FCC PART 15, SUBPART B & C
TEST REPORT

for

VHF TELEMETRY TRANSMITTER
Model: 4200
FCC ID: MRA-109153

Prepared for

ZYMED MEDICAL INSTRUMENTATION INC.
1201-B N. RICE AVE.
OXNARD, CA 93030

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DATE: MARCH 20, 2000

	REPORT BODY	APPENDICES				TOTAL
		A	*B*	*C*	*D*	
PAGES	16	2	2	7	15	**42**

TABLE OF CONTENTS

Section / Title	PAGE
GENERAL REPORT SUMMARY	*4*
SUMMARY OF TEST RESULTS	*4*
1. PURPOSE	**5**
2. ADMINISTRATIVE DATA	**6**
2.1 Location of Testing	6
2.2 Traceability Statement	6
2.3 Cognizant Personnel	6
2.4 Date Test Sample was Received	6
2.5 Disposition of the Test Sample	6
2.6 Abbreviations and Acronyms	6
3. APPLICABLE DOCUMENTS	**7**
4. Description of Test Configuration	**8**
4.1 Description of Test Configuration - EMI	8
4.1.1 Cable Construction and Termination	9
5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT	**10**
5.1 EUT and Accessory List	10
5.2 EMI Test Equipment	11
6. TEST SITE DESCRIPTION	**12**
6.1 Test Facility Description	12
6.2 EUT Mounting, Bonding and Grounding	12
7. Test Procedures	**13**
7.1 RF Emissions	13
7.1.1 Conducted Emissions Test	13
7.1.2 Radiated Emissions Test	14
7.1.3 RF Emissions Test Results	15
8. CONCLUSION	**16**

LIST OF APPENDICES

APPENDIX	TITLE
A	Modifications to the EUT
B	Additional Models Covered Under This Report
C	Diagrams, Charts and Photos • Test Setup Diagrams • Antenna and Effective Gain Factors • Radiated Emissions Photos
D	Data Sheets

LIST OF TABLES

TABLE	TITLE
1	Radiated Emissions Test Results

LIST OF FIGURES

FIGURE	Title
1	Plot Map And Layout of Test Site

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 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: VHF Telemetry Transmitter
Model: 4200
S/N: none

Product Description: *This is a VHF transmitter used to transmit multiple ECG channels to a host computer.*

Modifications: The EUT was not modified during the testing.

Manufacturer: Zymed Medical Instrumentation, Inc.
1201-B North Rice Avenue
Oxnard, CA 93030

Test Date: March 14, 2000

Test Specifications:
EMI requirements
FCC Title 47, Part 15 Subpart B & 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	Conducted RF Emissions, 450 kHz - 30 MHz.	This device is battery operated and does not draw power from public mains; therefore no conducted test was required.
2	Radiated RF Emissions, 30 MHz – 1000 MHz.	Complies with the **Class B** limits of FCC Title 47, Part 15 Subpart B.
3	Radiated RF Emissions, 10kHz to 2.16GHz.	Complies with the limits of FCC Title 47, Part 15 Subpart C 15.109, 15.209, 15.242.

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the VHF Telemetry Transmitter Model: 4200. 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 Title 47, Part 15, Subpart C, 15.109 and 15.209 and 15.242.

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

Zymed Medical Instrumentation, Inc.

George Bornazyan	Hardware Engineer

Compatible Electronics, Inc.

Joey J. Madlangbayan	Test Engineer
Jeff S. Klinger	Lab Manager

2.4 Date Test Sample was Received

The test sample was received on March 14, 2000.

2.5 Disposition of the Test Sample

The test sample remains at Compatible Electronics.

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, Subpart C.	FCC Rules - Intentional Radiators.
FCC Title 47, Subpart B.	FCC Rules – Radio frequency devices (including digital devices).
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 while communicating to the Easi-View System via wireless communication. The EUT was tested while continuously transmitting a signal within the EUT output frequencies. The Desktop PC was remotely located 30 meters away and also used to change the output frequency. The Monitor keyboard, and mouse were connected to the PC video, keyboard, and mouse ports respectively.

It was determined that the highest emission levels were found 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. Photographs and data sheets are included in Appendices C and D.

4.1.1 Cable Construction and Termination

EUT cables

Cable 1 This is a 1 meter unshielded round cable which connects to the EUT and has 5 separate cables with electro-sensors at each end. There is a 6-pin Ted connector at the EUT end and it is hard wired into the electrosensors.

Cable 2 This is a 1 meter unshielded round cable connected to the I/O port of the EUT. It has 7 pin keyed connector at the EUT end and was left unterminated at the other end. The cable (colored green) was extended flat on the table for transmitting the RF signal.

Used at a remote Location

Cable 3 This is a 2 meter foil shielded round cable which connects the keyboard to the PC. There is a 6-pin min din connector at the PC end and it is hard wired into the Keyboard.

Cable 4 This is a 2 meter foil shielded round cable which connects the Mouse to the PC. There is a 6-pin min din connector at the PC end and it is hard wired into the Mouse.

Cable 5 This is a 2 meter foil and braid shielded round cable which momentarily connects the EUT to the PC. There is a DB-15 pin connector at the PC end and a 7 pin round Ted connector at the EUT end. The shield was grounded to the chassis via the connectors.

Cable 6 This is a 2 meter foil and braid shielded round cable which connects the Monitor to the PC. There is a DB-15 pin connector at the PC end and the cable is hardwired to the Monitor. The shield was grounded to the chassis via the connectors.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT TYPE	MANUFACTURER	MODEL	SERIAL NUMBER
VHF TELEMETRY TRANSMITTER (EUT)	ZYMED, INC.	4200	S/N: NONE FCC ID: MRA-109153
EASY VIEW SYSTEM (PC Computer)	ZYMED, INC.	10905-108	247
KEYBOARD	GENERIC	FKB4700	K4055873
MOUSE	LOGITECH	M-M30	LQA52102326
MONITOR	VIEWSONIC	1457-M	8134907337

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Spectrum Analyzer	Hewlett Packard	8566B	27029A04566	Jun. 19, 1999	Jun. 19, 2000
Quasi-Peak Adapter	Hewlett Packard	85650A	2521A00682	Jun. 19, 1999	Jun. 19, 2000
Preamplifier	Com Power	PA-102	01249	Apr. 12, 1999	Apr. 12, 2000
Biconical Antenna	Com Power	AB-100	01535	Apr. 16, 1999	Apr. 16, 2000
Log Periodic Antenna	Com Power	AL-100	A101	Apr. 16, 1999	Apr. 16, 2000
Horn Antenna	A. R. A.	DRG 118/A	1015	Dec. 2, 1993	N.C.R.
Microwave Amplifier	Com Power	PA-122	25137	Jul. 28, 1999	Jul. 28, 2000
Active Loop Antenna	Com Power	AL-130	17054	Jan. 6, 2000	Jan. 6, 2001
Antenna Mast	Com Power	AM-400	N/A	N/A	N/A
Turntable	Com Power	TT-106A	N/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 and peripheral 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 battery powered therefore this test was not performed.

7.1.2 Radiated Emissions Test

The Spectrum Analyzer was used as a measuring meter along with the Quasi-Peak Adapter. The 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. 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 biconical and log periodic antennas were used as transducers during the measurement. The Active Loop Antenna was used from 10kHz – 30Mhz. The biconical antenna was used from 30 MHz to 300 MHz, the log periodic antenna was used from 300 MHz to 1 GHz and the horn antenna was used above 1 GHz. The frequency spans were wide (10kHz to 30kHz, 30 MHz to 88 MHz, 88 MHz to 216 MHz, 216 to 300 MHz and 300 MHz to 2.16 GHz) 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 3 meter test distance to obtain final test data.

