

**RADIATED EMISSIONS**

**DATA**

**FOR**

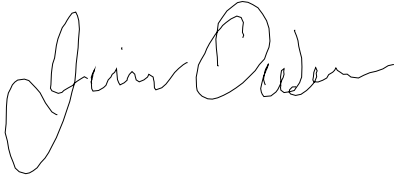
**KYOCERA WIRELESS**  
**10300 Campus Point Drive**  
**San Diego, CA 92121**

**Prepared by**

**TÜV AMERICA**  
**10040 Mesa Rim Road**  
**San Diego, CA 92121-2912**

Measurement Requirements (CFR 47 Part 15, Paragraph 15.109(a); Part 22, Paragraph 22.917(b)(2); and Part 24, Paragraph 24.238(a))

The following measurements were performed by TÜV America. To the best of my knowledge these tests were conducted in accordance with the procedures outlined in Part 2 of the Commission's Rules and Regulations. The data presented below demonstrates compliance with the appropriate technical standards.



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Jim Owen  
EMC Manager

**Emissions Test Conditions: SPURIOUS RADIATED EMISSIONS**

Roof (small open area test site)

The <i>Spurious Radiated Emissions</i> measurements were performed using the following equipment:
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**Test Equipment Used:**

Model No.	Prop. No.	Description	Manufacturer	Serial No.	Date Cal'ed
3115	6679	Double Ridge Guide Antenna	EMCO	2495	12/02
HP-8566B	6488	Spectrum Analyzer	Hewlett Packard	2618A02913	12/02
11975A	716	PreAmp	Hewlett Packard	2517A00639	NCR*
FF6549-2	783	2000 MHz High Pass Filter	Sage	008	NCR*
FF6549-1	778	900 MHz High Pass Filter	Sage	005	NCR*
E4440A	6814	Spectrum Analyzer	Hewlett Packard	MY42510441	08/03
CBL6111	6521	Bilog Antenna	Chase Electronics	1291	NCR*

**Remarks:** One year calibration cycle for all test equipment and sites. (\*) No Calibration Required.

**Technical Documentation**

**Test Data Sheets**

**and**

**Test Setups**

REPORT No: SC305131    TESTER: Alan Laudani    SPEC: FCC Part 15 para 15.109(a)  
 CUSTOMER: Kyocera Wireless    TEST DIST: 3 Meters  
 E U T: KX44    TEST SITE: Roof  
 EUT MODE: Receive CDMA    BICONICAL: N/A  
 DATE: Nov. 14, 2003    LOG: N/A

NOTES: OTHER: 251  
 above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG  
 No emissions detected between 30 MHz and 1000 MHz.  
 CF = Antenna Factor + Cable Loss - Preampifier Gain

FREQ (MHz)	VERTICAL (dBuv)		HORIZONTAL (dBuv)		CF (dBm)	MAX LEVEL (dBuV/m)		SPEC LIMIT (dBuV/m)		MARGIN (dB)		EUT Rotation	Antenna Height	Notes
	pk	av	pk	av		pk	av	pk	av	pk	av			
1053.3	47.2	37.7	55.3	44.9	-13.61	41.7	31.3	74	54	-32.3	-22.7		1	noise level
2106.6	45.6	34.4	46.6	35	-6.31	40.3	28.7	74	54	-33.7	-25.3		1	noise level
3159.9	43.9	33.9	45.7	34.1	-2.22	43.5	31.9	74	54	-30.5	-22.1		1	noise level
4213.2	45.2	34.5	45.9	34.6	-0.03	45.9	34.6	74	54	-28.1	-19.4		1	noise level
5266.5	45.2	33.6	44.6	33.5	2.62	47.8	36.2	74	54	-26.2	-17.8		1	noise level
1065.09	42.5	35.5	57.1	44.5	-13.52	43.6	31.0	74	54	-30.4	-23		1	noise level
2130.18	45	34.6	48.1	35.7	-6.20	41.9	29.5	74	54	-32.1	-24.5		1	noise level
3195.27	45.5	34	46.4	34.3	-2.10	44.3	32.2	74	54	-28.7	-21.8		1	noise level
4260.36	46.2	35.2	46.5	35.3	-0.12	46.4	35.2	74	54	-27.6	-18.8		1	noise level
5325.45	45.1	33.5	45.1	33.6	3.04	48.1	36.6	74	54	-25.9	-17.4		1	noise level
1076.91	48.4	40.9	48.5	38.3	-13.43	35.1	27.5	74	54	-38.9	-26.5		1	noise level
2153.82	49.2	41.7	50.7	37.3	-6.09	44.6	35.6	74	54	-29.4	-18.4		1	noise level
3230.73	46.5	34.3	45.6	34.5	-1.97	44.5	32.5	74	54	-29.5	-21.5		1	noise level
4307.64	46.8	35.2	47.1	35.3	-0.22	46.9	35.1	74	54	-27.1	-18.9		1	noise level
5384.55	45.3	33.4	44.8	33.4	3.47	48.8	36.9	74	54	-25.2	-17.1		1	noise level



