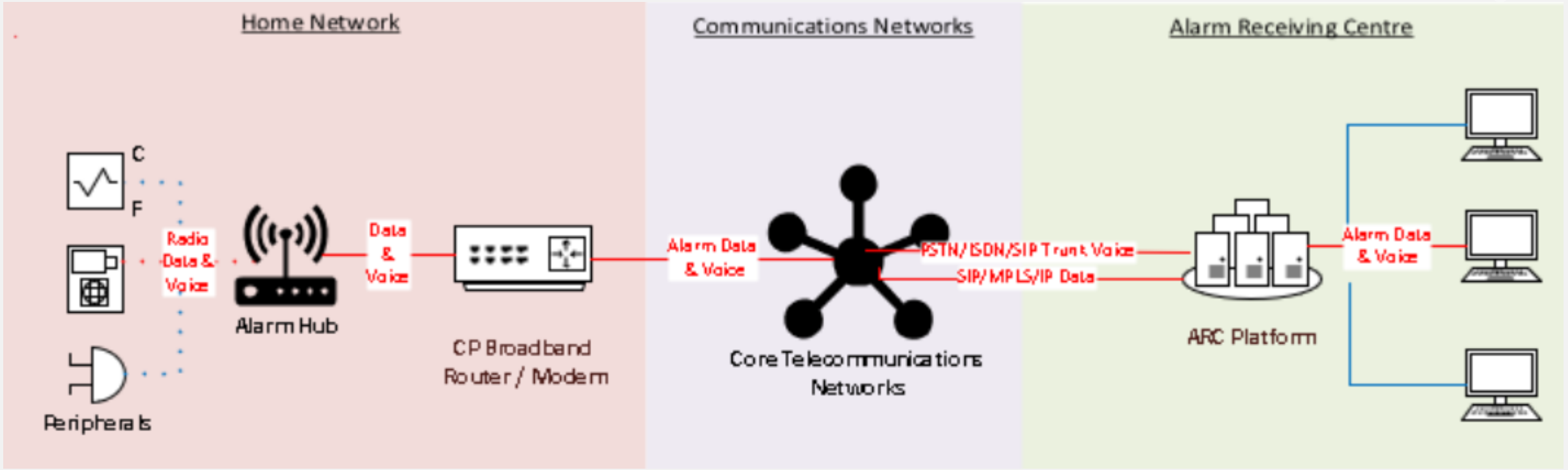
Analogue On Digital

TSA Testing & Installation Guidance

Analogue on Digital – Digital Landline only



Note:

Installing Analogue-only equipment on Digital landlines is not recommended:

- No standard power backup for mains failure
- No power outage notification to ARC if no router/modem backup in place
- Analogue protocol disruption expected to increase as core networks transition to digital

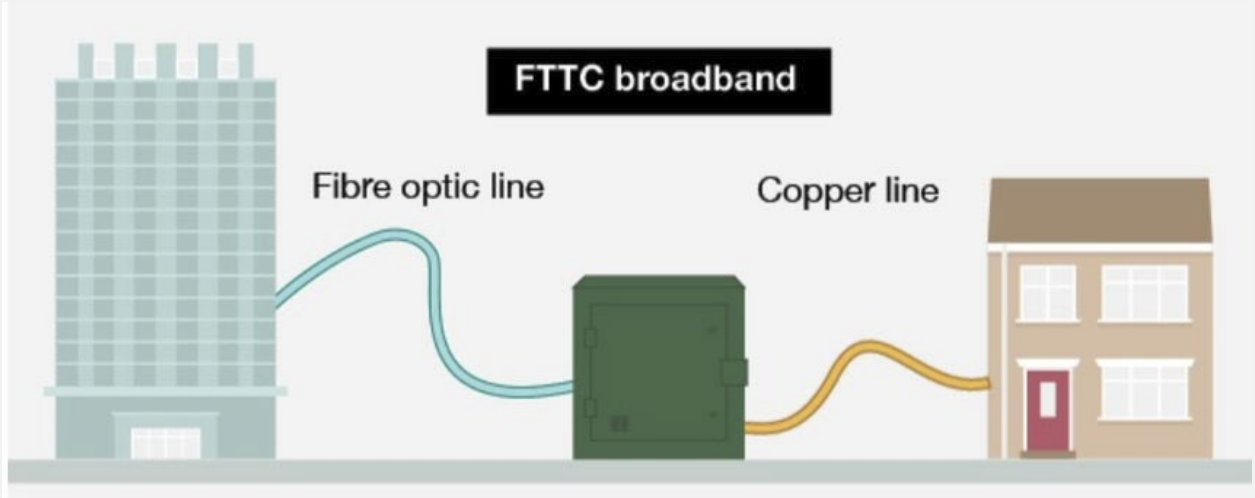
Analogue on Digital – NICC Advice

‘Keeping an analogue Voice Band Data (VBD) device in the consumer home means that there will always need to be a conversion to Voice over Internet Protocol (VoIP) even if the end-to-end network path remains VoIP from that point onwards.

It is in the conversions that issues occur. Furthermore, there is no guarantee that some VoIP connections will not be using Telephony Events, rather than in-band media, as well as variations in Codec, so VBD throughput will not work reliably.

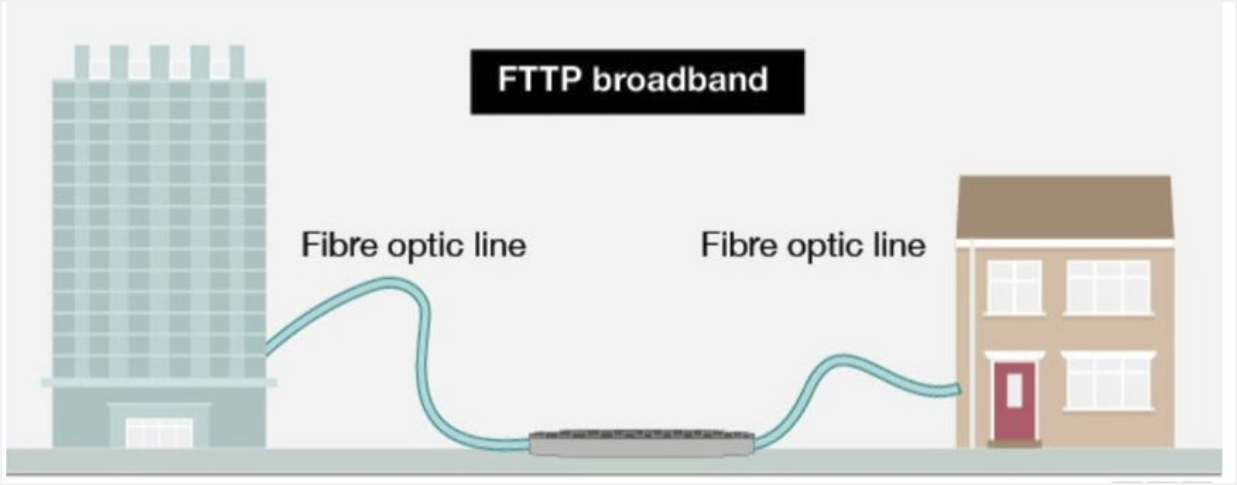
Anyone that is intent on finding reasons to keep their analogue-only solutions in place, contrary to expert advice, rather than accepting and embracing change, will clearly be doing so for short-term financial reasons, and will be doing so despite offering an inferior service to their competitors and potentially putting their customers at unnecessary risk’

