

Nemko Test Report:

4L0050RUS1Rev3

Applicant:

Motion Computing, Inc. 9433 Bee Caves Road Building 1, Suite 250 Austin, TX 78733

M1400 (T003)

Equipment Under Test: (E.U.T.)

In Accordance With:

FCC Part 15, Subpart C, 15.247 Digital Transmission System Transceiver

Tested By:

Authorized By:

Nemko Dallas Inc. 802 N. Kealy Lewisville, Texas 75057-3136

70- Jill

Tom Tidwell, Frontline Group Manager

Date:

3 March, 2004

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Section 1. Summary of Test Results

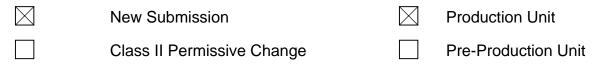
Manufacturer: Motion Computing, Inc.

Model No.: M1400 (T003)

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 C63.4-1992. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.



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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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)	N/A
Spurious Emissions (Restricted Bands)	15.247(c)	Complies
Peak Power Spectral Density	15.247(d)	Complies

Footnotes:

The antennas are integral to the radio modules.

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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:

500 kHz 802.11g 1 MHz Bluetooth

User Frequency Adjustment:

Software controlled

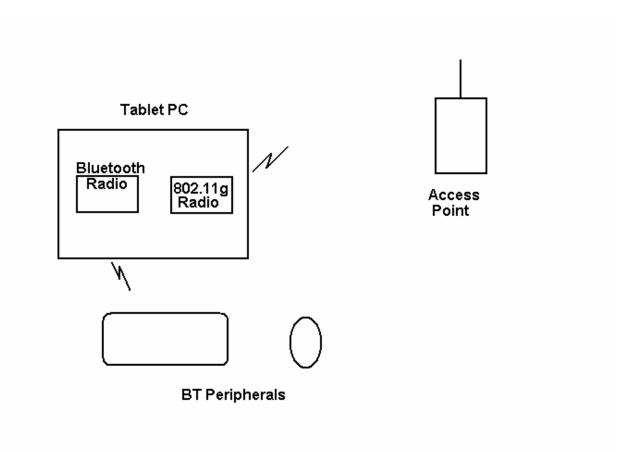
This product contains both an 802.11 module and a Bluetooth module that may operate simultaneously.

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Description of EUT

The M1400 (T003) is a portable computer platform based on ultra-portable notebook PC technology utilizing Microsoft's Tablet version of Windows XP. The system utilizes Intel's 855 GME chip set, including the Banias ULV 1.0 G processor and an Intel 2200BG WLAN card. The M1400 (T003) will fully meet Microsoft's Windows XP tablet OS requirements including; fast resume, surprise undocking, and no external legacy peripheral ports.

System Diagram



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Section 3. Powerline Conducted Emissions

NAME OF TEST: Powerline Conducted Emissions	PARA. NO.: 15.207(a)
TESTED BY: Brian Boyea	DATE: 1/25/04

Test Results: Complies.

Measurement Data: See attached plots.

Measurement Uncertainty: +/- 1.7 dB

NOTE: The device was tested with both radio modules transmitting simultaneously.

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Test Data – Powerline Conducted Emissions



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

				P			mission Measurer	-				
Complet Prelimin		X		ſ	owernine	e voltage	Weasurer		4L0050 Page		Test # : of	CEPV-01 1
Client Na EUT Na EUT Par EUT Par EUT Cor Specifica Transdu HP Filter Cable 1 Cable 2 Detector Detector Limiter #	me : del # : rt # : rial # : nfig. : ation : cer # : r # : # : r 1 # : r 2 # :	MOTION M1400 T/ M1400 - T M1400 0 Transmit CFR47 P: 545 704 1038 1988 1283 966 1193	ABLET P TRADE N State	Ubpart B Temp. (Humidit EUT Vo EUT Fre Peak Ba QP Ban	5 T003 5, Class B deg. C) : y (%) : ltage : equency : andwidth:	23 35 120 Vac 60 Hz		Refe		Time : Staff : cation :	01/25/04 9:30 A.M. Brian Boyea Lab 5 4L0050E C	
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)		c.limit 3uV) Avg.	CR/SL Diff. (dB)	Pass Fail Unc.	Comment
0.15	Neut	P	A	43.2	0	0	43.2	66	56	-12.8	Pass	
0.506	Neut	Р	Α	40.8	0	0	40.8	56	46	-5.2	Pass	
1.08	Neut	Р	A	33.5	0	0	33.5	56	46	-12.5	Pass	
3.51	Neut	Р	A	30.6	0	0	30.6	56	46	-15.4	Pass	
12.6	Neut	Р	A	31.1	0	0	31.1	60	50	-18.9	Pass	
19.4	Neut	Р	Α	34.7	0	0	34.7	60	50	-15.3	Pass	
24.6	Neut	Р	A	35.9	0	0	35.9	60	50	-14.1	Pass	ļ
0.45	Line		^	40.5			40.5	00	50	40.5	Dees	
0.15	Line	P P	A	43.5	0	0	43.5	66	56	-12.5	Pass	
0.431	Line	P P	A	37.2	0	0	37.2	57.23	47.234	-10.0	Pass	
0.506	Line	P P	A A	35.8	0	0	35.8	56 56	46 46	-10.2	Pass	<u> </u>
1.86 3.01	Line Line	P P	A	30.4 31.5	0	0	30.4 31.5	56 56	46	-15.6 -14.5	Pass Pass	ł – – – – – – – – – – – – – – – – – – –
12.69	Line	P P	A	29.5	0	0	29.5	00 60	46 50	-14.5	Pass	ł – – – – – – – – – – – – – – – – – – –
12.69	Line	P P	A	29.5 32.6	0	0	29.5 32.6	60	50	-20.5	Pass	ł – – – – – – – – – – – – – – – – – – –
22.66	Line	P P	A	35.5	0	0	35.5	60	50	-17.4	Pass	}
22.00	LINE		А	55.5	0	0	55.5	00	50	-14.3	F d 3 3	╂───┤
\EMCS	hare\AU	TOMATE	DATASH	ITS\CEP	_Voltage	Rev C.xl	Documen	t Contro	ol #EMC	DS EN	I COND VOL	T

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Photos – Powerline Conducted Emissions

Front



Side



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Section 4. Occupied Bandwidth

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 15.247(a)(2)
TESTED BY: David Light	DATE: 1/29/04

Test Results:	Complies.	
802.11g		
Measurement Data:	See 6 dB BW plot	
	Measured 6 dB bandwidth: Channel Separation:	16 MHz 500 kHz
802.11b		
Measurement Data:	See 6 dB BW plot	
	Measured 6 dB bandwidth: Channel Separation:	10 MHz 500 kHz
Bluetooth		
Measurement Data:	See 20 dB BW plot	

Measured 20 dB bandwidth:	1 MHz
Channel Separation:	1 MHz

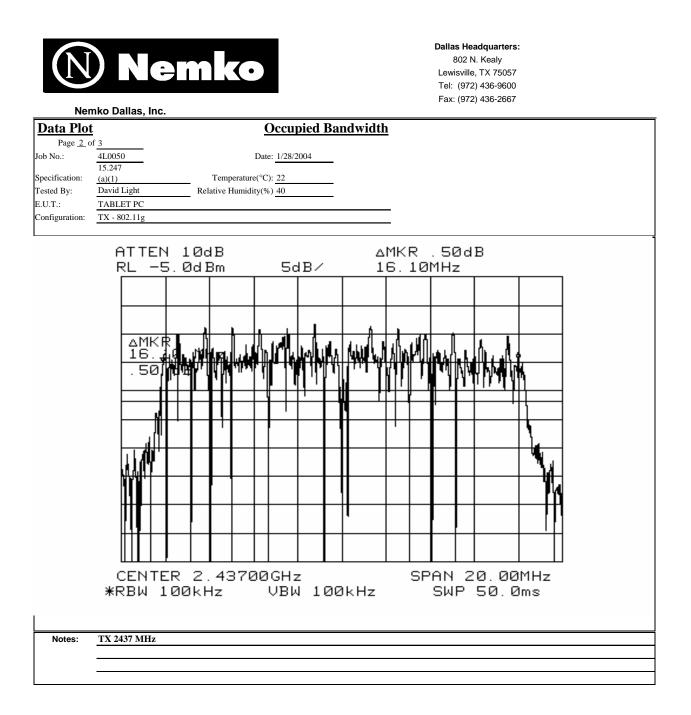
EQUIPMENT: M1400 (T003) TEST REPORT NO.: 4L0050RUS1Rev3

