FCC PART 15, SUBPART B and C
TEST REPORT

for

MINI REMOTE CONTROL SYSTEM

MODEL: MINI REMOTE™

Prepared for

KAR-TECH, INC.
111 ENTERPRISE ROAD
DELAFIELD, WISCONSIN 53018

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DATE: NOVEMBER 15, 2005

	REPORT BODY	APPENDICES					TOTAL
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GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Device Tested:	Mini Remote Control System Model: Mini Remote™ S/N: N/A
Product Description:	See Expository Statement.
Modifications:	The EUT was not modified during the testing.
Manufacturer:	Kar-Tech, Inc. 111 Enterprise Road Delafield, Wisconsin 53018
Test Dates:	September 23, 26, 27, and 28; and October 8, 2005
Test Specifications:	EMI requirements CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and 15.247
Test Procedure:	ANSI C63.4
Test Deviations:	The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz – 30 MHz	This test was not performed because the EUT operates via a DC power supply and cannot be plugged into the AC public mains.
2	Spurious Radiated RF Emissions, 30 MHz – 1000 MHz	Complies with the **Class B** limits of CFR Title 47, Part 15 Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.209
3	Spurious Radiated RF Emissions, 10 kHz – 30 MHz and 1000 MHz – 9300 MHz	Complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and CFR Title 47, Part 15, Subpart C, section 15.247(d)
4	Fundamental and Emissions produced by the intentional radiator in non-restricted bands, 10 kHz – 9.3 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(d)
5	Emissions produced by the intentional radiator in restricted bands, 10 kHz – 9.3 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209, and section 15.247 (d)
6	20 dB Bandwidth	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (a)(1) and (a)(1)(i)
7	Peak Power Output	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(2)
8	RF Conducted Antenna Test	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (d)
9	Carrier Frequency Separation	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (a)(1) and 15.247 (a)(1)(i)
10	Average Time of Occupancy	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (a)(1)(i)
11	Peak Power Spectral Density from the Intentional Radiator to the Antenna	This test was not performed because the EUT is a frequency hopper and not a DTS.

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Mini Remote Control System Model: Mini Remote™. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the Class B specification limits defined by CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.247.

Note: For the unintentional radiator portion of the test, the EUT was within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Kar-Tech, Inc.

Aaron Osterich Director of Electrical Engineering

Compatible Electronics, Inc.

Kyle Fujimoto Test Engineer
James Ross Test Engineer

2.4 Date Test Sample was Received

The test sample was received on September 23, 2005.

2.5 Disposition of the Test Sample

The sample has not been returned to Kar-Tech, Inc. as of November 15, 2005.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI Test Report.

SPEC	TITLE
FCC Title 47, Part 15 Subpart C	FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators
ANSI C63.4 2003	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz
FCC Title 47, Part 15 Subpart B	FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - EMI

Setup and operation of the equipment under test.

Specifics of the EUT and Peripherals Tested

The Mini Remote Control System Model: Mini Remote™ (EUT) was connected to a DC Power Supply. The EUT was either continuously transmitting or receiving depending on the test performed.

Operation of the EUT during the testing:

For the intentional radiator and receiver portion of the test - The EUT was set in a mode that locked one channel (in Tx mode or Rx mode, depending on the test performed) at a time so that the low, middle, and high channels could be tested. This allowed the EUT to be in a no hopping mode. The EUT was tested in three orthogonal axis.

For the unintentional radiator portion of the test - The EUT was set in a mode that allowed the EUT to function as normal (the channels frequency hopping) on a continuous basis.

The final radiated data was taken in the mode above. Please see Appendix E for the data sheets.

4.1.1 Cable Construction and Termination

Cable 1 This is a 40 centimeter braid shielded cable connecting the EUT to cables #2 and #3. The cable is hard wired at each end..

Cable 2 This is a 1 meter unshielded cable connecting the cable #1 to the positive terminal of the DC power supply. The cable has banana plug connectors at each end.

Cable 3 This is a 1 meter unshielded cable connecting the cable #1 to the negative terminal of the DC power supply. The cable has banana plug connectors at each end.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
MINI REMOTE CONTROL SYSTEM (EUT)	KAR-TECH, INC.	MINI REMOTE™	N/A	**LGYMINI REMOTE**
ACCESSORY MINI REMOTE CONTROL SYSTEM	KAR-TECH, INC.	MINI REMOTE™	N/A	**LGYMINI REMOTE**
DC POWER SUPPLY	TOPWARD ELECTRIC INSTRUMENTS COMPANY LIMITED	TPS-200	913622	**N/A**
DC POWER SUPPLY	HEWLETT PACKARD	E3617A	KR51301197	**N/A**

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. CYCLE
Radiate Emissions Data Capture Program	Compatible Electronics	2.0	N/A	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08784	June 10, 2005	1 Year
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	3701A22279	June 10, 2005	1 Year
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	June 11, 2005	1 Year
EMI Receiver	Rohde & Schwarz	ESIB40	100172	October 28, 2004	1 Year
Preamplifier	Com-Power	PA-102	1017	January 5, 2005	1 Year
Microwave Preamplifier	Com-Power	PA-122	25195	February 25, 2005	1 Year
Loop Antenna	Com-Power	AL-130	17089	September 3, 2004	2 Year
Biconical Antenna	Com Power	AB-900	15227	March 11, 2005	1 Year
Log Periodic Antenna	Com Power	AL-100	16060	August 22, 2005	1 Year
Horn Antenna	Antenna Research	DRG-118/A	1053	January 16, 2004	2 Year
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
Antenna Mast	EMCO	2090	9609-1176	N/A	N/A
Turntable	Com Power	TT-100	N/A	N/A	N/A
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
Computer	Hewlett Packard	D5251A 888	US74458128	N/A	N/A
Monitor	Hewlett Packard	D5258A	DK74889705	N/A	N/A

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and 7.1 of this report for EMI test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was not grounded.

7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Transmitter Power

Transmit power is herein defined as the power delivered to a 50 ohm load at the RF output of the EUT.

Power	Channel
4.85 dBm	LOW
5.38 dBm	MIDDLE
6.03 dBm	HIGH

7.2 Channel Number and Frequencies

There are a total of 65 channels. The low channel is at 902.20 MHz and the high channel is at 927.80 MHz. There is a 400 kHz separation between channels.

Channel 1: 902.2 MHz
Channel 2: 902.6 MHz
Channel 65: 927.8 MHz

7.3 Antenna Gain

The antenna gain is about 3.50 dBi. This is based on a power output of 4.85 dBm and a field strength of 103.58 dBuV/m.

G = (FS*D)^2 / 30 X TP

Where G is the numeric Gain
FS is field strength in V/m
D is the distance in meters
TP is the total Output in Watts

G = (0.15100805*3)^2 / (30*0.00305492111)
G = 2.23934626
G in dBi = 10 Log 2.23934626 = 3.50121 dBi

8. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

8.1 RF Emissions

8.1.1 Conducted Emissions Test

The spectrum analyzer was used as a measuring meter. The data was collected with the spectrum analyzer in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A 10 dB attenuation pad was used for the protection of the spectrum analyzer input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the spectrum analyzer. The output of the second LISN was terminated by a 50 ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the Compatible Electronics conducted emissions software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

Test Results:

This test was not performed because the EUT operates on a DC power supply and cannot be plugged into the AC public mains.

8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The spectrum analyzer and EMI Receiver were used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument. The Com Power Preamplifier Model: PA-103 was used for frequencies from 30 MHz to 1 GHz, the Com Power Microwave Preamplifier Model: PA-122 was used for frequencies above 1 GHz, and the Com Power Microwave Preamplifier Model: PA-840 was used for frequencies above 18 GHz. The spectrum analyzer was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps.

The quasi-peak adapter was used only for those readings which are marked accordingly on the data sheets.

The frequencies above 1 GHz were averaged manually by narrowing the video filter down to 10 Hz and putting the sweep time on AUTO on the spectrum analyzer to keep the amplitude reading calibrated.

After the readings above 1 GHz were average manually, the reading was further adjusted by a “duty cycle correction factor”, derived from 20 log (dwell time / 100 ms). Since the duty cycle was below 10%, the maximum allowed 20 dB was subtracted from the peak reading. The duty cycle correction factor is explained in Appendix E.

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 300 MHz	120 kHz	Biconical Antenna
300 MHz to 1 GHz	120 kHz	Log Periodic Antenna
1 GHz to 25 GHz	1 MHz	Horn Antenna

The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 2003. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT by the Radiated Emission Manual Test software. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results.

Radiated Emissions (Spurious and Harmonics) Test (con't)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3 meter test distance from 10 kHz to 25 GHz to obtain the final test data.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Sections 15.209 and 15.247 (d) for radiated emissions. Please see Appendix E for the data sheets.

8.3 20 dB Bandwidth

The 20 dB Bandwidth was measured using the EMI Receiver. The bandwidth was measured using a direct connection from the RF output of the EUT. The resolution bandwidth was 30 kHz and the video bandwidth was 30 kHz.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1) and (a)(1)(i). The 20 dB bandwidth is less than the separation between channels. Please see the data sheets located in Appendix E.

8.4 Peak Output Power

The Peak Output Power was measured using the EMI Receiver. The peak output power was measured using a direct connection from the RF output of the EUT. The resolution bandwidth was 3 MHz and the video bandwidth was 3 MHz. The cable loss was also added back into the reading using the reference level offset.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (b)(2). The maximum peak output power is less than 1 watt. Please see the data sheets located in Appendix E.

8.5 RF Antenna Conducted Test

The RF antenna conducted test was performed using the EMI Receiver. The RF antenna conducted test measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The resolution bandwidth was 100 kHz, and the video bandwidth was 300 kHz. The spans were wide enough to include all the harmonics and emissions that were produced by the intentional radiator.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). The RF power that is produced by the intentional radiator is at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of desired power. Please see the radiated emission data sheets located in Appendix E.

8.6 RF Band Edges

The RF band edges were taken at the edges of the ISM spectrum (902 MHz when the EUT was on the low channel and 928 MHz when the EUT was on the high channel) using the EMI Receiver. The EUT was directly connected to the EMI Receiver. The resolution bandwidth was 100 kHz, and the video bandwidth was 1 MHz. The RF Band Edges were then measured to insure that the band edges were at last 20 dB down from the fundamental frequency.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). The RF power at the band edges at 902 MHz and 928 MHz meet the requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). Please see the data sheets located in Appendix E.

8.7 Carrier Frequency Separation

The Channel Hopping Separation Test was measured using the spectrum analyzer. The EUT was operating in its normal operating mode. The resolution bandwidth was 100 kHz, and the video bandwidth 1 MHz. The frequency span was wide enough to include the peaks of two adjacent channels.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1) and 15.247 (a)(1)(i). The Channel Hopping Separation is greater than the 20 dB bandwidth. Please see the data sheets located in Appendix D.

8.8 Number of Hopping Frequencies

The Channel Hopping Separation Test was measured using the spectrum analyzer. The EUT was operating in its normal operating mode. The resolution bandwidth was 100 kHz, and the video bandwidth was 100 kHz. The frequency span was wide enough to include all of the peaks in the frequency band of operation.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1) and 15.247 (a)(1)(i). The number of hopping frequencies is 65. Please see the data sheets located in Appendix E.

8.8 Average Time of Occupancy Test

The Average Time of Occupancy Test was measured using the EMI Receiver. The EUT was operating in normal operating mode. The frequency span was taken to 0 Hz with a sweep time of 20 msec to determine the time for each transmission.

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. This means the time of occupancy of any one channel cannot be greater than 0.4 seconds in a 20 second period.

The sweep time was then changed to 4 seconds and the number of pulses taken. The number of pulses was multiplied by 5 to determine the number of pulses in a 20 second period. The number of pulses was then multiplied by the time for each pulse to determine the average time of occupancy.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1)(i). The EUT does not transmit for more than 400 msec in a 20 second period on any frequency. Please see the data sheets located in Appendix E.

8.9 Spectral Density Test

The spectrum density output was measured using the EMI Receiver. The spectral density output was measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The resolution bandwidth 3 kHz, and the video bandwidth was 10 kHz. The highest 1.5 MHz of the signal was used as the frequency span with the sweep rate being 1 second for every 3 kHz of span.

Test Results:

This test was not performed because the EUT is a frequency hopper and not a DTS.

9. CONCLUSIONS

The Mini Remote Control System Model: Mini Remote™ meets all of the specification limits defined in FCC Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.247.

Note: For the unintentional radiator portion of the test, the EUT was within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B.

APPENDIX A

LABORATORY RECOGNITIONS

LABORATORY RECOGNITIONS

Compatible Electronics has the following agency accreditations:

National Voluntary Laboratory Accreditation Program - Lab Code: 200528-0

Voluntary Control Council for Interference - Registration Numbers: R-983, C-1026, R-984 and C-1027

Bureau of Standards and Metrology Inspection - Reference Number: SL2-IN-E-1031

Conformity Assessment Body for the EMC Directive Under the US/EU MRA Appointed by NIST

Compatible Electronics is recognized or on file with the following agencies:

Federal Communications Commission

Industry Canada

Radio-Frequency Technologies (Competent Body)

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC 15.247 specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

No modifications were made to the EUT during the testing.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Mini Remote Control System
Model: Mini Remote™
S/N: N/A

There were no additional models covered under this report.

APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

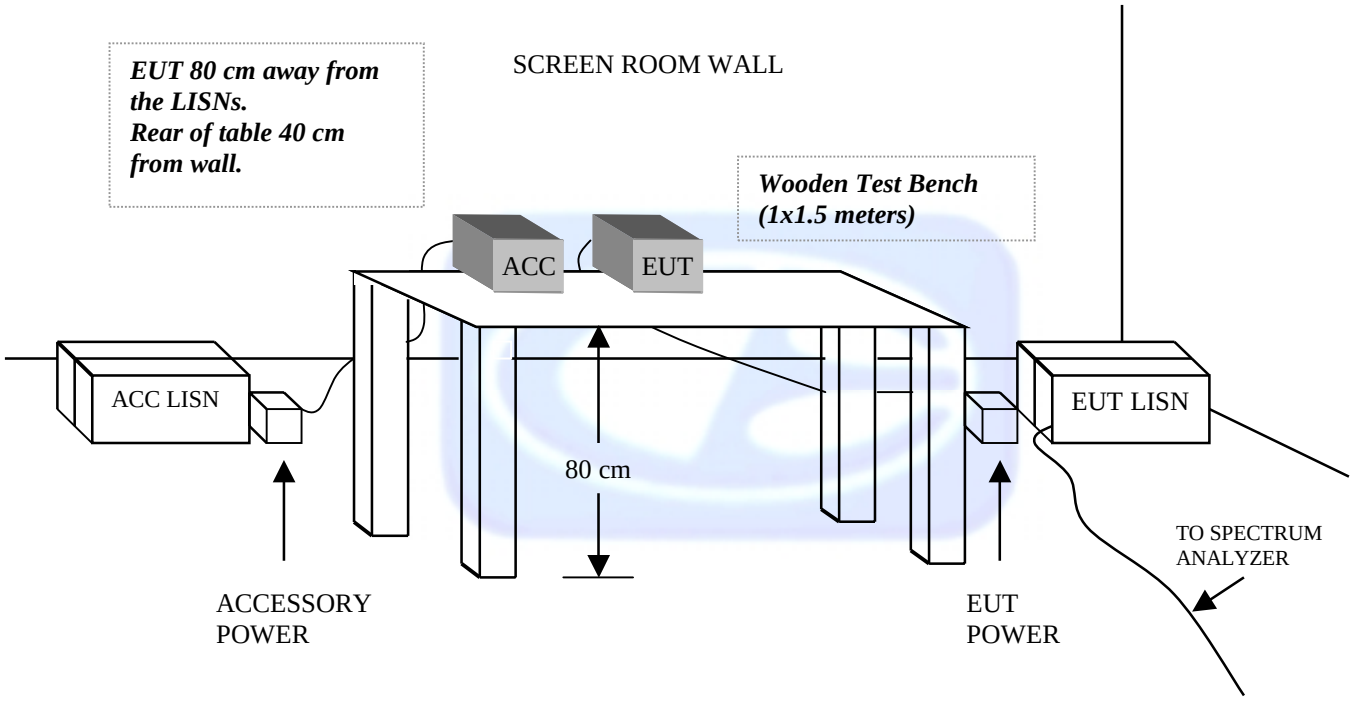
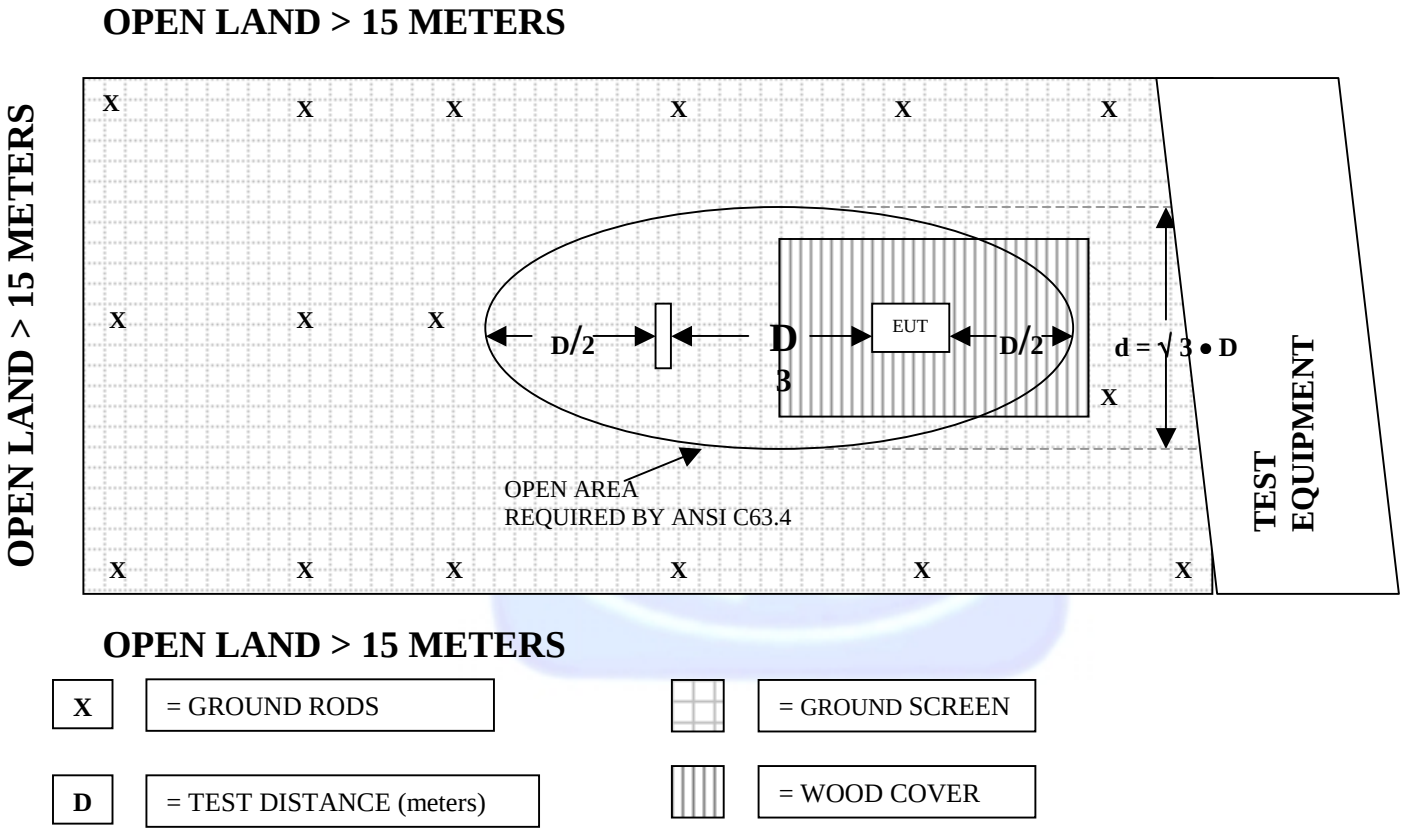


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE



COM-POWER AL-130

LOOP ANTENNA

S/N: 17089

CALIBRATION DATE: SEPTEMBER 3, 2004

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-40.8	10.7
0.01	-40.9	10.6
0.02	-41.8	9.7
0.05	-42.0	9.5
0.07	-41.5	10.0
0.1	-41.7	9.8
0.2	-44.1	7.4
0.3	-41.6	9.9
0.5	-41.5	10.0
0.7	-41.4	10.1
1	-41.0	10.5
2	-40.6	10.9
3	-40.8	10.7
4	-41.0	10.5
5	-40.4	11.1
10	-40.7	10.8
15	-41.6	9.9
20	-41.3	10.2
25	-43.0	8.5
30	-42.6	8.9

COM-POWER AB-900

BICONICAL ANTENNA

S/N: 15227

CALIBRATION DATE: MARCH 11, 2005

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	11.10	120	13.20
35	10.80	125	12.60
40	11.10	140	12.10
45	10.50	150	11.90
50	11.70	160	13.10
60	10.70	175	15.40
70	7.70	180	14.50
80	6.30	200	16.00
90	8.00	250	16.10
100	10.00	300	19.70

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16060

CALIBRATION DATE: AUGUST 22, 2005

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	12.73	700	19.72
400	13.38	800	20.49
500	15.12	900	21.31
600	16.27	1000	24.25

ANTENNA RESEARCH DRG-118/A

HORN ANTENNA

S/N: 1053

CALIBRATION DATE: JANUARY 16, 2004

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	24.4	10.0	38.7
1.5	25.2	10.5	39.0
2.0	28.2	11.0	38.9
2.5	28.5	11.5	41.3
3.0	30.1	12.0	40.5
3.5	31.0	12.5	40.0
4.0	31.2	13.0	40.2
4.5	31.9	13.5	40.5
5.0	33.2	14.0	41.6
5.5	33.7	14.5	44.8
6.0	34.3	15.0	41.4
6.5	35.0	15.5	39.2
7.0	36.7	16.0	39.4
7.5	37.3	16.5	40.9
8.0	37.1	17.0	42.6
8.5	37.3	17.5	45.1
9.0	37.7	18.0	41.7
9.5	38.6		

COM-POWER PA-102

PREAMPLIFIER

S/N: 1017

CALIBRATION DATE: JANUARY 5, 2005

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	38.4	300	38.5
40	38.3	350	38.5
50	38.2	400	38.3
60	38.4	450	38.0
70	38.4	500	38.0
80	38.3	550	38.1
90	38.3	600	38.2
100	37.7	650	37.8
125	38.4	700	37.9
150	38.6	750	37.5
175	38.4	800	37.2
200	38.5	850	37.6
225	38.3	900	36.9
250	38.6	950	37.0
275	38.4	1000	36.3

COM-POWER PA-122

MICROWAVE PREAMPLIFIER

S/N: 25195

CALIBRATION DATE: FEBRUARY 25, 2005

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	31.45	6.0	31.35
1.1	31.34	6.5	31.10
1.2	31.29	7.0	30.54
1.3	31.28	7.5	29.72
1.4	31.25	8.0	29.22
1.5	31.21	8.5	28.75
1.6	31.14	9.0	28.67
1.7	31.07	9.5	29.14
1.8	31.12	10.0	30.12
1.9	31.04	11.0	29.30
2.0	31.20	12.0	29.86
2.5	31.56	13.0	30.57
3.0	32.17	14.0	29.90
3.5	32.56	15.0	30.14
4.0	32.51	16.0	31.13
4.5	32.52	17.0	29.97
5.0	32.33	18.0	28.77
5.5	31.60		

FRONT VIEW

KAR-TECH, INC.
MINI REMOTE CONTROL SYSTEM
MODEL: Mini Remote™
FCC SUBPART B AND C – RADIATED EMISSIONS

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

KAR-TECH, INC.
MINI REMOTE CONTROL SYSTEM
MODEL: Mini Remote™
FCC SUBPART B AND C – RADIATED EMISSIONS

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

KAR-TECH, INC.
MINI REMOTE CONTROL SYSTEM
MODEL: Mini Remote™
FCC SUBPART B AND C – RADIATED EMISSIONS

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

KAR-TECH, INC.
MINI REMOTE CONTROL SYSTEM
MODEL: Mini Remote™
FCC SUBPART B AND C – RADIATED EMISSIONS

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/26/05
Lab: D
Tested By: Kyle Fujimoto

Fundamental Low Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
902.2	98.88	V	--	--	Peak	1.5	90	X-Axis
902.2	103.18	V	--	--	Peak	1	135	Y-Axis
902.2	95.88	V	--	--	Peak	1	225	Z-Axis
902.2	100.38	H	--	--	Peak	1	0	X-Axis
902.2	94.68	H	--	--	Peak	1.5	270	Y-Axis
902.2	103.58	H	--	--	Peak	1	0	Z-Axis

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/22/05
Lab: B
Tested By: Kyle Fujimoto

Low Channel - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1804.4	56.99	H	--	--	Peak	2.32	315	Not in Restricted Band
1804.4	36.99	H	--	--	Avg	2.32	315	Not in Restricted Band
2706.6	65.25	H	74	-8.75	Peak	2.84	180	
2706.6	45.25	H	54	-8.75	Avg	2.84	180	
3608.8	50.65	H	74	-23.35	Peak	2.05	180	
3608.8	30.65	H	54	-23.35	Avg	2.05	180	
4511	46.99	H	74	-27.01	Peak	2.74	315	
4511	26.99	H	54	-27.01	Avg	2.74	315	
5413.2	49.33	H	74	-24.67	Peak	2.63	315	No Emissions
5413.2	29.33	H	54	-24.67	Avg	2.63	315	Detected
6315.4	54.12	H	--	--	Peak	1.61	225	Not in Restricted Band
6315.4	34.12	H	--	--	Avg	1.61	225	Not in Restricted Band
7217.6		H	74	-74	Peak	1.37	135	No Emissions
7217.6	-20.00	H	54	-74	Avg	1.37	135	Detected
8119.8		H	74	-74	Peak			No Emissions
8119.8		H	54	-54	Avg			Detected
9022		H	74	-74	Peak			No Emissions
9022		H	54	-54	Avg			Detected

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/22/05
Lab: B
Tested By: Kyle Fujimoto

Low Channel - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1804.4	57.06	V	--	--	Peak	1.41	225	Not in Restricted Band
1804.4	37.06	V	--	--	Avg	1.41	225	Not in Restricted Band
2706.6	59.25	V	74	-14.75	Peak	1.98	135	
2706.6	39.25	V	54	-14.75	Avg	1.98	135	
3608.8	47.75	V	74	-26.25	Peak	1.86	270	
3608.8	27.75	V	54	-26.25	Avg	1.86	270	
4511	43.47	V	74	-30.53	Peak	1.47	45	
4511	23.47	V	54	-30.53	Avg	1.47	45	
5413.2	48.90	V	74	-25.1	Peak	1.37	315	
5413.2	28.90	V	54	-25.1	Avg	1.37	315	
6315.4	48.61	V	--	--	Peak	1.37	90	Not in Restricted Band
6315.4	28.61	V	--	--	Avg	1.37	90	Not in Restricted Band
7217.6		V	74	-74	Peak			No Emissions
7217.6		V	54	-54	Avg			Detected
8119.8		V	74	-74	Peak			No Emissions
8119.8		V	54	-54	Avg			Detected
9022		V	74	-74	Peak			No Emissions
9022		V	54	-54	Avg			Detected

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/22/05
Lab: B
Tested By: Kyle Fujimoto

