



RADIATED EMISSIONS

DATA

FOR

**KYOCERA WIRELESS CORPORATION
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 b2 and Part 24, Paragraph 24.238)

The measurements which follow 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.

A handwritten signature in black ink, appearing to read "FR Fleury", written in a cursive style.

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 Date
3146	244	Log Periodic Antenna	EMCO	1063	02/02
3115	251	Double Ridge Antenna	EMCO	2495	10/01
AMF-3D-010180-35-10P	752	Amplifier 20 dB	Miteq	614344	N/A*
83640B	791	Synthesized Swept Signal Generator	Hewlett Packard	3844A00726	05/02
3115	453	Double Ridge Antenna (1 to 18 GHz)	Hewlett Packard	9412-4364	10/01
HP8586B	721	Spectrum Analyzer Display	Hewlett-Packard	2112A02185	06/02

Remarks: (*) Verified

Report No. SC105395-03



FCC Testing

RADIATED SPURIOUS - EMISSIONS SIGNAL SUBSTITUTION METHOD

Test Report #: SC105395 Test Area: Roof 3m-OATSTest Method: Signal Substitution Date: July 12EUT Model #: KWC-2255
EUT POWER:
☐ 230 Vac/50 Hz ☐ 120 Vac/60 Hz
☒ Other: _____Temperature: 24 °C

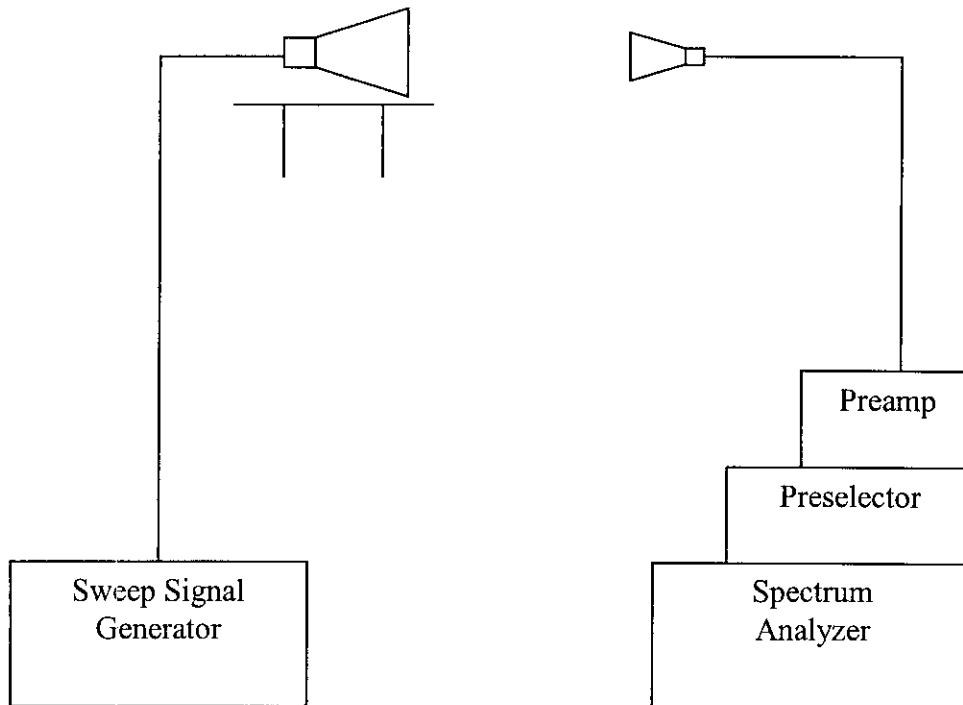
EUT Description: _____

Air Pressure: 100.2 kPaNOTES: Horn #453, Cables # 732, 721Relative Humidity: 45 %

Frequency (MHz)	Signal Generator (dBm)	Gain of Antenna - Cable loss	Total (EIRP)	Limit	Margin (dB)
4123.5	-56.8	1.3	-55.5	-13	-42.3
5640	-52.1	1.3	-51.8	-13	-38.8
6592.32	-45.8	2	-43.8	-13	-30.8
6786.48	-50.3	1.4	-51.7	-13	-38.7
9064.44	-48.5	1.8	-49.4	-13	-36.4
9543.75	-52	1.9	-51.3	-13	-38.3
11107.5	-44	0	-44	-13	-31.0
11280	-42.3	-1.7	-40.6	-13	-27.6