REPORT No: SC305131    TESTER: Alan Laudani    SPEC: FCC Part 15 para 15.109(a)  
 CUSTOMER: Kyocera Wireless    TEST DIST: 3 Meters  
 E U T: KX444    TEST SITE: Roof  
 EUT MODE: Receive FM    BICONICAL: N/A  
 DATE: Nov. 5, 2003    LOG: N/A  
 NOTES: OTHER: 251  
 above 1GHz: RBW & VBW 1 MHz for Pk, RBW 1MHz and VBW 10Hz for AVG  
 No emissions detected between 30 MHz and 1000 MHz.  
 CF = Antenna Factor + Cable Loss - Pre-amplifier Gain

FREQ (MHz)	VERTICAL (dBuv)		HORIZONTAL (dBuv)		CF (dB/m)	MAX LEVEL (dBuV/m)		SPEC LIMIT (dBuV/m)		MARGIN (dB)		EUT Rotation	Antenna Height	Notes
	pk	av	pk	av		pk	av	pk	av	pk	av			
1052.64	58.7	38.2	59.5	46.6	-13.61	45.9	33.0	74	54	-28.1	-21		1	noise level
2105.28	48.9	34.9	45.9	34.7	-6.32	42.6	28.6	74	54	-31.4	-25.4		1	noise level
3157.92	46.2	34.4	45.8	34.4	-2.23	44.0	32.2	74	54	-30.0	-21.8		1	noise level
4210.56	46	35	46.6	35	-0.02	46.6	35.0	74	54	-27.4	-19		1	noise level
5263.2	45.6	33.9	45	34	2.60	48.2	36.6	74	54	-25.8	-17.4		1	noise level
1065.09	54	35.7	63.3	46.4	-13.52	49.8	32.9	74	54	-24.2	-21.1		1	noise level
2130.18	45.9	34.8	49.2	35.8	-6.20	43.0	29.6	74	54	-31	-24.4		1	noise level
3195.27	45.9	34.9	46.5	34.4	-2.10	44.4	32.8	74	54	-29.6	-21.2		1	noise level
4260.36	46.3	35.4	46.2	35.5	-0.12	46.2	35.4	74	54	-27.8	-18.6		1	noise level
5325.45	44.9	33.6	44.5	33.7	3.04	47.9	36.7	74	54	-26.1	-17.3		1	noise level
1077.57	56.4	38.7	58.3	38.1	-13.43	44.9	25.3	74	54	-29.1	-28.7		1	noise level
2155.14	52.8	45.3	49.8	37.3	-6.09	46.7	39.2	74	54	-27.3	-14.8		1	noise level
3232.71	46.1	34.4	46.8	34.6	-1.96	44.8	32.6	74	54	-29.2	-21.4		1	noise level
4310.28	46.7	35.6	47.8	35	-0.22	47.6	35.4	74	54	-26.4	-18.6		1	noise level
5387.85	44.5	33.4	44.1	33.5	3.49	48.0	37.0	74	54	-26	-17		1	noise level

REPORT No: SC305131    TESTER: A. Laudani    SPEC: FCC Part 15 para 15.109(a)  
 CUSTOMER: Kyocera Wireless    TEST DIST: 3 Meters  
 E U T: KX444    TEST SITE: Roof  
 EUT MODE: Receive PCS    BICONICAL: N/A  
 DATE: Nov. 14, 2003    LOG: N/A  
 NOTES: OTHER: 251  
 above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG  
 No emissions detected between 30 MHz and 1000 MHz.  
 CF = Antenna Factor + Cable Loss - Preamplifier Gain

FREQ (MHz)	VERTICAL (dBuV)		HORIZONTAL (dBuV)		CF (dB/m)	MAX LEVEL (dBuV/m)		SPEC LIMIT (dBuV/m)		MARGIN (dB)		EUT Rotation	Antenna Height	Notes
	pk	av	pk	av		pk	av	pk	av	pk	av			
2114.85	62.9	48.3	55.1	53.2	-6.27	58.8	46.9	74	54	-15.2	-7.07		1	noise level
4229.7	45.9	35	46	34.9	-0.06	45.9	34.9	74	54	-28.1	-19.1		1	noise level
6344.55	48	36.5	48.2	36.5	5.49	53.7	42.0	74	54	-20.3	-12		1	noise level
8459.4	46.9	36.2	47.3	36.2	9.91	57.2	46.1	74	54	-16.8	-7.89		1	noise level
10574.25	46.5	34.9	46.8	34.9	12.33	58.1	47.2	74	54	-14.9	-6.8		1	noise level
2143.6	46.1	35.3	47.1	35.3	-6.14	41.0	29.2	74	54	-33	-24.8		1	noise level
4287.2	47	35.8	47.4	35.7	-0.17	47.2	35.6	74	54	-26.8	-18.4		1	noise level
6430.8	47.7	36.5	47.9	36.5	5.44	53.3	41.9	74	54	-20.7	-12.1		1	noise level
8574.4	47.5	36.5	47.8	36.4	10.16	58.0	46.7	74	54	-16	-7.34		1	noise level
10718	47.2	35.2	46.3	35.1	12.59	59.8	47.8	74	54	-14.2	-6.21		1	noise level
2172.35	48	35.5	46	35.4	-6.01	42.0	29.5	74	54	-32	-24.5		1	noise level
4344.7	47.6	35.8	47.3	35.9	-0.29	47.3	35.6	74	54	-26.7	-18.4		1	noise level
6517.05	47	36.2	47.8	36.3	5.46	53.3	41.8	74	54	-20.7	-12.2		1	noise level
8689.4	48	36.3	47.3	36.3	10.42	58.4	46.7	74	54	-15.6	-7.28		1	noise level
10861.75	45.9	35	46.3	35	12.85	59.2	47.9	74	54	-14.8	-6.15		1	noise level

