

Belden Canada ULC

LETTER REPORT

SCOPE OF WORK

Performance testing of a channel cabling configuration electrical transmission performance to the requirements of ANSI/TIA-568.2-D (Category 6A), ISO/IEC 11801-2 (Class E_A), EN 50173-1 (Class E_A) and IEEE 802.3™-2022 (for support of 10GBASE-T operation)

REPORT NUMBER

105346475CRT-001d

ISSUE DATE

27-February-2023

REVISED DATE

None

TESTS START DATE

23-February-2023

TESTS END DATE

27-February-2023

PAGES

5

DOCUMENT CONTROL NUMBER

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

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LETTER REPORT

27-February-2023

Intertek Report No. 105346475CRT-001d
Intertek Project No. G105346475

Mr. Virak Siev
Belden Canada ULC
2310 Boul. Alfred-Nobel
Saint-Laurent, QC H4S 2B4
Canada

Subject: Performance testing of category 6A (Class E_A) shielded channel per ANSI/TIA-568.2-D, ISO/IEC 11801-2 ad.1 Class ea, EN 50173-1 and IEEE 802.3

Dear Mr. Siev:

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

ANSI/TIA-568.2-D-2018, Balanced Twisted-Pair Telecommunications Cabling and Components Standard, dated September 2018

ANSI/TIA-568.2-D-2-2020, Balanced Twisted-Pair Telecommunications Cabling and Components Standard Addendum 2: Power Delivery Over Balanced Twisted-Pair Cabling, dated August 2020

ISO/IEC 11801-2 ad.1 Class ea Edition 1.0, Information technology – Generic cabling for customer premises - Part 1: General requirements, dated November 2017

EN 50173-1, Information technology - Generic cabling systems - Part 1: General Requirements, dated June 2018

IEEE Std 802.3TM-2022, IEEE Standard for Ethernet, approved 13-May-2022

SECTION 1**SUMMARY**

Intertek wishes to inform you that the electrical transmission tests have been performed on your channel configuration. This testing was performed under project G105346475 and quotation Qu-01303237 issued 23-September-2022. Compliant results were obtained for the relevant tests contained in of ANSI/TIA-568.2-D (section 6.3), ISO/IEC 11801-2 (section 6.3), EN 50173-1 (section 5.2) and IEEE 802.3 (sections 55.7.2 and 55.7.3.3) for channel transmission performance.

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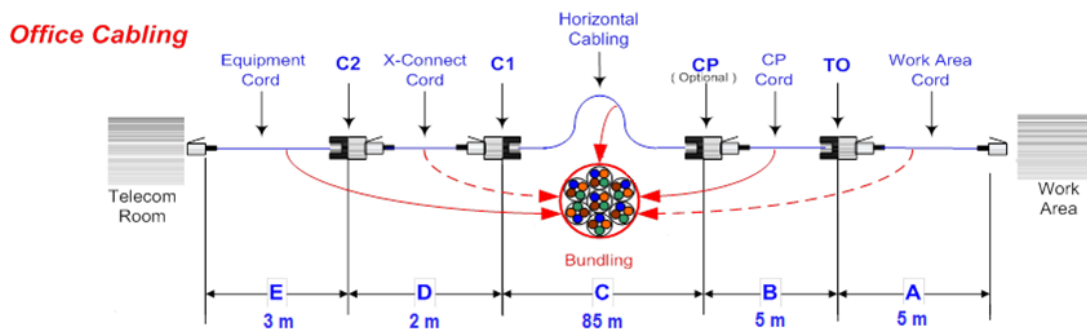
SECTION 2 NON-CONFORMANCES

None

SECTION 3 SAMPLE DESCRIPTION

The client supplied a 4-connector shielded channel as illustrated below. The channel was bundled in a 6-around-1 configuration for alien crosstalk testing.

The samples were received on 17-February-2023 and were production samples in undamaged condition.



Component Id	Manufacturer	Description	Part number
C1, C2, CP, TO	Belden	RJ-45 Connector	10GX REVConnect Shielded Modular Jack
		Patch Panel	10GX KeyConnect
A, D	Belden	Modular Cord, Nonbonded-Pair, 4-pair, T568A/B, LSZH	10GX Shielded Modular Cord
B, E	Belden	Pigtail, Nonbonded-Pair, 4-pair, T568B, LSZH	10GX Shielded Pigtail
C	Belden	Horizontal Cable, Shielded Nonbonded-Pair, 4-pair, 23 AWG, LSZH	10GXE00, 10GXE02B, 10GXE02C, 10GXE02D and 10GXE02I

SECTION 4 TEST EQUIPMENT USED

The following test equipment was used to conduct the testing.

Test equipment used	Model number	Control number	Calibration due date
Fluke Handheld Cable Analyzer	DSX-8000	J386	29-November-2023
Hioki Humidity/Temperature Sensor	Z2010	I084	16-January-2024

SECTION 5 TESTING

The table 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-D section	ISO/IEC 11801-2 section	EN 50173-1 section	IEEE 802.3 section	Result
DC loop resistance	6.3.1	6.3.3.6	5.2.2.7	-	Compliant
DC resistance unbalance within a pair	6.3.3	6.3.3.7	5.2.2.8	-	Compliant
DC resistance unbalance between pairs	6.3.4	6.3.3.7	5.2.2.8	-	Compliant
Return Loss	6.3.8	6.3.3.1	5.2.2.2	55.7.2.3	Compliant
Insertion Loss	6.3.9	6.3.3.2	5.2.2.3	55.7.2.1	Compliant
NEXT and PSNEXT	6.3.10 - 6.3.11	6.3.3.3	5.2.2.4	55.7.2.4.1 55.7.2.4.2 55.7.2.4.3	Compliant
ACR-N, PSACR-N	-	6.3.3.4	5.2.2.5	55.7.2.4.1 55.7.2.4.2 55.7.2.4.3	Compliant
FEXT ACR-F PSACR-F	6.3.12 - 6.3.15	6.3.3.5	5.2.2.6	55.7.2.4.4 55.7.2.4.5 55.7.2.4.6	Compliant
TCL	6.3.16	6.3.3.12.2	5.2.2.13	-	Compliant
TCTL ELTCTL	6.3.17 - 6.3.18	6.3.3.12.3	5.2.2.14	-	Compliant
Delay	6.3.21	6.3.3.10	5.2.2.11	55.7.2.5	Compliant
Delay Skew	6.3.22	6.3.3.11	5.2.2.12	55.7.2.6	Compliant
Coupling attenuation	6.3.19	6.3.3.12.4	5.2.2.15	-	Compliant
PSANEXT	6.3.24	6.3.3.13.2	5.2.2.16.1	55.7.3.1.1	Compliant
Average PSANEXT	6.3.25	6.3.3.13.3	5.2.2.16.2	55.7.3.1.1	Compliant
PSAACRF	6.3.28	6.3.3.13.4	5.2.2.17.1	55.7.3.2.1	Compliant
Average PSAACRF	6.3.29	6.3.3.13.5	5.2.2.17.2	55.7.3.2.1	Compliant
ACMC	-	-	-	55.7.3.3	Compliant

The worst case alien crosstalk margin computation (ACMC) of the cabling configuration is 37.90 dB for the individual pairs and 36.27 for the average of all four (4) pairs.

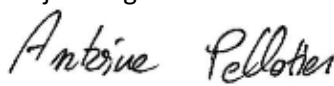
SECTION 6

PROJECT STATUS & ACTION

Issuance of this letter report completes the performance testing of this channel cabling configuration electrical transmission performance per the ANSI/TIA-568.2-D, ISO/IEC 11801-2, EN 50173-1 and IEEE 802.3 standards covered by Intertek Project No. G105346475 and quotation Qu-01303237.

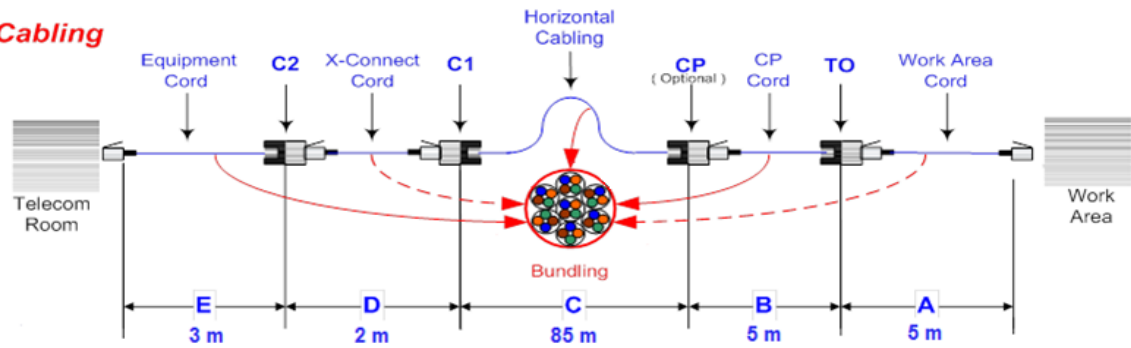
The test results are compliant with the requirements of the standard and sections referred to on pages 2 and 4. The testing was performed at Intertek located in Cortland, NY.

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:	27-February-2023	Date:	27-February-2023

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

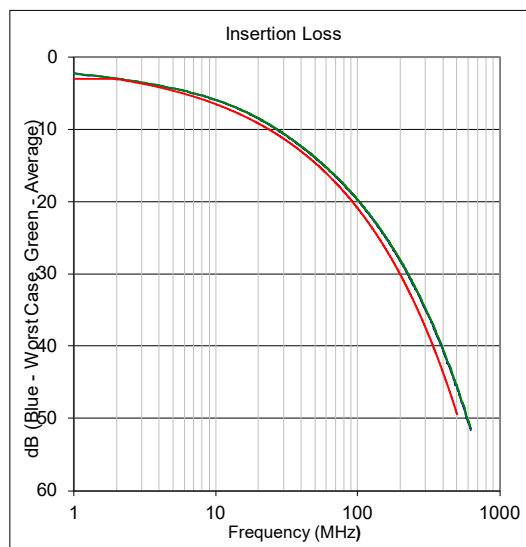
Office Cabling



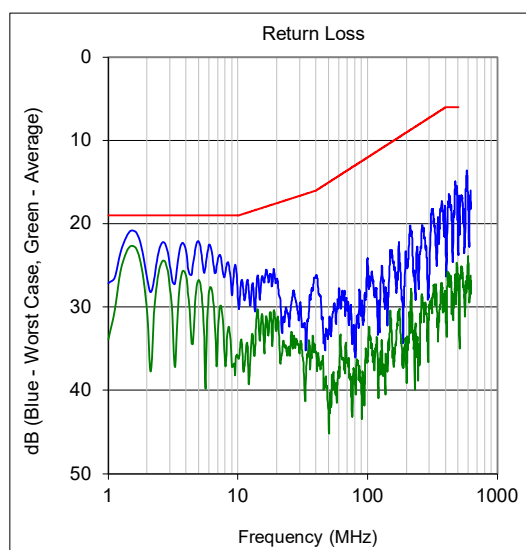
Label ID :
C1, C2, CP, TO: Belden 10GX RJ45 module (REVConnect /STP), 10GX PP 1U24 ports
A, B, D, E: Belden 10GX Patch cord or Pigtail
C: Belden 10GXE00, 10GXE02B, 10GXE02C, 10GXE02D and 10GXE02I

*ACMC	IEEE -Margin	Margin - TR	Margin - WA
ACMC Ind. (dB)	37.90	38.01	37.90
ACMC Avg. (dB)	36.27	36.47	36.27

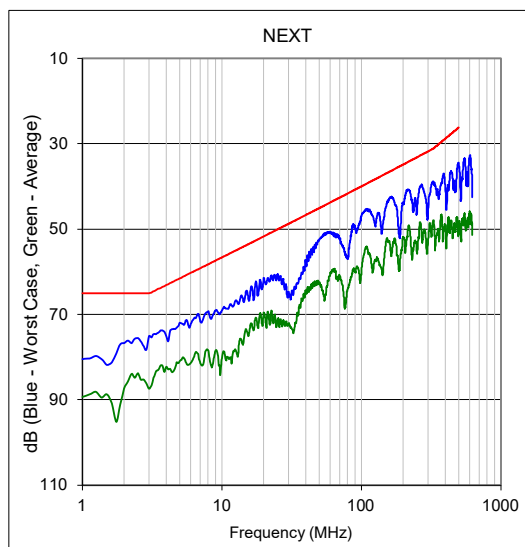
*ACMC : Alien Crosstalk Margin Computation



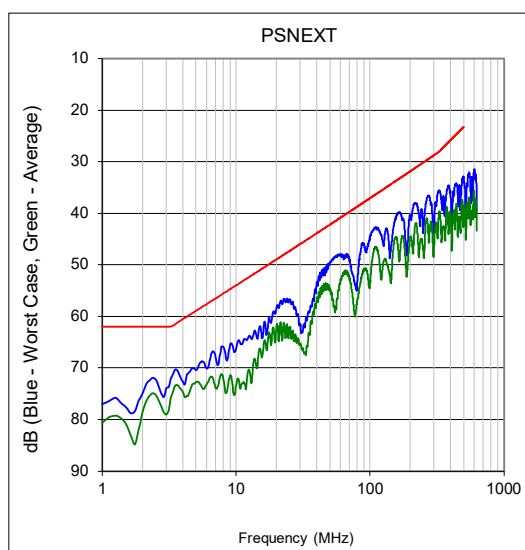
Insertion Loss			
Freq.	Worst Case	Average	Spec. T1A
1	2.2	2.2	3.0
4	3.9	3.9	4.2
8	5.3	5.3	5.8
10	5.9	5.9	6.5
16	7.5	7.5	8.2
20	8.5	8.5	9.2
25	9.6	9.6	10.3
31	10.8	10.8	11.5
62	15.5	15.5	16.3
100	19.8	19.7	20.9
160	25.2	25.1	26.8
200	28.2	28.1	30.1
250	31.8	31.6	33.9
300	35.0	34.8	37.4
350	37.9	37.7	40.7
400	40.7	40.5	43.7
450	43.2	43.0	46.6
500	45.6	45.5	49.4
550	48.1	47.9	na
600	50.5	50.3	na
625	51.6	51.4	na



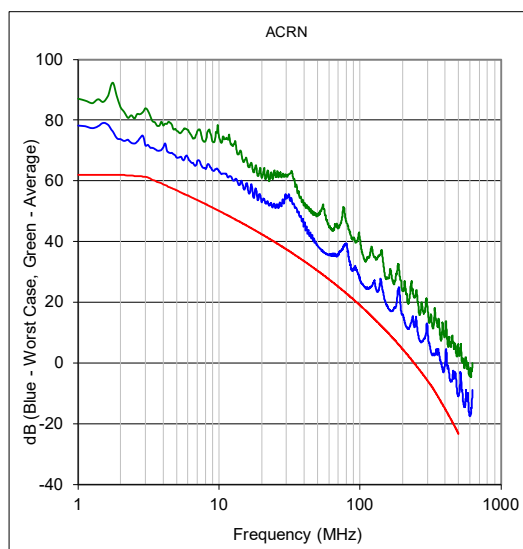
Return Loss			
Freq.	Worst Case	Average	Spec. T1A
1	27.1	33.9	19.0
4	23.5	26.5	19.0
8	25.8	37.1	19.0
10	28.8	36.0	19.0
16	27.0	35.6	18.0
20	26.6	31.8	17.5
25	31.8	35.8	17.0
31	32.2	34.8	16.5
62	29.9	33.6	14.1
100	24.2	36.5	12.0
160	25.2	36.4	10.0
200	24.8	39.1	9.0
250	24.6	35.7	8.0
300	25.8	29.7	7.2
350	19.9	34.1	6.6
400	22.8	31.6	6.0
450	23.2	28.7	6.0
500	23.7	26.6	6.0
550	18.4	27.8	na
600	19.1	25.5	na
625	16.0	26.2	na



