SPURIOUS EMISSIONS

DATA

FOR

KYOCERA WIRELESS CORPORATION
10290 Campus Pointe Drive
San Diego, CA 92121

Prepared by

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

Measurement Requirements

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 25 of the Commission's Rules and Regulations. The data presented below demonstrates compliance with the appropriate technical standards.

FR Fleury

Floyd R. Fleury
EMC Manager

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

Emissions Test Conditions: SPURIOUS RADIATED EMISSIONS, Part 22, Paragraph 22.917(b)(2)

The *Spurious Radiated Emissions* measurements were performed using the following equipment:

Roof (small open area test site)

Testing was performed at a test distance of:

3 meters

Test Equipment Used :

Model No.	Prop. No.	Description	Manufacturer	Serial No.	Cal Date
8566B	720/721/466	Spectrum Analyzer & Display	Hewlett Packard	2115A00842	03/01
AA-190-30.00.0	733	High Frequency Cable	United Microwave Prod.	--	*
AA-190-6.00.0	728	High Frequency Cable	United Microwave Prod.	--	*
AMF-5D-010180-35-10P	719	Preamplifier	Miteq	549460	*
3146	244	Log Periodic Antenna	EMCO	1063	10/00
3115	251	Antenna, Double Ridge Guide	EMCO	2495	10/00

Remarks: (*) Verified internally

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

TÜV PRODUCT SERVICE

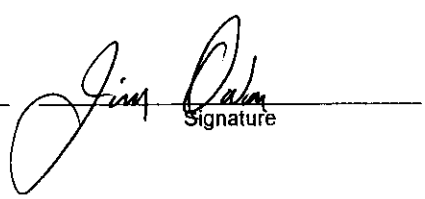
Radiated Electromagnetic Emissions

TÜV PRODUCT SERVICE

Test Report #:	S0326 Run 2	Test Area:	Site 3 Roof	Temperature:	23 °C
Test Method:	Spurious Emissions	Test Date:	07-Aug-2000	Relative Humidity:	45 %
EUT Model #:	QCP 3035	EUT Power:	Internal Battery	Air Pressure:	100.1 kPa
EUT Serial #:	P4A #1			Page:	1 of 2
Manufacturer:	Kyocera Wireless Corp				
EUT Description:	FM Mode				
Notes:	Fundamental frequency measurements for Part 22.917(b)(2)				

Level Key	
Pk – Peak	Nb – Narrow Band
Qp – QuasiPeak	Bb – Broad Band
Av - Average	

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV/m)	(m) (DEG)	FCC Part 22.917(b)(2)	N/A
Antenna: LPA- 3146						
FM Mode Fundamentals						
Channel 383						
836.49	101.2 Pk	2.3 / 22.7 / 0.0	126.2	V / 1.5 / 295.0	N/A	N/A
Channel 799						
848.95	101.0 Pk	2.4 / 23.0 / 0.0	126.4	V / 1.3 / 233.0	N/A	N/A
Channel 991						
824.04	101.8 Pk	2.3 / 22.6 / 0.0	126.7	V / 1.3 / 240.0	N/A	N/A
CDMA Mode						
Channel 383						
836.47	100.0 Pk	2.3 / 22.7 / 0.0	125.0	V / 1.3 / 238.0	N/A	N/A
Channel 777						
848.31	99.0 Pk	2.4 / 23.0 / 0.0	124.4	V / 1.3 / 351.0	N/A	N/A
Channel 1013						
824.70	100.0 Pk	2.3 / 22.6 / 0.0	124.9	V / 1.5 / 323.0	N/A	N/A

Tested by: J Owen (Printed)  (Signature)

