

Loop-Reach Analysis for 10PASS-TS Test Cases

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Purpose

- u Provide simulation results based on settings in Table 62A-1 and Table 62B-1.
- u Propose reasonable loop-reach objectives for Table 62B-1.



- u Based on consensus from conference call on Oct. 28th
 - 12 dB SNR gap ($9.75 - 3.75 + 6 = 12$)
 - Plus additional 3 dB implementation loss
 - Turn off UPBO for tests with self-crosstalks
- u Back off 5 tones at band transition area
- u -140 dBm/Hz background noise
- u Max. 15 bits per tone
- u Different tests have different settings:
 - PSD Mask (Exchange / Cabinet)
 - Band Assignment
 - Alien- or Self-crosstalks,
 - Notch, UPBO setting



Loop-Reach Analysis

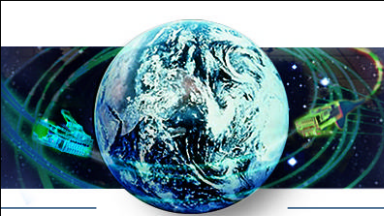
Test	Loop	L,0dB	L,3dB	Req. L	Profile	Rate	Notch	UPBO	Noise
1	TP1	1016	969	750	13	10/10	-	5	AWGN
2	TP1	549	x	575	18	10/10	-	9	ETSI F
3	TP2	946	757	750	13	10/10	-	5	ETSI A
4	TP1	607	x	400	2	10/10	-	3	T1.424 F
5	TP2	812	169	500	1	10/10	-	1	T1.424 A
6	TP1	480	x	475	18	10/10	2,5,9,11	9	ETSI F
7	TP2	640	28	500	1	10/10	2,6,10,11	1	T1.424 A
8	TP1	499	x	350	2	10/10	2,6,10,11	3	T1.424 F
9	TP2	639	28	450	1	10/10	2,6,10,11	1	T1.424 A

- u Test index is based on D2.1; Test 2-9 also contain 20 self-xtalks.
- u Req. L : Required loop-reach,
- u L, 3dB : Attainable loop-reach given 3dB implementation loss



Loop-Reach Analysis (Conti.)

Test	Loop	L,0dB	L,3dB	Req. L	Profile	Rate	Notch	UPBO	Noise
10	TP2	x	x	100	8	100/35	-	-	self
11	TP2			200	8	100/35	-	-	self
11	TP2	780	730	150	16	50/50	-	-	AWGN
12	TP2	293	187	250	16	35/25	-	-	self
13	TP1	858	771	650	6	25/5	-	-	self
14	TP2	831	700	800	17	15/15	-	-	self
15	TP1	1148	1075	1000	8	15/2.5	-	-	self
16	TP2	837	541	500	4	12.5/12.5	-	-	self
17	TP2	1024	913	750	4	7.5/7.5	-	-	self
18	TP2	1240	1117	1200	23	5/5	-	-	self
19	TP2	1420	1328	1800	23	2.5/2.5	-	-	self



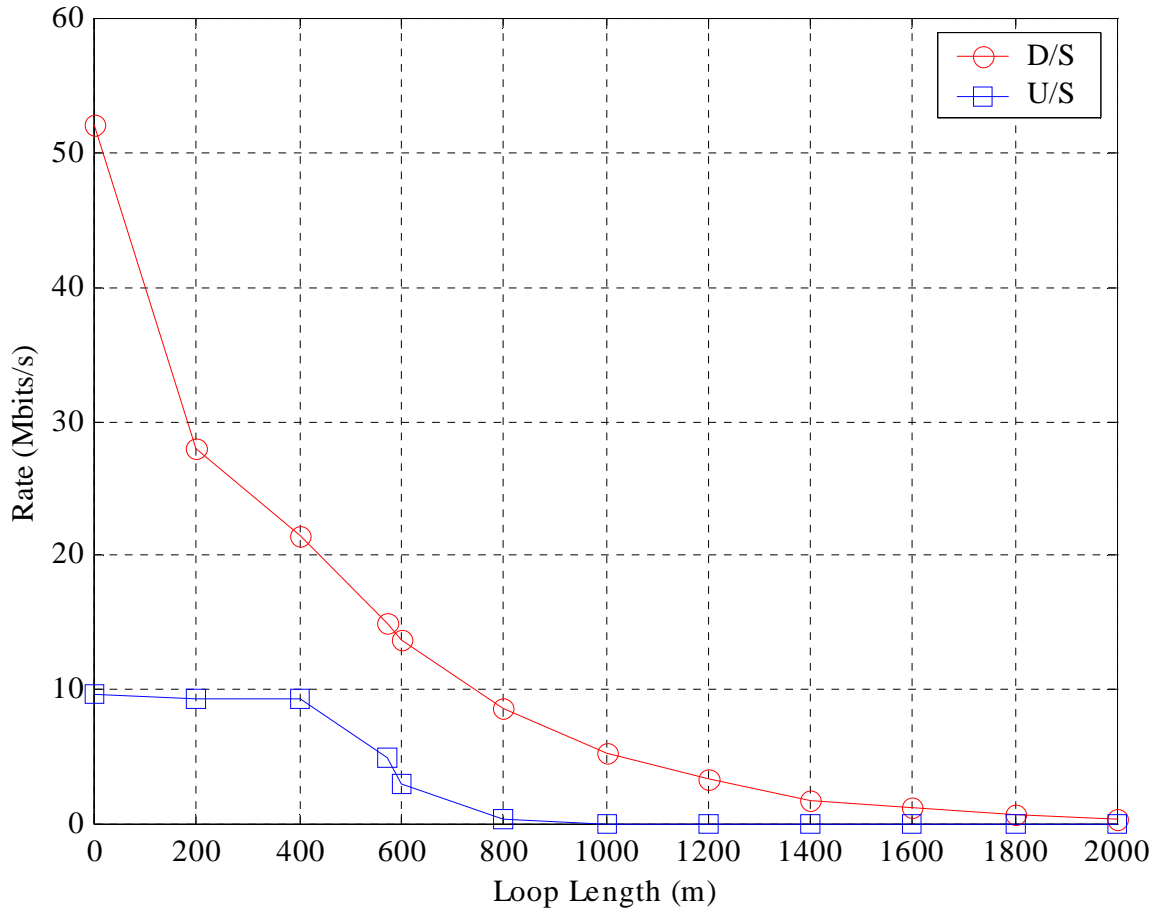
Loop-Reach Analysis (Conti.)

Test	Loop	L,0dB	L,3dB	Req. L	Profile	Rate	Notch	UPBO	Noise
20	TP2	x	x	100	8	100/35	2,6,10,11	-	self
21	TP2	29	25	200	8	75/35	2,6,10,11	-	self
22	TP2	709	660	150	16	50/50	2,5,9,11	-	AWGN
23	TP2	215	176	250	16	35/25	2,5,9,11	-	self
24	TP1	799	746	650	6	25/5	2,6,10,11	-	self
25	TP2	746	608	800	17	15/15	2,5,9,11	-	self
26	TP1	1105	1025	1000	8	15/2.5	2,6,10,11	-	self
27	TP2	789	452	500	4	12.5/12.5	2,6,10,11	-	self
28	TP2	976	871	750	4	7.5/7.5	2,6,10,11	-	self
29	TP2	1093	938	1200	23	5/5	2,5,9,11	-	self
30	TP2	1337	1230	1800	23	2.5/2.5	2,5,9,11	-	self



Test 2 – Rate vs. Reach

ETSI, Pex.P1.M2, TP 1, Notch Off, UPBO= 9, xDUDU, 20-S, 1-A, G=15dB

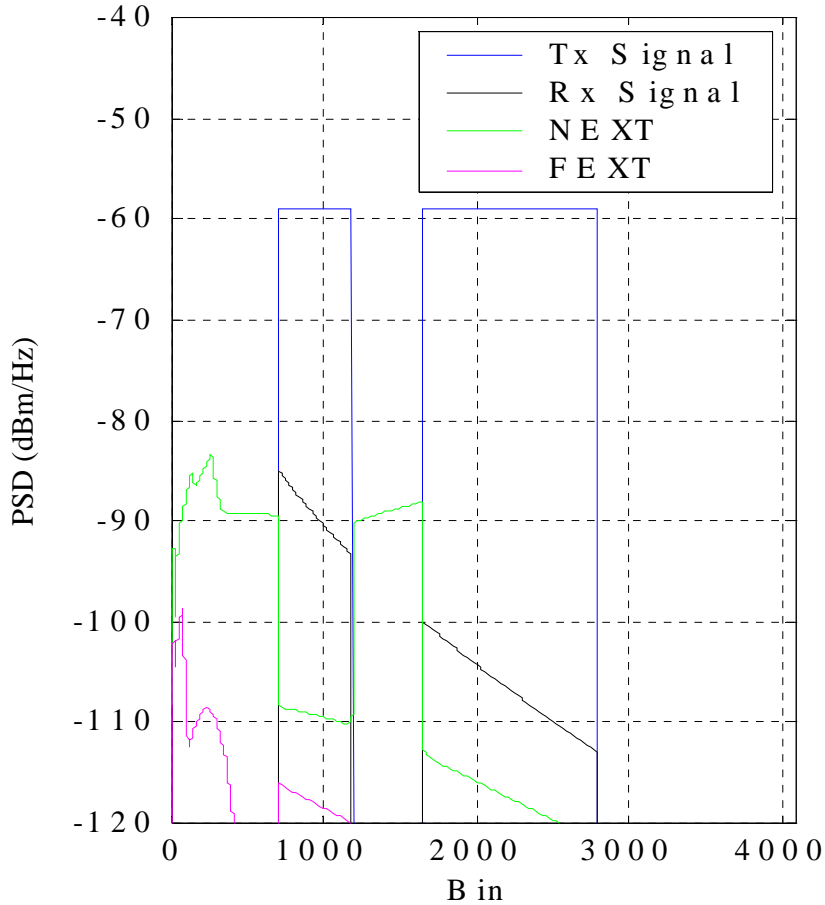


- u 10/10 @ 575 m
- u Not feasible
- u Profile 18
- Pex.P1.M2
- x/D/U/D/U
- u Notch off
- u UPBO profile 9
- u ETSI Noise F
- u 20-self xtalks

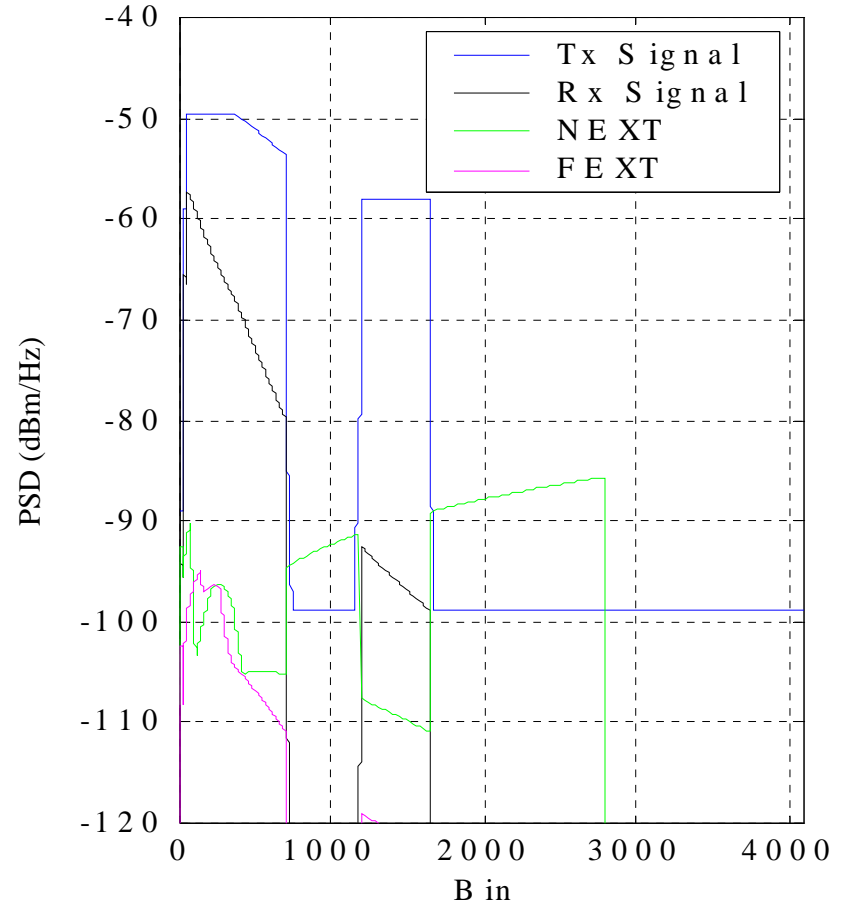


Test 2 – Tx, Rx, Noise PSD

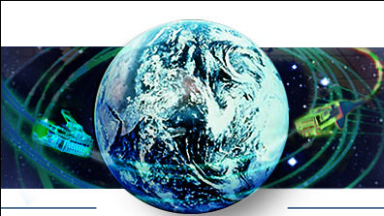
U/S , 20 Self-Xtalks , 1 Alien-Xtalks



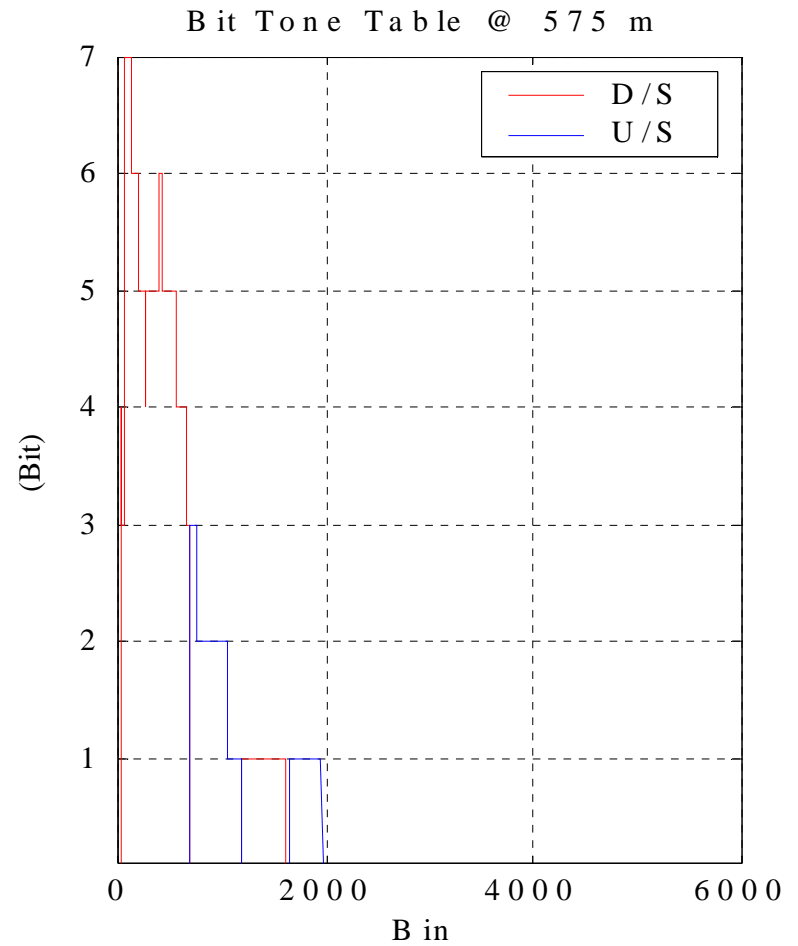
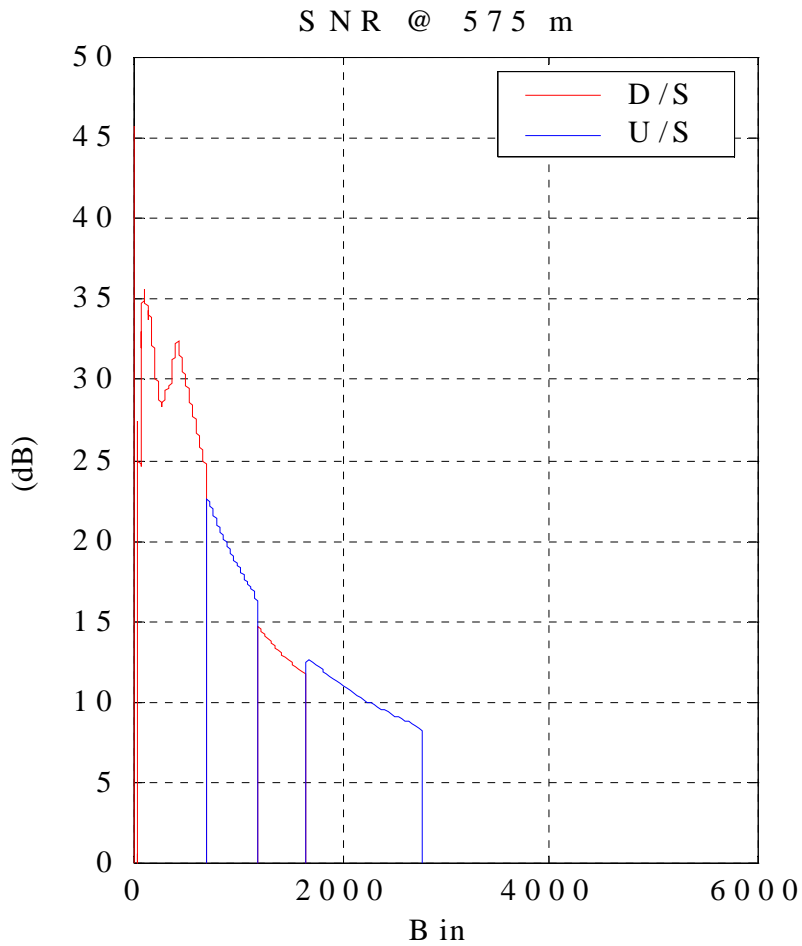
D/S , 20 Self-Xtalks , 1 Alien-Xtalks



Loop-length : 575 m



Test 2 – SNR, Bit Tone Table



u D/S Rate = 14.9 Mb/s, U/S Rate = 4.8 Mb/s @ 575 m



- u The detailed analysis for the other tests are given in the appendix from slide 15 to slide 95.
- u The results show that the loop-reach requirements in the current Table 62B-1 need some modification.



Proposed Loop-Reach

Test	D2.1	Loop	New L	Old L	Profile	Rate	Notch	UPBO	Noise
1	1	TP1	950	750	13	10/10	-	5	AWGN
2	3	TP2	750	750	13	10/10	-	5	ETSI A
3	5	TP2	150	500	1	10/10	-	1	T1.424 A
4	7	TP2	25	500	1	10/10	2,6,10,11	1	T1.424 A
5	11	TP2	700	150	16	50/50	-	-	AWGN
6	12	TP2	180	250	16	35/25	-	-	self
7	13	TP1	750	650	6	25/5	-	-	self
8	14	TP2	700	800	17	15/15	-	-	self
9	15	TP1	1050	1000	8	15/2.5	-	-	self
10	16	TP2	500	500	4	12.5/12.5	-	-	self
11	17	TP2	900	750	4	7.5/7.5	-	-	self



Proposed Loop-Reach (Conti.)

Test	D2.1	Loop	New L	Old L	Profile	Rate	Notch	UPBO	Noise
12	18	TP2	1100	1200	23	5/5	-	-	self
13	19	TP2	1300	1800	23	2.5/2.5	-	-	self
14	22	TP2	600	150	16	50/50	2,5,9,11	-	AWGN
15	23	TP2	150	250	16	35/25	2,5,9,11	-	self
16	24	TP1	700	650	6	25/5	2,6,10,11	-	self
17	25	TP2	600	800	17	15/15	2,5,9,11	-	self
18	26	TP1	1000	1000	8	15/2.5	2,6,10,11	-	self
19	27	TP2	400	500	4	12.5/12.5	2,6,10,11	-	self
20	28	TP2	850	750	4	7.5/7.5	2,6,10,11	-	self1
21	29	TP2	900	1200	23	5/5	2,5,9,11	-	self
22	30	TP2	1200	1800	23	2.5/2.5	2,5,9,11	-	self



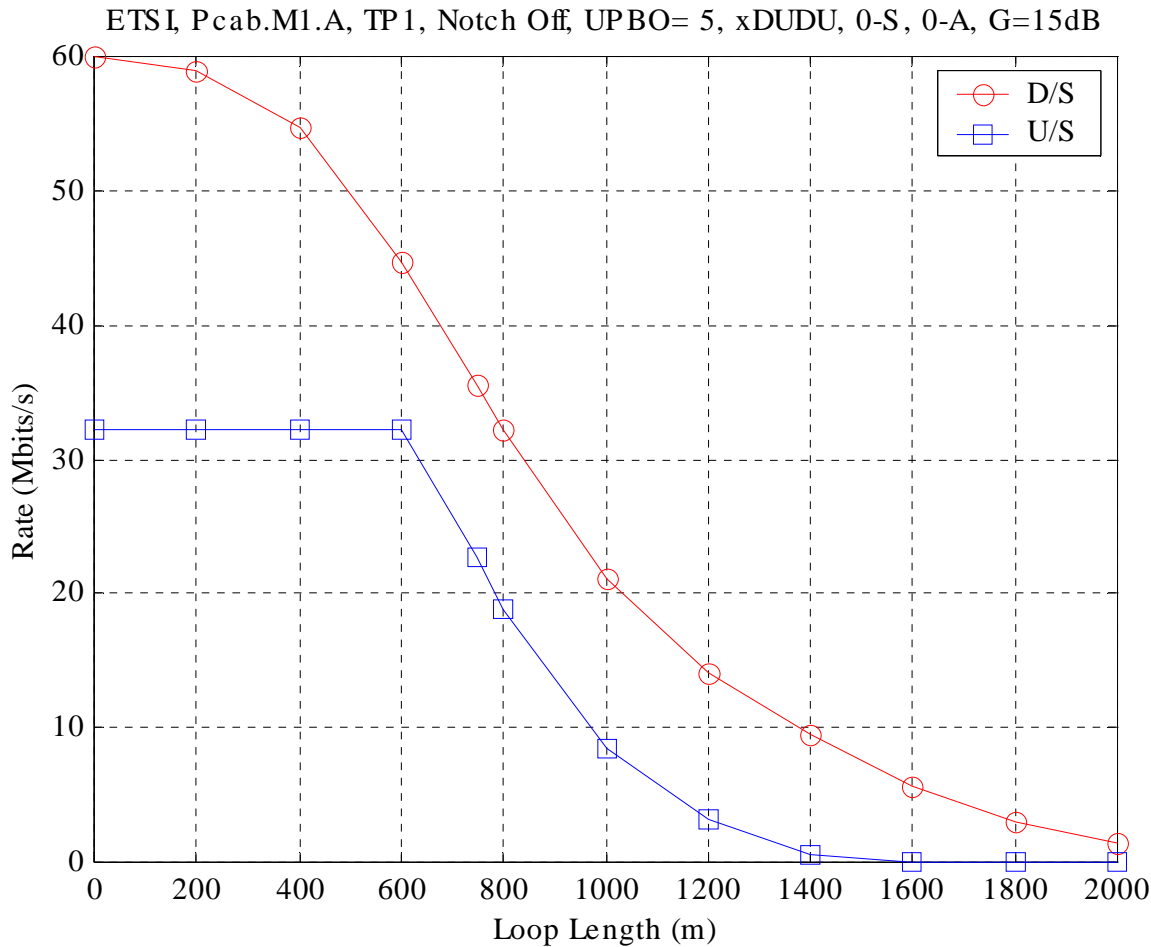
- u We recommend deleting test 2, 4, 6, 8, 9, 10, 20, 21 in D2.1.
- u We recommend increasing loop-reach objective in test 1, 11, 13, 15, 17, 22, 24, 28 in D2.1
- u We recommend decreasing loop-reach objective in test 5, 7, 9, 12, 14, 18, 19, 23, 25, 27, 29, 30 in D2.1.



Appendix



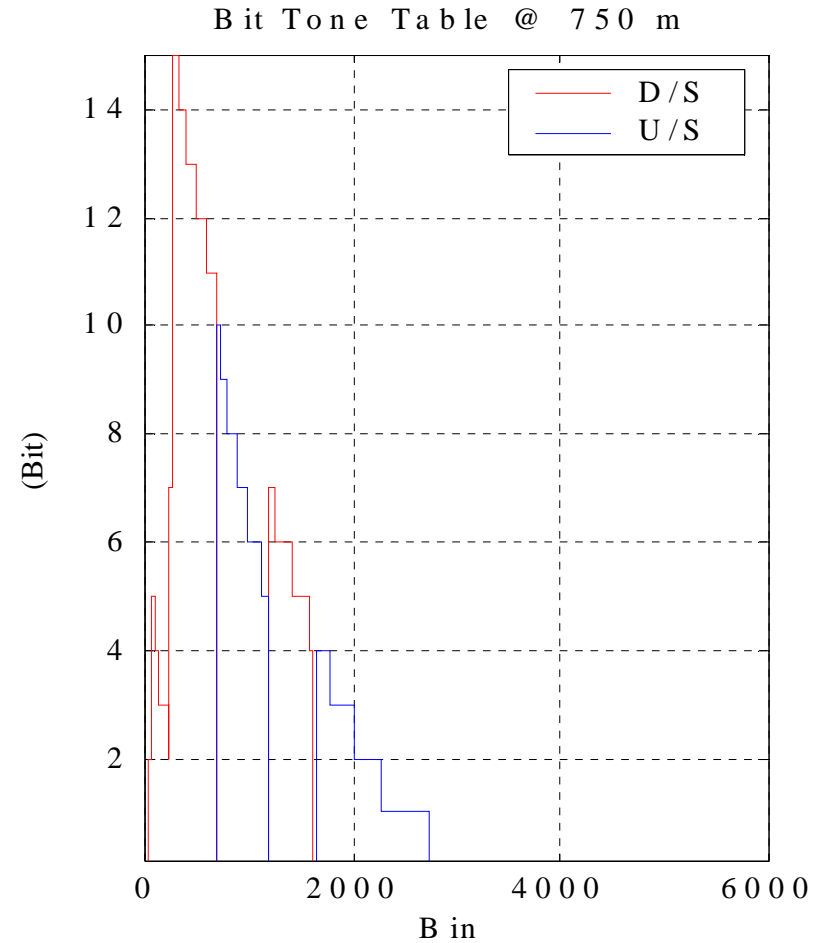
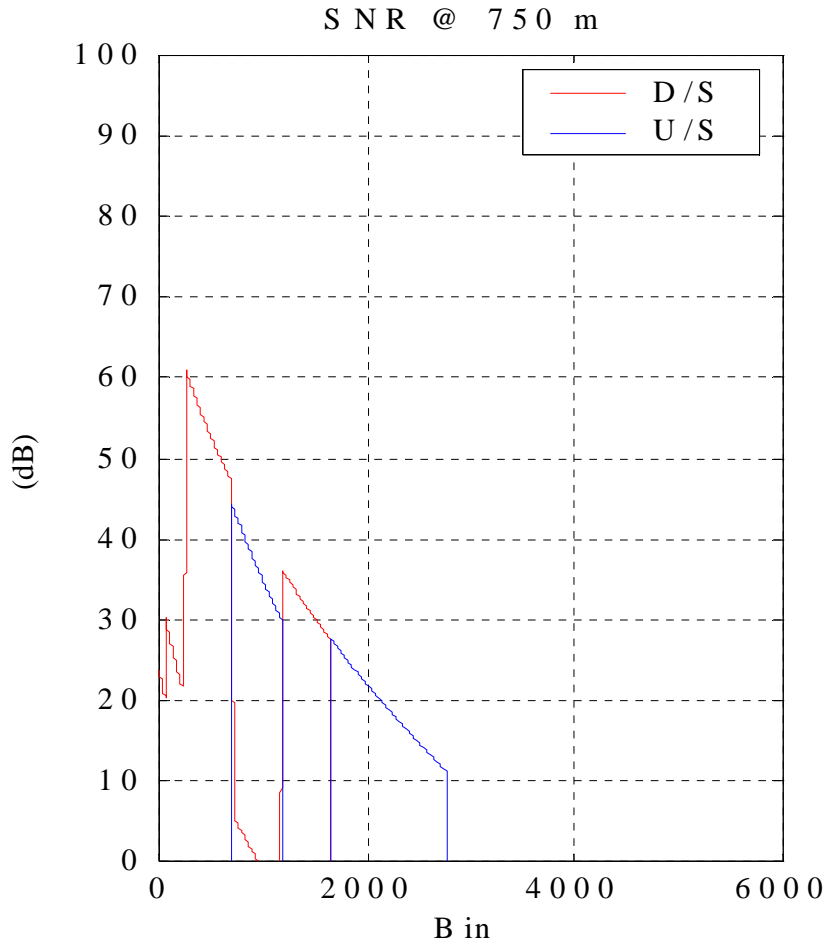
Test 1 – Rate vs. Reach



- u 10/10 @ 750 m
- u 10/10 @ 969 m
- u Profile 13
- Pcab.M1.A
- x/D/U/D/U
- u Notch off
- u UPBO Profile 5
- u AWGN



Test 1 – SNR, Bit Tone Table

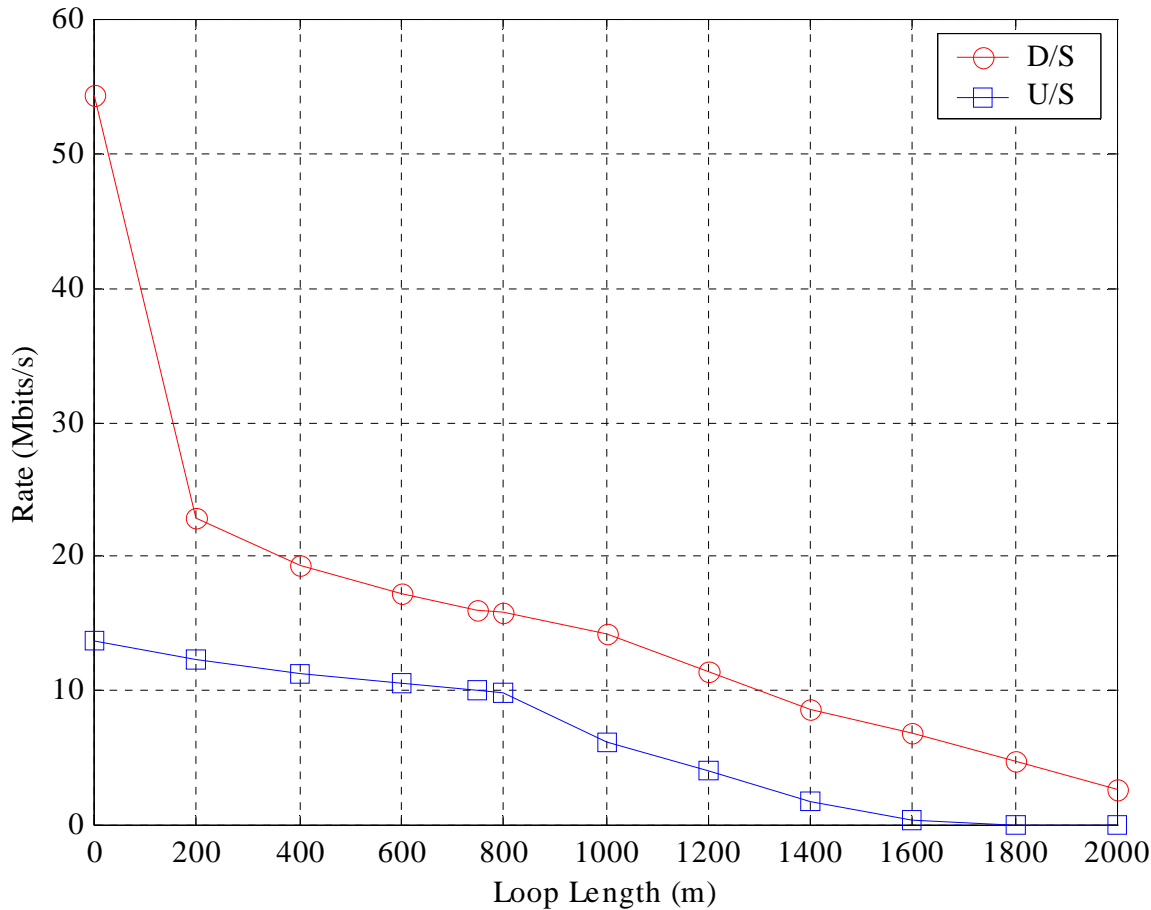


u D/S Rate = 35.5 Mb/s, U/S Rate = 22.6 Mb/s @ 750 m



Test 3 – Rate vs. Reach

ETSI, Pcab.M1.A, TP2, Notch Off, UPBO= 5, xDUDU, 20-S, 1-A, G=15dB

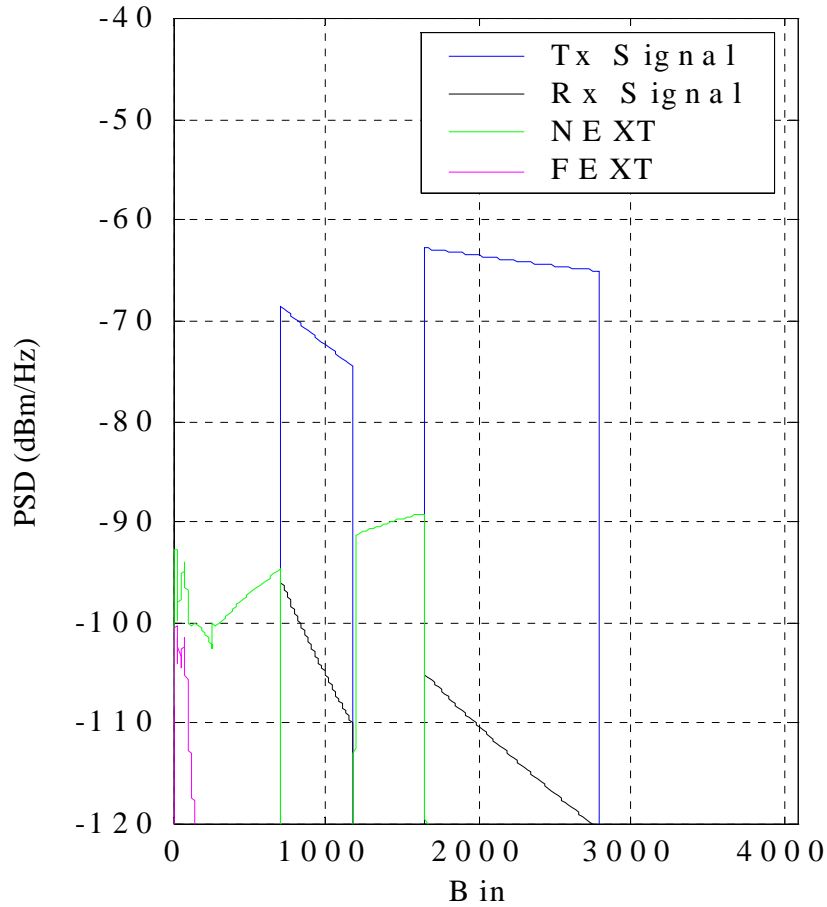


- u 10/10 @ 750 m
- u 10/10 @ 757 m
- u Profile 13
- Pcab.M1.A
- x/D/U/D/U
- u Notch off
- u UPBO Profile 5
- u ETSI A
- u 20-self xtalks

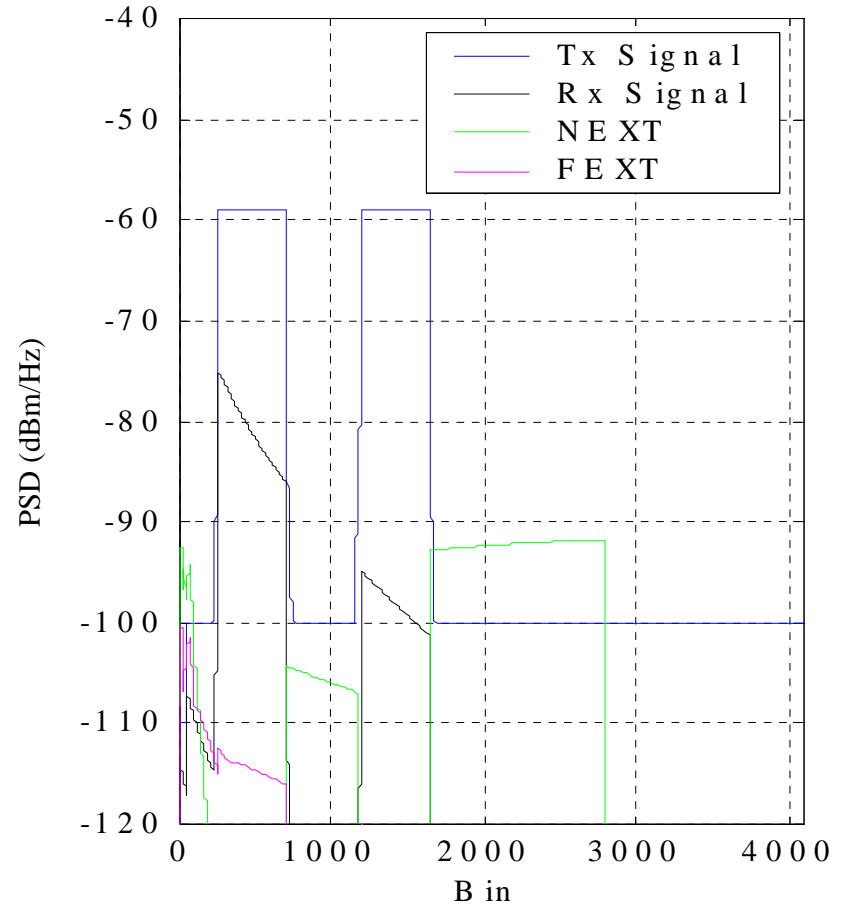


Test 3 – Tx, Rx, Noise PSD

U/S , 20 Self-Xtalks , 1 Alien-Xtalks



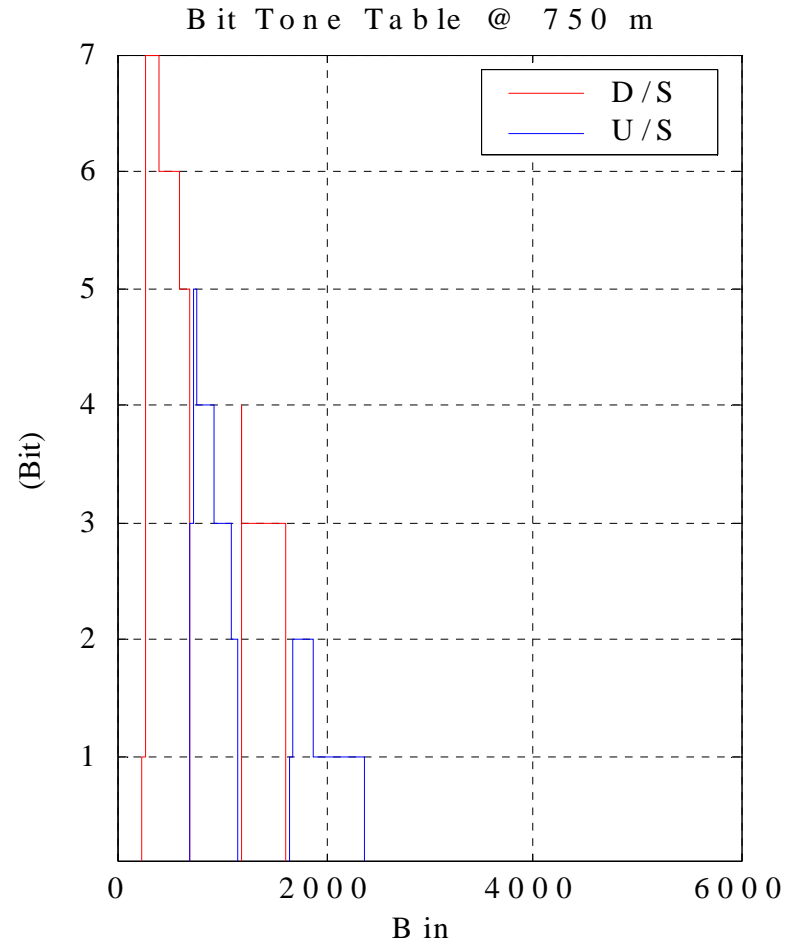
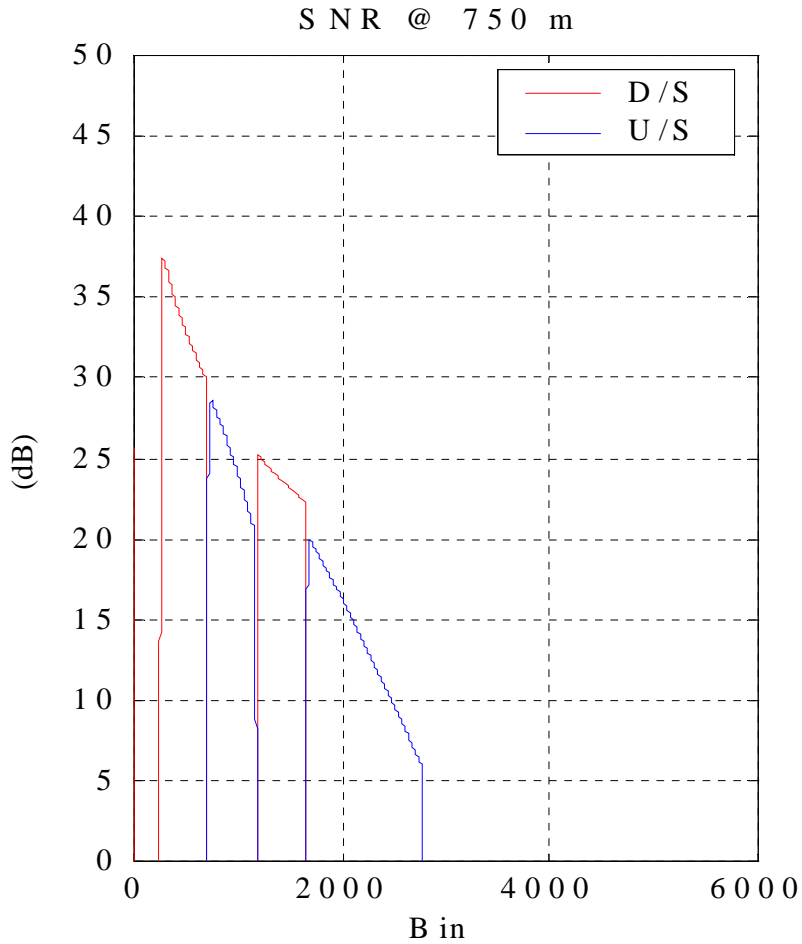
D/S , 20 Self-Xtalks , 1 Alien-Xtalks



u Loop length : 750 m



Test 3 – SNR, Bit Tone Table

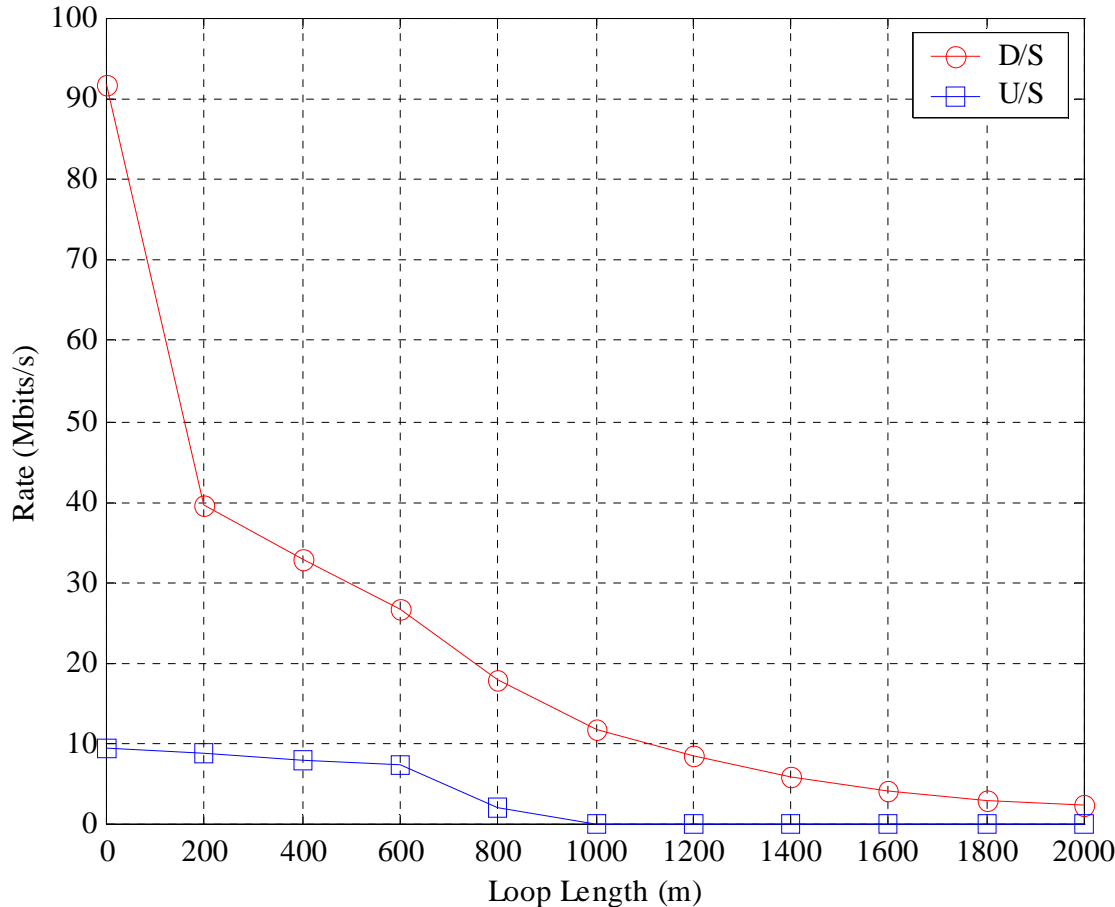


u D/S Rate = 15.9 Mb/s, U/S Rate = 10 Mb/s @ 750 m



Test 4 – Rate vs. Reach

ANSI, FTTEEx.M1, TP1, Notch Off, UPBO= 3, xDUDU, 20-S, 1-A, G=15dB

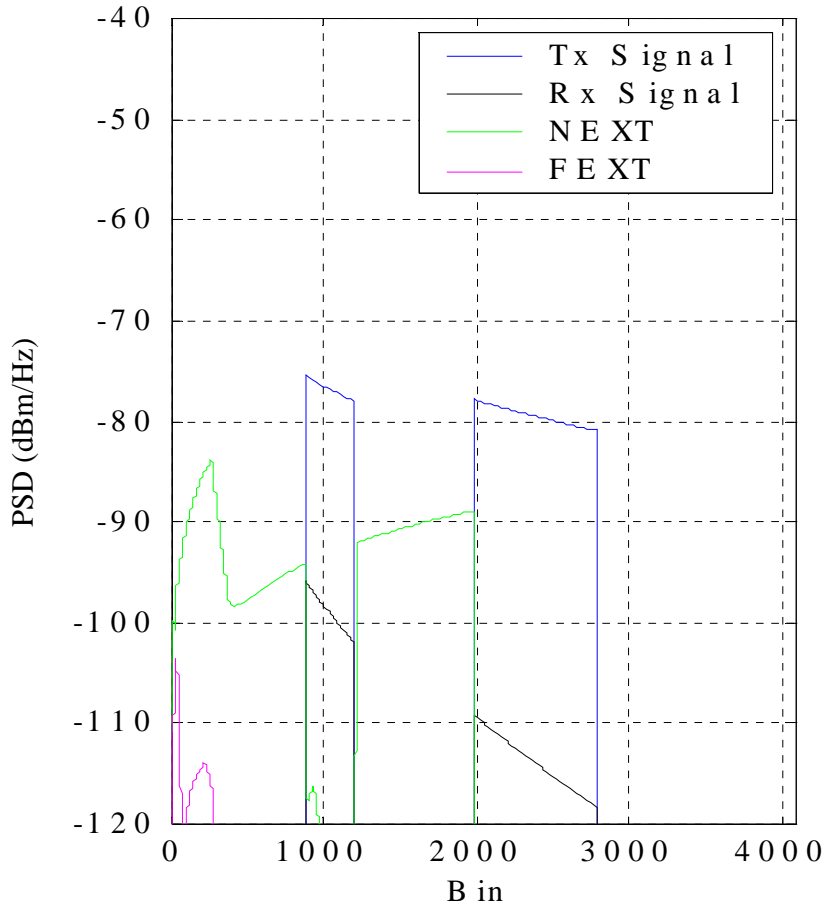


- u 10/10 @ 400 m
- u Infeasible
- u Profile 2
- FTTEEx.M1
- x/D/U/D/U
- u Notch off
- u UPBO Profile 3
- u T1.424 F
- u 20-self xtalks

