

RADIATED EMISSIONS

DATA

FOR

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

Prepared by

**TÜV America Inc.
10040 Mesa Rim Road
San Diego, CA 92121-2912**

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

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.



Floyd R. Fleury
EMC Manager

Emissions Test Conditions: RADIATED SPURIOUS EMISSIONS

Roof (small open area test site)

The Radiated Spurious Emissions measurements were performed using the following equipment:
Test Equipment Used:

Model No.	Prop. No.	Description	Manufacturer	Serial No.	Cal Date
HP8566B	407	Spectrum Analyzer	Hewlett Packard	2311A02209	11/01
AMF-5D-010180-35-10P	719	PreAmp	TUV America	549460	N/A*
3115	251	Antenna, Horn	Electro Mechanics Co	2595	12/01
Cable 1	732	30' Cable	United Microwave Prod	--	N/A*
Cable 2	6788	3" Cable	United Microwave Prod	--	N/A*
Cable 3	656	10" Cable	United Microwave Prod	--	N/A*
HP8445B	809	Automatic Preselector	Hewlett Packard	1442A01127	11/01
FF 6548-2	781	2000 MHz High Pass Filter	Sage	004	N/A*
FF 6549-1	777	900 MHz High Pass Filter	Sage	006	N/A*
For Substitution					
3115	453	Antenna, Horn	Electro Mechanics Co	3564	12/01
HP8350B	6706	Sweep Signal Generator	Hewlett Packard	2749A09420	N/A*
Cable 3	6790	40' Cable	United Microwave Prod	--	06/02
HP437B	472	Power Meter	Hewlett Packard	3125O19308	12/01
HP8482A	574	Power Sensor	Hewlett Packard	3318A27679	04/02

Remarks: (*) Verified

Technical Documentation

Test Data Sheets

and

Test Setups

Kyocera Substitution SC205331

10/14/02

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
3702.5	63	7.9	8	-24.7	-24.8	-16	-8.8
3760	59.7	7.8	8.1	-26.9	-27.2	-15	-12.2
3817.5	65.4	7.8	8.1	-21.2	-21.5	-14	-7.5
5553.75	63.0	8.5	10.3	-18.1	-19.9	-13	-6.9
5640.00	58.6	8.6	10.4	-21.3	-23.1	-13	-10.1
5726.25	59.1	8.7	10.4	-20.3	-22.0	-13	-9.0

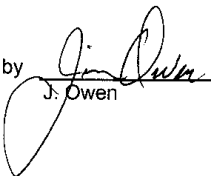
Substitution Procedure:

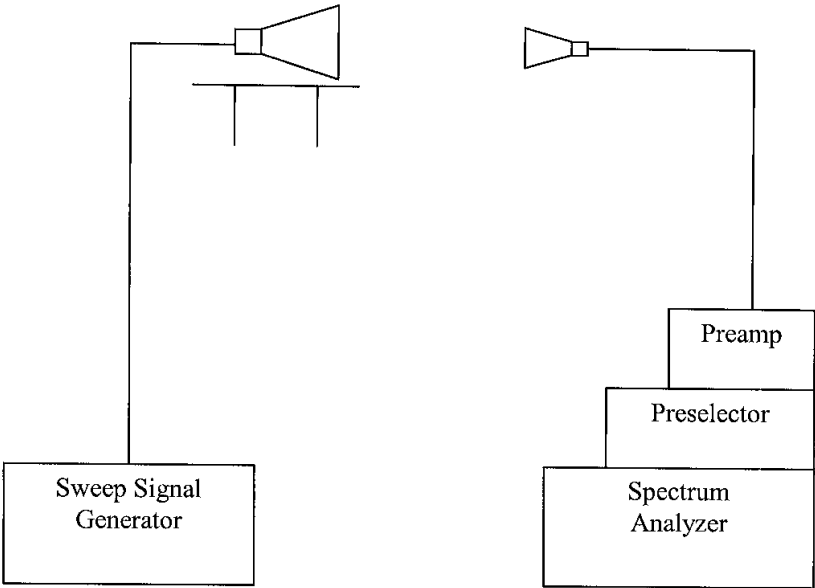
1. Select emissions that pass with less than 20 dB margin, note the Target level -- reading on spectrum analyzer.
2. Duplicate this targeted reading with Signal Generator, allowing for antenna horn gain and cable insertion loss.
3. Compare calculated power output to specification.

