Date & Time Filed: Sep 27 2013 11:15:20:943AM

File Number: SES-LIC-INTR2013-02100

Callsign/Satellite ID:

APPLICATION FOR EARTH STATION AUTHORIZATIONS

FCC 312 MAIN FORM FOR OFFICIAL USE ONLY FCC Use Only

APPLICANT INFORMATION

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

License for a 2.0 Meter C-band Transportable Fixed earth station

1-8. Legal Name of Applicant

TELEVISA, SA de CV Name:

Phone

2028281860

DBA

Number: Fax

2029555564

Name: Street:

800 17TH STREET NW, STE 1100

Number: E-Mail:

NORM.LEVENTHAL@HKLAW.COM

City:

WASHINGTON

State:

Country: **USA** Zipcode:

Attention: NORMAN LEVENTHAL ESQ

9-16. Name of Contact Representative

Name:

NORMAN LEVENTHAL ESO

Phone Number: 2028281860

Company: TELEVISA, SA de CV

Fax Number:

2029555564

Street:

800 17TH STREET NW, STE 1100

E-Mail:

NORM.LEVENTHAL@HKLAW.COM

City:

WASHINGTON

State:

DC

Country: USA

a1. Earth Station

(N/A) a2. Space Station

Zipcode:

Attention:

Relationship:

Legal Counsel

CLASSIFICATION OF FILING

17. Choose the button next to the classification that applies to this filing for **b1**. Application for License of New Station both questions a. and b. Choose only one for 17a and only one for 17b.

- b2. Application for Registration of New Domestic Receive-Only Station

(N/A) b3. Amendment to a Pending Application

(N/A) b4. Modification of License or Registration (N/A) b5. Assignment of License or Registration

(N/A) b6. Transfer of Control of License or Registration

(N/A) b7. Notification of Minor Modification

(N/A) b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite

(N/A) b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States

b10. Other (Please specify)

b11. Application for Earth Station to Access a Non-U.S. satellite Not Currently Authorized to Provide the Proposed Service in the Proposed Frequencies in the United States.

17c. Is a fee submitted with this application?

If Yes, complete and attach FCC Form 159.

If No, indicate reason for fee exemption (see 47 C.F.R.Section 1.1114).

Governmental Entity O Noncommercial educational licensee

Other(please explain):				
17d.				
Fee Classification BAX - Fixed Sar	tellite Transmit/Receive	Earth Station		
18. If this filing is in reference to an	19. If this filing is an amen	dment to a pending a	pplication enter:	
existing station, enter:	(a) Date pending application	• •		pending application:
(a) Call sign of station: Not Applicable	Not Applicable		Not Applicable	·
		SERVICE		
20. NATURE OF SERVICE: This filing is			ing type(s) of service	e(s): Select all that apply:
	Tor an association to pro-		mg sype(s) or service	(s), seree an una approx
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 th	e applicable status. Choose	22. If earth station a	pplicant, check all th	at apply.
only one.		U sing U.S. licen		
Common Carrier Non-Common Ca	rrier	Using Non-U.S.	licensed satellites	
23. If applicant is providing INTERNATIO these facilities:	NAL COMMON CARRIE	R service, see instruct	tions regarding Sec. 2	214 filings. Choose one. Are
Connected to a Public Switched Netwo	rk O Not connected to a Pu	ablic Switched Netwo	ork 🍳 N/A	
24. FREQUENCY BAND(S): Place an "X	" in the box(es) next to all a	pplicable frequency b	pand(s).	
a. C-Band (4/6 GHz) b. Ku-Band (1	12/14 GHz)			
C.Other (Please specify upper and lowe	r frequencies in MHz.)			
Frequency Lower: Frequency Upper:				
		STATION		
25. CLASS OF STATION: Choose the but	tton next to the class of station	on that applies. Choo	se only one.	
a. Fixed Earth Station				
b. Temporary-Fixed Earth Station				
c. 12/14 GHz VSAT Network				
O d. Mobile Earth Station				
(N/A) e. Geostationary Space Station (N/A) f. Non-Geostationary Space Station				
g. Other (please specify)				
<u></u>	TV. Cl.			
26. TYPE OF EARTH STATION FACILION Transmit/Receive Transmit-Only				
Transmit/Receive Transmit-Only		(ODJELGA ELOM		
· 	PURPOSE OF N	MODIFICATION		
27. The purpose of this proposed modifica	ation is to: (Place an 'X' in th	e box(es) next to all t	that apply.)	
Not Applicable			,	
	ENVIRONME	NTAL POLICY		
28. Would a Commission grant of any pro	posal in this application or a	amendment have a sig	gnificant	
environmental impact as defined by 47 CF	FR 1.1307? If YES, submit t	he statement as requi	red by Sections	O Yes O No
1.1308 and 1.1311 of the Commission's ru application. A Radiation Hazard Study mu	iles, 47 C.F.R. §§ 1.1308 and staccompany all application	a 1.1311, as an exhib	II IO INIS or facilities maior	Dodllog Chide
modifications, or major amendments.	ar accombants an approation	TO TO! WOW MANISHITEIN	E montheor major	RadHaz Study
ALIEN OWNERSHIP Earth static	on applicants not propos	sing to provide bro	oadcast, common	carrier, aeronautical en
TITITIO WITH THE SHARE	ii appiroums not propor	10 Pro 1100 OI	1	

route or aeronautical fixed radio station services are not required to respond to Items 30-34.

29. Is the applicant a foreign government or the representative of any foreign government?	O Yes ● No
30. Is the applicant an alien or the representative of an alien?	● Yes ○ No ○ N/A
31. Is the applicant a corporation organized under the laws of any foreign government?	● Yes ○ No ○ N/A
32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	• Yes O No O N/A
33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	● Yes O No O 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.	Alien Ownership
BASIC QUALIFICATIONS	
35. Does the Applicant request any waivers or exemptions from any of the Commission's Rules?	● Yes O No
If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents.	Waiver Request
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.	O Yes ⊗ No
38. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attempting unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition? If Yes, attach as an exhibit, an explanation of circumstances	O Yes ⊗ No
39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceding two items? If yes, attach as an exhinit, an explanation of the circumstances.	O Yes ● No
40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, address, and citizenship of those stockholders owning a record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.	
41. By checking Yes, the undersigned certifies, that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes.	● Yes ○ No
42a. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States? If Yes, answer 42b and attach an exhibit providing the information specified in 47 C.F.R. 25.137, as appropriate. If No, proceed to question 43.	O Yes ⊗ No
42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued coordinated or is in the process of coordinating the space station?	ued, what administration has
43. Description. (Summarize the nature of the application and the services to be provided). License for a 2.0 transportable temporary fixed earth station that will support the live telecasts of sporting event to the applicant's viewers.	meter C-band T/O ts of significant interest
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 coverage requirements specified					O B
By selecting C, the undersigned coverage requirements specifie not feasible as a technical matter many compromises in satellite description and technical analysis.	d in 47 C.F.R. Part 25 er to do so, or that, wh design and operation	and will not com tile technically fe as to make it ecor	ply with such requasible, such service to the servi	irements because it is es would require so	° c
		CERTIF	CATION		
The Applicant waives any claim	n to the use of any par	ticular frequency	or of the electroma	agnetic spectrum as aga	inst the regulatory power of
the United States because of the this application. The applicant c aggregation limit in 47 CFR Par in this application. The undersig attached exhibits are true, comp	previous use of the sa- certifies that grant of the rt 20. All statements named, individually and	ame, whether by his application wo hade in exhibits a for the applicant	license or otherwis ould not cause the re a material part h , hereby certifies the	te, and requests an author applicant to be in violation to be in violation are incorporated at all statements made in the statements are statements and statements are statements are statements and statements are statements and statements are statements are statements and statements are statements.	orization in accordance with ion of the spectrum ted herein as if set out in full in this application and in all
44. Applicant is a (an): (Choose	the button next to ap	plicable response	.)		
Individual Unincorporated Associatio Partnership Corporation Governmental Entity Other (please specify)	n				
45. Name of Person Signing			46. Title of Perso		
William Aquirre Ballester	ros		General Satelli	ite Director	
47. Please supply any need attack	chments.				
Attachment 1:	Attac	hment 2:		Attachment 3:	
	le 18, Section 1001), .	AND/OR REVO	CATION OF AN	BLE BY FINE AND / C Y STATION AUTHO U.S. Code, Title 47, Sec	RIZATION
				ORIZATIONS perational Descri	ption)
	F	OR OFFICIA	AL USE ONLY	7	
Location of Earth Station Site					
E1: Site Identifier:	Transportable	E5. Call	Sign:		
E2: Contact Name	Eduardo Ruiz	E6. Phor	e Number:	52555224716	3
E3. Street:		E7. City:			
		E8. Cour	-		
E4. State		E9. Zip (
E10. Area of Operation:		Various	S CONUS		
E11. Latitude:	0 ° 0 ' 0.0 "				
E12. Longitude:	0 ° 0 ' 0.0 "	_		_	
E13. Lat/Lon Coordinates are:		\circ_{NAI})- 27	O _{NAD-83}	● N/A
E14. Site Elevation (AMSL):	,	0.0 mete	ers		
E15. If the proposed antenna(s) the proposed antenna(s) comply demonstrated by the manufacture	with the antenna gair	n patterns specifie	d in Section 25.20	9(a) and (b) as	oyes ono on/A

