FCC PART 15, SUBPART C
TEST REPORT

for

KEYPAD TRANSMITTER

Model: KP2000

Prepared for

EXPERTCOMM, LLC
9920 S. RURAL ROAD, SUITE 108, BOX 29
TEMPE, ARIZONA 85284

Prepared by: _____

KYLE FUJIMOTO

Approved by: _____

SCOTT McCUTCHAN

COMPATIBLE ELECTRONICS INC.
114 OLINDA DRIVE
BREA, CALIFORNIA 92823
(714) 579-0500

DATE: DECEMBER 22, 2000

	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 in any form unless done so in full with 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:	Keypad Transmitter Model: KP2000 P/N: 30700
Product Description:	See Expository Statement.
Modifications:	The EUT was modified during the testing. Please see Appendix A for a list of the modifications.
Manufacturer:	ExpertComm, LLC 9920 S. Rural Road, Suite 108, Box 29 Tempe, Arizona 85284
Test Dates:	December 19 and 20, 2000
File # For Canada:	IC2154-D
Test Specifications:	EMI requirements CFR Title 47, Part 15 Subpart C, Sections 15.205, 15.209, and 15.249
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	Conducted RF Emissions, 450 kHz - 30 MHz	This test was not performed because the EUT is powered by a nine volt battery only.
2	Radiated RF Emissions, 10 kHz - 9300 MHz	Complies with the limits of CFR Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.249

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Keypad Transmitter Model: KP2000. 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 by CFR Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.249.

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

ExpertComm, LLC

Mike Saaty	President

Compatible Electronics Inc.

Kyle Fujimoto	Test Engineer
Scott McCutchan	Lab Manager

2.4 Date Test Sample was Received

The test sample was received on December 19, 2000.

2.5 Disposition of the Test Sample

The test sample was returned to ExpertComm, LLC on December 20, 2000.

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
CFR Title 47, Subpart C.	FCC Rules – Radio frequency devices (including digital devices) – Intentional Radiators
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

Specifics of the EUT and Peripherals Tested

The Keypad Transmitter Model: KP2000 (EUT) was tested as a stand alone unit. The EUT was continuously transmitting. The antenna is soldered (hard wired) onto the PCB, which is inside the case.

The final radiated data was taken in the configuration described above. Please see Appendix D for the data sheets.

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	MANUFACTURER	MODEL NUMBER	PART NUMBER	FCC ID
KEYPAD TRANSMITTER (EUT)	EXPERTCOMM, LLC	KP2000	N/A	**PFH-KP2K**

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Spectrum Analyzer	Hewlett Packard	8566B	3701A22262	June 24, 2000	June 24, 2001
Preamplifier	Com Power	PA-102	1017	Jan. 11, 2000	Jan. 11, 2001
Quasi-Peak Adapter	Hewlett Packard	85650A	2811A01363	June 24, 2000	June 24, 2001
Biconical Antenna	Com Power	AB-100	1548	Oct. 16, 2000	Oct. 16, 2001
Log Periodic Antenna	Com Power	AL-100	16101	Oct. 16, 2000	Oct. 16, 2001
Turntable	Com Power	TT-100	N/A	N/A	N/A
Computer	Hewlett Packard	HP98561A	2522A05178	N/A	N/A
Printer	Hewlett Packard	2225A	2925S33268	N/A	N/A
Plotter	Hewlett Packard	7440A	8726K38417	N/A	N/A
Microwave Preamplifier	Com-Power	PA-122	25195	Jan. 13, 2000	Jan. 13, 2001
Horn Antenna	Antenna Research	DRG-118/A	1053	Dec. 8, 1995	N/A
Loop Antenna	Com-Power	AL-130	25309	May 25, 2000	May 25, 2001

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. 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 Radiated Emissions (Spurious and Harmonics) Test

The spectrum analyzer was 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-102 was used for frequencies from 30 MHz to 1 GHz, and the Com Power Microwave Preamplifier Model: PA-122 was used for frequencies above 1 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.

For the peak readings below 1000 MHz that were within 3 dB of the spec limit or higher, the quasi-peak adapter was used.

For the peak readings above 1000 MHz that were within 3dB of the spec limit or higher, the readings were averaged manually by narrowing the video filter down to 10 Hz and slowing the sweep time to keep the amplitude reading calibrated.

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

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
9 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 9.3 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: 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 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 to obtain final test data. The final qualification data sheets are located in Appendix D.

7.2 Band Edge Plots of the Low and High Channels

Spectral plots of both the low and high channels were taken of the EUT to show that the emissions at the band edges (902 and 928 MHz) were attenuated by at least 50 dB below the level of the fundamental or to the general radiated emissions limits in FCC Title 47, Subpart C, section 15.209, whichever is the lesser attenuation. A preamplifier was used to boost the signal level at the band edges for easier comparison to the spec limit. The spectral plots are located in Appendix D.

8. CONCLUSIONS

The Keypad Transmitter Model: KP2000 meets all of the specification limits defined in CFR Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.249.

APPENDIX A

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC 15.249 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.

1) Add a 4 dB tee attenuator consisting of R11 (12 ohm), R12 (100 ohm), and R13 (12 ohm)

APPENDIX B

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST	Keypad Transmitter Model: KP2000 S/N: N/A

There were no additional models covered under this report.

