Date & Time Filed: Jan 22 2018 9:24:22:266PM File Number: SES-MFS-20180122-00052

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 ESAA Blanket License (Call Sign E100089)

Modification of ESAA Branket License (Call Sign E100089)							
1–8. Legal Name of Applicant							
	Name:	Panasonic Avionics Corporation	Phone Number:	949–672–2364			
	DBA		Fax Number:				
	Name:						
	Street:	26200 Enterprise Way	E-Mail:	mark.defazio@panasonic.aero			
	City:	Lake Forest	State:	CA			
	•						
	Country:	USA	Zipcode:	92630 –			
	Attention:	Mr. Mark DeFazio					

9–16. Name of Contact Representative

Name: Carlos Nalda Phone Number: 5713325626

Company: LMI Advisors **Fax Number:**

Street: 2550 M Street NW E-Mail: cnalda@lmiadvisors.com

Suite 345

City: Washington State: DC

Country: USA Zipcode: 20037–

Attention: Mr. Carlos Nalda **Relationship:** Other

CLASSIFICATION OF FILING

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

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

o b3. Amendment to a Pending Application

b4. Modification of License or Registration

b5. Assignment of License or Registration

b6. Transfer of Control of License or Registration

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)

(N/A) b11. Application for Earth Station to Access a Non–U.S.satellite Not Currently Authorized to Provide the Proposed Service in the Proposed Frequencies in the United States

(N/A) b12. Application for Database Entry

b13. Amendment to a Pending Database Entry Application

b14. Modification of Database Entry

17c. Is a fee submitted with this application If Yes, complete and attach FCC Form	on? 159. If No, indicate reason for fee exemption (s	ee 47 C.F.R.Section 1.1114).		
Governmental Entity Noncomme		,		
Other(please explain):				
17d.				
Fee Classification CGB – Mobile Satellite Earth Stations				
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: E100089	(a) Date pending application was filed:	(b) File number:		
L10000)		SESMFS2017031200255		

TYPE OF SERVICE

20. NATURE OF SERVICE: This filing is for an authorization to provide	e 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 Non–Common Carrier	Using Non–U.S. licensed satellites
23. If applicant is providing INTERNATIONAL COMMON CARRIER s facilities:	service, see instructions regarding Sec. 214 filings. Choose one. Are these
O Connected to a Public Switched Network O Not connected to a	Public Switched Network N/A
24. FREQUENCY BAND(S): Place an 'X' in the box(es) next to all a	pplicable 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 addition	nal frequencies in an attachment)

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) ESV
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 frequency(ies)
h — authorization to add frequency
i — authorization to add Points of Communication (satellites & p; countries)
j — authorization to change Points of Communication (satellites & Double of Communication (satellites & Doub
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

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.	_		~			
ALIEN OWNERSHIP Earth station applicants not proposing to provide broadcast, common carrier, aeron aeronautical fixed radio station services are not required to respond to Items 30–34.	autic	al en	ı rou	ite or		
29. Is the applicant a foreign government or the representative of any foreign government?	0	Yes	•	No		
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

 $lackbox{ Yes } lackbox{ No}$

28. Would a Commission grant of any proposal in this application or amendment have a significant environmental

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.	Narrative	
BASIC QUALIFICATIONS		
35. Does the Applicant request any waivers or exemptions from any of the Commission's Rules? If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents.	• Yes	⊚ No
36. Has the applicant or any party to this application or amendment had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission? If Yes, attach as an exhibit, an explination of circumstances.	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	• Yes	No
39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceding two items? If yes, attach as an exhinit, an explanation of the circumstances.	• Yes	⊘ No
40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, address, and citizenship of those stockholders owning a record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.		

41. By checking Yes, the undersigned certifies, that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti–Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes.	⊚ Yes	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, wh coordinated or is in the process of coordinating the space station? France	nat administr	ation has
43. Description. (Summarize the nature of the application and the services to be provided). (If the complete description box, please go to the end of the form to view it in its entirety.)	n does not ap	ppear in this
ESAA License Modification to Add Points of Communication and Incerase Power I	Levels.	
Technical Appendix		

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

CERTIFICATION

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

44. Applicant is a (an): (Choose the button next to applic	able response.)	
O Individual		
Unincorporated Association		
O Partnership		
Corporation		
Governmental Entity		
Other (please specify)		
45. Name of Person Signing	46. Title of Person Signing	
Mark DeFazio	Sr. Manager	
>	•	

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	ation Site					
E1: Site Identifier:	PPA	E5. Call Sign:	E100089			
E2: Contact Name	MCC	E6. Phone Number:	1-425-415-9800			
E3. Street:	26200 Enterprise Way	E7. City:	Lake Forest			
		E8. County:	Orange			
E4. State	CA	E9. Zip Code	92630			
E10. Area of Operat	tion:	U.S. and internation	al airspace			
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.	O Yes	● No	O N/A	
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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 loca point.	ntion and telephone number of the control	Yes	٥	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: OTHER OTHER If you selected OTHER, please e	nter the following:			
E21. Common Name: EKSPRESS-AM6	E22. ITU Name: EXPRESS-5B			
E23. Orbit Location: 53 E.L.	E24. Country: Russia			

