



# M. Flom Associates, Inc.

## International Compliance Testing Laboratory

3356 N. San Marcos Place, Suite 107  
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Date of Report: September 29, 2004  
Date of Submission: December 13, 2004

Applicant: Westel Wireless Systems Pty Ltd  
Level 13, 15 Blue Street  
North Sydney, Australia NSW 2060

Attention of: Steve Tucker, CTO  
email: [stucker@westel.com.au](mailto:stucker@westel.com.au)  
+61 2 9492 6161; FAX: -6162

Mailing: Comserv, Inc.  
895 N. White Station Road  
Memphis, TN 38122-3021  
(901) 767-6800; FAX: -4555

Attention of: Ken Hunt, Director, Technical Services  
(901) 681-1716 (direct); (901) 226-7211 (pager)  
E-mail: [kenhunt@comservinc.com](mailto:kenhunt@comservinc.com)

Equipment: DRB-25  
FCC ID: P6ZCI00066  
P.O. Number: WWS DMR PO 4026  
FCC Rules: Radiofrequency Radiation Exposure Limits  
47 CFR 1.1310  
MPE - Mobiles \_\_\_\_\_ Fixed Based Station  X

Gentlemen:

Enclosed please find your copy of the Supplemental Test Data Report, the whole for Environmental Assessment (MPE) of the referenced equipment as shown.

Should you need any clarification, just fax or phone. Thank you again for this order - it has been a pleasure to be of service.

Sincerely yours,

David E. Lee,  
Compliance Test Manager

enclosure(s)  
DEL/del



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Date of Report: September 29, 2004

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Federal Communications Commission

Via: Electronic Filing

Attention: Authorization & Evaluation Division

Applicant: Westel Wireless Systems Pty Ltd  
Equipment: DRB-25  
FCC ID: P6ZC100066  
FCC Rules: Radiofrequency Radiation Exposure Limits  
47 CFR 1.1310  
MPE - Mobiles \_\_\_\_\_

Fixed Based Station  X

Gentlemen:

On behalf of the Applicant, enclosed please find the Supplemental Test Data Report, the whole for Environmental Assessment (MPE) of the referenced equipment as shown.

We trust the same is in order. Should you need any further information, kindly contact the writer who is authorized to act as agent.

Sincerely yours,

David E. Lee,  
Compliance Test Manager

enclosure(s)  
cc: Applicant  
DEL/del



## Environmental Assessment

for

### Fixed Base Station

for

**FCC ID:** FCC ID: P6ZCI00066  
**Model:** DRB-25

to

### Federal Communications Commission

#### 47 CFR 1.1310 (MPE)

Radiofrequency Radiation Exposure Limits

**Date Of Report:** September 29, 2004

#### On the Behalf of the Applicant:

Westel Wireless Systems Pty Ltd

#### At the Request of:


P.O. WWS DMR PO 4026

Comserv, Inc.  
895 N. White Station Road  
Memphis, TN 38122-3021  
(901) 767-6800; FAX: -4555

#### Attention of:

Ken Hunt, Director, Technical Services  
(901) 681-1716 (direct); (901) 226-7211 (pager)  
E-mail: [kenhunt@comservinc.com](mailto:kenhunt@comservinc.com)

#### Supervised By:

  
David E. Lee,  
Compliance Test Manager

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Required information per ISO/IEC Guide 25-1990, paragraph 13.2:

a) **Test Report (Supplemental)**

b) Laboratory: M. Flom Associates, Inc.  
(FCC: 31040/SIT) 3356 N. San Marcos Place, Suite 107  
(Canada: IC 2044) Chandler, AZ 85225

c) Report Number: d0490063

d) Client: Comserv, Inc.  
895 N. White Station Road  
Memphis, TN 38122-3021  
(901) 767-6800; FAX: -4555

e) Identification: DRB-25  
FCC ID: P6ZC100066  
Description: Base Station (100W VHF)

f) EUT Condition: Not required unless specified in individual tests.

g) Report Date: September 29, 2004  
EUT Received: July 30, 2004

h, j, k): As indicated in individual tests.

i) Sampling method: No sampling procedure used.

l) Uncertainty: In accordance with MFA internal quality manual.

m) Supervised by:



David E. Lee,  
Compliance Test Manager

n) Results: The results presented in this report relate only to the item tested.

o) Reproduction: This report must not be reproduced, except in full, without written permission from this laboratory.

