TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: tei@timcoengr.com

APPLICANT: TECHNOLOGIES TO BE INC.

FCC ID: TMKRC2500

TABLE OF CONTENTS

TEST REPORT CONTAINING:

EXHIBIT ATTACHMENTS:

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EMC Equipment List

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3-Meter OATS	TEI	N/A	N/A	Listed 1/13/03	1/12/06
Biconnical Antenna	Eaton	94455-1	1096	CAL 8/17/04	8/17/06
Biconnical Antenna	Electro-Metrics	BIA-25	1171	CAL 4/29/05	4/29/07
Double-Ridged Horn Antenna	Electro-Metrics	RGA-180	2319	CAL 12/29/04	12/29/06
LISN	Electro-Metrics	ANS-25/2	2604	CAL 8/27/04	8/27/06
LISN	Electro-Metrics	EM-7820	2682	CAL 4/28/05	4/28/07
Log-Periodic Antenna	Eaton	LPA-30	409	CAL 5/2/05	5/2/07

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TEST PROCEDURE

GENERAL: This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC. Shielded interface cables were used in all cases except for cables connecting to the the power cords. A test program was run which simulated a normal data transmission on a network.

BANDWIDTH 6 dB: The measurements were made with the spectrum analyzer's resolution bandwidth(RBW)=1.0MHz and the video bandwidth(VBW) =3.0MHz and the span set as shown on plot.

POWER OUTPUT: The RF power output was measured at the antenna feed point using a peak power meter.

ANTENNA CONDUCTED EMISSIONS: The RBW=100 kHz, VBW=300 kHz and the span set to 10.0MHz and the spectrum was scanned from 30MHz to the 10th Harmonic of the fundamental. Above 1.0GHz the resolution bandwidth was 1 MHz and the VBW = 3 MHz and the span to 50 MHz.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-2003 using a Agilent spectrum analyzer with a preselector. The bandwidth(RBW) of the spectrum analyzer was 100 kHz up to 1 GHz and 1.0 MHz above 1 GHz with an appropriate sweep speed. The VBW above 1 GHz was 3 MHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the UUT was 86°F with a humidity of 63%.

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INTRODUCTION:

PRODUCT DESCRIPTION:

The is a frequency hopping transceiver that operates in the 902-928 MHz band. The unit is fixed mounted and uses only one antenna type. The antenna used is a 3dB omnidirectional.

GENERAL INFORMATION AND DATA

15.247 (a): Definition: This EUT uses a pseudo random algorithm to hop over the frequency range of 902.00 to 928.00 MHz in 6 hops.

15.247 (a)(1): The number of hops is 6 hops at a separation of 75 kHz, the requirement in the 902-928 MHz band is a minimum of 50 hops.

15.247 (a)(1)(i): Dwell Time of Hop: The dwell time of any hopping frequency cannot be greater than 0.4 seconds in any 20 second period. The dwell time of a channel is 252.9 milliseconds.

15.247 (b)(3): The antenna's gain is 3 dB. The device uses a standard N
15.203 connector. The device is professionally installed.

15.247 (a)(1)(i): The maximum allowed 20 dB bandwidth of a hopping channel is 500 kHz. The 20 dB bandwidth measured was 22 kHz.

15.247 (4)(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.

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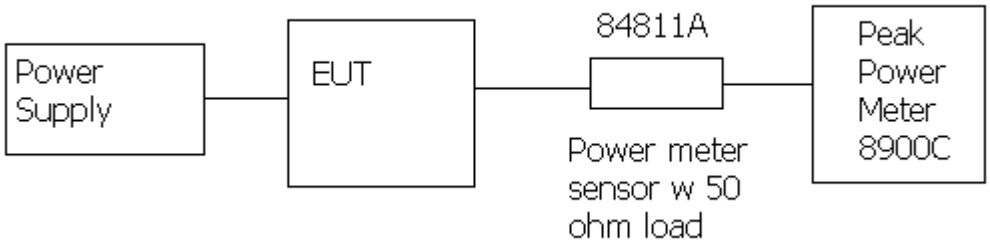
15.247(b)(2): POWER OUTPUT

