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**TELECOMMUNICATION ASSOCIATION
OF THE UK WATER INDUSTRY
- TAUWI -**

RESPONSE TO OFCOM'S CONSULTATION
On
**Strategic Review of UHF Spectrum at 420-470 MHz
UHF Bands 1 and 2**

INTRODUCTION

This response is provided by the **Telecommunications Association of the UK Water Industry (TAUWI)** on behalf of its members:

Anglian Water Services Ltd	Severn Trent Water Ltd
Black Sluice Internal Drainage Board	South East Water Ltd
Sembcorp Bournemouth Water	South Staffordshire Water
Bristol Water plc	South West Water Services Ltd
Cambridge Water plc	Southern Water plc
Dee Valley Water plc	States of Jersey Transport and Technical Services Department
Natural Resources Wales	Sutton & East Surrey Water plc
Environment Agency	Thames Water Utilities Ltd
Essex & Suffolk Water	United Utilities Water plc
Hartlepool Water	Veolia Water Central
Lindsey Marsh Drainage Board	Veolia Water East Ltd
Welsh Water	Veolia Water South East Ltd
Northern Ireland Water Ltd	Wessex Water Services Ltd
Northumbrian Water Ltd	Yorkshire Water Services Ltd
Scottish Water	

Atkins Ltd act as the main point of contact for TAUWI members and represent their interests on a range of matters, including responding to strategic consultation documents on their behalf.

This response has been circulated for review to each of the 29 member organisations that form TAUWI and therefore negates the need for submissions from individual water companies.

The Association was formed in April 2004 and replaces the Telecommunications Advisory Committee (TAC) which for the previous 14 years had acted as the focus

for the UK Water Industry in relation to fixed and mobile communications and scanning telemetry from a technical and regulatory aspect. The scope of TAUWI has been extended to capitalise on new opportunities resulting from emerging technologies and regulatory changes. At the same time, more emphasis is being placed on strategic issues in relation to other sectors of an organisation's operation, such as IT Systems, General Communications Infrastructure and business requirements. TAUWI is chaired by Mr Roger Howell of Thames Water Utilities Ltd.

Responses

Question 1: Do you agree with Aegis's conclusions on congestion of current use of 420-470 MHz spectrum? Are there any other signs or areas of congestion that Aegis have not identified from their review?

In the UK the Water Industry has been assigned 32 National 12.5 KHz duplex UHF channels of which 8 are of shared use with Non-utility companies (2 x 400 KHz) for scanning telemetry. The spectrum is self-managed by the industry and systems are designed using detailed technical assignment criteria and an adaptive cellular plan.

The Water industry currently has an installed base of over 10,000 sites communicating via scanning telemetry and in some areas of the UK there is no scope for any further expansion or development of member systems due to the lack of available channels.

In addition to the wide area licenced scanning telemetry systems the industry also makes significant use of telemetry and tele-control equipment operating in the 458.5 to 458.95 MHz licence exempt band to support the operation and monitoring of assets at a more local level e.g. between Reservoir & Treatment Works, Water tank & pumping stations etc.

We estimate that the installed base of equipment operating in the licence exempt band is in the order of 2500 links. Members have reported occurrences of interference & service congestion especially in urban areas, which is exacerbated by the use of equipment operating at 100% channel occupancy.

Question 2: Do you agree with Aegis's conclusions on the future demand and use of 420-470 MHz spectrum over the next ten years? Are there any other future uses or areas for future demand that Aegis have not identified from their review?

TAUWI is in general agreement with Aegis's assumptions on congestion and current use of 420 – 470 MHz spectrum over the next 10 years.

All aspects of water recovery, treatment and distribution, the control and monitoring of water quality and operation of flood defence systems utilise Telemetry to ensure compliance with statutory requirements and reduce maintenance and operational costs. Increasing environmental regulations, a continuing trend towards greater granularity of data and uncertainty surrounding the long term support from mobile operators has resulted in a move away from circuit switched data communications technologies to "always on" types, such as UHF Scanning Telemetry.

In addition BT has announced its plans to discontinue the support of sub 2Mbit/s TDM based analogue services in 2018 as the transmission equipment necessary to support these services reaches end of life. Subsequently members are actively looking at alternative means of providing connectivity to their affected sites.

The combination of these factors will, in our opinion, result in an increasing demand for licensed Scanning Telemetry Systems and therefore additional spectrum to support these systems. However the needs of the water industry vary from the fuel & power utilities in terms of requirements for data throughput, latency and coverage. In this regard, TAUWI plans to liaise with their members in order to understand their individual plans & quantify their future spectrum requirements moving forward.