802.11g

$\overline{\mathbb{N}}$	Nemko Dallas, Inc. Plot a 1 of 3 4L0050 on: 15.247 (a)(1) TABLET PC ion: TX - 802.11g imber: 1 Lab 2 ype: Peak inpment Used 802 1464 #1 #2: equipment used: ent Uncertainty: +/-1.7 dB								80	2 N. Kealy	
802 N. Kealy Lewisville, TX 750377 Be: (972) 436-9600 Farke Dallas, Inc. 1 0 No: a 40.050 Date: 1/28/2004 Complete X 1/28/2004 22 Complete X 1/28/2004 1/28/2004 Complete X Preliminary: 1/28/2004 1/28/2004 Complete X 1/28/2004 1/28/2004 Preliminary: Image: Complete X 1/28/2004 1/28/2004 Measurement Preliminary: 1/28/2004 1/28/2004 Measurement Measurement 1/28/2004 VBW: Refer to plots Measurement Distance: NA m 1/28/2004 Cable #1: 1045 Cable #1: 1045 Measurement 1/28/2014 Cable #1: 1045 Cable #1: 1045 Measurement Mixer: Mixer: Mixer: Mixer: Mixer:	,										
	iko Dallas, In	с.		Occu	pied Ba	ndwidtł	1				
Page 1 of							-		Complete	Х	
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-		Rel	-								
E.U.T.:	TABLET PC						_				
-							_				
-					PRW P	efer to plots		Mes	surement		
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Test Equipme	ent Used										
				Directiona							
							_				
	1464				Cable #2:		_				
	1404				Cable #3.		_				
	·										
							_				
Measurement Un	certainty: +/-	-1.7 dB									
	<u>МК</u> 16.										
Fr: (27) 436-867 Occupied Bandwidth Period Complete X Sweichcase 13.47 (u)() Relative Humality(s) 0 EUT: TABLET PC Colspan="2">Complete X Configuration: TABLET PC Measurement Measurement EUT: TABLET PC NW: Refer to plos Measurement Description EUT: TABLET PC NW: Refer to plos Measurement Description Measurement Eutor Test Balance NW: Refer to plos Measurement Descreption Measurement Eutor Test Balance NW: Refer to plos Measurement Descreption Measurement Receiver: Idd: Cable #1 Idds Cable #2 Idds Measurement Descreption Measurement Measure PB Cable #3 Idds Cable #3 Idds Start N Measurement Descreption Measurement Descreption Measurement Idds Measurement Idds Measurement Idds Idds Measurement Idds Idds Measu											
Notes:	TX 2412 MHz	- CH 1									

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802.11g



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802.11g

Ner	nko Dallas, Inc.	mko			L	allas Head 802 N. Lewisville, Tel: (972) Fax: (972)	TX 75057 436-9600	
Data Plo	t		Occupied Ba	ndwidth				
Page <u>3</u> of Job No.: Specification: Tested By: E.U.T.: Configuration:	f <u>3</u> <u>4L0050</u> <u>15.247 (a)(1)</u> <u>David Light</u> <u>TABLET PC</u> <u>TX - 802.11g</u>	E Temperature(Relative Humidity						
	*ATTEN RL -45		5dB∕		1KR – 5.33M		ЗB	
	*RBW 10	2.4620 00kHz					0.00	
Notes:	TX 2462 MHz							

EQUIPMENT: M1400 (T003) TEST REPORT NO.: 4L0050RUS1Rev3

802.11b

Data Plot			Oco	cupied Ba	ndwidth	1				
Page 1 o						-	(Complete	Х	
Job No.:	4L0050		Date:	1/28/2004				minary:		
Specification:	15.247 (a)(1)	Te	emperature(°C):	22				·		
Tested By:	David Light		ve Humidity(%)	40						
E.U.T.:	TABLET PC		· · · · <u> </u>							
Configuration:	TX - 802.11b					_				
Sample Number						_				
Location:	Lab 2			RBW: F	Refer to plots		Mea	surement		
Detector Type:	Peak				Refer to plots	-	1	Distance: NA	A m	
				-		-				
Test Equipm	ent Used									
Antenna:	802		Directi	onal Coupler:						
Pre-Amp:				Cable #1:	1045	_				
Filter:				Cable #2:		_				
Receiver:	1464			Cable #3:						
Attenuator #1				Cable #4:		_				
Attenuator #2:				Mixer:						
Additional equip	oment used:					_				
Measurement U	ncertainty: +/-1	.7 dB								
	. 83	Р 90 мн dB	z	Maria			10 mg raya	-hullerine	the second s	
	CENT *RBW		41200G z V		ØkHz	SF	PAN 2 SWP	0.00 50.0		
Notes:	TX 2412 MHz Channel 1									

EQUIPMENT: M1400 (T003)

TEST REPORT NO.: 4L0050RUS1Rev3

802.11b

Data Plo					Occup	oied Ban	dwidth					
Page <u>2</u> Job No.: Specification: Tested By: E.U.T.: Configuration:	4L0050 15.247 (a)(1) David I TABLI	Light ET PC		Temperature tive Humidi		004						
		ATTEN RL Ø	∖ 10c dBm	IB	10	2d B∕		MKR Ø .10MH				
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		and the second sec	and the particular	~						Mr. Wala	Marrie Law	
			ER 2. 100kf			z V 100	IkHz			:0.00 50.0		
		37 MHz										

FCC PART 15, SUBPART C

EQUIPMENT: M1400 (T003)

TEST REPORT NO.: 4L0050RUS1Rev3

802.11b

Data Plot					Occup	oied Bar	dwidth					
Page <u>3</u> of bb No.: becification: ested By: U.T.: onfiguration:	4L0050 15.247 (a)(1 David Light TABLET PO	С		Temperature tive Humidit		004						
		TEN Ød	10c Bm	IB	10	ad B∕		MKR .63M				
		MKR	,		in the second	wrdenne	montantes	with the second	ennerry		*	
	Ø		MH							warraw	4	
					айсн:			SF		20.00	MHz	
Notes:		₩ 1				100	IkHz			50.0		
10165.	Channel 1											

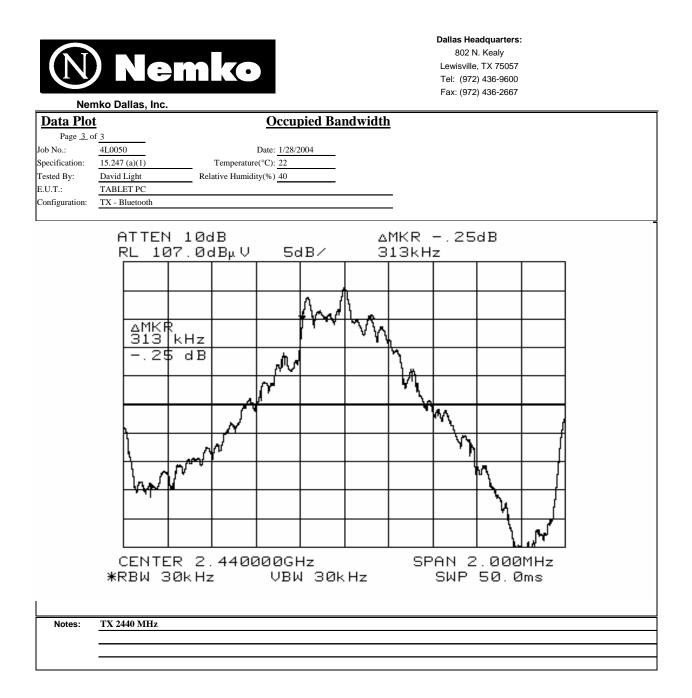
TEST REPORT NO.: 4L0050RUS1Rev3

	nko Dallas, Inc.	mko				Dallas Headquart 802 N. Kealy Lewisville, TX 75 Tel: (972) 436-90 Fax: (972) 436-20	057 600
			Occupied Ba	ndwidth			
Data Plot	5 .2		Occupied Ba	uawiath			
Page <u>1</u> of		D	ata: 1/28/2004		Due	Complete X liminary:	I
lob No.:	4L0050	D Temperature	ate: <u>1/28/2004</u> (°C): 22		Pre		1
Specification: Fested By:	15.247 (a)(1) David Light						
E.U.T.:	TABLET PC	Relative Humidity	y(%) 40				
Configuration:	TX - Bluetooth						
Sample Number:							
Location:	Lab 2		RBW R	efer to plots	Me	easurement	
Detector Type:	Peak		_	efer to plots			m
Jeteetor Type.	- Foun						
<u>Fest Equipme</u>	ent Used						
Antenna:	802		Directional Coupler:				
Pre-Amp:			Cable #1:	1045			
Filter:			Cable #2:				
Receiver:	1464		Cable #3:				
Attenuator #1			Cable #4:				
Attenuator #2:			Mixer:				
Additional equip	ment used:						
Aeasurement Un	certainty: +/-1.7	dB					
	ΔΜΚR 317 16						
		R 2.4800 ØkHz		Hz		2.000MHz 50.0ms	
Notes:	TX 2480 MHz						
	·						

TEST REPORT NO.: 4L0050RUS1Rev3

Nemko Dalla	Dallas Headquarters: 802 N. Kealy Lewisville, TX 75057 Tel: (972) 436-9600 Fax: (972) 436-2667
Data Plot	Occupied Bandwidth
Page 2 of 3 Job No.: 4L0050 J5.247 15.247 Specification: (a)(1) Tested By: David Ligh E.U.T.: TABLET P Configuration: TX - Bluete	c
	MKR 42dB 107.0dBµV 5dB/ 357kHz 107.0dBµV 5dB/ 357kHz 107.0dB/ 357kHz
Notes: <u>TX 2402</u>	ИНz

