

Response EUWENA to the Dutch Ministry of Economic Affairs Public Consultation on the Draft NFP alteration 3,5 GHz band

To: Ministry of Economic affairs Netherlands

Nature: public reaction

From: EUWENA, European Users of Wireless Enterprise Networks Association

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The below is a response from the association EUWENA to the Dutch ministry of economic affairs' public consultation on its draft NFP alteration for the 3,5 Ghz band for 5G¹. This reaction is for public disclosure.

Since EUWENA was established around the emerging market for private wireless networks, the need for spectrum harmonisation and –availability and the enhancing of a comprehensive eco system for private wireless usage, we felt that a response from the association is appropriate as the Dutch NFP also deals with local shared spectrum or 'private' spectrum.

Because EUWENA was launched in 2021 and this is the first time EUWENA is responding to a public consultation in the Netherlands we will **first introduce EUWENA** (chp. 1) and then **comment on specific aspects of the said public consultation** (chp 2).

1. Introducing EUWENA

1.1 About EUWENA

EUWENA (European Users of Wireless Enterprise Networks Association¹) was set up in April 2021, following a series of parallel conversations during early 2021 between private mobile networks pioneer, Christian Regnier and critical communications industry experts, Peter Clemons and Koen Mioulet, who recognized the urgent need for a European-level initiative to promote the greater uptake of 3GPP-based private mobile networks. Christian, Peter and Koen were joined from the beginning by Antoine van der Sijs, Christopher Gehlen, Kerim Agdaci, Shaun McGinley and Thomas Hervieu. EUWENA was construed, the website set up and the association was formally launched at an Agurre meeting in Paris in November '21

The founding members all share EUWENA's common values and goals and represent companies from across Europe: AirFrance, Privinnet and LD expertise (France), Quixoticity (United Kingdom), ULWIMO and Strict (Netherlands), Sigma Wireless (Ireland), Opticoms (Germany) and Neutroon (Spain), as well as industry associations, AGURRE (France) and KMBG (Netherlands). Many more companies and associations have already become member of EUWENA over the past months.

See for more information the EUWENA website: www.euwena.eu

¹ Originally called 'Ministerie van Economische Zaken en Klimaat' and 'Ontwerpbesluit NFP wijziging 3,5 Ghz band' in Dutch as published on July 15th

1.2 Main drivers for EUWENA establishment & spectrum concerns

In recent times, all EUWENA participants and members have experienced first-hand the challenging, often protracted process of requesting and acquiring spectrum for private wireless network use in their home markets. In a few European countries private and local spectrum for enterprise usage is now available; in a few more countries preparations for private spectrum are ongoing; in many others, no spectrum for private wireless networks has been made available at all yet. In addition, the spectrum that has been made available for private and local networks differs between countries; which is detrimental for the eco system. Also, this deprives multinational companies of a common ground to establish plant automation and industrial mobility solutions at all their facilities across countries etc. This lack of spectrum harmonization across Europe is one of the main drivers for EUWENA. It is also one of the main concerns for enterprises – notably the mentioned pan European ones – that are establishing private wireless solutions to optimise their processes.

1.3 The scattered, fragmented usage of wireless in industries.

Some EU countries have allocated shared spectrum or ‘private’ spectrum as it is popularly called for enterprise wireless networks. This spectrum enables an enterprise or its service provider to deliver high QoS wireless connectivity for its critical operational processes. Examples of this are

- Video control for AGV (automated guided vehicles)
- Plant control via IoT
- Robotics and autonomous machinery
- Data transmission for critical operational processes
- AR and VR for enhance efficiency and customer interaction
- Trunked voice communication for critical processes

They are deployed in a wide variety of sectors (‘verticals’) such as

- Manufacture and industry
- Logistics and warehousing
- Ports and airports
- Utility grids
- Petro chemical plants
- Health and hospitals
- And many more.