Input level and cable insertion losses verified with Power Meter #472: HP437A, cal. Date due: 04/17/03

Location: TÜV 3-meter roof site

 Tested by 
 A. Laudani

 Reviewed by 
 J. Owen



REPORT No: SC205331 TESTER: Alan Laudan SPEC: FCC Part 22 para 22.917(b)(2)

CUSTOMER: Kyocera Wireless

E U T: KWC 3225

TEST DIST: 3 Meters

TEST SITE: Roof

EUT MODE: Cellular CDMA

BICONICAL: N/A

DATE: Oct. 14, 2002 ERP Factor 7

LOG: N/A

NOTES:

HORN: 251

Part 22 - RBW 30 kHz, video ave, + 17 dB

No emissions detected from 30 MHz to 1000 MHz

CF = Antenna Factor + Cable Loss - Preamplifier Gain + Preselector Loss

FREQ (MHz)	VERTICAL (dBuv) pk	HORIZONTAL (dBuv) pk	CF (dB/m) pk	MAX LEVEL (dBm) pk	SPEC LIMIT (dBm) pk	MARGIN (dB) pk	EUT Rotation	Antenna Height	Notes	dBuV/m	dBuV/m
824.7	122.9		0.0	25.5	-13.0	-57.9			Fundamental (Low Band)	122.9	0.0
1649.4	33.4	32.7	-6.9	-70.9	-13.0	-35.6			noise floor	26.5	-6.9
2474.1	43.5	48	0.7	-48.6	-13.0	-45.8			noise floor	48.7	0.7
3298.8	33	34.7	3.9	-58.8	-13.0	-45.8			noise floor	38.6	3.9
4123.5	39.4	42	5.4	-50.0	-13.0	-37			noise floor	47.4	5.4
4948.2	30.5	30.2	6.1	-60.8	-13.0	-47.8			noise floor	36.6	6.1
5772.9	29.7	30.1	10.9	-56.3	-13.0	-43.3			noise floor	41.0	10.9
6597.6	35.1	33.4	12.6	-49.7	-13.0	-36.7			noise floor	47.7	12.6
7422.3	33.5	34.5	14.8	-48.1	-13.0	-35.1			noise floor	49.3	14.8
8247	34.7	34.7	16.3	-46.3	-13.0	-33.3			noise floor	51.0	16.3
836.49	122.9		0.0	25.5	-13.0	-61			Fundamental (Mid Band)	122.9	0.0
1672.98	29.6	28.9	-6.5	-74.0	-13.0	-31.2	190	1.2	noise floor	23.4	-6.5
2509.47	46.2	52.3	0.8	-44.2	-13.0	-36.2	180	1.2		53.1	0.8
3345.96	43.9	44.2	4.0	-49.2	-13.0	-25.9	160	1.3		48.2	4.0
4182.45	53.3	51.3	5.2	-38.9	-13.0	-44.3			noise floor	58.5	5.2
5018.94	33.6	32.7	6.5	-57.3	-13.0	-36			noise floor	40.1	6.5
5855.43	35.7	37.4	10.9	-49.0	-13.0	-34.9			noise floor	48.3	10.9
6691.92	35.1	36.7	12.8	-47.9	-13.0	-34.1			noise floor	49.5	12.8
7528.41	35.2	34.6	15.1	-47.1	-13.0	-31.8			noise floor	50.3	15.1
8364.9	36.1	35.3	16.5	-44.8	-13.0	-23.6			noise floor	52.6	16.5
848.31	122.9		0.0	25.5	-13.0	-55.4			Fundamental (High Band)	122.9	0.0
1696.62	35.1	34	-6.1	-68.4	-13.0	-34.3	180	1.2	noise floor	29.0	-6.1
2544.93	39.2	49	1.0	-47.3	-13.0	-47.8			noise floor	50.0	1.0
3393.24	32	32.5	4.1	-60.8	-13.0	-44.2			noise floor	36.6	4.1
4241.55	35.2	32.6	4.9	-57.2	-13.0	-46.4			noise floor	40.1	4.9
5089.86	30.4	30.8	7.1	-59.4	-13.0	-29.2			noise floor	37.9	7.1
5938.17	44.2	44.2	10.9	-42.2	-13.0	-25.7			noise floor	55.1	10.9
6786.48	45.6	42.4	13.0	-38.7	-13.0	-24.8			noise floor	56.6	13.0
7634.79	44.3	44.3	15.3	-37.8	-13.0	-23.6			noise floor	59.6	15.3
8483.1	43.8	44.2	16.6	-36.6	-13.0	-23.6			noise floor	60.8	16.6

