

**Permissive Change Test Report
(Radiated Emissions in Restricted Bands)
FCC Part 15.247 (c)
for
Symbol Technologies
on the
Spread Spectrum Frequency Hopping Radio
Model: LA4121
FCC ID: H9PLA4121**

Test Report #: 200319221
Date of Report: November 30, 2000

Job #: J20031922
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Lab Code: 200201-01

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Table of Contents

1.0 Summary of Tests.....2

2.0 General Description.....3

2.1 Product Description 3

2.3 Test Methodology..... 4

2.4 Test Facility 4

3.0 System Test Configuration5

3.1 Support Equipment..... 5

Dell Latitude Cpi D266XT, Model PPL, S/N 2HWTD..... 5

3.3 Justification 6

3.4 Software Exercise Program 6

3.5 Mode of Operation During Test 6

3.6 Modifications Required for Compliance 6

4.0 Measurement Results7

4.1 Transmitter Radiated Emissions in Restricted Bands, FCC Ref: 15.247(c)..... 7

4.2 Radiated Emission Test Results..... 8

4.3 Radiated Emission Configuration Photograph..... 15

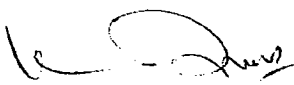
4.4 List of Test Equipment19

5.0 Document History.....20


1.0 Summary of Tests

Symbol Technologies Inc. - Model No. H9PLA4121

TEST	REFERENCE	RESULTS
Radiated Emission in Restricted Bands	15.247(c)	Passed

Test Engineer: 
Suresh Kondapalli

Date: 11/30/00

EMC Site Mgr.: 
David Chernomordik

Date: 11/30/00

2.0 General Description

2.1 Product Description

The Symbol Technologies model H9PLA4121 is 2.4 GHz Spread Spectrum radio in the form of a PCMCIA card that is used for wireless communication from a computer to a LAN.

Overview of the EUT

Trade Name & Model No.	Symbol Technologies, Model No. H9PLA4121
Frequency Range (MHz)	2402 – 2480
Antenna(s)	Internal Antenna Model 3146BD, Gain 0 dBi, P/N 10-41359-01, Manufactured by Symbol Yagi Antenna Model LA 2415N, Gain 13 dBi, P/N PC2415RBN120, Manufactured by Cushcraft
Manufacturer name & address	Symbol Technologies 6480 Via Del Oro San Jose, California 95119

2.3 Test Methodology

This report is designed to show that the 2 new antennas added to the previously certified device complies with FCC regulations. Only radiated emissions in restricted bands were tested because the transmitter itself has not been modified.

Radiated emissions measurements were performed according to the procedures in ANSI C63.4 (1992). Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Data Sheet**" of this Application.

2.4 Test Facility

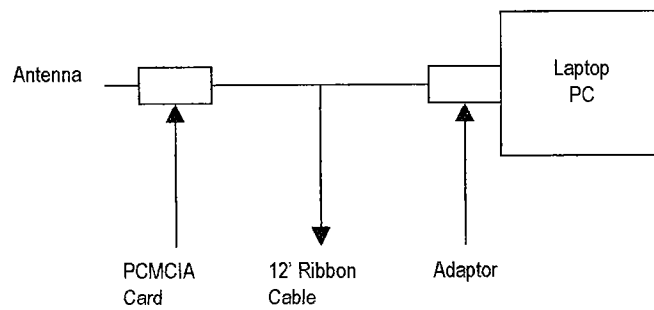
The open area test site 2 facility used to collect the radiated data is located at 1365 Adams Court, Menlo Park, CA 94025. This test facility and site measurement data have been fully placed on file with the FCC.

3.0 System Test Configuration

3.1 Support Equipment

Dell Latitude Cpi D266XT, Model PPL, S/N 2HWTD

3.2 Test Setup Diagram:



3.3 Justification

For emission testing, the equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). During testing, all cables were manipulated to produce worst case emissions.

For radiated emission measurements, the EUT is attached to a cardboard box (if necessary) and placed on the wooden turntable. If the EUT attaches to peripherals, they are connected and operational (as typical as possible). The EUT is wired to transmit full power.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance.

