

Legrand, Inc.

LETTER REPORT

SCOPE OF WORK

Electrical transmission performance testing of a cabling configuration to the requirements of ANSI/TIA-568.2-E Category 6A and ISO/IEC 11801-1 Class E_A

REPORT NUMBER

102046639CRT-062

ISSUE DATE

01-August-2025

REVISED DATE

None

TESTS START DATE

10-June-2025

TESTS END DATE

10- June -2025

PAGES

4

DOCUMENT CONTROL NUMBER

GFT-OP-10a (6-March-2017)

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LETTER REPORT

01-August-2025

Intertek Report No. 102046639CRT-062
Intertek Project No. G102046639



Mr. Rob Aekins RCDD

*Legrand, Inc.
125 Eugene O'Neill Drive
New London, CT 06320
USA*

Subject: Cabling performance testing of a shielded 2-connector 7m channel per ANSI/TIA-568.2-E Category 6A and ISO/IEC 11801-1 Class E_A.

Dear Mr. Aekins:

This letter report represents the results of our evaluation of the above referenced product(s) to the requirements contained in the following documents:

ANSI/TIA-568.2-E-2024, Balanced Twisted-Pair Telecommunications Cabling and Components Standard, dated November 2024

ISO/IEC 11801-1: Information Technology - Generic cabling for customer premises – Part 1: General requirements, First edition dated November 2017

SECTION 1 **SUMMARY**

Intertek wishes to inform you that the electrical transmission tests have been performed on the channel referenced above. This testing was performed under project G102046639. Compliant results were obtained for the relevant tests contained in sections 6.3 of ANSI/TIA-568.2-E and 6.3 of ISO/IEC 11801-1 for channel transmission performance.

SECTION 2 **NON-CONFORMANCES**

None

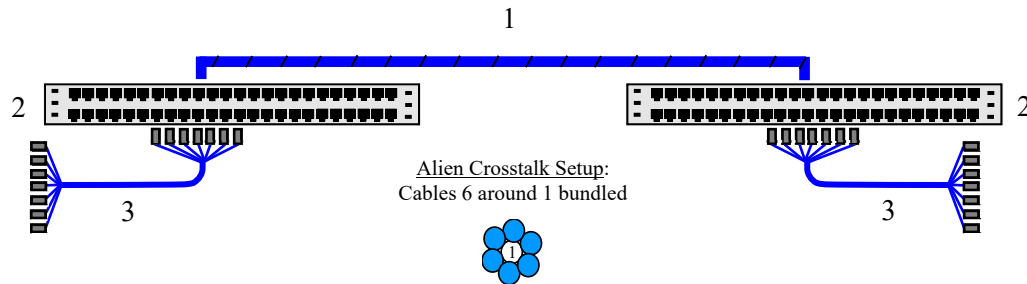
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LETTER REPORT

SECTION 4

SAMPLE DESCRIPTION

The client supplied a shielded 2-connector F/UTP (FTP) 7m (21 ft.) channel as illustrated below and referenced to as “CAT 6A+ F/UTP LSZH 7m Channel”. The samples were production samples in undamaged condition.



Component ID	Manufacturer	Part Number	Length/Qty	Description
1	Legrand, Inc.	OR-305FC6AL-XX	5m (16 ft.)	C6A F/UTP LSZH 23 AWG Cable
2	Legrand, Inc.	HDJS6A	2 (1RU)	HDJ Shielded C6A Jacks*
3	Legrand, Inc.	MCZS6A10M-YY	1m (3.2 ft.) / 2	Clarity C6A F/UTP LSZH Patch Cords

*HDJS6A Shielded Jacks installed in a 48 Port Shielded Panel (PHDHDJSU48)

SECTION 4

TEST EQUIPMENT USED

The following test equipment was used to conduct the testing.

Test equipment used	Model Number	Serial Number	Calibration Due Date
Agilent Technologies Network Analyzer	E5070B	MY42300891	26-August-2025
Hewlett Packard Network Analyzer	8753E	US38433028	26-August-2025
Hewlett Packard Multimeter	34401A	US36035667	27-August-2025
Triplett Humidity & Data Logger	RHDL30	2302562	17-September-2025

LETTER REPORT

SECTION 5

TESTING

The tables below represent a summary of the tests and results. The detailed test data is enclosed to this letter report.

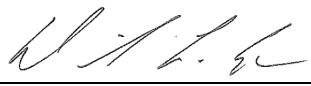
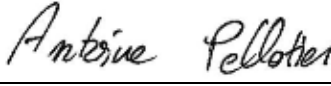
Test description	ANSI/TIA-568.2-E section	ISO/IEC 11801-1 section	Result
DC loop resistance	6.3.1	6.3.3.6	Compliant
DC resistance unbalance within a pair	6.3.3	6.3.3.7	Compliant
DC resistance unbalance between pairs	6.3.4	6.3.3.7	Compliant
Return Loss	6.3.8	6.3.3.1	Compliant
Insertion Loss	6.3.9	6.3.3.2	Compliant
NEXT and PSNEXT	6.3.10 - 6.3.11	6.3.3.3	Compliant
ACR-N, PSACR-N	Not applicable	6.3.3.4	Compliant
FEXT, ACR-F and PSACR-F	6.3.12 - 6.3.15	6.3.3.5	Compliant
TCL	6.3.16	6.3.3.12.2	Compliant
TCTL, ELTCTL	6.3.17 - 6.3.18	6.3.3.12.3	Compliant
Propagation delay	6.3.21	6.3.3.10	Compliant
Propagation delay skew	6.3.22	6.3.3.11	Compliant
Coupling attenuation	6.3.19	6.3.3.12.4	Not tested
PSANEXT	6.3.24	6.3.3.13.2	Compliant
Average PSANEXT	6.3.25	6.3.3.13.3	Compliant
PSAACRF	6.3.28	6.3.3.13.4	Compliant
Average PSAACRF	6.3.29	6.3.3.13.5	Compliant

SECTION 6

PROJECT STATUS & ACTION

Issuance of this letter report completes the performance testing of this channel cabling configuration electrical transmission performance covered by Intertek Project No. G102046639. The test results are compliant with the standard and sections referred to on pages 2 and 4. The testing was performed at the client's facility located in New London, CT under their qualifications of Intertek's SAT Program.

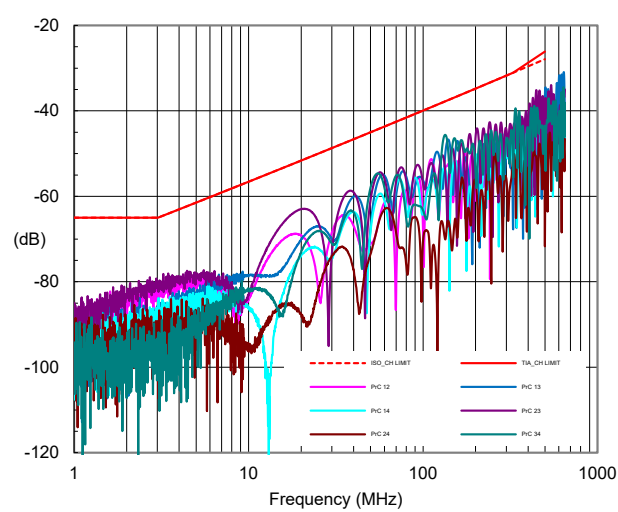
If there are any questions regarding the results contained in this report, or any of the other services offered by Intertek, please do not hesitate to contact your dedicated Intertek Project Manager.

Completed by:	David Ayers	Reviewed by:	Antoine Pelletier
Title:	Technician	Title:	Project Engineer
Signature:		Signature:	
Date:	01-August-2025	Date:	01-August-2025

Please note: this Letter Report does not represent authorization for the use of any Intertek certification marks.

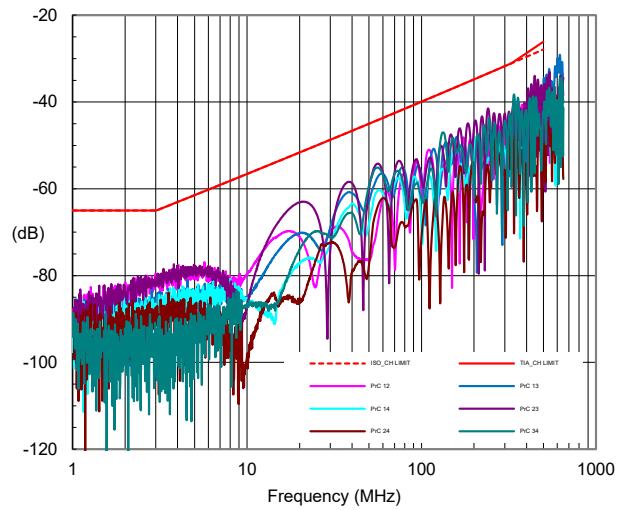


NEXT as measured from the TELECOMMUNICATIONS ROOM (TR)



