Date & Time Filed: Feb 3 2004 11:10:44:960AM File Number: SES-MOD-INTR2004-00216

FCC APPLICATION FOR SPACE AND EARTH STATION:MOD OR AMD - MAIN FORM	FCC Use Only
FCC 312 MAIN FORM FOR OFFICIAL USE ONLY	

APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:

MOD E000166 Germantown VSAT Consolidation

-8. Legal N	ame of App	plicant			
N	lame:	Hughes Network Systems, Inc.	Phone Number:	301-428-5500	
	OBA Vame:		Fax Number:		
S	treet:	11717 Exploration Lane	E–Mail:		
C	City:	Germantown	State:	MD	
C	Country:	USA	Zipcode:	20876 –	
A	ttention:	Ken Sahai			

9–16. Name of Contact Representative (If other than applicant)

Name: John P. Janka Phone Number: 202–637–2200

Company: Latham & Watkins **Fax Number:** 202–637–2201

Street: 555 Eleventh Street, NW **E-Mail:**

Suite 1000

City: Washington State: DC

Country: USA **Zipcode:** 20004–1304

Contact Relationship: Legal Counsel

Title:

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.

- a1. Earth Station
- a2. Space Station

(N/A) b1. Application for License of New Station

(N/A) 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
- b5. Assignment of License or Registration
- 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

(N/A) b10. Other (Please specify)

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):							
17d.							
Fee Classification A CGV – Fixed Satellite VSAT System							
18. If this filing is in reference to an existing station, enter:	19. If this filing is an amendment to a pending a modification please enter only the file number:	pplication enter both fields, if this filing is a					
(a) Call sign of station: E000166	(a) Date pending application was filed:	(b) File number:					
L000100		SESMOD2003040900485					

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:
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 22. If earth station applicant, check all that apply.
only one. Using U.S. licensed satellites
Common Carrier
23. If applicant is providing 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).
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: (Please specify additional frequencies in an attachment)

TYPE OF STATION

25. CLASS OF STATION: Choose the button	next to the class of sta	tion that applies. Choose only	one.	
a. Fixed Earth Station				
o b. Temporary–Fixed Earth Station				
o. 12/14 GHz VSAT Network				
d. Mobile Earth Station				
e. Geostationary Space Station				
f. Non–Geostationary Space Station				
g. Other (please specify)				
26. TYPE OF EARTH STATION FACILITY: Transmit/Receive Transmit_Only	♣ Receive_Only	- N/Δ		
Transmit/Receive Transmit-Only "For Space Station applications, select N/A."	O Receive—Only	O 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.)
a — authorization to add new emission designator and related service
b — authorization to change emission designator and related service
c — authorization to increase EIRP and EIRP density
d — authorization to replace antenna
e — authorization to add antenna
f — authorization to relocate fixed station
g — authorization to change frequency(ies)
h — authorization to add frequency
i — authorization to add Points of Communication (satellites & countries)
j — authorization to change Points of Communication (satellites & tountries)
k — authorization for facilities for which environmental assessment and
radiation hazard reporting is required
1 — authorization to change orbit location
m — authorization to perform fleet management
n — authorization to extend milestones
o — Other (Please specify)

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 Rad Haz
ALIEN OWNERSHIP Earth station applicants not proposing to provide broadcast, common carrier, aeron	autical 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?	٥	Yes	•	No	0	N/A
30. Is the applicant an alien or the representative of an alien?	0	Yes	0	No	•	N/A
31. Is the applicant a corporation organized under the laws of any foreign government?	0	Yes	0	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?	0	Yes	0	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 foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	O Yes O	No 👩 N/A
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.	o 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.	O 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 attempting 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	O 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 PendingLit	O 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	O 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	O No
42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, w coordinated or is in the process of coordinating the space station? Mexico	hat administr	ation has

43. Description. (Summarize the nature of the application and the services to be provided). (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

Please see the Attachment for a complete description of the modifications to earth station license E000166 proposed by this application. No changes are proposed to the other types of antennas authorized under E000166 that do not appear on this application.

Descriptn

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.

true	, complete and correct to the best of his or he	r knowledge and belief	, and are made in good fa	aith.	
44.	Applicant is a (an): (Choose the button next t	o applicable response.)			
 Individual Unincorporated Association Partnership Corporation Governmental Entity Other (please specify) 					
	45. Name of Person Signing Joslyn Read		46. Title of Person Sign Assistant Vice Presiden		
_	Please supply any need attachments.	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 St	tation Site					
E1: Site Identifier:	HUB-C	E5. Call Sign:	E000166			
E2: Contact Name	Dave Zatloukal	E6. Phone Number:	301-428-5500			
E3. Street:	11717 Exploration Lane	E7. City:	Germantown			
		E8. County:	Montgomery			
E4. State	MD	E9. Zip Code	20876			
E10. Area of Opera	tion:	N/A				
E11. Latitude:	39 °10 '43.0 "N					
E12. Longitude:	77 °14 '51.0 "W					
E13. Lat/Lon Coord	dinates are:	O NAD-27	● NAD-83	O N/A		
E14. Site Elevation (AMSL):		155.4 meters				
ı						

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 as a technical analysis showing compliance with two–degree spacing policy.

E16. If the proposed antenna(s) do not operate in the Fixed Satellite Se Satellite Service (FSS) with non–geostationary satellites, do(es) the progain patterns specified in Section 25.209(a2) and (b) as demonstrated by measurements?	O Yes	O No	⊚ N/A	
E17. Is the facility operated by remote control? If YES, provide the location.	O Yes	0	No	
E18. Is frequency coordination required? If YES, attach a frequency coordination	ordination report as	O Yes	•	No
E19. Is coordination with another country required? If YES, attach the r coordination contours as	name of the country(ies) and plot of	O Yes	•	No
E20. FAA Notification – (See 47 CFR Part 17 and 47 CFR part 25.1 have you attached a copy of a completed FCC Form 854 and/or the FAA the structure to aviation? FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL APPLICATION.	A's study regarding the potential hazard of	O Yes	•	No
POINTS OF COMMUNICATION		1		
Satellite Name: PERMITTED LIST If you selected OTHER, pleas	se enter the following:			
E21. Common Name:	E22. ITU Name:			
E23. Orbit Location:	E24. Country:			
POINTS OF COMMUNICATION (Destination Points)	-			
E25. Site Identifier:				

E26. Common Name:	E27. Country:

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size <meters></meters>	E41/42. Antenna Gain Transmint and/or Recieve (dBi atGHz)
HUB-C	HUB-C 7.6M	1	NEC	APS-12/14-F 64A	7.6	56.7 dBi at 12.0
						59.6 dBi at 14.0

Id	Diameter		,	Height Above Ground Level	Input Power at antenna flange	E39. Maximum Antenna Height Above Rooftop (meters)	EIRP for al
HUB-C 7.6M	0.0/0.0	29.3	184.7	20.8	250.0	8.5	83.6

FREQUENCY

	E43/44. Frequency Bands (MHz)				E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
HUB-C 7.6M	14000 14500	Т	Horizontal and Vertical	400KG7D	59.0	39.0

E50. Modulation entirety.)	and Services (If th	e complete description	on does not appear in	this box, please go to	o the end of the form	to view it in its
BPSK, DATA	, 256 KSPS, OU	TROUTE CARRIER				
HUB-C 7.6M	14000 14500	Т	Horizontal and Vertical	1M60G7D	65.0	39.0
E50. Modulation entirety.)	and Services (If th	e complete description	on does not appear in	this box, please go to	the end of the form	to view it in its
BPSK, DATA	, 1024 KSPS, O	UTROUTE CARRIE	R			
HUB-C 7.6M	11700 12200	R	Horizontal and Vertical	200KG7D	0.0	0.0
E50. Modulation entirety.)	and Services (If th	e complete description	on does not appear in	this box, please go to	the end of the form	to view it in its
BPSK OR MS	к, DATA, 128 к	SPS, INROUTE C	ARRIER			
HUB-C 7.6M	11700 12200	R	Horizontal and Vertical	400KG7D	0.0	0.0

E50. Modulation entirety.)	and Services (If the	ne complete descripti	on does not appear in	n this box, please go	to the end of the form	to view it in its
BPSK OR MS	K, DATA, 256 K	SPS, INROUTE C	'ARRIER			
HUB-C 7.6M	11700 12200	R	Horizontal and Vertical	800KG7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	ne complete descripti	on does not appear is	n this box, please go	to the end of the form	to view it in its
BPSK OR MS	K, DATA, 512 K	SPS, INROUTE C	CARRIER			
HUB-C 7.6M	14000 14500	Т	Horizontal and Vertical	6M00G7D	70.8	39.0
E50. Modulation entirety.)	and Services (If the	ne complete descripti	on does not appear in	n this box, please go	to the end of the form	to view it in its
QPSK, DATA	, 5 MSPS, MULT	'IMEDIA BROADC <i>A</i>	AST CARRIER			
HUB-C 7.6M	14000 14500	Т	Horizontal and Vertical	12M0G7D	73.8	39.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

QPSK, DATA, 10 MSPS, MULTIMEDIA BROADCAST CARRIER

FREQUENCY COORDINATION

			Range of Satellite Arc Eastern/West	Station Azimuth	Antenna Elevation Angle	Station Azimuth Angle	Antenna Elevation Angle Western	E60. Maximum EIRP Density toward the Horizon (dBW/4kHz)
HUB-C 7.6M	Geostationary	14000 14500	60.0/143.0	153.8	41.2	254.1	10.0	-13.6

REMOTE CONTROL POINT LOCATION

E61. Call Sign		E66. Phone Number		
NOTE: Please enter the callsign of the control callsign for which this application is being filed.				
E62. Street Address				
E63. City	E68. County		E67/68.	E64. Zip Code
			State/Country /	

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-D E5. Call Sign: E000166 E6. Phone E2: Contact Name Dave Zatloukal 301-428-5500 Number: E3. Street: 11717 Exploration E7. City: Germantown Lane E8. County: Montgomery E4. State E9. Zip Code MD 20876 E10. Area of Operation: N/A E11. Latitude: 39°10'42.0"N E12. Longitude: 77 °14 '53.0 "W E13. Lat/Lon Coordinates are: N/A NAD-27 **⋒** NAD-83 E14. Site Elevation (AMSL): 155.5 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 as a technical analysis showing compliance with two–degree spacing policy.

