

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

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
HP8566B	720	Spectrum Analyzer	Hewlett Packard	2115A00842	09/02
AMF-5D-010180-35-10P	719	PreAmp	TUV America	549460	NCR*
3115	251	Antenna, Horn	Electro Mechanics Co	2595	12/02
FF6549-2	783	2000 MHz High Pass Filter	Sage	008	NCR*
FF6549-1	778	900 MHz High Pass Filter	Sage	005	NCR*
3115	453	Antenna, Horn	Electro Mechanics Co	3564	01/03
8482A	574	Power Sensor	Hewlett Packard	3318A27679	04/03
436A	775	Power Meter	Hewlett Packard	1918A05312	09/02
HP8350B	6707	Sweep Signal Generator	Hewlett Packard	2749A09420	NCR*

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

Technical Documentation

Test Data Sheets

and

Test Setups

Kyocera Substitution SC303204

7/3/03

Location: Roof Site

Frequency MHz	target level dBuV/m	Horn Gain dBi	cable loss dB	Signal Generator dBm	Total (EIRP) dBm	Spec dBm	Margin Subst. dBm
3760	63	7.8	8.1	-37.7	-38.0	-15	-23.0
3817.5	65.7	7.8	8.1	-37.4	-37.7	-14	-23.7

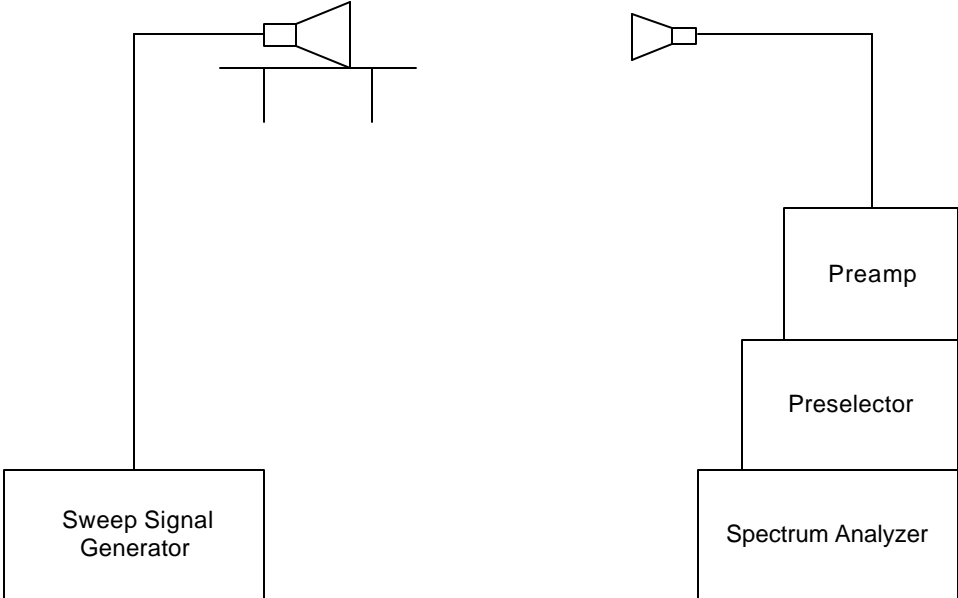
Substitution Procedure:

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

Tested by 
A. Laudani

Test setup for Substitution Method



REPORT No: SC303204 TESTER: Alan Laudani SPEC: FCC Part 15 para 15.109(e)