The maximum peak output power shall not exceed 1 watt (30 dBm). If directional transmitting antennas with a gain of more than 6 dBi the are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum power output was less than +30 dBm. Power was measured by disconnecting the antennas and measuring across a 50 ohm load as recommended by the manufacturer using a HP peak power meter Model 8900C. The antenna is non directional and did not exceed 6 dBi gain. The power output was measured at three places in the band. Highest is reported below.

MEASUREMENT:



POWER OUPUT: 725 mW meets the FCC requirements.

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APPLICANT: Technologies to be, Incorporated

FCC ID: TMKRC2500

NAME OF TEST: RADIATION INTERFERENCE

RULES PART NO.: 15.247, 15.209

FIELD STRENGTH of Fundamental:	FIELD STRENGTH of Harmonics	S15.209	
902-928MHz		30 - 88 MHz	40 dBuV/m @3M
2.4-2.4835GHz		88 - 216 MHz	43.5
127.38dBuV/m @3m	54 dBuV/m @3m	216 - 960 MHz	46
		ABOVE 960 MHz	54dBuV/m

Emissions that fall in the restricted bands (15.205) must be less than or equal to 500 uV/m (54 dBuV/m). Spurious not in a restricted band must be 20 dBc.

TEST DATA:

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Pol.	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
923.4	825.10	36.0	H	1.91	22.50	60.41	41.21
923.4	825.10	42.0	V	1.91	21.60	65.51	36.11
923.4	849.60	41.2	H	1.92	22.58	65.70	35.92
923.4	849.60	47.5	V	1.92	22.20	71.62	30.00
923.4	874.20	45.7	H	1.94	23.03	70.67	30.95
923.4	874.20	53.0	V	1.94	22.20	77.14	24.48
923.4	923.40	89.1	H	1.99	23.77	114.86	12.52
923.4	923.40	96.9	V	1.99	22.73	121.62	5.76
923.4	1,846.80	22.9	H	2.78	30.28	55.96	45.66
923.4	1,846.80	23.1	V	2.78	30.28	56.16	45.46
923.4	2,770.20 R	14.7	V	3.44	32.92	51.06	2.94
923.4	2,770.20 R	15.2	H	3.44	32.92	51.56	2.44
923.4	3,693.60 R	8.0	H	4.22	33.45	45.67	8.33
923.4	3,693.60 R	9.7	V	4.22	33.45	47.37	6.63
923.4	4,617.00 R	7.2	H	4.81	34.19	46.20	7.80
923.4	4,617.00 R	8.1	V	4.81	34.19	47.10	6.90
925.6	827.30	35.8	H	1.91	22.41	60.12	41.13
925.6	827.30	41.7	V	1.91	21.69	65.30	35.95
925.6	852.00	36.6	H	1.93	22.66	61.19	40.06
925.6	852.00	47.3	V	1.93	22.22	71.45	29.80
925.6	876.40	43.9	H	1.94	23.09	68.93	32.32
925.6	876.40	52.9	V	1.94	22.20	77.04	24.21
925.6	925.60	89.3	H	1.99	23.95	115.24	12.14
925.6	925.60	96.5	V	1.99	22.76	121.25	6.13

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APPLICANT: Technologies to be, Incorporated

FCC ID: TMKRC2500

NAME OF TEST: RADIATION INTERFERENCE

RULES PART NO.: 15.247, 15.209

TEST DATA CONTD.

