ACS Internet LLC
60-Day Special Temporary Authorization

Technical Appendix

I. RADIATION HAZARD ANALYSIS

Alaska Communications Dimond D
Data Up Link Hub
3.8 Meter to E115WB C-Band

This analysis predicts the radiation levels around a proposed earth station complex, comprised of one or more aperture (reflector) type antennas. This report is developed in accordance with the prediction methods contained in OET Bulletin No. 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields," Edition 97-01, pp 26-30. The maximum level of non-ionizing radiation to which employees may be exposed is limited to a power density level of 5 milliwatts per square centimeter (5 mW/cm^2) averaged over any 6 minute period in a controlled environment and the maximum level of non-ionizing radiation to which the general public is exposed is limited to a power density level of 1 milliwatt per square centimeter (1 mW/cm^2) averaged over any 30 minute period in a uncontrolled evironment. Note that the worse-case radiation hazards exist along the beam axis. Under normal circumstances, it is highly unlikely that the antenna axis will be aligned with any occupied area since that would represent a blockage to the desired signals, thus rendering the link unuseable.
The parameters which determine the radiation levels for the proposed earth station antenna site follows:

Earth Station Technical Parameter Table

Antenna Actual Diameter	*(Enter value)*	3.80	meters
Antenna Surface Area		11.3	sq. meters
Antenna Isotropic Gain	*(Enter value)*	45.6	dBi
No. of Identical Adjacent Antennas	*(Enter value)*	1	

Note: The Radiation Levels will be increased directly by the number of antennas indicated, on the assumption that all antennas may illuminate the same area.

Nominal Antenna Efficiency (ε)		64%	
Nominal Frequency	*(Enter value)*	5965	MHz
Nominal Wavelength (λ)		0.0503	meters
Maximum Transmit Power / Carrier	*(Enter value)*	75	Watts
Number of Carriers	*(Enter value)*	2	
Total Transmit Power		150	Watts
W/G Loss from Transmitter to Feed:	*(Enter value)*	0.5	dB
Total Feed Input Power		134	Watts

Near Field Limit=	R_{nf} =	$D^2/4\lambda$ =	72	meters
Far-Field Limit =	R_{ff} =	$0.6\ D^2/\lambda$ =	172	meters
Transition Region =	R_{nf} to R_{ff}			

In the following sections, the power density in the above regions, as well as other critically important areas will be calculated and evaluated. The calculations are done in the order discussed in OET Bulletin 65. In addition to the input parameters above, input cells are provided below for the user to evaluate the power density at specific distances or angles.

1. At the Antenna Surface:

The power density at the reflector surface can be calculated from the expression:

PD_{refl} = 4P/A = 4.72 mW/cm^2 (1)

where: P = total power at feed, milliwatts
A = Total area of reflector, sq. cm

In the normal range of transmit powers for satellite antennas, the power densities at or around the reflector surface is expected to exceed safe levels. This area will not be accessible to the general public. Operators and technicians will receive training specifying this area as a high exposure area. Procedures must be established that will assure that all transmitters are rerouted or turned off before access by maintenance personnel to this area is possible.

2. On-Axis Near Field Region:

The geometrical limits of the radiated power in the near field approximate a cylindrical volume with a diameter equal to that of the antenna. In the near field, the power density is neither uniform nor does its value vary uniformly with distance from the antenna. For the purpose of considering radiation hazard it is assumed that the on-axis flux density is at its maximum value throughout the length of this region. The length of this region, i.e., the distance from the antenna to the end of the near field, is computed as R_{nf} above.

The maximum power density in the near field is given by:

PD_{nf} = $(16\ \varepsilon\ P)/(\pi D^2)$ = 3.04 mW/cm^2 (2)
from 0 to 72 meters

Evaluation:	Uncontrolled Environment:	Mitigation Required, See Note 1
	Controlled Environment:	Complies to FCC Limits

3.0 On-Axis Transition Region:

The transition region is located between the near and far field regions. As stated in Bulletin 65, the power density begins to vary inversely with distance in the transition region. The maximum power density in the transition region will not exceed that calculated for the near field region, and the transition region begins at that value. The maximum value for a given distance within the transition region may be computed for the point of interest according to:

PD_t = $(PD_{nf})(R_{nf})/R$ = dependent on R (3)

where: PD_{nf} = near field power density
R_{nf} = near field distance
R = distance to point of interest
For: 72 < R < 172 meters

We use Eq (3) to determine the safe on-axis distances required for the two occupancy conditions:
Evaluation:

Uncontrolled Environment Safe Operating Distance,(meters), R_{safeu}: In F-F region, See Section 4

Controlled Environment Safe Operating Distance,(meters), R_{safec}: 44

4.0 On-Axis Far-Field Region:

The on- axis power density in the far field region (PD_{ff}) varies inversely with the square of the distance as follows:

$$PD_{ff} = PG/(4\pi R^2) = \text{dependent on R} \quad (4)$$

where: P = total power at feed
G = Numeric Antenna gain in the direction of interest relative to isotropic radiator
R = distance to the point of interest

For: $R > R_{ff} > 172$ meters

$PD_{ff} =$ 1.30 mW/cm^2 at R_{ff}

We use Eq (4) to determine the safe on-axis distances required for the two occupancy conditions:
Evaluation:

Uncontrolled Environment Safe Operating Distance,(meters), R_{safeu} : 197

Controlled Environment Safe Operating Distance,(meters), R_{safec} : See Section 3

5.0 Off-Axis Levels at the FarField Limit and Beyond

In the far field region, the power is distributed in a pattern of maxima and minima (sidelobes) as a function of the off-axis angle between the antenna center line and the point of interest. Off-axis power density in the far field can be estimated using the antenna radiation patterns prescribed for the antenna in use. Usually this will correspond to the antenna gain pattern envelope defined by the FCC or the ITU, which takes the form of:

$$G_{off} = 32 - 25\log(\Theta)$$

for Θ from 1 to 48 degrees; -10 dBi from 48 to 180 degrees
(Applicable for commonly used satellite transmit antennas)

Considering that satellite antenna beams are aimed skyward, power density in the far field will usually not be a problem except at low look angles. In these cases, the off axis gain reduction may be used to further reduce the power density levels.

