L.S. Compliance, Inc.
W66 N220 Commerce Court
Cedarburg, WI 53012
262-375-4400 Fax: 262-375-4248

Compliance Testing of:

F-0131B Ericsson Dongle

Prepared For:

Logitech Inc.
1499 Southeast Tech Center Place
Suite 350
Vancover, WA 98683

Test Report Number:

303257 Rev. 05

Test Dates:

April 9th, 10th and 11th, 2003

Table of Contents

1. L.S. Compliance in Review

L. S. Compliance, Inc. is located in Cedarburg, Wisconsin – United States.

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As an EMC testing laboratory, our accreditation and assessments are recognized through the following:

A2LA – American Association for Laboratory Accreditation
Accreditation based on ISO/IEC 17025: 2005
With electrical (EMC) Scope of Accreditation
A2LA Certificate Number: **1255.01**

U.S. Conformity Assessment Body (CAB) Validation
Validated by the European Commission as a U.S. Conformity Assessment Body operating under the U.S./EU, Mutual Recognition Agreement (MRA) operating under the European Union EMC Directive 89/336/EEC, Article 10.2
Date of Validation: **January 16, 2001**

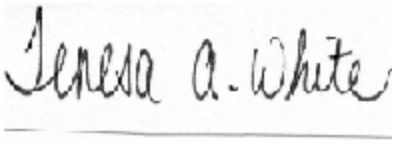
Federal Communications Commission (FCC) – USA
Listing of 3 Meter Semi-Anechoic Chamber based on 47CFR 2.948
FCC Registration Number: **90756**

Listing of 3 and 10 Meter OATS based on 47CFR 2.948
FCC Registration Number: **90757**

Industry Canada
On-file, 3 Meter Semi-Anechoic Chamber based on 47CFR 2.948
File Number: **IC 3088**

On-file 3 and 10 meter OATS based on RSS-210
File Number: **IC 3088-A**

2. Signature Page



September 12, 2003

Prepared By: _____

Teresa A. White, Document Coordinator **Date**

September 12, 2003

Tested By: _____

Abtin Spantman, EMC Engineer **Date**

September 12, 2003

Approved By: _____

Kenneth L. Boston, EMC Lab Manager **Date**

September 12, 2003

Approved By: _____

James J. Blaha, Senior Vice President **Date**

3. Product and General Information

Manufacturer:	**Logitech**
Model Number:	**F-0131B Ericsson Dongle**
Serial Number:	**4C303 00019**
Frequency Range:	**917.6 MHz – 921.6 MHz**
Test Voltage:	**3.6 VDC Lithium-Polymer rechargeable battery; located in the SONY Ericsson T300 Cell Phone**

Environmental Conditions in the Test Lab:

Temperature:	20-25 degrees C
Atmospheric Pressure:	86kPa-106kPa
Humidity:	30-60%

4. Introduction

On April 9th through 11th, 2003 a series of Radiated Emissions tests were performed on one sample of the Logitech F-0131B Mobile Cordless Headset, Serial Number 4C303 00019, here forth referred to as the "*Equipment Under Test*" or "*EUT*". This product operates in conjunction with an Ericsson cellular type phone. This product set, comprising a "Cordless Headset" and a "Receiver", acts as a low power repeater between the cellular phone, and an earpiece worn by the user (cordless headset), allowing for wire free link between the earpiece and the cellular phone. The "Receiver" in this system is being tested in this report. The "Receiver" as identified by the user's manual is in actuality a transceiver, and was tested as a transmitter in this report. The "Receiver" clips onto the bottom of the T300 Cell Phone, and is powered by the 3.6 VDC rechargeable battery found in the Cell Phone.

These tests were performed using the test procedure outlined in ANSI C63.4, 2001 for intentional radiators, and in accordance with the limits set forth in FCC Part 15.249, for intentional radiators.

5. Purpose

The above-mentioned tests were performed in order to determine the compliance of the equipment under test (EUT), with limits contained in various provisions of Title 47CFR, FCC Part 15, including: 15.205, 15.209, and 15.249.

All radiated emission tests were performed to measure the emissions in the frequency bands described in Section 9g, and to determine whether said emissions are below the limits established by the above sections. These tests were performed in accordance with the procedures described in the American National Standard for methods of measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (ANSI C63.4, 2001).
Also used as a reference, for the EMI Receiver specification is the International Special Committee on Radio Interference – CISPR 16-1, 2002.

6. Product Description

Sleek and compact, the Logitech Mobile Cordless Headset system has no wires that tangle or get in your way. The lightweight headset clips comfortably to either ear, and a noise-canceling, adjustable mini-boom microphone sends a clear signal. During your conversation, you can tuck your phone safely away into your pocket or purse.

The Mobile Cordless headset features a durable soft-touch surface and a fashionable design. For true mobility, it also provides up to 7 hours of talk time and has a range of 10 feet from the phone.

- Hands-free headset delivers cordless freedom up to 15 feet from your mobile phone.
- Comfortable clip-on headset weighs less than 1 ounce for comfortable extended use.
- Noise-canceling, adjustable mini-boom microphone is great for noisy environments.
- Conveniently adjust volume, mute, answer or end your call without touching your phone.
- Protective carrying case also charges your headset and receiver.
- North American Operation Frequencies of 917.6 MHz – 921.6 MHz.

The receiver device is a small, lightweight clip-on dongle that attaches to, and is powered by the 3.6 VDC battery of the SONY Ericsson Cell Phone. This unit is the EUT for the purposes of this report.

7. Test Requirements

The EUT was tested for radiated emissions, and compliance with the limits set forth by Title 47 CFR, Parts 15.205, 15.209, and 15.249, for intentional radiators. The dongle was tested on Channel 1 (917.6 mHz) and Channel 5 (921.6 MHz) in order to comply with Part 15.31.

8. Summary of Test Report

The Logitech F-0131B Ericsson Dongle was found to **MEET** the requirements as described within the specifications of Title 47 CFR, Part 15.249.

9. Radiated Emission Test

9a. Test Setup

The EUT was operated within the 3 Meter FCC listed Semi-Anechoic Chamber, located at L.S. Compliance, Inc., Cedarburg, Wisconsin. The EUT was placed on an 80cm high non-conductive pedestal, which was centered on the flush-mounted 2m diameter metal turntable. The test sample was operated in continuous transmit CW mode for the radiated emissions measurements, and in normal mode for all other measurements. The EUT was attached to the bottom of an Ericsson Cell Phone during the following tests.

The EUT was configured to run in continuous operation during the 15.249 measurements. Testing was performed in a continuous CW Mode with No Modulation in order to evaluate the Harmonic Emissions. Modulated mode with voice was not attempted due to the difficulty establishing a voice modulation standard with the Ericsson Cell Phone as a base unit.

Subsequently, a modulated (internal to the cell phone) condition was simulated, and the Radiated Emissions of the highest signals measured were verified while modulation was applied.

9b. Test Procedure

The fundamental and spurious (harmonic) emissions of the transmitter were tested for compliance to Title 47CFR, FCC Part 15.249 limits for a low power transmitter in the ISM bands.

The EUT was tested from the lowest frequency generated by the transmitter (without going below 9kHz) to the 10th harmonic of the fundamental frequency generated by the device. All scans were done in a modulated condition throughout the entire frequency range, from 30 MHz to 10 GHz. The appropriate limits were also observed when the fundamental or spurious signals were located within any of the restricted bands as described in FCC Part 15.205a.

The EUT was placed on an 80 cm high pedestal, with the Antenna Mast placed 3 m from the EUT.
A Bi-conical Antenna was used to measure emissions from 30 MHz to 300 MHz, a Log Periodic Antenna was used to measure emissions from 300 MHz to 1000 MHz, and a Double Ridged Waveguide Horn Antenna was used to measure emissions above 1 GHz. The Horn Antenna was used with an HP E4407B Spectrum Analyzer to measure emissions above 6 GHz, at a separation distance of 1 meter.

The EUT was modified to produce a continuous CW signal. The resultant signals from the fundamental, harmonics, and spurious signals were maximized by rotating the turntable 360 degrees, and by raising and lowering the Antenna between 1 and 4 meters. The EUT was also given different orientations to determine the maximum signal levels, using both horizontal and vertical antenna polarities. The Ericsson Cell Phone was recharged on several occasions during the testing to maintain a voltage of at least 3.6 VDC or higher.

9c. Test Results

The unit was scanned for emissions, over the range of 30 MHz to 10,000 MHz to establish compliance with FCC Parts 15.249 and 15.205 while in CW transmit mode. A numeric list of measured emissions appears in Section 9i. All emissions were measured with a quasi-peak detector below 1 GHz, and both an average and peak detector above 1 GHz.

9d. Test Equipment Utilized during the Radiated Emissions

A list of the test equipment and antennas used for the tests can be found in Appendix B. All equipment is calibrated and used according to the operation manuals supplied by the manufacturers. All antenna calibrations were performed at a N.I.S.T. traceable site, and the resultant correction factors were entered into the HP8546A EMI Receiver software database.

The connecting cables used were also measured for loss using a calibrated Signal Generator and the HP8546A EMI Receiver. The resulting loss factors were entered into the HP8546A database. This allowed for automatic change in the antenna correction factor. The resulting data taken from the HP8546A EMI Receiver is an actual reading and can be entered into the database as a corrected meter reading. The resulting reading can then be compared to the appropriate limit in order to determine compliance. The HP8546A EMI Receiver was operated with a bandwidth of 120 kHz when receiving signals below 1 GHz, and with a bandwidth of 1 MHz when receiving signals above 1 GHz, in accordance with CISPR 16 standards.

For measurements above 6 GHz, an Agilent E4407B Microwave Spectrum Analyzer was used. The analyzer is used with a Double Ridged Waveguide Horn Antenna for measurements from 6-18GHz, and a short length (<1 meter) of RG-214 Cable is used to connect the antenna to the analyzer. Measurements of the product emissions are obtained at either a 1 meter or 30 centimeter distance, dependent on the product and the necessary dynamic range. The antenna factors, cable loss factors, and preamp gain (if used) are all entered into the E4407B as correction factors, resulting in an actual reading of the emission.

The Peak, Quasi-Peak and Average detector functions were all used.

Note: Tests from 6 to 10 GHz performed at 1 meter and 30 cm; combined A.F. for the horn and cable were 34.6dB at 5GHz, 39.1dB at 7.5GHz and 40.9dB at 10GHz. For some tests in the 6 to 10 GHz range, a low noise preamp as added for additional sensitivity. The gain of this preamp was 24.2 dB at 5 GHz and 23.0dB at 10GHz.

9e. Photo of Setup for Radiated Emissions Test

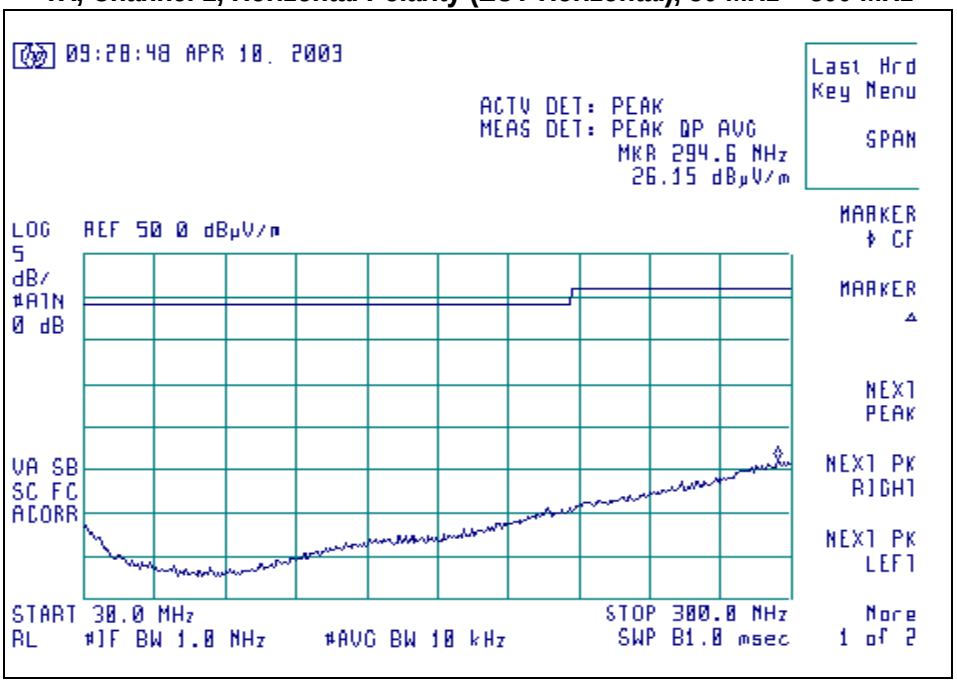
Photos of the EUT in the 3 Meter Semi-Anechoic Chamber

EUT in Horizontal Position, showing the dongle in the forefront

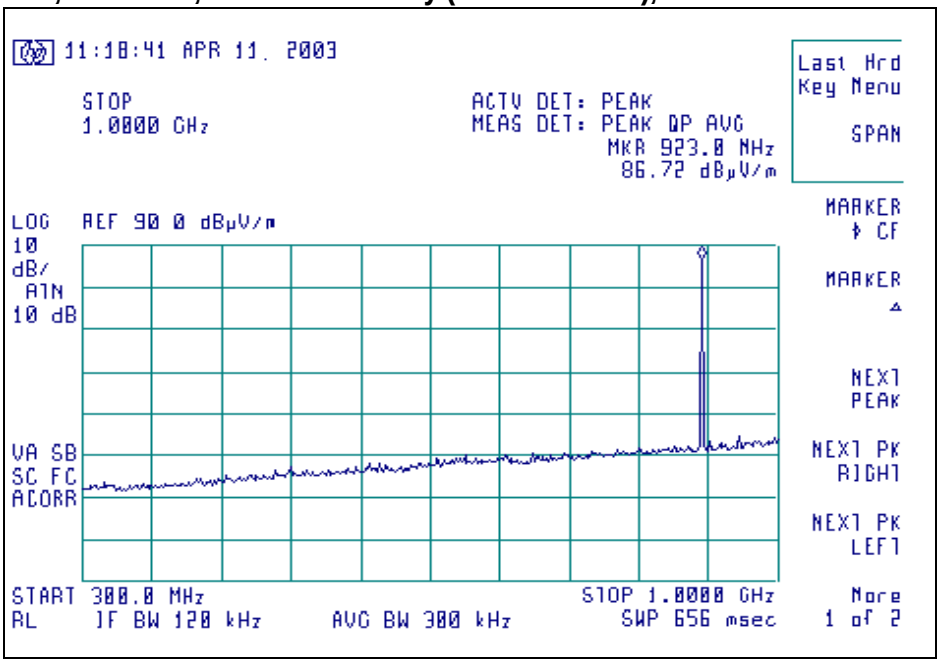
EUT in Vertical Position; the dongle is on the bottom of the Cell Phone