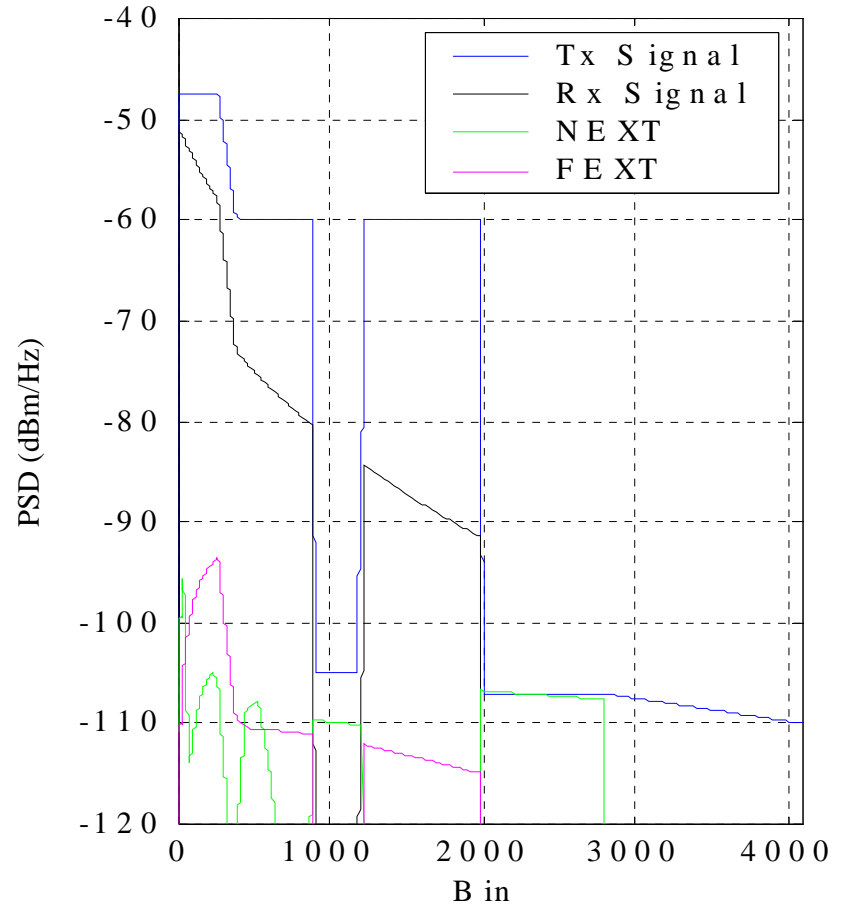


Test 4 – Tx, Rx, Noise PSD

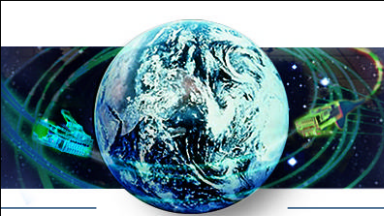
U/S , 20 Self-Xtalks , 1 Alien-Xtalks



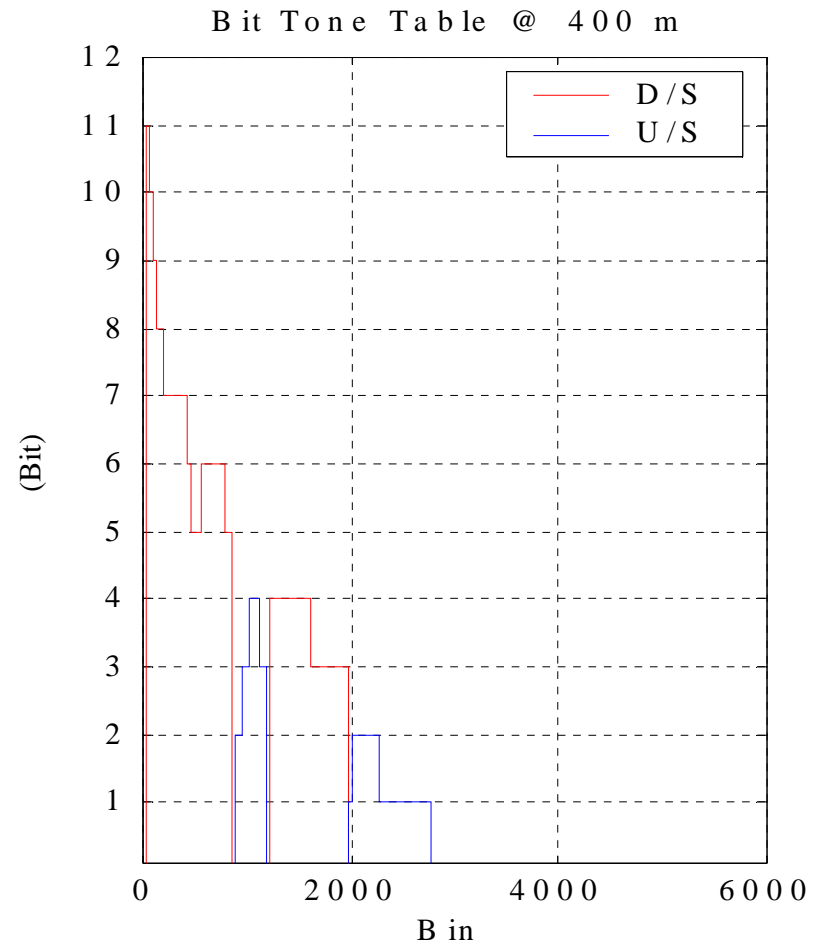
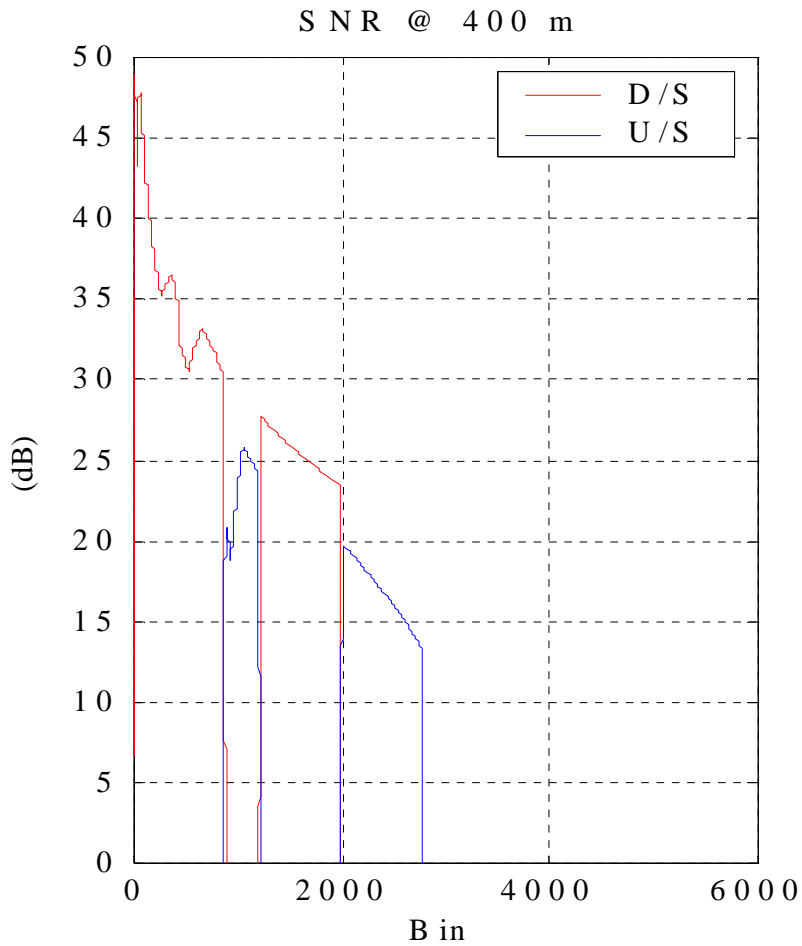
D/S , 20 Self-Xtalks , 1 Alien-Xtalks



u Loop length : 400 m



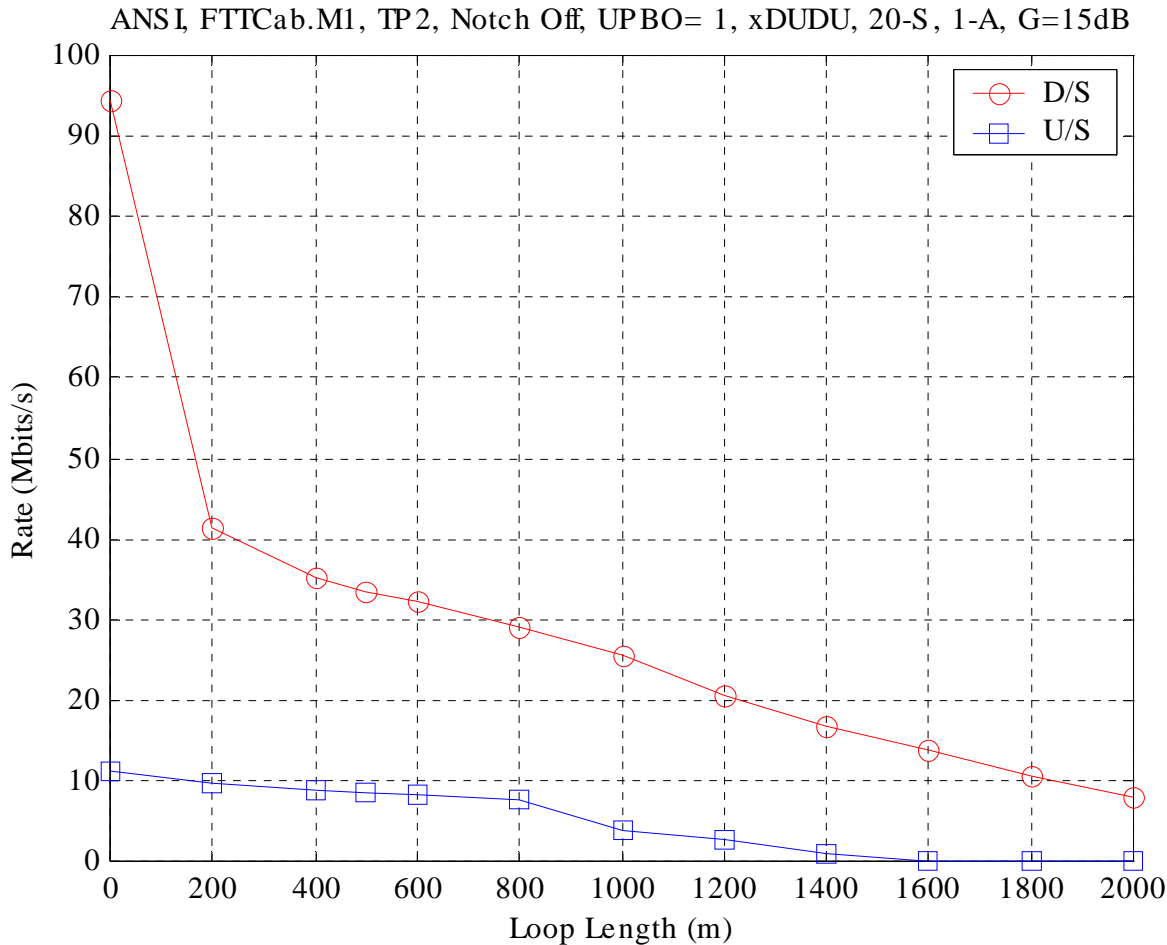
Test 4 – SNR, Bit Tone Table



u D/S Rate = 32.8 Mb/s, U/S Rate = 8.05 Mb/s @ 400 m



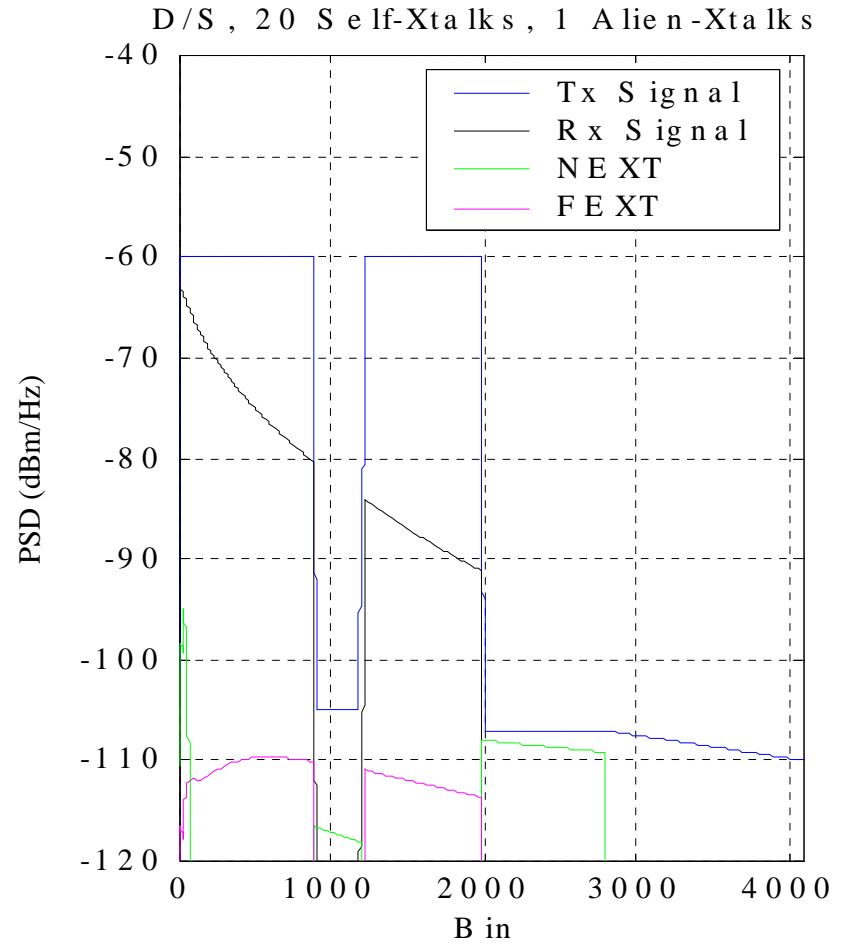
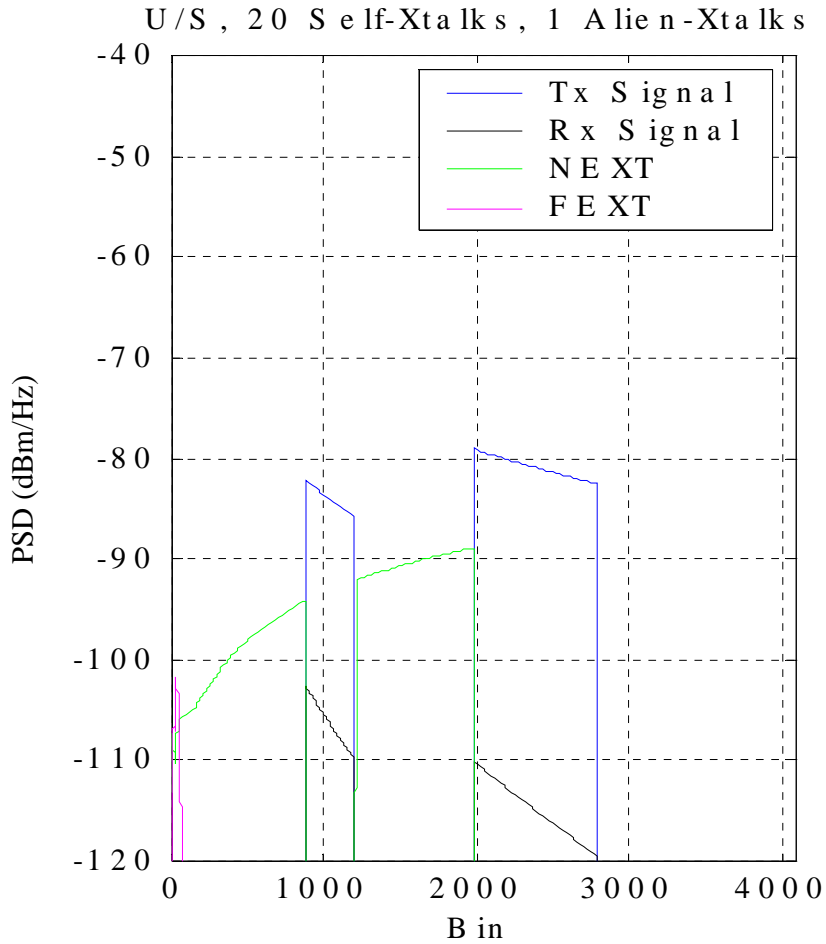
Test 5 – Rate vs. Reach



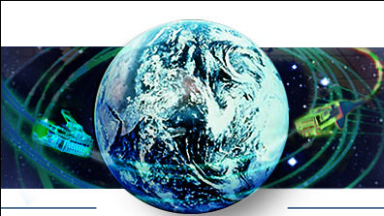
- u 10/10 @ 500 m
- u 10/10 @ 169 m
- u Profile 1
- FTTCab.M1
- x/D/U/D/U
- u Notch off
- u UPBO Profile 1
- u T1.424A
- u 20-self xtalks



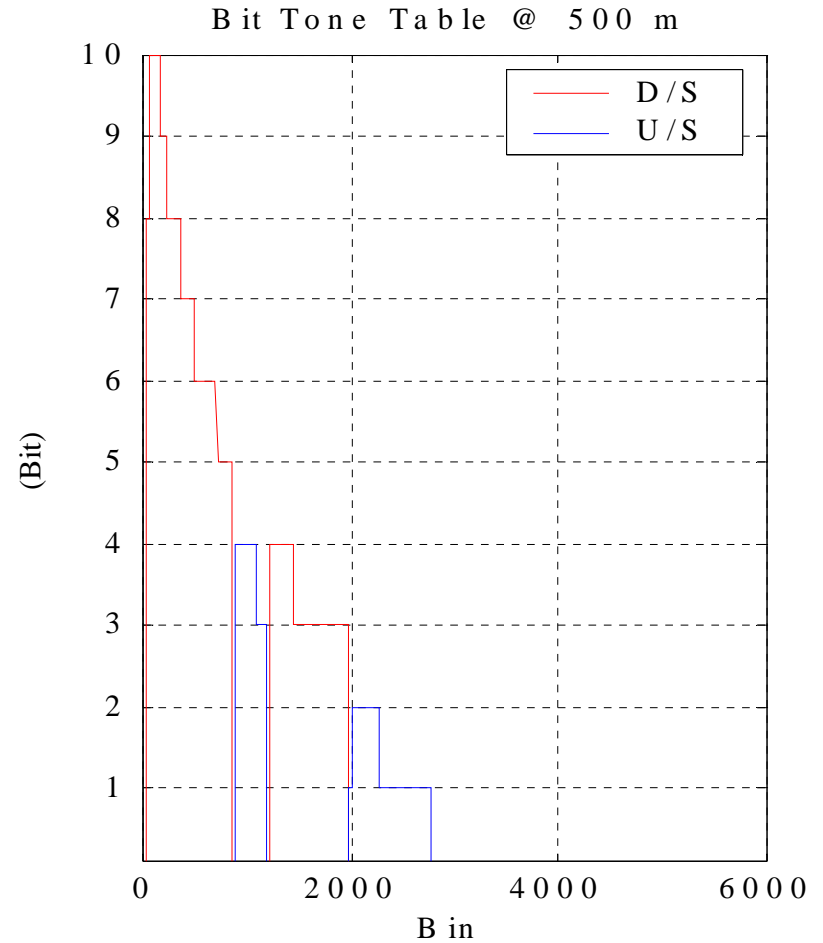
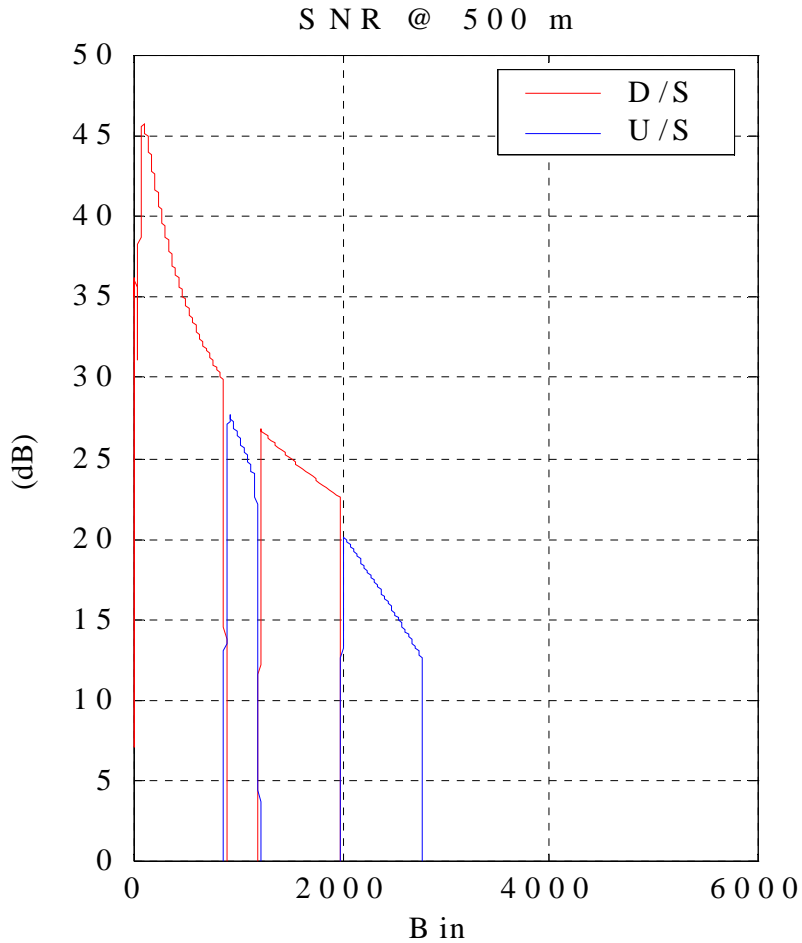
Test 5 – Tx, Rx, Noise PSD



u Loop length : 500 m



Test 5 – SNR, Bit Tone Table

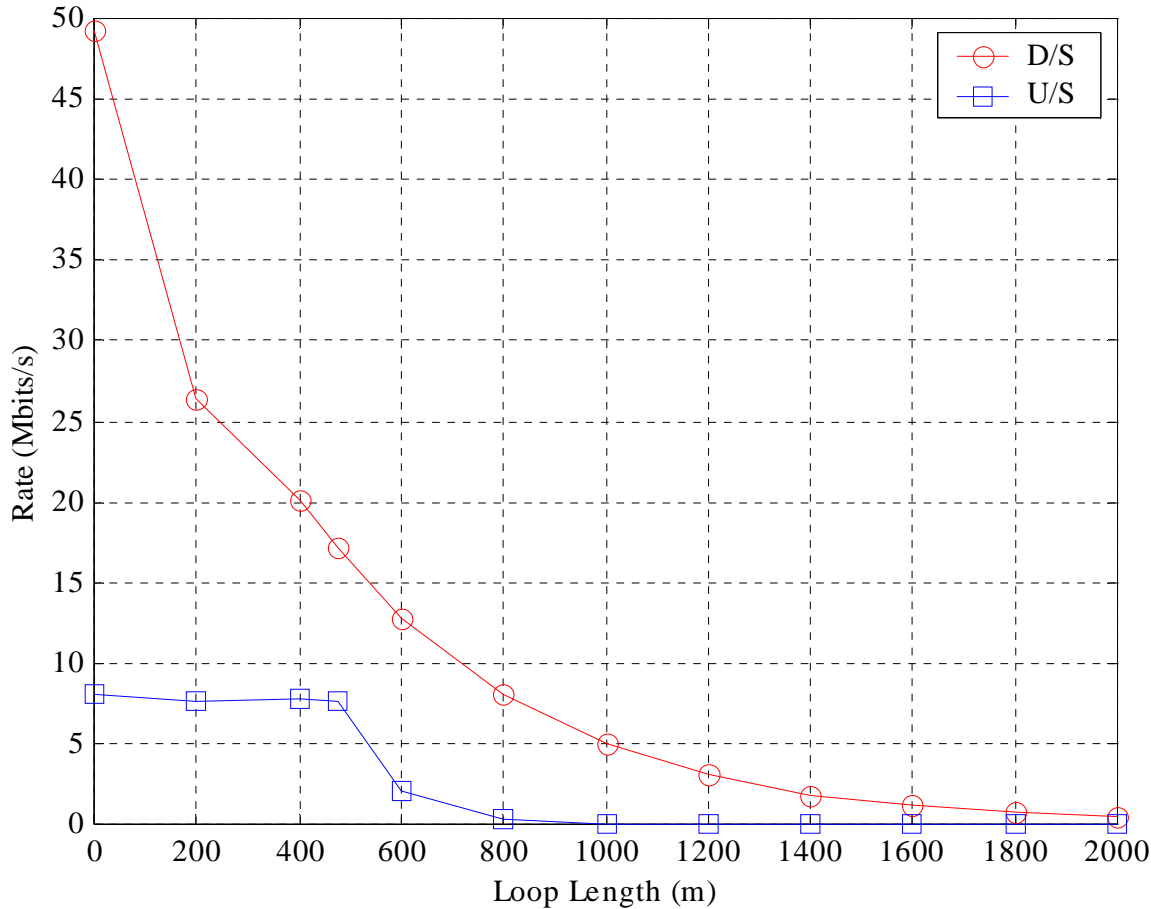


u D/S Rate = 33.5 Mb/s, U/S Rate = 8.5 Mb/s @ 500 m



Test 6 – Rate vs. Reach

ETSI, Pex.P1.M2, TP 1, Notch On, UPBO= 9, xDUDU, 20-S, 1-A, G=15dB

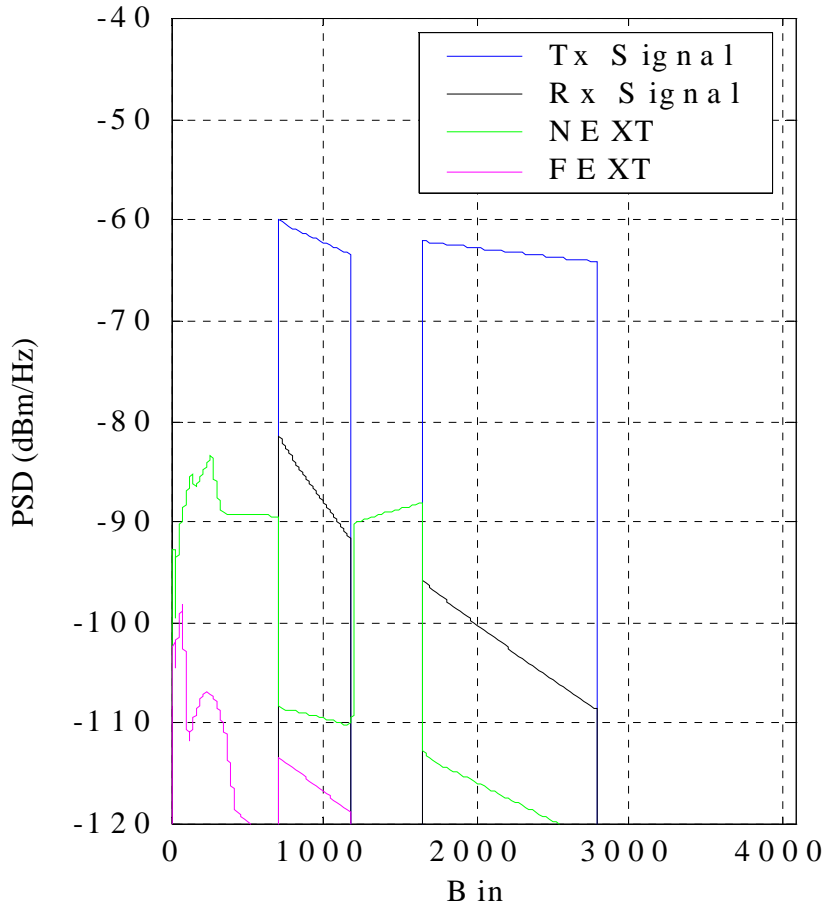


- u 10/10 @ 475 m
- u Infeasible
- u Profile 18
- Pex.P1.M2
- x/D/U/D/U
- u Notch Profile :
2, 5, 9, 11
- u UPBO Profile 9
- u ETSI F
- u 20-self xtalks

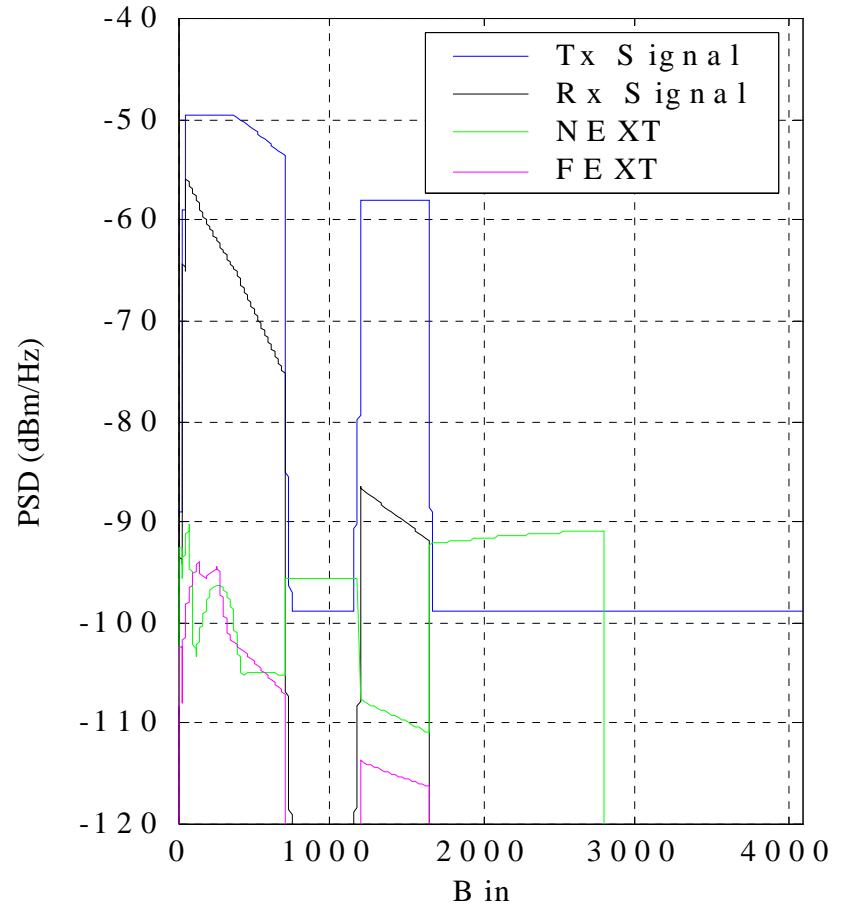


Test 6 – Tx, Rx, Noise PSD

U/S , 20 Self-Xtalks , 1 Alien-Xtalks



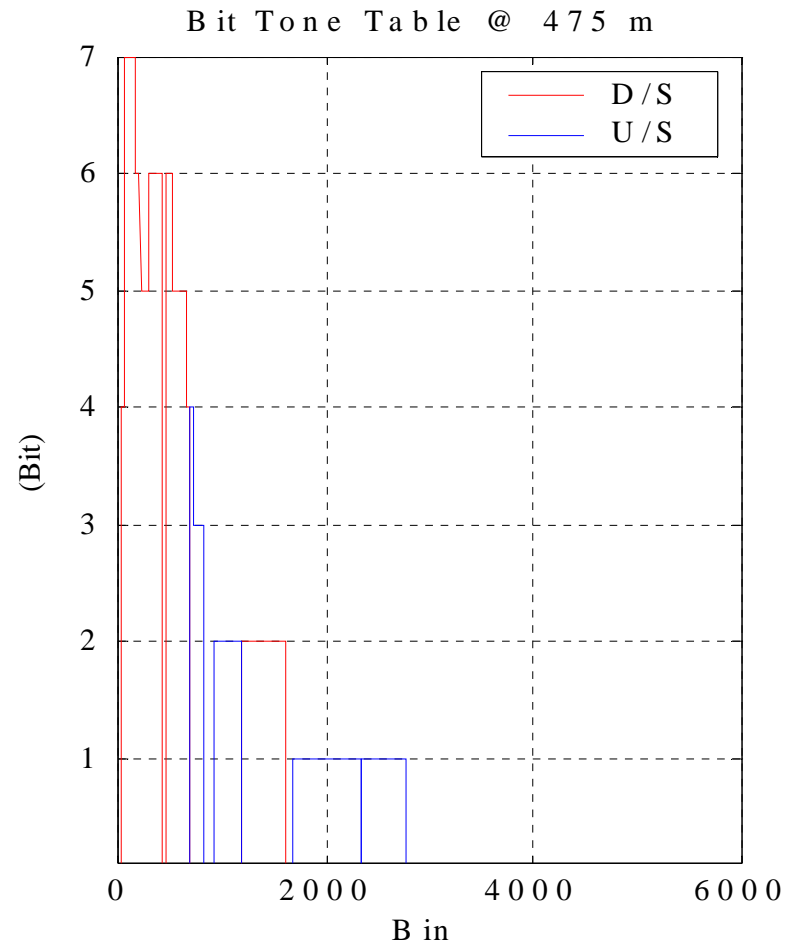
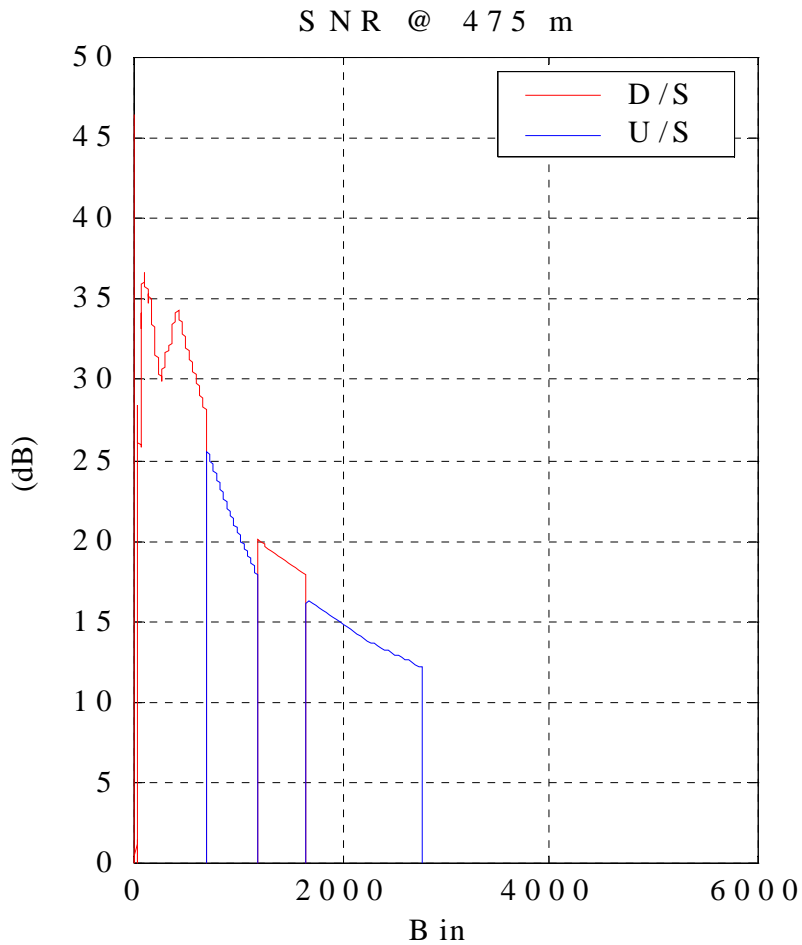
D/S , 20 Self-Xtalks , 1 Alien-Xtalks



u Loop length : 475 m



Test 6 – SNR, Bit Tone Table

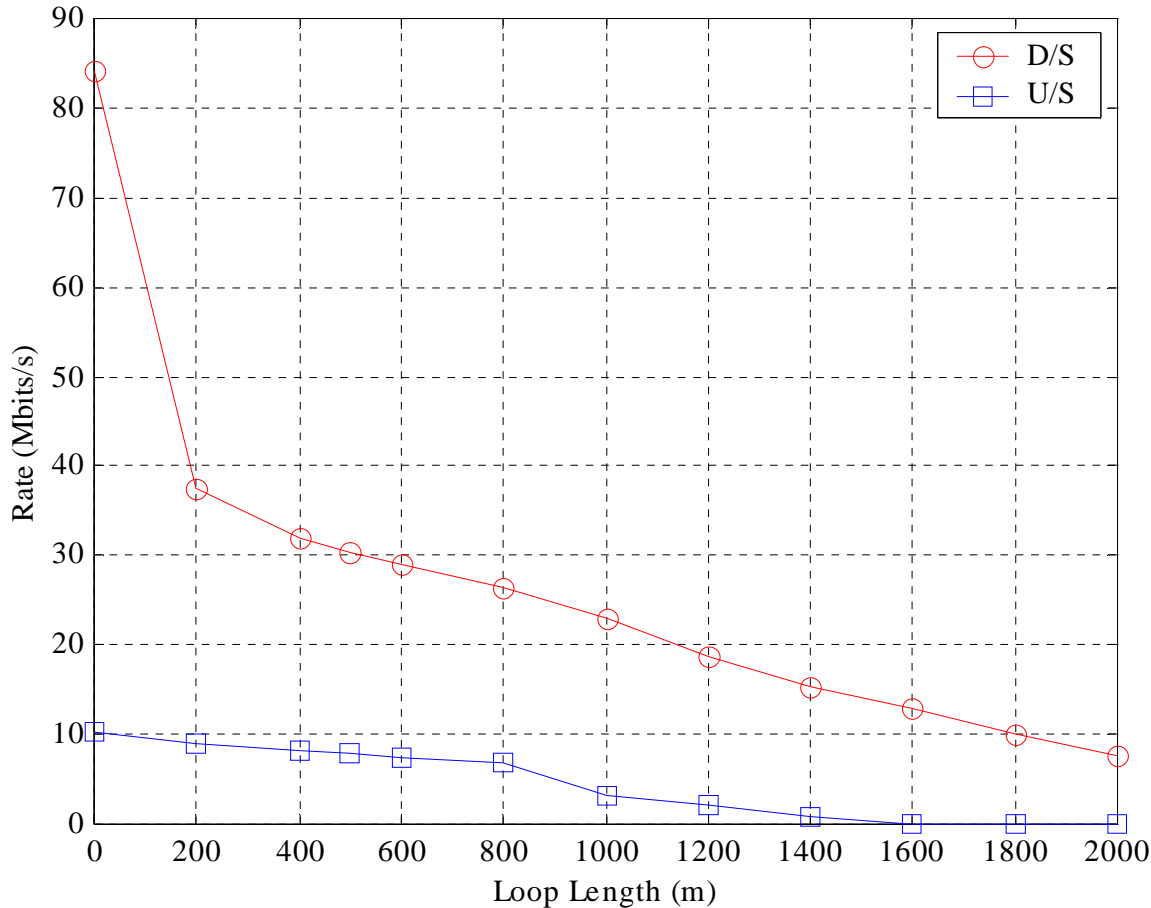


u D/S Rate = 17.2 Mb/s, U/S Rate = 7.69 Mb/s @ 475 m



Test 7, Test 9 – Rate vs. Reach

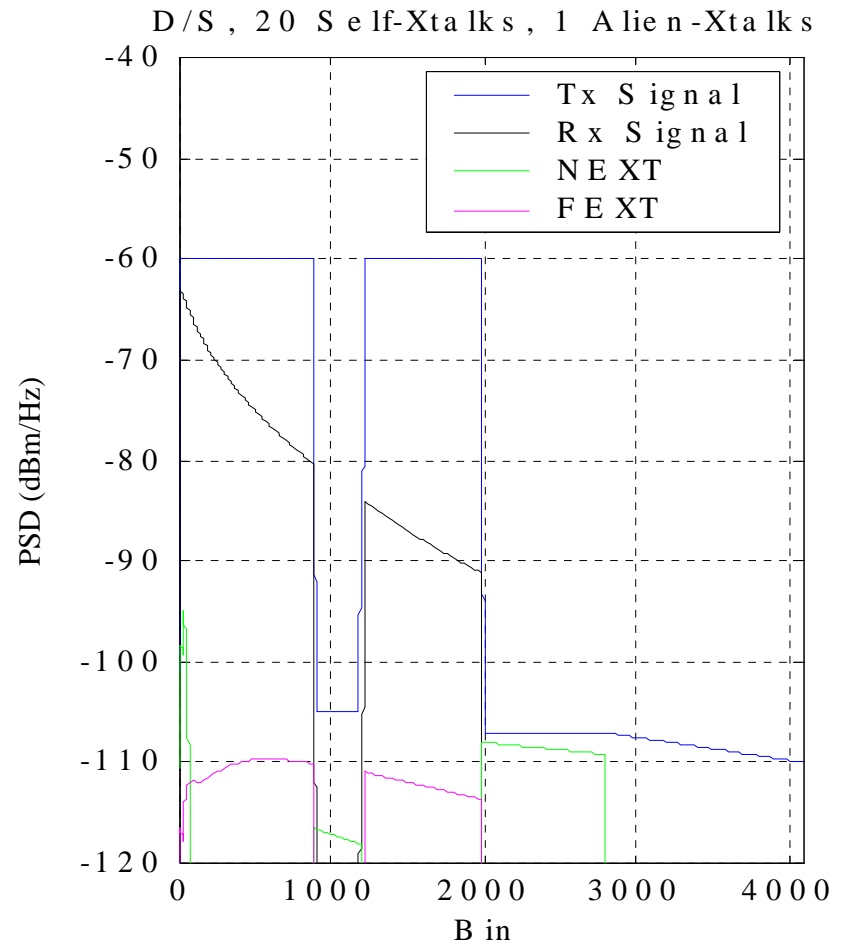
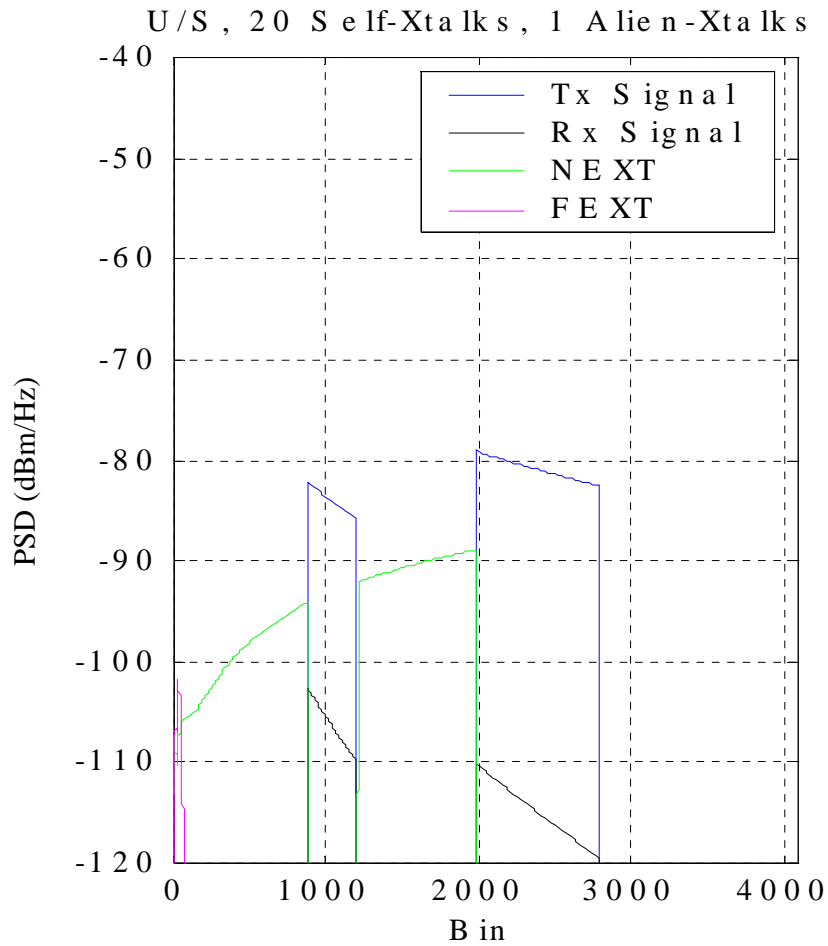
ANSI, FTTCab.M1, TP2, Notch On, UPBO= 1, xDUDU, 20-S, 1-A, G=15dB



- u 10/10 @ 500 m
- u 10/10 @ 450 m
- u 10/10 @ 28 m
- u Profile 1
- FTTCab.M1
- x/D/U/D/U
- u Notch Profile
- 2, 6, 10, 11
- u UPBO Profile 1
- u T1.424 A
- u 20-self xtalks