7.1.3 RF Emissions Test Results

The fundamental and up to the 10th harmonic emissions are within the specifications.
No spurious emissions were found.

RADIATED EMISSIONS - SPURIOUS
VHF TELEMETRY TRANSMITTER

The following bands were specifically scanned.
Frequency Band 30 – 5000Mhz

RF Energy From VHF Telemetry Transmitter
in MHz at 3 meters (µV/m)

12.29-12.293	<49.5	960-1240	<500
12.51975-12.52025	<49.5	1300-1427	<500
12.5765-12.57725	<49.5	1300-1427	<500
13.36-13.41	<49.5	1435-1626.5	<500
16.42-16.423	<49.5	1645.5-1646.5	<500
16.69475-16.69525	<49.5	1660-1710	<500
25.5-25.67	<49.5	1718.8-1722.2	<500
37.5-38.25	<49.5	2200-2300	<500
37.5-38.25	<100		
73-74.6	<100		
74.8-75.2	<100		
108-121.94	<100		
123-138	<150		
149.9-150.05	<150		
156.52-156.52	<150		
162.01-167.17	<150		
167.72-173.2	<150		
240-285	<200		
322-335.4	<200		
399.9-410	<200		
608-614	<200		

8. CONCLUSION

The RF Telemetry Transmitter Model: 4200 meets all of the requirements of the FCC Title 47, Part 15, Subpart B & C.

APPENDIX A

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

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

APPENDIX B

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

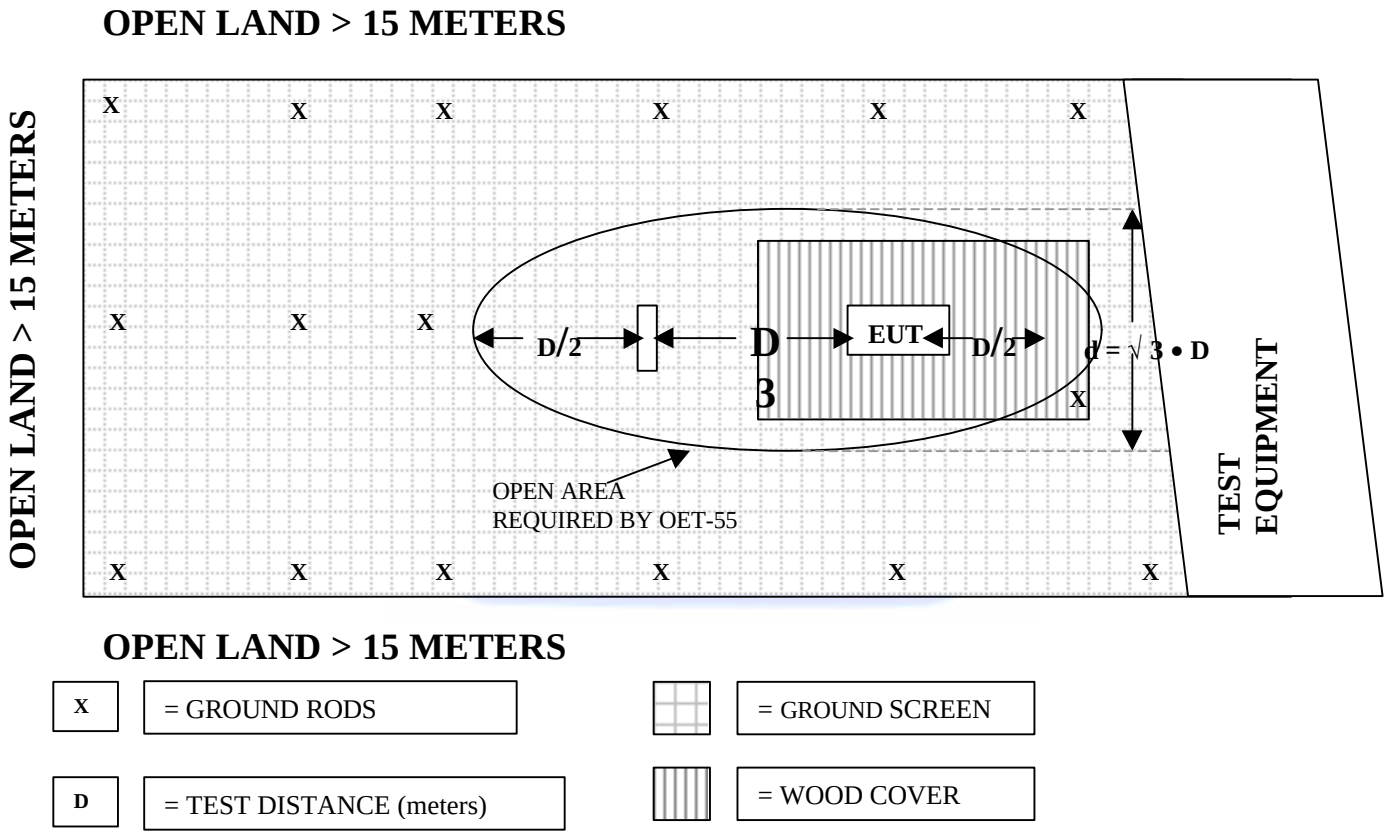
USED FOR THE PRIMARY TEST	VHF TELEMETRY TRANSMITTER Model: 4200 S/N: NONE

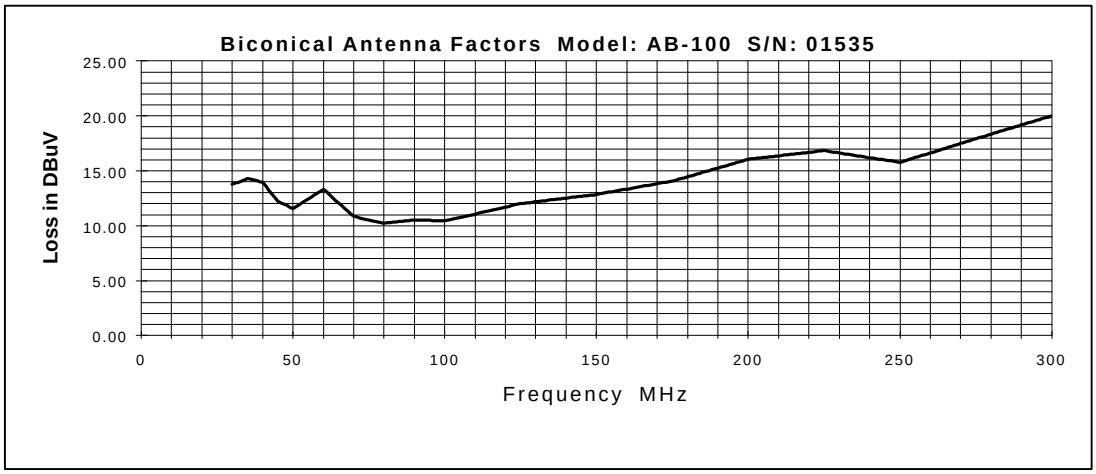
There were no additional models covered under this report.

