

320 MB Eye Pattern Data with 15-25-33% Precomp and Crosstalk

Controller Development Engineering
Scotts Valley

Revisions

- r0 - First Revision
- r1 - Corrected most pictures with improved-correlation cases. Resolved test fixture issue to better correlate with actual SCSI Initiator silicon. Added 1m twisted-flat cable data and 6m round cable data cases.

Comments

- It was noted in the presentation last month that some cases did not correlate well to the real world when using the generator-driver test setup.
 - Generator-driver typically showed poorer results.
 - Doubt as to data validity when some results correlate and others do not is an issue.
- Test fixture issue was identified and all affected cases retaken and presented here.
 - Conclusions do not change.
 - Generator results still not as good as real SCSI Initiator, but correlate very consistently and predict performance with precompensation.

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Generator Driver, Example @ 33% Cutback

Seagate Backplane (older 16 slot)\3-22-00 HP81110 tests\1m Amphenol twisted-flat - 15 loads

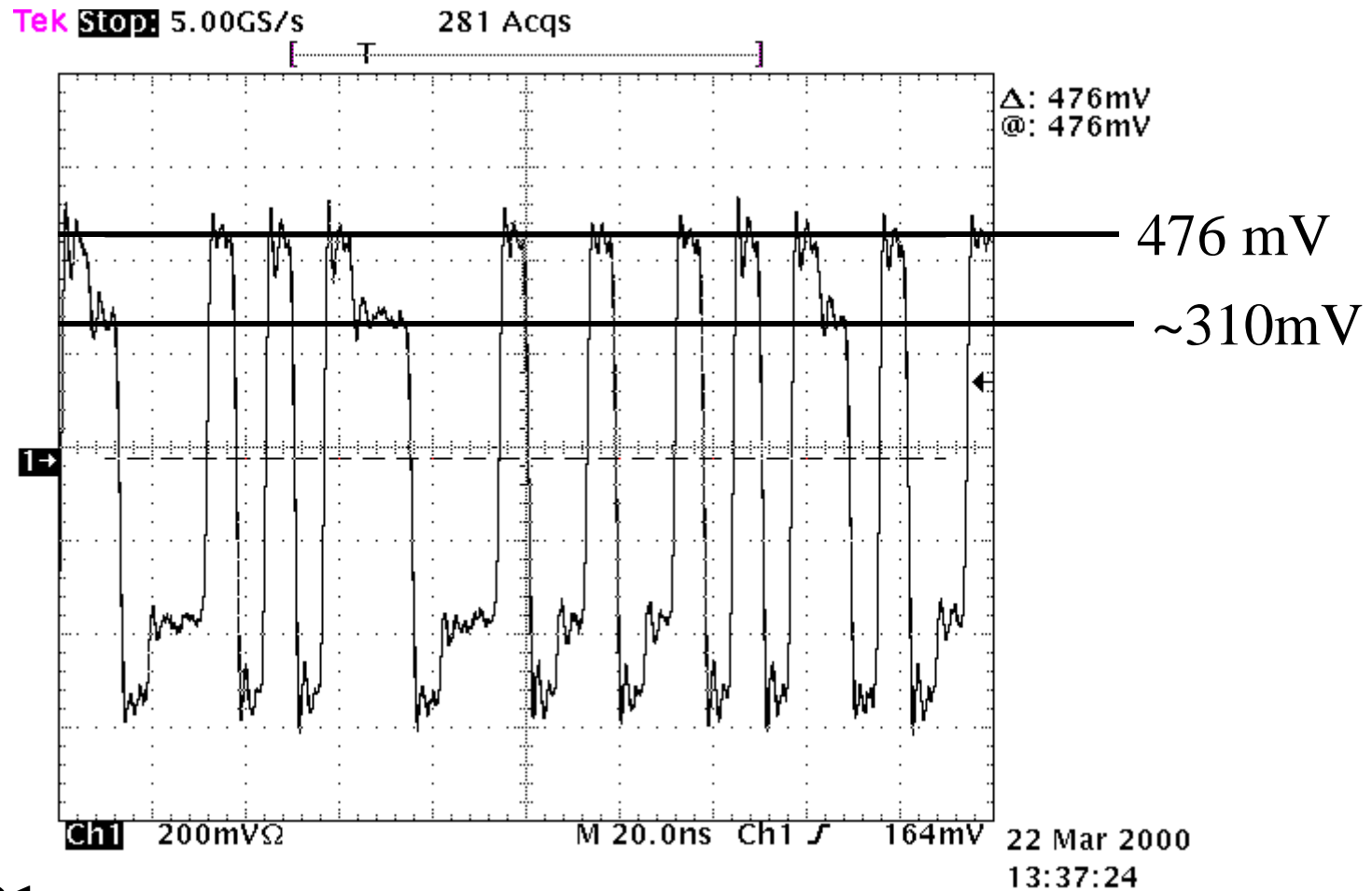


Fig 201

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 7

Generator Driver with No Precomp

Seagate Backplane (older 16 slot)\3-22-00 HP81110 tests\12m Madison round - 15 loads

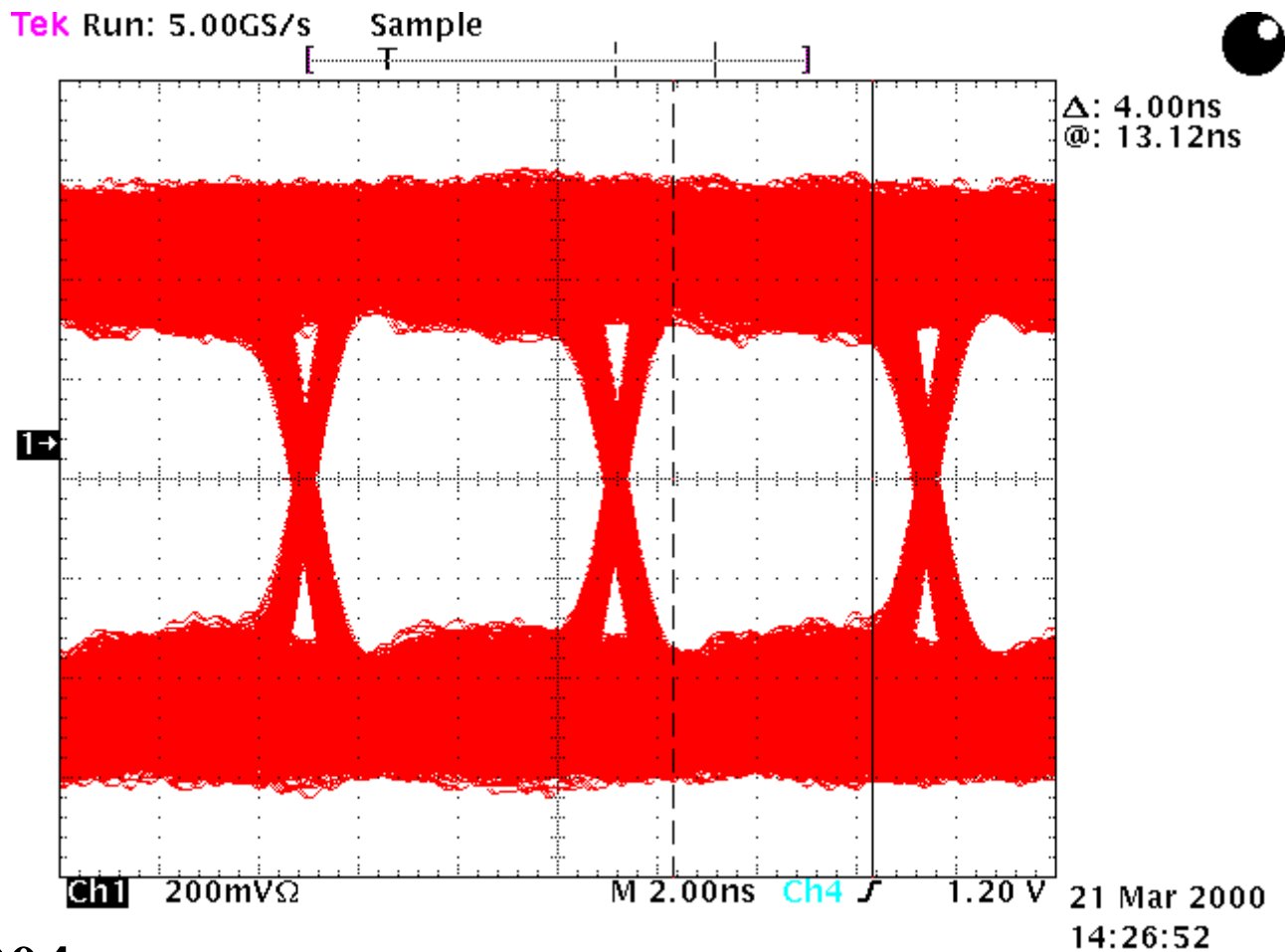


Fig 204

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 8

Generator Driver with Precomp

Seagate Backplane (older 16 slot)\3-22-00 HP81110 tests\12m Madison round - 15 loads

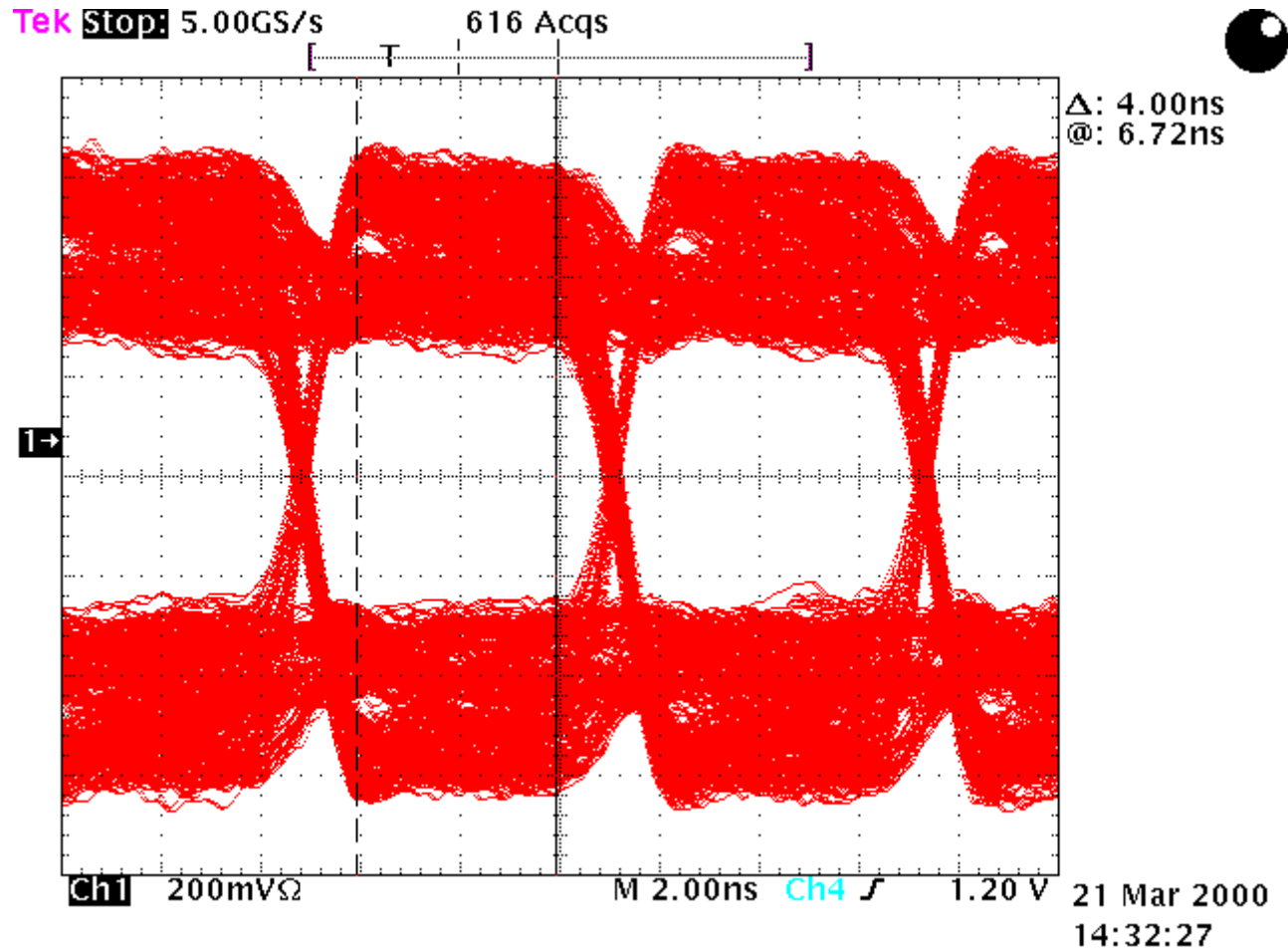


Fig 205

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 9

Point-to-Point - 18" TnF, 15% Precomp

Data bit Random Pattern, Xtalk worst case adjacent bits, \ HP81110 tests - 15% cutback \Amph TnF - 1 loads, Data taken on DB9