NEXT			
Freq.	Worst Case	Average	Spec. T1A
1	80.4	89.3	65.0
4	75.0	82.2	63.0
8	69.2	78.5	58.2
10	69.0	80.2	56.6
16	64.6	72.4	53.2
20	61.4	69.5	51.6
25	60.6	71.9	50.0
31	66.1	72.9	48.5
62	51.1	59.9	43.4
100	46.8	60.1	39.9
160	42.6	53.2	36.4
200	43.8	51.9	34.8
250	46.1	55.4	33.1
300	46.9	53.2	31.7
350	40.7	50.9	30.3
400	40.2	49.4	28.7
450	37.5	51.8	27.3
500	34.8	49.5	26.1
550	33.4	46.3	na
600	32.7	46.0	na
625	42.5	51.3	na

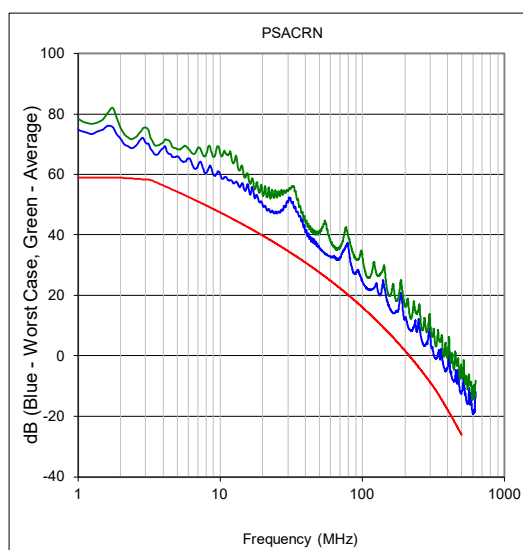


PSNEXT			
Freq.	Worst Case	Average	Spec. T1A
1	77.0	80.6	62.0
4	72.7	74.6	60.5
8	65.9	72.1	55.6
10	65.9	73.0	54.0
16	62.1	65.3	50.6
20	58.1	61.6	49.0
25	56.8	62.1	47.3
31	63.1	66.5	45.8
62	48.4	52.2	40.6
100	44.3	53.2	37.1
160	40.0	45.8	33.5
200	40.6	44.6	31.9
250	43.4	47.9	30.2
300	43.7	46.5	28.8
350	37.0	42.6	27.3
400	37.1	41.0	25.8
450	35.8	44.0	24.4
500	33.5	39.9	23.2
550	32.2	36.9	na
600	31.4	36.6	na
625	39.5	43.3	na



ACRN			
Freq.	Worst Case	Average	Spec. TIA*
1	78.2	87.1	62.0
4	71.1	78.3	58.9
8	63.9	73.2	52.3
10	63.1	74.3	50.1
16	57.1	64.9	45.0
20	53.0	61.1	42.5
25	51.1	62.3	39.8
31	55.4	62.2	37.0
62	35.7	44.5	27.1
100	27.2	40.4	19.0
160	17.7	28.2	9.7
200	15.8	23.8	4.6
250	14.8	23.9	-0.8
300	12.2	18.5	-5.7
350	3.0	13.3	-10.4
400	-0.3	9.0	-15.0
450	-5.6	8.9	-19.3
500	-10.6	4.1	-23.3
550	-14.3	-1.6	na
600	-17.4	-4.2	na
625	-8.7	-0.1	na

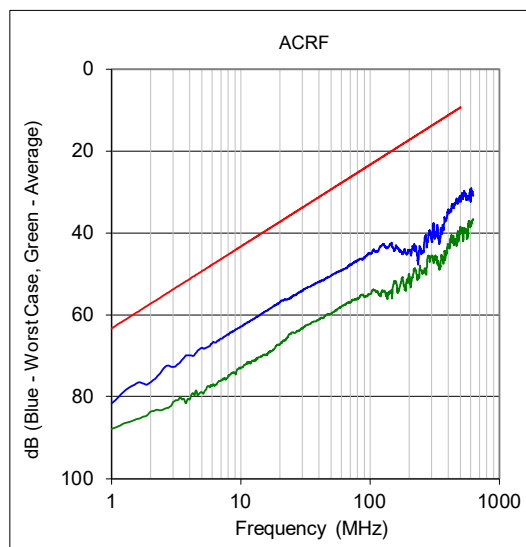
* ACR N derived from NEXT and IL limits



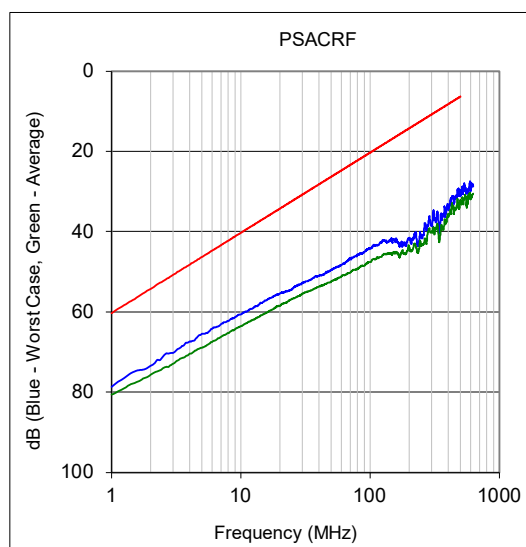
PSACRN			
Freq.	Worst Case	Average	Spec. TIA*
1	74.8	78.4	59.0
4	68.8	70.7	56.4
8	60.6	66.8	49.8
10	60.0	67.1	47.5
16	54.6	57.8	42.4
20	49.6	53.2	39.8
25	47.2	52.5	37.1
31	52.3	55.7	34.3
62	32.9	36.7	24.3
100	24.5	33.5	16.1
160	14.8	20.7	6.8
200	12.4	16.4	1.7
250	11.7	16.3	-3.8
300	8.9	11.7	-8.7
350	-0.7	4.9	-13.4
400	-3.4	0.5	-17.9
450	-7.3	1.0	-22.2
500	-12.0	-5.6	-26.2
550	-15.9	-11.0	na
600	-19.0	-13.7	na
625	-12.0	-8.1	na

* PSACR N derived from PSNEXT and IL limits

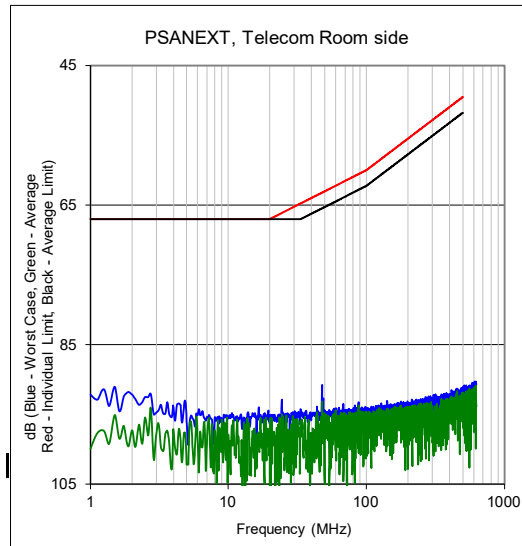




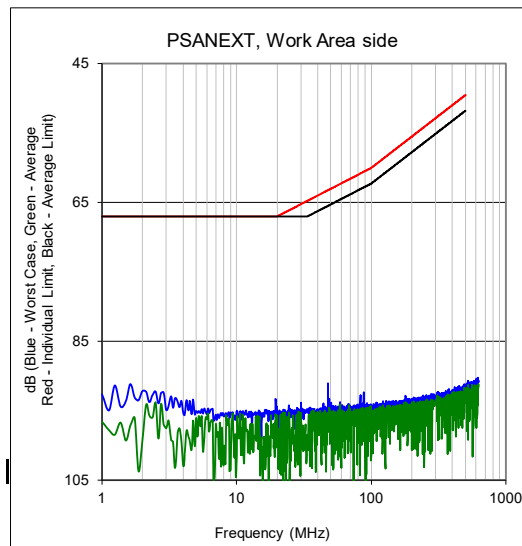
ACRF			
Freq.	Worst Case	Average	Spec. TIA
1	81.6	87.8	63.3
4	69.9	80.7	51.2
8	64.8	74.7	45.2
10	62.8	72.8	43.3
16	58.9	69.8	39.2
20	56.9	67.2	37.2
25	55.4	64.2	35.3
31	53.6	63.0	33.4
62	48.8	57.6	27.4
100	45.0	54.9	23.3
160	43.2	52.4	19.2
200	44.2	50.0	17.2
250	44.6	49.2	15.3
300	42.1	45.5	13.7
350	40.3	48.3	12.4
400	34.4	42.8	11.2
450	33.0	42.0	10.2
500	32.1	38.7	9.3
550	31.9	39.0	na
600	32.3	37.6	na
625	31.0	36.6	na



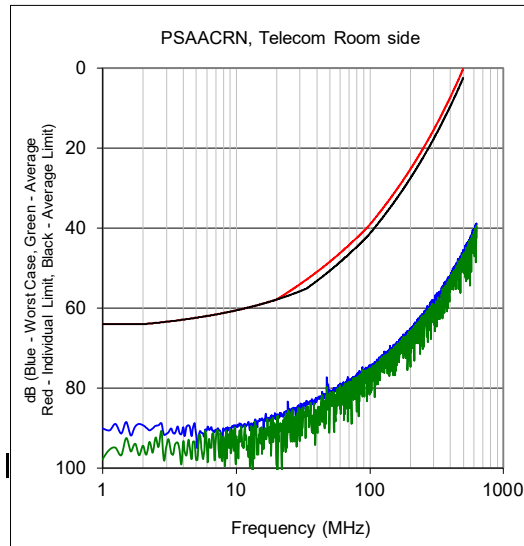
PSACRF			
Freq.	Worst Case	Average	Spec. TIA
1	78.7	80.7	60.3
4	67.4	70.4	48.2
8	62.2	65.2	42.2
10	60.6	63.5	40.3
16	56.9	60.1	36.2
20	55.4	58.4	34.2
25	54.2	56.7	32.3
31	52.5	55.2	30.4
62	47.9	50.8	24.4
100	44.2	47.5	20.3
160	42.0	45.1	16.2
200	41.8	43.7	14.2
250	41.6	43.4	12.3
300	38.3	39.9	10.7
350	36.9	40.3	9.4
400	33.8	35.6	8.2
450	32.2	34.3	7.2
500	30.9	32.5	6.3
550	29.9	31.8	na
600	29.8	31.2	na
625	28.8	30.5	na



PSANEXT, Telecom Room side			Spec. TIA	
Freq.	Worst Case	Average	Ind.	Average
1	92.1	100.0	67.0	67.0
4	93.7	97.2	67.0	67.0
8	95.4	97.4	67.0	67.0
10	95.5	98.0	67.0	67.0
16	99.0	102.7	67.0	67.0
20	96.3	107.8	67.0	67.0
25	95.2	97.8	66.0	67.0
31	94.8	97.3	65.1	67.0
62	95.4	97.5	62.1	64.3
100	94.4	94.8	60.0	62.3
160	93.6	94.9	56.9	59.2
200	93.9	94.1	55.5	57.7
250	93.5	98.7	54.0	56.3
300	94.1	95.9	52.8	55.1
350	93.3	97.2	51.8	54.1
400	92.4	93.5	51.0	53.2
450	92.4	92.9	50.2	52.5
500	91.0	92.3	49.5	51.8
550	91.6	93.0	na	na
600	90.7	91.8	na	na
625	90.6	93.9	na	na

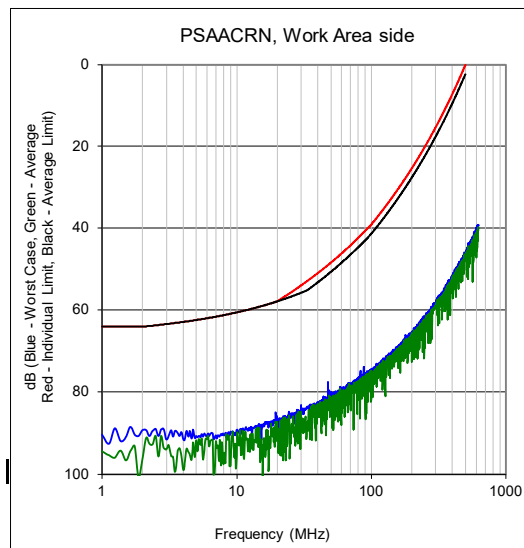


PSANEXT, Work Area side			Spec. TIA	
Freq.	Worst Case	Average	Ind.	Average
1	92.1	96.6	67.0	67.0
4	93.7	97.2	67.0	67.0
8	95.4	97.4	67.0	67.0
10	95.1	98.0	67.0	67.0
16	95.8	98.8	67.0	67.0
20	95.9	98.4	67.0	67.0
25	94.7	97.8	66.0	67.0
31	94.8	97.2	65.1	67.0
62	95.0	97.5	62.1	64.3
100	94.4	94.8	60.0	62.3
160	93.6	94.9	56.9	59.2
200	93.9	94.1	55.5	57.7
250	93.4	98.7	54.0	56.3
300	93.3	93.7	52.8	55.1
350	93.1	95.2	51.8	54.1
400	92.1	92.5	51.0	53.2
450	91.4	92.6	50.2	52.5
500	91.0	92.3	49.5	51.8
550	91.1	93.0	na	na
600	90.7	91.8	na	na
625	90.6	91.5	na	na



PSAACRN, Telecom Room side			Spec. TIA*	
Freq.	Worst Case	Average	Ind.	Average
1	89.9	97.8	64.0	64.0
4	89.8	93.3	62.8	62.8
8	90.1	92.1	61.2	61.2
10	89.6	92.1	60.5	60.5
16	91.5	95.2	58.8	58.8
20	87.8	99.3	57.8	57.8
25	85.7	88.2	55.8	56.7
31	84.1	86.5	53.6	55.5
62	79.9	82.0	45.7	48.0
100	74.6	75.1	39.1	41.3
160	68.4	69.8	30.2	32.4
200	65.7	66.0	25.3	27.6
250	61.9	67.1	20.1	22.3
300	59.4	61.1	15.4	17.7
350	55.8	59.5	11.2	13.4
400	52.1	53.0	7.2	9.5
450	49.3	49.9	3.6	5.8
500	45.4	46.8	0.1	2.4
550	43.6	45.1	na	na
600	40.2	41.5	na	na
625	39.2	42.5	na	na