APPENDIX C

DIAGRAMS, CHARTS AND PHOTOS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

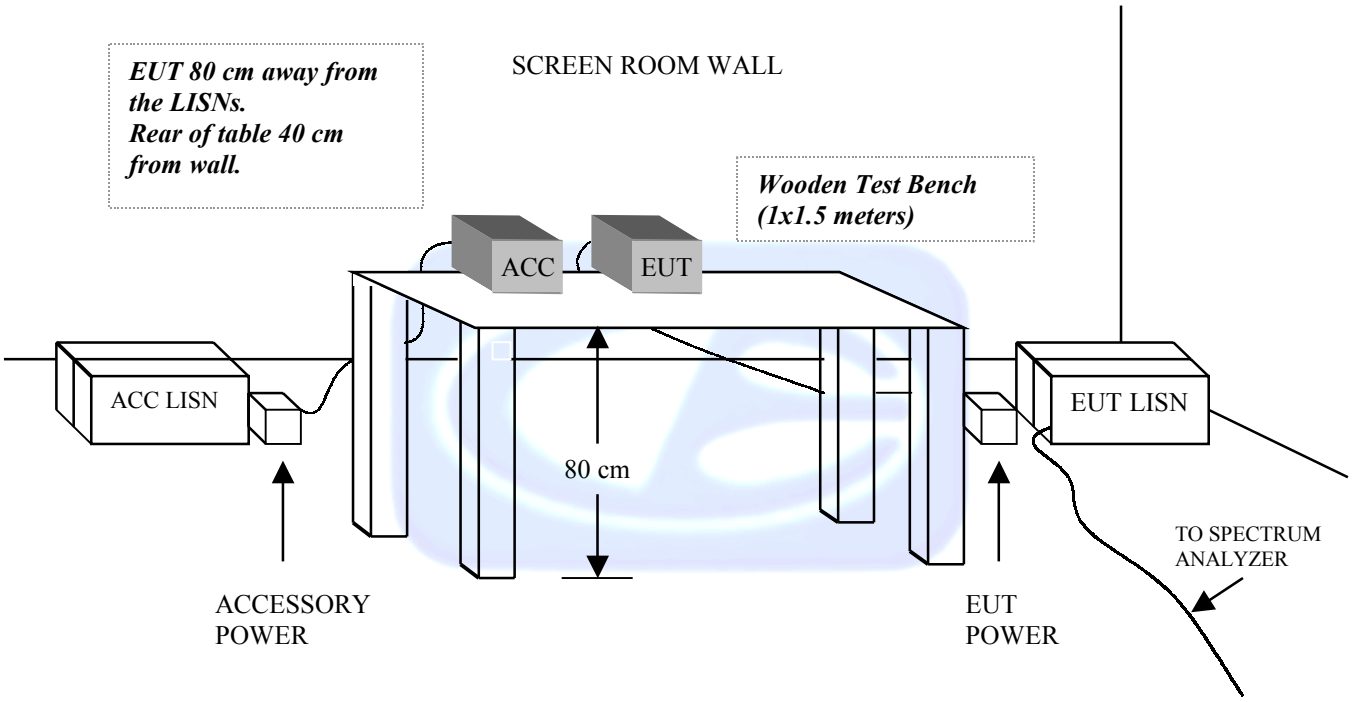
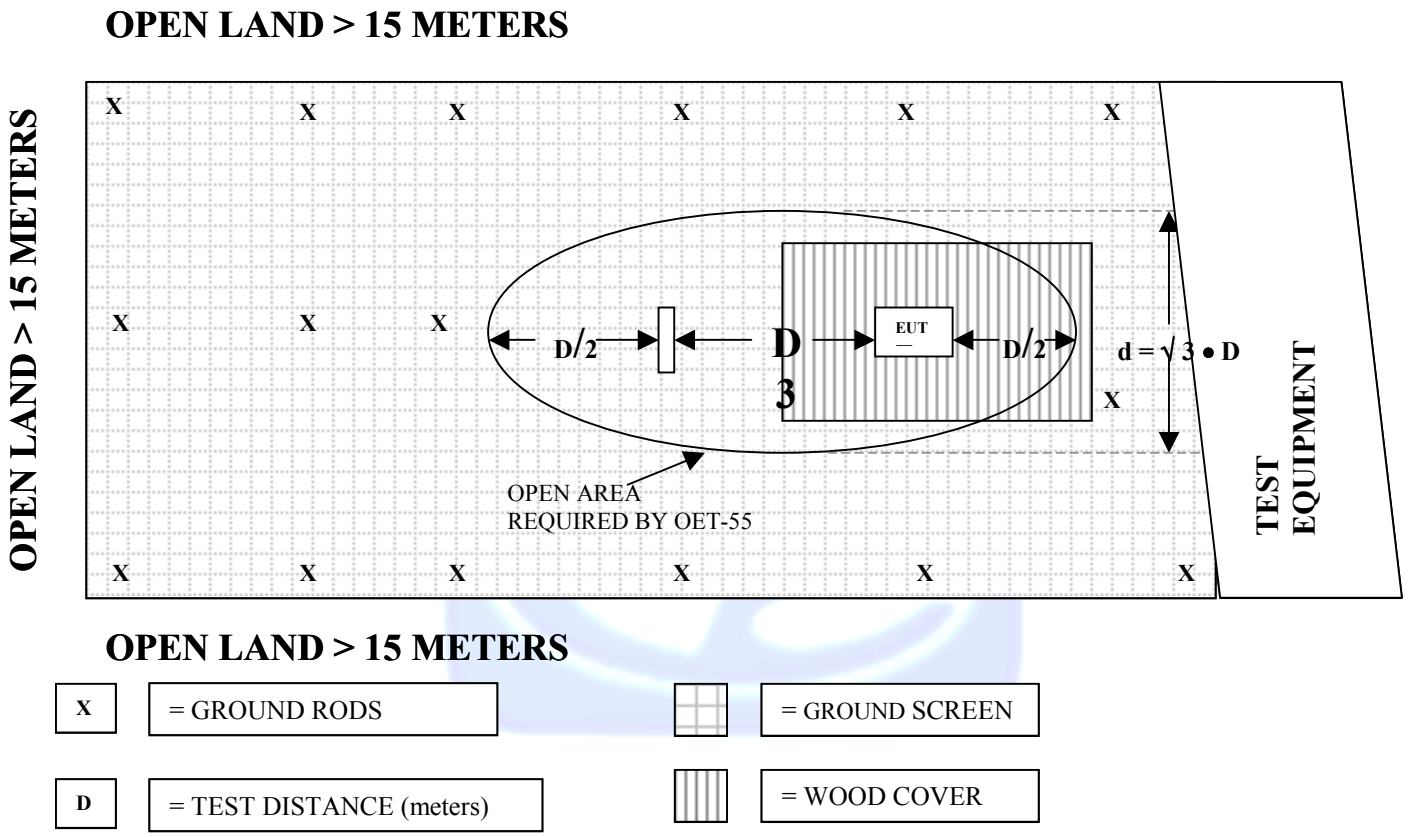


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE



FRONT VIEW

EXPERTCOMM, LLC
KEYPAD TRANSMITTER
MODEL: KP2000
FCC SUBPART C - RADIATED EMISSIONS – 12-19-00

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

EXPERTCOMM, LLC
KEYPAD TRANSMITTER
MODEL: KP2000
FCC SUBPART C - RADIATED EMISSIONS – 12-19-00

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

COM-POWER AB-100

BICONICAL ANTENNA

S/N: 01548

CALIBRATION DATE: OCTOBER 16, 2000

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	14.01	120	10.33
35	13.63	125	11.61
40	13.26	140	12.70
45	11.62	150	12.95
50	11.03	160	13.58
60	8.52	175	14.82
70	8.94	180	14.84
80	8.17	200	14.80
90	8.08	250	16.42
100	8.64	300	20.26

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16101

CALIBRATION DATE: OCTOBER 16, 2000

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	12.96	700	19.24
400	16.92	800	21.37
500	16.73	900	22.13
600	16.32	1000	22.19

COM-POWER PA-102

PREAMPLIFIER

S/N: 1017

CALIBRATION DATE: JANUARY 11, 2000

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	38.3	300	38.6
40	38.6	350	38.6
50	38.7	400	38.6
60	38.8	450	38.1
70	38.9	500	37.9
80	38.8	550	39.2
90	38.6	600	38.3
100	38.6	650	38.4
125	38.8	700	38.3
150	38.8	750	38.2
175	38.7	800	37.7
200	38.8	850	37.5
225	38.6	900	37.5
250	38.6	950	37.7
275	38.5	1000	37.3