For example: At one (1) degree off axis At the far-field limit, we can calculate the power density as:
$G_{off} = 32 - 25\log(1) = 32 - 0$ dBi = 1585 numeric

$$PD_{1\ deg\ off\text{-}axis} = PD_{ff} \times 1585/G = 0.0568 \ mW/cm^2 \quad (5)$$

6.0 Off-Axis power density in the Near Field and Transitional Regions

According to Bulletin 65, off-axis calculations in the near field may be performed as follows: assuming that the point of interest is at least one antenna diameter removed from the center of the main beam, the power density at that point is at least a factor of 100 (20 dB) less than the value calculated for the equivalent on-axis power density in the main beam. Therefore, for regions at least D meters away from the center line of the dish, whether behind, below, or in front under of the antenna's main beam, the power density exposure is at least 20 dB below the main beam level as follows:

$$PD_{nf(off\text{-}axis)} = \quad PD_{nf}/100 = \quad 0.030 \quad mW/cm^2 \text{ at D off axis} \quad (6)$$

See page 5 for the calculation of the distance vs elevation angle required to achieve this rule for a given object height.

7.0 Region Between the Feed Horn and Sub-reflector

Transmissions from the feed horn are directed toward the subreflector surface, and are confined within a conical shape defined by the feed horn. The energy between the feed horn and subreflector is conceded to be in excess of any limits for maximum permissible exposure. This area will not be accessible to the general public. Operators and technicians will receive training specifying this area as a high exposure area. Procedures must be established that will assure that all transmitters are rerouted or turned off before access by maintenance personnel to this area is possible.

Note 1:
Mitigation of the radiation level may take several forms. First, check the distance from the antenna to the nearest potentially occupied area that the antenna could be pointed toward, and compare to the distances appearing in Sections 2, 3 & 4. If those distances lie within the potentially hazardous regions, then the most common solution would be to take steps to insure that the antenna(s) are not capable of being pointed at those areas while RF is being transmitted. This may be accomplished by setting the tracking system to not allow the antenna be pointed below certain elevation angles. Other techniques, such as shielding may also be used effectively.

Evaluation of Safe Occupancy Area in Front of Antenna

The distance (S) from a vertical axis passing through the dish center to a safe off axis location in front of the antenna can be determined based on the dish diameter rule (Item 6.0). Assuming a flat terrain in front of the antenna, the relationship is:

$$S = (D/\sin \alpha) + (2h - D - 2)/(2 \tan \alpha) \quad (7)$$

where: α = minimum elevation angle of antenna
D = dish diameter in meters
h = maximum height of object to be cleared, meters

For distances equal or greater than determined by equation (7), the radiation hazard will be below safe levels for all but the most powerful stations (> 4 kilowatts RF at the feed).

	For D =	3.8	meters	
	h =	1	meters	Enter clearance height required
Then:				
	α	S		
	10	11.1	meters	
	15	7.6	meters	
	20	5.9	meters	
	25	4.9	meters	
	30	4.3	meters	
Specific Elev:	15.1	7.5	meters	Enter minimum elevation angle required
Specific Elev:	15.1	7.5	meters	Enter maximum elevation angle required

Suitable fencing or other barrier should be provided to prevent casual occupancy of the area in front of the antenna within the limits prescribed above at the lowest elevation angle required.

II. RADIATION HAZARD ANALYSIS

Alaska Communications St Paul Alaska
Data Up Link Hub
3.8 Meter to E115WB C-Band

This analysis predicts the radiation levels around a proposed earth station complex, comprised of one or more aperture (reflector) type antennas. This report is developed in accordance with the prediction methods contained in OET Bulletin No. 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields," Edition 97-01, pp 26-30. The maximum level of non-ionizing radiation to which employees may be exposed is limited to a power density level of 5 milliwatts per square centimeter (5 mW/cm^2) averaged over any 6 minute period in a controlled environment and the maximum level of non-ionizing radiation to which the general public is exposed is limited to a power density level of 1 milliwatt per square centimeter (1 mW/cm^2) averaged over any 30 minute period in a uncontrolled evironment. Note that the worse-case radiation hazards exist along the beam axis. Under normal circumstances, it is highly unlikely that the antenna axis will be aligned with any occupied area since that would represent a blockage to the desired signals, thus rendering the link unuseable.
The parameters which determine the radiation levels for the proposed earth station antenna site follows:

Earth Station Technical Parameter Table

Antenna Actual Diameter	*(Enter value)*	3.80	meters
Antenna Surface Area		11.3	sq. meters
Antenna Isotropic Gain	*(Enter value)*	45.6	dBi
No. of Identical Adjacent Antennas	*(Enter value)*	1	

Note: The Radiation Levels will be increased directly by the number of antennas indicated, on the assumption that all antennas may illuminate the same area.

Nominal Antenna Efficiency (ε)		64%	
Nominal Frequency	*(Enter value)*	5965	MHz
Nominal Wavelength (λ)		0.0503	meters
Maximum Transmit Power / Carrier	*(Enter value)*	5	Watts
Number of Carriers	*(Enter value)*	1	
Total Transmit Power		5	Watts
W/G Loss from Transmitter to Feed:	*(Enter value)*	0.5	dB
Total Feed Input Power		4	Watts

Near Field Limit=	R_{nf} =	$D^2/4\lambda$ =	72	meters
Far-Field Limit =	R_{ff} =	$0.6\, D^2/\lambda$ =	172	meters
Transition Region =	R_{nf}	to	R_{ff}	

In the following sections, the power density in the above regions, as well as other critically important areas will be calculated and evaluated. The calculations are done in the order discussed in OET Bulletin 65. In addition to the input parameters above, input cells are provided below for the user to evaluate the power density at specific distances or angles.

1. At the Antenna Surface:

The power density at the reflector surface can be calculated from the expression:

PD_{refl} = 4P/A = 0.16 mW/cm^2 (1)

where: P = total power at feed, milliwatts
A = Total area of reflector, sq. cm

In the normal range of transmit powers for satellite antennas, the power densities at or around the reflector surface is expected to exceed safe levels. This area will not be accessible to the general public. Operators and technicians will receive training specifying this area as a high exposure area. Procedures must be established that will assure that all transmitters are rerouted or turned off before access by maintenance personnel to this area is possible.

2. On-Axis Near Field Region:

The geometrical limits of the radiated power in the near field approximate a cylindrical volume with a diameter equal to that of the antenna. In the near field, the power density is neither uniform nor does its value vary uniformly with distance from the antenna. For the purpose of considering radiation hazard it is assumed that the on-axis flux density is at its maximum value throughout the length of this region. The length of this region, i.e., the distance from the antenna to the end of the near field, is computed as R_{nf} above.

