

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.



Jim Owen
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	744	Spectrum Analyzer	Hewlett Packard	2618A02913	12/04
AMF-5D-010180-35-10P	719	PreAmp	TUV America	549460	NCR*
3115	251	Antenna, Horn	Electro Mechanics Co	2595	12/03
CBL61116	460	Log Periodic Antenna	Fork Electronics	--	NCR*
FF6549-2	783	2000 MHz High Pass Filter	Sage	008	NCR*
FF6549-1	778	900 MHz High Pass Filter	Sage	005	NCR*
E4440A	6814	Spectrum Analyzer	Hewlett Packard	MY42510441	04/04
Cable 1	733	30' Cable	United Microwave Prod	--	NCR*

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

Technical Documentation

Test Data Sheets

and

Test Setups

REPORT No. SC305559 TESTER: Mark Lyon SPEC: FCC Part 22 para 22.917(b)(2)
 CUSTOMER: Kyocera Wireless
 E U T: KX2 TEST DIST: 3 Meters
 TEST SITE: Roof
 EUT MODE: Transmit FM closed BICONICAL: N/A
 DATE: 12/17/03 ERP Factor 7 LOG: N/A
 NOTES: HORN: 251

Part 22 - RBW & VBW 1MHz Peak

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

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
824.04	1		0.0	-96.4	-13.0	-43.2	290	1	Fundamental (Low Band)
1648.08	50.4	48.8	-9.3	-56.2	-13.0	-33.4	306	1	
2472.12	55.6	49.3	-4.6	-46.4	-13.0	-40.6			noise floor
3296.16	45.5	43.7	-1.7	-53.6	-13.0	-39.9			noise floor
4120.2	44.3	43	0.2	-52.9	-13.0	-39.9			noise floor
4944.24	43.6	43.9	0.6	-52.9	-13.0	-36			noise floor
5768.28	39.5	43.3	5.1	-49.0	-13.0	-32.4			noise floor
6592.32	45.8	46.2	5.8	-45.4	-13.0	-29.9			noise floor
7416.36	46	46.2	8.2	-42.9	-13.0	-27.7			noise floor
8240.4	45.4	47.2	9.4	-40.7	-13.0				
836.49	1		0.0	-96.4					Fundamental (Mid Band)
1672.98	46.9	46.3	-9.1	-59.5	-13.0	-46.5	168	1	
2509.47	52.9	48.6	-4.5	-48.9	-13.0	-35.9	240	1	
3345.96	42.9	41.3	-1.6	-56.0	-13.0	-43			noise floor
4182.45	43.7	43.9	0.0	-53.4	-13.0	-40.4			noise floor
5018.94	44	43.8	0.8	-52.5	-13.0	-39.5			noise floor
5855.43	45.7	44.3	5.3	-46.4	-13.0	-33.4			noise floor
6691.92	44.8	44.5	6.1	-46.4	-13.0	-33.4			noise floor
7528.41	45.7	46.1	8.4	-42.8	-13.0	-29.8			noise floor
8364.9	45.4	45.8	9.7	-41.9	-13.0	-28.9			noise floor
848.97	1		0.0	-96.4					Fundamental (High Band)
1697.94	49.6	45.5	-8.9	-56.7	-13.0	-43.7	21	1	
2546.91	48.2	49.2	-4.3	-52.5	-13.0	-39.5	50	1.8	
3395.88	42.3	43.1	-1.4	-55.7	-13.0	-42.7			noise floor
4244.85	43.2	44.1	0.1	-53.4	-13.0	-40.4			noise floor
5093.82	42.9	42	1.3	-53.2	-13.0	-40.2			noise floor
5942.79	45.7	45.5	5.5	-46.2	-13.0	-33.2			noise floor
6791.76	44.4	45.1	6.5	-45.8	-13.0	-32.8			noise floor
7640.73	45.9	46	8.5	-42.9	-13.0	-29.9			noise floor
8489.7	45.1	43.2	10.0	-42.3	-13.0	-29.3			noise floor

