

Marstech Limited

11 Kelfield Street, Etobicoke, Ontario, Canada, M9W 5A1
Telephone (416) 246-1116, Fax (416) 246-1020

Authorized by:

Professional Engineers
Ontario



Engineering &
Administrative

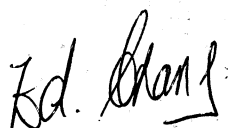
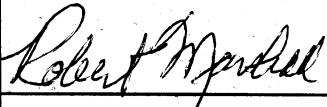


Testing For FCC
Submissions/Verifications



Approved Test Facility



TEST REPORT			
REPORT DATE:		13 March 2002	
REPORT NO:		22034D	
CONTENTS:	See Table of Contents		
SUBMITTOR:	ATLINKS USA, Inc. 101 West 103 rd Street Indianapolis, IN 46290-1102 USA		
SUBJECT:	Model No:	26928XXX-A (Model tested is 26992XXX-A) [Alternate Construction - to cover additional minor answer machine circuits; antenna change; pcb layout change and to add Model 26992XXX-A which has the same RF module as revised Model 26928XXX-A]	
	FCC ID:	G9H2-6928A	
TEST SPECIFICATION	FCC 47 CFR Part 15, Class "II" Permissive Change NOTE: Tests Conducted Are "Type" Tests.		
DATE SAMPLE RECEIVED:	12 February 2002	DATE TESTED:	15 February 2002 and 01 March 2002
RESULTS:	Equipment tested complies with referenced specification.		
ALTERATIONS	None		
Tested by:		Approved by:	
	Edward Chang	Date:	Mar 18/02
THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF MARSTECH LIMITED. This report was prepared by Marstech Limited for the account of the "Submittor". The material herein reflects Marstech's judgement in light of the information available to it at the time of preparation. Any use which a Third Party makes of this report, or any reliance on decisions to be made based on it, are the responsibility of such Third Parties. Marstech accepts no responsibility for damages, if any, suffered by any Third Party as a result of decisions made or actions based on this report			

TECHNICAL REPORT - FCC 2.1033(b)

Applicant

ATLINKS USA, Inc.
101 West 103rd Street
Indianapolis, IN
46290-1102 USA

FCC Identifier

G9H2-6928A

Manufacturer

Huiyang CCT Telecommunications Products Co. Ltd.
CCT Technology Park, San He Economic Experimental Zone
Huiyang City, Guangdong Province
P. R. of China

TABLE OF CONTENTS

<u>Exhibit</u>	<u>Description</u>	<u>FCC Ref.</u>	<u>Page</u>
A	Installation and Operating Instructions Furnished to the User.	2.1033(b)(3)	Exhibit A Exhibit A(1)
B	Description of Circuit Functions and Statement of Security Code	2.1033(b)(4)	Exhibit B Exhibit B(1)
C	Block Diagram Schematic Diagram	2.1033(b)(5)	Exhibit C Exhibit C(1)-1 to -2 Exhibit C(2)-1 to -6
D	Report of Measurements	2.1033(b)(6)	Exhibit D
E	Photographs Label Equipment - External Photos Internal Photos	2.1033(b)(7)	Exhibit E Exhibit E(1) Exhibit E(2)-1 to -2 Exhibit E(2)-3 to -8

EXHIBIT D

[FCC Ref. 2.1033(b)(6)]

"Report of Measurements"

TABLE OF CONTENTS

TEST REPORT CONTAINING:

Exhibit D(1)-2	Product Description
Exhibit D(1)-3 to -4	Test Equipment List
Exhibit D(1)-5	Test Procedure
Exhibit D(1)-6 to -8	Power Line Conducted Interference
Exhibit D(1)-9 to -11	Band Edges
Exhibit D(1)-12 to -16	Bandwidth
Exhibit D(1)-17 to -19	Field Strength of Emissions
Exhibit D(2)-1 to -2	Test Set Up Photo
Exhibit D(3)	Measurement Facility (3 meter site)

PRODUCT DESCRIPTION

The RF module of **new Model 26992XXX-A (model tested)**, a single-line 900MHz cordless telephone with answering machine feature that operates from 902 MHz to 928 MHz, is identical to revised Model 26928XXX-A. The antenna used for the base and the handset is permanently attached to the EUT. Its actual frequency range is:

Base: 902.109 to 904.060 MHz

Handset: 925.919 to 927.860 MHz

The Model 26992XXX-A will bear the same FCC ID: G9H2-6928A as revised Model 26928XXX-A.