REPORT No: SC305131 TESTER: Alan Laudani SPEC: FCC Part 22 para 22.917(b)(2)  
 CUSTOMER: Kyocera Wireless TEST DIST: 3 Meters  
 E U T: KX444 TEST SITE: Roof  
 EUT MODE: CDMA transmit BICONICAL: N/A  
 DATE: 14-Nov-2003 ERP Factor 7 LOG: N/A  
 NOTES: HORN: 251

Part 22 - RBW & YBW 1MHz  
 CF = Antenna Factor + Cable Loss - Pre-amplifier Gain

FREQ (MHz)	VERTICAL (dBuv) pk	HORIZONTAL (dBuv) pk	HORIZONTAL CF (dB/m)	MAX LEVEL (dBm) pk	SPEC LIMIT (dBm) pk	MARGIN (dB) pk	EUT Rotation	Antenna Height	Notes
824.7									Fundamental (Low Band)
1649.4	49.4	49.7	-9.3	-56.9	-13.0	-43.9	0	1.1	
2474.1	55.3	51.9	-4.7	-46.8	-13.0	-33.8	233	1.1	
3298.8	48.5	45.6	-2.4	-51.2	-13.0	-38.2	230	1	
4123.5	46	46.7	-0.7	-51.3	-13.0	-38.3		1	noise level
4948.2	45.9	45.7	0.1	-51.3	-13.0	-38.3		1	noise level
5772.9	45.2	45.5	4.9	-46.9	-13.0	-33.9		1	noise level
6597.6	48.5	47.4	5.7	-43.2	-13.0	-30.2		1	noise level
7422.3	47.2	47.1	8.2	-41.9	-13.0	-28.9		1	noise level
8247	47.9	47.4	9.2	-40.3	-13.0	-27.3		1	noise level
836.49									Fundamental (Mid Band)
1672.98	50.2	49.6	-9.1	-56.2	-13.0	-43.2	220	1.1	
2509.47	55.9	56.1	-4.6	-45.8	-13.0	-32.8	232	1.4	
3345.96	46.3	46.2	-2.2	-53.3	-13.0	-40.3		1	noise level
4182.45	46.4	46.6	-0.8	-51.5	-13.0	-38.5		1	noise level
5018.94	47.3	45.4	0.4	-49.6	-13.0	-36.6		1	noise level
5855.43	48.1	48.8	5.2	-43.4	-13.0	-30.4		1	noise level
6691.92	47.3	47.3	6.0	-44.0	-13.0	-31		1	noise level
7528.41	46.2	46.9	8.4	-42.0	-13.0	-29		1	noise level
8364.9	46.8	47.5	9.4	-40.4	-13.0	-27.4		1	noise level
846.31									Fundamental (High Band)
1696.62	51.9	48.6	-8.9	-54.4	-13.0	-41.4	240	1	
2544.93	50	53.7	-4.5	-48.1	-13.0	-35.1	130	1	
3393.24	47	45.7	-2.1	-52.5	-13.0	-39.5		1	noise level
4241.55	46.8	46.4	-0.8	-51.4	-13.0	-38.4		1	noise level
5089.96	45.5	46	1.0	-50.4	-13.0	-37.4		1	noise level
5938.17	48.7	47.6	5.4	-43.2	-13.0	-30.2		1	noise level
6786.48	47.4	47.8	6.4	-43.2	-13.0	-30.2		1	noise level
7634.79	46.8	47.2	8.5	-41.7	-13.0	-28.7		1	noise level
8483.1	47.2	47.1	9.7	-40.5	-13.0	-27.5		1	noise level



REPORT No. SC305131 TESTER: Alan Laudani SPEC: FCC Part 22 para 22.917(b)(2)  
 CUSTOMER: Kyocera Wireless TEST DIST: 3 Meters  
 E U T: KX444 TEST SITE: Roof  
 EUT MODE: FM transmit BICONICAL: N/A  
 DATE: 14-Nov-2003 ERP Factor 7 LOG: N/A  
 NOTES: HORN: 251

