

**Exhibit B – Technical Supplement**  
**FCC Form 312 – Modification Application for EV8**  
**Applicant: Kongsberg Satellite Services AS**  
**Call Sign: E160028**

**1. ITU Notification Information for the PAZ Satellite**

The PAZ satellite, which hosts the exactView-8 (“EV8”) payload, has been submitted for international coordination<sup>1</sup> with respect to the C-band downlink beam, MDC, as shown on the two excerpted pages<sup>2</sup> below. Subsequently, the C-band downlink was included as part of the Part I-S publication for PAZ in BR IFIC [2884](#) (IFIC date Nov. 27, 2018).



UNION INTERNATIONALE DES TÉLÉCOMMUNICATIONS BUREAU DES RADIOCOMMUNICATIONS		INTERNATIONAL TELECOMMUNICATION UNION RADIOCOMMUNICATION BUREAU		UNIÓN INTERNACIONAL DE TELECOMUNICACIONES OFICINA DE RADIOCOMUNICACIONES		© I.T.U.
RÉSEAU À SATELLITE SATELLITE NETWORK RED DE SATELITE		<b>PAZ</b>		SECTION SPÉCIALE N° SPECIAL SECTION No. SECCIÓN ESPECIAL N.º		<b>CR/C/3472 MOD-1</b>
STATION TERRIENNE EARTH STATION ESTACIÓN TERRENA		---		BR IFIC / DATE BR IFIC / DATE BR IFIC / FECHA		<b>2786 / 20.01.2015</b>
ADM. RESPONSABLE RESPONSIBLE ADM. ADM. RESPONSABLE	<b>E</b>	LONGITUDE NOMINALE NOMINAL LONGITUDE LONGITUD NOMINAL	<b>NGSO</b>		NUMÉRO D'IDENTIFICATION IDENTIFICATION NUMBER NÚMERO DE IDENTIFICACIÓN	
					<b>114520176 / 113520278</b>	
RENSEIGNEMENTS REÇUS PAR LE BUREAU LE / INFORMATION RECEIVED BY THE BUREAU ON / INFORMACIÓN RECIBIDA POR LA OFICINA EL						<b>04.09.2014</b>
Cette demande de coordination, reçue par le Bureau des radiocommunications en vertu du numéro 9.30 du Règlement des radiocommunications, a été examinée au titre des numéros 9.35 et 9.36 et est publiée conformément au numéro 9.38. Elle est subordonnée au type de coordination indiqué dans la colonne de gauche par un X dans la case pertinente.		This request for coordination, received by the Radiocommunication Bureau pursuant to No. 9.30 of the Radio Regulations, has been examined under Nos. 9.35 and 9.36 and is published in accordance with No. 9.38. It is subject to the form of coordination indicated in the left-hand column by an X in the relevant box.		Esta solicitud de coordinación, recibida por la Oficina de Radiocomunicaciones de conformidad con el punto N° 9.30 del Reglamento de Radiocomunicaciones, se ha examinado de conformidad con los N° 9.35 y 9.36 y se publica de conformidad con el N° 9.38. Está sujeta al formulario de coordinación indicado en la columna de la izquierda con una X en la casilla correspondiente.		
Type de coordination mentionné dans le Tableau I / Form of coordination referred to in Table I / Forma de coordinación mencionada en el cuadro I						
