How we (co-)arranged the opening of the 60 GHz band

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Výbor Nezávislého ICT průmyslu

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Once upon a time:

A long time ago, sometime in 2016, the *Radio Spectrum Policy Group* started thinking about using millimeter bands for high-capacity communications.

In 2016, WG FM in CETP again postponed the compatibility study for the use of WiGig technologies. Due to lack of market interest.

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Once upon a time:

At the same time we had long discussions with Jaromir Čihák how to convince Arnis and other MikroTik people to certify WAS/RLAN devices as SRD devices allowed in the Czech Republic and other EU countries as SRD devices.

k	5725–5875 MHz	25 mW e.i.r.p.			9	300 440

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Once upon a time:

ETSI EN 300 440 allowed the use of part of the 5.8 GHz band, but the Czech Telecommunications Office chopped off heads for their use.

But there was not enough bandwidth.

k	5725–5875 MHz	25 mW e.i.r.p.			9	300 440

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Once upon a time:

MikroTik: what do you need it for?
Jakub and Jaromír: At short range, we have little bandwidth!
MikroTik: hold our beer!
Jakub and Jaromir: So what's it gonna be?!
MikroTik: we've looked at your requirements, but it seems like a small market.
Jakub and Jaromir: how about you look at 60 GHz, according to 305 550, that could be used, and the market is big.
MikroTik: hold our beer!

Jakub and Jaromír: it looks like the market will be even bigger, because CEPT WG FM is talking about releasing WiGig to outdoor and there is a possible power pick up.

MikroTik: check this out: (wAP 60 GHz)

Jakub and Jaromír: great! But if we pushed for a power boost, would you do the equipment for it?
MikroTik: the chipset can handle it, it can't be ruled out that we would go for it. Let us know.

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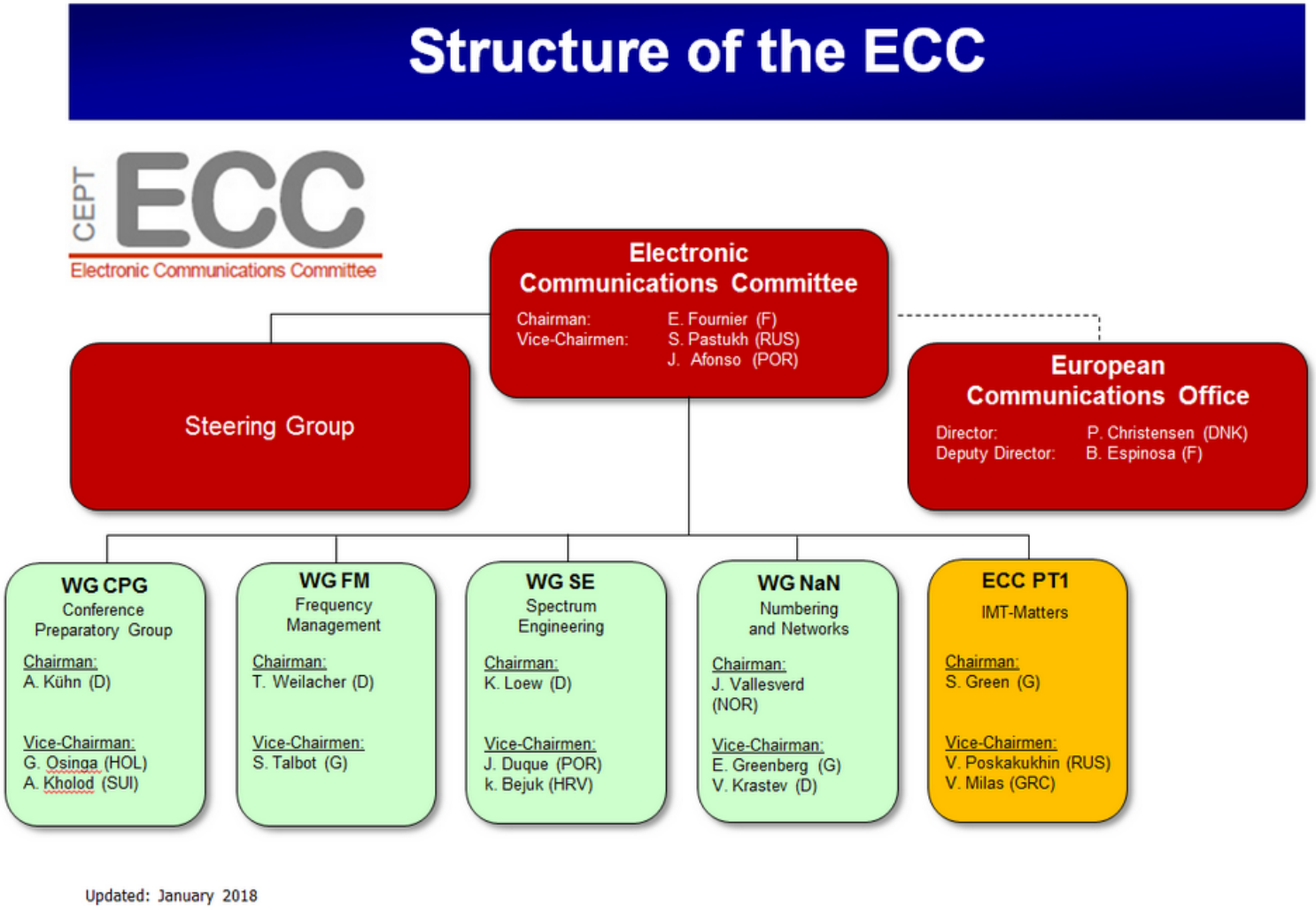
Hello, CEPT, this is Jakub. How about we move forward with the compatibility study and release the 60 GHz band for outdoor?

