Alien NEXT, IL effect on Channel Capacity

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Hubbell Premise Wiring.

IEEE 10GBASE-T Study Group
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Hubbell Premise Wiring

Followed the Study Group Test Sequence

- Cable w/ Tie-wraps every 5ft (Note - tested multiple lengths)
- Cable in 1” I.D. PVC Pipe
- Cable in 1” I.D. Pipe with 5m out.
- Channel Measurements:
  - 3m cords
  - Two hardware (panel) configurations.

Alien NEXT – Category 6 Cable and Hardware

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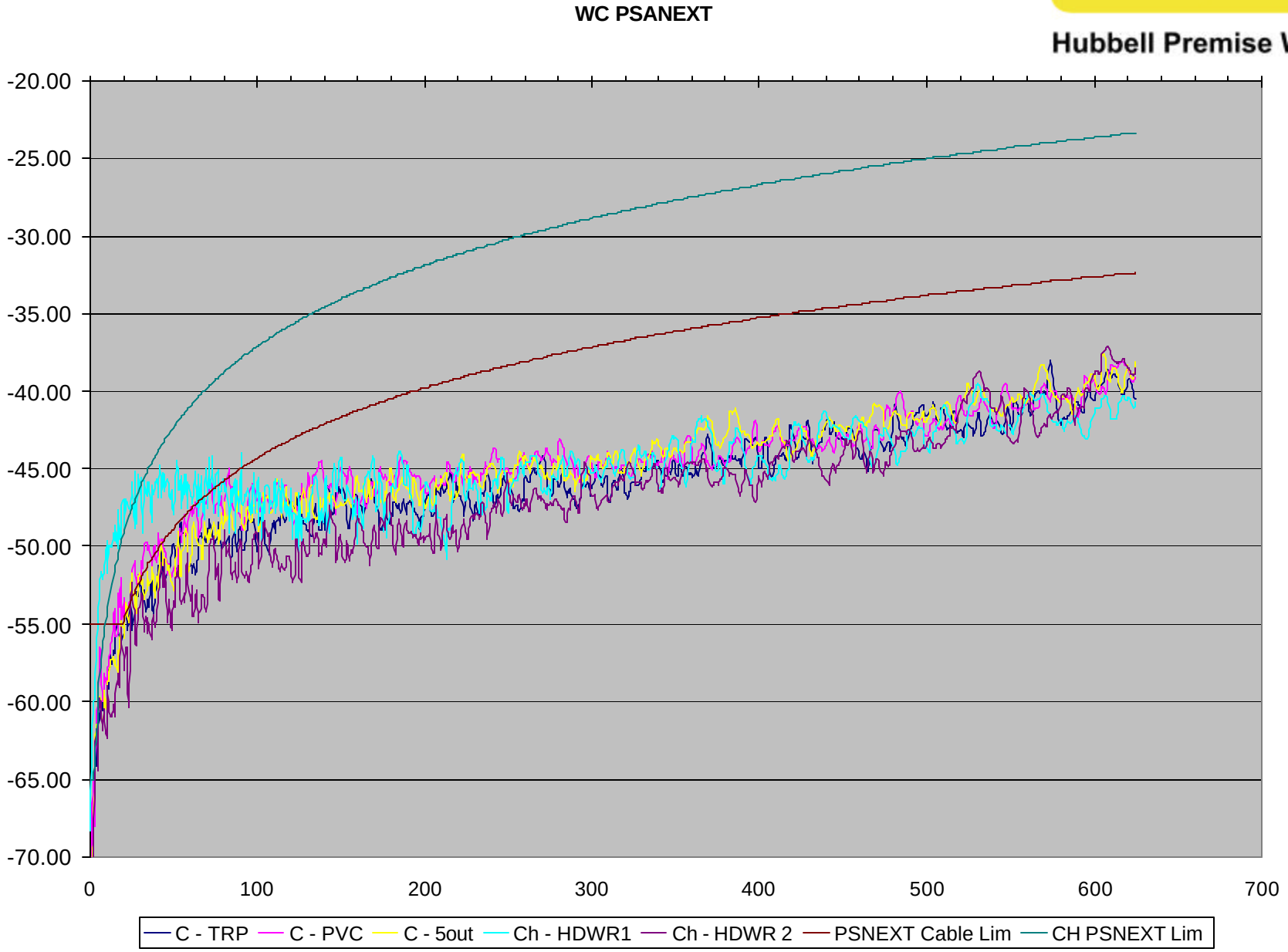
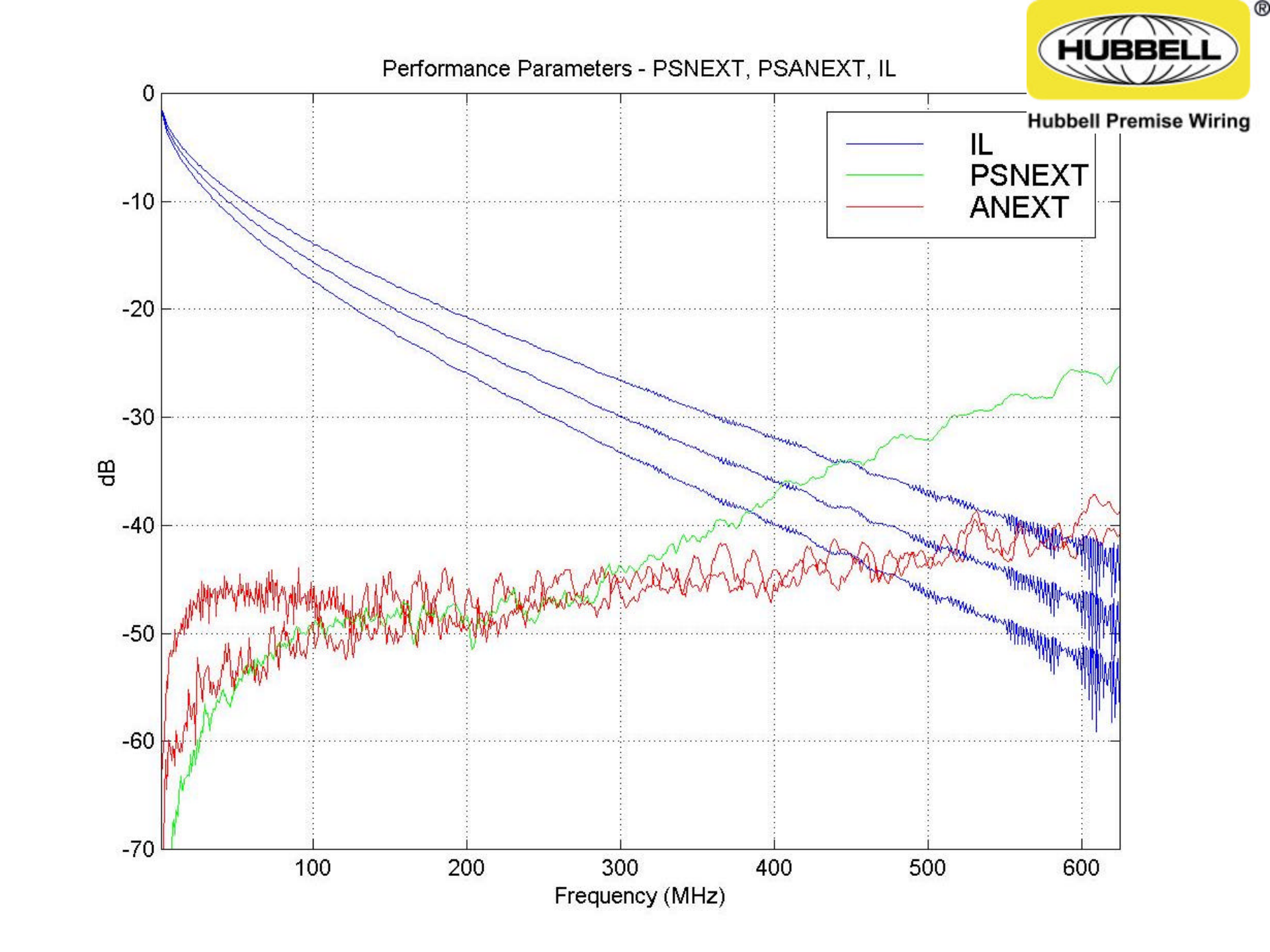
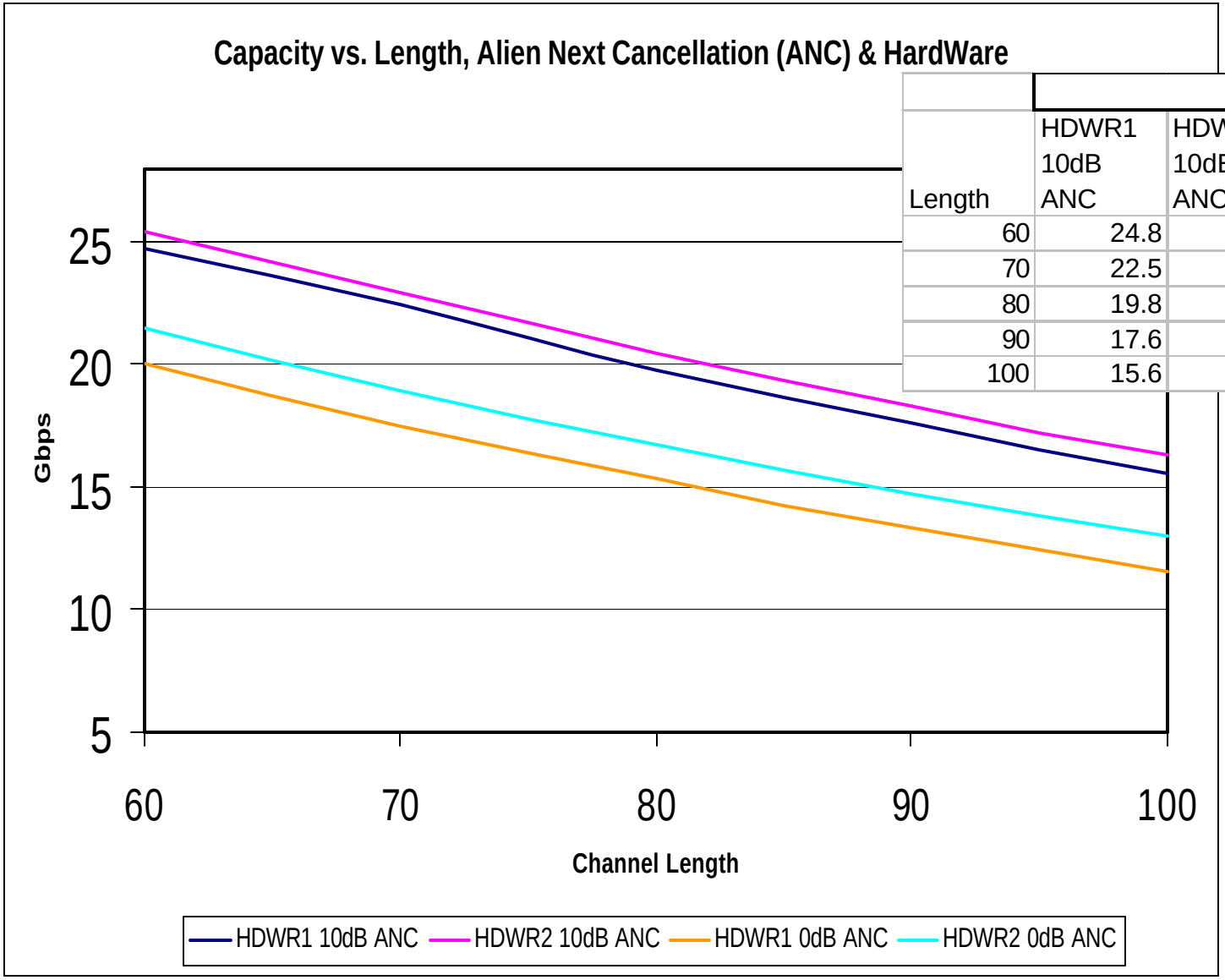