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

TÜV PRODUCT SERVICE

Radiated Electromagnetic Emissions

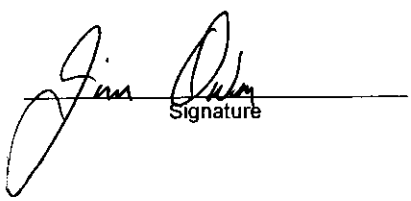
TÜV PRODUCT SERVICE

Test Report #:	**S0326 Run 03**	Test Area:	Site 3 Roof	Temperature:	23 °C
Test Method:	Spurious Emissions	Test Date:	07-Aug-2000	Relative Humidity:	45 %
EUT Model #:	QCP 3035	EUT Power:	Internal Battery	Air Pressure:	100.1 kPa
EUT Serial #:	P4A #1			Page:	1 of 2
Manufacturer:	Kyocera Wireless Corp				
EUT Description:	CDMA Mode				

Notes: Channel 1013 - 824.7 MHz
Channel 383 - 836.49 MHz
Channel 777 - 848.31 MHz

Level Key	
Pk – Peak	Nb – Narrow Band
Qp – QuasiPeak	Bb – Broad Band
Av - Average	

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV/m)	(m) (DEG)	FCC Part 22.917(b)(2)	N/A
Channel 1013						
1649.41	57.6 Pk	3.9 / 27.6 / 40.7	48.4	V / 1.0 / 178.0	-34.0	N/A
2474.10	47.5 Pk	5.0 / 30.5 / 40.4	42.6	V / 1.0 / 27.0	-39.8	N/A
1649.40	50.5 Pk	3.9 / 27.6 / 40.7	41.3	H / 2.0 / 222.0	-41.1	N/A
2474.10	46.7 Pk	5.0 / 30.5 / 40.4	41.8	H / 2.0 / 106.0	-40.6	N/A
4123.50	47.2 Pk	7.2 / 34.3 / 41.6	47.1	H / 2.0 / 107.0	-35.3	N/A
Channel 383						
1672.90	51.0 Pk	3.9 / 27.7 / 40.7	42.0	H / 2.0 / 196.0	-40.4	N/A
4182.40	51.1 Pk	7.2 / 34.2 / 41.6	50.9	H / 1.0 / 128.0	-31.5	N/A
5018.90	46.6 Pk	7.4 / 35.1 / 41.6	47.5	H / 1.0 / 207.0	-34.9	N/A
1672.90	57.2 Pk	3.9 / 27.7 / 40.7	48.2	V / 1.0 / 164.0	-34.2	N/A
4182.40	51.4 Pk	7.2 / 34.2 / 41.6	51.2	V / 1.5 / 195.0	-31.2	N/A
Channel 777						
1696.60	50.2 Pk	3.9 / 27.8 / 40.6	41.3	V / 1.0 / 161.0	-41.1	N/A
2544.90	45.3 Pk	5.1 / 30.7 / 40.4	40.6	V / 1.0 / 0.0	-41.8	N/A
4241.50	49.4 Pk	7.2 / 34.1 / 41.6	49.1	V / 1.0 / 0.0	-33.3	N/A
1696.60	47.6 Pk	3.9 / 27.8 / 40.6	38.7	H / 1.0 / 326.0	-43.7	N/A
4241.50	47.9 Pk	7.2 / 34.1 / 41.6	47.6	H / 1.0 / 165.0	-34.8	N/A

Tested by: J Owen (Printed)  (Signature)

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

TÜV PRODUCT SERVICE

Radiated Electromagnetic Emissions

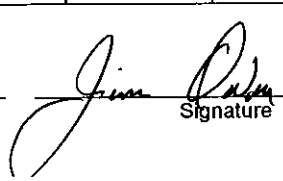
TÜV PRODUCT SERVICE

Test Report #:	S0326 Run 04	Test Area:	Site 3 Roof	Temperature:	23 °C
Test Method:	Spurious Emissions	Test Date:	07-Aug-2000	Relative Humidity:	45 %
EUT Model #:	QCP 3035	EUT Power:	Internal Battery	Air Pressure:	100.1 kPa
EUT Serial #:	P4A #1			Page:	1 of 2
Manufacturer:	Kyocera Wireless Corp				
EUT Description:	FM Mode				

Notes: Channel 991 – 824.04 MHz
Channel 383 – 836.49 MHz
Channel 799 – 848.97 MHz

Level Key	
Pk – Peak	Nb – Narrow Band
Qp – QuasiPeak	Bb – Broad Band
Av - Average	

