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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:
Modification of Detroit Hub VSAT E990170

1-8. Legal Name of Applicant			
Name:	Hughes Network Systems, Inc.	Phone Number:	301-428-5500
DBA Name:		Fax Number:	301-428-1808
Street:	11717 Exploration Lane	E-Mail:	
City:	Germantown	State:	MD
Country:	USA	Zipcode:	20876 -
Attention:	Ken Sahai		

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

Name:	John Janka	Phone Number:	202-637-2200
Company:	Latham & Watkin	Fax Number:	202-637-2201
Street:	555 Eleventh Street, NW Suite 1000	E-Mail:	
City:	Washington	State:	DC
Country:	USA	Zipcode:	20004-1304
Contact Title:		Relationship:	Legal Counsel

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)

<p>17c. Is a fee submitted with this application?</p> <p><input checked="" type="radio"/> If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114).</p> <p><input type="radio"/> Governmental Entity <input type="radio"/> Noncommercial educational licensee</p> <p><input type="radio"/> Other (please explain):</p>	
<p>17d.</p> <p>Fee Classification A CGV – Fixed Satellite VSAT System</p>	
<p>18. If this filing is in reference to an existing station, enter:</p> <p>(a) Call sign of station: E990170</p>	<p>19. If this filing is an amendment to a pending application enter both fields, if this filing is a modification please enter only the file number:</p> <p>(a) Date pending application was filed:</p> <p>(b) File number: SESMOD2002040500557</p>

TYPE OF SERVICE

<p>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:</p> <p><input checked="" type="checkbox"/> a. Fixed Satellite <input type="checkbox"/> b. Mobile Satellite <input type="checkbox"/> c. Radiodetermination Satellite <input type="checkbox"/> d. Earth Exploration Satellite <input type="checkbox"/> e. Direct to Home Fixed Satellite <input type="checkbox"/> f. Digital Audio Radio Service <input type="checkbox"/> g. Other (please specify)</p>	
<p>21. STATUS: Choose the button next to the applicable status. Choose only one.</p> <p><input type="radio"/> Common Carrier <input checked="" type="radio"/> Non-Common Carrier</p>	<p>22. If earth station applicant, check all that apply.</p> <p><input checked="" type="checkbox"/> Using U.S. licensed satellites <input type="checkbox"/> Using Non-U.S. licensed satellites</p>
<p>23. If applicant is providing INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Choose one. Are these facilities:</p> <p><input type="radio"/> Connected to a Public Switched Network <input type="radio"/> Not connected to a Public Switched Network <input checked="" type="radio"/> N/A</p>	
<p>24. FREQUENCY BAND(S): Place an 'X' in the box(es) next to all applicable frequency band(s).</p> <p><input type="checkbox"/> a. C-Band (4/6 GHz) <input checked="" type="checkbox"/> b. Ku-Band (12/14 GHz) <input type="checkbox"/> c. Other (Please specify upper and lower frequencies in MHz.)</p> <p>Frequency Lower: Frequency Upper: (Please specify additional frequencies in an attachment)</p>	

TYPE OF STATION

25. CLASS OF STATION: Choose the button next to the class of station that applies. Choose only one.

- a. Fixed Earth Station
- b. Temporary–Fixed Earth Station
- c. 12/14 GHz VSAT Network
- d. Mobile Earth Station
- 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/A

"For Space Station applications, select 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 assigned frequency(ies)
- h -- authorization to add frequency
- i -- authorization to add Points of Communication (satellites & countries)
- j -- authorization to change Points of Communication (satellites & countries)
- k -- authorization for facilities for which environmental assessment and radiation hazard reporting is required
- l -- authorization to change orbit location
- m -- authorization to perform fleet management
- n -- authorization to extend milestones
- o -- Other (Please specify)

ENVIRONMENTAL POLICY

<p>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.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>Ques 28</p>
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ALIEN OWNERSHIP Earth station applicants not proposing to provide broadcast, common carrier, aeronautical en route or aeronautical fixed radio station services are not required to respond to Items 30–34.

