

EXHIBIT 1 – MARK UP OF E930320 LICENSE SHOWING DELETIONS TO BE MADE FROM LICENSE

In Section A) Site Location(s) – Remove - Site ID 2) Hub (4.5m)

In Section B) Particulars of Operations – Remove – Lines 115), 116), 117) & 118)

In Section C) Frequency Coordination – Remove – Lines 3) & 4)

In Section D) Point of Communications – Remove – Lines 3) & 4)

In Section E) Antenna Facilities – Remove - Site ID Hub (4.5m)



UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION
RADIO STATION AUTHORIZATION
Current Authorization : FCC WEB Reproduction
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Name: COMSAT, INC.

Call Sign: E930320
 File Number: SFS-RW1-20180619-01609

Authorization Type: Renewal of License
 Common Carrier Grant Date: 10/02/2018 Expiration Date: 08/06/2033

Nature of Service: Earth Stations on-board Vessels

Class of Station: Earth Stations on-board

A) Site Location(s)

# Site ID	Address	Latitude	Longitude	Elevation (Meters)	NAD	Special Provisions (Refer to Section H)
1) REMOTE-4 ESV	350 (1.5 m antennas) CONUS				NA	
Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209						
2) Hub (1.5 m)	7676 PINE GROVE ROAD SANTA BARBARA, VENTURA, CA 93001	34 24 58" N	119 4' 26" W	228.6	81	<i>Delete</i>
3) REMOTE-1 ESV	250 (1.0 m antennas) CONUS				NA	
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) REMOTE-2 ESV	250 (1.0 m antennas) CONUS				NA	
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						
5) REMOTE-3 ESV	50 (1.2 m antennas) CONUS				NA	
Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209						
6) REMOTE-5 ESV	500 (1.05M antennas) CONUS				NA	
Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209						

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 Monday, August 06, 2018 (3 AM Eastern Standard Time) and ending Saturday, August 06, 2033 (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.

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	44K8G1W	T	34.40	23.90	ESV-4003A		SCPC USING QPSK AND BPSK MODULATION



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Authorization Type: Common Carrier	Renewal of License Grant Date:	10/02/2018	Expiration Date:	08/06/2033		
2) 14000 0000 - 14500 0000	H,V	538KG1W	T	45 20	23 90	ESV-4003A SCPC USING QPSK AND BPSK MODULATION
3) 14000 0000 - 14500 0000	H,V	89K6G1W	T	37 40	23 90	ESV-4003A SCPC USING QPSK AND BPSK MODULATION
4) 14000 0000 - 14500 0000	H,V	227KG7W	T	41 50	23 90	ESV-4003A TDM/TDMA USING QPSK AND BPSK MODULATION
5) 14000 0000 - 14500 0000	H,V	340KG7W	T	43 20	23 90	ESV-4003A TDM/TDMA USING QPSK AND BPSK MODULATION
6) 14000 0000 - 14500 0000	H,V	378KG7W	T	43 60	23 90	ESV-4003A TDM/TDMA USING QPSK AND BPSK MODULATION
7) 14000 0000 - 14500 0000	H,V	454KG7W	T	44 50	23 90	ESV-4003A TDM/TDMA USING QPSK AND BPSK MODULATION
8) 14000 0000 - 14500 0000	H,V	908KG7W	T	45 80	22 20	ESV-4003A TDM/TDMA USING QPSK AND BPSK MODULATION
9) 14000 0000 - 14500 0000	H,V	1M40G7W	T	45 80	20 30	ESV-4003A DVB/MFTDMA USING QPSK AND BPSK MODULATION
10) 14000 0000 - 14500 0000	H,V	316KG7W	T	42 80	23 90	ESV-4003A DVB/MFTDMA USING QPSK AND BPSK MODULATION
11) 14000 0000 - 14500 0000	H,V	607KG7W	T	45 70	23 90	ESV-4003A DVB/MFTDMA USING QPSK AND BPSK MODULATION
12) 11450 0000 - 12200 0000	H,V	89K6G1W	R			ESV-4003A SCPC USING QPSK AND BPSK MODULATION
13) 11450 0000 - 12200 0000	H,V	44K8G1W	R			ESV-4003A SCPC USING QPSK AND BPSK MODULATION
14) 11450 0000 - 12200 0000	H,V	717KG1W	R			ESV-4003A SCPC USING QPSK AND BPSK MODULATION
15) 11450 0000 - 12200 0000	H,V	151KG7W	R			ESV-4003A TDM/TDMA USING QPSK AND BPSK MODULATION
16) 11450 0000 - 12200 0000	H,V	54M0G7W	R			ESV-4003A TDM/TDMA USING QPSK AND BPSK MODULATION
17) 11450 0000 - 12200 0000	H,V	2M60G7W	R			ESV-4003A DVB/MFTDMA USING QPSK AND BPSK MODULATION
18) 11450 0000 - 12200 0000	H,V	54M0G7W	R			ESV-4003A DVB/MFTDMA USING QPSK AND BPSK MODULATION
19) 10950 0000 - 11200 0000	H,V	44K8G1W	R			ESV-4003A SCPC USING QPSK AND BPSK MODULATION
20) 10950 0000 - 11200 0000	H,V	717KG1W	R			ESV-4003A SCPC USING QPSK AND BPSK MODULATION
21) 10950 0000 - 11200 0000	H,V	89K6G1W	R			ESV-4003A SCPC USING QPSK AND BPSK MODULATION
22) 10950 0000 - 11200 0000	H,V	54M0G7W	R			ESV-4003A TDM/TDMA USING QPSK AND BPSK MODULATION
23) 10950 0000 - 11200 0000	H,V	151KG7W	R			ESV-4003A TDM/TDMA USING QPSK AND BPSK MODULATION
24) 10950 0000 - 11200 0000	H,V	2M60G7W	R			ESV-4003A DVB/MFTDMA USING QPSK AND BPSK MODULATION