Low Channel - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1804.4	55.84	H	--	--	Peak	1.94	225	Not in Restricted Band
1804.4	35.84	H	--	--	Avg	1.94	225	Not in Restricted Band
2706.6	64.24	H	74	-9.76	Peak	2.81	225	
2706.6	44.24	H	54	-9.76	Avg	2.81	225	
3608.8	54.64	H	74	-19.36	Peak	2.41	225	
3608.8	34.64	H	54	-19.36	Avg	2.41	225	
4511	52.47	H	74	-21.53	Peak	1.32	225	
4511	32.47	H	54	-21.53	Avg	1.32	225	
5413.2	50.93	H	74	-23.07	Peak	1.83	225	
5413.2	30.93	H	54	-23.07	Avg	1.83	225	
6315.4	53.74	H	--	--	Peak	2.2	225	Not in Restricted Band
6315.4	33.74	H	--	--	Avg	2.2	225	Not in Restricted Band
7217.6		H	74	-74	Peak			No Emissions
7217.6		H	54	-54	Avg			Detected
8119.8		H	74	-74	Peak			No Emissions
8119.8		H	54	-54	Avg			Detected
9022		H	74	-74	Peak			No Emissions
9022		H	54	-54	Avg			Detected

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/22/05
Lab: B
Tested By: Kyle Fujimoto

Low Channel - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1804.4	58.58	V	--	--	Peak	1.94	225	Not in Restricted Band
1804.4	38.58	V	--	--	Avg	1.94	225	Not in Restricted Band
2706.6	61.60	V	74	-12.4	Peak	2.9	315	
2706.6	41.60	V	54	-12.4	Avg	2.9	315	
3608.8	47.30	V	74	-26.7	Peak	2.84	225	
3608.8	27.30	V	54	-26.7	Avg	2.84	225	
4511	45.42	V	74	-28.58	Peak	2.27	135	
4511	25.42	V	54	-28.58	Avg	2.27	135	
5413.2	48.71	V	74	-25.29	Peak	2.84	225	
5413.2	28.71	V	54	-25.29	Avg	2.84	225	
6315.4	47.81	V	--	--	Peak	2.84	225	Not in Restricted Band
6315.4	27.81	V	--	--	Avg	2.84	225	Not in Restricted Band
7217.6		V	74	-74	Peak			No Emissions
7217.6		V	54	-54	Avg			Detected
8119.8		V	74	-74	Peak			No Emissions
8119.8		V	54	-54	Avg			Detected
9022		V	74	-74	Peak			No Emissions
9022		V	54	-54	Avg			Detected

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/22/05
Lab: B
Tested By: Kyle Fujimoto

Low Channel Z-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1804.4	47.73	H	--	--	Peak	2.65	45	Not in Restricted Band
1804.4	27.73	H	--	--	Avg	2.65	45	Not in Restricted Band
2706.6	60.63	H	74	-13.37	Peak	2.2	225	
2706.6	40.63	H	54	-13.37	Avg	2.2	225	
3608.8	54.86	H	74	-19.14	Peak	1.83	225	
3608.8	34.86	H	54	-19.14	Avg	1.83	225	
4511	48.93	H	74	-25.07	Peak	1.87	135	
4511	28.93	H	54	-25.07	Avg	1.87	135	
5413.2	50.55	H	74	-23.45	Peak	2.3	225	
5413.2	30.55	H	54	-23.45	Avg	2.3	225	
6315.4	49.32	H	--	--	Peak	1.93	225	Not in Restricted Band
6315.4	29.32	H	--	--	Avg	1.93	225	Not in Restricted Band
7217.6		H	74	-74	Peak			No Emissions
7217.6		H	54	-54	Avg			Detected
8119.8		H	74	-74	Peak			No Emissions
8119.8		H	54	-54	Avg			Detected
9022		H	74	-74	Peak			No Emissions
9022		H	54	-54	Avg			Detected

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/22/05
Lab: B
Tested By: Kyle Fujimoto

Low Channel - Z-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1804.4	53.86	V	--	--	Peak	1.4	225	Not in Restricted Band
1804.4	33.86	V	--	--	Avg	1.4	225	Not in Restricted Band
2706.6	63.01	V	74	-10.99	Peak	1.72	225	
2706.6	43.01	V	54	-10.99	Avg	1.72	225	
3608.8	53.02	V	74	-20.98	Peak	2.42	225	
3608.8	33.02	V	54	-20.98	Avg	2.42	225	
4511	44.18	V	74	-29.82	Peak	1.69	135	
4511	24.18	V	54	-29.82	Avg	1.69	135	
5413.2	49.30	V	74	-24.7	Peak	1.41	135	
5413.2	29.30	V	54	-24.7	Avg	1.41	135	
6315.4	55.71	V	--	--	Peak	1.81	225	Not in Restricted Band
6315.4	35.71	V	--	--	Avg	1.81	225	Not in Restricted Band
7217.6		V	74	-74	Peak			No Emissions
7217.6		V	54	-54	Avg			Detected
8119.8		V	74	-74	Peak			No Emissions
8119.8		V	54	-54	Avg			Detected
9022		V	74	-74	Peak			No Emissions
9022		V	54	-54	Avg			Detected

FCC 15.247 and FCC Class B

Kar-Tech, Inc. Date: 09/23/05

Mini Remote Control System Lab: B

Model: Mini Remote Tested By: Kyle Fujimoto

Receiver Portion -- Low Channel -- Vertical and Horizontal Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions
								Found from the Receiver
								Portion
								from 1 GHz to 9.3 GHz
								for both Vertical and
								Horizontal Polarizations
								EUT tested in all
								three orthgonal axis

FCC Class B

Kar-Tech, Inc. Date: 09/23/05
Mini Remote Control System Lab: B
Model: Mini Remote Tested By: Kyle Fujimoto

Digital Portion/Non Harmonic Tx Emissions -- Low Channel -- Vertical and Horizontal Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions
								Found from the Digital
								Portion
								from 1 GHz to 9.3 GHz
								for both Vertical and
								Horizontal Polarizations
								EUT tested in all
								three orthgonal axis

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/26/05
Lab: D
Tested By: Kyle Fujimoto

Fundamental Middle Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
915	98.67	V	--	--	Peak	1.5	90	X-Axis
915	102.77	V	--	--	Peak	1	135	Y-Axis
915	97.27	V	--	--	Peak	1	225	Z-Axis
915	101.97	H	--	--	Peak	1	0	X-Axis
915	100.77	H	--	--	Peak	1.5	270	Y-Axis
915	97.27	H	--	--	Peak	1	0	Z-Axis

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/22/05
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1830	59.75	H	--	--	Peak	2.08	225	Not in Restricted Band
1830	39.75	H	--	--	Avg	2.08	225	Not in Restricted Band
2745	66.05	H	74	-7.95	Peak	2.23	180	
2745	46.05	H	54	-7.95	Avg	2.23	180	
3660	54.97	H	74	-19.03	Peak	2.18	180	
3660	34.97	H	54	-19.03	Avg	2.18	180	
4575	47.05	H	74	-26.95	Peak	2.53	270	
4575	27.05	H	54	-26.95	Avg	2.53	270	
5490	49.42	H	74	-24.58	Peak	1.83	180	
5490	29.42	H	54	-24.58	Avg	1.83	180	
6405	51.99	H	--	--	Peak	1.52	180	Not in Restricted Band
6405	31.99	H	--	--	Avg	1.52	180	Not in Restricted Band
7320		H	74	-74	Peak			No Emissions
7320		H	54	-54	Avg			Detected
8235		H	74	-74	Peak			No Emissions
8235		H	54	-54	Avg			Detected
9150		H	74	-74	Peak			No Emissions
9150		H	54	-54	Avg			Detected

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/22/05
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1830	61.09	V	--	--	Peak	2.29	225	Not in Restricted Band
1830	41.09	V	--	--	Avg	2.29	225	Not in Restricted Band
2745	60.69	V	74	-13.31	Peak	2.29	225	
2745	40.69	V	54	-13.31	Avg	2.29	225	
3660	51.49	V	74	-22.51	Peak	2.31	315	
3660	31.49	V	54	-22.51	Avg	2.31	315	
4575	49.36	V	74	-24.64	Peak	1.97	135	
4575	29.36	V	54	-24.64	Avg	1.97	135	
5490	49.57	V	74	-24.43	Peak	1.49	225	
5490	29.57	V	54	-24.43	Avg	1.49	225	
6405	48.53	V	--	--	Peak	1.49	180	Not in Restricted Band
6405	28.53	V	--	--	Avg	1.49	180	Not in Restricted Band
7320		V	74	-74	Peak			No Emissions
7320	-20.00	V	54	-74	Avg			Detected
8235		V	74	-74	Peak			No Emissions
8235		V	54	-54	Avg			Detected
9150		V	74	-74	Peak			No Emissions
9150		V	54	-54	Avg			Detected

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/22/05
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1830	50.06	H	--	--	Peak	2.8	270	Not in Restricted Band
1830	30.06	H	--	--	Avg	2.8	270	Not in Restricted Band
2745	63.30	H	74	-10.7	Peak	2.56	180	
2745	43.30	H	54	-10.7	Avg	2.56	180	
3660	46.07	H	74	-27.93	Peak	2.97	180	
3660	26.07	H	54	-27.93	Avg	2.97	180	
4575	49.49	H	74	-24.51	Peak	2.02	270	
4575	29.49	H	54	-24.51	Avg	2.02	270	
5490	52.02	H	74	-21.98	Peak	2.05	90	
5490	32.02	H	54	-21.98	Avg	2.05	90	
6405	53.71	H	--	--	Peak	2.28	270	Not in Restricted Band
6405	33.71	H	--	--	Avg	2.28	270	Not in Restricted Band
7320		H	74	-74	Peak			No Emissions
7320	-20.00	H	54	-74	Avg			Detected
8235		H	74	-74	Peak			No Emissions
8235		H	54	-54	Avg			Detected
9150		H	74	-74	Peak			No Emissions
9150		H	54	-54	Avg			Detected

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/22/05
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1830	54.06	V	--	--	Peak	1.28	225	Not in Restricted Band
1830	34.06	V	--	--	Avg	1.28	225	Not in Restricted Band
2745	61.05	V	74	-12.95	Peak	2.17	225	
2745	41.05	V	54	-12.95	Avg	2.17	225	
3660	54.81	V	74	-19.19	Peak	2.16	180	
3660	34.81	V	54	-19.19	Avg	2.16	180	
4575	48.66	V	74	-25.34	Peak	2.09	225	
4575	28.66	V	54	-25.34	Avg	2.09	225	
5490	52.99	V	74	-21.01	Peak	1.68	180	
5490	32.99	V	54	-21.01	Avg	1.68	180	
6405	52.87	V	--	--	Peak	2.17	45	Not in Restricted Band
6405	32.87	V	--	--	Avg	2.17	45	Not in Restricted Band
7320	51.94	V	74	-22.06	Peak	2.09	315	No Emissions
7320	31.94	V	54	-22.06	Avg	2.09	315	Detected
8235		V	74	-74	Peak			No Emissions
8235		V	54	-54	Avg			Detected
9150		V	74	-74	Peak			No Emissions
9150		V	54	-54	Avg			Detected

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/22/05
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - Z-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1830	59.02	H	--	--	Peak	1.66	225	Not in Restricted Band
1830	39.02	H	--	--	Avg	1.66	225	Not in Restricted Band
2745	66.28	H	74	-7.72	Peak	2.23	225	
2745	46.28	H	54	-7.72	Avg	2.23	225	
3660	49.51	H	74	-24.49	Peak	2.42	225	
3660	29.51	H	54	-24.49	Avg	2.42	225	
4575	47.44	H	74	-26.56	Peak	2.2	225	
4575	27.44	H	54	-26.56	Avg	2.2	225	
5490	50.66	H	74	-23.34	Peak	1.68	180	
5490	30.66	H	54	-23.34	Avg	1.68	180	
6405	49.79	H	--	--	Peak	2.17	45	Not in Restricted Band
6405	29.79	H	--	--	Avg	2.17	45	Not in Restricted Band
7320		H	74	-74	Peak	2.09	315	No Emissions
7320		H	54	-54	Avg	2.09	315	Detected
8235		H	74	-74	Peak			No Emissions
8235		H	54	-54	Avg			Detected
9150		H	74	-74	Peak			No Emissions
9150		H	54	-54	Avg			Detected

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/22/05
Lab: B
Tested By: Kyle Fujimoto

Middle Channel - Z-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1830	61.11	V	--	--	Peak	1.78	225	Not in Restricted Band
1830	41.11	V	--	--	Avg	1.78	225	Not in Restricted Band
2745	60.51	V	74	-13.49	Peak	1.64	225	
2745	40.51	V	54	-13.49	Avg	1.64	225	
3660	54.71	V	74	-19.29	Peak	2.15	225	
3660	34.71	V	54	-19.29	Avg	2.15	225	
4575	45.75	V	74	-28.25	Peak	2.49	180	
4575	25.75	V	54	-28.25	Avg	2.49	180	
5490	50.34	V	74	-23.66	Peak	1.24	225	
5490	30.34	V	54	-23.66	Avg	1.24	225	
6405	49.96	V	--	--	Peak	1.96	270	Not in Restricted Band
6405	29.96	V	--	--	Avg	1.96	270	Not in Restricted Band
7320		V	74	-74	Peak			No Emissions
7320		V	54	-54	Avg			Detected
8235		V	74	-74	Peak			No Emissions
8235		V	54	-54	Avg			Detected
9150		V	74	-74	Peak			No Emissions
9150		V	54	-54	Avg			Detected

FCC 15.247 and FCC Class B

Kar-Tech, Inc. Date: 09/23/05

Mini Remote Control System Lab: B

Model: Mini Remote Tested By: Kyle Fujimoto

Receiver Portion -- Middle Channel -- Vertical and Horizontal Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions
								Found from the Receiver
								Portion
								from 1 GHz to 9.3 GHz
								for both Vertical and
								Horizontal Polarizations
								EUT tested in all
								three orthgonal axis

FCC Class B

Kar-Tech, Inc. Date: 09/23/05
Mini Remote Control System Lab: B
Model: Mini Remote Tested By: Kyle Fujimoto

Digital Portion/Non Harmonic Tx Emissions -- Middle Channel -- Vertical and Horizontal Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions
								Found from the Digital
								Portion
								from 1 GHz to 9.3 GHz
								for both Vertical and
								Horizontal Polarizations
								EUT tested in all
								three orthgonal axis

