ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT

OF

2.4GHz DSST multi-handset cordless telephone

MODEL No.: 36570

BRAND NAME: BELL PHONE BY NORTHWESTERN BELL PHONES

FCC ID: N6536570

REPORT NO: 020016-R

ISSUE DATE: April 25, 2002

Prepared for

Shanghai Zi Bei Telesystems Co., Ltd.
No. 9333 Hu Min Road, Shanghai, China

Prepared by

C&C LABORATORY, CO., LTD.
#B1, 1st Fl., Universal Center,
No. 183, Sec. 1, Tatung Rd., Hsi Chih,
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1. VERIFICATION OF COMPLIANCE

Comoany Name:	Shanghai Zi Bei Telesystems Co., Ltd.
Contact Person:	James Yu
Telephone No.:	(86) 21-64088808
Eut Description:	2.4GHz DSST multi-handset cordless telephone
Model No.:	36570
Brand Name:	BELL PHONE BY NORTHWESTERN BELL PHONES
Date Tested:	April 2 ~ April 25, 2002

LIMIT APPLY TO: FCC PART 15 SECTION 15.247	
TECHNICAL LIMITS	**TEST RESULT**
Minimum 6dB Bandwidth@ > 500kHz	Passed
RF Power Output < 1 Watt	Passed
Out of Band Measurements	Passed
DSSS Power Density < 8dBm @ 3kHz bandwidth	Passed
Processing Gain of a DSSS > 10dB	Passed
LIMIT APPLY TO: FCC PART 15 SECTION 15.205/SECTION 15.209	
Restricted Band of Operation	Passed
LIMIT APPLY TO: FCC PART 15 SECTION 15.209 (15.109)	
Radiated Emission Limits	Passed
LIMIT APPLY TO: FCC PART 15 SECTION 15.207	
AC Line Conducted Emission	Passed
The above equipment was tested by C&C Laboratory Co., Ltd. for compliance with the requirements set forth in CFR 47 PART 15 SUBPART C. This said equipment in the configuration described in this report show that maximum emission levels emanating from equipment are within the compliance requirements.	

Approved By

Steven Wang

STEVEN WANG / RF DEPT. MANAGER
C&C LABROTARY CO., LTD.

2. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

Product	2.4GHz DSST multi-handset cordless telephone
Model Name	36570
Brand Name	BELL PHONE BY NORTHWESTERN BELL PHONES
Power Supply	Handset: DC 3.6V Base Unit: AC Adaptor Brand: DVE ; Model No: DV-1220DC ; Input: 120VAC, 60Hz ; Output: 12VDC, 200mA
Frequency Range	2407.64MHz ~ 2473.56MHz
Transmit Power	Max. 15dBm
Modulation Technique	FSK
Radio Technique	DSSS
Number of Channels	44 Channels
Operating Mode	TDD System
Antenna Type	WHIP

3. TEST LOCATION

All emissions tests were performed at:

C&C Laboratory, Co., Ltd.
No. 81-1, 210 Lane, Pa-de 2nd Road, Lu-Chu Hsiang, Taoyuan, Taiwan, R.O.C.

There are four 3/10m open area test sites and three line conducted labs for final test. The Open Area Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 1992 and CISPR 22/EN 55022 requirements.

Radiated emissions from the digital portion of the EUT were performed on site 3, one of the 10 meter sites.

4. DESCRIPTION OF TEST MODES

The EUT: 36750 is a 2.4GHz DSST multi-handset cordless telephone with Caller ID and Waiting. The unit is capable of either tone or pulse dialing. The internal power supply's isolation is accomplished through a power transformer having an adequate dielectric rating. The circuit wiring is consistent under the requirement of par 68.

The handset unit consists of a keypad with twelve standard keys (0,…9,*,#), 8 function keys (OK, CANCEL, FLASH, INT/EDIT, REDIAL, DELETE, DOWN), and one Headset Jack key. A talk key is provided to control pick/release telephone line in a toggle base.

The base unit has a page key, which is used to page the handset unit.

The antennas used in base unit and handset are integral, and the tested sample is a prototype.

Connection between the device and the telephone network is accomplished through the use of RJ11C in the 2-wire loop calling central office line.

5. SUPPORT EQUIPMENT

Device Type	Manufacturer	Model Number	FCC ID / DoC	Description
2.4GHz DSST multi-handset cordless telephone	Shanghai Zi Bei Telesystems Co., Ltd.	36570	N6536570	AC adapter: Unshielded, 1.8m

Remark: the " * " means is Equipment Under Test.

6. EQUIPMENT MODIFICATIONS

To achieve compliance to FCC Section 15.205 & 15.247 technical limits, the following changes were made during compliance testing:

1. For 15.205, RF module:
   CD17,CD18 changed from 22p to 33p. decrees radiation power from base frequency.

2. For 15.247, RF module:
   RD16 from 10k to 8.2k -- Adjustment down the RF PA BIAS.
   CD24,CD25 from 1.5p to 2p -- rematching CD24,CD25,LD5 network

7. TEST PROCEDURES AND TEST RESULTS

- **Radiated Emissions (General Requirements)**
- **Test Requirement: 15.205**

Measurement Equipment Used:

Open Area Test Site # 3					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	ADVANTEST	R3261A	N/A	03/19/2002	03/18/2003
EMI Test Receiver	R&S	ESVS20	838804/004	01/05/2002	01/04/2003
Pre-Amplifier	HP	8447D	2944A09173	03/04/2002	03/03/2003
Bilog Antenna	SCHWARZBECK	VULB9163	128	02/02/2002	02/01/2003
Turn Table	EMCO	2081-1.21	9709-1885	N.C.R	N.C.R
Antenna Tower	EMCO	2075-2	9707-2060	N.C.R	N.C.R
Controller	EMCO	2090	9709-1256	N.C.R	N.C.R
RF Switch	ANRITSU	MP59B	M53867	N.C.R	N.C.R
Site NSA	C&C	N/A	N/A	11/17/2001	11/16/2002
Horn Antenna	SCHWARZBECK	BBHA 9120	D210	02/22/2002	02/21/2003
Horn Antenna	EMCO	3116	2487	08/25/2001	08/24/2002
Pre Amplifier	HP	8449B	3008A00965	10/03/2001	10/02/2002
Spectrum Analyzer	R&S	FSP30	100112	05/29/2001	05/28/2002
Hi Pass Filter	HP	84300-80038	010	08/02/2001	08/01/2002

Test Set-Up:

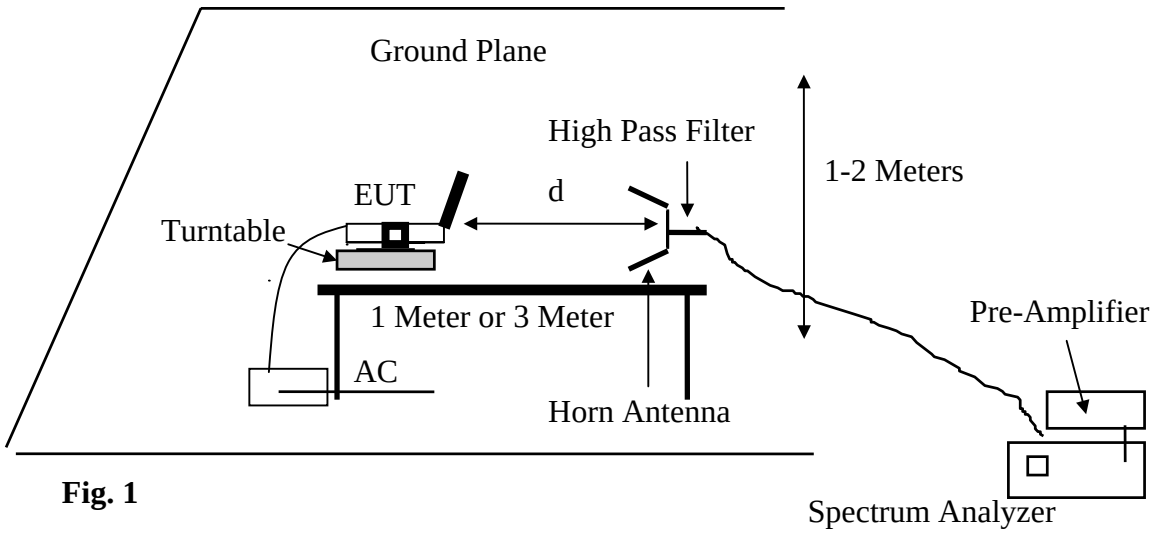


Fig. 1

Test Procedures

1. The EUT was placed on a wooden table on the outdoor ground plane. The search antenna was placed 3 or 1meter from the EUT. The EUT antenna was mounted vertically as per normal installation.
2. The turntable was slowly rotated to locate the direction of maximum emission at each emission falling in the restricted bands of 15.205.
3. Once maximum direction was determined, the search antenna was raised and lowered in both vertical and horizontal polarizations. The maximum readings so obtained are recorded in the data listed below.

Test Results: Refer to attached tabular data sheets.

15.205 / 15.209 Radiated Emissions

Operation Mode:	Handset Transmitting mode	Test Date :	April 4, 2002
Fundamental Frequency:	CH 5 (2407.5MHz)	Test By:	Markba Lee
Temperature :	24℃	Pol:	Vertical
Humidity :	65%		

Freq.	Reading	AF	Closs	Pre-amp	Filter	Dist	Level	Limit	Margin	Mark	Pol
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)
4815.26*	63.57	31.40	6.88	37.05	1	0	65.80	74.00	-8.20	P	V
4815.26*	51.00	31.40	6.88	37.05	1	0	53.23	54.00	-0.77	A	V
7220.30	52.31	35.50	9.12	37.39	1	0	60.54	74.00	-13.46	P	V
7220.30	39.40	35.50	9.12	37.39	1	0	47.63	54.00	-6.37	A	V
9630.56	---	---	---	---	---	---	---	---	---	---	---
9630.56	---	---	---	---	---	---	---	---	---	---	---
12038.20*	---	---	---	---	---	---	---	---	---	---	---
12038.20*	---	---	---	---	---	---	---	---	---	---	---
14445.84	---	---	---	---	---	---	---	---	---	---	---
14445.84	---	---	---	---	---	---	---	---	---	---	---
16853.48	---	---	---	---	---	---	---	---	---	---	---
16853.48	---	---	---	---	---	---	---	---	---	---	---
19261.12*	---	---	---	---	---	---	---	---	---	---	---
19261.12*	---	---	---	---	---	---	---	---	---	---	---
21668.76	---	---	---	---	---	---	---	---	---	---	---
21668.76	---	---	---	---	---	---	---	---	---	---	---
24076.40	---	---	---	---	---	---	---	---	---	---	---
24076.40	---	---	---	---	---	---	---	---	---	---	---

Note :

1. Measurement was up to 10th harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz) Dist: Correction to extra plate reading to 3m specification distance 1M measurement distance: -9.5dB
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.

Operation Mode:	Handset Transmitting mode	Test Date :	April 4, 2002
Fundamental Frequency:	CH 5 (2407.5MHz)	Test By:	Markba Lee
Temperature :	24℃	Pol:	Horizontal
Humidity :	65%		

Freq.	Reading	AF	Closs	Pre-amp	Filter	Dist	Level	Limit	Margin	Mark	Pol
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)
4815.26*	63.25	31.40	6.88	37.05	1	0	65.48	74.00	-8.52	P	H
4815.26*	50.39	31.40	6.88	37.05	1	0	52.62	54.00	-1.38	A	H
7220.30	52.84	35.50	9.12	37.39	1	0	61.07	74.00	-12.93	P	H
7220.30	39.30	35.50	9.12	37.39	1	0	47.53	54.00	-6.47	A	H
9630.56	---	---	---	---	---	---	---	---	---	---	---
9630.56	---	---	---	---	---	---	---	---	---	---	---
12038.20*	---	---	---	---	---	---	---	---	---	---	---
12038.20*	---	---	---	---	---	---	---	---	---	---	---
14445.84	---	---	---	---	---	---	---	---	---	---	---
14445.84	---	---	---	---	---	---	---	---	---	---	---
16853.48	---	---	---	---	---	---	---	---	---	---	---
16853.48	---	---	---	---	---	---	---	---	---	---	---
19261.12*	---	---	---	---	---	---	---	---	---	---	---
19261.12*	---	---	---	---	---	---	---	---	---	---	---
21668.76	---	---	---	---	---	---	---	---	---	---	---
21668.76	---	---	---	---	---	---	---	---	---	---	---
24076.40	---	---	---	---	---	---	---	---	---	---	---
24076.40	---	---	---	---	---	---	---	---	---	---	---

Note :

1. Measurement was up to 10th harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz) Dist: Correction to extra plate reading to 3m specification distance 1M measurement distance: -9.5dB
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.

Operation Mode:	Handset Transmitting mode	Test Date :	April 4, 2002
Fundamental Frequency:	CH 27 (2439MHz)	Test By:	Markba Lee
Temperature :	24℃	Pol:	Vertical
Humidity :	65%		

Freq.	Reading	AF	Closs	Pre-amp	Filter	Dist	Level	Limit	Margin	Mark	Pol
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)
4879.42*	62.55	31.54	6.98	37.08	1	0	64.99	74.00	-9.01	P	V
4879.42*	49.79	31.54	6.98	37.08	1	0	52.23	54.00	-1.77	A	V
7322.12*	50.49	35.65	9.06	37.40	1	0	58.80	74.00	-15.20	P	V
7322.12*	36.58	35.65	9.06	37.40	1	0	44.89	54.00	-9.11	A	V
9758.40	---	---	---	---	---	---	---	---	---	---	---
9758.40	---	---	---	---	---	---	---	---	---	---	---
12198.00*	---	---	---	---	---	---	---	---	---	---	---
12198.00*	---	---	---	---	---	---	---	---	---	---	---
14637.60	---	---	---	---	---	---	---	---	---	---	---
14637.60	---	---	---	---	---	---	---	---	---	---	---
17077.00	---	---	---	---	---	---	---	---	---	---	---
17077.00	---	---	---	---	---	---	---	---	---	---	---
19516.80*	---	---	---	---	---	---	---	---	---	---	---
19516.80*	---	---	---	---	---	---	---	---	---	---	---
21956.40	---	---	---	---	---	---	---	---	---	---	---
21956.40	---	---	---	---	---	---	---	---	---	---	---
24396.00	---	---	---	---	---	---	---	---	---	---	---
24396.00	---	---	---	---	---	---	---	---	---	---	---

Note :

1. Measurement was up to 10th harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz) Dist: Correction to extra plate reading to 3m specification distance 1M measurement distance: -9.5dB
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.

Operation Mode:	Handset Transmitting mode	Test Date :	April 4, 2002
Fundamental Frequency:	CH 27 (2439MHz)	Test By:	Markba Lee
Temperature :	24℃	Pol:	Horizontal
Humidity :	65%		

Freq.	Reading	AF	Closs	Pre-amp	Filter	Dist	Level	Limit	Margin	Mark	Pol
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)
4879.42*	61.80	31.54	6.98	37.08	1	0	64.24	74.00	-9.76	P	H
4879.42*	49.10	31.54	6.98	37.08	1	0	51.54	54.00	-2.46	A	H
7322.12*	50.64	35.65	9.06	37.40	1	0	58.95	74.00	-15.05	P	H
7322.12*	37.28	35.65	9.06	37.40	1	0	45.59	54.00	-8.41	A	H
9758.40	---	---	---	---	---	---	---	---	---	---	---
9758.40	---	---	---	---	---	---	---	---	---	---	---
12198.00*	---	---	---	---	---	---	---	---	---	---	---
12198.00*	---	---	---	---	---	---	---	---	---	---	---
14637.60	---	---	---	---	---	---	---	---	---	---	---
14637.60	---	---	---	---	---	---	---	---	---	---	---
17077.00	---	---	---	---	---	---	---	---	---	---	---
17077.00	---	---	---	---	---	---	---	---	---	---	---
19516.80*	---	---	---	---	---	---	---	---	---	---	---
19516.80*	---	---	---	---	---	---	---	---	---	---	---
21956.40	---	---	---	---	---	---	---	---	---	---	---
21956.40	---	---	---	---	---	---	---	---	---	---	---
24396.00	---	---	---	---	---	---	---	---	---	---	---
24396.00	---	---	---	---	---	---	---	---	---	---	---

Note :

1. Measurement was up to 10^{th} harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz) Dist: Correction to extra plate reading to 3m specification distance 1M measurement distance: -9.5dB
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.

Operation Mode:	Handset Transmitting mode	Test Date :	April 4, 2002
Fundamental Frequency:	CH 48 (2473.5MHz)	Test By:	Markba Lee
Temperature :	24℃	Pol:	Vertical
Humidity :	65%		

Freq.	Reading	AF	Closs	Pre-amp	Filter	Dist	Level	Limit	Margin	Mark	Pol
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)
4945.12*	63.54	31.69	7.00	37.11	1	0	66.12	74.00	-7.88	P	V
4945.12*	49.82	31.69	7.00	37.11	1	0	52.40	54.00	-1.60	A	V
7420.96*	51.92	35.79	9.00	37.41	1	0	60.30	74.00	-13.70	P	V
7420.96*	36.80	35.79	9.00	37.41	1	0	45.18	54.00	-8.82	A	V
9894.24	---	---	---	---	---	---	---	---	---	---	---
9894.24	---	---	---	---	---	---	---	---	---	---	---
12367.8*	---	---	---	---	---	---	---	---	---	---	---
12367.8*	---	---	---	---	---	---	---	---	---	---	---
14841.36	---	---	---	---	---	---	---	---	---	---	---
14841.36	---	---	---	---	---	---	---	---	---	---	---
17314.92	---	---	---	---	---	---	---	---	---	---	---
17314.92	---	---	---	---	---	---	---	---	---	---	---
19788.48*	---	---	---	---	---	---	---	---	---	---	---
19788.48*	---	---	---	---	---	---	---	---	---	---	---
22262.04*	---	---	---	---	---	---	---	---	---	---	---
22262.04*	---	---	---	---	---	---	---	---	---	---	---
24735.60	---	---	---	---	---	---	---	---	---	---	---
24735.60	---	---	---	---	---	---	---	---	---	---	---

Note :

1. Measurement was up to 10th harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz) Dist: Correction to extra plate reading to 3m specification distance 1M measurement distance: -9.5dB
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.