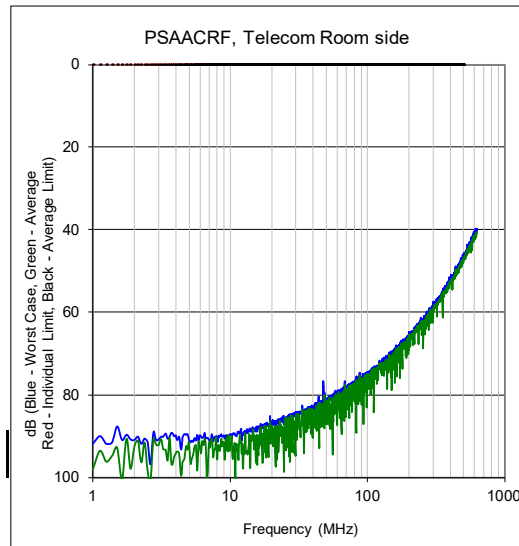
* PSAACRN derived from PSANEXT and IL limits



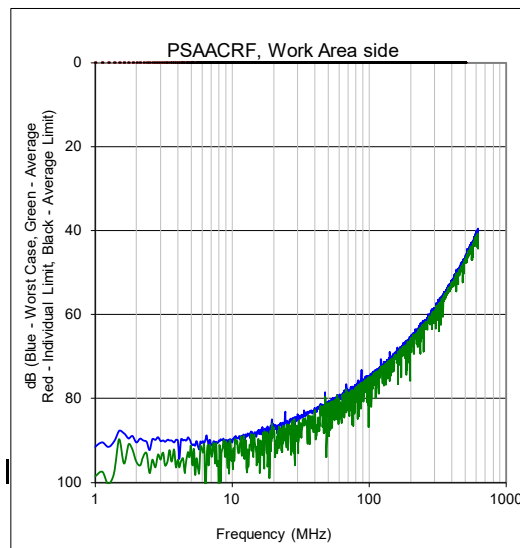
PSAACRN, Work Area side			Spec. TIA*	
Freq.	Worst Case	Average	Ind.	Average
1	90.4	94.4	64.0	64.0
4	91.4	99.0	62.8	62.8
8	90.4	97.5	61.2	61.2
10	89.2	97.0	60.5	60.5
16	88.3	91.3	58.8	58.8
20	87.4	90.0	57.8	57.8
25	85.1	88.9	55.8	56.7
31	84.0	86.4	53.6	55.5
62	79.5	83.8	45.7	48.0
100	74.9	81.3	39.1	41.3
160	69.0	70.0	30.2	32.4
200	66.9	72.5	25.3	27.6
250	62.1	69.3	20.1	22.3
300	58.5	58.9	15.4	17.7
350	55.4	57.5	11.2	13.4
400	51.7	52.0	7.2	9.5
450	48.2	49.6	3.6	5.8
500	46.8	47.5	0.1	2.4
550	43.1	46.6	na	na
600	40.8	42.9	na	na
625	39.2	40.1	na	na

* PSAACRN derived from PSANEXT and IL limits

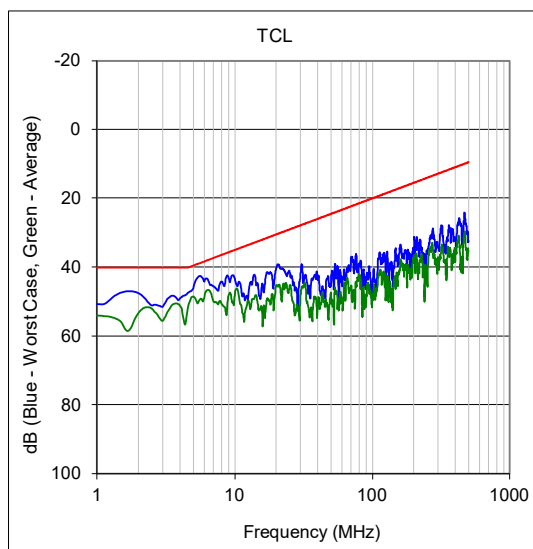




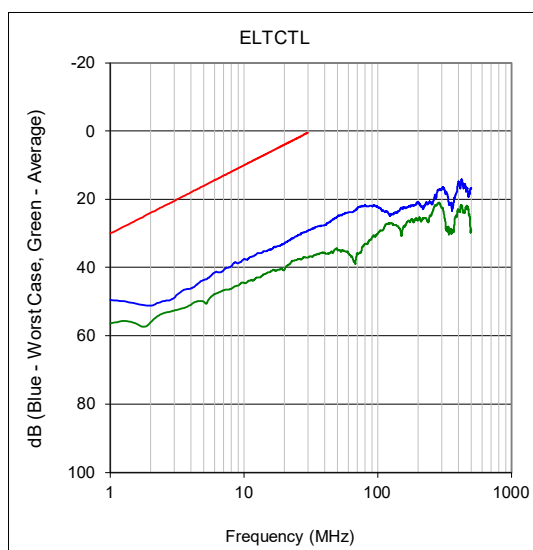
PSAACRF, Telecom Room side			Spec. TIA	
Freq.	Worst Case	Average	Ind.	Average
1	91.8	97.9	info	info
4	89.8	94.1	info	info
8	90.1	95.6	info	info
10	89.4	91.9	info	info
16	87.8	94.6	info	info
20	87.5	90.4	info	info
25	85.5	85.8	info	info
31	84.1	84.6	info	info
62	79.1	81.5	info	info
100	75.6	78.6	info	info
160	69.0	69.5	info	info
200	64.7	65.4	info	info
250	61.9	62.8	info	info
300	58.4	62.5	info	info
350	55.4	55.8	info	info
400	51.9	53.0	info	info
450	49.1	50.6	info	info
500	47.3	47.5	info	info
550	44.3	44.9	na	na
600	41.5	42.1	na	na
625	40.3	40.6	na	na



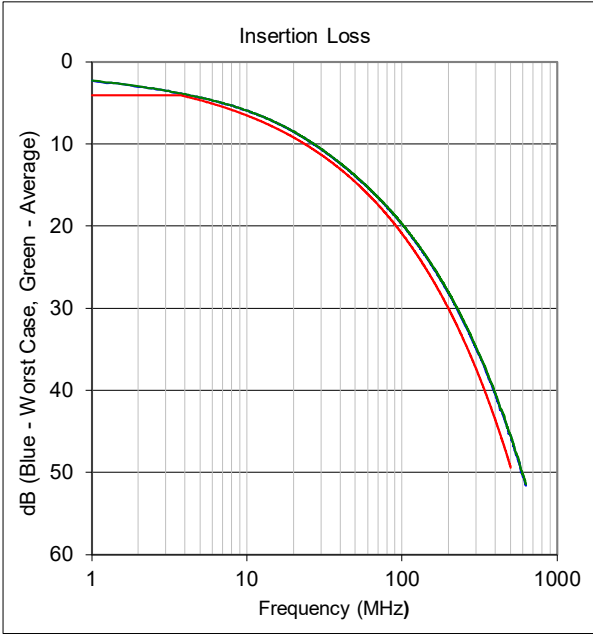
PSAACRF, Work Area side			Spec. TIA	
Freq.	Worst Case	Average	Ind.	Average
1	91.4	98.6	info	info
4	90.0	94.5	info	info
8	90.0	102.2	info	info
10	90.5	92.4	info	info
16	88.2	97.1	info	info
20	86.5	88.4	info	info
25	85.4	86.2	info	info
31	84.6	89.1	info	info
62	79.1	83.1	info	info
100	74.6	78.8	info	info
160	68.9	69.7	info	info
200	65.8	66.1	info	info
250	62.5	64.8	info	info
300	58.7	59.2	info	info
350	55.3	55.9	info	info
400	52.2	53.1	info	info
450	49.7	50.0	info	info
500	46.6	47.4	info	info
550	43.5	44.9	na	na
600	41.1	41.5	na	na
625	39.4	40.7	na	na



TCL			
Freq.	Worst Case	Average	Spec. TIA
1	49.4	55.8	40.0
4	48.2	50.9	40.0
8	44.2	49.0	36.5
10	42.4	47.3	35.0
16	43.1	53.4	31.9
20	40.4	46.5	30.5
25	41.1	46.4	29.0
31	39.9	45.7	27.6
62	42.0	48.8	23.1
100	41.6	47.3	20.0
160	33.8	38.6	16.9
200	35.1	38.5	15.5
250	35.8	40.7	14.0
300	29.9	38.6	12.8
350	31.9	36.8	11.8
400	31.7	38.5	11.0
450	33.1	37.2	10.2
500	32.4	36.7	9.5

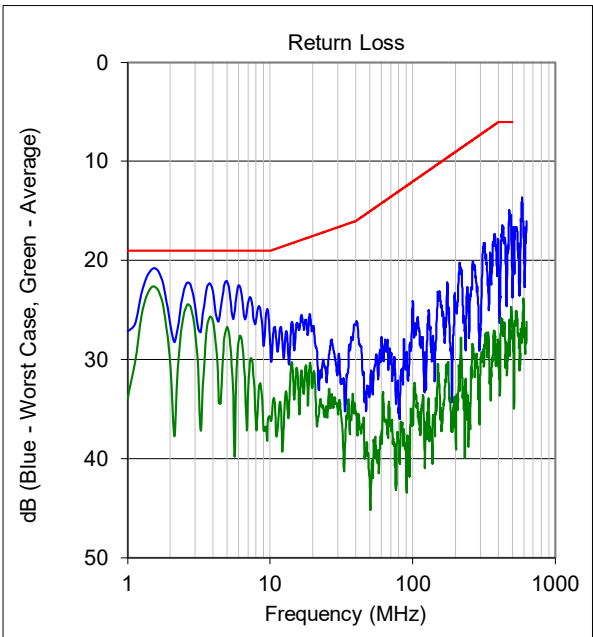


ELTCTL			
Freq.	Worst Case	Average	Spec. TIA
1	49.5	56.4	30.0
4	46.1	50.9	18.0
8	39.6	46.2	11.9
10	37.5	44.4	10.0
16	34.6	41.1	5.9
20	32.9	40.7	4.0
25	30.6	37.7	2.0
31	28.9	36.7	n/s
62	23.7	36.4	n/s
100	22.3	30.0	n/s
160	22.5	27.9	n/s
200	20.9	26.0	n/s
250	20.7	24.7	n/s
300	17.2	22.4	n/s
350	21.4	29.6	n/s
400	15.2	23.0	n/s
450	15.5	23.2	n/s
500	16.9	29.3	n/s



Insertion Loss			
Freq.	Worst Case	Average	Specs *
1	2.2	2.2	4.0
4	3.9	3.9	4.2
8	5.3	5.3	5.8
10	5.9	5.9	6.5
16	7.5	7.5	8.2
20	8.5	8.5	9.2
25	9.6	9.6	10.3
31	10.8	10.8	11.5
62	15.5	15.5	16.3
100	19.8	19.7	20.9
160	25.2	25.1	26.8
200	28.2	28.1	30.1
250	31.8	31.6	33.9
300	35.0	34.8	37.4
350	37.9	37.7	40.7
400	40.7	40.5	43.7
450	43.2	43.0	46.6
500	45.6	45.5	49.4
550	48.1	47.9	na
600	50.5	50.3	na
625	51.6	51.4	na

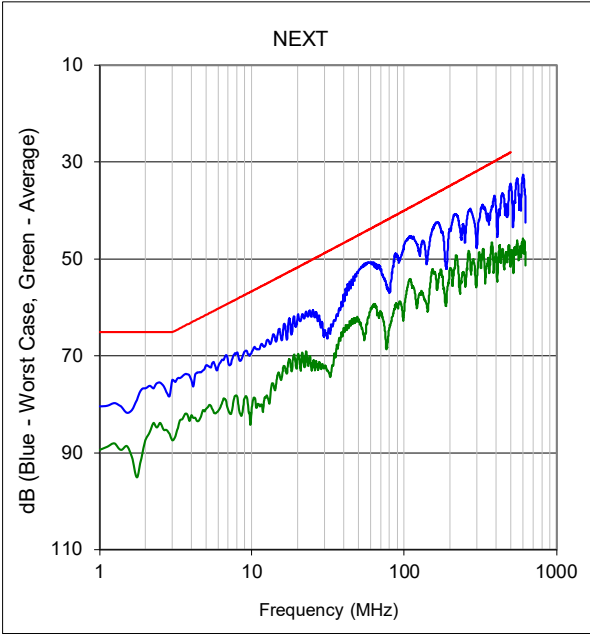
(*) ISO/IEC 11801-1 and EN 50173-1 Specs used



Return Loss			
Freq.	Worst Case	Average	Specs *
1	27.1	33.9	19.0
4	23.5	26.5	19.0
8	25.8	37.1	19.0
10	28.8	36.0	19.0
16	27.0	35.6	18.0
20	26.6	31.8	17.5
25	31.8	35.8	17.0
31	32.2	34.8	16.5
62	29.9	33.6	14.1
100	24.2	36.5	12.0
160	25.2	36.4	10.0
200	24.8	39.1	9.0
250	24.6	35.7	8.0
300	25.8	29.7	7.2
350	19.9	34.1	6.6
400	22.8	31.6	6.0
450	23.2	28.7	6.0
500	23.7	26.6	6.0
550	18.4	27.8	na
600	19.1	25.5	na
625	16.0	26.2	na

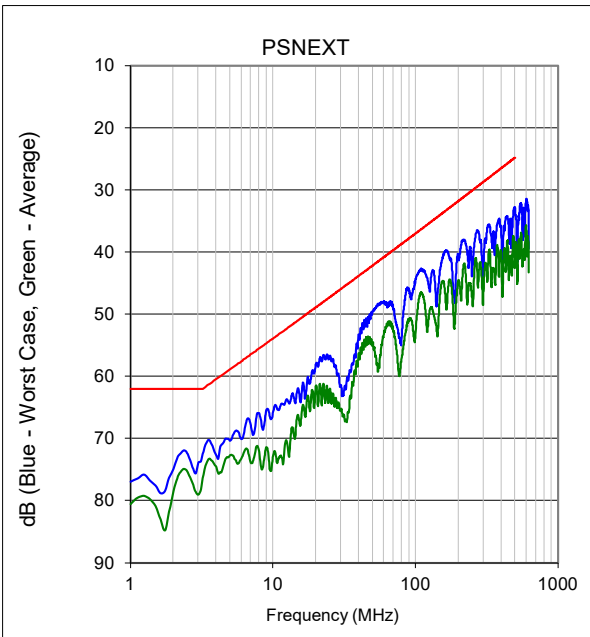
(*) ISO/IEC 11801-1 and EN 50173-1 Specs used





NEXT			
Freq.	Worst Case	Average	Specs *
1	80.4	89.3	65.0
4	75.0	82.2	63.0
8	69.2	78.5	58.2
10	69.0	80.2	56.6
16	64.6	72.4	53.2
20	61.4	69.5	51.6
25	60.6	71.9	50.0
31	66.1	72.9	48.5
62	51.1	59.9	43.4
100	46.8	60.1	39.9
160	42.6	53.2	36.4
200	43.8	51.9	34.8
250	46.1	55.4	33.1
300	46.9	53.2	31.7
350	40.7	50.9	30.6
400	40.2	49.4	29.6
450	37.5	51.8	28.7
500	34.8	49.5	27.9
550	33.4	46.3	na
600	32.7	46.0	na
625	42.5	51.3	na