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/26/05
Lab: D
Tested By: Kyle Fujimoto

Fundamental High Channel

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
927.8	97.96	V	--	--	Peak	1.5	90	X-Axis
927.8	100.06	V	--	--	Peak	1	135	Y-Axis
927.8	96.76	V	--	--	Peak	1	225	Z-Axis
927.8	100.06	H	--	--	Peak	1	0	X-Axis
927.8	95.15	H	--	--	Peak	1.5	270	Y-Axis
927.8	102.06	H	--	--	Peak	1	0	Z-Axis

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/22/05
Lab: B
Tested By: Kyle Fujimoto

High Channel - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1855.6	53.20	H	--	--	Peak	2.03	180	Not in Restricted Band
1855.6	33.20	H	--	--	Avg	2.03	180	Not in Restricted Band
2783.4	64.08	H	74	-9.92	Peak	2.25	180	
2783.4	44.08	H	54	-9.92	Avg	2.25	180	
3711.2	42.75	H	74	-31.25	Peak	1.63	180	
3711.2	22.75	H	54	-31.25	Avg	1.63	180	
4639	50.09	H	74	-23.91	Peak	2.38	225	
4639	30.09	H	54	-23.91	Avg	2.38	225	
5566.8	51.05	H	74	-22.95	Peak	2.41	225	
5566.8	31.05	H	54	-22.95	Avg	2.41	225	
6494.6	58.01	H	--	--	Peak	1.37	315	Not in Restricted Band
6494.6	38.01	H	--	--	Avg	1.37	315	Not in Restricted Band
7422.4		H	74	-74	Peak			No Emissions
7422.4		H	54	-54	Avg			Detected
8350.2		H	74	-74	Peak			No Emissions
8350.2		H	54	-54	Avg			Detected
9278		H	74	-74	Peak			No Emissions
9278		H	54	-54	Avg			Detected

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/22/05
Lab: B
Tested By: Kyle Fujimoto

High Channel - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1855.6	61.84	V	--	--	Peak	2.29	225	Not in Restricted Band
1855.6	41.84	V	--	--	Avg	2.29	225	Not in Restricted Band
2783.4	61.79	V	74	-12.21	Peak	2.77	180	
2783.4	41.79	V	54	-12.21	Avg	2.77	180	
3711.2	54.98	V	74	-19.02	Peak	2.91	270	
3711.2	34.98	V	54	-19.02	Avg	2.91	270	
4639	55.48	V	74	-18.52	Peak	2.28	315	
4639	35.48	V	54	-18.52	Avg	2.28	315	
5566.8	50.25	V	74	-23.75	Peak	1.81	225	
5566.8	30.25	V	54	-23.75	Avg	1.81	225	
6494.6	58.01	V	--	--	Peak	1.66	180	Not in Restricted Band
6494.6	38.01	V	--	--	Avg	1.66	180	Not in Restricted Band
7422.4		V	74	-74	Peak			No Emissions
7422.4		V	54	-54	Avg			Detected
8350.2		V	74	-74	Peak			No Emissions
8350.2		V	54	-54	Avg			Detected
9278		V	74	-74	Peak			No Emissions
9278		V	54	-54	Avg			Detected

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/22/05
Lab: B
Tested By: Kyle Fujimoto

High Channel - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1855.6	55.47	H	--	--	Peak	2.84	270	Not in Restricted Band
1855.6	35.47	H	--	--	Avg	2.84	270	Not in Restricted Band
2783.4	60.06	H	74	-13.94	Peak	2.49	225	
2783.4	40.06	H	54	-13.94	Avg	2.49	225	
3711.2	49.35	H	74	-24.65	Peak	2.79	90	
3711.2	29.35	H	54	-24.65	Avg	2.79	90	
4639	46.55	H	74	-27.45	Peak	1.83	135	
4639	26.55	H	54	-27.45	Avg	1.83	135	
5566.8	47.29	H	74	-26.71	Peak	2.74	180	
5566.8	27.29	H	54	-26.71	Avg	2.74	180	
6494.6	54.25	H	--	--	Peak	2.74	135	Not in Restricted Band
6494.6	34.25	H	--	--	Avg	2.71	135	Not in Restricted Band
7422.4		H	74	-74	Peak			No Emissions
7422.4	-20.00	H	54	-74	Avg			Detected
8350.2		H	74	-74	Peak			No Emissions
8350.2	-20.00	H	54	-74	Avg			Detected
9278		H	74	-74	Peak			No Emissions
9278	-20.00	H	54	-74	Avg			Detected

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/22/05
Lab: B
Tested By: Kyle Fujimoto

High Channel - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1855.6	53.91	V	--	--	Peak	2.36	135	Not in Restricted Band
1855.6	33.91	V	--	--	Avg	2.36	135	Not in Restricted Band
2783.4	57.98	V	74	-16.02	Peak	1.57	90	
2783.4	37.98	V	54	-16.02	Avg	1.57	90	
3711.2	47.47	V	74	-26.53	Peak	2.06	45	
3711.2	27.47	V	54	-26.53	Avg	2.06	45	
4639	46.95	V	74	-27.05	Peak	2.79	270	
4639	26.95	V	54	-27.05	Avg	2.79	270	
5566.8	46.90	V	74	-27.1	Peak	2.07	180	
5566.8	26.90	V	54	-27.1	Avg	2.07	180	
6494.6	50.00	V	--	--	Peak	2.07	90	Not in Restricted Band
6494.6	30.00	V	--	--	Avg	2.07	90	Not in Restricted Band
7422.4		V	74	-74	Peak			
7422.4	-20.00	V	54	-74	Avg			
8350.2		V	74	-74	Peak			No Emissions
8350.2	-20.00	V	54	-74	Avg			Detected
9278		V	74	-74	Peak			No Emissions
9278	-20.00	V	54	-74	Avg			Detected

FCC 15.247
Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/22/05
Lab: B
Tested By: Kyle Fujimoto

High Channel - Z-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1855.6	59.69	H	--	--	Peak	1.53	225	Not in Restricted Band
1855.6	39.69	H	--	--	Avg	1.53	225	Not in Restricted Band
2783.4	64.04	H	74	-9.96	Peak	1.89	225	
2783.4	44.04	H	54	-9.96	Avg	1.89	225	
3711.2	50.75	H	74	-23.25	Peak	2.07	180	
3711.2	30.75	H	54	-23.25	Avg	2.07	180	
4639		H	74	-74	Peak			
4639		H	54	-54	Avg			
5566.8		H	74	-74	Peak			
5566.8		H	54	-54	Avg			
6494.6		H	--	--	Peak			Not in Restricted Band
6494.6		H	--	--	Avg			Not in Restricted Band
7422.4		H	74	-74	Peak			No Emissions
7422.4		H	54	-54	Avg			Detected
8350.2		H	74	-74	Peak			No Emissions
8350.2		H	54	-54	Avg			Detected
9278		H	74	-74	Peak			No Emissions
9278		H	54	-54	Avg			Detected

FCC 15.247

Kar-Tech, Inc.
Mini Remote Control System
Model: Mini Remote

Date: 09/22/05
Lab: B
Tested By: Kyle Fujimoto

High Channel - Z-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
1855.6	61.76	V	--	--	Peak	1.31	225	Not in Restricted Band
1855.6	41.76	V	--	--	Avg	1.31	225	Not in Restricted Band
2783.4	61.28	V	74	-12.72	Peak	1.65	225	
2783.4	41.28	V	54	-12.72	Avg	1.65	225	
3711.2	56.15	V	74	-17.85	Peak	2.11	180	
3711.2	36.15	V	54	-17.85	Avg	2.11	180	
4639	45.86	V	74	-28.14	Peak	2.42	180	
4639	25.86	V	54	-28.14	Avg	2.42	180	
5566.8	49.96	V	74	-24.04	Peak	2.26	180	
5566.8	29.96	V	54	-24.04	Avg	2.26	180	
6494.6	52.33	V	--	--	Peak	2.2	180	Not in Restricted Band
6494.6	32.33	V	--	--	Avg	2.2	180	Not in Restricted Band
7422.4		V	74	-74	Peak			No Emissions
7422.4		V	54	-54	Avg			Detected
8350.2		V	74	-74	Peak			No Emissions
8350.2		V	54	-54	Avg			Detected
9278		V	74	-74	Peak			No Emissions
9278		V	54	-54	Avg			Detected

FCC 15.247 and FCC Class B

Kar-Tech, Inc. Date: 09/23/05

Mini Remote Control System Lab: B

Model: Mini Remote Tested By: Kyle Fujimoto

Receiver Portion -- High Channel -- Vertical and Horizontal Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions
								Found from the Receiver
								Portion
								from 1 GHz to 9.3 GHz
								for both Vertical and
								Horizontal Polarizations
								EUT tested in all
								three orthgonal axis

FCC Class B

Kar-Tech, Inc. Date: 09/23/05

Mini Remote Control System Lab: B

Model: Mini Remote Tested By: Kyle Fujimoto

Digital Portion/Non Harmonic Tx Emissions -- High Channel -- Vertical and Horizontal Polarization

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions
								Found from the Digital
								Portion
								from 1 GHz to 9.3 GHz
								for both Vertical and
								Horizontal Polarizations
								EUT tested in all
								three orthgonal axis

COMPATIBLE ELECTRONICS

Test Location : Compatible Electronics
Customer : Kar-Tech, Inc.
Manufacturer : Kar-Tech, Inc.
Eut name : Mini Remote Control System
Model : Mini Remote
Serial # : N/A
Specification : FCC Class B

Page : 1/1
Date : 9/26/2005
Time : 10:36:19
Lab : D
Test Distance : 3 Meters

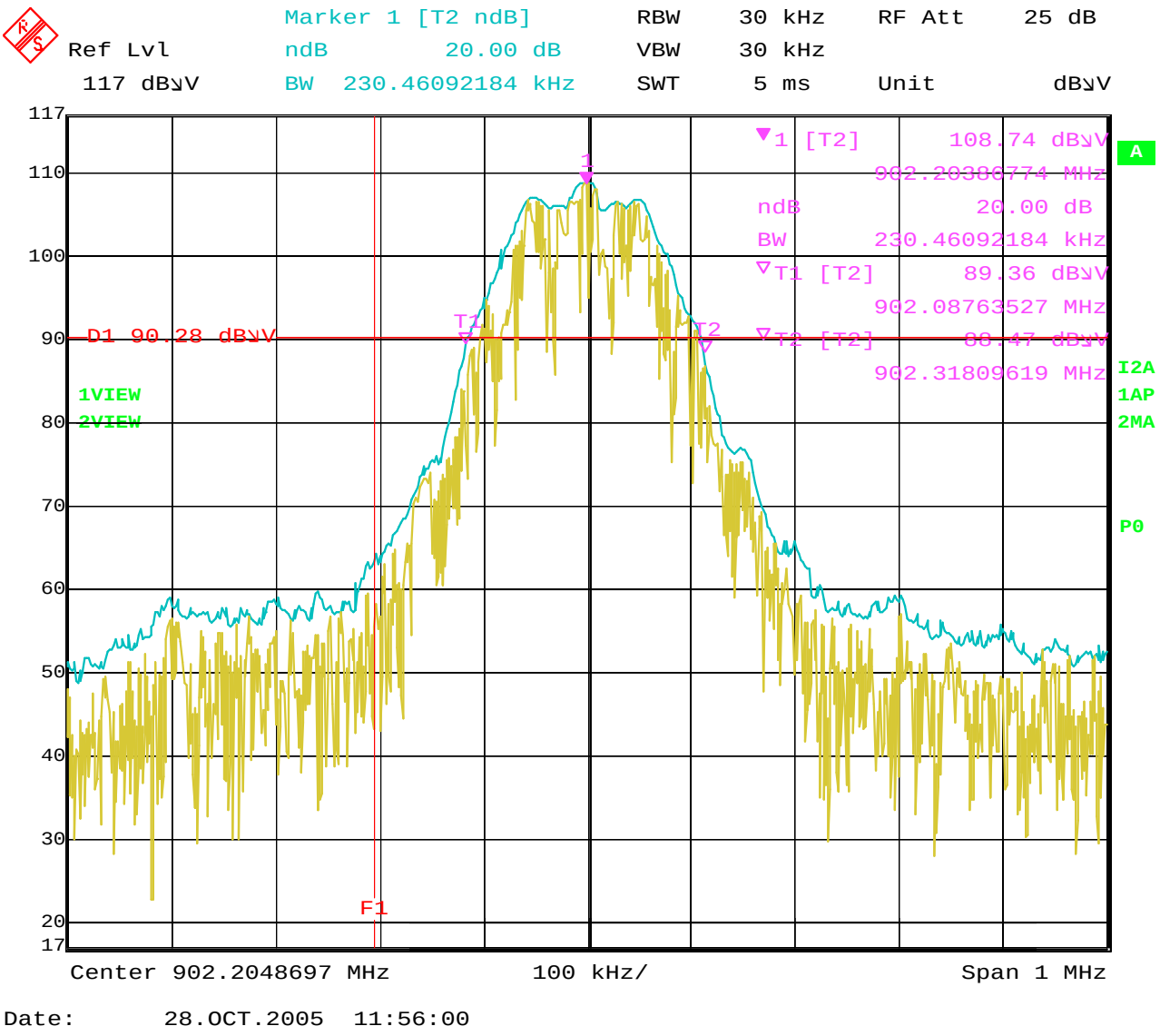
Distance correction factor (20 * log(test/spec)) : 0.00

Test Mode : Spurious Emissions - Tx Mode - (Worst Case) - 10 kHz to 1000 MHz
Vertical and Horizontal Polarization - X-Axis Worst Case
Temperature 79 Degrees F., Relative Humidity 23%
Test Engineer: Kyle Fujimoto