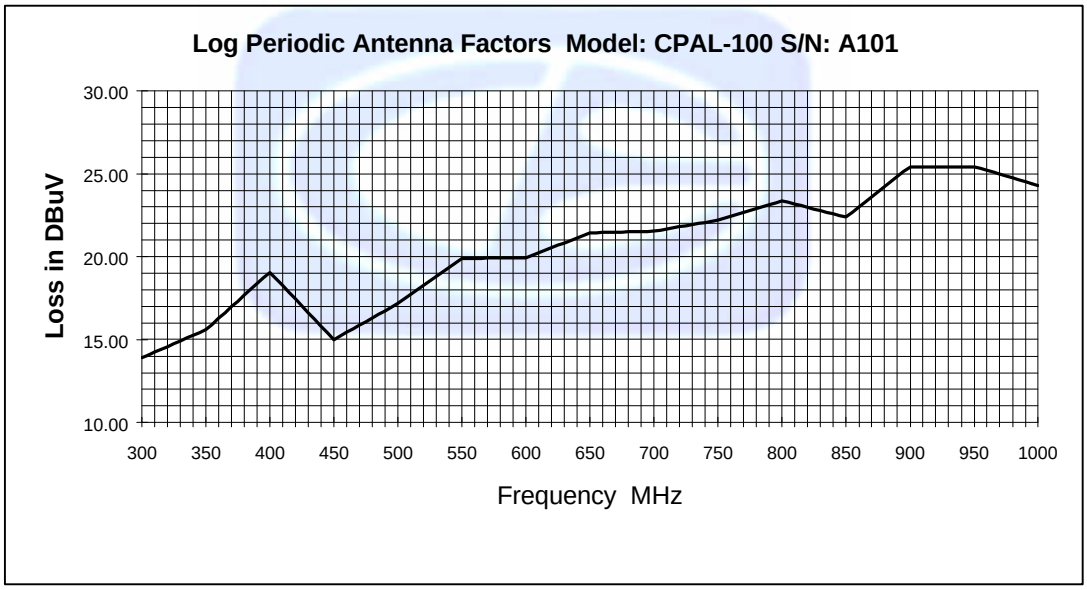
APPENDIX C

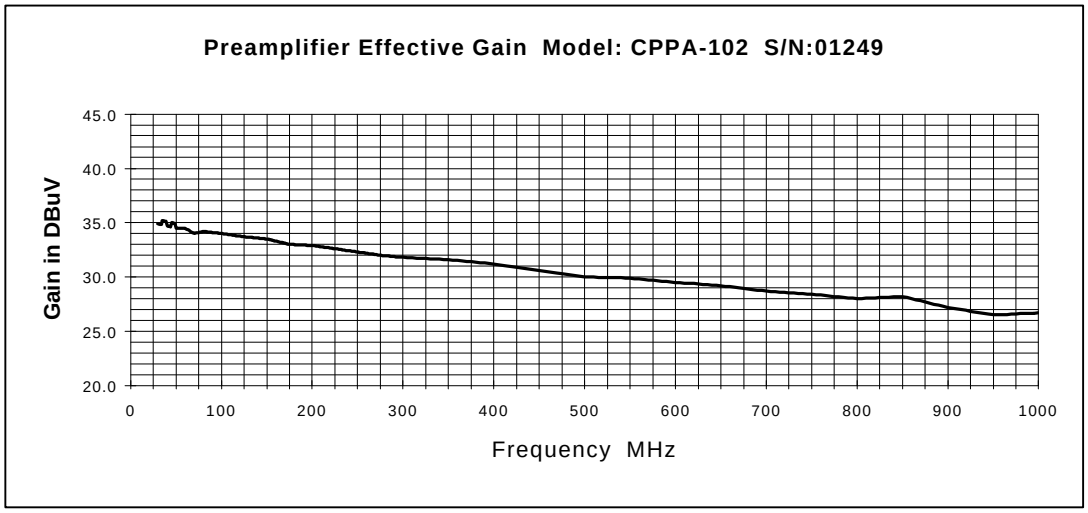
DIAGRAMS, CHARTS AND PHOTOS

FIGURE 1: PLOT MAP AND LAYOUT OF RADIATED SITE




Biconical Antenna Factors Model: AB-100 S/N: 01535
Loss in DBuV
25.00
20.00
15.00
10.00
5.00
0.00
0
50
100
150
200
250
300
Frequency MHz


Log Periodic Antenna Factors Model: CPAL-100 S/N: A101
Loss in DBuV
30.00
25.00
20.00
15.00
10.00
300
350
400
450
500
550
600
650
700
750
800
850
900
950
1000
Frequency MHz


Preamplifier Effective Gain Model: CPPA-102 S/N:01249
Gain in DBuV
45.0
40.0
35.0
30.0
25.0
20.0
0
100
200
300
400
500
600
700
800
900
1000
Frequency MHz

Com-Power Corporation

(949) 587-9800

Antenna Calibration

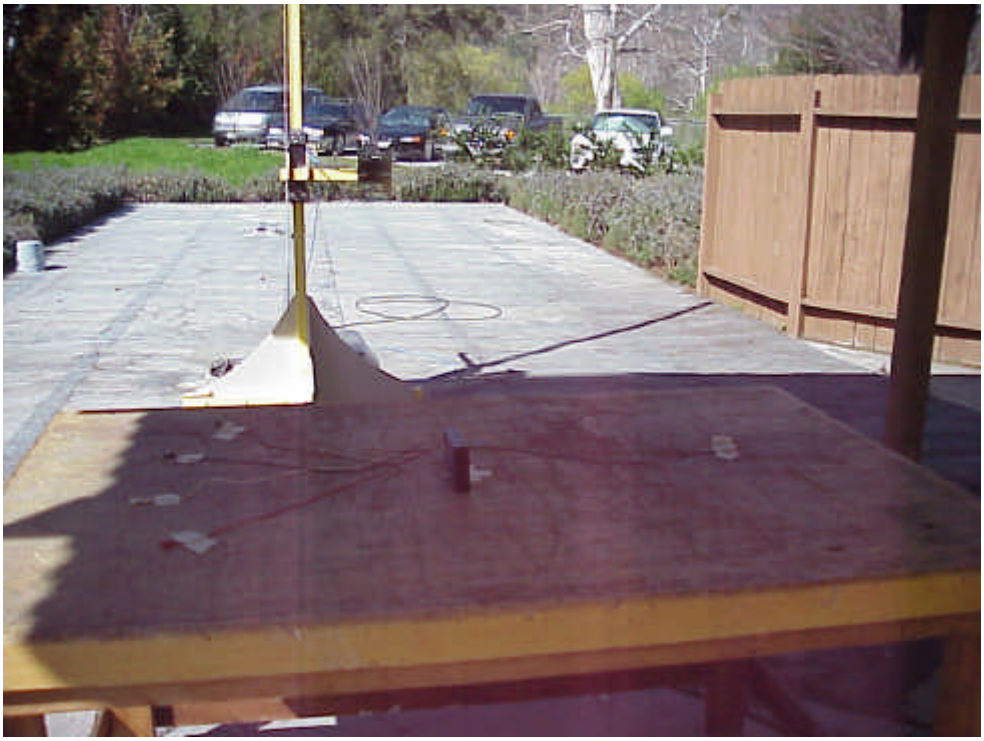
Antenna Type:	Loop Antenna	Transmit Antenna Height:	2 meters
Model:	AL-130	Receive Antenna Height:	2 meters
Serial Number:	17054		
Calibration Date:	1/6/00		

Frequency MHz	Magnetic (dB/m)	Electric (dB/m)
0.01	-41.3	10.2
0.02	-42.2	9.3
0.03	-40.5	11.0
0.04	-40.8	10.7
0.05	-42.1	9.4
0.06	-41.7	9.8
0.07	-41.8	9.7
0.08	-42.1	9.4
0.09	-42.3	9.2
0.1	-42.3	9.2
0.2	-44.6	6.9
0.3	-42.1	9.4
0.4	-42.2	9.3
0.5	-42.2	9.3
0.6	-42.1	9.4
0.7	-42.0	9.5
0.8	-42.0	9.5
0.9	-41.9	9.6
1	-41.4	10.1
2	-40.6	10.9
3	-40.9	10.6
4	-41.1	10.4
5	-40.5	11.0
6	-40.5	11.0
7	-40.9	10.6
8	-41.1	10.4
9	-40.6	10.9
10	-40.9	10.6
12	-41.6	9.9
14	-41.9	9.6
15	-42.1	9.4
16	-42.3	9.2
18	-42.1	9.4
20	-42.4	9.1
25	-43.4	8.1
30	-45.6	5.9

