

## **CERTIFICATE OF COMPLIANCE** **FCC PART 24 CERTIFICATION**

### **Test Lab:**

**CELLTECH RESEARCH INC.**  
Testing and Engineering Services  
1955 Moss Court  
Kelowna, B.C.  
Canada V1Y 9L3  
Phone: 250 - 860-3130  
Fax: 250 - 860-3110  
Toll Free: 1-877-545-6287  
e-mail: info@celltechlabs.com  
web site: www.celltechlabs.com

### **Applicant Information:**

**SIERRA WIRELESS INC.**  
13811 Wireless Way  
Richmond, BC V6V 3A4

<b>FCC Classification:</b>	<b>Licensed Base Station for Part 24 (PCB)</b>
<b>FCC Rule Part(s):</b>	<b>§24(E), §2</b>
<b>FCC ID:</b>	<b>N7NAC710</b>
<b>Model:</b>	<b>AirCard 710</b>
<b>Equipment Type:</b>	<b>PCS GSM Wireless Network Card for Laptop PC</b>
<b>Tx Frequency Range:</b>	<b>1850.25 - 1909.875 MHz</b>
<b>Max. RF Output Power:</b>	<b>0.817 Watts (EIRP)</b>
<b>Frequency Tolerance:</b>	<b>0.1 ppm</b>
<b>Emission Designator:</b>	<b>271KGXW</b>
<b>Antenna Type:</b>	<b>Omni-Directional Dipole</b>

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.

Celltech Research Inc. certifies that no party to this application has been denied FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 853(a).



**Shawn McMillen**  
**General Manager**  
**Celltech Research Inc.**



## **TABLE OF CONTENTS**

<b>1.1 GENERAL INFORMATION</b>	<b>1</b>
<b>2.1 MEASUREMENT PROCEDURES</b>	<b>2</b>
Occupied Bandwidth (2.1049, 24.238)	2
Spurious Emissions at Antenna Terminal (2.1051)	2
Radiated Spurious & Harmonic Emissions (2.1053)	2
Frequency Stability/Temperature Variation (2.1055, 24.135)	3
<b>3.1 TEST DATA</b>	<b>4</b>
Effective Isotropic Radiated Power Output	4
Field Strength of Spurious Radiation	5-7
Frequency Stability	8
<b>4.1 LIST OF TEST EQUIPMENT</b>	<b>9</b>
<b>5.1 CONCLUSION</b>	<b>10</b>

<b>ATTACHMENT A:</b>	<b>COVER LETTER(S)</b>
<b>ATTACHMENT B:</b>	<b>ATTESTATION STATEMENT(S)</b>
<b>ATTACHMENT C:</b>	<b>TEST REPORT</b>
<b>ATTACHMENT D:</b>	<b>TEST PLOTS</b>
<b>ATTACHMENT E:</b>	<b>FCC ID LABEL &amp; LOCATION</b>
<b>ATTACHMENT F:</b>	<b>TEST SETUP PHOTOGRAPHS</b>
<b>ATTACHMENT G:</b>	<b>EXTERNAL EUT PHOTOGRAPHS</b>
<b>ATTACHMENT H:</b>	<b>INTERNAL EUT PHOTOGRAPHS</b>
<b>ATTACHMENT I:</b>	<b>BLOCK DIAGRAM(S)</b>
<b>ATTACHMENT J:</b>	<b>CIRCUIT DIAGRAMS</b>
<b>ATTACHMENT K:</b>	<b>CIRCUIT DESCRIPTION</b>
<b>ATTACHMENT L:</b>	<b>PARTS LIST</b>
<b>ATTACHMENT M:</b>	<b>TUNE UP PROCEDURE</b>
<b>ATTACHMENT N:</b>	<b>ANTENNA SPECIFICATIONS</b>
<b>ATTACHMENT O:</b>	<b>OPERATIONAL DESCRIPTION</b>
<b>ATTACHMENT P:</b>	<b>USER'S MANUAL</b>
<b>ATTACHMENT Q:</b>	<b>SAR MEASUREMENT REPORT</b>

## **MEASUREMENT REPORT - FCC PART 24**

### **1.1 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.

### ***§2.1033(a) General Information***

#### **APPLICANT:**

**SIERRA WIRELESS INC.  
13811 Wireless Way  
Richmond, BC V6V 3A4**

<b>FCC ID</b>	<b>N7NAC710</b>
<b>Model No.</b>	<b>AirCard 710</b>
<b>EUT Type</b>	<b>PCS GSM Wireless Network Card</b>
<b>FCC Classification</b>	<b>Licensed Base Station for Part 24 (PCB)</b>
<b>FCC Rule Part(s)</b>	<b>§24(E), §2</b>
<b>Max. RF Output Power</b>	<b>0.817 Watts (EIRP)</b>
<b>Tx Freq. Range</b>	<b>1850.25 - 1909.875 MHz</b>
<b>Emission Designator</b>	<b>271KGXW</b>
<b>Modulation</b>	<b>PCS GSM</b>
<b>Antenna Type</b>	<b>Omni-Directional Dipole</b>
<b>Power Supply</b>	<b>From host PC</b>

## **2.1 MEASUREMENT PROCEDURES**

### **2.2 OCCUPIED BANDWIDTH - §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. 100% of the in-band modulation was below the specified mask per §24.238.

### **2.3 OCCUPIED BANDWIDTH EMISSION LIMITS - §24.238**

1. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB.
2. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.
3. When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.
4. The measurement of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

### **2.4 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 internal data modulation.

### **2.5 RADIATED SPURIOUS AND HARMONIC EMISSIONS - §2.1053**

Radiated and harmonic emissions above 1 GHz were measured at our 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 to determine the worst-case emission level.

## **2.6 FREQUENCY STABILITY / TEMPERATURE VARIATION - §2.1055, §24.135**

### **Method of Measurement:**

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the DUT in "call mode". This is accomplished with the use of an R&S CMU 200 Universal Radio Communication Tester.

1. Measure the carrier frequency at room temperature.
2. Subject the DUT to a 1.5 hour soak at -30 C.
3. With the DUT, powered via 5.0 Volts, connected to the R&S CMU 200 and in a simulated call on channel 661 (center channel), measure the carrier frequency. These measurements should be made within 2 minutes of powering up the DUT, to prevent significant self-warming.
4. Repeat the above measurements at 10 C increments from -30 C to +50 C. Allow at least 45 minutes at each temperature, un-powered, before making measurements. At all temperature levels hold the temperature to +/- 0.5 C during the measurement procedure.
5. Re-measure carrier frequency at room temperature with nominal 5.0 Volts. Vary supply voltage from minimum 3.1 Volts to 3.5 Volts, in 0.2 Volt increments re-measuring the carrier frequency at each voltage. Then vary the supply voltage from 4.5V to the maximum 5.5V, in 0.2V increments re-measuring the carrier frequency at each voltage

### **Measurement Limit:**

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment...", Section 2.1055(d)(2) applies. This requires that the manufacturer specify the voltage limits for frequency stability testing. This transceiver is specified to operate with an input voltage of between 3.15 VDC and 3.45 VDC, with a nominal voltage of 3.3 VDC and between 4.5 VDC and 5.5 VDC, with a nominal voltage of 5.0 VDC. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress. These voltages represent a tolerance of + 5 % and -5 % for the nominal voltage of 3.3 VDC and a tolerance of +10% and -10% for 5 VDC. For the purposes of measuring frequency stability these voltage limits are to be used.