analysis show	ing compliance w	ith tv	vo-degree	spacu	ng policy	٧									1			
Satellite Serv	oposed antenna(s) ice (FSS) with no specified in Sections?	n-geo	stationary	satell	ites, do(es) the	prop	osed	ant	enna(s) co	mply	with the	antenna	. n	s o	No	● N/A
E17. Is the fa point.	cility operated by	remo	te control?	? If YI	ES, prov	ide the	loca	tion	and	telep	hone	numl	per of the	e control	O Ye	es	•	No
E18. Is free	quency coordin	atior	require	d? If	YES, a	attach	a fr	eque	enc	у сос	ordi	natio	n repor	t as	● Ye	es	0	No
	rdination with ot of coordinat				equired	!? If Y	ÆS,	, atta	ich	the r	am	e of t	he cou	ntry	O Ye	es	•	No
E20. FAA notification the FAA's FAILURE	Notification - n is required, study regardi TO COMPL' OF THIS API	(See have ng tl Y W	47 CFR you att ne poten ITH 47	Par ache tial l CFR	d a cop nazard	oy of of th	a co e sti	mpl ruct	lete ture	ed FC e to a	CC I ivia	Forn tion	1 854 a ?	nd or	o ye	es	•	No
	COMMUNICAT	==								===								
	ame:ALSAT A	ALL	AUTHO	DRIZ	ED U.	S. A	LSA	T If	==					please	enter th	e fo	llowi	ng:
E21. Comr	non Name:									E22	. ITI	U Na	me:					
E23. Orbit										E24	. Co	untry	/:					
	COMMUNICAT	'ION	(Destinat	ion P	oints)													
E25. Site Id											,—.—							
E26. Comn	non Name:			~—·							E27	7. Co	untry:					
ANTENNA				7			71=				*							
Site ID	E28. Antenna Io	i Q	E29. uantity	Ma	E30. anufac		- 11	E31 Aod	- 11	Ar	E32. iten Size	na	3		tenna (Recieve G		Tran_dB	
Transporta	ble 2.0m	1		AV.	L		u	odel 10		2.0			40.3 d	Bi at 6.	175			
E28. Antenna Id	E33/34. Diam Minor/Maj (meters)		E35 Abov Groud Leve (mete	ve nd el	E30 Above Lev (meto	Sea el	Hei Gro	ight	Ab d L	evel	Inj at		ge	Anten Abov	Maxim na Hei e Rooft neters)	ght	EIR ca). Total P for al rriers (BW)
2.0m	0.0/0.0		5.5		0.0		3.5				60.	00		2.0			58.1	
FREQUENC	Y																	
E28. Antenna Id	E43/44. Frequency Bands(MHz		E45. T/R Mode	P	6. Ant olariza H,V,L	tion	E			nissi nator	- 11	F	. Maxi EIRP p rrier(d	er	Dens	ity p		1 ERIP arrier Iz)
2.0m	5925 6425	7		Line: Circu	ar and ılar		2	.M0	0 G 7	7W	4	46.7			19.7			
E50. Modu	lation and Serv	ices	Digital 1	Data	Carrie	r												
2.0m	5925 6425	7	li li	Line: Circu	ar and ılar		9	M0	0 G 7	7W	3	53.2			19.7			
E50. Modu	lation and Serv	ices	Digital 1	Data	Carrie	r												
FREQUENC	Y COORDINAT	ION																
E28.	F51 Satellite		52/53.	E5	4/55.	E56. Sta	Ear tion	- 1		E57. nten		Ħ	B. Eartl	II.	59. tenna	E60). Ma	ximum

EIRP Density

toward the

Horizon

E51. Satellite Frequency

Limits

(MHz)

Orbit Type

Range of

Satellite

Arc E/W

Azimuth

Angle

Eastern

Elevation

Angle

Eastern

Azimuth

Angle

Western

Elevation

Angle

Western

Antenna

Id

			Limit	Limit	Limit	Limit	Limit	(dBW/4kHz)
2.0m	Geostationary	5925 6425	60.0/ 143.0	0.0	5.0	0.0	5.0	0.0

REMOTE CONTROL POINT LOCATION REMOTE CONTROL POINT LOCATION

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

FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

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

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

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

FCC IBFS - Electronic Filing

Submission_id :IB2013002100 Successfully filed on :Sep 27 2013 11:15:20:943AM

Return to Main Menu

EXHIBIT 1

Televisa S.A. de C.V. FCC Form 312 Questions 30-34 July, 2013 1 of 1

ALIEN OWNERSHIP

The applicant, Televisa S.A. de C.V., is a Mexican corporation the majority of whose corporate officers and directors are Citizens of the United Mexican States ("Mexico). Televisa is owned by Grupo Televisa, S.A.B. a Mexican Corporation based in Mexico City ("Televisa"). Grupo Televisa is owned by public shareholders located worldwide.

Such ownership by non-U.S. entities is not a bar to the grant of a Termporary Fixed Earth Station authorization. Indeed, Bay City Television, Inc., a sister company, also ultimately owned by Grupo Televisa, itself currently holds such authorizations as well as a 325 permit to transmit local news and other programming electronically to Station XETV(TV), Tijuana, B.C., Mexico (File No. 325-RWL-20130430-00001).

Neither Televisa nor Grupo Televisa are representatives of a foreign government.

The applicant proposes to use a non-compliant 2.0 meter C-band antenna. Supporting waiver documentation is attached to Schedule B as "Antenna Waiver".

Non-compliant Antenna Waiver Request

Televisa requests authority to use its new AVL 2.0m antenna in the 5925 – 6425 MHz frequencies.

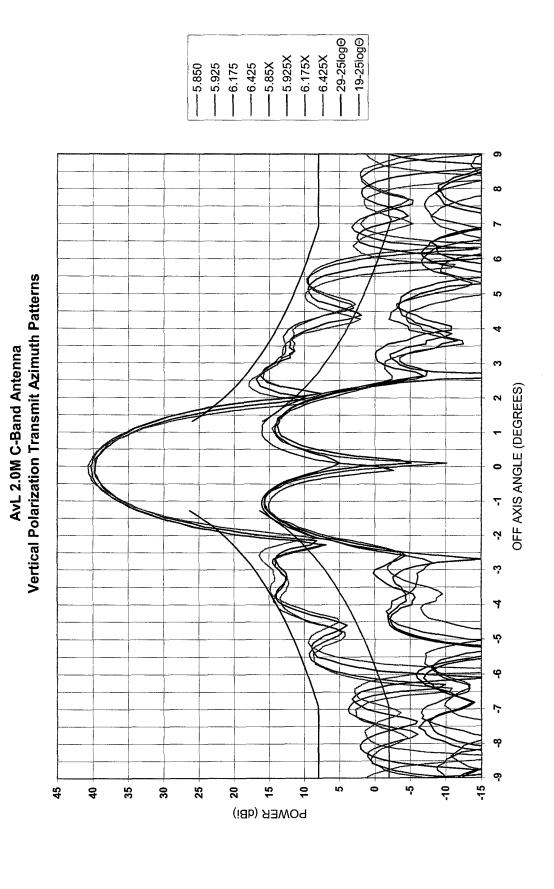
The AVL 2.0m antenna that is the subject of this application exceeds the antenna performance standards specified in Section 25.209(a), and thus Section 25.220 of the FCC's rules applies.