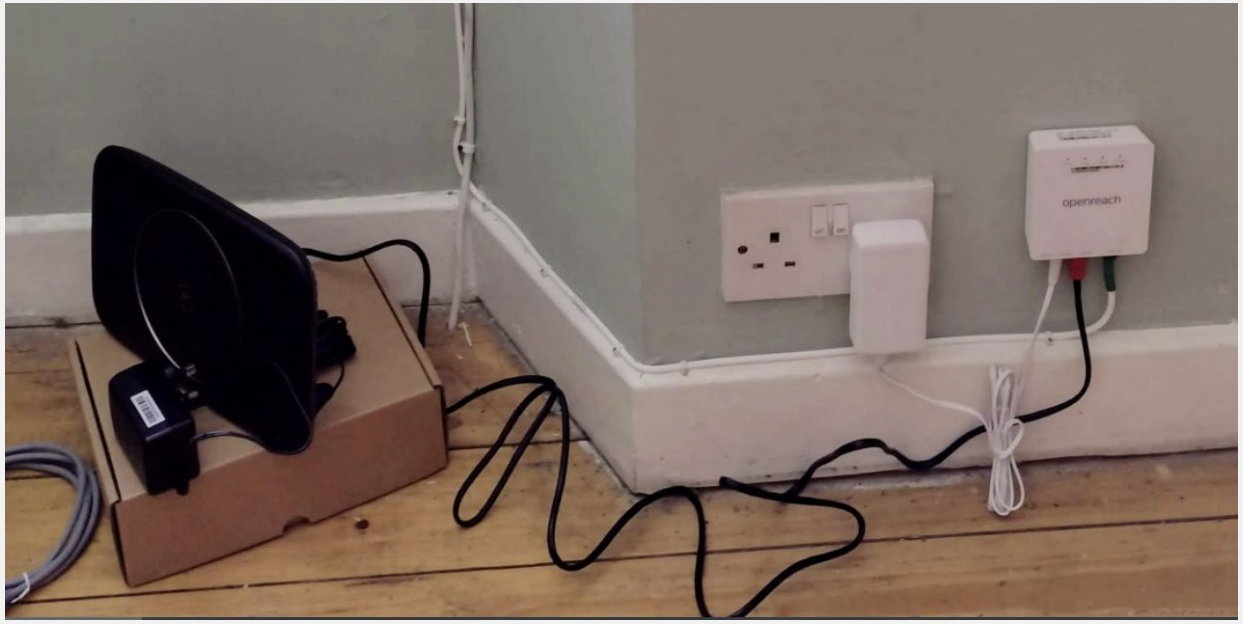
Analogue on Digital – Fibre To The Curb (FTTC) / SOGEA



- There are two main types of digital lines – FTTC (fibre / copper mix) and FTTP (full fibre)
- This example shows FTTC (copper / fibre mix) – this mix is also referred to as SOGEA by Openreach
- FTTC installations connect to the local exchange via the street cabinet
- FTTC installations can occur with very little or no installation work required in the home as routers plug into the existing sockets
- No modem is required so it is only the router that will require battery back-up in the event of a mains power failure

