



Ministry  
of Defence

MINISTRY OF DEFENCE  
FLOOR 5, ZONE B, MAIN BUILDING  
WHITEHALL LONDON SW1A 2HB

Telephone 020 7218 9000 (Switchboard)

**STUART ANDREW MP**  
PARLIAMENTARY UNDER-SECRETARY OF STATE AND MINISTER  
FOR DEFENCE PROCUREMENT

MSU/4/8/1/2/ap

22 January 2019

*Dear Julian*

Thank you for your letter dated 12 December 2018. I would like to reassure you that the Ministry of Defence (MOD) is taking our long-term requirement for Radar capability and the industrial concerns raised by BAE Systems seriously.

The Defence Science Expert Committee was already in the process of investigating our Radio Frequency (RF) sensing capability. I have now asked my officials to consider their report as part of a wider Radar review and to provide me with recommendation on the MOD's future approach to Radar capability by Spring 2019. This Radar review will provide an opportunity for a holistic approach across land, maritime and air domains to ensure we understand what we require from industry and within the MOD to deliver long-term freedom of action and operational advantage. This includes ensuring the MOD has access to the technologies we need to meet future threats.

BAE Systems provide important land and maritime Radar capabilities to the UK Armed Forces, but they are not the only UK or international company that provide the UK Armed Forces with Radar capabilities. As part of the Radar review we will consider the important role of industry in delivering our future Radar capability and this includes reviewing the capabilities within BAE Systems and our other industrial partners. We have engaged with BAE Systems over their Technology Demonstrator Programme (TDP) proposal, but until we have conducted this fuller Radar review, and considered our next steps, the MOD cannot commit to participating in this TDP.

The MOD is continuing to invest in the in-service support and development of the Artisan and Sampson Radars deployed with the Royal Navy. In the case of Sampson, the MOD is not only actively funding obsolescence management and technical refreshes of the system but is also in the early stages of investigating the necessary upgrades to meet new and evolving threats to keep the capability at the cutting edge of maritime radars.

I hope this reassures you that the MOD has action in hand to consider this issue. However, as I am sure you will understand, any decisions will need to be taken as part of the upcoming Spending Review.

*Yours  
Stuart*

**STUART ANDREW MP**

The Rt Hon Dr Julian Lewis MP  
Chairman, Defence Committee  
House of Commons  
London  
SW1A 0AA



## Defence Committee

Chairman, Rt Hon Dr Julian Lewis MP

Committee Office, House of Commons, London SW1A 0AA

020 7219 6872 / 5857 defcom@parliament.uk www.parliament.uk/defcom

Stuart Andrew MP  
Minister for Defence Procurement  
Ministry of Defence  
Main Building  
Whitehall  
London SW1A 2HB

12 December 2018

*Dear Stuart,*

Please find enclosed a copy of a letter I have received from Mr Phil Rudd, a senior representative of the Trades Union committee at BAE Systems Maritime Services, Cowes.

As you will read, there is a great deal of concern about the future of the defence radar industry and equal uncertainty at the level of the Government's commitment to supporting this significant sovereign defence capability.

A delegation of Committee Members visited BAE Cowes in September where we were shown the impressive range of complex radar systems that BAE supplies in support of UK Defence. Both the short-term and long-term challenges that industry is facing in delivering these advanced capabilities were discussed at length by BAE management and by Trades Union representatives.

The Radar Technical Demonstrator Programme (TDP) which Mr Rudd discusses in his letter will play a central role in addressing some of these challenges. BAE is seeking match funding from the Government to get this programme off the ground. It is my understanding that there is increasing concern within industry that this investment will not be forthcoming.

I would be grateful if you could answer the concerns within Mr Rudd's letter and make clear what the Government's intentions are in respect of the TDP proposals.

*Yours sincerely,*  
*Julian*

Enc.

P M Rudd,  
BAE Systems,  
Newport Road,  
Cowes,  
Isle of Wight,  
PO31 8PF.



Rt Hon Dr Julian Lewis MP,  
House of Commons,  
London,  
SW1A 0AA.

30 November 2018

Dear Julian,

### FUTURE OF THE UK DEFENCE RADAR INDUSTRY

As you will recall from previous meetings and correspondence, the trades unions have serious concerns for the future of the UK's defence radar industry.

The Government has been asked to co-fund BAE Systems' Radar Technical Demonstrator Programme (TDP). This will form the basis for de-risking developments to meet both known upgrades to the MoD's existing radars and the creation of next generation complex radars, necessary to counter rapidly evolving threats. The use of radar demonstrators is well proven, leading to the development of the highly capable Sampson radar on the Type 45 destroyers.

