CERTIFICATE OF COMPLIANCE
FCC PART 90 CERTIFICATION

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Applicant Information:

WIRELESS MATRIX CORPORATION
Suite 102, 1530-27 Avenue NE
Calgary, Alberta
Canada T2E 7S6

FCC Classification:	**Licensed Non-Broadcast Station Transmitter (TNB)**
FCC Rule Part(s):	**§90, §2**
FCC ID:	**P5I-907-FNN-A**
Model:	**907-FNN-A**
Equipment Type:	**Wireless Telemetry Unit with RIM 802 DataTAC Radio Modem Terrestrial Processor Assisted Connector (TPAC) with Aluminum & Plastic Enclosures**
Tx Frequency Range:	**806 - 821 MHz**
Rx Frequency Range:	**851 - 870 MHz**
Rated RF Output Power:	**2.65 Watts (ERP)**
Frequency Tolerance:	**2.5 PPM**
Emission Designator:	**20K0F1D**
Antenna Type:	**Permanent Stud-Mount ¼-Wave Whip**

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Shawn McMillen
General Manager
Celltech Research Inc.

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FCC PART 90 MEASUREMENT REPORT

1.0 SCOPE

Measurement and determination of electromagnetic emissions (EME) from radio frequency devices for compliance with the technical rules and regulations of the Federal Communications Commission.

1.1 General Information - §2.1033(a)

APPLICANT:

WIRELESS MATRIX CORPORATION
Suite 102, 1530-27 Avenue NE
Calgary, Alberta
Canada T2E 7S6

FCC ID	**P5I-907-FNN-A**
Model	**907-FNN-A**
EUT Type	**Wireless Telemetry Unit with RIM 802 DataTAC Radio (Terrestrial Processor Assisted Connector with Aluminum & Plastic Enclosures)**
Classification	**Licensed Non-Broadcast Station Transmitter (TNB)**
Rule Part(s)	**§90 , §2**
Max. RF Output Power	**2.65 Watts (ERP)**
Tx Freq. Range	**806 - 821 MHz**
Rx Freq. Range	**851 - 870 MHz**
Emission Designator	**20K0F1D**
Signal Modulation	**FSK**
Modes Tested	**Unmodulated Carrier, RD-LAP, MDC**
Antenna Type	**Permanent Stud-Mount ¼-Wave Whip**
Power Supply	**12VDC**

2.0 MEASUREMENT PROCEDURES

2.1 Occupied Bandwidth - §90.209, §90.210, §2.1049

The antenna output terminal of the EUT was connected to the input of a 50Ω spectrum analyzer through a matched 30dB attenuator. The radio transmitter was operating at maximum output power with and without internal data modulation.

Test Results

A. UNMODULATED CARRIER – High power
33.0dBm conducted power with a 30dB matched attenuator, and coaxial cable with a total loss of 1.0dB.

B. INTERNAL MODULATION
See attached test plots (Attachment D). 100% of the in-band modulation was below the specified mask per 90.210(j).

Emission Mask: 806-821MHz (DataTAC)

FREQUENCY (MHz)	FORMULA	LIMIT (dBc)
-26500	43+10 log (P)	- 46
-0.050	43+10 log (P)	- 46
-0.050	50+10 log (P)	- 53
-0.0175	116 log (f_d / 6.1)	- 53
-0.010	116 log (f_d / 6.1) or 83 log ((f_d / 5)	- 25
-0.005	83 log ((f_d / 5)	0.0
0.005	83 log ((f_d / 5)	0.0
0.010	116 log (f_d / 6.1) or 83 log ((f_d / 5)	- 25
0.0175	116 log (f_d / 6.1)	- 53
0.050	50+10 log (P)	- 53
0.050	43+10 log (P)	- 46
26500	43+10 log (P)	- 46

2.2 RF Output Power - §2.1046

The conducted power was measured with a Gigatronics 8650A Universal Power Meter using CW mode. An offset was entered into the power meter to correct for the losses of the attenuator and cable installed before the sensor input. The transmitter terminal was coupled to the power meter and the EUT was placed into test mode via keypad access or a base station simulator. All subsequent tests were performed using the same tune-up procedures.

2.3 Spurious Emissions at Antenna Terminal - §2.1051

The level of the carrier and the various conducted spurious and harmonic frequencies was measured by means of a calibrated spectrum analyzer. The spectrum was scanned from 10MHz to 20GHz. The antenna output terminal of the EUT was connected to the input of a 50Ω spectrum analyzer through a matched 30dB attenuator and coaxial cable. The transmitter was operating at maximum power with and without internal data modulation.

2.4 Radiated Spurious and Harmonic Emissions - §2.1053

Radiated and harmonic emissions above 1 GHz were measured on a 3-meter outdoor site. The EUT was placed on the turntable with the transmitter transmitting into a non-radiating load. A receiving antenna located 3 meters from the turntable received any signal radiated from the transmitter and its operating accessories. The receiving antenna was varied from 1 to 4 meters and the polarization was varied (horizontal and vertical) to determine the worst-case emission level.

2.5 Frequency Stability / Temperature Variation - §90.213, §2.1055

The minimum frequency stability shall be +/- 0.00025% at any time during normal operation.

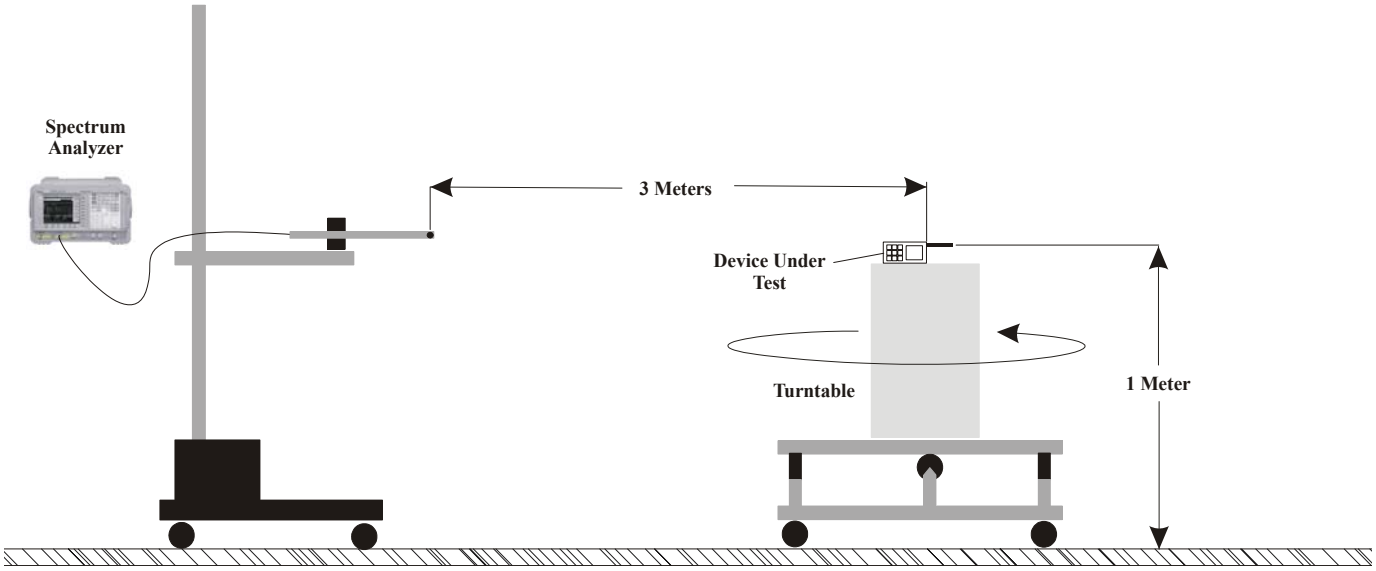
The frequency stability of the transmitter was measured by:

a) Temperature: The temperature was varied from -30°C to +60°C using an environmental chamber.
b) Primary Supply Voltage: The primary supply voltage was varied from 85% to 115% of the voltage normally at the input to the device or at the power supply terminals if cables were not supplied. The device was powered by a 12 Volt DC power supply.

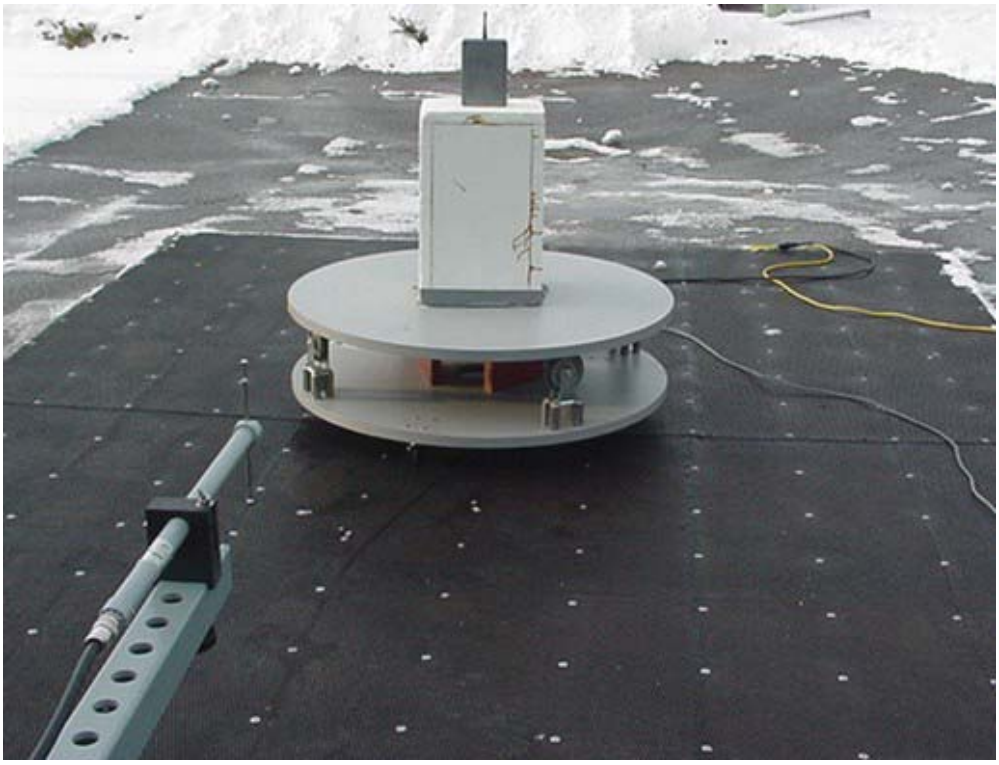
Time Period and Procedure:

1. The carrier frequency of the transmitter and the individual oscillators were measured at room temperature (25°C to 27°C to provide a reference).
2. The equipment was subjected to an overnight “soak” at -30°C without any power applied.
3. After the overnight “soak” at -30°C (usually 14-16 hours), the equipment was turned on in a “standby” condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter and the individual oscillators was made within a three-minute interval after applying power to the transmitter.
4. Frequency measurements were made at 10°C intervals up to +60°C then back to room temperature. A minimum period of one and one half-hour was provided to allow stabilization of the equipment at each temperature level.