Performance Parameters - PSNEXT, PSANEXT, IL
HUBBELL
Hubbell Premise Wiring
IL
PSNEXT
ANEXT
0
-10
-20
-30
-40
-50
-60
-70
dB
100
200
300
400
500
600
Frequency (MHz)

Capacity Sensitivity (Fsym =833MHz)

Hubbell Premise Wiring



	Capacity			
Length	HDWR1 10dB ANC	HDWR2 10dB ANC	HDWR1 0dB ANC	HDWR2 0dB ANC
60	24.8	25.5	20	21.5
70	22.5	22.9	17.5	18.9
80	19.8	20.5	15.3	16.7
90	17.6	18.25	13.3	14.7
100	15.6	16.25	11.6	12.98

Sanity Check 1 – Capacity with same measured IL and ANEXT equal to C6 channel PSNEXT Limit = 10.4 Gbps

Sanity Check 2 – Capacity with IL scaled to C6 limit and ANEXT equal to C6 channel PSNEXT Limit = 8.5 Gbps

Conclusions

- Insertion Loss has significant effect on capacity.
- ANEXT of hardware has a diminishing effect as overall ANEXT drops.(~2Gbps)
- ANEXT mitigation (10 dB), combined with C6 may achieve the desired 20+ dB improvement over C6 channel PSNEXT levels.
- Most significant source of ANEXT improvement is CABLE performance