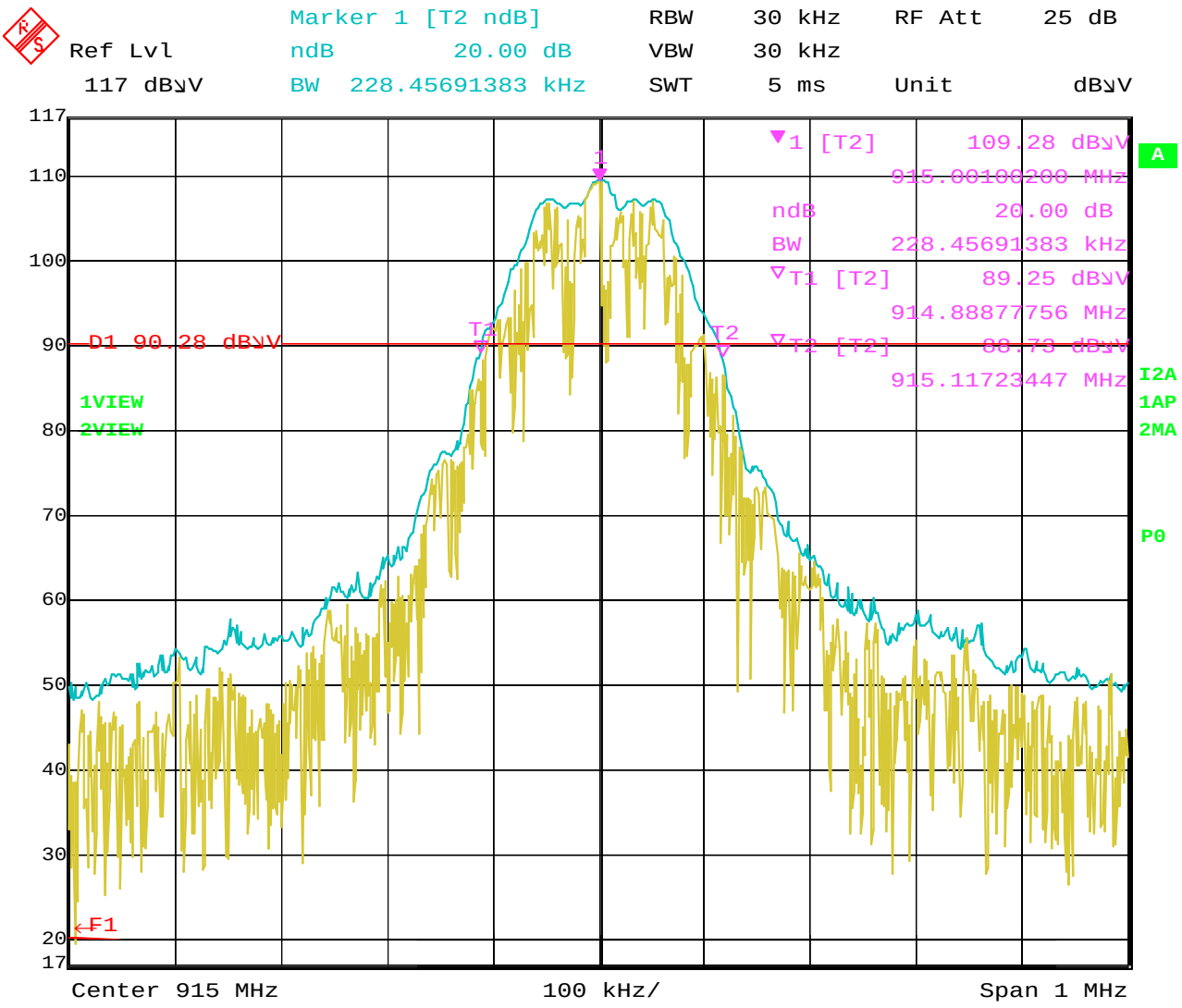
Pol	Freq	Rdng	Cable loss	Ant factor	Amp gain	Cor'd rdg = R	Limit = L	Delta R-L
	MHz	dBuV	dB	dB	dB	dBuV	dBuV/m	dB
1H	42.692	43.10	0.73	12.57	38.27	18.12	40.00	-21.88
2V	117.664	55.50	1.25	10.81	38.21	29.34	43.50	-14.16
3V	135.557	41.50	1.30	11.63	38.49	15.94	43.50	-27.56
4V	149.202	48.40	1.30	11.72	38.59	22.83	43.50	-20.67
5H	195.692	34.70	1.57	14.89	38.48	12.68	43.50	-30.82
6H	280.176	37.40	2.00	20.29	38.42	21.27	46.00	-24.73
7H	285.000	35.00	2.00	22.23	38.44	20.79	46.00	-25.21
8V	309.703	40.30	2.06	12.80	38.50	16.66	46.00	-29.34
9V	378.780	33.20	2.36	13.26	38.38	10.43	46.00	-35.57
10V	425.340	36.90	2.50	13.86	38.14	15.12	46.00	-30.88
11V	513.290	35.70	2.73	15.29	38.03	15.69	46.00	-30.31
12V	672.250	37.80	3.29	18.81	37.85	22.06	46.00	-23.94
13H	832.990	34.20	3.53	20.77	37.47	21.04	46.00	-24.96
14H	862.590	35.10	3.55	21.01	37.42	22.25	46.00	-23.75
15H	876.030	36.00	3.61	21.12	37.23	23.50	46.00	-22.50