TEST FACILITY AND EQUIPMENT LIST

FACILITIES

- Radiated ANSI C63.4 (FCC OET/55) open field 3 metre test range. This test range is protected from the cold and moisture by a non-conductive enclosure.
- Conducted 2.5m Anechoic Chamber

EQUIPMENT

Anritsu 2601A Spectrum Analyzer
Advantest R3261A Spectrum Analyzer
Hewlett-Packard RF generator # 8640 B with an 002 doubler
A.H. Systems biconical antenna; 20 MHz to 330 MHz
A.H. Systems log periodic antenna; 300 MHz to 1.8 GHz
Eaton dipole antennas; T1, T2, T3 25 MHz to 1.0 GHz
Roberts dipole antennas; T1, T2, T3 & T4 25 MHz to 1.0 GHz
Compliance Design P950 Preamp (16 dB) ... 25 MHz to 1.0 GHz

NOTE:

The Anritsu 2601A Spectrum Analyzer and the Advantest R3261A Spectrum Analyzer are calibrated annually, and that calibration is directly traceable to the National Research Council of Canada. (NRC) This equipment is only used by qualified technicians and only for the purpose of EMI measurements. The three metre test range has been carefully evaluated to the ANSI document C63.4 and will be remeasured for reflections and losses every three years.

ADDITIONAL TEST EQUIPMENT LIST

1. Spectrum Analyzer: HP 8591EM, S/N 3639A00995, Calibrated April 2001
2. Spectrum Analyzer: ANRITSU 2601A, S/N MT64544, Calibrated May 2001
3. Spectrum Analyzer: IFR AN940, S/N 635001039, Calibrated March 2002
4. Preamp: HP 8449B, S/N 3008A00378, Calibrated August 2001
5. Horn Antenna: Q-PAR 6878/24, S/N 1721, 1.5-18GHz
6. Line Impedance Stabilization Network.: Marstech, Cal. July 2001

TEST PROCEDURE

GENERAL:

Shielded interface cables were used in all cases except for cables connecting to the telephone line and the power cords. A test program was run which simulated a normal transmission.

POWER LINE CONDUCTED INTERFERENCE:

The procedure used was ANSI STANDARD C63.4 1992 using a 50uH LISN. Both lines were observed with the EUT transmitting. The bandwidth of the spectrum analyzer was 9KHz QP with an appropriate sweep speed. The ambient temperature of the EUT was 24°C with a humidity of 60%.

BANDWIDTH 6.0dB:

The measurements were made with the spectrum analyzer's resolution bandwidth (RBW)=1.0MHz and the video bandwidth (VBW)=1.0MHz and the span set as shown on plot.

POWER OUTPUT:

The radiated output power was measured with the spectrum analyzer and Horn Antenna.

RADIATION INTERFERENCE:

The test procedure used was ANSI STANDARD C63.4-1992 using an appropriate spectrum analyzer, as listed in the Test Equipment List. The bandwidth (RBW) of the spectrum analyzer was 100KHz/120KHz up to 1GHz with an appropriate sweep speed. The VBW above 1.0GHz was = 1.0GHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the EUT was 24°C with a humidity of 60%.

15.107 (a) POWER LINE CONDUCTED INTERFERENCE

Requirements: 0.45 - 30MHz 250 μ V or 47.96dB μ V

Test Procedure: ANSI STANDARD C63.4-1992.
The spectrum was scanned from 0.45 to 30MHz.

