

*FCC PART 15, SUBPART B AND C
TEST METHOD: ANSI C63.4-1992*

for

900 MHz HALF DUPLEX TRANSCEIVER

Model: M90SXCRN1

Prepared for

VTECH WIRELESS, INC.
1 CORPORATE PARK DRIVE, SUITE 100
IRVINE, CALIFORNIA 92606-5113

Prepared by: *Kyle Fujimoto*

KYLE FUJIMOTO

Approved by: *Scott McCutchan*

SCOTT McCUTCHAN

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

DATE: JULY 6, 1999

	REPORT BODY	APPENDICES				TOTAL
		A	B	C	D	
PAGES	16	2	2	17	42	79

This report shall not be reproduced except in full, without the written approval of Compatible Electronics.



114 OLINDA DRIVE, BREA, CALIFORNIA 92823 PHONE: (714) 579-0500 FAX: (714) 579-1850

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
5.1 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 Conducted Emissions Test	13
7.2 Radiated Emissions (Spurious and Harmonics) Test	14
7.3 RF Band Edges	15
8. CONCLUSIONS	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 • Radiated Emissions Photos • Antenna and Effective Gain Factors
D	Data Sheets

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 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: 900 MHz Half Duplex Transceiver
Model: M90SXCRN1
S/N: 01

Product Description: See Expository Statement.

Modifications: The EUT was not modified during the testing.

Manufacturer: VTech Wireless, Inc.
1 Corporate Park Drive, Suite 100
Irvine, California 92606-5113

Test Date: June 29, 1999

IC File # for Canada IC2154-D

Test Specifications: EMI requirements
FCC Title 47, Part 15 Subpart C, Sections 15.205 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	Complies with the Class B limits of FCC Title 47, Part 15 Subpart B; and Subpart C, section 15.207
2	Radiated RF Emissions, 10 kHz - 9300 MHz	Complies with the limits of FCC Title 47, Part 15, Subpart B and Subpart C, sections 15.205 and 15.249



1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the 900 MHz Half Duplex Transceiver Model: M90SXCRN1. 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 FCC Title 47, Part 15, Subpart B and Subpart C, sections 15.205 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

VTech Wireless, Inc.

Terry Flach	Engineering
Thomas Craft	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 June 29, 1999

2.5 Disposition of the Test Sample

The test sample was returned to VTech Wireless, Inc. on July 7, 1999.

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 – 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.
FCC Title 47, Subpart B.	FCC Rules – Radio frequency devices (including digital devices) – Unintentional Radiators



4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - EMI

Setup and operation of the equipment under test.

Specifics of the EUT and Peripherals Tested

The 900 MHz Half Duplex Transceiver Model: M90SXCRN1 (EUT) was connected to the laptop computer and antenna via its RS-232 and RF output ports, respectively. The laptop computer was also connected to a printer and power supply via its parallel and power ports, respectively. The EUT was continuously receiving and transmitting.

Three different antennas were used for the testing. For the fundamental and harmonics, the data was taken with all three antennas. Each of the antennas was investigated in three orthogonal axis during the initial scan. The final fundamental and harmonics data was taken in the worst case axis for each of the antennas as follows:

Antenna	Worst Case Axis
½ wave dipole	Y
1.625 inch vertical whip	Y
Monolithic Chip Multilayer	X

For the spurious and conducted emissions, the ½ wave dipole was the worst case scenario and produced the highest emissions. The final spurious and conducted data was taken with this antenna.

Please see Appendix D for the data sheets. Please see the special antenna information exhibit for more details on each of the antennas.



4.1.1 Cable Construction and Termination

- Cable 1 This is a 1 foot unshielded cable connecting the EUT to the laptop computer. It has a terminal block connected to the data pins (3 through 10) at the EUT end and a D-9 pin connector at the laptop computer end.
- Cable 2 This is a 1 foot unshielded cable connecting the EUT to the laptop computer. It has a terminal block connected to the power pins (1 and 2) at the EUT end and a 6 pin mini DIN at the laptop computer end.
- Cable 3 (for the ½ wave dipole antenna only) This is a 1 foot braid shielded cable connecting the EUT to the ½ wave dipole antenna. It has a metallic MMCX connector at the EUT end and a reverse TNC metallic connector at the antenna end. The shield of the cable was grounded to the chassis via the connectors.
- Cable 4 This is a 6 foot unshielded cable connecting the EUT to the AC Adapter. It has a 1/8 inch power connector at the EUT end and a two pin power connector at the AC Adapter end.
- Cable 5 This is a 5 foot braid and foil shielded cable connecting the printer to the laptop computer. It has a Centronics metallic type connector at the printer end and a D-25 pin metallic connector at the laptop computer end. The cable was bundled to a length of bundled to a length of 1 meter. The shield of the cable was grounded to the chassis via the connectors.
- Cable 6 (for the 1.625 inch vertical whip only) This is a 1 foot braid shielded cable connecting the EUT to the antenna. It has a metallic MMCX miniature coax connector at each end. The shield of the cable was grounded to the chassis via the connectors.
- Cable 7 (for the Monolithic Chip Multilayer Antenna only) This is an 8 inch braid shielded cable connecting the EUT to the antenna. It has a metallic MMCX miniature coax connector at the EUT end and a reverse TNC metallic connector at the antenna end. The shield of the cable was grounded to the chassis via the connectors.



5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
900 MHz HALF DUPLEX TRANSCEIVER (EUT)	VTECH WIRELESS, INC.	M90SXCRN1	01	NRLM90SXCRN1
LAPTOP COMPUTER	TOSHIBA	PA124OU VCD	X7345171-1	DoC
AC ADAPTER	TOSHIBA	PA245UV	N/A	N/A
PRINTER	CITIZEN	LSP-10	1130060-73	DLK66TLSP-10
COAXIAL ½ WAVE DIPOLE ANTENNA (EUT)	CENTURION INT. INC.	N/A	N/A	N/A
1.625 INCH VERTICAL WHIP (EUT)	VTECH WIRELESS, INC.	N/A	N/A	N/A
MONOLITHIC CHIP MULTILAYER ANTENNA (EUT)	MURATA	P/N: LDA46D0950A	N/A	N/A



5.2 EMI Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Spectrum Analyzer	Hewlett Packard	8566B	3638A08768	Dec. 11, 1998	Dec. 11, 1999
Preamplifier	Com Power	PA-102	01414	Jan. 16, 1999	Jan. 16, 2000
Quasi-Peak Adapter	Hewlett Packard	85650A	2811A01362	April 9, 1999	April 9, 2000
Biconical Antenna	Com Power	AB-100	01543	Oct. 15, 1998	Oct. 15, 1999
Log Periodic Antenna	Com Power	AL-100	01011	Oct. 15, 1998	Oct. 15, 1999
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
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	Hewlett Packard	8449B	3008A008766	Jan. 30, 1999	Jan. 30, 2000
Horn Antenna	Antenna Research	DRG-118/A	1053	Dec. 8, 1995	N/A
Loop Antenna	Com-Power	AL-130	25309	April 13, 1999	April 13, 2000



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 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 detector 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 0.45 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 final data was collected under program control by the HP 9000/300 in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave.



7.2 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 Hewlett Packard Microwave Preamplifier Model: 8449B 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. The quasi-peak adapter was used only for those readings which are marked accordingly on the data sheets. The frequencies above 1 GHz were averaged manually by narrowing the video filter down to 1 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
10 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 300 MHz	120 kHz	Biconical Antenna
300 MHz to 1 GHz	120 kHz	Log Periodic Antenna
1 GHz to 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.

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.



7.3 RF Band Edges

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. The spectral plots are located in Appendix D.



8. CONCLUSIONS

The 900 MHz Half Duplex Transceiver Model: M90SXCRN1 meets all of the specification limits defined in FCC Title 47, Part 15, Subpart B and Subpart C, sections 15.205 and 15.249.





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.

Modifications:

No modifications were made to the EUT.





APPENDIX B

***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***



ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

900 MHz Half Duplex Transceiver
Model: M90SXCRN1
S/N: N/A

There were no additional models covered under this report.

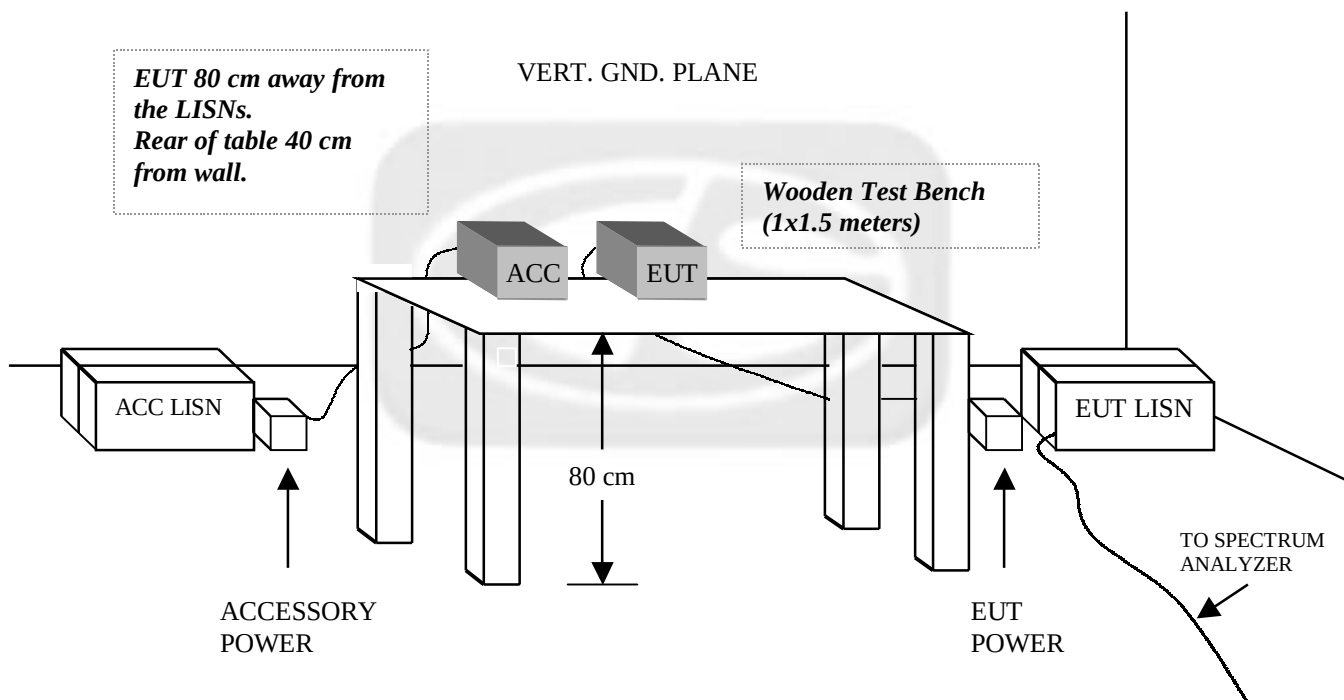




APPENDIX C

DIAGRAMS, CHARTS AND PHOTOS



FIGURE 1: CONDUCTED EMISSIONS TEST SETUP



FRONT VIEW

VTECH WIRELESS, INC.
900 MHZ HALF DUPLEX TRANSCEIVER (1/2 WAVE DIPOLE)
Model: M90SXCRN1
FCC SUBPART B AND C - RADIATED EMISSIONS – 6-29-99