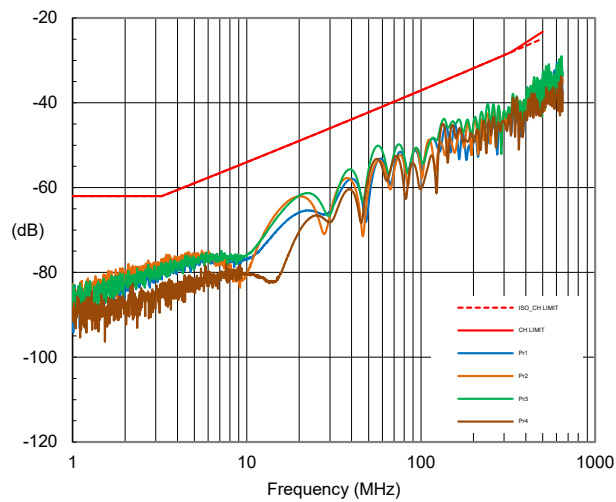
Worst Case Margin							
	Freq TIA Point (MHz)	Measured Worst Value (dB)	Calculated TIA Margin (dB)	CH LIMIT TIA Value (dB)	Freq ISO Point (MHz)	Calculated ISO Margin (dB)	CH LIMIT ISO Value (dB)
Swept Freq	445.8	35.1	7.7	27.5	445.7	6.4	28.8
Discrete Points	1.00	84.9	19.9	65.0	1.00	19.9	65.0
	4.00	79.4	16.4	63.0	4.00	16.4	63.0
	8.00	79.2	21.1	58.2	8.00	21.1	58.2
	10.00	78.7	22.1	56.6	10.00	22.1	56.6
	16.00	65.9	12.7	53.2	16.00	12.7	53.2
	20.00	63.0	11.4	51.6	20.00	11.4	51.6
	25.00	65.9	15.9	50.0	25.00	15.9	50.0
	31.25	66.6	18.2	48.4	31.25	18.2	48.4
	62.50	56.8	13.4	43.4	62.50	13.4	43.4
	100.00	56.3	16.3	39.9	100.00	16.3	39.9
	200.00	46.0	11.2	34.8	200.00	11.2	34.8
	250.00	47.2	14.1	33.1	250.00	14.1	33.1
	300.00	44.3	12.5	31.7	300.00	12.5	31.7
	400.00	42.4	13.7	28.7	400.00	12.9	29.6
	500.00	35.9	9.8	26.1	500.00	8.0	27.9
650.00	35.0		n/a	650.00		n/a	

NEXT as measured from the WORK AREA (WA)



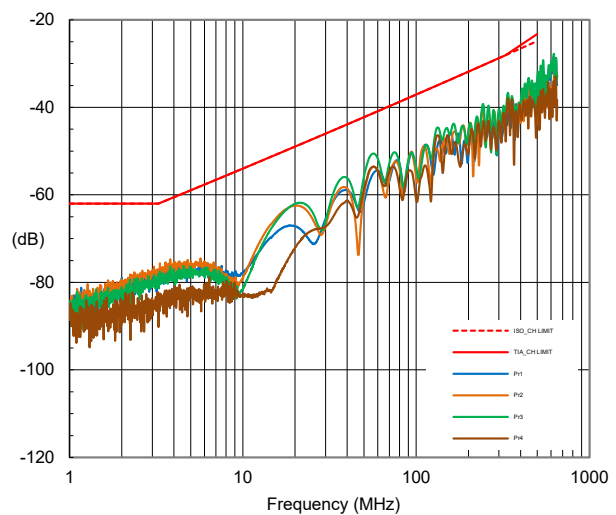
Worst Case Margin							
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Swept Freq	445.8	34.0	6.5	27.5	445.7	5.2	28.8
Discrete Points	1.00	89.9	24.9	65.0	1.00	24.9	65.0
	4.00	80.0	16.9	63.0	4.00	16.9	63.0
	8.00	80.5	22.4	58.2	8.00	22.4	58.2
	10.00	79.9	23.4	56.6	10.00	23.4	56.6
	16.00	66.3	13.1	53.2	16.00	13.1	53.2
	20.00	63.1	11.5	51.6	20.00	11.5	51.6
	25.00	65.7	15.7	50.0	25.00	15.7	50.0
	31.25	66.5	18.1	48.4	31.25	18.1	48.4
	62.50	57.5	14.1	43.4	62.50	14.1	43.4
	100.00	56.7	16.8	39.9	100.00	16.8	39.9
	200.00	45.8	11.0	34.8	200.00	11.0	34.8
	250.00	48.6	15.5	33.1	250.00	15.5	33.1
	300.00	42.6	10.9	31.7	300.00	10.9	31.7
	400.00	42.4	13.7	28.7	400.00	12.9	29.6
	500.00	35.5	9.4	26.1	500.00	7.6	27.9
650.00	34.4		n/a	650.00		n/a	

PSNEXT as measured from the TELECOMMUNICATIONS ROOM (TR)



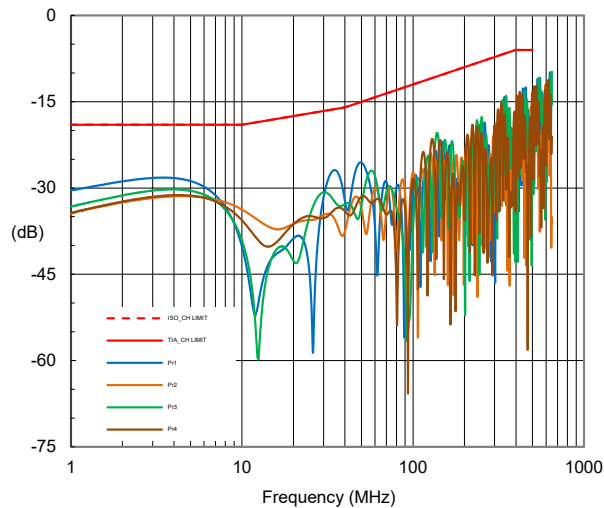
Worst Case Margin							
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Swept Freq	56.4	34.0	8.8	41.4	445.7	8.2	25.7
Discrete Points	1.00	82.7	20.7	62.0	1.00	20.7	62.0
	4.00	77.3	16.7	60.5	4.00	16.7	60.5
	8.00	76.2	20.6	55.6	8.00	20.6	55.6
	10.00	76.1	22.1	54.0	10.00	22.1	54.0
	16.00	64.4	13.8	50.6	16.00	13.8	50.6
	20.00	61.9	12.9	49.0	20.00	12.9	49.0
	25.00	62.2	14.8	47.3	25.00	14.8	47.3
	31.25	63.5	17.8	45.7	31.25	17.8	45.7
	62.50	54.0	13.4	40.6	62.50	13.4	40.6
	100.00	53.2	16.1	37.1	100.00	16.1	37.1
	200.00	44.9	13.0	31.9	200.00	13.0	31.9
	250.00	46.2	16.1	30.2	250.00	16.1	30.2
	300.00	41.8	13.0	28.8	300.00	13.0	28.8
	400.00	39.2	13.4	25.8	400.00	12.6	26.6
	500.00	33.8	10.6	23.2	500.00	9.0	24.8
	650.00	32.7		n/a	650.00		n/a

PSNEXT as measured from the WORK AREA (WA)



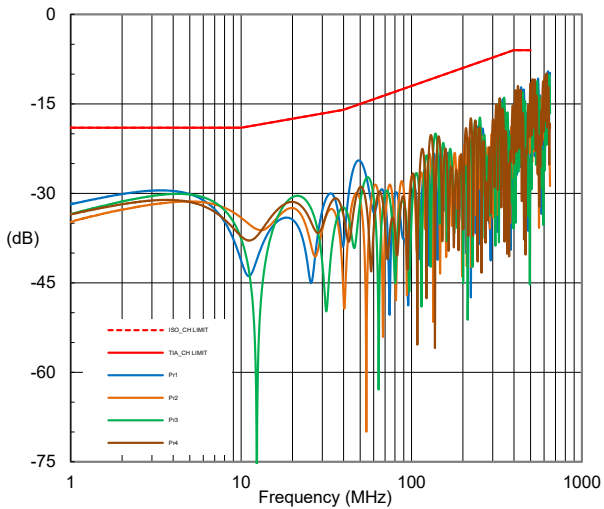
Worst Case Margin							
	Freq TIA Point (MHz)	Calculated Worst Value (dB)	Calculated TIA Margin (dB)	CH LIMIT TIA Value (dB)	Freq ISO Point (MHz)	Calculated ISO Margin (dB)	CH LIMIT ISO Value (dB)
Swept Freq	445.8	33.3	8.7	24.6	445.7	7.6	25.7
Discrete Points	1.00	86.2	24.2	62.0	1.00	24.2	62.0
	4.00	76.8	16.2	60.5	4.00	16.2	60.5
	8.00	77.4	21.8	55.6	8.00	21.8	55.6
	10.00	77.9	23.9	54.0	10.00	23.9	54.0
	16.00	64.8	14.2	50.6	16.00	14.2	50.6
	20.00	62.0	13.1	49.0	20.00	13.1	49.0
	25.00	63.7	16.4	47.3	25.00	16.4	47.3
	31.25	63.2	17.5	45.7	31.25	17.5	45.7
	62.50	54.2	13.6	40.6	62.50	13.6	40.6
	100.00	53.7	16.6	37.1	100.00	16.6	37.1
	200.00	45.3	13.4	31.9	200.00	13.4	31.9
	250.00	46.3	16.2	30.2	250.00	16.2	30.2
	300.00	40.4	11.6	28.8	300.00	11.6	28.8
	400.00	38.9	13.1	25.8	400.00	12.4	26.6
	500.00	33.4	10.1	23.2	500.00	8.5	24.8
	650.00	32.7		n/a	650.00		n/a

RL as measured from the TELECOMMUNICATIONS ROOM (TR)



