FCC PART 15.247

EMI MEASUREMENT AND TEST REPORT

For

Lionda Technology Company Limited

Block 2 Laodong 2nd Industrial Area, Xixian, Baoan,
Shenzhen, Guangdong, China 518102

FCC ID: O63PM3320DLD04

2004-03-29

This Report Concerns:	**Equipment Type:**
☒ Original Report	2.4GHz 77-Channel Digital Spread-Spectrum Cordless Telephone, DTS, Transceiver

Test Engineer:	Ming Jing /
Report No.:	R0403053
Test Date:	2004-03-22
Reviewed By:	Ling Zhang /
Prepared By:	Bay Area Compliance Laboratory Corporation (BACL) 230 Commercial Street Sunnyvale, CA 94085 Tel: (408) 732-9162 Fax: (408) 732 9164

Note: This test report is specially limited to the above client company and product model only. It may not be duplicated without prior written consent of Bay Area Compliance Laboratory Corporation. This report **must not** be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The *Lionda Technology Company Limited's*, model: *PM3320 / PM3305,* or the "EUT" as referred to in this report is a 2.4GHz 77-Channel Digital Spread-Spectrum Cordless Telephone with Caller ID and Call Waiting on Handset, Transceiver. The EUT was composed of two parts, one is the base which measures approximately 5.8" L x 4.1"W x 2.0" H, and the other is the handset which measures 2.25"L x 1.25" W x 5.5" H. The EUT is a DTS device, which operates at the frequency range of 2402.304 – 2480.128 MHz, with the maximum conducted output power of 10.67dBm (11.67mW) for base unit and 10.17dBm (10.40mW) for handset unit.

The base unit of EUT utilized the Lionda power adapter, M/N: U090050D.

** The test data gathered are from a production sample, S/N: 332001, provided by the manufacturer.*

Objective

This type approval report is prepared on behalf of *Lionda Technology Company Limited* in accordance with Part 2, Subpart J, Part 15, Subparts A , B and C of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC rules for Output Power, Antenna Requirements, 6 dB Bandwidth, power spectral density, 100 kHz Bandwidth of Band Edges Measurement, Out of Band Emission, Spurious Emission, Conducted and Spurious Radiated Emission.

Related Submittal(s)/Grant(s)

No Related Submittals.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2001, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory, Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Open Area Test site used by BACL to collect radiated and conducted emission measurement data is located in the back parking lot of the building at 230 Commercial Street, Sunnyvale, California, USA.

Test site at BACL has been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports has been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997 and Article 8 of the VCCI regulations on December 25, 1997. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2001.

The Federal Communications Commission and Voluntary Control Council for Interference has the reports on file and is listed under FCC file 31040/SIT 1300F2 and VCCI Registration No.: C-1298 and R-1234. The test site has been approved by the FCC and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, BACL is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200167-0). The scope of the accreditation covers the FCC Method – 47 CFR Part – Digital Devices, CISPER 22: 1997: Electromagnetic Interference – Limits and Methods of Measurement of Information Technology Equipment test methods.

SYSTEM TEST CONFIGURATION

Justification

The EUT was configured for testing according to ANSI C63.4-2001.

The EUT was tested in the normal (native) operating mode to represent *worst*-case results during the final qualification test.

EUT Exercise Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the system components.

Once loaded, set the Tx channel to low, mid and high for testing.

Special Accessories

As shown in following test block diagram, all interface cables used for compliance testing are shielded.

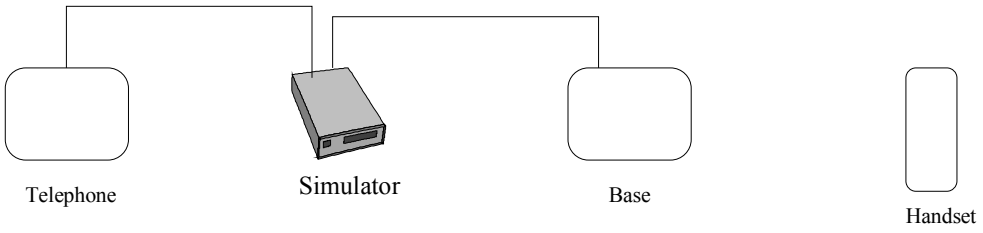
Schematics / Block Diagram

Please refer to Appendix A.

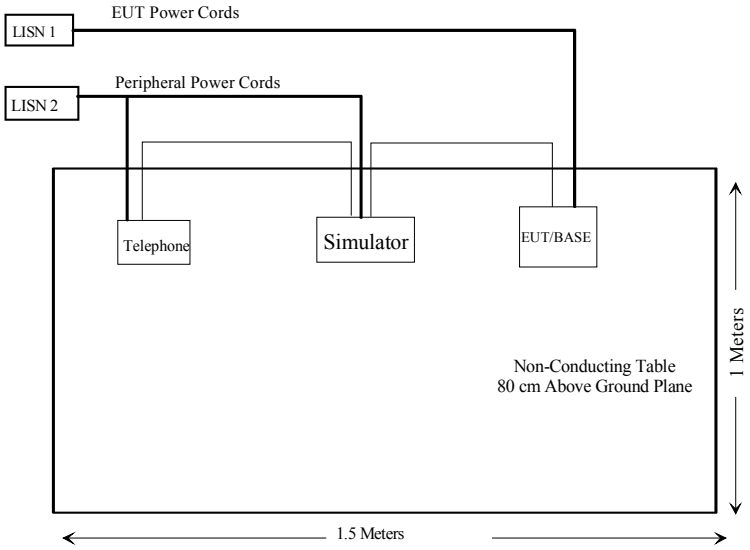
Equipment Modifications

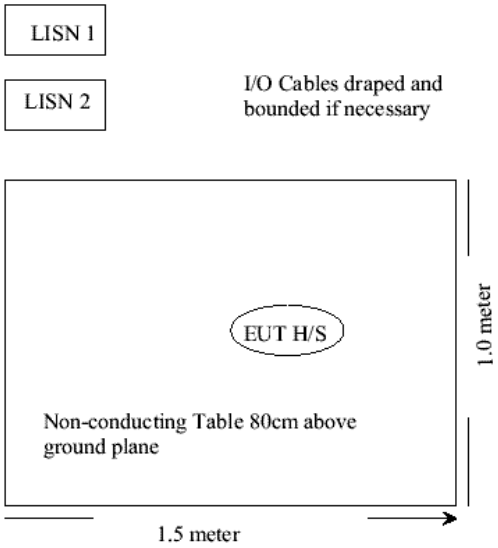
No modifications were made to the EUT.

Configuration of Test System



Test Setup Block Diagram





Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
TELTONE CORP.	SIMULATOR	TLS-3B-01	80071	DOC
PANASONIC	Telephone	KX-T3175	6IBTB142741	ACJMLA-75986-MT-E

External I/O Cabling List and Details

Cable Description	Length (M)	Port/From	To
None-Shielded Telephone Cable	2.0	RJ45 Port/EUT	Telephone Simulator RJ45 Port
None-Shielded Telephone Cable	2.0	RJ45 Port/Simulator	Telephone RJ45 Port/Panasonic

SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§2.1091	RF Exposure	Pass
§15.203	Antenna Requirement	Pass
§ 15.207 (a)	Conducted Emissions	Pass
§15.209 (a)	Spurious Emission	Pass
§15.247 (a)(2)	6 dB Bandwidth	Pass
§15.247 (b)(3)	Maximum Peak Output Power	Pass
§ 15.247 (c)	100 kHz Bandwidth of Frequency Band Edge	Pass
§15.247 (d)	Peak Power Spectral Density	Pass
§15.205	Restricted Band	Pass

§15.203 - ANTENNA REQUIREMENT

Standard Applicable

For intentional device, according to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to § 15.247 (1), 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.

Antenna Connected Construction

The directional gain of antenna used for transmitting is 0 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Please see EUT photo for details.

§15.207(a) - CONDUCTED EMISSIONS

Measurement Uncertainty

All measurements involve certain levels of uncertainties. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at BACL is ±2.4 dB.

EUT Setup

The measurement was performed in the shield room, using the same setup per ANSI C63.4-2001 measurement procedure. The specification used was FCC 15 Subpart B limits.

The spacing between the peripherals was 10 centimeters.

External I/O cables were draped along the edge of the test table and bundle when necessary.

Spectrum Analyzer Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30Mhz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date
Rohde & Schwarz	Artificial LISN	ESH2-Z5	871884/039	2003-03-28
Rohde & Schwarz	EMI Test Receiver	ESCS30	100176	2003-05-06

*** Statement of Traceability: BACL Corp.** certifies that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

During the conducted emission test, the power cord of the EUT was connected to the auxiliary outlet of the first LISN.

Maximizing procedure was performed on the six (6) highest emissions of each modes tested to ensure EUT is compliant with all installation combination.

All data was recorded in the peak detection mode. Quasi-peak readings were only performed when an emission was found to be marginal (within -4 dBμV of specification limits). Quasi-peak readings are distinguished with a "**Qp**".

Summary of Test Results

According to the recorded data in following table, the EUT complies with the FCC Conducted margin for a Class B device, with the *worst* margin reading of:

-33.1 dB at 1.370 in the Line conductor

Environmental Conditions

Temperature:	25° C
Relative Humidity:	38%
ATM Pressure:	1032 mbar

Conducted Emissions Test Data

LINE CONDUCTED EMISSIONS				FCC PART 15 CLASS B	
Frequency MHz	Amplitude dBμV	Detector Qp/Ave/Peak	Phase Line/Neutral	Limit dBμV	Margin dB
1.370	12.9	AVG	Line	46	-33.1
0.195	14.1	AVG	Line	53	-38.9
0.195	22.0	QP	Line	63	-41.0
1.370	14.3	QP	Line	56	-41.7
1.310	3.9	AVG	Neutral	46	-42.1
0.150	23.4	QP	Neutral	66	-42.6
12.800	6.9	AVG	Line	50	-43.1
7.900	4.9	AVG	Neutral	50	-45.1
12.800	12.3	QP	Line	60	-47.7
0.150	5.6	AVG	Neutral	56	-50.4
1.310	4.2	QP	Neutral	56	-51.8
7.900	5.2	QP	Neutral	60	-54.8

Plot of Conducted Emissions Test Data

Plot(s) of Conducted Emissions Test Data is presented hereinafter as reference.

Bay Area Compliance Laboratory Corp 19. Mar 04 18:17

Class B

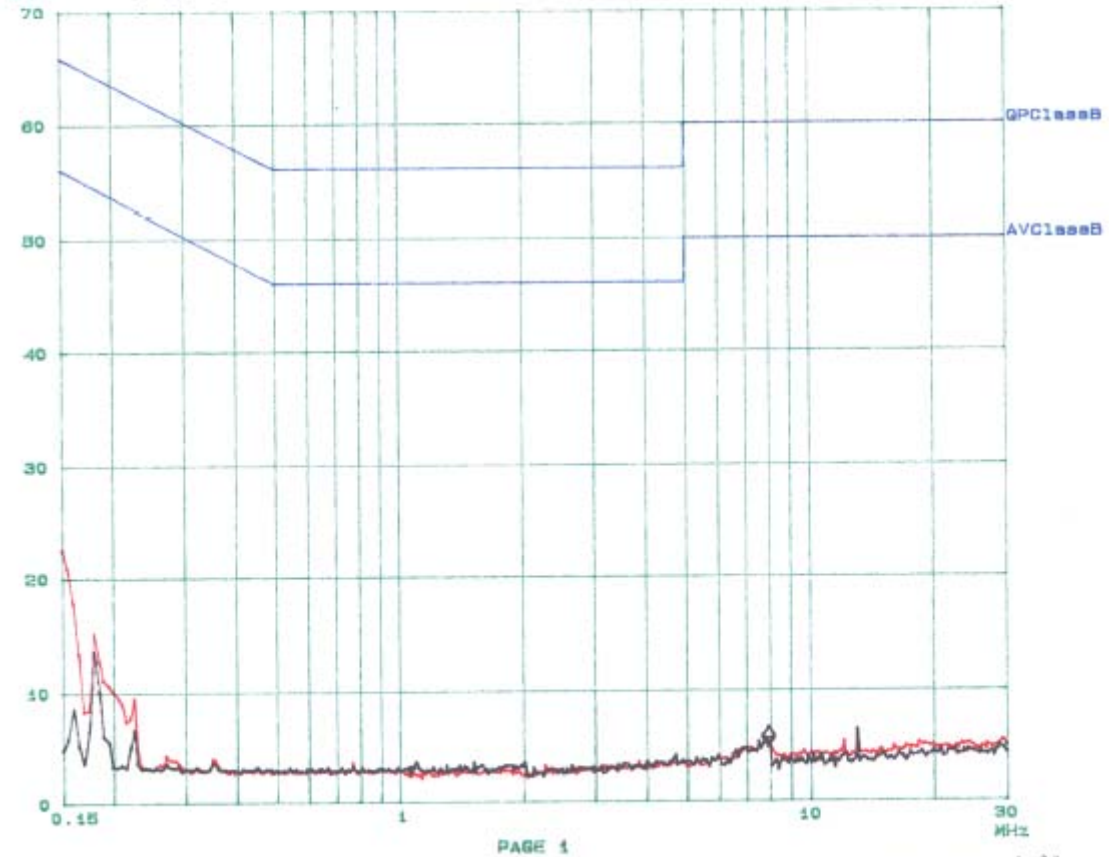
EUT: PMP3320
Manuf: Lionda
Op Cond: Normal
Operator: Ming
Comment: N

Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	1M	5k	9k	QP+AV	20ms	15dBLN	OFF
1M	5M	10k	9k	QP+AV	1ms	15dBLN	OFF
5M	30M	100k	9k	QP+AV	1ms	15dBLN	OFF

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 6dB

◊ Mkr : 7.90000MHz 5.2 dBuV
▽ Mkr : 7.90000MHz 4.9 dBuV



PAGE 1

Bay Area Compliance Laboratory Corp 19. Mar 04 16:23

Class B

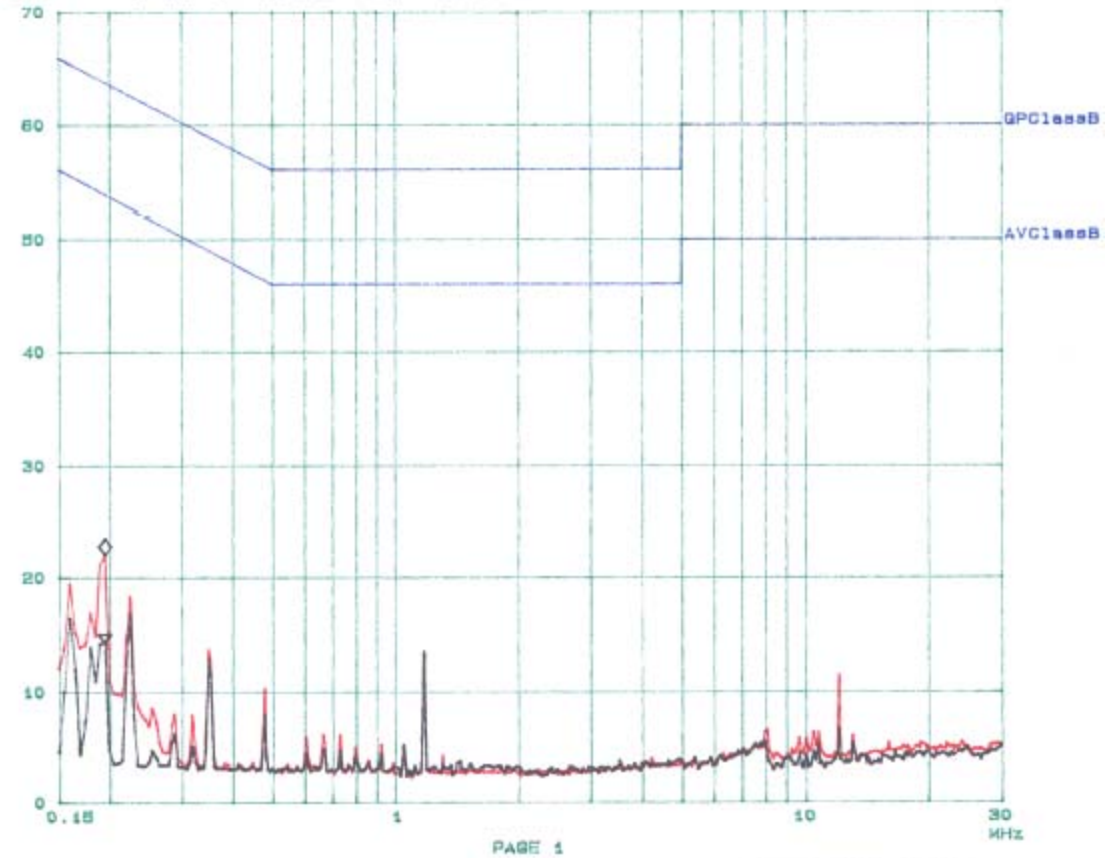
EUT: PMP3320
Manuf: Lionda
Op Cond: Normal
Operator: Ming
Comment: L

Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	1M	5k	9k	QP+AV	20ms	15dBLN	OFF
1M	5M	10k	9k	QP+AV	1ms	15dBLN	OFF
5M	30M	100k	9k	QP+AV	1ms	15dBLN	OFF

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 6dB

◇ Mkr : 195.00 kHz 22.0 dBuV
▽ Mkr : 195.00 kHz 14.1 dBuV



PAGE 1

§15.209(a) - SPURIOUS EMISSION

Standard Applicable

According to §15.209 (a), except as provided elsewhere in the subpart of 15.209, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100 **	3
88-216	150 **	3
216-960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241

Measurement Procedure

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Position the EUT on a bench without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set the SA on Max-Hold Mode, and then keep the EUT in transmitting mode. Record all the signals from each channel until each one has been recorded.
4. Set the SA on View mode and then plot the result on SA screen.
5. Repeat above procedures until all frequencies measured were complete.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Cal. Date
HP	Analyzer, Spectrum	8565EC	3946A00131	2003-06-30

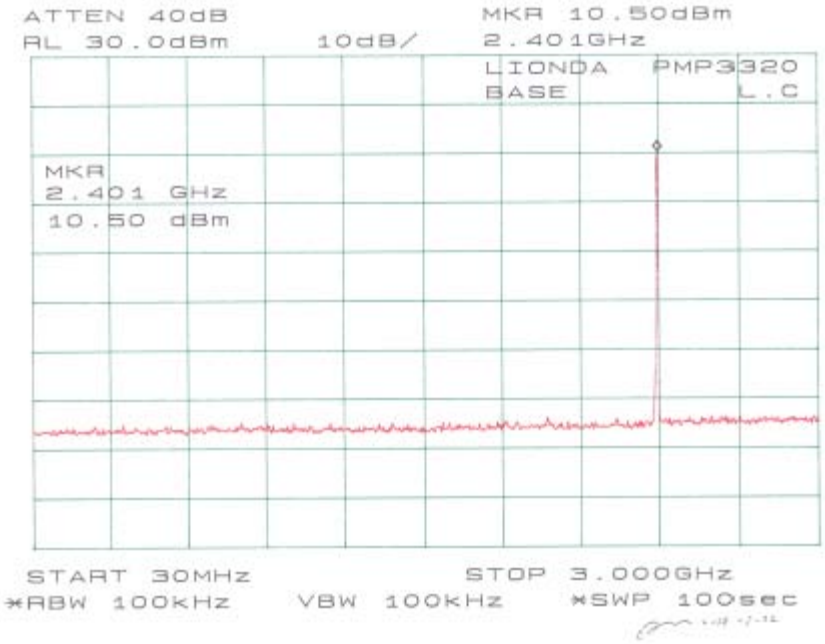
*** Statement of Traceability: BACL Corp.** certifies that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

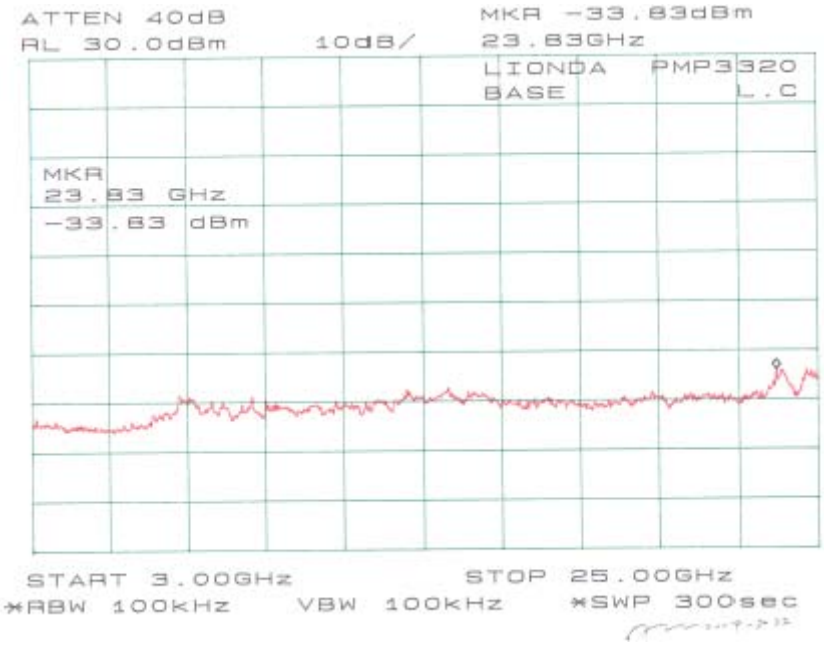
Measurement Result

Please refer to following pages for plots of spurious emission.