### **3.1 TEST DATA**

### **3.2 EFFECTIVE ISOTROPIC RADIATED POWER OUTPUT - §24.232(B)**

#### **1900MHz PCS GSM MODE**

Frequency Tuned	EUT Conducted Power	Max. Field Strength of EUT (Horiz. Pol.)	Horn Gain	Horn Forward Conducted Power	EIRP of EUT Horn Gain + Horn Forward Conducted Power	
(MHz)	(dBm)	(dBm)	(dBi)	(dBm)	(dBm)	Watts
1850.25	27.82	- 11.16	6.67	21.39	28.06	0.640
1880.00	27.95	- 11.56	6.68	22.40	29.12	0.817
1909.875	28.06	- 13.76	6.69	20.02	26.71	0.469

Notes:

EIRP 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, and for both EUT antenna polarizations and modes. 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 power for the antenna was then determined and the EIRP level was determined by adding the forward power and the antenna gain in dB.

### 3.3 Field Strength of Spurious Radiation – §2.1053

#### PCS GSM Mode

Low Channel: 512  
Operating Frequency (MHz): 1850.25  
Measured EIRP: 28.06 dBm  
Measured Conducted Power: 27.8 dBm  
Mode: GSM  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 38.13 \text{ dBc}$

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	dBc
3700.50	-106.9	-73.01	9.4	H	-63.61	88.41
5550.75	-113.9	-80.80	10.4	H	-70.40	95.20
7401.00	-115.4	-74.55	10.6	H	-63.95	88.75
9251.25	-112.3	-75.94	11.4	H	-64.54	89.34
11101.50	-110.4	-71.58	12.4	H	-59.18	83.98
12951.75	-108.1	-70.60	12.2	H	-58.40	83.20
14802.00	-109.5	-71.61	13.7	H	-57.91	82.71
16652.25	-107.6	-69.14	14.7	H	-54.44	79.24
18502.50	-106.8	-79.48	7.5	H	-71.98	96.78

#### 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 power for the antenna was then determined and the EIRP level was determined by adding the forward power and the antenna gain in dB.

**Field Strength of Spurious Radiation – §2.1053**

**PCS GSM Mode**

Mid Channel: 661  
Operating Frequency (MHz): 1880.00  
Measured EIRP: 29.12 dBm  
Measured Conducted Power: 28.0 dBm  
Mode: GSM  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 38.13 \text{ dBc}$

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	dBc
3760.00	-95.37	-61.48	9.4	H	-52.08	76.88
5640.00	-107.1	-74.00	10.4	H	-63.60	88.40
7520.00	-110.4	-69.55	10.6	H	-58.95	83.75
9400.00	-113.2	-76.84	11.4	H	-65.44	90.24
11280.00	-112.6	-73.78	12.4	H	-61.38	86.18
13160.00	-109.5	-72.00	12.2	H	-59.80	84.60
15040.00	-108.9	-71.01	13.7	H	-57.31	82.11
16920.00	-107.8	-69.34	14.7	H	-54.64	79.44
18800.00	-108.3	-80.98	7.5	H	-73.48	98.28

**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 power for the antenna was then determined and the EIRP level was determined by adding the forward power and the antenna gain in dB.



### ***Field Strength of Spurious Radiation – §2.1053***

#### ***PCS GSM Mode***

High Channel: 810  
Operating Frequency (MHz): 1909.875  
Measured EIRP: 26.71 dBm  
Measured Conducted Power: 28.1 dBm  
Mode: GSM  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 38.13 \text{ dBc}$

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	dBc
3819.75	-86.8	-52.91	9.4	H	-43.51	68.31
5729.63	-100.6	-67.50	10.4	H	-57.10	81.90
7639.50	-101.4	-60.55	10.6	H	-49.95	74.75
9549.38	-102.1	-65.74	11.4	H	-54.34	79.14
11459.25	-104.6	-65.78	12.4	H	-53.38	78.18
13369.13	-103.2	-65.70	12.2	H	-53.50	78.30
15279.00	-105.8	-67.91	13.7	H	-54.21	79.01
17188.88	-106.5	-68.04	14.7	H	-53.34	78.14
19098.75	-107	-79.68	7.5	H	-72.18	96.98

#### **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 power for the antenna was then determined and the EIRP level was determined by adding the forward power and the antenna gain in dB.

### 3.4 FREQUENCY STABILITY (PCS GSM) - §24.135

#### AFC Frequency Error vs. Temperature

<u>Temperature</u> (deg C)	<u>Voltage</u> (volts)	<u>channel</u>	<u>Frequency Error</u> (Hz)	<u>Frequency Error</u> (ppm)
50	5	661	-5.1	-0.0027
40	5	661	6.84	0.0036
30	5	661	-4.26	-0.0023
20	5	661	0.19	0.0001
10	5	661	-14.59	-0.0078
0	5	661	-17.05	-0.0091
-10	5	661	-11.3	-0.0060
-20	5	661	-37.77	-0.0201
-30	5	661	-58.5	-0.0311

#### AFC Frequency Error vs. Voltage

<u>Temperature</u> (deg C)	<u>Voltage</u> (volts)	<u>Channel</u>	<u>Frequency Error</u> (Hz)	<u>Frequency Error</u> (ppm)
25	5.5	661	-3.62	-0.0019
25	5.3	661	-2.91	-0.0015
25	5.1	661	-4.33	-0.0023
25	5	661	-0.9	-0.0005
25	4.9	661	-15.56	-0.0083
25	4.7	661	3.62	0.0019
25	4.5	661	6.78	0.0036
25	3.5	661	7.94	0.0042
25	3.3	661	14.33	0.0076
25	3.1	661	-7.43	-0.0040

#### **4.1 TEST EQUIPMENT**

<b><u>Type</u></b>	<b><u>Model</u></b>	<b><u>Calibration Date</u></b>	<b><u>Serial No.</u></b>
HP Signal Generator	8648D (9kHz-4.0GHz)	Nov 1999	3847A00611
Rohde & Schwarz Signal Generator	SMR40 (10MHz-40GHz)	Nov 2000	835537/022
Gigatronics Power Meter	8652A	Oct 1999	1835272
Gigatronics Power Sensor (2)	80701A (0.05-18GHz)	Oct 1999	1833535, 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 1999	US38433013
Audio Analyzer	HP 8903B	March 1999	3729A18691
Modulation Analyzer	HP 8901A	March 1999	3749A07154
Frequency Counter	HP 53181A (3GHz)	May 1999	3736A05175
DC Power Supply	HP E3611A	N/A	KR83015294
CDMA Base Station Test Set	Agilent E8285A	N/A	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. 2000	6267
Double Ridged Horn Antenna	ETS 3115 (1-18GHz)	Oct. 2000	6276
Horn Antenna	Chase BBHA 9120-A (0.7-4.8GHz)	Sept 1998	9120A-239
Horn Antenna	Chase BBHA 9120-A (0.7-4.8GHz)	Sept 1998	9120A-240
Roberts Dipoles	Compliance Design (2 sets) 3121C	June 2000	
Spectrum Analyzer	HP 8594E	March 2000	3543A02721
Spectrum Analyzer	HP E4408B	Nov 1999	US39240170
Shielded Screen Room	Lindgren R.F. 18W-2/2-0	N/A	16297
Environmental Chamber	ESPEC ECT-2 (Temperature/Humidity)	Feb 2000	0510154-B

### **5.1 CONCLUSION**

The data in this measurement report shows that the SIERRA WIRELESS INC. Model: AirCard 710 PCS GSM Wireless Network Card (for laptop PC) FCC ID: N7NAC710 complies with all the requirements of Parts 2 and 24 of the FCC rules.

