KM4-99-KX-TG210R/PART15-1

FCC ID: ACJ96NKX-TG210C

TEST REPORT

FOR

MODEL NO. : KX-TG210 (Handset)

DATE : JANUARY 29, 1999

NOTE
APPLICABLE TESTS REQUIRED IN SUBPART-C OF PART 15 WERE PERFORMED IN ACCORDANCE WITH THE TEST PROCEDURE HEREIN.

BY : Y. Kodama
Y. KODAMA
MANAGER OF
ENGINEERING SECTION

KYUSHU MATSUSHITA ELECTRIC CO., LTD. 4TH DIVISION

Kyushu Matsushita Electric Co.,Ltd. 4th Division

PROJECT NO.: KM4-99-KX-TG210R/PART15-1
PRODUCT: 900MHz Spread Spectrum Cordless Telephone Handset
FCC IDENTIFIER : ACJ96NKX-TG210~~R~~ C
MODEL : KX-TG210 (Handset)

ENGINEERING ANALYSIS AND EVALUATION

The model KX-TG210 (Handset) is the base station of a 2.4GHz/900MHz Spread Spectrum Cordless Telephone, and the operating frequency band is as shown below.

Handset:
Receiving Frequency: 2402.08 MHz ~ 2481.44 MHz
Transmitting Frequency: 909.64 MHz ~ 920.80MHz

This system provides with a digital security coding of one million combinations of phone's selectable system.

This device was tested the following items, and the summary is as shown below.

TEST ITEM	CLAUSE	LIMIT	RESULT	PASSED
Occupied Bandwidth	15.247(a)(2)	More than 500kHz	1015MHz	X
Peak Power Output	15.247(b)	Less than 1 W	0.108 W	X
Transmitter Power Density	15.247(d)	Less than +8 dBm	+6.61 dBm	X
Processing Gain	15.247(e)	More than 10 dB	15 dB	X

INSTRUMENT USED FOR CONFIRMATION TESTS

INSTRUMENT	MANUFACTURER	MODEL
Signal Generator	HEWLETT PACKERD	ESG-D3000A
Spectrum Analyzer	HEWLETT PACKERD	8596E
Audio Analyzer	HEWLETT PACKERD	8903B
Four Ports Junction PAD	ANRITSU	MA1612
50-Ohm Terminator	HEWLETT PACKERD	908A

FCC PART 15.247(a)(2), Occupied Bandwidth:

TEST CONDITIONS :
Standard Temperature and Humidity
Standard Test Voltage

RULE LIMIT :
The minimum bandwidth shall be at least 500kHz.

METHOD OF MEASUREMENT :
The spectrum analyzer is set as follows :

RBW : 100kHz
VBW : 100kHz
Span : >RBW
LOG dB/div. : 2dB
Sweep : Auto

Number of channels tested :

Testing Range	Number of Channels Tested	Channel Location in Band
1 MHz or less	1	Middle
1 to 10 MHz	2	Top and Bottom
More than 10 MHz	3	Top, Middle, Bottom

Kyushu Matsushita Electric Co.,Ltd. 4th Division

PROJECT NO.: KM4-99-KX-TG210R/PART15-1
PRODUCT: 900MHz Spread Spectrum Cordless Telephone (Handset)
FCC IDENTIFIER : ACJ96NKX-TG210R C
MODEL : KX-TG210 (Handset)
TESTED BY : Hidenao Hamada DATE : January 26, 1999

FCC PART 15.247(b), Peak Power Output:

TEST CONDITIONS :
Standard Temperature and Humidity
Standard Test Voltage

RULE LIMIT :
The maximum peak power output shall not exceed 1 watt. If transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

METHOD OF MEASUREMENT :
If the antenna is detachable, a peak power meter is used to measure the power output with the transmitter operating into a 50 ohm load.

The RBW of the spectrum analyzer shall be set to a value greater than the measured 6 dB occupied bandwidth of the E.U.T.

Number of channels tested :

Testing Range	Number of Channels Tested	Channel Location in Band
1 MHz or less	1	Middle
1 to 10 MHz	2	Top and Bottom
More than 10 MHz	3	Top, Middle, Bottom

FCC PART 15.247(d), Transmitter Power Density:

TEST CONDITIONS :
Standard Temperature and Humidity
Standard Test Voltage

RULE LIMIT :
The transmitted power density averaged over any 1 second interval shall not be greater than +8 dBm in any 3 kHz bandwidth.

METHOD OF MEASUREMENT :
The spectrum analyzer is set as follows :

RBW : 3 kHz
VBW : >3 kHz
Span : => measured 6 dB bandwidth
Sweep : 100 sec
LOG dB/div. : 2 dB

NOTE : For devices with spectrum line spacing =< 3 kHz, the RBW of the analyzer is reduced until the spectral lines are resolved. The measurement data is normalized to 3 kHz by summing the power of all the individual spectral lines within a 3 kHz band in liner power units.

Number of channels tested :

Testing Range	Number of Channels Tested	Channel Location in Band
1 MHz or less	1	Middle
1 to 10 MHz	2	Top and Bottom
More than 10 MHz	3	Top, Middle, Bottom

FCC PART 15.247(e), Processing Gain:

TEST CONDITIONS :
Standard Temperature and Humidity
Standard Test Voltage

RULE LIMIT :
The processing gain shall be at least 10 dB.

METHOD OF MEASUREMENT :
The CW jamming margin method was used to determine the processing gain. A CW signal generator is stepped across the passband of the receiver in 50 kHz increments. At each point the signal generator level required to obtain the recommended bit error rate is recorded. The jammer to signal ratio (J/S) is then calculated. The worst 20% of the J/S points is discarded. The lowest remaining J/S ratio is used to calculate the processing gain.

CALCULATION OF PROCESSING GAIN :
The processing gain was determined by measuring the jamming margin of the E.U.T. and using the following formula :

$$Gp = (C/N)_0 + Mj + Lsys$$

Gp = KX-TG210 Process Gain
$(S/N)_0$ = S/N ratio for keeping 12dB SINAD
The Base band signals of this model are analog.
$(S/N)_0$ is 3dB on this system.
Mj = J/S ratio (CW Jamming margin method)
$Lsys$ = system loss (<=2.0dB)

Measurement performed at 2440 MHz.