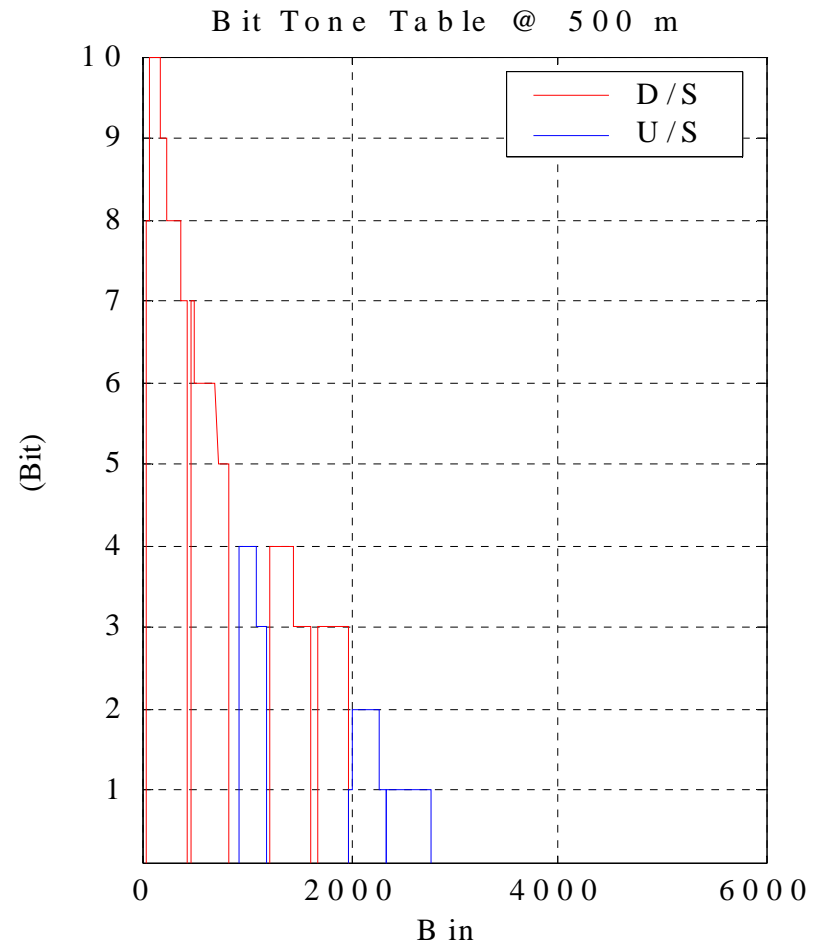
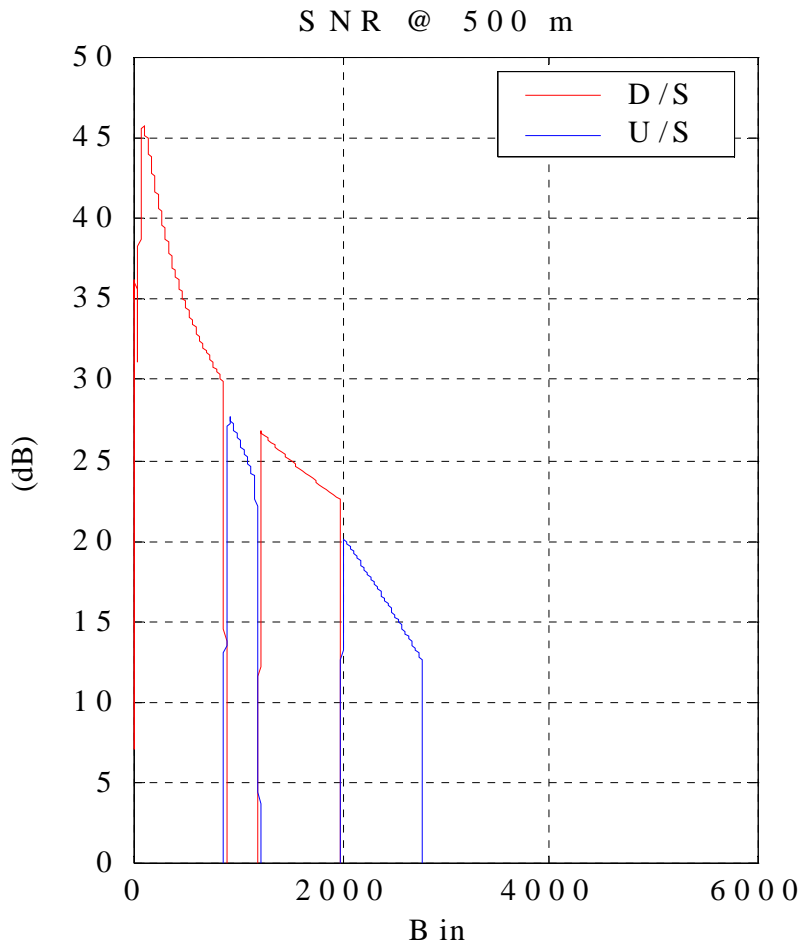
Test 7, Test 9 – Tx, Rx, Noise PSD



u Loop length : 500 m



Test 7, Test 9 – SNR, Bit Tone Table

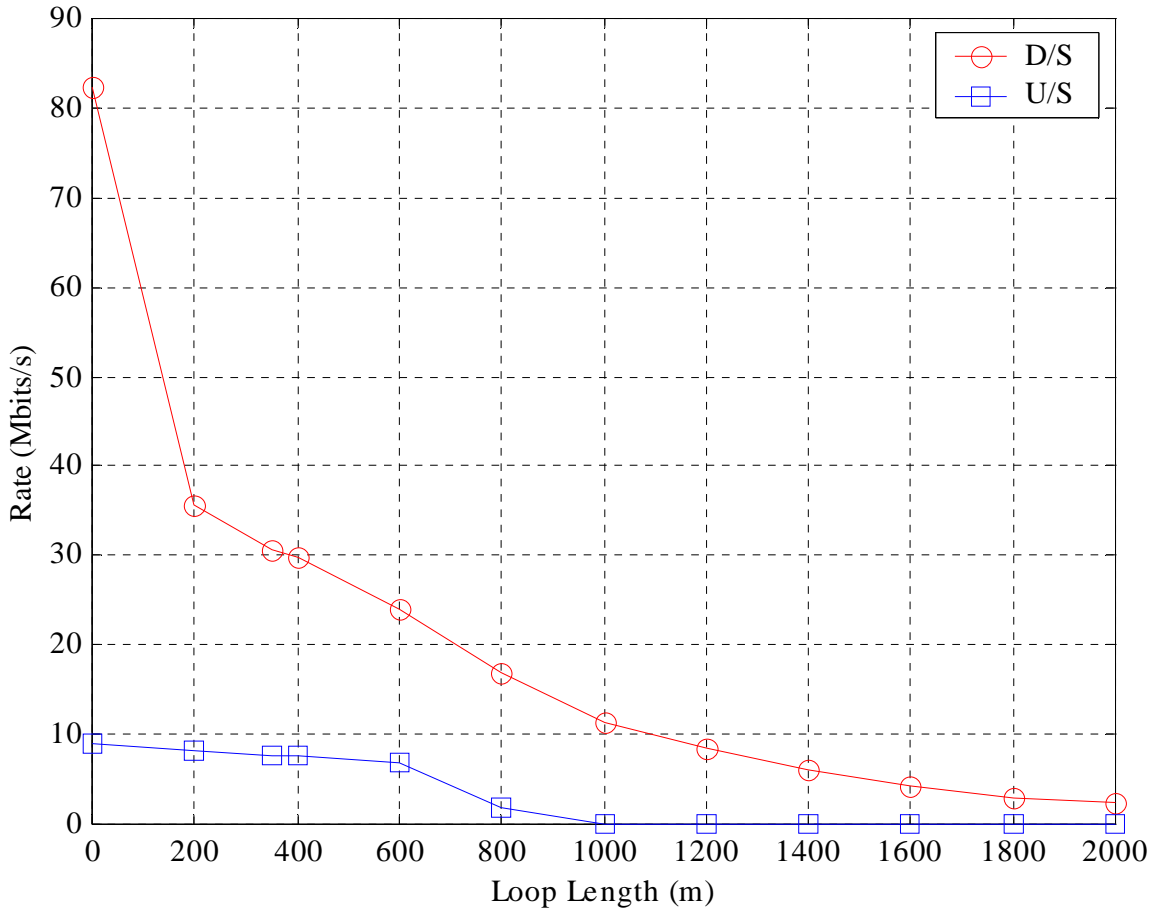


u D/S Rate = 30.3 Mb/s, U/S Rate = 7.8 Mb/s @ 500 m

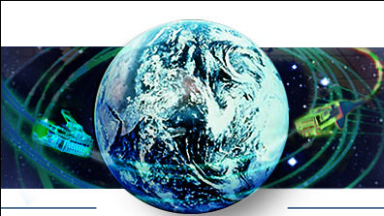


Test 8 – Rate vs. Reach

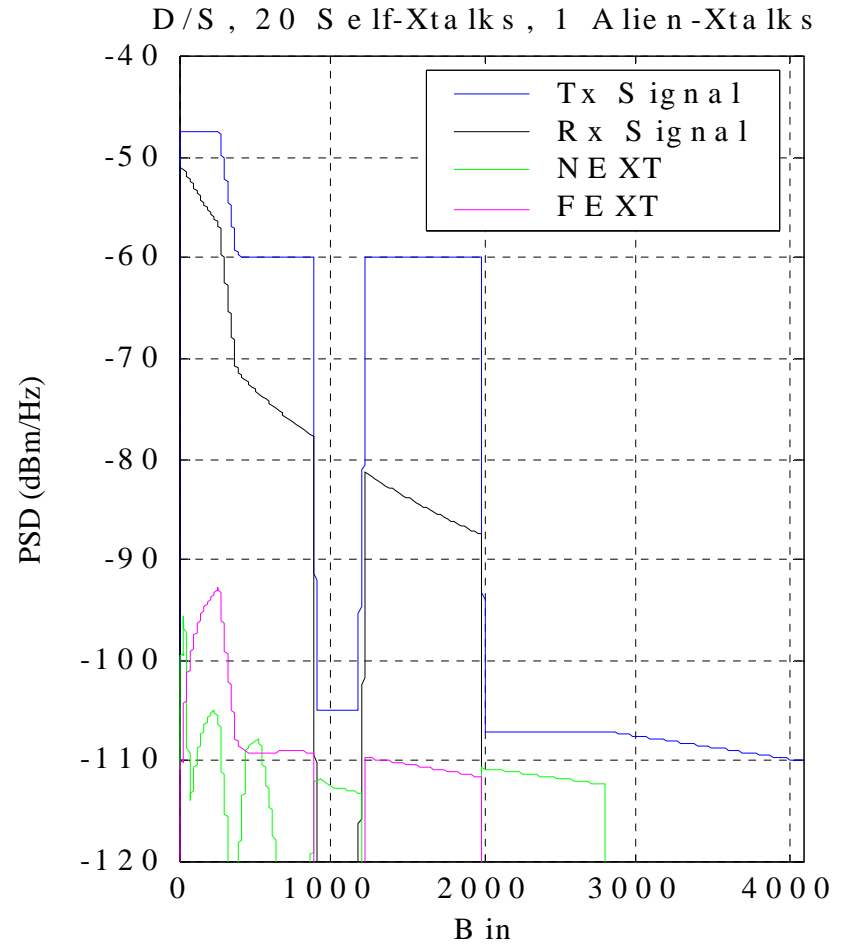
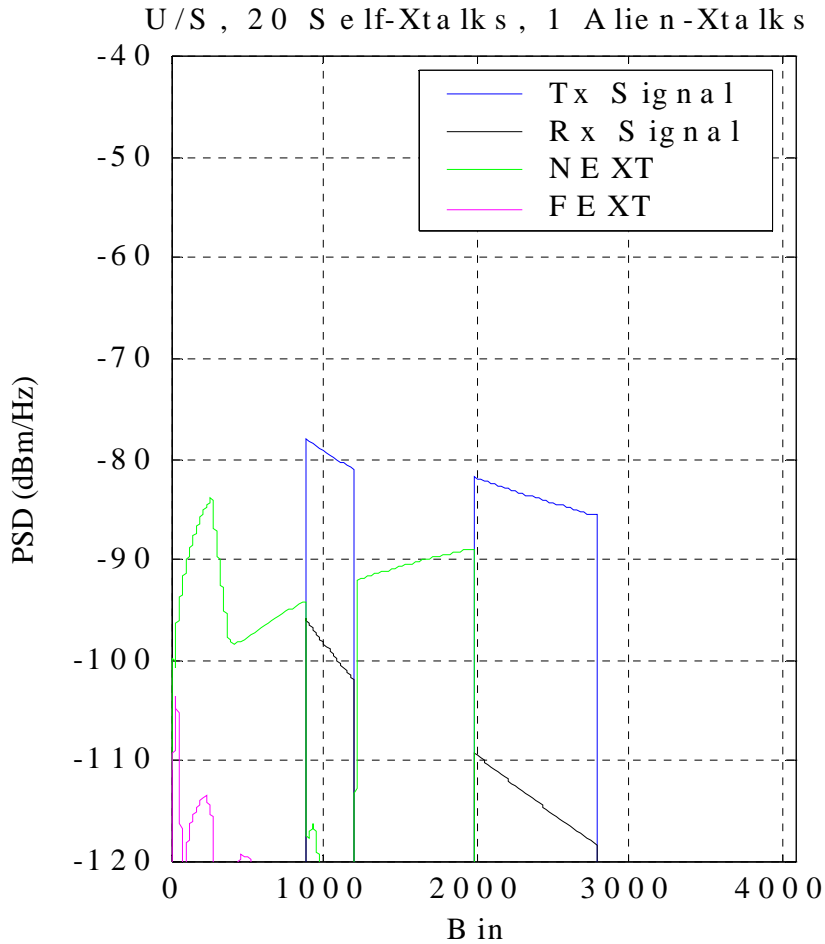
ANSI, FTTEx.M1, TP1, Notch On, UPBO= 3, xDUDU, 20-S, 1-A, G=15dB



- u 10/10 @ 350 m
- u Infeasible
- u Profile 2
- FTTEx.M1
- x/D/U/D/U
- u Notch Profile
- 2, 6, 10, 11
- u UPBO Profile 3
- u T1.424 F
- u 20-self xtalks



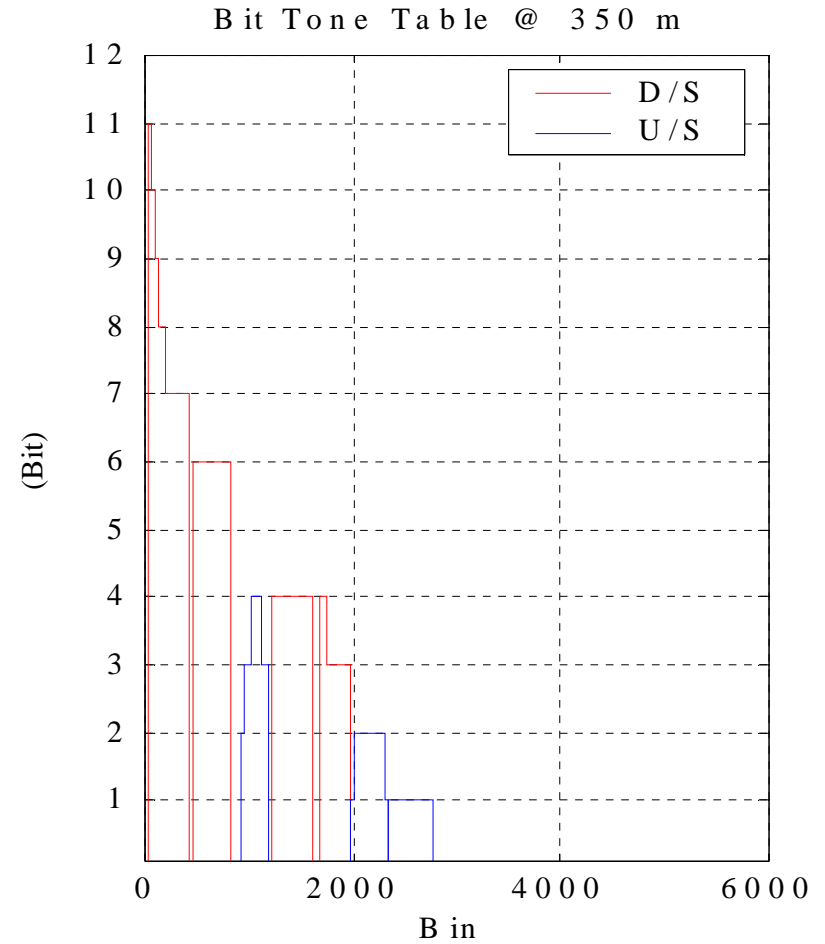
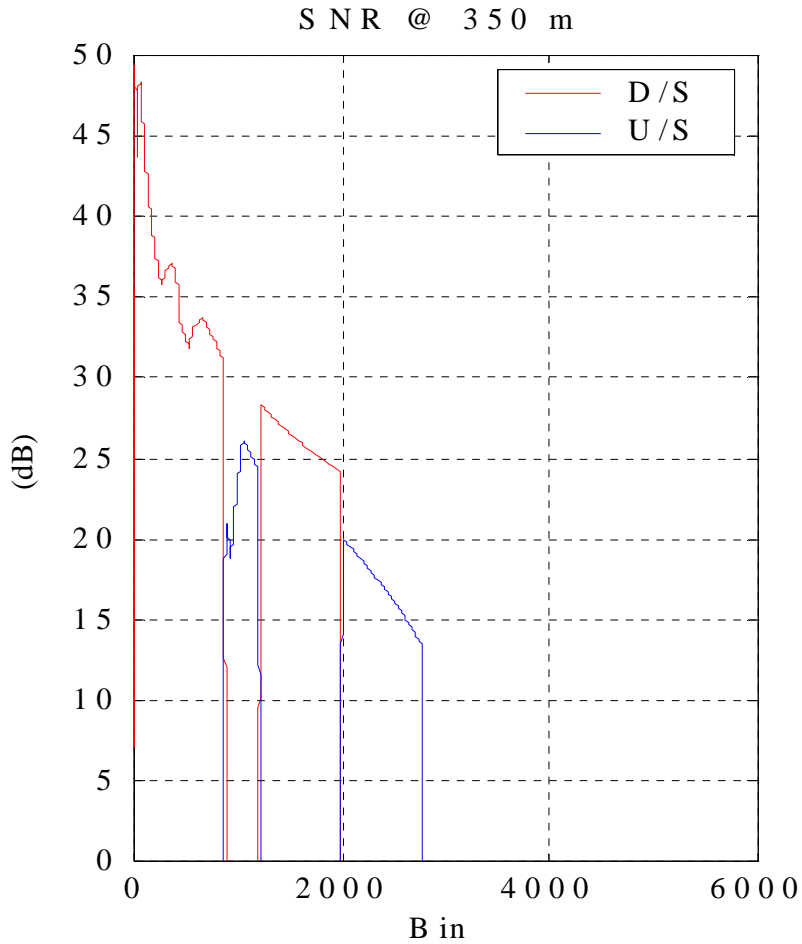
Test 8 – Tx, Rx, Noise PSD



u Loop length : 350 m



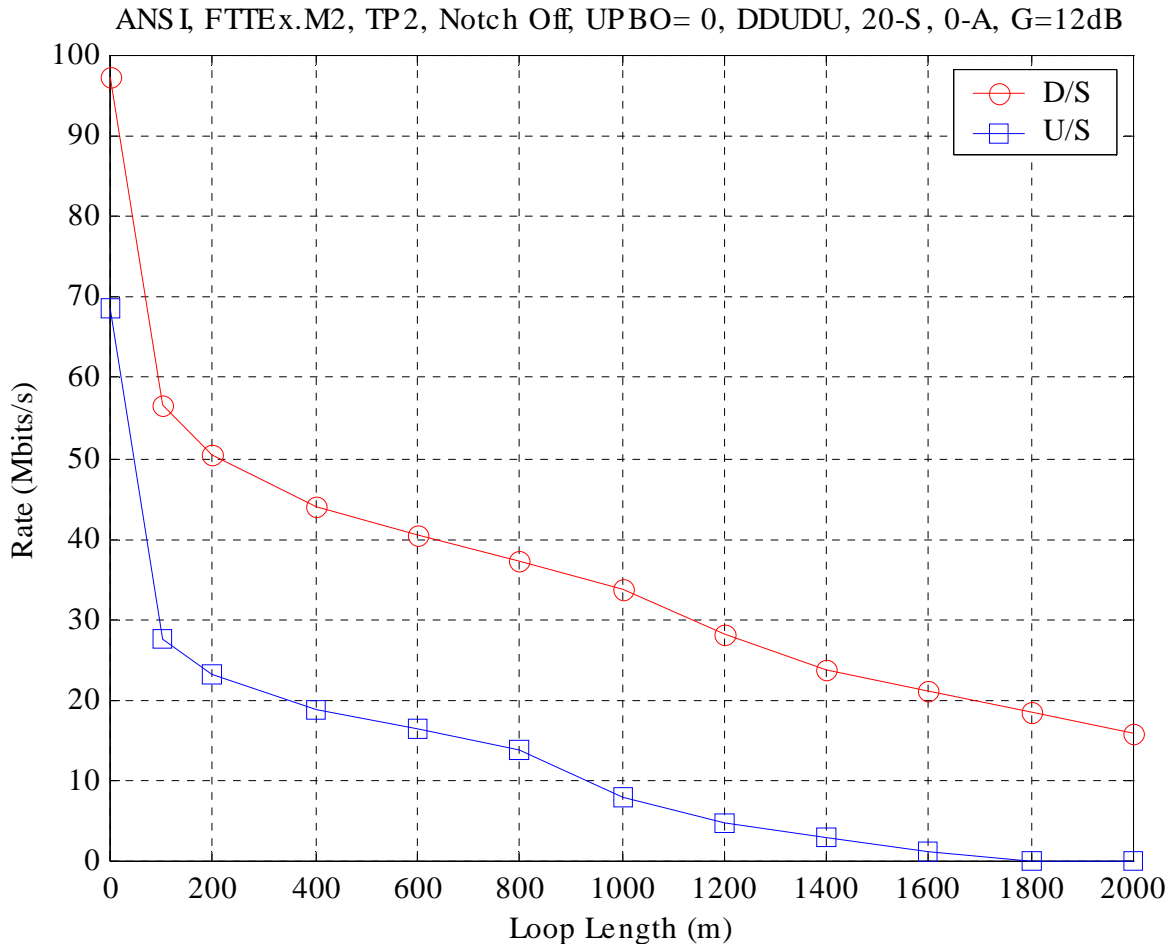
Test 8 – SNR, Bit Tone Table



u D/S Rate = 30.6 Mb/s, U/S Rate = 7.7 Mb/s @ 350 m



Test 10 – Rate vs. Reach

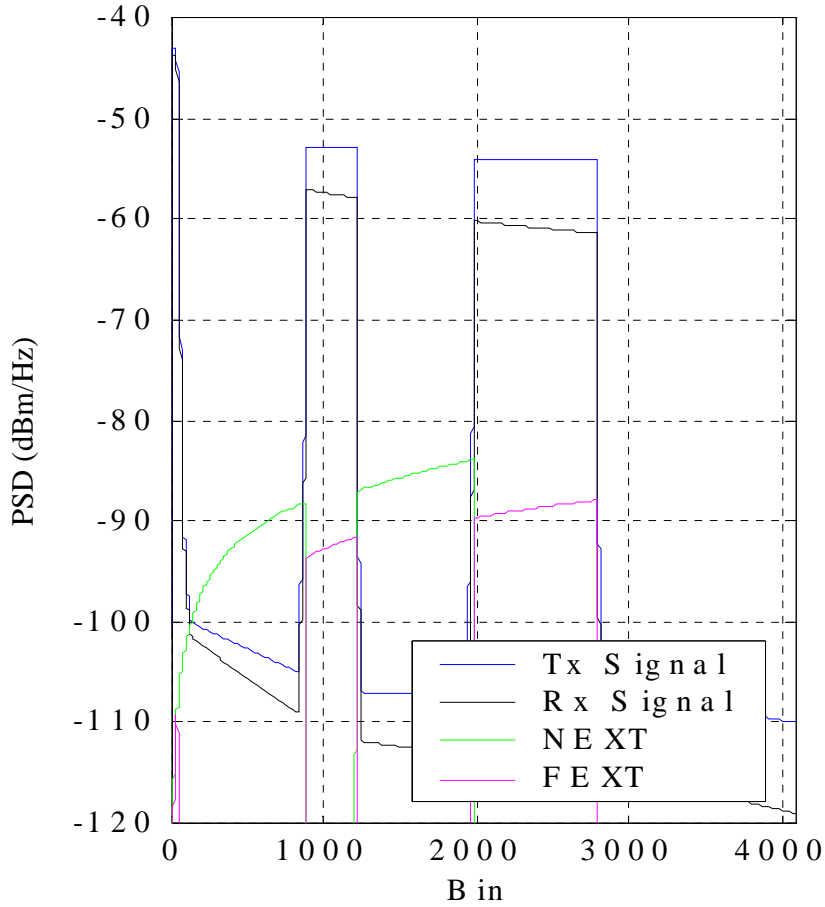


- u 100/35 @ 100 m
- u Infeasible
- u Profile 8
- FTTEx.M2
- D/D/U/D/U
- u Notch off
- u UPBO off
- u 20-self xtalks

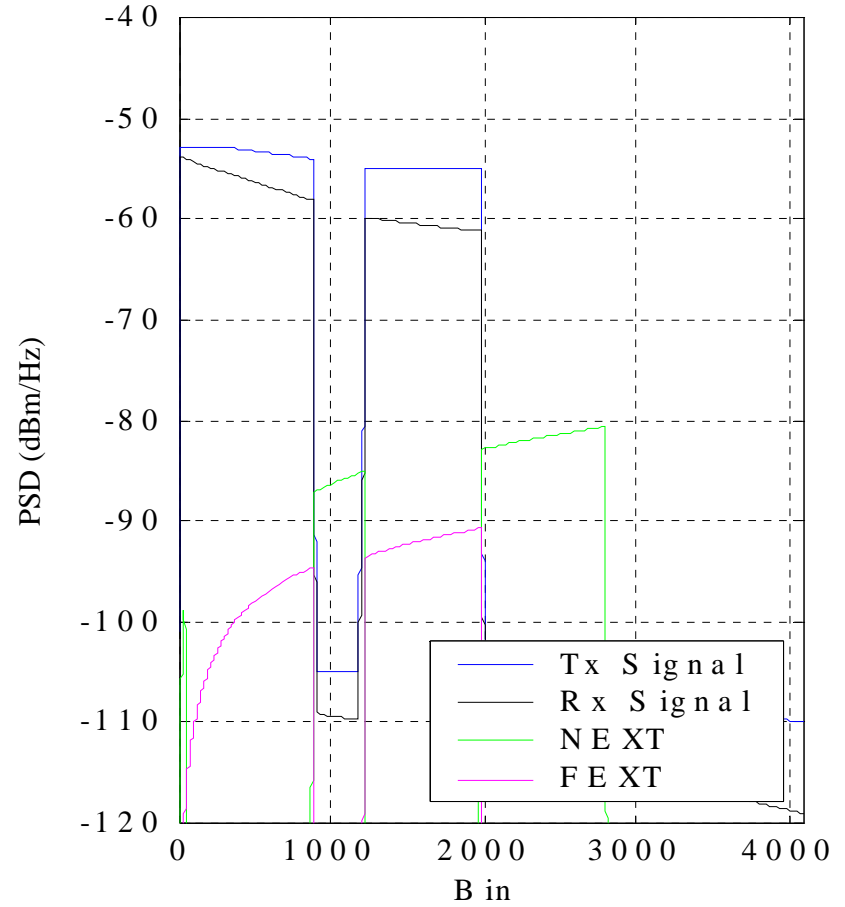


Test 10 – Tx, Rx, Noise PSD

U/S , 20 Self-Xtalks , 0 Alien-Xtalks



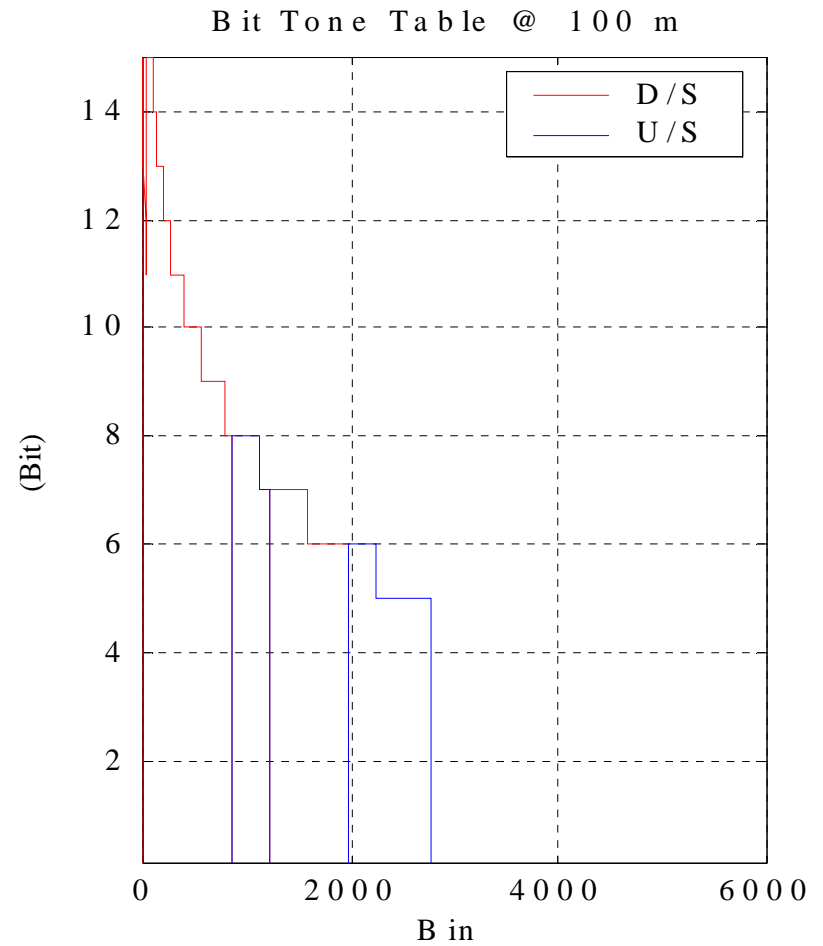
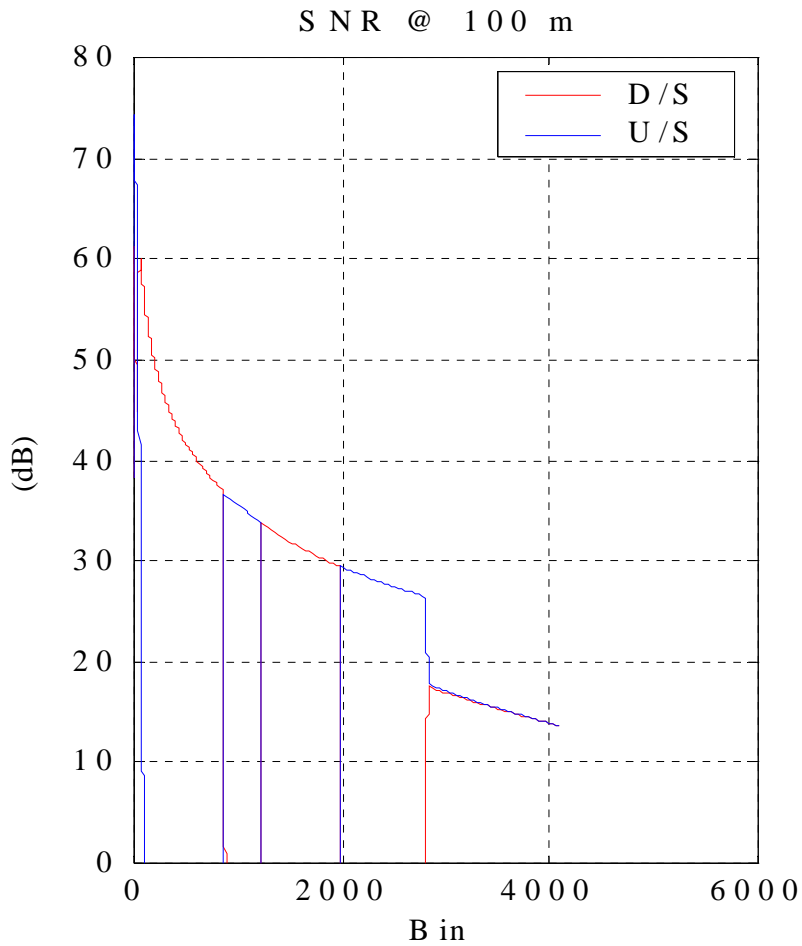
D/S , 20 Self-Xtalks , 0 Alien-Xtalks



u Loop length : 100 m



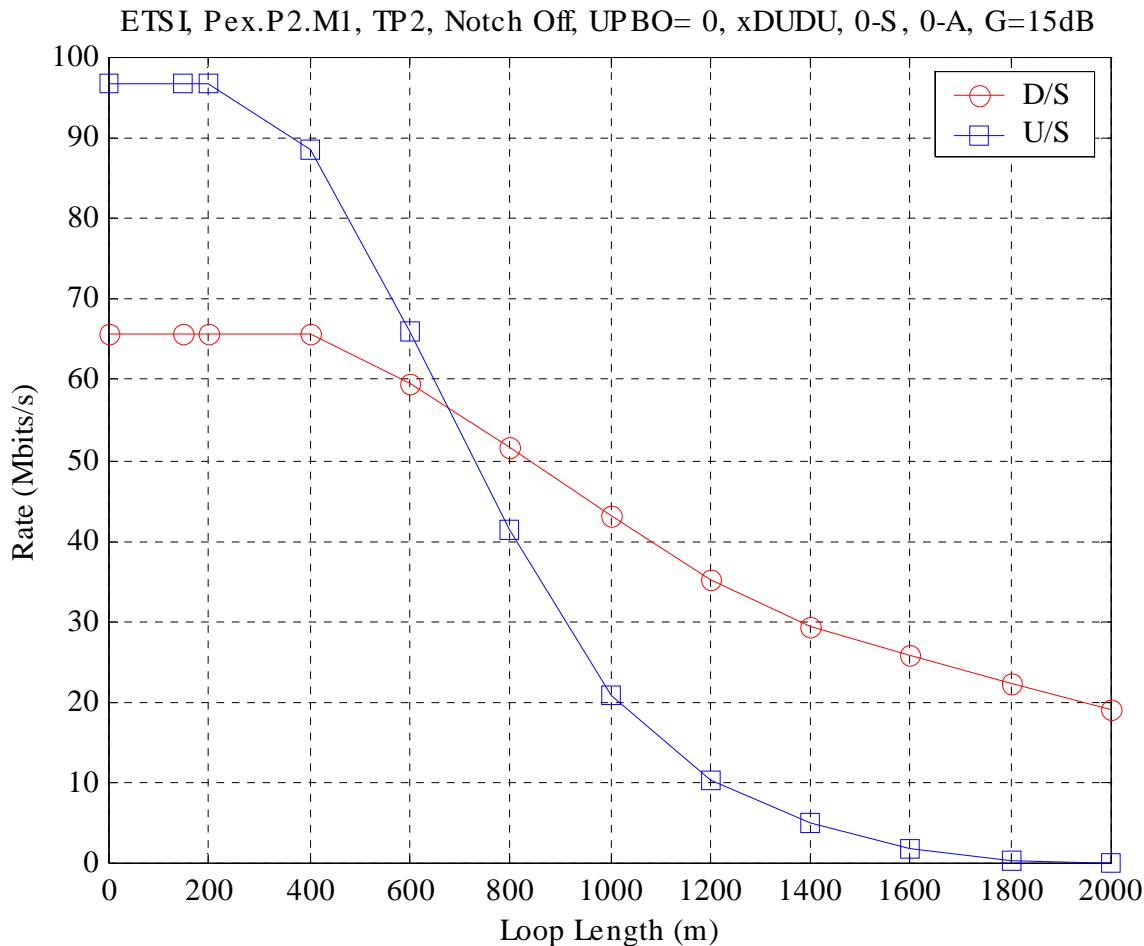
Test 10 – SNR, Bit Tone Table



u D/S Rate = 56.7 Mb/s, U/S Rate = 27.6 Mb/s @ 100 m



Test 11 – Rate vs. Reach

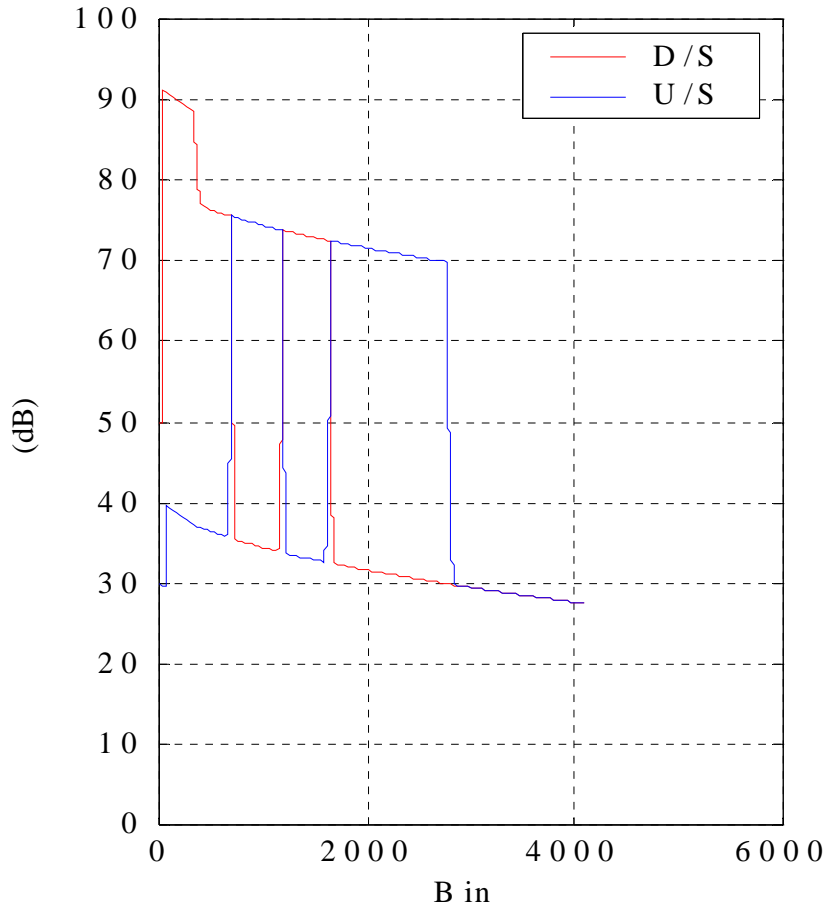


- u 50/50 @ 150 m
- u 50/50 @ 730 m
- u Profile 16
- Pex.P2.M1
- x/D/U/D/U
- u Notch off
- u UPBO off
- u AWGN

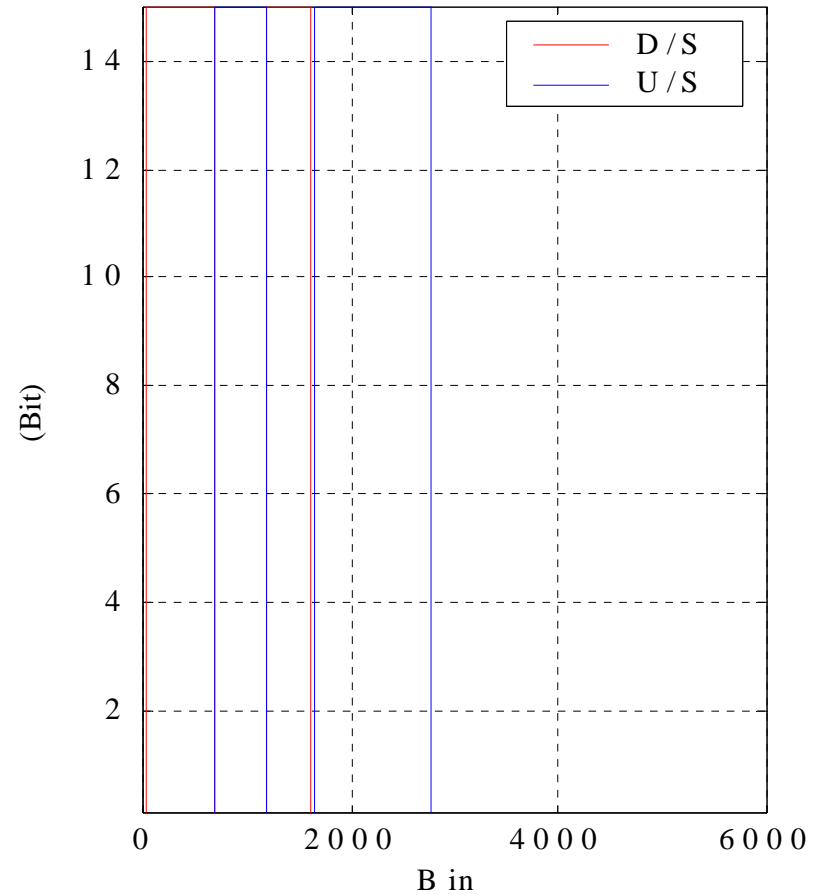


Test 11 – SNR, Bit Tone Table

SNR @ 150 m



Bit Tone Table @ 150 m

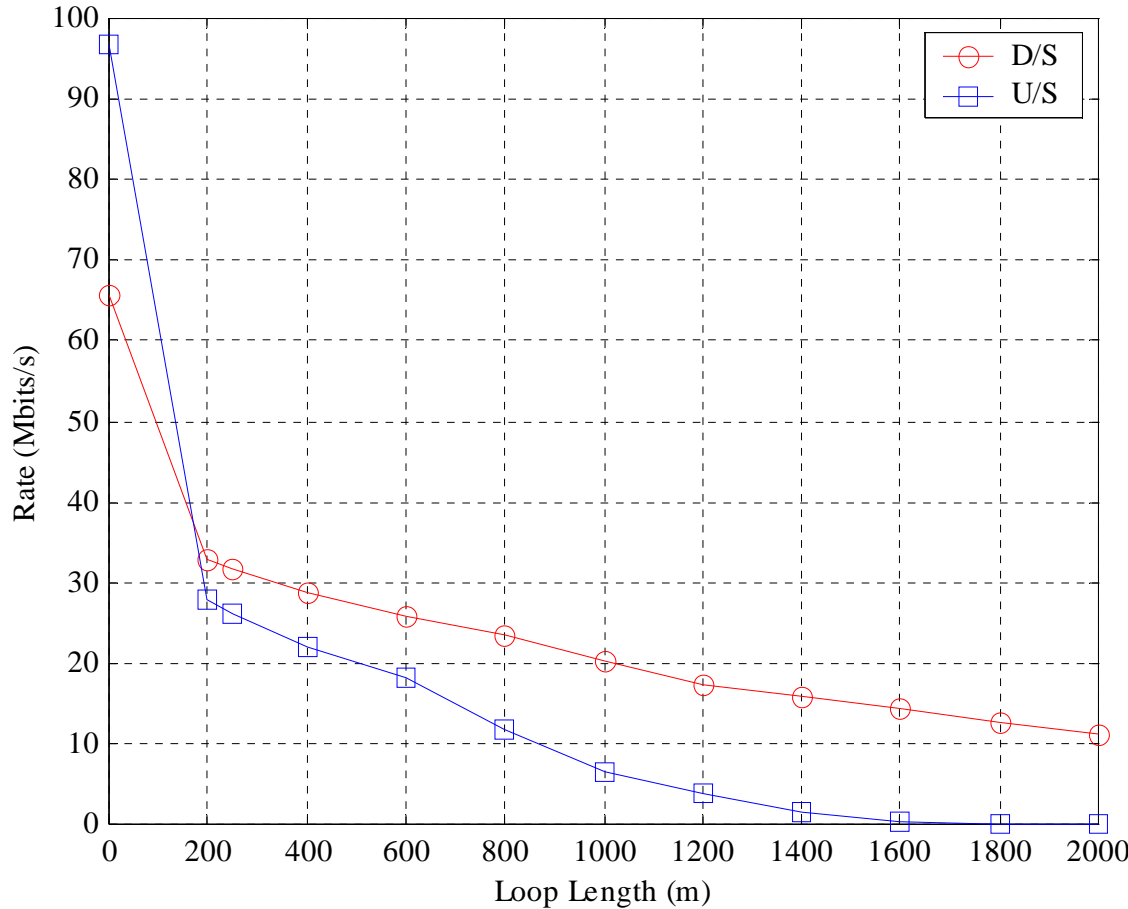


u D/S Rate = 65.7 Mb/s, U/S Rate = 96.9 Mb/s @ 150 m



Test 12 – Rate vs. Reach

ETSI, Pex.P2.M1, TP2, Notch Off, UPBO= 0, xDUDU, 20-S, 0-A, G=15dB

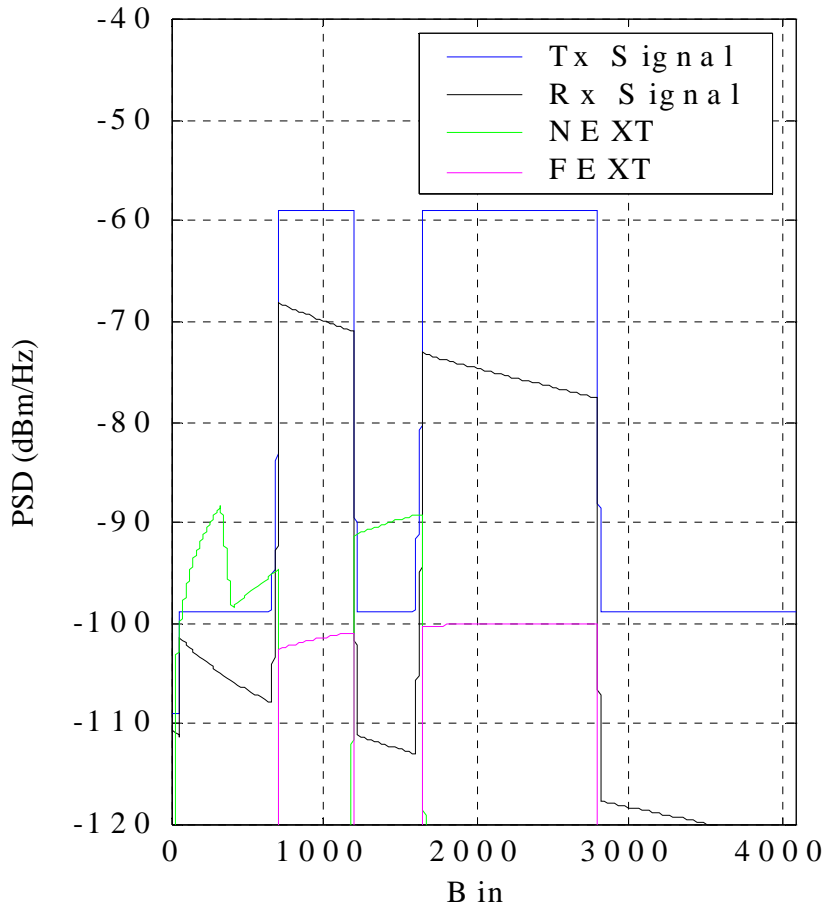


- u 35/25 @ 250 m
- u 35/25 @ 187 m
- u Profile 16
- Pex.P2.M1
- x/D/U/D/U
- u Notch off
- u UPBO off
- u 20-self xtalks