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Antenna Pol.	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
925.6	1,851.30	23.2	H	2.78	30.31	56.29	44.96
925.6	1,851.30	23.8	V	2.78	30.31	56.89	44.36
925.6	2,777.00 R	16.5	V	3.44	32.93	52.87	1.13
925.6	2,777.00 R	17.0	H	3.44	32.93	53.37	0.63
925.6	3,702.60 R	9.9	H	4.23	33.46	47.59	6.41
925.6	3,702.60 R	10.1	V	4.23	33.46	47.79	6.21
925.6	4,628.30 R	7.2	H	4.81	34.20	46.21	7.79
925.6	4,628.30 R	9.1	V	4.81	34.20	48.11	5.89
927.9	829.60	37.9	H	1.91	22.32	62.13	40.84
927.9	829.60	45.1	V	1.91	21.78	68.79	34.18
927.9	854.20	40.1	H	1.93	22.73	64.76	38.21
927.9	854.20	49.0	V	1.93	22.24	73.17	29.80
927.9	878.80	45.3	H	1.94	23.16	70.40	32.57
927.9	878.80	56.0	V	1.94	22.20	80.14	22.83
927.9	927.90	91.4	H	1.99	24.13	117.52	9.86
927.9	927.90	98.2	V	1.99	22.78	122.97	4.41
927.9	1,855.90	23.3	H	2.78	30.34	56.42	46.55
927.9	1,855.90	23.9	V	2.78	30.34	57.02	45.95
927.9	2,783.90 R	17.2	V	3.45	32.94	53.59	0.41
927.9	2,783.90 R	17.4	H	3.45	32.94	53.79	0.21
927.9	3,711.80 R	10.5	V	4.24	33.47	48.21	5.79
927.9	3,711.80 R	11.0	H	4.24	33.47	48.71	5.29
927.9	4,639.80 R	7.3	H	4.82	34.21	46.33	7.67
927.9	4,639.80 R	9.3	V	4.82	34.21	48.33	5.67

METHOD OF MEASUREMENT: The procedure used was ANSI STANDARD C63.4-2003 & the FCC/OET Guidance on Measurements for Frequency Hopping Spread Spectrum Systems – Public Notice DA 00-705. Dated March 30, 2000. Measurements were made at the test site of TIMCO ENGINEERING INC. located at 849 N.W. State Road 45, Newberry, FL 32669.

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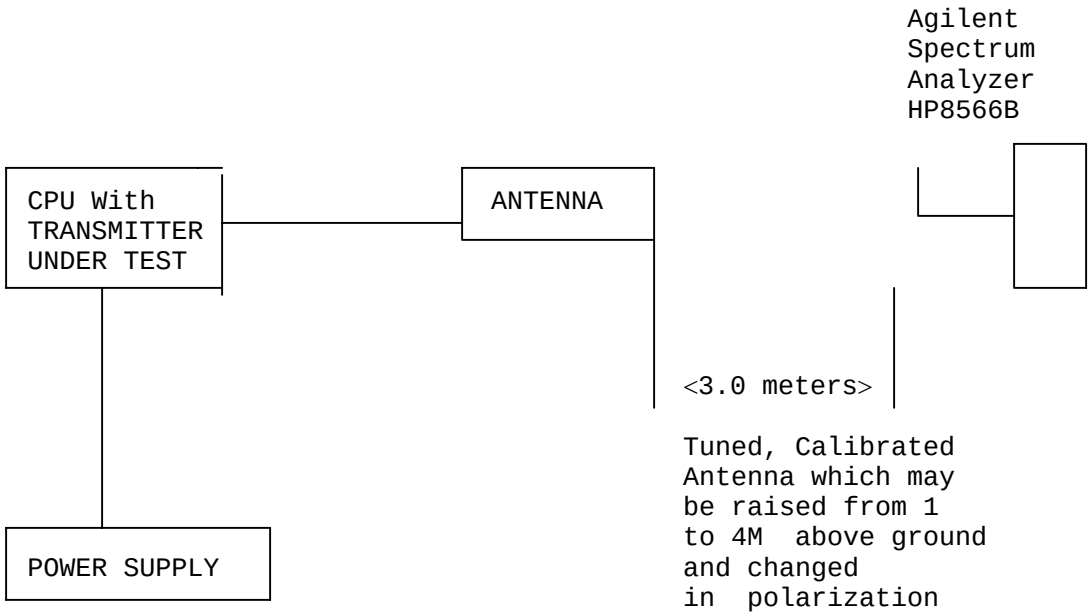
Method of Measuring Radiated Spurious Emissions



Equipment placed 80cm above ground
on a rotatable platform.