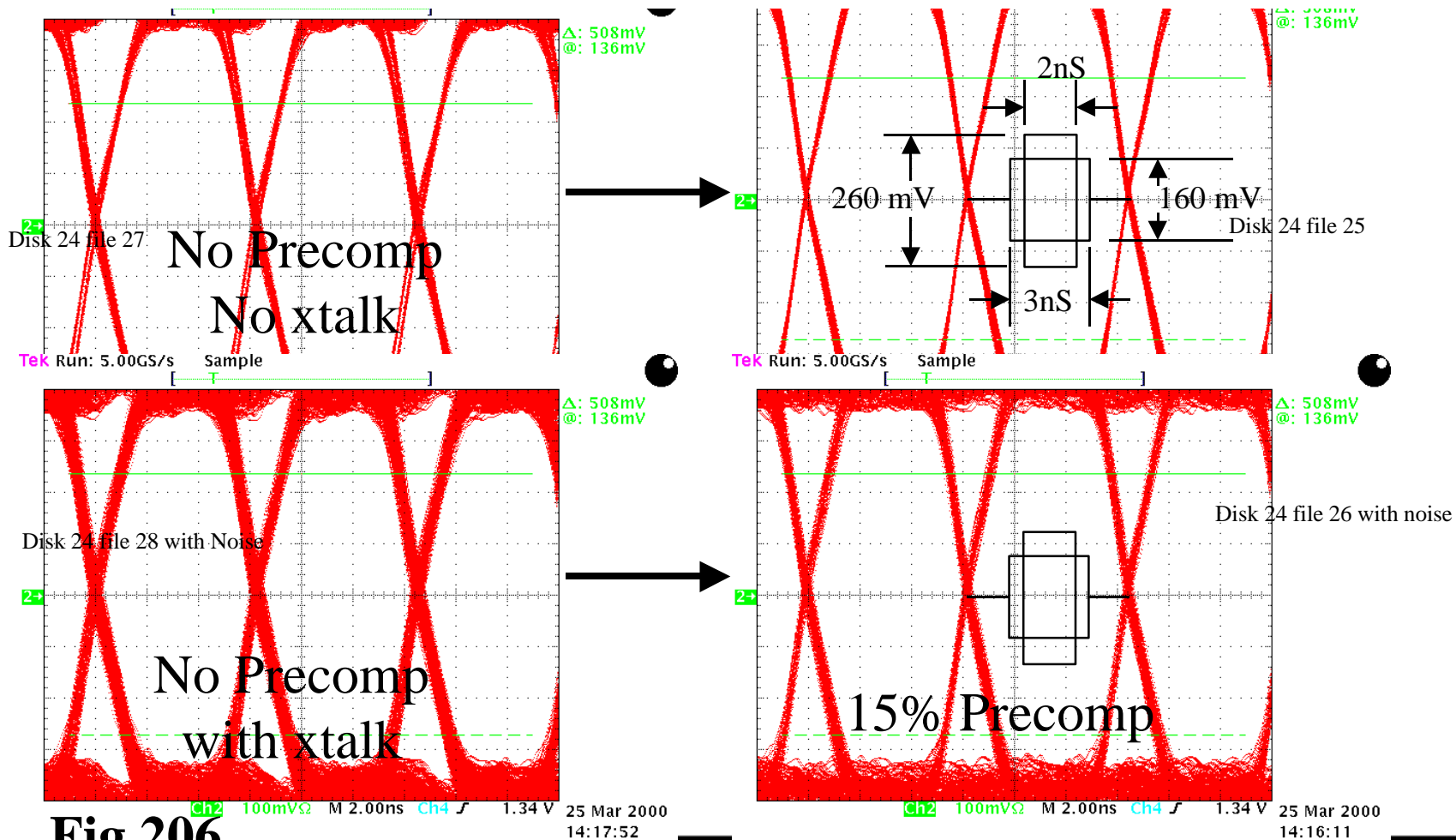


Fig 206

Point-to-Point - 18" TnF, 25% Precomp

Data bit Random Pattern, Xtalk worst case adjacent bits, \ HP81110 tests - 25% cutback \Amph TnF - 1 loads, Data taken on DB9

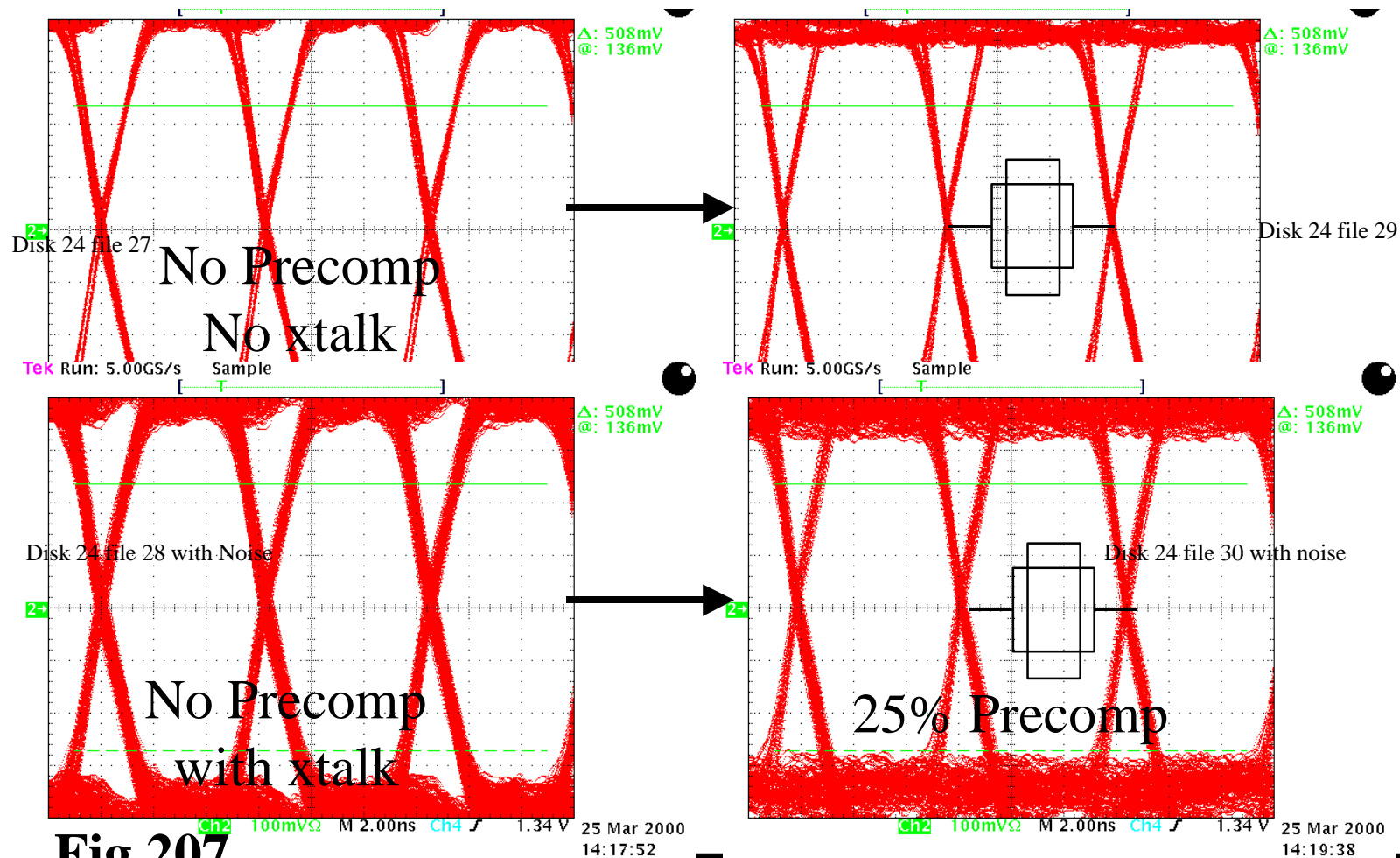


Fig 207

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 11

Point-to-Point - 18" TnF, 33% Precomp

Data bit Random Pattern, Xtalk worst case adjacent bits, \ HP81110 tests - 33% cutback \Amph TnF - 1 loads, Data taken on DB9

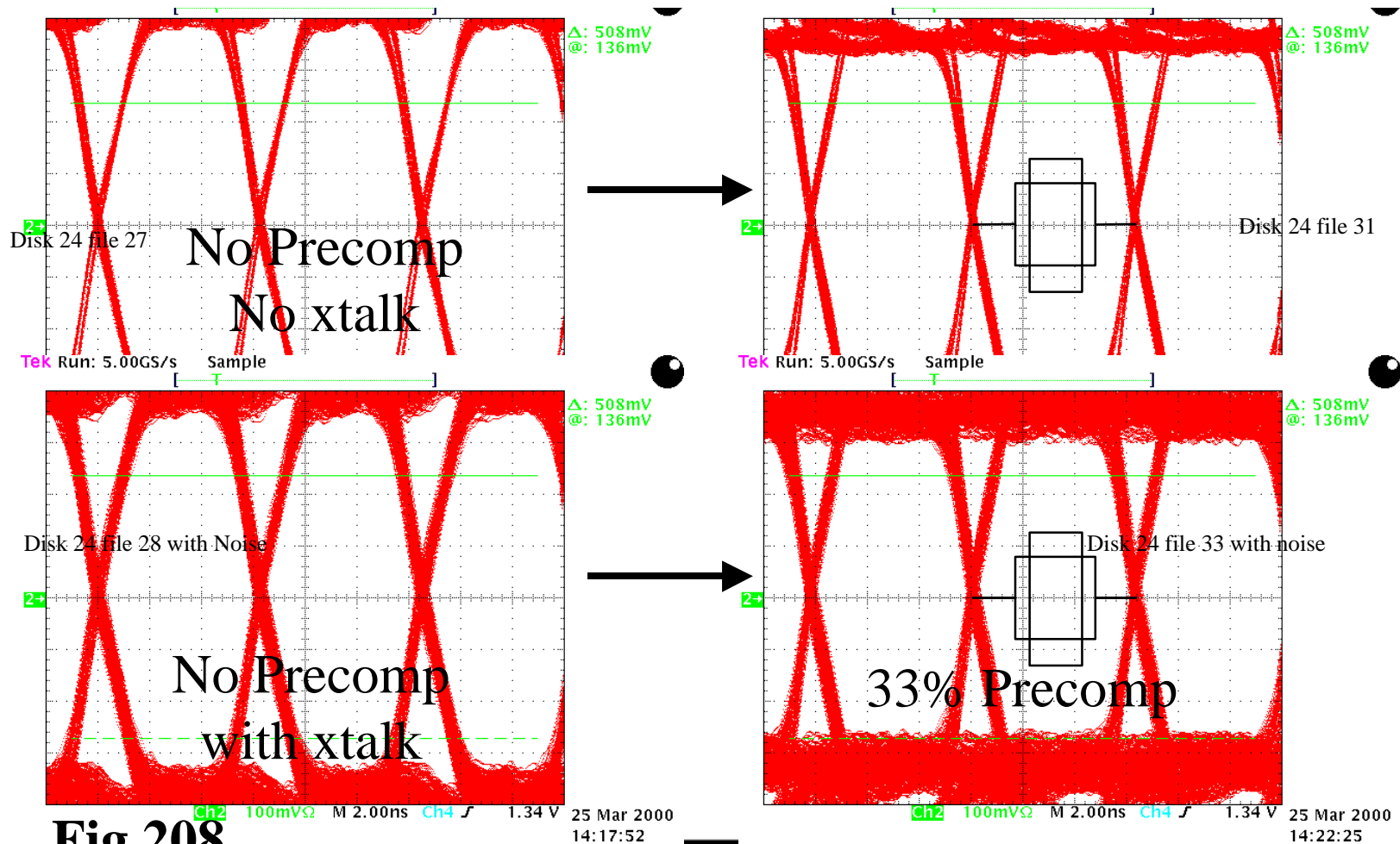
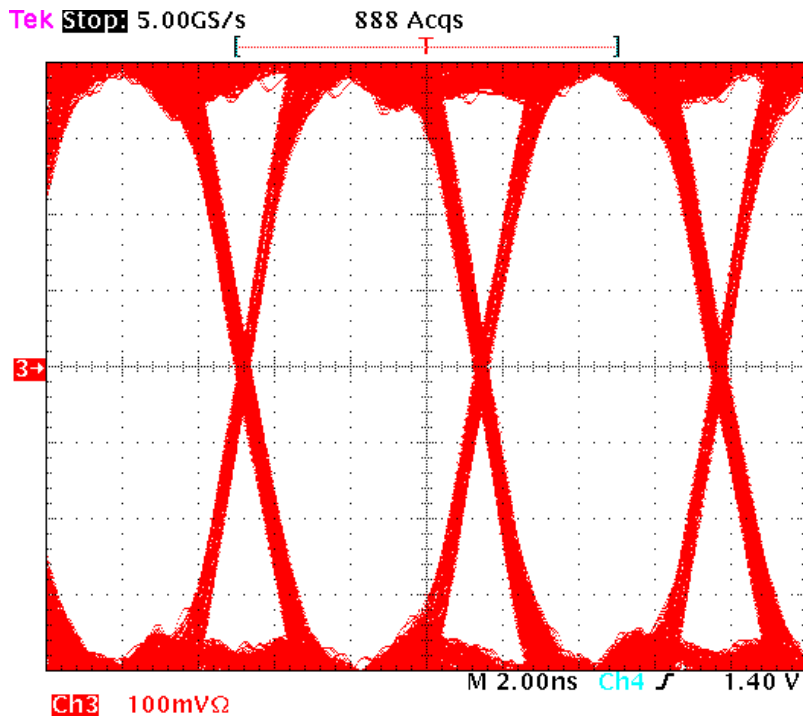


Fig 208

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 12

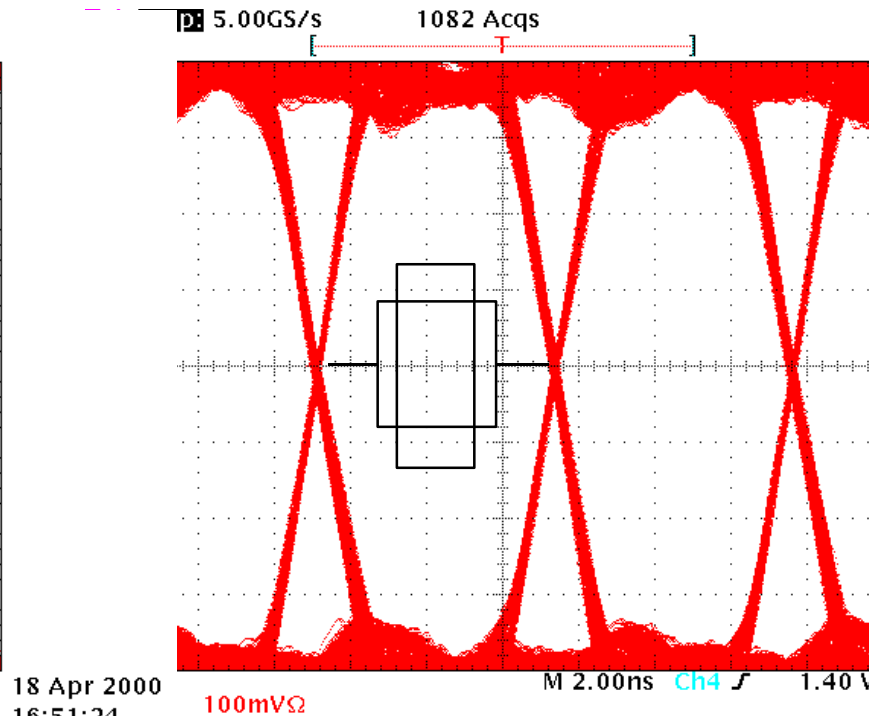
Point-to-Point - 1m TnF, 15% Precomp

Data bit Random Pattern, Xtalk worst case adjacent bits, \ HP81110 tests - 15% cutback \Amph TnF - 1 loads, Data taken on DB9