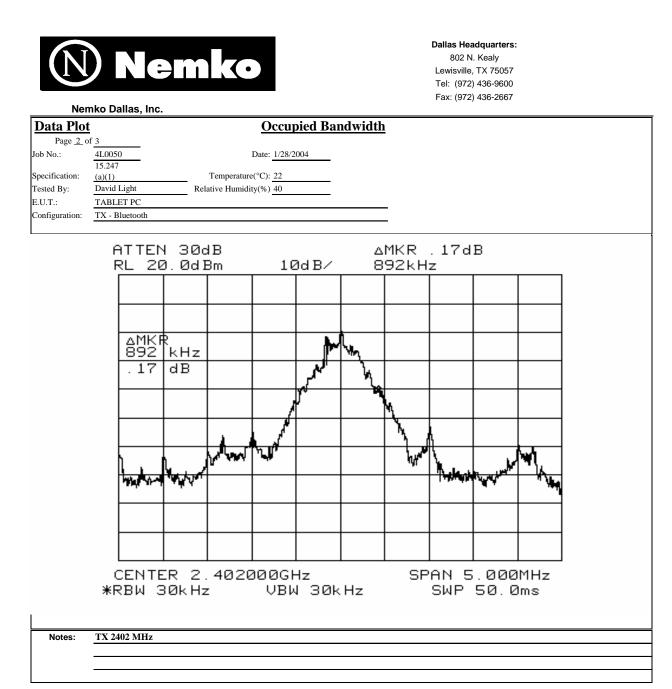
TEST REPORT NO.: 4L0050RUS1Rev3



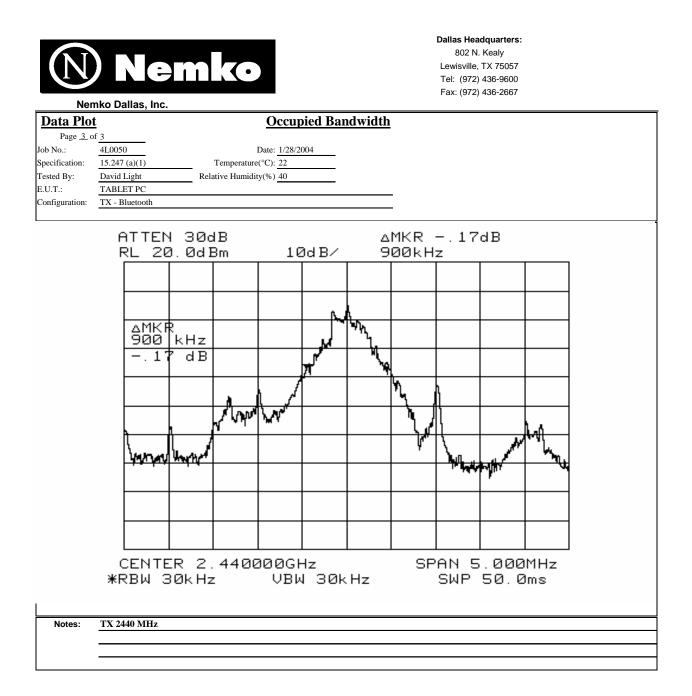
TEST REPORT NO.: 4L0050RUS1Rev3

	nko Dallas, Inc		٢.						802 Lewisv Tel: (9	Headquarte 2 N. Kealy ille, TX 7505 72) 436-960 72) 436-266	57	
	into Dallas, inc	•		0	iad Day							
ata Plot				Occup	oied Bar	iawiath	<u>l</u>			37		
Page <u>1</u> o			r	. 1/	20/2004			(D. 1'	Complete minary:	X		
b No.:	4L0050				28/2004			Preli	minary:			
ecification:	15.247 (a)(1)	D 1	Temperature	· · ·	22							
sted By:	David Light	Kei	ative Humidit	y(%)	40							
J.T.: nfiguration:	TABLET PC TX - Bluetooth						-					
nple Number:							-					
ation:	Lab 2				RBW: Re	efer to plots		Mea	surement			
tector Type:	Peak					efer to plots	-		Distance: NA	A m	ı	
JF						F	-					
st Equipm	ent Used											
tenna:	802			Directional	Coupler:							
-Amp:					Cable #1:	1045	_					
er:					Cable #2:		_					
ceiver:	1464				Cable #3:							
enuator #1					Cable #4:		-					
enuator #2:					Mixer:		_					
litional equip	ment used:						_					
asurement Ur	certainty: +/-1	l.7 dB										
	△MK 850 1	R kHz 7 dB	And	L. con	fred part	Vre. Vre		1		A.A.		
	CENTI *RBW (Hz	SP		50.00			
Notes:	TX 2480 MHz											

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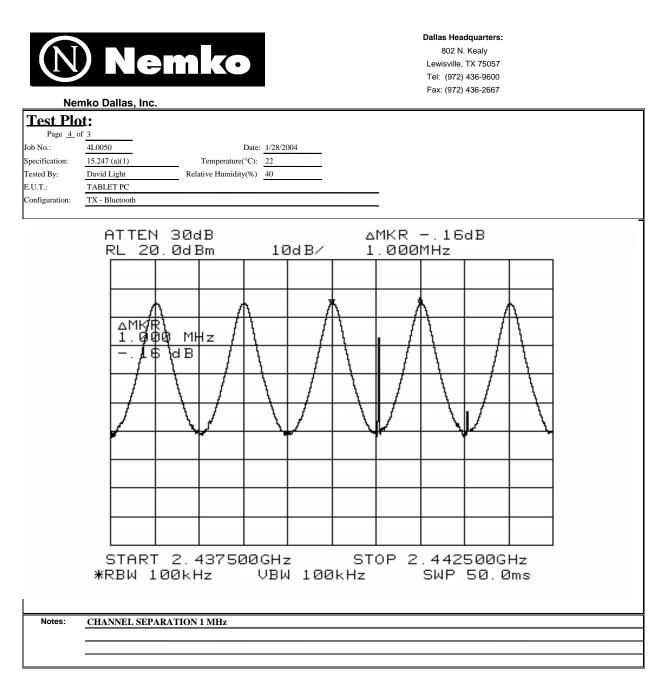


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Bluetooth – Channel Separation



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Bluetooth – Number of Hopping Channels

Dallas Headquarters: 802 N. Kealy Lewisville, TX 75057 Tel: (972) 436-9600 Fax: (972) 436-2667
Test Plot: Page 5 of 3 Job No.: 4L0050 Date: 1/28/2004 Specification: 15.247 (a)(1) Temperature(°C): 22 Fested By: David Light Relative Humidity(%) 40 LUT.: TABLET PC Ender Ender Configuration: TX - Bluetooth Ender Ender
ATTEN 30dB RL 20.0dBm 10dB/
START 2.40000GHz STOP 2.48350GHz *RBW 300kHz VBW 300kHz *SWP 60.0sec
Notes: 79 HOPPING FREQUENCIES

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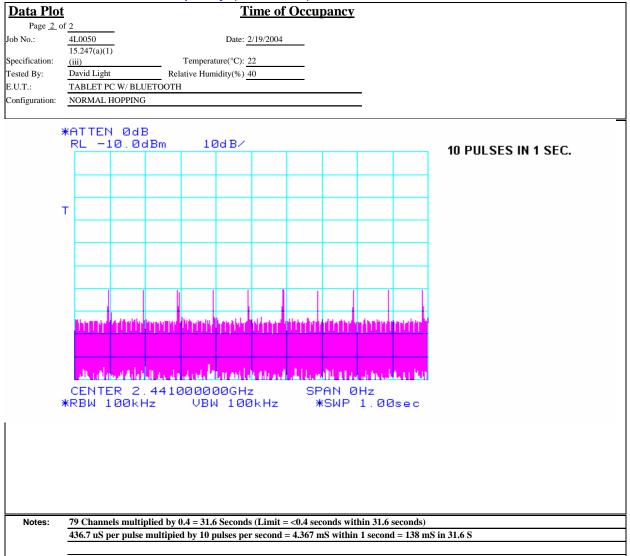
Bluetooth – Time of Occupancy

<u>Data Plot</u>			<u> </u>	me of O	<u>ccupancy</u>		
Page <u>1</u> of Job No.: Specification: Tested By:	4L0050 15.247(a)(1)(iii) David Light	Rela	Date: Temperature(°C): tive Humidity(%)	2/19/2004 22 40	<u>-</u> - -		Complete <u>x</u> Preliminary:
E.U.T.: Configuration: Sample Number:	TABLET PC W/					-	
Location: Detector Type:	Lab 2 Peak				Refer to plots Refer to plots	-	Measurement Distance: <u>NA</u> m
Test Equipme Antenna:	ent Used 802		Direct	ional Coupler:		-	
Pre-Amp: Filter: Receiver: Attenuator #1	1464			Cable #2:		_	
Attenuator #2: Additional equip Measurement Un		1.7 dB		Mixer:		-	
•	KATTEN Ø RL −10.		10d B⁄	∆MK 436	(R -15. δ.7μs	84dB	
							EACH PULSE = 436.7 uS
		μs					
	⁷ -15.84	dB					
	m	M					
	4.	to The part	www.waywyw	handhalla	her working	nt have	Indystay
)	CENTER KRBW 100	2.4410 kHz	00000GHz VBW 100	: IkHz	SPAN Ø *SWP	Hz 2.00m	IS
Notes:							

EQUIPMENT: M1400 (T003)

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Bluetooth – Time of Occupancy (continued)



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Section 5. Maximum Peak Output Power

NAME OF TEST: Maximum Peak Output power	PARA. NO.: 15.247(b)(1)
TESTED BY: David Light	DATE: 1/29/04

Test Results: Complies.