Test Data:

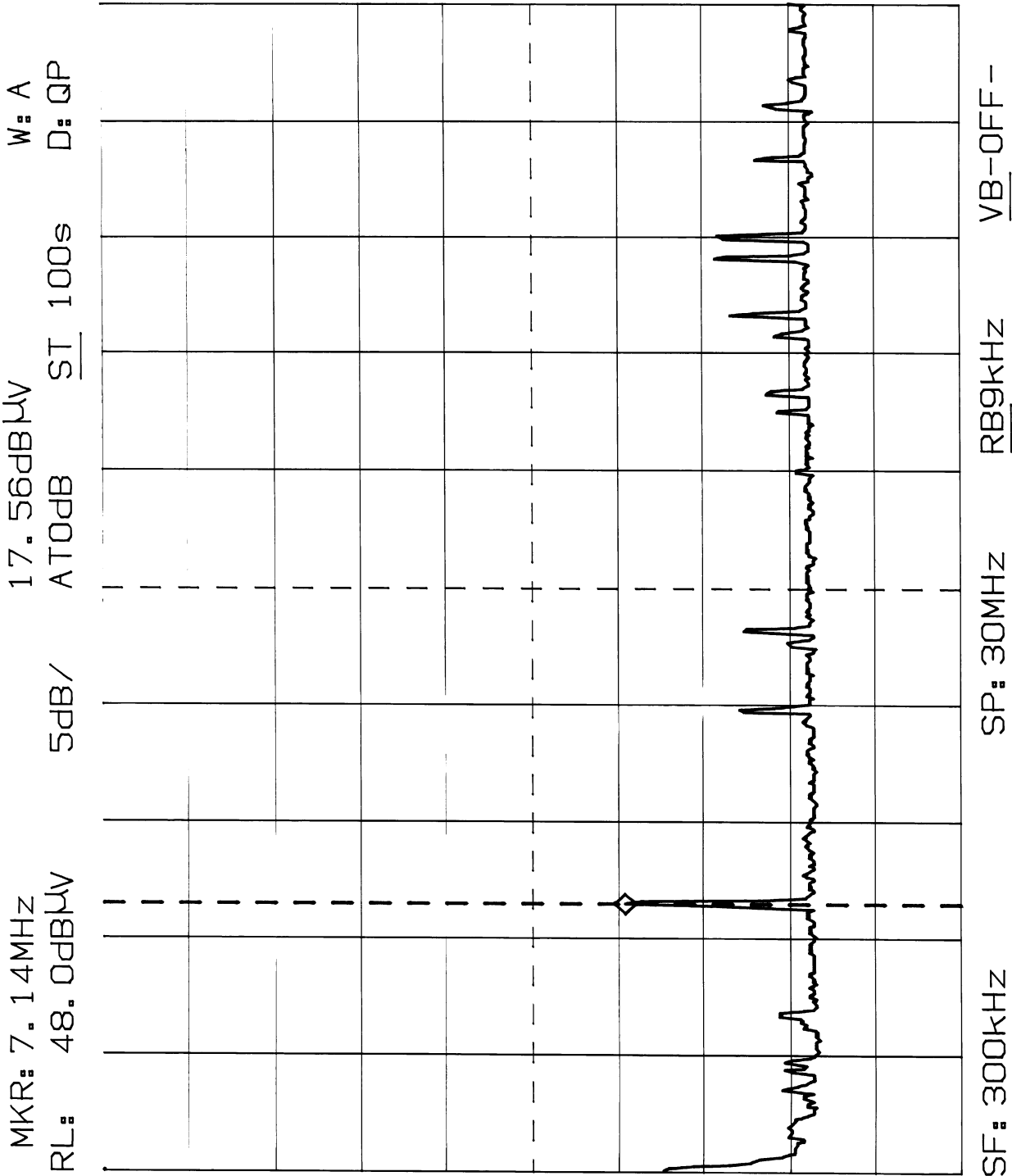
The highest emission read for LINE was 17.56 dB μ V@ 7.14 MHz.
The highest emission read for NEUTRAL was 19.48 dB μ V@ 7.14 MHz.

The graphs on Exhibit D(1)-7 to -8 represent the emissions taken for this device.

