

ENS - Center for Telekommunikation

Fra: Henriette Fagerberg Erichsen <hfe@advokatsamfundet.dk>
Sendt: 13. oktober 2020 14:59
Til: ENS - Center for Telekommunikation
Emne: Sv: Energistyrelsen - Høring over 4 bekendtgørelser på frekvensområdet (Sagsnr.: 2020 - 3)

Tak for henvendelsen.

Advokatrådet har besluttet ikke at afgive hørings svar.

Med venlig hilsen



ADVOKATSAMFUNDET
RETSSIKKERHED · UAFHÆNGIGHED · INTEGRITET

Henriette Fagerberg Erichsen
Sekretær

Advokatsamfundet, Kronprinsessegade 28, 1306 København K
D +45 33 96 97 28

hfe@advokatsamfundet.dk - www.advokatsamfundet.dk

Til: Gitte Lüders Hansen (GLH@ens.dk)
Fra: Gitte Lüders Hansen (GLH@ens.dk)
Titel: Energistyrelsen - Høring over 4 bekendtgørelser på frekvensområdet
Sendt: 09-10-2020 16:24

Energistyrelsen sender hermed udkast til bekendtgørelse om den samlede danske nummerplan i høring.
<https://hoeringsportalen.dk/Hearing/Details/64408>

Eventuelle bemærkninger til bekendtgørelserne bedes være Energistyrelsen i hænde senest den:

6. november 2020 på e-mail tele@ens.dk.

Hørings svar vil blive offentliggjort på høring portalen på www.borger.dk efter høringen.

Med venlig hilsen / Best regards

Gitte Lüders Hansen
Specialkonsulent / Special Advisor
Center for tele / Centre for Telecommunication

Mobil / Cell +45 33 92 75 65
E-mail glh@ens.dk



Danish Energy Agency - www.ens.dk

- part of The Ministry of Climate, Energy and Utilities

Energistyrelsen er ansvarlig for behandlingen af de personoplysninger, vi modtager om dig. Du kan læse mere om, hvordan vi behandler dine personoplysninger på vores hjemmeside <https://ens.dk/om-os/energistyrelsens-behandling-af-personoplysninger>

ENS - Center for Telekommunikation

Fra: Ida Fænøe Schløer (IFSR) <ifsr@bane.dk>
Sendt: 6. november 2020 13:44
Til: ENS - Center for Telekommunikation
Cc: Gitte Lüders Hansen
Emne: Sv: Energistyrelsen - Høring over 4 bekendtgørelser på frekvensområdet (BDK ID: 1870273)

Kære Energistyrelse

Hermed følger bemærkninger fra Banedanmark, som er i tråd med Banedanmarks tidligere afgivne bemærkninger.

Bekendtgørelse om radiogrænseflader

Ingen bemærkninger fra Banedanmark.

Bekendtgørelse om anvendelse af radiofrekvenser uden tilladelse samt om amatørradio prøver og kaldesignaler m.v.

Ingen bemærkninger fra Banedanmark.

Bekendtgørelse om fastlæggelse af rammerne for anvendelse og indbyrdes prioritering af de samlede radiofrekvensressourcer (frekvensplan)

Banedanmark noterer sig, at den fremsendte bekendtgørelse fra Energistyrelsen om ny frekvensplan baserer sig på den netop offentliggjorte vedtagelse af KOMMISSIONENS GENNEMFØRELSESAFGØRELSE (EU) 2020/1426 om ITS, og at der dermed lægges op til implementering af ITS Rail-båndet og "6 GHz WiFi"-båndet i frekvensplanen. Banedanmark bemærker også, at Siemens' hidtidige allokering i båndet 5925-5975 MHz til CBTC-systemet, der ellers var gældende til 2025, ikke fremgår af frekvensplanen.

På den baggrund skal Banedanmark understrege, at det er afgørende for den fortsatte drift af S-tog på strækninger ibrugtaget med CBTC, at der tillades en overgangsperiode, som gør det muligt for Banedanmark og Siemens at ændre designet af RCS-systemet til ITS-Rail-specifikationen og udrulle det ændrede system, inden "6 GHz WiFi" tages i brug. En fleksibel overgangsordning er ligeledes nødvendig for at understøtte den igangværende udrulning af CBTC på de resterende strækninger på S-banen, således at dette projekt ikke forsinkes. Det er Banedanmarks anbefaling, at der straks iværksættes dialog mellem Energistyrelsen, Banedanmark og Siemens med henblik på at drøfte en løsning, der kan sikre drift og udrulning af CBTC-systemet i den fremtidige implementering af fælleseuropæiske løsninger på frekvensområdet.

Bekendtgørelse om tilladelser til at anvende radiofrekvenser

For Bilag 1, stk. 1) henvises til høringssvar på "Bekendtgørelse om fastlæggelse af rammerne for anvendelse og indbyrdes prioritering af de samlede radiofrekvensressourcer (frekvensplan) " i forhold til den gældende allokering af båndet 5925-5975 MHz til CBTC-systemet og behovet for en længere overgangsperiode.

Vh. Ida

Ida Fænøe Schløer

Direktionskonsulent
M: +45 24659517

Banedanmark

Direktionssekretariatet
Carsten Niebuhrs Gade 43
1577 København V
banedanmark.dk
[LinkedIn](#)

Fra: Gitte Lüders Hansen <GLH@ens.dk>

Sendt: 9. oktober 2020 16:25

Til: Gitte Lüders Hansen <GLH@ens.dk>

Emne: Energistyrelsen - Høring over 4 bekendtgørelser på frekvensområdet

Energistyrelsen sender hermed udkast til bekendtgørelse om den samlede danske nummerplan i høring.
<https://hoeringsportalen.dk/Hearing/Details/64408>

Eventuelle bemærkninger til bekendtgørelserne bedes være Energistyrelsen i hænde senest den:

6. november 2020 på e-mail tele@ens.dk.

Høringssvar vil blive offentliggjort på høringsportalen på www.borger.dk efter høringen.

Med venlig hilsen / Best regards

Gitte Lüders Hansen

Specialkonsulent / Special Advisor

Center for tele / Centre for Telecommunication

Mobil / Cell +45 33 92 75 65

E-mail glh@ens.dk



Energistyrelsen

Danish Energy Agency - www.ens.dk

- part of The Ministry of Climate, Energy and Utilities

Energistyrelsen er ansvarlig for behandlingen af de personoplysninger, vi modtager om dig. Du kan læse mere om, hvordan vi behandler dine personoplysninger på vores hjemmeside <https://ens.dk/om-os/energistyrelsens-behandling-af-personoplysninger>

Bolt&Yurdal Consulting ApS Comments on “Bekendtgørelse om radiogrænseflader”

Bilag 1, 2, 3, 4 and 9

EN 300 220-1 is not a harmonized standard.

Bilag 8

(item 4 - Maksimalt tillad te sendeeffekter)

g1 -50 dBm/100 kHz-e.r.p, -40dBm/10MHz-~~te~~.r.p.