Measurement Data: Refer to attached data

Note – This test was done as a radiated measurement since the antennas for both devices are integral and there is no possibility of direct connection to the test equipment.

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

Maximum Peak Power(EIRP):

64.57 mW 802.11g 87.1 mW 802.11b 1.86 mW Bluetooth

Antenna Gain:

802.11 Main: 3 dBi 802.11 Aux.: 3 dBi Bluetooth: 1 dBi

Maximum Peak Power(Conducted):

802.11g: +18dBm - (-3dB) = <u>+ 21 dBm (158mW)</u> 802.11b: +19.4 dBm - (-3dB) = <u>+22.3 dBm (170 mW)</u> Bluetooth: +2.7 dBm - (-1dB) = <u>+3.7 dBm (2.3 mW)</u>

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Test Data – Peak Power Output – 802.11g

				Peak F	Power				
Page <u>1</u> o	f <u>2</u>						Complete	e X	
ob No.:	4L0050		Date:	1/28/04			Preliminar	e <u>X</u> /	-
Specification:	15.247		Temperature(°C):	22				·	-
Fested By:	David Light		Relative Humidity(%)						
E.U.T.:	TABLET PO								
Configuration:		FLAT (WORST	(CASE)						
Sample No:	1	(/			•			
ocation:	AC 3			RBW:	10 MHz		Measuremen	t	
Detector Type:	Peak				10 MHz	•			3 m
solooloi i jpo.					10 111 12	•	Diotanoo		<u> </u>
Fest Equipn	nent Used								
Antenna:	1304		Di	rectional Coupler:					
Pre-Amp:	1016								
-ilter:				Cable #1: _ Cable #2:					
Receiver:	1464			Cable #3:					
Attenuator #1				Cable #4:					
Attenuator #2:									
Additional equip	oment used:			-					
Measurement L		+/-0.7 dB				•			
Frequency	Meter	Correction	Pre-Amp	Substitution		EIRP	EIRP	Polarity	Comments
	Reading	Factor	Gain	Antenna Gain					
(MHz)	(dBm)	(dB)	(dB)	(dBi)		(dBm)	(mW)		
									802.11 w/BT Tx O
2412	2.0	34.2	33	8.9		12.1	16.09	V	
2412	4.3	37.0	33			17.2	52.48	н	
2412				89					
2412	4.3	37.0		8.9		17.2	52.46		
2437	3.0	34.2	33	8.9		13.1	20.26	V	
2437 2437	3.0 5.2	34.2 37.0	33 33	8.9 8.9		13.1 18.1	20.26 64.57	V H	
2437 2437 2462	3.0 5.2 1.5	34.2 37.0 34.2	33 33 33 33	8.9 8.9 8.9		13.1 18.1 11.6	20.26 64.57 14.34	V H V	
2437 2437	3.0 5.2	34.2 37.0	33 33	8.9 8.9		13.1 18.1	20.26 64.57	V H	
2437 2437 2462	3.0 5.2 1.5	34.2 37.0 34.2	33 33 33 33	8.9 8.9 8.9		13.1 18.1 11.6	20.26 64.57 14.34	V H V	
2437 2437 2462	3.0 5.2 1.5	34.2 37.0 34.2	33 33 33 33	8.9 8.9 8.9		13.1 18.1 11.6	20.26 64.57 14.34	V H V	
2437 2437 2462 2462	3.0 5.2 1.5 3.5	34.2 37.0 34.2 37.0	33 33 33 33	8.9 8.9 8.9		13.1 18.1 11.6	20.26 64.57 14.34	V H V	

The device was tested at +/- 15% supply voltage with no effect on power output

EQUIPMENT: M1400 (T003)

TEST REPORT NO.: 4L0050RUS1Rev3

Test Data – Peak Power – 802.11b

				Peak l	Power					
Page 1 of	f 2					Complete X				
Job No.:			Date:	1/28/04			Preliminary	/	-	
Specification:	15.247		Temperature(°C):						-	
Tested By:	David Light	F	Relative Humidity(%)							
E.U.T.:	TABLET P		, (, , , , , , , , , , , , , , , , , ,							
			CASE) 802.11b			-				
Sample No:	1			-						
Location:	AC 3			NA	Measurement					
Detector Type:	Peak			RBW:_ VBW:	NA	-			m	
				· - · · · -		-				
Test Equipn		<u> </u>								
Antenna:	1304		Dir	ectional Coupler:		_				
Pre-Amp:	1016 Cable #1: 1484									
Filter:	Cable #2: 1485									
Receiver:	1464			Cable #3:		_				
Attenuator #1				Cable #4:		_				
Attenuator #2:				Mixer:		_				
Additional equip	oment used:	1029-1030 N	leasurement was ma	de with a peak po	wer meter	_				
Measurement L	Incertainty:	+/-0.7 dB								
Frequency	Meter	Correction	Pre-Amp	Substitution		EIRP	EIRP	Polarity	Comments	
Frequency	Reading	Factor	Gain	Antenna Gain		LINF		Folanty	Comments	
	Reading	ractor	Gain	Antenna Gam						
(MHz)	(dBm)	(dB)	(dB)	(dBi)		(dBm)	(mW)			
									802.11b w/BT Tx On	
2412	5.0	34.2	33	8.9		15.1	32.11	V		
2412	6.5	37.0	33	8.9		19.4	87.10	Н		
2437	4.0	34.2	33	8.9		14.1	25.51	V		
2437	6.0	37.0	33	8.9		18.9	77.62	Н		
0.400	4.5					44.0				
2462	4.5	34.2	33	8.9		14.6	28.62	V		
2462	5.9	37.0	33	8.9		18.8	75.86	Н	 	
1								1	1	
Notes	· The devic	e was tested o	n three avis'				•		•	

TEST REPORT NO.: 4L0050RUS1Rev3

Test Data – Peak Power - Bluetooth

		en , Inc.		0				Lev Tel	as Headqua 802 N. Kealy visville, TX 79 : (972) 436-5 k: (972) 436-2	7 5057 9600
				EI	RP Substit	ution Me	thod			
Page <u>1</u> o	f <u>2</u>							Complete	×X	_
Job No.:	4L0050				1/28/04			Preliminary		-
Specification:	15.247			erature(°C):						
Tested By:	David Light		Relative I	-lumidity(%)	40					
E.U.T.:	TABLET P									
-		FLAT (WORS	T CASE)							
Sample No:	1									
Location:							Measurement			
Detector Type:	Peak	Peak VBW: 1 MI						Distance	:3	m
Test Equipr	nont llead	1								
Antenna:	1304			Di	rectional Coupler:					
Pre-Amp:	1016			DI						
Filter:	1016	16 Cable #1: 1484 Cable #2: 1485								
Receiver:	1464					1465	•			
Attenuator #1					Cable #4:					
Attenuator #2:					Miver:					
Additional equi	nment used:				WIACI.					
Measurement I		+/-1.7 dB								
								1		_
Frequency	Meter	Correction		Pre-Amp	Substitution		EIRP	EIRP	Polarity	Comments
	Reading	Factor		Gain	Antenna Gain					
(MHz)	(dBm)	(dB)		(dB)	(dBi)		(dBm)	(mW)		
. ,				(*)				. ,		
	1								.,	Bluetooth
2402	-15.0	34.2		33	8.9		-4.9	0.32	V	
2402	-14.5	37.0		33	8.9		-1.6	0.69	Н	
2441	40.0	24.2		22			2.4	0.40	V	
	-13.2	34.2		33	8.9		-3.1	0.49	H	
2441	-10.7	37.0		33	8.9		2.2	1.66	п	
2480	-13.5	34.2		33	8.9		-3.4	0.45	V	
2480	-10.2	37.0		33	8.9		2.7	1.86	H	
2400	-10.2	37.0		33	0.9		2.1	1.00	П	
Notes	· The devic	e was tested	on three	avis'				1	1	1
					ge with no effect	on power out	put			-

EQUIPMENT: M1400 (T003) TEST REPORT NO.: 4L0050RUS1Rev3

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:

TEST REPORT NO.: 4L0050RUS1Rev3

Section 7. Spurious Emissions (radiated)

NAME OF TEST: Spurious Emissions (Radiated)	PARA. NO.: 15.247 (c)
TESTED BY: David Light	DATE: 1/29/04

Test Results: Complies.