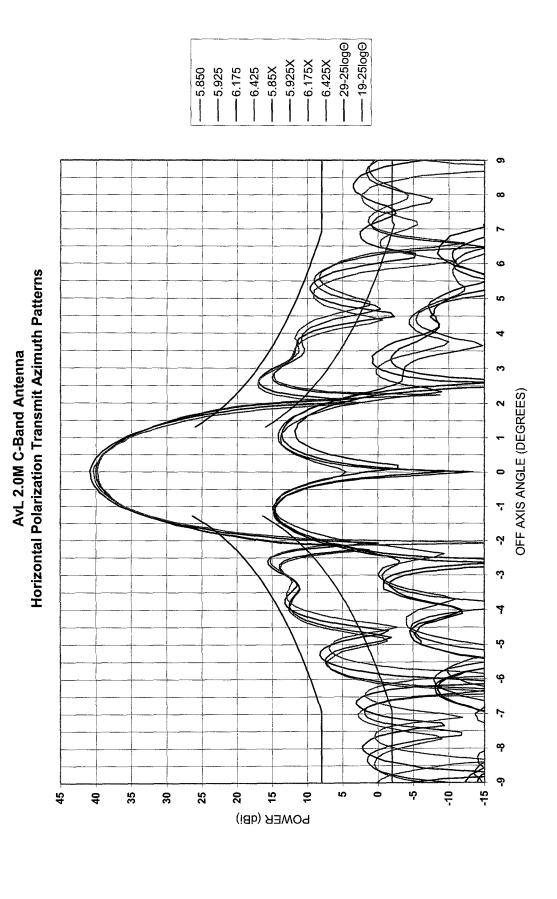
The antenna generally exhibits non-compliance for off-axis angles from 1.0 degrees to 2.0 degrees due to the width of its main lobe. Per the requirement of Section 25.220, the measured antenna performance data has been provided in this Exhibit.

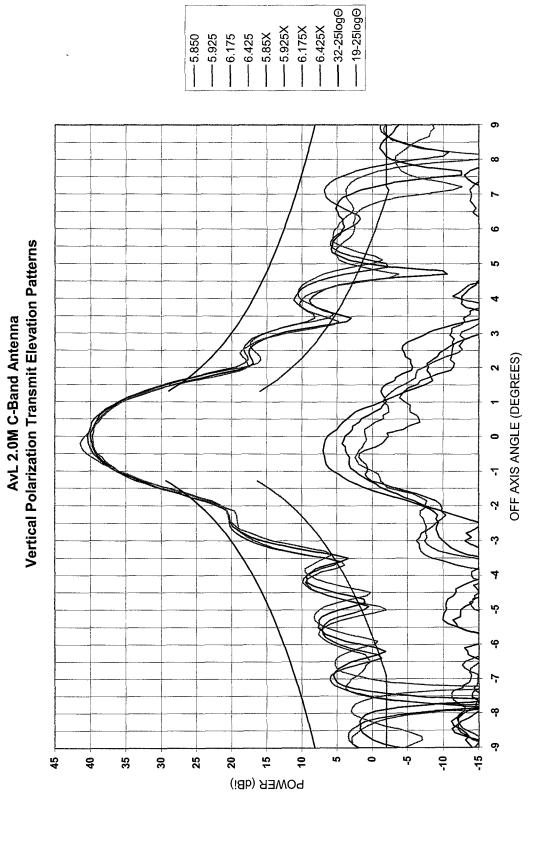
A review of this data indicates that the antenna patterns exceed the antenna performance standard of Section 25.209(a) for off-axis angles from 1.0 degrees to 2.0 degrees by a maximum of 7 dB. Per Section 25.220(c)(1), the applicant must reduce the power and power density levels stated in Sections 25.134, 25.211 or 25.212 of the FCC's rules, whichever is applicable, by the number of decibels that the non-compliant antenna fails to meet the antenna performance standard of Sections 25.209(a) and (b).

As per Section 25.212, the maximum antenna input power density routinely licensed by the FCC for transmission of digital carriers using a Section 25.209 compliant antenna in C-band is -2.7 dBW/4kHz. To comply with 25.220(c)(1), the maximum transmit power density for the 2.0m antenna should be -9.7 dBW/4kHz, which is a reduction of 7 dB. The Televisa application requests authority to transmit at a maximum power density of -20.6 dBW/4 kHz. Consequently, by transmitting at the reduced power density of -20.6 dBW/4 kHz, the 2.0m antenna complies with the FCC's two-degree spacing policy.

Accordingly, licensing of the proposed earth station will be consistent with the Commission's two-degree spacing policy.