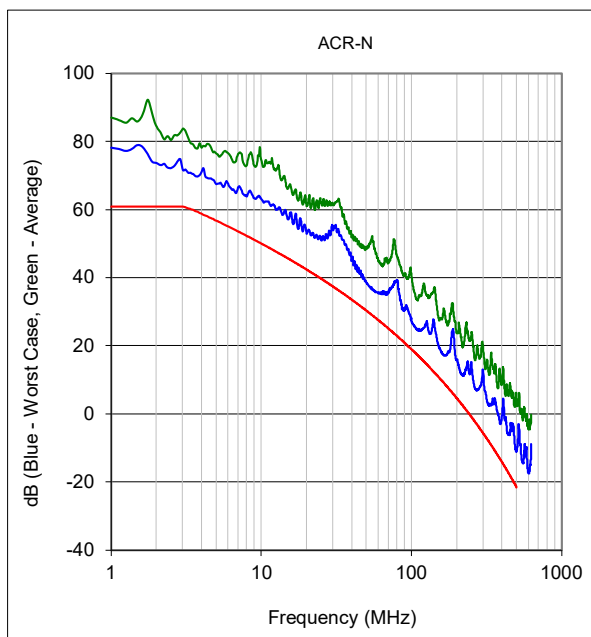
(*) ISO/IEC 11801-1 and EN 50173-1 Specs used



PSNEXT			
Freq.	Worst Case	Average	Specs *
1	77.0	80.6	62.0
4	72.7	74.6	60.5
8	65.9	72.1	55.6
10	65.9	73.0	54.0
16	62.1	65.3	50.6
20	58.1	61.6	49.0
25	56.8	62.1	47.3
31	63.1	66.5	45.8
62	48.4	52.2	40.6
100	44.3	53.2	37.1
160	40.0	45.8	33.5
200	40.6	44.6	31.9
250	43.4	47.9	30.2
300	43.7	46.5	28.8
350	37.0	42.6	27.6
400	37.1	41.0	26.6
450	35.8	44.0	25.7
500	33.5	39.9	24.8
550	32.2	36.9	na
600	31.4	36.6	na
625	39.5	43.3	na

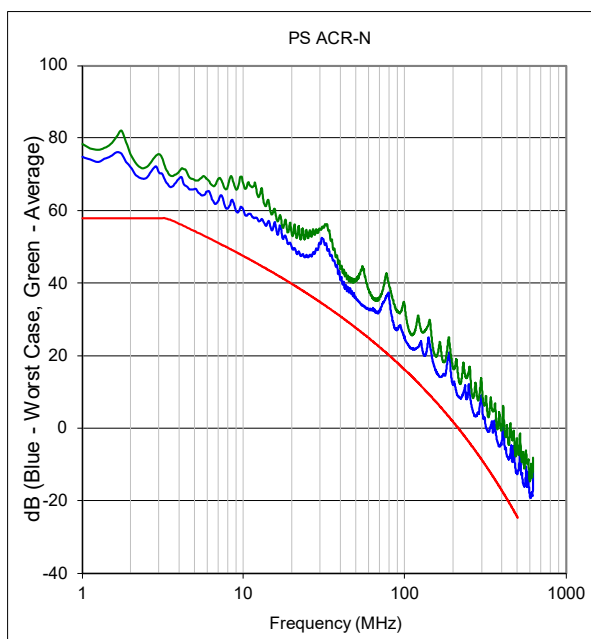
(*) ISO/IEC 11801-1 and EN 50173-1 Specs used





ACR-N			
Freq.	Worst Case	Average	Specs *
1	78.2	87.1	61.0
4	71.1	78.3	58.9
8	63.9	73.2	52.3
10	63.1	74.3	50.1
16	57.1	64.9	45.0
20	53.0	61.1	42.5
25	51.1	62.3	39.8
31	55.4	62.2	37.0
62	35.7	44.5	27.1
100	27.2	40.4	19.0
160	17.7	28.2	9.7
200	15.8	23.8	4.6
250	14.8	23.9	-0.8
300	12.2	18.5	-5.7
350	3.0	13.3	-10.1
400	-0.3	9.0	-14.2
450	-5.6	8.9	-17.9
500	-10.6	4.1	-21.5
550	-14.3	-1.6	na
600	-17.4	-4.2	na
625	-8.7	-0.1	na

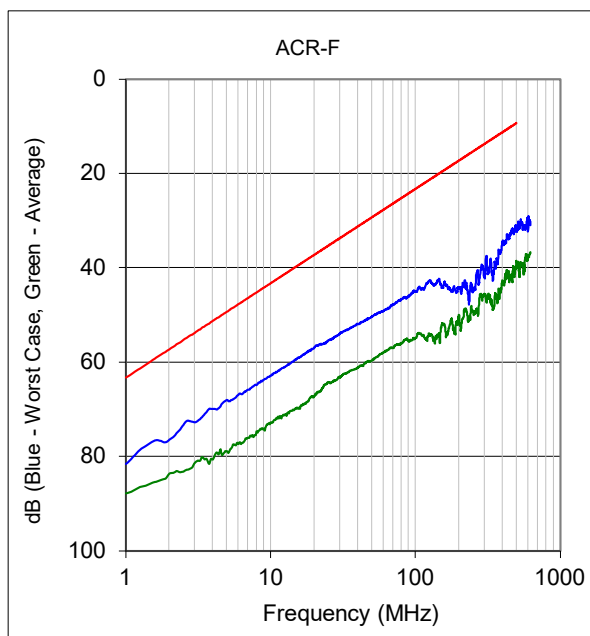
(*) ISO/IEC 11801-1 and EN 50173-1 Specs used



PS ACR-N			
Freq.	Worst Case	Average	Specs *
1	74.8	78.4	58.0
4	68.8	70.7	56.4
8	60.6	66.8	49.8
10	60.0	67.1	47.5
16	54.6	57.8	42.4
20	49.6	53.2	39.8
25	47.2	52.5	37.1
31	52.3	55.7	34.3
62	32.9	36.7	24.3
100	24.5	33.5	16.1
160	14.8	20.7	6.8
200	12.4	16.4	1.7
250	11.7	16.3	-3.8
300	8.9	11.7	-8.7
350	-0.7	4.9	-13.1
400	-3.4	0.5	-17.2
450	-7.3	1.0	-21.0
500	-12.0	-5.6	-24.6
550	-15.9	-11.0	na
600	-19.0	-13.7	na
625	-12.0	-8.1	na

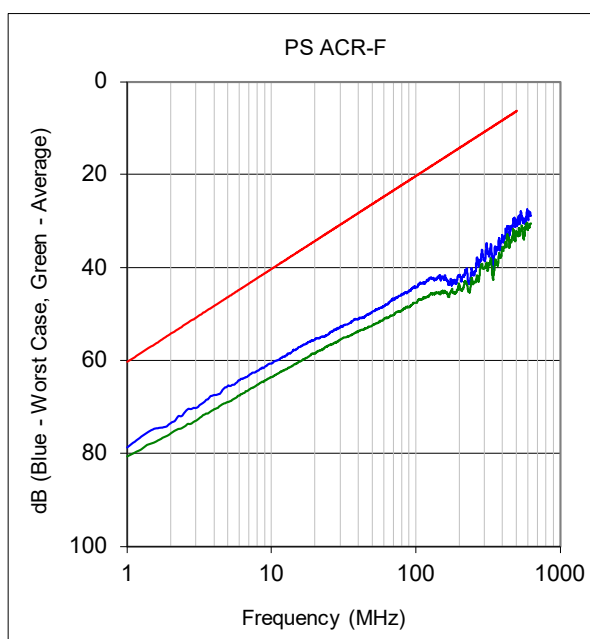
(*) ISO/IEC 11801-1 and EN 50173-1 Specs used





ACR-F			
Freq.	Worst Case	Average	Specs *
1	81.6	87.8	63.3
4	69.9	80.7	51.2
8	64.8	74.7	45.2
10	62.8	72.8	43.3
16	58.9	69.8	39.2
20	56.9	67.2	37.2
25	55.4	64.2	35.3
31	53.6	63.0	33.4
62	48.8	57.6	27.4
100	45.0	54.9	23.3
160	43.2	52.4	19.2
200	44.2	50.0	17.2
250	44.6	49.2	15.3
300	42.1	45.5	13.7
350	40.3	48.3	12.4
400	34.4	42.8	11.2
450	33.0	42.0	10.2
500	32.1	38.7	9.3
550	31.9	39.0	na
600	32.3	37.6	na
625	31.0	36.6	na

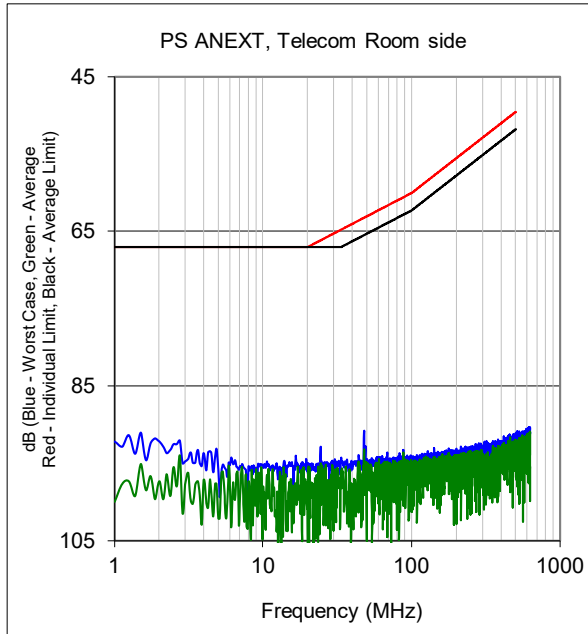
(*) ISO/IEC 11801-1 and EN 50173-1 Specs used



PS ACR-F			
Freq.	Worst Case	Average	Specs *
1	78.7	80.7	60.3
4	67.4	70.4	48.2
8	62.2	65.2	42.2
10	60.6	63.5	40.3
16	56.9	60.1	36.2
20	55.4	58.4	34.2
25	54.2	56.7	32.3
31	52.5	55.2	30.4
62	47.9	50.8	24.4
100	44.2	47.5	20.3
160	42.0	45.1	16.2
200	41.8	43.7	14.2
250	41.6	43.4	12.3
300	38.3	39.9	10.7
350	36.9	40.3	9.4
400	33.8	35.6	8.2
450	32.2	34.3	7.2
500	30.9	32.5	6.3
550	29.9	31.8	na
600	29.8	31.2	na
625	28.8	30.5	na

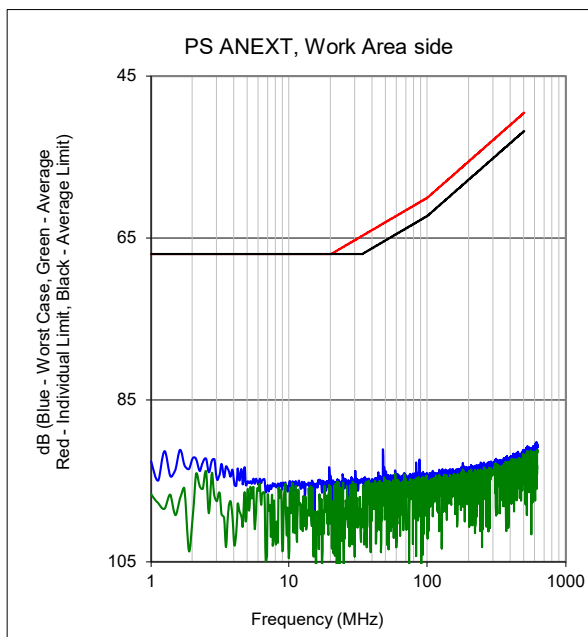
(*) ISO/IEC 11801-1 and EN 50173-1 Specs used





PS ANEXT, Telecom Room side			Specs *	
Freq.	Worst Case	Average	Ind.	Average
1	92.1	100.0	67.0	67.0
4	93.7	97.2	67.0	67.0
8	95.4	97.4	67.0	67.0
10	95.5	98.0	67.0	67.0
16	99.0	102.7	67.0	67.0
20	96.3	107.8	67.0	67.0
25	95.2	97.8	66.0	67.0
31	94.8	97.3	65.1	67.0
62	95.4	97.5	62.1	64.3
100	94.4	94.8	60.0	62.3
160	93.6	94.9	56.9	59.2
200	93.9	94.1	55.5	57.7
250	93.5	98.7	54.0	56.3
300	94.1	95.9	52.8	55.1
350	93.3	97.2	51.8	54.1
400	92.4	93.5	51.0	53.2
450	92.4	92.9	50.2	52.5
500	91.0	92.3	49.5	51.8
550	91.6	93.0	na	na
600	90.7	91.8	na	na
625	90.6	93.9	na	na

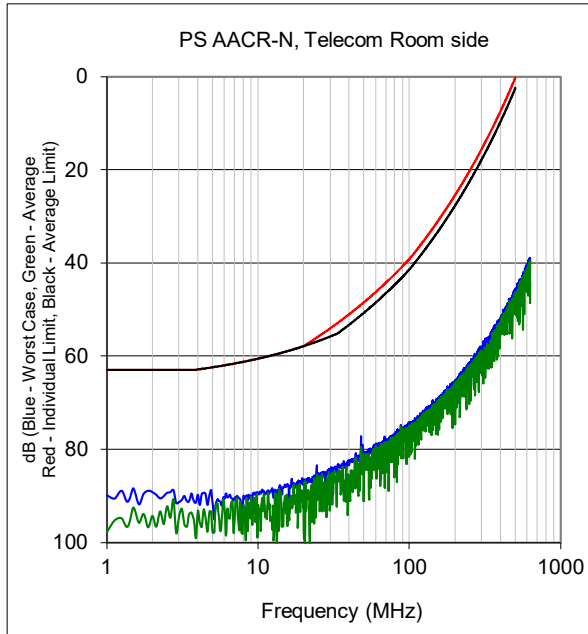
(*) ISO/IEC 11801-1 and EN 50173-1 Specs used



PS ANEXT, Work Area side			Specs *	
Freq.	Worst Case	Average	Ind.	Average
1	92.6	96.6	67.0	67.0
4	95.3	102.9	67.0	67.0
8	95.7	102.8	67.0	67.0
10	95.1	102.9	67.0	67.0
16	95.8	98.8	67.0	67.0
20	95.9	98.4	67.0	67.0
25	94.7	98.4	66.0	67.0
31	94.8	97.2	65.1	67.0
62	95.0	99.3	62.1	64.3
100	94.7	101.0	60.0	62.3
160	94.2	95.1	56.9	59.2
200	95.1	100.6	55.5	57.7
250	93.4	100.9	54.0	56.3
300	93.3	93.7	52.8	55.1
350	93.1	95.2	51.8	54.1
400	92.1	92.5	51.0	53.2
450	91.4	92.6	50.2	52.5
500	92.3	93.0	49.5	51.8
550	91.1	94.5	na	na
600	90.9	93.2	na	na
625	90.8	91.5	na	na