Measurement Data: See attached table.

Testing in the restricted bands for using the 802.11x devices found that the g modulation was worst case. Only noise floor measurements were taken and the g modulation was worse at the upper band edge due to channel bandwidth.

EQUIPMENT: M1400 (T003)

TEST REPORT NO.: 4L0050RUS1Rev3

Radiated Emissions - 802.11g

Radiated Emissions									
Page <u>1</u> of <u>2</u>									
Job No.:	4L0050			Date:	1/29/2004				
Specification:	15.247/15.205 Temperature(°C): 20			20					
Tested By:	David Light		Relative Humidity(%) 50			1			
E.U.T.:	TABLET PO	2							
Configuration:	TX - UPRIC	HT ON LON	GER EDC						
Sample Number:	1								
Location:	AC 3			-	RBW:	1 MHz			
Detector Type:	Peak				VBW:	1 MHz			
			<u>Test Equ</u>	ipment Used	<u>l</u>				
Antenna:	1304			Direct	tional Coupler:	#N/A			
Pre-Amp:	1016				Cable #1:	1484			
Filter:	1482				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 Un	certainty: +/-	3.6 dB							
_				_			Average		
Frequency	Meter	Antenna	Cable	Pre-Amp	Corrected	Peak Limit	0		
							Limit		
(GHz)	Reading	Factor	Loss	Gain (dB)	Reading	(dBuV/m)	Limit (dBuV/m)	Detector / Polarity	
	(dBuV)	Factor (dB)	Loss (dB)		Reading (dBuV/m)	(dBuV/m)	(dBuV/m)	د د	
4.824	(dBuV) 37.0	Factor (dB) 33.9	Loss (dB) 4.1	33.1	Reading (dBuV/m) 41.9	(dBuV/m) 74	(dBuV/m) 54	Peak - NF / Vertical	
4.824 7.236	(dBuV) 37.0 38.0	Factor (dB) 33.9 35.8	Loss (dB) 4.1 5.2	33.1 32.8	Reading (dBuV/m) 41.9 46.2	(dBuV/m) 74 74	(dBuV/m) 54 54	Peak - NF / Vertical Peak - NF / Vertical	
4.824 7.236 9.648	(dBuV) 37.0 38.0 40.0	Factor (dB) 33.9 35.8 37.3	Loss (dB) 4.1 5.2 5.2	33.1 32.8 34.5	Reading (dBuV/m) 41.9 46.2 48.0	(dBuV/m) 74 74 74	(dBuV/m) 54 54 54	Peak - NF / Vertical Peak - NF / Vertical Peak - NF / Vertical	
4.824 7.236 9.648 12.060	(dBuV) 37.0 38.0 40.0 41.0	Factor (dB) 33.9 35.8 37.3 40.0	Loss (dB) 4.1 5.2 5.2 6.8	33.1 32.8 34.5 34.7	Reading (dBuV/m) 41.9 46.2 48.0 53.1	(dBuV/m) 74 74 74 74	(dBuV/m) 54 54 54 54	Peak - NF / Vertical Peak - NF / Vertical Peak - NF / Vertical Peak - NF / Vertical	
4.824 7.236 9.648 12.060 14.472	(dBuV) 37.0 38.0 40.0 41.0 35.4	Factor (dB) 33.9 35.8 37.3 40.0 41.8	Loss (dB) 4.1 5.2 5.2 6.8 7.2	33.1 32.8 34.5 34.7 33.5	Reading (dBuV/m) 41.9 46.2 48.0 53.1 50.9	(dBuV/m) 74 74 74 74 74 74	(dBuV/m) 54 54 54 54 54 54	Peak - NF / Vertical Peak - NF / Vertical Peak - NF / Vertical Peak - NF / Vertical Peak - NF / Vertical	
4.824 7.236 9.648 12.060 14.472 4.824	(dBuV) 37.0 38.0 40.0 41.0 35.4 37.0	Factor (dB) 33.9 35.8 37.3 40.0 41.8 33.9	Loss (dB) 4.1 5.2 5.2 6.8 7.2 4.1	33.1 32.8 34.5 34.7 33.5 33.1	Reading (dBuV/m) 41.9 46.2 48.0 53.1 50.9 41.9	(dBuV/m) 74 74 74 74 74 74 74	(dBuV/m) 54 54 54 54 54 54 54	Peak - NF / Vertical Peak - NF / Horizontal	
4.824 7.236 9.648 12.060 14.472 4.824 7.236	(dBuV) 37.0 38.0 40.0 41.0 35.4 37.0 38.0	Factor (dB) 33.9 35.8 37.3 40.0 41.8 33.9 35.8	Loss (dB) 4.1 5.2 5.2 6.8 7.2 4.1 5.2	33.1 32.8 34.5 34.7 33.5 33.1 32.8	Reading (dBuV/m) 41.9 46.2 48.0 53.1 50.9 41.9 46.2	(dBuV/m) 74 74 74 74 74 74 74 74 74	(dBuV/m) 54 54 54 54 54 54 54 54	Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Horizontal	
4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648	(dBuV) 37.0 38.0 40.0 41.0 35.4 37.0 38.0 40.0	Factor (dB) 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3	Loss (dB) 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2	33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.5	Reading (dBuV/m) 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0	(dBuV/m) 74 74 74 74 74 74 74 74 74 74	(dBuV/m) 54 54 54 54 54 54 54 54 54	Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal	
4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060	(dBuV) 37.0 38.0 40.0 41.0 35.4 37.0 38.0 40.0 41.0	Factor (dB) 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0	Loss (dB) 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8	33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7	Reading (dBuV/m) 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1	(dBuV/m) 74 74 74 74 74 74 74 74 74 74 74	(dBuV/m) 54 54 54 54 54 54 54 54 54 54	Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal	
4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648	(dBuV) 37.0 38.0 40.0 41.0 35.4 37.0 38.0 40.0	Factor (dB) 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3	Loss (dB) 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2	33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.5	Reading (dBuV/m) 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0	(dBuV/m) 74 74 74 74 74 74 74 74 74 74	(dBuV/m) 54 54 54 54 54 54 54 54 54	Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal	
4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472	(dBuV) 37.0 38.0 40.0 41.0 35.4 37.0 38.0 40.0 41.0 35.4 37.0 38.0 40.0 40.0	Factor (dB) 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8	Loss (dB) 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 7.2 6.8 7.2	33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7 33.5	Reading (dBuV/m) 41.9 46.2 48.0 53.1 50.9 41.9 46.2 50.9 41.9 50.9 41.9 46.2 9 50.9 53.1 50.9 53.1 50.9	(dBuV/m) 74 74 74 74 74 74 74 74 74 74 74 74	(dBuV/m) 54 54 54 54 54 54 54 54 54 54 54	Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal	
4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472 4.874	(dBuV) 37.0 38.0 40.0 41.0 35.4 37.0 38.0 40.0 41.0 35.4 35.4 35.4 35.4 35.4 35.4 35.4	Factor (dB) 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 33.9 35.8 37.3 40.0 33.9 35.8 37.3 40.0 41.8 33.9	Loss (dB) 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 7.2 6.8 7.2 4.1	33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7 33.5 33.1 33.5	Reading (dBuV/m) 41.9 46.2 48.0 53.1 50.9 41.9 46.2 53.1 50.9 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1 50.9 44.1	(dBuV/m) 74 74 74 74 74 74 74 74 74 74 74 74 74	(dBuV/m) 54 54 54 54 54 54 54 54 54 54 54	Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Vertical	
4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472 4.874 7.311	(dBuV) 37.0 38.0 40.0 41.0 35.4 37.0 38.0 40.0 41.0 35.4 37.0 38.0 40.0 41.0 35.4 38.0 40.0 38.0 38.0 38.0 38.0 35.4 37.0 38.0 38.0 35.4 37.0 38.0 38.0 35.4 37.0 38.0 38.0 35.4 37.0 38.0 38.0 35.4 37.0 38.0 38.0 38.0 35.4 37.0 38.0 35.4	Factor (dB) 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 33.9 33.9 33.9 33.9 33.9 33.9 35.8	Loss (dB) 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 7.2 6.8 7.2 4.1 5.2 5.2 6.8	33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7 33.5 33.1 32.8 33.1 32.8	Reading (dBuV/m) 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1 50.9 44.2 48.0 53.1 50.9 44.1 46.5	(dBuV/m) 74 74 74 74 74 74 74 74 74 74 74 74 74	(dBuV/m) 54 54 54 54 54 54 54 54 54 54 54 54 54	Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Vertical Peak - NF / Vertical	
4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472 4.874 7.311 9.748	(dBuV) 37.0 38.0 40.0 41.0 35.4 37.0 38.0 40.0 41.0 35.4 39.2 38.3 43.7	Factor (dB) 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3	Loss (dB) 4.1 5.2 5.2 6.8 7.2 4.1 5.2 6.8 7.2 6.8 7.2 6.8 7.2 6.8 7.2 5.2 6.8 7.2 5.2 5.2 5.2	33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7 33.5 33.1 32.8 33.1 32.8 33.1 32.8 33.1	Reading (dBuV/m) 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1 50.9 44.2 48.0 53.1 50.9 44.1 46.5 51.7	(dBuV/m) 74 74 74 74 74 74 74 74 74 74 74 74 74	(dBuV/m) 54 54 54 54 54 54 54 54 54 54 54 54 54	Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Vertical Peak - NF / Vertical Peak - NF / Vertical	
4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472 4.874 7.311 9.748 12.185	(dBuV) 37.0 38.0 40.0 41.0 35.4 37.0 38.0 40.0 41.0 35.4 39.2 38.3 43.7 38.7	Factor (dB) 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 33.9 35.8 37.3 40.0	Loss (dB) 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 7.2 6.8 7.2 4.1 5.2 6.8 7.2 6.8 7.2 6.8	33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.7 33.1 32.8 34.5 34.5 34.7	Reading (dBuV/m) 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1 50.9 44.2 48.0 53.1 50.9 46.2 48.0 53.1 50.9 44.1 46.5 51.7 50.8	(dBuV/m) 74 74 74 74 74 74 74 74 74 74 74 74 74	(dBuV/m) 54 54 54 54 54 54 54 54 54 54 54 54 54	Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Vertical Peak - NF / Vertical Peak - NF / Vertical Peak - NF / Vertical	
4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472 4.874 7.311 9.748 12.185 14.622	(dBuV) 37.0 38.0 40.0 41.0 35.4 37.0 38.0 40.0 41.0 35.4 39.2 38.3 43.7 38.7 38.7 38.2	Factor (dB) 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 37.3 40.0 41.8	Loss (dB) 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 7.2	33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.7 33.5 34.5 34.7 33.5	Reading (dBuV/m) 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1 50.9 44.5 51.7 50.8 53.7	(dBuV/m) 74 74 74 74 74 74 74 74 74 74 74 74 74	(dBuV/m) 54 54 54 54 54 54 54 54 54 54 54 54 54	Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Vertical Peak - NF / Vertical	
4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472 4.874 7.311 9.748 12.185 14.622 4.874	(dBuV) 37.0 38.0 40.0 41.0 35.4 37.0 38.0 40.0 41.0 35.4 39.2 38.3 43.7 38.7 38.7 38.2 39.2	Factor (dB) 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9	Loss (dB) 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 7.2 4.1	33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7 33.5 34.7 33.5 33.1	Reading (dBuV/m) 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1 50.9 44.2 48.0 53.1 50.9 44.5 51.7 50.8 53.7 44.1	(dBuV/m) 74 74 74 74 74 74 74 74 74 74 74 74 74	(dBuV/m) 54 54 54 54 54 54 54 54 54 54 54 54 54	Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Vertical Peak - NF / Vertical	
4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472 4.874 7.311 9.748 12.185 14.622 4.874 7.311	(dBuV) 37.0 38.0 40.0 41.0 35.4 37.0 38.0 40.0 41.0 35.4 39.2 38.3 43.7 38.7 38.7 38.2 39.2 38.3	Factor (dB) 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8	Loss (dB) 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 7.2 4.1 5.2 6.8 7.2 4.1 5.2	33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.5 33.1 32.8 34.5 34.7 33.5 33.1 32.8	Reading (dBuV/m) 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1 50.9 44.2 46.5 51.7 50.8 53.7 44.1 46.5	(dBuV/m) 74 74 74 74 74 74 74 74 74 74 74 74 74	(dBuV/m) 54 54 54 54 54 54 54 54 54 54 54 54 54	Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Horizontal	
4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472 4.874 7.311 9.748 12.185 14.622 4.874 7.311 9.748	(dBuV) 37.0 38.0 40.0 41.0 35.4 37.0 38.0 40.0 41.0 35.4 39.2 38.3 43.7 38.7 38.2 39.2 38.3 43.7	Factor (dB) 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3	Loss (dB) 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 7.2 6.8 7.2 4.1 5.2 5.2 6.8 7.2 5.2 6.8 7.2 5.2 6.8	33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7 33.5 34.7 33.5 34.7 33.5 33.1 32.8 34.5 34.7	Reading (dBuV/m) 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1 50.9 44.1 46.5 51.7 50.8 53.7 44.1 46.5 51.7	(dBuV/m) 74 74 74 74 74 74 74 74 74 74 74 74 74	(dBuV/m) 54 54 54 54 54 54 54 54 54 54 54 54 54	Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal	
4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472 4.824 7.236 9.648 12.060 14.472 4.874 7.311 9.748 12.185 14.622 4.874 7.311	(dBuV) 37.0 38.0 40.0 41.0 35.4 37.0 38.0 40.0 41.0 35.4 39.2 38.3 43.7 38.7 38.7 38.2 39.2 38.3	Factor (dB) 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 41.8 33.9 35.8	Loss (dB) 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 7.2 4.1 5.2 6.8 7.2 4.1 5.2	33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7 33.5 33.1 32.8 34.5 33.1 32.8 34.5 34.7 33.5 33.1 32.8	Reading (dBuV/m) 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1 50.9 41.9 46.2 48.0 53.1 50.9 44.2 46.5 51.7 50.8 53.7 44.1 46.5	(dBuV/m) 74 74 74 74 74 74 74 74 74 74 74 74 74	(dBuV/m) 54 54 54 54 54 54 54 54 54 54 54 54 54	Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Horizontal	

