INDUSTRY GUIDELINE
G649.2:2017
Cabling existing telecommunications services in the customer’s premises for the nbn™ – Part 2: Installation cabling diagrams (Rewiring Guide)
G649.2:2017 Cabling existing telecommunications services in the customer’s premises for the nbn™ – Part 2: Installation cabling diagrams Industry Guideline (Rewiring Guide)

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Second edition G649.2:2017

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HOW TO USE THIS GUIDELINE

This document forms a part of the G649 Cabling existing telecommunications services in the customer’s premises for the nbn Guideline. It is intended to be used by registered cabling providers (cablers) while they are on-site in a customer’s premises.

Typical cabling scenarios have been developed to assist the cabler in rewiring the customer’s cabling to migrate the existing services supplied by the Telstra or Optus access network technology to the nbn access network technologies.

Please read Part 1 of this Guideline which provides a checklist of the steps to be taken in the migration progress, including what should be done prior to arriving on-site, while on-site and verifying that the changes to the cabling have been performed correctly.

Using with an electronic tablet

This document has been developed with electronic tablet use in mind. It can also be printed as a traditional PDF document.

Steps:

1. Start at the Contents page and select the access technology connecting to your customer’s site: Telstra lead-in, Optus cable modem or Optus phone.

2. Once you have navigated to one of the three access technologies listings (see below), select the appropriate nbn access technology that the customer is being migrated to, as listed in the left-hand column.

3. If the site has a monitored service that uses a Mode 3 connection, use the right-hand column instead.

4. At any time the hyperlinks at the bottom of any page will take you back to the preceding menu.

Acknowledgments: Communications Alliance wishes to acknowledge the work of Glenn Walker (Telstra) and Haydn Dale (nbn) for developing the figures and Mike Johns (Communications Alliance) for the concept and design of this publication.
**Telstra lead-in**
Sample cabling diagrams

<table>
<thead>
<tr>
<th>Unmonitored services</th>
<th>Monitored services</th>
</tr>
</thead>
<tbody>
<tr>
<td>➤ FTTP NTD (UNI-V port)</td>
<td>➤ with existing Mode 3</td>
</tr>
<tr>
<td></td>
<td>➤ with new Mode 3</td>
</tr>
<tr>
<td>➤ FTTP NTD with Gateway</td>
<td>➤ with existing Mode 3</td>
</tr>
<tr>
<td></td>
<td>➤ with new Mode 3</td>
</tr>
<tr>
<td>➤ FTTN</td>
<td>➤ with Mode 3</td>
</tr>
<tr>
<td>➤ FTTB</td>
<td>➤ with Mode 3</td>
</tr>
<tr>
<td>➤ FTTC</td>
<td>➤ with Mode 3</td>
</tr>
<tr>
<td>➤ HFC NTD with gateway</td>
<td>➤ with existing Mode 3</td>
</tr>
<tr>
<td></td>
<td>➤ with new Mode 3</td>
</tr>
</tbody>
</table>

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FIGURE 1  Telstra lead-in  FTTP NTD (UNI-V port)

Existing installation

Telstra Copper pair lead-in
nbn fibre lead-in

Wall Box (if present)

nbn PCD

After migration

Telstra Copper pair lead-in
nbn fibre lead-in

Wall Box (if present)

nbn PCD

IMPORRTANT
Read in conjunction with G649.1

Note 1: Disconnect the lead-in pair for the existing voice service to allow use of existing internal cabling for a voice service over the NBN. Leave any other pair(s) connected since they may be in use for special service(s) that are not to be disconnected or migrated.

Note 2: The figure depicts a wall box however the lead-in may be terminated directly on the first TO or a termination block.

Note 3: A TO is required to extend the voice service from the NTD into the existing home cabling. The telephone service is provided by the NTD. In many cases a dual face-plate or new TO will be required, as shown in this diagram.