# TEST PLOTS

---

hp 09:29:43 Sep 13, 2001

FCC ID: N7NAC710 CON SPURS CH 512

Ref 27.8 dBm

Atten 10 dB

Mkr1 2.369 GHz

-27.26 dBm

Peak

Log

10

dB/

Offst

32

dB

DI

-13.0

dBm

M1 S2

S3 FC

AA

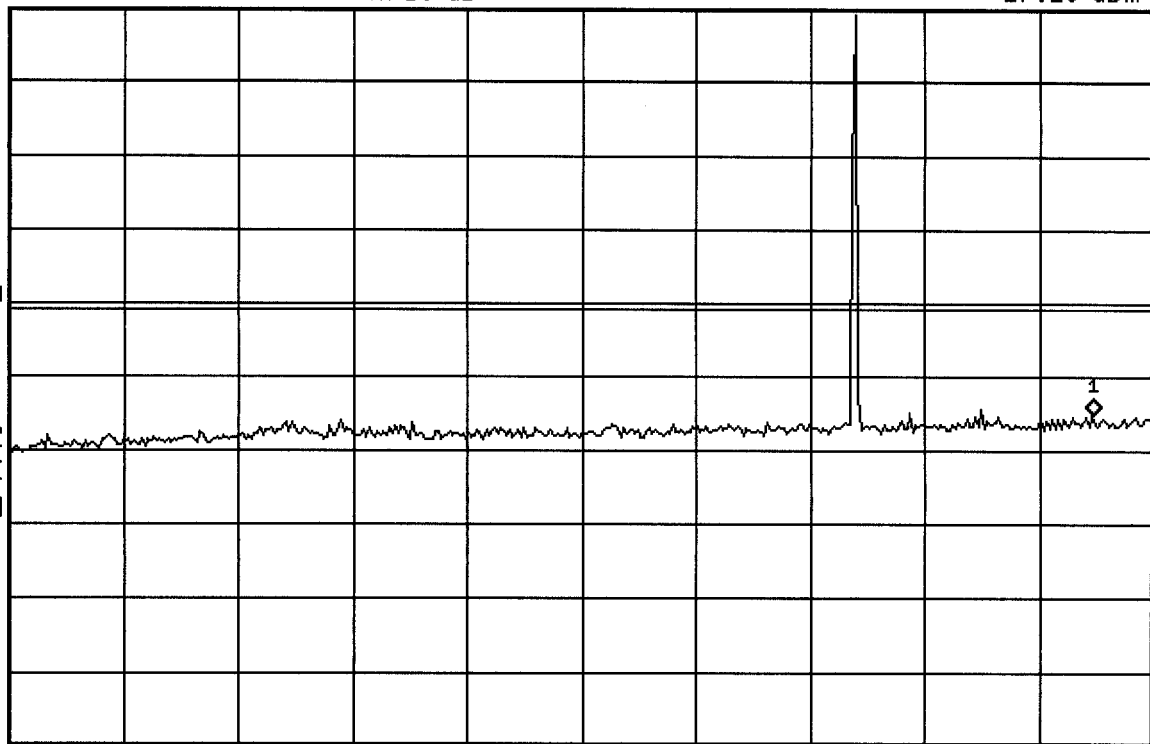
Start 10 MHz

\*Res BW 1 MHz

VBW 1 MHz

Stop 2.5 GHz

Sweep 6.225 ms



 09:30:09 Sep 13, 2001

FCC ID: N7NAC710 CON SPURS CH 512

Mkr1 2.988 GHz

Ref 27.8 dBm

Atten 10 dB

-29.56 dBm

Peak

Log

10

dB/

Offst

32

dB

DI

-13.0

dBm

M1 S2

S3 FC

AA

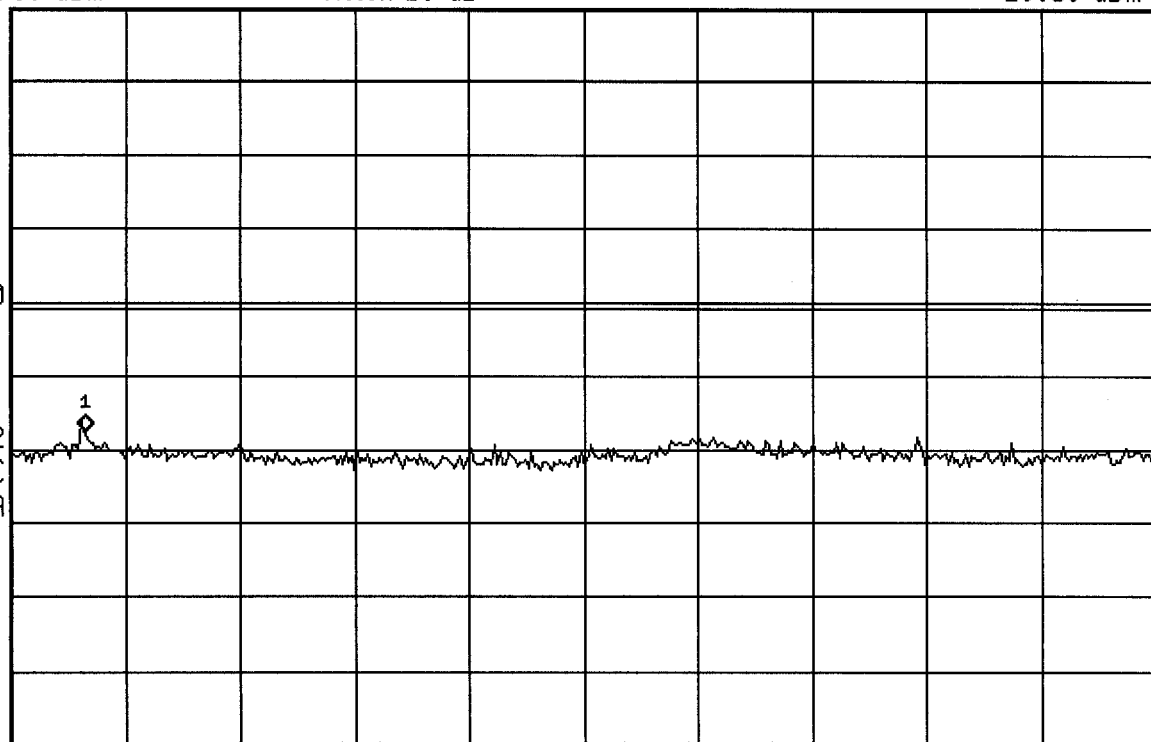
Start 2.5 GHz

\*Res BW 1 MHz

VBW 1 MHz

Stop 10 GHz

Sweep 18.75 ms



hp 09:30:36 Sep 13, 2001

FCC ID: N7NAC710 CON SPURS CH 512

Mkr1 13.25 GHz

Ref 27.8 dBm

