

NEX1

NEX1 Technologies Co., Ltd

10GX LAN

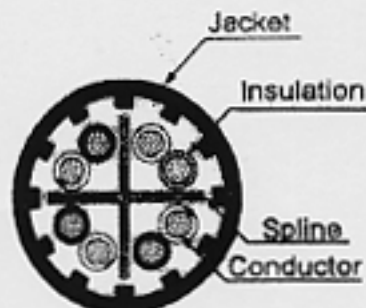
UTP Augmented Cat.6 4pair/23AWG

PRODUCTS FEATURE

- 10GX LAN SUPPORTS IEEE 802.3an 10GBASE-T STANDARD, AND TIA/EIA 568-B.2-10 DRAFT.7
- ALL MATERIALS COMPLY WITH ROHS STANDARD
- TEST RANGE FROM 1 TO 750 MHZ
- GREAT PERFORMNCE WITH HEADROOM OF UP 6Db
- PHYSICAL PROPERTIES



ELITE 10GX LAN RISER	8.4 mm	20.2KG/KFT	34mm
ELITE 10GX LAN PLENUM	8.4 mm	23.5KG/KFT	34mm



CONSTRUCTION RISER/PLENUM

Jacket : Low-smoke, flame-retardant PVC

Insulation : PE/FEP

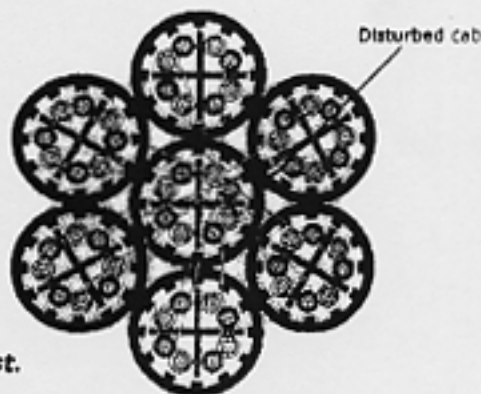
Spline : PE/FEP

Conductor : 23 AWG Solid bare copper

Cable assembly : 4 pairs cabled together with a spline core separator

6-around-1 cable test configuration:

This test is for measuring alien crosstalk loss between pairs of adjacent cables in a 7-cable assembly consisting of the same design. Measure the ANEXT loss and AFEXT loss between each of the pairs of the disturbed cable and each pair of every disturbing cable. This will result in 96 measurements each for ANEXT loss and AFEXT loss.



10GX family-cables are under the 6-around-1 cable test.



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10GX LAN

UTP Augmented Cat.5 4pair/23AWG

ELECTRICAL PROPERTIES FOR BOTH RISER AND PLENUM

CONDUCTOR DCR: $9.38 \Omega/100M @20^{\circ}C$

DCR UNBALANCE: 7%MAX

CAPACITANCE UNBALANCE

PAIR/GROUND: 330PF/100M MAX

CHARACTERISTIC

IMPEDANCE: $100 \Omega \pm 10\% (10-550MHz)$

INPUT $100 \Omega \pm 2\% (1-100MHz)$

IMPEDANCE: $100 \Omega \pm 15\% (>100-350MHz)$

$100 \Omega \pm 22\% (>350MHz)$

RETURN LOSS: $20 + 7 \log(f) \text{ dB MIN } (1-10MHz)$

$27 \text{ dB MIN } (10-20MHz)$

$27 - 7 \log(f/20) \text{ dB MIN } (>20MHz)$

INSERTION LOSS: $1.8/\sqrt{f} + 0.01f + 0.2/\sqrt{f} \text{ dB/100M MAX}$

(ATTENUATION)

NEAR END(NEXT)

CROSSTALK: $48.3 - 15 \log(f/100) \text{ dB/100M MIN}$

POWER SUM NEAR END

CROSSTALK (PS NEXT): $46.3 - 15 \log(f/100) \text{ dB/100M MIN}$

ATTENUATION TO CROSSTALK

RATIO FAR END(ACRF): $31.8 - 20 \log(f/100) \text{ dB/100M MIN}$

POWER SUM ATTENUATION TO CROSSTALK

RATIO FAR END (PS ACRF): $28.8 - 20 \log(f/100) \text{ dB/100M MIN}$

POWER SUM ALIEN NEAR END

CROSSTALK (PS ANEXT): $62.5 - 15 \log(f/100) \text{ dB/100M MIN}$

67 dB MIN

POWER SUM ALIEN ATTENUATION TO CROSSTALK RATIO

FAR END (PS AACRF): $38.2 - 20 \log(f/100) \text{ dB/100M MIN}$

67 dB MIN

PROPAGATION DELAY: $534 + 35/\sqrt{f} \text{ ns/100m MAX}$

PROPAGATION DELAY SKEW: 25 ns/100m MAX

NOMINAL VELOCITY OF $70\% \text{ PLENUM}$

PROPAGATION (MVP): $66\% \text{ NON-PENUM}$

NOTE: Attenuation To Crosstalk Ratio Far End (ACRF) was

previously referred to as Equal Level Far End Crosstalk (ELFEXT)

