

# FTTC Installation – Q4 2015

- [Options and Modem/Router Compatibility](#)
  - [Withdrawal of BT Openreach Modem and Previous FTTC Products](#)
- [New FTTC Installation Options](#)
  - [Self-Install / Wires-Only](#)
  - [Engineer-Installed / Managed Install](#)
- [Modem/Router Compatibility](#)
  - [Fully Approved Compatible Modems](#)
  - [Conditionally Approved Compatible Modems](#)
  - [Additional Equipment](#)
  - [Modem Availability](#)
  - [Recommendations](#)
  - [Further Information](#)

## Options and Modem/Router Compatibility

### Withdrawal of BT Openreach Modem and Previous FTTC Products

BT Openreach have announced that from March 2016 they will cease supply of FTTC modems with new services. Both the ECI & Huawei-branded versions of the modem will no longer be supplied with new FTTC installations.

BT will continue to support existing modems in the field, including replacement of faulty units, until March 2017.

After March 2017 any Openreach modems in the field become the customer's property and although they will continue to operate they will not be replaced by BT should they fail.

Accordingly from March 2016 the BT Openreach engineer installed FTTC service dependent on this hardware will be withdrawn from new sale.

## New FTTC Installation Options

As an alternative to the withdrawn product we are offering two new installation options for FTTC products:

### Self-Install / Wires-Only

With this option the BT engineer will only visit the cabinet serving the customer's premises to connect the service. A visit to the customer premises is not needed. Without an engineer visit, the faceplate of the NTE5 will not be swapped. This means that plug-in microfilters will now need to be used (as for ADSL and ADSL2+).

#### Advantages:

- Cheapest FTTC installation option
- No need to stay in at the premises to provide engineer access
- The filters and modem can be connected to an extension, rather than requiring connection to the master socket

#### Disadvantages:

- Using filters (particularly on extension wiring) may result in lower speeds than connecting to a master socket with a filtered faceplate
- BT cannot perform tests from the customer premises at connection. Failed installations should be reported as faults in the same way as for ADSL and ADSL2+
- Customer must connect a BT-approved VDSL2-compatible modem/router (Cerberus can supply these - see later in this document)

The cabinet in the street is known by BT Openreach as the PCP (Primary Connection Point). For this reason you may also see this option referred to as "PCP only".

### Engineer-Installed / Managed Install

With this option the engineer will visit the cabinet in the street to provision the service, but will also visit the customer premises and install a faceplate on the NTE.

#### Advantages:

- Engineer installed faceplate on master socket ensures the best possible speeds for a given phone line
- Engineer will carry out tests while at the customer site
- Engineer will connect approved compatible modem/router if supplied in advance
- Does not require plug-in microfilters

#### Disadvantages:

- More expensive installation than Self-Install and than old option BT-provided modem
- Requires access to customer premises at a pre-arranged time
- Equipment can only be connected to the master socket
- Customer is required to connect their own approved VDSL2-compatible modem/router (Cerberus can supply these - see later in this document)

## Modem/Router Compatibility

Under the previous engineer-install process, BT Openreach would supply an FTTC modem. The modem connected to the BT phone socket and provided an Ethernet Interface to which the customer would connect their router. BT did not stipulate any requirements for the router other than an Ethernet WAN interface and to use PPPoE to connect the modem.

Under the new process the customer must supply the device that connects to the BT phone socket.

This router must support VDSL2 technology and have undergone and passed BT's Modem Compatibility Test (MCT) to provide a supported configuration.

So far all compatible equipment combines the function of modem and router in the same way as is well established with ADSL & ADSL2+.

There are several modem/routers on the market which support VDSL2+ but which have not passed BT's MCT. These modems are prohibited from connection to BT's phone socket. BT use a technology called "OAM Loopback" to perform diagnostics on FTTC services and identify the CPE connected. Most unapproved modems do not support OAM loopback. BT are able to identify unauthorised equipment using the OAM Loopback test or by lack of support for it in the connected CPE.