CUSTOMER: Kyocera Wireless TEST DIST: 3 Meters

E U T: KE 434 TEST SITE: Roof

EUT MODE: Receive LO FM BICONICAL: N/A

DATE: July 3, 2003 LOG: N/A

NOTES: OTHER: 251

above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG

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	56.5	38.9	69.7	48.1	-13.61	56.09	34.5	74	54	-17.9	-19.5			ambient
2105.28	47.6	39.1	46.9	36.2	-6.32	41.28	32.8	74	54	-32.7	-21.2	132	1.1	
3157.92	45.9	36.3	46.1	36.4	-2.23	43.87	34.2	74	54	-30.1	-19.8			noise floor
4210.56	46.1	36.5	47.3	37.2	-0.02	47.28	37.2	74	54	-26.7	-16.8			noise floor
5263.2	45.3	34.6	44.1	35	2.60	47.9	37.6	74	54	-26.1	-16.4			noise floor
1065.09	45	35	62.3	47.1	-13.52	48.78	33.6	74	54	-25.2	-20.4			ambient
2130.18	48.1	37.8	48.8	36.7	-6.20	42.6	31.6	74	54	-31.4	-22.4	166	1.1	
3195.27	46.6	36.3	46.7	35.8	-2.10	44.6	34.2	74	54	-29.4	-19.8			noise floor
4280.36	46.6	36.4	47.8	38.9	-0.12	47.68	38.8	74	54	-26.3	-15.2	91	1.1	
5325.45	44	34.1	44.1	34.2	3.04	47.14	37.2	74	54	-26.9	-16.8			noise floor
1077.57	58.6	42.5	66.7	48.5	-13.43	53.27	35.1	74	54	-20.7	-18.9			ambient
2155.14	56.7	53.1	70.1	56.1	-6.09	64.01	50	74	54	-10.0	-4.0			ambient
3232.71	45.8	35.4	45.8	35.7	-1.96	43.84	33.7	74	54	-30.2	-20.3			noise floor
4310.28	47.4	36	48.3	40.4	-0.22	48.08	40.2	74	54	-25.9	-13.8	161	1.1	
5387.85	45	34.6	45.2	34.8	3.49	48.69	38.3	74	54	-25.3	-15.7			noise floor

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REPORT No: SC303204 TESTER: Alan Laudani SPEC: FCC Part 15 para 15.109(e)

CUSTOMER: Kyocera Wireless TEST DIST: 3 Meters

E U T: KE 434 TEST SITE: Roof

EUT MODE: Receive LO PCS BICONICAL: N/A

DATE: July 3, 2003 LOG: N/A

NOTES: OTHER: 251

above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG

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			
2114.85	60	45.8	63.3	49.6	-6.27	57.03	43.3	74	54	-17.0	-10.7			ambient
4229.7	44.9	34.2	46	37.6	-0.06	45.94	37.5	74	54	-28.1	-16.5	155	1	
6344.55	41.8	31.8	41.2	32	5.49	47.29	37.5	74	54	-26.7	-16.5			noise floor
8459.4	43.9	33.5	44.1	33.3	9.91	54.01	43.4	74	54	-20.0	-10.6			noise floor
10574.25	42.6	33.2	43.2	33.1	12.33	55.53	45.5	74	54	-18.5	-8.5			noise floor
2143.6	50.7	39.1	64.3	53.8	-6.14	58.16	47.7	74	54	-15.8	-6.3			ambient
4287.2	45.8	36.2	46.2	38.2	-0.17	46.03	38	74	54	-28.0	-16.0	156	1.1	
6430.8	42.9	32.5	43.1	32.7	5.44	48.54	38.1	74	54	-25.5	-15.9			noise floor
8574.4	41.6	31.6	41.7	32.1	10.16	51.86	42.3	74	54	-22.1	-11.7			noise floor
10718	42.6	32.1	41.9	32.4	12.59	55.19	45	74	54	-18.8	-9.0			noise floor
2172.35	52.6	40.4	60.2	47.6	-6.01	54.19	41.6	74	54	-19.8	-12.4			ambient
4344.7	48.4	40.2	49.6	44	-0.29	49.31	43.7	74	54	-24.7	-10.3	143	1.2	
6517.05	42.9	32.5	42.6	33	5.46	48.36	38.5	74	54	-25.6	-15.5			noise floor
8669.4	42.3	33	43.2	32.9	10.42	53.62	43.4	74	54	-20.4	-10.6			noise floor
10861.75	43.8	33.5	43.9	33.7	12.85	56.75	46.6	74	54	-17.2	-7.4			noise floor

REPORT No: SC303204 TESTER: Alan Laudani SPEC: FCC Part 22 para 22.917(b)(2)
 CUSTOMER: Kyocera Wireless TEST DIST: 3 Meters
 E U T: KE 434 TEST SITE: Roof
 EUT MODE: Transmit CDMA BICONICAL: N/A
 DATE: July 3, 2003 ERP/EIRP Factor 7 LOG: N/A
 NOTES: HORN: 251