WHERE f = FREQUENCY IN MHz from 1 to 500 MHz

REFERENCE ELECTRICAL CHARACTERISTICS

FREQ (MHz)	INS LOSS (dB/100m)	RETURN LOSS		PS NEXT (dB/100m)	ACRF (dB/100m)	PS ACRF (dB/100m)	PROP DELAY (dB/100m)	ALIEN CROSSTALK	
		LOSS (dB/100m)	NEXT (dB/100m)					PS ANEXT (dB/100m)	PS AACRF (dB/100m)
	max	min	Min	min	min	min	max	min	min
1.0	2.0	20.0	78.3	76.3	71.8	68.8	570.0	67.0	67.0
4.0	3.7	24.2	69.3	67.3	59.8	56.8	552.0	67.0	66.2
8.0	5.2	26.3	64.8	62.8	53.7	50.7	546.7	67.0	60.1
10.0	5.9	27.0	63.3	61.3	51.8	48.8	545.4	67.0	58.2
16.0	7.4	27.0	60.2	58.2	47.7	44.7	543.0	67.0	54.1
20.0	8.3	27.0	58.8	56.8	45.8	42.8	542.0	67.0	52.2
25.0	9.3	26.3	57.3	55.3	43.8	40.8	541.2	67.0	50.2
31.25	10.4	25.6	55.9	53.9	41.9	38.9	540.4	67.0	48.3
62.5	14.9	23.5	51.4	49.4	35.9	32.9	538.6	65.4	42.3
100.0	19.0	22.1	48.3	46.3	31.8	28.8	537.6	62.5	38.2
155.0	24.0	20.8	45.4	43.4	28.0	25.0	536.9	59.6	34.4
200.0	27.5	20.0	43.8	41.8	25.8	22.8	536.5	58.0	32.1
250.0	31.0	19.3	42.3	40.3	23.8	20.8	536.3	56.5	30.2
300.0	34.2	18.8	41.1	39.3	22.3	19.3	536.1	55.3	28.7
350.0	37.2	18.3	40.1	38.1	20.9	17.9	535.9	54.3	27.3
400.0	40.0	17.9	39.3	37.3	19.8	16.8	535.8	53.5	26.2
500.0	45.3	17.5	37.8	35.8	17.6	14.8	535.6	52.0	24.2
550.0	47.7	17.2	37.2	35.2	-	-	-	-	-
600.0	50.1	16.9	36.6	34.6	-	-	-	-	-
650.0	52.4	16.7	36.1	34.1	-	-	-	-	-
750	56.8	16	35.2	33.2	-	-	-	-	-



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DCM CMS-2XLD II Rev. 1.0

DCM Test Report

Cable Type	4x2x23 x PE/PVC	Factory Number	ETL VERIFIED	Data File Name	DA05215E.XLID
Cable I.D.	CAT 6A 3ND FINAL	Order Number	RD96032	Specification File	Alien_Crosstalk CA 1 6B-1
Temperature	27.00 [C]	Operator	STEVE CHANG	Test Date	07/06/2007
Length	101.00 m	Number of Pairs to Test	24	Test Time	12:39:44 PM
Starting Position	1			Analyzer Type	HP8753ESES

Alien CrossTalk Pass - Fail Test Certificate - 4 Pairs

High Frequency

Test Type	Test Result
Power Sum Alien NEXT (PSANEXT)(dB)	OK
Power Sum Alien ACRF (PSAACRF)(dB/100.0 m)	OK