KX-TG210 Process gain

$Gp = (C/N)_0 + Mj + Lsys$

Gp = KX-TG210 Process Gain

$(S/N)_0$ = S/N ratio for keeping 12dB SINAD

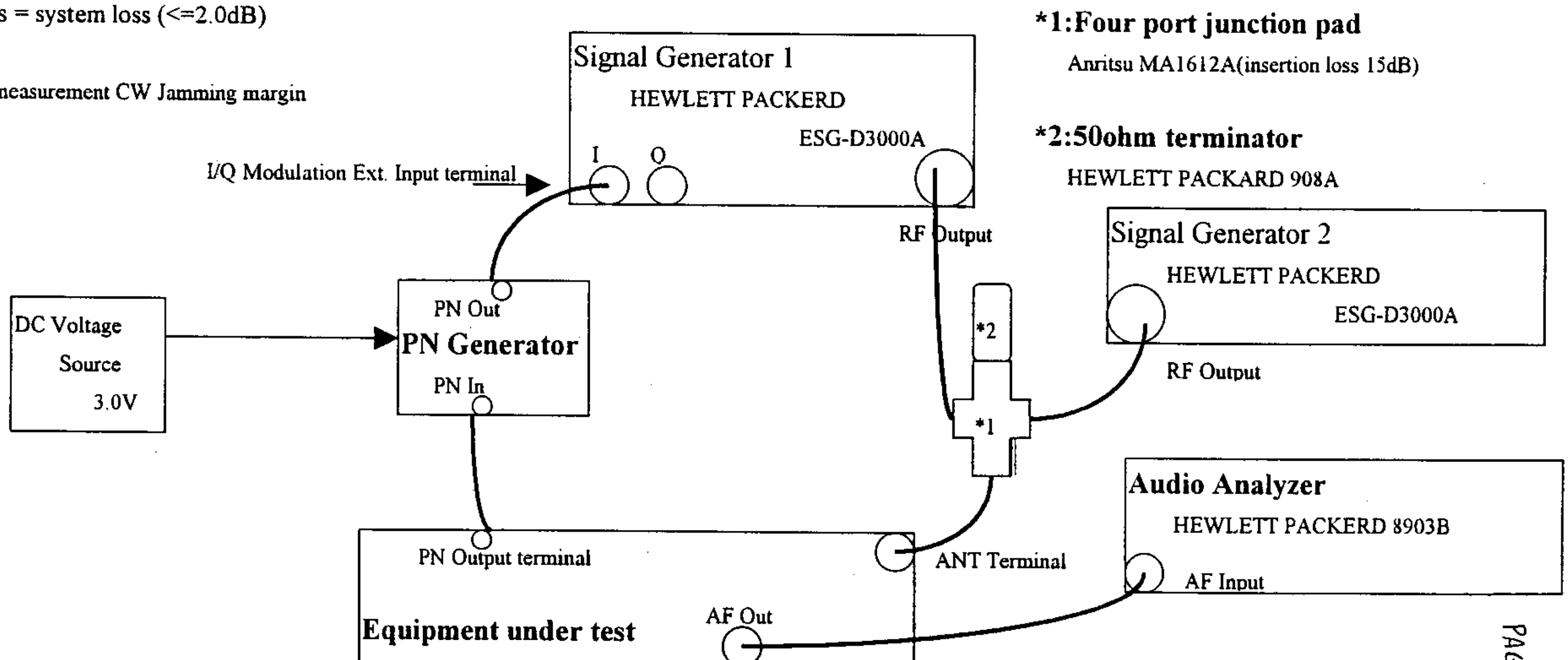
The Base band signals of this model are analog.

$(S/N)_0$ is 3dB on this system.

Mj = J/S ratio (CW Jamming margin method)

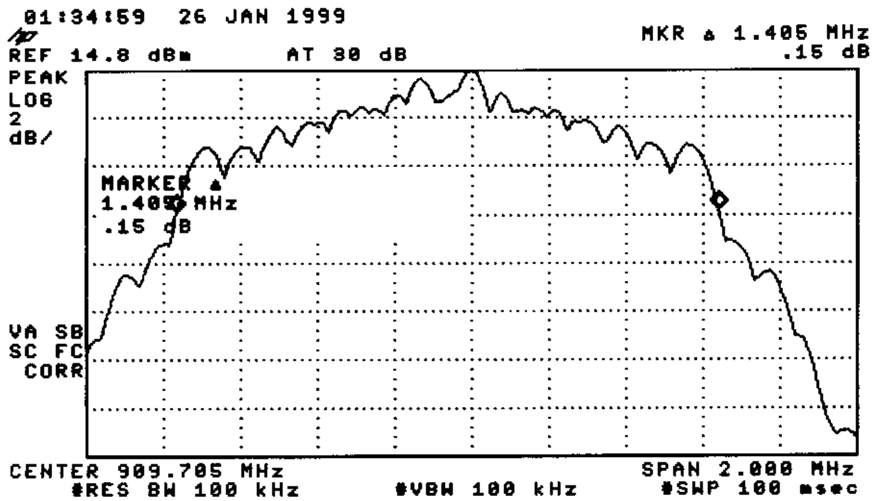
Lsys = system loss (<=2.0dB)

1. Method of measurement CW Jamming margin

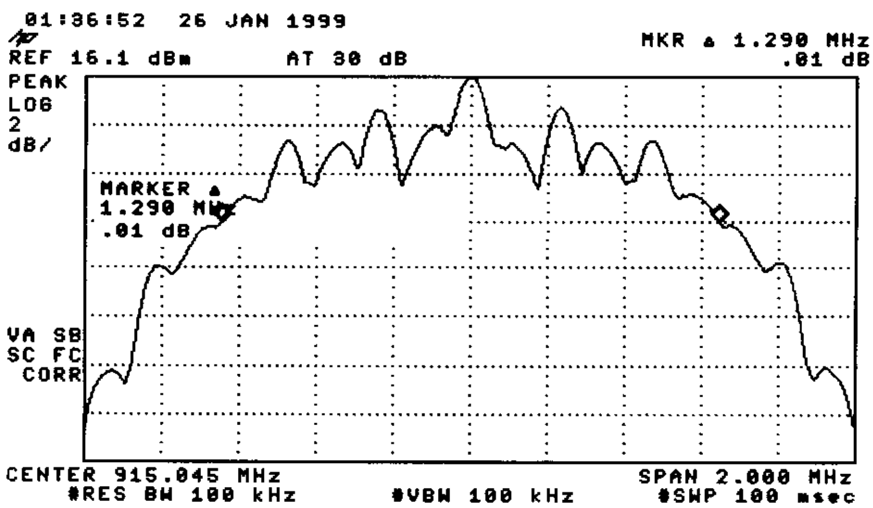


Occupied Bandwidth (Handset)