Environmental Conditions

Temperature:	25° C
Relative Humidity:	38%
ATM Pressure:	1032 mbar


ATTEN 40dB
RL 30.0dBm
10dB/
MKR 10.50dBm
2.401GHz
LIONDA PMP3320
BASE L.C
MKR
2.401 GHz
10.50 dBm
START 30MHz
STOP 3.000GHz
*RBW 100kHz
VBW 100kHz
*SWP 100sec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10dB/
MKR -33.83dBm
23.83GHz
LIONDA PMP3320
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MKR
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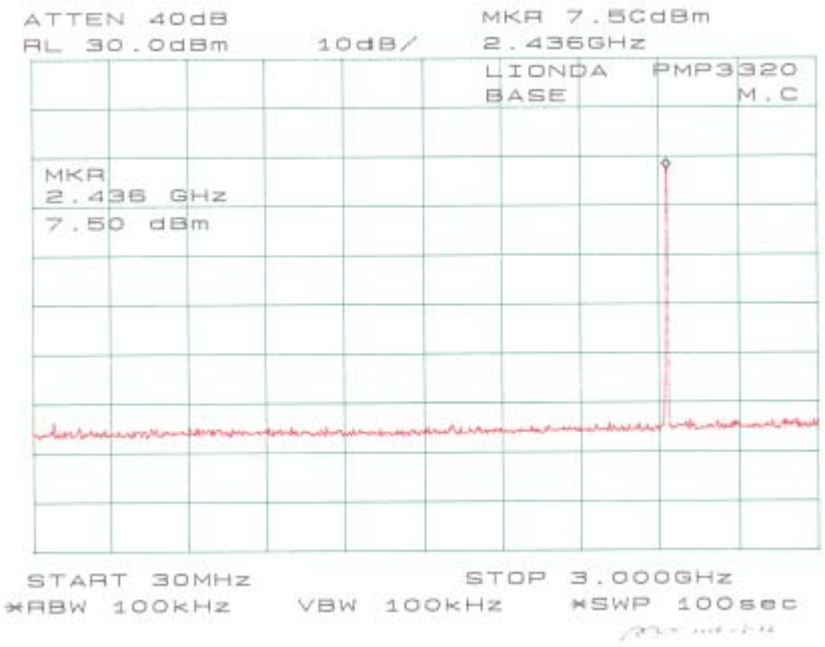
-33.83 dBm
START 3.00GHz
STOP 25.00GHz
*RBW 100kHz
VBW 100kHz
*SWP 300sec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10dB/
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LIONDA PMP3320
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MKR
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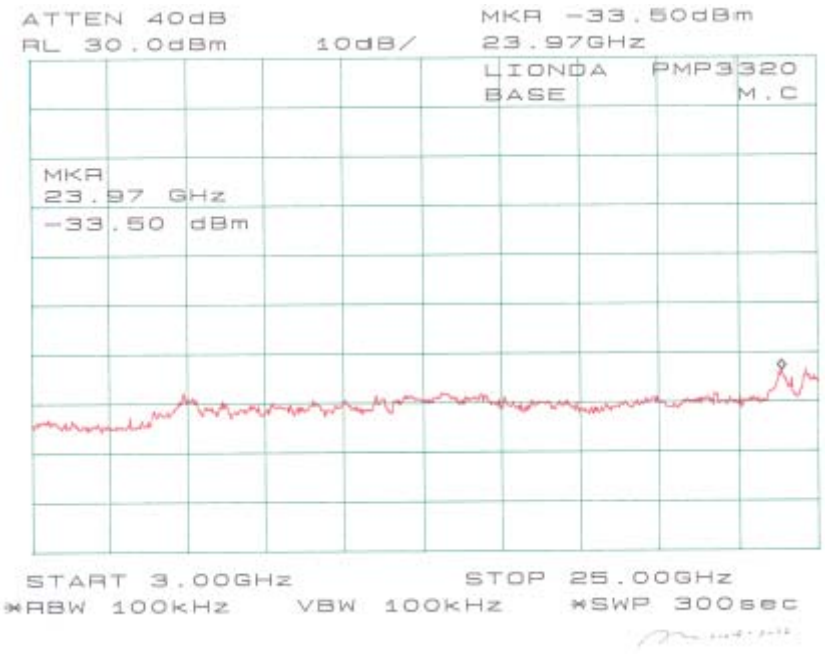
7.50 dBm
START 30MHz
STOP 3.000GHz
*RBW 100kHz
VBW 100kHz
*SWP 100sec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10dB/
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23.97GHz
LIONDA PMP3320
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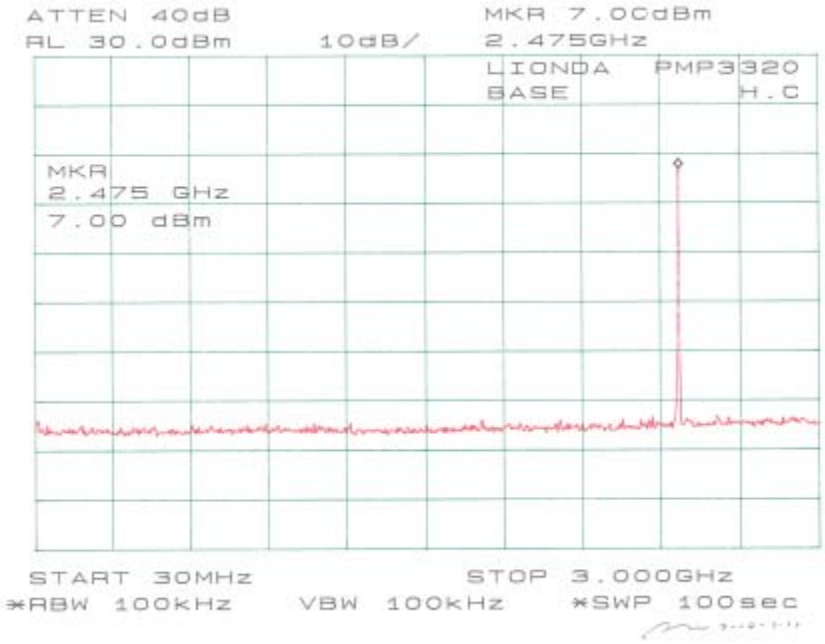
MKR
23.97 GHz
-33.50 dBm
START 3.00GHz
STOP 25.00GHz
*RBW 100kHz
VBW 100kHz
*SWP 300sec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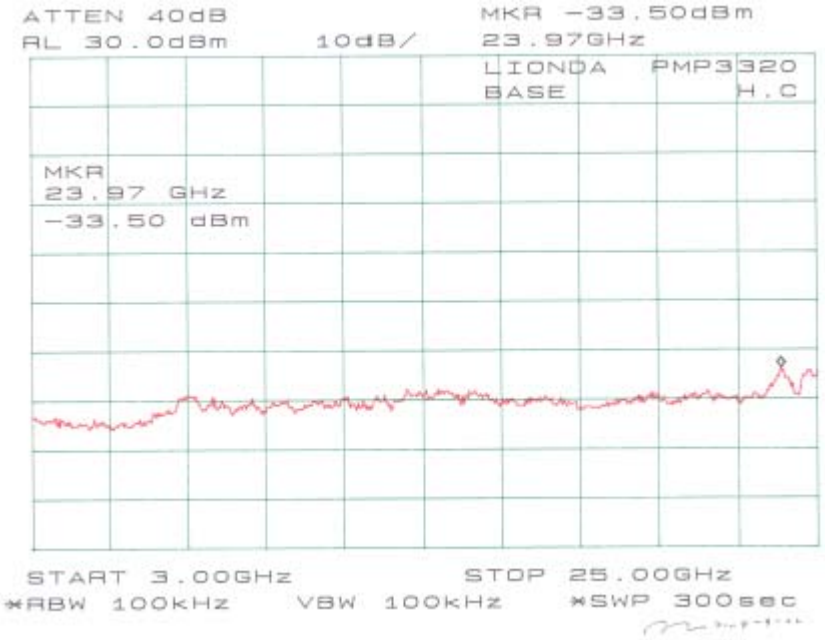
10dB/
MKR 7.00dBm
2.475GHz
LIONDA PMP3320
BASE H.C
MKR
2.475 GHz
7.00 dBm
START 30MHz
STOP 3.000GHz
*RBW 100kHz
VBW 100kHz
*SWP 100sec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10dB/
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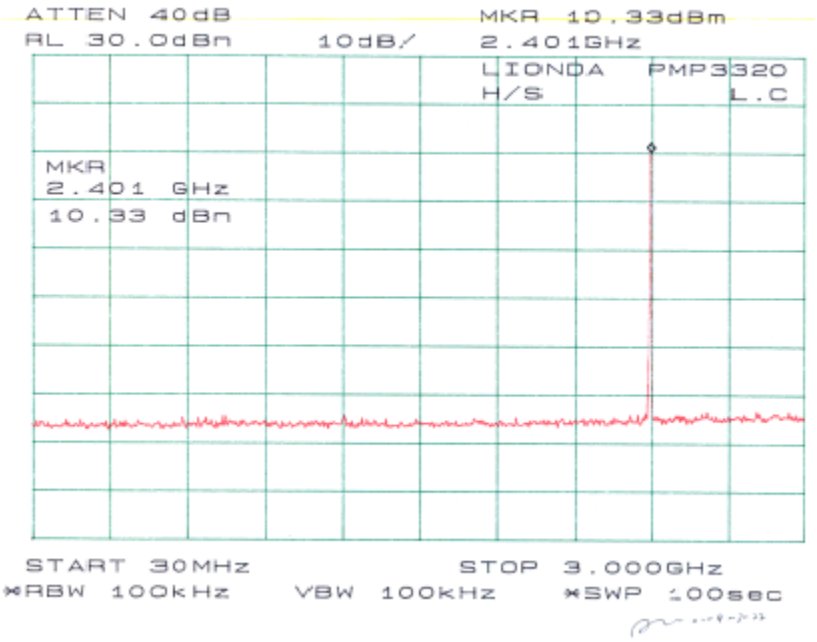
23.97GHz
LIONDA PMP3320
BASE H.C
MKR
23.97 GHz
-33.50 dBm
START 3.00GHz
STOP 25.00GHz
*RBW 100kHz
VBW 100kHz
*SWP 300sec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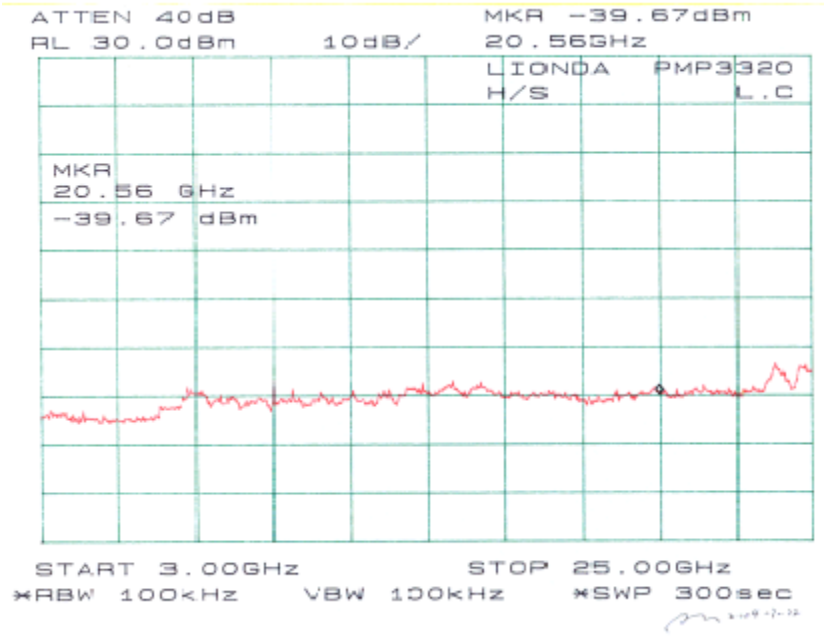
10dB/
MKR 10.33dBm
2.401GHz
LIONDA PMP3320
H/S L.C
MKR
2.401 GHz
10.33 dBm
START 30MHz
STOP 3.000GHz
*RBW 100kHz
VBW 100kHz
*SWP 100sec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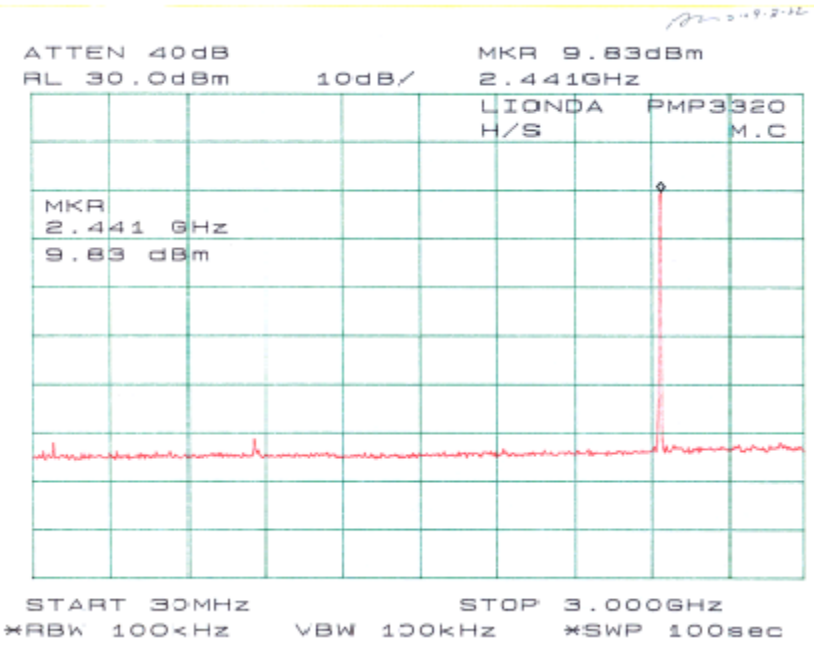
10dB/
MKR -39.67dBm
20.56GHz
LIONDA PMP3320
H/S L.C
MKR
20.56 GHz
-39.67 dBm
START 3.00GHz
STOP 25.00GHz
*RBW 100kHz
VBW 100kHz
*SWP 300sec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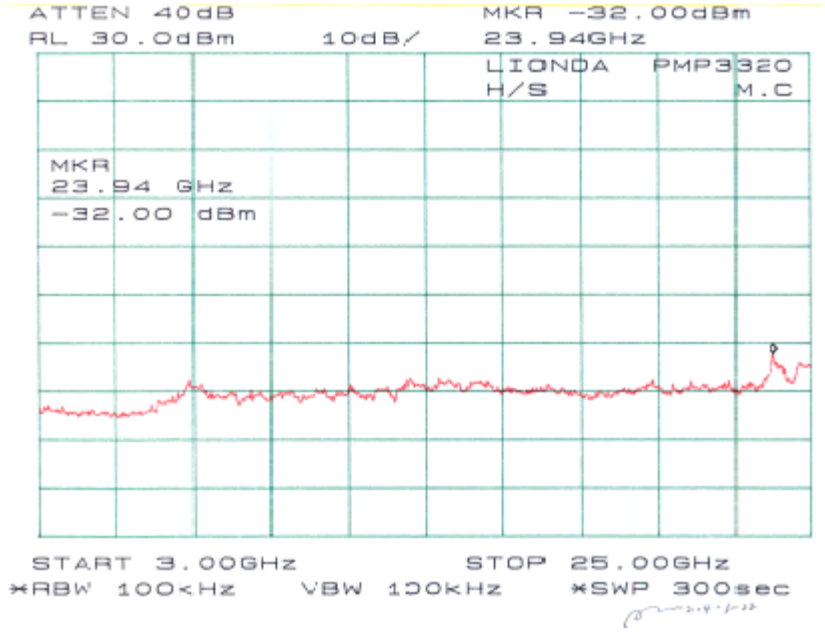
MKR 9.83dBm
2.441GHz
LIONDA PMP3320
H/S M.C
MKR
2.441 GHz
9.83 dBm
START 30MHz
STOP 3.000GHz
*RBW 100kHz
VBW 100kHz
*SWP 100sec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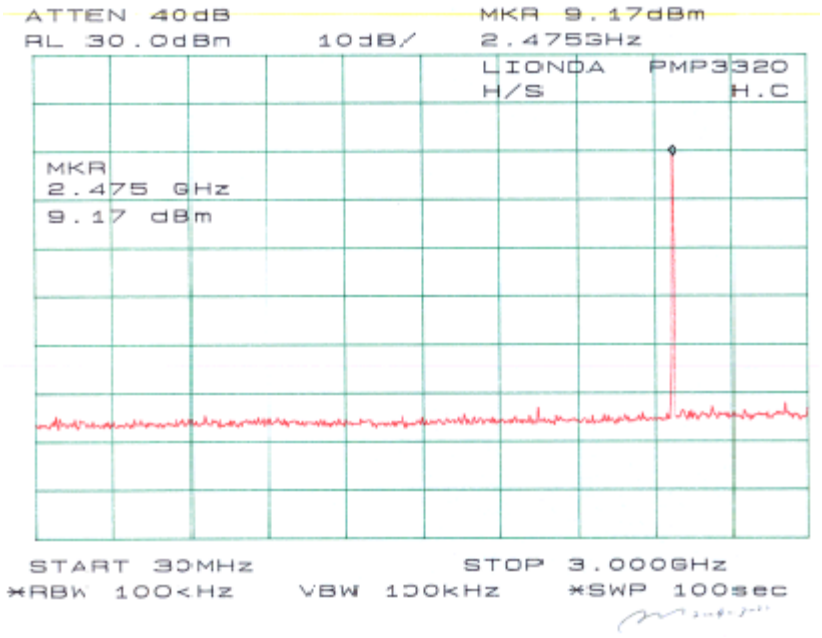
10dB/
MKR -32.00dBm
23.94GHz
LIONDA PMP3320
H/S M.C
MKR
23.94 GHz
-32.00 dBm
START 3.00GHz
STOP 25.00GHz
*RBW 100kHz
VBW 100kHz
*SWP 300sec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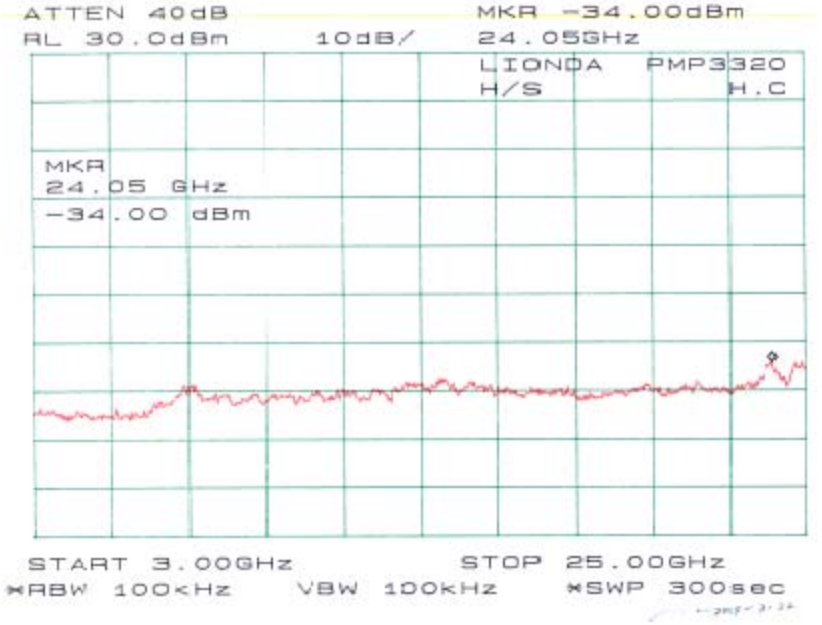
10dB/
MKR 9.17dBm
2.475GHz
LIONDA PMP3320
H/S H.C
MKR
2.475 GHz
9.17 dBm
START 30MHz
STOP 3.000GHz
*RBW 100kHz
VBW 100kHz
*SWP 100sec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10dB/
MKR -34.00dBm
24.05GHz
LIONDA PMP3320
H/S H.C
MKR
24.05 GHz
-34.00 dBm
START 3.00GHz
STOP 25.00GHz
*RBW 100kHz
VBW 100kHz
*SWP 300sec