Detection of unauthorised CPE may result in the following:

- Request for removal of unauthorised CPE
- Limitation or disconnection of Service
- Lack of support when troubleshooting faults
- Abortive Visit or SFI Customer Misoperation charges when engineers find unauthorised equipment on site.

Cerberus do not support the BT Openreach philosophy with respect to Modem Compatibility Testing or use of unauthorised equipment, however we have no discretion in the matter. All UK FTTC, regardless of the Internet service provider, is based upon the same BT Openreach products and therefore bound by the same rules. Cerberus attends most Industry events and can confirm that Industry is united in its view of BT's MCT rules. We expect that in time these rules will be relaxed but cannot provide timescales. In the meantime we must enforce BT's rules.

### Fully Approved Compatible Modems

At the time of writing the following is the list of fully approved compatible modems:

| Supplier | Device Product Name     | Chipset  | Chipset Hardware | Chipset Firmware | Notes   |
|----------|-------------------------|----------|------------------|------------------|---|
| Arcadyan | Brightbox 2             | Broadcom | BCM63168U D0     | 4.12L08          |   |
| AVM GmbH | FRITZ!Box 3490 (FB3490) | Lantiq   | VRX 288          | 1.100.133.42     |   |
| Cisco    | C887VA-K9               | Broadcom | BCM63168         | 39m_B_38h3_24h   | Baseline 887 unit   |
| Cisco    | C897VA-K9               | Broadcom | BCM63168         | 39m_B_38h3_24h   | Baseline 897 unit   |
| Cisco    | CISCO887VA-K9           | Broadcom | BCM63168         | 39m_B_38h3_24h   | original generation 887                                   |
| Cisco    | CISCO887VA-M-K9         | Broadcom | BCM63168         | 39m_B_38h3_24h   | original generation 887 (Annex-M)                         |
| Cisco    | CISCO887VA-SEC-K9       | Broadcom | BCM63168         | 39m_B_38h3_24h   | original 887 with IPsec s/w bundle                        |
| Cisco    | C887VAM-K9              | Broadcom | BCM63168         | 39m_B_38h3_24h   | baseline 887VA (with Annex-M)                             |
| Cisco    | C887VA-W-E-K9           | Broadcom | BCM63168         | 39m_B_38h3_24h   | baseline 887VA with integrated WiFi                       |
| Cisco    | C887VAM-W-E-K9          | Broadcom | BCM63168         | 39m_B_38h3_24h   | baseline 887VA (AnnexM) + WiFi                            |
| Cisco    | C887VA-V-K9             | Broadcom | BCM63168         | 39m_B_38h3_24h   | baseline 887VA with integrated FXS POTS                   |
| Cisco    | C887VA-V-W-E-K9         | Broadcom | BCM63168         | 39m_B_38h3_24h   | C887VA-V-K9 + WiFi  |
| Cisco    | C887VA-CUBE-K9          | Broadcom | BCM63168         | 39m_B_38h3_24h   | C887VA with CUBE s/w license bundle                       |
| Cisco    | C887VAG+7-K9            | Broadcom | BCM63168         | 39m_B_38h3_24h   | C887VA with integrated 3G                                 |
| Cisco    | C887VAMG+7-K9           | Broadcom | BCM63168         | 39m_B_38h3_24h   | C887VAM-K9 with integrated 3G                             |
| Cisco    | C887VAGW+7-E-K9         | Broadcom | BCM63168         | 39m_B_38h3_24h   | C887VAMG+7-K9 with integrated WiFi                        |
| Cisco    | C887VA-WD-E-K9          | Broadcom | BCM63168         | 39m_B_38h3_24h   | C887VA with dual-band WiFi                                |
| Cisco    | C887VAG-4G-GA-K9        | Broadcom | BCM63168         | 39m_B_38h3_24h   | C887VA with integrated 3G/4G                              |
| Cisco    | C897VA-M-K9             | Broadcom | BCM63168         | 39m_B_38h3_24h   | Baseline C897VA (Annex-M)                                 |
| Cisco    | C897VAW-E-K9            | Broadcom | BCM63168         | 39m_B_38h3_24h   | C897VA-K9 with integrated WiFi                            |
| Cisco    | C897VAM-W-E-K9          | Broadcom | BCM63168         | 39m_B_38h3_24h   | C897VA-M-K9 with integrated WiFi                          |
| Cisco    | C897VAG-LTE-GA-k9       | Broadcom | BCM63168         | 39m_B_38h3_24h   | C897VA-K9 with integrated 3G/4G                           |
| Cisco    | C897VAMG-LTE-GA-K9      | Broadcom | BCM63168         | 39m_B_38h3_24h   | C897VA-M-K9 with integrated 3G/4G                         |
| Cisco    | EHWIC-VA-DSL-A          | Broadcom | BCM63168         | 39m_B_38h3_24h   | EHWIC plugin for ISRG2 routers; c1900, c2900, c3900, etc. |