Operation Mode:	Handset Transmitting mode	Test Date :	April 4, 2002
Fundamental Frequency:	CH 48 (2473.5MHz)	Test By:	Markba Lee
Temperature :	24℃	Pol:	Horizontal
Humidity :	65%		

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Closs (dB)	Pre-amp (dB)	Filter dB	Dist dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)
4945.12*	62.51	31.69	7.00	37.11	1	0	65.09	74.00	-8.91	P	H
4945.12*	49.53	31.69	7.00	37.11	1	0	52.11	54.00	-1.89	A	H
7420.96*	50.35	35.79	9.00	37.41	1	0	58.73	74.00	-15.27	P	H
7420.96*	36.05	35.79	9.00	37.41	1	0	44.43	54.00	-9.5	A	H
9894.24	---	---	---	---	---	---	---	---	---	---	---
9894.24	---	---	---	---	---	---	---	---	---	---	---
12367.8*	---	---	---	---	---	---	---	---	---	---	---
12367.8*	---	---	---	---	---	---	---	---	---	---	---
14841.36	---	---	---	---	---	---	---	---	---	---	---
14841.36	---	---	---	---	---	---	---	---	---	---	---
17314.92	---	---	---	---	---	---	---	---	---	---	---
17314.92	---	---	---	---	---	---	---	---	---	---	---
19788.48*	---	---	---	---	---	---	---	---	---	---	---
19788.48*	---	---	---	---	---	---	---	---	---	---	---
22262.04*	---	---	---	---	---	---	---	---	---	---	---
22262.04*	---	---	---	---	---	---	---	---	---	---	---
24735.60	---	---	---	---	---	---	---	---	---	---	---
24735.60	---	---	---	---	---	---	---	---	---	---	---

Note :

1. Measurement was up to 10^{th} harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz) Dist: Correction to extra plate reading to 3m specification distance 1M measurement distance: -9.5dB
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.

Operation Mode:	Base Unit Transmitting mode	Test Date :	April 4, 2002
Fundamental Frequency:	CH 5 (2407.5MHz)	Test By:	Markba Lee
Temperature :	24℃	Pol:	Vertical
Humidity :	65%		

Freq.	Reading	AF	Closs	Pre-amp	Filter	Dist	Level	Limit	Margin	Mark	Pol
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)
4815.48*	61.71	31.40	6.88	37.05	1	0	63.94	74.00	-10.06	P	V
4815.48*	49.53	31.40	6.88	37.05	1	0	51.76	54.00	-2.24	A	V
7223.54	55.75	35.50	9.12	37.39	1	0	63.98	74.00	-10.02	P	V
7223.54	42.29	35.50	9.12	37.39	1	0	50.52	54.00	-3.48	A	V
9631.52	---	---	---	---	---	---	---	---	---	---	---
9631.52	---	---	---	---	---	---	---	---	---	---	---
12039.40*	---	---	---	---	---	---	---	---	---	---	---
12039.40*	---	---	---	---	---	---	---	---	---	---	---
14447.28*	---	---	---	---	---	---	---	---	---	---	---
14447.28*	---	---	---	---	---	---	---	---	---	---	---
16855.16	---	---	---	---	---	---	---	---	---	---	---
16855.16	---	---	---	---	---	---	---	---	---	---	---
19263.04*	---	---	---	---	---	---	---	---	---	---	---
19263.04*	---	---	---	---	---	---	---	---	---	---	---
21670.92	---	---	---	---	---	---	---	---	---	---	---
21670.92	---	---	---	---	---	---	---	---	---	---	---
24078.80	---	---	---	---	---	---	---	---	---	---	---
24078.80	---	---	---	---	---	---	---	---	---	---	---

Note :

1. Measurement was up to 10th harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz) Dist: Correction to extra plate reading to 3m specification distance 1M measurement distance: -9.5dB
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.

Operation Mode:	Base Unit Transmitting mode	Test Date :	April 4, 2002
Fundamental Frequency:	CH 5 (2407.5MHz)	Test By:	Markba Lee
Temperature :	24℃	Pol:	Horizontal
Humidity :	65%		

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Closs (dB)	Pre-amp (dB)	Filter dB	Dist dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)
4815.48*	58.81	31.40	6.88	37.05	1	0	61.04	74.00	-12.96	P	H
4815.48*	46.46	31.40	6.88	37.05	1	0	48.69	54.00	-5.31	A	H
7223.54	55.82	35.50	9.12	37.39	1	0	64.05	74.00	-9.95	P	H
7223.54	42.80	35.50	9.12	37.39	1	0	51.03	54.00	-2.97	A	H
9631.52	---	---	---	---	---	---	---	---	---	---	---
9631.52	---	---	---	---	---	---	---	---	---	---	---
12039.40*	---	---	---	---	---	---	---	---	---	---	---
12039.40*	---	---	---	---	---	---	---	---	---	---	---
14447.28*	---	---	---	---	---	---	---	---	---	---	---
14447.28*	---	---	---	---	---	---	---	---	---	---	---
16855.16	---	---	---	---	---	---	---	---	---	---	---
16855.16	---	---	---	---	---	---	---	---	---	---	---
19263.04*	---	---	---	---	---	---	---	---	---	---	---
19263.04*	---	---	---	---	---	---	---	---	---	---	---
21670.92	---	---	---	---	---	---	---	---	---	---	---
21670.92	---	---	---	---	---	---	---	---	---	---	---
24078.80	---	---	---	---	---	---	---	---	---	---	---
24078.80	---	---	---	---	---	---	---	---	---	---	---

Note :

1. Measurement was up to 10th harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz) Dist: Correction to extra plate reading to 3m specification distance 1M measurement distance: -9.5dB
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.

Operation Mode:	Base Unit Transmitting mode	Test Date :	April 4, 2002
Fundamental Frequency:	CH 27 (2439MHz)	Test By:	Markba Lee
Temperature :	24℃	Pol:	Vertical
Humidity :	65%		

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Closs (dB)	Pre-amp (dB)	Filter dB	Dist dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)
4881.82*	59.98	31.54	6.98	37.08	1	0	62.42	74.00	-11.58	P	V
4881.82*	47.19	31.54	6.98	37.08	1	0	49.63	54.00	-4.37	A	V
7319.24*	55.53	35.65	9.06	37.40	1	0	63.84	74.00	-10.16	P	V
7319.24*	41.61	35.65	9.06	37.40	1	0	49.92	54.00	-4.08	A	V
9759.28	---	---	---	---	---	---	---	---	---	---	---
9759.28	---	---	---	---	---	---	---	---	---	---	---
12199.10*	---	---	---	---	---	---	---	---	---	---	---
12199.10*	---	---	---	---	---	---	---	---	---	---	---
14638.92	---	---	---	---	---	---	---	---	---	---	---
14638.92	---	---	---	---	---	---	---	---	---	---	---
17078.74	---	---	---	---	---	---	---	---	---	---	---
17078.74	---	---	---	---	---	---	---	---	---	---	---
19518.56*	---	---	---	---	---	---	---	---	---	---	---
19518.56*	---	---	---	---	---	---	---	---	---	---	---
21958.38	---	---	---	---	---	---	---	---	---	---	---
21958.38	---	---	---	---	---	---	---	---	---	---	---
24398.20	---	---	---	---	---	---	---	---	---	---	---
24398.20	---	---	---	---	---	---	---	---	---	---	---

Note :

1. Measurement was up to 10th harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz) Dist: Correction to extra plate reading to 3m specification distance 1M measurement distance: -9.5dB
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.

Operation Mode:	Base Unit Transmitting mode	Test Date :	April 4, 2002
Fundamental Frequency:	CH 27 (2439MHz)	Test By:	Markba Lee
Temperature :	24℃	Pol:	Horizontal
Humidity :	65%		

Freq.	Reading	AF	Closs	Pre-amp	Filter	Dist	Level	Limit	Margin	Mark	Pol
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)
4881.82*	59.48	31.54	6.98	37.08	1	0	61.92	74.00	-12.08	P	H
4881.82*	47.00	31.54	6.98	37.08	1	0	49.44	54.00	-4.56	A	H
7319.24*	56.58	35.65	9.06	37.40	1	0	64.89	74.00	-9.11	P	H
7319.24*	43.87	35.65	9.06	37.40	1	0	52.18	54.00	-1.82	A	H
9759.28	---	---	---	---	---	---	---	---	---	---	---
9759.28	---	---	---	---	---	---	---	---	---	---	---
12199.10*	---	---	---	---	---	---	---	---	---	---	---
12199.10*	---	---	---	---	---	---	---	---	---	---	---
14638.92	---	---	---	---	---	---	---	---	---	---	---
14638.92	---	---	---	---	---	---	---	---	---	---	---
17078.74	---	---	---	---	---	---	---	---	---	---	---
17078.74	---	---	---	---	---	---	---	---	---	---	---
19518.56*	---	---	---	---	---	---	---	---	---	---	---
19518.56*	---	---	---	---	---	---	---	---	---	---	---
21958.38	---	---	---	---	---	---	---	---	---	---	---
21958.38	---	---	---	---	---	---	---	---	---	---	---
24398.20	---	---	---	---	---	---	---	---	---	---	---
24398.20	---	---	---	---	---	---	---	---	---	---	---

Note :

1. Measurement was up to 10th harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz) Dist: Correction to extra plate reading to 3m specification distance 1M measurement distance: -9.5dB
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.

Operation Mode:	Base Unit Transmitting mode	Test Date :	April 4, 2002
Fundamental Frequency:	CH 48 (2472MHz)	Test By:	Markba Lee
Temperature :	24℃	Pol:	Vertical
Humidity :	65%		

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Closs (dB)	Pre-amp (dB)	Filter dB	Dist dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)
4945.50*	62.52	31.69	7.00	37.11	1	0	65.10	74.00	-8.94	P	V
4945.50*	49.08	31.69	7.00	37.11	1	0	51.66	54.00	-2.34	A	V
7421.68*	58.32	35.79	9.00	37.41	1	0	66.70	74.00	-7.30	P	V
7421.68*	43.95	35.79	9.00	37.41	1	0	52.33	54.00	-1.67	A	V
9890.96	---	---	---	---	---	---	---	---	---	---	---
9890.96	---	---	---	---	---	---	---	---	---	---	---
12363.70*	---	---	---	---	---	---	---	---	---	---	---
12363.70*	---	---	---	---	---	---	---	---	---	---	---
14836.44	---	---	---	---	---	---	---	---	---	---	---
14836.44	---	---	---	---	---	---	---	---	---	---	---
17309.18	---	---	---	---	---	---	---	---	---	---	---
17309.18	---	---	---	---	---	---	---	---	---	---	---
19781.92*	---	---	---	---	---	---	---	---	---	---	---
19781.92*	---	---	---	---	---	---	---	---	---	---	---
22254.66*	---	---	---	---	---	---	---	---	---	---	---
22254.66*	---	---	---	---	---	---	---	---	---	---	---
24727.40	---	---	---	---	---	---	---	---	---	---	---
24727.40	---	---	---	---	---	---	---	---	---	---	---

Note :

1. Measurement was up to 10th harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz) Dist: Correction to extra plate reading to 3m specification distance 1M measurement distance: -9.5dB
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.

Operation Mode:	Base Unit Transmitting mode	Test Date :	April 4, 2002
Fundamental Frequency:	CH 48 (2472MHz)	Test By:	Markba Lee
Temperature :	24℃	Pol:	Horizontal
Humidity :	65%		

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Closs (dB)	Pre-amp (dB)	Filter dB	Dist dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)
4945.50*	58.08	31.69	7.00	37.11	1	0	60.63	74.00	-13.37	P	H
4945.50*	45.29	31.69	7.00	37.11	1	0	47.87	54.00	-6.13	A	H
7421.68*	53.06	35.79	9.00	37.41	1	0	61.44	74.00	-12.56	P	H
7421.68*	38.04	35.79	9.00	37.41	1	0	46.42	54.00	-7.58	A	H
9890.96	---	---	---	---	---	---	---	---	---	---	---
9890.96	---	---	---	---	---	---	---	---	---	---	---
12363.70*	---	---	---	---	---	---	---	---	---	---	---
12363.70*	---	---	---	---	---	---	---	---	---	---	---
14836.44	---	---	---	---	---	---	---	---	---	---	---
14836.44	---	---	---	---	---	---	---	---	---	---	---
17309.18	---	---	---	---	---	---	---	---	---	---	---
17309.18	---	---	---	---	---	---	---	---	---	---	---
19781.92*	---	---	---	---	---	---	---	---	---	---	---
19781.92*	---	---	---	---	---	---	---	---	---	---	---
22254.66*	---	---	---	---	---	---	---	---	---	---	---
22254.66*	---	---	---	---	---	---	---	---	---	---	---
24727.40	---	---	---	---	---	---	---	---	---	---	---
24727.40	---	---	---	---	---	---	---	---	---	---	---

Note :

1. Measurement was up to 10^{th} harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz) Dist: Correction to extra plate reading to 3m specification distance 1M measurement distance: -9.5dB
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.

Operation Mode:	Handset Receiving mode	Test Date :	April 4, 2002
Fundamental Frequency:	CH 5 (2407.5MHz)	Test By:	Markba Lee
Temperature :	24℃	Pol:	Vertical
Humidity :	65%		

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Closs (dB)	Pre-amp (dB)	Filter dB	Dist dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)
2407.10	51.23	26.88	4.34	37.42	0	0	45.03	74.00	-28.97	P	V
2407.10	41.24	26.88	4.34	37.42	0	0	35.04	54.00	-18.96	A	V
4814.20*	---	---	---	---	---	---	---	---	---	---	---
4814.20*	---	---	---	---	---	---	---	---	---	---	---
7221.30	---	---	---	---	---	---	---	---	---	---	---
7221.30	---	---	---	---	---	---	---	---	---	---	---
9628.40	---	---	---	---	---	---	---	---	---	---	---
9628.40	---	---	---	---	---	---	---	---	---	---	---
12035.50*	---	---	---	---	---	---	---	---	---	---	---
12035.50*	---	---	---	---	---	---	---	---	---	---	---
14442.60	---	---	---	---	---	---	---	---	---	---	---
14442.60	---	---	---	---	---	---	---	---	---	---	---
16849.70	---	---	---	---	---	---	---	---	---	---	---
16849.70	---	---	---	---	---	---	---	---	---	---	---
19256.80*	---	---	---	---	---	---	---	---	---	---	---
19256.80*	---	---	---	---	---	---	---	---	---	---	---
21663.90	---	---	---	---	---	---	---	---	---	---	---
21663.90	---	---	---	---	---	---	---	---	---	---	---
24071.00	---	---	---	---	---	---	---	---	---	---	---
24071.00	---	---	---	---	---	---	---	---	---	---	---

Note :

1. Measurement was up to 10^{th} harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz) Dist: Correction to extra plate reading to 3m specification distance 1M measurement distance: -9.5dB
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.

Operation Mode:	Handset Receiving mode	Test Date :	April 4, 2002
Fundamental Frequency:	CH 5 (2407.5MHz)	Test By:	Markba Lee
Temperature :	24℃	Pol:	Horizontal
Humidity :	65%		

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Closs (dB)	Pre-amp (dB)	Filter dB	Dist dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)
2407.10	47.23	26.88	4.34	37.42	0	0	41.03	74.00	-32.97	P	H
2407.10	37.44	26.88	4.34	37.42	0	0	31.24	54.00	-22.76	A	H
4814.20*	---	---	---	---	---	---	---	---	---	---	---
4814.20*	---	---	---	---	---	---	---	---	---	---	---
7221.30	---	---	---	---	---	---	---	---	---	---	---
7221.30	---	---	---	---	---	---	---	---	---	---	---
9628.40	---	---	---	---	---	---	---	---	---	---	---
9628.40	---	---	---	---	---	---	---	---	---	---	---
12035.50*	---	---	---	---	---	---	---	---	---	---	---
12035.50*	---	---	---	---	---	---	---	---	---	---	---
14442.60	---	---	---	---	---	---	---	---	---	---	---
14442.60	---	---	---	---	---	---	---	---	---	---	---
16849.70	---	---	---	---	---	---	---	---	---	---	---
16849.70	---	---	---	---	---	---	---	---	---	---	---
19256.80*	---	---	---	---	---	---	---	---	---	---	---
19256.80*	---	---	---	---	---	---	---	---	---	---	---
21663.90	---	---	---	---	---	---	---	---	---	---	---
21663.90	---	---	---	---	---	---	---	---	---	---	---
24071.00	---	---	---	---	---	---	---	---	---	---	---
24071.00	---	---	---	---	---	---	---	---	---	---	---

Note :

1. Measurement was up to 10^{th} harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz) Dist: Correction to extra plate reading to 3m specification distance 1M measurement distance: -9.5dB
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.

Operation Mode:	Handset Receiving mode	Test Date :	April 4, 2002
Fundamental Frequency:	CH 27 (2439MHz)	Test By:	Markba Lee
Temperature :	24℃	Pol:	Vertical
Humidity :	65%		

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Closs (dB)	Pre-amp (dB)	Filter dB	Dist dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)
2440.22	51.60	26.96	4.38	37.41	0	0	45.53	74.00	-28.47	P	V
2440.22	42.08	26.96	4.38	37.41	0	0	36.01	54.00	-17.99	A	V
4880.44	---	---	---	---	---	---	---	---	---	---	---
4880.44	---	---	---	---	---	---	---	---	---	---	---
7320.66	---	---	---	---	---	---	---	---	---	---	---
7320.66	---	---	---	---	---	---	---	---	---	---	---
9760.88	---	---	---	---	---	---	---	---	---	---	---
9760.88	---	---	---	---	---	---	---	---	---	---	---
12201.10	---	---	---	---	---	---	---	---	---	---	---
12201.10	---	---	---	---	---	---	---	---	---	---	---
14641.32	---	---	---	---	---	---	---	---	---	---	---
14641.32	---	---	---	---	---	---	---	---	---	---	---
17081.54	---	---	---	---	---	---	---	---	---	---	---
17081.54	---	---	---	---	---	---	---	---	---	---	---
19521.76	---	---	---	---	---	---	---	---	---	---	---
19521.76	---	---	---	---	---	---	---	---	---	---	---
21961.98	---	---	---	---	---	---	---	---	---	---	---
21961.98	---	---	---	---	---	---	---	---	---	---	---
24402.20	---	---	---	---	---	---	---	---	---	---	---
24402.20	---	---	---	---	---	---	---	---	---	---	---

Note :

1. Measurement was up to 10^{th} harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz) Dist: Correction to extra plate reading to 3m specification distance 1M measurement distance: -9.5dB
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.

Operation Mode:	Handset Receiving mode	Test Date :	April 4, 2002
Fundamental Frequency:	CH 27 (2439MHz)	Test By:	Markba Lee
Temperature :	24℃	Pol:	Horizontal
Humidity :	65%		

Freq.	Reading	AF	Closs	Pre-amp	Filter	Dist	Level	Limit	Margin	Mark	Pol
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	dB	dB	(dBuV/m)	FCC_B	(dB)	(P/Q/A)	(H/V)
2440.22	48.44	26.96	4.38	37.41	0	0	42.37	74.00	-31.63	P	H
2440.22	37.44	26.96	4.38	37.41	0	0	31.37	54.00	-22.63	A	H
4880.44	---	---	---	---	---	---	---	---	---	---	---
4880.44	---	---	---	---	---	---	---	---	---	---	---
7320.66	---	---	---	---	---	---	---	---	---	---	---
7320.66	---	---	---	---	---	---	---	---	---	---	---
9760.88	---	---	---	---	---	---	---	---	---	---	---
9760.88	---	---	---	---	---	---	---	---	---	---	---
12201.10	---	---	---	---	---	---	---	---	---	---	---
12201.10	---	---	---	---	---	---	---	---	---	---	---
14641.32	---	---	---	---	---	---	---	---	---	---	---
14641.32	---	---	---	---	---	---	---	---	---	---	---
17081.54	---	---	---	---	---	---	---	---	---	---	---
17081.54	---	---	---	---	---	---	---	---	---	---	---
19521.76	---	---	---	---	---	---	---	---	---	---	---
19521.76	---	---	---	---	---	---	---	---	---	---	---
21961.98	---	---	---	---	---	---	---	---	---	---	---
21961.98	---	---	---	---	---	---	---	---	---	---	---
24402.20	---	---	---	---	---	---	---	---	---	---	---
24402.20	---	---	---	---	---	---	---	---	---	---	---

Note :

1. Measurement was up to 10^{th} harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz) Dist: Correction to extra plate reading to 3m specification distance 1M measurement distance: -9.5dB
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.