<p>29. Is the applicant a foreign government or the representative of any foreign government?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>30. Is the applicant an alien or the representative of an alien?</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>31. Is the applicant a corporation organized under the laws of any foreign government?</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>32. Is the applicant a corporation of which any officer or director is an alien or 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?</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>

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?

Yes 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.

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 explanation of circumstances.

Yes No

37. Has the applicant, or any party to this application or amendment, or any party directly or indirectly controlling the applicant ever been convicted of a felony by any state or federal court? If Yes, attach as an exhibit, an explanation 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

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 exhibit, an explanation of the circumstances.

Yes No

Ques 39

40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, address, and citizenship of those stockholders owning a record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.

41. By checking Yes, the undersigned certifies, that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes.

Yes No

42a. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States? If Yes, answer 42b and attach an exhibit providing the information specified in 47 C.F.R. 25.137, as appropriate. If No, proceed to question 43.

Yes No

42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what administration has coordinated or is in the process of coordinating the space station? Does Not Apply

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.)

This application requests authority to modify Earth Station E990170 by adding 5,000 2.4 meter transmit/receive remote terminals and 50,000 1.0 meter transmit/receive remote terminals to this VSAT network. In addition, HNS requests authority to update the emission designators for each of the authorized 5,000 1.8 meter transmit/receive remote

CERTIFICATION

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

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

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

45. Name of Person Signing Joslyn Read	46. Title of Person Signing Assistant Vice President
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47. Please supply any need attachments.

Attachment 1:	Attachment 2:	Attachment 3:
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WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND / OR IMPRISONMENT
(U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION
(U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).

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

Location of Earth Station Site

E1. Site Identifier:	HUB	E5. Call Sign:	E990170
E2. Contact Name	Michael Pewarchie	E6. Phone Number:	248-353-1562
E3. Street:	24000 Northwestern Highway	E7. City:	Southfield
		E8. County:	Oakland
E4. State	MI	E9. Zip Code	48075
E10. Area of Operation:	N/A		
E11. Latitude:	42 °28 '0.0 "N		
E12. Longitude:	83 °13 '53.0 "W		
E13. Lat/Lon Coordinates are:	<input checked="" type="radio"/> NAD-27	<input checked="" type="radio"/> NAD-83	<input type="radio"/> N/A
E14. Site Elevation (AMSL):	172.8 meters		

<p>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.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A</p>
<p>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?</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>

<p>E18. Is frequency coordination required? If YES, attach a frequency coordination report as</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>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.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>

POINTS OF COMMUNICATION

<p>Satellite Name: PERMITTED LIST If you selected OTHER, please enter the following:</p>
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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>	E41/42. Antenna Gain Transmint and/or Recieve (____ dBi at ____ GHz)
HUB	TR 5.6	1	Andrew	ES56-1	5.6	55 dBi at 11
						57 dBi at 14
	TR 4.6			ESA46MPJ-1	4.6	53 dBi at 11
						54 dBi at 14
	TR 7.6	2		ES76K-1	7.6	57 dBi at 11
						59 dBi at 14

E28. Antenna Id	E33/34. Diameter Minor/Major (meters)	E35. Above Ground Level (meters)	E36. Above Sea Level(meters)	E37. Building Height Above Ground Level (meters)	E38. Total Input Power at antenna flange (Watts)	E39. Maximum Antenna Height Above Rooftop (meters)	E40. Total EIRP for al carriers(dBW)
TR 5.6	/	6.0	178.8	0.0	50.0	0.0	74.1
TR 4.6	/	5.0	177.8	0.0	83.1	0.0	74.1
TR 7.6	/	8.5	181.3	0.0	500.0	0.0	86.3