EQUIPMENT: M1400 (T003) TEST REPORT NO.: 4L0050RUS1Rev3

Radiated Emissions – 802.11g (cont.)

Radiated Spurious Emissions									
Page <u>2</u> of <u>2</u>				Continu	ation Page				
Job No.:			Date: 1/30/2004						
Specification:	15.247/15.205 Temperature(°C): 22								
Tested By:	#N/A		Relative Humidity(%) 40			-			
E.U.T.:	TABLET PO	C							
Configuration:	TX - UPRIC	GHT ON LON	IGER EDG						
							Average		
Frequency (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Pre-Amp Gain (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Limit (dBuV/m)	Detector / Polarity	
2.4835	34.8	28.2	3.0	0.0	66.0	74	54	Peak / Horizontal	
2.4835	17.0	28.2	3.0	0.0	48.2	74	54	Avg / Horizontal	
4.924	40.0	33.9	4.1	33.1	44.9	74	54	Peak - NF / Horizontal	
7.386	39.5	35.8	5.2	32.8	47.7	74	54	Peak - NF / Horizontal	
9.848	39.8	37.3	5.2	34.5	47.8	74	54	Peak - NF / Horizontal	
12.310	41	40.0	6.8	34.7	53.1	74	54	Peak - NF / Horizontal	
14.772	37.6	41.8	7.2	33.5	53.1	74	54	Peak - NF / Horizontal	
2.4835	33.0	28.2	3.0	0.0	64.2	74	54	Peak / Vertical	
2.4835	17.4	28.2	3.0	0.0	48.6	74	54	Avg / Horizontal	
4.924	40.0	33.9	4.1	33.1	44.9	74	54	Peak - NF / Vertical	
7.386	39.5	35.8	5.2	32.8	47.7	74	54	Peak - NF / Vertical	
9.848	39.8	37.3	5.2	34.5	47.8	74	54	Peak - NF / Vertical	
12.31	41	40.0	6.8	34.7	53.1	74	54	Peak - NF / Vertical	
14.772	37.6	41.8	7.2	33.5	53.1	74	54	Peak - NF / Vertical	
Notes:	The spectru	um was seard	ched to 25	GHz					
	The devive was tested on three axis'								
	The device was tested at 2.412, 2.437 and 2.462 MHz								
L									

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Radiated Emissions – Bluetooth

