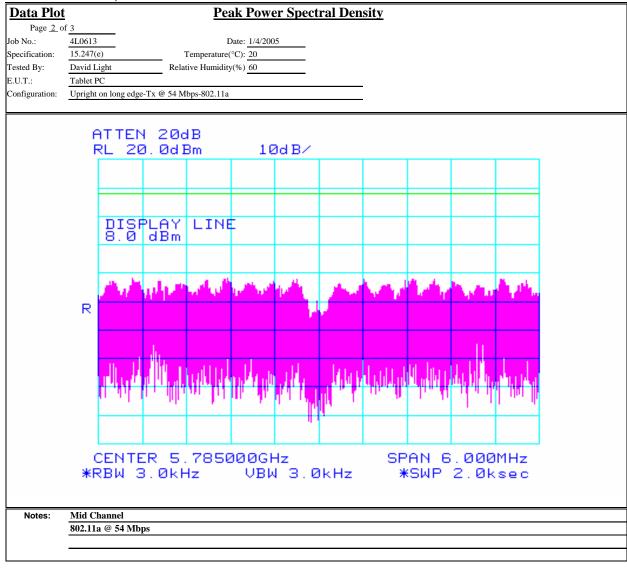
Peak Power Spectral Density

802.11a



Dallas Headquarters:

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EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

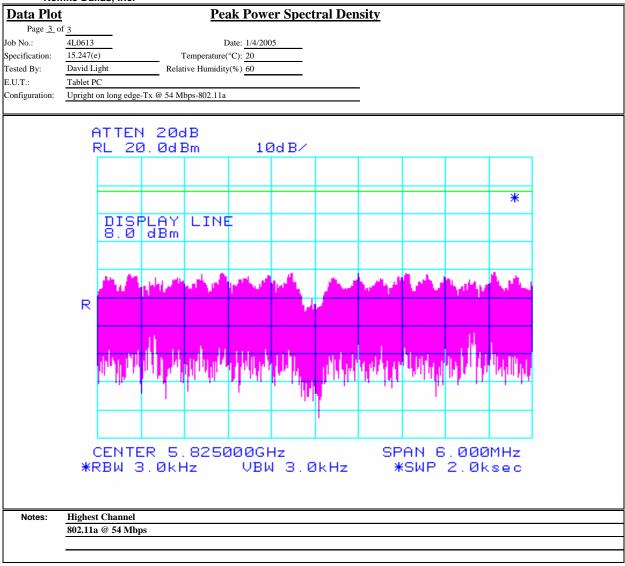
Peak Power Spectral Density

802.11a



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EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Peak Power Spectral Density

802.11b



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Fax: (972) 436-2667

Data Plot				Pea	ak Pow	er Spect	tral Der	ısity			
Page 1 of	3								(Complete	X
Job No.:	4L0613			D	ate: 1	/4/2005				minary:	
Specification:	15.247(6	e)		Temperature		20				· —	
Tested By:	David L			tive Humidity		60					
E.U.T.:	Tablet P			uve mannan,	.(70)						
			T 11 M	- 002 111				-			
-		on long edge	-1 X 11 Mbp	s-802.11b				-			
Sample Number:	1										
Location:	Lab					RBW: <u>3 k</u>		_			
Detector Type:	Peak	<u> </u>				VBW: 3 k	Hz	_			
Test Equipme	nt Used	i									
Antenna:		_			Directional	Coupler:					
Pre-Amp:						Cable #1:	1626	-			
Filter:						Cable #2:	1020	-			
	146							-			
Receiver:	1464					Cable #3:		_			
Attenuator #1	1470)			•	Cable #4:		-			
Attenuator #2:						Mixer:		_			
Additional equipr	nent used	: <u> </u>						_			
Measurement Une	certainty:	+/-1.7	dB	·							
	- 6	ATTEN	1 200	IB							
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	- 1										
											*
											- 1
		DISE	PLAY	LINE	-						
		ล้าดี	dBm		-						
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Notes:	Channe	el 1									
	802.111	@ 11 Mb _j	ps								

