

## Radio Investigation Service (RIS) – the future operation of the service

### 1 Background

The BBC has an obligation under the Agreement to make reasonable arrangements for the investigation of reports of interference to domestic reception. The BBC has in the past fulfilled this role by placing a single contract with Ofcom for a complete service from initial enquiry through to final investigation.

The broadcasting landscape has changed considerably since the BBC first contracted the service to the Radiocommunications Agency, including the advent of Digital switchover, and the consumer is more web-wise and capable of more 'self-help' activities. Therefore the proposed operation of the RIS puts far greater emphasis on on-line and telephone diagnostic processes and web information, and an improved interface with interested parties such as Digital UK, aerial installers etc.

#### 1.1 What is 'Interference to domestic reception'

For the purpose of this document, reception problems can be grouped into four main categories:

- A. 'In home' reception difficulties due to poor installations or incorrect set-up.
- B. Transmitter Network problems (faults with individual transmitters which have an effect on signal strength or coverage area of a transmitter)
- C. Digital Switchover planned work (planned work which may cause an analogue or digital transmitter (radio or tv) to be reduced power or have a modified coverage area)
- D. External electrical interference (interference from an external source which may or may not be broadcast related)

Cases A through C can be generally considered to be general reception problems which although the BBC and other broadcasters may wish to provide support to the viewer or listener, they should not be classed as interference. For the BBC, the existing reception advice service within MC&A, already provides an advice and support service for basic reception difficulties. Case D is where the BBC's obligations could be seen to apply, and should be managed by the RIS. It is within Case D that we are also more likely to see a requirement for enforcement. Where enforcement does apply, Ofcom has a statutory duty to enforce the spectrum, and it is our intention to refer all such cases to them.

### 2 Existing RIS service

The current service provided by Ofcom comprises two basic triage stages (non-technical and then technical) followed by a more detailed field investigation service, often within the consumer's home. The total case volume managed by Ofcom is c. 3,800 per annum. This resolution of this case volume can be typically broken down into the following stages:

- c. 2000 Cases resolved via non technical triage
- c. 600 Cases resolved by more specialist technical triage
- c. 1100 cases resolved by means of a field survey
- c. 100 cases unresolved

It is believed that a significant percentage of cases which are currently dealt with by the field service team could be resolved by more thorough and technical triage processes. It can also be seen that a number of investigation cases resolved by means of a field survey could be considered to be enforcement cases, and as such the responsibility of the Ofcom enforcement team.

Currently ~3,500 cases per month are received by Capita relating to reception issues and interference, compared to the 3,800 cases *per year* managed by Ofcom. It is anticipated that for the Capita call centre to take on this additional contact volume should not create a significant financial or managerial impact.

### 3 New Interference Investigation Process

Over the last year, Distribution has been working with MC&A to improve how Capita manage calls related to interference or reception difficulties. Interference or reception related calls currently represent about 3% of the total call volume into the BBC call centre (the remainder being programme related or of a more general nature).

Through the use of interactive web pages and a number of automated applications, the intention, in the new service, is for the consumer to resolve many common reception difficulties on-line without a need to refer to the call centre. In parallel, a new application is in development which will inform the consumer which is their most likely transmitter providing their television or radio service, and whether that transmitter is operating normally, on reduced power or off air. This application should release a significant percentage of time within the day for the existing MC&A reception advice team for other activities, which could include technical triage for the RIS.

The new triage systems should enable the domestic user, with support from the Capita call centre and website to both identify and resolve the reception problems A to C. Although some causes of Case D interference could also be automated or resolved via a generic processes, the identification of interference often requires a more interactive process. The use of technical experts to query the consumer for details of the specific installation or nature of the problem can be an effective means of resolving the problem.

Of those cases which cannot be resolved on-line or over the phone, it is likely that the majority are as a result of either transmitter faults, digital switchover code of practice interactions or interference due to licence breaches. There are existing systems in place to manage the former two, and the latter is the responsibility of Ofcom.

### **3.1 First line consumer advice and support**

It is the intention of the BBC to use its existing arrangements with Capita and the BBC website to provide first line support and information.

The new call centre service will offer a primarily self help, web-based service, which uses a combination of fact sheets, FAQs, web diagnostic tools and IVR's to enable the consumer to resolve most in-home domestic reception issues themselves. In the event of no web access, the Capita call centre staff will also respond to telephone enquiries by use of the same automated systems.