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

E21. Common Name: EUTELSAT 172B	E22. ITU Name:							
E23. Orbit Location: 172 E.L.	E24. Country: USA							
Satellite Name: OTHER OTHER If you selected OTHER, please enter the following:								
E21. Common Name: EUTELSAT 172B	E22. ITU Name: F-SAT-E-30B-172E							
E23. Orbit Location: 172 E.L.	E24. Country: France							
Satellite Name: INTELSAT 21 (S2863) INTELSAT 21 58.0 W.L. If	you selected OTHER, please enter the following:							
E21. Common Name:	E22. ITU Name:							
E23. Orbit Location:	E24. Country:							
Satellite Name: INTELSAT 21 (S2863) INTELSAT 21 58.0 W.L. If	you selected OTHER, please enter the following:							
E21. Common Name:	E22. ITU Name:							
E23. Orbit Location:	E24. Country:							
Satellite Name: OTHER OTHER If you selected OTHER, please er	ater the following:							
E21. Common Name: EUTELSAT 172B	E22. ITU Name: F-SAT-E-30B-172E							
E23. Orbit Location: 172 E.L.	E24. Country: France							
Satellite Name: OTHER OTHER If you selected OTHER, please er	iter the following:							
E21. Common Name: EKSPRESS-AM5	E22. ITU Name: EXPRESS-10B							
E23. Orbit Location: 140 E.L.	E24. Country: Russia							
Satellite Name: SES-15 (S2951) GIBSAT-129W-B 129.15 W.L If	you selected OTHER, please enter the following:							

E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:
Satellite Name: OTHER OTHER If you selected OTHER, please en	ter the following:
E21. Common Name: EUTELSAT 172B	E22. ITU Name:
E23. Orbit Location: 172 E.L.	E24. Country: USA
Satellite Name: SES-15 (S2951) GIBSAT-129W-B 129.15 W.L If	you selected OTHER, please enter the following:
E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:
POINTS OF COMMUNICATION (Destination Points)	
E25. Site Identifier: PPA	
E26. Common Name:	E27. Country: USA
E25. Site Identifier: PPA	
E26. Common Name:	E27. Country: USA
E25. Site Identifier: PPA	
E26. Common Name:	E27. Country: USA
E25. Site Identifier: PPA	
E26. Common Name:	E27. Country: USA
E25. Site Identifier: PPA	

E26. Common	Name:			E27. Country:	USA			
E25. Site Iden	tifier: PPA							
E26. Common	Name:			E27. Country:	USA			
E25. Site Iden	tifier: PPA							
E26. Common	Name:			E27. Country:	USA			
E25. Site Iden	tifier: PPA							
E26. Common	Name:			E27. Country:	USA			
E25. Site Iden	tifier: PPA							
E26. Common	Name:			E27. Country: USA				
E25. Site Iden	tifier: PPA							
E26. Common	Name:			E27. Country:	USA			
ANTENNA				_ L				
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)		
PPA	PPA	2000	Panasonic	AURA LE	0.89	37.0 dBi at 14.250		

Id	Diameter		` ′	Height Above	Input Power at	E39. Maximum Antenna Height Above Rooftop (meters)	EIRP for al
PPA	0.0/0.0	0.0	0.0	0.0	10.0	0.0	48.0

FREQUENCY

	E43/44. Frequency Bands (MHz)				E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
PPA	10700 12200	R	Horizontal and Vertical	139MG7D	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, 16APSK

PPA	10700	R	Horizontal and	1M05G7D	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, 16APSK

PPA	10700 12750	R	Horizontal	1M05G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If	the complete descri	iption does not appear	in this box, please	go to the end of t	the form to view it in its
QPSK, 16AF	'SK					
PPA	10950 11200	R	Horizontal and Vertical	139MG7D	0.0	0.0
QPSK, 16AF	PSK					
PPA	10950 11200	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If	the complete descri	iption does not appear	in this box, please	go to the end of t	the form to view it in its
QPSK, 16AF	SK					

PPA	10950 11200	R	Horizontal and Vertical	54M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	the complete descript	ion does not appear	in this box, please g	to the end of the	ne form to view it in its
QPSK, 16AF	SK					
PPA	10950 11200	R	Horizontal and Vertical	72M0G7D	0.0	0.0
QPSK, 16AF	SK					
PPA	10950 11200	R	Horizontal and Vertical	97M2G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	the complete descript	ion does not appear	in this box, please g	go to the end of the	ne form to view it in its
QPSK, 16AF	SK					

PPA	10950 11700	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	on does not appear i	n this box, please go	to the end of the form	n to view it in its
QPSK, 16AF	SK					
PPA	10950 11700	R	Horizontal and Vertical	72M0G7D	0.0	0.0
QPSK, 16AF	'SK					
PPA	10950 12200	R	Horizontal and Vertical	112MG7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	on does not appear i	in this box, please go	to the end of the form	n to view it in its
QPSK, 16AF	'SK					

PPA	10950 12200	R	Horizontal and Vertical	125MG7D	0.0	0.0
E50. Modulation entirety.)	and Services (I	f the complete de	escription does not appear	in this box, please	go to the end of t	he form to view it in its
QPSK, 16AI	?SK					
PPA	10950 12200	R	Horizontal and Vertical	1M05G7D	0.0	0.0
QPSK, 16AI	?SK					
PPA	10950 12200	R	Horizontal and Vertical	36M0G7W	0.0	0.0
E50. Modulation entirety.)	and Services (I	f the complete de	escription does not appear	in this box, please	go to the end of t	the form to view it in its
QPSK, 16AI	?SK					

PPA	11200 11450	R	Horizontal and Vertical	139MG7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	on does not appear	in this box, please go	to the end of the form	n to view it in its
QPSK, 16AF	SK					
PPA	11200 11450	R	Horizontal and Vertical	1M05G7D	0.0	0.0
QPSK, 16AF	'SK					
PPA	11200 11450	R	Horizontal and Vertical	54M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	on does not appear	in this box, please go	to the end of the form	n to view it in its
QPSK, 16AF	SK					