Bilag 13

Radiogrænseflade 00 028: 27 MHz CB-radioanlæg (Citizens' Band)

It is not clear why the reference to EN standards are normative (N) while in all the other parts, the reference to ETSI standards are informative (I).

Bilag 17

”Bånd ae1 917,3-918,9 MHz (Der må alene sendes i 917,3-917,7 MHz og 918,5-918,9 MHz)

Bånd ae1 500 mW e.r.p. Note 9)

Note 9) Tilstrækkelige spektraldelingsteknikker, f.eks. Listen-before-Talk eller Detect-And-Avoid skal være implementeret i udstyret.

”

It is not correct, LBT does not apply in this band (see EC Decision 2018/1538 and ERC/REC/70-02).

Restrictions are given in Note 6) and 13)

Note 6) Der skal benyttes teknikker for tilgang til frekvenser og afhjælpning over for interferens, der giver mindst samme ydelse som de teknikker, der er beskrevet i harmoniserede standarder, som er vedtaget i medfør af direktiv 2014/53/EU.

Note 13) Gælder kun for datanet. Adaptive Power Control (APC) skal anvendes

Proposal delete reference to Note 9)

“

Bånd ae1 500 mW e.r.p.

“

Indeed LBT applies to band 870-876 MHz – 500 mW under certain conditions but this is not the case.

EN 303 204-2 in the latest version (2016) there is only one part. Replace by EN 303 204.

Bilag 19

~~ITU~~ Recommendation ITU-R M.-1174

Bilag 26

Item 3, band c: 7300-23000 kHz (centerfrekvens ~~13547~~15150 kHz)

Bilag 28

Not clear why the approaches are different for band b4 and c.

Item 3

b4 865-868 MHz (Centerfrekvenserne 865,7 MHz, 866,3 MHz, 866,9 MHz og 867,5 MHz)

c 916,1-918,9 MHz (Centerfrekvenserne 916,3 MHz, 917,5 MHz og 918,7 MHz)

Item 4

c 4W e.r.p.

Item 5

b4 Se nr. 7 nedenstående Båndredder

c Se nr. 7 nedenstående Båndredder

Item 7: the order is not consistent with the previous items.

Current test:

“

Bånd c: ≤ 400 kHz

Bånd b4: Interrogatortransmissioner med 2 W e.r.p. er kun til-ladt inden for de fire kanaler, der er centreret om 865,7 MHz, 866,3 MHz, 866,9 MHz og 867,5 MHz; hver især med en mak-simal båndbredde på 200 kHz

”

Proposal:

”

Bånd

Bånd b4: Interrogatortransmissioner med 2 W e.r.p. er kun til-ladt inden for de fire kanaler, der er centreret om 865,7 MHz, 866,3 MHz, 866,9 MHz og 867,5 MHz; hver især med en mak-simal båndbredde på 200 kHz

Bånd c: Interrogatortransmissioner med 4 W e.r.p. er kun til-ladt inden for de fire kanaler, der er centreret om 916,3 MHz, 917,5 MHz og 918,7 MHz; hver især med en mak-simal båndbredde på 400 kHz

“

Item 11

EN 300 440-2 in the latest version (2018) there is only one part. Replace by EN 300 440.

Bilag 30

WRC-19 allocated the 26 GHz band to IMT. WG FM has just agreed to revise the ECC/DEC/(04)10 in order to implement the WRC-19 allocation to IMT. The revised version is under public consultation.

Proposal: Bilag 30 should be completely reviewed and revised to implement WRC-19 allocation.

Bilag 31

7 Referencer ECC-~~beslutning~~/DEC/-(06)04

There are four instances with the word “beslutning”. Should be replaced by “/DEC/”

Bilag 32

Item 1 and 7 (referencer): Add EN 301 360

Item 2: Band c (17,30-20,20 GHz (modtager)) is a bit confusing:

The text refers only to part of this band “For anvendelse af frekvensbåndet 17,7-19,7 GHz skal der om nødvendigt anvendes afhjælpningsteknikker for at undgå forstyrrelser af radiokæder, se ERC/DEC/(00)07.”

But, what about the rest of band c, 19,7-20,20 GHz... Does it mean that there is no technical restriction in this part?

The table of allocations refers to:

ECC/DEC/(05)08 om frekvenser til HDFSS (High-Density Fixed Satellite Service)

ECC/DEC/(06)02 om satellit-terminaler i den faste satellit-tjeneste (e.i.r.p. max. 34 dBW)

ECC/DEC/(06)03 om satellit-terminaler i den faste satellit-tjeneste (e.i.r.p. mellem 34-60 dBW)

tele@ens.dk

DR | STAB
Emil Holms kanal 20
DK-0999 København M.
+45 2870 3410
www.dr.dk

Distribution
Jesper Kjeldsen
Chefkonsulent
JEKJ@dr.dk

6. november 2020

Høring over udkast til fire bekendtgørelser på frekvensområdet

DR vil gerne takke for muligheden for at svare på høringen vedr. 4 bekendtgørelser på frekvensområdet.

DR vil gerne påpege vigtigheden af, at der er tilstrækkelige frekvensressourcer til rådighed for trådløse mikrofoner, in ear monitors et cetera – såkaldt PMSE-anvendelse (program making and special events). Overgangen af 700 MHz båndet til mobilt bredbånd har ført til en betragtelig reduktion i de tilgængelige frekvenser, og DR ser derfor gerne, at trådløse mikrofoner fortsat tillades i båndet 733-736 MHz efter 31. december 2021.

Dette bånd kan benyttes over en stor del af verden, og en meget stor del af de mikrofonssystemer, der i dag er i brug, kan anvende frekvenserne. Ved afholdelse af større arrangementer, såsom EM i fodbold eller Tour de France, er belastningen på de eksisterende PMSE-frekvensbånd særdeles høj. Enhver indsnævring af frekvensområdet vil således føre til tættere pakning af frekvensanvendelsen med deraf følgende forhøjet risiko for forstyrrelser og udfald under live-transmissioner.

Med venlig hilsen
Jesper Ringgaard Kjeldsen
Chefkonsulent, Teamleder i Distribution

Notat



Energistyrelsen

DSB's bemærkninger: Høring over 4 bekendtgørelser på frekvensområdet

DSB skal først og fremmest takke for hørings muligheden.

DSB har følgende bemærkninger til de 4 bekendtgørelser på frekvensområdet.

Det er med nogen uro DSB læser disse forslag. DSB er slutbruger af systemet, der bruges på vores S-tog. Den primære part er Banedanmark.

DSB tænker på sine S-togs passagerer og muligheden for forstyrrelse af togdriften, hvis de foreslåede ændringer indføres både mht. tid for at indbygge ny teknologi på et ret nyt togkontrol anlæg og ift. at flytte og indsnævre frekvensbåndet. Dette vil ligeledes påvirke frekvensvinget, som meget nemt kan gøre S-togenes togkontrol anlæg ustabil og alt andet lige mere støjfølsomt.