As part of this process two new diagnostic tools are in development:

#### **3.1.1 Transmitter fault tool**

The transmitter fault tool is a web-based application which will enable the user to enter their postcode and the application will return a list of likely transmitters which could be in use at the specified postcode. The application will then provide information on the status of those transmitters, colour coded green (operating normally), Amber (in a fault condition which will reduce service level) and Red (transmitter is currently off air). This application will also show up to 3 days of transmitter related history of any events which have taken place. This system will be accessible to the public on the BBC Reception Advice web pages, but will also be used by the call centre staff when a consumer has called into the call centre.

#### **3.1.2 Web based fault diagnostic**

The web based fault diagnostic application has been designed to enable self service by the consumer via the BBC website. The application will walk the user through a series of questions which should identify many of the typical causes of reception difficulties in the home. The application is complemented by a series of FAQ's and fact sheets which offer advice and techniques to help eliminate the common faults and problems. Where a consumer is unable to access the web, the call centre staff will use the same diagnostic tool to identify the likely source of the interference, and then can provide a fact sheet via the post as appropriate. An example of the flow process is included in Annex 1.

All enquiries going through the diagnostic tool are recorded, and a series of standard reports can be produced to look at any significant trends or issues which need to be referred to second line support.

- *Of the 3,500 calls per annum currently managed by Ofcom, it is anticipated that 60% should be resolved by the BBC- provided automated triage services.*

### 3.2 Second line advice and support

As part of the process of bringing the service in-house, it is proposed that Distribution will create two new posts (as attachments) to provide the specialist technical triage service. These “Reception Experts” would be responsible for liaising with the consumers, offering specific advice and technical support on-line, via email and on the phone, liaising with local CAI approved aerial installers and building the on-line resources for self-help.

Based on the output of the web diagnostic application, reception experts will be able to analyse the data from interference calls from both the call centre and the web. Based on the standard reports, the reception experts will identify trends which may indicate transmitter faults or coverage problems in the area that are not automatically reported. These issues will be resolved between the BBC, Digital UK (if appropriate) and the BBC’s transmission provider. In particular, issues which may relate to the digital switchover programme will be shared with Digital UK and the other DSO stakeholders to be investigated as part of the DSO code of practice.

For the remainder of the unresolved calls, the reception experts will offer a ‘call back’ service via telephone and email, to talk consumers through their particular issues. Utilising their expertise and local knowledge of transmitters, the second line support team can offer detailed technical support and advice to resolve the majority of the remaining problems without requiring a field visit.

As part of the 2<sup>nd</sup> stage technical triage process, it may be necessary for the consumer to demonstrate that they have had confirmation from a local CAI approved aerial installer that their installation has been verified and is operating correctly. A standard checklist has been developed, to be sent out as standard with a best practice fact sheet for the consumer to confirm they have eliminated the obvious causes of problems within the home. This fact sheet has been included in Annex 2 for information.

- *Of the anticipated RIS related calls it is estimated that an additional 25% should be resolved by means of the specialist technical triage service.*

### 3.3 Third line advice and support – In home investigations

Currently, a regional service carries out in the order of 100 field surveys per month across the UK. Through the use of the improved triage services, it is anticipated that the number of cases unresolved over the web or phone would be closer to 40 per month.

There are three options to be considered for the final (in-home investigation) stage of the service.

1. Cease in-home investigations
2. Contract out the field services to a specialist provider.
3. Deliver the field services in-house using existing BBC staff and any Ofcom staff subject to TUPE.

### **3.3.1 Ceasing the in-home investigations**

It is anticipated that the number of cases which cannot be resolved by the new triage processes will be considerably lower than the current volume of cases investigated by Ofcom. By liaising with local experts, such as aerial installers, the BBC should be able to offer advice and support to those organisations to improve their ability to identify the cause of any local issues. Following a visit from a local aerial installer, if the case is thought to require enforcement, it would need to initially be referred back to the BBC, and then on to Ofcom. An MOU would need to be agreed between Ofcom and the BBC to cover any cases which had been incorrectly referred to Ofcom.

#### **Advantages**

- Reduced overheads
- Enforcement is kept entirely independent of any investigations
- Better use of the licence fee / value for money
- More reliance on other industry specialists, giving them more awareness of issues affecting consumers

#### **Disadvantages**

- Cases which require enforcement will need to be referred back to the BBC for enforcement
- The BBC could be perceived as having reduced the service, despite the fact that diagnostic triage services have been improved.
- Managing industry experts to ensure no reputational risk to the BBC would be necessary
- Greater reliance on triage process may put additional pressure on Capita
- Improved case handling tools required
- Additional BBC effort required to manage industry contacts

### **3.3.2 Contract out the field services**

The BBC could go out to procurement for a specialist field service team who could carry out the in-home investigations on its behalf. Investigations would be on a case by case referral basis, provided the consumer has confirmed they have completed the diagnostic stages and taken advice from a local aerial installer. A mechanism would still be required for charging the consumer in the event the problem is with their own installation.