Analogue on Digital – Fibre To The Premises (FTTP) / Full Fibre

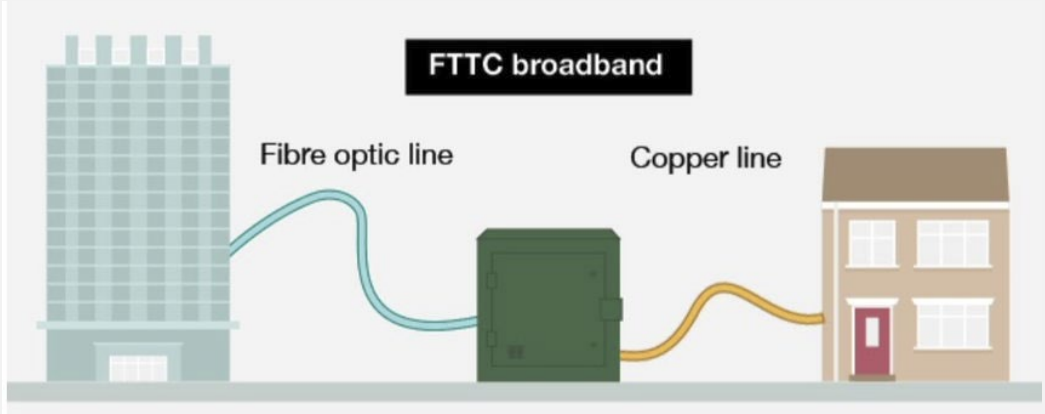


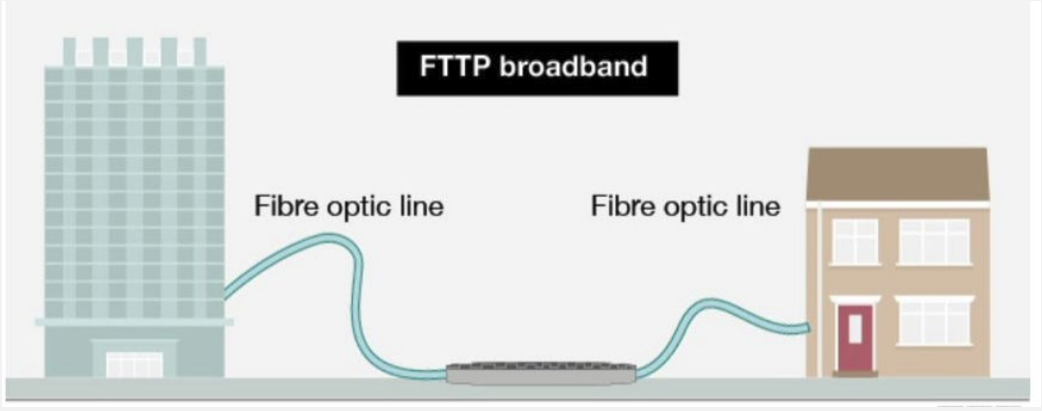


- This example shows FTTP (full fibre)
- FTTP installations do not connect to the local exchange via the street cabinet – they are directly wired to the local exchange
- New FTTP solutions require an engineer visit and the installation of a wall mounted modem near to a plug socket for mains power
- Battery back-up for the modem is not provided as standard meaning the solution will fail to operate if mains power lost
- The router is connected to the wall mounted modem via an ethernet cable
- Battery back-up (not provided as standard) will be required for both the router and the modem to operate successfully during a mains power failure

Analogue on Digital – Power Outages

1. The Comms Provider (CP) router/modem does not have any Battery Back-Up (BBU) provided as standard and therefore the overall solution will fail to connect to the ARC during any mains power outage.
2. Some CP's (e.g. BT / Talk Talk) have committed to providing BBU to a cohort of users that they agree are vulnerable
   - Those batteries will provide a maximum of 1 hour of back-up in the event of mains power outage
   - Vodafone are developing a 4-hour BBU for the modem/router
3. Street Cabinets that provide non-FTTP services are fitted with 4-hour battery backup units
   - For outages lasting longer than 4 hours, engineers are normally able to swap out batteries from other street cabinets that are still under mains power
4. Openreach Exchanges each have a diesel generator that can provide 7 days of power to an exchange in the event of a power outage

