

## Radio Frequencies Harmonization within CEPT and Globally, and related problems

- Cross border frequency co-ordination working together to avoid harmful interference
- 5th CIS & CEE Spectrum Management Conference 2021

September 20

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## For discussion



- 1. Global harmonization for 5G:
- a) 700 MHz,
- b) 3.5 GHz,
- c) 26 GHz.
- 2. Wifi (2,4; 5; 6 GHz), ITS.
- 3. Harmonization for Satellites systems: in 14.00-14.5 GHz; 27.5-30 GHz frequency band (Space X, One Web...)







## Replanning TV channels below 694 RRT



# **Replanning TV channels below 694<sub>RRT</sub> MHz with Russian Federation**







### **ITU regulations – needs to be improved**

The allocation of the frequency band 3 400-3 600 MHz **5.430A** to the mobile, except aeronautical mobile, service is subject to agreement obtained under No. 9.21. This frequency band is identified for International Mobile Telecommunications (IMT)... Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground **does not** exceed  $-154.5 \text{ dB}(W/(m^2 \cdot 4 \text{ kHz}))$  for more than 20% of time at the border of the territory of any other administration.... In case of disagreement, calculation and verification of the **pfd shall be made** by the Bureau,.. (Edition of 2004, WRC-15)

### Invocation of ITU CS art. 48 for terrestrial stations

- Art. 48, 1. Member States retain their entire freedom with regard to military radio installations.
- cases when an administration, which is not agreeing to the request for coordination of terrestrial stations invokes ITU CS Article 48
- creates uncertainties for the right application of examination procedures for Bureau and for evaluation of potential interference
- Does Country A have to protect receivers of military systems of Country B?
- Issue brought to the attention of BR, RRB, CPG and for clarification to ITU PP-2022



PREZENTACIJOS PAVADI



### Coordination of earth stations in the FREQUENCY BAND: 3400 – 3800 MHz According to the ITU RR App 7



para 2

supplementary contours may be prepared by the administration seeking coordination in order to define smaller areas, based on more detailed methods, for consideration when agreed bilaterally between the concerned administrations. These contours can be a useful aid for the rapid exclusion of terrestrial stations or earth stations from further consideration.





t=0.0016% or this corresponds to 8.4 min./year

## **Coordination difficulties under Appendix 7**



- Limited possibilities to obtain coordination contour using GIBC for alternative parameters than indicated in App7
- No possibility to obtain coordination contour for typical earth stations
- How to evaluate aggregate interference from typical earths stations (fixed and moving) ?
- the ways to reduce coordination contour:
  - Agree on lower EIRP
  - Increase horizon elevation angle
  - Use different calculation methodology
  - Agree on higher percentige of time

## **CEPT - Forum for Harmonization**



RRT



RRT Exemption from Individual Licensing of Low e.i.r.p. Satellite **Terminals** (LEST) operating withir the frequency bands 10.70-12.75 GHz or 19.70-20.20 GHz space-to-Earth and 14.00-14.25 GHz or 29.50-30.00 GHz Earth-to<sup>13</sup>Space

### **ECC/DEC/REC** for Wifi

1	Documentation	Status		A	В		
2	Albania	Under study	- 24	Latvia	Yes		
3	Andorra	Yes	25	Liechtenstein	Yes		
4	Austria	Yes	•				
5	Azerbaijan	Yes Partly					
6	Belarus	Yes					
7	Belgium	Yes					
8	Bosnia and Herzeg						
			26	Lithuania	Yes		
~	Dulassia	No.	27	Luxembourg	Yes		
Э	Bulgaria	Yes	- 28	Macedonia (FYROM)	Yes		
			29	Malta	Yes		
.0	Croatia	Yes	- 30	Moldova	No info		
.1	Cyprus	Yes	31	Monaco	No info		
2	Czech Republic	Yes	32	Montenegro	Yes		
3	Denmark	Yes	33	Netherlands	Yes		
			. 34	Norway	Yes		
4	Estonia	Yes	35	Poland	Yes		
				Portugal	Yes		
			37	Romania	Yes		
E	Finland	Yes	38	Russian Federation	Yes Partly		