#### **Advantages**

- Case volumes are managed by the BBC triage services to keep numbers low
- A number of existing specialist firms are available, who currently offer similar services (Arqiva, Erricson, Eaga) and may already have a relationship with Ofcom.
- Enforcement is kept entirely independent of any investigations
- The BBC could be very prescriptive of the service we would like to procure
- The BBC could pay for field services on a case by case basis

#### **Disadvantages**

- Cost, both in the procurement and ongoing management of the new service
- We do not have sufficient time or management information to procure a suitably effective alternative service.
- Performance of supplier would require careful monitoring to ensure no reputational damage to the BBC
- New reporting tools would be required before the launch of the service
- Additional BBC effort required to manage supplier

### **3.3.3 Bring the in-home investigation within the BBC**

On the termination of the current contract with Ofcom, the BBC could bring the in-home investigation part of the service in-house, along with the triage services. This may include any Ofcom staff subject to final TUPE discussions.

#### **Advantages**

- It would be possible to learn how the service operates
- BBC could identify what is offered as part of the in-home investigation and seek improvements and efficiency savings

- BBC could seek to get recognition of the service it operates on behalf of all Broadcasters
- BBC could develop relationships with industry bodies
- Ability to track transmission related faults would improve - better monitoring of supplier performance.
- BBC would be seen to be offering a direct service to the LFP – positive publicity

### Disadvantages

- Cost increase, both in operating costs and in overheads relating to the regional distribution of the staff
- Management overhead to coordinate and management of any additional staff transferred from Ofcom
- New reporting / case management tools will need to be developed
- Relationship between Reception Advice and Distribution needs to be managed
- Improved case handling tools required
- Additional BBC effort required to manage industry contacts

## 4 Other requirements for the Field Investigations

### 4.1 Cluster field measurement

Regardless of the final resolution of in-home investigations, there is still a requirement for Distribution to monitor the performance of our transmission network and to contribute to the work of the Digital Switchover planning team. As part of this work, Distribution currently operate a small team of field engineers to provide a verification service for our transmission network. As part of this it may be necessary to carry out field measurements within a specific area where clusters have been identified to assess signal strengths of local transmitters and ensure they are working correctly and radiating as they should.

It should be noted that this is a very distinct service from the RIS in-home investigations with no overlap.

## 5 Investigation, Enforcement and referral to Ofcom

From our discussions with Ofcom, they have indicated that a significant part of the in-home investigations are to identify the source of illegal interference. As part of the investigation process, they will seek out the source of interference, and if the source of interference comes from a 3<sup>rd</sup> party, they will contact the 3<sup>rd</sup> party to encourage them to comply. If the 3<sup>rd</sup> party is not cooperative, the field engineer will request an

enforcement case to be raised. At this stage a public interest test is then applied to determine the most suitable approach to the enforcement case.