### Identification of the Equipment Under Test (EUT)

**Name and Address of Applicant:**

Westel Wireless Systems Pty Ltd  
Level 13, 15 Blue Street  
North Sydney, Australia NSW 2060

**Manufacturer:**

Westel Wireless Systems Pty Ltd  
Level 13, 15 Blue Street  
North Sydney, Australia NSW 2060

**FCC ID:** P6ZC100066

**Model Number:** DRB-25

**Description:** Base Station (100W VHF)

**Type of Emission:** 16K0F3E, 11K0F3E, 8K10F1E, 8K10F1D

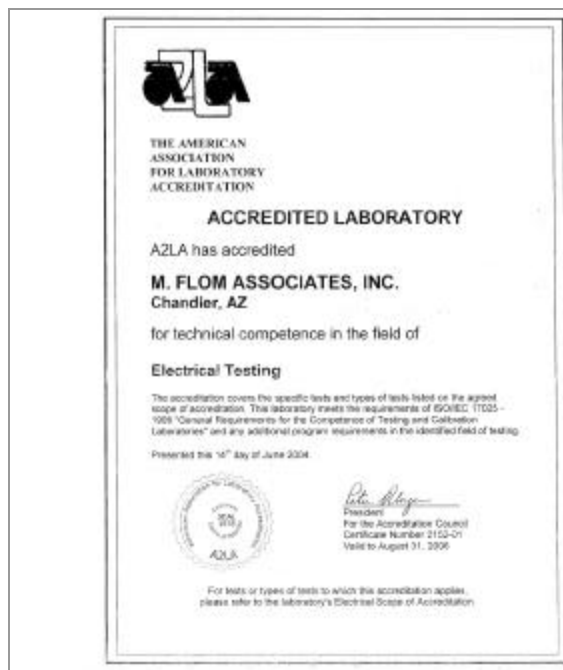
**Frequency Range, MHz:** 136 to 174

**Power Rating, Watts:**  
 Switchable       Variable      100       N/A

**Modulation:**  
 AMPS  
 TDMA  
 CDMA  
 OTHER

**Antenna:**  
 Helical  
 Monopole  
 Whip  
 Other

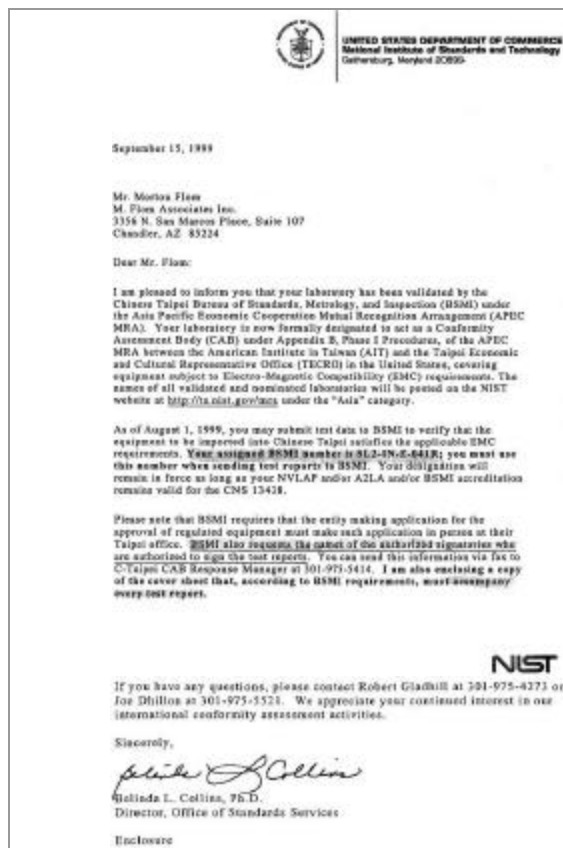
**Note:** For RF Safety test antenna gain taken at the upper range of expected gain (i.e. 0 dBd) and RF Power set to highest nominal power across all channels.