v_beta1a

REPORT No: SC205331 TESTER: Alan Laudani SPEC: FCC Part 22 para 22.917(b)(2)

CUSTOMER: Kyocera Wireless

E U T: KWC 3225

EUT MODE: Cellular FM

DATE: Oct. 14, 2002 ERP Factor 7 LOG: N/A

TEST DIST: 3 Meters

TEST SITE: Roof

BICONICAL: N/A

LOG: N/A

NOTES: Part 22 - RBW = VBW = 1 MHz HORN: 251

 No emissions detected from 30 MHz to 1000 MHz
 CF = Antenna Factor + Cable Loss - Preamplifier Gain + Preselector Loss

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	dBuV/m	dBuV/m
824.04	124.9		0.0	27.5							
1648.08	42.8	41.1	-7.0	-61.5	-13.0	-48.5	190	1.1	Fundamental (Low Band)	124.9	0.0
2472.12	50.1	58.1	0.7	-38.5	-13.0	-25.5	190	1.3		35.8	-7.0
3296.16	43.3	43.4	3.9	-50.1	-13.0	-37.1	200	1.2		58.8	0.7
4120.2	49.8	47.6	5.4	-42.1	-13.0	-29.1	200	1.1		47.3	3.9
4944.24	44.6	42.7	6.0	-46.7	-13.0	-33.7	200	1		55.2	5.4
5768.28	41.6	42.4	10.9	-44.0	-13.0	-31			noise floor	50.6	6.0
6592.32	45.3	44.8	12.5	-38.5	-13.0	-26.5	190	1		53.3	10.9
7416.36	44.3	44.5	14.8	-38.1	-13.0	-25.1			noise floor	57.8	12.5
8240.4	44.1	44.2	16.3	-36.8	-13.0	-23.8			noise floor	59.3	14.8
836.49	124.9		0.0	27.5							
1672.98	43.4	42.2	-6.5	-60.5	-13.0	-47.5			Fundamental (Mid Band)	124.9	0.0
2509.47	54	45.3	0.8	-42.5	-13.0	-29.5	200	1.2	noise floor	36.9	-6.5
3345.96	43.8	43	4.0	-49.6	-13.0	-36.6	200	1.3		54.8	0.8
4182.45	55.5	53.4	5.2	-36.7	-13.0	-23.7	200	1.2		47.8	4.0
5018.94	43.6	42	6.5	-47.3	-13.0	-34.3	200	1		60.7	5.2
5855.43	45.9	46.5	10.9	-39.9	-13.0	-26.9	100	1.2	noise floor	50.1	6.5
6691.92	46.1	45.3	12.8	-38.5	-13.0	-25.5			noise floor	57.4	10.9
7528.41	44.1	42.5	15.1	-38.2	-13.0	-25.2			noise floor	59.2	15.1
8364.9	43.5	44.5	16.5	-36.4	-13.0	-23.4			noise floor	61.0	16.5
848.97	124.9		0.0	27.5							
1697.94	45	41.5	-6.1	-58.4	-13.0	-45.4			Fundamental (High Band)	124.9	0.0
2546.91	48.4	55.6	1.0	-40.7	-13.0	-27.7	200	1.2	noise floor	38.9	-6.1
3395.88	43.4	44.5	4.1	-48.8	-13.0	-35.8	210	1.2		56.6	1.0
4244.85	54.5	49.3	4.9	-37.9	-13.0	-24.9	210	1.1	noise floor	48.6	4.1
5093.82	44	42.4	7.2	-46.2	-13.0	-33.2	210	1		59.4	4.9
5942.79	46.8	44.9	10.9	-39.6	-13.0	-26.6			noise floor	51.2	7.2
6791.76	46.1	44.8	13.1	-38.2	-13.0	-25.2			noise floor	57.7	10.9
7640.73	46.1	45.8	15.3	-35.9	-13.0	-22.9			noise floor	59.2	13.1
8486.7	43.7	44.1	16.6	-36.7	-13.0	-23.7			noise floor	61.4	15.3
									noise floor	60.7	16.6