Hvis togkontrolanlægget (CBTC) forstyrres vil togene bremse/reduce hastigheden utilsigtet og dermed forårsage forsinkelser, som er udenfor DSB og Banedanmarks kontrol.

Derfor foreslår DSB, at Energistyrelsen tager den direkte tekniske debat med Banedanmark, der har systemansvaret for togkontrolanlægget i DSB's S-tog og finder en løsning på RCS delsystem problematikken også til DSB's tilfredshed. Det nuværende RCS system driftstilladelse udløber i 2025.

Koncern-sekretariatet

4. november 2020

DSB
Telegade 2
2630 Taastrup

CVR 25 05 00 53

Direkte 24689692 isle@dsb.dk
www.dsb.dk



**EXPERIMENTERENDE
DANSKE
RADIOAMATØRER**
AFDELING AF
INTERNATIONAL AMATEUR RADIO UNION

Landsforeningen EDR
Klokkestøbervej 11
DK-5230 Odense M
Tlf.: +45 66 15 65 11
Fax: +45 66 15 65 98
mail: kontor@edr.dk

Odense, den 5. november 2020

Til
Energistyrelsen
Carsten Niebuhrs Gade 43
1577 København V
(tele@ens.dk)

Kopi til
Gitte Lüders Hansen (glh@ens.dk)
Søren Esper Wahlgren (sesw@ens.dk)

Høringssvar fra Experimenterende Danske Radioamatører (EDR)

Ref. J nr. 2020-10942

EDR takker for muligheden for at afgive høringssvar i forbindelse med Energistyrelsens høring af 9. oktober 2020 over udkast til fire bekendtgørelser på frekvensområdet, herunder bl.a. ny Frekvensplan.

EDR har gennemgået udkastene og kan konstatere, at udkastene set i relation til amatørradioområdet ikke giver anledning til bemærkninger.

Med venlig hilsen

Peter Marlau Knudsen
EDR's Teleudvalg

Energistyrelsen
Carsten Niebuhrs Gade 43
1577 København V

Kamstrup A/S
Industrivej 28
DK-8660 Skanderborg
T: +45 89 93 10 00
F: +45 89 93 10 01
E: info@kamstrup.com
CVR-nr. 21248118
Ref.: TOMA

3. november 2020

Vedrørende udkast til bekendtgørelse om radiogrænseflader (høringsbrev J nr. 2020-10942)

Kamstrup A/S følger nøje arbejdet i ETSI og CEPT i forbindelse med udvikling af systemer til måleraflysning via anvendelse af radiosystemer i dedikerede bånd til Short Range Devices (SRD). Vi takker derfor for muligheden for at dele vores synspunkter omkring "*udkast til bekendtgørelse om radiogrænseflader*".

Kamstrup A/S anbefaler ikke, at det foreliggende udkast i sin nuværende form bør træde i kraft den 1. januar 2021.

Med nedenstående ønsker Kamstrup A/S at gøre opmærksom på potentielle uoverensstemmelser mellem bilag 17 (markeret med rødt) og EC Decision 2018/1538 og ERC/REC/70-03 (juni 2020).

Kommentar 1

Forslået tekst i udkast sendt i høring:

Nr.	Parameter	Beskrivelse		Status
3	Tilladte frekvensbånd/frekvenser	Bånd Bånd ae1	Frekvensbånd/frekvenser 917,3-918,9 MHz (Der må alene sendes i 917,3-917,7 MHz og 918,5-918,9 MHz)	N
4	Maksimalt tilladte sendeeffekter	Bånd Bånd ae1	Maksimalt tilladte sendeeffekter 500 mW e.r.p. Note 9)	N
5	Duty cycle og brugsrestriktioner	Bånd Bånd ae1	Duty cycle m.v. Note 6), Note 14). Maksimal båndbredde på 200 kHz	Brugsrestriktioner Note 13), Note 15)

Ifølge EC Decision 2018/1538 og ERC/REC/70-03 er LBT teknikker ikke påkrævet i båndet. Kamstrup A/S foreslår at fjerne Note 9) fra række Nr. 4 i tabellen:

4	Maksimalt tilladte sendeeffekter	Bånd Bånd ae1	Maksimalt tilladte sendeeffekter 500 mW e.r.p.	N
---	----------------------------------	-------------------------	--	---

Kommentar 2

Forslået tekst i udkast sendt i høring:

Nr.	Parameter	Beskrivelse	Status
7	Harmoniserede standarder	EN 300 220-2 EN 300 330-2 EN 300 440-2 EN 300 718-2 EN 300 718-3 EN 303 203-2 EN 303 204-2 EN 305 550-2	I

EN 303 204-2 signalerer del to af standarden. Seneste version af EN 303 204 består kun af én del. Kamstrup A/S foreslår at opdatere række Nr. 7 i tabellen:

Nr.	Parameter	Beskrivelse	Status
7	Harmoniserede standarder	EN 300 220-2 EN 300 330-2 EN 300 440-2 EN 300 718-2 EN 300 718-3 EN 303 203-2 EN 303 204 EN 305 550-2	I

Kommentar 3

Forslået tekst i udkast sendt i høring:

Nr.	Parameter	Beskrivelse			Status
3	Tilladte frekvensbånd/frekvenser	Bånd Bånd z	Frekvensbånd/frekvenser 870,000-875,600 MHz		N
4	Maksimalt tilladte sendeeffekter	Bånd Bånd z	Maksimalt tilladte sendeeffekter 500 mW e.r.p.		N
5	Duty cycle og brugsrestriktioner	Bånd Bånd z	Duty cycle m.v. ≤ 2,5 %, Note 8)	Brugsrestriktioner Adaptive Power Control (APC) skal anvendes Note 8) En duty cycle x på 2,5 % < x < 10 % vil kunne anvendes i forbindelse med Network Relay Points (NRP'er) , hvis der opnås tilladelse hertil fra Energistyrelsen.	N

I EU er den Seneste version af EN 303 204 (forventes publiceret i 2020) den regulerende norm for *bånd z*. EN 303 204 beskriver følgende i introduktionsafsnittet:

The present document aligns its use of terms with those of the EC Decision 2018/1538 and replaces NRP with NAP.

Kamstrup A/S foreslår at opdatere note 8) i række Nr. 5 i tabellen:

5	Duty cycle og brugsrestriktioner	Bånd Bånd z	Duty cycle m.v. ≤ 2,5 %, Note 8)	Brugsrestriktioner Adaptive Power Control (APC) skal anvendes Note 8) En duty cycle x på 2,5 % < x < 10 % vil kunne anvendes i forbindelse med netadgangspunkter/Network Access Points (NAP'er) , hvis der opnås tilladelse hertil fra Energistyrelsen.	N
---	----------------------------------	-----------------------	--	---	---

Ved indarbejdelse af forslag til ændringer som beskrevet ovenfor, vil Kamstrup A/S anbefale at dokumentet kan træde i kraft januar 2021.

