

Marstech Limited

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

TEST REPORT

REPORT DATE:	7 March 2001	REPORT NO:	21060D
CONTENTS:	See Table of Contents		
SUBMITTOR:	ATLINKS USA, Inc. 101 West 103 rd Street Indianapolis, IN 46290-1102 USA		
SUBJECT:	Model No: 26965XXX-A [modification filing to cover changing intenna to antenna and optional shielding on transformer] FCC ID: G9H2-6965		
TEST SPECIFICATION	CFR 47 FCC Part 15 Class II Permissive Change NOTE: Tests Conducted Are "Type" Tests.		
DATE SAMPLE RECEIVED:	7 February 2001	DATE TESTED:	2 March 2001
RESULTS:	Equipment tested complies with referenced specification.		
ALTERATIONS	None		
Tested by:	Ed. Chang	Approved by:	Robert G. Marshall, P. Eng.
	Edward Chang	Date:	Mar 13/01
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 "Submitter". The material in it 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

G9H2-6965

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 Description</u>	<u>FCC Ref.</u>	<u>Page</u>
C Schematic Diagram	2.1033(b)(5)	Exhibit C Exhibit C(2)-1 to -2
D Report of Measurements Test Data/Equipment List Test Set Up Photos Measurement Facility (3 Meter site)	2.1033(b)(6)	Exhibit D Exhibit D(1)-1 to -12 Exhibit D(2)-1 to -2 Exhibit D(3)
E Photographs Equipment	2.1033(b)(7)	Exhibit E Exhibit E(2)-1

EXHIBIT D

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

"Report of Measurements"

TABLE OF CONTENTS

TEST REPORT CONTAINING:

Exhibit D(1)-2 to -3
Exhibit D(1)-4
Exhibit D(1)-5 to -9
Exhibit D(1)-10 to -12
Exhibit D(2)-1 to -2
Exhibit D(3)

Test Equipment List
Test Procedure
Power Line Conducted Interference
Field Strength of Emissions
Test Set Up Photos
Measurement Facility (3 meter site)

TEST FACILITY AND EQUIPMENT LIST

FACILITIES

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

EQUIPMENT

Hewlett-Packard spectrum analyzer # 8554 RF & 141T video.
Anritsu 2601 A spectrum analyzer.
Advantest R3261A Spectrum Analyzer
Hewlett-Packard RF generator # 8640 B with an 002 doubler
Hewlett-Packard attenuator 30 dB # 11708A.
Narda 20 watt (20 dB) attenuator
Compliance Design P950 Preamp 16dB 25 MHz - 1.0 GHz
A.H. Systems biconical antenna; 20 MHz - 330 MHz
A.H. Systems log periodic antenna; 300 MHz - 1.8 GHz
Eaton dipole antennas; T1, T2, T3 25 MHz - 1.0 GHz
CDI Roberts dipole antennas; T1, T2, T3 & T4 25 MHz - 1.0 GHz

NOTE:

The Anritsu 2601 A spectrum analyzer, the Hewlett-Packard 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 meter 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: Advantest R3271A, S/N J001279, Cal. due May 2001.
- 2 Preamp: HP 8449B, S/N 3008A00378, Cal. March 2001.
- 3 Horn Antenna: Q-PAR 6878/24, S/N 1721, 1.5-18GHz.
- 4 Line Impedance Stabilization Network: Marstech, Cal. due 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 UUT transmitting. The bandwidth of the spectrum analyzer was 9KHz QP with an appropriate sweep speed. The ambient temperature of the UUT was 24°F with a humidity of 60%.

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 RBW above 1.0GHz was = 1MHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the UUT was 24°F 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 1 WAS 18.68 dB μ V@ 7.26 MHz.

