

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

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Applicant Information

ITRONIX CORPORATION

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FCC Rule Part(s):	47 CFR §24(E), §22(H), §2
IC Rule Part(s):	RSS-133 Issue 2, RSS-132 Issue 1
Test Procedure(s):	FCC 47 CFR §24(E), §22(H), §2; ANSI TIA/EIA-603-A-2001 IC RSS-133 Issue 2, RSS-132 Issue 1
FCC Device Classification:	PCS Licensed Transmitter (PCB)
IC Device Classification:	2GHz Personal Communication Services (RSS-133 Issue 2) 800 MHz Cellular Telephones Employing New Technologies (RSS-132 Issue 1)
Device Type:	Rugged Handheld PC with Sierra Wireless AirCard 555/550 PCS/Cellular CDMA PCMCIA Modem Card co-located with USI WM-BB-AG-01 802.11b / Bluetooth
FCC IDENTIFIER:	KBCIX100XA555WLBT
Model(s):	IX100XA555WLBT
Tx Frequency Range(s):	1851.25 - 1908.75 MHz (PCS CDMA) 824.70 - 848.31 MHz (Cellular CDMA)
Max. RF Output Power(s):	0.313 Watts EIRP (PCS CDMA) 0.338 Watts ERP (Cellular CDMA)
Conducted Power Tested:	23.0 dBm (PCS CDMA) 23.0 dBm (Cellular CDMA)
Emission Designator(s):	1M25F9W
Frequency Tolerance(s):	150 Hz (PCS CDMA) 300 Hz (Cellular CDMA)
Antenna Type(s):	External - ¼ Wave Helix (Dual-Band CDMA) Internal - Front Center above LCD Display (802.11b) Internal - Front Right Side (Bluetooth)
Battery Type(s):	Lithium-ion 7.4 V, 3.0 Ah (P/N: 46-0136-001)

This wireless portable 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-132 Issue 1, 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

<u>APPLICANT</u> ITRONIX CORPORATION 801 South Stevens Street Spokane, WA 99204 USA				
FCC ID		KBCIX100XA555WLBT		
Model(s)		IX100XA555WLBT		
Serial No.		510495001-U5103-0025	Identical Prototype	
Device Type		Rugged Handheld PC with Sierra Wireless AirCard 555/550 Dual-Band PCS/Cellular CDMA PCMCIA Modem Card co-located with USI WM-BB-AG-01 802.11b / Bluetooth		
FCC	Rule Part(s)	§24(E)	§22(H)	§2
	Classification(s)	PCS Licensed Transmitter (PCB)		
IC	Rule Part(s)	RSS-133 Issue 2		RSS-132 Issue 1
	Classification(s)	2GHz Personal Communication Services		
		800MHz CDMA Cellular Transmitter		
Tx Frequency Range(s)		1851.25 - 1908.75 MHz		PCS CDMA
		824.70 - 848.31 MHz		Cellular CDMA
Max. RF Output Power(s)		0.313 Watts EIRP		PCS CDMA
		0.338 Watts ERP		Cellular CDMA
RF Conducted Output Power Level(s) Tested		23.0 dBm		PCS CDMA
		23.0 dBm		Cellular CDMA
Frequency Tolerance(s)		150 Hz		PCS CDMA
		300 Hz		Cellular CDMA
Emission Designator(s)		1M25F9W		
Battery Type(s)		Lithium-ion	7.4 V, 3.0 Ah	P/N: 46-0136-001
Antenna Type(s)		CDMA	External	¼ Wave Helix
		802.11b	Internal	Front Center above LCD Display
		Bluetooth	Internal	Front Right Side

2.1 MEASUREMENT PROCEDURES

2.2 RF OUTPUT POWER MEASUREMENT - §2.1046

The average conducted power levels were measured with a Gigatronics 8652A 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 DUT 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 DUT 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 DUT 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 DUT was connected to the input of a 50 Ω 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 DUT was placed into test mode via internal software in the “always up” power control mode. The DUT 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 DUT. 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 DUT. 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 co-located 802.11b transmitter, the 802.11b transmitter was set to the maximum peak conducted power level at the mid channel (14.0 dBm, 2437 MHz) in DSSS mode. For the simultaneous transmit tests with the co-located Bluetooth transmitter, the Bluetooth transmitter was set to the maximum peak conducted power level at the mid channel (3.5 dBm, 2441 MHz) in continuous transmit mode with a modulated signal and the frequency hopping disabled. The radiated spurious emissions test data is shown on pages 9-17.

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 DUT was placed in test mode via internal software in the “always up” power control mode. The DUT was connected to the input of a 50Ω spectrum analyzer through a matched 30 dB attenuator. For both PCS CDMA and cellular CDMA modes the resolution bandwidth was set to 30 kHz and the video bandwidth was set to 300 kHz. Spectrum analyzer plots for 99% occupied bandwidth and -26 dBc emission bandwidth are shown in Appendix A.

Frequency (MHz)	99% Occupied Bandwidth (MHz)	-26 dBc Emission Bandwidth (MHz)
1851.25	1.266	1.473
1880.00	1.269	1.483
1908.75	1.260	1.499
824.70	1.254	1.424
835.89	1.258	1.432
848.31	1.267	1.442

Specified Limits:

§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 DUT 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 DUT 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 DUT antenna polarizations. A standard gain horn antenna was substituted in place of the DUT. 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 DUT. 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. The EIRP measurement data is shown on page 8.

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 DUT 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 DUT 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 DUT antenna polarizations. A half-wave dipole antenna was substituted in place of the DUT. 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 DUT. 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. The ERP measurement data is shown on page 8.

2.9 RADIATED MEASUREMENT TEST SETUP

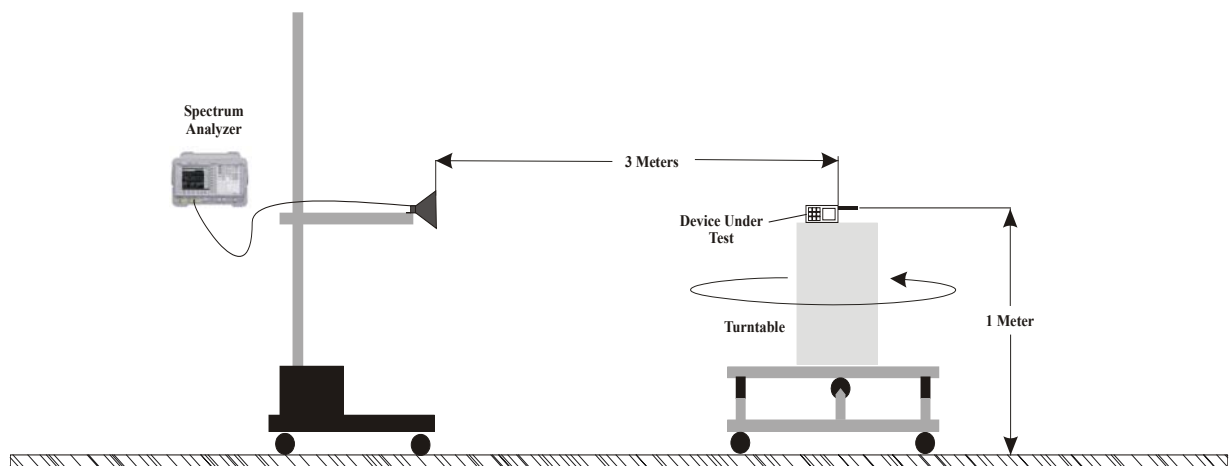


Figure 1. Radiated Measurement Test Setup Diagram - Horn Antenna

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 DUT was placed inside the temperature chamber. The test data is shown on pages 18-19.

Measurement Method:

The frequency stability of the transmitter was measured by:

1. Temperature:

The temperature was varied from -30°C to $+60^{\circ}\text{C}$ at intervals no more than 10°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°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 , 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°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)

Test Date: 03/17/04 - PCS CDMA Mode - Single Transmit							
Freq. Tuned	DUT Conducted Power	Maximum Field Strength of DUT	Antenna Polariz.	Horn Gain	Horn Forward Conducted Power	EIRP of DUT Horn Gain + Horn Forward Conducted Power	
MHz	dBm	dBm	H/V	dBi	dBm	dBm	Watts
1851.25	23.0	- 13.27	H	6.55	17.89	24.44	0.278
1880.00	23.0	- 14.66	H	6.58	16.99	23.57	0.228
1908.75	23.0	- 13.99	H	6.61	18.35	24.96	0.313
1851.25	23.0	- 16.39	V	6.55	13.78	20.33	0.108
1880.00	23.0	- 17.78	V	6.58	12.39	18.97	0.079
1908.75	23.0	- 17.13	V	6.61	13.04	19.65	0.092

3.3 EFFECTIVE RADIATED POWER OUTPUT - §22.913

Test Date: 03/17/04 - Cellular CDMA Mode - Single Transmit							
Freq. Tuned	DUT Conducted Power	Maximum Field Strength of DUT	Antenna Polariz.	Dipole Gain	Dipole Forward Conducted Power	ERP of DUT Dipole Gain + Dipole Forward Conducted Power	
MHz	dBm	dBm	H/V	dBd	dBm	dBm	Watts
824.70	23.0	- 12.09	H	- 0.84	23.61	22.77	0.189
835.89	23.0	- 10.60	H	- 0.71	26.00	25.29	0.338
848.31	23.0	- 11.06	H	- 0.56	25.48	24.92	0.310
824.70	23.0	- 14.64	V	- 0.84	21.08	20.24	0.106
835.89	23.0	- 13.12	V	- 0.71	23.45	22.74	0.188
848.31	23.0	- 13.69	V	- 0.56	22.85	22.29	0.169

3.4 FIELD STRENGTH OF SPURIOUS RADIATION - §2.1053

Test Date: 03/19/04
Operating Frequency (MHz): 1851.25
Channel: 25 (Low)
DUT Conducted Pwr. (dBm): 23.0
Measured EIRP (dBm): 24.44
Mode: PCS CDMA (Single Transmit)
Distance: 3 Meters
Limit: $43 + 10 \log (W) = 37.44 \text{ dBc}$

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	-74.07	-41.18	6.6	H	-34.58	-36.72	61.16
5553.75	-75.04	-37.24	7.8	H	-29.44	-31.58	56.02
7405.00	-73.44	-36.86	7.8	H	-29.06	-31.20	55.64
9256.25	-74.43	-36.41	7.6	H	-28.81	-30.95	55.39
11107.50	-72.58	-36.22	8.5	H	-27.72	-29.86	54.30
12958.75	-73.82	-35.94	8.8	H	-27.14	-29.28	53.72
14810.00	-69.94	-32.06	9.6	H	-22.46	-24.60	49.04
16661.25	-71.28	-33.45	9.0	H	-24.45	-26.59	51.03
18512.50	-72.22	-36.01	9.3	H	-26.71	-28.85	53.29

Test Date: 03/19/04
Operating Frequency (MHz): 1851.25
Channel: 25 (Low)
DUT Conducted Pwr. (dBm): 23.0
Measured EIRP (dBm): 24.44
Mode: PCS CDMA (Simultaneous Transmit with Co-located 802.11b)
Distance: 3 Meters
Limit: $43 + 10 \log (W) = 37.44 \text{ dBc}$

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	-73.71	-40.82	6.6	H	-34.22	-36.36	60.80
5553.75	-75.79	-37.99	7.8	H	-30.19	-32.33	56.77
7405.00	-73.99	-37.41	7.8	H	-29.61	-31.75	56.19
9256.25	-74.57	-36.55	7.6	H	-28.95	-31.09	55.53
11107.50	-74.35	-37.99	8.5	H	-29.49	-31.63	56.07
12958.75	-74.49	-36.61	8.8	H	-27.81	-29.95	54.39
14810.00	-70.90	-33.02	9.6	H	-23.42	-25.56	50.00
16661.25	-72.20	-34.37	9.0	H	-25.37	-27.51	51.95
18512.50	-72.60	-36.39	9.3	H	-27.09	-29.23	53.67

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

Test Date: 03/19/04
 Operating Frequency (MHz): 1851.25
 Channel: 25 (Low)
 DUT Conducted Pwr. (dBm): 23.0
 Measured EIRP (dBm): 24.44
 Mode: PCS CDMA (Simultaneous Transmit with Co-located 802.11b & Bluetooth)
 Distance: 3 Meters
 Limit: $43 + 10 \log (W) = 37.44 \text{ dBc}$

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	-73.57	-40.68	6.6	H	-34.08	-36.22	60.66
5553.75	-74.39	-36.59	7.8	H	-28.79	-30.93	55.37
7405.00	-73.33	-36.75	7.8	H	-28.95	-31.09	55.53
9256.25	-74.39	-36.37	7.6	H	-28.77	-30.91	55.35
11107.50	-74.59	-38.23	8.5	H	-29.73	-31.87	56.31
12958.75	-74.52	-36.64	8.8	H	-27.84	-29.98	54.42
14810.00	-71.02	-33.14	9.6	H	-23.54	-25.68	50.12
16661.25	-71.49	-33.66	9.0	H	-24.66	-26.80	51.24
18512.50	-72.28	-36.07	9.3	H	-26.77	-28.91	53.35

Test Date: 03/19/04
 Operating Frequency (MHz): 1880.00
 Channel: 600 (Mid)
 DUT Conducted Pwr. (dBm): 23.0
 Measured EIRP (dBm): 23.57
 Mode: PCS CDMA (Single Transmit)
 Distance: 3 Meters
 Limit: $43 + 10 \log (W) = 36.58 \text{ dBc}$

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	-73.29	-40.40	6.6	H	-33.80	-35.94	59.51
5640.00	-74.91	-37.11	7.8	H	-29.31	-31.45	55.02
7520.00	-74.14	-37.56	7.8	H	-29.76	-31.90	55.47
9400.00	-74.33	-36.31	7.6	H	-28.71	-30.85	54.42
11280.00	-74.14	-37.78	8.5	H	-29.28	-31.42	54.99
13160.00	-73.90	-36.02	8.8	H	-27.22	-29.36	52.93
15040.00	-71.40	-33.52	9.6	H	-23.92	-26.06	49.63
16920.00	-71.04	-33.21	9.0	H	-24.21	-26.35	49.92
18800.00	-72.49	-36.28	9.3	H	-26.98	-29.12	52.69

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

Test Date: 03/19/04
 Operating Frequency (MHz): 1880.00
 Channel: 600 (Mid)
 DUT Conducted Pwr. (dBm): 23.0
 Measured EIRP (dBm): 23.57
 Mode: PCS CDMA (Simultaneous Transmit with Co-located 802.11b)
 Distance: 3 Meters
 Limit: $43 + 10 \log (W) = 36.58 \text{ dBc}$

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	-71.86	-38.97	6.6	H	-32.37	-34.51	58.08
5640.00	-75.98	-38.18	7.8	H	-30.38	-32.52	56.09
7520.00	-73.13	-36.55	7.8	H	-28.75	-30.89	54.46
9400.00	-75.25	-37.23	7.6	H	-29.63	-31.77	55.34
11280.00	-74.46	-38.10	8.5	H	-29.60	-31.74	55.31
13160.00	-73.85	-35.97	8.8	H	-27.17	-29.31	52.88
15040.00	-71.41	-33.53	9.6	H	-23.93	-26.07	49.64
16920.00	-71.42	-33.59	9.0	H	-24.59	-26.73	50.30
18800.00	-72.76	-36.55	9.3	H	-27.25	-29.39	52.96

Test Date: 03/19/04
 Operating Frequency (MHz): 1880.00
 Channel: 600 (Mid)
 DUT Conducted Pwr. (dBm): 23.0
 Measured EIRP (dBm): 23.57
 Mode: PCS CDMA (Simultaneous Transmit with Co-located 802.11b & Bluetooth)
 Distance: 3 Meters
 Limit: $43 + 10 \log (W) = 36.58 \text{ dBc}$

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	-72.12	-39.23	6.6	H	-32.63	-34.77	58.34
5640.00	-76.17	-38.37	7.8	H	-30.57	-32.71	56.28
7520.00	-73.43	-36.85	7.8	H	-29.05	-31.19	54.76
9400.00	-75.18	-37.16	7.6	H	-29.56	-31.70	55.27
11280.00	-75.08	-38.72	8.5	H	-30.22	-32.36	55.93
13160.00	-73.79	-35.91	8.8	H	-27.11	-29.25	52.82
15040.00	-69.78	-31.90	9.6	H	-22.30	-24.44	48.01
16920.00	-71.02	-33.19	9.0	H	-24.19	-26.33	49.90
18800.00	-71.08	-34.87	9.3	H	-25.57	-27.71	51.28