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APPLICANT: Technologies to be, Incorporated

FCC ID: TMKRC2500

NAME OF TEST: POWER LINE CONDUCTED INTERFERENCE

RULES PART NO.: 15.107(a)

REQUIREMENTS:

	QUASI-PEAK	**AVERAGE**
.15 – 0.5 MHz	66-56 dBuV	56-46 dBuV
0.5 – 5.0	56	46
5.0 – 30.	60	50

TEST PROCEDURE: ANSI STANDARD C63.4-1992. The spectrum was scanned from .15 to 30 MHz.

TEST DATA:

THE PLOTS ON THE FOLLOWING PAGES 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

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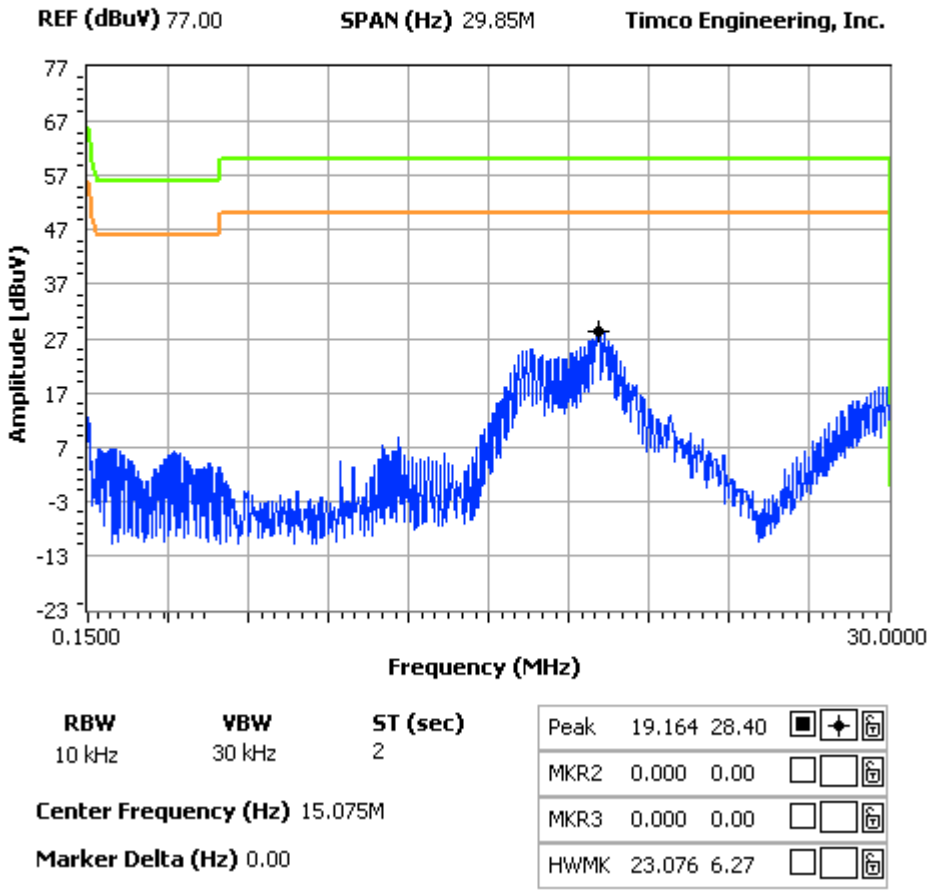
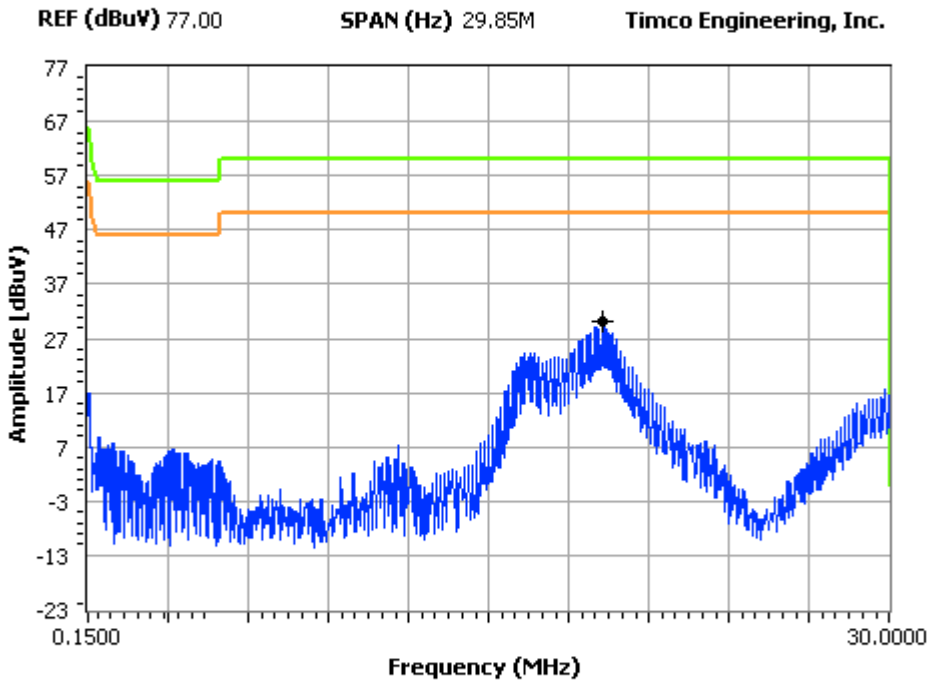
NOTES:
1864cut5 ac line conducted line 1