Atten 10 dB

-27.45 dBm

Peak

Log

10

dB/

Offst

32

dB

DI

-13.0

dBm

M1 S2

S3 FC

AA

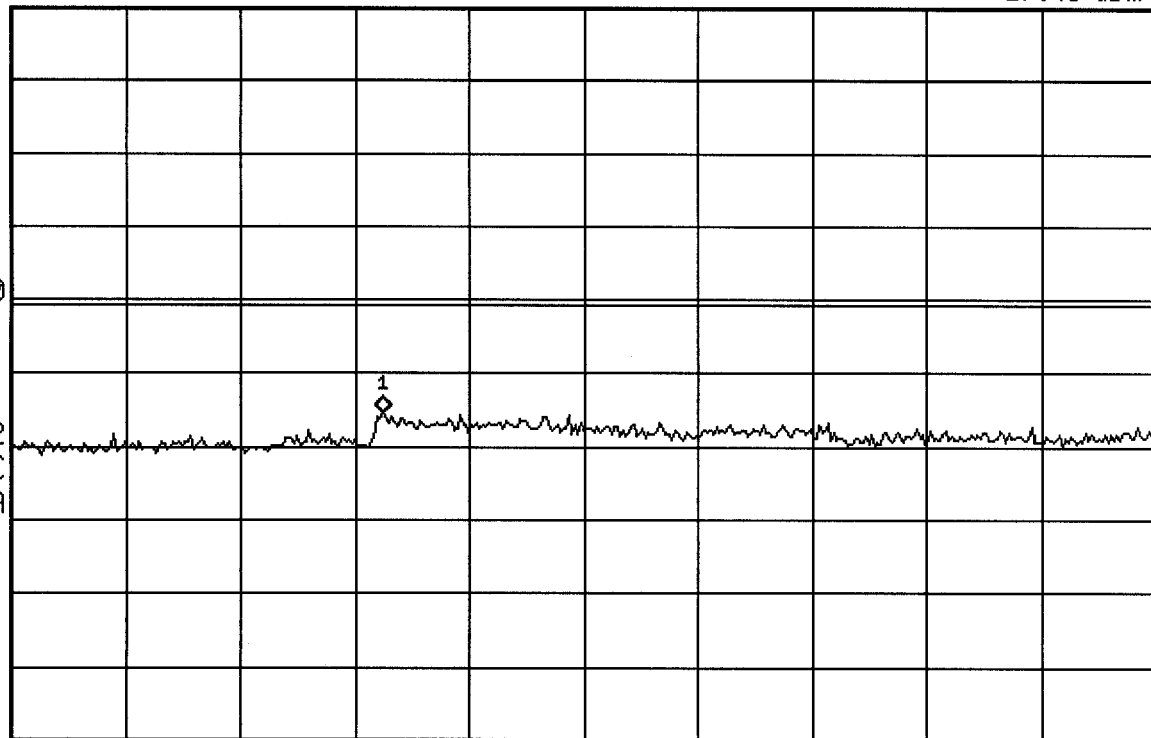
Start 10 GHz

\*Res BW 1 MHz

VBW 1 MHz

Stop 20 GHz

Sweep 100 ms





hp 09:31:59 Sep 13, 2001

FCC ID: N7NAC710 CON SPURS CH 661

Mkr1 2.301 GHz

Ref 28 dBm

Atten 10 dB

-27.23 dBm

Peak

Log

10

dB/

Offst

32

dB

DI

-13.0

dBm

M1 S2

S3 FC

AA

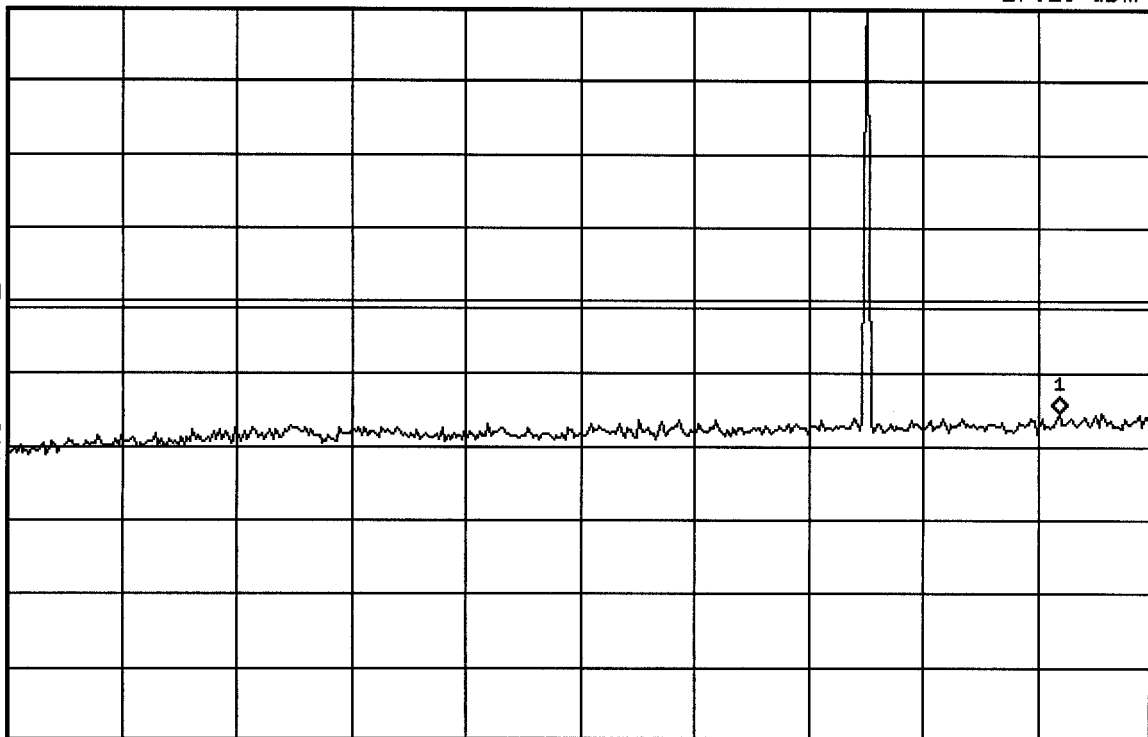
Start 10 MHz


\*Res BW 1 MHz

VBW 1 MHz

Stop 2.5 GHz

Sweep 6.225 ms



 09:32:19 Sep 13, 2001

FCC ID: N7NAC710 CON SPURS CH 661

Mkr1 2.969 GHz

Ref 28 dBm

Atten 10 dB

-29.65 dBm

Peak

Log

10

dB/

Offst

32

dB

DI

-13.0

dBm

M1 S2

S3 FC

AA

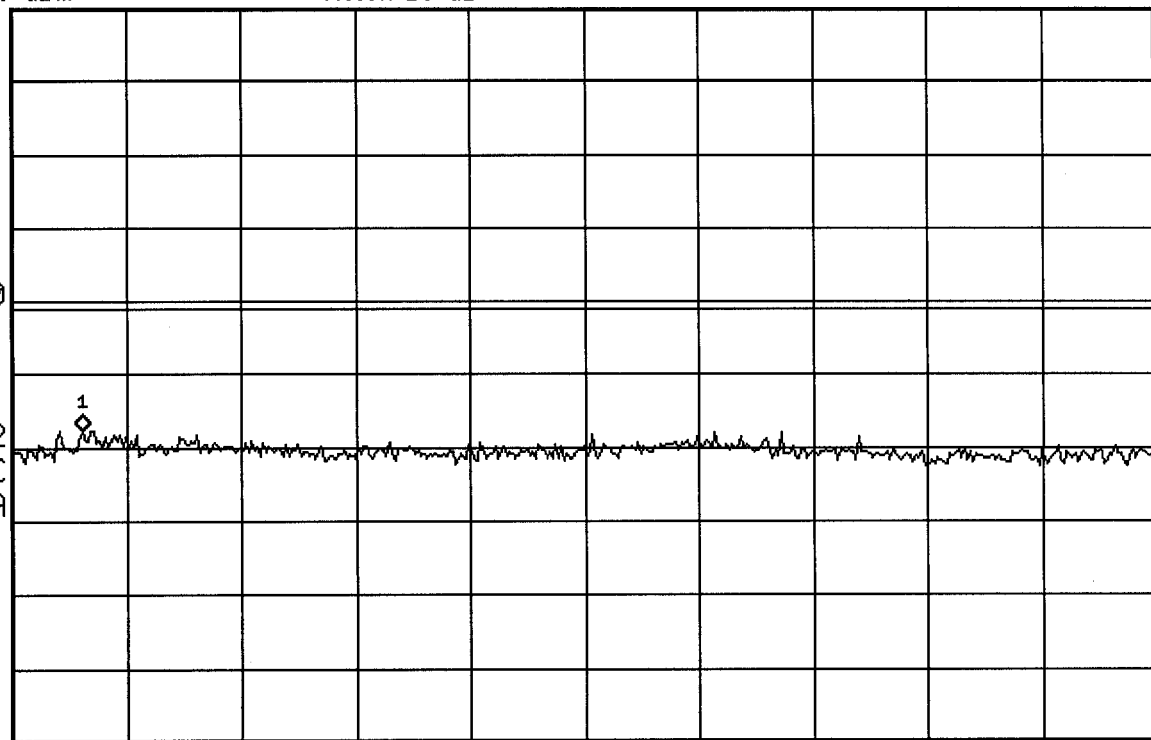