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



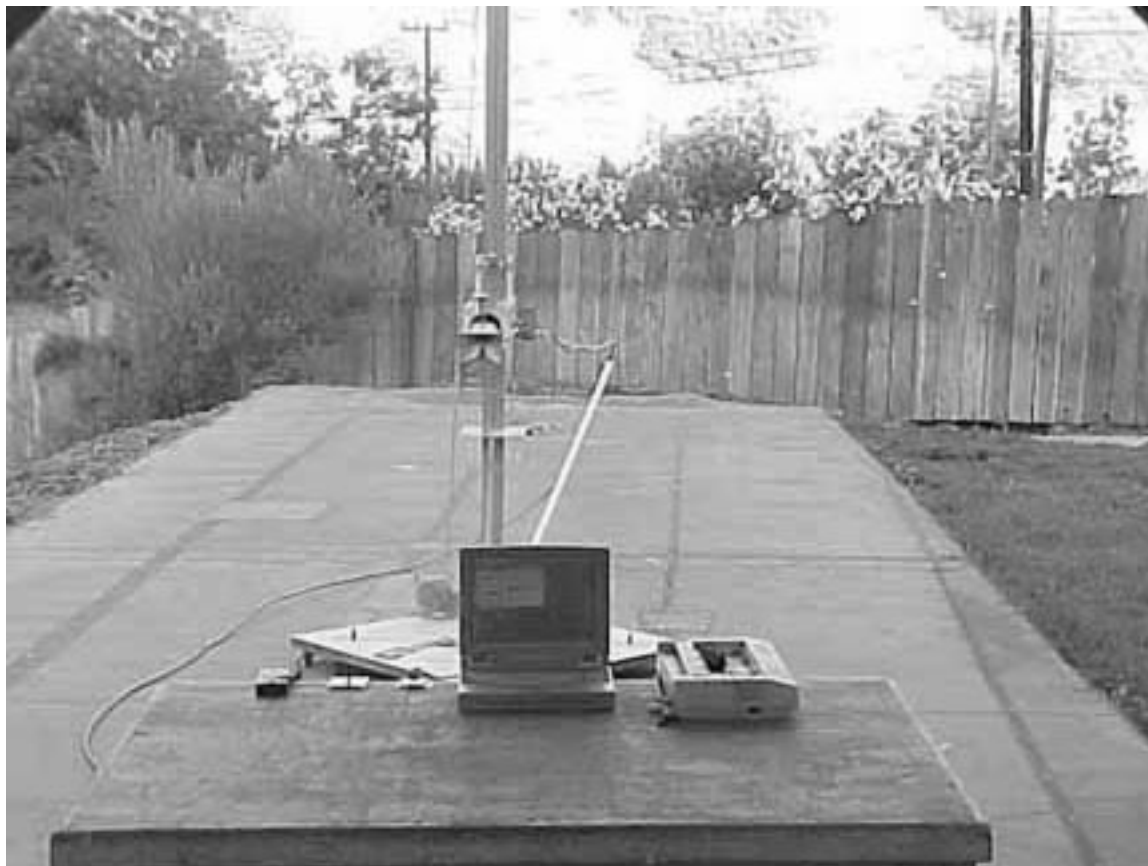


REAR VIEW

VTECH WIRELESS, INC.
900 MHZ HALF DUPLEX TRANSCEIVER (1/2 WAVE DIPOLE)
Model: M90SXCRN1
FCC SUBPART B AND C - RADIATED EMISSIONS – 6-29-99

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





FRONT VIEW

VTECH WIRELESS, INC.
900 MHZ HALF DUPLEX TRANSCEIVER (1.625 INCH VERTICAL WHIP)
Model: M90SXCRN1
FCC SUBPART B AND C - RADIATED EMISSIONS – 6-29-99

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





REAR VIEW

VTECH WIRELESS, INC.
900 MHZ HALF DUPLEX TRANSCEIVER (1.625 INCH VERTICAL WHIP)
Model: M90SXCRN1
FCC SUBPART B AND C - RADIATED EMISSIONS – 6-29-99

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





FRONT VIEW

VTECH WIRELESS, INC.
900 MHZ HALF DUPLEX TRANSCEIVER (MONOLITHIC CHIP MULTILAYER ANT.)
Model: M90SXCRN1
FCC SUBPART B AND C - RADIATED EMISSIONS – 6-29-99

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





REAR VIEW

VTECH WIRELESS, INC.
900 MHZ HALF DUPLEX TRANSCEIVER (MONOLITHIC CHIP MULTILAYER ANT.)
Model: M90SXCRN1
FCC SUBPART B AND C - RADIATED EMISSIONS – 6-29-99

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS





FRONT VIEW

VTECH WIRELESS, INC.
900 MHZ HALF DUPLEX TRANSCEIVER
Model: M90SXCRN1
FCC SUBPART B AND C - CONDUCTED EMISSIONS – 6-29-99

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





REAR VIEW

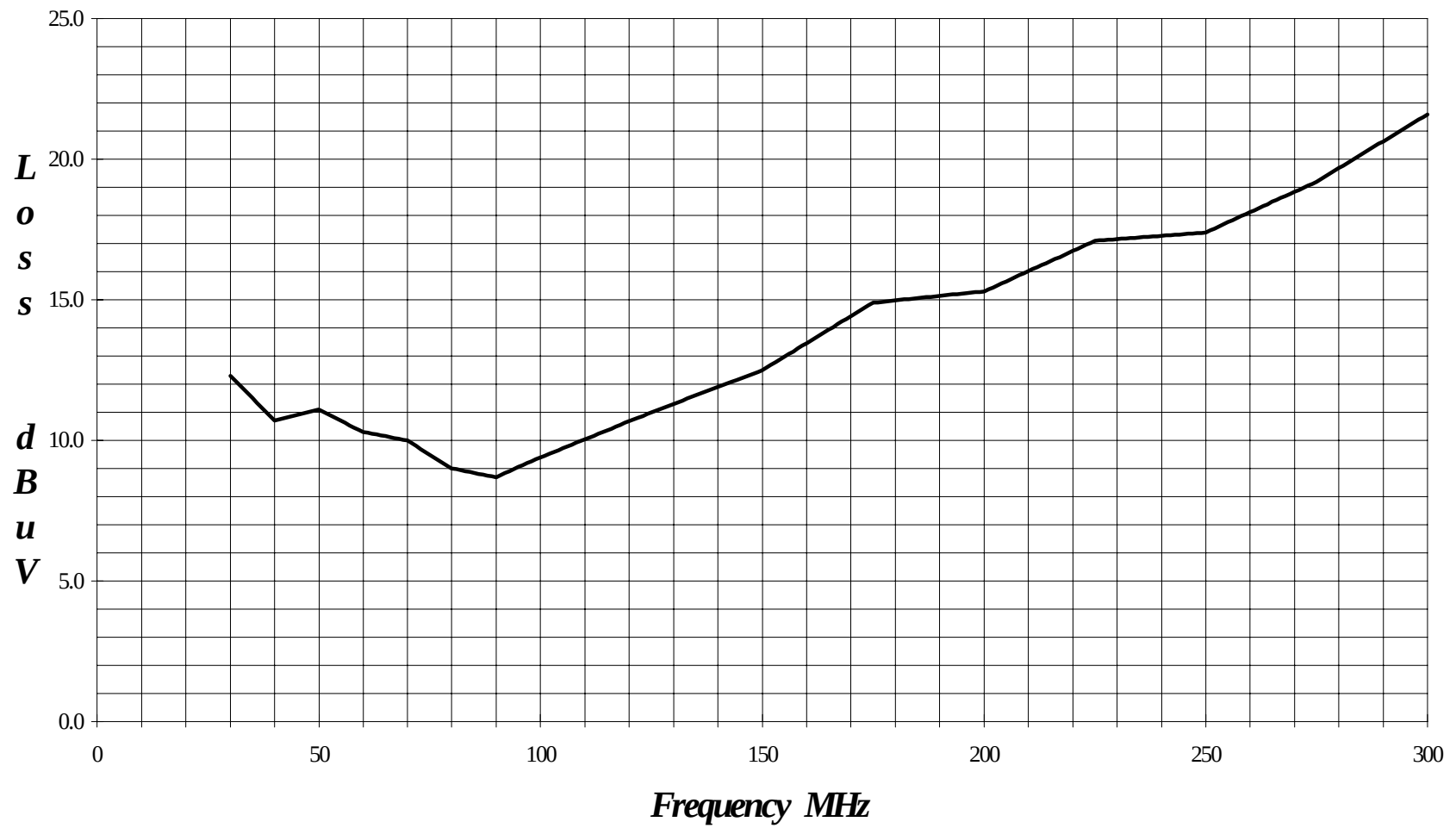
VTECH WIRELESS, INC.
900 MHZ HALF DUPLEX TRANSCEIVER
Model: M90SXCRN1
FCC SUBPART B AND C - CONDUCTED EMISSIONS – 6-29-99