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

Test Date: 03/19/04
Operating Frequency (MHz): 1908.75
Channel: 1175 (High)
DUT Conducted Pwr. (dBm): 23.0
Measured EIRP (dBm): 24.96
Mode: PCS CDMA (Single Transmit)
Distance: 3 Meters
Limit: $43 + 10 \log (W) = 37.96 \text{ dBc}$

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	-73.10	-40.21	6.6	H	-33.61	-35.75	60.71
5726.25	-76.00	-38.20	7.8	H	-30.40	-32.54	57.50
7635.00	-73.57	-36.99	7.8	H	-29.19	-31.33	56.29
9543.75	-73.86	-35.84	7.6	H	-28.24	-30.38	55.34
11452.50	-73.86	-37.50	8.5	H	-29.00	-31.14	56.10
13361.25	-69.68	-31.80	8.8	H	-23.00	-25.14	50.10
15270.00	-71.17	-33.29	9.6	H	-23.69	-25.83	50.79
17178.75	-71.77	-33.94	9.0	H	-24.94	-27.08	52.04
19087.50	-71.95	-35.74	9.3	H	-26.44	-28.58	53.54

Test Date: 03/19/04
Operating Frequency (MHz): 1908.75
Channel: 1175 (High)
DUT Conducted Pwr. (dBm): 23.0
Measured EIRP (dBm): 24.96
Mode: PCS CDMA (Simultaneous Transmit with Co-located 802.11b)
Distance: 3 Meters
Limit: $43 + 10 \log (W) = 37.96 \text{ dBc}$

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	-74.02	-41.13	6.6	H	-34.53	-36.67	61.63
5726.25	-76.20	-38.40	7.8	H	-30.60	-32.74	57.70
7635.00	-73.66	-37.08	7.8	H	-29.28	-31.42	56.38
9543.75	-74.45	-36.43	7.6	H	-28.83	-30.97	55.93
11452.50	-73.99	-37.63	8.5	H	-29.13	-31.27	56.23
13361.25	-69.58	-31.70	8.8	H	-22.90	-25.04	50.00
15270.00	-71.44	-33.56	9.6	H	-23.96	-26.10	51.06
17178.75	-72.14	-34.31	9.0	H	-25.31	-27.45	52.41
19087.50	-72.19	-35.98	9.3	H	-26.68	-28.82	53.78

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

Test Date: 03/19/04
Operating Frequency (MHz): 1908.75
Channel: 1175 (High)
DUT Conducted Pwr. (dBm): 23.0
Measured EIRP (dBm): 24.96
Mode: PCS CDMA (Simultaneous Transmit with Co-located 802.11b & Bluetooth)
Distance: 3 Meters
Limit: $43 + 10 \log (W) = 37.96 \text{ dBc}$

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	-73.53	-40.64	6.6	H	-34.04	-36.18	61.14
5726.25	-76.10	-38.30	7.8	H	-30.50	-32.64	57.60
7635.00	-73.93	-37.35	7.8	H	-29.55	-31.69	56.65
9543.75	-75.29	-37.27	7.6	H	-29.67	-31.81	56.77
11452.50	-74.54	-38.18	8.5	H	-29.68	-31.82	56.78
13361.25	-69.50	-31.62	8.8	H	-22.82	-24.96	49.92
15270.00	-70.81	-32.93	9.6	H	-23.33	-25.47	50.43
17178.75	-71.81	-33.98	9.0	H	-24.98	-27.12	52.08
19087.50	-72.06	-35.85	9.3	H	-26.55	-28.69	53.65

Test Date: 03/18/04
Operating Frequency (MHz): 824.70
Channel: 1013 (Low)
DUT Conducted Pwr. (dBm): 23.0
Measured ERP (dBm): 22.77
Mode: Cellular CDMA (Single Transmit)
Distance: 3 Meters
Limit: $43 + 10 \log (W) = 35.76 \text{ dBc}$

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	-72.83	-39.94	6.6	H	-33.34	-35.48	58.25
2474.10	-74.20	-36.40	7.8	H	-28.60	-30.74	53.51
3298.80	-76.03	-39.45	7.8	H	-31.65	-33.79	56.56
4123.50	-77.32	-39.30	7.6	H	-31.70	-33.84	56.61
4948.20	-76.03	-39.67	8.5	H	-31.17	-33.31	56.08
5772.90	-76.05	-38.17	8.8	H	-29.37	-31.51	54.28
6597.60	-75.81	-37.93	9.6	H	-28.33	-30.47	53.24
7422.30	-73.95	-36.12	9.0	H	-27.12	-29.26	52.03
8247.00	-74.75	-38.54	9.3	H	-29.24	-31.38	54.15

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

Test Date: 03/18/04
 Operating Frequency (MHz): 824.70
 Channel: 1013 (Low)
 DUT Conducted Pwr. (dBm): 23.0
 Measured ERP (dBm): 22.77
 Mode: Cellular CDMA (Simultaneous Transmit with Co-located 802.11b)
 Distance: 3 Meters
 Limit: $43 + 10 \log (W) = 35.76 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBd	H/V	dBm	dBm	
1649.40	-73.54	-40.65	6.6	H	-34.05	-36.19	58.96
2474.10	-75.01	-37.21	7.8	H	-29.41	-31.55	54.32
3298.80	-75.97	-39.39	7.8	H	-31.59	-33.73	56.50
4123.50	-76.51	-38.49	7.6	H	-30.89	-33.03	55.80
4948.20	-76.81	-40.45	8.5	H	-31.95	-34.09	56.86
5772.90	-76.19	-38.31	8.8	H	-29.51	-31.65	54.42
6597.60	-76.51	-38.63	9.6	H	-29.03	-31.17	53.94
7422.30	-72.63	-34.80	9.0	H	-25.80	-27.94	50.71
8247.00	-74.81	-38.60	9.3	H	-29.30	-31.44	54.21

Test Date: 03/18/04
 Operating Frequency (MHz): 824.70
 Channel: 1013 (Low)
 DUT Conducted Pwr. (dBm): 23.0
 Measured ERP (dBm): 22.77
 Mode: Cellular CDMA (Simultaneous Transmit with Co-located 802.11b & Bluetooth)
 Distance: 3 Meters
 Limit: $43 + 10 \log (W) = 35.76 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dBd	H/V	dBm	dBm	
1649.40	-73.14	-40.25	6.6	H	-33.65	-35.79	58.56
2474.10	-74.77	-36.97	7.8	H	-29.17	-31.31	54.08
3298.80	-76.62	-40.04	7.8	H	-32.24	-34.38	57.15
4123.50	-76.90	-38.88	7.6	H	-31.28	-33.42	56.19
4948.20	-76.96	-40.60	8.5	H	-32.10	-34.24	57.01
5772.90	-75.64	-37.76	8.8	H	-28.96	-31.10	53.87
6597.60	-75.41	-37.53	9.6	H	-27.93	-30.07	52.84
7422.30	-73.24	-35.41	9.0	H	-26.41	-28.55	51.32
8247.00	-73.72	-37.51	9.3	H	-28.21	-30.35	53.12

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

Test Date: 03/18/04
Operating Frequency (MHz): 835.89
Channel: 363 (Mid)
DUT Conducted Pwr. (dBm): 23.0
Measured ERP (dBm): 25.29
Mode: Cellular CDMA (Single Transmit)
Distance: 3 Meters
Limit: $43 + 10 \log (W) = 38.29 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dB	H/V	dBm	dBm	
1671.78	-71.28	-38.39	6.6	H	-31.79	-33.93	59.22
2507.67	-74.89	-37.09	7.8	H	-29.29	-31.43	56.72
3343.56	-76.57	-39.99	7.8	H	-32.19	-34.33	59.62
4179.45	-76.57	-38.55	7.6	H	-30.95	-33.09	58.38
5015.34	-76.94	-40.58	8.5	H	-32.08	-34.22	59.51
5851.23	-76.16	-38.28	8.8	H	-29.48	-31.62	56.91
6687.12	-75.17	-37.29	9.6	H	-27.69	-29.83	55.12
7523.01	-73.80	-35.97	9.0	H	-26.97	-29.11	54.40
8358.90	-74.92	-38.71	9.3	H	-29.41	-31.55	56.84

Test Date: 03/18/04
Operating Frequency (MHz): 835.89
Channel: 363 (Mid)
DUT Conducted Pwr. (dBm): 23.0
Measured ERP (dBm): 25.29
Mode: Cellular CDMA (Simultaneous Transmit with Co-located 802.11b)
Distance: 3 Meters
Limit: $43 + 10 \log (W) = 38.29 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dB	H/V	dBm	dBm	
1671.78	-72.71	-39.82	6.6	H	-33.22	-35.36	60.65
2507.67	-74.20	-36.40	7.8	H	-28.60	-30.74	56.03
3343.56	-76.62	-40.04	7.8	H	-32.24	-34.38	59.67
4179.45	-76.26	-38.24	7.6	H	-30.64	-32.78	58.07
5015.34	-76.85	-40.49	8.5	H	-31.99	-34.13	59.42
5851.23	-75.69	-37.81	8.8	H	-29.01	-31.15	56.44
6687.12	-76.88	-39.00	9.6	H	-29.40	-31.54	56.83
7523.01	-73.57	-35.74	9.0	H	-26.74	-28.88	54.17
8358.90	-74.68	-38.47	9.3	H	-29.17	-31.31	56.60

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

Test Date: 03/18/04
 Operating Frequency (MHz): 835.89
 Channel: 363 (Mid)
 DUT Conducted Pwr. (dBm): 23.0
 Measured ERP (dBm): 25.29
 Mode: Cellular CDMA (Simultaneous Transmit with Co-located 802.11b & Bluetooth)
 Distance: 3 Meters
 Limit: $43 + 10 \log (W) = 38.29 \text{ dBc}$

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	-74.70	-41.81	6.6	H	-35.21	-37.35	62.64
2507.67	-74.69	-36.89	7.8	H	-29.09	-31.23	56.52
3343.56	-76.14	-39.56	7.8	H	-31.76	-33.90	59.19
4179.45	-76.21	-38.19	7.6	H	-30.59	-32.73	58.02
5015.34	-76.75	-40.39	8.5	H	-31.89	-34.03	59.32
5851.23	-74.82	-36.94	8.8	H	-28.14	-30.28	55.57
6687.12	-76.71	-38.83	9.6	H	-29.23	-31.37	56.66
7523.01	-73.78	-35.95	9.0	H	-26.95	-29.09	54.38
8358.90	-74.79	-38.58	9.3	H	-29.28	-31.42	56.71

Test Date: 03/18/04
 Operating Frequency (MHz): 848.31
 Channel: 777 (High)
 DUT Conducted Pwr. (dBm): 23.0
 Measured ERP (dBm): 24.92
 Mode: Cellular CDMA (Single Transmit)
 Distance: 3 Meters
 Limit: $43 + 10 \log (W) = 37.91 \text{ dBc}$

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	-71.95	-39.06	6.6	H	-32.46	-34.60	59.52
2544.93	-74.18	-36.38	7.8	H	-28.58	-30.72	55.64
3393.24	-75.40	-38.82	7.8	H	-31.02	-33.16	58.08
4241.55	-76.58	-38.56	7.6	H	-30.96	-33.10	58.02
5089.86	-76.88	-40.52	8.5	H	-32.02	-34.16	59.08
5938.17	-76.58	-38.70	8.8	H	-29.90	-32.04	56.96
6786.48	-72.02	-34.14	9.6	H	-24.54	-26.68	51.60
7634.79	-74.27	-36.44	9.0	H	-27.44	-29.58	54.50
8483.10	-74.72	-38.51	9.3	H	-29.21	-31.35	56.27

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

Test Date: 03/18/04
 Operating Frequency (MHz): 848.31
 Channel: 777 (High)
 DUT Conducted Pwr. (dBm): 23.0
 Measured ERP (dBm): 24.92
 Mode: Cellular CDMA (Simultaneous Transmit with Co-located 802.11b)
 Distance: 3 Meters
 Limit: $43 + 10 \log (W) = 37.91 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dB	H/V	dBm	dBm	
1696.62	-71.77	-38.88	6.6	H	-32.28	-34.42	59.34
2544.93	-73.22	-35.42	7.8	H	-27.62	-29.76	54.68
3393.24	-74.63	-38.05	7.8	H	-30.25	-32.39	57.31
4241.55	-75.55	-37.53	7.6	H	-29.93	-32.07	56.99
5089.86	-76.63	-40.27	8.5	H	-31.77	-33.91	58.83
5938.17	-76.74	-38.86	8.8	H	-30.06	-32.20	57.12
6786.48	-72.97	-35.09	9.6	H	-25.49	-27.63	52.55
7634.79	-74.68	-36.85	9.0	H	-27.85	-29.99	54.91
8483.10	-74.72	-38.51	9.3	H	-29.21	-31.35	56.27

Test Date: 03/18/04
 Operating Frequency (MHz): 848.31
 Channel: 777 (High)
 DUT Conducted Pwr. (dBm): 23.0
 Measured ERP (dBm): 24.92
 Mode: Cellular CDMA (Simultaneous Transmit with Co-located 802.11b & Bluetooth)
 Distance: 3 Meters
 Limit: $43 + 10 \log (W) = 37.91 \text{ dBc}$

Frequency	Field Strength of Spurious Radiation	Horn Forward Conducted Power	Standard Gain Horn Antenna Gain	POL	EIRP	ERP	dBc
MHz	dBm	dBm	dB	H/V	dBm	dBm	
1696.62	-70.83	-37.94	6.6	H	-31.34	-33.48	58.40
2544.93	-73.36	-35.56	7.8	H	-27.76	-29.90	54.82
3393.24	-75.33	-38.75	7.8	H	-30.95	-33.09	58.01
4241.55	-75.96	-37.94	7.6	H	-30.34	-32.48	57.40
5089.86	-76.09	-39.73	8.5	H	-31.23	-33.37	58.29
5938.17	-76.63	-38.75	8.8	H	-29.95	-32.09	57.01
6786.48	-73.19	-35.31	9.6	H	-25.71	-27.85	52.77
7634.79	-73.91	-36.08	9.0	H	-27.08	-29.22	54.14
8483.10	-75.20	-38.99	9.3	H	-29.69	-31.83	56.75

