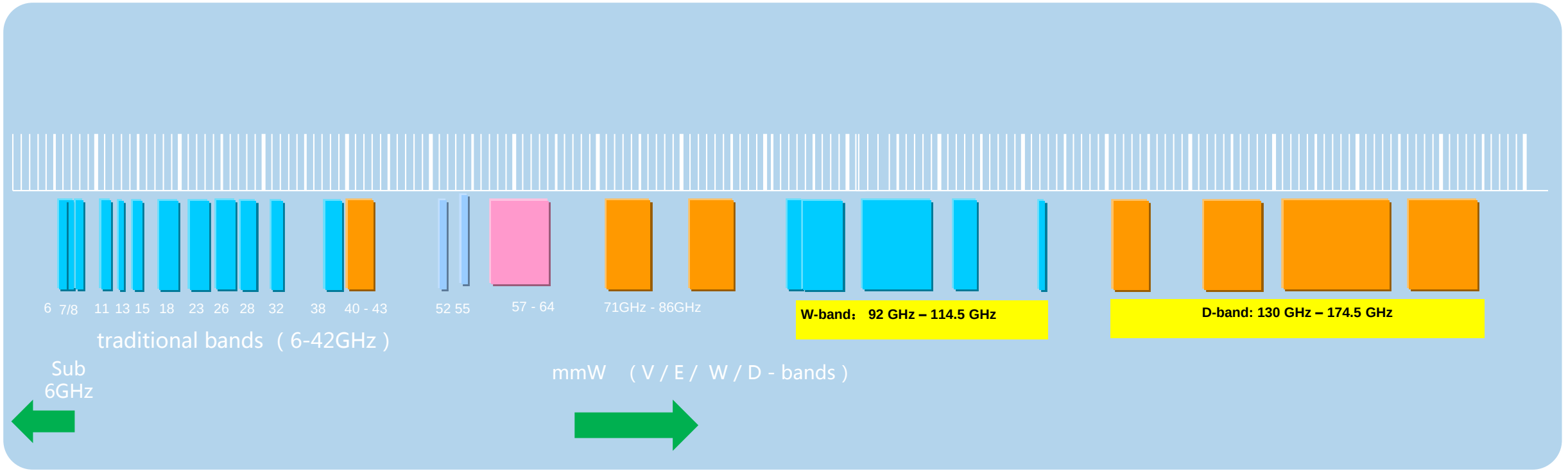
Evolution of Fixed Services for wireless backhaul of IMT 2020 / 5G

Frequency view and channel plans Standardization status

P. Nava

ITU-R WP 5C Chairman

5G MW Spectrum Overview



11-42GHz: 112/224MHz wide channel important to support 5G MW backhaul

E-band: wide channels available - 5G use under WRC

W-D bands : possibility for high capacity backhaul

Refarming Traditional Bands (112/224M) to Support 5G MW

Standards plan PROGRESS May 2019

- Objective
  - define 112MHz in 11G - 15GHz
  - define 224MHz in 18-42GHz

- WI proposal was agreed in CEPT SE19 in April 2018
- principle was agreed in ITU-R WP5C in May 2018

Status of CEPT deliverables = Public Consultation resolved, publication expected in 2019

CEPT (SE19)		ITU-R (WP 5C)
	5.925-6.425 GHz	REC F.383-9 (Proposal.)
REC 12-06 E	**10.7 – 11.7 GHz.**	REC F.387-12 (PDR)
	14.5-15.35 GHz.	REC. F. 636-4 (PDR)
ERC REC 12-03	**17.7 – 19.7 GHz.**	
	21.2 – 23.6 GHz.	REC. 637-4 (WD)
REC TR 13-02	**22 – 29.5 GHz.**	
ERC REC (01)02	**31.8-33.4 GHz.**	REC F.1520 (WD)
REC TR 12-01	**37 – 39.5 GHz.**	
	40.5-43.5 GHz	REC. F.2005 (WD)