RRT

**ECC Decision** (04)08 on the harmonised use of the **5 GHz** frequency bands for Wireless Access Systems including Radio Local Area Networks (WAS/RLAN) **ECC REC 70-03** WiFi in 2,4 GHz limited implementation

## ECC/DEC/(20)01 WiFi in 6 GHz



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Doc. ECC(17)012R2



#### 44<sup>th</sup> Meeting

Dublin, 28 February – 3 March 2017

Date issued:22 February 2017Source:Belarus, Estonia, Liechtenstein, Lithuania, Russian Federation,<br/>Slovenia, Switzerland<br/>Proposed studies on Wireless Access Systems including Radio Local<br/>Area networks in 6 GHz band

Group membership required to read? (Y/N)

Ν

#### Summary:

This document considers the potential of 6 GHz band to offer spectrum opportunities to accommodate Wireless Access Systems including Radio Local Area networks (WAS/RLAN). A



## **ECC/DEC (08)01 ITS**

Implementation status *: No info (default value)	N:	: Not	t imple	mente	ed	U: U	Inde	er stu	ıdy	P: Plar	nned	L: 1	Limite	d imple	ementa	ation	Y: Imp	olemer	ited							
Frequency Band	BI	LR	HNG	HOL	HRV	/ I	IF	RL I	SL   F	KOS*	LIE	LTU	LUX	LVA	мсо	MDA	MKD	MLT	MNE	NOR	POL	POR	ROU	RUS	s	SI
a: 26960kHz - 27410kHz	s rst	L	Y	Y	Y	,	Y	Y	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	Y	L	L	Υ	١
c: 446MHz - 446.2MHz	as TSE	Y	Y	Y	Y	,	Y	Y	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L	γ	١
d: 1880MHz - 1900MHz	an a	Y	Y	Y	Y	,	Y	Y	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	١
e1: 5150MHz - 5350MHz	S.E	Y	Y	Y	Y	,	Y	Y	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Υ	Y	Y	Y	ì
e2: 5470MHz - 5725MHz	S.	Y	Y	Y	Y	r	Y	Y	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Υ	Y	Υ	γ	ì
f: 5875MHz - 5935MHz	S.	U	Y	Y	Y	,	Y	Y	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	)
g: 63.72GHz - 65.88GHz	S.	Ν	Y	Y	Y	,	Y	Y	Y	*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Υ	Y	١
h: 77GHz - 81GHz	S.	Y	Y	Y	Y	,	Y	Y	Y	*	Y	Y	γ	Y	Y	Y	Y	Y	Y	Y	Y	Υ	Y	Υ	γ	ì
i: 5945MHz - 6425MHz	S.C.	*	*	*	*	,	*	*	Y	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
4			_												1	1	1		-	1	1		-			▶

# Coordination of earth stations operating in 14,25-14,50 GHz (1)

There are countries which uses terrestrial systems in this band and therefore neighboring countries have to coordinate every VSAT or ESIM terminal Current regulation in CEPT: ECC/DEC/(03)04, ECC/DEC/(17)04, ECC/DEC/(18)04 and ECC/DEC/(18)05 and implementation is very diverse

ECC/DEC/(03)04

ECC/DEC/(17)04, ECC/DEC/(18)04, ECC/DEC/(18)05



## **Coordination of earth stations** operating in 14,25-14,50 GHz (2)

- New NGSO systems and new operation modes like ESIM
- Additional workload for both administrations as coordination could be required for every network or terminal
- No option in BR sat software to calculate coordination contour for typical earths stations in this band
- Solution: agree on specific conditions of use or accept conditions established in ECC decisions

No more needed

PROBABLY AFFECTED COUNTRIES: BLR POL RUS

TRANSMITTING NGSO ES in FIXED-

TERRESTRIAL STATIONS

RUS

SATELLITE SERVICE W.R.T. RECEIVING

RRI

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### 2020 03 25 / PREZENTACIJOS PAVADINIMAS

## ESOMPs operating with GSO

Yes:

Yes partly:



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LTU partly implemented ECC/DEC/(13)01 in the band 29.5-30.0 GHz only

Plan is to allow use of ESOMPs without individual authorization in the bans allocated to FSS according to the decision ECC/DEC/(05)01

### Implementation ECC/DEC/(13)01





### working together we can avoid harmful interference

### Thank you



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