Tested By: ALAN LAUDANI

NOTES: _____



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

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

TÜV PRODUCT SERVICE 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 858 546 3999 FAX 858 546 0364

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REPORT No: SC105395 TESTER: Alan Laudani SPEC: 24.238
 CUSTOMER: Kyocera Wireless Corp. TEST DIST: 3 Meters
 E U T: KWC-2255 TEST SITE: Roof
 EUT MODE: CDMA Cellular BICONICAL: N/A
 DATE: July 11, 2001 LOG: N/A
 NOTES: Duty Cycle= 100% OTHER: 251
 above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG
 Filter #778 900 MHz High Pass
 CF = Antenna Factor + Cable Loss - Preamp/loss Gain + Preselector Loss

FREQ (MHz)	VERTICAL (dBuV) pk av	HORIZONTAL (dBuV) pk av	CF (dBm)	MAX LEVEL (dBuV/m) pk	SPEC LIMIT (dBuV/m) pk av	MARGIN (dB) pk av	EUT Rotation	Antenna Height	Notes
Channel 1013									
	824.7								
1649.4	38	37.2	5.9	43.9	82.2	-38.3	0	1	noise floor
2474.1	29.7	30.3	10.6	40.9	82.2	-41.3			
3298.8	31.9	33.6	13.9	47.5	82.2	-34.7	180	1	
4123.5	32.1	33.4	18.5	51.9	82.2	-30.3	200	1	noise floor
4948.2	30.9	30.6	19.5	50.4	82.2	-31.8			noise floor
5772.9	29.9	30.5	21.9	52.4	82.2	-29.8			noise floor
6597.6	34.4	34.5	21.4	55.9	82.2	-26.3			noise floor
7422.3	34.4	33.6	22.3	56.7	82.2	-25.5			noise floor
Channel 383									
	836.49								
1672.98	38	37.9	6.0	44.0	82.2	-38.2	0	1	noise floor
2509.47	33.2	32.3	10.7	43.9	82.2	-38.3			noise floor
3345.96	31.8	34.5	14.1	48.6	82.2	-33.6			noise floor
4182.45	32.8	32.9	18.8	51.7	82.2	-30.5	200	1	
5018.94	32	32	19.5	51.5	82.2	-30.7	200	1	
5855.43	34.6	34.4	22.1	56.7	82.2	-25.5			noise floor
6691.92	36.3	36.5	21.5	58.0	82.2	-24.2			noise floor
7528.41	35.5	35.1	22.3	57.8	82.2	-24.4			noise floor
Channel 777									
	848.31								
1696.62	39.9	36.9	6.2	46.1	82.2	-36.1	240	1	
2544.93	31.6	35.2	10.9	46.1	82.2	-36.1	200	1	
3393.24	32.3	33.4	14.3	47.7	82.2	-34.5	200	1	
4241.55	33.4	33.2	19.0	52.4	82.2	-29.8	180	1	
5089.86	34	33.2	19.8	53.8	82.2	-28.4	180	1	
5938.17	34.2	33	22.3	56.5	82.2	-25.7			noise floor
6786.48	36.8	35.7	21.7	58.5	82.2	-23.7			noise floor

REPORT No: SC105395 TESTER: Alan Laudani SPEC: 24.238

CUSTOMER: Kyocera Wireless Corp. TEST DIST: 3 Meters

E U T: KWC-2255 TEST SITE: Roof

EUT MODE: FM Cellular Tx BICONICAL: N/A

DATE: July 11, 2001 LOG: N/A

NOTES: Duty Cycle= 100% OTHER: 251
 above 1GHz: RBW & VBW 1 MHz for PK; RBW 1MHz and VBW 10Hz for AVG
 Filter #778 900 MHz High Pass