FCC 15.107 Mask Class B



NOTES:
1864cut5 ac line conducted line 2

FCC 15.107 Mask Class B



RBW	VBW	ST (sec)
10 kHz	30 kHz	2

Center Frequency (Hz) 15.075M

Marker Delta (Hz) 0.00

Peak	19.344	30.10
MKR2	0.000	0.00
MKR3	0.000	0.00
HWMK	23.076	6.27

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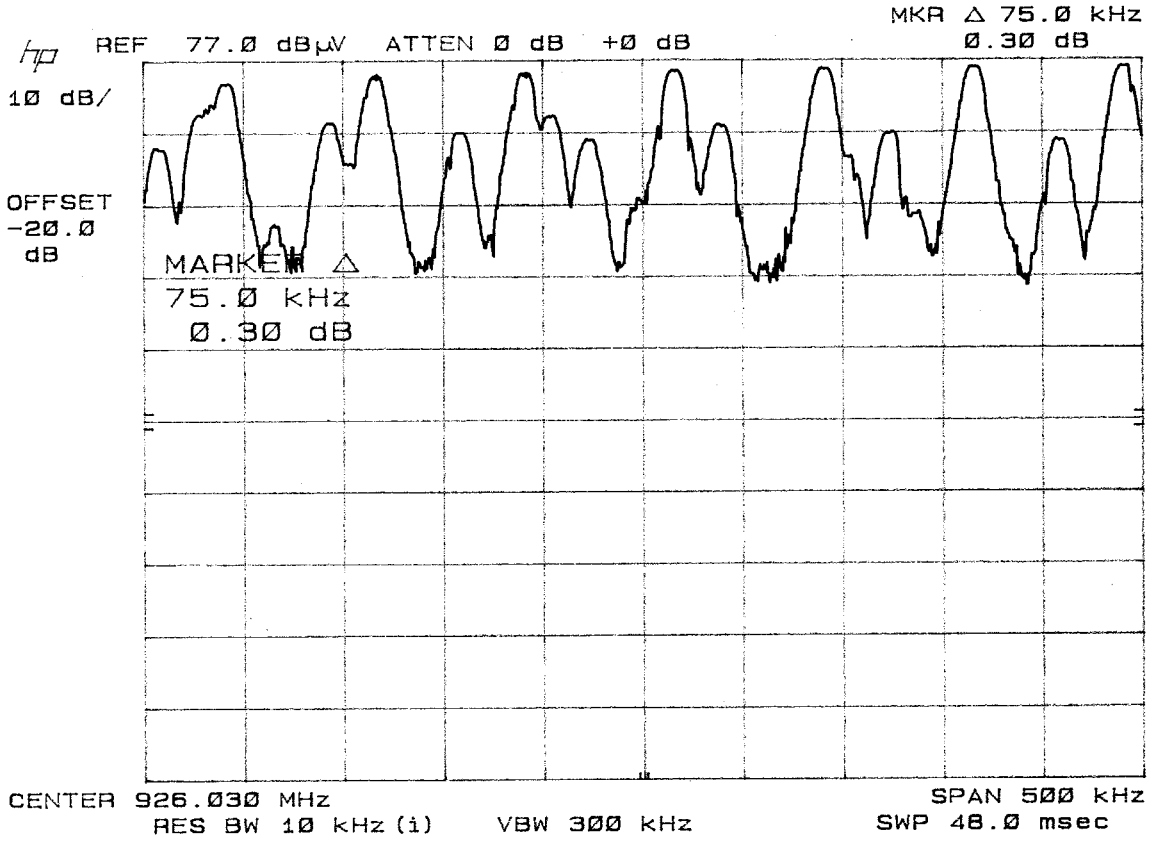
CHANNEL SPACING



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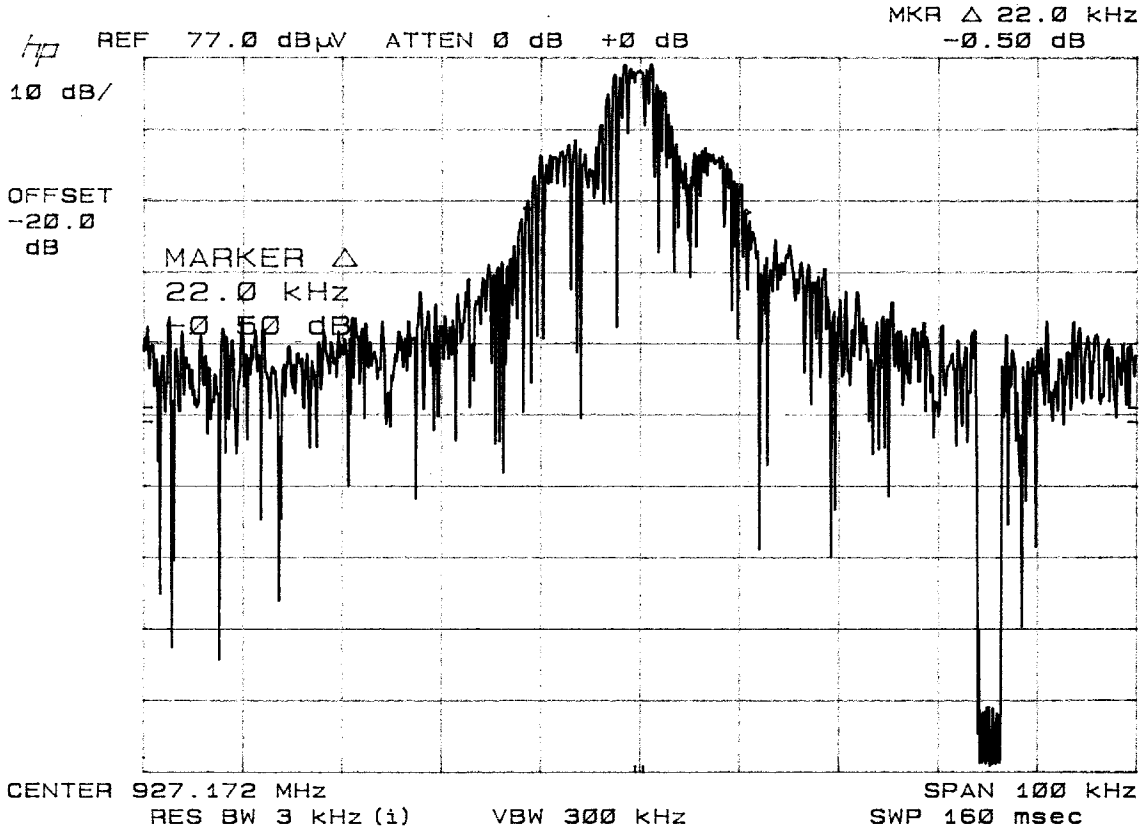
20 dB BANDWIDTH OF A HOPPING CHANNEL