|         |                     |               |                  |                                  |   |
|---------|---------------------|---------------|------------------|----------------------------------|---|
| Cisco   | EHWIC-VA-DSL-M      | Broadcom      | BCM63168         | 39m_B_38h3_24h                   | EHWIC plugin for ISRG2 routers; c1900, c2900, c3900, etc.   |
| Cisco   | NIM VA              | Broadcom      | BCM63168         | VA_A_39m_B_38h3_24h              | NIM Plugin  |
| Cisco   | 1921                | Broadcom      | BCM63168         | 15.3 (3)<br>M/A2pv6C039t.d24o    |   |
| Cisco   | 897VA               | Broadcom      | BCM63168         | 15.3 (3)<br>M/A2pv6C039t.d24o-rd |   |
| Cisco   | ISR1117             | Broadcom      |                  | A2pvbF039t.d26d                  |   |
| Cisco   | CISCO920            | Broadcom      |                  | A2pv6F039x8                      |   |
| Draytek | Vigor 2860          | Lantiq        | VR9              | 05.07.06.0D.01.07                | VDSL/ADSL<br>Router/Firewall & 6 port switch                |
| Draytek | Vigor 2860vn Plus   | Lantiq        | VR9              | 05.07.06.0D.01.07                | As 2860 with dual band Wifi plus VoIP ports                 |
| Draytek | Vigor 2860vac       | Lantiq        | VR9              | 05.07.06.0D.01.07                | As 2860ac with twin VoIP phone ports                        |
| Draytek | Vigor 2860n         | Lantiq        | VR9              | 05.07.06.0D.01.07                | As 2860 with 802.11n WiFi                                   |
| Draytek | Vigor 2860n Plus    | Lantiq        | VR9              | 05.07.06.0D.01.07                | As 2860n with dualband WiFi                                 |
| Draytek | Vigor 2860L         | Lantiq        | VR9              | 05.07.06.0D.01.07                | As 2860 with built-in<br>3G/4G (LTE) SIM slot               |
| Draytek | Vigor 2860Ln        | Lantiq        | VR9              | 05.07.06.0D.01.07                | As 2860L plus 802.11n WiFi                                  |
| Draytek | Vigor 2860ac        | Lantiq        | VR9              | 05.07.06.0D.01.07                | As 2860 with 802.11ac                                       |
| DrayTek | Vigor 2860ac        | Lantiq        | VR9              | 576d17                           |   |
| Draytek | Vigor 2760          | Lantiq        | VR9              | 05.07.06.0D.01.07                | VDSL Router & 4 port switch                                 |
| Draytek | Vigor 2760vn        | Lantiq        | VR9              | 05.07.06.0D.01.07                | As 2760 with Wifi and VoIP phone ports                      |
| Draytek | Vigor 2760n         | Lantiq        | VR9              | 05.07.06.0D.01.07                | As 2760 with 802.11n  |
| Draytek | Vigor 130           | Lantiq        | VR9              | 05.07.06.0D.01.07                | ADSL/VDSL Modem   |
| Draytek | Vigor 130           | Lantiq        | VR9              | 776d17                           | ADSL/VDSL Modem   |
| Draytek | Vigor 2862          | Intel-Lantiq  | PXB4369EL - V2.1 | 776d17                           |   |
| Draytek | Vigor 2762          | Intel-Lantiq  | PXB4369EL - V2.1 | 779517                           |   |
| Draytek | Vigor 2862Ln        | Intel-Lantiq  | PXB4369EL - V2.1 | 779517                           |   |
| Draytek | 2862ac              | Intel-Lantiq  | PXB4369EL - V2.1 | 779517                           |   |
| Draytek | 2862L               | Intel-Lantiq  | PXB4369EL - V2.1 | 779517                           |   |
| Draytek | 2862n               | Intel-Lantiq  | PXB4369EL - V2.1 | 779517                           |   |
| Draytek | Vigor 2620Ln        | Lantiq /Intel |                  | 05.07.06.0D.01.07                |   |
| Huawei  | HG633               | Triductor     | G1.01            | G3_01.32.10                      | ADSL/VDSL, Dual Band Wireless                               |
| Huawei  | AR129               | Triductor     | VSPM340          | G3_01_36_13                      | 4 FE LAN/WAN  |
| Huawei  | AR129W              | Triductor     | VSPM340          | G3_01_36_13                      | 4 FE LAN/WAN, 802.11 b/g/n                                  |
| Huawei  | AR129GW-L           | Triductor     | VSPM340          | G3_01_36_13                      | 4 GE LAN/WAN Ports<br>GE Combo WAN,<br>Wireless and FDD LTE |
| Huawei  | Huawei AR509G-L-D-H | Triductor     | VSPM340          | G3_01_36_13                      | IoT router, IP41,<br>4 GE ports, FDD LTE                    |
| Huawei  | AR169FVW            | Broadcom      | BCM63168VKFE BG  | A2pvbF038j.d24j                  | 4 GE LAN/WAN Ports<br>GE Combo WAN,<br>4 Fixed Voice ports  |