3.5 FREQUENCY STABILITY / TEMPERATURE VARIATION - §24.235

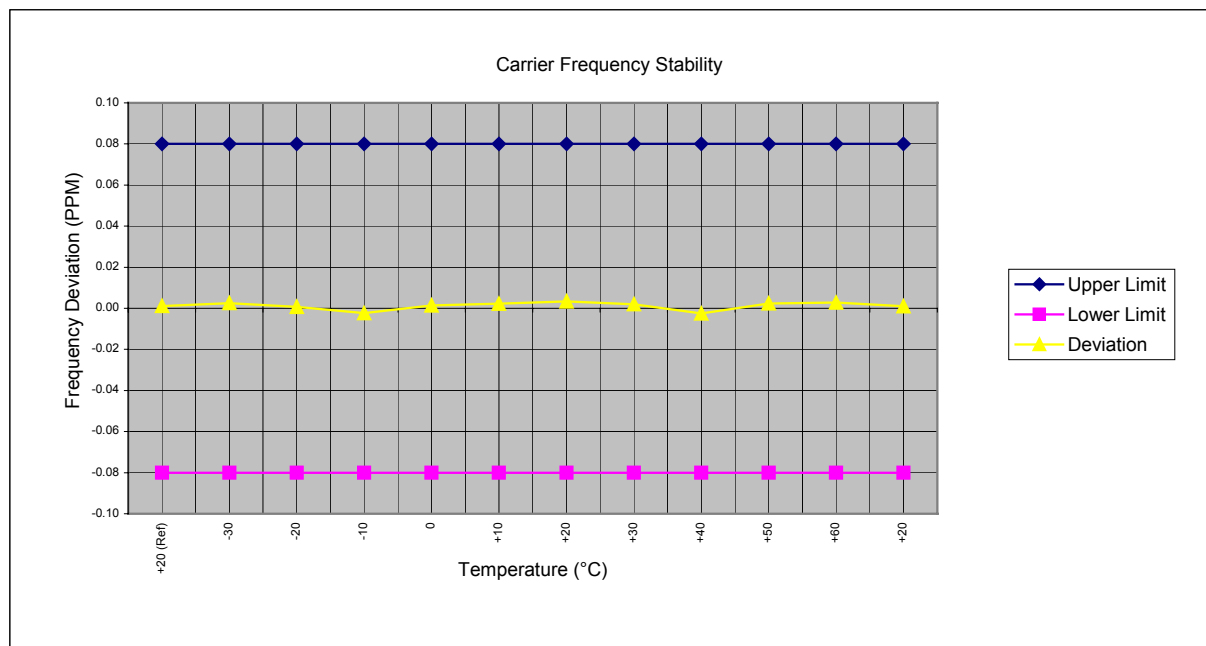
Carrier Frequency (GHz): 1.88

Channel: 600

Mode: PCS CDMA

Deviation Limit (PPM): 0.08

Temperature	Voltage	Power	Carrier Frequency Deviation		Specification	
(°C)	(%)	(VDC)	(Hz)	(PPM)	Lower Limit (PPM)	Upper Limit (PPM)
+20 (Ref)	100	7.4	2.17	0.001	0.08	-0.08
-30	100	7.4	4.60	0.002	0.08	-0.08
-20	100	7.4	1.36	0.001	0.08	-0.08
-10	100	7.4	-4.55	-0.002	0.08	-0.08
0	100	7.4	2.68	0.001	0.08	-0.08
+10	100	7.4	4.14	0.002	0.08	-0.08
+20	100	7.4	6.30	0.003	0.08	-0.08
+30	100	7.4	3.78	0.002	0.08	-0.08
+40	100	7.4	-4.71	-0.003	0.08	-0.08
+50	100	7.4	4.43	0.002	0.08	-0.08
+60	100	7.4	5.26	0.003	0.08	-0.08
+20	Battery Endpoint	6.1	1.80	0.001	0.08	-0.08



3.6 FREQUENCY STABILITY / TEMPERATURE VARIATION - §2.1055

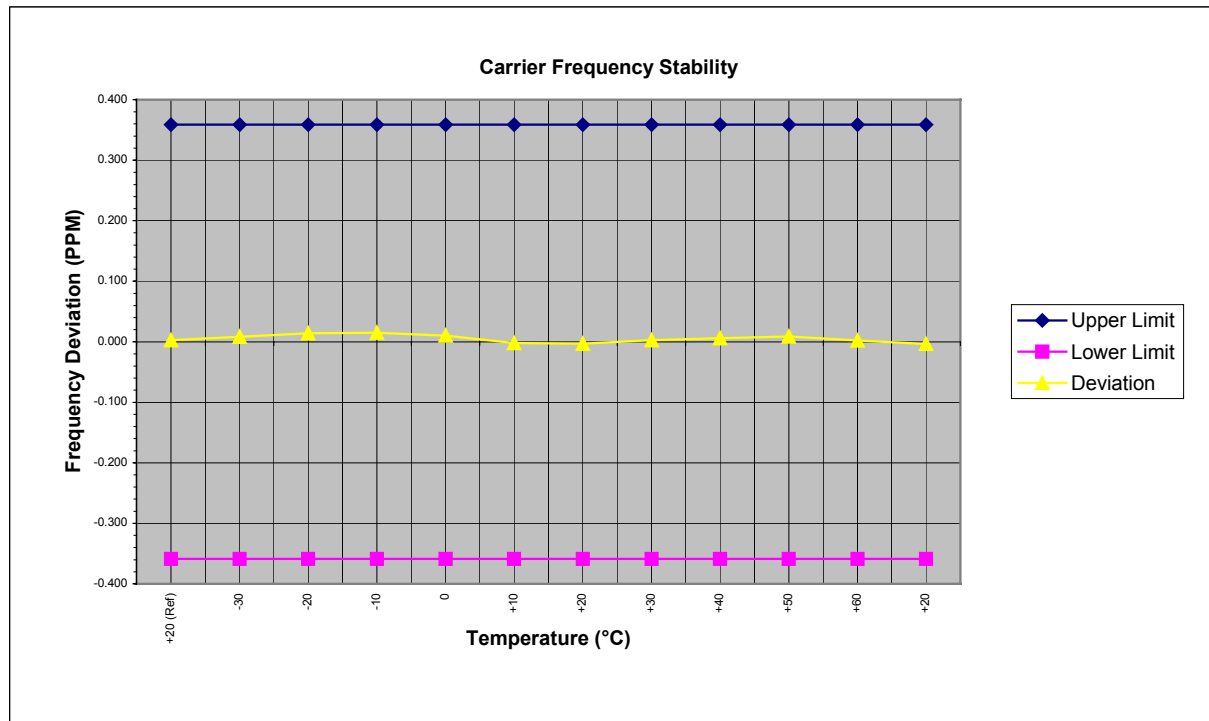
Carrier Frequency (MHz): 835.89

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	7.4	2.15	0.003	0.359	-0.359
-30	100	7.4	6.93	0.008	0.359	-0.359
-20	100	7.4	11.52	0.014	0.359	-0.359
-10	100	7.4	12.33	0.015	0.359	-0.359
0	100	7.4	8.60	0.010	0.359	-0.359
+10	100	7.4	-1.81	-0.002	0.359	-0.359
+20	100	7.4	-2.43	-0.003	0.359	-0.359
+30	100	7.4	2.11	0.003	0.359	-0.359
+40	100	7.4	5.08	0.006	0.359	-0.359
+50	100	7.4	7.47	0.009	0.359	-0.359
+60	100	7.4	1.97	0.002	0.359	-0.359
+20	Battery Endpoint	6.1	-2.80	-0.003	0.359	-0.359



4.1 TEST EQUIPMENT LIST

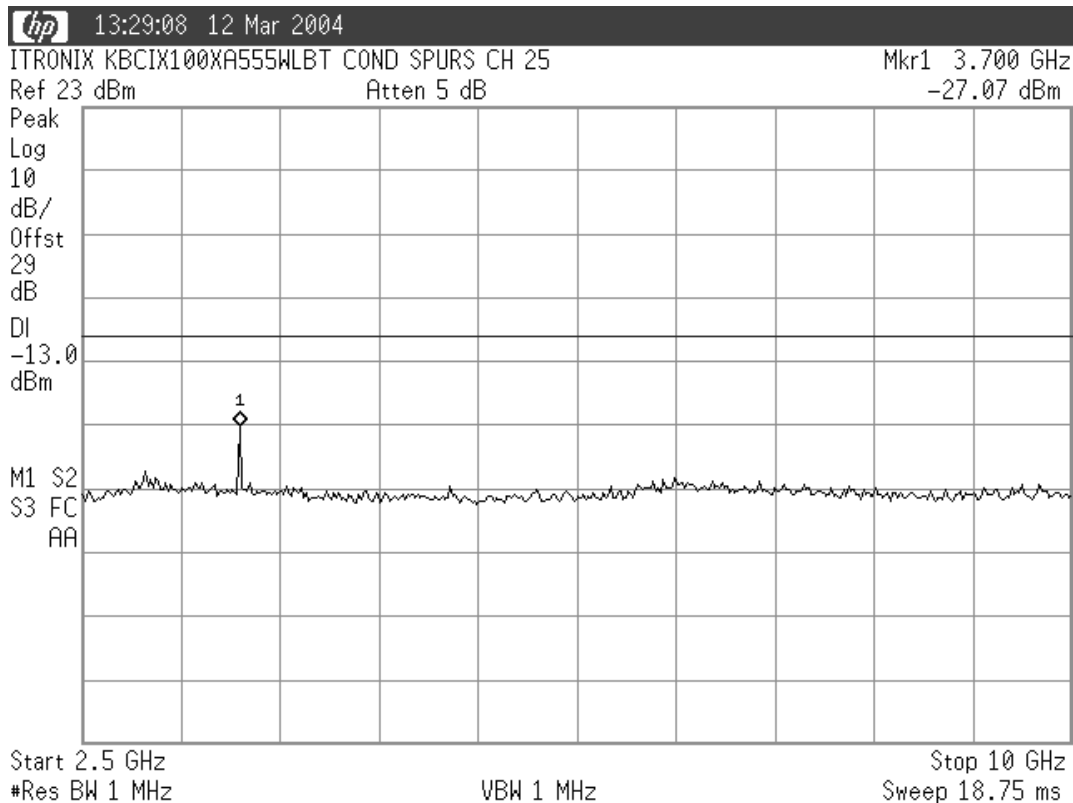
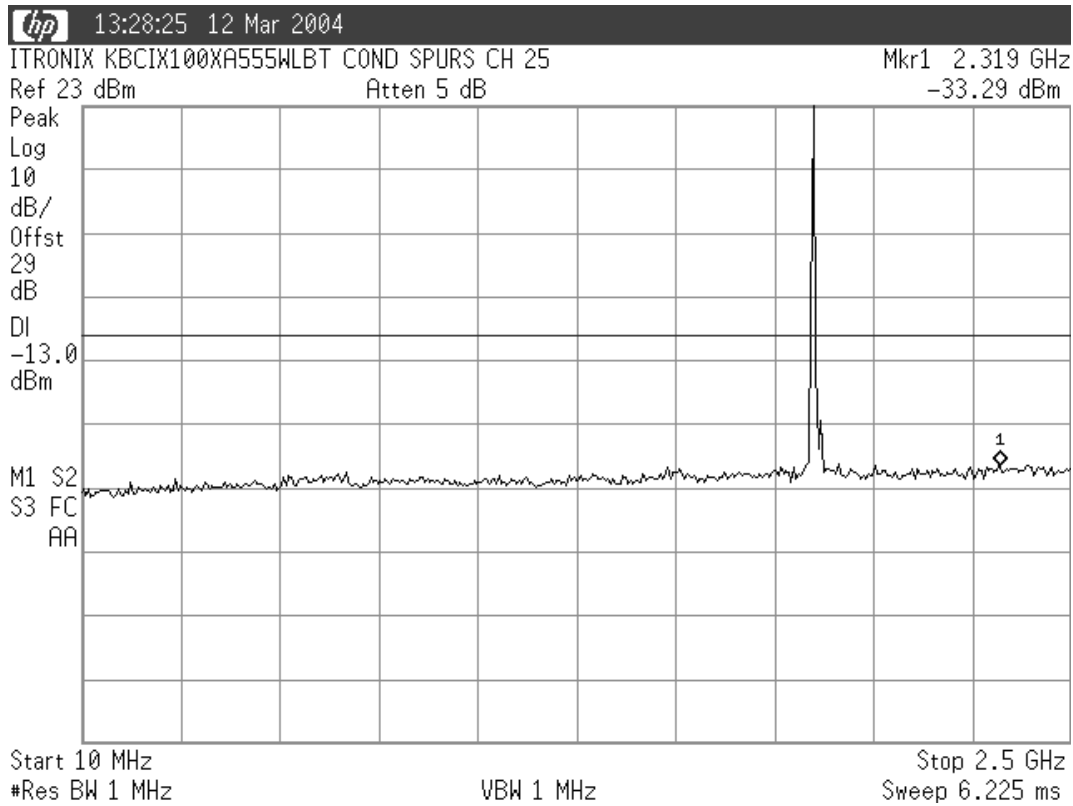
TEST EQUIPMENT LIST			
Equipment Type	Model	Serial No.	Calibration Date
HP Signal Generator	8648D (9kHz-4.0GHz)	3847A00611	April 2003
Rohde & Schwarz Signal Generator	SMR 20 (10MHz-40GHz)	100104	April 2003
Gigatronics Power Meter	8651A	8650137	April 2003
Gigatronics Power Meter	8652A	1835267	April 2003
Gigatronics Power Sensor	80701A (0.05-18GHz)	1833535	April 2003
Gigatronics Power Sensor	80701A (0.05-18GHz)	1833542	April 2003
Gigatronics Power Sensor	80701A (0.05-18GHz)	1834350	April 2003
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	April 2003
Frequency Counter	HP 53181A (3GHz)	3736A05175	April 2003
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 Dipole Antenna	3121C-DB4	0003-1494	Dec 2003
Roberts Dipole Antenna	3121C-DB4	0003-1498	Dec 2003
Spectrum Analyzer	HP 8594E	3543A02721	April 2003
Spectrum Analyzer	HP E4408B	US39240170	Dec 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: IX100XA555WLBT FCC ID: KBCIX100XA555WLBT Rugged Handheld PC with Sierra Wireless AirCard 555/550 Dual-Band PCS/Cellular CDMA PCMCIA Modem Card co-located with USI WM-BB-AG-01 802.11b and Bluetooth transmitters complies with the requirements of FCC Rule Parts §24(E), §22(H), and §2.

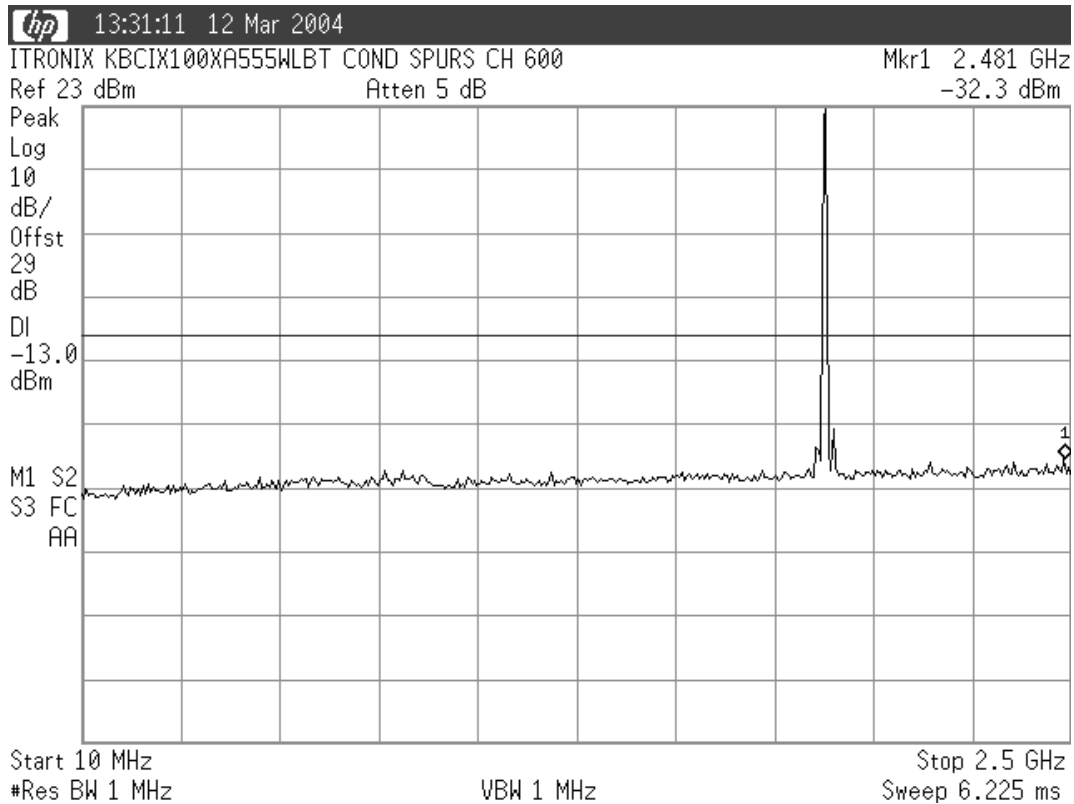
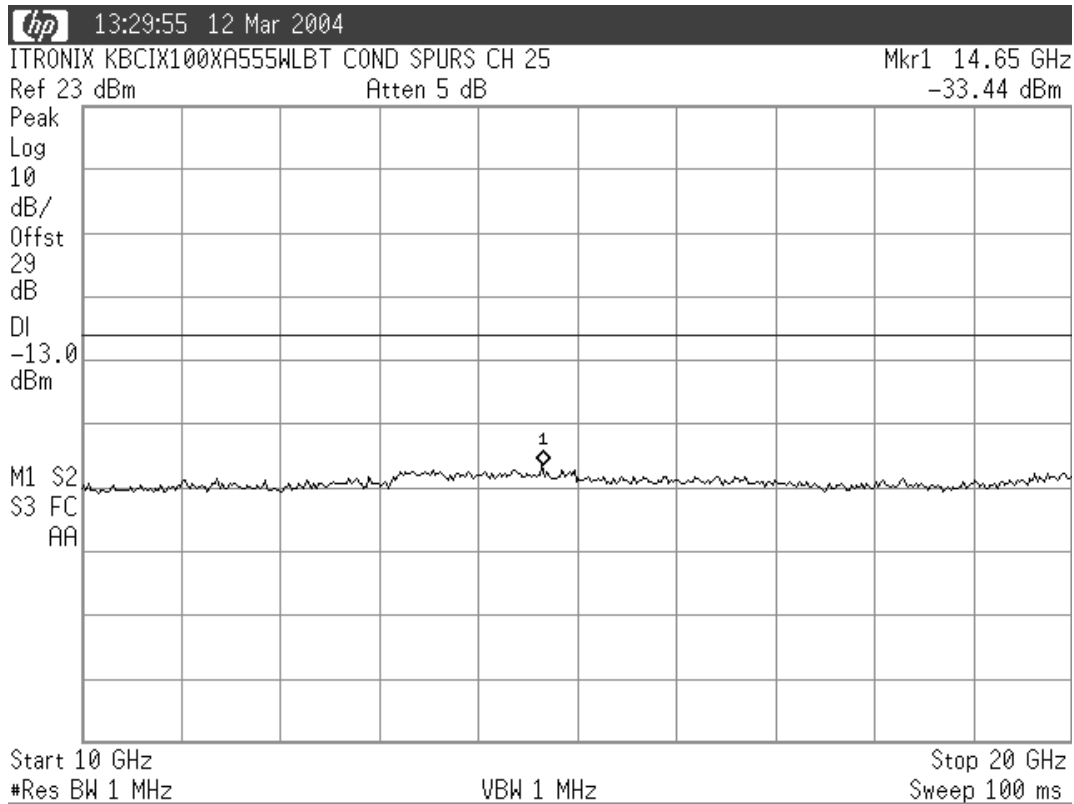
APPENDIX A - TEST PLOTS

