

## DECLARATION OF COMPLIANCE FCC PARTS 24(E) & 22(H) EMC MEASUREMENTS

### Test Lab

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<b>FCC Rule Part(s):</b>	47 CFR §24(E), §22(H), §2
<b>IC Rule Part(s):</b>	RSS-133 Issue 2, RSS-129 Issue 2
<b>Test Procedure(s):</b>	FCC 47 CFR §24(E), §22(H), §2; ANSI TIA/EIA-603-A-2001 IC RSS-133 Issue 2, RSS-129 Issue 2
<b>FCC Device Classification:</b>	PCS Licensed Transmitter (PCB)
<b>IC Device Classification:</b>	2GHz Personal Communication Services (RSS-133 Issue 2) 800MHz CDMA Cellular Transmitter (RSS-129 Issue 2)
<b>Device Type:</b>	Rugged Laptop PC with Sierra Wireless AirCard 555/550 Dual-Band PCS/Cellular CDMA PCMCIA Modem Card co-located with Cisco MPI-350 Mini-PCI DSSS WLAN Card & Mitsumi WML-C11 Bluetooth Transmitter
<b>FCC ID:</b>	KBCIX260MPIA555BT
<b>Model(s):</b>	IX260
<b>Tx Frequency Range:</b>	1851.25 - 1908.75 MHz (PCS CDMA) 824.70 - 848.31 MHz (Cellular CDMA)
<b>Max. RF Output Power:</b>	0.245 Watts EIRP (PCS CDMA) 0.143 Watts ERP (Cellular CDMA)
<b>Conducted Power Tested:</b>	23.0 dBm (PCS CDMA) 23.0 dBm (Cellular CDMA)
<b>Emission Designator(s):</b>	1M25F9W
<b>Frequency Tolerance(s):</b>	150 Hz (PCS CDMA) 300 Hz (Cellular CDMA)
<b>Antenna Type(s):</b>	External Dipole (Dual-Band CDMA) Internal - Upper Right Edge of LCD Display (WLAN) Internal - Upper Left Edge of LCD Display (Bluetooth)
<b>Battery Type:</b>	11.1V Lithium-ion, 6.0Ah (Model: A2121-2)

This wireless device has demonstrated compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in FCC 47 CFR §24(E), §22(H), §2, Industry Canada RSS-133 Issue 2, RSS-129 Issue 2, and ANSI TIA/EIA-603-A-2001.

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.

This test report shall not be reproduced partially, or in full, without the prior written approval of Celltech Labs Inc. The results and statements contained in this report pertain only to the device(s) evaluated.



**Russell Pipe**  
Senior Compliance Technologist  
Celltech Labs Inc.



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## EMC MEASUREMENT REPORT

### 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 and Industry Canada.

### 1.2 GENERAL INFORMATION - §2.1033(a)

<p><b><u>APPLICANT</u></b></p> <p><b>ITRONIX CORPORATION</b> 801 South Stevens Street Spokane, WA 99204</p>	
<b>FCC ID</b>	KBCIX260MPIA555BT
<b>Model(s)</b>	IX260
<b>Serial No.</b>	ZZGEG3135ZZ1409 (Identical Prototype)
<b>EUT Type</b>	Rugged Laptop PC with Sierra Wireless AirCard 555/550 Dual-Band PCS/Cellular CDMA PCMCIA Modem Card co-located with Cisco MPI-350 Mini-PCI DSSS WLAN Card & Mitsumi WML-C11 Bluetooth Transmitter
<b>Rule Part(s)</b>	FCC 47 CFR §24(E), §22(H), §2 IC RSS-133 Issue 2, RSS-129 Issue 2
<b>FCC Classification</b>	PCS Licensed Transmitter (PCB)
<b>IC Classification</b>	2GHz Personal Communication Services (RSS-133 Issue 2) 800MHz CDMA Cellular Transmitter (RSS-129 Issue 2)
<b>Tx Frequency Range</b>	1851.25 - 1908.75 MHz (PCS CDMA) 824.70 - 848.31 MHz (Cellular CDMA)
<b>Max. RF Output Power</b>	0.245 Watts EIRP (PCS CDMA) 0.143 Watts ERP (Cellular CDMA)
<b>RF Conducted Output Power Tested</b>	23.0 dBm (PCS CDMA) 23.0 dBm (Cellular CDMA)
<b>Emission Designator</b>	1M25F9W
<b>Frequency Tolerance</b>	150 Hz (PCS CDMA) 300 Hz (Cellular CDMA)
<b>Battery Type(s)</b>	11.1V Lithium-ion, 6.0Ah (Model: A2121-2)
<b>Antenna Type(s)</b>	External Dipole - Dual-Band (Length: 4.3 inches) Internal - upper right edge of LCD display (WLAN) Internal - upper left edge of LCD display (Bluetooth)

## 2.1 MEASUREMENT PROCEDURES

### 2.2 RF OUTPUT POWER MEASUREMENT - §2.1046

The average conducted power levels were measured with a Gigatronics 8650A Universal Power Meter using modulated average power 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 internal software. All subsequent tests were performed using the same tune-up procedures.

Conducted Power Measurements	
Frequency (MHz)	Average Power (dBm)
824.70	23.0
835.89	23.0
848.31	23.0
1851.25	23.0
1880.00	23.0
1908.75	23.0

### 2.3 SPURIOUS EMISSIONS AT ANTENNA TERMINAL - §2.1051

The EUT was placed in test mode via internal software in the “always up” power control mode. An offset was entered into the power meter to correct for all losses of the attenuator and cable installed before the sensor input. The EUT was placed into test mode via internal software. The level of the carrier and the various conducted spurious frequencies were measured by means of a calibrated spectrum analyzer. The resolution bandwidth and video bandwidth were set to 1MHz. The spectrum was scanned from 10MHz to 20GHz at the low, mid, and high channels. The radio transmitter was operating at maximum output power. The antenna output terminal of the EUT was connected to the input of a 50 $\Omega$  spectrum analyzer through a matched 30dB attenuator and coaxial cable. The reported emissions were below the specified limit of -13dBm. The test plots are shown in Appendix A.

### 2.4 FIELD STRENGTH OF SPURIOUS RADIATION - §2.1053

Radiated spurious emissions were measured on a 3-meter open area test site using the Signal Substitution Method in accordance with ANSI TIA/EIA-603-A-2001. The EUT was placed into test mode via internal software in the “always up” power control mode. 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 in height from 1 to 4 meters and the polarization was varied (horizontal and vertical) to determine the worst-case emission level. A standard gain horn antenna was substituted in place of the EUT. A CDMA signal was fed through a directional coupler to the antenna 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 was adjusted to read the same power at 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 then recorded. The forward conducted power for the horn antenna was determined by measuring the power at the horn antenna feed point and reproducing the coupler power previously measured. The EIRP level was determined by adding the horn forward conducted power and the horn antenna gain. All spurious emissions from the lowest radio frequency generated in the equipment to the tenth harmonic of the carrier were investigated. For the simultaneous transmit tests with the co-located WLAN, the WLAN was set to the maximum conducted power level at the mid channel ((21.1 dBm, 2437 MHz) in continuous transmit mode with a modulated signal. For the simultaneous transmit tests with the co-located Bluetooth transmitter, the Bluetooth transmitter was set to the maximum conducted power level at the mid channel (14.5 dBm, 2441 MHz) in continuous transmit mode with a modulated signal and the frequency hopping disabled.

## 2.5 EMISSION DESIGNATOR - §2.202

CDMA BW = 1.25 MHz  
F = Frequency Modulation  
9 = Composite Digital Info  
W = Combination Audio/Data Transmission

## 2.6 OCCUPIED BANDWIDTH - §2.1049, §22.917, §24.238

The EUT was placed in test mode via internal software at a full rated power. The EUT was connected to the input of a 50Ω spectrum analyzer through a matched 30dB attenuator. For both PCS and Cellular CDMA modes the resolution bandwidth and video bandwidth were set to 30kHz. The EUT was operating at maximum output power.

Specified Limits (as of February 18, 2003):

### §22.917

- (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.
- (b) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. 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. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). 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 emissions are attenuated at least 26 dB below the transmitter power.
- (c) Alternative out of band emission limit. Licensees in this service may establish an alternative out of band emission limit to be used at specified band edge(s) in specified geographical areas, in lieu of that set forth in this section, pursuant to a private contractual arrangement of all affected licensees and applicants. In this event, each party to such contract shall maintain a copy of the contract in their station files and disclose it to prospective assignees or transferees and, upon request, to the FCC.
- (d) Interference caused by out of band emissions. If any emission from a transmitter operating in this service results in interference to users of another radio service, the FCC may require a greater attenuation of that emission than specified in this section.

### §24.238

- (a) 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.
- (b) 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 emissions are attenuated at least 26 dB below the transmitter power.
- (c) 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.
- (d) The measurements of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.
- (e) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

## 2.7 EFFECTIVE ISOTROPIC RADIATED POWER OUTPUT - §24.232(b)

EIRP measurements were performed using the Signal Substitution Method in accordance with ANSI TIA/EIA-603-A-2001 on a 3-meter open area test site. The EUT was placed on a turntable 3-meters from the receive antenna and placed into test mode via internal software in the “always up” power control mode. 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. Once a peak was found the spectrum analyzer was set to peak hold and the value of the emission was extracted. The field strength was recorded for each channel being tested, and for both EUT antenna polarizations. A standard gain horn antenna was substituted in place of the EUT. A CDMA signal was fed through a directional coupler to the antenna 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 determined by measuring the power at the horn antenna feed point and reproducing the coupler power previously measured. The EIRP level was determined by adding the horn forward conducted power and the horn antenna gain.

## 2.8 EFFECTIVE RADIATED POWER OUTPUT - §22.913

ERP measurements were performed using the Signal Substitution Method in accordance with ANSI TIA/EIA-603-A-2001 on a 3-meter open area test site. The EUT was placed on a turntable 3-meters from the receive antenna and placed into test mode via internal software in the “always up” power control mode. 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. Once a peak was found the spectrum analyzer was set to peak hold and the value of the emission was extracted. The field strength was recorded for each channel being tested, and for both EUT antenna polarizations. A half-wave dipole antenna was substituted in place of the EUT. A CDMA signal was fed through a directional coupler to the dipole antenna 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 was 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 forward conducted power for the dipole antenna was determined by measuring the power at the dipole antenna feed point and reproducing the coupler power previously measured. The ERP level was determined by adding the dipole forward conducted power and the dipole antenna gain.

## 2.9 RADIATED MEASUREMENT TEST SETUP

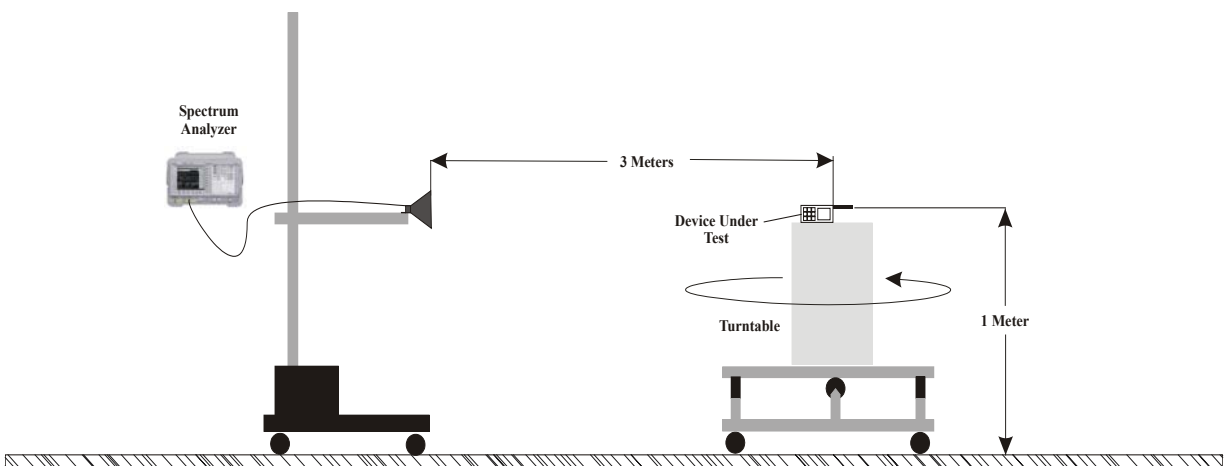


Figure 1. Radiated Measurement Test Setup Diagram - Horn Antenna

### 3.0 FREQUENCY STABILITY / TEMPERATURE VARIATION - §2.1055, §24.235

The minimum frequency stability shall be  $\pm 300\text{Hz}$  (Cellular CDMA) and  $\pm 150\text{Hz}$  (PCS CDMA) referenced to a received carrier frequency. This meets the requirement for operational accuracy of 0.00005% for digital mode. An HP 53181A Frequency Counter was used to measure the error in the fundamental frequency. The transmitter was set to maximum power at the center frequency of the band. The EUT was placed inside the temperature chamber.

#### Measurement Method:

The frequency stability of the transmitter was measured by:

1. Temperature:

The temperature was varied from  $-30^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  at intervals no more than  $10^{\circ}\text{C}$  throughout the temperature range using an environmental chamber. A period of time sufficient to stabilize all of the components in the equipment was allowed prior to each frequency measurement.

2. Primary Supply Voltage:

The primary supply voltage was set at the specified nominal rating and reduced to the battery operating endpoint specified by the manufacturer. The voltage was measured at the terminals of the power supply or at the input to the cable normally provided with the equipment.

#### Time Period and Procedure:

1. The carrier frequency of the transmitter was measured at room temperature ( $25^{\circ}\text{C}$  to  $27^{\circ}\text{C}$  to provide a reference).
2. The equipment was subjected to an overnight "soak" at  $-30^{\circ}\text{C}$  without any power applied.
3. After the overnight "soak" at  $-30^{\circ}\text{C}$ , the measurement of the carrier frequency of the transmitter was made within a three-minute interval after applying power to the transmitter.
4. Frequency measurements were made at  $10^{\circ}\text{C}$  intervals up to  $+60^{\circ}\text{C}$ , then back to room temperature. A minimum period of one hour was provided to allow stabilization of the equipment at each temperature level.