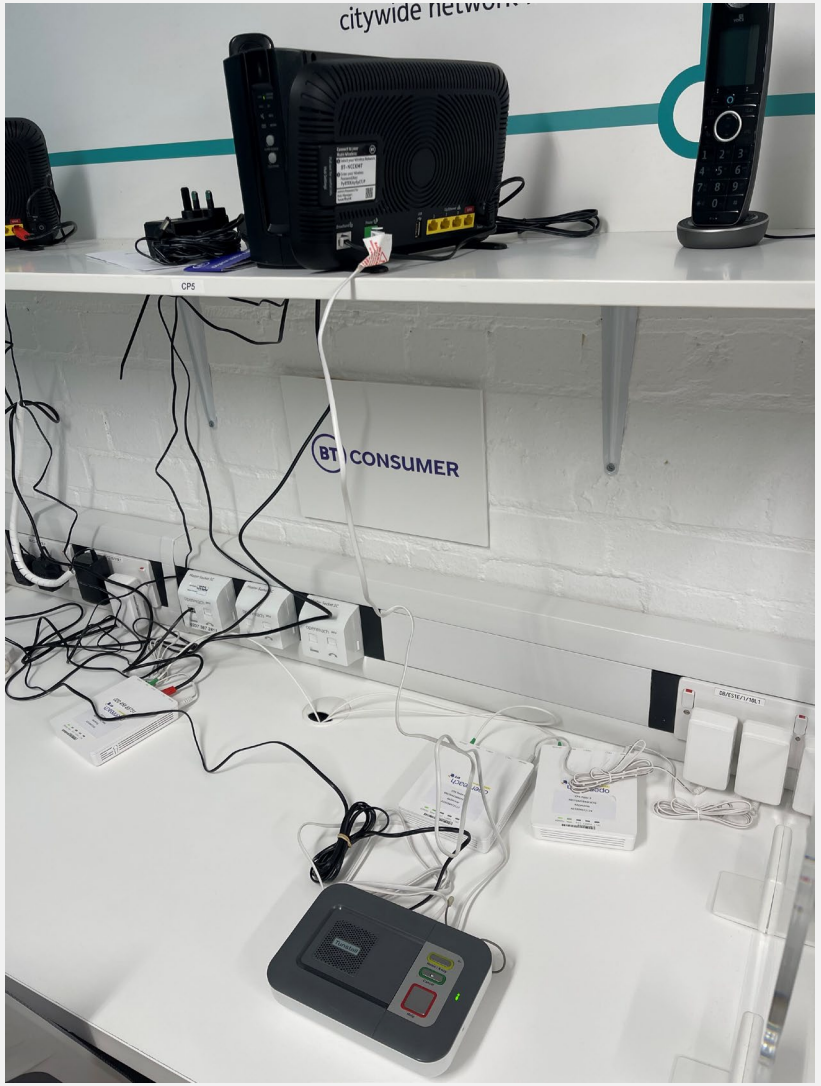




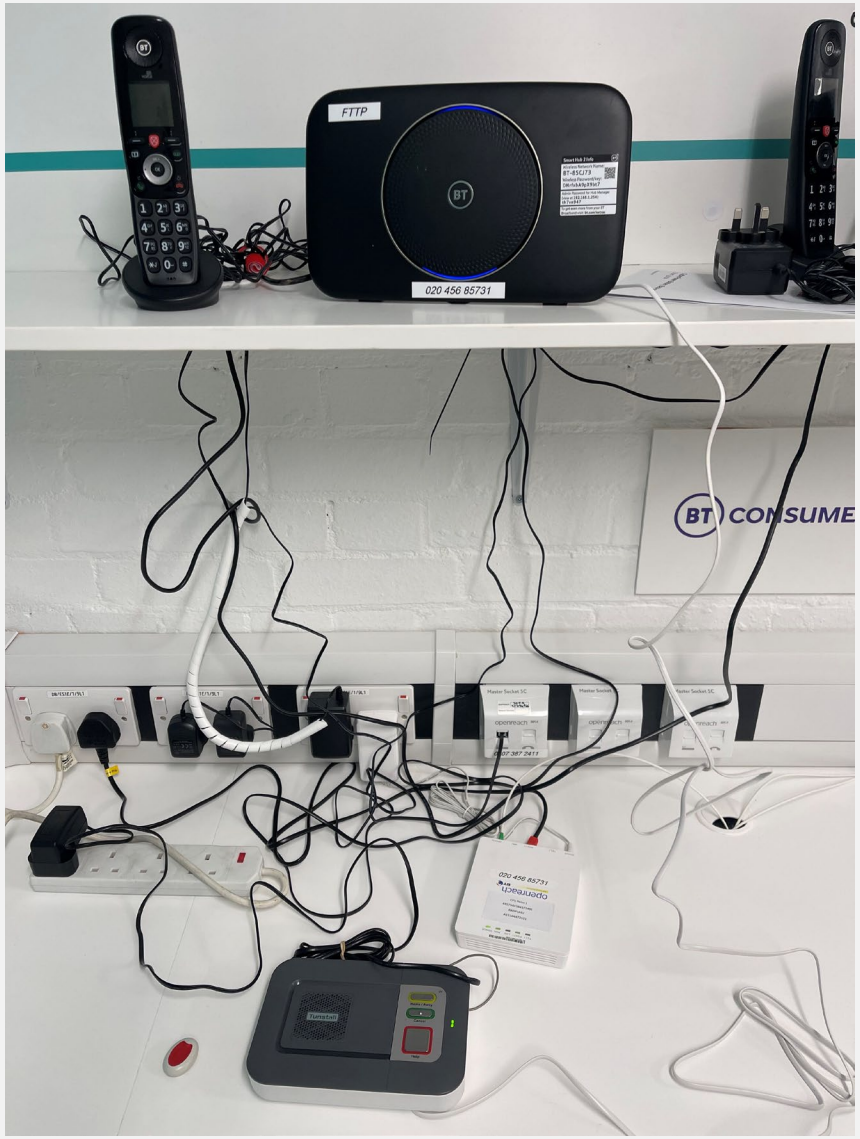
Analogue on Digital Testing – Openreach Test Centre

Analogue on Digital Testing – BT SOGEA/FTTC

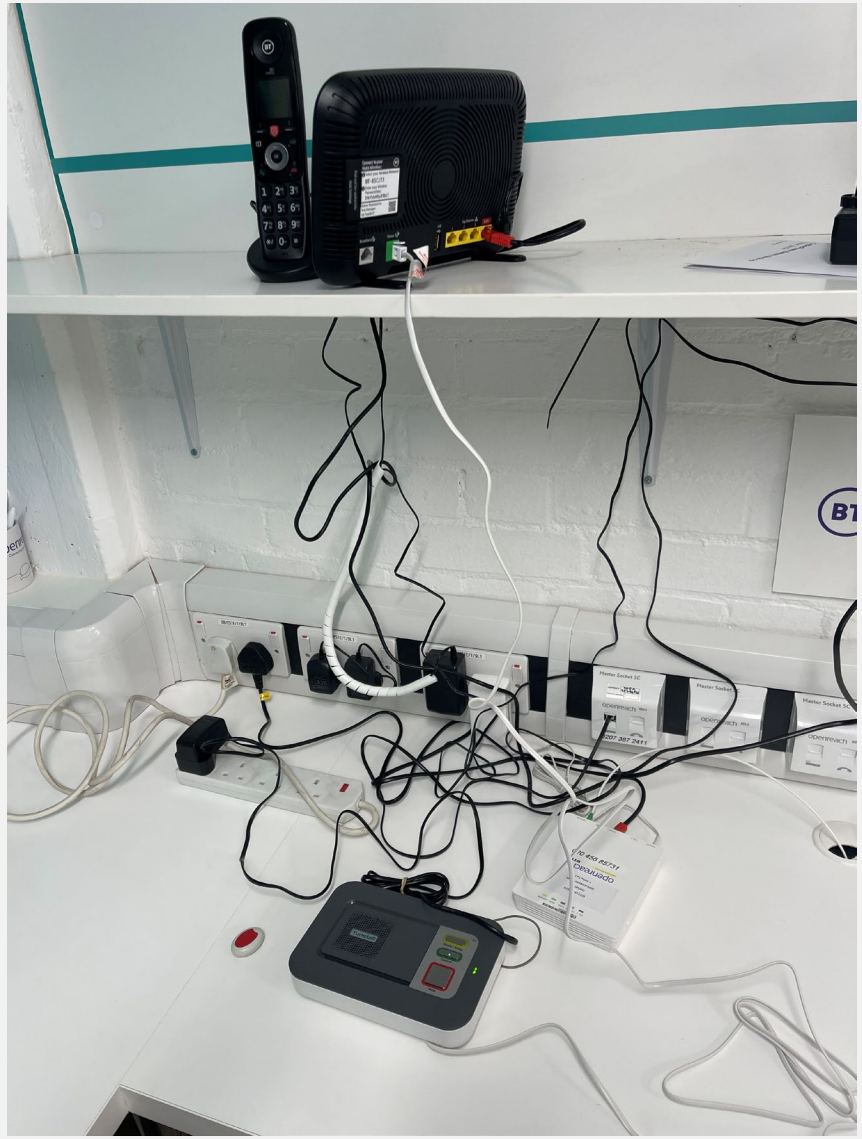
- No Openreach modem required
- Just the router requires power
- Telecare plugs into green ‘phone’ port on back of router
- The router is connected via the grey ‘Broadband’ port to the wall socket
- The red ‘WAN’ socket on the right is not used
- Note the Battery Back Up unit to the left of the router