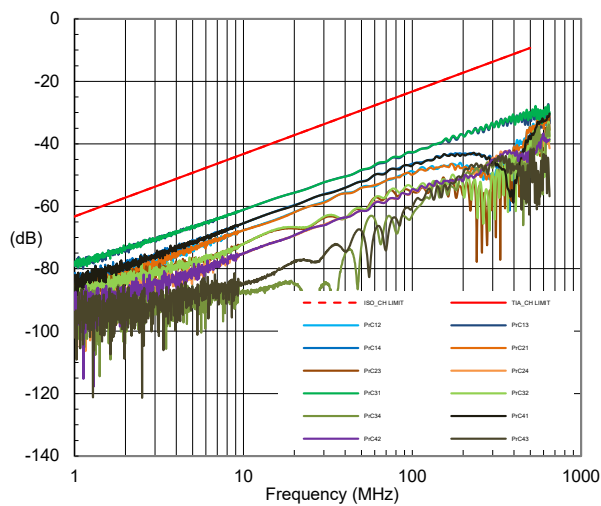
Worst Case Margin							
	Freq TIA Point (MHz)	Measured Worst Value (dB)	Calculated TIA Margin (dB)	CH LIMIT TIA Value (dB)	Freq ISO Point (MHz)	Calculated ISO Margin (dB)	CH LIMIT ISO Value (dB)
Swept	455.5	12.5	6.5	6.0	455.5	6.5	6.0
Freq							
Discrete	1.00	30.3	11.3	19.0	1.00	11.3	19.0
Points	4.00	28.3	9.3	19.0	4.00	9.3	19.0
	8.00	32.5	13.5	19.0	8.00	13.5	19.0
	10.00	33.7	14.7	19.0	10.00	14.7	19.0
	16.00	37.2	19.2	18.0	16.00	19.2	18.0
	20.00	36.2	18.7	17.5	20.00	18.7	17.5
	25.00	34.7	17.7	17.0	25.00	17.7	17.0
	31.25	29.3	12.8	16.5	31.25	12.8	16.5
	62.50	30.5	16.5	14.0	62.50	16.5	14.0
	100.00	27.3	15.3	12.0	100.00	15.3	12.0
	200.00	30.4	21.4	9.0	200.00	21.4	9.0
	250.00	18.7	10.7	8.0	250.00	10.7	8.0
	300.00	19.1	11.9	7.2	300.00	11.9	7.2
	400.00	16.6	10.6	6.0	400.00	10.6	6.0
	500.00	13.9	7.9	6.0	500.00	7.9	6.0
	650.00	9.8		n/a	650.00		n/a

RL as measured from the WORK AREA (WA)



Worst Case Margin							
	Freq TIA Point (MHz)	Measured Worst Value (dB)	Calculated TIA Margin (dB)	CH LIMIT TIA Value (dB)	Freq ISO Point (MHz)	Calculated ISO Margin (dB)	CH LIMIT ISO Value (dB)
Swept	499.1	11.6	5.6	6.0	499.1	5.6	6.0
Freq							
Discrete	1.00	31.7	12.7	19.0	1.00	12.7	19.0
Points	4.00	29.6	10.6	19.0	4.00	10.6	19.0
	8.00	32.4	13.4	19.0	8.00	13.4	19.0
	10.00	34.1	15.1	19.0	10.00	15.1	19.0
	16.00	33.0	15.0	18.0	16.00	15.0	18.0
	20.00	30.6	13.1	17.5	20.00	13.1	17.5
	25.00	31.9	14.9	17.0	25.00	14.9	17.0
	31.25	31.2	14.6	16.5	31.25	14.6	16.5
	62.50	28.9	14.8	14.0	62.50	14.8	14.0
	100.00	27.2	15.2	12.0	100.00	15.2	12.0
	200.00	29.3	20.3	9.0	200.00	20.3	9.0
	250.00	18.0	10.0	8.0	250.00	10.0	8.0
	300.00	17.6	10.4	7.2	300.00	10.4	7.2
	400.00	15.6	9.6	6.0	400.00	9.6	6.0
	500.00	12.0	6.0	6.0	500.00	6.0	6.0
	650.00	10.0		n/a	650.00		n/a

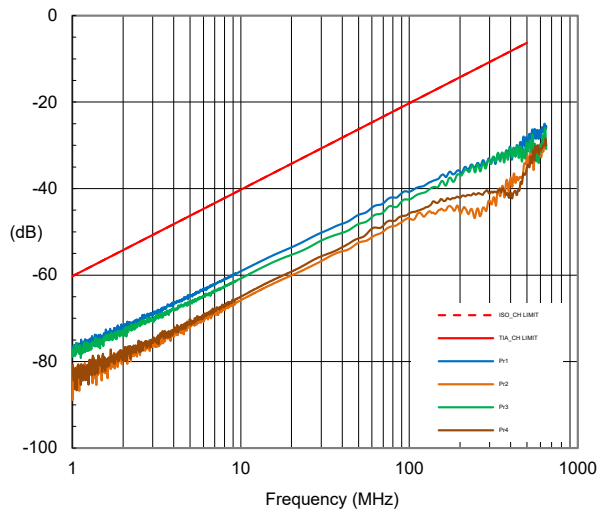
ACRF



Worst Case Margin

	Freq TIA Point (MHz)	Measured Worst Value (dB)	Calculated TIA Margin (dB)	CH LIMIT TIA Value (dB)	Freq ISO Point (MHz)	Calculated ISO Margin (dB)	CH LIMIT ISO Value (dB)
Swept Freq	1.1	76.2	13.4	62.8	1.1	13.4	62.8
Discrete Points	1.00	78.6	15.4	63.3	1.00	15.4	63.3
	4.00	68.0	16.7	51.2	4.00	16.7	51.2
	8.00	63.0	17.8	45.2	8.00	17.8	45.2
	10.00	61.1	17.9	43.3	10.00	17.9	43.3
	16.00	57.2	18.0	39.2	16.00	18.0	39.2
	20.00	55.6	18.4	37.2	20.00	18.4	37.2
	25.00	54.0	18.7	35.3	25.00	18.7	35.3
	31.25	52.0	18.7	33.4	31.25	18.7	33.4
	62.50	46.2	18.8	27.3	62.50	18.8	27.3
	100.00	42.7	19.4	23.3	100.00	19.4	23.3
	200.00	37.2	20.0	17.2	200.00	20.0	17.2
	250.00	35.3	20.0	15.3	250.00	20.0	15.3
	300.00	33.6	19.9	13.7	300.00	19.9	13.7
	400.00	31.5	20.3	11.2	400.00	20.3	11.2
	500.00	30.9	21.6	9.3	500.00	21.6	9.3
	650.00	29.8		n/a	650.00		n/a

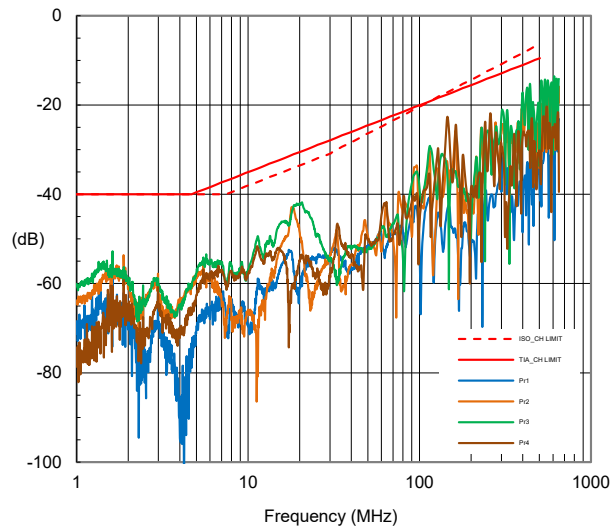
PSACRF



Worst Case Margin

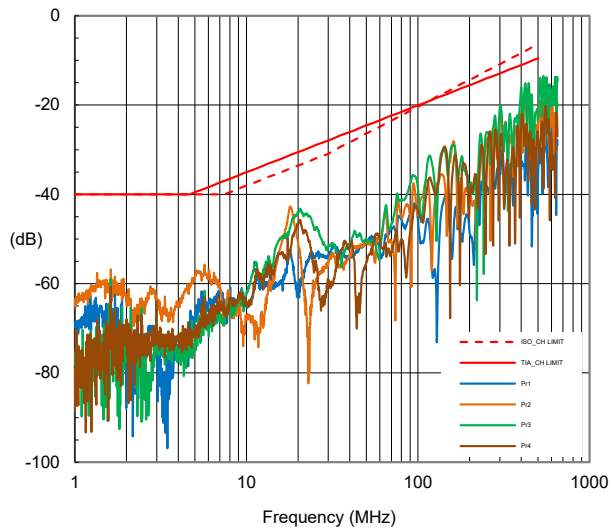
	Freq TIA Point (MHz)	Calculated Worst Value (dB)	Calculated TIA Margin (dB)	CH LIMIT TIA Value (dB)	Freq ISO Point (MHz)	Calculated ISO Margin (dB)	CH LIMIT ISO Value (dB)
Swept Freq	1.1	74.9	15.7	59.2	1.1	15.7	59.2
Discrete Points	1.00	76.7	16.5	60.3	1.00	16.5	60.3
	4.00	66.3	18.0	48.2	4.00	18.0	48.2
	8.00	61.0	18.8	42.2	8.00	18.8	42.2
	10.00	59.1	18.9	40.3	10.00	18.9	40.3
	16.00	55.2	19.0	36.2	16.00	19.0	36.2
	20.00	53.6	19.3	34.2	20.00	19.3	34.2
	25.00	51.7	19.4	32.3	25.00	19.4	32.3
	31.25	49.9	19.6	30.4	31.25	19.6	30.4
	62.50	44.0	19.6	24.3	62.50	19.6	24.3
	100.00	40.7	20.5	20.3	100.00	20.5	20.3
	200.00	36.1	21.9	14.2	200.00	21.9	14.2
	250.00	34.5	22.2	12.3	250.00	22.2	12.3
	300.00	33.3	22.6	10.7	300.00	22.6	10.7
	400.00	31.1	22.8	8.2	400.00	22.8	8.2
	500.00	28.9	22.6	6.3	500.00	22.6	6.3
	650.00	25.6		n/a	650.00		n/a

