



UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION
RADIO STATION AUTHORIZATION

Unofficial Copy

Name AVL TECHNOLOGIES

Callsign: E030130

(d/b/a)

File Number: SES-MOD-20040225-00277

Authorization Modification of License

Non Common Carrier **Grant Date:** 11/08/2004 **Expiration Date:** 10/21/2018

Nature Of Service: Domestic Fixed Satellite Service

Class Of Station: VSAT Network

A) Site Location(s)

#	Site ID	Address	Latitud	Longitude	Elevation (Meters)	NAD	Special Provisions (Refer to Section H)
1)	AVLTF1200	1.2M. TF/ VSAT(50 UNITS) CONUS, AK, HI, PR,VI, , Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209	°""	°""		NA	
2)	AVLTF750E	.75M. TF/ VSAT(50 UNITS) CONUS, AK, HI, PR,VI, , Licensee certifies antenna(s) do not comply with Section 25.209. Please refer to Section E for special conditions placed upon antennas at this site.	°""	°""			
3)	AVLTF960	.96M. TF/ VSAT(50 UNITS) CONUS, AK, HI, PR,VI, , Licensee certifies antenna(s) do not comply with Section 25.209. Please refer to Section E for special conditions placed upon antennas at this site.	°""	°""			
4)	AVLTF1000	1.0M. TF/ VSAT(50 UNITS) CONUS, AK, HI, PR,VI, , Licensee certifies antenna(s) do not comply with Section 25.209. Please refer to Section E for special conditions placed upon antennas at this site.	°""	°""			

Subject to the provisions of the Communications Act of 1934, The Communications Satellite Act of 1962, subsequent acts and treaties, and all present and future regulations made by this Commission, and further subject to the conditions and requirements set forth in this license, the grantee is authorized to construct, use and operate the radio facilities described below for radio communications for the term beginning Tuesday, October 21, 2003 (3 AM Eastern Standard Time) and ending Sunday, October 21, 2018 (3 AM Eastern Standard Time). The required date of completion of construction and commencement of operation is 00/00/0000 (3 AM Eastern Standard Time). Grantee must file with the Commission a certification upon completion of construction and commencement of operation.



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B) Particulars of Operations

The General Provision 1010 applies to all receiving frequency bands.

The General Provision 1900 applies to all transmitting frequency bands.

For the text of these provisions, refer to Section H.

#	Frequency	Polarization	Emission	Tx/Rx Mode	Max EIRP /Carrier	Max EIRP Density	Associated Antenna	Special Provisions (Refer to Section H)	Modulation/ Services
1)	14000.0000 - 14500.0000	H,V	203KG7D	T	41.00	24.30	.750E		QPSK MODULATION, 128 KBPS, 156.25 KSPS,
2)	14000.0000 - 14500.0000	H,V	406KG7D	T	44.00	24.30	.750E		QPSK MODULATION, 256 KBPS, 312.5 KSPS,
3)	11700.0000 - 12200.0000	H,V	1M75G7D	R			.750E		QPSK MODULATION, 1024 KBPS, RATE
4)	14000.0000 - 14500.0000	H,V	203KG7D	T	42.70	25.80	.960		QPSK MODULATION, 128 KBPS, 156.25 KSPS,
5)	14000.0000 - 14500.0000	H,V	406KG7D	T	45.70	25.80	.960		QPSK MODULATION, 256 KBPS, 312.5 KSPS,
6)	14000.0000 - 14500.0000	H,V	813KG7D	T	48.70	25.80	.960		QPSK MODULATION, 512 KBPS, 625 KSPS,
7)	14000.0000 - 14500.0000	H,V	1M50G7D	T	51.00	25.80	.960		QPSK MODULATION, 1544 KBPS, 1500
8)	14000.0000 - 14500.0000	H,V	1M63G7D	T	51.70	25.80	.960		QPSK MODULATION, 1024 KBPS, 1250
9)	11700.0000 - 12200.0000	H,V	2M15G7D	R			.960		QPSK MODULATION, 2048 KBPS, RATE
10)	14000.0000 - 14500.0000	H,V	203KG7D	T	43.00	26.10	1.0		QPSK MODULATION, 128 KBPS, 156.25 KSPS,
11)	14000.0000 - 14500.0000	H,V	406KG7D	T	46.00	26.10	1.0		QPSK MODULATION, 256 KBPS, 312.5 KSPS,
12)	14000.0000 - 14500.0000	H,V	813KG7D	T	49.00	26.10	1.0		QPSK MODULATION, 512 KBPS, 625 KSPS,
13)	14000.0000 - 14500.0000	H,V	1M50G7D	T	51.30	26.10	1.0		QPSK MODULATION, 1544 KBPS, 1500