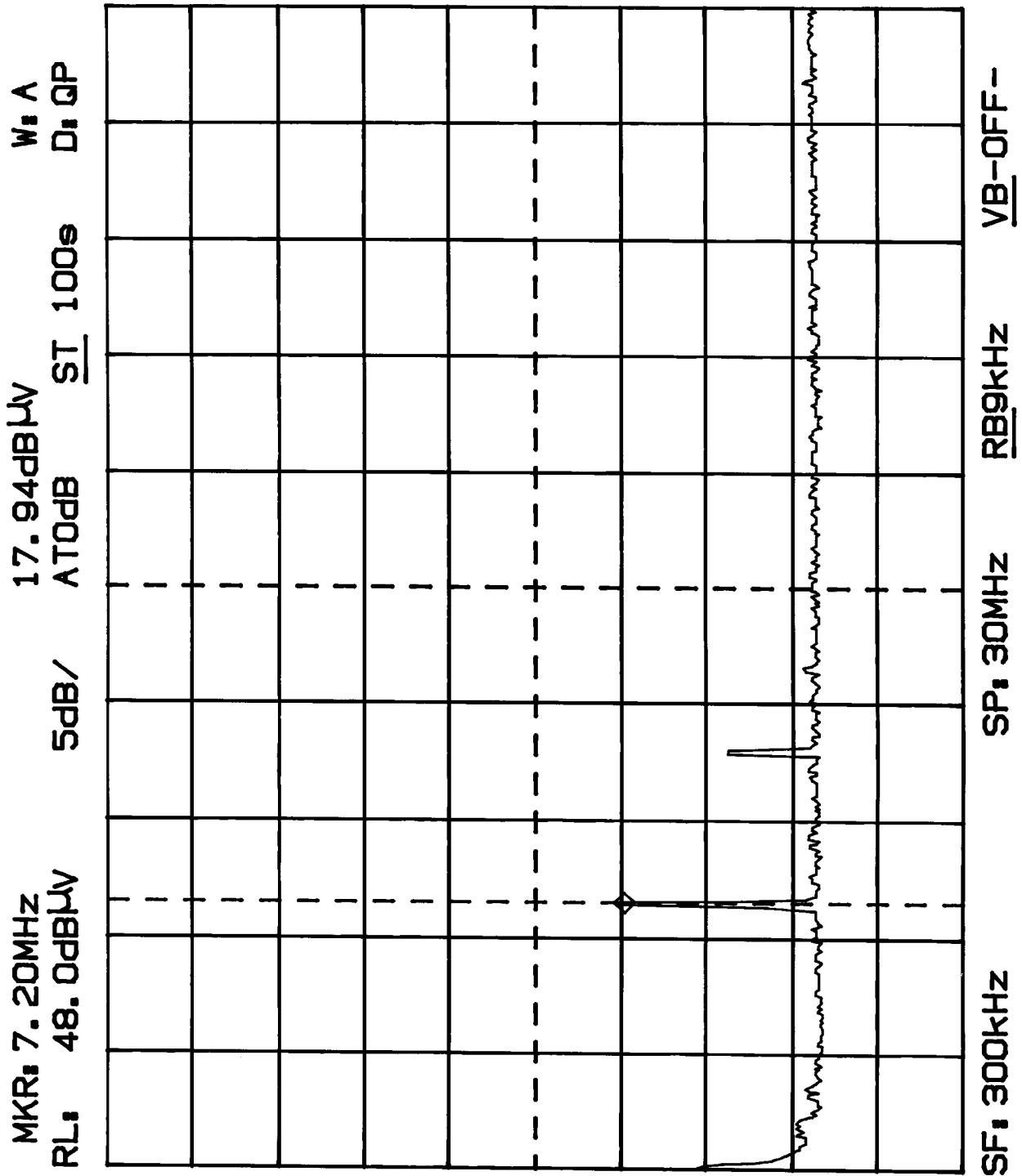
THE HIGHEST EMISSION READ FOR LINE 2 WAS 18.33 dB μ V@ 7.20 MHz.

The graphs on Exhibit D(1)-6 to -7 represent the emissions taken for this device.