FREQUENCY

E28. Antenna Id	E43/44. Frequency Bands (MHz)	E45. T/R Mode	E46. Antenna Polarization(H,V, L,R)	E47. Emission Designator	E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
TR 5.6	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.) <div data-bbox="254 521 1856 695" style="border: 1px solid black; padding: 5px; margin: 5px 0;"> BPSK or MSK, data, 128 Ksps, Inroute Carrier </div>						
TR 5.6	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.) <div data-bbox="254 911 1856 1084" style="border: 1px solid black; padding: 5px; margin: 5px 0;"> BPSK or MSK, data, 256 Ksps, Inroute Carrier </div>						
TR 5.6	11700 12200	R	Horizontal and Vertical	800KG7D	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, 512 Ksps, Inroute Carrier						
TR 5.6	14000 14500	T	Horizontal and Vertical	400KG7D	53.2	33.2
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.)						
BPSK, data, 256 Ksps, Outroute Carrier						
TR 5.6	14000 14500	T	Horizontal and Vertical	1M60G7D	59.2	33.2
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.)						
BPSK, data, 1024 Ksps, Outroute Carrier						
TR 5.6	14000 14500	T	Horizontal and Vertical	18M0F9W	70.1	43.1

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.)

Analog Video with Audio in Half Transponder

TR 5.6	14000 14500	T	Horizontal and Vertical	36M0F9W	73.1	46.1
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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.)

Analog Video with Audio in Full Transponder

TR 5.6	14000 14500	T	Horizontal and Vertical	6M00G7D	64.2	32.4
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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, 5Msps, Multimedia Broadcast Carrier

TR 5.6	14000 14500	T	Horizontal and Vertical	6M00G7D	67.2	35.4
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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 5.6	14000 14500	T	Horizontal and Vertical	12M0G7D	67.2	32.4
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, 10 Msps, Multimedia Broadcast Carrier						
TR 5.6	14000 14500	T	Horizontal and Vertical	12M0G7D	70.2	35.4
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 5.6	14000 14500	T	Horizontal and Vertical	24M0G7D	70.2	32.4

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, 20 Msps, Multimedia Broadcast Carrier						
TR 5.6	14000 14500	T	Horizontal and Vertical	24M0G7D	73.2	35.4
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 4.6	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.)						
BPSK or MSK, data, 128 Ksps, Inroute Carrier						
TR 4.6	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						
TR 4.6	11700 12200	R	Horizontal and Vertical	800KG7D	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, 512 Ksps, Inroute Carrier						
TR 4.6	14000 14500	T	Horizontal and Vertical	400KG7D	53.2	33.2
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.)						
BPSK, data, 256 Ksps, Outroute Carrier						
TR 4.6	14000 14500	T	Horizontal and Vertical	1M60G7D	59.2	33.2

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.)						
BPSK, data, 1024 Ksps, Outroute Carrier						
TR 4.6	14000 14500	T	Horizontal and Vertical	18M0F9W	70.1	43.1
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.)						
Analog Video with Audio in Half Transponder						
TR 4.6	14000 14500	T	Horizontal and Vertical	36M0F9W	73.1	46.1
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.)						
Analog Video with Audio in Full Transponder						
TR 4.6	14000 14500	T	Horizontal and Vertical	6M00G7D	64.2	32.4

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, 5 Msps, Multimedia Broadcast Carrier						
TR 4.6	14000 14500	T	Horizontal and Vertical	6M00G7D	67.2	35.4
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 4.6	14000 14500	T	Horizontal and Vertical	12M0G7D	67.2	32.4
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, 10 Msps, Multimedia Broadcast Carrier						
TR 4.6	14000 14500	T	Horizontal and Vertical	12M0G7D	70.2	35.4

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 4.6	14000 14500	T	Horizontal and Vertical	24M0G7D	70.2	32.4
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, 20 Msps, Multimedia Broadcast Carrier						
TR 4.6	14000 14500	T	Horizontal and Vertical	24M0G7D	73.2	35.4
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 7.6	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.)						
BPSK or MSK, data, 128 Ksps, Inroute Carrier						
TR 7.6	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						
TR 7.6	11700 12200	R	Horizontal and Vertical	800KG7D	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, 512 Ksps, Inroute Carrier						
TR 7.6	14000 14500	T	Horizontal and Vertical	400KG7D	58.2	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.)						
BPSK, data, 256 Ksps, Outroute Carrier						
TR 7.6	14000 14500	T	Horizontal and Vertical	1M60G7D	64.2	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.)						
BPSK, data, 1024 Ksps, Outroute Carrier						
TR 7.6	14000 14500	T	Horizontal and Vertical	18M0F9W	75.1	48.1
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.)						
Analog Video with Audio in Half Transponder						
TR 7.6	14000 14500	T	Horizontal and Vertical	36M0F9W	78.1	51.1

