

***“Unofficial translation”***

**Federal Network Agency for Electricity, Gas, Telecommunications,  
Post and Railway**



**Assignment of Orbit and Frequency Usage Rights**

Date of issue: 12.07.2023

Under section 95 of the Telecommunications Act (TKG) of 23 June 2021 (Federal Law Gazette Part I p°1858),

Assignment holder details

Name	Cryptosat Inc.
Department, etc.	
Street / house number	211 Hope street #391224
Postcode / town	Mountain View CA 94041
Country	USA

is hereby assigned under usage right number:

**009-2023/BNetzA (223)**

the following frequency bands (transmission direction) /geostationary orbit position/ coverage area:

2046.25 – 2048.75 MHz (earth to space)	NGSO 97,4°; 1h34 500 km zirk.  SSO 1 Satellit	AUS, AZE, AZR, BUL, CLN, E, G, I, ISL, MAU, NZL
Within 1618,725 – 1626,292 MHz (ISL) duplex (both directions) with 35 kHz bandwidth		Iridium L-Band ISL
2258.75 – 2261.25 MHz (space to earth)		AUS, AZE, AZR, BUL, CLN, E, G, I, ISL, MAU, NZL

for use by the satellite network

**CRYPTO3**

for the period from 1 October 2023 to 31 December 2028

Date of the first assignment: ---

Page 2 of 4 of the amendment to the usage right date of issue:	<b>01.10.2023</b>	Usage right number:	<b>009-2023/BNetzA (223)</b>
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Technical characteristics in accordance with ITU Special Sections/IFICs

2993/API/A/13263 from 04.04.2023	<b>NGSO</b>
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Provisions and subsidiary provisions

1	The party enjoying the right of use (Cryptosat Inc.) is subject to the obligations arising from the constitution and convention of the International Telecommunication Union (UIT / ITU) (Section 95 (1) TKG), including the supplementary provisions, in particular the Radio Regulations.
2	The CRYPTO3 satellite will be used as a cryptographic processing unit that will test the viability of cryptographic applications in space. During operation of the experimental satellite, the communication check with the Iridium constellations is carried out via inter-satellite links (ISL) in the L-band and cryptographic proofs of concept are carried out via the S-band (uplink and downlink).
3	Under international law, the Federal Republic of Germany is obliged to transpose the decisions of the competent international bodies (ITU bodies, e.g. World Radio Conferences). In view of the usage duration, no guarantee can be given to the party enjoying the right of use that the frequency allocations and other international provisions will remain unchanged from when the usage rights were originally transferred. Should subsequent changes be effected with a negative effect on the party enjoying the right of use, the party must accept future restrictions of the rights transferred to it. These could concern, for example, the allocation status (primary, secondary) or other services jointly used.
4	The provisions of the enforcement regulations for radio service ("Radio Regulations, RR") to prevent "harmful interference" (radio interference) must be observed by the party enjoying the right of use. If interference occurs with other satellite systems or with other radio services caused by non-compliance, the Federal Network Agency can issue operating restrictions or an operating ban. In such cases, the instructions of the Federal Network Agency must be followed immediately. The applicant bears the entrepreneurial risk from operating restrictions. The costs are not borne by the Federal Network Agency.
5	The party enjoying the right of use is obliged to complete the coordination procedure to Section I of Article 9 of the RR for the satellite CRYPTO3 as far as possible and to carry out the notification to the International Telecommunication Union (ITU) via the Federal Network Agency. The satellite must not be smaller than $\frac{1}{4}$ U (250 cm <sup>3</sup> ) and it must be ensured that their exact position and movement in orbit can be traced in order to limit risk. The assignment of the rights of use is preliminary in view of the ongoing coordination of the satellite of the Article 11 of the RR. The rights of use may only be exercised on a non-interference basis (NIB) – non protection basis. This means that no harmful interference may be caused through exercise of these usage rights to satellite systems and other radio applications of other administrations. Therefore no right of protection against interference with own transmission can be demanded for. Only after entry in the Master Register of the ITU (MIFR) as a result of the successful notification of the satellite occurs an entitlement to protection.
6	The Federal Network Agency can either extend the transfer beyond the expiry date (if CRYPTO3 is still providing services) or revoke it. In the event of revocation, any transmission must be stopped immediately and without delay.
7	The party enjoying the right of use is obliged to comply with Annexes 2 and 3 (tables of frequency tolerances and the level of unwanted emissions), the special provisions in the footnotes of Article 5 (allocations) and Articles 21 and 22 (space radio services) of the RR.
8	The party enjoying the right of use must ensure proper operation of the satellite system by deploying specialist staff so as to avoid hazards to third parties and the smooth handling of Radiocommunication. The Federal Network Agency must be notified straightaway of the earth stations (and backup stations) which will carry out satellite command.
9	The party enjoying the right of use must immediately notify the Federal Network Agency of the bringing into use and decommissioning of radio stations on board the satellite (including components, insofar as this has an impact on the occupancy of the frequency sub-ranges). As well as changes to the characteristics of the operation, insofar as this is necessary for the implementation of Art. 11 RR of the ITU (notification and "Administrative Due Diligence" procedure) or for the application of Section 95 (3) TKG.
10	Space stations must be constructed in such a way that immediate cessation of their radio emissions is