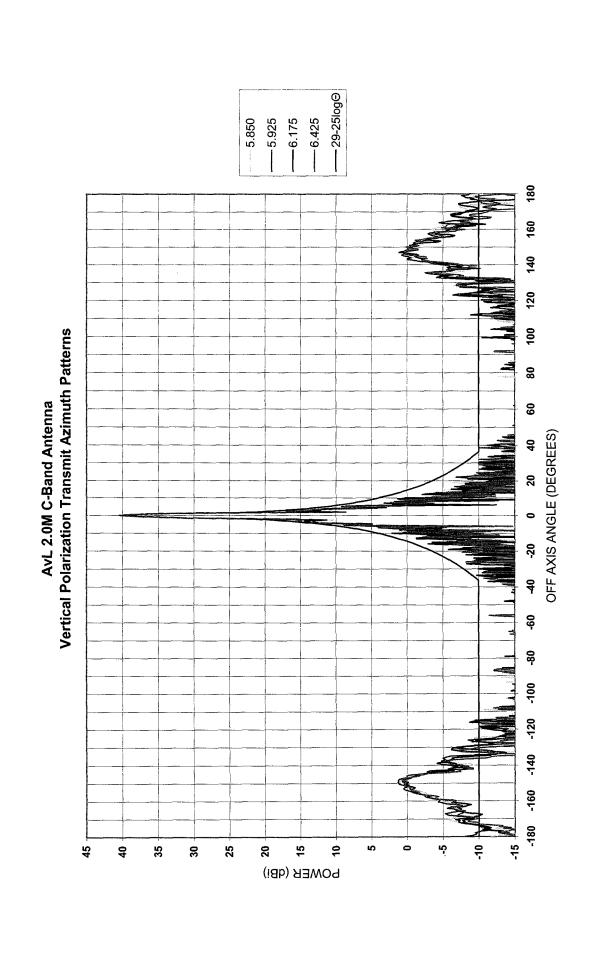


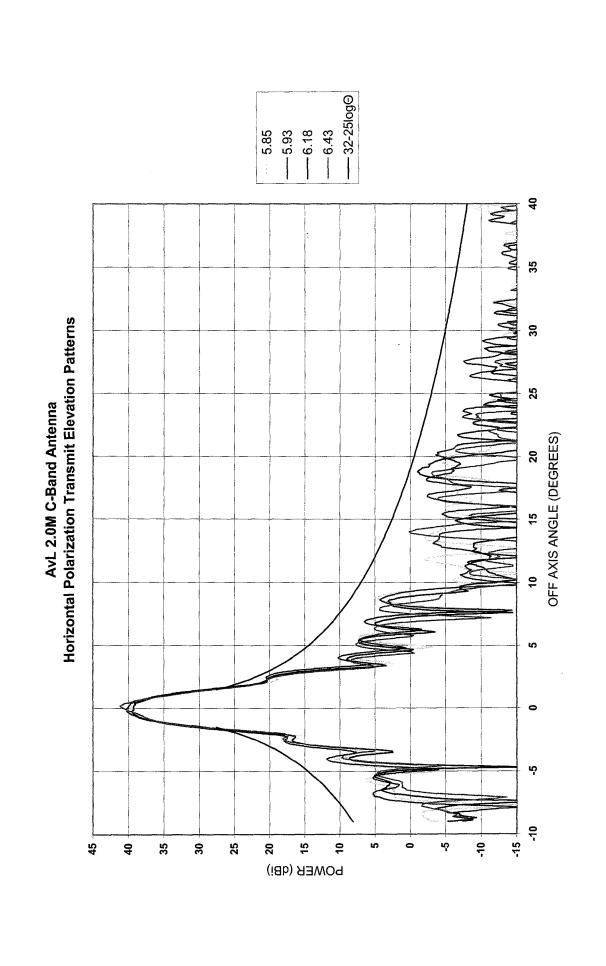




-32-25log@ ——19-25log© -6.425X ----6.425 ----5.85X -5.925X ---6.175X ----5.925 ----6.175 5.850 6 œ Horizontal Polarization Transmit Elevation Patterns OFF AXIS ANGLE (DEGREES) ņ ıĊ ထု ထု တု -10 -15 20 5 9 10 0 45 35 200 25 9 POWER (dBi)

AvL 2.0M C-Band Antenna





AvL 2.0m C-Band Antenna Power Spectral Density with -20.6dBW/4kHz applied to flange

	Power Spectral [Power Spectral Density (dBW/4kHz) Vertical Polarization	tical Polarization	Power Spectral Density (dBW/4kHz) Horizontal Polarization	(dBW/4kHz) Horiz	ontal Polarization
Az	5.85GHz	6.175GHz	6.425GHz	5.85GHz	6.175GHz	6.425GHz
-180	-32.27	-35.32	-34.4	-31.51	-33.74	-33.96
-175	-33.64	-32.25	-35.09	-36	-33.91	-39.64
-170	-26.87	-27.98	-30.41	-33.65	-31.35	-27.26
-165	-28.25	-27.93	-27.79	-28.3	-26.97	-26.94
-160	-25.49	-27.44	-27.16	-25.04	-25.74	-24.65
-155	-22.51	-21.5	-22.21	-22.7	-22.97	-22.83
-150	-20.2	-20.61	-20.11	-21.6	-21.66	-21.61
-145	-23.01	-22.92	-22.3	-24.01	-24.18	-24.72
-140	-29.87	-26.65	-28.15	-26.48	-25.74	-27.15
-135	-28.28	-29.75	-32.51	-30.11	-29.57	-33.02
-130	-28.68	-28.29	-31.95	-30.69	-32.15	-42.03
-125	-29.99	-36.84	-37.33	-33.79	-38.93	-32.97
-120	-34.96	-31.95	-35.82	-41.78	-39.69	-36.54
-115	-30.74	-38.15	-37.32	-41.56	-41.76	-34.09
-110	-37.11	-38.57	-62.18	-33.43	-37.3	-37.37
-105	-38.7	-37.91	-49.17	-36.99	-35.78	-45.33
-100	-43.69	-44.17	-44.09	-46.97	-38.3	-41.91
-95	-43.88	-46.53	-35.48	-39.23	-45.37	-41.44
06-	-42.15	-41.01	-41.35	-33.9	-46.81	-48.04
-85	-35.94	-38.95	-42.27	-35.86	-39.02	-48.99
-80	-40.94	-38.36	-44.3	-38.62	-43.68	-43
-75	-41.8	-39.28	-52.68	-35.94	-48.28	-43.23
-70	-39.08	-51.64	-47.92	-42.55	-44.99	-43.4
-65	-41.24	-39.21	-34.83	-38.91	-48.34	-46.9
09-	-40.84	-41.82	-42.58	-47.29	-42.29	-39.24
-55	-40.12	-37.54	-42	-55.11	-33.88	-36.91
-50	-37.98	-40.73	-49.54	-42.97	-39.06	-49.67
-45	-40.54	-42.44	-36.2	-40.05	-42.48	-44.16

-35.61	-42.11	-34.65	-36.35	-28.84	-30.08	-28.04	-21.66	-20.09	-20.78	-22.04	-24.27	-27.27	-31.12	-37.71	-30.72	-26.52	-23.62	-21.75	-20.57	-19.94	-19.83	-20.02	-20.97	-22.34	-24.84	-28.46	-32.21	-29.71	-25.25	-22.44	-20.69	-19.41	-18.53
-41.3	-35.96	-45.93	-37.91	-41.43	-24.47	-22.99	-21.76	-25.61	-30.31	-42.22	-34.82	-27.46	-24.76	-22.17	-20.63	-19.56	-19.01	-18.89	-19.42	-20.11	-21.34	-23.44	-26.65	-30.48	-30.11	-26.11	-22.74	-20.77	-19.25	-18.53	-18.03	-18.15	-18.9
-47.37	-44.92	-36.51	-35.88	-41.12	-42.75	-21.27	-27.97	-26.91	-24.02	-21.96	-20.85	-20.27	-20.01	-20.15	-20.56	-21.35	-22.67	-24.8	-26.98	-29.55	-28.71	-25.18	-22.51	-20.74	-19.3	-18.41	-17.89	-17.71	-18.25	-19.06	-20.53	-22.67	-27.12
-42.18	-31.33	-37.9	-41.42	-28.83	-28.75	-31.26	-20.53	-19.32	-20.34	-22.13	-24.07	-28.47	-36.8	-37.56	-27.95	-23.87	-21.28	-20.1	-19.56	-19.31	-19.17	-19.82	-20.64	-21.18	-22.44	-23.61	-24.31	-23.45	-21.8	-19.91	-18.5	-18.1	-17.74
-40.74	-46.62	-31.08	-54.77	-32.25	-24.09	-22.93	-20.16	-27.42	-36.8	-35.07	-28.55	-23.9	-21.06	-19.68	-18.56	-18.05	-17.96	-18.34	-19.05	-20.25	-21.83	-23.82	-25.8	-26	-24.67	-22.93	-20.9	-18.84	-18	-17.28	-16.82	-17.27	-18
-41.82	-40.07	-38.77	-31.97	-47.05	-32.63	-20.57	-27.92	-27.56	-24.04	-21.9	-21.27	-20.09	-19.9	-20.07	-20.72	-21.42	-22.91	-24.18	-25.14	-24.26	-23.16	-21.42	-20.22	-18.84	-18.2	-17.79	-17.86	-17.74	-18.74	-19.53	-21.68	-24.59	-30.99
-40	-35	-30	-25	-20	-15	-10	-9.5	6-	-8.9	-8.8	-8.7	-8.6	-8.5	-8.4	-8.3	-8.2	-8.1	φ	-7.9	-7.8	-7.7	-7.6	-7.5	-7.4	-7.3	-7.2	-7.1	-7	6.9-	-6.8	-6.7	-6.6	-6.5