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.)						
Analog Video with Audio in Full Transponder						
TR 7.6	14000 14500	T	Horizontal and Vertical	6M00G7D	69.2	37.4
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, 5 Msps, Multimedia Broadcast Carrier						
TR 7.6	14000 14500	T	Horizontal and Vertical	6M00G7D	72.2	40.4
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 7.6	14000 14500	T	Horizontal and Vertical	12M0G7D	72.2	37.4

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, 10 Msps, Multimedia Broadcast Carrier						
TR 7.6	14000 14500	T	Horizontal and Vertical	12M0G7D	75.2	40.4
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 7.6	14000 14500	T	Horizontal and Vertical	24M0G7D	75.2	37.4
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, 20 Msps, Multimedia Broadcast Carrier						
TR 7.6	14000 14500	T	Horizontal and Vertical	24M0G7D	78.2	40.4

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

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	E54/55. Range of Satellite Arc Eastern/Western 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)
TR 5.6		11700 12200	62.0/143.0	150.1	36.5	248.1	13.3	0.0
		14000 14500	62.0/143.0	150.1	36.5	248.1	13.3	-7.1
TR 4.6		11700 12200	62.0/143.0	150.1	36.5	248.1	13.3	0.0
		14000 14500	62.0/143.0	150.1	36.5	248.1	13.3	-4.9
TR 7.6		11700 12200	62.0/143.0	150.1	36.5	248.1	13.3	0.0
		14000 14500	62.0/143.0	150.1	36.5	248.1	13.3	-4.3

REMOTE CONTROL POINT LOCATION

E61. Call Sign NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.		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 Station Site			
E1: Site Identifier:	TR 1.0m	E5. Call Sign:	E990170
E2: Contact Name	Michael Pewarchie	E6. Phone Number:	(248) 353-1562
E3. Street:		E7. City:	
E4. State		E8. County:	
E10. Area of Operation:		E9. Zip Code	
E11. Latitude:	0 °0 '0.0 "	CONUS, AK, HI, VI, PR	
E12. Longitude:	0 °0 '0.0 "		
E13. Lat/Lon Coordinates are:	<input type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input checked="" type="radio"/> 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.	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> 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?	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A

E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	<input checked="" type="radio"/> Yes <input type="radio"/> No
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E18. Is frequency coordination required? If YES, attach a frequency coordination report as	<input type="radio"/> Yes <input checked="" type="radio"/> No
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E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	<input type="radio"/> Yes <input checked="" type="radio"/> No
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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.	<input type="radio"/> Yes <input checked="" type="radio"/> No
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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: TR 1.0m	
E26. Common Name:	E27. Country:

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size<meters>	E41/42. Antenna Gain Transmint and/or Recieve (____dBi at ____GHz)
TR 1.0m	TR 1.0	50000	Prodelin	1102	1.0	39 dBi at 11
						41 dBi at 14

E28. Antenna Id	E33/34. Diameter Minor/Major (meters)	E35. Above Ground Level (meters)	E36. Above Sea Level(meters)	E37. Building Height Above Ground Level (meters)	E38. Total Input Power at antenna flange (Watts)	E39. Maximum Antenna Height Above Rooftop (meters)	E40. Total EIRP for al carriers(dBW)
TR 1.0	/	0.0	0.0	0.0	2.0	0.0	44.0

