COMMUNICATIONS ALLIANCE LTD

INDUSTRY GUIDELINE

G649:2014

CABLING EXISTING TELECOMMUNICATIONS SERVICES IN THE CUSTOMER'S PREMISES FOR THE NBN VIA FTTP

G649:2014 Cabling existing telecommunications services in the customer's premises for the NBN via FTTP Industry Guideline

First published as G649:2014

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INTRODUCTION

These instructions are designed as a guide to a registered cabling provider (referred to as Cablers in this Guideline) attending the customer premises to disconnect the existing customer cabling from the existing lead-in cabling at the Network Boundary Point and connect it to the NBN being provided via Fibre to the Premises (FTTP).

This is an important piece of work that needs to be undertaken to enable telecommunications services and devices such as over the top (OTT) services (e.g. medical and security alarms) to be able to continue to function when an end user premises is connected to the NBN FTTP. It does not cover cabling for broadband services. If customer cabling work is not performed (or not performed correctly), it is possible that the telecommunications services and/or these devices may either function incorrectly, intermittently or not at all.

Given the dependence end users have on telecommunications services, the telecommunications industry recognises the need to have in place clear instructions for Cablers to follow in order to successfully connect services and these devices to the NBN FTTP wherever possible.

Note that this Guideline refers to medical and security alarms as they are the two most common OTT services found in customer premises but the guidance is not limited to only these types of OTT services.

Note that some existing services may not be transferred to the NBN FTTP so existing cabling may need to remain connected. This will need to be confirmed with the RSP prior to installation and possibly the customer at time of installation and it may impact the manner in which the in-home cabling is connected to the NBN FTTP.

This guide is a simple three step process to make the migration as seamless as possible given the variety of types of installation and equipment already in situ. This guide has been designed for a registered cabling provider to use as a check list:

Step 1. Prepare to migrate

Step 2. Migrate

Step 3. Verify migration

IMPORTANT BACKGROUND INFORMATION

It is important that a registered cabling provider receives clear instructions from the Retail Service Provider (RSP) of the service(s) before going to a customer's premises to connect and/or migrate services from their existing copper base services onto NBN FTTP, in particular whether the existing copper lead-in cable can be physically disconnected.

Existing services using the Telstra Copper network

The RSP will submit a connection order for the fibre services directly to NBN Co (or via a wholesale NBN provider) and a disconnection order for the copper service to Telstra. Under the Telstra Migration Plan, only the RSP is authorised to submit a disconnection order for copper services to Telstra. Telstra will then process the disconnection request. Customers have about 18 months in each NBN Co FTTP rollout region to disconnect from copper and broadband HFC services (referred to as the migration window), except for defined special services as outlined in the Migration Plan.

Only if an RSP has issued to Telstra a copper voice service disconnection order is a registered cabling provider allowed to disconnect a Telstra copper lead-in cable pair as described in Telstra's *'012882 Alteration of Telstra facilities in homes & small businesses'*. An RSP shall provide clear instructions to the registered cabling provider about the disconnection order including:

1. when the job is completed and all services are working properly the registered cabling provider shall confirm with the RSP that the job is completed; and

2. if the job is not completed and or copper pair has to be reconnected because the migrated services are not working, the registered cabling provider must inform the RSP so the RSP can cancel the Telstra disconnection order before it takes effect. Otherwise once the Telstra pair is identified as disconnected and cancelled in the Telstra IT systems, it cannot be reconnected.

It should be noted that this Guideline was prepared in the lead-up to the 2013 Federal Election. Further work will now be undertaken by the CECRP/WG45 : RSP Customer Cabling Cut-over Practices Working Group to assess the implications for cabling existing telecommunications services in customer's premises for the NBN arising from the introduction of alternative access technologies such as Fibre To The Node (FTTN). A further edition of the Guideline may be issued when this work is completed.

STEP1: PREPARE TO MIGRATE

Activity	Outcome
Prepare to attend customer premises 1. Review work order from RSP. 2. Identify any specific customer needs (e.g. priority assistance service). 3. Are there any medical/security alarm services associated with the service to be migrated. (If supplied by a medical/security alarm provider, that provider should have contacted the customer during the NBN rollout). The information may also become available once the on-site service identification has been undertaken (see the next activity below).	**Identify:** 1. Service to be migrated a. Voice b. Voice and data c. Data only 2. Are services going to be supplied directly via the UNI-V and/or UNI-D ports and is the RSP supplying a gateway. 3. Are there multiple RSPs? Typically there will be one voice service but there could be multiple services. 4. Medical/security alarm services identified.
On-site service identification and verification 1. When on-site confirm with the customer what work is to be done. 2. Inform the customer what service(s) are being migrated. 3. Verify with the customer if there are any medical/security alarm services associated with the service to be migrated. Is there any equipment associated with these services in the premises and whether they are self-installed or installed by a medical/security alarm Service Provider. The two common services installed by a provider are monitored services, back-to-base security alarms and monitored personal medical alarms. 4. Identify services that are not being migrated. 5. Customer to confirm operation of all medical/security alarm services prior to any cabling work. 6. The Cabler is to have the customer trigger the monitored service prior to migration to prove functionality. 7. Check that the RSP's service that is being migrating on to the NBN NTD is available and operational.	**Confirmation of:** 1. What is being migrated. 2. What is not being migrated. 3. Operational medical and security alarm services, if present. 4. Suitable gateway location

Activity	Outcome
On-site equipment and cable identification 1. Identify locations of existing cabling and equipment. 2. Assess (where practical) the existing Telecommunication Outlets (TOs) and cabling that will be affected by the cabling work prior to commencement. Assessment should include compliance to AS/CA S009. 3. If the existing cabling does not comply with AS/CA S009, inform the customer using a TCA2 form of the status of the cabling and services. See Appendix F for a sample TCA2 form. 4. Identify if there is any cabling between equipment located in separate buildings (refer to Clause 17.3 in AS/CA S009). 5. Where network services support security or medical applications in the customer's premises, consideration should be given to minimise the risk of accidental or malicious disconnection of these services as presented at the NBN NTD. Measures may include: • housing the NBN NTD, associated cross connect equipment and power supply in a lockable enclosure. • use lockable patch cords or outlet insert that requires the use of a tool or key to remove a patch cord.	**Identified location of services to be migrated:** 1. Voice services 2. OTT services 3. Data services **Identified location of:** 1. NBN NTD 2. Network boundary (first socket/ NTD) and/or the Building Entry Point (See Figure 1) 3. Mode 3 socket (if present) 4. Cabling to detached buildings (if present). Completed TCA2 form (if required)
Determine reconnection method 1. Determine the most efficient manner to migrate the services. 2. Refer to wiring instructions if available from the medical/security alarm Service Provider. (See Appendix D for further information on Mode 3 connections) 3. Customer cabling must be migrated in a manner so that a reinstatement, should it be required, can be performed and cabling re-established to its pre-migration configuration inclusive of any monitored services. 4. Should a temporary reinstatement be required after the customer cabling has been migrated to the NBN	**Optimum cabling solution has been identified**

Activity	Outcome
service, at least one usable telephone outlet and any Mode 3 telephone outlet servicing a monitored service, is to be restored to the existing telephony carrier. Any temporary cabling is to be in accordance with AS/CA S009. See Figure 2 for a typical sample cabling plan. See Appendix A for a sample cabling plan for a Telstra lead-in with 'Mode 3' monitored service. See Appendix B for sample cabling plans for Optus VoIP services. See Appendix C for sample cabling plans for Optus POTS services.	

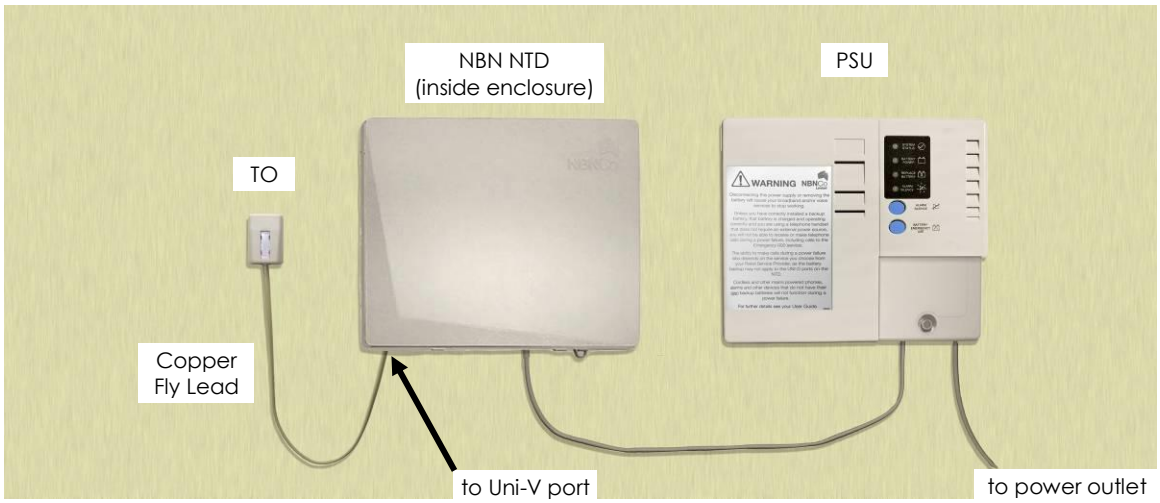
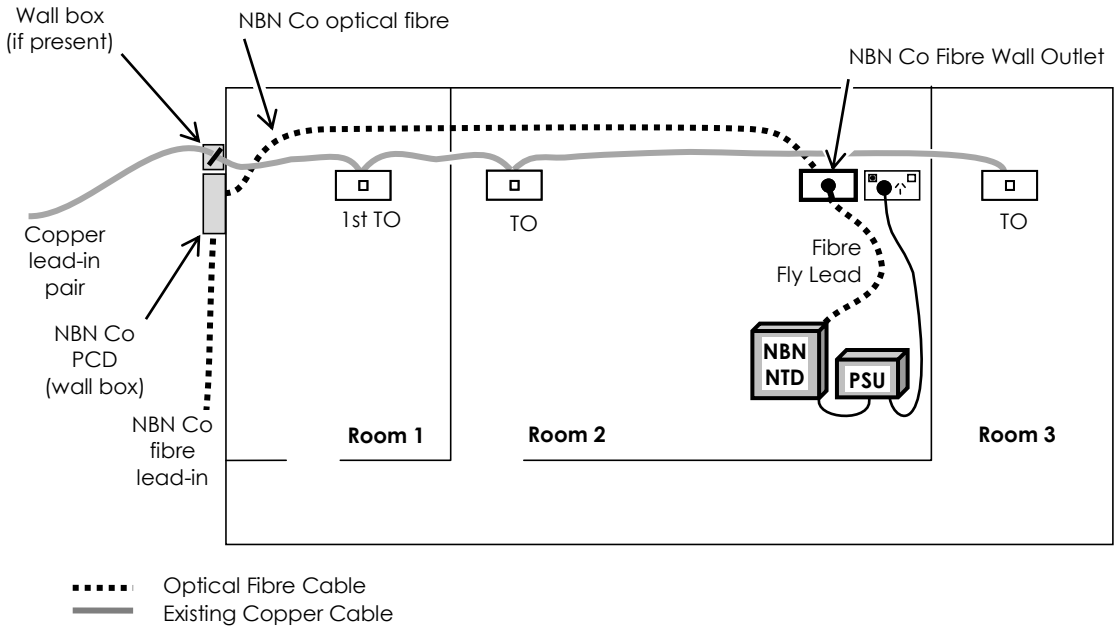
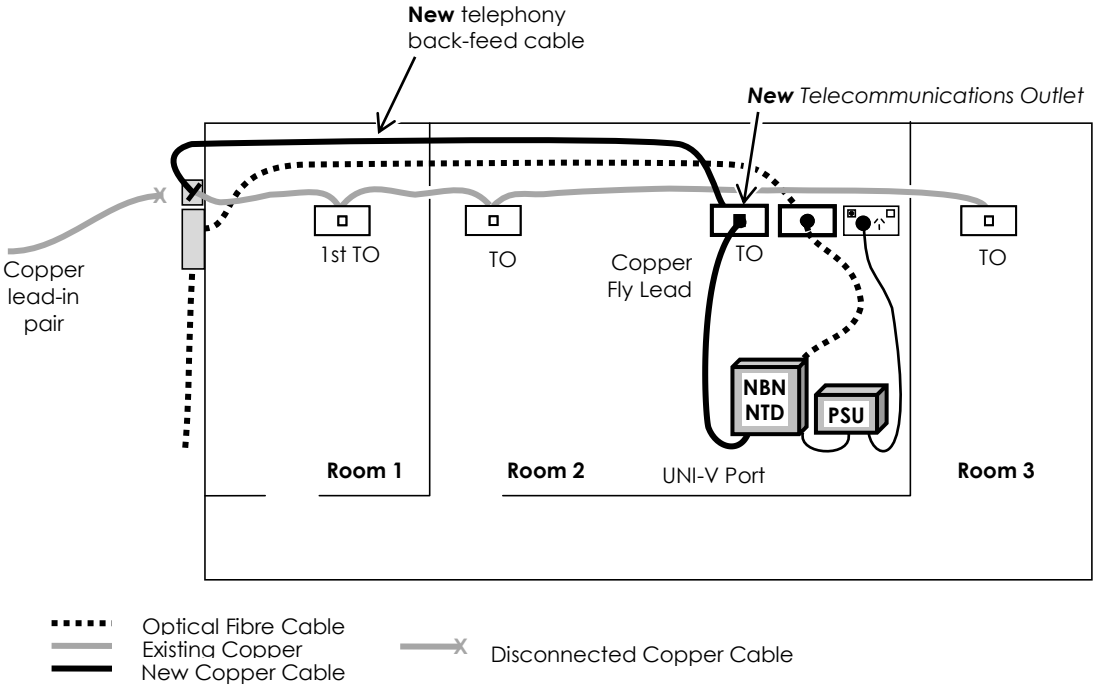