2.6 Radiated Measurement Test Setup



Radiated Measurement Test Setup Diagram



Radiated Measurement Test Setup Photograph

3.0 TEST DATA

3.1 EFFECTIVE RADIATED POWER OUTPUT - §2.1046

Aluminum Enclosure Unit

Freq. Tuned	EUT Conducted Power	Max. Field Strength of EUT (Vert. Pol.)	Dipole Gain	Dipole Forward Conducted Power	ERP of EUT Dipole Gain + Dipole Forward Conducted Power	
(MHz)	(dBm)	(dBm)	(dBd)	(dBm)	dBm	Watts
806.0	33.0	-5.43	- 1.64	33.60	31.96	1.57
813.5	33.0	-5.98	- 1.54	34.09	32.55	1.80
821.0	33.0	-5.66	- 1.44	35.67	34.23	2.65

Notes:

ERP Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A half-wave dipole was substituted in place of the EUT. A CW signal with the same bandwidth as the EUT was generated, amplified, and fed through a directional coupler. The height and direction of the dipole was adjusted in order to give the field of maximum intensity. The power to the dipole was adjusted in order to give the same field strength reading as previously recorded for the EUT. The power at the coupler port was recorded at this point. The feed point for the dipole was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the dipole antenna. The conducted power at the antenna feed point was recorded. The ERP level was determined by adding the dipole forward conducted power and the dipole gain in dB. For readings above 1GHz the above method is repeated using standard gain horn antennas.

EFFECTIVE RADIATED POWER OUTPUT - §2.1046 (Cont.)

Plastic Enclosure Unit

Freq. Tuned	EUT Conducted Power	Max. Field Strength of EUT (Vert. Pol.)	Dipole Gain	Dipole Forward Conducted Power	ERP of EUT Dipole Gain + Dipole Forward Conducted Power	
(MHz)	(dBm)	(dBm)	(dBd)	(dBm)	dBm	Watts
806.0	33.0	-5.91	- 1.64	33.15	31.51	1.42
813.5	33.0	-6.42	- 1.54	33.68	32.14	1.64
821.0	33.0	-6.13	- 1.44	35.21	33.77	2.38

Notes:

ERP Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A half-wave dipole was substituted in place of the EUT. A CW signal with the same bandwidth as the EUT was generated, amplified, and fed through a directional coupler. The height and direction of the dipole was adjusted in order to give the field of maximum intensity. The power to the dipole was adjusted in order to give the same field strength reading as previously recorded for the EUT. The power at the coupler port was recorded at this point. The feed point for the dipole was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the dipole antenna. The conducted power at the antenna feed point was recorded. The ERP level was determined by adding the dipole forward conducted power and the dipole gain in dB. For readings above 1GHz the above method is repeated using standard gain horn antennas.

3.2 FIELD STRENGTH OF SPURIOUS RADIATION - 2.1053

ALUMINUM ENCLOSURE UNIT

Operating Frequency (MHz):	806.0
Channel:	Low
Measured Cond. Pwr. (dBm):	33.00
Measured ERP (dBm):	31.96
Modulation:	Unmodulated Carrier
Distance:	3 Meters
Limit:	43 + 10 log (W) = 39.47 dBc

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
1612	-94.90	-55.23	6.6	V	-48.63	-50.77	82.73
2418	-94.25	-56.65	7.8	V	-48.85	-50.99	82.95
3224	-96.17	-59.23	7.75	V	-51.48	-53.62	85.58
4030	-98.31	-54.75	7.6	V	-47.15	-49.29	81.25
4836	-100.67	-65.56	8.5	V	-57.06	-59.20	91.16
5642	-103.93	-68.74	8.8	V	-59.94	-62.08	94.04
6448	-103.79	-66.47	9.6	V	-56.87	-59.01	90.97
7254	-104.11	-75.23	9.0	V	-66.23	-68.37	100.33
8060	-103.33	-72.95	9.3	V	-63.65	-65.79	97.75

Radiated Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

Notes:
1. All other spurious emissions were found to be below the magnitude of each harmonic.
2. Spurious emissions more than 20 dB below the limit are reported, though not required per §2.1051.

FIELD STRENGTH OF SPURIOUS RADIATION - 2.1053

ALUMINUM ENCLOSURE UNIT

Operating Frequency (MHz):	813.5
Channel:	Mid
Measured Cond. Pwr. (dBm):	33.00
Measured ERP (dBm):	32.55
Modulation:	Unmodulated Carrier
Distance:	3 Meters
Limit:	43 + 10 log (W) = 39.47 dBc

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
1627	-95.02	-54.73	6.6	V	-48.13	-50.27	82.82
2441	-96.75	-55.47	7.8	V	-47.67	-49.81	82.36
3254	-97.55	-57.93	7.75	V	-50.18	-52.32	84.87
4068	-98.98	-59.49	7.6	V	-51.89	-54.03	86.58
4881	-101.23	-65.06	8.5	V	-56.56	-58.70	91.25
5695	-102.98	-67.84	8.8	V	-59.04	-61.18	93.73
6508	-104.79	-72.47	9.6	V	-62.87	-65.01	97.56
7322	-104.11	-71.93	9.0	V	-62.93	-65.07	97.62
8135	-104.83	-74.95	9.3	V	-65.65	-67.79	100.34

Radiated Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

Notes:
1. All other spurious emissions were found to be below the magnitude of each harmonic.
2. Spurious emissions more than 20 dB below the limit are reported, though not required per §2.1051.

FIELD STRENGTH OF SPURIOUS RADIATION - 2.1053

ALUMINUM ENCLOSURE UNIT

Operating Frequency (MHz):	821.0
Channel:	High
Measured Cond. Pwr. (dBm):	33.00
Measured ERP (dBm):	34.23
Modulation:	Unmodulated Carrier
Distance:	3 Meters
Limit:	43 + 10 log (W) = 39.47 dBc

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
1642	-96.40	-55.68	6.6	V	-49.08	-51.22	85.45
2463	-95.95	-56.47	7.8	V	-48.67	-50.81	85.04
3284	-96.73	-58.37	7.75	V	-50.62	-52.76	86.99
4105	-98.54	-55.25	7.6	V	-47.65	-49.79	84.02
4926	-99.87	-61.56	8.5	V	-53.06	-55.20	89.43
5747	-102.33	-65.94	8.8	V	-57.14	-59.28	93.51
6568	-103.65	-67.22	9.6	V	-57.62	-59.76	93.99
7389	-104.11	-73.23	9.0	V	-64.23	-66.37	100.60
8210	-103.98	-76.04	9.3	V	-66.74	-68.88	103.11

Radiated Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

Notes:
1. All other spurious emissions were found to be below the magnitude of each harmonic.
2. Spurious emissions more than 20 dB below the limit are reported, though not required per §2.1051.

FIELD STRENGTH OF SPURIOUS RADIATION - 2.1053

PLASTIC ENCLOSURE UNIT

Operating Frequency (MHz):	806.0
Channel:	Low
Measured Cond. Pwr. (dBm):	33.00
Measured ERP (dBm):	31.51
Modulation:	Unmodulated Carrier
Distance:	3 Meters
Limit:	43 + 10 log (W) = 39.47 dBc

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
1612	-94.90	-55.21	6.6	V	-48.61	-50.75	82.26
2418	-94.25	-56.56	7.8	V	-48.76	-50.90	82.41
3224	-96.17	-58.12	7.75	V	-50.37	-52.51	84.02
4030	-98.31	-58.93	7.6	V	-51.33	-53.47	84.98
4836	-100.67	-60.79	8.5	V	-52.29	-54.43	85.94
5642	-103.93	-64.83	8.8	V	-56.03	-58.17	89.68
6448	-103.79	-67.23	9.6	V	-57.63	-59.77	91.28
7254	-104.11	-68.54	9.0	V	-59.54	-61.68	93.19
8060	-103.33	-70.69	9.3	V	-61.39	-63.53	95.04

Radiated Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

Notes:

1. All other spurious emissions were found to be below the magnitude of each harmonic.
2. Spurious emissions more than 20 dB below the limit are reported, though not required per §2.1051.

FIELD STRENGTH OF SPURIOUS RADIATION - 2.1053

PLASTIC ENCLOSURE UNIT

Operating Frequency (MHz):	813.5
Channel:	Mid
Measured Cond. Pwr. (dBm):	33.00
Measured ERP (dBm):	32.14
Modulation:	Unmodulated Carrier
Distance:	3 Meters
Limit:	43 + 10 log (W) = 39.47 dBc

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
1627	-95.02	-54.98	6.6	V	-48.38	-50.52	82.66
2441	-96.75	-55.97	7.8	V	-48.17	-50.31	82.45
3254	-97.55	-57.52	7.75	V	-49.77	-51.91	84.05
4068	-98.98	-59.08	7.6	V	-51.48	-53.62	85.76
4881	-101.23	-63.91	8.5	V	-55.41	-57.55	89.69
5695	-102.98	-65.44	8.8	V	-56.64	-58.78	90.92
6508	-104.79	-67.87	9.6	V	-58.27	-60.41	92.55
7322	-104.11	-69.03	9.0	V	-60.03	-62.17	94.31
8135	-104.83	-71.25	9.3	V	-61.95	-64.09	96.23

Radiated Measurements by Substitution Method:
The EUT was placed on a turntable 3-meters from the receive antenna. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

Notes:
1. All other spurious emissions were found to be below the magnitude of each harmonic.
2. Spurious emissions more than 20 dB below the limit are reported, though not required per §2.1051.