Part 22 - RBW 30 kHz
 CF = Antenna Factor + Cable Loss - Pre-amplifier Gain
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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	124.4		0.0	27.0					Fundamental (Low Band)
1649.4	56.3	53.4	-9.3	-50.3	-13.0	-37.3			ambient
2474.1	47.1	65	-4.6	-37.0	-13.0	-24			ambient
3298.8	45.2	45.6	-1.7	-53.5	-13.0	-40.5			noise floor
4123.5	44.6	44.1	0.2	-52.6	-13.0	-39.6			noise floor
4948.2	44.3	44	0.6	-52.5	-13.0	-39.5			noise floor
5772.9	42.8	43.2	5.1	-49.1	-13.0	-36.1			noise floor
6597.6	40.8	40	5.8	-50.8	-13.0	-37.8			noise floor
7422.3	38.9	39.4	8.2	-49.7	-13.0	-36.7			noise floor
8247	42.5	42.6	9.4	-45.3	-13.0	-32.3			noise floor
836.49	124.4		0.0	27.0					Fundamental (Mid Band)
1672.98	56.7	50.5	-9.1	-49.7	-13.0	-36.7			ambient
2509.47	46.3	46.3	-4.5	-53.5	-13.0	-40.5			ambient
3345.96	44.7	44.4	-1.6	-54.2	-13.0	-41.2			noise floor
4182.45	45.7	45.4	0.0	-51.6	-13.0	-38.6			noise floor
5018.94	43.1	44.2	0.8	-52.3	-13.0	-39.3			noise floor
5855.43	44.8	44.3	5.3	-47.3	-13.0	-34.3			noise floor
6691.92	43	42.7	6.1	-48.2	-13.0	-35.2			noise floor
7528.41	43.3	41.4	8.4	-45.6	-13.0	-32.6			noise floor
8364.9	44.4	44.4	9.7	-43.3	-13.0	-30.3			noise floor
848.31	124.4		0.0	27.0					Fundamental (High Band)
1696.62	56.7	57.9	-8.9	-48.4	-13.0	-35.4			ambient
2544.93	48	49.4	-4.3	-52.3	-13.0	-39.3			ambient
3393.24	46.9	46.3	-1.4	-51.8	-13.0	-38.8			noise floor
4241.55	46	45.2	-0.1	-51.4	-13.0	-38.4			noise floor
5089.86	42.5	43.4	1.3	-52.6	-13.0	-39.6			noise floor
5938.17	44.9	45	5.5	-46.8	-13.0	-33.8			noise floor
6786.48	40.8	39.6	6.5	-50.1	-13.0	-37.1			noise floor
7634.79	43.2	42.7	8.5	-45.6	-13.0	-32.6			noise floor
8483.1	432.6	42.6	10.0	345.2	-13.0	356.2			noise floor

REPORT No: SC303204 TESTER: Alan Laudani SPEC: FCC Part 22 para 22.917(b)(2)
 CUSTOMER: Kyocera Wireless TEST DIST: 3 Meters
 E U T: KE 434 TEST SITE: Roof
 EUT MODE: Transmit FM BICONICAL: N/A
 DATE: July 3, 2003 ERP/EIRP Factor 7 LOG: N/A
 NOTES: HORN: 251

Part 22 - RBW 30 KHz

CF = Antenna Factor + Cable Loss - Preampilifier 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
824.04	124.4		0.0	27.0					Fundamental (Low Band)
1648.08	55.8	55.1	-9.3	-50.8	-13.0	-37.8			ambient
2472.12	49.4	64.4	-4.6	-37.6	-13.0	-24.6			ambient
3296.16	45.8	46	-1.7	-53.1	-13.0	-40.1			noise floor
4120.2	44.7	45.3	0.2	-38.9	-13.0	-38.9			noise floor
4944.24	43.5	43.9	0.6	-52.9	-13.0	-39.9			noise floor
5768.28	43.1	44.2	5.1	-48.1	-13.0	-35.1			noise floor
6592.32	43	42.9	5.8	-48.6	-13.0	-35.6			noise floor
7416.36	40.6	41.4	8.2	-47.7	-13.0	-34.7			noise floor
8240.4	40.1	40.9	9.4	-47.0	-13.0	-34			noise floor
8364.9	124.4		0.0	27.0					Fundamental (Mid Band)
1672.98	54.2	50.8	-9.1	-52.2	-13.0	-39.2			ambient
2509.47	50.6	47.9	-4.5	-51.2	-13.0	-38.2	155	1.2	
3345.96	48.1	46.8	-1.6	-50.8	-13.0	-37.8	195	1.2	
4182.45	45.1	46	0.0	-51.3	-13.0	-38.3			noise floor
5018.94	43.3	44.5	0.8	-52.0	-13.0	-39			noise floor
5855.43	44.8	44.3	5.3	-47.3	-13.0	-34.3			noise floor
6691.92	43.3	43.5	6.1	-47.7	-13.0	-34.7			noise floor
7528.41	41.6	44.4	8.4	-44.5	-13.0	-31.5			noise floor
8364.9	44.6	44	9.7	-43.1	-13.0	-30.1			noise floor
848.97	124.4		0.0	27.0					Fundamental (High Band)
1697.94	57.7	57.1	-8.9	-48.6	-13.0	-35.6			ambient
2546.91	56.6	56.5	-4.3	-45.2	-13.0	-32.2			ambient
3395.88	51.7	50.6	-1.4	-47.0	-13.0	-34	231	1.1	
4244.85	46.2	46.7	-0.1	-50.7	-13.0	-37.7			noise floor
5093.82	43.1	43	1.4	-52.9	-13.0	-39.9			noise floor
5942.79	45.1	44.4	5.5	-46.7	-13.0	-33.7			noise floor
6791.76	41.1	40.9	6.5	-49.8	-13.0	-36.8			noise floor
7640.73	44.4	43.4	8.5	-44.4	-13.0	-31.4			noise floor
8489.7	43.4	44.3	10.0	-43.1	-13.0	-30.1			noise floor