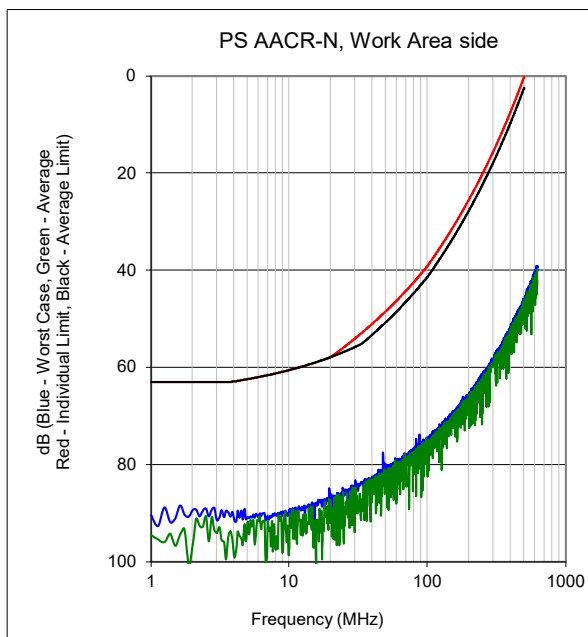
(*) ISO/IEC 11801-1 and EN 50173-1 Specs used





PS AACR-N, Telecom Room side			Specs *	
Freq.	Worst Case	Average	Ind.	Average
1	89.9	97.8	63.0	63.0
4	89.8	93.3	62.8	62.8
8	90.1	92.1	61.2	61.2
10	89.6	92.1	60.5	60.5
16	91.5	95.2	58.8	58.8
20	87.8	99.3	57.8	57.8
25	85.7	88.2	55.8	56.7
31	84.1	86.5	53.6	55.5
62	79.9	82.0	45.7	48.0
100	74.6	75.1	39.1	41.3
160	68.4	69.8	30.2	32.4
200	65.7	66.0	25.3	27.6
250	61.9	67.1	20.1	22.3
300	59.4	61.1	15.4	17.7
350	55.8	59.5	11.2	13.4
400	52.1	53.0	7.2	9.5
450	49.3	49.9	3.6	5.8
500	45.4	46.8	0.1	2.4
550	43.6	45.1	na	na
600	40.2	41.5	na	na
625	39.2	42.5	na	na

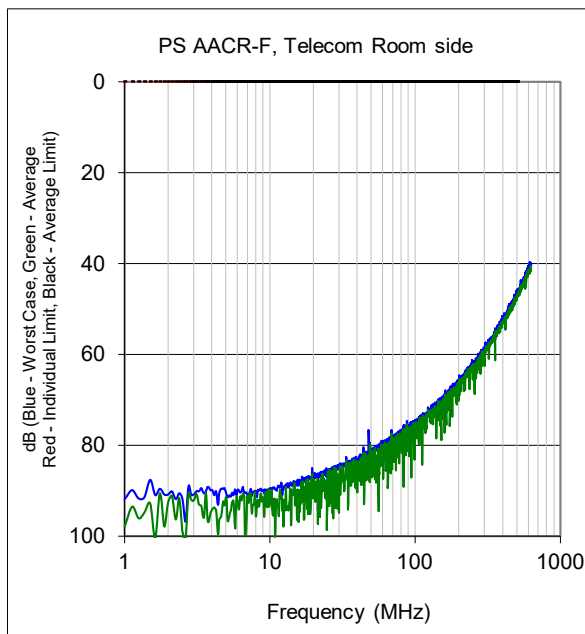
(*) ISO/IEC 11801-1 and EN 50173-1 Specs used



PS AACR-N, Work Area side			Specs *	
Freq.	Worst Case	Average	Ind.	Average
1	90.4	94.4	63.0	63.0
4	91.4	99.0	62.8	62.8
8	90.4	97.5	61.2	61.2
10	89.2	97.0	60.5	60.5
16	88.3	91.3	58.8	58.8
20	87.4	90.0	57.8	57.8
25	85.1	88.9	55.8	56.7
31	84.0	86.4	53.6	55.5
62	79.5	83.8	45.7	48.0
100	74.9	81.3	39.1	41.3
160	69.0	70.0	30.2	32.4
200	66.9	72.5	25.3	27.6
250	62.1	69.3	20.1	22.3
300	58.5	58.9	15.4	17.7
350	55.4	57.5	11.2	13.4
400	51.7	52.0	7.2	9.5
450	48.2	49.6	3.6	5.8
500	46.8	47.5	0.1	2.4
550	43.1	46.6	na	na
600	40.8	42.9	na	na
625	39.2	40.1	na	na

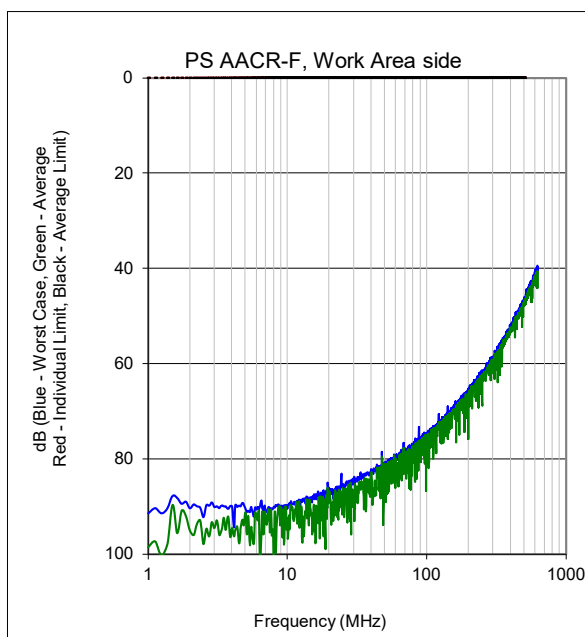
(*) ISO/IEC 11801-1 and EN 50173-1 Specs used





PS AACR-F, Telecom Room side			Specs *	
Freq.	Worst Case	Average	Ind.	Average
1	91.8	97.9	info	info
4	89.8	94.1	info	info
8	90.1	95.6	info	info
10	89.4	91.9	info	info
16	87.8	94.6	info	info
20	87.5	90.4	info	info
25	85.5	85.8	info	info
31	84.1	84.6	info	info
62	79.1	81.5	info	info
100	75.6	78.6	info	info
160	69.0	69.5	info	info
200	64.7	65.4	info	info
250	61.9	62.8	info	info
300	58.4	62.5	info	info
350	55.4	55.8	info	info
400	51.9	53.0	info	info
450	49.1	50.6	info	info
500	47.3	47.5	info	info
550	44.3	44.9	na	na
600	41.5	42.1	na	na
625	40.3	40.6	na	na

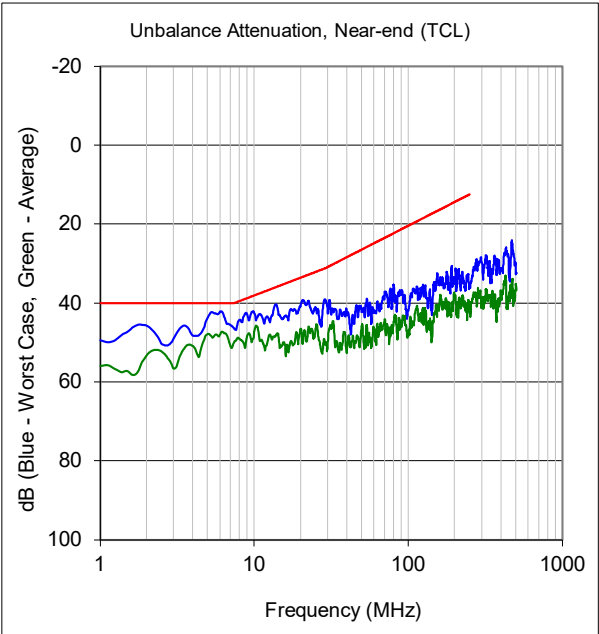
(*) ISO/IEC 11801-1 and EN 50173-1 Specs used



PS AACR-F, Work Area side			Specs *	
Freq.	Worst Case	Average	Ind.	Average
1	91.4	98.6	info	info
4	90.0	94.5	info	info
8	90.0	102.2	info	info
10	90.5	92.4	info	info
16	88.2	97.1	info	info
20	86.5	88.4	info	info
25	85.4	86.2	info	info
31	84.6	89.1	info	info
62	79.1	83.1	info	info
100	74.6	78.8	info	info
160	68.9	69.7	info	info
200	65.8	66.1	info	info
250	62.5	64.8	info	info
300	58.7	59.2	info	info
350	55.3	55.9	info	info
400	52.2	53.1	info	info
450	49.7	50.0	info	info
500	46.6	47.4	info	info
550	43.5	44.9	na	na
600	41.1	41.5	na	na
625	39.4	40.7	na	na

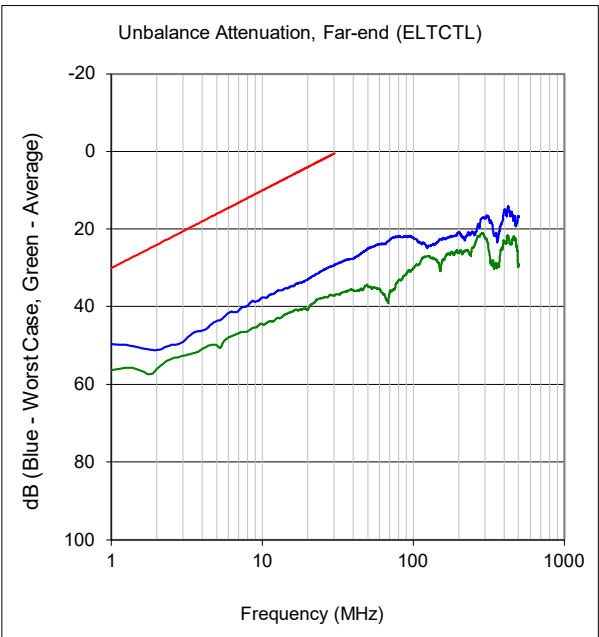
(*) ISO/IEC 11801-1 and EN 50173-1 Specs used





Unbalance Attenuation			
Freq.	Worst Case	Average	Specs *
1	50.6	54.1	40.0
4	45.2	49.5	36.1
8	41.9	50.6	34.5
10	42.9	47.6	33.9
16	40.4	45.9	32.8
20	42.3	46.0	32.3
25	42.3	47.4	31.8
31	46.1	53.5	31.4
62	46.1	51.9	29.5
100	46.9	51.4	27.9
155	45.5	51.6	26.6
200	46.5	53.3	14.3
250	39.8	52.1	12.3
300	41.6	47.2	info
350	43.5	51.0	info
400	42.8	45.7	info
450	42.3	44.5	info
500	40.8	44.1	info

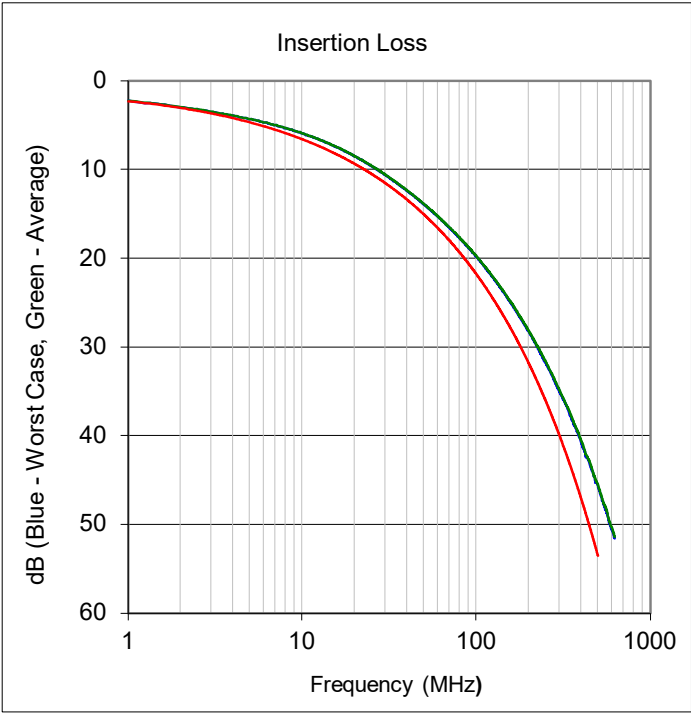
(*) ISO/IEC 11801-1 and EN 50173-1 Specs used



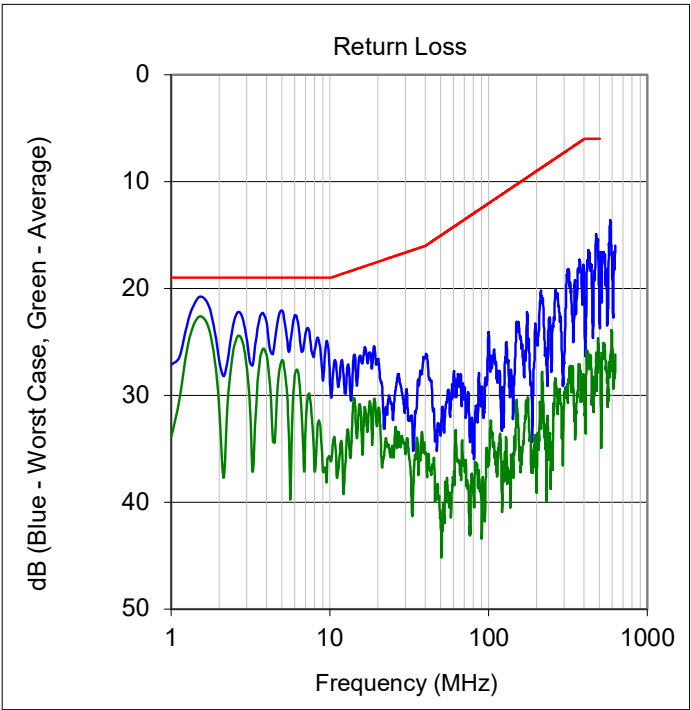
Unbalance Attenuation, Far-end			
Freq.	Worst Case	Average	Specs *
1	49.5	56.4	30.0
4	35.8	42.7	7.5
8	33.9	40.8	5.4
10	33.5	40.4	4.5
16	31.8	38.6	3.0
20	30.9	37.8	2.4
25	30.3	37.4	1.7
31	29.8	37.2	n/s
62	28.1	36.2	n/s
100	27.1	35.9	n/s
155	25.5	34.5	n/s
200	24.7	35.0	n/s
250	24.2	35.1	n/s
300	23.9	35.3	n/s
350	23.7	36.1	n/s
400	23.8	36.8	n/s
450	23.7	37.2	n/s
500	23.4	38.4	n/s