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14)	14000.0000 - 14500.0000	H,V	1M63G7D	T	52.00	26.10	1.0	QPSK MODULATION, 1024 KBPS, 1250
15)	14000.0000 - 14500.0000	H,V	1M90G7D	T	52.90	26.10	1.0	QPSK MODULATION, 2 MBPS, RATE 3/4,
16)	14000.0000 - 14500.0000	H,V	2M80G7D	T	54.00	25.60	1.0	QPSK MODULATION, 3 MBPS, RATE 3/4,
17)	11700.0000 - 12200.0000	H,V	5M50G7D	R			1.0	QPSK MODULATION, 6 MBPS, RATE 0.793
18)	14000.0000 - 14500.0000	H,V	203KG7D	T	45.00	28.30	1.2	QPSK MODULATION, 156.25 KSPS, RATE
19)	14000.0000 - 14500.0000	H,V	406KG7D	T	48.00	28.30	1.2	QPSK MODULATION, 312.5 KSPS, RATE
20)	14000.0000 - 14500.0000	H,V	813KG7D	T	51.00	28.30	1.2	QPSK MODULATION, 625 KSPS, RATE 2/3
21)	14000.0000 - 14500.0000	H,V	1M50G7D	T	53.30	28.30	1.2	QPSK MODULATION, 1544 KBPS, 1500
22)	14000.0000 - 14500.0000	H,V	1M63G7D	T	54.00	28.30	1.2	QPSK MODULATION, 1250 KSPS, RATE
23)	14000.0000 - 14500.0000	H,V	1M90G7D	T	54.90	28.30	1.2	QPSK MODULATION, 2 MBPS, RATE 3/4,
24)	14000.0000 - 14500.0000	H,V	2M80G7D	T	56.00	27.60	1.2	QPSK MODULATION, 3 MBPS, RATE 3/4,
25)	11700.0000 - 12200.0000	H,V	8M60G7D	R			1.2	QPSK MODULATION, 8 MBPS, RATE 3/4,

C) Frequency Coordination

#	Frequency Limits (MHz)	Satellite Arc (Deg. Long.)		Elevation (Degrees)		Azimuth (Degrees)		Max EIRP Density toward Horizon (dBW/4kHz)	Associated Antenna(s)
		East Limit	West Limit	East Limit	West Limit	East Limit	West Limit		
1)	11700.0000 - 12200.0000	60.0W	143.0W	05.0	05.0				1.2
2)	14000.0000 - 14500.0000	60.0W	143.0W	05.0	05.0			-4.4	1.2



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3)	14000.0000 - 14500.0000	60.0W - 143.0W	05.0 - 05.0	-3.4	.750E
4)	11700.0000 - 12200.0000	60.0W - 143.0W	05.0 - 05.0		.750E
5)	14000.0000 - 14500.0000	60.0W - 143.0W	05.0 - 05.0	-3.7	.960
6)	11700.0000 - 12200.0000	60.0W - 143.0W	05.0 - 05.0		.960
7)	14000.0000 - 14500.0000	60.0W - 143.0W	05.0 - 05.0	-4.4	1.0
8)	11700.0000 - 12200.0000	60.0W - 143.0W	05.0 - 05.0		1.0

D) Point of Communications

The following stations located in the Satellite orbits consistent with Sections B and C of this License:

- 1) AVLTF1200 to All authorized U.S. Domestic (ALSAT) Satellites.
- 2) AVLTF750E to AMC-6 @ 72 degrees W.L. (U.S.-licensed domestic satellite)
- 3) AVLTF750E to AMC-4 @ 83 degrees W.L. (U.S.-licensed domestic satellite)
- 4) AVLTF960 to AMC-6 @ 72 degrees W.L. (U.S.-licensed domestic satellite)
- 5) AVLTF960 to AMC-4 @ 83 degrees W.L. (U.S.-licensed domestic satellite)
- 6) AVLTF1000 to AMC-6 @ 72 degrees W.L. (U.S.-licensed domestic satellite)
- 7) AVLTF1000 to AMC-4 @ 83 degrees W.L. (U.S.-licensed domestic satellite)