Disk 43 file 4

No Precomp



18 Apr 2000
16:51:24

18 Apr 2000
16:52:42

Disk 43 file 4

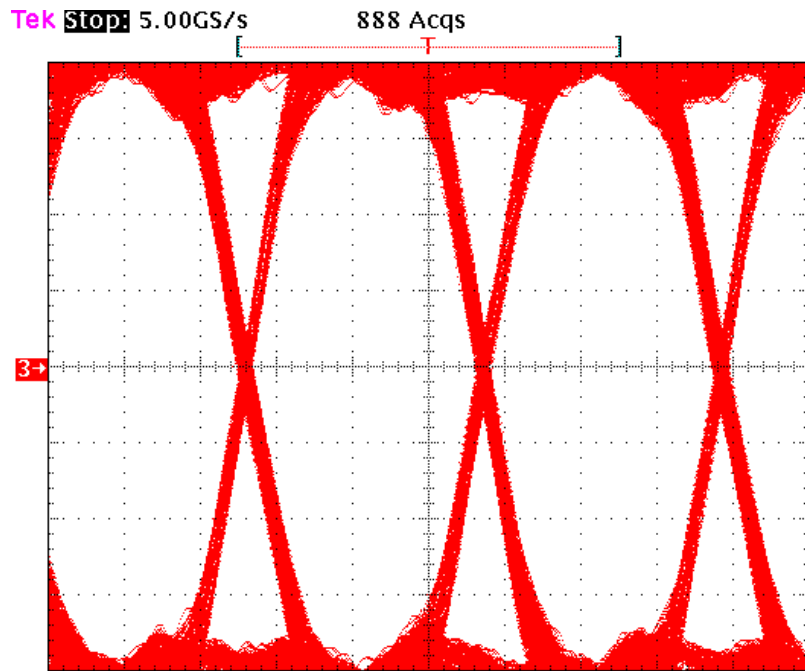
15% Precomp

Fig 234

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 13

Point-to-Point - 1m TnF, 25% Precomp

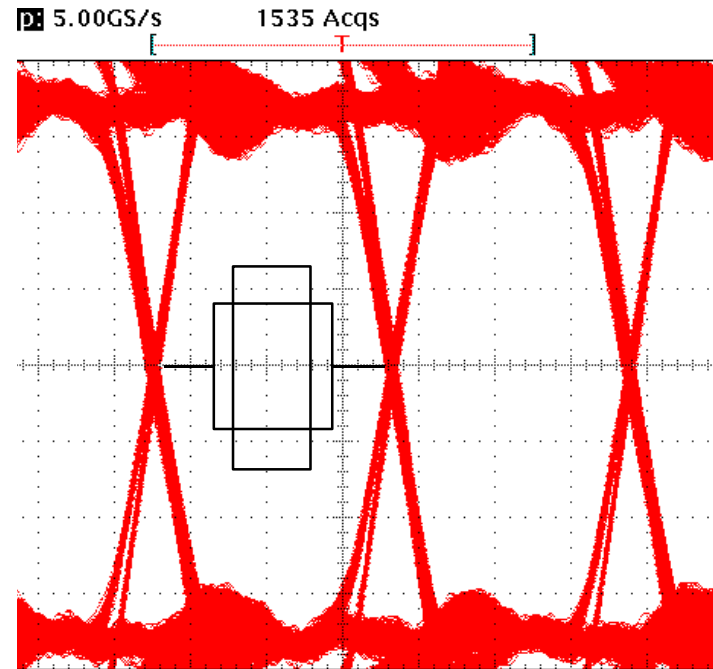
Data bit Random Pattern, Xtalk worst case adjacent bits, \ HP81110 tests - 25% cutback \ Amph TnF - 1 loads, Data taken on DB9



100mVΩ

Disk 43 file 4

No Precomp



100mVΩ

Disk 43 file 6

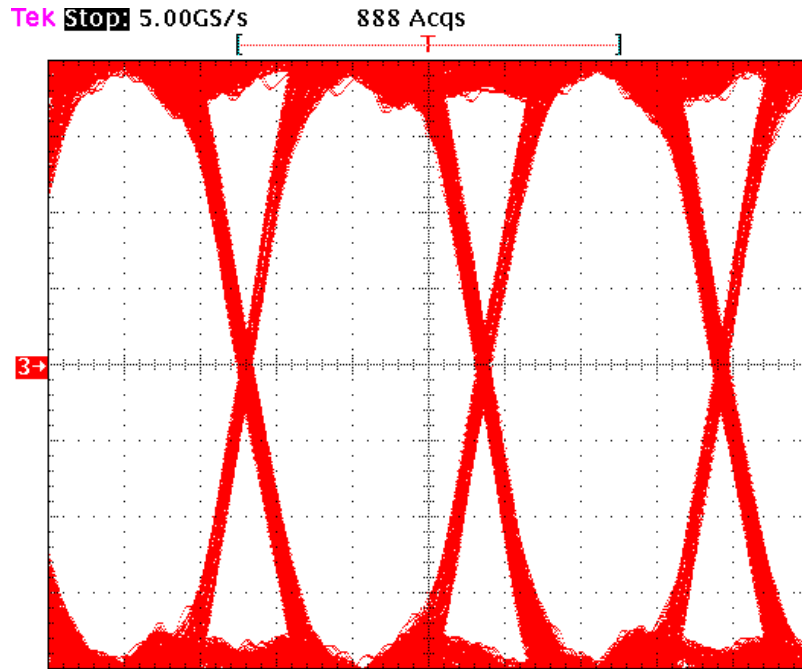
25% Precomp

Fig 235

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 14

Point-to-Point - 1m TnF, 33% Precomp

Data bit Random Pattern, Xtalk worst case adjacent bits, \ HP81110 tests - 33% cutback \ Amph TnF - 1 loads, Data taken on DB9

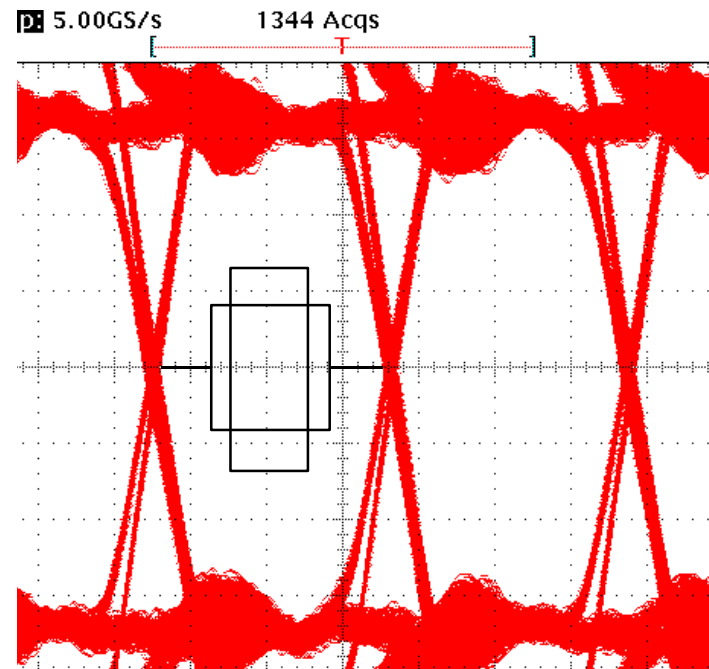


100mVΩ

M 2.00ns Ch4 1.40 V

Disk 43 file 4

No Precomp



100mVΩ

M 2.00ns Ch4 1.40 V

Disk 43 file 7

33% Precomp

Fig 236

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 15

Point-to-Point - 12m TnF, 15% Precomp

Data bit Random Pattern, Xtalk worst case adjacent bits, \ HP81110 tests - 15% cutback \Amph 12m TnF- 1 loads, Data taken on DB9

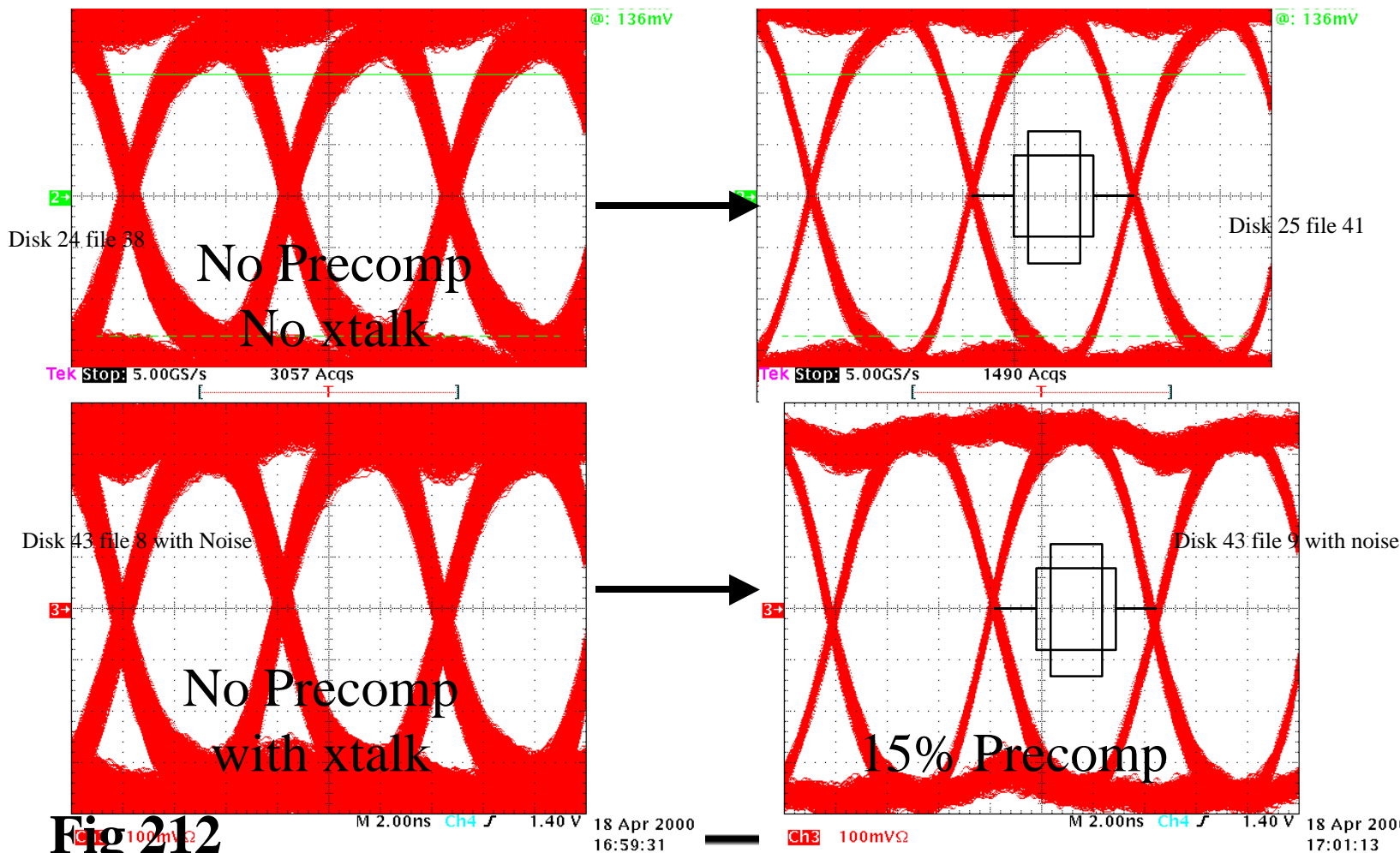


Fig 212

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt -- 16

Point-to-Point - 12m TnF, 25% Precomp

Data bit Random Pattern, Xtalk worst case adjacent bits, \ HP81110 tests - 25% cutback \Amph 12m Tnf - 1 loads, Data taken on DB9

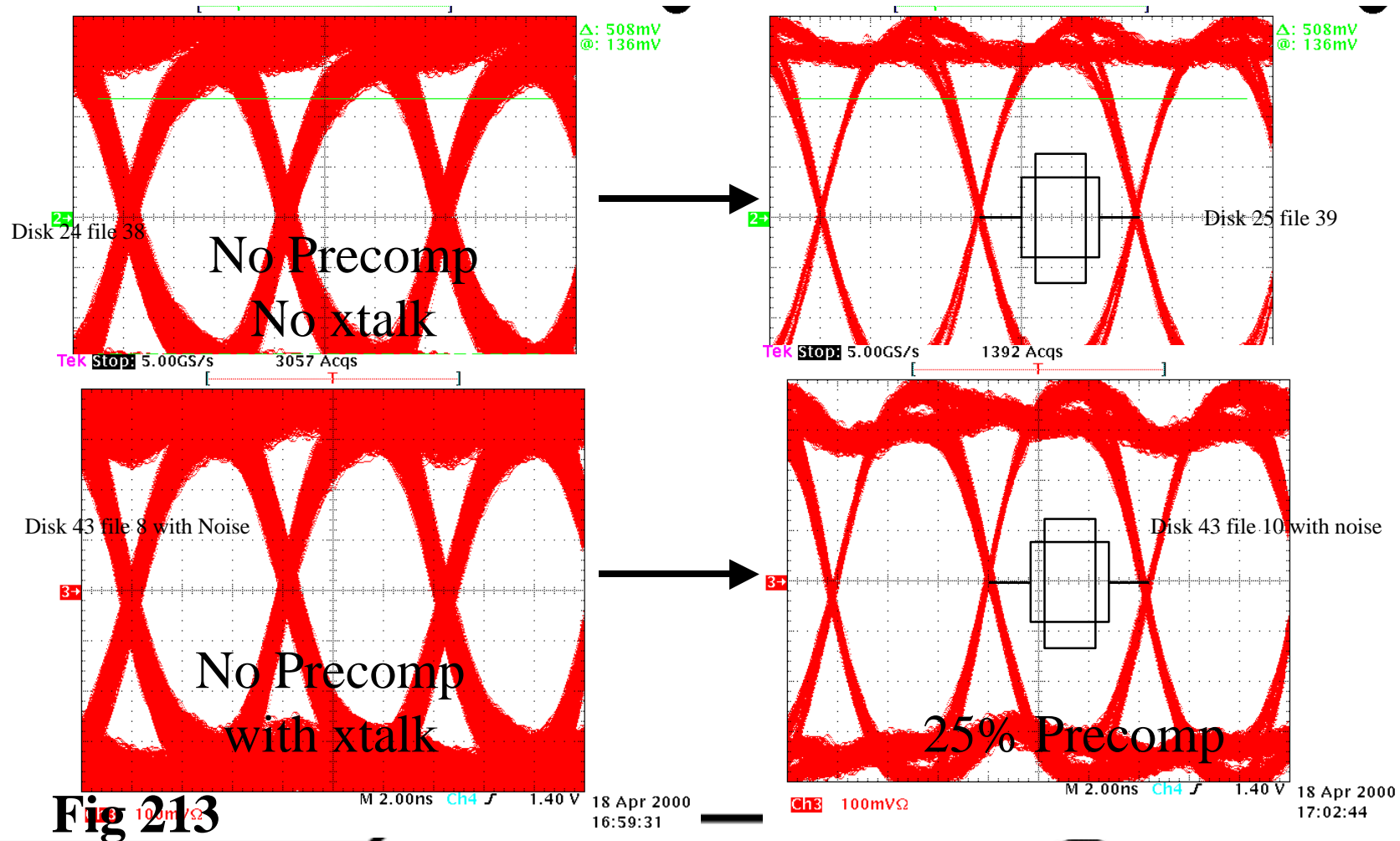


Fig 213

Point-to-Point - 12m TnF, 33% Precomp

Data bit Random Pattern, Xtalk worst case adjacent bits, \ HP81110 tests - 33% cutback \Amph 12m Tnf - 1 loads, Data taken on DB9