X-AXIS

ZYMED, INC.
VHF TELEMETRY TRANSMITTER
Model: 4200
FCC PART 15 SUBPART B & C - RADIATED EMISSIONS – 3-14-2000

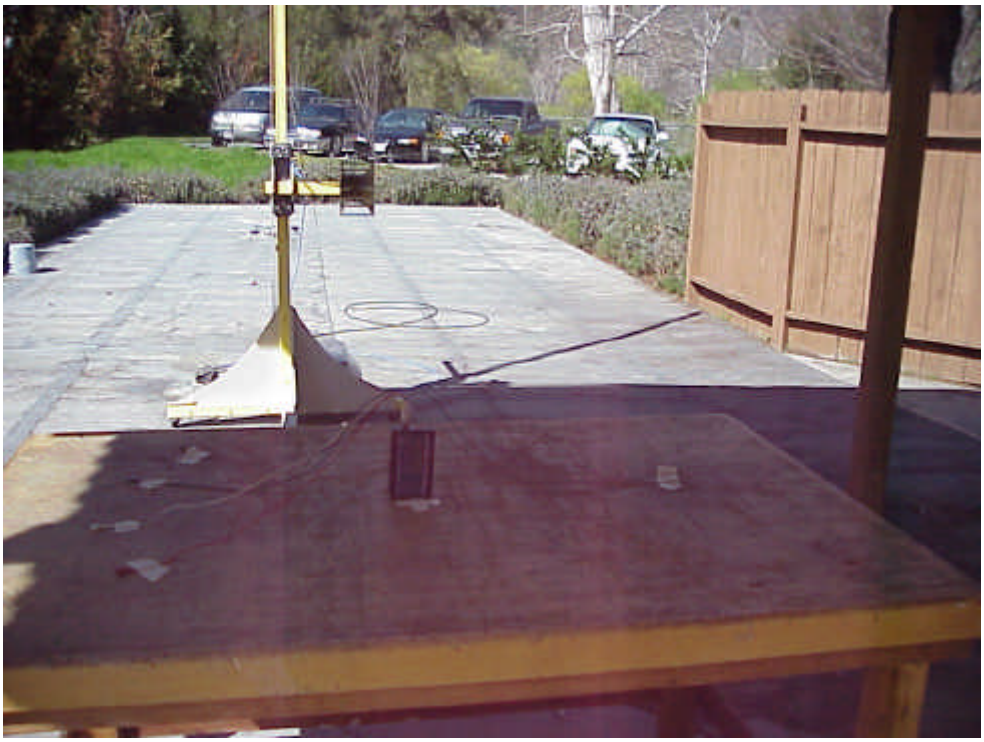
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



Y-AXIS

ZYMED, INC.
VHF TELEMETRY TRANSMITTER
Model: 4200
FCC PART 15 SUBPART B & C - RADIATED EMISSIONS – 3-14-2000

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



Z-AXIS

ZYMED, INC.
VHF TELEMETRY TRANSMITTER
Model: 4200
FCC PART 15 SUBPART B & C - RADIATED EMISSIONS – 3-14-2000

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX D

DATA SHEETS

RADIATED EMISSIONS (FCC SECTION 15.242)

COMPANY	Zymed	DATE	3/14/00
EUT	VHF Telemetry Device	DUTY CYCLE	0.00 %
MODEL	4200.0	PEAK TO AVG	0 dB
S/N	0	TEST DIST.	3 METERS
TEST ENGINEER	Joey J. Madlangbayan	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
174.1500	117.0	QP	H	2.0	180	X	LOW	14.0	2.2	35.6	97.6	-8.4	106.0	
174.1500	117.0	QP	H	1.5	180	Y	LOW	14.0	2.2	35.6	97.6	-8.4	106.0	
174.1500	116.7	QP	H	1.5	0	Z	LOW	14.0	2.2	35.6	97.3	-8.7	106.0	
174.1500	112.3	QP	V	2.0	90	X	LOW	14.0	2.2	35.6	92.9	-13.1	106.0	
174.1500	113.0	QP	V	2.0	90	Y	LOW	14.0	2.2	35.6	93.6	-12.4	106.0	
174.1500	111.4	QP	V	2.0	90	Z	LOW	14.0	2.2	35.6	92.0	-14.0	106.0	
195.0000	116.2	QP	H	1.5	0	X	MED.	16.0	2.2	35.7	98.7	-7.3	106.0	
195.0000	115.8	QP	H	1.5	0	Y	MED.	16.0	2.2	35.7	98.3	-7.7	106.0	
195.0000	116.9	QP	H	1.5	180	Z	MED.	16.0	2.2	35.7	99.4	-6.6	106.0	
195.0000	111.5	QP	V	2.0	90	X	MED.	16.0	2.2	35.7	94.0	-12.0	106.0	
195.0000	112.2	QP	V	1.5	90	Y	MED.	16.0	2.2	35.7	94.7	-11.3	106.0	
195.0000	112.4	QP	V	2.0	90	Z	MED.	16.0	2.2	35.7	94.9	-11.1	106.0	
215.9000	110.5	QP	H	1.0	0	X	HIGH	16.0	2.4	35.7	93.2	-12.8	106.0	
215.9000	110.7	QP	H	1.0	180	Y	HIGH	16.0	2.4	35.7	93.4	-12.6	106.0	
215.9000	111.7	QP	H	1.0	0	Z	HIGH	16.0	2.4	35.7	94.4	-11.6	106.0	
215.9000	103.3	QP	V	1.0	90	X	HIGH	16.0	2.4	35.7	86.0	-20.0	106.0	
215.9000	103.4	QP	V	2.0	90	Y	HIGH	16.0	2.4	35.7	86.1	-19.9	106.0	
215.9000	104.6	QP	V	2.0	90	Z	HIGH	16.0	2.4	35.7	87.3	-18.7	106.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.242)

	Zymed		3/14/00
	VHF Telemetry Device		0.00 %
	4200.0		0 dB
	0		3 METERS
	Joey J. Madlangbayan		F

348.3000	56.4	QP	H	1.0	180	X	LOW	15.6	3.1	35.4	39.7	-6.3	46.0
348.3000	57.4	QP	H	1.0	180	Y	LOW	15.6	3.1	35.4	40.7	-5.3	46.0
348.3000	56.2	QP	H	1.0	180	Z	LOW	15.6	3.1	35.4	39.5	-6.5	46.0
348.3000	43.2	QP	V	3.0	270	X	LOW	15.6	3.1	35.4	26.5	-19.5	46.0
348.3000	44.0	QP	V	3.0	270	Y	LOW	15.6	3.1	35.4	27.3	-18.7	46.0
348.3000	48.3	QP	V	2.0	90	Z	LOW	15.6	3.1	35.4	31.6	-14.4	46.0
390.0000	47.1	QP	H	1.0	180	X	MED.	19.0	3.4	35.5	34.0	-12.0	46.0
390.0000	46.9	QP	H	1.0	0	Y	MED.	19.0	3.4	35.5	33.8	-12.2	46.0
390.0000	47.2	QP	H	1.0	270	Z	MED.	19.0	3.4	35.5	34.1	-11.9	46.0
390.0000	48.8	QP	V	2.0	270	X	MED.	19.0	3.4	35.5	35.7	-10.3	46.0
390.0000	48.8	QP	V	3.0	270	Y	MED.	19.0	3.4	35.5	35.7	-10.3	46.0
390.0000	50.2	QP	V	2.0	270	Z	MED.	19.0	3.4	35.5	37.1	-8.9	46.0
431.8000	42.8	QP	H	1.0	180	X	HIGH	19.0	3.7	35.5	30.0	-16.0	46.0
431.8000	46.1	QP	H	1.0	180	Y	HIGH	19.0	3.7	35.5	33.3	-12.7	46.0
431.8000	42.6	QP	H	1.0	180	Z	HIGH	19.0	3.7	35.5	29.8	-16.2	46.0
431.8000	40.3	QP	V	1.0	180	X	HIGH	19.0	3.7	35.5	27.5	-18.5	46.0
431.8000	41.8	QP	V	2.0	90	Y	HIGH	19.0	3.7	35.5	29.0	-17.0	46.0
431.8000	41.6	QP	V	2.0	90	Z	HIGH	19.0	3.7	35.5	28.8	-17.2	46.0