§15.209(f) - SPURIOUS RADIATED EMISSION

Measurement Uncertainty

All measurements involve certain levels of uncertainties. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at BACL is ±4.0 dB.

According to §15.205, except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
[1]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
6.215 – 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 – 12.57725	240 – 285	3345.8 – 3358	36.43 – 36.5
13.36 – 13.41	322 – 335.4	3600 – 4400	([2])

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510MHz
[2] Above 38.6

Except as provided in paragraph (d) and (e), the filed strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

According to §15.209, the device shall meet radiated emission general requirements.

Except for Class A device, the filed strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (Microvolts/meter)	(dBμV/meter)
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

EUT Setup

The radiated emission tests were performed in the open area 3-meter test site, using the setup accordance with the ANSI C63.4-2001. The specification used was the FCC 15.209 limits.

The spacing between the peripherals was 10 centimeters.

External I/O cables were draped along the edge of the test table and bundle when necessary.

Spectrum Analyzer Setup

According to FCC Rules, 47 CFR, Section 15.33, the frequency was investigated from 30 to 2500 MHz.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

Frequency Range	*RBW*	*Video B/W*
Below 30MHz	10kHz	10kHz
30 – 1000MHz	100kHz	100kHz
Above 1000MHz	1MHz	1MHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date
HP	Amplifier, Microwave	8449B	3147A00400	2003-03-14
HP	Amplifier, Pre	8447E	1937A01057	2003-08-04
HP	Amplifier, Pre	8447E	1937A01046	2003-08-02
HP	Analyzer, Spectrum	8565EC	3946A00131	2003-06-30
ETS	Antenna, Biconical	3110B	9603-2315	2003-10-11
A.R.A.	Antenna, Horn, DRG	DRG-118/A	1132	2003-09-30
A. H. Systems	Antenna, Horn, DRG	SAS-200/571	2455-261	2003-08-01
ETS	Antenna, logperiodic	3148	0004-1155	2003-10-11
EMCO	Antenna, Loop, H-Field Gain/AF	6512	00029604	2004-02-12

*** Statement of Traceability: BACL Corp.** certifies that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

For the radiated emissions test, the EUT, and all support equipment power cords was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the peak detection mode. Quasi-peak readings performed only when an emission was found to be marginal (within -4 dBμV of specification limits), and are distinguished with a "**Qp**" in the data table.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. - FCC 15.209 Limit

Summary of Test Results

According to the data in section 12.7, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.207 and 15.247, and had the worst margin of:

Environmental Conditions

Temperature:	25° C
Relative Humidity:	38%
ATM Pressure:	1032 mbar

Base Unit:

-3.6 dB at **9609.216 MHz** in the **Vertical** polarization, Low Channel

-6.1 dB at **7323.648 MHz** in the **Vertical** polarization, Middle Channel

-4.3 dB at **2483.500 MHz** in the **Vertical** polarization, High Channel

-11.0 dB at **872.62 MHz** in the **Vertical** polarization, Unwanted Emission

Handset Unit:

-12.5 dB at **7206.91 MHz** in the **Vertical** polarization, Low Channel

-13.1 dB at **7323.648 MHz** in the **Vertical** polarization, Middle Channel

-10.4 dB at **2483.500 MHz** in the **Vertical** polarization, High Channel

-9.7 dB at **807.94 MHz** in the **Horizontal** polarization, Unwanted Emission

Radiated Emission Test Result for Base Unit

Indicated			Table	Antenna		Correction Factor			Corrected Amplitude	FCC 15 Subpart C	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable DB	Amp. DB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
Low Channel, 1-25GHz											
2402.304	108.5	Fund/Peak	30	1.5	v	28.1	3.4	35.2	104.8		
2402.304	107.2	Fund/Peak	180	1.7	h	28.1	3.4	35.2	103.5		
2402.304	75.3	Fund/Ave	30	1.5	v	28.1	3.4	35.2	71.6		
2402.304	74.1	Fund/Ave	180	1.7	h	28.1	3.4	35.2	70.4		
9609.216	40.6	Ave	90	1.5	v	38.4	7.0	35.6	50.4	54	-3.6
7206.912	43.1	Ave	90	1.2	v	36.3	6.0	35.5	49.9	54	-4.1
7206.912	40.7	Ave	120	1.8	h	36.3	6.0	35.5	47.5	54	-6.5
9609.216	37.2	Ave	180	1.8	h	38.4	7.0	35.6	47.0	54	-7.0
7206.912	59.9	Peak	90	1.2	v	36.3	6.0	35.5	66.7	74	-7.3
7206.912	57.8	Peak	120	1.8	h	36.3	6.0	35.5	64.6	74	-9.4
9609.216	52.1	Peak	90	1.5	v	38.4	7.0	35.6	61.9	74	-12.1
9609.216	50.7	Peak	180	1.8	h	38.4	7.0	35.6	60.5	74	-13.5
4804.608	36.8	Ave	210	1.8	v	32.5	4.9	35.8	38.4	54	-15.6
4804.608	33.7	Ave	60	1.6	h	32.5	4.9	35.8	35.3	54	-18.7
4804.608	51.9	Peak	210	1.8	v	32.5	4.9	35.8	53.5	74	-20.5
4804.608	49.2	Peak	60	1.6	h	32.5	4.9	35.8	50.8	74	-23.2
Middle Channel, 1-25GHz											
2441.216	104.7	Fund/Peak	90	1.6	v	28.1	3.4	35.2	101.0		
2441.216	103.6	Fund/Peak	0	1.5	h	28.1	3.4	35.2	99.9		
2441.216	71.8	Fund/Ave	90	1.6	v	28.1	3.4	35.2	68.1		
2441.216	70.5	Fund/Ave	0	1.5	h	28.1	3.4	35.2	66.8		
7323.648	41.1	Ave	270	1.5	v	36.3	6.0	35.5	47.9	54	-6.1
9764.864	37.7	Ave	310	1.8	v	38.4	7.0	35.6	47.5	54	-6.5
7323.648	59.4	Peak	270	1.5	v	36.3	6.0	35.5	66.2	74	-7.8
7323.648	39.2	Ave	330	1.6	h	36.3	6.0	35.5	46.0	54	-8.0
9764.864	35.2	Ave	330	1.6	h	38.4	7.0	35.6	45.0	54	-9.0
7323.648	56.6	Peak	330	1.6	h	36.3	6.0	35.5	63.4	74	-10.6
9764.864	51.2	Peak	310	1.8	v	38.4	7.0	35.6	61.0	74	-13.0
9764.864	49.1	Peak	330	1.6	h	38.4	7.0	35.6	58.9	74	-15.1
4882.432	35.8	Ave	180	1.5	v	32.5	4.9	35.8	37.4	54	-16.6
4882.432	32.7	Ave	110	1.8	h	32.5	4.9	35.8	34.3	54	-19.7
4882.432	50.6	Peak	180	1.5	v	32.5	4.9	35.8	52.2	74	-21.8
4882.432	47.8	Peak	110	1.8	h	32.5	4.9	35.8	49.4	74	-24.6

High Channel, 1-25GHz											
2480.128	107.8	Fund/Peak	270	1.5	v	28.1	3.4	35.2	104.1		
2480.128	106.4	Fund/Peak	60	1.2	h	28.1	3.4	35.2	102.7		
2480.128	74.5	Fund/Ave	270	1.5	v	28.1	3.4	35.2	70.8		
2480.128	73.2	Fund/Ave	60	1.2	h	28.1	3.4	35.2	69.5		
2483.500	53.6	Ave	90	1.5	v	28.1	3.4	35.3	49.8	54	-4.3
7440.384	42.6	Ave	230	1.4	v	36.3	6.0	35.5	49.4	54	-4.6
9920.512	38.8	Ave	0	1.5	v	38.4	7.0	35.6	48.6	54	-5.4
2483.500	51.5	Ave	60	1.8	h	28.1	3.4	35.3	47.7	54	-6.4
7440.384	40.5	Ave	270	1.8	h	36.3	6.0	35.5	47.3	54	-6.7
7440.384	59.8	Peak	230	1.4	v	36.3	6.0	35.5	66.6	74	-7.4
9920.512	36.4	Ave	120	1.8	h	38.4	7.0	35.6	46.2	54	-7.8
2483.500	69.8	Peak	90	1.5	v	28.1	3.4	35.3	66.0	74	-8.1
7440.384	57.7	Peak	270	1.8	h	36.3	6.0	35.5	64.5	74	-9.5
2483.500	67.4	Peak	60	1.8	h	28.1	3.4	35.3	63.6	74	-10.5
9920.512	51.9	Peak	0	1.5	v	38.4	7.0	35.6	61.7	74	-12.3
9920.512	50.2	Peak	120	1.8	h	38.4	7.0	35.6	60.0	74	-14.0
4960.256	36.7	Ave	120	1.2	v	32.5	4.9	35.8	38.3	54	-15.7
4960.256	33.5	Ave	180	1.4	h	32.5	4.9	35.8	35.1	54	-18.9
4960.256	51.4	Peak	120	1.2	v	32.5	4.9	35.8	53.0	74	-21.0
4960.256	48.9	Peak	180	1.4	h	32.5	4.9	35.8	50.5	74	-23.5

Indicated			Table	Antenna		Correction Factor			FCC 15 Subpart B	
Frequency MHz	Ampl. dBμV/m	Direction Degree	Height Meter	Polar H/V	Antenna dBμV/m	Cable Loss dBμV/m	Amp. dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
872.62	35.5	230	1.2	v	22.4	3.8	26.7	35.0	46	-11.0
320.47	42.3	90	1.5	h	15.5	2.3	26.1	34.0	46	-12.0
283.05	44.1	45	1.8	h	13.4	2.3	26.0	33.8	46	-12.2
335.71	40.9	180	1.5	v	15.8	2.3	26.2	32.8	46	-13.2
44.73	38.7	90	1.5	v	11.9	1.2	25.7	26.1	40	-13.9
153.60	39.8	210	1.6	h	12.7	1.7	25.7	28.5	43.5	-15.0