REPORT No: SC305559 TESTER: Mark Lyon SPEC: FCC Part 22 para 22.917(b)(2)
 CUSTOMER: Kyocera Wireless
 E U T: KX2 TEST DIST: 3 Meters
 EUT MODE: Transmit FM open TEST SITE: Roof
 DATE: 12/17/03 ERP Factor: 7 LOG: N/A
 BICONICAL: N/A
 NOTES: HORN: 251

Part 22 - RBW & VBW 1MHz Peak

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

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
824.04	1		0.0	-96.4					Fundamental (Low Band)
1648.08	49.2	45.7	-9.3	-57.4	-13.0	-44.4	78	1.6	
2472.12	62.5	58.2	-4.6	-39.5	-13.0	-26.5	78	1.7	
3296.16	43.6	43	-1.7	-55.5	-13.0	-42.5			noise floor
4120.2	45.6	46.4	0.2	-50.8	-13.0	-37.8			noise floor
4944.24	44.1	43.4	0.6	-52.7	-13.0	-39.7			noise floor
5768.28	39.2	43.2	5.1	-49.1	-13.0	-36.1			noise floor
6592.32	44.5	46.3	5.8	-45.3	-13.0	-32.3			noise floor
7416.36	45.4	45.5	8.2	-43.6	-13.0	-30.6			noise floor
8240.4	46.1	45.2	9.4	-41.8	-13.0	-28.8			noise floor
836.49	1		0.0	-96.4					Fundamental (Mid Band)
1672.98	46.3	44.3	-9.1	-60.1	-13.0	-47.1	60	2	
2509.47	51.3	53	-4.5	-48.8	-13.0	-35.8	109	1	
3345.96	42.9	43.7	-1.6	-55.2	-13.0	-42.2			noise floor
4182.45	43.2	42.5	0.0	-54.1	-13.0	-41.1			noise floor
5018.94	44.5	42.8	0.8	-52.0	-13.0	-39			noise floor
5855.43	45.8	45.3	5.3	-46.3	-13.0	-33.3			noise floor
6691.92	44.7	44.1	6.1	-46.5	-13.0	-33.5			noise floor
7528.41	46.6	44.6	8.4	-42.3	-13.0	-28.3			noise floor
8364.9	44.5	44.8	9.7	-42.9	-13.0	-29.9			noise floor
848.97	1		0.0	-96.4					Fundamental (High Band)
1697.94	48.4	48	-8.9	-57.9	-13.0	-44.9	133	1	
2546.91	49.6	47.6	-4.3	-52.1	-13.0	-39.1	123	1.3	
3395.88	43.5	43.6	-1.4	-55.2	-13.0	-42.2			noise floor
4244.85	44	43.2	-0.1	-53.5	-13.0	-40.5			noise floor
5093.82	43	41.8	1.3	-53.1	-13.0	-40.1			noise floor
5942.79	44.6	45.5	5.5	-46.4	-13.0	-33.4			noise floor
6791.76	44	43.4	6.5	-46.9	-13.0	-33.9			noise floor
7640.73	45	44.6	8.5	-43.9	-13.0	-30.9			noise floor
8489.7	44.3	43.3	10.0	-43.1	-13.0	-30.1			noise floor

REPORT No: SC305559 TESTER: Mark Lyon SPEC: FCC Part 22 para 22.917(b)(2)
 CUSTOMER: Kyocera Wireless
 EUT: KX2 TEST DIST: 3 Meters
 TEST SITE: Roof
 BICONICAL: N/A
 DATE: 12/17/03 ERP Factor: 7 LOG: N/A
 HORN: 251