The maximum power density in the near field is given by:

PD_{nf} = $(16\ \varepsilon\ P)/(\pi D^2)$ = 0.10 mW/cm^2 (2)
from 0 to 72 meters

Evaluation:	Uncontrolled Environment:	Complies to FCC Limits
	Controlled Environment:	Complies to FCC Limits

3.0 On-Axis Transition Region:

The transition region is located between the near and far field regions. As stated in Bulletin 65, the power density begins to vary inversely with distance in the transition region. The maximum power density in the transition region will not exceed that calculated for the near field region, and the transition region begins at that value. The maximum value for a given distance within the transition region may be computed for the point of interest according to:

PD_t = $(PD_{nf})(R_{nf})/R$ = dependent on R (3)

where: PD_{nf} = near field power density
R_{nf} = near field distance
R = distance to point of interest
For: 72 < R < 172 meters

We use Eq (3) to determine the safe on-axis distances required for the two occupancy conditions:
Evaluation:

Uncontrolled Environment Safe Operating Distance,(meters), R_{safeu}: 7

Controlled Environment Safe Operating Distance,(meters), R_{safec}: 1

4.0 On-Axis Far-Field Region:

The on- axis power density in the far field region (PD_{ff}) varies inversely with the square of the distance as follows:

PD_{ff} = $PG/(4\pi R^2)$ = dependent on R (4)

where: P = total power at feed

G = Numeric Antenna gain in the direction of interest relative to isotropic radiator

R = distance to the point of interest

For: $R > R_{ff} > 172$ meters

PD_{ff} = 0.04 mW/cm^2 at R_{ff}

We use Eq (4) to determine the safe on-axis distances required for the two occupancy conditions:
Evaluation:

Uncontrolled Environment Safe Operating Distance,(meters), R_{safeu} : See Section 3

Controlled Environment Safe Operating Distance,(meters), R_{safec} : See Section 3

5.0 Off-Axis Levels at the FarField Limit and Beyond

In the far field region, the power is distributed in a pattern of maxima and minima (sidelobes) as a function of the off-axis angle between the antenna center line and the point of interest. Off-axis power density in the far field can be estimated using the antenna radiation patterns prescribed for the antenna in use. Usually this will correspond to the antenna gain pattern envelope defined by the FCC or the ITU, which takes the form of:

$G_{off} = 32 - 25\log(\Theta)$

for Θ from 1 to 48 degrees; -10 dBi from 48 to 180 degrees
(Applicable for commonly used satellite transmit antennas)

Considering that satellite antenna beams are aimed skyward, power density in the far field will usually not be a problem except at low look angles. In these cases, the off axis gain reduction may be used to further reduce the power density levels.

For example: At one (1) degree off axis At the far-field limit, we can calculate the power density as:
$G_{off} = 32 - 25\log(1) = 32 - 0$ dBi = 1585 numeric

$PD_{1\ deg\ off\text{-}axis}$ = $PD_{ff} \times 1585/G$ = 0.0019 mW/cm^2 (5)

6.0 Off-Axis power density in the Near Field and Transitional Regions

According to Bulletin 65, off-axis calculations in the near field may be performed as follows: assuming that the point of interest is at least one antenna diameter removed from the center of the main beam, the power density at that point is at least a factor of 100 (20 dB) less than the value calculated for the equivalent on-axis power density in the main beam. Therefore, for regions at least D meters away from the center line of the dish, whether behind, below, or in front under of the antenna's main beam, the power density exposure is at least 20 dB below the main beam level as follows:

$$PD_{nf(off\text{-}axis)} = \quad PD_{nf}/100 = \quad 0.001 \quad mW/cm^2 \text{ at D off axis} \quad (6)$$

See page 5 for the calculation of the distance vs elevation angle required to achieve this rule for a given object height.

7.0 Region Between the Feed Horn and Sub-reflector

Transmissions from the feed horn are directed toward the subreflector surface, and are confined within a conical shape defined by the feed horn. The energy between the feed horn and subreflector is conceded to be in excess of any limits for maximum permissible exposure. This area will not be accessible to the general public. Operators and technicians will receive training specifying this area as a high exposure area. Procedures must be established that will assure that all transmitters are rerouted or turned off before access by maintenance personnel to this area is possible.

Note 1:
Mitigation of the radiation level may take several forms. First, check the distance from the antenna to the nearest potentially occupied area that the antenna could be pointed toward, and compare to the distances appearing in Sections 2, 3 & 4. If those distances lie within the potentially hazardous regions, then the most common solution would be to take steps to insure that the antenna(s) are not capable of being pointed at those areas while RF is being transmitted. This may be accomplished by setting the tracking system to not allow the antenna be pointed below certain elevation angles. Other techniques, such as shielding may also be used effectively.

Evaluation of Safe Occupancy Area in Front of Antenna

The distance (S) from a vertical axis passing through the dish center to a safe off axis location in front of the antenna can be determined based on the dish diameter rule (Item 6.0). Assuming a flat terrain in front of the antenna, the relationship is:

$$S = (D/\sin \alpha) + (2h - D - 2)/(2 \tan \alpha) \qquad (7)$$

where: α = minimum elevation angle of antenna
D = dish diameter in meters
h = maximum height of object to be cleared, meters

For distances equal or greater than determined by equation (7), the radiation hazard will be below safe levels for all but the most powerful stations (> 4 kilowatts RF at the feed).

	For D =	3.8	meters	
	h =	1	meters	Enter clearance height required
Then:				
	α	S		
	10	11.1	meters	
	15	7.6	meters	
	20	5.9	meters	
	25	4.9	meters	
	30	4.3	meters	
Specific Elev:	9.6	11.6	meters	Enter minimum elevation angle required
Specific Elev:	9.6	11.6	meters	Enter maximum elevation angle required

Suitable fencing or other barrier should be provided to prevent casual occupancy of the area in front of the antenna within the limits prescribed above at the lowest elevation angle required.

