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## **Introduction**

On February 20, 2008, Juan G Padín, P.E., Wireless Consulting Engineer conducted a site survey of a satellite earth station located in Road #3, km 76.6, Humacao, Puerto Rico. Coordinates (NAD83) 18°-09'-05.0"N, 065°-47'-19.0"W. Site elevation 1.2m. Transmitter frequency 5925.000-6425.000 mhz.

Different areas were observed according to FCC Bulletin OET 65 "Evaluating Compliance with Federal Communications Commission Guidelines for Human Exposure to Radiofrequency Electromagnetic Field".

The site survey recorded the Non- Ionizing Electromagnetic Radiation levels surrounding the antenna and transmitter location.

## **Procedure**

The measurements were taken in the antenna structure location area. Three different measurements intervals were recorded, inside the concrete pad, 3.04 (10 ft) and 9.14 meters (30 ft) from the center of the concrete pad. See figure 1 for details of the measured points.

The power levels recorded were taken with Narda Model 8718 Electromagnetic Survey Meter, SN 04064, Calibration expiration date: October 11, 2008. Isotropic Electric Field Probe Model 8721D SN 02027. Calibration expiration date August, 2008.

For this analysis the Maximum Permissible Exposure (MPE) for Controlled and Uncontrolled Environments parameters were used as the base for comparative analysis according to ANSI/IEEE standards. As defined on the FCC Report and Order 96-326 released on August 1, 1996. The limits for maximum permissible exposure (MPE) for general population / uncontrolled exposure are defined in the following tables:



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Table 1 – General Population / Uncontrolled Exposure

Frequency Range (Mhz)	Power Density (S) (mW/cm <sup>2</sup> )
0.3 – 1.342	100
1.342 - 30	180/f <sup>2</sup>
30 – 300	0.2
300 – 1500	F(mhz)/1500
1500 – 100,000	1.0

Table 2 – Occupational / Controlled Exposure

Frequency Range (Mhz)	Power Density (S) (mW/cm <sup>2</sup> )
0.3 – 1.342	100
1.342 - 30	900/f <sup>2</sup>
30 – 300	1.0
300 – 1500	F(mhz)/300
1500 – 100,000	5.0

The transmission frequency from the facilities evaluated (5925.000-6425.000 mhz) fall into the 1,500 to 100,000 mhz band. The maximum Non Ionizing Electromagnetic Radiation limit for General Population / Uncontrolled Exposure is 1.0 mW/cm<sup>2</sup>, and for Occupational / Controlled Exposure is 5.0 mW/cm<sup>2</sup>. The transmission facilities are in an Occupational Controlled Area.

Figure 1 shows a site plan of the antenna structure location and the different points of measurements. The legend shows the different readings recorded at the site. The maximum level recorded (see figure 1, point 8) was 0.0912 mW/cm<sup>2</sup>.



