FCC PART 15, SUBPART C
TEST REPORT

for

2 BUTTON TRANSMITTER
Model: TXAM01
FCC ID: OARTXAM01

Prepared for

PRECISION ENGINEERING INDUSTRIES, INC.
11627 CANTARA STREET
NORTH HOLLYWOOD, CA 91605

Prepared by: JOEY J. MADLANGBAYAN

Approved by: RUBY A. HALL

COMPATIBLE ELECTRONICS INC.
2337 TROUTDALE DRIVE
AGOURA, CALIFORNIA 91301
(818) 597-0600

DATE: NOVEMBER 28, 2001

	REPORT BODY	APPENDICES					TOTAL
		A	***B***	***C***	***D***	***E***	
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GENERAL REPORT SUMMARY

This electromagnetic emission 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 in any form except in full, without the written permission of Compatible Electronics.

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

Device Tested: 2 Button Transmitter
Model: TXAM01
S/N: None

Product Description: This is a 2 Button Remote Control Transmitter for an automobile alarm.

Modifications: The EUT was not modified during the testing.

Manufacturer: Precision Engineering Industries, Inc.
11627 Cantara Street
North Hollywood, CA 91605

Test Date: October 26, 2001

Test Specifications: EMI requirements
FCC CFR Title 47, Part 15 Subpart C
Test Procedure: ANSI C63.4: 1992.

Test Deviations: The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Radiated RF Emissions, 303.8MHz to 3.038GHz	Complies with the limits of FCC CFR Title 47, Part 15 Subpart C 15.205 and 15.231.

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the 2 Button Transmitter Model: TXAM01. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4: 1992. 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 specification limits defined in FCC CFR Title 47, Subpart C 15.205 and 15.231.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 2337 Troutdale Drive, Agoura, California 91301.

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

Precision Engineering Industries, Inc.

Greg Kellzi	President
Mark Simon	RF Consultant

Compatible Electronics Inc.

Andre D. Khan	Test Technician
Joey J. Madlangbayan	Test Engineer
Ruby A. Hall	Lab Manager

2.4 Date Test Sample was Received

The test sample was received on October 26, 2001.

2.5 Disposition of the Test Sample

The test sample remains at Compatible Electronics, Inc.

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 CFR Title 47, Subpart C.	FCC Rules – Intentional Radiators.
CISPR 16 1993	Specification for radio disturbance and immunity measuring apparatus and methods.
ANSI C63.4 1992	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz.

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - EMI

The EUT was set-up in a tabletop configuration in all the three Orthogonal Axes. The EUT was continuously transmitting.

The highest emissions were found when the EUT was running in the above configuration. The final radiated data was taken in this mode of operation. All initial investigations were performed with the spectrum analyzer in manual mode scanning the frequency range continuously. The EUT was setup and tested as shown in the photographs in Appendix D.

4.1.1 Cable Construction and Termination

There are no external cables connected to the EUT.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT TYPE	MANUFACTURER	MODEL	SERIAL NUMBER
2 BUTTON TRANSMITTER (EUT)	PRECISION ENGINEERING INDUSTRIES, INC.	TXAM01	NONE

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Spectrum Analyzer	Hewlett Packard	8566A	1904A00188	Mar. 05, 2001	Mar. 05, 2002
Quasi-Peak Adapter	Hewlett Packard	85650A	2043A00276	Mar. 05, 2001	Mar. 05, 2002
Preamplifier	Com Power	PA-102	01249	Apr. 06, 2001	Apr. 06, 2002
Log Periodic Antenna	Com Power	AL-100	A101	Apr. 06, 2001	Apr. 06, 2002
Horn Antenna	A. R. A.	DRG 118/A	1015	Feb. 01, 2001	Feb. 01, 2002
Microwave Amplifier	Com Power	PA-122	25137	Apr. 25, 2001	Apr. 25, 2002
Antenna Mast	Com Power	AM-400	N/A	N/A	N/A
Turntable	Com Power	TT-106A	N/A	N/A	N/A
Computer	Hewlett Packard	Pavilion 4530	US91912022	N/A	N/A
Printer	Hewlett Packard	C6427B	MY066160TW	N/A	N/A
(Software) Radiated Emissions Transmitter Data Program	Compatible Electronics	DOC No: EMI_PART15TX-B-0-50	Rev. A	N/A	N/A

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and 7.1.2 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. TEST PROCEDURES

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

7.1 RF Emissions

7.1.1 Conducted Emissions Test

The Spectrum Analyzer was used as a measuring meter along with the quasi-peak adapter. 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 Spectrum Analyzer offset was adjusted accordingly to read the actual data measured. The LISN output was read by the Spectrum Analyzer. The output of the second LISN was terminated by a 50 ohm termination. The effective measurement bandwidth used for the conducted emissions 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: 1992. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The initial test data was taken in manual mode while scanning the frequency ranges of 0.15 MHz to 1.6 MHz, 1.6 MHz to 5 MHz and 5 MHz to 30 MHz. The conducted emissions from the EUT were maximized for operating mode as well as cable placement. Once a predominant frequency (within 12 dB of the limit) was found, it was more closely examined with the spectrum analyzer span adjusted to 1 MHz.