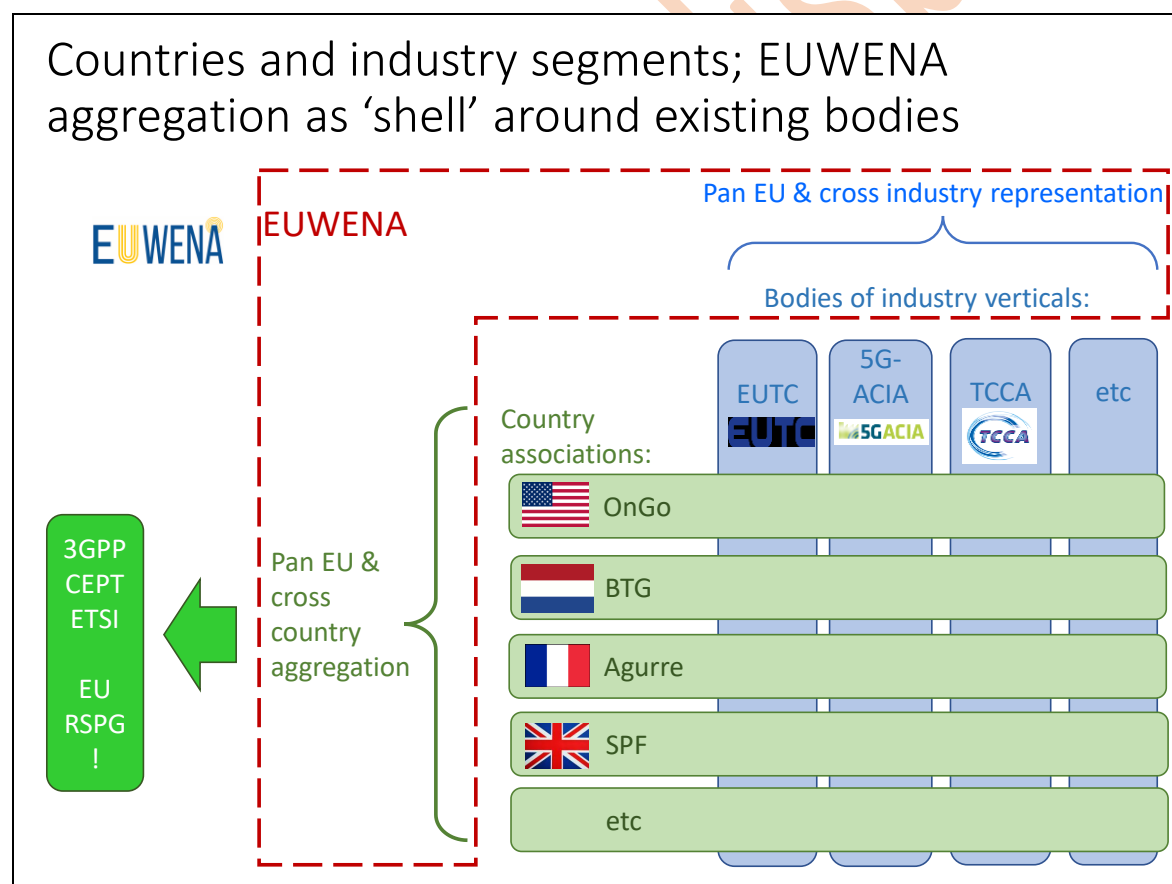
The diversity of use cases and sectors applying private wireless already points at one Achilles heel: the fragmentation of the users. Fragmentation of the private wireless users occurs across verticals, across geographies. Different verticals do not encounter one another systematically let alone exchange spectrum requirements and commonalities across applications. Then again, one can on occasions encounter relevant yet unexpected commonalities. EUWENA aims at overcoming that chasm between users, between verticals and between users and their regulators in articulating spectrum demand and use cases. We refer here to the EU’s RSPG recent call for ‘a common voice of the industry’; which EUWENA would gladly constitute.