FREQUENCY

E28. Antenna Id	E43/44. Frequency Bands (MHz)	E45. T/R Mode	E46. Antenna Polarization(H,V, L,R)	E47. Emission Designator	E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
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
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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 1.0	11700 12200	R	Horizontal and Vertical	18M0F9W	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.)						
Analog Video with Audio in Half Transponder						
TR 1.0	11700 12200	R	Horizontal and Vertical	36M0F9W	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.)						
Analog Video with Audio in Full Transponder						
TR 1.0	11700 12000	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 1.0	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.)						
BPSK, data, 5 Msps, Multimedia Broadcast Carrier						
TR 1.0	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.)						
BPSK, data, 10 Msps, Multimedia Broadcast Carrier						
TR 1.0	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 1.0	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.)						
BPSK, data, 20 Msps, Multimedia Broadcast Carrier						
TR 1.0	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 1.0	14000 14500	T	Horizontal and Vertical	200KG7D	44.0	27.0

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, 128 Ksps, Inroute Carrier

TR 1.0	14000 14500	T	Horizontal and Vertical	400KG7D	44.0	24.0
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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 1.0	14000 14500	T	Horizontal and Vertical	800KG7D	44.0	21.0
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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/Western 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)
TR 1.0		11700 12200	62.0/143.0	0.0	5.0	0.0	5.0	0.0
		14000 14500	62.0/143.0	0.0	5.0	0.0	5.0	-2.5

REMOTE CONTROL POINT LOCATION

E61. Call Sign E990170 NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.		E66. Phone Number (248) 353-1562	
E62. Street Address 24000 Northwestern Highway			
E63. City Southfield		E68. County Oakland	
		E67/68. State/Country MI/ USA	E64. Zip Code 48075

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 1.2m	E5. Call Sign:	E990170
E2: Contact Name	Michael Pewarchie	E6. Phone Number:	(248) 353-1562
E3. Street:		E7. City:	
E4. State		E8. County:	
E10. Area of Operation:		E9. Zip Code	
E11. Latitude:	0 °0 '0.0 "	CONUS, AK, HI, VI, PR	
E12. Longitude:	0 °0 '0.0 "		
E13. Lat/Lon Coordinates are:	<input type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input checked="" type="radio"/> 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.	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> 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?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A

E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	<input checked="" type="radio"/> Yes <input type="radio"/> No
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E18. Is frequency coordination required? If YES, attach a frequency coordination report as	<input type="radio"/> Yes <input checked="" type="radio"/> No
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E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	<input type="radio"/> Yes <input checked="" type="radio"/> No
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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.	<input type="radio"/> Yes <input checked="" type="radio"/> No
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POINTS OF COMMUNICATION

Satellite Name: PERMITTED LIST If you selected OTHER, please enter the following:

E21. Common Name:	E22. ITU Name:
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E23. Orbit Location:	E24. Country:
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POINTS OF COMMUNICATION (Destination Points)

E25. Site Identifier: TR 1.2m	
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E26. Common Name:	E27. Country:
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ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size<meters>	E41/42. Antenna Gain Transmint and/or Recieve (____dBi at ____GHz)
TR 1.2m	TR 1.2	20000	Prodelin	1134	1.2	41 dBi at 11
						43 dBi at 14

E28. Antenna Id	E33/34. Diameter Minor/Major (meters)	E35. Above Ground Level (meters)	E36. Above Sea Level(meters)	E37. Building Height Above Ground Level (meters)	E38. Total Input Power at antenna flange (Watts)	E39. Maximum Antenna Height Above Rooftop (meters)	E40. Total EIRP for al carriers(dBW)
TR 1.2	/	0.0	0.0	0.0	2.0	0.0	46.1

FREQUENCY

E28. Antenna Id	E43/44. Frequency Bands (MHz)	E45. T/R Mode	E46. Antenna Polarization(H,V, L,R)	E47. Emission Designator	E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
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