The EUT is a battery-powered unit; therefore this test was not performed.

7.1.2 Radiated Emissions Test

The spectrum analyzer was used as a measuring meter along with a quasi-peak adapter. A Preamplifier was used to increase the sensitivity of the instrument. 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. This final reading is then recorded into the a Computer data recording program, which takes into account the cable loss, amplifier gain and antenna factors, so that a true reading is compared to the true limit. The quasi-peak was used only for those readings, which are marked accordingly on the data sheets. The effective measurement bandwidth used for the radiated emissions test was 120 kHz.

Broadband log periodic and horn antennas were used as transducers during the measurement. The log periodic antenna was used from 300 MHz to 1 GHz and the horn antenna was used from 1 GHz to 3.038 GHz. The frequency spans were wide (300 MHz to 1 GHz and 1 GHz to 3.038GHz) during preliminary investigations. The final data was taken with a frequency span of 1 MHz. Furthermore, the frequency span was reduced during the preliminary investigations as deemed necessary.

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: 1992. 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. 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 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 test distance of 3 meters to obtain final test data. The test data is located in Appendix E.

Preliminary Testing and Monitoring:

Preliminary testing was done at a distance of 1 meter instead of 3 meters to determine the predominant harmonics and spurious emission frequencies. An open field test site was used for the preliminary investigations. Broadband antennas were used to scan large frequency bands while manipulating the X, Y and Z azimuth of the unit. If and when any frequency was found to be above 30 microvolts/meter level (at a 1 meter distance), this frequency was recorded as a significant frequency. All significant frequencies were further examined carefully at a frequency span on the spectrum analyzer while changing the antenna height and EUT orientation. The EUT was tested again at a test distance of 3 meters to obtain the final test data. The bandwidth of the spectrum analyzer was varied to ensure that pulse desensitization did not occur.

7.1.3 RF Emissions Test Results

The fundamental and up to the 10th harmonic emissions are within the specifications.

PRECISION ENGINEERING INDUSTRIES, INC.
2 BUTTON REMOTE CONTROL TRANSMITTER

RADIATED EMISSIONS – SPURIOUS

The following bands were specifically scanned.
Frequency Band 303.8MHz – 3.038GHz

No spurious emissions were found.

RF Energy From 2 Button Transmitter
in MHz at 3 meters (µV/m)

322-335.4	<200
399.9-410	<200
608-614	<200
960-1240	<500
1300-1427	<500
1435-1626.5	<500
1645.5-1646.5	<500
1660-1710	<500
1718.8-1722.2	<500
2200-2300	<500
2310-2390	<500
2483.5-2500	<500
2655-2900	<500

RADIATED EMISSION – BANDWIDTH

The bandwidth of the emission (20dB from the modulated carrier peak) was less than 0.25% of the 303.8 MHz center frequency and was measured as 26.9 kHz. See Appendix E for the plot.

8. CONCLUSIONS

The 2 Button Transmitter Model: TXAM01 meets all of the requirements of the FCC CFR, Title 47, Part 15, Subpart C 15.205 and 15.231.

APPENDIX A

LABORATORY ACCREDITATIONS

LABORATORY ACCREDITATIONS

Compatible Electronics has the following agency accreditations:

National Voluntary Laboratory Accreditation Program - Lab Code: 200063-0

Voluntary Control Council for Interference - Registration Numbers: R-826, C-862, R-653 and C-669

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

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

Federal Communications Commission

Industry Canada

Radio-Frequency Technologies (Competent Body)

Technology International (Europe) Ltd.

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

There were no modifications made to the EUT during the test.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