CEPT: OK, Jakub, send some contributions to WG SE19. We'll put it on the agenda.

Organisational structure of the ECC



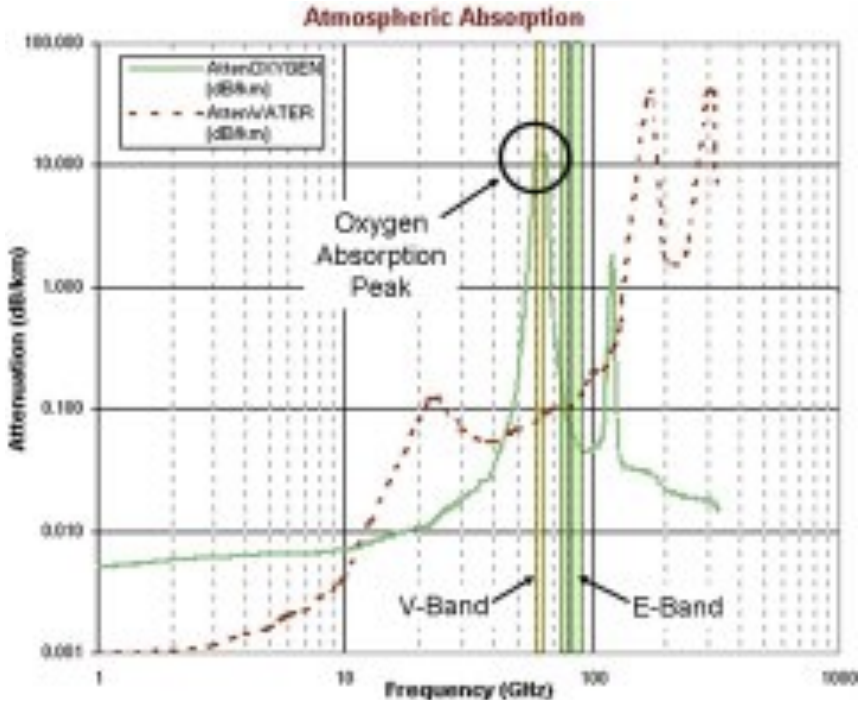
A.4 Frequency bands for long term development

The various bands under consideration for 5G above 24 GHz as part of the WRC-19 preparatory process are summarized in the following table:

Frequency Bands under study as part of the WRC-19 process	RSPG Comments
24.25-27.5 GHz (26 GHz)	Pioneer mm-wave band for the initial launch of 5G services in Europe focusing on individual authorisation regimes. (under harmonisation)
[31.8-33.4 GHz (32 GHz)]* and 40.5-43.5 GHz (42 GHz)[7] and 66-71 GHz	European priority in terms of studies for second stage mm-wave 5G bands. 66-71 GHz has potential as a primary European band for 5G services under general authorisation.
37-40.5 GHz and 45.5-50.2 GHz and 50.4-52.6 GHz and 71-76 GHz and 81-86 GHz (70/80 GHz)	Other bands being studied as part of the preparation process for WRC-19

**The frequency band 31.8-33.4 GHz was considered in the first RSPG opinion on 5G as a priority band for studies. The RSPG notes that the preliminary results of these sharing studies highlight some difficulties, and that the interest for this frequency band appears to be declining. Therefore, the RSPG considers that this frequency band should not anymore be considered as a priority for studies and invites views from*

					manner and under a common authorisation regime				Remarks
WG SE	SE19	WAS_60 GHz	SE19_39	To assess the feasibility of establishing a common set of technical conditions under which fixed service applications and other outdoor envisaged uses/applications may coexist within the 57 – 66 GHz range.	(3) Any practicable mitigation techniques to manage the interference environment, as appropriate, across the 57 – 66 GHz taking into account different considerations (e.g. practicality, propagation conditions etc.).	29.9.2017	14.9.2018	In Progress	PT SE19 to work in collaboration with SRD/MG and confer with other relevant parties on the candidate mitigation techniques (where appropriate). In particular, PT SE19 needs suitable elements for point 1 in the scope from interested administrations and industry. This study should take into account ITS in 63-64 GHz, as set out in the CEPT Roadmap for 5G, item D.4. See also WG FM request in doc.SE(17)084



CEPT: in the band are FS links, fixed services, in the 55.78-59 GHz band according to Recommendation CEPT/ ECC/REC (09)01.