PDR= preliminary draft revision
WD= Working document

WI=Work Item

RF bands Higher than 60 GHz to Support 5G backhaul

PROGRESS May 2019

CEPT		ITU-R
ECC (05)07	**E-band – 71-76/81-86 GHz**	REC F.2006
ERC(18)02	**W-band – 92-114.25 GHz**	-
ERC(18)01	**D-band – 130-174.4 GHz**	-

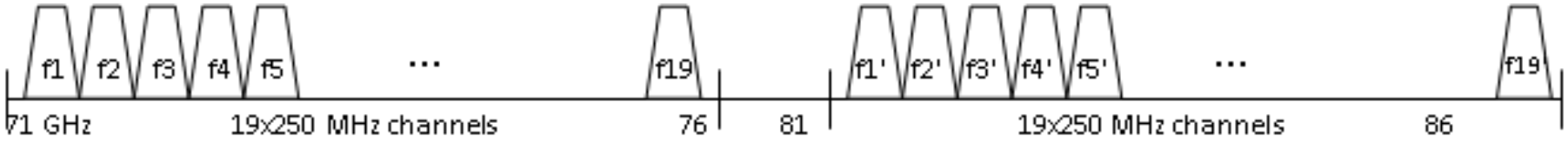
Basic Channel bandwidth = 250 MHz

Note : recommendations exist to cover 92-95 GHz band (ITU-R F.2004 /ECC(14)01- – not suitable for backhaul

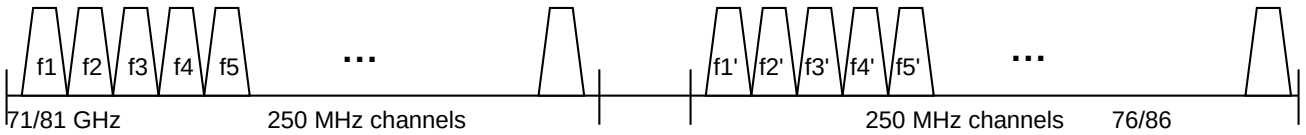
RF bands Higher than 60 GHz to Support 5G backhaul : E-band