TCL as measured from the TELECOMMUNICATIONS ROOM (TR)



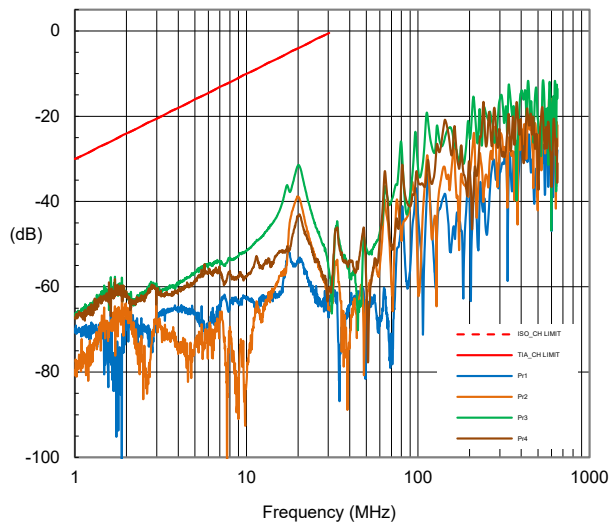
Worst Case Margin							
	Freq TIA Point (MHz)	Calculated Worst Value (dB)	Calculated TIA Margin (dB)	CH LIMIT TIA Value (dB)	Freq ISO Point (MHz)	Calculated ISO Margin (dB)	CH LIMIT ISO Value (dB)
Swept Freq	437.1	15.3	4.9	10.4	145.3	5.5	17.2
Discrete Points	1.00	60.1	20.1	40.0	1.00	20.1	40.0
	4.00	63.5	23.5	40.0	4.00	23.5	40.0
	8.00	57.1	20.7	36.5	8.00	17.7	39.5
	10.00	56.8	21.8	35.0	10.00	18.8	38.0
	16.00	46.0	14.1	31.9	16.00	11.1	34.9
	20.00	42.4	11.9	30.5	20.00	8.9	33.5
	25.00	48.9	19.9	29.0	25.00	16.9	32.0
	31.25	51.0	23.4	27.6	31.25	20.5	30.4
	62.50	42.3	19.2	23.1	62.50	17.9	24.4
	100.00	40.2	20.2	20.0	100.00	19.9	20.3
	200.00	38.2	22.7	15.5	200.00	23.9	14.3
	250.00	25.7	11.7	14.0	250.00	13.4	12.3
	300.00	21.0	8.2	12.8	300.00	10.3	10.8
	400.00	20.8	9.8	11.0	400.00	12.5	8.3
	500.00	26.7	17.1	9.5	500.00	20.3	6.3
	650.00	14.2		n/a	650.00		n/a

TCL as measured from the WORK AREA (WA)



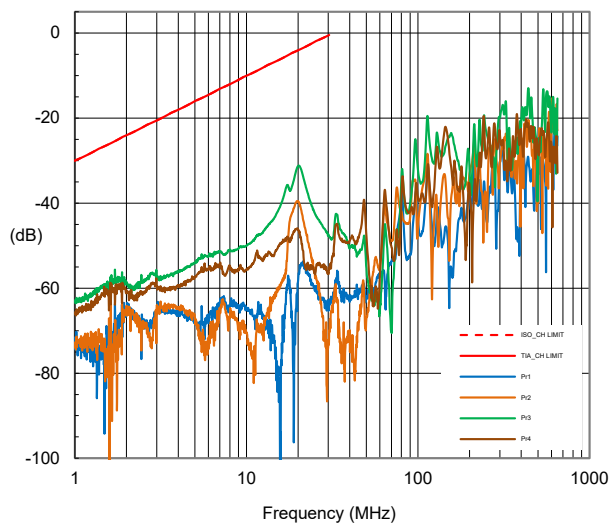
Worst Case Margin							
	Freq TIA Point (MHz)	Calculated Worst Value (dB)	Calculated TIA Margin (dB)	CH LIMIT TIA Value (dB)	Freq ISO Point (MHz)	Calculated ISO Margin (dB)	CH LIMIT ISO Value (dB)
Swept Freq	416.4	15.1	4.4	10.7	421.3	7.2	7.9
Discrete Points	1.00	65.2	25.2	40.0	1.00	25.2	40.0
	4.00	64.4	24.4	40.0	4.00	24.4	40.0
	8.00	63.1	26.6	36.5	8.00	23.6	39.5
	10.00	61.7	26.7	35.0	10.00	23.7	38.0
	16.00	49.3	17.4	31.9	16.00	14.4	34.9
	20.00	44.0	13.5	30.5	20.00	10.5	33.5
	25.00	47.9	18.9	29.0	25.00	15.9	32.0
	31.25	51.0	23.4	27.6	31.25	20.6	30.4
	62.50	45.9	22.8	23.1	62.50	21.5	24.4
	100.00	40.4	20.4	20.0	100.00	20.1	20.3
	200.00	37.8	22.3	15.5	200.00	23.5	14.3
	250.00	26.1	12.1	14.0	250.00	13.8	12.3
	300.00	20.1	7.3	12.8	300.00	9.3	10.8
	400.00	20.9	10.0	11.0	400.00	12.7	8.3
	500.00	19.9	10.4	9.5	500.00	13.6	6.3
	650.00	14.7		n/a	650.00		n/a

ELTCTL as measured from the TELECOMMUNICATIONS ROOM (TR)



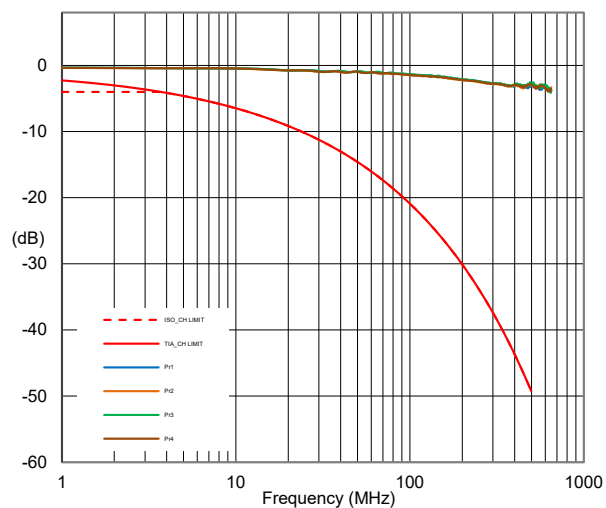
Worst Case Margin							
	Freq TIA Point (MHz)	Calculated Worst Value (dB)	Calculated TIA Margin (dB)	CH LIMIT TIA Value (dB)	Freq ISO Point (MHz)	Calculated ISO Margin (dB)	CH LIMIT ISO Value (dB)
Swept							
Freq	19.8	31.4	27.4	4.1	20.0	27.4	4.1
Discrete							
Points	1.00	67.2	37.2	30.0	1.00	37.2	30.0
	4.00	59.0	41.0	18.0	4.00	41.0	18.0
	8.00	53.7	41.7	11.9	8.00	41.7	11.9
	10.00	51.5	41.5	10.0	10.00	41.5	10.0
	16.00	40.3	34.4	5.9	16.00	34.4	5.9
	20.00	31.5	27.5	4.0	20.00	27.5	4.0
	25.00	45.1	43.0	2.0	25.00	43.0	2.0
	31.25	57.6		n/a	31.25		n/a
	62.50	37.1		n/a	62.50		n/a
	100.00	33.5		n/a	100.00		n/a
	200.00	24.6		n/a	200.00		n/a
	250.00	19.7		n/a	250.00		n/a
	300.00	15.1		n/a	300.00		n/a
	400.00	14.4		n/a	400.00		n/a
	500.00	22.6		n/a	500.00		n/a
	650.00	13.6		n/a	650.00		n/a

ELTCTL as measured from the WORK AREA (WA)