COM-POWER PA-122

MICROWAVE PREAMPLIFIER

S/N: 25195

CALIBRATION DATE: JANUARY 13, 2000

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	34.4	9.0	30.7
1.1	34.1	9.5	31.5
1.2	34.2	10.0	31.0
1.3	34.1	10.5	31.4
1.4	33.9	11.0	30.7
1.5	33.8	11.5	29.5
1.6	33.0	12.0	27.8
1.7	33.3	12.5	31.4
1.8	33.3	13.0	31.0
1.9	31.9	13.5	31.0
2.0	32.7	14.0	31.5
2.5	31.8	14.5	30.2
3.0	31.7	15.0	29.2
3.5	31.9	15.5	30.1
4.0	31.0	16.0	29.0
4.5	31.4	16.5	27.8
5.0	31.1	17.0	30.8
5.5	31.0	17.5	31.5
6.0	32.0	18.0	30.8
6.5	31.6		
7.0	32.3		
7.5	32.9		
8.0	32.1		
8.5	31.6		

ANTENNA RESEARCH ASSOCIATES, INC.
11317 Frederick Avenue, Beltsville, MD 20705

E-FIELD ANTENNA FACTOR CALIBRATION

E(dB V/m) = Vo(dB V) + AFE(dB/m)

Model number : DRG-118/A

Frequency GHz	AFE dB/m	Gain dBi
1	22.3	8.0
2	26.7	9.5
3	29.7	10.1
4	29.5	12.8
5	32.3	12.0
6	32.4	13.4
7	36.1	11.0
8	37.4	10.9
9	36.8	12.5
10	39.5	10.7
11	39.6	11.5
12	39.8	12.0
13	39.7	12.8
14	41.8	11.3
15	41.9	11.9
16	38.1	16.3
17	41.0	13.9
18	46.5	8.9

Serial number : 1053
Job number : 96-092
Remarks : 3 meter calibration
Standards : LPD-118/A, TE-1000

Temperature : 72° F
Humidity : 56 %
Traceability : A01887
Date : December 08, 1995

Calibrated By

Com-Power Corporation

(949) 587-9800

Antenna Calibration

Antenna Type:	Loop Antenna
Model:	AL-130
Serial Number:	25309
Calibration Date:	05/25/00

Frequency MHz	Magnetic (dB/m)	Electric dB/m
0.009	-41.0	10.5
0.01	-41.0	10.5
0.02	-41.9	9.6
0.05	-41.9	9.6
0.075	-41.8	9.7
0.1	-42.2	9.3
0.15	-42.2	9.3
0.25	-40.7	10.8
0.5	-42.1	9.4
0.75	-40.9	10.6
1	-41.3	10.2
2	-40.8	10.7
3	-41.1	10.4
4	-41.2	10.3
5	-40.7	10.8
10	-40.6	10.9
15	-42.0	9.5
20	-42.0	9.5
25	-42.9	8.6
30	-42.3	9.2

Trans. Antenna Height	2 meter
Receiving Antenna Height	2 meter

APPENDIX D

DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	**ExpertComm, LLC**	**DATE**	**12/19/00**
EUT	**KEYPAD TRANSMITTER**	**DUTY CYCLE**	**N/A**
MODEL	**KP2000**	**PEAK TO AVG**	**N/A**
S/N	**N/A**	**TEST DIST.**	**3 METERS**
TEST ENGINEER	**KYLE FUJIMOTO**	**LAB**	**D**

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
903.3000	67.0	66.9 QP	H	1.0	90	X	LOW	22.1	4.6	0.0	**93.6**	**-0.5**	**94.0**	
903.3000	55.8	55.7 QP	H	1.0	0	Y	LOW	22.1	4.6	0.0	**82.4**	**-11.7**	**94.0**	
903.3000	67.1	67.0 QP	H	1.0	0	Z	LOW	22.1	4.6	0.0	**93.7**	**-0.4**	**94.0**	
903.3000	61.0	60.9 QP	V	1.0	90	X	LOW	22.1	4.6	0.0	**87.6**	**-6.5**	**94.0**	
903.3000	67.1	67.0 QP	V	1.0	0	Y	LOW	22.1	4.6	0.0	**93.7**	**-0.4**	**94.0**	
903.3000	58.2	58.1 QP	V	2.0	0	Z	LOW	22.1	4.6	0.0	**84.8**	**-9.3**	**94.0**	
912.3000	67.0	66.8 QP	H	1.0	90	X	MED.	22.1	4.6	0.0	**93.5**	**-0.5**	**94.0**	
912.3000	52.7	52.6 QP	H	1.0	0	Y	MED.	22.1	4.6	0.0	**79.3**	**-14.8**	**94.0**	
912.3000	66.9	66.7 QP	H	1.0	90	Z	MED.	22.1	4.6	0.0	**93.4**	**-0.6**	**94.0**	
912.3000	56.5	56.0 QP	V	1.5	270	X	MED.	22.1	4.6	0.0	**82.7**	**-11.4**	**94.0**	
912.3000	67.1	66.7 QP	V	1.0	0	Y	MED.	22.1	4.6	0.0	**93.4**	**-0.6**	**94.0**	
912.3000	58.5	58.2 QP	V	1.0	90	Z	MED.	22.1	4.6	0.0	**84.9**	**-9.1**	**94.0**	
921.3000	66.2	66.0 QP	H	1.0	90	X	HIGH	22.1	4.6	0.0	**92.7**	**-1.3**	**94.0**	
921.3000	53.5	53.3 QP	H	1.0	90	Y	HIGH	22.1	4.6	0.0	**80.0**	**-14.0**	**94.0**	
921.3000	66.5	66.3 QP	H	1.0	90	Z	HIGH	22.1	4.6	0.0	**93.0**	**-1.0**	**94.0**	
921.3000	60.6	60.4 QP	V	1.0	90	X	HIGH	22.1	4.6	0.0	**87.1**	**-6.9**	**94.0**	
921.3000	67.3	67.1 QP	V	1.0	0	Y	HIGH	22.1	4.6	0.0	**93.8**	**-0.2**	**94.0**	
921.3000	59.0	58.9 QP	V	1.0	90	Z	HIGH	22.1	4.6	0.0	**85.6**	**-8.4**	**94.0**	

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

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	**ExpertComm, LLC**	**DATE**	**12/19/00**
EUT	**KEYPAD TRANSMITTER**	**DUTY CYCLE**	**N/A**
MODEL	**KP2000**	**PEAK TO AVG**	**N/A**
S/N	**N/A**	**TEST DIST.**	**3 METERS**
TEST ENGINEER	**KYLE FUJIMOTO**	**LAB**	**D**