Signature	Approved	Date
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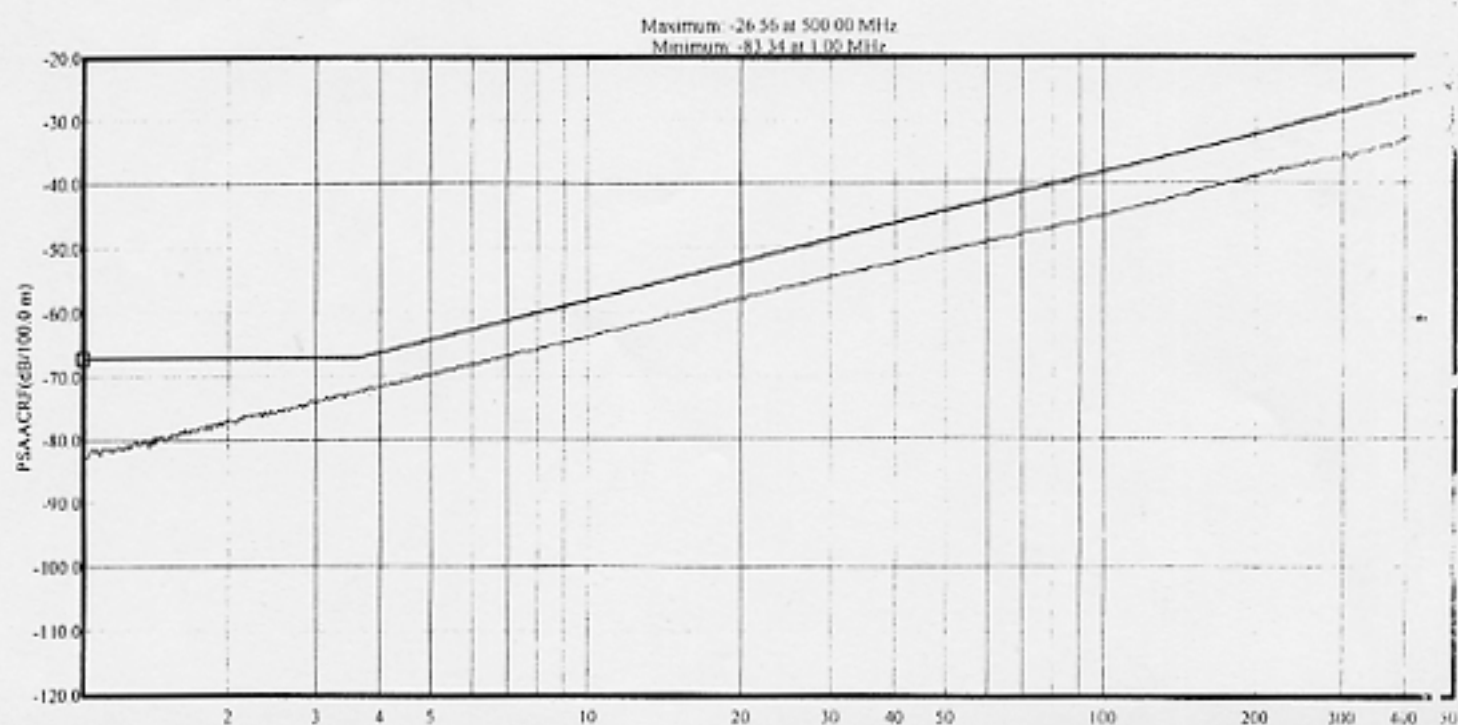
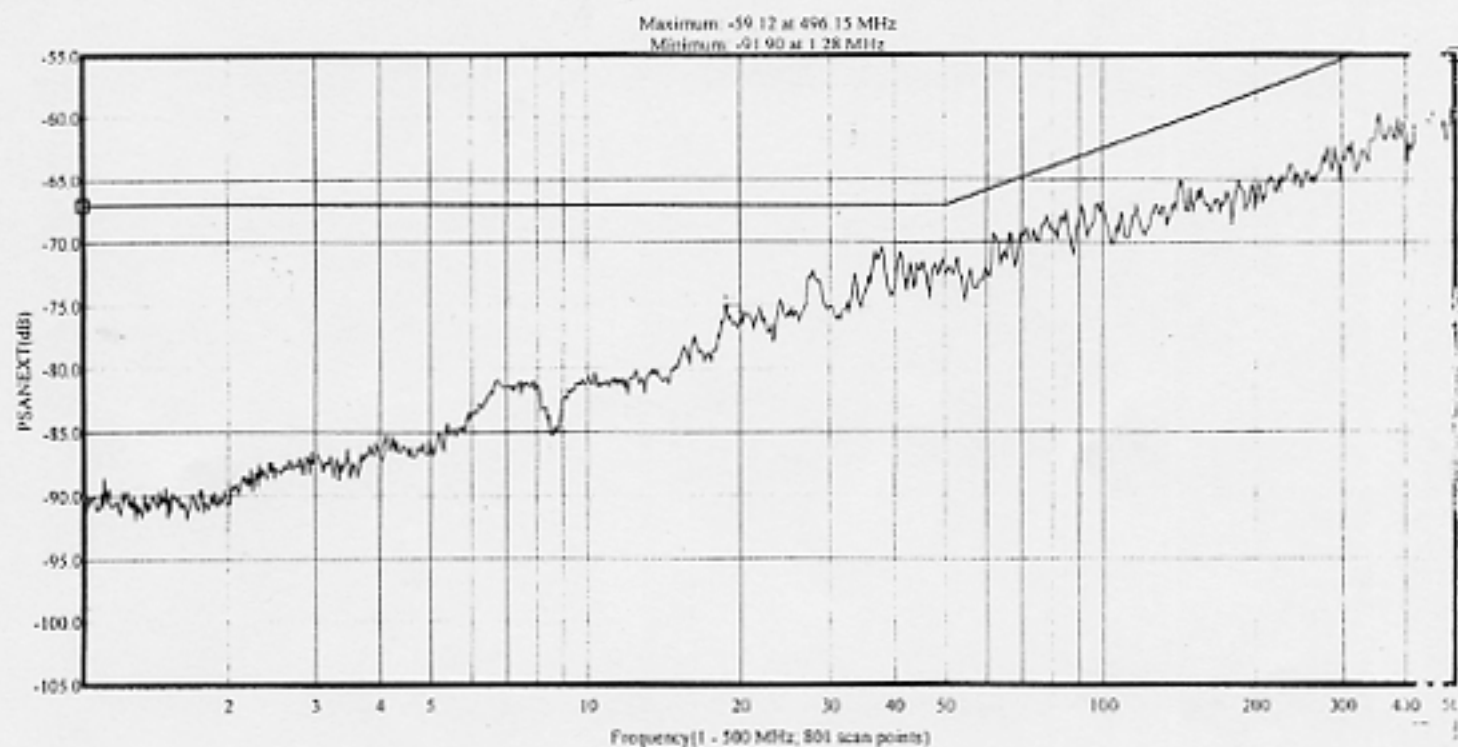
DCM Test Report

Cable Type	: 4x2x23 x PE/PVC	Factory Number	ETL VERIFIED	Data File Name	DA052158.XLD
Cable I.D.	: CAT 6A 2ND FINAL	Order Number	RD96032	Specification File	Alien_Crosstalk CAT 6A 11.1
Temperature	: 27.00 (9)	Operator	STEVE CHANG	Test Date	07/06/2007
Length	: 101.00 m	Number of Pairs to Test	24	Test Time	12:39:44 PM
Starting Position	: 1			Analyzer Type	HP8753E/ES