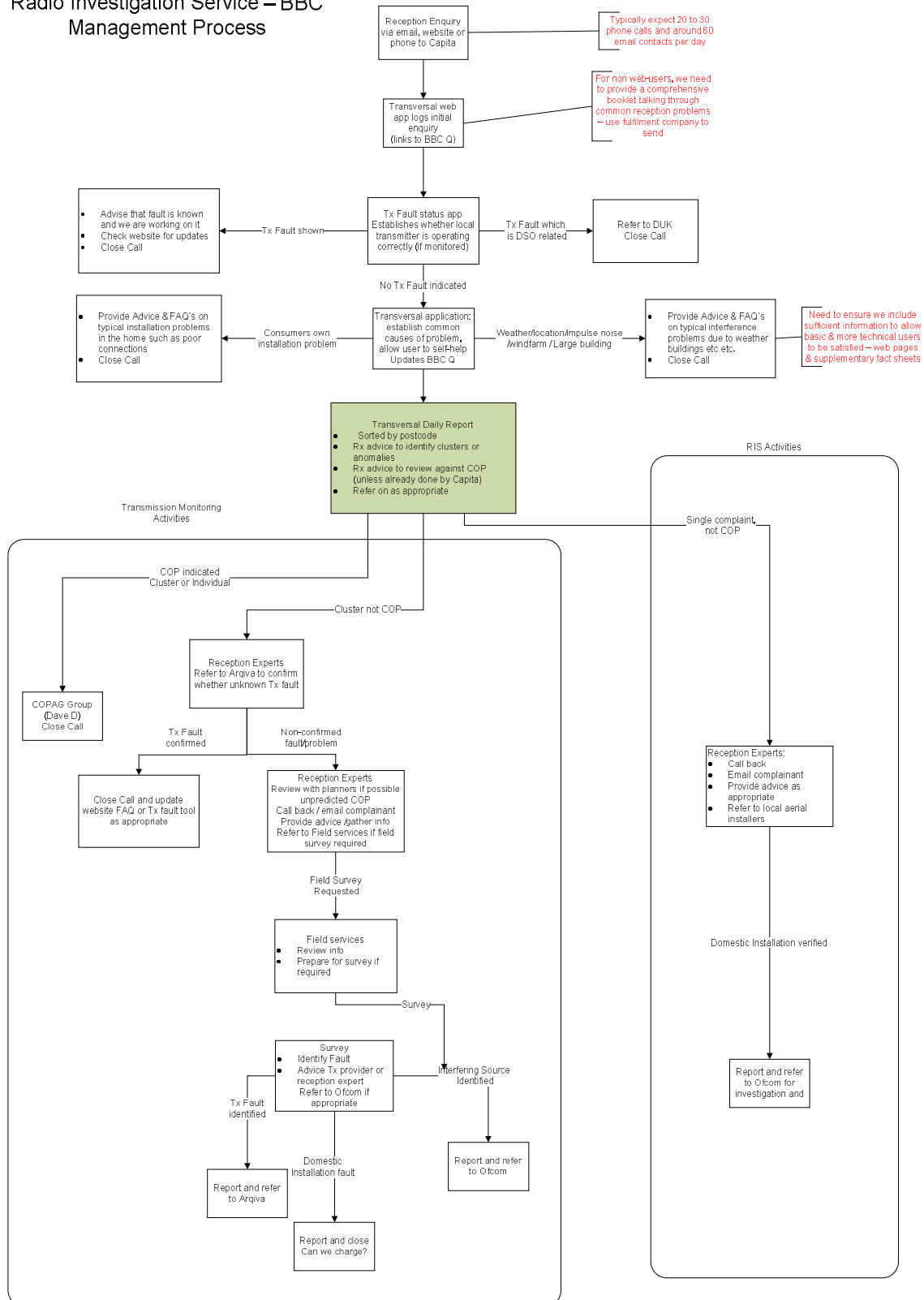
For the new service, the BBC's obligation is solely for the investigation of reports of interference, and it is Ofcom's statutory duty to enforce. Therefore, when the triage team has confirmed that the source of interference is not within the consumers own premises, the case would be handed over to Ofcom for enforcement.

Ofcom have informed us that the current enforcement team is completely independent of the investigation service, and there is no handover of specific technical measurement data. If the BBC was to find a high volume of referrals to Ofcom in error, it may be necessary to include an additional basic measurement regime, outside the consumers home, to give a greater level of confidence that the case was a genuine enforcement case.

# Annex 1 - Diagnostic Flow

## showing RIS activity and Transmission field measurement

### Radio Investigation Service – BBC Management Process



## Annex 2

### Estimated Call Volumes based on 2009 Ofcom reports

Calls into Call centre	Web referrals	Technical triage Cases	Field Survey Cases	Enforcement Referral cases	Digital UK/ COP referrals	Cases due to own installation
3804	803	1687	1072	< 20	Unknown	132

## Annex 3

### Monthly Reporting Requirement

<b>Summary Reporting</b>	
No of calls directly into call centre	
No of calls raised via web-form	
Regional distribution of calls	
For initial stage calls – Breakdown of Interfered with service (Analogue TV / Digital TV / Analogue Radio/ Digital Radio/Satellite/Cable)	
<b>Detailed reporting</b>	
No of calls resolved at level 1 (non technical) triage	
Average length of time to resolution for level 1 triage	
Typical resolution solution for level 1 triage (Retune advice, aerial advice, DSO advice)	
No of calls resolved at level 2 (technical) triage	
Average length of time to resolution for level 2 triage	
Typical resolution solution for level 2 triage (Retune advice, aerial advice, DSO advice)	
No of calls referred to field survey team	
Regional distribution of calls referred to field service team	
No of calls resolved following field survey	
Average length of time to resolution for level 3 field survey calls	
Number of field visits required to resolve case	
Typical resolution solution for field survey confirm resolution (Retuning issue, aerial issue, connection issue, weather issue, building issue)	
Typical source of interference (where applicable)	
No of cases down to consumers own installation	