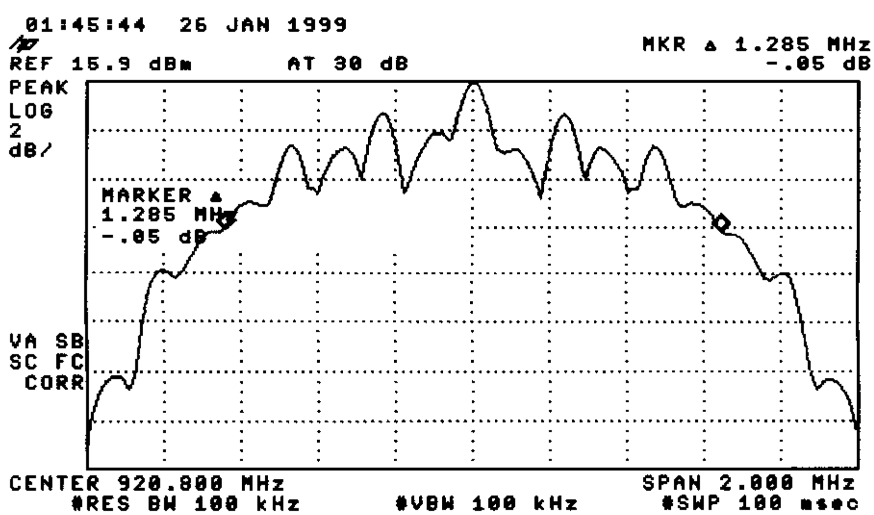
Low Channel



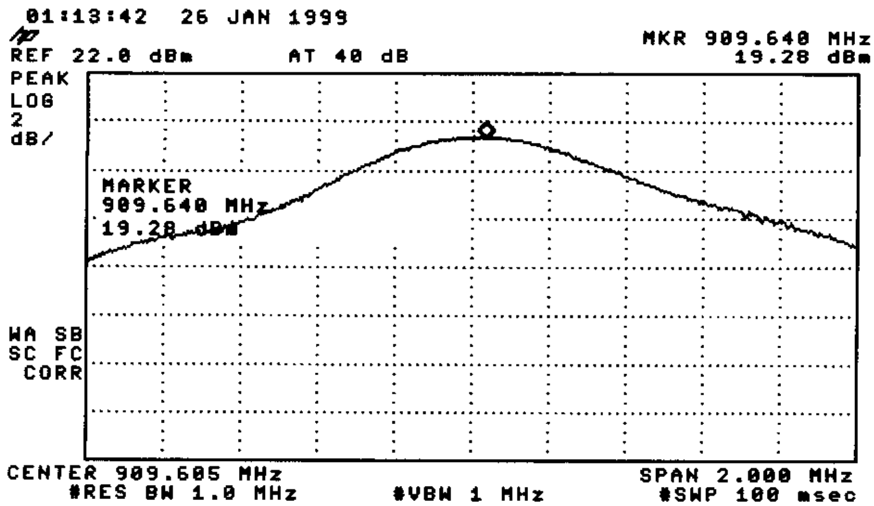
Middle Channel



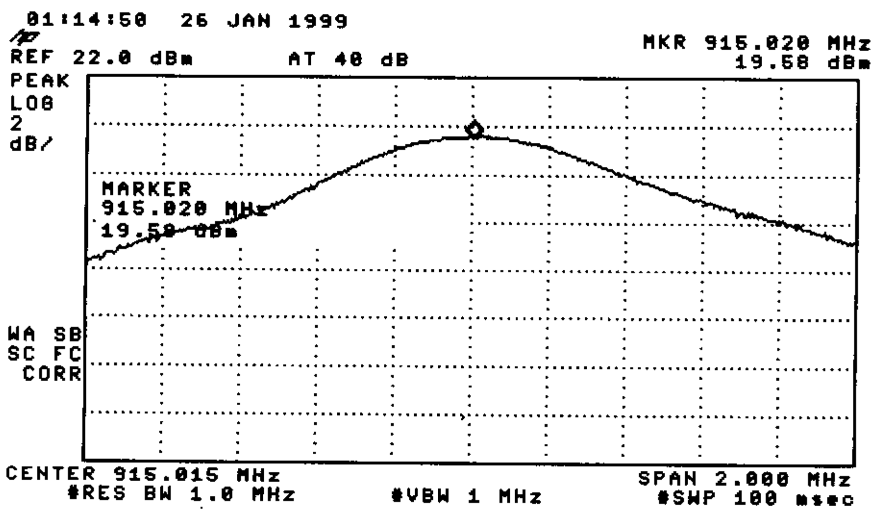
High Channel



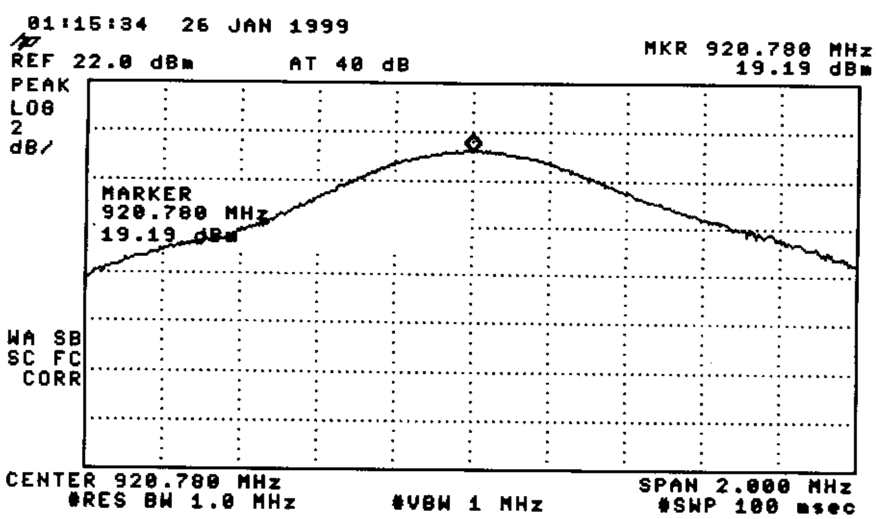
Peak Power Output (Handset)



Low Channel

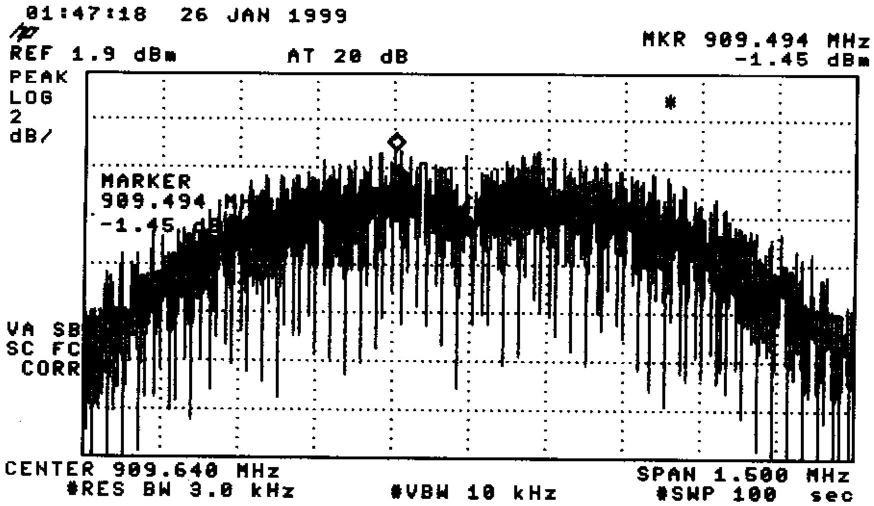


Middle Channel

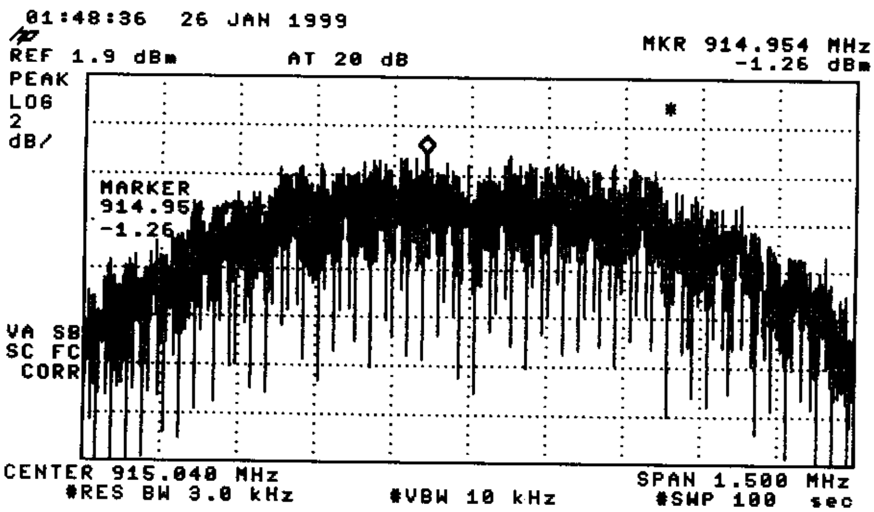


High Channel

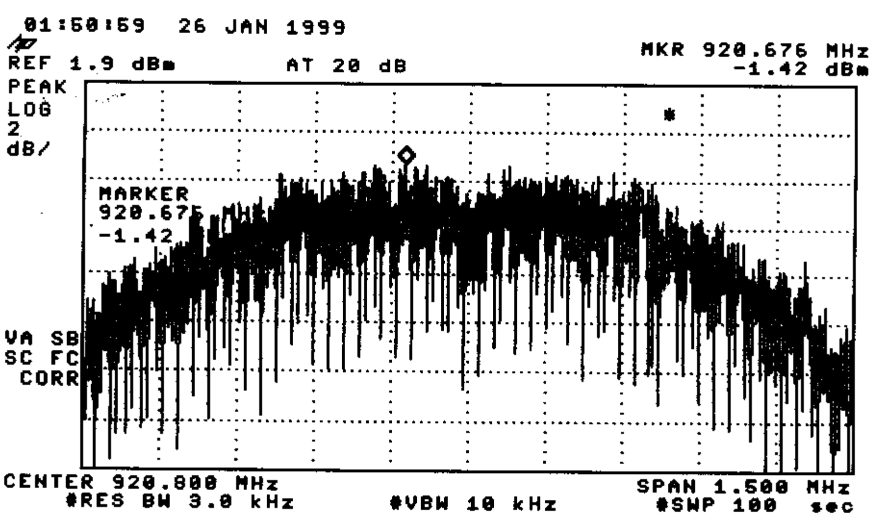
Transmitter Power Density (Handset)