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



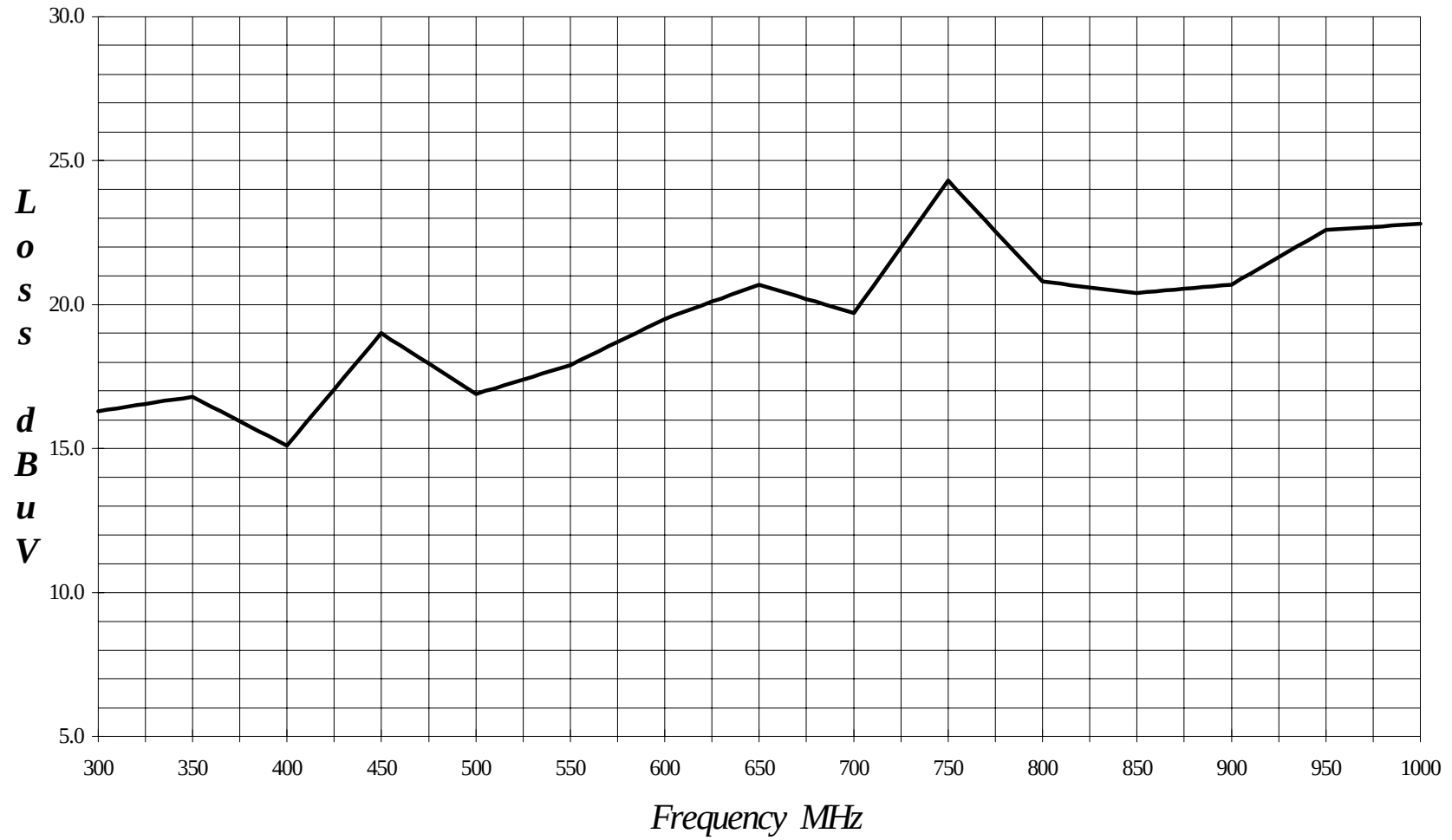
Cal: 10/15/98

LAB "D" BICONICAL ANTENNA AB-100 S/N 01548



Cal: 10/15/98

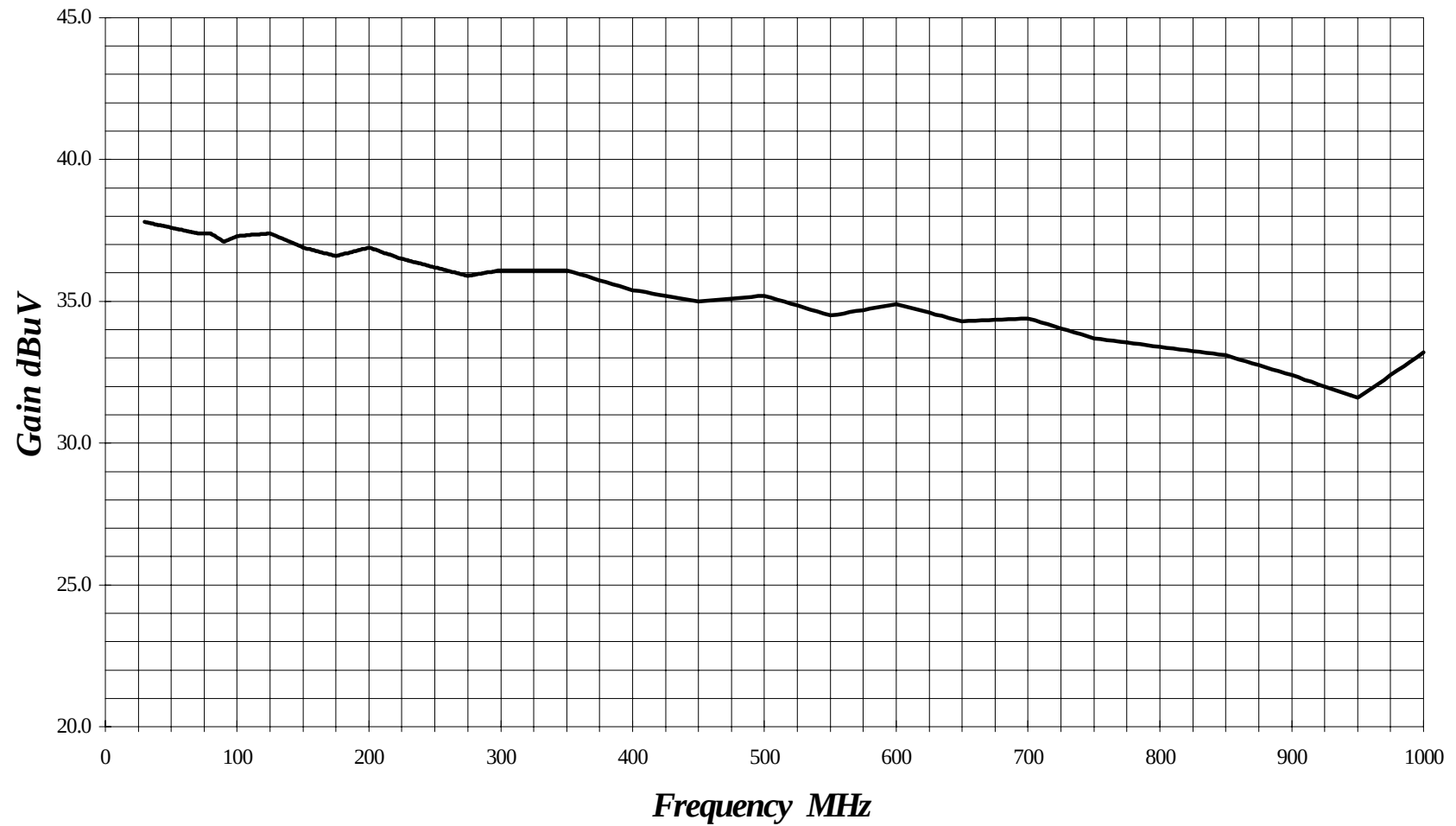
LAB "D" LOG PERIODIC ANTENNA AL-100 S/N 01117



Lab "D" Effective: 1/16/99

Effective Gain = Preamplifier Gain – Cable Loss

PREAMPLIFIER EFFECTIVE GAIN AT 3 METERS PA-102 S/N: 1017



HEWLETT PACKARD 8449B

MICROWAVE PREAMPLIFIER

S/N: 3008A008766

CALIBRATION DATE: JANUARY 30, 1999

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	36.9	9.5	34.3
1.1	36.3	10.0	33.7
1.2	36.4	10.5	34.1
1.3	36.2	11.0	33.7
1.4	36.3	11.5	34.0
1.5	35.7	12.0	33.9
1.6	35.9	12.5	34.4
1.7	35.7	13.0	32.9
1.8	35.6	13.5	31.6
1.9	35.5	14.0	31.8
2.0	35.4	14.5	31.9
2.5	35.6	15.0	32.2
3.0	35.2	15.5	32.8
3.5	35.2	16.0	32.4
4.0	34.3	16.5	32.1
4.5	34.1	17.0	32.3
5.0	34.3	17.5	30.3
5.5	33.0	18.0	31.5
6.0	34.1	18.5	31.2
6.5	34.5	19.0	32.2
7.0	34.3	19.5	32.0
7.5	33.9	20.0	32.0
8.0	34.5	20.5	33.2
8.5	34.5	21.0	30.9
9.0	34.4	22.0	32.1



E-FIELD ANTENNA FACTOR CALIBRATION

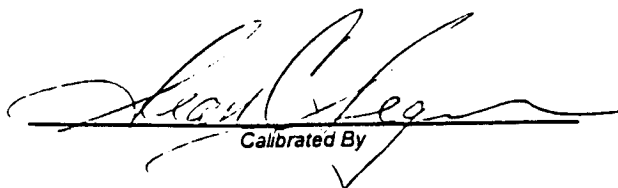
$$E(\text{dB V/m}) = V_o(\text{dB V}) + AFE(\text{dB/m})$$

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:		4/13/99	
Frequency MHz	Magnetic (dB/m)	Electric dB/m	
0.01	-40.6	10.9	
0.02	-41.5	10.0	
0.03	-39.9	11.6	
0.04	-40.2	11.3	
0.05	-41.5	10.0	
0.06	-41.1	10.4	
0.07	-41.3	10.2	
0.08	-41.6	9.9	
0.09	-41.7	9.8	
0.1	-41.7	9.8	
0.2	-44.0	7.5	
0.3	-41.6	9.9	
0.4	-41.6	9.9	
0.5	-41.7	9.8	
0.6	-41.5	10.0	
0.7	-41.4	10.1	
0.8	-41.5	10.0	
0.9	-41.6	9.9	
1	-41.2	10.3	
2	-40.5	11.0	
3	-40.8	10.7	
4	-41.0	10.5	
5	-40.5	11.0	
6	-40.5	11.0	
7	-40.7	10.8	
8	-40.8	10.7	
9	-40.1	11.4	
10	-40.4	11.1	
12	-41.0	10.5	
14	-42.1	9.4	
15	-42.3	9.2	
16	-42.7	8.8	
18	-41.0	10.5	
20	-41.1	10.4	
25	-43.4	8.1	
30	-45.3	6.2	

Trans. Antenna Height	2 meter
Receiving Antenna Height	2 meter



APPENDIX D

DATA SHEETS



RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with COAXIAL 1/2 WAVE DIPOLE	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	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
902.4000	59.6	59.5 QP	H	1.0	90	Y	LOW	21.3	5.0	0.0	85.8	-8.2	94.0	
902.4000	67.2	67.1 QP	V	1.0	180	Y	LOW	21.3	5.0	0.0	93.4	-0.6	94.0	
915.0000	58.2	58.1 QP	H	1.0	90	Y	MID	20.8	5.0	0.0	83.9	-10.1	94.0	
915.0000	64.7	64.6 QP	V	1.0	180	Y	MID	20.8	5.0	0.0	90.4	-3.6	94.0	
927.4000	54.8	54.7 QP	H	1.0	90	Y	HIGH	21.8	4.9	0.0	81.4	-12.6	94.0	
927.4000	62.8	62.7 QP	V	1.0	180	Y	HIGH	21.8	4.9	0.0	89.4	-4.6	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)