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV/m)	(m) (DEG)	FCC Part 22.917(b)(2)	N/A
Channel 383						
1672.90	59.8 Pk	3.9 / 27.7 / 40.7	50.8	V / 1.0 / 153.0	-31.6	N/A
2509.40	49.4 Pk	5.0 / 30.6 / 40.4	44.6	V / 1.0 / 0.0	-37.8	N/A
4182.40	50.4 Pk	7.2 / 34.2 / 41.6	50.2	V / 1.0 / 202.0	-32.2	N/A
5018.90	46.4 Pk	7.4 / 35.1 / 41.6	47.3	V / 1.0 / 202.0	-35.1	N/A
1672.90	49.8 Pk	3.9 / 27.7 / 40.7	40.8	H / 1.0 / 327.0	-41.6	N/A
2509.40	48.0 Pk	5.0 / 30.6 / 40.4	43.2	H / 1.5 / 268.0	-39.2	N/A
3345.90	46.9 Pk	6.4 / 32.2 / 40.3	45.2	H / 1.8 / 310.0	-37.2	N/A
4182.40	51.8 Pk	7.2 / 34.2 / 41.6	51.6	H / 1.8 / 58.0	-30.8	N/A
Channel 799						
1697.90	49.9 Pk	3.9 / 27.8 / 40.6	41.0	H / 1.0 / 330.0	-41.4	N/A
2546.90	47.6 Pk	5.1 / 30.7 / 40.4	43.0	H / 1.0 / 303.0	-39.4	N/A
4244.80	54.5 Pk	7.2 / 34.1 / 41.6	54.2	H / 1.5 / 171.0	-28.2	N/A
5093.80	50.3 Pk	7.4 / 35.3 / 41.3	51.7	H / 1.5 / 160.0	-30.7	N/A
1697.90	59.2 Pk	3.9 / 27.8 / 40.6	50.3	V / 1.0 / 164.0	-32.1	N/A
2546.90	53.4 Pk	5.1 / 30.7 / 40.4	48.8	V / 1.5 / 0.0	-33.6	N/A
4244.80	53.5 Pk	7.2 / 34.1 / 41.6	53.2	V / 1.5 / 182.0	-29.2	N/A
5093.80	47.6 Pk	7.4 / 35.3 / 41.3	49.0	V / 1.5 / 31.0	-33.4	N/A
Channel 991						
1648.00	58.9 Pk	3.9 / 27.6 / 40.7	49.7	V / 1.0 / 163.0	-32.7	N/A
4120.20	49.7 Pk	7.2 / 34.3 / 41.6	49.6	V / 1.5 / 154.0	-32.8	N/A
4944.20	48.8 Pk	7.4 / 34.9 / 41.7	49.4	V / 1.5 / 30.0	-33.0	N/A
1648.00	49.0 Pk	3.9 / 27.6 / 40.7	39.8	H / 1.3 / 301.0	-42.6	N/A
3296.10	44.7 Pk	6.3 / 32.1 / 40.3	42.7	H / 1.3 / 212.0	-39.7	N/A
4120.20	50.2 Pk	7.2 / 34.3 / 41.6	50.1	H / 1.5 / 161.0	-32.3	N/A
4944.20	47.8 Pk	7.4 / 34.9 / 41.7	48.4	H / 1.6 / 184.0	-34.0	N/A

Tested by: J Owen (Printed)  (Signature)

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

TÜV PRODUCT SERVICE

Radiated Electromagnetic Emissions

TÜV PRODUCT SERVICE

Test Report #:	S0326 Run 1	Test Area:	Site 3 Roof	Temperature:	23 °C
Test Method:	Spurious Emissions	Test Date:	07-Aug-2000	Relative Humidity:	45 %
EUT Model #:	QCP 3035	EUT Power:	Internal Battery	Air Pressure:	100.1 kPa
EUT Serial #:	P4A #1			Page:	1 of 3
Manufacturer:	Kyocera Wireless Corp				
EUT Description:	PCS Mode				