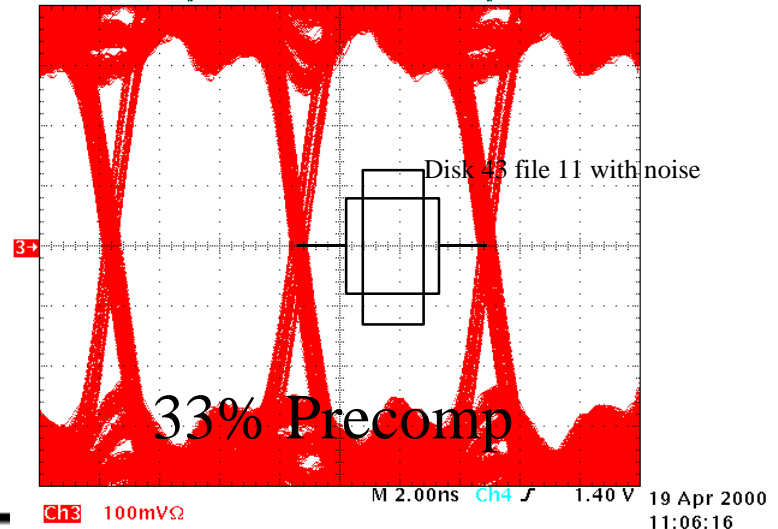
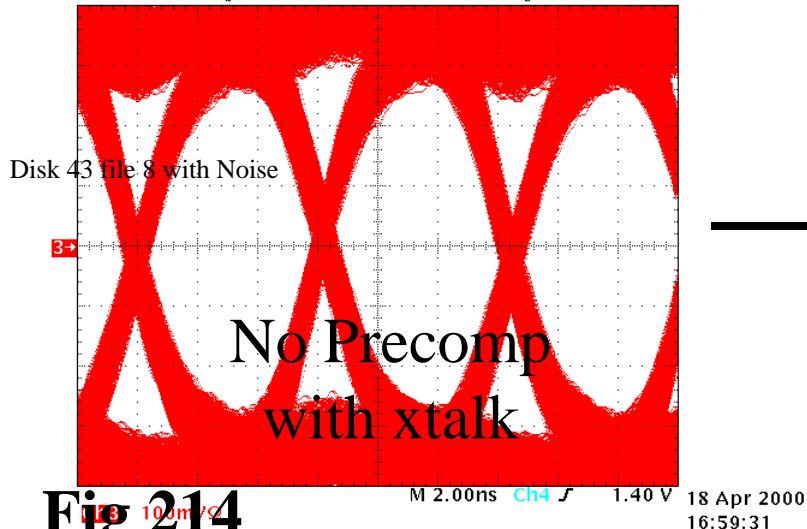
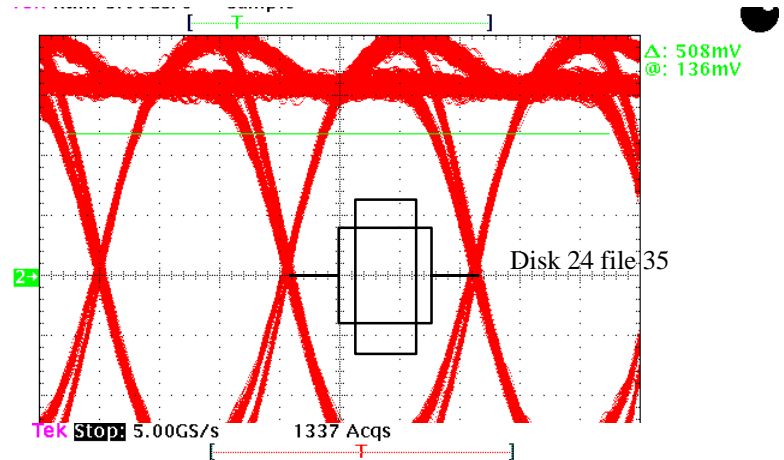
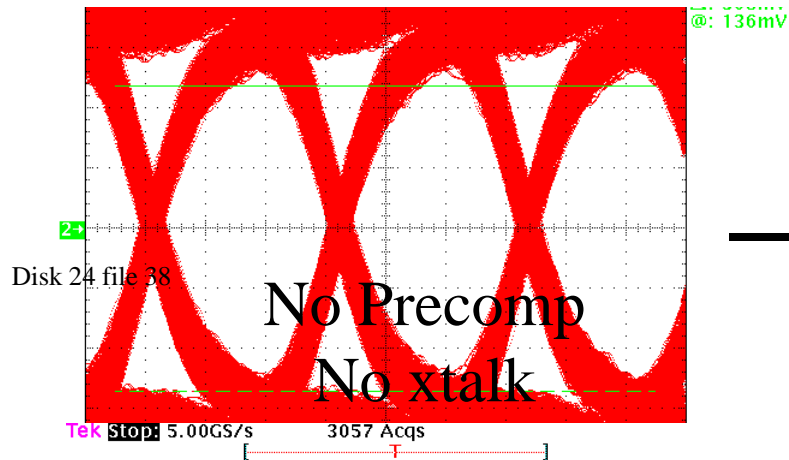
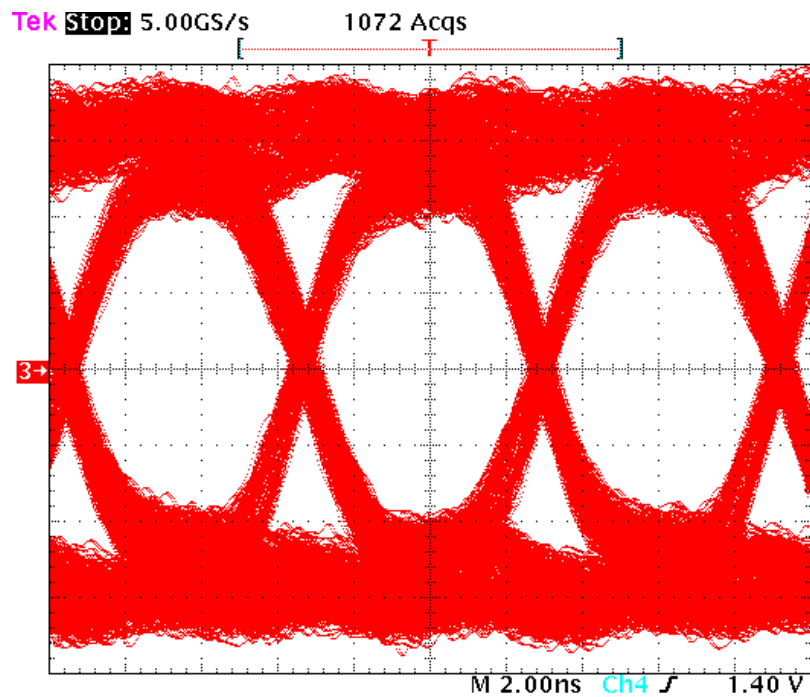


Fig 214

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 18

Point-to-Point - 12m round, 15% Precomp

Data bit Random Pattern, Xtalk worst case adjacent bits, \ HP81110 tests - 15% cutback \ 12m Round - 1 loads, Data taken on DB9

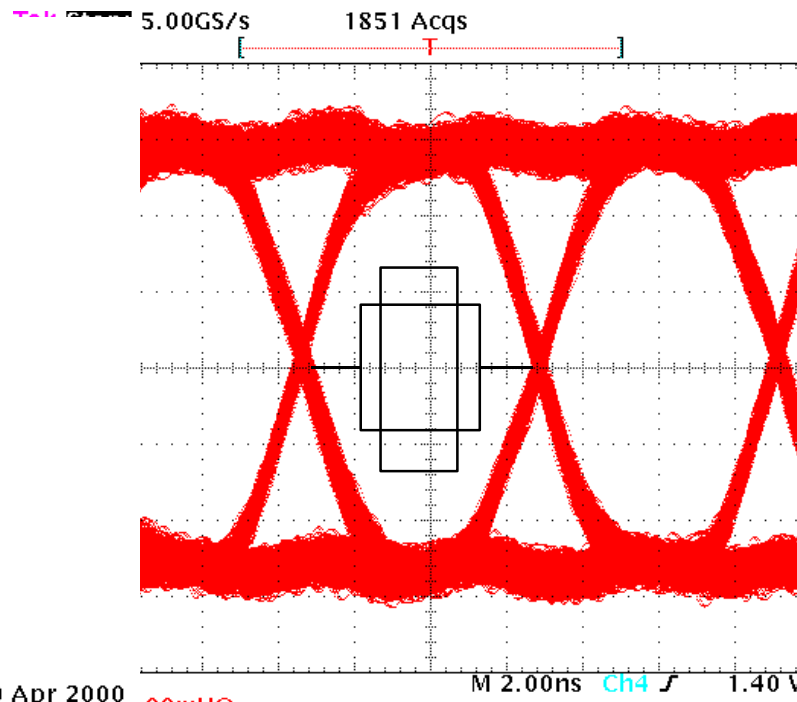


Ch3 100mVΩ

M 2.00ns Ch4 1.40 V

20 Apr 2000 18:36:19

Disk 45 file 19



00mVΩ

M 2.00ns Ch4 1.40 V

20 Apr 2000 18:38:19

Disk 45 file 20

No Precomp

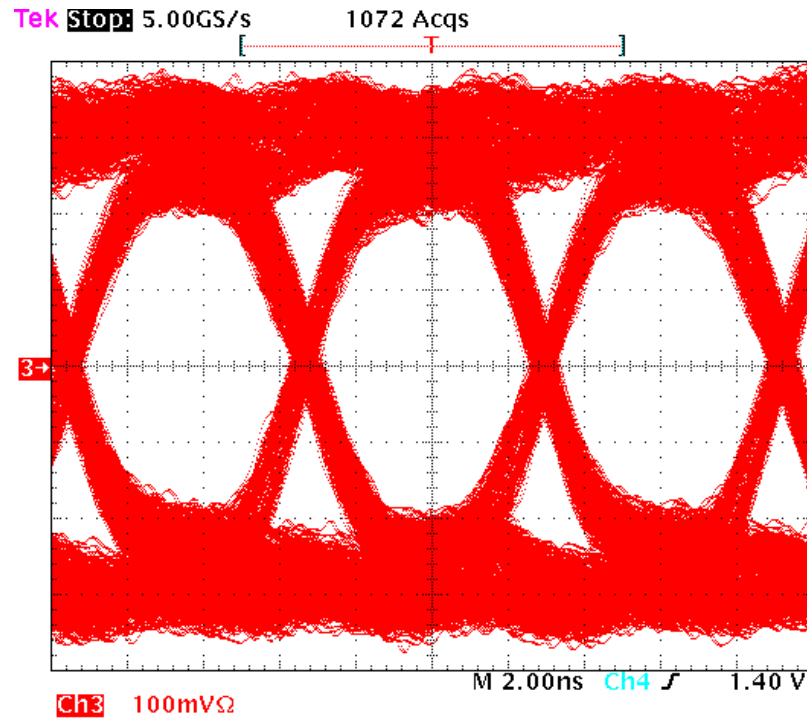
15% Precomp

Fig 240

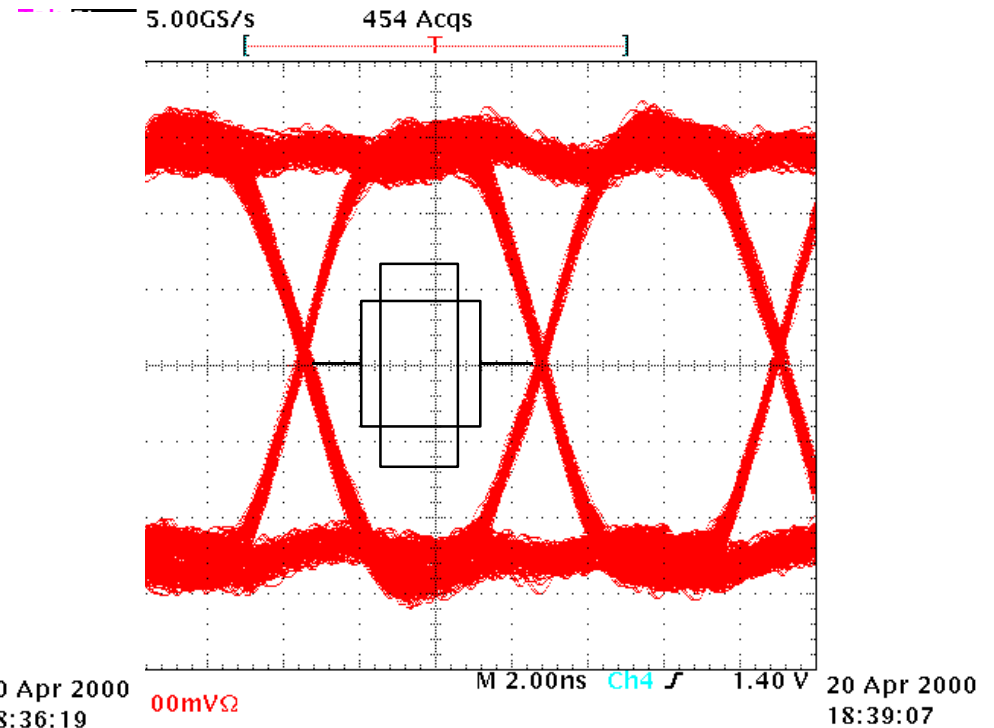
T10 SCSI - 4/4/26/00
320 precomp rev j.ppt -- 19

