

**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, Paragraphs 15.109(a) and 15.209(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.

Testing Start Date: 21 May 2004

Testing End Date: 26 May 2004

- TÜV AMERICA, INC. -

Reviewing Engineer:



Jim Owen  
(EMC Manager)

Test Engineer:



Alan Laudani  
(EMC Engineer)

## Emissions Test Conditions: SPURIOUS RADIATED EMISSIONS

Roof (small open area test site)  
SR-3, Shielded Room, 12' x 20' x 8', Metal Chamber (Prescans)

**The Spurious Radiated Emissions measurements were performed using the following equipment:**

### Test Equipment Used:

Model No.	Prop. No.	Description	Manufacturer	Serial No.	Date Cal'ed
HP8566B	744	Spectrum Analyzer	Hewlett Packard	2618A02913	01/04
AMF-5D-010180-35-10P	719	PreAmp	TUV America	549460	NCR*
3115	453	Antenna, Horn	Electro Mechanics Co	3564	02/04
FF6549-1	778	900 MHz High Pass Filter	Sage	005	NCR*
FF6549-2	783	900 MHz High Pass Filter	ABES	008	NCR*
12A-18	6377	Horn Antenna	MI Technologies	21554MB	NCR*

### Substitution Method Equipment List

3115	251	Antenna, Horn	Electro Mechanics Co	2595	01/04
HP8350B	6707	Sweep Signal Generator	Hewlett Packard	2749A09420	NCR*

### 1 Meter Prescan 30 MHz - 1000 MHz Equipment List

CBL6111	461	Bilog Antenna	Chase Electronics Li	1291	NCR*
E4440A	6814	Spectrum Analyzer	Hewlett Packard	MY42510441	08/03

**Remarks:** One year calibration cycle for all test equipment and sites. (\*) No Calibration Required.  
No emissions detected between 30 MHz to 1000 MHz. See Appendix for prescans.

**Technical Documentation**

**Test Data Sheets**

**and**

**Test Setups**

**Kyocera Substitution SC402509**

Model KX1 Feng  
 5/26/04  
 Mode Transmit PCS FCC 24.238(a)

Frequency MHz	target level dBuV/m	Horn Gain dBi	cable loss dB	Signal Generator dBm	Total (EIRP) dBm	Spec dBm	Margin Subst. dBm
3702.5	64.5	9.7	7.7	-32.1	-30.1	-13	-17.1

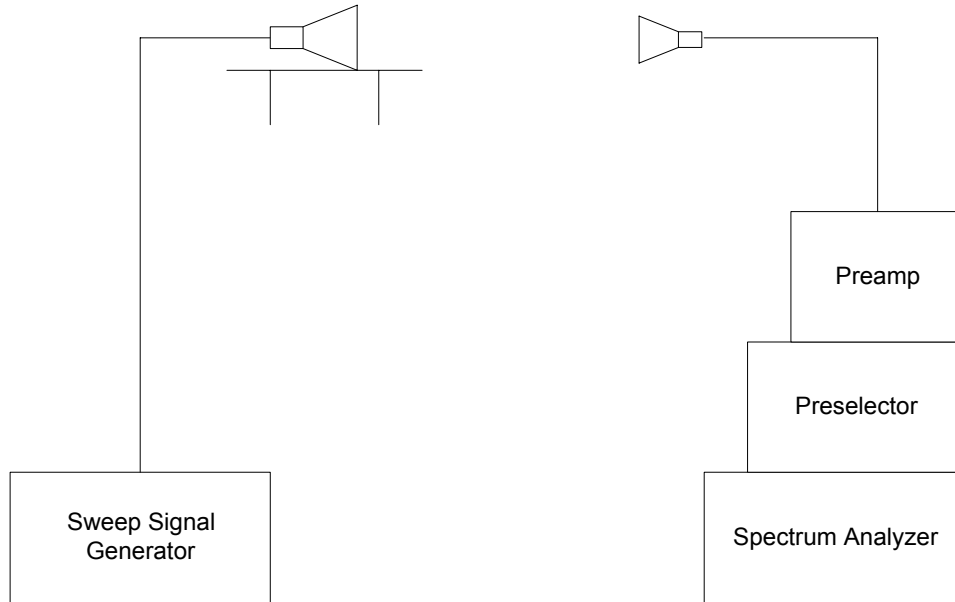
Substitution Procedure:

1. Select emissions that pass with less than 20 dB margin, note the Target level -- reading on spectrum analyzer.
2. Duplicate this targeted reading with Signal Generator, allowing for antenna horn gain and cable insertion loss.
3. Compare calculated power output to specification.

Tested by A. Laudani  
 A. Laudani

Reviewed by J. Owen  
 J. Owen

**Test Setup for Substitution Method**



REPORT No: SC402509 TESTER: Alan Laudani SPEC: FCC Part 15 para 15.109(e)  
 CUSTOMER: Kyocera Wireless Corporation TEST DIST: 3 Meters  
 E U T: KX1 'Feng' sn 6W-X---0WVLZ3 TEST SITE: Roof  
 EUT MODE: Receive CDMA rx Synth BICONICAL: N/A  
 DATE: May 24, 2004 LOG: N/A  
 NOTES: Temp. 17°C, RH = 68 % OTHER: 453  
 above 1GHz: RBW & YBW 1 MHz for Pk; RBW 1MHz and YBW 10Hz for AVG

CF = Antenna Factor + Cable Loss - Preamplifier Gain 5.06 MHz 5.14 Subdata

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			
1739.4	58.0	56.4	50.8	45.5	-9.1	48.9	47.3	74	54	-25.1	-6.7	180	1.3	
3478.8	45.3	33.6	44.8	33.7	-0.9	44.4	32.8	74	54	-29.6	-21.2		1	noise floor
5218.2	46.6	33.9	44.5	34.1	1.9	48.9	36.0	74	54	-25.5	-18.0		1	noise floor
6957.6	46.9	35.7	46.9	35.8	7.2	54.1	43.0	74	54	-19.9	-11.0		1	noise floor
8697.0	47.1	36.3	47.5	36.4	9.3	56.8	45.7	74	54	-17.2	-8.3		1	noise floor
10436.4	46.5	35.6	47.5	35.6	11.8	59.3	47.4	74	54	-14.7	-6.6		1	noise floor
12175.8	45.0	34.4	45.8	34.5	13.0	58.8	47.5	74	54	-15.2	-6.5		1	noise floor
13915.2	35.5	24.5	35.9	24.4	13.9	49.8	38.4	74	54	-24.2	-15.6		1	res bw = 100 kHz noise floor
15654.6	39.9	28.8	39.9	28.8	15.5	55.4	44.3	74	54	-19.6	-9.7		1	res bw = 100 kHz noise floor
17394.0	33.9	23.6	32.9	23.7	21.8	55.7	45.5	74	54	-18.3	-8.5		1	res bw = 30 kHz noise floor
1762.98	60.0	55.6	50.6	44.8	-8.9	51.1	46.7	74	54	-22.9	-7.3	188	1	
3525.96	44.3	33.8	45.5	33.9	-0.8	44.7	33.1	74	54	-29.3	-20.9		1	noise floor
5288.94	44.8	33.4	44.0	32.7	2.3	47.1	35.7	74	54	-26.9	-18.3		1	noise floor
7051.92	47.1	35.8	47.3	35.5	7.4	54.7	43.2	74	54	-19.3	-10.8		1	noise floor
8814.90	48.3	36.3	47.9	35.9	9.6	57.9	45.9	74	54	-16.1	-8.1		1	noise floor
10577.88	48.3	36.5	47.0	35.6	12.2	60.5	48.7	74	54	-13.5	-5.3		1	noise floor
12340.86	44.9	34.7	45.6	34.4	13.3	58.9	48.0	74	54	-15.1	-6.0		1	noise floor
14103.84	39.4	28.9	41.5	29.0	13.7	55.2	42.7	74	54	-18.8	-11.3		1	res bw = 100 kHz noise floor
15866.82	41.4	29.2	40.8	29.0	15.5	56.9	44.7	74	54	-17.1	-9.3		1	res bw = 100 kHz noise floor
17629.80	33.2	23.1	33.9	23.1	23.0	56.9	46.1	74	54	-17.1	-7.9		1	res bw = 30 kHz noise floor
1786.62	58.3	55.9	58.3	47.6	-8.8	49.5	47.1	74	54	-24.5	-6.9	177	1.2	
3573.24	44.5	33.7	50.8	35.7	-0.7	50.1	35.0	74	54	-23.9	-19.0		1	noise floor
5359.86	43.1	32.7	44.8	32.7	2.8	47.6	35.5	74	54	-26.4	-18.5		1	noise floor
7146.48	47.1	35.8	47.4	35.8	7.5	54.9	43.3	74	54	-19.1	-10.7		1	noise floor
8933.1	48.4	36.6	49.1	36.6	9.8	58.9	46.4	74	54	-15.1	-7.6		1	noise floor
10719.72	46.1	35.5	46.4	35.6	12.5	58.9	48.1	74	54	-15.1	-5.9		1	noise floor
12506.34	49.3	38.7	49.9	38.6	13.6	63.5	52.3	74	54	-10.5	-1.7		1	noise floor
14292.96	39.1	28.4	39.2	28.6	14.0	53.2	42.6	74	54	-20.8	-11.4		1	res bw = 100 kHz noise floor
16079.58	38.7	28.3	39.5	28.5	15.4	54.9	43.9	74	54	-19.1	-10.1		1	res bw = 100 kHz noise floor
17866.2	33.6	22.9	33.5	23.1	23.3	56.9	46.4	74	54	-17.1	-7.6		1	res bw = 30 kHz noise floor

REPORT No: SC402509 TESTER: Alan Laudani *ML* SPEC: FCC Part 22 para 22.917(b)(2)  
 CUSTOMER: Kyocera Wireless Corporation TEST DIST: 3 Meters  
 E U T: KX1 "Feng" sn 6W-X----0W/LZ3 TEST SITE: Roof  
 EUT MODE: Transmit CDMA tx harmonics BICONICAL: N/A  
 DATE: May 21, 2004 ERP Factor 7 LOG: N/A  
 NOTES: Temp. 14°C, RH = 67 % HORN: 453  
 Part 22 - RBW 30 kHz

CF = Antenna Factor + Cable Loss - Preamplifier Gain  $\gamma_{\text{data}}$

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
824.7									Fundamental (Low Band)
1649.4	49.5	46.8	-9.6	-57.5	-13.0	-44.5	80	1	
2474.1	57.2	50.5	-5.8	-45.9	-13.0	-32.9	326	1	
3298.8	45.8	45.7	-1.5	-53.1	-13.0	-40.1		1	noise floor
4123.5	46.1	46.1	-0.5	-51.8	-13.0	-38.8		1	noise floor
4948.2	44.8	45.5	0.3	-51.6	-13.0	-38.6		1	noise floor
5772.9	43.0	46.4	4.8	-46.1	-13.0	-33.1		1	noise floor
6597.6	47.7	47.7	6.3	-43.3	-13.0	-30.3		1	noise floor
7422.3	46.5	47.2	7.8	-42.4	-13.0	-29.4		1	noise floor
8247.0	46.9	47.8	8.6	-41.0	-13.0	-28.0		1	noise floor
836.49									Fundamental (Mid Band)
1672.98	47.1	46	-9.5	-59.8	-13.0	-46.8	180	1.1	
2509.47	50.3	59.6	-5.6	-43.4	-13.0	-30.4	172	1.1	
3345.96	44.3	44.6	-1.4	-54.1	-13.0	-41.1		1	noise floor
4182.45	46.0	46.0	-0.7	-52.1	-13.0	-39.1		1	noise floor
5018.94	45.5	45.8	0.6	-50.9	-13.0	-37.9		1	noise floor
5855.43	47.9	48.2	5.2	-44.0	-13.0	-31.0		1	noise floor
6691.92	47.5	46.7	6.6	-43.3	-13.0	-30.3		1	noise floor
7528.41	47.8	47.2	7.9	-41.6	-13.0	-28.6		1	noise floor
8364.9	46.7	48.2	8.7	-40.5	-13.0	-27.5		1	noise floor
848.31									Fundamental (High Band)
1696.62	52.7	47.1	-9.3	-54.0	-13.0	-41	173	1.1	
2544.93	58.3	60.7	-5.4	-42.1	-13.0	-29.1	180	1.4	
3393.24	45.6	46.2	-1.2	-52.3	-13.0	-39.3		1	noise floor
4241.55	46.5	45.9	-0.9	-51.8	-13.0	-38.8		1	noise floor
5089.86	44.5	47.1	1.1	-49.2	-13.0	-36.2		1	noise floor
5936.17	47.6	47.8	5.5	-44.0	-13.0	-31		1	noise floor
6786.48	46.9	47.1	6.8	-43.5	-13.0	-30.5		1	noise floor
7634.79	47.4	46.1	8.0	-41.9	-13.0	-28.9		1	noise floor
8483.1	48	46.1	8.8	-40.6	-13.0	-27.6		1	noise floor





REPORT No: SC402509 TESTER: Alan Laudani SPEC: FCC Part 22 para 22.917(b)(2)  
 CUSTOMER: Kyocera Wireless Corporation TEST DIST: 3 Meters  
 E U T: KX1 "Feng" sn 8W-X-0VWLZ3 TEST SITE: Roof  
 EUT MODE: Transmit FM tx harmonics BICONICAL: N/A  
 DATE: May 24, 2004 ERP Factor 7 LOG: N/A  
 NOTES: Temp. 19°C, RH = 60 % HORN: 453  
 Part 22 - RBW 30 KHz