FUND = Fundamental
AVG = average

Radiated Emission Test Result for Handset Unit

Indicated			Table	Antenna		Correction Factor			Corrected Amplitude	FCC 15 Subpart C	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable DB	Amp. DB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
Low Channel, 1-25GHz											
2402.30	108.1	Fund/Peak	110	1.5	v	28.1	3.4	35.2	104.4		
2402.30	107.2	Fund/Peak	30	1.8	h	28.1	3.4	35.2	103.5		
2402.30	72.5	Fund/Ave	110	1.5	v	28.1	3.4	35.2	68.8		
2402.30	71.3	Fund/Ave	30	1.8	h	28.1	3.4	35.2	67.6		
7206.91	34.7	Ave	310	1.5	v	36.3	6.0	35.5	41.5	54	-12.5
7206.91	33.6	Ave	180	1.2	h	36.3	6.0	35.5	40.4	54	-13.6
4804.61	33.9	Ave	270	1.2	v	32.5	4.9	35.8	35.5	54	-18.5
4804.61	32.4	Ave	60	1.6	h	32.5	4.9	35.8	34.0	54	-20.0
7206.91	45.9	Peak	310	1.5	v	36.3	6.0	35.5	52.7	74	-21.3
7206.91	44.3	Peak	180	1.2	h	36.3	6.0	35.5	51.1	74	-22.9
4804.61	46.8	Peak	270	1.2	v	32.5	4.9	35.8	48.4	74	-25.6
4804.61	45.7	Peak	60	1.6	h	32.5	4.9	35.8	47.3	74	-26.7
Middle Channel, 1-25GHz											
2441.216	107.8	Fund/Peak	90	1.6	v	28.1	3.4	35.2	104.1		
2441.216	106.9	Fund/Peak	0	1.5	h	28.1	3.4	35.2	103.2		
2441.216	71.3	Fund/Ave	90	1.6	v	28.1	3.4	35.2	67.6		
2441.216	70.4	Fund/Ave	0	1.5	h	28.1	3.4	35.2	66.7		
7323.648	34.1	Ave	110	1.5	v	36.3	6.0	35.5	40.9	54	-13.1
7323.648	33.2	Ave	30	1.2	h	36.3	6.0	35.5	40.0	54	-14.0
4882.432	33.7	Ave	180	1.8	v	32.5	4.9	35.8	35.3	54	-18.7
4882.432	32.6	Ave	270	1.5	h	32.5	4.9	35.8	34.2	54	-19.8
7323.648	45.7	Peak	110	1.5	v	36.3	6.0	35.5	52.5	74	-21.5
7323.648	44.3	Peak	30	1.2	h	36.3	6.0	35.5	51.1	74	-22.9
4882.432	45.9	Peak	180	1.8	v	32.5	4.9	35.8	47.5	74	-26.5
4882.432	44.8	Peak	270	1.5	h	32.5	4.9	35.8	46.4	74	-27.6

High Channel, 1-25GHz											
2480.13	104.7	Fund/Peak	180	1.6	v	28.1	3.4	35.2	101.0		
2480.13	103.5	Fund/Peak	0	1.5	h	28.1	3.4	35.2	99.8		
2480.13	68.9	Fund/Ave	180	1.6	v	28.1	3.4	35.2	65.2		
2480.13	67.4	Fund/Ave	0	1.5	h	28.1	3.4	35.2	63.7		
2483.500	47.4	Ave	110	1.5	v	28.1	3.4	35.2	43.7	54	-10.4
2483.500	46.1	Ave	320	1.3	h	28.1	3.4	35.2	42.4	54	-11.7
2483.500	65.3	Peak	110	1.5	v	28.1	3.4	35.2	61.6	74	-12.5
2483.500	64.7	Peak	320	1.3	h	28.1	3.4	35.2	61.0	74	-13.1
7440.38	33.9	Ave	45	1.5	v	36.3	6.0	35.5	40.7	54	-13.3
7440.38	32.5	Ave	60	1.2	h	36.3	6.0	35.5	39.3	54	-14.7
4960.26	33.1	Ave	90	1.5	v	32.5	4.9	35.8	34.7	54	-19.3
4960.26	32.5	Ave	30	1.8	h	32.5	4.9	35.8	34.1	54	-19.9
7440.38	45.4	Peak	45	1.5	v	36.3	6.0	35.5	52.2	74	-21.8
7440.38	44.1	Peak	60	1.2	h	36.3	6.0	35.5	50.9	74	-23.1
4960.26	45.3	Peak	90	1.5	v	32.5	4.9	35.8	46.9	74	-27.1
4960.26	44.7	Peak	30	1.8	h	32.5	4.9	35.8	46.3	74	-27.7

Indicated			Table	Antenna		Correction Factor			FCC 15 Subpart B	
Frequency MHz	Ampl. dBμV/m	Direction Degree	Height Meter	Polar H/V	Antenna dBμV/m	Cable Loss dBμV/m	Amp. dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
807.94	37.1	110	1.3	h	22.3	3.6	26.7	36.3	46	-9.7
39.70	39.6	120	1.5	h	13.4	1.0	25.7	28.3	40	-11.7
364.65	41.7	90	2.0	v	15.5	2.4	26.3	33.3	46	-12.7
996.12	31.5	60	1.5	v	23.8	4.2	26.7	32.8	46	-13.2
267.65	40.2	15	1.6	h	13.4	2.2	25.9	29.9	46	-16.1
52.30	38.3	290	1.5	v	10.2	1.0	25.7	23.8	40	-16.2

FUND = Fundamental
AVG = average

§15.247(a)(2) – 6 DB BANDWIDTH

Standard Applicable

According to §15.247(a)(2), for digital modulation technicques, the minimum 6dB bandwidth shall be at least 500 kHz.

Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth. (6 dB bandwidth for DTS)
4. Repeat above procedures until all frequencies measured were complete.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Cal. Date
HP	Analyzer, Spectrum	8565EC	3946A00131	2003-06-30

*** Statement of Traceability: BACL Corp.** certifies that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Measurement Result

Environmental Conditions

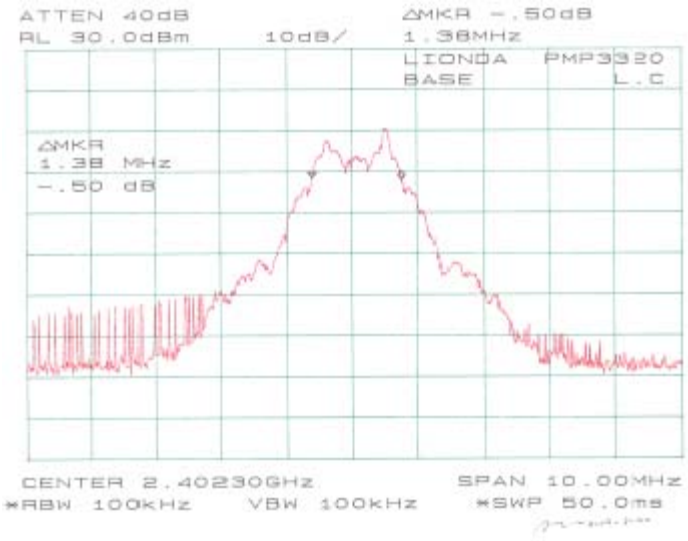
Temperature:	25° C
Relative Humidity:	38%
ATM Pressure:	1032 mbar

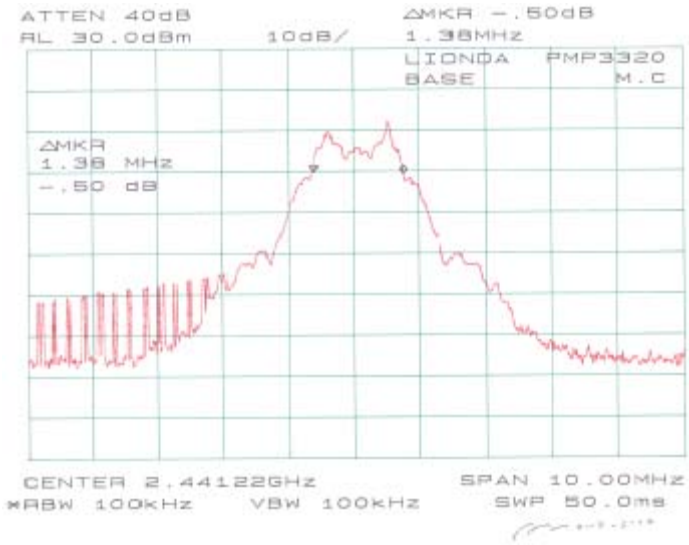
Test Result for Base

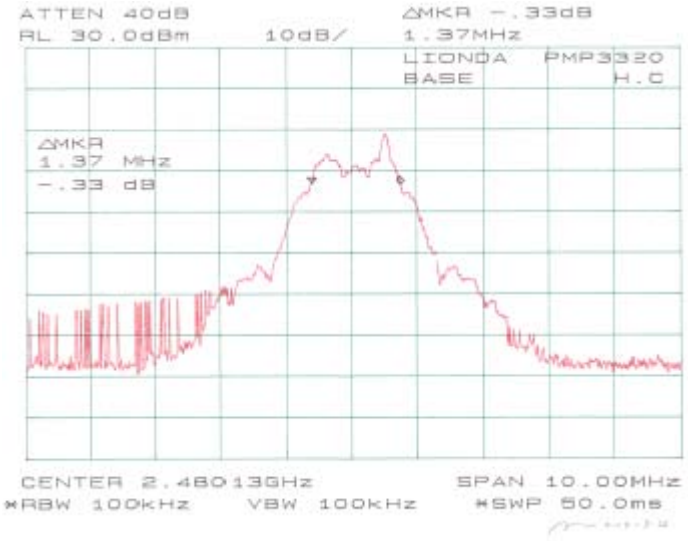
Channel	Frequency (MHz)	Measured (MHz)	Measured (kHz)	Standard (kHz)	Result
Low	2402.30	1.38	1380	≥ 500	Pass
Mid	2441.22	1.38	1380	≥ 500	Pass
High	2480.13	1.37	1370	≥ 500	Pass

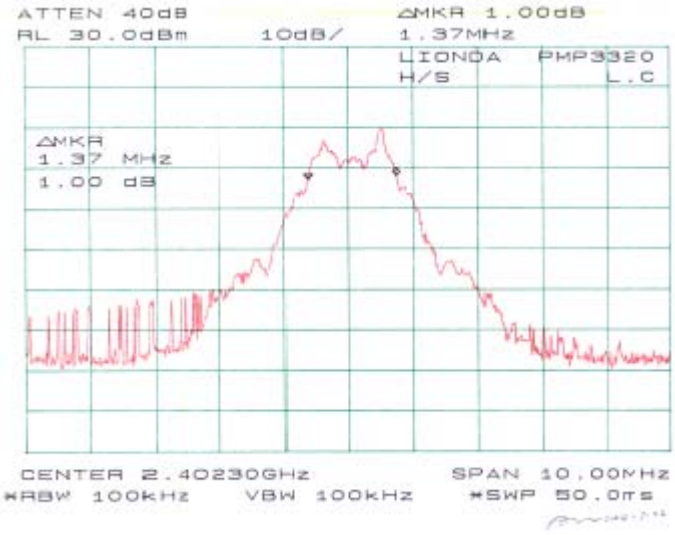
Test Result for Handset

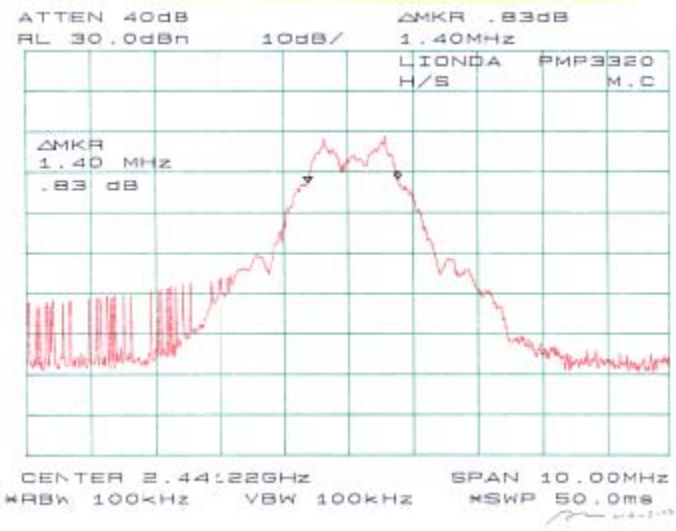
Channel	Frequency (MHz)	Measured (MHz)	Measured (kHz)	Standard (kHz)	Result
Low	2402.30	1.37	1370	≥ 500	Pass
Mid	2441.22	1.40	1400	≥ 500	Pass
High	2480.13	1.37	1370	≥ 500	Pass

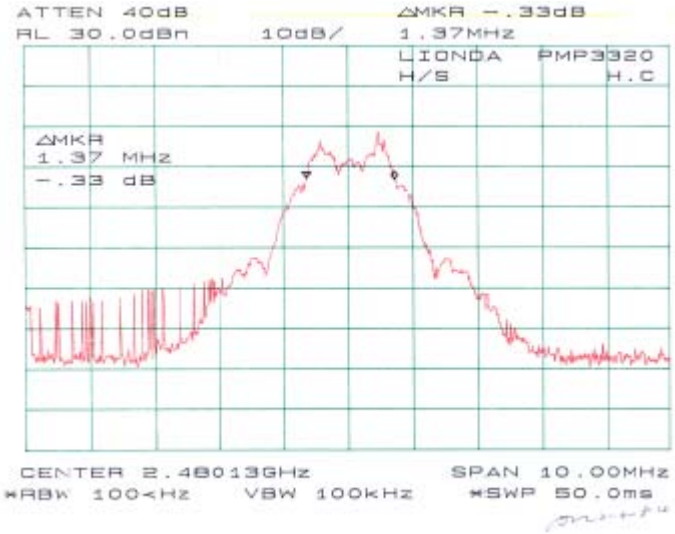

ATTEN 40dB
RL 30.0dBm 10dB/
ΔMKR -.50dB
1.38MHz
LIONDA PMP3320
BASE L.C
ΔMKR
1.38 MHz
-.50 dB
CENTER 2.40230GHz
SPAN 10.00MHz
*RBW 100kHz VBW 100kHz
*SWP 50.0ms