Operation Mode:	Handset Receiving mode	Test Date :	April 4, 2002
Fundamental Frequency:	CH 48 (2472MHz)	Test By:	Markba Lee
Temperature :	24℃	Pol:	Vertical
Humidity :	65%		

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Closs (dB)	Pre-amp (dB)	Filter dB	Dist dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)
2472.92	51.25	27.05	4.40	37.39	0	0	45.31	74.00	-28.69	P	V
2472.92	42.20	27.05	4.40	37.39	0	0	36.26	54.00	-17.74	A	V
4945.84*	---	---	---	---	---	---	---	---	---	---	---
4945.84*	---	---	---	---	---	---	---	---	---	---	---
7418.76*	---	---	---	---	---	---	---	---	---	---	---
7418.76*	---	---	---	---	---	---	---	---	---	---	---
9891.68	---	---	---	---	---	---	---	---	---	---	---
9891.68	---	---	---	---	---	---	---	---	---	---	---
12364.60*	---	---	---	---	---	---	---	---	---	---	---
12364.60*	---	---	---	---	---	---	---	---	---	---	---
14837.52	---	---	---	---	---	---	---	---	---	---	---
14837.52	---	---	---	---	---	---	---	---	---	---	---
17310.44	---	---	---	---	---	---	---	---	---	---	---
17310.44	---	---	---	---	---	---	---	---	---	---	---
19783.36*	---	---	---	---	---	---	---	---	---	---	---
19783.36*	---	---	---	---	---	---	---	---	---	---	---
22256.28*	---	---	---	---	---	---	---	---	---	---	---
22256.28*	---	---	---	---	---	---	---	---	---	---	---
24729.20	---	---	---	---	---	---	---	---	---	---	---
24729.20	---	---	---	---	---	---	---	---	---	---	---

Note :

1. Measurement was up to 10^{th} harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz) Dist: Correction to extra plate reading to 3m specification distance 1M measurement distance: -9.5dB
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.

Operation Mode:	Handset Receiving mode	Test Date :	April 4, 2002
Fundamental Frequency:	CH 48 (2472MHz)	Test By:	Markba Lee
Temperature :	24℃	Pol:	Horizontal
Humidity :	65%		

Freq. (MHz)	Reading (dBuV)	AF (dBuV)	Closs (dB)	Pre-amp (dB)	Filter dB	Dist dB	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Mark (P/Q/A)	Pol (H/V)
2472.92	48.33	27.05	4.40	37.39	0	0	42.39	74.00	-31.61	P	H
2472.92	37.25	27.05	4.40	37.39	0	0	31.31	54.00	-22.69	A	H
4945.84*	---	---	---	---	---	---	---	---	---	---	---
4945.84*	---	---	---	---	---	---	---	---	---	---	---
7418.76*	---	---	---	---	---	---	---	---	---	---	---
7418.76*	---	---	---	---	---	---	---	---	---	---	---
9891.68	---	---	---	---	---	---	---	---	---	---	---
9891.68	---	---	---	---	---	---	---	---	---	---	---
12364.60*	---	---	---	---	---	---	---	---	---	---	---
12364.60*	---	---	---	---	---	---	---	---	---	---	---
14837.52	---	---	---	---	---	---	---	---	---	---	---
14837.52	---	---	---	---	---	---	---	---	---	---	---
17310.44	---	---	---	---	---	---	---	---	---	---	---
17310.44	---	---	---	---	---	---	---	---	---	---	---
19783.36*	---	---	---	---	---	---	---	---	---	---	---
19783.36*	---	---	---	---	---	---	---	---	---	---	---
22256.28*	---	---	---	---	---	---	---	---	---	---	---
22256.28*	---	---	---	---	---	---	---	---	---	---	---
24729.20	---	---	---	---	---	---	---	---	---	---	---
24729.20	---	---	---	---	---	---	---	---	---	---	---

Note :

1. Measurement was up to 10^{th} harmonic, Remark "---" means that the emissions level is too low to be measured.
2. AF: Antenna Factor, Closs: Cable Loss, Pre-Amp: Preamp gain, Filter: High Pass Filter Insertion Loss (3.5GHz) Dist: Correction to extra plate reading to 3m specification distance 1M measurement distance: -9.5dB
3. Analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz
4. Remark "*" means that Restricted band.

- **Radiated Emissions**
- **Test Requirement: 15.209 (15.109)**

Measurement Equipment Used:

Open Area Test Site # 3					
EQUIPMENT TYPE	**MFR**	**MODEL NO.**	**SERIAL NO.**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	ADVANTEST	R3261A	N/A	03/19/2002	03/18/2003
EMI Test Receiver	R&S	ESVS20	838804/004	01/05/2002	01/04/2003
Pre-Amplifier	HP	8447D	2944A09173	03/04/2002	03/03/2003
Precision Dipole	SCHWAZBECK	VHAP	998/999	05/17/2001	05/16/2002
Precision Dipole	SCHWAZBECK	UHAP	981/982	05/17/2001	05/16/2002
Bilog Antenna	SCHWAZBECK	VULB9163	128	02/02/2002	02/01/2003
Turn Table	EMCO	2081-1.21	9709-1885	N.C.R	N.C.R
Antenna Tower	EMCO	2075-2	9707-2060	N.C.R	N.C.R
Controller	EMCO	2090	9709-1256	N.C.R	N.C.R
RF Switch	ANRITSU	MP59B	M53867	N.C.R	N.C.R

Test Set-Up:

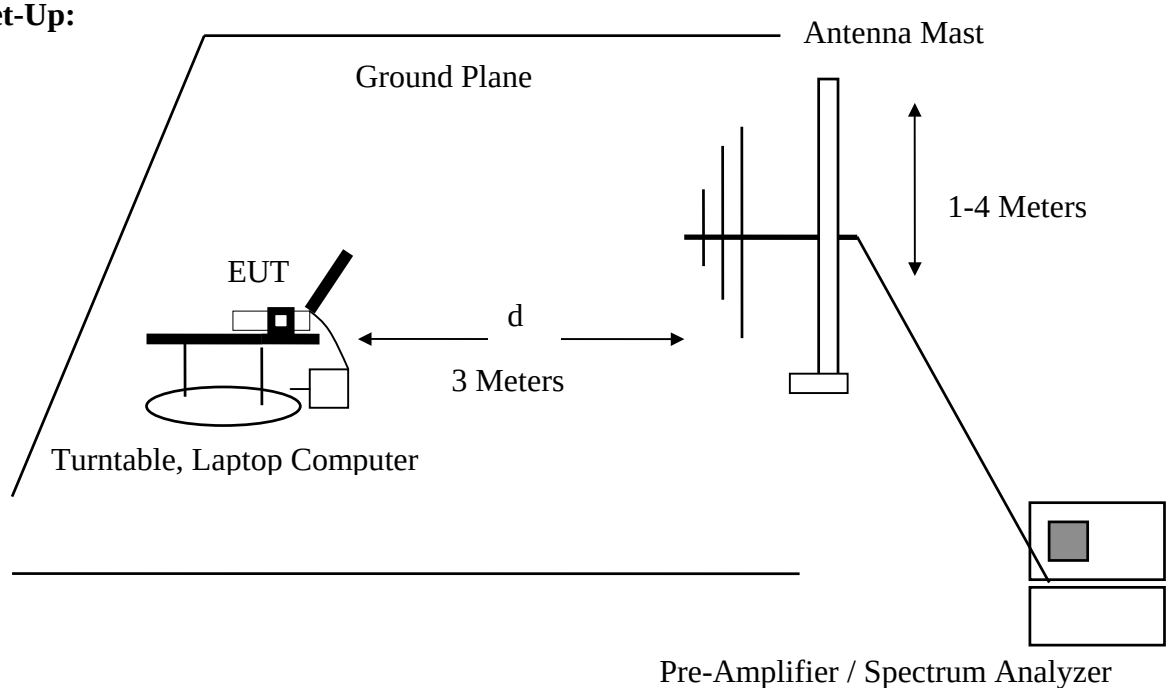


Fig. 2

Test Procedures:

The EUT was placed on a turntable at a distance of 3 meters from a bilog a Antenna or Log Periodic search antenna. The antenna was raised and lowered, the EUT rotated on the turntable, until the EUT azimuth, antenna elevation, and antenna polarity were found which yielded maximum received emission levels on the spectrum analyzer.

The following test mode(s) were scanned during the preliminary test:

Mode(s):

1. **Handset CH 5 Transmitting**
2. **Handset CH 27 Transmitting**
3. **Handset CH 48 Transmitting (Worst Mode)**

Final Radiated Emission Test was Radiated by operating the worst mode as indicated above.

OATS No:			Date			Tested By:	
Site 3 / 10 M			**04/25/2002**			**MARKBA LEE**	
Six Highest Radiated Emission Readings							
Frequency Range Investigated				30 MHz TO 1000 MHz			
Freq (MHz)	Meter Reading (dBuV)	C.F. (dB/m)	Corrected Reading (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading Type P/Q/A	Pol. H/V
119.97	**17.5**	**11.6**	**29.1**	**43.5**	**-14.4**	**P**	**V**
263.96	**17.3**	**16.0**	**33.3**	**46.0**	**-12.7**	**P**	**V**
119.97	**21.5**	**11.6**	**33.1**	**43.5**	**-10.4**	**P**	**H**
263.94	**16.9**	**16.0**	**32.9**	**46.0**	**-13.1**	**P**	**H**
359.95	**16.3**	**18.6**	**34.9**	**46.0**	**-11.1**	**P**	**H**
407.93	**15.8**	**20.6**	**36.4**	**46.0**	**-9.6**	**P**	**H**

C.F.(Correction Factor)=Antenna Factor + Cable Loss - Amplifier Gain
Corrected Reading = Metering Reading + C.F.
Margin=Corrected Reading - Limits
P=Peak Reading H=Horizontal Polarization/Antenna
Q=Quasi-peak V=Vertical Polarization/Antenna
A=Average Reading

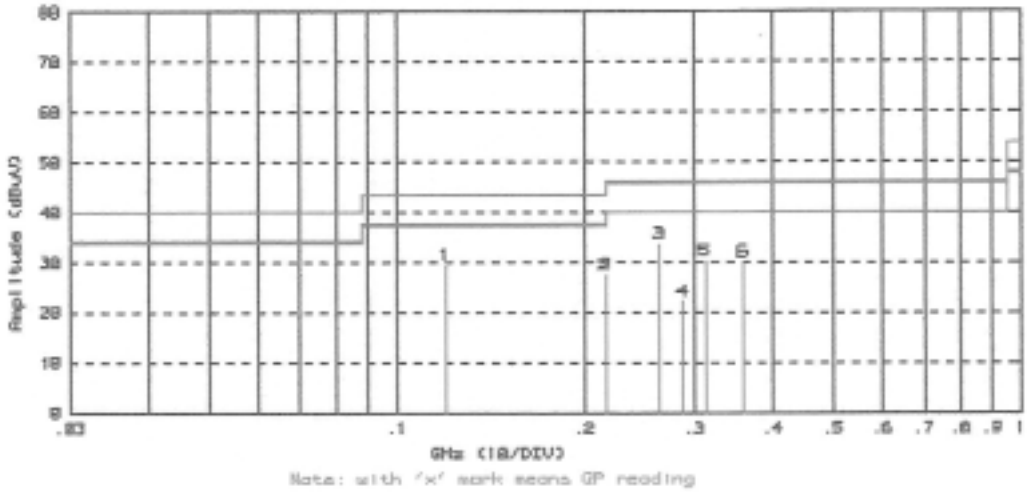
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.

Radiation Emission Datas for Handset Transmitting

C&C Lab. Co. Open Site 3

Customer:ZI BEI Model :36570 Date:25 Apr 2002
Antenna :VULB9163 Polr. :Vertical-3 M Time:20:13:38
S.P.A. :R3261X PreAmp.:8447D file#: 1241
Rule :FCC-B Mode :. Tmp.(C):25
Receiver:ESVS 20 Tester :MARKBA LEE Humid(%):60
Remark :HANDSET#7 TX-48



Note: with 'x' mark means QP reading

No.	FREQ. <MHz>	RAW DATA <dBuV>	C'Fac <dB>	CORR'd < dBuV/m >	LIMIT	MARGIN <dB>	ANTENNA HEIGHT	TABLE ANGLE
1	119.97	17.5	11.6	29.1	43.5	-14.4	100.0	67.6
2	215.96	12.0	15.2	27.2	43.5	-16.3	155.2	245.0
3	263.96	17.3	16.0	33.3	46.0	-12.7	150.9	201.6
4	287.97	5.9	16.2	22.1	46.0	-23.9	149.3	26.1
5	311.94	13.0	17.0	30.0	46.0	-16.0	142.7	359.8
6	359.93	11.2	18.6	29.8	46.0	-16.2	100.0	113.9

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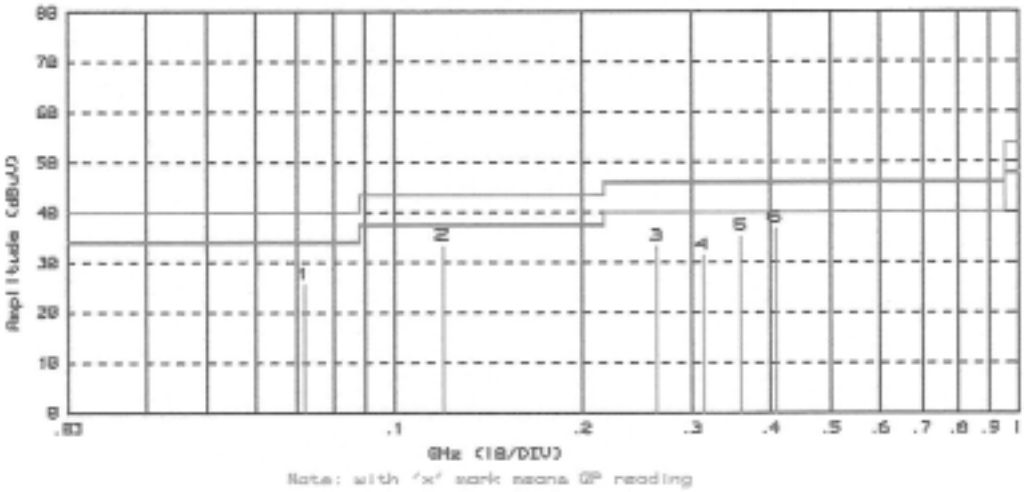
Radiation Emission Datas for Handset Transmitting

C&C Lab. Co. Open Site 3

Customer:ZI BEI Model :36570 Date:25 Apr 2002
Antenna :VULB9163 Polr. :Horizontal-3 M Time:20:24:02
S.P.A. :R3261X PreAmp.:8447D file#: 1242
Rule :FCC-B Mode :. Tmp.(C):25
Receiver:ESVS 20 Tester :MARKBA LEE Humid(%):60
Remark :HANDSET#7 TX-48



Note: with 'x' mark means QP reading

No.	FREQ. <MHz>	RAW DATA <dBuV>	C'Fac <dB>	CORR'd < dBuV/m >	LIMIT	MARGIN <dB>	ANTENNA HEIGHT	TABLE ANGLE
1	71.99	15.3	10.0	25.3	40.0	-14.7	286.0	268.9
2	119.97	21.5	11.6	33.1	43.5	-10.4	223.9	287.2
3	263.94	16.9	16.0	32.9	46.0	-13.1	100.0	287.5
4	311.95	14.1	17.0	31.1	46.0	-14.9	100.0	296.6
5	359.95	16.3	18.6	34.9	46.0	-11.1	100.0	264.8
6	407.93	15.8	20.6	36.4	46.0	-9.6	100.0	85.4

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Test Procedures:

The EUT was placed on a turntable at a distance of 3 meters from a bilog a Antenna or Log Periodic search antenna. The antenna was raised and lowered, the EUT rotated on the turntable, until the EUT azimuth, antenna elevation, and antenna polarity were found which yielded maximum received emission levels on the spectrum analyzer.

The following test mode(s) were scanned during the preliminary test:

Mode(s):

1. **Base Unit CH 5 Transmitting**
2. **Base Unit CH 27 Transmitting**
3. **Base Unit CH 48 Transmitting (Worst Mode)**

Final Radiated Emission Test was Radiated by operating the worst mode as indicated above.

OATS No:			Date			Tested By:	
Site 3 / 10 M			**04/25/2002**			**MARKBA LEE**	
Six Highest Radiated Emission Readings							
Frequency Range Investigated				30 MHz TO 1000 MHz			
Freq (MHz)	Meter Reading (dBuV)	C.F. (dB/m)	Corrected Reading (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading Type P/Q/A	Pol. H/V
95.61	**26.1**	**13.2**	**39.3**	**43.5**	**-4.2**	**P**	**V**
215.96	**21.6**	**15.2**	**36.8**	**43.5**	**-6.7**	**P**	**V**
95.89	**26.1**	**13.3**	**39.4**	**43.5**	**-4.1**	**P**	**H**
191.98	**24.0**	**14.1**	**38.1**	**43.5**	**-5.4**	**P**	**H**
215.97	**27.4**	**15.2**	**42.6**	**43.5**	**-0.9**	**P**	**H**
239.97	**22.7**	**15.9**	**38.6**	**46.0**	**-7.4**	**P**	**H**

C.F.(Correction Factor)=Antenna Factor + Cable Loss - Amplifier Gain
Corrected Reading = Metering Reading + C.F.
Margin=Corrected Reading - Limits
P=Peak Reading H=Horizontal Polarization/Antenna
Q=Quasi-peak V=Vertical Polarization/Antenna
A=Average Reading

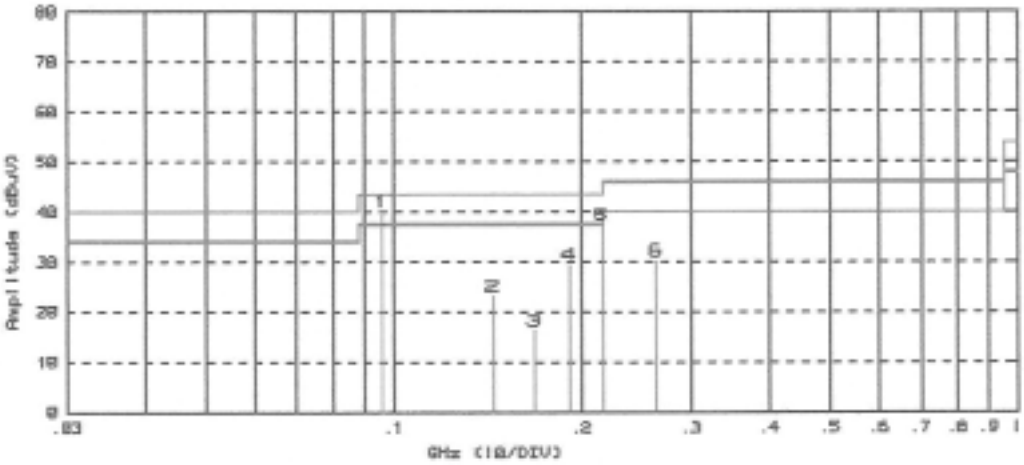
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.