FIELD STRENGTH OF SPURIOUS RADIATION - 2.1053

PLASTIC ENCLOSURE UNIT

Operating Frequency (MHz):	821.0
Channel:	High
Measured Cond. Pwr. (dBm):	33.00
Measured ERP (dBm):	33.77
Modulation:	Unmodulated Carrier
Distance:	3 Meters
Limit:	43 + 10 log (W) = 39.47 dBc

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
1642	-95.45	-55.83	6.6	V	-49.23	-51.37	85.14
2463	-95.95	-56.78	7.8	V	-48.98	-51.12	84.89
3284	-96.53	-57.97	7.75	V	-50.22	-52.36	86.13
4105	-97.77	-58.85	7.6	V	-51.25	-53.39	87.16
4926	-99.98	-61.44	8.5	V	-52.94	-55.08	88.85
5747	-102.08	-65.65	8.8	V	-56.85	-58.99	92.76
6568	-103.49	-67.83	9.6	V	-58.23	-60.37	94.14
7389	-103.99	-69.99	9.0	V	-60.99	-63.13	96.90
8210	-104.98	-71.14	9.3	V	-61.84	-63.98	97.75

Radiated Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

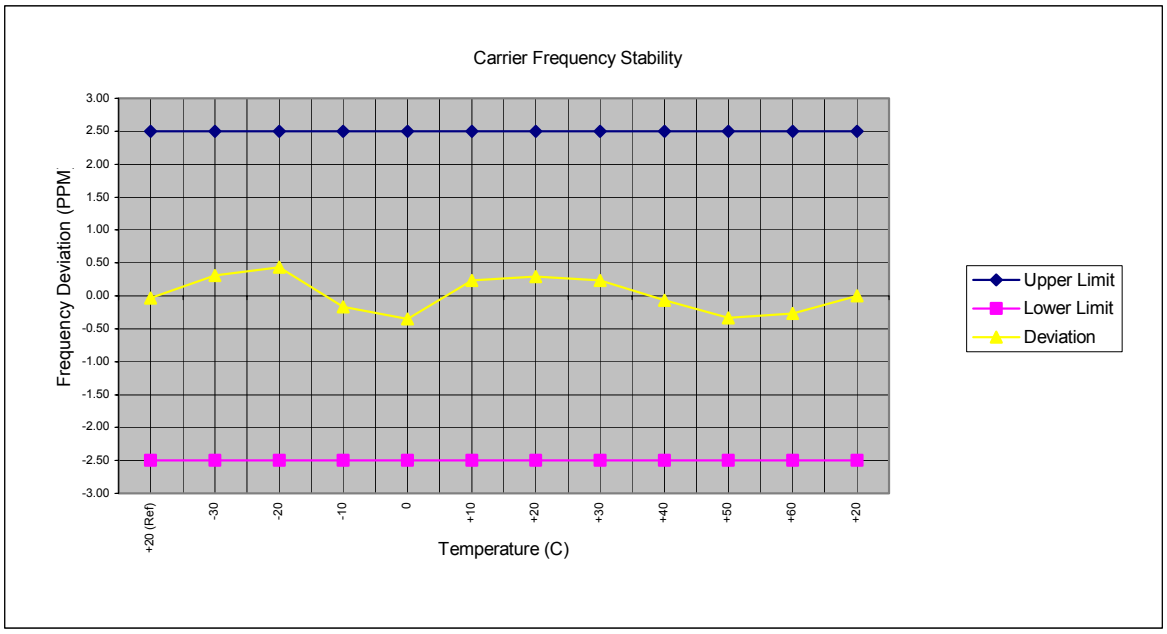
Notes:
1. All other spurious emissions were found to be below the magnitude of each harmonic.
2. Spurious emissions more than 20 dB below the limit are reported, though not required per §2.1051.

3.3 FREQUENCY STABILITY - § 90.213, § 2.1055

ALUMINUM ENCLOSURE UNIT

Carrier Frequency (MHz): 813.5
Channel: Mid
Reference Voltage: 12.0 Volts
Deviation Limit (PPM): 2.5

Temperature	Voltage	Power	Carrier Frequency Deviation		Specification	
(C)	(%)	(VDC)	(Hz)	(PPM)	Lower Limit (PPM)	Upper Limit (PPM)
+20 (Ref)	100	12.00	-27.31	-0.034	2.50	-2.50
-30	100	12.00	251.8	0.310	2.50	-2.50
-20	100	12.00	355.5	0.437	2.50	-2.50
-10	100	12.00	-135.9	-0.167	2.50	-2.50
0	100	12.00	-287.1	-0.353	2.50	-2.50
+10	100	12.00	187.3	0.230	2.50	-2.50
+20	100	12.00	240.2	0.295	2.50	-2.50
+30	100	12.00	189.7	0.233	2.50	-2.50
+40	100	12.00	-56.2	-0.069	2.50	-2.50
+50	100	12.00	-275.2	-0.338	2.50	-2.50
+60	100	12.00	-216.3	-0.266	2.50	-2.50
+20	Battery Endpoint	N/A	N/A	N/A	2.50	-2.50

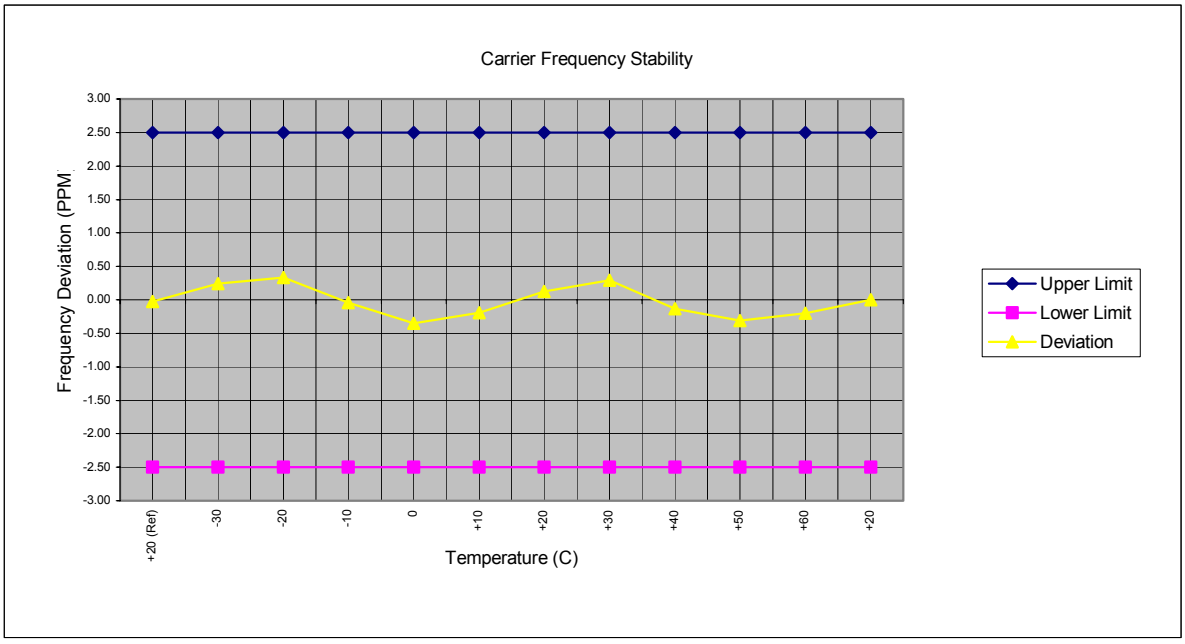


FREQUENCY STABILITY - § 90.213, § 2.1055

PLASTIC ENCLOSURE UNIT

Carrier Frequency (MHz): 813.5
Channel: Mid
Reference Voltage: 12.0 Volts
Deviation Limit (PPM): 2.5

Temperature	Voltage	Power	Carrier Frequency Deviation		Specification	
(C)	(%)	(VDC)	(Hz)	(PPM)	Lower Limit (PPM)	Upper Limit (PPM)
+20 (Ref)	100	12.00	-20.40	-0.025	2.50	-2.50
-30	100	12.00	198.3	0.244	2.50	-2.50
-20	100	12.00	268.6	0.330	2.50	-2.50
-10	100	12.00	-35.9	-0.044	2.50	-2.50
0	100	12.00	-287.1	-0.353	2.50	-2.50
+10	100	12.00	-153.4	-0.189	2.50	-2.50
+20	100	12.00	101.2	0.124	2.50	-2.50
+30	100	12.00	239.2	0.294	2.50	-2.50
+40	100	12.00	-106.2	-0.131	2.50	-2.50
+50	100	12.00	-253.1	-0.311	2.50	-2.50
+60	100	12.00	-163.9	-0.201	2.50	-2.50
+20	Battery Endpoint	N/A	N/A	N/A	2.50	-2.50