CF = Antenna Factor + Cable Loss - Preamplifier Gain 950 MHz E-1 + a v.beta1

FREQ (MHz)	VERTICAL (dBuv) pk	HORIZONTAL (dBuv) pk	CF (dBm)	MAX LEVEL (dBm) pk	SPEC LIMIT (dBm) pk	MARGIN (dB) pk	EUT Rotation	Antenna Height	Notes
824.04									Fundamental (Low Band)
1648.08	51.0	47.2	-9.7	-56.0	-13.0	-43.0	177	1.3	
2472.12	56.7	56.1	-5.8	-46.5	-13.0	-33.5	117	1	
3296.16	45.7	45.2	-1.5	-53.2	-13.0	-40.2			noise floor
4120.2	47.2	47.7	-0.5	-50.2	-13.0	-37.2			noise floor
4944.24	45.2	44.8	0.2	-51.9	-13.0	-38.9			noise floor
5768.28	43.5	46.4	4.8	-46.1	-13.0	-33.1			noise floor
6592.32	48.0	47.8	6.3	-43.0	-13.0	-30.0			noise floor
7416.36	46.3	47.3	7.8	-42.3	-13.0	-29.3			noise floor
8240.4	47.2	48.3	8.6	-40.5	-13.0	-27.5			noise floor
836.49									Fundamental (Mid Band)
1672.98	48.6	46.2	-9.5	-58.3	-13.0	-45.3	222	1	
2509.47	49.4	49.7	-5.6	-53.3	-13.0	-40.3	177	1	
3345.96	48.5	47.1	-1.4	-50.2	-13.0	-37.2			noise floor
4182.45	44.8	45.1	-0.7	-53.0	-13.0	-40.0			noise floor
5018.94	44.6	44.8	0.6	-51.9	-13.0	-38.9			noise floor
5855.43	47.8	48.3	5.2	-43.9	-13.0	-30.9			noise floor
6691.92	47.9	47.3	6.6	-42.9	-13.0	-29.9			noise floor
7528.41	46.5	47.5	7.9	-41.9	-13.0	-28.9			noise floor
8364.90	48.2	47.5	8.7	-40.5	-13.0	-27.5			noise floor
848.97									Fundamental (High Band)
1697.94	50.4	48.5	-9.3	-56.3	-13.0	-43.3	179	1.3	
2548.91	50.2	57.3	-5.4	-45.5	-13.0	-32.5	180	1	
3395.88	44.9	46.8	-1.2	-51.7	-13.0	-38.7			noise floor
4244.85	47.9	45.9	-0.9	-50.4	-13.0	-37.4			noise floor
5093.82	44.8	44.6	1.1	-51.5	-13.0	-38.5			noise floor
5942.79	47.3	48.1	5.6	-43.7	-13.0	-30.7			noise floor
6791.76	47.1	47.7	6.8	-42.9	-13.0	-29.9			noise floor
7640.73	47.3	47.5	8.0	-41.8	-13.0	-28.8			noise floor
8489.70	47.2	47.4	8.8	-41.2	-13.0	-28.2			noise floor

REPORT No: SC402509 TESTER: Alan Laudani SPEC: FCC Part 15 para 15.109(e)  
 CUSTOMER: Kyocera Wireless Corporation TEST DIST: 3 Meters  
 E U T: KX1 "Feng" sn 6W-X-----0VVLZ3 TEST SITE: Roof  
 EUT MODE: Receive PCS rx Synth BICONICAL: N/A  
 DATE: May 24, 2004 LOG: N/A  
 NOTES: Temp. 17°C, RH = 67 % OTHER: 483  
 above 1GHz: RBW & VBW 1 MHz for PK; RBW 1MHz and VBW 10Hz for AVG

CF = Antenna Factor + Cable Loss - Pre-amplifier Gain 2000 MHz Field vertical

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			
1716.667	56.4	55.0	51.5	47.2	-9.2	47.2	45.8	74	54	-26.8	-8.2	0	1.3	
3433.333	44.6	33.8	44.2	33.7	-1.0	43.6	32.8	74	54	-30.4	-21.2	1		noise floor
5150.000	45.4	33.7	44.7	33.5	1.5	46.9	35.2	74	54	-27.1	-18.8	1		noise floor
6866.666	47.5	36.4	43.9	33.4	7.0	54.5	43.4	74	54	-19.5	-10.6	1		noise floor
8583.333	47.0	36.3	48.2	36.3	9.0	57.2	45.3	74	54	-16.8	-8.7	1		noise floor
10300.000	46.5	35.3	46.5	35.4	11.4	57.9	46.8	74	54	-16.1	-7.2	1		noise floor
12016.666	46.0	34.6	46.1	34.6	12.7	58.8	47.3	74	54	-15.2	-6.7	1		noise floor
13733.333	40.1	29.1	38.9	29.1	14.6	54.7	43.7	74	54	-19.3	-10.3	1		res bw = 100 kHz noise floor
15449.999	39.6	29.0	39.4	29.0	15.6	55.2	44.6	74	54	-18.8	-9.4	1		res bw = 100 kHz noise floor
17166.666	32.4	23.6	32.5	23.5	20.9	53.4	44.5	74	54	-20.6	-9.5	1		res bw = 30 kHz noise floor
1742.222	55.6	53.0	50.6	45.1	-9.0	46.6	44.0	74	54	-27.4	-10.0	189	1.6	
3484.444	45.3	33.7	44.3	33.7	-0.9	44.4	32.8	74	54	-29.6	-21.2	1		noise floor
5226.667	44.7	33.5	43.6	33.2	2.0	46.7	35.5	74	54	-27.3	-18.5	1		noise floor
6968.889	46.4	35.6	46.9	35.4	7.2	54.1	42.8	74	54	-19.9	-11.2	1		noise floor
8711.111	46.7	36.0	46.7	35.9	9.3	56.0	45.3	74	54	-18.0	-8.7	1		noise floor
10463.333	46.8	35.6	46.7	35.5	11.9	58.7	47.5	74	54	-15.3	-6.5	1		noise floor
12196.555	45.4	34.3	44.9	34.1	13.1	58.5	47.4	74	54	-15.5	-6.6	1		noise floor
13937.778	39.8	28.7	38.8	28.7	13.8	53.6	42.5	74	54	-20.4	-11.5	1		res bw = 100 kHz noise floor
15680.000	39.9	28.8	39.3	28.7	15.5	55.4	44.3	74	54	-18.6	-9.7	1		res bw = 100 kHz noise floor
17422.222	32.4	23.1	32.6	22.9	21.9	54.5	45.0	74	54	-19.5	-9.0	1		res bw = 30 kHz noise floor
1767.777	64.3	56.4	55	46.2	-8.9	55.4	47.5	74	54	-18.6	-6.5	180	1.5	
3535.554	44.9	33.5	45.1	33.9	-0.8	44.3	33.1	74	54	-29.7	-20.9	1		noise floor
5303.331	44.6	32.9	40.5	32.9	2.4	47.0	35.3	74	54	-27.0	-18.7	1		noise floor
7071.108	47.0	35.7	46.9	35.6	7.4	54.4	43.1	74	54	-19.6	-10.9	1		noise floor
8838.885	46.7	36.2	47.5	36.2	9.6	57.1	45.8	74	54	-16.9	-8.2	1		noise floor
10606.682	46.5	35.2	46.0	35.2	12.2	58.7	47.4	74	54	-15.3	-6.6	1		noise floor
12374.439	45.3	34.4	44.8	34.3	13.4	58.7	47.8	74	54	-15.3	-6.2	1		noise floor
14142.216	39.9	28.7	39.5	28.6	13.7	53.6	42.4	74	54	-20.4	-11.6	1		res bw = 100 kHz noise floor
15909.993	40.3	28.9	39.8	28.4	15.4	55.7	44.3	74	54	-18.3	-9.7	1		res bw = 100 kHz noise floor
17677.77	33.2	22.7	31.0	22.9	23.3	56.5	46.2	74	54	-17.5	-7.8	1		res bw = 30 kHz noise floor

REPORT No: SC402509 TESTER: Alan Laudani SPEC: FCC Part 15 para 15.209(e)  
 CUSTOMER: Kyocera Wireless Corporation TEST DIST: 3 Meters  
 E U T: KX1 "Feng" sn 6W-X---0VVLZ3 TEST SITE: Roof  
 EUT MODE: Transmit PCS tx Synth BICONICAL: N/A  
 DATE: May 21, 2004 LOG: N/A  
 NOTES: Temp. 17°C, RH = 67 % OTHER: 453  
 above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG

CF = Antenna Factor + Cable Loss - Pre-amplifier Gain 2.00 MHz Filter vdata

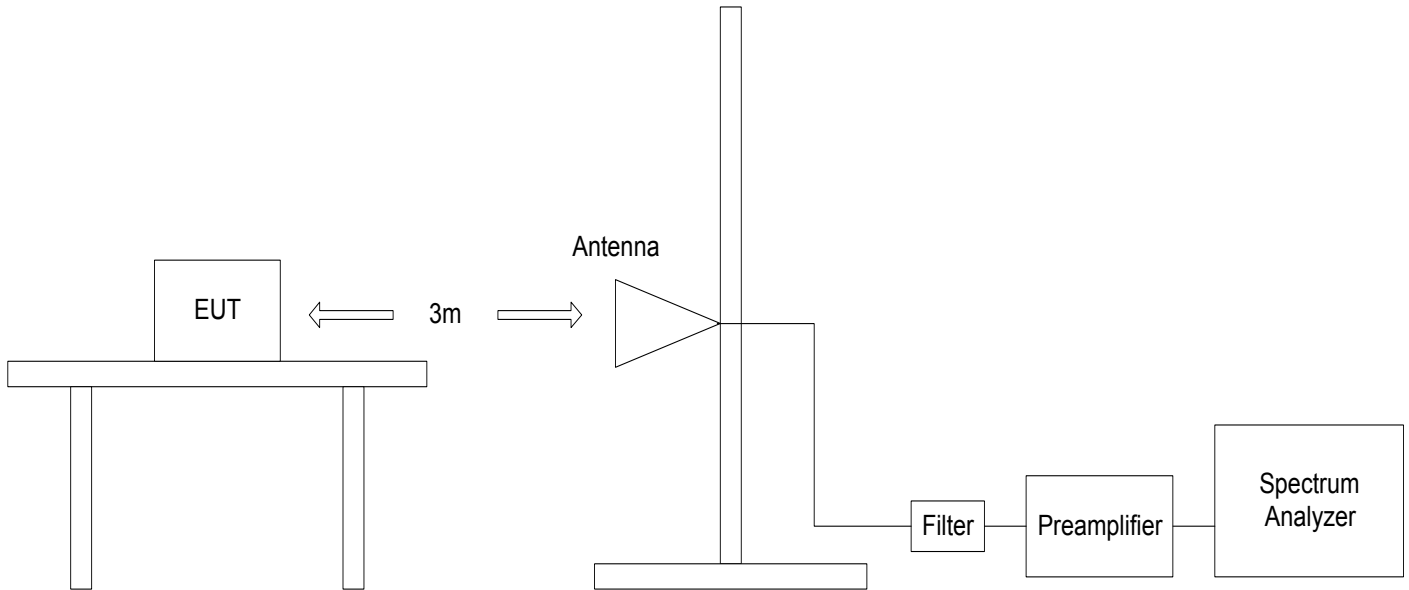
FREQ (MHz)	VERTICAL (dBuv)		HORIZONTAL (dBuv)		CF (dBm)	MAX LEVEL (dBuV/m)		SPEC LIMIT (dBuV/m)		MARGIN (dB)		EUT Rotation	Antenna Height	Notes
	pk	av	pk	av		pk	av	pk	av	pk	av			
1481	46.6	35.3	46.5	35.3	-10.8	35.8	24.5	74	54	-38.2	-29.5		1	noise floor
2962	45.5	33.6	45.7	34.2	-2.8	42.9	31.4	74	54	-31.1	-22.6		1	noise floor
4443	45.7	34.1	46.3	34.7	-1.6	44.7	33.1	74	54	-29.3	-20.9		1	noise floor
5924	47.9	36.9	48.1	36.9	5.5	53.6	42.4	74	54	-20.4	-11.6		1	noise floor
7405	47.3	36.2	50.0	38.5	7.8	57.8	46.3	74	54	-16.2	-7.7	222	1	noise floor
8886	47.3	36.4	47.1	36.4	9.7	57.0	46.1	74	54	-17.0	-7.9		1	noise floor
10367	46.6	35.5	47.3	35.5	11.6	58.9	47.1	74	54	-15.1	-6.9		1	noise floor
11848	46.4	35.1	45.8	35.0	12.8	59.2	47.9	74	54	-14.8	-6.1		1	noise floor
13329	38.1	29.1	39.8	29.1	14.5	54.3	43.6	74	54	-19.7	-10.4		1	res bw = 100 kHz noise floor
14810	39.9	28.8	39.7	28.9	15.2	55.1	44.1	74	54	-18.9	-9.9		1	res bw = 100 kHz noise floor
1504	46.7	35.4	47.3	35.4	-10.6	36.7	24.8	74	54	-37.3	-29.2		1	noise floor
3008	45.3	33.7	46.1	33.8	-2.6	43.5	31.2	74	54	-30.5	-22.8		1	noise floor
4512	46.4	34.9	46.7	35.0	-1.7	45.0	33.3	74	54	-29.0	-20.7		1	noise floor
6016	48.3	36.9	48.2	36.8	5.8	54.1	42.7	74	54	-19.9	-11.3		1	noise floor
7520	47.6	36.1	48.7	37.0	7.9	56.6	44.9	74	54	-17.4	-9.1	220	1.3	noise floor
9024	47.7	36.2	47.0	36.1	10.0	57.7	46.2	74	54	-16.3	-7.8		1	noise floor
10528	47.2	35.5	47.7	35.4	12.1	59.8	47.6	74	54	-14.2	-6.4		1	noise floor
12032	46.0	34.9	46.1	34.9	12.8	58.9	47.7	74	54	-15.1	-6.3		1	noise floor
13536	36.0	25.0	38.6	28.6	15.4	54.0	44.0	74	54	-20.0	-10.0		1	res bw = 100 kHz noise floor
15040	40.4	29.3	39.9	29.3	15.8	56.2	45.1	74	54	-17.8	-8.9		1	res bw = 100 kHz noise floor
1527	46.2	35.3	45.7	35.3	-10.4	35.8	24.9	74	54	-38.2	-29.1		1	noise floor
3054	45.1	34.1	45.3	34.3	-2.4	42.9	31.9	74	54	-31.1	-22.1		1	noise floor
4581	46.3	34.7	45.7	34.9	-1.4	44.9	33.5	74	54	-29.1	-20.5		1	noise floor
6108	48.1	36.8	47.2	36.7	5.9	54.0	42.7	74	54	-20.0	-11.3		1	noise floor
7635	47.5	35.8	48.1	36.9	8.0	56.1	44.9	74	54	-17.9	-9.1	260	1	noise floor
9162	47.5	36.4	48.3	36.3	9.7	58.0	46.1	74	54	-16.0	-7.9		1	noise floor
10689	46.8	35.5	46.3	35.4	12.4	59.3	47.9	74	54	-14.8	-6.1		1	noise floor
12216	46.0	34.6	46.2	34.5	13.1	59.3	47.7	74	54	-14.7	-6.3		1	noise floor
13743	39.3	29.2	39.0	29.2	14.6	53.9	43.8	74	54	-20.1	-10.2		1	res bw = 100 kHz noise floor
15270	39.2	28.8	39.5	28.8	15.7	55.2	44.5	74	54	-18.8	-9.5		1	res bw = 100 kHz noise floor

REPORT No: SC402509    TESTER: Alan Laudani    SPEC: FCC Part 24 para 24.238(e)  
 CUSTOMER: Kyocera Wireless Corporation    TEST DIST: 3 Meters  
 E U T: KX1 "Feng" sn 6W-X----0WV LZ3    TEST SITE: Roof  
 EUT MODE: Transmit PCS tx harmonics    BICONICAL: N/A  
 DATE: May 21, 2004    EIRP Factor: 5.5    LOG: N/A  
 NOTES: Temp. 14°C, RH = 67 %    HORN: 453

