

## **VTI Services Technical Bulletin (TB)**

### **Alien Crosstalk Testing**

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Text in *Italics* is derived from the standards.

#### **Applicability**

The following applies only to telecommunication cabling installations in Australia and New Zealand seeking performance conformance of permanent links to AS/NZS 11801.1 and AS 11801.x series and/or ISO/IEC 11801.x series.

#### **Requirements**

*Alien Crosstalk (ANXT) requirements shall be met for both unshielded and shielded balanced cabling.*

*ANXT requirements are applicable to Class E<sub>A</sub>, F<sub>A</sub> and Classes I and II. Class F ANXT performance requirements are the same as Class E<sub>A</sub> performance requirements.*

ANXT requirements can be achieved by meeting any one of the following;

- Coupling Attenuation
- Design Variation to Reference Implementation
- ANXT Testing On-site

#### **Coupling Attenuation**

*Manufacturers of cabling systems may exclude the need for alien crosstalk testing by a statement of conformance on coupling attenuation meeting the requirements of AS/NZS 11801.1 based on laboratory test reports. (AS/NZS 11801.1:2019 Appendix ZZ2, Clause A.4,2 (a))*

#### **Design Variation to Reference Implementation**

Reference Implementation uses compliant components, installation techniques and cable lengths (as set out in Tables 2 or 1 of AS 11801.x series) to achieve the prescribed permanent link and channel performance.

However, cabling system manufacturers can allow for Design Variations while still meeting performance requirements of a link or channel.

*Manufacturers of cabling systems may, by a statement of conformance based on laboratory test reports, stipulate other requirements that achieve reference implementations. (AS/NZS 11801.1:2019 Appendix ZZ2, Clause A.4,2 (b))*

*This may include variations in cable length (other than those in Tables 2 or 1 of AS 11801.x series) and exclude the need for on-site alien crosstalk testing.*



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## ANXT Testing On-site

Installation conformance testing for ANEXT can be undertaken utilising test equipment and test procedures specified by tester manufacturers whose test equipment meets the requirements contained in the testing standard for balanced cabling AS/NZS IEC 61935.1.

The testing requirement is based on sample testing. The requirements for minimum sample size can be found in ISO/IEC 14763-2. The test methods and the criteria for selecting the cables to be tested are set out in AS/NZS IEC 61935.1.

*This is a formal on-site test procedure whose minimum requirement cannot be reduced or removed by a statement of conformance from a manufacturer of cabling systems.*

Onsite testing for alien crosstalk is time consuming and possibly expensive. First, standard permanent link testing must be successfully completed for each cable. Second, each cable must be tested against other cables within close proximity. E.g. a victim cable within a bundle of 12 would usually necessitate testing the whole bundle including the cables of the 3 outlets above and below the victim outlet at the patch panel for PS ANEXT and PS AACR-F from both directions (AS/NZS 11801.1 Clause 7.2.12). This would entail up to 68 individual tests for just one victim.

All test data for the one victim cable needs to be combined before pass/fail assessment is carried out for PS ANEXT<sub>avg</sub> and PS AACR-F<sub>avg</sub> against the requirements for a two or three connector link in AS/NZS 11801.1 Clause 7.2.12. A failure would entail rectification of the issue, retesting and increasing the sample size.

As on-site testing of alien crosstalk is based on sample testing only, the validity of the test data is highly dependent on the selection of the cables to be tested and the quality control systems applied to the testing regime.

## Statement of Conformance

*Manufacturers of cabling systems may exclude the need for in-field alien crosstalk testing by a statement of conformance based on laboratory test reports.*

Conformance to a cabling system manufacturer's warranty program does not in itself establish conformance to AS 11801.x series.

### **Permanent Link Lengths for Reference Implementation To AS and ISO/IEC 11801.2**

Segment	Minimum m	Maximum m
FD - CP	15	85
CP - TO	5	-
FD - TO (when no CP)	15	90
Work area cord <sup>a</sup>	2	5
Patch cord	2	-
Equipment cord <sup>b</sup>	2	5
Total of all cords	-	10
<sup>a</sup> If there is no CP, the min length of the work area cord is 1 m. <sup>b</sup> If there is no cross-connect, the min length of the equipment cord is 1 m.		