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
1806.6000	56.4	55.9 A	H	1.0	90	X	LOW	24.5	3.5	33.3	**50.6**	**-3.4**	**54.0**	
1806.6000	58.3	58.0 A	H	1.5	90	Y	LOW	24.5	3.5	33.3	**52.7**	**-1.3**	**54.0**	
1806.6000	55.9	A	H	3.0	270	Z	LOW	24.5	3.5	33.3	**50.6**	**-3.4**	**54.0**	
1806.6000	57.7	57.4 A	V	1.5	180	X	LOW	24.5	3.5	33.3	**52.1**	**-1.9**	**54.0**	
1806.6000	56.3	56.2 A	V	1.0	90	Y	LOW	24.5	3.5	33.3	**50.9**	**-3.1**	**54.0**	
1806.6000	56.3	55.9 A	V	1.0	180	Z	LOW	24.5	3.5	33.3	**50.6**	**-3.4**	**54.0**	
1824.6000	55.3	A	H	1.0	90	X	MED.	24.5	3.5	33.3	**50.0**	**-4.0**	**54.0**	
1824.6000	56.9	56.6 A	H	1.0	90	Y	MED.	24.5	3.5	33.3	**51.3**	**-2.7**	**54.0**	
1824.6000	49.5	A	H	1.0	90	Z	MED.	24.5	3.5	33.3	**44.2**	**-9.8**	**54.0**	
1824.6000	54.8	A	V	1.0	90	X	MED.	24.5	3.5	33.3	**49.5**	**-4.5**	**54.0**	
1824.6000	49.9	A	V	1.0	90	Y	MED.	24.5	3.5	33.3	**44.6**	**-9.4**	**54.0**	
1824.6000	55.2	A	V	1.0	90	Z	MED.	24.5	3.5	33.3	**49.9**	**-4.1**	**54.0**	
1842.6000	58.4	58.0 A	H	1.0	90	X	HIGH	24.5	3.5	33.3	**52.7**	**-1.3**	**54.0**	
1842.6000	56.9	56.4 A	H	1.0	90	Y	HIGH	24.5	3.5	33.3	**51.1**	**-2.9**	**54.0**	
1842.6000	51.6	A	H	1.0	90	Z	HIGH	24.5	3.5	33.3	**46.3**	**-7.7**	**54.0**	
1842.6000	57.3	57.0 A	V	1.0	90	X	HIGH	24.5	3.5	33.3	**51.7**	**-2.3**	**54.0**	
1842.6000	54.6	A	V	1.0	90	Y	HIGH	24.5	3.5	33.3	**49.3**	**-4.7**	**54.0**	
1842.6000	57.5	57.2 A	V	1.0	90	Z	HIGH	24.5	3.5	33.3	**51.9**	**-2.1**	**54.0**	

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

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	**ExpertComm, LLC**	**DATE**	**12/19/00**
EUT	**KEYPAD TRANSMITTER**	**DUTY CYCLE**	**N/A**
MODEL	**KP2000**	**PEAK TO AVG**	**N/A**
S/N	**N/A**	**TEST DIST.**	**3 METERS**
TEST ENGINEER	**KYLE FUJIMOTO**	**LAB**	**D**

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
2709.9000	46.0		A	H	1.5	90	X	LOW	28.2	4.5	31.8	**46.9**	**-7.1**	**54.0**	
2709.9000	50.4	46.9	A	H	1.5	90	Y	LOW	28.2	4.5	31.8	**47.8**	**-6.2**	**54.0**	
2709.9000	47.6		A	H	1.0	90	Z	LOW	28.2	4.5	31.8	**48.5**	**-5.5**	**54.0**	
2709.9000	52.1	51.1	A	V	1.0	270	X	LOW	28.2	4.5	31.8	**52.0**	**-2.0**	**54.0**	
2709.9000	49.6		A	V	1.0	90	Y	LOW	28.2	4.5	31.8	**50.5**	**-3.5**	**54.0**	
2709.9000	48.5		A	V	1.0	180	Z	LOW	28.2	4.5	31.8	**49.4**	**-4.6**	**54.0**	
2736.9000	41.7		A	H	1.0	270	X	MED.	28.2	4.5	31.8	**42.6**	**-11.4**	**54.0**	
2736.9000	48.8		A	H	1.0	90	Y	MED.	28.2	4.5	31.8	**49.7**	**-4.3**	**54.0**	
2736.9000	49.0		A	H	1.0	90	Z	MED.	28.2	4.5	31.8	**49.9**	**-4.1**	**54.0**	
2736.9000	50.8	49.3	A	V	1.0	90	X	MED.	28.2	4.5	31.8	**50.2**	**-3.8**	**54.0**	
2736.9000	46.7		A	V	1.0	90	Y	MED.	28.2	4.5	31.8	**47.6**	**-6.4**	**54.0**	
2736.9000	49.2		A	V	1.0	90	Z	MED.	28.2	4.5	31.8	**50.1**	**-3.9**	**54.0**	
2763.9000	51.3	50.2	A	H	1.0	90	X	HIGH	29.7	4.6	31.7	**52.8**	**-1.2**	**54.0**	
2763.9000	52.4	50.6	A	H	1.0	90	Y	HIGH	29.7	4.6	31.7	**53.2**	**-0.9**	**54.0**	
2763.9000	50.7	47.1	A	H	1.0	90	Z	HIGH	29.7	4.6	31.7	**49.7**	**-4.3**	**54.0**	
2763.9000	50.0	47.7	A	V	1.0	90	X	HIGH	29.7	4.6	31.7	**50.3**	**-3.7**	**54.0**	
2763.9000	48.4		A	V	1.0	90	Y	HIGH	29.7	4.6	31.7	**51.0**	**-3.0**	**54.0**	
2763.9000	48.4		A	V	1.0	90	Z	HIGH	29.7	4.6	31.7	**51.0**	**-3.0**	**54.0**	

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

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	**ExpertComm, LLC**	**DATE**	**12/19/00**
EUT	**KEYPAD TRANSMITTER**	**DUTY CYCLE**	**N/A**
MODEL	**KP2000**	**PEAK TO AVG**	**N/A**
S/N	**N/A**	**TEST DIST.**	**3 METERS**
TEST ENGINEER	**KYLE FUJIMOTO**	**LAB**	**D**

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
3613.2000	40.3	A	H	1.0	90	X	LOW	29.6	5.0	31.9	**43.0**	**-11.0**	**54.0**	
3613.2000	41.9	A	H	1.0	90-	Y	LOW	29.6	5.0	31.9	**44.6**	**-9.4**	**54.0**	
3613.2000	39.9	A	H	1.0	90	Z	LOW	29.6	5.0	31.9	**42.6**	**-11.4**	**54.0**	
3613.2000	45.6	A	V	2.0	90	X	LOW	29.6	5.0	31.9	**48.3**	**-5.7**	**54.0**	
3613.2000	44.1	A	V	1.0	90	Y	LOW	29.6	5.0	31.9	**46.8**	**-7.2**	**54.0**	
3613.2000	42.1	A	V	1.0	180	Z	LOW	29.6	5.0	31.9	**44.8**	**-9.2**	**54.0**	
3649.2000	36.6	A	H	1.0	90	X	MED.	29.6	5.0	31.9	**39.3**	**-14.7**	**54.0**	
3649.2000	49.6	46.4 A	H	1.0	90	Y	MED.	29.6	5.0	31.9	**49.1**	**-4.9**	**54.0**	
3649.2000	43.5	A	H	1.0	90	Z	MED.	29.6	5.0	31.9	**46.2**	**-7.8**	**54.0**	
3649.2000	42.2	A	V	1.0	90	X	MED.	29.6	5.0	31.9	**44.9**	**-9.1**	**54.0**	
3649.2000	41.7	A	V	1.0	90	Y	MED.	29.6	5.0	31.9	**44.4**	**-9.6**	**54.0**	
3649.2000	40.6	A	V	1.0	90	Z	MED.	29.6	5.0	31.9	**43.3**	**-10.7**	**54.0**	
3685.2000	39.2	A	H	1.0	90	X	HIGH	29.6	5.0	31.9	**41.9**	**-12.1**	**54.0**	
3685.2000	44.2	A	H	1.0	0	Y	HIGH	29.6	5.0	31.9	**46.9**	**-7.1**	**54.0**	
3685.2000	44.4	A	H	1.0	90	Z	HIGH	29.6	5.0	31.9	**47.1**	**-6.9**	**54.0**	
3685.2000	39.6	A	V	1.0	90	X	HIGH	29.6	5.0	31.9	**42.3**	**-11.7**	**54.0**	
3685.2000	42.0	A	V	1.0	90	Y	HIGH	29.6	5.0	31.9	**44.7**	**-9.3**	**54.0**	
3685.2000	41.3	A	V	1.0	90	Z	HIGH	29.6	5.0	31.9	**44.0**	**-10.0**	**54.0**	