9f. Signature Scans – Radiated Emissions

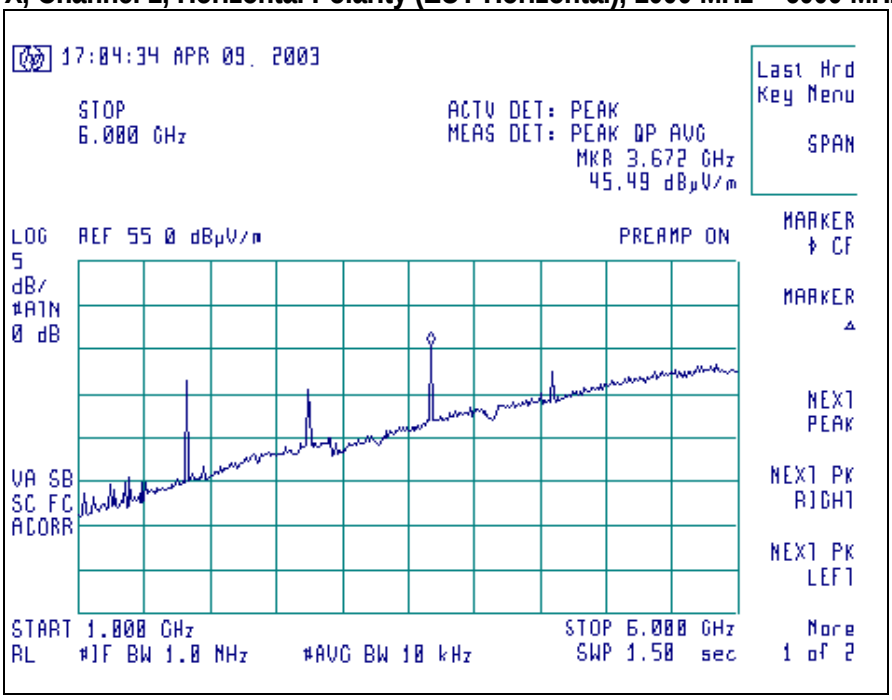
Signature Scan of Radiated Emissions
TX, Channel 1, Horizontal Polarity (EUT Horizontal), 30 MHz – 300 MHz



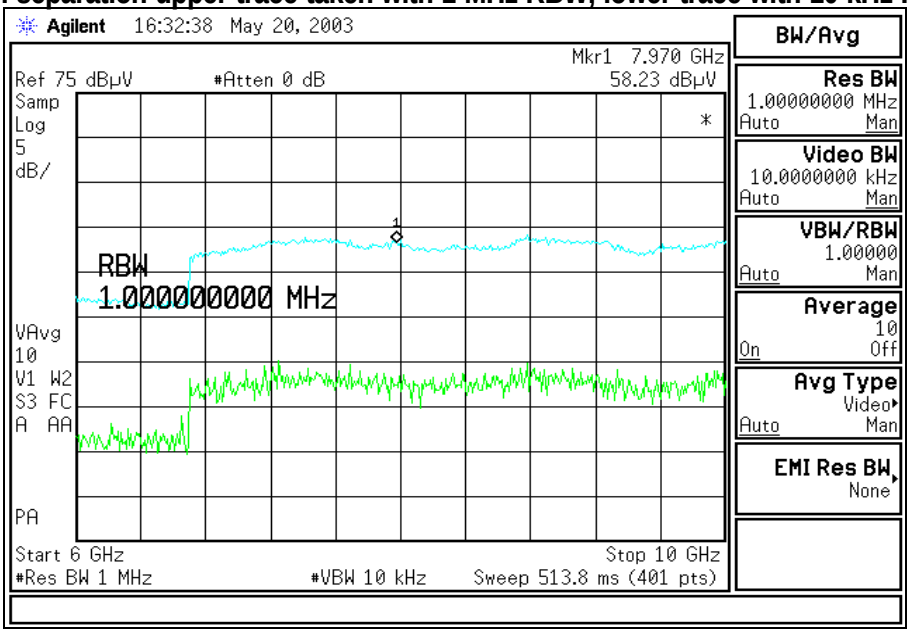
Signature Scan of Radiated Emissions
TX, Channel 5, Horizontal Polarity (EUT Horizontal), 300 MHz – 1000 MHz



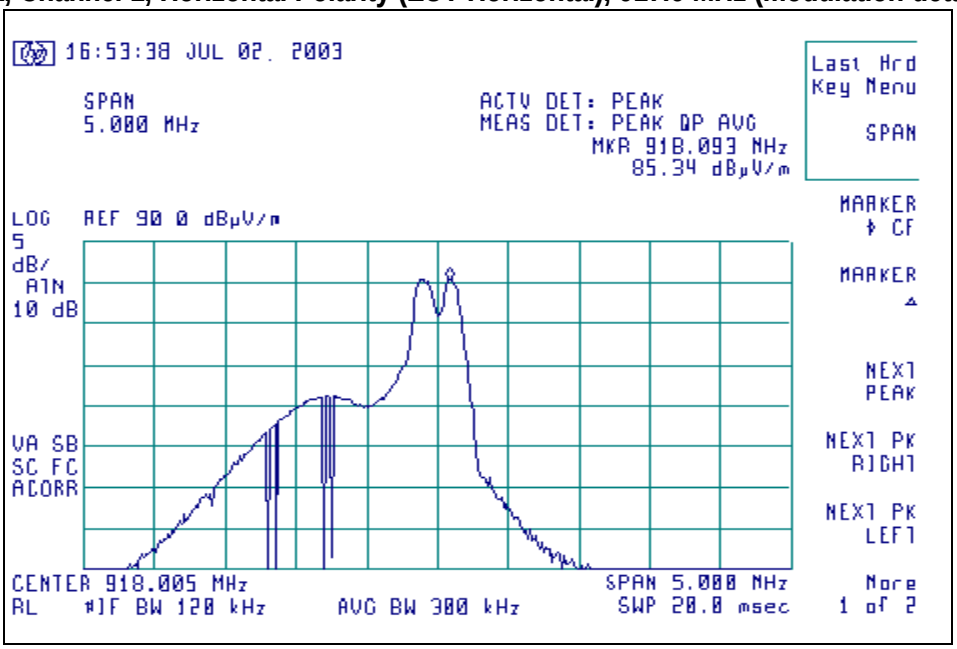
Signature Scan of Radiated Emissions
TX, Channel 1, Horizontal Polarity (EUT Horizontal), 1000 MHz – 6000 MHz



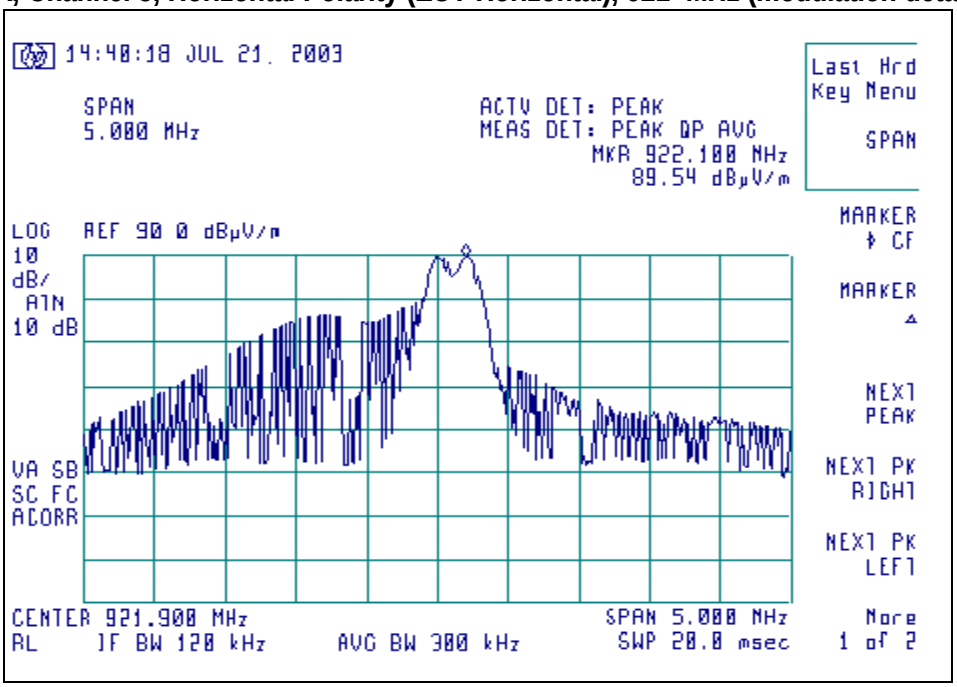
Signature Scan of Radiated Emissions
TX, Channel 1, Horizontal Polarity (EUT Horizontal), 6000 MHz – 10000 MHz
0.3m separation upper trace taken with 1 MHz RBW, lower trace with 10 kHz RBW



Signature Scan of Radiated Emissions
TX, Channel 1, Horizontal Polarity (EUT Horizontal), 917.6 MHz (modulation detail)



Signature Scan of Radiated Emissions
TX, Channel 5, Horizontal Polarity (EUT Horizontal), 921 MHz (modulation detail)



9g. Measurement of Electromagnetic Radiated Emissions Within the 3 Meter FCC Listed Chamber

Frequency Range Inspected: 30 MHz – 10,000 MHz

Manufacturer: Logitech
Date of Test: April 9th, 10th and 11th, 2003
Model No.: F-0131B Ericsson Dongle
Serial No.: 4C303 00019
Test Requirements: 15.249, 15.209

Distance: 3 Meters, 1 Meter (>6 GHz)	Frequency Range Inspected: 30 MHz – 10,000 MHz
Configuration: Continuous Transmit, 3 Orientations; 3.6 VDC Cell Phone Battery	

Test Equipment Used:

Spectrum Analyzer: E4407B	EMI Receiver: HP 8546A	Biconical Antenna: EMCO 93110B
Double-Ridged Wave Guide/Horn Antenna: EMCO 3115		Log Periodic Antenna: EMCO 93146A

Detector(s) Used:	v	Peak	v	Quasi-Peak	v	Average

The following table depicts the level of significant radiated emissions found:

Frequency (MHz)	Antenna Polarity	Channel	Device Orientation	Height (meters)	Azimuth (0° - 360°)	EMI Meter Reading (dBmV/m)			15.249 Limit (dBmV/m)	Margin (dB)
						Peak	Q-Peak	Average		
595.3	H	1	H	1.4	270		33.7		46.0	12.3
634.3	H	1	H	1.4	130		31.4		46.0	14.6
878.6	V	1	V	1.15	130		40.9		46.0	5.1
917.6	H	1	H	1.6	255		86.8		94.0	7.2
937.1	H	1	H	1.0	260		32.2		46.0	13.8
956.6	H	1	S	1.45	220		41.0		46.0	5.0
995.6	H	1	H	1.45	260		40.1		54.0	13.9
1835	H	1	H	1.10	135	42.7		41.4	54.0	12.6
2753	H	1	H	1.0	130	42.2		40.0	54.0	14.0
3670	H	1	H	1.0	255	47.8		46.4	54.0	7.6
4588	V	1	H	1.05	85	46.8		44.3	54.0	9.7
495.2	H	5	H	1.0	0		26.3		46.0	19.7
597.3	H	5	H	1.35	105		32.8		46.0	13.2
636.3	H	5	H	1.3	100		32.7		46.0	13.3
726.6	H	5	H	1.05	100		34.4		46.0	11.6
765.6	H	5	H	1.0	250		31.3		46.0	14.7
843.6	V	5	V	1.2	215		32.7		46.0	13.3
882.6	H	5	S	1.6	0		37.9		46.0	8.1
897.0	H	5	H	1.0	240		30.9		46.0	15.1
921.6	H	5	S	1.45	340		88.2		94.0	5.8
960.6	H	5	S	1.35	185		40.7		54.0	13.3
1843	H	5	H	1.1	220	42.8		41.7	54.0	12.3
2765	H	5	H	1.15	125	41.6		38.9	54.0	15.1
3686	V	5	H	1.0	165	48.0		46.6	54.0	7.4
4608	V	5	V	1.0	50	43.3		40.0	54.0	14.0

Note: A Quasi-Peak Detector was used in all measurements below 1 GHz, and both an Average and a Peak Detector was used in measurements above 1 GHz. All other radiated spurious emissions seen were found to be greater than 20dB below the limits. All peak emissions seen were greater than 20db below the 74dBµV/m limit, and are presented above.

APPENDIX A

Calculations

Manufacturer: Logitech
Model: F-0131B Ericsson Dongle
Serial: 4C303 00019

CALCULATION OF RADIATED EMISSIONS LIMITS
FOR FCC PARTS 15.209, and 15.249 (902 – 928 MHz)

FIELD STRENGTH OF FUNDAMENTAL FREQUENCIES:
The fundamental emissions for a 916 MHz transmitter, operating under FCC Part 15.249 limits, must have a field strength no greater than 50mV/m at 3 meters, and a harmonic field strength no greater than 500µV/m at 3 meters.

Spurious emissions outside the 902 MHz – 928 MHz band shall be attenuated by at least 50 dB below the level of the fundamental, or meet the limits expressed in FCC Parts 15.205, and 15.209, under general emission limits.