3.4 Software Exercise Program

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use.

3.5 Mode of Operation During Test

For emissions testing, the unit was setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing.

3.6 Modifications Required for Compliance

The following modifications were installed during compliance testing in order to bring the product into compliance (Please note that this list does not include changes made specifically by Symbol Technologies Inc. prior to compliance testing):

No modifications were made to the EUT by Intertek Testing Services.

4.0 Measurement Results**4.1 Transmitter Radiated Emissions in Restricted Bands, *FCC Ref: 15.247(c)***

Radiated emission measurements were performed from 30 MHz to 25000 MHz. Analyzer resolution is 100 kHz or greater for frequencies from 30 MHz to 1000 MHz and 1 MHz for frequencies above 1000 MHz.

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included. All measurements were performed with peak detection and average detection (above 1 GHz) unless otherwise specified.

On the following pages, the emissions on the harmonics frequencies, the limits, and the margin of compliance are presented. These tests were made when the transmitter is in full radiated power. Duty cycle correction was not used.

For the test results, refer to the following radiated emission data sheets.

Note:

It was verified that radiated emission data from digital portion of the EUT is not worse than the data previously measured and presented in the original report.

4.2 Radiated Emission Test Results

The EUT passed the test, refer to the attached data sheets.

Radiated Emissions Test Data			
Company:	Symbol Technologies	Model #:	LA4121
EUT:	PCMCIA CARD	Standard	FCC § 15.247 (R.B.)
Project #:	J200031992	S/N #:	Limits 11
Test Mode:	Internal Antenna Model 3146BD Tx@ 2412MHz	Test Date:	Nov 21, 2000
		Test Distance_	3 meters
		Engineer:	Suresh K
		Duty Relaxation	0 dB

	Antenna Used			Pre-Amp Used			Cable Used			Transducer Used
Number:	14	8	21	8	10	13	21	0	0	0
Model:	EMCO 3115	EMCO 3115	3160-9	CDI P1000	AFT18855	ACO/400	Gm_M+L	None	None	None

Frequency	Reading	Detector	Ant	Amp.	Ant. Pol.	Ant. Factor	Pre-Amp	Insert. Loss	D. C. F.	Net	Limit @3m	Margin
MHz	dB(µV)	P/A/Q	#	#	H/V	dB(1/m)	dB	dB	dB	dB(µV/m)	dB(µV/m)	dB
2412.00E+0	89.9	Peak	14	0	V	30.1	0.0	2.3	0.0	122.3	-	-
4824.00E+0	29.0	Peak	14	8	V	33.9	28.1	3.2	0.0	38.0	74.0	-36.0
4824.00E+0	16.8	Ave.	14	8	V	33.9	28.1	3.2	0.0	25.8	54.0	-28.2
7235.90E+0	39.0	Peak	14	8	V	38.0	28.0	4.3	0.0	53.3	74.0	-20.7
7235.90E+0	28.5	Ave.	14	8	V	38.0	28.0	4.3	0.0	42.8	54.0	-11.2
1.21E+4	40.7	Peak	14	10	V	42.3	39.1	5.9	0.0	49.8	74.0	-24.2
1.21E+4	28.6	Ave.	14	10	V	42.3	39.1	5.9	0.0	37.7	54.0	-16.3
1.45E+4	40.9*	Peak	14	10	V	40.7	37.8	6.5	0.0	50.3	74.0	-23.7
1.45E+4	29.3*	Ave.	14	10	V	40.7	37.8	6.5	0.0	38.7	54.0	-15.3
1.93E+4	34.8*	Peak	21	13	V	40.2	23.3	7.7	0.0	59.4	74.0	-14.6
1.93E+4	25.0*	Ave.	21	13	V	40.2	23.3	7.7	0.0	49.6	54.0	-4.4
2.17E+4	26.0*	Peak	21	13	V	40.3	23.3	7.9	0.0	50.9	74.0	-23.1
2.17E+4	21.4*	Ave.	21	13	V	40.3	23.3	7.9	0.0	46.3	54.0	-7.7