### 3.1 TEST DATA

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

PCS CDMA Mode - Single Transmit							
Freq. Tuned	EUT Conducted Power	Maximum Field Strength of EUT	Antenna Polariz.	Horn Gain	Horn Forward Conducted Power	EIRP of EUT Horn Gain + Horn Forward Conducted Power	
MHz	dBm	dBm	H/V	dBi	dBm	dBm	Watts
1851.25	23.0	- 15.12	H	6.55	16.20	22.75	0.188
1880.00	23.0	- 14.47	H	6.58	17.32	23.90	0.245
1908.75	23.0	- 15.01	H	6.61	17.27	23.88	0.244
1851.25	23.0	- 20.68	V	6.55	11.83	18.38	0.069
1880.00	23.0	- 19.72	V	6.58	12.96	12.96	0.090
1908.75	23.0	- 20.24	V	6.61	12.87	12.87	0.089

### 3.3 EFFECTIVE RADIATED POWER OUTPUT - §22.913

Cellular CDMA Mode - Single Transmit							
Freq. Tuned	EUT Conducted Power	Maximum Field Strength of EUT	Antenna Polariz.	Dipole Gain	Dipole Forward Conducted Power	ERP of EUT Dipole Gain + Dipole Forward Conducted Power	
MHz	dBm	dBm	H/V	dBd	dBm	dBm	Watts
824.70	23.0	- 13.22	H	- 1.44	23.00	21.56	0.143
835.89	23.0	- 15.35	H	- 1.34	20.84	19.50	0.089
848.31	23.0	- 14.31	H	- 1.24	22.65	21.41	0.138
824.70	23.0	- 16.07	V	- 1.44	22.85	21.41	0.138
835.89	23.0	- 18.10	V	- 1.34	20.40	19.06	0.081
848.31	23.0	- 20.06	V	- 1.24	19.95	18.71	0.074



### 3.4 FIELD STRENGTH OF SPURIOUS RADIATION - §2.1053

Operating Frequency (MHz): 1851.25  
Channel: 25 (Low)  
EUT Conducted Pwr. (dBm): 23.0  
Measured EIRP (dBm): 22.75  
Mode: PCS CDMA (Single Transmit)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 35.74 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBi	H/V	dBm	dBm	
3702.50	-76.35	-43.46	6.6	H	-36.86	-39.00	61.75
5553.75	-76.60	-38.80	7.8	H	-31.00	-33.14	55.89
7405.00	-72.46	-35.88	7.8	H	-28.08	-30.22	52.97
9256.25	-73.88	-35.86	7.6	H	-28.26	-30.40	53.15
11107.50	-73.74	-37.38	8.5	H	-28.88	-31.02	53.77
12958.75	-73.98	-36.10	8.8	H	-27.30	-29.44	52.19
14810.00	-70.28	-32.40	9.6	H	-22.80	-24.94	47.69
16661.25	-71.01	-33.18	9.0	H	-24.18	-26.32	49.07
18512.50	-71.12	-34.91	9.3	H	-25.61	-27.75	50.50

Operating Frequency (MHz): 1880.00  
Channel: 600 (Mid)  
EUT Conducted Pwr. (dBm): 23.0  
Measured EIRP (dBm): 23.90  
Mode: PCS CDMA (Single Transmit)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 36.89 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBi	H/V	dBm	dBm	
3760.00	-76.97	-44.08	6.6	H	-37.48	-39.62	63.52
5640.00	-76.36	-38.56	7.8	H	-30.76	-32.90	56.80
7520.00	-73.70	-37.12	7.8	H	-29.32	-31.46	55.36
9400.00	-74.18	-36.16	7.6	H	-28.56	-30.70	54.60
11280.00	-73.83	-37.47	8.5	H	-28.97	-31.11	55.01
13160.00	-72.92	-35.04	8.8	H	-26.24	-28.38	52.28
15040.00	-69.88	-32.00	9.6	H	-22.40	-24.54	48.44
16920.00	-71.24	-33.41	9.0	H	-24.41	-26.55	50.45
18800.00	-71.76	-35.55	9.3	H	-26.25	-28.39	52.29

## FIELD STRENGTH OF SPURIOUS RADIATION - §2.1053 (Cont.)

Operating Frequency (MHz): 1908.75  
Channel: 1175 (High)  
EUT Conducted Pwr. (dBm): 23.0  
Measured EIRP (dBm): 23.88  
Mode: PCS CDMA (Single Transmit)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 36.87 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBi	H/V	dBm	dBm	
3817.50	-76.38	-43.49	6.6	H	-36.89	-39.03	62.91
5726.25	-75.97	-38.17	7.8	H	-30.37	-32.51	56.39
7635.00	-73.41	-36.83	7.8	H	-29.03	-31.17	55.05
9543.75	-74.30	-36.28	7.6	H	-28.68	-30.82	54.70
11452.50	-73.00	-36.64	8.5	H	-28.14	-30.28	54.16
13361.25	-67.23	-29.35	8.8	H	-20.55	-22.69	46.57
15270.00	-69.71	-31.83	9.6	H	-22.23	-24.37	48.25
17178.75	-71.11	-33.28	9.0	H	-24.28	-26.42	50.30
19087.50	-70.46	-34.25	9.3	H	-24.95	-27.09	50.97

Operating Frequency (MHz): 1851.25  
Channel: 25 (Low)  
EUT Conducted Pwr. (dBm): 23.0  
Measured EIRP (dBm): 22.75  
Mode: PCS CDMA (Simultaneous Transmit with Co-located DSSS WLAN Card)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 35.74 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBi	H/V	dBm	dBm	
3702.50	-76.64	-43.75	6.6	H	-37.15	-39.29	62.04
5553.75	-76.32	-38.52	7.8	H	-30.72	-32.86	55.61
7405.00	-72.90	-36.32	7.8	H	-28.52	-30.66	53.41
9256.25	-73.75	-35.73	7.6	H	-28.13	-30.27	53.02
11107.50	-73.85	-37.49	8.5	H	-28.99	-31.13	53.88
12958.75	-73.53	-35.65	8.8	H	-26.85	-28.99	51.74
14810.00	-70.07	-32.19	9.6	H	-22.59	-24.73	47.48
16661.25	-70.49	-32.66	9.0	H	-23.66	-25.80	48.55
18512.50	-71.05	-34.84	9.3	H	-25.54	-27.68	50.43

## FIELD STRENGTH OF SPURIOUS RADIATION - §2.1053 (Cont.)

Operating Frequency (MHz): 1880.00  
Channel: 600 (Mid)  
EUT Conducted Pwr. (dBm): 23.0  
Measured EIRP (dBm): 23.90  
Mode: PCS CDMA (Simultaneous Transmit with Co-located DSSS WLAN Card)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 36.89 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBi	H/V	dBm	dBm	
3760.00	-76.01	-43.12	6.6	H	-36.52	-38.66	62.56
5640.00	-75.69	-37.89	7.8	H	-30.09	-32.23	56.13
7520.00	-73.62	-37.04	7.8	H	-29.24	-31.38	55.28
9400.00	-73.53	-35.51	7.6	H	-27.91	-30.05	53.95
11280.00	-74.81	-38.45	8.5	H	-29.95	-32.09	55.99
13160.00	-73.46	-35.58	8.8	H	-26.78	-28.92	52.82
15040.00	-69.45	-31.57	9.6	H	-21.97	-24.11	48.01
16920.00	-70.73	-32.90	9.0	H	-23.90	-26.04	49.94
18800.00	-71.20	-34.99	9.3	H	-25.69	-27.83	51.73

Operating Frequency (MHz): 1908.75  
Channel: 1175 (High)  
EUT Conducted Pwr. (dBm): 23.0  
Measured EIRP (dBm): 23.88  
Mode: PCS CDMA (Simultaneous Transmit with Co-located DSSS WLAN Card)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 36.87 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBi	H/V	dBm	dBm	
3817.50	-76.83	-43.94	6.6	H	-37.34	-39.48	63.36
5726.25	-74.38	-36.58	7.8	H	-28.78	-30.92	54.80
7635.00	-73.54	-36.96	7.8	H	-29.16	-31.30	55.18
9543.75	-73.36	-35.34	7.6	H	-27.74	-29.88	53.76
11452.50	-73.55	-37.19	8.5	H	-28.69	-30.83	54.71
13361.25	-69.04	-31.16	8.8	H	-22.36	-24.50	48.38
15270.00	-70.40	-32.52	9.6	H	-22.92	-25.06	48.94
17178.75	-71.24	-33.41	9.0	H	-24.41	-26.55	50.43
19087.50	-71.57	-35.36	9.3	H	-26.06	-28.20	52.08

## FIELD STRENGTH OF SPURIOUS RADIATION - §2.1053 (Cont.)

Operating Frequency (MHz): 1851.25  
Channel: 25 (Low)  
EUT Conducted Pwr. (dBm): 23.0  
Measured EIRP (dBm): 22.75  
Mode: PCS CDMA (Simultaneous Transmit with Co-located DSSS WLAN Card and Bluetooth Transmitter)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 35.74 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBi	H/V	dBm	dBm	
3702.50	-75.33	-42.44	6.6	H	-35.84	-37.98	60.73
5553.75	-76.27	-38.47	7.8	H	-30.67	-32.81	55.56
7405.00	-73.41	-36.83	7.8	H	-29.03	-31.17	53.92
9256.25	-73.79	-35.77	7.6	H	-28.17	-30.31	53.06
11107.50	-73.49	-37.13	8.5	H	-28.63	-30.77	53.52
12958.75	-73.57	-35.69	8.8	H	-26.89	-29.03	51.78
14810.00	-69.12	-31.24	9.6	H	-21.64	-23.78	46.53
16661.25	-70.68	-32.85	9.0	H	-23.85	-25.99	48.74
18512.50	-71.28	-35.07	9.3	H	-25.77	-27.91	50.66

Operating Frequency (MHz): 1880.00  
Channel: 600 (Mid)  
EUT Conducted Pwr. (dBm): 23.0  
Measured EIRP (dBm): 23.9  
Mode: PCS CDMA (Simultaneous Transmit with Co-located DSSS WLAN Card and Bluetooth Transmitter)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 36.89 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBi	H/V	dBm	dBm	
3760.00	-65.54	-32.65	6.6	H	-26.05	-28.19	52.09
5640.00	-76.29	-38.49	7.8	H	-30.69	-32.83	56.73
7520.00	-73.95	-37.37	7.8	H	-29.57	-31.71	55.61
9400.00	-73.48	-35.46	7.6	H	-27.86	-30.00	53.90
11280.00	-73.76	-37.40	8.5	H	-28.90	-31.04	54.94
13160.00	-71.45	-33.57	8.8	H	-24.77	-26.91	50.81
15040.00	-70.76	-32.88	9.6	H	-23.28	-25.42	49.32
16920.00	-70.74	-32.91	9.0	H	-23.91	-26.05	49.95
18800.00	-70.28	-34.07	9.3	H	-24.77	-26.91	50.81

## FIELD STRENGTH OF SPURIOUS RADIATION - §2.1053 (Cont.)

Operating Frequency (MHz): 1908.75  
Channel: 1175 (High)  
EUT Conducted Pwr. (dBm): 23.0  
Measured EIRP (dBm): 23.88  
Mode: PCS CDMA (Simultaneous Transmit with Co-located DSSS WLAN Card and Bluetooth Transmitter)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 36.87 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBi	H/V	dBm	dBm	
3817.50	-75.60	-42.71	6.6	H	-36.11	-38.25	62.13
5726.25	-75.33	-37.53	7.8	H	-29.73	-31.87	55.75
7635.00	-72.53	-35.95	7.8	H	-28.15	-30.29	54.17
9543.75	-73.89	-35.87	7.6	H	-28.27	-30.41	54.29
11452.50	-72.98	-36.62	8.5	H	-28.12	-30.26	54.14
13361.25	-69.18	-31.30	8.8	H	-22.50	-24.64	48.52
15270.00	-70.33	-32.45	9.6	H	-22.85	-24.99	48.87
17178.75	-70.64	-32.81	9.0	H	-23.81	-25.95	49.83
19087.50	-71.16	-34.95	9.3	H	-25.65	-27.79	51.67

Operating Frequency (MHz): 824.70  
Channel: 1013 (Low)  
EUT Conducted Pwr. (dBm): 23.0  
Measured ERP (dBm): 21.56  
Mode: Cellular CDMA (Single Transmit)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 34.55 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBi	H/V	dBm	dBm	
1649.40	-70.45	-37.56	6.6	H	-30.96	-33.10	54.66
2474.10	-74.53	-36.73	7.8	H	-28.93	-31.07	52.63
3298.80	-76.05	-39.47	7.8	H	-31.67	-33.81	55.37
4123.50	-76.09	-38.07	7.6	H	-30.47	-32.61	54.17
4948.20	-76.24	-39.88	8.5	H	-31.38	-33.52	55.08
5772.90	-73.83	-35.95	8.8	H	-27.15	-29.29	50.85
6597.60	-75.73	-37.85	9.6	H	-28.25	-30.39	51.95
7422.30	-72.25	-34.42	9.0	H	-25.42	-27.56	49.12
8247.00	-73.60	-37.39	9.3	H	-28.09	-30.23	51.79

## FIELD STRENGTH OF SPURIOUS RADIATION - §2.1053 (Cont.)

Operating Frequency (MHz): 835.89  
Channel: 363 (Mid)  
EUT Conducted Pwr. (dBm): 23.0  
Measured ERP (dBm): 19.50  
Mode: Cellular CDMA (Single Transmit)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 32.50 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBi	H/V	dBm	dBm	
1671.78	-72.81	-39.92	6.6	H	-33.32	-35.46	54.96
2507.67	-74.46	-36.66	7.8	H	-28.86	-31.00	50.50
3343.56	-75.06	-38.48	7.8	H	-30.68	-32.82	52.32
4179.45	-76.42	-38.40	7.6	H	-30.80	-32.94	52.44
5015.34	-76.20	-39.84	8.5	H	-31.34	-33.48	52.98
5851.23	-76.10	-38.22	8.8	H	-29.42	-31.56	51.06
6687.12	-75.54	-37.66	9.6	H	-28.06	-30.20	49.70
7523.01	-73.02	-35.19	9.0	H	-26.19	-28.33	47.83
8358.90	-72.77	-36.56	9.3	H	-27.26	-29.40	48.90

Operating Frequency (MHz): 848.31  
Channel: 777 (High)  
EUT Conducted Pwr. (dBm): 23.0  
Measured ERP (dBm): 21.41  
Mode: Cellular CDMA (Single Transmit)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 34.40 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBi	H/V	dBm	dBm	
1696.62	-71.92	-39.03	6.6	H	-32.43	-34.57	55.98
2544.93	-74.69	-36.89	7.8	H	-29.09	-31.23	52.64
3393.24	-74.88	-38.30	7.8	H	-30.50	-32.64	54.05
4241.55	-76.20	-38.18	7.6	H	-30.58	-32.72	54.13
5089.86	-76.68	-40.32	8.5	H	-31.82	-33.96	55.37
5938.17	-76.68	-38.80	8.8	H	-30.00	-32.14	53.55
6786.48	-72.65	-34.77	9.6	H	-25.17	-27.31	48.72
7634.79	-72.34	-34.51	9.0	H	-25.51	-27.65	49.06
8483.10	-74.11	-37.90	9.3	H	-28.60	-30.74	52.15

## FIELD STRENGTH OF SPURIOUS RADIATION - §2.1053 (Cont.)

Operating Frequency (MHz): 824.70  
Channel: 1013 (Low)  
EUT Conducted Pwr. (dBm): 23.0  
Measured ERP (dBm): 21.56  
Mode: Cellular CDMA (Simultaneous Transmit with Co-located DSSS WLAN Card)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 34.55 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBi	H/V	dBm	dBm	
1649.40	-69.81	-36.92	6.6	H	-30.32	-32.46	54.02
2474.10	-73.90	-36.10	7.8	H	-28.30	-30.44	52.00
3298.80	-76.78	-40.20	7.8	H	-32.40	-34.54	56.10
4123.50	-75.88	-37.86	7.6	H	-30.26	-32.40	53.96
4948.20	-76.39	-40.03	8.5	H	-31.53	-33.67	55.23
5772.90	-75.16	-37.28	8.8	H	-28.48	-30.62	52.18
6597.60	-75.45	-37.57	9.6	H	-27.97	-30.11	51.67
7422.30	-73.14	-35.31	9.0	H	-26.31	-28.45	50.01
8247.00	-73.97	-37.76	9.3	H	-28.46	-30.60	52.16

Operating Frequency (MHz): 835.89  
Channel: 363 (Mid)  
EUT Conducted Pwr. (dBm): 23.0  
Measured ERP (dBm): 19.50  
Mode: Cellular CDMA (Simultaneous Transmit with Co-located DSSS WLAN Card)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 32.50 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBi	H/V	dBm	dBm	
1671.78	-74.14	-41.25	6.6	H	-34.65	-36.79	56.29
2507.67	-74.44	-36.64	7.8	H	-28.84	-30.98	50.48
3343.56	-74.60	-38.02	7.8	H	-30.22	-32.36	51.86
4179.45	-76.27	-38.25	7.6	H	-30.65	-32.79	52.29
5015.34	-76.20	-39.84	8.5	H	-31.34	-33.48	52.98
5851.23	-76.01	-38.13	8.8	H	-29.33	-31.47	50.97
6687.12	-75.82	-37.94	9.6	H	-28.34	-30.48	49.98
7523.01	-73.10	-35.27	9.0	H	-26.27	-28.41	47.91
8358.90	-73.31	-37.10	9.3	H	-27.80	-29.94	49.44



## FIELD STRENGTH OF SPURIOUS RADIATION - §2.1053 (Cont.)

Operating Frequency (MHz): 848.31  
Channel: 777 (High)  
EUT Conducted Pwr. (dBm): 23.0  
Measured ERP (dBm): 21.41  
Mode: Cellular CDMA (Simultaneous Transmit with Co-located DSSS WLAN Card)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 34.40 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBi	H/V	dBm	dBm	
1696.62	-71.48	-38.59	6.6	H	-31.99	-34.13	55.54
2544.93	-73.94	-36.14	7.8	H	-28.34	-30.48	51.89
3393.24	-75.40	-38.82	7.8	H	-31.02	-33.16	54.57
4241.55	-76.26	-38.24	7.6	H	-30.64	-32.78	54.19
5089.86	-76.35	-39.99	8.5	H	-31.49	-33.63	55.04
5938.17	-76.12	-38.24	8.8	H	-29.44	-31.58	52.99
6786.48	-72.62	-34.74	9.6	H	-25.14	-27.28	48.69
7634.79	-72.42	-34.59	9.0	H	-25.59	-27.73	49.14
8483.10	-73.15	-36.94	9.3	H	-27.64	-29.78	51.19