Part 22 - RBW & VBW 1MHz Peak

CF = Antenna Factor + Cable Loss - Preamp/ifier 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	1		0.0	-96.4					
1649.4	44.5	47.4	-9.3	-59.2	-13.0	-46.2	116	2	Fundamental (Low Band)
2474.1	62.6	57.7	-4.6	-39.4	-13.0	-26.4	61	1	
3298.8	45.5	44.1	-1.7	-53.6	-13.0	-40.6			noise floor
4123.5	44.1	45.4	0.2	-51.8	-13.0	-38.8			noise floor
4948.2	45.8	45.3	0.6	-51.0	-13.0	-38			noise floor
5772.9	42	43.1	5.1	-49.2	-13.0	-36.2			noise floor
6597.6	46.3	46.7	5.8	-44.9	-13.0	-31.9			noise floor
7422.3	44.6	46.5	8.2	-42.6	-13.0	-29.6			noise floor
8247	44.9	45.6	9.4	-42.3	-13.0	-29.3			noise floor
836.49	1		0.0	-96.4					
1672.98	47.5	47	-9.1	-58.9	-13.0	-45.9	35	1	Fundamental (Mid Band)
2509.47	48.7	53	-4.5	-48.8	-13.0	-35.8	60	2	
3345.96	41.6	44.2	-1.6	-54.7	-13.0	-41.7			noise floor
4182.45	44	45.8	0.0	-51.5	-13.0	-38.5			noise floor
5018.94	43.3	44	0.8	-52.5	-13.0	-39.5			noise floor
5855.43	46.8	45.5	5.3	-45.3	-13.0	-32.3			noise floor
6691.92	46.8	44.8	6.1	-44.4	-13.0	-31.4			noise floor
7528.41	44.7	45	8.4	-43.9	-13.0	-30.9			noise floor
8364.9	46.7	46.7	9.7	-41.0	-13.0	-28			noise floor
848.31	1		0.0	-96.4					
1696.62	51.4	46.3	-8.9	-54.9	-13.0	-41.9	55	1	Fundamental (High Band)
2544.93	50.4	51.8	-4.3	-49.9	-13.0	-36.9	62	2	
3393.24	43.9	47.4	-1.4	-51.4	-13.0	-38.4	60	1	
4241.55	45.5	44.1	-0.1	-52.0	-13.0	-39			noise floor
5089.86	41.3	42.6	1.3	-53.5	-13.0	-40.5			noise floor
5938.17	45.1	47.1	5.5	-44.8	-13.0	-31.8			noise floor
6786.48	47.1	45.4	6.5	-43.8	-13.0	-30.8			noise floor
7634.79	45.7	43.4	8.5	-43.2	-13.0	-30.2			noise floor
8483.1	45.1	44.1	10.0	-42.3	-13.0	-29.3			noise floor

REPORT No. SC305559 TESTER: Alan Laudani SPEC: FCC Part 22 para 22.917(b)(2)
 CUSTOMER: Kyocera Wireless TEST DIST: 3 Meters
 E U T: KX2 TEST SITE: Roof
 EUT MODE: Transmit CDMA opened BICONICAL: N/A
 DATE: 12/17/03 ERP Factor: 7 LOG: N/A
 NOTES: HORN: 251