Part 24 - RBW 1 MHz  
 CF = Antenna Factor + Cable Loss - Pre-amplifier Gain    2.00 MHz    F: (Tel)    v\_beta1a

FREQ (MHz)	VERTICAL (dBuv) pk	HORIZONTAL (dBuv) pk	CF (dBm) pk	MAX LEVEL (dBm) pk	SPEC LIMIT (dBm) pk	MARGIN (dB) pk	EUT Rotation	Antenna Height	Notes
1851.25									Fundamental (Low Band)
3702.50	64.5	57.1	-0.5	-31.3	-13.0	-18.3	174	1.1	
5553.75	48.3	48.0	3.9	-43.0	-13.0	-30.0	190	1.1	
7405.00	47.8	49.2	7.8	-38.3	-13.0	-25.3	205	1.1	
9256.25	47.9	48.0	9.5	-37.8	-13.0	-24.8		1	noise floor
11107.50	45.5	46.4	13.1	-35.8	-13.0	-22.8		1	noise floor
12958.75	49.7	49.4	12.5	-33.1	-13.0	-20.1		1	noise floor
14810.00	50.4	50.2	15.2	-29.6	-13.0	-16.6		1	noise floor
16661.25	50.5	49.7	18.2	-26.6	-13.0	-13.6		1	noise floor
18512.50	49.4	49.8	21.1	-24.4	-13.0	-11.4		1	noise floor
1880									Fundamental (Mid Band)
3760	52.3	48.8	-0.4	-43.4	-13.0	-30.4	180	1.1	
5640	43.4	43.5	4.3	-47.5	-13.0	-34.5	57	1.2	
7520	47.9	48.5	7.9	-38.8	-13.0	-25.8	228	1.3	
9400	47.6	46.9	9.2	-38.5	-13.0	-25.5		1	noise floor
11280	46.5	46.7	13.0	-35.5	-13.0	-22.5		1	noise floor
13160	50.5	50.0	13.4	-31.3	-13.0	-18.3		1	noise floor
15040	49.6	51.0	15.8	-28.5	-13.0	-15.5		1	noise floor
16920	49.6	49.3	19.7	-25.9	-13.0	-12.9		1	noise floor
18800	51.2	52.2	23.7	-19.4	-13.0	-6.4		1	noise floor
1908.75									Fundamental (High Band)
3617.50	49.7	46.1	-0.4	-45.9	-13.0	-32.9	60	1.2	
5726.25	44.7	44.4	4.7	-45.9	-13.0	-32.9	252	1.1	
7635.00	47.0	48.0	8.0	-39.2	-13.0	-26.2	300	1.1	
9543.75	46.5	46.8	9.1	-39.3	-13.0	-26.3		1	noise floor
11452.50	44.9	45.1	13.0	-37.2	-13.0	-24.2		1	noise floor
13361.25	49.6	50.0	14.7	-30.6	-13.0	-17.6		1	noise floor
15270.00	50.3	49.3	15.7	-29.3	-13.0	-16.3		1	noise floor
17178.75	49.4	49.5	20.9	-24.8	-13.0	-11.8		1	noise floor
19087.50	43.7	43.8	26.1	-25.3	-13.0	-12.3		1	res bw 100 kHz -- noise floor

### Test Setup for Spurious Radiated Emissions



Photograph of Test Setup



Photograph of Test Setup



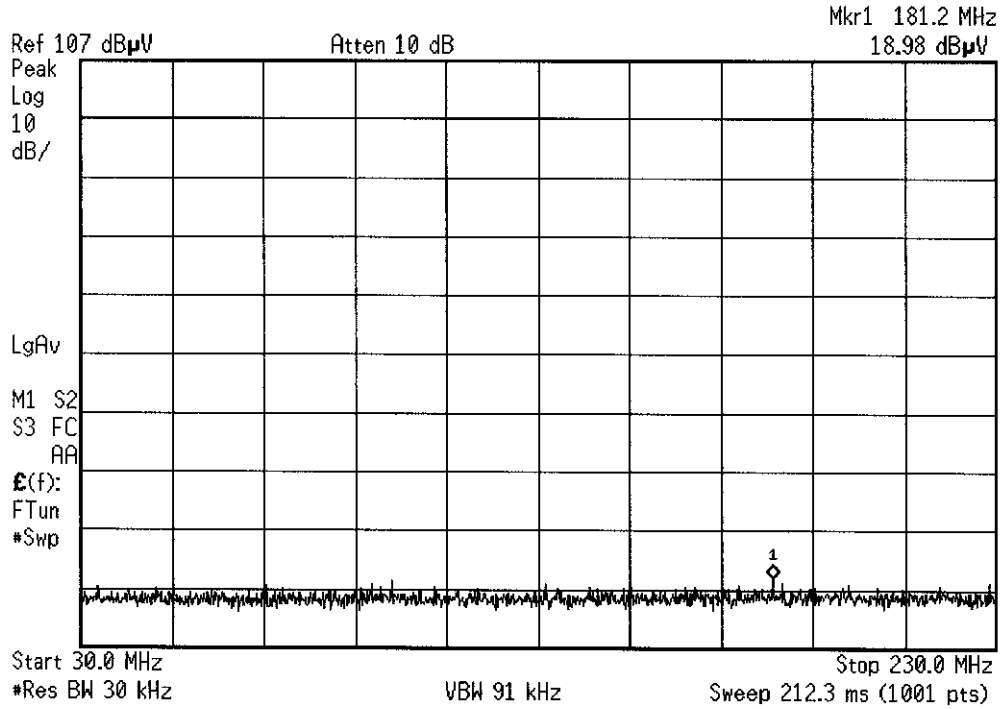


## Appendix

### Supplemental Information

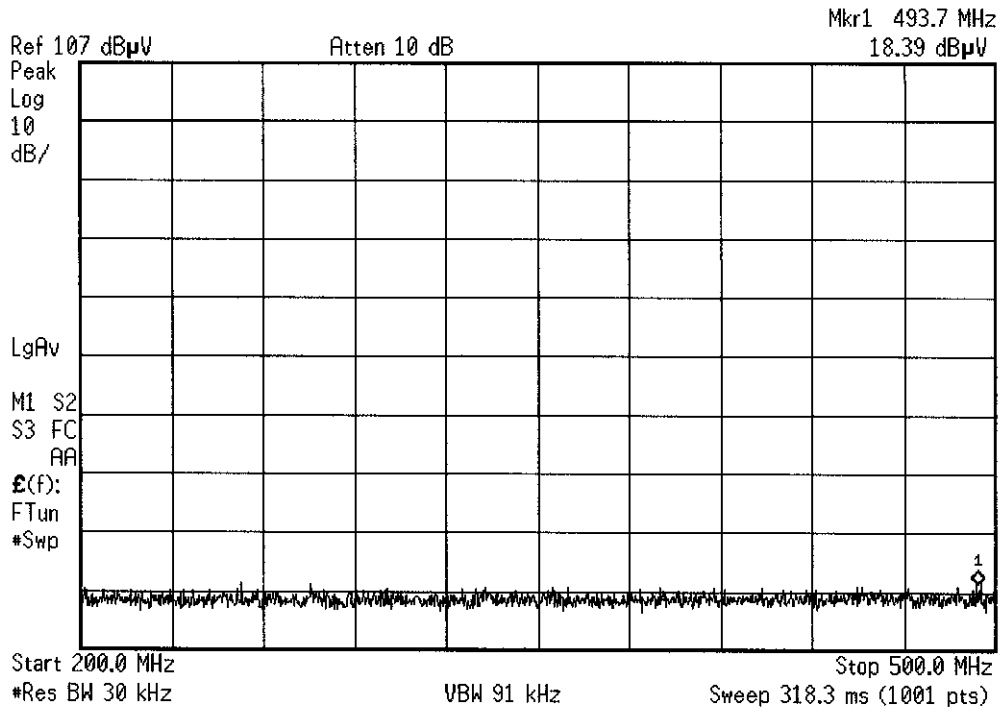


\* Agilent 12:55:28 May 26, 2004



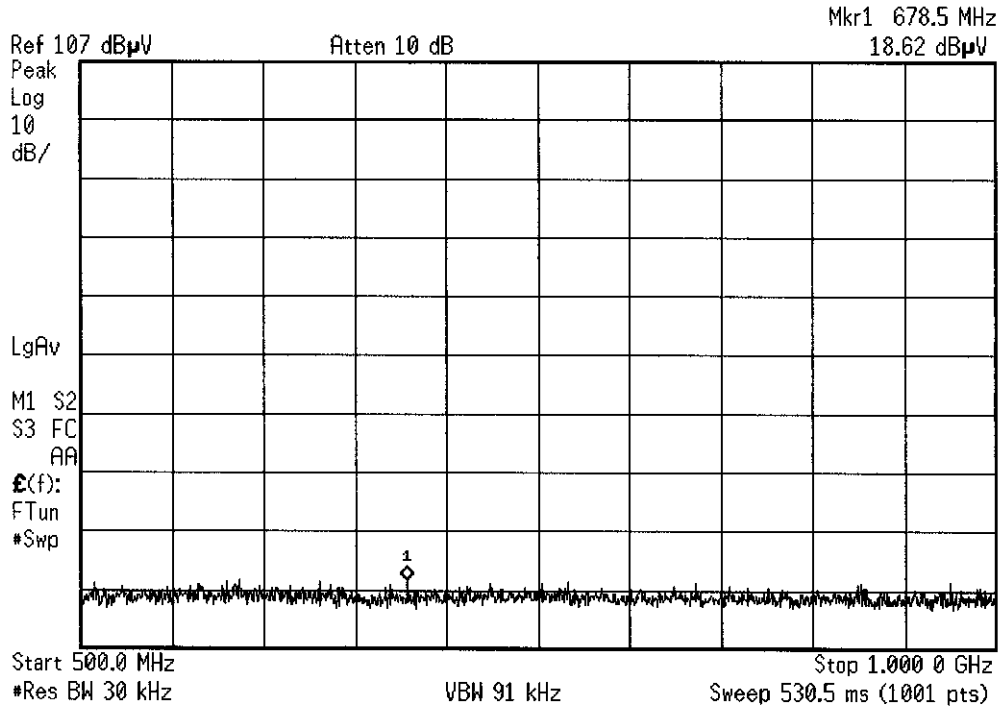
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FENG