III. RADIATION HAZARD ANALYSIS

Alaska Communications ACS Office
Remote Testing Site
2.4 Meter to E115WB C-Band

This analysis predicts the radiation levels around a proposed earth station complex, comprised of one or more aperture (reflector) type antennas. This report is developed in accordance with the prediction methods contained in OET Bulletin No. 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields," Edition 97-01, pp 26-30. The maximum level of non-ionizing radiation to which employees may be exposed is limited to a power density level of 5 milliwatts per square centimeter (5 mW/cm^2) averaged over any 6 minute period in a controlled environment and the maximum level of non-ionizing radiation to which the general public is exposed is limited to a power density level of 1 milliwatt per square centimeter (1 mW/cm^2) averaged over any 30 minute period in a uncontrolled evironment. Note that the worse-case radiation hazards exist along the beam axis. Under normal circumstances, it is highly unlikely that the antenna axis will be aligned with any occupied area since that would represent a blockage to the desired signals, thus rendering the link unuseable.

The parameters which determine the radiation levels for the proposed earth station antenna site follows:

Earth Station Technical Parameter Table

Antenna Actual Diameter	*(Enter value)*	2.40	meters
Antenna Surface Area		4.5	sq. meters
Antenna Isotropic Gain	*(Enter value)*	41.6	dBi
No. of Identical Adjacent Antennas	*(Enter value)*	1	

Note: The Radiation Levels will be increased directly by the number of antennas indicated, on the assumption that all antennas may illuminate the same area.

Nominal Antenna Efficiency (ε)		64%	
Nominal Frequency	*(Enter value)*	5965	MHz
Nominal Wavelength (λ)		0.0503	meters
Maximum Transmit Power / Carrier	*(Enter value)*	20	Watts
Number of Carriers	*(Enter value)*	1	
Total Transmit Power		20	Watts
W/G Loss from Transmitter to Feed:	*(Enter value)*	0.5	dB
Total Feed Input Power		18	Watts

Near Field Limit=	R_{nf} =	$D^2/4\lambda$ =	29	meters
Far-Field Limit =	R_{ff} =	$0.6\ D^2/\lambda$ =	69	meters
Transition Region =		R_{nf} to R_{ff}		

In the following sections, the power density in the above regions, as well as other critically important areas will be calculated and evaluated. The calculations are done in the order discussed in OET Bulletin 65. In addition to the input parameters above, input cells are provided below for the user to evaluate the power density at specific distances or angles.

1. At the Antenna Surface:

The power density at the reflector surface can be calculated from the expression:

PD_{refl} = 4P/A = 1.58 mW/cm^2 (1)

where: P = total power at feed, milliwatts

A = Total area of reflector, sq. cm

In the normal range of transmit powers for satellite antennas, the power densities at or around the reflector surface is expected to exceed safe levels. This area will not be accessible to the general public. Operators and technicians will receive training specifying this area as a high exposure area. Procedures must be established that will assure that all transmitters are rerouted or turned off before access by maintenance personnel to this area is possible.

2. On-Axis Near Field Region:

The geometrical limits of the radiated power in the near field approximate a cylindrical volume with a diameter equal to that of the antenna. In the near field, the power density is neither uniform nor does its value vary uniformly with distance from the antenna. For the purpose of considering radiation hazard it is assumed that the on-axis flux density is at its maximum value throughout the length of this region. The length of this region, i.e., the distance from the antenna to the end of the near field, is computed as R_{nf} above.

The maximum power density in the near field is given by:

PD_{nf} = $(16\ \varepsilon\ P)/(\pi D^2)$ = 1.01 mW/cm^2 (2)

from 0 to 29 meters

Evaluation:	Uncontrolled Environment:	Mitigation Required, See Note 1
	Controlled Environment:	Complies to FCC Limits

3.0 On-Axis Transition Region:

The transition region is located between the near and far field regions. As stated in Bulletin 65, the power density begins to vary inversely with distance in the transition region. The maximum power density in the transition region will not exceed that calculated for the near field region, and the transition region begins at that value. The maximum value for a given distance within the transition region may be computed for the point of interest according to:

PD_t = $(PD_{nf})(R_{nf})/R$ = dependent on R (3)

where: PD_{nf} = near field power density

R_{nf} = near field distance

R = distance to point of interest

For: 29 < R < 69 meters

We use Eq (3) to determine the safe on-axis distances required for the two occupancy conditions:
Evaluation:

Uncontrolled Environment Safe Operating Distance,(meters), R_{safeu}: 29

Controlled Environment Safe Operating Distance,(meters), R_{safec}: 6

4.0 On-Axis Far-Field Region:

The on- axis power density in the far field region (PD_{ff}) varies inversely with the square of the distance as follows:

PD_{ff} = $PG/(4\pi R^2)$ = dependent on R (4)

where: P = total power at feed
G = Numeric Antenna gain in the direction of interest relative to isotropic radiator
R = distance to the point of interest

For: $R > R_{ff} > 69$ meters

PD_{ff} = 0.43 mW/cm^2 at R_{ff}

We use Eq (4) to determine the safe on-axis distances required for the two occupancy conditions:
Evaluation:

Uncontrolled Environment Safe Operating Distance,(meters), R_{safeu} : See Section 3

Controlled Environment Safe Operating Distance,(meters), R_{safec} : See Section 3

5.0 Off-Axis Levels at the FarField Limit and Beyond

In the far field region, the power is distributed in a pattern of maxima and minima (sidelobes) as a function of the off-axis angle between the antenna center line and the point of interest. Off-axis power density in the far field can be estimated using the antenna radiation patterns prescribed for the antenna in use. Usually this will correspond to the antenna gain pattern envelope defined by the FCC or the ITU, which takes the form of:

$G_{off} = 32 - 25\log(\Theta)$

for Θ from 1 to 48 degrees; -10 dBi from 48 to 180 degrees
(Applicable for commonly used satellite transmit antennas)

Considering that satellite antenna beams are aimed skyward, power density in the far field will usually not be a problem except at low look angles. In these cases, the off axis gain reduction may be used to further reduce the power density levels.

For example: At one (1) degree off axis At the far-field limit, we can calculate the power density as:
$G_{off} = 32 - 25\log(1) = 32 - 0$ dBi = 1585 numeric

$PD_{1\ deg\ off\text{-}axis}$ = PD_{ff} x 1585/G = 0.0476 mW/cm^2 (5)

6.0 Off-Axis power density in the Near Field and Transitional Regions

According to Bulletin 65, off-axis calculations in the near field may be performed as follows: assuming that the point of interest is at least one antenna diameter removed from the center of the main beam, the power density at that point is at least a factor of 100 (20 dB) less than the value calculated for the equivalent on-axis power density in the main beam. Therefore, for regions at least D meters away from the center line of the dish, whether behind, below, or in front under of the antenna's main beam, the power density exposure is at least 20 dB below the main beam level as follows:

$$PD_{nf(off\text{-}axis)} = \quad PD_{nf} / 100 = \quad 0.010 \quad mW/cm^2 \text{ at D off axis} \quad (6)$$

See page 5 for the calculation of the distance vs elevation angle required to achieve this rule for a given object height.