Notes:	a) D.C.F.:Distance Correction Factor
	b) Insert. Loss (dB) = Cable A + Cable B + Cable C .
	c) Net (dB) = Reading + Antenna Factor - Pre-amp + Insert. Loss. - Transducer Loss - Duty Relaxation (transmitter only).
	d) Negative signs (-) in Margin column signify levels below the limits.
	e) All measurements above 10GHz are made at 1 meter distance from EUT
	f) *Noise floor

Radiated Emissions Test Data

Company:	Symbol Technologies	Model #:	Antenna LA2415N	Standard_		FCC § 15.247 (R.B.)	
EUT:	PCMCIA CARD	S/N #:	4	Limits_			11
Project #:	J200031992	Test Date:	Nov 21, 2000	Test Distance_			3 meters
Test Mode:	Cushcraft Yagi Antenna, Tx @2412MHz	Engineer:	Suresh K.	Duty Relaxation			0 dB

	Antenna Used			Pre-Amp Used			Cable Used			Transducer Used
Number:	14	8	21	8	10	13	21	0	0	0
Model:	EMCO 3115	EMCO 3115	3160-9	CDI_P1000	AFT18855	ACO/400	Grn_M+L	None	None	None

Frequency MHz	Reading dB(µV)	Detector P/A/Q	Ant #	Amp. #	Ant. Pol. H/V	Ant. Factor dB(1/m)	Pre-Amp dB	Insert. Loss dB	D. C. F. dB	Net dB(µV/m)	Limit @3m dB(µV/m)	Margin dB
2412.00	94.5	Peak	14	0	V	30.1	0.0	2.3	0.0	126.9	-	-
4824.00	27.9	Peak	14	8	V	33.9	28.1	3.2	0.0	36.9	74.0	-37.1
4824.00	16.5	Ave.	14	8	V	33.9	28.1	3.2	0.0	25.5	54.0	-28.5
7236.00	35.4	Peak	14	8	V	38.0	28.0	4.3	0.0	49.7	74.0	-24.3
7236.00	24.0	Ave.	14	8	V	38.0	28.0	4.3	0.0	38.3	54.0	-15.7
12100.00	40.3	Peak	14	10	V	42.3	39.1	5.9	0.0	49.4	74.0	-24.6
12100.00	28.8	Ave.	14	10	V	42.3	39.1	5.9	0.0	37.9	54.0	-16.1
1.45E+4	40.2*	Peak	14	10	V	40.7	37.8	6.5	0.0	49.6	74.0	-24.4
1.45E+4	29.3*	Ave.	14	10	V	40.7	37.8	6.5	0.0	38.7	54.0	-15.3
1.93E+4	36.5*	Peak	21	13	V	40.2	23.3	7.7	0.0	61.1	74.0	-12.9
1.93E+4	25.6*	Ave.	21	13	V	40.2	23.3	7.7	0.0	50.2	54.0	-3.8
2.17E+4	25.9*	Peak	21	13	V	40.3	23.3	7.9	0.0	50.8	74.0	-23.2
2.17E+4	19.9*	Ave.	21	13	V	40.3	23.3	7.9	0.0	44.8	54.0	-9.2

Notes:	a) D.C.F.:Distance Correction Factor
	b) Insert. Loss (dB) = Cable A + Cable B + Cable C .
	c) Net (dB) = Reading + Antenna Factor - Pre-amp + Insert. Loss. - Transducer Loss - Duty Relaxation (transmitter only).
	d) Negative signs (-) in Margin column signify levels below the limits.
	e) All measurements above 10GHz were made at 1meter distance
	f) * Noise Floor

Radiated Emissions Test Data

Company:	Symbol Technologies	Model #:	LA4121	Standard	FCC § 15.247 (R.B.)
EUT:	PCMCIA CARD	S/N #:	Not Labeled	Limits	11
Project #:	J200031992	Test Date:	Nov 21, 2000	Test Distance	3 meters
Test Mode:	Internal Antenna Model3146BD.TX@2437MHz	Engineer:	Suresh K	Duty Relaxation	0 dB