PCS Band



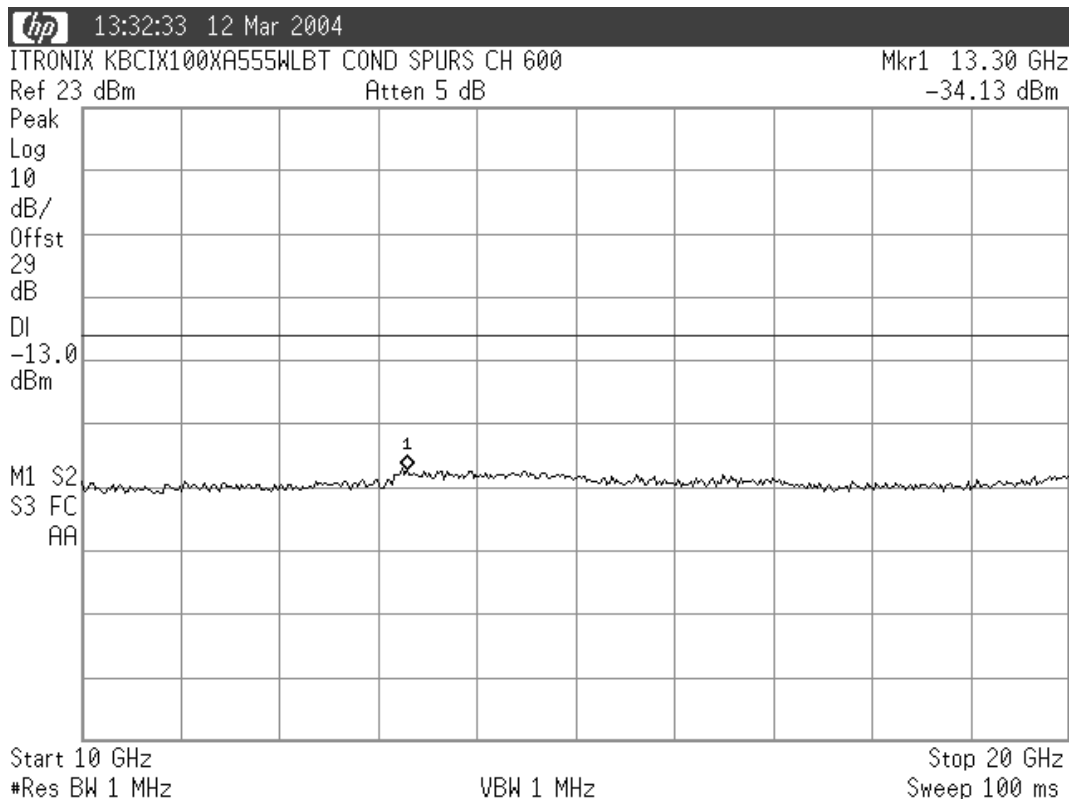
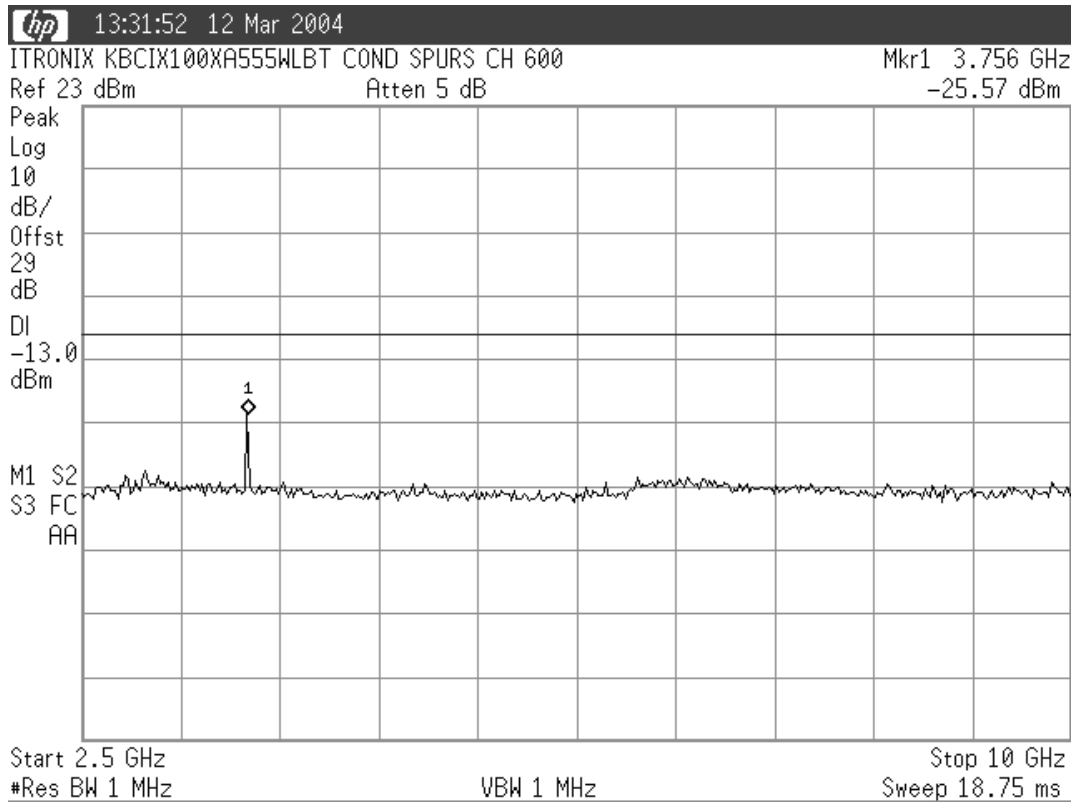
TEST PLOTS (Cont.)

PCS Band



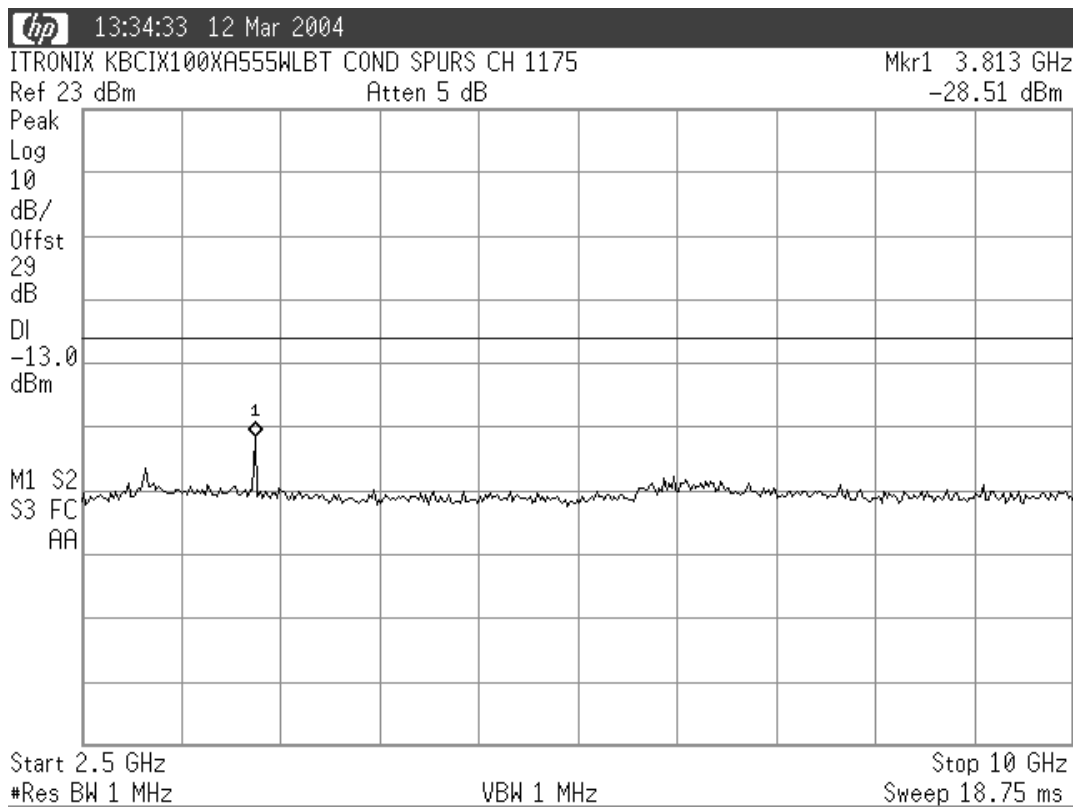
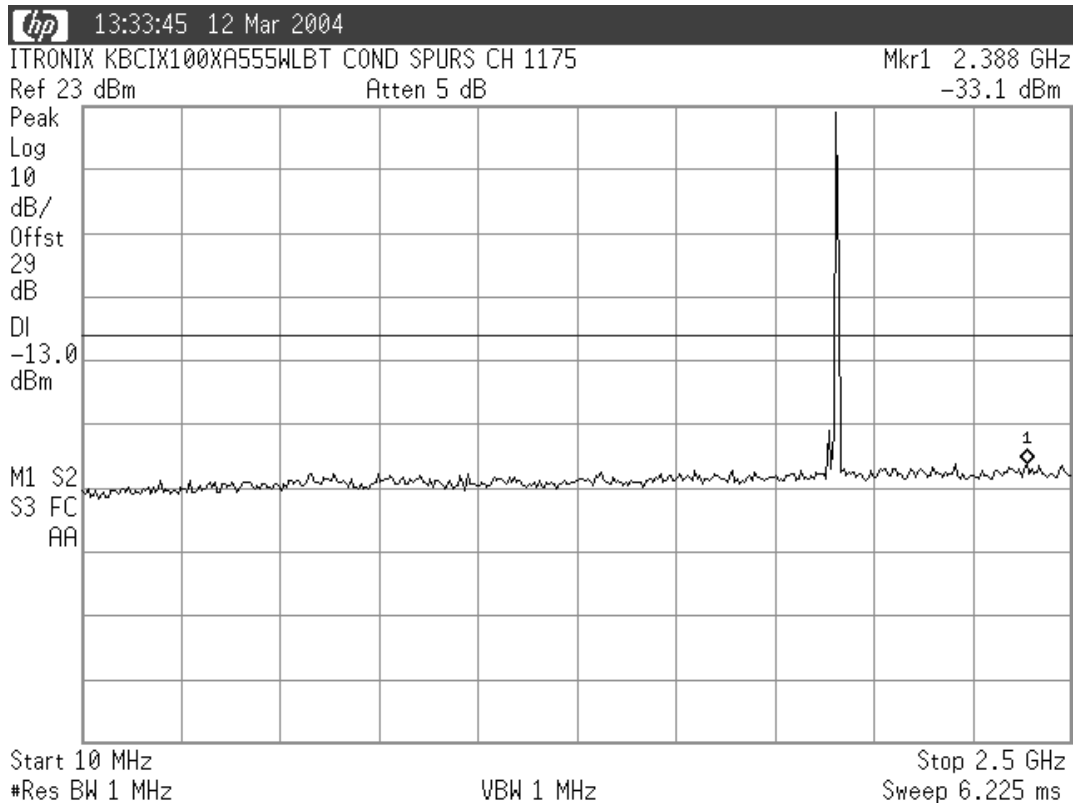
TEST PLOTS (Cont.)

PCS Band



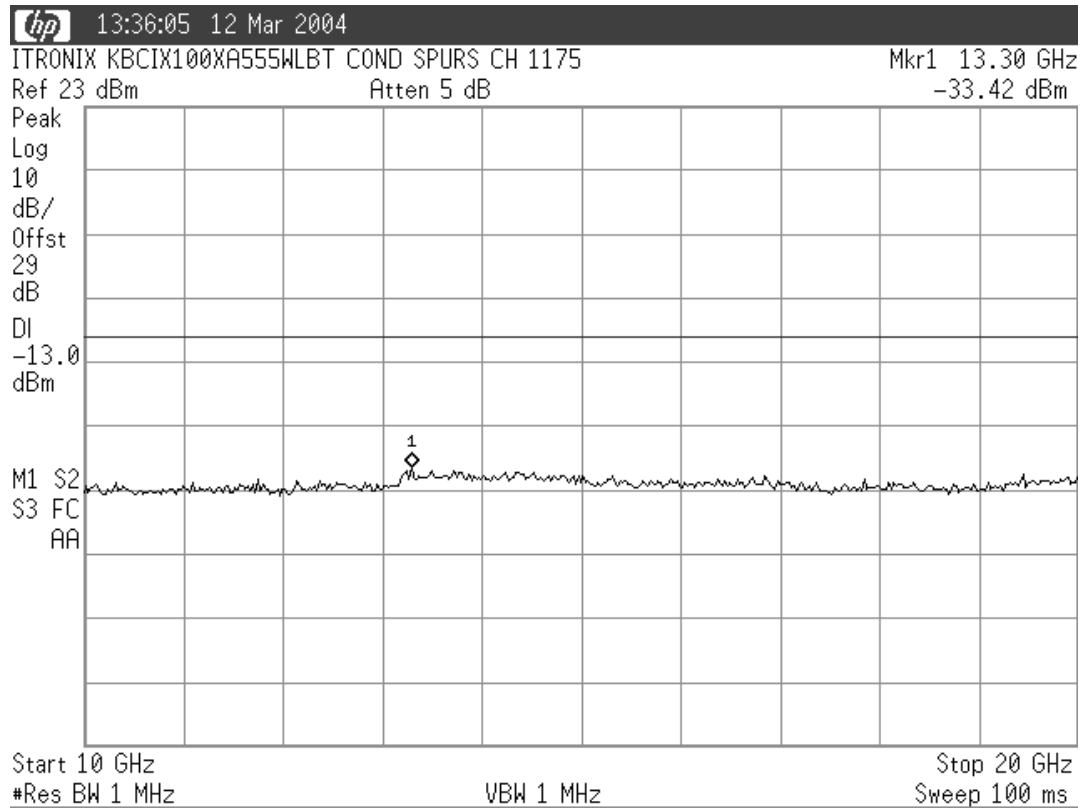
TEST PLOTS (Cont.)