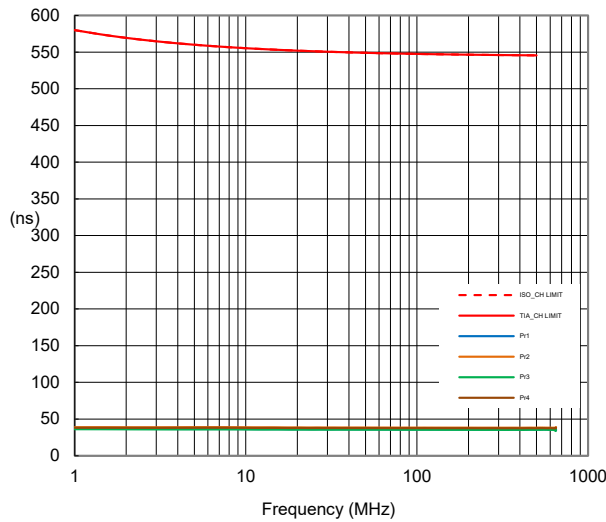
Worst Case Margin							
	Freq TIA Point (MHz)	Calculated Worst Value (dB)	Calculated TIA Margin (dB)	CH LIMIT TIA Value (dB)	Freq ISO Point (MHz)	Calculated ISO Margin (dB)	CH LIMIT ISO Value (dB)
Swept							
Freq	19.9	31.2	27.2	4.0	20.1	27.2	4.0
Discrete							
Points	1.00	62.9	32.9	30.0	1.00	32.9	30.0
	4.00	56.1	38.1	18.0	4.00	38.1	18.0
	8.00	51.3	39.4	11.9	8.00	39.4	11.9
	10.00	50.0	40.0	10.0	10.00	40.0	10.0
	16.00	39.4	33.5	5.9	16.00	33.5	5.9
	20.00	31.2	27.2	4.0	20.00	27.2	4.0
	25.00	42.4	40.4	2.0	25.00	40.4	2.0
	31.25	48.3		n/a	31.25		n/a
	62.50	41.0		n/a	62.50		n/a
	100.00	33.5		n/a	100.00		n/a
	200.00	32.0		n/a	200.00		n/a
	250.00	23.4		n/a	250.00		n/a
	300.00	18.6		n/a	300.00		n/a
	400.00	17.4		n/a	400.00		n/a
	500.00	27.8		n/a	500.00		n/a
	650.00	15.4		n/a	650.00		n/a

INSERTION LOSS (ATTN)

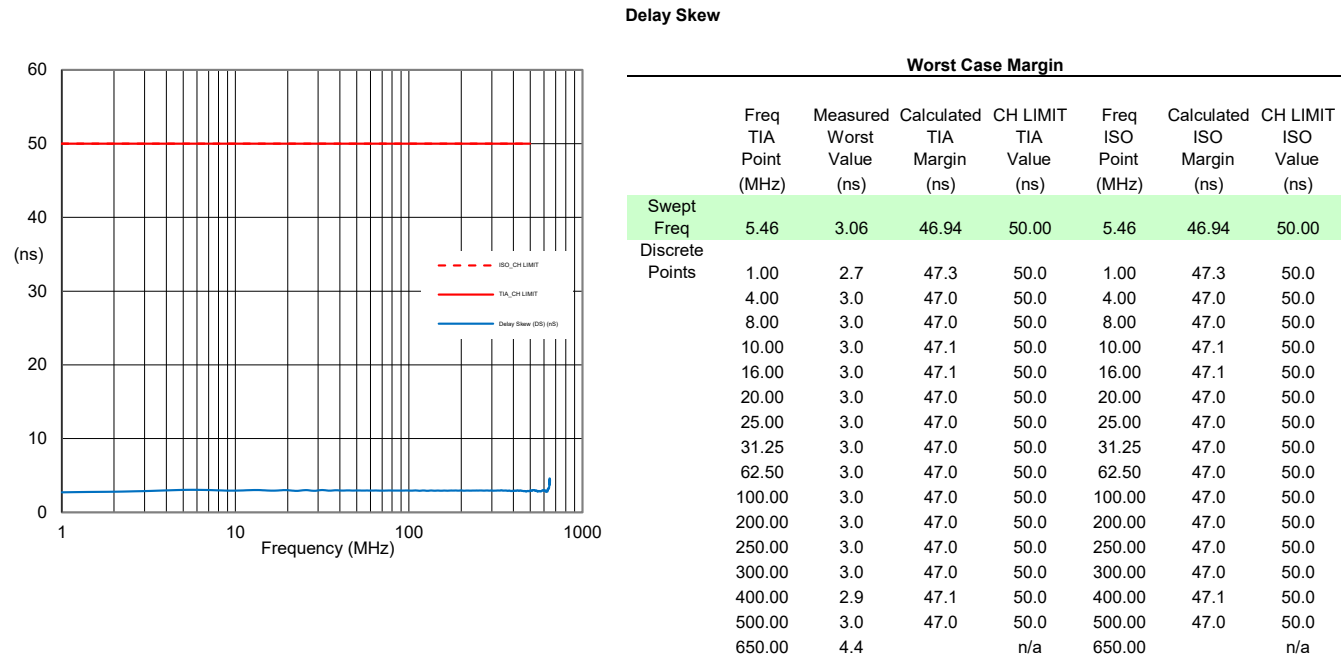


Worst Case Margin							
	Freq TIA Point (MHz)	Measured Worst Value (dB)	Calculated TIA Margin (dB)	CH LIMIT TIA Value (dB)	Freq ISO Point (MHz)	Calculated ISO Margin (dB)	CH LIMIT ISO Value (dB)
Swept Freq	1.00	0.42	1.89	2.26	3.69	3.58	4.00
Discrete Points	1.00	0.4	1.9	2.3	1.00	3.6	4.0
	4.00	0.4	3.7	4.2	4.00	3.7	4.2
	8.00	0.4	5.4	5.8	8.00	5.4	5.8
	10.00	0.5	6.0	6.5	10.00	6.0	6.5
	16.00	0.7	7.5	8.2	16.00	7.5	8.2
	20.00	0.8	8.4	9.2	20.00	8.4	9.2
	25.00	0.8	9.5	10.2	25.00	9.5	10.2
	31.25	1.0	10.5	11.5	31.25	10.5	11.5
	62.50	1.1	15.3	16.4	62.50	15.3	16.4
	100.00	1.5	19.4	20.9	100.00	19.4	20.9
	200.00	2.2	27.8	30.1	200.00	27.8	30.1
	250.00	2.5	31.4	33.9	250.00	31.4	33.9
	300.00	2.8	34.6	37.4	300.00	34.6	37.4
	400.00	3.2	40.4	43.7	400.00	40.4	43.7
	500.00	3.1	46.3	49.3	500.00	46.3	49.3
650.00	3.9		n/a	650.00		n/a	

Propagation Delay



Worst Case Margin							
	Freq TIA Point (MHz)	Calculated Worst Value (ns)	Calculated TIA Margin (ns)	CH LIMIT TIA Value (ns)	Freq ISO Point (MHz)	Calculated ISO Margin (ns)	CH LIMIT ISO Value (ns)
Swept Freq	499.9	38.3	507.3	545.6	499.9	507.3	545.6
Discrete Points	1.00	38.9	541.1	580.0	1.00	541.1	580.0
	4.00	38.9	523.1	562.0	4.00	523.1	562.0
	8.00	38.9	517.8	556.7	8.00	517.8	556.7
	10.00	38.8	516.6	555.4	10.00	516.6	555.4
	16.00	38.7	514.3	553.0	16.00	514.3	553.0
	20.00	38.6	513.4	552.0	20.00	513.4	552.0
	25.00	38.6	512.6	551.2	25.00	512.6	551.2
	31.25	38.6	511.9	550.4	31.25	511.9	550.4
	62.50	38.5	510.1	548.6	62.50	510.1	548.6
	100.00	38.4	509.2	547.6	100.00	509.2	547.6
	200.00	38.3	508.2	546.5	200.00	508.2	546.5
	250.00	38.3	508.0	546.3	250.00	508.0	546.3
	300.00	38.3	507.8	546.1	300.00	507.8	546.1
	400.00	38.2	507.6	545.8	400.00	507.6	545.8
	500.00	38.3	507.3	545.6	500.00	507.3	545.6
650.00	39.1		n/a	650.00		n/a	



DC Loop Resistance (Ohms)						
ChnlLimit	Pr1	Pr2	Pr3	Pr4	MaxValue	MinMargin
25	1.344	1.381	1.311	1.364	1.381	23.619

DC Resistance Unbalance (%)						
ChnlLimit	Pr1	Pr2	Pr3	Pr4	MaxValue	MinMargin
3	0.754	0.805	0.311	0.074	0.805	2.195

DC Resistance Pr to Pr Unbalance (P2P UBL)						
Wire Pair	ChnlLimits			MaxValue	MinMargin	
	P2P UBL (Ohms)	7% Calc. (Ohms)	0.1Ω			
Pr 2 - Pr 3	0.0202	0.0464	0.1	0.020	0.080	
Pr 2 - Pr 1	0.0102	0.0471	0.1			
Pr 2 - Pr 4	0.0035	0.0476	0.1			
Pr 1 - Pr 3	0.0100	0.0457	0.1			
Pr 3 - Pr 4	0.0168	0.0462	0.1			
Pr 1 - Pr 4	0.0068	0.0469	0.1			

GLOSSARY of TERMS

Calculated Margin: The minimum difference in dB between the measured value and the LIMIT value at the specified frequency point for all tested pairs (CalculateMargin@100MHz = MeasuredValue@100MHz - LIMITValue@100MHz (dB)).

Discrete Points: Specific reference points of interest in MHz within the swept frequencies.

Frequency Point: A specific frequency point in megahertz (MHz) for which the data indicated is applicable.

LIMIT Value: The calculated response LIMIT in dB at the indicated frequency point as calculated using applicable equations defined by the appropriate standard.

Measured Value: The worst case measured response in dB at the frequency indicated for all tested pairs.

