



# M. Flom Associates, Inc.

## International Compliance Testing Laboratory

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Date of Report: February 9, 2006  
Date of Submission: February 16, 2006

Federal Communications Commission  
Via: Electronic Filing

Attention: Authorization & Evaluation Division

Applicant: Gigawave US  
Equipment: Rack Mount TX  
FCC ID: T04-RMTX-2025  
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, FCC Compliance Manager

enclosure(s)  
cc: Applicant  
DEL/del



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## **Environmental Assessment**

for

**Mobiles/Fixed Base Station**

for

**FCC ID: T04-RMTX-2025**

Model: Rack Mount TX

to

**Federal Communications Commission**

**47 CFR 1.1310 (MPE)**

Radiofrequency Radiation Exposure Limits

**Date Of Report:** February 9, 2006

### **On the Behalf of the Applicant:**

Gigawave US

### **At the Request of:**

Total RF  
777 American Drive  
Bensalem, PA 19020

Attention of:

Tom Sharkoski  
215-633-1000; fax: 215-633-1085  
Email: [tsharkoski@totalrf.com](mailto:tsharkoski@totalrf.com)

Supervised By:

David E. Lee, FCC Compliance 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: d0620016

d) Client: Gigawave US  
777 American Drive  
Bensalem, PA 19020

e) Identification: FCC ID: T04-RMTX-2025  
Description: Part 74 Rack Mount TX

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

g) Report Date: February 9, 2006  
EUT Received: December 22, 2005

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:**

Gigawave US  
777 American Drive  
Bensalem, PA 19020

**Manufacturer:**

Applicant

**FCC ID:**

T04-RMTX-2025

**Model Number:**

RMT-2025

**Description:**

Part 74 Rack Mount TX

**Type of Emission:**

12M0W7D, 12M0F8W, 7M75F3W

**Frequency Range, MHz:**

1999 to 2492

**Power Rating, Watts:**

\_\_\_\_ Switchable

\_\_\_\_ Variable

0.500

\_\_\_\_ N/A

**Modulation:**

\_\_\_\_ AMPS

\_\_\_\_ TDMA

\_\_\_\_ CDMA

  X   OTHER

**Antenna:**

\_\_\_\_ Helical

\_\_\_\_ Monopole

\_\_\_\_ Whip

  X   Other

**Note:** For RF Safety test antenna gain taken at the upper range of expected gain (i.e. 7.8dBd) and RF Power set to highest nominal power across all channels.

## Standard Test Conditions and Engineering Practices

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

In accordance with ANSI C63.4-1992/2003, 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.



## 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**

**Name of test:** Environmental Assessment

**Specification:** FCC: 47 CFR 1.1310

**Guide:** IEEE C95.1-1991  
 IEEE Standard for Safety Levels with respect to Human Exposure to Radio Frequency Electromagnetic Field, 3 kHz to 300 GHz.

The following examples are given of radiation intensities at 200cm

Ref: Reference Data for Radio Engineers, Fifth Ed., p. 25-7  
 OET 65-C

$$= P_t / 4\pi R^2$$

Where P = Power Density (in W/m<sup>2</sup>) at a distance R  
 P<sub>t</sub> = Power radiated by an isotropic radiator (Watts)  
 = (Transmitter Power)%(Duty Cycle)%(Antenna Gain)  
 R = Distance of measurement from source (meters)

Arrangement	Power Watts	Duty Cycle (Factor)	Antenna Gain (Factor)	P <sub>t</sub> W	P mW/cm <sup>2</sup>	Safety Distance (m)
Monopole	0.500	100% (1)	4.0dBi (2.5)	1.25	0.25	0.20
Hi-Gain Monopole	0.500	100% (1)	10.0dBi (10)	5.00	0.99	0.20
Helix	0.500	100% (1)	25.0dBi (100)	50.00	9.52	2.00
Dish	0.500	100% (1)	30.0dBi (1,000)	500.00	99.53	20.00

From the above calculation it can be seen that an antenna up to 10dBi may be used while maintaining the 20cm safety distance. Above 10dBi the RF exposure distance must be re-evaluated.



Calculated By:

David E. Lee, FCC Compliance Manager

**(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:** 20cm.

Antenna Gain: up to 7.8 dBd referenced to a dipole. (10dBi)

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 Base Station Installation:** To comply with current FCC RF Exposure limits, the chosen antenna should be fixed-mounted on an outdoor permanent structure at or exceeding the minimum safe distance shown above. RF Exposure compliance must be addressed at the time of installation.

**Antenna Substitution:** Use an antenna 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 **20cm**.

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