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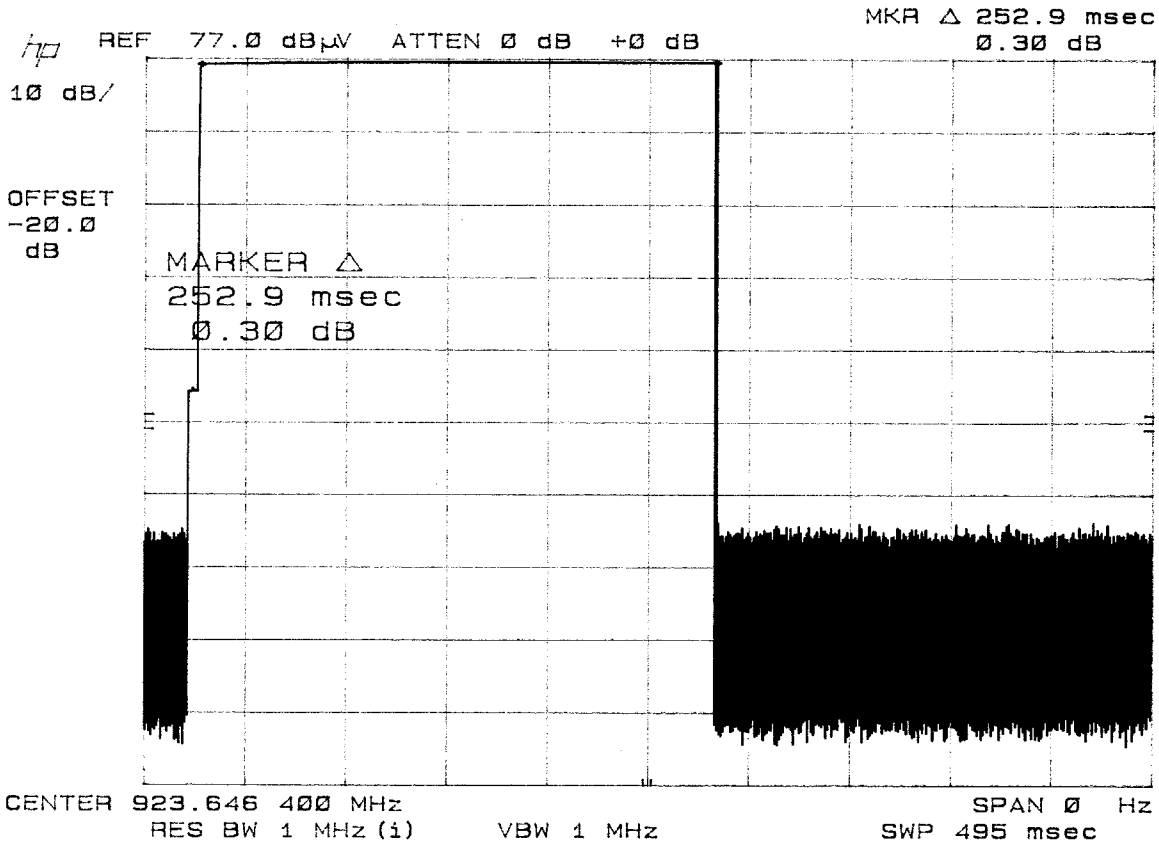
DWELL TIME