Part 22 - RBW & VBW 1MHz  
 CF = Antenna Factor + Cable Loss - Preampifier Gain

FREQ (MHz)	VERTICAL (dBuv) pk	HORIZONTAL (dBuv) pk	CF (dB/m)	MAX LEVEL (dBm) pk	SPEC LIMIT (dBm) pk	MARGIN (dB) pk	EUT Rotation	Antenna Height	Notes	
										v.belata
824.04										Fundamental (Low Band)
1648.08	50.2	50.1	-9.3	-58.4	-13.0	-43.4	230	1		
2472.12	51.8	57.3	-4.7	-44.8	-13.0	-31.8	230	1.4		
3296.16	50.1	46.7	-2.4	-49.6	-13.0	-36.6	75	1.5		
4120.2	46.6	46.1	-0.7	-51.4	-13.0	-38.4		1		noise level
4944.24	45.7	46.6	0.1	-50.6	-13.0	-37.6		1		noise level
5768.28	44.4	43.9	4.9	-48.1	-13.0	-35.1		1		noise level
6592.32	47.4	48.3	5.7	-43.4	-13.0	-30.4		1		noise level
7416.36	47.1	47.2	8.2	-42.0	-13.0	-29		1		noise level
8240.4	47.5	47.7	9.2	-40.5	-13.0	-27.5		1		noise level
836.49										
1672.98	49.4	51.3	-9.1	-55.1	-13.0	-42.1	181	1.6		Fundamental (Mid Band)
2509.47	53.6	54.1	-4.6	-47.8	-13.0	-34.8	235	1.3		
3345.96	47.2	46.7	-2.2	-52.4	-13.0	-39.4	116	1.1		
4182.45	46.4	46.4	-0.8	-51.7	-13.0	-38.7		1		noise level
5018.94	45	46	0.4	-50.9	-13.0	-37.9		1		noise level
5855.43	49	48.2	5.2	-43.2	-13.0	-30.2		1		noise level
6691.92	47	47.7	6.0	-43.6	-13.0	-30.6		1		noise level
7528.41	47.9	47.6	8.4	-41.0	-13.0	-28		1		noise level
8364.9	47.3	47	9.4	-40.6	-13.0	-27.6		1		noise level
848.97										
1697.94	52.1	50.4	0.0							Fundamental (High Band)
2546.91	54.6	55.9	-8.9	-54.2	-13.0	-41.2	224	1.2		
3395.88	48.3	46.2	-4.5	-45.9	-13.0	-32.9	240	1.5		
4244.85	47.2	47.3	-2.1	-51.2	-13.0	-38.2	200	1.1		
5093.82	45.3	45.7	1.0	-50.6	-13.0	-37.9		1		noise level
5942.79	47.8	47.9	5.4	-44.0	-13.0	-37.6		1		noise level
6791.76	47.2	47.7	6.4	-43.3	-13.0	-31		1		noise level
7640.73	46	46.7	8.5	-42.2	-13.0	-29.2		1		noise level
8469.7	46.9	47.1	9.7	-40.6	-13.0	-27.6		1		noise level

REPORT No: SC305131 TESTER: A. Laudani SPEC: FCC Part 24 para 24.238(a)  
 CUSTOMER: Kyocera Wireless TEST DIST: 3 Meters  
 E U T: KX444 TEST SITE: Roof  
 EUT MODE: PCS Transmit BICONICAL: N/A  
 DATE: Nov. 14, 2003 EIRP Factor 5.5 LOG: N/A  
 NOTES: HORN: 251

Part 24 - RBW 1 MHz  
 CF = Antenna Factor + Cable Loss - Preampifier Gain

v.beta1a

FREQ (MHz)	VERTICAL (dBUv) pk	HORIZONTAL (dBUv) pk	HORIZONTAL pk	CF (dB/m)	MAX LEVEL (dBm) pk	SPEC LIMIT (dBm) pk	MARGIN (dB) pk	EUT Rotation	Antenna Height	Notes
1851.25										Fundamental (Low Band)
3702.5	55.6	58.5	-1.4	-38.1	-13.0	-25.1	271	1.5		
5553.75	46.7	46	3.2	-45.3	-13.0	-32.3	273	1.1		
7405	47.5	47.3	6.6	-41.2	-13.0	-28.2				noise level
9256.25	47.7	47.2	8.6	-39.0	-13.0	-26.0				noise level
11107.5	46.4	45.8	11.0	-37.9	-13.0	-24.9				noise level
12958.75	49.2	49.9	10.7	-34.6	-13.0	-21.6				noise level
14810	49.8	50.1	13.9	-31.2	-13.0	-18.2				noise level
16661.25	50.9	49.7	15.8	-28.5	-13.0	-15.5				noise level
1880										Fundamental (Mid Band)
3760	58.2	59.1	-1.2	-37.4	-13.0	-24.4	253	1.3		
5640	48.7	45.6	3.5	-43.1	-13.0	-30.1	270	1		
7520	46.4	48.2	6.8	-40.2	-13.0	-27.2				noise level
9400	47.4	47.1	8.1	-39.7	-13.0	-26.7				noise level
11280	45.8	46.2	11.1	-38.0	-13.0	-25.0				noise level
13160	51.6	50.5	11.2	-32.5	-13.0	-19.5				noise level
15040	50.6	49.9	14.8	-29.8	-13.0	-16.8				noise level
16920	49.2	49	16.6	-29.4	-13.0	-16.4				noise level
1908.75										Fundamental (High Band)
3817.5	58.7	59.7	-1.1	-36.6	-13.0	-23.6	235	1.5		
5726.25	47	47.6	3.7	-44.0	-13.0	-31	230	1.2		
7635	47.2	47.4	6.9	-40.9	-13.0	-27.9				noise level
9543.75	47.2	46.9	7.9	-40.2	-13.0	-27.2				noise level
11452.5	45	45.1	11.2	-39.0	-13.0	-26				noise level
13361.25	50.3	50.3	11.9	-33.1	-13.0	-20.1				noise level
15270	49.7	50.7	15.1	-29.5	-13.0	-16.5				noise level
17178.75	50	49.4	18.2	-27.0	-13.0	-14				noise level