**COMPATIBLE
ELECTRONICS**

COMPANY	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with COAXIAL 1/2 WAVE DIPOLE	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	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
1804.8000	40.3	32.7 A	H	1.0	90	Y	LOW	24.5	3.5	35.6	25.1	-28.9	54.0	
1804.8000	51.7	45.4 A	V	2.0	180	Y	LOW	24.5	3.5	35.6	37.8	-16.2	54.0	
1830.0000	41.2	33.0 A	H	1.0	180	Y	MID	24.5	3.5	35.6	25.4	-28.6	54.0	
1830.0000	49.0	42.9 A	V	1.5	180	Y	MID	24.5	3.5	35.6	35.3	-18.7	54.0	
1854.8000	43.7	33.2 A	H	1.0	180	Y	HIGH	24.5	3.7	35.5	25.9	-28.1	54.0	
1854.8000	50.8	43.5 A	V	2.0	180	Y	HIGH	24.5	3.7	35.5	36.2	-17.8	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	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with COAXIAL 1/2 WAVE DIPOLE	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	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
2707.2000	39.8	32.6	A	H	180	Y	LOW	28.2	4.5	35.6	29.7	-24.3	54.0	
2707.2000	53.5	50.8	A	V	180	Y	LOW	28.2	4.5	35.6	47.9	-6.1	54.0	
2745.0000	43.4	33.0	A	H	90	Y	MID	28.2	4.5	35.6	30.1	-23.9	54.0	
2745.0000	53.5	51.5	A	V	180	Y	MID	28.2	4.5	35.6	48.6	-5.4	54.0	
2782.2000	41.3	32.2	A	H	180	Y	HIGH	29.7	4.6	35.2	31.3	-22.7	54.0	
2782.2000	53.6	51.5	A	V	0	Y	HIGH	29.7	4.6	35.2	50.6	-3.4	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	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with COAXIAL 1/2 WAVE DIPOLE	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	TEST DIST.	3 METERS
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (OP)	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
3609.6000	41.6	30.5 A	H	1.0	180	Y	LOW	29.6	5.0	35.2	29.9	-24.1	54.0	
3609.6000	47.5	42.6 A	V	1.5	180	Y	LOW	29.6	5.0	35.2	42.0	-12.0	54.0	
3660.0000	43.3	33.8 A	H	1.0	90	Y	MID	29.6	5.0	35.2	33.2	-20.8	54.0	
3660.0000	48.5	44.5 A	V	1.0	180	Y	MID	29.6	5.0	35.2	43.9	-10.1	54.0	
3709.6000	43.9	36.4 A	H	1.5	180	Y	HIGH	29.6	5.0	35.2	35.8	-18.2	54.0	
3709.6000	47.3	41.1 A	V	2.0	180	Y	HIGH	29.6	5.0	35.2	40.5	-13.5	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)



COMPATIBLE
ELECTRONICS

COMPANY	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with COAXIAL 1/2 WAVE DIPOLE	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	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
4512.0000	39.7	31.8 A	H	1.0	90	Y	LOW	30.9	5.6	34.1	34.2	-19.8	54.0	
4512.0000	49.0	45.3 A	V	2.5	180	Y	LOW	30.9	5.6	34.1	47.7	-6.3	54.0	
4575.0000	39.1	31.2 A	H	1.0	90	Y	MID	30.9	5.6	34.1	33.6	-20.4	54.0	
4575.0000	49.8	45.9 A	V	1.0	180	Y	MID	30.9	5.6	34.1	48.3	-5.7	54.0	
4637.0000	42.0	31.3 A	H	1.0	180	Y	HIGH	30.9	5.6	34.1	33.7	-20.3	54.0	
4637.0000	49.4	46.1 A	V	2.5	180	Y	HIGH	30.9	5.6	34.1	48.5	-5.5	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)



COMPATIBLE
ELECTRONICS

COMPANY	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with COAXIAL 1/2 WAVE DIPOLE	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	TEST DIST.	3 METERS
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (OP)	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
5414.4000	37.5	29.0	A	H	90	Y	LOW	32.4	6.0	33.0	34.4	-19.6	54.0	
5414.4000	45.2	38.6	A	V	180	Y	LOW	32.4	6.0	33.0	44.0	-10.0	54.0	
5490.0000	38.3	29.2	A	H	180	Y	MID	32.4	6.0	33.0	34.6	-19.4	54.0	
5490.0000	46.3	41.9	A	V	90	Y	MID	32.4	6.0	33.0	47.3	-6.7	54.0	
5564.4000	41.0	29.9	A	H	180	Y	HIGH	32.4	6.0	33.0	35.3	-18.7	54.0	
5564.4000	45.4	39.7	A	V	180	Y	HIGH	32.4	6.0	33.0	45.1	-8.9	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	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with COAXIAL 1/2 WAVE DIPOLE	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	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
6316.8000	40.6	31.9 A	H	1.0	180	Y	LOW	34.3	6.9	34.5	38.6	-15.4	54.0	
6316.8000	47.4	40.4 A	V	1.5	180	Y	LOW	34.3	6.9	34.5	47.1	-6.9	54.0	
6405.0000	40.5	32.2 A	H	1.0	90	Y	MID	34.3	6.9	34.5	38.9	-15.1	54.0	
6405.0000	48.0	42.4 A	V	1.5	180	Y	MID	34.3	6.9	34.5	49.1	-4.9	54.0	
6491.8000	40.0	31.7 A	H	1.0	180	Y	HIGH	34.3	6.9	34.5	38.4	-15.6	54.0	
6491.8000	48.8	44.3 A	V	2.0	180	Y	HIGH	34.3	6.9	34.5	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	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with COAXIAL 1/2 WAVE DIPOLE	DUTY CYCLE	100.00 %
MODEL	M90SXCRI	PEAK TO AVG	0.00 dB
S/N	1	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
7219.2000	***	***	A	H	***	***	Y	LOW	0.0	0.0	0.0	***	***	54.0	
7219.2000	***	***	A	V	***	***	Y	LOW	0.0	0.0	0.0	***	***	54.0	
7320.0000	***	***	A	H	***	***	Y	MID	0.0	0.0	0.0	***	***	54.0	
7320.0000	***	***	A	V	***	***	Y	MID	0.0	0.0	0.0	***	***	54.0	
7419.2000	***	***	A	H	***	***	Y	HIGH	0.0	0.0	0.0	***	***	54.0	
7419.2000	***	***	A	V	***	***	Y	HIGH	0.0	0.0	0.0	***	***	54.0	

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

*** NO EMISSIONS FOUND AT THIS FREQUENCY

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with COAXIAL 1/2 WAVE DIPOLE	DUTY CYCLE	100.00 %
MODEL	M90SXCNR1	PEAK TO AVG	0.00 dB
S/N	1	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
8121.6000	***	***	A	H	***	***	Y	LOW	0.0	0.0	0.0	***	***	54.0	
8121.6000	***	***	A	V	***	***	Y	LOW	0.0	0.0	0.0	***	***	54.0	
8235.0000	***	***	A	H	***	***	Y	MID	0.0	0.0	0.0	***	***	54.0	
8235.0000	***	***	A	V	***	***	Y	MID	0.0	0.0	0.0	***	***	54.0	
8346.6000	***	***	A	H	***	***	Y	HIGH	0.0	0.0	0.0	***	***	54.0	
8346.6000	***	***	A	V	***	***	Y	HIGH	0.0	0.0	0.0	***	***	54.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

*** NO EMISSIONS FOUND AT THIS FREQUENCY

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)



COMPANY	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with COAXIAL 1/2 WAVE DIPOLE	DUTY CYCLE	100.00 %
MODEL	M90SXCNR1	PEAK TO AVG	0.00 dB
S/N	1	TEST DIST.	3 METERS
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (OP)	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
9024.0000	***	*** A	H	***	***	Y	LOW	0.0	0.0	0.0	***	***	54.0	
9024.0000	***	*** A	V	***	***	Y	LOW	0.0	0.0	0.0	***	***	54.0	
9150.0000	***	*** A	H	***	***	Y	MID	0.0	0.0	0.0	***	***	54.0	
9150.0000	***	*** A	V	***	***	Y	MID	0.0	0.0	0.0	***	***	54.0	
9274.0000	***	*** A	H	***	***	Y	HIGH	0.0	0.0	0.0	***	***	54.0	
9274.0000	***	*** A	V	***	***	Y	HIGH	0.0	0.0	0.0	***	***	54.0	

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

*** NO EMISSIONS FOUND AT THIS FREQUENCY

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)



**COMPATIBLE
ELECTRONICS**

COMPANY	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with 1.625 INCH VERTICAL WHIP ANTENNA	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	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
902.4000	61.0	60.9 QP	H	1.0	180	Y	LOW	21.3	5.0	0.0	87.2	-6.8	94.0	
902.4000	62.3	62.2 QP	V	1.5	0	Y	LOW	21.3	5.0	0.0	88.5	-5.5	94.0	
915.0000	60.6	60.5 QP	H	1.0	180	Y	MID	20.8	5.0	0.0	86.3	-7.7	94.0	
915.0000	60.9	60.8 QP	V	1.5	0	Y	MID	20.8	5.0	0.0	86.6	-7.4	94.0	
927.4000	58.2	58.1 QP	H	1.0	180	Y	HIGH	21.8	4.9	0.0	84.8	-9.2	94.0	
927.4000	60.1	60.0 QP	V	1.0	0	Y	HIGH	21.8	4.9	0.0	86.7	-7.3	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)



COMPATIBLE
ELECTRONICS

COMPANY	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with 1.625 INCH VERTICAL WHIP ANTENNA	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	TEST DIST.	3 METERS
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (OP)	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
1804.8000	42.0	32.7 A	H	1.0	180	Y	LOW	24.5	3.5	35.6	25.1	-28.9	54.0	
1804.8000	49.3	43.5 A	V	1.0	90	Y	LOW	24.5	3.5	35.6	35.9	-18.1	54.0	
1830.0000	41.5	33.0 A	H	1.0	180	Y	MID	24.5	3.5	35.6	25.4	-28.6	54.0	
1830.0000	48.7	41.5 A	V	1.0	90	Y	MID	24.5	3.5	35.6	33.9	-20.1	54.0	
1854.8000	40.3	32.7 A	H	1.0	180	Y	HIGH	24.5	3.7	35.5	25.4	-28.6	54.0	
1854.8000	45.3	35.1 A	V	1.0	90	Y	HIGH	24.5	3.7	35.5	27.8	-26.2	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	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with 1.625 INCH VERTICAL WHIP ANTENNA	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	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
2707.2000	43.6	32.9 A	H	1.0	0	Y	LOW	28.2	4.5	35.6	30.0	-24.0	54.0	
2707.2000	44.4	32.4 A	V	1.0	90	Y	LOW	28.2	4.5	35.6	29.5	-24.5	54.0	
2745.0000	44.9	33.5 A	H	1.0	90	Y	MID	28.2	4.5	35.6	30.6	-23.4	54.0	
2745.0000	43.8	33.4 A	V	1.0	180	Y	MID	28.2	4.5	35.6	30.5	-23.5	54.0	
2782.2000	42.2	32.1 A	H	1.0	180	Y	HIGH	29.7	4.6	35.2	31.2	-22.8	54.0	
2782.2000	43.6	32.0 A	V	1.0	90	Y	HIGH	29.7	4.6	35.2	31.1	-22.9	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	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with 1.625 INCH VERTICAL WHIP ANTENNA	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	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	
3609.6000	41.1	30.3	A	H	1.0	90	Y	LOW	29.6	5.0	35.2	29.7	-24.3	54.0	
3609.6000	39.1	31.2	A	V	1.0	90	Y	LOW	29.6	5.0	35.2	30.6	-23.4	54.0	
3660.0000	42.4	35.5	A	H	1.0	180	Y	MID	29.6	5.0	35.2	34.9	-19.1	54.0	
3660.0000	44.7	32.2	A	V	1.0	90	Y	MID	29.6	5.0	35.2	31.6	-22.4	54.0	
3709.6000	42.5	36.8	A	H	1.0	180	Y	HIGH	29.6	5.0	35.2	36.2	-17.8	54.0	
3709.6000	45.6	38.3	A	V	1.0	90	Y	HIGH	29.6	5.0	35.2	37.7	-16.3	54.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING



COMPATIBLE
ELECTRONICS

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)



COMPATIBLE
ELECTRONICS

COMPANY	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with 1.625 INCH VERTICAL WHIP ANTENNA	DUTY CYCLE	100.00 %
MODEL	M90SXCRI	PEAK TO AVG	0.00 dB
S/N	1	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
4512.0000	42.0	31.6 A	H	1.0	270	Y	LOW	30.9	5.6	34.1	34.0	-20.0	54.0	
4512.0000	42.9	31.6 A	V	1.0	90	Y	LOW	30.9	5.6	34.1	34.0	-20.0	54.0	
4575.0000	42.4	32.3 A	H	1.0	180	Y	MID	30.9	5.6	34.1	34.7	-19.3	54.0	
4575.0000	43.5	32.1 A	V	1.0	90	Y	MID	30.9	5.6	34.1	34.5	-19.5	54.0	
4637.0000	41.9	32.0 A	H	1.0	270	Y	HIGH	30.9	5.6	34.1	34.4	-19.6	54.0	
4637.0000	42.7	31.6 A	V	1.0	90	Y	HIGH	30.9	5.6	34.1	34.0	-20.0	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	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with 1.625 INCH VERTICAL WHIP ANTENNA	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	TEST DIST.	3 METERS
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (OP)	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
5414.4000	39.1	29.8	A	H	180	Y	LOW	32.4	6.0	33.0	35.2	-18.8	54.0	
5414.4000	42.7	31.3	A	V	180	Y	LOW	32.4	6.0	33.0	36.7	-17.3	54.0	
5490.0000	41.9	30.4	A	H	180	Y	MID	32.4	6.0	33.0	35.8	-18.2	54.0	
5490.0000	41.4	29.2	A	V	90	Y	MID	32.4	6.0	33.0	34.6	-19.4	54.0	
5564.4000	39.6	30.0	A	H	180	Y	HIGH	32.4	6.0	33.0	35.4	-18.6	54.0	
5564.4000	40.4	30.8	A	V	180	Y	HIGH	32.4	6.0	33.0	36.2	-17.8	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	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with 1.625 INCH VERTICAL WHIP ANTENNA	DUTY CYCLE	100.00 %
MODEL	M90SXCNR1	PEAK TO AVG	0.00 dB
S/N	1	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
6316.8000	43.8	33.0	A	H	180	Y	LOW	34.3	6.9	34.5	39.7	-14.3	54.0	
6316.8000	41.5	33.6	A	V	180	Y	LOW	34.3	6.9	34.5	40.3	-13.7	54.0	
6405.0000	43.5	32.5	A	H	180	Y	MID	34.3	6.9	34.5	39.2	-14.8	54.0	
6405.0000	43.8	32.1	A	V	180	Y	MID	34.3	6.9	34.5	38.8	-15.2	54.0	
6491.8000	41.9	31.5	A	H	90	Y	HIGH	34.3	6.9	34.5	38.2	-15.8	54.0	
6491.8000	43.4	32.1	A	V	90	Y	HIGH	34.3	6.9	34.5	38.8	-15.2	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)



COMPATIBLE
ELECTRONICS

COMPANY	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with 1.625 INCH VERTICAL WHIP ANTENNA	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	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
7219.2000	***	***	A	H	***	***	Y	LOW	0.0	0.0	0.0	***	***	54.0	
7219.2000	***	***	A	V	***	***	Y	LOW	0.0	0.0	0.0	***	***	54.0	
7320.0000	***	***	A	H	***	***	Y	MID	0.0	0.0	0.0	***	***	54.0	
7320.0000	***	***	A	V	***	***	Y	MID	0.0	0.0	0.0	***	***	54.0	
7419.2000	***	***	A	H	***	***	Y	HIGH	0.0	0.0	0.0	***	***	54.0	
7419.2000	***	***	A	V	***	***	Y	HIGH	0.0	0.0	0.0	***	***	54.0	

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

*** NO EMISSIONS FOUND AT THIS FREQUENCY

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with 1.625 INCH VERTICAL WHIP ANTENNA	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	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
8121.6000	***	*** A	H	***	***	Y	LOW	0.0	0.0	0.0	***	***	54.0	
8121.6000	***	*** A	V	***	***	Y	LOW	0.0	0.0	0.0	***	***	54.0	
8235.0000	***	*** A	H	***	***	Y	MID	0.0	0.0	0.0	***	***	54.0	
8235.0000	***	*** A	V	***	***	Y	MID	0.0	0.0	0.0	***	***	54.0	
8346.6000	***	*** A	H	***	***	Y	HIGH	0.0	0.0	0.0	***	***	54.0	
8346.6000	***	*** A	V	***	***	Y	HIGH	0.0	0.0	0.0	***	***	54.0	

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

*** NO EMISSIONS FOUND AT THIS FREQUENCY

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with 1.625 INCH VERTICAL WHIP ANTENNA	DUTY CYCLE	100.00 %
MODEL	M90SXCRI	PEAK TO AVG	0.00 dB
S/N	1	TEST DIST.	3 METERS
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (OP)		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
9024.0000	***	***	A	H	***	***	Y	LOW	0.0	0.0	0.0	***	***	54.0	
9024.0000	***	***	A	V	***	***	Y	LOW	0.0	0.0	0.0	***	***	54.0	
9150.0000	***	***	A	H	***	***	Y	MID	0.0	0.0	0.0	***	***	54.0	
9150.0000	***	***	A	V	***	***	Y	MID	0.0	0.0	0.0	***	***	54.0	
9274.0000	***	***	A	H	***	***	Y	HIGH	0.0	0.0	0.0	***	***	54.0	
9274.0000	***	***	A	V	***	***	Y	HIGH	0.0	0.0	0.0	***	***	54.0	

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

*** NO EMISSIONS FOUND AT THIS FREQUENCY

** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)



**COMPATIBLE
ELECTRONICS**

COMPANY	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with MONOLITHIC CHIP MULTILAYER ANT.	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	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
902.4000	62.6	62.5 QP	H	2.0	90	X	LOW	21.3	5.0	0.0	88.8	-5.2	94.0	
902.4000	57.5	57.3 QP	V	2.5	90	X	LOW	21.3	5.0	0.0	83.6	-10.4	94.0	
915.0000	63.5	63.4 QP	H	2.5	180	X	MID	20.8	5.0	0.0	89.2	-4.8	94.0	
915.0000	59.5	59.4 QP	V	1.5	90	X	MID	20.8	5.0	0.0	85.2	-8.8	94.0	
927.4000	63.7	63.6 QP	H	1.0	90	X	HIGH	21.8	4.9	0.0	90.3	-3.7	94.0	
927.4000	60.5	60.4 QP	V	1.5	90	X	HIGH	21.8	4.9	0.0	87.1	-6.9	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	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with MONOLITHIC CHIP MULTILAYER ANT.	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	TEST DIST.	3 METERS
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (OP)	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
1804.8000	43.5	32.8 A	H	1.0	180	X	LOW	24.5	3.5	35.6	25.2	-28.8	54.0	
1804.8000	42.7	33.0 A	V	1.0	180	X	LOW	24.5	3.5	35.6	25.4	-28.6	54.0	
1830.0000	43.6	33.2 A	H	1.0	180	X	MID	24.5	3.5	35.6	25.6	-28.4	54.0	
1830.0000	44.8	32.9 A	V	1.5	90	X	MID	24.5	3.5	35.6	25.3	-28.7	54.0	
1854.8000	48.8	43.7 A	H	1.5	90	X	HIGH	24.5	3.7	35.5	36.4	-17.6	54.0	
1854.8000	42.0	33.5 A	V	1.0	180	X	HIGH	24.5	3.7	35.5	26.2	-27.8	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	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with MONOLITHIC CHIP MULTILAYER ANT.	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	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	
2707.2000	40.5	33.4	A	H	1.0	180	X	LOW	28.2	4.5	35.6	30.5	-23.5	54.0	
2707.2000	45.7	35.7	A	V	1.5	180	X	LOW	28.2	4.5	35.6	32.8	-21.2	54.0	
2745.0000	40.9	33.2	A	H	1.0	180	X	MID	28.2	4.5	35.6	30.3	-23.7	54.0	
2745.0000	44.0	33.1	A	V	1.0	90	X	MID	28.2	4.5	35.6	30.2	-23.8	54.0	
2782.2000	43.3	32.0	A	H	1.0	90	X	HIGH	29.7	4.6	35.2	31.1	-22.9	54.0	
2782.2000	41.8	31.7	A	V	1.0	180	X	HIGH	29.7	4.6	35.2	30.8	-23.2	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	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with MONOLITHIC CHIP MULTILAYER ANT.	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	TEST DIST.	3 METERS
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (OP)	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
3609.6000	42.5	33.2 A	H	2.0	90	X	LOW	29.6	5.0	35.2	32.6	-21.4	54.0	
3609.6000	42.4	33.4 A	V	2.5	180	X	LOW	29.6	5.0	35.2	32.8	-21.2	54.0	
3660.0000	42.7	34.6 A	H	1.0	180	X	MID	29.6	5.0	35.2	34.0	-20.0	54.0	
3660.0000	40.3	32.0 A	V	1.0	180	X	MID	29.6	5.0	35.2	31.4	-22.6	54.0	
3709.6000	40.9	33.1 A	H	1.0	90	X	HIGH	29.6	5.0	35.2	32.5	-21.5	54.0	
3709.6000	41.8	33.0 A	V	1.5	180	X	HIGH	29.6	5.0	35.2	32.4	-21.6	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	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with MONOLITHIC CHIP MULTILAYER ANT.	DUTY CYCLE	100.00 %
MODEL	M90SXCRI	PEAK TO AVG	0.00 dB
S/N	1	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
4512.0000	43.7	31.5 A	H	2.0	180	X	LOW	30.9	5.6	34.1	33.9	-20.1	54.0	
4512.0000	42.7	31.4 A	V	2.0	0	X	LOW	30.9	5.6	34.1	33.8	-20.2	54.0	
4575.0000	41.8	32.0 A	H	2.0	180	X	MID	30.9	5.6	34.1	34.4	-19.6	54.0	
4575.0000	42.0	31.1 A	V	1.0	180	X	MID	30.9	5.6	34.1	33.5	-20.5	54.0	
4637.0000	42.3	31.6 A	H	1.0	90	X	HIGH	30.9	5.6	34.1	34.0	-20.0	54.0	
4637.0000	42.8	32.1 A	V	1.0	180	X	HIGH	30.9	5.6	34.1	34.5	-19.5	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	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with MONOLITHIC CHIP MULTILAYER ANT.	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	TEST DIST.	3 METERS
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (OP)	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	
5414.4000	38.0	29.3	A	H	1.0	90	X	LOW	32.4	6.0	33.0	34.7	-19.3	54.0	
5414.4000	42.3	33.3	A	V	1.5	180	X	LOW	32.4	6.0	33.0	38.7	-15.3	54.0	
5490.0000	40.6	29.9	A	H	1.0	180	X	MID	32.4	6.0	33.0	35.3	-18.7	54.0	
5490.0000	40.5	30.8	A	V	1.0	180	X	MID	32.4	6.0	33.0	36.2	-17.8	54.0	
5564.4000	38.2	30.8	A	H	1.0	180	X	HIGH	32.4	6.0	33.0	36.2	-17.8	54.0	
5564.4000	41.9	30.6	A	V	1.0	180	X	HIGH	32.4	6.0	33.0	36.0	-18.0	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	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with MONOLITHIC CHIP MULTILAYER ANT.	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	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	
6316.8000	44.5	32.9	A	H	1.5	180	X	LOW	34.3	6.9	34.5	39.6	-14.4	54.0	
6316.8000	43.9	33.5	A	V	1.0	180	X	LOW	34.3	6.9	34.5	40.2	-13.8	54.0	
6405.0000	43.4	32.6	A	H	1.0	180	X	MID	34.3	6.9	34.5	39.3	-14.7	54.0	
6405.0000	42.8	33.7	A	V	1.0	180	X	MID	34.3	6.9	34.5	40.4	-13.6	54.0	
6491.8000	43.3	31.7	A	H	1.0	90	X	HIGH	34.3	6.9	34.5	38.4	-15.6	54.0	
6491.8000	41.4	32.0	A	V	1.0	180	X	HIGH	34.3	6.9	34.5	38.7	-15.3	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	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with MONOLITHIC CHIP MULTILAYER ANT.	DUTY CYCLE	100.00 %
MODEL	M90SXCRI	PEAK TO AVG	0.00 dB
S/N	1	TEST DIST.	3 METERS
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (OP)	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
7219.2000	***	***	A	H	***	X	LOW	0.0	0.0	0.0	***	***	54.0	
7219.2000	***	***	A	V	***	X	LOW	0.0	0.0	0.0	***	***	54.0	
7320.0000	***	***	A	H	***	X	MID	0.0	0.0	0.0	***	***	54.0	
7320.0000	***	***	A	V	***	X	MID	0.0	0.0	0.0	***	***	54.0	
7419.2000	***	***	A	H	***	X	HIGH	0.0	0.0	0.0	***	***	54.0	
7419.2000	***	***	A	V	***	X	HIGH	0.0	0.0	0.0	***	***	54.0	