				<u>Radi</u>	ated Emission	<u>s</u>				
Page 1 of	f <u>2</u>									
Job No.:	4L0050 Date: 1/28/2004									
Specification:	15.247/15.205 Temperature(°C): 22									
Tested By:	David Light Relative Humidity(%)									
E.U.T.:	TABLET PO									
Configuration:	TX - LYING FLAT (WORST CASE) Bluetooth									
Sample Number:	1			-	DDW	1 1 11				
Location: Detector Type:	AC 3				RBW: VBW:	1 MHz				
Detector Type:	Peak				VDW:	1 MHz				
			Test Equ	ipment Used						
Antenna:	1304		1000 1344		ional Coupler:	#N/A				
Pre-Amp:	1016				Cable #1:	1484				
Filter:	1482				Cable #2:	1485				
Receiver:	1464				Cable #3:					
Attenuator #1	#N/A	i i			Cable #4:	#N/A				
Attenuator #2:	#N/A	•			Mixer:	#N/A				
Measurement Une	certainty: +/-	3.6 dB								
							Average			
Frequency	Meter	Antenna	Cable	Pre-Amp	Corrected	Peak Limit	Limit			
(GHz)	Reading	Factor	Loss	Gain (dB)	Reading	(dBuV/m)	(dBuV/m)	Detector / Polarity		
4.904	(dBuV)	(dB)	(dB)	22.4	(dBuV/m)	74	E A	Dook NE () (ortical		
4.804	38.1	33.9	4.1	33.1	43.0	74 74	54 54	Peak - NF / Vertical		
7.206 9.608	38.7 40.7	35.8 37.3	5.2 5.2	32.8 34.5	46.9 48.7	74	54 54	Peak - NF / Vertical Peak - NF / Vertical		
12.010	40.7	40.0	6.8	34.5	53.6	74	54	Peak - NF / Vertical		
14.412	38.1	40.0	7.2	33.5	53.6	74	<u> </u>	Peak - NF / Vertical		
4.804	38.1	33.9								
7.206		33.3	1 1 1		13.0	74	51	Dook - NE / Horizontal		
	387		4.1	33.1	43.0	74 74	54	Peak - NF / Horizontal		
9 608	38.7	35.8	5.2	32.8	46.9	74	54	Peak - NF / Horizontal		
9.608	40.7	35.8 37.3	5.2 5.2	32.8 34.5	46.9 48.7	74 74	54 54	Peak - NF / Horizontal Peak - NF / Horizontal		
12.010	40.7 41.5	35.8 37.3 40.0	5.2 5.2 6.8	32.8 34.5 34.7	46.9 48.7 53.6	74 74 74	54 54 54	Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal		
-	40.7	35.8 37.3	5.2 5.2	32.8 34.5	46.9 48.7	74 74	54 54	Peak - NF / Horizontal Peak - NF / Horizontal		
12.010 14.412	40.7 41.5 38.1	35.8 37.3 40.0 41.8	5.2 5.2 6.8 7.2	32.8 34.5 34.7 33.5	46.9 48.7 53.6 53.6	74 74 74 74 74	54 54 54 54	Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal		
12.010 14.412 4.880	40.7 41.5 38.1 38.3	35.8 37.3 40.0 41.8 33.9	5.2 5.2 6.8 7.2 4.1	32.8 34.5 34.7 33.5 33.1	46.9 48.7 53.6 53.6 43.2	74 74 74 74 74 74	54 54 54 54 54	Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Vertical		
12.010 14.412 4.880 7.320	40.7 41.5 38.1 38.3 39.1	35.8 37.3 40.0 41.8 33.9 35.8	5.2 5.2 6.8 7.2 4.1 5.2	32.8 34.5 34.7 33.5 33.1 32.8	46.9 48.7 53.6 53.6 43.2 47.3	74 74 74 74 74 74 74	54 54 54 54 54 54 54	Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Vertical Peak - NF / Vertical		
12.010 14.412 4.880 7.320 9.760	40.7 41.5 38.1 38.3 39.1 40.0	35.8 37.3 40.0 41.8 33.9 35.8 37.3	5.2 5.2 6.8 7.2 4.1 5.2 5.2	32.8 34.5 34.7 33.5 33.1 32.8 34.5	46.9 48.7 53.6 53.6 43.2 47.3 48.0	74 74 74 74 74 74 74 74 74	54 54 54 54 54 54 54 54	Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Vertical Peak - NF / Vertical Peak - NF / Vertical		
12.010 14.412 4.880 7.320 9.760 12.200	40.7 41.5 38.1 38.3 39.1 40.0 42.3	35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0	5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8	32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7	46.9 48.7 53.6 53.6 43.2 47.3 48.0 54.4	74 74 74 74 74 74 74 74 74 74	54 54 54 54 54 54 54 54 54	Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Vertical Peak - NF / Vertical Peak - NF / Vertical Peak - NF / Vertical		
12.010 14.412 4.880 7.320 9.760 12.200 12.200	40.7 41.5 38.1 38.3 39.1 40.0 42.3 31.0	35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 40.0	5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 6.8	32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7 34.7	46.9 48.7 53.6 53.6 43.2 47.3 48.0 54.4 43.1	74 74 74 74 74 74 74 74 74 74 74	54 54 54 54 54 54 54 54 54 54	Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Vertical Peak - NF / Vertical Peak - NF / Vertical Avg - NF / Vertical		
12.010 14.412 4.880 7.320 9.760 12.200 12.200 14.640	40.7 41.5 38.1 38.3 39.1 40.0 42.3 31.0 37.8	35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 40.0 41.8	5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 6.8 6.8 7.2	32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7 34.7 33.5	46.9 48.7 53.6 53.6 43.2 47.3 48.0 54.4 43.1 53.3	74 74	54 54 54 54 54 54 54 54 54 54 54	Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Vertical Peak - NF / Vertical		
12.010 14.412 4.880 7.320 9.760 12.200 12.200 14.640 4.880	40.7 41.5 38.1 38.3 39.1 40.0 42.3 31.0 37.8 38.3	35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 40.0 41.8 33.9	5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 6.8 7.2 4.1	32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7 34.7 33.5 33.1	46.9 48.7 53.6 53.6 43.2 47.3 48.0 54.4 43.1 53.3 43.2	74 74	54 54 54 54 54 54 54 54 54 54 54 54	Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Vertical Peak - NF / Vertical		
12.010 14.412 4.880 7.320 9.760 12.200 12.200 12.200 14.640 4.880 7.320	40.7 41.5 38.1 38.3 39.1 40.0 42.3 31.0 37.8 38.3 39.1	35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 40.0 41.8 33.9 35.8	$5.2 \\ 5.2 \\ 6.8 \\ 7.2 \\ 4.1 \\ 5.2 \\ 5.2 \\ 6.8 \\ 6.8 \\ 7.2 \\ 4.1 \\ 5.2 \\ 1.1 \\ 5.2 \\ 1.1 \\ 5.2 \\ 1.1 $	32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7 34.7 33.5 33.1 32.8	46.9 48.7 53.6 53.6 43.2 47.3 48.0 54.4 43.1 53.3 43.2 47.3	74 74	54 54 54 54 54 54 54 54 54 54 54 54 54	Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Horizontal		
12.010 14.412 4.880 7.320 9.760 12.200 12.200 14.640 4.880 7.320 9.760	40.7 41.5 38.1 38.3 39.1 40.0 42.3 31.0 37.8 38.3 39.1 40.0	35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 40.0 41.8 33.9 35.8 37.3	5.2 5.2 6.8 7.2 4.1 5.2 5.2 6.8 6.8 7.2 4.1 5.2 5.2 5.2	32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7 34.7 33.5 33.1 32.8 33.1 32.8 34.5	46.9 48.7 53.6 53.6 43.2 47.3 48.0 54.4 43.1 53.3 43.2 47.3 48.0	74 74	54 54 54 54 54 54 54 54 54 54 54 54 54 5	Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal		
12.010 14.412 4.880 7.320 9.760 12.200 12.200 14.640 4.880 7.320	40.7 41.5 38.1 38.3 39.1 40.0 42.3 31.0 37.8 38.3 39.1	35.8 37.3 40.0 41.8 33.9 35.8 37.3 40.0 40.0 41.8 33.9 35.8	$5.2 \\ 5.2 \\ 6.8 \\ 7.2 \\ 4.1 \\ 5.2 \\ 5.2 \\ 6.8 \\ 6.8 \\ 7.2 \\ 4.1 \\ 5.2 \\ 1.1 \\ 5.2 \\ 1.1 \\ 5.2 \\ 1.1 $	32.8 34.5 34.7 33.5 33.1 32.8 34.5 34.7 34.7 33.5 33.1 32.8	46.9 48.7 53.6 53.6 43.2 47.3 48.0 54.4 43.1 53.3 43.2 47.3	74 74	54 54 54 54 54 54 54 54 54 54 54 54 54	Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Horizontal Peak - NF / Vertical Peak - NF / Horizontal Peak - NF / Horizontal		

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Radiated Emissions – Bluetooth (cont.)

				Radiated	Spurious Emi	<u>ssions</u>				
Page <u>2</u> of <u>2</u>				Continu	ation Page					
Job No.:	Date: 1/30/2004									
Specification:	15.247/15.205 Temperature(°C): 22					_				
Tested By:	#N/A		Relative I	Humidity(%)	40	_				
E.U.T.:	TABLET PO	C		- 						
Configuration:	TX - LYINO	G FLAT (WO	RST CASE							
			1							
Frequency (GHz)	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		
2.4835	52.8	28.2	3.0	33.0	51.0	74	54	Peak / Horizontal		
4.960	37.7	33.9	4.1	33.1	42.6	74	54	Peak - NF / Horizontal		
7.440	41.1	35.8	5.2	32.8	49.3	74	54	Peak - NF / Horizontal		
9.920	41.5	37.3	5.2	34.5	49.5	74	54	Peak - NF / Horizontal		
12.400	39.3	40.0	6.8	34.7	51.4	74	54	Peak - NF / Horizontal		
14.880	37.1	41.8	7.2	33.5	52.6	74	54	Peak - NF / Horizontal		
2.4835	51.3	28.2	3.0	33.0	49.5	74	54	Peak / Vertical		
4.960	37.7	33.9	4.1	33.1	42.6	74	54	Peak - NF / Vertical		
7.44	41.1	35.8	5.2	32.8	49.3	74	54	Peak - NF / Vertical		
9.920	41.5	37.3	5.2	34.5	49.5	74	54	Peak - NF / Vertical		
12.4	39.3	40.0	6.8	34.7	51.4	74	54	Peak - NF / Vertical		
14.880	37.1	41.8	7.2	33.5	52.6	74	54	Peak - NF / Vertical		
Notes:	The spectrum was searched to 25 GHz									
	The devive was tested on three axis'									
	The device was tested at 2.402, 2.440 and 2.480 MHz									

EQUIPMENT: M1400 (T003)

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Radiated Photographs



EQUIPMENT: M1400 (T003) TEST REPORT NO

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Radiated Photographs



EQUIPMENT: M1400 (T003) TEST RE

TEST REPORT NO.: 4L0050RUS1Rev3

Radiated Photographs



EQUIPMENT: M1400 (T003) TEST REPORT NO.: 4L0050RUS1Rev3

Section 8. Peak Power Spectral Density

NAME OF TEST: Peak Power Spectral Density	PARA. NO.: 15.247(d)
TESTED BY: David Light	DATE: 1/29/04

Test Results: Complies.