Notes: Channel 25 - 1851.25 MHz
Channel 600 - 1880.00 MHz
Channel 1175 - 1908.75 MHz

Level Key	
Pk – Peak	Nb – Narrow Band
Qp – QuasiPeak	Bb – Broad Band
Av - Average	

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV/m)	(m) (DEG)	FCC Part 24.238(a)	N/A
Antenna: Horn PN:251 3 meters						
Antenna Retracted						
Channel 600						
1880.00	87.7 Pk	4.2 / 28.5 / 0.0	120.3	V / 2.0 / 88.0	N/A	N/A
PreAmp: 38 dB Preamp						
3760.00	59.0 Pk	6.9 / 33.6 / 41.0	58.5	V / 1.5 / 177.0	-23.9	N/A
3760.00	52.8 Av	6.9 / 33.6 / 41.0	52.3	V / 1.5 / 177.0	-30.1	N/A
5640.00	49.1 Pk	7.5 / 36.3 / 39.2	53.8	V / 1.3 / 160.0	-28.6	N/A
7520.00	45.6 Pk	8.7 / 38.0 / 38.1	54.2	V / 1.8 / 92.0	-28.2	N/A
3760.00	66.9 Pk	6.9 / 33.6 / 41.0	66.4	H / 2.0 / 222.0	-16.0	N/A
3760.00	61.8 Av	6.9 / 33.6 / 41.0	61.3	H / 2.0 / 222.0	-21.1	N/A
5640.00	50.6 Pk	7.5 / 36.3 / 39.2	55.3	H / 1.5 / 321.0	-27.1	N/A
7520.00	52.9 Pk	8.7 / 38.0 / 38.1	61.5	H / 1.5 / 218.0	-20.9	N/A
9400.00	47.5 Pk	10.3 / 39.4 / 39.1	58.1	H / 1.3 / 236.0	-24.3	N/A
11280.0	46.1 Pk	5.8 / 40.1 / 38.2	53.8	H / 1.3 / 218.0	-28.6	N/A
PreAmp: None						
Channel 25						
1851.25	87.6 Pk	4.1 / 28.4 / 0.0	120.1	H / 2.0 / 0.0	N/A	N/A
PreAmp: 38 dB Preamp						
3702.50	59.1 Pk	6.8 / 33.4 / 40.8	58.5	H / 1.5 / 237.0	-23.9	N/A
5553.75	46.8 Pk	7.5 / 36.2 / 39.3	51.2	H / 1.5 / 310.0	-31.2	N/A
7405.00	46.4 Pk	8.6 / 37.8 / 38.1	54.8	H / 1.5 / 222.0	-27.6	N/A
3702.50	52.4 Pk	6.8 / 33.4 / 40.8	51.8	V / 1.0 / 178.0	-30.6	N/A
5553.75	44.7 Pk	7.5 / 36.2 / 39.3	49.1	V / 1.2 / 201.0	-33.3	N/A

Tested by: J Owen (Printed) _____ (Signature)

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

TÜV PRODUCT SERVICE

Radiated Electromagnetic Emissions

TÜV PRODUCT SERVICE

Test Report #:	S0326 Run 1	Test Area:	Site 3 Roof	Temperature:	23	°C
Test Method:	Spurious Emissions	Test Date:	07-Aug-2000	Relative Humidity:	45	%
EUT Model #:	QCP 3035	EUT Power:	Internal Battery	Air Pressure:	100.1	kPa
EUT Serial #:	P4A #1			Page:	2 of 3	
Manufacturer:	Kyocera Wireless Corp					
EUT Description:	PCS Mode					

Notes: Channel 25 - 1851.25 MHz
Channel 600 - 1880.00 MHz
Channel 1175 - 1908.75 MHz

Level Key	
Pk – Peak	Nb – Narrow Band
Qp – QuasiPeak	Bb – Broad Band
Av - Average	