E16. If the proposed antenna(s) do not operate in the Fixed Satellite Se Satellite Service (FSS) with non–geostationary satellites, do(es) the progain patterns specified in Section 25.209(a2) and (b) as demonstrated by measurements?	O Yes	O No	⊚ N/A	
E17. Is the facility operated by remote control? If YES, provide the location.	O Yes	0	No	
E18. Is frequency coordination required? If YES, attach a frequency coordination	ordination report as	O Yes	•	No
E19. Is coordination with another country required? If YES, attach the r coordination contours as	name of the country(ies) and plot of	O Yes	•	No
E20. FAA Notification – (See 47 CFR Part 17 and 47 CFR part 25.1 have you attached a copy of a completed FCC Form 854 and/or the FAA the structure to aviation? FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL APPLICATION.	A's study regarding the potential hazard of	O Yes	•	No
POINTS OF COMMUNICATION		1		
Satellite Name: PERMITTED LIST If you selected OTHER, pleas	se enter the following:			
E21. Common Name:	E22. ITU Name:			
E23. Orbit Location:	E24. Country:			
POINTS OF COMMUNICATION (Destination Points)	-			
E25. Site Identifier:				

E26. Common Name:	E27. Country:

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer		E32. Antenna Size <meters></meters>	E41/42. Antenna Gain Transmint and/or Recieve (dBi atGHz)
HUB-D	HUB-D 7.6M	1	NEC	APS-12/14-F07 64A	7.6	56.7 dBi at 12.0
						59.6 dBi at 14.0

Id	Diameter		, ,	Height Above Ground Level	Input Power at antenna flange	E39. Maximum Antenna Height Above Rooftop (meters)	EIRP for al
HUB-D 7.6M	0.0/0.0	30.8	186.2	22.3	250.0	8.5	83.6

FREQUENCY

	E43/44. Frequency Bands (MHz)				E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
HUB-D 7.6M	14000 14500	Т	Horizontal and Vertical	400KG7D	59.0	39.0

E50. Modulation entirety.)	and Services (If the	e complete description	on does not appear in	this box, please go to	o the end of the form	to view it in its
BPSK, DATA	, 256 KSPS, OU	TROUTE CARRIER				
HUB-D 7.6M	14000 14500	Т	Horizontal and Vertical	1M60G7D	65.0	39.0
E50. Modulation entirety.)	and Services (If the	e complete description	on does not appear in	this box, please go to	o the end of the form	to view it in its
BPSK, DATA	, 1024 KSPS, O	UTROUTE CARRIE	R			
HUB-D 7.6M	11700 12200	R	Horizontal and Vertical	200KG7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	e complete description	on does not appear in	this box, please go to	o the end of the form	to view it in its
BPSK OR MS	K, DATA, 128 K	SPS, INROUTE C	ARRIER			
HUB-D 7.6M	11700 12200	R	Horizontal and Vertical	400KG7D	0.0	0.0

E50. Modulation entirety.)	on and Services (If	the complete desc	cription does not appear	in this box, please	go to the end of t	he form to view it in its
BPSK OR M	MSK, DATA, 256	KSPS, INROUT	TE CARRIER			
HUB–D 7.6M	11700 12200	R	Horizontal and Vertical	800KG7D	0.0	0.0
E50. Modulation entirety.)	on and Services (If	the complete desc	cription does not appear	in this box, please	go to the end of t	he form to view it in its
	1,4000	lm.		CM00C7D	I70.0	J20.0
HUB-D 7.6M	14000 14500	Т	Horizontal and Vertical	6M00G7D	70.8	39.0
E50. Modulation entirety.)	on and Services (If	the complete desc	cription does not appear	in this box, please	go to the end of t	he form to view it in its
QPSK, DAT	CA, 5 MSPS, MUI	TIMEDIA BRO	ADCAST CARRIER			
HUB-D 7.6M	14000 14500	Т	Horizontal and Vertical	12M0G7D	73.8	39.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

QPSK, DATA, 1024 KSPS, MULTIMEDIA BROADCAST CARRIER

FREQUENCY COORDINATION

	E51. Satellite Orbit Type	Frequency Limits(MHz)	Range of Satellite Arc Eastern/West	Station Azimuth	E57. Antenna Elevation Angle Eastern Limit	Station Azimuth Angle	Elevation Angle Western	E60. Maximum EIRP Density toward the Horizon (dBW/4kHz)
HUB-D 7.6M	Geostationary	14000 14500	60.0/143.0	153.8	41.2	254.1	10.0	-13.6

REMOTE CONTROL POINT LOCATION

E61. Call Sign		E66. Phone Number		
NOTE: Please enter the callsign of the contro callsign for which this application is being filed.				
E62. Street Address				
E63. City	E68. County		E67/68. State/Country	E64. Zip Code

SATELLITE EARTH STATION AUTHORIZATIONS

FCC Form 312 – Schedule B:(Technical and Operational Description) FOR OFFICIAL USE ONLY

Location of Earth St	ation Site					
E1: Site Identifier:	HUB-E	E5. Call Sign:	E000166			
E2: Contact Name	Dave Zatloukal	E6. Phone Number:	301-428-5500			
E3. Street:	11717 Exploration Lane	E7. City:	Germantown			
		E8. County:	Montgomery			
E4. State	MD	E9. Zip Code	20876			
E10. Area of Operat	tion:	N/A				
E11. Latitude:	39°10'46.0"N					
E12. Longitude:	77 °14 '49.0 "W					
E13. Lat/Lon Coord	linates are:	NAD-27	O NAD-83	O N/A		
E14. Site Elevation	(AMSL):	135.8 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 as a technical analysis showing compliance with two–degree spacing policy.	• Yes	O No	O N/A
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E16. If the proposed antenna(s) do not operate in the Fixed Satellite Set Satellite Service (FSS) with non–geostationary satellites, do(es) the progain patterns specified in Section 25.209(a2) and (b) as demonstrated by measurements?	O Yes	O No	⊚ N/A	
E17. Is the facility operated by remote control? If YES, provide the loca point.	ation and telephone number of the control	O Yes	•	No
E18. Is frequency coordination required? If YES, attach a frequency coordination	ordination report as	O Yes	•	No
E19. Is coordination with another country required? If YES, attach the recoordination contours as	name of the country(ies) and plot of	O Yes	•	No
E20. FAA Notification – (See 47 CFR Part 17 and 47 CFR part 25.1 have you attached a copy of a completed FCC Form 854 and/or the FAA the structure to aviation? FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL APPLICATION.	A's study regarding the potential hazard of	O Yes	•	No
POINTS OF COMMUNICATION		•		
Satellite Name: PERMITTED LIST If you selected OTHER, please	se enter the following:			
E21. Common Name:	E22. ITU Name:			
E23. Orbit Location:	E24. Country:			
POINTS OF COMMUNICATION (Destination Points)	•			
E25. Site Identifier:				

E26. Common Name:	E27. Country:
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ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer			E41/42. Antenna Gain Transmint and/or Recieve (dBi atGHz)
HUB-E	HUB-E 6.1M	1	VERTEX	6.1KPK	6.1	55.9 dBi at 11.95
						57.3 dBi at 14.25

Id	Diameter		, ,	Height Above Ground Level	Input Power at	E39. Maximum Antenna Height Above Rooftop (meters)	EIRP for al
HUB-E 6.1M	0.0/0.0	19.9	155.7	12.8	550.0	7.1	84.7

FREQUENCY

	E43/44. Frequency Bands (MHz)				E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
HUB-E 6.1M	11700 12200	R	Horizontal and Vertical	200KG7D	0.0	0.0

E50. Modulation entirety.)	and Services (If the	ne complete description	on does not appear ir	this box, please go t	to the end of the form	to view it in its
OQPSK, DAT	A, 128 KSPS, R	ETURN CARRIER				
HUB-E 6.1M	11700 12200	R	Horizontal and Vertical	400KG7D	0.0	0.0
E50. Modulation entirety.) OQPSK, DAT	and Services (If the A., 256 KSPS, R		on does not appear ir	this box, please go t	to the end of the form	to view it in its
HUB-E 6.1M	14000 14500	Т	Horizontal and Vertical	400KG7D	52.9	32.9
E50. Modulation entirety.)	and Services (If the	ne complete description	on does not appear ir	this box, please go t	o the end of the form	to view it in its
BPSK, DATA	., 256 KSPS, OU	TROUTE CARRIER				
HUB–E 6.1M	14000 14500	Т	Horizontal and Vertical	1M60G7D	58.9	32.9

E50. Modulation entirety.)	and Services (If the	e complete description	on does not appear in	this box, please go to	o the end of the form	to view it in its
BPSK, DATA	, 1024 KSPS, O	UTROUTE CARRIE	R			
HUB-E 6.1M	11700 12200	R	Horizontal and Vertical	200KG7D	0.0	0.0
E50. Modulation entirety.) BPSK OR MS	and Services (If the			this box, please go to	o the end of the form	to view it in its
HUB-E 6.1M	11700 12200	R	Horizontal and Vertical	400KG7D	0.0	0.0
E50. Modulation entirety.) BPSK OR MS	and Services (If the			this box, please go to	o the end of the form	to view it in its
HUB–E 6.1M	11700 12200	R	Horizontal and Vertical	800KG7D	0.0	0.0

E50. Modulation entirety.)	and Services (If the	ne complete description	on does not appear in	n this box, please go t	to the end of the form	to view it in its
BPSK OR MS	SK, DATA, 512 K	SPS, INROUTE C	'ARRIER			
HUB-E 6.1M	14000 14500	Т	Horizontal and Vertical	6M00G7D	67.7	35.9
E50. Modulation entirety.)	and Services (If the	ne complete description	on does not appear in	n this box, please go t	to the end of the form	to view it in its
QPSK, DATA	A, 5 MSPS, MULT	IMEDIA BROADCA	ST CARRIER			
HUB-E 6.1M	14000 14500	Т	Horizontal and Vertical	12M0G7D	70.7	35.9
E50. Modulation entirety.)	and Services (If the	ne complete descripti	on does not appear in	n this box, please go t	to the end of the form	to view it in its
QPSK, DATA	A, 10 MSPS, MUL	TIMEDIA BROADC	AST CARRIER			
HUB–E 6.1M	14000 14500	Т	Horizontal and Vertical	24M0G7D	79.7	41.9

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

QPSK, DATA, 20 MSPS, MULTIMEDIA BROADCAST CARRIER

HUB-E 6.1M	14000	Т	Horizontal and	36M0G7D	79.7	40.2
1102 2 0.1111	14500	•	Vertical	301/10/07/2	19.1	10.2

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

QPSK, DATA, 30 MSPS, MULTIMEDIA BROADCAST CARRIER

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	E54/55. Range of Satellite Arc Eastern/West ern Limit	Station Azimuth Angle	E57. Antenna Elevation Angle Eastern Limit	Station Azimuth Angle	E59. Antenna Elevation Angle Western Limit	E60. Maximum EIRP Density toward the Horizon (dBW/4kHz)
HUB-E 6.1M	Geostationary	11700 12200	62.0/143.0	156.7	41.9	254.1	10.0	0.0
	Geostationary	14000 14500	62.0/143.0	156.7	41.9	254.1	10.0	-8.4

REMOTE CONTROL POINT LOCATION

E61. Call Sign NOTE: Please enter the callsign of callsign for which this application is		E66. Phone Number	
E62. Street Address			
E63. City	E68. County	E67/68. State/Country	E64. Zip Code

SATELLITE EARTH STATION AUTHORIZATIONS FCC Form 312 – Schedule B:(Technical and Operational Description) FOR OFFICIAL USE ONLY