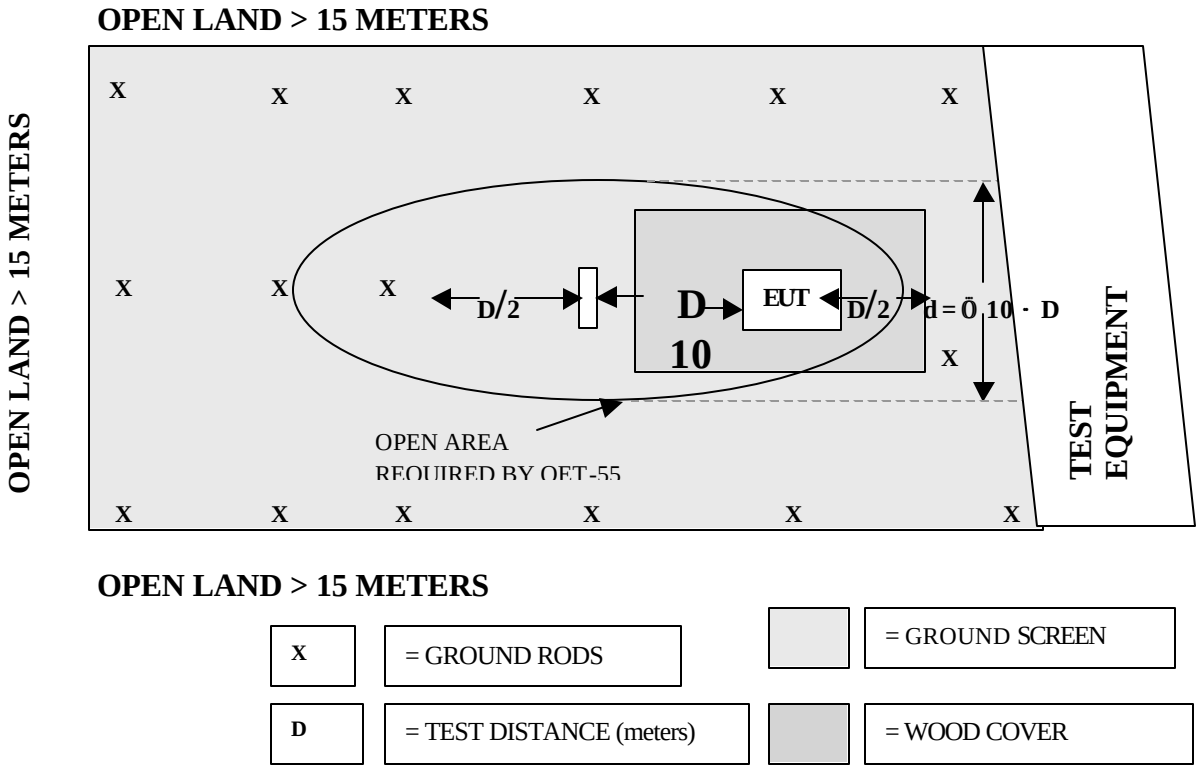
USED FOR THE PRIMARY TEST	2 BUTTON TRANSMITTER Model: TXAM01

There were no additional models covered under this report.

APPENDIX D

DIAGRAMS, CHARTS AND PHOTOS

FIGURE 1: PLOT MAP AND LAYOUT OF RADIATED SITE



COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: A101

CALIBRATION DATE: APRIL 6, 2001

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	12.80	700	19.00
400	16.40	800	22.18
500	16.30	900	21.50
600	18.00	1000	23.40

COM-POWER PA-102

PREAMPLIFIER

S/N: 1249

CALIBRATION DATE: APRIL 6, 2001

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	36.7	300	36.4
40	36.6	350	36.5
50	36.5	400	36.2
60	36.6	450	36.0
70	36.8	500	36.0
80	36.7	550	36.0
90	36.7	600	35.8
100	36.5	650	35.7
125	36.7	700	36.1
150	36.6	750	35.6
175	36.6	800	35.4
200	36.8	850	35.8
225	36.7	900	35.3
250	36.5	950	35.0
275	36.2	1000	35.1

COM-POWER PA-122

PREAMPLIFIER

S/N: 25137

CALIBRATION DATE: APRIL 25, 2001

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
1000	35.3	7000	32.1
1100	34.7	7500	33.9
1200	34.3	8000	32.7
1300	34.0	8500	33.3
1400	33.8	9000	30.4
1500	33.9	9500	31.4
1600	33.5	10000	28.1
1700	33.3	11000	30.8
1800	33.5	12000	30.1
1900	35.2	13000	29.1
2000	34.4	14000	32.2
2500	33.5	15000	30.0
3000	33.2	16000	31.2
3500	33.2	17000	32.5
4000	33.1	18000	30.3
4500	32.4	19000	30.1
5000	32.4	20000	30.7
5500	33.6	21000	29.2
6000	33.7	22000	26.7
6500	33.7		

