I. Coordination Data Sheet

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

File: M1922510

TECHNICAL CHARACTERISTICS OF TRANSMIT ONLY EARTH STATION

Company:	Speedcast Communications Inc.		
Site Name, State:	Mobile, AL		
Call Sign:			
Latitude	(NAD83)	30 40 44.2 N	
Longitude	(NAD83)	88 1 55.7 W	
Elevation AMSL	(ft/m)	0.00	0.00
Receive Frequency Range	(MHz)		
Transmit Frequency Range	(MHz)	5925.0-5989.5/6167.75-6241.54/ 6271.54-6330.49/ 6360.49-6389.79	
Range of Satellite Orbital Long.	(deg W)	128.00	130.00
Range of Azimuths from North	(deg)	238.67	240.43
Antenna Centerline	(ft/m)	146.50	44.65
Antenna Elevation Angles	(deg)	34.05	32.43

Equipment Parameters		Transmit	
Antenna Gain, Main Beam	(dbI)	41.00	
15 DB Half Beamwidth	(deg)	1.40	

Antennas Transmit: INTELLIAN V240MT (2.4 M)

Max Transmitter Power	(dbW/4KHz)		-13.46
Max EIRP Main Beam	(dbW/4KHz)		27.54
Modulation / Emission Designator	DIGITAL	8M88G7W	

Coordination Parameters		Transmit	
Max Greater Circle Distances	(km)	140.21	
Max Rain Scatter Distances	(km)	100.00	
Max Interference Power Long Term	(dbW)	-154.80	
Max Interference Power Short Term	(dbW)	-130.80	
Rain Zone / Radio Zone		1	A

II. Radiation Hazard Analysis

ANALYSIS OF NON-IONIZING RADIATION
for Speedcast Communications Inc.
Site: Mobile State: AL
Latitude: 30 40 44.2 Longitude: 88 1 55.7 (NAD83)
08-26-2019

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     = 4.5239 m**2

Wavelength at 6.1750 GHz  (lambda) = 0.0485 m

Transmit Power at Flange       (P) = 100.0000 Watts

Antenna Gain at Earth Site   (GES) = 41.0000 dBi    =   12589.2541
                                                           Power Ratio:
                                                          AntiLog(GES/10)
pi                                 =    3.1415927

Antenna Aperture Efficiency    (n) = 0.6000
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1. FAR ZONE CALCULATIONS

Distance to the Far Zone (Df) = $\frac{(n)(D^{2})}{\lambda}$ = 71.2577 m

Far Zone Power Density (Rf) = $\frac{(GES)(P)}{4 \pi (Df^{2})}$ = 19.7300 W/m**2

= 1.9730 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) = $\frac{D^{2}}{4 \lambda}$ = 29.6907 m

Near Zone Power Density (Rn) = $\frac{16.0(n)P}{\pi (D^{2})}$ = 53.0516 W/m**2

= 5.3052 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 = $\frac{2(P)}{Sa}$ = 44.2097 W/m**2

= 4.4210 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 = $\frac{P}{Sa}$ = 22.1049 W/m**2

= 2.2105 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	3.0270	Complies with ANSI
2. Near Zone	-0.3052	POTENTIALLY HAZARDOUS
3. Transition Zone	Rf < Rt < Rn	Complies with ANSI
4. Main Reflector Surface	0.5790	Complies with ANSI
5. Main Reflector to Ground	2.7895	Complies with ANSI

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

Zones	Safety Margins (mW/cm**2)	Conclusions
1. Far Zone	-0.9730	POTENTIALLY HAZARDOUS
2. Near Zone	-4.3052	POTENTIALLY HAZARDOUS
3. Transition Zone	Rf < Rt < Rn	Complies with ANSI
4. Main Reflector Surface	-3.4210	POTENTIALLY HAZARDOUS
5. Main Reflector to Ground	-1.2105	POTENTIALLY HAZARDOUS

6. EVALUATION

A. Controlled Environment
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.

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.