Location of Earth St	tation Site				
E1: Site Identifier:	HUB-F	E5. Call Sign:	E000166		
E2: Contact Name	Dave Zatloukal	E6. Phone Number:	301-428-5500		
E3. Street:	11717 Exploration Lane	E7. City:	Germantown		
		E8. County:	Montgomery		
E4. State	MD	E9. Zip Code	20876		
E10. Area of Opera	tion:	N/A			
E11. Latitude:	39 °10 '46.0 "N				
E12. Longitude:	77 °14 '54.0 "W				
E13. Lat/Lon Coord	linates are:	O NAD-27	● NAD-83	O N/A	
E14. Site Elevation	(AMSL):	143.3 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 as a technical analysis showing compliance with two–degree spacing policy.	Yes	O No	O 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	O No	⊚ N/A

E17. Is the facility operated by remote control? If YES, provide the locat point.	ion and telephone number of the control	O Yes	No
E18. Is frequency coordination required? If YES, attach a frequency coordination	rdination report as	<u> </u>	
		O Yes	No
E19. Is coordination with another country required? If YES, attach the na coordination contours as	ame of the country(ies) and plot of	O Yes	No
E20. FAA Notification – (See 47 CFR Part 17 and 47 CFR part 25.11 have you attached a copy of a completed FCC Form 854 and/or the FAA the structure to aviation? FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL RAPPLICATION.	's study regarding the potential hazard of	O Yes	No
POINTS OF COMMUNICATION		1	
Satellite Name: PERMITTED LIST If you selected OTHER, please	e enter the following:		
E21. Common Name:	E22. ITU Name:		
E23. Orbit Location:	E24. Country:		
POINTS OF COMMUNICATION (Destination Points)			
E25. Site Identifier:			
E26. Common Name:	E27. Country:		

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size <meters></meters>	E41/42. Antenna Gain Transmint and/or Recieve (dBi atGHz)
HUB-F	HUB-F 5.6M	1	ANDREW	ES56-1	5.6	55.4 dBi at 12.00
						56.8 dBi at 14.00

Id	Diameter		` ′	Height Above	E38. Total Input Power at antenna flange (Watts)		EIRP for al
HUB-F 5.6M	0.0/0.0	28.9	172.2	22.3	125.0	6.6	77.7

FREQUENCY

	E43/44. Frequency Bands (MHz)				E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
HUB-F 5.6M	11700 12200	R	Horizontal and Vertical	200KG7D	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

OQPSK,	DATA,	128	KSPS,	RETURN	CARRIER

HUB-F 5.6M 11700 12200		R	Horizontal and Vertical	400KG7D	0.0	0.0
E50. Modulation entirety.)	and Services (If	the complete descript	tion does not appear	in this box, please	go to the end of the	he form to view it in its
OQPSK, DAT	PA, 256 KSPS,	RETURN CARRIER				
HUB-F 5.6M	14000 14500	Т	Horizontal and Vertical	400KG7D	52.9	32.9
BPSK, DATA	, 256 KSPS, C	UTROUTE CARRIE	R			
HUB-F 5.6M	14000 14500	Т	Horizontal and Vertical	1M60G7D	58.9	32.9
E50. Modulation entirety.) BPSK, DATA		the complete descript OUTROUTE CARRI		in this box, please	go to the end of the	he form to view it in its

HUB-F 5.6M	11700 12200	R	Horizontal and Vertical	200KG7D	0.0	0.0
E50. Modulation entirety.)	on and Services	(If the complete de	escription does not appear	in this box, please	go to the end of t	he form to view it in its
BPSK OR M	ISK, DATA, 12	8 KSPS, INRO	UTE CARRIER			
HUB-F 5.6M	11700 12200	R	Horizontal and Vertical	400KG7D	0.0	0.0
BPSK OR M	ISK, DATA, 23	66 KSPS, INRO	OIE CARRIER			
HUB-F 5.6M	11700 12200	R	Horizontal and Vertical	800KG7D	0.0	0.0
E50. Modulation	on and Services	(If the complete de	escription does not appear	in this box, please	go to the end of t	he form to view it in its

HUB-F 5.6M	14000 14500	Т	Horizontal and Vertical	6M00G7D	67.7	35.9
E50. Modulation entirety.)	and Services (If	the complete de	escription does not appear	in this box, please	go to the end of the	ne form to view it in its
QPSK, DATA	, 5 MSPS, MUI	TIMEDIA BRO	OADCAST CARRIER			
HUB-F 5.6M	14000 14500	Т	Horizontal and Vertical	12M0G7D	70.7	35.9
QPSK, DATA	, 10 MSPS, MU	ILTIMEDIA BI	ROADCAST CARRIER			
HUB-F 5.6M	14000 14500	Т	Horizontal and Vertical	24M0G7D	77.7	39.9
E50. Modulation entirety.)	· 		escription does not appear	in this box, please	go to the end of the	ne form to view it in its
QPSK, DATA	, 20 MSPS, MU	ILTIMEDIA BI	ROADCAST CARRIER			

HUB-F 5.6M	14000 14500	Т	Horizontal and Vertical	36M0G7D	77.7	38.2
E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its						
entirety.)						

QPSK, DATA, 30 MSPS, MULTIMEDIA BROADCAST CARRIER

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	E54/55. Range of Satellite Arc Eastern/West ern Limit	Station Azimuth Angle	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-F 5.6M	Geostationary	11700 12200	62.0/143.0	156.7	41.9	254.1	10.0	0.0
	Geostationary	14000 14500	62.0/143.0	156.7	41.9	254.1	10.0	-9.9

E61. Call Sign	E66. Phone Number
NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.	
E62. Street Address	

E63. City	E68. County	E67/68.	E64. Zip Code
		State/Country	
		/	

Location of Earth Station Site

E1: Site Identifier: HUB-G E5. Call Sign: E000166

E2: Contact Name Dave Zatloukal E6. Phone 301–428–5500

Number:

E3. Street: 10450 Pacific E7. City: San Diego

Center Court

E8. County: San Diego

E4. State CA E9. Zip Code 92121

E10. Area of Operation: N/A

E11. Latitude: 32 °54 '31.0 "N

E12. Longitude: 117 °11 '26.0 "W

E13. Lat/Lon Coordinates are: NAD-27 NAD-83 N/A

E14. Site Elevation (AMSL): 97.2 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 as a technical analysis showing compliance with two–degree spacing policy.	● Yes	s C	No	O 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?	O Yes	s C	No	● N/A
E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	O Ye	es	•	No
E18. Is frequency coordination required? If YES, attach a frequency coordination report as	O Ye	es	•	No
E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	O Ye	es	•	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.	O Ye	es	•	No
POINTS OF COMMUNICATION	-			
Satellite Name: PERMITTED LIST 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:	
E26. Common Name:	E27. Country:

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model		E41/42. Antenna Gain Transmint and/or Recieve (dBi atGHz)
HUB-G	HUB-G 4.6M	1	VERTEX	4.57KPK	4.6	53.2 dBi at 12.00
						54.5 dBi at 14.00

Id	Diameter		,	Height Above Ground Level	Input Power at antenna flange	0	EIRP for al
HUB-G 4.6M	0.0/0.0	5.2	102.4	0.0	2.0	0.0	57.5

FREQUENCY

	E43/44. Frequency Bands (MHz)	E45. T/R Mode			E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
HUB-G 4.6M	14000 14500	Т	Horizontal and Vertical	400KG7D	57.5	37.5

E50. Modulation entirety.)	and Services (If the	ne complete descripti	on does not appear in	n this box, please go	to the end of the form	to view it in its
BPSK, DATA	A, 256 KSPS, OU	TROUTE CARRIEF				
HUB-G 4.6M	14000 14500	Т	Horizontal and Vertical	1M60G7D	57.5	31.5
E50. Modulation entirety.)	and Services (If the	ne complete descripti	on does not appear in	n this box, please go	to the end of the form	to view it in its
BPSK, DATA	A, 1024 KSPS, C	OUTROUTE CARRIE	CR			
HUB-G 4.6M	11700 12200	R	Horizontal and Vertical	200KG7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	ne complete descripti	on does not appear in	n this box, please go	to the end of the form	to view it in its
BPSK OR MS	SK, DATA, 128 F	SPS, INROUTE C	'ARRIER			
HUB-G 4.6M	11700 12200	R	Horizontal and Vertical	400KG7D	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK OR MSK, DATA, 256 KSPS, INROUTE CARRIER

HUB-G 4.6M	11700	R	Horizontal and	800KG7D	0.0	0.0
	12200		Vertical			

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK OR MSK, DATA, 512 KSPS, INROUTE CARRIER

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	E54/55. Range of Satellite Arc Eastern/West ern Limit	Station Azimuth Angle	E57. Antenna Elevation Angle Eastern Limit	E58. Earth Station Azimuth Angle Western Limit		E60. Maximum EIRP Density toward the Horizon (dBW/4kHz)
HUB-G 4.6M	Geostationary	11700 12200	60.0/143.0	109.3	18.8	221.7	42.7	0.0
	Geostationary	14000 14500	60.0/143.0	109.3	18.8	221.7	42.7	-16.9

E61. Call Sign		E66. Phone Number	
NOTE: Please enter the callsign callsign for which this application is	of the controlling station, not the s being filed.		
E62. Street Address			
E63. City	E68. County	E67/68. State/Country	E64. Zip Code
		/	

Location of Earth St	tation Site			
E1: Site Identifier:	MESH	E5. Call Sign:	E000166	
E2: Contact Name	Dave Zatloukal	E6. Phone Number:	301-428-5500	
E3. Street:		E7. City:		
		E8. County:		
E4. State		E9. Zip Code		
E10. Area of Opera	tion:	CONUS, AK, HI, F	PR, VI	
E11. Latitude:	0 °0 '0.0 "			
E12. Longitude:	0 °0 '0.0 "			
E13. Lat/Lon Coord	dinates are:	O NAD-27	○ NAD-83	N/A
E14. Site Elevation	(AMSL):	0.0 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 as a technical analysis showing compliance with two–degree spacing policy.	● Yes	O No	O 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?	O Yes	O No	● N/A

E17. Is the facility operated by remote control? If YES, provide the lopoint.	● Yes	O No	
E18. Is frequency coordination required? If YES, attach a frequency c	coordination report as	<u> </u>	
		O Yes	No
E19. Is coordination with another country required? If YES, attach the coordination contours as	e name of the country(ies) and plot of	O Yes	No
E20. FAA Notification – (See 47 CFR Part 17 and 47 CFR part 25 have you attached a copy of a completed FCC Form 854 and/or the Father structure to aviation? FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL APPLICATION.	AA's study regarding the potential hazard of	O Yes	No
POINTS OF COMMUNICATION		•	
Satellite Name: PERMITTED LIST If you selected OTHER, ple	ease enter the following:		
E21. Common Name:	E22. ITU Name:		
E23. Orbit Location:	E24. Country:		
POINTS OF COMMUNICATION (Destination Points)			
E25. Site Identifier:			
E26. Common Name:	E27. Country:		
ANTENNA			