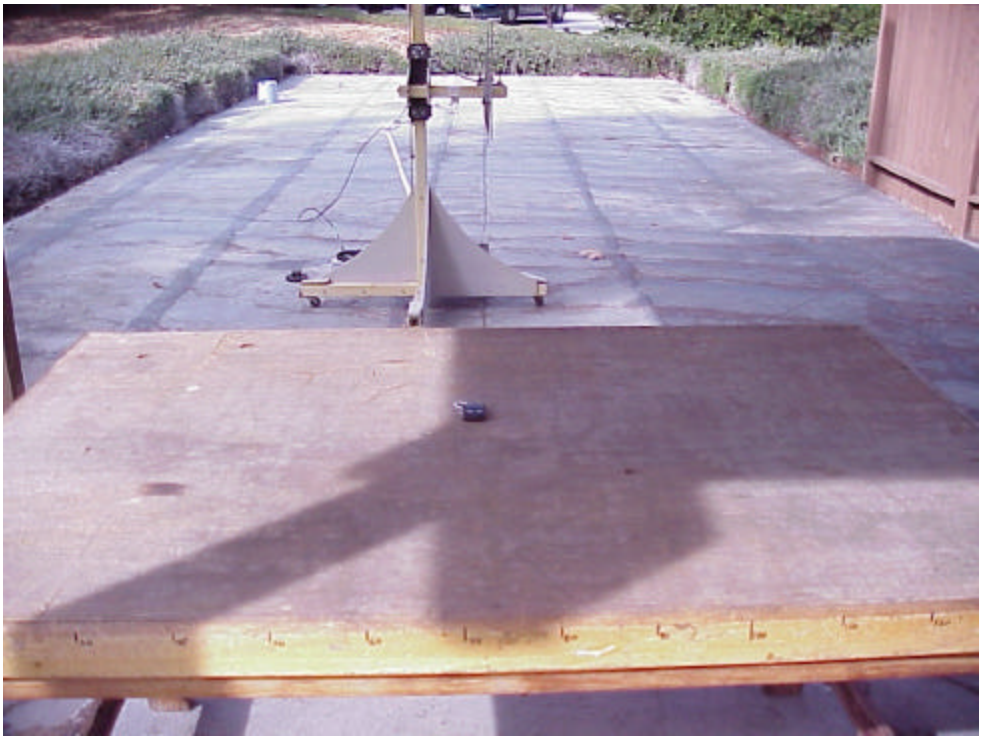
A.R.A DRG-118/A

HORN ANTENNA

S/N: 1015

CALIBRATION DATE: FEBRUARY 1, 2001

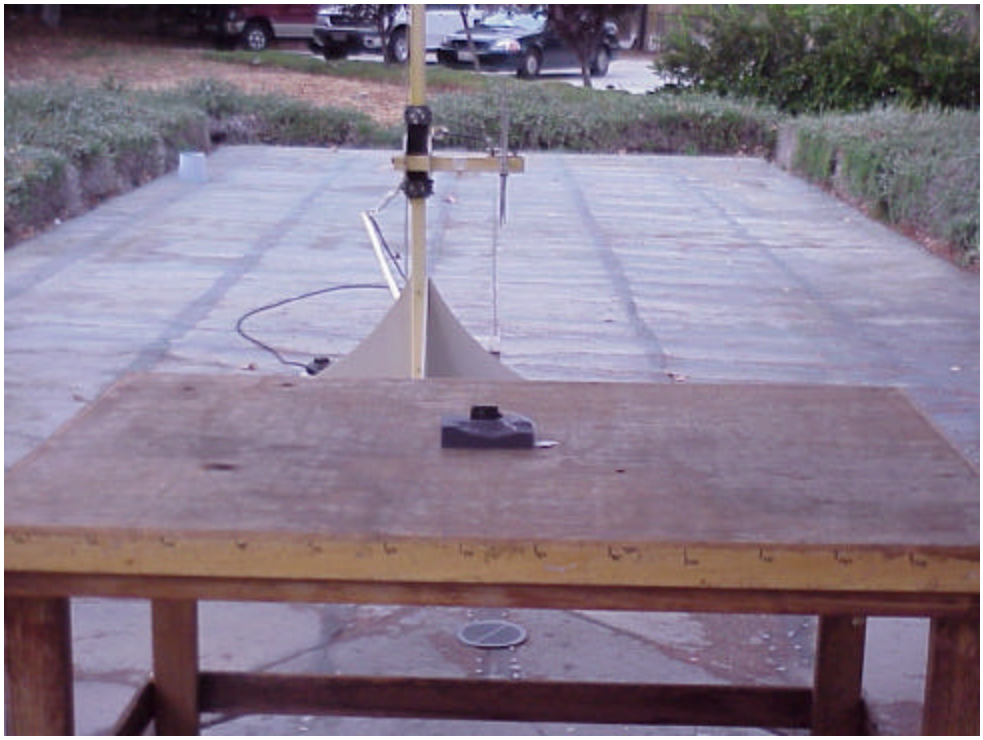
FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
1000	25.7	10000	40.4
1500	26.7	10500	41.8
2000	29.4	11000	41.1
2500	30.7	11500	41.7
3000	31.0	12000	43.5
3500	32.0	12500	43.1
4000	32.7	13000	41.3
4500	33.0	13500	40.5
5000	35.1	14000	40.5
5500	35.1	14500	42.5
6000	36.4	15000	43.5
6500	36.4	15500	42.5
7000	39.0	16000	42.9
7500	39.1	16500	41.2
8000	38.2	17000	41.2
8500	38.1	17500	43.8
9000	40.4	18000	45.5
9500	39.8		