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108) 11450 0000 - 12200 0000	H.V	151KG7W	R	ESV-V110	DIGITAL TRAFFIC USING QPSK AND BPSK MODULATION	
109) 10950 0000 - 11200 0000	H.V	89K6G1W	R	ESV-V110	DIGITAL TRAFFIC USING QPSK AND BPSK MODULATION	
110) 10950 0000 - 11200 0000	H.V	717KG1W	R	ESV-V110	DIGITAL TRAFFIC USING QPSK AND BPSK MODULATION	
111) 10950 0000 - 11200 0000	H.V	54M0G7W	R	ESV-V110	DIGITAL TRAFFIC USING QPSK AND BPSK MODULATION	
112) 10950 0000 - 11200 0000	H.V	44K8G1W	R	ESV-V110	DIGITAL TRAFFIC USING QPSK AND BPSK MODULATION	
113) 10950 0000 - 11200 0000	H.V	2M60G7W	R	ESV-V110	DIGITAL TRAFFIC USING QPSK AND BPSK MODULATION	
114) 10950 0000 - 11200 0000	H.V	151KG7W	R	ESV-V110	DIGITAL TRAFFIC USING QPSK AND BPSK MODULATION	
115) 14000 0000 - 14500 0000	H.V	50K0G3D	T	51.30 40.30	Hub	DIGITAL SERVICES
116) 14000 0000 - 14500 0000	H.V	50K0F3X	T	57.30 46.30	Hub	DIGITAL SERVICES
117) 11700 0000 - 12200 0000	H.V	50K0G3D	R		Hub	DIGITAL SERVICES
118) 11700 0000 - 12200 0000	H.V	50K0F3X	R		Hub	DIGITAL SERVICES

Delete

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	West	Limit	Limit	Limit	Limit		
1)	11450 0000 - 12200 0000	60 0W	143 0W	20 0	42 0	164 0	260 0		ESV-6006
2)	10950 0000 - 11200 0000	60 0W	143 0W	20 0	42 0	164 0	260 0		ESV-6006
3)	14000 0000 - 14500 0000	60 0W	143 0W	16 8	42 6	198 7	218 1	11.5	Hub
4)	11700 0000 - 12200 0000	60 0W	143 0W	16 8	42 6	198 7	218 1		Hub
5)	14000 0000 - 14500 0000	60 0W	143 0W	20 0	42 0	164 0	260 0		ESV-4003A
6)	11450 0000 - 12200 0000	60 0W	143 0W	20 0	42 0	164 0	260 0		ESV-4003A
7)	10950 0000 - 11200 0000	60 0W	143 0W	20 0	42 0	164 0	260 0		ESV-4003A
8)	14000 0000 - 14500 0000	60 0W	143 0W	20 0	42 0	164 0	260 0		ESV-4006
9)	11450 0000 - 12200 0000	60 0W	143 0W	20 0	42 0	164 0	260 0		ESV-4006
10)	10950 0000 - 11200 0000	60 0W	143 0W	20 0	42 0	164 0	260 0		ESV-4006
11)	14000 0000 - 14500 0000	60 0W	143 0W	20 0	42 0	164 0	260 0		ESV-4996T
12)	11450 0000 - 12200 0000	60 0W	143 0W	20 0	42 0	164 0	260 0		ESV-4996T