Part 22 - RBW & VBW 1MHz Peak

CF = Antenna Factor + Cable Loss - Preamp Gain

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
824.7	1		0.0	-96.4	-13.0	-44.5	23	1	Fundamental (Low Band)
1649.4	49.1	47.1	-9.3	-57.5	-13.0	-22.2	24	3	
2474.1	65	66.8	-4.6	-35.2	-13.0	-41			noise floor
3298.8	45.1	45	-1.7	-54.0	-13.0	-38.3			noise floor
4123.5	45.9	43.6	0.2	-51.3	-13.0	-38.7			noise floor
4948.2	45.1	44.5	0.6	-51.7	-13.0	-35.3			noise floor
5772.9	41.8	44	5.1	-48.3	-13.0	-30.8			noise floor
6597.6	47.8	47.4	5.8	-43.8	-13.0	-29			noise floor
7422.3	47.1	45.3	8.2	-42.0	-13.0	-26.6			noise floor
8247	47.2	48.3	9.4	-39.6	-13.0				noise floor
836.49	1		0.0	-96.4	-13.0	-47.4	74	1	Fundamental (Mid Band)
1672.98	45	46	-9.1	-60.4	-13.0	-27.4	62	2	
2509.47	55.9	61.4	-4.5	-40.4	-13.0	-40.5			noise floor
3345.96	45.4	44.5	-1.8	-53.5	-13.0	-37.2			noise floor
4182.45	46.3	47.1	0.0	-50.2	-13.0	-37.2			noise floor
5018.94	45.3	46.3	0.8	-50.2	-13.0	-30.8			noise floor
5855.43	46	48.3	5.3	-43.8	-13.0	-32.7			noise floor
6691.92	45.5	45	6.1	-45.7	-13.0	-30.3			noise floor
7528.41	44.8	45.6	8.4	-43.3	-13.0	-27.6			noise floor
8364.9	46.6	47.1	9.7	-40.8	-13.0				noise floor
846.31	1		0.0	-96.4	-13.0	-34.5	58	1	Fundamental (High Band)
1696.62	57.7	58.8	-8.9	-47.5	-13.0	-36.9	62	2	
2544.93	50.4	51.8	-4.3	-48.9	-13.0	-39.2			noise floor
3393.24	45.9	45.7	-1.4	-52.9	-13.0	-39.2			noise floor
4241.55	45.9	46.3	-0.1	-51.2	-13.0	-31.7			noise floor
5089.86	42.9	43.9	1.3	-52.2	-13.0	-33			noise floor
5938.17	47.2	46.9	5.5	-44.7	-13.0	-30.4			noise floor
6786.48	44.9	44.6	6.5	-46.0	-13.0	-27.6			noise floor
7634.79	45.5	45.5	8.5	-43.4	-13.0				noise floor
8463.1	46.8	46	10.0	-40.8	-13.0				noise floor

REPORT No: SC305559 TESTER: M.Lyon SPEC: FCC Part 24 para 24.238(a)
 CUSTOMER: Kyocera Wireless TEST DIST: 3 Meters
 E U T: KX 2 TEST SITE: Roof
 EUT MODE: PCS Transmit Open BICONICAL: N/A
 DATE: Dec. 18, 2003 EIRP Factor: 5.5 LOG: N/A
 NOTES: HORN: 251

Part 24 - RBW 1 MHz									
CF = Antenna Factor + Cable Loss - Preamp/plier Gain									
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
1851.25									
3702.5	50.1	53.1	-1.4	-43.5	-13.0	-30.5	133	1.3	Fundamental (Low Band)
5553.75	47.5	49.6	3.2	-42.4	-13.0	-29.4	138	1	
7405	44.9	45.5	6.6	-43.2	-13.0	-30.2			noise level
9256.25	45.3	45.2	8.6	-41.4	-13.0	-28.4			noise level
11107.5	44.2	43.9	11.0	-40.1	-13.0	-27.1			noise level
12958.75	48.2	48.6	10.7	-35.9	-13.0	-22.9			noise level
14810	46	45.7	13.9	-35.3	-13.0	-22.3			noise level
16661.25	44.4	44	15.8	-35.0	-13.0	-22			noise level
1880									
3760	47.5	50.2	-1.2	-46.3	-13.0	-33.3	143	1.3	Fundamental (Mid Band)
5640	46.7	48.8	3.5	-43.0	-13.0	-30	144	1	
7520	44.6	45.4	6.8	-43.0	-13.0	-30			noise level
9400	44	44.9	8.1	-42.2	-13.0	-29.2			noise level
11280	43.5	43.6	11.1	-40.6	-13.0	-27.6			noise level
13160	48.7	47.2	11.2	-35.4	-13.0	-22.4			noise level
15040	45.9	43.8	14.8	-34.5	-13.0	-21.5			noise level
16920	43.7	43.1	16.6	-34.9	-13.0	-21.9			noise level
1908.75									
3817.5	47.8	49.4	-1.1	-46.9	-13.0	-33.9	159	1.9	Fundamental (High Band)
5726.25	44.4	46	3.7	-45.6	-13.0	-32.6	145	2	
7635	45	46.2	6.9	-42.1	-13.0	-29.1			noise level
9543.75	44.5	44.4	7.9	-42.9	-13.0	-29.9			noise level
11452.5	43.6	44	11.2	-40.1	-13.0	-27.1			noise level
13361.25	46.4	47.1	11.9	-36.3	-13.0	-23.3			noise level
15270	45.2	45.9	15.1	-34.3	-13.0	-21.3			noise level
17178.75	43.1	42.3	18.2	-33.9	-13.0	-20.9			noise level