possible, in line with RR Article 22.1, if the party enjoying the right of use is called upon by the Federal Network Agency to stop operation in the case of interference. In case part of the system should fail, substitute components (redundancy) or safety devices (fail-safe systems, watchdog circuits) preventing unwanted spectrum occupancy as a result of uncontrolled emissions must be provided.

- 11 Operational requirements for the implementation of international standards for the avoidance of space debris (space debris), including the obligation to de-orbit, can be made to party enjoying the right of use. During the lifetime of a space tug in orbit, the probability of an unplanned collision with objects at least 10 cm in size should not exceed 0.001 (1 in 1000). A technical possibility to reduce the risk limitation shall be realized in the individual missions, i.e. the possibility of a maneuver to avoid a collision must be given. The Federal Network Agency can issue instructions to the authorized user for operation and at the end of the service life to a reasonable extent and within the scope of the technical possibilities in order to specifically enforce the aforementioned international standards.
- 12 The party enjoying the right of use is obliged to secure the protection of this filing against later ITU filings. This means, in particular, that the party regularly checks the ITU International Frequency Information Circulars, or IFICs, and has the Federal Network Agency submit comments (under RR Article 9) on new filings that could jeopardize the party's rights. Such requests should be made to the Federal Network Agency not later than 6 weeks before expiry of the international time limit so that examination is possible before the comments are communicated to the telecommunications administration responsible. The party enjoying the right of use must play a constructive part in clarifying radio compatibility issues. It must respond to coordination requests from other telecommunications administrations or to requests within the scope of national coordination, even in the case of subsequent rights, and take an active part in international coordination talks, as far as this is necessary for protection of the filing rights or under the ITU rules. The party enjoying the right of use is obliged to secure protection of the satellite system and carry out coordination in respect of later filings by deploying specialist staff.
- 13 The operator presented a CRYPTO3 overview (including debris avoidance, de-orbiting and maneuverability) with sustainability analysis.
- 14 The party enjoying the right of use must refund further expenses incurred by the Federal Network Agency in connection with the filing of the satellite system – in particular costs under ITU cost recovery in accordance with Council Decision°482 and costs for taking part in coordination talks with operators.
- 15 After a successful start, the party enjoying the right of use is obliged to register immediately the space object in accordance with the Convention on Registration of Objects Launched into Outer Space and to provide the Federal Network Agency with evidence of this.
- 16 Frequencies and orbit positions that are no longer used shall be returned immediately in writing. If a legal person to whom the orbit- and frequency usage rights was transferred is dissolved without a legal successor, the person who carries out the dissolution must return the assignment of orbit- and frequency usage rights. If a natural person dies without an heir wanting to continue using the orbit- and frequency usage rights, they must be returned by the heir or the executor.
- 17 Changes after the transfer of the rights of use, in particular in the person of the applicant (see § 91 paragraph 7 TKG) and the commissioning, must be reported to the Federal Network Agency immediately.
- 18 The loss of the assignment document, changes of name and address, and identity-preserving transformations must be notified to the Federal Network Agency in writing without delay.
- 19 After the assignment of orbit- and frequency usages rights has expired, the certificate and all attachments must be returned to the Federal Network Agency. The electronically transmitted documents and all copies must be permanently deleted.
- 20 The assignment of orbit and frequency usage rights contains the assigning frequencies under section 91(1) of the TKG. Frequency usage by satellite earth stations on German territory requires additional frequency assignments.