Alien CrossTalk Worst Case Summary

High Frequency

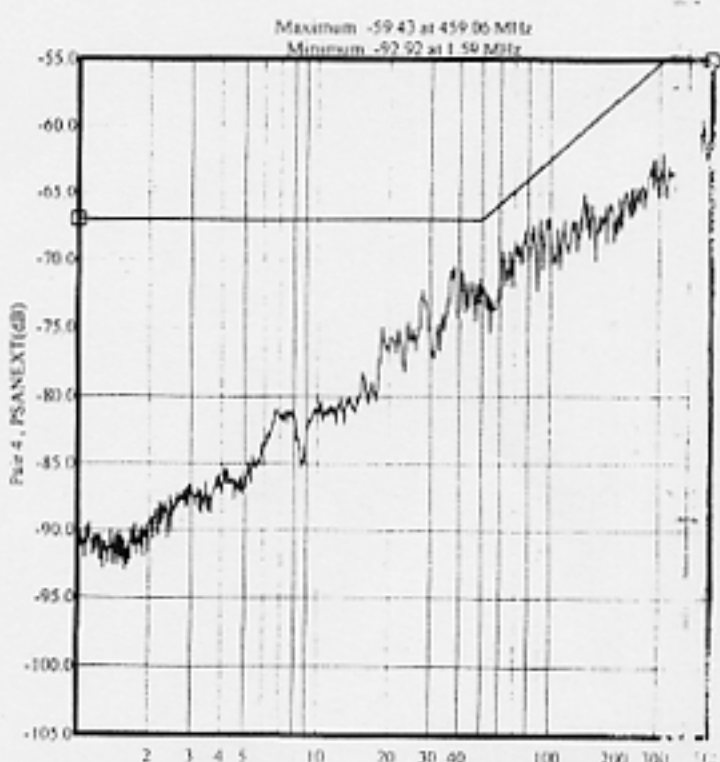
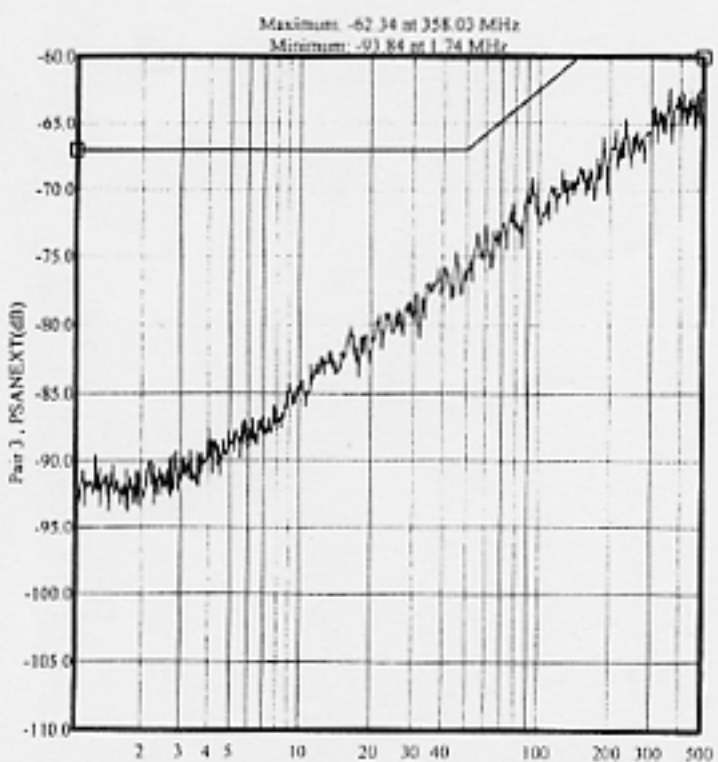
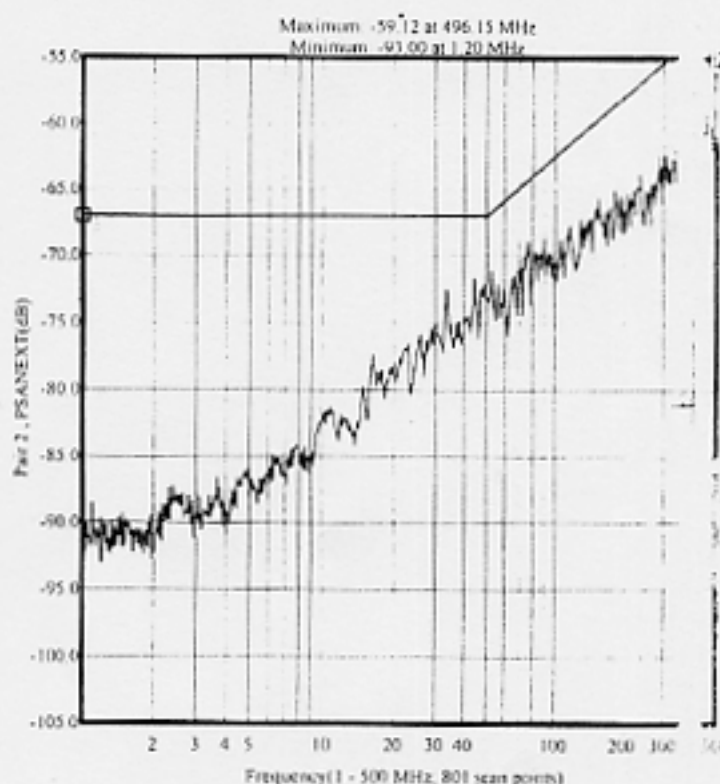
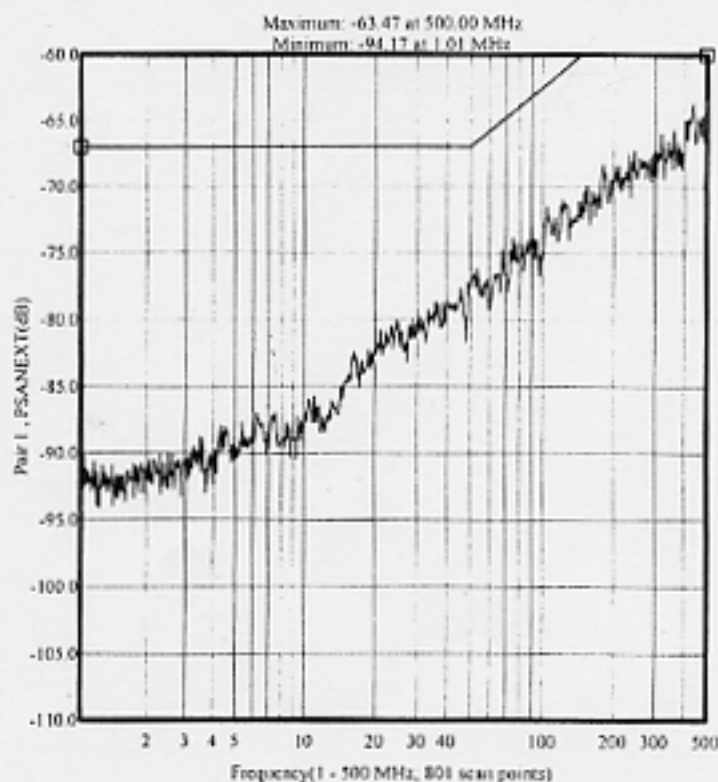
Test Type	Specification	Measured (Pair)	Margin	@ Frequency (MHz)	Test Result
Power Sum Alien NEXT (PSANEXT)	67.00 (Min)	70.37 (Pair 4)	3.37	37.92	Passed
Power Sum Alien ACRF (PSAACRF)	24.22 (Min)	26.56 (Pair 3)	2.34	500.00	Passed



