

**RADIATED EMISSIONS**

**DATA**

**FOR**

**QUALCOMM, INC.  
10300 Campus Point Drive  
San Diego, CA 92121**

**Prepared by**

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

Measurement Requirements (CFR 47 Part 22, Paragraph 22.917(b)(2))

The following measurements were performed by TÜV Product Service. 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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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.	Cal Due Date
8586B	721	Spectrum Analyzer	Hewlett Packard	2542A12099	06/03
PreAmp 2 – 20 GHz	752	PreAmp	TUV PS	--	N/A*
3115	251	Antenna, Horn	Electro Mechanics Co	2595	06/03
Cable 1	733	30' cable	Universal Microwave Prod	--	N/A*
Cable 2	655	6" cable	Universal Microwave Prod	--	N/A*
FF 6549-1	778	900 MHz High Pass Filter	Sage	5	N/A*
FF 6548-2	782	2000 MHz High Pass Filter	Sage	007	N/A*
<b>For Substitution</b>					
Cable 3	732	30' cable	Universal Microwave Prod	--	N/A*
Cable 4	657	6" cable	Universal Microwave Prod	--	N/A*
HP83640B	791	Signal Generator	Hewlett Packard	3844A00726	03/03
3115	453	Antenna, Horn	Electro Mechanics Co	3564	10/02

Remarks: (\*) Verified.

## **FCC Testing**

### Measurement Procedure:

The phone was tested in all three modes of operation - CDMA, FM, and PCS/CDMA. It was tested in each mode at low, mid, and high frequencies. The CDMA and FM mode signals that were measured are all 20dB below the required limit. The PCS/CDMA mode required several signal substitutions. This test data is included in the report. All spurious emissions were tested to the 10<sup>th</sup> harmonic.

**Kyocera Substitution SC203737 - PCS / CDMA**

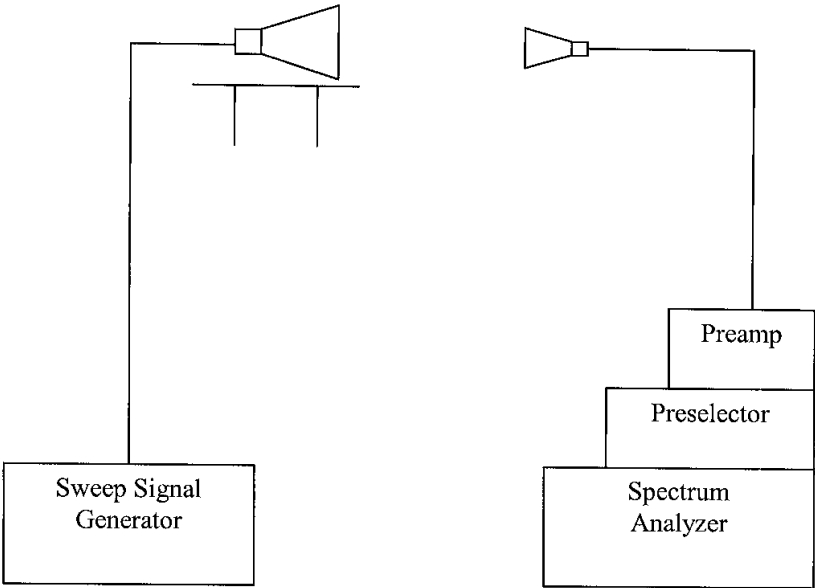
Frequency mHz	target level dBuV	Horn Gain dBi	cable loss dB	Signal Generator dBm	Total (EIRP) dBm	Spec dBm	Margin dBm
3702.5	69.7	9.6	8.6	-35	-34.0	-13	-21.0
3760	71.0	9.6	8.7	-33	-32.1	-13	-19.1
3817.5	72.0	9.6	8.8	-31.9	-31.1	-13	-18.1
5553.75	79.0	10.8	9.1	-20.8	-19.1	-13	-6.1
5640	80.0	10.8	9.2	-19.5	-17.9	-13	-4.9
5726.25	82.0	10.8	9.3	-17.3	-15.8	-13	-2.8


*Roof Site  
7-10-02 AHR*

#791 Hp 83640B Swept Signal Generator

Transmit: #453 Model 3115 Horn

Remarks: Measurements were made at low, mid, and high frequencies up to the 10<sup>th</sup> harmonic. The signal substitution data shown are those emissions which were within 20dB of the limit.