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.242)

COMPANY	Zymed	DATE	3/14/00
EUT	VHF Telemetry Device	DUTY CYCLE	0.00 %
MODEL	4200.0	PEAK TO AVG	0 dB
S/N	0	TEST DIST.	3 METERS
TEST ENGINEER	Joey J. Madlangbayan	LOG	F

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	Antenna 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
522.4500		QP	H			X	LOW	17.2	4.2	35.0			46.0	NFF
522.4500		QP	H			Y	LOW	17.2	4.2	35.0			46.0	NFF
522.4500		QP	H			Z	LOW	17.2	4.2	35.0			46.0	NFF
522.4500		QP	V			X	LOW	17.2	4.2	35.0			46.0	NFF
522.4500		QP	V			Y	LOW	17.2	4.2	35.0			46.0	NFF
522.4500		QP	V			Z	LOW	17.2	4.2	35.0			46.0	NFF
585.0000		QP	H			X	MED.	19.9	4.4	35.0			46.0	NFF
585.0000		QP	H			Y	MED.	19.9	4.4	35.0			46.0	NFF
585.0000		QP	H			Z	MED.	19.9	4.4	35.0			46.0	NFF
585.0000		QP	V			X	MED.	19.9	4.4	35.0			46.0	NFF
585.0000		QP	V			Y	MED.	19.9	4.4	35.0			46.0	NFF
585.0000		QP	V			Z	MED.	19.9	4.4	35.0			46.0	NFF
647.7000		QP	H			X	HIGH	21.4	4.7	34.9			46.0	NFF
647.7000		QP	H			Y	HIGH	21.4	4.7	34.9			46.0	NFF
647.7000		QP	H			Z	HIGH	21.4	4.7	34.9			46.0	NFF
647.7000		QP	V			X	HIGH	21.4	4.7	34.9			46.0	NFF
647.7000		QP	V			Y	HIGH	21.4	4.7	34.9			46.0	NFF
647.7000		QP	V			Z	HIGH	21.4	4.7	34.9			46.0	NFF

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.242)

COMPANY	Zymed	DATE	3/14/00
EUT	VHF Telemetry Device	DUTY CYCLE	0.00 %
MODEL	4200.0	PEAK TO AVG.	0 dB
S/N	0	TEST DIST.	3 METERS
TEST ENGINEER	Joey J. Madlangbayan	LOC	F

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polarity (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X, Y,Z)	EUT Ch. Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Corrected Reading (dBuV/m)	Delta -- dB	Spec Limit (dBuV/m)	Comments
696.6000		QP	H			X	LOW	21.5	4.6	34.8			46.0	NFF
696.6000		QP	H			Y	LOW	21.5	4.6	34.8			46.0	NFF
696.6000		QP	H			Z	LOW	21.5	4.6	34.8			46.0	NFF
696.6000		QP	V			X	LOW	21.5	4.6	34.8			46.0	NFF
696.6000		QP	V			Y	LOW	21.5	4.6	34.8			46.0	NFF
696.6000		QP	V			Z	LOW	21.5	4.6	34.8			46.0	NFF
780.0000		QP	H			X	MED.	22.2	5.4	34.7			46.0	NFF
780.0000		QP	H			Y	MED.	22.2	5.4	34.7			46.0	NFF
780.0000		QP	H			Z	MED.	22.2	5.4	34.7			46.0	NFF
780.0000		QP	V			X	MED.	22.2	5.4	34.7			46.0	NFF
780.0000		QP	V			Y	MED.	22.2	5.4	34.7			46.0	NFF
780.0000		QP	V			Z	MED.	22.2	5.4	34.7			46.0	NFF
863.6000		QP	H			X	HIGH	22.4	5.4	34.5			46.0	NFF
863.6000		QP	H			Y	HIGH	22.4	5.4	34.5			46.0	NFF
863.6000		QP	H			Z	HIGH	22.4	5.4	34.5			46.0	NFF
863.6000		QP	V			X	HIGH	22.4	5.4	34.5			46.0	NFF
863.6000		QP	V			Y	HIGH	22.4	5.4	34.5			46.0	NFF
863.6000		QP	V			Z	HIGH	22.4	5.4	34.5			46.0	NFF

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.242)

COMPANY	Zymed	DATE	3/14/00
EUT	VHF Telemetry Device	DUTY CYCLE	0.00 %
MODEL	4200.0	PEAK TO AVG.	0 dB
S/N	0	TEST DIST.	3 METERS
TEST ENGINEER	Joey J. Madlangbayan	CLS	F

Frequency MHz	Test Distance (Meters)	Antenna Pol. (H or V) & Quasi-Peak (QP)	Meter Reading (dBuV)	Antenna Height (Meters)	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
870.7500		QP	H			X	LOW	22.4	5.4	34.5			46.0	NFF
870.7500		QP	H			Y	LOW	22.4	5.4	34.5			46.0	NFF
870.7500		QP	H			Z	LOW	22.4	5.4	34.5			46.0	NFF
870.7500		QP	V			X	LOW	22.4	5.4	34.5			46.0	NFF
870.7500		QP	V			Y	LOW	22.4	5.4	34.5			46.0	NFF
870.7500		QP	V			Z	LOW	22.4	5.4	34.5			46.0	NFF
975.0000		QP	H			X	MED.	24.3	6.3	33.6			46.0	NFF
975.0000		QP	H			Y	MED.	24.3	6.3	33.6			46.0	NFF
975.0000		QP	H			Z	MED.	24.3	6.3	33.6			46.0	NFF
975.0000		QP	V			X	MED.	24.3	6.3	33.6			46.0	NFF
975.0000		QP	V			Y	MED.	24.3	6.3	33.6			46.0	NFF
975.0000		QP	V			Z	MED.	24.3	6.3	33.6			46.0	NFF
1079.5000		A	H			X	HIGH	24.4	4.4	30.7			46.0	NFF
1079.5000		A	H			Y	HIGH	24.4	4.4	30.7			46.0	NFF
1079.5000		A	H			Z	HIGH	24.4	4.4	30.7			46.0	NFF
1079.5000		A	V			X	HIGH	24.4	4.4	30.7			46.0	NFF
1079.5000		A	V			Y	HIGH	24.4	4.4	30.7			46.0	NFF
1079.5000		A	V			Z	HIGH	24.4	4.4	30.7			46.0	NFF

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.242)

COMPANY	Zymed	DATE	3/14/00
EUT	VHF Telemetry Device	DUTY CYCLE	0.00 %
MODEL	4200.0	PEAK TO AVG	0 dB
S/N	0	TEST DIST.	3 METERS
TEST ENGINEER	Joey J. Madlangbayan	LAB	F