WG: OK, let's find out how many in the EU are licensed. Wait a minute. There are less than 100.

CEPT: OK, we'll consider whether we move them or whether we do coexistence. We'll see what the compatibility study shows.

Working group: This will take time. We've tried to do it before, but no one was interested in taking the measurements.

Working group: we have found compatibility studies with comrades from non-European organisations, we can adopt the Chinese and American ones.
CEPT: we are not alone? OK, let's look at the studies.

SHANGHAI (MGWS - MGWS)

example of measuring and conducting compatibility studies

SE 19 finally settled for the previous studies

The number of affected lines (reduced TD) is somewhere below 5%.

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Victim Link(DL)	Interfering Link	RSL(dBm)	Interf. (dBm)	RSL(dBm)	Interf. (dBm)	TD(dB)
		Point-to-point		Point-to-MP		
Link 2	Link 27 - DL	-32.8	-99.8	-51.5	-99.8	0.01
Link 5	Link 22 - DL	-36.7	-86.7	-55.3	-87.3	0.18
Link 5	Link 27 - DL	-36.7	-101.3	at	at	0.01
Link 6	Link 14 - DL	-40.2	-98.9	-59.1	-96.7	0.01
Link 13	Link 28 - DL	-37.3	-91.4	-56.2	-98.3	0.06
Link 13	Link 27 - DL	-37.3	-100.4	-56.2	-96.8	0.01
Link 21	Link 24 - DL	-43.0	-84.5	-61.8	-85.9	0.3
Link 21	Link 28 - DL	-43.0	-98.8	-61.8	-92.8	0.01
Link 26	Link 19 - DL	-39.2	-100.2	-57.7	-95.3	0.01
Link 27	Link 17 - DL	-42.1	-97.5	-60.9	-95.9	0.02
Link 14	Link 6 - UL	-40.2	-99.8	-58.9	-96.7	0.01
Link 12	Link 28 - UL	-45.0	-99.6	-63.1	-98.1	0.01
Link 17	Link 27 - UL	-41.6	-97.5	-59.8	-95.9	0.02
Link 19	Link 26 - UL	-42.7	-100.2	-61.9	-95,3	0.01
Link 22	Link 5 - UL	-38.2	-86.7	-56.7	-87.3	0.2
Link 24	Link 21 - UL	-38.2	-84.5	-58.4	-85.9	0.3
Link 27	Link 2 - UL	-42.1	-99.8	-60.9	-100.5	0.01
Link 27	Link 3 - UL	-42.1	-100.4	-	-	0.01
Link 27	Link 5 - UL	-42.1	-101.3	-	-	0.01

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CEPT: Okay, that looks good. In such a high bandwidth, it is possible to share MGWS with a fixed service and it won't interfere.

WG: we agree, this can be let out without risk. There is also no risk of interference between indoor and outdoor service.

France: wait a minute comrades! Fixed service is potentially for IMT network connections, we have a negative attitude here because we got a call from Orange.

With some WiGig you would be interfering with connections we don't use anyway. But we could.

CEPT: we should comply with the RSPG and investigate the technical conditions.