FIGURE 1

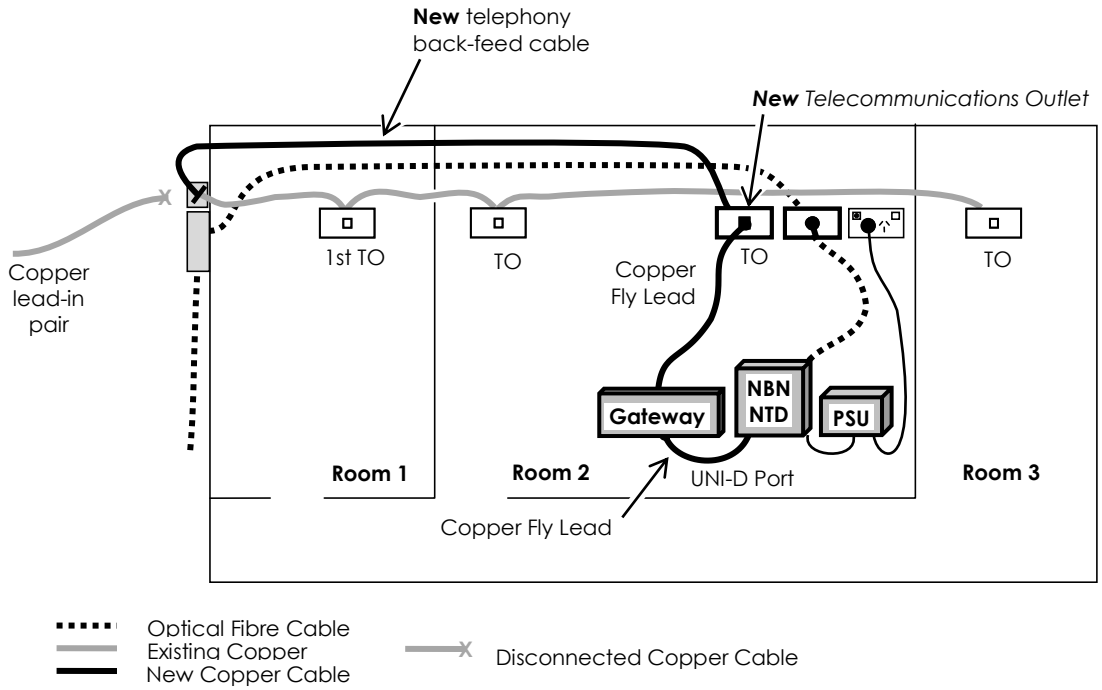
Typical installation of an NBN NTD and associated Telecommunications Outlet showing the NBN service feeding into the customer cabling



(a) Existing installation



(b) After migration – UNI-V Port



(c) After Migration – UNI-D Port & RSP Gateway

Note 1: The Building Entry Point (BEP) is where the existing copper lead-in cable enters the building. The lead-in may be terminated in a wall box if present.

Note 2: Only the lead-in pair for the existing voice service may be disconnected to facilitate use of existing internal cabling for a voice service over the NBN. Any other pair(s) must be left connected since they may be in use for special service(s) that are not to be disconnected or migrated.

FIGURE 2

Typical wiring from the NBN NTD to the existing Building Entry Point

STEP 2: MIGRATE

Activity	Outcome
Cabling work 1. Prior to undertaking the migration work, the Cabler must contact the RSP and confirm that the RSP has issued a disconnection order to Telstra. The Cabler is only permitted to disconnect a Telstra copper lead-in pair as part of the migration work if an RSP has issued this disconnection order to Telstra. 2. Once the Cabler has confirmation that the RSP has issued a disconnection order to Telstra, the Cabler can then undertake migration work.	1. Services migrated.

STEP 3: VERIFY MIGRATION

Activity	Outcome
Verification of service migration 1. Basic testing of the service(s) being migrated to confirm they are operational. 2. Confirm operation of Mode 3 socket and associated cabling. 3. Provide a completed TCA1 form. See Appendix E for a sample TCA1 form. 4. In case the migration cannot be successfully completed with the RSP's services operational, restore the installation to pre-migration configuration. If a temporary reinstatement is required, at least one usable telephone outlet and any Mode 3 telephone outlet servicing a monitored service is to be restored to the existing telephony carrier. Temporary cabling is to be in accordance with AS/CA S009. 5. Inform the customer that they need to check with their medical/security alarm provider that their services are completely operational. 6. The Cabler is to have the customer trigger any monitored service post migration to prove functionality. 7. The RSP will issue the Cabler with clear instructions about the notification that must be given once the migration work is complete. These instructions must include: (a) Once the migration is complete and all services are working, the Cabler must notify the RSP; and (b) If the migration is not complete or the installation had to be restored to pre-migration configuration (i.e. the copper had to be reconnected), the Cabler must inform the RSP so the RSP can cancel the disconnection order.	1. Migrated service operation testing completed. 2. Medical and security alarm services verified to be operational. 3. Medical and security alarm services that have not been migrated continue to be operational.

TERMINOLOGY USED IN THESE INSTRUCTIONS

Building Entry Point

a point at which a line that is used to provide a carriage service to an end-user in a building meets the outer surface of that building, immediately before entering the building. [*Telecommunications Act 1997*]

Gateway

A gateway is a type of equipment defined by AS/CA S009 as Customer Access Equipment with multiple ports (local or network) that provides access to a telecommunications network and provided connectivity for voice and data services

NBN

At the time of publication this refers to the Fibre to the Home Network being rolled out by NBN Co.

Network Boundary

the point which is deemed to be the boundary of a carrier's telecommunications network for determining whether cabling or equipment is 'customer cabling' or 'customer equipment' for the purpose of technical regulation under Part 21 of the *Telecommunications Act 1997* (the *Act)*.

Note 1: In accordance with Part 21 of the Act, customer cabling and customer equipment is required to comply with the Telecommunications Labelling Notice and cabling work is to be performed by a cabling provider.

Note 2: Refer to Appendix J for more information about the network boundary.

NBN NTD

has the meaning given to the term Network Termination Device (NTD) that is owned, operated or controlled by NBN Co (or any Related Body Corporate of NBN Co). It is a device that is installed at the end user premises that is also a demarcation point between the NBN Co network and either RSP equipment, end user CPE or end user cabling.

NTD

a device meeting the carrier's requirements that is provided by the carrier to establish a demarcation point between the carrier's telecommunications network and customer cabling or customer equipment.

Note 1: An NBN NTD is permanently marked at manufacture with the words 'Network Termination Device' or the letters 'NTD'. Any device that is not so marked is not an NBN NTD.

Note 2: An NTD is a defined network boundary point. Refer to Appendix J of AS/CA S009 for more information about the NTD and the network boundary.

[*AS/S009*]

OTT services

Services such as, but not limited to, back to base or personal alarms that connect to the existing analogue telephone service.

Registered cabling provider

A person that holds a current Open, Restricted or Lift registration with one of the five ACMA accredited Registrars.

RSP

Retail Service Providers are organisations that provide internet and telephone services via the NBN.

UNI-D port

has the meaning given to the term User Network Interface–Data as described in section 4 of NBN Co's Product Description for the NBN Co Ethernet Bitstream Service. At present, the UNI-D is a 10/100/1000 Mbit/s Ethernet port on the NBN Co provided NTD (Fibre, Wireless and Satellite) which is also the NBN Co service and network boundary.

UNI-V port

has the meaning given to the term User Network Interface–Voice as described in section 4 of NBN Co's Product Description for the NBN Co Ethernet Bitstream Service. At present, the UNI-V is a 2-wire POTS interface on the NBN Co provided Fibre NTD which is also the NBN Co service and network boundary.

