

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.

A handwritten signature in cursive script that reads 'FR Fleury'.

Floyd R. Fleury
EMC Manager

Emissions Test Conditions: SPURIOUS RADIATED EMISSIONS

Canyon #1 (10- and 30-Meter Open Area Test Site), Carroll Canyon, San Diego
Roof (small open area test site)

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
LPB 2520/A	738	Antenna, Bilog	Antenna Research	1169	08/02
ESVS 30	427	EMI Test Receiver	Rohde & Schwarz	830350/006	12/02
HP8566B	720	Spectrum Analyzer	Hewlett Packard	2115A00842	09/02
3115	251	Antenna, Horn	Electro Mechanics Co	2595	11/02
AMF-5D-010180-35-10P	719	PreAmp	TUV America	549460	NCR*
FF6549-1	778	900 MHz High Pass Filter	Sage	005	NCR*
FF6549-2	783	2000 MHz High Pass Filter	Sage	008	NCR*
83592C	186	Sweep Oscillator/Signal Generator	Hewlett Packard	2328A00112	NCR*
3115	453	Antenna, Horn	Electro Mechanics Co	3564	12/02
8481A	554	Power Sensor	Hewlett Packard	1926A27807	09/02
436A	775	Power Meter	Hewlett Packard	1918A05312	09/02

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

Technical Documentation

Test Data Sheets

and

Test Setups

Kyocera Substitution SC303266

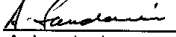
Model SE47
 7/15/03
 Mode Transmit PCS

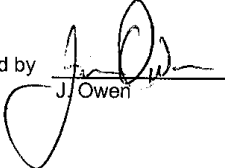
Frequency MHz	target level dBuV/m	Horn Gain dBi	cable loss dB	Signal Generator dBm	Total (EIRP) dBm	Spec dBm	Margin Subst. dBm
3702.5	71.2	7.9	8	-32	-32.1	-13	-19.1
3760	66.5	7.8	8.1	-38.4	-38.7	-13	-25.7
3817.5	66.5	7.8	8.1	-38.9	-39.2	-13	-26.2
5553.75	61.8	10.5	10.4	-36.2	-36.1	-13	-23.1
5640.00	64.5	10.5	10.4	-29.9	-29.8	-13	-16.8
5726.25	63.3	10.6	10.4	-35.1	-34.9	-13	-21.9

Substitution Procedure:

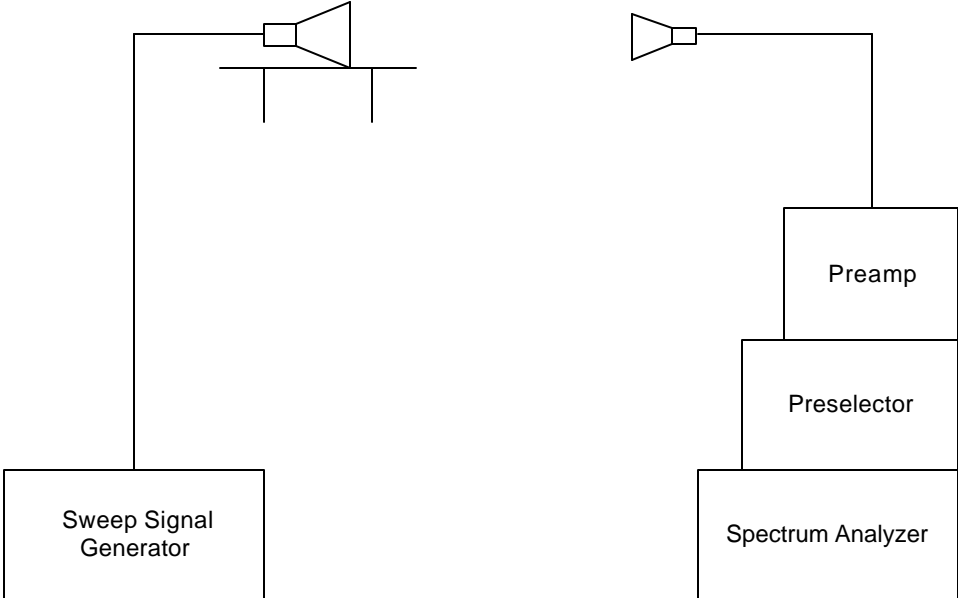
1. Select emissions that pass with less than 20 dB margin, note the Target level -- reading on spectrum analyzer.
2. Duplicate this targeted reading with Signal Generator, allowing for antenna horn gain and cable insertion loss.
3. Compare calculated power output to specification.