Uniting the national or sector specific associations

Typically, some countries already have national associations representing the verticals with interests in private spectrum or the users of private wireless networks. Likewise, there are already some associations representing these requirements for designated verticals. Without aiming to be complete we mention:

| Body | Title and remit | Country or vertical |
|----------|--|--------------------------------|
| BTG/KMBG | Kritisch Mobiel Breedband Gebruikers | NL |
| Agurre | Association Grandes Utilisateurs Radio Ressources d'Exploitation | FR |
| SPF | Spectrum Policy Forum | UK |
| 5GACIA | 5G Alliance for Connected Industry and Automation | D |
| EUTC | European Utilities Telecom Council | all utilities |
| TCCA | The Critical Communications Association | public safety & critical users |
| GSMA | GSM association | all MNO's |

Euwena aims at uniting these associations internationally, look for commonalities and aggregate the demand as well as supply eco system across countries and verticals. In doing so, EUWENA aims at working with all these associations on pan European representation towards RSPG, CEPT and like bodies:



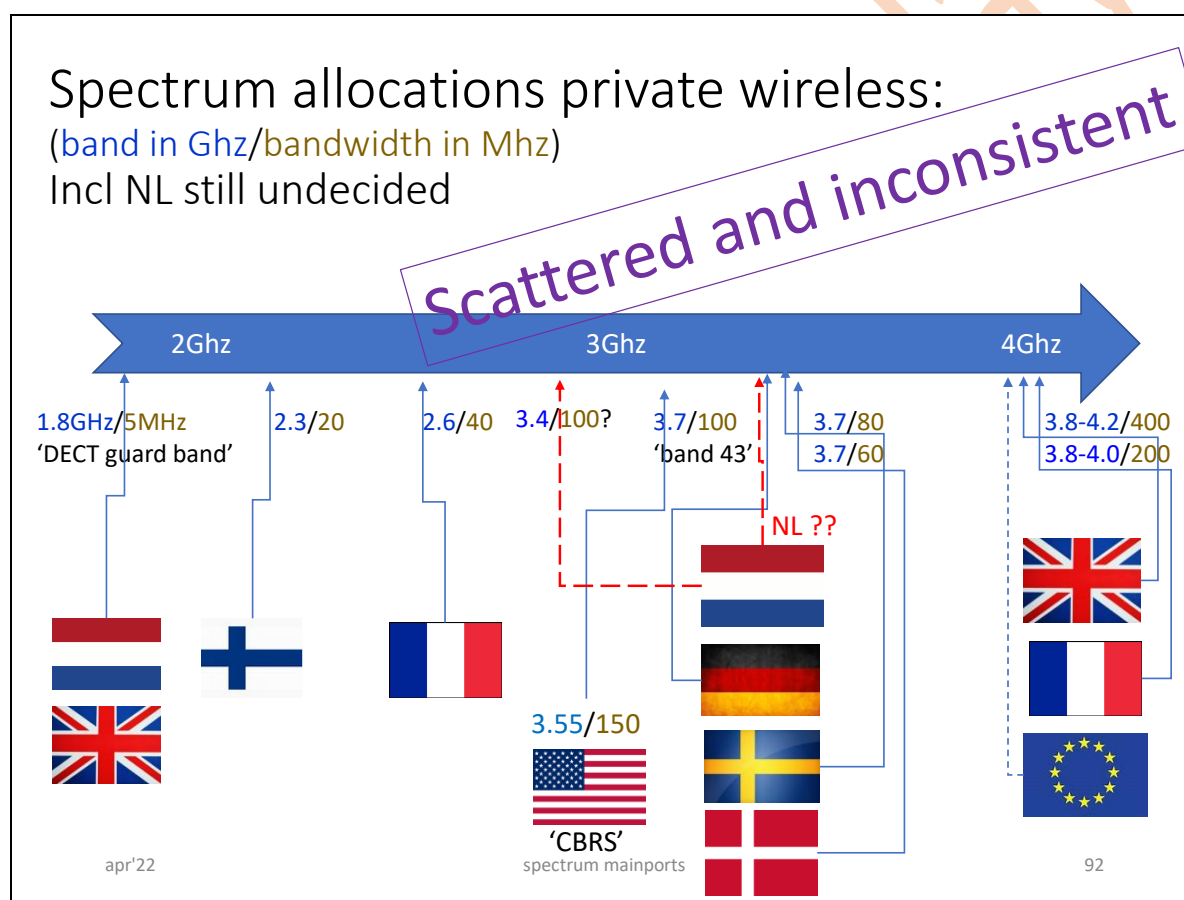
2 Responses to the MinEZK consultation

2.1 The current EU spectrum landscape for verticals

Across Europe, countries have made spectrum available for geographically dispersed, shared usage by verticals. Not all countries have done so, in some a private user is still 'at the mercy' of existing spectrum holders, often MNO's. In some countries multiples of 20MHz have been set aside for enterprise usage; the example that draws a lot of attention being Germany. Other countries have recently followed, notably the UK is now very active too. EUWENA sets out to follow and aggregate all these international developments

A case in point is the USA where a very successful private and shared spectrum regime has been implemented around the CBRS spectrum (Citizen Band Radio Service).

The below image visualises the current availability of private spectrum in EU countries²:



The picture clearly displays that the amount of spectrum and the band in which it operates differs vastly between countries. In addition, there are vast differences in tariffing for the spectrum too. Thus, the situation is far from harmonised. That is a predicament for two reasons:

1. Uniformity. A pan European producer, petrochemical corporation³ or transport company is confronted with different spectrum and solutions per individual country and thus cannot standardise on plant operations solutions.

² For the situation in the Netherlands, we still depict the 2 options open so far.