Med venlig hilsen
Kamstrup A/S

Torben Markussen
Wireless Solution Architect
Technology

T: +45 89 93 14 80
E: toma@kamstrup.com





LoRa Alliance[®] comments on the draft spectrum regulation “Bekendtgørelse om radiogrænseflader” in Denmark

LoRa Alliance is very pleased to have the opportunity to share with ENS information on spectrum for IoT and to provide comments regarding the project of the spectrum regulation in Denmark.

LoRaWAN deployment uses band 868 MHz now and 915MHz later and LoRa Alliance meticulously contributes to ETSI and CEPT activities and in particular to the ERC/REC/70-03. Without assuming that the recommendation automatically necessarily applies to all countries, it “sets out the CEPT position on common spectrum which can be designated for Short Range Devices (SRD) applications” and that “is a reference document to assist in preparing national spectrum regulations”.

In this European recommendation, for this band, there is a requirement for a duty cycle limit but no requirement for LBT that is present in the Annexe 17 Note 9 from the Order on radio interface “Bekendtgørelse om radiogrænseflade”.

Bilag 17: “Bånd ae1 917,3-918,9 MHz (Der må alene sendes i 917,3-917,7 MHz og 918,5-918,9 MHz) Bånd ae1 500 mW e.r.p. Note 9) Note 9) Tilstrækkelige spektraldelingsteknikker, f.eks. Listen-before-Talk eller Detect-And-Avoid skal være implementeret i udstyret.”

Listen-Before-Talk and Detect-And-Avoid which shouldn't apply according to the European regulation in this band (see EC Decision 2018/1538 and ERC/REC/70-03), should be removed from the draft new regulation too.

LoRa Alliance would kindly invite the ENS to delete the Note 9) in item 4 in Annexe 17 (Bilag 17)

Restrictions are given in Note 6) and 13)

Note 6) Der skal benyttes teknikker for tilgang til frekvenser og afhjælpning over for interferens, der giver mindst samme ydelse som de teknikker, der er beskrevet i harmoniserede standarder, som er vedtaget i medfør af direktiv 2014/53/EU.

Note 13) Gælder kun for datanet. Adaptive Power Control (APC) skal anvendes

“Bånd ae1 500 mW e.r.p.”

In the Bilag 17 item 7, EN 303 204-2 refers to the Part 2 in the standard. In the latest version published in 2020, there is only one part therefore, **it is proposed to replace EN 303 204-2 by EN 303 204.**



Copyright © 2019 LoRa Alliance, Inc. All rights reserved.

NOTICE OF USE AND DISCLOSURE

Copyright © LoRa Alliance, Inc. (2019). All Rights Reserved. The information within this document is the property of the LoRa Alliance (“The Alliance”) and its use and disclosure are subject to LoRa Alliance Corporate Bylaws, Intellectual Property Rights (IPR) Policy and Membership Agreements.

Elements of LoRa Alliance specifications may be subject to third party intellectual property rights, including without limitation, patent, copyright or trademark rights (such a third party may or may not be a member of LoRa Alliance). The Alliance is not responsible and shall not be held responsible in any manner for identifying or failing to identify any or all such third party intellectual property rights.

This document and the information contained herein are provided on an “AS IS” basis and THE ALLIANCE DISCLAIMS ALL WARRANTIES EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO (A) ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OF THIRD PARTIES (INCLUDING WITHOUT LIMITATION ANY INTELLECTUAL PROPERTY RIGHTS INCLUDING PATENT, COPYRIGHT OR TRADEMARK RIGHTS) OR (B) ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE OR NONINFRINGEMENT. IN NO EVENT WILL THE ALLIANCE BE LIABLE FOR ANY LOSS OF PROFITS, LOSS OF BUSINESS, LOSS OF USE OF DATA, INTERRUPTION OF BUSINESS, OR FOR ANY OTHER DIRECT, INDIRECT, SPECIAL OR EXEMPLARY, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES OF ANY KIND, IN CONTRACT OR IN TORT, IN CONNECTION WITH THIS DOCUMENT OR THE INFORMATION CONTAINED HEREIN, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH LOSS OR DAMAGE.

The above notice and this paragraph must be included on all copies of this document that are made.

LoRa Alliance®

5177 Brandin Court

Fremont, CA 94538

United States 36

Note: LoRa Alliance® and LoRaWAN® are trademarks of the LoRa Alliance, used by permission. All Company, brand and product names may be trademarks that are the sole property of their respective owners.

Energistyrelsen
Center for Tele
Att: Gitte Lüders Hansen

Mail: tele@ens.dk
glh@ens.dk

06.11.2020

Høring over ændringer i fire bekendtgørelser på frekvensområdet

Generelle bemærkninger

TI noterer sig Energistyrelsens høring over forslag til ændringer i fire bekendtgørelser på frekvensområdet. Ændringerne består i en række forslag til tekniske tilpasninger bl.a. som følge af tre kommissionsgennemførelsesafgørelser, en række ECC-beslutninger og en ECC-anbefaling samt ændringer af bestemmelserne om tilladelsers varighed m.v. i forbindelse med implementering af teledirektivet, der har implementeringsfrist den 21. december 2020.

De forslåede ændringer er indarbejdet i følgende bekendtgørelser, og nedenfor følger TIs specifikke bemærkninger til hver af dem:

1. Bekendtgørelse om fastlæggelse af rammerne for anvendelse og indbyrdes prioritering af de samlede radiofrekvensressourcer (frekvensplan)
2. Bekendtgørelse om anvendelse af radiofrekvenser uden tilladelse samt om amatørradioprøver og kaldesignaler m.v.
3. Bekendtgørelse om tilladelser til at anvende radiofrekvenser
4. Bekendtgørelse om radiogrænseflader

TI fremsender hermed sine specifikke bemærkninger:

Specifikke bemærkninger

Ad. 1 Bekendtgørelse om fastlæggelse af rammerne for anvendelse og indbyrdes prioritering af de samlede radiofrekvensressourcer (frekvensplan)

TI har gennemgået ændringerne i frekvensplanen og anser de forslåede ændringer i frekvensplanen for generelt at afspejle de beslutninger, som allerede er truffet i regi af CEPT, ECC og WRC-19 (men sanktioneret gennem EU). TI har alene bemærkninger til implementeringen af ECC/DEC/(16)02, der fastlægger tekniske vilkår for anven-

delse af frekvenser til bredbåndstjenester til nød- og beredskabsformål (PPDR) i 700 MHz-frekvensbåndet. TI antager således, at Energistyrelsen med denne ændring har sikret, at der ikke kan ske forstyrrelser fra PPDR-anvendelsen mod den omliggende anvendelse af 700 MHz-frekvenserne til mobilt bredbånd.

Ad. 2 Bekendtgørelse om anvendelse af radiofrekvenser uden tilladelse samt om amatørradioprøver og kaldesignaler m.v.

