

VTI Services Technical Bulletin (TB)

Insertion of RJ11 or RJ12 plugs into RJ45 Telecommunication Outlet

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Text in *Blue Italics* is derived from Standards.

Applicability

The following is applicable to the insertion of RJ11 or RJ12 plugs into an RJ45 socket.

Summary

The insertion of RJ11 and RJ12 plugs into RJ45 sockets degrades the performance of the RJ45 outlet, limiting its ongoing performance to low speed applications and limiting its ability to support all present and future PoE services.

The insertion of RJ11 and RJ12 plugs into RJ45 socket does not meet Australian or International standard's requirements.

Conformance requirements

The insertion of a RJ11 or RJ12 plug into a RJ45 socket is not acceptable as it:-

- does not meet the "fit for purpose" mandatory requirements of AS/CA S009:2020 and
- is not supported by AS/NZ or International performance standards

AS/CA S009 Clause 5.5.1 states *a cabling product shall be selected and installed so that it is fit for its intended purpose.*

AS/CA S009 Clause 5.5.2 states *customer cabling should be installed in accordance with AS/NZS 11801.x – Performance, AS/NZS 3084 – Pathways and Spaces, 14763.2 – Planning and Installation, AS/NZS 1367 – Coaxial Cabling.*

AS/CA S009 is regulated by the Australian Communication Media Authority and is called up under legislation in accordance with the Telecommunication Act 1997.

AS/NZS 11801.1 in Table 97 states that *the plug (free connector) shall meet IEC 60603-7 requirements. IEC 60603-7 is an 8-way free connector (plug).* RJ11 and RJ12 are not 8-way plugs and they cannot achieve conformance to AS/NZS 11801.1 channel requirements.

AS/NZS 11801.1 and ISO/IEC 11801-1 require the use of external adaptors and baluns to interface to a telecommunication outlet (RJ45). The prior use of RJ11 or RJ12 plugs will have a detrimental effect the use of these adaptors and baluns.

Note: - The terms RJ11, RJ12 and RJ45 plugs and sockets in this document refer to common usage terminology. AS/NZS and International standards reference these plug and sockets by different identifiers.



Technical consideration

The insertion of most RJ11 or RJ12 plug into a RJ45 outlet can permanently deform the outer pins of the RJ45 outlet causing issues related to but not limited to;

1. DC resistance
2. Insertion Loss
3. ACRN
4. PSACRN
5. ACRF
6. PSACRF
7. RL
8. DC Resistance unbalanced within a pair
9. DC Resistance unbalanced between pairs

AS/NZS 11801.1 Conformance requirements include items1-7.

Items 8 and 9 are listed as optional in AS/NZS 11801.1 but they do effect PoE delivery (e.g. security cameras, VOIP phones, signage, LED lighting circuits, and other powered devices being supplied through the RJ45 socket).

Recommendations

VTI Services recommends the used of commercially available “A” ticked or “C” ticked RJ45 to RJ11/12 cords/leads to replace telephone cords which present RJ11/12 at the RJ45 telecommunication outlet (telephone outlet).

Acknowledgement

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