Page 4 of 4 of the amendment to the usage right date of issue:	<b>01.10.2023</b>	Usage right number:	<b>009-2023/BNetzA (223)</b>
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### Rights of appeal\*:

An appeal against this notice may be made not later than one month after the date the notice was issued. The appeal must be made in writing to or placed on record with the Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railway, Tulpenfeld 4, 53113 Bonn or any other of its offices.

Your appeal will be processed more quickly if it is submitted to the following address:

**Bundesnetzagentur für Elektrizität, Gas, Telekommunikation, Post und Eisenbahnen,  
Referat 223, Canisiusstr. 21, 55122 Mainz**

Appeals may also be submitted electronically. In this case the electronic document will need a qualified electronic signature as set out in the Electronic Signatures Act.

The appeal does not have suspensory effect. Submitting an appeal does not affect the validity and enforceability of the notice.

Place, date

Mainz,

By direction

(Official seal)

Enclosures

Explanatory notes on the assignment of orbit and frequency usage rights

\*Notes on the rights of appeal:

Costs (fees and expenses) will be incurred as a rule for appeal proceedings which are unsuccessful in full or in part. If the appeal is rejected in full or in part, a fee up to the level of the fee determined for the disputed official act is payable.

## ***“Unofficial translation”***

### **Explanatory notes on the assignment of orbit and frequency usage rights**

1. Under the Constitution and Convention of the International Telecommunication Union (ITU) (transposed into national legislation by the “Bekanntmachung der Neufassung der Konstitution und Konvention der Internationalen Fernmeldeunion” of 8 October 2001, Federal Law Gazette 2001 Part II No 33) and the Radio Regulations, or RR, the international filing of satellite systems by the Federal Network Agency leads to rights of use for Germany. Under section 95 of the TKG the Federal Network Agency assigns to the applicant the rights to orbit and frequency usage ensuing from the filing. It does not cede the rights, but transfers them to the rights holder simply for exercise (assignment to use, comparable to the assignment of frequencies under section 91 of the TKG). The assignment of orbit and frequency usage rights is premised on the preconditions of section 95(2) sentence 3.
2. To secure the aims of the Telecommunications Act - section 1 and section 2 of the TKG – and Germany's international duties - Article 44 of the Constitution of the ITU and numbers 0.2 and 0.3 of the Preamble of the RR – rational use of the radio spectrum as a limited natural resource is called for in addition to compatibility with other radio services. Accordingly, only the frequencies and orbital positions that are clearly required for the intended services and markets are to be included in the filing. The provisions of the Table of Frequency Ordinance and the national Frequency Plan must also be heeded.
3. Not the formal ITU coordination procedure but a national one is operated to achieve radio compatibility with other German filings for satellite systems and radio services. This is done as part of national coordination. The coordination of new with existing German filings and possibly also terrestrial radio services and radio astronomy applications is therefore effected solely at national level between the parties concerned and the Federal Network Agency, without the ITU being involved. In addressing national comments, the Federal Network Agency takes its decisions on the basis of ITU procedures. National coordination is effected at the same time as international coordination. Here, too, the applicants themselves are responsible for carrying out studies on the compatibility of the satellite systems with one another and with other (terrestrial) radio services in Germany. This also applies to the assignment of usage rights.
4. Costs that will possibly be incurred for changing or restricting the satellite service as required – due to incompatibility with other frequency applications ascertained during coordination– will not be paid by the Federal Network Agency.
5. The Federal Network Agency does not guarantee minimum quality or non-interference of radiocommunications. Protection from interference caused by other frequency applications used for their intended purpose cannot be ensured in all cases.
6. This assignment document referring to orbit and frequency usage rights does not affect any of the holder's obligations arising from other instruments under public law, including telecommunications legislation, or obligations under private law. This applies in particular to reservations relating to permits and authorisations, notably under space legislation.
7. The party enjoying the right of use is responsible for compliance with the assignment provisions, the consequences of any violations and the payment of fees and contribution charges which are due for assignment.