## A2LA

"A2LA has accredited M. Flom Associates, Inc. Chandler, AZ for technical competence in the field of Electrical Testing. The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO/IEC 17025 - 1999 'General Requirements for the Competence of Testing and Calibration Laboratories' and any additional program requirements in the identified field of testing."

Certificate Number: **2152-01**



## NIST

I am pleased to inform you that your laboratory has been validated by the Chinese Taipei Bureau of Standards, Metrology and Inspection (BSMI) under the Asia Pacific Economic Cooperation Mutual Recognition Agreement (APEC MRA). Your laboratory is now formally designated to act as a Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the APEC MRA between the American Institute in Taiwan (AIT) and the Taipei Economic and Cultural Representative Office (TECRO) in the United States, covering equipment subject to Electro-Magnetic Compatibility (EMC) requirements. The names of all validated and nominated laboratories will be posted on the NIST website at <http://ts.nist.gov/mra> under the 'Asia' category."

## Standard Test Conditions and Engineering Practices

Except as noted herein, the following conditions and procedures were observed during the testing:

In accordance with ANSI C63.4-1992/2001, section 6.1.9, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT was maintained within the range of 10° to 40°C (50° to 104 °F) unless the particular equipment requirements specify testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst-case measurements.



**Name of Test:** Environmental Assessment

**Specification:** FCC: 47 CFR 1.1310

**Measurement Guide:** ANSI/IEEE C95.1 1992

**Test Equipment:** Maximum Permissible Exposure (MPE) measurement system, consisting of:  
Amplifier Research Field probe Kit FP60001 (Cal Jun-04)

**Measurement Procedure:**

1. The following measurements were performed with a field probe using ANSI/IEEE C95.1 as a guide.
2. Prior to making any measurements, the measurements system was calibrated in accordance with the manufacturer's procedures.
3. The EUT's radiating element (antenna) was placed on a 1 m tall table for ease of testing. For equipment normally operated on a metal surface, a ground plane was used.
4. The remaining equipment necessary to operate the EUT was maintained at a distance from the measurement arrangement suitable to minimize interference with the measurements.
5. The minimum safe distance was calculated from the formula Power Density =  $EIRP / 4\pi R^2$  (Peak Watts/m<sup>2</sup>). The calculation is shown with the measurement data.
6. With the EUT operating at maximum power, a search was initiated for worst-case emissions with the probe raised and lowered over a range of 0.2 to 2 meters in height and over a horizontal plane of 0° to 360°.
7. Average values were calculated for the whole body (0.2-2.0m), lower body (0.2-0.8m) and upper body (1.0-2.0m).

**Results:** Attached.

**Test Setup:** Maximum Permissible Exposure (MPE)



**Name of Test:** R.F. Radiation Exposure

FCC Rules: 1.1307, 1.1310, 1.1311, 2.1091

Description, EUT: See page 2 of Test Report

Limits: Controlled Exposure 47 CFR 1.1310 Table 1, (A)	0.3-3.0 MHz:	Limit [mW/cm <sup>2</sup> ] = 100
	3.0-30 MHz:	Limit [mW/cm <sup>2</sup> ] = (900/f <sup>2</sup> )
	30-300 MHz:	Limit [mW/cm <sup>2</sup> ] = 1.0
	300-1500 MHz:	Limit [mW/cm <sup>2</sup> ] = f/300
	1500-100,000 MHz:	Limit [mW/cm <sup>2</sup> ] = 5.0

Test Frequencies, MHz	136.000	155.000	174.000
Power, Conducted, W	= 100		
Test Antenna Gain	0dBd = 2.15dbi = Numeric Gain of 1.64		
Test Antenna Model	¼ wave monopole over ground plane		
PTT Factor	50% = 0.5		
Total Adjustment Factor	X 0.82		