REPORT No: SC305559 TESTER: M.Lyon SPEC: FCC Part 24 para 24.238(e)
 CUSTOMER: Kyocera Wireless TEST DIST: 3 Meters
 E U T: KX 2 TEST SITE: Roof
 EUT MODE: PCS Transmit BICONICAL: N/A
 DATE: Dec. 17, 2003 EIRP Factor 5.5 LOG: N/A
 NOTES: HORN: 251

Part 24 - RBW 1 MHz
 CF = Antenna Factor + Cable Loss - Preamp/Filter Gain

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
1851.25	47.6		-1.4	-41.0	-13.0	-28	343	1.5	Fundamental (Low Band)
3702.5	51.6	55.6	3.2	-40.4	-13.0	-27.4	338	2	
5553.75	50.4	45.5	6.6	-43.2	-13.0	-30.2			noise level
7405	43.5	45.2	8.6	-41.5	-13.0	-28.5			noise level
9256.25	44.3	44.8	11.0	-39.5	-13.0	-26.5			noise level
11107.5	42.2	48.6	10.7	-35.9	-13.0	-22.9			noise level
12958.75	46.4	47.7	13.9	-33.6	-13.0	-20.6			noise level
14810	47.6	42.6	15.8	-34.7	-13.0	-21.7			noise level
16661.25	44.7								
1880									Fundamental (Mid Band)
3760	49.8	47.9	-1.2	-46.7	-13.0	-33.7	291	1.3	
5640	50.6	48.8	3.5	-41.2	-13.0	-28.2	314	1.3	
7520	46.6	43.1	6.8	-41.8	-13.0	-28.8			noise level
9400	46.3	45	8.1	-40.8	-13.0	-27.8			noise level
11280	43.1	46.2	11.1	-38.0	-13.0	-25.0			noise level
13160	47.5	48.8	11.2	-35.3	-13.0	-22.3			noise level
15040	45.9	43.8	14.8	-34.5	-13.0	-21.5			noise level
16920	43.7	43.1	16.6	-34.9	-13.0	-21.9			noise level
1908.75									Fundamental (High Band)
3817.5	52.5	52	-1.1	-43.8	-13.0	-30.8	257	1.5	
5726.25	48.9	47.6	3.7	-42.7	-13.0	-29.7	281	1.2	
7635	48.5	44.3	6.9	-39.8	-13.0	-26.8			noise level
9543.75	45.6	44.4	7.9	-41.8	-13.0	-28.8			noise level
11452.5	43.3	41.8	11.2	-40.8	-13.0	-27.8			noise level
13361.25	48.7	48.4	11.9	-34.7	-13.0	-21.7			noise level
15270	45.7	45.1	15.1	-34.5	-13.0	-21.5			noise level
17176.75	42.2	41.9	18.2	-34.8	-13.0	-21.8			noise level