Analogue on Digital Testing – BT FTTP

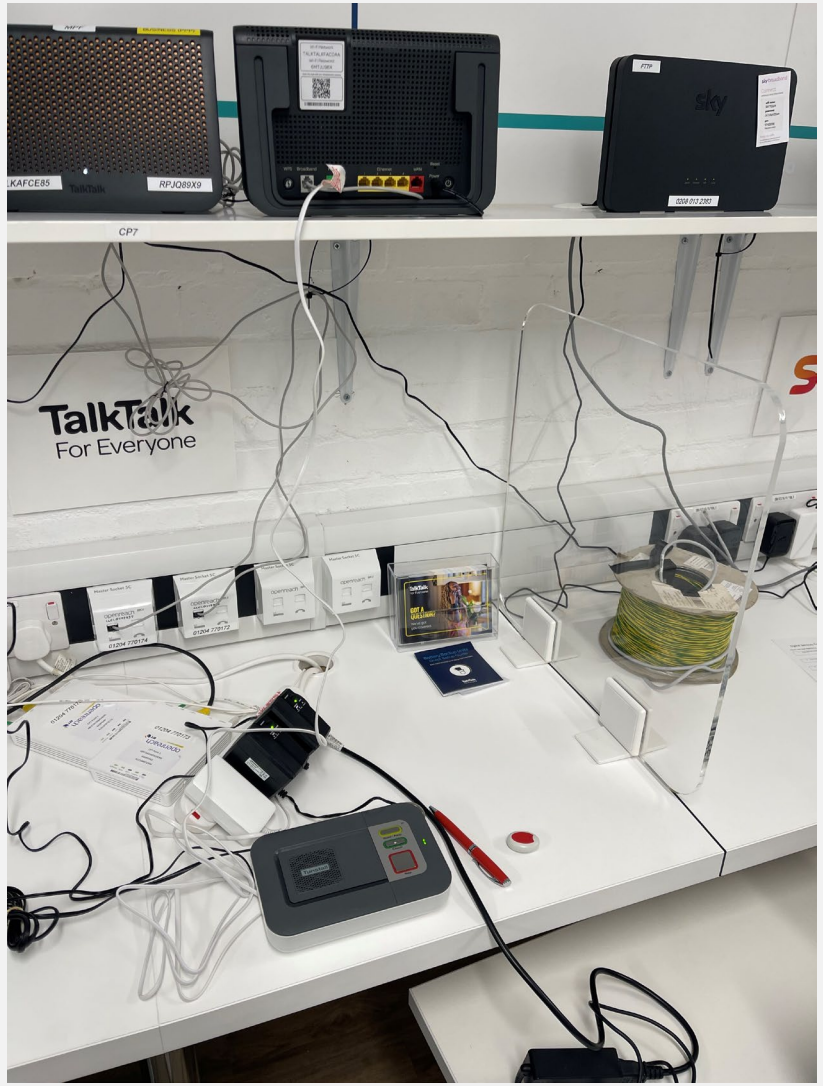


- Openreach modem is required (normally wall mounted)
- Both the router and the modem requires power
- Telecare plugs into green ‘phone’ port on back of router
- Note the fibre connection uses the red ‘WAN’ port on the right rather than the grey ‘Broadband’ port
- The Openreach router is then connected to the wall socket



Analogue on Digital Testing – Talk Talk SOGEA /FTTC

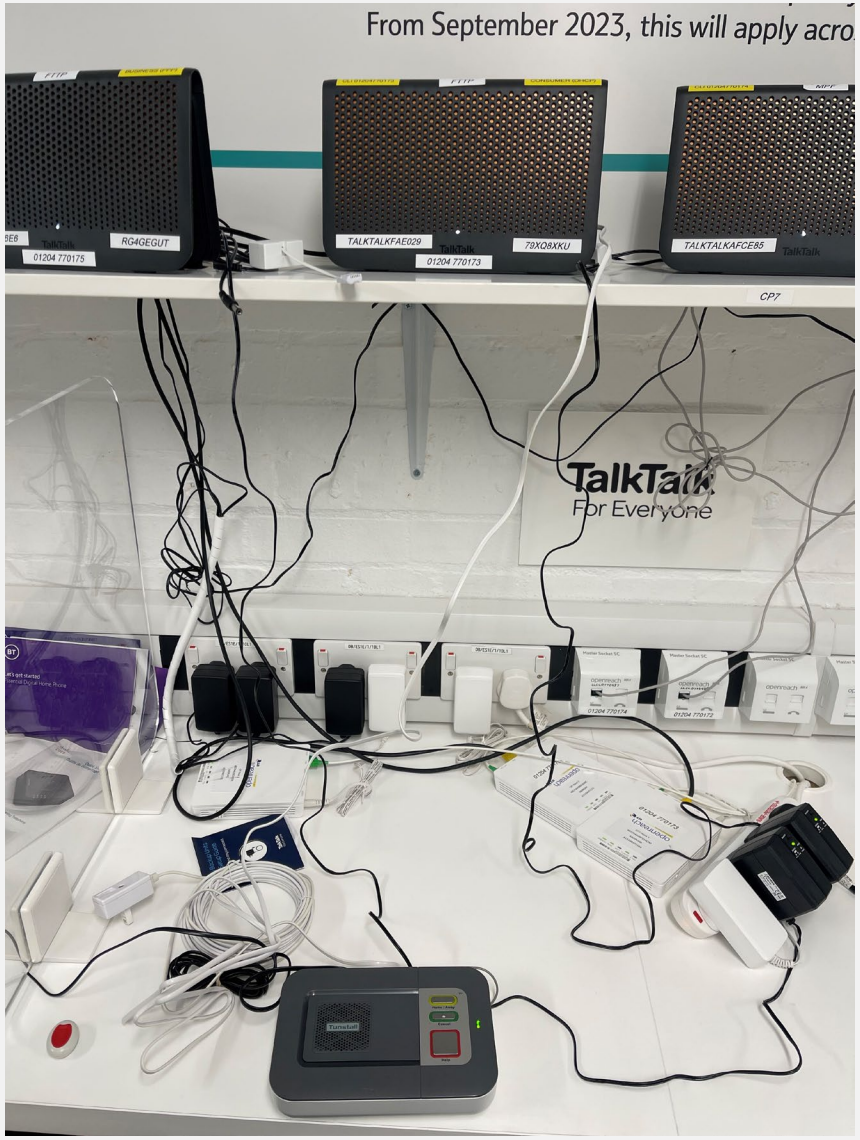
- No Openreach modem required
- Just the router requires power
- Telecare plugs into green ‘phone’ port on back of router
- The router is connected via the grey ‘Broadband’ port to the wall socket
- The red ‘WAN’ socket on the right is not used
- Note the Battery Back Up contained in the plug sockets