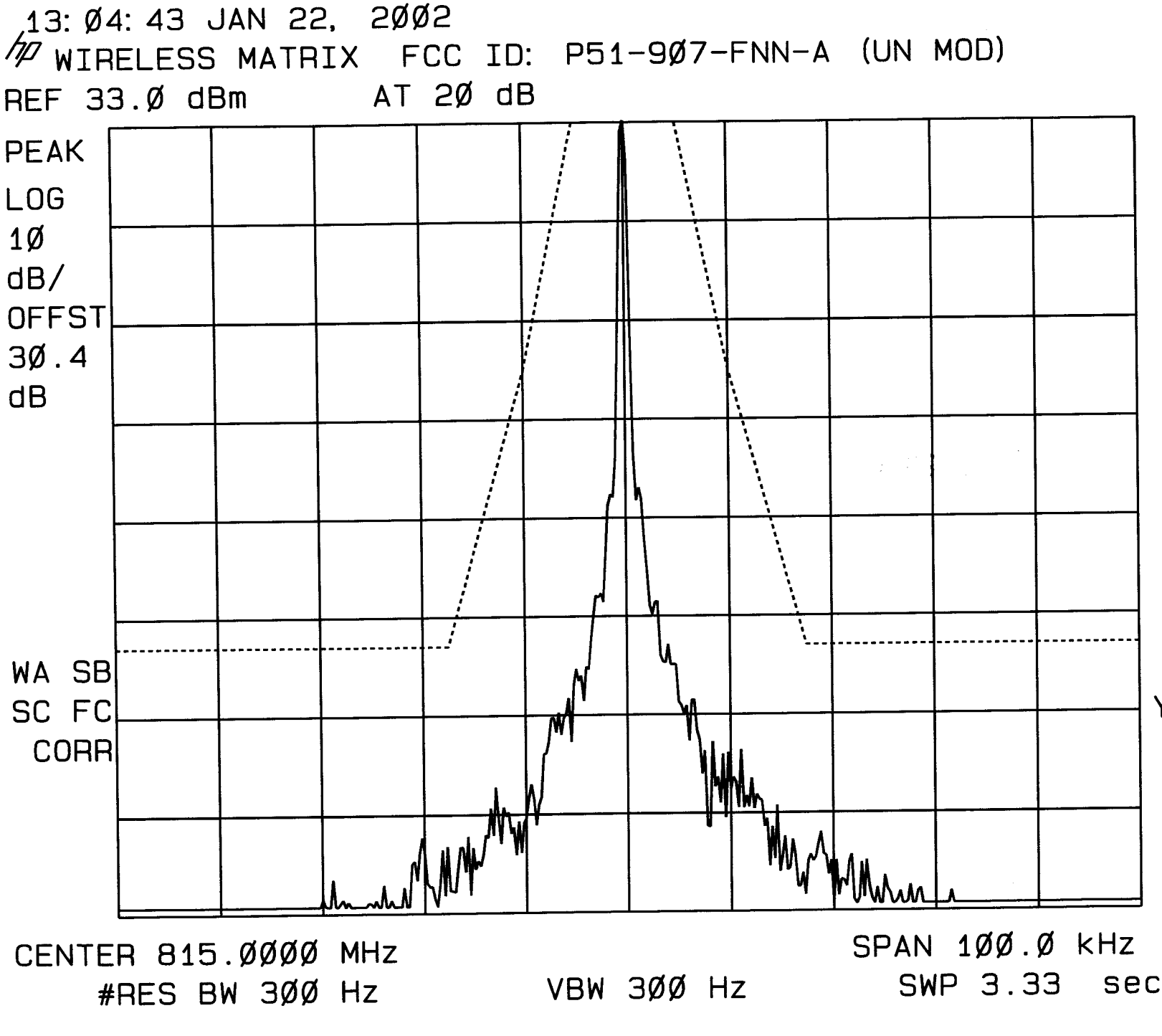
4.0 TEST EQUIPMENT

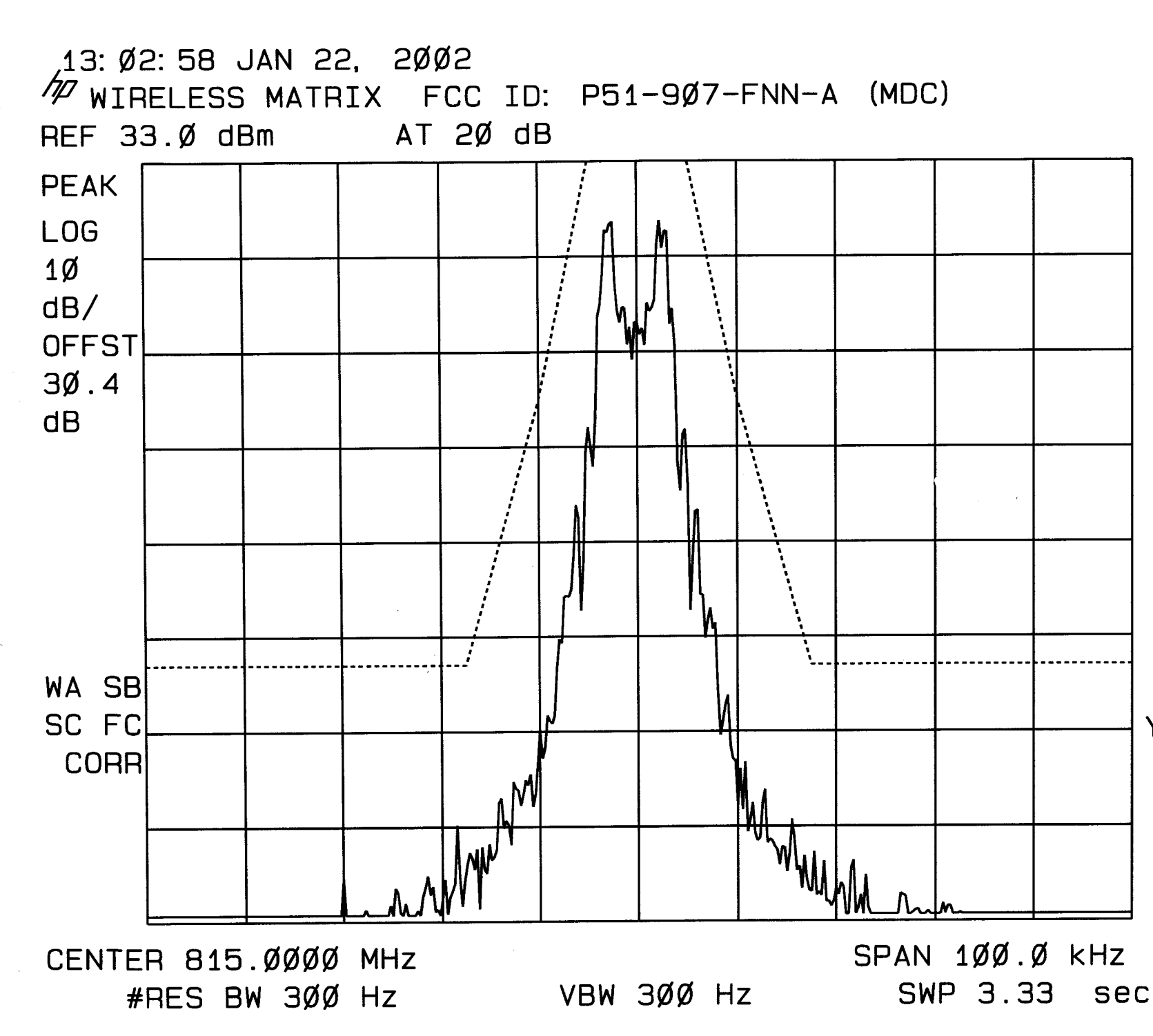
Type	Model	Calibration Due Date	Serial No.
HP Signal Generator	8648D (9kHz-4.0GHz)	Nov. 2002	3847A00611
Rohde & Schwarz Signal Generator	SMR40 (10MHz-40GHz)	Nov. 2002	835537/022
Gigatronics Power Meter	8652A	Oct. 2002	1835272
Gigatronics Power Sensor	80701A (0.05-18GHz)	Sept. 2002	1833535
Gigatronics Power Sensor	80701A (0.05-18GHz)	Sept. 2002	1833542
Amplifier Research Power Amp.	5S1G4 (5W, 800MHz-4.2GHz)	N/A	26235
Microwave System Amplifier	HP 83017A (0.5-26.5GHz)	N/A	3123A00587
Network Analyzer	HP 8753E (30kHz-3GHz)	Nov. 2002	US38433013
Audio Analyzer	HP 8903B	Nov. 2002	3729A18691
Modulation Analyzer	HP 8901A	July 2002	3749A07154
Frequency Counter	HP 53181A (3GHz)	May 2002	3736A05175
DC Power Supply	HP E3611A	N/A	KR83015294
CDMA Base Station Simulator	Agilent E8285A	Feb. 2002	US40332926
Multi-Device Controller	EMCO 2090	N/A	9912-1484
Mini Mast	EMCO 2075	N/A	0001-2277
Turntable	EMCO 2080-1.2/1.5	N/A	0002-1002
Double Ridged Horn Antenna	ETS 3115 (1-18GHz)	Oct. 2002	6267
Double Ridged Horn Antenna	ETS 3115 (1-18GHz)	Oct. 2002	6276
Horn Antenna	Chase BBHA 9120-A (0.7-4.8GHz)	Sept. 2002	9120A-239
Horn Antenna	Chase BBHA 9120-A (0.7-4.8GHz)	Sept. 2002	9120A-240
Roberts Dipole	ETS DB-4 (400MHz-1GHz)	June 2002	1474
Spectrum Analyzer	HP 8594E	March 2002	3543A02721
Spectrum Analyzer	HP E4408B	Nov 2002	US39240170
Shielded Screen Room	Lindgren R.F. 18W-2/2-0	N/A	16297
Environmental Chamber	ESPEC ECT-2 (Temperature/Humidity)	Feb. 2002	0510154-B