Operating Frequency (MHz): 824.70  
Channel: 1013 (Low)  
EUT Conducted Pwr. (dBm): 23.0  
Measured ERP (dBm): 21.56  
Mode: Cellular CDMA (Simultaneous Transmit w/ Co-located DSSS WLAN Card & Bluetooth Transmitter)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 34.55 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBi	H/V	dBm	dBm	
1649.40	-69.55	-36.66	6.6	H	-30.06	-32.20	53.76
2474.10	-74.59	-36.79	7.8	H	-28.99	-31.13	52.69
3298.80	-76.17	-39.59	7.8	H	-31.79	-33.93	55.49
4123.50	-77.38	-39.36	7.6	H	-31.76	-33.90	55.46
4948.20	-76.64	-40.28	8.5	H	-31.78	-33.92	55.48
5772.90	-76.18	-38.30	8.8	H	-29.50	-31.64	53.20
6597.60	-76.26	-38.38	9.6	H	-28.78	-30.92	52.48
7422.30	-73.39	-35.56	9.0	H	-26.56	-28.70	50.26
8247.00	-74.33	-38.12	9.3	H	-28.82	-30.96	52.52

## FIELD STRENGTH OF SPURIOUS RADIATION - §2.1053 (Cont.)

Operating Frequency (MHz): 835.89  
Channel: 363 (Mid)  
EUT Conducted Pwr. (dBm): 23.0  
Measured ERP (dBm): 19.50  
Mode: Cellular CDMA (Simultaneous Transmit w/ Co-located DSSS WLAN Card & Bluetooth Transmitter)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 32.50 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBi	H/V	dBm	dBm	
1671.78	-74.73	-41.84	6.6	H	-35.24	-37.38	56.88
2507.67	-74.67	-36.87	7.8	H	-29.07	-31.21	50.71
3343.56	-75.10	-38.52	7.8	H	-30.72	-32.86	52.36
4179.45	-77.04	-39.02	7.6	H	-31.42	-33.56	53.06
5015.34	-76.37	-40.01	8.5	H	-31.51	-33.65	53.15
5851.23	-76.57	-38.69	8.8	H	-29.89	-32.03	51.53
6687.12	-76.26	-38.38	9.6	H	-28.78	-30.92	50.42
7523.01	-73.67	-35.84	9.0	H	-26.84	-28.98	48.48
8358.90	-74.00	-37.79	9.3	H	-28.49	-30.63	50.13

Operating Frequency (MHz): 848.31  
Channel: 777 (High)  
EUT Conducted Pwr. (dBm): 23.0  
Measured ERP (dBm): 21.41  
Mode: Cellular CDMA (Simultaneous Transmit w/ Co-located DSSS WLAN Card & Bluetooth Transmitter)  
Distance: 3 Meters  
Limit:  $43 + 10 \log (W) = 34.40 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBi	H/V	dBm	dBm	
1696.62	-70.36	-37.47	6.6	H	-30.87	-33.01	54.42
2544.93	-74.71	-36.91	7.8	H	-29.11	-31.25	52.66
3393.24	-74.81	-38.23	7.8	H	-30.43	-32.57	53.98
4241.55	-76.07	-38.05	7.6	H	-30.45	-32.59	54.00
5089.86	-76.71	-40.35	8.5	H	-31.85	-33.99	55.40
5938.17	-76.17	-38.29	8.8	H	-29.49	-31.63	53.04
6786.48	-73.11	-35.23	9.6	H	-25.63	-27.77	49.18
7634.79	-72.71	-34.88	9.0	H	-25.88	-28.02	49.43
8483.10	-74.31	-38.10	9.3	H	-28.80	-30.94	52.35

### 3.5 FREQUENCY STABILITY - §24.235 (PCS CDMA)

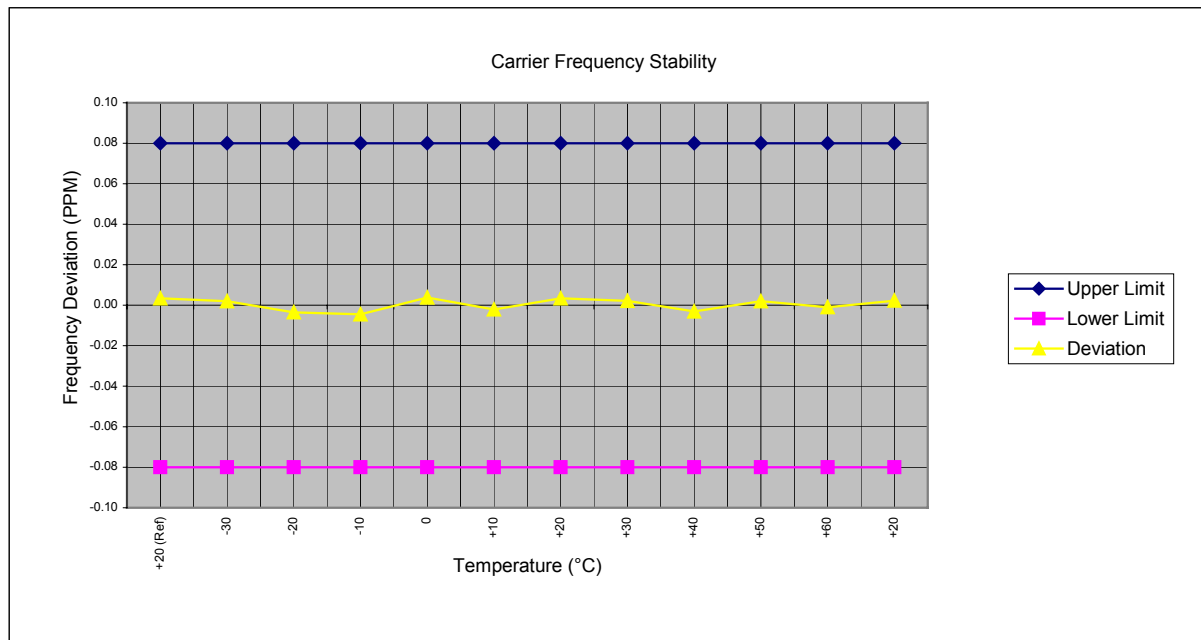
Carrier Frequency (GHz): 1.88

Channel: 600

Mode: PCS CDMA

Deviation Limit (PPM): 0.08

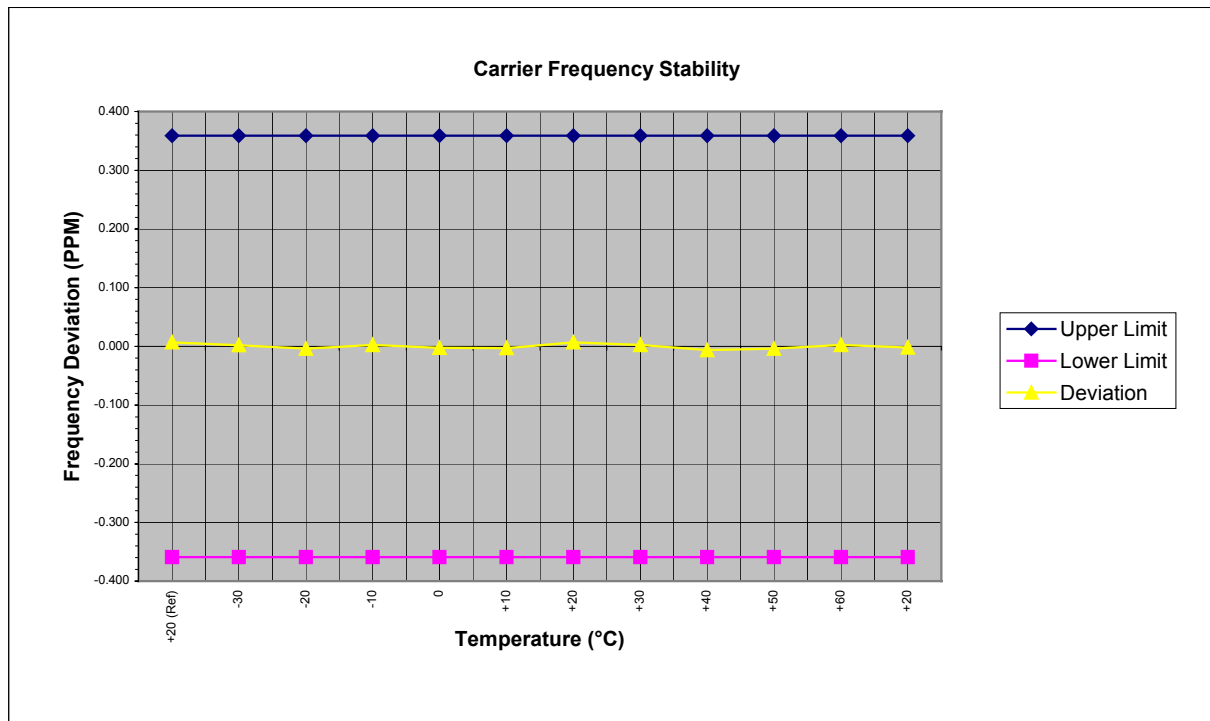
Temperature (°C)	Voltage (%)	Power (VDC)	Carrier Frequency Deviation		Specification	
			(Hz)	(PPM)	Lower Limit (PPM)	Upper Limit (PPM)
+20 (Ref)	100	6.0	6.47	0.003	0.08	-0.08
-30	100	6.0	3.58	0.002	0.08	-0.08
-20	100	6.0	-6.71	-0.004	0.08	-0.08
-10	100	6.0	-8.36	-0.004	0.08	-0.08
0	100	6.0	7.11	0.004	0.08	-0.08
+10	100	6.0	-3.85	-0.002	0.08	-0.08
+20	100	6.0	6.47	0.003	0.08	-0.08
+30	100	6.0	4.02	0.002	0.08	-0.08
+40	100	6.0	-5.90	-0.003	0.08	-0.08
+50	100	6.0	3.63	0.002	0.08	-0.08
+60	100	6.0	-1.78	-0.001	0.08	-0.08
+20	Battery Endpoint	4.0	4.21	0.002	0.08	-0.08



### 3.6 FREQUENCY STABILITY - §2.1055 (800MHz CDMA)

Carrier Frequency (MHz): 835.89  
Channel: 363  
Mode: Cellular CDMA  
Deviation Limit (PPM): 0.359

Temperature (°C)	Voltage (%)	Power (VDC)	Carrier Frequency Deviation		Specification	
			(Hz)	(PPM)	Lower Limit (PPM)	Upper Limit (PPM)
+20 (Ref)	100	6.0	5.64	0.007	0.359	-0.359
-30	100	6.0	1.44	0.002	0.359	-0.359
-20	100	6.0	-3.17	-0.004	0.359	-0.359
-10	100	6.0	2.02	0.002	0.359	-0.359
0	100	6.0	-1.95	-0.002	0.359	-0.359
+10	100	6.0	-2.32	-0.003	0.359	-0.359
+20	100	6.0	5.64	0.007	0.359	-0.359
+30	100	6.0	1.93	0.002	0.359	-0.359
+40	100	6.0	-5.41	-0.006	0.359	-0.359
+50	100	6.0	-3.37	-0.004	0.359	-0.359
+60	100	6.0	2.11	0.003	0.359	-0.359
+20	Battery Endpoint	4.0	-1.46	-0.002	0.359	-0.359



## 4.1 TEST EQUIPMENT LIST

TEST EQUIPMENT LIST			
Equipment Type	Model	Serial No.	Calibration Due Date
HP Signal Generator	8648D (9kHz-4.0GHz)	3847A00611	Feb 2004
Rohde & Schwarz Signal Generator	SMR40 (10MHz-40GHz)	835537/022	Nov 2003
Gigatronics Power Meter	8652A	1835272	Feb 2004
Gigatronics Power Sensor	80701A (0.05-18GHz)	1833535	Feb 2004
Gigatronics Power Sensor	80701A (0.05-18GHz)	1833542	Feb 2004
Amplifier Research Power Amp.	5S1G4 (5W, 800MHz-4.2GHz)	26235	N/A
Microwave System Amplifier	HP 83017A (0.5-26.5GHz)	3123A00587	N/A
Network Analyzer	HP 8753E (30kHz-3GHz)	US38433013	Feb 2004
Audio Analyzer	HP 8903B	3729A18691	Nov 2003
Modulation Analyzer	HP 8901A	3749A07154	July 2004
Frequency Counter	HP 53181A (3GHz)	3736A05175	May 2004
DC Power Supply	HP E3611A	KR83015294	N/A
Multi-Device Controller	EMCO 2090	9912-1484	N/A
Mini Mast	EMCO 2075	0001-2277	N/A
Turntable	EMCO 2080-1.2/1.5	0002-1002	N/A
Double Ridged Horn Antenna	ETS 3115 (1-18GHz)	6267	Oct. 2003
Double Ridged Horn Antenna	ETS 3115 (1-18GHz)	6276	Oct. 2003
Horn Antenna	Chase BBHA 9120-A (0.7-4.8GHz)	9120A-239	Sept 2003
Horn Antenna	Chase BBHA 9120-A (0.7-4.8GHz)	9120A-240	Sept 2003
Roberts Dipoles	Compliance Design (2 sets) 3121C		June 2004
Spectrum Analyzer	HP 8594E	3543A02721	Feb 2004
Spectrum Analyzer	HP E4408B	US39240170	Nov 2003
Shielded Screen Room	Lindgren R.F. 18W-2/2-0	16297	N/A
Environmental Chamber	ESPEC ECT-2 (Temperature/Humidity)	0510154-B	Feb 2004

## 5.1 CONCLUSION

The data in this measurement report demonstrates that the ITRONIX CORPORATION Model: IX260 FCC ID: KBCIX260MPIA555BT Rugged Laptop PC with Sierra Wireless AirCard 555/550 Dual-Band PCS/Cellular CDMA PCMCIA Modem Card co-located with Cisco MPI-350 Mini-PCI DSSS WLAN Card and Mitsumi WML-C11 Bluetooth Transmitter complies with the requirements of FCC Rule Parts §24(E), §22(H), and §2.

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## APPENDIX A - TEST PLOTS



## **EMC TEST PLOTS - PCS CDMA Mode**

- 1. Conducted Spurious Emissions**
- 2. Receiver Spurious Emissions**
- 3. Occupied Bandwidth**
- 4. Band Edge**