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

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	**ExpertComm, LLC**	**DATE**	**12/19/00**
EUT	**KEYPAD TRANSMITTER**	**DUTY CYCLE**	**N/A**
MODEL	**KP2000**	**PEAK TO AVG**	**N/A**
S/N	**N/A**	**TEST DIST.**	**3 METERS**
TEST ENGINEER	**KYLE FUJIMOTO**	**LAB**	**D**

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
4516.5000	41.3	A	H	1.0	90	X	LOW	30.9	5.6	31.4	**46.4**	**-7.6**	**54.0**	
4516.5000	42.9	A	H	3.0	90	Y	LOW	30.9	5.6	31.4	**48.0**	**-6.0**	**54.0**	
4516.5000	43.9	A	H	1.5	90	Z	LOW	30.9	5.6	31.4	**49.0**	**-5.0**	**54.0**	
4516.5000	46.0	41.9 A	V	3.0	90	X	LOW	30.9	5.6	31.4	**47.0**	**-7.0**	**54.0**	
4516.5000	45.9	42.1 A	V	1.0	180	Y	LOW	30.9	5.6	31.4	**47.2**	**-6.8**	**54.0**	
4516.5000	44.3	A	V	1.0	90	Z	LOW	30.9	5.6	31.4	**49.4**	**-4.6**	**54.0**	
4561.5000	41.5	A	H	1.0	90	X	MED.	30.9	5.6	31.4	**46.6**	**-7.4**	**54.0**	
4561.5000	45.5	A	H	1.0	90	Y	MED.	30.9	5.6	31.4	**50.6**	**-3.4**	**54.0**	
4561.5000	46.3	41.6 A	H	1.0	90	Z	MED.	30.9	5.6	31.4	**46.7**	**-7.3**	**54.0**	
4561.5000	43.8	A	V	1.0	90	X	MED.	30.9	5.6	31.4	**48.9**	**-5.1**	**54.0**	
4561.5000	41.0	A	V	1.0	90	Y	MED.	30.9	5.6	31.4	**46.1**	**-7.9**	**54.0**	
4561.5000	42.4	A	V	1.0	270	Z	MED.	30.9	5.6	31.4	**47.5**	**-6.5**	**54.0**	
4606.5000	42.2	A	H	1.0	90	X	HIGH	30.9	5.6	31.4	**47.3**	**-6.7**	**54.0**	
4606.5000	43.8	A	H	1.0	90	Y	HIGH	30.9	5.6	31.4	**48.9**	**-5.1**	**54.0**	
4606.5000	46.4	38.3 A	H	1.0	90	Z	HIGH	30.9	5.6	31.4	**43.4**	**-10.6**	**54.0**	
4606.5000	40.3	A	V	1.0	90	X	HIGH	30.9	5.6	31.4	**45.4**	**-8.6**	**54.0**	
4606.5000	44.2	A	V	1.0	0	Y	HIGH	30.9	5.6	31.4	**49.3**	**-4.7**	**54.0**	
4606.5000	42.5	A	V	1.0	90	Z	HIGH	30.9	5.6	31.4	**47.6**	**-6.4**	**54.0**	

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

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	**ExpertComm, LLC**	**DATE**	**12/19/00**
EUT	**KEYPAD TRANSMITTER**	**DUTY CYCLE**	**N/A**
MODEL	**KP2000**	**PEAK TO AVG**	**N/A**
S/N	**N/A**	**TEST DIST.**	**3 METERS**
TEST ENGINEER	**KYLE FUJIMOTO**	**LAB**	**D**

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
5419.8000	36.7	A	H	1.0	90	X	LOW	32.4	6.0	31.0	**44.1**	**-9.9**	**54.0**	
5419.8000	37.7	A	H	1.0	90	Y	LOW	32.4	6.0	31.0	**45.1**	**-8.9**	**54.0**	
5419.8000	40.0	A	H	1.0	90	Z	LOW	32.4	6.0	31.0	**47.4**	**-6.6**	**54.0**	
5419.8000	39.9	A	V	3.0	270	X	LOW	32.4	6.0	31.0	**47.3**	**-6.7**	**54.0**	
5419.8000	38.7	A	V	1.0	90	Y	LOW	32.4	6.0	31.0	**46.1**	**-7.9**	**54.0**	
5419.8000	40.2	A	V	1.0	180	Z	LOW	32.4	6.0	31.0	**47.6**	**-6.4**	**54.0**	
5473.8000	38.2	A	H	1.0	90	X	MED.	32.4	6.0	31.0	**45.6**	**-8.4**	**54.0**	
5473.8000	43.5	A	H	1.0	90	Y	MED.	32.4	6.0	31.0	**50.9**	**-3.1**	**54.0**	
5473.8000	44.1	33.9 A	H	1.0	90	Z	MED.	32.4	6.0	31.0	**41.3**	**-12.7**	**54.0**	
5473.8000	38.2	A	V	1.0	90	X	MED.	32.4	6.0	31.0	**45.6**	**-8.4**	**54.0**	
5473.8000	41.0	A	V	1.0	90	Y	MED.	32.4	6.0	31.0	**48.4**	**-5.6**	**54.0**	
5473.8000	35.7	A	V	1.0	90	Z	MED.	32.4	6.0	31.0	**43.1**	**-10.9**	**54.0**	
5527.8000	35.1	A	H	1.0	90	X	HIGH	32.4	6.0	31.0	**42.5**	**-11.5**	**54.0**	
5527.8000	42.5	A	H	1.0	90	Y	HIGH	32.4	6.0	31.0	**49.9**	**-4.1**	**54.0**	
5527.8000	39.3	A	H	1.0	90	Z	HIGH	32.4	6.0	31.0	**46.7**	**-7.3**	**54.0**	
5527.8000	37.9	A	V	1.5	90	X	HIGH	32.4	6.0	31.0	**45.3**	**-8.7**	**54.0**	
5527.8000	41.1	A	V	1.5	90	Y	HIGH	32.4	6.0	31.0	**48.5**	**-5.5**	**54.0**	
5527.8000	34.2	A	V	1.0	90	Z	HIGH	32.4	6.0	31.0	**41.6**	**-12.4**	**54.0**	