PPA	11450 11700	R	Horizontal and Vertical	139MG7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	on does not appear i	in this box, please go	to the end of the form	n to view it in its
QPSK, 16AF	SK					
PPA	11450 11700	R	Horizontal and Vertical	1M05G7D	0.0	0.0
QPSK, 16AF	'SK					
PPA	11450 11700	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	on does not appear i	in this box, please go	to the end of the form	n to view it in its
QPSK, 16AF	SK					

PPA	11450 11700	R	Horizontal and Vertical	54M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If	the complete descript	ion does not appear	in this box, please	go to the end of t	the form to view it in its
QPSK, 16AE	SK					
PPA	11450 12200	R	Horizontal and Vertical	1M05G7D	0.0	0.0
QPSK, 16AE	SK					
PPA	11450 12200	R	Horizontal and Vertical	27M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If	the complete descript	ion does not appear	in this box, please	go to the end of t	the form to view it in its
QPSK, 16AE	SK					

PPA	11450 12200	R	Horizontal and Vertical	36M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (I	f the complete de	escription does not appear	in this box, please	go to the end of t	he form to view it in its
QPSK, 16AI	SK					
PPA	11450 12200	R	Horizontal and Vertical	97M2G7D	0.0	0.0
QPSK, 16AI	·SK					
PPA	11450 12750	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.)	and Services (I	f the complete de	escription does not appear	in this box, please	go to the end of t	he form to view it in its
QPSK, 16AI	PSK					

PPA	11450 12750	R	Horizontal and Vertical	72M0G7D	0.0	0.0
E50. Modulation entirety.)	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
QPSK, 16AI	PSK					
PPA	11700 12200	R	Horizontal and Vertical	1M05G7D	0.0	0.0
QPSK, 16AI	PSK					
PPA	12200 12750	R	Horizontal and Vertical	139MG7D	0.0	0.0
E50. Modulation entirety.) QPSK, 16AE		the complete do	escription does not appear	in this box, please	go to the end of t	he form to view it in its

PPA	12200 12750	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	he complete descripti	on does not appear i	in this box, please go	to the end of the form	to view it in its
QPSK, 16AP	sk					
PPA	12200 12750	R	Horizontal and Vertical	36M0G7D	0.0	0.0
QPSK, 16AP	·SK					
PPA	12200 12750	R	Horizontal and Vertical	54M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	he complete descripti	on does not appear i	in this box, please go	to the end of the form	to view it in its
QPSK, 16AP	SK	_				

PPA	12250 12750	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	ion does not appear i	in this box, please go	to the end of the form	n to view it in its
QPSK, 16AF	SK					
PPA	12250 12750	R	Horizontal and Vertical	72M0G7D	0.0	0.0
QPSK, 16AF	'SK					
PPA	12500 12600	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	ion does not appear i	in this box, please go	to the end of the form	n to view it in its
QPSK, 16AF	SK					

PPA	12500 12600	R	Horizontal and Vertical	97M2G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	on does not appear	in this box, please go	to the end of the form	n to view it in its
QPSK, 16AP	SK					
PPA	12500 12750	R	Horizontal and Vertical	1M05G7D	0.0	0.0
QPSK, 16AP	SK					
PPA	12500 12750	R	Horizontal and Vertical	54M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	on does not appear	in this box, please go	to the end of the form	n to view it in its
QPSK, 16AP	SK					

PPA	12500 12750	R	Horizontal and Vertical	72M0G7D	0.0	0.0
E50. Modu	ulation 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
QPSK,	16APSK					
PPA	14000 14500	Т	Horizontal and Vertical	32K0G7D	44.37	35.56
PSK						
PPA	14000	Т	Horizontal and	21M0G7D	48.0	11.01
E50. Mod	ulation and Services	(If the complete d	Vertical escription does not appear	in this box, please	go to the end of the	ne form to view it in its
entirety.)						

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)
PPA (Geostationary	14000 14500	15.0/15.0	0.0	5.0	0.0	5.0	2.55
	Geostationary	14000 14500	37.5/37.5	0.0	5.0	0.0	5.0	3.23
	Geostationary	14000 14500	63.0/63.0	0.0	5.0	0.0	5.0	5.97
	Geostationary	14000 14500	70.5/70.5	0.0	5.0	0.0	5.0	3.9
	Geostationary	14000 14500	76.5/76.5	0.0	5.0	0.0	5.0	6.26
	Geostationary	14000 14500	85.0/85.0	0.0	5.0	0.0	5.0	7.34
	Geostationary	14000 14500	90.0/90.0	0.0	5.0	0.0	5.0	6.89
	Geostationary	14000 14500	107.3/107.3	0.0	5.0	0.0	5.0	13.31
	Geostationary	14000 14500	134.0/134.0	0.0	5.0	0.0	5.0	3.89
	Geostationary	14000 14500	144.0/144.0	0.0	5.0	0.0	5.0	6.42
	Geostationary	10700 12200	129.15/129.15	0.0	5.0	360.0	5.0	0.0

Geostationary	10700 12750	76.5/76.5	0.0	5.0	360.0	5.0	0.0
Geostationary	10700 12750	134.0/134.0	0.0	5.0	360.0	5.0	0.0
Geostationary	10950 11200	53.0/53.0	0.0	5.0	360.0	5.0	0.0
Geostationary	10950 11200	60.0/60.0	0.0	5.0	360.0	5.0	0.0
Geostationary	10950 11200	90.0/90.0	0.0	5.0	360.0	5.0	0.0
Geostationary	10950 11200	140.0/140.0	0.0	5.0	360.0	5.0	0.0
Geostationary	10950 11200	172.0/172.0	0.0	5.0	360.0	5.0	0.0
Geostationary	10950 11700	70.5/70.5	0.0	5.0	360.0	5.0	0.0
Geostationary	10950 12200	15.0/15.0	0.0	5.0	360.0	5.0	0.0
Geostationary	10950 12200	50.0/50.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11200 11450	172.0/172.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 11700	53.0/53.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 11700	140.0/140.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 11700	172.0/172.0	0.0	5.0	360.0	5.0	0.0