15:16:05 Nov 26, 2002

ITRONIX KBCIX260MPIA555BTCOND SPURS CH 25

Ref 23 dBm

Atten 5 dB

Mkr1 2.114 GHz

-26.24 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

M1 S2

S3 FC

AA

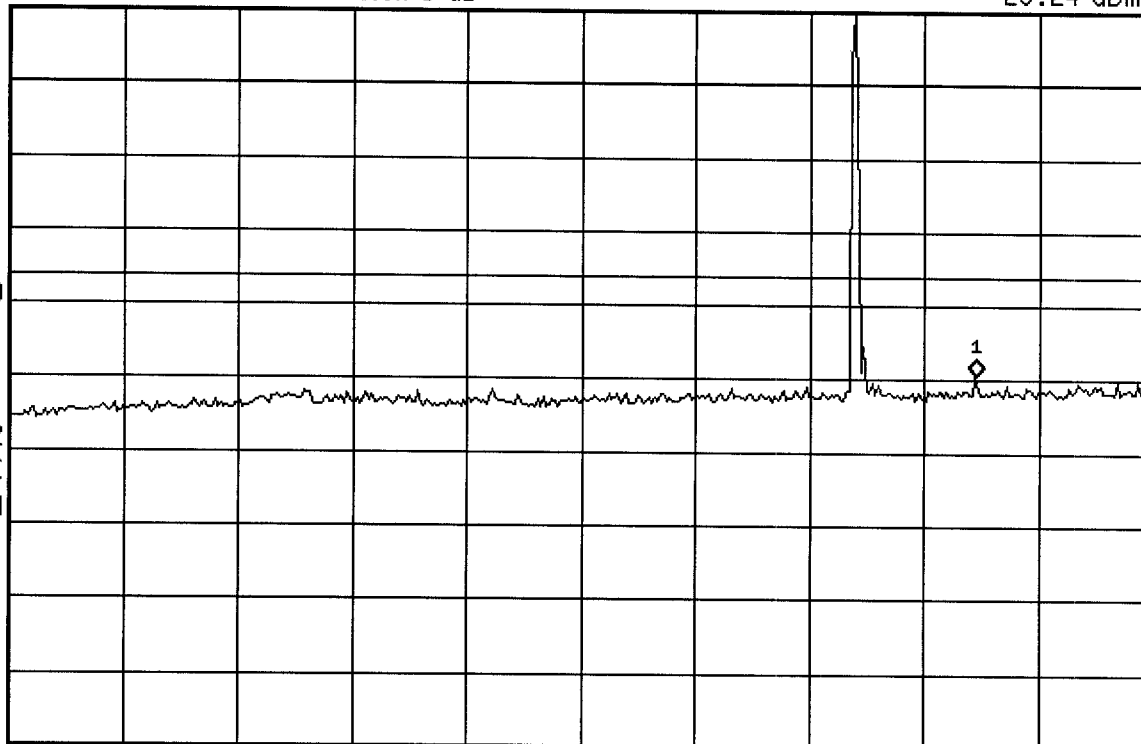
Start 10 MHz

\*Res BW 3 MHz

VBW 3 MHz

Stop 2.5 GHz

Sweep 5 ms





15:17:26 Nov 26, 2002

ITRONIX KBCIX260MPIA555BT COND SPURS CH 25

Mkr1 3.700 GHz

Ref 23 dBm

Atten 5 dB

-25.97 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

M1 S2

S3 FC

AA

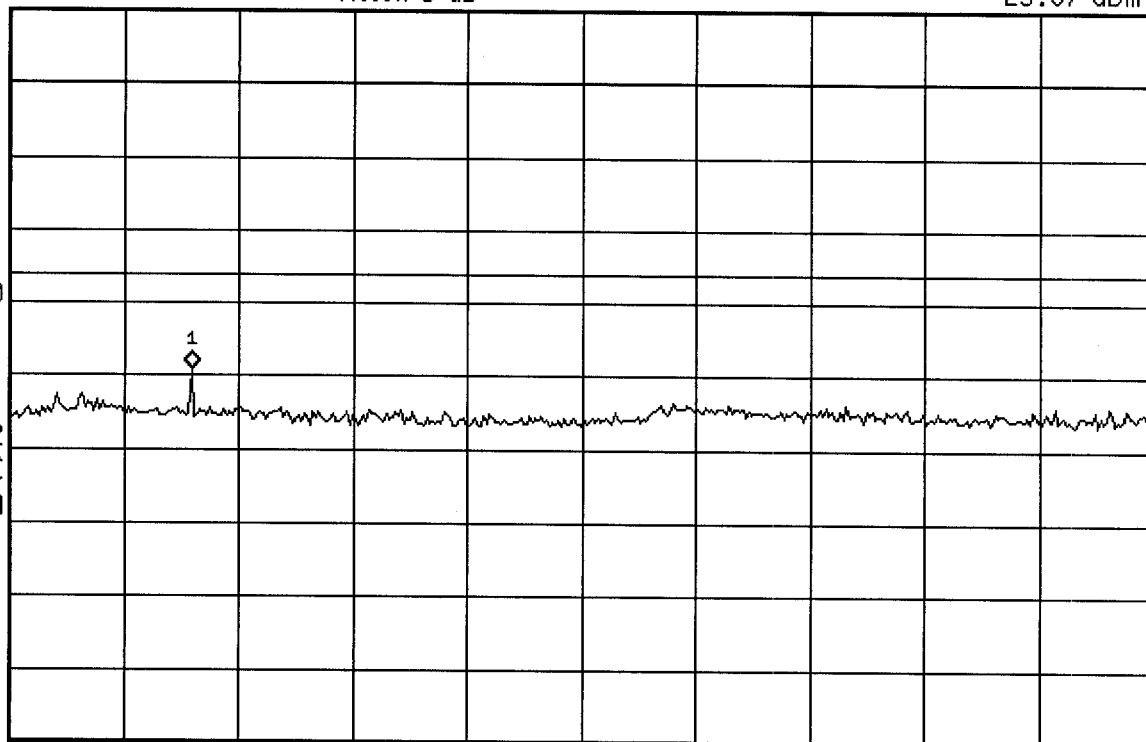
Start 2.5 GHz

\*Res BW 3 MHz

VBW 3 MHz

Stop 10 GHz

Sweep 18.75 ms





15:18:45 Nov 26, 2002

ITRONIX KBCIX260MPIA555BTCOND SPURS CH 25

Mkr1 13.90 GHz

Ref 23 dBm

Atten 5 dB

-28.92 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

M1 S2

S3 FC

AA

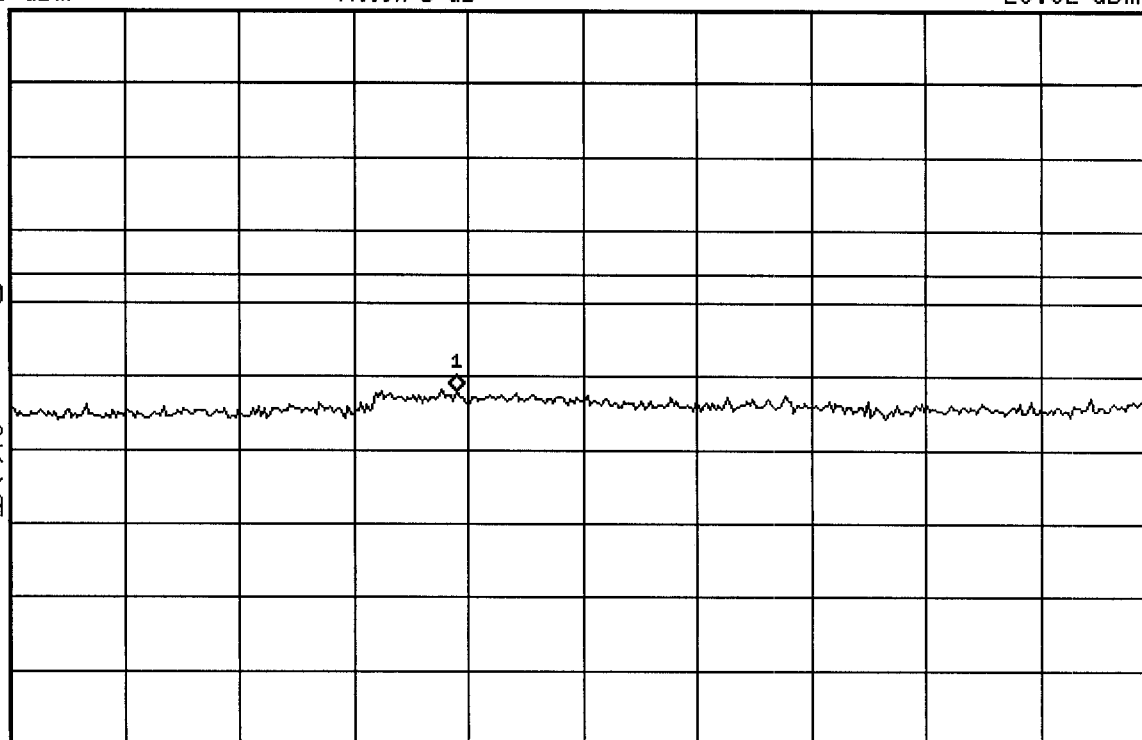
Start 10 GHz

\*Res BW 3 MHz

VBW 3 MHz

Stop 20 GHz

Sweep 100 ms





15:23:37 Nov 26, 2002

ITRONIX KBCIX260MPIA555BTCOND SPURS CH 600

Ref 23 dBm

Atten 5 dB

Mkr1 2.145 GHz

-26.87 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

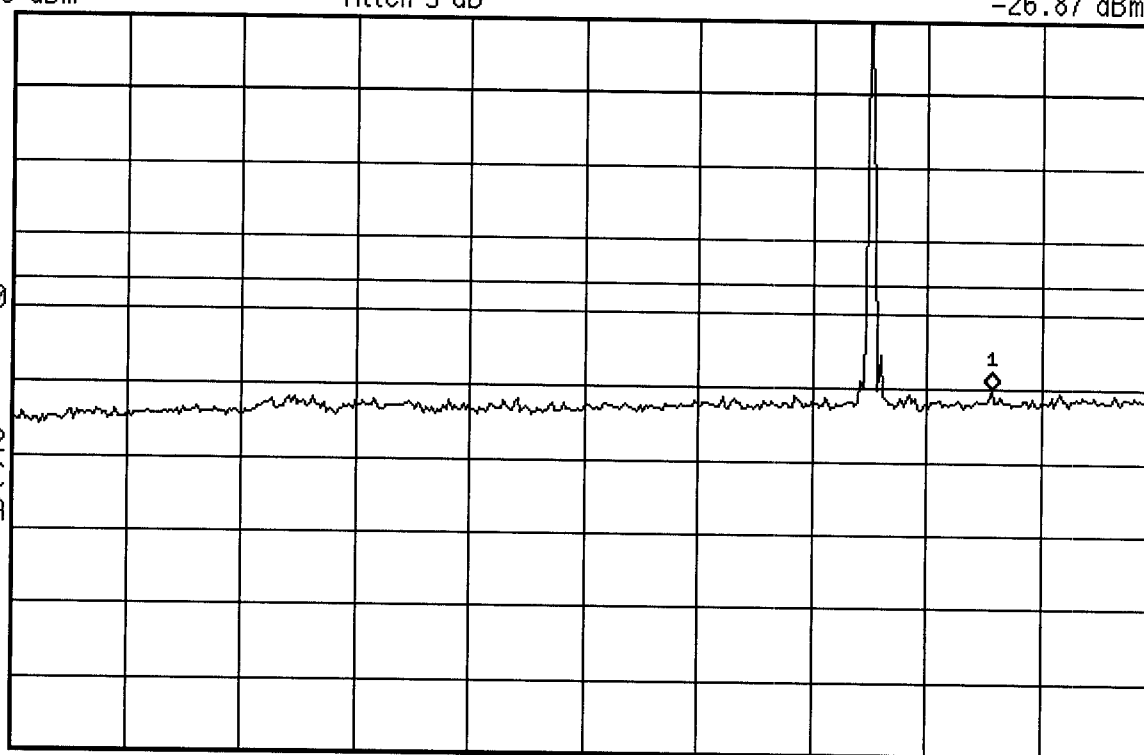
-13.0

dBm

M1 S2

S3 FC

AA



Start 10 MHz

\*Res BW 3 MHz

VBW 3 MHz

Stop 2.5 GHz

Sweep 5 ms



15:24:24 Nov 26, 2002

ITRONIX KBCIX260MPIA555BTCOND SPURS CH 600

Mkr1 3.756 GHz

Ref 23 dBm

Atten 5 dB

-21.5 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

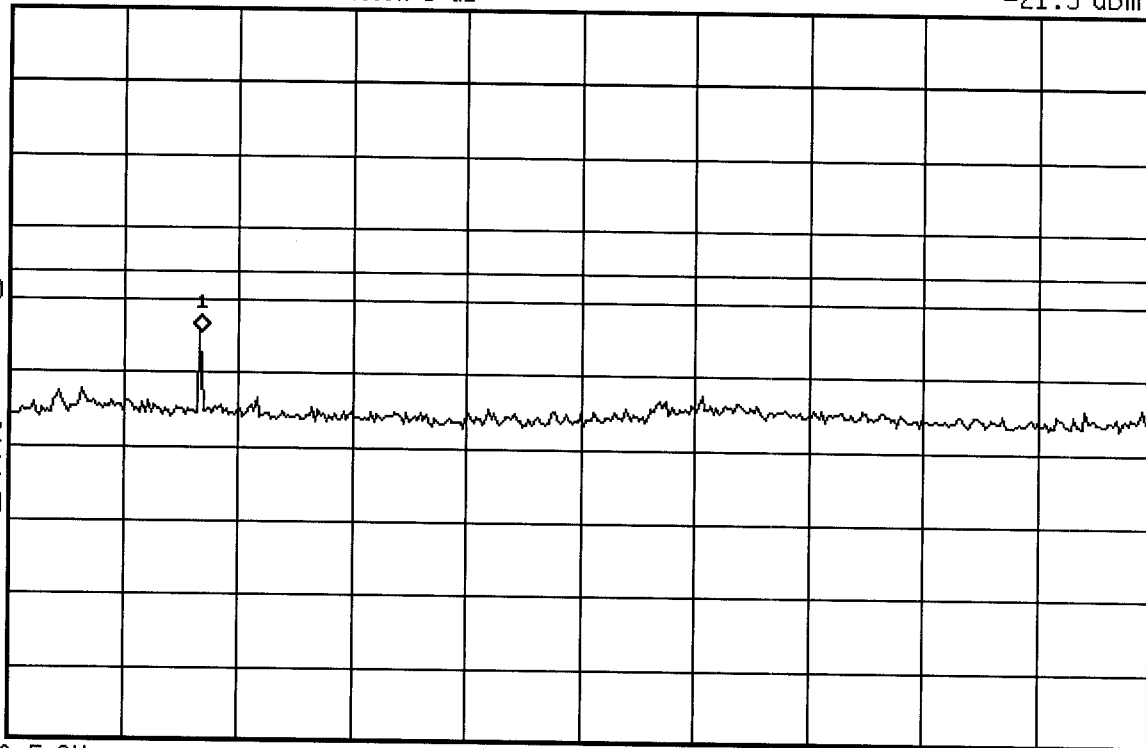
-13.0

dBm

M1 S2

S3 FC

AA



Start 2.5 GHz

\*Res BW 3 MHz

VBW 3 MHz

Stop 10 GHz

Sweep 18.75 ms



15:25:10 Nov 26, 2002

ITRONIX KBCIX260MPIA555BTCOND SPURS CH 600

Mkr1 14.53 GHz

Ref 23 dBm

Atten 5 dB

-28.39 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