Delete



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Common Carrier		10/02/2018	08/06/2033	
13) 10950 0000 - 11200 0000	60.0W-143.0W	20.0 - 42.0	164.0 - 260.0	ESV-4996T
14) 14000 0000 - 14500 0000	60.0W-143.0W	20.0 - 42.0	164.0 - 260.0	ESV-VI10
15) 11450 0000 - 12200 0000	60.0W-143.0W	20.0 - 42.0	164.0 - 260.0	ESV-VI10
16) 10950 0000 - 11200 0000	60.0W-143.0W	20.0 - 42.0	164.0 - 260.0	ESV-VI10

D) Point of Communications

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

- 1) REMOTE-4 ESV to EUTELSAT 117 WA (S2873) @ 116.8 W.L. (France licensed)
- 2) REMOTE-4 ESV to Permitted Space Station List
- ~~3) Hub (4.5m) to EUTELSAT 117 WA (S2873) @ 116.8 W.L. (France licensed)~~
- ~~4) Hub (4.5m) to Permitted Space Station List~~
- 5) REMOTE-1 ESV to EUTELSAT 117 WA (S2873) @ 116.8 W.L. (France licensed)
- 6) REMOTE-1 ESV to Permitted Space Station List
- 7) REMOTE-2 ESV to EUTELSAT 117 WA (S2873) @ 116.8 W.L. (France licensed)
- 8) REMOTE-2 ESV to Permitted Space Station List
- 9) REMOTE-3 ESV to EUTELSAT 117 WA (S2873) @ 116.8 W.L. (France licensed)
- 10) REMOTE-3 ESV to Permitted Space Station List
- 11) REMOTE-5 ESV to Permitted Space Station List

Delete

E) Antenna Facilities

Site ID	Antenna ID	Units	Diameter (Meters)	Manufacturer	Model Number	Site Elevation	Max Antenna Height (Meters)	Special Provisions (Refer to Section II)
REMOTE-1 ESV	ESV-4003A	250	1.0	SEATEL	4003A			
Max Gains(s) 40.1 dBi @ 11.9500 GHz 41.8 dBi @ 14.2500 GHz								
Maximum total input power at antenna flange (Watts) = 2.5								
Maximum aggregate output EIRP for all carriers (dBW) 45.8								
REMOTE-2 ESV	ESV-4006	250	1.0	SEATEL	4006			
Max Gains(s) 40.1 dBi @ 11.9500 GHz 41.8 dBi @ 14.2500 GHz								
Maximum total input power at antenna flange (Watts) = 3.6								
Maximum aggregate output EIRP for all carriers (dBW) 47.4								
REMOTE-3 ESV	ESV-4996T	50	1.2	SEATEL	4996T			
Max Gains(s) 41.6 dBi @ 11.9500 GHz 42.5 dBi @ 14.2500 GHz								
Maximum total input power at antenna flange (Watts) = 7.1								
Maximum aggregate output EIRP for all carriers (dBW) 51.1								



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REMOTE-4 ESV ESV-6006 350 1.5 SEATEL 6006
Max Gains(s) 42.5 dBi @ 12.0000 GHz 43.5 dBi @ 14.2000 GHz
Maximum total input power at antenna flange (Watts) = 7.13
Maximum aggregate output EIRP for all carriers (dBW) 52.0

REMOTE-5 ESV ESV-V110 500 1.05 INTELLIAN V110
Max Gains(s) 39.6 dBi @ 12.2000 GHz 41.7 dBi @ 14.2500 GHz
Maximum total input power at antenna flange (Watts) = 6.97
Maximum aggregate output EIRP for all carriers (dBW) 49.83

~~Hub (4.5m) Hub 1 4.5 ANDREW ESA 45 228.6 4.9 AGL
-233.5 AMSL~~
~~Max Gains(s) 53.1 dBi @ 12.0000 GHz 54.3 dBi @ 14.0000 GHz
Maximum total input power at antenna flange (Watts) = 32.0
Maximum aggregate output EIRP for all carriers (dBW) 63.0~~

Delo to

F) Remote Control

REMOTE-4 ESV	7676 PINE GROVE ROAD SANTA PAULA, VENTURA, CA, 93060 805-933-4000	Call Sign:	
REMOTE-1 ESV	7676 PINE GROVE ROAD SANTA PAULA, VENTURA, CA, 93060 805-933-4000	Call Sign:	
REMOTE-2 ESV	7676 PINE GROVE ROAD SANTA PAULA, VENTURA, CA, 93060 805-933-4000	Call Sign:	
REMOTE-3 ESV	7676 PINE GROVE ROAD SANTA PAULA, VENTURA, CA, 93060 805-933-4000	Call Sign:	
REMOTE-5 ESV	7676 PINE GROVE ROAD SANTA PAULA, VENTURA, CA, 93060 805-933-4030	Call Sign:	E930320