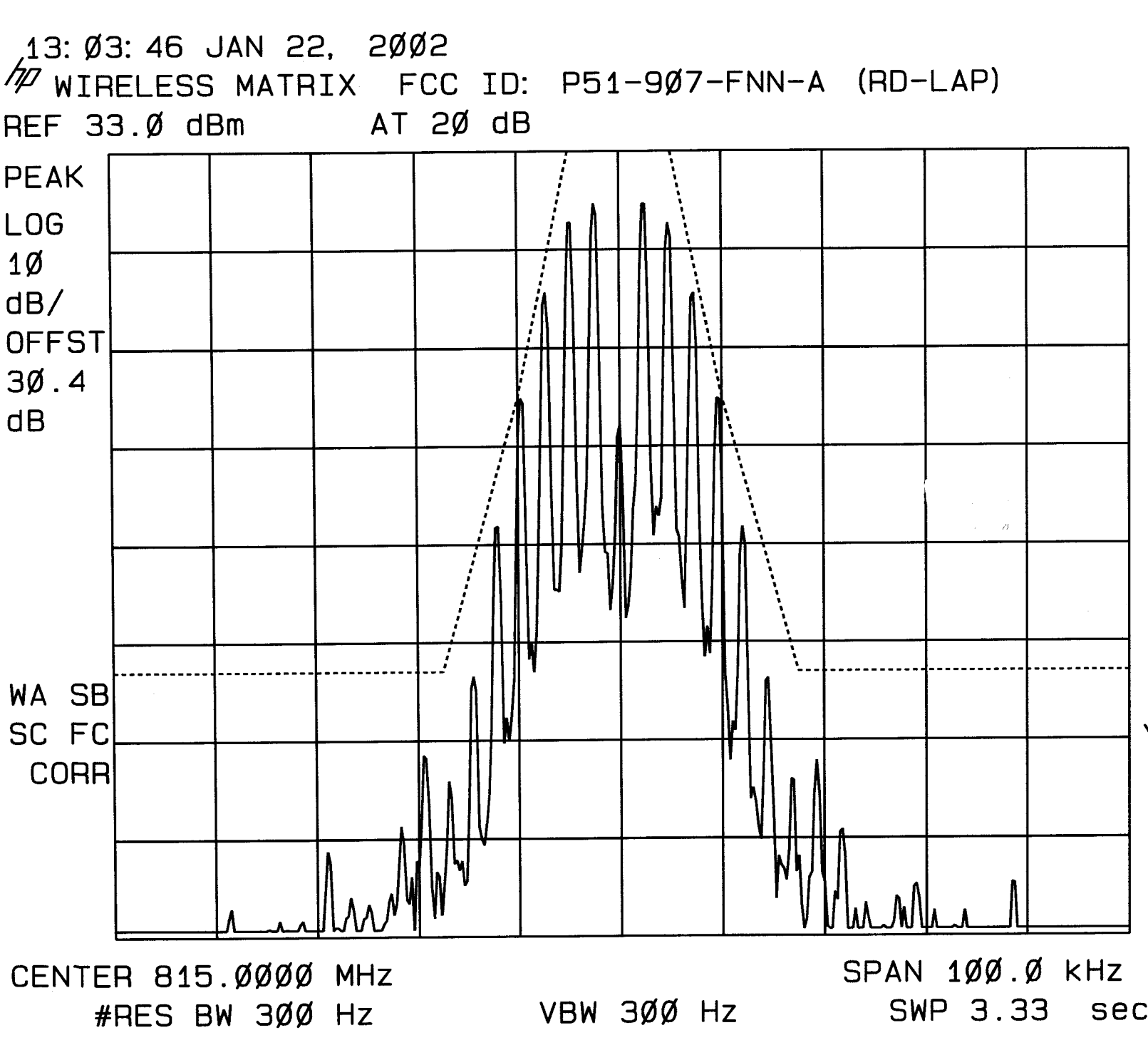
5.0 CONCLUSION

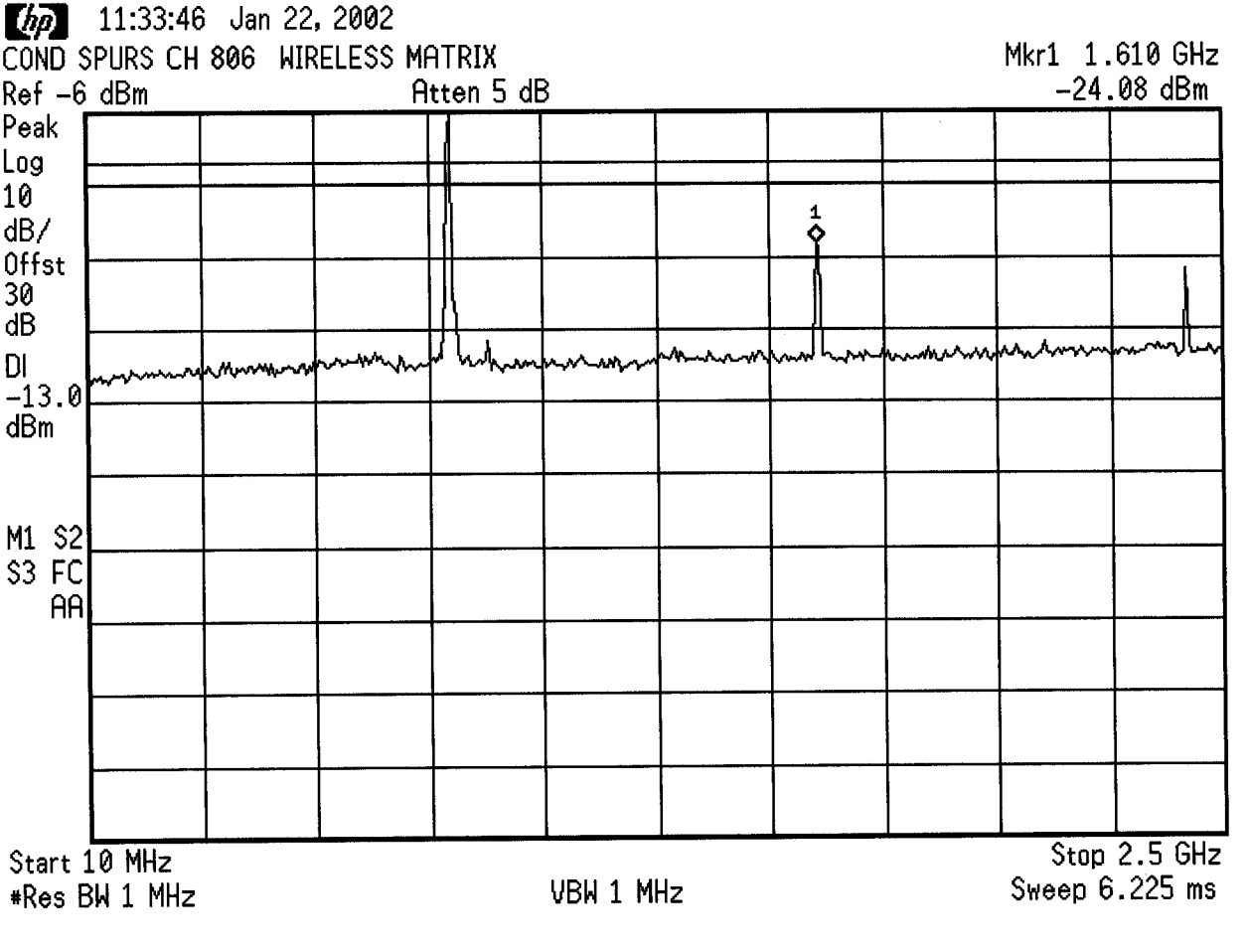
The data in this test report shows that the Wireless Matrix Corporation Model: 907-FNN-A Wireless Telemetry Unit FCC ID: P5I-907-FNN-A with RIM 802 DataTAC Radio Modem complies with all the requirements of Parts 2 and 90 of the FCC rules.

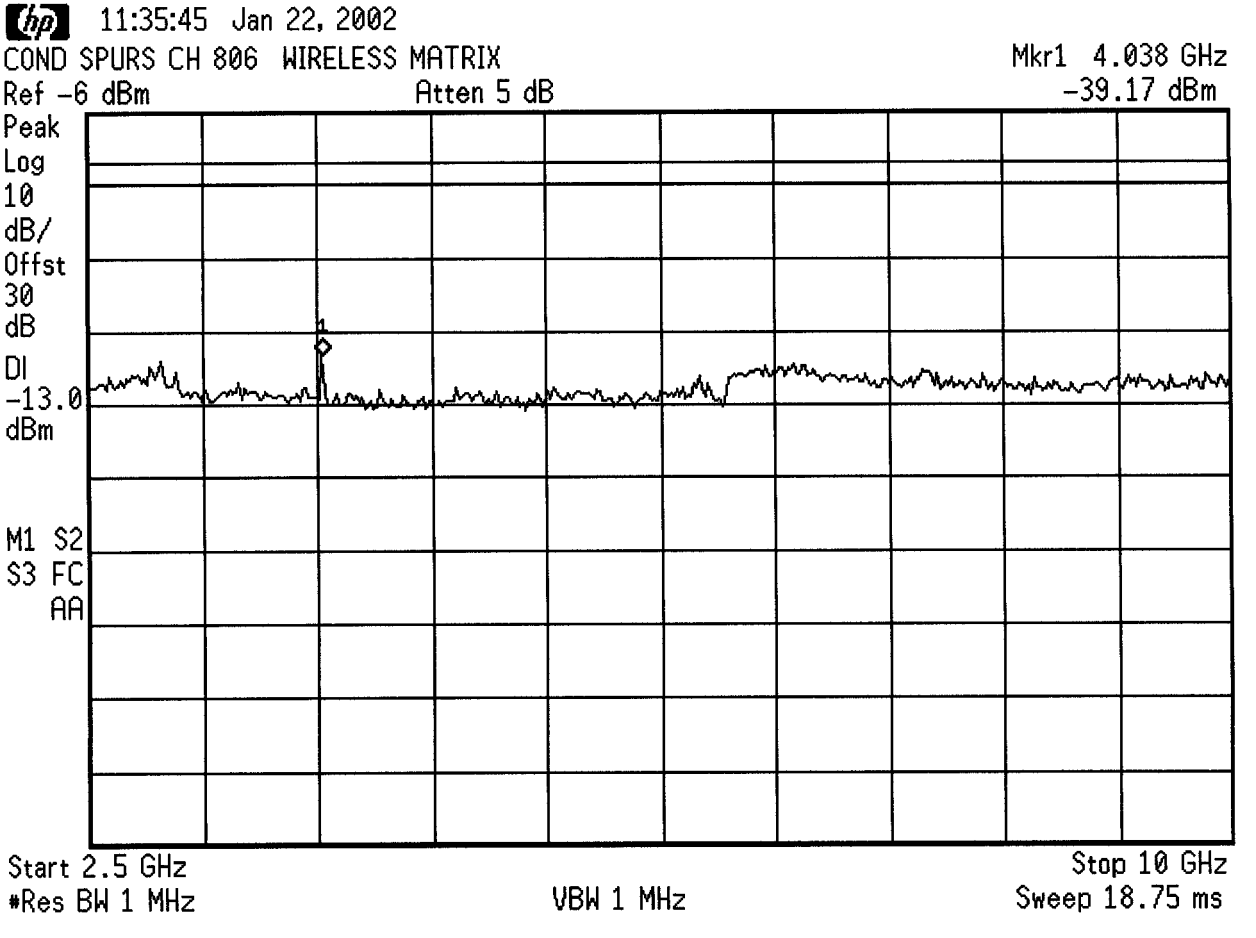
TEST PLOTS

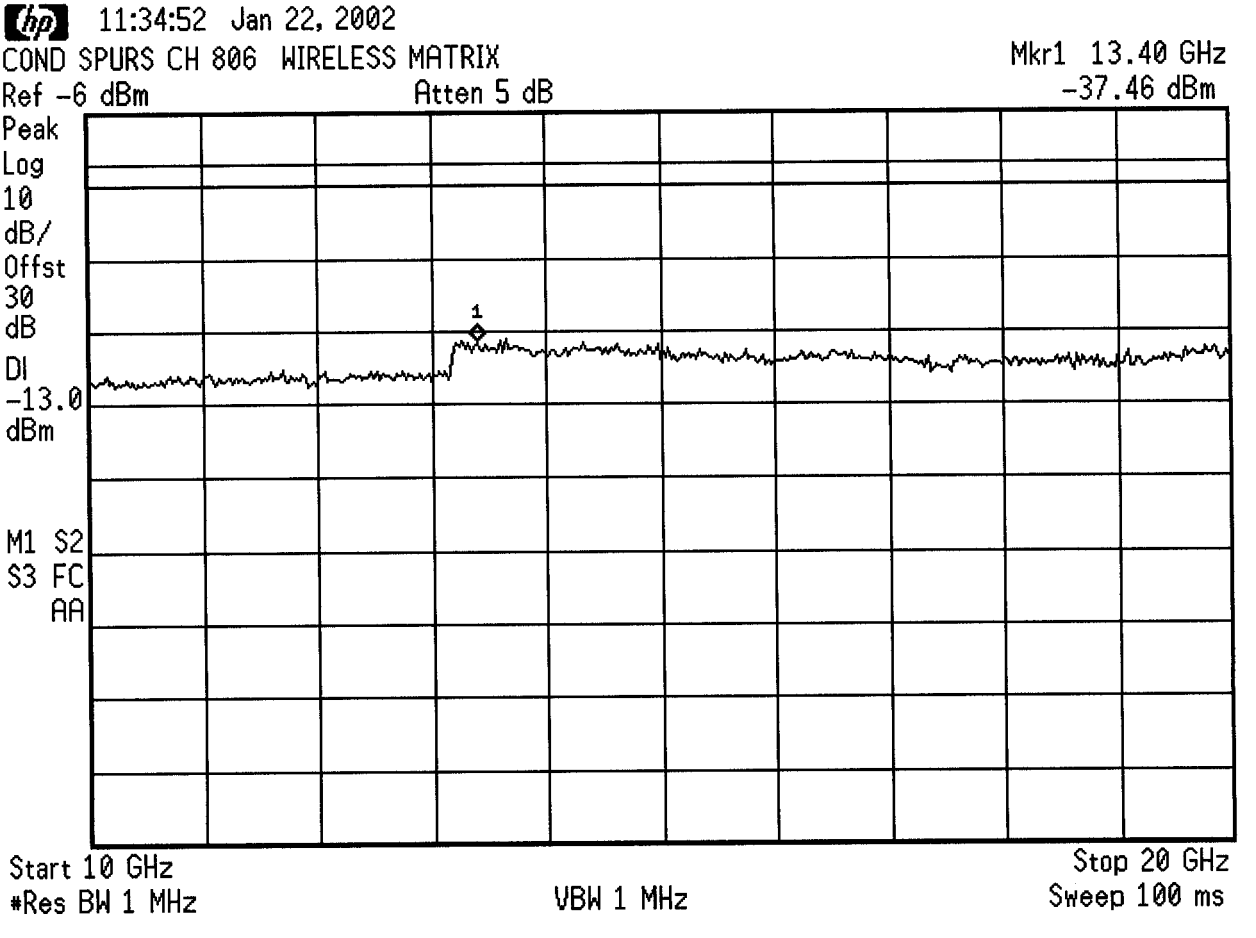

13: Ø4: 43 JAN 22, 2ØØ2
WIRELESS MATRIX FCC ID: P51-9Ø7-FNN-A (UN MOD)
REF 33.Ø dBm
AT 2Ø dB
PEAK
LOG
1Ø
dB/
OFFST
3Ø.4
dB
WA SB
SC FC
CORR
CENTER 815.ØØØØ MHz
#RES BW 3ØØ Hz
VBW 3ØØ Hz
SPAN 1ØØ.Ø kHz
SWP 3.33 sec