Photograph of Test Setup



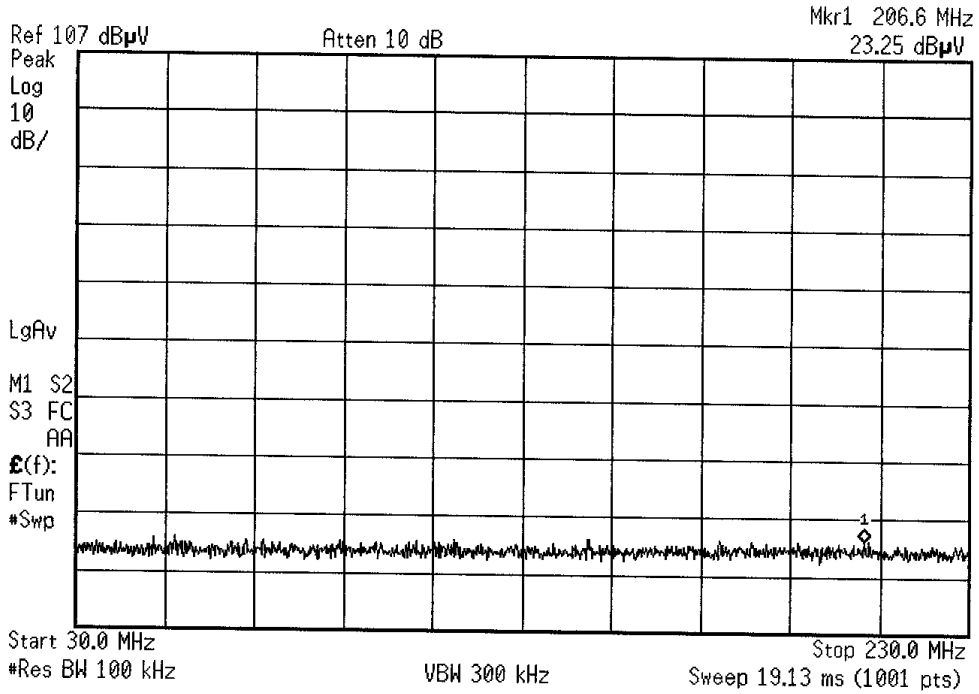
Photograph of Test Setup



## Appendix

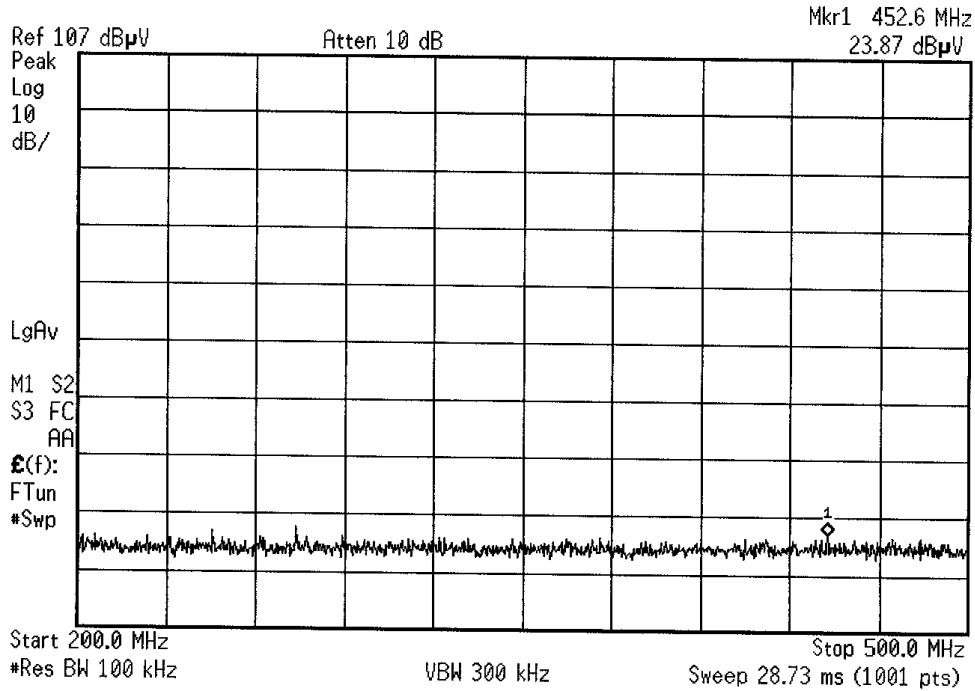
### Supplemental Information

\* Agilent 03:47:49 Nov 5, 2003



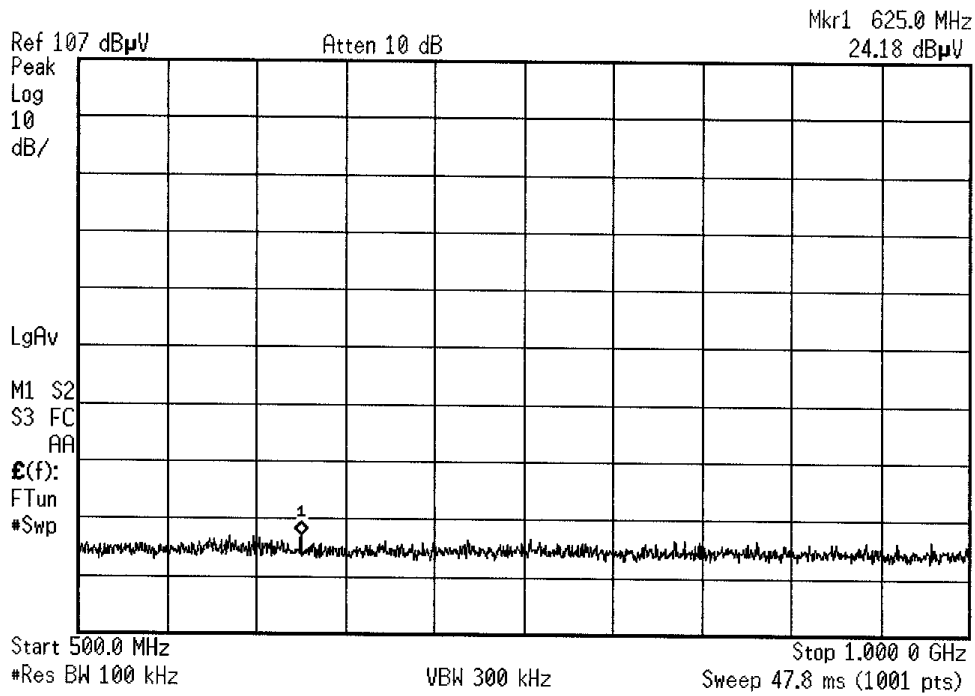
SC 305131  
KX 444  
Kyocera  
SR3 11/14/03 AAG  
1 meter Pusean  
CDMA Mid channel