TR 1.2	11700 12200	R	Horizontal and Vertical	1M60G7D	0.0	0.0
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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	18M0F9W	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.)						
Analog Video with Audio in Half Transponder						
TR 1.2	11700 12200	R	Horizontal and Vertical	36M0F9W	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.)						
Analog Video with Audio in Full Transponder						
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.)						
BPSK, data, 5Msps, Multimedia Broadcast 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 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, 10 Msps, Multimedia Broadcast Carrier						
TR 1.2	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 1.2	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.)						
BPSK, data, 20 Msps, Multimedia Broadcast Carrier						
TR 1.2	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 1.2	14000 14500	T	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	T	Horizontal and Vertical	400KG7D	46.1	26.1
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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 14500	T	Horizontal and Vertical	800KG7D	46.1	23.1
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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/Western 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)
TR 1.2		11700 12200	62.0/143.0	0.0	5.0	0.0	5.0	0.0
		14000 14500	62.0/143.0	0.0	5.0	0.0	5.0	-2.5

REMOTE CONTROL POINT LOCATION

E61. Call Sign E990170 NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.		E66. Phone Number (248) 353-1562	
E62. Street Address 24000 Northwestern Highway			
E63. City Southfield		E68. County Oakland	
		E67/68. State/Country MI/ USA	E64. Zip Code 48075

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 1.8m	E5. Call Sign:	E990170
E2: Contact Name	Michael Pewarchie	E6. Phone Number:	(248) 353-1562
E3. Street:		E7. City:	
E4. State		E8. County:	
E10. Area of Operation:		E9. Zip Code	
E11. Latitude:	0 °0 '0.0 "	CONUS, AK, HI, VI, PR	
E12. Longitude:	0 °0 '0.0 "		
E13. Lat/Lon Coordinates are:	<input type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input checked="" type="radio"/> 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.	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> 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?	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A

E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	<input checked="" type="radio"/> Yes <input type="radio"/> No
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E18. Is frequency coordination required? If YES, attach a frequency coordination report as	<input type="radio"/> Yes <input checked="" type="radio"/> No
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E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	<input type="radio"/> Yes <input checked="" type="radio"/> No
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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.	<input type="radio"/> Yes <input checked="" type="radio"/> No
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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: TR 1.8m	
E26. Common Name:	E27. Country:

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size<meters>	E41/42. Antenna Gain Transmint and/or Recieve (____dBi at ____GHz)
TR 1.8m	TR 1.8	5000	Prodelin	1184	1.8	45 dBi at 11
						46 dBi at 14

E28. Antenna Id	E33/34. Diameter Minor/Major (meters)	E35. Above Ground Level (meters)	E36. Above Sea Level(meters)	E37. Building Height Above Ground Level (meters)	E38. Total Input Power at antenna flange (Watts)	E39. Maximum Antenna Height Above Rooftop (meters)	E40. Total EIRP for al carriers(dBW)
TR 1.8	/	0.0	0.0	0.0	2.0	0.0	49.7

FREQUENCY

E28. Antenna Id	E43/44. Frequency Bands (MHz)	E45. T/R Mode	E46. Antenna Polarization(H,V, L,R)	E47. Emission Designator	E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
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
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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 1.8	11700 12200	R	Horizontal and Vertical	18M0F9W	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.)						
Analog Video with Audio in Half Transponder						
TR 1.8	11700 12200	R	Horizontal and Vertical	36M0F9W	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.)						
Analog Video with Audio in Full Transponder						
TR 1.8	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.)						
BPSK, data, 5 Msps, Multimedia Broadcast Carrier						
TR 1.8	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 1.8	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.)						
BPSK, data, 10 Msps, Multimedia Broadcast Carrier						
TR 1.8	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 1.8	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.)						
BPSK, data, 20 Msps, Multimedia Broadcast Carrier						
TR 1.8	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 1.8	14000 14500	T	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 entirety.)

BPSK or MSK, data, 128 Ksps, Inroute Carrier

TR 1.8	14000 14500	T	Horizontal and Vertical	400KG7D	49.7	29.7
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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 1.8	14000 14500	T	Horizontal and Vertical	800KG7D	49.7	26.7
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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/Western 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)
TR 1.8		11700 12200	62.0/143.0	0.0	5.0	0.0	5.0	0.0
		14000 14500	62.0/143.0	0.0	5.0	0.0	5.0	-2.5