Back to TELSTRA LEAD-IN cabling list

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Note 1: Disconnect the lead-in pair for the existing voice service to allow use of existing internal cabling for a voice service over the NBN. Leave any other pair(s) connected since they may be in use for special service(s) that are not to be disconnected or migrated.

Note 2: The figure depicts a wall box however the lead-in may be terminated directly on the first TO or a termination block.

Note 3: A TO is required to extend the voice service from the NTD into the existing home cabling. The telephone service is provided by the NTD. In many cases a dual face-plate or new TO will be required, as shown in this diagram. Cabling needs to run directly from the new TO to the Mode 3 TO before connecting to other TOs.

Back to TELSTRA LEAD-IN cabling list
**FIGURE 3**

**Telstra lead-in** | **FTTP NTD (UNI-V port)** | **New Mode 3 location**

---

Existing installation

- Telstra Copper pair lead-in
- nbn fibre lead-in
- Wall Box (if present)
- B2B Alarm
- Mode 3 TO
- GPO

After migration

- Telstra Copper pair lead-in
- nbn fibre lead-in
- Wall Box (if present)
- B2B Alarm
- Mode 3 TO
- GPO

**IMPORTANT**

Read in conjunction with G649.1

**Note 1:** Disconnect the lead-in pair for the existing voice service to allow use of existing internal cabling for a voice service over the NBN. Leave any other pair(s) connected since they may be in use for special service(s) that are not to be disconnected or migrated.

**Note 2:** The figure depicts a wall box however the lead-in may be terminated directly on the first TO or a termination block.

**Note 3:** A TO is required to extend the voice service from the NTD into the existing home cabling. The telephone service is provided by the NTD. In many cases a dual face-plate or new TO will be required, as shown in this diagram. Cabling needs to run directly from the new TO to the Mode 3 TO before connecting to other TOs.

Back to TELSTRA LEAD-IN cabling list
**FIGURE 4** Telstra lead-in | FTTP NTD + Gateway

### Existing installation

- **Telstra Copper pair lead-in**
- **nbn fibre lead-in**
- **Wall Box (if present)**
- **nbn PCD**

### After migration

- **Room 1**
  - **TO**
  - **Telstra Copper pair lead-in**
  - **nbn fibre lead-in**
- **Room 2**
  - **TO**
  - **nbn NTD**
  - **PSU**
- **Room 3**
  - **TO**
  - **Gateway**
  - **PSU**
  - **Wall Box (if present)**

### Cabling

- **Existing copper**
- **Optical fibre**
- **New copper**
- **Power**

### Notes:

**Note 1:** Disconnect the lead-in pair for the existing voice service to allow use of existing internal cabling for a voice service over the NBN. Leave any other pair(s) connected since they may be in use for special service(s) that are not to be disconnected or migrated.

**Note 2:** The figure depicts a wall box however the lead-in may be terminated directly on the first TO or a termination block.

**Note 3:** A TO is required to extend the voice service from the gateway into the existing home cabling. The telephone service is provided by the gateway. In many cases a dual face-plate or new TO will be required, as shown in this diagram.

[Back to TELSTRA LEAD-IN cabling list](#)
**Note 1:** Disconnect the lead-in pair for the existing voice service to allow use of existing internal cabling for a voice service over the NBN. Leave any other pair(s) connected since they may be in use for special service(s) that are not to be disconnected or migrated.

**Note 2:** The figure depicts a wall box however the lead-in may be terminated directly on the first TO or a termination block.

**Note 3:** A TO is required to extend the voice service from the gateway into the existing home cabling. The telephone service is provided by the gateway. In many cases a dual face-plate or new TO will be required, as shown in this diagram. Cabling needs to run directly from the new TO to the Mode 3 TO before connecting to other TOs.
Note 1: Disconnect the lead-in pair for the existing voice service to allow use of existing internal cabling for a voice service over the NBN. Leave any other pair(s) connected since they may be in use for special service(s) that are not to be disconnected or migrated.