Det fremgår af den foreslåede ændring af § 1, stk. 1, i bekendtgørelsen, at denne ikke længere vil omfatte radioanlæg, der alene er indrettet til modtagning, hvilket formentlig i praksis udelukkende har betydning for beskyttelse af modtagning af satellitsignaler. TI har ingen bemærkninger til dette ændringsforslag eller til de øvrige ændringsforslag til bekendtgørelsen.

Ad. 3 Bekendtgørelse om tilladelser til at anvende radiofrekvenser

TI støtter i forbindelse med den foreslåede § 1, stk. 3, der implementerer den kommende frekvenslovs § 7 a om anvendelse af frekvenser på andre end de EU-harmoniserede vilkår, hvis ikke efterspørgslen er til stede, at Energistyrelsen forpligtes til regelmæssigt at vurdere, om der kan udstedes tilladelser til andre end de harmoniserede formål. Som nævnt i TI's bemærkninger til det fremsatte lovforslag, anbefaler TI af hensyn til den hastige teknologiske udvikling fortsat, at Energistyrelsens vurdering foretages hvert tredje år i stedet for hvert femte år.

TI ser positivt på de foreslåede justeringer i § 1, stk. 5-7, der udmønter den udvidede bemyndigelse i den kommende frekvenslovs § 19 om at fastsætte regler for frekvenser, som er harmoniseret til trådløse bredbåndstjenester, herunder øget varigheden af frekvenstilladelser til mindst 20 år. Dermed sikres den reguleringsmæssige forudsigelighed i forhold til at foretage investeringer i digital infrastruktur, som er formålet med teledirektivet.

TI havde gerne set en længere varighed end 20 år og vil derfor opfordre til, at Energistyrelsen i forbindelse med den konkrete administration udnytter muligheden for at fastsætte længere varigheder, hvor det vurderes muligt. TI støtter, at minimumsvarigheden gælder for alle tilladelser uanset tildelingsmåde, så længe frekvenserne er harmoniseret til trådløse bredbåndstjenester.

TI støtter den foreslåede § 4, stk. 3, om særlige vilkår for fornyelse af visse eksisterende tilladelser, således at myndighederne kan foretage justeringer af tilladelsers varighed, så det kan sikres, at tilladelser i flere bånd udløber simultant, og frekvensbåndene kan tildeles samlet. TI støtter ligeledes, at tilladelsesvarigheden i medfør af § 4, stk. 5, kan forlænges i en kortere periode, så tilladelsens varighed udløber samtidig med andre tilladelser i samme eller andre frekvensbånd, der så kan tildeles samlet. Det vil fremme en effektiv frekvensadministration. Det kan tillige overvejes at specificere, at varigheden også skal kunne forlænges, såfremt en frekvensauktion eksempelvis først kan afholdes efter udløbet af de relevante tilladelser.

TI finder, at den foreslåede ændring i bekendtgørelsens § 5, stk. 1, dog er ganske kortfattet og behøver en uddybning. Det forekommer TI, at bemærkningerne hertil i høringsbrevet kan læses som om, at der i dette ligger muligheden for et nyt regime, eventuelt inspireret af en idé om delte frekvenser og private net. Allerede i dag gælder reglerne for overdragelse af frekvenstilladelser og vil således i fremtiden gælde for udleje.

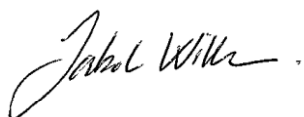
I forhold til den foreslåede ændring af § 5 går TI ud fra, at den offentliggørelse, der fremgår af den foreslåede 5, stk. 2, alene drejer sig om annoncering af en potentiel udleje og en evt. tidslængde af en sådan udleje og ikke offentliggørelse af vilkår, priser m.m. Disse må bero på forhandlinger mellem lejer og udlejer, med mindre der er tale om potentielt konkurrencebegrænsende adfærd, og vil ikke være egnet til offentliggørelse.

TI skal i øvrigt bemærke, at TI finder den i bilag 1, pkt. 3, om frekvensbåndet 3400-3800 MHz, gældende dato for bortfald af eksisterende tilladelser i båndet (den 1. juli 2021), utilstrækkelig. Dette skal ses i lyset af, at den kommende frekvensauktion på nuværende tidspunkt er blevet udskudt et halvt år, siden denne dato blev indføjet i bekendtgørelsen i sommeren 2020. TI anbefaler, at denne dato som minimum skubbes til den 1. oktober 2021 således, at bekendtgørelsen ikke skal ændres igen, hvis auktionen skulle blive forsinket yderligere.

Ad. 4 Bekendtgørelse om radiogrænseflader

TI har ingen bemærkninger til de foreslåede ændringer til bekendtgørelsen.

Med venlig hilsen



Jakob Willer
Direktør



5 November, 2020

Energistyrelsen
Danish Energy Agency
Carsten Niebuhrs Gade 43, 1577 København, Denmark

Submitted to: ele@ens.dk

Re: Viasat response to Denmark's consultation on the draft of four radio frequency Executive Orders

Viasat is pleased to submit comments on portions of the following draft radio frequency spectrum Executive Orders:

- Executive Order No. 1150 of 21/11/2019 establishing the framework for the use and mutual prioritization of the total radio frequency resources
- Executive Order No. 1155 of 21/11/2019 on the use of radio frequencies without permission as well as on amateur radio tests and call signals
- Executive Order No. 667 of 25/05/2020 on permits to use radio frequencies Executive Order No. 1151 of 21/11/2019 on radio interfaces

Viasat's comments focus on three items within the above Executive Orders:

1. Denmark's implementation of Decision (EU) 2020/590 regarding the 24.25-27.5 GHz (26 GHz) frequency band. Viasat supports Denmark's proposal to identify the 26 GHz frequency band for IMT/5G and to maintain the 27.5-29.5 GHz (28 GHz) frequency band for satellite;
2. Denmark's implementation of ECC / DEC / (05) 01 regarding uncoordinated ground stations in the Fixed Satellite Service and decisions of WRC-15 and WRC-19 regarding Earth Stations on Mobile Platforms/Earth Stations in Motion (ESOMP/ESIM, herein after "ESIM"). Viasat urges Denmark to continue to authorize ESIM according to ECC/DEC/(13)01; and
3. Denmark's proposed amendments to the Executive Order on permits to use radio frequencies. Viasat proposes clarifying language to ensure that satellite services have clear access to frequencies including the 28 GHz band.

Viasat is a global leading provider of communications solutions across a wide variety of technologies, both satellite and terrestrial. As the world's only vertically integrated end-to-end satellite operator, Viasat designs and builds every component of



our networks—user terminals, satellite payloads and ground stations—to meet the market demand for reliable, effective and affordable, high-speed broadband connectivity.

Viasat's use of the Ka band, specifically the paired frequency bands 27.5-30 GHz (Earth-to-space)/17.7-20.2 GHz (space-to-Earth), is robust as Viasat uses this spectrum to make high-speed broadband services available to millions of households and businesses in North America, Central America, Latin America,¹ Australia,² and across Europe³.