X - AXIS

PRECISION ENGINEERING INDUSTRIES, INC.
2 BUTTON TRANSMITTER
Model: TXAM01
FCC PART 15 SUBPART C - RADIATED EMISSIONS – 10-26-01

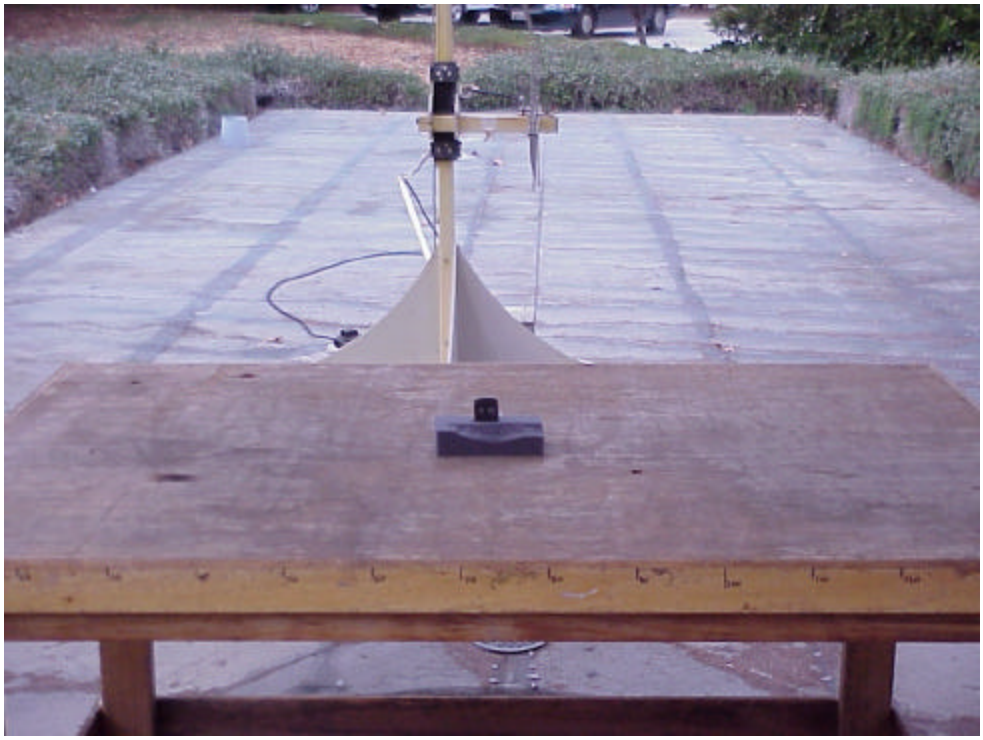
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



Y - AXIS

PRECISION ENGINEERING INDUSTRIES, INC.
2 BUTTON TRANSMITTER
Model: TXAM01
FCC PART 15 SUBPART C - RADIATED EMISSIONS – 10-26-01

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



Z - AXIS

PRECISION ENGINEERING INDUSTRIES, INC.
2 BUTTON TRANSMITTER
Model: TXAM01
FCC PART 15 SUBPART C - RADIATED EMISSIONS – 10-26-01

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

DATA SHEETS

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	Precision Engineering Industries, Inc.	DATE	10/26/01
EUT	303.8 MHz RF Transmitter	DUTY CYCLE	32.00 %
MODEL	TXAM01	PEAK TO AVG	-9.90 dB
S/N	0	TEST DIST.	3 METERS
TEST ENGINEER	Andre D. Khan	LAB	F

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
303.8000	91.3	81.4 A	H	3.0	270	X	LOW	12.9	4.0	36.4	62.0	-13.0	74.9	
303.8000	88.5	78.6 A	H	3.0	180	Y	LOW	12.9	4.0	36.4	59.2	-15.8	74.9	
303.8000	88.0	78.1 A	H	3.0	95	Z	LOW	12.9	4.0	36.4	58.7	-16.3	74.9	
303.8000	74.8	A	V	3.0	90	X	LOW	12.9	4.0	36.4	55.4	-19.6	74.9	
303.8000	93.0	83.1 A	V	3.0	270	Y	LOW	12.9	4.0	36.4	63.7	-11.3	74.9	
303.8000	81.9	A	V	1.0	180	Z	LOW	12.9	4.0	36.4	62.5	-12.5	74.9	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	Precision Engineering Industries, Inc.	DATE	10/26/01
EUT	303.8 MHz RF Transmitter	DUTY CYCLE	32.00 %
MODEL	TXAM01	PEAK TO AVG	-9.90 dB
S/N	0	TEST DIST.	3 METERS
TEST ENGINEER	Andre D. Khan	LAB	F