³ This example will be elaborated in par 2.3

2. Eco system. In the absence of harmonisation, the availability of equipment and devices may suffer from too low a market size and lack of scale.

Both these plights hinder the establishment of wireless services and networks that propel our industries into the 21st century.

Nonetheless (!), markets like UK and Germany have seen tremendous uptake⁴ in private local licences which demonstrates the demand from industry for high performance business critical networks.

2.2 Netherlands deviating from pan European

The previous paragraph immediately points at a potential serious consequence of what the Dutch NFP seems to establish... : deviation from *any other* development in Europe. With the intended allocation of 100 MHz for verticals at the 'bottom end' ("onderin"), the Netherlands would be the *only one* utilising that bracket of the band; as opposed to 'upper end' 100 Mhz ("bovenin") where there would be alignment with Germany, Sweden and Denmark. Such alignment in turn would have benefits for the emerging of a **viable eco system** of notably network equipment and would mitigate some of the coordination issues between private and public TDD networks at **Hollands longest border: that with Germany**. By *not* aligning internationally, Holland runs the risk of requiring equipment that none of the vendors is going to be prepared to produce due to the low volume, or at great expense. The below mentioned two contributors to the consultation – KMBG and Mainports NL – have elaborated on this aspect. In addition, even if the 'lower end' flies at long last, there is the >300 MHz gap with the candidate band 3.8-4.2 GHz for more private spectrum, **which hinders carrier aggregation** between the 2 intended vertical bands probably meaning that a vertical may have to deploy TWO radio's to be able to deploy carrier aggregation.

If the Netherlands would be devoted – as it used to be – to European policy, to European integration and harmonisation and to benefitting from a large EU eco system, the last thing it ought to do is isolate itself in a corner where no other country resides. EUWENA strives for a rapidly developing market for private wireless and industry automation and hence opportunity for EU industries to thrive and compete; in that capacity EUWENA urges the Dutch regulator to step back in line and follow other larger countries in its spectrum allocation. Likewise, we urge the Dutch regulator to follow countries like UK and Germany when it comes to regulatory intervention in TDD synchronisation; which is more pragmatically dealt with in these 2 countries than it will be in Holland under the proposed NFP.