-20 dB BANDWIDTH

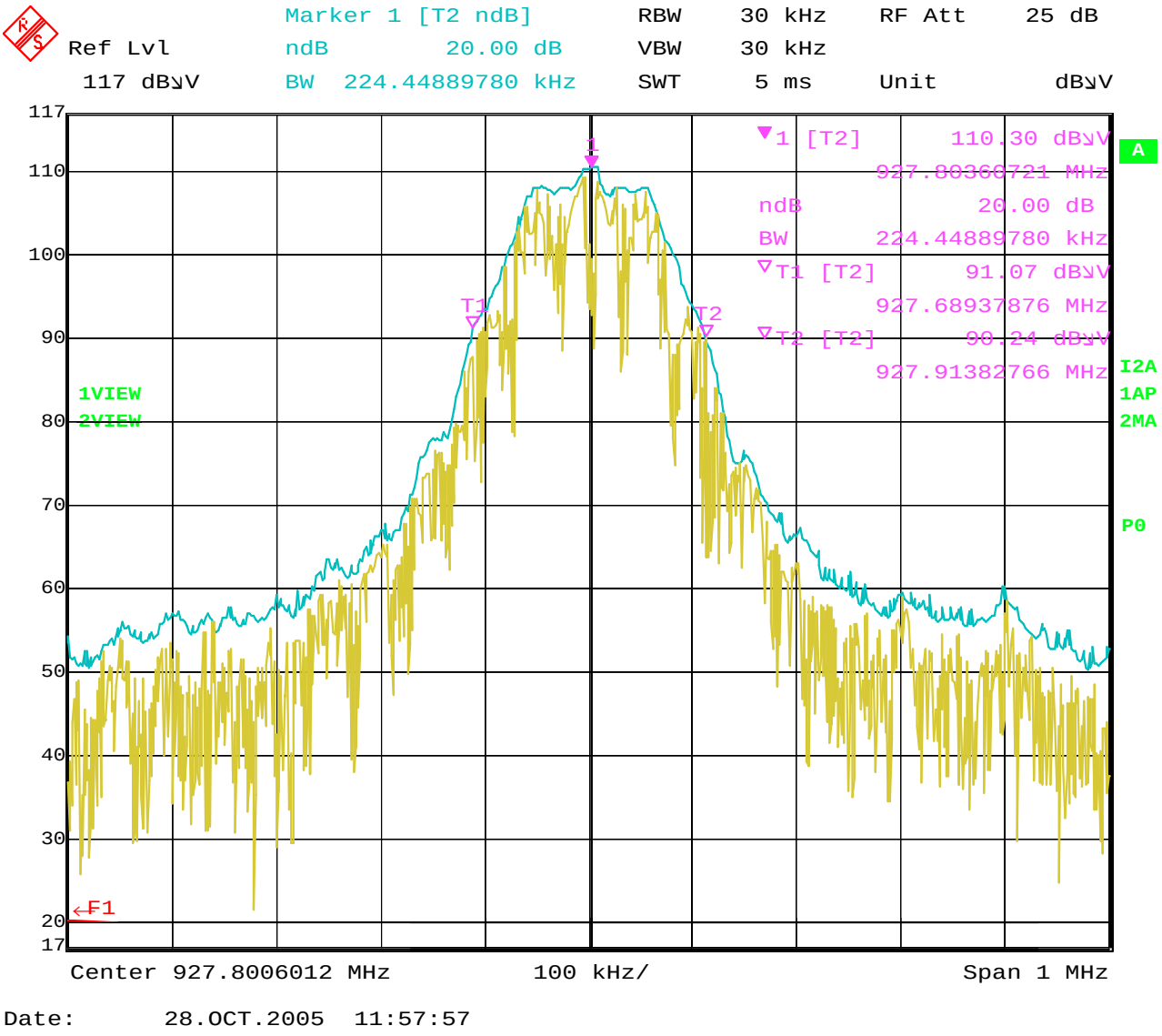
DATA SHEETS



Bandwidth 20 dB–Low Channel



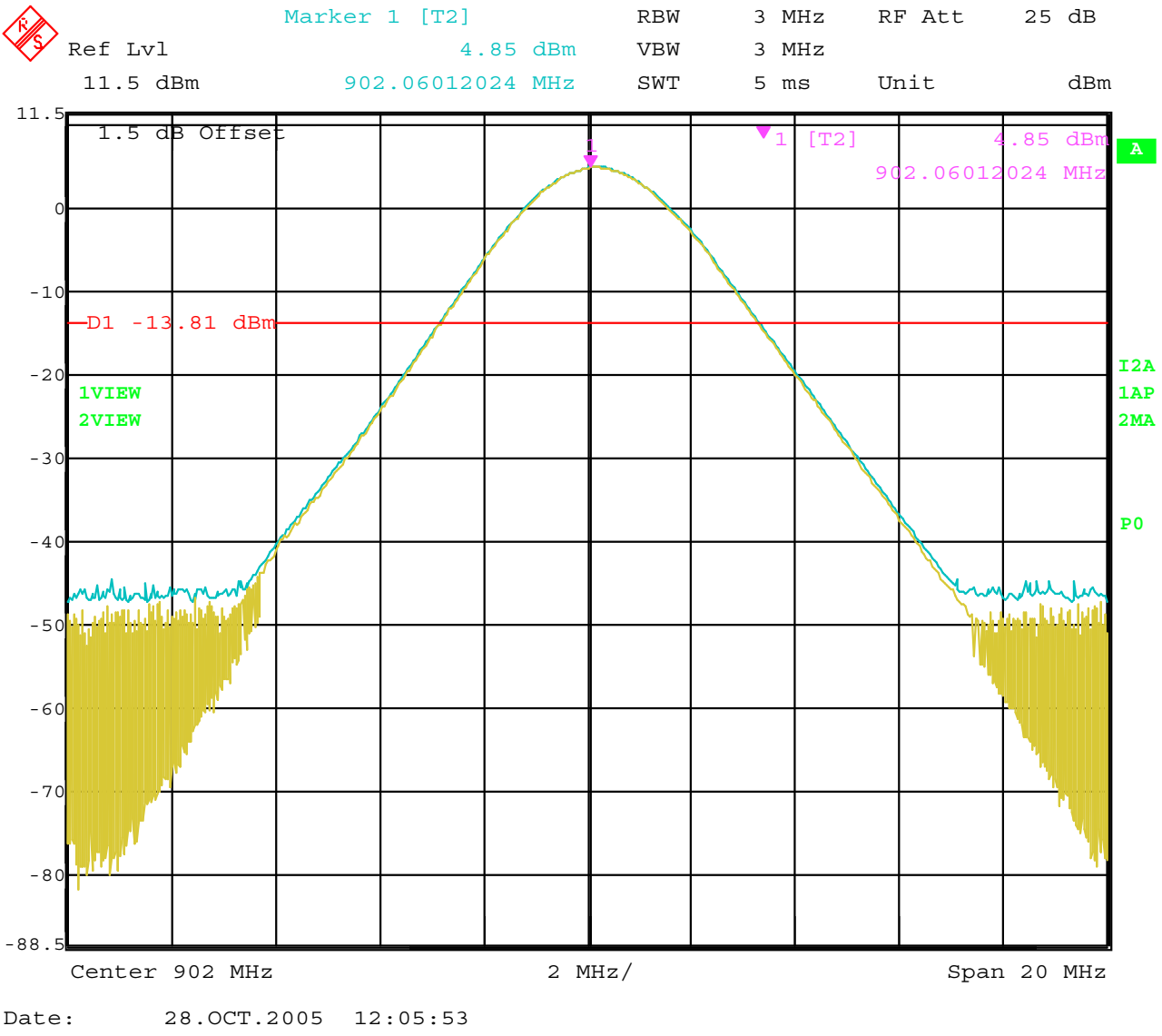
Bandwidth 20 dB–Middle Channel



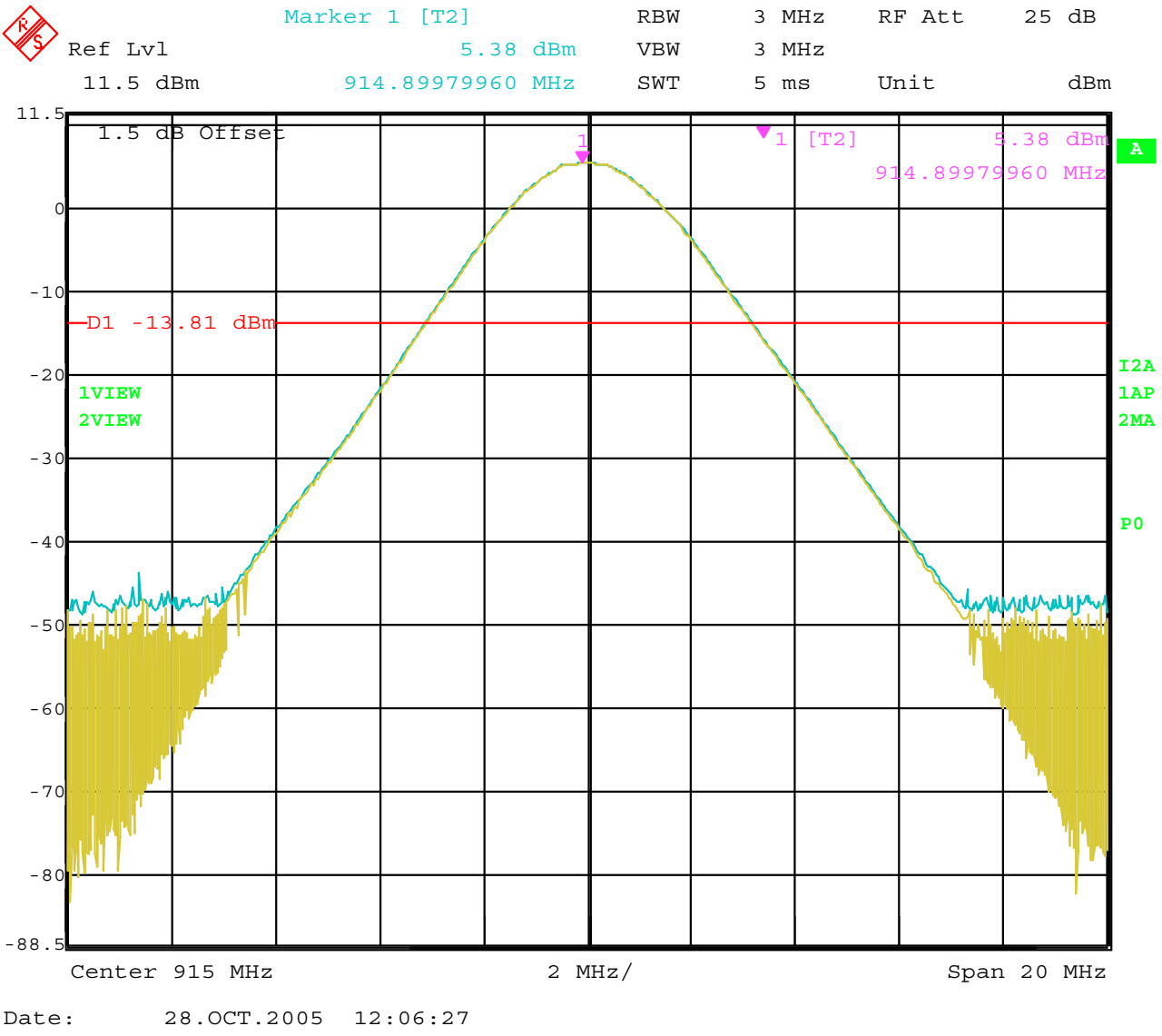
Bandwidth 20 dB–High Channel

PEAK POWER OUTPUT

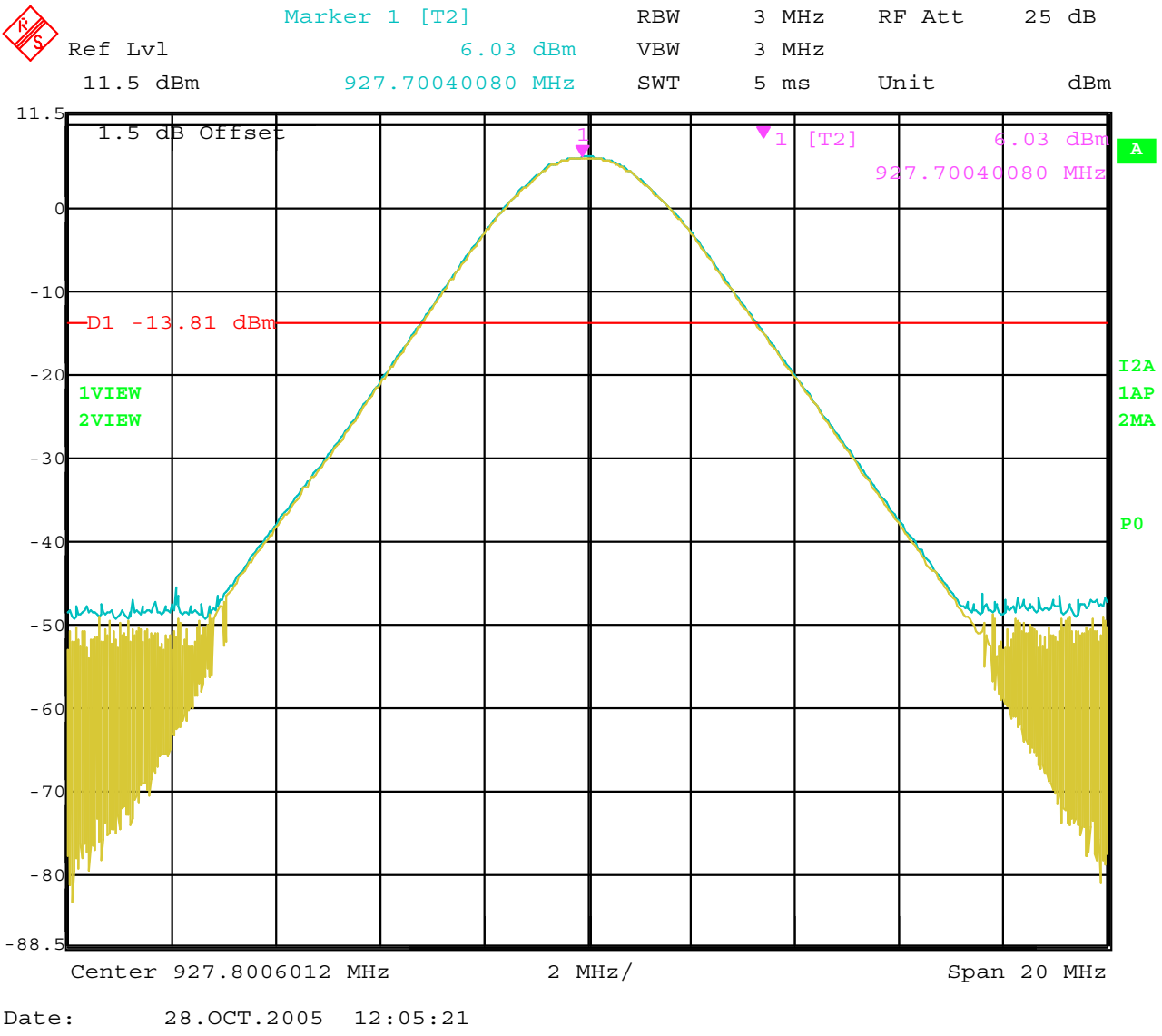
DATA SHEETS



Peak Power Output – Low Channel



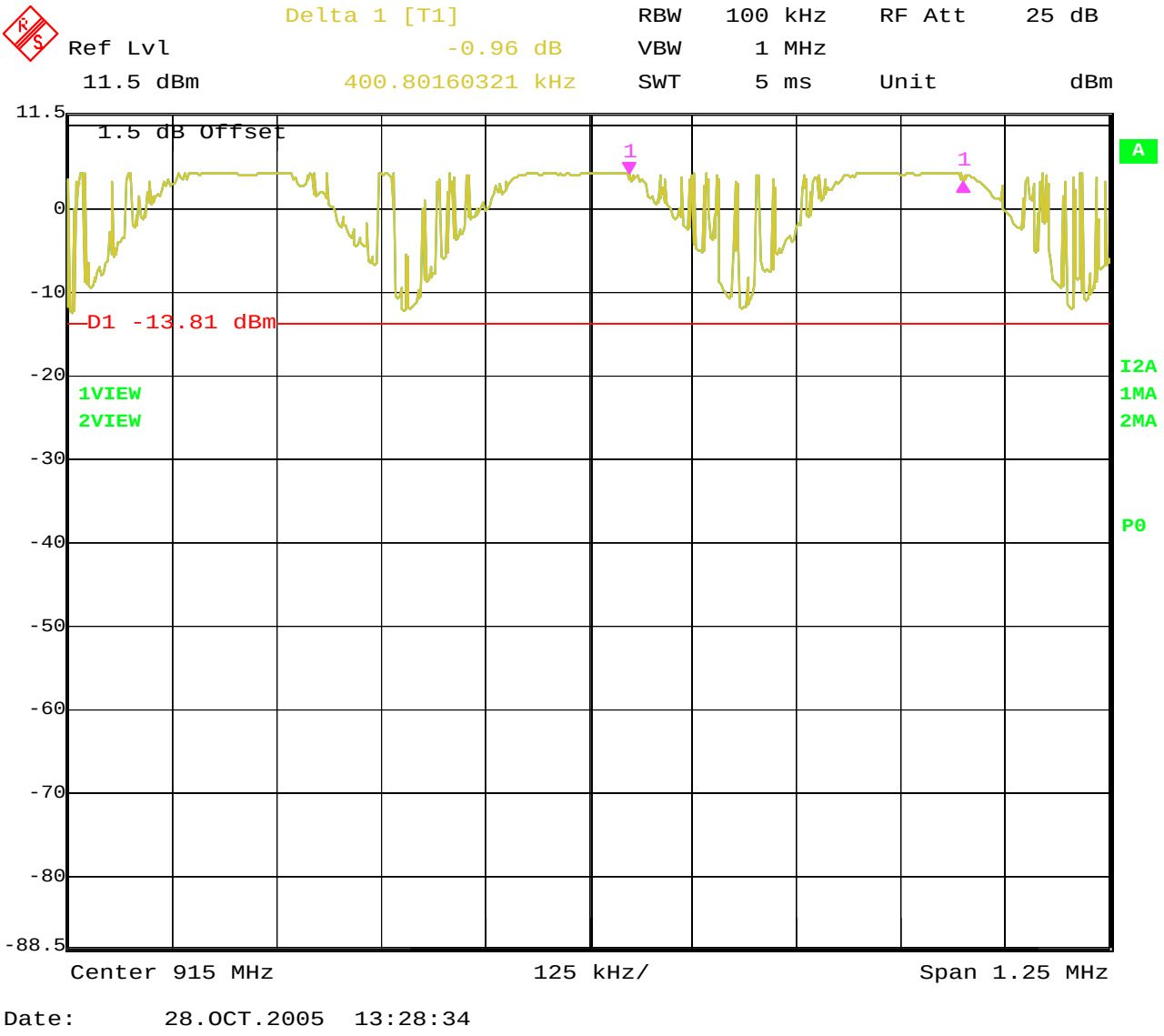
Peak Power Output – Middle Channel



Peak Power Output – High Channel

CHANNEL HOPPING SEPARATION

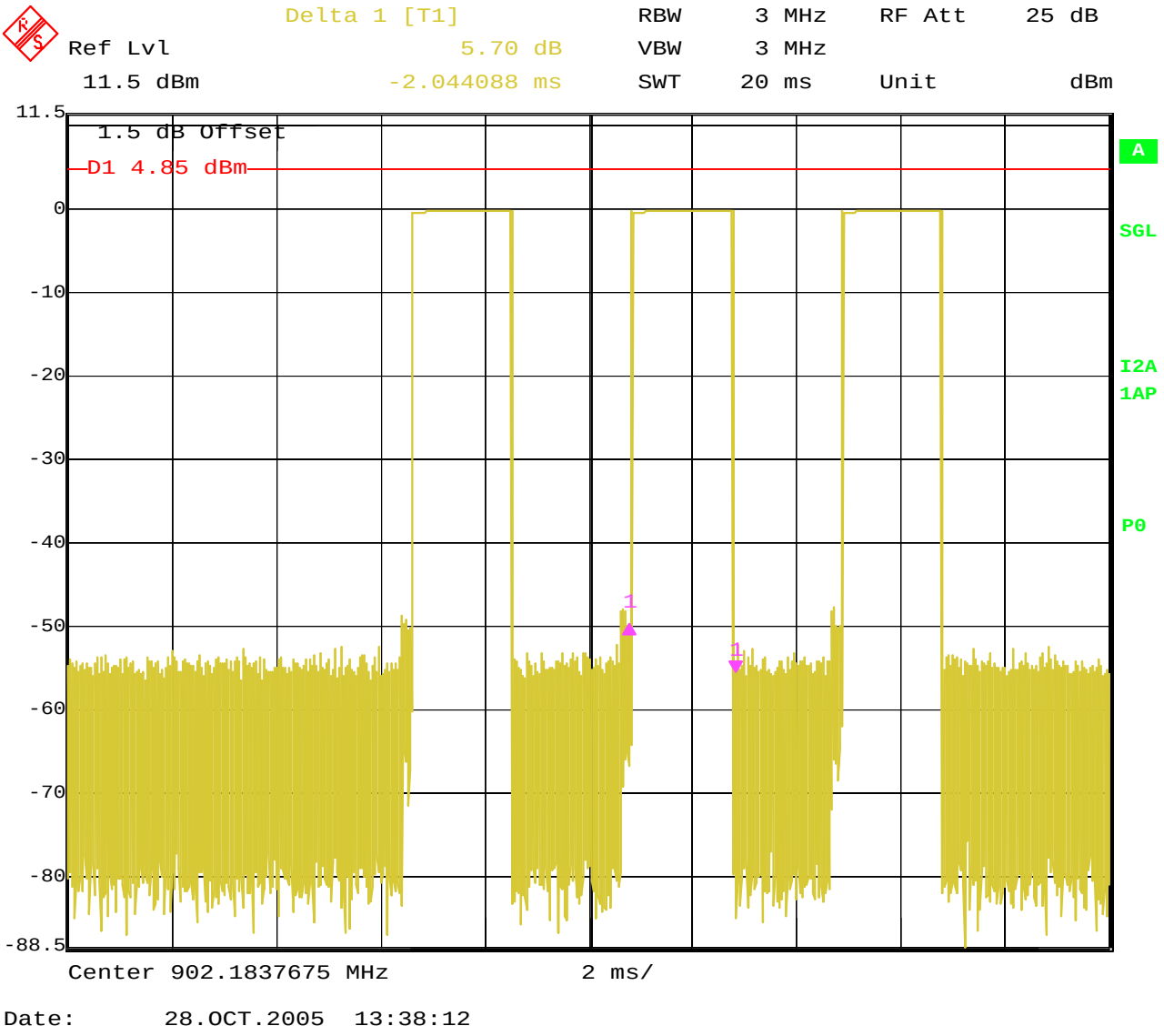
DATA SHEET



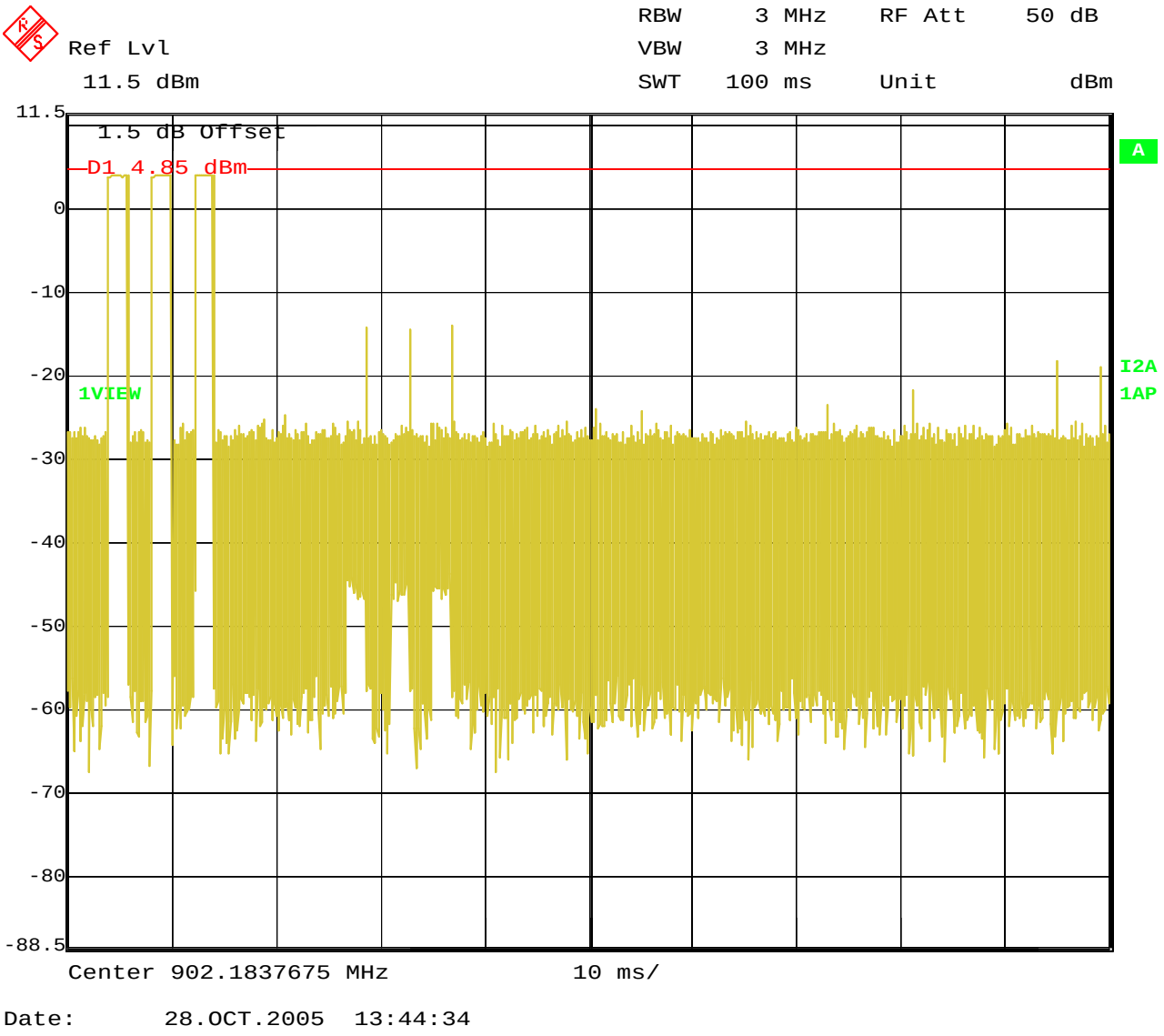