<input type="checkbox"/> 9.7 <input type="checkbox"/> 9.7A <input type="checkbox"/> 9.7B <input checked="" type="checkbox"/> AP30#7.1 <input checked="" type="checkbox"/> AP30A#7.1 <input type="checkbox"/> RS539 <input type="checkbox"/> RS33#3		Conformément aux numéros 9.50 à 9.52 du Règlement des radiocommunications, les Administrations identifiées dans le Tableau I ci-après sont priées de communiquer leur décision à l'Administration responsable et au Bureau avant la date limite indiquée ci-dessous.		In accordance with Nos. 9.50-9.52 of the Radio Regulations, the Administrations identified in Table I below are requested to communicate their decision to the Responsible administration and the Bureau by the deadline indicated below.		De conformidad con los N° 9.50-9.52 del Reglamento de Radiocomunicaciones, se solicita a las administraciones señaladas en el cuadro I a continuación que comuniquen su decisión a la administración responsable y a la Oficina antes del plazo indicado más abajo.
Type de coordination mentionné dans le Tableau II / Form of coordination referred to in Table II / Formulario de coordinación remitido al cuadro II						
<input checked="" type="checkbox"/> 9.11 <input checked="" type="checkbox"/> 9.11A <input checked="" type="checkbox"/> 9.12 <input checked="" type="checkbox"/> 9.12A <input type="checkbox"/> 9.13 <input type="checkbox"/> 9.14 <input type="checkbox"/> 9.21A <input type="checkbox"/> 9.21B <input type="checkbox"/> 9.21C <input type="checkbox"/> RS33#2.1		Les Administrations, énumérées ou non-énumérées dans le Tableau II ci-dessus, qui n'acceptent pas la demande de coordination au titre des numéros 9.11 à 9.14, 9.21 et RS33#2.1, sont priées de communiquer leurs observations à l'Administration responsable et au Bureau avant la date limite indiquée ci-dessous. Toute Administration qui ne réagit pas au titre du numéro 9.52 avant cette date limite sera considérée comme n'étant pas défavorablement influencée et, dans les cas couverts par les numéros 9.11 à 9.14 et RS33#2.1, les dispositions des numéros 9.48 et 9.49 s'appliqueront.		Administrations listed or not listed in Table II below, which do not agree to the request for coordination under Nos. 9.11 to 9.14, 9.21 and RS33#2.1 are requested to communicate their comments to the responsible administration and the Bureau by the deadline indicated below. Any administration not responding under No. 9.52 within this deadline shall be regarded as unaffected and, in the cases of Nos. 9.11 to 9.14 and RS33#2.1, the provisions of Nos. 9.48 and 9.49 shall apply.		Se invita a las administraciones, enumeradas o no en el cuadro II, que no estén de acuerdo con la solicitud de coordinación de conformidad con los N° 9.11 a 9.14, 9.21 y RS33#2.1 que comuniquen sus observaciones a la administración responsable y a la Oficina dentro del plazo indicado más abajo. Se considerará que toda administración que no responda de conformidad con el N° 9.52 dentro del plazo señalado, no está afectada y, en el caso de los N° 9.11 a 9.14 y RS33#2.1, se aplicarán las disposiciones de los N° 9.48 y 9.49.
DATE LIMITE POUR LA DÉCISION / EXPIRY DATE FOR DECISION / FECHA LÍMITE PARA LA DECISIÓN						<b>20.05.2015</b>