We will refrain from detailed technical elaboration as this is already well expressed by the local responders KMBG and Mainports NL; see par. 2.3

2.3 An industry example

EUWENA strives for easily accessible, workable private wireless solutions for verticals. As it pertains to this basic remit of EUWENA: allow us to illustrate the plight of a multinational industry that intends to automate a number of its plants throughout Europe. The Dutch regulator may be inclined to look at its own country primarily, but the scope of private networks is much larger. We EUWENA are aware of, or even involved in, multiple initiatives of large pan EU conglomerates in varying verticals trying to automate their processes with wireless:

⁴ Germany has just started licencing local shared spectrum and already displays over 200 applications in 3.5 Ghz. The UK recently displayed some 250+ licences for 3.8-4.2 Ghz

- a large aerospace manufacturer intends to automate its plants throughout Europe with private 4 and 5G
- a large multinational ports and shipping operator wants to equip multiple of its ports and quays with enabling private wireless
- multiple large petro chemical manufacturers are attempting to implement IIoT and plant automation with wireless in multiple of their countries and standardise on solutions

In all such cases, an industry would like to encounter one straightforward, simple and harmonised regime for spectrum acquisition and operation and ideally one eco system of supplies⁵. In sharp contrast, such industries are now faced with multiple alternate frequencies, regimes, applications, costs and vendors for every one of their plants.

By deviating from everybody else, Holland is at a point of contributing further to the 'scatteredness' of spectrum and thus to the barriers to implement such (wireless) innovations.

A case in point is that of large petrochemical player BASF, who presented his case publicly at last year's Spectrum Summit⁶ together with 5G ACIA and EUWENA in a session on '5G campus networks'. As the speaker presented, automating its plants with wireless in amongst other Germany, Spain, Belgium and UK was a plight in its own right requiring a lot of study and engineering effort due to the differences between countries. As that very speaker then noted, this does not help innovation and potentially hinders the many medium sized candidate users that are less blessed with staff and resources, or even stops them from engaging at all.

If players of this calibre intend to automate their facilities throughout Europe; the last thing the Netherlands ought to entice is for them to omit their Dutch assets due to complexity, deviations or absence of solutions. The Netherlands being a stronghold in international business, we urge the Dutch regulator to **rethink its position on its deviating private spectrum allocation**.

2.4 Further technical considerations

We noted that the said consultation carries many delicate technical aspects in it that need addressing. These are, without being exhaustive

- Differing UL/DL schemes for industrial and mobile operator networks and the need to establish TDD synchronisation in relation to band selected.
- Avoiding interference at the border with Germany between MNO and private systems on either side.
- Adjacency to military radars below 3,4 Ghz and the need to ascertain interference free operation through guard bands, block edge masks and other mitigating measures. This aspect relates strongly to who occupies the band right above those military radars: an MNO or enterprises.
- Carrier Aggregation opportunity with future additional bands for private wireless networks, most of all the candidate EU band 3.8 – 4.2 GHz.
- Eco system likelihood under a deviating choice of spectrum

⁵ Some of these examples are USA based; as a consequence, they implicitly expect the situation in EU to be as well developed and standardised as it is in the USA with the CBRS regime: one coherent spectrum allocation and registration system, across all 50 states.

⁶ LStelcom Spectrum Summit, Lichtenau, July '21

EUWENA will abstain from commenting on all these aspects as we know⁷ these are very well and elaborately covered in the responses from

KMBG and Mainports NL

where all relevant details are explained, debated and suggestions are made.

2.5 Smart compromise

Again pointing at the consultation responses of the Mainports NL and of KMBG; we express our sympathy for a 'way out' that these two are likely to propose: allocating 80 MHz in the 3.7-3.8 Ghz domain to private networks and adding a 20 MHz to that in the 'low end', where limitations are likely to apply and usability for private wireless may be restricted to low power or indoor. At the very least, this 'compromise' would largely allow the Netherlands to be back in (some) synch with nearby countries and the resulting eco system. In addition we urge the Dutch to embrace and entice the probable pan European establishing of private spectrum in 3.8-4.2 Ghz, which would then also allow for CA with the said 80 MHz in 3.7-3.8 Ghz

We strongly suggest to the ministry to alter its NFP accordingly, for the sake of pan European harmonisation, for the sake of pan European wireless projects amongst verticals and for the advance an innovation in Europe's industries and verticals.

EUWENA, its members and working groups are off course prepared to step in any time to entice any of the above or facilitate coordination with 3rd parties and bodies.

⁷ Through its 2 Dutch co-founders, EUWENA is aware of the answers being generated by KMBG and MainportsNL