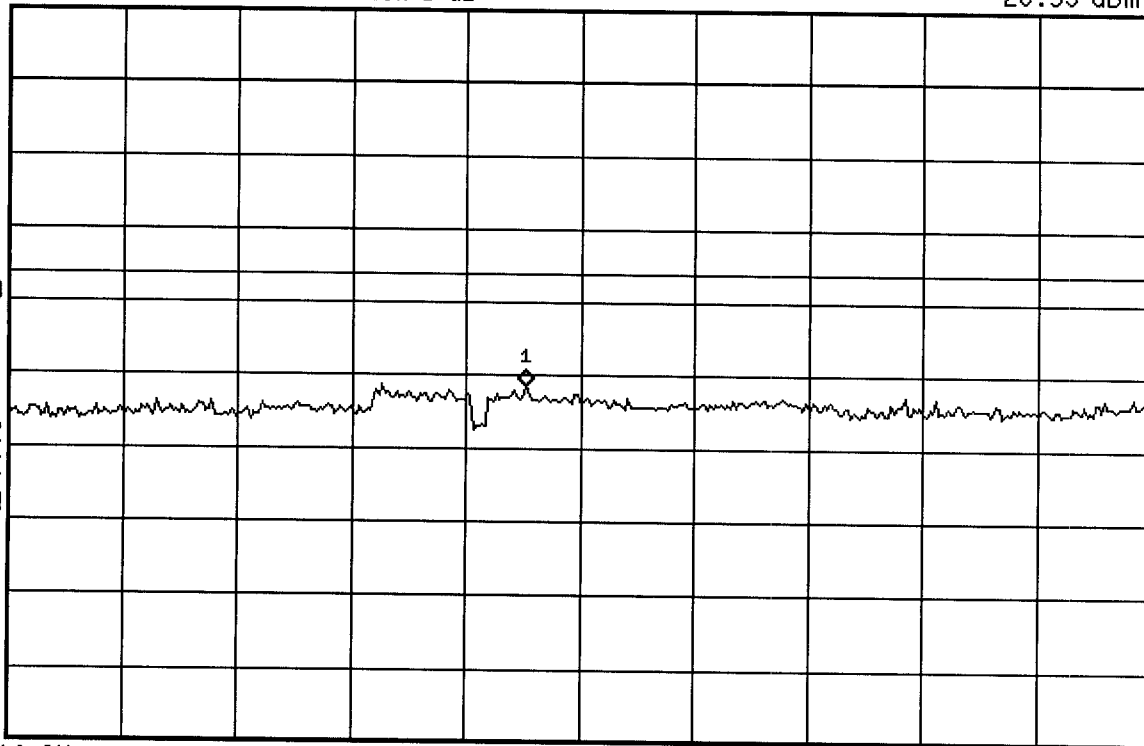
-13.0

dBm

M1 S2

S3 FC

AA



Start 10 GHz

\*Res BW 3 MHz

VBW 3 MHz

Stop 20 GHz

Sweep 100 ms





15:28:19 Nov 26, 2002

ITRONIX KBCIX260MPIA555BTCOND SPURS CH 1175

Mkr1 2.295 GHz

Ref 23 dBm

Atten 5 dB

-26.95 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

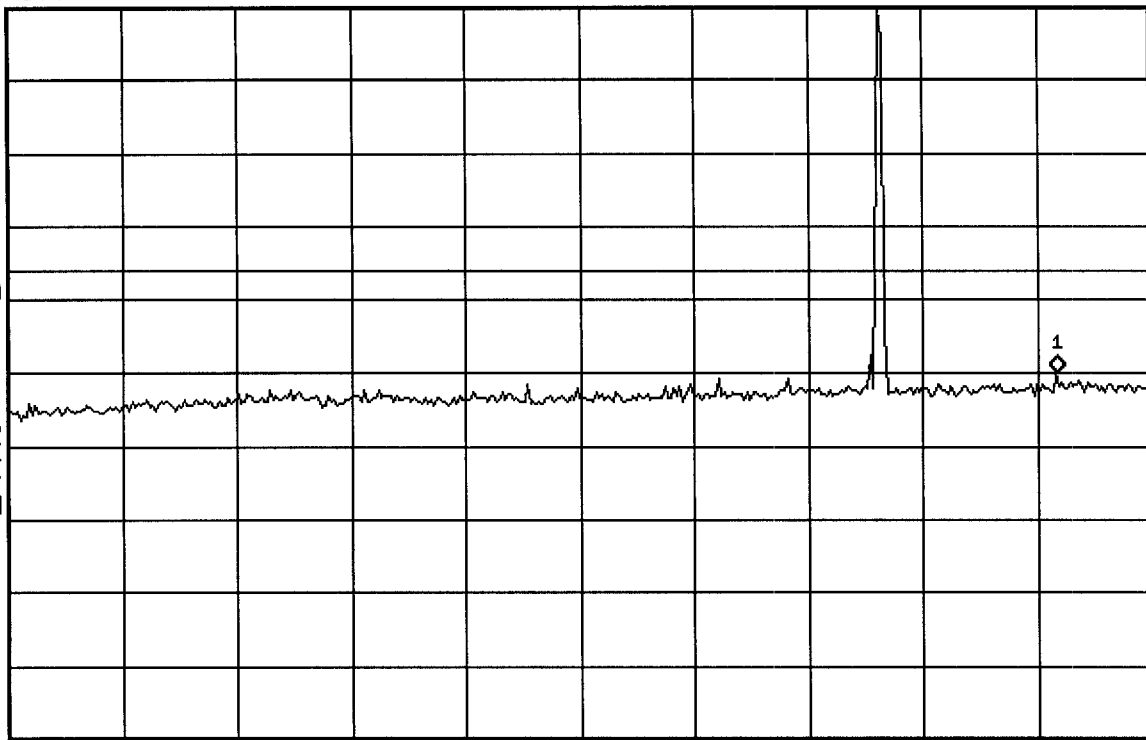
-13.0

dBm

M1 S2

S3 FC

AA



Start 10 MHz

#Res BW 3 MHz

VBW 3 MHz

Stop 2.5 GHz

Sweep 5 ms



15:29:18 Nov 26, 2002

ITRONIX KBCIX260MPIA555BTCOND SPURS CH 1175

Mkr1 3.813 GHz

Ref 23 dBm

Atten 5 dB

-24.45 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

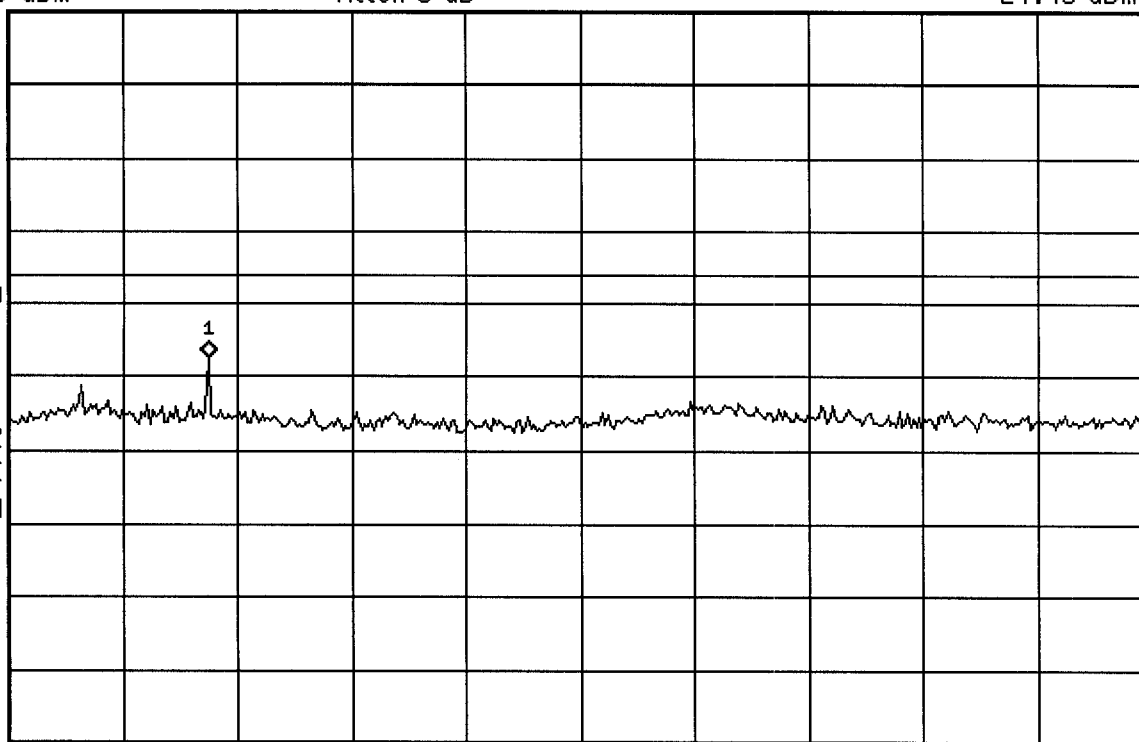
-13.0

dBm

M1 S2

S3 FC

AA



Start 2.5 GHz

#Res BW 3 MHz

VBW 3 MHz

Stop 10 GHz

Sweep 18.75 ms



15:30:21 Nov 26, 2002

ITRONIX KBCIX260MPIA555BTCOND SPURS CH 1175

Mkr1 13.60 GHz

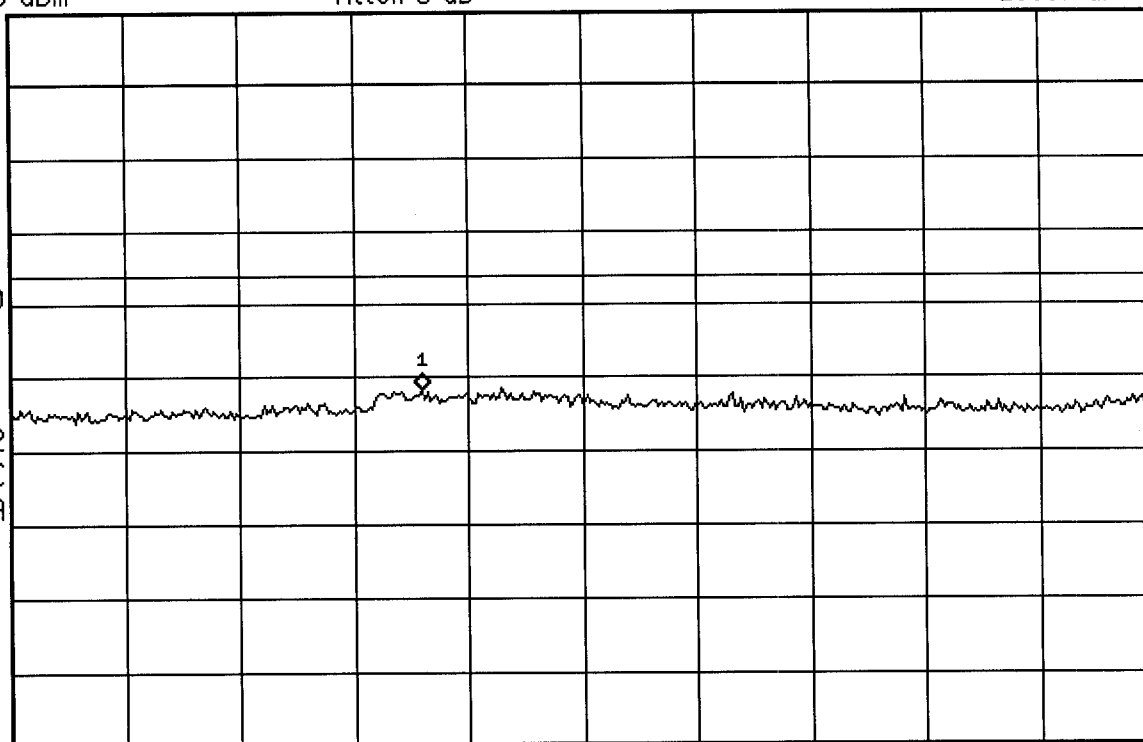
Ref 23 dBm

Atten 5 dB

-28.67 dBm

Peak  
Log  
10  
dB/  
Offst  
30  
dB  
DI  
-13.0  
dBm

M1 S2  
S3 FC  
AA



Start 10 GHz  
\*Res BW 3 MHz

VBW 3 MHz

Stop 20 GHz  
Sweep 100 ms



15:42:07 Nov 26, 2002

ITRONIX KBCIX260MPIA555BTRECEIVER SPURS

Mkr1 1.95928 GHz

Ref -51 dBm

Atten 5 dB

-60.69 dBm

Peak

Log

10

dB/

Offst

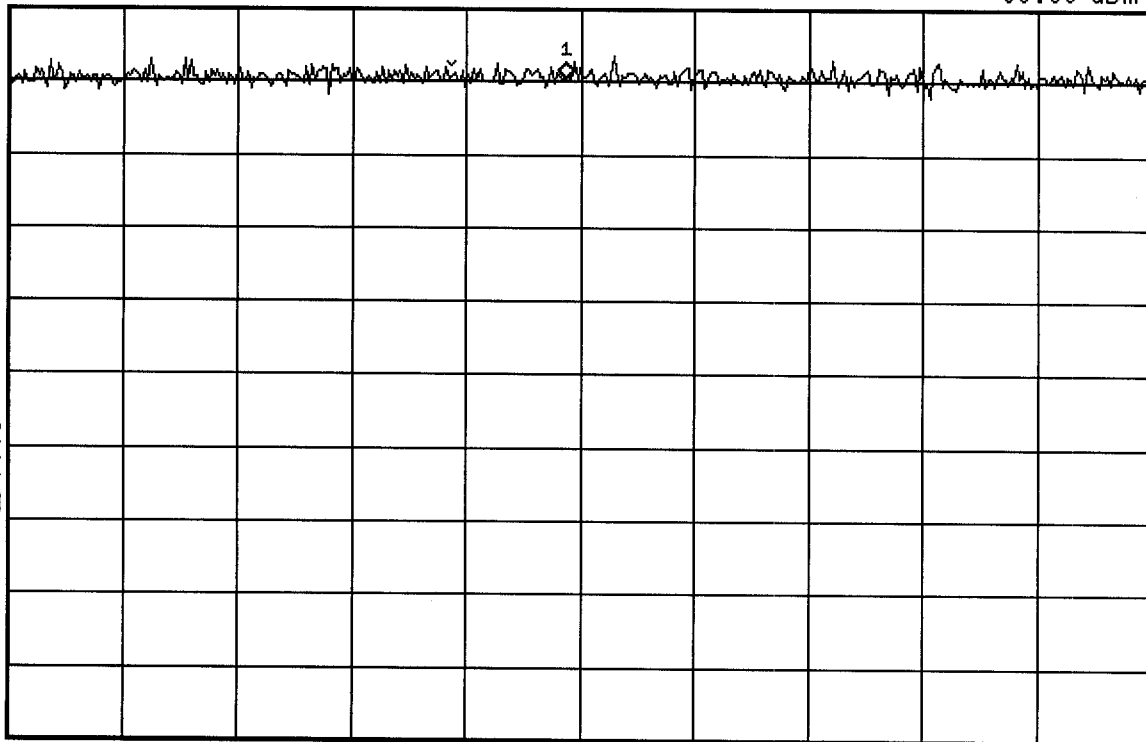
30

dB

W1 S2

S3 FC

AA



Start 1.931 GHz

\*Res BW 30 kHz

VBW 30 kHz

Stop 1.989 GHz

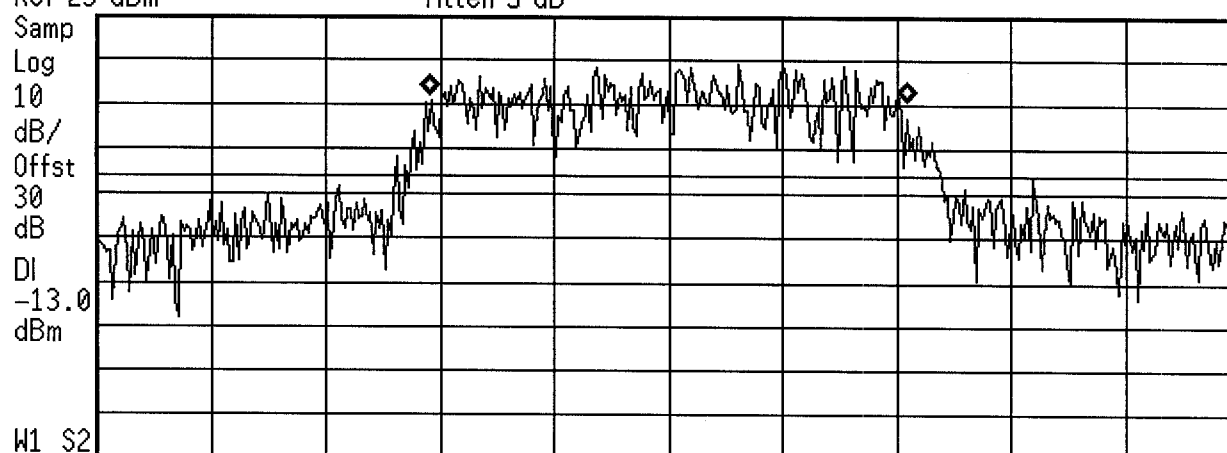
\*Sweep 2 s

**hp** 15:51:20 Nov 26, 2002

ITRONIX KBCIX260MPIA555BT OCCUPIED BANDWIDTH

Ref 23 dBm

Atten 5 dB



Center 1.88 GHz

Span 3 MHz

\*Res BW 30 kHz

\*VBW 30 kHz

Sweep 9.167 ms

Occupied Bandwidth Results (measuring...)