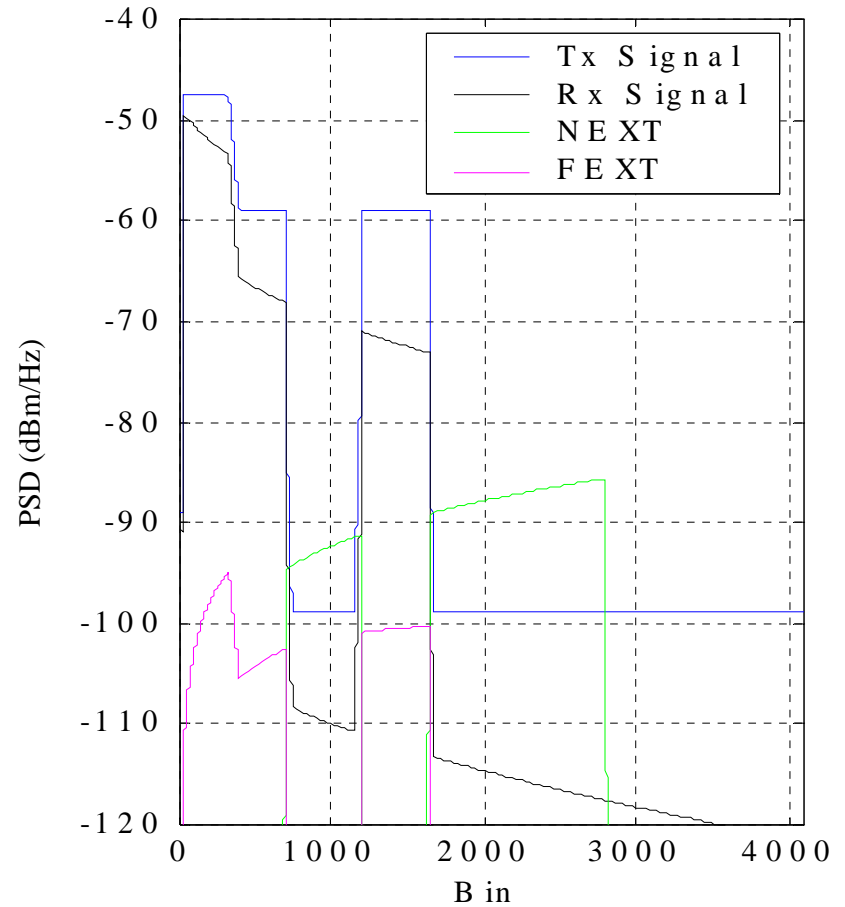


Test 12 – Tx, Rx, Noise PSD

U/S , 20 Self-Xtalks , 0 Alien-Xtalks



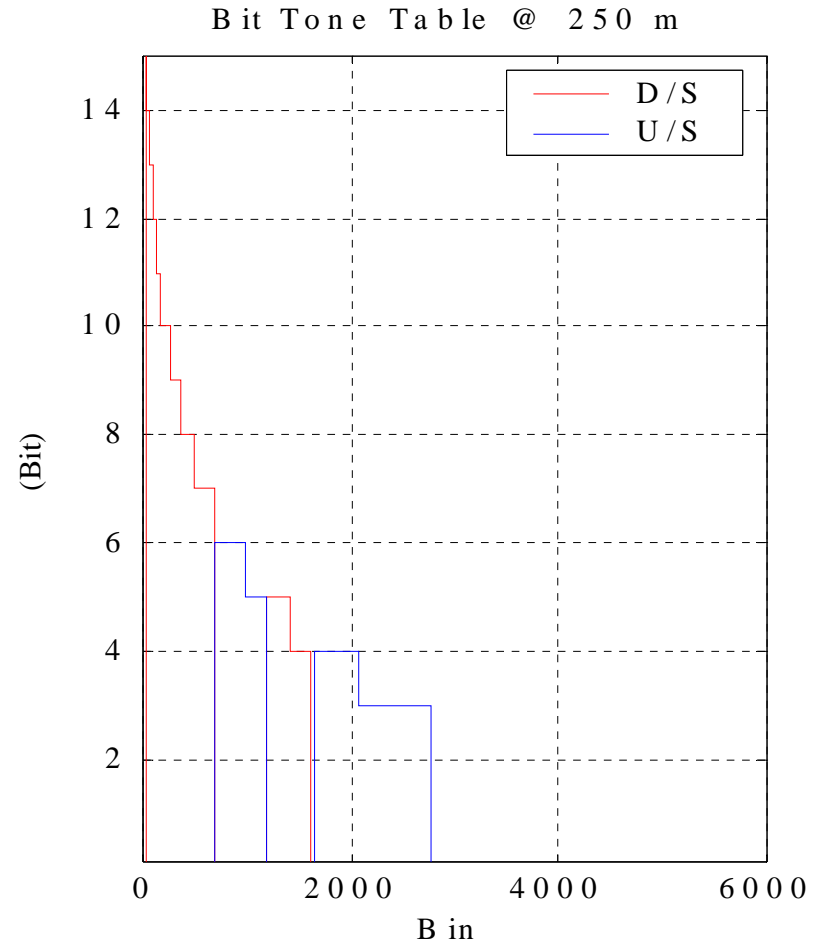
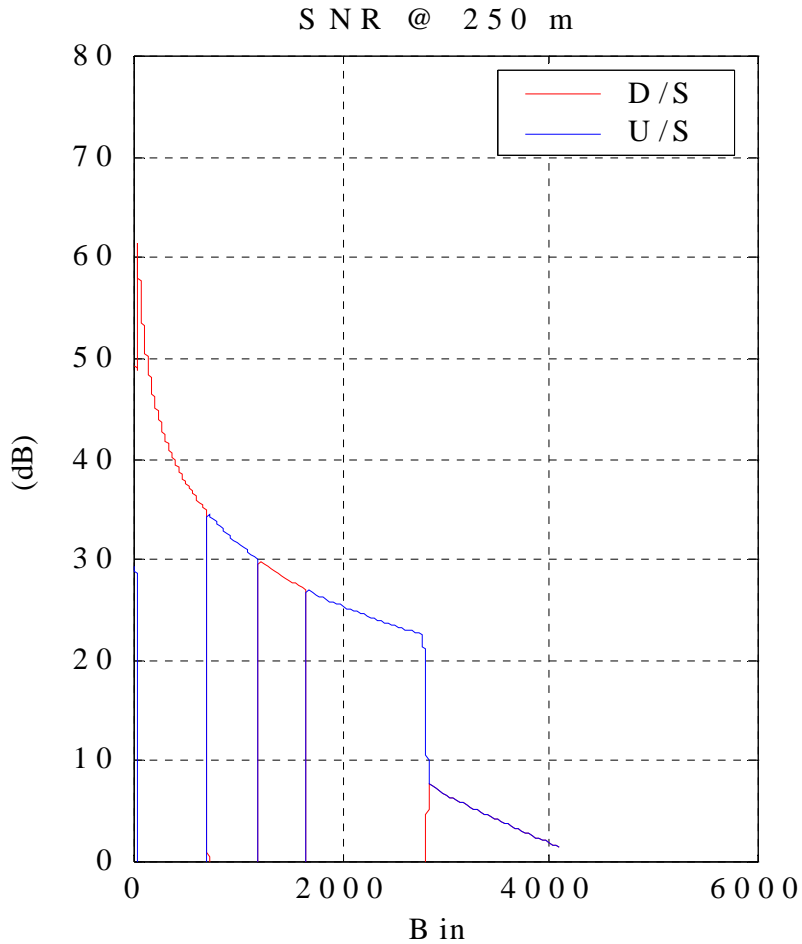
D/S , 20 Self-Xtalks , 0 Alien-Xtalks



u Loop length : 250 m



Test 12 – SNR, Bit Tone Table

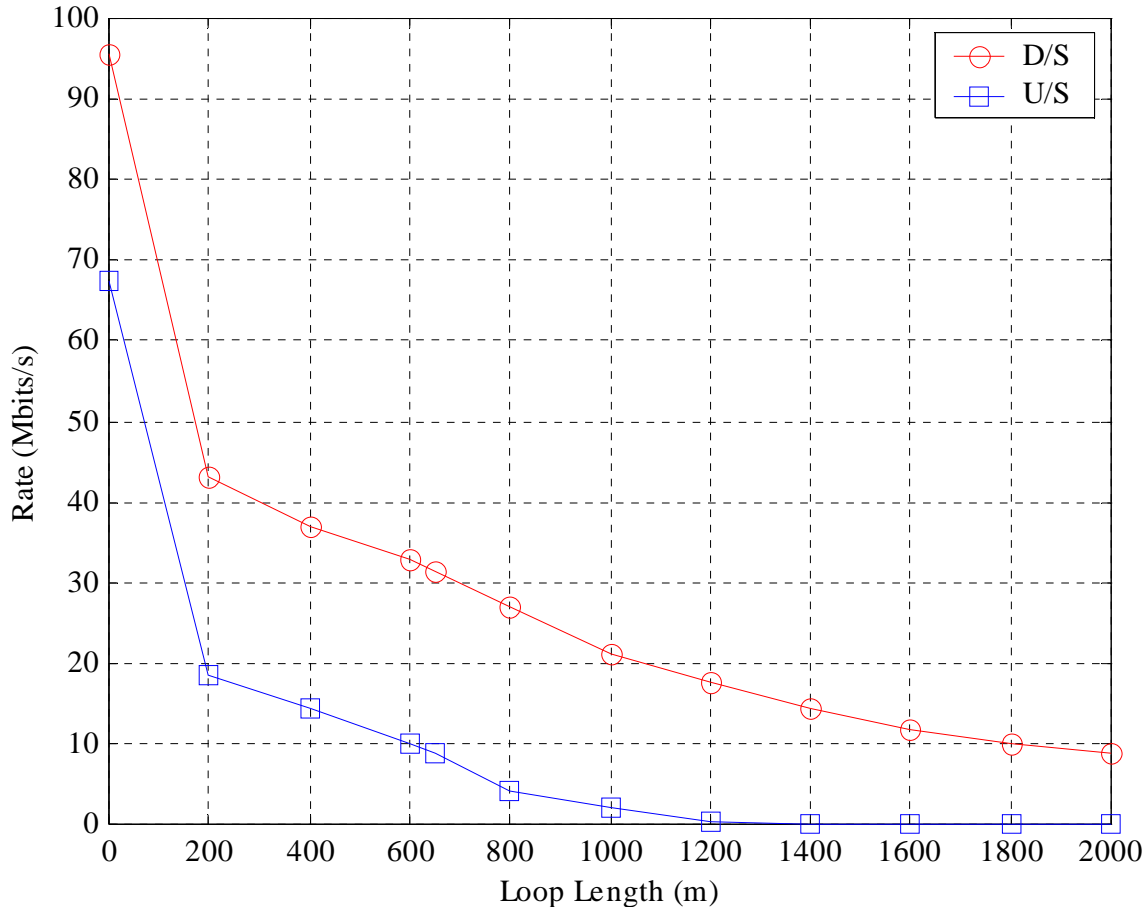


u D/S Rate = 31.5 Mb/s, U/S Rate = 26.1 Mb/s @ 250 m



Test 13 – Rate vs. Reach

ANSI, FTTEx.M1, TP1, Notch Off, UPBO= 0, DDUDU, 20-S, 0-A, G=15dB

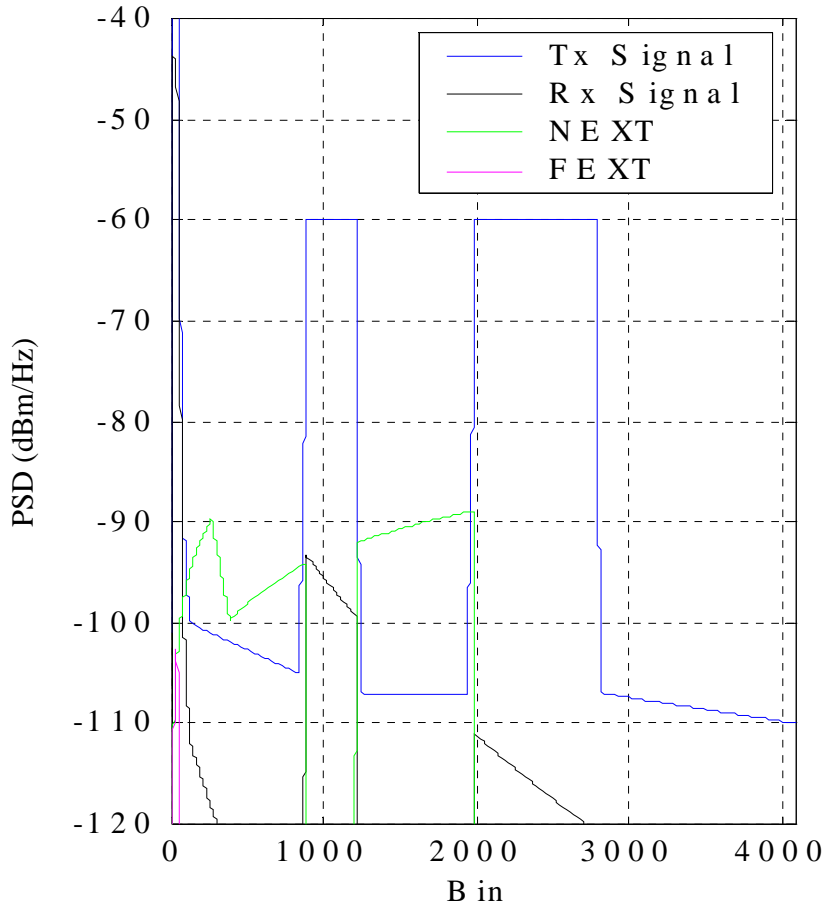


- u 25/5 @ 650 m
- u 25/5 @ 771 m
- u Profile 6
 - FTTEx.M1
 - D/D/U/D/U
- u Notch off
- u UPBO off
- u 20-self xtalks

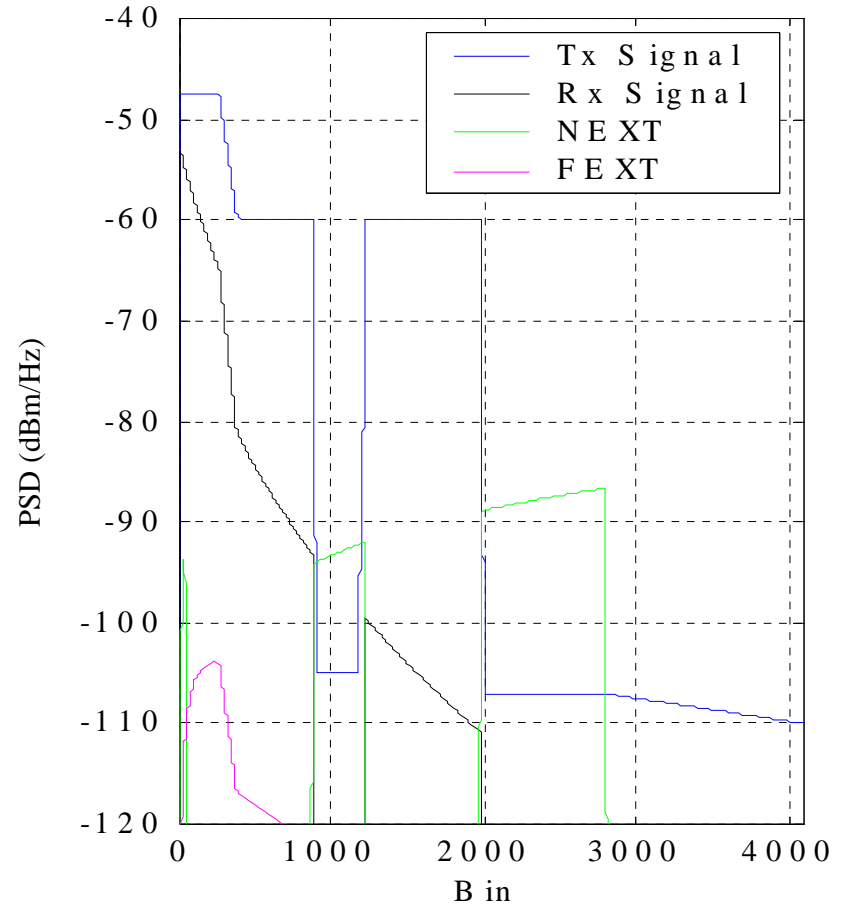


Test 13 – Tx, Rx, Noise PSD

U/S , 20 Self-Xtalks , 0 Alien-Xtalks



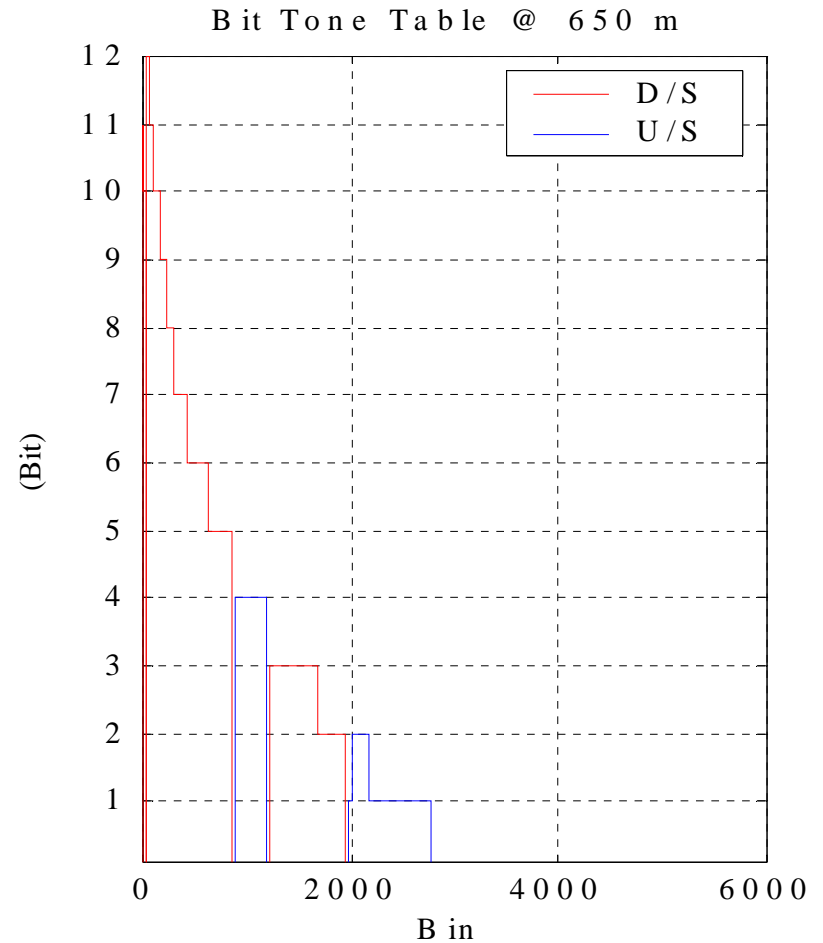
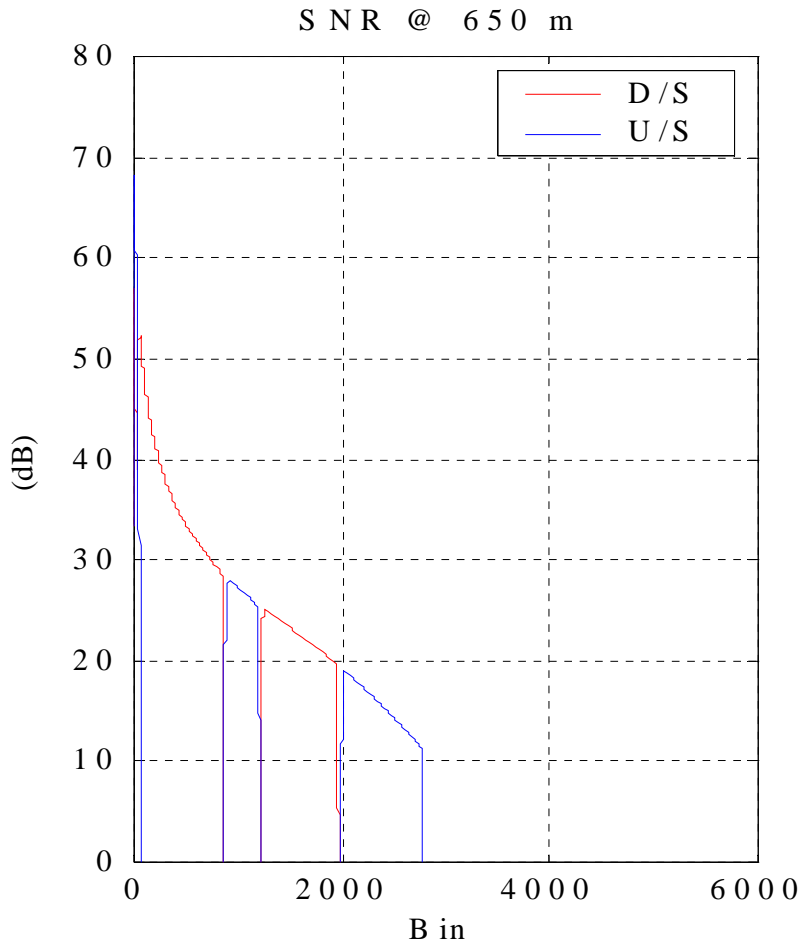
D/S , 20 Self-Xtalks , 0 Alien-Xtalks



u Loop length : 650 m



Test 13 – SNR, Bit Tone Table

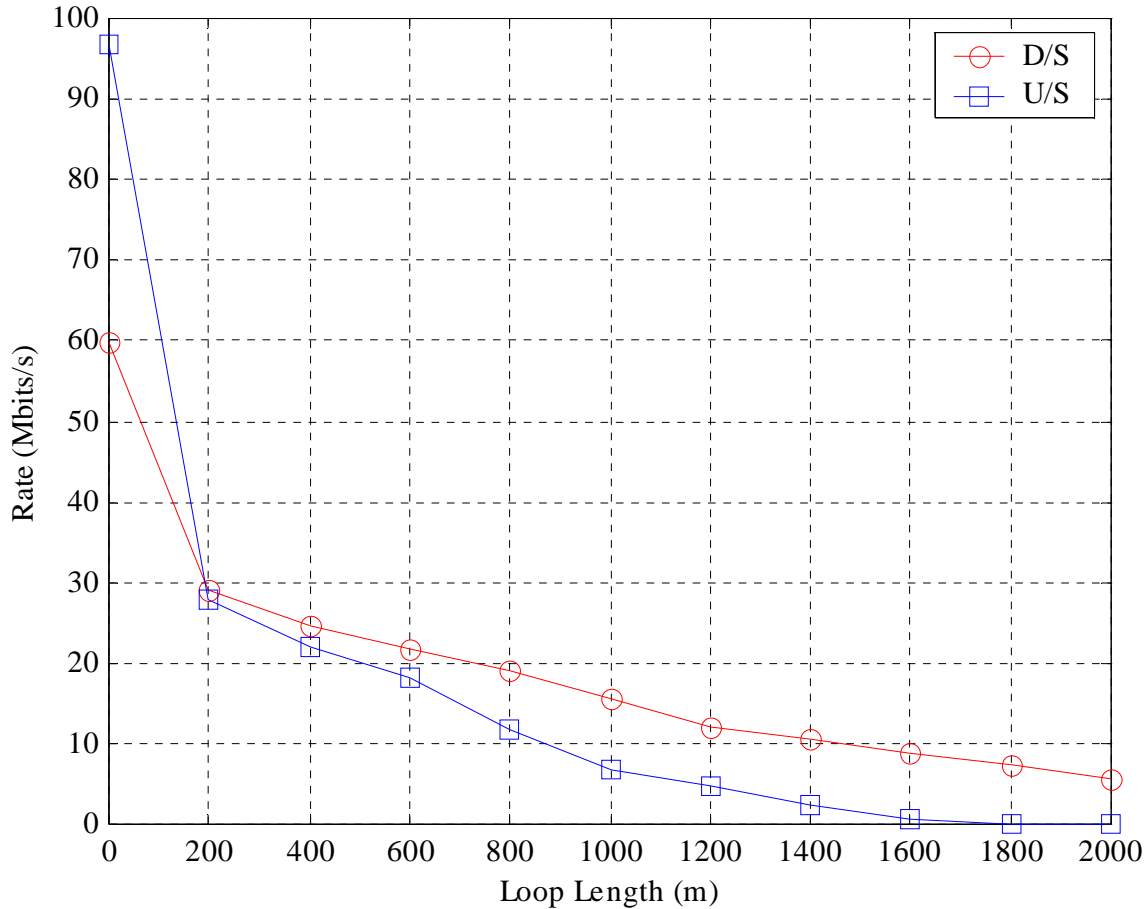


u D/S Rate = 31.4 Mb/s, U/S Rate = 8.7 Mb/s @ 650 m



Test 14 – Rate vs. Reach

ETSI, Pcab.M2, TP2, Notch Off, UPBO= 0, xDUDU, 20-S, 0-A, G=15dB

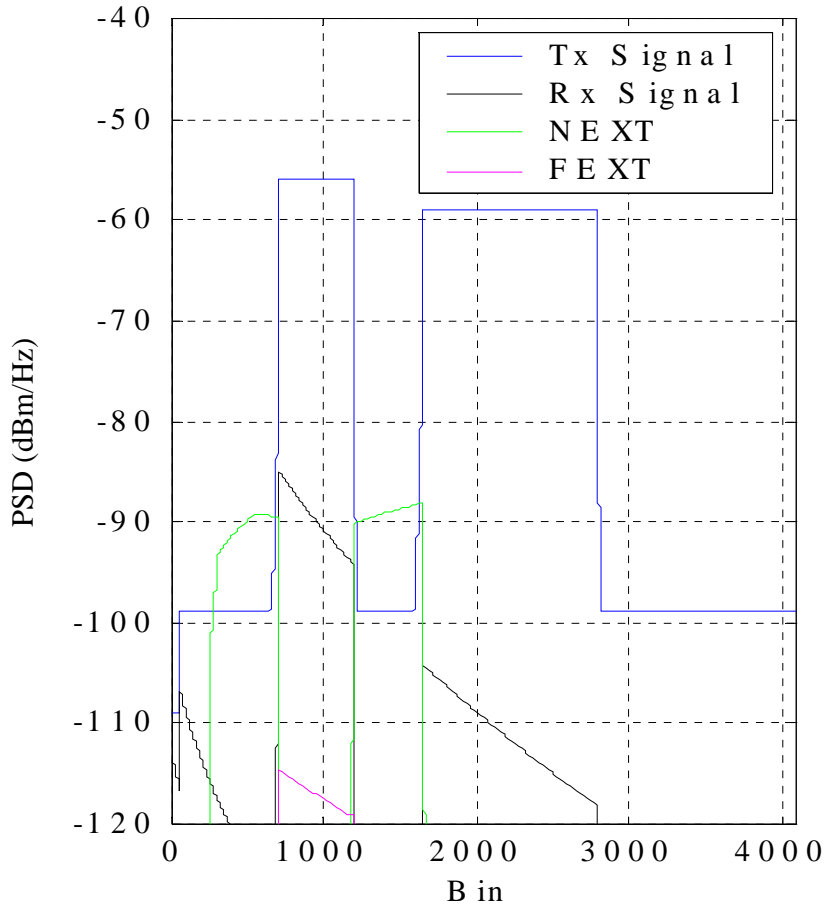


- u 15/15 @ 800 m
- u 15/15 @ 700 m
- u Profile 17
- Pcab.M2
- x/D/U/D/U
- u Notch off
- u UPBO off
- u 20-self xtalks

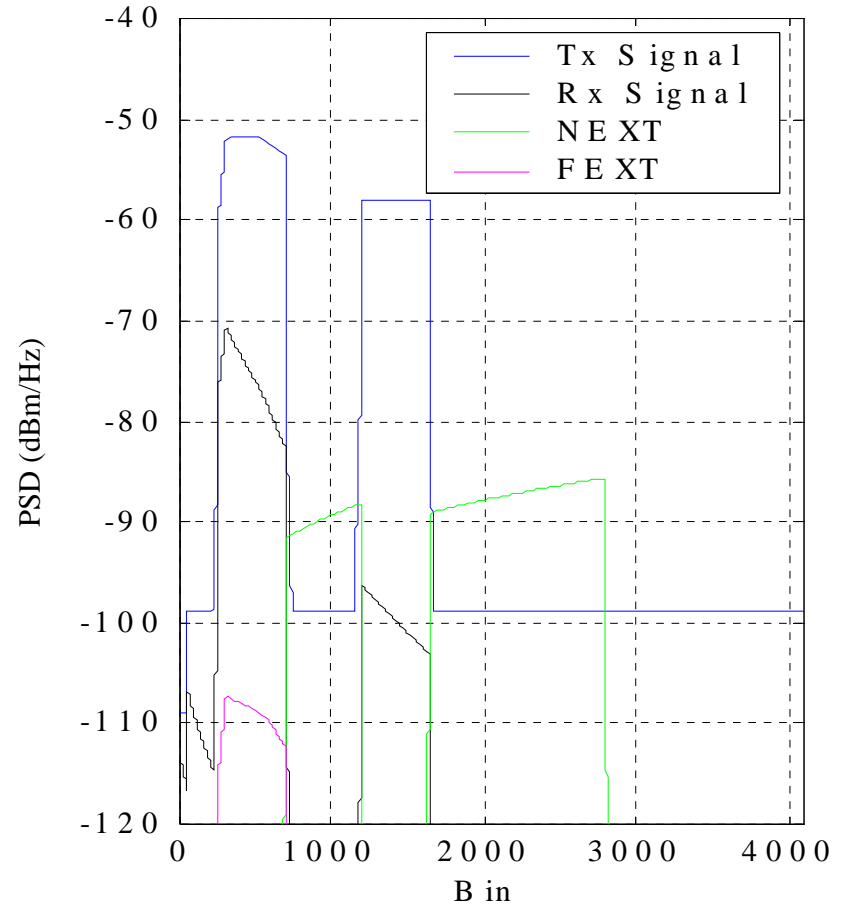


Test 14 – Tx, Rx, Noise PSD

U/S , 20 Self-Xtalks , 0 Alien-Xtalks



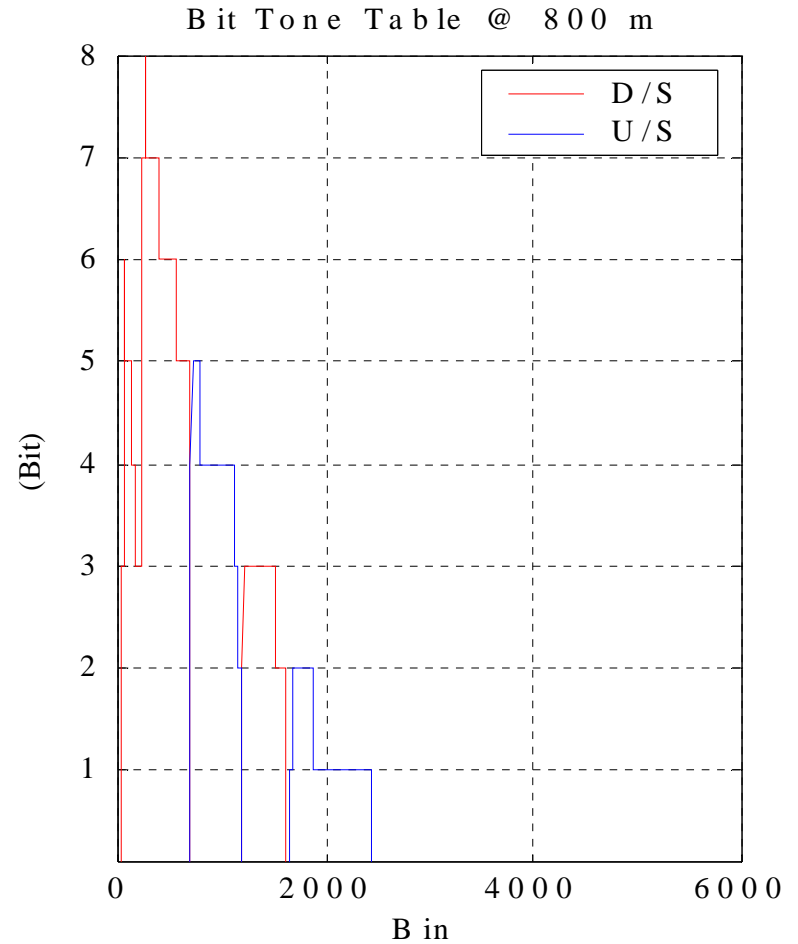
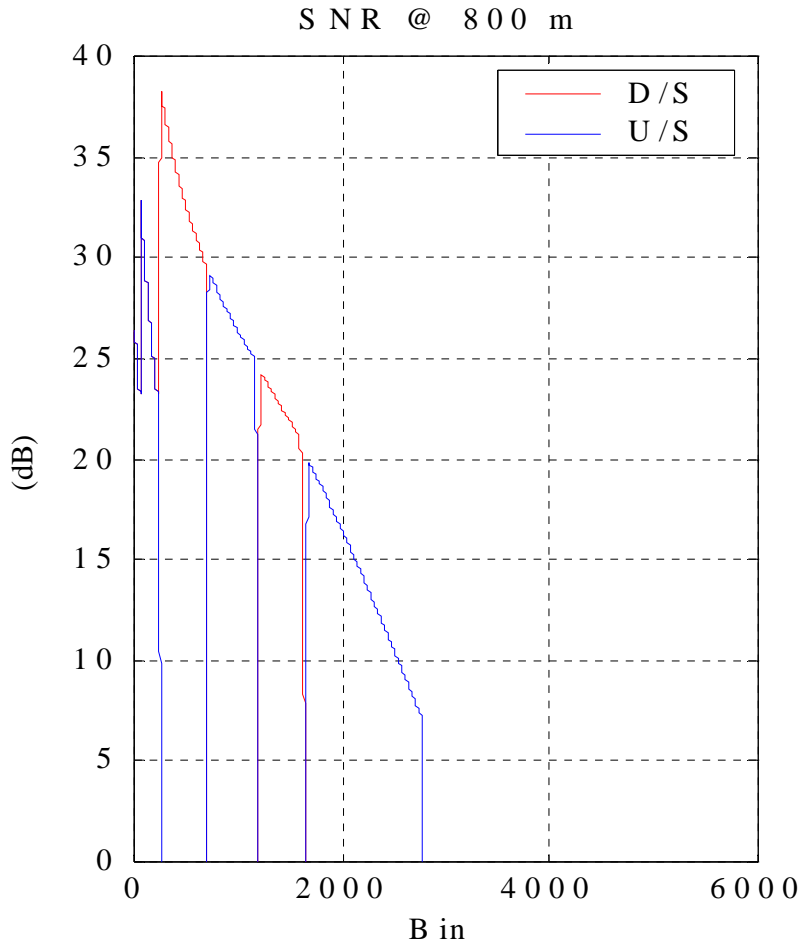
D/S , 20 Self-Xtalks , 0 Alien-Xtalks



u Loop length : 800 m



Test 14 – SNR, Bit Tone Table

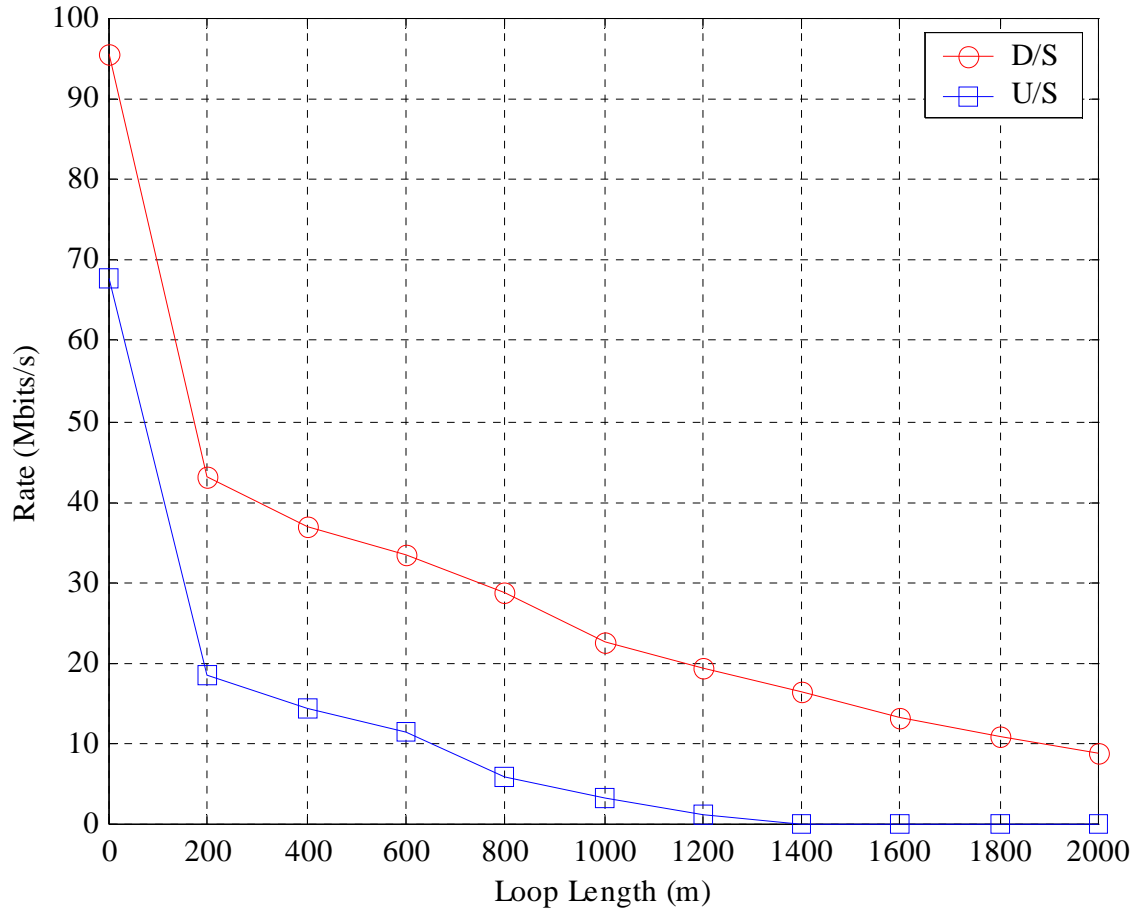


u D/S Rate = 19.1 Mb/s, U/S Rate = 11.7 Mb/s @ 800 m



Test 15 – Rate vs. Reach

ANSI, FTTEx.M2, TP1, Notch Off, UPBO= 0, DDUDU, 20-S, 0-A, G=15dB

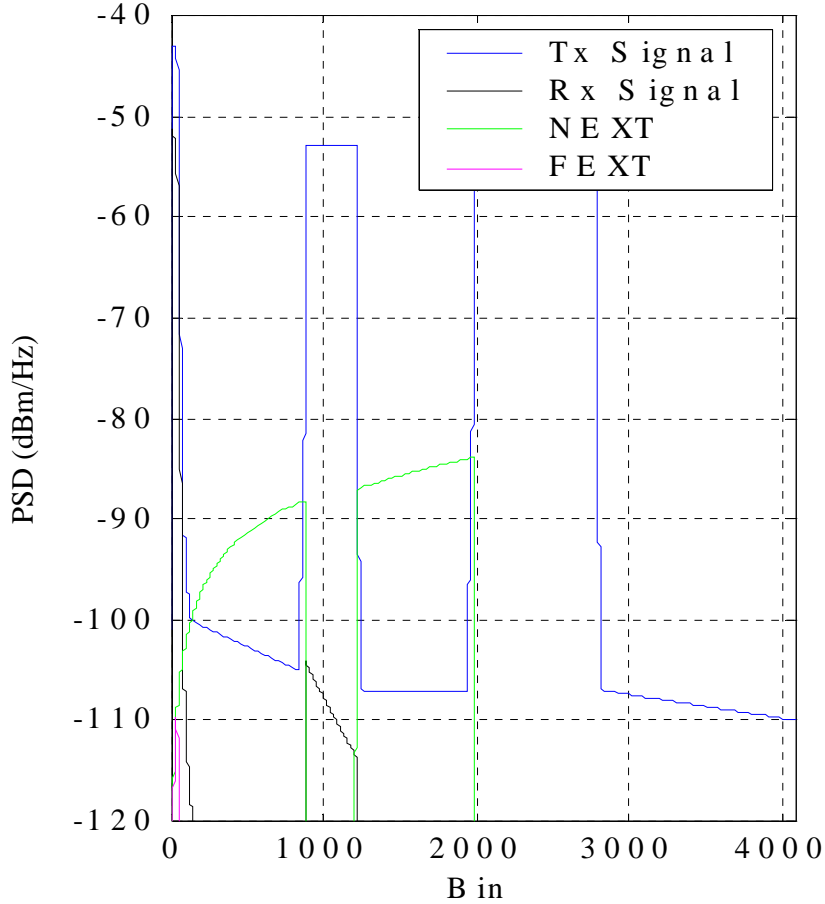


- u 15/2.5 @ 1000 m
- u 15/2.5 @ 1075 m
- u Profile 8
- FTTEx.M2
- D/D/U/D/U
- u Notch off
- u UPBO off
- u 20-self xtalks

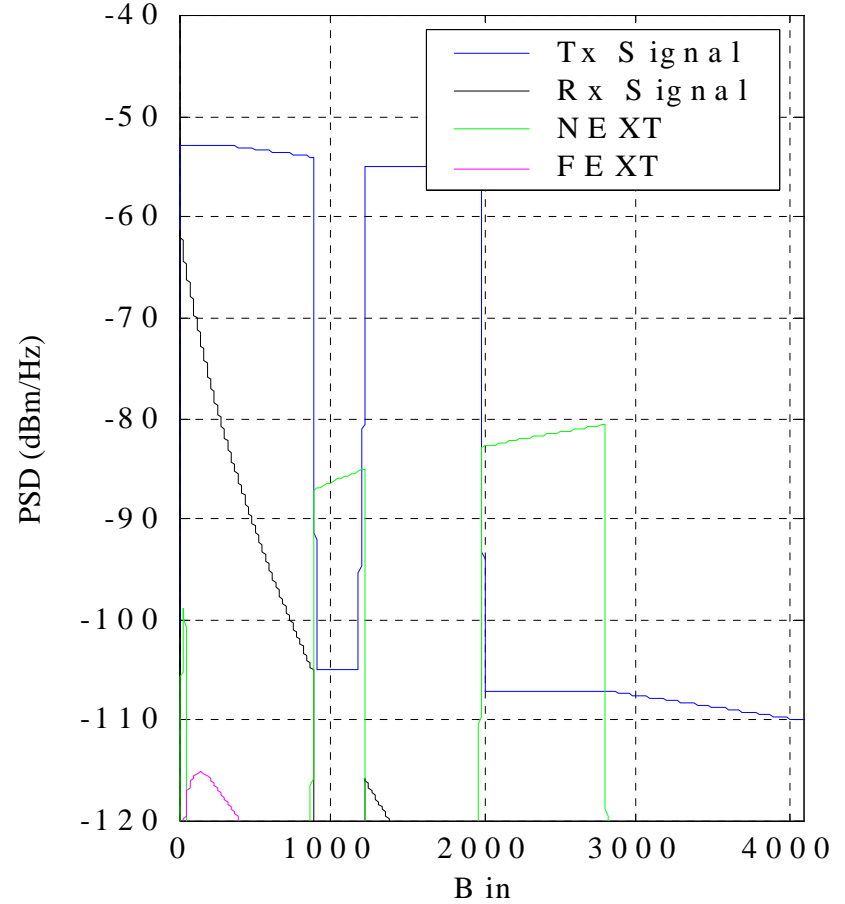


Test 15 – Tx, Rx, Noise PSD

U/S , 20 Self-Xtalks , 0 Alien-Xtalks



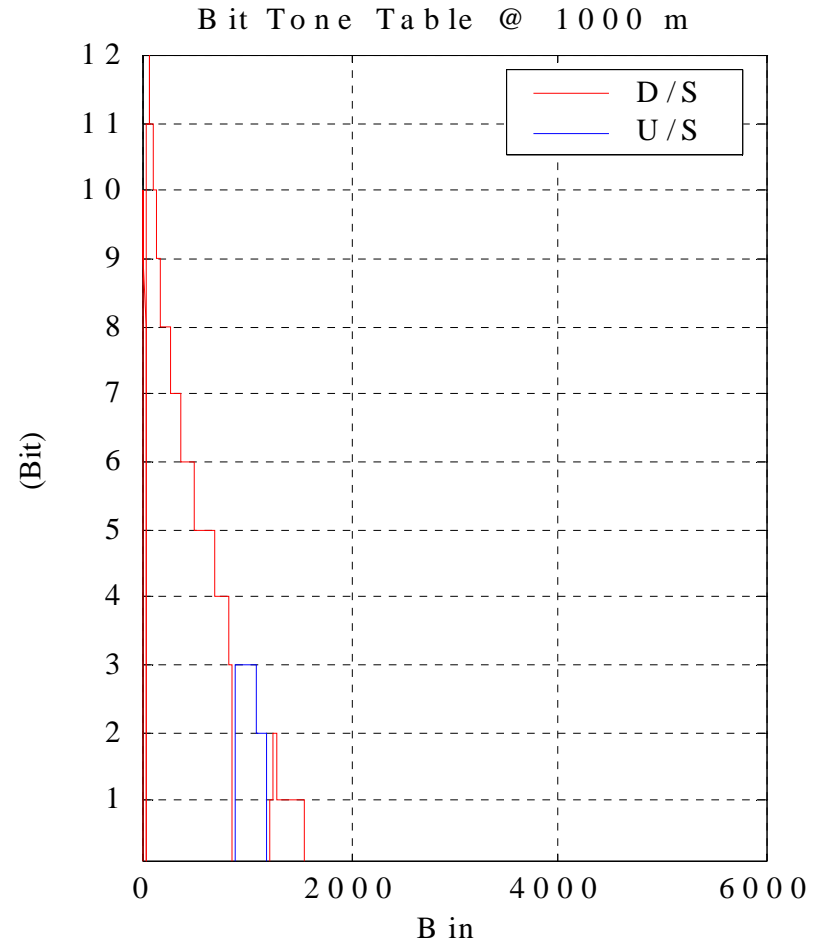
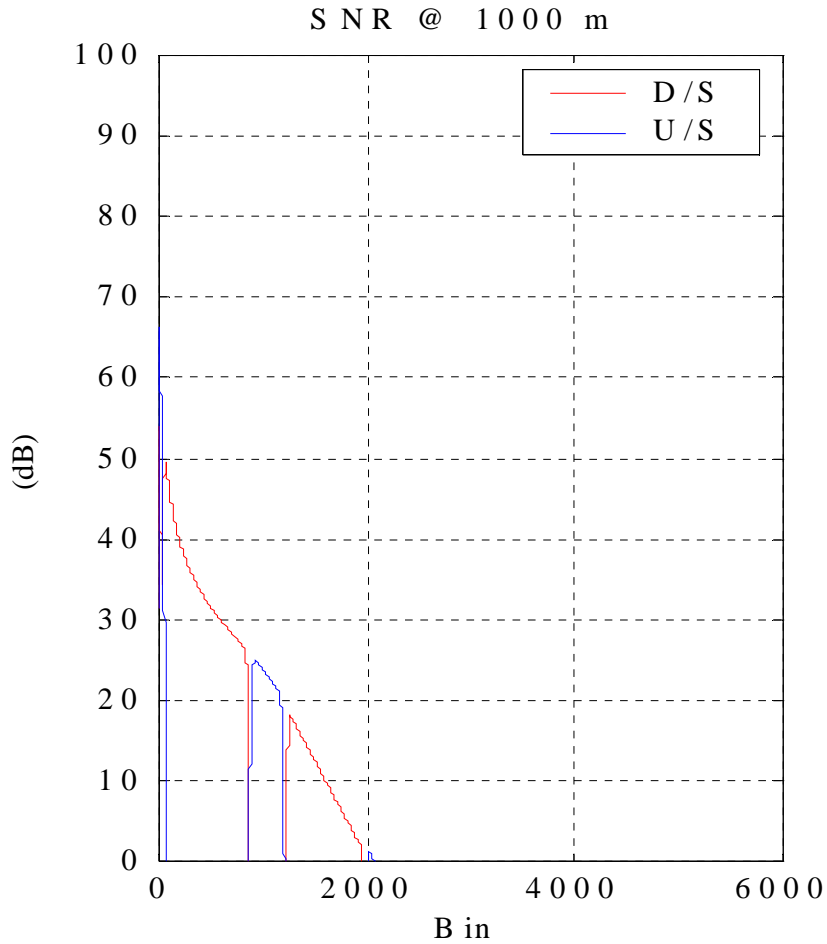
D/S , 20 Self-Xtalks , 0 Alien-Xtalks



u Loop length : 1000 m



Test 15 – SNR, Bit Tone Table

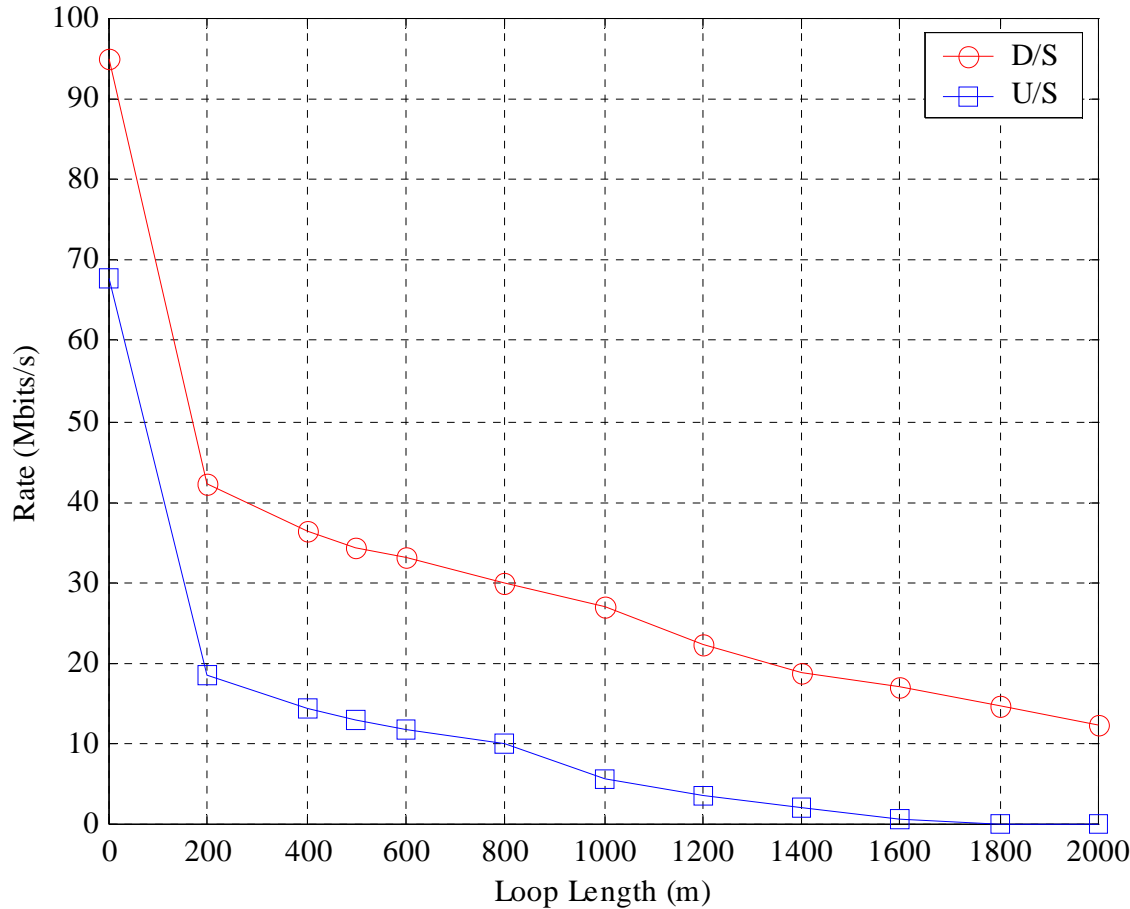


u D/S Rate = 22.5 Mb/s, U/S Rate = 3.2 Mb/s @ 1000 m



Test 16 – Rate vs. Reach

ANSI, FTTE_x.M2, TP2, Notch Off, UPBO= 0, xDUDU, 20-S, 0-A, G=15dB

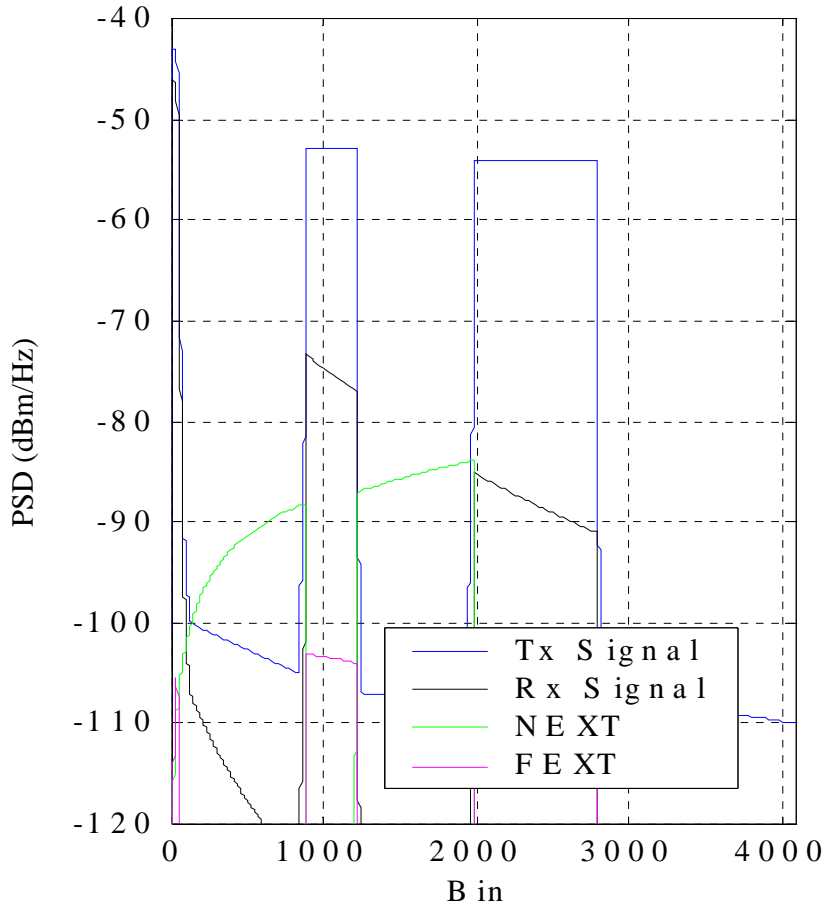


- u 12.5/12.5 @ 500 m
- u 12.5/12.5 @ 541 m
- u Profile 4
- FTTE_x.M2
- x/D/U/D/U
- u Notch off
- u UPBO off
- u 20-self xtalks