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

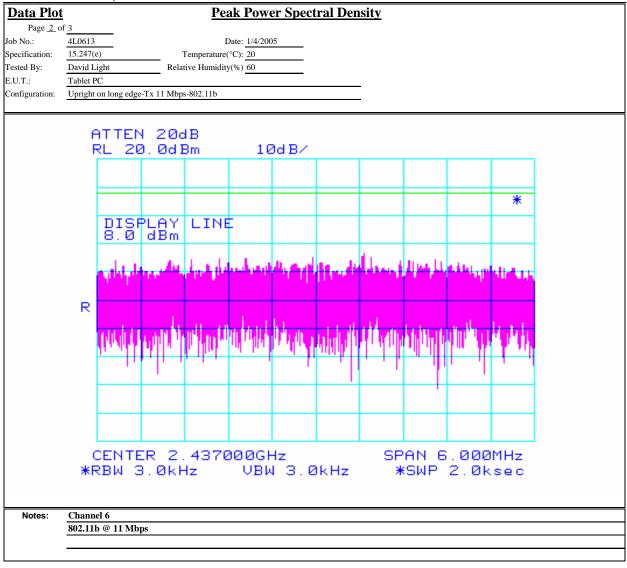
Peak Power Spectral Density

802.11b



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EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

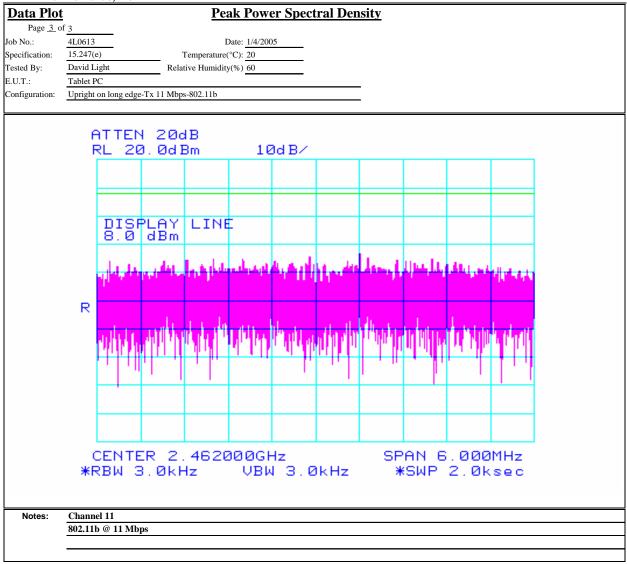
Peak Power Spectral Density

802.11b



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EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Peak Power Spectral Density

802.11g



Dallas Headquarters:

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Data Plot				Pea	ak Pow	er Spect	ral Den	<u>sity</u>			
Page 1 of	<u>3</u>					_			C	Complete ninary:	X
Job No.:	4L0613			D	ate:1	1/4/2005			Prelir	ninary:	
Specification:	15.247(e)		Temperature(20					
Γested By:	David L	ght	Rela	tive Humidity	y(%)	60					
E.U.T.:	Tablet P	C						_			
Configuration:	Upright	on long edge	-Tx 54 Mbp	s-802.11g				_			
Sample Number:	1							_'			
Location:	Lab	1		<u>-</u>		RBW: 3 k	Hz				
Detector Type:	Peak					VBW: 3 k	Hz	- -			
Test Equipme	nt Used										
Antenna:	nt osce	=			Directiona	l Coupler:					
Pre-Amp:						Cable #1:	1626	-			
Filter:						Cable #2:	1020	_			
Receiver:	1464					Cable #3:		-			
Attenuator #1	1470					Cable #4:		-			
	14/0							-			
Attenuator #2:	nont nos 1					Mixer:		-			
Additional equips Measurement Un-		+/-1.7	7 AD					-			
vieasurement Un	certainty:	+/-1.	ав								
	6 F	TTEN RL 20	1 20d 3.0dI	IB 3m	10	2d B∕					
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		8.0	dBm								
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							'				
			LR 2. 3.0kF	4120 Iz		Hz √ 3.0	kHz		AN 6 SWP		
Notes:	Channe	el 1									
		@ 54 Mb	ps								
		,	•								