G) Antenna Structure marking and lighting requirements:

None unless otherwise specified under Special and General Provisions

H) Special and General Provisions

A) This RADIO STATION AUTHORIZATION is granted subject to the following special provisions and general conditions:

- 4 Licensee must ensure that a current listing of the name, title, mailing address, email address, and telephone number of the responsible point of contact are on file at the FCC. Any changes must be filed electronically in the International Bureau Filing System (IBFS) in the "Other Filings" tab within 10 days of the change.
- 5 Licensee must notify the Commission when this earth station is no longer operational or when it has not been used to provide any service during any 6-month operation.
- 6 Licensee must comply with the license modification and notification requirements of 47 CFR § 25.118 to change the coordinates of its authorized earth station.



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H) Special and General Provisions

- 105 Subject to Rule Making This license is subject to the outcome of any future rule making concerning ESV operations Grant of this authorization shall not prejudice the outcome of any rulemaking
- 249 This license is granted authority to provide services for both Earth Stations on-board Vessels (ESV) and VSAT Network
- 257 Licensee is authorized to use the conventional Ku-band frequencies only 14 0-14 5 GHz and 11 7-12 2 GHz to communicate with AISAT as a point of communication
- 90013 The licensee shall not operate in the band 14 0-14 2 GHz within 125 km of the NASA TDRSS facilities on Guam (located at latitude 13°36'55" N, longitude 144°51'22" E) or White Sands, New Mexico (located at latitude 32°20'59" N, longitude 106°36'31" W and latitude 32°32'40" N, longitude 106°36'48" W) or any future TDRSS facility NTIA notifies to the FCC, unless and until the licensee enters into an agreement with NASA that NTIA has approved. The licensee must conform its operations to the terms of any coordination agreement with the NASA and must file a copy of the agreement with the Commission within 30 days of execution
- 90014 The licensee shall not operate in the band 14 47-14 50 GHz within (a) 45 km of the radio observatory on St. Croix, Virgin Islands (located at latitude 17°46' N, longitude 64°35' W), (b) 125 km of the radio observatory on Mauna Kea, Hawaii (located at latitude 19°48' N, longitude 155°28' W), and (c) 90 km of the Arecibo Observatory on Puerto Rico (located at latitude 18°20'46" W, longitude 66°45'11" N) unless and until the licensee enters into an agreement with the National Science Foundation that has been approved by NTIA. The licensee must conform its operations to the terms of any coordination agreement with the National Science Foundation and must file a copy of the agreement with the Commission within 30 days of execution
- 90398 Changes to previously authorized transmitting facilities, operations and devices regulated by the Commission that may have significant environmental impact, and are not excluded by §1.1306, require the preparation of an Environmental Assessment (EA) by the licensee. (See 47 C.F.R. §§1.1307, 1.1308 and 1.1311)
- 90399 The licensee shall, at all times, take all necessary measures to ensure that operation of this (these) authorized earth station(s) 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. Physical 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 workers
- 90405 Operations with PERMITTED LIST satellite must comply with §25.212 levels and operations above this levels must coordinate with satellite operators prior to operations
- 906407 The Permitted Space Station List (Permitted List) is a list of all geostationary space stations providing fixed-satellite service pursuant to a Commission license or grant of U.S. market access. The Permitted List currently includes the following frequency bands per §25.103 and §25.115(k)(1):
 - 3600-4200 MHz (space-to-Earth)
 - 5850-6725 MHz (Earth-to-space)
 - 10.95-11.2 GHz (space-to-Earth)
 - 11.45-12.2 GHz (space-to-Earth)
 - 13.75-14.5 GHz (Earth-to-space)
 - 18.3-18.8 GHz (space-to-Earth)
 - 19.7-20.2 GHz (space-to-Earth)
 - 24.75-25.25 GHz (Earth-to-space)
 - 28.35-28.6 GHz (Earth-to-space)
 - 29.25-30.0 GHz (Earth-to-space)

Earth stations with "Permitted List" designated as a point of communication may access any space station on the Permitted List, provided the operations comply with the applicable "routine" uplink and downlink limits, are within the specific frequency bands authorized in the earth station license, have completed coordination with terrestrial stations pursuant to §25.203, and otherwise comply with all terms and conditions of both the earth station license and the space station grant.