Note 2: The figure depicts a wall box however the lead-in may be terminated directly on the first TO or a termination block.

Note 3: A TO is required to extend the voice service from the gateway into the existing home cabling. The telephone service is provided by the gateway. In many cases a dual face-plate or new TO will be required, as shown in this diagram. Cabling needs to run directly from the new TO to the Mode 3 TO before connecting to other TOs.
**Figure 7**

**Telstra lead-in**

**FTTN**

**Existing installation**

**nbn Copper pair lead-in with Telstra voice service**

**Wall Box (if present)**

**Room 1**

**GPO**

**TO**

**Room 2**

**GPO**

**TO**

**Room 3**

**GPO**

**TO**

**Existing copper**

**New copper**

**Power**

**Cords**

**IMPORTANT**

Read in conjunction with G649.1

**After migration**

**nbn Copper pair lead-in**

**Wall Box (if present)**

**Room 1**

**GPO**

**TO**

**New TO**

**Gateway**

**Additional TO if phone required in same room as gateway**

**Room 2**

**GPO**

**TO**

**Room 3**

**GPO**

**TO**

**Note 1:** Remove all star wiring from first TO. Connect the lead-in pair for the existing voice service to the first TO only. A multiple faceplate can be used to connect the existing internal cabling to a new TO, allowing for a voice service inside the premises. Leave any other pair(s) connected since they may be in use for special service(s) that are not to be disconnected or migrated.

**Note 2:** The figure depicts a wall box however the lead-in may be terminated directly on the first TO or a termination block.

**Note 3:** A TO is required to extend the voice service from the gateway into the existing home cabling. The telephone service is provided by the gateway. In many cases a dual face-plate or new TO will be required, as shown in this diagram.

**Back to TELSTRA LEAD-IN cabling list**

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**FIGURE 8**

| Telstra lead-in | FTTN | Mode 3 |

**Existing installation**

- **nbn** Copper pair lead-in with Telstra voice service
- Wall Box (if present)

**Note 1:** Remove all star wiring from first TO. Connect the lead-in pair for the existing voice service to the first TO only. A multiple faceplate can be used to connect the existing internal cabling to a new TO, allowing for a voice service inside the premises. Leave any other pair(s) connected since they may be in use for special service(s) that are not to be disconnected or migrated.

**Important**

Read in conjunction with G649.1

**After migration**

- **nbn** Copper pair lead-in
- Wall Box (if present)

**Note 2:** The figure depicts a wall box however the lead-in may be terminated directly on the first TO or a termination block.

**Note 3:** The New First Socket is required to connect the lead-in to the gateway. A TO is required to extend the voice service from the gateway into the existing home cabling. The telephone service is provided by the gateway. In many cases a dual face-plate or new TO will be required, as shown in this diagram. Cabling needs to run directly from the new TO to the Mode 3 TO before connecting to other TOs.

---

**Back to TELSTRA LEAD-IN cabling list**

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**Figure 9**

**Telstra Lead-in**

**FTTB**

---

**Existing installation**

Copper pair from MDF or floor distributor (IDF) with nbn DSL and Telstra voice.

**NOTE:** Although this diagram does not show it, an nbn service has been activated for use and a RSP-supplied or End User-supplied VDSL2 modem may already be installed.

**IMPORTANT**

Read in conjunction with G649.1

---

**After migration**

Copper pair from MDF or floor distributor (IDF) with nbn DSL.

**Note 1:** Remove all wiring from first TO. Connect the lead-in pair for the existing voice service to the first TO only. A multiple faceplate can be used to connect the existing internal cabling to a new TO, allowing for a voice service inside the premises. Leave any other pair(s) connected since they may be in use for special service(s) that are not to be disconnected or migrated.