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

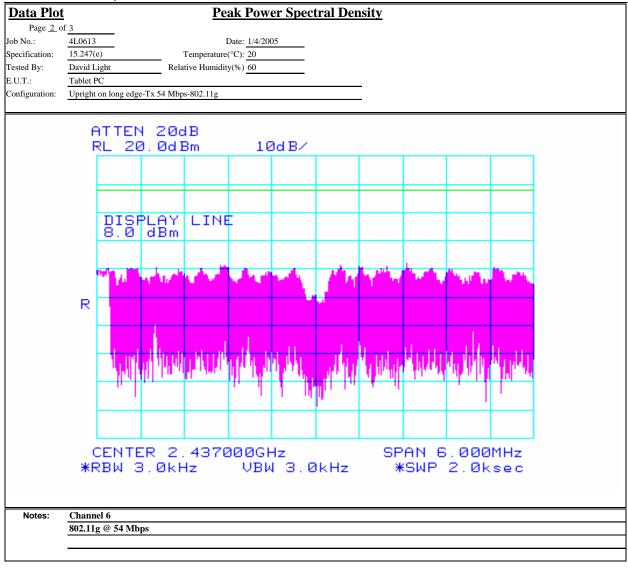
Peak Power Spectral Density

802.11g



Dallas Headquarters:

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EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

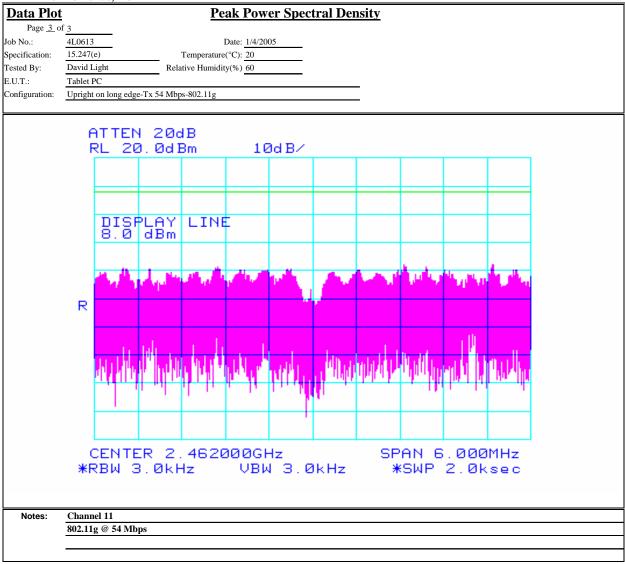
Peak Power Spectral Density

802.11g



Dallas Headquarters:

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FCC PART 15, SUBPART C

Nemko Dallas

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Section 10. Receiver Spurious Emissions

NAME OF TEST: Receiver Spurious Emissions PARA. NO.: 7.3

TESTED BY: David Light DATE: 1/4/05

Test Results: Complies.

Measurement Data: See attached data..

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Test Data – Receiver Spurious Emissions