E) Antenna Facilities

Site/Elevation:

Site ID	Antenna ID	Units	Diameter (meters)	Manufacture	Model number	Max Antenna Height (Meters)	Special Provisions (Refer to Section H)
AVLTF750E	.750E	50	0.75	AVL TECHNOLOGIES	750 IMOVSAT	3 AGL/ 0 AMSL	

Max Gains(s): 39.3 dBi @ 14.1250 GHz 37.8 dBi @ 11.8500 GHz
 Maximum total input power at antenna flange (Watts) = 3.00
 Maximum aggregate output EIRP for all carriers (dBW) 44.00



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AVLTF960 .960 50 0.96 AVL 960 AVSAT 3 AGL/ 0 AMSL
 TECHNOLOGIES

Max Gains(s): 41.2 dBi @ 14.1250 GHz 39.7 dBi @ 11.8500 GHz

Maximum total input power at antenna flange (Watts) = 11.30

Maximum aggregate output EIRP for all carriers (dBW) 51.70

AVLTF1000 1.0 50 1 AVL 1000 ISNG 3 AGL/ 0 AMSL
 TECHNOLOGIES

Max Gains(s): 41.5 dBi @ 14.1250 GHz 39.8 dBi @ 11.8500 GHz

Maximum total input power at antenna flange (Watts) = 17.70

Maximum aggregate output EIRP for all carriers (dBW) 54.00

AVLTF1200 1.2 50 1.2 AVL 1200 MVSAT 3 AGL/ 2000 AMSL
 TECHNOLOGIES

Max Gains(s): 43.5 dBi @ 14.1250 GHz 42.0 dBi @ 11.8500 GHz

Maximum total input power at antenna flange (Watts) = 17.70

Maximum aggregate output EIRP for all carriers (dBW) 56.00

H) Special and General Provisions

A) This RADIO STATION AUTHORIZATION is granted subject to the following special

- 1010 Applicable to all receiving frequency bands. Emission designator indicates the maximum bandwidth of received signal at associated station(s). Maximum EIRP and maximum EIRP density are not applicable to receive operations.
- 1900 Applicable to all transmitting frequency bands. Authority is granted to transmit any number of RF carriers with the specified parameters on any discrete frequencies within associated band in accordance with the other terms and conditions of this authorization, subject to any additional limitations that may be required to avoid unacceptable levels of inter-satellite interference.
- 2916 Transmitter(s) must be turned off during antenna maintenance to ensure compliance with the FCC-specified safety guidelines for human exposure to radiofrequency radiation in the region between the antenna feed and the reflector. Appropriate measures must also be taken to restrict access to other regions in which the earth station's power flux density levels exceed the specified guidelines.
- 2938 Upon completion of construction, each licensee must file with the Commission a certification including the following information: name of the licensee, file number of the application, call sign of the antenna, date of the license and certification that the facility as authorized has been completed, that each antenna facility has been tested and is within 2 dB of the pattern specified in Section 25.209 and that the station is operational including the date of commencement of service and will remain operational during the license period unless the license is submitted for cancellation.



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H) Special and General Provisions

2939 Upon completion of construction each licensee must file with the Commission a certification including the following information: name of the licensee, file number of the application, call sign of the antenna, date of the license and certification that the facility as authorized has been completed, that each antenna facility has been tested and is within 2 dB of the pattern specified in Section 25.209, and that the station is operational including the date of commencement of service, and will remain operational during the license period unless the license is submitted for cancellation. In addition, each licensee must file a certification once the network is put into operation.

3219 All existing transmitting facilities, operations and devices regulated by the Commission must be in compliance with the Commission's radiofrequency (RF) exposure guidelines, pursuant to Section 1.1307(b)(1) through (b)(3) of the Commission's rules, or if not in compliance, file an Environmental Assessment (EA) as specified in Section 1.1311. See 47 CFR 1.1307 (b) (5).