**Note 2:** A TO is required to extend the voice service from the gateway into the existing home cabling. The telephone service is provided by the gateway. In many cases a dual face-plate or new TO will be required, as shown in this diagram.

---

**Cabling**

- Existing copper
- New copper
- Power

**Cords**

---

**Back to TELSTRA LEAD-IN cabling list**
**FIGURE 10** Telstra lead-in  |  FITB  |  Mode 3

Copper pair from MDF or floor distributor (IDF) With nbn DSL and Telstra voice

**Existing installation**

NOTE: Although this diagram does not show it, an nbn service has been activated for use and a RSP-supplied or End User-supplied VDSL2 modem may already be installed.

**IMPORTANT**
Read in conjunction with G649.1

Copper pair from MDF or floor distributor (IDF) With nbn DSL

**After migration**

Room 1  
Mode 3 TO  
B2B Alarm  
GPO

Room 2  
TO

Room 3  
TO

**Cabling**

[existing copper] [new copper] [power] [cords]

Note 1: Disconnect the lead-in pair for the existing voice service to allow use of existing internal cabling for a voice service over the NBN. Leave any other pair(s) connected since they may be in use for special service(s) that are not to be disconnected or migrated.

Note 2: The New First TO is required to connect the lead-in to the gateway. A TO is required to extend the voice service from the gateway into the existing home cabling. The telephone service is provided by the gateway. In many cases a dual face-plate or new TO will be required, as shown in this diagram. Cabling needs to run directly from the new TO to the Mode 3 TO before connecting to other TOs.

Back to TELSTRA LEAD-IN cabling list
**Figure 11: Telstra lead-in**

**Existing installation**

- **nbn Copper pair lead-in with Telstra voice service**
- **Wall Box (if present)**

**Note 1:** Remove all star wiring from first TO. Connect the lead-in pair for the existing voice service to the first TO only. A multiple faceplate can be used to connect the existing internal cabling to a new TO, allowing for a voice service inside the premises. Leave any other pair(s) connected since they may be in use for special service(s) that are not to be disconnected or migrated.

**Note 2:** The figure depicts a wall box however the lead-in may be terminated directly on the first TO or a termination block.

**Note 3:** A TO is required to extend the voice service from the gateway into the existing home cabling. The telephone service is provided by the gateway. In many cases a dual face-plate or new TO will be required, as shown in this diagram.

**After migration**

- **nbn Copper pair lead-in**
- **Wall Box (if present)**

**Important**

Read in conjunction with G649.1

**IMPORTANT**

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**FIGURE 12**

**Telstra lead-in**

<table>
<thead>
<tr>
<th>Room 1</th>
<th>Room 2</th>
<th>Room 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall Box (if present)</td>
<td>Wall Box (if present)</td>
<td>Wall Box (if present)</td>
</tr>
<tr>
<td>nbn Copper pair lead-in with Telstra voice service</td>
<td>nbn Copper pair lead-in</td>
<td>nbn Copper pair lead-in</td>
</tr>
<tr>
<td>Mode 3 TO</td>
<td>TO</td>
<td>TO</td>
</tr>
<tr>
<td>B2B Alarm</td>
<td>GPO</td>
<td>GPO</td>
</tr>
</tbody>
</table>

**FTTC**

<table>
<thead>
<tr>
<th>Room 1</th>
<th>Room 2</th>
<th>Room 3</th>
</tr>
</thead>
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<td>Wall Box (if present)</td>
<td>Wall Box (if present)</td>
</tr>
<tr>
<td>nbn Copper pair lead-in</td>
<td>nbn Copper pair lead-in</td>
<td>nbn Copper pair lead-in</td>
</tr>
<tr>
<td>Mode 3 TO</td>
<td>New 1st TO</td>
<td>Additional TO</td>
</tr>
<tr>
<td>B2B Alarm</td>
<td>Gateway</td>
<td>NCD</td>
</tr>
<tr>
<td>GPO</td>
<td>GPO</td>
<td>GPO</td>
</tr>
</tbody>
</table>