✱ Agilent 03:47:27 Nov 5, 2003



SC 305131  
KX 444  
Kyocera  
SR3 11/14/03 AAP  
CDMA Midchannel

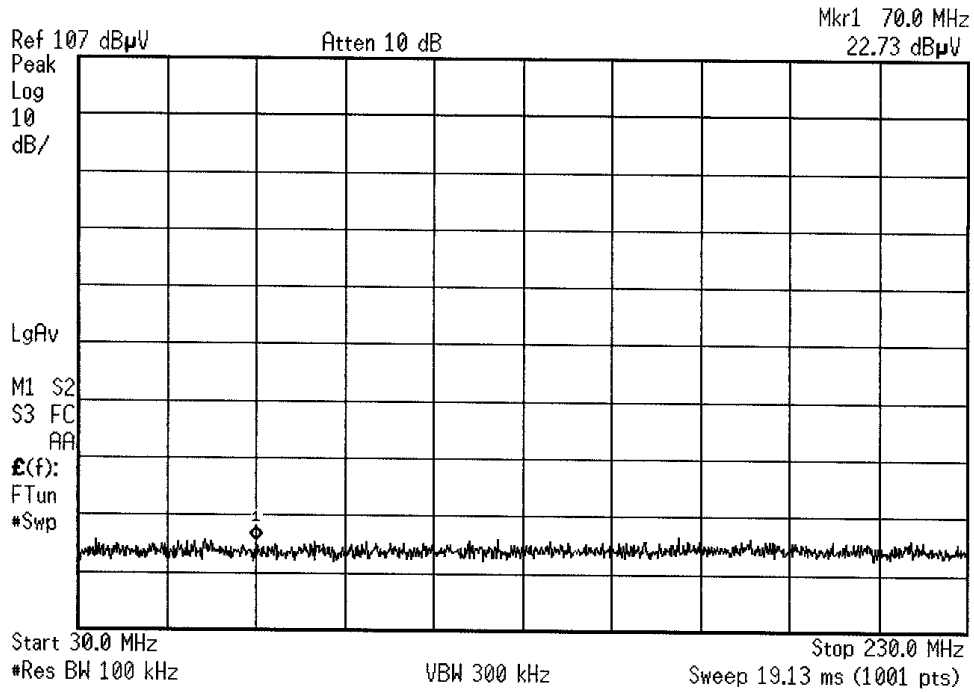
\* Agilent 03:47:10 Nov 5, 2003



SC305131  
KX444  
SR3 11/14/03 AKF  
1 meter Pre Scan  