Viasat has pioneered mobile broadband services using innovative antenna designs for ESIM service to aircraft, ships and other land-based users. For example, passengers and crew on aircraft, using the 28 GHz band, demand gate-to-gate, high-speed broadband for communications and entertainment, cabin support, and fleet digitization and maintenance. Global shipping and passenger vessels rely on the 28 GHz band for navigation and broadband communications benefiting passengers and crew and facilitating the transportation of cargo. Trains, buses and other land-based vehicles also rely on satellite broadband services, operating in the 28 GHz band, for passenger connectivity, operations and maintenance support, and fleet tracking.

1. Denmark's implementation of Decision (EU) 2020/590 regarding the 26 GHz frequency band.

Viasat supports the proposal to identify the 26 GHz band for IMT/5G and to align Denmark's spectrum plan with the European Roadmap that preserves 28 GHz band for satellite broadband services.

Viasat has supported the study and the development of reasonable operating parameters for IMT/5G in the 26 GHz band throughout the ITU WRC-19 process and

¹ <https://viasat.com.mx/community-wi-fi/?lang=en>; Viasat Brings Fastest Home Satellite Internet Service to Mexico, <https://www.viasat.com/news/viasat-brings-fastest-home-satellite-internet-service-mexico>; Viasat Completes Brazilian Residential Internet Service Roll-Out--Now Covers 100% of the Country; Offers New Premium Satellite Internet Service Plan with Highest Speed and Data. <https://www.prnewswire.com/news-releases/viasat-completes-brazilian-residential-internet-service-roll-outnow-covers-100-of-the-country-offers-new-premium-satellite-internet-service-plan-with-highest-speed-and-data-301161443.html>.

² Viasat Wins \$286M Satellite Broadband Deal with Australia, <https://spacenews.com/viasat-wins-286m-satellite-broadband-deal-australia/>.

³ Viasat's Expansion in Europe Helps Bridge the Gap to Faster Broadband (video) <https://corpblog.viasat.com/viasats-expansion-in-europe-helps-bridge-the-gap-to-faster-broadband/>; Viasat Affirms Commitments to Bring its Powerful ViaSat-3 Satellite to Europe, <https://www.viasat.com/news/viasat-affirms-commitments-bring-its-powerful-viasat-3-satellite-europe>.



supports Denmark's decision to designate the 26 GHz band for IMT/5G. To this end, Viasat urges Denmark to conform domestic implementation of IMT/5G to the operating parameters decided in Resolution 242 (WRC-19). Among several items, Viasat emphasizes the importance of the portion of Resolution 242 (WRC-19) that requires that IMT/5G base stations within the 26 GHz frequency band with high power operations (e.i.r.p. per beam exceeding 30 dB(W/200 MHz)) not to be permitted to point their antenna beams upward at the geostationary satellite orbit, and to maintain a minimum separation angle of ≥ 7.5 degrees.

As stated, Viasat, as with many satellite operators, uses the 28 GHz frequency band for satellite broadband services throughout Europe and the rest of the world. As such, Viasat is concerned about potential out-of-band emissions from the 26 GHz band by IMT/5G systems into the 28 GHz band. Increases in power by IMT/5G systems in the 26 GHz band could increase out-of-band emissions in the 28 GHz band. The potential impact of increased out-of-band emissions in the 26 GHz band could adversely affect the interference environment in the 28 GHz band by impacting the ability of satellite receivers in space from receiving signals from earth stations. Therefore, the consultation should address out-of-band limitations on IMT/5G operations to protect satellite service in the 28 GHz band.

In addition to the out-of-band emissions that may be caused by IMT/5G deployment on the ground, Viasat is also concerned about deployment of unmanned aircraft in the 26 GHz band because the IMT/5G base station antennas pointed upwards to communicate with the unmanned aircraft could transmit signals towards satellite receivers in space and potentially increase out-of-band emissions in the adjacent 28 GHz band.

WRC-19 designated over 17 gigahertz of spectrum for IMT/5G in the mmWave bands, including the 26 GHz band.⁴ Viasat urges Denmark to take the vast amount of spectrum available for IMT/5G in the mmWave bands identified by WRC-19 and the additional low-band and mid-band spectrum being made available in countries around the world for IMT/5G into account as part of its overall review of spectrum for IMT/5G services.

2. Denmark's implementation of ECC / DEC / (05) 01 regarding uncoordinated Earth stations of the Fixed Satellite Service (FSS) and the decisions of WRC-15 and WRC-19 regarding Earth Stations in Motion (ESIM).

⁴ ITU Press Release, *WRC-19 identifies additional frequency bands for 5G*, (22 Nov. 2020) (those bands include the following: 24.25-27.5 GHz, 37-43.5 GHz, 45.5-47 GHz, 47.2-48.2 and 66-71 GHz), <https://news.itu.int/wrc-19-agrees-to-identify-new-frequency-bands-for-5g/>.

As clear recognition of satellite's use of the mmWave band at the European level, the CEPT Roadmap for IMT/5G (Doc. ECC(20)055 Annex 15) harmonized the 28 GHz band for satellite broadband service and 28 GHz is not available for IMT/5G. Regarding ESIM, CEPT previously established the use of ESIM in the 28 GHz band. The IMT/5G Roadmap updated March 2020, states that "...Europe has harmonised the 27.5-29.5 GHz band for broadband satellite and is supportive of the worldwide use of this band for ESIM. This band is therefore not available for 5G."⁵ Therefore, Viasat urges Denmark to implement the CEPT Roadmap for IMT/5G and secure the 28 GHz band for satellite broadband service and not make it available for IMT/5G.

Viasat notes the consultation's reference to ITU-R studies for GSO ESIM which were considered by WRC-15 and WRC-19 and incorporated in Radio Regulations as footnotes 5.527A (WRC-15) for 19.7-20.2 and 29.5-30 GHz and 5.517A (WRC-19) for 17.7-19.7 and 27.5-29.5 GHz. Footnote 5.527A (WRC-15) states that ESIM are permitted to use 19.7-20.2 GHz (space-to-Earth) downlink and 29.5-30.0 GHz (Earth-to-space) uplink, as outlined in Resolution 156 (WRC-15)⁶. Footnote 5.517A (WRC-19) states that ESIM are permitted to use 17.7-19.7 GHz (space-to-Earth) downlink and 27.5-29.5 GHz (Earth-to-space) uplink, consistent with Resolution 169 (WRC-19)⁷.