In various replies (dated March to June 2018) responding to letters from fellow MPs regarding the UK's radar industry, the then Defence Procurement Minister, Guto Bebb, stated it was important that UK industry "*invests in the future of UK radar technology so that our industry remains world-leading*". BAE Systems has, to date, invested circa £5m in the TDP.

The Government is now being asked to invest £10m over four years, which will be matched by BAE Systems. This has been discussed at a meeting between the company and the Minister for Defence Procurement. At present, however, the Government is not mindful to invest, though we understand it is committing to a long term review of radar. Whilst, depending upon its terms of reference, a review is welcome, particularly if it can lead to a UK radar strategy (which Unite is advocating), it will, in all likelihood, take at least six months and potentially longer if there is a general election. Hence, in the absence of a tangible commitment to the TDP by the Government, or perhaps a clear recognition of the importance of retaining land and naval defence radar industrial capability within the UK, BAE Systems has concluded that the Government no longer values the importance of a UK defence radar industrial capability and has withdrawn its funding.

This will have very serious short term consequences for sites at Cowes and at Great Baddow, where the business is currently recruiting, not just to meet the demands of the TDP, but also in response to an ageing workforce to support existing programmes. Over a third of the engineers at these sites are within five years of retirement and without a high profile, cutting edge development programme, replacement with suitably qualified and experienced personnel will be all but impossible. Recruitment, in a market where engineers are in incredibly short supply, is a lengthy process; high quality engineers cannot be simply recruited and trained overnight.

A lack of commitment from the Government could signal the end of not only the development of the next generation of complex land and naval radars in the UK, but also significantly impact the upkeep and future upgrade of its current radars, for example, providing Sampson with ballistic missile defence capability. Over a short number of years, UK defence industrial radar capability would disappear, with no prospect of re-generation. The UK, having been at the leading edge of radar development since the Second World War, would become totally reliant upon foreign suppliers and their governments with all that entails. Inevitably, this will also lead to the run-down of BAE Systems' sites on the Isle of Wight and at Great Baddow, also impacting sites in Hillend (Dunfermline) and Broad Oak (Portsmouth) with a corresponding loss of jobs.

I have attached a briefing paper on this subject, in which we make the case for funding the radar demonstrator and also for a radar strategy, learning from work undertaken on the Combat Air strategy. Just as the government recognises the importance of maintaining 'choice in how we provide that [combat air] capability without relying on others', so it should for land and naval radar.

On the 25th January 2018, Gavin Williamson stated:

*"I want us, wherever we can, to purchase products that are manufactured here in Britain. We also have to look at manufacturing products that we can sell not just to the Ministry of Defence but right across the globe. The larger the product portfolio that we can sell to the Gulf, Europe and the United States, the better it will be for British industry."*

It is difficult to think of a clearer exposition of the importance of manufacturing in the UK, but without support for the UK defence radar industry, there will be no future land and naval radar products to purchase or to export.

It is now time for the Government to make a commitment as without this, BAE Systems' funding of the TDP will cease at the end of 2018, putting UK defence radar industrial capability at risk. Hence anything you can do to prevail upon both the Secretary of State for Defence and the Minister for Defence Procurement in this regard would be much appreciated.

If you could inform me of any support you can provide, it would be much appreciated, but the situation is such that this would need to be undertaken as a matter of urgency.

I look forward to hearing from you.

Yours sincerely,



Phil Rudd,  
For and On Behalf of the Trades Unions,  
BAE Systems Maritime Services, Cowes.

Enc: Future UK Radar Development – Ensuring Sovereign Choice

## Future UK Radar Development – Ensuring Sovereign Choice

In his foreword to the Combat Air Strategy, the Secretary of State for Defence, the Rt Hon Gavin Williamson MP, recognised the UK was *'at a pivotal moment – a juncture where we need to act if we are to keep highly skilled jobs and world-class sovereign technologies.'* He added *'we could choose to let this industry die; the strategy creates the conditions for it to thrive and grow.'*

This equally applies to radar, but **without a commitment now from Government to enable BAE Systems' Radar Technical Demonstrator Programme (TDP) to continue, advanced radar development in the UK will stop, potentially with irreversible consequences.** Just as the Government recognises the importance of choice in how it provides Combat Air capability without relying on others, so it should with radar.