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polarity (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)	Comment
1219.0500		A	H			X	LOW	25.0	4.9	31.3			46.0	NFF
1219.0500		A	H			Y	LOW	25.0	4.9	31.3			46.0	
1219.0500		A	H			Z	LOW	25.0	4.9	31.3			46.0	
1219.0500		A	V			X	LOW	25.0	4.9	31.3			46.0	
1219.0500		A	V			Y	LOW	25.0	4.9	31.3			46.0	
1219.0500		A	V			Z	LOW	25.0	4.9	31.3			46.0	
1365.0000		A	H			X	MED.	25.2	5.4	31.3			46.0	
1365.0000		A	H			Y	MED.	25.2	5.4	31.3			46.0	
1365.0000		A	H			Z	MED.	25.2	5.4	31.3			46.0	
1365.0000		A	V			X	MED.	25.2	5.4	31.3			46.0	
1365.0000		A	V			Y	MED.	25.2	5.4	31.3			46.0	
1365.0000		A	V			Z	MED.	25.2	5.4	31.3			46.0	
1511.3000		A	H			X	HIGH	26.8	5.5	31.4			46.0	
1511.3000		A	H			Y	HIGH	26.8	5.5	31.4			46.0	
1511.3000		A	H			Z	HIGH	26.8	5.5	31.4			46.0	
1511.3000		A	V			X	HIGH	26.8	5.5	31.4			46.0	
1511.3000		A	V			Y	HIGH	26.8	5.5	31.4			46.0	
1511.3000		A	V			Z	HIGH	26.8	5.5	31.4			46.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.242)

COMPANY	Zymed	DATE	3/14/00
EUT	VHF Telemetry Device	DUTY CYCLE	0.00 %
MODEL	4200.0	PEAK TO AVG	0 dB
S/N	0	TEST DIST	3 METERS
TEST ENGINEER	Joey J. Madlangbayan	LOG	F

Frequency MHz	Peak Reading (dBuV)	Average (QP) or Quasi-Peak (QP)	Antenna Polar (V or H)	Antenna Height (meters)	EUT azimuth (degrees)	EUT Axis (X,Y,Z)	TEST Ch Channel	Amplifier Factor (dB)	Cable Loss (dB)	Antenna Factor (dB)	Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
1044.9000		A	H			X	LOW	23.8	4.4	30.7			46.0	NFF
1044.9000		A	H			Y	LOW	23.8	4.4	30.7			46.0	
1044.9000		A	H			Z	LOW	23.8	4.4	30.7			46.0	
1044.9000		A	V			X	LOW	23.8	4.4	30.7			46.0	
1044.9000		A	V			Y	LOW	23.8	4.4	30.7			46.0	
1044.9000		A	V			Z	LOW	23.8	4.4	30.7			46.0	
1170.0000		A	H			X	MED.	25.0	4.9	31.3			46.0	
1170.0000		A	H			Y	MED.	25.0	4.9	31.3			46.0	
1170.0000		A	H			Z	MED.	25.0	4.9	31.3			46.0	
1170.0000		A	V			X	MED.	25.0	4.9	31.3			46.0	
1170.0000		A	V			Y	MED.	25.0	4.9	31.3			46.0	
1170.0000		A	V			Z	MED.	25.0	4.9	31.3			46.0	
1295.4000		A	H			X	HIGH	25.6	5.0	31.2			46.0	
1295.4000		A	H			Y	HIGH	25.6	5.0	31.2			46.0	
1295.4000		A	H			Z	HIGH	25.6	5.0	31.2			46.0	
1295.4000		A	V			X	HIGH	25.6	5.0	31.2			46.0	
1295.4000		A	V			Y	HIGH	25.6	5.0	31.2			46.0	
1295.4000		A	V			Z	HIGH	25.6	5.0	31.2			46.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.242)

COMPANY	Zymed	DATE	3/14/00
EUT	VHF Telemetry Device	DUTY CYCLE	0.00 %
MODEL	4200.0	PREAMP GAIN	0 dB
S/N	0	DIST/POL	3 METERS
TEST ENGINEER	Joey J. Madlangbayan	LAB	F

Frequency (MHz)	Peak Reading (dBuV)	Average (QP) or Quasi-Peak (QP)	Antenna Polarity (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 vs. Limit (dB)	Spec Limit (dBuV/m)	Comment
1393.2000		A	H			X	LOW	26.2	5.4	31.3			46.0	NFF
1393.2000		A	H			Y	LOW	26.2	5.4	31.3			46.0	
1393.2000		A	H			Z	LOW	26.2	5.4	31.3			46.0	
1393.2000		A	V			X	LOW	26.2	5.4	31.3			46.0	
1393.2000		A	V			Y	LOW	26.2	5.4	31.3			46.0	
1393.2000		A	V			Z	LOW	26.2	5.4	31.3			46.0	
1560.0000		A	H			X	MED.	27.3	5.7	31.2			46.0	
1560.0000		A	H			Y	MED.	27.3	5.7	31.2			46.0	
1560.0000		A	H			Z	MED.	27.3	5.7	31.2			46.0	
1560.0000		A	V			X	MED.	27.3	5.7	31.2			46.0	
1560.0000		A	V			Y	MED.	27.3	5.7	31.2			46.0	
1560.0000		A	V			Z	MED.	27.3	5.7	31.2			46.0	
1727.2000		A	H			X	HIGH	27.9	6.1	31.3			46.0	
1727.2000		A	H			Y	HIGH	27.9	6.1	31.3			46.0	
1727.2000		A	H			Z	HIGH	27.9	6.1	31.3			46.0	
1727.2000		A	V			X	HIGH	27.9	6.1	31.3			46.0	
1727.2000		A	V			Y	HIGH	27.9	6.1	31.3			46.0	
1727.2000		A	V			Z	HIGH	27.9	6.1	31.3			46.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.242)

COMPANY	Zymed	DATE	3/14/00
EUT	VHF Telemetry Device	DUTY CYCLE	0.00 %
MODEL	4200.0	PRE-AMP	0 dB
S/N	0	TEST DIST.	3 METERS
TEST ENGINEER	Joey J. Madlangbayan	CAB	F

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Antenna Polar (H or V)	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)	Comment
1567.3500		A	H			X	LOW	27.3	5.7	31.2			46.0	NFF
1567.3500		A	H			Y	LOW	27.3	5.7	31.2			46.0	
1567.3500		A	H			Z	LOW	27.3	5.7	31.2			46.0	
1567.3500		A	V			X	LOW	27.3	5.7	31.2			46.0	
1567.3500		A	V			Y	LOW	27.3	5.7	31.2			46.0	
1567.3500		A	V			Z	LOW	27.3	5.7	31.2			46.0	
1755.0000		A	H			X	MED.	28.5	6.2	30.6			46.0	
1755.0000		A	H			Y	MED.	28.5	6.2	30.6			46.0	
1755.0000		A	H			Z	MED.	28.5	6.2	30.6			46.0	
1755.0000		A	V			X	MED.	28.5	6.2	30.6			46.0	
1755.0000		A	V			Y	MED.	28.5	6.2	30.6			46.0	
1755.0000		A	V			Z	MED.	28.5	6.2	30.6			46.0	
1943.1000		A	H			X	HIGH	29.1	6.6	30.8			46.0	
1943.1000		A	H			Y	HIGH	29.1	6.6	30.8			46.0	
1943.1000		A	H			Z	HIGH	29.1	6.6	30.8			46.0	
1943.1000		A	V			X	HIGH	29.1	6.6	30.8			46.0	
1943.1000		A	V			Y	HIGH	29.1	6.6	30.8			46.0	
1943.1000		A	V			Z	HIGH	29.1	6.6	30.8			46.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