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## Conclusions

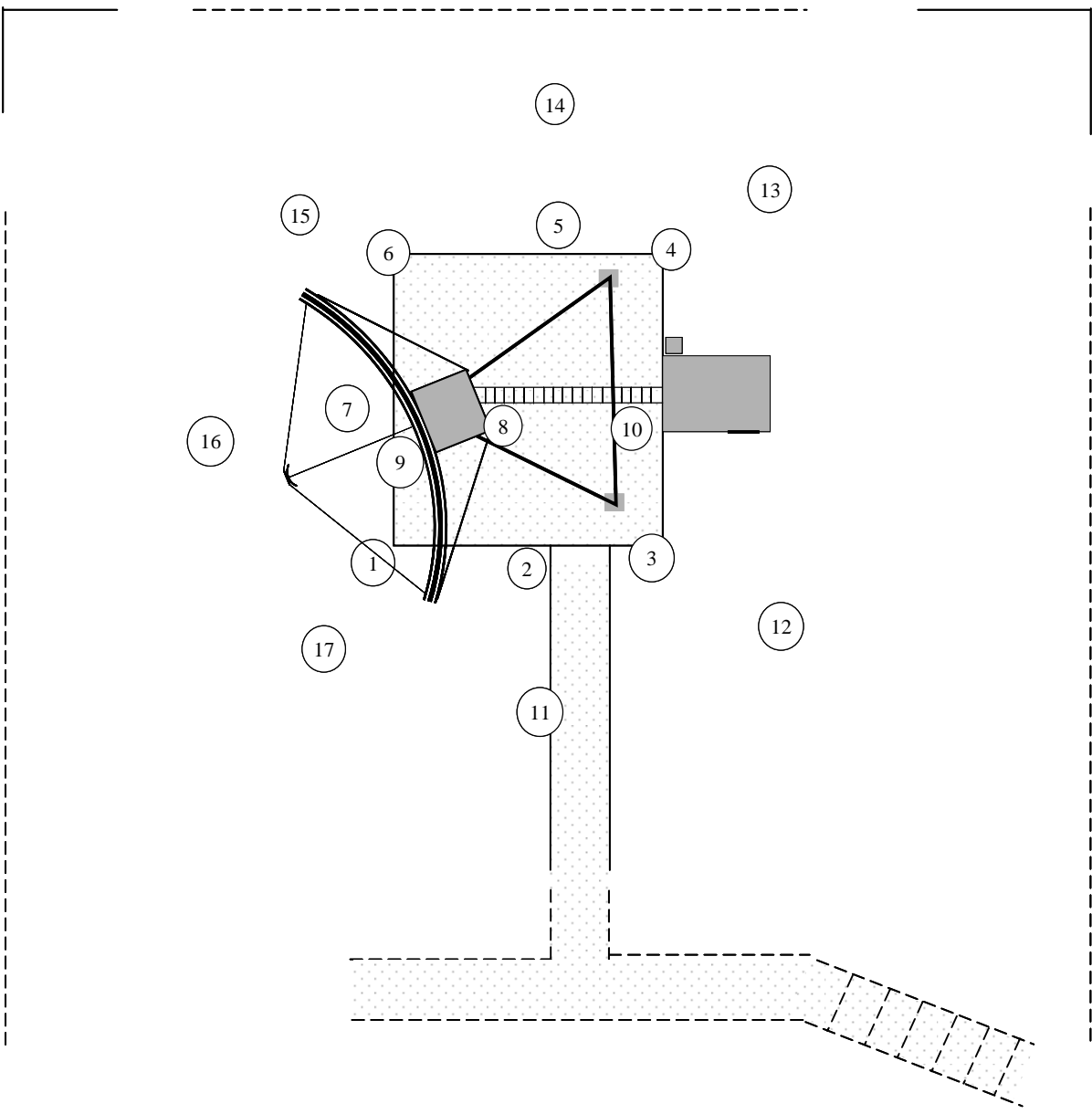
The electromagnetic radiation measurements performed at Ultracom Station in Humacao, PR do not exceed the maximum permissible exposure levels for a controlled and uncontrolled environment. The Ultracom facilities are not considered an uncontrolled environment since access to the premises is limited to authorized personnel with knowledge that radio frequency radiation is present.

It can be concluded that no radiation hazard exists on the Ultracom, Humacao, PR facilities.

Study performed by:

A handwritten signature in blue ink, appearing to read "Juan G Padin", is written over a light blue horizontal line.

Juan G Padin, P.E.



NOT DRAWN TO SCALE

Survey Measurements

1- 0.0091 mW/cm <sup>2</sup>	09- 0.0714 mW/cm <sup>2</sup>	17- 0.0009 mW/cm <sup>2</sup>
2- 0.0031 mW/cm <sup>2</sup>	10- 0.0211 mW/cm <sup>2</sup>	
3- 0.0085 mW/cm <sup>2</sup>	11- 0.0000 mW/cm <sup>2</sup>	
4- 0.0016 mW/cm <sup>2</sup>	12- 0.0000 mW/cm <sup>2</sup>	
5- 0.0078 mW/cm <sup>2</sup>	13- 0.0001 mW/cm <sup>2</sup>	
6- 0.0837 mW/cm <sup>2</sup>	14- 0.0002 mW/cm <sup>2</sup>	
7- 0.0806 mW/cm <sup>2</sup>	15- 0.0006 mW/cm <sup>2</sup>	
8- 0.0912 mW/cm <sup>2</sup>	16- 0.0009 mW/cm <sup>2</sup>	



Ultracom Site Survey

Figure 1



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### Engineering Certification

I, Juan G Padin, P.E., and Professional Engineer licensed in the Commonwealth of Puerto Rico and my credentials are a matter of record with the Federal Communications Commission. The Ultracom site survey analysis was prepared by me. The information contained herein is true and correct to the best of my knowledge.

Signature

February 21, 2008  
Date

Engineer's Seal

