

To : Mr M. Bogers,
Chairman TCAM

European Commission
DG Enterprise and Industry
Wetstraat 200
B-1149 Brussel
België

Copies : see below

Subject : Interference from RLAN 5 GHz to Meteorological Radars

Ref : 1: Letter from WIFI Alliance dated 26 June 2007
2: Liaison Statement from ETSI BRAN dated 12 July 2007

Dear Mr Bogers,

Following reports of interference to meteorological radars from 5 GHz RLANs made by EUMETNET and WMO in a number of meetings, including TCAM, it appears that a new phase aimed at finding technical and regulatory solutions to this issue is now being entered.

We would like to thank you for allowing EUMETNET to present this issue to the last TCAM meeting and for considering it to be important enough to propose that an ad-hoc TCAM meeting should be organised to discuss it further.

As you may know, there are currently more than 170 meteorological radars and about 150 other radars operated in the 5GHz (C-Band) by European countries that are members of EUMETNET¹. These radars are key observation stations used for meteorological observing and environmental monitoring and play a crucial role in providing warnings of imminent severe weather conditions, such as flooding, storms, cyclones and hurricanes, that can endanger populations and damage strategic economic infrastructure. In this respect, meteorological radars represent the last line of defence against loss of life and property in flash floods and severe storms events, such as those that occurred recently in Eastern Europe, UK, France and Greece and for these reasons cannot be put at any risk.

The importance of meteorological radars has been raised in many instances by the World Meteorological Organisation (WMO) and has been confirmed in the recently adopted EU Radio Spectrum Policy Group (RSPG) Report and Opinion on "A coordinated EU spectrum approach for scientific use of the spectrum" (October 2006).

¹ EUMETNET is a network grouping 22 European National Meteorological Services from Austria, Belgium, Croatia, Cyprus, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom and 6 other associated countries, Bulgaria, Czech Republic, Poland, Romania, Slovak Republic and Slovenia. (see : www.eumetnet.eu.org)

The whole meteorological community considers this RLAN interference issue to be a matter of great importance since these developments represent a serious potential threat for all meteorological radars operating in the 5 GHz range. We can only regret that unlicensed devices have been authorised in a band used by critical radiolocation applications, even though we recognise that it was a decision from the last WRC-03, followed by consistent ECC and EC Decisions.

In the EUMETNET input to TCAM #21 in October 2006, we stated that “*The meteorological administrations are quite confident that the last version of the ETSI standard (i.e. EN 301 893 V1.3.1) would be adequate to ensure protection of meteorological radars*” but we now have to consider, following our recent testing, that it is not in fact adequate, particularly with regards to the Dynamic Frequency Selection (DFS) mechanism of RLAN.

Considering the level of degradation caused to meteorological radars by one single RLAN it is important that effective solutions are found as soon as possible before RLAN deployment in this frequency band reaches a point of no-return. This would be when the number of such unlicensed devices would be too high for any effective action to be taken by the National Radiocommunication Administrations. This concern has already been raised by one EU member at your last meeting.

We were quite surprised to learn that an explanation could be the use of interleaved or staggered PRF since we assumed that other radars operating in this band (military in particular) also make use of these techniques that are neither new nor rare. On the other hand, it is clear that current version of the ETSI Standard EN 301 893 (V1.3.1 or VA.4.1) do not include test signals consistent with such interleaved or staggered emissions. ETSI BRAN has stated that it “*regrets that the details of these weather radars ... have never been made available...*” but, to our knowledge, neither the meteorological services nor the radar manufacturers were contacted at the time when the ETSI Standard EN 301 893 was drafted. We certainly recognise that technical and operational characteristics of meteorological radars are quite specific (volume scanning modes, rotation speeds, various elevations, noise calibration without emission ...) and, in particular, justify special statements and advices in ITU-R Recommendation ITU-R M.1652 concerning the band 5600-5650 MHz.

It should be noted that in major countries where the meteorological community was involved in the relevant decision-making processes and in setting the standards (e.g. Canada and Australia), RLAN have been excluded from using the 5600-5650 MHz band.