Summary and Graphic: Power Sum Alien NEXT (PSANEXT)

(Cat 6A) PSANEXT >= 62.5 - 15 * log(F/100)

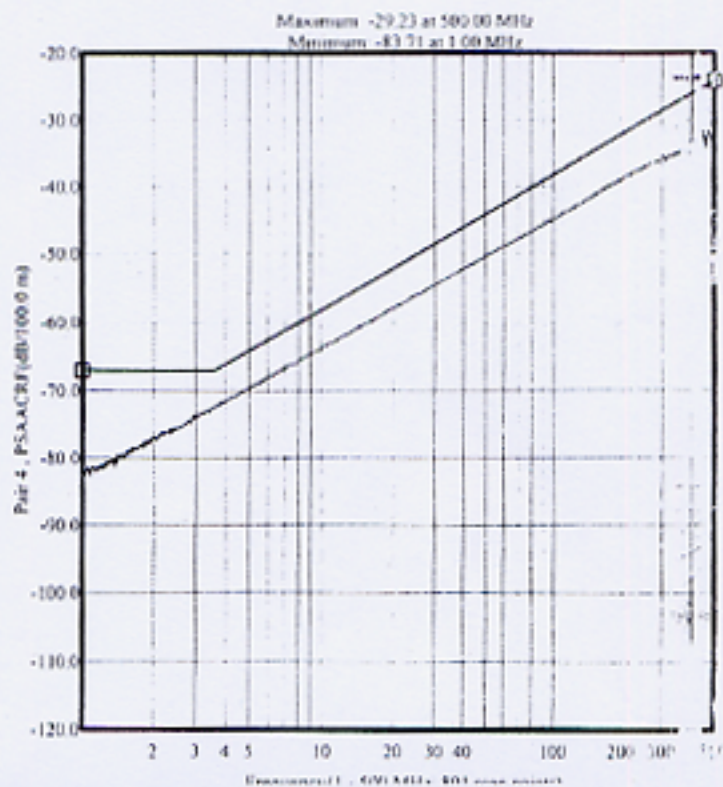
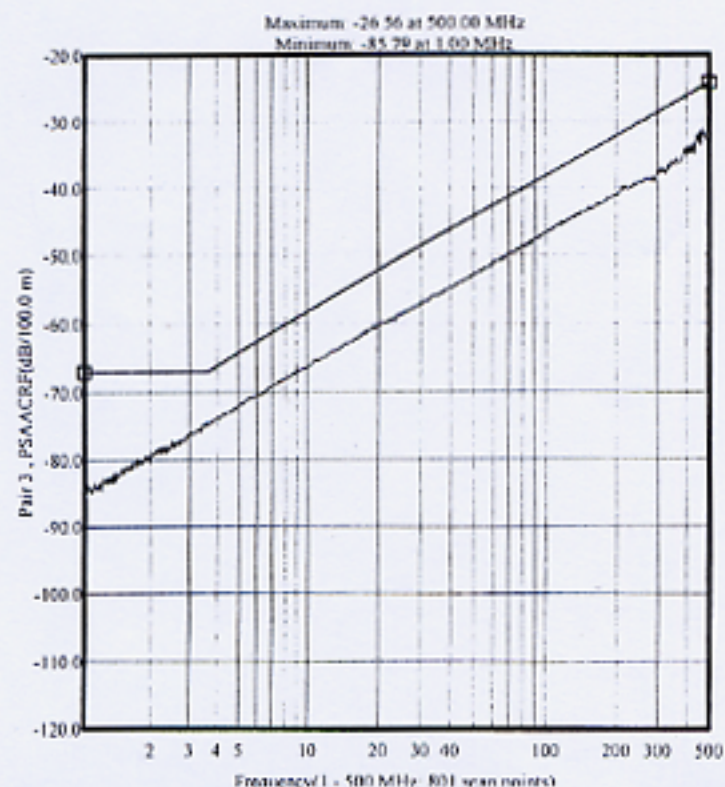
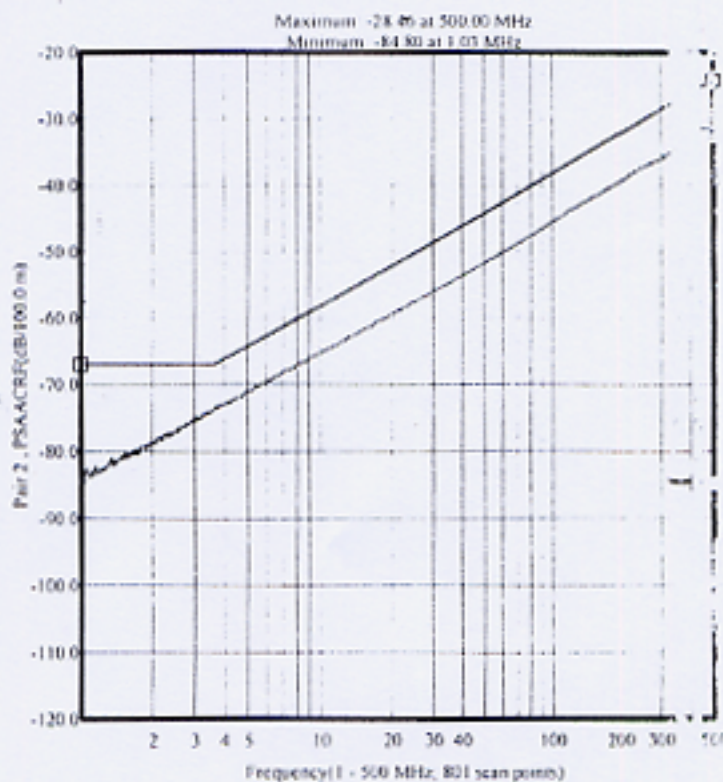
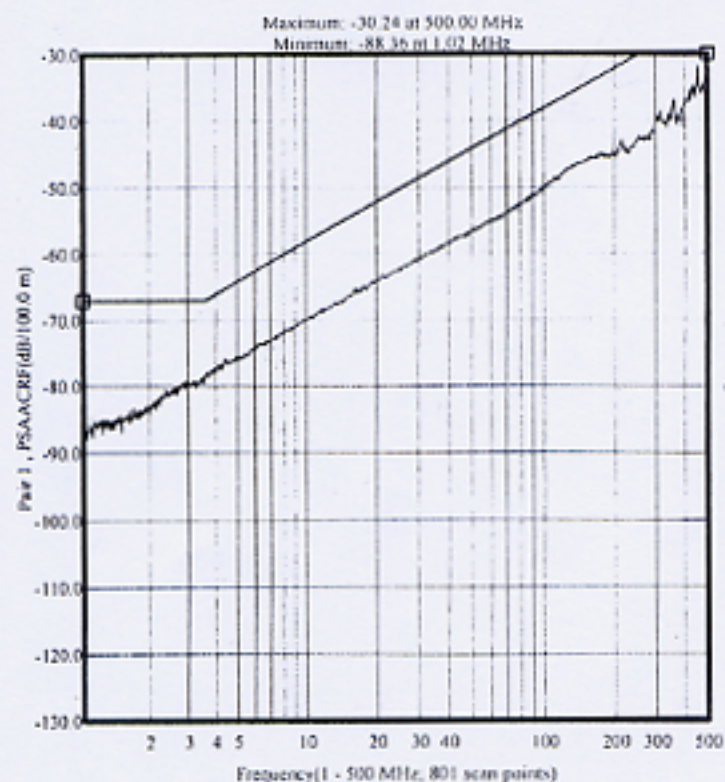
Pair [Position]	Spec (Min)(dB)	Measured(dB)	Margin (dB)	(@) Frequency (MHz)	Test Result
Pair 1 [1]	62.24	71.50	9.26	104.11	Passed
Pair 2 [2]	66.64	71.11	4.47	52.96	Passed
Pair 3 [3]	62.90	69.09	6.19	94.11	Passed
Pair 4 [4]	67.00	70.37	3.37	37.92	Passed