Geostationary	11450 12200	37.5/37.5	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 12200	58.0/58.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 12200	60.0/60.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 12200	63.0/63.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 12750	90.0/90.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11700 12200	107.3/107.3	0.0	5.0	360.0	5.0	0.0
Geostationary	11700 12200	114.9/114.9	0.0	5.0	360.0	5.0	0.0
Geostationary	12200 12750	144.0/144.0	0.0	5.0	360.0	5.0	0.0
Geostationary	12200 12750	172.0/172.0	0.0	5.0	360.0	5.0	0.0
Geostationary	12250 12750	45.0/45.0	0.0	5.0	360.0	5.0	0.0
Geostationary	12250 12750	85.0/85.0	0.0	5.0	360.0	5.0	0.0
Geostationary	12500 12600	60.0/60.0	0.0	5.0	360.0	5.0	0.0
Geostationary	12500 12750	53.0/53.0	0.0	5.0	360.0	5.0	0.0
Geostationary	12500 12750	70.5/70.5	0.0	5.0	360.0	5.0	0.0

Geosta	12500 12750	140.0/140.0	0.0	5.0	360.0	5.0	0.0
Geosta	14000 14500	45.0/45.0	0.0	5.0	360.0	5.0	7.44
Geosta	14000 14500	50.0/50.0	0.0	5.0	360.0	5.0	5.0
Geosta	14000 14500	53.0/53.0	0.0	5.0	360.0	5.0	1.02
Geosta	14000 14500	58.0/58.0	0.0	5.0	360.0	5.0	7.38
Geosta	14000 14500	60.0/60.0	0.0	5.0	360.0	5.0	4.89
Geosta	14000 14500	114.9/114.9	0.0	5.0	360.0	5.0	1.08
Geosta	14000 14500	129.15/129.15	0.0	5.0	360.0	5.0	-5.39
Geosta	14000 14500	140.0/140.0	0.0	5.0	360.0	5.0	4.19
Geosta	14000 14500	172.0/172.0	0.0	5.0	360.0	5.0	7.97

REMOTE CONTROL POINT LOCATION

E61. Call Sign	E66. Phone Number 1–425–415–9800
NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.	
E62. Street Address 26200 Enterprise Way	

E63. City Lake Forest	E68. County Orange	E67/68. State/Country CA/ USA	E64. Zip Code 92630
		CA/ 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: SPA E5. Call Sign: E100089

E2: Contact Name MCC E6. Phone 1–425–415–9800

Number:

E3. Street: 26200 Enterprise E7. City: Lake Forest

Way

E8. County: Orange

E4. State CA E9. Zip Code 92630

E10. Area of Operation: U.S. and international airspace

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. E16. If the proposed antenna(s) do not operate in the Fixed Satellite Service (FSS), or if they operate in the Fixed	○ Yes	⊚ No	O N/A
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	○ No	N/A
E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	● Yes	• •	No
E18. Is frequency coordination required? If YES, attach a frequency coordination report as	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	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: SES-15 (S2951) GIBSAT-129W-B 129.15 W.L If you selected OTHER, please enter the following the satellite Name: SES-15 (S2951) GIBSAT-129W-B 129.15 W.L	wing:		

E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:
Satellite Name: OTHER OTHER If you selected OTHER, please er	iter the following:
E21. Common Name: EKSPRESS-AM6	E22. ITU Name: EXPRESS-5B
E23. Orbit Location: 53 E.L.	E24. Country: Russia
Satellite Name: OTHER OTHER If you selected OTHER, please er	iter the following:
E21. Common Name: EUTELSAT 172B	E22. ITU Name:
E23. Orbit Location: 172 E.L.	E24. Country: USA
Satellite Name: OTHER OTHER If you selected OTHER, please er	iter the following:
E21. Common Name: EKSPRESS-AM5	E22. ITU Name: EXPRESS-10B
E23. Orbit Location: 140 E.L.	E24. Country: Russia
Satellite Name: INTELSAT 21 (S2863) INTELSAT 21 58.0 W.L. If	you selected OTHER, please enter the following:
E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:
Satellite Name: OTHER OTHER If you selected OTHER, please er	iter the following:
E21. Common Name: EUTELSAT 172B	E22. ITU Name: F-SAT-E-30B-172E
E23. Orbit Location: 172 E.L.	E24. Country: France
POINTS OF COMMUNICATION (Destination Points)	
E25. Site Identifier: SPA	

E26. Common	Name:			E27. Country:	USA			
E25. Site Ident	ifier: SPA							
E26. Common	Name:			E27. Country:	USA			
E25. Site Ident	ifier: SPA							
E26. Common	Name:			E27. Country:	USA			
E25. Site Ident	ifier: SPA							
E26. Common Name: EKSPRESS-AM5				E27. Country:	USA			
E25. Site Identifier: SPA								
E26. Common	Name: EKSPRESS-	-AM6		E27. Country: USA				
E25. Site Ident	ifier: SPA							
E26. Common	Name: EUTELSAT	172B		E27. Country: USA				
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)		
SPA	SPA	1000	Panasonic	SPA	0.949	35.0 dBi at 14.250		

Id	Diameter		` ′	Height Above	E38. Total Input Power at antenna flange (Watts)		EIRP for al
SPA	0.0/0.0	0.0	0.0	0.0	10.0	0.0	45.0