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV/m)	(m) (DEG)	FCC Part 24.238(a)	N/A
PreAmp: None						
Antenna Retracted						
Channel 1175						
1908.75	87.3 Pk	4.2 / 28.6 / 0.0	120.1	H / 2.0 / 0.0	N/A	N/A
PreAmp: 38 dB Preamp						
3817.50	55.0 Pk	7.0 / 33.8 / 41.1	54.7	V / 1.7 / 203.0	-27.7	N/A
5726.25	43.4 Pk	7.5 / 36.5 / 39.0	48.4	V / 1.5 / 279.0	-34.0	N/A
3817.50	61.8 Pk	7.0 / 33.8 / 41.1	61.5	H / 1.5 / 245.0	-20.9	N/A
5726.25	44.7 Pk	7.5 / 36.5 / 39.0	49.7	H / 1.5 / 244.0	-32.7	N/A
7635.00	46.9 Pk	8.9 / 38.0 / 38.2	55.6	H / 1.5 / 244.0	-26.8	N/A

Tested by: J Owen (Printed) _____ (Signature)

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

Testing Facilities

Certificates of Approval

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

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ISO/IEC GUIDE 25:1990
ISO 9002:1987

Certificate of Accreditation

DEPARTMENT OF COMMERCE ★ UNITED STATES OF AMERICA ★

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
FCC

December 31, 2000
Effective through

David F. Alderman
For the National Institute of Standards and Technology

NVLAP Lab Code: 100268-0

NVLAP-01C (11-95)

TÜV PRODUCT SERVICE

TÜV PRODUCT SERVICE

National Institute of Standards and Technology — NVLAP® — National Voluntary Laboratory Accreditation Program

ISO/IEC GUIDE 25:1990
ISO 9002:1987

Scope of Accreditation

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 100268-0

TUV PRODUCT SERVICE, INC.
10040 Mesa Rim Road
San Diego, CA 92121-1034
Mr. Floyd R. Fleury
Phone: 619-546-3999 Fax: 619-546-0364
E-Mail: cfleury@TUVps.com
URL: http://www.tuvps.com

NVLAP Code	*Designation / Description*
International Special Committee on Radio Interference (CISPR) 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
Federal Communications Commission (FCC) Methods	
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, 2000
Effective through

David F. Alderman
For the National Institute of Standards and Technology

NVLAP-01S (11-95)

National Institute of Standards and Technology NVLAP® National Voluntary Laboratory Accreditation Program

ISO/IEC GUIDE 25:1990
ISO 9002:1987

Scope of Accreditation

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

NVLAP LAB CODE 100268-0

TUV PRODUCT SERVICE, INC.

NVLAP Code	*Designation / Description*
Australian Standards referred to by clauses in ACA Technical Standards	
12/T51	AS/NZS 3548: Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment

December 31, 2000
Effective through

David F. Alderman
For the National Institute of Standards and Technology

NVLAP-01S (11-95)

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

UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899-

November 29, 1999

Mr. Floyd R. Fleury
TUV Product Service, Inc.
10040 Mesa Rim Road
San Diego, CA 92121-1034

NVLAP Lab Code: 100268-0

Dear Mr. Fleury:

I am pleased to inform you that continuing accreditation for specific test methods in Electromagnetic Compatibility & Telecommunications, FCC is granted to your organization under the National Voluntary Laboratory Accreditation Program (NVLAP). This accreditation is effective until December 31, 2000, provided that your organization continues to comply with accreditation requirements contained in the NVLAP Procedures.

Your Certificate of Accreditation is enclosed along with a statement of your Scope of Accreditation. You may reproduce these documents in their entirety and announce your organization's accreditation status using the NVLAP logo in business publications, the trade press, and other business-oriented literature. Accreditation does not relieve your organization from observing and complying with any applicable existing laws and/or regulations.

We are pleased to have you participate in NVLAP and look forward to your continued association with this program. If you have any questions concerning your NVLAP accreditation, please direct them to Jon Crickenberger, Sr. Program Manager, Laboratory Accreditation Program, National Institute of Standards and Technology, 100 Bureau Dr. Stop 2140, Gaithersburg, MD 20899-2140; (301) 975-4016.