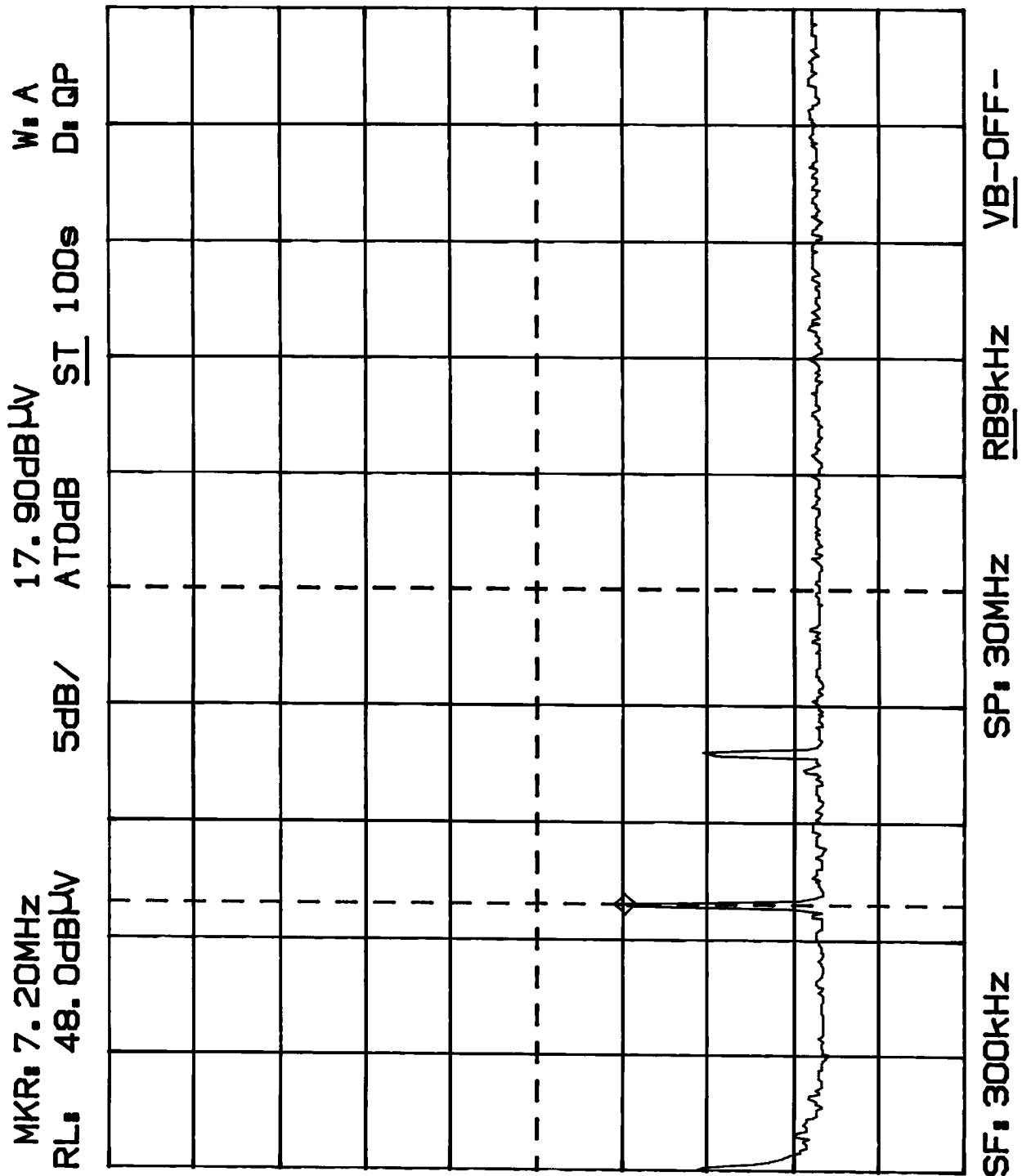
Test Results:

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

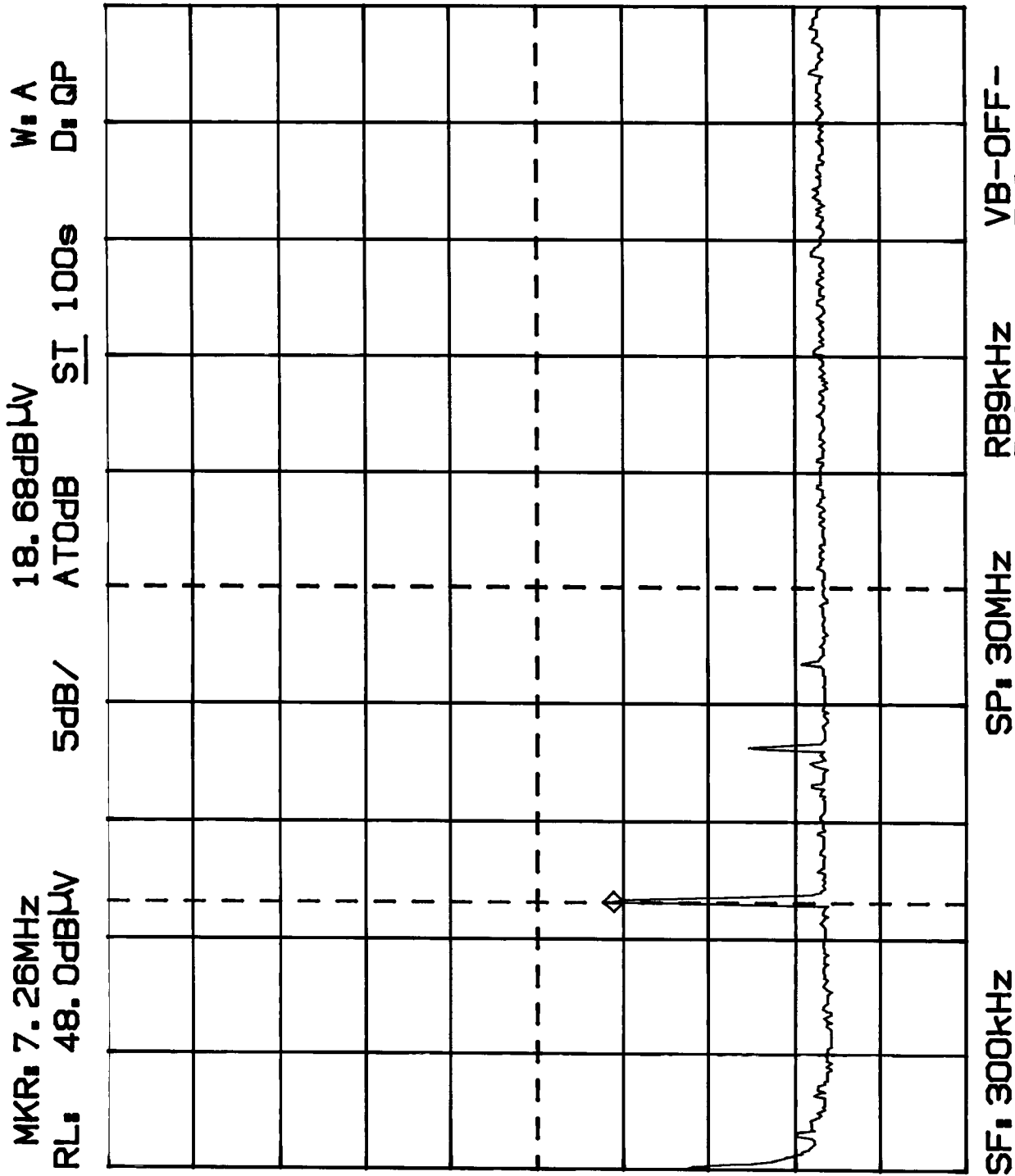
POWER LINE CONDUCTED EMISSIONS
 MODEL 26965XXX-A
 (With Hum Ring); LINE 1



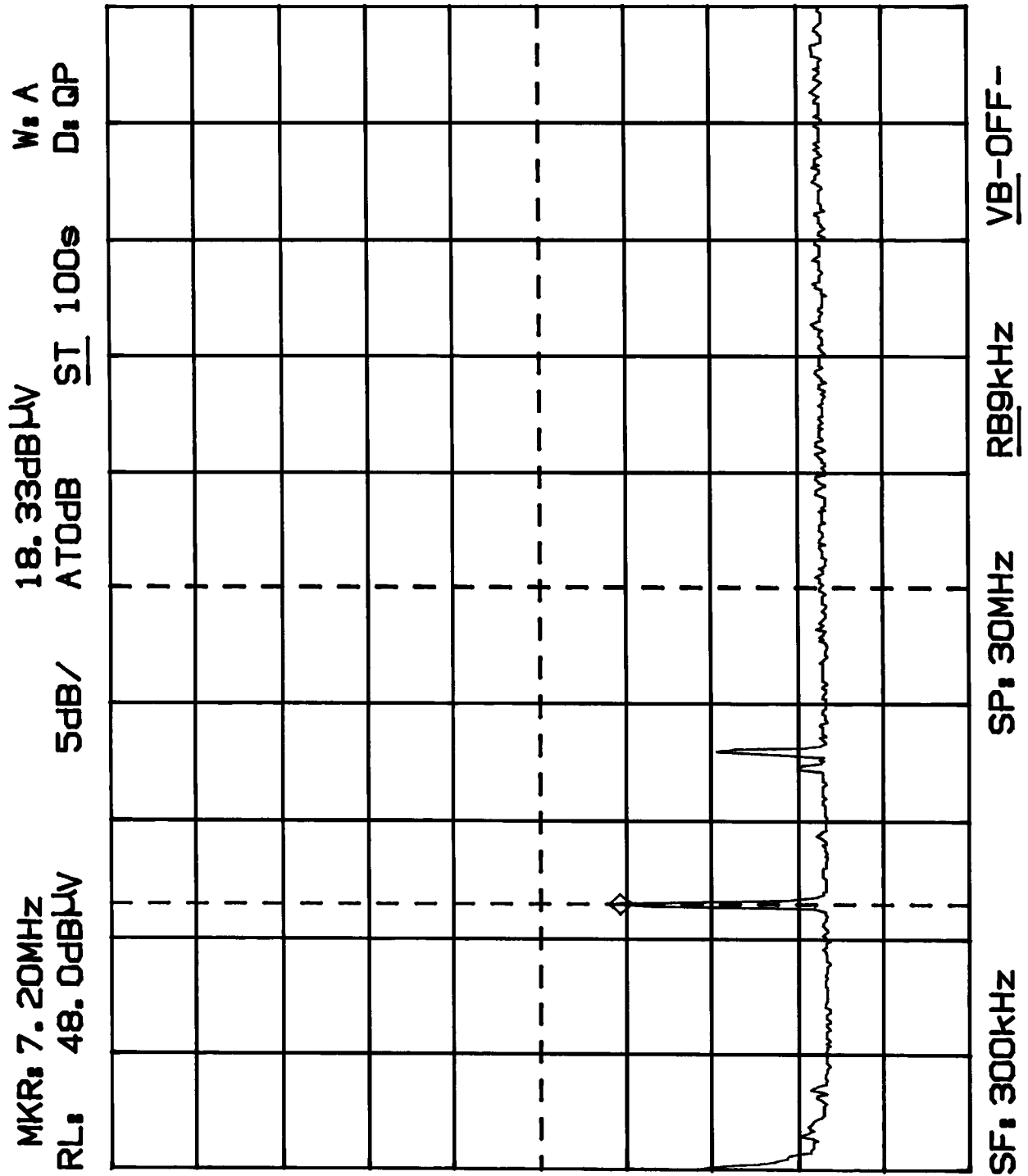
POWER LINE CONDUCTED EMISSIONS
MODEL 26965XXX-A
 (With Hum Ring); LINE 2