REFERENCED DOCUMENTS

AS/CA S009 Installation requirements for customer cabling (Wiring rules). Available from http://www.commsalliance.com.au/Documents/all/Standards/s009

ACMA TCA1 Telecommunications cabling advice form
ACMA TCA2 Telecommunications cabling advice optional attachment

The ACMA forms have been reproduced in the appendices. The original forms are available from http://www.acma.gov.au/Industry/Telco/Infrastructure/Cabling-rules/how-to-complete-tca1-forms-cabling

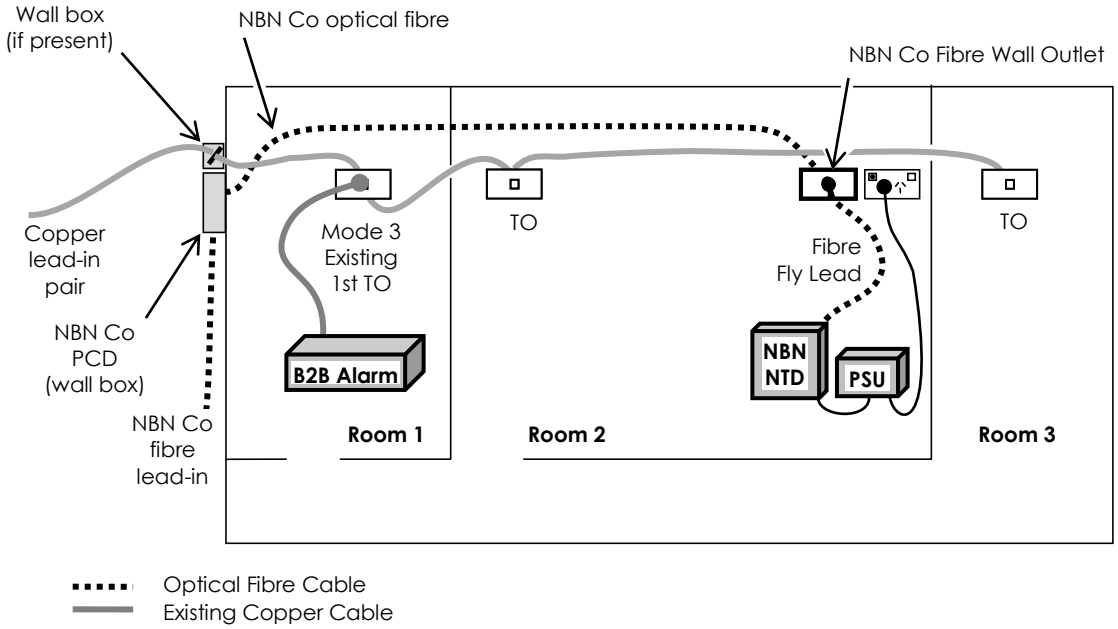
Migration Plan, given by Telstra to the ACCC on 23 August 2011 under section 577BDA of the Telecommunications Act 1997, available from http://www.accc.gov.au/regulated-infrastructure/communications/industry-reform/telstras-migration-plan

NBN Co's Product Description for the NBN Co Ethernet Bitstream Service, available from http://www.nbnco.com.au/content/dam/nbnco/documents/sfaa-wba2-product-catalogue-nebs-product-description_201312.pdf

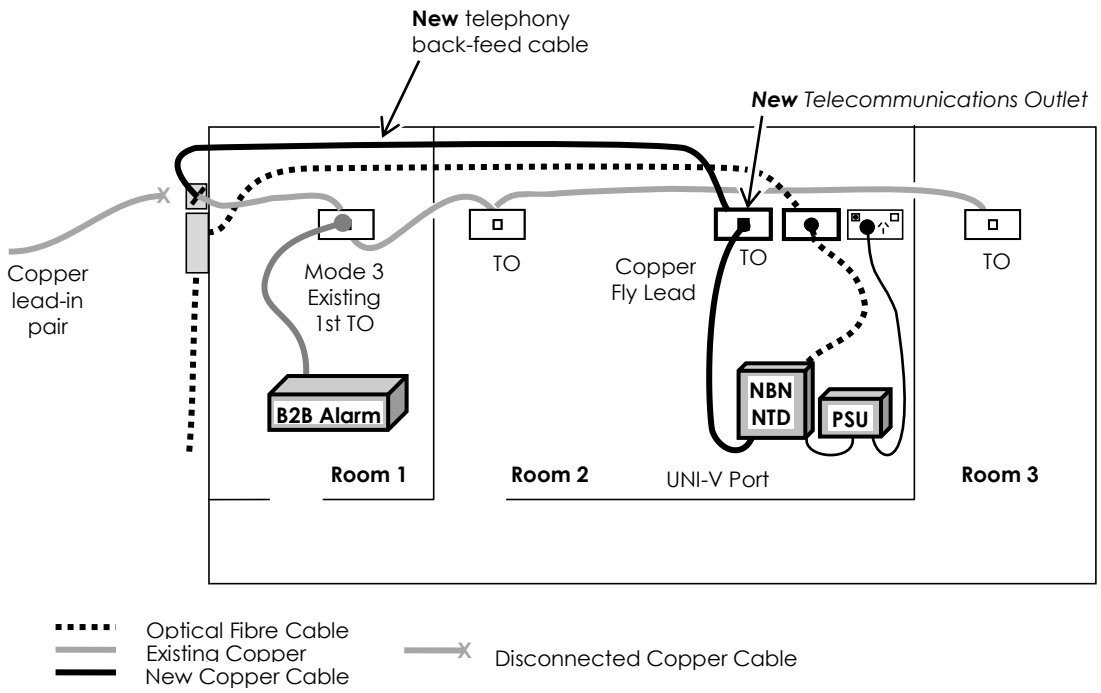
Telstra's '012882 Alteration of Telstra facilities in homes & small businesses' specification, available from http://www.telstra.com.au/smart-community/builders/

APPENDIX

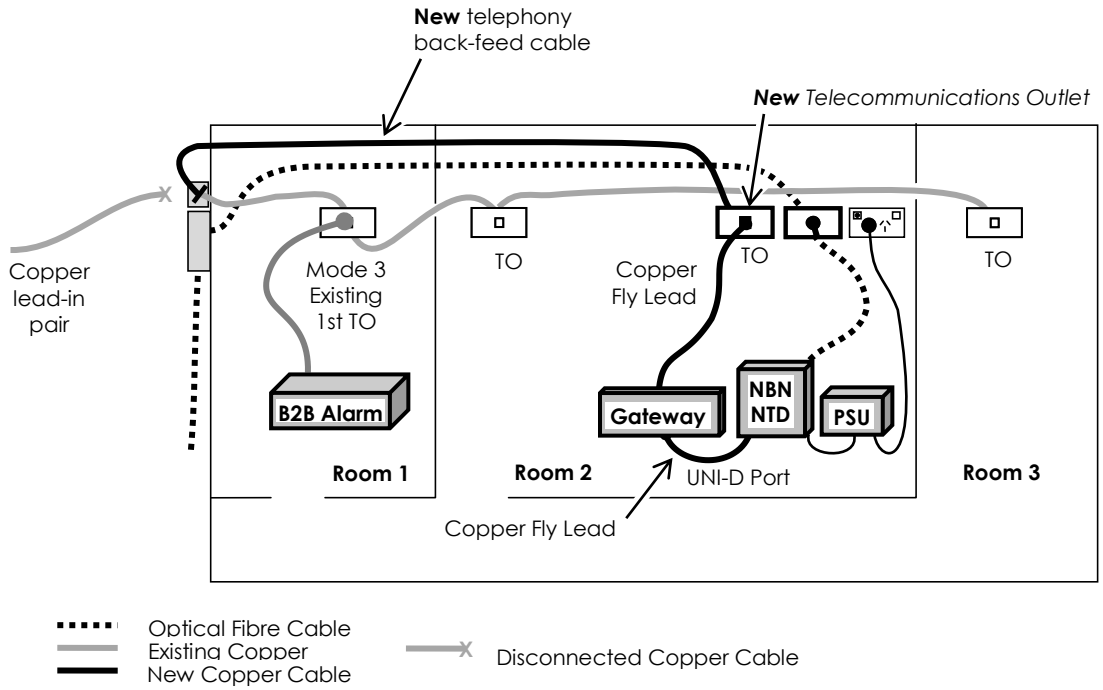
A Sample cabling plans – Telstra lead-in with 'Mode 3' monitored service



(a) Existing installation



(b) After migration – UNI-V Port



(c) After Migration – UNI-D Port & RSP Gateway

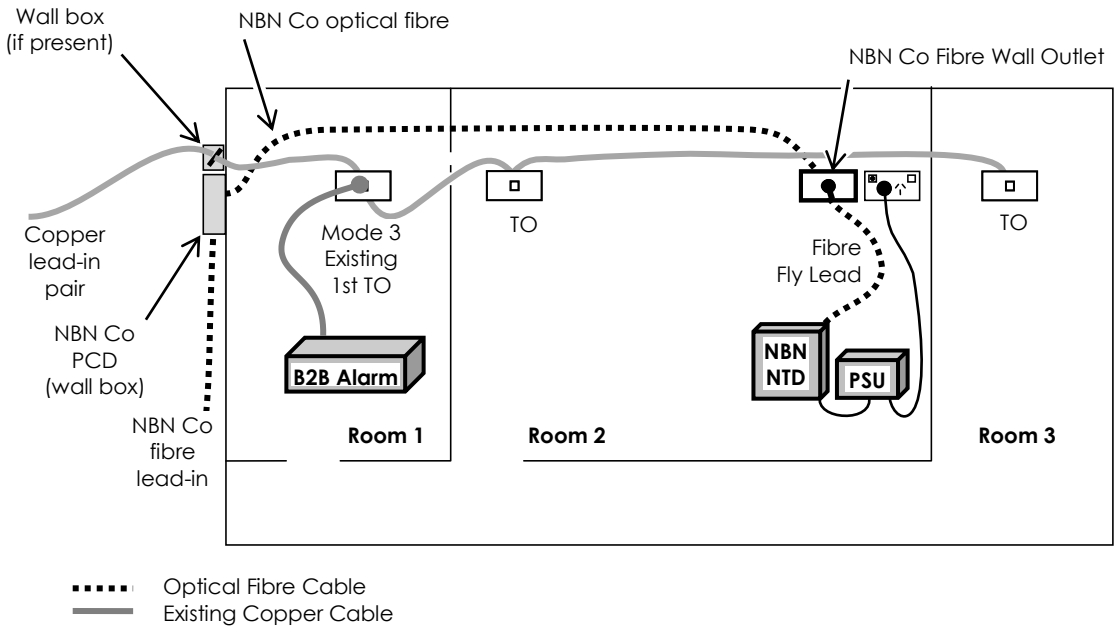
Note 1: The Building Entry Point (BEP) is where the existing copper lead-in cable enters the building. The lead-in may be terminated on a wall box if present.

Note 2: Cabling to an existing Mode 3 connection where the monitored alarm equipment and it's TO are not located near the NBN NTD.

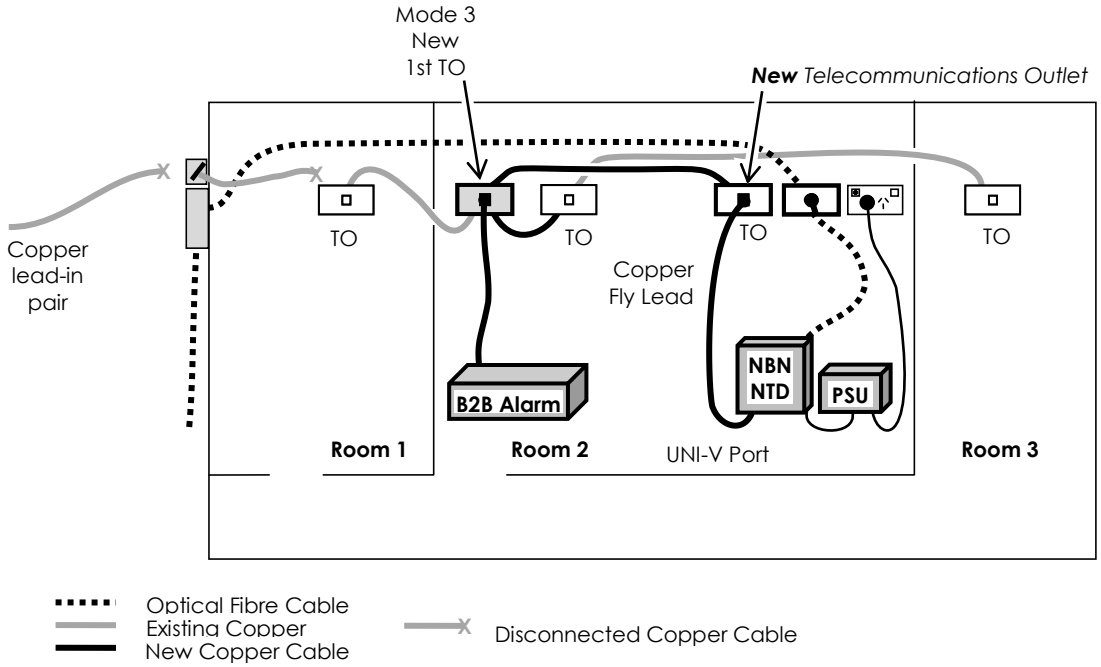
Note 3: Only the lead-in pair for the existing voice service may be disconnected to facilitate use of existing internal cabling for a voice service over the NBN. Any other pair(s) must be left connected since they may be in use for special service(s) that are not to be disconnected or migrated.