PROGRESS May 2019

E-band channels

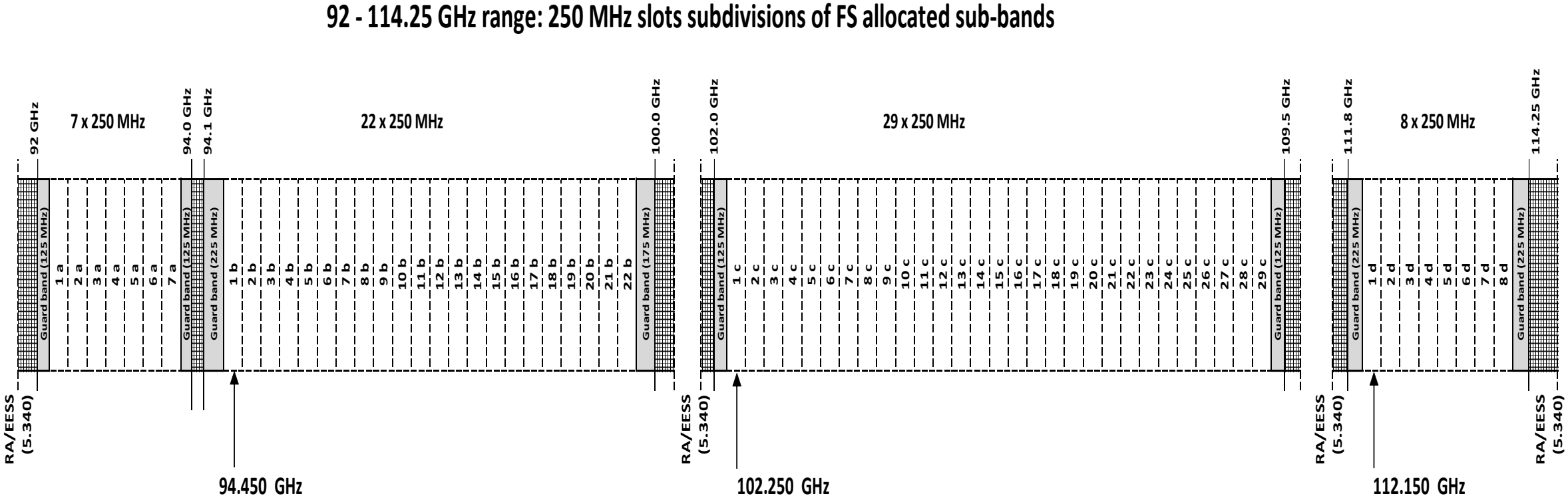


Use of both bands (70+80 GHz) -Duplexer 10 GHz- 19 + 19 channels - (Widely used - ECC Rep. 173)



Use of single band -Duplexer 5 GHz- (Very limited used - ECC Rep.173)

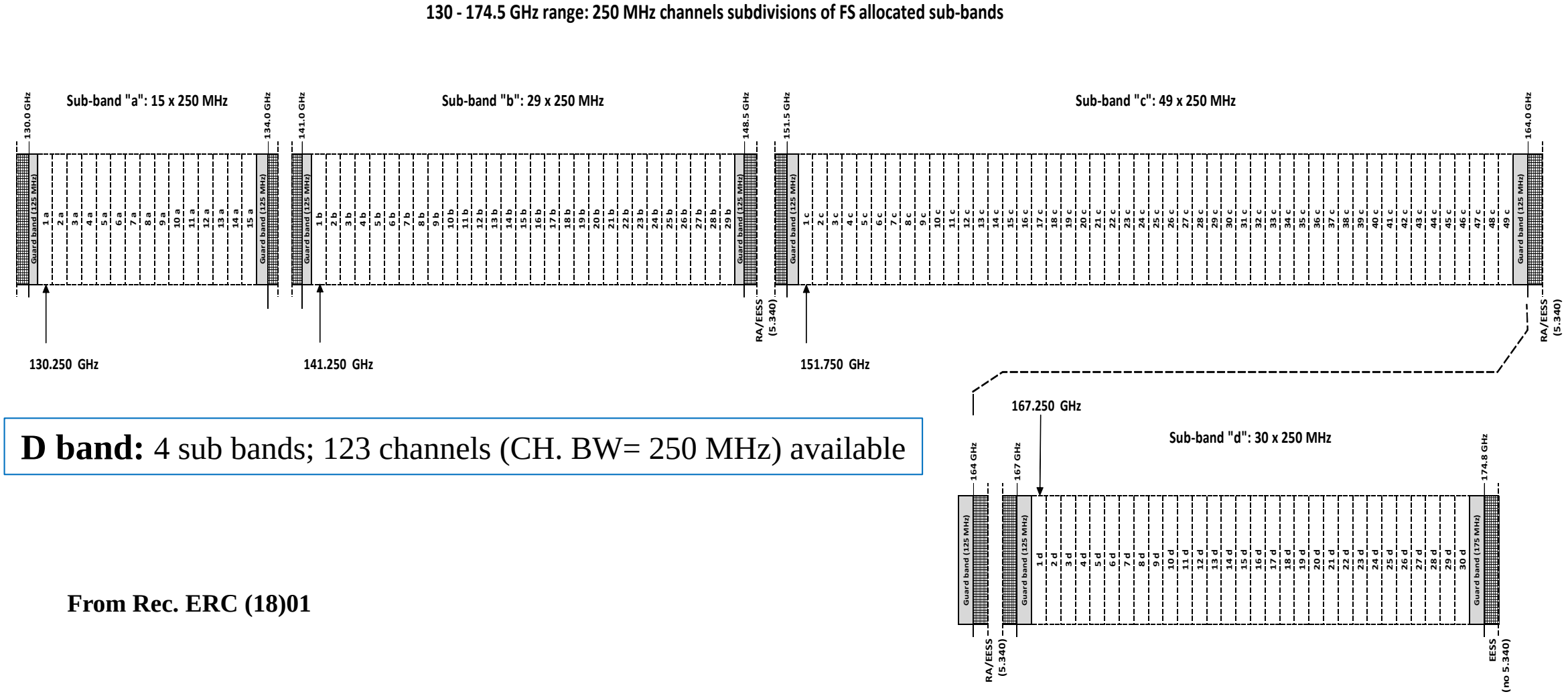
RF bands Higher than 60 GHz to support 5G backhaul : W-band