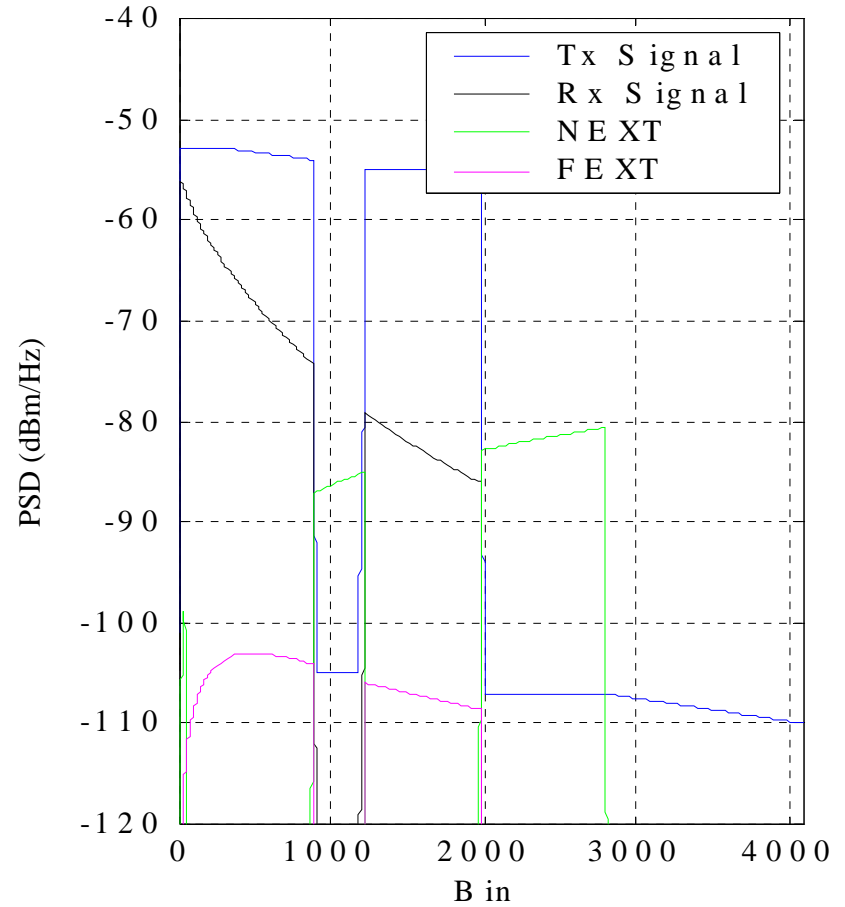


Test 16 – Tx, Rx, Noise PSD

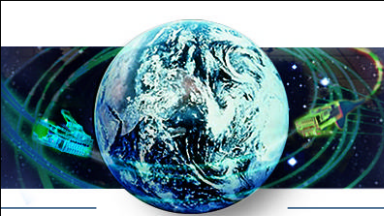
U/S , 20 Self-Xtalks , 0 Alien-Xtalks



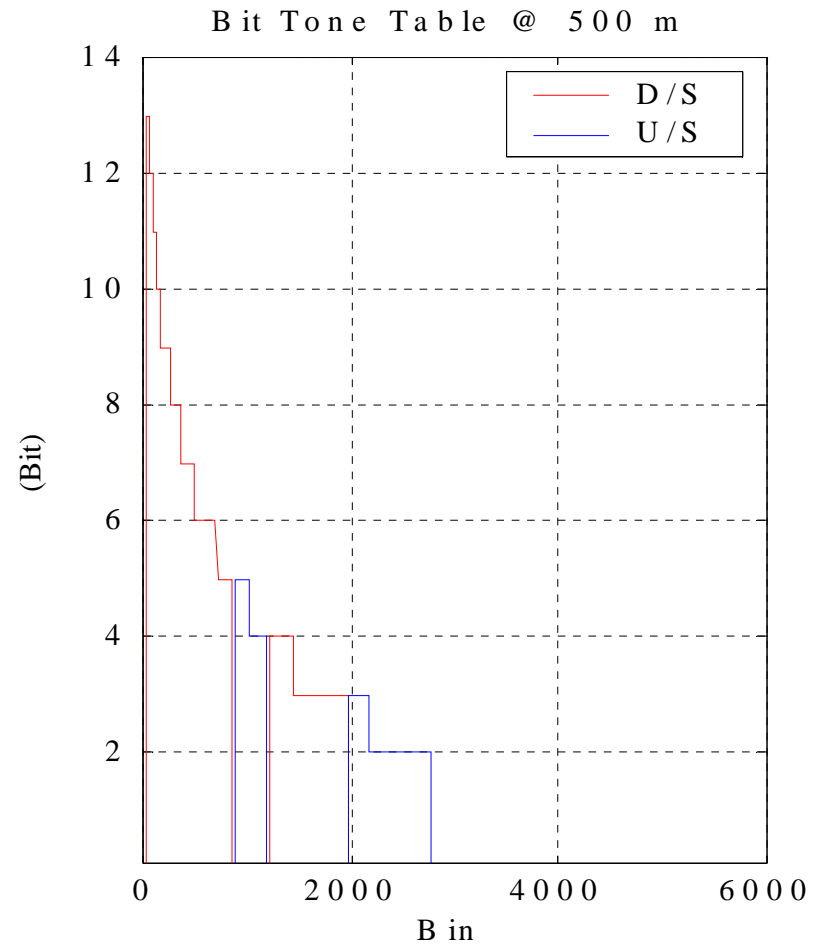
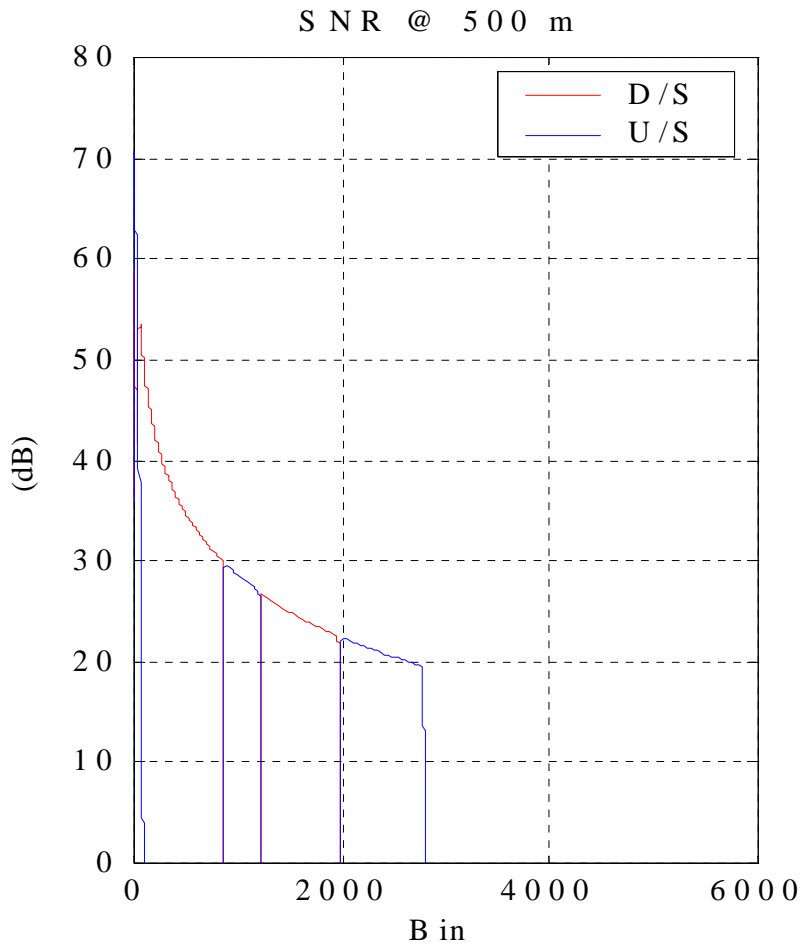
D/S , 20 Self-Xtalks , 0 Alien-Xtalks



u Loop length : 500 m



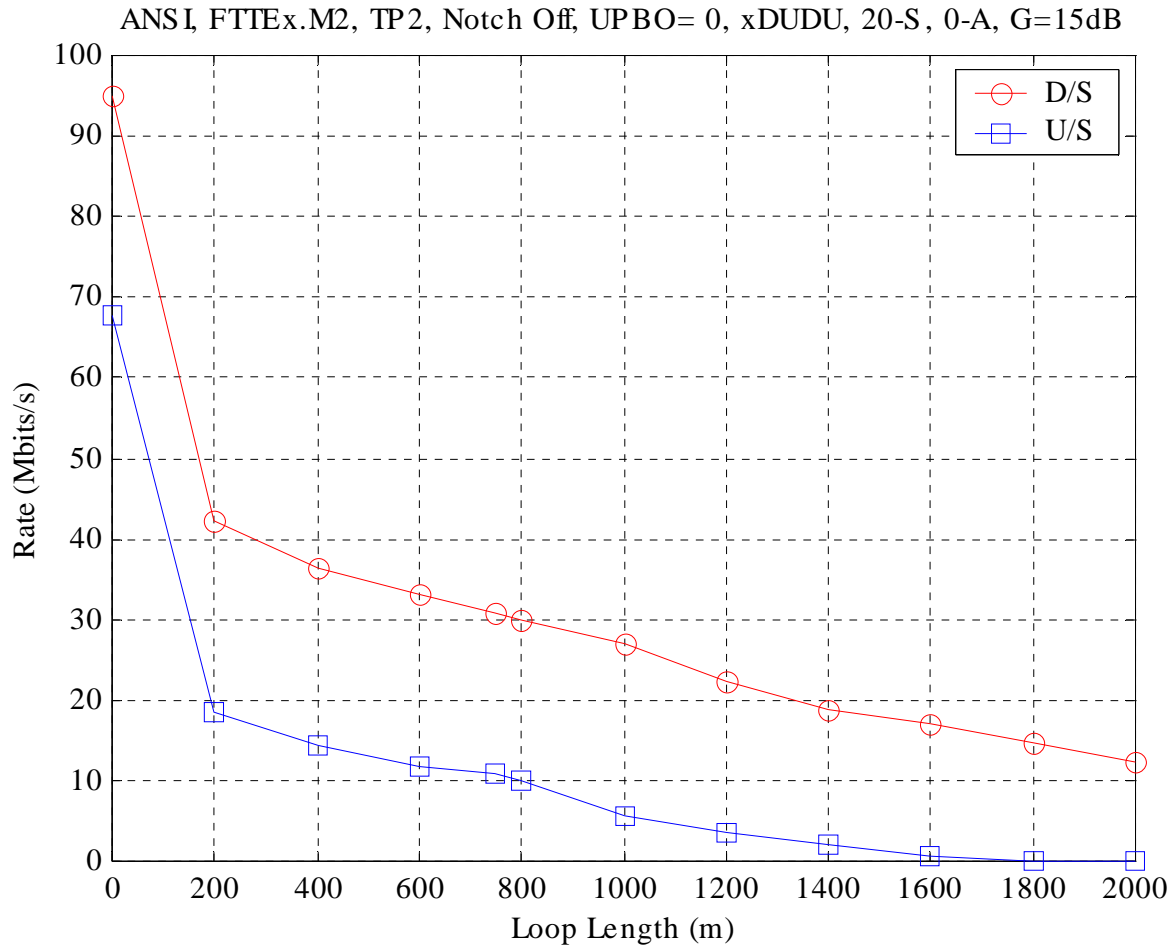
Test 16 – SNR, Bit Tone Table



u D/S Rate = 34.4 Mb/s, U/S Rate = 12.9 Mb/s @ 500 m



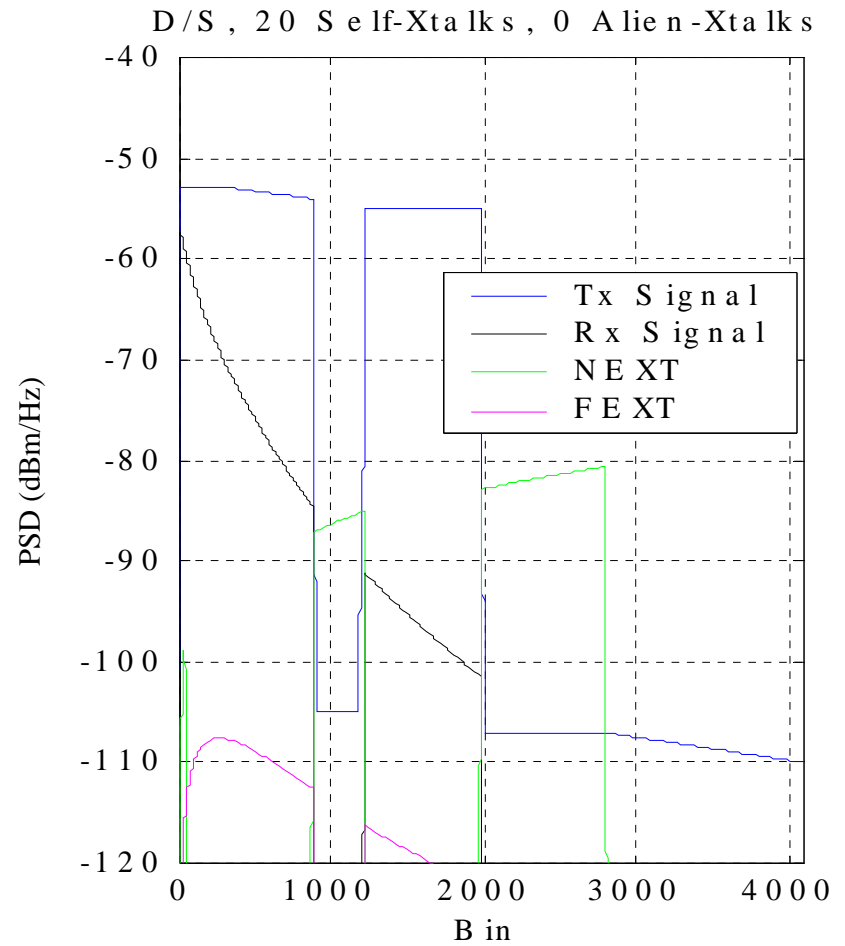
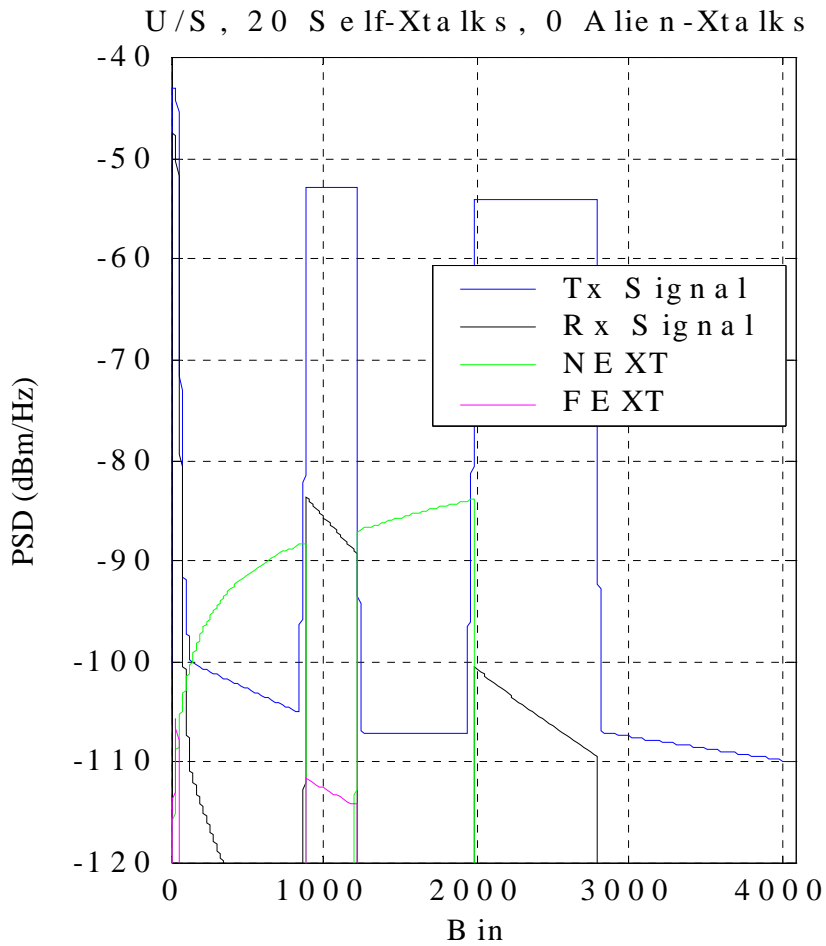
Test 17 – Rate vs. Reach



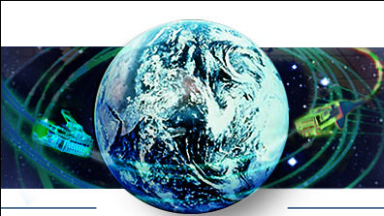
- u 7.5/7.5 @ 750 m
- u 7.5/7.5 @ 913 m
- u Profile 4
- FTTEEx.M2
- x/D/U/D/U
- u Notch off
- u UPBO off
- u 20-self xtalks



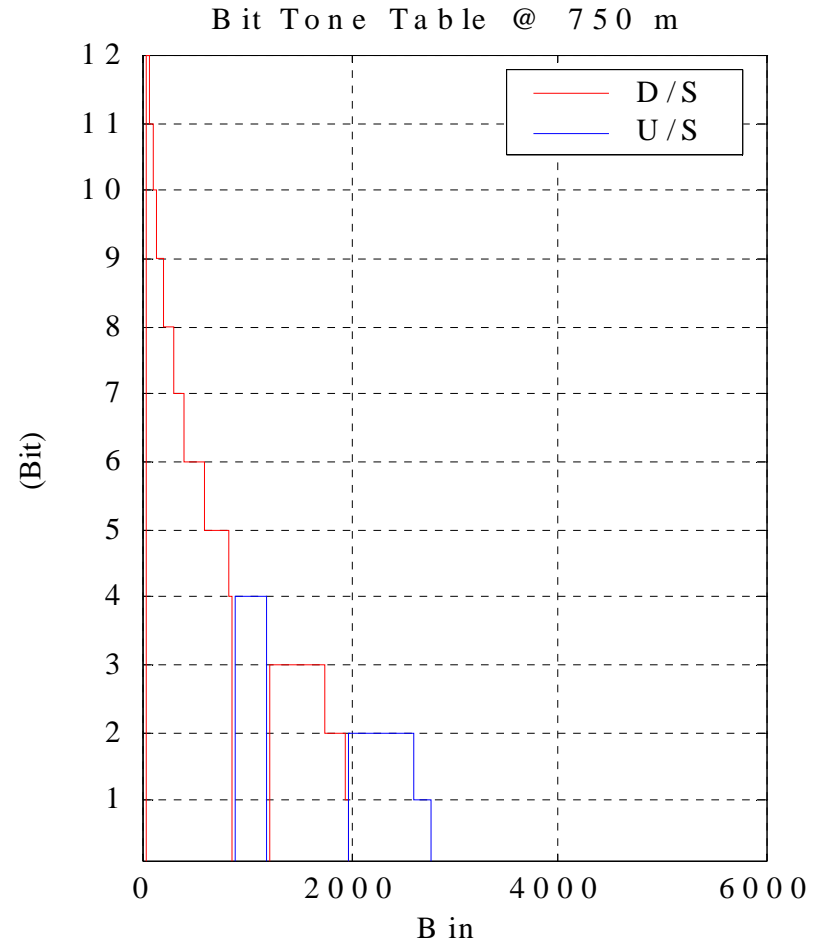
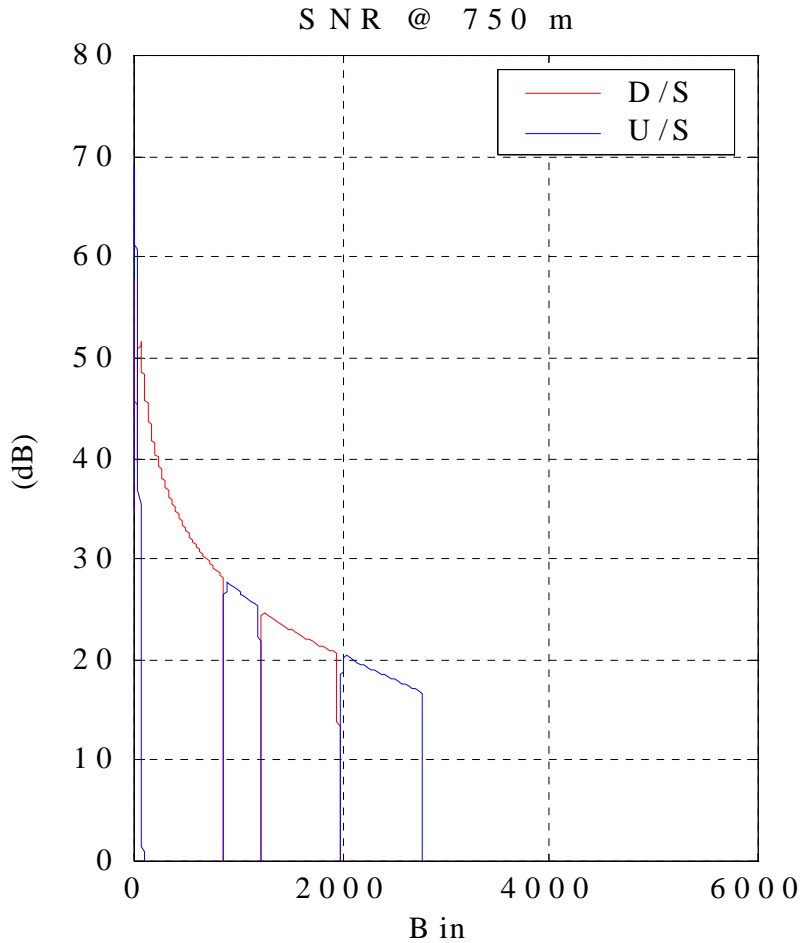
Test 17 – Tx, Rx, Noise PSD



u Loop length : 750 m



Test 17 – SNR, Bit Tone Table

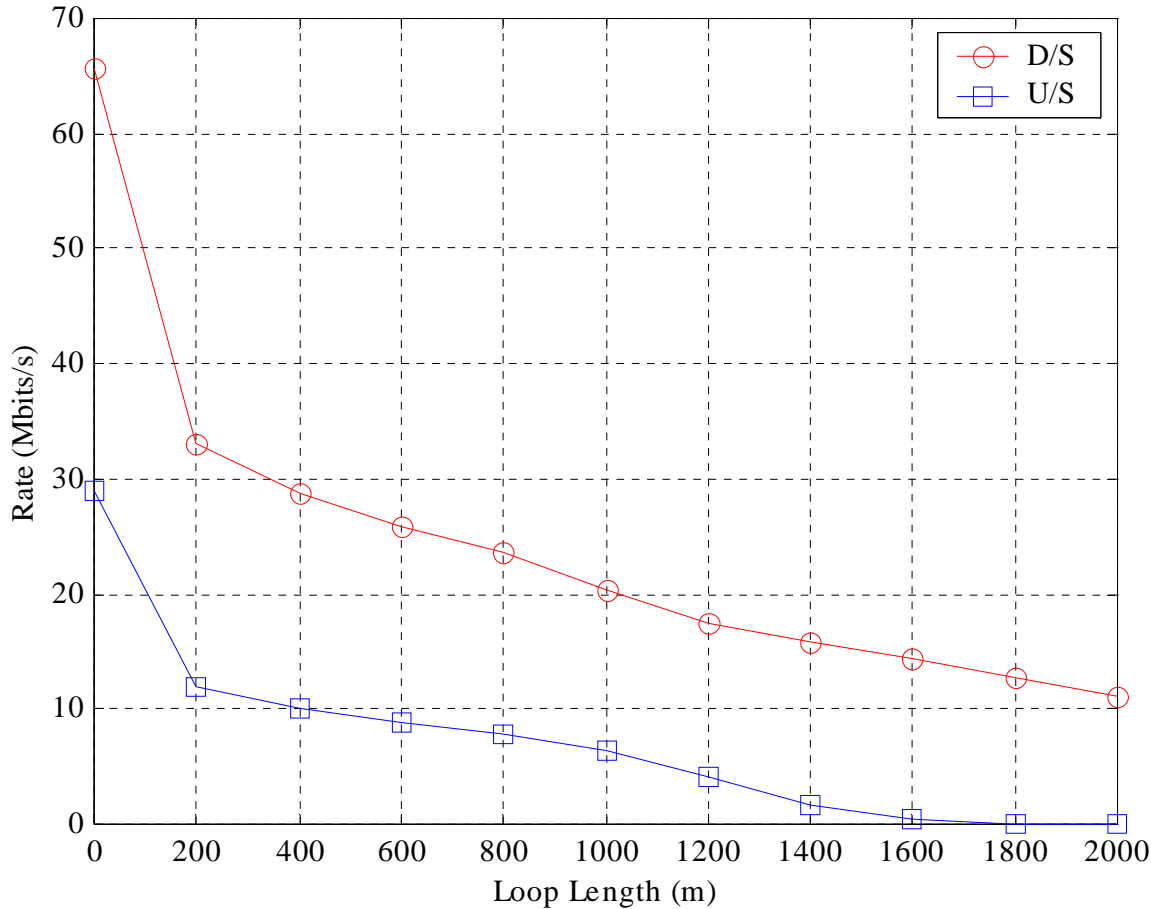


u D/S Rate = 30.6 Mb/s, U/S Rate = 10.7 Mb/s @ 750 m



Test 18 – Rate vs. Reach

ETSI, Pex.P2.M1, TP2, Notch Off, UPBO= 0, UDUDx, 20-S, 0-A, G=15dB

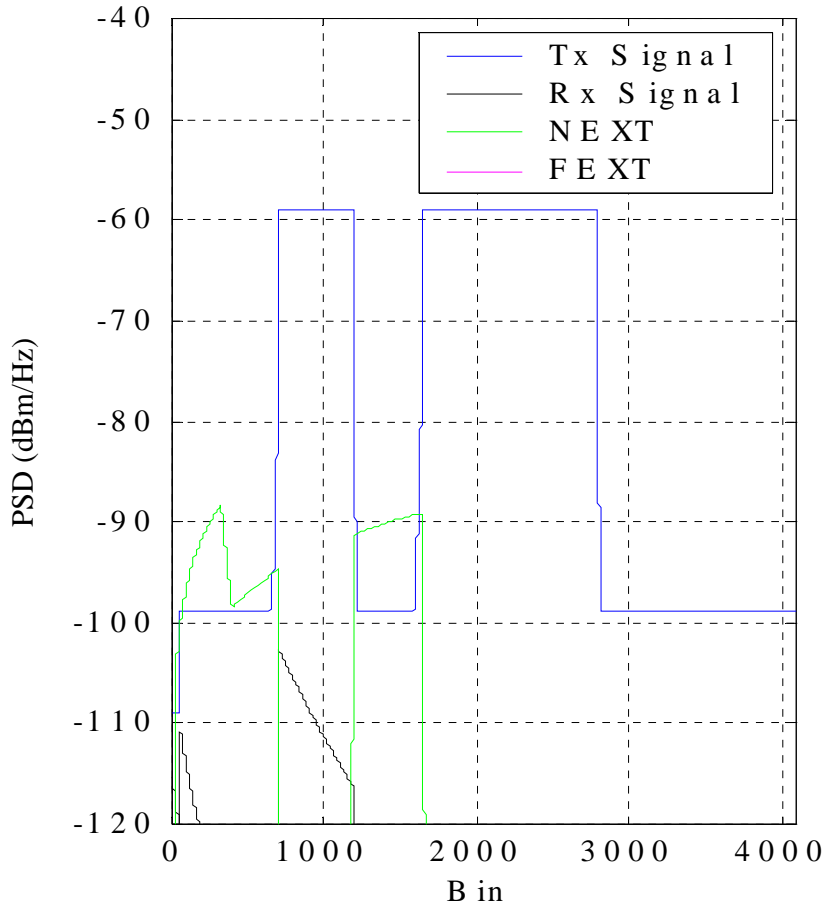


- u 5/5 @ 1200 m
- u 5/5 @ 1117 m
- u Profile 23
 - Pex.P2.M1
 - U/D/U/D/x
- u Notch off
- u UPBO off
- u 20-self xtalks

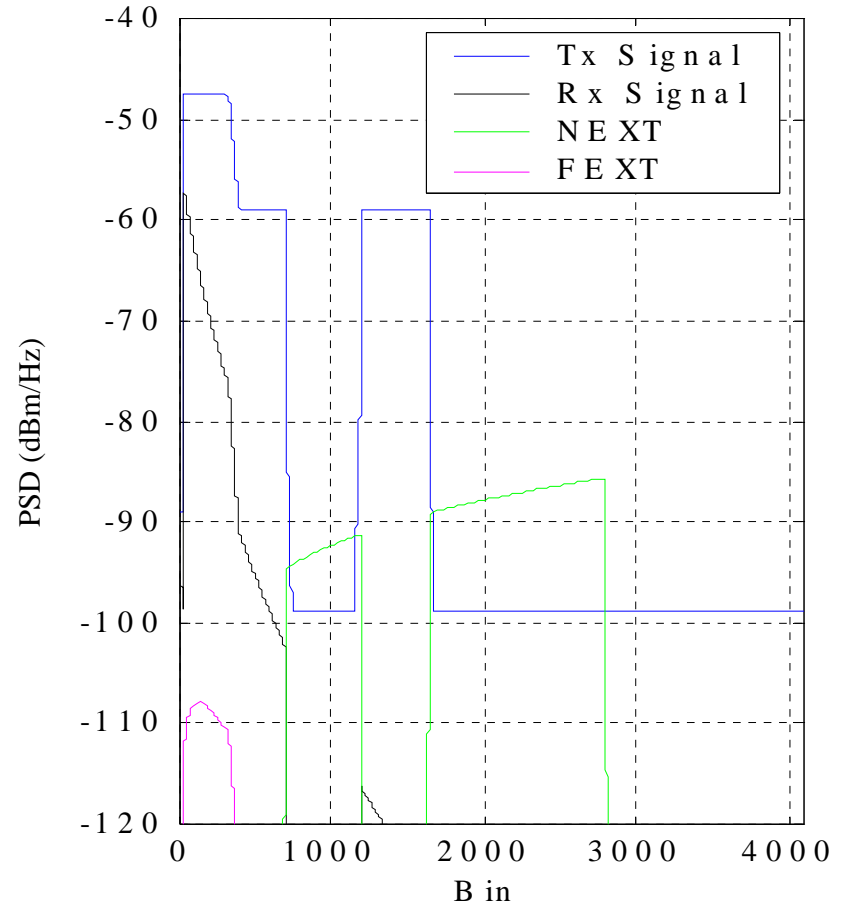


Test 18 – Tx, Rx, Noise PSD

U/S , 20 Self-Xtalks , 0 Alien-Xtalks



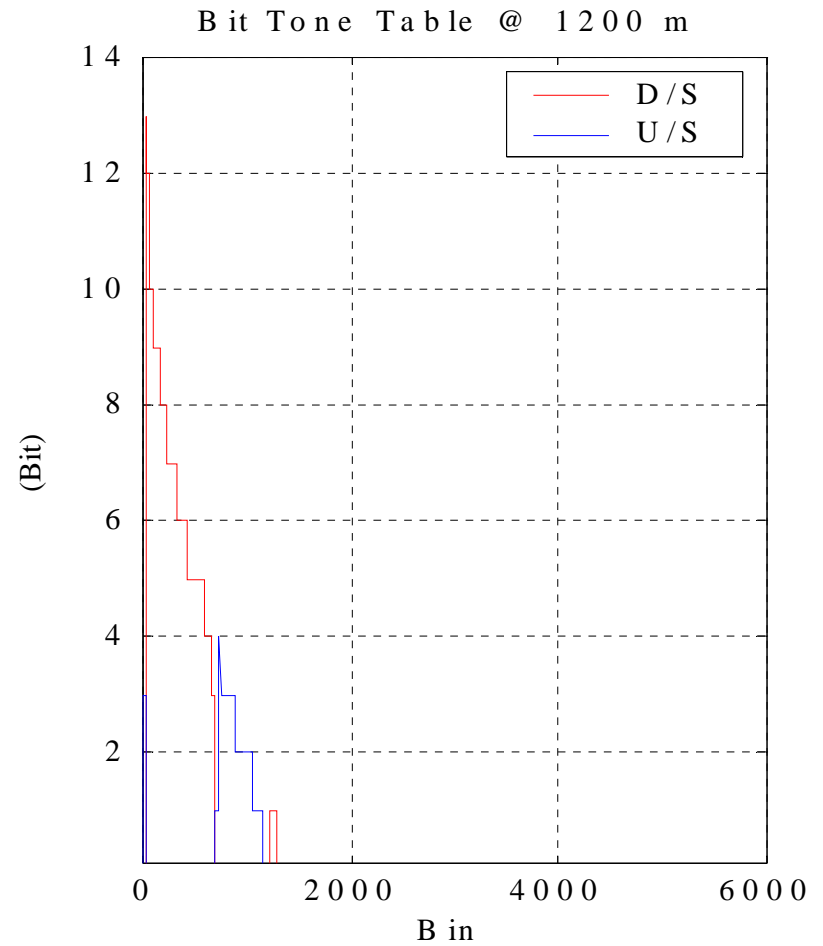
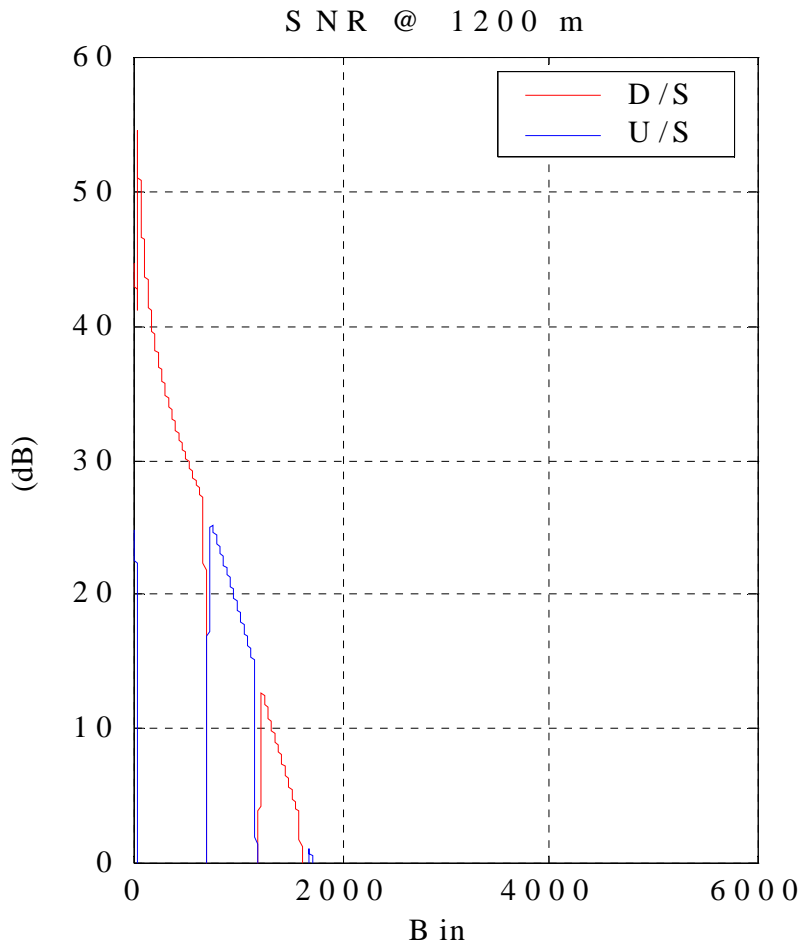
D/S , 20 Self-Xtalks , 0 Alien-Xtalks



u Loop length : 1200 m



Test 18 – SNR, Bit Tone Table

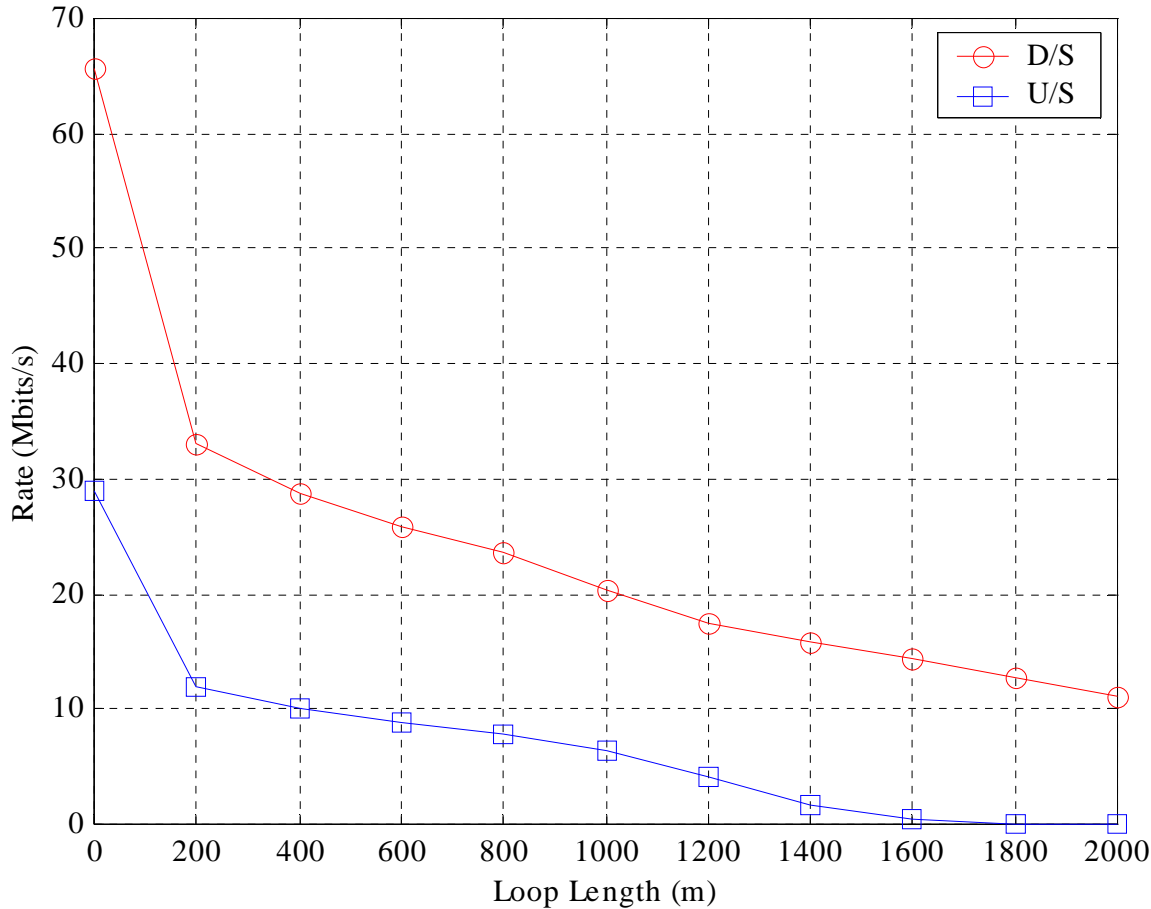


u D/S Rate = 17.3 Mb/s, U/S Rate = 4.0 Mb/s @ 1200 m

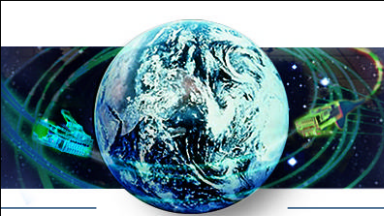


Test 19 – Rate vs. Reach

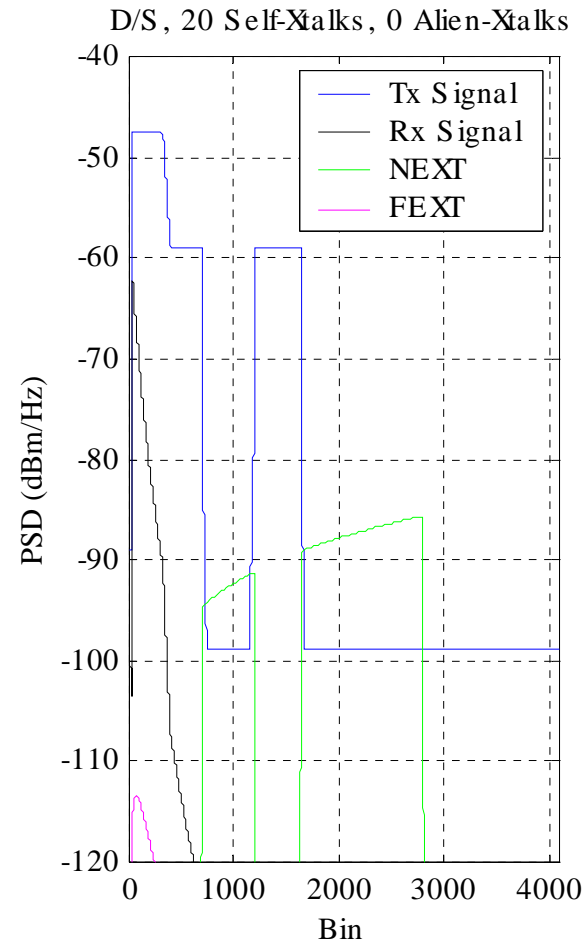
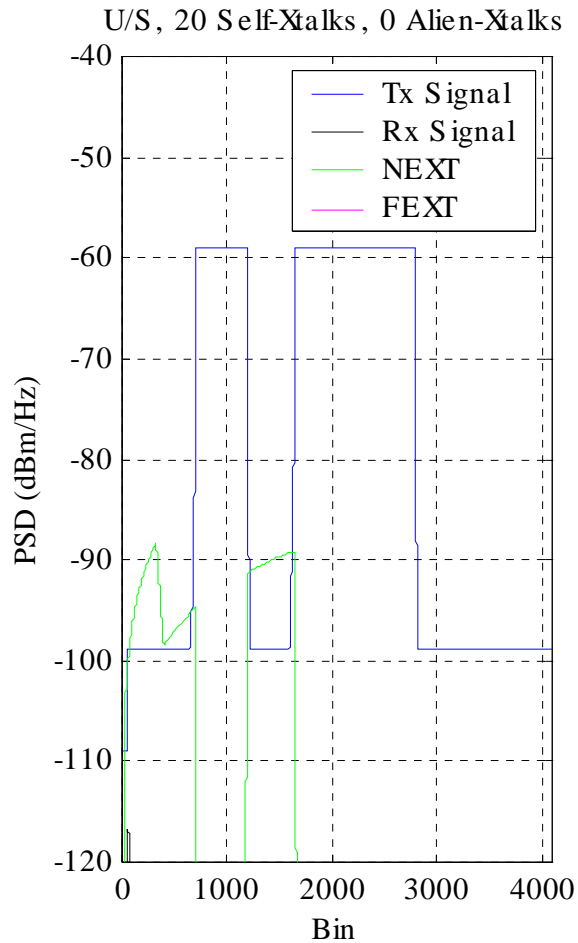
ETSI, Pex.P2.M1, TP2, Notch Off, UPBO= 0, UDUDx, 20-S, 0-A, G=15dB



- u 2.5/2.5 @ 1800 m
- u 2.5/2.5 @ 1328 m
- u Profile 23
 - Pex.P2.M1
 - U/D/U/D/x
- u Notch off
- u UPBO off
- u 20-self xtalks