Radiation Emission Datas for Base Unit Transmitting

C&C Lab. Co. Open Site 3

Customer:ZI BEI Model :36570 Date:25 Apr 2002
Antenna :VULB9163 Polr. :Vertical-3 M Time:17:57:14
S.P.A. :R3261X PreAmp.:8447D file#: 1235
Rule :FCC-B Mode :. Tmp.(C):25
Receiver:ESVS 20 Tester :MARKBA LEE Humid(%):60
Remark :BASE#7 CH-48



Note: with 'x' mark means QP reading

No.	FREQ. <MHz>	RAW DATA <dBuV>	C'Fac <dB>	CORR'd < dBuV/m >	LIMIT	MARGIN <dB>	ANTENNA HEIGHT	TABLE ANGLE
1	95.61	26.1	13.2	39.3	43.5	-4.2 !	100.0	0.0
2	144.59	11.9	11.0	22.9	43.5	-20.6	100.0	39.9
3	167.98	4.1	12.0	16.1	43.5	-27.4	100.0	274.1
4	191.97	15.0	14.1	29.1	43.5	-14.4	100.0	167.0
5	215.96	21.6	15.2	36.8	43.5	-6.7	100.0	91.4
6	263.96	13.8	16.0	29.8	46.0	-16.2	129.7	350.7

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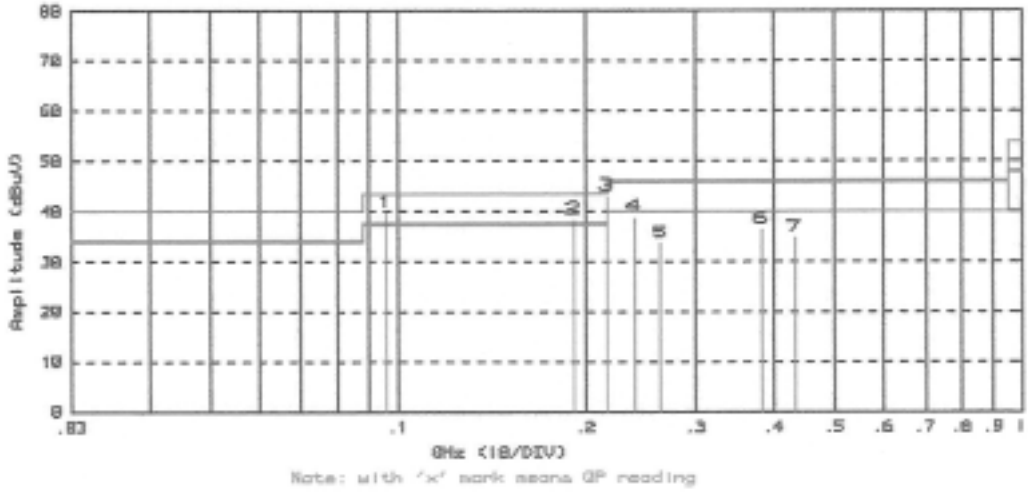
Radiation Emission Datas for Base Unit Transmitting

C&C Lab. Co. Open Site 3

Customer:ZI BEI Model :36570 Date:25 Apr 2002
Antenna :VULB9163 Polr. :Horizontal-3 M Time:17:38:38
S.P.A. :R3261X PreAmp.:8447D file#: 1234
Rule :FCC-B Mode :. Tmp.(C):25
Receiver:ESUS 20 Tester :MARKBA LEE Humid(%):60
Remark :BASE#7 CH-48



Note: with 'x' mark means QP reading

No.	FREQ. <MHz>	RAW DATA <dBuV>	C'Fac <dB>	CORR'd < dBuV/m	LIMIT >	MARGIN <dB>		ANTENNA HEIGHT	TABLE ANGLE
1	95.89	26.1	13.3	39.4	43.5	-4.1	!	342.0	74.9
2	191.98	24.0	14.1	38.1	43.5	-5.4	!	159.5	43.5
3	215.97	27.4	15.2	42.6	43.5	-.9	!	124.8	43.6
4	239.97	22.7	15.9	38.6	46.0	-7.4		100.0	63.0
5	263.97	17.4	16.0	33.4	46.0	-12.6		100.0	53.4
6	383.97	16.2	19.9	36.1	46.0	-9.9		100.0	28.7
7	431.97	14.1	20.4	34.5	46.0	-11.5		100.0	314.7

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Test Procedures:

The EUT was placed on a turntable at a distance of 3 meters from a bilog a Antenna or Log Periodic search antenna. The antenna was raised and lowered, the EUT rotated on the turntable, until the EUT azimuth, antenna elevation, and antenna polarity were found which yielded maximum received emission levels on the spectrum analyzer.

The following test mode(s) were scanned during the preliminary test:

Mode(s):

1. **Handset CH 5 Receiving**
2. **Handset CH 27 Receiving (Worst Mode)**
3. **Handset CH 48 Receiving**

Final Radiated Emission Test was Radiated by operating the worst mode as indicated above.

OATS No: **Site 3 / 10 M**			Date **04/25/2002**			Tested By: **MARKBA LEE**	
Six Highest Radiated Emission Readings							
Frequency Range Investigated				30 MHz TO 1000 MHz			
Freq (MHz)	Meter Reading (dBuV)	C.F. (dB/m)	Corrected Reading (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading Type P/Q/A	Pol. H/V
311.95	**14.7**	**17.0**	**31.7**	**46.0**	**-14.3**	**P**	**V**
455.93	**11.6**	**20.4**	**32.0**	**46.0**	**-14.0**	**P**	**V**
95.91	**28.6**	**13.3**	**41.9**	**43.5**	**-1.6**	**P**	**H**
119.97	**22.4**	**11.6**	**34.0**	**43.5**	**-9.5**	**P**	**H**
359.93	**16.7**	**18.6**	**35.3**	**46.0**	**-10.7**	**P**	**H**
407.94	**17.0**	**20.6**	**37.6**	**46.0**	**-8.4**	**P**	**H**

C.F.(Correction Factor)=Antenna Factor + Cable Loss - Amplifier Gain
Corrected Reading = Metering Reading + C.F.
Margin=Corrected Reading - Limits
P=Peak Reading H=Horizontal Polarization/Antenna
Q=Quasi-peak V=Vertical Polarization/Antenna
A=Average Reading

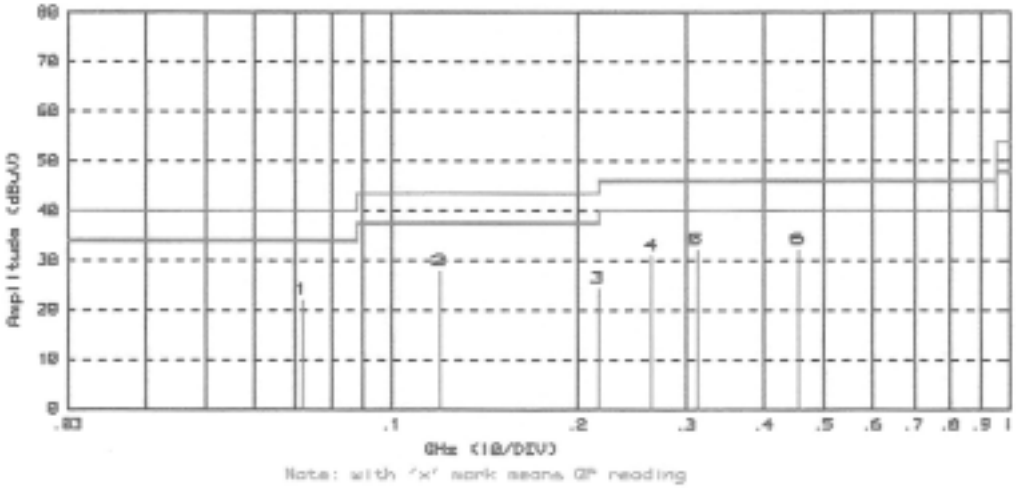
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.

Radiation Emission Datas for Handset Receiving

C&C Lab. Co. Open Site 3

Customer:ZI BEI Model :36570 Date:25 Apr 2002
Antenna :VULB9163 Polr. :Vertical-3 M Time:22:02:02
S.P.A. :R3261X PreAmp.:8447D file#: 1248
Rule :FCC-B Mode :. Tmp.(C):25
Receiver:ESVS 20 Tester :MARKBA LEE Humid(%):60
Remark :HANDSET#7 RX-27



Note: with 'x' mark means QP reading

No.	FREQ. <MHz>	RAW DATA <dBuV>	C'Fac <dB>	CORR'd < dBuV/m >	LIMIT	MARGIN <dB>	ANTENNA HEIGHT	TABLE ANGLE
1	72.00	12.0	10.0	22.0	40.0	-18.0	100.0	313.1
2	119.97	16.0	11.6	27.6	43.5	-15.9	100.0	57.4
3	215.96	9.0	15.2	24.2	43.5	-19.3	162.3	246.6
4	263.96	14.7	16.0	30.7	46.0	-15.3	173.3	201.5
5	311.95	14.7	17.0	31.7	46.0	-14.3	159.7	360.0
6	455.93	11.6	20.4	32.0	46.0	-14.0	100.0	123.9

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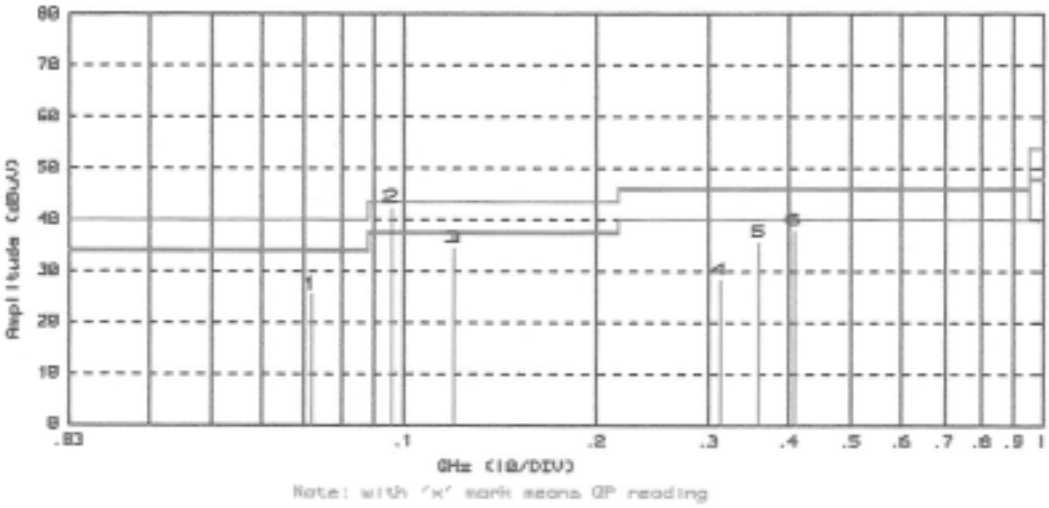
Radiation Emission Datas for Handset Receiving

C&C Lab. Co. Open Site 3

Customer:ZI BEI	Model :36570	Date:25 Apr 2002
Antenna :VULB9163	Polr. :Horizontal-3 M	Time:21:52:28
S.P.A. :R3261X	PreAmp.:8447D	File#: 1247
Rule :FCC-B	Mode :.	Tmp.(C):25
Receiver:ESVS 20	Tester :MARKBA LEE	Humid(%):60
Remark :HANDSET#7 RX-27		



Note: with 'x' mark means QP reading

No.	FREQ. <MHz>	RAW DATA <dBuV>	C'Fac <dB>	CORR'd < dBuV/m >	LIMIT	MARGIN <dB>	ANTENNA HEIGHT	TABLE ANGLE
1	71.98	15.2	10.0	25.2	40.0	-14.8	272.7	268.7
2	95.91	28.6	13.3	41.9	43.5	-1.6 !	400.0	332.9
3	119.97	22.4	11.6	34.0	43.5	-9.5	139.5	235.8
4	311.94	11.0	17.0	28.0	46.0	-18.0	100.0	77.3
5	359.93	16.7	18.6	35.3	46.0	-10.7	100.0	94.7
6	407.94	17.0	20.6	37.6	46.0	-8.4	100.0	136.0

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Radiated Emission Setup Photos - Handset
(Worst Emission Position)

Radiated Emission Setup Photos - Handset
(Worst Emission Position)

Radiated Emission Setup Photos – Base unit (Worst Emission Position)

Radiated Emission Setup Photos – Base unit (Worst Emission Position)

- **AC Line Conducted Emissions**
- **Test Requirement: 15.207**

Measurement Equipment Used:

Conducted Emission Test Site # 4					
EQUIPMENT TYPE	**MFR**	**MODEL NO.**	**SERIAL NO.**	**LAST CAL.**	**CAL DUE.**
EMI Test Receiver	R&S	ESCS30	845552/030	12/12/2001	12/11/2002
LISN	R&S	ENV 4200	8303261016	02/08/2002	02/07/2003
LISN	EMCO	3825/2	9003/1382	02/18/2002	02/17/2003
Spectrum Analyzer	ADVANTEST	R3261A	91720031	05/05/2001	05/04/2002
2X2 WIRE ISN	R&S	ENY22	830661/027	04/10/2002	04/09/2003
FOUR WIRE ISN	R&S	ENY41	830663/024	04/10/2002	04/09/2003

Test Set-Up:

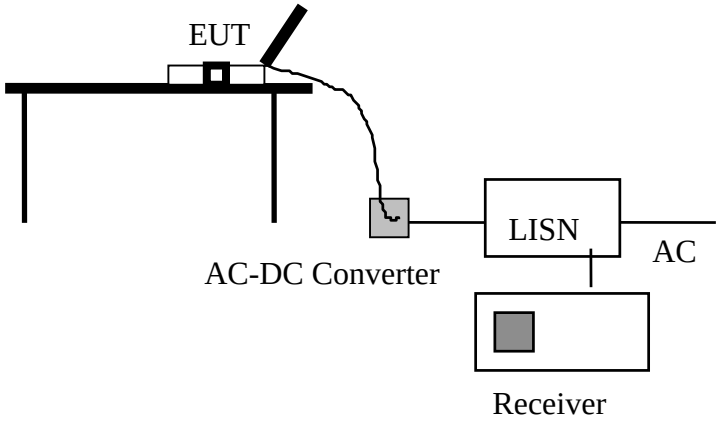


Fig. 3

Test Procedure:

1. The EUT was placed on a wooden table 40 cm from a vertical ground plane and approximately 80 cm above the horizontal ground plane on the floor. The EUT was set to transmit in a normal mode.

2. Line conducted data was recorded for both NEUTRAL and HOT lines.

The following test mode(s) were scanned during the preliminary test:

Mode(s):

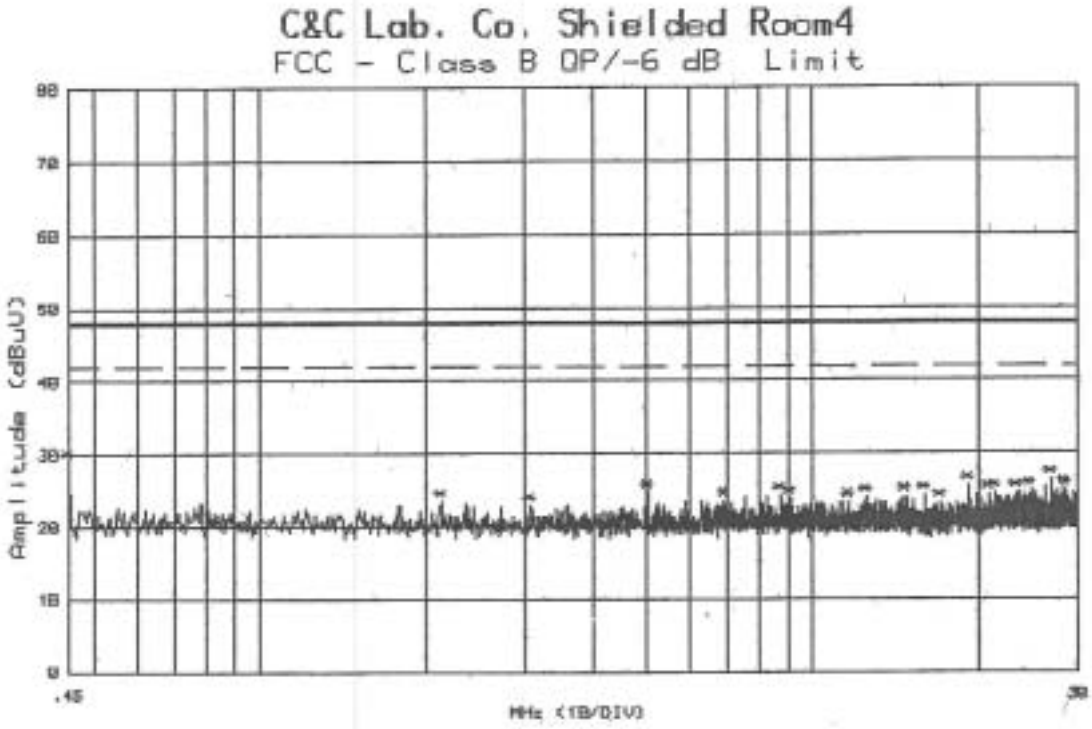
1. **Base Unit Normal**
2. **Base Unit CH 5**
3. **Base Unit CH 27 (Worst Mode)**
4. **Base Unit CH 48**

Final Conducted Emission Test was conducted by operating the worst mode as indicated above.