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	**ExpertComm, LLC**	**DATE**	**12/19/00**
EUT	**KEYPAD TRANSMITTER**	**DUTY CYCLE**	**0.00 %**
MODEL	**KP2000**	**PEAK TO AVG**	**0 dB**
S/N	**N/A**	**TEST DIST.**	**3 METERS**
TEST ENGINEER	**KYLE FUJIMOTO**	**LAB**	**D**

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
6323.1000	34.9	A	H	1.0	90	X	LOW	34.3	6.9	31.6	**44.5**	**-9.5**	**54.0**	
6323.1000	39.2	A	H	1.0	90	Y	LOW	34.3	6.9	31.6	**48.8**	**-5.2**	**54.0**	
6323.1000	42.4	31.2 A	H	1.0	90	Z	LOW	34.3	6.9	31.6	**40.8**	**-13.2**	**54.0**	
6323.1000	41.0	A	V	1.0	90	X	LOW	34.3	6.9	31.6	**50.6**	**-3.4**	**54.0**	
6323.1000	40.8	A	V	1.0	90	Y	LOW	34.3	6.9	31.6	**50.4**	**-3.6**	**54.0**	
6323.1000	39.5	A	V	1.0	180	Z	LOW	34.3	6.9	31.6	**49.1**	**-4.9**	**54.0**	
6386.1000	37.8	A	H	1.0	90	X	MED.	34.3	6.9	31.6	**47.4**	**-6.6**	**54.0**	
6386.1000	43.3	37.1 A	H	1.0	90	Y	MED.	34.3	6.9	31.6	**46.7**	**-7.3**	**54.0**	
6386.1000	30.6	A	H	1.0	90	Z	MED.	34.3	6.9	31.6	**40.2**	**-13.8**	**54.0**	
6386.1000	38.7	A	V	1.0	90	X	MED.	34.3	6.9	31.6	**48.3**	**-5.7**	**54.0**	
6386.1000	40.9	A	V	1.0	90	Y	MED.	34.3	6.9	31.6	**50.5**	**-3.5**	**54.0**	
6386.1000	37.9	A	V	1.0	90	Z	MED.	34.3	6.9	31.6	**47.5**	**-6.5**	**54.0**	
6449.1000	36.0	A	H	1.0	90	X	HIGH	34.3	6.9	31.6	**45.6**	**-8.4**	**54.0**	
6449.1000	39.2	A	H	1.0	90	Y	HIGH	34.3	6.9	31.6	**48.8**	**-5.2**	**54.0**	
6449.1000	35.0	A	H	1.0	90	Z	HIGH	34.3	6.9	31.6	**44.6**	**-9.4**	**54.0**	
6449.1000	35.2	A	V	1.0	90	X	HIGH	34.3	6.9	31.6	**44.8**	**-9.2**	**54.0**	
6449.1000	37.1	A	V	1.0	90	Y	HIGH	34.3	6.9	31.6	**46.7**	**-7.3**	**54.0**	
6449.1000	36.9	A	V	1.0	90	Z	HIGH	34.3	6.9	31.6	**46.5**	**-7.5**	**54.0**	

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

** DELTA = SPEC LIMIT - CORRECTED READING

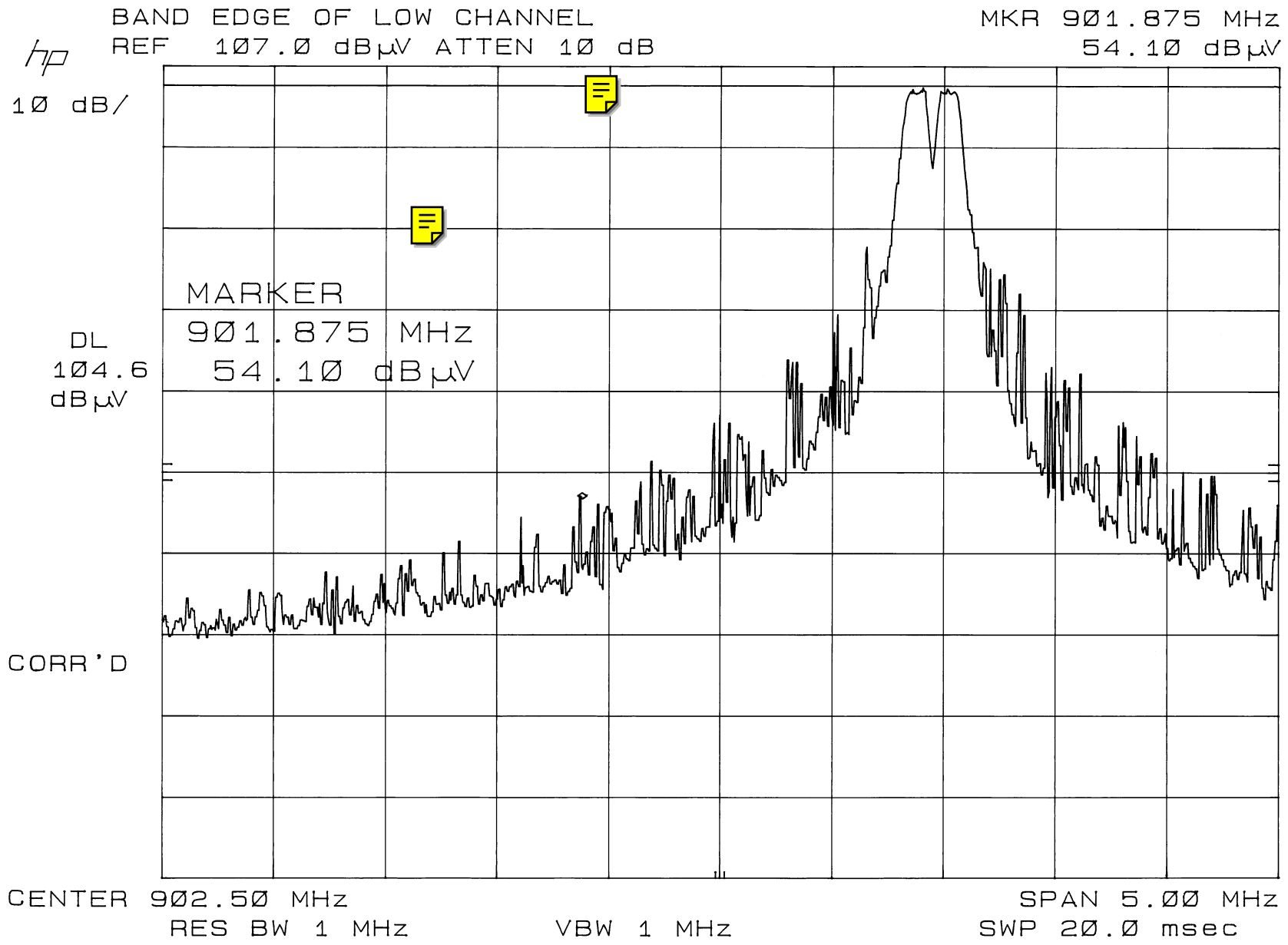
No Harmoincs nor Emissions found beyond the 7th harmonic for the EUT