Start 2.5 GHz

\*Res BW 1 MHz

VBW 1 MHz

Stop 10 GHz

Sweep 18.75 ms



hp 09:32:40 Sep 13, 2001

FCC ID: N7NAC710 CON SPURS CH 661

Mkr1 14.18 GHz

Ref 28 dBm

Atten 10 dB

-28.26 dBm

Peak

Log

10

dB/

Offst

32

dB

DI

-13.0

dBm

M1 S2

S3 FC

AA

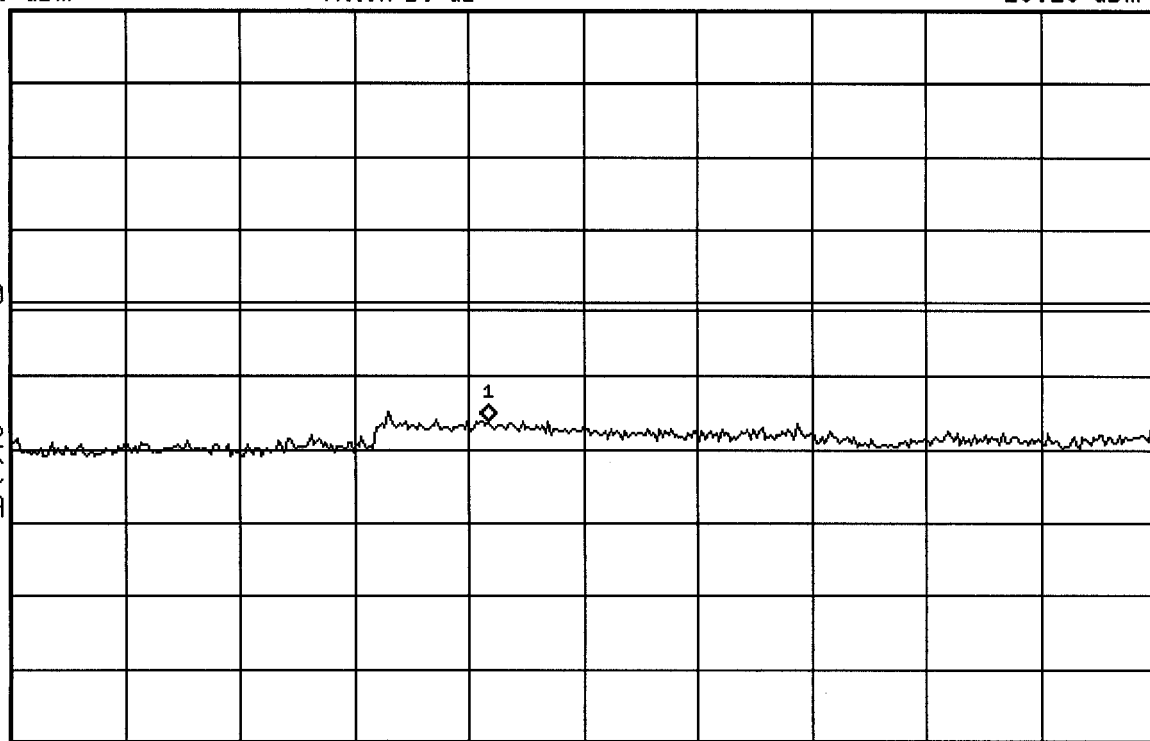
Start 10 GHz

\*Res BW 1 MHz

VBW 1 MHz

Stop 20 GHz

Sweep 100 ms



hp 09:34:09 Sep 13, 2001

FCC ID: N7NAC710 CON SPURS CH 810

Ref 28.1 dBm

Atten 10 dB

Mkr1 2.344 GHz

-28.2 dBm

Peak

Log

10

dB/

Offst

32

dB

DI

-13.0

dBm

M1 S2

S3 FC

AA

Start 10 MHz

\*Res BW 1 MHz

VBW 1 MHz

Stop 2.5 GHz

Sweep 6.225 ms

1

hp 09:34:29 Sep 13, 2001

FCC ID: N7NAC710 CON SPURS CH 810