<sup>1</sup> The other frequencies relevant to this application have also been submitted to the ITU. The frequency bands for AIS and ASM reception by PAZ/EV8 have been published under Part II-S. See ITU, BR IFIC 2842 (IFIC date Apr. 4, 2017). Advance Publication Information for the reception of signals in the Land Mobile band (161.1000–161.4750 MHz) has been submitted to the ITU by the Spanish Government for PAZ. See the publication for PAZ (NTC ID 109540646) under Special Section API/A in BR IFIC 2872 (IFIC date June 12, 2018) (publishing a beam named “AISU” with a frequency band spanning 157.3625–162.0375 MHz, which covers the Land Mobile frequency band of 161.1000–161.4750 MHz).

<sup>2</sup> ITU, BR IFIC 2786 (IFIC date Jan. 20, 2015) (containing the most recent publication concerning coordination for the MDC beam for PAZ).

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SECTION SPECIALE / SPECIAL SECTION / SECCIÓN ESPECIAL / 特节 / СПЕЦИАЛЬНАЯ СЕКЦИЯ / القسم الخاص										CRIC/3472 MOD-1
M	A 1a Sat Network	BA2	A 1f1 Notifying adm.	E	A 1f3 Inter. sat. org.	BR1 Date of receipt	04.09.2014	BR20/BR21 BR IFIC no./part	2786/	
BR6a/BR6b Id. no.		114520176	113520279	BR3a/BR3b Provision reference		9.6	C	BR2 Adm. serial no.	E/2014/0024	

**Recouvrement des coûts / Cost recovery / Recuperación de costes / 成本回收 / Возмещение расходов / استرداد التكاليف**

B1a Beam designation	B2 Emi-Rcp	BR8 Action code	BR7a Group id.	BR9 Action code	13A Conformity with RR	C3a Assigned freq. band	BR47 Frequency band (MHz)	BR15 Provision reference	BR53 Nb of freq.	C4a Class of station	BR54 Nb of emis.	BR55 Nb of units
MDC	E	M	114713047	A	A-----	31000	5167.5 - 5199.5	9.12, 9.12A	1	BC	1	1
			114713048	A	A-----	31000	5167.5 - 5199.5	9.12, 9.12A	1	BC	1	1
BR57 Category											C1	
BR56 Total number of units											2	



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**2. FCC Licensee Database: Search Results for 5150–5250 MHz in Alaska**

A January 28, 2019 search of the FCC’s General Menu Reports system for currently licensed and pending facilities in the state of Alaska in the 5150–5250 MHz band reveals only 4 operations, all by GUSA Licensee, LLC (affiliate of Globalstar Licensee, LLC) or by Kongsberg Satellite Services AS (the applicant):

International Bureau Filing System Database						
<b>Call Sign:</b> E050345	<b>File Number:</b> SESMFS2010110801413	<b>Applicant:</b> GUSA Licensee LLC	<b>FRN:</b> 0015272669	<b>Grant Date:</b> 06/07/2011	<b>Expiration:</b> 01/04/2022	<b>Status:</b> ATPN Sub-System: SES
<b>Site:</b> WSLA-3	<b>Description:</b> WASILLA	<b>City:</b> Wasilla	<b>State:</b> AK	<b>Coordinates:</b> 61° 35' 24.9" N, 149° 29' 9.6" W		
<b>Frequency:</b> 00005096.00000000-00005250.00000000						
<b>Call Sign:</b> E050346	<b>File Number:</b> SESMFS2010110801414	<b>Applicant:</b> GUSA Licensee LLC	<b>FRN:</b> 0015272669	<b>Grant Date:</b> 06/07/2011	<b>Expiration:</b> 01/04/2022	<b>Status:</b> ATPN Sub-System: SES
<b>Site:</b> 1	<b>Description:</b> WASILLA	<b>City:</b> Wasilla	<b>State:</b> AK	<b>Coordinates:</b> 61° 35' 24.1" N, 149° 29' 6" W		
<b>Frequency:</b> 00005096.00000000-00005250.00000000						
<b>Call Sign:</b> E050347	<b>File Number:</b> SESMFS2010110801415	<b>Applicant:</b> GUSA Licensee LLC	<b>FRN:</b> 0015272669	<b>Grant Date:</b> 06/07/2011	<b>Expiration:</b> 01/04/2022	<b>Status:</b> ATPN Sub-System: SES
<b>Site:</b> 1	<b>Description:</b> WASILLA	<b>City:</b> Wasilla	<b>State:</b> AK	<b>Coordinates:</b> 61° 35' 24.6" N, 149° 29' 2.4" W		
<b>Frequency:</b> 00005096.00000000-00005250.00000000						
<b>Call Sign:</b> E160028	<b>File Number:</b> SESMFS2017082500955	<b>Applicant:</b> Kongsberg Satellite Services AS	<b>FRN:</b> 0025140831	<b>Grant Date:</b> 03/19/2018	<b>Expiration:</b> 02/14/2022	<b>Status:</b> ATPN Sub-System: SES
<b>Site:</b> KSAT_USA_AK01	<b>Description:</b> Fairbanks, AK	<b>City:</b> Fairbanks	<b>State:</b> AK	<b>Coordinates:</b> 64° 49' 4" N, 147° 43' 9" W		
<b>Frequency:</b> 00005167.50000000-00005198.50000000						