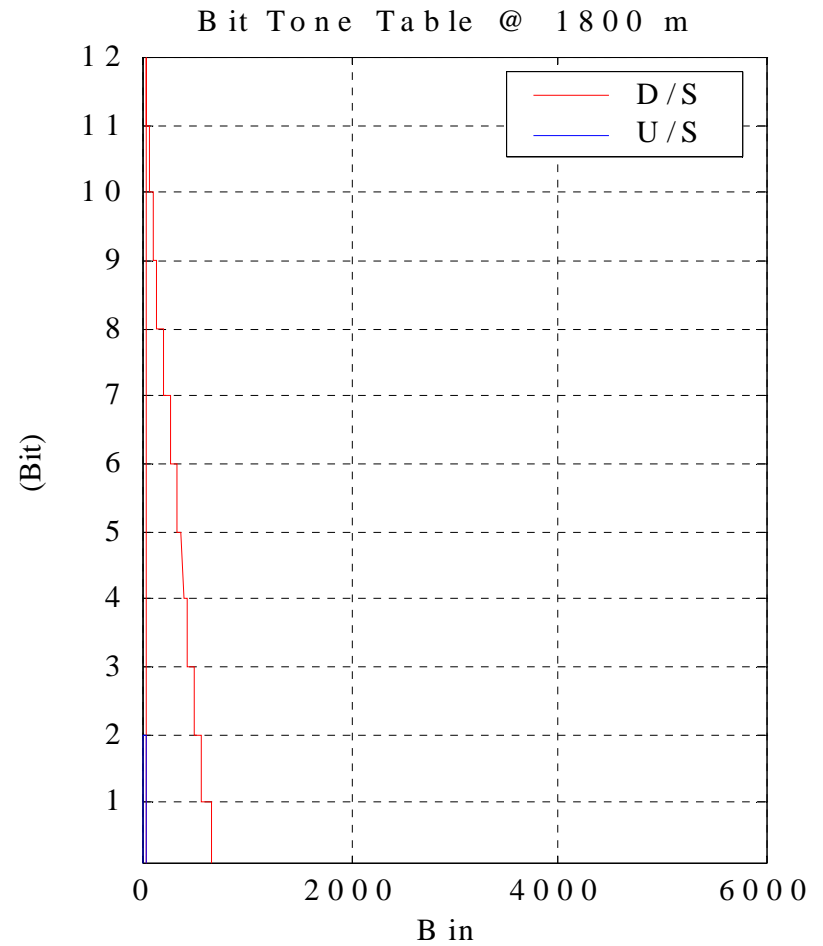
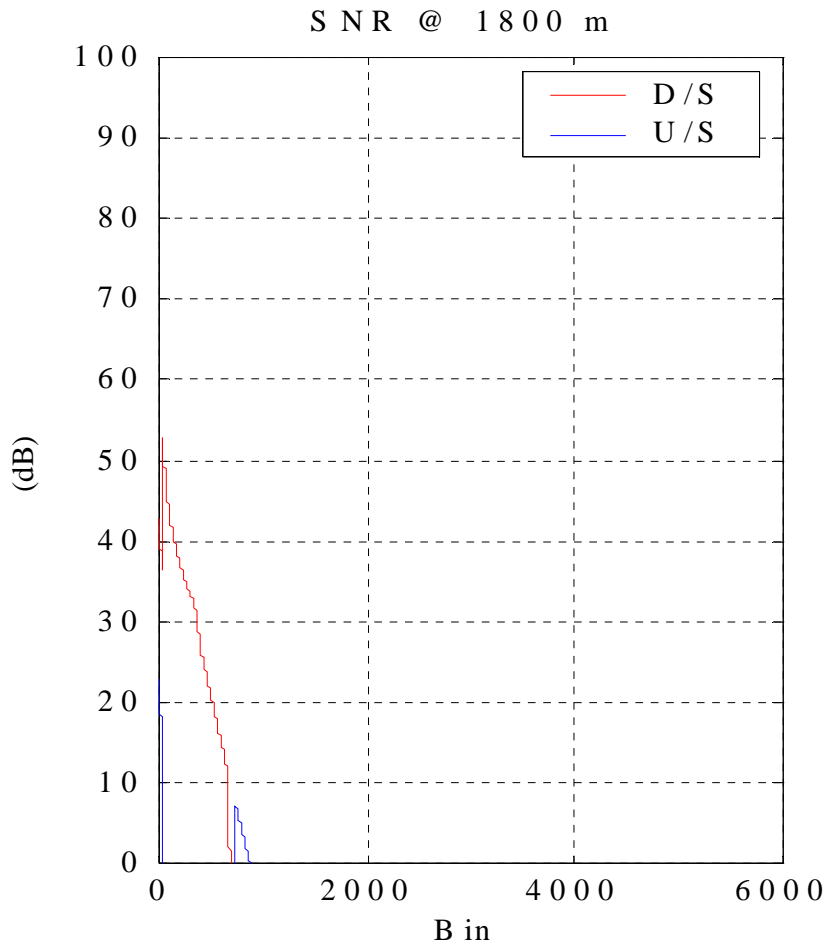
Test 19 – Tx, Rx, Noise PSD



u Loop length : 1800 m



Test 19 – SNR, Bit Tone Table

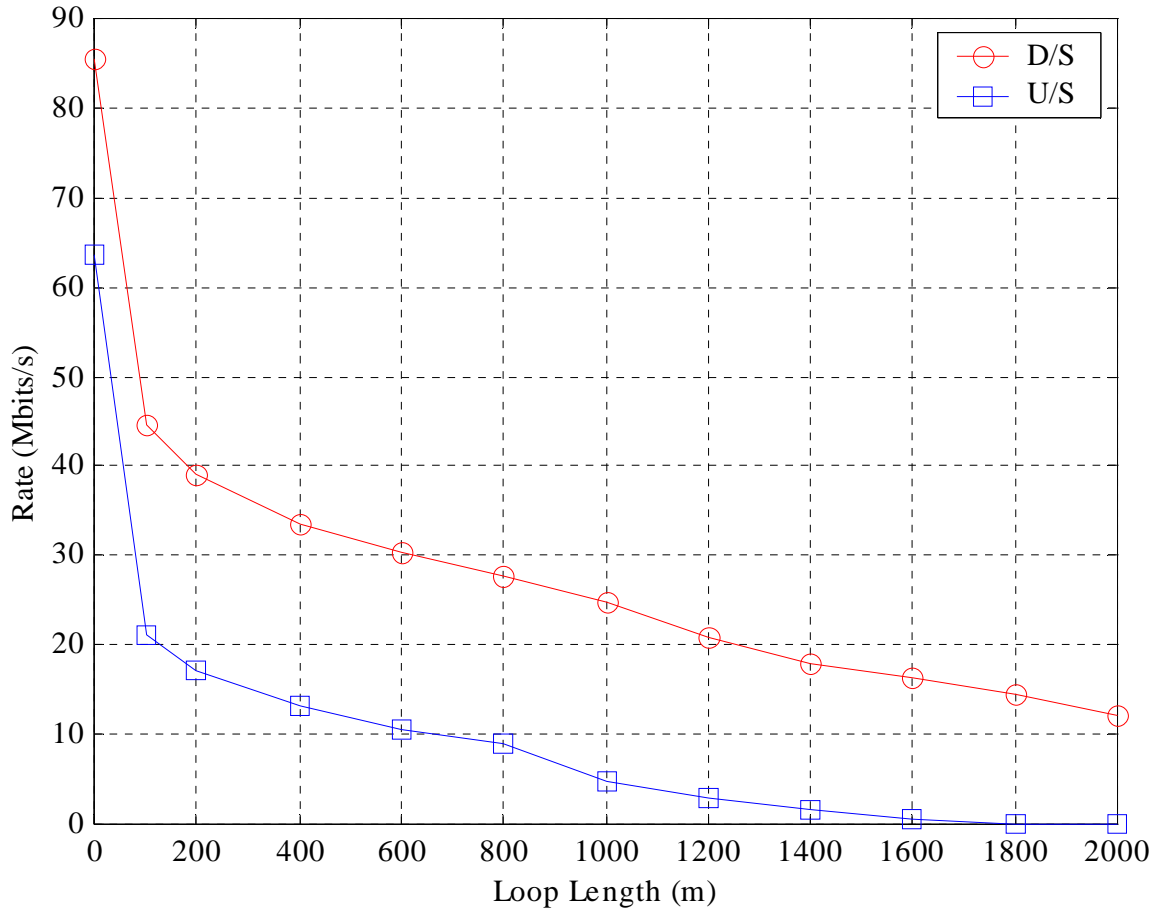


u D/S Rate = 12.7 Mb/s, U/S Rate = 0.1 Mb/s @ 1800 m



Test 20 – Rate vs. Reach

ANSI, FTTEx.M2, TP2, Notch On, UPBO= 0, DDUDU, 20-S, 0-A, G=15dB

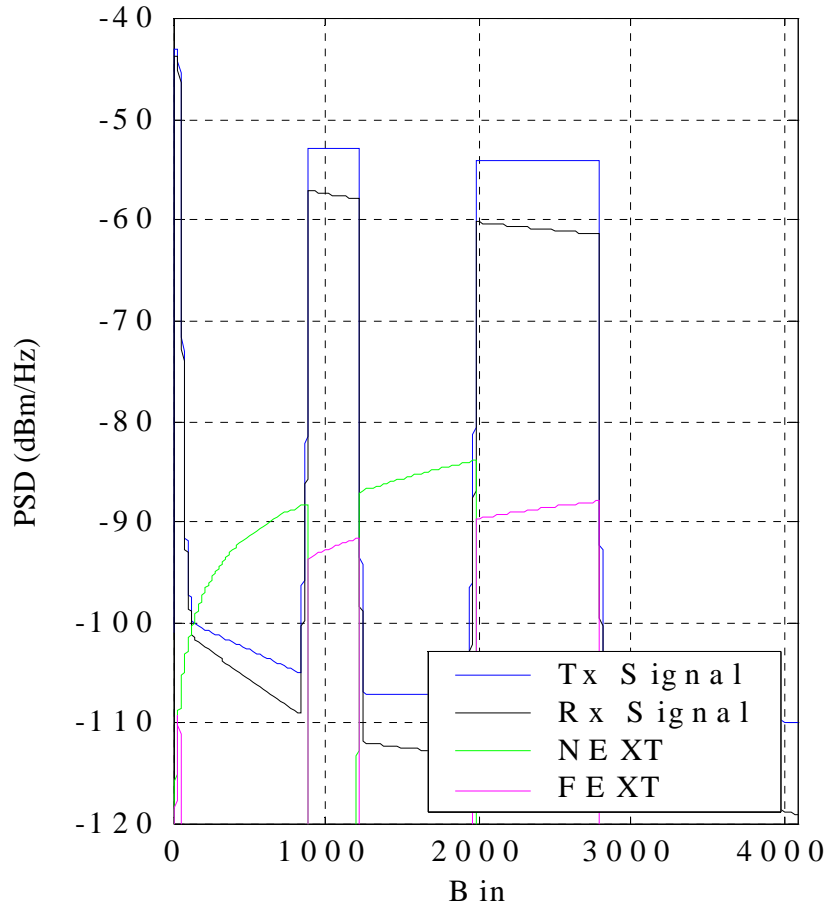


- u 100/35 @ 100 m
- u Infeasible
- u Profile 8
- FTTEx.M2
- D/D/U/D/U
- u Notch Profile :
2, 6, 10, 11
- u UPBO off
- u 20-self xtalks

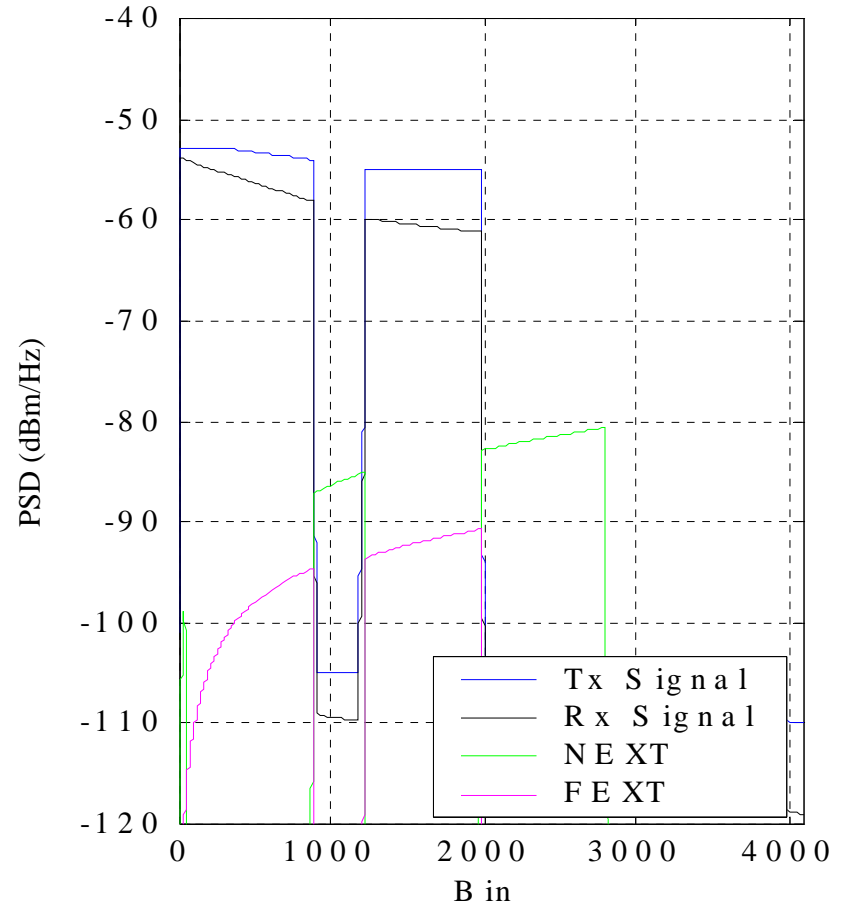


Test 20 – Tx, Rx, Noise PSD

U/S , 20 Self-Xtalks , 0 Alien-Xtalks



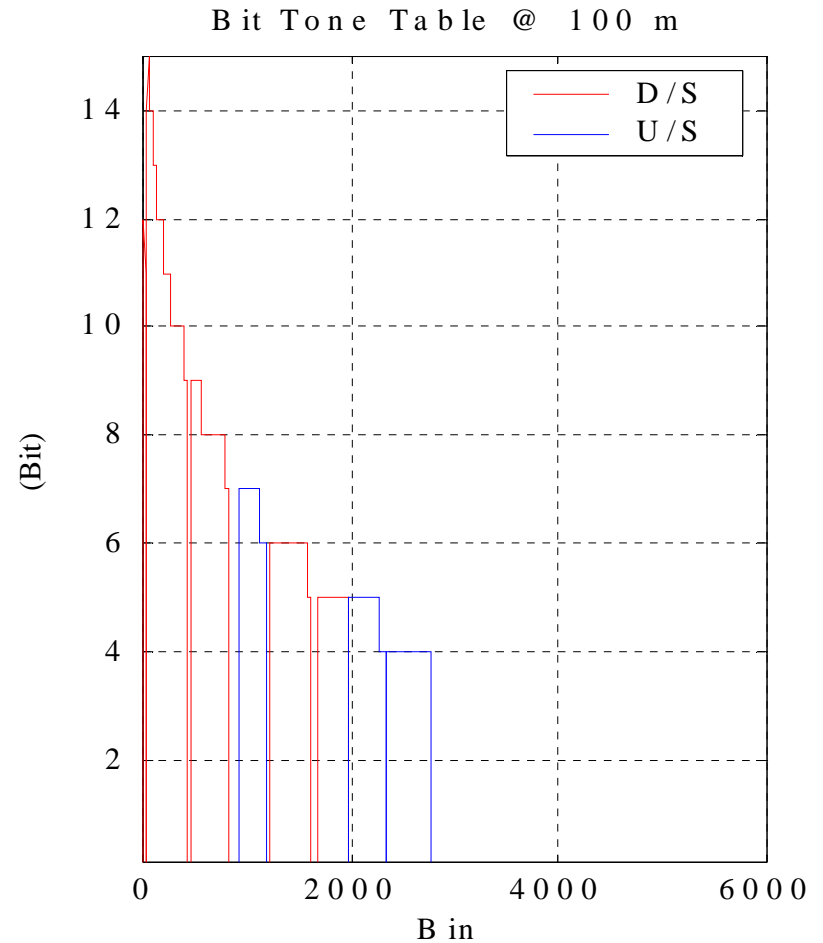
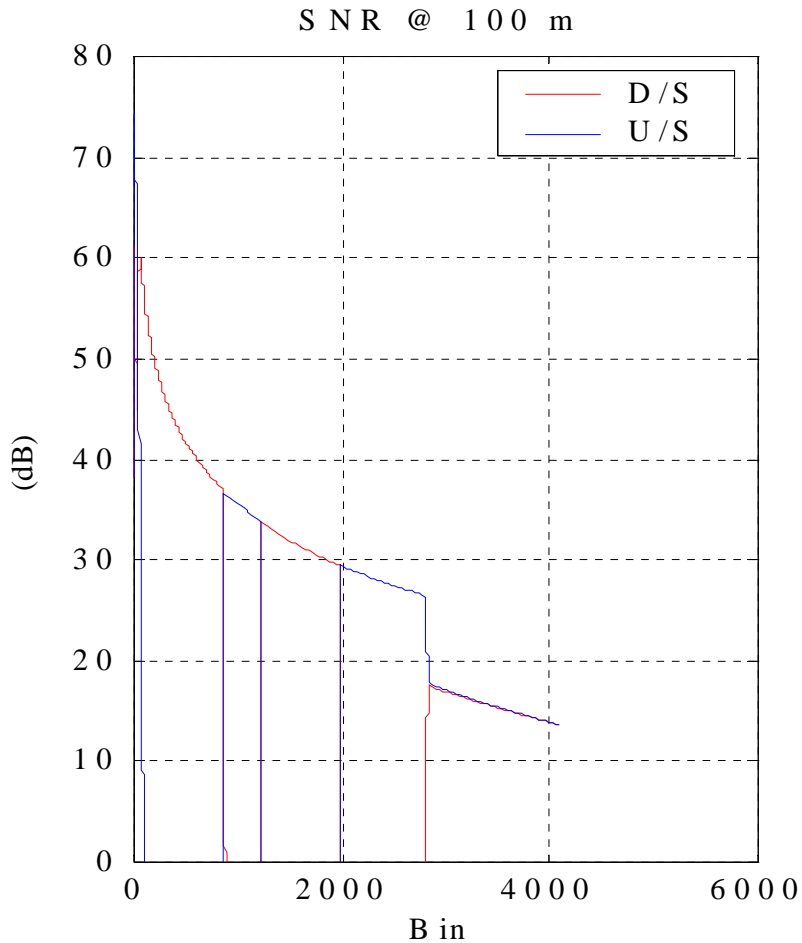
D/S , 20 Self-Xtalks , 0 Alien-Xtalks



u Loop length : 100 m



Test 20 – SNR, Bit Tone Table

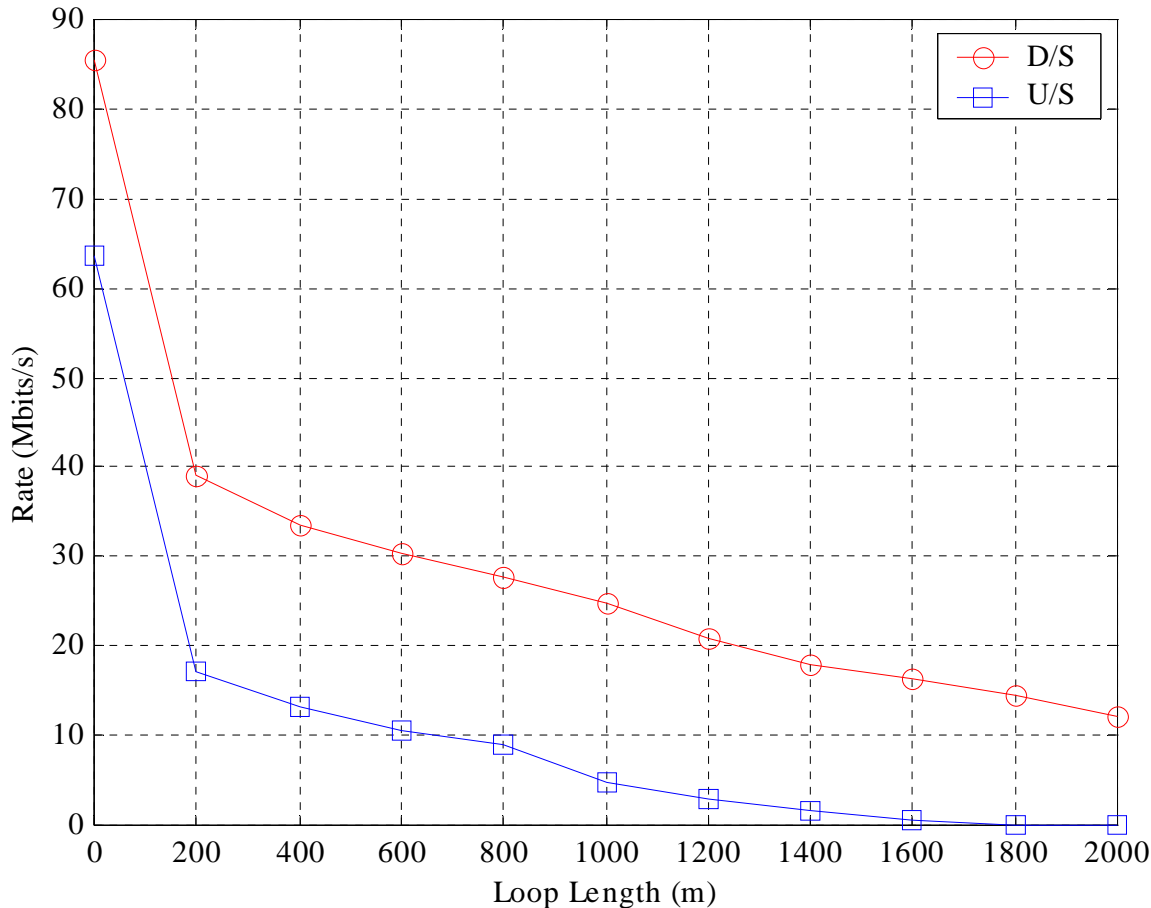


u D/S Rate = 44.7 Mb/s, U/S Rate = 21 Mb/s @ 100 m



Test 21 – Rate vs. Reach

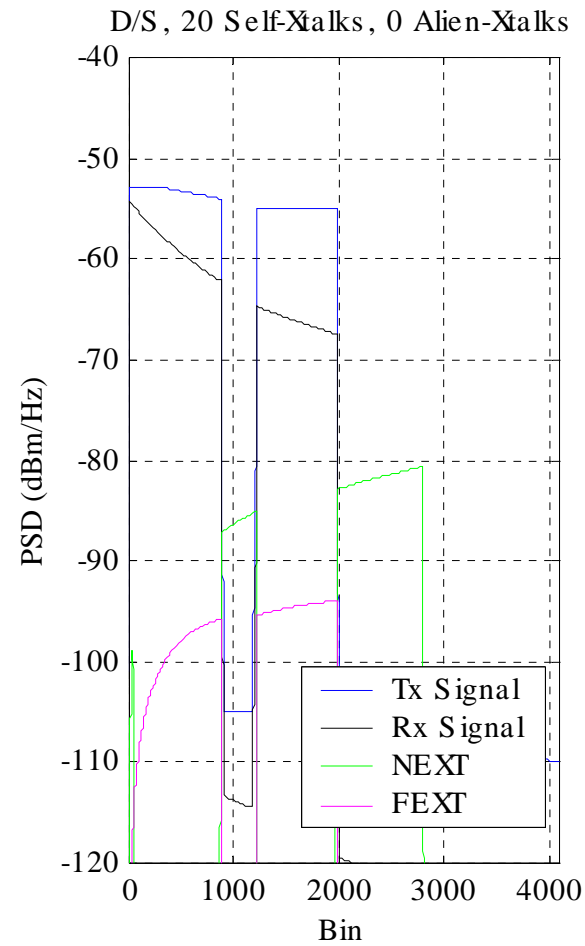
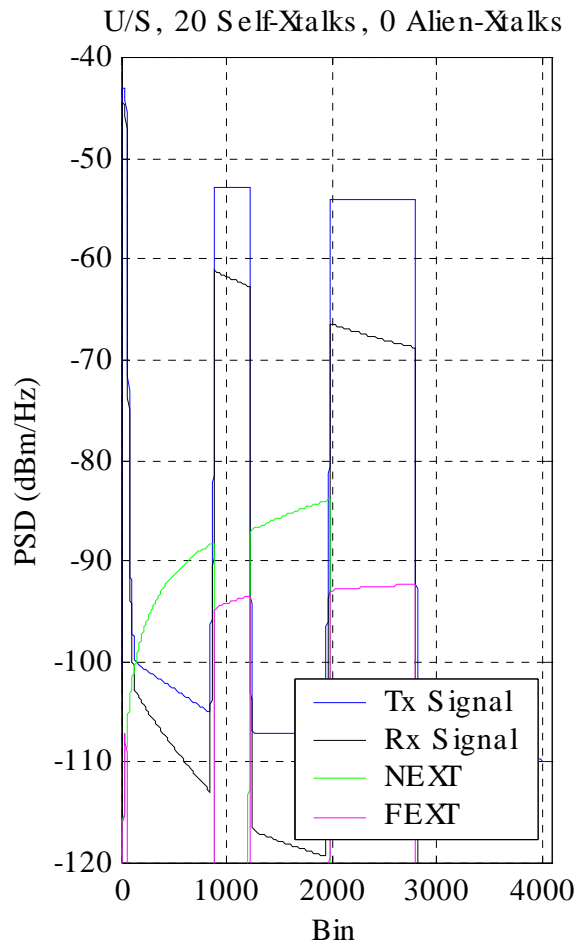
ANSI, FTTEx.M2, TP2, Notch On, UPBO= 0, DDUDU, 20-S, 0-A, G=15dB



- u 75/35 @ 200 m
- u 75/35 @ 25 m
- u Profile 8
- FTTEx.M2
- D/D/U/D/U
- u Notch Profile :
2, 6, 10, 11
- u UPBO off
- u 20-self xtalks



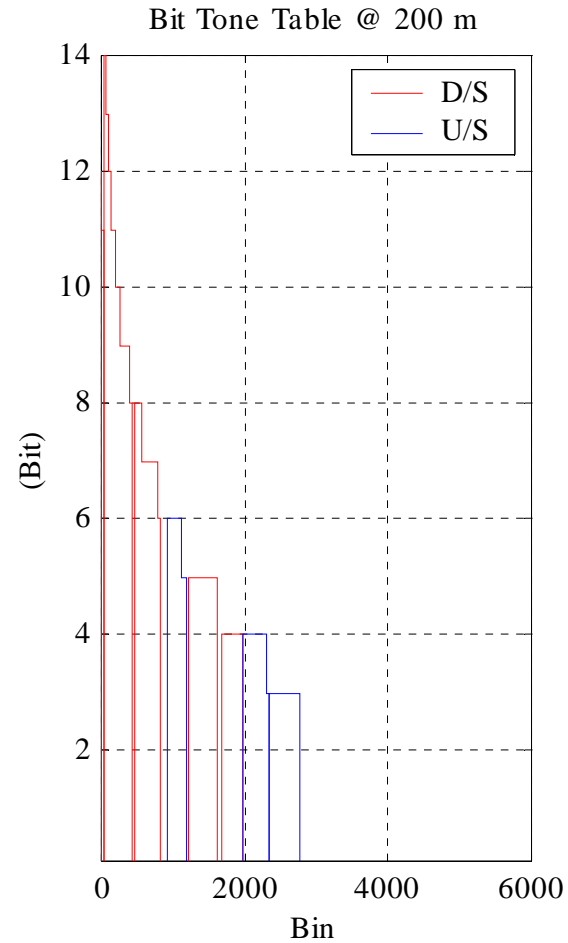
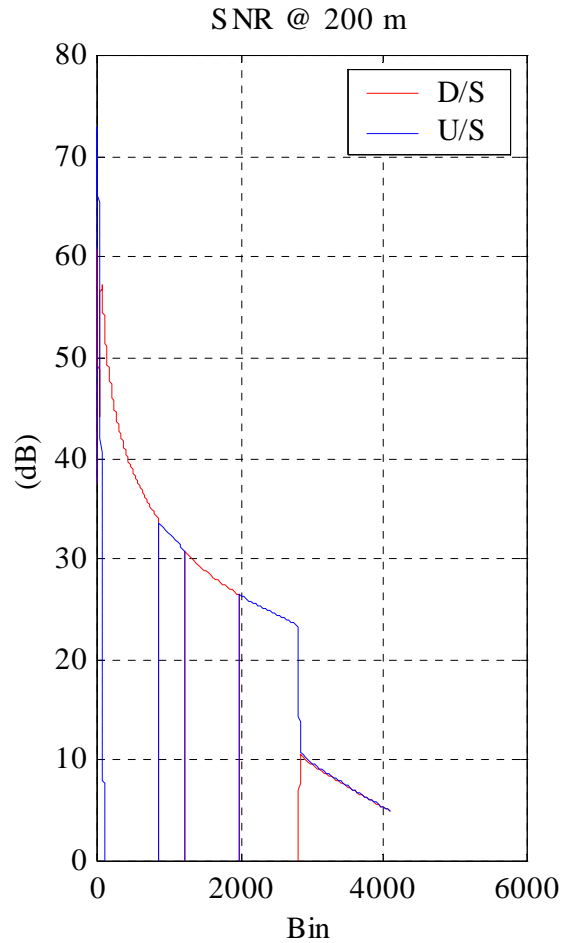
Test 21 – Tx, Rx, Noise PSD



u Loop length : 200 m



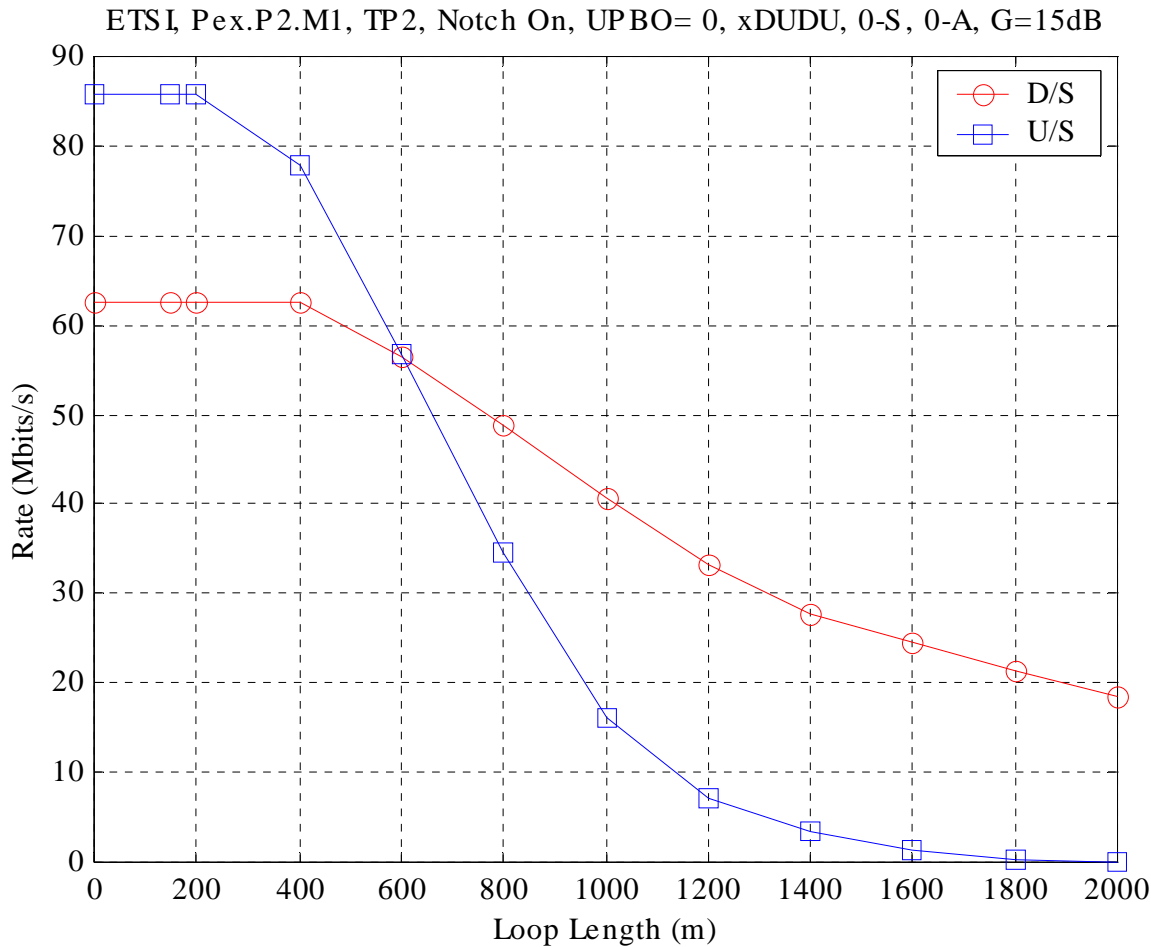
Test 21 – SNR, Bit Tone Table



u D/S Rate = 39.1 Mb/s, U/S Rate = 17 Mb/s @ 200 m



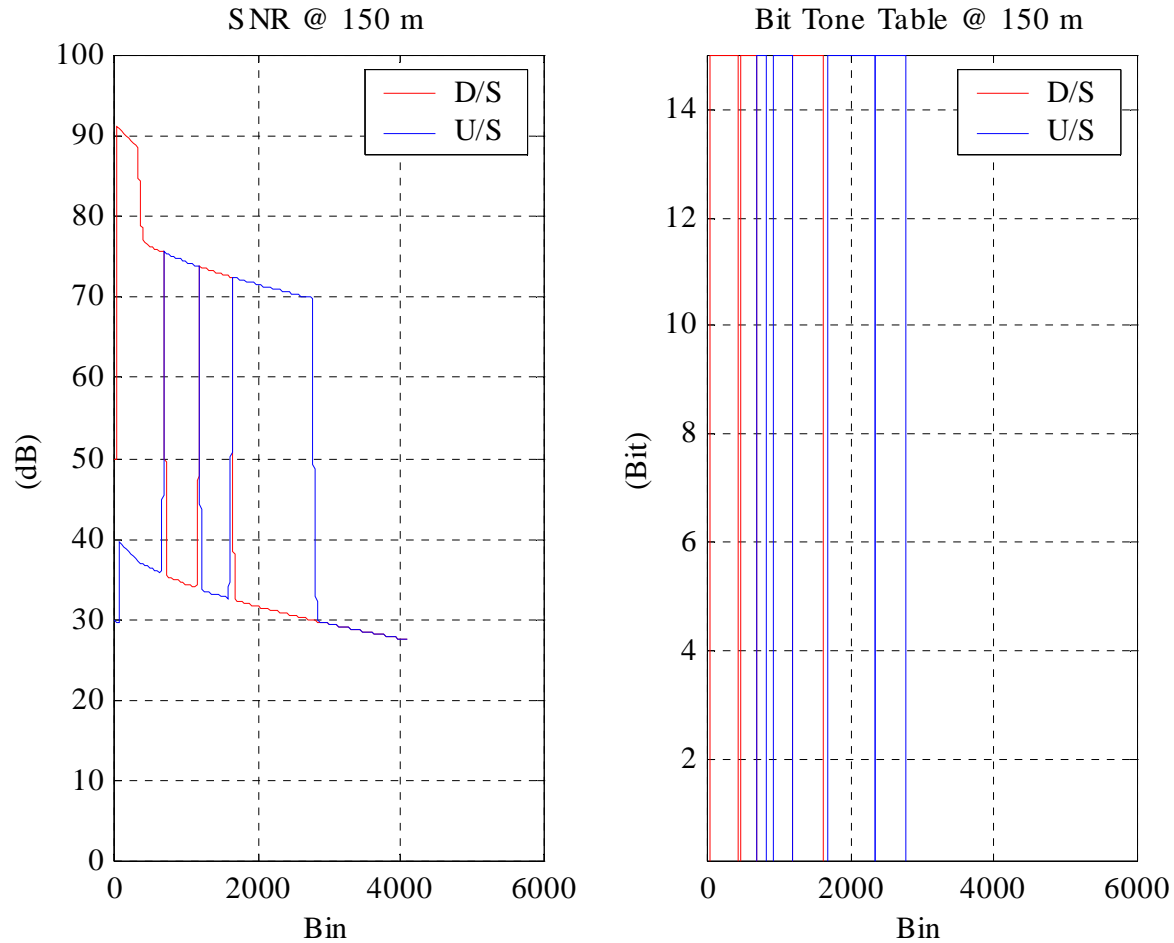
Test 22 – Rate vs. Reach



- u 50/50 @ 150 m
- u 50/50 @ 660 m
- u Profile 16
- Pex.P2.M1
- x/D/U/D/U
- u Notch Profile :
2, 5, 9, 11
- u UPBO off
- u AWGN



Test 22 – SNR, Bit Tone Table

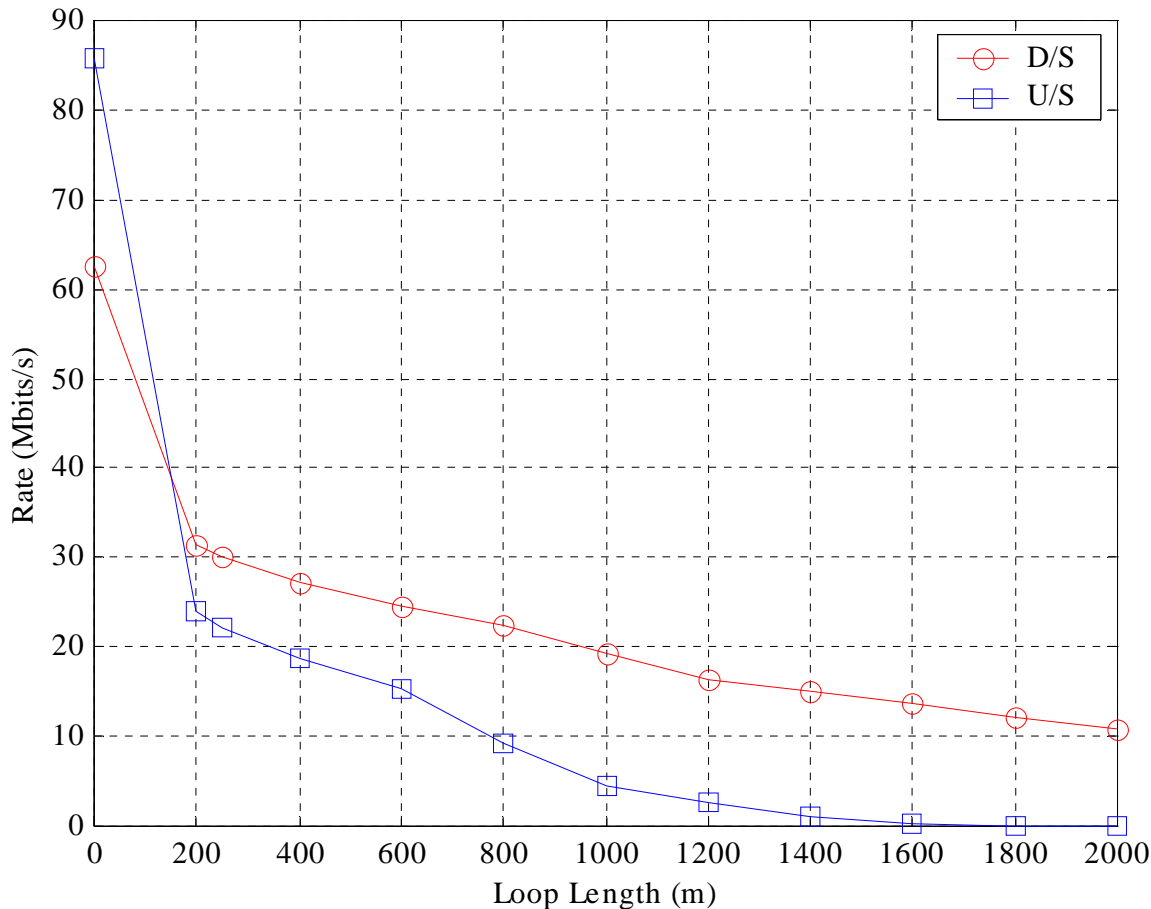


u D/S Rate = 62.5 Mb/s, U/S Rate = 85.8 Mb/s @ 150 m

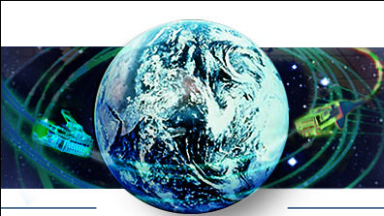


Test 23 – Rate vs. Reach

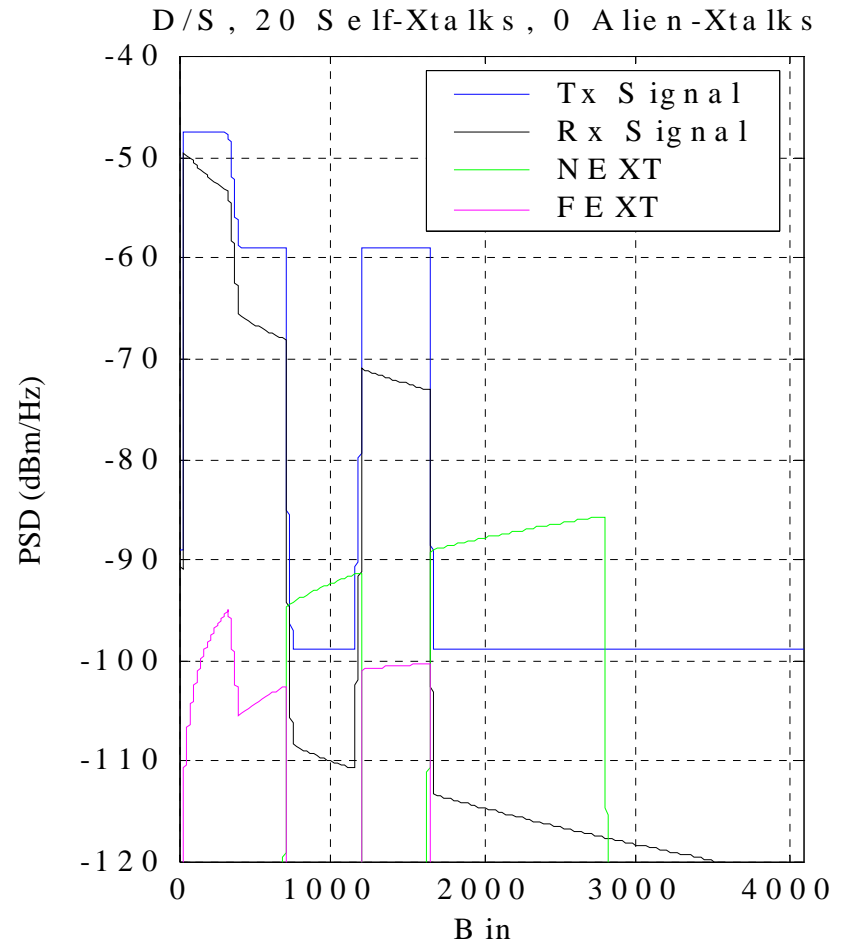
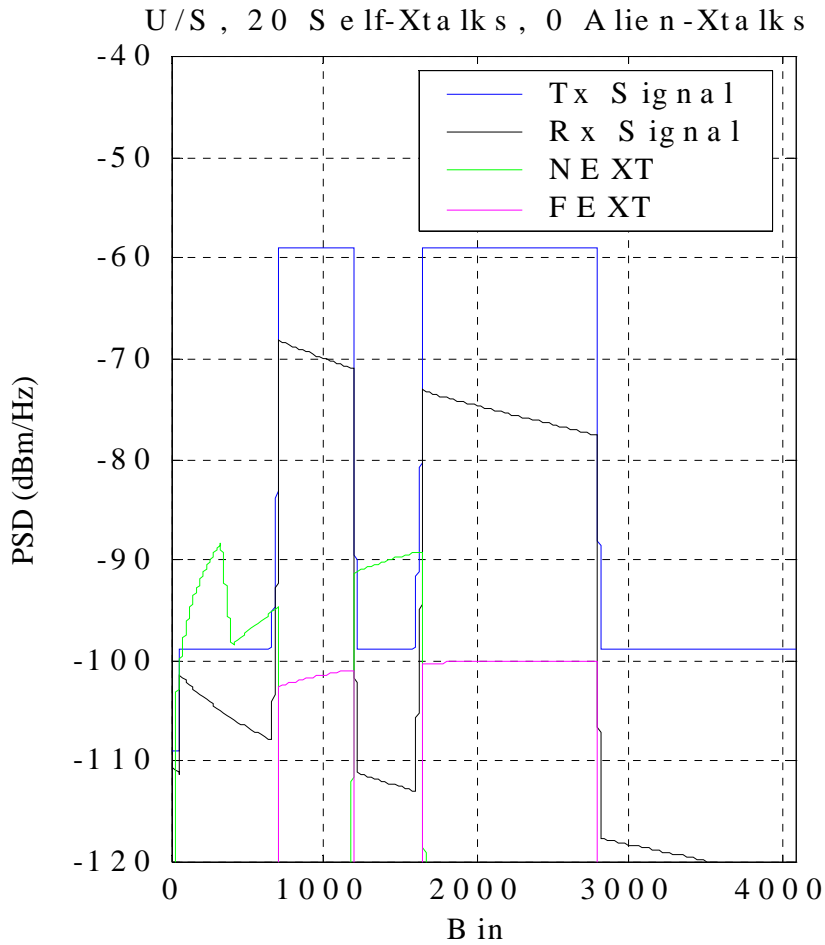
ETSI, Pex.P2.M1, TP2, Notch On, UPBO= 0, xDUDU, 20-S, 0-A, G=15dB



- u 35/25 @ 250 m
- u 35/25 @ 176 m
- u Profile 16
 - Pex.P2.M1
 - x/D/U/D/U
- u Notch Profile :
 - 2, 5, 9, 11
- u UPBO off
- u 20-self xtalks