Conducted Room #4	Date **04/02/2002**			Tested By: **MARKBA LEE**			
Six Highest Conducted Emission Readings							
Frequency Range Investigated				150 kHz TO 30 MHz			
Freq (MHz)	Meter Reading (dBuV)	C.F. (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Margin (dB)	Reading Type (P/Q/A)	Line (L1/L2)
0.450	**19.1**	**9.8**	**28.9**	**48.0**	**-19.1**	**P**	**L1**
19.280	**15.6**	**9.9**	**25.5**	**48.0**	**-22.5**	**P**	**L1**
26.870	**16.4**	**10.0**	**26.4**	**48.0**	**-21.6**	**P**	**L1**
0.450	**22.6**	**9.9**	**32.5**	**48.0**	**-15.5**	**P**	**L2**
4.000	**16.6**	**9.8**	**26.4**	**48.0**	**-21.6**	**P**	**L2**
29.340	**15.5**	**10.1**	**25.6**	**48.0**	**-22.4**	**P**	**L2**

C.F.(Correction Factor)=Insertion Loss + Cable Loss
Corrected Reading = Metering Reading + C.F.
Margin=Corrected Reading - Limits
P=Peak Reading L1=Hot
Q=Quasi-peak L2=Neutral
A=Average Reading

Test Results : Refer to attached graph (Worst Data).



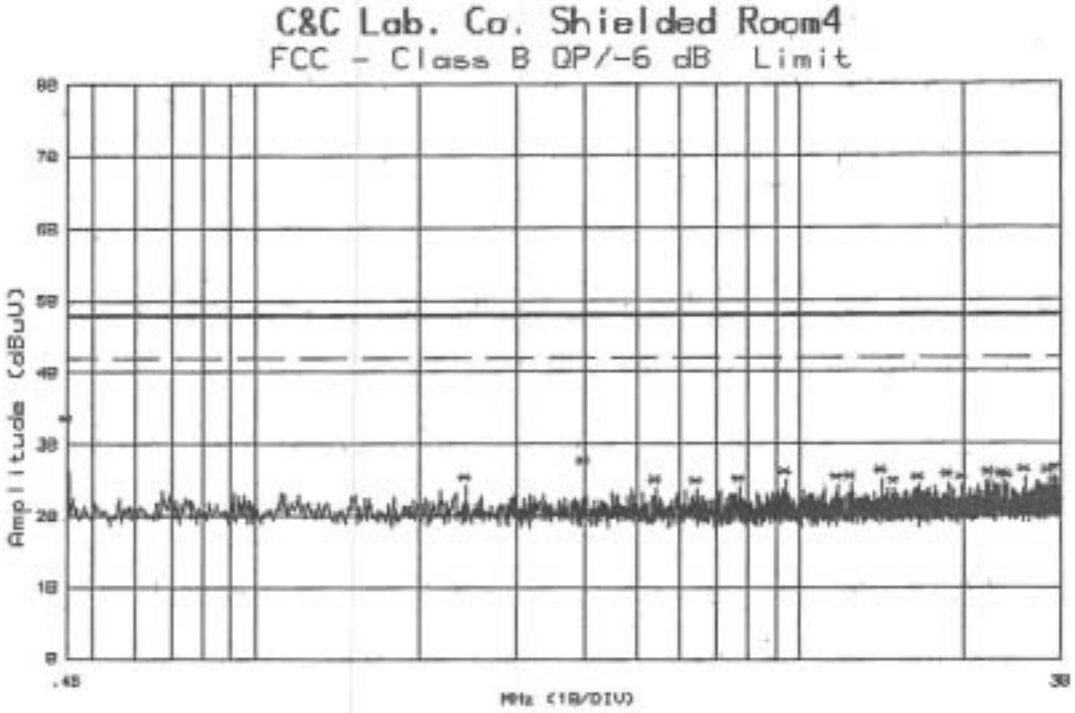
Customer:ZI BBI
Model :36570
Mode :..
Reading :Peak(R&S Receiver)
Remark :BASE#7 CH-27

File#: 1536
Humd.:65 (%)
Port :L1

Date : 2 Apr 2002 19:30:31
Temp. :24 (C)
Tested by:MARKBA LEE

No.	Freq. (MHz)	Reading (dBuV)	I_Loss (dB)	Total (dBuV)	QP.Lmt (dBuV)	Margin (dB)	Warning Mark
1	.450	19.1	9.8	28.9	48.0	-19.1	
2	2.120	13.7	9.7	23.4	48.0	-24.6	
3	3.080	13.1	9.7	22.8	48.0	-25.2	
4	5.040	14.9	9.8	24.7	48.0	-23.3	
5	6.910	13.7	9.8	23.5	48.0	-24.5	
6	8.730	14.3	9.8	24.1	48.0	-23.9	
7	9.090	13.9	9.8	23.7	48.0	-24.3	
8	11.680	13.4	9.8	23.2	48.0	-24.8	
9	12.530	14.1	9.8	23.9	48.0	-24.1	
10	14.810	14.3	9.8	24.1	48.0	-23.9	
11	16.030	14.3	9.9	24.2	48.0	-23.8	
12	17.120	13.3	9.9	23.2	48.0	-24.8	
13	19.280	15.6	9.9	25.5	48.0	-22.5	
14	20.860	14.5	9.9	24.4	48.0	-23.6	
15	21.410	14.6	9.9	24.5	48.0	-23.5	
16	23.350	14.6	9.9	24.5	48.0	-23.5	
17	24.720	14.9	9.9	24.8	48.0	-23.2	
18	26.870	16.4	10.0	26.4	48.0	-21.6	
19	28.390	15.0	10.0	25.0	48.0	-23.0	
20	28.640	14.8	10.0	24.8	48.0	-23.2	

End of file : 1536



Customer:ZI BEI
Model :36570
Mode :..
Reading :Peak(R&S Receiver)
Remark :BASE#7 CH-27

File#: 1535
Humd.:65 (%)
Port :L2

Date : 2 Apr 2002 19:19:24
Temp. :24 (C)
Tested by:MARKBA LEE

No.	Freq. (MHz)	Reading (dBuV)	I_Loss (dB)	Total (dBuV)	QP.Lmt (dBuV)	Margin (dB)	Warning Mark
1	.450	22.6	9.9	32.5	48.0	-15.5	
2	2.420	14.4	9.8	24.2	48.0	-23.8	
3	4.000	16.6	9.8	26.4	48.0	-21.6	
4	5.430	14.0	9.8	23.8	48.0	-24.2	
5	6.430	13.9	9.8	23.7	48.0	-24.3	
6	7.720	14.2	9.8	24.0	48.0	-24.0	
7	9.380	15.1	9.8	24.9	48.0	-23.1	
8	11.720	14.3	9.9	24.2	48.0	-23.8	
9	12.400	14.5	9.9	24.4	48.0	-23.6	
10	14.190	15.2	9.9	25.1	48.0	-22.9	
11	14.970	13.8	9.9	23.7	48.0	-24.3	
12	16.580	14.2	10.0	24.2	48.0	-23.8	
13	18.750	14.6	10.0	24.6	48.0	-23.4	
14	19.950	14.2	10.0	24.2	48.0	-23.8	
15	22.240	14.9	10.0	24.9	48.0	-23.1	
16	23.590	14.7	10.0	24.7	48.0	-23.3	
17	24.000	14.5	10.0	24.5	48.0	-23.5	
18	25.820	15.2	10.1	25.3	48.0	-22.7	
19	28.470	15.1	10.1	25.2	48.0	-22.8	
20	29.340	15.5	10.1	25.6	48.0	-22.4	

End of file : 1535

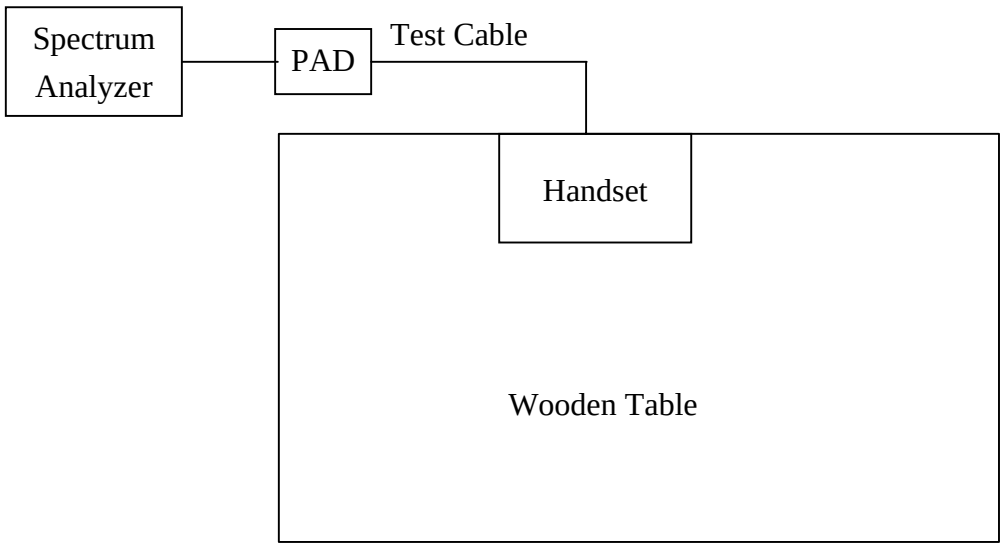
Conducted Emission Setup Photos (Worst Emission Position)

- **Minimum 6 dB Bandwidth for DSSS**
- **Test Requirement: 15.247(a)(2)**

Measurement Equipment Used:

Equipment	Model No.	Serial No.	Cal. Due.
ROHDE & SCHWARZ Spectrum Analyzer	FSEB 7	2858291011	11/08/2002
SCHWARZBECK Horn antenna	BBHA 9120D	210	02/21/2003
Huber + Suhner low loss cable	Sucoflex 104	N/A	N/A

Test Set-up:



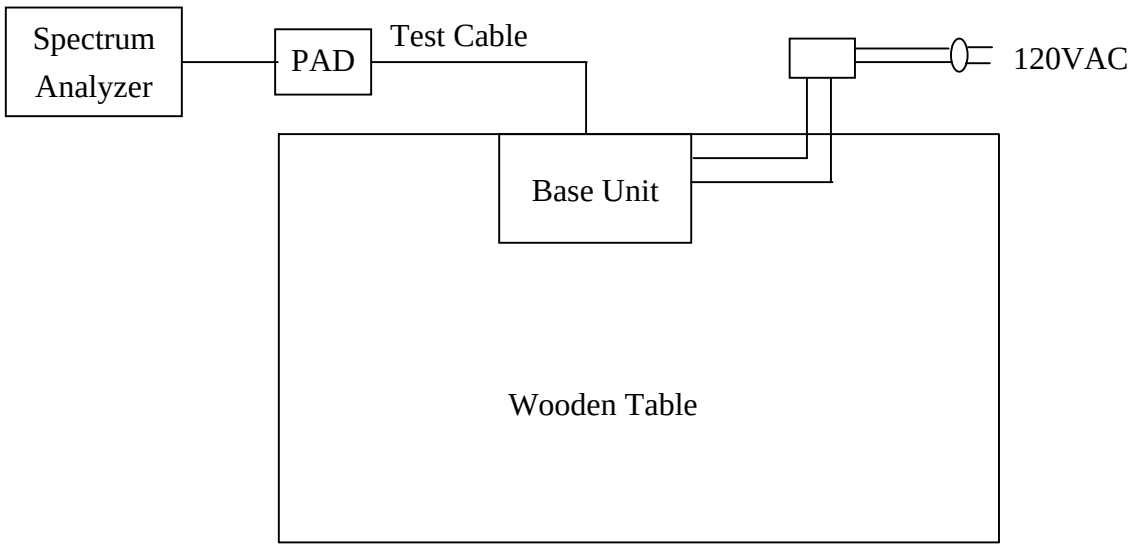


Fig. 4 : Measurement setup for testing on Antenna connector

Test Procedure:

The minimum 6dB band width was measured with a spectrum analyzer connected to RF antenna connector(conducted measurement) while EUT was operating in transmit mode at the appropriate center frequency.
The analyzer center frequency was set to the EUT carrier frequency, using the analyzer. Display Line and Marker Delta functions, the 6dB band width of the emission was determined.

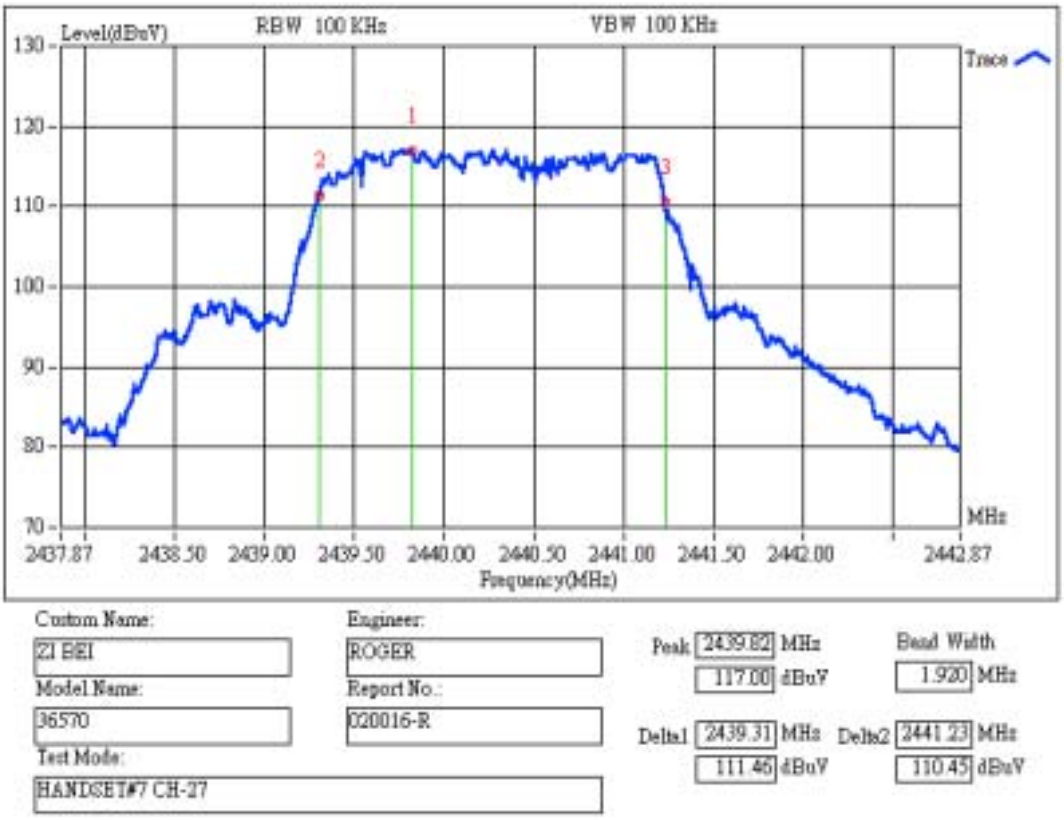
Test Results: Refer to attached spectrum analyzer data chart.

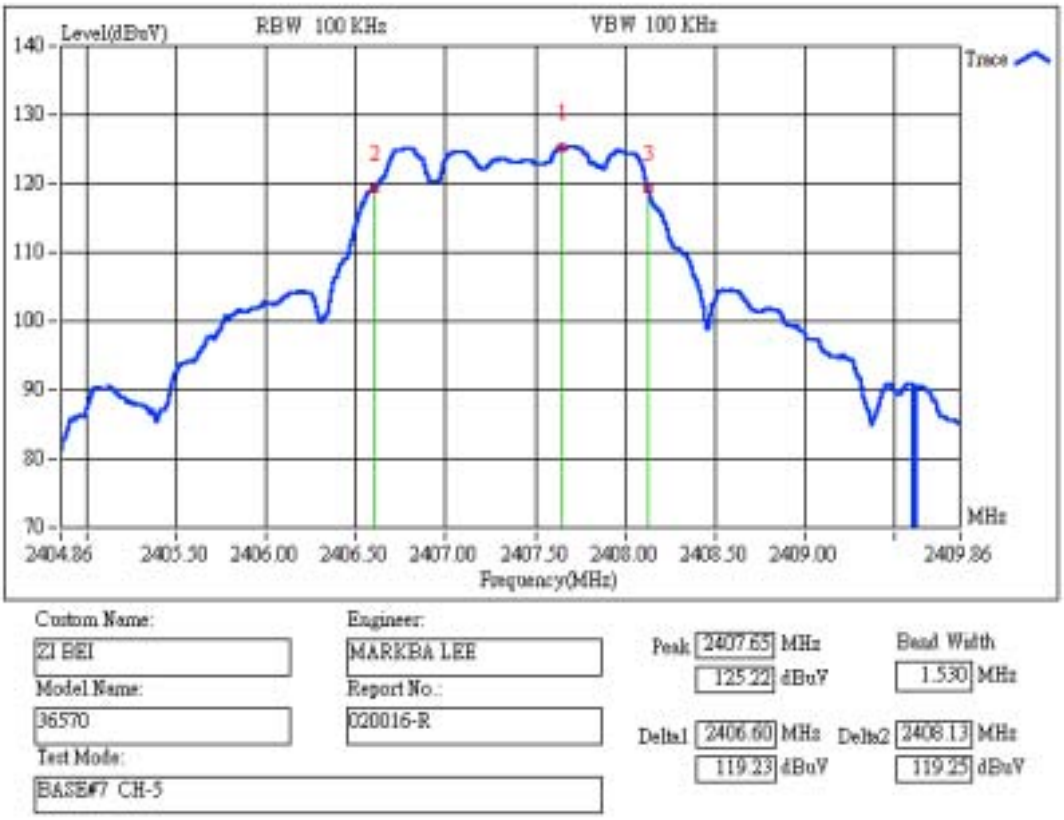
6dB band width >500KHz

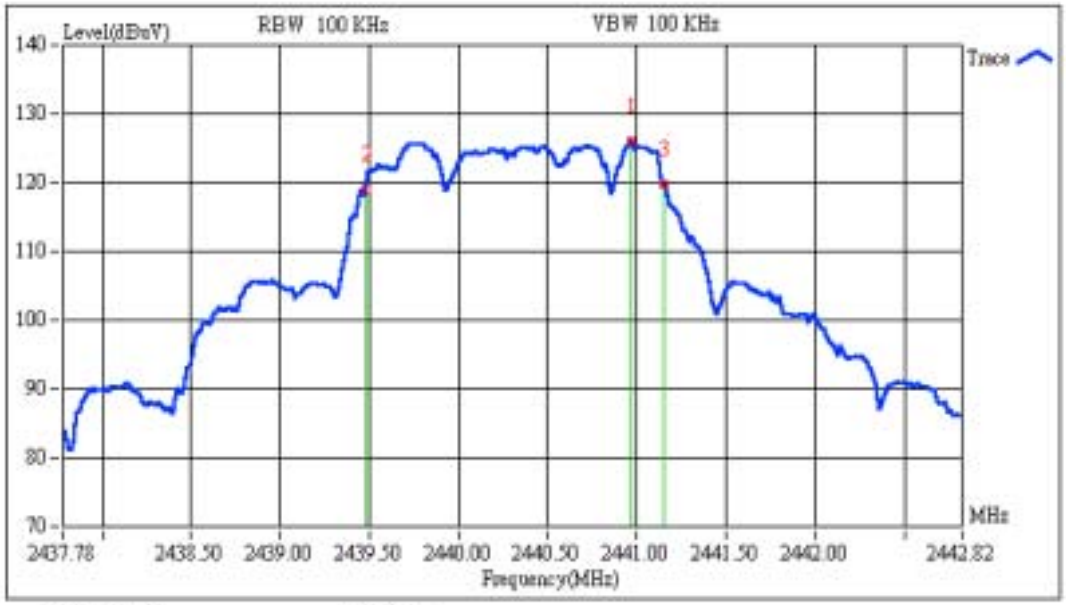
Handset:
(1) 2407.72MHz (Low) 1.820MHz
(2) 2439.82MHz (Mid) 1.920MHz
(3) 2474.03MHz (High) 2.040MHz