PCS Band



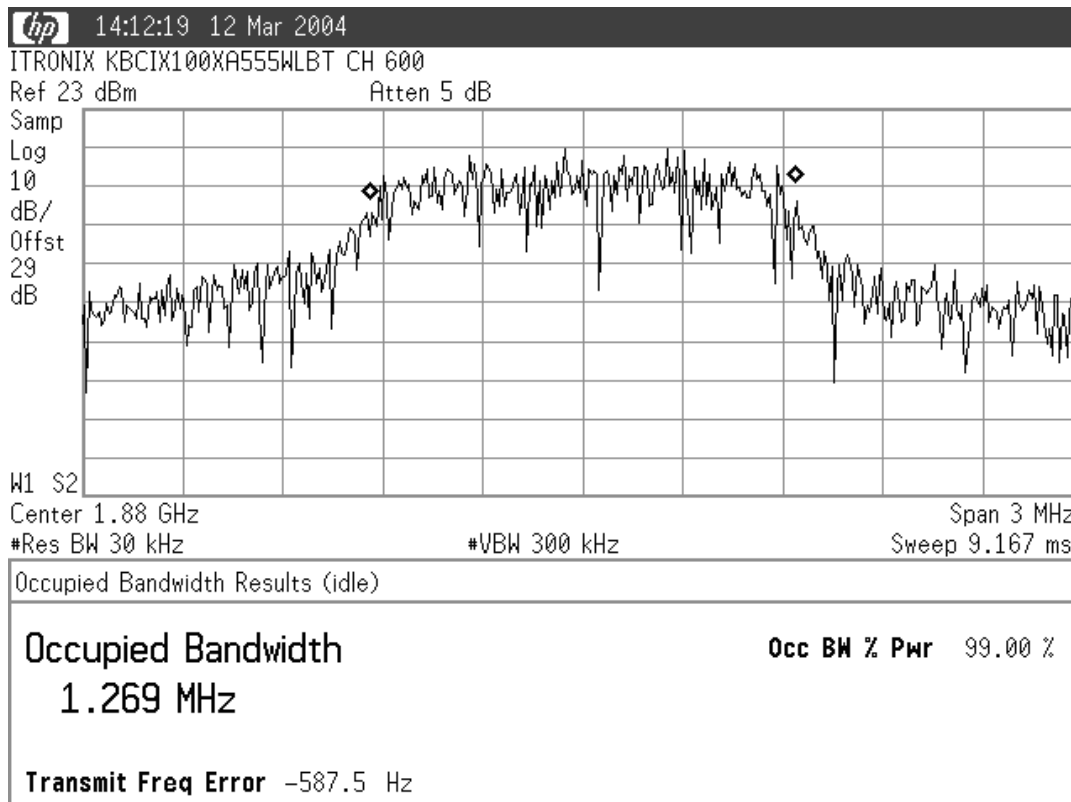
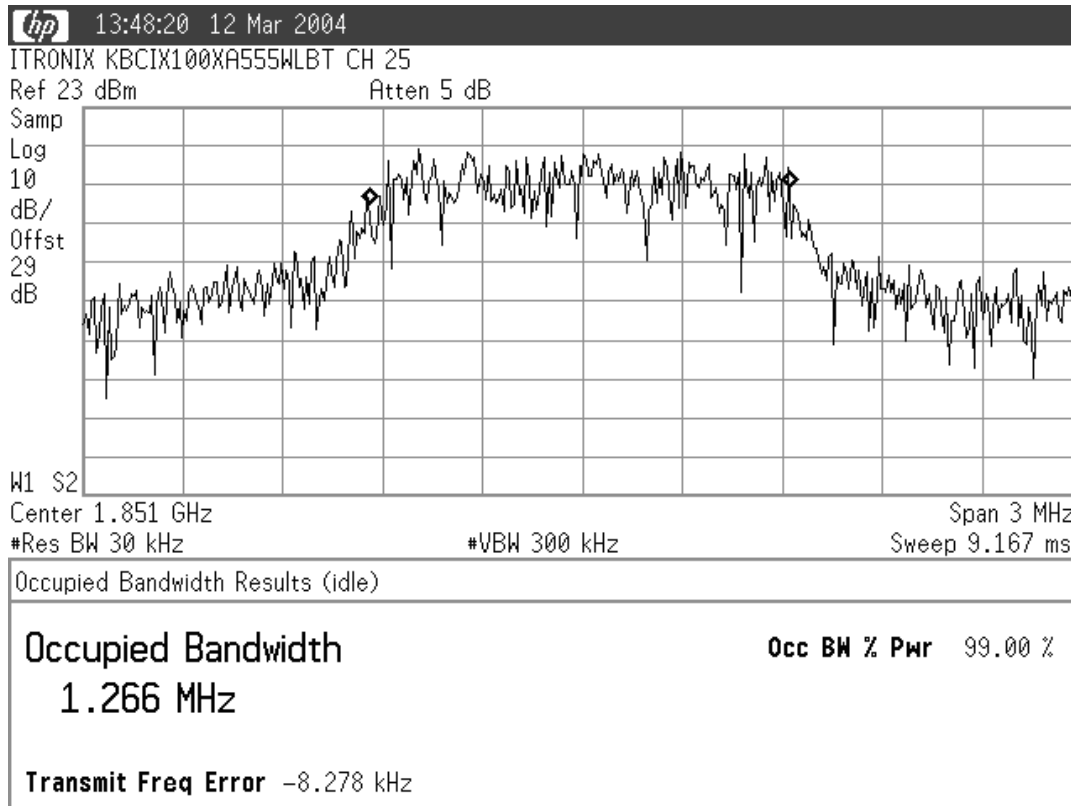
TEST PLOTS (Cont.)

PCS Band



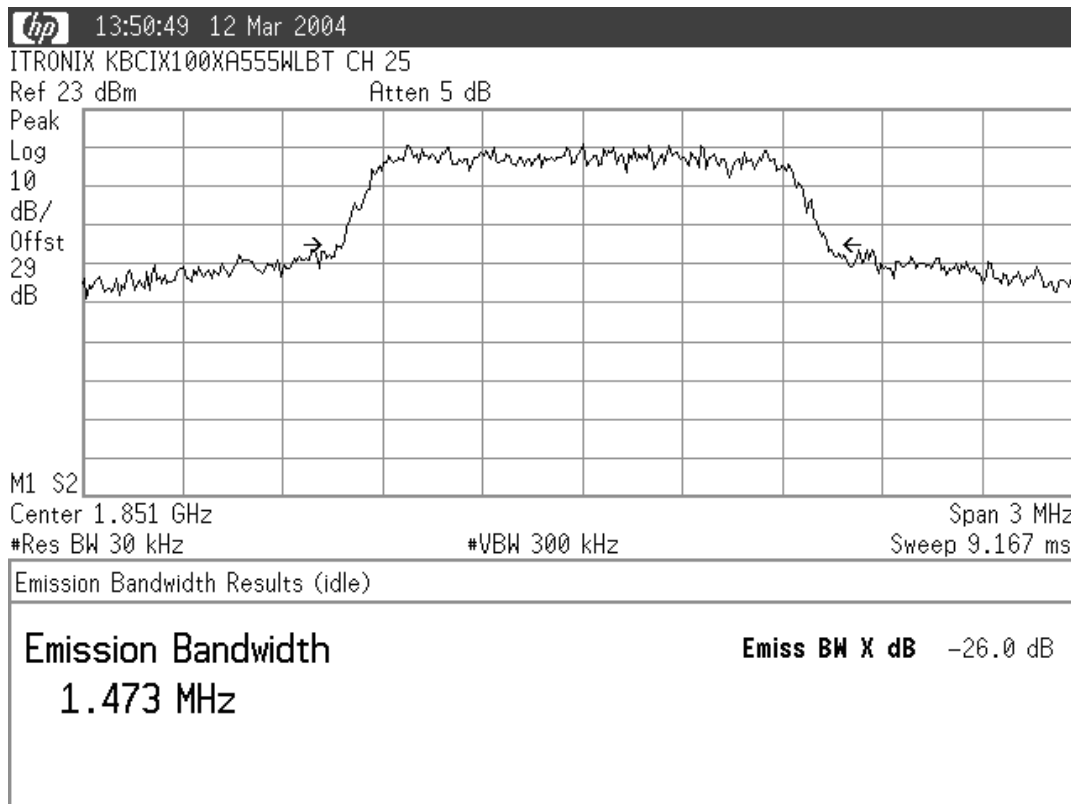
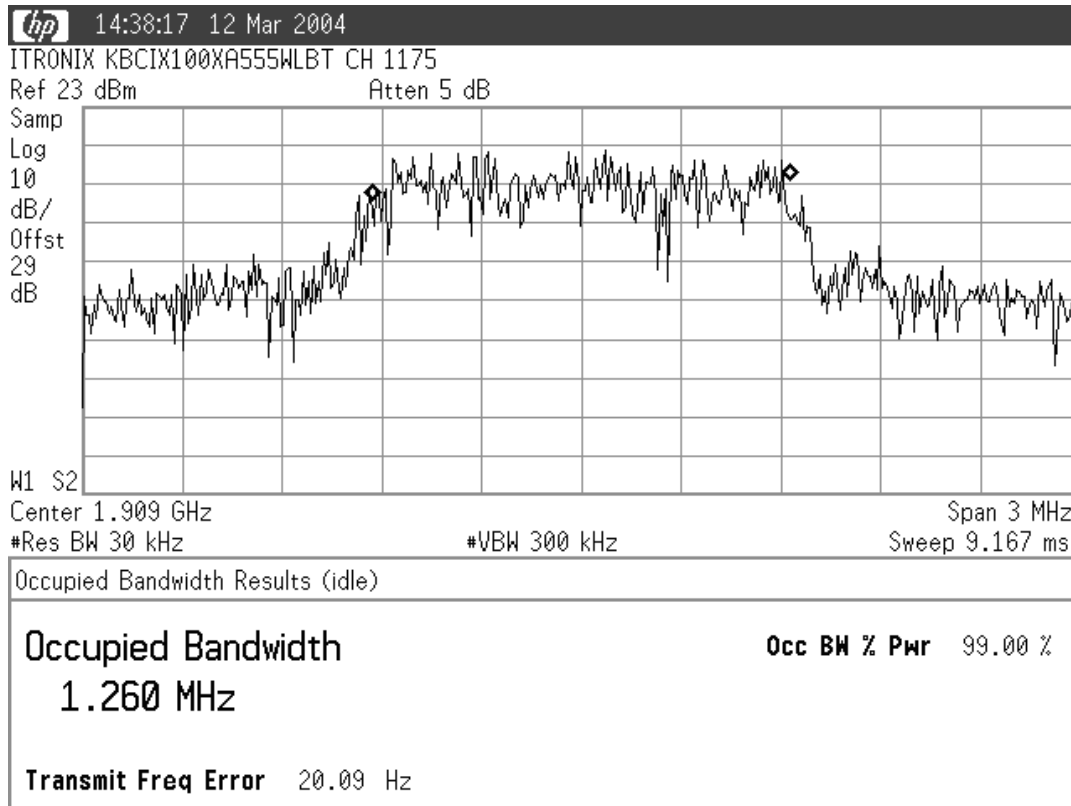
TEST PLOTS (Cont.)

PCS Band



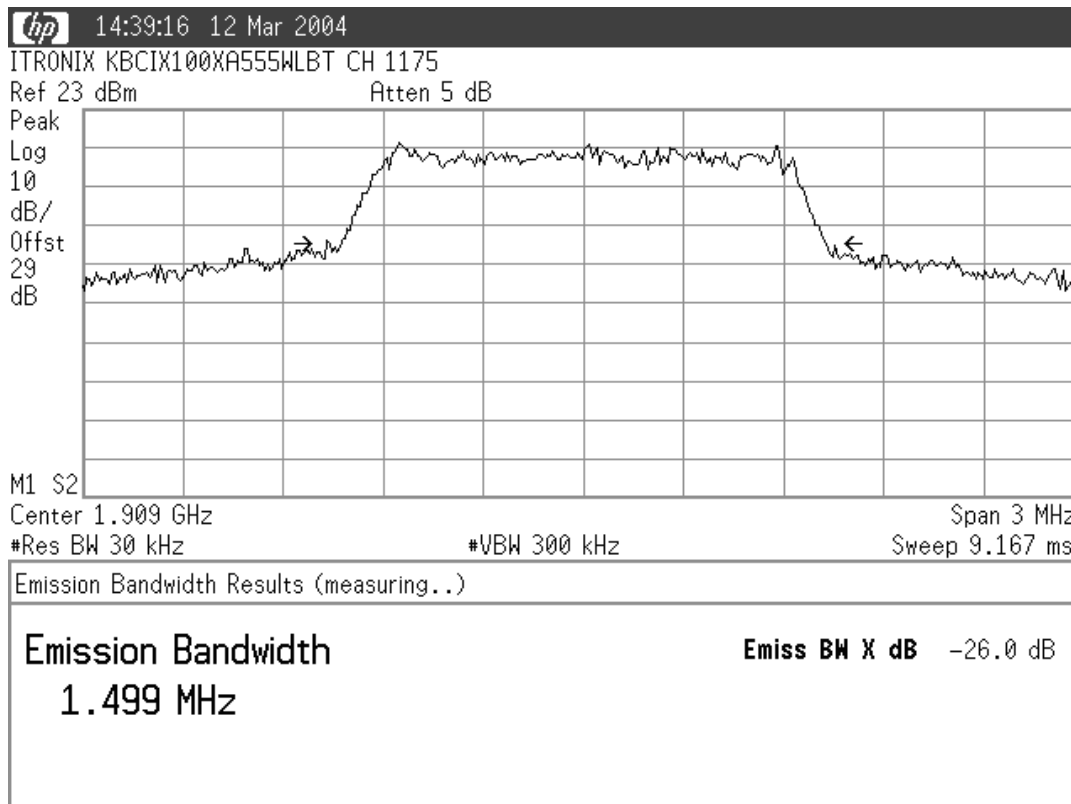
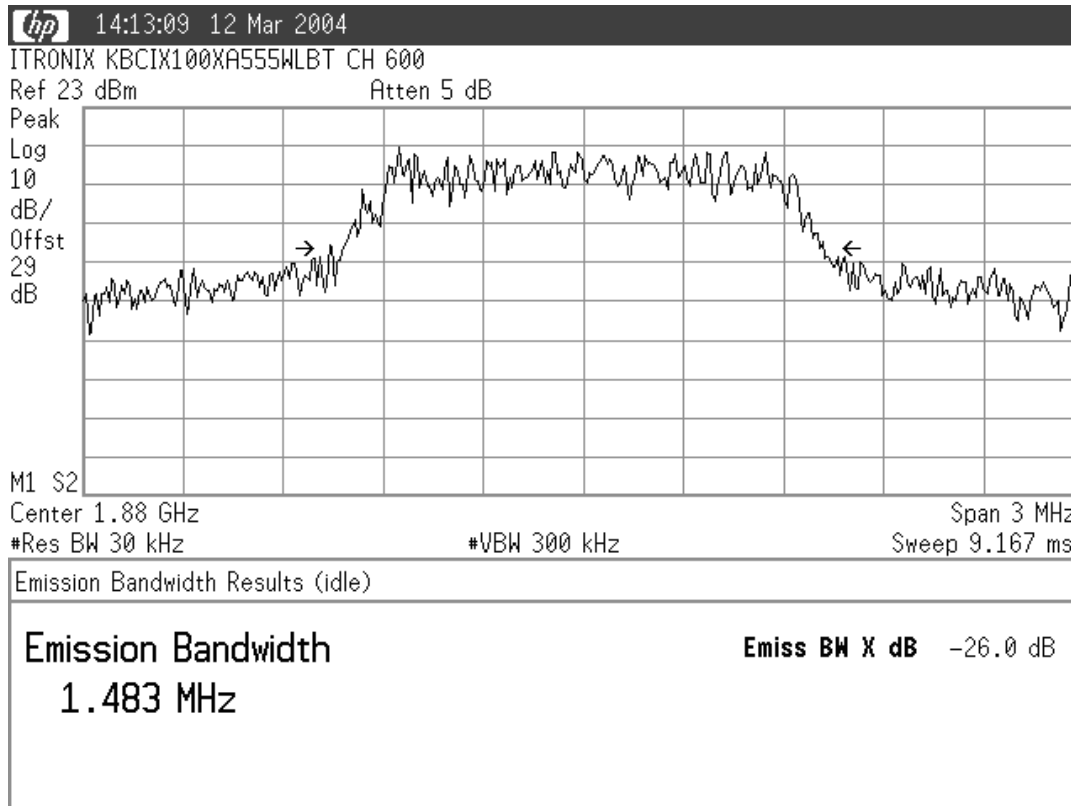
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PCS Band