Summary and Graphic: Power Sum Alien ACRF (PSAACRF)

 (Cat 6A) PSAACRF $\geq 38.2 - 20 \cdot \log(f/100)$ (Refer to manual)

Pair (Position)	Spec (Min)(dB/100.0 m)	Measured(dB/100.0 m)	Margin (dB/100.0 m)	@ Frequency (MHz)	Test Result
Pair 1 (1)	24.22	30.24	6.02	500.00	Passed
Pair 2 (2)	24.22	28.46	4.24	500.00	Passed
Pair 3 (3)	24.22	26.56	2.34	500.00	Passed
Pair 4 (4)	24.22	29.23	5.01	500.00	Passed





NEX1 Technologies Co., Ltd

CAT 6A 2ND FINAL 4x2x23x PE/PVC DA052158.XLD 07/06/2007 12:39:44 PM

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Detail Discrete Frequencies ---Power Sum Alien NEXT (PSANEXT)(dB)

(Cat 6A) PSANEXT $\geq 62.5 - 15 * \log(F/100)$

Frequency	1.00	4.00	8.00	16.00	31.25	62.50	125.00	250.00	500.00	1000.00
Min Spec	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00
Pair 1 [1]	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00
Pair 2 [2]	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00
Pair 3 [3]	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00
Pair 4 [4]	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	66.85
Mean PS	91.38	89.34	85.60	84.34	80.62	79.94	78.47	77.83	74.25	71.10
Worst PS	89.88	86.88	81.39	81.13	78.55	76.34	75.62	75.39	69.60	66.85

Continue:Power Sum Alien NEXT (PSANEXT)(dB)

Frequency	200.00	250.00	300.00	400.00	500.00					
Min Spec	57.98	56.53	55.34	53.47	52.02					
Pair 1 [1]	67.00	67.00	67.00	67.00	63.47					
Pair 2 [2]	67.00	65.46	63.54	60.90	61.39					
Pair 3 [3]	67.00	66.34	66.70	64.95	64.11					
Pair 4 [4]	67.00	65.25	63.87	63.37	61.89					
Mean PS	68.23	66.50	65.68	64.22	62.72					
Worst PS	67.41	65.25	63.54	60.90	61.39					

Detail Discrete Frequencies ---Power Sum Alien ACRF (PSAACRF)(dB/100.0 m)

(Cat 6A) PSAACRF $\geq 38.2 - 20 * \log(F/100)$ (Refer to manual)