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
607.6000	56.9	A	H	3.0	270	X	LOW	18.1	5.6	35.8	44.8	-10.1	54.9	
607.6000	54.2	A	H	2.5	180	Y	LOW	18.1	5.6	35.8	42.1	-12.8	54.9	
607.6000	50.4	A	H	3.0	100	Z	LOW	18.1	5.6	35.8	38.3	-16.6	54.9	
607.6000	49.0	A	V	1.0	95	X	LOW	18.1	5.6	35.8	36.9	-18.0	54.9	
607.6000	53.4	A	V	3.0	270	Y	LOW	18.1	5.6	35.8	41.3	-13.6	54.9	
607.6000	57.1	A	V	1.0	180	Z	LOW	18.1	5.6	35.8	45.0	-9.9	54.9	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	Precision Engineering Industries, Inc.	DATE	10/26/01
EUT	303.8 MHz RF Transmitter	DUTY CYCLE	32.00 %
MODEL	TXAM01	PEAK TO AVG	-9.90 dB
S/N	0	TEST DIST.	3 METERS
TEST ENGINEER	Andre D. Khan	LAB	F

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
911.4000	45.4	A	H	3.0	270	X	LOW	21.7	7.2	35.2	39.0	-15.9	54.9	
911.4000	41.6	A	H	3.0	180	Y	LOW	21.7	7.2	35.2	35.2	-19.7	54.9	
911.4000	39.4	A	H	2.5	95	Z	LOW	21.7	7.2	35.2	33.0	-21.9	54.9	
911.4000	41.6	A	V	1.5	90	X	LOW	21.7	7.2	35.2	35.2	-19.7	54.9	
911.4000	43.3	A	V	2.5	180	Y	LOW	21.7	7.2	35.2	36.9	-18.0	54.9	
911.4000	47.4	A	V	1.5	270	Z	LOW	21.7	7.2	35.2	41.0	-13.9	54.9	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	Precision Engineering Industries, Inc.	DATE	10/26/01
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1215.2000	40.2	A	H	3.5	90	X	LOW	26.1	5.2	34.3	37.2	-16.7	53.9	
1215.2000	38.5	A	H	3.5	180	Y	LOW	26.1	5.2	34.3	35.5	-18.4	53.9	
1215.2000	35.1	A	H	3.0	270	Z	LOW	26.1	5.2	34.3	32.1	-21.8	53.9	
1215.2000	32.9	A	V	1.0	180	X	LOW	26.1	5.2	34.3	29.9	-24.0	53.9	
1215.2000	34.4	A	V	1.0	120	Y	LOW	26.1	5.2	34.3	31.4	-22.5	53.9	
1215.2000	36.0	A	V	1.0	90	Z	LOW	26.1	5.2	34.3	33.0	-20.9	53.9	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	Precision Engineering Industries, Inc.	DATE	10/26/01
EUT	303.8 MHz RF Transmitter	DUTY CYCLE	32.00 %
MODEL	TXAM01	PEAK TO AVG	-9.90 dB
S/N	0	TEST DIST.	3 METERS
TEST ENGINEER	Andre D. Khan	LAB	F

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
1519.0000	40.5	A	H	3.5	90	X	LOW	26.8	6.2	33.8	39.7	-14.2	53.9	
1519.0000	42.0	A	H	3.5	180	Y	LOW	26.8	6.2	33.8	41.2	-12.7	53.9	
1519.0000	36.0	A	H	3.0	270	Z	LOW	26.8	6.2	33.8	35.2	-18.7	53.9	
1519.0000	36.3	A	V	1.0	160	X	LOW	26.8	6.2	33.8	35.5	-18.4	53.9	
1519.0000	33.6	A	V	1.0	120	Y	LOW	26.8	6.2	33.8	32.8	-21.1	53.9	
1519.0000	34.4	A	V	1.0	90	Z	LOW	26.8	6.2	33.8	33.6	-20.3	53.9	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	Precision Engineering Industries, Inc.	DATE	10/26/01
EUT	303.8 MHz RF Transmitter	DUTY CYCLE	32.00 %
MODEL	TXAM01	PEAK TO AVG	-9.90 dB
S/N	0	TEST DIST.	3 METERS
TEST ENGINEER	Andre D. Khan	LAB	F