Low Channel



Middle Channel



High Channel

KX-TG210 Processing Gain

Kyushu Matsushita Electric Co.,Ltd
Forth Division Engineering Department
H.Hamada

	Portable Unit	Base Unit
Δf(kHz)	D/U Ratio(dB)	D/U Ratio(dB)
1200	26.2	28.0
1150	22.2	27.0
1100	22.2	25.4
1050	22.5	23.6
1000	18.7	21.9
950	16.7	21.2
900	18.1	18.9
850	15.0	18.0
800	12.6	17.1
750	14.1	14.3
700	13.9	13.6
650	10.7	13.0
600	10.9	11.5
550	12.1	10.0
500	10.4	11.3
450	10.0	11.2
400	7.8	10.1
350	8.3	10.1
300	9.9	8.6
250	8.9	9.6
200	7.2	8.1
150	10.4	9.7
100	8.3	9.5
50	2.3	9.7
0	6.6	8.9
−50	9.2	12.3
−100	12.8	12.0
−150	8.9	8.4
−200	9.0	10.6
−250	9.3	11.6
−300	10.0	8.3
−350	8.6	10.5
−400	12.0	11.2
−450	11.0	12.9
−500	11.5	11.6
−550	10.9	11.6
−600	16.5	13.4
−650	14.0	14.0
−700	13.0	14.9
−750	16.8	16.5
−800	16.8	18.6
−850	20.0	21.5
−900	21.3	24.2
−950	21.5	25.7
−1000	25.5	25.7
−1050	24.4	26.0
−1100	26.6	26.6
−1150	31.3	26.9
−1200	28.0	27.4

D/U Ratio = (Desire Signal) /(Undesired Signal) Ratio

(shaded) worst 20% points
These points are excluded.

○Mj Jamming Margin

Mj(J/S ratio)	
Portable	9.2dB
Base	10.1dB

*Mj level is worst value after exclude worst 20% points.

○Process Gain

Gp=(S/N)o+Mj+Lsys

(S/N)o=3.0dB
Lsys=2.0dB
Mj: compare above table.

Gp (Process Gain)		
Portable	14.2dB	(=9.2+3+2)
Base	15.1dB	(=10.1+3+2)

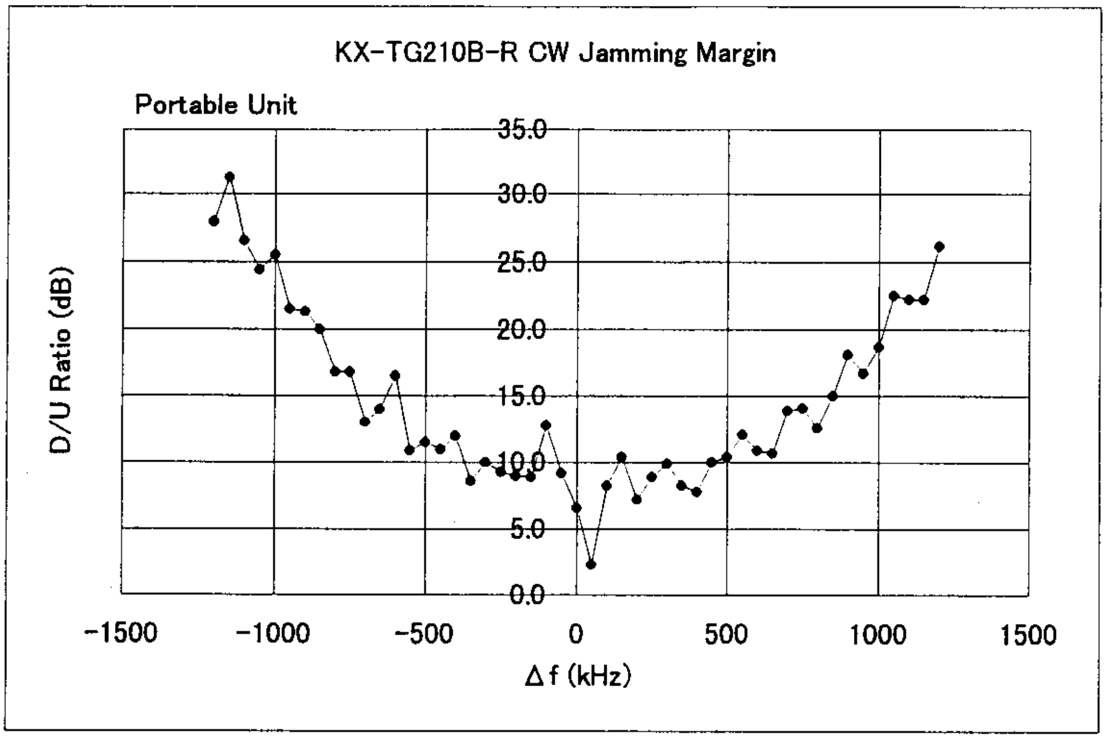
○Measurement Equipment

Signal Generator
HEWLETT PACKERD ESG-D3000A

Audio Analyzer
HEWLETT PACKERD 8903B

Four port junction Pad
Anritsu MA1612A

50 ohm terminator
HWELETT PACKERD 908A


KX-TG210B-R CW Jamming Margin
Portable Unit
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
D/U Ratio (dB)
-1500
-1000
-500
0
500
1000
1500
Δf (kHz)

FCC/MELLON FEB 08 1999

HANDSET

FCC ID: ACJ96NKX-TG210C

TEST REPORT FROM:

COMMUNICATION CERTIFICATION LABORATORY

Type of Report: Evaluation

TEST OF: KX-TG210 (Portable Unit)

To FCC PART 15, Subpart C Section 15.247(c)

Test Report Serial No: 73-65981

NONDSET
FCC ID: ACJ96NKX-TG210C

TEST REPORT FROM:

COMMUNICATION CERTIFICATION LABORATORY
1940 W. Alexander Street
Salt Lake City, Utah
84119-2039

Type of Report: Evaluation

TEST OF: KX-TG210 (Portable Unit)

To FCC PART 15, Subpart C Section 15.247(c)

Test Report Serial No: 73-65981

Applicant:

Kyushu Matsushita Electric Co., LTD.
1-62, 4-Chome Minoshima-Hakata-Fu
Fukuoka 812 Japan

Date(s) of Test: August 10-11, 1998

Issue Date: September 14, 1998

Equipment Receipt Date: August 5, 1998

CERTIFICATION OF ENGINEERING REPORT

This report has been prepared by Communication Certification Laboratory to evaluate the device described below with the requirements of FCC Part 15, Subpart C Section 15.247 (c). This report may be reproduced in full, partial reproduction may only be made with the written consent of the laboratory. The results in this report apply only to the sample tested.

- Applicant: Kyushu Matsushita Electric Co., LTD.
- Manufacturer: Kyushu Matsushita Electric Co., LTD.
- Brand Name: PANASONIC
- Model Number: KX-TG210 (Portable Unit)

On this 14th day of September 1998, I, individually, and for Communication Certification Laboratory, certify that the statements made in this engineering report are true, complete, and correct to the best of my knowledge, and are made in good faith.