Base Unit:
(1) 2407.65MHz (Low) 1.530MHz
(2) 2440.97MHz (Mid) 1.663MHz
(3) 2472.79MHz (High) 1.783MHz

Custom Name:	Engineer:				
ZI BEI	MARKBA LEE	Peak	2407.72 MHz	Band Width	
Model Name:	Report No.:		124.17 dBuV		1.820 MHz
36570	020016-R	Delta1	2406.36 MHz	Delta2	2408.18 MHz
Test Mode:			118.23 dBuV		116.90 dBuV
HANDSET#7 TX CH-5					







Custom Name:	Engineer:				
ZI BEI	MARKBA LEE				
Model Name:	Report No.:				
36570	020016-R				
Test Mode:					
BASE#7 CH-48					
		Peak	2472.79 MHz	Band Width	
			125.16 dBuV	1.783 MHz	
		Delta1	2472.41 MHz	Delta2	2474.19 MHz
			119.33 dBuV		119.97 dBuV

- **RF Power Output**

- **Test Requirement: 15.247(b) (Conducted)**

Measurement Equipment Used:

Equipment	Model No.	Serial No.	Cal. Due.
ROHDE & SCHWARZ Spectrum Analyzer	FSEB 7	2858291011	11/08/2002
HP Plotter	7475	2325A82294	N/A
Huber + Suhner low loss cable	Sucoflex 104	N/A	N/A
HP Power Meter	436A	2709A29027	02/13/2003

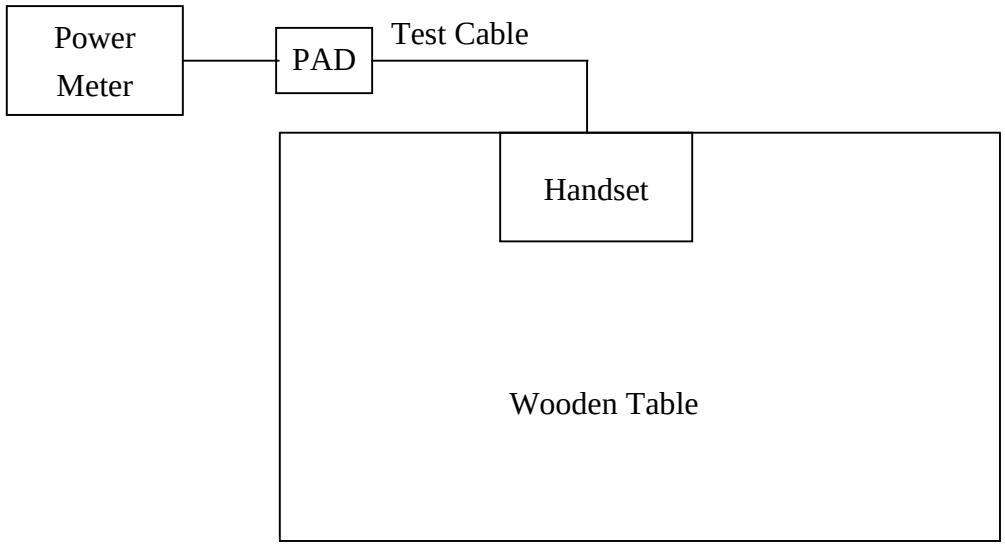


Fig. 5-1

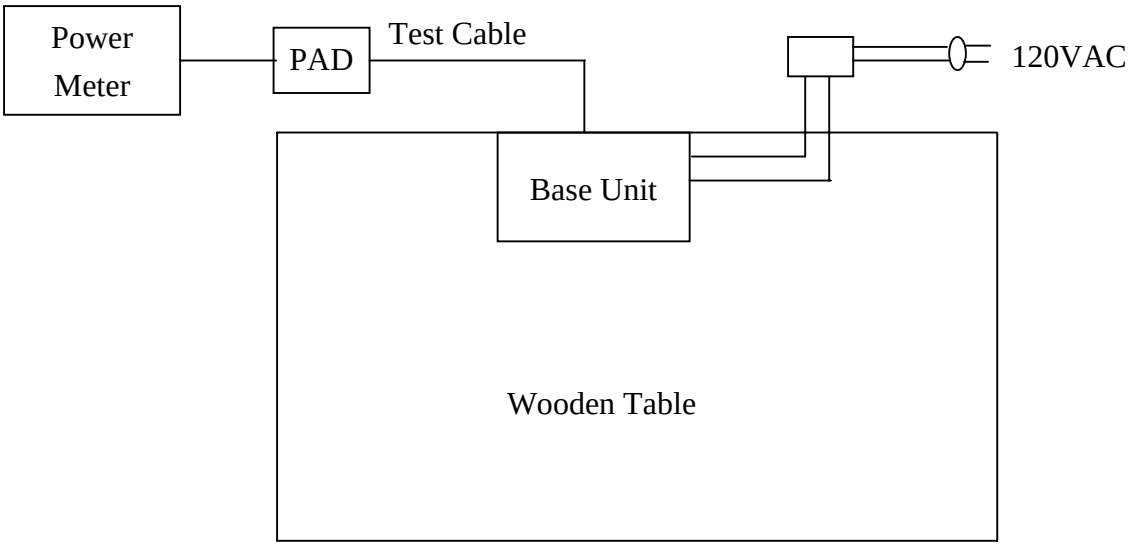


Fig. 5-2

Test Procedure

The RF power output was measured with a power meter connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate center frequency, A power meter was used to record the shape of the transmit signal see Fig. 5-1 / 5-2 for the measurement set up.

Test Results : Refer to attached graph.

Handset:

TX Freq.(MHz)	Reading (dBm)	Cable Loss	Power Output (dBm)	Limit (dBm)
2407.50 (Low)	12.45	1.28	13.73	30
2439.00 (Mid)	13.38	1.28	14.66	30
2472.00 (High)	12.85	1.28	14.13	30

Test Results :

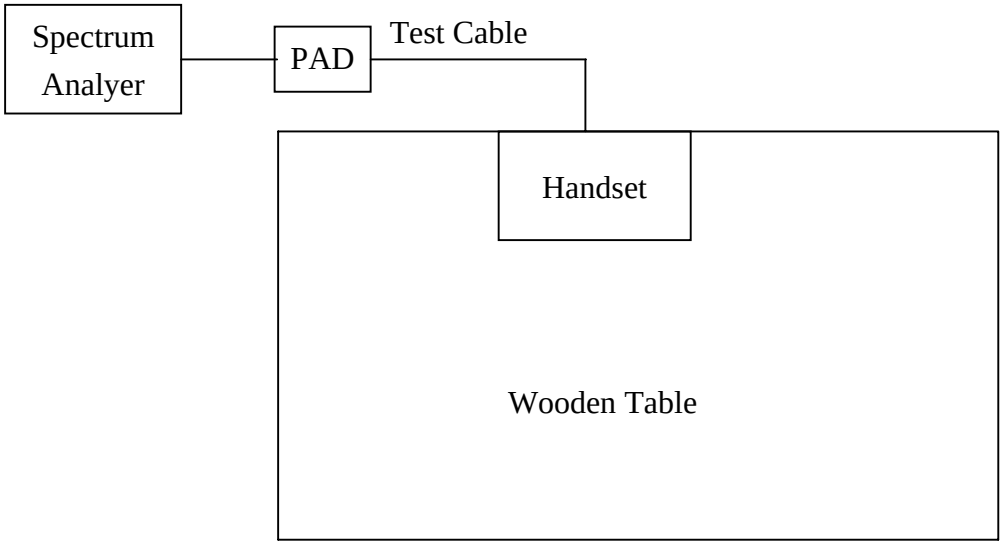
Base Unit:

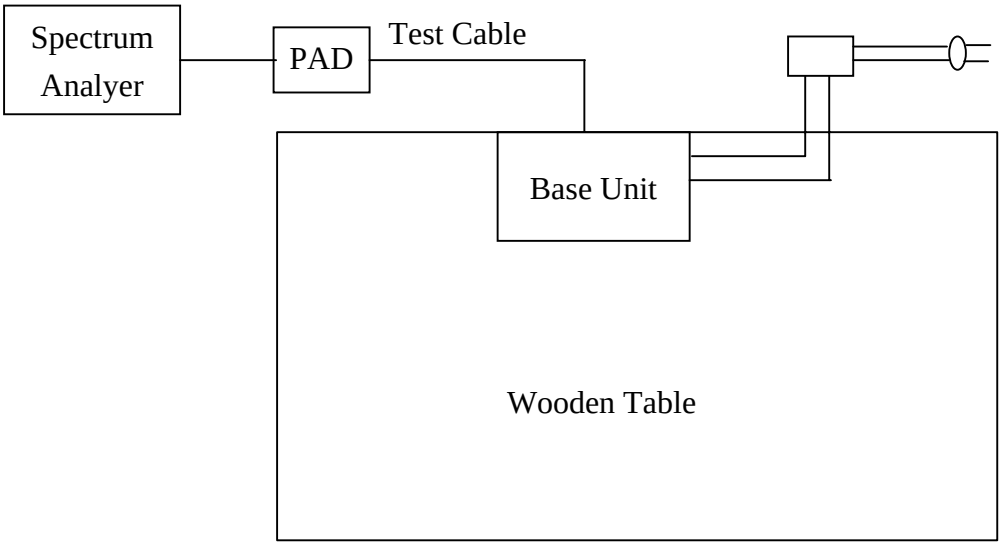
TX Freq.(MHz)	Reading (dBm)	Cable Loss	Power Output (dBm)	Limit (dBm)
2407.50 (Low)	2.34	1.28	3.62	30
2439.00 (Mid)	3.61	1.28	4.89	30
2472.00 (High)	4.34	1.28	5.62	30

- **Out of Band Measurements**
- **Test Requirement: 15.247(c)**

Measurement Equipment Used:

Equipment	Model No.	Serial No.	Cal. Due.
R&S Spectrum Analyzer	FSP 30	100112	05/28/2002
HP Plotter	7475	2325A82294	N/A
Huber + Suhner low loss cable	Sucoflex 104	N/A	N/A





Test Procedure:

Section 15.247(c): Spurious emissions. The following tests are required:

(1) RF antenna conducted test: Set RBW= 100kHz, Video bandwidth (VBW) > RBW, scan up through 10th harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100kHz RBW.

(2) Radiated emission test: Applies to harmonics/spurs that fall in the restricted bands listed in Section 15.205. The maximum permitted average field strength is listed in Section 15.209. A pre-amp (and possibly a high-pass filter) is necessary for this measurement. For measurements above 1 GHz, set RBW= 1MHz, VBW= 10Hz, Sweep: Auto. If the emission is pulsed, modify the unit for continuous operation, use the setting shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation. See Section 15.35(b) and (c).

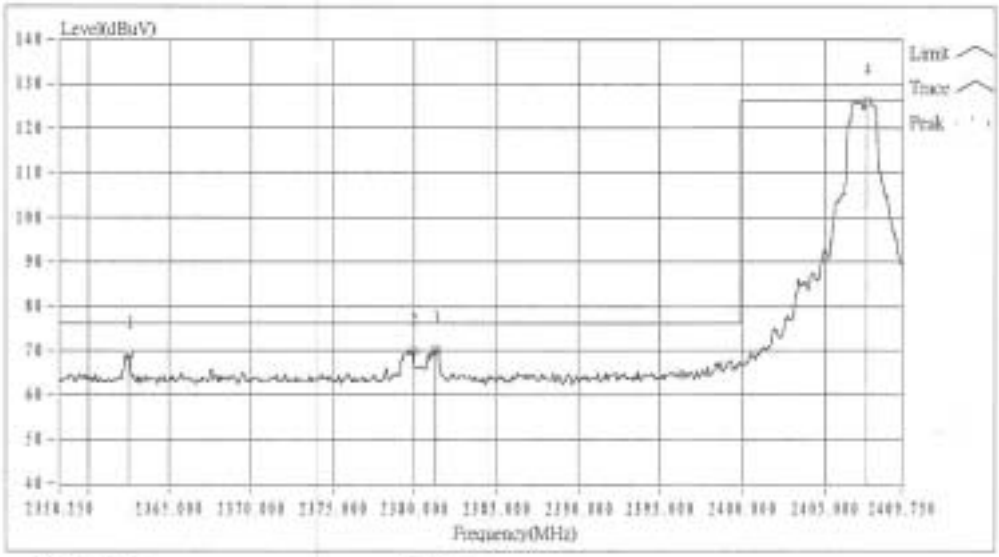
Test Results:

a. Conducted

Refer to attached spectrum analyzer data chart.

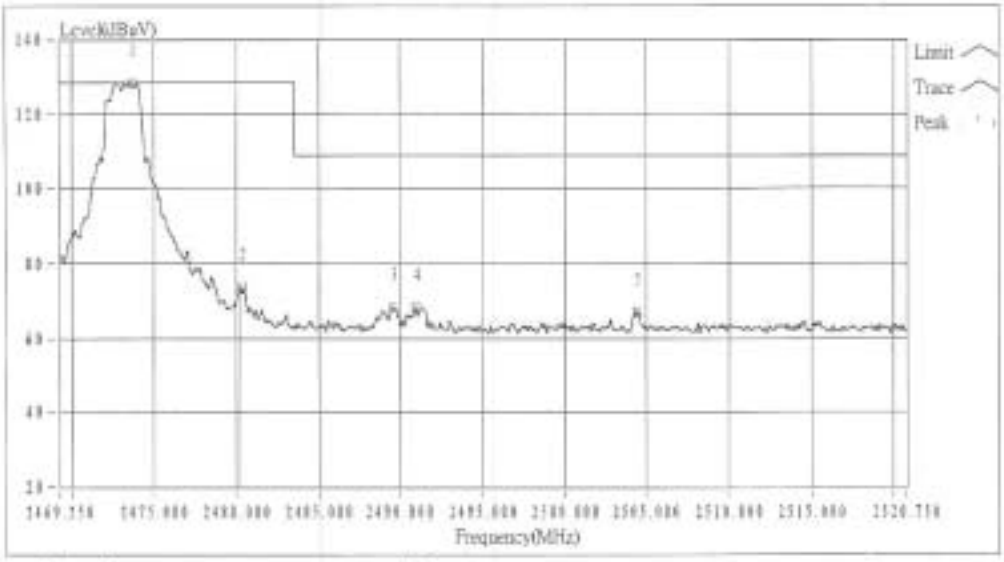
b. Radiated

Refer to the section of " Radiated Emissions(General Requirements)". Test requirement: 15.205, from P8 to P25 of the measurements data.



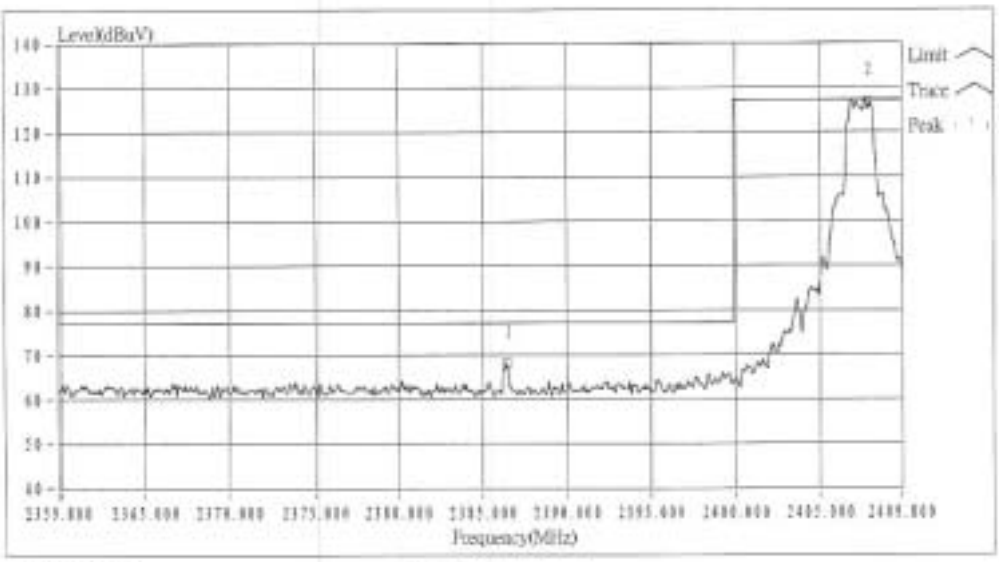
Custom Name: ZI BEI
Engineer: Markhs_Lee
Model Name: 36570
Report No.: 020016-R
Test Mode: HANDSETn#7 CH-5

	Frequency(MHz)	Read Level (dBuV)	Probe (dB)	Cable Loss (dB)	Level(dBuV)
1	2362.4750	66.75	0.00	2.48	69.23
2	2379.8000	67.66	0.00	2.48	70.84
3	2381.2250	67.81	0.00	2.48	70.21
4	2487.5875	123.82	0.00	2.48	126.22



Custom Name:	Engineer:
ZTE	Markba_Lee
Model Name:	Report No.:
S6570	020016-R
Test Mode:	
HANDSET#7 CH-48	

	Frequency(MHz)	Read Level (dBuV)	Probe (dB)	Cable Loss (dB)	Level(dBuV)
1	2473.6759	126.13	0.00	2.40	128.53
2	2488.2710	71.76	0.00	2.40	74.16
3	2489.5410	65.85	0.00	2.40	68.25
4	2498.9810	66.21	0.00	2.40	68.61
5	2584.3710	64.80	0.00	2.40	67.20