Location: TUV 3-meter roof site: 21°C, R.H. 81%, 101.29 kPa
 Equipment used: 720,251,719,778,783,186,453,554,775

Tested by 
 A. Laudani

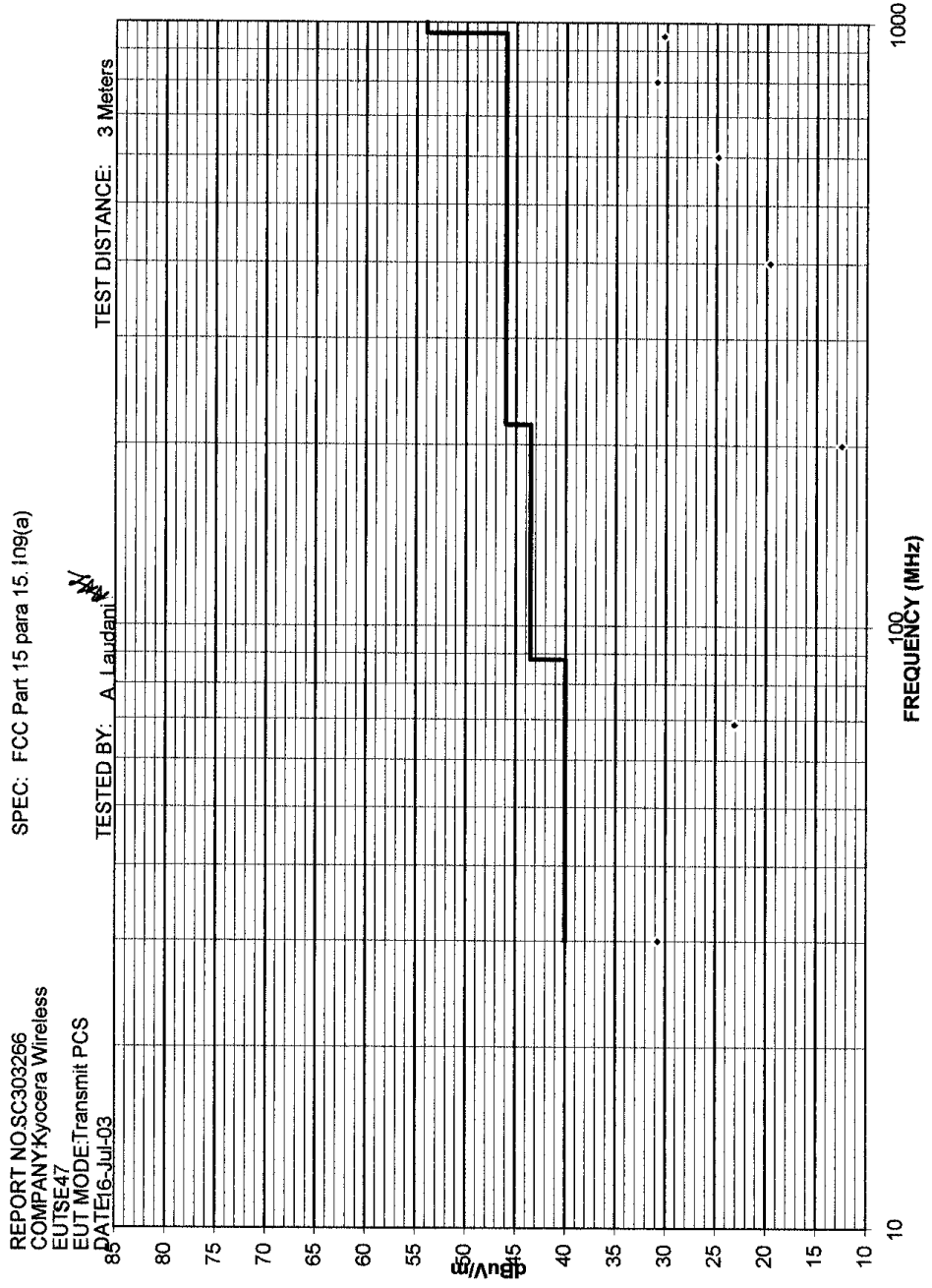
Reviewed by 
 J. Owen

Test setup for Substitution Method



REPORT No: SC303266 TESTER: Alan Laudani SPEC: FCC Part 15 para 15.109(a)
 CUSTOMER: Kyocera Wireless TEST DIST: 3 Meters
 E U T: SE47 TEST SITE: Roof
 EUT MODE: Receive LO CDMA BICONICAL: N/A
 DATE: July 14, 2003 LOG: N/A
 NOTES: OTHER: 251
 above 1GHz: RBW & VBW 1 MHz for Pk, RBW 1MHz and VBW 10Hz for AVG
 900 MHz High Pass Filter
 CF = Antenna Factor + Cable Loss - Pre-amplifier 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	53.5	36.7	67.1	44.8	-13.61	53.49	31.2	74	54	-20.5	-22.8		1	ambient
2105.6	49.1	43.4	49.9	44.4	-6.31	43.59	38.1	74	54	-30.4	-15.9	178	1.1	
3159.9	46.7	36.6	47.2	36.7	-2.22	44.98	34.5	74	54	-29	-19.5		1	noise floor
4213.2	46.1	36.5	46.4	36.5	-0.03	46.37	36.5	74	54	-27.6	-17.5		1	noise floor
5266.5	44.9	34.8	45.9	34.8	2.62	48.52	37.4	74	54	-25.5	-16.6		1	noise floor
1065.09	51.7	36	63.2	47.4	-13.52	49.68	33.9	74	54	-24.3	-20.1		1	ambient
2130.18	48	40.5	52.4	44.9	-6.20	46.2	38.7	74	54	-27.8	-15.3	153	1.4	
3195.27	47.3	36.6	47.4	36.7	-2.10	45.3	34.6	74	54	-28.7	-19.4		1	noise floor
4280.36	46.5	36.5	46.8	36.6	-0.12	46.68	36.5	74	54	-27.3	-17.5		1	noise floor
5325.45	44.5	35	45.8	35.1	3.04	48.84	38.1	74	54	-25.2	-15.9		1	noise floor
1076.91	52.9	37	56.9	38.2	-13.43	43.47	24.8	74	54	-30.5	-29.2		1	ambient
2153.82	52.5	46.1	54.2	45.5	-6.09	48.11	40	74	54	-25.9	-14	146	1.5	
3230.73	45.85	36.2	46.4	36.4	-1.97	44.43	34.4	74	54	-29.6	-19.6		1	noise floor
4307.64	46.6	36.6	47.3	36.6	-0.22	47.08	36.4	74	54	-26.9	-17.6		1	noise floor
5384.55	45.1	35.2	44.5	35.2	3.47	48.57	38.7	74	54	-25.4	-15.3		1	noise floor



REPORT No: SC303266 TESTER: Alan Laudani SPEC: FCC Part 22 para 22.917(b)(2)
 CUSTOMER: Kyocera Wireless INC TEST DIST: 3 Meters
 E U T: SE47 TEST SITE: Roof
 EUT MODE: Transmit CDMA BICONICAL: N/A