-18.54	-20.34	-22.66	-26.21	-38.08	-33.24	-24.11	-20.05	-17.39	-15.45	-14.23	-13.6	-13.39	-13.66	-14.22	-15.42	-17.71	-20.94	-23.02	-20.4	-16.42	-13.48	-11.53	-9.82	-8.61	-7.9	-7.47	-7.35	-7.38	-7.69	-7.84	-8.13	-7.81
-20.29	-26.97	-40.44	-31.86	-23.68	-19.8	-16.93	-15.12	-13.98	-13.19	-12.87	-12.99	-13.5	-14.45	-16.03	-18.3	-21.57	-22.58	-19.16	-15.72	-12.97	-11.14	-9.81	-8.79	-8.2	-7.88	-7.96	-8.25	-8.76	-9.2	-9.67	-9.55	-8.93
-38.81 -31.5	-23.94	-20.16	-17.58	-15.93	-14.74	-13,85	-13,55	-13.27	-13.79	-14.64	-15.5	-17.59	-20.16	-21.89	-21.28	-17.66	-15.05	-12.56	-10.85	-9.73	-8.92	-8.29	-7.89	-8.03	-8.18	-8.48	-8.76	-9.26	-9.52	-9.28	-8.81	-8.13
-17.79	-19.81	-22.43	-26.14	-48.94	-28.79	-21.68	-18.17	-15.16	-13.44	-12.44	-11.58	-11.14	-11.33	-11.65	-12.42	-13.61	-14.67	-15.67	-15.3	-13.2	-11.26	-10.08	-8.49	-7.47	-6.53	-5.95	-5.76	-5.79	-5.98	-6.39	-6.39	-6.2
-19.91 -22.18	-27.38	-36.19	-27.67	-20.61	-17.69	-15.36	-13.76	-11.89	-11.49	-11.2	-11.05	-11.3	-12.03	-12.91	-14.35	-15.38	-16.11	-14.91	-13.13	-11	-9.45	-8.16	-6.99	-6.26	-6.05	-6.08	-6.13	-6.55	-7.07	-7.42	-7.59	-7.42
-31.33 -24.61	-20.25	-17.66	-15.55	-14.05	-13.09	-12.06	-11.87	-11.84	-11.73	-12.62	-13.15	-14.66	-15.79	-16.29	-16.23	-14.89	-13.01	-10.91	-10.09	-9.1	-8.2	-7.59	-7.32	-7.14	-7.05	-7.29	-7.85	-8.01	-8.28	-8.16	-7.83	-7.16
-6.4 -6.3	-6.2	-6.1	9-	-5.9	-5.8	-5.7	-5.6	-5.5	-5.4	-5.3	-5.2	-5.1	5-	-4.9	-4.8	-4.7	-4.6	-4.5	-4.4	-4.3	-4.2	-4.1	4-	-3.9	-3.8	-3.7	-3.6	-3.5	-3.4	-3.3	-3.2	-3.1

-7.43	-6.59	-5.79	-5.16	-5.02	-5.17	-6.08	-8.06	-12.45	-39.13	-11.03	-4.58	0.41	3.69	6.32	8.74	10.7	12.19	13.54	14.88	15.74	16.76	17.45	18.14	18.75	19.19	19.47	19.79	19.9	20.01	20.1	20.03	19.83	19.43
-8.06	96'9-	-6.11	-5.58	-5.48	-5.83	-7.33	-9.77	-16.2	-21.21	-8.51	-3.28	1.1	4.02	6.61	8.62	10.44	11.86	13.29	14.53	15.49	16.33	17.13	17.76	18.39	18.74	19.15	19.41	19.62	19.67	19.76	19.66	19.46	19.21
-7.37	-7.06	-6.73	-6.89	-7.88	-9.81	-13.33	-19.37	-13.78	-6.86	-2.42	0.82	3.75	5.93	8.11	9.52	11.2	12.3	13.64	14.74	15.52	16.29	17.04	17.5	17.94	18.54	18.74	19.01	19.15	19.16	19.29	19.22	19.14	18.95
-6.17	-5.58	-4.91	-4.52	-4.21	-4.47	-5.13	-7.07	-9.74	-12.45	-7.76	-2.9	1.35	4.09	6.52	8.87	10.55	12.06	13.34	14.62	15.54	16.66	17.4	18.2	18.64	19.17	19.61	19.71	20	20.05	20.1	19.9	19.6	19.4
-7.03	-6.44	-6.14	-5.97	-6.14	-6.82	-8.07	-10.93	-11.8	-7.65	-2.49	0.61	4.06	6.01	7.86	10.06	11.22	12.64	13.95	14.94	15.81	16.69	17.29	17.97	18.53	18.9	19.19	19.4	19.73	19.71	19.65	19.65	19.76	19.27
-6.92	-6.32	-6.35	-6.27	-7.31	-9.25	-11.41	-13.59	-8.93	-4.48	-0.05	2.51	5.05	7.25	8.79	10.46	11.75	13.09	13.84	14.93	15.55	16.2	17.02	17.85	18.26	18.49	18.8	19.14	19.29	19.24	19.29	19.11	19.07	18.83
ကု	-2.9	-2.8	-2.7	-2.6	-2.5	-2.4	-2.3	-2.2	-2.1	-2	-1.9	-1.8	-1.7	-1.6	-1.5	-1.4	-1.3	-1.2	-1.1	ᅻ	6.0-	8.0-	-0.7	9.0-	-0.5	-0.4	-0.3	-0.2	-0.1	0	0.1	0.2	0.3

		_				_																_											
19.11	18.76	18.12	17.34	16.74	15.72	14.98	13.61	12.15	10.44	8.52	6.46	3.76	0.14	-4.26	-11.47	-18.04	-9.09	-5.74	-4.31	-3.36	-3.2	-3.38	-3.81	-4.55	-5.54	-6.46	-7.2	-7.8	-8.11	-8.27	-8.5	-8.87	-9.34
18.9	18.44	17.95	17.27	16.55	15.77	14.89	13.59	12.32	10.87	9.22	7.22	4.79	1.91	-1.51	-6.21	-16.34	-14.95	-9.12	-6.47	-4.93	-4.3	-4.1	-4.46	-5.01	-5.78	-6.82	-7.88	-8.65	-9.07	-9.29	-9.37	-9.52	-9.64
18.69	18.4	17.79	17.17	16.53	15.82	15.07	13.9	12.88	11.46	10.07	8.64	6.63	4.47	2.07	-1.17	-6.17	-14.14	-29.27	-13.6	-9.32	-7.22	-6.06	-5.79	-5.78	-6.18	-6.63	-7.68	-8.31	-8.75	-9.26	-9.28	-9.17	-9.26
19	18.3	17.67	16.84	15.79	14.77	13.4	12.28	10.46	8.35	90.9	2.96	-0.59	-4.93	-11.13	-10.66	-6.89	-4.27	-3.23	-2.67	-2.72	-3.14	-3.98	-4.69	-5.67	-6.71	-7.18	-7.35	-7.47	-7.51	-7.59	-7.92	-8.61	-9.37
18.74	18.34	17.6	17.08	16.36	15.24	14.24	13.06	11.64	68.6	8.04	5.68	3.03	0.11	-4.66	-9.15	-10.09	-6.58	-5.09	-3.74	-3.4	-3.13	-3.63	-4.26	-5.15	-6.09	-6.6	×ρ	-7.89	-8.62	-7.87	-8.03	-7.93	-8.36
18.49	17.94	17.57	17.02	16.29	15.53	14.47	13.64	12.29	10.67	9.37	7.46	5.27	3.21	-0.45	-4.33	-8.83	-12.83	-9.88	-7.09	-5.52	-4.53	-4.59	-4.73	-5.1	-5.86	-6.85	-7.33	-8.68	-9.07	-8.84	-9.06	-8.7	-8.86
0.4	0.5	9.0	0.7	8.0	6.0	₽	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	ю	3.1	3.2	3.3	3.4	3.5	3.6	3.7