Sincerely,

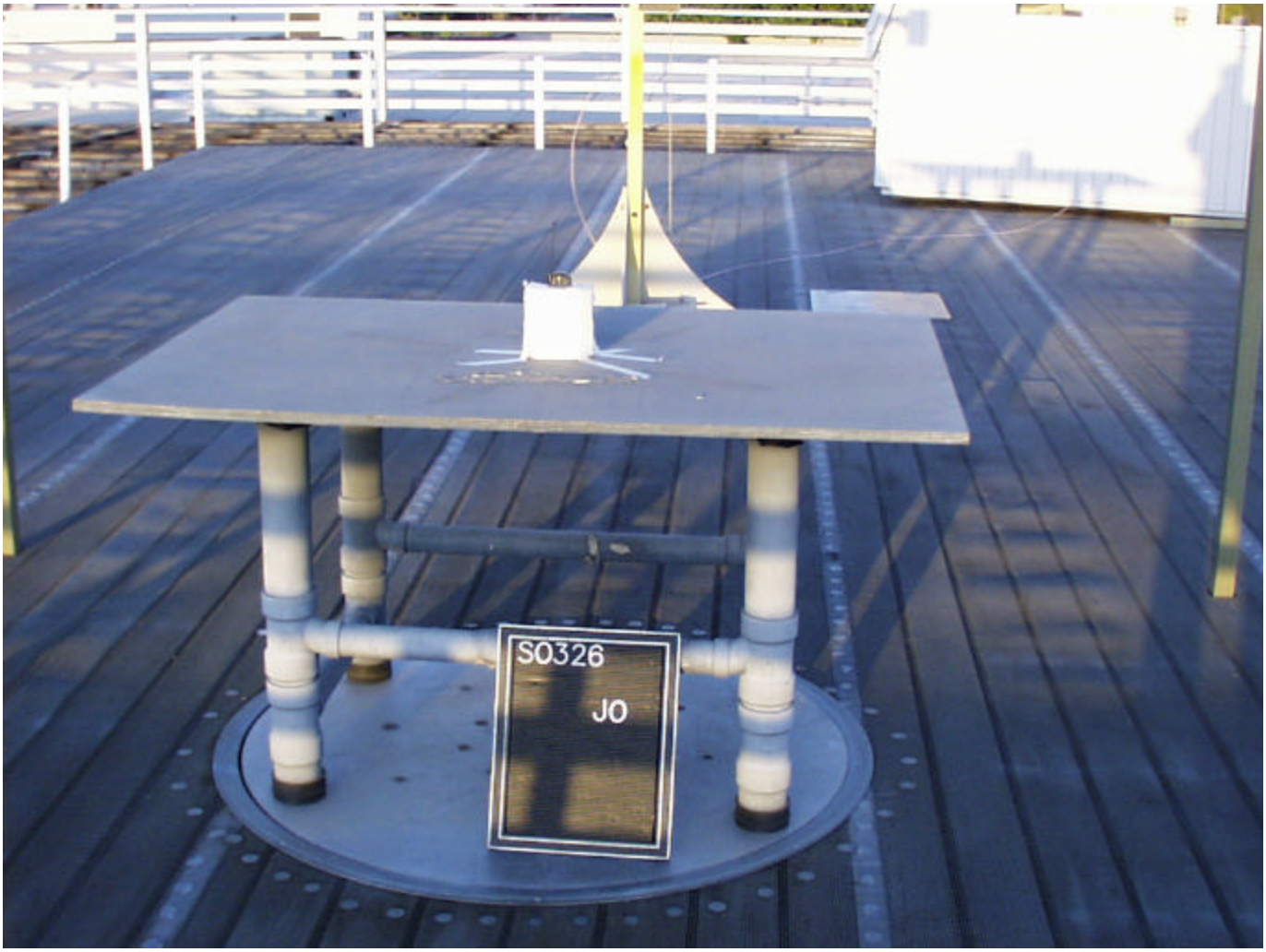
David F. Alderman

David F. Alderman, Acting Chief
Laboratory Accreditation Program

Enclosure(s)

NIST

Photograph of Test Setup



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

Photograph of Test Setup

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