|                      |                                |               |                    |  |   |
|----------------------|--------------------------------|---------------|--------------------|--|---|
| Huawei               | AR169FGW-L                     | Broadcom      | BCM63168VKFE<br>BG | A2pvbF038j.d24j  | 4 GE LAN/WAN Ports GE Combo WAN,<br>Wireless and FDD LTE            |
| Huawei               | AR169FGVW-L                    | Broadcom      | BCM63168VKFE<br>BG | A2pvbF038j.d24j  | 4 GE LAN/WAN Ports<br>4 Fixed Voice ports                           |
| Huawei               | AR169F                         | Broadcom      | BCM63168VKFE<br>BG | A2pvbF038j.d24j  | 4 GE LAN/WAN Ports<br>GE Combo WAN                                  |
| Kenton<br>Comtrend   | VR-3030                        | Broadcom      | BCM6302KMLG<br>4.2 | VR-3030-CFE-C031-<br>416CTL-<br>B01_R01  | Single Ethernet Port, Wired Modem, suitable for use as a<br>Bridge. |
| Kenton<br>Comtrend   | KBR1645 Velocity Lite          | Broadcom      | BCM6302KMLG<br>4.2 | VR-3030-CFE-C031-<br>416CTL-<br>B01_R01  | Bonded VDSL Device incorporates 4 DSL ports                         |
| Kenton<br>OneAccess  | 1321 Ethernet Access<br>device | Lantiq        | VRX-268            | TDRE 14.1  |   |
| Kenton<br>OneAccess  | 1322 Ethernet Access<br>device | Lantiq        | VRX-268            | TDRE 14.1  |   |
| Kenton<br>OneAccess  | 1645 Ethernet Access<br>device | Lantiq        | VRX-268            | TDRE14.1   |   |
| Kenton<br>OneAccess  | One 270 AV2                    | Lantiq        | VRX-268            | ADVIP_11N-V5.<br>2R1E7_HG1   |   |
| Kenton<br>OneAccess  | One 425 AV2                    | Lantiq        | VRX-268            | ADVIP_11N-V5.<br>2R1E7_HG1   |   |
| Kenton<br>OneAccess  | One 445 AV2                    | Lantiq        | VRX-268            | ADVIP_11N-V5.<br>2R1E7_HG1   |   |
| Kenton<br>OneAccess  | One 540 AV2                    | Lantiq        | VRX-268            | 5.7.8.C.0.7  |   |
| Kenton<br>OneAccess  | One 700 AV2                    | Lantiq        | VRX-268            | ADVIP_11N-V5.<br>2R1E7_HG1   |   |
| Netgear              | D7000                          | Broadcom      | BCM63168           | 4.16L.03   |   |
| Netgear              | D7800                          | Broadcom      | BCM63168           | V1.2   |   |
| Square 1<br>Products | Aethra BG7542W                 | Intel         |                    | 7.7.10.4.0.7   |   |
| Square 1<br>Products | Aethra BG8542EWAC              | Intel         |                    | 8.11.2.5.1.7   |   |
| The Kenton<br>Group  | OneAccess                      | EcoNet<br>Inc |                    | V5.10.1.23   |   |
| The Kenton<br>Group  | One521                         | Broadcom      |                    | A2pvfbH043q.d26u   |   |
| The Kenton<br>Group  | One531                         | Broadcom      |                    | A2pvfbH043q.d26u   |   |
| The Kenton<br>Group  | One526                         | Broadcom      |                    | A2pvfbH043q.d26u   |   |
| The Kenton<br>Group  | One1526                        | Broadcom      |                    | A2pvfbH043q.d26u   |   |
| Technicolor          | TG589Vac v1                    | Broadcom      | BCM63168           | 15.2: A2pv6F039r.d26e<br>15.4: A2pv6F039t.d26i<br>16.1: A2pv6F039t.d26k<br>16.2: A2pv6F039t.d26k | ADSL/VDSL/ETH, Dual Band  |