Question 3: Do you agree with Aegis's conclusions that there is not yet any UK demand for wideband services in the 450-470 MHz band (which could for example, be used to improve rural mobile coverage)? Please provide any supporting evidence for your position.

The demand for wideband data services (LTE) in the 450 - 470 MHz band is limited at this time. TAUWI previously consulted its members on the use of wideband channels in mid-band spectrum to support higher bandwidth applications although it was identified that applications such as CCTV could be supported there was no urgent need at the time.

Question 4: Have you experienced degradation in your systems' performance which you consider to be caused by continental interference in the last 12 months? If yes, what approach did you take towards managing and minimising interference?

Please provide any supporting evidence which explains the frequency (of occurrence), impact, duration, time, location and cause (whether suspected or investigated) of the interference with respect to your specific sector(s).

TAUWI has, in the last 12 months received reports of interference to scanning telemetry systems operating in East Anglia during periods of high pressure. This interference has been confirmed to be coming from wideband (1.25 MHz) CDMA 450 systems located in Scandinavia.

When the interference occurs, large parts of the member's scanning telemetry system is affected, with significant impact on their operations. The TAUWI member has in the past worked with Ofcom to identify the source of the interference and agreed to have monitoring stations installed at some of their affected sites to monitor and capture future occurrences of interference. TAUWI consider further discussions are required between stakeholders to consider how best to mitigate the effects of the interference and believes good site engineering will play a part in this.

Question 5: Is there additional information relevant to the configuration of the 420-470 MHz band that we should consider in developing our approach to its future management? Please provide any evidence to support your views.

TAUWI considers that the reconfiguration of the band to align it with Europe would require detailed analysis and engagement with the various industry groups and

spectrum management agencies including Ofcom. The reconfiguration would be complex, pose a high business risk and potentially be very expensive. TAUWI urges Ofcom to consider whether the benefits outweigh the costs and impact to existing telemetry services that such an exercise is likely to create.

It should be stressed that today there is far greater emphasis and reliance placed on SCADA and telemetry data and therefore the impact when this data is lost, even on a temporary basis to our members customers and business is far greater than it was a few years ago.

Question 6: Do you agree with the potential solutions Aegis have proposed for managing the 420-470 MHz band to both meet the continued growth in congestion and demand from incumbent spectrum users, and to facilitate the deployment of wideband technologies? Are there any other solutions which you consider we should examine that Aegis have not identified from their review? Please provide any evidence to support your position and reference each solution in your response as appropriate.

TAUWI agrees with Aegis on the benefits that band realignment would bring i.e. reduced potential for interference and improved spectral efficiency thus enabling the deployment of wideband technologies. However we would suggest that no decision be made until further investigation can be carried out into the interference, possible mitigation and future demand for wideband data services in the water industry (LTE 450).

Question 7: Do you have any further comments relevant to how we might manage spectrum between 420-470 MHz?

TAUWI considers that spectrum used to deliver essential services (or information about essential services) should be given priority over commercial applications and should be recognised when dealing with requests for additional channels from the utilities. TAUWI would look to the regulator to take this into account when allocating future spectrum.

Question 8: Do you have any comments on our proposed programme of work, the outcomes from which we will use to inform future decisions on how we manage the 420-470 MHz band? Are there any additional areas you consider we should explore?

TAUWI believes the proposed approach and next steps including spectrum monitoring of continental interference and congestion of PMR band will give insight and show opportunities where spectrum can be more efficiently utilised. TAUWI will offer support through stakeholder demand analysis to ensure the requirements of the water industry are captured in the coming years.

TAUWI is in broad agreement that consideration of competing demands for spectrum in the 450-470MHz band should feature as a priority area in the work programme for the next ten years. As previously discussed, as well as licensed systems, the industry makes significant use of Licence Exempt UHF Telemetry & Telecontrol equipment operating between 458.5 & 458.95MHz as per IR2030/2/6.

The industry has made and continues to make considerable investment in SCADA and Telemetry Systems and as previously discussed the supporting communications infrastructure essential for its operations. The Water Industry operates to a 5 year investment cycle and a long-term, low risk approach is taken when investing in these critical systems. With an operating life of at least 10-15 years, it is essential that the industry can be confident of the continuing availability of the spectrum on which these systems depend. TAUWI suggests that Ofwat are consulted to understand future requirements that the Water industry will have to follow. TAUWI would appreciate postponing any major implementations until the next cycle period in April 2020.

Predictions for future use will be largely dependent on the services available which in turn depends on the availability of spectrum. Stakeholder discussions with manufacturers will ensure requirement demand is fully captured.

TAUWI will be happy to engage in future discussions and look forward to the next stages of this review.

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