Where f_o = 916.75 MHz

Fundamental:	20 Log (50mV / 1µV) = 93.97 dBµV/m @ 3m
Harmonic	20 Log (500µV / 1µV) = 53.97 dBµV/m @ 3m

Frequency (MHz)	Fundamental Limit (µV/m @ 3m)	Fundamental Limit (dBµV/m @ 3m)	Harmonic Limit (µV/m @ 3m)	Harmonic Limit (dBµV/m @ 3m)
916.75	50,000	93.97	500	53.97

APPENDIX B

Test Equipment List

Asset #	Manufacturer	Model #	Serial #	Description	Calibration Information	
					Date	Due Date
AA960007	EMCO	3115	9311-4138	Horn Antenna	12-06-02	12-06-03
AA960008	EMCO	3816/2NM	9701-1057	Line Impedance Stabilization	09-19-02	09-19-03
AA960014	Fischer	FCC-801-M3-25	148	Coupler-De-Coupler Network	05-02-02	05-02-03
AA960023	Werlatone	C3910	5167	Directional Coupler 40dB	06-19-01	Note 1*
AA960024	Pasternack	100 Watts	PE 7021-6	DC-1.5 GHz Attenuator	I/O	Note 1*
AA960050	Chase	BiCBL6140A	Bilog 1106	Bilog Antenna	06-19-01	Note 1*
AA960054	Giga-Tronics	80301A	1830164	Power Sensor	05-02-02	05-02-03
AA960074	Fischer	F2031-32mm	361	EM Injection Clamp	01-03-03	01-03-04
AA960076	Fischer	F201-32mm	347	Absorbing Clamp	08-29-02	08-29-03
AA960077	EMCO	93110B	9702-2918	Biconical Antenna	09-19-02	09-19-03
AA960078	EMCO	93146A	9701-4855	Log-Periodic Antenna	09-19-02	09-19-03
CC00181C	HP	33120A	US36013549	Signal Generator	09-29-00	N/A
CC00221C	Agilent	E4407B (26.5GHz)	US39160256	Spectrum analyzer	10-28-02	10-28-03
EE960003	Amplifier Research	100W 1000M1A	19821	100 Watts Amp	06-19-01	Note 1*
EE960005	Giga-Tronics	8542C	1831450	Dual Channel Power Meter	09-19-02	09-19-03
EE960006	Haefely Trench	PESD 1600	H604079	ESD Gun	09-19-02	09-19-03
EE960007	Haefely Trench	P-line 1610	083732-19	Line Fluctuation Generator	09-19-02	09-19-03
EE960010	Haefely Trench	P-Surge-4	083061-08	Power Surge Generator	08-07-02	08-07-03
EE960011	Haefely Trench	PEFT 4010	083180-21	EFT/Burst Generator	09-19-02	09-19-03
EE960013	HP	8546A	3617A00320	Receiver RF Section	09-20-02	09-20-03
EE960014	HP	85460A	3448A00296	Receiver Pre-Selector	09-20-02	09-20-03
EE960015	HP	6843A	3531A-00145	AC Power Source/Analyzer	10-22-00	N/A
EE960016	Marconi	2024	112120/044	Signal Generator	09-19-02	09-19-03
EE960055	Amplifier Research	75A250	21952	75 Watt Amp	06-22-01	Note 1*
EE960147	Adv. Microwave	WLA612	123101	5-18 GHz LNA	06-19-03	06-19-04

Note 1* - Equipment calibrated within a traceable system.

Table of Expanded Uncertainty Values, (K=2) for Specified Measurements

Measurement Type	Particular Configuration	Uc Value in Appropriate Units
Radiated Emissions	3 – Meter chamber, Biconical Antenna	4.24 dB
Radiated Emissions	3-Meter Chamber, Log Periodic Antenna	4.8 dB
Radiated Emissions	10-Meter OATS, Biconical Antenna	4.18 dB
Radiated Emissions	10-Meter OATS, Log Periodic Antenna	3.92 dB
Conducted Emissions	Shielded Room/EMCO LISN	1.60 dB
Radiated Immunity	3 Volts/Meter in 3-Meter Chamber	1.128 Volts/Meter
Conducted Immunity	3 Volts level	1.0 V

APPENDIX C

Additional Tabular Data Sheet to demonstrate compliance of the receiver function of the product with 15.109(a).

Measurement of Electromagnetic Radiated Emissions Within the 3 Meter FCC Listed Site

Frequency Range Inspected: 30 MHz – 5,000 MHz
Test Requirements: Title 47CFR 15.109 a

Manufacturer:	Logitech						
Date(s) of Test:	April 9th, 10th and 11th 2003						
Model #:	F-0131B Ericsson Dongle						
Serial #:	4C303 00019						
Distance:	3 Meters						
Configuration:	Continuous Receive Only						
Channels:	1 and 5						
Detectors Used:			Peak	v	Quasi-Peak	v	Average

Test Equipment Utilized:
EMI Measurement Instrument: HP 8546A and Agilent E4407B
Biconical Antenna: EMCO 3110
EMI Spectrum Analyzer: HP E4407B
Log Periodic Antenna: EMCO 43146A
Double Ridged Wave Guide Horn Antenna: EMCO 3115

The following table depicts the level of significant radiated emissions found:

Frequency (MHz)	Antenna Polarity	Channel	Device Orientation	Height (meters)	Azimuth (0° - 360°)	EMI Meter Reading (dBmV/m)	15.109 Limit (dBmV/m)	Margin (dB)
595.4	H	1	H	1.4	270	32.7	46.0	13.3
726.7	H	5	H	1.1	275	34.4	46.0	11.6
878.7	H	1	S	1.6	185	41.1	46.0	4.9
917.7	H	1	H	1.6	130	39.6	46.0	6.4
921.7	H	5	H	1.45	130	41.4	46.0	4.6
956.7	H	1	H	1.5	260	40.5	46.0	5.5
995.7	H	1	H	1.5	265	40.6	54.0	13.4
1035.0	V	1	V	1.0	220	31.2	54.0	22.8
1074.0	V	1	V	1.0	220	31.5	54.0	22.5
1113.0	V	1	V	1.0	220	34.2	54.0	19.8

Note: A Quasi-Peak Detector was used in measurements below 1 GHz, and an Average Detector was used in measurements above 1 GHz.

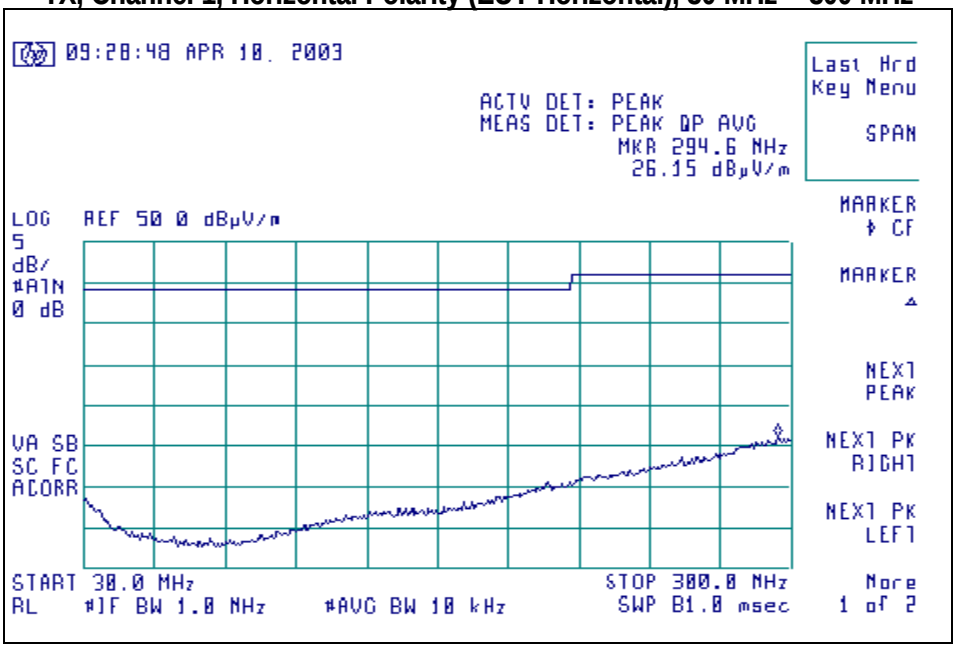
All other emissions seen, other than the noise floor, were greater than 20 dB below the limits.

APPENDIX D

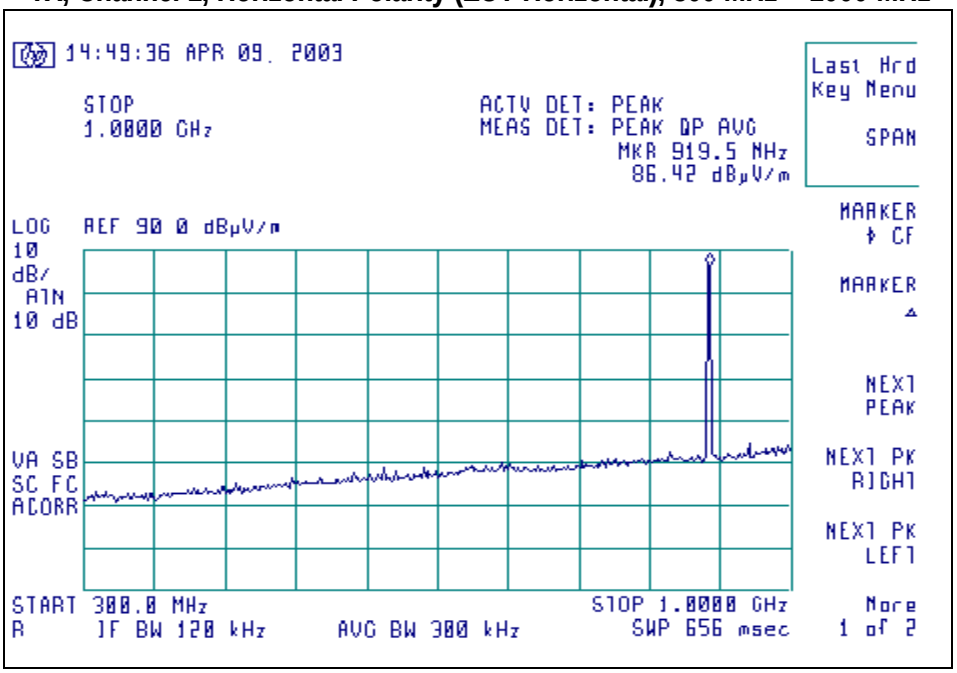
Additional Signature Scans - Radiated Emissions
Supporting Test Report #303257 Rev. 05

Signature Scans of Channel 1 - Low Channel

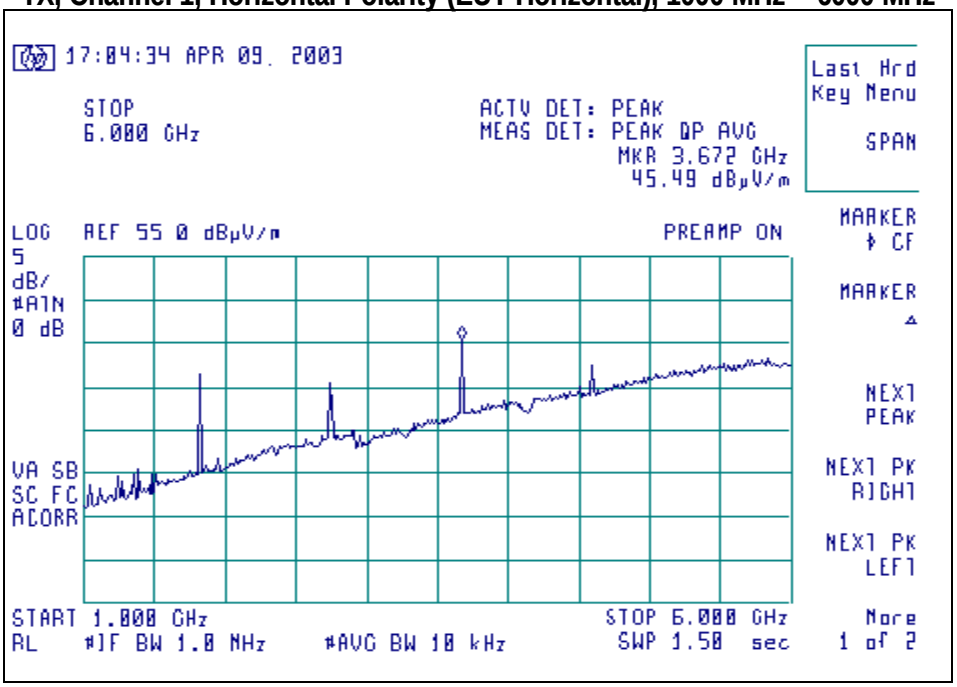
Signature Scan of Radiated Emissions
TX, Channel 1, Horizontal Polarity (EUT Horizontal), 30 MHz – 300 MHz



Signature Scan of Radiated Emissions
TX, Channel 1, Horizontal Polarity (EUT Horizontal), 300 MHz – 1000 MHz



Signature Scan of Radiated Emissions
TX, Channel 1, Horizontal Polarity (EUT Horizontal), 1000 MHz – 6000 MHz

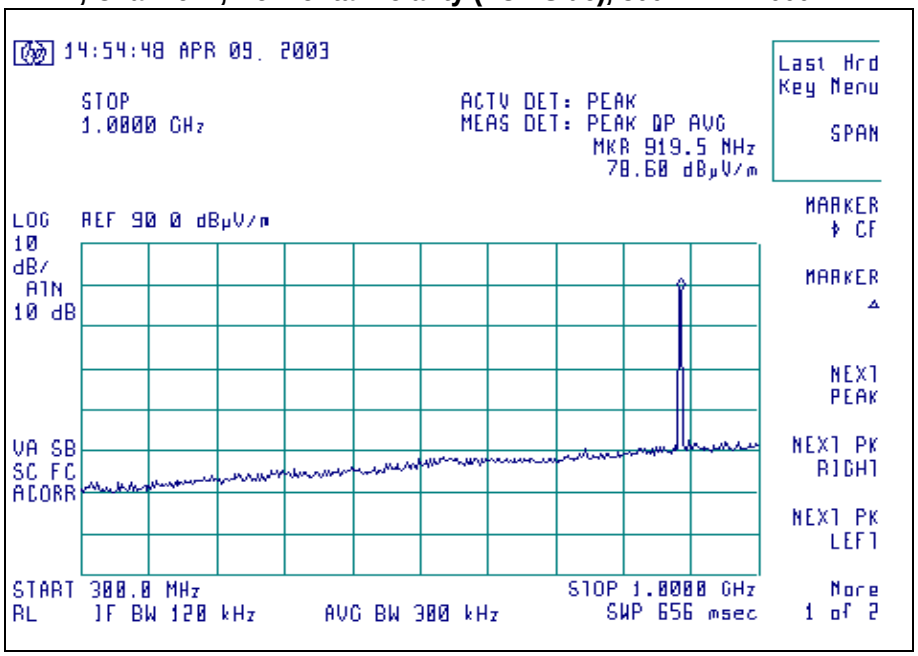


Signature Scan of Radiated Emissions
TX, Channel 1, Horizontal Polarity (EUT Side), 30 MHz – 300 MHz