Point-to-Point - 12m round, 25% Precomp

Data bit Random Pattern, Xtalk worst case adjacent bits, \ HP81110 tests - 25% cutback \12m Round - 1 loads, Data taken on DB9



No Precomp
with xtalk



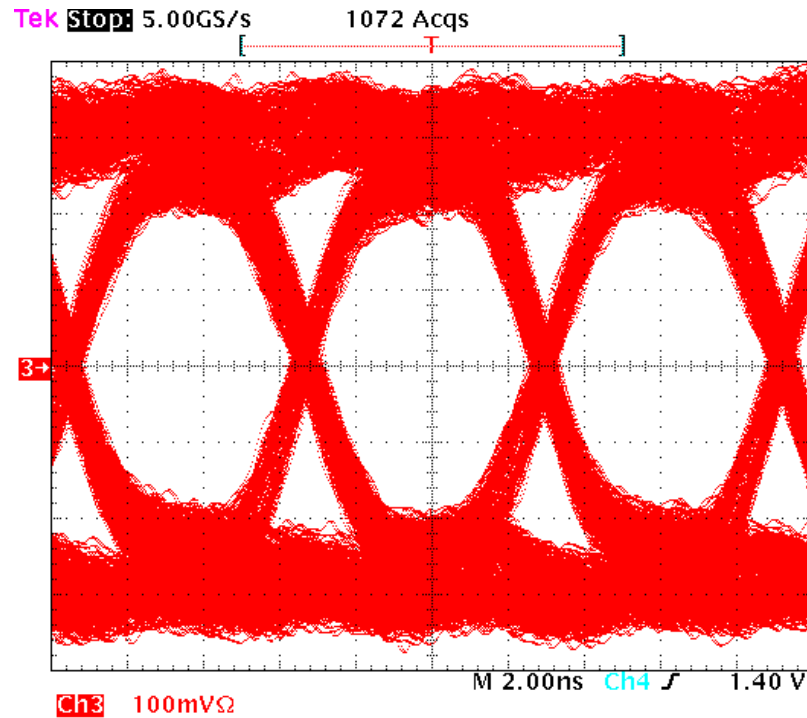
25% Precomp

Fig 241

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 20

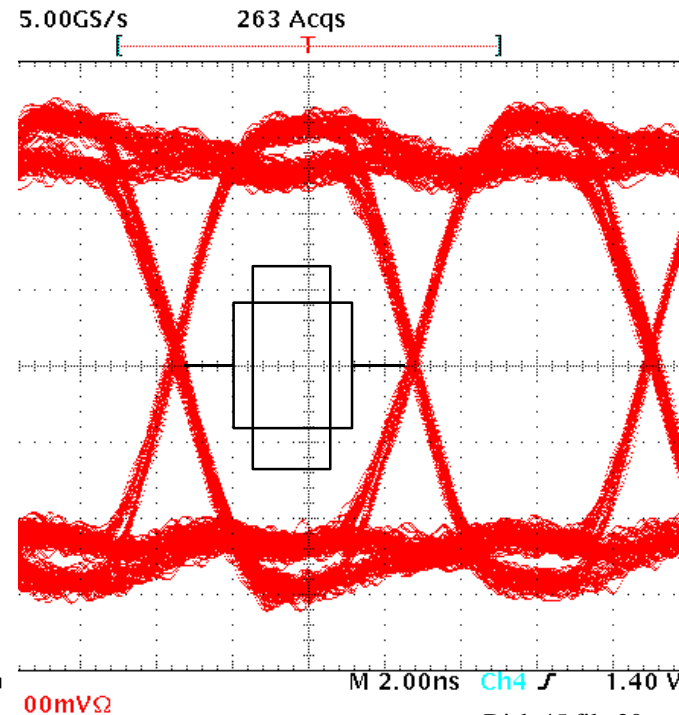
Point-to-Point - 12m round, 33% Precomp

Data bit Random Pattern, Xtalk worst case adjacent bits, \ HP81110 tests - 33% cutback \12m Round - 1 loads, Data taken on DB9



Disk 45 file 19

no precomp
with xtalk



Disk 45 file 20

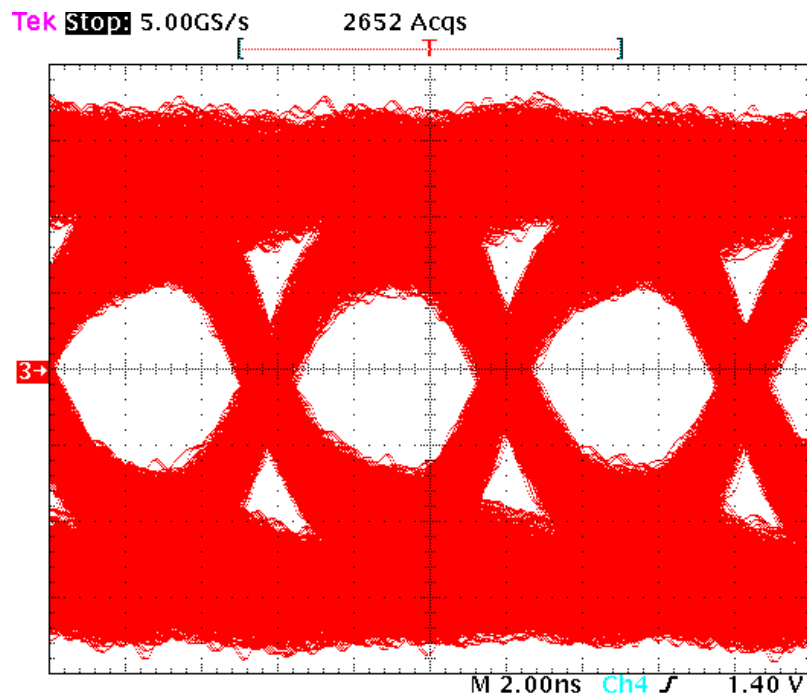
33% Precomp

Fig 242

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 21

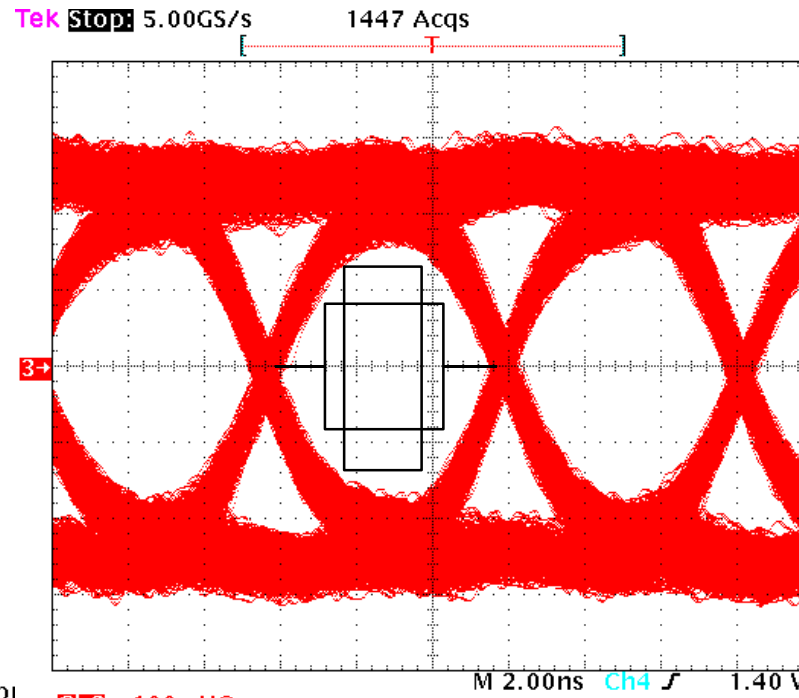
Point-to-Point - 25m round, 15% Precomp

Data bit Random Pattern, Xtalk worst case adjacent bits, \ HP81110 tests - 15% cutback \Hitachi 25m Round - 1 loads, Data taken on DB9



Disk 45 file 11

19 Apr 17:28:



19 Apr 2000 17:30:13

Disk 45 file 12

No Precomp

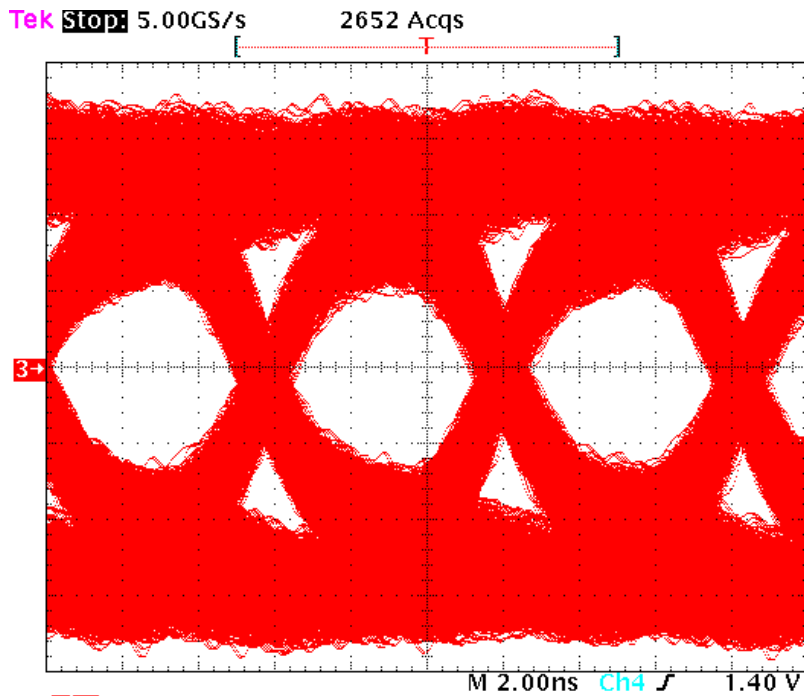
15% Precomp

Fig 215

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 22

Point-to-Point - 25m round, 25% Precomp

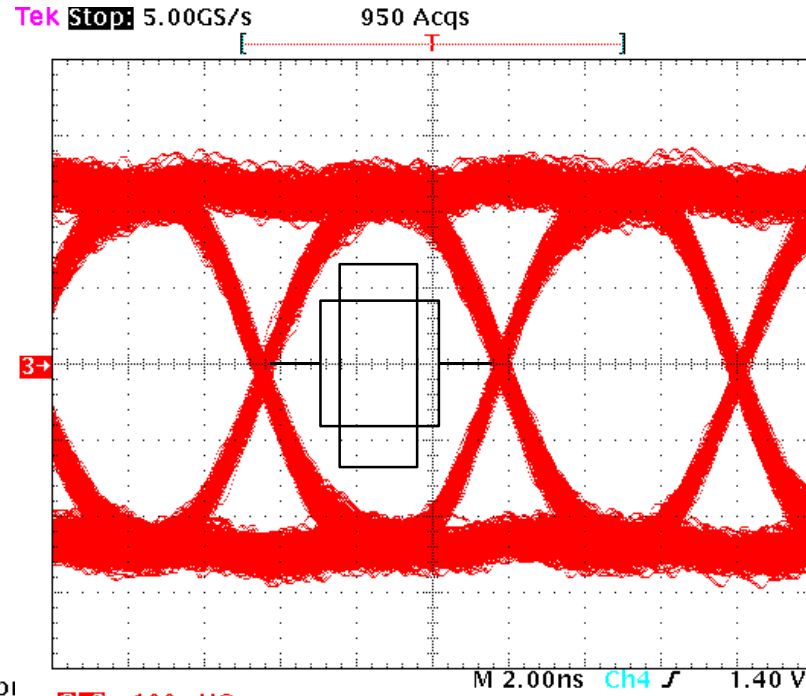
Data bit Random Pattern, Xtalk worst case adjacent bits, \ HP81110 tests - 25% cutback \Hitachi 25m Round - 1 loads, Data taken on DB9



Disk 45 file 11

No Precomp
with xtalk

19 Apr 2000
17:28:



Disk 45 file 13

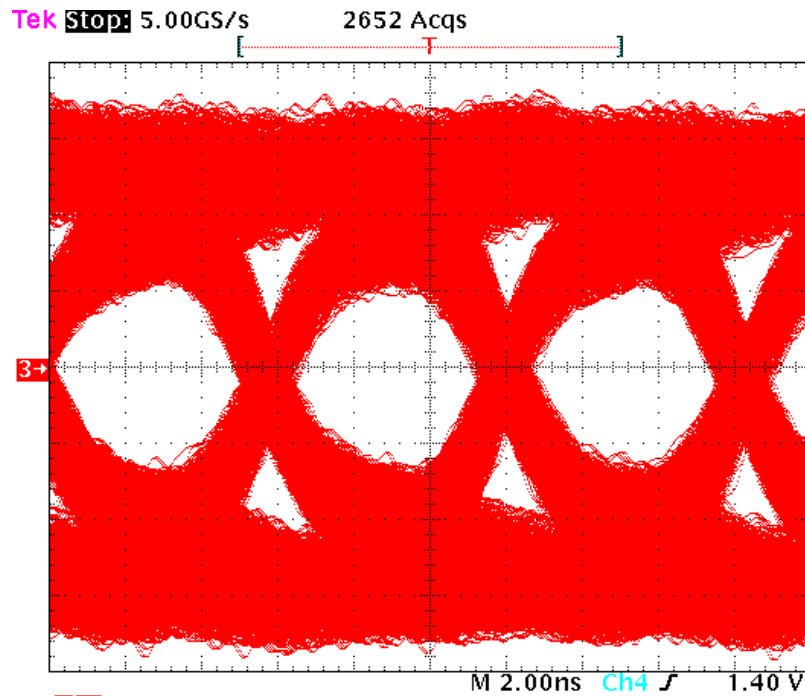
25% Precomp

Fig 216

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 23

Point-to-Point - 25m round, 33% Precomp

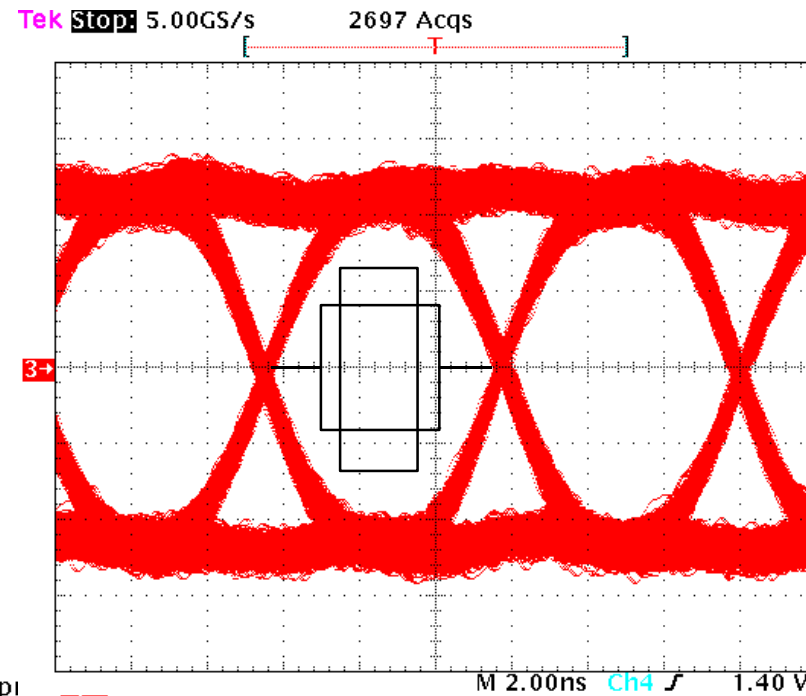
Data bit Random Pattern, Xtalk worst case adjacent bits, \ HP81110 tests - 33% cutback \Hitachi 25m Round - 1 loads, Data taken on DB9



