

# Communications Alliance

## CECRP/WG36 : Customer Cabling Requirements Working Group

### Report

#### Introduction

The CECRP/WG36 : **Customer Cabling Requirements** Working Group was established to perform an area of work identified by the **Customer Equipment and Cable Reference Panel** (CECRP).

This Working Group was charged to identify issues within the cabling industry that are to be provided as input to the review of the AS/ACIF S009 **Installation requirements for customer cabling (Wiring rules)** Standard, to be undertaken in July 2011.

The scope of work included:

- identifying the type of requirements that would be considered appropriate in a mandated customer premises cabling installation Standard; and
- that the Standard best fulfils its purpose under the regulatory compliance arrangements.

#### Participation

Representatives from the ACMA, ADTIA, BiCSI, Free TV, IBM, NBN Co, NECA, VTI Services, Optus, Ramsden Telecommunications Training, Channel 7, Standards Australia and Telstra participated. The ACEA was invited but could not attend. Communications Alliance chaired and provided secretariat services.

#### Meetings

Two meetings were held, on 12 April 2011 and on 6 May 2011.

#### Summary

The members used the Terms of Reference as a basis for discussions to review the issues identified for the S009 review. It was agreed that they provided a reasonably comprehensive list of issues which should be included in the review. Although there was a lack of consensus on some of the issues, the members confirmed that consideration should be given to all the issues in the review.

In addition, there were a handful of new issues raised in which the members felt that they should be added to the list, including the inspection and cleaning of the optical fibre connector interfaces, how separate buildings on a premises are cabled from an NBN network and the issue of fire retardation.

On the whole the members felt that the S009 Standard has fulfilled its role and met industry expectations. The last (2006) revision on the Standard saw a comprehensive restructure and review of the requirements for the installation of customer cabling which addressed all of the shortcomings of the previous edition. With a few exceptions where further discussion will be required, the list of issues represented in this review provide an opportunity for existing requirements to be brought up to date with existing cabling practices.

## **General comments**

### **Scope of the S009 Standard**

It was noted that S009 is not limited to safety and network integrity under the *Telecommunications Act 1997* (unlike the customer equipment Standards which are called up under s376 of the Act). S009 is called up under the ACMA's Cabling Provider Rules (i.e. registered cabling providers must comply with S009 in performing cabling work). The initial scope limitation of S009 arose through a policy decision by the former ACA during the 2001 revision of the Standard. The 2006 revision rectified this by providing recommendations to improve performance and, to improve the prospect of compliance by trainers and cabling providers, additional guidance on its interpretation and application.

S009 is referenced in the Cabling Provider Rules in which the cabling provider competency and training requirements are set out. Therefore, competency and training issues should not be addressed by S009. Notation has been made in the current edition of S009 about the need to be a registered cabling provider to perform cabling work and the desirability for the cabler to hold registration endorsements for certain types of cabling — but these matters are only enforceable through the Cabling Provider Rules.

It was also considered that S009 provides minimum requirements for 000 emergency call services and voice call services to be delivered from the carrier/CSP. In this respect the performance of the cabling needs to be adequate for the service delivery.

### **The Network Boundary Point (NBP)**

The application of the network boundary point defines what is considered to be network cabling and what is customer cabling. This was clarified by both NBN Co and Telstra at the meeting. The following points were noted:

- for fixed line connections, the Network Boundary Point (NBP) is the first socket in a customer premises, the end-user side of the network termination device (if a NTD is present), the end-user side of a MDF (if a MDF is present) or a point negotiated between the customer and the carrier or carriage service provider. Both Telstra and NBN Co mark their Optical Network Terminal (ONT) as a Network Termination Device (NTD) for the purposes of the *Telecommunications Act 1997* (and AS/ACIF S009).
- NBN Co install an internal NTD as standard. An external NTD is non-standard. NBN Co is reviewing Greenfield installs at present.

- NBN Co will be installing their own optical fibre cable and will not be using customer cabling. Customer cabling will not be used in the delivery of services to an ONT.
- greenfield estates are typically being built as 'fibre ready' with the cable pathways ready for the installation of fibre.
- lead-in cables may be connected to 'Premises Connection Points' (PCPs) on the outside of the building. It was uncertain whether this has a bearing on the NBP?
- each living unit in a Multi-Dwelling Unit (MDU) will have its own NTD.
- Appendix J of S009 needs to be amended to include the 'grandfathering' provisions of section 22 (5) of the *Telecommunications Act 1997* which has been overlooked. For standard telephone services, this section precludes alteration of a network boundary point that existed prior to 1 July 1997 (e.g. first socket or MDF) unless the customer expressly agrees otherwise. This is a very significant issue for NBN.

### **Other considerations**

In revising a Standard, and in this case S009, the following points were highlighted:

- any increase in cabling requirements arising from a revision of S009 which may introduce an impost on industry/consumers (typical financial) would require clear justification by the relevant Working Committee when it is submitted to the ACMA.
- when considering changes to a Standard to make it 'future-proof', due consideration should be given to find the correct balance of meeting existing needs and introducing requirements to cater for future developments.
- to take into account the work being carried out in the IEC on cabling Standards. This work is being monitored by the Standards Australia CT-001 committee.

### **Specific issues**

#### **Optical fibre laser safety**

A Standards Australia project has been raised for the revision of the AS/NZS 2211 Laser safety Standard. The project will bring the Standard in alignment with the relevant Parts of the IEC 60825 Standard. This revision will address a number of issues related to optic fibre laser safety raised by industry.