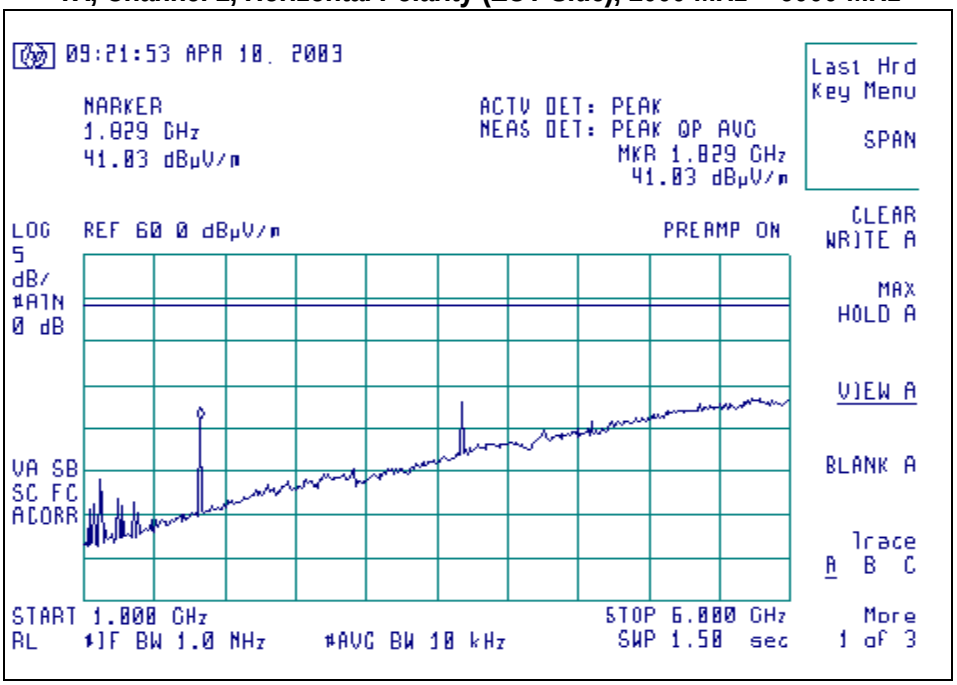
NO SCREEN CAPTURE AVAILABLE.

EMISSIONS VIEWED AS LOWER THAN OTHER ORIENTATIONS PREVIOUSLY SCANNED

Signature Scan of Radiated Emissions
TX, Channel 1, Horizontal Polarity (EUT Side), 300 MHz – 1000 MHz



Signature Scan of Radiated Emissions
TX, Channel 1, Horizontal Polarity (EUT Side), 1000 MHz – 6000 MHz



Signature Scan of Radiated Emissions
TX, Channel 1, Horizontal Polarity (EUT Vertical), 30 MHz – 300 MHz

NO SCREEN CAPTURE AVAILABLE.

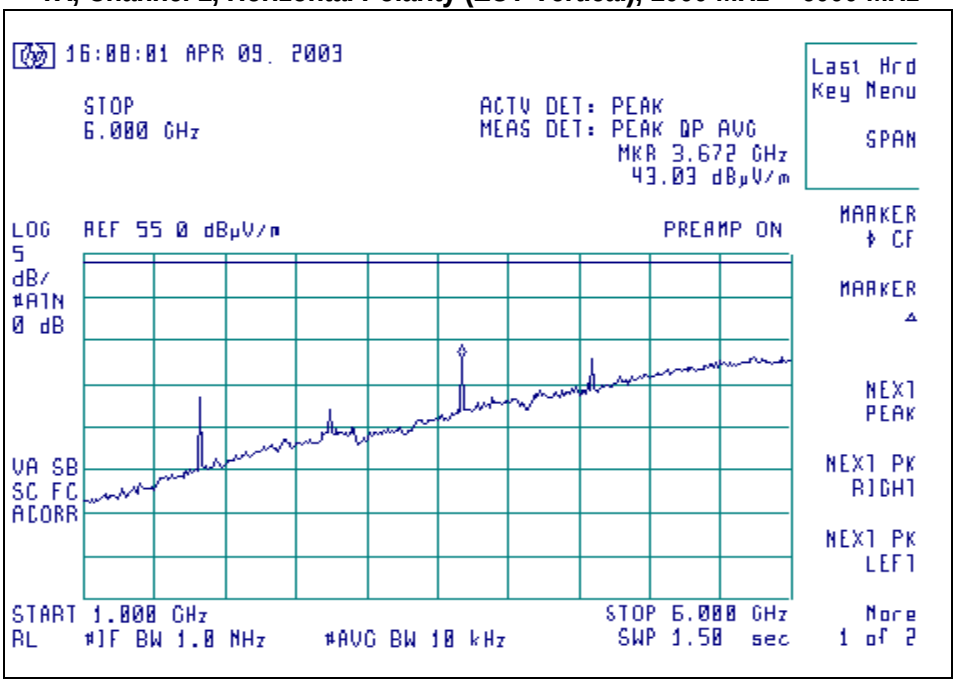
EMISSIONS VIEWED AS LOWER THAN OTHER ORIENTATIONS PREVIOUSLY SCANNED

Signature Scan of Radiated Emissions
TX, Channel 1, Horizontal Polarity (EUT Vertical), 300 MHz – 1000 MHz

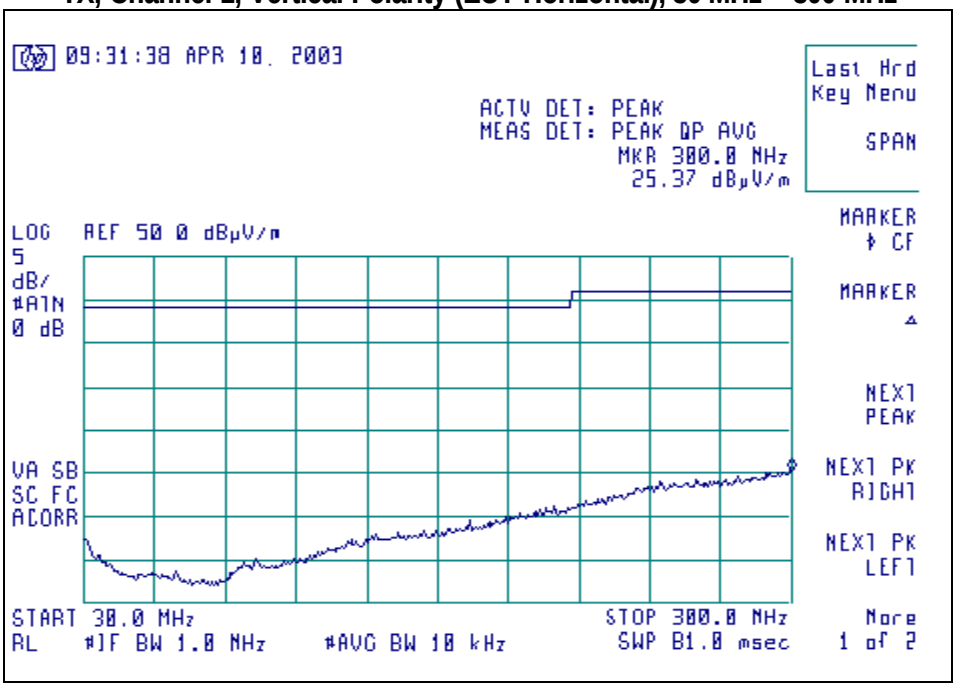
NO SCREEN CAPTURE AVAILABLE.

EMISSIONS VIEWED AS LOWER THAN OTHER ORIENTATIONS PREVIOUSLY SCANNED

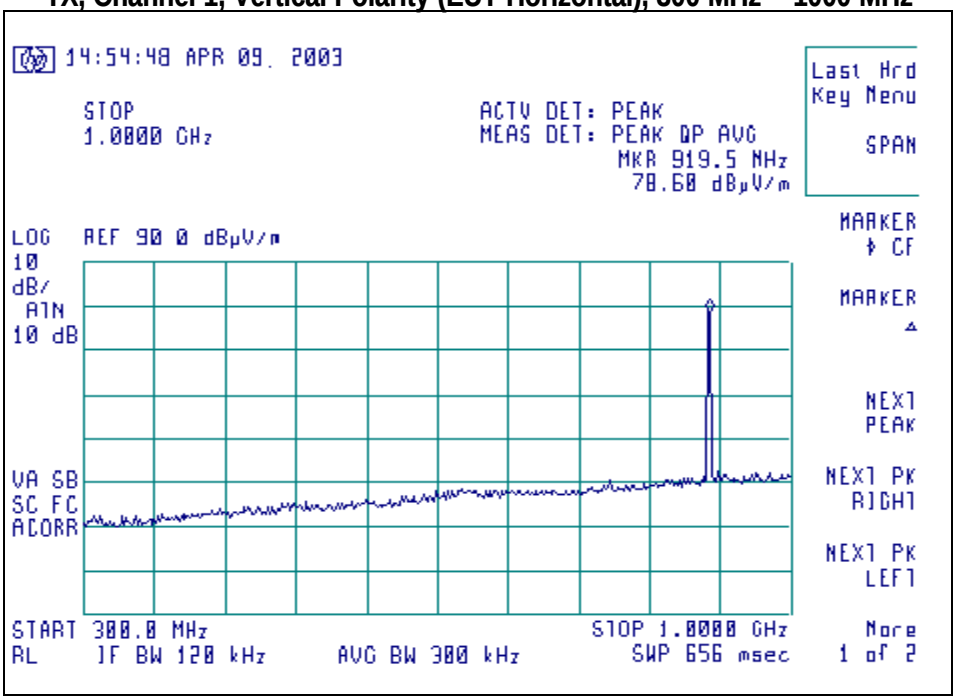
Signature Scan of Radiated Emissions
TX, Channel 1, Horizontal Polarity (EUT Vertical), 1000 MHz – 6000 MHz



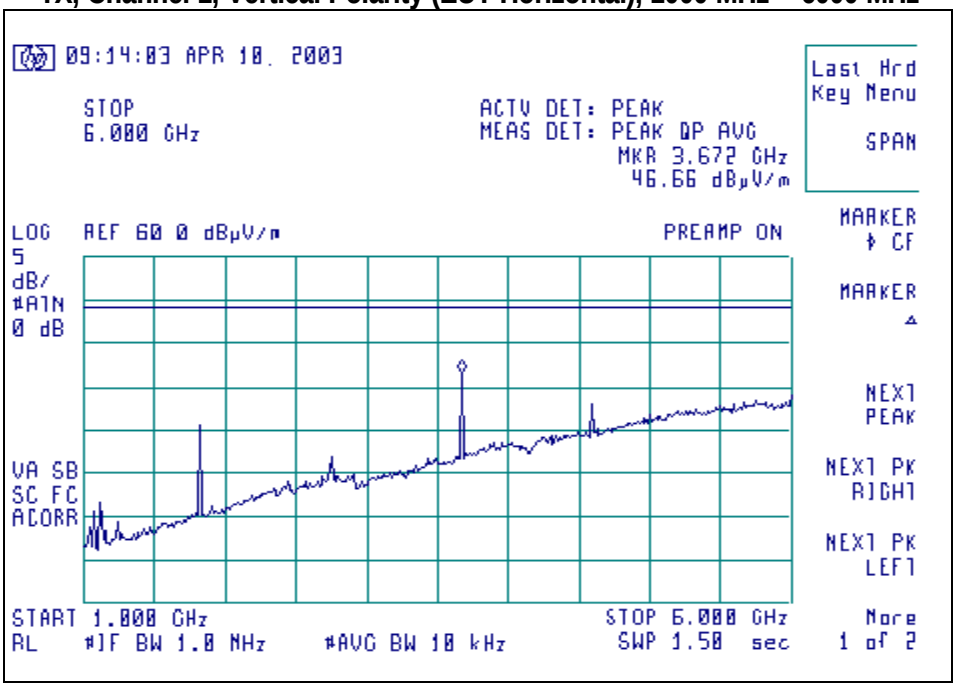
Signature Scan of Radiated Emissions
TX, Channel 1, Vertical Polarity (EUT Horizontal), 30 MHz – 300 MHz



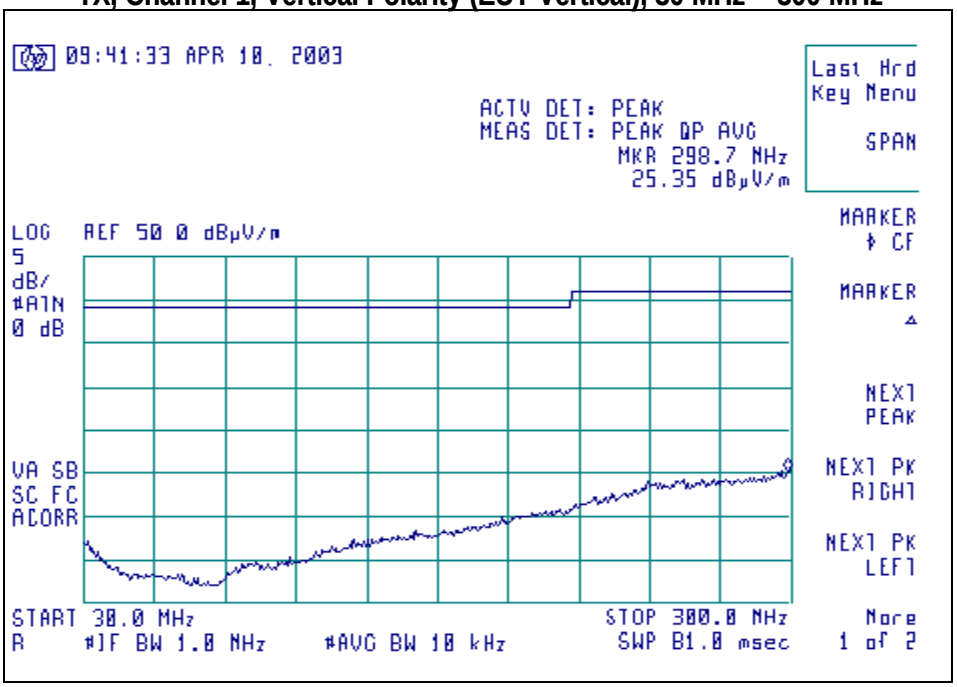
Signature Scan of Radiated Emissions
TX, Channel 1, Vertical Polarity (EUT Horizontal), 300 MHz – 1000 MHz