GSO ESIM are one of the main drivers for spectrum for very-high-throughput satellite networks. As mentioned above, GSO ESIM services are being provided worldwide on aircraft for gate-to-gate connectivity, on ships and ferries for pier-to-pier connectivity, and on trains, buses and emergency response vehicles for land mobile connectivity. The demand for these applications requires access to the entire 28 GHz band. Footnote 5.517A added by WRC-19 to affirm GSO ESIM as part of the FSS allocation in the 28 GHz band, and its associated Resolution 169, confirm that any nation has a sovereign right to permit widespread GSO ESIM operations in the 28 GHz band within its borders. The *further resolves* provides that an administration may authorize GSO ESIM within its own territory and without reference to the power density levels contained in Annex 3 of Resolution 169 where doing so does not affect other Administrations. As such,

⁵ https://www.cept.org/Documents/ecc/57839/ecc-20-055-annex-15_cept_5g_roadmap

⁶ Resolution 156 (WRC-15) "Use of the frequency bands 19.7-20.2GHz and 29.5-30.0 GHz by earth stations in motion communicating with geostationary space stations in the fixed-satellite service"

⁷ WRC-19 adopted footnote 5.517A establishing Earth Stations in Motion (ESIM), known in CEPT as ESOMP, as part of the Fixed Satellite Service in the 27.5-29.5 GHz band. Footnote 5.517A cross references Resolution 169 (WRC-19) "Use of the frequency bands 17.7-19.7 GHz and 27.5-29.5GHz by earth stations in motion communicating with geostationary space stations in the fixed-satellite service" for rare cross border situations.



Denmark should feel comfortable authorizing GSO ESIM consistent with CEPT guidelines, as discussed below.

As part of implementation of Footnotes 5.527A (WRC-15) and 5.517A (WRC-19) for GSO ESIM in the National Frequency Plan⁸, Viasat urges Denmark to follow the previously established European technical and regulatory framework of ECC/DEC/(13)01 as it is currently reflected in Executive Order No. 1151 of 21/11/2019 and Executive Order No. 1155 of 21/11/2019. It is important to note that CEPT has started the work in the relevant working groups and project teams to reflect the results of WRC-19 in ECC/DEC/(13)01⁹, as appropriate for the CEPT region.

Viasat also supports Denmark's implementation of ECC / DEC / (05) 01 for the use of uncoordinated ground stations in the FSS permitting use of GSO ESIM without individual earth station authorizations¹⁰. To enhance this implementation of the ECC regime, Viasat urges Denmark to add a reference to ETSI EN 301 360¹¹ that outlines the harmonized standard for satellite user terminals operating in the 27.5-29.5 GHz frequency bands. Viasat highlights this proposal in Annex 1 of this document.

Viasat also urges Denmark to add the 17.7-20.2 GHz (space-to-Earth) receive band that pairs with the 28 GHz (Earth-to-space) transmit band for uncoordinated FSS earth stations. This receive band includes the 17.7-19.7 GHz (space-to-Earth) sub-band according to ERC / DEC / (00) 07. Further, Viasat proposes extending the use of the receive band to include 17.3-17.7 GHz (space-to-Earth) (outlined in red in the following Figure 1) to have a complementary transmit/receive pair. Adding this pairing is consistent with Denmark's National Frequency Plan (also highlighted in Figure 1).

⁸ See Executive Order No. 1150 of 21/11/2019 establishing the framework for the use and mutual prioritization of radio frequency resources (frequency plan).

⁹ See ECC/DEC/(13)01 ECC Decision of 8 March 2013 on the use, free circulation, and exemption from individual licensing of Earth stations on mobile platforms (ESOMPs) in the frequency bands available for use by uncoordinated FSS Earth stations within the ranges 17.3-20.2 GHz and 27.5-30.0 GHz, amended 26 October 2018.

¹⁰ See Amendments to Executive Order No. 1155 of 21/11/2019 on the use of radio frequencies without permission as well as on amateur radio tests and call signals, etc. and Executive Order No. 1151 of 21/11/2019 on Radio Interfaces.

¹¹ See ETSI EN 301 360 "Satellite Earth Stations and Systems (SES); Harmonised Standard for Satellite Interactive Terminals (SIT) and Satellite User Terminals (SUT) transmitting towards satellites in geostationary orbit, operating in the 27,5 GHz to 29,5 GHz frequency bands covering the essential requirements of article 3.2 of the Directive 2014/53/EU".

Figure 1

Application References and frequency bands	Ground Stations on Mobile Platforms (ESOMPs/ESIMs)	Earth Stations (fixed)	Terminals in the fixed satellite service, including VSAT and SNG
Executive Order No. 1155 of 21/11/2019	Section 7	Section 8	Section 33
Executive Order No. 1151 of 21/11/2019	Nr. 00 058	Nr. 00 058	Nr. 00 058
Transmitter in Ku band	14.00-14.50 GHz	14.00-14.50 GHz	14.00-14.50 GHz
Receiver in Ku band	10.70-12.75 GHz	10.70-12.75 GHz	10.70-12.75 GHz
Transmitter in Ka band	27.5000-27.8285 GHz 28.44445-28.9485 GHz 29.4525-30.0000 GHz	28.44445-28.9485 GHz 29.4525-29.5 GHz 27.5-27.8285 GHz	27.5000-27.8285 GHz 28.44445-28.9485 GHz 29.4525-30.0000 GHz
Receiver in Ka band	17.30-20.20 GHz	None Therefore, we propose adding 17.30-20.20 GHz	17.30-20.20 GHz

- Denmark’s proposed amendments to the Executive Order No. 667 of 25/05/2020 on permits to use radio frequencies.

Viasat is concerned about the proposed amendment of two sections of the Executive Order No. 667 of 25/05/2020 on permits to use radio frequencies. Viasat’s comments below seek to ensure that Denmark adopts a regulatory framework that provides the necessary certainty for satellite broadband operators to innovate, invest and grow in a number of frequency bands, including 28 GHz.

Viasat urges Denmark to ensure that Section 1, paragraph 3 of the Executive Order issues permits to use radio frequencies for new systems on terms that do not adversely impact or change the compatibility or sharing conditions of existing services operating in or adjacent to frequency bands used by satellite services, including the 28 GHz band. Viasat proposes language to accomplish this goal in Annex 3 of this document.

Viasat notes that Section 1, paragraph 5 of the Executive Order grants wireless broadband services access to spectrum for a duration of 20 years. Viasat urges Denmark to grant satellite broadband the same authorization duration.

In conclusion, Viasat urges Denmark to follow global trends that identify the 26 GHz band (as well as numerous other bands) for IMT/5G and the 28 GHz band for satellite services. Here again, the ITU’s WRC-19 has paved the way with the mmWave designation for IMT/5G across the 26 GHz band.

Viasat summarizes the following points:



1. Denmark should implement IMT/5G in the 26 GHz band and maintain the 28 GHz band for satellite services.
2. Denmark should conform its domestic spectrum plan for the 26 and 28 GHz bands to the CEPT Roadmap for IMT/5G and harmonize and secure the 28 GHz band for satellite broadband service and not make the 28 GHz band available for IMT/5G.
3. Denmark should ensure that the aggregate level of IMT/5G out-of-band emissions from the 26 GHz band into the adjacent 28 GHz band does not cause harmful interference to satellite receivers in the 28 GHz band.
4. Caution should be taken when permitting the 26 GHz band to be used for IMT/5G base stations and user equipment for unmanned aircraft systems as such use could increase out-of-band emissions toward FSS networks operating in the adjacent 28 GHz band.
5. Denmark should ensure that the use of IMT/5G in the 26 GHz band must not constrain the use of the entire 27.5-29.5 GHz band for satellite broadband services, including GSO ESIM.
6. Viasat urges Denmark to consider the proposals outlined above and in Annexes 1-3 below with regard to uncoordinated FSS earth stations (implementation of ECC / DEC/ (05) 01 in Executive Order No. 1151 of 21/11/2019 on radio interfaces and Executive Order No. 1155 of 21/11/2019 on the use of radio frequencies without permission as well as on amateur radio tests and call signals) and the Executive Order No. 667 of 25/05/2020 on permits to use radio frequencies.