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
1822.8000	38.6	A	H	2.5	90	X	LOW	28.5	5.5	33.9	38.7	-16.2	54.9	
1822.8000	35.4	A	H	3.5	180	Y	LOW	28.5	5.5	33.9	35.5	-19.4	54.9	
1822.8000	34.7	A	H	3.5	270	Z	LOW	28.5	5.5	33.9	34.8	-20.1	54.9	
1822.8000	35.4	A	V	1.0	100	X	LOW	28.5	5.5	33.9	35.5	-19.4	54.9	
1822.8000	34.1	A	V	1.0	120	Y	LOW	28.5	5.5	33.9	34.2	-20.7	54.9	
1822.8000	35.6	A	V	1.0	90	Z	LOW	28.5	5.5	33.9	35.7	-19.2	54.9	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	Precision Engineering Industries, Inc.	DATE	10/26/01
EUT	303.8 MHz RF Transmitter	DUTY CYCLE	32.00 %
MODEL	TXAM01	PEAK TO AVG	-9.90 dB
S/N	0	TEST DIST.	3 METERS
TEST ENGINEER	Andre D. Khan	LAB	F

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2126.6000	39.2	A	H	3.0	90	X	LOW	29.7	6.9	34.2	41.6	-13.3	54.9	
2126.6000	34.2	A	H	3.5	180	Y	LOW	29.7	6.9	34.2	36.6	-18.3	54.9	
2126.6000	35.9	A	H	3.5	270	Z	LOW	29.7	6.9	34.2	38.3	-16.6	54.9	
2126.6000	35.1	A	V	1.0	270	X	LOW	29.7	6.9	34.2	37.5	-17.4	54.9	
2126.6000	34.0	A	V	1.0	120	Y	LOW	29.7	6.9	34.2	36.4	-18.5	54.9	
2126.6000	34.4	A	V	1.0	90	Z	LOW	29.7	6.9	34.2	36.8	-18.1	54.9	

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** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	Precision Engineering Industries, Inc.	DATE	10/26/01
EUT	303.8 MHz RF Transmitter	DUTY CYCLE	32.00 %
MODEL	TXAM01	PEAK TO AVG	-9.90 dB
S/N	0	TEST DIST.	3 METERS
TEST ENGINEER	Andre D. Khan	LAB	F

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2430.4000	38.0	A	H	3.0	90	X	LOW	30.5	7.6	33.6	42.5	-12.4	54.9	
2430.4000	37.3	A	H	3.5	180	Y	LOW	30.5	7.6	33.6	41.8	-13.1	54.9	
2430.4000	35.9	A	H	3.0	270	Z	LOW	30.5	7.6	33.6	40.4	-14.5	54.9	
2430.4000	35.3	A	V	1.0	160	X	LOW	30.5	7.6	33.6	39.8	-15.1	54.9	
2430.4000	34.5	A	V	1.0	120	Y	LOW	30.5	7.6	33.6	39.0	-15.9	54.9	
2430.4000	31.2	A	V	1.0	90	Z	LOW	30.5	7.6	33.6	35.7	-19.2	54.9	

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** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	Precision Engineering Industries, Inc.	DATE	10/26/01
EUT	303.8 MHz RF Transmitter	DUTY CYCLE	32.00 %
MODEL	TXAM01	PEAK TO AVG	-9.90 dB
S/N	0	TEST DIST.	3 METERS
TEST ENGINEER	Andre D. Khan	LAB	F

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2734.2000	37.6	A	H	3.0	180	X	LOW	30.8	8.0	33.4	43.1	-10.8	53.9	
2734.2000	36.6	A	H	3.0	270	Y	LOW	30.8	8.0	33.4	42.1	-11.8	53.9	
2734.2000	35.8	A	H	3.0	200	Z	LOW	30.8	8.0	33.4	41.3	-12.6	53.9	
2734.2000	36.2	A	V	1.0	180	X	LOW	30.8	8.0	33.4	41.7	-12.2	53.9	
2734.2000	33.2	A	V	1.0	120	Y	LOW	30.8	8.0	33.4	38.7	-15.2	53.9	
2734.2000	34.7	A	V	1.0	90	Z	LOW	30.8	8.0	33.4	40.2	-13.7	53.9	

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** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.231)

COMPANY	Precision Engineering Industries, Inc.	DATE	10/26/01
EUT	303.8 MHz RF Transmitter	DUTY CYCLE	32.00 %
MODEL	TXAM01	PEAK TO AVG	-9.90 dB
S/N	0	TEST DIST.	3 METERS
TEST ENGINEER	Andre D. Khan	LAB	F