|                |                      |          |             |  |   |
|----------------|----------------------|----------|-------------|--|---|
| Technicolor    | TG789Vac v1          | Broadcom | BCM63168    | 15.2: A2pv6F039r.d26e<br>15.4: A2pv6F039t.d26i<br>16.1: A2pv6F039t.d26k<br>16.2: A2pv6F039t.d26k | Dual Band   |
| Technicolor    | TG588v2              | Broadcom | BCM63381    | 15.3<br>16.2: A2pv6F039t.d26k  | 4 Lan ports, Wireless. Can be configured for use as a bridge. |
| Technicolor    | TG589vac v2          | Broadcom | BCM63168    | A2pv6F039t.d26k<br>16.2: A2pv6F039t.d26k   |   |
| Technicolor    | TG789vac v2          | Broadcom | BCM63168    | 16.2: A2pv6F039t.d26k  |   |
| Technicolor    | DGA4130              | Broadcom | BCM63138    | A2pvbH042o.d26m  |   |
| Technicolor    | TG579vac             | Broadcom | BCM63168    | A2pv6F039v2.d26m   |   |
| Technicolor    | TG789vac             | Broadcom | BCM63168    | A2pv6F039v2.d26m   |   |
|                |                      |          |             |  |   |
| Technicolor    | TG579vac v2          | Broadcom | BCM63168    | A2pv6F039v2.d26m   |   |
| Technicolor    | TG589vac v2          | Broadcom | BCM63168    | A2pv6F039v2.d26m   |   |
| Technicolor    | DGA2231              | Broadcom | BCM63168    | A2pvfbH043k.d26s   |   |
| Technicolor    | TG589vac v1 (VANT-E) | Broadcom | BCM63168    | A2pv6F039v2.d26q   |   |
| Technicolor    | TG589vac v2 (VANT-8) | Broadcom | BCM63168    | A2pv6F039v2.d26q   |   |
| Technicolor    | TG789vac v1 (VANT-D) | Broadcom | BCM63168    | A2pv6F039v2.s26q   |   |
| Technicolor    | TG588v v2 (VANT-2)   | Broadcom | BCM63381    | A2pv1042j1.d26q  |   |
| Technicolor    | TG589vac             | Broadcom |             | A2pv6F039x6  |   |
| Technicolor    | DGA2231              | Broadcom |             | A2pvfbH043m  |   |
| Technicolor    | TG589vac(v2)         | Broadcom |             | A2pv6F039x6  |   |
| Technicolor    | TG789vac(v2)         | Broadcom |             | A2pv6F039x6  |   |
| Technicolor    | DGA4231              | Broadcom |             | A2pvfbH043q  |   |
| Technicolor    | TG789vac             | Broadcom |             | A2pv6F039x6  |   |
| Virtual Access | GW6610-V             | Lantiq   | VRX318 V1.2 | UGW6.1   |   |
| Vodafone       | AR1220V              | Broadcom | 6368        | A2pv6c039f1.d24m   |   |
| Zyxel          | VMG8324-B10A         | Broadcom | BCM63168    | 1.00(AAKL.10)C0_0703   | ADSL/VDSL, Wireless   |
| Zyxel          | VMG8924 (Z-400UK)    | Broadcom | BCM63168    | 1.00(AAKL.10)C0_0703   | Dual Band wireless  |
| Zyxel          | VMG1312-B10A         | Broadcom | BCM63168    | V1.00(AAJZ.6)<br>C1_20150911   |   |
| Zyxel          | VMG3925 – B10B       | Broadcom | BCM63168V   | A2pv6F039f1  |   |
| Zyxel          | VMG3925-B10B         |          | BCM63168U   | A2pv6F039x1  |   |
| Zyxel          | VMG3925-B10B v5.13   |          | BCM63168U   | A2pv6F039x   |   |
| Zyxel          | VMG3625-T20A         | Broadcom |             | A2pvfbH043q.d26q   |   |