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

** DELTA = SPEC LIMIT - CORRECTED READING

*** NO EMISSIONS FOUND AT THIS FREQUENCY

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)



COMPATIBLE
ELECTRONICS

COMPANY	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with MONOLITHIC CHIP MULTILAYER ANT.	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	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
8121.6000	***	***	A	H	***	***	X	LOW	0.0	0.0	0.0	***	***	54.0	
8121.6000	***	***	A	V	***	***	X	LOW	0.0	0.0	0.0	***	***	54.0	
8235.0000	***	***	A	H	***	***	X	MID	0.0	0.0	0.0	***	***	54.0	
8235.0000	***	***	A	V	***	***	X	MID	0.0	0.0	0.0	***	***	54.0	
8346.6000	***	***	A	H	***	***	X	HIGH	0.0	0.0	0.0	***	***	54.0	
8346.6000	***	***	A	V	***	***	X	HIGH	0.0	0.0	0.0	***	***	54.0	

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

*** NO EMISSIONS FOUND AT THIS FREQUENCY

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.249)

COMPANY	VTECH WIRELESS, INC.	DATE	6/29/99
EUT	900 MHz HALF DUPLEX TRANSCEIVER with MONOLITHIC CHIP MULTILAYER ANT.	DUTY CYCLE	100.00 %
MODEL	M90SXCRN1	PEAK TO AVG	0.00 dB
S/N	1	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
9024.0000	***	***	A	H	***	***	X	LOW	0.0	0.0	0.0	***	***	54.0	
9024.0000	***	***	A	V	***	***	X	LOW	0.0	0.0	0.0	***	***	54.0	
9150.0000	***	***	A	H	***	***	X	MID	0.0	0.0	0.0	***	***	54.0	
9150.0000	***	***	A	V	***	***	X	MID	0.0	0.0	0.0	***	***	54.0	
9274.0000	***	***	A	H	***	***	X	HIGH	0.0	0.0	0.0	***	***	54.0	
9274.0000	***	***	A	V	***	***	X	HIGH	0.0	0.0	0.0	***	***	54.0	

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

*** NO EMISSIONS FOUND AT THIS FREQUENCY

** DELTA = SPEC LIMIT - CORRECTED READING

Test location: Compatible Electronics

Customer : VTECH WIRELESS, INC.

Date : 6/29/1999

Manufacturer : SAME

Time : 17.54

EUT name : 900 MHz HALF DUPLEX TRANSCEIVER

Model: M90SXCRN1

Specification: Fcc_B Test distance: 3.0 mtrs

Lab: D

Distance correction factor($20 \cdot \log(\text{test}/\text{spec})$)

: 0.00

Test Mode :

SPURIOUS EMISSIONS - VERTICAL - 30 TO 300 MHz

TEMPERATURE 80 DEGREES, RELATIVE HUMIDITY 47%

TESTED BY:

Kyle Fujimoto
KYLE FUJIMOTO

Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	limit = L dBuV/m	Delta R-L dB
1V	45.21	40.90	0.90	10.91	38.60	14.11	40.00	-25.89
2V	50.09	42.50	0.90	11.09	38.60	15.89	40.00	-24.11
3V	60.11	50.40	1.00	10.30	38.60	23.10	40.00	-16.90
4V	75.09	45.60	1.20	9.49	38.60	17.69	40.00	-22.31
5V	110.08	48.20	1.44	10.05	38.68	21.00	43.50	-22.50
6V	195.10	49.30	1.94	15.22	38.72	27.74	43.50	-15.76
7V	232.13	52.90	2.19	17.19	38.33	33.94	46.00	-12.06

Test location: Compatible Electronics

Customer : VTECH WIRELESS, INC.

Date : 6/29/1999

Manufacturer : SAME

Time : 18.12

EUT name : 900 MHz HALF DUPLEX TRANSCEIVER

Model: M90SXCRN1

Specification: Fcc_B Test distance: 3.0 mtrs

Lab: D

Distance correction factor($20 \cdot \log(\text{test}/\text{spec})$)

: 0.00

Test Mode :

SPURIOUS EMISSIONS - HORIZONTAL - 30 TO 300 MHz

TEMPERATURE 80 DEGREES, RELATIVE HUMIDITY 47%

TESTED BY:

Kyle Fujimoto
KYLE FUJIMOTO

Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	limit = L dBuV/m	Delta R-L dB
1H	45.16	39.70	0.90	10.91	38.60	12.91	40.00	-27.09
2H	70.12	47.80	1.20	9.99	38.60	20.39	40.00	-19.61
3H	75.14	44.80	1.20	9.49	38.60	16.89	40.00	-23.11
4H	100.06	62.70	1.40	9.40	38.60	34.90	43.50	-8.60
5H	110.07	55.20	1.44	10.04	38.68	28.00	43.50	-15.50
6H	120.08	57.00	1.48	10.68	38.76	30.40	43.50	-13.10
7H	152.07	53.80	1.70	12.70	38.49	29.71	43.50	-13.79
8H	216.07	48.10	2.06	16.46	38.48	28.14	46.00	-17.86
9H	232.15	62.70	2.19	17.19	38.33	43.74	46.00	-2.26
10H	232.15	62.46	2.19	17.19	38.33	43.50Qp	46.00	-2.50
11H	298.46	50.60	2.49	21.45	38.49	36.05	46.00	-9.95

Test location: Compatible Electronics

Customer : VTECH WIRELESS, INC.

Date : 6/29/1999

Manufacturer : SAME

Time : 17.43

EUT name : 900 MHz HALF DUPLEX TRANSCEIVER

Model: M90SXCRN1

Specification: Fcc_B Test distance: 3.0 mtrs

Lab: D

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

: 0.00

Test Mode :

SPURIOUS EMISSIONS - VERTICAL - 300 TO 1000 MHz

TEMPERATURE 80 DEGREES, RELATIVE HUMIDITY 47%

TESTED BY:

Kyle Fujimoto
KYLE FUJIMOTO

Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	limit = L dBuV/m	Delta R-L dB
1V	397.92	59.30	3.09	15.17	38.22	39.34	46.00	-6.66
2V	331.63	58.10	2.69	16.62	38.56	38.84	46.00	-7.16
3V	364.79	61.60	2.89	16.30	38.48	42.30	46.00	-3.70
4V	401.01	49.20	3.10	15.18	38.19	29.29	46.00	-16.71
5V	408.12	53.80	3.12	15.73	38.14	34.51	46.00	-11.49
6V	425.07	43.90	3.15	17.06	38.00	26.11	46.00	-19.89
7V	431.15	57.40	3.16	17.53	37.95	40.14	46.00	-5.86
8V	464.30	62.40	3.29	18.40	37.94	46.14	46.00	0.14
9V	464.30	60.79	3.29	18.40	37.94	44.53Qp	46.00	-1.47
10V	497.45	57.00	3.48	17.01	38.27	39.22	46.00	-6.78
11V	530.55	58.20	3.68	17.51	38.06	41.34	46.00	-4.66
12V	596.86	60.00	3.80	19.40	38.37	44.83	46.00	-1.17
13V	596.86	59.27	3.80	19.40	38.37	44.10Qp	46.00	-1.90
14V	663.19	54.80	3.95	20.44	38.05	41.14	46.00	-4.86
15V	795.77	53.50	4.42	21.10	37.52	41.50	46.00	-4.50
16V	828.95	44.40	4.69	20.57	37.50	32.16	46.00	-13.84
17V	928.46	51.90	4.77	21.78	36.89	41.57	46.00	-4.43

Test location: Compatible Electronics

Customer : VTECH WIRELESS, INC.