-10.2	-11.55	-13.42	-15.79	-18.99	-20.92	-19.07	-16.38	-14.29	-12.64	-11.82	-11.17	-11.13	-11.24	-11.86	-12.74	-14.01	-15.81	-18.03	-21.67	-26.72	-31.33	-27.83	-24.36	-21.9	-20.72	-20.57	-20.71	-21.68	-23.18	-24.53	-25.85	-25.77	-23.54
-9.93	-10.82	-12.04	-13.73	-16.32	-19.8	-23.41	-22.92	-19.02	-15.91	-14.12	-12.68	-11.94	-11.52	-11.5	-11.84	-12.41	-13.38	-14.68	-16.65	-19.28	-22.59	-26.26	-26.41	-23.5	-21.18	-19.51	-18.83	-18.61	-18.59	-19.07	-19.91	-21.15	-22.72
-8.71	-8.98	-9.22	-9.79	-10.54	-11.58	-13.14	-15.12	-17.36	-19.34	-19.39	-17.64	-16.07	-14.49	-13.5	-12.73	-12.32	-12.24	-12.48	-13.23	-14.31	-15.28	-17.07	-19.49	-23.33	-28.73	-32.77	-28.34	-23.98	-21.69	-20.34	-19.4	-19.14	-19.31
-10.23	-12.66	-15.08	-17.4	-18.58	-16.72	-14.93	-12.71	-11.87	-10.99	-10.72	-10.77	-11.29	-12.35	-13.62	-15.65	-18.16	-23.21	-31.43	-31.9	-23.44	-20.3	-18.67	-18.01	-17.57	-18.13	-18.89	-20.31	-22.55	-24.6	-26.02	-24.61	-22.61	-20.9
-9.24	-10.43	-12.04	-13.42	-16.19	-18.11	-17.49	-15.47	-13.52	-11.91	-11.1	-10.81	-10.57	-10.66	-11.08	-11.79	-13.01	-15.2	-17.92	-21.84	-30.82	-38.11	-25.71	-21.31	-19.26	-17.91	-17.53	-17.68	-18.38	-19.57	-21.31	-23.44	-24.76	-24.07
-8.97	-8.81	-9.43	-10.57	-11.72	-13.31	-14.75	-16.57	-17.74	-16.98	-15.06	-13.38	-12.13	-11.31	-10.88	-10.79	-11.25	-11.62	-12.35	-13.56	-15.12	-17.62	-21.03	-27.66	-42.73	-30.58	-24.44	-21.41	-19.43	-18.8	-18.41	-19	-19.6	-20.92
3.8	3.9	4	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	2	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	9	6.1	6.2	6.3	6.4	6.5	9.9	6.7	6.8	6.9	7	7.1

-21.65	-19.89	-18.94	-18.23	-18.05	-17.84	-18.57	-19.11	-20.73	-23.49	-26.56	-33.62	-44.1	-31.07	-25.91	-22.92	-21.4	-20.52	-19.75	-30.54	-32.53	-33.81	-26.75	-36.06	-37.28	-43.43	-38.08	-40.56	-45.8	-35.88	-37.07	-60.69	-41,72	-45.21
-23.63	-23.44	-22.35	-20.76	-19.49	-18.67	-17.9	-17.61	-17.64	-18.05	-18.67	-19.93	-21.76	-24.32	-28.19	-35.45	-37.61	-30.5	-26.31	-23.19	-40.89	-27.83	-40.15	-32	-49.69	-35.38	-41.16	-42.28	-54.09	-40.59	-39.54	-37.72	-41.08	-40.55
-19.86	-20.68	-21.97	-23.51	-24.63	-24.81	-24.09	-22.87	-21.52	-20.28	-19.76	-19.3	-19.26	-19.57	-20.16	-21.18	-22.81	-24.9	-28.22	-22.76	-22.52	-36.43	-34.76	-48.26	-37.32	-31.97	-43.64	-47.28	-44.22	-37.2	-35.17	-46.22	-40.96	-43.06
-19.48	-19.18	-19.12	-19.82	-21.21	-22.82	-26.26	-32.47	-42.03	-29.84	-24.94	-21.79	-20.65	-19.76	-19.23	-19.23	-19.23	-19.23	-19.23	-27.75	-26.65	-35.54	-31.95	-36.85	-39.66	-35.76	-46.02	-37.47	-40.39	-39.91	-40.45	-46.07	-42.66	-40.93
-22.6	-20.55	-19.12	-18.34	-18.17	-18.25	-19.07	-20.3	-22.45	-26.59	-33.06	-38.12	-27.67	-23.84	-21.61	-21.61	-21.61	-21.61	-21.61	-19.29	-26.12	-26.82	-42.87	-42.04	-30.56	-43.84	-35.44	-37.29	-50.15	-44.14	-40.66	-40.7	-71.82	-48.11
-22.32	-24.22	-25.19	-24.64	-22.51	-20.97	-19.78	-19.04	-18.47	-18.45	-18.84	-20.37	-22.19	-24.16	-27.94	-27.94	-27.94	-27.94	-27.94	-23.31	-20.38	-30.25	-35.26	-34.38	-33.67	-34.44	-41.11	-41.88	-36.99	-44.23	-55.56	-53.78	-45.65	-44.03
7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	6	9.5	10	15	20	25	30	35	40	45	50	55	09	65	70	75

80 -38.91 -49.34 -37.34 -36.92 -38.35 -49.32 85 -55.99 -39.2 -39.44 -40.47 -35.64 -64.15 90 -38.56 -40.04 -38.63 -57.9 -49.1 -37.14 95 -44.02 -38.59 -50.2 -36.59 -42.74 -36.94 100 -41.55 -34.34 -38.69 -50.2 -40.61 -36.32 -40.21 100 -41.55 -34.34 -38.08 -40.61 -38.32 -40.21 100 -43.82 -34.34 -38.08 -40.61 -38.32 -40.21 115 -50.35 -37.3 -38.69 -36.11 -37.24 -33.38 120 -38.22 -34.41 -36.65 -34.77 -36.51 -36.71 120 -38.12 -31.91 -34.61 -36.89 -34.17 -36.71 130 -34.39 -34.61 -36.89 -37.73 -27.14 -28.71 <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>																					
-38.91 -49.34 -37.34 -36.92 -55.99 -39.2 -39.44 -40.47 -38.56 -40.04 -38.63 -35.79 -44.02 -38.59 -50.2 -36.59 -44.02 -38.69 -50.2 -36.59 -41.55 -34.34 -38.08 -40.61 -39.59 -37.73 -33.75 -37.4 -50.35 -32.8 -40.2 -36.51 -38.12 -34.5 -38.69 -36.51 -38.12 -31.91 -34.61 -30.89 -34.39 -30.47 -31.73 -29.56 -34.39 -30.47 -21.73 -22.96 -21.31 -21.67 -22.49 -22.49 -21.31 -20.74 -20.41 -22.49 -21.31 -26.5 -28.64 -30.27 -24.11 -26.5 -28.64 -31.34 -27.72 -28.87 -32.99 -33.38 -38.99 -31.94 -32.11	-49.32	-64.15	-37.14	-36.94	-40.21	-33.38	-35.71	-34.92	-40.32	-32.54	-33.22	-28.71	-28.67	-21.72	-22.38	-23.34	-26.9	-25.78	-28.83	-39.02	-33.02
-38.91-49.34-37.34-55.99-39.2-39.4-44.02-38.59-50.2-41.55-34.34-38.08-39.59-37.73-33.75-50.35-32.8-40.2-35.82-39.45-38.69-38.12-31.91-34.61-34.39-30.47-31.73-24.62-24.24-24.82-26.51-27.81-28.01-21.31-20.74-20.41-23.48-20.74-20.41-23.48-23.72-28.64-27.51-27.72-28.87-28.46-28.89-31.94-28.53-28.72-30.94-31.15-34.69-34.76	-38.35	-35.64	-49.1	-42.74	-38.32	-37.24	-50.53	-43.87	-34.17	-31.78	-29.08	-27.14	-25.74	-21.25	-22.57	-24.53	-26.14	-28.16	-31.01	-32.62	-33.45
-38.91	-36.92	-40.47	-35.79	-36.59	-40.61	-37.4	-36.11	-35.65	-30.89	-29.56	-33.73	-27.73	-28.94	-22.96	-22.49	-26.19	-30.27	-33.33	-32.99	-34.76	-32.11
-38.91 -55.99 -44.02 -41.55 -39.59 -39.59 -39.59 -31.87 -24.62 -24.62 -24.62 -21.31 -21.31 -21.31 -23.48 -27.51 -28.46 -35.38	-37.34	-39.44	-38.63	-50.2	-38.08	-33.75	-40.2	-38.69	-34.61	-31.73	-30.18	-24.82	-28.01	-22.12	-20.41	-23.53	-28.64	-28.87	-31.94	-30.94	-34.76
	-49.34	-39.2	-40.04	-38.59	-34.34	-37.73	-32.8	-39.45	-31.91	-30.47	-33.64	-24.24	-27.81	-21.67	-20.74	-23.72	-26.5	-27.72	-28.89	-28.72	-34.69
80 85 90 100 105 110 1110 120 120 120 120 125 145 150 150 160 175 170	-38.91	-55.99	-38.56	-44.02	-41.55	-39.59	-50.35	-35.82	-38.12	-34.39	-31.87	-24.62	-26.51	-21.91	-21.31	-23.48	-24.11	-27.51	-28.46	-35.38	-31.15
	80	85	06	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180