Mkr1 2.988 GHz

Ref 28.1 dBm

Atten 10 dB

-29.55 dBm

Peak

Log

10

dB/

Offst

32

dB

DI

-13.0

dBm

M1 S2

S3 FC

AA

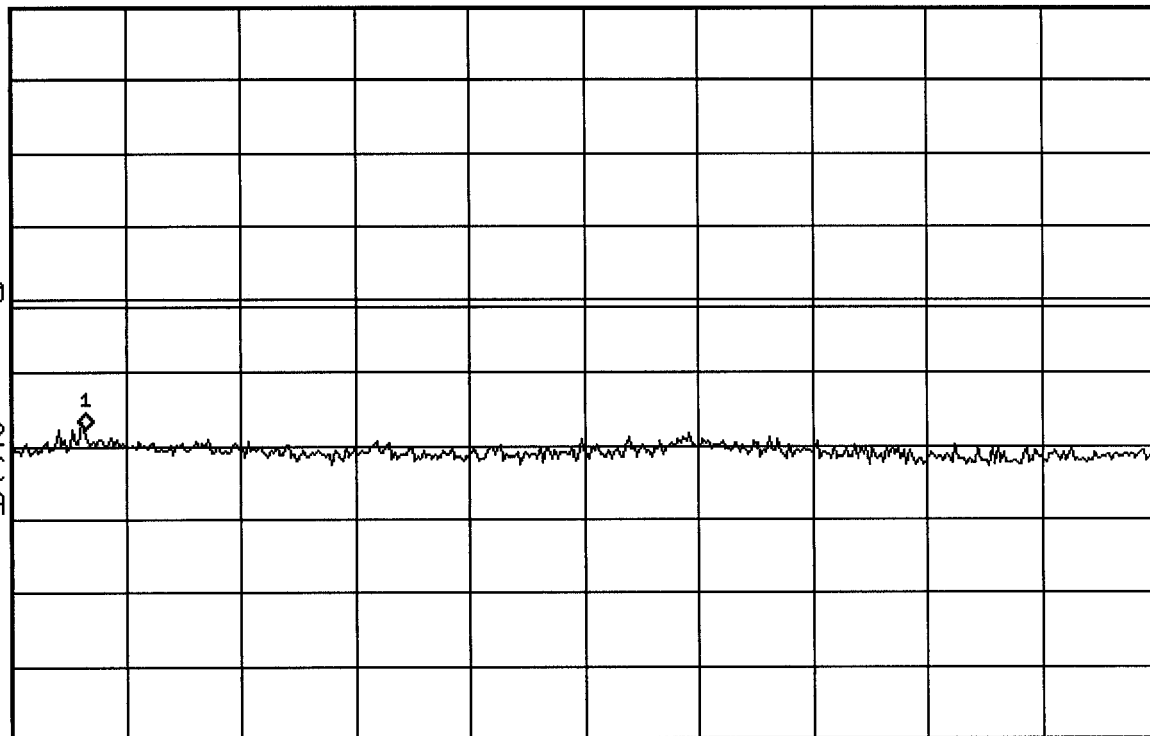
Start 2.5 GHz

\*Res BW 1 MHz

VBW 1 MHz

Stop 10 GHz

Sweep 18.75 ms



hp 09:34:47 Sep 13, 2001

FCC ID: N7NAC710 CON SPURS CH 810

Mkr1 13.25 GHz

Ref 28.1 dBm

Atten 10 dB

-27.62 dBm

Peak

Log

10

dB/

Offst

32

dB

DI

-13.0

dBm

M1 S2

S3 FC

AA

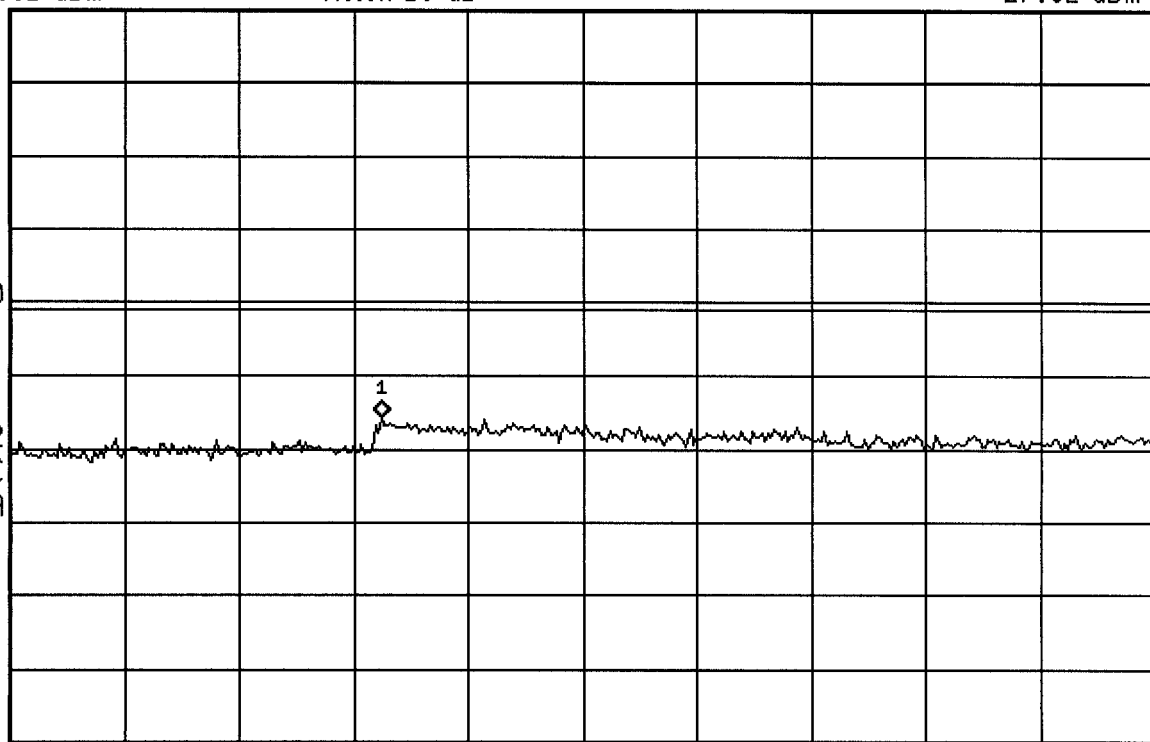
Start 10 GHz

\*Res BW 1 MHz

VBW 1 MHz

Stop 20 GHz

Sweep 100 ms





09:45:00 Sep 13, 2001

FCC ID: N7NAC710 GSM CH 512

Ref 27.8 dBm

Atten 10 dB

Peak

Log

10

dB/

Offst

32

dB

DI

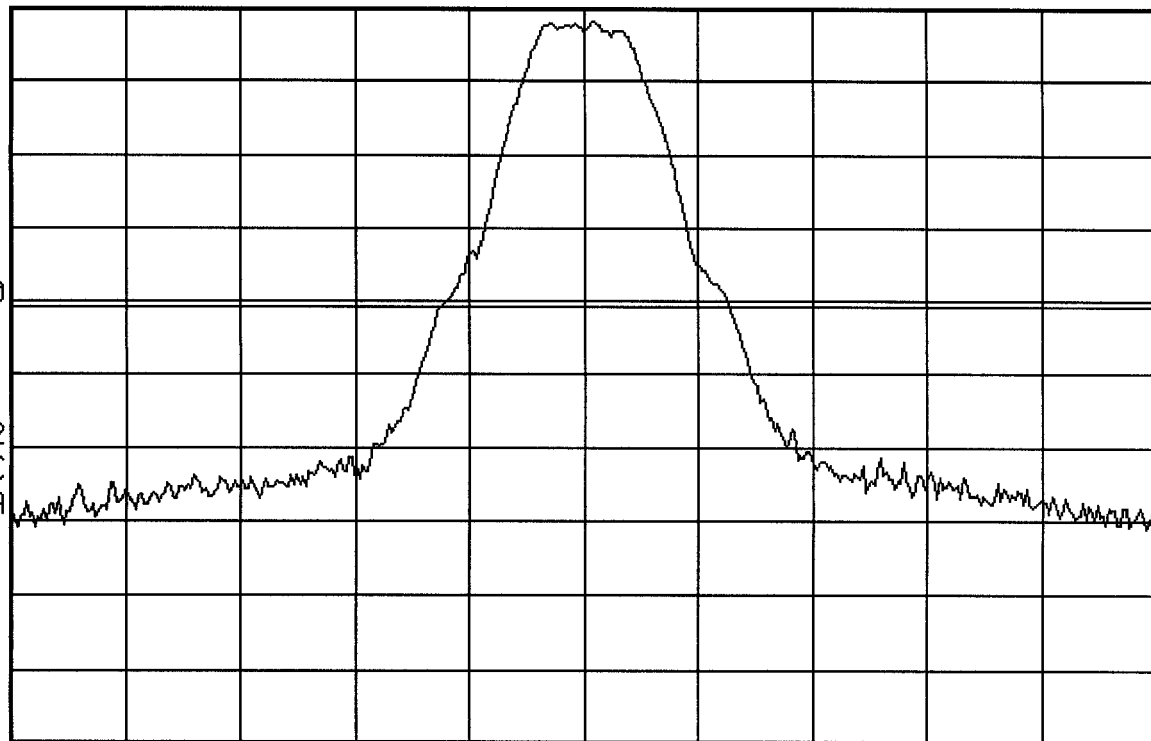
-13.0

dBm