	Antenna Used			Pre-Amp Used			Cable Used			Transducer Used
Number:	14	8	21	8	10	13	21	0	0	0
Model:	EMCO 3115	EMCO 3115	3160-9	CDI_P1000	AFT18855	ACO/400	Grn_M+L	None	None	None

Frequency	Reading	Detector	Ant. #	Amp. #	Ant. Pol. H/V	Ant. Factor dB(1/m)	Pre-Amp dB	Insert. Loss dB	D. C. F. dB	Net dB(µV/m)	Limit @3m dB(µV/m)	Margin dB
2437.00	113.6	Peak	14	0	V	30.1	0	2.3	0.0	117.9	-	-
4874.00	27.6	Peak	14	8	V	33.9	28.1	3.2	0.0	36.6	74.0	-37.4
4874.00	16.8	Ave.	14	8	V	33.9	28.1	3.2	0.0	25.8	54.0	-28.2
7311.00	38.2	Peak	14	8	V	38.0	28.0	4.3	0.0	52.5	74.0	-21.5
7311.00	26.9	Ave.	14	8	V	38.0	28.0	4.3	0.0	41.2	54.0	-12.8
1.22E+4	39.0	Peak	14	10	V	42.3	39.1	5.9	0.0	48.1	74.0	-25.9
1.22E+4	27.5	Ave.	14	10	V	42.3	39.1	5.9	0.0	36.6	54.0	-17.4
1.46E+4	40.5*	Peak	14	10	V	41.1	37.4	6.8	0.0	51.0	74.0	-23.0
1.46E+4	29.6*	Ave.	14	10	V	41.1	37.4	6.8	0.0	40.1	54.0	-13.9
1.95E+4	33.9*	Peak	21	13	V	40.2	23.3	7.7	0.0	58.5	74.0	-15.5
1.95E+4	26.1*	Ave.	21	13	V	40.2	23.3	7.7	0.0	50.7	54.0	-3.3
2.19E+4	27.9*	Peak	21	13	V	40.3	23.3	7.9	0.0	52.8	74.0	-21.2
2.19E+4	20.1*	Ave.	21	13	V	40.3	23.3	7.9	0.0	45.0	54.0	-9.0

Notes:

- a) D.C.F.:Distance Correction Factor
- b) Insert Loss (dB) = Cable A + Cable B + Cable C .
- c) Net (dB) = Reading + Antenna Factor - Pre-amp + Insert. Loss. - Transducer Loss - Duty Relaxation (transmitter only).
- d) Negative signs (-) in Margin column signify levels below the limits.
- e) All measurements above 10GHz were performed at 1 meter distance
- f) * Noise Floor

Radiated Emissions Test Data

Company:	Symbol Technologies	Model #:	LA4121	Standard	FCC § 15.247 (R.B.)
EUT:	PCMCIA CARD	S/N #:	-	Limits	11
Project #:	J200031992	Test Date:	Nov 21, 2000	Test Distance	3 meters
Test Mode:	Internal Antenna Model3146BD, TX@2462MHz	Engineer:	Suresh K	Duty Relaxation	0 dB

	Antenna Used			Pre-Amp Used			Cable Used			Transducer Used
Number:	14	8	21	8	10	13	21	0	0	0
Model:	EMCO 3115	EMCO 3115	3160-9	CDI_P1000	AFT18855	ACO/400	Gm_M+L	None	None	None