CDMA mid channel

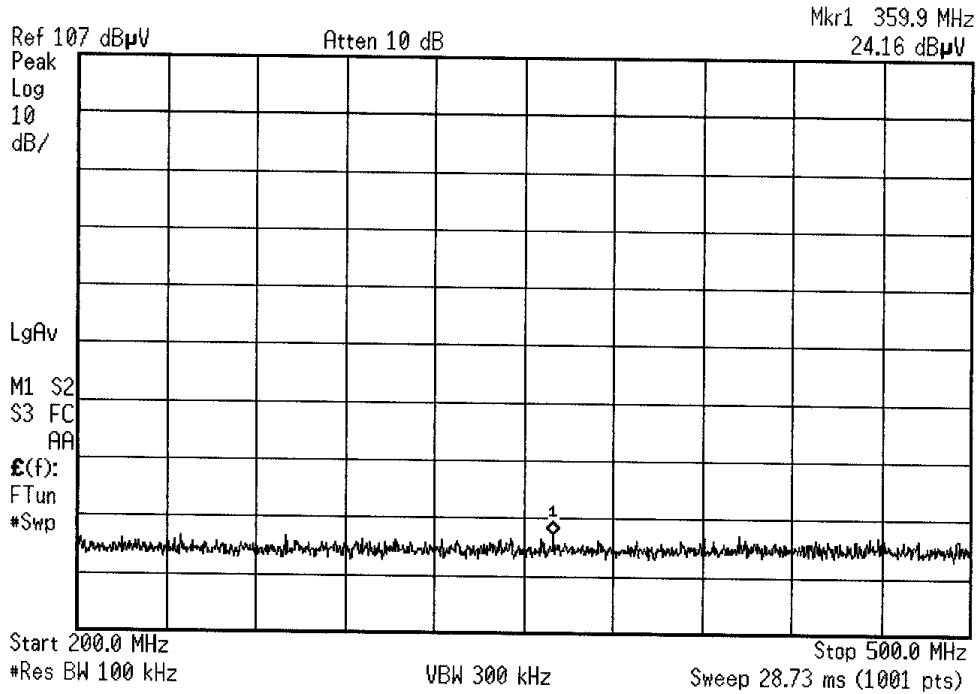


\* Agilent 03:44:56 Nov 5, 2003



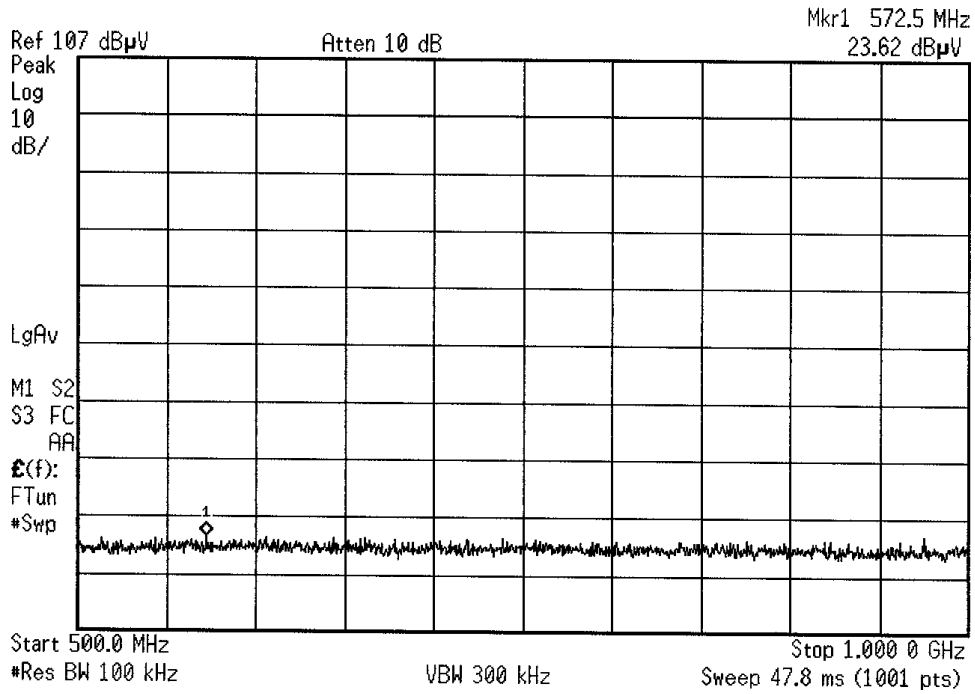
SC305131  
KX444  
Kyocera  
SR3 11/14/03 AAF  
1 meter pre scan  
FM Midchannel