5216 All operations shall be on a non-common carrier basis.

6063 AvL shall take all reasonable and customary measures to ensure that the earth stations do not create a potential for harmful non-ionizing radiation to persons who may be in the vicinity of the earth stations when they are in operation. At a minimum, permanent warning labels shall be affixed to the earth stations, warning of the radiation hazard and including a diagram showing the regions around the earth stations where the radiation levels could exceed 1.0 mW/cm². The operator of the earth station shall be responsible for assuring that individuals do not stray into the regions around the earth stations where there is a potential for exceeding the maximum permissible exposure limits required by Section 1.1310 of our Rules, 47 C.F.R. § 1.1310. This shall be accomplished by means of signs, caution tape, verbal warnings, placement of the earth station so as to minimize access to the hazardous region and/or any other appropriate means.

6064 This authorization is limited to communications with SES satellites AMC-4 at 101.0 degrees W.L. nominal orbital location and AMC-6 at 72.0 degrees W.L. nominal orbital location, in the 14.0-14.5 GHz (uplink) and 11.7-12.2 GHz (downlink) bands.

6065 AvL will maintain nominal pointing accuracy of less than or equal to 0.3 degrees with wind (for the 0.75 and 0.96 meter antenna earth stations) and less than or equal to 0.4 degrees (for the 1.0 meter antenna earth stations) as described in the agreements with Loral Skynet and with PanAmSat Corporation.

6066 During operation of the earth stations, AvL will maintain alignment of the major axis of each earth station antenna with the tangent to the geostationary satellite orbital arc at the point of the target satellite, with the correct polarization.

6067 In the event of a report of harmful interference resulting from the use of these earth stations, AvL will immediately cease operations and inform the Commission.

6068 Whenever an earth station is in use, a trained and competent operator must be physically present.

6069 The antennas must be installed by a professional installer and aligned with the intended satellites to less than or equal to the tolerance stated in the agreements with Loral Skynet and with PanAmSat

6070 AvL will operate the earth stations in accord with all conditions specified in the agreements with Loral Skynet and with PanAmSat Corporation.



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H) Special and General Provisions

B) This RADIO STATION AUTHORIZATION is granted subject to the

This authorization is issued on the grantee's representation that the statements contained in the application are true and that the undertakings described will be carried out in good faith.

This authorization shall not be construed in any manner as a finding by the Commission on the question of marking or lighting of the antenna system should future conditions require. The grantee expressly agrees to install such marking or lighting as the Commission may require under the provisions of Section 303(q) of the Communications Act. 47 U.S.C. § 303(q).

Neither this authorization nor the right granted by this authorization shall be assigned or otherwise transferred to any person, firm, company or corporation without the written consent of the Commission. This authorization is subject to the right of use or control by the government of the United States conferred by Section 706 of the Communications Act. 47 U.S.C. § 706. Operation of this station is governed by Part 25 of the Commission's Rules. 47 C.F.R. Part 25.

This authorization shall not vest in the licensee any right to operate this station nor any right in the use of the designated frequencies beyond the term of this license, nor in any other manner than authorized herein.

This authorization is issued on the grantee's representation that the station is in compliance with environmental requirements set forth in Section 1.1307 of the Commission's Rules. 47 C.F.R. § 1.1307.

This authorization is issued on the grantee's representation that the station is in compliance with the Federal Aviation Administration (FAA) requirements as set forth in Section 17.4 of the Commission's Rules. 47 C.F.R. § 17.4.

The following condition applies when this authorization permits construction of or modifies the construction permit of a radio station.

This authorization shall be automatically forfeited if the station does not meet each required construction deadline by the required date of completion unless, before such date(s), a specific application is timely filed to request an extension of the construction deadline(s), supported with good cause why that failure to construct by the required date was due to factors not under control of the grantee.

Licensees are required to pay annual regulatory fees related to this authorization. The requirement to collect annual regulatory fees from regulates is contained in Public Law 103-66, "The Omnibus Budget Reconciliation Act of 1993". These regulatory fees, which are likely to change each fiscal year, are used to offset costs associated with the Commission's enforcement, public service, international and policy and rulemaking activities. The Commission issues a Report and Order each year, setting the new regulatory fee rates. Receive only earth stations are exempt from payment of regulatory fees.