**Mode 3**

<table>
<thead>
<tr>
<th>Room 1</th>
<th>Room 2</th>
<th>Room 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall Box (if present)</td>
<td>Wall Box (if present)</td>
<td>Wall Box (if present)</td>
</tr>
<tr>
<td>nbn Copper pair lead-in</td>
<td>nbn Copper pair lead-in</td>
<td>nbn Copper pair lead-in</td>
</tr>
<tr>
<td>Mode 3 TO</td>
<td>TO</td>
<td>TO</td>
</tr>
<tr>
<td>B2B Alarm</td>
<td>GPO</td>
<td>GPO</td>
</tr>
</tbody>
</table>

**Existing installation**

Note 1: Remove all star wiring from first TO. Connect the lead-in pair for the existing voice service to the first TO only. A multiple faceplate can be used to connect the existing internal cabling to a new TO, allowing for a voice service inside the premises. Leave any other pair(s) connected since they may be in use for special service(s) that are not to be disconnected or migrated.

Note 2: The figure depicts a wall box however the lead-in may be terminated directly on the first TO or a termination block.

Note 3: The New First Socket is required to connect the lead-in to the gateway. A TO is required to extend the voice service from the gateway into the existing home cabling. The telephone service is provided by the gateway. In many cases a dual face-plate or new TO will be required, as shown in this diagram. Cabling needs to run directly from the new TO to the Mode 3 TO before connecting to other TOs.

**IMPORTANT**

Read in conjunction with G649.1

**Back to TELSTRA LEAD-IN cabling list**
**Figure 13**

**Telstra lead-in**

**HFC NTD + Gateway**

---

**Important**

Read in conjunction with G649.1

---

**Existing installation**

**After migration**

---

**Note 1:** Disconnect the lead-in pair for the existing voice service to allow use of existing internal cabling for a voice service over the NBN. Leave any other pair(s) connected since they may be in use for special service(s) that are not to be disconnected or migrated.

**Note 2:** The figure depicts a wall box however the lead-in may be terminated directly on the first TO or a termination block.

**Note 3:** A TO is required to extend the voice service from the gateway into the existing home cabling. The telephone service is provided by the gateway. In many cases a dual face-plate or new TO will be required, as shown in this diagram.

---

**Back to TELSTRA LEAD-IN cabling list**
Note 1: Disconnect the lead-in pair for the existing voice service to allow use of existing internal cabling for a voice service over the NBN. Leave any other pair(s) connected since they may be in use for special service(s) that are not to be disconnected or migrated.

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Back to TELSTRA LEAD-IN cabling list
Note 1: Disconnect the lead-in pair for the existing voice service to allow use of existing internal cabling for a voice service over the NBN. Leave any other pair(s) connected since they may be in use for special service(s) that are not to be disconnected or migrated.

Note 2: The figure depicts a wall box however the lead-in may be terminated directly on the first TO or a termination block.

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## Optus cable modem (VoIP)

Sample cabling diagrams

<table>
<thead>
<tr>
<th>Unmonitored services</th>
<th>Monitored services</th>
</tr>
</thead>
<tbody>
<tr>
<td>➤ FTTP NTD UNI-V port</td>
<td>➤ with Mode 3</td>
</tr>
<tr>
<td>➤ FTTP NTD with Gateway</td>
<td>➤ with Mode 3</td>
</tr>
<tr>
<td>➤ FTTN</td>
<td>➤ with Mode 3</td>
</tr>
<tr>
<td>➤ FTTB</td>
<td>➤ with Mode 3</td>
</tr>
<tr>
<td>➤ FTTC</td>
<td>➤ with Mode 3</td>
</tr>
<tr>
<td>➤ HFC NTD with Gateway</td>
<td>➤ with Mode 3</td>
</tr>
</tbody>
</table>
Note 1: The Optus NBP is owned, installed and maintained by Optus and cannot be migrated to become part of the customer’s cabling when the customer cabling is to be connected to another service provider.