Frequency MHz	Reading dB(μV)	Detector P/A/Q	Ant. #	Amp. #	Ant. Pol. H/V	Ant. Factor dB(1/m)	Pre-Amp dB	Insert. Loss dB	D. C. F. dB	Net dB(μV/m)	Limit @3m dB(μV/m)	Margin dB
2462.00E+0	84.2	Peak	14	0	V	30.1	0.0	2.3	0.0	116.6	-	-
4924.00E+0	28.3	Peak	14	8	V	33.9	28.1	3.2	0.0	37.3	74.0	-36.7
4924.00E+0	16.8	Ave.	14	8	V	33.9	28.1	3.2	0.0	25.8	54.0	-28.2
7386.00E+0	36.0	Peak	14	8	V	38.0	28.0	4.3	0.0	50.3	74.0	-23.7
7386.00E+0	24.2	Ave.	14	8	V	38.0	28.0	4.3	0.0	38.5	54.0	-15.5
1.23E+4	39.2	Peak	14	10	V	42.3	39.1	5.9	0.0	48.3	74.0	-25.7
1.23E+4	28.8	Ave.	14	10	V	42.3	39.1	5.9	0.0	37.9	54.0	-16.1
1.48E+4	40.6*	Peak	14	10	V	41.1	37.4	6.8	0.0	51.1	74.0	-22.9
1.48E+4	29.7*	Ave.	14	10	V	41.1	37.4	6.8	0.0	40.2	54.0	-13.8
1.97E+4	37.3*	Peak	21	13	V	40.3	23.3	7.7	0.0	62.0	74.0	-12.0
1.97E+4	26.0*	Ave.	21	13	V	40.3	23.3	7.7	0.0	50.7	54.0	-3.3
2.22E+4	27.9*	Peak	21	13	V	40.3	23.3	7.9	0.0	52.8	74.0	-21.2
2.22E+4	20.1*	Ave.	21	13	V	40.3	23.3	7.9	0.0	45.0	54.0	-9.0

Notes:	a) D.C.F.: Distance Correction Factor
	b) Insert Loss (dB) = Cable A + Cable B + Cable C
	c) Net (dB) = Reading + Antenna Factor - Pre-amp + Insert Loss - Transducer Loss - Duty Relaxation (transmitter only).
	d) Negative signs (-) in Margin column signify levels below the limits.
	e) All measurements above 10GHz were performed at 1 meter from EUT
	f) * Noise Floor

Radiated Emissions Test Data

Company:	Symbol Technologies	Model #:	Antenna LA2415N	Standard_		FCC § 15.247 (R.B.)	
EUT:	PCMCIA CARD	S/N #:	4	Limits_		11	
Project #:	J200031992	Test Date:	Nov 21, 2000	Test Distance_		3	meters
Test Mode:	Cushcraft Yagi Antenna. Tx @2462MHz	Engineer:	Suresh K	Duty Relaxation		0	dB

	Antenna Used			Pre-Amp Used			Cable Used			Transducer Used
Number:	14	8	21	8	10	13	21	0	0	0
Model:	EMCO 3115	EMCO 3115	3160-9	CDI_P1000	AFT18855	ACO/400	Grn_M+L	None	None	None

Frequency MHz	Reading dB(µV)	Detector P/A/Q	Ant. #	Amp. #	Ant. Pol. H/V	Ant. Factor dB(1/m)	Pre-Amp dB	Insert. Loss dB	D. C. F. dB	Net dB(µV/m)	Limit @3m dB(µV/m)	Margin dB
2462.00E+0	94.5	Peak	14	0	V	30.1	0.0	2.3	0.0	126.9	-	-
4924.00E+0	28.1	Peak	14	8	V	33.9	28.1	3.2	0.0	37.1	74.0	-36.9
4924.00E+0	16.8	Ave.	14	8	V	33.9	28.1	3.2	0.0	25.8	54.0	-28.2
7386.00E+0	36.5	Peak	14	8	V	38.0	28.0	4.3	0.0	50.8	74.0	-23.2
7386.00E+0	24.3	Ave.	14	8	V	38.0	28.0	4.3	0.0	38.6	54.0	-15.4
1.23E+4	39.3	Peak	14	10	V	42.3	39.1	5.9	0.0	48.4	74.0	-25.6
1.23E+4	28.7	Ave.	14	10	V	42.3	39.1	5.9	0.0	37.8	54.0	-16.2
1.48E+4	40.1*	Peak	14	10	V	41.1	37.4	6.8	0.0	50.6	74.0	-23.4
1.48E+4	29.8*	Ave.	14	10	V	41.1	37.4	6.8	0.0	40.3	54.0	-13.7
1.97E+4	37.3*	Peak	21	13	V	40.3	23.3	7.7	0.0	62.0	74.0	-12.0
1.97E+4	26.0*	Ave.	21	13	V	40.3	23.3	7.7	0.0	50.7	54.0	-3.3
2.22E+4	27.9*	Peak	21	13	V	40.3	23.3	7.9	0.0	52.8	74.0	-21.2
2.22E+4	20.1*	Ave.	21	13	V	40.3	23.3	7.9	0.0	45.0	54.0	-9.0