\* Agilent 12:55:10 May 26, 2004



KXI CDMA  
FENG

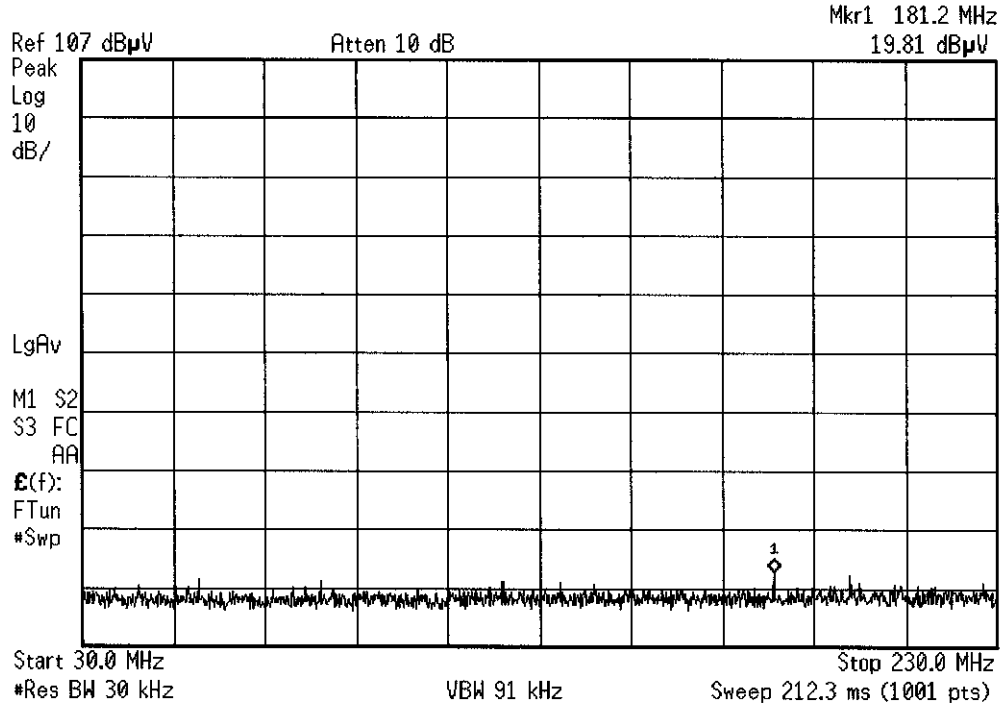
\* Agilent 12:54:49 May 26, 2004



KKI CDMA  
Feng

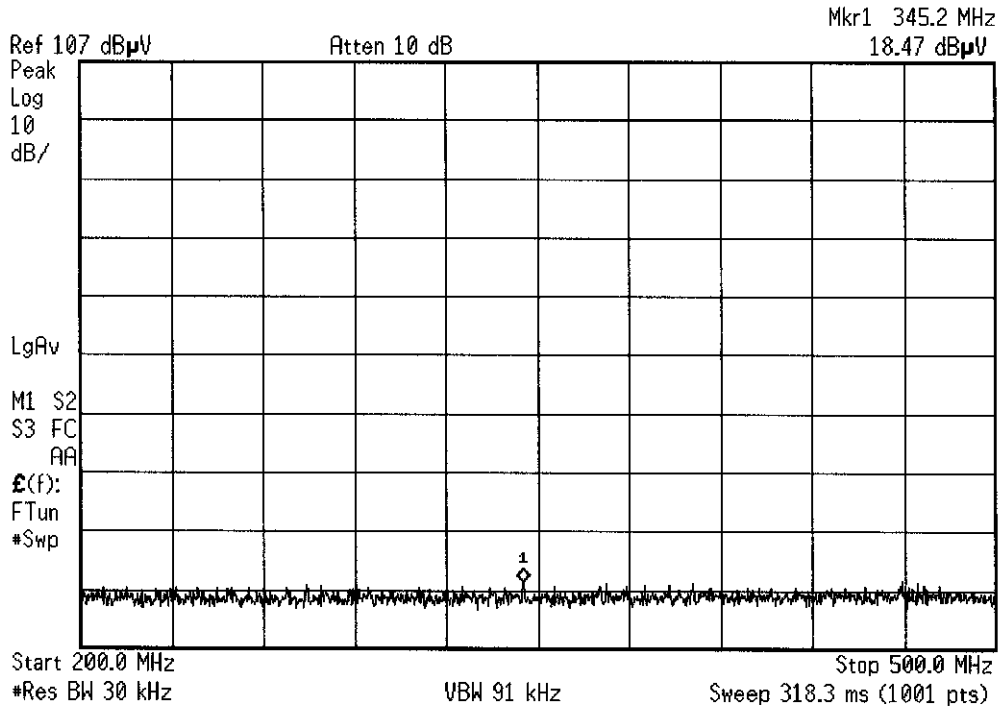
↓ METER  
PRECAUS

\* Agilent 12:56:48 May 26, 2004



KX1 - FM  
FENG

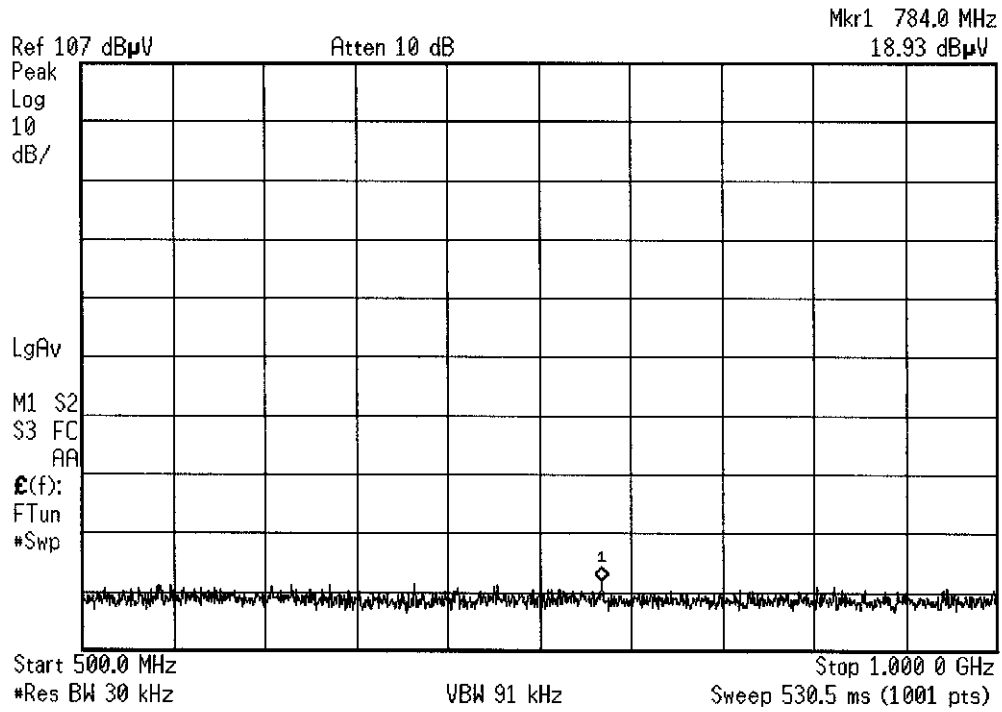
\* Agilent 12:57:06 May 26, 2004



KX1 FM

FENG

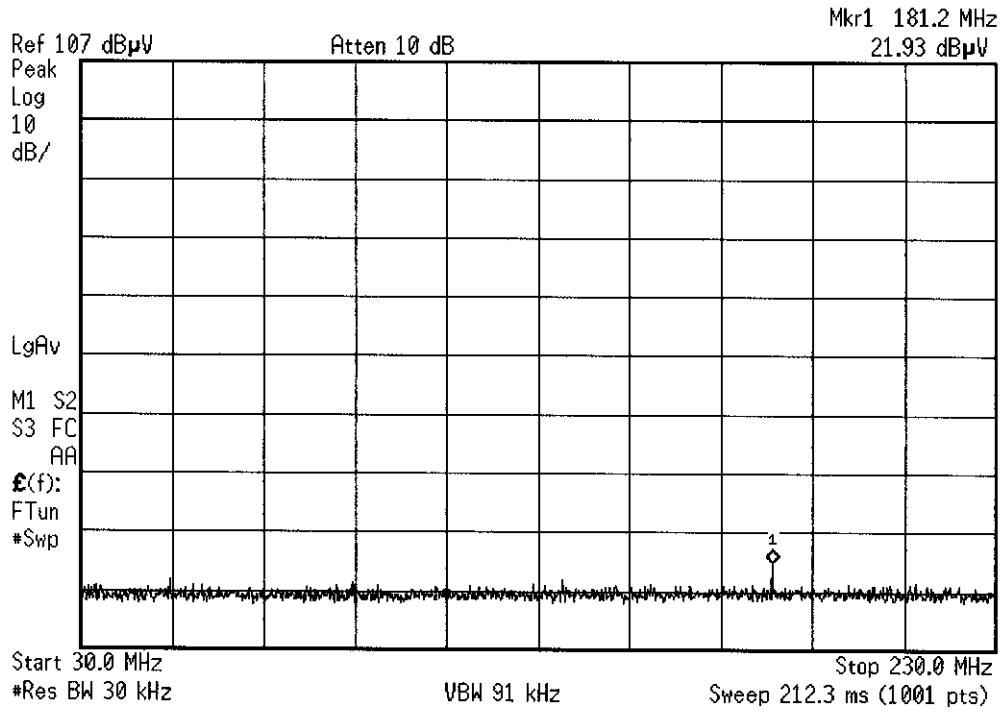
\* Agilent 12:57:30 May 26, 2004



KX1 - FM  
FENG

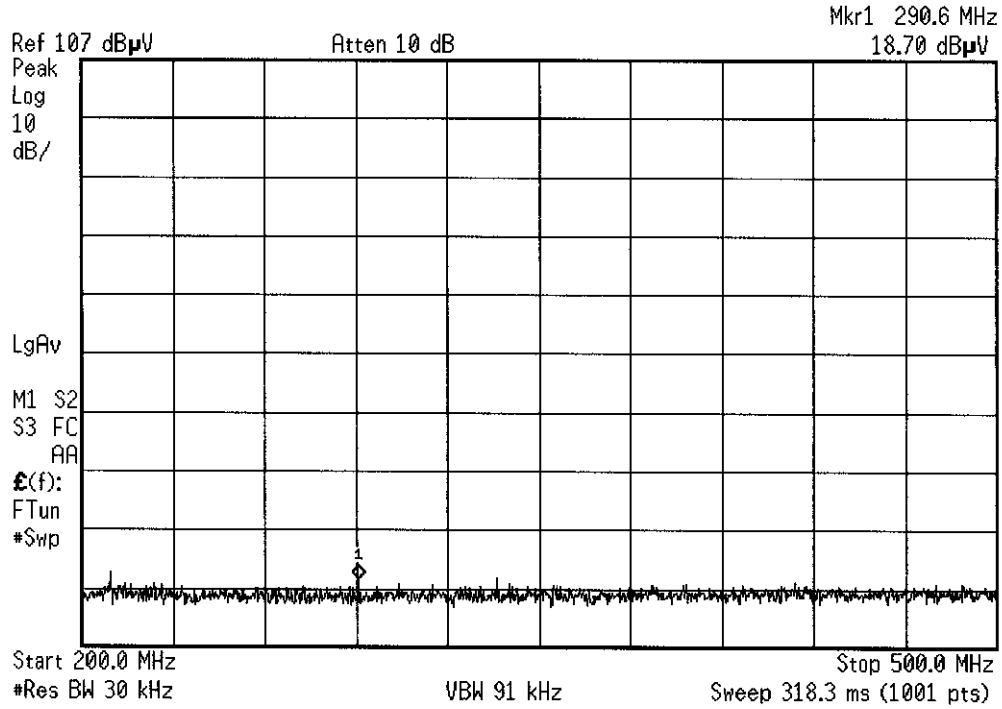


Agilent 12:47:31 May 26, 2004



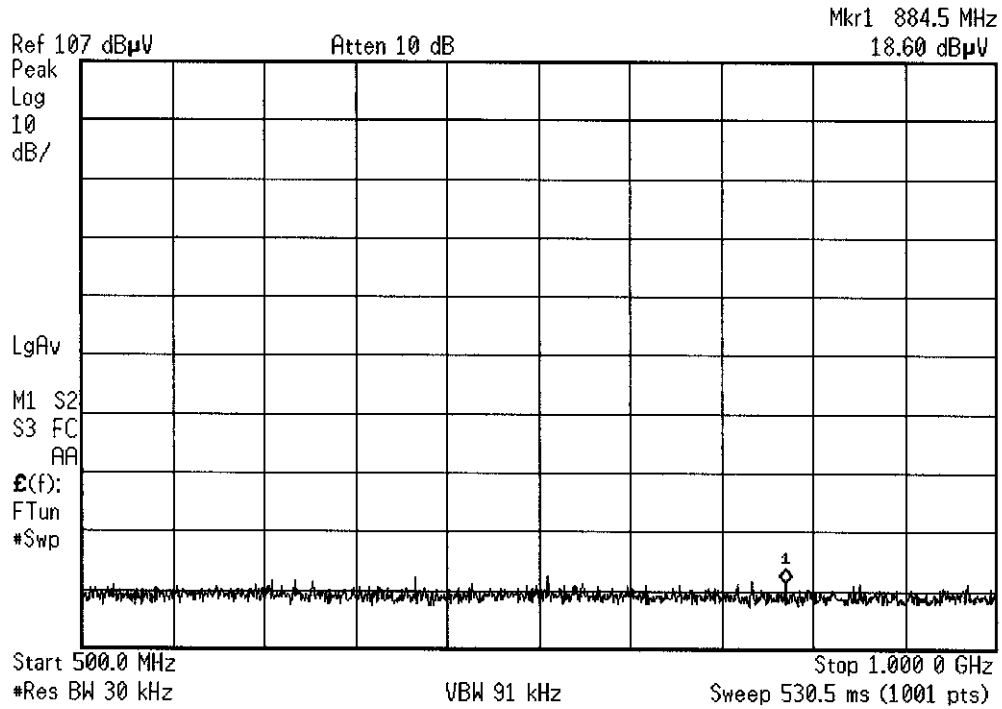
KX1 PCS  
FENG

\* Agilent 12:52:09 May 26, 2004



kx1 PCS  
FENG

\* Agilent 12:52:32 May 26, 2004



KKI PCS  
FENG

**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, Paragraphs 15.109(a) and 15.209(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.

Testing Start Date: 09 June 2004

Testing End Date: 11 June 2004

simultaneously

- TÜV AMERICA, INC. -

Reviewing Engineer:



Jim Owen  
(EMC Manager)

Test Engineer:



Alan Laudani  
(EMC Engineer)

## Emissions Test Conditions: SPURIOUS RADIATED EMISSIONS

Roof (small open area test site)  
SR-3, Shielded Room, 12' x 20' x 8', Metal Chamber (Prescans)

The *Spurious Radiated Emissions* measurements were performed using the following equipment:

### Test Equipment Used:

Model No.	Prop. No.	Description	Manufacturer	Serial No.	Date Cal'ed
HP8566B	744	Spectrum Analyzer	Hewlett Packard	2618A02913	01/04
AMF-5D-010180-35-10P	719	PreAmp	TUV America	549460	NCR*
3115	453	Antenna, Horn	Electro Mechanics Co	3564	02/04
FF6549-1	778	900 MHz High Pass Filter	Sage	005	NCR*
FF6549-2	783	900 MHz High Pass Filter	ABES	008	NCR*
12A-18	6377	Horn Antenna	MI Technologies	21554MB	NCR*
1 Meter Prescan 30 MHz - 1000 MHz Equipment List					
CBL6111	461	Bilog Antenna	Chase Electronics Li	1291	NCR*
E4440A	6814	Spectrum Analyzer	Hewlett Packard	MY42510441	08/03

**Remarks:** One year calibration cycle for all test equipment and sites. (\*) No Calibration Required.  
No emissions detected between 30 MHz to 1000 MHz. See Appendix for prescans.

**Technical Documentation**

**Test Data Sheets**

**and**

**Test Setups**

**Kyocera Substitution SC402509**

Model KX1 "Shui"  
 6/11/04  
 Mode Transmit PCS FCC 24.238(a)

Frequency MHz	target level dBuV/m	Horn Gain dBi	cable loss dB	Signal Generator dBm	Total (EIRP) dBm	Spec dBm	Margin Subst. dBm
------------------	---------------------------	---------------------	---------------------	----------------------------	------------------------	-------------	-------------------------

No emissions needed substitution

Substitution Procedure:

1. Select emissions that pass with less than 20 dB margin, note the Target level -- reading on spectrum analyzer.
2. Duplicate this targeted reading with Signal Generator, allowing for antenna horn gain and cable insertion loss.
3. Compare calculated power output to specification.

Tested by A. Laudani  
 A. Laudani



REPORT No: SC402509 TESTER: A. Laudani SPEC: FCC Part 15 para 15.109(a)  
 CUSTOMER: Kyocera Wireless Corporation TEST DIST: 3 Meters  
 E U T: KX1 Trimode Roof  
 SHUI sn 6W-X-0VVLZ2  
 EUT MODE: Receive CDMA rx Synth BICONICAL: N/A  
 DATE: June 11, 2004 LOG: N/A  
 NOTES: Temp. 16°C, RH = 67 % OTHER: 453  
 above 1GHz; RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG

CF = Antenna Factor + Cable Loss - Preamp/Filter Gain 900 MHz filter

vbeta

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			
1739.4	54.6	50.7	49.2	40.9	-9.1	45.5	41.6	74	54	-28.5	-12.4	198	1.2	
3478.8	44.0	33.6	46.0	33.8	-0.9	45.1	32.9	74	54	-28.9	-21.1		1	noise floor
5218.2	47.3	34.6	49.4	39.6	1.9	51.3	41.5	74	54	-22.7	-12.5	0	1	
6957.6	46.9	35.7	46.9	35.7	7.2	54.1	42.9	74	54	-19.9	-11.1		1	noise floor
8697.0	47.4	36.2	48.1	36.3	9.3	57.4	45.6	74	54	-16.6	-8.4		1	noise floor
10436.4	46.0	35.5	47.1	35.5	11.8	56.9	47.3	74	54	-15.1	-6.7		1	noise floor
12175.8	45.4	34.3	45.1	34.3	13.0	58.4	47.3	74	54	-15.6	-6.7		1	noise floor
13915.2	39.2	28.6	39.5	28.7	13.9	53.4	42.6	74	54	-20.6	-11.4		1	res bw = 100 kHz noise floor
15654.6	38.5	28.5	38.7	28.5	15.5	54.2	44.0	74	54	-19.8	-10.0		1	res bw = 100 kHz noise floor
17394.0	32.9	22.7	32.9	22.8	21.8	54.7	44.6	74	54	-19.3	-9.4		1	res bw = 30 kHz noise floor
1762.98	64.1	42.3	50.1	37.2	-8.9	55.2	33.4	74	54	-18.8	-20.6		1	noise floor
3525.96	44.2	33.5	44.2	33.5	-0.8	43.4	32.7	74	54	-30.6	-21.3		1	noise floor
5288.94	46.0	36.6	46.7	40.1	2.3	49.0	42.4	74	54	-25.0	-11.6	153	1	
7051.92	45.9	35.4	47.1	35.4	7.4	54.5	42.8	74	54	-19.5	-11.2		1	noise floor
8814.90	46.7	36.0	47.3	36.1	9.6	56.9	45.7	74	54	-17.1	-8.3		1	noise floor
10577.88	46.4	35.6	46.6	35.4	12.2	56.8	47.8	74	54	-15.2	-6.2		1	noise floor
12340.86	44.9	34.4	45.5	34.4	13.3	58.8	47.7	74	54	-15.2	-6.3		1	noise floor
14103.84	38.6	28.5	38.7	28.7	13.7	52.4	42.4	74	54	-21.6	-11.6		1	res bw = 100 kHz noise floor
15866.82	38.8	28.6	39.0	28.7	15.5	54.5	44.2	74	54	-19.5	-9.8		1	res bw = 100 kHz noise floor
17629.80	32.5	22.5	32.9	23.1	23.0	55.9	46.1	74	54	-18.1	-7.9		1	res bw = 30 kHz noise floor
1786.62	55.1	52.8	52.9	44.8	-8.8	46.3	44.0	74	54	-27.7	-10.0	162	1.2	
3573.24	44.9	33.8	50.5	34.7	-0.7	49.8	34.0	74	54	-24.2	-20.0		1	noise floor
5359.86	46.3	38.5	45.9	34.6	2.8	49.1	41.3	74	54	-24.9	-12.7	200	1	
7146.48	46.4	35.8	46.9	35.7	7.8	54.4	43.3	74	54	-19.6	-10.7		1	noise floor
8933.10	47.2	36.3	47.7	36.4	9.5	57.5	46.2	74	54	-16.5	-7.8		1	noise floor
10719.72	46.3	35.2	45.9	35.2	12.5	58.8	47.7	74	54	-15.2	-6.3		1	noise floor
12506.34	38.0	28.4	38.9	28.3	13.6	52.5	42.0	74	54	-21.5	-12.0		1	res bw = 100 kHz noise floor
14292.96	38.7	28.7	38.9	28.7	14.0	52.9	42.7	74	54	-21.1	-11.3		1	res bw = 100 kHz noise floor
16079.58	39.2	28.7	39.5	28.6	15.4	54.9	44.1	74	54	-19.1	-9.9		1	res bw = 100 kHz noise floor
17866.20	33.4	22.6	33.4	22.4	23.3	56.7	45.9	74	54	-17.3	-8.1		1	res bw = 30 kHz noise floor