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size <meters></meters>	E41/42. Antenna Gain Transmint and/or Recieve (dBi atGHz)
MESH	MESH 1.8M	5000	Hughes Network Systems	PES-RFT-180	1.8	45.0 dBi at 12.00
						46.7 dBi at 14.00
	MESH 2.4			PES-RFT-240	2.4	47.1 dBi at 12.00
						48.8 dBi at 14.00
	MESH 1.2			PES-RFT-120	1.2	41.5 dBi at 12.00
						43.1 dBi at 14.00
	MESH 3.5		COMTECH	846400G1	3.5	50.9 dBi at 12.00
						52.3 dBi at 14.00

Id	Diameter		` ′	Height Above Ground Level	E38. Total Input Power at antenna flange (Watts)		EIRP for al
MESH 1.8M	0.0/0.0	0.0	0.0	0.0	1.5	0.0	48.6
MESH 2.4	0.0/0.0	0.0	0.0	0.0	3.1	0.0	53.7

MESH 3.5 0.0/0.0 FREQUENCY E28. Antenna Id Freque (MHz) MESH 1.8M 11700 12200 E50. Modulation and Sentirety.) BPSK OR QPSK,	3/44. equency Bands (Hz) 700 200 d Services (If the		E46. Antenna Polarization(H,V L,R) Horizontal and Vertical tion does not appear	156KG7D	E48. Maximum EIRP per Carrie (dBW) 0.0	Carrier (dBW/4kHz)
E28. Antenna Id Frequence (MHz) MESH 1.8M 11700 12200 E50. Modulation and Secutivety.) BPSK OR QPSK,	equency Bands (Hz) 700 200 1 Services (If the	T/R Mode R e complete descrip	Polarization(H,V L,R) Horizontal and Vertical	Designator 156KG7D	EIRP per Carrie (dBW)	ERIP Density per Carrier (dBW/4kHz)
Frequence (MHz) MESH 1.8M 11700 12200 E50. Modulation and Security.) BPSK OR QPSK,	equency Bands (Hz) 700 200 1 Services (If the	T/R Mode R e complete descrip	Polarization(H,V L,R) Horizontal and Vertical	Designator 156KG7D	EIRP per Carrie (dBW)	ERIP Density per Carrier (dBW/4kHz)
E50. Modulation and Sentirety.) BPSK OR QPSK,	200 1 Services (If the	e complete descrip	Vertical			
BPSK OR QPSK,			tion does not appear	in this box, please	go to the end of the for	m to view it in its
MESH 1 8M 14000						
14500		Т	Horizontal and Vertical	156KG7D	48.6	32.7
E50. Modulation and Sentirety.) BPSK OR QPSK,			I tion does not appear	in this box, please	go to the end of the for	m to view it in its

Horizontal and

Vertical

307KG7D

0.0

0.0

MESH 2.4

11700 12200

R

E50. Modulation entirety.)	and Services (If the	ne complete description	on does not appear in	this box, please go to	o the end of the form	to view it in its
BPSK OR QP	SK, DATA, MESH	CARRIER				
MESH 2.4	14000 14500	Т	Horizontal and Vertical	307KG7D	53.7	34.8
E50. Modulation entirety.) BPSK OR QP	SK, DATA, MESH		on does not appear in	this box, please go t	o the end of the form	to view it in its
MESH 1.2	11700 12200	R	Horizontal and Vertical	156KG7D	0.0	0.0
E50. Modulation entirety.) BPSK OR QP	and Services (If the SK, DATA, MESH		on does not appear in	this box, please go to	o the end of the form	to view it in its
MESH 1.2	14000 14500	Т	Horizontal and Vertical	156KG7D	45.0	29.1

E50. Modulation	and Services (If t	he complete descr	ription does not appear	in this box, please	go to the end of the	he form to view it in its
entirety.)		r	T	, r	6	
BPSK OR QF	SK, DATA, MESI	H CARRIER				
MESH 3.5	11700 12200	R	Horizontal and Vertical	2M46G7D	0.0	0.0
E50. Modulation entirety.) BPSK OR Q	PSK, DATA, MES		iphon does not appear	in this box, picase	go to the cha of the	he form to view it in its
MESH 3.5	14000 14500	Т	Horizontal and Vertical	2M46G7D	66.2	38.3
E50. Modulation entirety.) BPSK OR QF	and Services (If t		iption does not appear	in this box, please	go to the end of the	he form to view it in its

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	E54/55. Range of Satellite Arc Eastern/West ern 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)
MESH 1.8M	Geostationary	11700 12200	62.0/143.0	0.0	5.0	0.0	5.0	0.0
	Geostationary	14000 14500	62.0/143.0	0.0	5.0	0.0	5.0	-2.5
MESH 2.4	Geostationary	11700 12200	62.0/143.0	0.0	5.0	0.0	5.0	0.0
	Geostationary	14000 14500	62.0/143.0	0.0	5.0	0.0	5.0	-2.5
MESH 1.2	Geostationary	11700 12200	62.0/143.0	0.0	5.0	0.0	5.0	0.0
	Geostationary	14000 14500	62.0/143.0	0.0	5.0	0.0	5.0	-2.5
MESH 3.5	Geostationary	11700 12200	62.0/143.0	0.0	5.0	0.0	5.0	0.0
	Geostationary	14000 14500	62.0/143.0	0.0	5.0	0.0	5.0	-2.5

E66. Phone Number
301-428-5500

E62. Street Address 11717 Exploration Lane			
E63. City Germantown	E68. County Montgomery	E67/68. State/Country MD/ USA	E64. Zip Code 20876

Location of Earth Station Site

E1: Site Identifier: TR 1.2M E5. Call Sign: E000166

E2: Contact Name Dave Zatloukal E6. Phone 301–428–5500

Number:

E3. Street: E7. City:

E8. County:

E4. State E9. Zip Code

E10. Area of Operation: CONUS, AK, HI, VI, PR

E11. Latitude: 0 °0 '0.0 "

E12. Longitude: $0 \circ 0 '0.0 "$

E13. Lat/Lon Coordinates are: NAD-27 NAD-83 N/A

E14. Site Elevation (AMSL): 0.0 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 as a technical analysis showing compliance with two–degree spacing policy.	● Yes	· O¹	No	O 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?	O Yes	· O1	No	● N/A
E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	Ye	es	0	No
E18. Is frequency coordination required? If YES, attach a frequency coordination report as	O Ye	es	•	No
E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	O Ye	es	•	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.	O Ye	es	•	No
POINTS OF COMMUNICATION	-			
Satellite Name: PERMITTED LIST 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:	
E26. Common Name:	E27. Country:

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size <meters></meters>	E41/42. Antenna Gain Transmint and/or Recieve (dBi atGHz)
TR 1.2M	TR 1.2	100000	Prodelin Corp.	1134	1.2	41.5 dBi at 11.95
						43.1 dBi at 14.25

Id	Diameter		, ,	Height Above Ground Level	Input Power at antenna flange	E39. Maximum Antenna Height Above Rooftop (meters)	EIRP for al
TR 1.2	0.0/0.0	0.0	0.0	0.0	2.0	0.0	46.1

FREQUENCY

	E43/44. Frequency Bands (MHz)	E45. T/R Mode			E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
TR 1.2	11700 12200	R	Horizontal and Vertical	400KG7D	0.0	0.0

E50. Modulation entirety.)	and Services (If the	e complete description	on does not appear in	this box, please go to	o the end of the form	to view it in its	
	., 256KSPS, OUT	ROUTE CARRIER					
TR 1.2	11700 12200	R	Horizontal and Vertical	1M60G7D	0.0	0.0	
E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.) BPSK, DATA, 1024 KSPS, OUTROUTE CARRIER							
TR 1.2	11700 12200	R	Horizontal and Vertical	6M00G7D	0.0	0.0	
E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.) QPSK, DATA, 5 MSPS, MULTIMEDIA BROADCAST CARRIER							
TR 1.2	11700 12200	R	Horizontal and Vertical	12M0G7D	0.0	0.0	

E50. Modulation entirety.)	and Services (If the	e complete description	on does not appear in	this box, please go to	o the end of the form	to view it in its		
QPSK, DATA	, 10 MSPS, MUL	TIMEDIA BROADC	AST CARRIER					
TR 1.2	11700 12200	R	Horizontal and Vertical	24M0G7D	0.0	0.0		
entirety.)	E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.) QPSK, DATA, 20 MSPS, MULTIMEDIA BROADCAST CARRIER							
TR 1.2	11700 12200	R	Horizontal and Vertical	36M0G7D	0.0	0.0		
E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.) QPSK, DATA, 30 MSPS, MULTIMEDIA BROADCAST CARRIER								
TR 1.2	14000 14500	Т	Horizontal and Vertical	200KG7D	46.1	29.1		

E50. Modulation entirety.)	and Services (If the	e complete description	on does not appear in	this box, please go to	o the end of the form	to view it in its	
OQPSK, DAT	'A, 128 KSPS, R	ETURN CARRIER					
TR 1.2	14000 14500	Т	Horizontal and Vertical	400KG7D	46.1	26.1	
E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.) OQPSK, DATA, 256 KSPS, RETURN CARRIER							
TR 1.2	14000 14500	Т	Horizontal and Vertical	200KG7D	46.1	29.1	
E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.) BPSK OR MSK, DATA, 128 KSPS, INROUTE CARRIER							
TR 1.2	14000 14500	Т	Horizontal and Vertical	400KG7D	46.1	26.1	

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK OR MSK, DATA, 256 KSPS, INROUTE CARRIER

TR 1.2	14000	T	Horizontal and	800KG7D	46.1	23.1
	14500		Vertical			

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK OR MSK, DATA, 512 KSPS, INROUTE CARRIER

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	E54/55. Range of Satellite Arc Eastern/West ern Limit	Station Azimuth Angle	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)
TR 1.2	Geostationary	11700 12200	62.0/143.0	0.0	5.0	0.0	5.0	0.0
	Geostationary	14000 14500	62.0/143.0	0.0	5.0	0.0	5.0	-2.5

E61. Call Sign E000166 NOTE: Please enter the callsign of the contro callsign for which this application is being filed.	E66. Phone Number 301–428–5500			
E62. Street Address 11717 Exploration Lane				
E63. City Germantown	E68. County montgomery		E67/68. State/Country MD/ USA	E64. Zip Code 20876

SATELLITE EARTH STATION AUTHORIZATIONS

FCC Form 312 – Schedule B:(Technical and Operational Description)
FOR OFFICIAL USE ONLY

Location of Earth Sta	ation Site				
E1: Site Identifier:	TR 1.8M	E5. Call Sign:	E000166		
E2: Contact Name	Dave Zatloukal	E6. Phone Number:	301-428-5500		
E3. Street:		E7. City:			
		E8. County:			
E4. State		E9. Zip Code			
E10. Area of Operat	ion:	CONUS, AK, HI, V	I, PR		
E11. Latitude:	0 °0 '0.0"				
E12. Longitude:	0 °0 '0.0"				
E13. Lat/Lon Coord	inates are:	○ NAD-27	○ NAD-83	⊘ N/A	
E14. Site Elevation	(AMSL):	0.0 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 as a technical analysis showing compliance with two–degree spacing policy.	● Yes	O No	O 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?	O Yes	O No	⊗ N/A