(*) ISO/IEC 11801-1 and EN 50173-1 Specs used



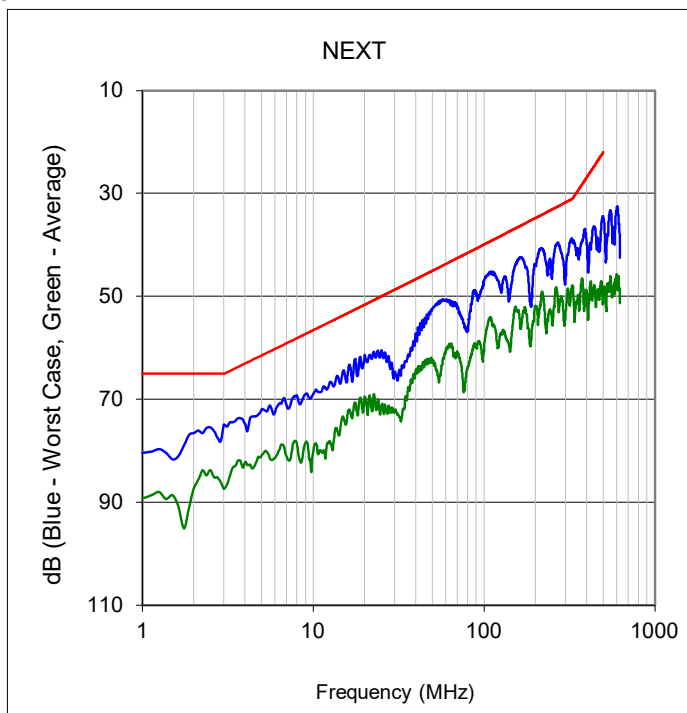


Insertion Loss			
Freq.	Worst Case	Average	Spec. IEEE
1	2.2	2.2	2.3
4	3.9	3.9	4.2
8	5.3	5.3	5.9
10	5.9	5.9	6.6
16	7.5	7.5	8.3
20	8.5	8.5	9.3
25	9.6	9.6	10.5
31	10.8	10.8	11.7
62	15.5	15.5	16.8
100	19.8	19.7	21.8
160	25.2	25.1	28.1
200	28.2	28.1	31.8
250	31.8	31.6	36.0
300	35.0	34.8	39.9
350	37.9	37.7	43.5
400	40.7	40.5	47.0
450	43.2	43.0	50.3
500	45.6	45.5	53.5
550	48.1	47.9	na
600	50.5	50.3	na
625	51.6	51.4	na

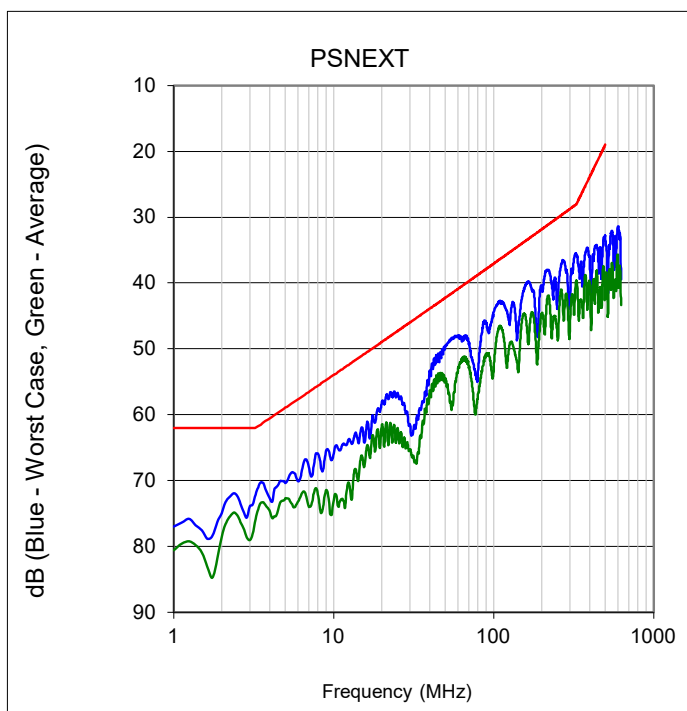


Return Loss			
Freq.	Worst Case	Average	Spec. IEEE
1	27.1	33.9	19.0
4	23.5	26.5	19.0
8	25.8	37.1	19.0
10	28.8	36.0	19.0
16	27.0	35.6	18.0
20	26.6	31.8	17.5
25	31.8	35.8	17.0
31	32.2	34.8	16.5
62	29.9	33.6	14.1
100	24.2	36.5	12.0
160	25.2	36.4	10.0
200	24.8	39.1	9.0
250	24.6	35.7	8.0
300	25.8	29.7	7.2
350	19.9	34.1	6.6
400	22.8	31.6	6.0
450	23.2	28.7	6.0
500	23.7	26.6	6.0
550	18.4	27.8	na
600	19.1	25.5	na
625	16.0	26.2	na

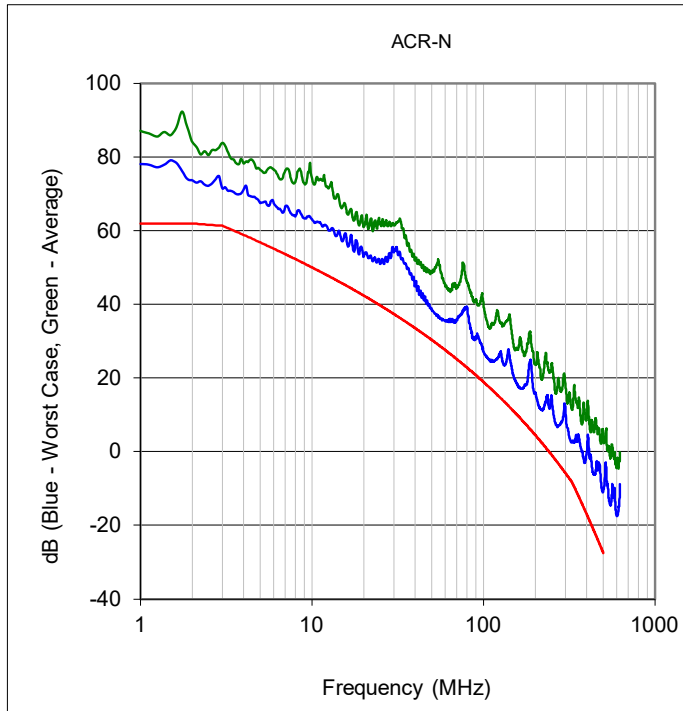




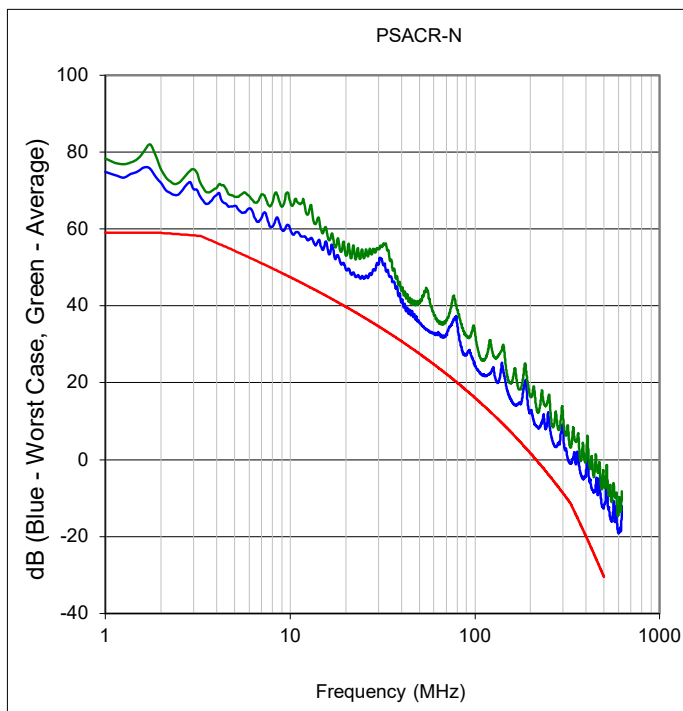
NEXT			
Freq.	Worst Case	Average	Spec. IEEE
1	80.4	89.3	65.0
4	75.0	82.2	63.0
8	69.2	78.5	58.2
10	69.0	80.2	56.6
16	64.6	72.4	53.2
20	61.4	69.5	51.6
25	60.6	71.9	50.0
31	66.1	72.9	48.5
62	51.1	59.9	43.4
100	46.8	60.1	39.9
160	42.6	53.2	36.4
200	43.8	51.9	34.8
250	46.1	55.4	33.1
300	46.9	53.2	31.7
350	40.7	50.9	29.7
400	40.2	49.4	26.8
450	37.5	51.8	24.3
500	34.8	49.5	22.0
550	33.4	46.3	na
600	32.7	46.0	na
625	42.5	51.3	na



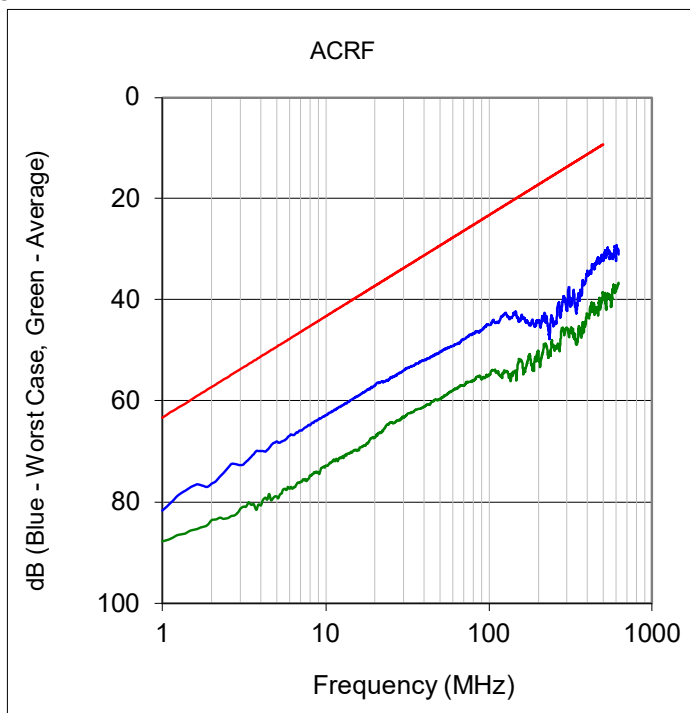
PSNEXT			
Freq.	Worst Case	Average	Spec. IEEE
1	77.0	80.6	62.0
4	72.7	74.6	60.5
8	65.9	72.1	55.6
10	65.9	73.0	54.0
16	62.1	65.3	50.6
20	58.1	61.6	49.0
25	56.8	62.1	47.3
31	63.1	66.5	45.8
62	48.4	52.2	40.6
100	44.3	53.2	37.1
160	40.0	45.8	33.5
200	40.6	44.6	31.9
250	43.4	47.9	30.2
300	43.7	46.5	28.8
350	37.0	42.6	26.7
400	37.1	41.0	23.8
450	35.8	44.0	21.3
500	33.5	39.9	19.0
550	32.2	36.9	na
600	31.4	36.6	na
625	39.5	43.3	na



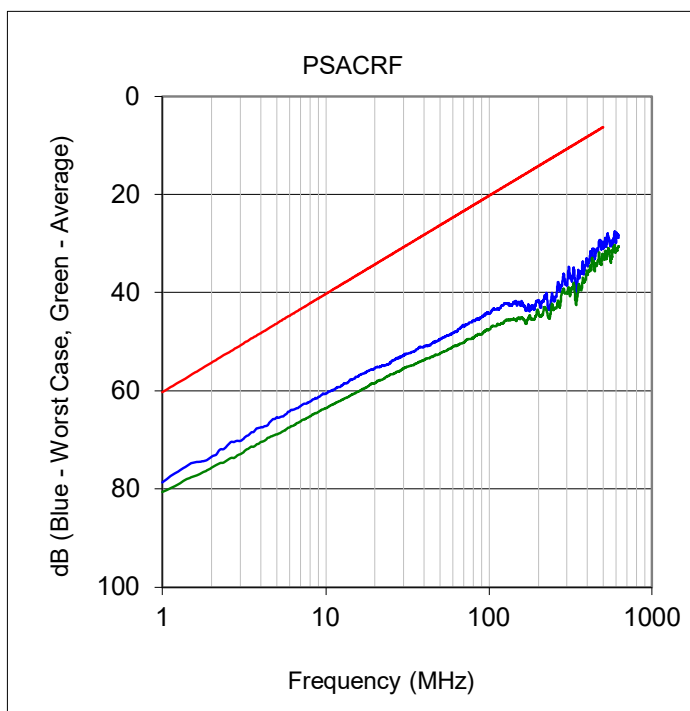
ACR-N			
Freq.	Worst Case	Average	Spec. IEEE
1	78.2	87.1	62.0
4	71.1	78.3	58.9
8	63.9	73.2	52.3
10	63.1	74.3	50.1
16	57.1	64.9	45.0
20	53.0	61.1	42.5
25	51.1	62.3	39.8
31	55.4	62.2	37.0
62	35.7	44.5	27.1
100	27.2	40.4	19.0
160	17.7	28.2	9.7
200	15.8	23.8	4.6
250	14.8	23.9	-0.8
300	12.2	18.5	-5.7
350	3.0	13.3	-11.0
400	-0.3	9.0	-16.9
450	-5.6	8.9	-22.4
500	-10.6	4.1	-27.4
550	-14.3	-1.6	na
600	-17.4	-4.2	na
625	-8.7	-0.1	na



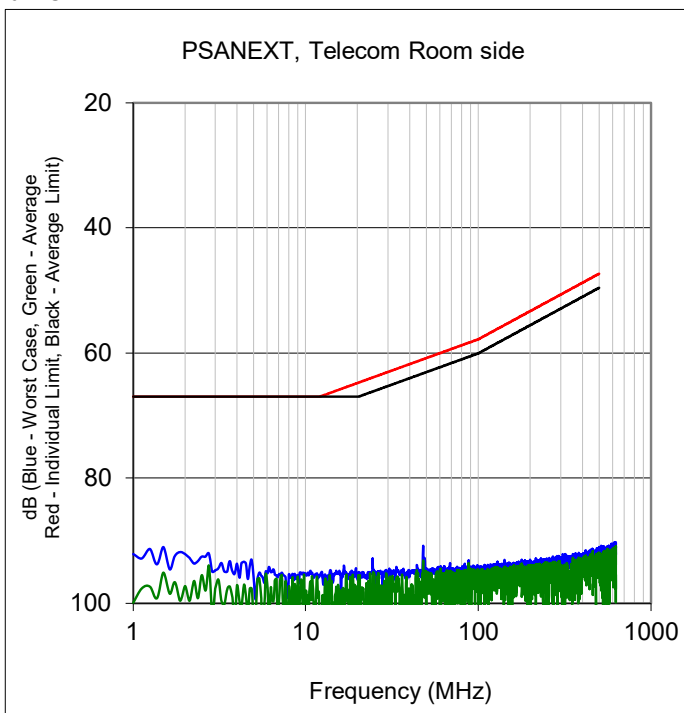
PSACR-N			
Freq.	Worst Case	Average	Spec. IEEE
1	74.8	78.4	59.0
4	68.8	70.7	56.4
8	60.6	66.8	49.8
10	60.0	67.1	47.5
16	54.6	57.8	42.4
20	49.6	53.2	39.8
25	47.2	52.5	37.1
31	52.3	55.7	34.3
62	32.9	36.7	24.3
100	24.5	33.5	16.1
160	14.8	20.7	6.8
200	12.4	16.4	1.7
250	11.7	16.3	-3.8
300	8.9	11.7	-8.7
350	-0.7	4.9	-14.0
400	-3.4	0.5	-19.9
450	-7.3	1.0	-25.4
500	-12.0	-5.6	-30.4
550	-15.9	-11.0	na
600	-19.0	-13.7	na
625	-12.0	-8.1	na