REPORT No: SC203737 TESTER:  Alan Laudani SPEC: FCC Part 22 para 22.917(b)(2)

CUSTOMER: Kyocera Wireless Corp. TEST DIST: 3 Meters

EUT: Cellular Phone KWC 3245 sn THCZ TEST SITE: Roof

EUT MODE: Transmit CDMA BICONICAL: N/A

DATE: July 10, 2002 ERP/EIRP Fact 7 LOG: N/A

NOTES: HORN: 251

above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG  
No emissions found between 30 MHz to 1000 MHz  
CF = Antenna Factor + Cable Loss - Pre-amplifier Gain

FREQ (MHz)	VERTICAL (dBuV) pk av	HORIZONTAL (dBuV) pk av	CF (dBm) pk av	MAX LEVEL (dBm(d)) pk av	SPEC LIMIT (dBm) pk av	MARGIN (dB) pk av	EUT Rotation	Antenna Height	Notes	dBuV/m	dBuV/m
824.7	123.4		0.0	26.0	-13.0	-34.6	190	1.4	Channel No. 1013	123.4	0.0
1649.4	55	43.4	59	44.5	-9.3	-47.6	-13.0	-13.0		49.7	35.2
2474.1	54.7	45.3	58.3	49.8	-4.6	-52.2	-13.0	-13.0		53.7	45.2
3298.8	49.8	34	45.6	34.2	-1.7	-49.3	-13.0	-13.0	noise floor	48.1	32.5
4123.5	61	49.5	56.1	44.6	0.2	-36.2	-13.0	-13.0		61.2	49.7
4948.2	48.5	36.6	48.6	38	0.6	-48.2	-13.0	-13.0		49.2	38.6
5772.9	44.4	32	44.4	33.6	5.1	-47.9	-13.0	-13.0	noise floor	49.5	38.7
6597.6	43	31.4	44.7	31.5	5.8	-46.9	-13.0	-13.0	noise floor	50.5	37.3
7422.3	42.5	31.2	43.4	31.5	8.2	-45.7	-13.0	-13.0	noise floor	51.6	39.7
8247	44	33	44.2	33.2	9.4	-43.7	-13.0	-13.0	noise floor	53.6	42.6
836.49	123.4				0.0	26.0			Channel 383	123.4	0.0
1672.98	57.3	46.4	57.4	44.4	-9.1	-49.0	-13.0	-13.0		48.3	37.3
2509.47	62	53.6	59.5	51.3	-4.5	-39.8	-13.0	-13.0		57.5	49.1
3345.96	48.4	35.2	48	37.4	-1.6	-50.5	-13.0	-13.0		46.8	35.8
4182.45	61.7	48.4	61.1	46.9	0.0	-35.6	-13.0	-13.0		61.7	48.4
5018.94	47.7	37.1	50.4	39.4	0.8	-46.1	-13.0	-13.0		51.2	40.2
5855.43	45.1	33.5	45	34.7	5.3	-47.0	-13.0	-13.0	noise floor	50.4	40.0
6691.92	43.7	31.7	45.9	34.7	6.1	-45.3	-13.0	-13.0		52.0	40.8
7528.41	43.9	31.8	43.4	32.7	8.4	-45.0	-13.0	-13.0	noise floor	52.3	41.1
8364.9	44.3	33.3	44.6	33.5	9.7	-43.1	-13.0	-13.0	noise floor	54.3	43.2
848.31	123.4				0.0	26.0			Channel 777	123.4	0.0
1696.62	64.5	52.9	63.9	45.9	-8.9	-41.8	-13.0	-13.0		55.6	44.0
2544.93	62.4	52.8	61.1	52	-4.3	-39.3	-13.0	-13.0		58.1	48.5
3393.24	45	34.6	48.4	37.8	-1.4	-50.3	-13.0	-13.0		47.0	36.4
4241.55	54.5	40.5	56.1	43.3	-0.1	-41.3	-13.0	-13.0		56.0	43.2
5089.96	46.4	36.1	48.7	36.8	1.3	-47.3	-13.0	-13.0		50.0	38.1
5938.17	44.8	33.2	45.3	33.6	5.5	-46.5	-13.0	-13.0	noise floor	50.8	39.1
6786.48	42.2	30.9	42.3	31	6.5	-48.6	-13.0	-13.0	noise floor	48.8	37.5
7634.79	43.8	32.8	44.1	33.4	8.5	-44.7	-13.0	-13.0	noise floor	52.6	41.9
8483.1	44.4	33.1	44.1	33.3	10.0	-43.0	-13.0	-13.0	noise floor	54.4	43.3

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CUSTOMER: Kyocera Wireless Corp.