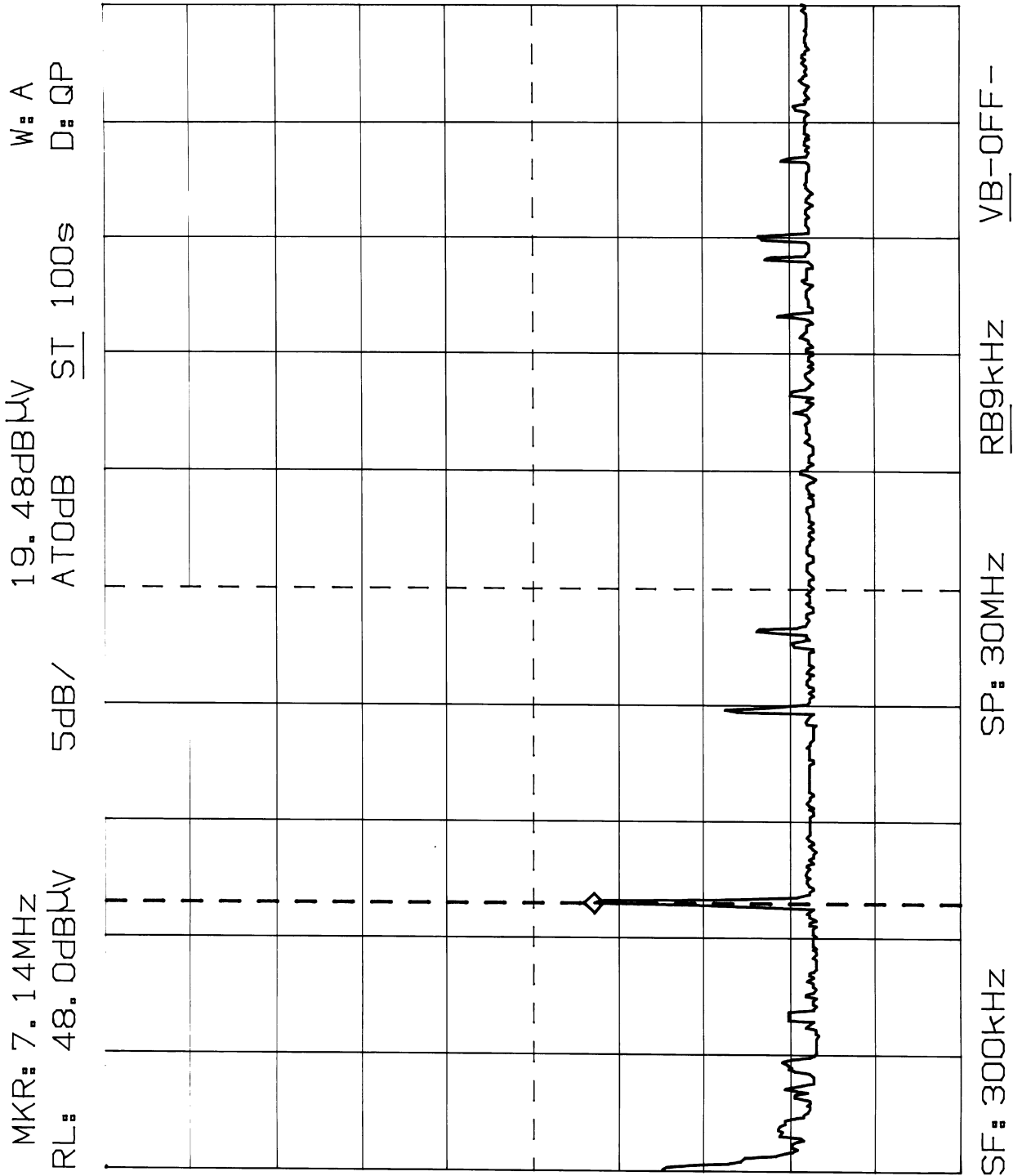
Test Results:

Both lines were observed. The measurements indicate that the unit DOES appear to meet the FCC requirements for this class of equipment.