FREQUENCY

	E43/44. Frequency Bands (MHz)				E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
SPA	10700 12200	R	Horizontal and Vertical	139MG7D	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, 16APSK

SPA	10700	R	Horizontal and	1M05G7D	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, 16APSK

SPA	10700 12750	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.)	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
QPSK, 16AI	PSK					
SPA	10950 11200	R	Horizontal and Vertical	139MG7D	0.0	0.0
QPSK, 16AI	PSK					
SPA	10950 11200	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.) QPSK, 16AB		the complete do	escription does not appear	in this box, please	go to the end of t	he form to view it in its

SPA	10950 11200	R	Horizontal and Vertical	54M0G7D	0.0	0.0
E50. Modu entirety.)	llation and Services	(If the complete d	lescription does not appear	in this box, please	go to the end of	the form to view it in its
QPSK,	16APSK					
SPA	10950 11200	R	Horizontal and Vertical	72M0G7D	0.0	0.0
QPSK,	16APSK					
SPA	10950 11200	R	Horizontal and Vertical	97M2G7D	0.0	0.0
E50. Modu entirety.)	llation and Services	(If the complete d	lescription does not appear	in this box, please	go to the end of	the form to view it in its
QPSK,	16APSK					

SPA	10950 11700	R	Horizontal and Vertical	139MG7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	ion does not appear i	in this box, please go	o to the end of the	e form to view it in its
QPSK, 16AF	'SK					
SPA	10950 11700	R	Horizontal and Vertical	1M05G7D	0.0	0.0
QPSK, 16AF	'SK					
SPA	10950 11700	R	Horizontal and Vertical	72M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	ion does not appear i	in this box, please go	o to the end of the	e form to view it in its
QPSK, 16AF	SK					

SPA	10950 12200	R	Horizontal and Vertical	112MG7D	0.0	0.0
E50. Modulation entirety.)	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
QPSK, 16AI	PSK					
SPA	10950 12200	R	Horizontal and Vertical	125MG7D	0.0	0.0
QPSK, 16AI	PSK					
SPA	10950 12200	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.) QPSK, 16AI		the complete de	escription does not appear	in this box, please	go to the end of t	he form to view it in its

SPA	10950 12200	R	Horizontal and Vertical	27M0G7W	0.0	0.0
E50. Modulation entirety.)	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
QPSK, 16AI	PSK					
SPA	11200 11450	R	Horizontal and Vertical	139MG7D	0.0	0.0
QPSK, 16AI	PSK					
SPA	11200 11450	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.) QPSK, 16AB		the complete do	escription does not appear	in this box, please	go to the end of t	the form to view it in its

SPA	11200 11450	R	Horizontal and Vertical	54M0G7D	0.0	0.0
E50. Modula entirety.)	ation and Services (If the complete d	escription does not appear	in this box, please	go to the end of t	the form to view it in its
QPSK, 1	6APSK					
SPA	11450 11700	R	Horizontal and Vertical	139MG7D	0.0	0.0
QPSK, 1	OTT DIC					
SPA	11450 11700	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modula entirety.)		If the complete do	escription does not appear	in this box, please	go to the end of t	the form to view it in its

SPA	11450 11700	R	Horizontal and Vertical	54M0G7D	0.0	0.0
E50. Modula entirety.)	ation and Services	(If the complete d	escription does not appear	in this box, please	go to the end of	the form to view it in its
QPSK, 1	6APSK					
SPA	11450 11950	R	Horizontal and Vertical	1M05G7D	0.0	0.0
QPSK, 1	6APSK					
SPA	11450 11950	R	Horizontal and Vertical	72M0G7D	0.0	0.0
E50. Modula entirety.)		(If the complete d	escription does not appear	in this box, please	go to the end of	the form to view it in its

SPA	11450 12200	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If	the complete descript	ion does not appear	in this box, please	go to the end of t	the form to view it in its
QPSK, 16AF	'SK					
SPA	11450 12200	R	Horizontal and Vertical	27M0G7D	0.0	0.0
QPSK, 16AF	'SK					
SPA	11450 12200	R	Horizontal and Vertical	97M2G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If	the complete descript	ion does not appear	in this box, please	go to the end of t	the form to view it in its
QPSK, 16AF	SK					

SPA	11700 12200	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	on does not appear i	n this box, please go	to the end of the form	n to view it in its
QPSK, 16AP	SK					
SPA	12200 12750	R	Horizontal and Vertical	139MG7D	0.0	0.0
QPSK, 16AP	SK					
SPA	12200 12750	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	on does not appear i	n this box, please go	to the end of the form	n to view it in its
QPSK, 16AP	SK					

SPA	12200 12750	R	Horizontal and Vertical	54M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If	the complete descrip	tion does not appear	in this box, please	go to the end of t	the form to view it in its
QPSK, 16AF	'SK					
SPA	12250 12750	R	Horizontal and Vertical	72M0G7D	0.0	0.0
QPSK, 16AF	SK					
SPA	12500 12600	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If	the complete descrip	tion does not appear	in this box, please	go to the end of t	the form to view it in its
QPSK, 16AF	'SK					

SPA	12500 12600	R	Horizontal and Vertical	97M2G7D	0.0	0.0
E50. Modulation entirety.)	n and Services (If	the complete d	escription does not appear	in this box, please	go to the end of t	the form to view it in its
QPSK, 16A	PSK					
SPA	12500 12750	R	Horizontal and Vertical	1M05G7D	0.0	0.0
QPSK, 16A	PSK					
SPA	12500 12750	R	Horizontal and Vertical	54M0G7D	0.0	0.0
E50. Modulation entirety.) QPSK, 16A		the complete d	escription does not appear	in this box, please	go to the end of t	the form to view it in its