E17. Is the facility operated by remote control? If YES, provide the locat point.	ion and telephone number of the control		O No
E18. Is frequency coordination required? If YES, attach a frequency coordination	rdination report as	O Yes	⊚ No
E19. Is coordination with another country required? If YES, attach the national contours as	ame of the country(ies) and plot of	O Yes	No
E20. FAA Notification – (See 47 CFR Part 17 and 47 CFR part 25.11 have you attached a copy of a completed FCC Form 854 and/or the FAA the structure to aviation? FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL FAPPLICATION.	's study regarding the potential hazard of	O Yes	No
POINTS OF COMMUNICATION			
Satellite Name: PERMITTED LIST If you selected OTHER, please	e enter the following:		
E21. Common Name:	E22. ITU Name:		
E23. Orbit Location:	E24. Country:		
POINTS OF COMMUNICATION (Destination Points)			
E25. Site Identifier:			
E26. Common Name:	E27. Country:		

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer		E32. Antenna Size <meters></meters>	E41/42. Antenna Gain Transmint and/or Recieve (dBi atGHz)
TR 1.8M	TR 1.8	50000	Prodelin Corp.	1184	1.8	45.0 dBi at 11.95
						46.7 dBi at 14.25

Id	Diameter		` ′	Height Above	Input Power at	E39. Maximum Antenna Height Above Rooftop (meters)	EIRP for al
TR 1.8	0.0/0.0	0.0	0.0	0.0	2.0	0.0	49.7

FREQUENCY

	E43/44. Frequency Bands (MHz)	E45. T/R Mode			E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
TR 1.8	11700 12200	R	Horizontal and Vertical	400KG7D	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK,	DATA,	256	KSPS,	OUTROUTE	CARRIER

TR 1.8	11700 12200	R	Horizontal and Vertical	1M60G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	he complete descripti	on does not appear	in this box, please	go to the end of t	he form to view it in its
BPSK, DATA	, 1024 KSPS, C	OUTROUTE CARRIE	lR.			
TR 1.8	11700 12200	R	Horizontal and Vertical	6M00G7D	0.0	0.0
QPSK, DATA	, 5 MSPS, MULT	TIMEDIA BROADC <i>A</i>	AST CARRIER			
TR 1.8	11700 12200	R	Horizontal and Vertical	12M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	he complete descripti	on does not appear	in this box, please	go to the end of t	he form to view it in its
QPSK, DATA	, 10 MSPS, MUI	TIMEDIA BROADO	AST CARRIER			

TR 1.8	11700 12200	R	Horizontal and Vertical	24M0G7D	0.0	0.0		
E50. Modulation entirety.)	and Services (If the	ne complete description	on does not appear i	n this box, please go t	o the end of the form	to view it in its		
QPSK, DATA	, 20 MSPS, MUL	TIMEDIA BROADC	AST CARRIER					
TR 1.8	11700 12200	R	Horizontal and Vertical	36M0G7D	0.0	0.0		
E50. Modulation entirety.) QPSK, DATA		TIMEDIA BROADC		n this box, please go t				
TR 1.8	14000 14500	Т	Horizontal and Vertical	200KG7D	49.7	32.7		
E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its intirety.) OQPSK, DATA, 128 KSPS, RETURN CARRIER								

TR 1.8	14000 14500	Т	Horizontal and Vertical	400KG7D	49.7	29.7
E50. Modulati entirety.)	on and Services	(If the complete de	escription does not appear	in this box, please	go to the end of the	he form to view it in its
OQPSK, D.	ATA, 256 KSPS	S, RETURN CAR	RIER			
TR 1.8	14000 14500	Т	Horizontal and Vertical	200KG7D	49.7	32.7
BPSK OK	MSK, DATA, 12	to KSPS, INKO	OIE CARRIER			
TR 1.8	14000 14500	Т	Horizontal and Vertical	400KG7D	49.7	29.7
entirety.)	on and Services MSK, DATA, 25		escription does not appear UTE CARRIER	in this box, please	go to the end of the	ne form to view it in its

Vertical Vertical	ĺ	TR 1.8	14000	T	Horizontal and	800KG7D	49.7	26.7
			14500		Vertical			

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK OR MSK, DATA, 512 KSPS, INROUTE CARRIER

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	Range of Satellite Arc Eastern/West	E56. Earth Station Azimuth Angle Eastern Limit	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)
TR 1.8	Geostationary	11700 12200	62.0/143.0	0.0	5.0	0.0	5.0	0.0
	Geostationary	14000 14500	62.0/143.0	0.0	5.0	0.0	5.0	-2.5

REMOTE CONTROL POINT LOCATION

E61. Call Sign E000166	E66. Phone Number 301–428–5500
NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.	

E62. Street Address 11717 Exploration Lane

E63. City	E68. County	E67/68.	E64. Zip Code
Germantown	Montgomery	State/Country	20876
Germantown	Wildingomery	MD/ USA	20070

Location of Earth Station Site

E1: Site Identifier: TR 2.4M E5. Call Sign: E000166

E2: Contact Name Dave Zatloukal E6. Phone 301–428–5500

Number:

E3. Street: E7. City:

E8. County:

E4. State E9. Zip Code

E10. Area of Operation: CONUS, AK, HI, VI, PR

E11. Latitude: 0 °0 '0.0 "

E12. Longitude: 0 °0 '0.0 "

E13. Lat/Lon Coordinates are: NAD-27 NAD-83 N/A

E14. Site Elevation (AMSL): 0.0 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 as a technical analysis showing compliance with two–degree spacing policy.	● Yes	O No	O 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?	O Yes	O No	⊚ N/A
E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	Yes	٥	No
E18. Is frequency coordination required? If YES, attach a frequency coordination report as	O Yes	•	No
E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	O 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.	O Yes	•	No
POINTS OF COMMUNICATION			
Satellite Name: PERMITTED LIST 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:	
E26. Common Name:	E27. Country:

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size <meters></meters>	E41/42. Antenna Gain Transmint and/or Recieve (dBi atGHz)
TR 2.4M	TR 2.4	11000	Prodelin Corp.	1244	2.4	47.7 dBi at 11.95
						49.2 dBi at 14.25

Id	Diameter		, ,	Height Above Ground Level	Input Power at antenna flange	E39. Maximum Antenna Height Above Rooftop (meters)	EIRP for al
TR 2.4	0.0/0.0	0.0	0.0	0.0	2.0	0.0	52.2

FREQUENCY

	E43/44. Frequency Bands (MHz)				E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
TR 2.4	11700 12200	R	Horizontal and Vertical	400KG7D	0.0	0.0

E50. Modulation entirety.)	and Services (If the	ne complete description	on does not appear in	this box, please go t	to the end of the form	to view it in its
BPSK, DATA	., 256 KSPS, OU	TROUTE CARRIER				
TR 2.4	11700 12200	R	Horizontal and Vertical	1M60G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	ne complete description	on does not appear ir	this box, please go t	to the end of the form	to view it in its
BPSK, DATA	, 1024 KSPS, C	OUTROUTE CARRIE	P.R.			
TR 2.4	11700 12200	R	Horizontal and Vertical	6M00G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	ne complete description	on does not appear ir	this box, please go t	to the end of the form	to view it in its
QPSK, DATA	A, 5 MSPS, MULT	'IMEDIA BROADCA	ST CARRIER			
TR 2.4	11700 12200	R	Horizontal and Vertical	12M0G7D	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)						
QPSK, DATA, 10 MSPS, MULTIMEDIA BROADCAST CARRIER						
TR 2.4	11700 12200	R	Horizontal and Vertical	24M0G7D	0.0	0.0
E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.) QPSK, DATA, 20 MSPS, MULTIMEDIA BROADCAST CARRIER						
TR 2.4	11700 12200	R	Horizontal and Vertical	36M0G7D	0.0	0.0
E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.) QPSK, DATA, 30 MSPS, MULTIMEDIA BROADCAST CARRIER						
TR 2.4	14000 14500	Т	Horizontal and Vertical	200KG7D	52.2	35.2

E50. Modulation entirety.)	and Services (If the	ne complete description	on does not appear in	this box, please go t	o the end of the form	to view it in its
OQPSK, DAT	'A, 128 KSPS, F	RETURN CARRIER				
TR 2.4	14000 14500	Т	Horizontal and Vertical	400KG7D	52.2	32.2
E50. Modulation entirety.)	and Services (If the	ne complete description	on does not appear in	this box, please go t	o the end of the form	to view it in its
OQPSK, DAT	'A, 256 KSPS, F	RETURN CARRIER				
TR 2.4	14000 14500	Т	Horizontal and Vertical	200KG7D	52.2	35.2
E50. Modulation entirety.)	and Services (If the	ne complete descripti	on does not appear in	this box, please go t	o the end of the form	to view it in its
BPSK OR MS	SK, DATA, 128 F	SPS, INROUTE C	'ARRIER			
TR 2.4	14000 14500	Т	Horizontal and Vertical	400KG7D	52.2	32.2

BPSK OR MSK, DATA, 256 KSPS, INROUTE CARRIER

TR 2.4	14000	T	Horizontal and	800KG7D	52.2	29.2
	14500		Vertical			

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK OR MSK, DATA, 512 KSPS, INROUTE CARRIER

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type		E54/55. Range of Satellite Arc Eastern/West ern Limit	Station Azimuth Angle	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)
TR 2.4	Geostationary	11700 12200	62.0/143.0	0.0	5.0	0.0	5.0	0.0
	Geostationary	14000 14500	62.0/143.0	0.0	5.0	0.0	5.0	-5.5

REMOTE CONTROL POINT LOCATION

E61. Call Sign E000166 NOTE: Please enter the callsign of the contro callsign for which this application is being filed.	E66. Phone Number 301–428–5500			
E62. Street Address 11717 Exploration Lane	•			
E63. City Germantown	E68. County Montgomery		E67/68. State/Country MD/ USA	E64. Zip Code 20876

SATELLITE EARTH STATION AUTHORIZATIONS

FCC Form 312 – Schedule B:(Technical and Operational Description)
FOR OFFICIAL USE ONLY

Location of Earth Sta	ntion Site			
E1: Site Identifier:	TR 1.0M	E5. Call Sign:	E000166	
E2: Contact Name	Dave Zatloukal	E6. Phone Number:	301–428–5500	
E3. Street:		E7. City:		
		E8. County:		
E4. State		E9. Zip Code		
E10. Area of Operati	on:	CONUS, AK, HI, V	I, PR	
E11. Latitude:	0 °0 '0.0 "			
E12. Longitude:	0 °0 '0.0 "			
E13. Lat/Lon Coordi	inates are:	○ NAD-27	O NAD-83	● N/A
E14. Site Elevation ((AMSL):	0.0 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 as a technical analysis showing compliance with two–degree spacing policy.	O Yes	⊗ No	O 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?	O Yes	O No	⊚ N/A