**Occupied Bandwidth**

**Occ BW % Pwr** 99.00 %

**1.261 MHz**

**Transmit Freq Error** 1.735 Hz



16:22:21 Nov 26, 2002

ITRONIX KBCIX260MPIA555BTPCS CDMA CH 25

Ref 23 dBm

Atten 5 dB

Peak

Log

10

dB/

Offset

30

dB

DI

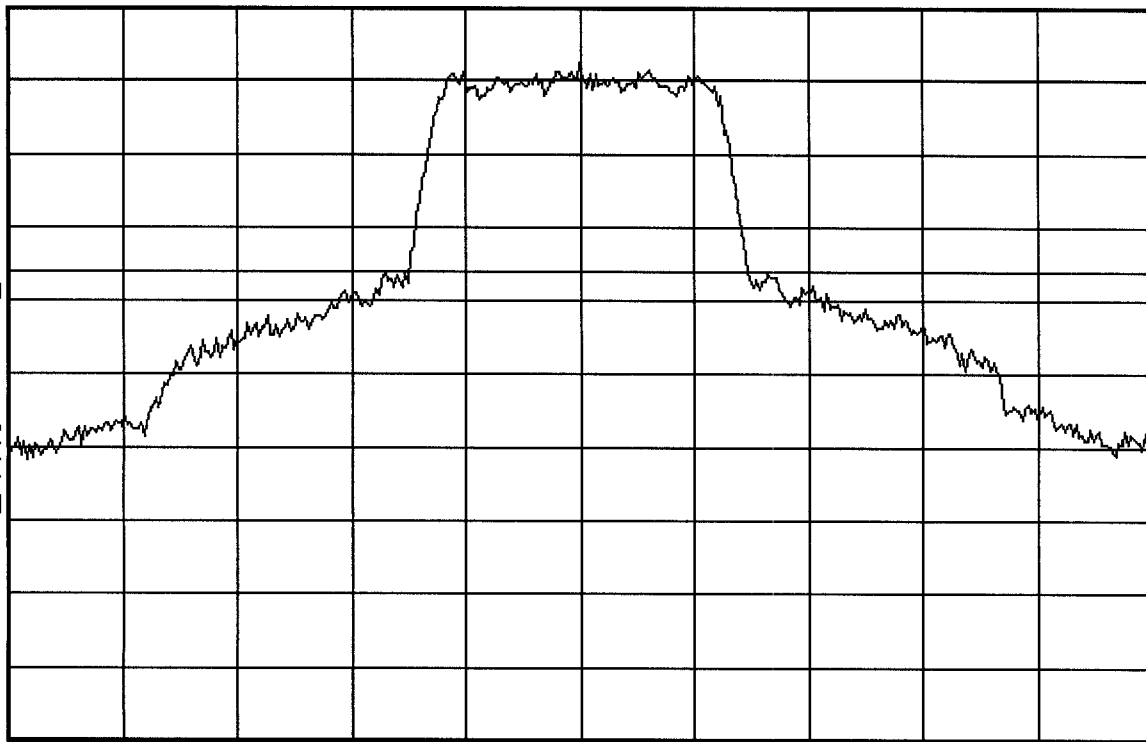
-13.0

dBm

W1 S2

S3 FC

AA



Center 1.851 GHz

\*Res BW 30 kHz

VBW 30 kHz

Span 5 MHz

\*Sweep 2 s





16:18:22 Nov 26, 2002

ITRONIX KBCIX260MPIA555BTPCS CDMA CH 1175

Ref 23 dBm

Atten 5 dB

Peak

Log

10

dB/

Offst

30

dB

DI

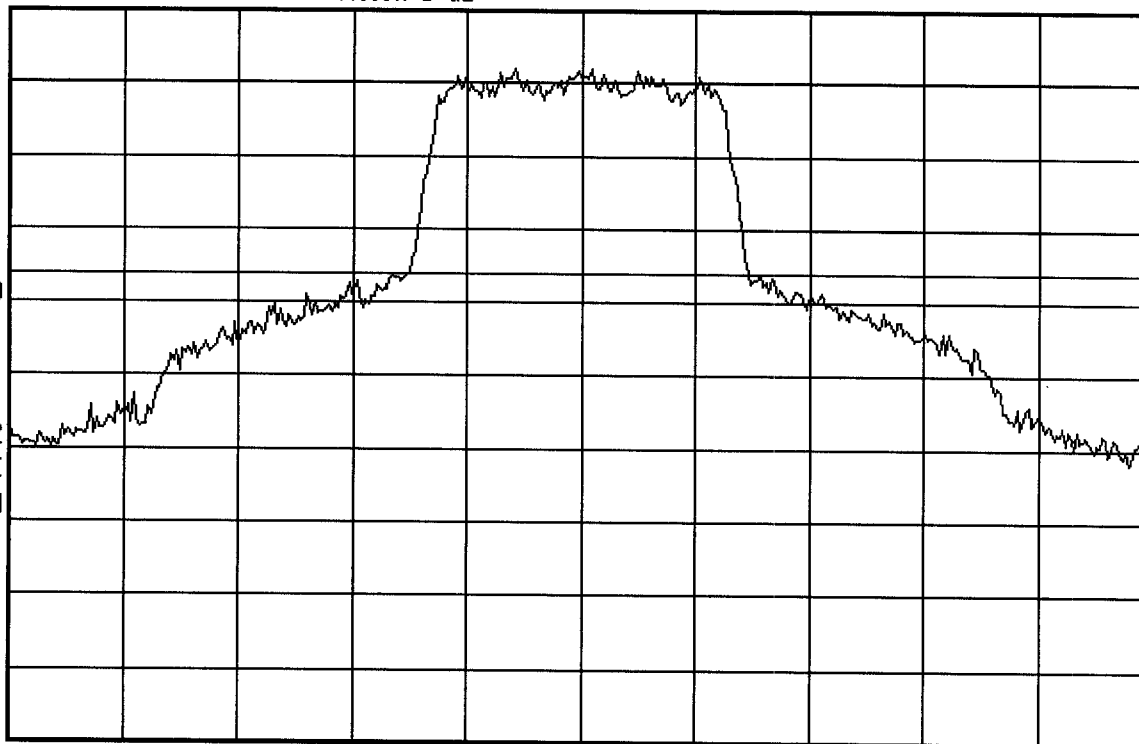
-13.0

dBm

W1 S2

S3 FC

AA



Center 1.909 GHz

\*Res BW 30 kHz

VBW 30 kHz

Span 5 MHz

#Sweep 2 s





11:15:27 Feb 19, 2003

ITRONIX BAND EDGE CDMA LOW CH FCC ID: KBCIX260MPIA555BT

Ref 23 dBm

Atten 5 dB

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

W1 S2

S3 FS

AA

Limit Line

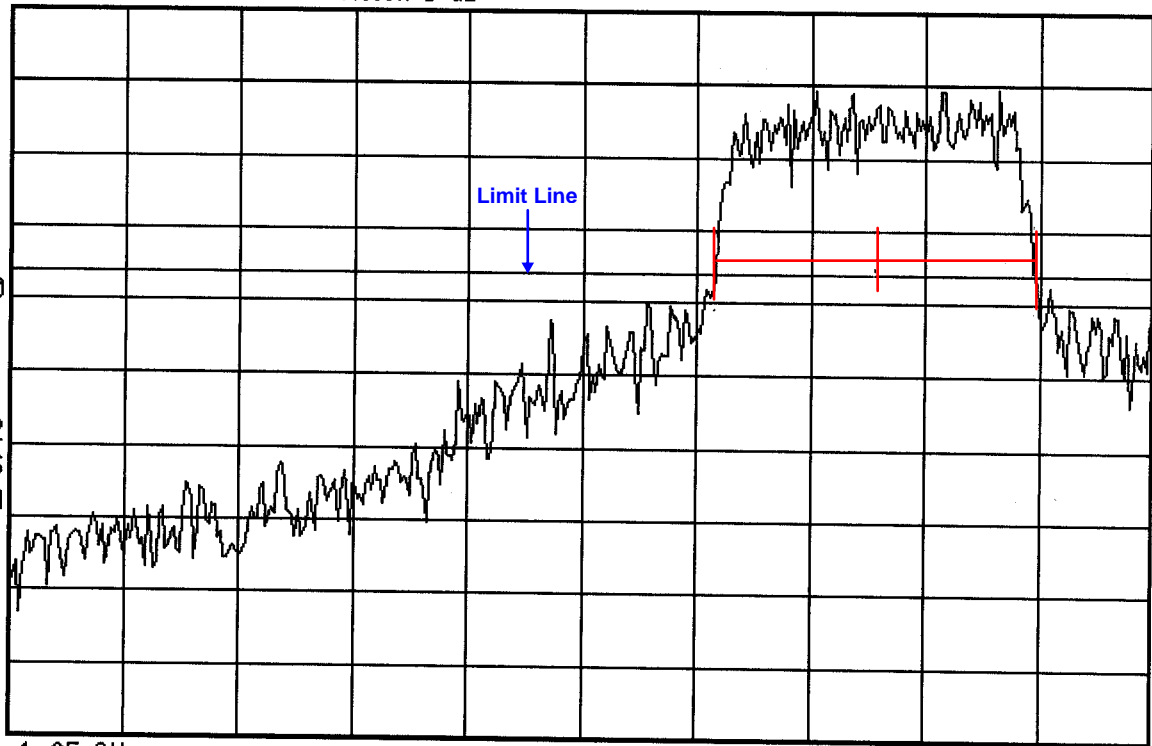
Center 1.85 GHz

Res BW 30 kHz

VBW 30 kHz

Span 5 MHz

Sweep 13.89 ms





10:52:38 Feb 19, 2003

ITRONIX BAND EDGE CDMA HIGH CH FCC ID: KBCIX260MPIA555BT

Ref 23 dBm

Atten 5 dB

Peak

Log

10

dB/

Offst

30

dB

DI

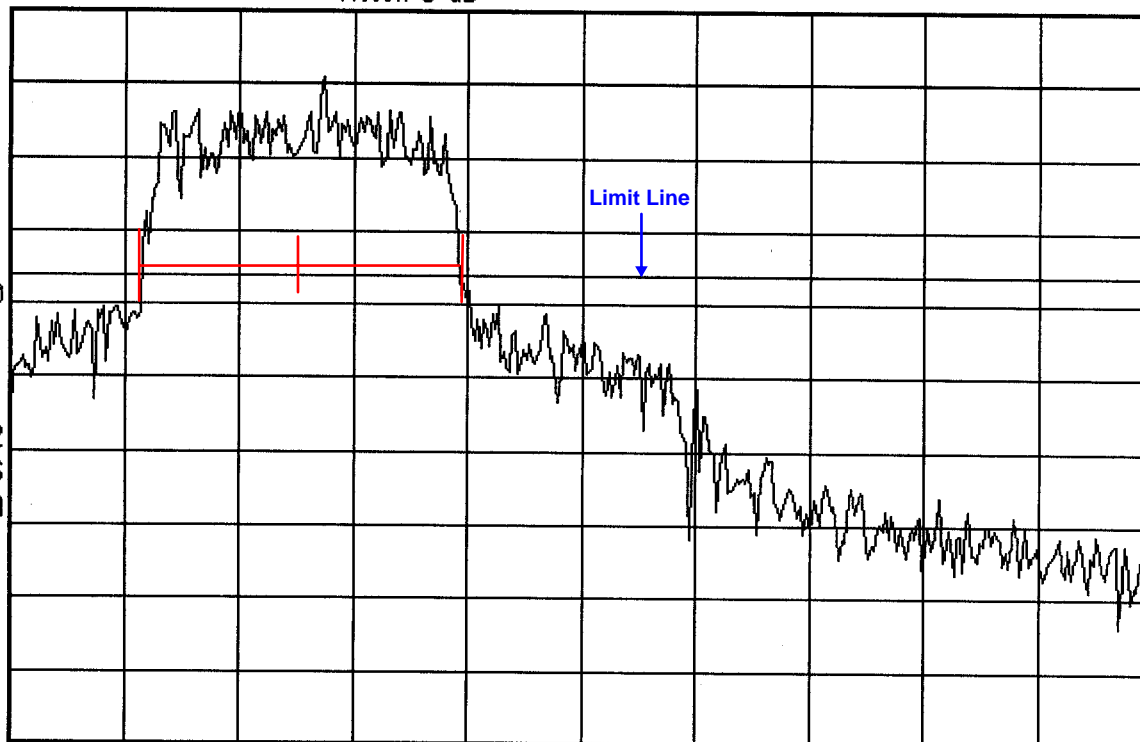
-13.0

dBm

W1 S2

S3 FS

AA



Center 1.91 GHz

Res BW 30 kHz

VBW 30 kHz

Span 5 MHz

Sweep 13.89 ms

## **EMC TEST PLOTS - Cellular CDMA Mode**

- 1. Conducted Spurious Emissions**
- 2. Receiver Spurious Emissions**
- 3. Occupied Bandwidth**
- 4. Band Edge**