7.0 Region Between the Feed Horn and Sub-reflector

Transmissions from the feed horn are directed toward the subreflector surface, and are confined within a conical shape defined by the feed horn. The energy between the feed horn and subreflector is conceded to be in excess of any limits for maximum permissible exposure. This area will not be accessible to the general public. Operators and technicians will receive training specifying this area as a high exposure area. Procedures must be established that will assure that all transmitters are rerouted or turned off before access by maintenance personnel to this area is possible.

Note 1:
Mitigation of the radiation level may take several forms. First, check the distance from the antenna to the nearest potentially occupied area that the antenna could be pointed toward, and compare to the distances appearing in Sections 2, 3 & 4. If those distances lie within the potentially hazardous regions, then the most common solution would be to take steps to insure that the antenna(s) are not capable of being pointed at those areas while RF is being transmitted. This may be accomplished by setting the tracking system to not allow the antenna be pointed below certain elevation angles. Other techniques, such as shielding may also be used effectively.

Evaluation of Safe Occupancy Area in Front of Antenna

The distance (S) from a vertical axis passing through the dish center to a safe off axis location in front of the antenna can be determined based on the dish diameter rule (Item 6.0). Assuming a flat terrain in front of the antenna, the relationship is:

$$S = (D/\sin \alpha) + (2h - D - 2)/(2 \tan \alpha) \quad (7)$$

where: α = minimum elevation angle of antenna
D = dish diameter in meters
h = maximum height of object to be cleared, meters

For distances equal or greater than determined by equation (7), the radiation hazard will be below safe levels for all but the most powerful stations (> 4 kilowatts RF at the feed).

	For D =	2.4	meters	
	h =	1	meters	Enter clearance height required
Then:				
	α	S		
	10	7.0	meters	
	15	4.8	meters	
	20	3.7	meters	
	25	3.1	meters	
	30	2.7	meters	
Specific Elev:	15	4.8	meters	Enter minimum elevation angle required
Specific Elev:	15	4.8	meters	Enter maximum elevation angle required

Suitable fencing or other barrier should be provided to prevent casual occupancy of the area in front of the antenna within the limits prescribed above at the lowest elevation angle required.

Approved by OMB
3060-0678

Date & Time Filed:
File Number: ---
Callsign/Satellite ID:

APPLICATION FOR EARTH STATION AUTHORIZATIONS FCC 312 MAIN FORM FOR OFFICIAL USE ONLY	**FCC Use Only**

APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:
IV. DRAFT Form 312 Schedule B (STA Exhibit)

1-8. Legal Name of Applicant

Name:	Alaska Communications Internet, LLC	Phone Number:	907-297-3000
DBA Name:		Fax Number:	907-297-3153
Street:	600 Telephone Avenue MS #60	E-Mail:	Lisa.Phillips@acsalaska.com
City:	Anchorage	State:	AK
Country:	USA	Zipcode:	90503 -
Attention:	Ms. Lisa Phillips		

9-16. Name of Contact Representative

Name:	Carlos Nalda	Phone Number:	5713325626
Company:	LMI Advisors	Fax Number:	
Street:	2550 M Street NW	E-Mail:	cnalda@lmiadvisors.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20037-
Attention:	Mr. Carlos Nalda	Relationship:	Other

CLASSIFICATION OF FILING

17. Choose the button next to the classification that applies to this filing for both questions a. and b. Choose only one for 17a and only one for 17b.

a.
(•) a1. Earth Station
(N/A) a2. Space Station

b.
(•) b1. Application for License of New Station
( ) b2. Application for Registration of New Domestic Receive-Only Station
(N/A) b3. Amendment to a Pending Application
(N/A) b4. Modification of License or Registration
(N/A) b5. Assignment of License or Registration
(N/A) b6. Transfer of Control of License or Registration
(N/A) b7. Notification of Minor Modification
(N/A) b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite
(N/A) b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States
( ) b10. Other (Please specify)
( ) b11. Application for Earth Station to Access a Non-U.S.satellite Not Currently Authorized to Provide the Proposed Service in the Proposed Frequencies in the United States.

17c. Is a fee submitted with this application?
( ) If Yes, complete and attach FCC Form 159.

If No, indicate reason for fee exemption (see 47 C.F.R.Section 1.1114).
( ) Governmental Entity ( ) Noncommercial educational licensee
(•) Other(please explain): DRAFT

17d.
Fee Classification

18. If this filing is in reference to an	19. If this filing is an amendment to a pending application enter:

existing station, enter: (a) Call sign of station: Not Applicable	(a) Date pending application was filed: Not Applicable	(b) File number of pending application: Not Applicable

TYPE OF SERVICE

20. NATURE OF SERVICE: This filing is for an authorization to provide or use the following type(s) of service(s): Select all that apply:

- [x] a. Fixed Satellite
- [ ] b. Mobile Satellite
- [ ] c. Radiodetermination Satellite
- [ ] d. Earth Exploration Satellite
- [ ] e. Direct to Home Fixed Satellite
- [ ] f. Digital Audio Radio Service
- [ ] g. Other (please specify)

21. STATUS: Choose the button next to the applicable status. Choose only one.
( ) Common Carrier (•) Non-Common Carrier

22. If earth station applicant, check all that apply.
- [ ] Using U.S. licensed satellites
- [x] Using Non-U.S. licensed satellites

23. If applicant is providng INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Choose one. Are these facilities:
( ) Connected to a Public Switched Network ( ) Not connected to a Public Switched Network (•) N/A

24. FREQUENCY BAND(S): Place an "X" in the box(es) next to all applicable frequency band(s).
[x] a. C-Band (4/6 GHz) [ ] b. Ku-Band (12/14 GHz)
[ ] c.Other (Please specify upper and lower frequencies in MHz.)
Frequency Lower: Frequency Upper:

TYPE OF STATION

25. CLASS OF STATION: Choose the button next to the class of station that applies. Choose only one.
(•) a. Fixed Earth Station
( ) b. Temporary-Fixed Earth Station
( ) c. 12/14 GHz VSAT Network
( ) d. Mobile Earth Station
(N/A) e. Geostationary Space Station
(N/A) f. Non-Geostationary Space Station
( ) g. Other (please specify)