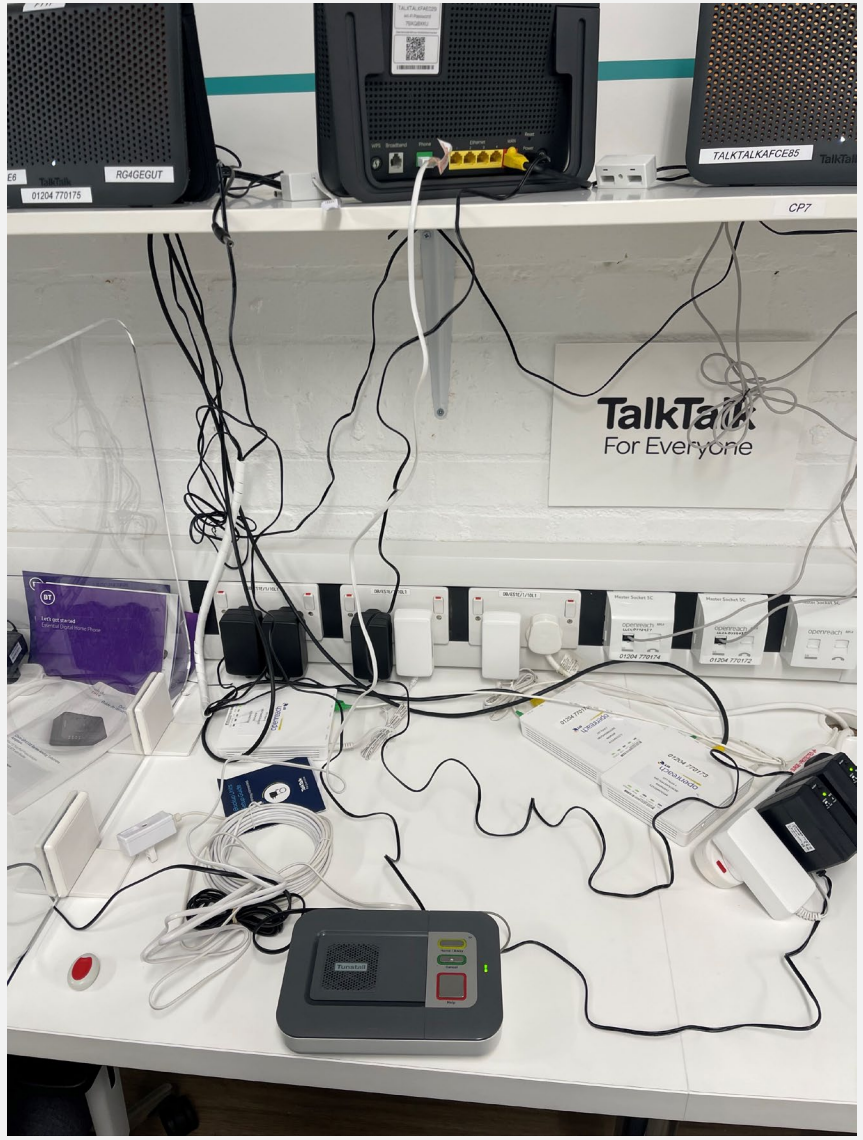
Analogue on Digital Testing – Talk Talk Battery Back-Up

- Powers the Talk talk router
- Integrated into the Talk Talk router plug
- Green lights indicates if on mains power or back up
- Tested for one hour on back up with 10 calls made successfully

Analogue on Digital Testing – Talk Talk FTTP

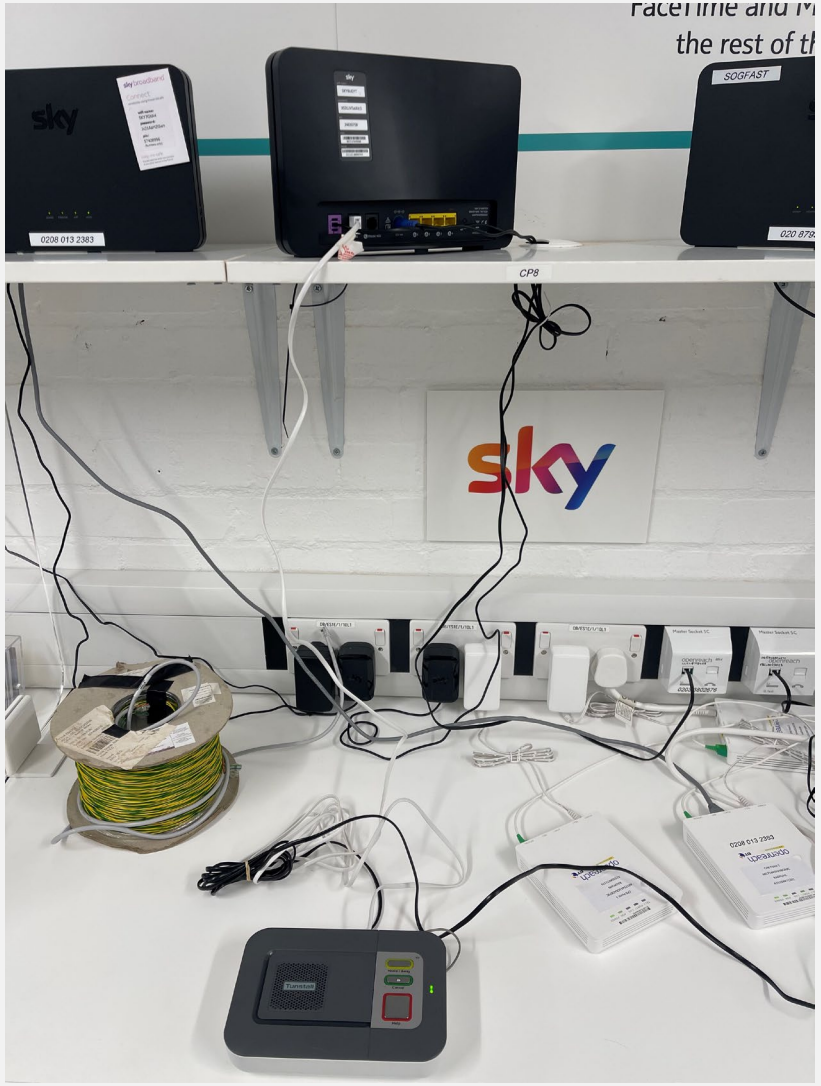


- Openreach modem is required (normally wall mounted)
- Both the router and the modem requires power
- Telecare plugs into green ‘phone’ port on back of router
- Note the fibre connection uses the red ‘WAN’ port rather than the grey ‘Broadband’ port
- The Openreach router is then connected to the wall socket
- The BBU plug would continue to power the router but the modem would fail



Analogue on Digital Testing – Sky SOGEA /FTTC

- No Openreach modem required
- Just the router requires power
- Telecare plugs into black ‘UK’ port on back of router
- The router is connected via the purple port to the wall socket
- The yellow ethernet sockets on the right are not used in this set up