E17. Is the facility operated by remote control? If YES, provide the locat point.	ion and telephone number of the control	⊚ Yes	O No
E18. Is frequency coordination required? If YES, attach a frequency coordination	rdination report as	O Yes	⊚ No
E19. Is coordination with another country required? If YES, attach the national contours as	ame of the country(ies) and plot of	O Yes	No
E20. FAA Notification – (See 47 CFR Part 17 and 47 CFR part 25.11 have you attached a copy of a completed FCC Form 854 and/or the FAA the structure to aviation? FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL FAPPLICATION.	's study regarding the potential hazard of	O Yes	No
POINTS OF COMMUNICATION			
Satellite Name: PERMITTED LIST If you selected OTHER, please	e enter the following:		
E21. Common Name:	E22. ITU Name:		
E23. Orbit Location:	E24. Country:		
POINTS OF COMMUNICATION (Destination Points)			
E25. Site Identifier:			
E26. Common Name:	E27. Country:		

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size <meters></meters>	E41/42. Antenna Gain Transmint and/or Recieve (dBi atGHz)
TR 1.0M	TR 1.0	100000	Prodelin Corp.	1102	1.0	39.8 dBi at 11.95
						41.0 dBi at 14.25

Id	Diameter		` ′	Height Above	Input Power at	E39. Maximum Antenna Height Above Rooftop (meters)	EIRP for al
TR 1.0	0.58/1.35	0.0	0.0	0.0	2.0	0.0	44.0

	E43/44. Frequency Bands (MHz)				EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
TR 1.0	11700 12200	R	Horizontal and Vertical	400KG7D	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK,	DATA,	256 KSPS,	OUTROUTE	CARRIER

TR 1.0	11700 12200	R	Horizontal and Vertical	1M60G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	ne complete description	on does not appear	in this box, please g	o to the end of the	form to view it in its
BPSK, DATA	, 1024 KSPS, C	UTROUTE CARRIE	IR			
TR 1.0	11700 12200	R	Horizontal and Vertical	6M00G7D	0.0	0.0
QPSK, DATA	, 5 MSPS, MULT	'IMEDIA BROADCA	ST CARRIER			
TR 1.0	11700 12200	R	Horizontal and Vertical	12M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	ne complete descripti	on does not appear	in this box, please g	o to the end of the	form to view it in its
QPSK, DATA	, 10 MSPS, MUI	TIMEDIA BROADC	AST CARRIER			

E50. Modulati ntirety.)	1.0		Vertical			
	ion and Services	(If the complete d	escription does not appear	in this box, please	go to the end of th	ne form to view it in its
BPSK OR	MSK, DATA, 1:	28 KSPS, INRC	UTE CARRIER			
R 1.0	14000 14500	Т	Horizontal and Vertical	400KG7D	44.0	24.0
TR 1.0	14000 14500	T	Horizontal and Vertical	800KG7D	44.0	21.0
E50. Modulati ntirety.)	ion and Services	(If the complete d	escription does not appear	in this box, please	go to the end of th	ne form to view it in its
BPSK OR	MSK, DATA, 5	L2 KSPS, INRC	UTE CARRIER			

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	Range of Satellite Arc Eastern/West	Station Azimuth Angle	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)
TR 1.0	Geostationary	11700 12200	62.0/143.0	0.0	5.0	0.0	5.0	0.0
	Geostationary	14000 14500	62.0/143.0	0.0	5.0	0.0	5.0	-2.5

REMOTE CONTROL POINT LOCATION

E61. Call Sign E000166 NOTE: Please enter the callsign of the controcallsign for which this application is being filed.	E66. Phone Number 301–428–5500			
E62. Street Address 11717 Exploration Lane				
E63. City Germantown	E68. County Montgomery		E67/68. State/Country MD/ USA	E64. Zip Code 20876

SATELLITE EARTH STATION AUTHORIZATIONS FCC Form 312 – Schedule B:(Technical and Operational Description) FOR OFFICIAL USE ONLY

Location of Earth Sta	ation Site			
E1: Site Identifier:	TR 75CM	E5. Call Sign:	E000166	
E2: Contact Name	Dave Zatloukal	E6. Phone Number:	301–428–5500	
E3. Street:		E7. City:		
		E8. County:		
E4. State		E9. Zip Code		
E10. Area of Operati	ion:	CONUS, AK, HI, V	I, PR	
E11. Latitude:	0 °0 '0.0"			
E12. Longitude:	0 °0 '0.0"			
E13. Lat/Lon Coord	inates are:	O NAD-27	O NAD-83	N/A
E14. Site Elevation ((AMSL):	0.0 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 as a technical analysis showing compliance with two–degree spacing policy.	O Yes	⊗ No	O 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?	O Yes	O No	⊚ N/A

E17. Is the facility operated by remote control? If YES, provide the lopoint.	ocation and telephone number of the control	● Yes	O No
E18. Is frequency coordination required? If YES, attach a frequency c	coordination report as	<u> </u>	
		O Yes	No
E19. Is coordination with another country required? If YES, attach the coordination contours as	e name of the country(ies) and plot of	O Yes	No
E20. FAA Notification – (See 47 CFR Part 17 and 47 CFR part 25 have you attached a copy of a completed FCC Form 854 and/or the Father structure to aviation? FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL APPLICATION.	AA's study regarding the potential hazard of	O Yes	No
POINTS OF COMMUNICATION		•	
Satellite Name: PERMITTED LIST If you selected OTHER, ple	ease enter the following:		
E21. Common Name:	E22. ITU Name:		
E23. Orbit Location:	E24. Country:		
POINTS OF COMMUNICATION (Destination Points)			
E25. Site Identifier:			
E26. Common Name:	E27. Country:		
ANTENNA			

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size <meters></meters>	E41/42. Antenna Gain Transmint and/or Recieve (dBi atGHz)
TR 75CM	TR 0.75	10000	Hughes Network Systems	3000179	0.75	37.0 dBi at 12.00
						38.8 dBi at 14.00

E28. Antenna Id			` ′	Height Above	Input Power at	E39. Maximum Antenna Height Above Rooftop (meters)	EIRP for al
TR 0.75	0.46/1.02	0.0	0.0	0.0	1.0	0.0	38.8

	E43/44. Frequency Bands (MHz)	E45. T/R Mode			E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
TR 0.75	11700 12200	R	Horizontal and Vertical	400KG7D	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK, DATA, 2	256 KSPS,	OUTROUTE CARRIE	R

TR 0.75	11700 12200	R	Horizontal and Vertical	1M60G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	ne complete description	on does not appear	in this box, please §	go to the end of t	the form to view it in its
BPSK, DATA	, 1024 KSPS, C	DUTROUTE CARRIE	iR			
TR 0.75	11700 12200	R	Horizontal and Vertical	6M00G7D	0.0	0.0
QPSK, DATA	, 5 MSPS, MULT	TIMEDIA BROADCA	ST CARRIER			
TR 0.75	11700 12200	R	Horizontal and Vertical	12M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	ne complete description	on does not appear	in this box, please §	go to the end of t	the form to view it in its
QPSK, DATA	, 10 MSPS, MUI	TIMEDIA BROADC	AST CARRIER			

TR 0.75	14000	T	Horizontal and	200KG7D	38.8	21.8
	14500		Vertical			

BPSK OR MSK, DATA, 128 KSPS, INROUTE CARRIER

TR 0.75	14000	Т	Horizontal and	400KG7D	38.8	18.8
	14500		Vertical			

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK OR MSK, DATA, 256 KSPS, INROUTE CARRIER

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	Frequency	Range of Satellite Arc Eastern/West	Station Azimuth Angle		Station Azimuth Angle	Elevation Angle Western	E60. Maximum EIRP Density toward the Horizon (dBW/4kHz)
TR 0.75	Geostationary	11700 12200	62.0/143.0	0.0	5.0	0.0	5.0	0.0

	Geostationary	14000 14500	62.0/143.0	0.0		5.0	0.0	5.0	-5.5
REMOTE CO	NTROL POIN	T LOCATION	l	ı			'	I	
E61. Call Sign E000166 NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed. E66. Phone Number 301–428–5500									
E62. Street A				1					
E63. City Germantown	1		E68. County Montgomer				E67/68 State/Cour MD/		E64. Zip Code 20876

SATELLITE EARTH STATION AUTHORIZATIONS FCC Form 312 – Schedule B:(Technical and Operational Description) FOR OFFICIAL USE ONLY

Location of Earth St	ation Site				
E1: Site Identifier:	TR 74CM	E5. Call Sign:	E000166		
E2: Contact Name	Dave Zatloukal	E6. Phone Number:	301-428-5500		
E3. Street:		E7. City:			
		E8. County:			
E4. State		E9. Zip Code			
E10. Area of Operat	ion:	CONUS, AK, HI, V	I, PR		
E11. Latitude:	0 °0 '0.0 "				
E12. Longitude:	0 °0 '0.0 "				
E13. Lat/Lon Coord	linates are:	O NAD-27	O NAD-83	N/A	
E14. Site Elevation	(AMSL):	0.0 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 as a technical analysis showing compliance with two–degree spacing policy.	○ Yes	⊚ No	O 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?	O Yes	O No	● N/A

E17. Is the facility operated by remote control? If YES, provide the loca point.	ation and telephone number of the control	⊗ Yes ○ No
E18. Is frequency coordination required? If YES, attach a frequency coordination	ordination report as	Yes No
E19. Is coordination with another country required? If YES, attach the recoordination contours as	name of the country(ies) and plot of	O Yes ⊗ No
E20. FAA Notification – (See 47 CFR Part 17 and 47 CFR part 25.1 have you attached a copy of a completed FCC Form 854 and/or the FAA the structure to aviation? FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL APPLICATION.	A's study regarding the potential hazard of	• Yes • No
POINTS OF COMMUNICATION		•
Satellite Name: OTHER If you selected OTHER, please enter the	following:	
E21. Common Name: Galaxy 4R	E22. ITU Name:	
E23. Orbit Location: 99 WL	E24. Country: USA	
Satellite Name: OTHER If you selected OTHER, please enter the	following:	
E21. Common Name: Satmex 5	E22. ITU Name:	
E23. Orbit Location: 116.8 WL	E24. Country: Mexico	
Satellite Name: OTHER If you selected OTHER, please enter the	following:	

E21. Common Name: Galaxy 3C	E22. ITU Name:
E23. Orbit Location: 95 WL	E24. Country: USA

Satellite Name: OTHER If you selected OTHER, please enter the fo	If you selected OTHER, please enter the following:			
E21. Common Name: Galaxy 11	E22. ITU Name:			
E23. Orbit Location: 91 WL	E24. Country: USA			

Satellite Name: OTHER If you selected OTHER, please enter the fo	If you selected OTHER, please enter the following:		
E21. Common Name: AMC-3	E22. ITU Name:		
E23. Orbit Location: 87 W	E24. Country: USA		

POINTS OF COMMUNICATION (Destination Points)

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

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size <meters></meters>	E41/42. Antenna Gain Transmint and/or Recieve (dBi atGHz)
TR 74CM	TR74	350000	Prodelin	HANT-91TR	0.74	37.7 dBi at 11.95
						39.0 dBi at 14.25

Id	Diameter		` ′	Height Above	E38. Total Input Power at antenna flange (Watts)		EIRP for al
TR74	0.56/0.98	0.0	0.0	0.0	1.0	0.0	39.0