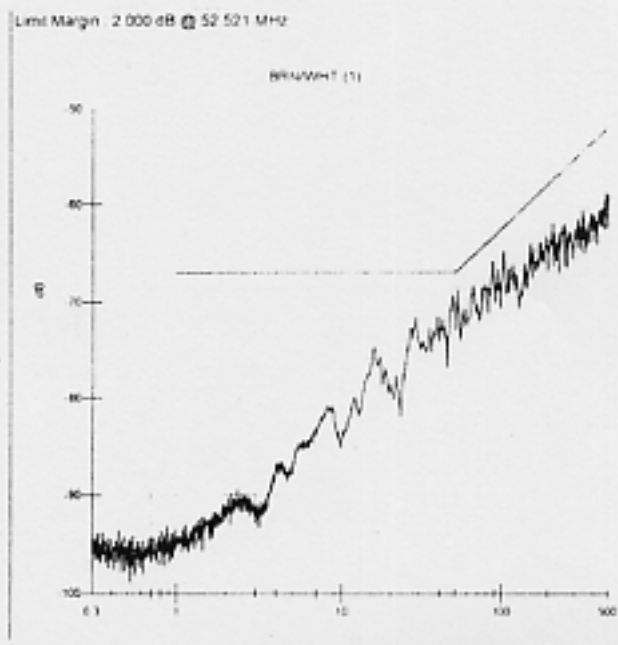
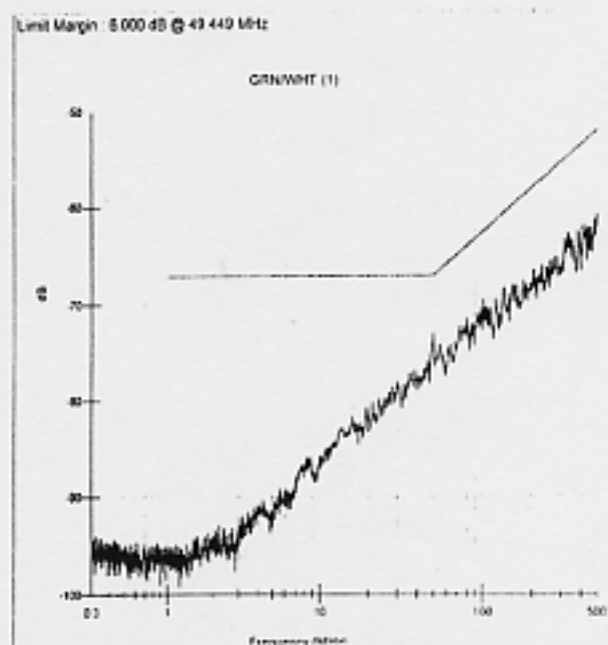
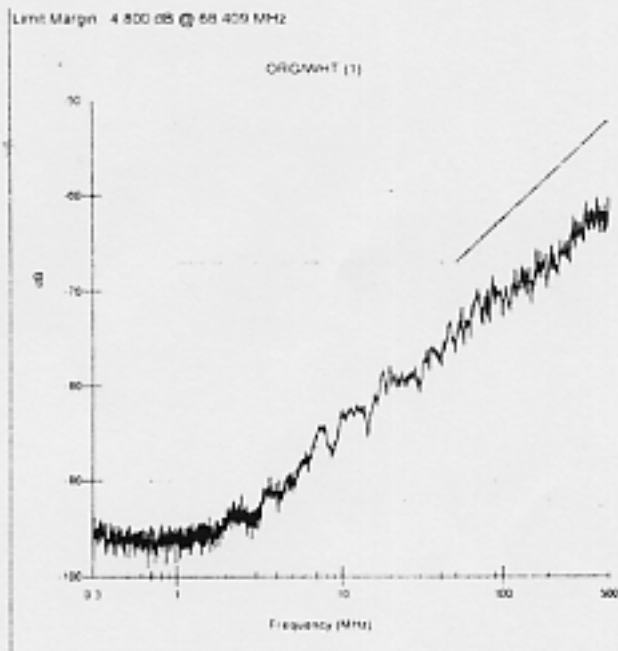
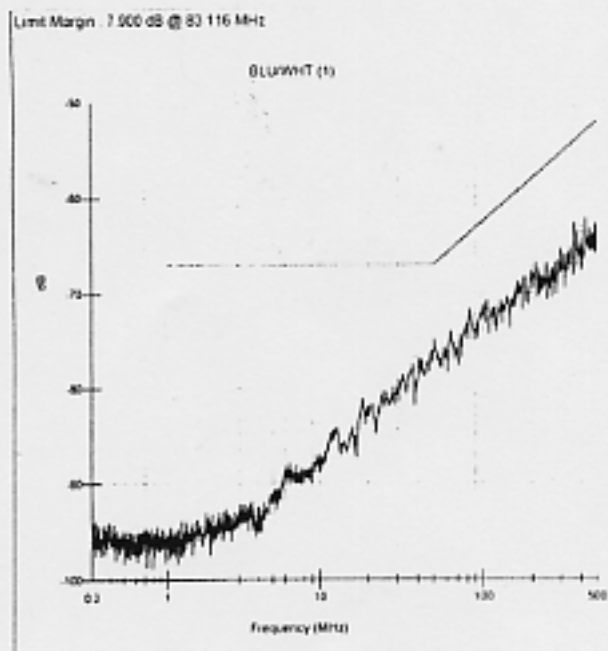
Frequency	1.00	4.00	8.00	16.00	31.25	62.50	125.00	250.00	500.00	1000.00
Min Spec	67.00	66.16	65.14	63.20	61.12	59.18	57.24	55.30	53.36	51.42
Pair 1 [1]	67.00	67.00	67.00	67.00	66.02	64.30	62.80	60.88	58.85	56.76
Pair 2 [2]	67.00	67.00	67.00	65.32	61.28	59.44	57.56	55.70	53.78	51.80
Pair 3 [3]	67.00	67.00	67.00	66.35	62.36	60.47	58.72	56.95	55.00	53.05
Pair 4 [4]	67.00	67.00	65.77	63.84	61.96	60.07	58.32	56.59	54.77	52.90
Mean PS	84.83	73.98	68.23	66.36	62.40	60.52	58.66	56.96	55.10	53.26
Worst PS	83.34	71.69	65.77	63.84	61.96	60.07	58.32	56.59	54.77	52.90

Continue:Power Sum Alien ACRF (PSAACRF)(dB/100.0 m)