Radiated Emissions Data											
Comple Prelimin		X	•					Job # :	4106131 Page		Test # : <u>REHE-01</u> of <u>2</u>
Client N		Motion C		g Inc.							
EUT Na		LE1600 S	Series								
EUT Mo		T004									
EUT Pa		EDX20									
EUT Se		56									
EUT Co	nfig. :	transmitti	ng max	power a	and DVD	operating					
Specific	ation:	FCC CLA	ASS B					Refere	ence :	CISPR	R 22 B
Rod. An	nt. #:			Temp.	(deg. C) :	12	•			Date:	12/21/04
Bicon A	nt.#:	760	_	Humidi	ty (%):	20	=' _			Time:	9:00
Log Ant	.#:	759	_	EUT Vo		120	_			Staff:	Kevin Rose
Bilog Ar	nt.#:		_	EUT Fr	equency	: 60	_		Pł	noto ID:	4l0613E REHE-01
Dipole A	۹nt.#:		_	Phase:			_	P	eak Bar	ndwidth	:100 KHz
Cable#:		1983	-	Locatio	n:		-	V	ideo Ba	ndwidth	n100 KHz
Preamp	#:	791	_	Distanc	e:	10					
Limiter#	<u>:</u>	na	_								
Atten #:		na	-								
Detecto	r#:		-								
Meas.	Ant.	Atten.	Meter	Antenna	Path	RF	Corrected	Spec.	CR/SL	Pass	
Freq.	Pol.		Reading	Factor	Loss	Gain	Reading	limit	Diff.	Fail	QP readings
(MHz)	(H/V)	(dB)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Unc.	Comment
338.42	V		20.9	15.3	4.4	24.4	16.2	37.0	-20.8	Pass	
344.46	V		21.3	15.3	4.4	24.4	16.6	37.0	-20.4	Pass	
423	V		18.7	15.7	5.2	24.4	15.2	37.0	-21.8	Pass	
435.1	V		19.6	15.8	5.2	24.4	16.2	37.0	-20.8	Pass	
507.6	V		19.2	16.8	5.9	24.5	17.4	37.0	-19.6	Pass	
537.8	V		19.5	17.8	5.9	24.5	18.7	37.0	-18.3	Pass	
815.97	V		22.1	21.5	8.0	24.6	27.0	37.0	-10.0	Pass	
429.53	V		23.5	15.7	5.2	24.4	20.0	37.0	-17.0	Pass	
400.9	V		23.3	16.4	5.2	24.4	20.5	37.0	-16.5	Pass	
372.2	V		20.9	15.3	4.4	24.4	16.2	37.0	-20.8	Pass	
343.62	V		23.5	15.3	4.4	24.4	18.8	37.0	-18.2	Pass	
329.3	V		23	16.2	4.4	24.4	19.2	37.0	-17.8		
320.36	H		21.4	16.2	4.4	24.4	17.6	37.0	-19.4		
433.24	H		23.4	15.8	5.2	24.4	20.0	37.0	-17.0		
423	H		23	15.7	5.2	24.4	19.5	37.0	-17.5	Pass	
429.53	H		24	15.7	5.2	24.4	20.5	37.0	-16.5		
343.62	Н		22	15.3	4.4	24.4	17.3	37.0	-19.7	Pass	
123.93	V		26.6	12.5	2.4	24.7	16.8	30.0	-13.2	Pass	
129.98	V		25	12.3	2.7	24.7	15.4	30.0	-14.6		
208.57			24	15.5	3.5	24.6	18.5	30.0	-14.6		
			2 4								
238.8			25.3	16.4	3.5	24.5	20.7	37.0	-16.3	Pass	

Page 44 of 61

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Test Data – Receiver Spurious Emissions

				ı	Radiated	l Emissio	ns Data					
Complet Prelimin		X	- -					Job # :	410613E Page		Test # : R	EHE-0 2
Client N	ame :	Motion C	omputing	g Inc.								
EUT Na	me :	LE1600 S		•								
EUT Mo	del # :	T004										
EUT Pai	rt #:	EDX20										
EUT Sei		56										
EUT Co	nfig. :	transmitti	ng max ı	oower an	id DVD op	erating						
Specifica	ation :	FCC CLA	ASS B					Refere	ence :	CISPR	22 B	
Meas.	A 4	Det.	Meter	A-4	D-#	RF	1 0	Spec.	CR/SL	D		
rieas. Freq.	Ant. Pol.	Atten.	Reading	Antenna Factor	Path Loss	Gain	Corrected Reading	Spec. limit	Diff.	Pass Fail		
(MHz)	(H/V)	(dB)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)		Comment	
226.7	V	(GB)	18	15.9	3.5	24.5	12.9	30.0	-17.1		ALL QP	
250.8	V		21.3	17.1	4.0	24.4	18.0	37.0	-19.0	Pass	ALL QI	
117.9	V		28.6	13.2	2.4	24.7	19.5	30.0	-10.5	Pass		
111.84	V		25	13.5	2.4	24.7	16.2	30.0	-13.8	Pass		
87.66	V		31	9.5	2.0	24.6	17.9	30.0	-12.1	Pass		
63.47	V		32	8.8	1.6	24.7	17.7	30.0	-12.3	Pass		
114.86	V		22	13.5	2.4	24.7	13.2	30.0	-16.8	Pass		
117.89	V		31	13.2	2.4	24.7	21.9	30.0	-8.1	Pass		
208.58	V		22.2	15.5	3.5	24.5	16.7	30.0	-13.3	Pass		
235.7	V		24.6	16.4	3.5	24.5	20.0	37.0	-17.0	Pass		
238.8	V		21.2	16.4	3.5	24.5	16.6	37.0	-20.4	Pass		
241.83	V		25.1	16.5	3.5	24.5	20.6	37.0	-16.4	Pass		
244.86	V		21.45	16.5	3.5	24.5	16.9	37.0	-20.1	Pass		
247.88	V		24	16.6	3.5	24.5	19.6	37.0	-17.4	Pass		
256.47	V		23.3	17	4.0	24.4	19.9	37.0	-17.1	Pass		
								07.10				
226.72	Н		30.1	15.9	3.5	24.5	25.0	30.0	-5.0	Pass		
232.77	Н		31.6	16.3	3.5	24.5	26.9	37.0	-10.1	Pass		
196.5	Н		33.2	15.1	2.7	24.5	26.5	30.0	-3.5	Pass		
244.86	Н		28.4	16.5	3.5	24.5	23.9	37.0	-13.1	Pass		
226.72	Н		31.5	15.9	3.5	24.5	26.4	30.0	-3.6	Pass		
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EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Test setup Photos





EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Section 10. Test Equipment List

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
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	08/26/04	08/26/05
1485	Cable 2.0-18.0 Ghz	Storm PR90-010-216	N/A	08/02/04	08/02/05
1016	Pre-Amp	HEWLETT PACKARD 8449A	2749A00159	11/12/04	11/12/05
759	ANTENNA, LOG PERIODIC	A.H. SYSTEMS SAS-200/510	556	07/23/04	07/23/05
760	Antenna biconical	Electro Metrics MFC-25	477	06/22/04	06/22/05
791	PREAMP, 25dB	ICC LNA25	398	11/12/04	11/12/05
1304	HORN ANTENNA	ELECTRO METRICS RGA-60	6151	09/22/03	09/22/05
988	HARMONIC MIXER	Hewlett Packard 11970A	2332A01929	CNR	N/A
989	HARMONIC MIXER	Hewlett Packard 11970U	2332A00116	CNR	N/A
1626	CABLE, 5 ft	MEGAPHASE 10311 1GVT4	N/A	CBU	N/A
1030	PEAK POWER SENSOR	HP 84811A	2539A03573	12/23/04	1/23/05
1029	PEAK POWER METER	HP 8900D	3303U0012	12/23/04	1/23/05
1470	10 db Attenuator DC 18 Ghz	MCL Inc. BW-S10W2 10db-2WDC	NONE	CBU	N/A
1650	WR90 Band Pass Filter	Nemko None	None	CBU	N/A
991	Horn antenna	EMCO 3160-10	9704-1049	CNR	N/A
992	Horn antenna	EMCO 3160-09	9705-1079	CNR	N/A

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EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

ANNEX A - TEST DETAILS

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EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

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

Minimum Standard: §15.207 Conducted limits.

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 mH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of Conducted	Limit (dBmV)
Emission (MHz)	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

^{*} Decreases with the logarithm of the frequency.

- (b) The limit shown in paragraph (a) of this section shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:
- (1) For carrier current systems containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.
- (2) For all other carrier current systems: 1000 mV within the frequency band 535-1705 kHz, as measured using a 50 mH/50 ohms LISN.
- (3) Carrier current systems operating below 30 MHz are also subject to the radiated emission limits as provided in §15.205 and §§15.209, 15.221, 15.223, 15.225 or 15.227, as appropriate.
- (c) Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provision for, the use of battery chargers which permit operating while charging, AC adaptors or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

FCC PART 15, SUBPART C

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

NAME OF TEST: Occupied Bandwidth PARA. NO.: 15.247(a)(2)

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

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EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

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.

Substitution Antenna Method for Integral Antennas:

The peak field strength of the carrier is measured in a worst-case configuration with a RBW > 5 times the occupied bandwidth of the transmitted waveform. For cases where the RBW of the test instrument is not sufficient, the power is measured using a peak power meter instead of the spectrum analyzer.

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.

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

FCC PART 15, SUBPART C

Nemko Dallas

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

NAME OF TEST: Channel Separation PARA. NO.: 15.247(a)(1)

Minimum Standard: Frequency hopping systems shall have hopping

channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping

channel, whichever is greater.

NAME OF TEST: Pseudorandom Hopping Algorithm PARA. NO.: 15.247(a)(1)

Minimum Standard: The system shall hop to channel frequencies that are selected from

a pseudo-randomly ordered list of hopping frequencies. Each frequency must be used equally on average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their transmitters and shall shift

frequencies in synchronization with the transmitted signals.

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

NAME OF TEST: Time of Occupancy PARA. NO.: 15.247(a)(1)(ii)

Minimum Standard:

Frequency	20 dB	No. of	Average Time of
Band	Bandwidth	Hopping	Occupancy
(MHz)		Channels	
902 - 928	<250 kHz	50	=<0.4 sec. in 20
			sec.
902 – 928	=>250	25	=<0.4 sec. in 10
	kHz		sec.
2400 –		75	=<0.4 sec. in 30
2483.5			sec.
5725 – 5850		75	=<0.4 sec. in 30
			sec.