ATTEN 40dB
RL 30.0dBm 10dB/
ΔMKR -.50dB
1.38MHz
LIONDA PMP3320
BASE M.C
ΔMKR
1.38 MHz
-.50 dB
CENTER 2.44122GHz
SPAN 10.00MHz
*RBW 100kHz VBW 100kHz
SWP 50.0ms


ATTEN 40dB
RL 30.0dBm 10dB/
ΔMKR -.33dB
1.37MHz
LIONDA PMP3320
BASE H.C
ΔMKR
1.37 MHz
-.33 dB
CENTER 2.48013GHz
SPAN 10.00MHz
*RBW 100kHz VBW 100kHz
*SWP 50.0ms


ATTEN 40dB
RL 30.0dBm 10dB/
ΔMKR 1.00dB
1.37MHz
LIONDA PMP3320
H/S L.C
ΔMKR
1.37 MHz
1.00 dB
CENTER 2.40230GHz
SPAN 10.00MHz
*RBW 100kHz VBW 100kHz
*SWP 50.0ms


ATTEN 40dB
RL 30.0dBm 10dB/
ΔMKR .83dB
1.40MHz
LIONDA PMP3320
H/S M.C
ΔMKR
1.40 MHz
.83 dB
CENTER 2.44122GHz
SPAN 10.00MHz
*RBW 100kHz VBW 100kHz
*SWP 50.0ms


ATTEN 40dB
RL 30.0dBm 10dB/
ΔMKR -.33dB
1.37MHz
LIONDA PMP3320
H/S H.C
ΔMKR
1.37 MHz
-.33 dB
CENTER 2.48013GHz
SPAN 10.00MHz
*RBW 100kHz VBW 100kHz
*SWP 50.0ms

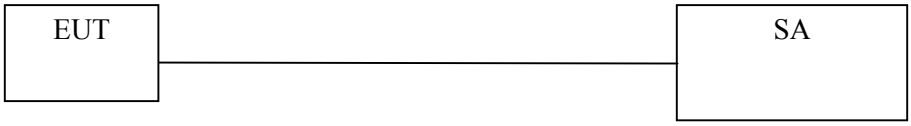
§15.247(b)(3) - PEAK OUTPUT POWER MEASUREMENT

Standard Applicable

According to §15.247(b) (3), for systems using digital modulation in 2400-2483.5 MHz: 1 Watt

Measurement Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to a spectrum analyzer.
3. Add a correction factor to the display.



Equipment Lists

Manufacturer	Description	Model	Serial Number	Cal. Date
HP	Analyzer, Spectrum	8565EC	3946A00131	2003-06-30

*** Statement of Traceability: BACL Corp.** certifies that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Measurement Result

Environmental Conditions

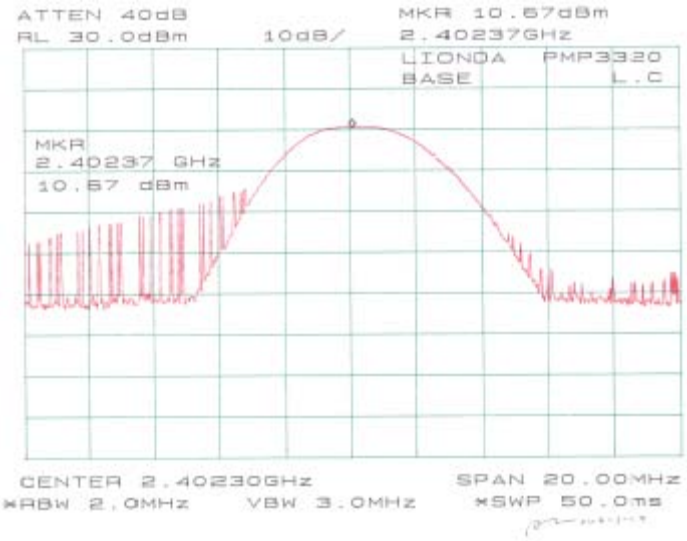
Temperature:	25° C
Relative Humidity:	38%
ATM Pressure:	1032 mbar

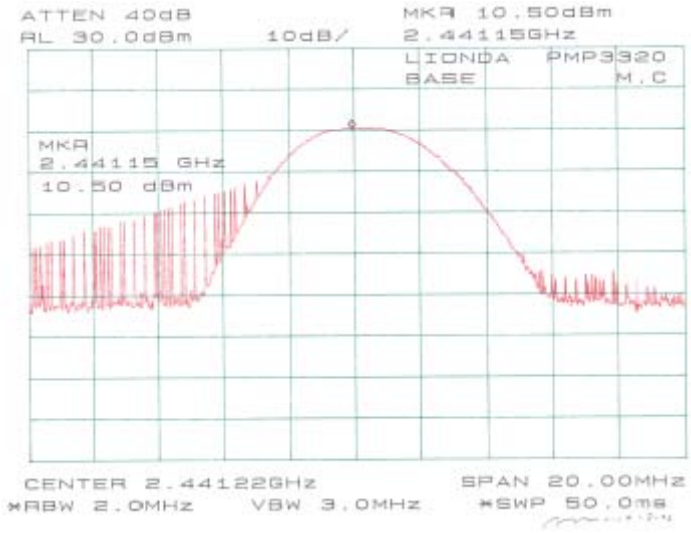
Output Power for Base Unit

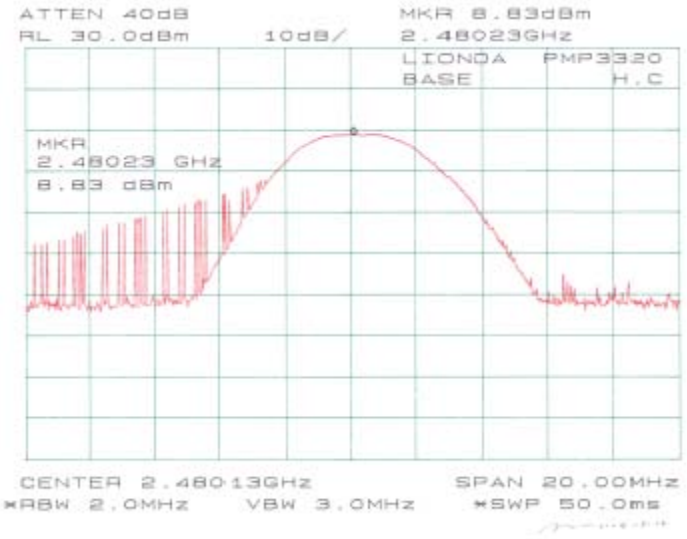
Channel	Frequency (MHz)	RF Power (dBm)	RF Power (W)	Limit
Low (Ch1)	2402.30	10.67	0.01167	1W (30dBm)
Mid (Ch7)	2441.22	10.50	0.01122	1W (30dBm)
High (Ch11)	2480.13	8.83	0.00764	1W (30dBm)

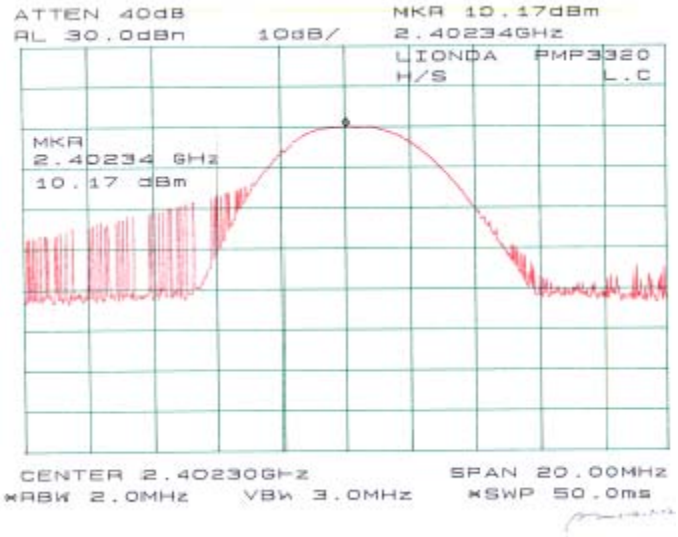
Output Power for Handset Unit

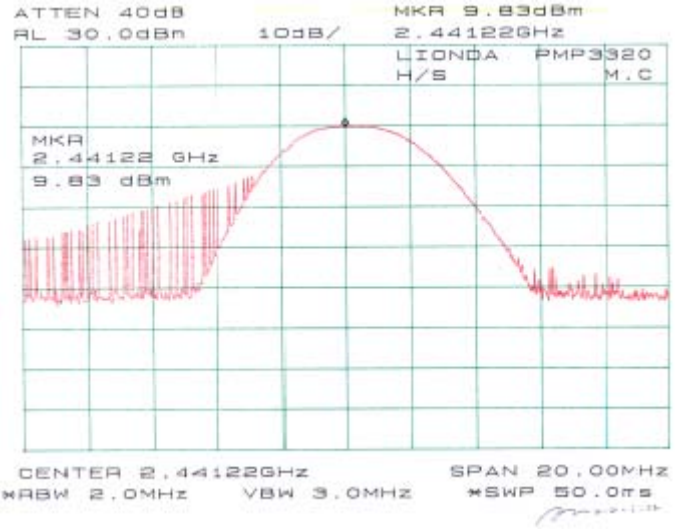
Channel	Frequency (MHz)	RF Power (dBm)	RF Power (W)	Limit
Low (Ch1)	2402.30	10.17	0.01040	1W (30dBm)
Mid (Ch7)	2441.22	9.83	0.00962	1W (30dBm)
High (Ch11)	2480.13	9.33	0.00857	1W (30dBm)

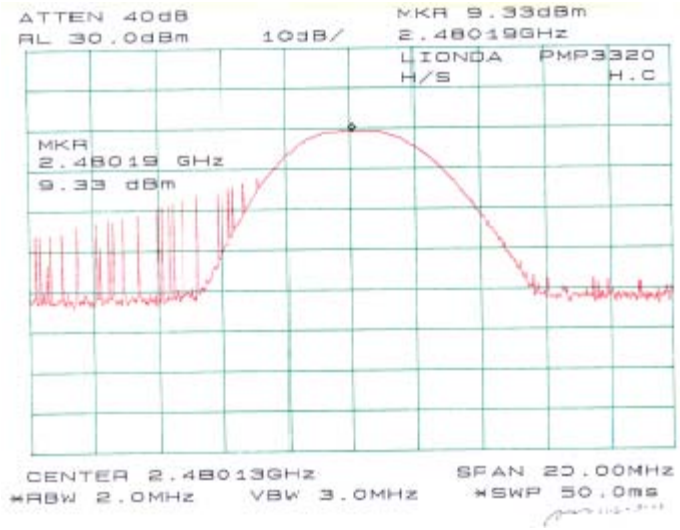

ATTEN 40dB
RL 30.0dBm 10dB/
MKR 10.67dBm
2.40237GHz
LIONDA PMP3320
BASE L.C
MKR
2.40237 GHz
10.67 dBm
CENTER 2.40230GHz
SPAN 20.00MHz
*RBW 2.0MHz VBW 3.0MHz
*SWP 50.0ms


ATTEN 40dB
RL 30.0dBm 10dB/
MKR 10.50dBm
2.44115GHz
LIONDA PMP3320
BASE M.C
MKR
2.44115 GHz
10.50 dBm
CENTER 2.44122GHz
SPAN 20.00MHz
*RBW 2.0MHz VBW 3.0MHz
*SWP 50.0ms


ATTEN 40dB
RL 30.0dBm 10dB/
MKR 8.83dBm
2.48023GHz
LIONDA PMP3320
BASE H.C
MKR
2.48023 GHz
8.83 dBm
CENTER 2.48013GHz
SPAN 20.00MHz
*RBW 2.0MHz VBW 3.0MHz
*SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
MKR 10.17dBm
2.40234GHz
LIONDA PMP3320
H/S L.C
MKR
2.40234 GHz
10.17 dBm
CENTER 2.40230GHz
SPAN 20.00MHz
*RBW 2.0MHz
VBW 3.0MHz
*SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
MKR 9.83dBm
2.44122GHz
LIONDA PMP3320
H/S M.C
MKR
2.44122 GHz
9.83 dBm
CENTER 2.44122GHz
SPAN 20.00MHz
*RBW 2.0MHz
VBW 3.0MHz
*SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
MKR 9.33dBm
2.48019GHz
LIONDA PMP3320
H/S H.C
MKR
2.48019 GHz
9.33 dBm
CENTER 2.48013GHz
SPAN 20.00MHz
*RBW 2.0MHz
VBW 3.0MHz
*SWP 50.0ms

§15.247(c) - 100 KHZ BANDWIDTH OF BAND EDGES

Standard Applicable

According to §15.247(c), in *any* 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) see §15.205(c)).

Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Cal. Date
HP	Analyzer, Spectrum	8565EC	3946A00131	2003-06-30

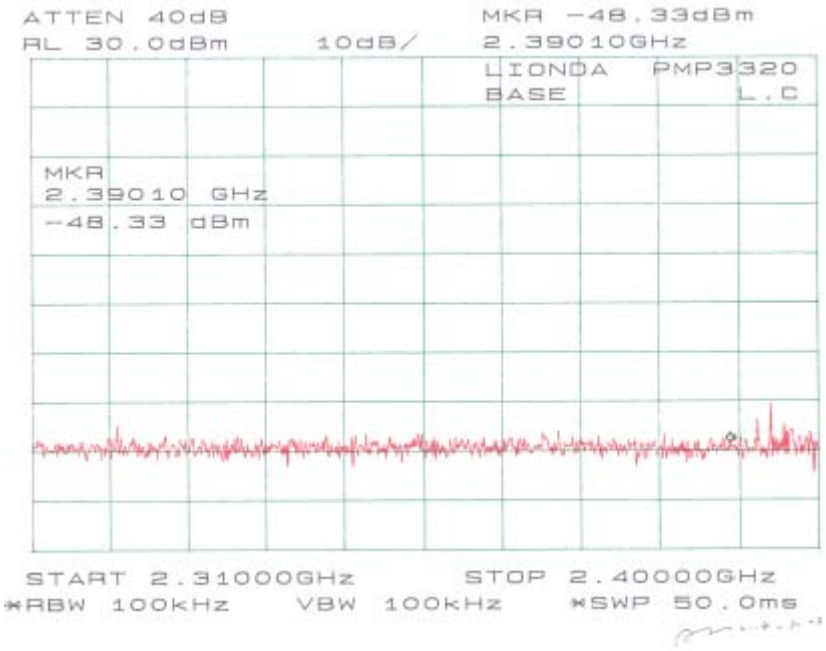
*** Statement of Traceability: BACL Corp.** certifies that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

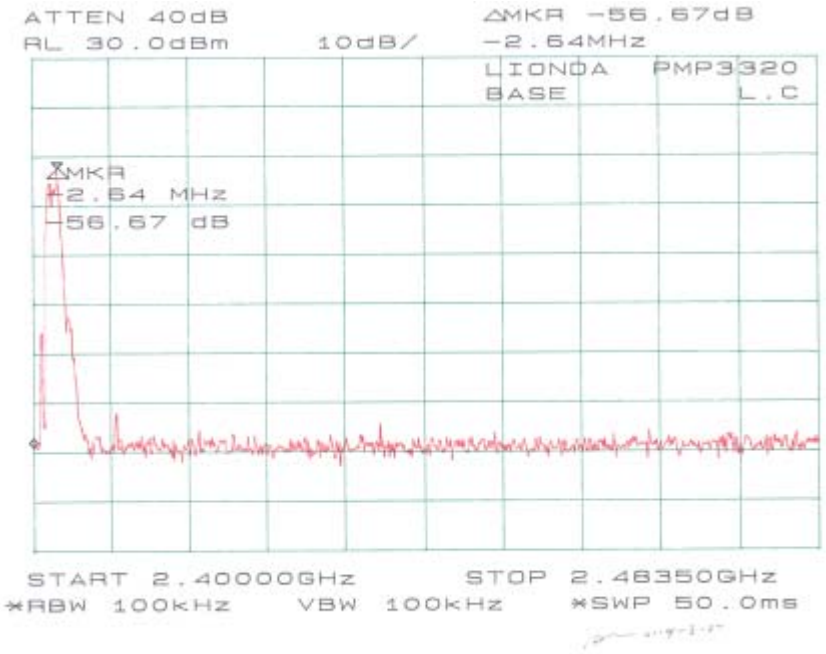
Measure Results

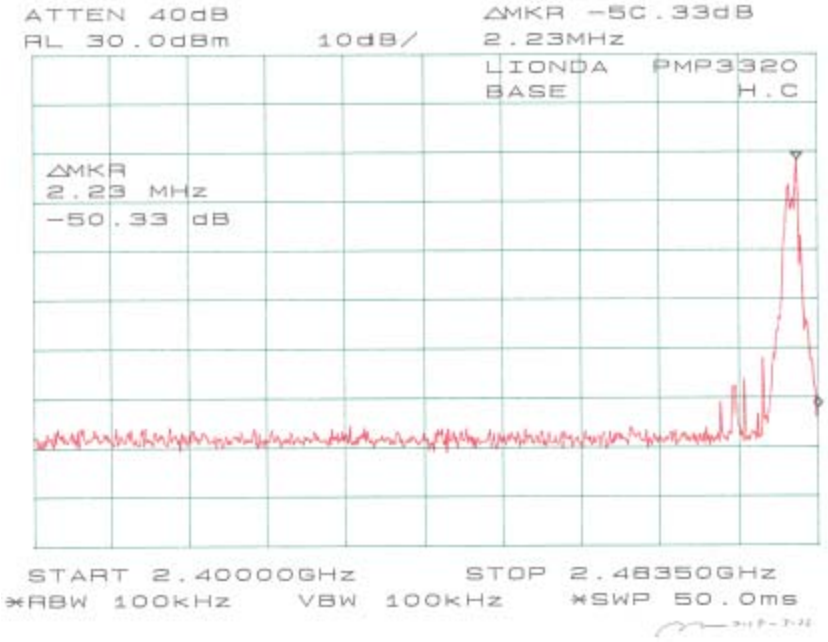
Environmental Conditions

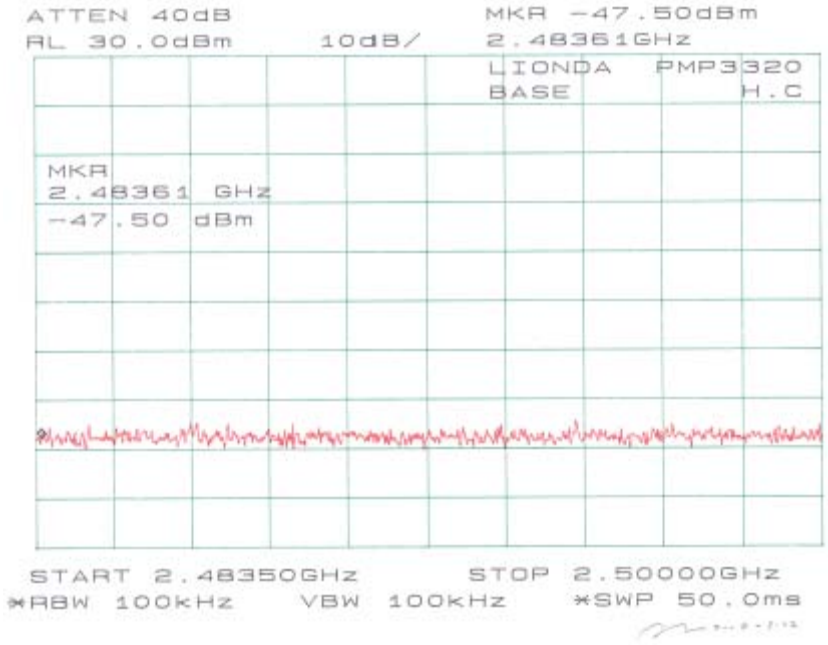
Temperature:	25° C
Relative Humidity:	38%
ATM Pressure:	1032 mbar

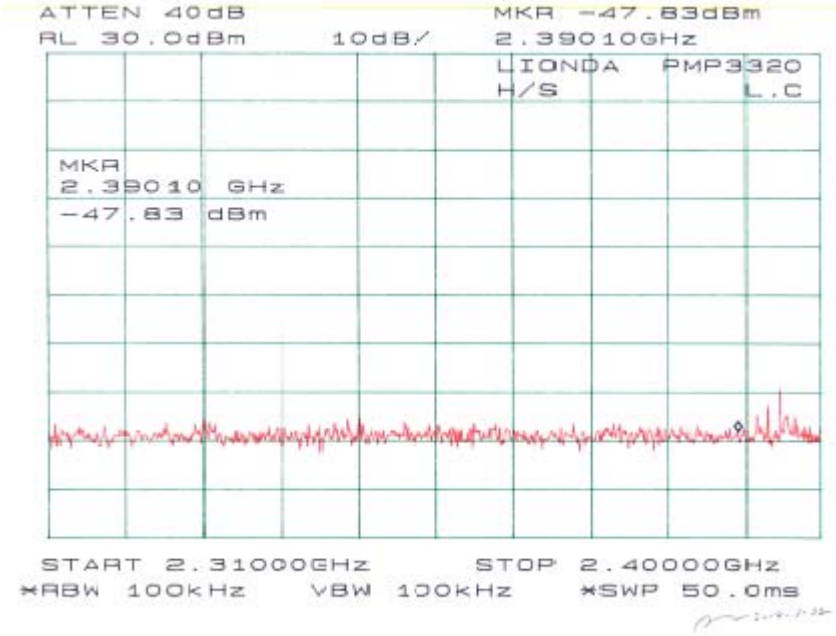
Please refer to following pages for plots of band edge.

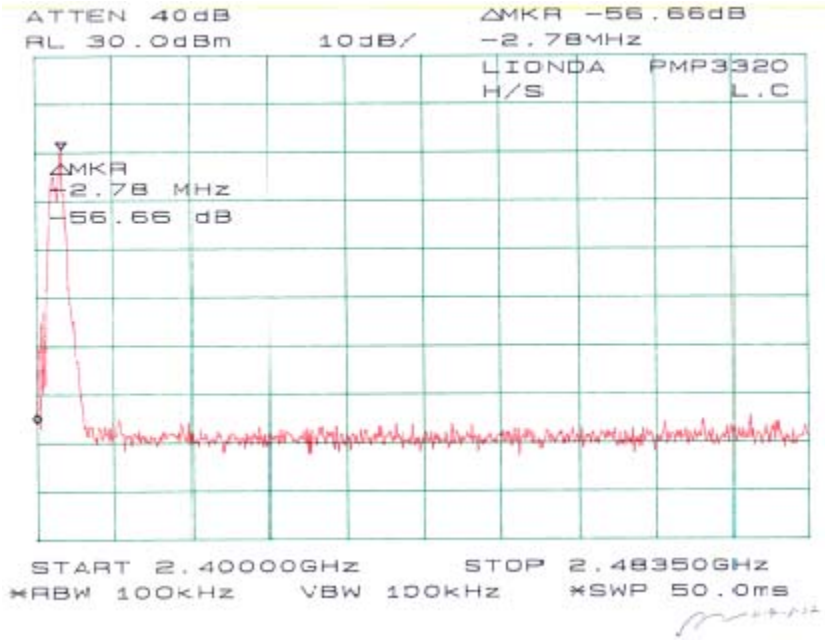

ATTEN 40dB
RL 30.0dBm
10dB/
MKR -48.33dBm
2.39010GHz
LIONDA PMP3320
BASE L.C
MKR
2.39010 GHz
-48.33 dBm
START 2.31000GHz
STOP 2.40000GHz
*RBW 100kHz
VBW 100kHz
*SWP 50.0ms

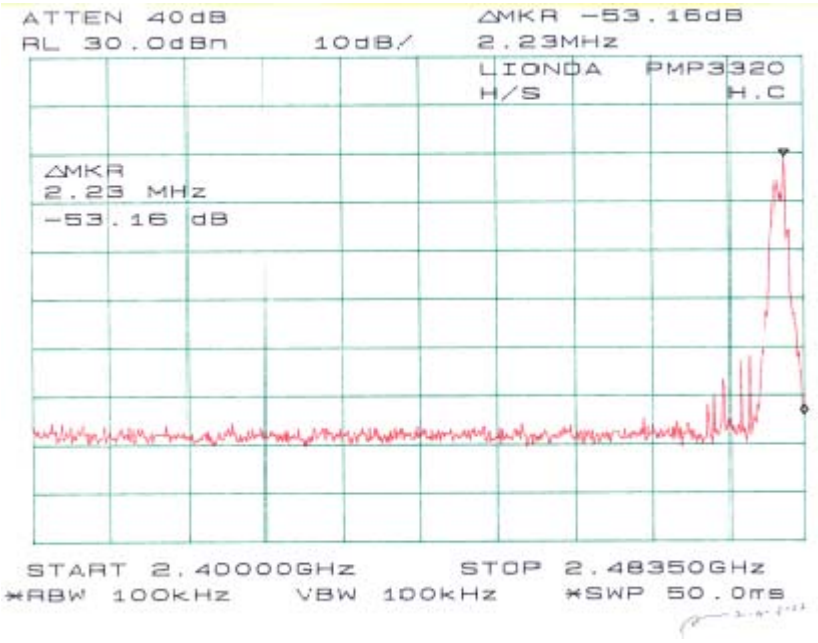

ATTEN 40dB
RL 30.0dBm
10dB/
ΔMKR -56.67dB
-2.64MHz
LIONDA PMP3320
BASE L.C
ΔMKR
-2.64 MHz
-56.67 dB
START 2.40000GHz
STOP 2.48350GHz
*RBW 100kHz
VBW 100kHz
*SWP 50.0ms