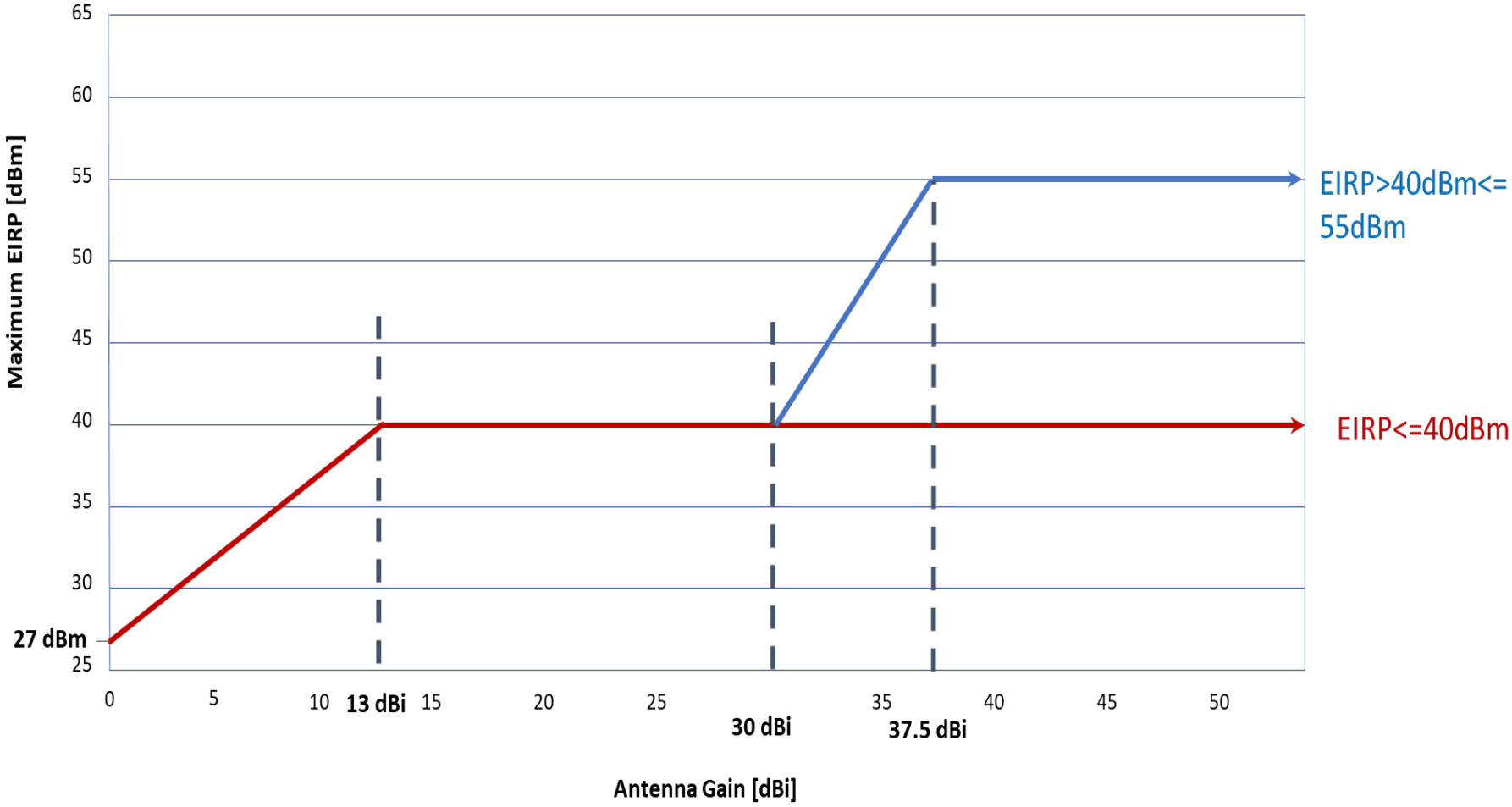
France: Jacob threatened to show me in the restaurant.

Jakub: I'll show you the chart with the power!

WG: no matter how we calculate it, if we reduce the MGWS allowable power to 40 dBm e.i.r.p., we can let it go.

France: the guy from the Czech Republic looks like he cares. Which other country is interested?

Italy? You too? Germans? Facebook with its Terragraph? Did you set us up? Let's see that graph.


Maximum EIRP [dBm]
65
60
55
50
45
40
35
30
27 dBm
25
0
5
10
13 dBi
15
20
25
30 dBi
35
37.5 dBi
40
45
50
Antenna Gain [dBi]
EIRP>40dBm<=
55dBm
EIRP<=40dBm

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France: OK, move it on to ECO and to ITU, for us we agree, but in the implementing regulation there will be a preference for fixed service.

CEPT SE19: OK

European Commission: it's good that you have agreed, but the only place we can quickly write it is EC Implementing Decision 2019/1345

On the basis of the implementation meeting from 2018, the Czech Telecommunications Office released the use of the band on the basis of the General Licence from 1 January 2020.

Czech (some) mobile operators: wait, that pisses us off. We have to make it unpleasant for them somehow! Make it compulsory to register connections and give them hell if they use the 60 GHz band!

MikroTik: Gentlemen, how are you doing?

Jakub and Jaromir: it will be ETSI 302 2017 first, then the [illegible] ETSI EN
302 567 standard, which will let us out.
(the new standard is ETSI EN 303 722)

MikroTik: and this wouldn't make you happy?
(shows LHGG)

Gigabit for that money?
We're excited about this!

Present in the Czech Republic: 156,449 stations registered in the 57-66 GHz band and tens of thousands more between 66-71 GHz.

The next generation of chipsets is coming. We've accelerated the internet in the regions.

We are preparing for the opening of the 26 GHz band in 2024.

https://www.cept.org/ecc/groups/ecc/wg-se/se-19/client/meeting-documents?flid=8507

https://rlan.ctu.cz/cs

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Thank you for your attention.

Independent ICT Industry Committee, z.s.

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