

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) 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: 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
HP8566B	407	Spectrum Analyzer	Hewlett Packard	2311A02209	11/02
AMF-5D-010180-35-10P	719	PreAmp	TUV America	549460	N/A*
3115	251	Antenna, Horn	Electro Mechanics Co	2595	12/03
Cable 1	732	30' Cable	United Microwave Prod	--	06/03
Cable 2	6788	3" Cable	United Microwave Prod	--	06/03
Cable 3	656	10" Cable	United Microwave Prod	--	N/A*
HP8445B	809	Automatic Preselector	Hewlett Packard	1442A01127	11/02
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	12/03
HP8350B	6706	Sweep Signal Generator	Hewlett Packard	2749A09420	N/A*
Cable 3	6790	40' Cable	United Microwave Prod	--	06/03
HP437B	572	Power Meter	Hewlett Packard	3125O19308	12/03
HP8482A	574	Power Sensor	Hewlett Packard	3318A27679	04/03

Remarks: (*) Verified

Technical Documentation

Test Data Sheets

and

Test Setups

Kyocera Substitution SC203853

Performed for Part 24 data on page 9

7/19/02

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
5553.75	54.0	8.5	11.5	-36.9	-39.9	-13	-26.9
5640.00	54.6	8.6	11.4	-33.0	-35.8	-13	-22.8
5726.25	61.8	8.7	11.2	-26.7	-29.2	-13	-16.2

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

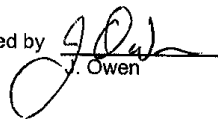
Location: TUV 3-meter roof site

Tested by

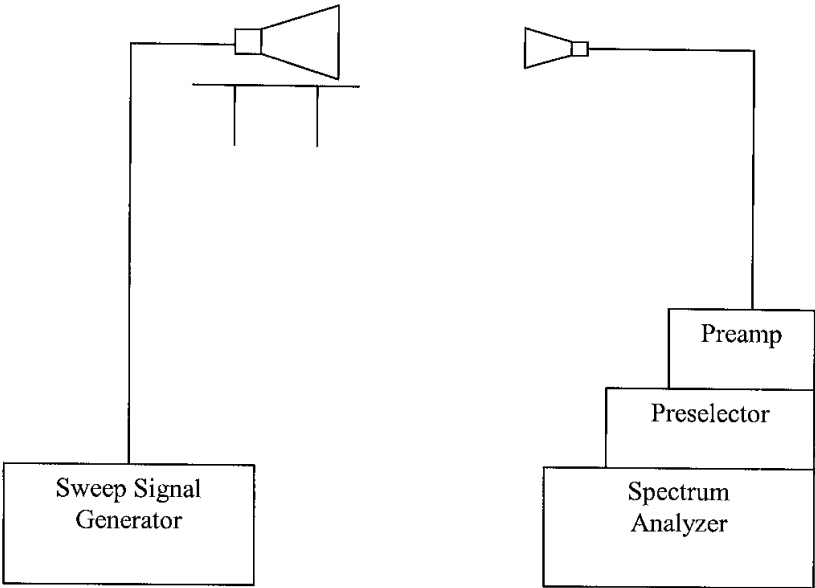


A. Laudani

Reviewed by



J. Owen



REPORT No. SC203853

TESTER:

Alan Laudani

SPEC:

FOC Part 22 para 22.917(b)(2)

CUSTOMER: Kyocera Wireless Corp.