POWER LINE CONDUCTED EMISSIONS
MODEL 26992XXX-A; LINE



POWER LINE CONDUCTED EMISSIONS
MODEL 26992XXX-A; NEUTRAL



15.249 (c) BAND EDGES

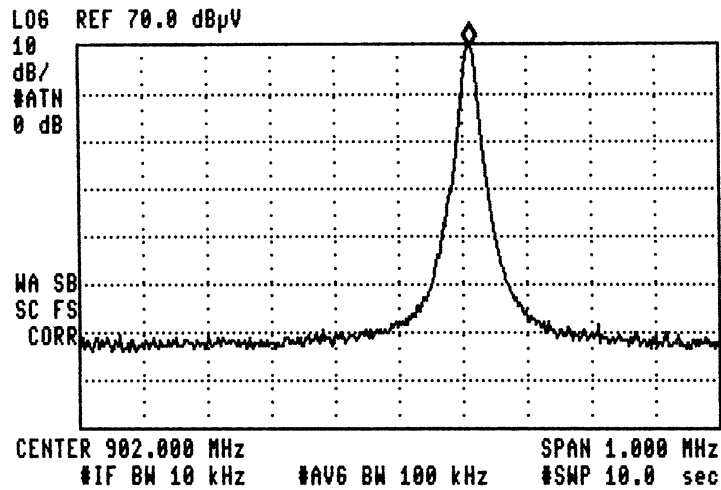
- Requirements:** Emissions outside of the frequency band must be attenuated 50dB below the fundamental.
- Measurement:** The base was attenuated by 50 dB. The headset was attenuated by 50 dB.
- Measurement Data:** The Bandedge was measured at the Low end of the band for the base, and the High end of the band for the handset. See Plots [Exhibits D(1)-10 to -11].

BAND EDGE (Base); Channel 1
MODEL 26992XXX-A

16:49:44 MAR 01, 2002
/p

SWEPTIME
10.0 sec

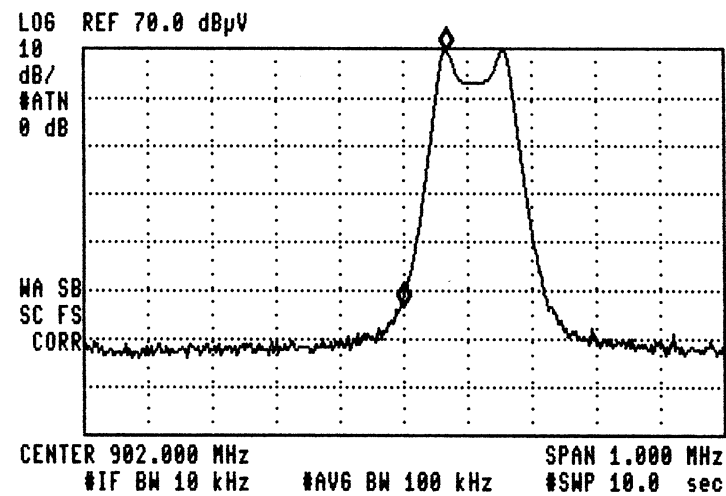
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 902.113 MHz
69.68 dB μ V



16:54:13 MAR 01, 2002
/p

SWEPTIME
10.0 sec

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR_A 68 kHz
52.99 dB



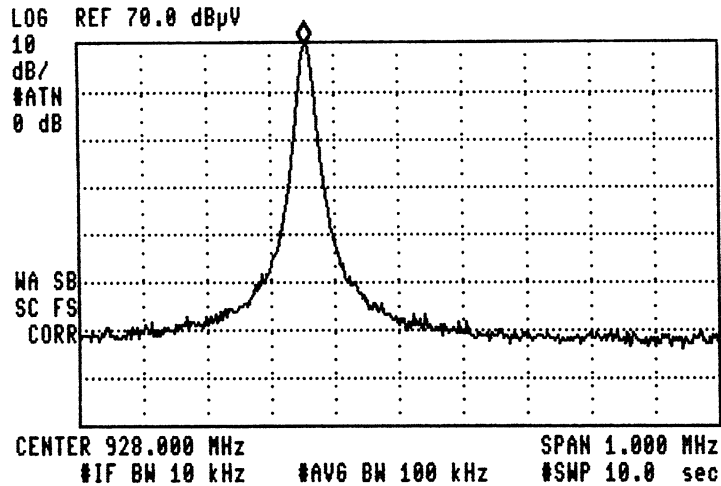
BAND EDGE (Handset); Channel 40
MODEL 26992XXX-A