REPORT No: SC402509 TESTER: A. Laudani SPEC: FCC Part 22 para 22.917(b)(2)  
 CUSTOMER: Kyocera Wireless Corporation TEST DIST: 3 Meters  
 E U T: KX1 Trimode SHUI sn 6W-x---0VVJZ2 TEST SITE: Roof  
 EUT MODE: Transmit CDMA tx harmonics BICONICAL: N/A  
 DATE: June 11, 2004 ERP Factor 7 LOG: N/A  
 NOTES: Temp. 21°C, RH = 60 % HORN: 453  
 Part 22 - RBW 30 kHz

CF = Antenna Factor + Cable Loss - Preamp/Filter Gain 900 MHz Filter  
 v.beatafa

FREQ (MHz)	VERTICAL (dBuv) pk	HORIZONTAL (dBuv) pk	CF (dBm)	MAX LEVEL (dBm) pk	SPEC LIMIT (dBm) pk	MARGIN (dB) pk	EUT Rotation	Antenna Height	Notes
824.7	47.5	46.7	-9.6	-59.5	-13.0	-46.5	182	1	Fundamental (Low Band)
1649.4	41.0	49.0	-5.8	-54.1	-13.0	-41.1		1	noise floor
3298.8	45.5	44.9	-1.5	-53.4	-13.0	-40.4		1	noise floor
4123.5	44.8	45.1	-0.5	-52.8	-13.0	-39.8		1	noise floor
4948.2	44.7	44.0	0.3	-52.4	-13.0	-39.4		1	noise floor
5772.9	42.3	43.8	4.8	-48.7	-13.0	-35.7		1	noise floor
6597.6	47.0	47.3	6.3	-43.7	-13.0	-30.7		1	noise floor
7422.3	46.3	46.9	7.8	-42.7	-13.0	-29.7		1	noise floor
8247.0	47.2	46.4	8.6	-41.6	-13.0	-28.6		1	noise floor
836.49									Fundamental (Mid Band)
1672.98	47.2	47.4	-9.5	-59.5	-13.0	-46.5	180	1	
2509.47	48.0	47.3	-5.6	-55.0	-13.0	-42.0		1	noise floor
3345.96	45.6	44.7	-1.4	-53.1	-13.0	-40.1		1	noise floor
4182.45	46.7	46.0	-0.7	-51.4	-13.0	-38.4		1	noise floor
5018.94	44.5	45.6	0.6	-51.1	-13.0	-38.1		1	noise floor
5855.43	48.0	48.1	5.2	-44.1	-13.0	-31.1		1	noise floor
6691.92	46.7	48.1	6.6	-42.7	-13.0	-29.7		1	noise floor
7528.41	47.1	46.5	7.9	-42.3	-13.0	-29.3		1	noise floor
8364.90	47.5	47.8	8.7	-40.9	-13.0	-27.9		1	noise floor
848.31									Fundamental (High Band)
1696.62	49.1	46.7	-9.3	-57.6	-13.0	-44.6	180	1.3	
2544.93	49.3	50.9	-5.4	-51.9	-13.0	-38.9		1	noise floor
3393.24	45.9	52.2	-1.2	-46.3	-13.0	-33.3		1	noise floor
4241.55	46.1	46.5	-0.9	-51.8	-13.0	-38.8		1	noise floor
5089.86	45.1	44.5	1.1	-51.2	-13.0	-38.2		1	noise floor
5938.17	47.6	47.7	5.5	-44.1	-13.0	-31.1		1	noise floor
6786.48	47.7	47.0	6.8	-42.9	-13.0	-29.9		1	noise floor
7634.79	46.6	47.4	8.0	-41.9	-13.0	-28.9		1	noise floor
8483.10	46.9	47.8	8.8	-40.8	-13.0	-27.8		1	noise floor

REPORT No. SC402509 TESTER: Alan Laudani SPEC: FCC Part 15 para 15.109(a)  
 CUSTOMER: Kyocera Wireless Corporation TEST DIST: 3 Meters  
 E U T: KX1 Trimode TEST SITE: Roof  
 SHUI sn 6W-X---0VV LZ2 BICONICAL: N/A  
 EUT MODE: Receive FM rx Synth LOG: N/A  
 DATE: June 11, 2004 OTHER: 453  
 NOTES: Temp. 21°C, RH = 62 %  
 above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG

CF = Antenna Factor + Cable Loss - Pre-amplifier Gain 900 MHz Filter

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			
1738.104	53.7	50.5	48.1	37.2	-9.1	44.6	41.4	74	54	-29.4	-12.6	192	1.3	
3476.208	45.1	33.7	45.1	33.8	-0.9	44.2	32.9	74	54	-29.8	-21.1		1	noise floor
5214.312	46.7	37.1	48.3	41.8	1.9	50.2	43.7	74	54	-23.8	-10.3	169	1	
6952.416	46.6	35.6	46.7	35.0	7.2	53.9	42.8	74	54	-20.1	-11.2		1	noise floor
8690.520	46.3	35.6	46.7	35.6	9.3	56.0	44.9	74	54	-18.0	-9.1		1	noise floor
10428.624	46.6	35.4	45.7	35.4	11.8	58.4	47.2	74	54	-15.6	-6.8		1	noise floor
12166.728	44.9	34.3	45.2	34.3	13.0	58.2	47.3	74	54	-15.8	-6.7		1	noise floor
13904.832	38.9	28.7	39.4	28.7	13.9	53.3	42.6	74	54	-20.7	-11.4		1	res bw = 100 kHz noise floor
15642.936	39.0	28.6	38.7	28.6	15.5	54.5	44.1	74	54	-19.5	-9.9		1	res bw = 100 kHz noise floor
17381.040	32.8	22.8	32	22.8	21.7	54.5	44.5	74	54	-19.5	-9.5		1	res bw = 30 kHz noise floor
1763.004	64.7	42.4	55.0	36.0	-8.9	55.8	33.5	74	54	-18.2	-20.5		1	noise floor
3526.008	44.3	33.5	44.3	33.5	-0.8	43.5	32.7	74	54	-30.5	-21.3		1	noise floor
5289.012	47.8	35.1	46.9	40.9	2.3	50.1	43.2	74	54	-23.9	-10.8	119	1	
7052.016	46.2	35.6	46.7	35.7	7.4	54.1	43.1	74	54	-19.9	-10.9		1	noise floor
8815.020	46.1	36.0	46.9	36.0	9.6	56.5	45.6	74	54	-17.5	-8.4		1	noise floor
10578.024	46.5	35.9	46.7	35.3	12.2	58.9	48.1	74	54	-15.1	-5.9		1	noise floor
12341.028	44.9	34.3	45.9	34.3	13.3	59.2	47.6	74	54	-14.8	-6.4		1	noise floor
14104.032	38.8	28.6	40.7	28.7	13.7	54.4	42.4	74	54	-19.6	-11.6		1	res bw = 100 kHz noise floor
15867.036	38.8	28.7	38.3	28.7	15.5	54.3	44.2	74	54	-19.7	-9.8		1	res bw = 100 kHz noise floor
17630.040	32.6	22.7	33.2	22.9	23.0	56.2	45.9	74	54	-17.8	-8.1		1	res bw = 30 kHz noise floor
1787.964	55.1	51.8	51.8	43.2	-8.8	46.3	43.0	74	54	-27.7	-11.0	127	1	
3575.928	45.4	33.5	45.5	34.1	-0.7	44.8	33.4	74	54	-29.2	-20.6		1	noise floor
5363.892	46.3	36.1	46.3	38.3	2.8	49.1	41.1	74	54	-24.9	-12.9	205	1	
7151.856	46.9	35.5	46.5	35.6	7.5	54.4	43.1	74	54	-19.6	-10.9		1	noise floor
8939.820	47.4	36.1	47.0	36.1	9.9	57.3	46.0	74	54	-16.7	-8.0		1	noise floor
10727.784	45.6	35.0	46.2	35.1	12.5	58.7	47.6	74	54	-15.3	-6.4		1	noise floor
12515.748	38.0	28.1	39.0	28	13.6	52.6	41.7	74	54	-21.4	-12.3		1	res bw = 100 kHz noise floor
14303.712	38.4	28.5	39.3	28.5	14.0	53.3	42.5	74	54	-20.7	-11.5		1	res bw = 100 kHz noise floor
16091.676	38.3	28.6	38.0	28.5	15.4	53.7	44.0	74	54	-20.3	-10.0		1	res bw = 100 kHz noise floor
17879.640	32.5	22.5	33.4	22.6	23.3	56.7	45.9	74	54	-17.3	-8.1		1	res bw = 30 kHz noise floor

REPORT No: SC402509 TESTER: A. Laudani SPEC: FCC Part 22 para 22.917(b)(2)  
 CUSTOMER: Kyocera Wireless Corporation TEST DIST: 3 Meters  
 E U T: KX1 Trimode SHUI sn 6W-X---0VVLZ2 TEST SITE: Roof  
 EUT MODE: Transmit FM tx harmonics BICONICAL: N/A  
 DATE: June 11, 2004 ERP Factor 7 LOG: N/A  
 NOTES: Temp. 16°C, RH = 67 % HORN: 453  
 Part 22 - RBW 30 KHz

CF = Antenna Factor + Cable Loss - Pre-amplifier Gain 900 MHz Filler

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
824.04									Fundamental (Low Band)
1648.08	47.5	47.5	-9.7	-59.5	-13.0	-46.5	180	1.1	
2472.12	48.0	51.1	-8.8	-52.1	-13.0	-39.1		1	noise floor
3296.16	45.1	44.8	-1.5	-53.8	-13.0	-40.8		1	noise floor
4120.2	44.8	45.2	-0.5	-52.7	-13.0	-39.7		1	noise floor
4944.24	44.6	43.8	0.2	-52.5	-13.0	-39.5		1	noise floor
5768.28	42.6	45.7	4.8	-46.8	-13.0	-33.8		1	noise floor
6592.32	47.3	48.0	6.3	-43.0	-13.0	-30.0		1	noise floor
7416.36	46.2	46.8	7.8	-42.8	-13.0	-29.8		1	noise floor
8240.40	47.0	47.2	8.6	-41.6	-13.0	-28.6		1	noise floor
836.49									
1672.98	47.0	46.4	-9.5	-59.9	-13.0	-46.9	159	1.3	Fundamental (Mid Band)
2509.47	47.4	46.7	-5.6	-55.6	-13.0	-42.6		1	noise floor
3345.96	45.1	45.2	-1.4	-53.5	-13.0	-40.5		1	noise floor
4182.45	45.6	45.0	-0.7	-52.5	-13.0	-39.5		1	noise floor
5018.94	44.7	44.7	0.6	-52.0	-13.0	-39.0		1	noise floor
5855.43	47.5	48.3	5.2	-43.9	-13.0	-30.9		1	noise floor
6691.92	46.8	46.9	6.6	-43.9	-13.0	-30.9		1	noise floor
7528.41	46.5	47.5	7.9	-41.9	-13.0	-28.9		1	noise floor
8364.90	47.0	47.1	8.7	-41.6	-13.0	-28.6		1	noise floor
848.97									
1697.94	47.7	47.2	-9.3	-59.0	-13.0	-46.0	163	1.1	Fundamental (High Band)
2546.91	49.8	44.8	-5.4	-53.0	-13.0	-40.0		1	noise floor
3395.88	45.1	45.7	-1.2	-52.8	-13.0	-39.8		1	noise floor
4244.85	45.1	45.9	-0.9	-52.4	-13.0	-39.4		1	noise floor
5093.82	44.6	44.8	1.1	-51.5	-13.0	-38.5		1	noise floor
5942.79	47.6	48.1	5.6	-43.7	-13.0	-30.7		1	noise floor
6791.76	46.6	47.2	6.8	-43.4	-13.0	-30.4		1	noise floor
7640.73	46.1	46.3	8.0	-43.0	-13.0	-30.0		1	noise floor
8489.70	46.6	47.0	8.8	-41.6	-13.0	-28.6		1	noise floor

REPORT No: SC402509 TESTER: Alan Laudani SPEC: FCC Part 15 para 15.109(a)  
 CUSTOMER: Kyocera Wireless Corporation TEST DIST: 3 Meters  
 E U T: KX1 Trimode TEST SITE: Roof  
 SHUI sn 6W-X---0VV LZZ  
 EUT MODE: Receive PCS rx Synth BICONICAL: N/A  
 DATE: June 10, 2004 LOG: N/A  
 NOTES: Temp. 20°C, RH = 61 % OTHER: 453  
 above 1GHz: RBW & VBW 1 MHz for PK, RBW 1MHz, and VBW 10Hz for AVG