26. TYPE OF EARTH STATION FACILITY: Choose only one.
(•) Transmit/Receive ( ) Transmit-Only ( ) Receive-Only ( ) N/A

PURPOSE OF MODIFICATION

27. The purpose of this proposed modification is to: (Place an 'X' in the box(es) next to all that apply.)
Not Applicable

ENVIRONMENTAL POLICY

28. Would a Commission grant of any proposal in this application or amendment have a significant environmental impact as defined by 47 CFR 1.1307? If YES, submit the statement as required by Sections 1.1308 and 1.1311 of the Commission's rules, 47 C.F.R. §§ 1.1308 and 1.1311, as an exhibit to this application.A Radiation Hazard Study must accompany all applications for new transmitting facilities, major modifications, or major amendments.	( ) **Yes** (•) **No**

ALIEN OWNERSHIP Earth station applicants not proposing to provide broadcast, common carrier, aeronautical en route or aeronautical fixed radio station services are not required to respond to Items 30-34.

29. Is the applicant a foreign government or the representative of any foreign government?	( ) **Yes** (•) **No**
30. Is the applicant an alien or the representative of an alien?	( ) **Yes** ( ) **No** (•) **N/A**
31. Is the applicant a corporation organized under the laws of any foreign government?	( ) **Yes** ( ) **No** (•) **N/A**
32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	( ) **Yes** ( ) **No** (•) **N/A**
33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a	( ) **Yes** ( ) **No** (•) **N/A**

foreign government or representative thereof or by any corporation organized under the laws of a foreign country?

34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as an exhibit an identification of the aliens or foreign entities, their nationality, their relationship to the applicant, and the percentage of stock they own or vote.

BASIC QUALIFICATIONS

35. Does the Applicant request any waivers or exemptions from any of the Commission's Rules? If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents.	○ **Yes** ◉ **No**
36. Has the applicant or any party to this application or amendment had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission? If Yes, attach as an exhibit, an explination of circumstances.	○ **Yes** ◉ **No**
37. Has the applicant, or any party to this application or amendment, or any party directly or indirectly controlling the applicant ever been convicted of a felony by any state or federal court? If Yes, attach as an exhibit, an explination of circumstances.	○ **Yes** ◉ **No**
38. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attemptiing unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition?If Yes, attach as an exhibit, an explanation of circumstances	○ **Yes** ◉ **No**
39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceding two items? If yes, attach as an exhinit, an explanation of the circumstances.	○ **Yes** ◉ **No**
40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, address, and citizenship of those stockholders owning a record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.	
41. By checking Yes, the undersigned certifies, that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. *See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes*.	◉ **Yes** ○ **No**
42a. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States? If Yes, answer 42b and attach an exhibit providing the information specified in *47 C.F.R. 25.137, as appropriate*. If No, proceed to question 43.	◉ **Yes** ○ **No**

42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what administration has coordinated or is in the process of coordinating the space station?Mexico (Permitted List)

43. Description. (Summarize the nature of the application and the services to be provided). Alaska Communications Internet LLC seeks a 60-day STA.

43a. Geographic Service Rule Certification By selecting A, the undersigned certifies that the applicant is not subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25.	◉ **A**
By selecting B, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will comply with such requirements.	○ **B**
By selecting C, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will not comply with such requirements because it is not feasible as a technical matter to do so, or that, while technically feasible, such services would require so many compromises in satellite design and operation as to make it economically unreasonable. A narrative description and technical analysis demonstrating this claim are attached.	○ **C**

CERTIFICATION

The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. The applicant certifies that grant of this application would not cause the applicant to be in violation of the spectrum aggregation limit in 47 CFR Part 20. All statements made in exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the applicant, hereby certifies that all statements made in this application and in all attached exhibits are true, complete and correct to the best of his or her knowledge and belief, and are made in good faith.

44. Applicant is a (an): (Choose the button next to applicable response.)

- ○ Individual
- ○ Unincorporated Association
- ○ Partnership
- ○ Corporation
- ○ Governmental Entity
- ◉ Other (please specify)

LLC

45. Name of Person Signing	46. Title of Person Signing
Rick Benken	VP

47. Please supply any need attachments.

Attachment 1:	Attachment 2:	Attachment 3:

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND / OR IMPRISONMENT (U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION (U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).

SATELLITE EARTH STATION AUTHORIZATIONS
FCC Form 312 - Schedule B:(Technical and Operational Description)

FOR OFFICIAL USE ONLY

Location of Earth Station Site

E1: Site Identifier:	Hub	E5. Call Sign:	
E2: Contact Name	Norman Davis	E6. Phone Number:	907-564-7366
E3. Street:	8500 Dimond D Circle	E7. City:	Anchorage
		E8. County:	Anchorage
E4. State	AK	E9. Zip Code	99515
E10. Area of Operation:		Anchorage, AK	
E11. Latitude:	61 ° 8 ' 28.4 " N		
E12. Longitude:	149 ° 52 ' 30.7 " W		
E13. Lat/Lon Coordinates are:		○ NAD-27	◉ NAD-83 ○ N/A
E14. Site Elevation (AMSL):		41.0 meters	

E15. If the proposed antenna(s) operate in the Fixed Satellite Service (FSS) with geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a) and (b) as demonstrated by the manufacturer's qualification measurement? If NO, provide asa technical analysis showing compliance with two-degree spacing policy.	○ Yes ◉ No ○ N/A
E16. If the proposed antenna(s) do not operate in the Fixed Satellite Service (FSS), or if they operate in the Fixed Satellite Service (FSS) with non-geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a2) and (b) as demonstrated by the manufacturer's qualification measurements?	○ Yes ○ No ◉ N/A
E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	○ Yes ◉ No
E18. Is frequency coordination required? If YES, attach a frequency coordination report as	◉ Yes ○ No
E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	○ Yes ◉ No
E20. FAA Notification - (See 47 CFR Part 17 and 47 CFR part 25.113(c)) Where FAA notification is required, have you attached a copy of a completed FCC Form 854 and or the FAA's study regarding the potential hazard of the structure to aviation? **FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL RESULT IN THE RETURN OF THIS APPLICATION.**	○ Yes ◉ No