Although NVLAP has recognized that the Communication Certification Laboratory EMC testing facilities are in good standing, NVLAP does not endorse the product described in this report.

COMMUNICATION CERTIFICATION LABORATORY

Checked by: William S. Hurst, P.E.
Vice President

Tested by: Roger J. Midgley
EMC Engineering Manager

TABLE OF CONTENTS

SECTION 1.0 CLIENT INFORMATION

1.1 Client Information:

Company Name: Kyushu Matsushita Electric Co., LTD.
1-62, 4-Chome Minoshima-Hakata-Fu
Fukuoka 812 Japan

Contact Name: Mr. Hiroshi Yoshinaga
Title: Manager
Fourth Division

SECTION 2.0 EQUIPMENT UNDER TEST (EUT)

2.1 Identification of EUT:

Trade Name:	PANASONIC
Model Name or Number:	KX-TG210 (Portable Unit)
Serial Number:	N/A
Country of Manufacture:	Japan

2.2 Description of EUT:

The KX-TG210 (Portable Unit) is the handset portion of a cordless spread spectrum telephone. The Handset portion of the device transmits from 902 to 928 MHz and receives from 2400 to 2483.5 MHz. The base station portion of this device transmits from 2400 to 2483.5 MHz and receives from 902 to 928 MHz. *

This report covers the harmonic portion of the handset transmitter only; the receiver portion is covered under a separate report.

* Exact Freq:

Base Unit TX: 2402.08 ~ 2481.44 MHz
Base Unit Rx: 909.64 ~ 920.80 MHz

Handset Unit TX: 909.64 ~ 920.80 MHz
Handset Unit Rx: 2402.08 ~ 2481.44 MHz

SECTION 3.0 TEST SPECIFICATION, METHODS & PROCEDURES

3.1 Test Specification:

Title: FCC PART 15, Subpart C (47 CFR 15).
Section 15.247 (c)

Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz and 24.0-24.25 GHz.

Purpose of Test: The tests were performed to demonstrate Initial compliance.

3.2 Methods & Procedures:

3.2.1 § 15.247 (c)

In any 100 kHz bandwidth outside the frequency band 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. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emission 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)).

3.2.3 Test Procedure

The radiated emissions testing was performed according to the procedures in ANSI C63.4 (1992). Radiated emissions testing was performed at CCL's anechoic chamber located at 1940 W. Alexander Street in Salt Lake City, Utah. This site has been fully described in a report submitted to the FCC, and was accepted in a letter dated March 6, 1996 (31040/SIT).

CCL participates in the National Voluntary Laboratory Accreditation Program (NVLAP) and has been accepted under NVLAP Lab Code:100272-0, which is effective until September 30,1998.

For radiated emissions testing that is performed at distances closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

SECTION 4.0 OPERATION OF EUT DURING TESTING

4.1 Operating Modes:

Each mode of operation was exercised to produce worst case emissions. The worst case emissions were with the KX-TG210 (Portable Unit) powered up in the transmit mode.

4.2 EUT Exercise Software:

The KX-TG210 (Portable Unit) used internal firmware to produce the worst case emissions.

SECTION 5.0 MEASUREMENTS, EXAMINATIONS AND DERIVED RESUTLS

5.1 General Comments:

This section contains the test results only. Details of the test methods used and a list of the test equipment used during the measurements can be found in Appendix 1 of this report.

5.2 Test Results:

Three samples of both the handset and base station were tested MP1, MP2 and MP3. The data is enclosed in Appendix 2.

5.3 Sample Field Strength Calculation:

The field strength is calculated by adding the Correction Factor (Antenna Factor + Cable Factor), to the measured level from the receiver. The receiver amplitude reading is compensated for any amplifier gain. The basic equation with a sample calculation is shown below:

FS = RA + CF Where

FS = Field Strength
RA = Receiver Amplitude Reading (Receiver Reading - Amplifier Gain)
CF = Correction Factor (Antenna Factor + Cable Factor)

Assume a receiver reading of 42.5 dBμV is obtained from the receiver, an amplifier gain of 26.5 dB and a correction factor of 8.5 dB. The field strength is calculated by subtracting the amplifier gain and adding the correction factor, giving a field strength of 24.5 dBμV/m, FS = (42.5 - 26.5) + 8.5 = 24.5 dBμV/m

APPENDIX 1 TEST PROCEDURES AND TEST EQUIPMENT

Radiated Interference Emissions:

The radiated emission from the intentional radiator was measured using a spectrum analyzer with a quasi-peak adapter for peak and quasi-peak readings. A preamplifier with a fixed gain of 26 dB and a power amplifier with a fixed gain of 22 dB were used to increase the sensitivity of the measuring instrumentation. The quasi-peak adapter uses a bandwidth of 120 kHz, with the spectrum analyzer's resolution bandwidth set at 1 MHz, for readings in the 30 to 1000 MHz frequency range. For peak emissions above 1000 MHz the spectrum analyzer's resolution bandwidth was set to 1 MHz and the video bandwidth was set to 3 MHz. For average emissions above 1000 MHz the spectrum analyzer's resolution bandwidth was set to 1 MHz and the video bandwidth was set to 1 Hz.

A biconilog antenna was used to measure the frequency range of 30 to 1000 MHz and a Double Ridge Guide Horn antenna was used to measure the frequency range 1 GHz to 10 GHz, at a distance of 3 meters from the EUT. The readings obtained by these antennas are correlated to the levels obtained with a tuned dipole antenna by adding antenna factors.

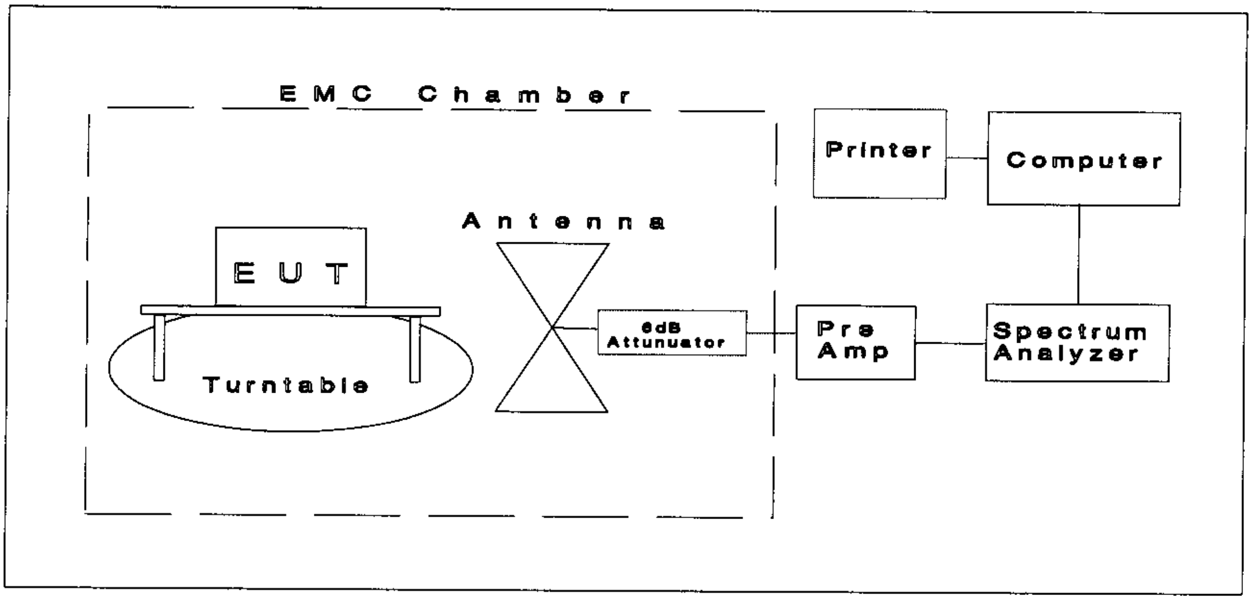
The configuration of the intentional radiator was varied to find the maximum radiated emission. The EUT was connected to the peripherals listed in Section 2.4 via the interconnecting cables listed in Section 2.5. These interconnecting cable were manipulated manually by a technician to obtain worst case radiated emissions. The intentional radiator was rotated 360 degrees, and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission. Where there were multiple interface ports all of the same type, cables are either placed on all of the ports or cables added to these ports until the emissions do not increase by more than 2 dB.