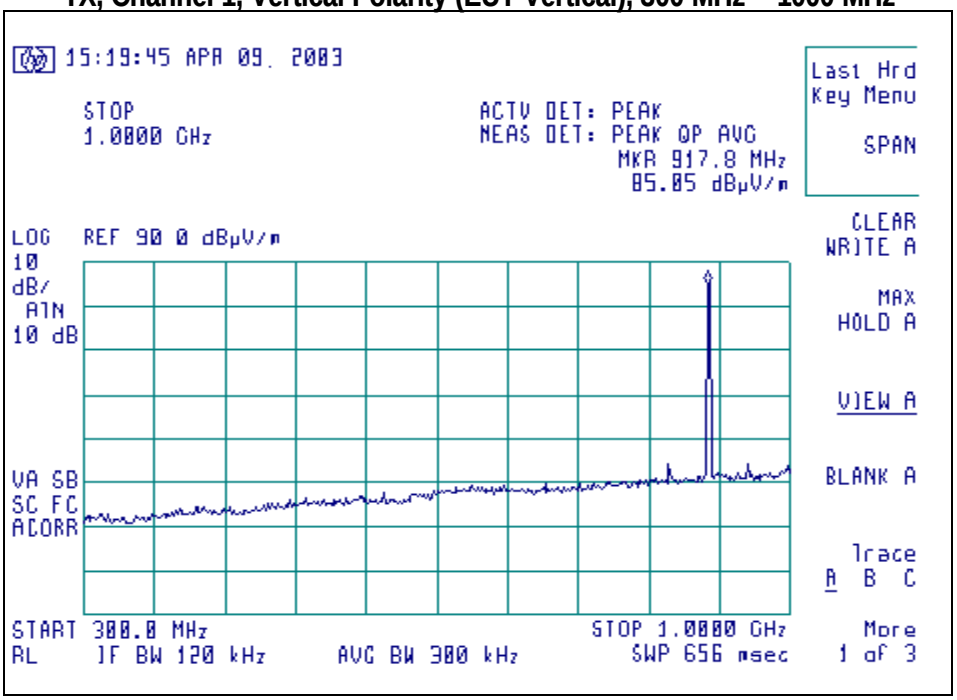
Signature Scan of Radiated Emissions
TX, Channel 1, Vertical Polarity (EUT Horizontal), 1000 MHz – 6000 MHz



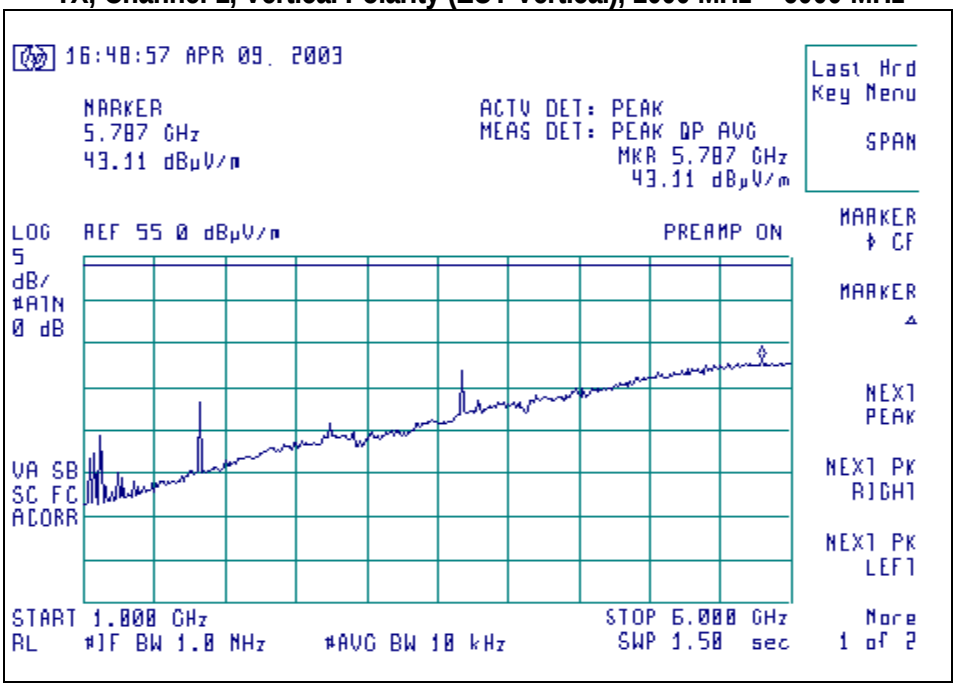
Signature Scan of Radiated Emissions
TX, Channel 1, Vertical Polarity (EUT Vertical), 30 MHz – 300 MHz



Signature Scan of Radiated Emissions
TX, Channel 1, Vertical Polarity (EUT Vertical), 300 MHz – 1000 MHz



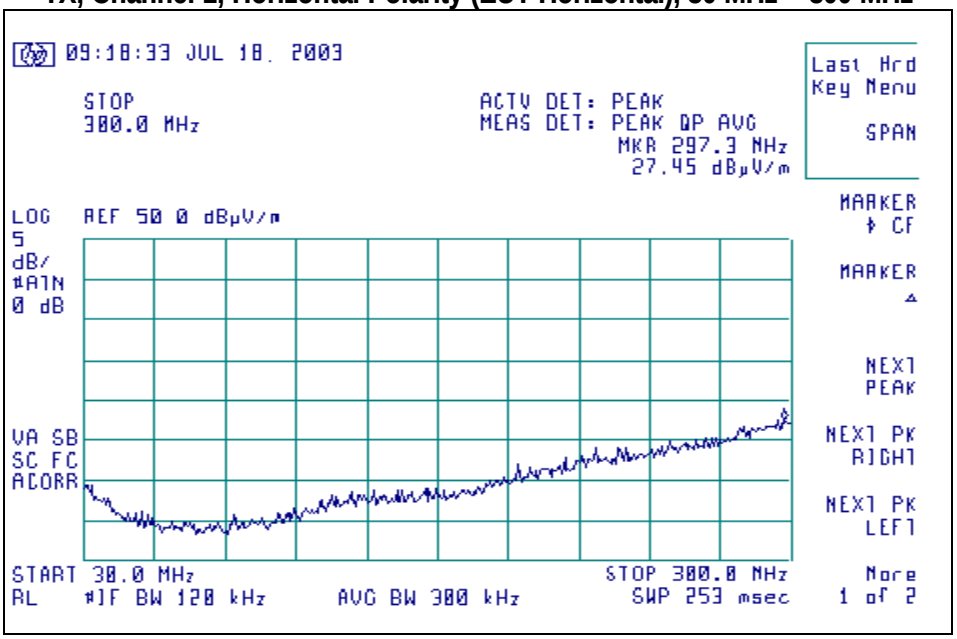
Signature Scan of Radiated Emissions
TX, Channel 1, Vertical Polarity (EUT Vertical), 1000 MHz – 6000 MHz



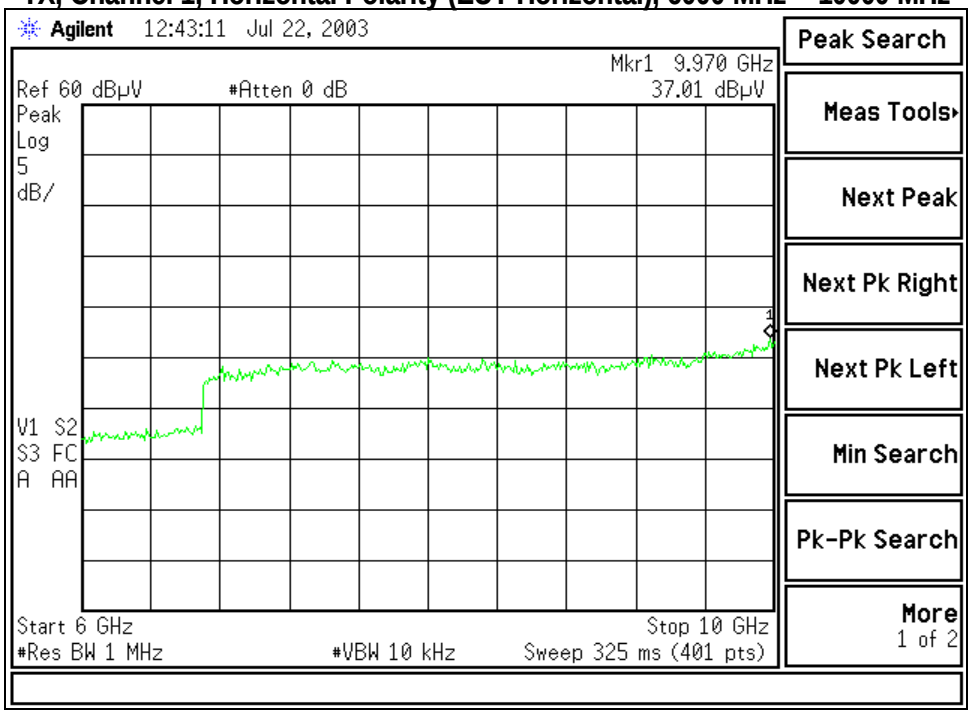
APPENDIX D-1

Additional Signature Scans - Radiated Emissions
Supporting Test Report #303257 Rev. 05

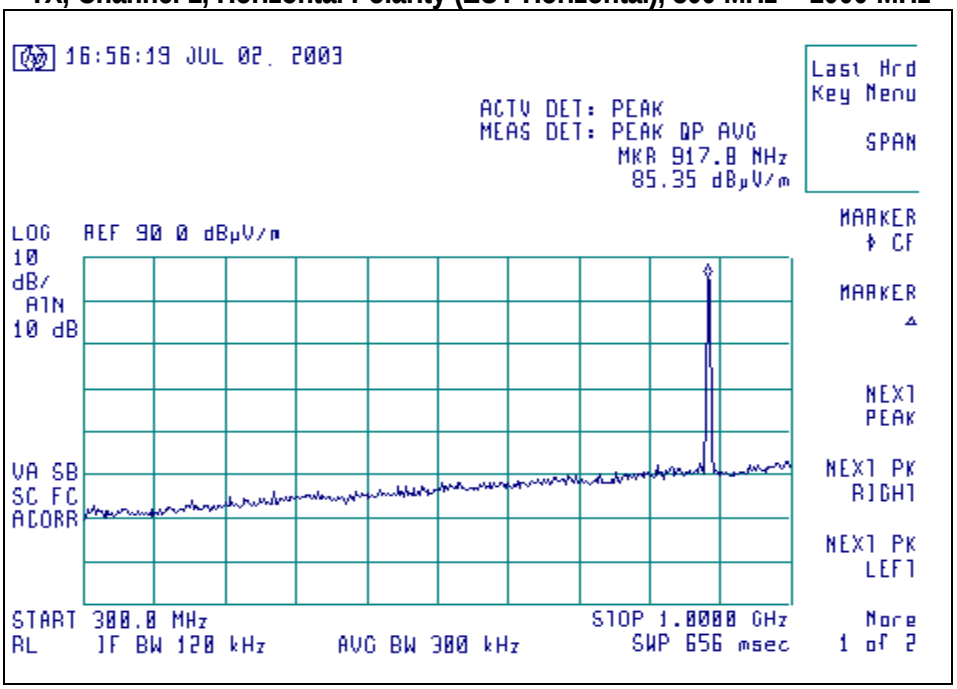
Signature Scan of Radiated Emissions
TX, Channel 1, Horizontal Polarity (EUT Horizontal), 30 MHz – 300 MHz



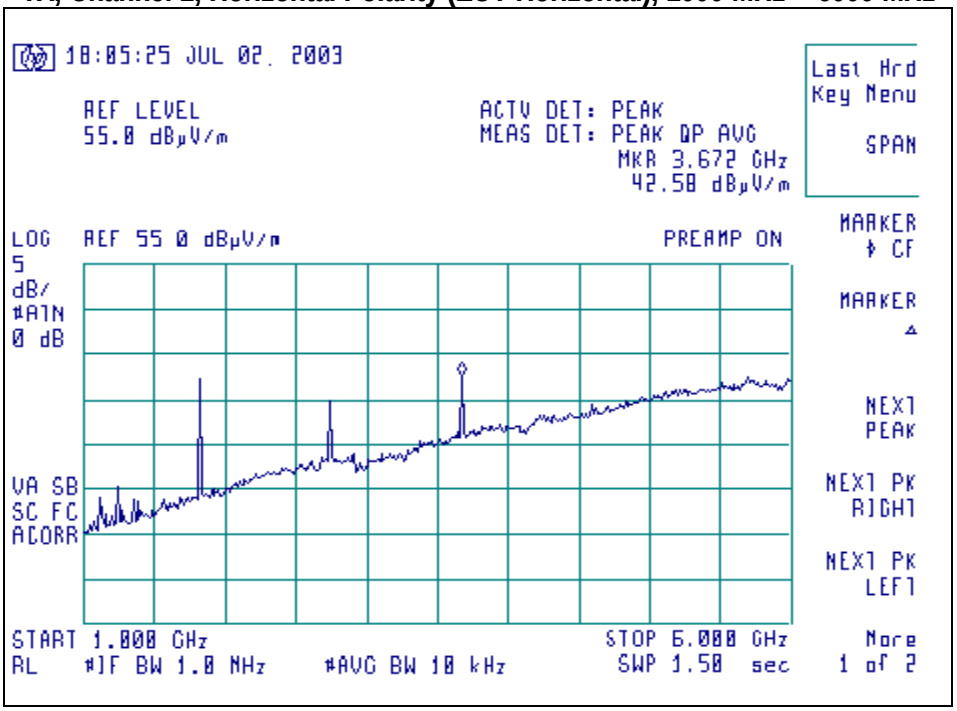
Signature Scan of Radiated Emissions
TX, Channel 1, Horizontal Polarity (EUT Horizontal), 6000 MHz – 10000 MHz