M1 S2

S3 FC

AA



Center 1.85 GHz

\*Res BW 30 kHz

VBW 30 kHz

Span 2 MHz

Sweep 9.167 ms



09:44:23 Sep 13, 2001

FCC ID: N7NAC710 GSM CH 661

Ref 28 dBm

Atten 10 dB

Peak

Log

10

dB/

Offst

32

dB

DI

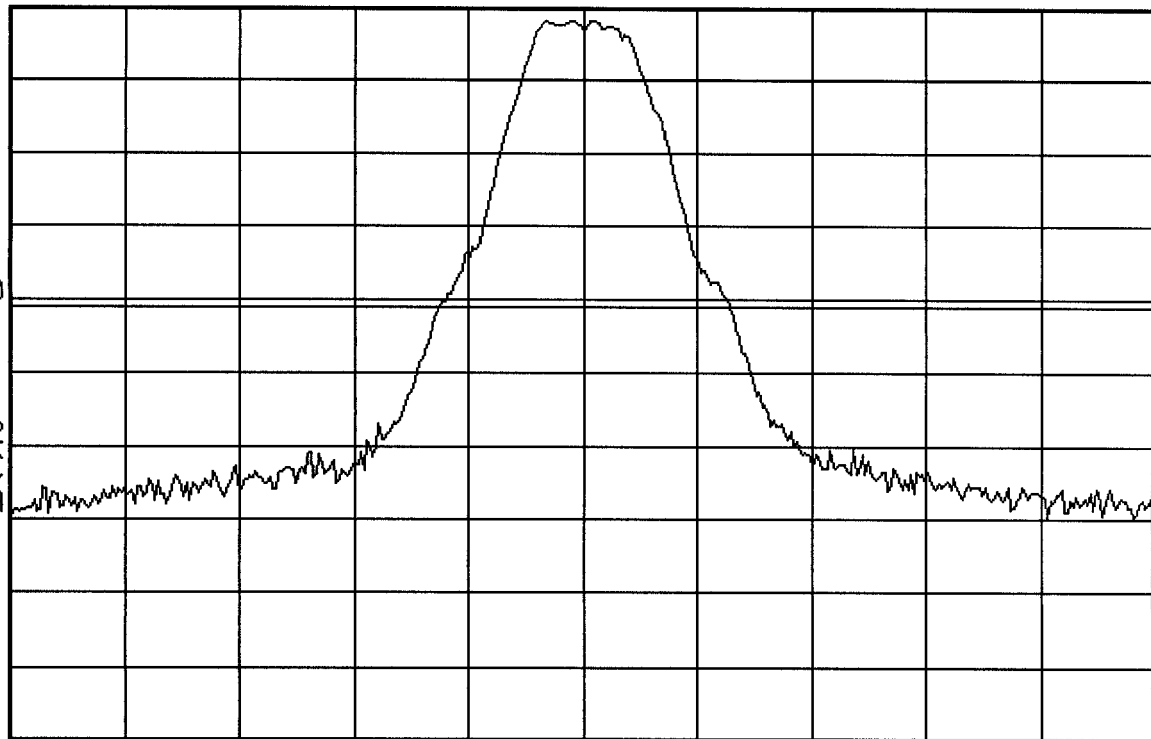
-13.0

dBm

M1 S2

S3 FC

AA



Center 1.88 GHz

\*Res BW 30 kHz

VBW 30 kHz

Span 2 MHz

Sweep 9.167 ms

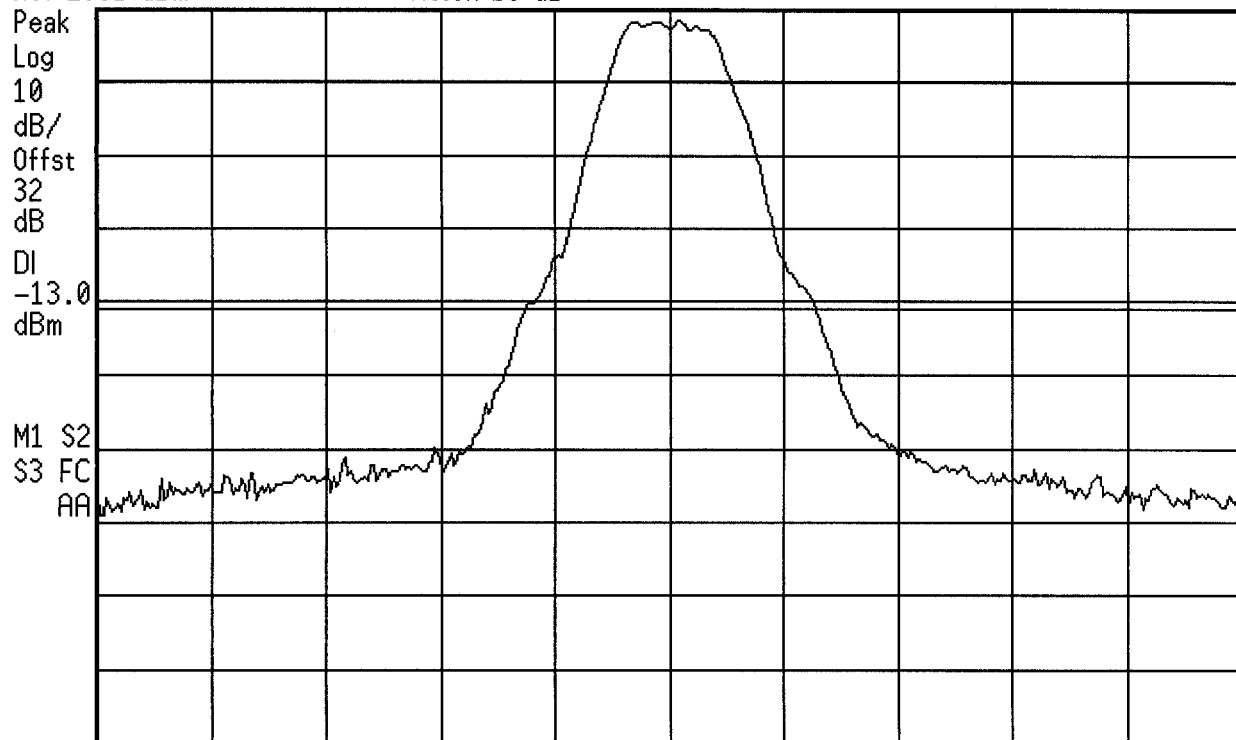


hp 09:43:43 Sep 13, 2001

FCC ID: N7NAC710 GSM CH 810

Ref 28.1 dBm

Atten 10 dB



Center 1.91 GHz

\*Res BW 30 kHz

VBW 30 kHz

Span 2 MHz

Sweep 9.167 ms



09:39:59 Sep 13, 2001

FCC ID: N7NAC710 BAND EDGE EDGE LOW CH

Ref 27.8 dBm

Atten 10 dB

Peak

Log

10

dB/

Offst

32

dB

DI