CF = Antenna Factor + Cable Loss - Preampifier Gain + Presetector Loss

FREQ (MHz)	VERTICAL (dBuV) pk av	HORIZONTAL (dBuV) pk av	CF (dBm)	MAX LEVEL (dBuV/m) pk	SPEC LIMIT (dBuV/m) pk av	MARGIN (dB) pk	EUT Rotation	Antenna Height	Notes
Channel 991									
824.04	41	41	5.9	45.9	82.2	-35.3	120	1	
1648.08	28	38	10.6	45.6	82.2	-33.6			noise floor
2472.12	34.3	37.5	13.9	51.4	82.2	-30.8	0	1	
3296.16	34	34	18.5	52.5	82.2	-29.7	0	1	
4120.2	32.2	33	19.5	52.5	82.2	-29.7	220	1	
4944.24	30.7	31.3	21.9	53.2	82.2	-29	200	1	
5768.28	37.4	37.8	21.3	59.1	82.2	-23.1	200	1	noise floor
6592.32	36.1	35.2	22.2	57.4	82.2	-24.8			noise floor
7416.36	36.1	33.9	24.0	60.1	82.2	-22.1			noise floor
8240.4	34.2	34.5	26.8	61.3	82.2	-20.9			
Channel 383									
836.49	39.6	41.6	6.0	47.6	82.2	-34.6	0	1.5	
1672.98	31.7	37	10.7	47.7	82.2	-34.5	0	1.5	
2509.47	35.6	34.4	14.1	49.7	82.2	-32.5	180	1	
3345.96	36.3	35.4	18.8	55.1	82.2	-27.1	180	1	
4182.45	35.3	35.9	19.5	55.4	82.2	-26.8	180	1	
5018.94	35.1	35.7	22.1	57.8	82.2	-24.4			noise floor
5855.43	37.8	39.2	21.5	60.7	82.2	-21.5	180	1.2	
6691.92	35.6	35.7	22.3	58.0	82.2	-24.2	0	1	
7528.41	35.6	35.8	24.5	60.3	82.2	-21.9			noise floor
8364.9	35.6	35.8	24.5	60.3	82.2	-21.9			
Channel 799									
848.97	44.1	40.2	6.2	50.3	82.2	-31.9	200	1.2	
1697.94	32.4	35.2	10.9	46.1	82.2	-36.1			noise floor
2546.91	38.6	37	14.3	52.9	82.2	-29.3	200	1.4	
3395.88	35.9	34.7	19.0	54.9	82.2	-27.3	200	1	
4244.85	38.2	37.6	19.8	58.0	82.2	-24.2			noise floor
5093.82	35.9	35	22.3	58.2	82.2	-24	200	1	noise floor
5942.79	38.1	37.8	21.7	59.8	82.2	-22.4	200	1	
6791.76	36	35.7	22.5	58.5	82.2	-23.7	200	1	
7640.73	34.9	35.7	25.1	60.8	82.2	-21.4			noise floor
8489.7									

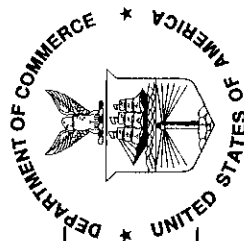
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FREQ (MHz)	VERTICAL (dBuV) pk av	HORIZONTAL (dBuV) pk av	CF (dBm)	MAX LEVEL (dBuV/m) pk	SPEC LIMIT (dBuV/m) pk av	MARGIN (dB) pk	EUT Rotation	Antenna Height	Notes
Channel 1175									
1908.75									
3817.5	33.5								
5726.25	32.4	33.8	16.9	50.7	82.2	-31.5	100	1	
7635	34.8	32.6	21.9	54.5	82.2	-27.7	240	1	
9543.75	34.3	34.8	22.5	57.3	82.2	-24.9			noise floor
11452.5	33.5	34.7	26.6	61.3	82.2	-20.9			noise floor
		34.1	32.4	66.5	82.2	-15.7			noise floor
Channel 600									
1880									
3760	31.7	33.2	16.5	49.7	82.2	-32.5	220	1	
5640	31.5	33.1	21.7	54.8	82.2	-27.4	220	1	
7520	34.4	34.5	22.3	56.8	82.2	-25.4			noise floor
9400	35.2	34.9	26.6	61.8	82.2	-20.4			noise floor
11280	33.2	34	31.8	65.8	82.2	-16.4			noise floor
Channel 25									
1851.25									
3702.5	30.6	31.2	16.1	47.3	82.2	-34.9	200	1	
5553.75	30.5	31.3	21.5	52.8	82.2	-29.4			noise floor
7405	34.1	34.7	22.2	56.9	82.2	-23.3			noise floor
9256.25	35.2	35	26.7	61.9	82.2	-20.3			noise floor
11107.5	33.9	34.6	31.3	65.9	82.2	-16.3			noise floor