### Radar – A Critical Capability

Radar is and will continue to remain the most important above water sensor for airborne and surface threats and as such, there is a mutual reliance between combat aircraft and radar. Both face the same challenges and both are critical to the defence of the UK and its military personnel. Land based radar is essential for the protection of the UK, the Falklands and during operations (e.g. Afghanistan). Naval radars ensure warships can be deployed into high-risk environments. However, without appropriately advanced radar to provide enhanced situational awareness (operational advantage), emerging threats will go undetected and neither aircraft nor missiles will be able to intercept them. **Put simply, without such radar, military deployments would be virtually impossible without a considerable and unacceptable risk to the lives of our service personnel.**



Sampson Radar

### Threats to the Air Environment

In its Combat Air Strategy, the Government has recognised the following:

- *'the future air environment will become increasingly complex, with rapid technological advancements ... information advantage will be critical, as will the ability to exploit and defeat emerging technologies'*
- *'Investment by adversaries in highly capable systems has reduced the technological advantage that Western air forces have in achieving and maintaining control of the air'*
- *'the future air domain will continue to be characterised by highly-capable integrated air defence systems and an increasingly complex electro-magnetic environment.'*

These points apply equally to radar, with modern threats including hypersonic and ballistic missiles, swarming drones, stealthy aircraft and UAVs, along with increasingly sophisticated jamming and cyber threats.

Yet without advanced complex radar, whether land, naval or airborne, providing *'information advantage'*, it simply will not be possible to defeat these emerging technologies.

Land and naval radars, therefore, are essential contributors to achieving operational advantage in the air domain.

### Industrial Landscape

The Combat Air Strategy acknowledges a UK industrial sector that has underpinned the UK's operational advantage and freedom of action in the Combat Air sector for the last 100 years. This is equally applicable to radar over the last 80 years, starting with the development of Chain Home, the world's first integrated air defence system which was so decisive in winning the Battle of Britain and so pertinent to the need to retain leading UK capability in this field today.

Over many decades, the UK has maintained freedom of action and operational advantage in respect of its radar capability, facilitated by study programmes and radar demonstrators. The Sampson radar, introduced into service on the Type 45 destroyers in 2009, was a result of sustained investment in radar demonstrators over three decades and continues to offer demonstrated leading edge capability, with the potential for upgrades through to its out-of-service in 2045 or beyond. **Trials over the last few years have proven Sampson's ability to be upgraded to provide a ballistic missile defence (BMD) capability at relatively minimal cost, vital for the defence of carrier strike group in high-risk deployments.** Technology developed by BAE Systems into Non-Cooperative Target Recognition, the ability to identify aircraft from their radar signature, is considered to be world leading. However, **without a continued commitment by the government to UK radar, the ability to sustain and upgrade its current radar platforms over the medium to long term will be put at significant risk,** with all the resulting capability and economic implications.

### **A Strategic Approach to Radar**

The Government has committed to a radar review, but what is needed is a radar strategy, committing funding, to facilitate the future development and support of complex radar in the UK over the long term, learning from the work undertaken in creating the Combat Air Strategy.

As well as committing to investment, such a 'radar strategy' should consider the '*novel approach*' taken through the Complex Weapons Portfolio Management Agreement. As outlined in the Strategy, this has '*secured UK freedom of action and operational advantage in the complex weapons sector*', meeting '*the operational needs of all three armed services*', achieved through a '*centrally managed portfolio of weapons*' and based upon '*a long-term and transparent relationship between the customer and supplier*'. The Defence Equipment Plan 2017-2027 stated this was estimated to make savings of £1.2bn over ten years '*compared to what could be achieved from open competition*'.

Given the interdependency between radars and missiles and indeed the transfer of learning and commonality of some sub-systems between different (BAE Systems) radar systems, adopting this approach for radar would appear advantageous. This could involve single point ownership for radar across all the services, responsible for R&D, procurement, through life support and capability enhancement, and hence deliver savings to the MoD.

The above, however, will not be delivered overnight and **in the short term there is the very pressing need for tangible Government support for BAE Systems' radar Technical Demonstrator Programme. This will be essential to develop the next generation of complex radars, without which there will be no future for UK land and naval complex radar capability.**

### **Conclusion**

The UK Government has recognised that '*A strong national Combat Air sector gives the UK the military capability we need to defend the country and our national interests, and choice in how we provide that capability without relying on others – the very essence of sovereignty*'.

This is to be underpinned through the Government's Future Combat Air System Technology Initiative, whereby the MoD is to '*initiate technology demonstrations co-funded with industry to ... ensure the UK has capability across Government and industry*'.

The Government should now be doing the same for radar. Government called upon industry to invest in radar capability, which BAE Systems has done to the tune of circa £5m in its radar TDP. Now is the time for Government to acknowledge this commitment, **through the creation of a radar strategy and immediate support for BAE Systems' radar Technical Demonstrator Programme.** This will provide certainty for industry, facilitating the retention and development of the expertise necessary in the shorter term to further develop existing radars, such as providing BMD capability to Sampson, whilst ensuring the Government retains choice in the medium to longer term.