TEST DIST: 3 Meters

E U T: Opal 5135

TEST SITE: Roof

EUT MODE: Transmit FM

BICONICAL: N/A

DATE: July 18, 2002

ERP Factor

7

LOG: N/A

NOTES: Part 22 data in ERP

HORN: 251

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

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

FREQ (MHz)	VERTICAL (dBuV) pk av		HORIZONTAL (dBuV) pk av		CF (dBm)	MAX LEVEL (dBm) pk av		SPEC LIMIT (dBm) pk av		MARGIN (dB) pk av		EUT Rotation	Antenna Height	Notes	dBuV/m	dBuV/m
	pk	av	pk	av		pk	av	pk	av	pk	av					
824.04	122	57	54.7	50.1	40.9	25.0	-49.3	-13.0	-13.0	-34	-36.3	155	1.1	Fundamental (Low Band)	122.4	0.0
1648.08	57	54.7	50.1	40.9	44.1	-6.6	-47.0	-13.0	-13.0	-24	-26.5	185	1.1		50.4	48.1
2472.12	59.2	56.7	50.6	44.1	1.1	-37.0	-39.5	-13.0	-13.0	-29.8	-35.6	190	1.2		60.3	57.8
3296.16	50.2	44.4	48.7	38.9	4.4	-42.8	-48.6	-13.0	-13.0	-29.8	-35.6	205	1.1		54.6	48.8
4120.2	53.4	49.1	51.4	46	5.9	-38.0	-43.8	-13.0	-13.0	-25	-29.3	225	1.4		59.3	55.0
4944.24	55.1	50.7	50.7	43.4	6.7	-35.5	-39.9	-13.0	-13.0	-22.5	-26.9	200	1.5		61.8	57.4
5768.28	44.8	34	44.4	33.5	11.8	-40.8	-51.6	-13.0	-13.0	-27.8	-38.6				56.6	45.8
6592.32	41.4	30.4	41.5	30.5	13.4	-42.4	-53.4	-13.0	-13.0	-29.4	-40.4				54.9	43.9
7416.36	42.7	31	41.9	31	15.7	-38.9	-50.6	-13.0	-13.0	-25.9	-37.6				58.4	46.7
8240.4	41.5	31	42.2	31	17.4	-37.8	-49.0	-13.0	-13.0	-24.8	-36				59.6	48.4
836.49	122.9	57	54.7	46.1	34.7	25.0	-49.3	-13.0	-13.0	-34	-36.3	155	1.1	Fundamental (Mid Band)	122.4	0.0
1672.98	45.7	34.7	46.1	34.7	46.1	-6.6	-47.0	-13.0	-13.0	-24	-26.5	185	1.1		50.4	48.1
2509.47	64.3	55.7	50.6	40.2	1.2	-31.8	-40.4	-13.0	-13.0	-18.8	-27.4	215	1.5		65.5	56.9
3345.96	48.9	41.7	49.2	40.7	4.5	-43.7	-51.2	-13.0	-13.0	-30.7	-38.2	205	1.1		53.7	46.2
4182.45	46	35	46.1	34.5	5.7	-45.6	-56.7	-13.0	-13.0	-32.6	-43.7				51.8	40.7
5018.94	54.4	51.7	53.1	50	7.2	-35.8	-38.5	-13.0	-13.0	-22.8	-25.5	190	1.2		61.6	58.9
5855.43	44.8	33.6	44.6	33.7	11.8	-40.8	-51.9	-13.0	-13.0	-27.8	-38.9				56.6	45.5
6691.92	42	31.2	42.2	31.3	13.7	-41.5	-52.4	-13.0	-13.0	-28.5	-39.4				55.9	45.0
7528.41	43.7	32.1	42.9	32	16.1	-37.6	-49.2	-13.0	-13.0	-24.6	-36.2				59.8	48.2
8364.9	44.8	33.1	44.5	33	17.5	-35.1	-46.8	-13.0	-13.0	-22.1	-33.8				62.3	50.6
848.97	123	58	54.7	46.1	34.7	25.0	-49.3	-13.0	-13.0	-34	-36.3	155	1.1	Fundamental (High Band)	122.4	0.0
1697.94	50.8	44	48.2	38.2	5.7	-52.3	-59.1	-13.0	-13.0	-38.3	-46.1	170	1.1		45.1	38.3
2546.91	47.8	35.7	48.8	41.1	1.4	-47.1	-54.8	-13.0	-13.0	-34.1	-41.8	140	1.5		50.2	42.5
3395.88	49.6	42.3	49.1	41	4.6	-43.2	-50.5	-13.0	-13.0	-30.2	-37.5	230	1.2		54.2	46.9
4244.85	50.3	44.9	50.5	45.6	5.5	-41.4	-46.3	-13.0	-13.0	-28.4	-33.3	230	1.4		56.0	51.1
5093.82	51.2	47.2	56.1	53.5	7.9	-33.4	-36.0	-13.0	-13.0	-20.4	-23	270	1.2		64.0	61.4
5942.79	44.9	34.2	44.7	34.2	11.8	-40.7	-51.4	-13.0	-13.0	-27.7	-38.4				56.7	46.0
6791.76	42.1	31.4	42	31.4	14.0	-41.3	-52.0	-13.0	-13.0	-28.3	-39				56.1	45.4
7640.73	43	32.3	42.9	32.3	16.3	-38.0	-48.7	-13.0	-13.0	-25	-35.7				59.3	48.6
8489.7	43.9	32.9	44.3	32.9	17.6	-35.5	-46.9	-13.0	-13.0	-22.5	-33.9				61.9	50.5