In addition, any specific requirements for labelling in Australia may either be addressed in a revision of AS/ACIF S009 or may alternatively be addressed within the Standards Australia project.

## **Optical Return Loss requirements (ORL)**

It was generally considered that requirements for ORL are not required in S009 as the Standard is for customer cabling. The specifications for optical fibre network cabling will be up to the carrier.

One exception to this is the possible deployment of GPON installations on the customer side of the network boundary (e.g. shopping centres, remote area mining sites). This will require further consideration from both the cabling and the equipment aspect.

## **Cable and cable product performance**

The issue of cable performance is a topic that elicits a great deal of discussion within the industry and raises many issues that require careful consideration.

With the advent of higher broadband services being delivered to customer premises, the question is asked whether the existing customer cabling is adequate to reticulate these services within the customer premises. From a customer's perspective, will their expectations be met? This is particularly so with the leap in broadband delivery rates to 100 Mb/s and higher under the NBN national project and the concern that inadequate performance in the customer cabling could compromise the expectations associated with the NBN in the delivery of high performance and wider range of services to end user equipment.

The question posed is whether there is any technical justification for specifying higher performance cable, cabling products and related cabling installation practices? What would be the financial impost on the industry and customers? What may be the regulatory implications? For example, introducing regulations in one area and leaving another area unregulated (asymmetric regulation) with the danger of inadvertently skewing market forces and potentially limiting innovation.

The following comments were provided:

- to specify Class D in domestic premises. There was a difference of opinion of the level of impact. Issues such as requirements for underground cable, jointing and testing costs would need to be analysed. It was also considered by some that the cost of going to Cat 6 from Cat 5 was incremental. It was observed that using Cat 6 will have a significant influence on the longevity of a customer's installation as more and more throughput at higher bit rates through it is sought over the longer term.
- Class D specifies component performance and installation practices as well as the performance parameters which need to be tested after installation to verify that Class D quality has been achieved (refer to AS/NZS 3080 or equivalent). Without such verification testing 'Class D' is rather meaningless. Current industry practices require such testing where an installation contract calls for Class D performance to AS/NZS 3080 or equivalent Standard.
- further consideration is required on the type of testers available for different cabling scenarios and their cost impact. NECA noted that they

do not support requirements that would require Level 3 and Level 4 testers in residential situations due to cost implications.

- although HB252 recommends Class E, this was considered to be excessive. Class D can handle data rates up to 1 Gbps.
- any increase in cabling requirements would have to be considered in conjunction with increase of costs to the industry and to consumers.
- there may be other and more suitable mechanisms to provide information on customer cabling needs beyond the minimum requirements in S009.
- the use of aluminium cabling has led performance issues. This may be more of a S008 issue although aluminium is not allowed by S008 for metallic conductor cables except for certain elements of coaxial cables.

### **Non-compliant cabling practices**

It was generally agreed that the Standard is 'fit for purpose'. Non-compliance is typically due to cabler error (whether intentional or unintentional) and poor enforcement. For example, are cables being installed and performing to the manufacturer's specifications?

The ACMA confirmed at the meeting that it does not currently have an auditing or inspection program dedicated to cabling installations.

### **Broadcaster cabling**

During the development of the G642 **Installation of Broadcast Cabling and connection of Digital Broadcast Equipment to a Telecommunications Network** Guideline, it was anticipated that the Guideline would be an interim step and the a longer term approach would be for the broadcaster cabling requirements to be addressed by S009, in a similar manner as currently for the fire and alarm industries.

Free TV noted that the G642 was considered to be adequate and that broadcaster cabling requirements do not need to be addressed in S009.

The convergence of services on home entertainment equipment (internet connections, use of Skype etc.) is adding complexity in how to go about regulating cabling in premises. This is in need of further clarity.

With respect to MATV/CATV distribution, it was noted that AS/NZS 1367:2007 **Coaxial cable and optical fibre systems for the RF distribution of analog and digital television and sound signals in single and multiple dwelling installations** Standard is not likely to be revised until 2012. Isolation and earthing are important issues. It was uncertain how these systems relate to customer cabling. Is there a need to differentiate between residential and commercial premises? It was also noted that interference from mobile services is an issue.

### **Entertainment cabling**

Further clarification is needed in how the Standard relates to cabling for entertainment equipment in customer premises (e.g. HDMI cabling) which may carry telecommunications.

The question was asked whether telecommunications regulations apply to these types of cables. Is there a distinction between pre-terminated cable and reticulated cable?

### **Non-compliant earthing practices**

The main issue of non-compliant earthing practices, related to the bonding of the TRC and PE in cabinets for low-noise earthing in high-end equipment (for example, refer to equipment coming out of the USA). As this was considered to be an equipment issue (the relevant Standard is S003), a broader issue was raised of the role of the TRC and the current requirements in S009.

### **Cleaning of optical fibre cable faces**

The inspection and cleaning of the optical fibre connector interfaces was highlighted as an issue as it can have a dramatic impact on the signal. It was noted that the IEC is developing a new Standard on this.

### **Cabling on premises to separate buildings**

Cabling on premises to separate buildings (sheds, granny flats etc.) raised safety and network integrity issues. It was noted that the End User Premises Handbook provides information on this.

### **Fire retardation**

The issue of minimum fire retardation was discussed. There are requirements in Europe and the USA but not in Australia. It was noted that Australia does not follow the practice of running cables in air-conditioning ducts.