	12500 12750	R	Horizontal and Vertical	72M0G7D	0.0	0.0
E50. Modu	ulation and Services (If the complete de	escription does not appear	in this box, please	go to the end of th	ne form to view it in its
QPSK,	16APSK					
SPA	14000 14500	Т	Horizontal and Vertical	21M0G7D	45.0	8.01
QPSK						
				_	1	
SPA	14000 14500	Т	Horizontal and Vertical	32K0G7D	40.37	31.56
E50. Mode	14500		I			
E50. Moderntirety.)	14500		Vertical			

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)
SPA	Geostationary	14000 14500	15.0/15.0	0.0	5.0	0.0	5.0	-1.71
	Geostationary	14000 14500	37.5/37.5	0.0	5.0	0.0	5.0	-1.39
	Geostationary	14000 14500	63.0/63.0	0.0	5.0	0.0	5.0	1.29
	Geostationary	14000 14500	70.5/70.5	0.0	5.0	0.0	5.0	-0.71
	Geostationary	14000 14500	76.5/76.5	0.0	5.0	0.0	5.0	1.83
	Geostationary	14000 14500	85.0/85.0	0.0	5.0	0.0	5.0	2.98
	Geostationary	14000 14500	90.0/90.0	0.0	5.0	0.0	5.0	2.29
	Geostationary	14000 14500	107.3/107.3	0.0	5.0	0.0	5.0	6.46
	Geostationary	14000 14500	134.0/134.0	0.0	5.0	0.0	5.0	-0.71
	Geostationary	14000 14500	144.0/144.0	0.0	5.0	0.0	5.0	2.12
	Geostationary	10700 12200	129.15/129.15	0.0	5.0	360.0	5.0	0.0

Geostationary	10700 12750	76.5/76.5	0.0	5.0	360.0	5.0	0.0
Geostationary	10700 12750	134.0/134.0	0.0	5.0	360.0	5.0	0.0
Geostationary	10950 11200	53.0/53.0	0.0	5.0	360.0	5.0	0.0
Geostationary	10950 11200	60.0/60.0	0.0	5.0	360.0	5.0	0.0
Geostationary	10950 11200	90.0/90.0	0.0	5.0	360.0	5.0	0.0
Geostationary	10950 11200	140.0/140.0	0.0	5.0	360.0	5.0	0.0
Geostationary	10950 11200	172.0/172.0	0.0	5.0	360.0	5.0	0.0
Geostationary	10950 11700	70.5/70.5	0.0	5.0	360.0	5.0	0.0
Geostationary	10950 12200	15.0/15.0	0.0	5.0	360.0	5.0	0.0
Geostationary	10950 12200	50.0/50.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11200 11450	172.0/172.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 11700	53.0/53.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 11700	140.0/140.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 11700	172.0/172.0	0.0	5.0	360.0	5.0	0.0

Geostationary	11450 11950	45.0/45.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 12200	37.5/37.5	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 12200	58.0/58.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 12200	60.0/60.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 12200	63.0/63.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 12750	90.0/90.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11700 12200	107.3/107.3	0.0	5.0	360.0	5.0	0.0
Geostationary	11700 12200	114.9/114.9	0.0	5.0	360.0	5.0	0.0
Geostationary	12200 12750	144.0/144.0	0.0	5.0	360.0	5.0	0.0
Geostationary	12200 12750	172.0/172.0	0.0	5.0	360.0	5.0	0.0
Geostationary	12250 12750	85.0/85.0	0.0	5.0	360.0	5.0	0.0
Geostationary	12500 12600	60.0/60.0	0.0	5.0	360.0	5.0	0.0
Geostationary	12500 12750	53.0/53.0	0.0	5.0	360.0	5.0	0.0
Geostationary	12500 12750	70.5/70.5	0.0	5.0	360.0	5.0	0.0

Geostationary	12500 12750	140.0/140.0	0.0	5.0	360.0	5.0	0.0
Geostationary	14000 14500	45.0/45.0	0.0	5.0	360.0	5.0	2.73
Geostationary	14000 14500	50.0/50.0	0.0	5.0	360.0	5.0	0.29
Geostationary	14000 14500	53.0/53.0	0.0	5.0	360.0	5.0	0.29
Geostationary	14000 14500	58.0/58.0	0.0	5.0	360.0	5.0	2.5
Geostationary	14000 14500	60.0/60.0	0.0	5.0	360.0	5.0	0.29
Geostationary	14000 14500	114.9/114.9	0.0	5.0	360.0	5.0	-2.71
Geostationary	14000 14500	129.15/129.15	0.0	5.0	360.0	5.0	-7.95
Geostationary	14000 14500	129.15/129.15	0.0	5.0	360.0	5.0	-7.95
Geostationary	14000 14500	140.0/140.0	0.0	5.0	360.0	5.0	0.29
Geostationary	14000 14500	172.0/172.0	0.0	5.0	360.0	5.0	3.29

REMOTE CONTROL POINT LOCATION

E61. Call Sign	E66. Phone Number 1–425–415–9800
NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.	