Photograph of Test Setup



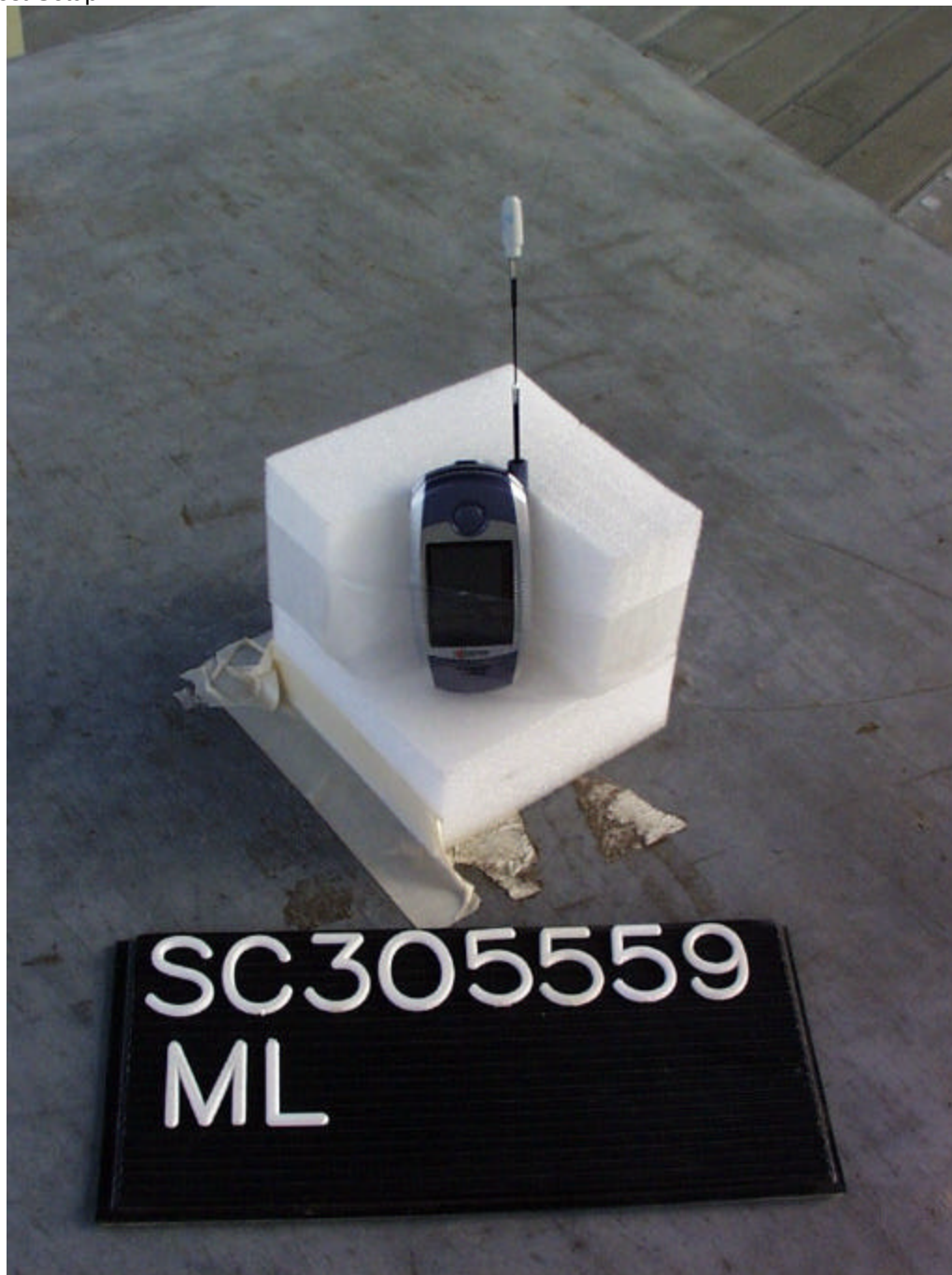
Photograph of Test Setup



Photograph of Test Setup



Photograph of Test Setup



Appendix

Supplemental Information