Signature Scan of Radiated Emissions
TX, Channel 1, Horizontal Polarity (EUT Horizontal), 300 MHz – 1000 MHz



Signature Scan of Radiated Emissions
TX, Channel 1, Horizontal Polarity (EUT Horizontal), 1000 MHz – 6000 MHz



Signature Scans of Channel x - Medium Channel

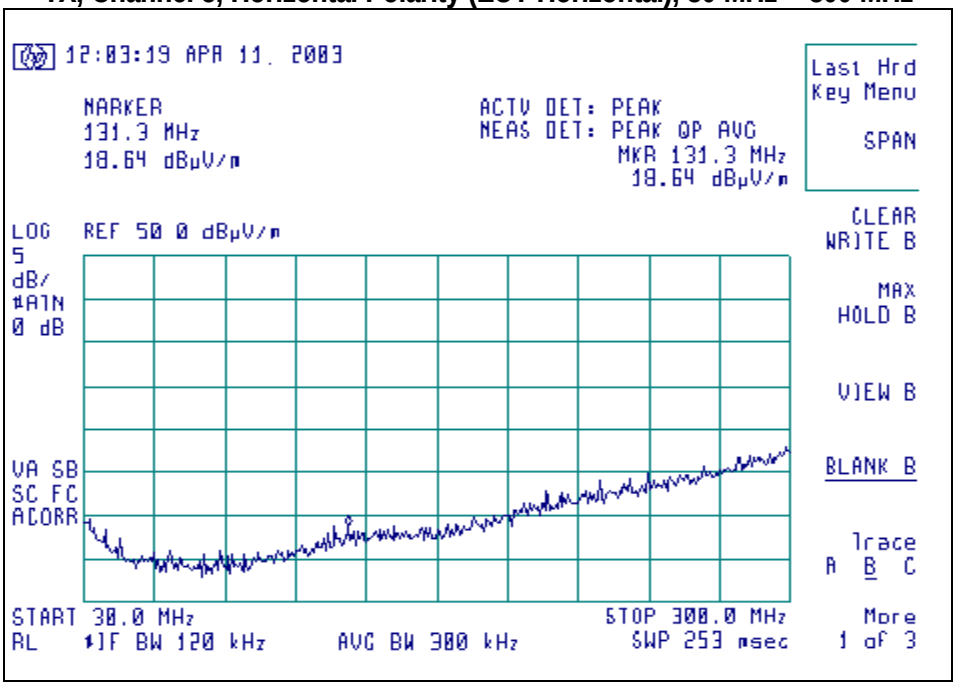
In reviewing FCC Part 15.31.m, high and low channels were required and measured. No medium channel measured due to the operating range of 917.6 MHz – 921.6 MHz. Channel operation is 5 MHz, therefore, only low and high channels required.

APPENDIX E

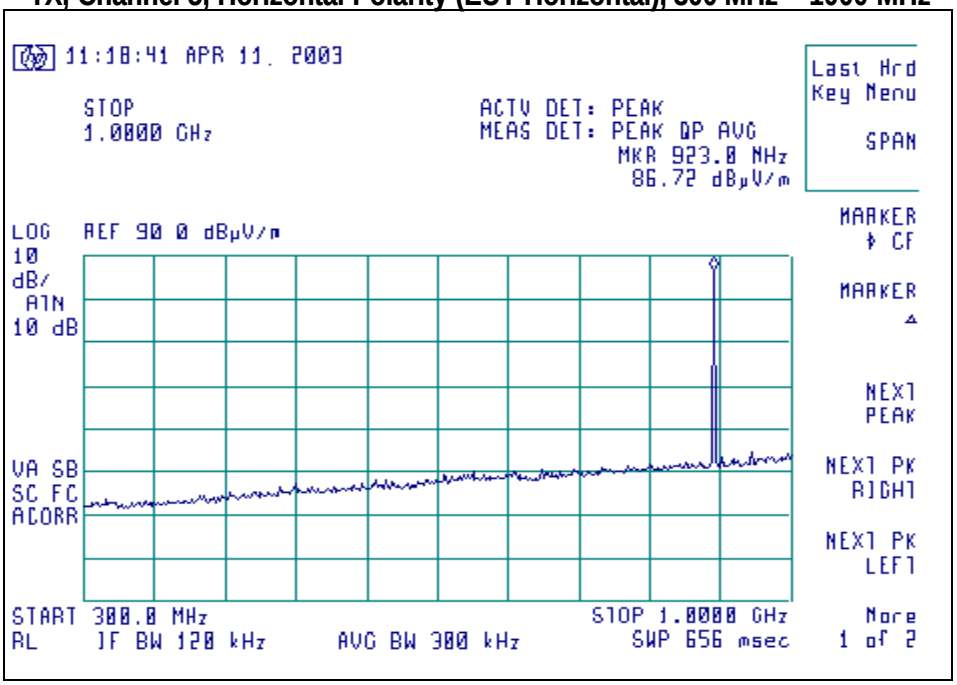
Additional Signature Scans - Radiated Emissions Supporting Test Report #302357 Rev. 05

Signature Scans of Channel 5 - High Channel

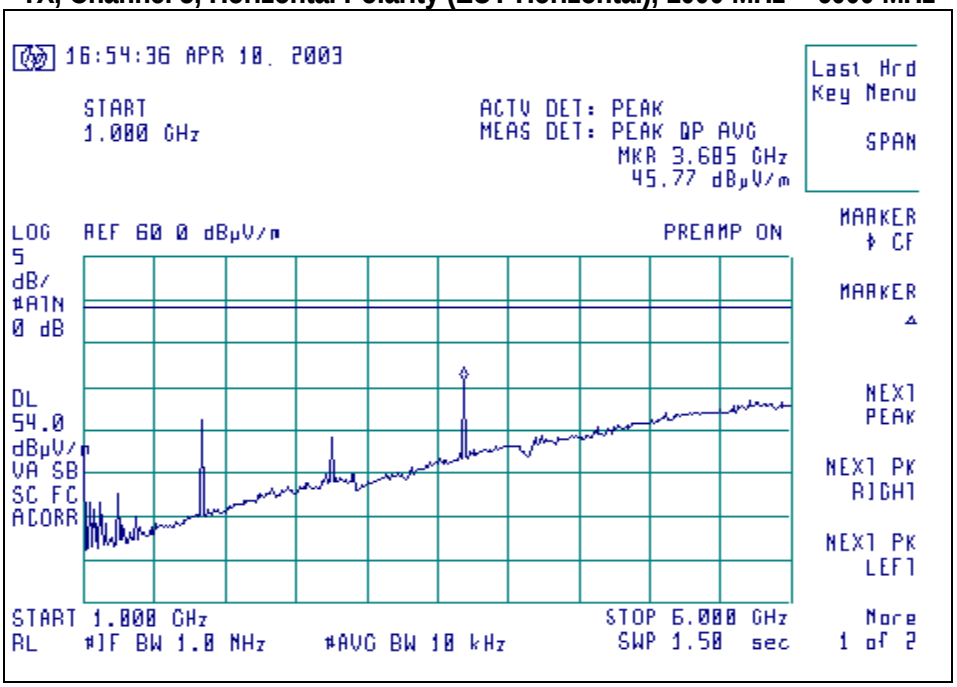
Signature Scan of Radiated Emissions
TX, Channel 5, Horizontal Polarity (EUT Horizontal), 30 MHz – 300 MHz



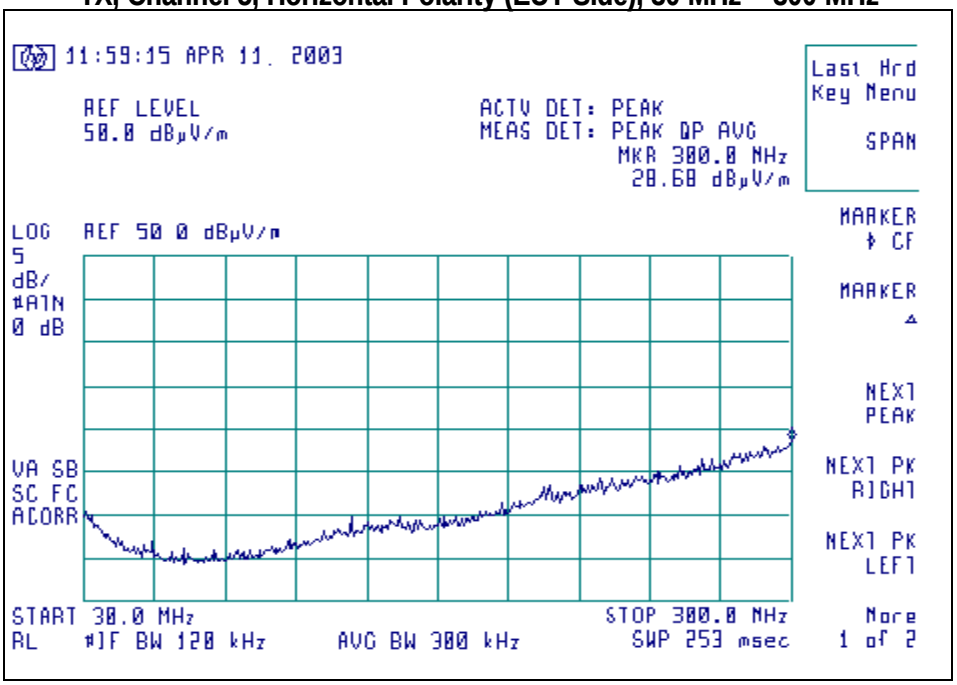
Signature Scan of Radiated Emissions
TX, Channel 5, Horizontal Polarity (EUT Horizontal), 300 MHz – 1000 MHz



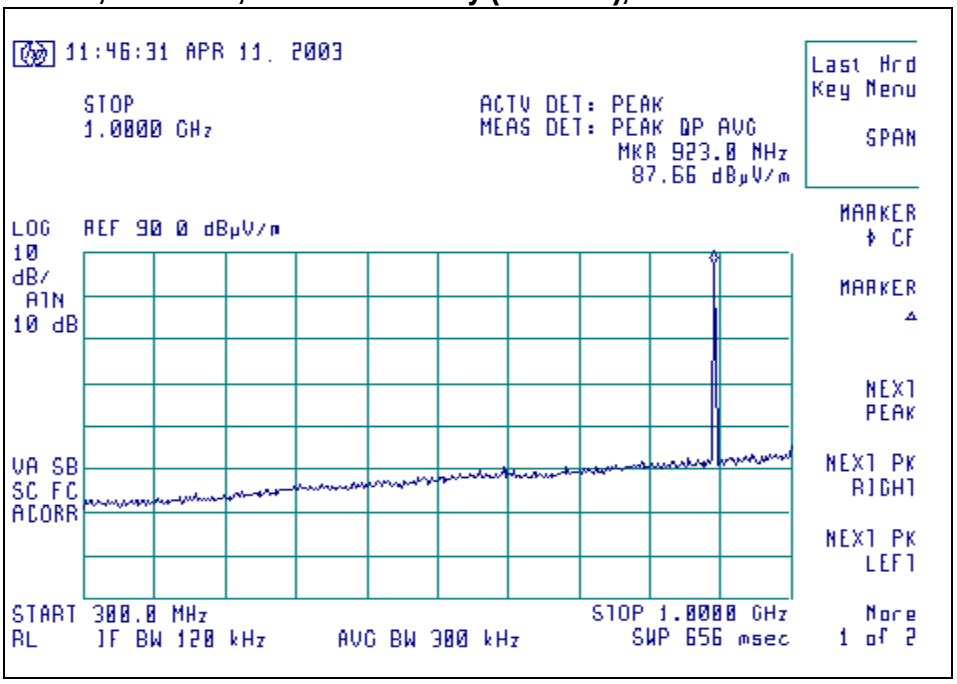
Signature Scan of Radiated Emissions
TX, Channel 5, Horizontal Polarity (EUT Horizontal), 1000 MHz – 6000 MHz



Signature Scan of Radiated Emissions
TX, Channel 5, Horizontal Polarity (EUT Side), 30 MHz – 300 MHz



Signature Scan of Radiated Emissions
TX, Channel 5, Horizontal Polarity (EUT Side), 300 MHz – 1000 MHz



Signature Scan of Radiated Emissions
TX, Channel 5, Horizontal Polarity (EUT Side), 1000 MHz – 6000 MHz

NO SCREEN CAPTURE AVAILABLE.