Frequency	200.00	250.00	300.00	400.00	500.00					
Min Spec	32.18	30.24	28.66	26.16	24.22					
Pair 1 [1]	44.50	43.04	40.43	37.57	35.24					
Pair 2 [2]	39.55	37.36	36.09	33.25	31.46					
Pair 3 [3]	41.16	39.03	37.92	34.74	33.56					
Pair 4 [4]	39.00	37.28	35.97	33.91	32.21					
Mean PS	41.05	39.18	37.60	34.87	33.62					
Worst PS	39.00	37.28	35.97	33.25	32.56					

ANEXT (PowerSum) Near

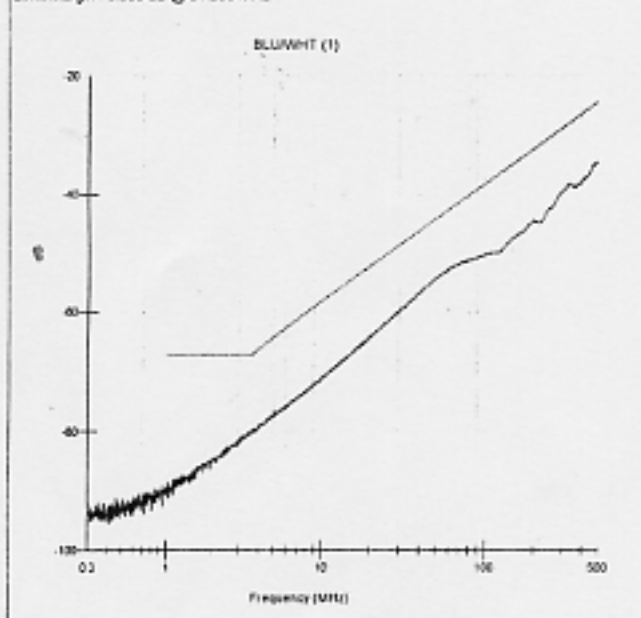
Manufacturer		File Number	E142890
Project Number	07CA27428	Test Description	Category 6A Cable (Alien Measurement)
Cable Type	28 Pair (Hybrid)	Test Started	6/7/2007 3:02:53 PM
Engineer	BELLASSAI	Length	95 m
Pre-Test Comments	10GS CAT.6A ALIEN MEASUREMENTS		
Technician	Andy	Software Revision	2.66k
		Status	



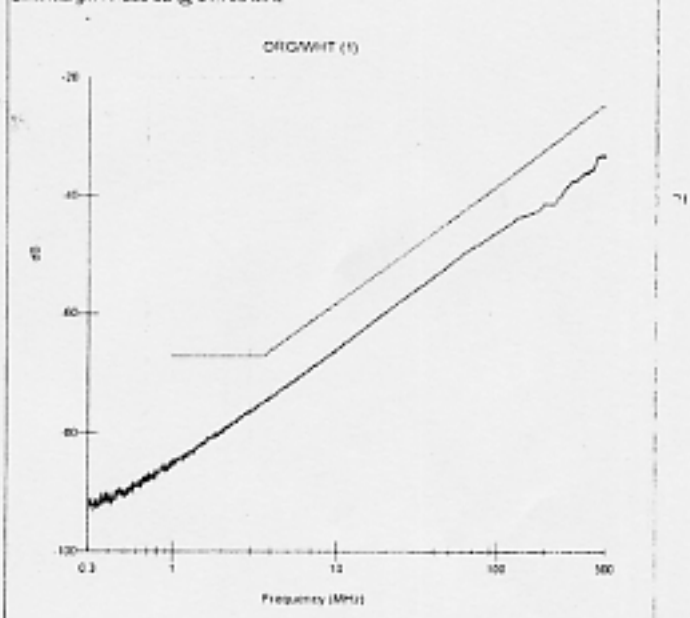
PSAACRF (PSAELFEXT) Near

Manufacturer		File Number	E142890
Project Number	07CA27426	Test Description	Category 6A Cable (Alien Measur
Cable Type	28 Pair (Hybrid)	Test Started	6/7/2007 3:02:53 PM
Engineer	BELLASSAI	Length	95 m
Pre-Test Comments	10GS CAT.6A ALIEN MEASUREMENTS	Temperature	20 °C
Technician	Andy	Software Revision	2.65k
		Status	

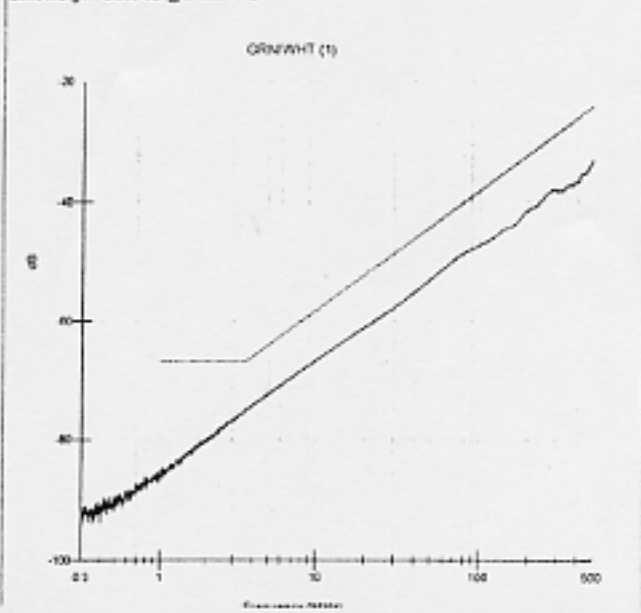
Limit Margin : 9.900 dB @ 51.205 MHz



Limit Margin : 7.200 dB @ 51.756 MHz



Limit Margin : 8.000 dB @ 3.635 MHz



Limit Margin : 8.400 dB @ 217.026 MHz