Analysis of Non-Ionizing Radiation for a 2.0-Meter Earth Station System

This report analyzes the non-ionizing radiation levels for a 2.0-meter earth station system. The analysis and calculations performed in this report comply with the methods described in the FCC Office of Engineering and Technology Bulletin, No. 65 first published in 1985 and revised in 1997 in Edition 97-01. The radiation safety limits used in the analysis are in conformance with the FCC R&O 96-326. Bulletin No. 65 and the FCC R&O specifies that there are two separate tiers of exposure limits that are dependant on the situation in which the exposure takes place and/or the status of the individuals who are subject to the exposure. The Maximum Permissible Exposure (MPE) limits for persons in a General Population/Uncontrolled environment are shown in Table 1. The General Population/Uncontrolled MPE is a function of transmit frequency and is for an exposure period of thirty minutes or less. The MPE limits for persons in an Occupational/Controlled environment are shown in Table 2. The Occupational MPE is a function of transmit frequency and is for an exposure period of six minutes or less. The purpose of the analysis described in this report is to determine the power flux density levels of the earth station in the far-field, near-field, transition region, between the subreflector or feed and main reflector surface, at the main reflector surface, and between the antenna edge and the ground and to compare these levels to the specified MPEs.

Table 1. Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MHz)	Power Density (mW/cm ²)
30-300	0.2
300-1500	Frequency (MHz)*(0.8/1200)
1500-100,000	1.0

Table 2. Limits for Occupational/Controlled Exposure (MPE)

Frequency Range (MHz)	Power Density (mW/cm²)
30-300	1.0
300-1500	Frequency (MHz)*(4.0/1200)
1500-100,000	5.0

Table 3. Formulas and Parameters Used for Determining Power Flux Densities

Parameter	Symbol	Formula	Value	Units
Antenna Diameter	D	Input	2.0	m
Antenna Surface Area	A _{surface}	$\pi D^2/4$	3.14	m ²
Subreflector Diameter	D_{sr}	Input	19.0	cm
Area of Subreflector	A _{sr}	$\pi D_{sr}^2/4$	283.53	cm ²
Frequency	F	Input	6175	MHz
Wavelength	λ	300 / F	0.048583	m
Transmit Power	Р	Input	60.00	W
Antenna Gain (dBi)	G_{es}	Input	40.3	dBi
Antenna Gain (factor)	G	10 ^{Ĝes/10}	10715.2	n/a
Pi	π	Constant	3.1415927	n/a
Antenna Efficiency	η	$G\lambda^2/(\pi^2D^2)$	0.64	n/a

1. Far Field Distance Calculation

The distance to the beginning of the far field can be determined from the following equation:

$$R_{\rm ff} = 0.60 \, D^2 / \lambda$$
 (1)
= 49.4 m

The maximum main beam power density in the far field can be determined from the following equation:

$$S_{ff} = G P / (4 \pi R_{ff}^2)$$
 (2)
= 20.965 W/m²
= 2.096 mW/cm²

2. Near Field Calculation

Power flux density is considered to be at a maximum value throughout the entire length of the defined Near Field region. The region is contained within a cylindrical volume having the same diameter as the antenna. Past the boundary of the Near Field region, the power density from the antenna decreases linearly with respect to increasing distance.

The distance to the end of the Near Field can be determined from the following equation:

$$R_{nf} = D^2 / (4 \lambda)$$

= 20.6 m (3)

The maximum power density in the Near Field can be determined from the following equation:

$$S_{nf} = 16.0 \, \eta \, P / (\pi \, D^2)$$

= 48.941 W/m²
= 4.894 mW/cm²

3. Transition Region Calculation

The Transition region is located between the Near and Far Field regions. The power density begins to decrease linearly with increasing distance in the Transition region. While the power density decreases inversely with distance in the Transition region, the power density decreases inversely with the square of the distance in the Far Field region. The maximum power density in the Transition region will not exceed that calculated for the Near Field region. The power density calculated in Section 1 is the highest power density the antenna can produce in any of the regions away from the antenna. The power density at a distance R_t can be determined from the following equation:

$$S_t = S_{nf} R_{nf} / R_t$$
 (5)
= 4.894 mW/cm²

4. Region between the Main Reflector and the Subreflector

Transmissions from the feed assembly are directed toward the subreflector surface, and are reflected back toward the main reflector. The most common feed assemblies are waveguide flanges, horns or subreflectors. The energy between the subreflector and the reflector surfaces can be calculated by determining the power density at the subreflector surface. This can be determined from the following equation:

$$S_{sr} = 4000 P / A_{sr}$$
 (6)
= 846.475 mW/cm²

5. Main Reflector Region

The power density in the main reflector is determined in the same manner as the power density at the subreflector. The area is now the area of the main reflector aperture and can be determined from the following equation:

$$S_{\text{surface}} = 4 \text{ P / A}_{\text{surface}}$$
 (7)
= 76.394 W/m²
= 7.639 mW/cm²

6. Region between the Main Reflector and the Ground

Assuming uniform illumination of the reflector surface, the power density between the antenna and the ground can be determined from the following equation:

$$S_g = P / A_{surface}$$
 (8)
= 19.099 W/m²
= 1.910 mW/cm²

7. Summary of Calculations

Table 4. Summary of Expected Radiation levels for Uncontrolled Environment

	Calculate Radiation Pow	d Maximum er Density Le	vel
Region		V/cm²)	Hazard Assessment
1. Far Field (R _{ff} = 49.4 m)	S _{ff}	2.096	Potential Hazard
2. Near Field (R _{nf} = 20.6 m)	S_{nf}	4.894	Potential Hazard
3. Transition Region (R _{nf} < R _t < R _{ff})	St	4.894	Potential Hazard
Between Main Reflector and Subreflector	S_{sr}	846.475	Potential Hazard
5. Main Reflector	S _{surface}	7.639	Potential Hazard
6. Between Main Reflector and Ground	S _g	1.910	Potential Hazard

Table 5. Summary of Expected Radiation levels for Controlled Environment

Region	Radiation P	d Maximum ower Density mW/cm²)	Hazard Assessment
1. Far Field (R _{ff} = 49.4 m)	S_{ff}	2.096	Satisfies FCC MPE
2. Near Field (R _{nf} = 20.6 m)	S _{nf}	4.894	Satisfies FCC MPE
3. Transition Region (R _{nf} < R _t < R _{ff})	St	4.894	Satisfies FCC MPE
Between Main Reflector and Subreflector	S _{sr}	846.475	Potential Hazard
5. Main Reflector	S _{surface}	7.639	Potential Hazard
6. Between Main Reflector and Ground	Sg	1.910	Satisfies FCC MPE

It is the applicant's responsibility to ensure that the public and operational personnel are not exposed to harmful levels of radiation.

8. Conclusions

Based on the above analysis it is concluded that the FCC MPE guidelines have been exceeded (or met) in the regions of Table 4 and 5. The applicant proposes to comply with the MPE limits by one or more of the following methods.

Radiation hazard signs will be posted while this earth station is in operation.

The antenna will be located on top of a truck. The bottom lip of the dish will be 3.50 meters above ground level. The general public will not have access to areas within $\frac{1}{2}$ diameter from the edge of the antenna.

Since one diameter removed from the main beam of the antenna or $\frac{1}{2}$ diameter removed from the edge of the antenna the RF levels are reduced by a factor of 100 or 20 dB. None of the areas exceeding the MPE levels will be accessible by the general public.

Radiation Hazard Report

Radiation hazard signs will be posted while this earth station is in operation.

The applicant will ensure that no buildings or other obstacles will be in the areas that exceed the MPE levels.

Means of Compliance Controlled Areas

The earth station's operational staff will not have access to the areas that exceed the MPE levels while the earth station is in operation.