 DATE: July 14, 2003 ERP Factor 7 LOG: N/A
 NOTES: HORN: 251

Harmonics: RBW = 1 MHz, VBW = 1 MHz
 900 MHz High Pass Filter inserted before Preamp/Filter
 CF = Antenna Factor + Cable Loss - Preamp/Filter Gain

FREQ (MHz)	VERTICAL (dBuv) pk	HORIZONTAL (dBuv) pk	HORIZONTAL CF (dB/m) pk	MAX LEVEL (dBm) pk	SPEC LIMIT (dBm) pk	MARGIN (dB) pk	EUT Rotation	Antenna Height	Notes
824.7	99	1	22.9	24.5	-13.0	-41.1	0	1.1	Fundamental (Low Band)
1649.4	52.5	50.6	-9.3	-54.1	-13.0	-29.5			ambient
2474.1	59.5	55.2	-4.6	-42.5	-13.0	-29.5			
3298.8	49.3	47.4	-1.7	-49.8	-13.0	-36.8	183	1.2	
4123.5	50	0.2	0.2	-47.2	-13.0	-34.2	190	1	
4948.2	45.6	45.9	0.6	-50.9	-13.0	-37.9			noise floor
5772.9	45.1	47.2	5.1	-45.1	-13.0	-32.1			noise floor
6597.6	46.6	46.5	5.8	-45.0	-13.0	-32.0			noise floor
7422.3	46.2	46.7	8.2	-42.4	-13.0	-29.4			noise floor
8247	48.1	47.1	9.4	-39.8	-13.0	-26.8			noise floor
835.49	99.1	1	22.8	24.5	-13.0	-43.2	202	1.5	Fundamental (Mid Band)
1672.98	50.2	47.5	-9.1	-56.2	-13.0	-39.4			ambient
2509.47	49.4	47	-4.5	-52.4	-13.0	-36.7	220	1.3	
3345.96	48.1	49.2	-1.6	-49.7	-13.0	-36.0	183	1.3	
4182.45	48.3	47.4	0.0	-49.0	-13.0	-37.2			noise floor
5018.94	45.6	46.3	0.8	-50.2	-13.0	-30.9			noise floor
5855.43	47.9	48.2	5.3	-43.9	-13.0	-30.8			noise floor
6691.92	47.4	47.3	6.1	-43.8	-13.0	-28.8			noise floor
7528.41	46.7	47.1	8.4	-41.8	-13.0	-26.7			noise floor
8364.9	48	47.8	9.7	-39.7	-13.0	-26.7			noise floor
846.31	98.8	1	23.1	24.5	-13.0	-38.9	102	1.5	Fundamental (High Band)
1696.62	54.3	54.4	-8.9	-51.9	-13.0	-38.0	180	1.4	
2544.93	49.9	50.7	-4.3	-51.0	-13.0	-37.8	186	1.2	
3393.24	47.9	47.7	-1.4	-50.8	-13.0	-36.6			noise floor
4241.55	47.8	47.3	-0.1	-49.6	-13.0	-37.0			noise floor
5089.86	46	45.3	1.3	-50.0	-13.0	-30.5			noise floor
5938.17	48.3	48.2	5.5	-43.5	-13.0	-31.1			noise floor
6786.48	46.6	46.8	6.5	-44.1	-13.0	-29.1			noise floor
7634.79	46.6	46.7	8.5	-42.1	-13.0	-26.6			noise floor
8483.1	47.8	47.1	10.0	-39.6	-13.0	-26.6			noise floor