Note 2: Disconnect the Optus NBP/wall plate from the former first socket to allow use of existing internal cabling for a voice service over the NBN.

Note 3: A TO is required to extend the voice service from the NTD into the existing home cabling. The telephone service is provided by the NTD. In many cases a new TO will be required, as shown in this diagram.
Note 1: The Optus NBP is owned, installed and maintained by Optus and cannot be migrated to become part of the customer’s cabling when the customer cabling is to be connected to another service provider.

Note 2: Disconnect the Optus NBP/wall plate from the former first socket to allow use of existing internal cabling for a voice service over the NBN.

Note 3: A TO is required to extend the voice service from the gateway into the existing home cabling. The telephone service is provided by the gateway. In many cases a dual face-plate or new TO will be required, as shown in this diagram. Cabling needs to run directly from the new TO to the Mode 3 TO before connecting to other TOs.
FIGURE 18  Optus cable  FTTP NTD + Gateway

Existing installation

Telstra Copper pair lead-in
nbn fibre lead-in
Optus HFC lead-in

Wall Box (if present)
Optus Isolator enclosure

nbn PCD

Room 1
TO
Room 2
TO
Room 3
TO

Optus Wallplate

After migration

Optical fibre
New copper
Existing copper
Coax

Cabling

Cords

的重要：请阅读与G649.1一并

Note 1:  The Optus NBP is owned, installed and maintained by Optus and cannot be migrated to become part of the customer’s cabling when the customer cabling is to be connected to another service provider.

Note 2:  Disconnect the Optus NBP/wall plate from the former first socket to allow use of existing internal cabling for a voice service over the NBN.

Note 3:  A TO is required to extend the voice service from the gateway into the existing home cabling. The telephone service is provided by the gateway. In many cases a dual face-plate or new TO will be required, as shown in this diagram.
**Note 1:** The Optus NBP is owned, installed and maintained by Optus and cannot be migrated to become part of the customer’s cabling when the customer cabling is to be connected to another service provider.

**Note 2:** Disconnect the Optus NBP/wall plate from the former first socket to allow use of existing internal cabling for a voice service over the NBN.

**Note 3:** A TO is required to extend the voice service from the gateway into the existing home cabling. The telephone service is provided by the gateway. In many cases a dual face-plate or new TO will be required, as shown in this diagram. Cabling needs to run directly from the new TO to the Mode 3 TO before connecting to other TOs.
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The Optus NBP is owned, installed and maintained by Optus and cannot be migrated to become part of the customer’s cabling when the customer cabling is to be connected to another service provider.

### Note 2:
Disconnect the Optus NBP/wall plate from the former first socket to allow use of existing internal cabling for a voice service over the NBN.

### Note 3:
A TO is required to extend the voice service from the gateway into the existing home cabling. The telephone service is provided by the gateway. In many cases a new TO will be required, as shown in this diagram.
**FIGURE 21**

<table>
<thead>
<tr>
<th>Optus cable</th>
<th>FTIN</th>
<th>Mode 3</th>
</tr>
</thead>
</table>

**Existing installation**

- **nbn Copper pair lead-in**
- **Optus HFC lead-in**

**Note 1:** The Optus NBP is owned, installed and maintained by Optus and cannot be migrated to become part of the customer’s cabling when the customer cabling is to be connected to another service provider.

**Note 2:** Disconnect the Optus NBP/wall plate from the former first socket to allow use of existing internal cabling for a voice service over the NBN.