Notes:	a) D.C.F.:Distance Correction Factor
	b) Insert. Loss (dB) = Cable A + Cable B + Cable C .
	c) Net (dB) = Reading + Antenna Factor - Pre-amp + Insert. Loss. - Transducer Loss - Duty Relaxation (transmitter only).
	d) Negative signs (-) in Margin column signify levels below the limits.
	e) All measurements above 10GHz were performed at 1 meter from EUT
	f) * Noise Floor

1025
2000



4.4 List of Test Equipment

Equipment	Manufacturer	Model/Type	Serial #	Cal Int	Cal Due	USED
Horn Antenna #14	EMCO	3115	8812-3049	12	2/5/01	X
Horn Antenna #14	EMCO	3160-9	-	#	#	X
Pre-Amplifier	CDI	P1000	N/A	12	10/4/01	X
Pre-Amplifier	Avantek	AFT1885	N/A	12	10/4/01	X
Pre-Amplifier	CTT	ACO/400	N/A	12	10/4/01	X
Spectrum Analyzer w/85650 QP Adaptor	Hewlett Packard	8566B	2416A00317 2043A00251	6	2/03/01	X

No Calibration Required

5.0 Document History

Revision/Job Number	Date	Change
1.0 / J20031922	November 30, 2000	Original document

RADIATED Measurements (Fundamental & Harmonics)

A. Transmitter Portion

Operating Frequency: 2412.0 MHz
 Distance of Measurements: 3 meters
 Channel: 1

FREQ. (MHz)	Level* (dBm)	AFCL (dB)	POL (H/V)	DET QP/AVG	F/S (μ V/m)	F/S (dB μ V/m)	Margin (dB)
2412.0	-23.18	32.7	V	Peak	669885	116.5	n/a
4824.0	-100.6	40.4	V	Peak	218.524	46.8	7.2
7236.0	-106.5	47.4	V	Peak	248.886	47.9	68.6
9648.0	-126.2	50.3	V	Peak	35.8922	31.1	15.7
12060.0	< -135						

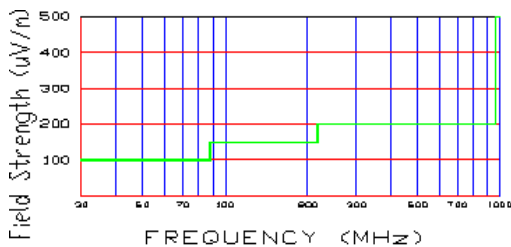



Figure 10. Restricted band harmonics and spurious limits.

Above 1 GHz limit is 500 uV/m (54dBu/m)

NOTES:

- All harmonics in the restricted bands specified in §15.205 are below the limit shown in table 2. (note: * Restricted Band)
- All harmonics/spurs are at least 20 dB below the highest emission in the authorized band using RBW = 100kHz
- Average Measurements > 1GHz using RBW = 1 MHz VBW = 10 Hz
- The peak emissions above 1 GHz are not more than 20 dB above the average limit.
- The antenna is manipulated through typical positions, polarity and length during the tests.
- The EUT is supplied with nominal AC voltage or/and a new/fully recharged battery.
- The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported.
- < -135 are below the analyzer floor level.

PCTEST™ PT. 15.247 REPORT		 EVALUATION REPORT		Reviewed By: Quality Manager
Test Report S/N: 15.220404151.H9P	Test Dates: APRIL 9-1, 2002	EUT Type: SCANNER	FCC ID: H9PLA4121	Page 13 of 19

RADIATED Measurements (Fundamental & Harmonics) (CONT.)