Date : 6/29/1999

Manufacturer : SAME

Time : 17.16

EUT name : 900 MHz HALF DUPLEX TRANSCEIVER

Model: M90SXCRN1

Specification: Fcc_B Test distance: 3.0 mtrs

Lab: D

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

: 0.00

Test Mode :

SPURIOUS EMISSIONS - HORIZONTAL - 300 TO 1000 MHz

TEMPERATURE 80 DEGREES, RELATIVE HUMIDITY 47%

TESTED BY:

Kyle Fujimoto
KYLE FUJIMOTO

Pol	Freq MHz	Rdng dBuV	Cable loss dB	Ant factor dB	Amp gain dB	Cor'd rdg = R dBuV	limit = L dBuV/m	Delta R-L dB
1H	364.80	58.10	2.89	16.30	38.48	38.80	46.00	-7.20
2H	384.94	47.60	3.01	15.61	38.32	27.90	46.00	-18.10
3H	397.94	64.00	3.09	15.17	38.22	44.04	46.00	-1.96
4H	397.94	62.95	3.09	15.17	38.22	42.99Qp	46.00	-3.01
5H	400.92	54.40	3.10	15.17	38.19	34.48	46.00	-11.52
6H	431.12	55.50	3.16	17.53	37.95	38.24	46.00	-7.76
7H	432.99	53.10	3.17	17.67	37.94	36.00	46.00	-10.00
8H	456.10	52.80	3.24	18.74	37.86	36.92	46.00	-9.08
9H	464.20	53.50	3.29	18.40	37.94	37.25	46.00	-8.75
10H	481.10	48.50	3.39	17.69	38.11	31.47	46.00	-14.53
11H	497.36	51.50	3.48	17.01	38.27	33.72	46.00	-12.28
12H	530.54	60.40	3.68	17.51	38.06	43.54	46.00	-2.46
13H	530.54	60.07	3.68	17.51	38.06	43.21Qp	46.00	-2.79
14H	596.87	56.50	3.80	19.40	38.37	41.33	46.00	-4.67
15H	795.87	50.30	4.42	21.09	37.52	38.29	46.00	-7.71
16H	829.00	44.10	4.69	20.57	37.50	31.86	46.00	-14.14
17H	928.42	51.10	4.77	21.78	36.89	40.76	46.00	-5.24

Test location: Compatible Electronics

Customer : VTECH WIRELESS, INC.

Date : 6/29/1999

Manufacturer : SAME

Time : 19.28

EUT name : 900 MHz HALF DUPLEX TRANSCEIVER

Model: M90SXCRN1

Specification: Fcc_B Test distance: 3.0 mtrs

Lab: D

Distance correction factor($20 \cdot \log(\text{test}/\text{spec})$)

: 0.00

Test Mode :

SPURIOUS EMISSIONS - 10 kHz to 30 MHz

TEMPERATURE 80 DEGREES, RELATIVE HUMIDITY 47%

TESTED BY: Kyle Fujimoto
KYLE FUJIMOTO

NO EMISSIONS FOUND FROM 10 kHz TO 30 MHz IN EITHER
POLARIZATION FOR THE EUT.


**COMPATIBLE
ELECTRONICS**

6/29/1999

19:59:11

VTECH WIRELESS, INC.
900 MHz HALF DUPLEX TRANS.

MODEL: M90SXCRN1

FCC C - BLACK LEAD

TEST ENGINEER : *Kyle Fujimoto*
KYLE FUJIMOTO

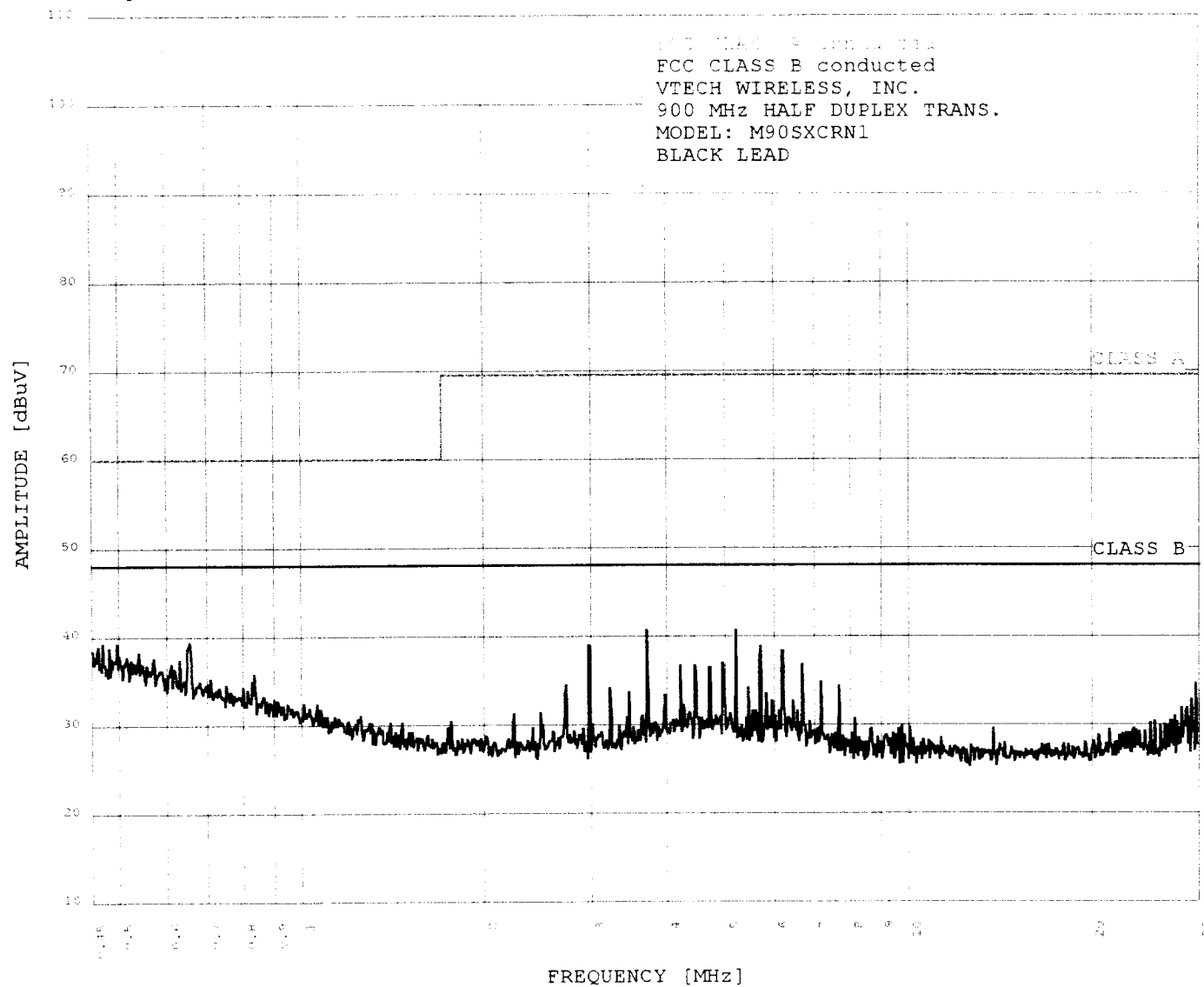
25 highest peaks above -50.00 dB of CLASS B limit line

Peak criteria : 0.10 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	5.186	40.59	48.00	-7.41
2	3.706	40.58	48.00	-7.42
3	0.655	39.27	48.00	-8.73
4	0.496	39.17	48.00	-8.83
5	0.470	39.17	48.00	-8.83
6	2.968	38.88	48.00	-9.12
7	0.462	38.87	48.00	-9.13
8	5.690	38.79	48.00	-9.21
9	0.482	38.67	48.00	-9.33
10	6.188	38.29	48.00	-9.71
11	0.539	38.17	48.00	-9.83
12	0.500	37.77	48.00	-10.23
13	0.515	37.67	48.00	-10.33
14	0.456	37.57	48.00	-10.43
15	0.572	37.47	48.00	-10.53
16	0.485	37.47	48.00	-10.53
17	0.630	37.27	48.00	-10.73
18	0.524	37.27	48.00	-10.73
19	0.492	37.27	48.00	-10.73
20	0.530	36.97	48.00	-11.03
21	0.466	36.97	48.00	-11.03
22	4.934	36.88	48.00	-11.12
23	0.609	36.87	48.00	-11.13
24	0.544	36.87	48.00	-11.13
25	0.504	36.87	48.00	-11.13

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

6/29/1999 19:59:11





**COMPATIBLE
ELECTRONICS**

6/29/1999

20:09:24

VTECH WIRELESS, INC.

900 MHz HALF DUPLEX TRANS.

MODEL: M90SXCRN1

FCC C - WHITE LEAD

TEST ENGINEER : *Kyle Fujimoto*
KYLE FUJIMOTO

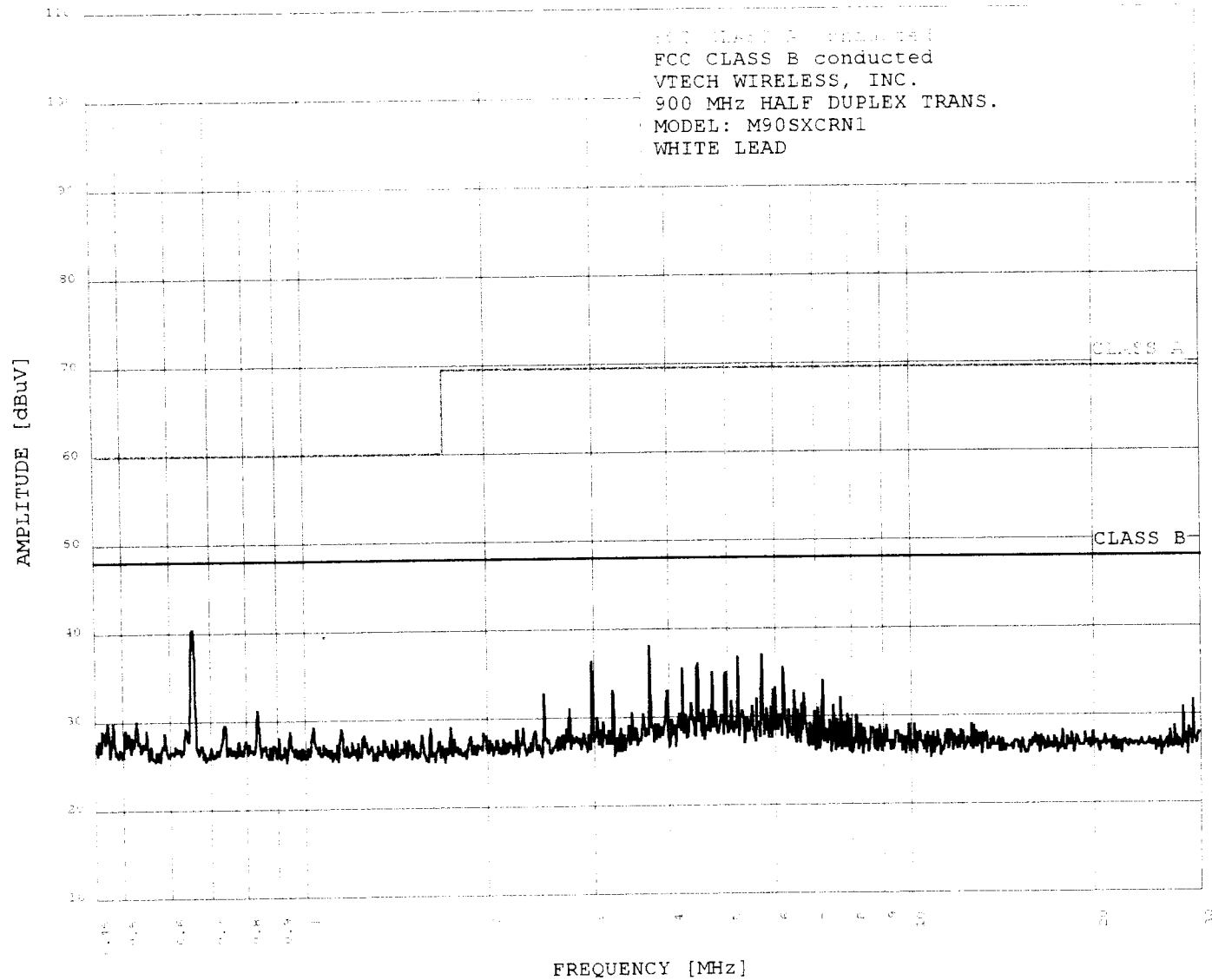
25 highest peaks above -50.00 dB of CLASS B limit line

