# I. 2.4M Prodelin Coordination Report

**Micronet Communications, Inc.**
812 Lexington Dr
Plano, Texas 75075
972-422-7200

SUPPLEMENTAL SHOWING PART 101.103(D)

File Number: M2002308 5.93 GHz
Licensee: Speedcast Communications, Inc. Page 1

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Pursuant to Parts 25.203 and 101.103(d) of the FCC Rules and Regulations, a frequency coordination study was conducted by Micronet Communications, Inc. for the following proposed earth station:

Miami Teleport, FL

The results of the study indicate that no unacceptable interference will result with existing, proposed or prior coordinated radio facilities.

Coordination was performed with existing, proposed and prior coordinated carriers within coordination range on the following dates:

01/31/2020 Original PCN (Expedited response requested by 02/14/2020)
There were no unresolved interference objections.

The attached coordination data was forwarded on the latest date to the following parties within coordination range or their authorized coordination agents:

BROWARD COUNTY BOARD OF COUNTY COMMISSIONERS
CELLCO PARTNERSHIP
COLLIER, COUNTY OF
COMPUTER OFFICE SOLUTIONS, INC.
COMSEARCH INC
COUNTY OF MARTIN, FL
EMBARQ FLORIDA, INC.
ENTERCOM LICENSE, LLC
FLORIDA HIGH SPEED INTERNET
FLORIDA POWER & LIGHT COMPANY
FLORIDA RSA NO. 2B (INDIAN RIVER) LIMITED PARTNERSHIP
FLORIDA RURAL BROADBAND ALLIANCE, LLC
FLORIDA, STATE OF
HIQ DATA CORP
MIAMI-DADE COUNTY
MICRONET COMMUNICATIONS INC
NEW CINGULAR WIRELESS PCS, LLC
OLYMPIC WIRELESS
PALM BEACH COUNTY OF
PALM BEACH, COUNTY OF
RADIO DYNAMICS
SCHOOL DISTRICT OF PALM BEACH COUNTY
SOUTH FLORIDA WATER MANAGEMENT DISTRICT
SPRINT SPECTRUM L.P.
ST. LUCIE COUNTY PUBLIC SAFETY
T-MOBILE LICENSE LLC
WIRELESS APPLICATIONS CORP

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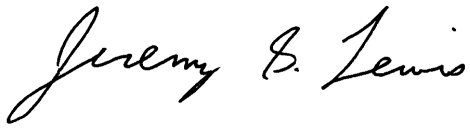
Respectfully Submitted,



Jeremy Lewis
Systems Engineer

Attached: 1 data sheet

Micronet Communications, Inc.
812 Lexington Dr
Plano, Texas 75075
972-422-7200

File: M2002308

## TECHNICAL CHARACTERISTICS OF TRANSMIT ONLY EARTH STATION

| | | | |
|---|---|---|---|
| Company: | | Speedcast Communications, Inc. | |
| Site Name, State: | | Miami Teleport, FL | |
| Call Sign: | | | |
| Latitude | (NAD83) | 25 54 59.3 N | |
| Longitude | (NAD83) | 80 13 29.2 W | |
| Elevation AMSL | (ft/m) | 1.00 | 0.30 |
| Receive Frequency Range | (MHz) | | |
| Transmit Frequency Range | (MHz) | 5925-5930.2/6167.925-6182.065/6419.965-6425 | |
| Range of Satellite Orbital Long. | (deg W) | 114.00 | 115.00 |
| Range of Azimuths from North | (deg) | 236.84 | 237.81 |
| Antenna Centerline | (ft/m) | 52.49 | 16.00 |
| Antenna Elevation Angles | (deg) | 41.94 | 41.10 |

| Equipment Parameters | | Transmit | |
|---|---|---|---|
| Antenna Gain, Main Beam | (dbI) | 42.00 | |
| 15 DB Half Beamwidth | (deg) | 3.20 | |
| Antennas | Transmit: PRODELIN 1251 | | |
| Max Transmitter Power | (dbW/4KHz) | | -3.96 |
| Max EIRP Main Beam | (dbW/4KHz) | | 38.04 |
| Modulation / Emission Designator | ANALOG | 299KG7W | |

| Coordination Parameters | | Transmit | |
|---|---|---|---|
| Max Greater Circle Distances | (km) | 162.01 | |
| Max Rain Scatter Distances | (km) | 100.00 | |
| Max Interference Power Long Term | (dbW) | -154.80 | |
| Max Interference Power Short Term | (dbW) | -126.80 | |
| Rain Zone / Radio Zone | | 1 | A |

## II. 2.4M Prodelin Radiation Hazard Analysis

ANALYSIS OF NON-IONIZING RADIATION
for Speedcast Communications Inc.
Site: Miami Teleport State: FL
Latitude: 25 54 59.3 Longitude: 80 13 29.2 (NAD83)
02-17-2020

The Office of Science and Technology Bulletin, No. 65, October 1985 and revised August 1997, specifies that the maximum level of non-ionizing radiation that a person may be exposed to over a six minute period is an average power density equal to 5 mW/cm**2 (five milliwatts per centimeter squared) for a controlled environment. For an uncontrolled environment, the maximum level of non-ionizing radiation that a person may be exposed to over a thirty minute period is an average power density equal to 1 mW/cm**2 (one milliwatt per centimeter squared). It is the purpose of this report to determine the maximum power flux densities of the earth station in the far zone, near zone, transition zone, at the main reflector surface, and between the antenna edge and the ground.