E62. Street Address 26200 Enterprise Way			
E63. City Lake Forest	E68. County Orange	E67/68. State/Country CA/ USA	E64. Zip Code 92630

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: TECOM E5. Call Sign: E100089

E2: Contact Name MCC E6. Phone 1–425–415–9800

Number:

E3. Street: 26200 Enterprise E7. City: Lake Forest

Way

E8. County: Orange

E4. State CA E9. Zip Code 92630

E10. Area of Operation: U.S. and international airspace

E11. Latitude: 0 °0 '0.0 "

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

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	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. POINTS OF COMMUNICATION	O Yes	•	No

Satellite Name: SES-15 (S2951) | GIBSAT-129W-B | 129.15 W.L If you selected OTHER, please enter the following:

E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:
L	
Satellite Name: INTELSAT 21 (S2863) INTELSAT 21 58.0 W.L.	If you selected OTHER, please enter the following:
E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:
Satellite Name: EUTELSAT115WB(S2938) EUTELSAT 115 WB	114.9 W.L. If you selected OTHER, please enter the following:
E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:
	·
Satellite Name: OTHER OTHER If you selected OTHER, plea	ase enter the following:
E21. Common Name: EUTELSAT 172B	E22. ITU Name: F-SAT-E-30B-172E
E23. Orbit Location: 172 E.L.	E24. Country: France
Satellite Name: INTELSAT 21 (S2863) INTELSAT 21 58.0 W.L.	If you selected OTHER, please enter the following:
E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:
Satellite Name: ESTRELA DO SUL 2 ESTRELA DO SUL 2 63	W.L. If you selected OTHER, please enter the following:
·	
E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:
Satellite Name: OTHER OTHER If you selected OTHER, plea	ase enter the following:

E21. Common Name: EUTELSAT 172B	E22. ITU Name:
E23. Orbit Location: 172 E.L.	E24. Country: USA
POINTS OF COMMUNICATION (Destination Points)	
E25. Site Identifier: TECOM	
E26. Common Name:	E27. Country: USA
E25. Site Identifier: TECOM	
E26. Common Name:	E27. Country: USA
E25. Site Identifier: TECOM	
E26. Common Name:	E27. Country: USA
E25. Site Identifier: TECOM	
E26. Common Name:	E27. Country: USA
E25. Site Identifier: TECOM	
E26. Common Name:	E27. Country: USA
E25. Site Identifier: TECOM	
E26. Common Name:	E27. Country: USA
E25. Site Identifier: TECOM	
E26. Common Name: EUTELSAT 172B	E27. Country: USA
ANTERNIA	-

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer		Size <meters></meters>	E41/42. Antenna Gain Transmint and/or Recieve (dBi atGHz)
TECOM	TECOM	1000	TECOM	Ku–Stream 1000	0.62	28.8 dBi at 14.2500

Id	Diameter		, ,	Height Above	Input Power at	E39. Maximum Antenna Height Above Rooftop (meters)	EIRP for al
TECOM	0.0/0.0	0.0	0.0	0.0	31.6	0.0	43.8

FREQUENCY

	E43/44. Frequency Bands (MHz)	E45. T/R Mode			EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
TECOM	10700 12200	R	Horizontal and Vertical	139MG7D	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,	16APSK				

TECOM	10700 12200	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	he complete descripti	on does not appear is	n this box, please go t	o the end of the form	to view it in its
QPSK, 16AP	SK					
TECOM	10950 11200	R	Horizontal and Vertical	139MG7D	0.0	0.0
QPSK, 16AP	SK					
TECOM	10950 11200	R	Horizontal and Vertical	139MG7D	0.0	0.0
E50. Modulation entirety.)	•	he complete descripti	on does not appear i	n this box, please go t	o the end of the form	to view it in its
QPSK, 16AP	SK					

TECOM	10950 11200	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	he complete descripti	on does not appear i	n this box, please go	to the end of the form	to view it in its
QPSK, 16AP	SK					
TECOM	10950 11700	R	Horizontal and Vertical	1M05G7D	0.0	0.0
QPSK, 16AP	SK					
TECOM	10950 12200	R	Horizontal and Vertical	27M0G7W	0.0	0.0
E50. Modulation entirety.)	and Services (If the	he complete descripti	on does not appear i	n this box, please go	to the end of the form	to view it in its
QPSK, 16AP	SK					

TECOM	11200 11450	R	Horizontal and Vertical	139MG7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	on does not appear i	n this box, please go	to the end of the form	to view it in its
QPSK, 16AP	SK					
TECOM	11200 11450	R	Horizontal and Vertical	1M05G7D	0.0	0.0
QPSK, 16AP	SK					
TECOM	11200 11450	R	Horizontal and Vertical	54M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	on does not appear i	n this box, please go	to the end of the form	to view it in its
QPSK, 16AP	SK					

TECOM	11450 11700	R	Horizontal and Vertical	139MG7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	he complete descripti	on does not appear i	n this box, please go	to the end of the form	to view it in its
QPSK, 16AP	SK					
TECOM	11450 11700	R	Horizontal and Vertical	1M05G7D	0.0	0.0
QPSK, 16AP	SK					
TECOM	11450 12200	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	he complete descripti	on does not appear i	n this box, please go	to the end of the form	to view it in its
QPSK, 16AP	SK					

TECOM	11450 12200	R	Horizontal and Vertical	27M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	he complete descript	tion does not appear	in this box, please	go to the end of t	he form to view it in its
QPSK, 16AP	SK					
TECOM	11450 12200	R	Horizontal and Vertical	36M0G7D	0.0	0.0
QPSK, 16AP	SK					
TECOM	11700 12200	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.) QPSK, 16AP		he complete descript	tion does not appear	in this box, please	go to the end of t	he form to view it in its

TECOM	11700 12200	R	Horizontal and Vertical	54M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	on does not appear i	n this box, please go	to the end of the form	to view it in its
QPSK, 16AP	SK					
TECOM	12200 12750	R	Horizontal and Vertical	139MG7D	0.0	0.0
QPSK, 16AP	SK					
TECOM	12200 12750	R	Horizontal and Vertical	1M05G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	on does not appear i	n this box, please go	to the end of the form	to view it in its
QPSK, 16AP	SK					