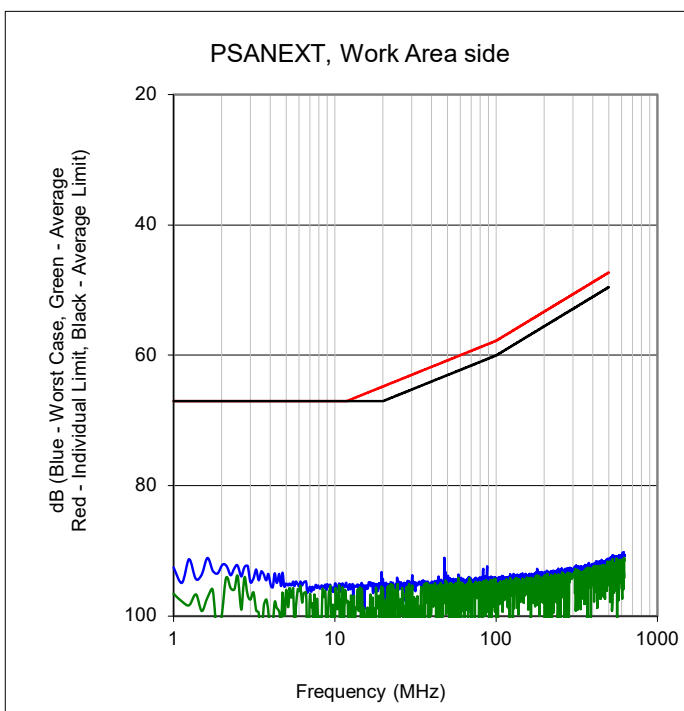
ACRF			
Freq.	Worst Case	Average	Spec. IEEE
1	81.6	87.8	63.3
4	69.9	80.7	51.2
8	64.8	74.7	45.2
10	62.8	72.8	43.3
16	58.9	69.8	39.2
20	56.9	67.2	37.2
25	55.4	64.2	35.3
31	53.6	63.0	33.4
62	48.8	57.6	27.4
100	45.0	54.9	23.3
160	43.2	52.4	19.2
200	44.2	50.0	17.2
250	44.6	49.2	15.3
300	42.1	45.5	13.7
350	40.3	48.3	12.4
400	34.4	42.8	11.2
450	33.0	42.0	10.2
500	32.1	38.7	9.3
550	31.9	39.0	na
600	32.3	37.6	na
625	31.0	36.6	na



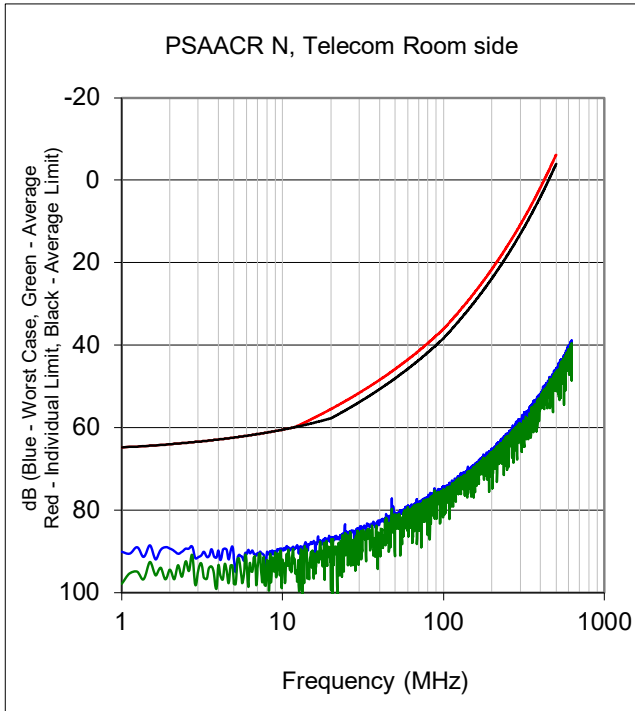
PSACRF			
Freq.	Worst Case	Average	Spec. IEEE
1	78.7	80.7	60.3
4	67.4	70.4	48.2
8	62.2	65.2	42.2
10	60.6	63.5	40.3
16	56.9	60.1	36.2
20	55.4	58.4	34.2
25	54.2	56.7	32.3
31	52.5	55.2	30.4
62	47.9	50.8	24.4
100	44.2	47.5	20.3
160	42.0	45.1	16.2
200	41.8	43.7	14.2
250	41.6	43.4	12.3
300	38.3	39.9	10.7
350	36.9	40.3	9.4
400	33.8	35.6	8.2
450	32.2	34.3	7.2
500	30.9	32.5	6.3
550	29.9	31.8	na
600	29.8	31.2	na
625	28.8	30.5	na



PSANEXT, Telecom Room side			Spec. IEEE	
Freq.	Worst Case	Average	ind	Average
1	92.1	100.0	67.0	67.0
4	93.7	97.2	67.0	67.0
8	95.4	97.4	67.0	67.0
10	95.5	98.0	67.0	67.0
16	99.0	102.7	65.7	67.0
20	96.3	107.8	64.8	67.0
25	95.2	97.8	63.8	66.0
31	94.8	97.3	62.9	65.1
62	95.4	97.5	59.8	62.1
100	94.4	94.8	57.8	60.0
160	93.6	94.9	54.7	57.0
200	93.9	94.1	53.3	55.5
250	93.5	98.7	51.8	54.1
300	94.1	95.9	50.6	52.9
350	93.3	97.2	49.6	51.9
400	92.4	93.5	48.7	51.0
450	92.4	92.9	48.0	50.2
500	91.0	92.3	47.3	49.5
550	91.6	93.0	na	na
600	90.7	91.8	na	na
625	90.6	93.9	na	na

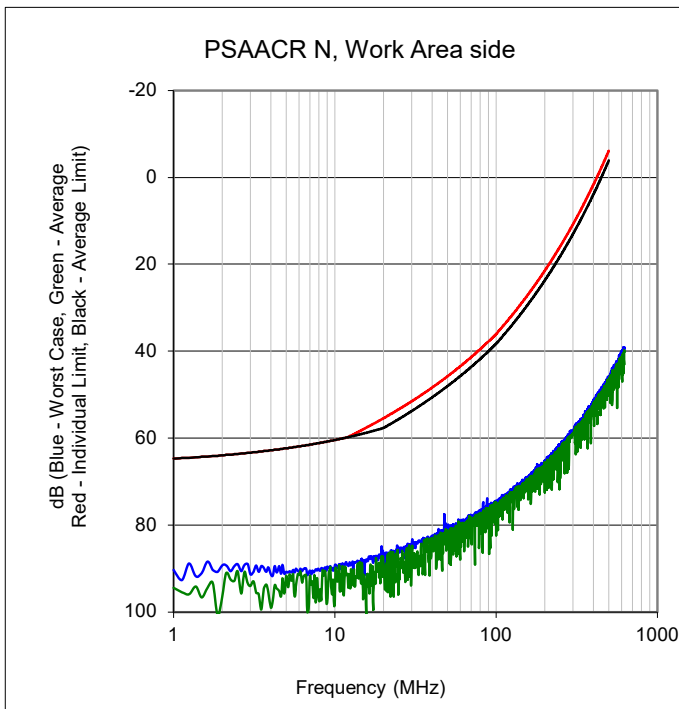


PSANEXT, Work Area side			Spec. IEEE	
Freq.	Worst Case	Average	ind	Average
1	92.6	96.6	67.0	67.0
4	95.3	102.9	67.0	67.0
8	95.7	102.8	67.0	67.0
10	95.1	102.9	67.0	67.0
16	95.8	98.8	65.7	67.0
20	95.9	98.4	64.8	67.0
25	94.7	98.4	63.8	66.0
31	94.8	97.2	62.9	65.1
62	95.0	99.3	59.8	62.1
100	94.7	101.0	57.8	60.0
160	94.2	95.1	54.7	57.0
200	95.1	100.6	53.3	55.5
250	93.4	100.9	51.8	54.1
300	93.3	93.7	50.6	52.9
350	93.1	95.2	49.6	51.9
400	92.1	92.5	48.7	51.0
450	91.4	92.6	48.0	50.2
500	92.3	93.0	47.3	49.5
550	91.1	94.5	na	na
600	90.9	93.2	na	na
625	90.8	91.5	na	na



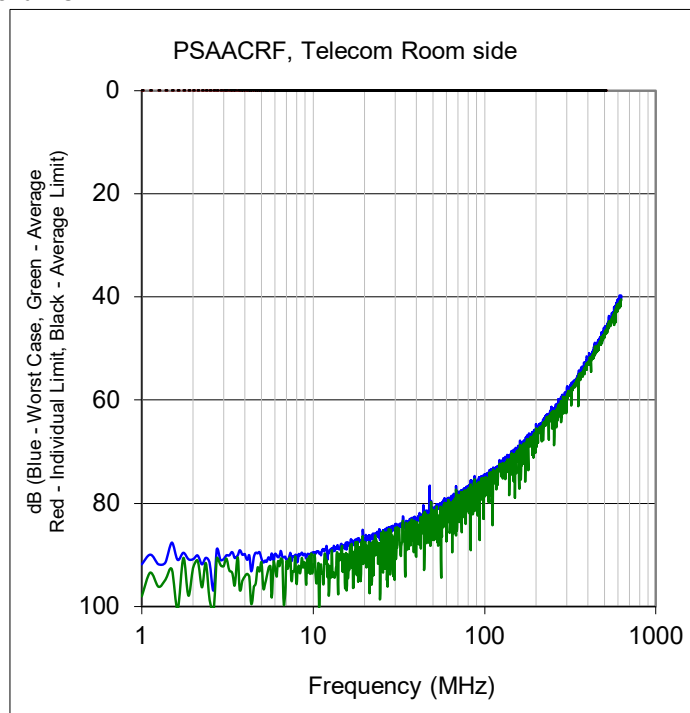
* PSAACR N derived from PSANEXT and IL limits

PSAACR N, Telecom Room side			Spec. IEEE	
Freq.	Worst Case	Average	ind	Average
1	89.9	97.8	64.7	64.7
4	89.8	93.3	62.8	62.8
8	90.1	92.1	61.1	61.1
10	89.6	92.1	60.4	60.4
16	91.5	95.2	57.4	58.7
20	87.8	99.3	55.4	57.7
25	85.7	88.2	53.3	55.6
31	84.1	86.5	51.2	53.4
62	79.9	82.0	43.0	45.3
100	74.6	75.1	36.0	38.3
160	68.4	69.8	26.6	28.9
200	65.7	66.0	21.5	23.7
250	61.9	67.1	15.8	18.1
300	59.4	61.1	10.7	13.0
350	55.8	59.5	6.1	8.3
400	52.1	53.0	1.7	4.0
450	49.3	49.9	-2.3	-0.1
500	45.4	46.8	-6.2	-4.0
550	43.6	45.1	na	na
600	40.2	41.5	na	na
625	39.2	42.5	na	na

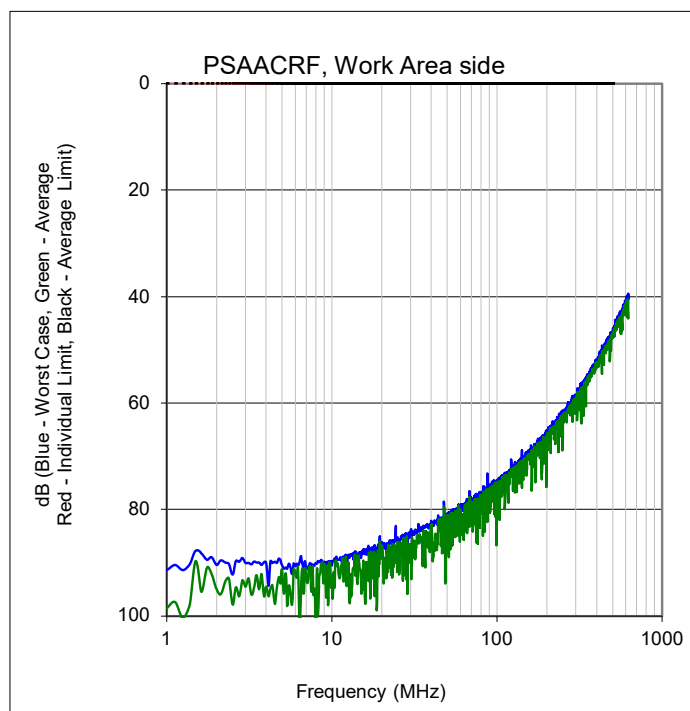


* PSAACR N derived from PSANEXT and IL limits

PSAACR N, Work Area side			Spec. IEEE	
Freq.	Worst Case	Average	ind	Average
1	90.4	94.4	64.7	64.7
4	91.4	99.0	62.8	62.8
8	90.4	97.5	61.1	61.1
10	89.2	97.0	60.4	60.4
16	88.3	91.3	57.4	58.7
20	87.4	90.0	55.4	57.7
25	85.1	88.9	53.3	55.6
31	84.0	86.4	51.2	53.4
62	79.5	83.8	43.0	45.3
100	74.9	81.3	36.0	38.3
160	69.0	70.0	26.6	28.9
200	66.9	72.5	21.5	23.7
250	62.1	69.3	15.8	18.1
300	58.5	58.9	10.7	13.0
350	55.4	57.5	6.1	8.3
400	51.7	52.0	1.7	4.0
450	48.2	49.6	-2.3	-0.1
500	46.8	47.5	-6.2	-4.0
550	43.1	46.6	na	na
600	40.8	42.9	na	na
625	39.2	40.1	na	na



PSAACRF, Telecom Room side			Spec. IEEE	
Freq.	Worst Case	Average	ind	Average
1	91.8	97.9	info	info
4	89.8	94.1	info	info
8	90.1	95.6	info	info
10	89.4	91.9	info	info
16	87.8	94.6	info	info
20	87.5	90.4	info	info
25	85.5	85.8	info	info
31	84.1	84.6	info	info
62	79.1	81.5	info	info
100	75.6	78.6	info	info
160	69.0	69.5	info	info
200	64.7	65.4	info	info
250	61.9	62.8	info	info
300	58.4	62.5	info	info
350	55.4	55.8	info	info
400	51.9	53.0	info	info
450	49.1	50.6	info	info
500	47.3	47.5	info	info



PSAACRF, Work Area side			Spec. IEEE	
Freq.	Worst Case	Average	ind	Average
1	91.4	98.6	info	info
4	90.0	94.5	info	info
8	90.0	102.2	info	info
10	90.5	92.4	info	info
16	88.2	97.1	info	info
20	86.5	88.4	info	info
25	85.4	86.2	info	info
31	84.6	89.1	info	info
62	79.1	83.1	info	info
100	74.6	78.8	info	info
160	68.9	69.7	info	info
200	65.8	66.1	info	info
250	62.5	64.8	info	info
300	58.7	59.2	info	info
350	55.3	55.9	info	info
400	52.2	53.1	info	info
450	49.7	50.0	info	info
500	46.6	47.4	info	info

ACMC, Telecom Room side				
Pair	IL@250MHz	PSANEXT Constant	PSAACRF Constant	YL Margin (dB)
12	31.80	58.06	36.66	38.60
36	31.70	57.96	36.63	38.01
45	31.30	57.58	36.51	38.13
78	31.60	57.87	36.60	38.34
Average	31.60	60.12	40.60	36.47