REMOTE CONTROL POINT LOCATION

E61. Call Sign E990170 NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.		E66. Phone Number (248) 353-1562	
E62. Street Address 24000 Northwestern Highway			
E63. City Southfield		E68. County Oakland	
		E67/68. State/Country MI/ USA	E64. Zip Code 48075

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 2.4m	E5. Call Sign:	E990170
E2. Contact Name	Michael Pewarchie	E6. Phone Number:	(248) 353-1562
E3. Street:		E7. City:	
E4. State		E8. County:	
E10. Area of Operation:		E9. Zip Code	
E11. Latitude:	0 °0 '0.0 "	CONUS, AK, HI, VI, PR	
E12. Longitude:	0 °0 '0.0 "		
E13. Lat/Lon Coordinates are:	<input type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input checked="" type="radio"/> 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.	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> 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?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A

E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	<input checked="" type="radio"/> Yes <input type="radio"/> No
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E18. Is frequency coordination required? If YES, attach a frequency coordination report as	<input type="radio"/> Yes <input checked="" type="radio"/> No
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E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	<input type="radio"/> Yes <input checked="" type="radio"/> No
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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.	<input type="radio"/> Yes <input checked="" type="radio"/> No
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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: TR 2.4m	
E26. Common Name:	E27. Country:

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size<meters>	E41/42. Antenna Gain Transmint and/or Recieve (____dBi at ____GHz)
TR 2.4m	TR 2.4	5000	Prodelin	1244	2.4	47 dBi at 11
						49 dBi at 14

E28. Antenna Id	E33/34. Diameter Minor/Major (meters)	E35. Above Ground Level (meters)	E36. Above Sea Level(meters)	E37. Building Height Above Ground Level (meters)	E38. Total Input Power at antenna flange (Watts)	E39. Maximum Antenna Height Above Rooftop (meters)	E40. Total EIRP for al carriers(dBW)
TR 2.4	/	0.0	0.0	0.0	2.0	0.0	52.2

FREQUENCY

E28. Antenna Id	E43/44. Frequency Bands (MHz)	E45. T/R Mode	E46. Antenna Polarization(H,V, L,R)	E47. Emission Designator	E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
TR 2.4	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 2.4	11700 12200	R	Horizontal and Vertical	1M60G7D	0.0	0.0
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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 2.4	11700 12200	R	Horizontal and Vertical	18M0F9W	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.)						
Analog Video with Audio in Half Transponder						
TR 2.4	11700 12200	R	Horizontal and Vertical	36M0F9W	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.)						
Analog Video with Audio in Full Transponder						
TR 2.4	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.)						
BPSK, data, 5 Msps, Multimedia Broadcast Carrier						
TR 2.4	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 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.)						
BPSK, data, 10 Msps, Multimedia Broadcast 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.)						
BPSK, data, 20 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	14000 14500	T	Horizontal and Vertical	200KG7D	52.2	35.2

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.)

BPSK or MSK, data, 128 Ksps, Inroute Carrier

TR 2.4	14000 14500	T	Horizontal and Vertical	400KG7D	52.2	32.2
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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 2.4	14000 14500	T	Horizontal and Vertical	800KG7D	52.2	29.2
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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/Western 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)
TR 2.4		11700 12200	62.0/143.0	0.0	5.0	0.0	5.0	0.0
		14000 14500	62.0/143.0	0.0	5.0	0.0	5.0	-2.5

REMOTE CONTROL POINT LOCATION

E61. Call Sign E990170 NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.		E66. Phone Number 248-353-1562	
E62. Street Address 24000 Northwestern Highway			
E63. City Southfield		E68. County Oakland	
		E67/68. State/Country MI/ USA	E64. Zip Code 48075

FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

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

43. Description. (Summarize the nature of the application and the services to be provided).

This application requests authority to modify Earth Station E990170 by adding 5,000 2.4 meter transmit/receive remote terminals and 50,000 1.0 meter transmit/receive remote terminals to this VSAT network. In addition, HNS requests authority to update the emission designators for each of the authorized 5,000 1.8 meter transmit/receive remote terminals, 20,000 1.2 meter transmit/receive remote terminals and each of the Hub antennas.