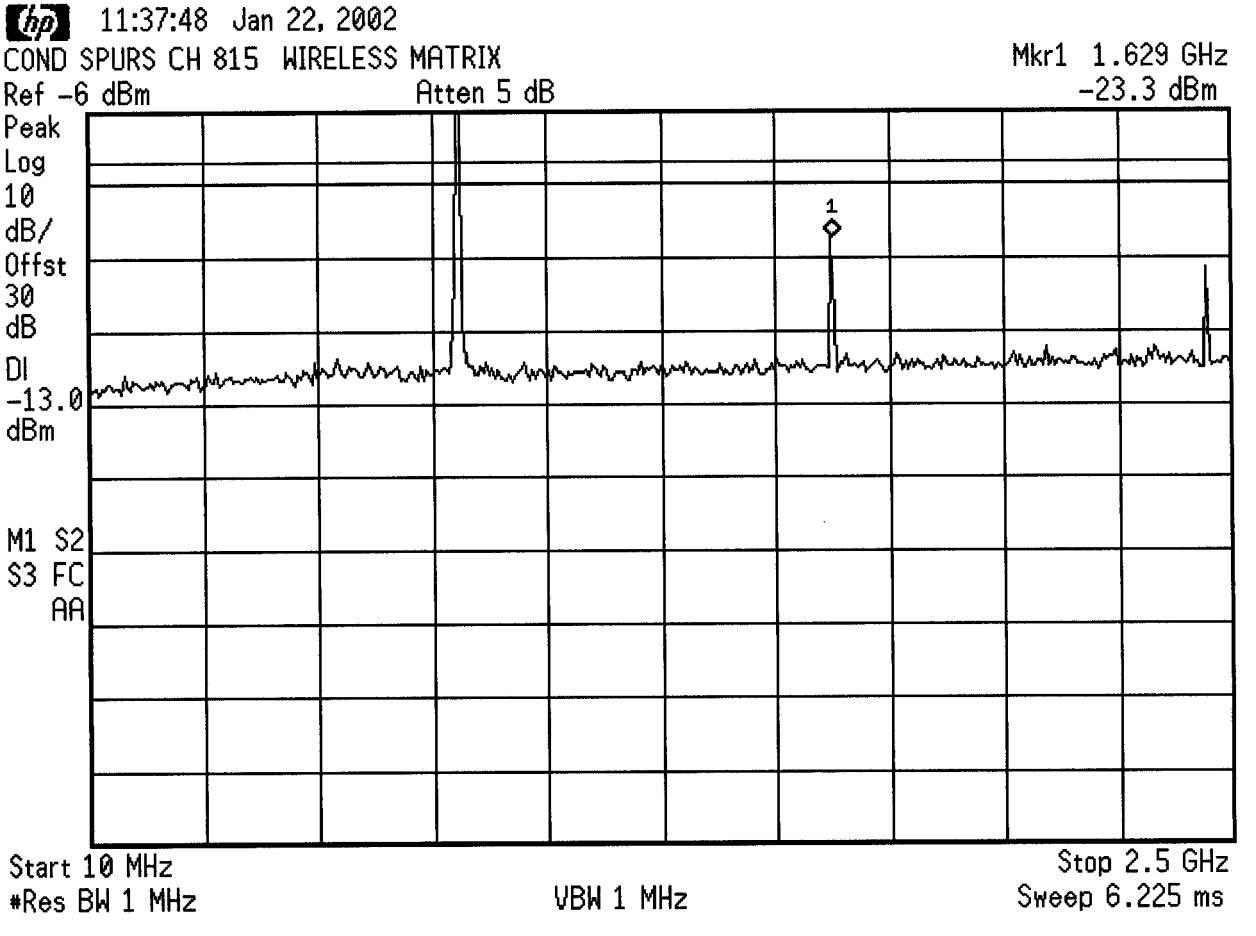

13: Ø2: 58 JAN 22, 2ØØ2
WIRELESS MATRIX FCC ID: P51-9Ø7-FNN-A (MDC)
REF 33.Ø dBm
AT 2Ø dB
PEAK
LOG
1Ø
dB/
OFFST
3Ø.4
dB
WA SB
SC FC
CORR
CENTER 815.ØØØØ MHz
#RES BW 3ØØ Hz
VBW 3ØØ Hz
SPAN 1ØØ.Ø kHz
SWP 3.33 sec

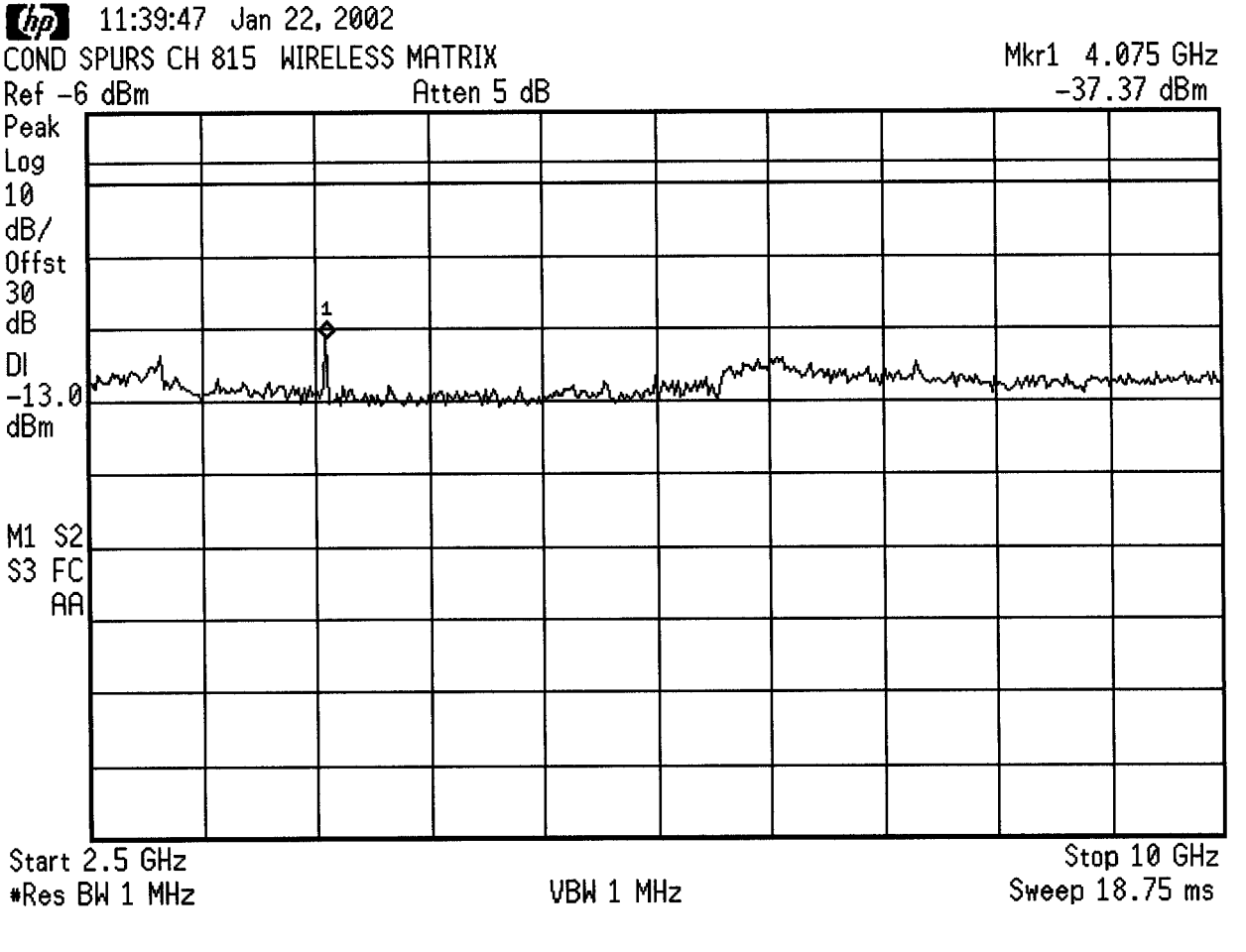

13: Ø3: 46 JAN 22, 2ØØ2
WIRELESS MATRIX FCC ID: P51-9Ø7-FNN-A (RD-LAP)
REF 33.Ø dBm
AT 2Ø dB
PEAK
LOG
1Ø
dB/
OFFST
3Ø.4
dB
WA SB
SC FC
CORR
CENTER 815.ØØØØ MHz
#RES BW 3ØØ Hz
VBW 3ØØ Hz
SPAN 1ØØ.Ø kHz
SWP 3.33 sec