Measurement Data: See attached data. This measurement was made radiated.

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Peak Power Spectral Density

				Spectra	Density				
Page <u>1</u> of	f <u>2</u>				-		Complete	Х	
Job No.:	4L0050		Date:	1/28/04			Preliminary		_
Specification:	15.247		Temperature(°C):						-
Tested By:	David Light		Relative Humidity(%)						
E.U.T.:	TABLET PO					RBW 3 kHz			
Configuration:	TX - LYING	FLAT (WORS	T CASE) 802.11				VBW 3 kHz		
Sample No:	<u>1</u>								
Frequency	Meter	Correction	Pre-Amp	Substitution		IRP	EIRP	Polarity	Comments
Frequency	Reading	Factor	Gain	Antenna Gain	-	IKP	EIRP	Polarity	Comments
(MHz)	(dBm)	(dB)	(dB)	(dBi)	(4	Bm)	(mW)		
(10112)	(ubiii)	(ub)	(05)	(dBl)	(u	ыпу	(11144)		SPECTRAL DENSITY
2412	-31.0	34.2	33	8.9	-2	20.9	0.01	V	SPECTIVAL DENSIT
2412	-26.0	37.0	33	8.9		3.1	0.048978	Ĥ	
22	20.0	0110		0.0		0	0.010010		
2437	-27.0	34.2	33	8.9	-1	6.9	0.020261	V	
2437	-23.0	37.0	33	8.9	-1	0.1	0.097724	Н	
2462	-19.0	34.2	33	8.9	-8	8.9	0.13	V	
	-25.0	37.0	33	8.9	-1	2.1	0.061660	Н	
2462									
2462	20.0								
2462	20.0								

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Section 9. Test Equipment List

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
1464	Spectrum analyzer	Hewlett Packard 8563E	3551A04428	02/11/03	02/11/05
1484	Cable 2.0-18.0 Ghz	Storm PR90-010-072	N/A	07/24/03	07/23/04
1485	Cable 2.0-18.0 Ghz	Storm PR90-010-216	N/A	07/24/03	07/23/04
1016	Pre-Amp	HEWLETT PACKARD 8449A	2749A00159	10/27/03	10/26/04
1304	HORN ANTENNA	ELECTRO METRICS RGA-60	6151	09/22/03	09/22/05
1482	Band Pass Filter	K & L 11SH10-4000/T12000-0/0	2	Cal B4 Use	N/A
545	LISN	Schwarz Beck 8120	8120350	08/01/03	07/31/04
704	FILTER, HIGH PASS, 5 KHz	SOLAR 7930-5.0	933126	02/05/04	02/04/05
1038	CABLE, .5m	KTL RG223	N/A	06/18/03	06/17/04
1988	CABLE, 6.8m	KTL RG223	N/A	07/02/03	07/01/04
1283	Spectrum analyzer display	Hewlett Packard 85662A	1811A00223	12/19/03	12/18/04
966	Receiver	Rohde & Schwartz ESH2	880370/029	09/17/03	09/16/04
1193	LIMITER	FISCHER FCC-450B-1.25N	956	02/24/03	02/24/04
760	Antenna biconical	Electro Metrics MFC-25	477	06/05/03	06/04/04
1034	ANTENNA,LP	A.H. SYSTEMS SAS-200/510	121	06/09/03	06/08/04
1522	Cable Assy, LAB 5 - D OATS	KTL Site D OATS	N/A	03/28/03	03/27/04
1289	AMPLIFIER, RF	ICC LN1-5	421	09/10/03	09/09/04
1283	Spectrum analyzer display	Hewlett Packard 85662A	1811A00223	12/19/03	12/18/04
991	Horn antenna	EMCO 3160-10	9704-1049	CNR	N/A
983	PRE-AMP, 18-40 GHz	KTL BB1	1	09/18/03	09/17/04

FCC PART 15, SUBPART C

EQUIPMENT: M1400 (T003) TEST REPORT NO.: 4L0050RUS1Rev3

ANNEX A - TEST DETAILS

EQUIPMENT: M1400 (T003)

TEST REPORT NO.: 4L0050RUS1Rev3

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	
	A A		

* 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: M1400 (T003) TEST REPORT NO.: 4L0050RUS1Rev3

NAME OF TEST: Occupied Bandwidth

PARA. NO.: 15.247(a)(2)

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

EQUIPMENT: M1400 (T003)

TEST REPORT NO.: 4L0050RUS1Rev3

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

EQUIPMENT: M1400 (T003)

TEST REPORT NO.: 4L0050RUS1Rev3

NAME OF TEST:	Channel Separation
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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.

FCC PART 15, SUBPART C

EQUIPMENT: M1400 (T003)

TEST REPORT NO.: 4L0050RUS1Rev3

NAME OF TEST: Time of Occupancy

PARA. NO.: 15.247(a)(1)(ii)

Minimum Standard:

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

FCC PART 15, SUBPART C

EQUIPMENT: M1400 (T003)

TEST REPORT NO.: 4L0050RUS1Rev3

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

EQUIPMENT: M1400 (T003)

TEST REPORT NO.: 4L0050RUS1Rev3

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.

EQUIPMENT: M1400 (T003)

TEST REPORT NO.: 4L0050RUS1Rev3

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 ∆: 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 ∆: 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

FCC PART 15, SUBPART C

EQUIPMENT: M1400 (T003)

TEST REPORT NO.: 4L0050RUS1Rev3

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			

15 205 Restricted Bands

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

EQUIPMENT: M1400 (T003) TEST REPORT NO.:

EPORT NO.: 4L0050RUS1Rev3

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

FCC PART 15, SUBPART C

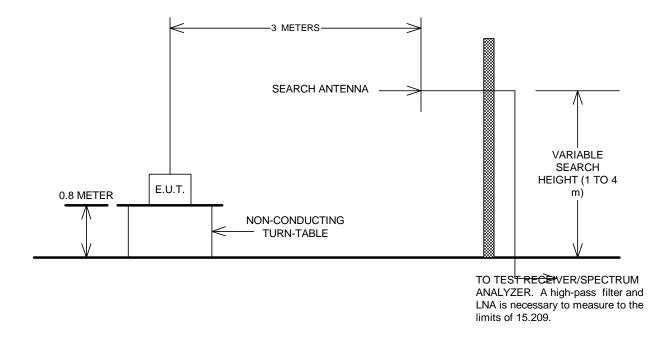
EQUIPMENT:M1400 (T003)TEST REPORT NO.:4L0050RUS1Rev3

ANNEX B - TEST DIAGRAMS

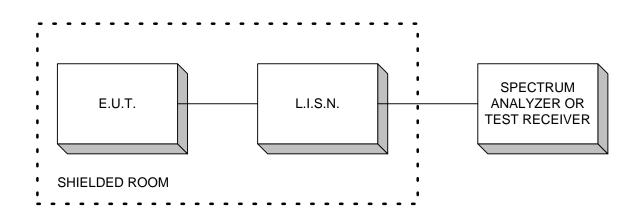
EQUIPMENT: M1400 (T003)

TEST REPORT NO.: 4L0050RUS1Rev3

Test Site For Radiated Emissions



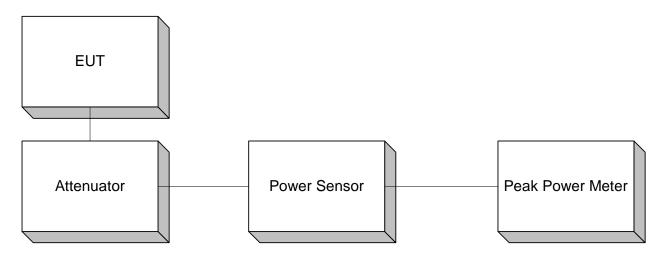
Conducted Emissions



EQUIPMENT: M1400 (T003)

TEST REPORT NO.: 4L0050RUS1Rev3

Peak Power At Antenna Terminals



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