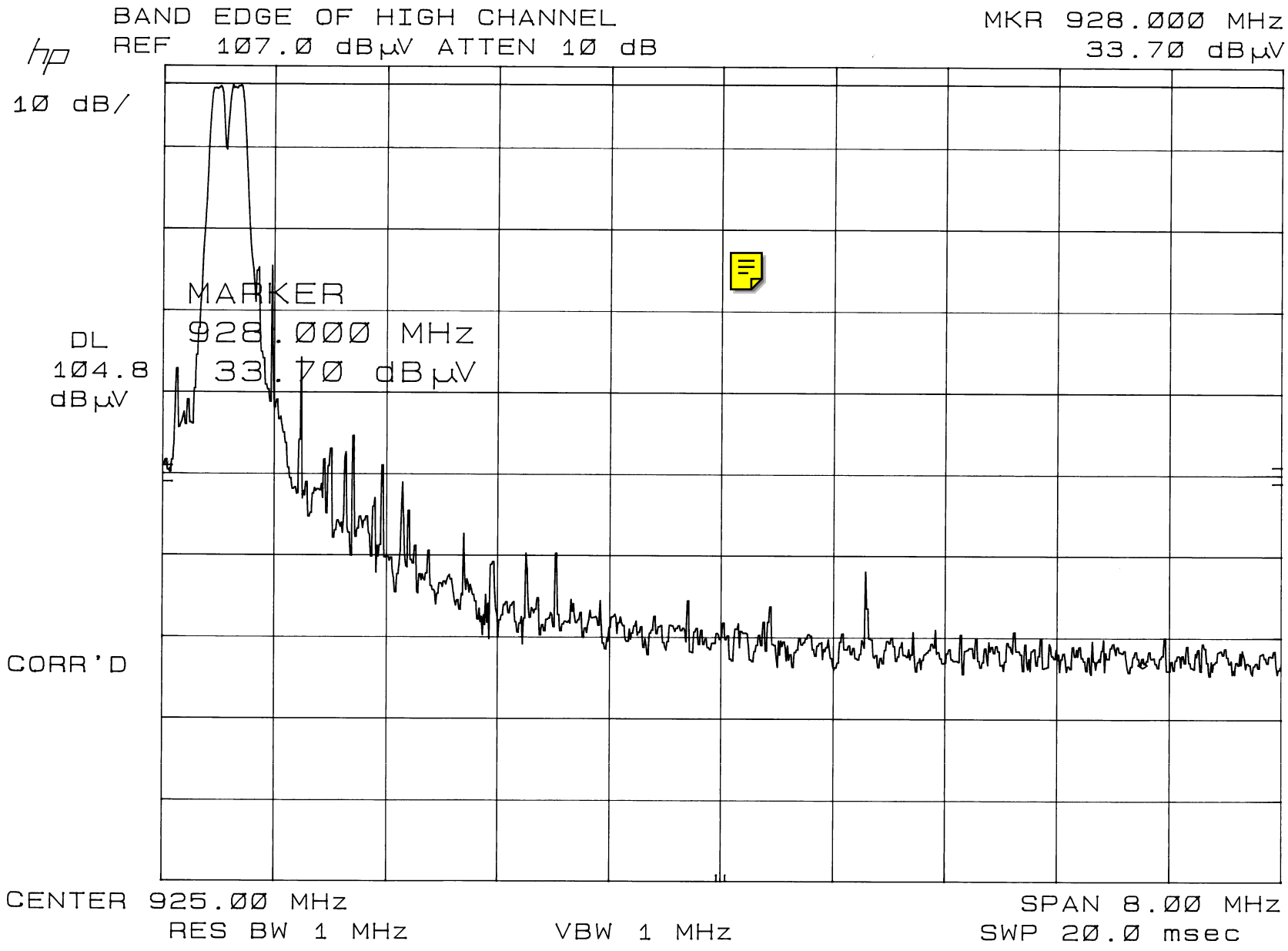
Test location: Compatible Electronics
Customer : EXPERTCOMM, LLC Date : 12/19/2000
Manufacturer : EXPERTCOMM, LLC Time : 16.46
EUT name : KEYPAD TRANSMITTER Model: KP2000
Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
Distance correction factor(20*log(test/spec)) : 0.00
Test Mode :
SPURIOUS EMISSIONS 10 kHz - 9300 MHz
TEMPERATURE 72 DEGREES F., RELATIVE HUMIDITY 35%
TESTED BY: KYLE FUJIMOTO

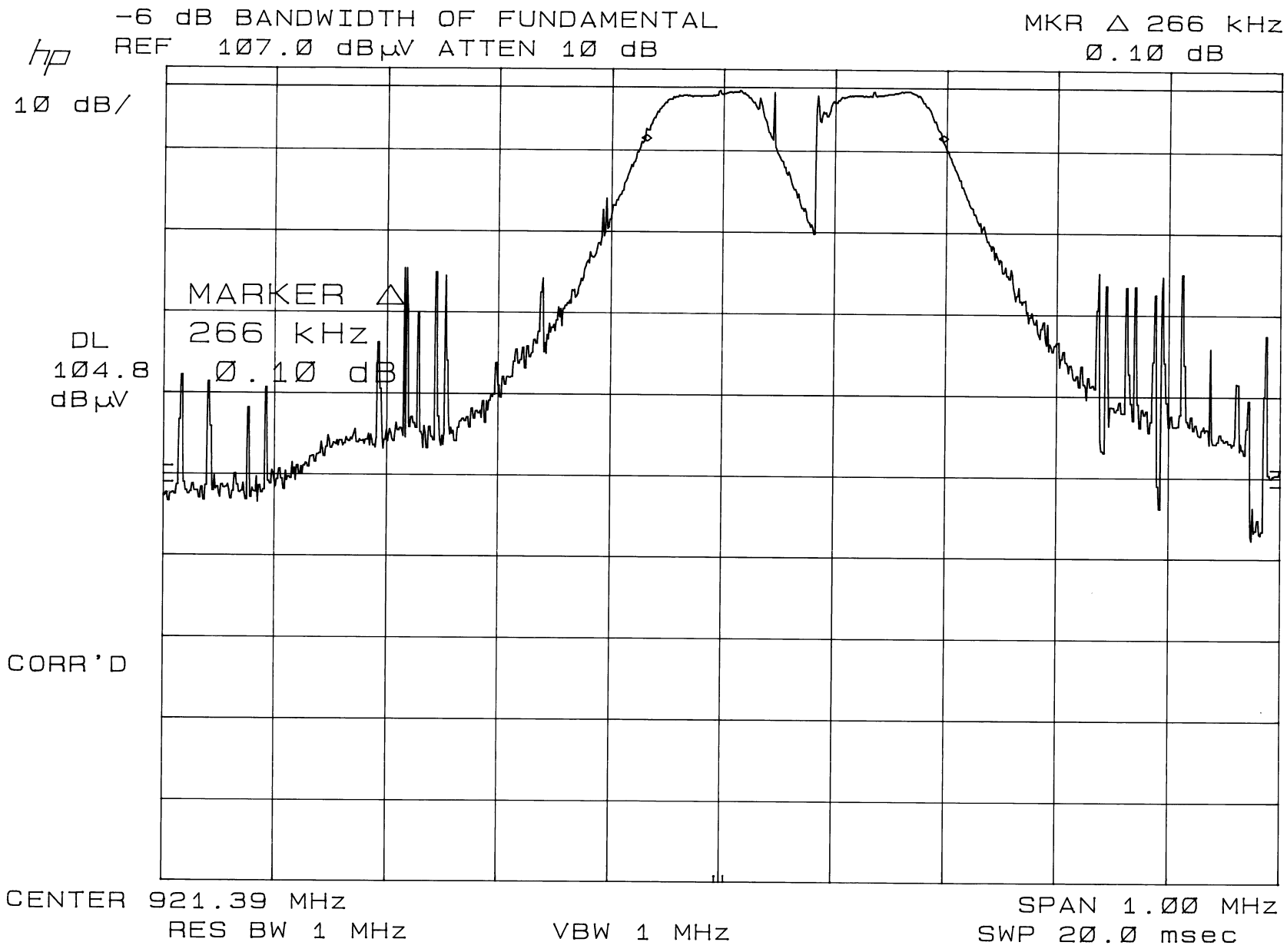
NO SPURIOUS EMISSIONS FOUND FOR THE EUT
FROM 10 kHz TO 9300 MHz IN EITHER POLARIZATION