Channel Frequency Separation–10-28-05

AVERAGE TIME OF OCCUPANCY

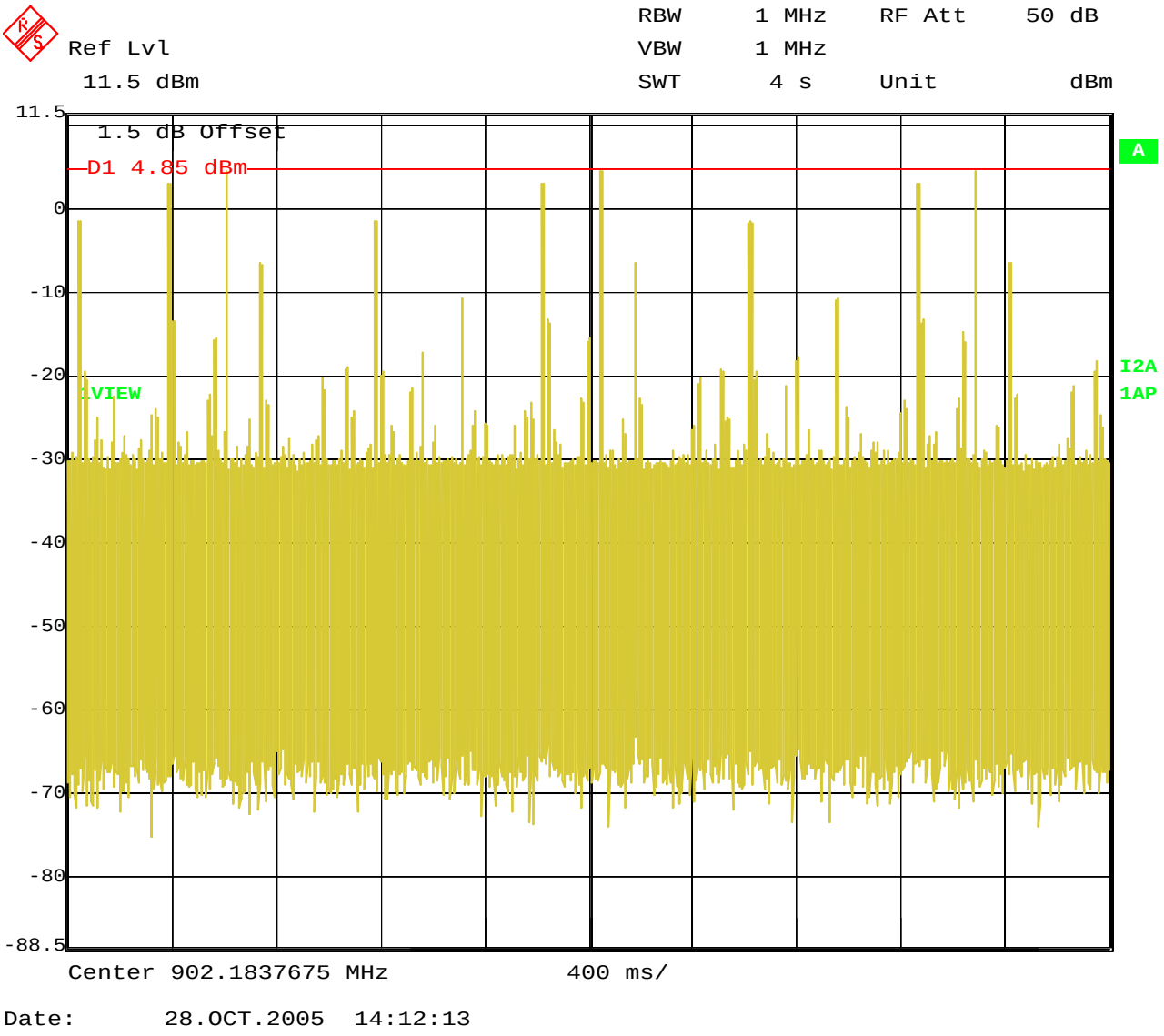
DATA SHEETS



Time of One Pulse = 2.044088 mS
This Pulse Shows up 3 times Per Pulse Train–So Time of 1 Pulse Train = 6.1322264 mS



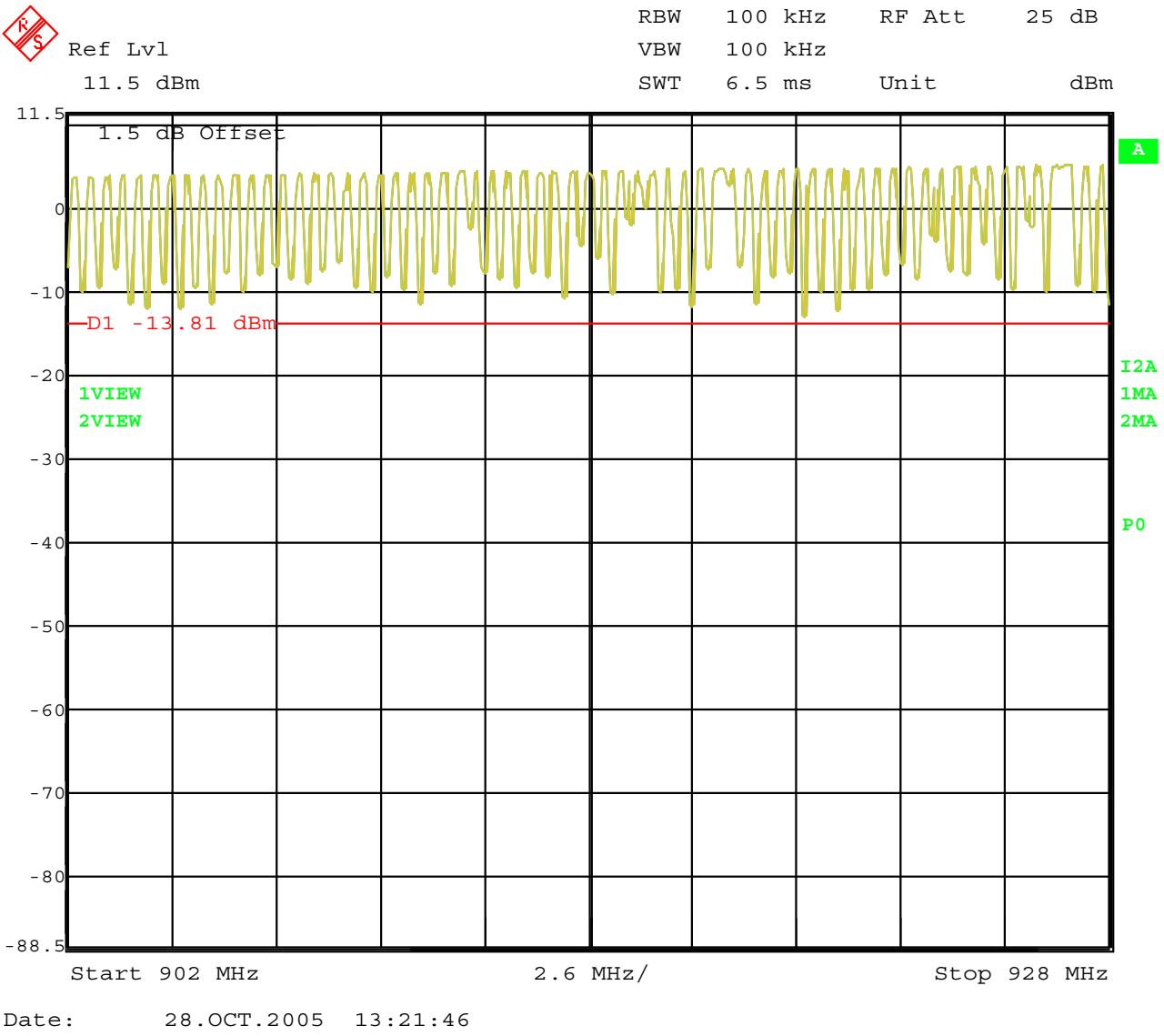
Pulse Train Only Shows up at the most, once, per 100 mS



The Transmitter turns on 6 times average per 4 second interval at each channel.
In a 20 second interval, the transmitter will turn on 24 times at each channel
24 * 6.132264 mS = 147.174336 mS (limit is 400 mS on one channel in a 20 second period)