CF = Antenna Factor + Cable Loss - Pre-amplifier Gain 2000 MHz Filter

FREQ (MHz)	VERTICAL (dBuV)		HORIZONTAL (dBuV)		CF (dB/m)	MAX LEVEL (dBuV/m)		SPEC LIMIT (dBuV/m)		MARGIN (dB)		Antenna Height	Notes
	pk	av	pk	av		pk	av	pk	av	pk	av		
1716.667	45.2	33.9	44.8	33.9	-9.2	36.0	24.7	74	54	-38.0	-29.3	1	noise floor
3433.333	44.1	33.7	45.7	33.7	-1.0	44.7	32.7	74	54	-29.3	-21.3	1	noise floor
5150.000	48.0	39.4	48.2	41.3	1.5	49.7	42.8	74	54	-24.3	-11.2	182	
6866.666	48.0	36.7	48.2	36.5	7.0	55.2	43.7	74	54	-18.8	-10.3	1	noise floor
8583.333	47.6	36.5	47.7	36.5	9.0	56.7	45.5	74	54	-17.3	-8.5	1	noise floor
10300.000	46.3	35.6	46.3	35.5	11.4	57.7	47.0	74	54	-16.3	-7.0	1	noise floor
12016.666	46.0	34.7	45.7	34.8	12.7	58.7	47.5	74	54	-15.3	-6.5	1	noise floor
13733.333	40.1	29.0	40.8	29.1	14.6	55.4	43.7	74	54	-18.6	-10.3	1	res bw = 100 kHz noise floor
15449.999	40.3	28.9	38.9	28.8	15.6	55.9	44.5	74	54	-18.1	-9.5	1	res bw = 100 kHz noise floor
17166.666	32.2	22.9	32.6	23.0	20.9	53.5	43.9	74	54	-20.5	-10.1	1	res bw = 30 kHz noise floor
17422.222	45.5	33.7	44.9	33.7	-9.0	36.5	24.7	74	54	-37.5	-29.3	1	noise floor
3484.444	44.3	33.6	44.5	33.7	-0.9	43.6	32.8	74	54	-30.4	-21.2	1	noise floor
5226.667	46.7	38.0	47.4	41.2	2.0	49.4	43.2	74	54	-24.6	-10.8	99	
6968.889	46.9	35.6	46.3	35.5	7.2	54.1	42.8	74	54	-19.9	-11.2	1	noise floor
8711.111	47.5	35.9	47.1	36.0	9.3	56.8	45.3	74	54	-17.2	-8.7	1	noise floor
10453.333	46.8	35.7	46.7	35.7	11.9	58.7	47.6	74	54	-15.3	-6.4	1	noise floor
12195.555	45.2	34.4	45.3	34.3	13.1	58.4	47.5	74	54	-15.6	-6.5	1	noise floor
13937.778	38.6	28.7	39.6	28.7	13.8	53.4	42.5	74	54	-20.6	-11.5	1	res bw = 100 kHz noise floor
15680.000	39.1	28.6	38.9	28.6	15.5	54.6	44.1	74	54	-19.4	-9.9	1	res bw = 100 kHz noise floor
17422.222	33.9	22.6	33.2	22.5	21.9	55.8	44.5	74	54	-18.2	-9.5	1	res bw = 30 kHz noise floor
1767.777	44.4	33.6	44.4	33.6	-8.9	35.5	24.7	74	54	-38.5	-29.3	1	noise floor
3535.554	44.5	33.9	44.7	33.8	-0.8	43.9	33.1	74	54	-30.1	-20.9	1	noise floor
5303.331	42.4	35.5	47.1	39.8	2.4	49.5	42.2	74	54	-24.5	-11.8	149	
7071.108	46.7	35.6	46.6	35.7	7.4	54.1	43.1	74	54	-19.9	-10.9	1	noise floor
8838.885	46.5	36.1	47.3	36.1	9.6	56.9	45.7	74	54	-17.1	-8.3	1	noise floor
10606.662	46.0	35.3	46.2	35.3	12.2	58.4	47.5	74	54	-15.6	-6.5	1	noise floor
12374.439	45.5	34.4	45.2	34.4	13.4	58.9	47.8	74	54	-15.1	-6.2	1	noise floor
14142.216	38.7	28.8	38.5	28.8	13.7	52.4	42.5	74	54	-21.6	-11.5	1	res bw = 100 kHz noise floor
15909.993	38.7	28.7	40.3	28.8	15.4	55.7	44.2	74	54	-18.3	-9.8	1	res bw = 100 kHz noise floor
17677.77	32.7	22.7	33.2	22.9	23.3	56.5	46.2	74	54	-17.5	-7.8	1	res bw = 30 kHz noise floor

REPORT No: SC402509 TESTER: Alan Laudani SPEC: FCC Part 15 para 15.209(e)  
 CUSTOMER: Kyocera Wireless Corporation TEST DIST: 3 Meters  
 E U T: KX1 Trimode Roof  
 "SHUJ" sn 6WX-0VVLLZ BICONICAL: N/A  
 EUT MODE: Transmit PCS tx Synth LOG: N/A  
 DATE: June 10, 2004  
 NOTES: Temp: 20°C RH 62% OTHER: 463  
 above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG.

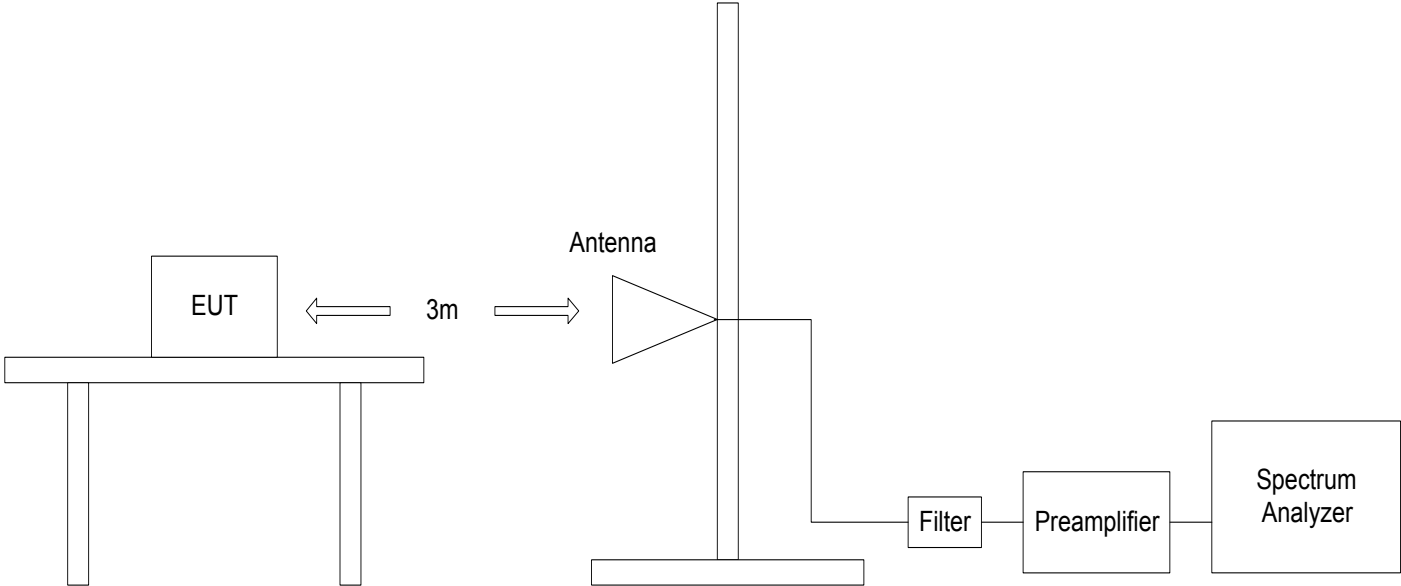
CF = Antenna Factor + Cable Loss - Preamp/Filter Gain 2000 MHz Filter

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			
1481	46.7	35.4	47.1	35.4	-10.8	36.3	24.6	74	54	-37.7	-29.4		1	noise floor
2962	46.0	34.5	45.7	34.6	-2.8	43.2	31.8	74	54	-30.8	-22.2		1	noise floor
4443	46.0	34.5	45.5	34.5	-1.6	44.4	32.9	74	54	-29.6	-21.1		1	noise floor
5924	46.3	36.9	47.8	36.9	5.5	53.3	42.4	74	54	-20.7	-11.6		1	noise floor
7405	49.6	38.2	51.4	42.1	7.8	59.2	49.9	74	54	-14.8	-4.1	90	1.1	noise floor
8886	47.3	36.4	47.9	36.4	9.7	57.6	46.1	74	54	-16.4	-7.9		1	noise floor
10367	46.2	35.6	45.9	35.6	11.6	57.8	47.2	74	54	-16.2	-6.8		1	noise floor
11848	46.4	34.9	45.6	34.9	12.8	59.2	47.7	74	54	-14.8	-6.3		1	noise floor
13229	36.3	25.0	35.2	24.9	14.5	50.8	39.5	74	54	-23.2	-14.5		1	res bw = 100 kHz noise floor
14810	39.4	28.5	38.6	28.7	15.2	54.6	43.9	74	54	-19.4	-10.1		1	res bw = 100 kHz noise floor
1504	47.1	35.5	47.2	35.5	-10.6	36.6	24.9	74	54	-37.4	-29.1		1	noise floor
3008	44.8	34.0	45.2	33.8	-2.6	42.6	31.4	74	54	-31.4	-22.6		1	noise floor
4512	44.9	34.1	44.9	34.1	-1.7	43.2	32.4	74	54	-30.8	-21.6		1	noise floor
6016	47.6	36.7	47.8	36.0	5.8	53.6	42.5	74	54	-20.4	-11.5		1	noise floor
7520	48.3	35.9	50.0	40.2	7.9	57.9	48.1	74	54	-16.1	-5.9	83	1	noise floor
9024	47.9	36.2	47.0	36.2	10.0	57.9	46.2	74	54	-16.1	-7.8		1	noise floor
10528	46.1	35.4	46.3	35.4	12.1	58.4	47.5	74	54	-15.6	-6.5		1	noise floor
12032	46.3	34.8	46.1	34.7	12.8	59.1	47.6	74	54	-14.9	-6.4		1	noise floor
13536	39.2	28.6	38.5	28.5	15.4	54.6	44.0	74	54	-19.4	-10.0		1	res bw = 100 kHz noise floor
15040	39.4	29.0	40.4	29.1	15.8	56.2	44.9	74	54	-17.8	-9.1		1	res bw = 100 kHz noise floor
1527	46.3	35.3	45.8	35.4	-10.4	35.9	25.0	74	54	-38.1	-29.0		1	noise floor
3054	44.7	34.1	44.5	34.1	-2.4	42.3	31.7	74	54	-31.7	-22.3		1	noise floor
4581	45.1	34.2	44.6	34.2	-1.4	43.7	32.8	74	54	-30.3	-21.2		1	noise floor
6108	47.9	36.7	47.9	36.7	5.9	53.8	42.6	74	54	-20.2	-11.4		1	noise floor
7635	50.3	37.7	53.6	43.2	8.0	61.6	51.2	74	54	-12.4	-2.8	163	1.1	noise floor
9162	47.3	36.3	47.9	36.3	9.7	57.6	46.0	74	54	-16.4	-8.0		1	noise floor
10689	46.5	35.4	46.3	35.4	12.4	58.9	47.8	74	54	-15.1	-6.2		1	noise floor
12216	45.6	34.6	45.4	34.6	13.1	58.7	47.7	74	54	-15.3	-6.3		1	noise floor
13743	39.3	28.9	39.3	29.0	14.6	53.9	43.6	74	54	-20.1	-10.4		1	res bw = 100 kHz noise floor
15270	38.6	28.6	38.7	28.6	15.7	54.4	44.3	74	54	-19.6	-9.7		1	res bw = 100 kHz noise floor

REPORT No: SC402509      TESTER: Alan Laudani      SPEC: FCC Part 24 para 24.238(e)  
 CUSTOMER: Kyocera Wireless Corporation      TEST DIST: 3 Meters  
 E U T: KX1 Trimode      TEST SITE: Roof  
 "SHUJ" sn 6W-X---0VVLZ2      BICONICAL: N/A  
 EUT MODE: Transmit PCS tx harmonics  
 DATE: June 10, 2004      EIRP Factor 5.5      LOG: N/A  
 NOTES: Temp. 17°C, RH = 70 %      HORN: 453

FREQ (MHz)	VERTICAL (dBuv) pk	HORIZONTAL (dBuv) pk	CF (dBm)	MAX LEVEL (dBm) pk	SPEC LIMIT (dBm) pk	MARGIN (dB) pk	EUT Rotation	Antenna Height	Notes
1851.25									Fundamental (Low Band)
3702.50	58.0	49.1	-0.5	-37.8	-13.0	-24.8	197	1	
5553.75	47.8	48.2	3.9	-43.1	-13.0	-30.1	61	1	noise floor
7405.00	48.5	50.3	7.8	-37.2	-13.0	-24.2		1	noise floor
9256.25	47.1	47.4	9.5	-38.4	-13.0	-25.4		1	noise floor
11107.50	45.5	45.6	13.1	-36.6	-13.0	-23.6		1	noise floor
12958.75	49.5	50.5	12.5	-32.3	-13.0	-19.3		1	noise floor
14810.00	49.5	49.6	15.2	-30.4	-13.0	-17.4		1	noise floor
16661.25	48.7	48.9	18.2	-28.2	-13.0	-15.2		1	noise floor
18512.50	50.4	47.9	21.1	-23.8	-13.0	-10.8		1	noise floor
1880									Fundamental (Mid Band)
3760	47.8	44.8	-0.4	-47.9	-13.0	-34.9	180	1.1	
5640	44.7	47.6	4.3	-43.4	-13.0	-30.4	185	1	noise floor
7520	48.0	47.4	7.9	-39.3	-13.0	-26.3		1	noise floor
9400	46.5	47.0	9.2	-39.1	-13.0	-26.1		1	noise floor
11280	45.5	46.1	13.0	-36.1	-13.0	-23.1		1	noise floor
13160	48.2	50.2	13.4	-31.6	-13.0	-18.6		1	noise floor
15040	50.4	50.9	15.8	-28.6	-13.0	-15.6		1	noise floor
16920	48.3	50.0	19.7	-25.5	-13.0	-12.5		1	noise floor
18800	53.4	52.0	23.7	-18.2	-13.0	-5.2		1	noise floor
1908.75									Fundamental (High Band)
3817.50	48.9	46.7	-0.4	-46.7	-13.0	-33.7	180	1.1	
5726.25	50.0	51.5	4.7	-39.1	-13.0	-26.1	187	1	
7635.00	50.8	53.0	8.0	-34.2	-13.0	-21.2	74	1.2	
9543.75	47.4	47.6	9.1	-38.5	-13.0	-25.5		1	noise floor
11452.50	45.9	45.8	13.0	-36.4	-13.0	-23.4		1	noise floor
13361.25	49.9	50.7	14.7	-29.9	-13.0	-16.9		1	noise floor
15270.00	50.3	49.9	15.7	-29.3	-13.0	-16.3		1	noise floor
17178.75	49.5	49.2	20.9	-24.8	-13.0	-11.8		1	noise floor
19087.50	41.5	41.6	26.1	-27.5	-13.0	-14.5		1	res bw 100 kHz -- noise floor

