

VTI Services Technical Bulletin (TB) Alien Crosstalk Testing

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Applicability

The following applies only to telecommunication cabling installations in Australia and New Zealand seeking performance conformance of permanent links to AS/NZS 3080: 2013.

Requirements

Alien Crosstalk (ANXT) requirements¹ shall be met for both unshielded and shielded balanced cabling.

ANXT requirements are applicable to Class E_A, F and Class F_A. Class F ANXT performance requirements are the same as Class E_A performance requirements².

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

This applies to shielded cabling only. The Class E_A or F permanent links or CP links must be at least 10 dB better than the corresponding channel coupling attenuation requirements, and Class F_A links must be at least 25 dB better than the corresponding channel coupling attenuation.

Manufacturers of cabling systems may exclude the need for alien crosstalk testing by a statement of conformance on coupling attenuation based on laboratory test reports.³

Design Variation to Reference Implementation

Reference Implementation uses compliant components, installation techniques and cable distances (as set out in Table 32) 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.

This may include variations to Table 32 and exclude the need for on-site alien crosstalk testing.⁴

ANXT Testing On-site

Installation conformance testing can be undertaken utilising test equipment and test procedures 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 the testing standard for balanced cabling⁶.

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 as each cable has to 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 directions⁷. This would entail up to 68 individual tests for just one victim.

All test data for a cable would need to be combined before pass/fail assessment is carried out for PS ANEXT_{avg} and PS AACR-F_{avg}.

A failure would entail rectification of the issue, retesting and increasing of 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 infield alien crosstalk testing by a statement of conformance based on laboratory test reports.^{3, 4}

Conformance to a cabling system manufacturer's warranty program does not in itself establish conformance to AS/NZS 3080.

References

- ¹ AS/NZS 3080: 2013
- ² AS/NZS 3080 Clause A.2.11.1
- ³ AS/NZS 3080 Clause ZA2, b) 2)
- ⁴ AS/NZS 3080 Clause ZA2, b) 3)
- ⁵ ISO/IEC 14763-2
- ⁶ AS/NZS IEC 61935.1
- ⁷ AS/NZS 3080 Clause A.2.11

Table 32 – Minimum and Maximum Lengths

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



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