Method Of Measurement:

The spectrum analyzer is set as follows:

RBW: 1 MHz VBW: = RBW Span: 0 Hz

LOG dB/div.: 10 dB

Sweep: Sufficient to see one hop time sequence.

Trigger: Video

The occupancy time of one hop is measured as above. The average time of occupancy is calculated over the appropriate period of time from above table (10, 20, or 30 seconds).

Avg. time of occupancy = (period from table/duration of one hop)/no. of channels multiplied by the duration of one hop.

For instance:

If a 2.4 GHz system has a measured hop duration time of 1 msec. and uses 75 channels, then the average time of occupancy would be:

(30 sec./.001 sec.)/75 chan. = 400 x 1 msec. = 400 msec. or 0.4 sec. in 30 sec.

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

NAME OF TEST: Occupied Bandwidth PARA. NO.: 15.247(a)(2)

Minimum Standard:

Frequency Band (MHz)	Maximum 20 dB Bandwidth
902 - 928	500 kHz
2400 – 2483.5	1 MHz
5725 – 5850	1 MHz

Method Of Measurement:

The spectrum analyzer is set as follows:

RBW: At least 1% of span/div.

VBW: >RBW

Span: Sufficient to display 20 dB bandwidth

LOG dB/div.: 10 dB

Sweep: Auto

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

FCC PART 15, SUBPART C

Nemko Dallas

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

NAME OF TEST: RF Exposure PARA. NO.: 15.247(b)(4)

Minimum Standard: Systems operating under the provisions of this section shall

be operated in a manner that ensures the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines stipulated in 1.1307(b)(1) of CFR

47.

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EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

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: 300 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.

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

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

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		

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

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

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.

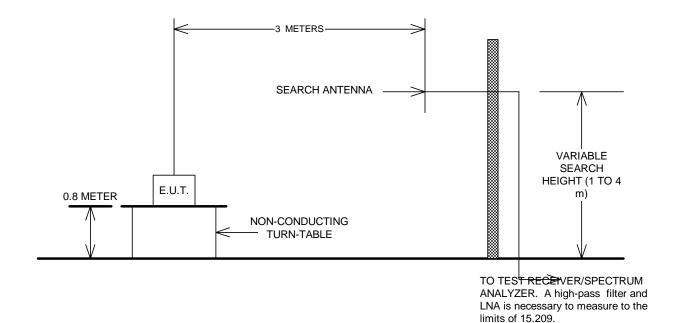
Tuning Range	Number Of Channels Tested	Channel Location In Band
1 MHz or Less	1	Middle
1 to 10 MHz	2	Top And Bottom
More Than 10 MHz	3	Top, Middle, Bottom

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

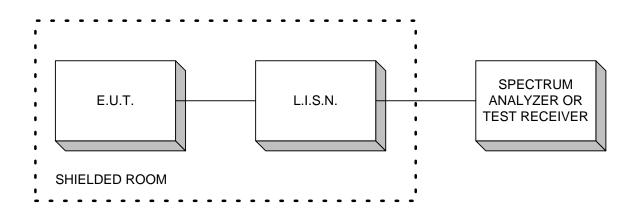
ANNEX B - TEST DIAGRAMS

EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Test Site For Radiated Emissions

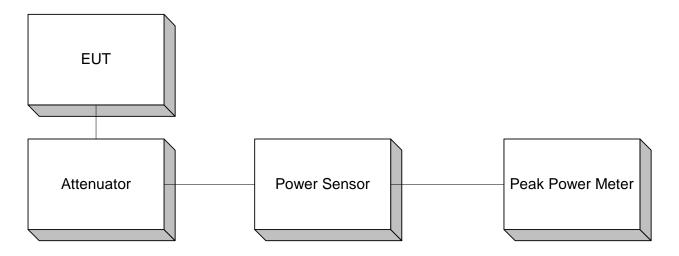


Conducted Emissions



EQUIPMENT: LE 1600 Series, Model T004 TEST REPORT NO.: 4L0613RUS1Rev3

Peak Power At Antenna Terminals



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