Test Setup for Spurious Radiated Emissions



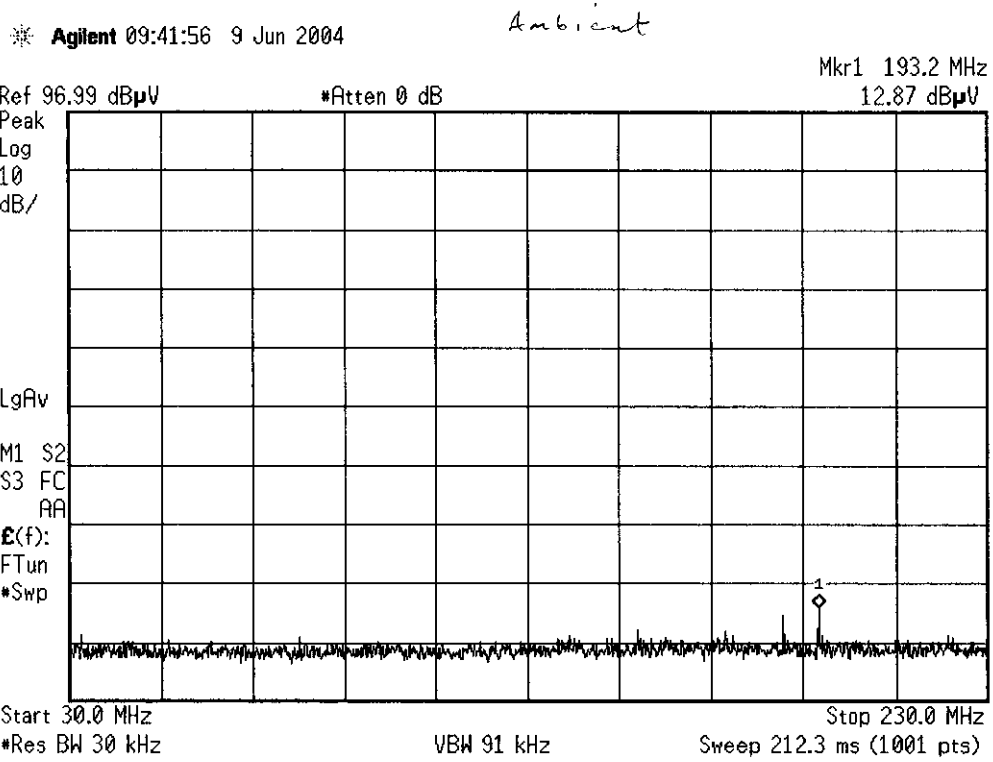


Photograph of Test Setup



## Appendix

### Supplemental Information

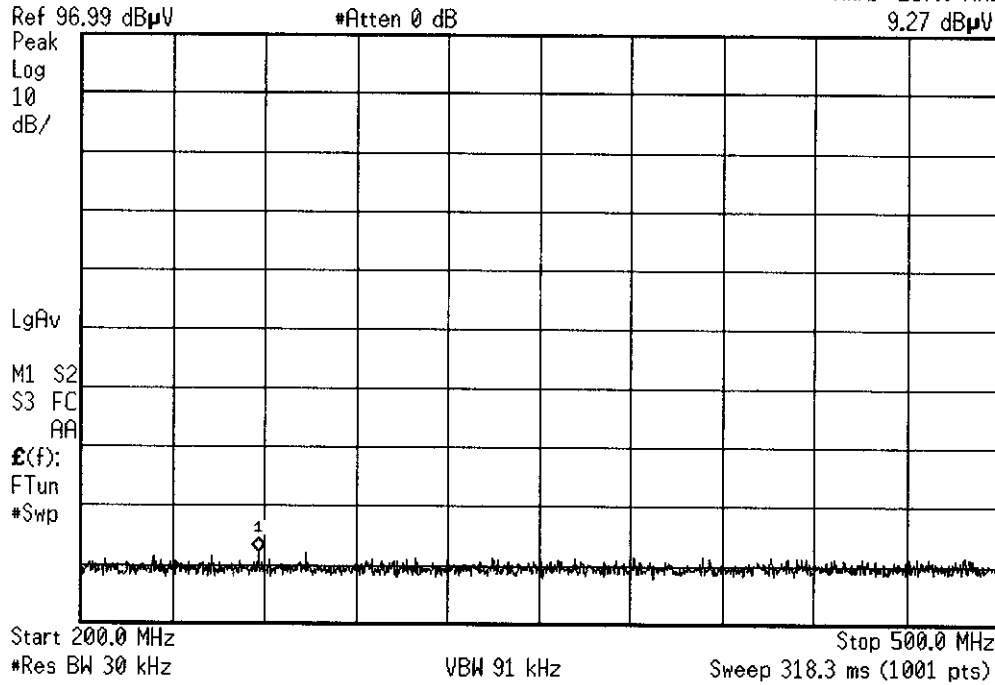


SR3 - AAS  
1 meter Prescan

Agilent 09:41:32 9 Jun 2004

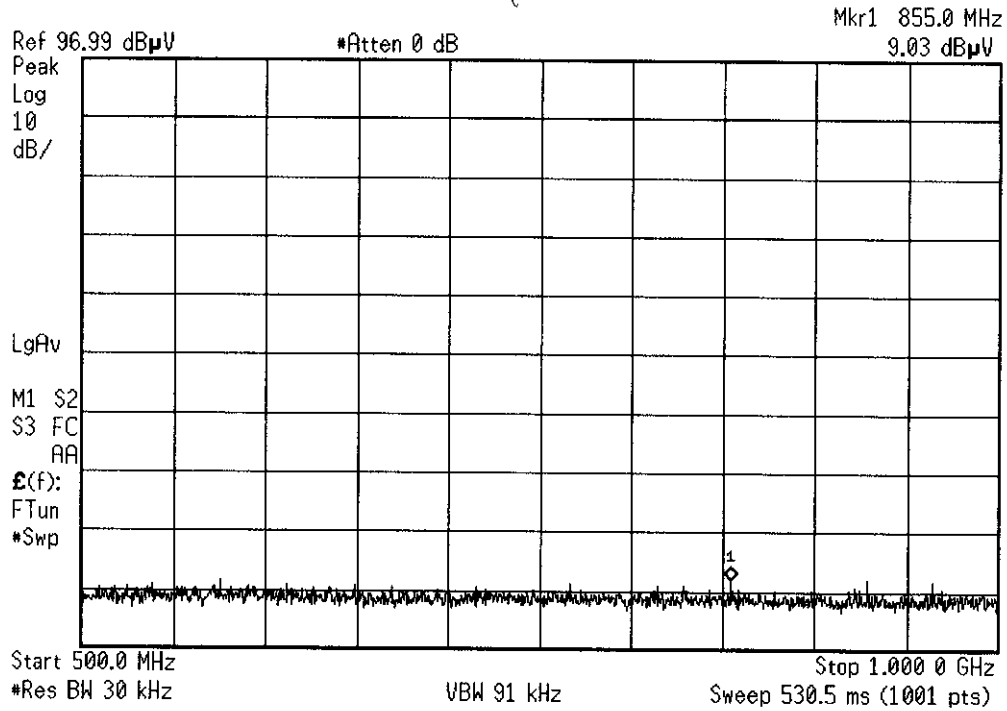
Ambient

Mkr1 257.9 MHz  
9.27 dB $\mu$ V



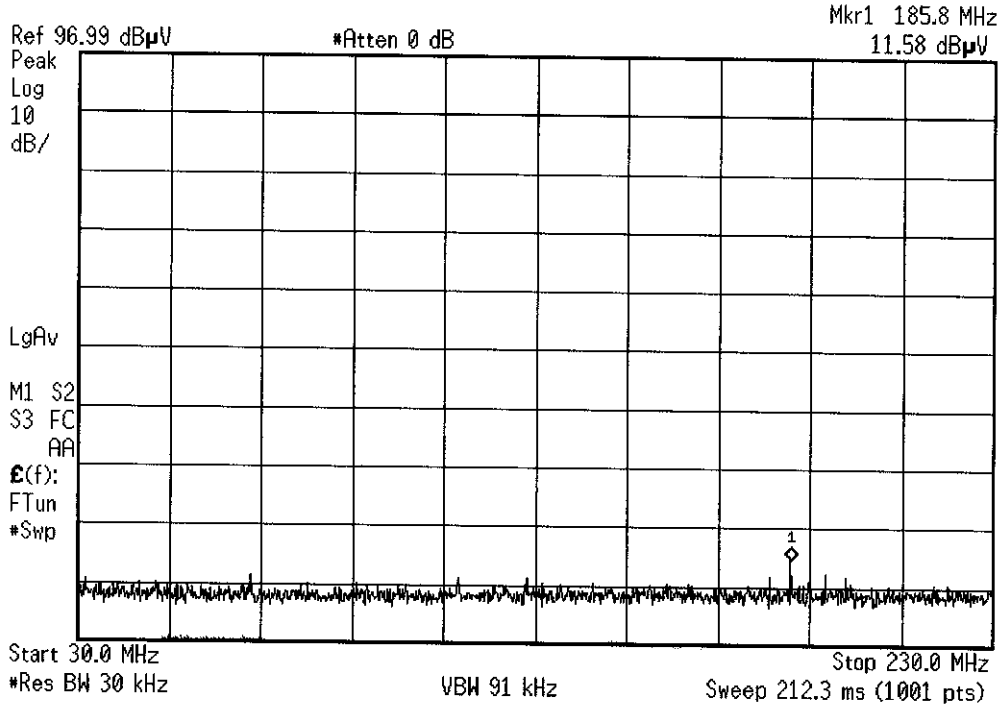
\* Agilent 09:40:55 9 Jun 2004

*Ambient*



*CDMA midchannel*

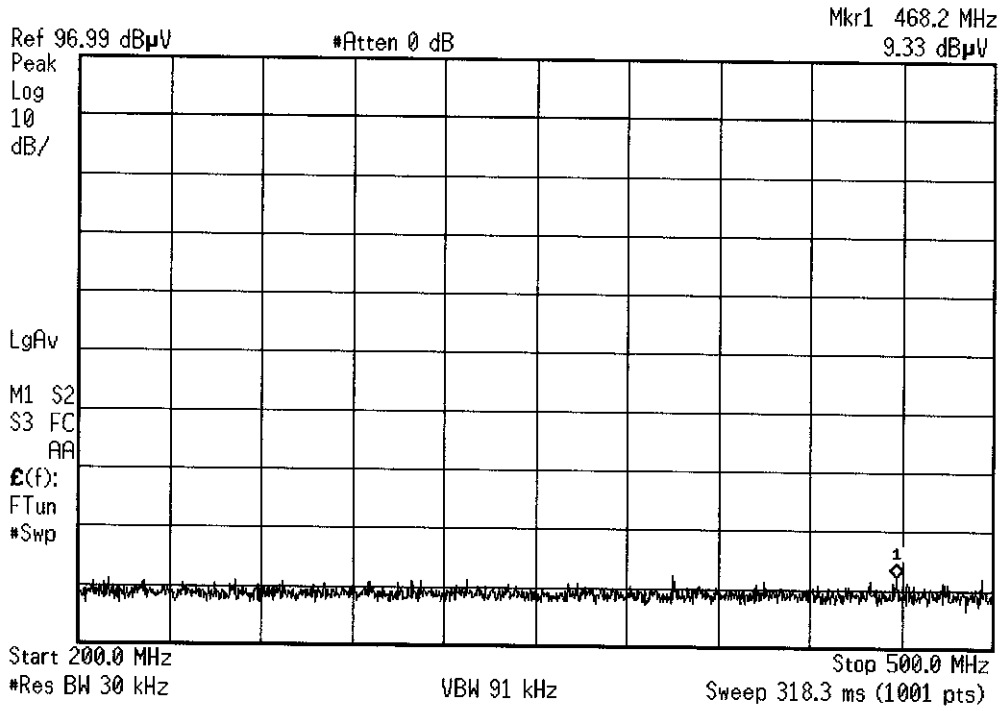
\* Agilent 10:13:30 9 Jun 2004



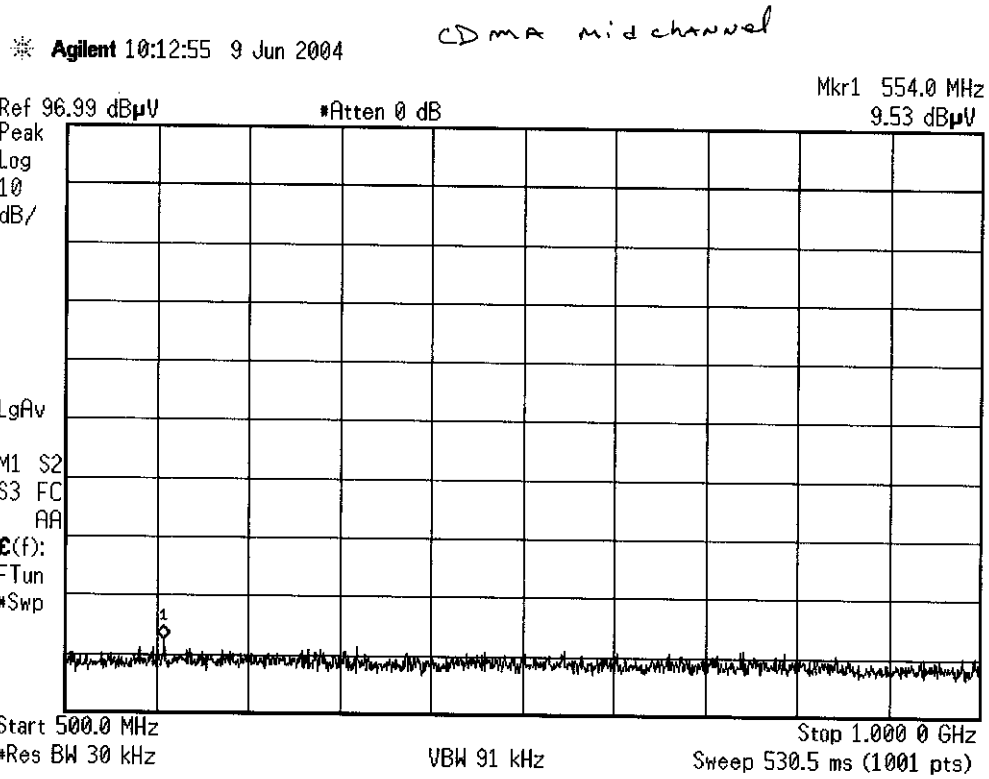
*KX1 Shu:  
Receive  
1-meter Prescan  
SR3 - AA2*