Pre-test Calculations	Power <sub>[W EIRP]</sub> = P <sub>[conducted]</sub> x G <sub>[antenna]</sub>	=	100 X 0.82 = 82.03
	Limit <sub>[mW/cm<sup>2</sup>]</sub>	=	1.0
	Limit <sub>[W/m<sup>2</sup>]</sub> = 10 x Limit <sub>[mW/cm<sup>2</sup>]</sub>	=	10.0
	R <sub>[m]</sub> = [P <sub>[W EIRP]</sub> / (4π x Limit <sub>[W/m<sup>2</sup>]</sub> )] <sup>1/2</sup>	=	0.807

Results at tested distances	Probe Height, m	Power Density, mW/cm <sup>2</sup>		
		Freq. 136.000 MHz Distance 70 cm	Freq. 155.000MHz Distance 70 cm	Freq. 174.000MHz Distance 70 cm
	2.0	0.710	0.650	0.625
	1.8	0.799	0.735	0.730
	1.6	0.866	0.835	0.810
	1.4	0.910	0.890	0.870
	1.2	0.975	0.925	0.910
	1.0	0.980	0.975	0.950
	0.8	0.918	0.920	0.915
	0.6	0.870	0.888	0.853
	0.4	0.835	0.824	0.810
	0.2	0.800	0.795	0.775

Power Density Calculations: The measured power density readings were summed and the results divided by the number of readings to calculate the average.

	136 MHz	155 MHz	174 MHz
Whole body average (0.2 - 0.8 m, mW/cm <sup>2</sup> ) =	0.866	0.844	0.825
Lower body average (0.2 - 0.8 m, mW/cm <sup>2</sup> ) =	0.856	0.857	0.838
Upper body average (1.0 - 2.0 m, mW/cm <sup>2</sup> ) =	0.873	0.835	0.816

END OF TEST REPORT

(The following will be placed in the Instruction Manual)

### Mandatory Safety Instructions to Installers & Users

Use only manufacturer or dealer supplied antenna.

**Antenna Minimum Safe Distance:** 70cm.

Antenna Gain: 0dB referenced to a dipole (0dBd), 2.15dB referenced to isotropic (2.15dBi)

The Federal Communications Commission has adopted a safety standard for human exposure to RF (Radio Frequency) energy, which is below the OSHA (Occupational Safety and Health Act) limits.

**Antenna Mounting:** The antenna supplied by the manufacturer or radio dealer must not be mounted at a location such that during radio transmission, any person or persons can come closer than the above indicated minimum safe distance to the antenna i.e. **70cm**.

To comply with current FCC RF Exposure limits, the antenna must be installed at or exceeding the minimum safe distance shown above, and in accordance with the requirements of the antenna manufacturer or supplier.

**Base Station Installation:** The antenna should be fixed-mounted on an outdoor permanent structure. RF Exposure compliance must be addressed at the time of installation.

**Antenna Substitution:** Do not substitute any antenna for the one supplied or recommended by the manufacturer or radio dealer. You may be exposing person or persons to excess radio frequency radiation. You may contact your radio dealer or the manufacturer for further instructions.

**Warning:** Maintain a separation distance from the antenna to a person(s) of at least **70cm**.

You, as the qualified end-user of this radio device must control the exposure conditions of bystanders to ensure the minimum separation distance (above) is maintained between the antenna and nearby persons for satisfying RF Exposure compliance. The operation of this transmitter must satisfy the requirements of Occupational/Controlled Exposure Environment, for work-related use. Transmit only when person(s) are at least the minimum distance from the properly installed, externally mounted antenna.

**Testimonial  
and  
Statement of Certification**

**This is to certify that:**

1. **That** the application was prepared either by, or under the direct supervision of, the undersigned.
2. **That** the technical data supplied with the application was taken under my direction and supervision.
3. **That** the data was obtained on representative units, randomly selected.
4. **That**, to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct.

Certifying Engineer:



David E. Lee,  
Compliance Test Manager