B. Transmitter Portion

Operating Frequency: 2437.0 MHz
 Distance of Measurements: 3 meters
 Channel: 6

FREQ. (MHz)	Level* (dBm)	AFCL (dB)	POL (H/V)	DET QP/AVG	F/S (μV/m)	F/S (dBμV/m)	Margin (dB)
2437.0	-23.27	32.8	V	Peak	670656	116.5	n/a
4874.0	-100.0	40.5	V	Peak	237.137	47.5	6.5
7311.0	-104.9	48.0	V	Peak	319.890	50.1	3.9
9748.0	-1224.0	50.3	V	Peak	46.2381	33.3	20.7
12185.0	< -135						

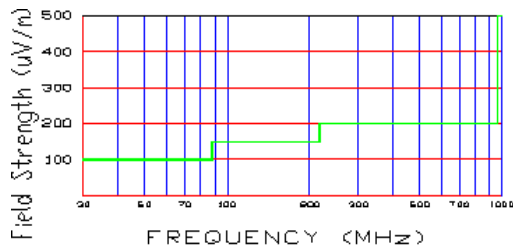



Figure 11. Restricted band harmonics and spurious limits.

Above 1 GHz limit is 500 uV/m (54dBu/m)

NOTES:

- All harmonics in the restricted bands specified in §15.205 are below the limit shown in table 2. (note: * Restricted Band)
- All harmonics/spurs are at least 20 dB below the highest emission in the authorized band using RBW = 100kHz
- Average Measurements > 1GHz using RBW = 1 MHz VBW = 10 Hz
- The peak emissions above 1 GHz are not more than 20 dB above the average limit.
- The antenna is manipulated through typical positions, polarity and length during the tests.
- The EUT is supplied with nominal AC voltage or/and a new/fully recharged battery.
- The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported.
- < -135 are below the analyzer floor level.

PCTEST™ PT. 15.247 REPORT		 EVALUATION REPORT		Reviewed By: Quality Manager
Test Report S/N: 15.220404151.H9P	Test Dates: APRIL 9-1, 2002	EUT Type: SCANNER	FCC ID: H9PLA4121	Page 14 of 19

RADIATED Measurements (Fundamental & Harmonics) (CONT.)

C. Transmitter Portion

Operating Frequency: 2462.0 MHz
 Distance of Measurements: 3 meters
 Channel: 6

FREQ. (MHz)	Level* (dBm)	AFCL (dB)	POL (H/V)	DET QP/AVG	F/S (μ V/m)	F/S (dB μ V/m)	Margin (dB)
2462.0	-23.4	32.9	V	Peak	670656	116.5	n/a
4924.0	- 100.7	40.7	V	Peak	223.872	47.0	7.0
7386.0	- 106.3	48.2	V	Peak	278.612	48.2	5.1
9848.0	- 124.6	50.4	V	Peak	43.6516	50.4	28.3
12310.0	< - 135						

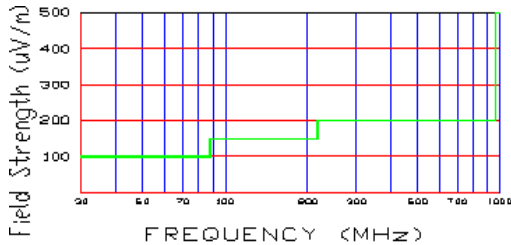


Figure 12. Restricted band harmonics and spurious limits.

Above 1 GHz limit is 500 uV/m (54dBu/m)

NOTES:

1. All harmonics in the restricted bands specified in §15.205 are below the limit shown in table 2. (note: * Restricted Band)
2. All harmonics/spurs are at least 20 dB below the highest emission in the authorized band using RBW = 100kHz
3. Average Measurements > 1GHz using RBW = 1 MHz VBW = 10 Hz
4. The peak emissions above 1 GHz are not more than 20 dB above the average limit.
5. The antenna is manipulated through typical positions, polarity and length during the tests.
6. The EUT is supplied with nominal AC voltage or/and a new/fully recharged battery.
7. The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported.
8. < - 135 are below the analyzer floor level.