Analogue over Digital Testing – Sky FTTP

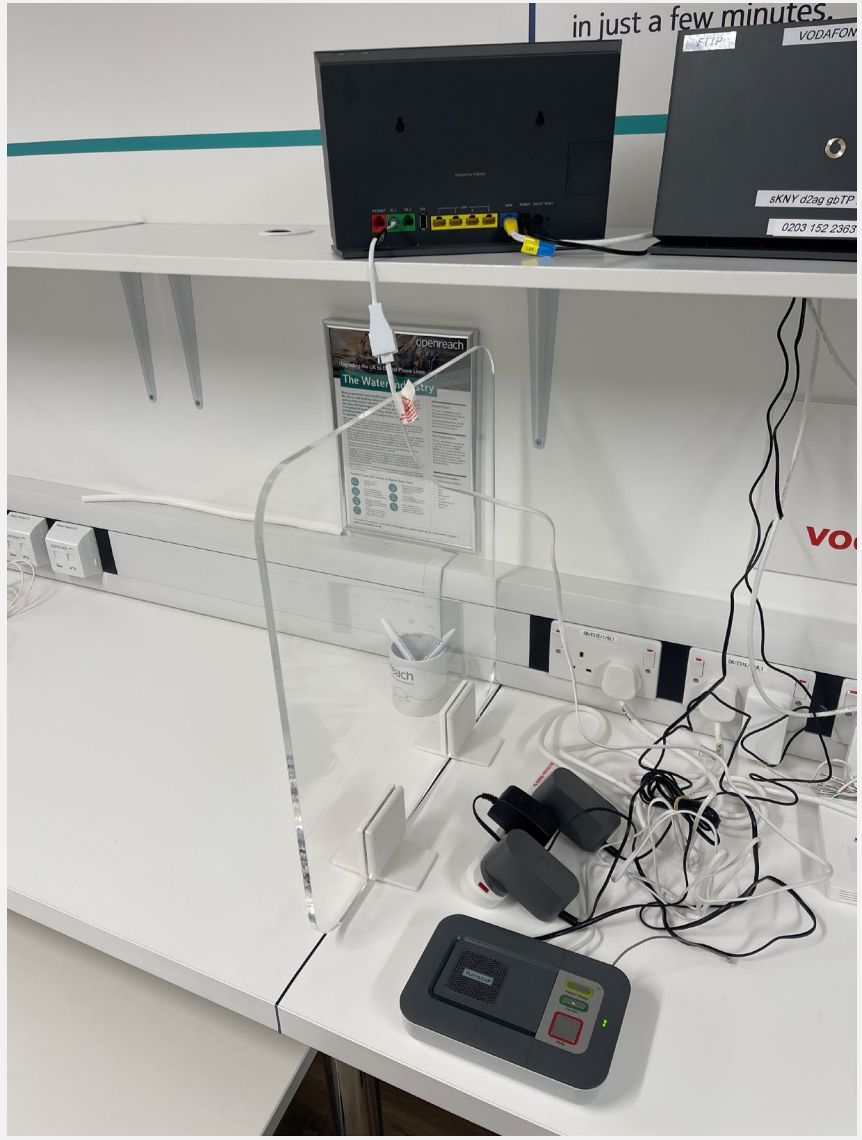
- Openreach modem is required (normally wall mounted)
- Both the router and the modem requires power
- Telecare plugs into black ‘UK’ port on back of router
- Note the fibre connection uses one of the yellow ethernet ports rather than the purple port
- The Openreach router is then connected to the wall socket

Analogue on Digital Testing – Vodafone SOGEA /FTTC

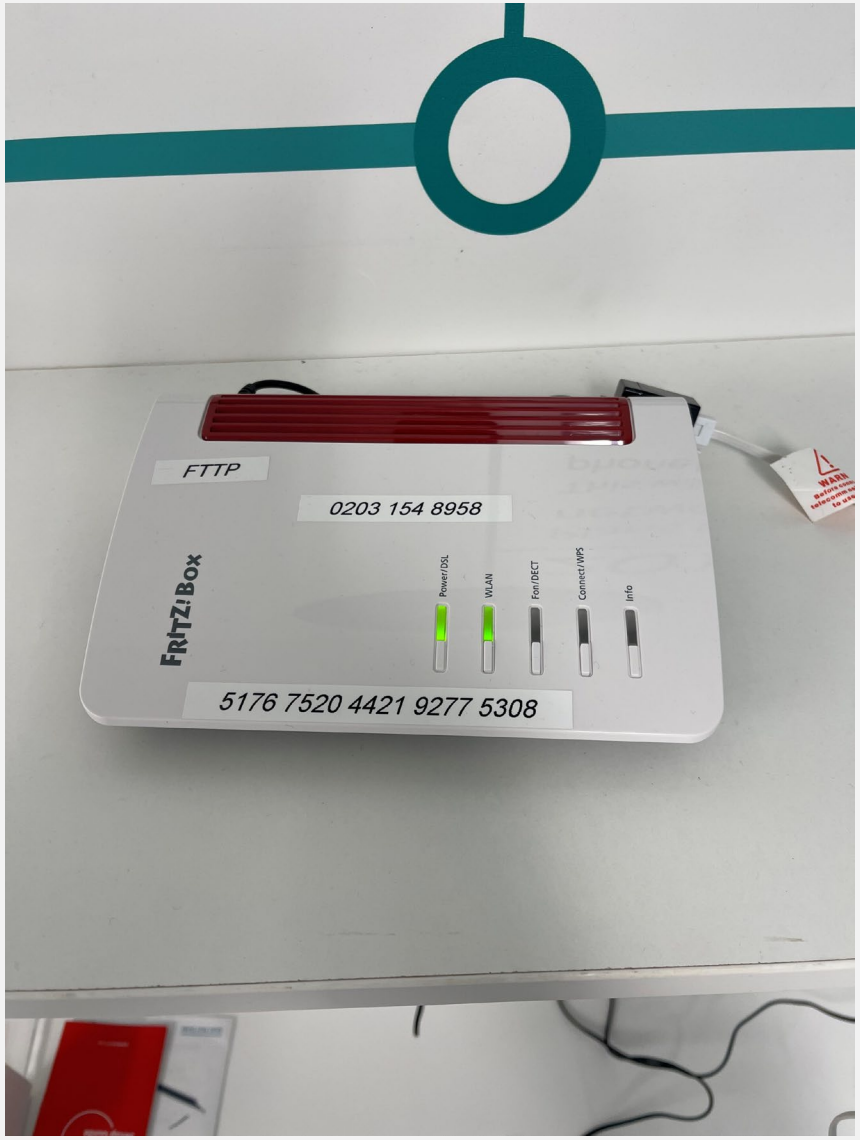
- No Openreach modem required
- Just the router requires power
- Telecare plugs into green ‘Tel 1’ port on back of router
- There is a 2nd port available for analogue connection (green ‘Tel 2’ port)
- Note that both the ‘Tel 1’ and ‘Tel 2’ ports are not RJ11 traditional telephone ports and so both require an adaptor (sometimes known as a ‘tail’) to connect to the Telecare device
- The router is connected via the red ‘Internet’ port to the wall socket
- The ethernet sockets on the right are not used in this set up

