

## Aerodrome Safeguarding

# Alert Notice 2

08 July 2021



**Subject: Potential impact on S-Band radar from 5G mobile telephony installations.**

*Please note that this is generic guidance only and airports must satisfy themselves with regard to their specific requirements, distances etc. This guidance may change as further information becomes available.*

**CAST Technical Group** have been made aware of the potential for 5G installations, operating in the 3410-3600MHz frequency band to have an impact on the operation of S-band (10cm) radars. Although many radars were previously modified to accommodate 4G operation in the band below 2690MHz a residual risk remained; this is managed by the Ofcom 4G radar coordination process. It has been determined that this risk also applies to some of the 5G bands recently awarded to Mobile Network Operators (MNOs).

As part of the 5G licence award, Ofcom set out a process by which MNOs must check whether the thresholds set out in the process would be exceeded, or whether calculations show that a specific deployment can go ahead. The Ofcom process calls for coordination of 5G and specific radars, if these are within 7km of the proposed site.

Early stakeholder engagement has suggested that some MNOs may not have been fully aware of their obligations under the process. However, closer cooperation over the last year has shown that a collaborative approach can work well and evidence of the assessment can be provided meeting both the process's requirements, as well as a radar operator/user's concern.

Information received to date has suggested that very few sites have exceeded the thresholds set within the process, and these have usually been those adjacent to a radar site. Sites in proximity to radars, which initially couldn't be shown to comply, often could be accepted through 'tailoring' measures such as altering power or antenna tilt, or ultimately restricting the 5G signal in the direction of the radar to an acceptable level.

Aviation stakeholders should give some consideration as to how to ensure that any agreed installation criteria for a given deployment are maintained in perpetuity. This is especially true in terms of non-standard configurations for the MNO which carry the risk of being removed during future modifications or upgrades.

In the case of a radar operator/user, as with all safeguarding, the key is likely to be the building and maintaining of a good working relationship with MNOs. This is the most likely way to ensure any agreed installation is maintained.

5G applications are generally sought under Permitted Development Rights (PDR) but many local authorities will consult or inform airports or radar operators, and again maintaining a good relationship with LPAs as well as MNOs will minimise the risk of any issues.

In terms of consultations from LPAs, there appear to be some differences but as initial application of the Ofcom process to real world base stations suggests an impact is less likely beyond 1.5km, visibility of 5G planning applications within 2km of a radar seems adequate. This could be increased to tie in with cranes or other requirements an airport may have; the expectation is that as MNOs face the same requests around the country, they provide calculations as a matter of course to the LPA and therefore the process should become simpler.

Where a PDR application is notified to an airport or radar Operator/user, an objection may not be possible or appropriate; as such an informative or request to the LPA for the assessment to be provided, would appear to be a fair request, and one which an LPA may feel uncomfortable granting consent without. Some draft words are included in Appendix A.

When engaged with an MNO over 5G or if in doubt over any mobile installation, advice on the Ofcom process should be provided to ensure the documentation and procedure is promulgated through the MNO community. Evidence to date shows that this is starting to occur and—where the data provided are agreed in advance, the process can turn into a simple coordination exercise benefitting all parties. While the formulae/calculations to be provided are defined in the Ofcom process, data provided by MNOs to date have included varying assumptions and units of measurement. As such, a standardised approach is considered to be of benefit and aviation stakeholders requesting the same information is likely to facilitate this. Where an airport or radar Operator/User is unsure of the information received or to be requested from an MNO, a draft template could be used. An example is included in Appendix B.

ENDS

## **Appendix A**

### **Example wording that could be used to respond to a planning consultation or to request a Condition/Informative, where no evidence of coordination has been received.**

We refer to the application for a new installation for a mobile telephony mast (coordinates or E/N) which we understand also includes 5G capability. In order to avoid a potential impact on Air Traffic Control radars operating in the 10cm band, mobile network operators (MNOs) are required to demonstrate compliance with the Ofcom coordination process.

XYZ, has concerns over the lack of assurance received by MNOs on the compatibility of 5G with its radar operation as set out in the Ofcom procedures and which the MNOs are to follow. Accordingly, XYZ would wish to review the coordination and respectfully requests that the Applicant provides more details prior to our being able to submit a formal representation to the planning consultation.

The process to be followed states:

*“As part of the Award Process for licences in the 2.6 GHz spectrum band, a cross-Government radar remediation programme ensured that ATC radars in the 2.7 GHz band (2700-3100 MHz) were modified to become more resilient to interference from the 3.4 GHz Band (3410 MHz to 3600 MHz). However, the radars have retained some sensitivity to emissions from the 3.4 GHz Band”.*

The process can be found on Ofcom's website:

[https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0018/114264/3.4-Radar-Co-ordination.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0018/114264/3.4-Radar-Co-ordination.pdf)

The radars to be safeguarded can be found at the following URL:

[https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0020/44921/protected\\_radar.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0020/44921/protected_radar.pdf)

## **Appendix B**

*Data/Summary to be requested from an MNO following their Ofcom process calculations/coordination having been undertaken.*

MNOs should provide figures for data in the yellow boxes (X parameters and coordinates) in order to allow verification of their data.

Base Station		
Coordinates	Eastings	Northings
Peak In Band EIRP	X	dBm/MHz
Out of Band EIRP	X	dBm/MHz
Antenna Off-Boresight Losses	X	dB
MNO Licensed Bandwidth	X	MHz
ITU-R P.452-16 Correction	X	dB

Thresholds From Ofcom Paper (will vary between MNOs)		
In band Threshold	--	dBm/m <sup>2</sup>
Out of Band Threshold	--	dBm/MHz/m <sup>2</sup>