FIGURE A1

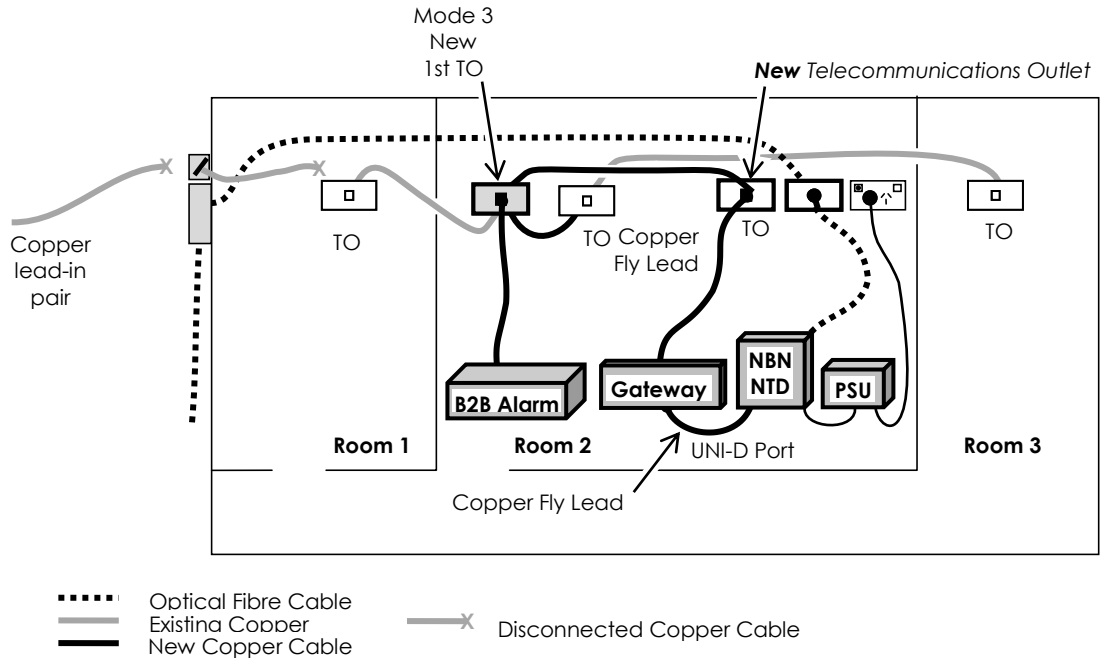
Wiring from the NBN NTD to the existing Building Entry Point – existing Mode 3



(a) Existing installation



(b) After migration – UNI-V Port



(c) After Migration – UNI-D Port & RSP Gateway

Note 1: The Building Entry Point (BEP) is where the existing copper lead-in cable enters the building. The lead-in may be terminated on a wall box if present.

Note 2: Cabling to a new Mode 3 connection where the monitored alarm equipment and it's TO are located near the NBN NTD.

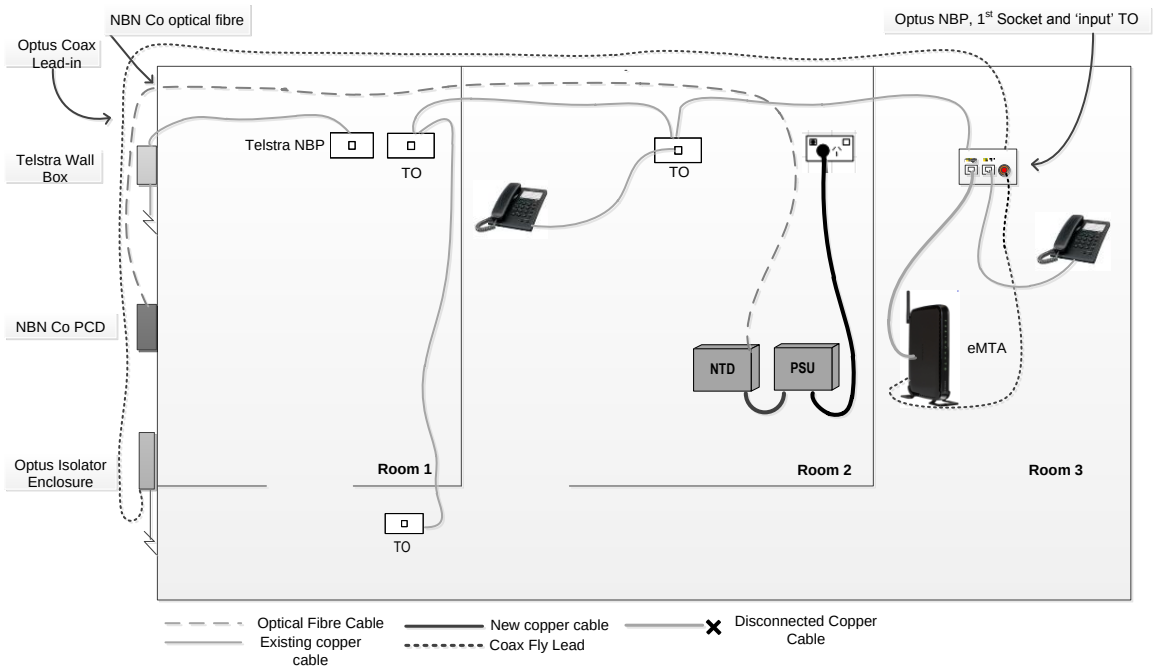
Note 3: Only the lead-in pair for the existing voice service may be disconnected to facilitate use of existing internal cabling for a voice service over the NBN. Any other pair(s) must be left connected since they may be in use for special service(s) that are not to be disconnected or migrated.

FIGURE A2

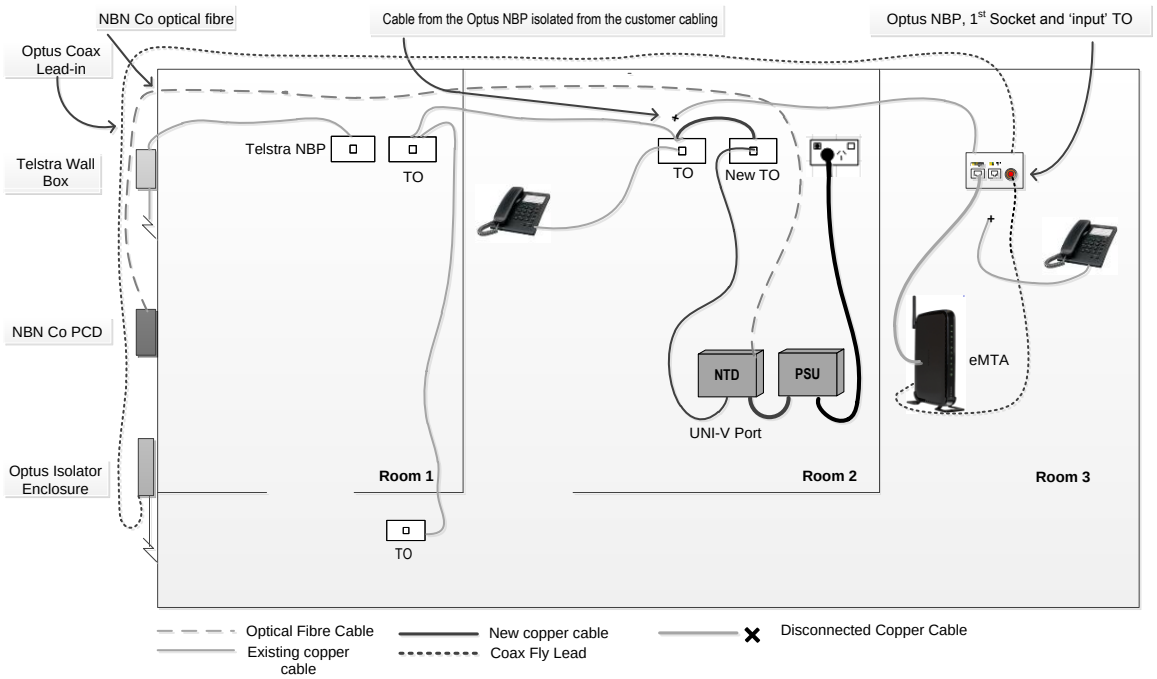
Wiring from the NBN NTD to the existing Building Entry Point – new Mode 3

APPENDIX

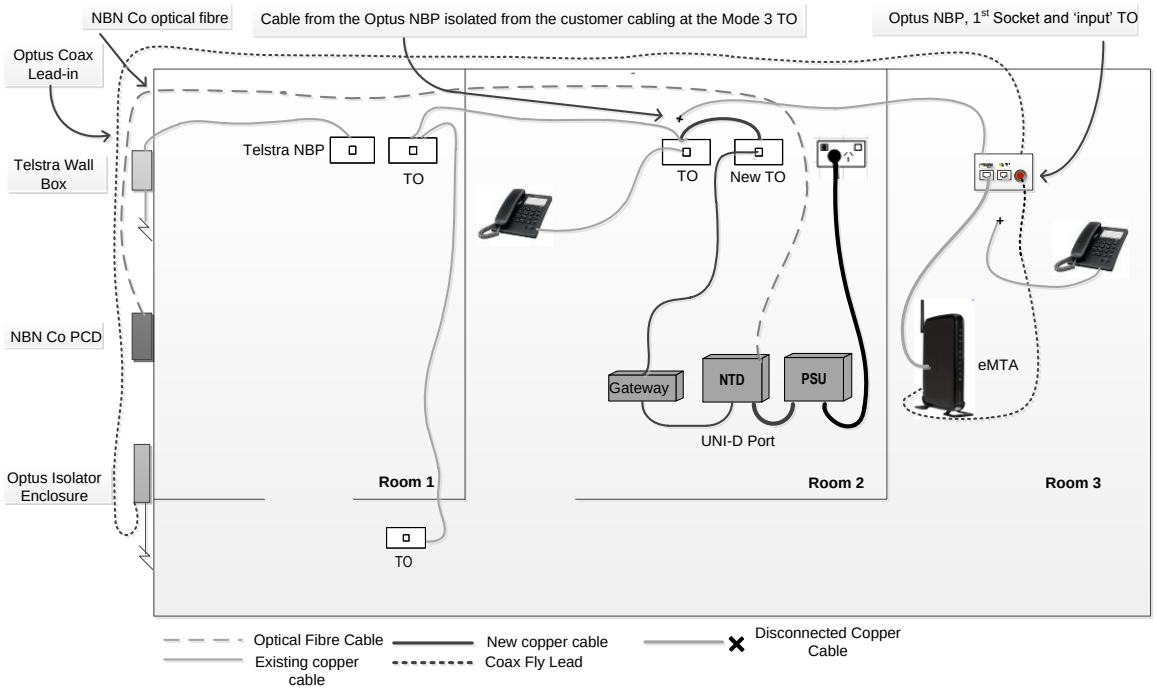
B Sample cabling plans – Optus VoIP service