Swept Freq: The band of measured values from 1 MHz to the upper frequency LIMIT as defined by the category of test.

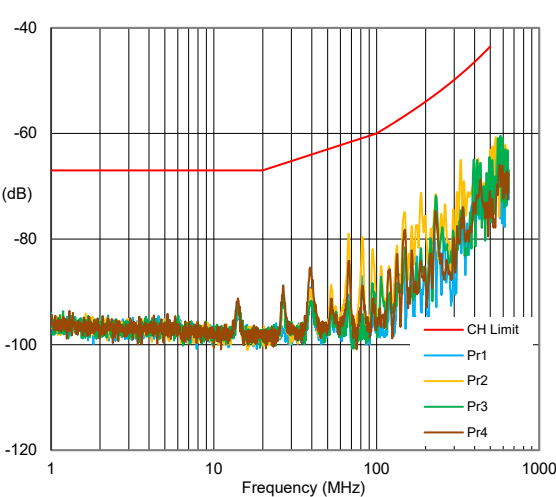
Swept Freq (Margin): The minimum margin in dB detected across the Swept Frequency band.

Worst Case: A composite value calculated from the maximum response of each pair or pair combination at a given frequency. (WorstCase_{100MHz} = Max(Pr1_{100MHz}, Pr2_{100MHz}, Pr3_{100MHz}, Pr4_{100MHz}) etc.

ACR / PSACR: If Provided are for reference only. Limit line(s) are provided for reference and are calculated as the difference between the applicable NEXT Loss and Insertion loss limits (ACR_{limit} = NEXT_{limit} - IL_{limit}).

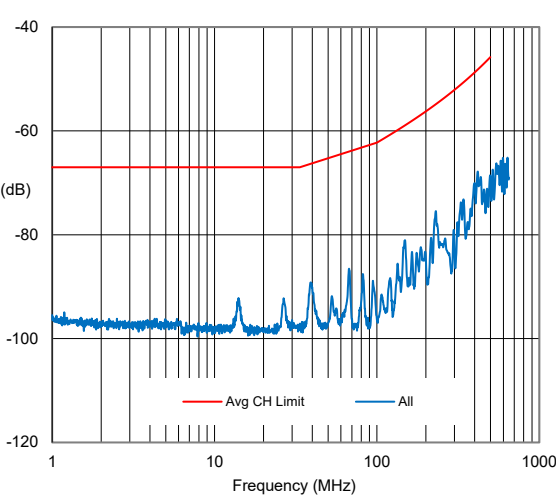


PowerSum Alien Near-End Crosstalk (PSANEXT)
as measured from the TELECOMMUNICATIONS ROOM (TR)



Worst Case Margin				
TIA & ISO				
	Frequency Point (MHz)	Calculated Margin (dB)	Measured Value (dB)	CH LIMIT Value (dB)
Swept Freq	328.3	16.2	-65.0	-48.8
Discrete Points	1.00	27.0	-94.0	-67.0
	4.00	29.4	-96.4	-67.0
	8.00	30.7	-97.7	-67.0
	10.00	31.1	-98.1	-67.0
	16.00	30.2	-97.2	-67.0
	20.00	31.2	-98.2	-67.0
	25.00	32.2	-98.2	-66.0
	31.25	32.7	-97.8	-65.1
	62.50	30.7	-92.8	-62.0
	100.00	36.6	-96.6	-60.0
	200.00	22.6	-76.6	-54.0
	250.00	23.7	-75.5	-51.8
	300.00	30.1	-79.9	-49.8
	400.00	21.1	-67.6	-46.5
	500.00	19.9	-63.5	-43.5
	650.00		-66.9	n/a

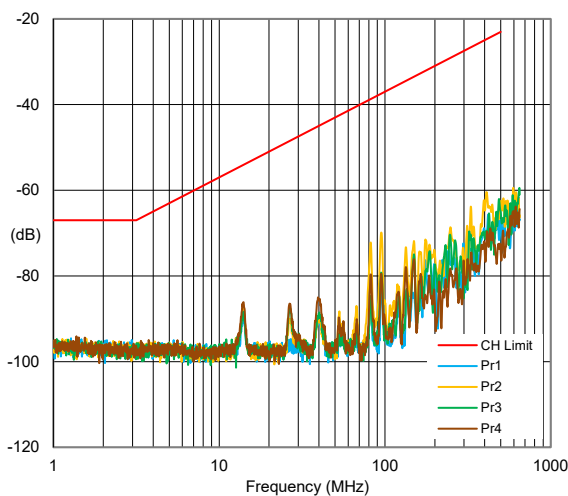
Average PowerSum Alien Near-End Crosstalk (avgPSANEXT)
as measured from the TELECOMMUNICATIONS ROOM (TR)



Worst Case Margin				
TIA & ISO				
	Frequency Point (MHz)	Calculated Margin (dB)	Measured Value (dB)	CH LIMIT Value (dB)
Swept Freq	418.1	19.7	-67.8	-48.2
Discrete Points	1.00	28.5	-95.5	-67.0
	4.00	30.9	-97.9	-67.0
	8.00	32.2	-99.2	-67.0
	10.00	32.2	-99.2	-67.0
	16.00	31.7	-98.7	-67.0
	20.00	32.0	-99.0	-67.0
	25.00	31.7	-98.7	-67.0
	31.25	31.3	-98.3	-67.0
	62.50	31.0	-95.3	-64.3
	100.00	35.1	-97.3	-62.3
	200.00	28.3	-84.5	-56.2
	250.00	28.0	-82.0	-54.0
	300.00	30.2	-82.3	-52.1
	400.00	21.4	-70.1	-48.7
	500.00	23.8	-69.5	-45.8
	650.00		-69.0	n/a

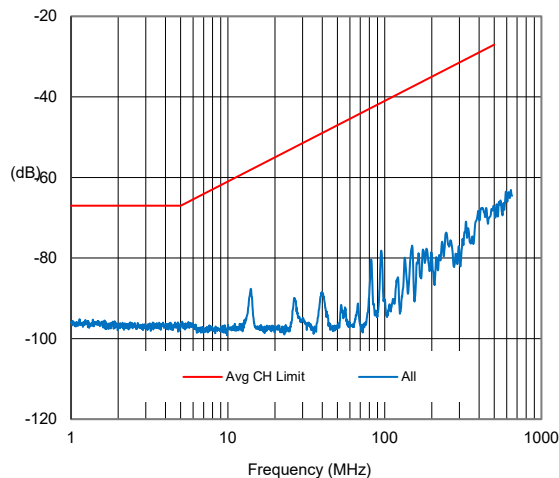


Power Sum Attenuation to Alien Crosstalk Ratio Far-End (PSAACRF)
as measured from the TELECOMMUNICATIONS ROOM (TR)



Worst Case Margin				
TIA & ISO				
	Frequency Point (MHz)	Calculated Margin (dB)	Calculated Value (dB)	CH LIMIT Value (dB)
Swept Freq	14.0	32.1	-86.1	-54.1
Discrete Points	1.00	28.3	-95.3	-67.0
	4.00	31.0	-95.9	-65.0
	8.00	39.6	-98.5	-58.9
	10.00	40.6	-97.6	-57.0
	16.00	44.0	-97.0	-52.9
	20.00	46.8	-97.8	-51.0
	25.00	48.7	-97.8	-49.0
	31.25	49.6	-96.7	-47.1
	62.50	56.1	-97.2	-41.1
	100.00	49.2	-86.2	-37.0
	200.00	43.6	-74.6	-31.0
	250.00	40.2	-69.2	-29.0
	300.00	48.3	-75.8	-27.5
	400.00	39.7	-64.7	-25.0
	500.00	39.9	-62.9	-23.0
	650.00		-61.0	n/a

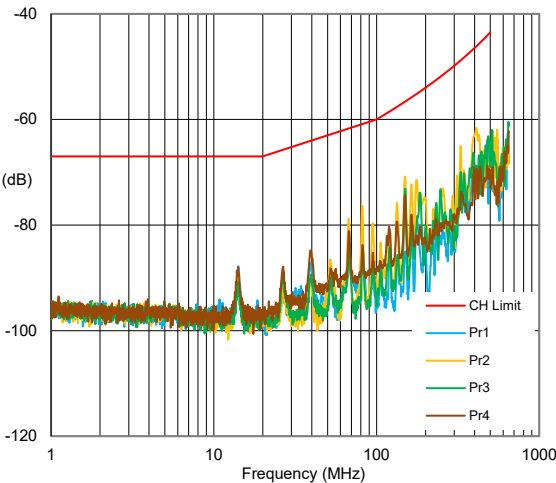
Average Power Sum Attenuation to Alien Crosstalk Ratio Far-End (avgPSAACRF)
as measured from the TELECOMMUNICATIONS ROOM (TR)



Worst Case Margin				
TIA & ISO				
	Frequency Point (MHz)	Calculated Margin (dB)	Calculated Value (dB)	CH LIMIT Value (dB)
Swept Freq	14.0	29.6	-87.6	-58.1
Discrete Points	1.00	28.9	-95.9	-67.0
	4.00	29.6	-96.6	-67.0
	8.00	35.9	-98.9	-62.9
	10.00	36.8	-97.8	-61.0
	16.00	41.3	-98.2	-56.9
	20.00	43.6	-98.6	-55.0
	25.00	44.9	-98.0	-53.0
	31.25	45.9	-97.0	-51.1
	62.50	52.6	-97.7	-45.1
	100.00	49.7	-90.7	-41.0
	200.00	44.1	-79.0	-35.0
	250.00	41.5	-74.6	-33.0
	300.00	47.5	-78.9	-31.5
	400.00	41.1	-70.0	-29.0
	500.00	40.7	-67.7	-27.0
	650.00		-64.5	n/a