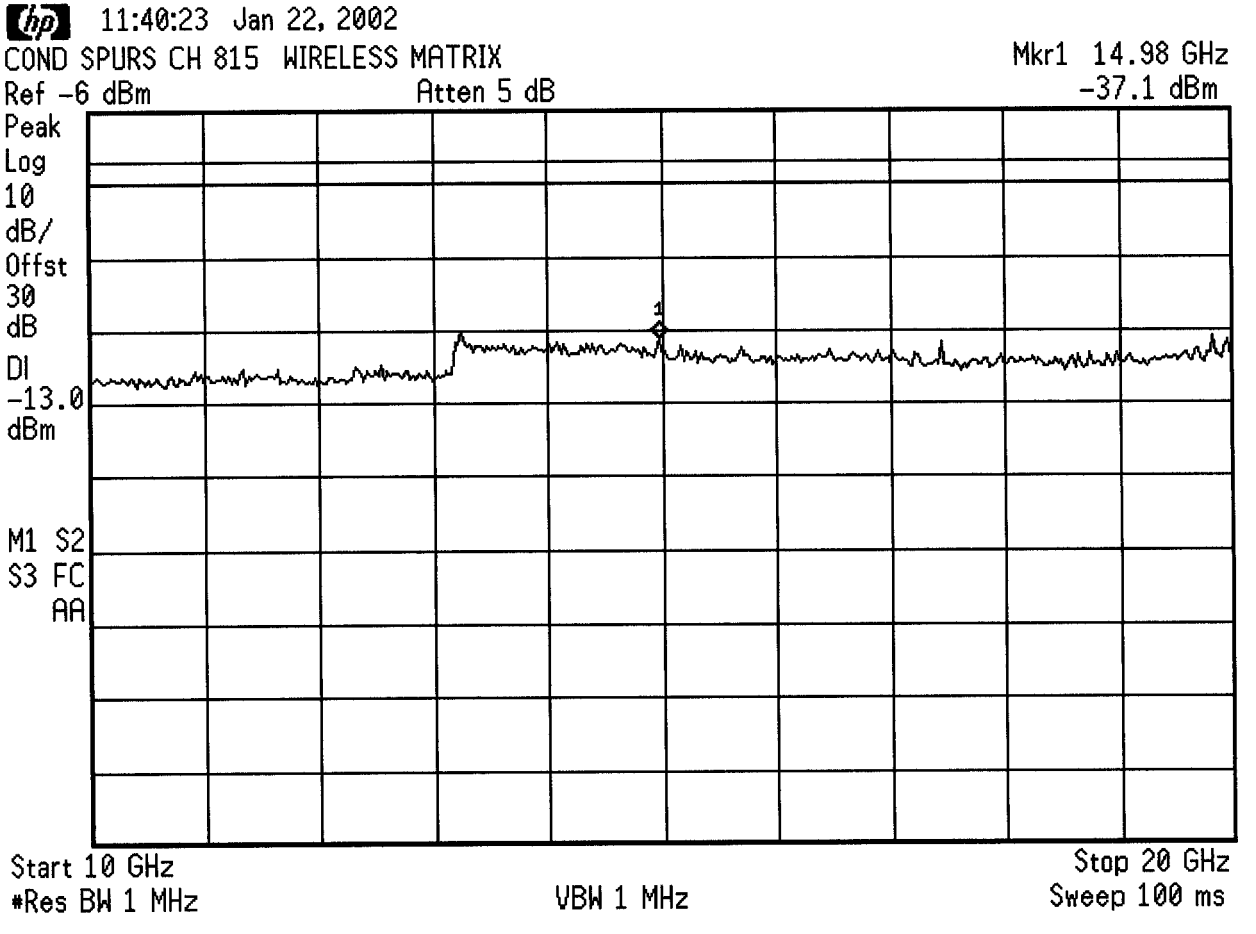

11:33:46 Jan 22, 2002
COND SPURS CH 806 WIRELESS MATRIX
Mkr1 1.610 GHz
Ref -6 dBm
Atten 5 dB
-24.08 dBm
Peak
Log
10
dB/
Offst
30
dB
Dl
-13.0
dBm
1
M1 S2
S3 FC
AA
Start 10 MHz
#Res BW 1 MHz
VBW 1 MHz
Stop 2.5 GHz
Sweep 6.225 ms

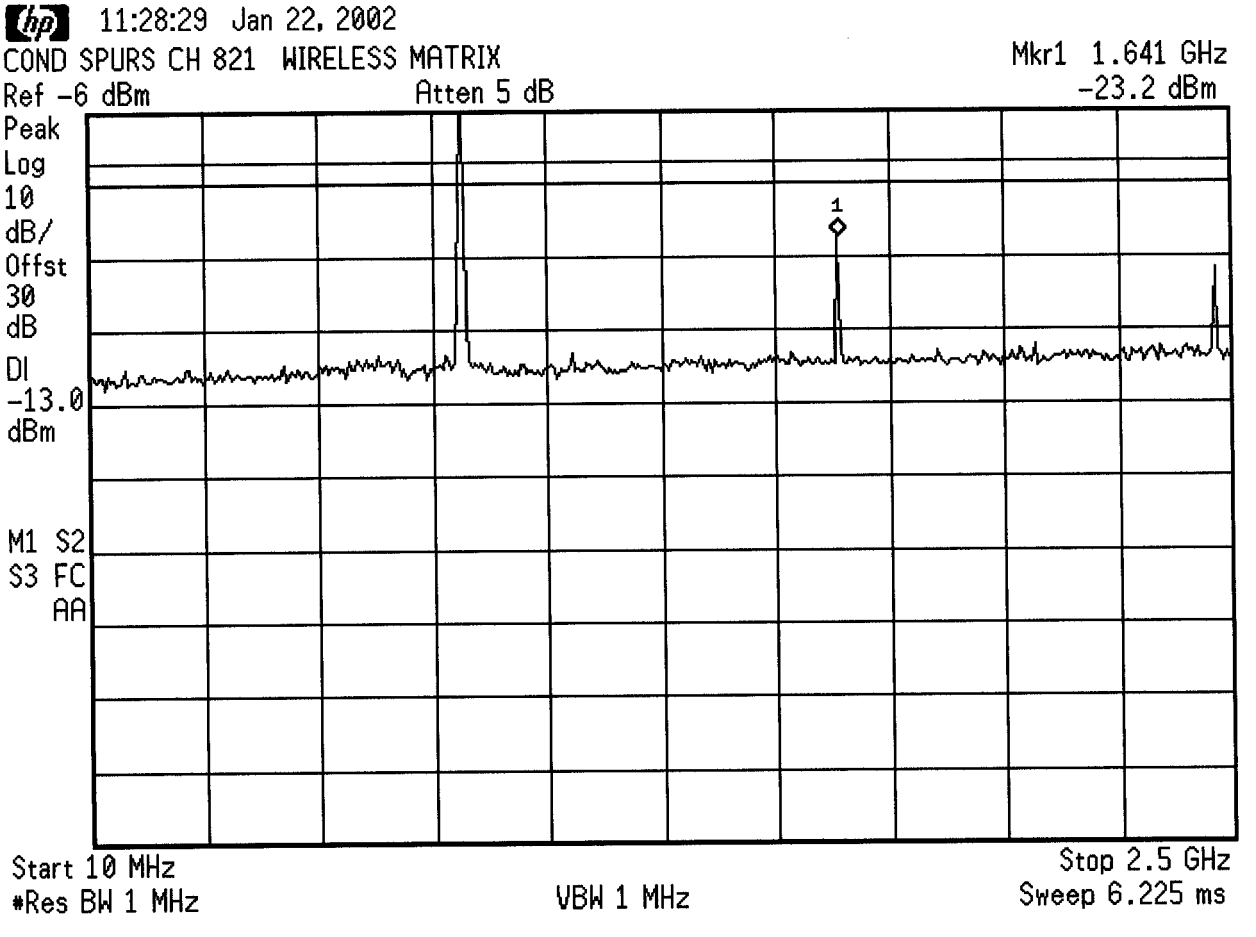

11:35:45 Jan 22, 2002
COND SPURS CH 806 WIRELESS MATRIX
Mkr1 4.038 GHz
Ref -6 dBm
Atten 5 dB
-39.17 dBm
Peak
Log
10
dB/
Offst
30
dB
Dl
-13.0
dBm
M1 S2
S3 FC
AA
Start 2.5 GHz
Stop 10 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 18.75 ms

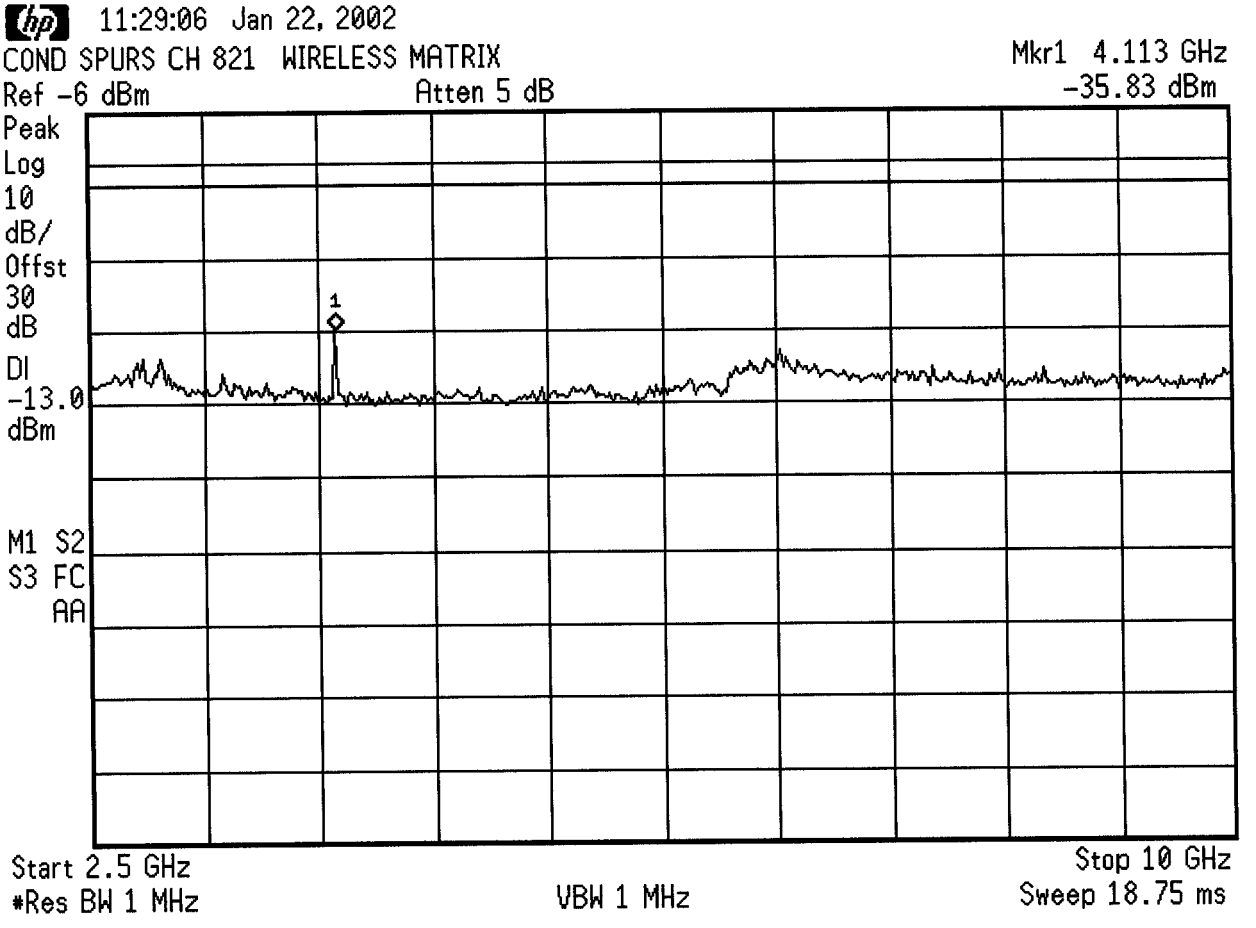

11:34:52 Jan 22, 2002
COND SPURS CH 806 WIRELESS MATRIX
Mkr1 13.40 GHz
Ref -6 dBm
Atten 5 dB
-37.46 dBm
Peak
Log
10
dB/
Offst
30
dB
Dl
-13.0
dBm
1
M1 S2
S3 FC
AA
Start 10 GHz
Stop 20 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 100 ms