POINTS OF COMMUNICATION

Satellite Name:EUTELSAT115WB(S2938) | EUTELSAT 115 WB | 114.9 W.L. If you selected OTHER, please enter the following:	
E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

POINTS OF COMMUNICATION (Destination Points)

E25. Site Identifier: Hub	
E26. Common Name:	E27. Country:USA

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size	E41/42. Antenna GainTransmint and/or Recieve(____dBi at _____GHz)
Hub	Hub	1	General Dynamics	1383	3.8	41.6 dBi at 3.7400
						45.6 dBi at 5.9650

E28. Antenna Id	E33/34. Diameter Minor/Major(meters)	E35. Above Ground Level (meters)	E36. Above Sea Level (meters)	E37. Building Height Above Ground Level (meters)	E38. Total Input Power at antenna flange (Watts)	E39. Maximum Antenna Height Above Rooftop (meters)	E40. Total EIRP for al carriers (dBW)
Hub	0.0/0.0	41.0	0.0	0.0	21.2	0.0	58.4

FREQUENCY

E28. Antenna Id	E43/44. Frequency Bands(MHz)	E45. T/R Mode	E46. Antenna Polarization(H,V,L,R)	E47. Emission Designator	E48. Maximum EIRP per Carrier(dBW)	E49. Maximum ERIP Density per Carrier(dBW/4kHz)
Hub	3766.450 3769.650	R	Horizontal and Vertical	3M20G7W	0.0	0.0
E50. Modulation and Services QPSK						
Hub	3737.650 3742.350	R	Horizontal and Vertical	4M70G7W	0.0	0.0
E50. Modulation and Services 32APSK						
Hub	5963.500 5966.500	T	Horizontal and Vertical	3M00G7W	55.1	-19.88
E50. Modulation and Services 32APSK						
Hub	5988.300 5997.800	T	Horizontal and Vertical	9M50G7W	58.4	-20.75
E50. Modulation and Services DVB-S2, 16APSK						

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	E54/55. Range of Satellite Arc E/W Limit	E56. Earth Station Azimuth Angle Eastern Limit	E57. Antenna Elevation Angle Eastern Limit	E58. Earth Station Azimuth Angle Western Limit	E59. Antenna Elevation Angle Western Limit	E60. Maximum EIRP Density toward the Horizon(dBW/4kHz)
Hub	Geostationary	3737.650 3742.350	114.9/ 114.9	141.3	15.1	141.3	15.1	0.0
	Geostationary	3766.450 3769.650	114.9/ 114.9	141.3	15.1	141.3	15.1	0.0
	Geostationary	5963.500 5966.500	114.9/ 114.9	141.3	15.1	141.3	15.1	-65.92
	Geostationary	5988.300	114.9/	141.3	15.1	141.3	15.1	-66.8

		5997.800	114.9	

REMOTE CONTROL POINT LOCATION

REMOTE CONTROL POINT LOCATION

E61. Call Sign NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.			E65. Phone Number
E62. Street Address			
E63. City	E67. County	E64/68. State/Country /	E66. Zip Code

SATELLITE EARTH STATION AUTHORIZATIONS
FCC Form 312 - Schedule B:(Technical and Operational Description)

FOR OFFICIAL USE ONLY

Location of Earth Station Site

E1: Site Identifier:	Site 1	E5. Call Sign:		
E2: Contact Name	James Dunn	E6. Phone Number:	907-947-2956	
E3. Street:	100 Harbor View Drive	E7. City:	St. Paul	
		E8. County:	St. Paul	
E4. State	AK	E9. Zip Code	99660	
E10. Area of Operation:		St. Paul, AK		
E11. Latitude:	57 ° 9 ' 35.99 " N			
E12. Longitude:	170 ° 13 ' 11.99 " W			
E13. Lat/Lon Coordinates are:		○ NAD-27	● NAD-83	○ N/A
E14. Site Elevation (AMSL):		8.0 meters		

E15. If the proposed antenna(s) operate in the Fixed Satellite Service (FSS) with geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a) and (b) as demonstrated by the manufacturer's qualification measurement? If NO, provide asa technical analysis showing compliance with two-degree spacing policy.	○ Yes ● No ○ N/A
E16. If the proposed antenna(s) do not operate in the Fixed Satellite Service (FSS), or if they operate in the Fixed Satellite Service (FSS) with non-geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a2) and (b) as demonstrated by the manufacturer's qualification measurements?	○ Yes ○ No ● N/A
E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	○ Yes ● No
E18. Is frequency coordination required? If YES, attach a frequency coordination report as	● Yes ○ No
E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	○ Yes ● No
E20. FAA Notification - (See 47 CFR Part 17 and 47 CFR part 25.113(c)) Where FAA notification is required, have you attached a copy of a completed FCC Form 854 and or the FAA's study regarding the potential hazard of the structure to aviation? FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL RESULT IN THE RETURN OF THIS APPLICATION.	○ Yes ● No

POINTS OF COMMUNICATION

Satellite Name:EUTELSAT115WB(S2938) | EUTELSAT 115 WB | 114.9 W.L. If you selected OTHER, please enter the following:

E21. Common Name:	E22. ITU Name:

E23. Orbit Location:	E24. Country: USA

POINTS OF COMMUNICATION (Destination Points)

E25. Site Identifier: Site 1	
E26. Common Name:	E27. Country:USA

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size	E41/42. Antenna GainTransmint and/or Recieve(____dBi at _____GHz)
Site 1	VSAT 1	1	General Dynamics	1383	3.8	41.6 dBi at 3.7400
						45.6 dBi at 5.9650

E28. Antenna Id	E33/34. Diameter Minor/Major(meters)	E35. Above Ground Level (meters)	E36. Above Sea Level (meters)	E37. Building Height Above Ground Level (meters)	E38. Total Input Power at antenna flange (Watts)	E39. Maximum Antenna Height Above Rooftop (meters)	E40. Total EIRP for al carriers (dBW)
VSAT 1	0.0/0.0	8.0	0.0	0.0	1.9	0.0	47.9

FREQUENCY

E28. Antenna Id	E43/44. Frequency Bands(MHz)	E45. T/R Mode	E46. Antenna Polarization(H,V,L,R)	E47. Emission Designator	E48. Maximum EIRP per Carrier(dBW)	E49. Maximum ERIP Density per Carrier(dBW/4kHz)
VSAT 1	3769.650 3779.150	R	Horizontal and Vertical	9M50G7W	0.0	0.0
E50. Modulation and Services 16APSK						
VSAT 1	5997.800 6001	T	Horizontal and Vertical	3M20G7W	47.9	-26.99
E50. Modulation and Services DVB-S2, QPSK						