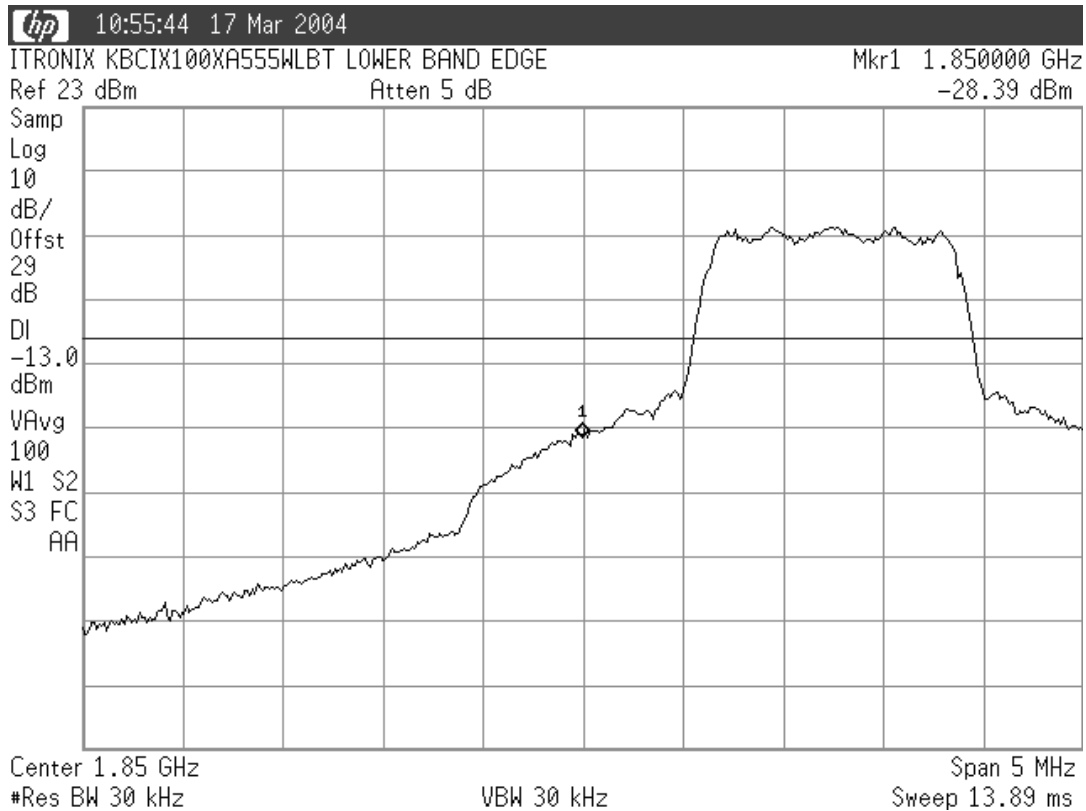
TEST PLOTS (Cont.)

PCS Band



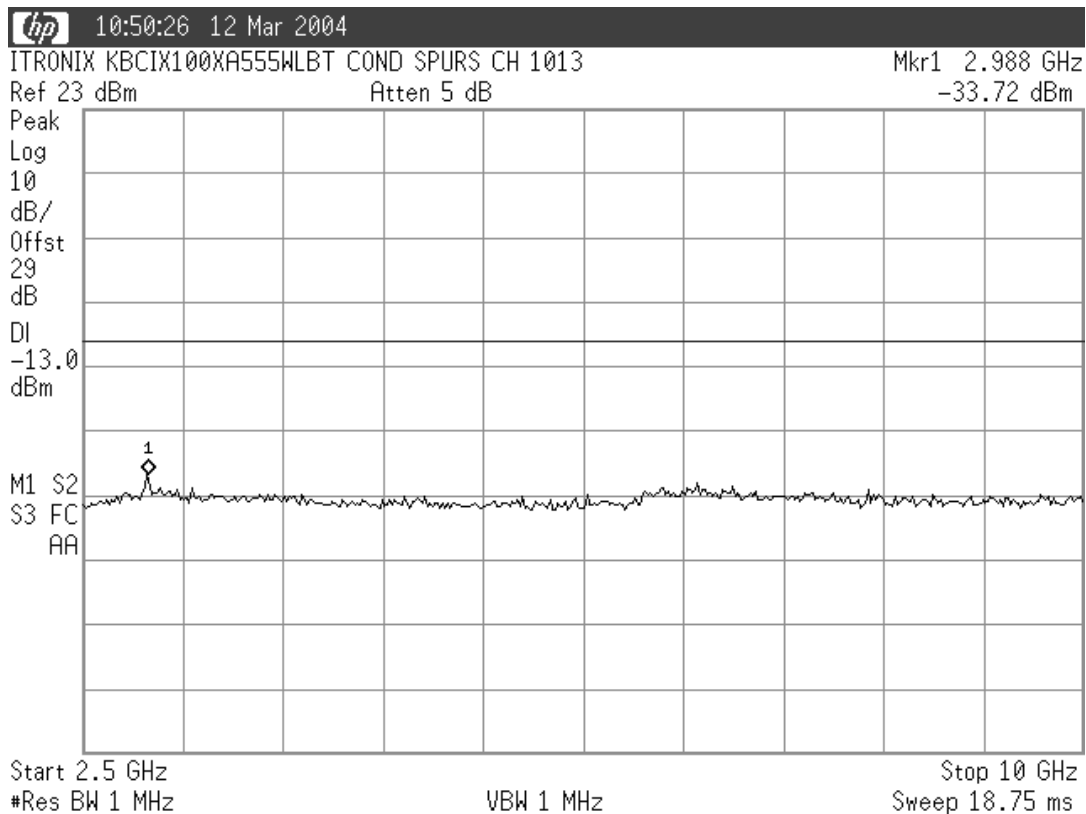
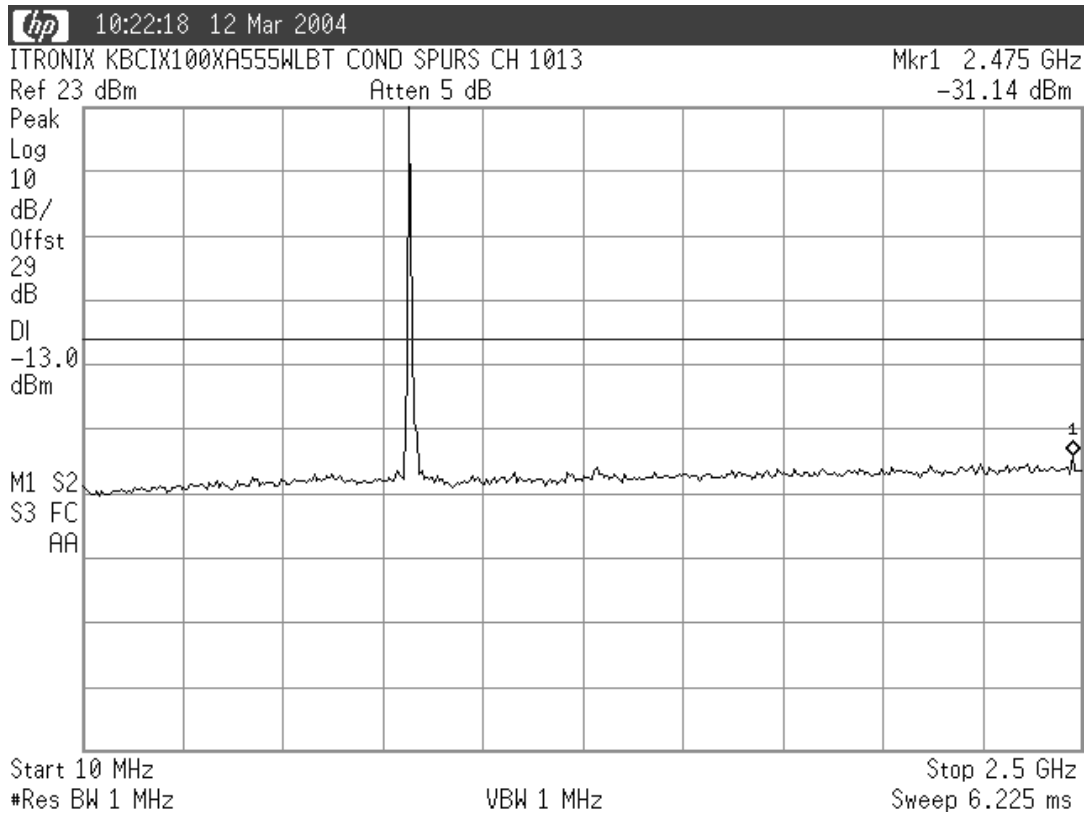
TEST PLOTS (Cont.)

PCS Band



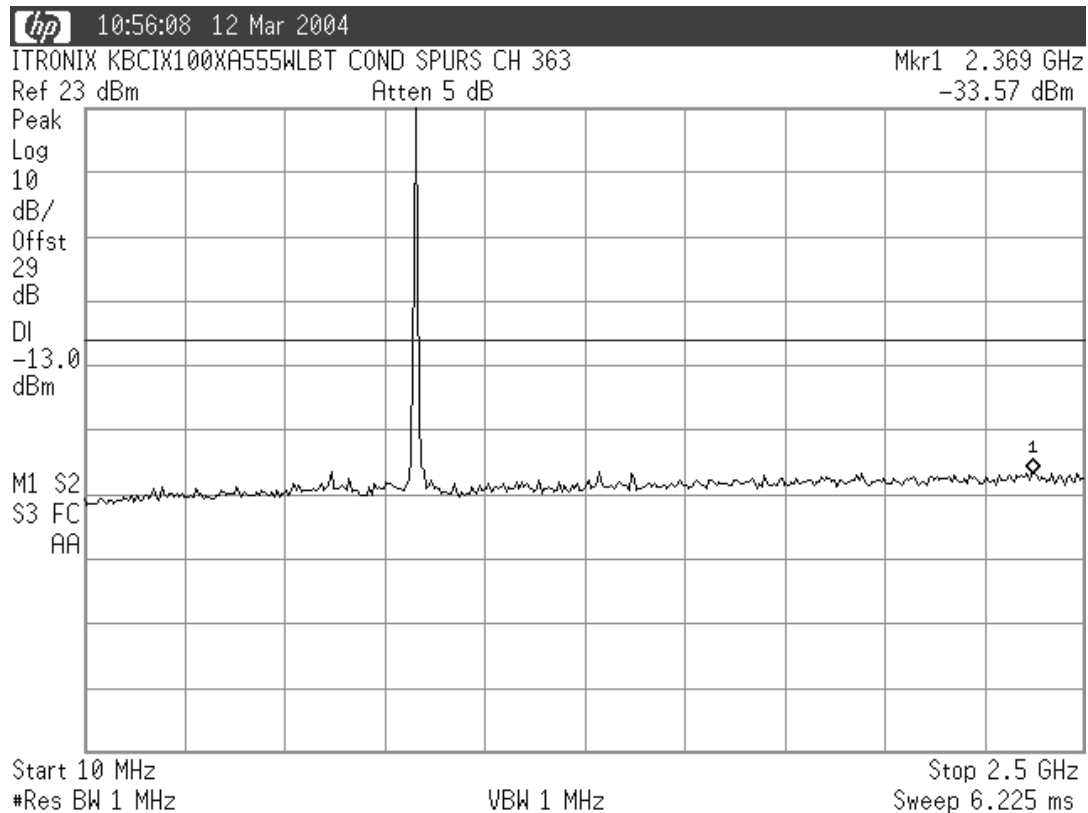
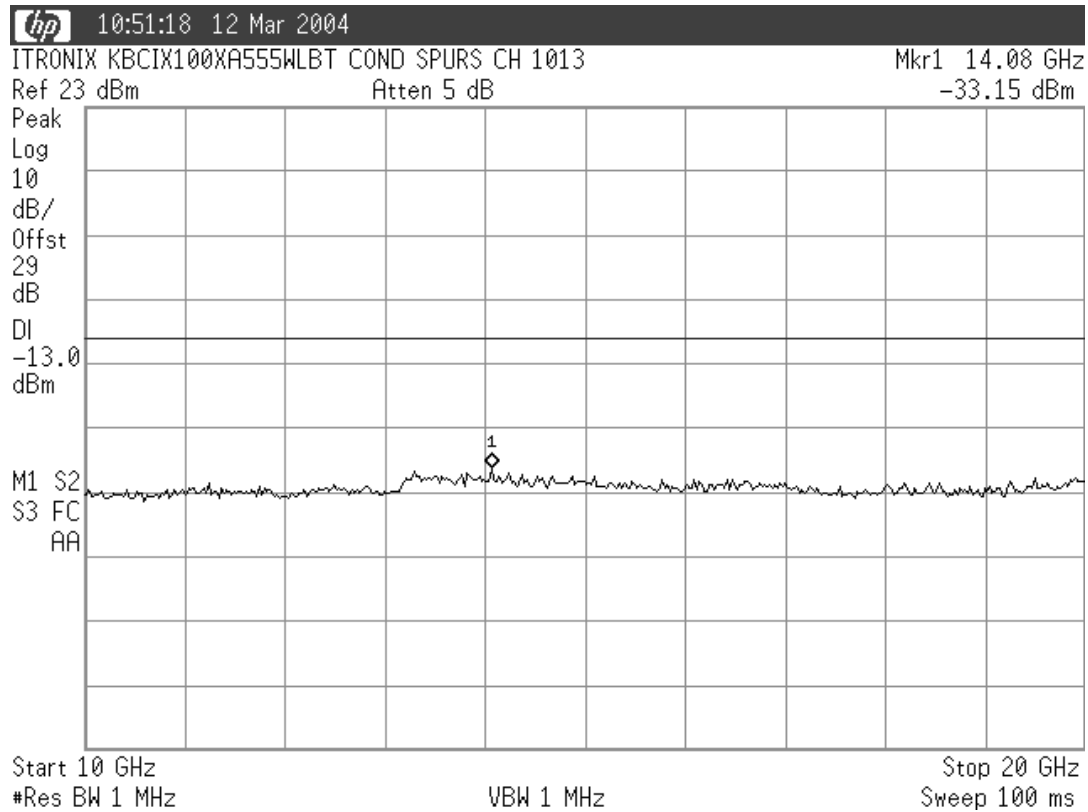
TEST PLOTS (Cont.)