Desktop intentional radiator is measured on a non-conducting table one meter above the ground plane. The table is placed on a turntable which is level with the ground plane. The turntable has slip rings, which supply AC power to the intentional radiator. For equipment normally placed on floors, the equipment shall be placed directly on the turntable.

Type of Equipment	Manufacturer	Model Number	Serial Number
Anechoic Chamber	CCL	N/A	N/A
Test Software	CCL	Radiated Emissions	Revision 1.3
Spectrum Analyzer	Hewlett Packard	8566B	2230A01711
Quasi-Peak Detector	Hewlett Packard	8565A	3107A01582
Biconilog Antenna	EMCO	3141	1045
Double Ridged Guide Antenna	EMCO	3115	9409-4355
Radiated Emissions Cable Anechoic Chamber	CCL	Cable B	N/A
Pre-Amplifier	Hewlett Packard	8447D	1937A03151
Power-Amplifier	Hewlett Packard	8447E	2434A01975
6 dB Attenuator	Hewlett Packard	8491A	32835

All the equipment listed above is calibrated every 12 months by an independent calibration laboratory or by CCL personal following outlined calibration procedures.

Radiated Emissions Test



APPENDIX 2 TEST DATA

73-6598

Transmitting at 909.64 MHz

Horizontal Polarity

Frequency MHz	Detector	Uncorrected Level dBuV	Correction Factor dB	Field Strength dBuV/m	Criteria dBuV/m	Deviation dB
2728.9	Average	10.2	35.2	45.4	54.0	-8.6
2728.9	Peak	18.0	35.2	53.2	74.0	-20.8
3638.6	Average	-0.3	39.0	38.7	54.0	-15.3
3638.6	Peak	9.9	39.0	48.9	74.0	-25.1
4548.2	Average	1.9	41.8	43.7	54.0	-10.3
4548.2	Peak	11.5	41.8	53.3	74.0	-20.7
5457.8 *	Average	-1.8	46.0	44.2	54.0	-9.8
5457.8 *	Peak	7.9	46.0	53.9	74.0	-20.1
7277.1 *	Average	2.3	38.8	41.1	54.0	-12.9
7277.1 *	Peak	14.8	38.8	53.6	74.0	-20.4
8186.7 *	Average	3.3	39.9	43.2	54.0	-10.8
8186.7 *	Peak	12.8	39.9	52.7	74.0	-21.3
9096.4 *	Average	3.1	40.5	43.6	54.0	-10.4
9096.4 *	Peak	13.0	40.5	53.5	74.0	-20.5

Vertical Polarity

Frequency MHz	Detector	Uncorrected Level dBuV	Correction Factor dB	Field Strength dBuV/m	Criteria dBuV/m	Deviation dB
2728.9	Average	13.5	35.2	48.7	54.0	-5.3
2728.9	Peak	20.0	35.2	55.2	74.0	-18.8
3638.6	Average	1.2	39.0	40.2	54.0	-13.8
3638.6	Peak	11.2	39.0	50.2	74.0	-23.8
4548.2	Average	-0.5	41.8	41.3	54.0	-12.7
4548.2	Peak	9.6	41.8	51.4	74.0	-22.6
5457.8 *	Average	-3.0	46.0	43.0	54.0	-11.0
5457.8 *	Peak	8.4	46.0	54.4	74.0	-19.6
7277.1 *	Average	2.3	38.8	41.1	54.0	-12.9
7277.1 *	Peak	14.8	38.8	53.6	74.0	-20.4
8186.7 *	Average	3.3	39.9	43.2	54.0	-10.8
8186.7 *	Peak	12.8	39.9	52.7	74.0	-21.3
9096.4 *	Average	3.1	40.5	43.6	54.0	-10.4
9096.4 *	Peak	13.0	40.5	53.5	74.0	-20.5

* Noise Floor Readings of Spectrum Analyzer

Transmitting at 915.04 MHz

Horizontal Polarity

Frequency MHz	Detector	Uncorrected Level dBuV	Correction Factor dB	Field Strength dBuV/m	Criteria dBuV/m	Deviation dB
2745.1	Average	9.4	35.2	44.6	54.0	-9.4
2745.1	Peak	17.2	35.2	52.4	74.0	-21.6
3660.2	Average	-0.3	39.0	38.7	54.0	-15.3
3660.2	Peak	9.6	39.0	48.6	74.0	-25.4
4575.2	Average	1.9	41.8	43.7	54.0	-10.3
4575.2	Peak	11.7	41.8	53.5	74.0	-20.5
7320.3 *	Average	2.3	38.8	41.1	54.0	-12.9
7320.3 *	Peak	14.8	38.8	53.6	74.0	-20.4
8235.3 *	Average	3.3	39.9	43.2	54.0	-10.8
8235.3 *	Peak	12.8	39.9	52.7	74.0	-21.3
9150.4 *	Average	3.1	40.5	43.6	54.0	-10.4
9150.4 *	Peak	13.0	40.5	53.5	74.0	-20.5

Vertical Polarity

Frequency MHz	Detector	Uncorrected Level dBuV	Correction Factor dB	Field Strength dBuV/m	Criteria dBuV/m	Deviation dB
2745.1	Average	13.3	35.2	48.5	54.0	-5.5
2745.1	Peak	19.9	35.2	55.1	74.0	-18.9
3660.2	Average	0.3	39.0	39.3	54.0	-14.7
3660.2	Peak	9.6	39.0	48.6	74.0	-25.4
4575.2	Average	-0.6	41.8	41.2	54.0	-12.8
4575.2	Peak	9.5	41.8	51.3	74.0	-22.7
7320.3 *	Average	2.3	38.8	41.1	54.0	-12.9
7320.3 *	Peak	14.8	38.8	53.6	74.0	-20.4
8235.3 *	Average	3.3	39.9	43.2	54.0	-10.8
8235.3 *	Peak	12.8	39.9	52.7	74.0	-21.3
9150.4 *	Average	3.1	40.5	43.6	54.0	-10.4
9150.4 *	Peak	13.0	40.5	53.5	74.0	-20.5

* Noise Floor Readings of Spectrum Analyzer

Transmitting at 920.8 MHz

Horizontal Polarity

Frequency MHz	Detector	Uncorrected Level dBuV	Correction Factor dB	Field Strength dBuV/m	Criteria dBuV/m	Deviation dB
2762.4	Average	9.1	35.3	44.4	54.0	-9.6
2764.4	Peak	16.7	35.3	52.0	74.0	-22.0
3683.2	Average	-0.2	39.2	39.0	54.0	-15.0
3683.2	Peak	10.4	39.2	49.6	74.0	-24.4
4604.0	Average	3.8	41.9	45.7	54.0	-8.3
4604.0	Peak	12.7	41.9	54.6	74.0	-19.4
7366.4 *	Average	2.3	38.8	41.1	54.0	-12.9
7366.4 *	Peak	14.8	38.8	53.6	74.0	-20.4
8287.2 *	Average	3.3	39.9	43.2	54.0	-10.8
8287.2 *	Peak	12.8	39.9	52.7	74.0	-21.3
9208.0 *	Average	3.1	40.5	43.6	54.0	-10.4
9208.0 *	Peak	13.0	40.5	53.5	74.0	-20.5