Custom Name: ZI BEI

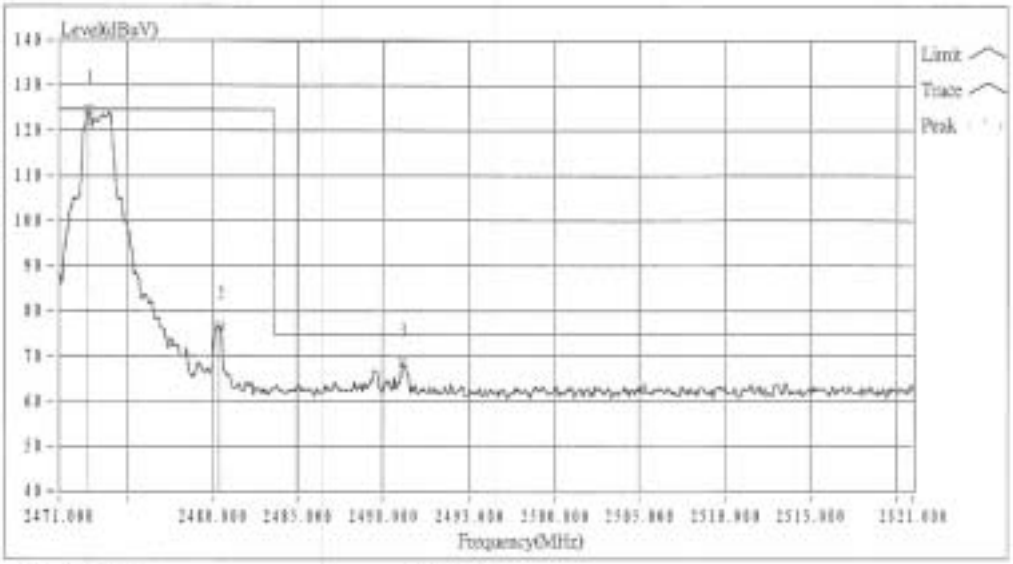
Engineer: Markhu_Lee

Model Name: 36570

Report No.: 020016-R

Test Mode: base#7 CH-5

	Frequency(MHz)	Read Level (dBuV)	Probe (dB)	Cable Loss (dB)	Level(dBuV)
1	2386.4000	65.72	8.00	2.40	68.12
2	2407.8000	124.54	8.00	2.40	126.94



Custom Name:	Engineer:
ZI BEI	Markha_Lee
Model Name:	Report No.:
36570	020016-R
Test Mode:	
base#7 CH-48	

	Frequency(MHz)	Read Level (dBuV)	Probe (dB)	Cable Loss (dB)	Level(dBuV)
1	2472.7000	112.24	0.00	2.40	124.64
2	2488.6000	74.48	0.00	2.40	76.88
3	2491.1000	66.06	0.00	2.40	68.46

- **DSSS Power Density**

- **Test Requirement: 15.247(d) (Conducted and Radiated)**

Measurement Equipment Used:

Equipment	Model No.	Serial No.	Cal. Due.
R&S Spectrum Analyzer	FSP 30	100112	05/28/2002
ADVANTEST Spectrum Analyzer	R3271A	85060321	10/14/2002
Schwarzbeck Horn antenna	BBHA 9120	D210	02/21/2003
HP Plotter	7475	2325A82294	N/A
Huber + Suhner low loss cable	Sucpflex 104	N/A	N/A

Test Set-Up:

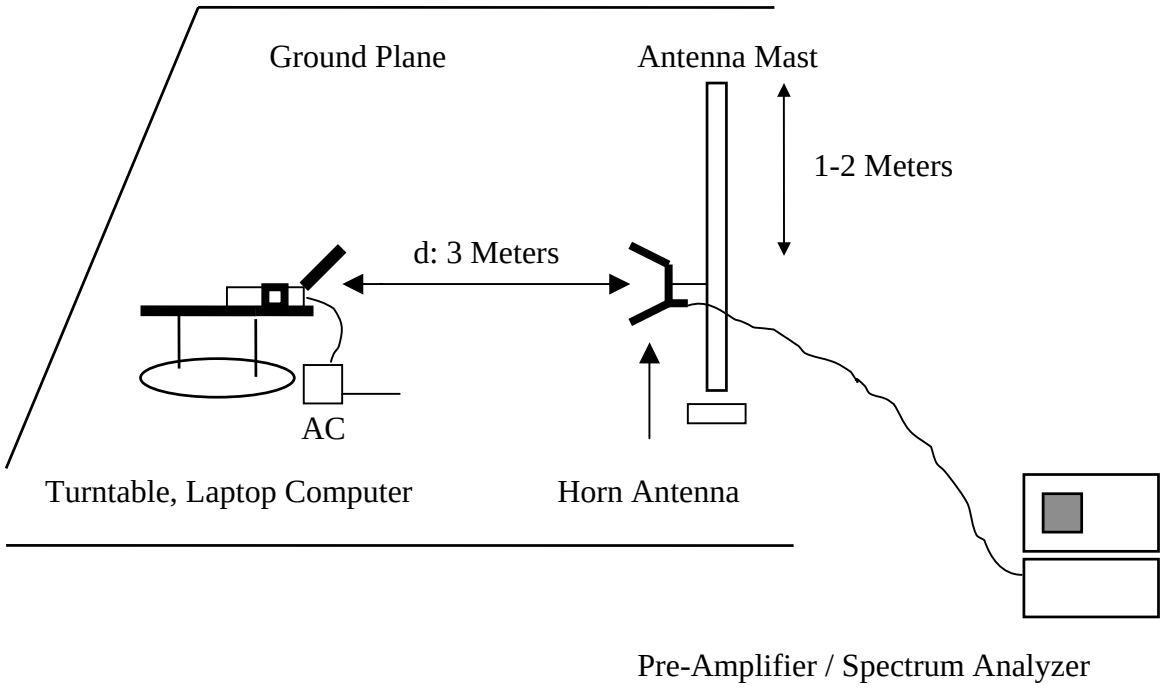


Fig. 6

Test Procedure

Radiated

Output power levels were calculated from radiated emission levels.

The transmitter emissions so measured were compared to the 8 dBm limit in the Rules.

Test Results

Refer to attached spectrum analyzer data chart and refer to Tabulated data follows:

Handset:

F(GHz)	Reading	AF	CL	AMP	HPF	Total	Power Density	Limit
	(dBuv)	(dB)	(dB)	(dB)	(dB)	(dBuv/m)	(dBm)	(dBm)
2.40696	40.27	27.38	3.96	0	0	71.61	-25.76	8
2.43998	44.84	27.46	3.98	0	0	76.28	-21.09	8
2.47323	46.98	27.53	4.01	0	0	78.52	-18.85	8

Base Unit:

F(GHz)	Reading	AF	CL	AMP	HPF	Total	Power Density	Limit
	(dBuv)	(dB)	(dB)	(dB)	(dB)	(dBuv/m)	(dBm)	(dBm)
2.40734	34.82	27.38	3.96	0	0	66.16	-31.21	8
2.43999	38.33	27.46	3.98	0	0	69.77	-27.60	8
2.47270	41.17	27.53	4.01	0	0	72.71	-24.66	8

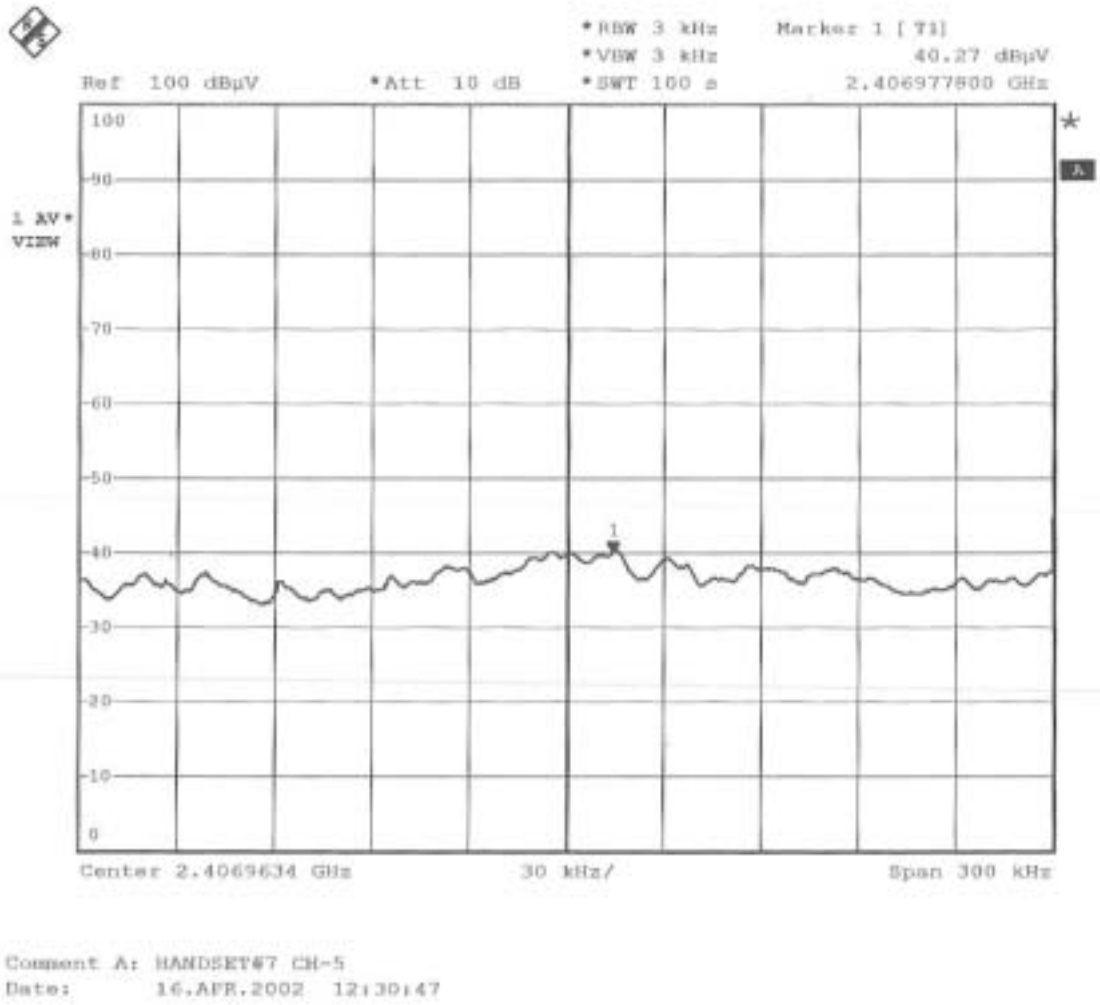
AF: Antenna Factor
AMF: Pre-amp gain
CL: Cable loss
HPF: High pass filter insertion loss

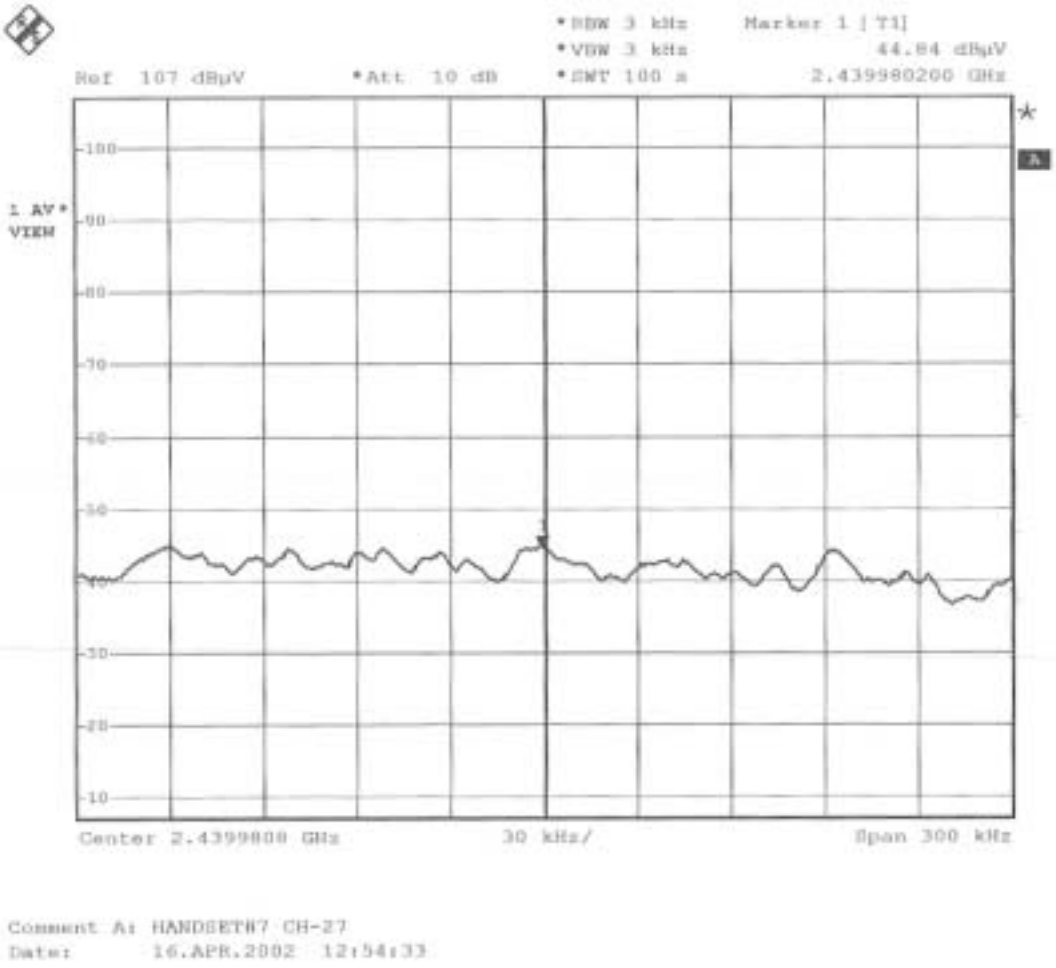
Formulas used to calculate Power Density.
Using the relationship between field strength and RF power into an isotropic transmit antenna:

$$\frac{E = (30 \times P\text{: watts})^{**}(.5)}{D\text{: meters}}$$

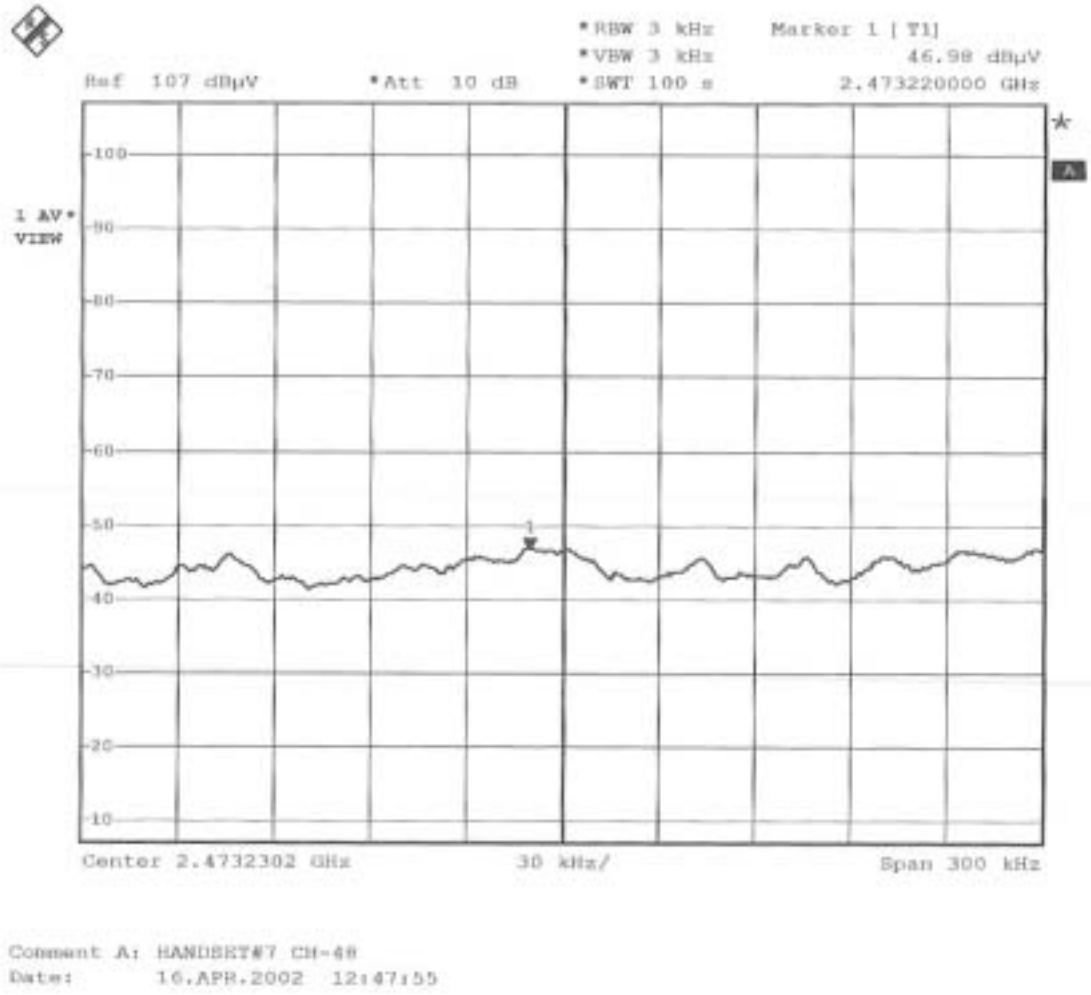
$P(Watts) = (E(V/m) \times D\text{: meters})^2 / 30G$ **D = Distance**

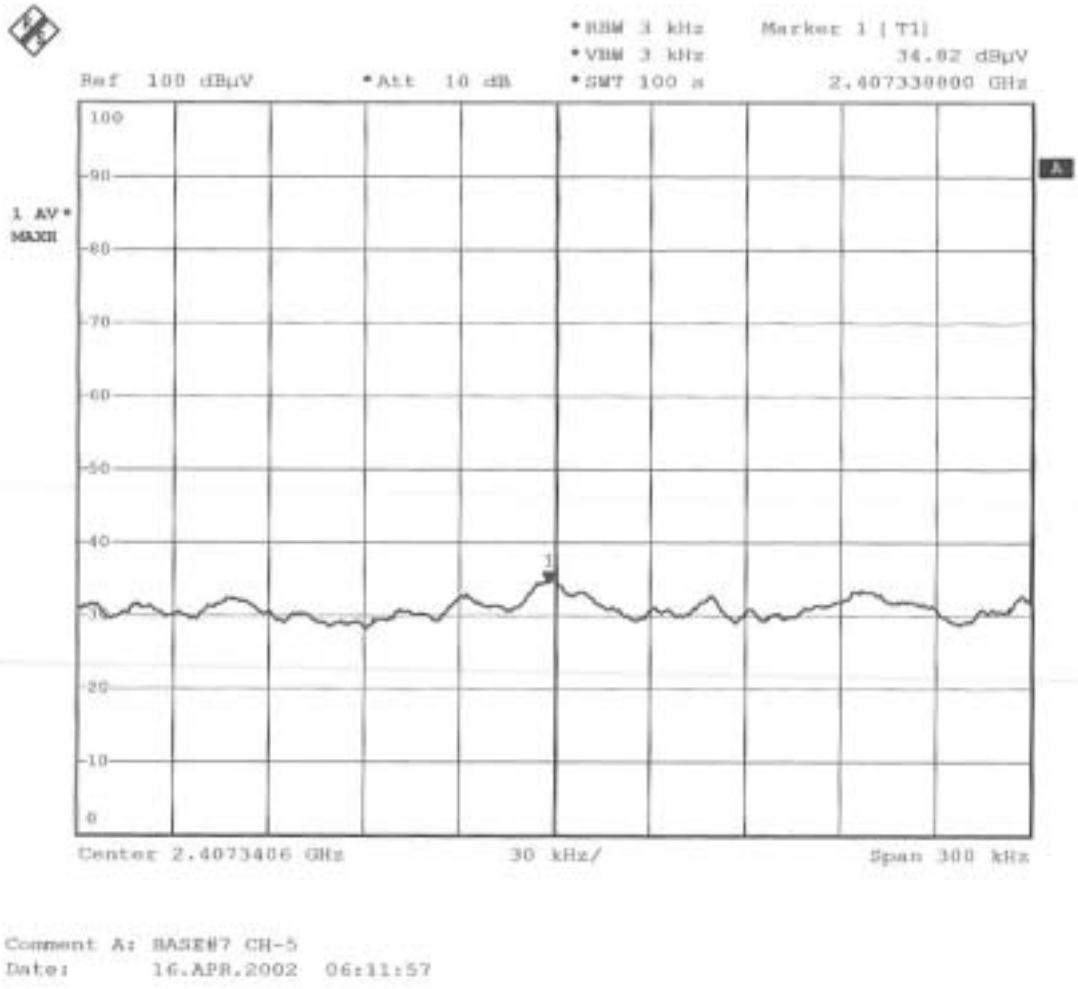
82.96 dBuVm = .0.0140604752V/m
$P(Watts) = (0.0140604752\ V/m \times 3\ Meters)^2 / 49.2 = 0.000036164$
10*log (0.000036164*1000) = -14.42dBm