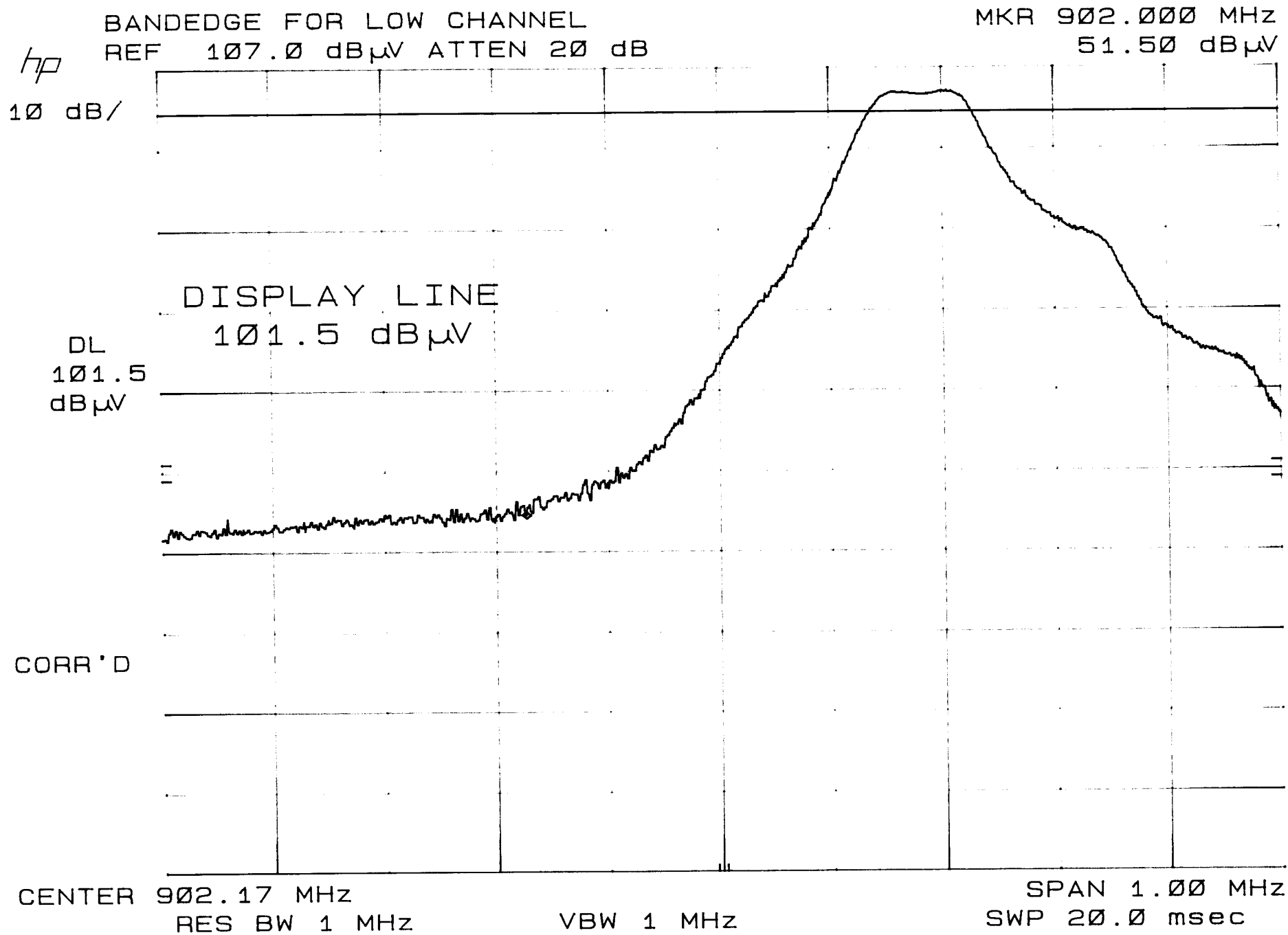
Peak criteria : 0.10 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.655	40.28	48.00	-7.72
2	3.706	37.98	48.00	-10.02
3	5.690	36.88	48.00	-11.12
4	5.186	36.68	48.00	-11.32
5	2.968	36.28	48.00	-11.72
6	4.461	35.98	48.00	-12.02
7	6.162	35.48	48.00	-12.52
8	4.206	35.38	48.00	-12.62
9	4.708	34.98	48.00	-13.02
10	4.955	34.88	48.00	-13.12
11	7.165	33.98	48.00	-14.02
12	5.984	33.18	48.00	-14.82
13	3.215	32.98	48.00	-15.02
14	5.935	32.88	48.00	-15.12
15	3.964	32.88	48.00	-15.12
16	6.428	32.78	48.00	-15.22
17	2.478	32.68	48.00	-15.32
18	6.673	32.48	48.00	-15.52
19	7.667	31.98	48.00	-16.02
20	5.569	31.88	48.00	-16.12
21	5.059	31.68	48.00	-16.32
22	29.154	31.55	48.00	-16.45
23	4.346	31.48	48.00	-16.52
24	6.615	31.28	48.00	-16.72
25	7.447	31.08	48.00	-16.92

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

6/29/1999 20:09:24



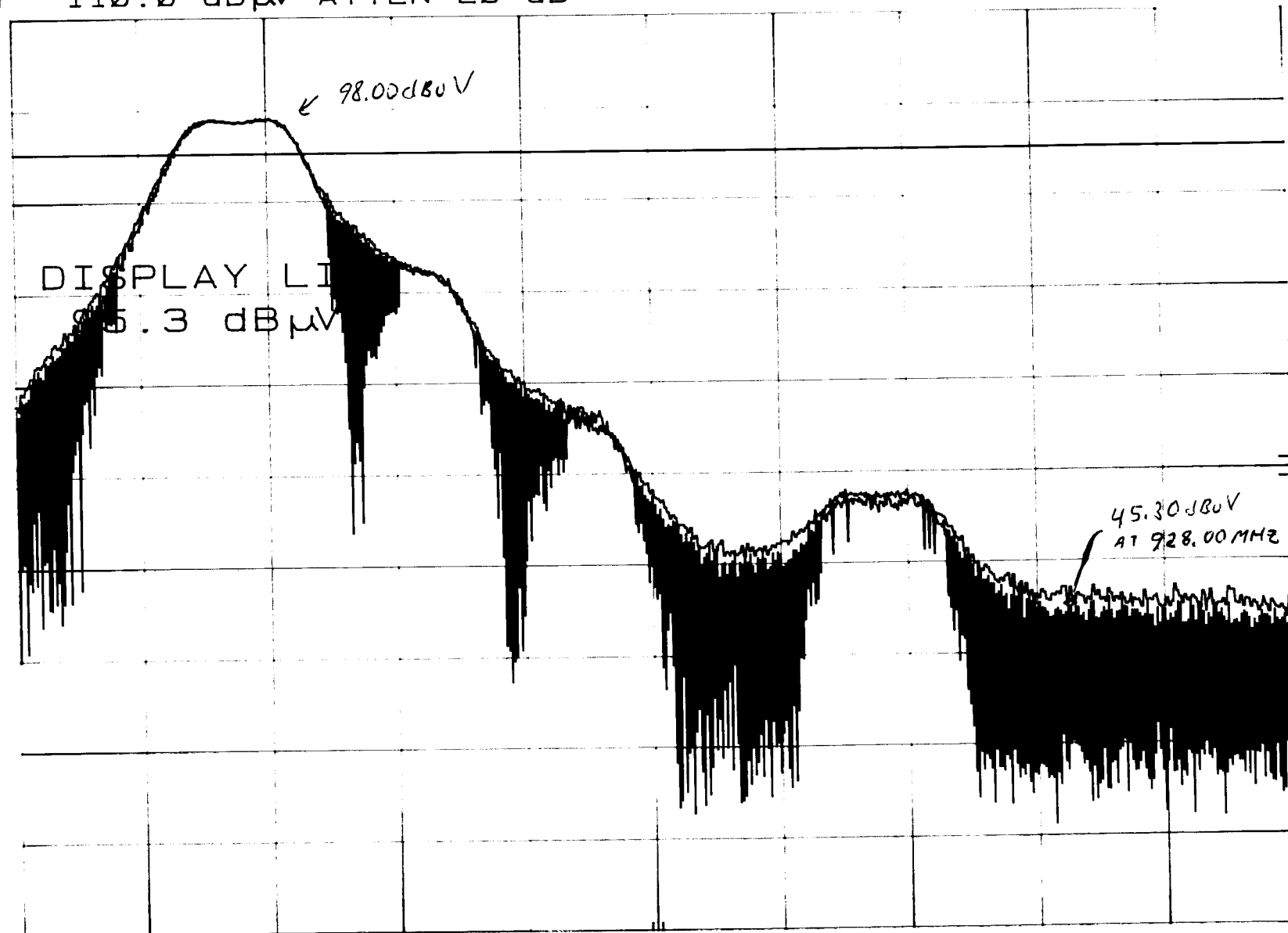


6-29-99

BANDEDGE FOR HIGH CHANNEL
REF 110.0 dB μ V ATTEN 20 dB

MKR 928.000 MHz
45.30 dB μ V

hp
10 dB/



DL
95.3
dB μ V

CORR'D

START 927.17 MHz
RES BW 1 MHz

VBW 1 MHz

STOP 928.17 MHz
SWP 20.0 msec