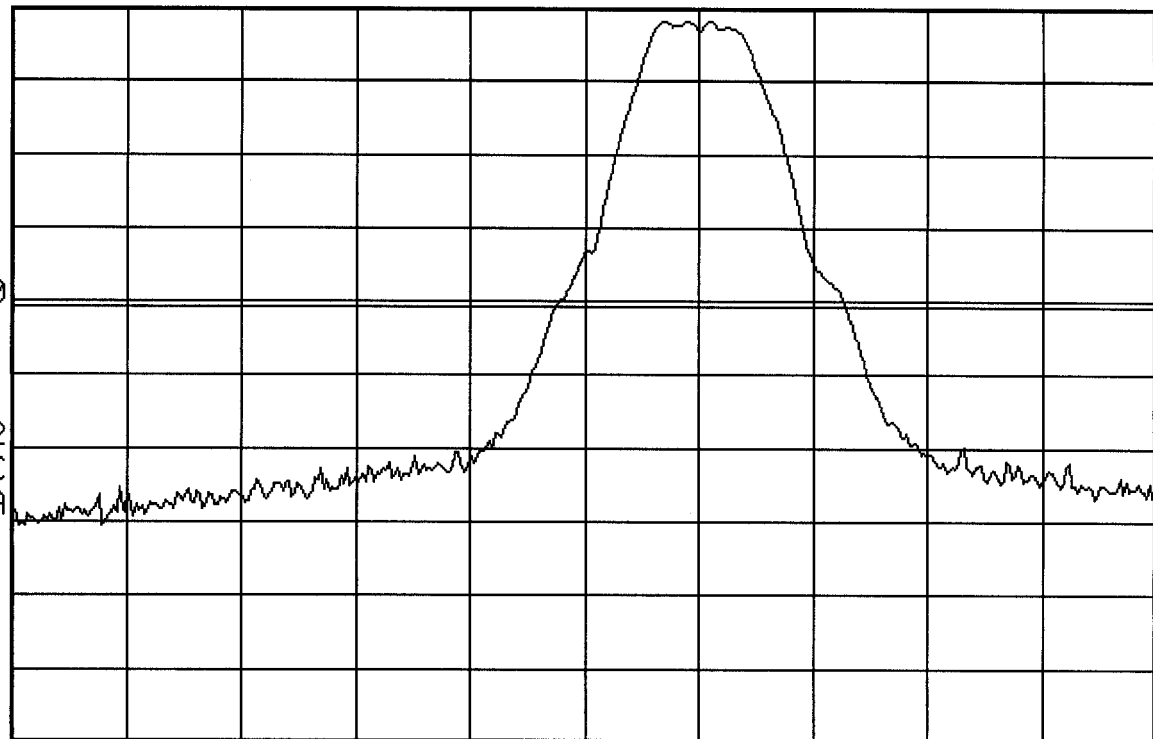
-13.0

dBm

M1 S2

S3 FC

AA



Center 1.85 GHz

\*Res BW 30 kHz

VBW 30 kHz

Span 2 MHz

Sweep 9.167 ms



09:40:55 Sep 13, 2001

FCC ID: N7NAC710 BAND EDGE EDGE HIGH CH

Ref 28.1 dBm

Atten 10 dB

Peak

Log

10

dB/

Offst

32

dB

DI

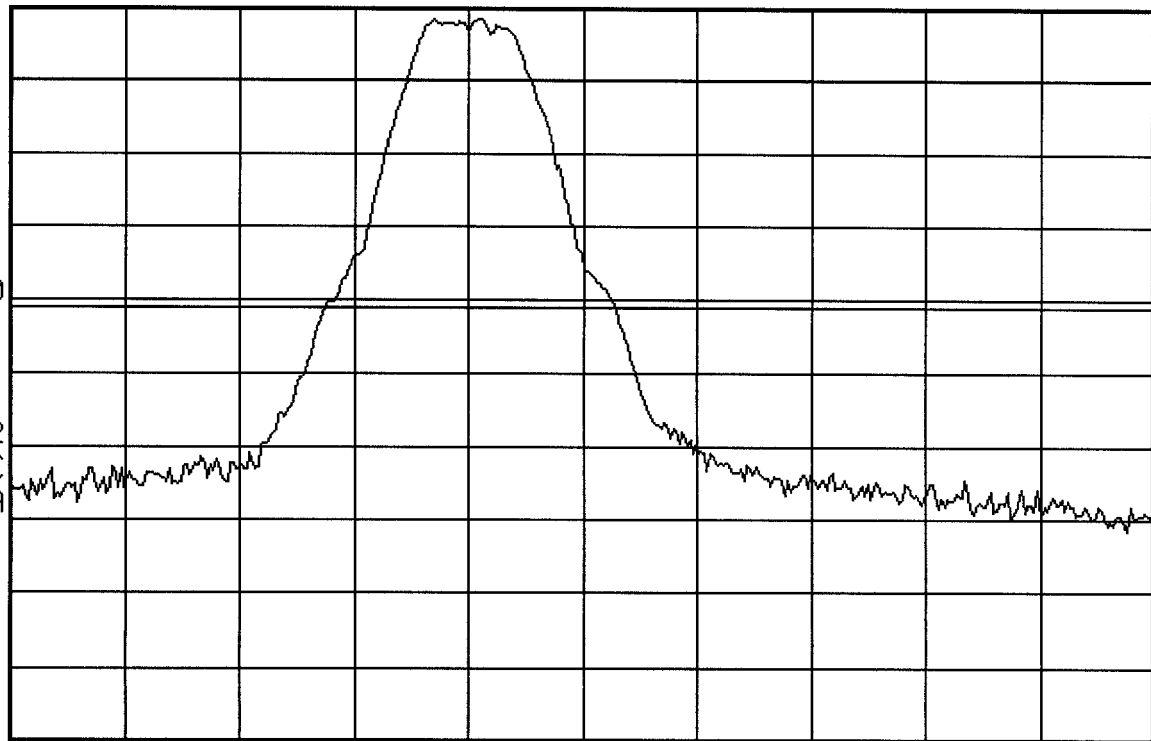
-13.0

dBm

M1 S2

S3 FC

AA



Center 1.91 GHz

\*Res BW 30 kHz

VBW 30 kHz

Span 2 MHz

Sweep 9.167 ms

hp 10:01:26 Sep 13, 2001

FCC HD: N7NAC710 OCCUPIED BAND WIDTH

▲ Mkr1 250 kHz

Ref 28 dBm

Atten 10 dB

1.143 dB

Peak

Log

10

dB/

Offst

32

dB

DI

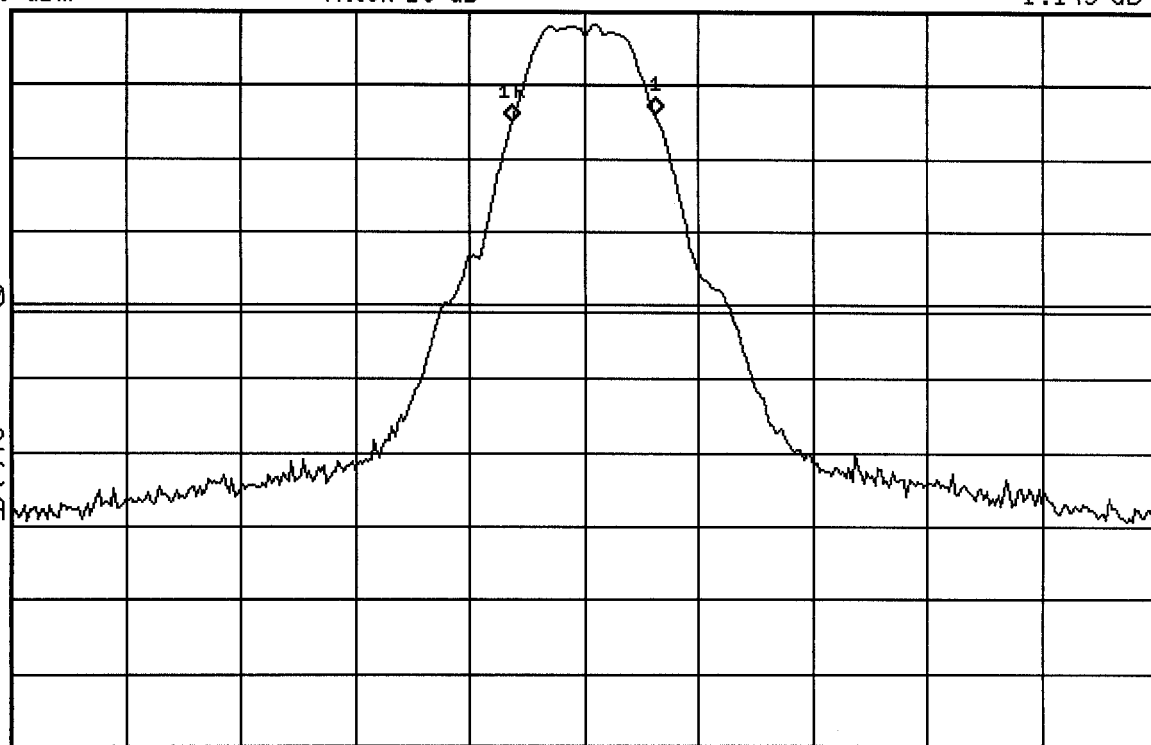
-13.0

dBm

M1 S2

S3 FC

AA



Center 1.88 GHz

Span 2 MHz

\*Res BW 30 kHz

VBW 30 kHz

Sweep 9.167 ms