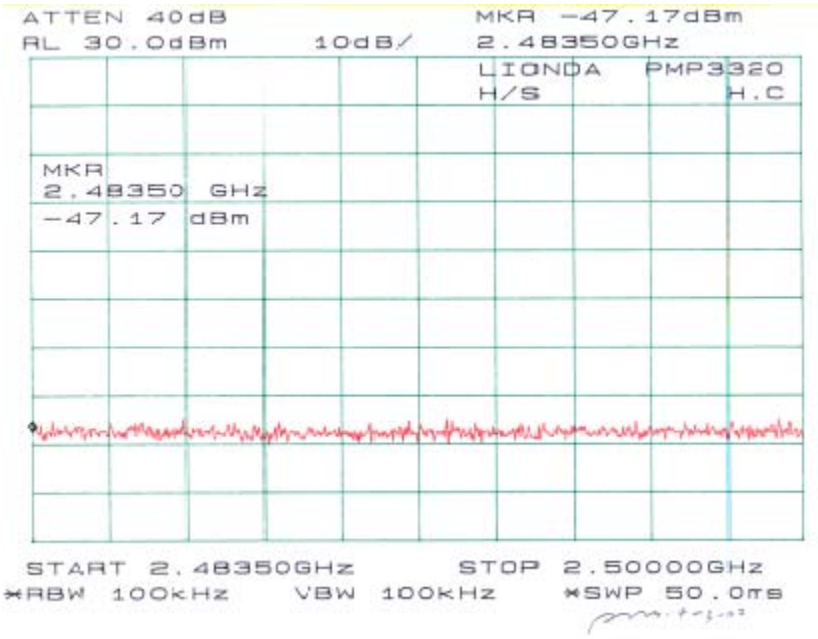

ATTEN 40dB
RL 30.0dBm 10dB/
ΔMKR -50.33dB
2.23MHz
LIONDA PMP3320
BASE H.C
ΔMKR
2.23 MHz
-50.33 dB
START 2.40000GHz STOP 2.48350GHz
*RBW 100kHz VBW 100kHz *SWP 50.0ms


ATTEN 40dB
RL 30.0dBm 10dB/
MKR -47.50dBm
2.48361GHz
LIONDA PMP3320
BASE H.C
MKR
2.48361 GHz
-47.50 dBm
START 2.48350GHz STOP 2.50000GHz
*RBW 100kHz VBW 100kHz *SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
MKR -47.83dBm
2.39010GHz
LIONDA PMP3320
H/S L.C
MKR
2.39010 GHz
-47.83 dBm
START 2.31000GHz
STOP 2.40000GHz
*RBW 100kHz
VBW 100kHz
*SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
ΔMKR -56.66dB
-2.78MHz
LIONDA PMP3320
H/S L.C
ΔMKR
-2.78 MHz
-56.66 dB
START 2.40000GHz
STOP 2.48350GHz
*RBW 100kHz
VBW 100kHz
*SWP 50.0ms


ATTEN 40dB
RL 30.0dBm 10dB/
ΔMKR -53.16dB
2.23MHz
LIONDA PMP3320
H/S H.C
ΔMKR
2.23 MHz
-53.16 dB
START 2.40000GHz STOP 2.48350GHz
*RBW 100kHz VBW 100kHz *SWP 50.0ms


ATTEN 40dB
RL 30.0dBm 10dB/
MKR -47.17dBm
2.48350GHz
LIONDA PMP3320
H/S H.C
MKR
2.48350 GHz
-47.17 dBm
START 2.48350GHz STOP 2.50000GHz
*RBW 100kHz VBW 100kHz *SWP 50.0ms

§15.247(d) - POWER SPECTRAL DENSITY

Standard Applicable

According to §15.247 (d), for direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Adjust the center frequency of SA on any frequency be measured and set SA to 6MHz span mode. And then, set RBW and VBW of spectrum analyzer to proper value. (DTS)
4. Repeat above procedures until all frequencies measured were complete.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Cal. Date
HP	Analyzer, Spectrum	8565EC	3946A00131	2003-06-30

*** Statement of Traceability: BACL Corp.** certifies that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Measurement Results

Environmental Conditions

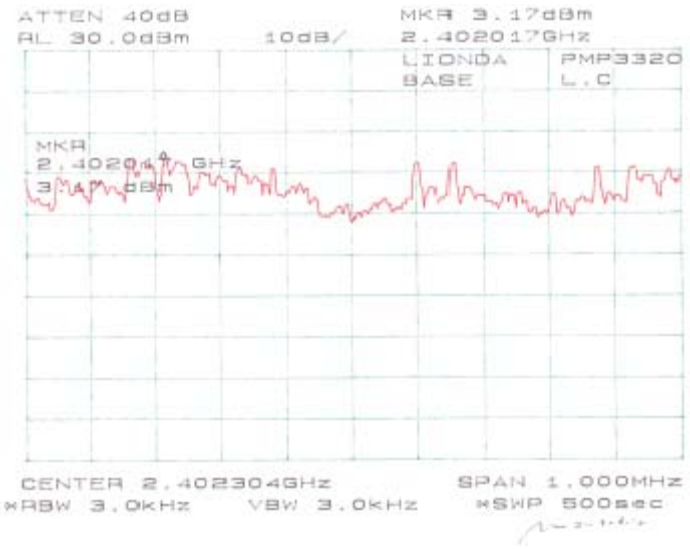
Temperature:	25° C
Relative Humidity:	38%
ATM Pressure:	1032 mbar

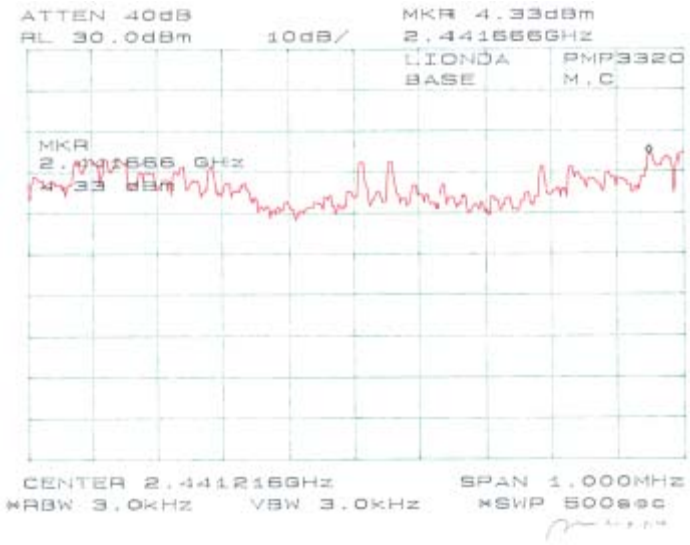
Test Result for Base Unit

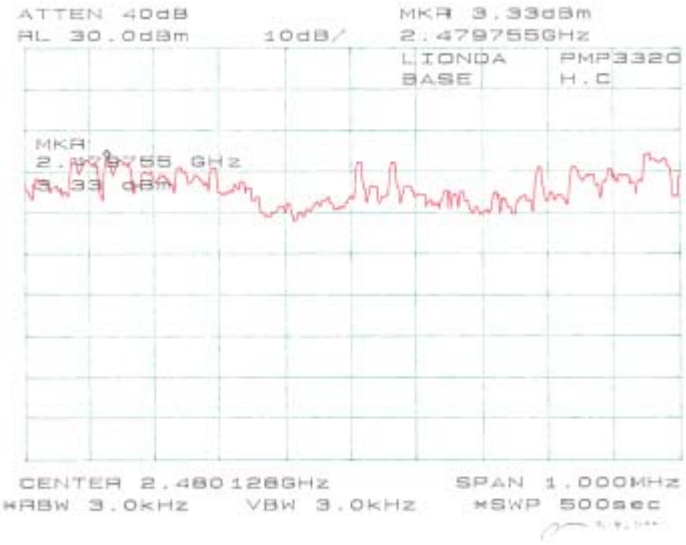
Channel	Frequency (MHz)	Peak Power Spectral Density (dBm)	Standard (dBm)	Result
Low	2402.30	3.17	≤ 8	Pass
Mid	2441.22	4.33	≤ 8	Pass
High	2480.13	3.33	≤ 8	Pass

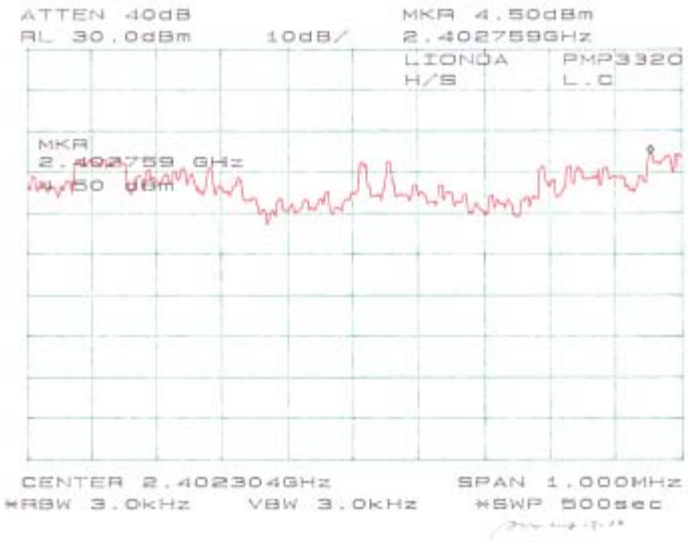
Test Result for Handset Unit

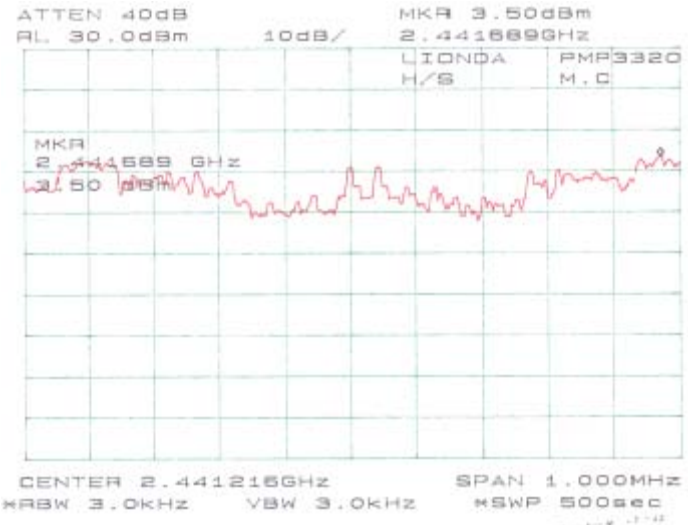
Channel	Frequency (MHz)	Peak Power Spectral Density (dBm)	Standard (dBm)	Result
Low	2402.30	4.50	≤ 8	Pass
Mid	2441.22	3.50	≤ 8	Pass
High	2480.13	4.17	≤ 8	Pass

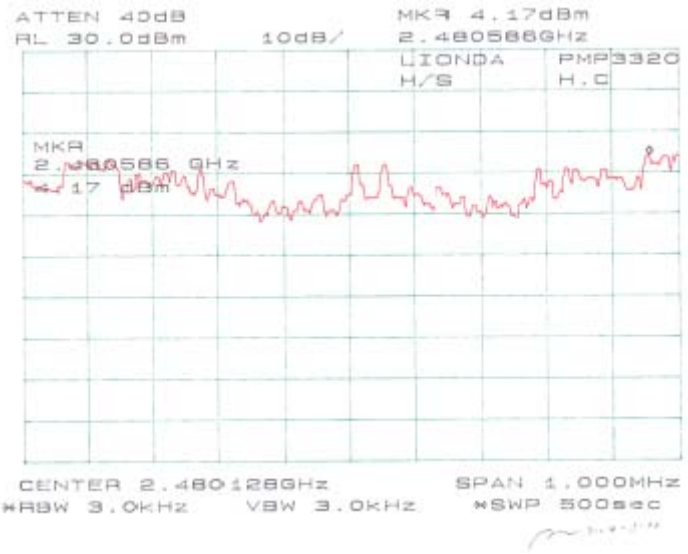

ATTEN 40dB
RL 30.0dBm 10dB/
MKR 3.17dBm
2.402017GHz
LIONDA
BASE
PMP3320
L.C
MKR
2.402304 GHz
3.17 dBm
CENTER 2.402304GHz
SPAN 1.000MHz
*RBW 3.0kHz
VBW 3.0kHz
*SWP 500sec


ATTEN 40dB
RL 30.0dBm 10dB/
MKR 4.33dBm
2.441666GHz
LIONDA
BASE
PMP3320
M.C
MKR
2.441666 GHz
4.33 dBm
CENTER 2.441216GHz
SPAN 1.000MHz
*RBW 3.0kHz
VBW 3.0kHz
*SWP 500sec


ATTEN 40dB
RL 30.0dBm 10dB/
MKR 3.33dBm
2.479755GHz
LIONDA
BASE
PMP3320
H.C
MKR
2.479755 GHz
3.33 dBm
CENTER 2.480128GHz
SPAN 1.000MHz
*RBW 3.0kHz
VBW 3.0kHz
*SWP 500sec


ATTEN 40dB
RL 30.0dBm 10dB/
MKR 4.50dBm
2.402759GHz
LIONDA PMP3320
H/S L.C
MKR
2.402759 GHz
4.50 dBm
CENTER 2.402304GHz SPAN 1.000MHz
*RBW 3.0kHz VBW 3.0kHz *SWP 500sec


ATTEN 40dB
RL 30.0dBm 10dB/
MKR 3.50dBm
2.441689GHz
LIONDA PMP3320
H/S M.C
MKR
2.441689 GHz
3.50 dBm
CENTER 2.441216GHz SPAN 1.000MHz
*RBW 3.0kHz VBW 3.0kHz *SWP 500sec


ATTEN 40dB
RL 30.0dBm 10dB/
MKR 4.17dBm
2.480586GHz
LIONDA PMP3320
H/S H.C
MKR
2.480586 GHz
4.17 dBm
CENTER 2.480128GHz SPAN 1.000MHz
*RBW 3.0kHz VBW 3.0kHz *SWP 500sec