11:36:04 Nov 27, 2002

ITRONIX KBCIX260MPIA555BTCOND SPURS CH 1013

Mkr1 2.475 GHz

Ref 23 dBm

Atten 5 dB

-25.36 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

M1 S2

S3 FC

AA

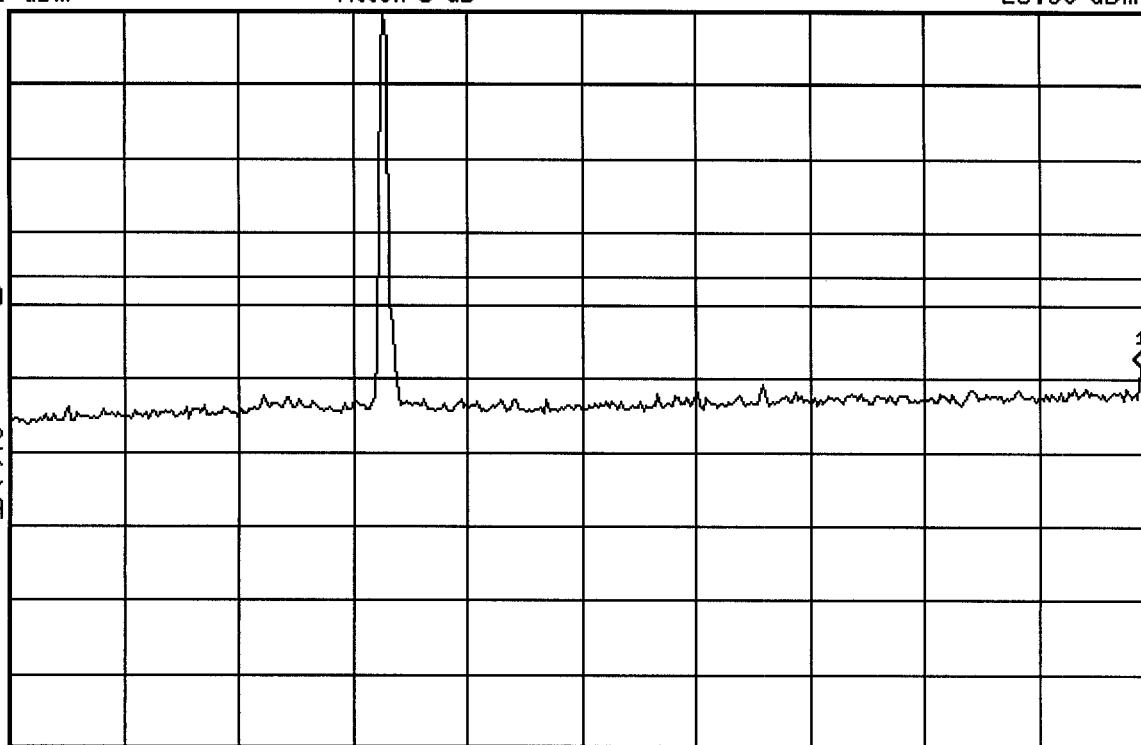
Start 10 MHz

Res BW 3 MHz

VBW 3 MHz

Stop 2.5 GHz

Sweep 5 ms





11:37:12 Nov 27, 2002

ITRONIX KBCIX260MPIA555BTCOND SPURS CH 1013

Mkr1 2.969 GHz

Ref 23 dBm

Atten 5 dB

-29.47 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

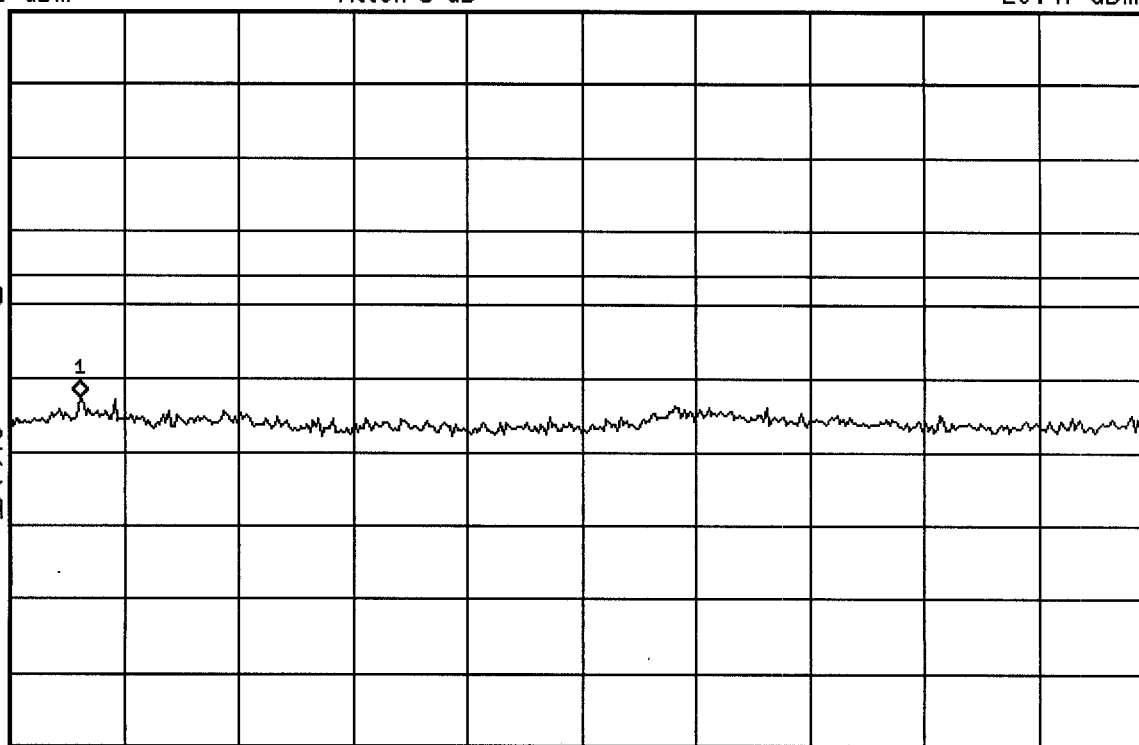
-13.0

dBm

M1 S2

S3 FC

AA



Start 2.5 GHz

Res BW 3 MHz

VBW 3 MHz

Stop 10 GHz

Sweep 18.75 ms



11:37:49 Nov 27, 2002

ITRONIX KBCIX260MPIA555BTCOND SPURS CH 1013

Ref 23 dBm

Atten 5 dB

Mkr1 14.50 GHz

-28.54 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

M1 S2

S3 FC

AA

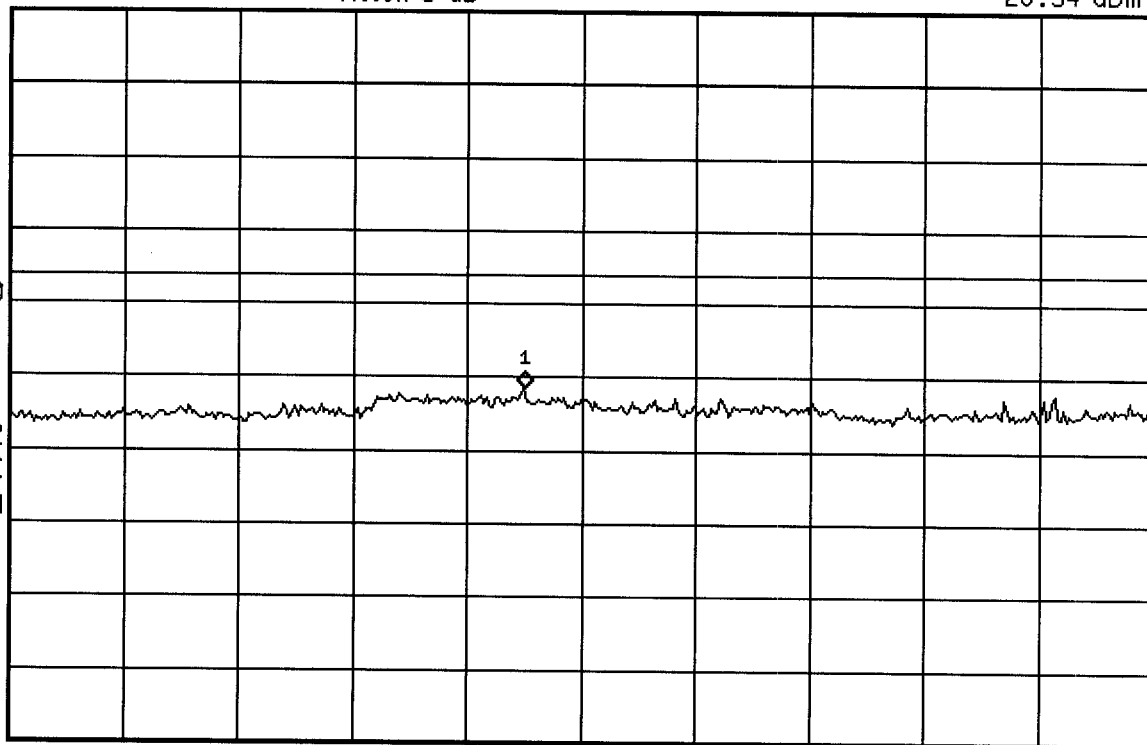
Start 10 GHz

Res BW 3 MHz

VBW 3 MHz

Stop 20 GHz

Sweep 100 ms





11:41:13 Nov 27, 2002

ITRONIX KBCIX260MPIA555BTCOND SPURS CH 363

Ref 23 dBm

Atten 5 dB

Mkr1 1.672 GHz

-26.28 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

M1 S2

S3 FC

AA

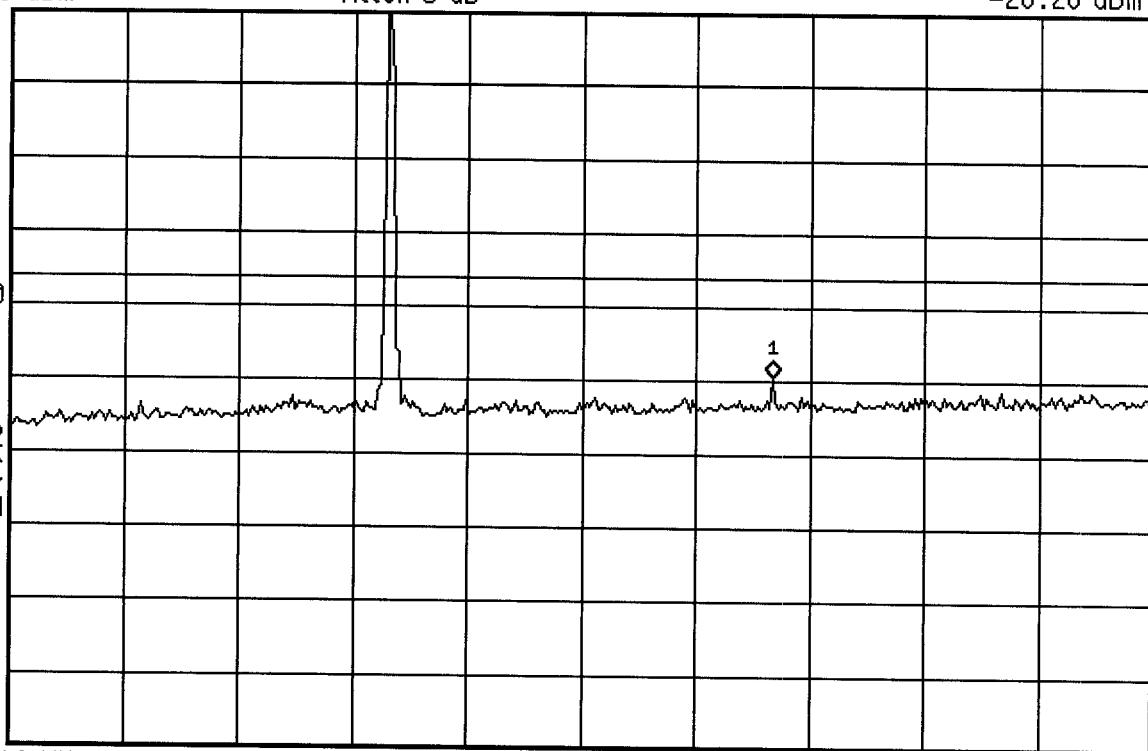
Start 10 MHz

Res BW 3 MHz

VBW 3 MHz

Stop 2.5 GHz

Sweep 5 ms





11:42:25 Nov 27, 2002

ITRONIX KBCIX260MPIA555BTCOND SPURS CH 363

Mkr1 2.988 GHz

Ref 23 dBm

Atten 5 dB

-29.6 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

M1 S2

S3 FC

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

AA

Start 2.5 GHz

Res BW 3 MHz

VBW 3 MHz

Stop 10 GHz

Sweep 18.75 ms





11:42:57 Nov 27, 2002

ITRONIX KBCIX260MPIA555BTCOND SPURS CH 363

Mkr1 13.33 GHz

Ref 23 dBm

Atten 5 dB

-28.81 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

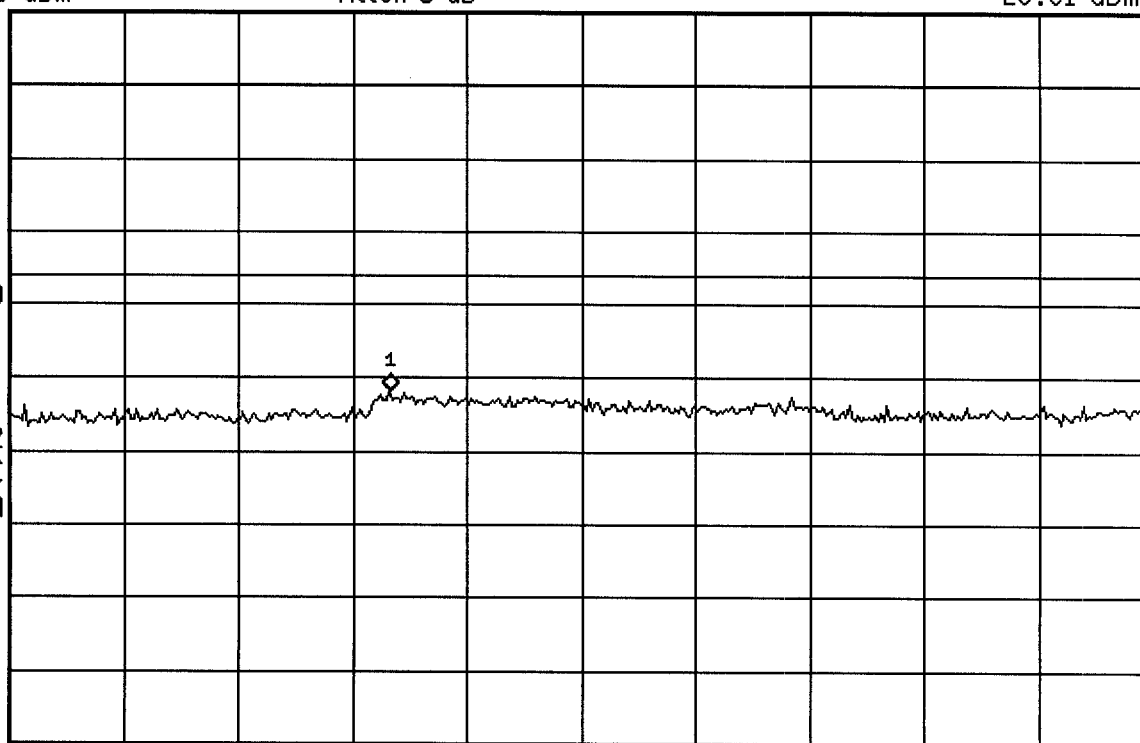
-13.0

dBm

M1 S2

S3 FC

AA



Start 10 GHz

Res BW 3 MHz

VBW 3 MHz

Stop 20 GHz

Sweep 100 ms



11:45:43 Nov 27, 2002

ITRONIX KBCIX260MPIA555BTCOND SPURS CH 777

Mkr1 2.481 GHz

Ref 23 dBm

Atten 5 dB

-27.77 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

M1 S2

S3 FC

· AA



Start 10 MHz

Res BW 3 MHz

VBW 3 MHz

Stop 2.5 GHz

Sweep 5 ms



11:46:17 Nov 27, 2002

ITRONIX KBCIX260MPIA555BTCOND SPURS CH 777

Mkr1 2.988 GHz

Ref 23 dBm

Atten 5 dB

-29.49 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

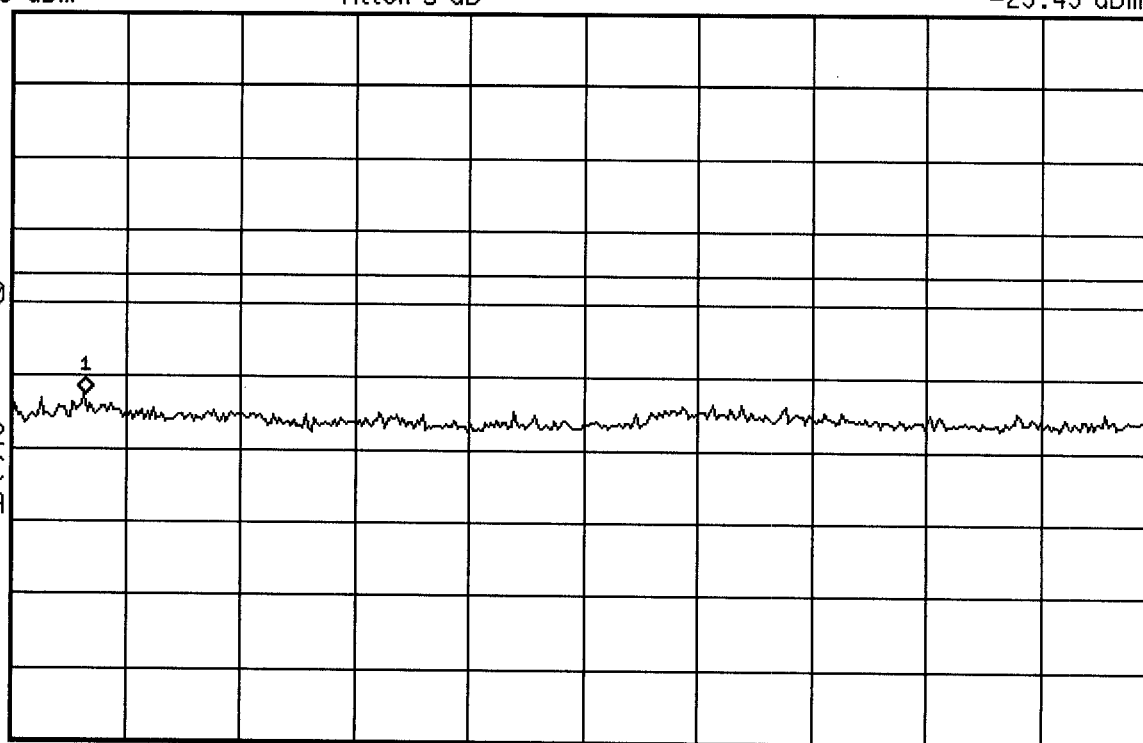
-13.0

dBm

M1 S2

S3 FC

AA



Start 2.5 GHz

Res BW 3 MHz

VBW 3 MHz

Stop 10 GHz

Sweep 18.75 ms