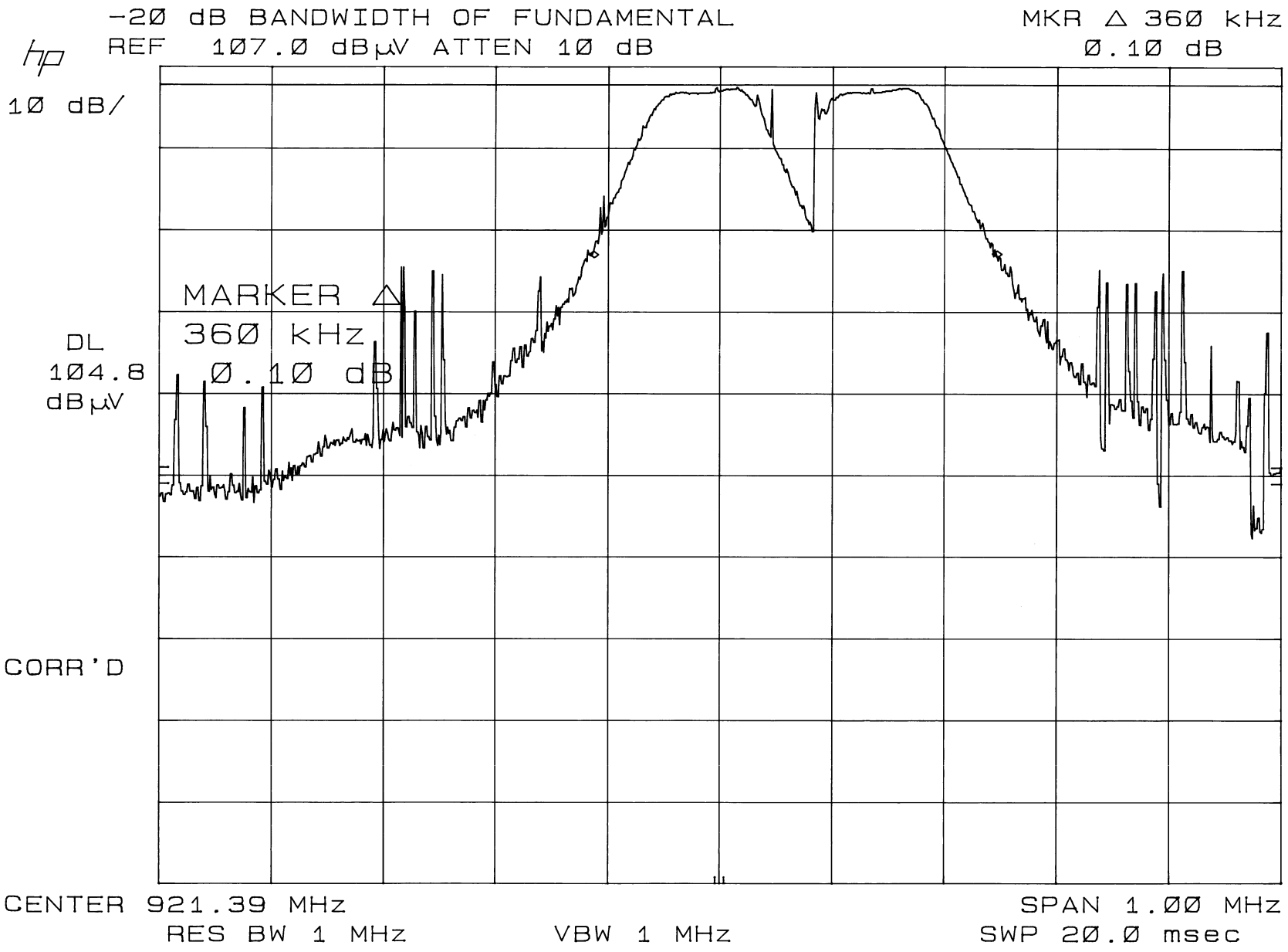
BAND EDGE

DATA SHEETS


BAND EDGE OF LOW CHANNEL
REF 107.0 dBµV ATTEN 10 dB
MKR 901.875 MHz
54.10 dBµV
10 dB/
MARKER
901.875 MHz
54.10 dBµV
DL
104.6
dBµV
CORR'D
CENTER 902.50 MHz
SPAN 5.00 MHz
RES BW 1 MHz
VBW 1 MHz
SWP 20.0 msec


BAND EDGE OF HIGH CHANNEL
REF 107.0 dBµV ATTEN 10 dB
MKR 928.000 MHz
33.70 dBµV
10 dB/
MARKER
928.000 MHz
33.70 dBµV
DL
104.8
dBµV
CORR'D
CENTER 925.00 MHz
RES BW 1 MHz
VBW 1 MHz
SPAN 8.00 MHz
SWP 20.0 msec


-6 dB BANDWIDTH OF FUNDAMENTAL
REF 107.0 dBµV ATTEN 10 dB
MKR Δ 266 kHz
0.10 dB
10 dB/
MARKER Δ
266 kHz
0.10 dB
DL
104.8
dBµV
CORR'D
CENTER 921.39 MHz
RES BW 1 MHz
VBW 1 MHz
SPAN 1.00 MHz
SWP 20.0 msec


-20 dB BANDWIDTH OF FUNDAMENTAL
MKR Δ 360 kHz
REF 107.0 dBμV ATTEN 10 dB
0.10 dB
10 dB/
MARKER Δ
360 kHz
0.10 dB
DL
104.8
dBμV
CORR'D
CENTER 921.39 MHz
SPAN 1.00 MHz
RES BW 1 MHz
VBW 1 MHz
SWP 20.0 msec