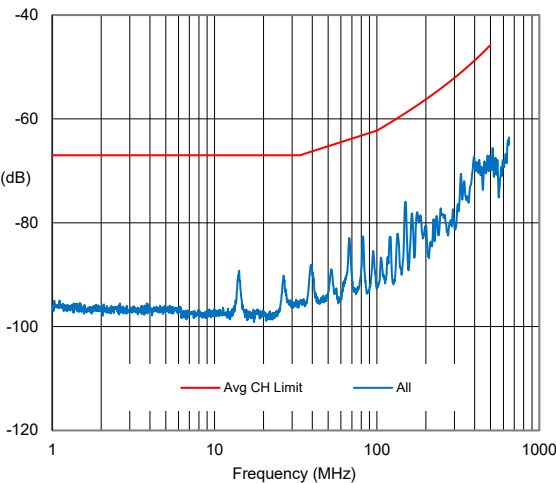


PowerSum Alien Near-End Crosstalk (PSANEXT)
as measured from the WORK AREA (WA)



Worst Case Margin				
TIA & ISO				
	Frequency Point (MHz)	Calculated Margin (dB)	Measured Value (dB)	CH LIMIT Value (dB)
Swept Freq	149.6	14.2	-70.8	-56.6
Discrete Points	1.00	28.7	-95.7	-67.0
	4.00	29.2	-96.2	-67.0
	8.00	30.8	-97.8	-67.0
	10.00	29.5	-96.5	-67.0
	16.00	30.4	-97.4	-67.0
	20.00	31.2	-98.2	-67.0
	25.00	30.6	-96.6	-66.0
	31.25	29.1	-94.1	-65.1
	62.50	27.8	-89.8	-62.0
	100.00	28.8	-88.8	-60.0
	200.00	21.2	-75.2	-54.0
	250.00	22.0	-73.7	-51.8
	300.00	28.1	-77.9	-49.8
	400.00	16.5	-62.9	-46.5
	500.00	22.3	-65.8	-43.5
	650.00		-61.2	n/a

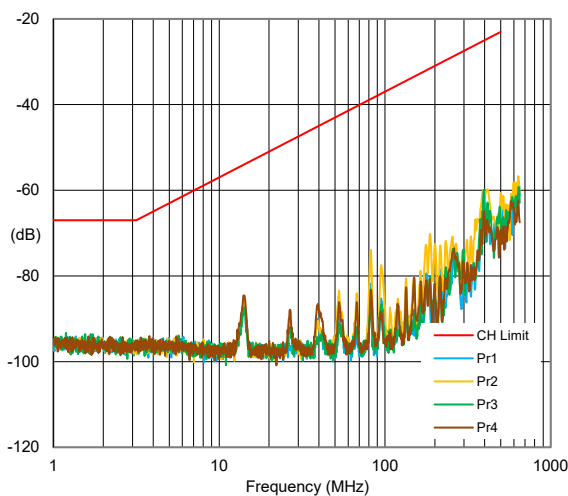
Average PowerSum Alien Near-End Crosstalk (avgPSANEXT)
as measured from the WORK AREA (WA)



Worst Case Margin				
TIA & ISO				
	Frequency Point (MHz)	Calculated Margin (dB)	Measured Value (dB)	CH LIMIT Value (dB)
Swept Freq	149.6	17.1	-76.0	-58.9
Discrete Points	1.00	29.1	-96.1	-67.0
	4.00	29.6	-96.6	-67.0
	8.00	31.4	-98.4	-67.0
	10.00	31.4	-98.4	-67.0
	16.00	31.5	-98.5	-67.0
	20.00	31.8	-98.8	-67.0
	25.00	30.7	-97.7	-67.0
	31.25	29.3	-96.3	-67.0
	62.50	27.5	-91.8	-64.3
	100.00	30.8	-93.1	-62.3
	200.00	24.4	-80.6	-56.2
	250.00	24.4	-78.5	-54.0
	300.00	28.8	-80.9	-52.1
	400.00	20.0	-68.8	-48.7
	500.00	22.6	-68.3	-45.8
	650.00		-63.6	n/a

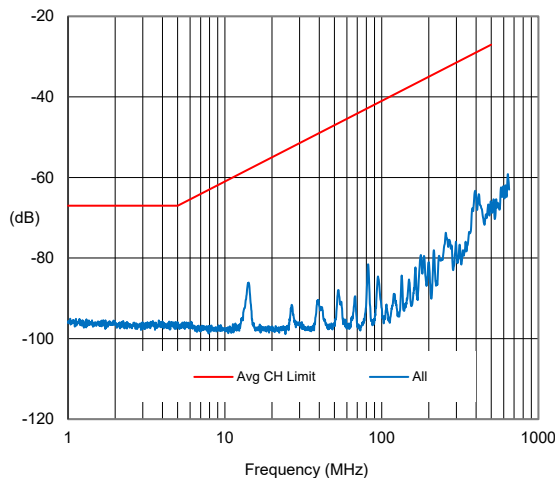


Power Sum Attenuation to Alien Crosstalk Ratio Far-End (PSAACRF)
as measured from the WORK AREA (WA)



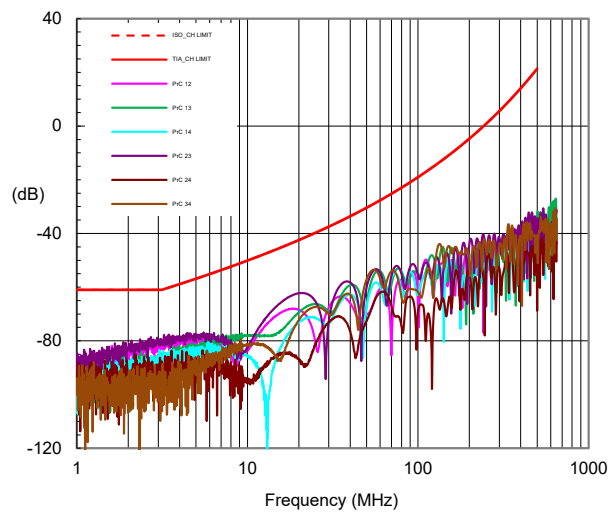
Worst Case Margin				
TIA & ISO				
	Frequency Point (MHz)	Calculated Margin (dB)	Calculated Value (dB)	CH LIMIT Value (dB)
Swept Freq	14.0	30.5	-84.5	-54.1
Discrete Points	1.00	28.5	-95.5	-67.0
	4.00	29.7	-94.6	-65.0
	8.00	39.2	-98.1	-58.9
	10.00	41.1	-98.1	-57.0
	16.00	44.9	-97.9	-52.9
	20.00	46.1	-97.1	-51.0
	25.00	48.7	-97.8	-49.0
	31.25	49.5	-96.6	-47.1
	62.50	55.8	-96.9	-41.1
	100.00	50.3	-87.3	-37.0
	200.00	41.6	-72.6	-31.0
	250.00	44.2	-73.2	-29.0
	300.00	49.4	-76.8	-27.5
	400.00	36.3	-61.3	-25.0
	500.00	37.7	-60.7	-23.0
	650.00		-60.5	n/a

Average Power Sum Attenuation to Alien Crosstalk Ratio Far-End (avgPSAACRF)
as measured from the WORK AREA (WA)



Worst Case Margin				
TIA & ISO				
	Frequency Point (MHz)	Calculated Margin (dB)	Calculated Value (dB)	CH LIMIT Value (dB)
Swept Freq	14.2	28.1	-86.1	-58.0
Discrete Points	1.00	29.1	-96.1	-67.0
	4.00	29.0	-96.0	-67.0
	8.00	35.8	-98.7	-62.9
	10.00	37.9	-98.9	-61.0
	16.00	41.2	-98.1	-56.9
	20.00	43.2	-98.1	-55.0
	25.00	45.3	-98.3	-53.0
	31.25	46.5	-97.6	-51.1
	62.50	52.0	-97.1	-45.1
	100.00	51.8	-92.8	-41.0
	200.00	46.1	-81.0	-35.0
	250.00	44.3	-77.4	-33.0
	300.00	46.6	-78.1	-31.5
	400.00	35.6	-64.6	-29.0
	500.00	39.7	-66.7	-27.0
	650.00		-63.0	n/a

Pair-to-Pair ACR as measured from the TELECOMMUNICATIONS ROOM (TR)

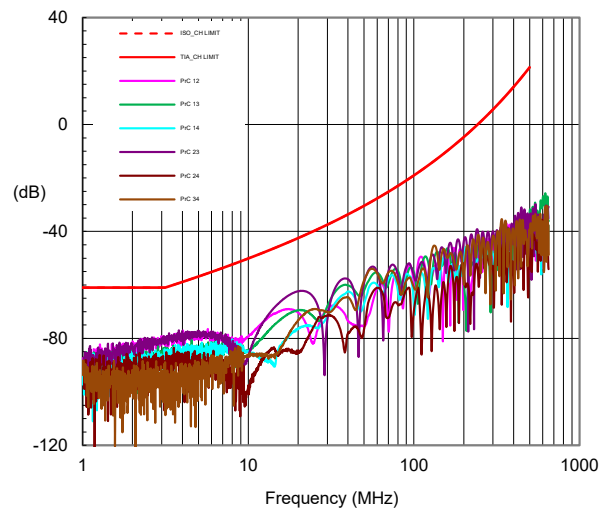


NOTE: TIA Limit line/values provided for reference ONLY and are extrapolated from NEXT Loss and IL limit requirements. $ACR_{limit} = NEXT_{limit} - IL_{limit}$