Disk 45 file 111

No Precomp
with xtalk

19 Apr 17:28:



Disk 45 file 14 19 Apr 2000 17:34:37

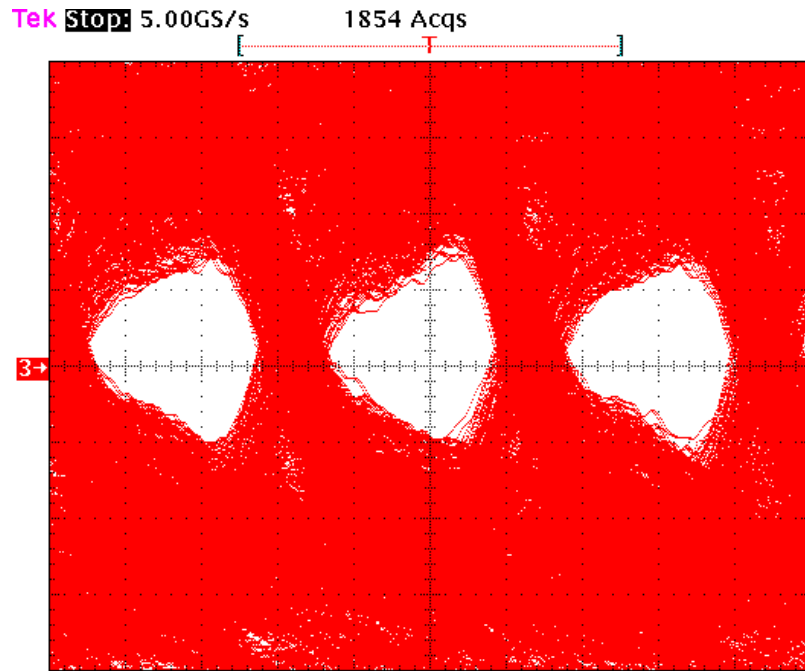
33% Precomp

Fig 217

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 24

Seagate U2 Backplane - 12m round, 15% Precomp, Slot 1

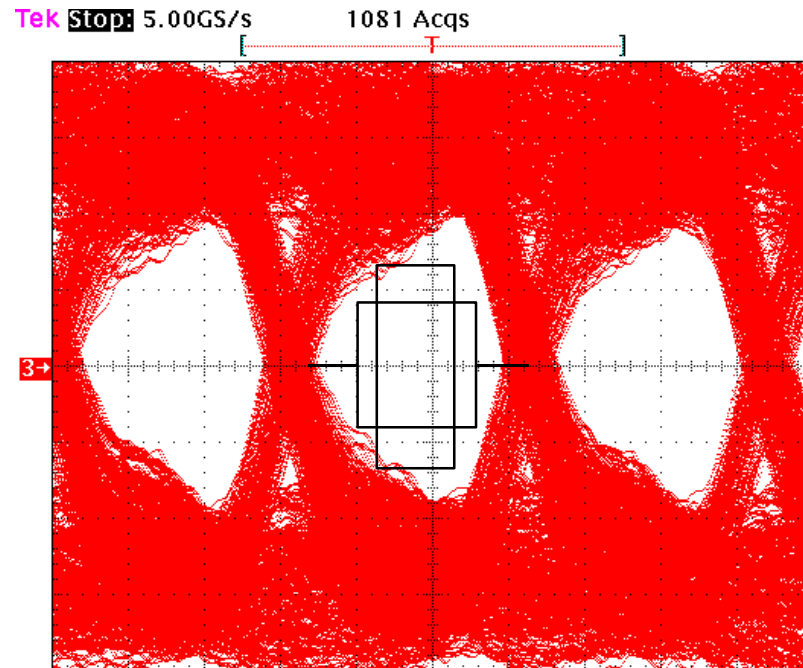
Data bit Random Pattern, Xtalk worst case adjacent bits, Seagate Backplane (older 16 slot)\ HP81110 tests - 15% cutback \Madison 12m Round - 15 loads, Data taken on DB9



Ch3 100mVΩ

M 2.00ns Ch4 1.40 V

20 Apr 2000 18:27:21



Ch3 100mVΩ

M 2.00ns Ch4 1.40 V

20 Apr 2000 18:29:21

No Precomp
with xtalk

Disk 45 file 15

15% Precomp

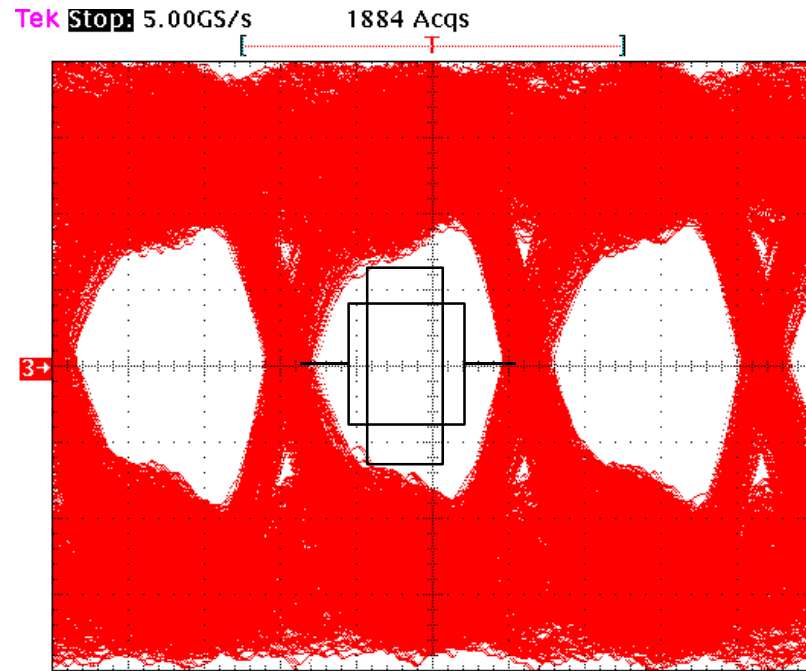
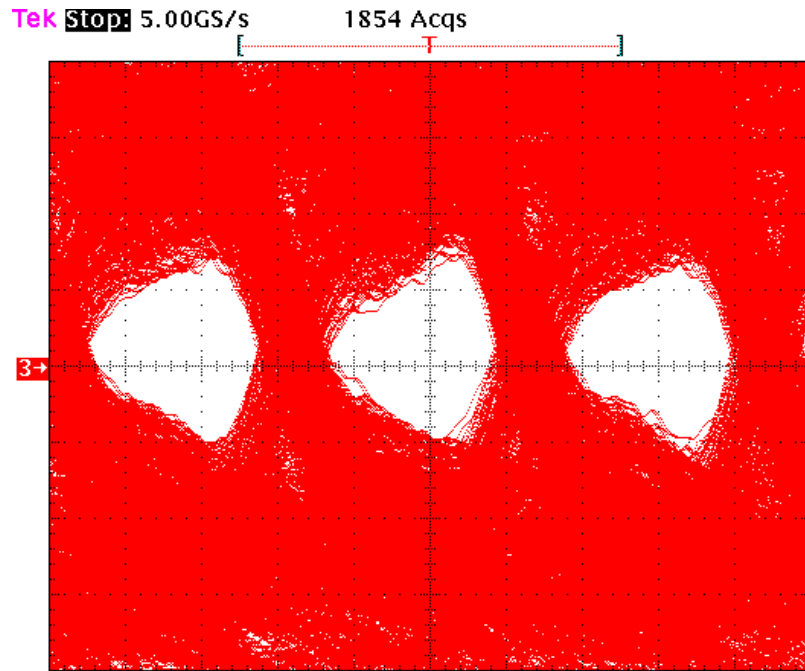
Disk 45 file 16

Fig 218

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 25

Seagate U2 Backplane - 12m round, 25% Precomp, Slot 1

Data bit Random Pattern, Xtalk worst case adjacent bits, Seagate Backplane (older 16 slot)\ HP81110 tests - 25% cutback \Madison 12m Round - 15 loads, Data taken on DB9



No Precomp
with xtalk

25% Precomp

Disk 45 file 15

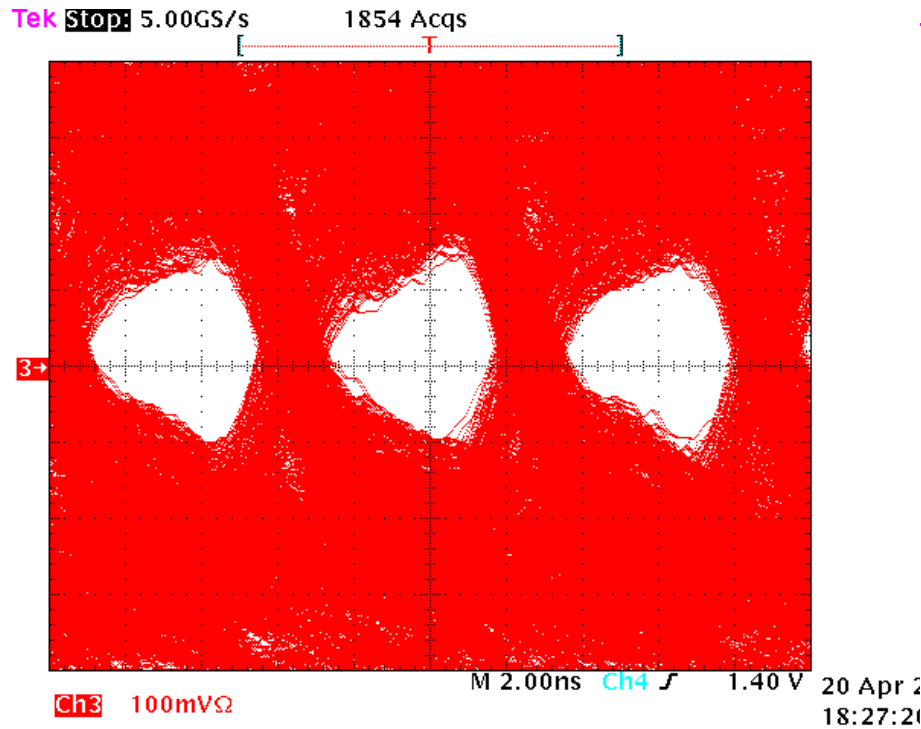
Disk 45 file 17

Fig 219

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 26

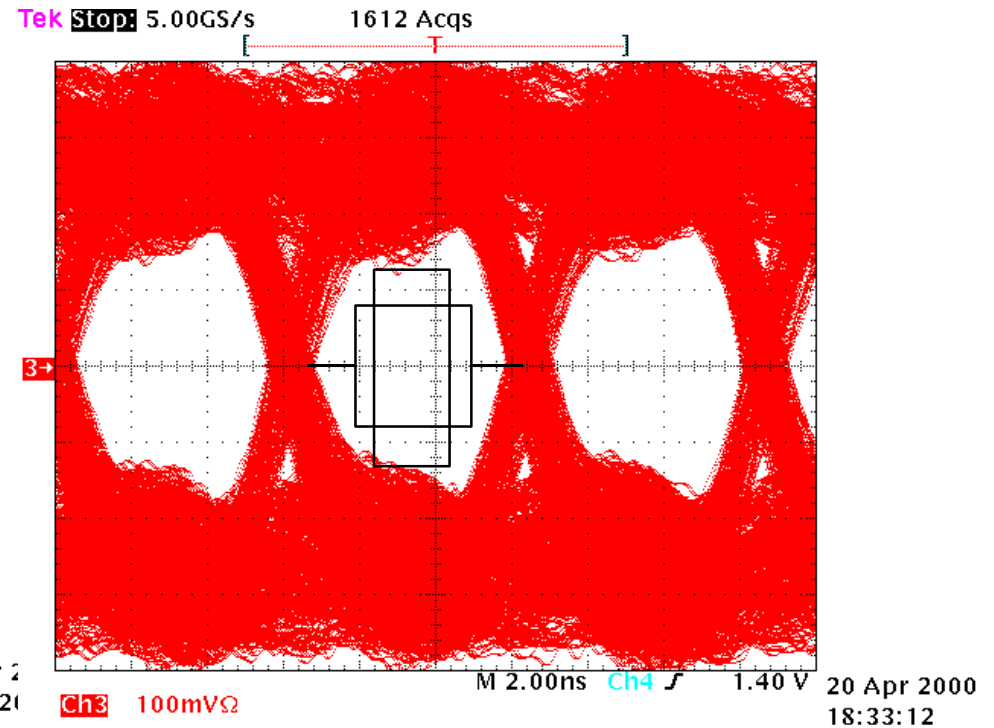
Seagate U2 Backplane - 12m round, 33% Precomp, Slot 1

Data bit Random Pattern, Xtalk worst case adjacent bits, Seagate Backplane (older 16 slot)\ HP81110 tests - 33% cutback \Madison 12m Round - 15 loads, Data taken on DB9



No Precomp
with xtalk

Disk 45 file 15



33% Precomp

Disk 45 file 18

Fig 220

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 27

Seagate U2 Backplane - 18" TnF, 15% Precomp, Slot 1

Data bit Random Pattern, Xtalk worst case adjacent bits, Seagate Backplane (older 16 slot)\ HP81110 tests - 15% cutback \Amphenol 18" twisted-flat - 15 loads, Data taken on DB9