Testing Facilities

Certificates of Approval

United States Department of Commerce
National Institute of Standards and Technology



ISO/IEC GUIDE 25:1990
ISO 9002:1987

Certificate of Accreditation

TUV PRODUCT SERVICE, INC.
SAN DIEGO, CA

is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. Accreditation is awarded for specific services, listed on the Scope of Accreditation for:

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

December 31, 2001

Effective through

David E. Alderman

For the National Institute of Standards and Technology

NVLAP Lab Code: 100268-0

NVLAP-01C (11-96)

National Institute
of Standards and Technology



National Voluntary
Laboratory Accreditation Program

ISO/IEC GUIDE 25:1990
ISO 9002:1987

Scope of Accreditation



Page: 1 of 3

**ELECTROMAGNETIC COMPATIBILITY
AND TELECOMMUNICATIONS**

NVLAP LAB CODE 100268-0

TUV PRODUCT SERVICE, INC.

10040 Mesa Rim Road
San Diego, CA 92121-1034
Mr. R. Barry Wallen
Phone: 619-546-3999 Fax: 619-546-0364
E-Mail: bwallen@TUVps.com
URL: <http://www.tuvps.com>

NVLAP Code Designation / Description

Emissions Test Methods:

12/CIS22	IEC/CISPR 22:1993: Limits and methods of measurement of radio disturbance characteristics of information technology equipment
12/CIS22a	IEC/CISPR 22:1993: Limits and methods of measurement of radio disturbance characteristics of information technology equipment, Amendment 1:1995, and Amendment 2:1996.
12/CIS22b	CNS 13438:1997: Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment
12/F01	FCC Method - 47 CFR Part 15 - Digital Devices
12/F01a	Conducted Emissions, Power Lines, 450 KHz to 30 MHz
12/F01b	Radiated Emissions

December 31, 2001

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A handwritten signature in dark ink, reading "David F. Alderman".

For the National Institute of Standards and Technology

NVLAP-01S (11-95)

National Institute
of Standards and Technology



National Voluntary
Laboratory Accreditation Program

ISO/IEC GUIDE 25:1990
ISO 9002:1987

Scope of Accreditation



Page: 2 of 3

**ELECTROMAGNETIC COMPATIBILITY
AND TELECOMMUNICATIONS**

NVLAP LAB CODE 100268-0

TUV PRODUCT SERVICE, INC.

NVLAP Code Designation / Description

12/T51 AS/NZS 3548: Electromagnetic Interference - Limits and Methods of Measurement of
Information Technology Equipment

MIL-STD-462 : Conducted Emissions:

12/A01 MIL-STD-462 Method CE01
12/A04 MIL-STD-462 Method CE02
12/A06 MIL-STD-462 Method CE03
12/A08 MIL-STD-462 Method CE04
12/A10 MIL-STD-462 Method CE06
12/A12 MIL-STD-462 Method CE07

MIL-STD-462 : Conducted Susceptibility:

12/B01 MIL-STD-462 Method CS01
12/B02 MIL-STD-462 Method CS02
12/B04 MIL-STD-462 Method CS03/CS04/CS05/CS08
12/B05 MIL-STD-462 Method CS06

December 31, 2001

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Scope of Accreditation



Page: 3 of 3

**ELECTROMAGNETIC COMPATIBILITY
AND TELECOMMUNICATIONS**

NVLAP LAB CODE 100268-0

TUV PRODUCT SERVICE, INC.

NVLAP Code Designation / Description

12/B06 MIL-STD-462 Method CS07

12/B07 MIL-STD-462 Method CS09

MIL-STD-462 : Radiated Emissions:

12/D01 MIL-STD-462 Method RE01

12/D02 MIL-STD-462 Method RE02

12/D03 MIL-STD-462 Method RE03

MIL-STD-462 : Radiated Susceptibility:

12/E01 MIL-STD-462 Method RS01

12/E02 MIL-STD-462 Method RS02

12/E03 MIL-STD-462 Method RS03 (Consult laboratory for field strengths available)

12/E04 MIL-STD-462 Method RS03 employing RADHAZ procedures for high level testing
(Consult laboratory for field strengths available)

December 31, 2001

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Photograph of Test Setup



Photograph of Test Setup