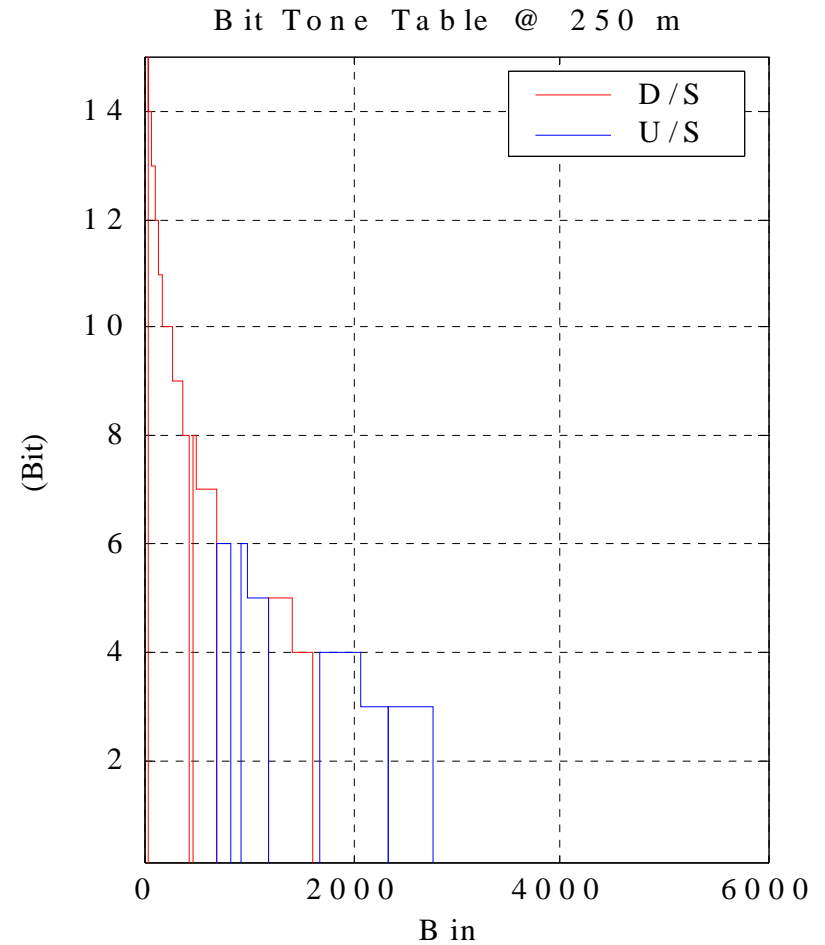
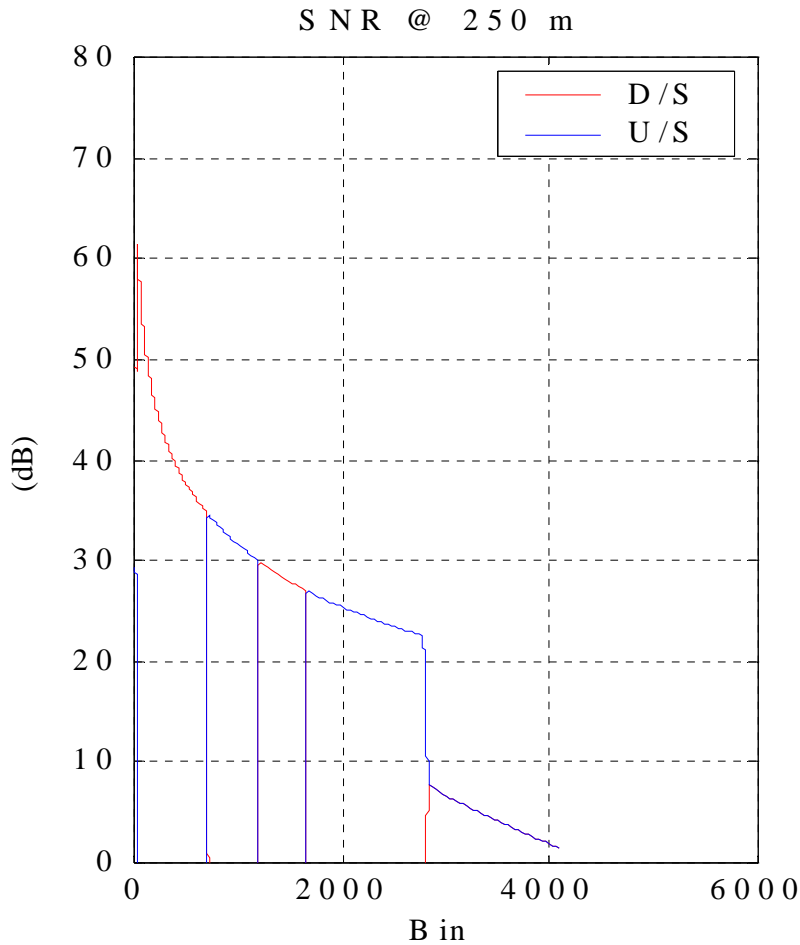
Test 23 – Tx, Rx, Noise PSD



u Loop length : 250 m



Test 23 – SNR, Bit Tone Table

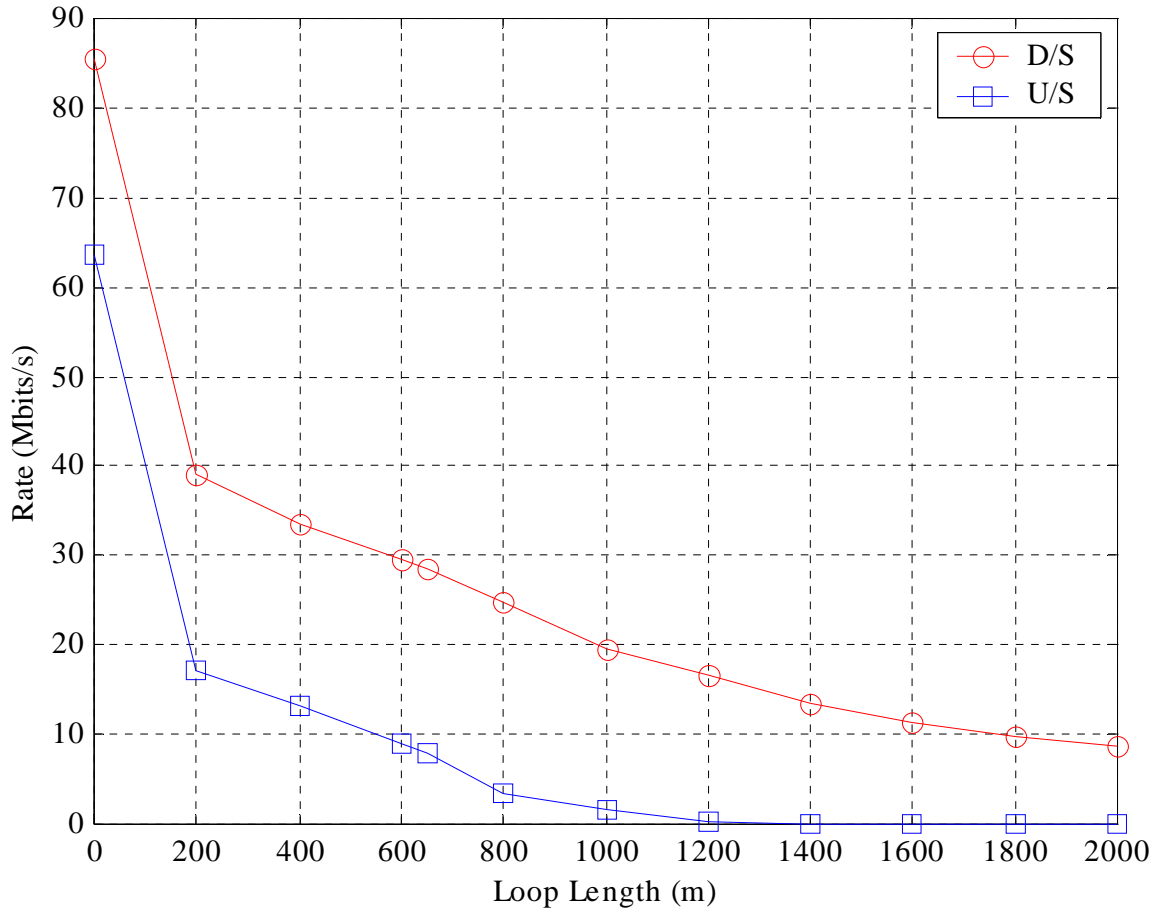


u D/S Rate = 29.98 Mb/s, U/S Rate = 22.28 Mb/s @ 250 m



Test 24 – Rate vs. Reach

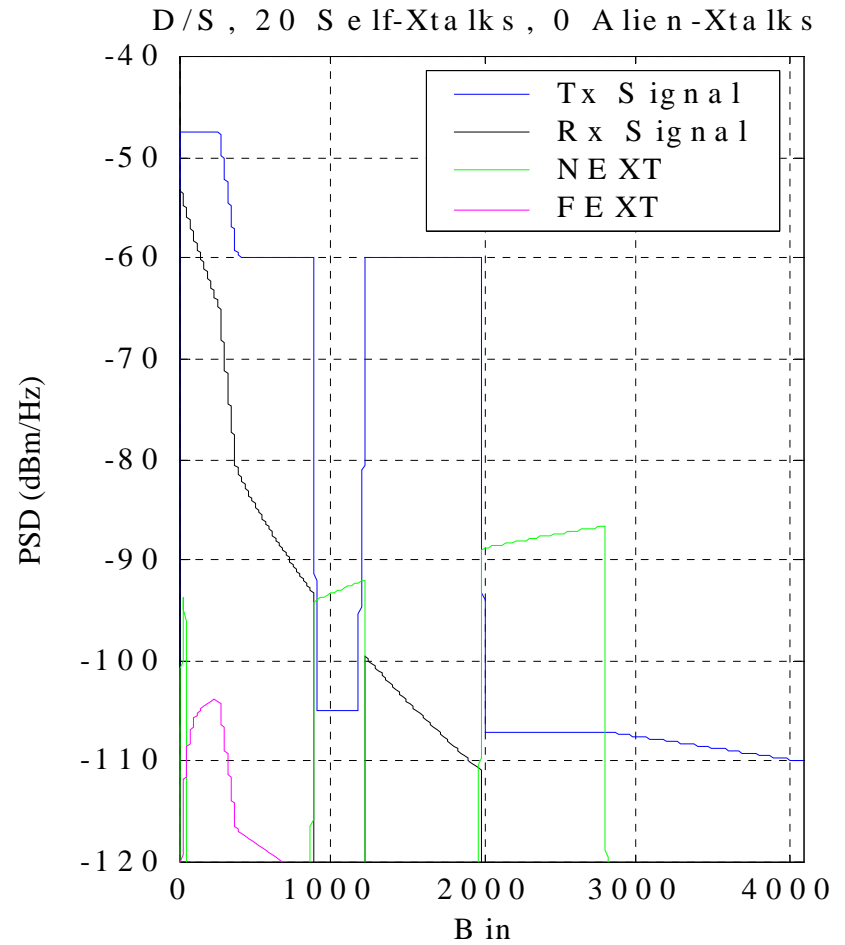
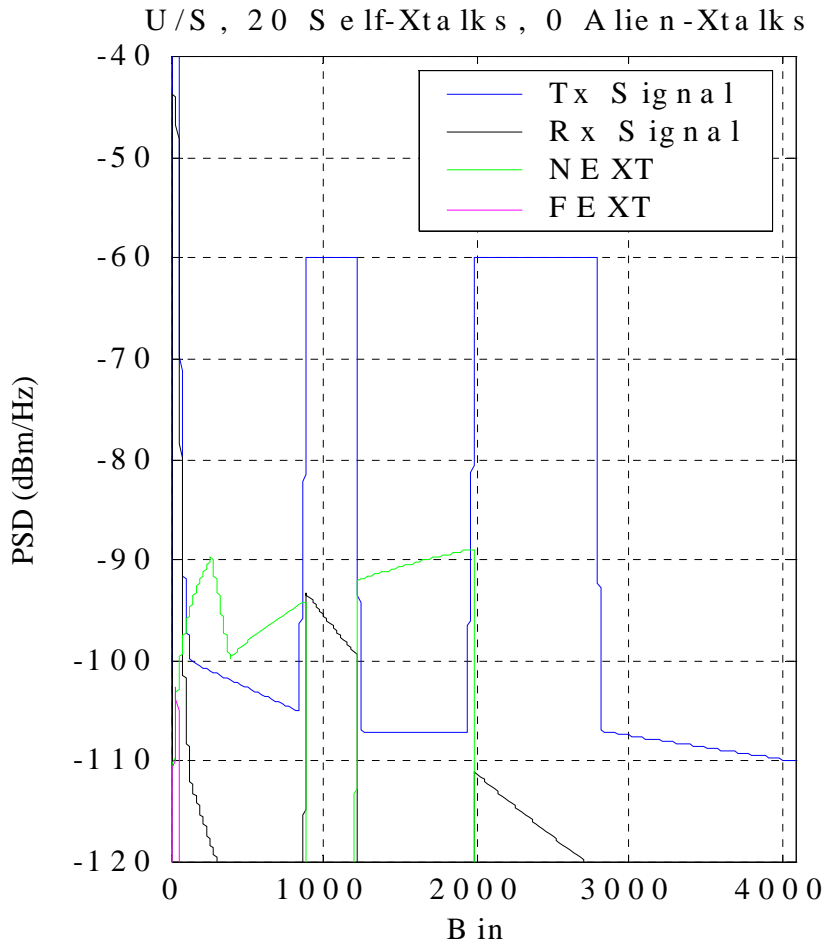
ANSI, FTTEx.M1, TP1, Notch On, UPBO= 0, DDUDU, 20-S, 0-A, G=15dB



- u 25/5 @ 650 m
- u 25/5 @ 746 m
- u Profile 6
 - FTTEx.M1
 - D/D/U/D/U
- u Notch Profile :
2, 6, 10, 11
- u UPBO off
- u 20-self xtalks



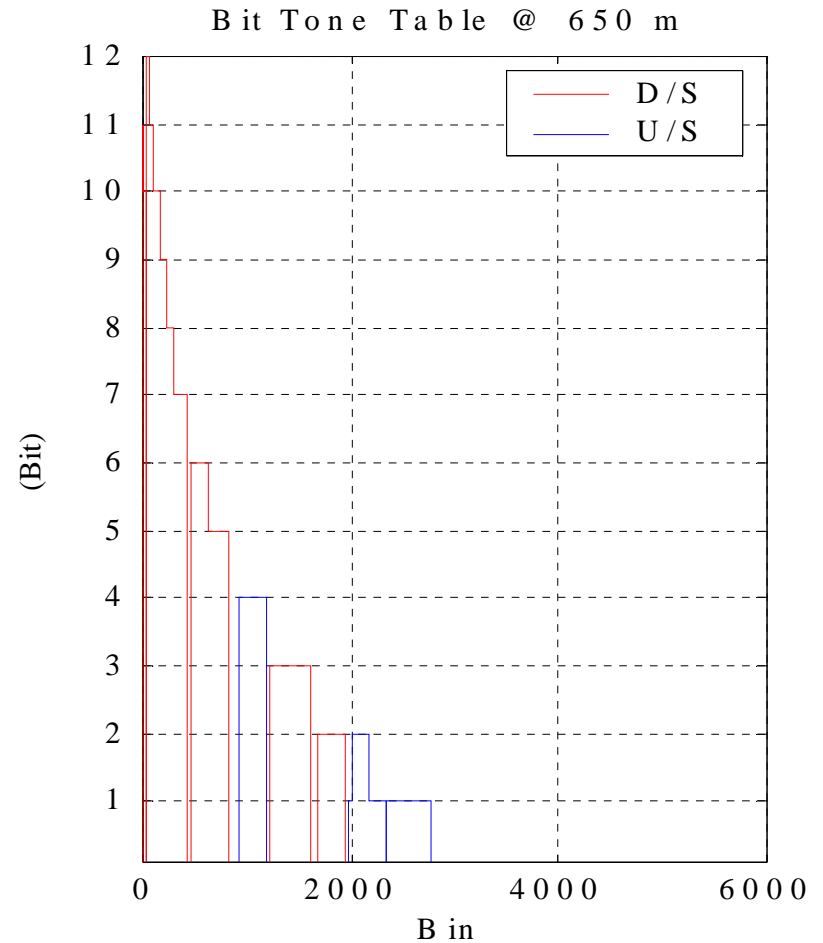
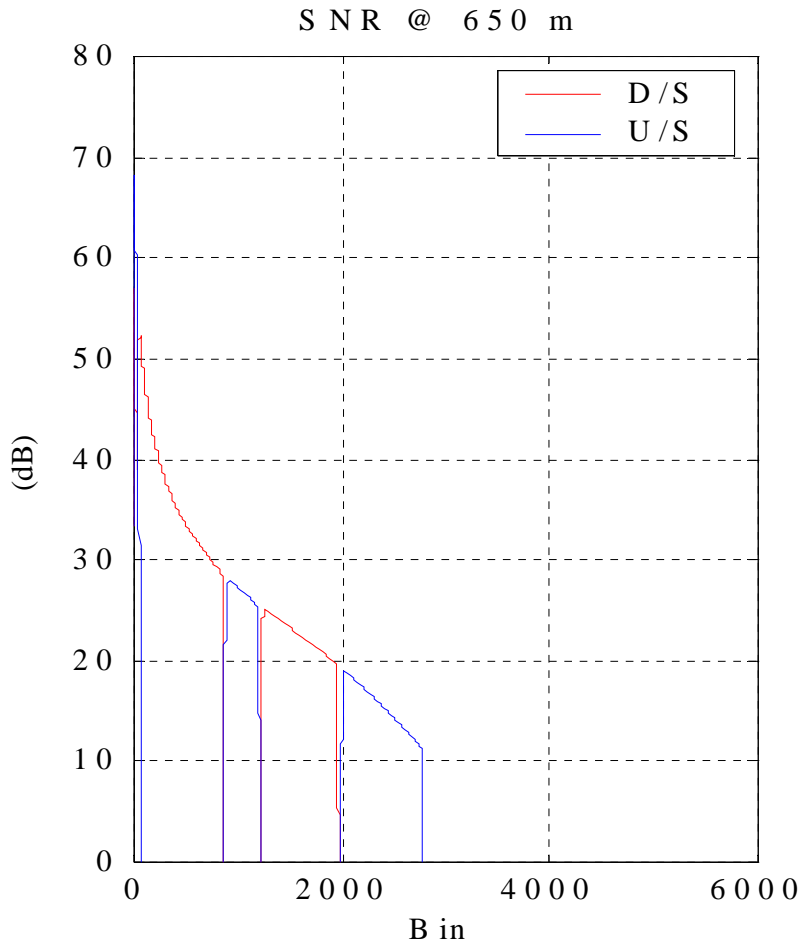
Test 24 – Tx, Rx, Noise PSD



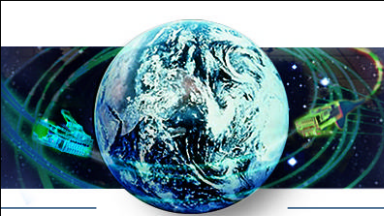
u Loop length : 650 m



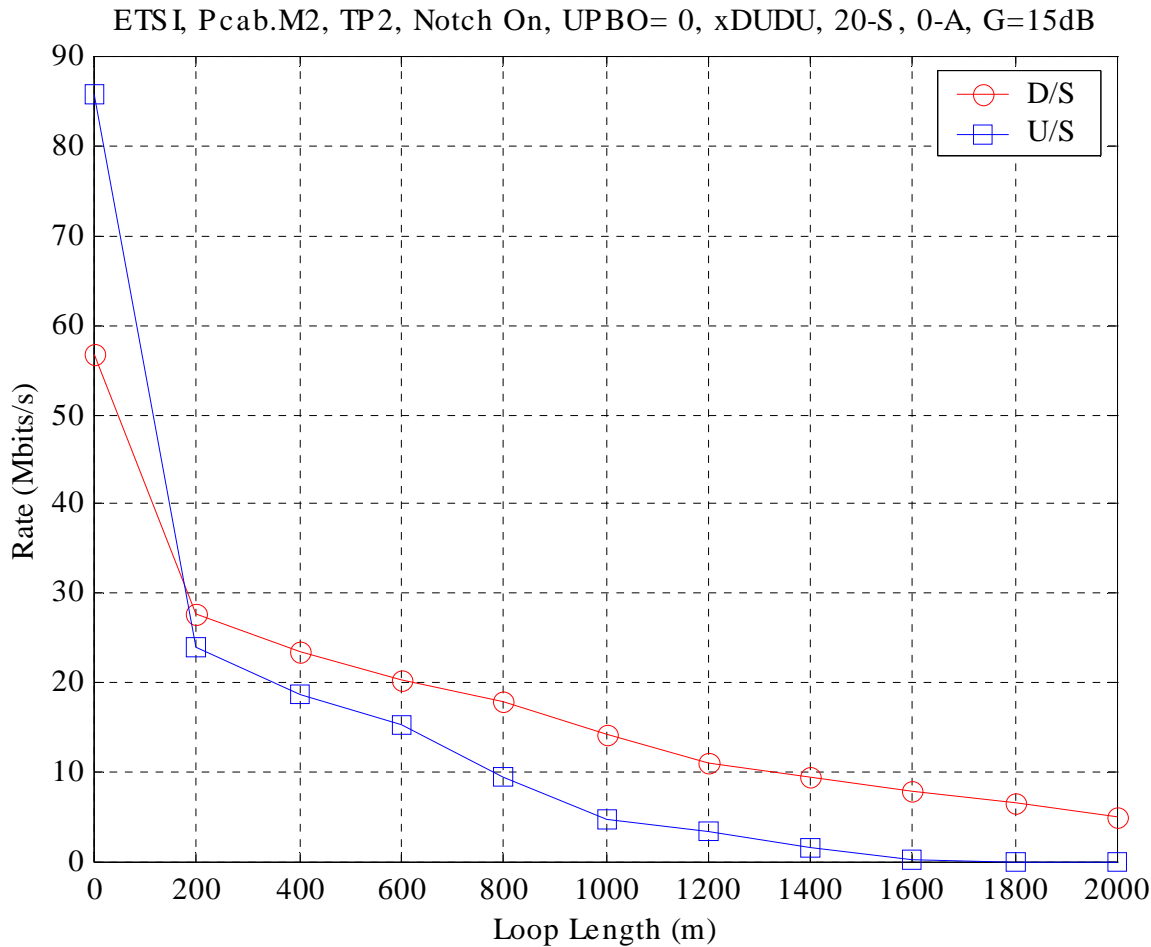
Test 24 – SNR, Bit Tone Table



u D/S Rate = 28.4 Mb/s, U/S Rate = 7.8 Mb/s @ 650 m



Test 25 – Rate vs. Reach

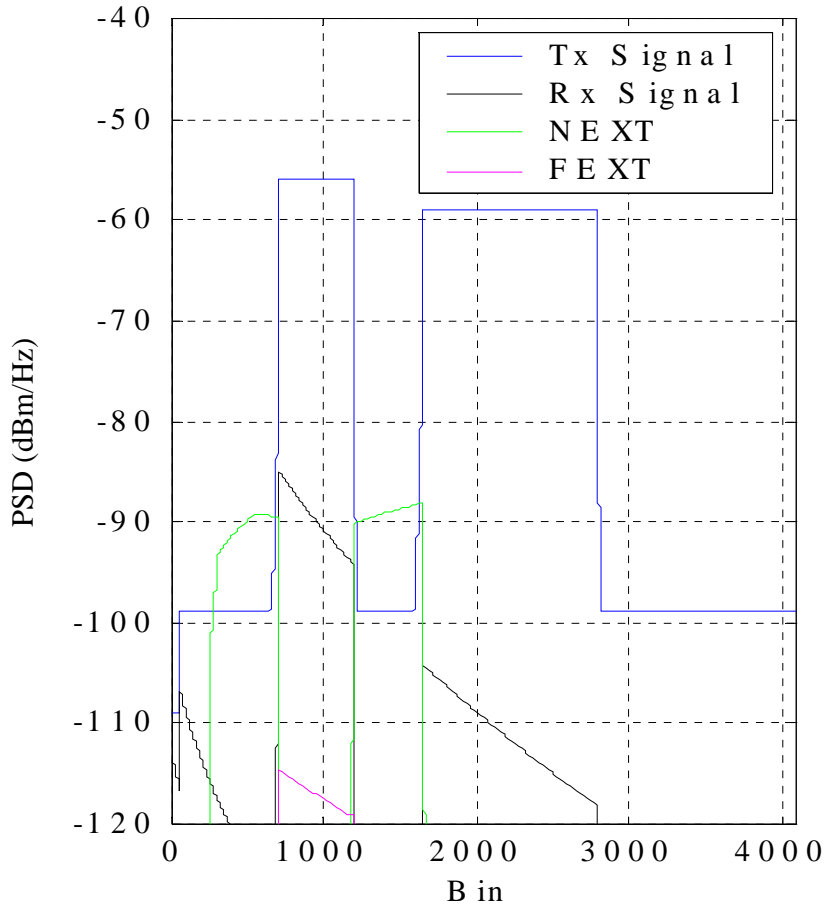


- u 15/15 @ 800 m
- u 15/15 @ 608 m
- u Profile 17
 - Pcab.M2
 - x/D/U/D/U
- u Notch Profile :
2, 5, 9, 11
- u UPBO off
- u 20-self xtalks

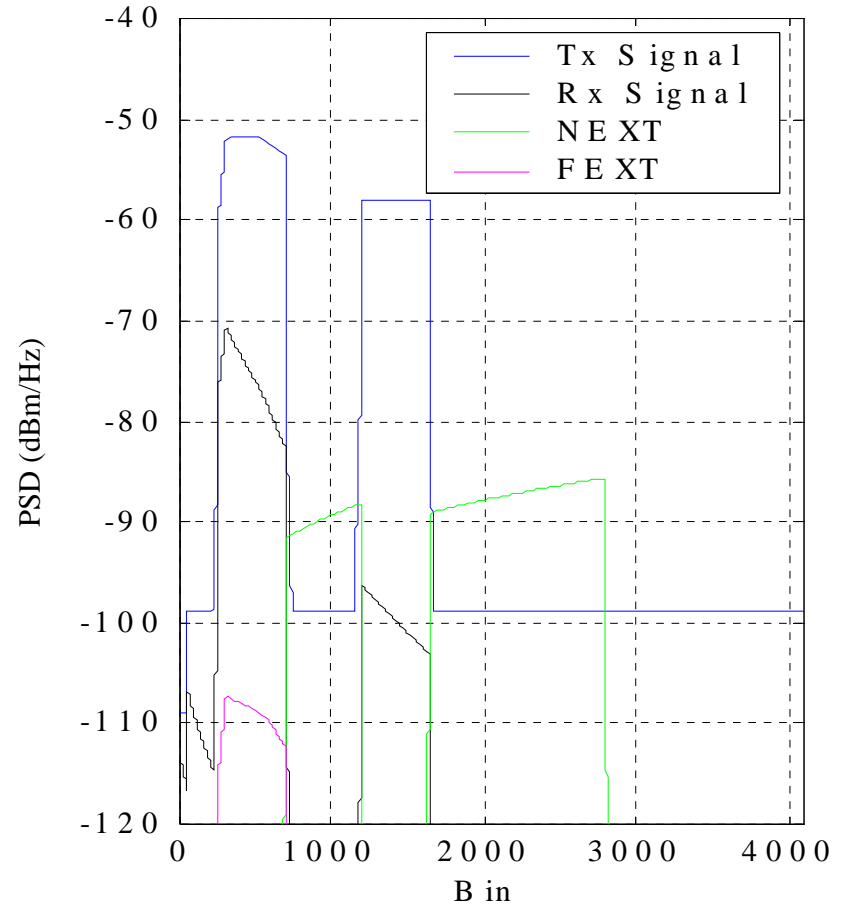


Test 25 – Tx, Rx, Noise PSD

U/S , 20 Self-Xtalks , 0 Alien-Xtalks



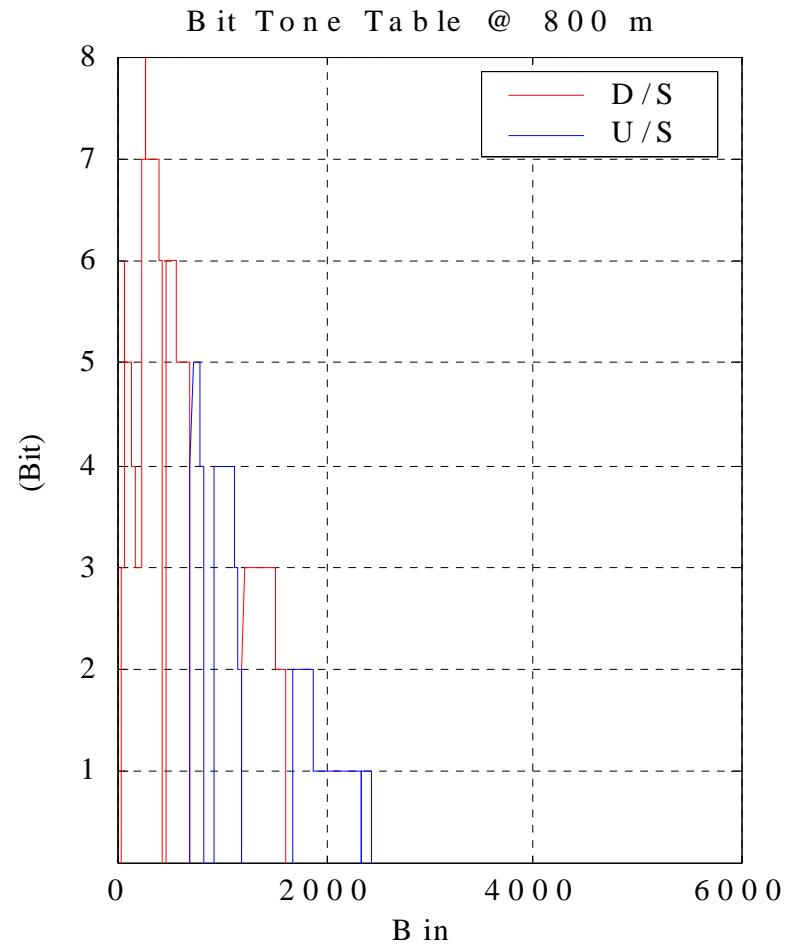
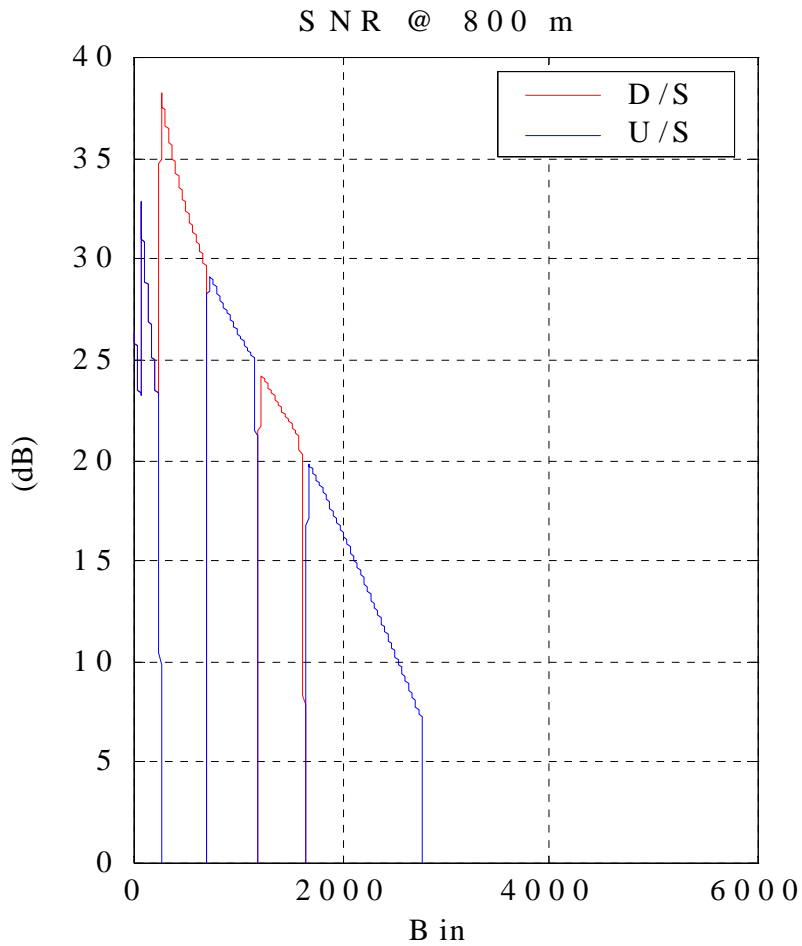
D/S , 20 Self-Xtalks , 0 Alien-Xtalks



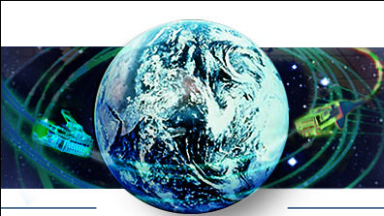
u Loop length : 800 m



Test 25 – SNR, Bit Tone Table

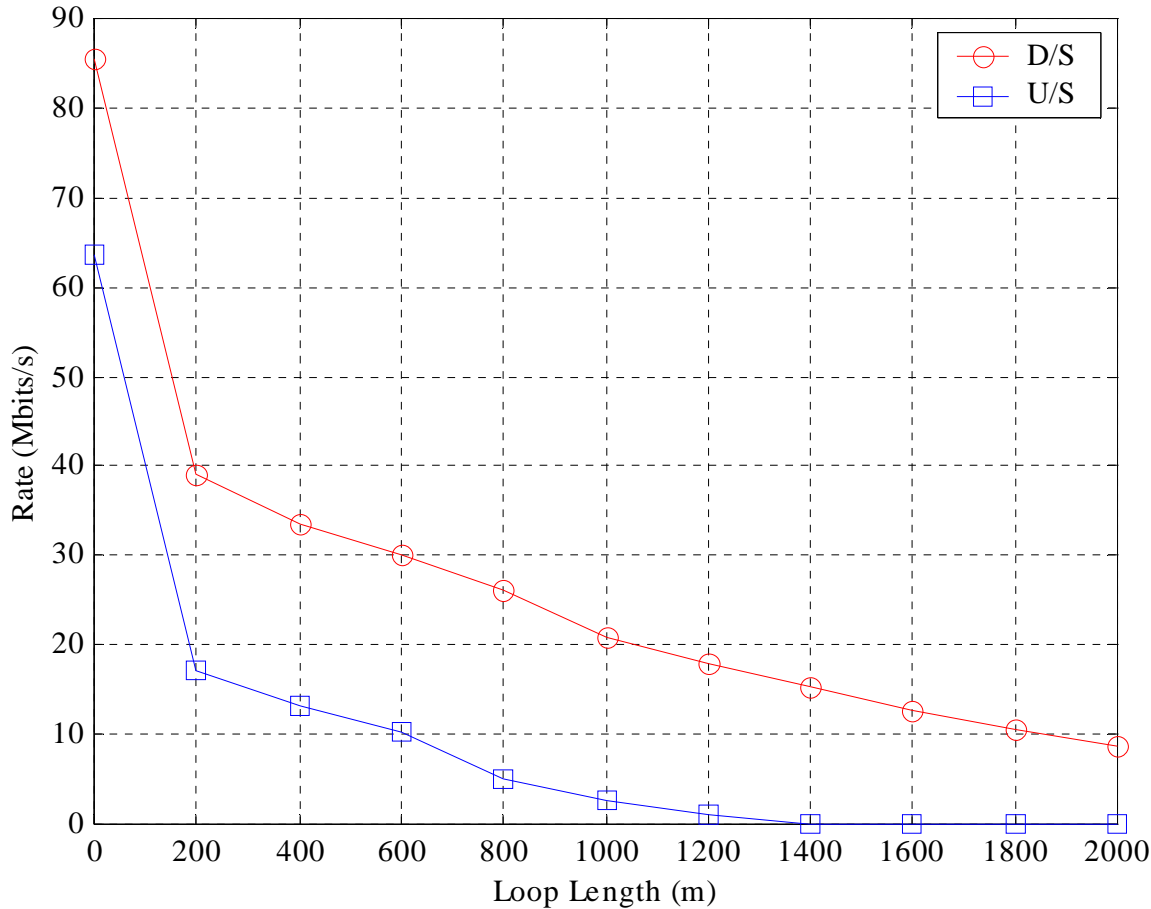


u D/S Rate = 17.9 Mb/s, U/S Rate = 9.5 Mb/s @ 800 m



Test 26 – Rate vs. Reach

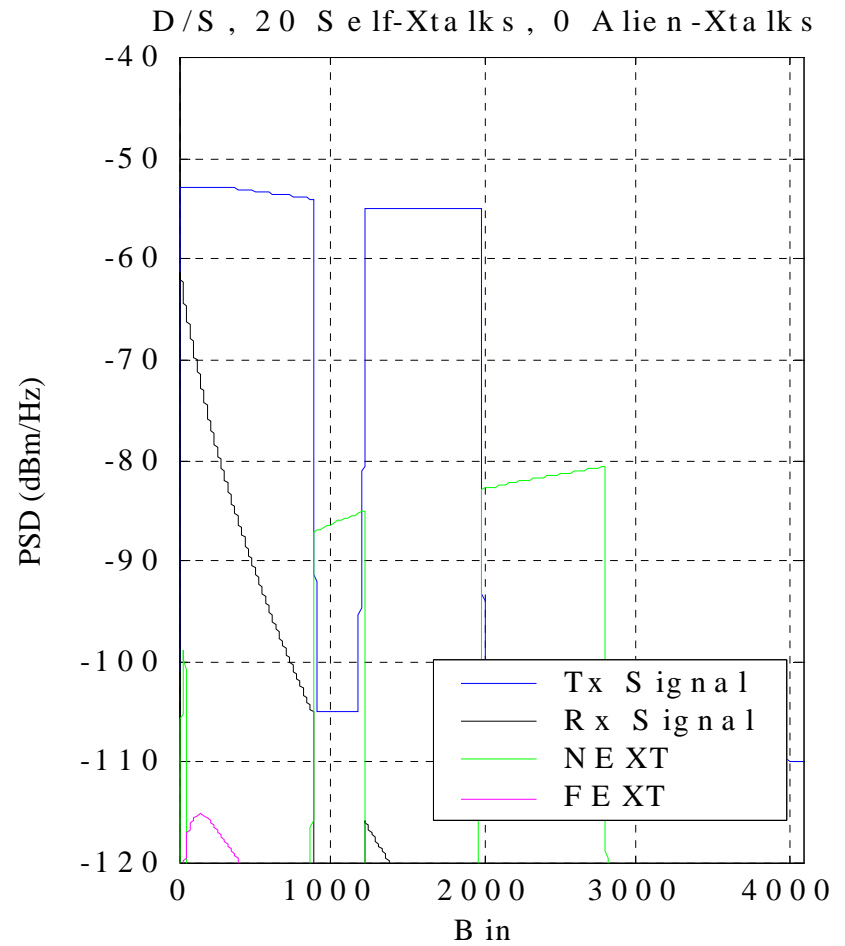
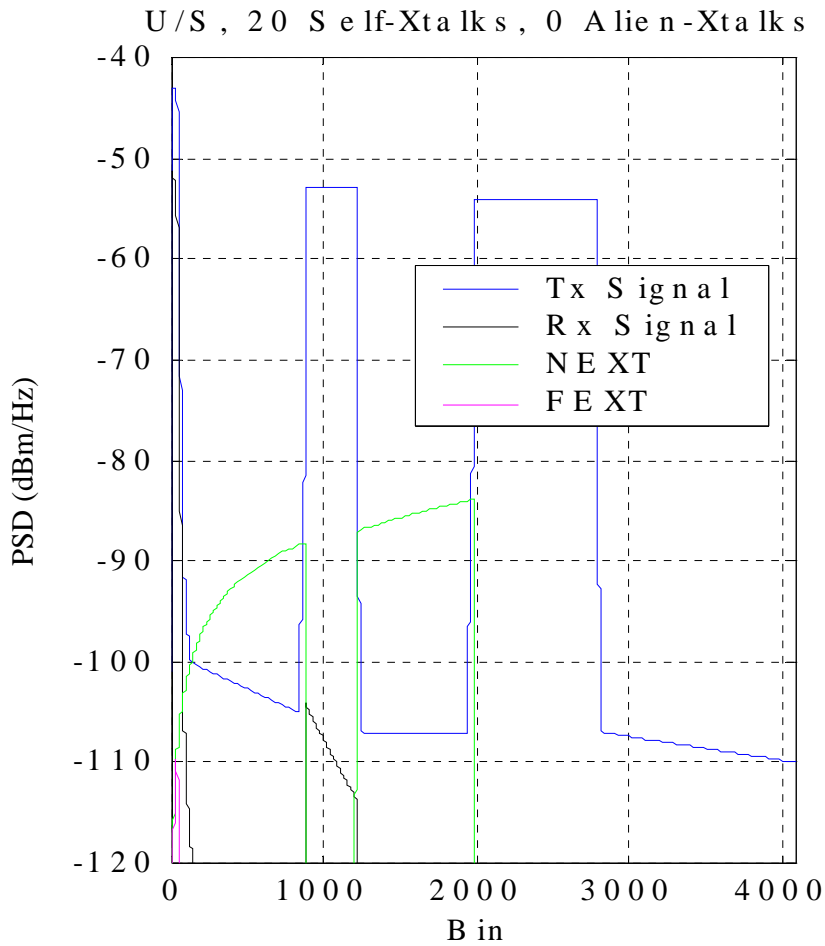
ANSI, FTTEx.M2, TP1, Notch On, UPBO= 0, DDUDU, 20-S, 0-A, G=15dB



- u 15/2.5 @ 1000 m
- u 15/2.5 @ 1025 m
- u Profile 8
- FTTEx.M2
- D/D/U/D/U
- u Notch Profile :
2, 6, 10, 11
- u UPBO off
- u 20-self xtalks



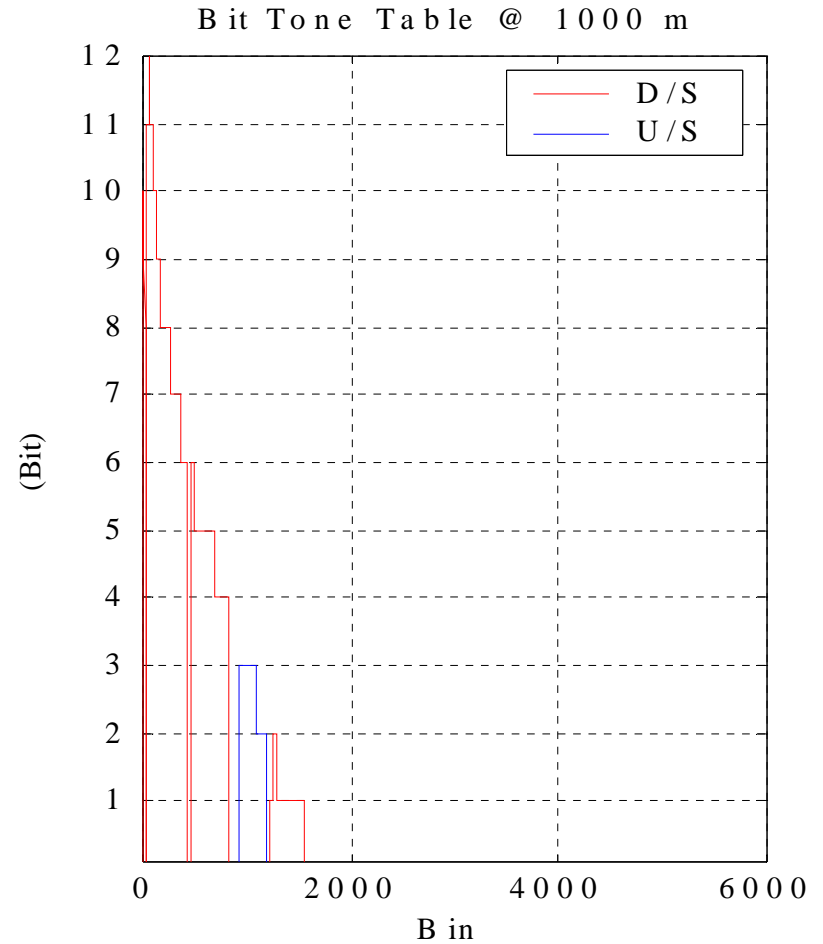
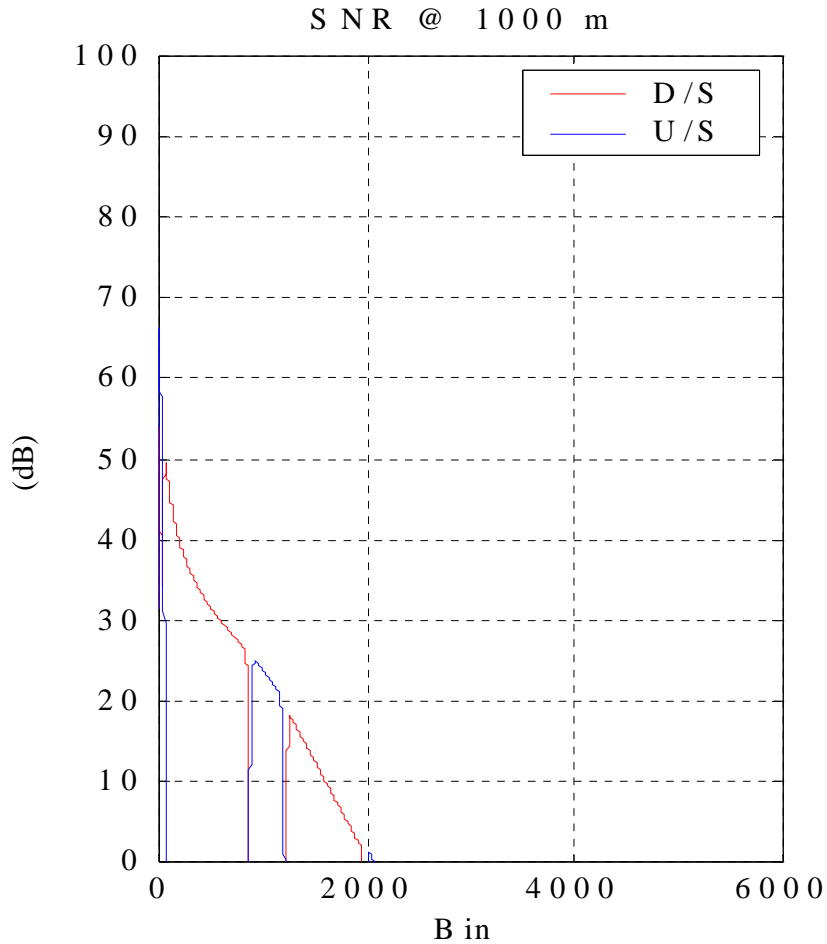
Test 26 – Tx, Rx, Noise PSD



u Loop length : 1000 m



Test 26 – SNR, Bit Tone Table

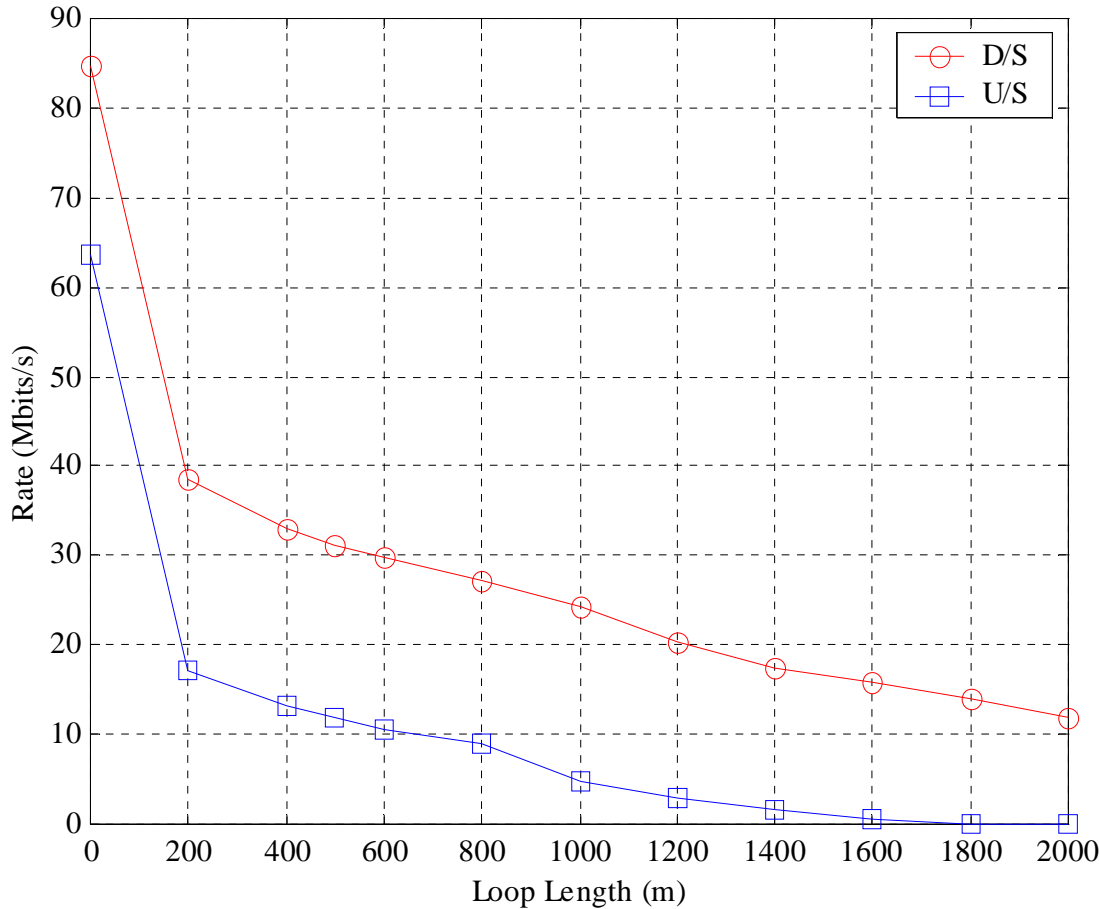


u D/S Rate = 20.7 Mb/s, U/S Rate = 2.7 Mb/s @ 1000 m



Test 27 – Rate vs. Reach

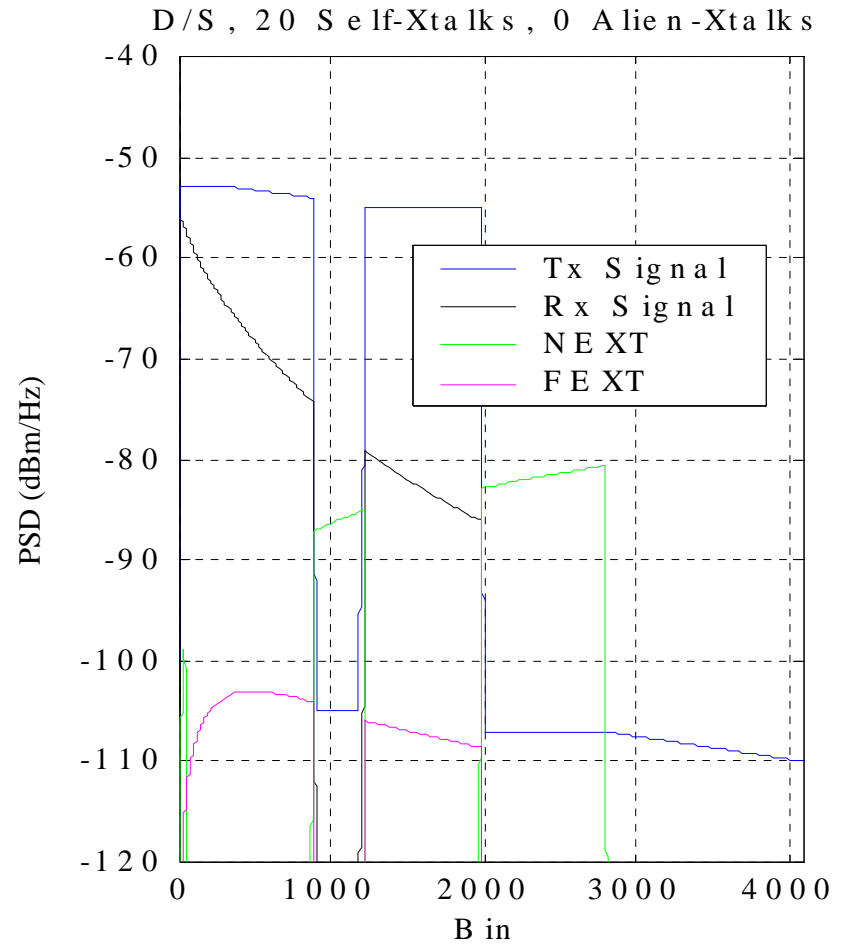
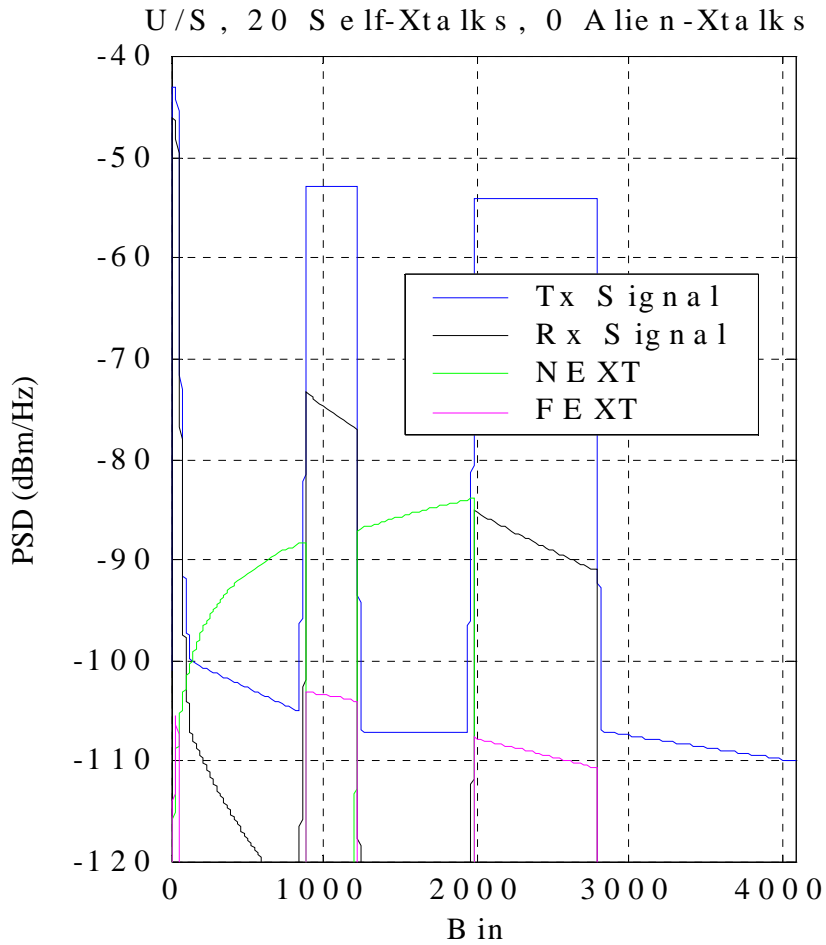
ANSI, FTTEEx.M2, TP2, Notch On, UPBO= 0, xDUDU, 20-S, 0-A, G=15dB