Parameters which were used in the calculations:
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Antenna Diameter, (D) = 2.4000 m

Antenna Surface Area (Sa) = pi(D**2)/4 = 2.5447 m**2

Wavelength at 6.1750 GHz (lambda) = 0.0485 m

Transmit Power at Flange (P) = 30.0000 Watts

Antenna Gain at Earth Site (GES) = 42.0000 dBi = 15848.9319
Power Ratio:
AntiLog(GES/10)

pi = 3.1415927

Antenna Aperture Efficiency (n) = 0.6000

## 1. FAR ZONE CALCULATIONS

Distance to the Far Zone (Df) = $\frac{(n)(D^{**}2)}{\text{lambda}}$ = 40.0825 m

Far Zone Power Density (Rf) = $\frac{(GES)(P)}{4*pi*(Df^{**}2)}$ = 23.5506 W/m**2

= 2.3551 mW/cm**2

## 2. NEAR ZONE CALCULATIONS

Power Flux Density is considered to be at a maximum value throughout the entire length of this Zone. The Zone is contained within a cylindrical volume which has the same diameter as the antenna. Beyond the Near Zone, the Power Flux Density will decrease with distance from the Antenna.

Distance to the Near Zone (Dn) = $\frac{D^{**}2}{4*\text{lambda}}$ = 16.7010 m

Near Zone Power Density (Rn) = $\frac{16.0(n)P}{pi(D^{**}2)}$ = 28.2942 W/m**2

= 2.8294 mW/cm**2

## 3. TRANSITION ZONE CALCULATIONS

The Power Density begins to decrease with distance in the Transition Zone. While the Power Density decreases inversely with distance in the Transition Zone, the Power Density decreases inversely with the square of the distance in the Far Zone. Since the maximum Power Density in the Transition Zone will not exceed the Near Zone values, it is not calculated.

## 4. MAIN REFLECTOR ZONE

Main Reflector Power Density = $\frac{2(P)}{Sa}$ = 23.5785 W/m**2

= 2.3579 mW/cm**2

## 5. ZONE BETWEEN THE MAIN REFLECTOR AND THE GROUND

Applying uniform illumination of the Main Reflector Surface:

Main to Ground Power Density = $\frac{P}{Sa}$ = 11.7893 W/m**2

= 1.1789 mW/cm**2

CALCULATED SAFETY MARGINS SUMMARY
AND EVALUATION

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Controlled Safety Margin = 5.0 - Calculated Zone Value (mW/cm**2)

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| Zones | Safety Margins (mW/cm**2) | Conclusions |
|---|---|---|
| 1. Far Zone | 2.6449 | Complies with ANSI |
| 2. Near Zone | 2.1706 | Complies with ANSI |
| 3. Transition Zone | Rf < Rt < Rn | Complies with ANSI |
| 4. Main Reflector Surface | 2.6421 | Complies with ANSI |
| 5. Main Reflector to Ground | 3.8211 | Complies with ANSI |

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Uncontrolled Safety Margin = 1.0 - Calculated Zone Value (mW/cm**2)

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| Zones | Safety Margins (mW/cm**2) | Conclusions |
|---|---|---|
| 1. Far Zone | -1.3551 | POTENTIALLY HAZARDOUS |
| 2. Near Zone | -1.8294 | POTENTIALLY HAZARDOUS |
| 3. Transition Zone | Rf < Rt < Rn | Complies with ANSI |
| 4. Main Reflector Surface | -1.3579 | POTENTIALLY HAZARDOUS |
| 5. Main Reflector to Ground | -0.1789 | POTENTIALLY HAZARDOUS |

## 6. EVALUATION

A. Controlled Environment
B. Uncontrolled Environment
The FAR ZONE does not comply with the ANSI standards!
The system will be FENCED so that no one can enter the affected Zone while the system is in use. Additionally, the system will be shut down for servicing.

The NEAR ZONE does not comply with the ANSI standards!
The system will be FENCED so that no one can enter the affected Zone while the system is in use. Additionally, the system will be shut down for servicing.

The MAIN Reflector Surface ZONE does not comply with the ANSI standards!
The system will be FENCED so that no one can enter the affected Zone while

the system is in use.  Additionally, the system will be shut down for servicing.