Viasat appreciates Denmark's consideration of the information above and commitment to the development of satellite broadband services throughout the 27.5-30 GHz and 17.7-20.2 GHz portions of the Ka band. We remain at your disposal to answer any further questions or provide further details as requested.

ANNEX 1

Proposed edits for the Executive Order No. 1151 of 21/11/2019 on radio interfaces.

Note: Viasat proposals are highlighted in yellow and redlined text below.

“Appendix 32

Radio interface no. 00 058: Terminals in the fixed satellite service, including VSAT and SNG as well as ESIM / ESOMPs and ~~NGSO~~-FSS earth stations. Frequency allocations, transmission effects, permit conditions, etc.

Nr.	Parameter	Description	Status
1	Service according to ITU Radio regulations	Fixed satellite service	N
2	Application	Terminals for fixed satellite services, including VSAT <u>and SNG as well as</u> and ESIM / ESOMPs <u>and FSS ground stations.</u>	N
3	Permitted frequency bands	a) 10.70-12.75 GHz (receiver) b) 14.00-14.50 GHz (transmitter) c) 17.30-20.20 GHz (receiver) d) 27.500 0-27.8285 GHz (transmitter) e) 28.44445-28.9485 GHz (transmitter) f) 29.4525-29.5 GHz (transmitter) g) 29.5-30.0 GHz (transmitter)	N
4	Max. permissible transmission power, <u>usage restrictions and mitigation techniques</u>	In frequency bands b, d, e, f, g for VSAT and SNG: 60 dBW e.i.r.p. In frequency bands b for NGSO FSS earth stations: See ECC / DEC / (17) 04 of 30 June 2017. In frequency band b for ESIM: 54.5 dBW e.i.r.p. In frequency bands d, e, f, g for ESOMPs: See ECC / DEC / (13) 01 of 8 March 2013 as amended on 26 October 2018. <u>In frequency bands d, e, f for fixed earth stations: See ECC / DEC / (05) 01 of 18 March 2005 as amended on 8 March 2019.</u> In frequency bands d, e, g for land-based and maritime ESOMPs using NGSO FSS systems: See ECC / DEC / (15) 04 of 3 July 2015 as amended on 8 March 2019. For the use of the frequency band 17.7-19.7 GHz, mitigation techniques must be used if necessary to avoid interference with radio chains, see ERC / DEC / (00) 07. For use of NGSO FSS earth stations: in frequency bands a - b, see ECC / DEC / (17) 04 of 30 June 2017 as amended on 8 March 2019.	N

5	Permission conditions	<p>Permission is generally required to use the radio frequencies.</p> <p>The possibilities for using the radio frequencies without permission are stated in the executive order on the use of radio frequencies without permission as well as on amateur radio samples and call signals, etc.</p>	IN
6	Harmonized standards	<p>EN 301 428</p> <p>EN 301 430</p> <p>EN 301 459</p> <p>EN 303 978</p> <p>EN 303 979</p> <p>EN 303 980</p> <p>EN 301 360</p>	IN
7	References	<p>ERC / DEC / (99) 26</p> <p>ERC / DEC / (00) 07</p> <p><u>ECC / DEC / (05) 01</u></p> <p>ECC / DEC / (05) 08</p> <p>ECC / DEC / (06) 02</p> <p>ECC / DEC / (06) 03</p> <p>ECC/DEC/(13)01</p> <p>ECC/DEC/(15)04</p> <p>ECC/DEC/(17)04</p> <p>ECC/DEC/(18)04</p> <p>ECC/DEC/(18)05</p>	IN

N =normative
I = informative”

ANNEX 2

Proposed edits on Executive Order No. 1155 of 21/11/2019 on the use of radio frequencies without permission as well as on amateur radio tests and call signals.

Note: Viasat proposals are highlighted in yellow below.

“7.0 Ground stations on mobile platforms (ESOMPs – Earth Stations On Mobile Platforms, ESIM – Earth Stations In Motion).

7.1. Frequency band:

10.70-12.75 GHz (receiver)	27.5000-27.8285 GHz (transmitter)
14.00-14.50 GHz (transmitter)	28.44445-28.9485 GHz (transmitter)
17.30-20.20 GHz (receiver)	29.4525-30.0000 GHz (transmitter)

The frequency bands in question can legally be used for more than one purpose. The use of radio frequencies is not protected in relation to other services that also use these frequency bands.

7.2. Radio interface:

Nr. 00 058, cf. Executive Order on Radio Interfaces.

8. Ground stations (fixed)

8.1. Frequency band:

10.70-12.75 GHz (receiver)	28.44445-28.9485 GHz (transmitter)
14.00-14.50 GHz (transmitter)	29.4525-29.5 GHz (transmitter)
17.30-20.20 GHz (receiver)	27.5-27.8285 GHz (transmitter)

The frequency bands in question can legally be used for more than one purpose. The use of radio frequencies is not protected in relation to other services that also use these frequency bands.

8.2. Radio interface:

Nr. 00 058, cf. Executive Order on Radio Interfaces.

...

33. Terminals in the fixed satellite service, including VSAT and SNG



33.1. Frequency band:

10.70-12.75 GHz (receiver)	27.5000-27.8285 GHz (transmitter)
14.00-14.50 GHz (transmitter)	28.44445-28.9485 GHz (transmitter)
17.30-20.20 GHz (receiver)	29.4525-30.0000 GHz (transmitter)

The frequency bands in question can legally be used for more than one purpose. The use of radio frequencies is not protected in relation to other services that also use these frequency bands.

33.2. Radio interface:

Nr. 00 058, cf. Executive Order on Radio Interfaces.”



ANNEX 3
Proposed edits to Ordinance No. 667 of 25/05/2020 on permits to use radio frequencies.

Note: Viasat proposal is highlighted in yellow.

“PCS. (3) A permit to use radio frequencies on other technical terms than the harmonized technical terms, cf. section 7 a of the Act, is issued with a duration of one year, unless a shorter duration has been applied for, cf. 8 and 9. **Nevertheless, these other technical terms shall not change the compatability or sharing conditions in or adjacent to the relevant frequency bands.**

...

PCS. 5. A permit for the use of radio frequencies harmonized for use for wireless broadband services, **including satellite broadband services**, as issued pursuant to § 7, paragraph. 1, § 10, para. 4, § 11, para. 4, or § 12, para. 4, is issued with a duration of 20 years, cf. 6-9.”