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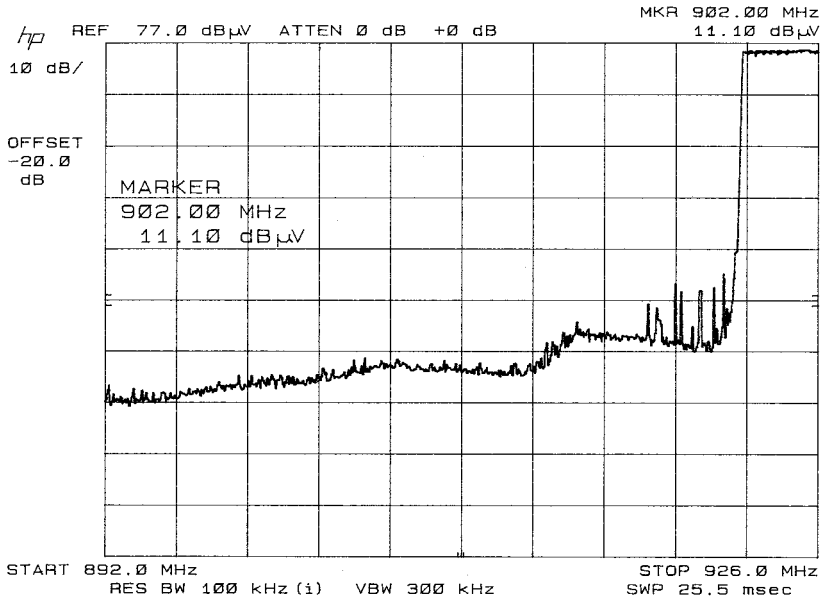
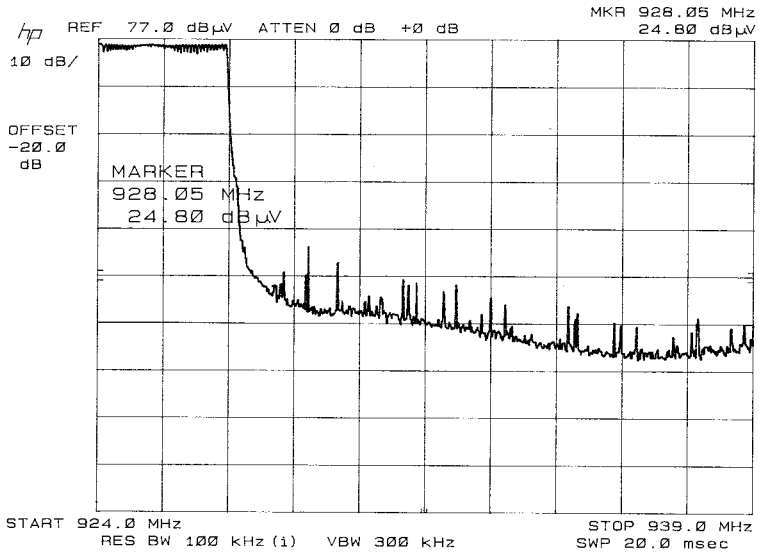
BANDEDGE PLOT





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Number of hopping channels