REPORT No: SC205331 TESTER: Alan Laudani SPEC: FCC Part 24 para 24.238(a)

CUSTOMER: Kyocera Wireless Corp.

E U T: KWC 3225

TEST DIST: 3 Meters

EUT MODE: Transmit PCS/CDMA

TEST SITE: Roof

BICONICAL: N/A

DATE: Oct. 14, '02

EIRP Factor 5.5

LOG: N/A

NOTES: HORN: 251

Part 24 - RBW 30 kHz + 17 dB, vid Ave

No emissions detected from 30 MHz to 1000 MHz

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

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	dBuV/m	dBuV/m
1851.25	123.2		-3.0	25.0					Fundamental (Low Band)	120.2	-3.0
3702.5	56.2	63.0	5.4	-26.8	-13.0	-13.8	175	1.6		68.4	5.4
5553.75	58.5	64.2	11.8	-19.3	-13.0	-6.28	180	1.2		76.0	11.8
7405	45.1	45.1	15.7	-34.4	-13.0	-21.4			noise floor	60.8	15.7
9256.25			18.8						noise floor	18.8	18.8
11107.5			22.3						noise floor	22.3	22.3
12958.75			21.3						noise floor	21.3	21.3
14810			24.8						noise floor	24.8	24.8
16661.25			28.1						noise floor	28.1	28.1
16661.25			28.1						noise floor	28.1	28.1
1880	122.7		-2.5	25.0					Fundamental (Mid Band)	120.2	-2.5
3760	59.7	58.6	5.6	-29.9	-13.0	-16.9	176	1.8		65.3	5.6
5640	52.7	55.1	11.8	-28.4	-13.0	-15.4	180	1.2		66.9	11.8
7520	45.2	45.1	16.0	-34.0	-13.0	-21	180	1.2		61.2	16.0
9400			18.3						noise floor	18.3	18.3
11280			22.4						noise floor	22.4	22.4
13160			21.8						noise floor	21.8	21.8
15040			25.7						noise floor	25.7	25.7
16920			29.4						noise floor	29.4	29.4
16920			29.4						noise floor	29.4	29.4
1908.75	122.2		-1.9	25.0					Fundamental (High Band)	120.3	-1.9
3817.5	61.2	65.4	5.8	-24.0	-13.0	-11	182	1.2		71.2	5.8
5726.25	55.5	59.1	11.8	-24.4	-13.0	-11.4	182	1.2		70.9	11.8
7635	51.1	42.0	16.3	-27.8	-13.0	-14.8	182	1.2	noise floor	67.4	16.3
9543.75			18.1						noise floor	18.1	18.1
11452.5			22.4						noise floor	22.4	22.4
13361.25			22.6						noise floor	22.6	22.6
15270			26.2						noise floor	26.2	26.2
17178.75			31.2						noise floor	31.2	31.2

v.bela1a

Photograph of Test Setup



Photograph of Test Setup