(a) Existing installation



(b) After migration – UNI-V Port

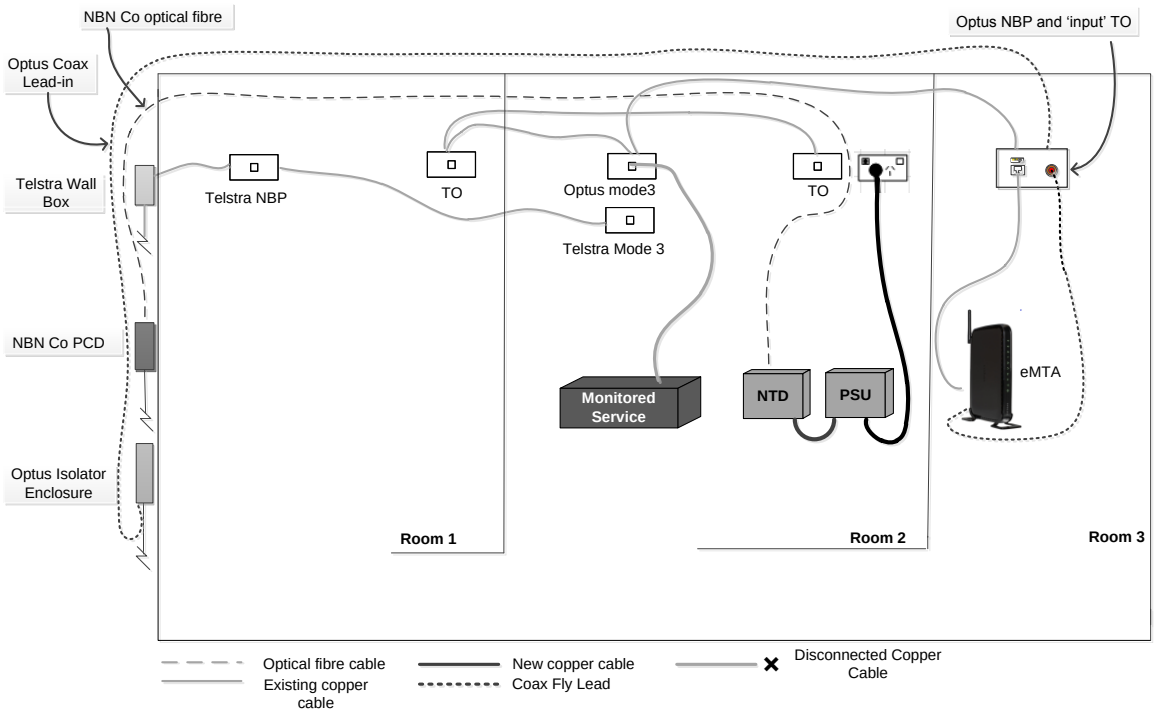


(c) After migration – UNI-D port & RSP Gateway

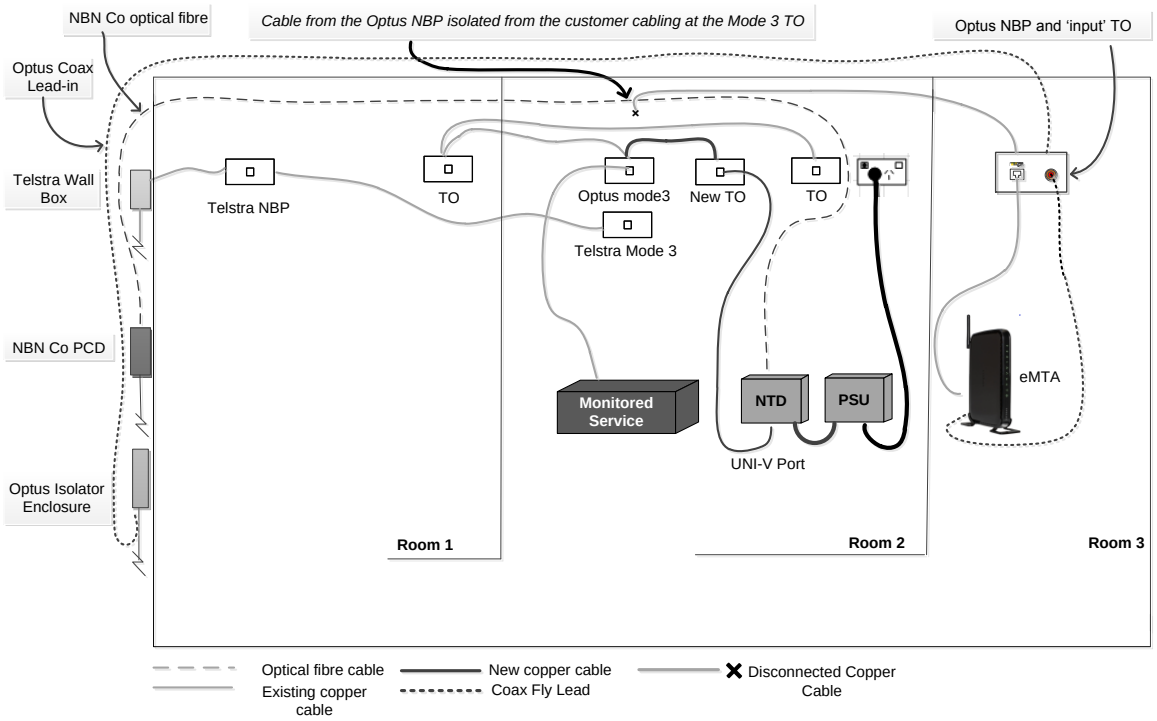
Note: The Optus NBP is an Optus wall plate comprising of a coaxial socket to connect the Optus eMTA CE for accessing Optus broadband internet access service and a telephony 1st socket to connect the phone(s) CE for accessing Optus VoIP service. This NBP is owned, installed and maintained by Optus and cannot be migrated to become part of the customer's cabling when the customer cabling is to be connected to another RSP/Carrier.

FIGURE B1

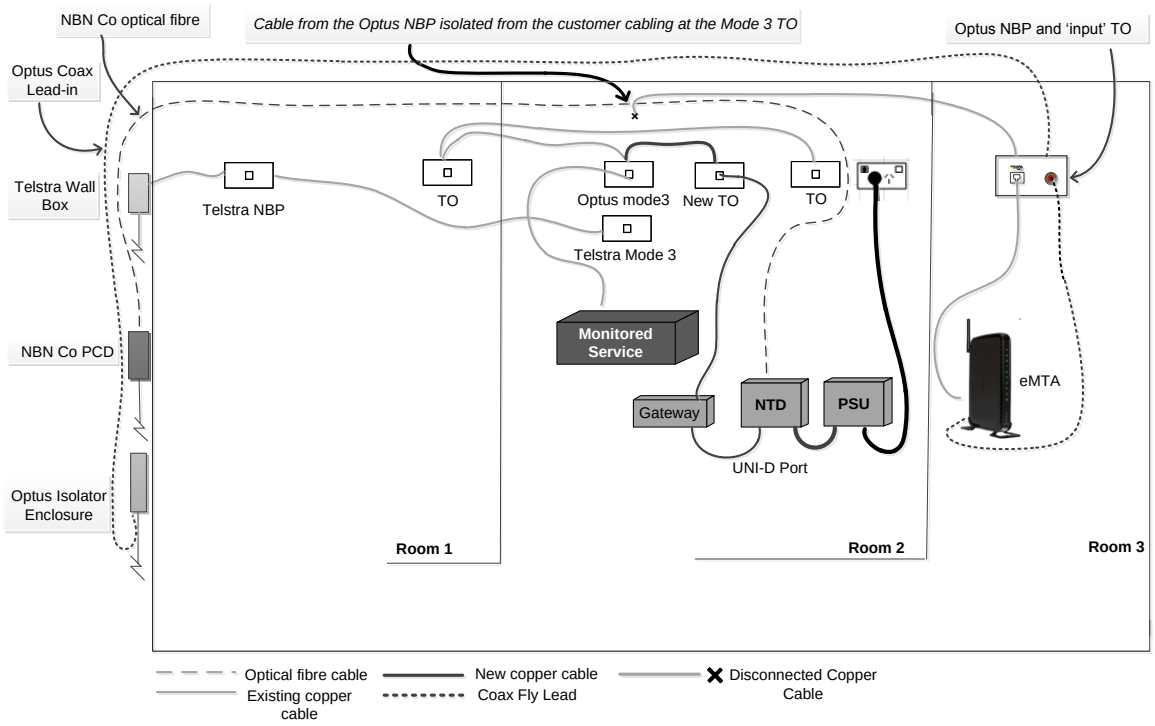
Wiring from the NBN NTD to an Optus VoIP service



(a) Existing installation



(b) After migration – UNI-V



(c) After migration – UNI-D & RSP Gateway

Note 1: The Optus NBP is an Optus wall plate comprising of a coaxial socket to connect the Optus eMTA CE for accessing Optus broadband internet access service and a telephony 1st socket to connect the phone(s) CE for accessing Optus VoIP service. This 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 RSP/Carrier.

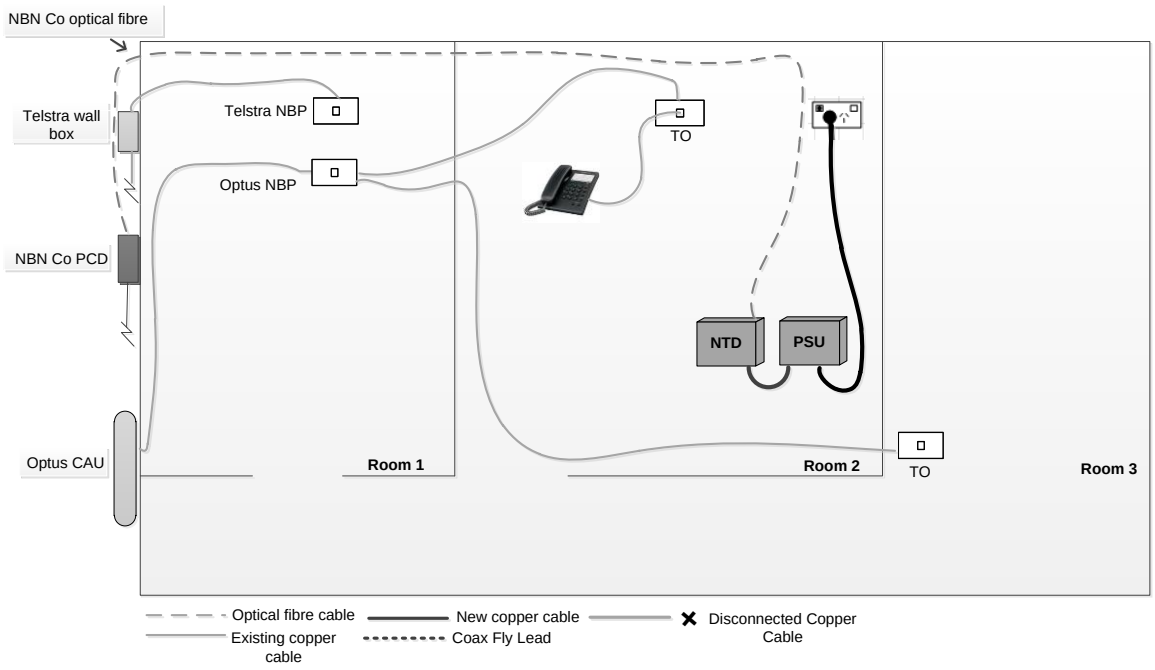
Note 2: Cabling to the Mode 3 connection where the monitored alarm equipment and it's TO is located near the NBN NTD