REPORT No: SC303204 TESTER: Alan Laudani SPEC: FCC Part 24 para 24.238(a)
 CUSTOMER: Kyocera Wireless TEST DIST: 3 Meters
 E U T: KE 434 TEST SITE: Roof
 EUT MODE: Transmit PCS BICONICAL: N/A
 DATE: July 3, 2003 ERP/EIRP Factor 5.5 LOG: N/A
 NOTES: HORN: 251

Part 24 - RBW 1 MHz
 CF = Antenna Factor + Cable Loss - Pre-amplifier Gain
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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	128.6		-7.8	25.5	-13.0	-24	269	1.2	Fundamental (Low Band)
3702.5	58.7	56.8	-0.4	-37.0	-13.0				
5553.75	45.4	51.4	4.5	-39.4	-13.0	-30.4	195	1.1	
7405	43.5	43.6	8.2	-43.5	-13.0	-30.5			noise floor
9256.25	44.2	43.7	10.4	-40.7	-13.0	-27.7			noise floor
11107.5	43.7	43.3	13.1	-38.4	-13.0	-25.4			noise floor
12958.75	46.6	46.1	12.7	-35.9	-13.0	-22.9			noise floor
14810	45.9	46	16.1	-33.1	-13.0	-20.1			noise floor
16661.25	46.6	46	18.5	-30.2	-13.0	-17.2			noise floor
18512.5	42.1	44.9	0.0	-50.4	-13.0	-37.4			noise floor
1880	128.4		-7.6	25.5					Fundamental (Mid Band)
3760	63	62.6	-0.3	-32.5	-13.0	-19.5	294	1.2	
5640	48.2	52.8	4.7	-37.8	-13.0	-24.8	203	1.1	
7520	42	44	8.4	-42.8	-13.0	-29.8			
9400	44.4	43	10.0	-40.9	-13.0	-27.9			noise floor
11280	43	44	13.2	-38.1	-13.0	-25.1			noise floor
13160	45.6	45.7	13.2	-36.4	-13.0	-23.4			noise floor
15040	44.7	45.7	17.0	-32.5	-13.0	-19.5			noise floor
16920	45.2	45.7	19.5	-30.1	-13.0	-17.1			noise floor
18800	44.6	44.5	0.0	-50.7	-13.0	-37.7			noise floor
1908.75	128.2		-7.4	25.5					Fundamental (High Band)
3817.5	65.7	65.1	-0.1	-29.7	-13.0	-16.7	299	1.4	
5726.25	50.8	53.1	4.9	-37.2	-13.0	-24.2	199	1.1	
7635	44	47.2	8.5	-39.5	-13.0	-26.5	185	1.3	
9543.75	44.1	43.6	9.8	-41.4	-13.0	-28.4			noise floor
11452.5	42.7	43.5	13.3	-38.5	-13.0	-25.5			noise floor
13361.25	45.7	45.2	14.0	-35.6	-13.0	-22.6			noise floor
15270	44.7	44.5	17.3	-33.2	-13.0	-20.2			noise floor
17178.75	44	45	21.1	-29.1	-13.0	-16.1			noise floor
19087.5	45.9	44.8	0.0	-49.4	-13.0	-36.4			noise floor

Photograph of Test Setup



Photograph of Test Setup