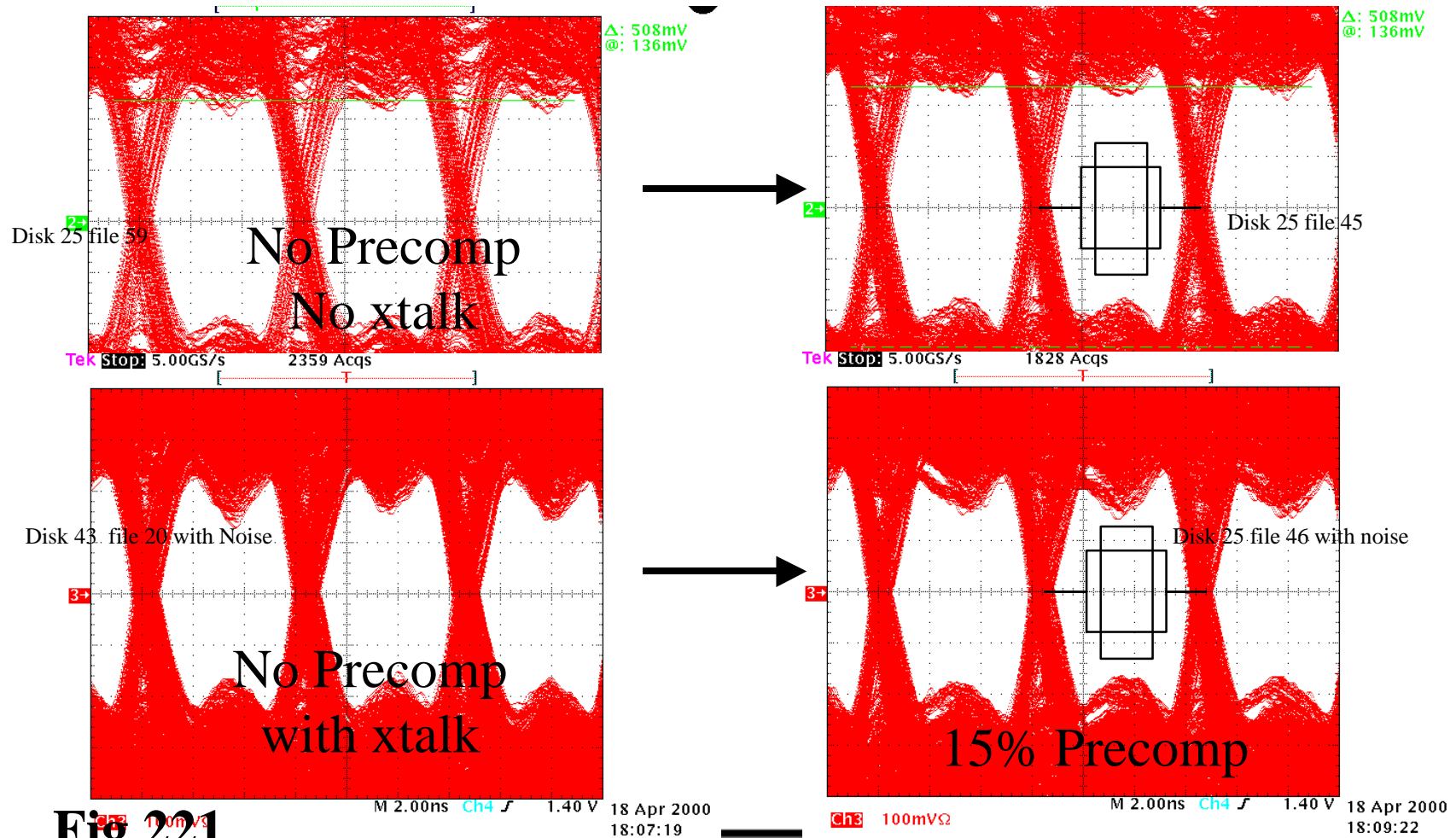


Fig 221

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 28

Seagate U2 Backplane - 18" TnF, 25% Precomp, Slot 1

Data bit Random Pattern, Xtalk worst case adjacent bits, Seagate Backplane (older 16 slot)\ HP81110 tests - 25% cutback \Amphenol 18" twisted-flat - 15 loads, Data taken on DB9

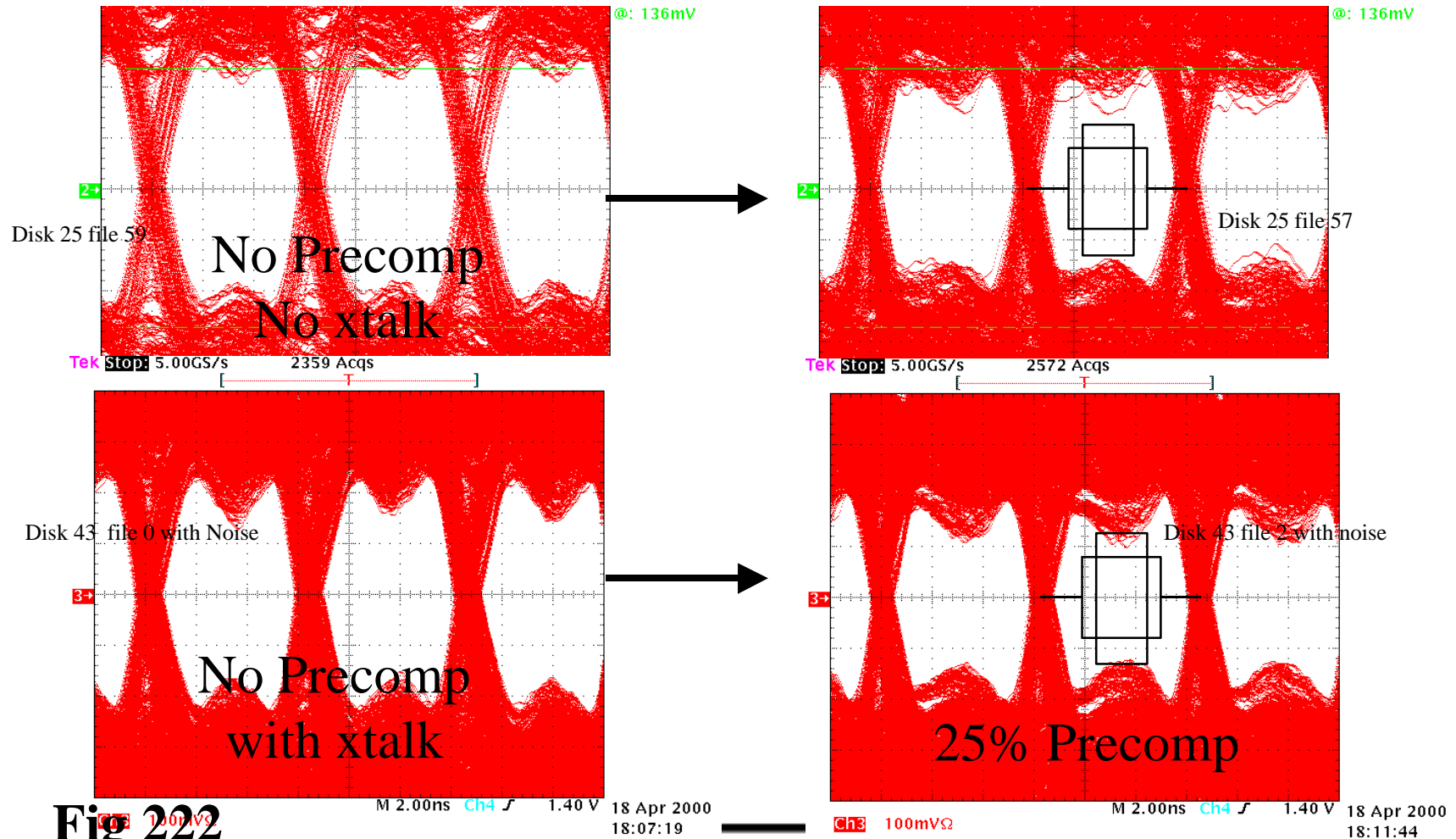


Fig 222

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 29

Seagate U2 Backplane - 18" TnF, 33% Precomp, Slot 1

Data bit Random Pattern, Xtalk worst case adjacent bits, Seagate Backplane (older 16 slot)\ HP81110 tests - 33% cutback \Amphenol 18" twisted-flat - 15 loads, Data taken on DB9

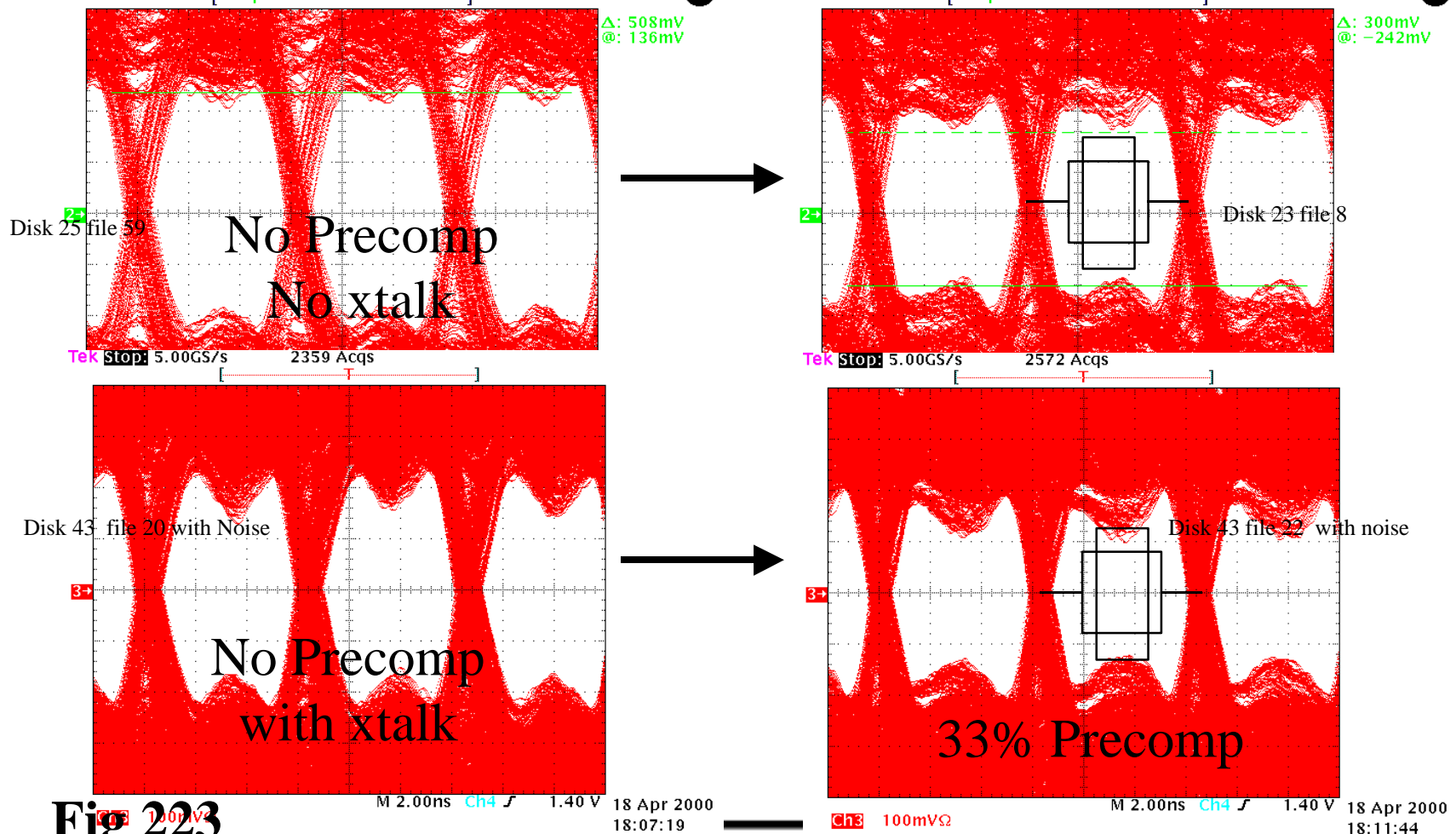


Fig 223

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 30

Seagate U2 Backplane - 1m TnF, 15% Precomp, Slot 1

Data bit Random Pattern, Xtalk worst case adjacent bits, Seagate Backplane (older 16 slot)\ HP81110 tests - 15% cutback \Amphenol 1m twisted-flat - 15 loads, Data taken on DB9

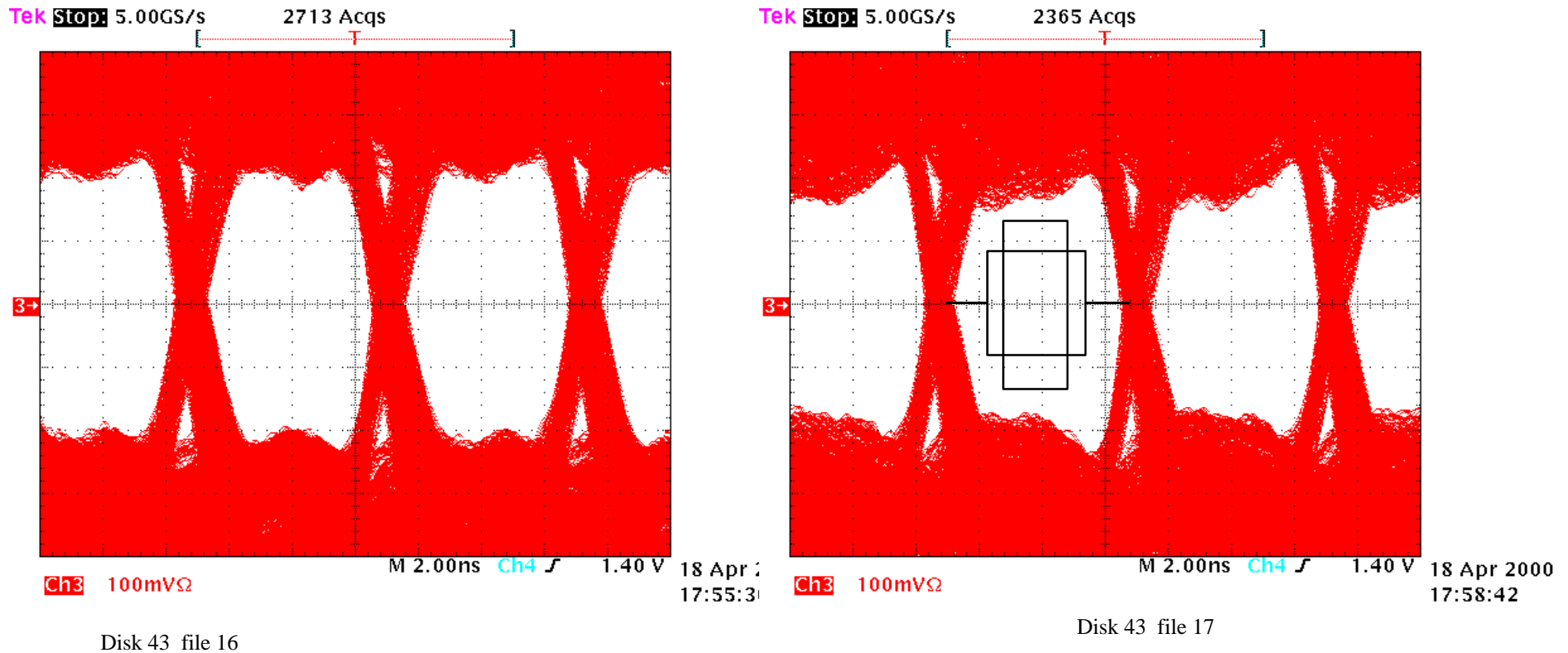


Fig 235

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 31

Seagate U2 Backplane - 1m TnF, 25% Precomp, Slot 1

Data bit Random Pattern, Xtalk worst case adjacent bits, Seagate Backplane (older 16 slot)\ HP81110 tests - 25% cutback \Amphenol 1m twisted-flat - 15 loads, Data taken on DB9