FIGURE B2

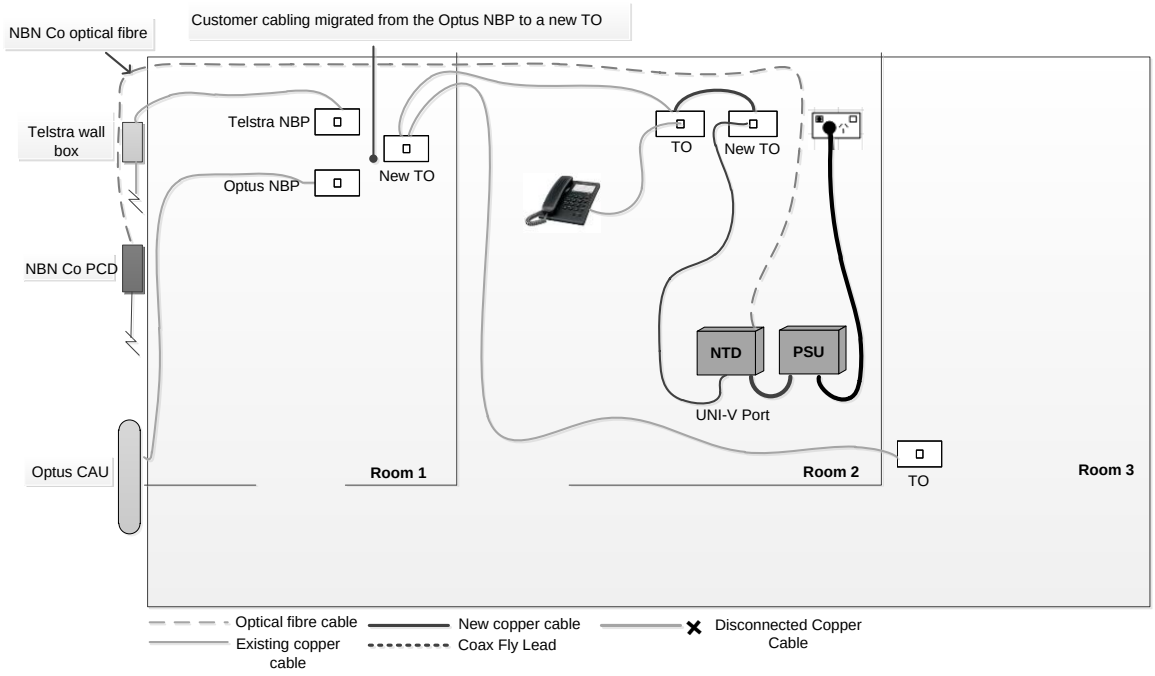
Wiring from the NBN NTD to an Optus VoIP service – Mode 3

APPENDIX

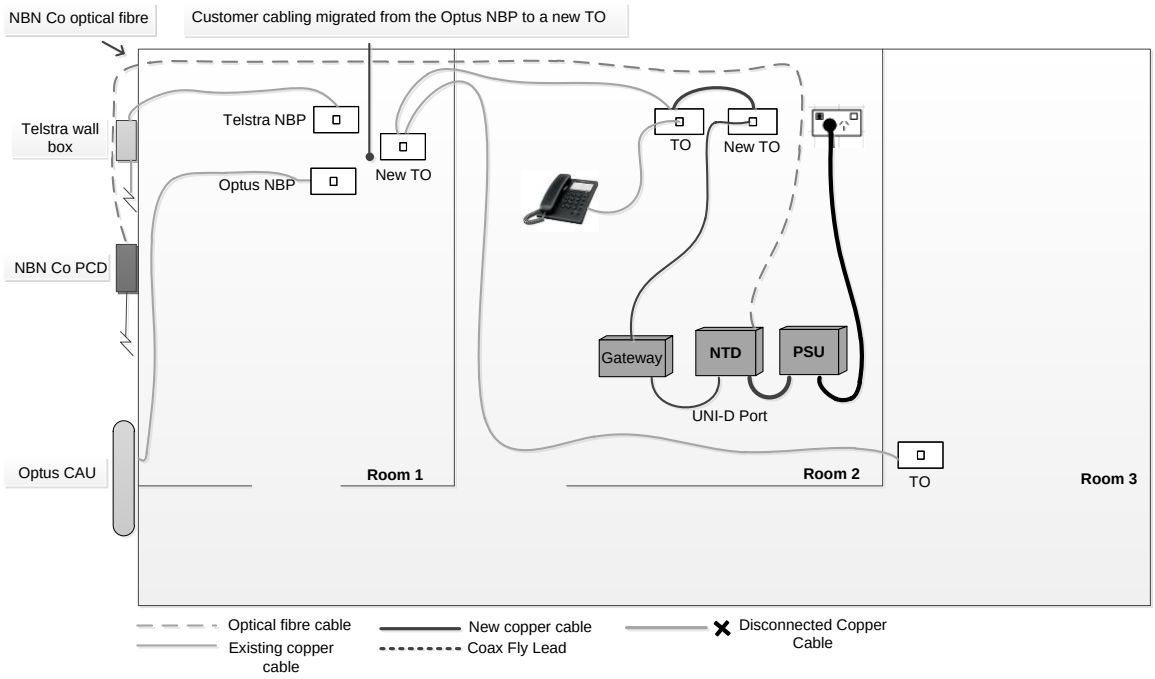
C Sample cabling plans – Optus POTS service



(a) Existing installation

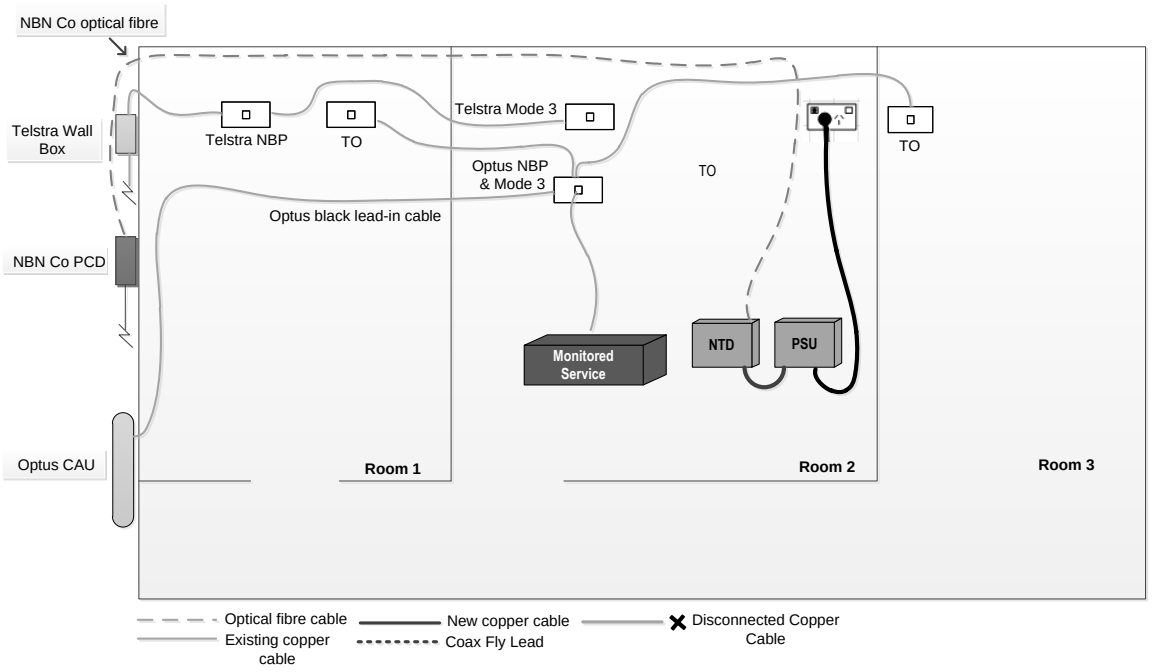


(b) After migration – UNI-V

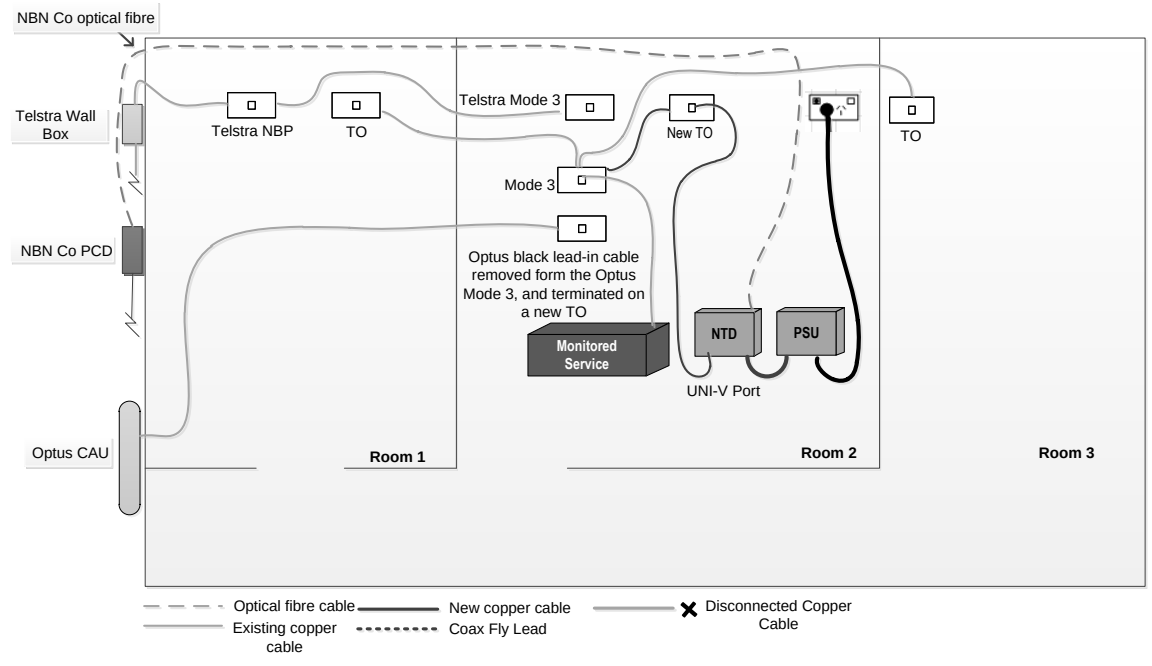


(c) After migration – UNI-D & RSP Gateway

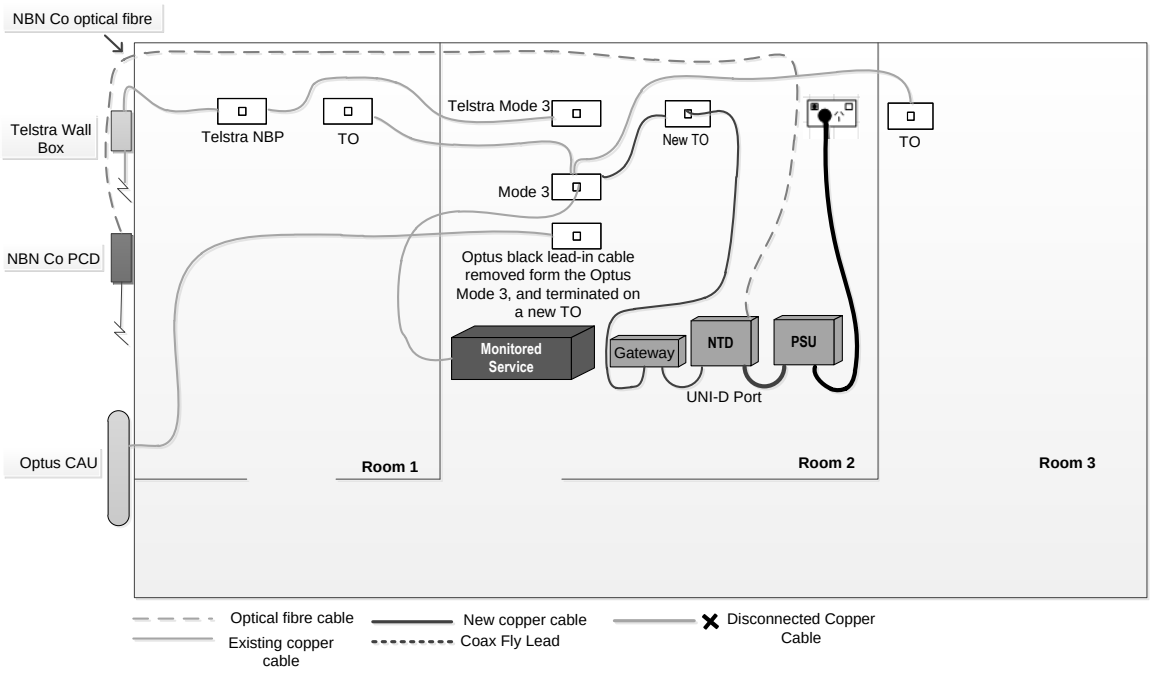
FIGURE C1
Optus POTS connection



(a) Existing installation



(b) After migration – UNI-V



(c) After migration – UNI-D & RSP Gateway

Note 1: Cabling to the Mode 3 connection where the monitored alarm equipment and it's TO is located near the NBN NTD