	E43/44. Frequency Bands (MHz)	E45. T/R Mode			EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
TR74	11700 12200	R	Horizontal and Vertical	6M00G7D	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

QPSK, DATA, 5 MSPS, MULTIMEDIA BROADCAST CARRIER

TR74	11700	R	Horizontal and	12M0G7D	0.0	0.0
	12200		Vertical			

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

QPSK, DATA, 10 MSPS, MULTIMEDIA BROADCAST CARRIER

TR74	11700 12200	R	Horizontal and Vertical	24M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	ne complete description	on does not appear in	n this box, please go to	o the end of the form	to view it in its
QPSK, DATA	, 20 MSPS, MUL	TIMEDIA BROADC	AST CARRIER			
TR74	11700 12200	R	Horizontal and Vertical	36M0G7D	0.0	0.0
E50. Modulation entirety.) QPSK, DATA		TIMEDIA BROADC		n this box, please go to		
TR74	14000 14500	Т	Horizontal and Vertical	200KG7D	39.0	22.0
E50. Modulation entirety.) OQPSK, DAT	and Services (If the A, 128 KSPS, R		on does not appear i	n this box, please go to	o the end of the form	to view it in its

Vertical Vertical	Ī	TR74	14000	T	Horizontal and	400KG7D	39.0	19.0
			14500		Vertical			

OQPSK, DATA, 256 KSPS, RETURN CARRIER

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	E54/55. Range of Satellite Arc Eastern/West ern Limit	Station Azimuth Angle	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)
TR74	Geostationary	11700 12200	62.0/143.0	0.0	5.0	0.0	5.0	0.0
	Geostationary	14000 14500	62.0/143.0	0.0	5.0	0.0	5.0	-5.5

REMOTE CONTROL POINT LOCATION

callsign for which this application is being filed.

E61. Call Sign
E000166

NOTE: Please enter the callsign of the controlling station, not the

E62. Street Address 11717Exploration Lane

E63. City Germantown	E68. County Montgomery	E67/68. State/Country MD/ USA	E64. Zip Code 20876
		MD/ USA	

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: TF TR 74CM E5. Call Sign: E000166

E2: Contact Name Dave Zatloukal E6. Phone 301–428–5500

Number:

E3. Street: E7. City:

E8. County:

E4. State E9. Zip Code

E10. Area of Operation: CONUS, AK, HI, VI, PR

E11. Latitude: 0 °0 '0.0 "

E12. Longitude: 0 °0 '0.0 "

E13. Lat/Lon Coordinates are: NAD-27 NAD-83 N/A

E14. Site Elevation (AMSL): 0.0 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 as a technical analysis showing compliance with two–degree spacing policy.	O Yes	⊚ No	O 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?	O Yes	O No	⊚ N/A
E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	⊚ Yes	s o	No
E18. Is frequency coordination required? If YES, attach a frequency coordination report as	O Yes	s ©	No
E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	O Yes	s 🔞	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.	O Yes	s 🔞	No
POINTS OF COMMUNICATION			
Satellite Name: OTHER If you selected OTHER, please enter the following:			

	T		
E21. Common Name: Galaxy 4R	E22. ITU Name:		
E23. Orbit Location: 99 WL	E24. Country: USA		
Satellite Name: OTHER If you selected OTHER, please enter the	following:		
E21. Common Name: AMC-3	E22. ITU Name:		
E23. Orbit Location: 87 W	E24. Country: USA		
Satellite Name: OTHER If you selected OTHER, please enter the	following:		
E21. Common Name: Galaxy 3C	E22. ITU Name:		
E23. Orbit Location: 95 WL	E24. Country: USA		
Satellite Name: OTHER If you selected OTHER, please enter the	following:		
E21. Common Name: Satmex 5	E22. ITU Name:		
E23. Orbit Location: 116.8 WL	E24. Country: Mexico		
Satellite Name: OTHER If you selected OTHER, please enter the	following:		
E21. Common Name: Galaxy 11	E22. ITU Name:		
E23. Orbit Location: 91 WL	E24. Country: USA		
POINTS OF COMMUNICATION (Destination Points)			
E25. Site Identifier:			
E26. Common Name:	E27. Country:		

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer		E32. Antenna Size <meters></meters>	E41/42. Antenna Gain Transmint and/or Recieve (dBi atGHz)
TF TR 74CM	TF TR 74	60200	Prodelin	HANT-91TR	0.74	37.9 dBi at 11.95
						39.0 dBi at 14.25

E28. Antenna Id	1		` ′	Height Above	Input Power at	E39. Maximum Antenna Height Above Rooftop (meters)	EIRP for al
TF TR 74	0.56/0.98	0.0	0.0	0.0	1.0	0.0	39.0

	E43/44. Frequency Bands (MHz)			Designator	EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
TF TR 74	11700 12200	R	Horizontal and Vertical	6M00G7D	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

QPSK,	DATA,	5	MSPS,	MULTIMEDIA	BROADCAST	CARRIER

TF TR 74	11700 12200	R	Horizontal and Vertical	12M0G7D	0.0	0.0			
E50. Modulation entirety.)	E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)								
QPSK, DATA	, 10 MSPS, MUI	TIMEDIA BROADC	AST CARRIER						
TF TR 74	11700 12200	R	Horizontal and Vertical	24M0G7D	0.0	0.0			
	entirety.) QPSK, DATA, 20 MSPS, MULTIMEDIA BROADCAST CARRIER								
TF TR 74	11700 12200	Т	Horizontal and Vertical	36M0G7D	0.0	0.0			
E50. Modulation entirety.)	and Services (If the	ne complete descripti	on does not appear	in this box, please g	go to the end of t	he form to view it in its			
QPSK, DATA	, 30 MSPS, MUI	TIMEDIA BROADO	AST CARRIER						

TF TR 74	14000	T	Horizontal and	200KG7D	39 ()	22.0
1	14500		Vertical			

OQPSK, DATA, 128 KSPS, RETURN CARRIER

TF TR 74	14000	T	Horizontal and	400KG7D	39.0	19.0
	14500		Vertical			

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

OQPSK, DATA, 256 KSPS, RETURN CARRIER

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	Frequency Limits(MHz)	Range of Satellite Arc Eastern/West	Station Azimuth	Antenna Elevation Angle	Station Azimuth Angle	E59. Antenna Elevation Angle Western Limit	E60. Maximum EIRP Density toward the Horizon (dBW/4kHz)
TF TR 74	Geostationary	11700 12200	62.0/143.0	0.0	5.0	0.0	5.0	0.0

	Geostationary	14000 14500	62.0/143.0	0.0		5.0	0.0	5.0	-	-5.5
REMOTE CO	REMOTE CONTROL POINT LOCATION									
E61. Call Sign E000166 NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed. E66. Phone Number 301–428–5500										
	E62. Street Address 11717 Exploration Lane									
E63. City Germantown	1		E68. County Montgomery				E67/68 State/Cour MD/		E64. 2 20878	Zip Code 3

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: TR 98CM E5. Call Sign: E000166 E2: Contact Name Dave Zatloukal E6. Phone 301-428-5500 Number: E3. Street: E7. City: E8. County: E9. Zip Code E4. State E10. Area of Operation: CONUS, AK, HI, VI, PR E11. Latitude: 0 °0 '0.0 " E12. Longitude: 0 °0 '0.0 " E13. Lat/Lon Coordinates are: NAD-27 O NAD-83 N/A E14. Site Elevation (AMSL): 0.0 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 as a technical analysis showing compliance with two–degree spacing policy.	○ Yes	⊚ No	O 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?	O Yes	O No	● N/A

E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	⊚ Yes	O No		
E18. Is frequency coordination required? If YES, attach a frequency coordination report as	O Yes	No		
E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	O 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.	O Yes	No		
POINTS OF COMMUNICATION	•			
Satellite Name: OTHER If you selected OTHER, please enter the following:				
E21. Common Name: Galaxy 4R E22. ITU Name:				
E23. Orbit Location: 99 WL E24. Country: USA				
Satellite Name: OTHER If you selected OTHER, please enter the following:				
E21. Common Name: Satmex 5 E22. ITU Name:				
E23. Orbit Location: 116.8 WL E24. Country: Mexico				
Satellite Name: OTHER If you selected OTHER, please enter the following:				

E21. Common Name: AMC-3	E22. ITU Name:
E23. Orbit Location: 87 W	E24. Country: USA

Satellite Name: OTHER If you selected OTHER, please enter the fo	If you selected OTHER, please enter the following:				
E21. Common Name: Galaxy 11	E22. ITU Name:				
E23. Orbit Location: 91 WL	E24. Country: USA				

Satellite Name: OTHER If you selected OTHER, please enter the f	If you selected OTHER, please enter the following:				
E21. Common Name: Galaxy 3C	E22. ITU Name:				
E23. Orbit Location: 95 WL	E24. Country: USA				

POINTS OF COMMUNICATION (Destination Points)

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

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size <meters></meters>	E41/42. Antenna Gain Transmint and/or Recieve (dBi atGHz)
TR 98CM	TR98	60000	Prodelin	9008668	0.98	39.9 dBi at 11.95
						41.3 dBi at 14.25

Id	Diameter		` ′	Height Above	E38. Total Input Power at antenna flange (Watts)		EIRP for al
TR98	0.0/0.0	0.0	0.0	0.0	2.0	0.0	44.3

	E43/44. Frequency Bands (MHz)	E45. T/R Mode			E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
TR98	11700 12200	R	Horizontal and Vertical	6M00G7D	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

QPSK, DATA, 5 MSPS, MULTIMEDIA BROADCAST CARRIER

TR98	11700	R	Horizontal and	12M0G7D	0.0	0.0
	12200		Vertical			

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

QPSK, DATA, 10 MSPS, MULTIMEDIA BROADCAST CARRIER

TR98	11700 12200	R	Horizontal and Vertical	24M0G7D	0.0	0.0				
E50. Modulation entirety.)	and Services (If the	ne complete description	on does not appear i	n this box, please go t	to the end of the form	to view it in its				
QPSK, DATA	QPSK, DATA, 20 MSPS, MULTIMEDIA BROADCAST CARRIER									
TR98	11700 12200	R	Horizontal and Vertical	36M0G7D	0.0	0.0				
entirety.) QPSK, DATA, 30 MSPS, MULTIMEDIA BROADCAST CARRIER										
TR98	14000 14500	Т	Horizontal and Vertical	200KG7D	44.3	27.3				
E50. Modulation entirety.) OQPSK, DAT	and Services (If the A, 128 KSPS, R		on does not appear i	n this box, please go t	to the end of the form	to view it in its				

Vertical Vertical	ĺ	TR98	14000	T	Horizontal and	400KG7D	44.3	24.3
			14500		Vertical			

OQPSK, DATA, 256 KSPS, MULTIMEDIA BROADCAST CARRIER

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	E54/55. Range of Satellite Arc Eastern/West ern 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)
TR98	Geostationary	11700 12200	62.0/143.0	0.0	5.0	0.0	5.0	0.0
	Geostationary	14000 14500	62.0/143.0	0.0	5.0	0.0	5.0	-2.5

REMOTE CONTROL POINT LOCATION

E61. Call Sign
E000166
NOTE: Please enter the callsign of the controlling station, not the

callsign for which this application is being filed.