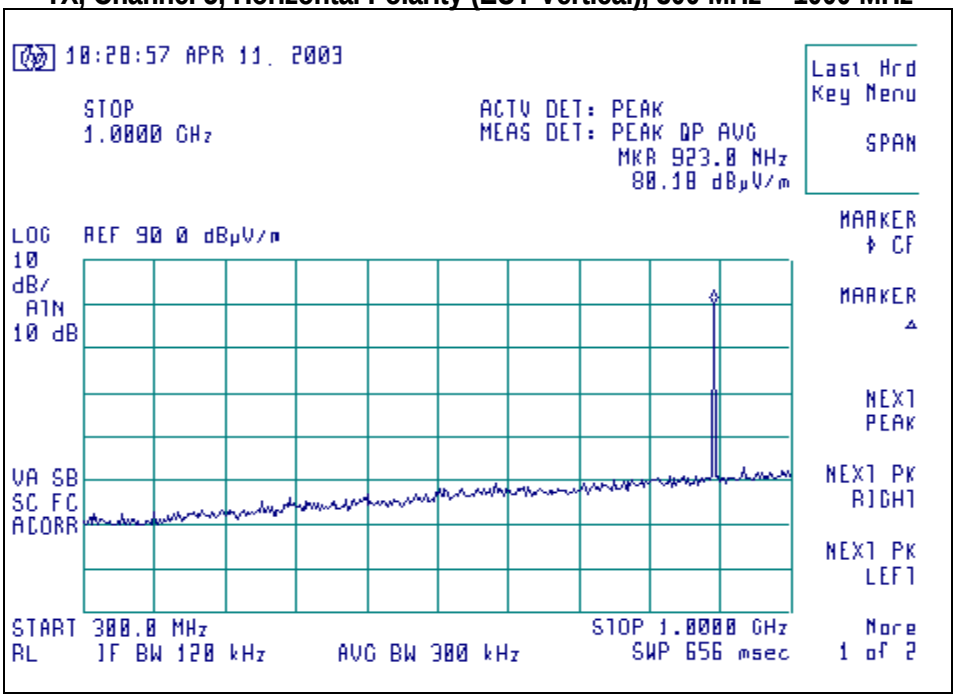
EMISSIONS VIEWED AS LOWER THAN OTHER ORIENTATIONS PREVIOUSLY SCANNED

Signature Scan of Radiated Emissions
TX, Channel 5, Horizontal Polarity (EUT Vertical), 30 MHz – 300 MHz

NO SCREEN CAPTURE AVAILABLE.

EMISSIONS VIEWED AS LOWER THAN OTHER ORIENTATIONS PREVIOUSLY SCANNED

Signature Scan of Radiated Emissions
TX, Channel 5, Horizontal Polarity (EUT Vertical), 300 MHz – 1000 MHz



Signature Scan of Radiated Emissions
TX, Channel 5, Horizontal Polarity (EUT Vertical), 1000 MHz – 6000 MHz

NO SCREEN CAPTURE AVAILABLE.

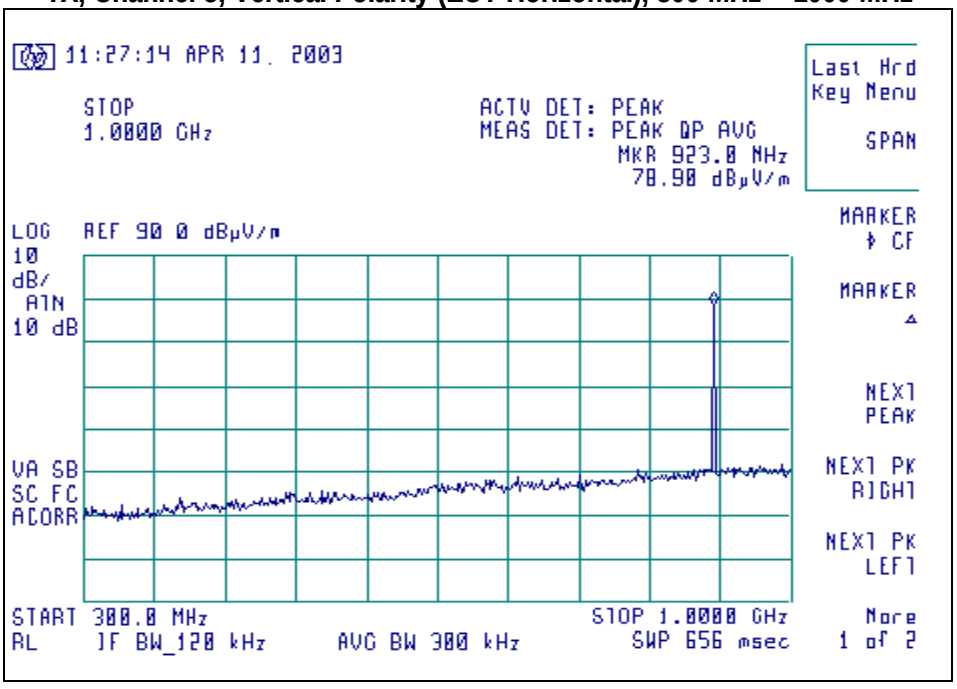
EMISSIONS VIEWED AS LOWER THAN OTHER ORIENTATIONS PREVIOUSLY SCANNED

Signature Scan of Radiated Emissions
TX, Channel 5, Vertical Polarity (EUT Horizontal), 30 MHz – 300 MHz

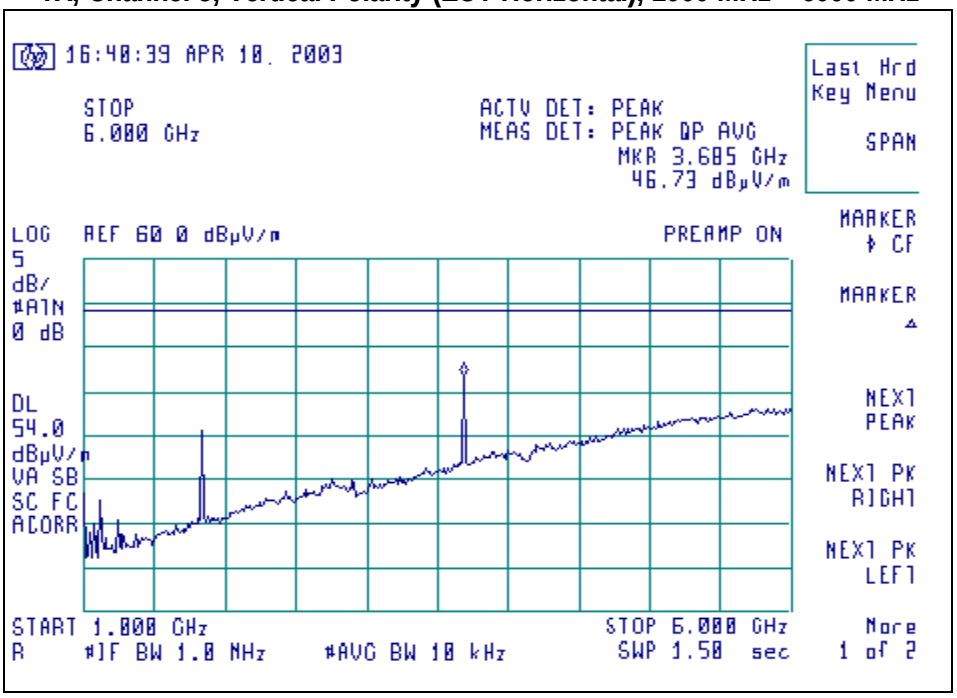
NO SCREEN CAPTURE AVAILABLE.

EMISSIONS VIEWED AS LOWER THAN OTHER ORIENTATIONS PREVIOUSLY SCANNED

Signature Scan of Radiated Emissions
TX, Channel 5, Vertical Polarity (EUT Horizontal), 300 MHz – 1000 MHz



Signature Scan of Radiated Emissions
TX, Channel 5, Vertical Polarity (EUT Horizontal), 1000 MHz – 6000 MHz

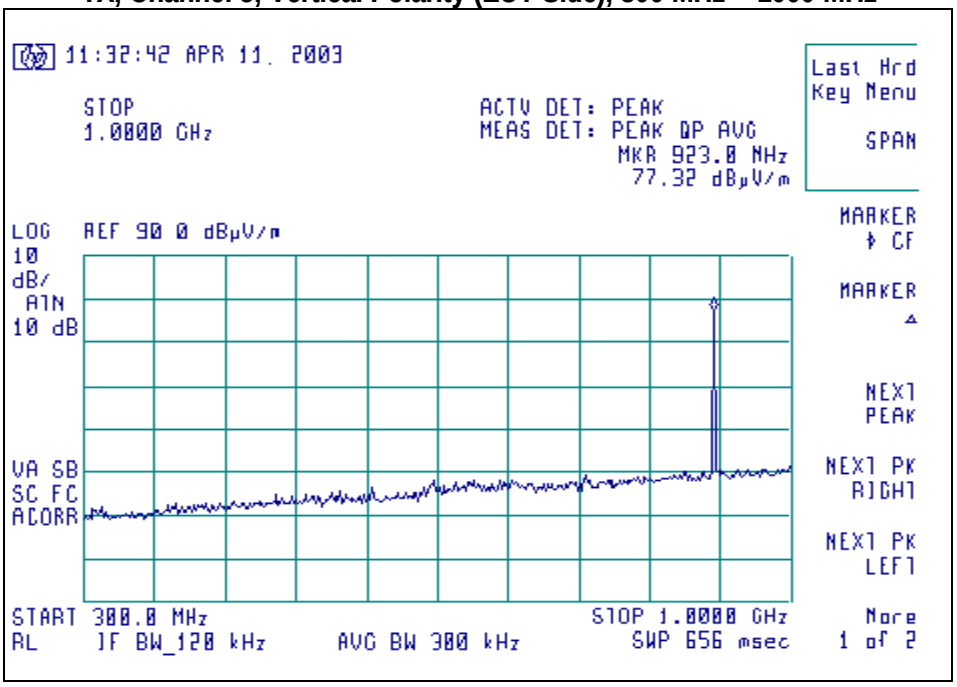


Signature Scan of Radiated Emissions
TX, Channel 5, Vertical Polarity (EUT Side), 30 MHz – 300 MHz

NO SCREEN CAPTURE AVAILABLE.

EMISSIONS VIEWED AS LOWER THAN OTHER ORIENTATIONS PREVIOUSLY SCANNED

Signature Scan of Radiated Emissions
TX, Channel 5, Vertical Polarity (EUT Side), 300 MHz – 1000 MHz

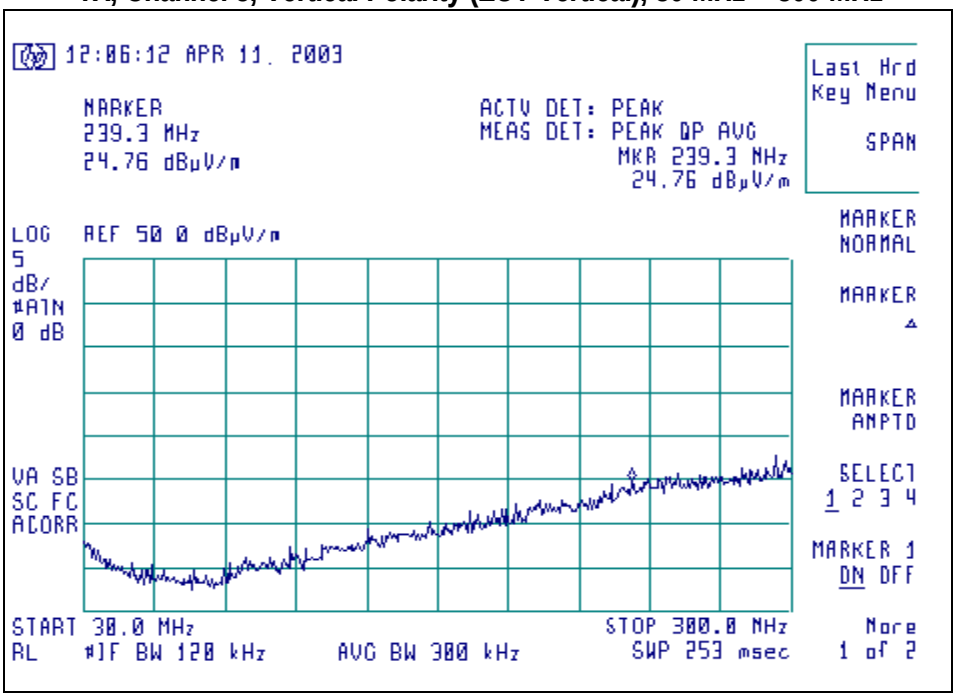


Signature Scan of Radiated Emissions
TX, Channel 5, Vertical Polarity (EUT Side), 1000 MHz – 6000 MHz

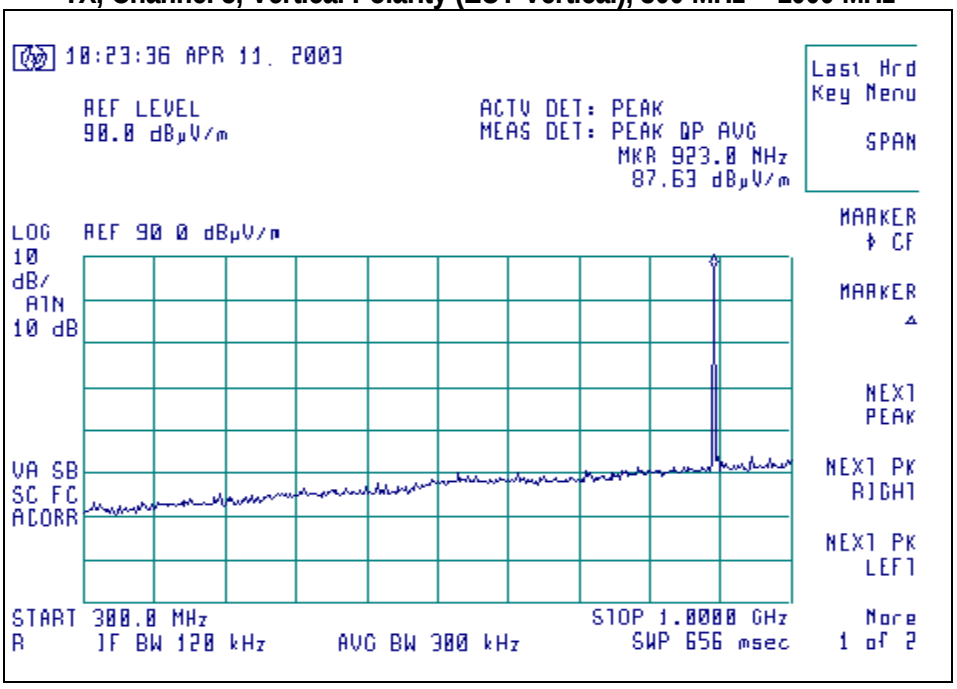
SCREEN CAPTURE NOT AVAILABLE.