FIGURE C2

Optus POTS connection with monitored service

APPENDIX

D Mode 3 connection for alarm services

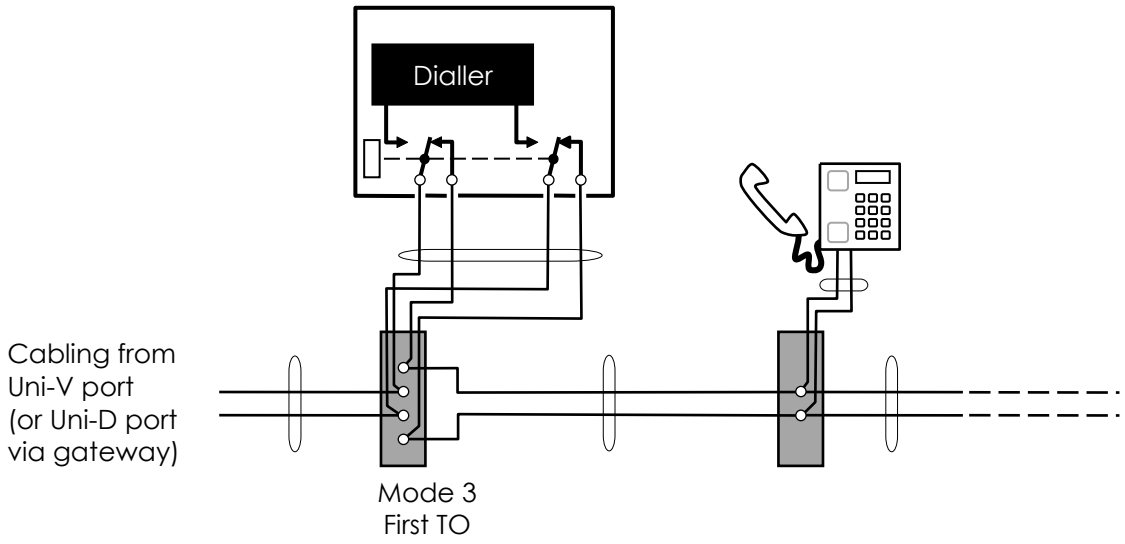


FIGURE D1

Normal telephone operation with Mode 3 dialler disconnected

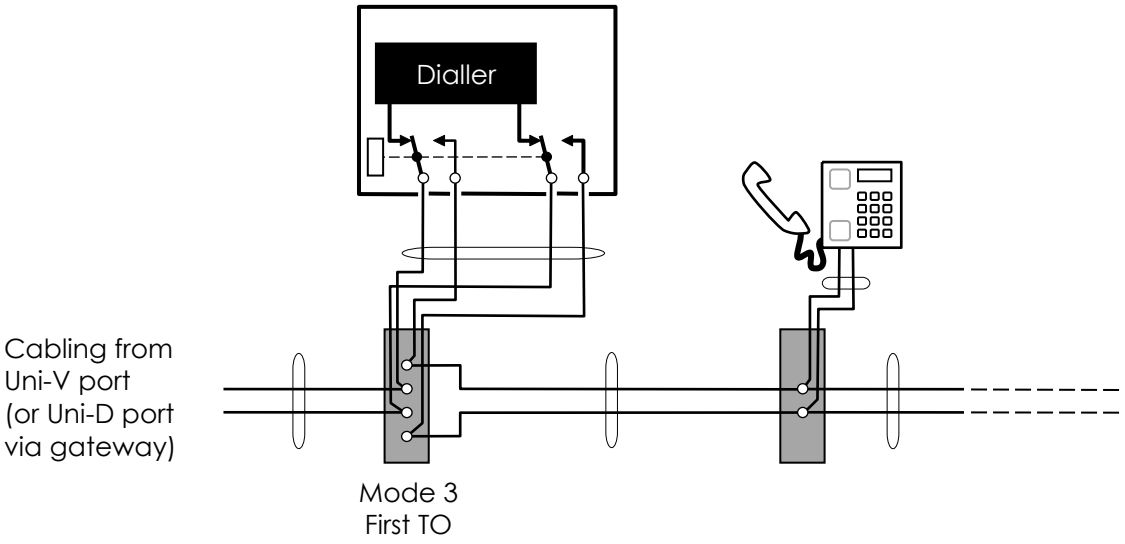


FIGURE D2

Mode 3 dialler activated and disconnecting the telephones

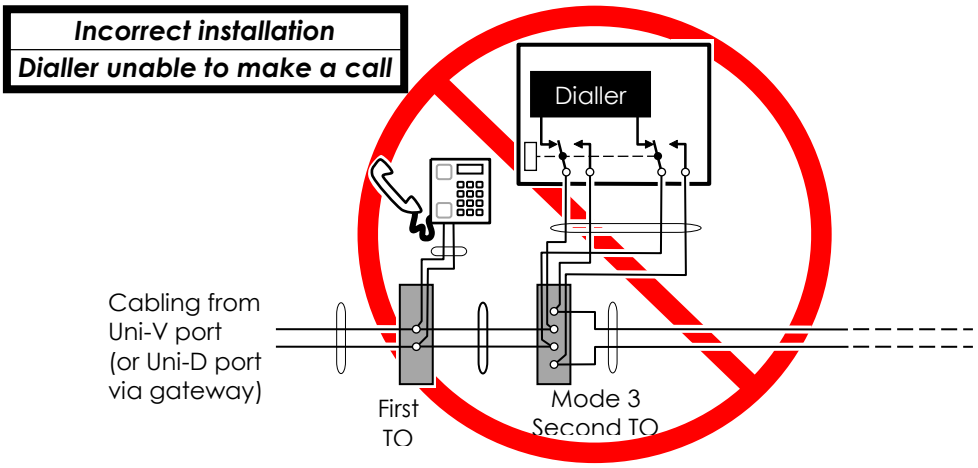


FIGURE D3

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

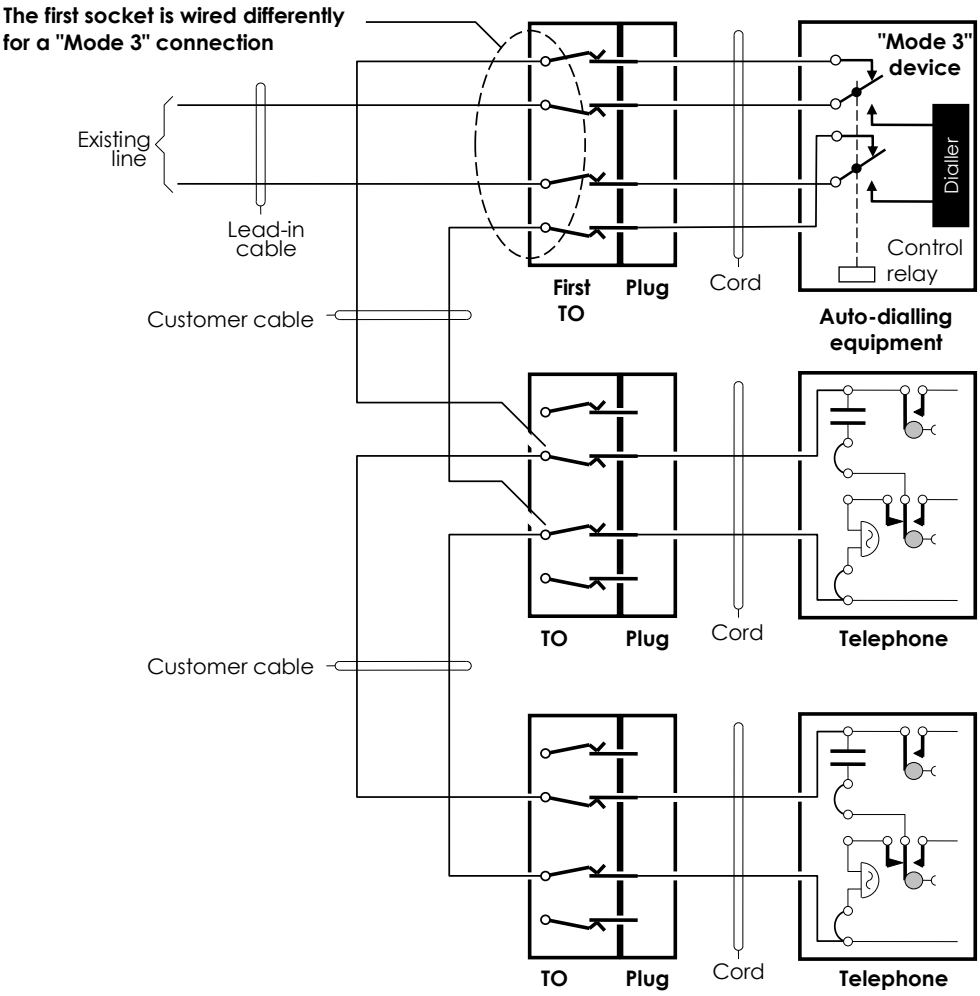
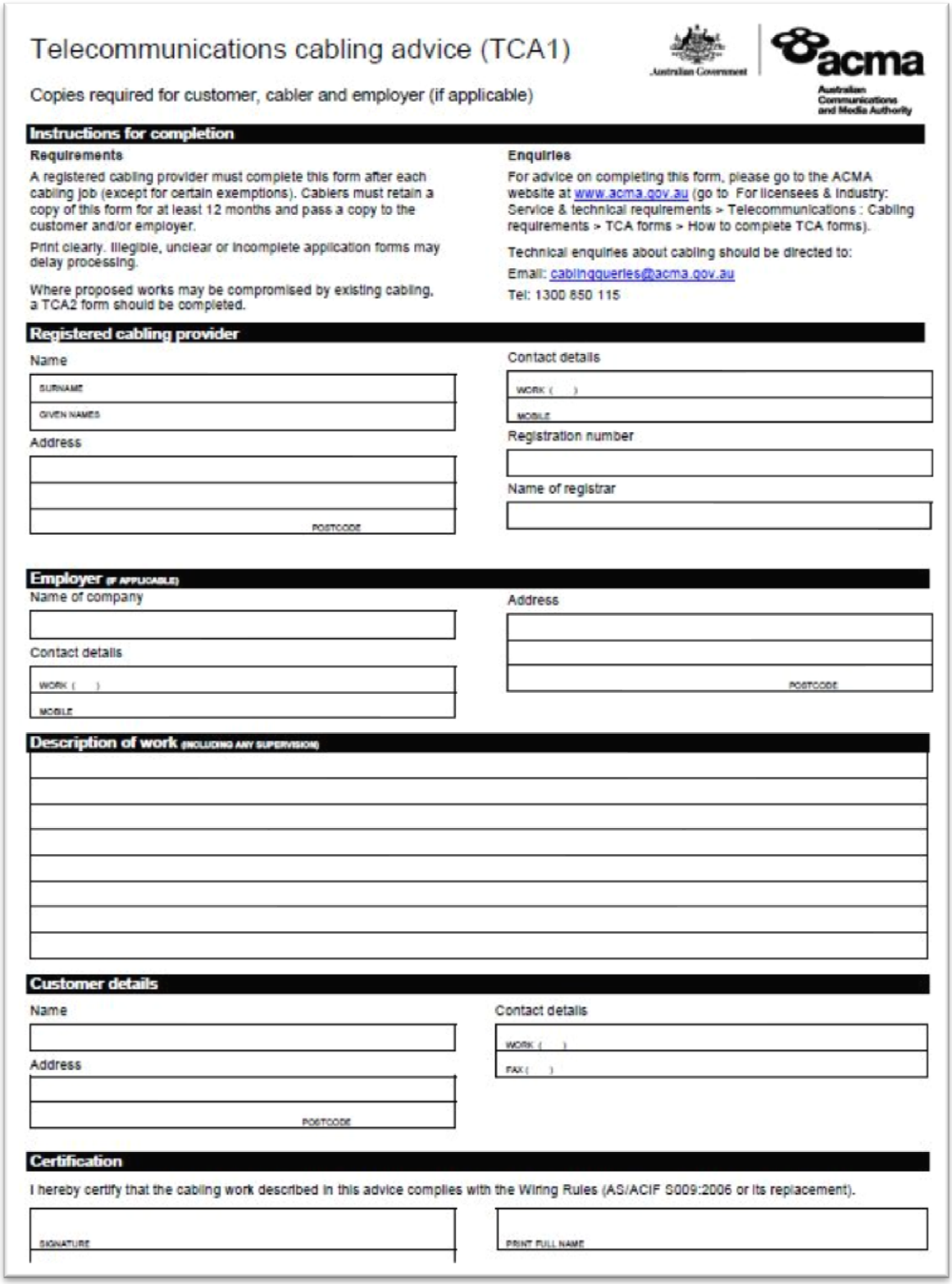