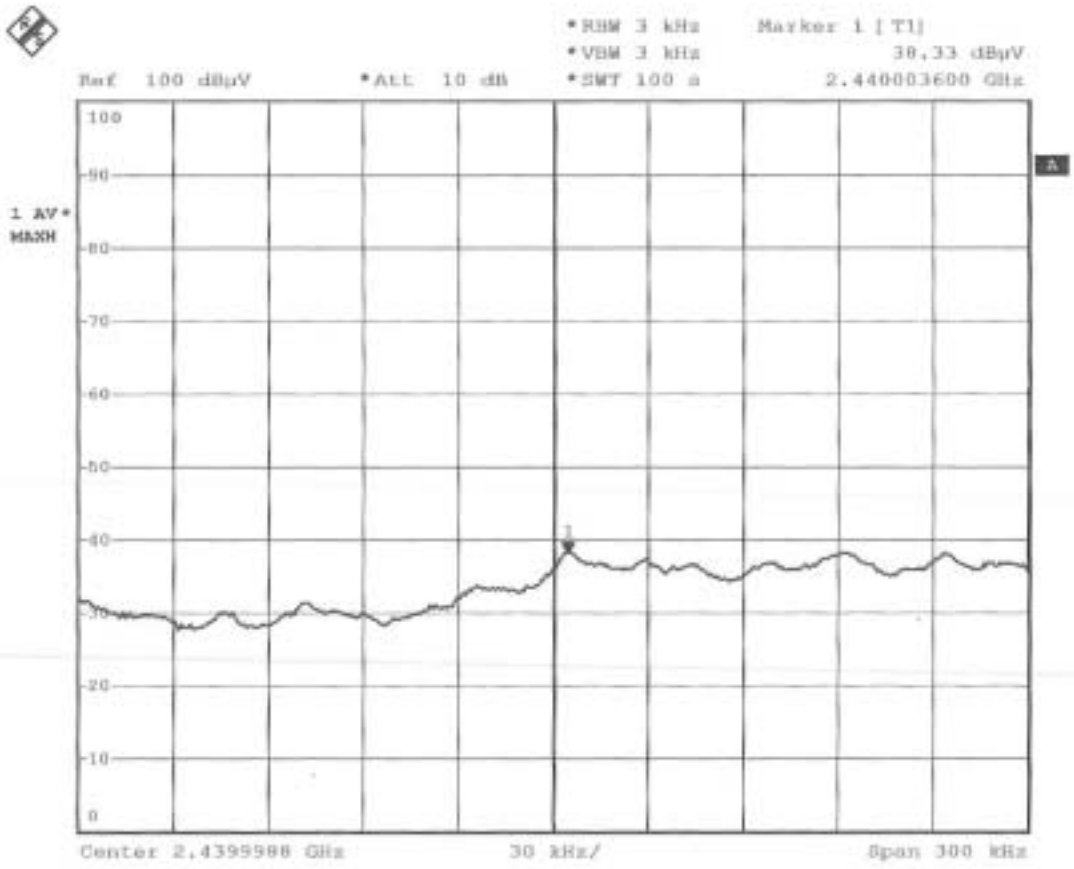


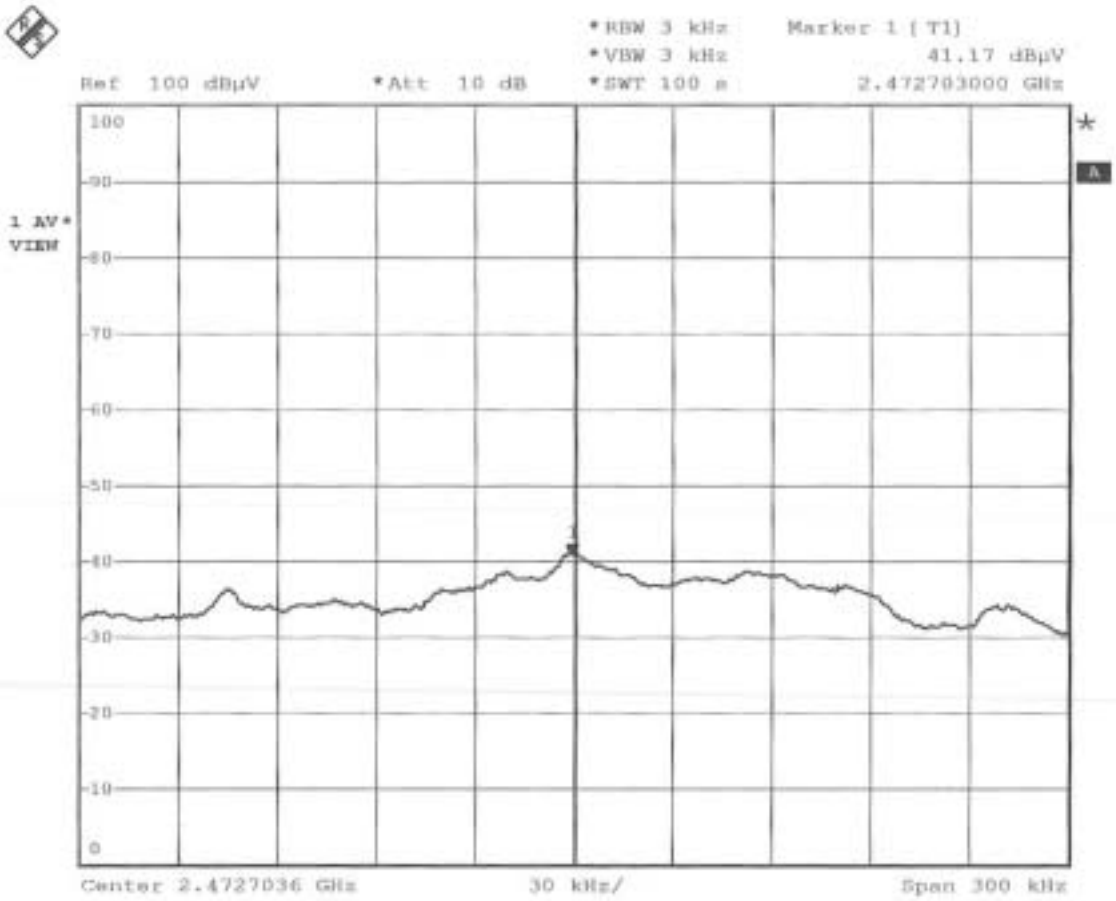


Comment A: HANDSETW7 CH-27
Date: 16.APR.2002 12:54:33









Comment A: BASE#7 CH-40
Date: 16.APR.2002 06:45:37

- **Security Code information**

The telephone has an internal security code with 65,536 possible combinations. Each time you pick up the Handset, the code is randomly set to a new combination.

Communication between Handset and Base Unit may not be possible in any of the following situation:

1. After a power failure.
2. After relocation the Base Unit by disconnecting the AC adaptor.
3. After replacing the Handset battery.

- **Processing Gain of A 2.4GHz DSSS**

- **Test Requirement: 15.247(e)**

Processing gain was performed by manufacturer.
Please refer to the Test Report as following information provided by the manufacturer.

Processing Gain Measurement:
LXT821B1 (Alpine B1)

Revised: 2/28/2002

I. Summary

This document describes how the processing gain was measured for the Intel LXT821B1 digital spread spectrum telephone transceiver. Included are specifications, test setup, and test results.

II. Requirements

According to the FCC requirement 15.247 for direct sequence spread spectrum systems, the minimum processing gain is 10 dB. The CW jamming method was used to determine the LXT821B1 processing gain. The processing gain was calculated using the following equation:

$G_p = S/I + J/S + L_{sys}$ where:

G_p = Processing Gain
S/I = Signal to noise required for a given error probability. In this case 1×10^{-4} was used.
J/S = Jammer to signal ratio required to produce given error probability.
L_{sys} = System loss to due non ideal performance. Maximum allowed by the FCC is 2.0 dB.

The S/I ratio was determined to be 11.0 dB according to Jakes "Microwave Mobile Communications". Page 229 indicates the relevant curve showing error probability Vs S/I for a non-coherent FM system with a peak deviation equal to .35 of the modulation frequency: $F_d = .35\ F_s$.

Given a minimum processing gain of 10 dB, the minimum allowable J/S ratio is -3.0 dB.

III. Test Setup

The processing gain was measured using the test setup shown in Figure 1:

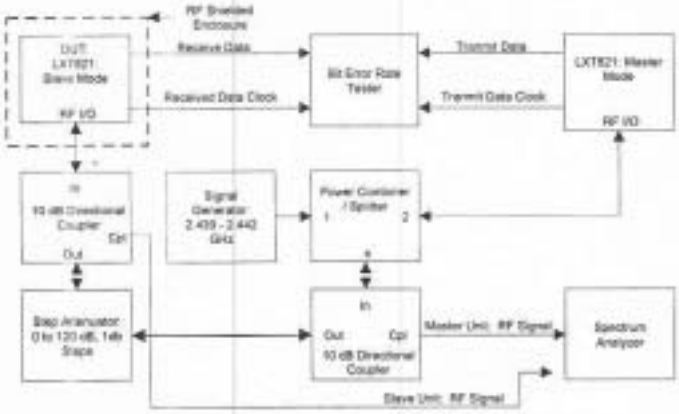


Figure 1: Processing Gain Test Setup

The following test equipment was used for this setup:

- LDB810 Demonstration system: Used LXT821B1 RFIC's.
- Hewlett Packard ESG D3000A Signal Generator
- Hewlett Packard HP8563E Spectrum Analyzer
- Hewlett Packard HP 8494A and HP 8496A Step Attenuators
- Mini Circuits ZFDC-10-5 10 dB Directional Coupler (2)
- Mini Circuits ZFSC-2-4 Power Combiner
- Ramsey STE-3000 Shielded Test Enclosure
- Telecommunication Techniques Corp. Firebird MC6000 Communication Analyzer (BER tester) with Lab Interface Card
- Semflax SMA cables

The LDB810 demonstration system was set up at the middle channel 2.4405GHz. The LXT810B base band 3dB bandwidth is less than 1.0 MHz; therefore, the signal generator was used to inject a C / W jammer from 2.439GHz to 2.442GHz in 50 kHz increments. The DUT received input power was set at -50 dBm. The jammer power was adjusted to achieve a bit error rate of 1x10-4 at each jammer frequency. The jammer power was recorded and the processing gain calculated for each jammer frequency from 2.439GHz to 2.442GHz.

IV. Test Results

The worst case processing gain found for the middle frequency band was 11.4 dB for the jamming frequency of 2.4411GHz, and 11.5dB for the jamming frequency of 2.439.9GHz. This and all

LXT821B1 Processing Gain Test Results *02-3-13*

other jamming frequencies in the middle of the band (2.439GHz-2.442GHz) pass the minimum requirement of 10dB. All of the measured test data is recorded in ::

Channel Frequency (Nominal) =	2440.00MHz
Bit Error Rate =	1.00E-04
Required S/N for BER =	11.0dB
System Losses =	2.0dB
Desired Signal Strength at Receiver (S) =	-50.0dBm

Jammer Frequency (MHz)	RF Src pwr	Jammer Power (J) (dBm)	Jammer to Signal Ratio J / S (dB)	Processing Gain (dB)
2439.000	-21.80	-28.30	21.7	34.7
2439.050	-22.80	-29.30	20.7	33.7
2439.100	-24.00	-30.50	19.5	32.5
2439.150	-25.20	-31.70	18.3	31.3
2439.200	-25.40	-32.90	17.1	30.1
2439.250	-27.70	-34.20	15.8	28.8
2439.300	-29.10	-35.60	14.4	27.4
2439.350	-30.70	-37.20	12.8	25.8
2439.400	-32.10	-38.60	11.4	24.4
2439.450	-34.40	-40.90	9.1	22.1
2439.500	-36.40	-42.90	7.1	20.1
2439.550	-38.20	-44.70	5.3	18.3
2439.600	-39.90	-46.40	3.6	16.6
2439.650	-41.50	-48.00	2.0	15.0
2439.700	-43.30	-49.80	0.2	13.2
2439.750	-44.20	-50.70	-0.7	12.3
2439.800	-44.50	-51.00	-1.0	12.0
2439.850	-44.80	-51.30	-1.3	11.7
2439.900	-45.00	-51.50		
2439.950	-44.90	-51.40		
2440.000	-44.70	-51.20		
2440.050	-44.70	-51.20		
2440.100	-44.70	-51.20	-1.2	11.8
2440.150	-44.50	-51.00	-1.0	12.0
2440.200	-44.20	-50.70	-0.7	12.3
2440.250	-44.20	-50.70	-0.7	12.3
2440.300	-44.00	-50.50	-0.5	12.5
2440.350	-44.00	-50.50	-0.5	12.5
2440.400	-43.90	-50.40	-0.4	12.6
2440.450	-44.10	-50.60	-0.6	12.4
2440.470	-43.20	-49.70	0.3	13.3
2440.480	-42.40	-48.90	1.1	14.1
2440.490	-42.60	-49.10	0.9	13.9
2440.495	-42.80	-49.30	0.7	13.7

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2440.500	-42.60	-49.10	0.9	13.9
2440.505	-42.60	-49.10	0.9	13.9
2440.510	-42.80	-49.30	0.7	13.7
2440.520	-43.60	-50.10	-0.1	12.9
2440.530	-43.90	-50.40	-0.4	12.6
2440.550	-43.80	-50.30	-0.3	12.7
2440.600	-42.90	-49.40	0.6	13.6
2440.650	-43.10	-49.60	0.4	13.4
2440.700	-43.40	-49.90	0.1	13.1
2440.750	-43.70	-50.20	-0.2	12.8
2440.800	-44.00	-50.50	-0.5	12.5
2440.850	-44.40	-50.90	-0.9	12.1
2440.900	-44.70	-51.20	-1.2	11.8
2440.950	-44.80	-51.30	-1.3	11.7
2441.000	-45.00	-51.50	-1.5	11.5
2441.050	-45.00	-51.50	-1.5	11.5
2441.100	-45.10	-51.60	-1.6	11.4
2441.150	-44.90	-51.40	-1.4	11.6
2441.200	-44.90	-51.40	-1.4	11.6
2441.250	-43.90	-50.40	-0.4	12.6
2441.300	-42.40	-48.90	1.1	14.1
2441.350	-40.80	-47.30	2.7	15.7
2441.400	-39.00	-45.50	4.5	17.5
2441.450	-37.20	-43.70	6.3	19.3
2441.500	-35.20	-41.70	8.3	21.3
2441.550	-33.20	-39.70		
2441.600	-31.40	-37.90		
2441.650	-29.90	-36.40		
2441.700	-28.10	-34.60		
2441.750	-26.80	-33.30		
2441.800	-25.30	-31.80	18.2	31.2
2441.850	-24.10	-30.60	19.4	32.4
2441.900	-22.80	-29.30	20.7	33.7
2441.950	-21.70	-28.20	21.8	34.8
2442.000	-20.60	-27.10	22.9	35.9

11.4
2.44057 GHz

= Minimum Processing Gain
= measured center frequency

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Test Setup: Device under test = slave mode, transmitter = master mode

IC used:
LXT820B1 (Alpine)

RF Board:
LXT820 DV REV 2B
serial number: 27
DV7A

drop from jammer to DUT = -6.5 dB
source RF power = -38 dBm
attenuators set to 12 dB
Source RF power at DUT = -50 dBm

24.0 MHz Clock Frequency :
Device under test: 24.0 MHz locked
to jammer synthesizer
10/12/00 Jim Shaw

Figure 2: Processing Gain Measurements

The processing gain Vs jammer frequency is shown in Figure 3:

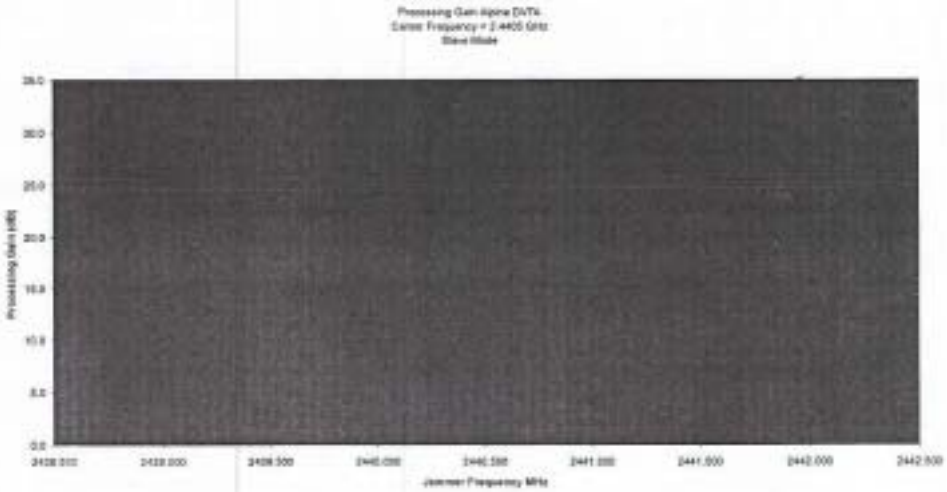

Figure 3: Processing Gain Vs Jammer Frequency

V. Conclusions

The LXT821 meets the 10.0 dB requirement for processing gain. The worst case processing gain of 11.4dB at 2.4411GHz was still within FCC requirements. Additionally, the FCC allows the worst 20% of the data to be ignored, so the LXT821 easily passes the FCC requirements at the frequency range from 2.439GHz to 2.442GHz.

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User Manual

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Schematics

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Block Diagram

APPENDIX 5

Operational Description

APPENDIX 6

Proposed FCC ID Label Format

APPENDIX 7

Confidential Letter