REPORT No: SC303266 TESTER: Alan Laudani *AL* SPEC: FCC Part 24 para 24.238(a)
 CUSTOMER: Kyocera Wireless INC TEST DIST: 3 Meters
 E U T: SE47 TEST SITE: Roof
 EUT MODE: Transmit PCS BICONICAL: N/A
 DATE: July 14, 2003 EIRP Factor: 5.5 LOG: N/A
 NOTES: Harmonics: RBW = 1 MHz, VBW = 1 MHz HORN: 251
 2000 MHz High Pass Filter inserted before Preamplifier
Configuration used: 720, 451, 783
 CF = Antenna Factor + Cable Loss - Preamplifier 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
1851.25	86.5		32.0	23.2			95	1.4	Fundamental (Low Band)
3702.5	67	71.2	-0.4	-24.5	-13.0	-11.5	319	1.5	
5653.75	61.8	61	4.5	-29.0	-13.0	-16	286	1.6	
7405	49.9	48.5	8.2	-37.2	-13.0	-24.2	170	1.2	
9256.25	47.6	46.8	10.4	-37.3	-13.0	-24.3		1	noise floor
11107.5	46.1	47.4	13.1	-34.7	-13.0	-21.7		1	noise floor
12958.75	50.8	50.9	12.7	-31.6	-13.0	-18.6		1	noise floor
14810	51.9	51.9	16.1	-27.2	-13.0	-14.2		1	noise floor
16661.25	52.1	50.9	18.5	-24.7	-13.0	-11.7		1	noise floor
1880	86.3		32.2	23.2					Fundamental (Mid Band)
3760	65	66.5	-0.3	-29.0	-13.0	-16	313	1.4	
5640	64.5	61.6	4.7	-26.1	-13.0	-13.1	100	1	
7520	48.7	47.2	8.4	-38.1	-13.0	-25.1	120	1	
9400	47.6	45.7	10.0	-37.7	-13.0	-24.7			noise floor
11280	46.4	46.1	13.2	-35.7	-13.0	-22.7			noise floor
13160	50.7	50.6	13.2	-31.4	-13.0	-18.4			noise floor
15040	51.9	50.9	17.0	-26.3	-13.0	-13.3			noise floor
16920	51.7	51.7	19.5	-24.1	-13.0	-11.1			noise floor
1908.75	86.1		32.4	23.2					Fundamental (High Band)
3817.5	65.5	66.7	-0.1	-28.7	-13.0	-15.7	295	1.6	
5726.25	63.3	61	4.9	-27.0	-13.0	-14	120	1	
7635	51.5	48.9	8.5	-35.2	-13.0	-22.2	220	1	
9543.75	45.5	47.7	9.8	-37.8	-13.0	-24.8		1	noise floor
11452.5	46.2	46.9	13.3	-35.1	-13.0	-22.1		1	noise floor
13361.25	51.2	50.3	14.0	-30.1	-13.0	-17.1		1	noise floor
15270	51.2	51.5	17.3	-26.4	-13.0	-13.4		1	noise floor
17178.75	50.9	51.8	21.1	-22.3	-13.0	-9.34		1	noise floor

Photograph of Test Setup



Photograph of Test Setup



Photograph of Test Setup



Photograph of Test Setup