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**IMPORTANT**
Read in conjunction with G649.1

**After migration**

- **nbn Copper pair lead-in**
- **Optus HFC lead-in**

**Cabling**

- Existing copper
- New copper
- Coax
- Power

**Cords**

**Room 1**
- **Wall Box** (if present)
- **Optus Isolator enclosure**

**Room 2**
- **TO**
- **Mode 3 TO**
- **B2B Alarm**
- **Optus Wallplate**

**Room 3**
- **TO**
- **Optus Wallplate**
- **eMTA**

**GPO**
**FIGURE 22**

<table>
<thead>
<tr>
<th>Optus cable</th>
<th>FTTB</th>
</tr>
</thead>
</table>

**Existing installation**

Copper pair from MDF or floor distributor (IDF) with nbn DSL

Optus HFC lead-in

Optus Isolator enclosure

**NOTE:** Although this diagram does not show it, an nbn service has been activated for use and a RSP-supplied or End User-supplied VDSL2 modem may already be installed.

**After migration**

Copper pair from MDF or floor distributor (IDF) with nbn DSL

Optus HFC lead-in

Optus Isolator enclosure

**IMPORTANT**

Read in conjunction with G649.1

---

**Note 1:** The Optus NBP is owned, installed and maintained by Optus and cannot be migrated to become part of the customer’s cabling when the customer cabling is to be connected to another service provider.

**Note 2:** Disconnect the Optus NBP/wall plate from the former first socket to allow use of existing internal cabling for a voice service over the NBN.

**Note 3:** A TO is required to extend the voice service from the gateway into the existing home cabling. The telephone service is provided by the gateway. In many cases a new TO will be required, as shown in this diagram.

[Back to OPTUS CABLE cabling list](#)
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## Optus telephone service (CAU)

### Sample cabling diagrams

<table>
<thead>
<tr>
<th>Unmonitored services</th>
<th>Monitored services</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTTP NTD UNI-V port</td>
<td>with Mode 3</td>
</tr>
<tr>
<td>FTTP NTD with Gateway</td>
<td>with Mode 3</td>
</tr>
<tr>
<td>FTTN</td>
<td>with Mode 3</td>
</tr>
<tr>
<td>FTTB</td>
<td>with Mode 3</td>
</tr>
<tr>
<td>FTTC</td>
<td>with Mode 3</td>
</tr>
<tr>
<td>HFC NTD with Gateway</td>
<td>with Mode 3</td>
</tr>
<tr>
<td>HFC NTD with Gateway</td>
<td>with Mode 3</td>
</tr>
</tbody>
</table>

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 FIGURE 30

Optus phone | FTTP NTD + Gateway

**Existing installation**

Telstra Copper pair lead-in

nbn fibre lead-in

Optus HFC lead-in

Optus CAU

Wall Box (if present)

**Room 1**

Telstra Copper pair lead-in

nbn fibre lead-in

Optus HFC lead-in

Optus CAU

**Room 2**

nbn PCD

TO

Optus TO

**Room 3**

nbn NTD

PSU

GPO

**After migration**

Telstra Copper pair lead-in

nbn fibre lead-in

Optus HFC lead-in

Optus CAU

Wall Box (if present)

**Room 1**

nbn PCD

TO

Optus TO

New TO

(if required)

**Room 2**

nbn NTD

PSU

Gateway

GPO

**Room 3**

TO

**Cabling**

- Existing copper
- Optical fibre
- New copper
- Coax
- Power

**Cords**

**IMPORTANT**

Read in conjunction with G649.1

**Note 1:** The Optus NBP is owned, installed and maintained by Optus and cannot be migrated to become part of the customer’s cabling when the customer cabling is to be connected to another service provider. Disconnect internal cabling from the former first TO to allow use of existing internal cabling for a voice service over the NBN.