※ Agilent 03:44:32 Nov 5, 2003



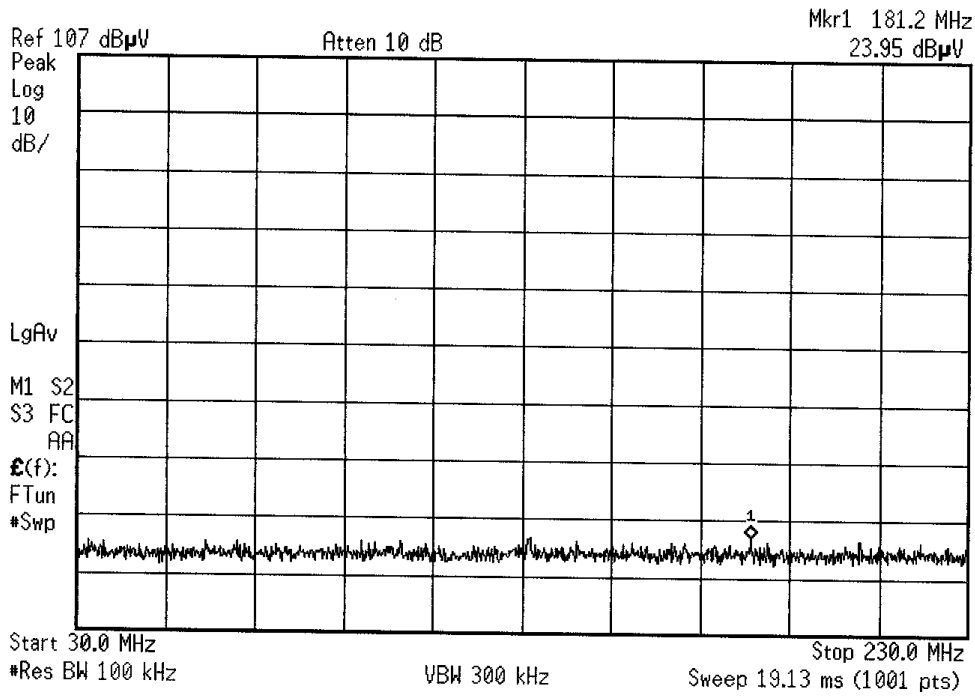
SC305131  
KX444  
Kyocera  
SR3 11/14/03 AAL  
1 - meter ProScan  
FM Mid channel

Agilent 03:45:22 Nov 5, 2003



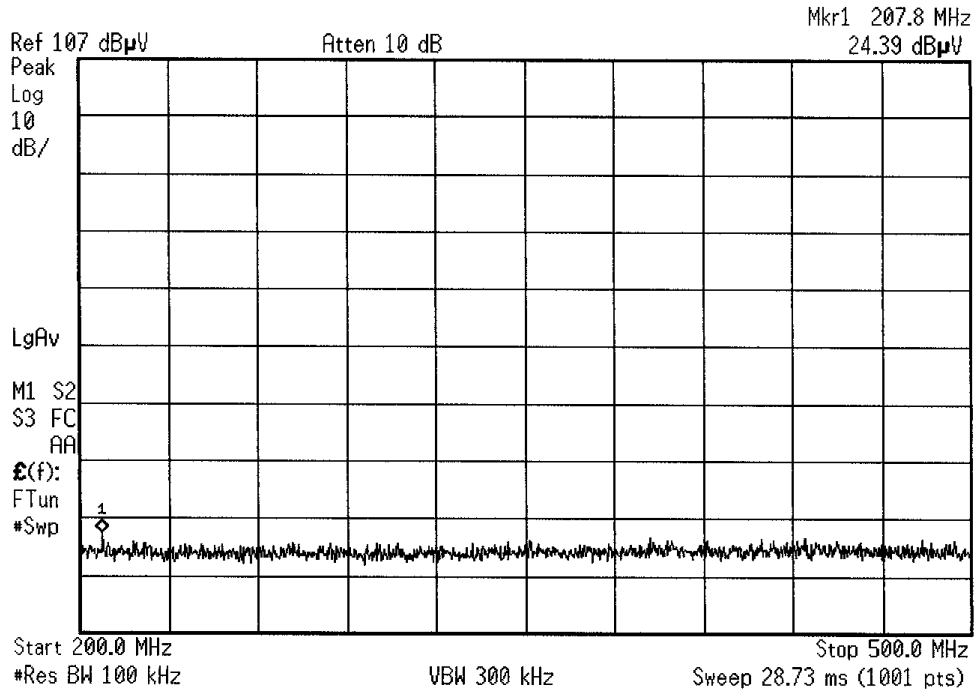
SC 305131  
KX 444  
Keyocera  
SR3 11/14/03 AAP  
1 meter Pacscan  
FM MIDCHANNEL

\* Agilent 03:49:38 Nov 5, 2003



SC 305131  
KX444  
Kyocera  
SR3 11/14/03 AAF  
1 meter Prescan  
PCS mid channel

\* Agilent 03:49:54 Nov 5, 2003



SC305131  
KX444  
Kyocera  
SR3 11/14/03 \*AP  
1 meter PreScan  
PCS midchannel