EMISSIONS VIEWED AS LOWER THAN OTHER ORIENTATIONS PREVIOUSLY SCANNED

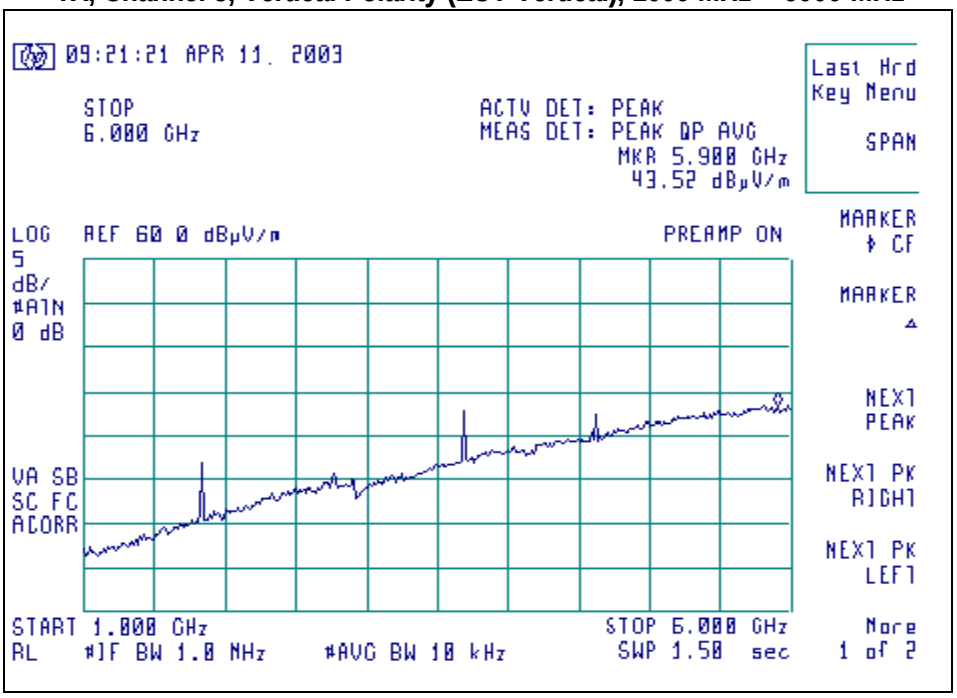
Signature Scan of Radiated Emissions
TX, Channel 5, Vertical Polarity (EUT Vertical), 30 MHz – 300 MHz



Signature Scan of Radiated Emissions
TX, Channel 5, Vertical Polarity (EUT Vertical), 300 MHz – 1000 MHz



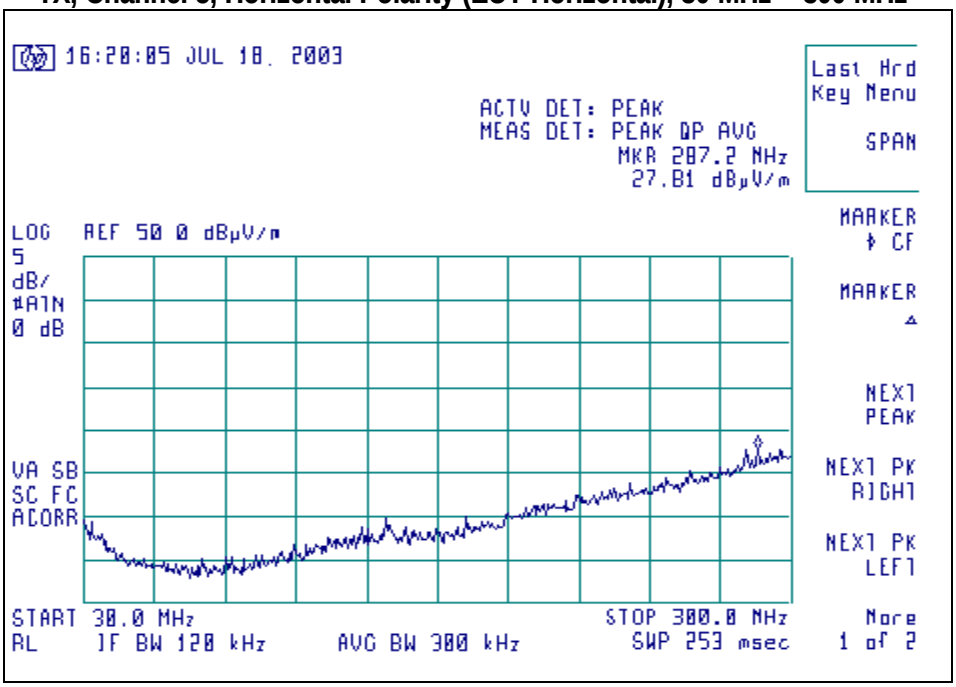
Signature Scan of Radiated Emissions
TX, Channel 5, Vertical Polarity (EUT Vertical), 1000 MHz – 6000 MHz



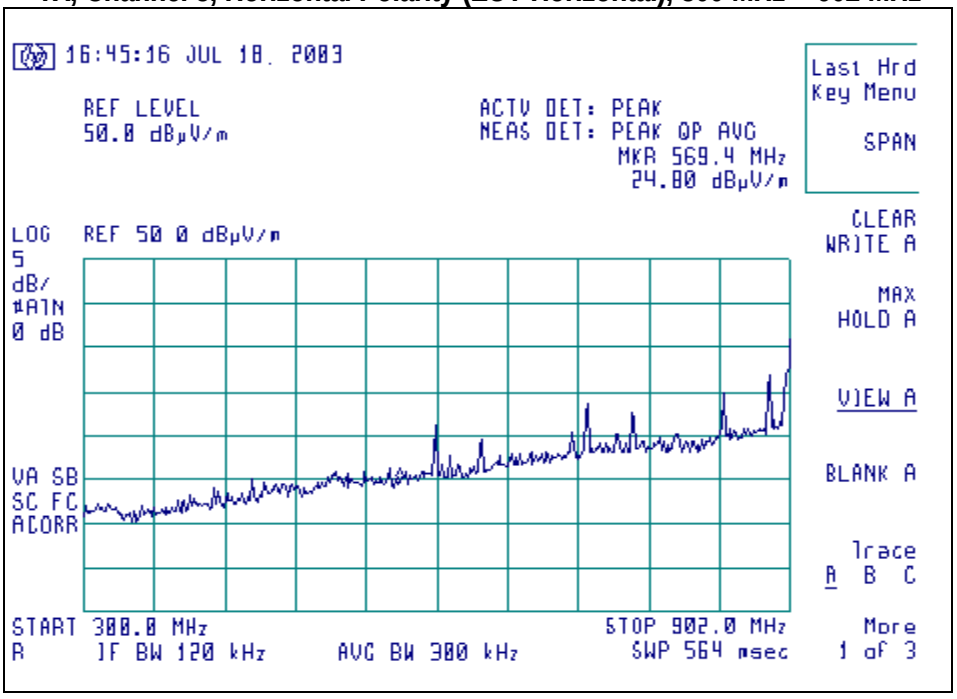
APPENDIX E-1

Additional Signature Scans - Radiated Emissions
Supporting Test Report #302357 Rev. 05

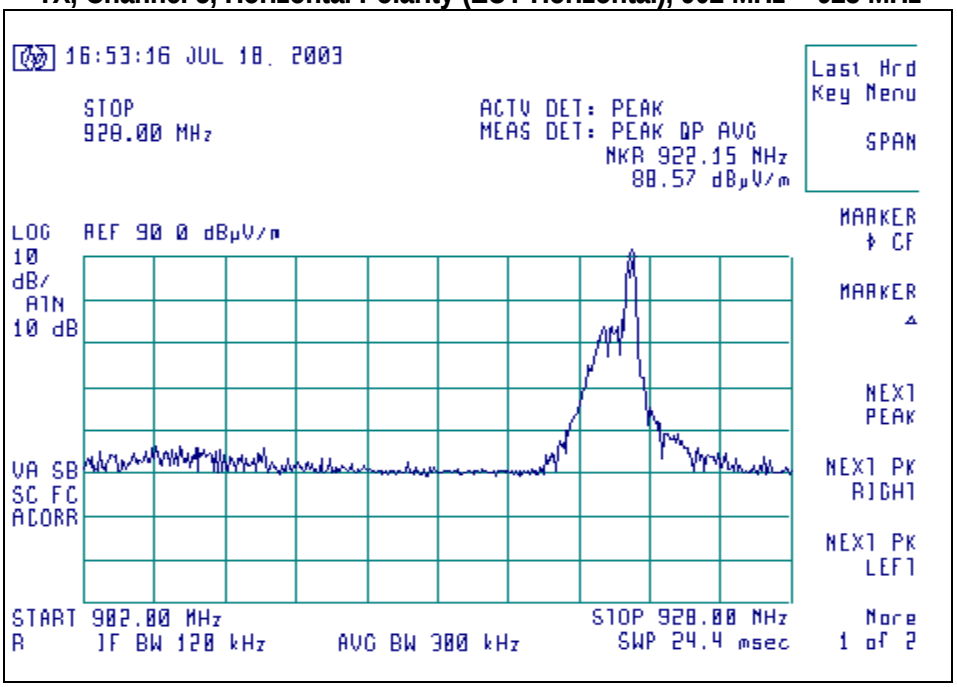
Signature Scan of Radiated Emissions
TX, Channel 5, Horizontal Polarity (EUT Horizontal), 30 MHz – 300 MHz



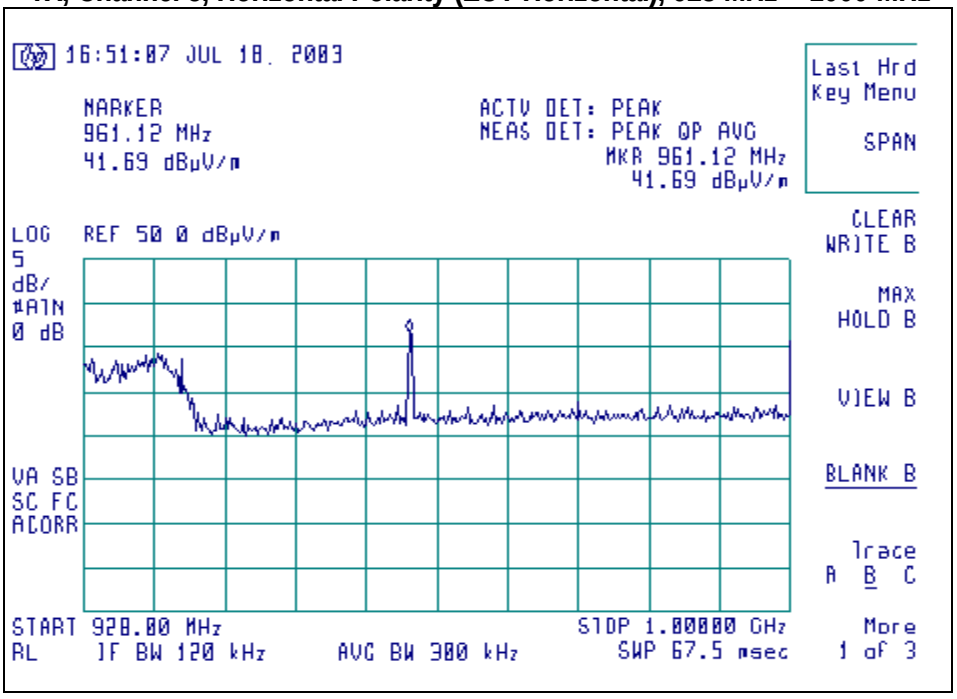
Signature Scan of Radiated Emissions
TX, Channel 5, Horizontal Polarity (EUT Horizontal), 300 MHz – 902 MHz



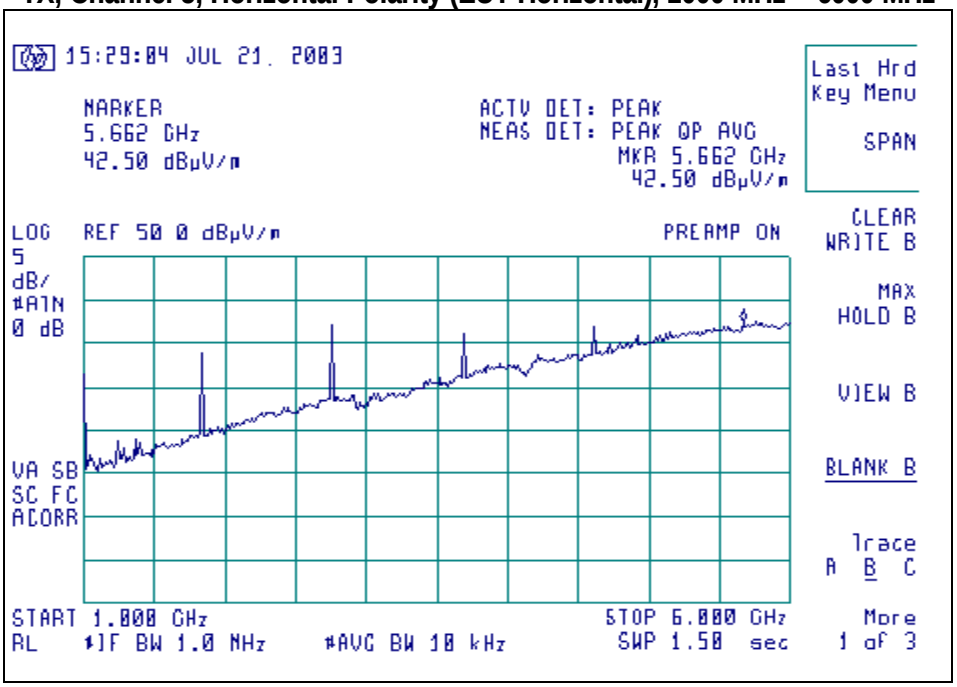
Signature Scan of Radiated Emissions
TX, Channel 5, Horizontal Polarity (EUT Horizontal), 902 MHz – 928 MHz



Signature Scan of Radiated Emissions
TX, Channel 5, Horizontal Polarity (EUT Horizontal), 928 MHz – 1000 MHz



Signature Scan of Radiated Emissions
TX, Channel 5, Horizontal Polarity (EUT Horizontal), 1000 MHz – 6000 MHz



Signature Scan of Radiated Emissions
TX, Channel 5, Horizontal Polarity (EUT Horizontal), 6000 MHz – 10000 MHz, at 1 meter