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**FIGURE 35**

<table>
<thead>
<tr>
<th>Optus phone</th>
<th>FTTB</th>
<th>Mode 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing installation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>After migration</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Read in conjunction with G649.1
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<th>Room 2</th>
<th>Room 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telstra Copper pair lead-in</td>
<td>nbn HFC lead-in</td>
<td>Optus HFC lead-in</td>
</tr>
<tr>
<td>nbn PCD</td>
<td>Optus CAU</td>
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[Back to OPTUS PHONE cabling list]
Note 1: The New TO is used to extend the voice services from the FTTP NTD or Gateway voice port and connect it to the existing home wiring. This TO can be located in a wallplate housing multiple TOs as shown in the options. The ‘Existing TO’ in Option 2 is wired in parallel with the “New TO” to allow connection of a phone at that location.

Note 2: The Gateway examples shows a red connector in the WAN port as would be used for FTTP, FTTC and HFC networks. For FTTN or FTTB the nbn™ network is connected to the DSL port instead of the WAN port.

FIGURE 42
Cabling the ‘New TO’ when migrating telephony services onto the nbn™
MODE 3 CONNECTION FOR ALARM SERVICES

Cabling from Uni-V port (or Uni-D port via gateway)

Mode 3 First TO

FIGURE 43
Normal telephone operation with Mode 3 dialler disconnected

Cabling from Uni-V port (or Uni-D port via gateway)

Mode 3 First TO

FIGURE 44
Mode 3 dialler activated and disconnecting the telephones
Incorrect installation
Dialler unable to make a call

Cabling from Uni-V port (or Uni-D port via gateway)

First TO

Mode 3
Second TO

FIGURE 45
Example of an incorrect installation where the dialler is unable to make a call

The first socket is wired differently for a "Mode 3" connection

Customer cable

Lead-in cable

Existing line

First TO Plug Cord

"Mode 3" device

Control relay

Auto-dialling equipment

First TO Plug Cord Telephone

Customer cable

TO Plug Cord Telephone

FIGURE 46
Schematic of a Mode 3 installation

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# PARTICIPANTS

The Working Committee responsible for the revisions made to this Guideline consisted of the following organisations and their representatives:

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Membership</th>
<th>Representative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Communications and Media Authority (ACMA)</td>
<td>Non-voting</td>
<td>Cuong Nguyen</td>
</tr>
<tr>
<td>Australian Communications and Media Authority (ACMA)</td>
<td>Non-voting</td>
<td>Patrick Emery</td>
</tr>
<tr>
<td>CISCO Systems</td>
<td>Voting</td>
<td>Kim Yan</td>
</tr>
<tr>
<td>International Copper Alliance Australia</td>
<td>Voting</td>
<td>Ian Millner</td>
</tr>
<tr>
<td>Milcom</td>
<td>Voting</td>
<td>Les Bailey</td>
</tr>
<tr>
<td>nbn</td>
<td>Voting</td>
<td>Haydn Dale</td>
</tr>
<tr>
<td>NetComm Wireless</td>
<td>Voting</td>
<td>Catherine Nicholson</td>
</tr>
<tr>
<td>Optus</td>
<td>Non-voting</td>
<td>Milan Prosenica</td>
</tr>
<tr>
<td>Optus</td>
<td>Non-voting</td>
<td>Andrew Robinson</td>
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<tr>
<td>Stanimore</td>
<td>Voting</td>
<td>Brett Gallard</td>
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<tr>
<td>Telstra</td>
<td>Non-voting</td>
<td>Kevin Richardson</td>
</tr>
<tr>
<td>Telstra</td>
<td>Voting</td>
<td>Guy Di Paola</td>
</tr>
</tbody>
</table>

This Working Committee was chaired by Haydn Dale. Mike Johns of Communications Alliance provided project management support.
Communications Alliance was formed in 1997 to provide a unified voice for the Australian communications industry and to lead it into the next generation of converging networks, technologies and services.

In pursuing its goals, Communications Alliance offers a forum for the industry to make coherent and constructive contributions to policy development and debate.

Communications Alliance seeks to facilitate open, effective and ethical competition between service providers while ensuring efficient, safe operation of networks, the provision of innovative services and the enhancement of consumer outcomes.

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