The MAIN Reflector to GROUND ZONE does not comply with the ANSI standards! The system will be FENCED so that no one can enter the affected Zone while the system is in use.  Additionally, the system will be shut down for servicing.

# III. 13M Vertex Radiation Hazard Analysis

ANALYSIS OF NON-IONIZING RADIATION
for Speedcast Communications Inc.
Site: Miami Teleport State: FL
Latitude: 25 54 59.3 Longitude: 80 13 29.2 (NAD83)
02-17-2020

The Office of Science and Technology Bulletin, No. 65, October 1985 and revised August 1997, specifies that the maximum level of non-ionizing radiation that a person may be exposed to over a six minute period is an average power density equal to 5 mW/cm**2 (five milliwatts per centimeter squared) for a controlled environment. For an uncontrolled environment, the maximum level of non-ionizing radiation that a person may be exposed to over a thirty minute period is an average power density equal to 1 mW/cm**2 (one milliwatt per centimeter squared). It is the purpose of this report to determine the maximum power flux densities of the earth station in the far zone, near zone, transition zone, at the main reflector surface, and between the antenna edge and the ground.

Parameters which were used in the calculations:
==========

Antenna Diameter, (D) = 13.0 m

Antenna Surface Area (Sa) = pi(D**2)/4 = 132.732 m**2

Wavelength at 6.1750 GHz (lambda) = 0.021053 m

Transmit Power at Flange (P) = 30.0000 Watts

Antenna Gain at Earth Site (GES) = 63.7 dBi

pi = 3.1415927

Antenna Aperture Efficiency (n) = 0.62

## 1. FAR ZONE CALCULATIONS

Distance to the Far Zone (Df) = $\frac{(n)(D^{**}2)}{lambda}$ = 4816.500 m

Far Zone Power Density (Rf) = $\frac{(GES)(P)}{4*pi*(Df^{**}2)}$ = 0.241 W/m**2

= 0.024 mW/cm**2

## 2. NEAR ZONE CALCULATIONS

Power Flux Density is considered to be at a maximum value throughout the entire length of this Zone. The Zone is contained within a cylindrical volume which has the same diameter as the antenna. Beyond the Near Zone, the Power Flux Density will decrease with distance from the Antenna.

Distance to the Near Zone (Dn) = $\frac{D^{**}2}{4*lambda}$ = 2006.88 m

Near Zone Power Density (Rn) = $\frac{16.0(n)P}{pi(D^{**}2)}$ = 0.563 W/m**2

= 0.056 mW/cm**2

## 3. TRANSITION ZONE CALCULATIONS

The Power Density begins to decrease with distance in the Transition Zone. While the Power Density decreases inversely with distance in the Transition Zone, the Power Density decreases inversely with the square of the distance in the Far Zone. Since the maximum Power Density in the Transition Zone will not exceed the Near Zone values, it is not calculated.

## 4. MAIN REFLECTOR ZONE

Main Reflector Power Density = $\frac{2(P)}{Sa}$ = 0.904 W/m**2

= 0.090 mW/cm**2

## 5. ZONE BETWEEN THE MAIN REFLECTOR AND THE GROUND

Applying uniform illumination of the Main Reflector Surface:

Main to Ground Power Density = $\frac{P}{Sa}$ = 0.226 W/m**2

= 0.023 mW/cm**2

CALCULATED SAFETY MARGINS SUMMARY
AND EVALUATION

Controlled Safety Margin = 5.0 - Calculated Zone Value (mW/cm**2)

| Zones | Safety Margins (mW/cm**2) | Conclusions |
|---|---|---|
| 1. Far Zone | 0.024 | Complies with ANSI |
| 2. Near Zone | 0.056 | Complies with ANSI |
| 3. Transition Zone | Rf < Rt < Rn | Complies with ANSI |
| 4. Main Reflector Surface | 0.090 | Complies with ANSI |
| 5. Main Reflector to Ground | 0.023 | Complies with ANSI |

Uncontrolled Safety Margin = 1.0 - Calculated Zone Value (mW/cm**2)

| Zones | Safety Margins (mW/cm**2) | Conclusions |
|---|---|---|
| 1. Far Zone | 0.024 | Complies with ANSI |
| 2. Near Zone | 0.056 | Complies with ANSI |
| 3. Transition Zone | Rf < Rt < Rn | Complies with ANSI |
| 4. Main Reflector Surface | 0.090 | Complies with ANSI |
| 5. Main Reflector to Ground | 0.023 | Complies with ANSI |

## 6. EVALUATION

A. Controlled Environment
B. Uncontrolled Environment
The applicant will comply with the Maximum Permissible Exposure (MPE) limits of 1 mW/cm**2 for the Uncontrolled areas. Moreover, the system will be FENCED so that no one can enter the affected Zone while the system is in use. Additionally, the system will be shut down for servicing.