Worst Case Margin

	Freq TIA Point (MHz)	Calculated Worst Value (dB)	Calculated TIA Margin (dB)	CH LIMIT TIA Value (dB)	Freq ISO Point (MHz)	Calculated ISO Margin (dB)	CH LIMIT ISO Value (dB)
Swept	3.3	-77.8	17.0	-60.7	3.2	17.0	-60.7
Freq							
Discrete	1.00	-84.6	23.6	-61.0	1.00	23.5	-61.0
Points	4.00	-79.0	20.1	-58.9	4.00	20.1	-58.9
	8.00	-78.8	26.5	-52.4	8.00	26.4	-52.4
	10.00	-78.2	28.1	-50.1	10.00	28.1	-50.1
	16.00	-65.3	20.3	-45.0	16.00	20.2	-45.0
	20.00	-62.3	19.8	-42.5	20.00	19.8	-42.5
	25.00	-65.2	25.4	-39.8	25.00	25.4	-39.8
	31.25	-65.6	28.7	-36.9	31.25	28.7	-36.9
	62.50	-55.8	28.7	-27.0	62.50	28.7	-27.0
	100.00	-55.0	35.9	-19.0	100.00	35.8	-19.0
	200.00	-43.9	39.2	-4.7	200.00	39.0	-4.7
	250.00	-44.7	45.5	0.8	250.00	45.5	0.8
	300.00	-41.6	47.2	5.6	300.00	47.1	5.6
	400.00	-39.5	53.5	14.1	400.00	53.3	14.1
	500.00	-33.1	54.5	21.4	500.00	54.3	21.4
	650.00	-31.4		n/a	650.00		n/a

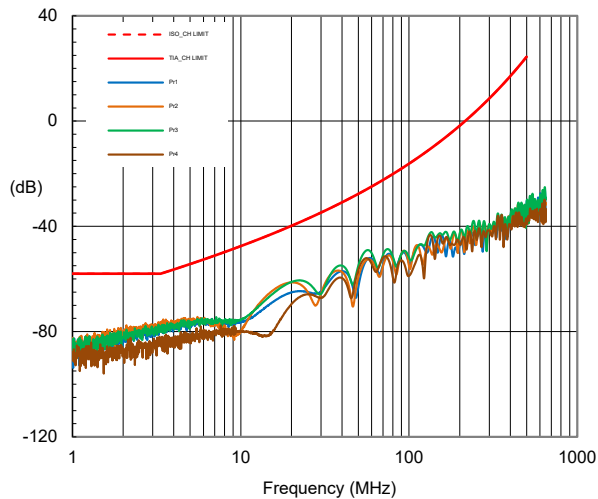
Pair-to-Pair ACR as measured from the WORK AREA (WA)



Worst Case Margin

	Freq TIA Point (MHz)	Calculated Worst Value (dB)	Calculated TIA Margin (dB)	CH LIMIT TIA Value (dB)	Freq ISO Point (MHz)	Calculated ISO Margin (dB)	CH LIMIT ISO Value (dB)
Swept	3.3	-78.1	17.5	-60.5	3.3	17.5	-60.5
Freq							
Discrete	1.00	-89.6	28.6	-61.0	1.00	28.6	-61.0
Points	4.00	-79.6	20.7	-58.9	4.00	20.7	-58.9
	8.00	-80.1	27.8	-52.4	8.00	27.7	-52.4
	10.00	-79.5	29.4	-50.1	10.00	29.4	-50.1
	16.00	-65.7	20.6	-45.0	16.00	20.6	-45.0
	20.00	-62.4	19.9	-42.5	20.00	19.9	-42.5
	25.00	-65.0	25.2	-39.8	25.00	25.2	-39.8
	31.25	-65.6	28.7	-36.9	31.25	28.6	-36.9
	62.50	-56.5	29.5	-27.0	62.50	29.4	-27.0
	100.00	-55.4	36.3	-19.0	100.00	36.2	-19.0
	200.00	-43.7	39.0	-4.7	200.00	38.9	-4.7
	250.00	-46.2	47.0	0.8	250.00	46.9	0.8
	300.00	-40.0	45.6	5.6	300.00	45.5	5.6
	400.00	-39.5	53.5	14.1	400.00	53.3	14.1
	500.00	-32.7	54.2	21.4	500.00	53.9	21.4
	650.00	-30.8		n/a	650.00		n/a

Power Sum (PS) ACR as measured from the TELECOMMUNICATIONS ROOM (TR)

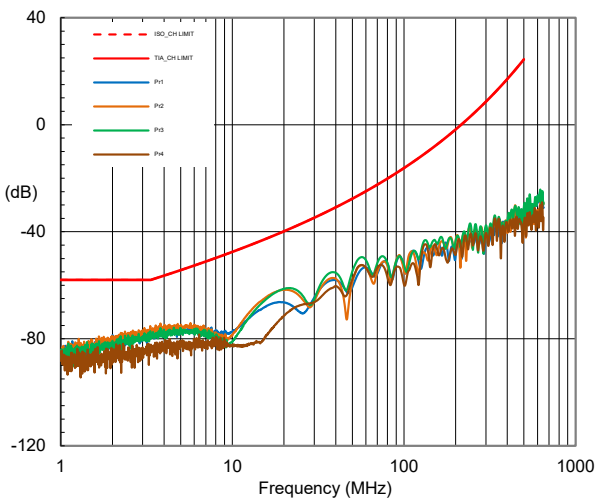


NOTE: TIA Limit line/values provided for reference ONLY and are extrapolated from PSNEXT Loss and IL limit requirements. $psACR_{limit} = psNEXT_{limit} - IL_{limit}$

Worst Case Margin

	Freq TIA Point (MHz)	Calculated Worst Value (dB)	Calculated TIA Margin (dB)	CH LIMIT TIA Value (dB)	Freq ISO Point (MHz)	Calculated ISO Margin (dB)	CH LIMIT ISO Value (dB)
Swept	3.5	-75.4	17.7	-57.7	3.5	17.7	-57.7
Freq							
Discrete	1.00	-82.4	24.4	-58.0	1.00	24.4	-58.0
Points	4.00	-76.9	20.5	-56.4	4.00	20.5	-56.4
	8.00	-75.7	25.9	-49.8	8.00	25.9	-49.8
	10.00	-75.6	28.1	-47.5	10.00	28.1	-47.5
	16.00	-63.7	21.3	-42.4	16.00	21.3	-42.4
	20.00	-61.1	21.3	-39.8	20.00	21.3	-39.8
	25.00	-61.5	24.4	-37.1	25.00	24.3	-37.1
	31.25	-62.5	28.3	-34.2	31.25	28.3	-34.2
	62.50	-52.9	28.7	-24.2	62.50	28.6	-24.2
	100.00	-51.9	35.7	-16.2	100.00	35.6	-16.2
	200.00	-42.8	41.0	-1.8	200.00	40.9	-1.8
	250.00	-43.8	47.5	3.7	250.00	47.5	3.7
	300.00	-39.1	47.7	8.6	300.00	47.6	8.6
	400.00	-36.0	53.1	17.1	400.00	53.1	17.1
	500.00	-30.9	55.3	24.5	500.00	55.2	24.5
	650.00	-29.1		n/a	650.00		n/a

Power Sum (PS) ACR as measured from the WORK AREA (WA)



Worst Case Margin

	Freq TIA Point (MHz)	Calculated Worst Value (dB)	Calculated TIA Margin (dB)	CH LIMIT TIA Value (dB)	Freq ISO Point (MHz)	Calculated ISO Margin (dB)	CH LIMIT ISO Value (dB)
Swept	3.3	-75.2	17.2	-58.0	3.3	17.2	-58.0
Freq							
Discrete	1.00	-85.8	27.8	-58.0	1.00	27.8	-58.0
Points	4.00	-76.4	20.0	-56.4	4.00	20.0	-56.4
	8.00	-77.0	27.2	-49.8	8.00	27.2	-49.8
	10.00	-77.4	29.9	-47.5	10.00	29.9	-47.5
	16.00	-64.1	21.7	-42.4	16.00	21.7	-42.4
	20.00	-61.3	21.5	-39.8	20.00	21.5	-39.8
	25.00	-63.0	25.9	-37.1	25.00	25.9	-37.1
	31.25	-62.3	28.1	-34.2	31.25	28.0	-34.2
	62.50	-53.2	29.0	-24.2	62.50	28.9	-24.2
	100.00	-52.3	36.1	-16.2	100.00	36.0	-16.2
	200.00	-43.0	41.3	-1.8	200.00	41.3	-1.8
	250.00	-44.0	47.7	3.7	250.00	47.6	3.7
	300.00	-37.7	46.3	8.6	300.00	46.1	8.6
	400.00	-35.9	53.0	17.1	400.00	52.8	17.1
	500.00	-30.6	55.1	24.5	500.00	54.8	24.5
	650.00	-29.0		n/a	650.00		n/a