E U T: Cellular Phone KWC 3245 sn THCZ      TEST DIST: 3 Meters

EUT MODE: Transmit FM      TEST SITE: Roof

DATE: July 10, 2002      ERP/EIRP Fact 7      BICONICAL: N/A

LOG: N/A

NOTES: HORN: 251

above 1GHz: RBW & VBW 1 MHz for PK; RBW 1MHz and VBW 10Hz for AVG  
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FREQ (MHz)	VERTICAL (dBuV)		HORIZONTAL (dBuV)		CF (dBm)	MAX LEVEL (dBm(d))		SPEC LIMIT (dBm)		MARGIN (dB)		EUT Rotation	Antenna Height	Notes	dBuV/m	dBuV/m
	pk	av	pk	av		pk	av	pk	av	pk	av					
824.04	124				0.0	26.6		-13.0	-13.0	-43	-53	0	1.2	Channel No. 99f	124.0	0.0
1648.08	50.6	40.6	41.4	34	-9.3	-56.0		-13.0	-13.0	-43	-53	0	1.2		41.3	31.3
2472.12	61.5	58.8	61.4	60.3	-4.6	-40.5	-41.7	-13.0	-13.0	-27.5	-28.7	220	1.7		56.9	55.7
3296.16	42.1	38.1	45.7	41.9	-1.7	-53.4	-57.2	-13.0	-13.0	-40.4	-44.2	185	1.2		44.0	40.2
4120.2	61.4	60.1	57.9	55.9	0.2	-35.8	-37.1	-13.0	-13.0	-22.8	-24.1	200	1.4		61.6	60.3
4944.24	49.4	44.3	51.5	48.6	0.6	-48.3	-48.3	-13.0	-13.0	-32.3	-35.2	120	1.1		52.1	49.2
5768.28	46.7	38.8	46.7	38.4	5.1	-45.6	-53.5	-13.0	-13.0	-32.6	-40.5	160	1.6		51.8	43.9
6592.32	44.2	36.1	46.5	41.3	5.8	-45.1	-50.3	-13.0	-13.0	-32.1	-37.3	250	1		52.3	47.1
7416.36	43.6	32.5	42.4	32	8.2	-45.5	-56.6	-13.0	-13.0	-32.5	-43.6	10	1	noise floor	51.8	40.7
8240.4	45	33.1	44.8	33.4	9.4	-42.9	-54.5	-13.0	-13.0	-29.9	-41.5				54.4	42.8
836.49	124				0.0	26.6		-13.0	-13.0	-45.1	-51	35	1.2	Channel 383	124.0	0.0
1672.98	56	46.4	56.2	48.3	-9.1	-50.2		-13.0	-13.0	-25.3	-26.2	235	1.4		47.1	39.2
2508.47	63.5	62.6	63	61.2	-4.5	-38.3	-39.2	-13.0	-13.0	-35	-40.9	150	1.1		59.0	58.1
3345.96	44.9	36.9	50.9	45	-1.6	-48.0	-53.9	-13.0	-13.0	-30.4	-38	145	1.4		49.3	43.4
4182.45	59.2	55.9	59.5	57.1	0.0	-37.8	-40.2	-13.0	-13.0	-24.8	-27.2	155	1.4		59.5	57.1
5018.94	48.3	41.4	49.8	41.4	0.8	-46.7	-55.1	-13.0	-13.0	-33.7	-42.1	285	1.1		50.6	42.2
5855.43	48.7	41.1	47.8	40.5	5.3	-43.4	-51.0	-13.0	-13.0	-30.4	-38	145	1.4		54.0	46.4
6691.92	45.3	37.6	43.4	32.2	6.1	-45.9	-53.6	-13.0	-13.0	-32.9	-40.6	125	1		51.4	43.7
7528.41	45	35.1	45.3	35.8	8.4	-43.6	-53.1	-13.0	-13.0	-30.6	-40.1	210	1.5		53.7	44.2
8364.9	46.6	33.8	44.4	33.8	9.7	-41.1	-53.9	-13.0	-13.0	-28.1	-40.9			noise floor	56.3	43.5
848.97	124				0.0	26.6		-13.0	-13.0	-27.4	-33	220	1.3	Channel 799	124.0	0.0
1697.94	65.9	60.3	64.2	62.2	-8.9	-40.4	-46.0	-13.0	-13.0	-24.5	-25.4	310	1		57.0	51.4
2546.91	64.2	63.2	63	63.3	-4.3	-37.5	-38.4	-13.0	-13.0	-36	-41.1	190	1.2		59.9	59.0
3395.88	45.5	34.1	49.7	44.6	-1.4	-49.0	-54.1	-13.0	-13.0	-24	-26.4	180	1.2		48.3	43.2
4244.85	51.3	45.4	60.4	58	-0.1	-37.0	-39.4	-13.0	-13.0	-34.7	-43.5	190	1.1		60.3	57.9
5093.82	47.3	39.5	48.3	39	1.4	-47.7	-56.5	-13.0	-13.0	-31	-38.5	175	1		49.7	40.9
5942.79	47.2	39	47.8	40.3	5.5	-44.0	-51.5	-13.0	-13.0	-29.9	-34.1	235	1		53.3	45.8
6791.76	44.5	36.3	48	43.8	6.5	-42.9	-47.1	-13.0	-13.0	-30.1	-37.8	280	1		54.5	50.3
7640.73	45.7	38	44.3	35.4	8.5	-43.1	-50.8	-13.0	-13.0	-29.8	-41.2			noise floor	54.2	46.5
8489.7	44.3	32	44.6	33.2	10.0	-42.8	-54.2	-13.0	-13.0	-29.8	-41.2				54.6	43.2



Photograph of Test Setup



Photograph of Test Setup