Although a similar decision could represent a way of resolving this issue in Europe if no satisfactory solution can be found, EUMETNET is, however, willing to cooperate with the RLAN industry to study the problem and to try identifying possible solutions that would enable the band to be shared. We appreciate that the representatives of the WIFI Alliance and ETSI BRAN are taking the matter seriously, as is shown in their documents at reference 1 and 2. In particular, we note with interest that ETSI has taken swift action to solve the issue of DFS switch-off that was the cause of some of the recent interference cases by producing the last revision V 1.4.1 of EN 301 893.

Following your June meeting, and at the request from the RLAN industry, the EUMETNET EUMETFREQ programme (which is dedicated to radio-frequencies protection), together with the EUMETNET OPERA programme (which is dedicated to Radars), has carried out a survey of the EUMETNET members to obtain details of all the different meteorological radar emission schemes and scanning modes to help support a possible modification of the DFS definition and essential requirements in EN 301 893.

To date, detailed technical and operational characteristics of meteorological radars from more than 17 countries have been sent to the RLAN industry representatives. These characteristics

already confirm that no typical scheme can be drawn for meteorological radars and that any DFS mechanism would have to be carefully designed to ensure detection of multiple combinations of pulse widths and fixed, interleaved or staggered PRF, in operational modes that would often only provide the RLAN receiver with a few radar pulses over a period of up to 15 minutes.

It will certainly be a challenge, but we assume that the RLAN industry would be able to find relevant technical solutions to ensure protection of existing and future deployment of meteorological radars, recognising that the abovementioned characteristics can be taken as representing foreseeable future radar developments.

Should such solutions be found and adopted in the relevant EN 301 893 standard revision it would also be important that TCAM and the RLAN industry supersede any previous version of this standard as soon as possible in order to limit the number of non-compliant devices in use before the abovementioned point of no-return.

Finally, EUMETNET has already noted that RLAN 5 GHz devices that are not compliant with the current version of the ETSI standard are being put on the market by some unscrupulous manufacturers and vendors who are taking advantage of the auto-compliance rule in Europe. We understand that this is a consequence of the RTTE directive 99/05/EC and that this directive provides regulatory provisions for market survey and spectrum control. We are however concerned that as a consequence of the unlicensed nature of the RLANs and their expected mass deployment, such non-compliant equipment could be numerous and difficult to locate (as confirmed in the recent interference cases) and could, irrespective of the Standard version, lead to a situation where meteorological radars could quite often be affected by harmful interference that could compromise their ability to provide the information needed to provide the warnings that are essential to the protection of life and the preservation of property in severe weather events.

You probably know that in other developed countries such as the US, Canada and Japan, type approval is required, obviously helping to reduce the level of deployment of non-compliant devices. We are therefore wondering whether the RTTE Directive should consider a safeguard clause to introduce type approval in Europe when unlicensed radio devices are expected to be authorised in bands used by critical and safety of life applications, such as in the 5 GHz band used by meteorological radars.

We would like to assure you of our full cooperation with RLAN industry and TCAM in this very sensitive issue for which Mr Philippe TRISTANT (philippe.tristant@meteo.fr), EUMETFREQ programme manager, would be totally entitled to act on behalf of and take the highest care of EUMETNET members' interests and to ensure that any future decisions taken will protect meteorological radars.

I am confident that you understand the concerns of the meteorological community and would like to thank you in advance for your actions pertaining to finding a satisfactory solution to this issue.

Yours sincerely,



Fritz NEUWIRTH
EUMETNET Chairman

Copies:

European Commission DG INFSOC (Ruprecht NIEPOLD)
European Commission DG research (Alan EDWARDS)
WIFI Alliance (Rich KENNEDY)
ETSI ERM (Gabrielle OWEN)
ETSI BRAN (Bernd FRIEDRICHS and Edgard VAN GEEL)

ECC Chairman (Chris VAN DIEPENBEECK)
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