These device/firmware combinations may be used at will and will be supported by BT. Only the firmware versions shown are approved at this time. The customer may not use alternative, unapproved firmwares.

### Conditionally Approved Compatible Modems

The following modems are conditionally approved:

| Supplier    | Device Name | Chipset  | Firmware         |
|-------------|-------------|----------|------------------|
| Technicolor | 589v3       | BCM63168 | A2pv6F037g.d24c1 |

These device/firmware combinations have not satisfied all the requirements of the testing but it is expected that the vendor will address any outstanding issues. These devices/firmware combinations may be used at this time but BT may require the firmware to be upgraded or the hardware to be replaced in the future.

Neither BT nor Cerberus will be held liable for the replacement of any devices used prior to full approval by BT.

## **Additional Equipment**

Additional devices are currently undergoing testing, however this is a process that BT take several months to complete and there is a backlog.

We will update this list and our guidance there as new devices are approved.

## **Modem Availability**

As of 1st November 2015, Cerberus has successfully conducted its own tests on the following models

- Technicolor 589v3
- Zyxel VMG8324-B10A
- Zyxel VMG8924 (Z-400UK)

We are currently testing the Technicolor TG589VAC and is obtaining stock of the other modems listed. We expect to offer these devices for sale to our customers as soon as they successfully complete our tests and are available for supply.

## **Recommendations**

Cerberus recommends that you purchase an approved compatible router from us when you order your service, however we will be happy to support connections where the customer has connected their own equipment provided that that equipment is listed as approved by BT.

## **Further Information**

Should you have any questions please contact your account manager on 0345 257 1333 or email [sales@cerberusnetworks.co.uk](mailto:sales@cerberusnetworks.co.uk)