17:16:53 MAR 01, 2002

/p

SWEPTIME
10.0 sec

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 927.855 MHz
69.41 dB μ V

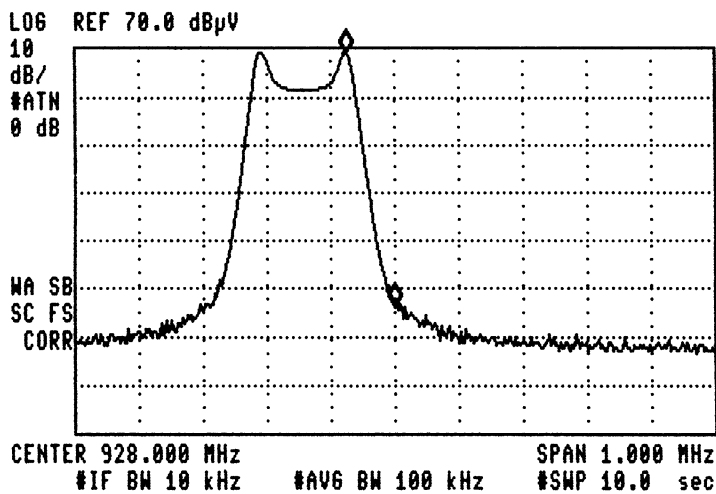


17:20:24 MAR 01, 2002

/p

SWEPTIME
10.0 sec

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR_A -75 kHz
53.01 dB



2.202 BANDWIDTH

Handset

Channels 1 and 40: **0.162 MHz** [Refer to Exhibit D(1)-13]

Base:

Channels 1 and 40: **0.1133 MHz** [Refer to Exhibit D(1)-14]

BANDWIDTH = **0.2 MHz**

20dB BANDWIDTH (Handset); CH 1 & CH 40
MODEL 26992XXX-A

17:10:35 MAR 01, 2002

17

MARKER Δ
162.0 kHz
-.51 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 162.0 kHz
-.51 dB

LOG REF 70.0 dBμV

10

dB/

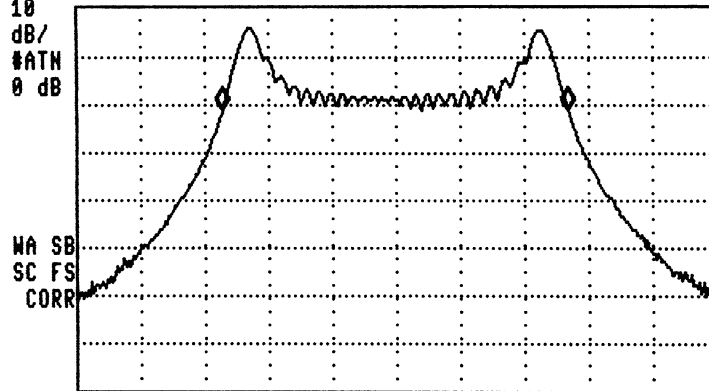
#ATN

0 dB

WA SB

SC FS

CORR



CENTER 925.9100 MHz SPAN 300.0 kHz
#IF BW 3.0 kHz #AVG BW 100 kHz #SWP 10.0 sec

17:13:29 MAR 01, 2002

17

MARKER Δ
159.0 kHz
.24 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 159.0 kHz
.24 dB