TECOM	12200 12750	R	Horizontal and Vertical	54M0G7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	ne complete descript	ion does not appear	in this box, please g	to the end of the	he form to view it in its
QPSK, 16AP	SK					
TECOM	12250 12750	R	Horizontal and Vertical	1M05G7D	0.0	0.0
QPSK, 16AP	SK					
TECOM	10950 12200	R	Horizontal and Vertical	1M05KG7D	0.0	0.0
E50. Modulation entirety.)	and Services (If the	ne complete descript	ion does not appear	in this box, please g	to the end of the	he form to view it in its
QPSK, 16AP	SK					

TECOM	14000 14500	Т	Horizontal and Vertical	21M0G7D	43.8	6.81
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
QPSK						
TECOM	14000 14500	Т	Horizontal and Vertical	32K0G7D	40.39	31.57
E50. Modulation entirety.) QPSK	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

FREQUENCY COORDINATION

E28. Antenna Id		Limits(MHz)	Range of Satellite Arc Eastern/West	Station Azimuth Angle		E58. Earth Station Azimuth Angle Western Limit	Antenna	E60. Maximum EIRP Density toward the Horizon (dBW/4kHz)
TECOM	Geostationary	14000 14500	37.5/37.5	0.0	5.0	0.0	5.0	-7.66

Geostationary	14000 14500	63.0/63.0	0.0	5.0	0.0	5.0	-2.7
Geostationary	14000 14500	107.3/107.3	0.0	5.0	0.0	5.0	4.43
Geostationary	10700 12200	129.15/129.15	0.0	5.0	360.0	5.0	0.0
Geostationary	10950 11200	172.0/172.0	0.0	5.0	360.0	5.0	0.0
Geostationary	10950 12200	50.0/50.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11200 11450	172.0/172.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 11700	172.0/172.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 12200	37.5/37.5	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 12200	58.0/58.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11450 12200	63.0/63.0	0.0	5.0	360.0	5.0	0.0
Geostationary	11700 12200	107.3/107.3	0.0	5.0	360.0	5.0	0.0
Geostationary	11700 12200	114.9/114.9	0.0	5.0	360.0	5.0	0.0
Geostationary	12200 12750	172.0/172.0	0.0	5.0	360.0	5.0	0.0
Geostationary	14000 14500	50.0/50.0	0.0	5.0	360.0	5.0	-3.7

Geostationary	14000 14500	58.0/58.0	0.0	5.0	360.0	5.0	-3.17
Geostationary	14000 14500	114.9/114.9	0.0	5.0	360.0	5.0	-6.7
Geostationary	14000 14500	129.15/129.15	0.0	5.0	360.0	5.0	-14.56
Geostationary	14000 14500	172.0/172.0	0.0	5.0	360.0	5.0	-0.7

REMOTE CONTROL POINT LOCATION

E61. Call Sign NOTE: Please enter the callsign of the contro callsign for which this application is being filed.		E66. Phone Number 1–425–415–9800		
E62. Street Address 26200 Enterprise Way				
E63. City Lake Forest	E68. County Orange		E67/68. State/Country CA/ USA	E64. Zip Code 92630

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:	MELCO	E5. Call Sign:				
E2: Contact Name	MCC	E6. Phone Number:	1-425-415-9800			
E3. Street:	26200 Enterprise Way	E7. City:	Lake Forest			
		E8. County:	Orange			
E4. State	CA	E9. Zip Code	92630			
E10. Area of Operat	tion:	U.S. and international airspace				
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 N/A N/A N/A N/A N/A N/A N/		
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 loop point.	cation and telephone number of the control	Yes No
E18. Is frequency coordination required? If YES, attach a frequency co	pordination report as	O Yes No
E19. Is coordination with another country required? If YES, attach the coordination contours as	name of the country(ies) and plot of	O Yes O 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 FA 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 OTHER If you selected OTHER, please	enter the following:	
E21. Common Name: EUTELSAT 117WA	E22. ITU Name: MEXSAT-116.8-KU-E	XT
E23. Orbit Location: 116.8 W.L.	E24. Country: Mexico	
POINTS OF COMMUNICATION (Destination Points)		
E25. Site Identifier: MELCO		
E26. Common Name: EUTELSAT 117WA	E27. Country: USA	

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)	
MELCO	MELCO	50	Mitsubishi Electronics	726–20176– 101	0.68	32.2 dBi at 14.250	

Id	Diameter		` /	Height Above Ground Level	Input Power at antenna flange	E39. Maximum Antenna Height Above Rooftop (meters)	EIRP for al
MELCO	0.0/0.0	0.0	0.0	0.0	31.62	0.0	42.15

FREQUENCY

	E43/44. Frequency Bands (MHz)	E45. T/R Mode			E48. Maximum EIRP per Carrier (dBW)	E49. Maximum ERIP Density per Carrier (dBW/4kHz)
MELCO	14000 14400	Т	Horizontal and Vertical	500KG7D	27.3	7.12

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,)PSK	

MELCO	14000 14400	T	Horizontal and Vertical	9M00G7D	39.85	7.12	
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, QPSK							

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	Antenna Elevation	E60. Maximum EIRP Density toward the Horizon (dBW/4kHz)
MELCO	Geostationary	11700 12200	116.8/116.8	0.0	5.0	360.0	5.0	0.0
	Geostationary	14000 14500	116.8/116.8	0.0	5.0	360.0	5.0	-13.23

REMOTE CONTROL POINT LOCATION	
E61. Call Sign	E66. Phone Number
	1-425-415-9800
NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.	
E62. Street Address 26200 Enterprise Way	

E63. City	E68. County	E67/68.	E64. Zip Code
Lake Forest	Orange	State/Country	92630
		CA/ USA	

FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

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