FIGURE D4

Schematic of a Mode 3 installation

E Sample TCA 1 form



Telecommunications cabling advice (TCA1)

Australian Government | acma Australian Communications and Media Authority

Copies required for customer, cabler and employer (if applicable)

Instructions for completion

Requirements

A registered cabling provider must complete this form after each cabling job (except for certain exemptions). Cablers must retain a copy of this form for at least 12 months and pass a copy to the customer and/or employer.

Print clearly. Illegible, unclear or incomplete application forms may delay processing.

Where proposed works may be compromised by existing cabling, a TCA2 form should be completed.

Enquiries

For advice on completing this form, please go to the ACMA website at www.acma.gov.au (go to For licensees & industry: Service & technical requirements > Telecommunications : Cabling requirements > TCA forms > How to complete TCA forms).

Technical enquiries about cabling should be directed to:

Email: cablingqueries@acma.gov.au

Tel: 1300 850 115

Registered cabling provider

Name

SURNAME

GIVEN NAMES

Address

POSTCODE

Contact details

WORK ( )

MOBILE

Registration number

Name of registrar

Employer (IF APPLICABLE)

Name of company

Contact details

WORK ( )

MOBILE

Address

POSTCODE

Description of work (INCLUDING ANY SUPERVISION)

Customer details

Name

Address

POSTCODE

Contact details

WORK ( )

FAX ( )

Certification

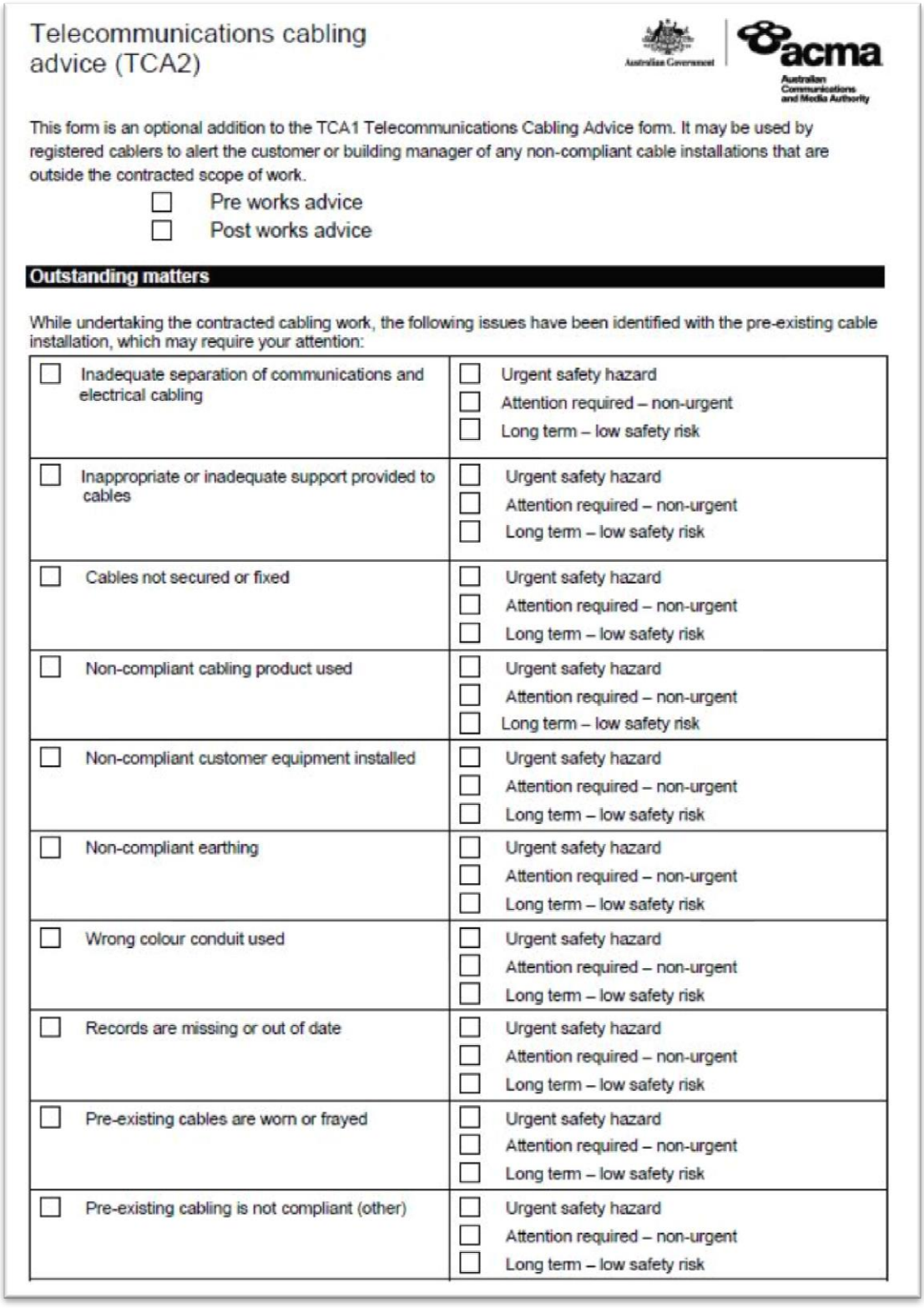
I hereby certify that the cabling work described in this advice complies with the Wiring Rules (AS/ACIF S009:2006 or its replacement).

SIGNATURE

PRINT FULL NAME

The original form is available from http://www.acma.gov.au/Industry/Telco/Infrastructure/Cabling-rules/how-to-complete-tca1-forms-cabling

Sample TCA 2 form



Telecommunications cabling advice (TCA2)

Australian Government | acma Australian Communications and Media Authority

This form is an optional addition to the TCA1 Telecommunications Cabling Advice form. It may be used by registered cablers to alert the customer or building manager of any non-compliant cable installations that are outside the contracted scope of work.

☐ Pre works advice
☐ Post works advice

Outstanding matters

While undertaking the contracted cabling work, the following issues have been identified with the pre-existing cable installation, which may require your attention:

☐ Inadequate separation of communications and electrical cabling	☐ Urgent safety hazard ☐ Attention required – non-urgent ☐ Long term – low safety risk
☐ Inappropriate or inadequate support provided to cables	☐ Urgent safety hazard ☐ Attention required – non-urgent ☐ Long term – low safety risk
☐ Cables not secured or fixed	☐ Urgent safety hazard ☐ Attention required – non-urgent ☐ Long term – low safety risk
☐ Non-compliant cabling product used	☐ Urgent safety hazard ☐ Attention required – non-urgent ☐ Long term – low safety risk
☐ Non-compliant customer equipment installed	☐ Urgent safety hazard ☐ Attention required – non-urgent ☐ Long term – low safety risk
☐ Non-compliant earthing	☐ Urgent safety hazard ☐ Attention required – non-urgent ☐ Long term – low safety risk
☐ Wrong colour conduit used	☐ Urgent safety hazard ☐ Attention required – non-urgent ☐ Long term – low safety risk
☐ Records are missing or out of date	☐ Urgent safety hazard ☐ Attention required – non-urgent ☐ Long term – low safety risk
☐ Pre-existing cables are worn or frayed	☐ Urgent safety hazard ☐ Attention required – non-urgent ☐ Long term – low safety risk
☐ Pre-existing cabling is not compliant (other)	☐ Urgent safety hazard ☐ Attention required – non-urgent ☐ Long term – low safety risk

The original form is available from http://www.acma.gov.au/Industry/Telco/Infrastructure/Cabling-rules/how-to-complete-tca1-forms-cabling

PARTICIPANTS

The Working Group that developed the Guideline consisted of the following organisations and their representatives:

Organisation	Membership	Representative
Australian Communications and Media Authority (ACMA)	Non-voting	Rob Pruysers
Australian Communications and Media Authority (ACMA)	Non-voting	Cuong Nguyen
International Copper Association Australia (ICAA)	Voting	Ian Millner
Layer 10	Voting	Paul Brooks
M2	Voting	Ohad Morag
NBN Co	Voting	Vaskos Tsaitis
NBN Co	Non-voting	Haydn Dale
NBN Co	Non-voting	Arun Raghu
NBN Co	Non-voting	Duncan Giles
Optus	Voting	Andrew Robinson
Optus	Non-voting	Brett Williams
Optus	Non-voting	Brett Gallard
Stanimore	Voting	Kevin Richardson
Telstra	Voting	Glenn Walker
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Telstra	Non-voting	Anthony Goodman
VTI Services	Voting	Murray Teale

This Working Group was chaired and project managed by Mike Johns.

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.

It is committed to the achievement of the policy objective of the *Telecommunications Act 1997* - the greatest practicable use of industry self-regulation without imposing undue financial and administrative burdens on industry.

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