Cellular Band



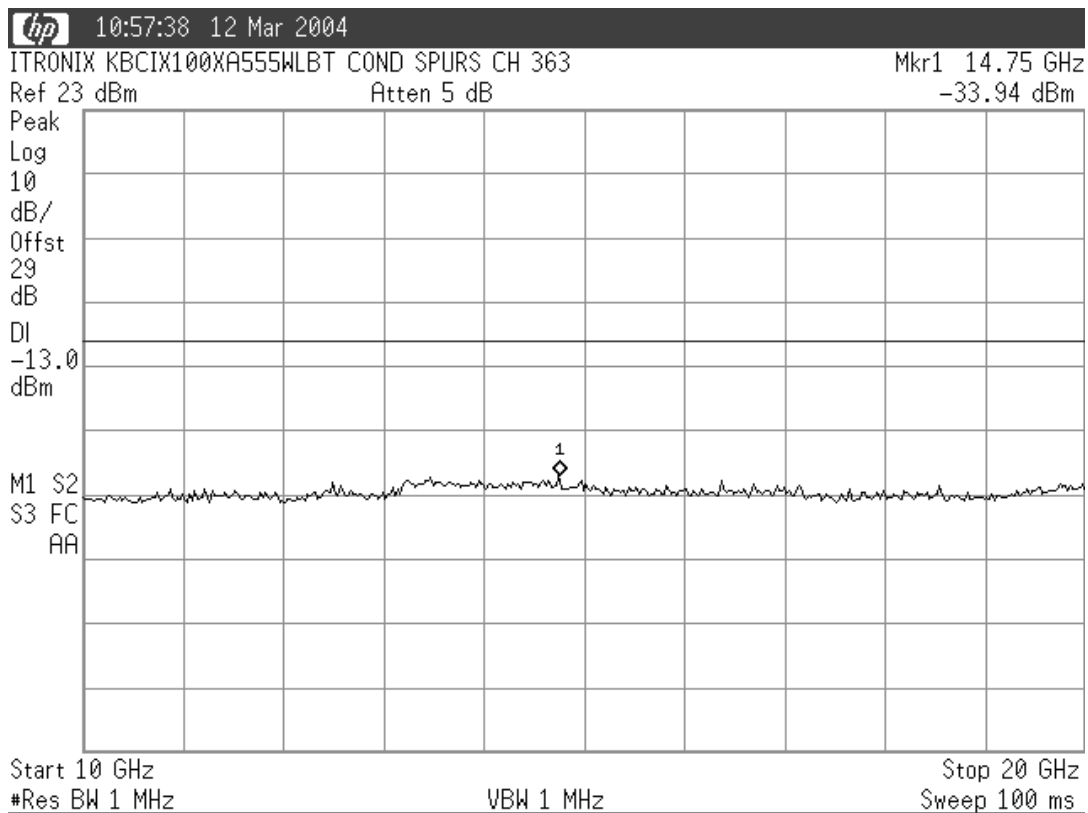
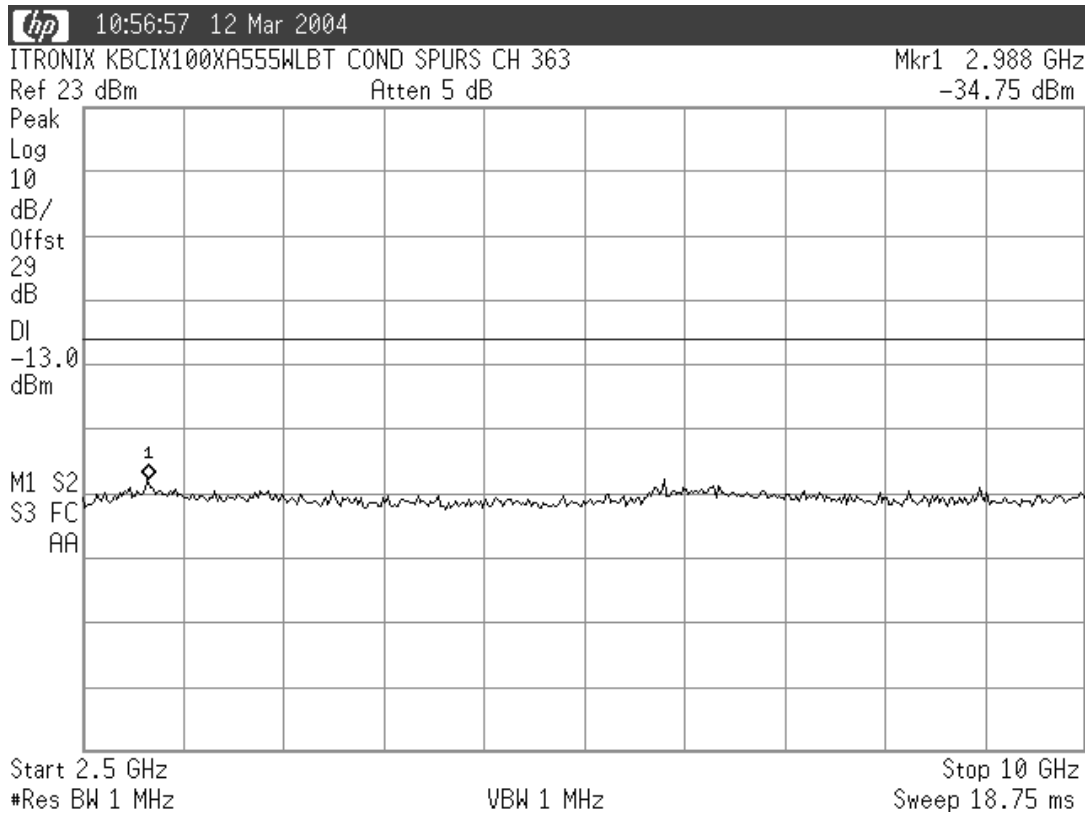
TEST PLOTS (Cont.)

Cellular Band



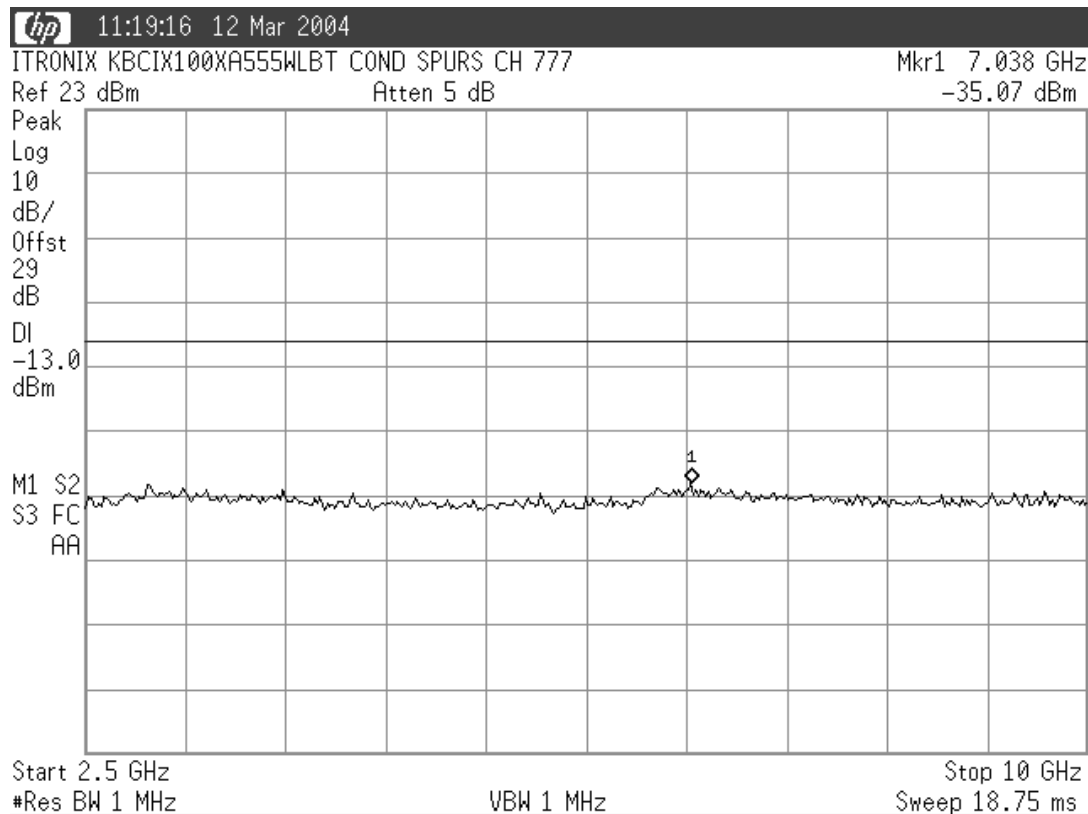
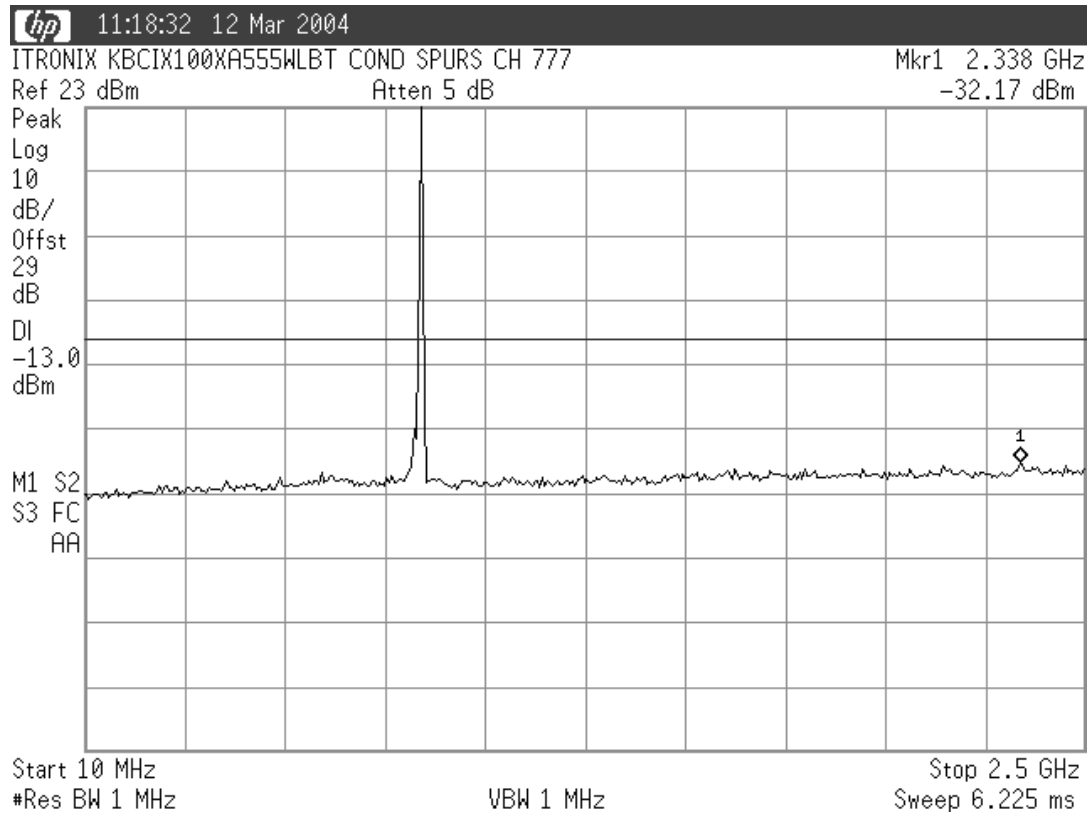
TEST PLOTS (Cont.)

Cellular Band



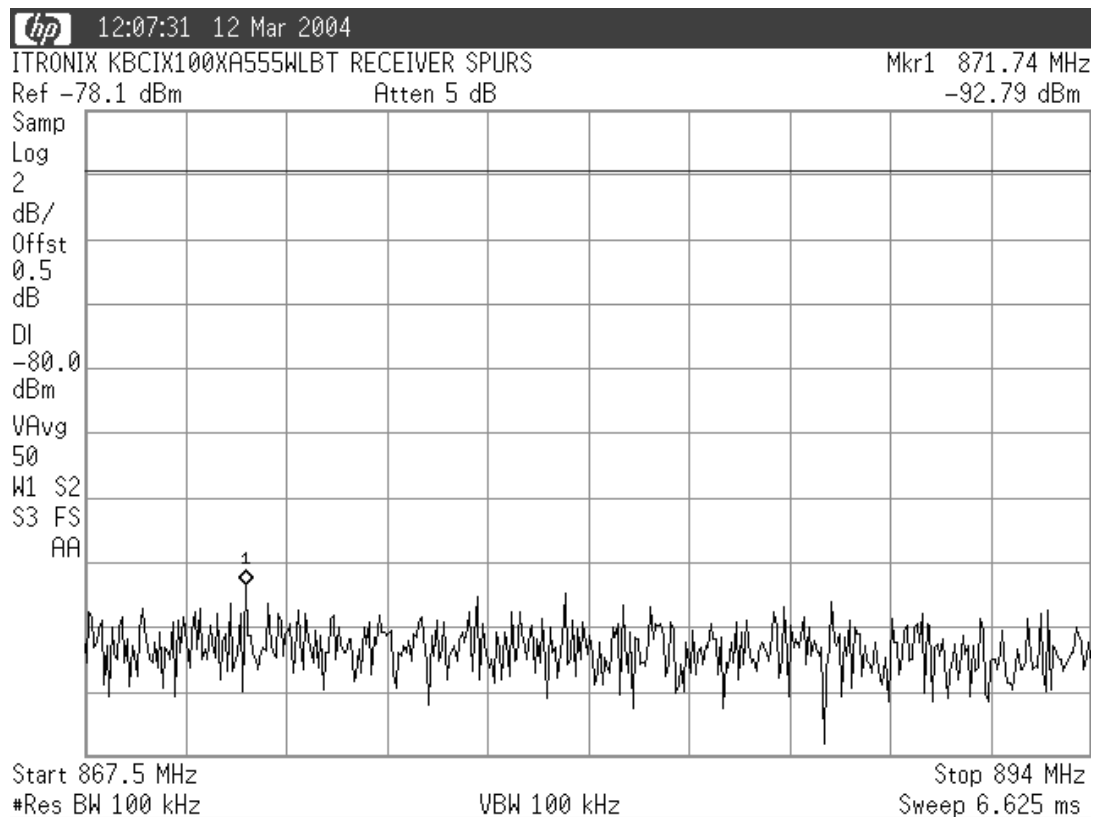
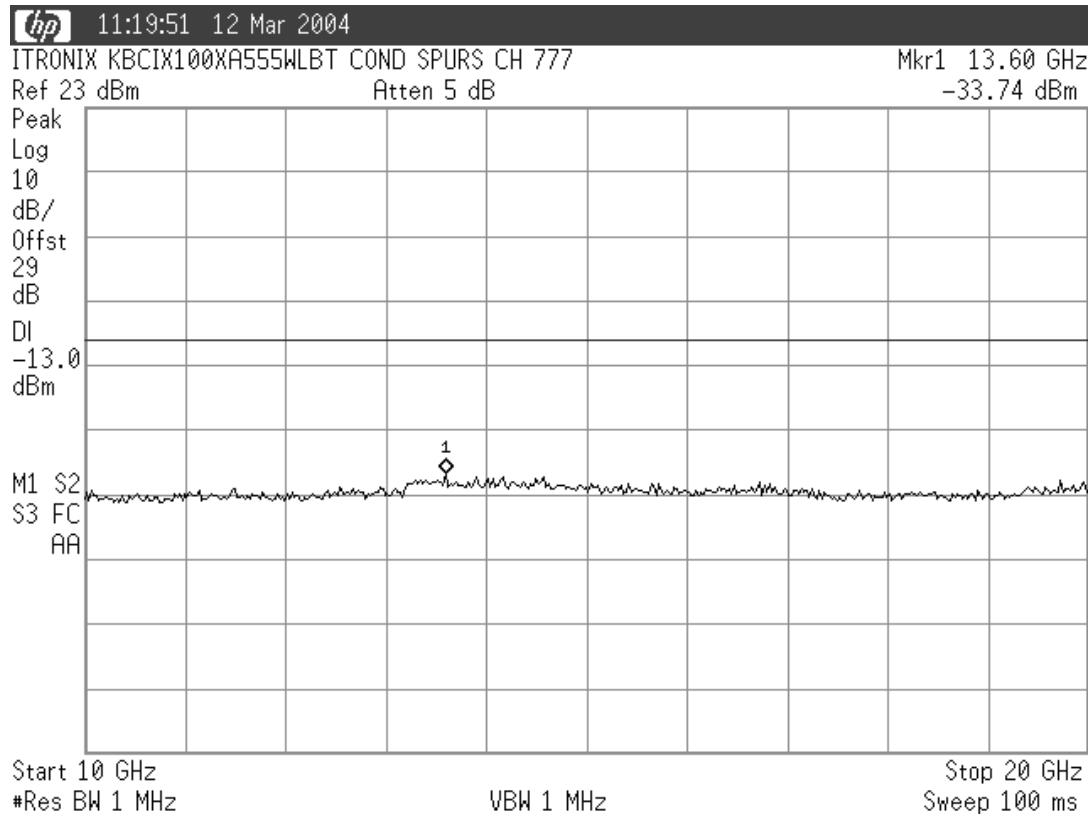
TEST PLOTS (Cont.)