**International Bureau Filing System Files: 4**

### 3. Coordination with Globalstar

exactEarth, the owner of the hosted payload EV8, previously coordinated operations for the ADS satellite network, of which exactView-1 is a part, with Globalstar Licensee, LLC, as confirmed by the email below. EV8's downlink to Fairbanks, AK uses the same properties as the downlink for exactView-1<sup>3</sup> and similar to the downlink for exactView-7.

**From:** David Weinreich [mailto:David.Weinreich@globalstar.com]  
**Sent:** Friday, August 20, 2010 10:55 PM  
**To:** Angela Kulig  
**Cc:** Binda.shah@globalstar.com; Bob Vaddiparty; Paul Monte; Bob Bowen; stevek@telecommstrategies.com  
**Subject:** RE: FW: ADS Coordination with Globalstar

Angela,

Based on then information contained in the ITU filing for ADS and the further information that you provided to us, Globalstar sees no problem with interference from the downlinks of ADS, in the 5.1 GHz frequency range, to the feeder uplinks of the Globalstar system, in the same frequency range.

Globalstar would appreciate being kept apprized of activities with the ADS spacecraft in order to monitor our feeder uplinks for possible interference.

If you have any questions or need further information, please do not hesitate to contact me.

Best regards,

David Weinreich  
Manager,  
Spectrum and Regulatory Engineering

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<sup>3</sup> exactView-1 was authorized in 2017 to operate with KSAT's satellite earth station in Fairbanks, AK, pursuant to authority granted by the Commission. Kongsberg Satellite Services AS Application to Operate a New Receive-Only Earth Station in Fairbanks, AK, FCC IBFS No. SES-LIC-20160218-00154 (granted Feb. 14, 2017); *see also* Kongsberg Satellite Services AS Application for 180-Day Special Temporary Authority for EV1, FCC IBFS No. SES-STA-20180313-00209 (filed Mar. 13, 2018, presently pending; KSAT is operating with EV1 under 47 C.F.R. § 1.62 pending action on the application).

**4. Additional Information Concerning Data/Errata in the Associated Schedule S for the PAZ Satellite and EV8 Payload**

The Schedule S for this application was prepared using the FCC’s new Schedule S online software<sup>4</sup> and in accordance with the Schedule S instructions.<sup>5</sup>

The following are notes and clarifications with respect to KSAT’s entries into the Schedule S form for the Satellite (ITU name: PAZ):

(1) The Schedule S online form requires at least one receive frequency band/beam to be added in order to complete the form. KSAT is not seeking authorization for the Satellite’s reception of AIS signals, but rather for the reception by the earth station of AIS data transmitted from the satellite. Accordingly, KSAT has filled in dummy information wherever information related to receive frequencies was required to complete the form, which occurred in the following Schedule S sections:

- a. Operating Frequency Bands
- b. Receiving Beams
- c. Receiving Channels

(2) On the page titled, “Max. Power Flux Density for MDC” (part of the Transmitting Beam section), we have input a dummy value of “-200.0” for the field “20° - 25° (dBW/m2/BW).” Please refer to the table below:

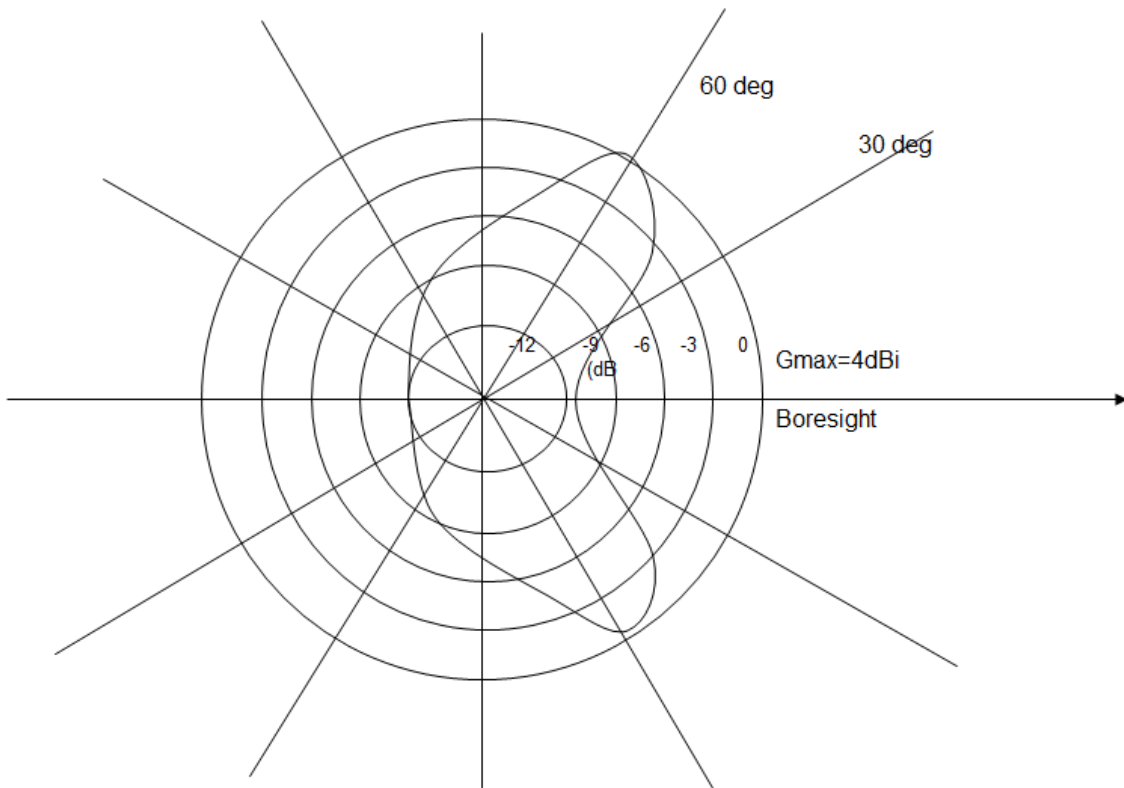
Elevation Angle	degrees	5	10	15	20	30	40	50	60	70	80	90
Off Nadir Angle	degrees	67.3	65.8	63.4	60.5	53.3	45.2	36.5	27.6	18.5	9.3	0
PFD in 4 kHz	dBW/m2/4kHz	-170.2	-170.1	-170.0	-168.1	-167.7	-168.7	-168.4	-169.4	-170.6	-170.3	-170.3
PFD limit per ITU 5.447B	dBW/m2/4kHz	-164	-164	-164	-164	-164	-164	-164	-164	-164	-164	-164
Margin	dB	6.2	6.1	6	4.1	3.7	4.7	4.4	5.4	6.6	6.3	6.3

<sup>4</sup> The FCC’s new Schedule S software is available at <https://enterprise filing.fcc.gov/schedules/>.

<sup>5</sup> Specific Instructions For Schedule S (April 2016), available at <https://enterprise filing.fcc.gov/schedules/resources/Instructions%20for%20Schedule%20S%20vApr2016.pdf>.

**5. Satellite Transmit Antenna Gain Pattern**

Figure 1, below, is the antenna gain pattern for the EV8 antenna downlinking to the Station. Note that the design for EV8's downlink antenna is similar to the antenna on EV1, but differs slightly due to EV8 being a hosted payload on PAZ.<sup>6</sup>



**Figure 1 - Satellite C-Band Isoflux Antenna, Transmitting and Receiving Beam, Symmetrical Pattern**

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<sup>6</sup> See *supra* note 3 (referencing license grant for E160028 to operate with exactEarth's EV1).