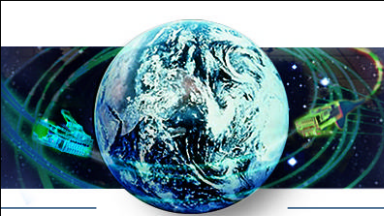
- u 12.5/12.5 @ 500 m
- u 12.5/12.5 @ 452 m
- u Profile 4
- FTTEEx.M2
- x/D/U/D/U
- u Notch Profile :
- 2, 6, 10, 11
- u UPBO off
- u 20-self xtalks



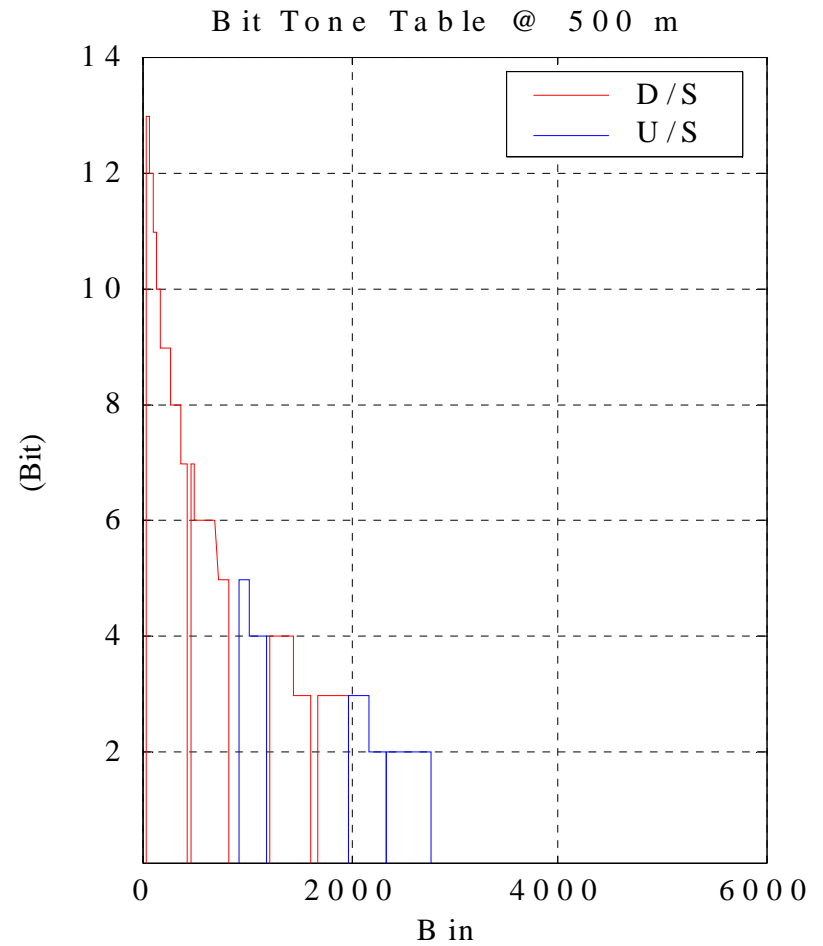
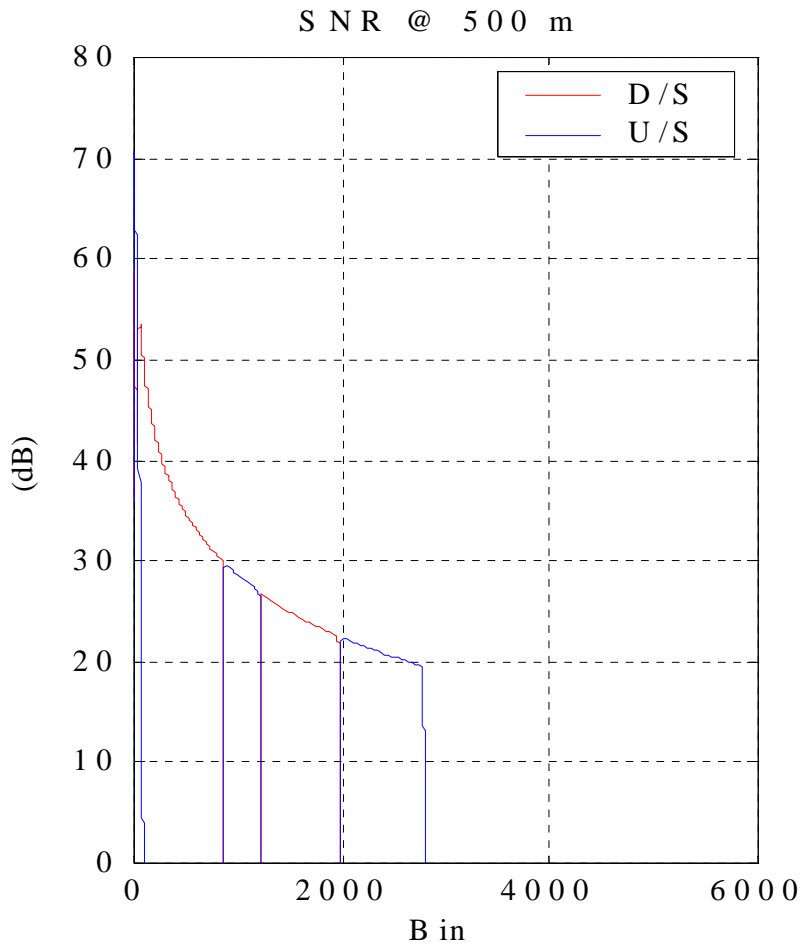
Test 27 – Tx, Rx, Noise PSD



u Loop length : 500 m



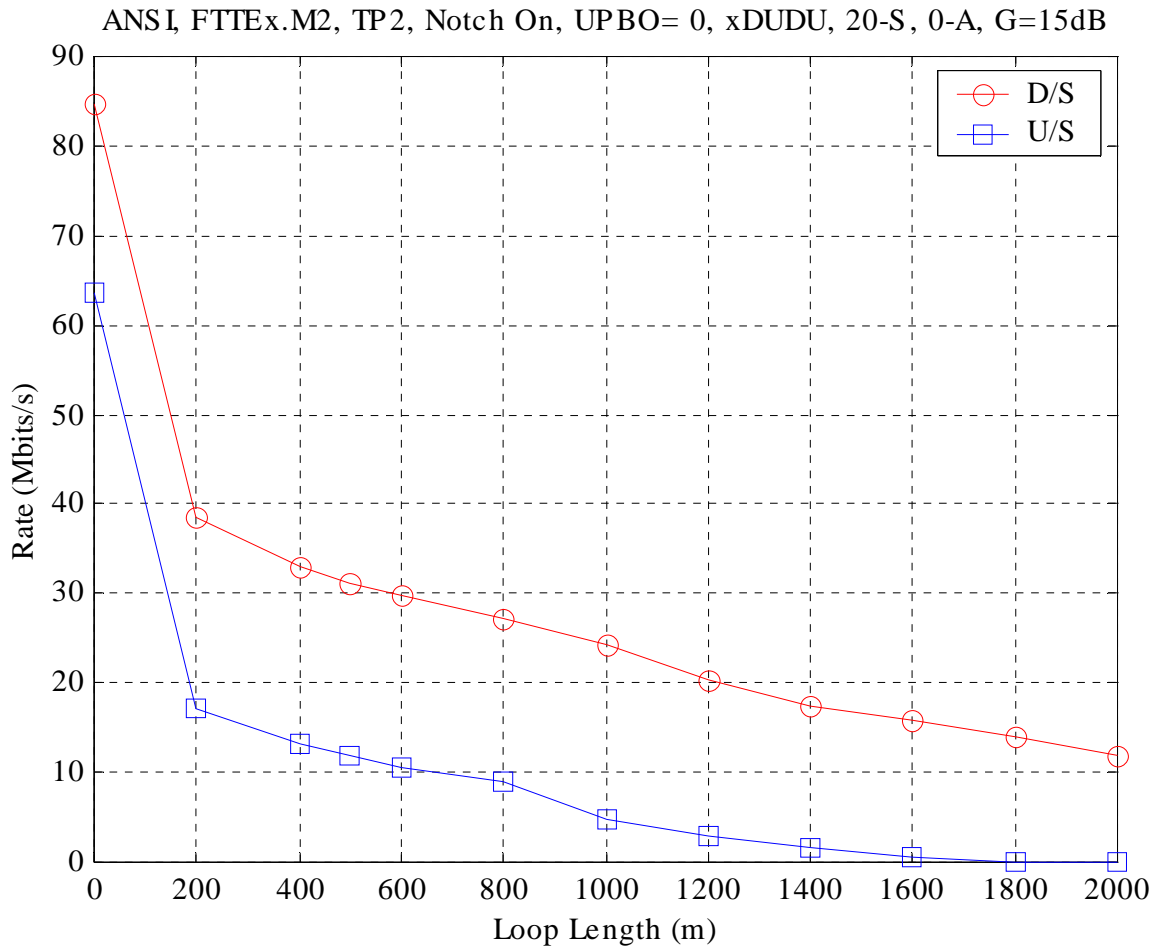
Test 27 – SNR, Bit Tone Table



u D/S Rate = 31.2 Mb/s, U/S Rate = 11.7 Mb/s @ 500 m



Test 28 – Rate vs. Reach

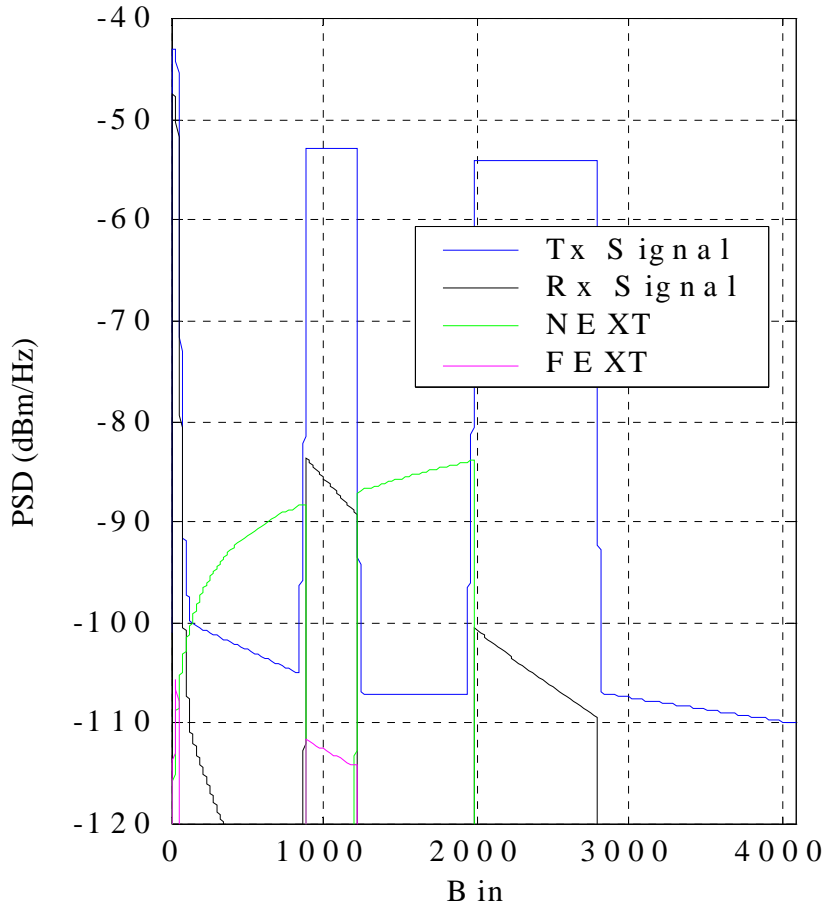


- u 7.5/7.5 @ 750 m
- u 7.5/7.5 @ 871 m
- u Profile 4
 - FTTEEx.M2
 - x/D/U/D/U
- u Notch Profile :
2, 6, 10, 11
- u UPBO off
- u 20-self xtalks

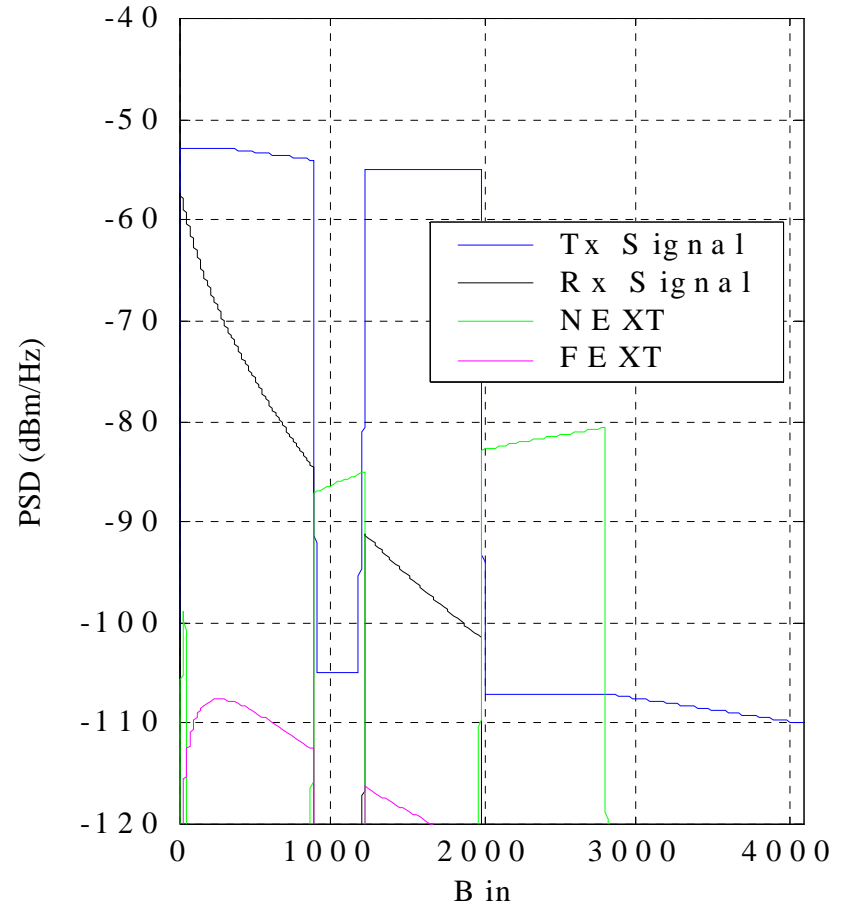


Test 28 – Tx, Rx, Noise PSD

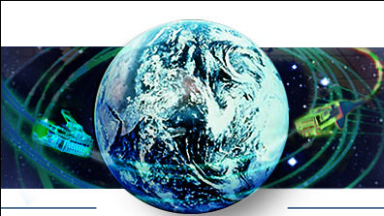
U/S , 20 Self-Xtalks , 0 Alien-Xtalks



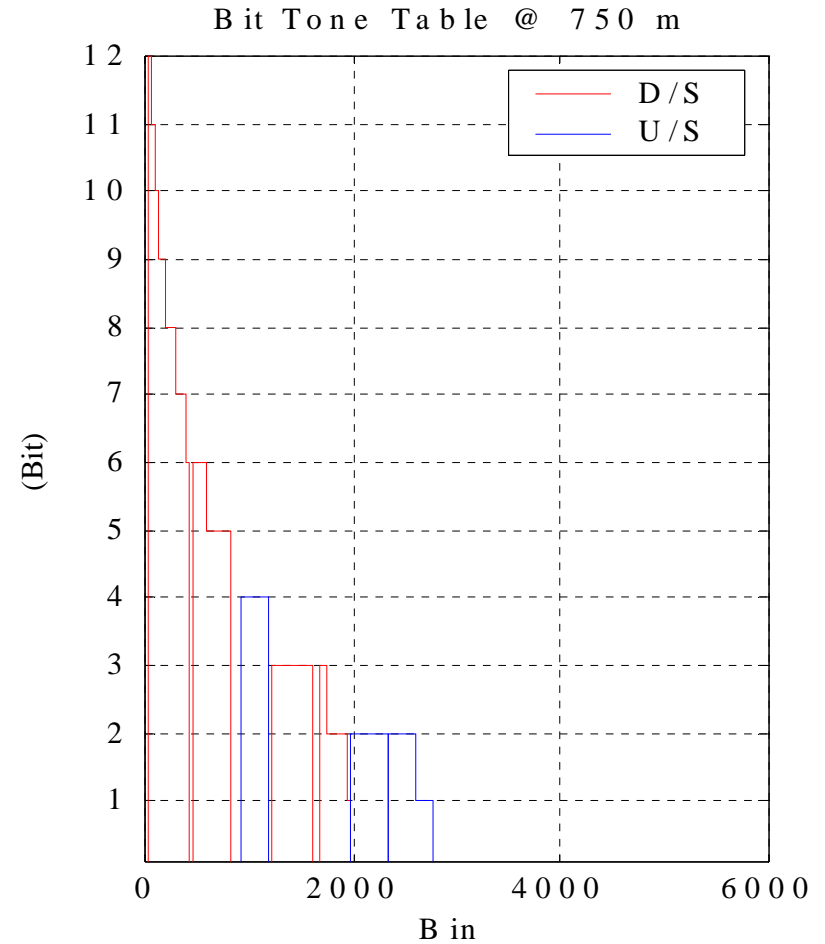
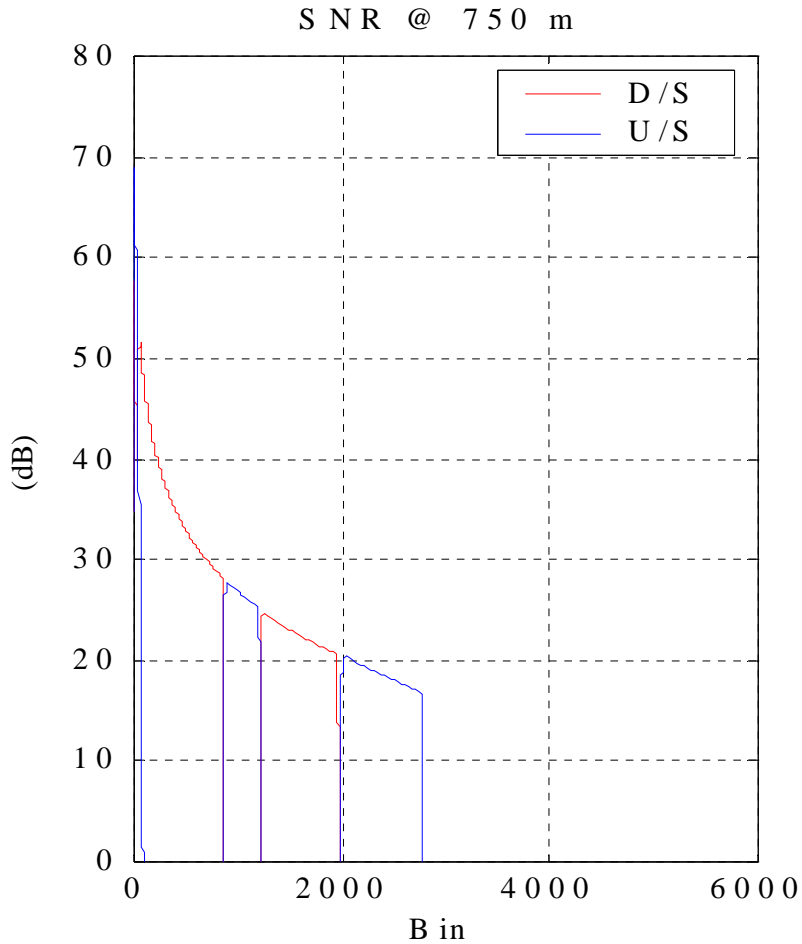
D/S , 20 Self-Xtalks , 0 Alien-Xtalks



u Loop length : 750 m



Test 28 – SNR, Bit Tone Table

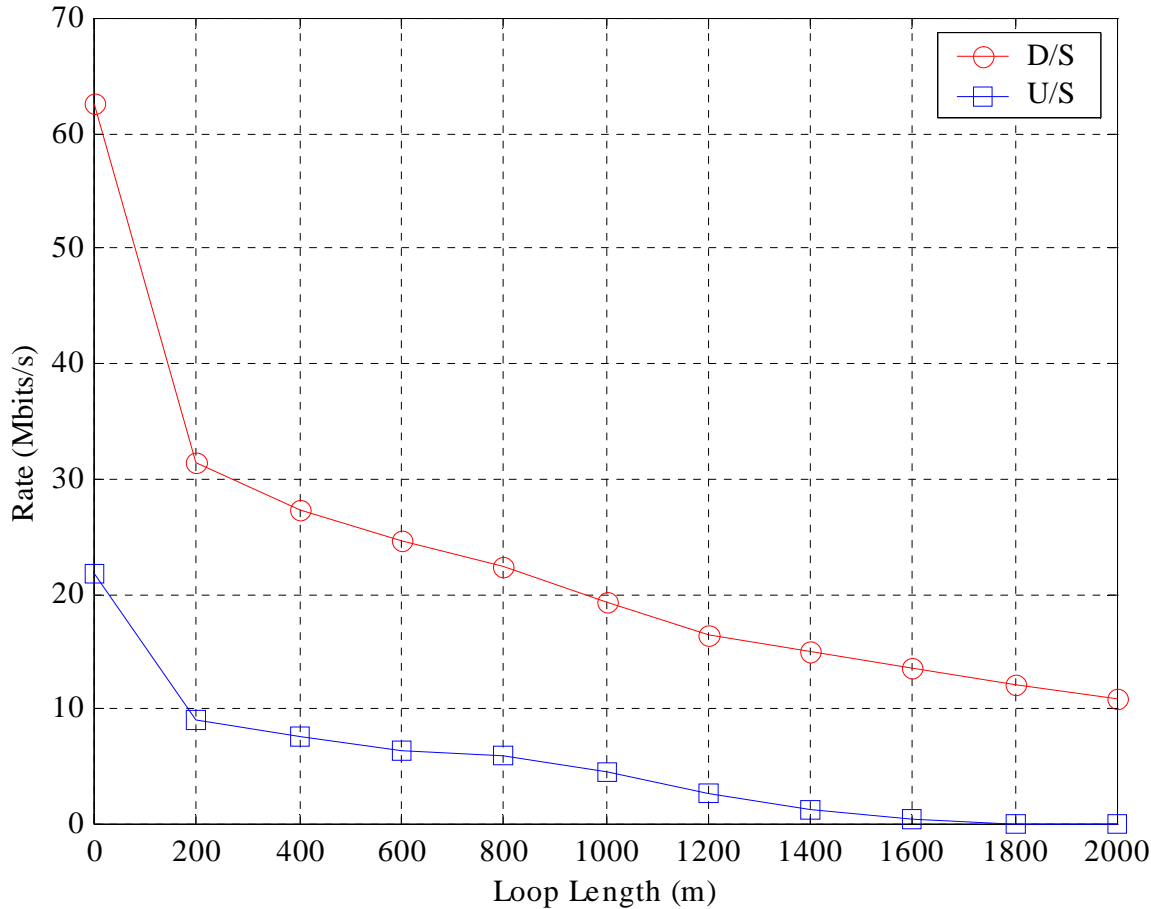


u D/S Rate = 27.7 Mb/s, U/S Rate = 9.8 Mb/s @ 750 m



Test 29 – Rate vs. Reach

ETSI, Pex.P2.M1, TP2, Notch On, UPBO= 0, UDUDx, 20-S, 0-A, G=15dB

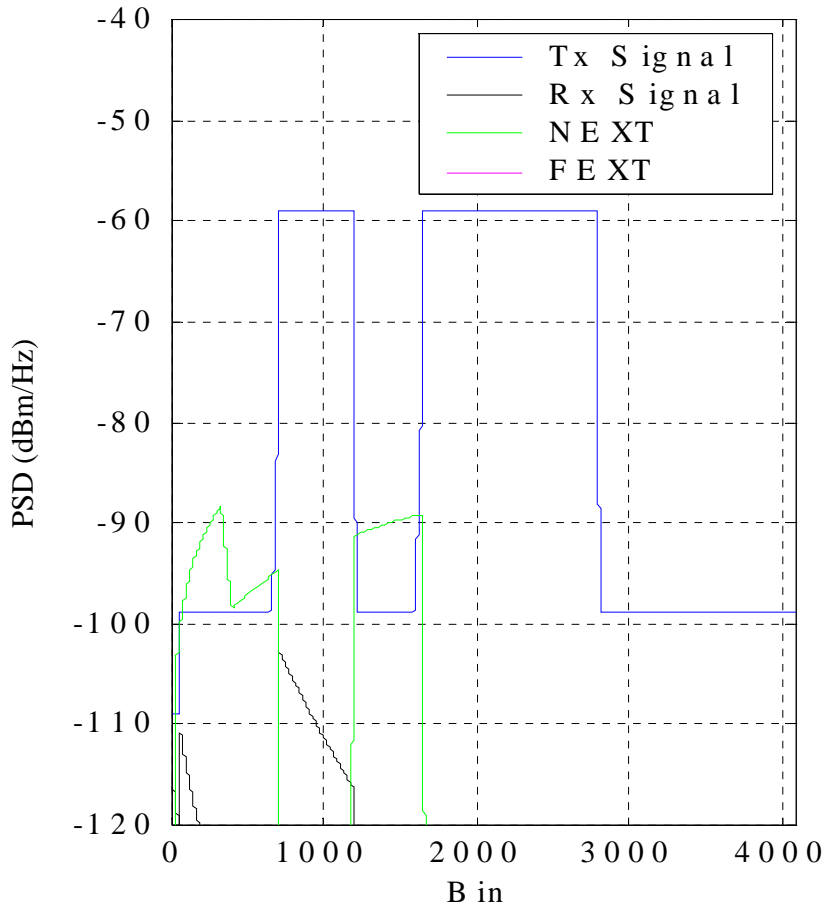


- u 5/5 @ 1200 m
- u 5/5 @ 938 m
- u Profile 23
 - Pex.P2.M1
 - U/D/U/D/x
- u Notch Profile :
 - 2, 5, 9, 11
- u UPBO off
- u 20-self xtalks

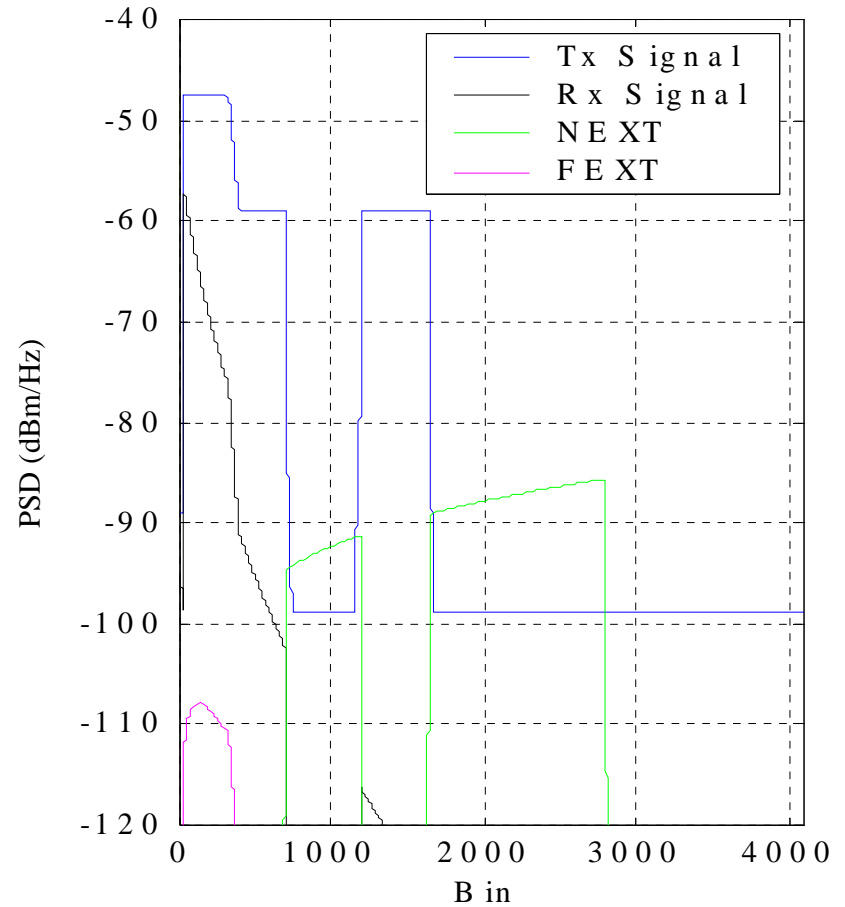


Test 29 – Tx, Rx, Noise PSD

U/S , 20 Self-Xtalks , 0 Alien-Xtalks



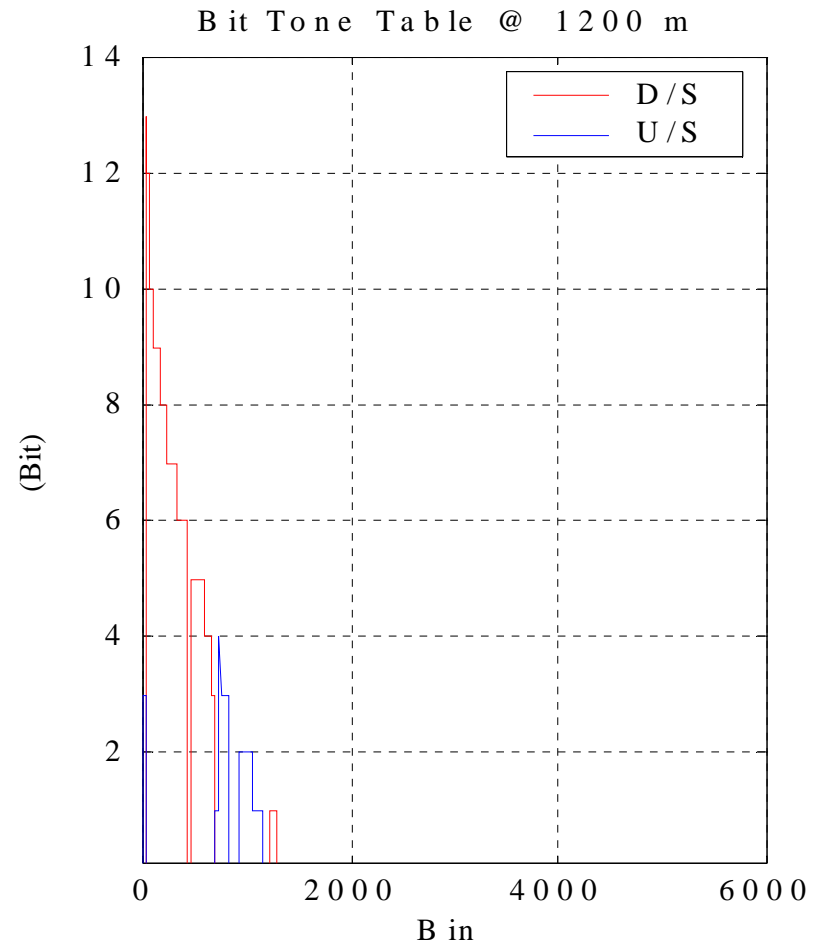
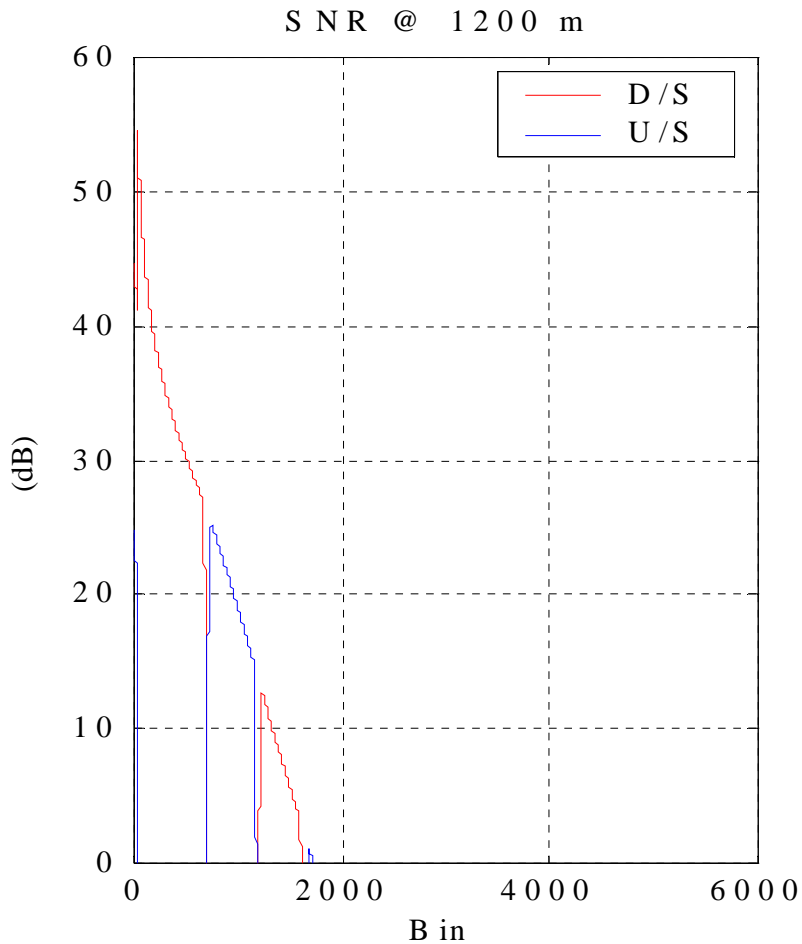
D/S , 20 Self-Xtalks , 0 Alien-Xtalks



u Loop length : 1200 m



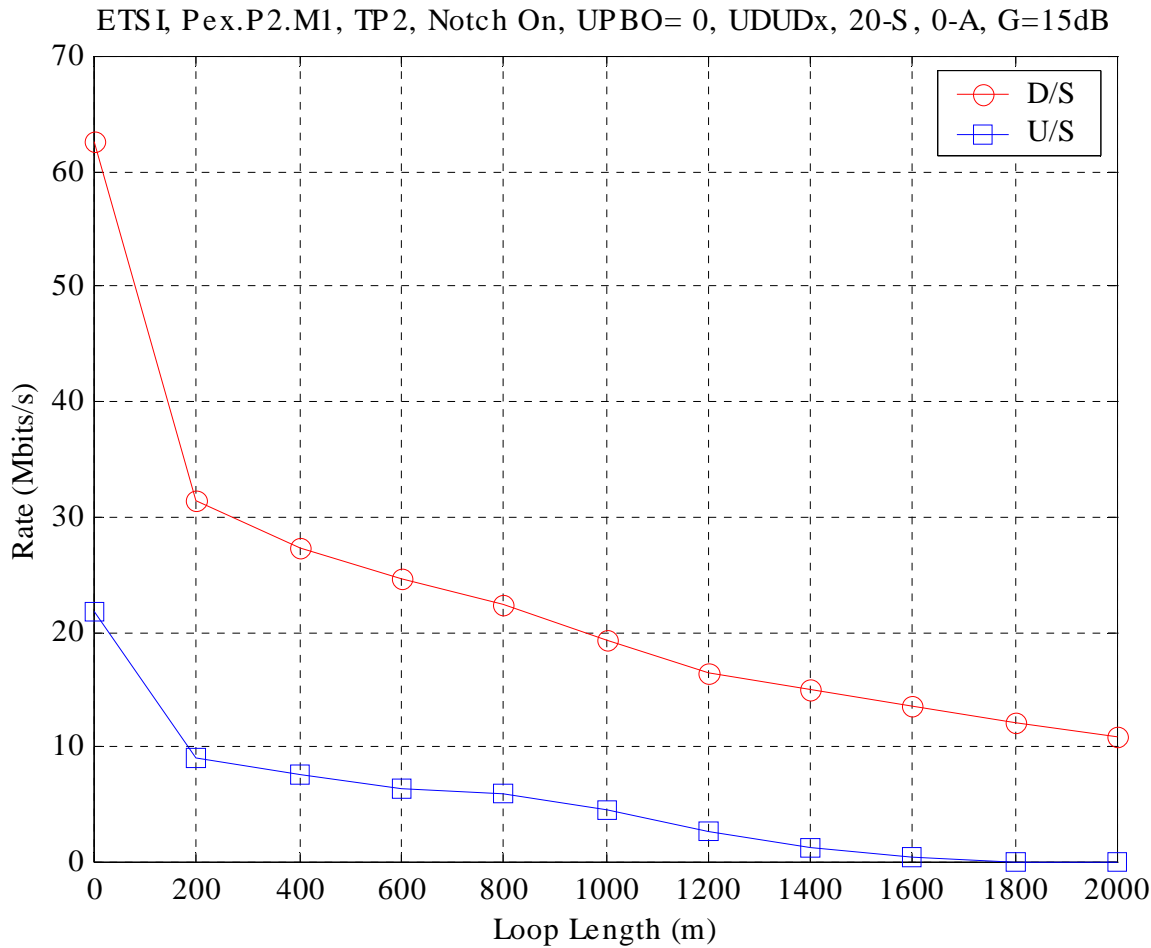
Test 29 – SNR, Bit Tone Table



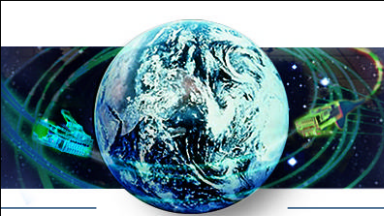
u D/S Rate = 16.3 Mb/s, U/S Rate = 2.7 Mb/s @ 1200 m



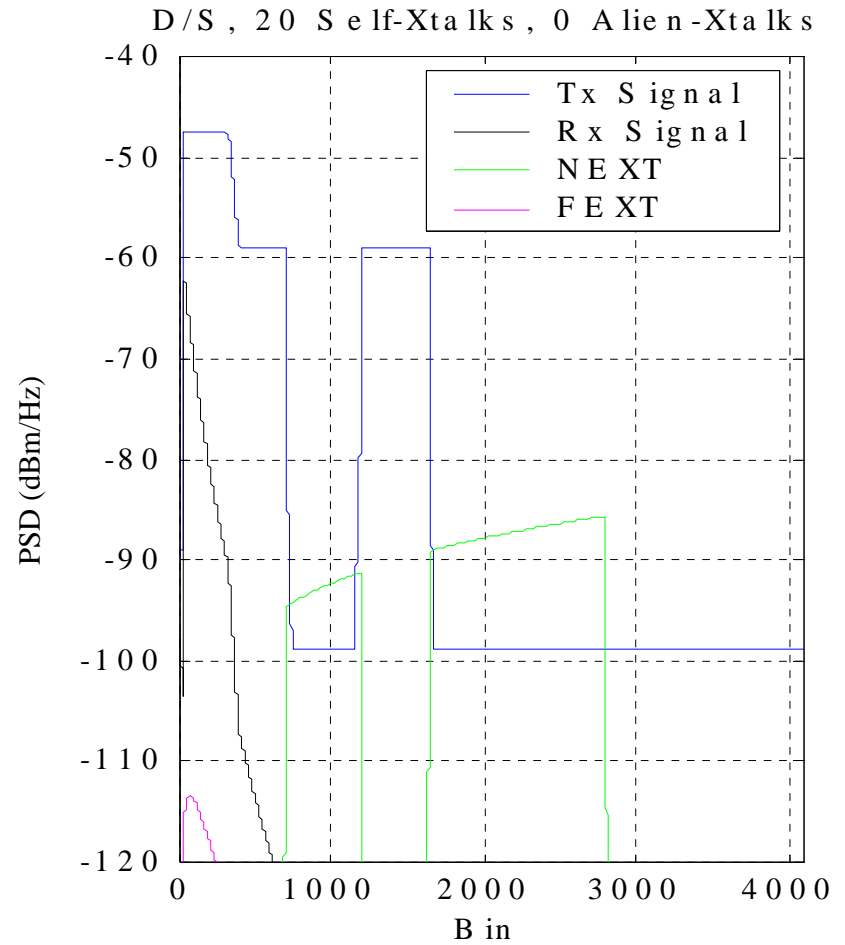
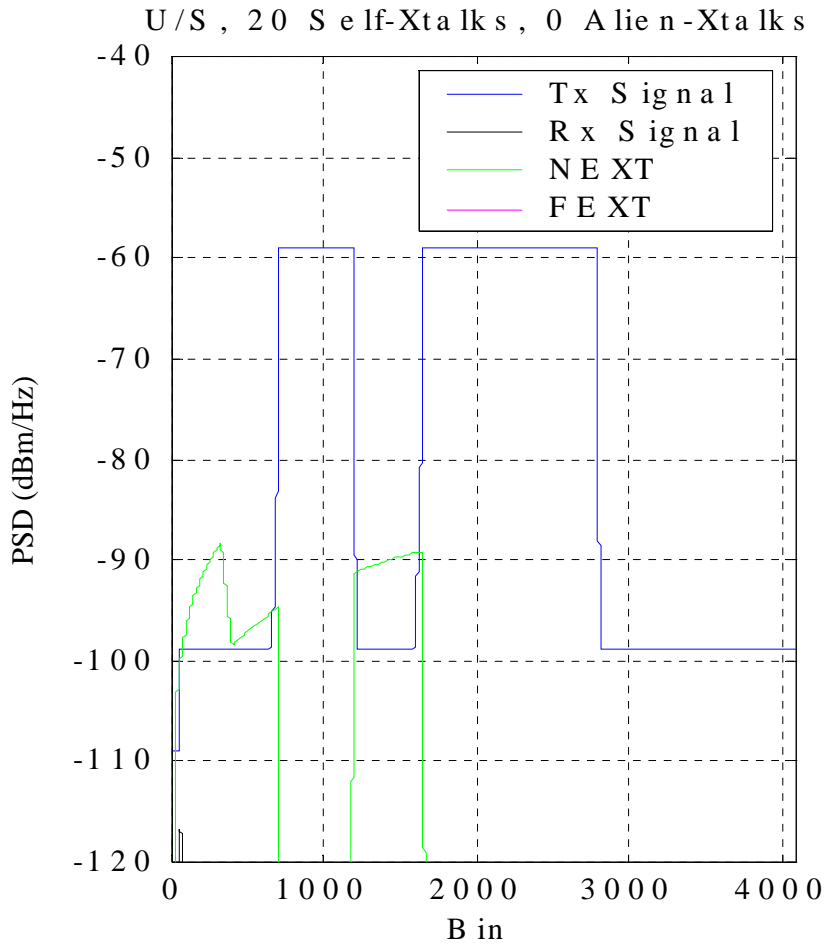
Test 30 – Rate vs. Reach



- u 2.5/2.5 @ 1800 m
- u 2.5/2.5 @ 1230 m
- u Profile 23
 - Pex.P2.M1
 - U/D/U/D/x
- u Notch Profile :
2, 5, 9, 11
- u UPBO off
- u 20-self xtalks



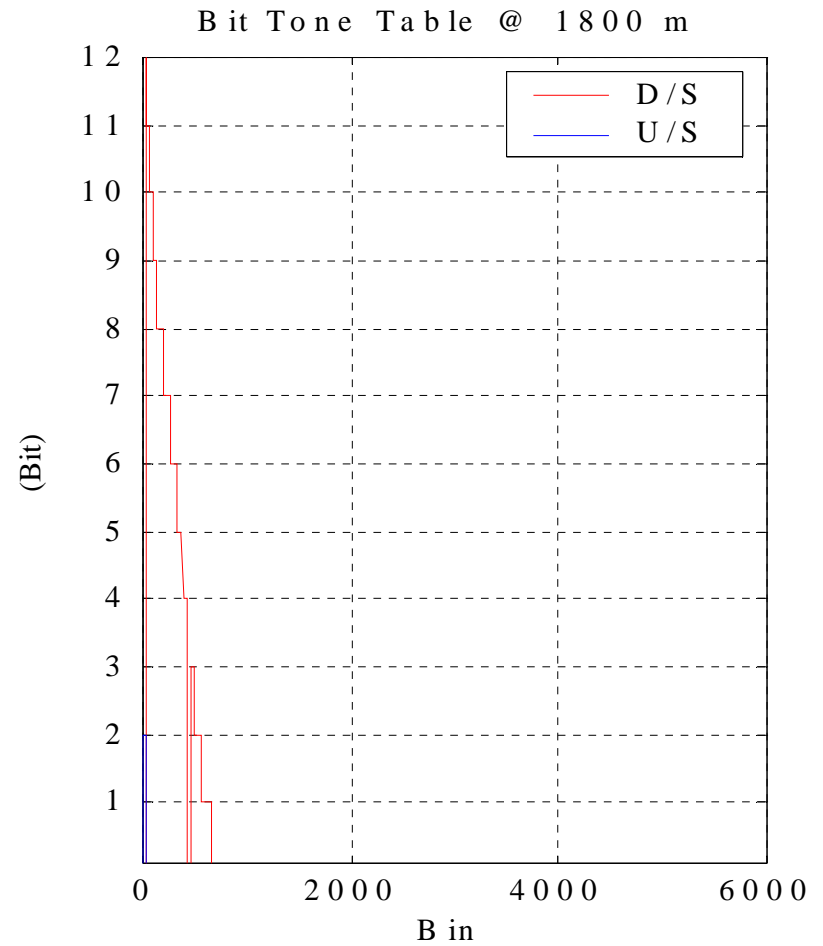
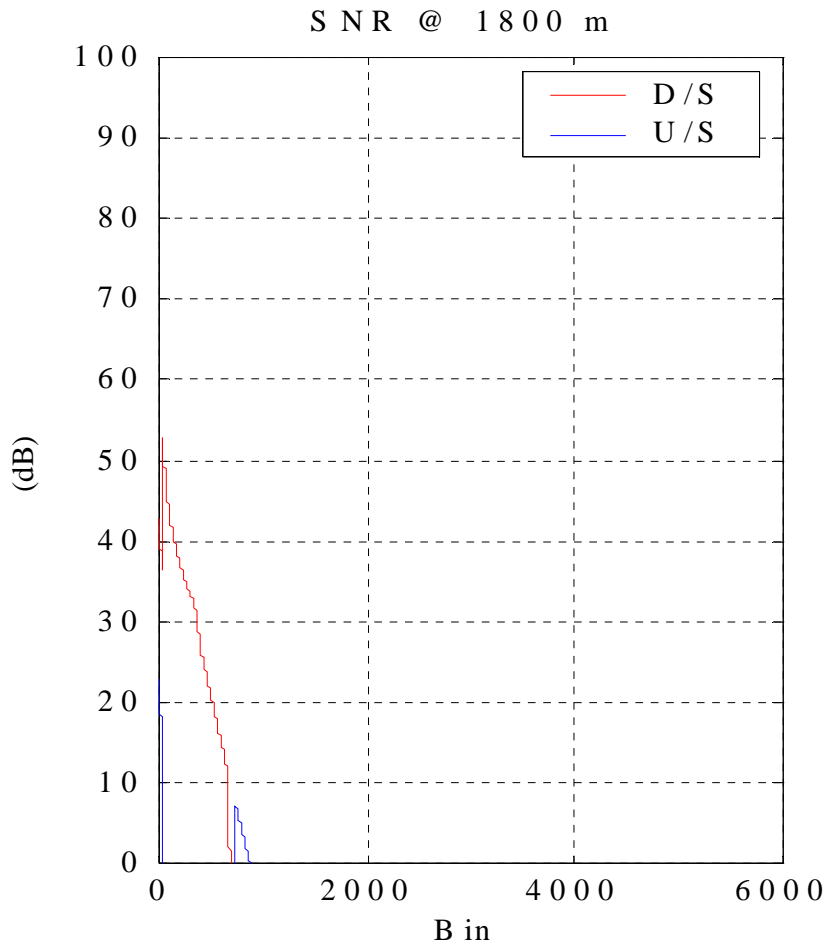
Test 30 – Tx, Rx, Noise PSD



u Loop length : 1800 m



Test 30 – SNR, Bit Tone Table



u D/S Rate = 12.1 Mb/s, U/S Rate = 0.1 Mb/s @ 1800 m