11:47:41 Nov 27, 2002

ITRONIX KBCIX260MPIA555BTCOND SPURS CH 777

Mkr1 13.38 GHz

Ref 23 dBm

Atten 5 dB

-29.3 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

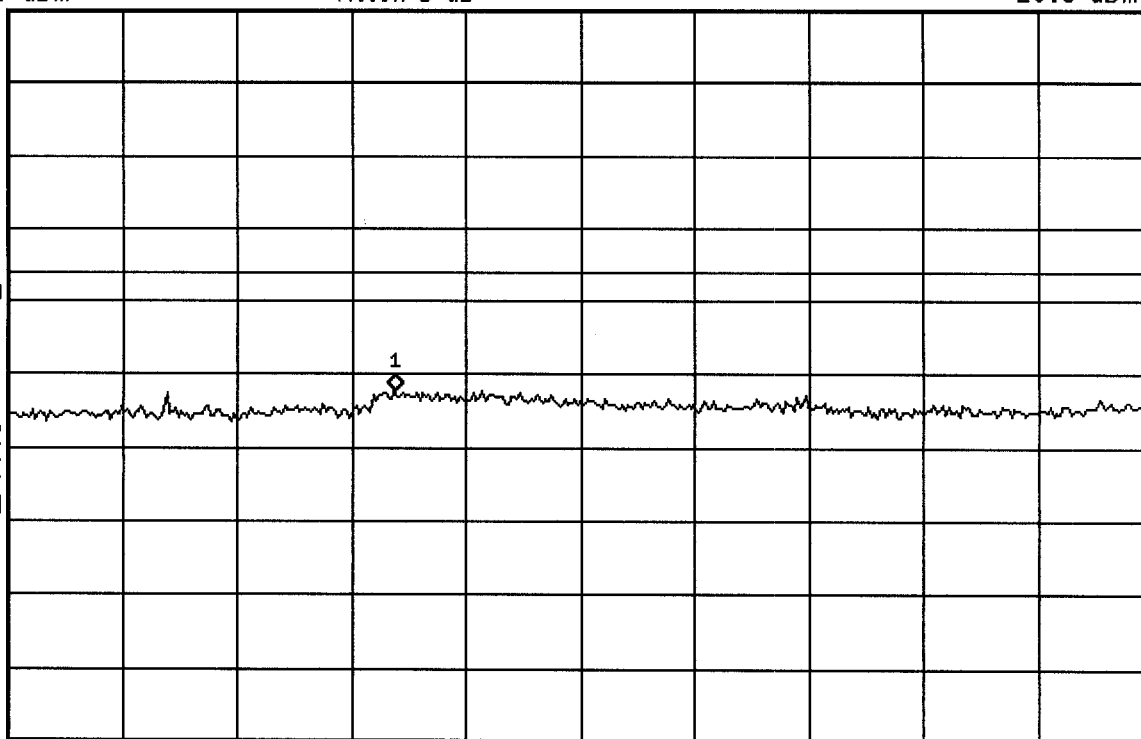
-13.0

dBm

M1 S2

S3 FC

AA



Start 10 GHz

Res BW 3 MHz

VBW 3 MHz

Stop 20 GHz

Sweep 100 ms



11:58:29 Nov 27, 2002

ITRONIX KBCIX260MPIA555BTRECEIVER SPURS

Mkr1 879.60 MHz

Ref -49 dBm

Atten 5 dB

-56.63 dBm

Peak

Log

10

dB/

Offst

30

dB

M1 S2

S3 FC

AA

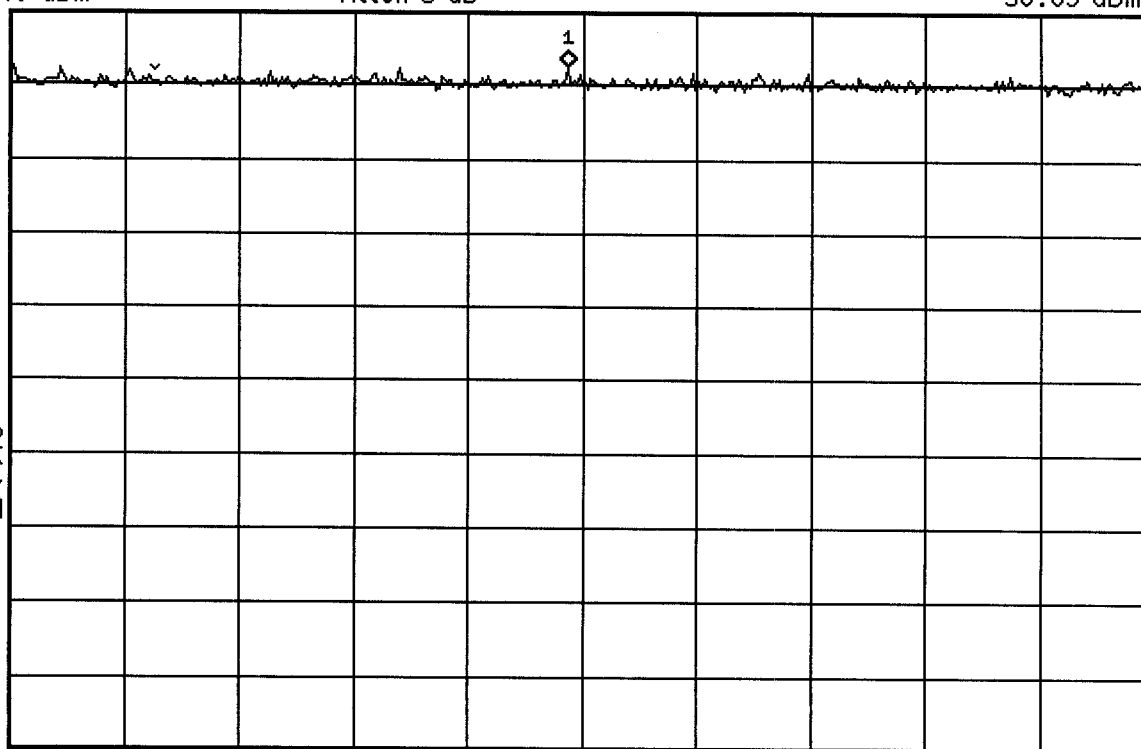
Start 864 MHz

\*Res BW 30 kHz

VBW 30 kHz

Stop 896 MHz

\*Sweep 2 s



13:01:37 Nov 27, 2002

ITRONIX KBCIX260MPIA555BT OCCUPIED BANDWIDTH

Ref 23 dBm

Atten 5 dB

Samp

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

W1 S2

Center 835.9 MHz

Span 3 MHz

\*Res BW 30 kHz

\*VBW 30 kHz

Sweep 9.167 ms

Occupied Bandwidth Results (measuring..)

Occupied Bandwidth

Occ BW % Pwr 99.00 %

1.261 MHz

Transmit Freq Error -280.8 Hz



11:27:39 Feb 19, 2003

ITRONIX KBCIX260MPIA555BTCELLULAR CDMA CH 1013

Mkr2 825.400 MHz

Ref 23 dBm

Atten 5 dB

-16.55 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

W1 S2

S3 FS

AA

Limit Line



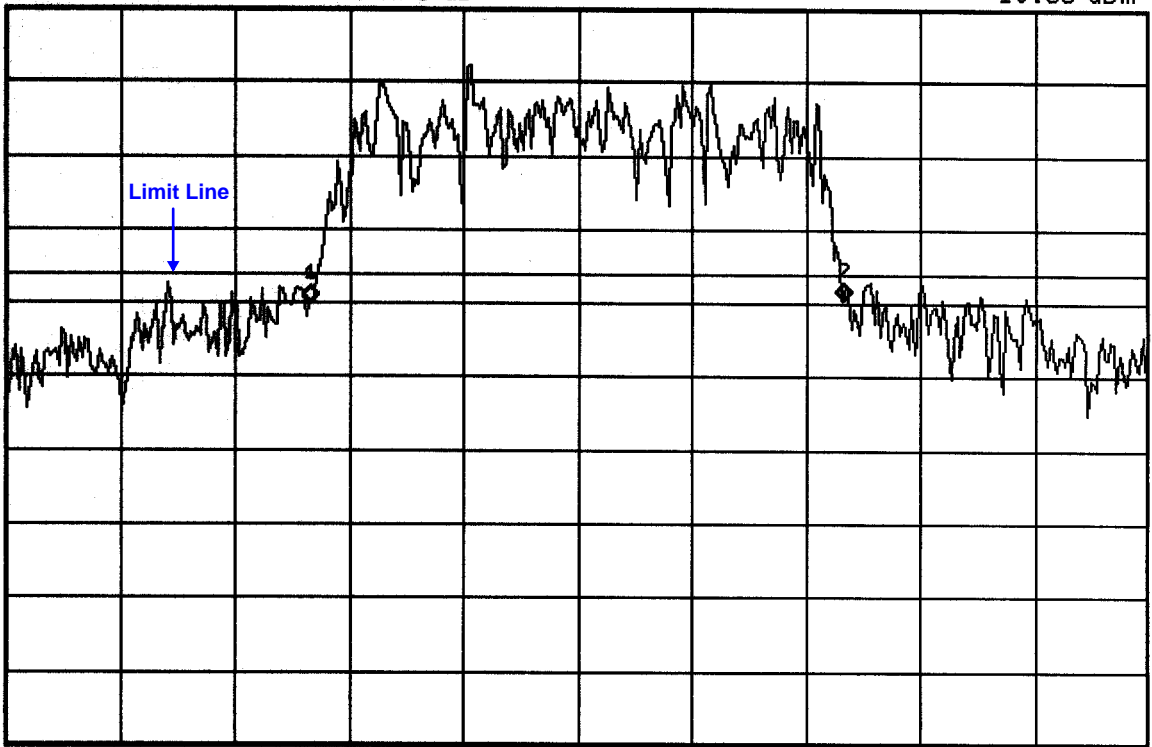
Center 824.7 MHz

Res BW 30 kHz

VBW 30 kHz

Span 3 MHz

Sweep 9.167 ms





10:45:39 Feb 19, 2003

ITRONIX KBCIX260MPIA555BTCELLULAR CDMA CH 363

Mkr2 836.590 MHz

Ref 23 dBm

Atten 5 dB

-17.54 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

W1 S2

S3 FS

AA

Limit Line



Center 835.9 MHz

Res BW 30 kHz

VBW 30 kHz

Span 3 MHz

Sweep 9.167 ms





11:04:31 Feb 19, 2003

ITRONIX KBCIX260MPIA555BTCELLULAR CDMA CH 777

Mkr2 849.010 MHz

Ref 23 dBm

Atten 5 dB

-19.25 dBm

Peak

Log

10

dB/

Offst

30

dB

DI

-13.0

dBm

W1 S2

S3 FS

- AA

Limit Line



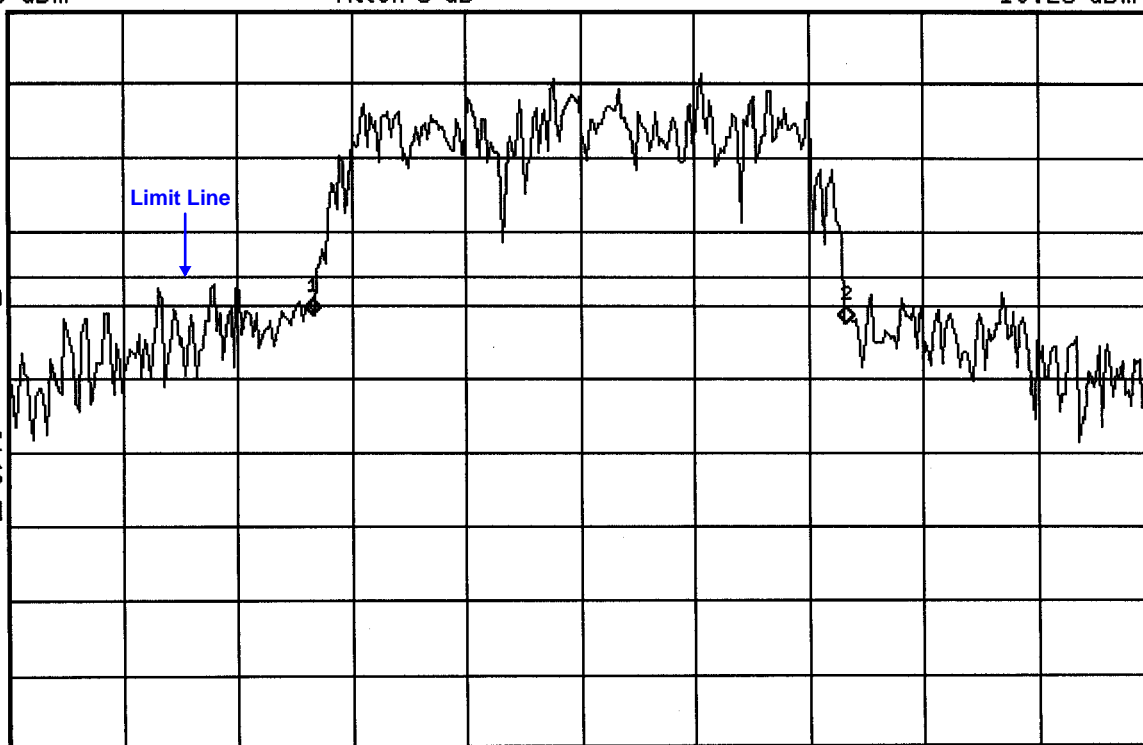
Center 848.3 MHz

Res BW 30 kHz

VBW 30 kHz

Span 3 MHz

Sweep 9.167 ms



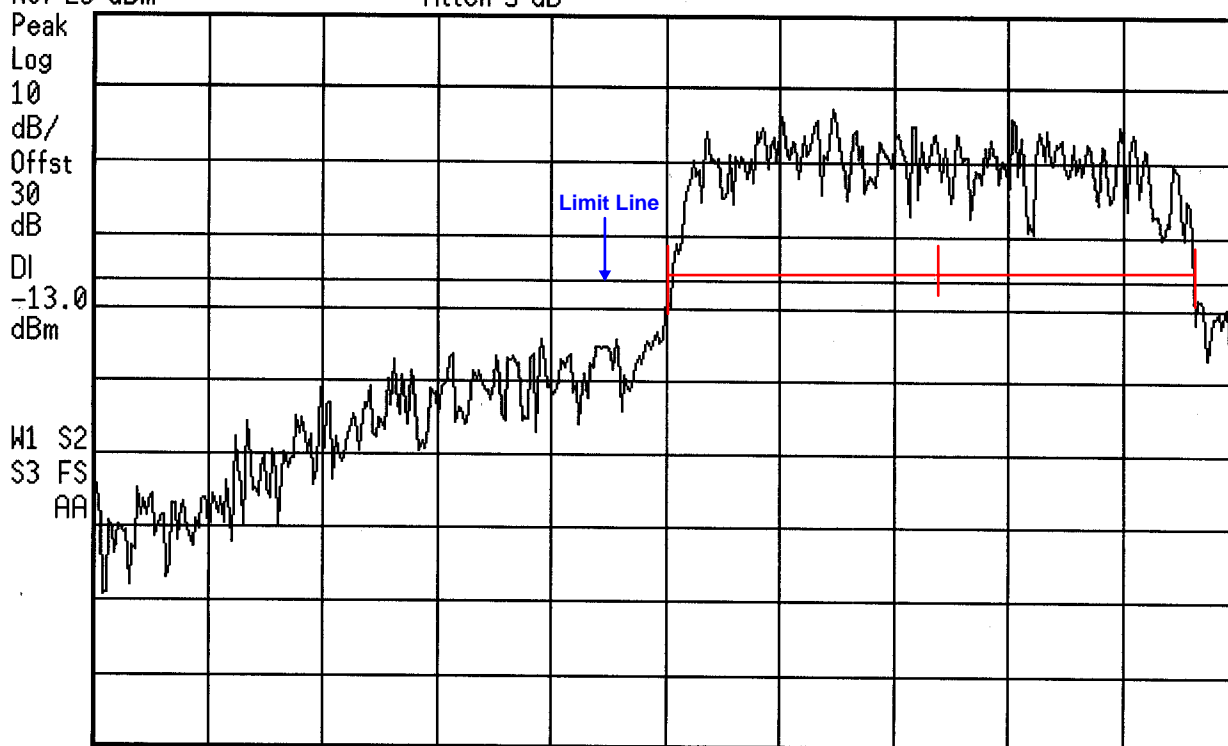


19:43:04 Feb 19, 2003

ITRONIX BAND EDGE CDMA LOW CH FCC ID: KBCIX260MPIA555BT

Ref 23 dBm

Atten 5 dB



Center 824 MHz

\*Res BW 30 kHz

\*VBW 30 kHz

Span 3 MHz

Sweep 9.167 ms



19:54:22 Feb 19, 2003

ITRONIX BAND EDGE CDMA HIGH CH FCC ID: KBCIX260MPIA555BT

Ref 23 dBm

Atten 5 dB

Peak

Log

10

dB/

Offst

30

dB

DI

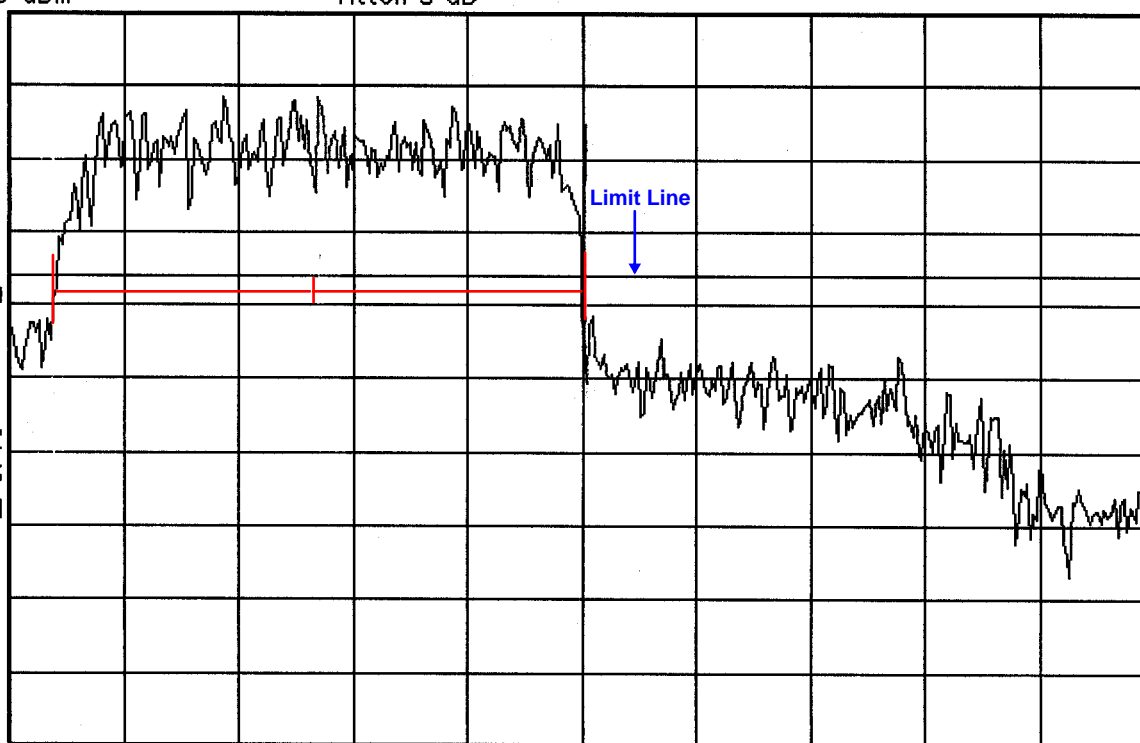
-13.0

dBm

W1 S2

S3 FS

AA



Center 849 MHz

\*Res BW 30 kHz

\*VBW 30 kHz

Span 3 MHz

Sweep 9.167 ms