Analogue on Digital Testing – Vodafone FTTP

- Openreach modem is required (normally wall mounted)
- Both the router and the modem requires power
- Telecare plugs into green ‘Tel 1’ port on back of router
- Note the ‘Tel 1’ port is not an RJ11 traditional telephone port and requires an adaptor (sometimes known as a ‘tail’)
- Note the fibre connection uses the blue ‘WAN’ port rather than the red ‘Internet’ port
- The Openreach router is then connected to the wall socket



Analogue over Digital Testing – Zen Internet FTTP



- Openreach modem is required (normally wall mounted)
- Both the router and the modem requires power
- Telecare plugs into black ‘Fon’ port on back of router
- Note the ‘Fon’ port is not an RJ11 traditional telephone port and requires an adaptor (sometimes known as a ‘tail’)
- The fibre connection uses one of the yellow ethernet ports rather than the grey ‘DSL’ port
- The Openreach router is then connected to the wall socket

Analogue on Digital Testing – BT Enterprise Analogue Terminal Adapter (ATA)

- Connects the BT Enterprise (BT Business) router to the Telecare Unit via the Ethernet port
- The Green ‘phone’ port on the back of the BT Enterprise router is blocked from use

Analogue over Digital Testing – Openreach Test Results

TEST RESULTS																																						
TESTING COMBINATIONS			Doro Sara			Possum Neo						Possum Novo PSTN									Telealarm TA74			Chubb Unity			Tunstall Vi						Tunstall Vi+					
CP	Network	ARC	CPC			BS8521			CPC			BS8521			TT92 - DTMF			CPC			BS8521			TT92 - DTMF			BS8521			TT92 - DTMF			BS8521			TT92 - DTMF		
BT Consumer	SOGEA	Jontek	G	G	G	G	G					G									G	G	G	G	G	G	A	A	A	G	G	G	G	G	G	G	G	G
	FTTP	Jontek	A	G	G	G	G					G									G	G	G	G	G	G	A	A	G	G	G	A	G	G	G	G	G	G
	SOGEA	PNC																												G	G	G				G	A	G
	FTTP	PNC																												G	G	G				G	G	G
	SOGEA	Umo							G	A	G							G									G	G	G				G	G	G	G		
	FTTP	Umo							G	A	G							G									G	G	A				G	G	G	G		
Talk Talk Consumer	MPF	Jontek																												G	G	G				G	G	G
	FTTP	Jontek	G	A	A	G	A	G				G	G								G	A	G	G	G	G	A	A	A	G	G	G	G	G	G	G	G	G
	MPF	PNC																																				
	FTTP	PNC																												G	G	G				G	A	G
	MPF	Umo																															A	G	G	G		
	FTTP	Umo							G									G	G								G	A	G				G	A	G	G		
Sky	SOGEA	Jontek	G	G	G	G	G					G									G	G	G	G	G	G	A	A	A	G	G	G	G	G	G	G	G	G
	FTTP	Jontek	G	G	A	G	G					G									G	G	G	G	G	G	A	A	A	G	G	G	G	G	G	G	A	A
	SOGFAST	Jontek	A	G	A	G	A	G				G									G	A	G	G	G	G	A	A	A	G	G	G	G	G	G	A	G	A
	SOGEA	PNC																												G	G	G				G	G	G
	FTTP	PNC																												G	G	G				G	G	A
	SOGFAST	PNC																												G	G	G				G	G	G
	SOGEA	Umo							G									G									G						G	G	G	G		
	FTTP	Umo							G									G									G	G	G				G	G	G	G		
	SOGFAST	Umo							G									G															G	G	G	G		
Vodafone	SOGEA	Jontek	G	G	G	G															G	A	A	G	G	G				G	G	G	G	G	G	G	G	G
	FTTP	Jontek	G	G	G	G															G	G	G	G	G	A	A	A	A	G	G	G	G	G	G	G	G	G
	SOGEA	PNC													G	G														G	G	G				G	G	G
	FTTP	PNC													G	G														G	G	G				G	G	G
	SOGEA	Umo							G																											G		
	FTTP	Umo							G																											G		
Zen	SOGEA	Jontek	R	R	R	G	G														R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
	FTTP	Jontek	R	R	R	R	R		G	G											R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
	SOGEA	PNC													G	R														R	R	R				R	R	R
	FTTP	PNC													G	R														R	R	R				R	R	R
	SOGEA	Umo							G																													
	FTTP	Umo							G																													
BT Enterprise	SOGEA	Jontek				G	A	G				R																										
	FTTP	Jontek	R	R	R	G	A	G				R									R	R	R	R	R	R												
	SOGEA	PNC																																				
	FTTP	PNC																																				
	SOGEA	Umo							G									R																				
	FTTP	Umo							G									R									A	A	A				G	G	G			

- Over 400 test calls made in the Openreach Test Centre to date
- Red indicates failure to connect / no voice connection / failure to close call
- Amber indicates poor speech quality or need to toggle speech to create two way voice
- Jontek platforms on ISDN30 (v11.1 and v10.6)
- Umo platform was connected via SIP (v3.5)
- PNC Platform

Conclusion and Next Steps

- **The UK telephony network is designed in a way that there is no set route for each call to connect from Point A to Point B**
- **There is a lot of Communications hardware, both provided by the broadband provider and also sourced by the customer that differs significantly from what was has been tested**
- **Due to the volume of combinations of equipment / touters / equipment / protocols / platforms, only a limited amount of testing at each combination is possible – larger sample sizes may reveal a higher percentage failure rate**
- **Results at the Openreach Test centre show broadly positive, however:**
    - The Test Centre is perfect conditions (short distance to the street cabinet etc)
    - There is no battery back up provided as standard (Some CP's providing optional BBU)
    - Test results are a snapshot in time
- **Equipment tested and Platforms connected to will change software and hardware over time so a successful test now does not guarantee a successful call on an ongoing basis**
- **Other platforms, networks, protocols and equipment remains to be tested through a combination of TSA testing and the sharing of data from Suppliers and Service Providers**

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Thank you

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