RADIATED Measurements (Restricted Band)

Transmitter Portion

Operating Frequency: 2438.0 MHz
 Distance of Measurements: 3 meters
 Channel: 6

FREQ. (MHz)	Level* (dBm)	AFCL (dB)	POL (H/V)	DET QP/AVG	F/S (μ V/m)	F/S (dB μ V/m)	Margin (dB)
2483.5	- 96.0	33.0	V	Peak	158.489	44.0	10.0
2248.4	- 96.2	33.0	V	Peak	154.882	43.8	10.2
2484.9	- 94.0	33.1	V	Peak	201.837	46.1	10.2
2485.0	- 93.0	33.1	V	Peak	226.464	47.1	6.9
2491.3	- 95.2	33.2	V	Peak	177.828	45.0	9.0
2492.0	- 91.7	33.2	V	Peak	266.073	48.5	5.5

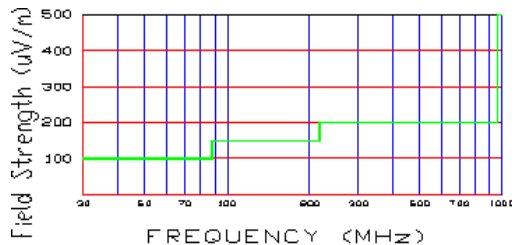



Figure 12. Restricted band harmonics and spurious limits.

Above 1 GHz limit is 500 uV/m (54dBu/m)

NOTES:

- All harmonics in the restricted bands specified in §15.205 are below the limit shown in table 2. (note: * Restricted Band)
- All harmonics/spurs are at least 20 dB below the highest emission in the authorized band using RBW = 100kHz
- Average Measurements > 1GHz using RBW = 1 MHz VBW = 10 Hz
- The peak emissions above 1 GHz are not more than 20 dB above the average limit.
- The antenna is manipulated through typical positions, polarity and length during the tests.
- The EUT is supplied with nominal AC voltage or/and a new/fully recharged battery.
- The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported.
- < - 120 are below the analyzer floor level.

PCTEST™ PT. 15.247 REPORT	 EVALUATION REPORT			Reviewed By: Quality Manager
Test Report S/N: 15.220404151.H9P	Test Dates: APRIL 9-1, 2002	EUT Type: SCANNER	FCC ID: H9PLA4121	Page 16 of 19

RADIATED Measurements (Spurious)

Transmitter Portion

Operating Frequency: 2412.0 – 2462.0 MHz
 Distance of Measurements: 3 meters
 Channels: 1, 6, 11

FREQ. (MHz)	Level* (dB μ V/m)	AFCL** (dB)	POL (H/V)	Height (m)	Azimuth ($^{\circ}$ angle)	F/S (dB μ V/m)	Margin*** (dB)
56.2	- 78.2	4.2	V	3.6	120	44.7	- 7.0
67.0	- 80.9	5.9	V	3.2	120	39.9	- 8.0
109.9	- 83.6	10.6	H	1.4	10	50.2	- 9.5
356.7	- 92.7	22.5	V	2.4	30	69.2	- 9.2
440.1	- 93.9	24.7	V	2.3	180	77.7	- 8.2
767.0	- 98.3	30.9	V	1.2	200	95.5	- 6.4

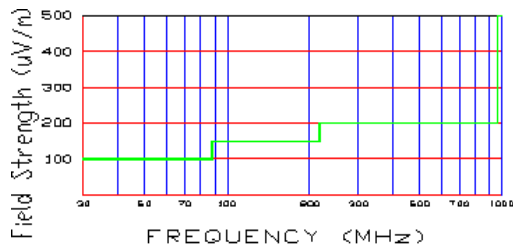


Figure 13. Restricted band harmonics and spurious limits.

Above 1 GHz limit is 500 uV/m (54dBu/m)

NOTES:

1. All emissions were investigated and the worst case emissions are reported
2. For hand-held devices, the EUT is rotated through three orthogonal axis to determine which configuration produces the maximum emissions
3. The EUT is supplied with the minimal AC voltage or/and a new/fully recharged battery.
4. The EUT was tested up to the 10th harmonic (9.3 GHz) and no significant emission was found.