LOG REF 70.0 dBμV

10

dB/

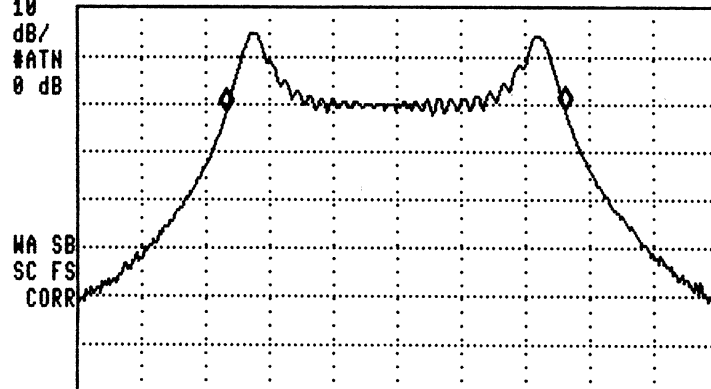
#ATN

0 dB

WA SB

SC FS

CORR



CENTER 927.8600 MHz SPAN 300.0 kHz
#IF BW 3.0 kHz #AVG BW 100 kHz #SWP 10.0 sec

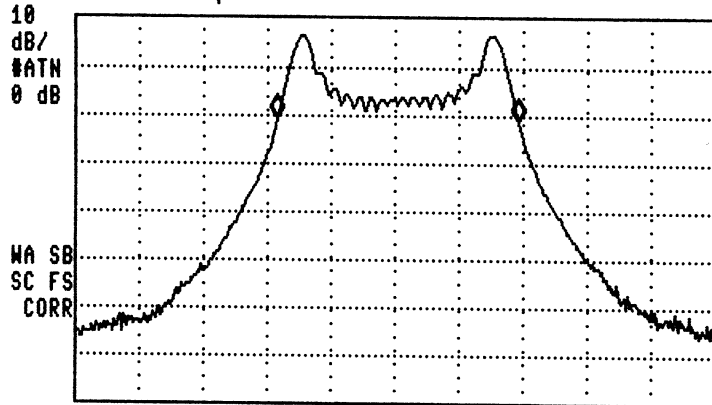
20dB BANDWIDTH (Base); CH 1 & CE 40
MODEL 26992XXX-A

17:03:15 MAR 01, 2002
/P

MARKER Δ
113.3 kHz
-.76 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 113.3 kHz
-.76 dB

LOG REF 70.0 dBμV



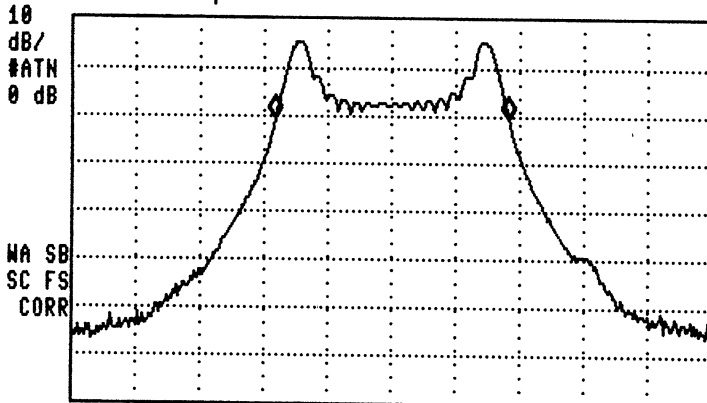
CENTER 902.1090 MHz SPAN 300.0 kHz
#IF BW 3.0 kHz #AVG BW 100 kHz #SNP 10.0 sec

17:05:04 MAR 01, 2002
/P

MARKER Δ
109.5 kHz
.27 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 109.5 kHz
.27 dB

LOG REF 70.0 dBμV



CENTER 904.0600 MHz SPAN 300.0 kHz
#IF BW 3.0 kHz #AVG BW 100 kHz #SNP 10.0 sec

15.249 (a) and 15.249 (b)
FIELD STRENGTH OF EMISSIONS

Page 1 of 3

Requirements:

Field Strength of Fundamental	Field Strength of Harmonics	15.209
		30-88 MHz 40 dB μ V/M@ 3m
902 to 928 MHz 94dB μ V	54 dB μ V/M@ 3m	88-216 MHz 43.5
		216-960 MHz 46
		Above 960 MHz 54

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in 15.209, whichever is the lesser attenuation.

Emissions that fall in the restricted bands (15.205) must be less than 54dB μ V/M.

FIELD STRENGTH OF EMISSIONS**Test Data:****HANDSET (TX Spurious Emission and Carrier)**

Emission Frequency MHz	Meter Reading @3m dB μ V	Antenna	Cable and ACF dB	Field Strength dB μ V/M	FCC Limit dB μ V/M	Margin dB	Detector & BW KHz
Channel 1							
925.919	53.17	RT4 V	33.44	86.57	94	-7.43	PK 100
463.75	14.00	LP H	20.00	34.00	46	-12.00	PK 100
Channel 40							
927.860	52.00	RT4 V	33.47	85.47	94	-8.53	PK 100

FIELD STRENGTH OF EMISSIONS**Test Data:****BASE UNIT (TX Spurious Emission and Carrier)**

Emission Frequency MHz	Meter Reading @3m dB μ V	Antenna	Cable and ACF dB	Field Strength dB μ V/M	FCC Limit dB μ V/M	Margin dB	Detector & BW KHz
<u>Channel 1</u>							
902.109	54.30	RT4 H	33.21	87.51	94	-6.49	PK 100
451.82	14.00	LP H	19.20	33.20	46	-12.80	PK 100
<u>Channel 40</u>							
904.060	53.75	RT4 H	33.23	86.98	94	-7.02	PK 100