Vertical Polarity

Frequency MHz	Detector	Uncorrected Level dBuV	Correction Factor dB	Field Strength dBuV/m	Criteria dBuV/m	Deviation dB
2762.4	Average	11.1	35.3	46.4	54.0	-7.6
2762.4	Peak	17.8	35.3	53.1	74.0	-20.9
3683.2	Average	0.5	39.2	39.7	54.0	-14.3
3683.2	Peak	10.6	39.2	49.8	74.0	-24.2
4604.0	Average	1.4	41.9	43.3	54.0	-10.7
4604.0	Peak	11.4	41.9	53.3	74.0	-20.7
7366.4 *	Average	2.3	38.8	41.1	54.0	-12.9
7366.4 *	Peak	14.8	38.8	53.6	74.0	-20.4
8287.2 *	Average	3.3	39.9	43.2	54.0	-10.8
8287.2 *	Peak	12.8	39.9	52.7	74.0	-21.3
9208.0 *	Average	3.1	40.5	43.6	54.0	-10.4
9208.0 *	Peak	13.0	40.5	53.5	74.0	-20.5

* Noise Floor Readings of Spectrum Analyzer

73-6598

Transmitting at 909.64 MHz

Horizontal Polarity

Frequency MHz	Detector	Uncorrected Level dBuV	Correction Factor dB	Field Strength dBuV/m	Criteria dBuV/m	Deviation dB
2728.9	Average	7.7	35.2	42.9	54.0	-11.1
2728.9	Peak	17.4	35.2	52.6	74.0	-21.4
3638.6	Average	0.2	39.0	39.2	54.0	-14.8
3638.6	Peak	10.4	39.0	49.4	74.0	-24.6
4548.2	Average	-0.2	41.8	41.6	54.0	-12.4
4548.2	Peak	9.9	41.8	51.7	74.0	-22.3
5457.8 *	Average	-0.6	46.0	45.4	54.0	-8.6
5457.8 *	Peak	9.3	46.0	55.3	74.0	-18.7
7277.1 *	Average	2.3	38.8	41.1	54.0	-12.9
7277.1 *	Peak	14.8	38.8	53.6	74.0	-20.4
8186.7 *	Average	3.3	39.9	43.2	54.0	-10.8
8186.7 *	Peak	12.8	39.9	52.7	74.0	-21.3
9096.4 *	Average	3.1	40.5	43.6	54.0	-10.4
9096.4 *	Peak	13.0	40.5	53.5	74.0	-20.5

Vertical Polarity

Frequency MHz	Detector	Uncorrected Level dBuV	Correction Factor dB	Field Strength dBuV/m	Criteria dBuV/m	Deviation dB
2728.9	Average	9.7	35.2	44.9	54.0	-9.1
2728.9	Peak	17.3	35.2	52.5	74.0	-21.5
3638.6	Average	1.9	39.0	40.9	54.0	-13.1
3638.6	Peak	11.1	39.0	50.1	74.0	-23.9
4548.2	Average	-0.2	41.8	41.6	54.0	-12.4
4548.2	Peak	10.4	41.8	52.2	74.0	-21.8
5457.8 *	Average	-2.5	46.0	43.5	54.0	-10.5
5457.8 *	Peak	9.2	46.0	55.2	74.0	-18.8
7277.1 *	Average	2.3	38.8	41.1	54.0	-12.9
7277.1 *	Peak	14.8	38.8	53.6	74.0	-20.4
8186.7 *	Average	3.3	39.9	43.2	54.0	-10.8
8186.7 *	Peak	12.8	39.9	52.7	74.0	-21.3
9096.4 *	Average	3.1	40.5	43.6	54.0	-10.4
9096.4 *	Peak	13.0	40.5	53.5	74.0	-20.5

* Noise Floor Readings of Spectrum Analyzer

Transmitting at 915.04 MHz

Horizontal Polarity

Frequency MHz	Detector	Uncorrected Level dBuV	Correction Factor dB	Field Strength dBuV/m	Criteria dBuV/m	Deviation dB
2745.1	Average	6.3	35.2	41.5	54.0	-12.5
2745.1	Peak	15.9	35.2	51.1	74.0	-22.9
3660.2	Average	1.2	39.0	40.2	54.0	-13.8
3660.2	Peak	9.9	39.0	48.9	74.0	-25.1
4575.2	Average	0.1	41.8	41.9	54.0	-12.1
4575.2	Peak	9.4	41.8	51.2	74.0	-22.8
7320.3 *	Average	2.3	38.8	41.1	54.0	-12.9
7320.3 *	Peak	14.8	38.8	53.6	74.0	-20.4
8235.3 *	Average	3.3	39.9	43.2	54.0	-10.8
8235.3 *	Peak	12.8	39.9	52.7	74.0	-21.3
9150.4 *	Average	3.1	40.5	43.6	54.0	-10.4
9150.4 *	Peak	13.0	40.5	53.5	74.0	-20.5

Vertical Polarity

Frequency MHz	Detector	Uncorrected Level dBuV	Correction Factor dB	Field Strength dBuV/m	Criteria dBuV/m	Deviation dB
2745.1	Average	8.8	35.2	44.0	54.0	-10.0
2745.1	Peak	15.5	35.2	50.7	74.0	-23.3
3660.2	Average	1.3	39.0	40.3	54.0	-13.7
3660.2	Peak	10.7	39.0	49.7	74.0	-24.3
4575.2	Average	-0.3	41.8	41.5	54.0	-12.5
4575.2	Peak	10.0	41.8	51.8	74.0	-22.2
7320.3 *	Average	2.3	38.8	41.1	54.0	-12.9
7320.3 *	Peak	14.8	38.8	53.6	74.0	-20.4
8235.3 *	Average	3.3	39.9	43.2	54.0	-10.8
8235.3 *	Peak	12.8	39.9	52.7	74.0	-21.3
9150.4 *	Average	3.1	40.5	43.6	54.0	-10.4
9150.4 *	Peak	13.0	40.5	53.5	74.0	-20.5

* Noise Floor Readings of Spectrum Analyzer

Transmitting at 920.8 MHz

Horizontal Polarity

Frequency MHz	Detector	Uncorrected Level dBuV	Correction Factor dB	Field Strength dBuV/m	Criteria dBuV/m	Deviation dB
2762.4	Average	7.1	35.3	42.4	54.0	-11.6
2764.4	Peak	15.9	35.3	51.2	74.0	-22.8
3683.2	Average	1.3	39.2	40.5	54.0	-13.5
3683.2	Peak	11.0	39.2	50.2	74.0	-23.8
4604.0	Average	1.0	41.9	42.9	54.0	-11.1
4604.0	Peak	10.4	41.9	52.3	74.0	-21.7
7366.4 *	Average	2.3	38.8	41.1	54.0	-12.9
7366.4 *	Peak	14.8	38.8	53.6	74.0	-20.4
8287.2 *	Average	3.3	39.9	43.2	54.0	-10.8
8287.2 *	Peak	12.8	39.9	52.7	74.0	-21.3
9208.0 *	Average	3.1	40.5	43.6	54.0	-10.4
9208.0 *	Peak	13.0	40.5	53.5	74.0	-20.5