Cellular Band



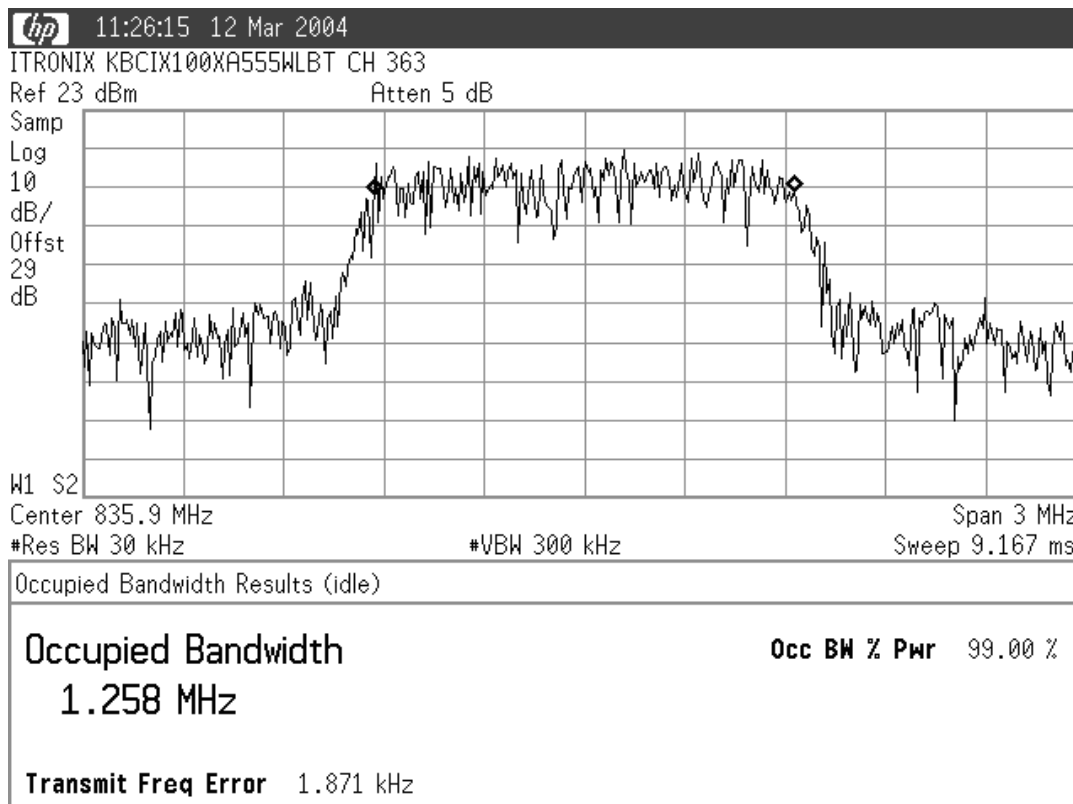
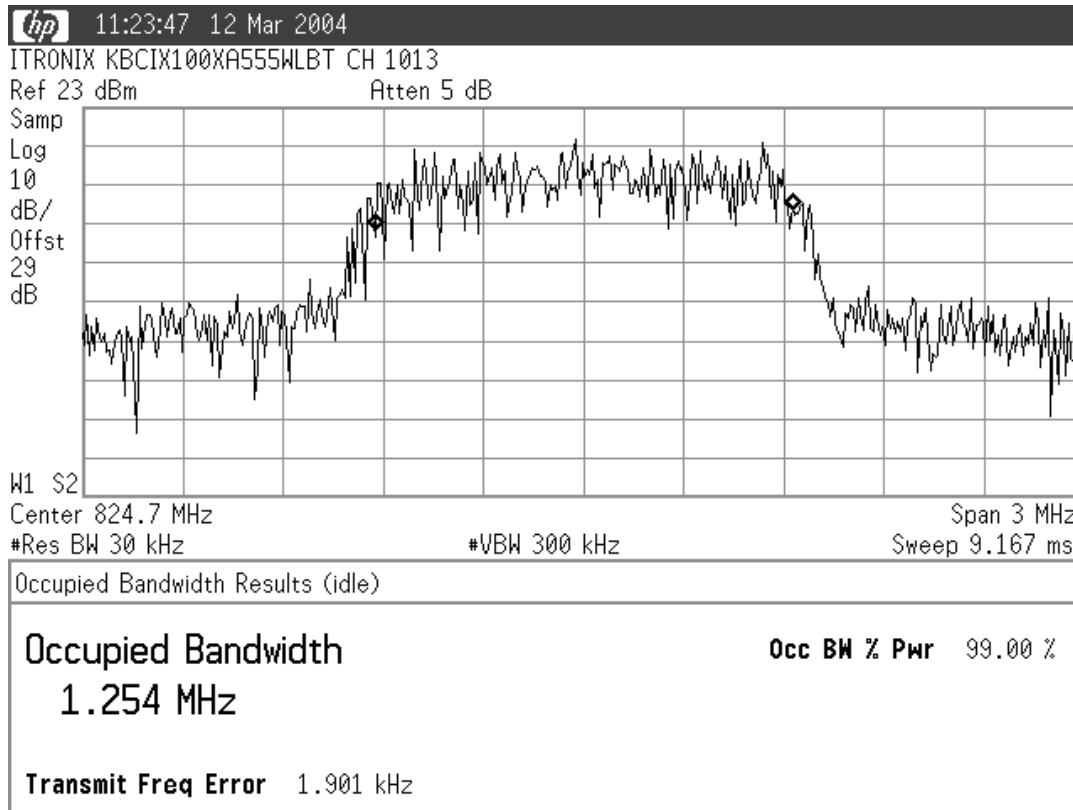
TEST PLOTS (Cont.)

Cellular Band



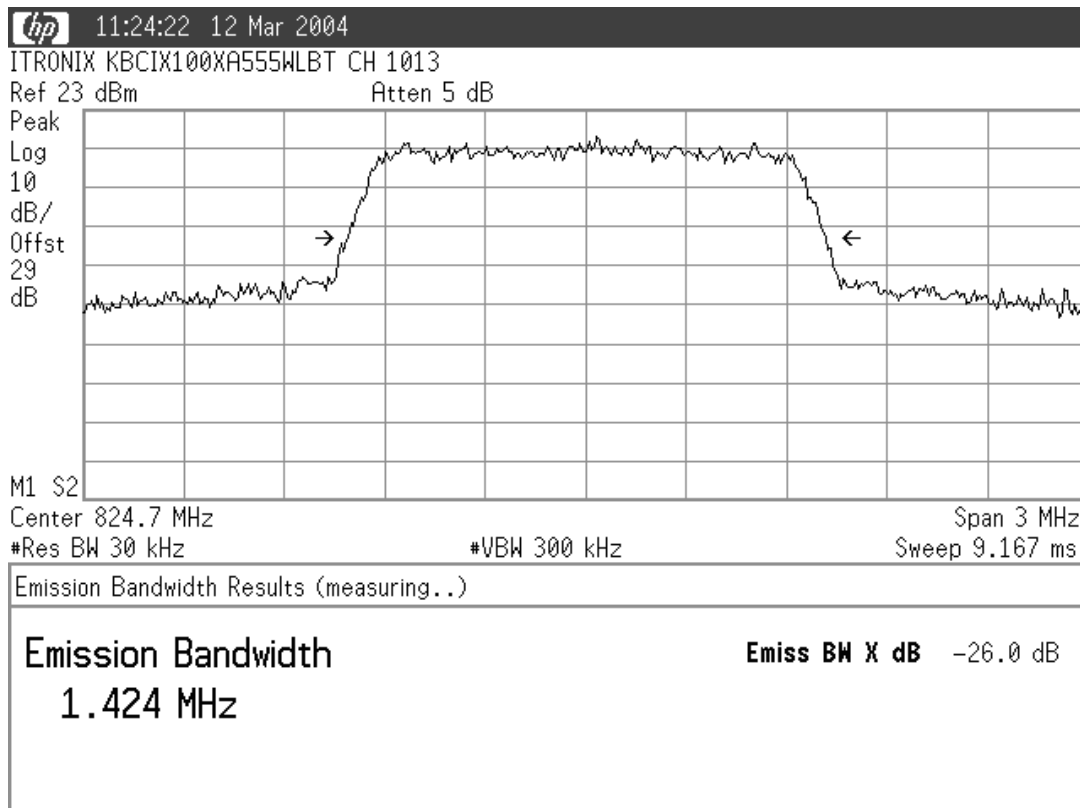
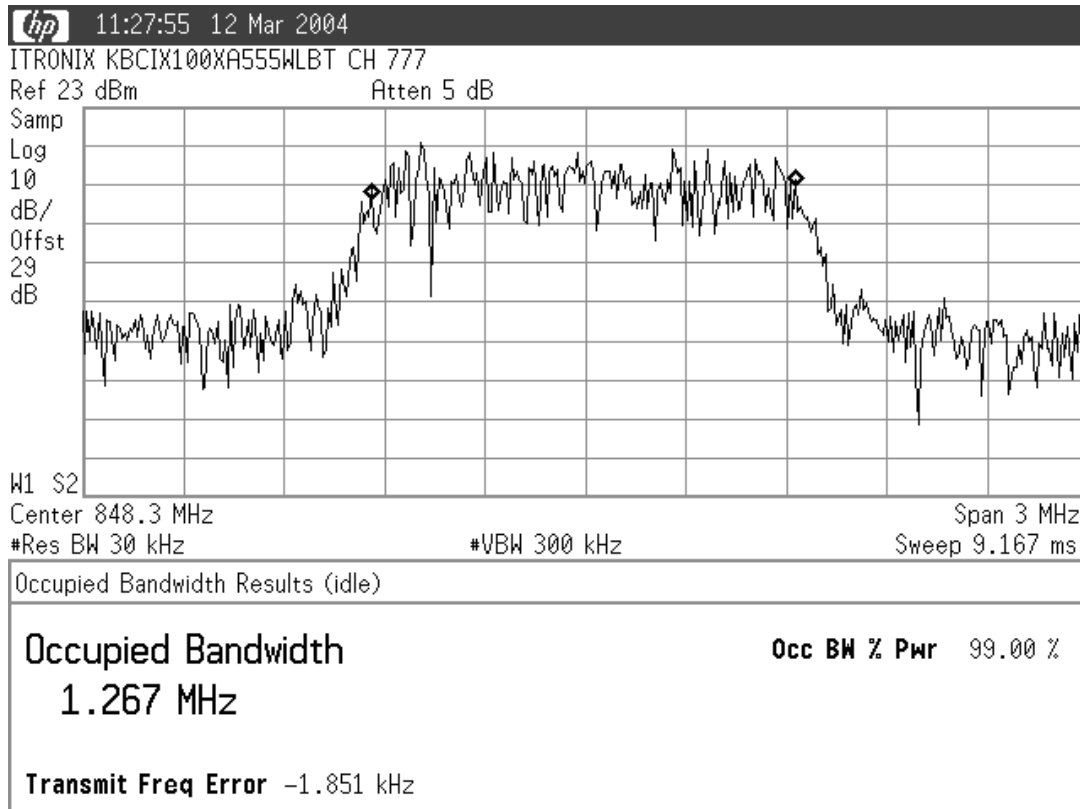
TEST PLOTS (Cont.)

Cellular Band



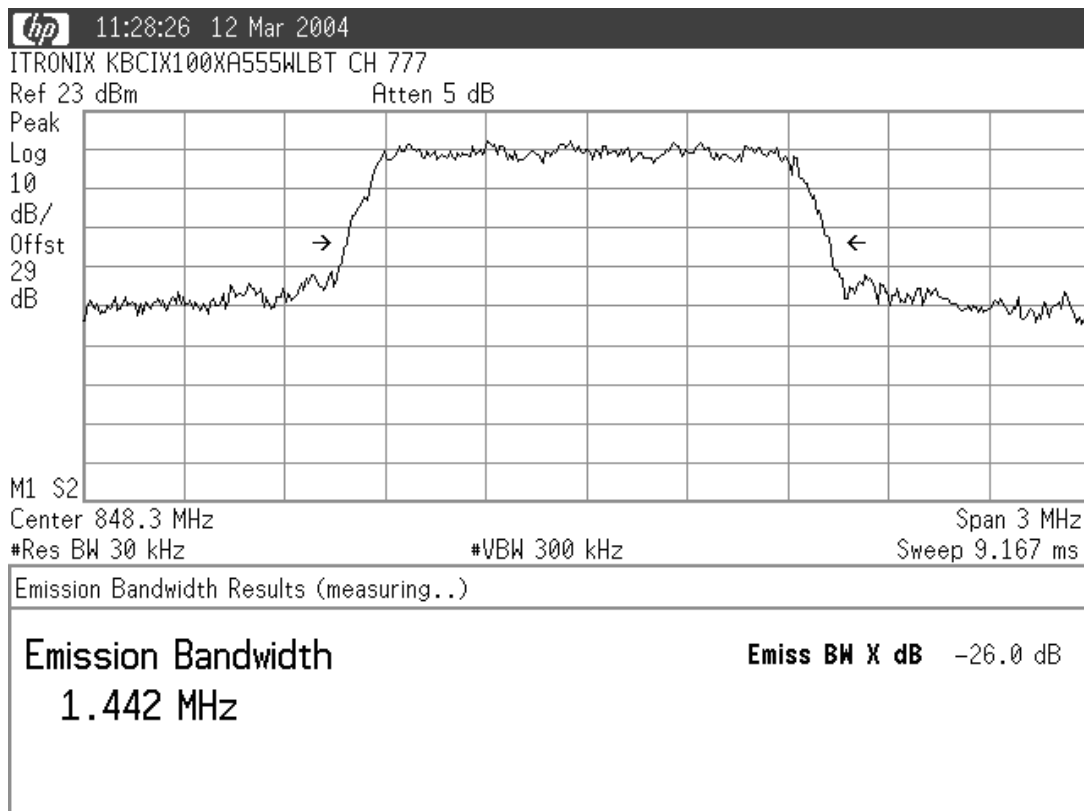
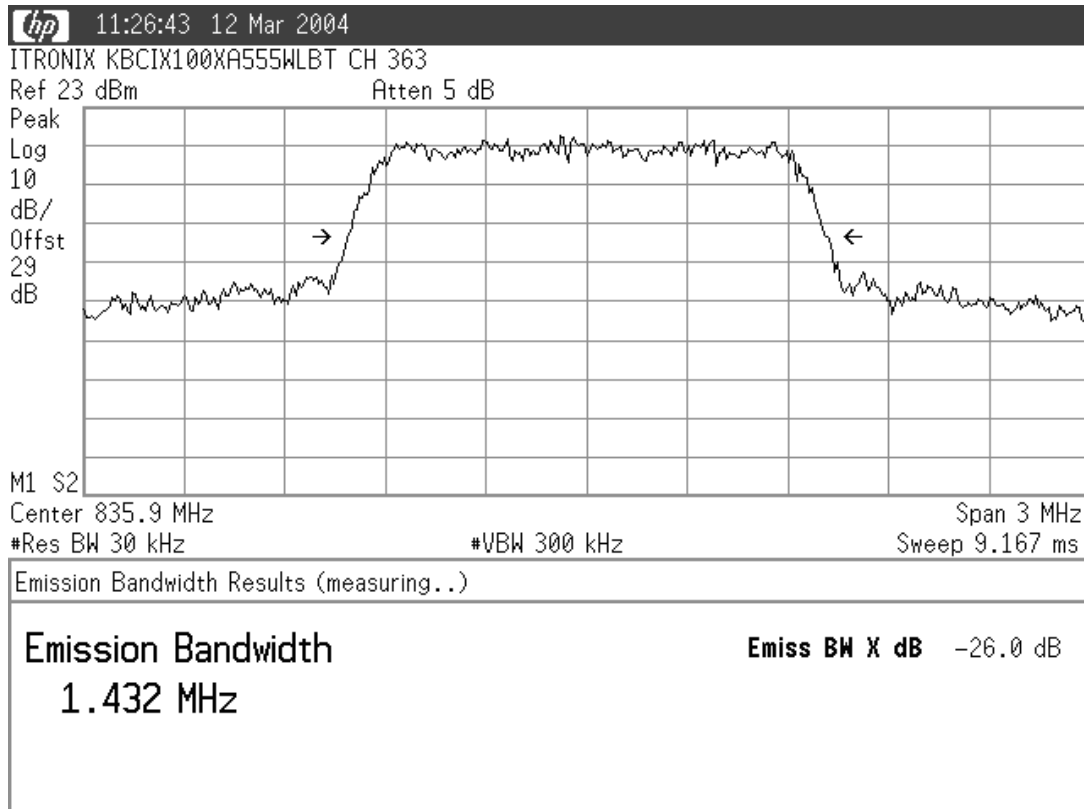
TEST PLOTS (Cont.)

Cellular Band



TEST PLOTS (Cont.)

Cellular Band



TEST PLOTS (Cont.)

Cellular Band