NUMBER OF HOPPING FREQUENCIES

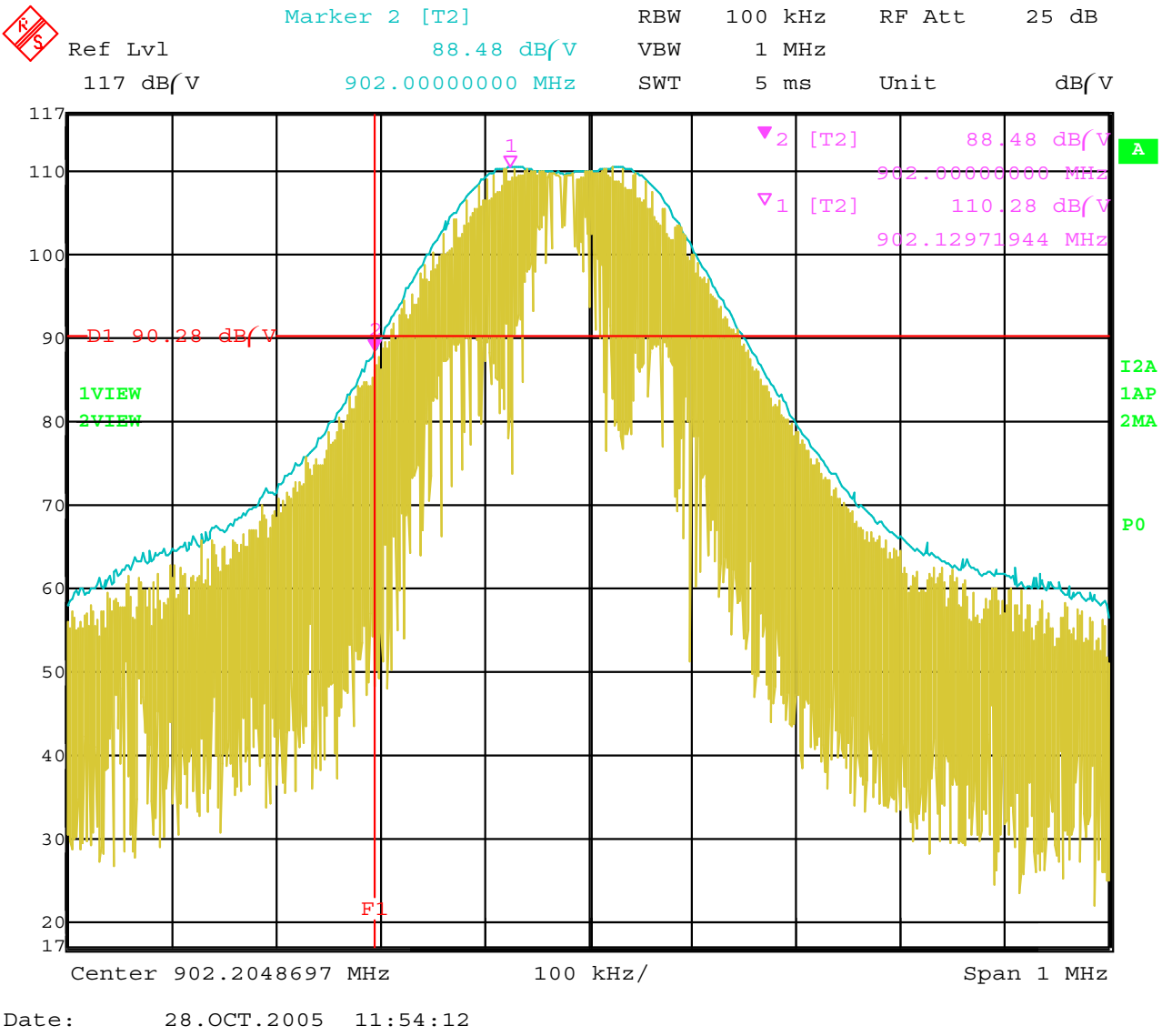
DATA SHEET



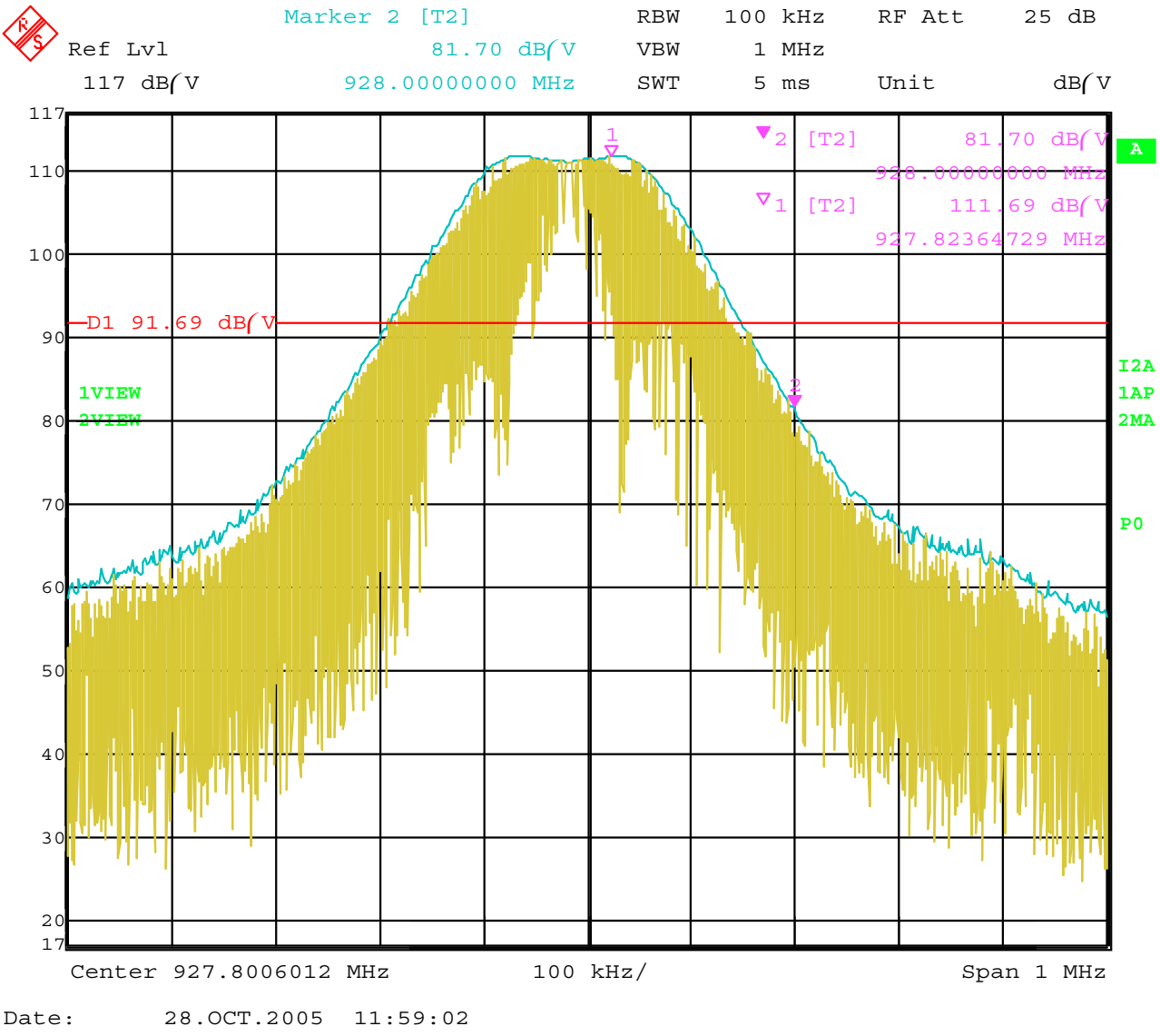
Number of Hopping Frequencies = 65

BAND EDGES

DATA SHEETS



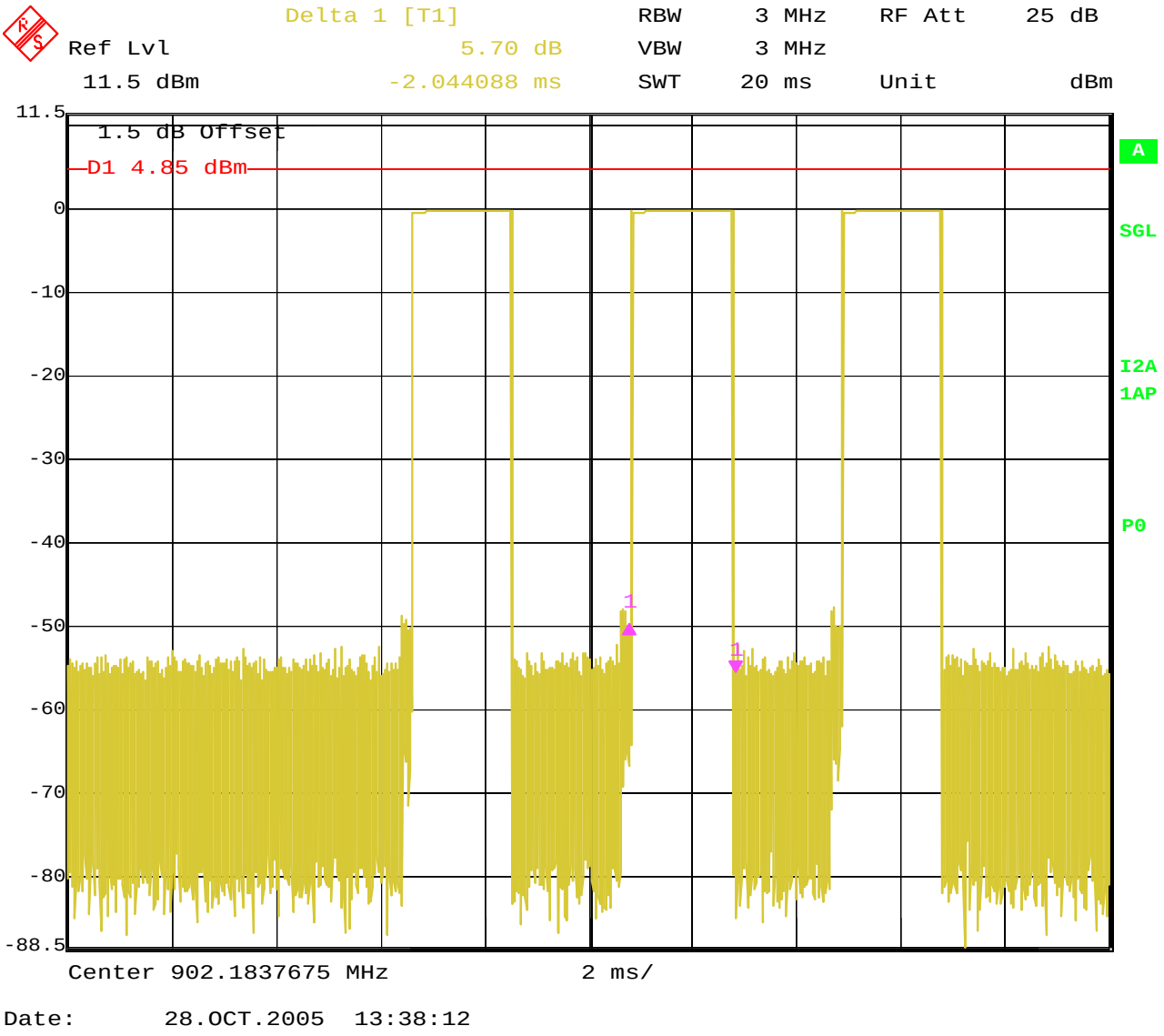
Band Edge – Low Channel



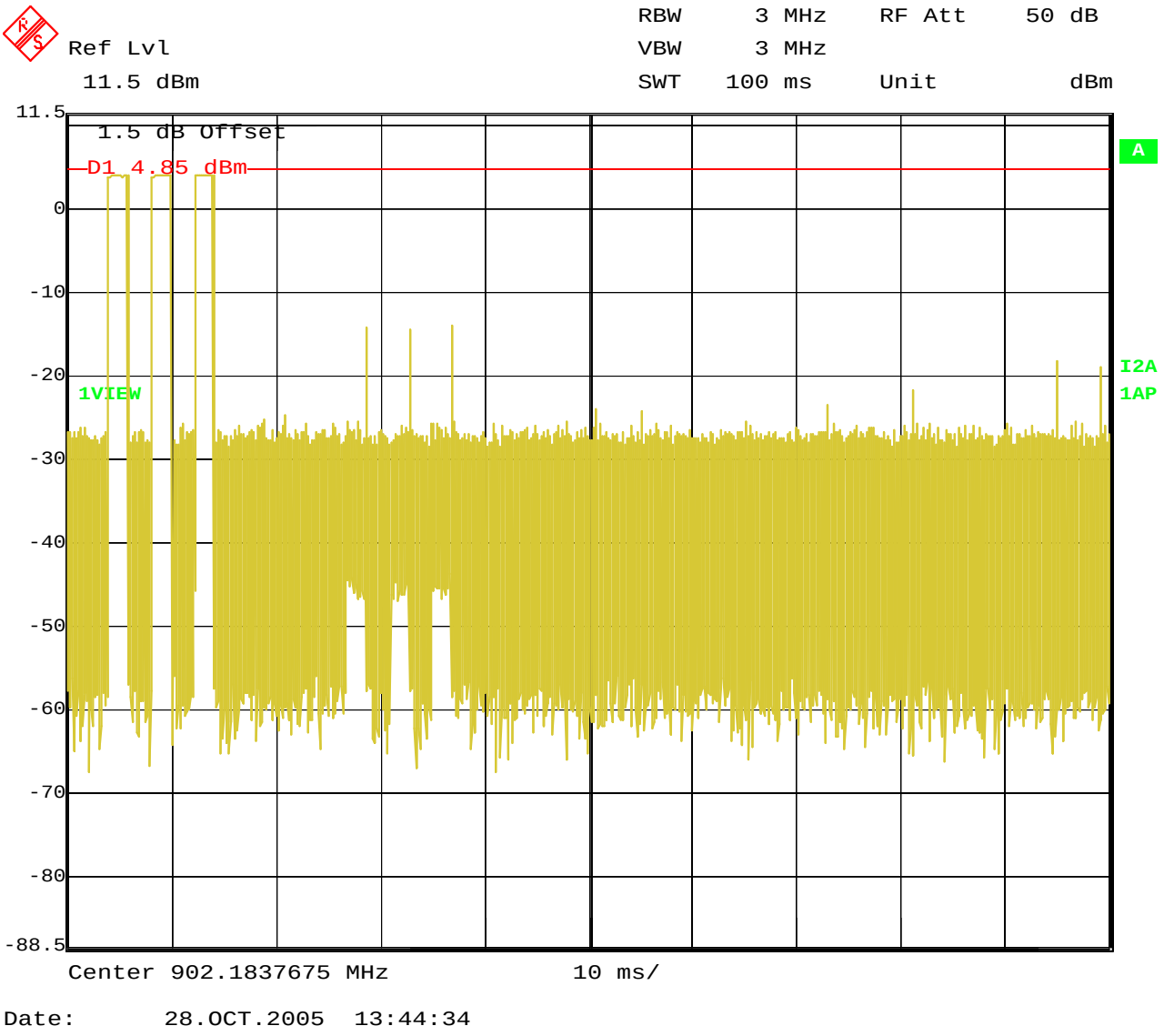
Band Edge – High Channel

DUTY CYCLE INFORMATION

DATA SHEETS



Time of One Pulse = 2.044088 mS
This Pulse Shows up 3 times Per Pulse Train–So Time of 1 Pulse Train = 6.1322264 mS



Pulse Train Only Shows up at the most, once, per 100 mS