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
3038.0000	35.7	A	H	3.0	180	X	LOW	31.1	8.9	33.2	42.5	-12.4	54.9	
3038.0000	34.3	A	H	3.0	180	Y	LOW	31.1	8.9	33.2	41.1	-13.8	54.9	
3038.0000	36.0	A	H	3.0	270	Z	LOW	31.1	8.9	33.2	42.8	-12.1	54.9	
3038.0000	33.1	A	V	1.0	180	X	LOW	31.1	8.9	33.2	39.9	-15.0	54.9	
3038.0000	32.4	A	V	1.0	120	Y	LOW	31.1	8.9	33.2	39.2	-15.7	54.9	
3038.0000	34.3	A	V	1.0	90	Z	LOW	31.1	8.9	33.2	41.1	-13.8	54.9	

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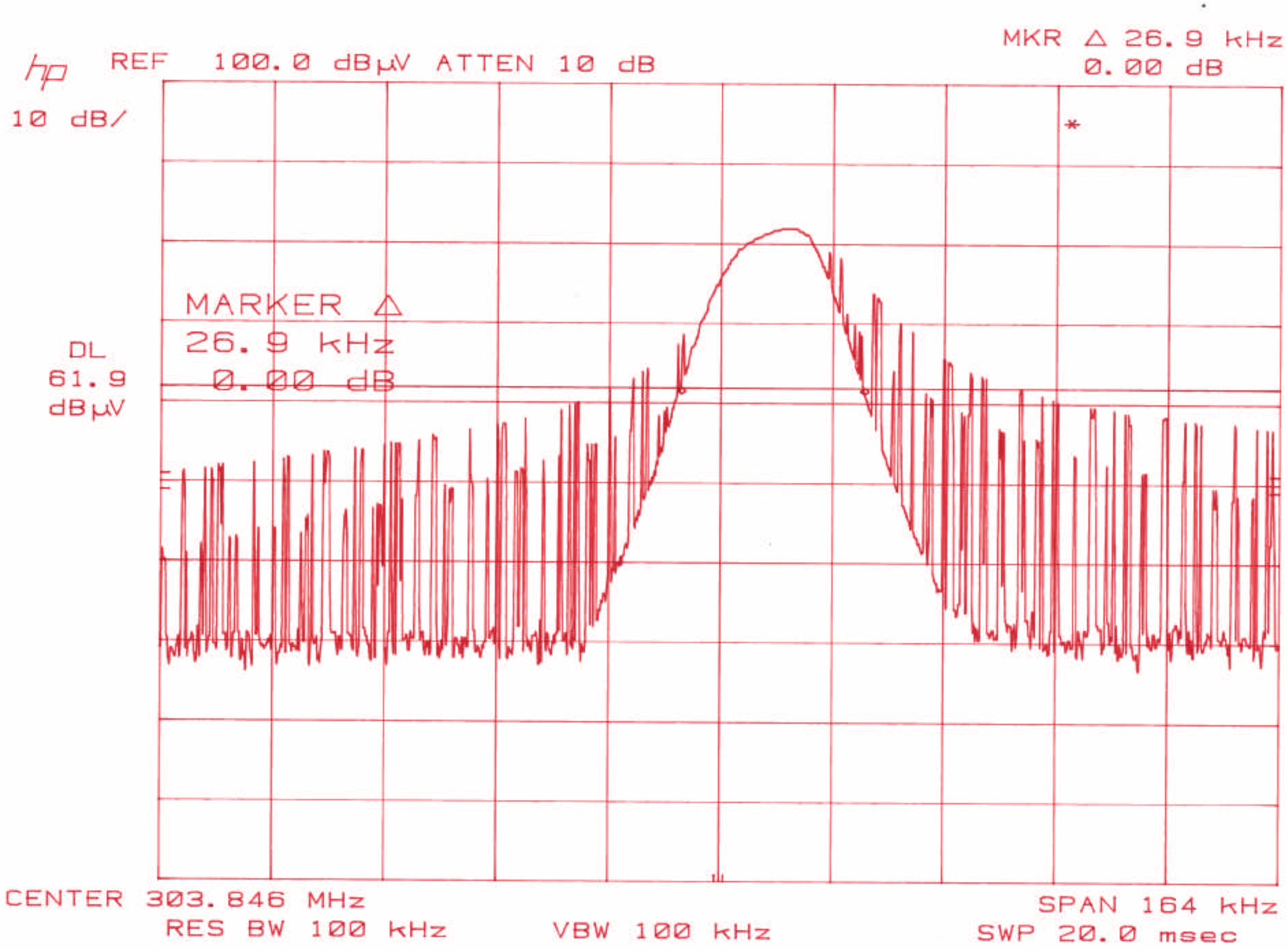
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0.00 dB
10 dB/
MARKER Δ
26.9 kHz
0.00 dB
DL
61.9
dBµV
CENTER 303.846 MHz
RES BW 100 kHz
VBW 100 kHz
SPAN 164 kHz
SWP 20.0 msec