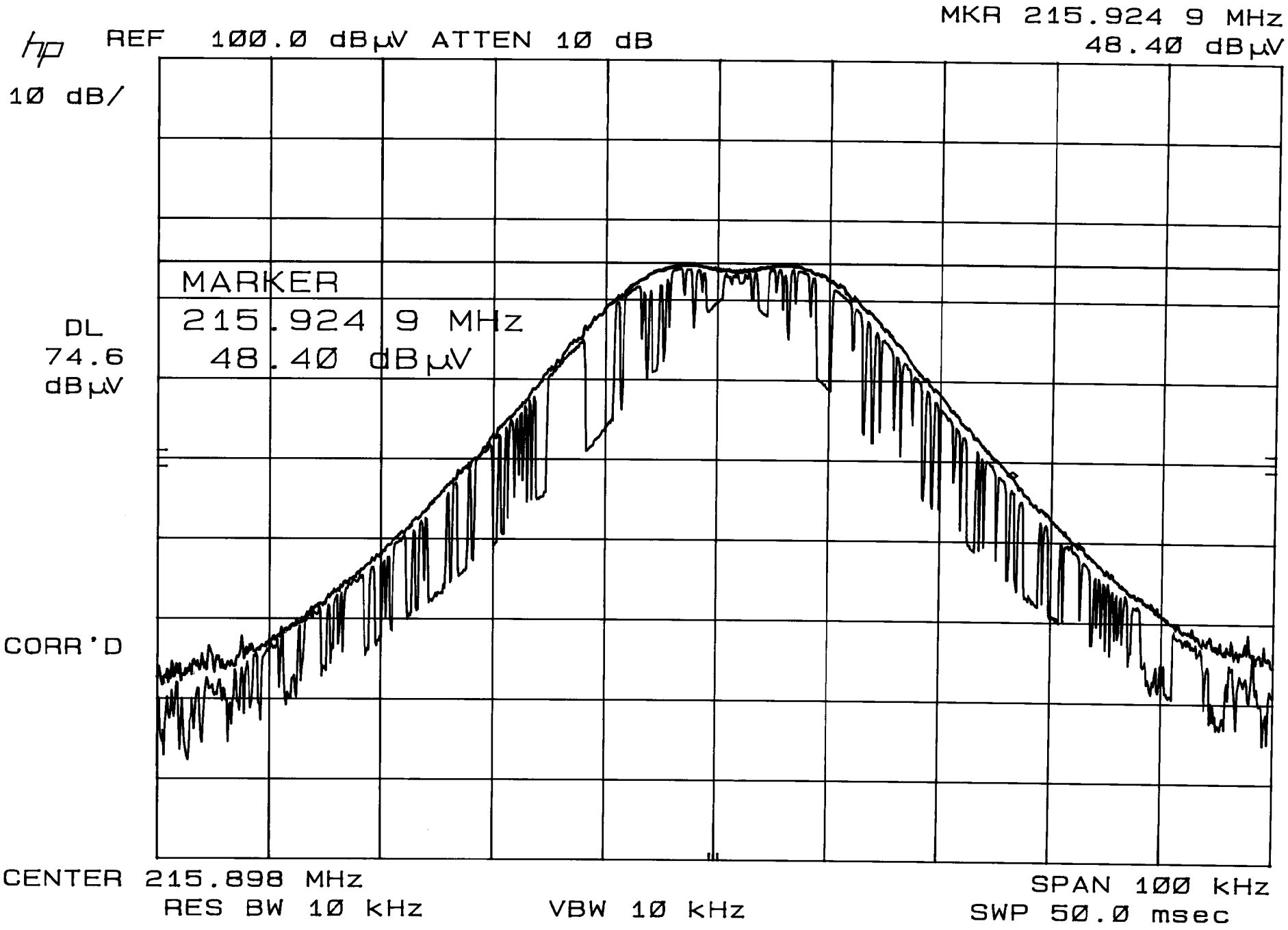
RADIATED EMISSIONS (FCC SECTION 15.242)

COMPANY	Zymed	DATE	3/14/00
EUT	VHF Telemetry Device	DUTY CYCLE	0.00 %
MODEL	4200.0	PEAK TO AVG	0 dB
S/N	0	TEST DIST.	3 METERS
TEST ENGINEER	Joey J. Madlangbayan	LOG	F