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	E54/55. Range of Satellite Arc E/W Limit	E56. Earth Station Azimuth Angle Eastern Limit	E57. Antenna Elevation Angle Eastern Limit	E58. Earth Station Azimuth Angle Western Limit	E59. Antenna Elevation Angle Western Limit	E60. Maximum EIRP Density toward the Horizon(dBW/4kHz)
VSAT 1	Geostationary	3769.650 3779.150	114.9/ 114.9	120.1	9.6	120.1	9.6	0.0
	Geostationary	5997.800 6001	114.9/ 114.9	120.1	9.6	120.1	9.6	-68.05

REMOTE CONTROL POINT LOCATION
REMOTE CONTROL POINT LOCATION

E61. Call Sign NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.			E65. Phone Number
E62. Street Address			
E63. City	E67. County	E64/68. State/Country /	E66. Zip Code

SATELLITE EARTH STATION AUTHORIZATIONS
FCC Form 312 - Schedule B:(Technical and Operational Description)

FOR OFFICIAL USE ONLY

Location of Earth Station Site

E1: Site Identifier:	Site 2	E5. Call Sign:	
E2: Contact Name	Norman Davis	E6. Phone Number:	907-564-7366
E3. Street:	600 Telephone Ave.	E7. City:	Anchorage
		E8. County:	Anchorage
E4. State	AK	E9. Zip Code	
E10. Area of Operation:		Anchorage, AK	
E11. Latitude:	61 ° 11 ' 10.5 " N		
E12. Longitude:	149 ° 52 ' 15.57 " W		
E13. Lat/Lon Coordinates are:		○ NAD-27	● NAD-83 ○ N/A
E14. Site Elevation (AMSL):		35.0 meters	

E15. If the proposed antenna(s) operate in the Fixed Satellite Service (FSS) with geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a) and (b) as demonstrated by the manufacturer's qualification measurement? If NO, provide asa technical analysis showing compliance with two-degree spacing policy.	○ Yes ● No ○ N/A
E16. If the proposed antenna(s) do not operate in the Fixed Satellite Service (FSS), or if they operate in the Fixed Satellite Service (FSS) with non-geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a2) and (b) as demonstrated by the manufacturer's qualification measurements?	○ Yes ○ No ● N/A
E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	○ Yes ● No
E18. Is frequency coordination required? If YES, attach a frequency coordination report as	● Yes ○ No
E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	○ Yes ● No
E20. FAA Notification - (See 47 CFR Part 17 and 47 CFR part 25.113(c)) Where FAA notification is required, have you attached a copy of a completed FCC Form 854 and or the FAA's study regarding the potential hazard of the structure to aviation? FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL RESULT IN THE RETURN OF THIS APPLICATION.	○ Yes ● No

POINTS OF COMMUNICATION

Satellite Name:EUTELSAT115WB(S2938) | EUTELSAT 115 WB | 114.9 W.L. If you selected OTHER, please enter the following:

E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

POINTS OF COMMUNICATION (Destination Points)

E25. Site Identifier: Site 2	
E26. Common Name:	E27. Country:USA

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size	E41/42. Antenna GainTransmint and/or Recieve(____dBi at _____GHz)
Site 2	VSAT 2	1	Prodelin	1244	2.4	37.6 dBi at 3.7400
						41.6 dBi at 5.9650

E28. Antenna Id	E33/34. Diameter Minor/Major(meters)	E35. Above Ground Level (meters)	E36. Above Sea Level (meters)	E37. Building Height Above Ground Level (meters)	E38. Total Input Power at antenna flange (Watts)	E39. Maximum Antenna Height Above Rooftop (meters)	E40. Total EIRP for al

							carriers (dBW)
VSAT 2	0.0/0.0	24.0	0.0	0.0	9.33	0.0	51.2

FREQUENCY

E28. Antenna Id	E43/44. Frequency Bands(MHz)	E45. T/R Mode	E46. Antenna Polarization(H,V,L,R)	E47. Emission Designator	E48. Maximum EIRP per Carrier(dBW)	E49. Maximum ERIP Density per Carrier(dBW/4kHz)
VSAT 2	3738.500 3741.500	R	Horizontal and Vertical	3M00G7W	0.0	0.0
E50. Modulation and Services 32APSK						
VSAT 2	5962.650 5967.350	T	Horizontal and Vertical	4M70G7W	51.2	-22.18
E50. Modulation and Services 8PSK						

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	E54/55. Range of Satellite Arc E/W Limit	E56. Earth Station Azimuth Angle Eastern Limit	E57. Antenna Elevation Angle Eastern Limit	E58. Earth Station Azimuth Angle Western Limit	E59. Antenna Elevation Angle Western Limit	E60. Maximum EIRP Density toward the Horizon(dBW/4kHz)
VSAT 2	Geostationary	3738.500 3741.500	114.9/ 114.9	141.3	15.0	141.3	15.0	0.0
	Geostationary	5962.650 5967.350	114.9/ 114.9	141.3	15.0	141.3	15.0	-64.23

REMOTE CONTROL POINT LOCATION
REMOTE CONTROL POINT LOCATION

E61. Call Sign NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.			E65. Phone Number
E62. Street Address			
E63. City	E67. County	E64/68. State/Country /	E66. Zip Code

FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

The public reporting for this collection of information is estimated to average 0.25 - 24 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the required data, and completing and reviewing the collection of information. If you have any comments on this burden estimate, or how we can improve the collection and reduce the burden it causes you, please write to the Federal Communications Commission, AMD-PERM, Paperwork Reduction Project (3060-0678), Washington, DC 20554. We will also accept your comments regarding the Paperwork Reduction Act aspects of this collection via the Internet if you send them to PRA@fcc.gov. PLEASE DO NOT SEND COMPLETED FORMS TO THIS ADDRESS.

Remember - You are not required to respond to a collection of information sponsored by the Federal government, and the government may not conduct or sponsor this collection, unless it displays a currently valid OMB control number or if we fail to provide you with this notice. This collection has been assigned an OMB control number of 3060-0678.

THE FOREGOING NOTICE IS REQUIRED BY THE PAPERWORK REDUCTION ACT OF 1995, PUBLIC LAW 104-13, OCTOBER 1, 1995, 44 U.S.C. SECTION 3507.