REPORT No. SC203853 TESTER: Alan Laudani SPEC: FCC Part 22 para 22.917(b)(2)

CUSTOMER: Kyocera Wireless Corp.

TEST DIST: 3 Meters

E U T: Opal 5135

TEST SITE: Roof

EUT MODE: Transmit CDMA

BICONICAL: N/A

DATE: July 18, 2002 ERP Factor: 7 LOG: N/A

NOTES: Part 22 data in ERP HORN: 251

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

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

FREQ (MHz)	VERTICAL (dBuV)		HORIZONTAL (dBuV)		CF (dBm)	MAX LEVEL (dBm)		SPEC LIMIT (dBm)		MARGIN (dB)		EUT Rotation	Antenna Height	Notes	dBuV/m	dBuV/m
	pk	av	pk	av		pk	av	pk	av	pk	av					
824.7	122				0.0	25.0						115	1.2	Fundamental (Low Band)	122.4	0.0
1649.4	62.9		49.9		-6.6	-41.1		-13.0		-28.1					56.3	-6.6
2474.1	42.3		45.3		1.1	-50.9		-13.0		-37.9					48.4	1.1
3288.8	48.8		49.1		4.4	-43.9		-13.0		-30.9		225	1.2		53.5	4.4
4123.5	53.6		54.2		5.9	-37.2		-13.0		-24.2		160	1.6		60.1	5.9
4948.2	48.6		46.2		6.7	-42.0		-13.0		-29					56.3	6.7
5772.9	44.4		44		11.8	-41.2		-13.0		-28.2					56.2	11.8
6597.6	41.9		41.2		13.5	-42.0		-13.0		-29					55.4	13.5
7422.3	42.5		41.6		15.8	-39.1		-13.0		-26.1					58.3	15.8
8247	43.5		43.9		17.4	-36.1		-13.0		-23.1					61.3	17.4
836.49	122.9				0.0	25.0								Fundamental (Mid Band)	122.4	0.0
1672.98	54.5		46		-6.2	-49.0		-13.0		-36		175	1.4		48.3	-6.2
2509.47	45.6		45.7		1.2	-50.4		-13.0		-37.4					48.9	1.2
3345.96	48.1		48.7		4.5	-44.2		-13.0		-31.2		235	1.6		53.2	4.5
4182.45	46		45.6		5.7	-45.7		-13.0		-32.7					51.7	5.7
5018.94	54.3		53.2		7.2	-35.9		-13.0		-22.9		145	1.2		61.5	7.2
5855.43	44.9		43.8		11.8	-40.7		-13.0		-27.7					56.7	11.8
6691.92	43.4		43.5		13.7	-40.2		-13.0		-27.2					57.2	13.7
7528.41	41.8		42.5		16.1	-38.8		-13.0		-25.8					58.6	16.1
8354.9	43.3		43.3		17.5	-36.6		-13.0		-23.6					60.8	17.5
848.31	123				0.0	25.0								Fundamental (High Band)	122.4	0.0
1696.62	52		46.7		-5.8	-51.1		-13.0		-38.1		170	1.1		46.2	-5.8
2544.93	47.7		46.1		1.4	-48.2		-13.0		-35.2					49.1	1.4
3393.24	47.4		49.9		4.6	-42.9		-13.0		-29.9		165	1.4		54.5	4.6
4241.55	55.8		59		5.5	-32.9		-13.0		-19.9		255	1.2		64.5	5.5
5089.86	59.4		59.2		7.9	-30.1		-13.0		-17.1		250	1.1		67.3	7.9
5938.17	45.2		44.8		11.8	-40.4		-13.0		-27.4					57.0	11.8
6786.48	42.5		41.7		13.9	-40.9		-13.0		-27.9					56.4	13.9
7634.79	42.3		47.6		16.3	-33.4		-13.0		-20.4					63.9	16.3
8483.1	43.6		43.1		17.6	-36.2		-13.0		-23.2					61.2	17.6

REPORT No: SC203853

TESTER: Alan Laudani

SPEC: FCC Part 24 para 24.238(a)

CUSTOMER: Kyocera Wireless Corp.