W band: 4 sub bands; 66 channels (CH. BW= 250 MHz) available

from Rec. ERC (18)02

RF bands Higher than 60 GHz to support 5G backhaul : D-band

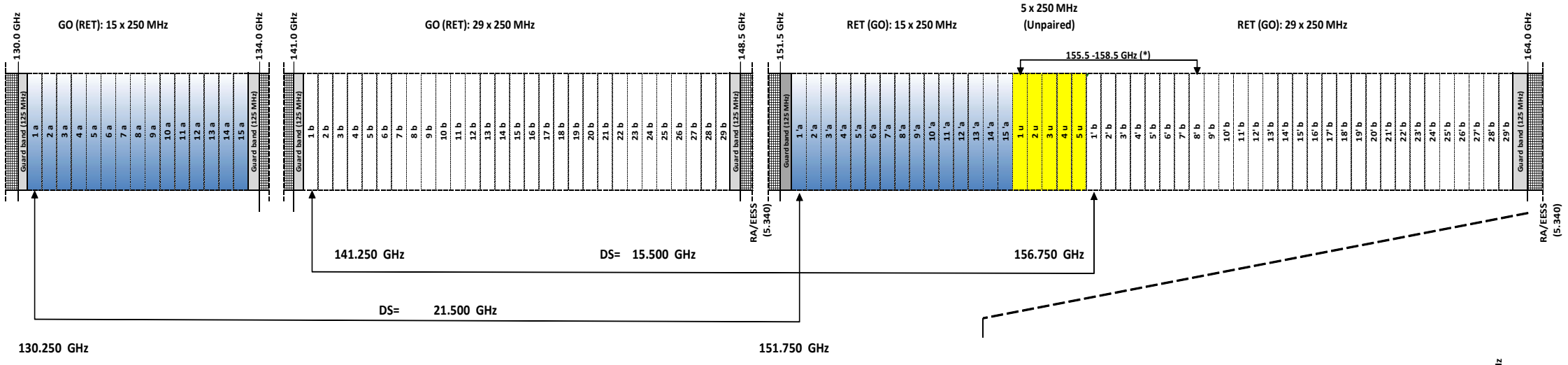


D band: 4 sub bands; 123 channels (CH. BW= 250 MHz) available

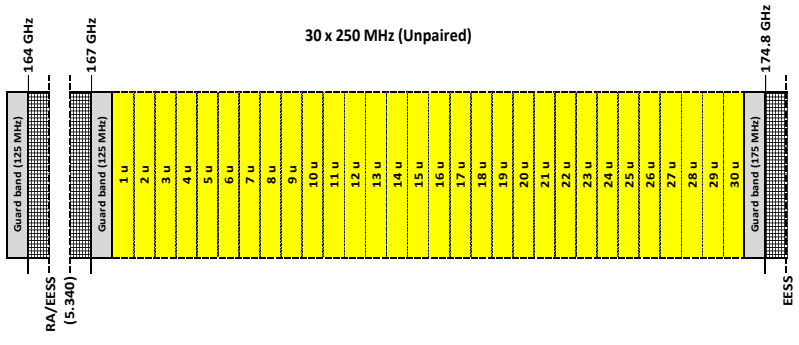
From Rec. ERC (18)01

RF bands Higher than 60 GHz to Support high capacity : D-band - example

130 - 164 GHz: Arrangement with 44 x 250 MHz paired and 5 x 250 MHz unpaired channels
(Upper 167-174.8 GHz band left completely unpaired)



(*) Allocation to Fixed Service from 1st January 2018



**Example from Rec.
ERC (18)01**

RF bands Higher than 174.8 GHz

- ….See you at a future workshop