Vertical Polarity

Frequency MHz	Detector	Uncorrected Level dBuV	Correction Factor dB	Field Strength dBuV/m	Criteria dBuV/m	Deviation dB
2762.4	Average	6.8	35.3	42.1	54.0	-11.9
2764.4	Peak	15.3	35.3	50.6	74.0	-23.4
3683.2	Average	2.3	39.2	41.5	54.0	-12.5
3683.2	Peak	11.2	39.2	50.4	74.0	-23.6
4604.0	Average	0.4	41.9	42.3	54.0	-11.7
4604.0	Peak	10.3	41.9	52.2	74.0	-21.8
7366.4 *	Average	2.3	38.8	41.1	54.0	-12.9
7366.4 *	Peak	14.8	38.8	53.6	74.0	-20.4
8287.2 *	Average	3.3	39.9	43.2	54.0	-10.8
8287.2 *	Peak	12.8	39.9	52.7	74.0	-21.3
9208.0 *	Average	3.1	40.5	43.6	54.0	-10.4
9208.0 *	Peak	13.0	40.5	53.5	74.0	-20.5

* Noise Floor Readings of Spectrum Analyzer

73-6598

Transmitting at 909.64 MHz

Horizontal Polarity

Frequency MHz	Detector	Uncorrected Level dBuV	Correction Factor dB	Field Strength dBuV/m	Criteria dBuV/m	Deviation dB
2728.9	Average	12.0	35.2	47.2	54.0	-6.8
2728.9	Peak	18.6	35.2	53.8	74.0	-20.2
3638.6	Average	1.6	39.0	40.6	54.0	-13.4
3638.6	Peak	10.7	39.0	49.7	74.0	-24.3
4548.2	Average	-0.2	41.8	41.6	54.0	-12.4
4548.2	Peak	9.4	41.8	51.2	74.0	-22.8
5457.8	Average	0.3	46.0	46.3	54.0	-7.7
5457.8	Peak	10.1	46.0	56.1	74.0	-17.9
7277.1 *	Average	2.3	38.8	41.1	54.0	-12.9
7277.1 *	Peak	14.8	38.8	53.6	74.0	-20.4
8186.7 *	Average	3.3	39.9	43.2	54.0	-10.8
8186.7 *	Peak	12.8	39.9	52.7	74.0	-21.3
9096.4 *	Average	3.1	40.5	43.6	54.0	-10.4
9096.4 *	Peak	13.0	40.5	53.5	74.0	-20.5

Vertical Polarity

Frequency MHz	Detector	Uncorrected Level dBuV	Correction Factor dB	Field Strength dBuV/m	Criteria dBuV/m	Deviation dB
2728.9	Average	13.0	35.2	48.2	54.0	-5.8
2728.9	Peak	19.2	35.2	54.4	74.0	-19.6
3638.6	Average	1.4	39.0	40.4	54.0	-13.6
3638.6	Peak	11.6	39.0	50.6	74.0	-23.4
4548.2	Average	-0.7	41.8	41.1	54.0	-12.9
4548.2	Peak	9.0	41.8	50.8	74.0	-23.2
5457.8 *	Average	-1.2	46.0	44.8	54.0	-9.2
5457.8 *	Peak	8.4	46.0	54.4	74.0	-19.6
7277.1 *	Average	2.3	38.8	41.1	54.0	-12.9
7277.1 *	Peak	14.8	38.8	53.6	74.0	-20.4
8186.7 *	Average	3.3	39.9	43.2	54.0	-10.8
8186.7 *	Peak	12.8	39.9	52.7	74.0	-21.3
9096.4 *	Average	3.1	40.5	43.6	54.0	-10.4
9096.4 *	Peak	13.0	40.5	53.5	74.0	-20.5

* Noise Floor Readings of Spectrum Analyzer

Transmitting at 915.04 MHz

Horizontal Polarity

Frequency MHz	Detector	Uncorrected Level dBuV	Correction Factor dB	Field Strength dBuV/m	Criteria dBuV/m	Deviation dB
2745.1	Average	10.2	35.2	45.4	54.0	-8.6
2745.1	Peak	17.5	35.2	52.7	74.0	-21.3
3660.2	Average	1.7	39.0	40.7	54.0	-13.3
3660.2	Peak	11.1	39.0	50.1	74.0	-23.9
4575.2	Average	-0.2	41.8	41.6	54.0	-12.4
4575.2	Peak	9.8	41.8	51.6	74.0	-22.4
7320.3	Average	4.0	38.8	42.8	54.0	-11.2
7320.3	Peak	14.5	38.8	53.3	74.0	-20.7
8235.3 *	Average	3.3	39.9	43.2	54.0	-10.8
8235.3 *	Peak	12.8	39.9	52.7	74.0	-21.3
9150.4 *	Average	3.1	40.5	43.6	54.0	-10.4
9150.4 *	Peak	13.0	40.5	53.5	74.0	-20.5

Vertical Polarity

Frequency MHz	Detector	Uncorrected Level dBuV	Correction Factor dB	Field Strength dBuV/m	Criteria dBuV/m	Deviation dB
2745.1	Average	11.0	35.2	46.2	54.0	-7.8
2745.1	Peak	19.1	35.2	54.3	74.0	-19.7
3660.2	Average	2.2	39.0	41.2	54.0	-12.8
3660.2	Peak	12.4	39.0	51.4	74.0	-22.6
4575.2	Average	-0.4	41.8	41.4	54.0	-12.6
4575.2	Peak	10.3	41.8	52.1	74.0	-21.9
7320.3	Average	5.2	38.8	44.0	54.0	-10.0
7320.3	Peak	14.2	38.8	53.0	74.0	-21.0
8235.3 *	Average	3.3	39.9	43.2	54.0	-10.8
8235.3 *	Peak	12.8	39.9	52.7	74.0	-21.3
9150.4 *	Average	3.1	40.5	43.6	54.0	-10.4
9150.4 *	Peak	13.0	40.5	53.5	74.0	-20.5

* Noise Floor Readings of Spectrum Analyzer

Transmitting at 920.8 MHz

Horizontal Polarity

Frequency MHz	Detector	Uncorrected Level dBuV	Correction Factor dB	Field Strength dBuV/m	Criteria dBuV/m	Deviation dB
2762.4	Average	8.4	35.3	43.7	54.0	-10.3
2764.4	Peak	15.7	35.3	51.0	74.0	-23.0
3683.2	Average	6.0	39.2	45.2	54.0	-8.8
3683.2	Peak	12.3	39.2	51.5	74.0	-22.5
4604.0	Average	0.1	41.9	42.0	54.0	-12.0
4604.0	Peak	10.9	41.9	52.8	74.0	-21.2
7366.4 *	Average	2.3	38.8	41.1	54.0	-12.9
7366.4 *	Peak	14.8	38.8	53.6	74.0	-20.4
8287.2 *	Average	3.3	39.9	43.2	54.0	-10.8
8287.2 *	Peak	12.8	39.9	52.7	74.0	-21.3
9208.0 *	Average	3.1	40.5	43.6	54.0	-10.4
9208.0 *	Peak	13.0	40.5	53.5	74.0	-20.5

Vertical Polarity

Frequency MHz	Detector	Uncorrected Level dBuV	Correction Factor dB	Field Strength dBuV/m	Criteria dBuV/m	Deviation dB
2762.4	Average	12.6	35.3	47.9	54.0	-6.1
2764.4	Peak	18.7	35.3	54.0	74.0	-20.0
3683.2	Average	7.6	39.2	46.8	54.0	-7.2
3683.2	Peak	13.6	39.2	52.8	74.0	-21.2
4604.0	Average	0.0	41.9	41.9	54.0	-12.1
4604.0	Peak	8.9	41.9	50.8	74.0	-23.2
7366.4 *	Average	2.3	38.8	41.1	54.0	-12.9
7366.4 *	Peak	14.8	38.8	53.6	74.0	-20.4
8287.2 *	Average	3.3	39.9	43.2	54.0	-10.8
8287.2 *	Peak	12.8	39.9	52.7	74.0	-21.3
9208.0 *	Average	3.1	40.5	43.6	54.0	-10.4
9208.0 *	Peak	13.0	40.5	53.5	74.0	-20.5

* Noise Floor Readings of Spectrum Analyzer