TEST DIST: 3 Meters

EUT: Opal 5135

TEST SITE: Roof

EUT MODE: Transmit PCS/CDMA

BICONICAL: N/A

DATE: July 18, 2002

LOG: N/A

NOTES: Part 24 data EIRP

HORN: 251

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

CF = Antenna Factor + Cable Loss - Pre-amplifier Gain + Preselector Loss

FREQ (MHz)	VERTICAL (dBuV) pk av	HORIZONTAL (dBuV) pk av	CF (dBm)	MAX LEVEL (dBm) pk av	SPEC LIMIT (dBm) pk av	MARGIN (dB) pk av	EUT Rotation	Antenna Height	Notes	dBuV/m	dBaV/m
1851.25	120.5		-3.0	22.0	-13.0	-26.7	140	1	Fundamental (Low Band)	117.2	-3.0
3702.5	50.1	38.6	5.4	-39.7	-50.4	-13.0	230	1		55.5	44.8
5553.75	54	43.9	53.7	-29.5	-39.6	-13.0	240	1		65.8	56.7
7405	42.1	30.8	42.2	-37.3	-48.7	-13.0	240	1		57.9	48.5
9266.25	43.1	32.2	43.4	-33.1	-44.2	-13.0	240	1		62.2	51.1
11107.5	43.5	32.7	43.6	-29.3	-40.1	-13.0	240	1		65.9	55.1
12958.75	44.3	33.1	44.3	-29.6	-40.8	-13.0	240	1		65.6	54.4
14810	45.3	33.3	44.2	-25.2	-37.1	-13.0	240	1		70.1	58.2
16561.25	44.2	33.2	44.8	-22.4	-34.0	-13.0	240	1		72.9	61.3
1880	120.1		-2.5	22.0	-13.0	-29.2	230	1	Fundamental (Mid Band)	117.2	-2.5
3760	47.4	36	45	-42.2	-53.6	-13.0	230	1		53.0	41.6
5640	54	43.9	54.6	-28.9	-39.1	-13.0	230	1		66.4	56.2
7520	42.4	31.8	43.2	-36.0	-47.2	-13.0	230	1		59.2	48.0
9400	43	32.1	43.5	-33.4	-44.6	-13.0	230	1		61.8	50.6
11280	43.2	31.9	42.5	-29.7	-41.0	-13.0	230	1		65.6	54.3
13160	43.7	34.3	45	-28.4	-39.0	-13.0	230	1		66.8	56.2
15040	46.4	34.3	45.2	-23.2	-35.3	-13.0	230	1		72.1	60.0
16920	43.8	33.3	43.7	-22.1	-32.5	-13.0	230	1		73.2	62.8
1908.75	120.3		-1.9	22.0	-13.0	-28.1	245	1	Fundamental (High Band)	117.3	-1.9
3817.5	48.3	37.9	47.5	-41.1	-51.5	-13.0	245	1		54.1	43.7
5726.25	59.3	49.3	61.8	-21.7	-31.8	-13.0	240	1		73.6	63.5
7635	44.1	32.6	45	-33.9	-45.7	-13.0	240	1		61.3	49.5
9543.75	44	32.5	43.5	-33.2	-43.5	-13.0	240	1		62.1	51.8
11452.5	42.5	31.6	43.6	-29.3	-41.3	-13.0	240	1		66.0	54.0
13361.25	45.1	34	45.1	-27.5	-38.6	-13.0	240	1		67.7	56.6
15270	46.5	34.7	46.3	-22.5	-34.3	-13.0	240	1		72.7	60.9
17178.75	43.5	33.6	45.1	-19.0	-30.5	-13.0	240	1		76.3	64.8
										#VALUE!	#VALUE!

Photograph of Test Setup



Photograph of Test Setup