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi-Peak (QP)	Receiver Peak (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
1741.5000		A	H			X	LOW	28.5	6.1	30.6			46.0	
1741.5000		A	H			Y	LOW	28.5	6.1	30.6			46.0	
1741.5000		A	H			Z	LOW	28.5	6.1	30.6			46.0	
1741.5000		A	V			X	LOW	28.5	6.1	30.6			46.0	
1741.5000		A	V			Y	LOW	28.5	6.1	30.6			46.0	
1741.5000		A	V			Z	LOW	28.5	6.1	30.6			46.0	
1950.0000		A	H			X	MED.	29.1	6.6	33.2			46.0	
1950.0000		A	H			Y	MED.	29.1	6.6	33.2			46.0	
1950.0000		A	H			Z	MED.	29.1	6.6	33.2			46.0	
1950.0000		A	V			X	MED.	29.1	6.6	33.2			46.0	
1950.0000		A	V			Y	MED.	29.1	6.6	33.2			46.0	
1950.0000		A	V			Z	MED.	29.1	6.6	33.2			46.0	
2159.0000		A	H			X	HIGH	29.8	7.0	33.2			46.0	
2159.0000		A	H			Y	HIGH	29.8	7.0	33.2			46.0	
2159.0000		A	H			Z	HIGH	29.8	7.0	33.2			46.0	
2159.0000		A	V			X	HIGH	29.8	7.0	33.2			46.0	
2159.0000		A	V			Y	HIGH	29.8	7.0	33.2			46.0	
2159.0000		A	V			Z	HIGH	29.8	7.0	33.2			46.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING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48.40 dBµV
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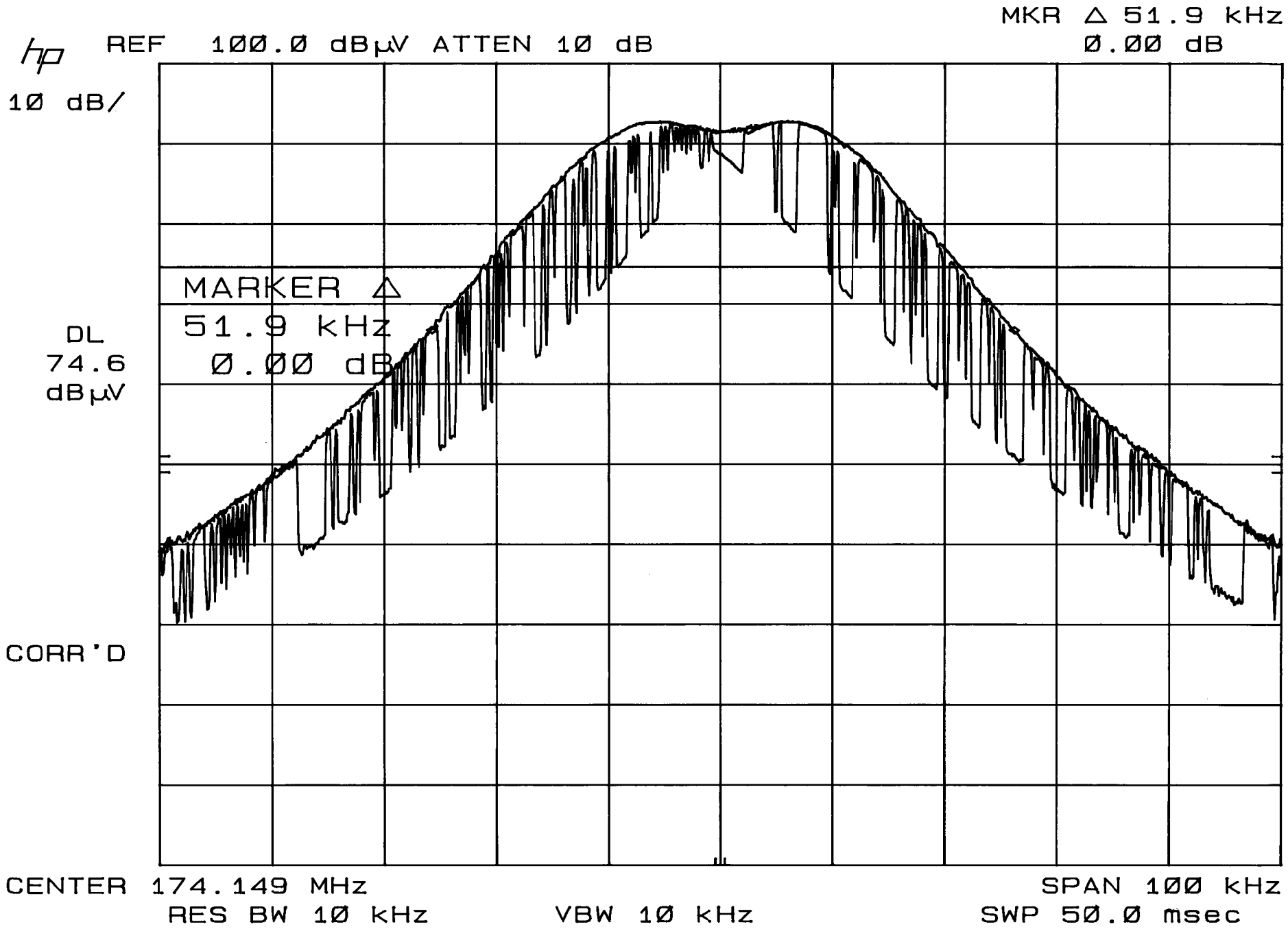
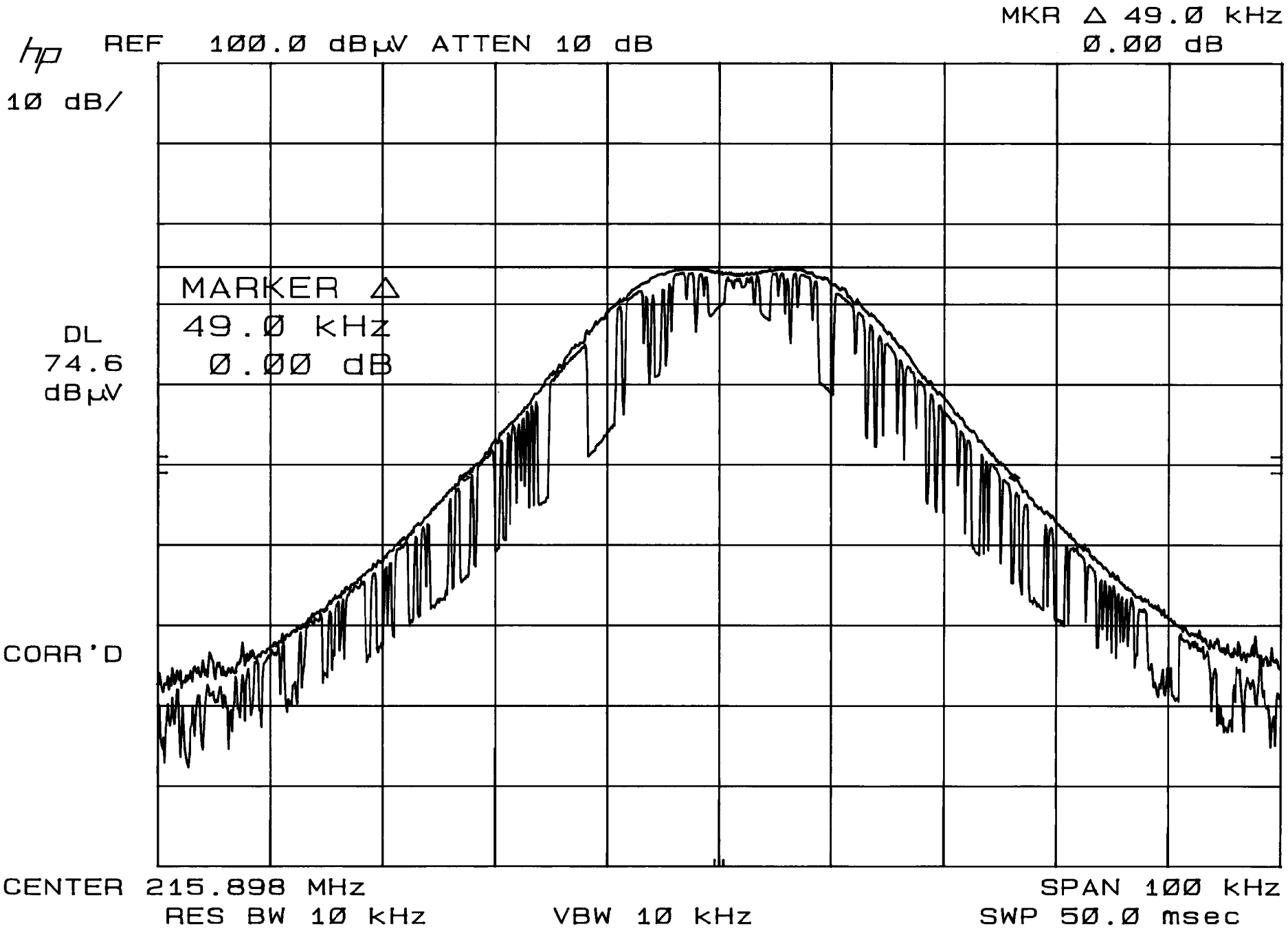
10 dB/
MARKER
215.924 9 MHz
48.40 dBµV
DL
74.6
dBµV
CORR'D
CENTER 215.898 MHz
RES BW 10 kHz
VBW 10 kHz
SPAN 100 kHz
SWP 50.0 msec


MKR Δ 51.9 kHz
0.00 dB
REF 100.0 dBμV ATTEN 10 dB
10 dB/
MARKER Δ
51.9 kHz
0.00 dB
DL
74.6
dBμV
CORR'D
CENTER 174.149 MHz
SPAN 100 kHz
RES BW 10 kHz
VBW 10 kHz
SWP 50.0 msec


MKR Δ 49.0 kHz
0.00 dB
REF 100.0 dBμV ATTEN 10 dB
10 dB/
MARKER Δ
49.0 kHz
0.00 dB
DL
74.6
dBμV
CORR'D
CENTER 215.898 MHz
SPAN 100 kHz
RES BW 10 kHz
VBW 10 kHz
SWP 50.0 msec

RADIATED EMISSIONS

COMPANY NAME: Zymeo **DATE:** 3-14-2000

EUT: VHF Telemetry Device **EUT S/N:** –

EUT MODEL: 4200 **LOCATION:** ☐ BREA ☐ SILVERADO ☒ AGOURA

SPECIFICATION: FCC Pts ~~22~~ 24 1 **CLASS:** _____ **TEST DISTANCE:** 3m **LAB:** F

ANTENNA: ☒ LOOP ☒ BICONICAL ☒ LOG ☒ HORN **POLARIZATION:** ☒ VERT ☒ HORIZ

☒ QUALIFICATION ☐ ENGINEERING ☐ MFG. AUDIT **ENGINEER:** J. Madiangbayan

NOTES:

Temp: 72° F
Humidity: 56%

Spirious Emissions Pt 15.209

Frequency (MHz)	Peak Reading (dBuV/m)	Quasi-Peak (dBuV/m)	Antenna Height (meters)	Azimuth (degrees)	Delta * (dB)	Corrected Limit (dBuV/m)	Comments
	No	Frequencies		Found			Vertical
	No	Frequencies		Found			Horizontal

* DELTA = METER READING - CORRECTED LIMIT