No of cases due to DSO related work	
No of cases referred to enforcement	
No of cases charged to the consumer	
No of cases refunded to consumer (source of interference found to be outside consumers control)	

## Annex 4

### Standard in-home diagnostic procedures / questions for an installation fault

#### For use by local CAI approved aerial installer

- Measure incoming signal strength (terminal volts)
- Is the signal provided by the aerial adequate? Prolink signal strength meter set used to measure signal input to the receiver:
- Analogue; Are all channels within tolerance 60 to 70 dB V
- Digital; 45 to 70 dB V for Freeview MUXs; is bit error rate within tolerance.
- Look for attenuation at certain frequencies causing channelised noisy reception/loss of colour/loss of sound/Nicam stereo; carriers +/- 6 dB across the band.
- Is the S/N ratio satisfactory? Weak incoming signals could be amplified with a high gain amplifier but there might now be a high noise floor and susceptibility to ignition noise from passing road traffic or other contact devices.
- Is the equipment receiving the correct transmitter? A low power analogue relay may serve the area while the consumer is struggling to receive DTV from a distant main station.
- Confirm the quality of the aerial and coax feeder (observations): Is the coax feeder 'low-loss', or satellite grade with full foil shielding?
- Are there signs of UV sunlight deterioration? - increased attenuation during sunlight.
- Is the coax damaged? - is it worn by passing over a roof gutter, wind; squashed by sharp right angles or constricted due to cable clips?
- Look for signs of water ingress to the coax - often due to a loose aerial termination cap - there may be copper and aluminium corrosion at the connector.
- Is the coax continuous? - look for joints and or splitters feeding second & third TV sets in other rooms.
- Is the aerial outside?
- Is it the aerial the correct group and polarity for the transmitter being received?
- Is the aerial damaged; are all the elements/reflector intact?
- Is a mast head amplifier in use?
- Is the connector pin soldered or crimped to the coax centre?

## Annex 5

### Typical interference sources

- Unsuppressed or faulty thermostats/diverter valves/ignition systems
- Low energy/Fluorescent/Neon lighting
- Rheostat (dimmer) switches
- Electrical Power Lines
- Switch Mode Power Supplies
- Electric Fences
- Faulty or radiating Masthead or Distribution Television Amplifiers
- Radiating Digital Receivers
- Industrial Scientific and Medical (ISM) Diathermy & Heating Equipment
- Computers
- LCD/Plasma screens
- Radar
- ADSL
- Radio transmitters including Amateur, Citizen Band, Business Mobile Radio,
- TETRA/Cellular base stations and Illegal broadcast (pirate radio)
- Low Power Wireless Devices; video senders

## Annex 7

### Interference to domestic reception – self help checklist

*Following a call to the BBC helpline, when the operator has confirmed that there is not a fault with the local transmitter, this self-help factsheet will be sent out to enable the caller to eliminate most sources of interference.*

No	Check	OK ?
	<b>Installation</b>	
1	Have you had a CAI approved Aerial installer check your installation?	
	Check rooftop aerial - is it pointing in the right direction and is it correctly polarised?	
	Does the aerial have clear line of sight free from trees & obstructions?	
	Is the aerial in good condition (no elements missing etc), free from corrosion?	
	Is the connection to the down-lead free from water?	
2	If you have a portable aerial – have you tried moving to a different position in the room	
3	If you have a masthead amplifier - is it working, free from water, corrosion etc?	
4	The down-lead – is it good quality coaxial cable, free from water, kinks, tears etc with a good connector, also free from water?	
5	Are the connections to the TV equipment all snugly fitted with no signs of damage?	
6	Have you checked a neighbour reception – is that ok?	

	<a href="http://www.electusdistribution.com.au/images_uploaded/tvrecepe.pdf">http://www.electusdistribution.com.au/images_uploaded/tvrecepe.pdf</a>	
	<b>Tuning</b>	
7	Is your television / video correctly tuned? See the manufacturers guide.	
8	Digital STB – have you tried re-scanning?	
9	Is the problem just on one programme or all of them?	
	<b>Your environment</b>	
8	Is the interference intermittent – does the TV glitch when your machine machine / thermostat / garage door opener etc operate? If so, try unplugging the device and try again.	
9	Is the interference as regular as clockwork? (This may indicate that something like a central heating system is causing a problem)	

*On completing this checklist, if you still have a reception problem, please call the BBC reception advice helpline again, stating that you have completed the self-help fact sheet, and still have a reception problem. You will then be put in touch with a reception advice expert.*