E62. Street Address

11717 Exploration Lane

E63. City	E68. County	E67/68.	E64. Zip Code
Germantown	Montgomery	State/Country	20876
		MD/ USA	

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: TF TR 98CM E5. Call Sign: E000166

E2: Contact Name Dave Zatloukal E6. Phone 301–428–5500

Number:

E3. Street: E7. City:

E8. County:

E4. State E9. Zip Code

E10. Area of Operation: CONUS, AK, HI, VI, PR

E11. Latitude: 0 °0 '0.0 "

E12. Longitude: 0 °0 '0.0 "

E13. Lat/Lon Coordinates are: NAD-27 NAD-83 N/A

E14. Site Elevation (AMSL): 0.0 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 as a technical analysis showing compliance with two–degree spacing policy.	O Yes	● No	O 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?	O Yes	O No	⊚ N/A
E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	● Yes	0	No
E18. Is frequency coordination required? If YES, attach a frequency coordination report as	O Yes	•	No
E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	O 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.	O Yes	•	No
POINTS OF COMMUNICATION			
Satellite Name: OTHER If you selected OTHER, please enter the following:			

E21. Common Name: AMC-3	E22. ITU Name:			
E23. Orbit Location: 87 W	E24. Country: USA			
Satellite Name: OTHER If you selected OTHER, please enter the fo	ollowing:			
E21. Common Name: Galaxy 11	E22. ITU Name:			
E23. Orbit Location: 91W	E24. Country: USA			
Satellite Name: OTHER If you selected OTHER, please enter the fo	ollowing:			
E21. Common Name: Galaxy 4R	E22. ITU Name:			
E23. Orbit Location: 99W	E24. Country: USA			
Satellite Name: OTHER If you selected OTHER, please enter the fo	ollowing:			
E21. Common Name: Satmex 5	E22. ITU Name:			
E23. Orbit Location: 116.8W	E24. Country: Mexico			
Satellite Name: OTHER If you selected OTHER, please enter the fo	ollowing:			
E21. Common Name: Galaxy 3C	E22. ITU Name:			
E23. Orbit Location: 95W	E24. Country: USA			
POINTS OF COMMUNICATION (Destination Points)				
E25. Site Identifier:				
E26. Common Name:	E27. Country:			

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer		E32. Antenna Size <meters></meters>	E41/42. Antenna Gain Transmint and/or Recieve (dBi atGHz)
TF TR 98CM	TF TR 98	54000	Prodelin	9008668	0.98	39.9 dBi at 11.95
						41.3 dBi at 14.25

Id	Diameter		` ′	Height Above	Input Power at	E39. Maximum Antenna Height Above Rooftop (meters)	EIRP for al
TF TR 98	0.0/0.0	0.0	0.0	0.0	2.0	0.0	44.3

FREQUENCY

	E43/44. Frequency Bands (MHz)				EIRP per Carrier	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
TF TR 98	11700 12200	R	Horizontal and Vertical	6M00G7D	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

QPSK,	DATA,	5	MSPS,	MULTIMEDIA	BROADCAST	CARRIER

TF TR 98	11700 12200	R	Horizontal and Vertical	12M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	e complete description	on does not appear in	n this box, please go to	o the end of the form	to view it in its
QPSK, DATA	, 10 MSPS, MUL	TIMEDIA BROADC	AST CARRIER			
TF TR 98	11700 12200	R	Horizontal and Vertical	24M0G7D	0.0	0.0
E50. Modulation entirety.) QPSK, DATA		TIMEDIA BROADC		this box, please go to		
TF TR 98	11700 12200	R	Horizontal and Vertical	36M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	e complete description	on does not appear in	n this box, please go to	o the end of the form	to view it in its
QPSK, DATA	, 30 MSPS, MUL	TIMEDIA BROADC	AST CARRIER			

TF TR 98	14000	T	Horizontal and	200KG7D	44.3	27.3
	14500		Vertical			

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

OQPSK, DATA, 128 KSPS, RETURN CARRIER

TF TR 98 14000 T Horizontal and 400KG7D 44.3	24.3
14500 Vertical	

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

OQPSK, DATA, 256 KSPS, RETURN CARRIER

FREQUENCY COORDINATION

	E51. Satellite Orbit Type	Frequency Limits(MHz)	Range of Satellite Arc Eastern/West	Station Azimuth	E57. Antenna Elevation Angle Eastern Limit	Station Azimuth Angle	Elevation Angle Western	E60. Maximum EIRP Density toward the Horizon (dBW/4kHz)
TF TR 98	Geostationary	11700 12200	62.0/143.0	0.0	5.0	0.0	5.0	0.0

	Geostationary	14000 14500	62.0/143.0	0.0		5.0	0.0	5.0	-2.5		
REMOTE CO	REMOTE CONTROL POINT LOCATION										
E000166 NOTE: Plea	E61. Call Sign E000166 NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed. E66. Phone Number 301–428–5500										
	E62. Street Address 11717 Exploration Lane										
E63. City Germantown	1		E68. County Montgomer				E67/68 State/Cour MD/		E64. Zip Code 20876		

SATELLITE EARTH STATION AUTHORIZATIONS FCC Form 312 – Schedule B:(Technical and Operational Description) FOR OFFICIAL USE ONLY

Location of Earth St	ation Site				
E1: Site Identifier:	TF TR 1.2M	E5. Call Sign:	E000166		
E2: Contact Name	Dave Zatloukal	E6. Phone Number:	301-428-5500		
E3. Street:		E7. City:			
		E8. County:			
E4. State		E9. Zip Code			
E10. Area of Operat	tion:	CONUS, AK, HI, V	I, PR		
E11. Latitude:	0 °0 '0.0 "				
E12. Longitude:	0 °0 '0.0 "				
E13. Lat/Lon Coord	linates are:	○ NAD-27	O NAD-83	● N/A	
E14. Site Elevation	(AMSL):	0.0 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 as a technical analysis showing compliance with two–degree spacing policy.	● Yes	O No	O 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?	O Yes	O No	⊗ N/A

E17. Is the facility operated by remote control? If YES, provide the lopoint.	● Yes	O No	
E18. Is frequency coordination required? If YES, attach a frequency of	coordination report as	1	
		O Yes	No
E19. Is coordination with another country required? If YES, attach th coordination contours as	e name of the country(ies) and plot of	O Yes	No
E20. FAA Notification – (See 47 CFR Part 17 and 47 CFR part 25 have you attached a copy of a completed FCC Form 854 and/or the Fthe structure to aviation? FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WIL APPLICATION.	AA's study regarding the potential hazard of	O Yes	No
POINTS OF COMMUNICATION		•	
Satellite Name: PERMITTED LIST If you selected OTHER, plo	ease enter the following:		
E21. Common Name:	E22. ITU Name:		
E23. Orbit Location:	E24. Country:		
POINTS OF COMMUNICATION (Destination Points)			
E25. Site Identifier:			
E26. Common Name:	E27. Country:		
ANTENNA	•		

111 (122) (1 (1

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer		E32. Antenna Size <meters></meters>	E41/42. Antenna Gain Transmint and/or Recieve (dBi atGHz)
TF TR 1.2M	TF TR 1.2	50000	Prodelin	1134	1.2	41.5 dBi at 11.95
						43.1 dBi at 14.25

Id	Diameter		, ,	Height Above Ground Level	Input Power at	E39. Maximum Antenna Height Above Rooftop (meters)	EIRP for al
TF TR 1.2	0.0/0.0	0.0	0.0	0.0	2.0	0.0	46.1

FREQUENCY

	E43/44. Frequency Bands (MHz)				EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
TF TR 1.2	11700 12200	R	Horizontal and Vertical	400KG7D	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK,	DATA,	256 KSPS,	OUTROUTE CARRIER

TF TR 1.2	11700 12200	R	Horizontal and Vertical	1M60G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If	he complete desc	cription does not appear	in this box, please	go to the end of t	he form to view it in its
BPSK, DATA	A, 1024 KSPS,	OUTROUTE CAI	RRIER			
TF TR 1.2	11700 12200	R	Horizontal and Vertical	6M00G79	0.0	0.0
QPSK, DATA	, 5 MSPS, MUL	FIMEDIA BRO	ADCAST CARRIER			
TF TR 1.2	11700 12200	R	Horizontal and Vertical	12M0G7D	0.0	0.0
E50. Modulation entirety.) QPSK, DATA			cription does not appear	in this box, please	go to the end of t	he form to view it in its

TF TR 1.2	11700 12200	R	Horizontal and Vertical	24M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	he complete description	on does not appear	in this box, please go	to the end of the	form to view it in its
QPSK, DATA	, 20 MSPS, MUI	TIMEDIA BROADC	'AST CARRIER			
TF TR 1.2	11700 12200	R	Horizontal and Vertical	30M0G7D	0.0	0.0
QPSK, DATA	, 30 MSPS, MUI	TIMEDIA BROADC	AST CARRIER			
TF TR 1.2	14000 14500	Т	Horizontal and Vertical	200KG7D	46.1	29.1
E50. Modulation entirety.)	and Services (If the	he complete description	on does not appear	in this box, please go	to the end of the	form to view it in its
OQPSK, DAT	'A, 128 KSPS, F	ETURN CARRIER				

TF TR 1.2	14000 14500	Т	Horizontal and Vertical	400KG7D	46.1	26.1
E50. Modulation entirety.)	and Services (If the complete de	escription does not appear	in this box, please	go to the end of the	he form to view it in its
OQPSK, DAT	ΓA, 256 KSPS	, RETURN CAR	RIER			
TF TR 1.2	14000 14500	Т	Horizontal and Vertical	200KG7D	46.1	29.1
BPSK OR MS	SK, DATA, 128	3 KSPS, INRO	UTE CARRIER			
TF TR 1.2	14000 14500	Т	Horizontal and Vertical	400KG7D	46.1	26.1
E50. Modulation entirety.) BPSK OR MS	n and Services (escription does not appear UTE CARRIER	in this box, please	go to the end of the	ne form to view it in its

TF TR 1.2	14000	T	Horizontal and	800KG7D	46.1	23.1
	14500		Vertical			

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK OR MSK, DATA, 512 KSPS, INROUTE CARRIER

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	E54/55. Range of Satellite Arc Eastern/West ern Limit	Station Azimuth Angle	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)
TF TR 1.2	Geostationary	11700 12200	62.0/143.0	0.0	5.0	0.0	5.0	0.0
	Geostationary	14000 14500	62.0/143.0	0.0	5.0	0.0	5.0	-2.5

REMOTE CONTROL POINT LOCATION

E61. Call Sign
E000166
SOUTH Block of the State of the St

NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.

E62. Street Address 11717 Exploration Lane

E63. City Germantown	E68. County Montgomery	E67/68. State/Country MD/ USA	E64. Zip Code 20876
		WID/ CS/1	

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