POWER LINE CONDUCTED EMISSIONS
 MODEL 26965XXX-A
 (No Hum Ring); LINE 1



POWER LINE CONDUCTED EMISSIONS
MODEL 26965XXX-A
 (No Hum Ring); LINE 2



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

Requirements:

<u>Field Strength of Fundamental</u>	<u>Field Strength of Harmonics</u>	<u>S15.209</u>
		30-88MHz 40 dB μ V/m@ 3m
902 to 928MHz 94dB μ V	54dB μ V/m@ 3m	88-216MHz 43.5
		216-960 MHZ 46
		Above 960 MHZ 46

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 UNIT**

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>							
926.125	49.87	RT.4 V	33.4	83.27	94	-10.73	PK 100
1852.25	---						
2778.37	10.03	Horn V	34.05	44.08	54	-9.92	PK 1000
3704.50	---						
4630.62	---						
5556.75	---						
6482.87	---						
7409.00	---						
8335.12	---						
<u>Channel 32</u>							
927.675	49.85	RT.4 V	33.5	83.35	94	-10.65	PK 100
1855.36	---						
2783.02	11.03	Horn V	34.07	45.1	54	-8.9	PK 1000
3710.70	---						
4638.37	---						
5566.05	---						
6493.72	---						
7421.40	---						
8349.07	---						

FIELD STRENGTH OF EMISSIONS**Test Data:****BASE UNIT**

Emission Frequency MHZ	Meter Reading @3m dBμV	Antenna	Cable and ACF dB	Field Strength dBμV/M	FCC Limit dBμV/M	Margin dB	Detector & BW KHz
<u>Channel 1</u>							
902.125	41.07	RT.4 V	33.2	74.27	94	-19.73	PK 100
1804.25	16.92	Horn V	33.17	50.09	54	-3.91	PK 1000
2706.37	8.03	Horn V	33.93	41.96	54	-12.04	PK 1000
3608.50	9.36	Horn V	35.38	44.74	54	-9.26	PK 1000
4510.62	---						
5412.75	---						
6314.87	---						
7217.00	---						
8119.12	---						
<u>Channel 32</u>							
903.675	42.25	RT.4 V	33.3	75.55	94	-18.45	PK 100
1807.35	11.92	Horn V	33.16	45.08	54	-8.92	PK 1000
2711.02	11.03	Horn V	33.94	44.97	54	-9.03	PK 1000
3614.70	---						
4518.37	---						
5422.05	---						
6325.72	---						
7229.40	---						
8133.07	---						