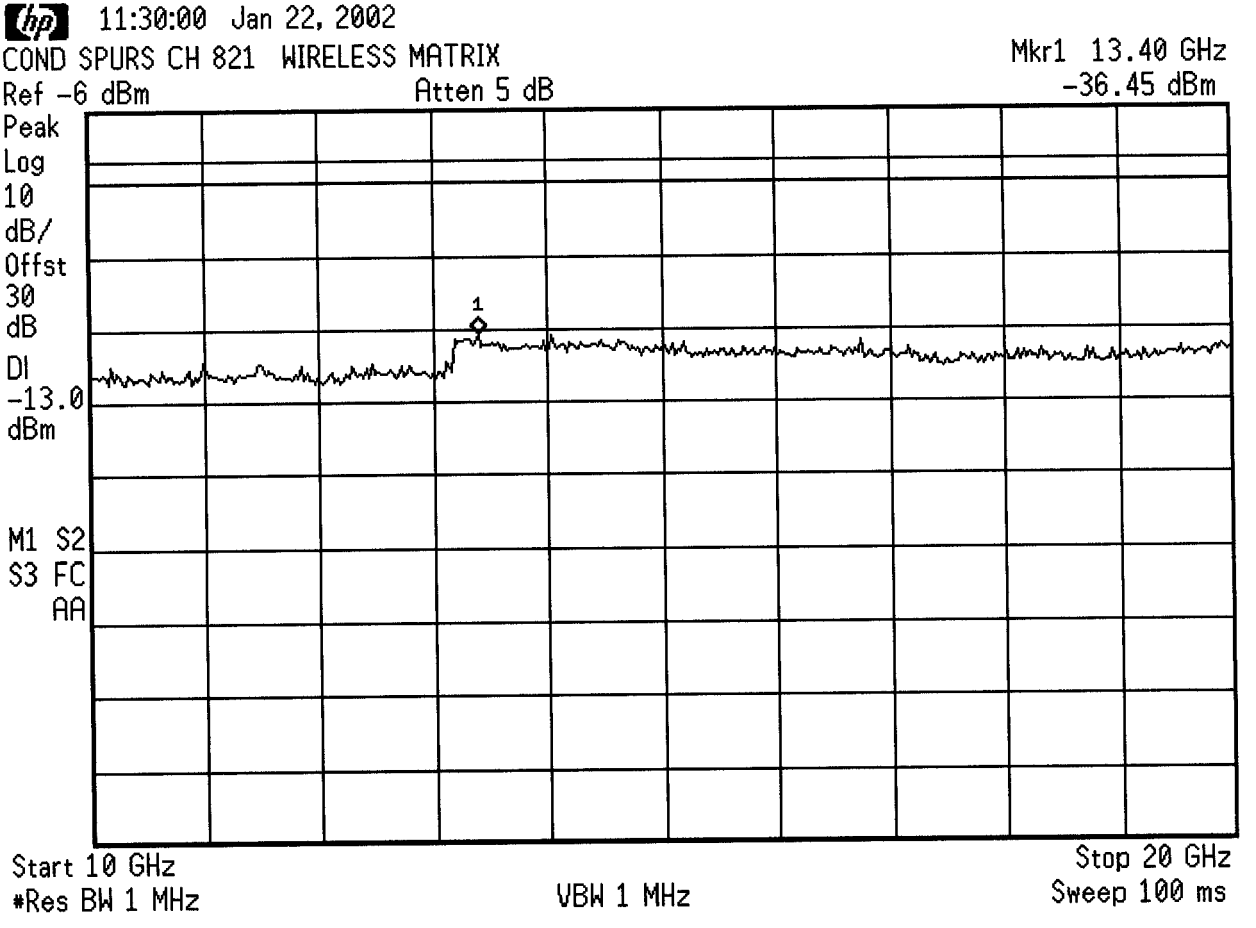

11:37:48 Jan 22, 2002
COND SPURS CH 815 WIRELESS MATRIX
Mkr1 1.629 GHz
Ref -6 dBm
Atten 5 dB
-23.3 dBm
Peak
Log
10
dB/
Offst
30
dB
Dl
-13.0
dBm
1
M1 S2
S3 FC
AA
Start 10 MHz
Stop 2.5 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 6.225 ms

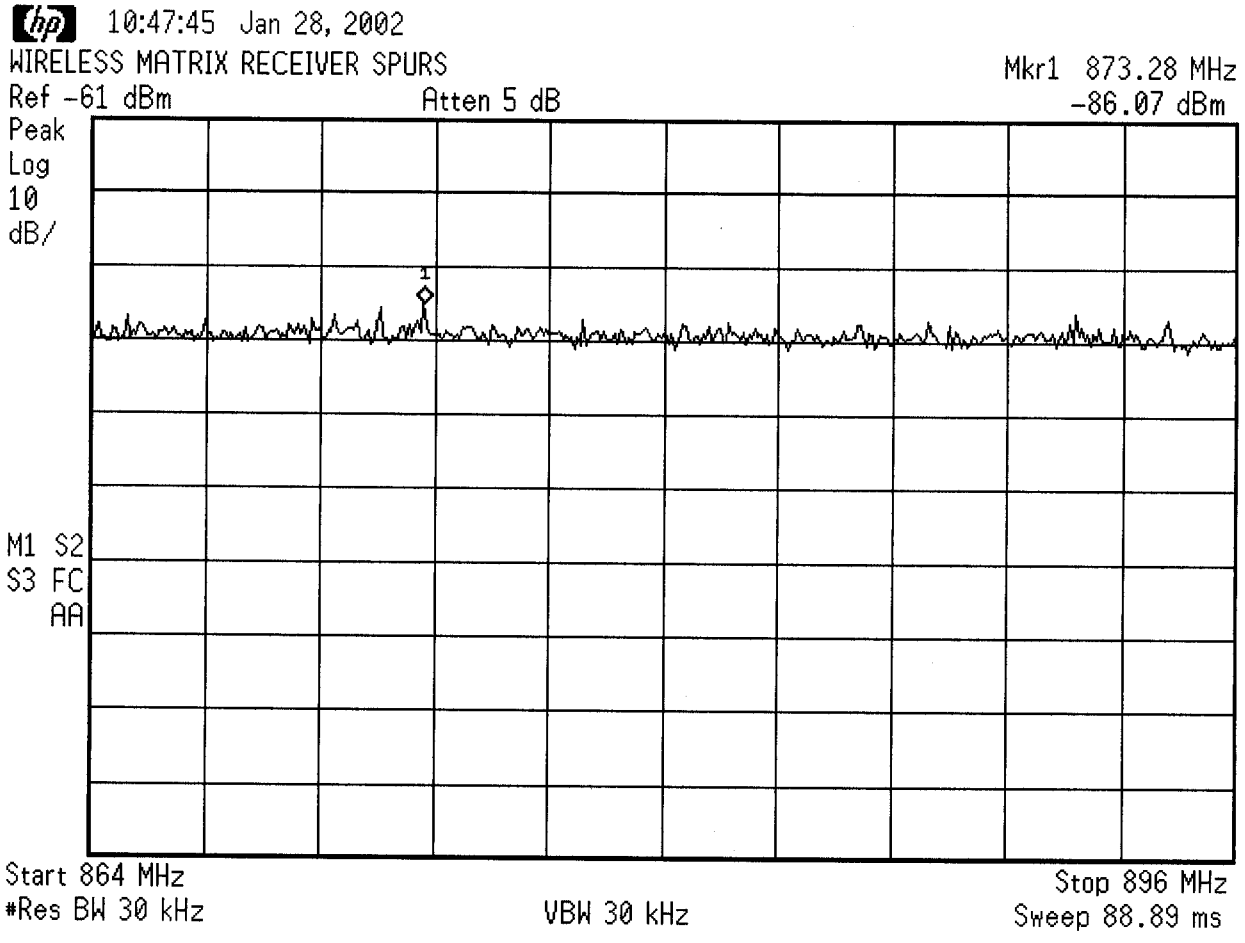

11:39:47 Jan 22, 2002
COND SPURS CH 815 WIRELESS MATRIX
Mkr1 4.075 GHz
Ref -6 dBm
Atten 5 dB
-37.37 dBm
Peak
Log
10
dB/
Offst
30
dB
Dl
-13.0
dBm
1
M1 S2
S3 FC
AA
Start 2.5 GHz
Stop 10 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 18.75 ms


11:40:23 Jan 22, 2002
COND SPURS CH 815 WIRELESS MATRIX
Mkr1 14.98 GHz
Ref -6 dBm
Atten 5 dB
-37.1 dBm
Peak
Log
10
dB/
Offst
30
dB
Dl
-13.0
dBm
M1 S2
S3 FC
AA
1
Start 10 GHz
#Res BW 1 MHz
VBW 1 MHz
Stop 20 GHz
Sweep 100 ms


11:28:29 Jan 22, 2002
COND SPURS CH 821 WIRELESS MATRIX
Mkr1 1.641 GHz
Ref -6 dBm
Atten 5 dB
-23.2 dBm
Peak
Log
10
dB/
Offst
30
dB
Dl
-13.0
dBm
M1 S2
S3 FC
AA
1
Start 10 MHz
#Res BW 1 MHz
VBW 1 MHz
Stop 2.5 GHz
Sweep 6.225 ms


11:29:06 Jan 22, 2002
COND SPURS CH 821 WIRELESS MATRIX
Mkr1 4.113 GHz
-35.83 dBm
Ref -6 dBm
Atten 5 dB
Peak
Log
10
dB/
Offst
30
dB
Dl
-13.0
dBm
1
M1 S2
S3 FC
AA
Start 2.5 GHz
#Res BW 1 MHz
VBW 1 MHz
Stop 10 GHz
Sweep 18.75 ms


11:30:00 Jan 22, 2002
COND SPURS CH 821 WIRELESS MATRIX
Mkr1 13.40 GHz
Ref -6 dBm
Atten 5 dB
-36.45 dBm
Peak
Log
10
dB/
Offst
30
dB
Dl
-13.0
dBm
1
M1 S2
S3 FC
AA
Start 10 GHz
Stop 20 GHz
#Res BW 1 MHz
VBW 1 MHz
Sweep 100 ms


10:47:45 Jan 28, 2002
WIRELESS MATRIX RECEIVER SPURS
Ref -61 dBm
Atten 5 dB
Mkr1 873.28 MHz
-86.07 dBm
Peak
Log
10
dB/
1
M1 S2
S3 FC
AA
Start 864 MHz
#Res BW 30 kHz
VBW 30 kHz
Stop 896 MHz
Sweep 88.89 ms