ACMC, Work Area side				
Pair	IL@250MHz	PSANEXT Constant	PSAACRF Constant	YL Margin (dB)
12	31.80	58.06	36.66	38.24
36	31.70	57.96	36.63	37.90
45	31.30	57.58	36.51	38.11
78	31.60	57.87	36.60	38.01
Average	31.60	60.12	40.60	36.27

Intertek

Test of: Coupling attenuation with standard tube (IEC62153-4-9 Ed.2)

Information for test

Test Job: G105346475 Operator: David Ayers Measurement: 24.02.2023 14:53:46
Test set-up:
Remark: Belden

Device under test

Item Number: 1 Cable type: F/UTP, 4-Pair, LSZH
Type: symmetrical Zw(Diff.-Mode): 50.0 Ohm Zw(Common-Mode): 25.0 Ohm
Test length: 3.00 m Eps r: 2.3

Test parameter

Start frequency: 100.0 kHz Gen. Power: 0.0 dBm
Stop frequency: 3.0 GHz Attenuation: 0.0 dB
Number of points: 1601
Distance of points: lin
IF-BW: 100 Hz
Z(NWA)(Comm.): 25.0 Ohm Z(NWA)(Diff.): 50.0 Ohm
Sym. Test Method: Sds21 Single-Ended-Stimulus to Balanced (Differential-Mode)(Source: Port 4 / Receiver Port 1,3)

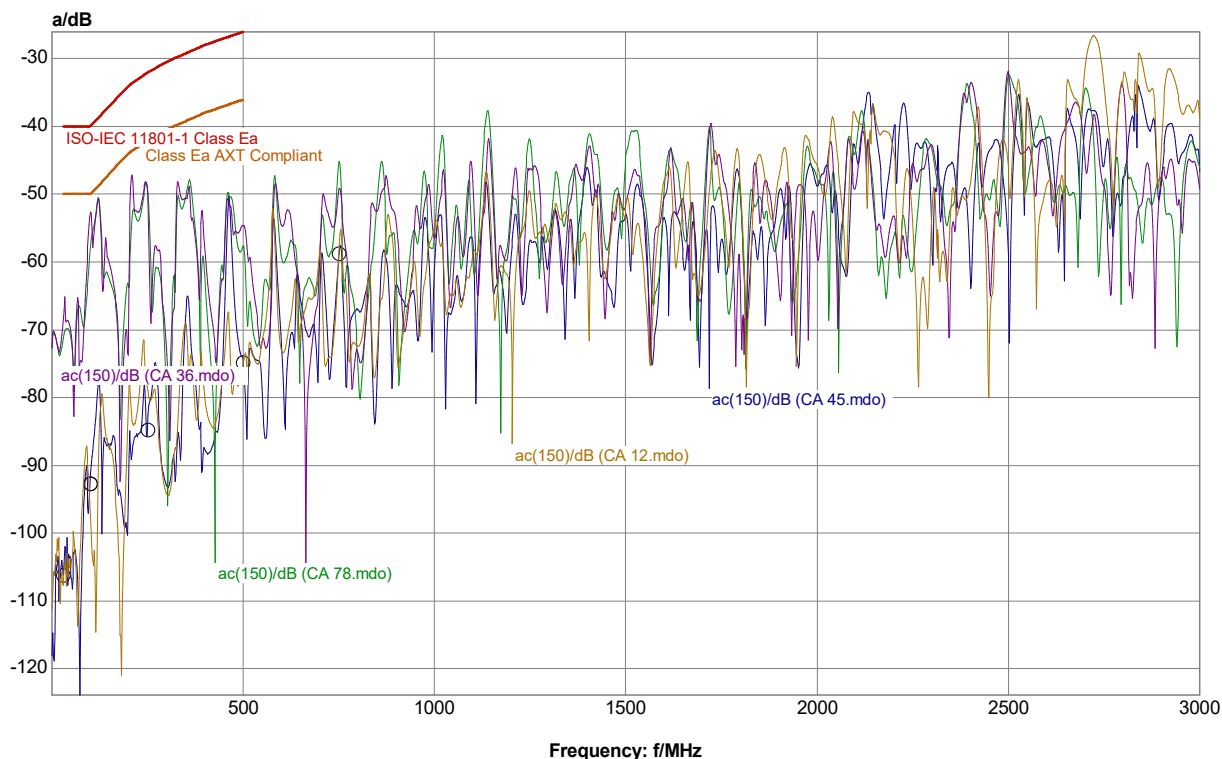
Markerdata

f/MHz	ac(150)/dB	f/MHz	ac(150)/dB
30.00	-106	100.00	-92.7
100.00	-92.7		
250.00	-84.8		
500.00	-74.8		
750.00	-58.8		

Test diagram

Coupling attenuation with standard tube (IEC62153-4-9 Ed.2) F/UTP, 4-Pair, LSZH

100.0 kHz - 3.0 GHz Test length: 3.00m



Intertek

Test of: Coupling attenuation with standard tube (IEC62153-4-9 Ed.2)

Information for test

Test Job: G105346475 Operator: David Ayers Measurement: 27.02.2023 09:57:17
Test set-up:
Remark: Belden

Device under test

Item Number: 1 Cable type: F/UTP, 4-Pair, LSZH
Type: symmetrical Zw(Diff.-Mode): 50.0 Ohm Zw(Common-Mode): 25.0 Ohm
Test length: 3.00 m Eps r: 2.3

Test parameter

Start frequency: 100.0 kHz Gen. Power: 0.0 dBm
Stop frequency: 3.0 GHz Attenuation: 0.0 dB
Number of points: 1601
Distance of points: lin
IF-BW: 100 Hz
Z(NWA)(Comm.): 25.0 Ohm Z(NWA)(Diff.): 50.0 Ohm
Sym. Test Method: Sds21 Single-Ended-Stimulus to Balanced (Differential-Mode)(Source: Port 4 / Receiver Port 1,3)

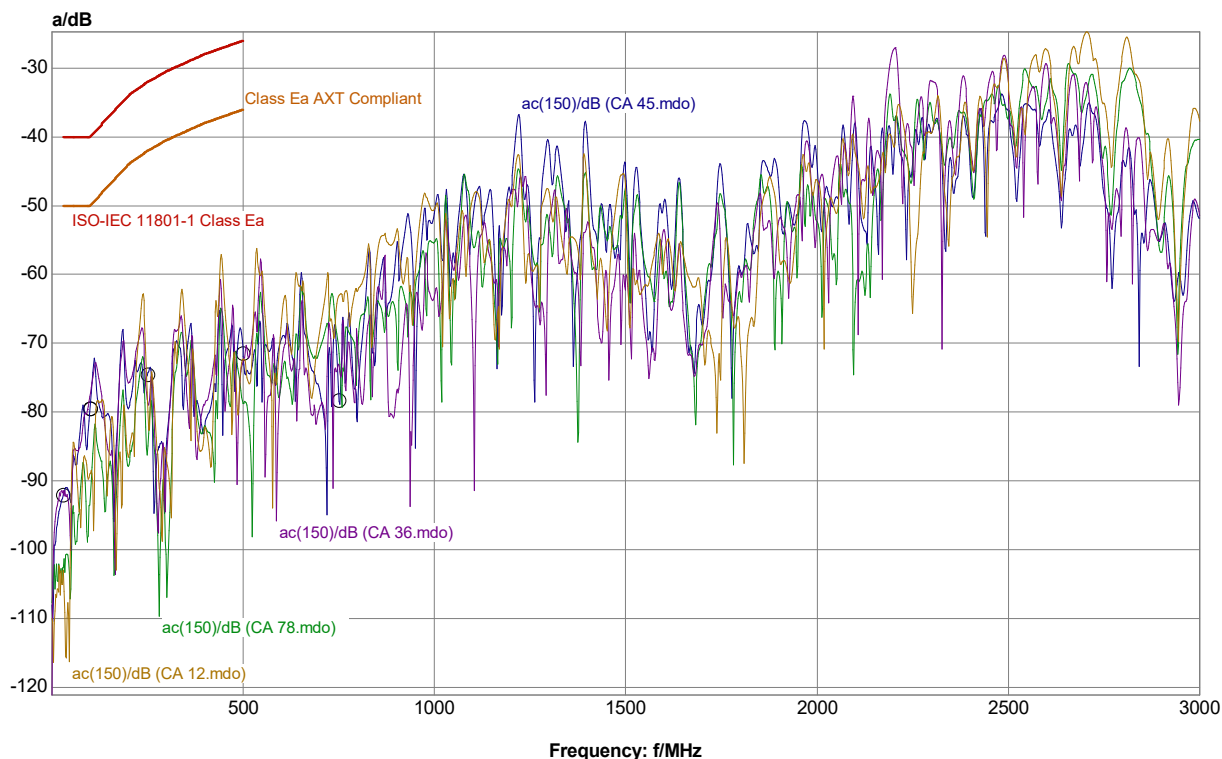
Markerdata

f/MHz	ac(150)/dB	f/MHz	ac(150)/dB
30.00	-92.0	100.00	-79.5
100.00	-79.5		
250.00	-74.6		
500.00	-71.5		
750.00	-78.3		

Test diagram

Coupling attenuation with standard tube (IEC62153-4-9 Ed.2) F/UTP, 4-Pair, LSZH

100.0 kHz - 3.0 GHz Test length: 3.00m



Intertek

Test of: Coupling attenuation with standard tube (IEC62153-4-9 Ed.2)

Information for test

Test Job: G105346475 Operator: David Ayers Measurement: 27.02.2023 09:57:17
Test set-up:
Remark: Belden

Device under test

Item Number: 1 Cable type: F/UTP, 4-Pair, LSZH
Type: symmetrical Zw(Diff.-Mode): 50.0 Ohm Zw(Common-Mode): 25.0 Ohm
Test length: 3.00 m Eps r: 2.3

Test parameter

Start frequency: 100.0 kHz Gen. Power: 0.0 dBm
Stop frequency: 3.0 GHz Attenuation: 0.0 dB
Number of points: 1601
Distance of points: lin
IF-BW: 100 Hz
Z(NWA)(Comm.): 25.0 Ohm Z(NWA)(Diff.): 50.0 Ohm
Sym. Test Method: Sds21 Single-Ended-Stimulus to Balanced (Differential-Mode)(Source: Port 4 / Receiver Port 1,3)

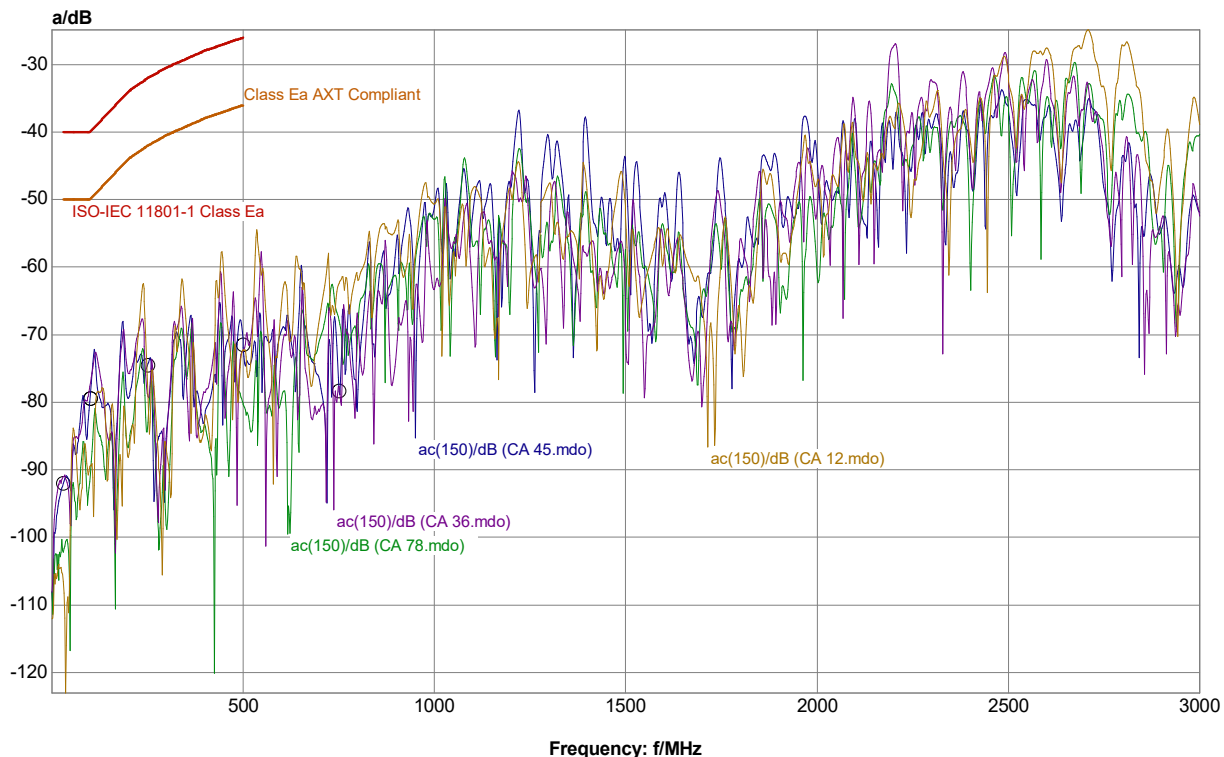
Markerdata

f/MHz	ac(150)/dB	f/MHz	ac(150)/dB
30.00	-92.0	100.00	-79.5
100.00	-79.5		
250.00	-74.6		
500.00	-71.5		
750.00	-78.3		

Test diagram

Coupling attenuation with standard tube (IEC62153-4-9 Ed.2) F/UTP, 4-Pair, LSZH

100.0 kHz - 3.0 GHz Test length: 3.00m



Intertek

Test of: Coupling attenuation with standard tube (IEC62153-4-9 Ed.2)

Information for test

Test Job: G105346475 Operator: David Ayers Measurement: 24.02.2023 16:35:25
Test set-up:
Remark: Belden

Device under test

Item Number: 1 Cable type: F/UTP, 4-Pair, LSZH
Type: symmetrical Zw(Diff.-Mode): 50.0 Ohm Zw(Common-Mode): 25.0 Ohm
Test length: 3.00 m Eps r: 2.3

Test parameter

Start frequency: 100.0 kHz Gen. Power: 0.0 dBm
Stop frequency: 3.0 GHz Attenuation: 0.0 dB
Number of points: 1601
Distance of points: lin
IF-BW: 100 Hz
Z(NWA)(Comm.): 25.0 Ohm Z(NWA)(Diff.): 50.0 Ohm
Sym. Test Method: Sds21 Single-Ended-Stimulus to Balanced (Differential-Mode)(Source: Port 4 / Receiver Port 1,3)

Markerdata

f/MHz	ac(150)/dB	f/MHz	ac(150)/dB
30.00	-95.6	100.00	-87.1
100.00	-87.1		
250.00	-81.6		
500.00	-66.8		
750.00	-62.0		

Test diagram

Coupling attenuation with standard tube (IEC62153-4-9 Ed.2) F/UTP, 4-Pair, LSZH

100.0 kHz - 3.0 GHz Test length: 3.00m