*CDMA mid channel*

\* Agilent 10:13:15 9 Jun 2004



*KX1 Shui  
Receive  
1-meter Proscan  
SR3 - AAL*

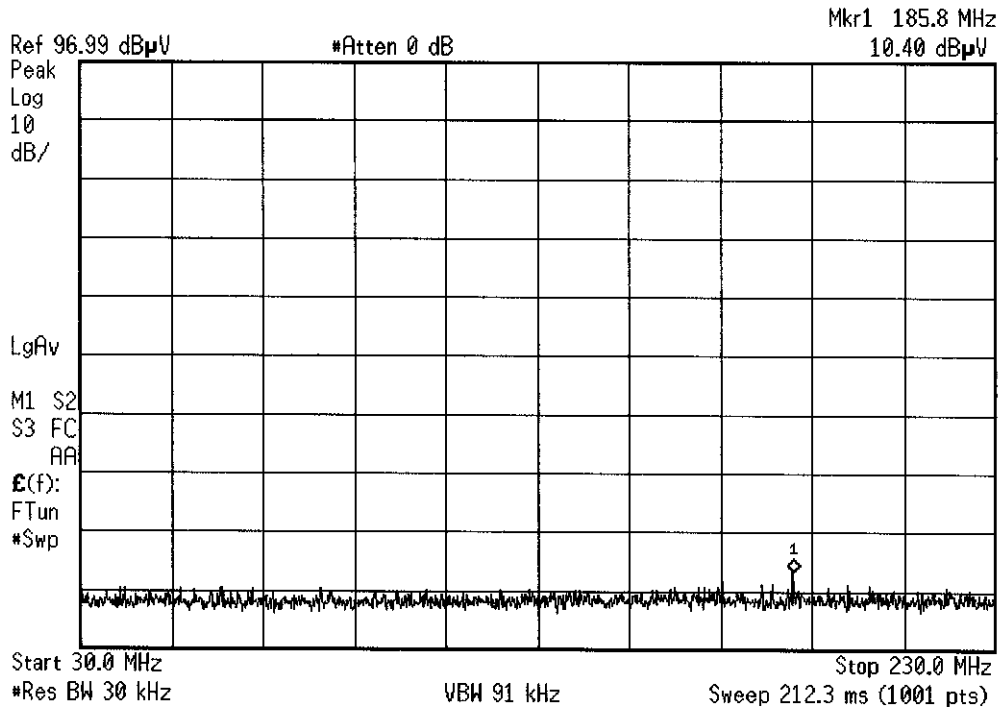


*KX1 Shv:  
Receive  
1 meter prescan  
SRS - AA*

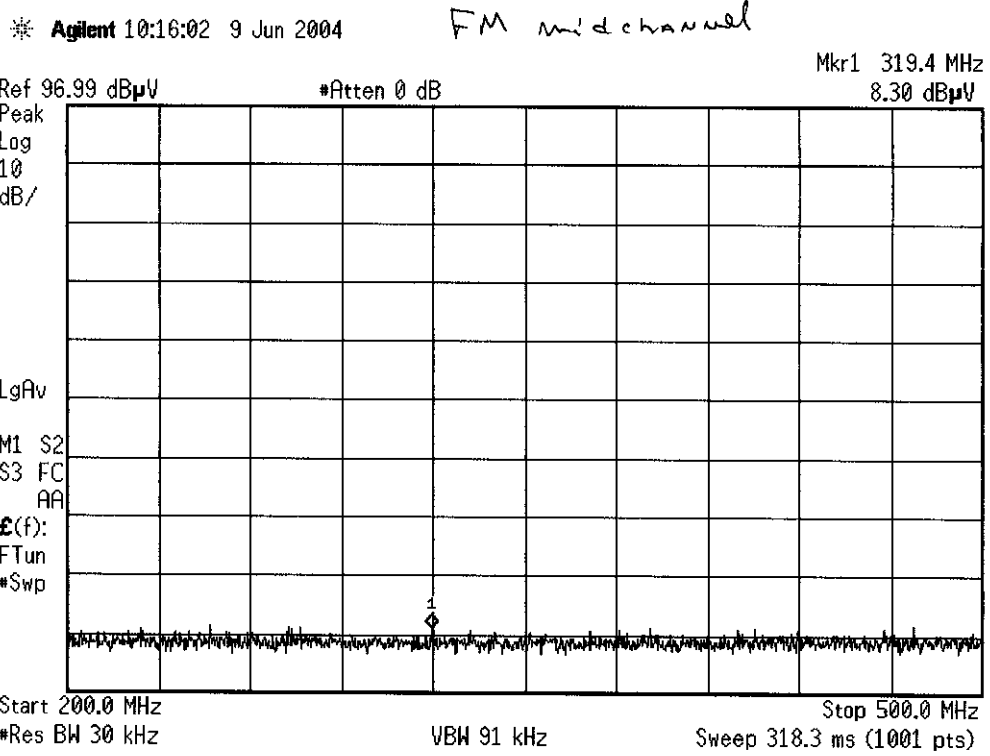


\* Agilent 10:15:41 9 Jun 2004

FM mid channel



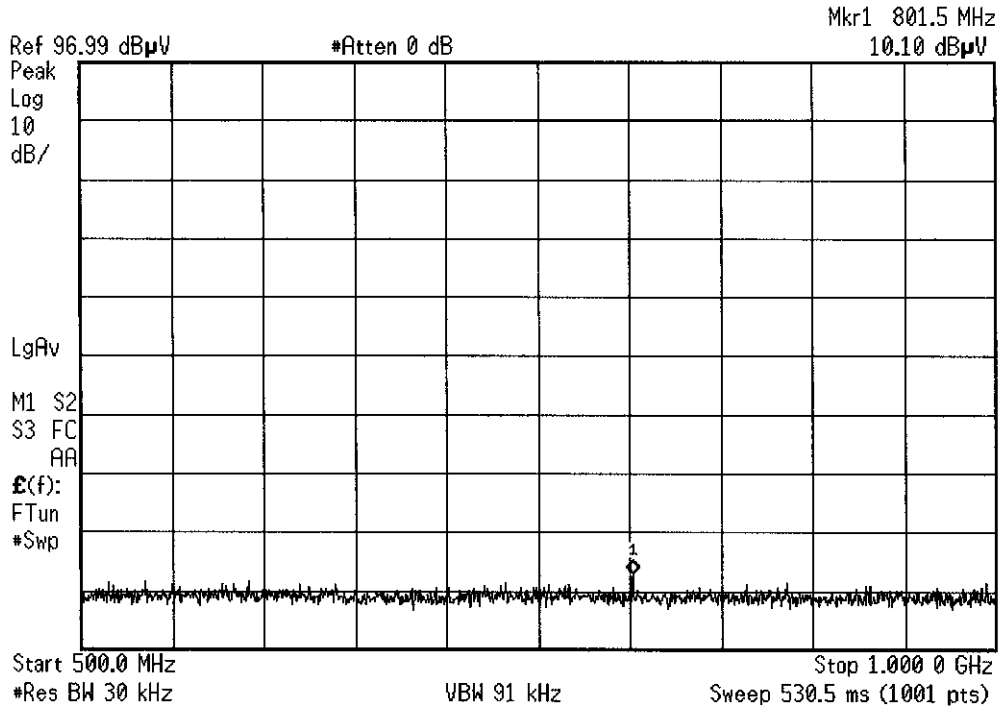
KX 1 Shvi  
Receiver  
I - meter program  
SR3 - AA



*KX1 Shui  
Receive  
1 meter Piccam  
SR3-AA2*

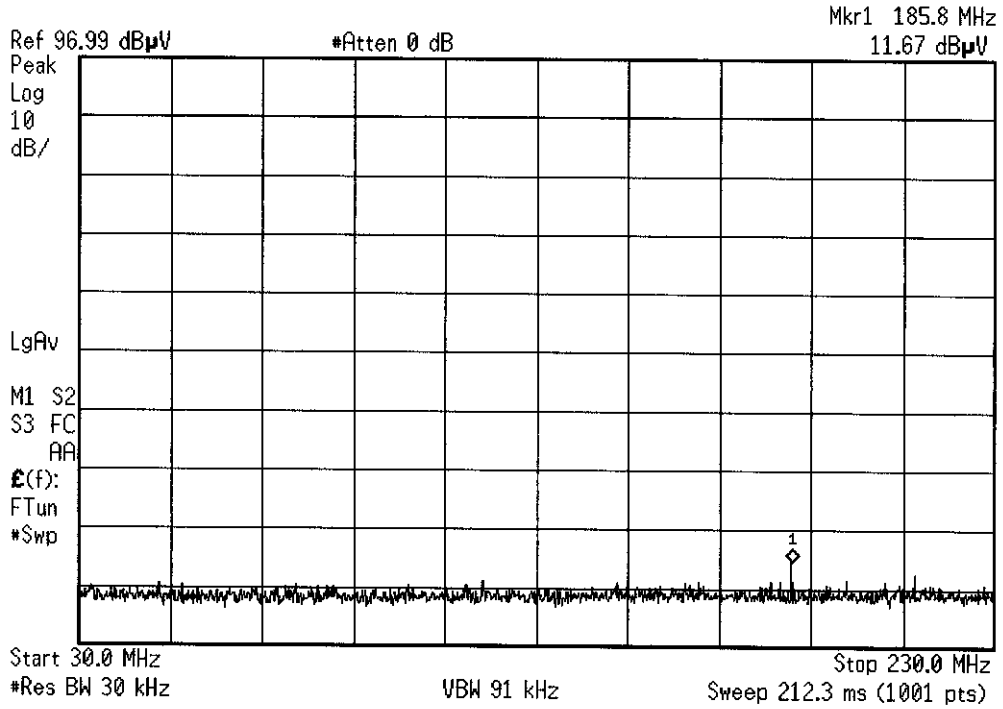
\* Agilent 10:16:30 9 Jun 2004

FM mid channel



KX1 Shdi  
Receiver  
1 meter Prescan  
SR3 - AAP

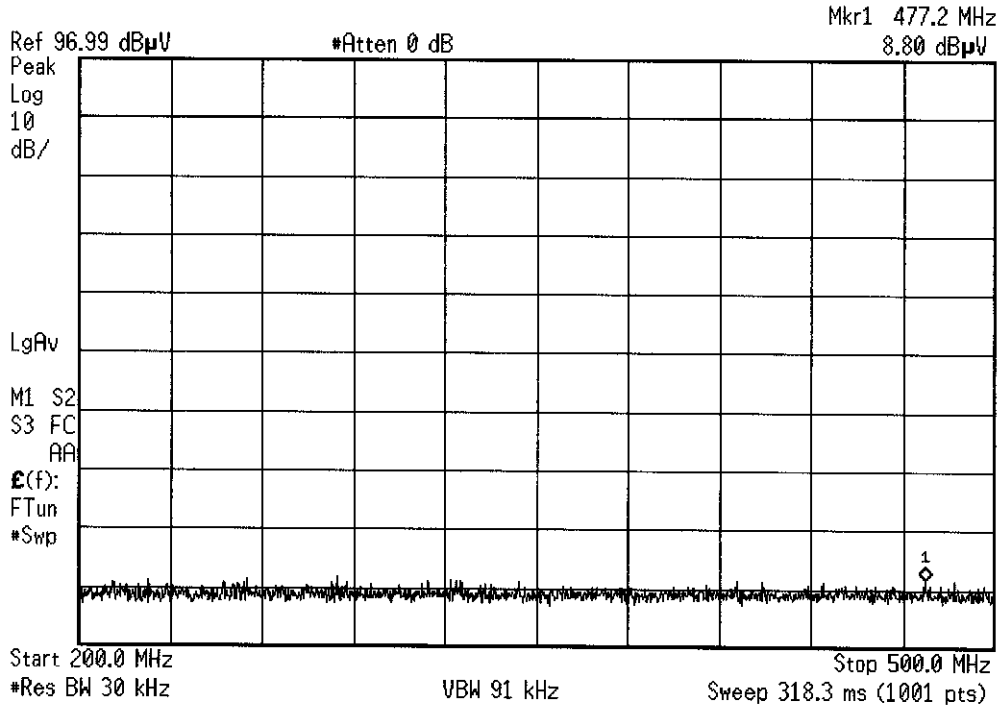
\* Agilent 10:08:05 9 Jun 2004 *PCS midchannel*



*KX1 shui  
Receive  
1-meter Prescan  
SR3 - AAF*

\* Agilent 10:08:38 9 Jun 2004

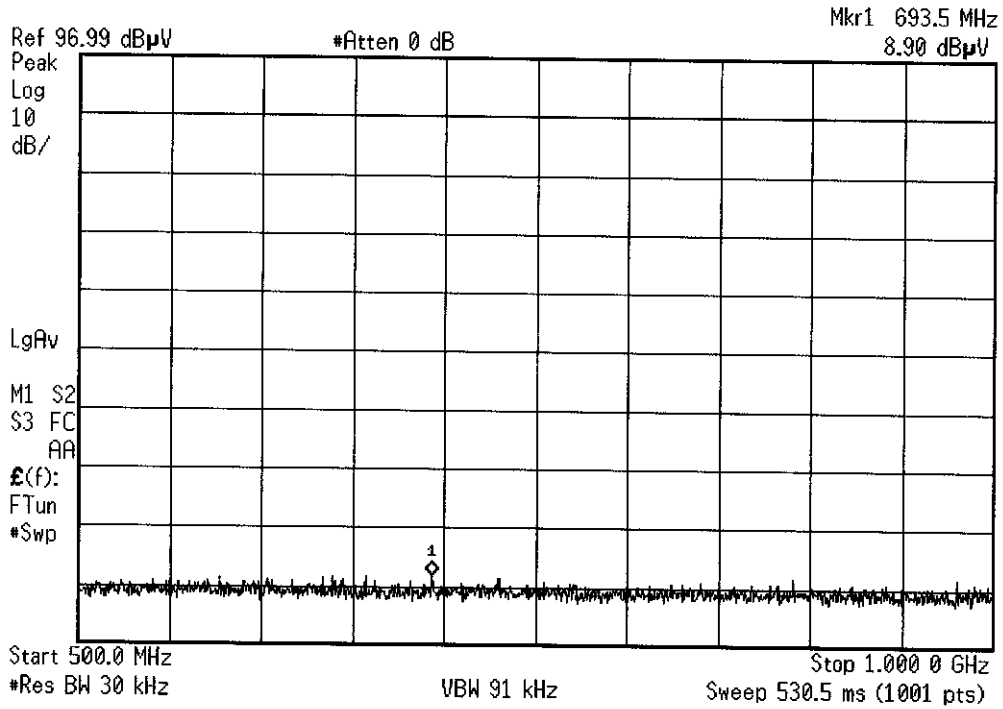
*PCS mid channel*



*KX1 Shui  
Receive  
1-meter frequency  
SR3-AAF*

PCS midchannel

\* Agilent 10:09:13 9 Jun 2004



KX1 shui  
Receive  
1-meter frescan  
SR3-AAF