The transmitters will be turned off during antenna maintenance

The applicant agrees to abide by the conditions specified in Condition 5208 provided below:

Condition 5208 - The licensee shall take all necessary measures to ensure that the antenna does not create potential exposure of humans to radiofrequency radiation in excess of the FCC exposure limits defined in 47 CFR 1.1307(b) and 1.1310 wherever such exposures might occur. Measures must be taken to ensure compliance with limits for both occupational/controlled exposure and for general population/uncontrolled exposure, as defined in these rule sections. Compliance can be accomplished in most cases by appropriate restrictions such as fencing. Requirements for restrictions can be determined by predictions based on calculations, modeling or by field measurements. The FCC's OET Bulletin 65 (available on-line at www.fcc.gov/oet/rfsafety) provides information on predicting exposure levels and on methods for ensuring compliance, including the use of warning and alerting signs and protective equipment for worker.

I HEREBY CERTIFY THAT I AM THE TECHNICALLY QUALIFIED PERSON RESPONSIBLE FOR THE PREPARATION OF THE RADIATION HAZARD REPORT, AND THAT IT IS COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY.

Gary K. Edwards Senior Manager COMSEARCH

19700 Janelia Farm Boulevard

Ashburn, VA 20147

DATED: September 27, 2013

The applicant understands that frequency coordination is required before any transmission with the proposed antenna. No broadcast will take place until frequency coordination at the particular location for the selected date has been undertaken and confirmed.



Online Payment

Step 3: Confirm Payment

1 | 2 | 3

Thank you.

Your transaction has been successfully completed.

Pay.gov Tracking Information

Application Name: Remittance Advice

Pay.gov Tracking ID: 25CHIN1N Agency Tracking ID: PGC2396485

Transaction Date and Time: 09/27/2013 11:17 EDT

Payment Summary

Address Information

Account Holder HOLLAND & KNIGHT

Name: LLP

Billing 800 17TH STREET,

Address: STE. 1100

Billing Address N. Leventhal -

2: Telecom

City: WASHINGTON

State / DC Province:

Zip / Postal 20006-3906 Code:

Country: USA

Account Information

Card Type: American Express

Card Number: *********1009

Payment Information

Payment Amount: \$2,615.00

Transaction Date 09/27/2013 11:17

and Time: EDT

Payment Confirmation

Your transaction has been approved. For your records, please note the following:

AGENCY TRACKING ID: AUTHORIZATION NUMBER:

229064

AMOUNT PAID:

\$2,615.00

PGC2396485

PRINT FORM 159

CLOSE

Customer Service

FCC Fees

Web Policies / Privacy Policy

FCC Home Page

If you have any questions or concerns please contact your licensing system help desk.

Agency Tracking ID:PGC2396485 Authorization Number:229064

Successful Authorization -- Date Paid: 9/27/13 FILE COPY ONLY!!

READ INSTRUCTIONS CAREFULLY BEFORE PROCEEDING (1) LOCKBOX #979093	REMITTAI	ICATIONS COMMISSION NCE ADVICE RM 159 NO 1 OF 1		APPROVED BY OMB 3060-059 CIAL USE CUSE ONLY
	SECT	(ON A Dayor Information		
		ON A - Payer Information	(3) TOTA	L AMOUNT PAID (dollars and cents)
(2) PAYER NAME (if paying by credit can HOLLAND & KNIGHT LLP	d, enter name exactly as it appears on yo	ur card)	\$2615.0	
(4) STREET ADDRESS LINE NO. 1				
800 17TH STREET, STE. 1100	1			
(5) STREET ADDRESS LINE NO. 2				
TELECOM-C. NAFTALIN				
(6) CITY			(7) STATE	(8) ZIP CODE
WASHINGTON			DC	20006-3906
(9) DAYTIME TELEPHONE NUMBER (I	INCLUDING AREA CODE)	(10) COUN	TRY CODE (IF NOT I	N U.S.A.)
202-9553000 x7040		US		
FCC	C REGISTRATION NUMBER (FRN)	AND TAX IDENTIFICATION N	UMBER (TIN) REQU	URED
(11) PAYER (FRN)		(12) FCC USE ONLY		
0004148995				
n	F PAYER NAME AND THE APPLICA IF MORE THAN ONE APPLICA	ANT NAME ARE DIFFERENT,	COMPLETE SECTIO	N B
(13) APPLICANT NAME	IF MORE THAN ONE ATTEICA	MI, OSE COMINICATION SILE	EETS (FORM 133-C)	
TÉLEVISA, SA de CV				
(14) STREET ADDRESS LINE NO. 1				
800 17TH STREET NW, STE	1100			
(15) STREET ADDRESS LINE NO. 2				
(16) CITY			(17) STATE	(18) ZIP CODE
WASHINGTON			(17) SIAIL	(18) Zii CODE
(19) DAYTIME TELEPHONE NUMBER 2028281860	(INCLUDING AREA CODE)	(20) COUN US	TRY CODE (IF NOT I	N U.S.A.)
	C REGISTRATION NUMBER (FRN)	AND TAX IDENTIFICATION N	NUMBER (TIN) REQU	URED
(21) APPLICANT (FRN) 0016686628		(22) FCC USE ONLY		
COMPLET	TE SECTION C FOR EACH SERVICE	E, IF MORE BOXES ARE NEED	ED, USE CONTINUA	TION SHEET
(23A) FCC Call Sign/Other ID		(24A) Payment Type Co	ode(PTC) BAX	(25A) Quantity
(26A) Fee Due for (PTC)		(27A) Total Fee	00/17 00	FCC Use Only
	2,615.00		\$2615.00	
(28A) FCC CODE 1		(29A) FCC CODE 2	IB2013002100	
				ke mana di di
(23B) FCC Call Sign/Other ID		(24B) Payment Type Co	ode(PTC)	(25B) Quantity
(23B) FCC Call Sign/Other ID (26B) Fee Due for (PTC)		(24B) Payment Type Co (27B) Total Fee	ode(PTC)	FCC Use Only

Richard, Darryl (WAS - X75932)

From:

paygovadmin@mail.doc.twai.gov

Sent:

Friday, September 27, 2013 11:18 AM Richard, Darryl (WAS - X75932)

To: Subject:

Pay.gov Payment Confirmation: Remittance Advice

Your payment has been submitted to Pay.gov and the details are below. If you have any questions or you wish to cancel this payment, please contact FCC Financial Operations Group Help Desk at ARINQUIRIES@fcc.gov at 877-480-3201 option 4.

Application Name: Remittance Advice

Pay.gov Tracking ID: 25CHIN1N Agency Tracking ID: PGC2396485

Transaction Type: Sale

Transaction Date: Sep 27, 2013 11:17:59 AM

Account Holder Name: HOLLAND & KNIGHT LLP Transaction Amount: \$2,615.00 Billing Address: 800

17TH STREET, STE. 1100 Billing Address 2: N. Leventhal - Telecom

City: WASHINGTON
State/Province: DC

Zip/Postal Code: 200063906

Country: USA

Card Type: AmericanExpress
Card Number: *********1009

THIS IS AN AUTOMATED MESSAGE. PLEASE DO NOT REPLY.

Logged in as: TELEVISA, SA de CV (0016686628) [Log Out]

Fee Filer Main Menu

Regulatory Fees

Enter, modify, file, and pay annual regulatory fees.

Upload Manager

Upload regulatory fee data from your computer to Fee Filer.

Download Manager

Download regulatory fee data from Fee Filer to your computer.

Pay Bills

You have no outstanding bills.

Pay outstanding bills to the FCC.

(Pay ULS Fees)
You have no pending ULS applications.

Pay for electronically filed ULS applications.

Application Fees

Enter, modify, file, and pay fees associated with a submitted application or filing.

Customer Service

Frequently Asked Questions Fee Filer Help

Filing Resources

Web Policies / Privacy
Policy

Paperwork Reduction

<u>Act</u>

Financial Operations Help Desk: (877) 480-3201(2), option 4 (Mon.-Fri. 8 a.m.-6:00 p.m. ET)

Fee Filer has a dedicated staff of customer service representatives standing by to answer your questions or concerns.

You can email us at arringuiries@fcc.gov.