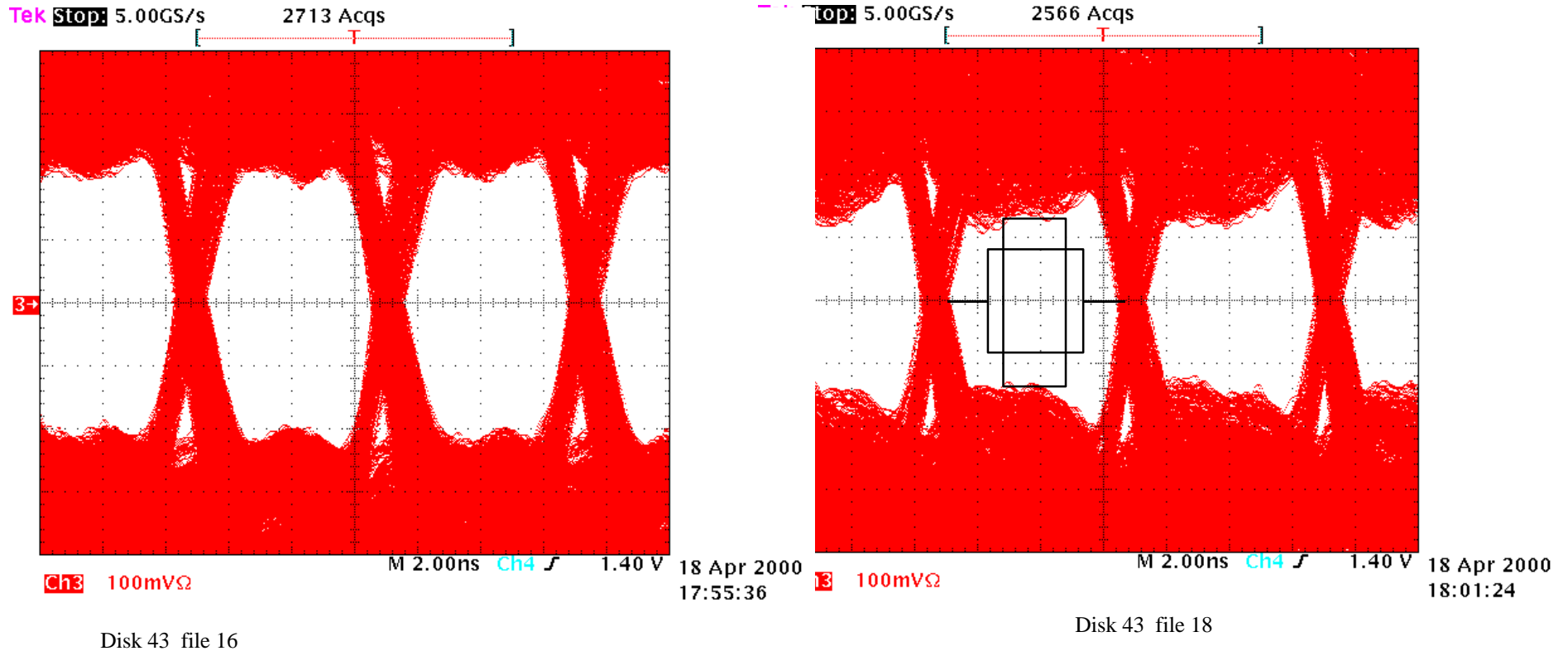


Fig 238

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 32

Seagate U2 Backplane - 1m TnF, 33% Precomp, Slot 1

Data bit Random Pattern, Xtalk worst case adjacent bits, Seagate Backplane (older 16 slot)\ HP81110 tests - 33% cutback \Amphenol 1m twisted-flat - 15 loads, Data taken on DB9

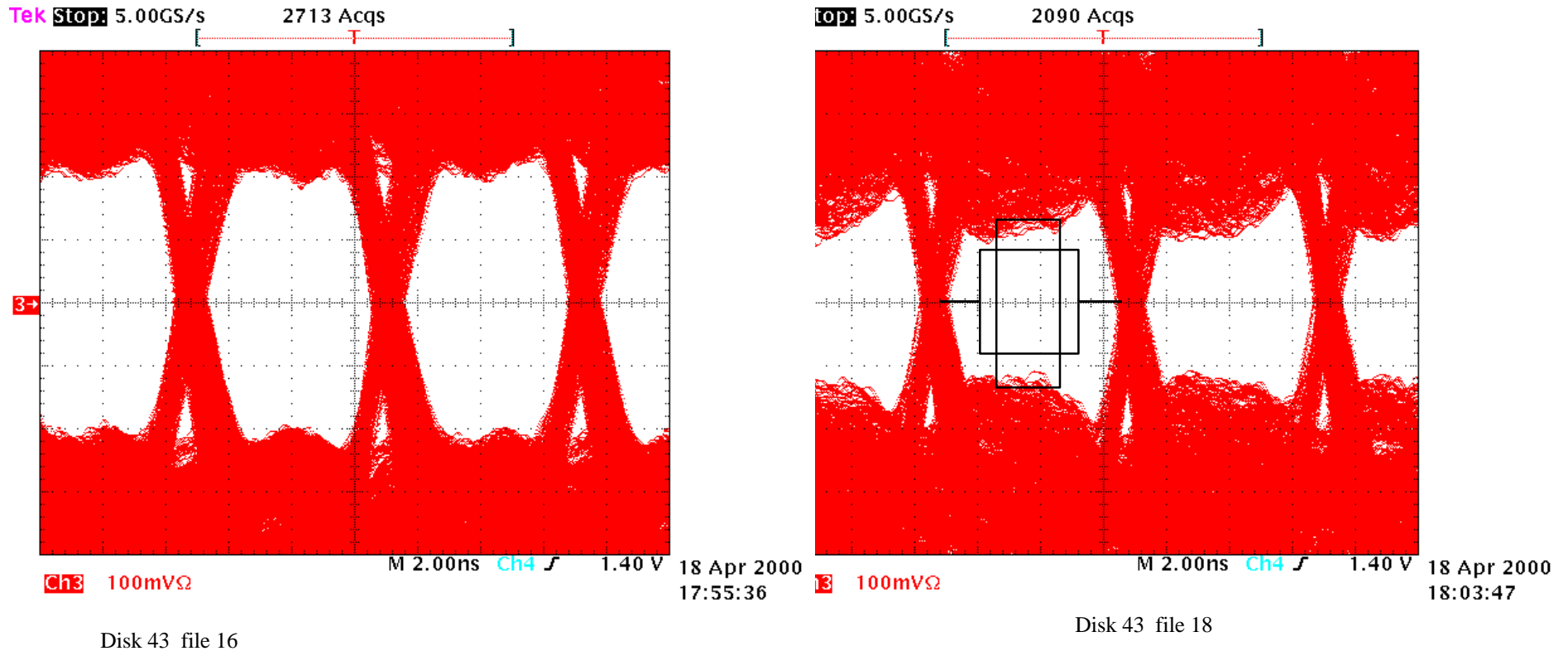


Fig 239

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 33

Seagate U2 Backplane - 12m TnF, 15% Precomp, Slot 1

Data bit Random Pattern, Xtalk worst case adjacent bits, Seagate Backplane (older 16 slot)\ HP81110 tests - 15% cutback \Amphenol 12m twisted-flat - 15 loads, Data taken on DB9 at slot 1 (nearest cable)

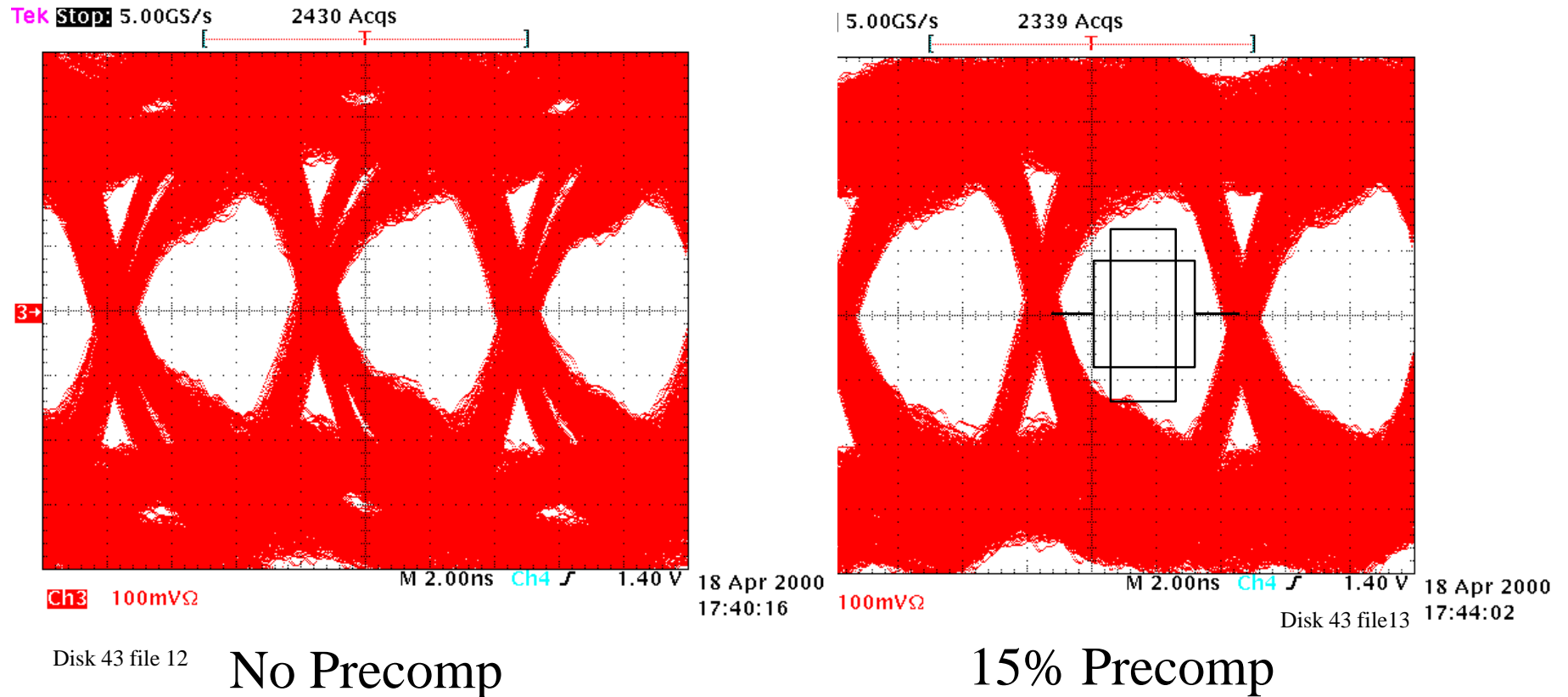
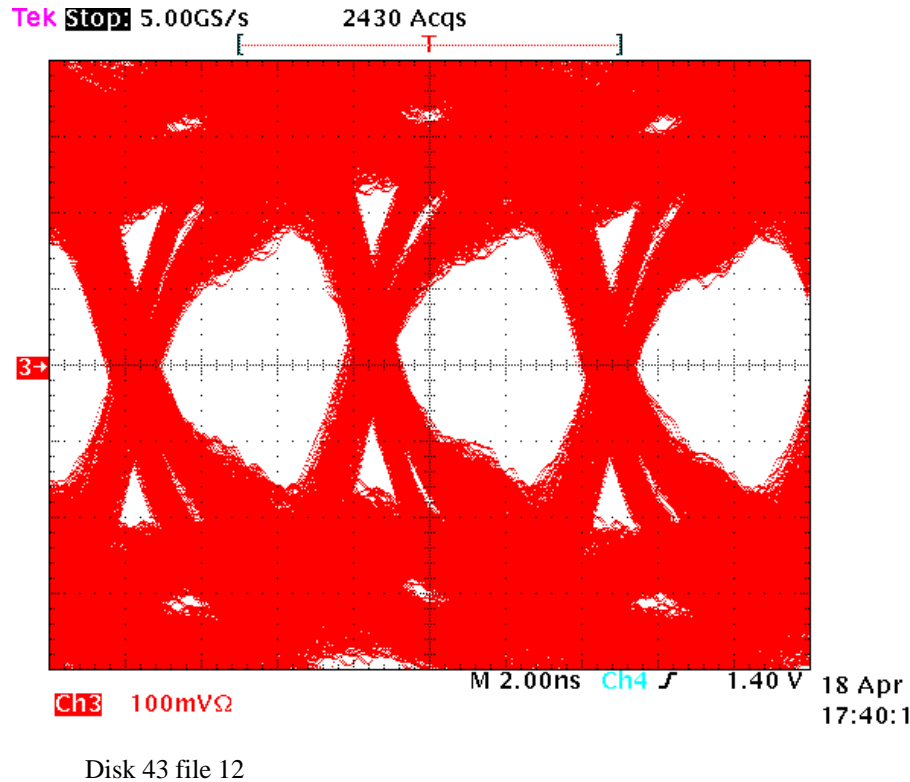


Fig 224

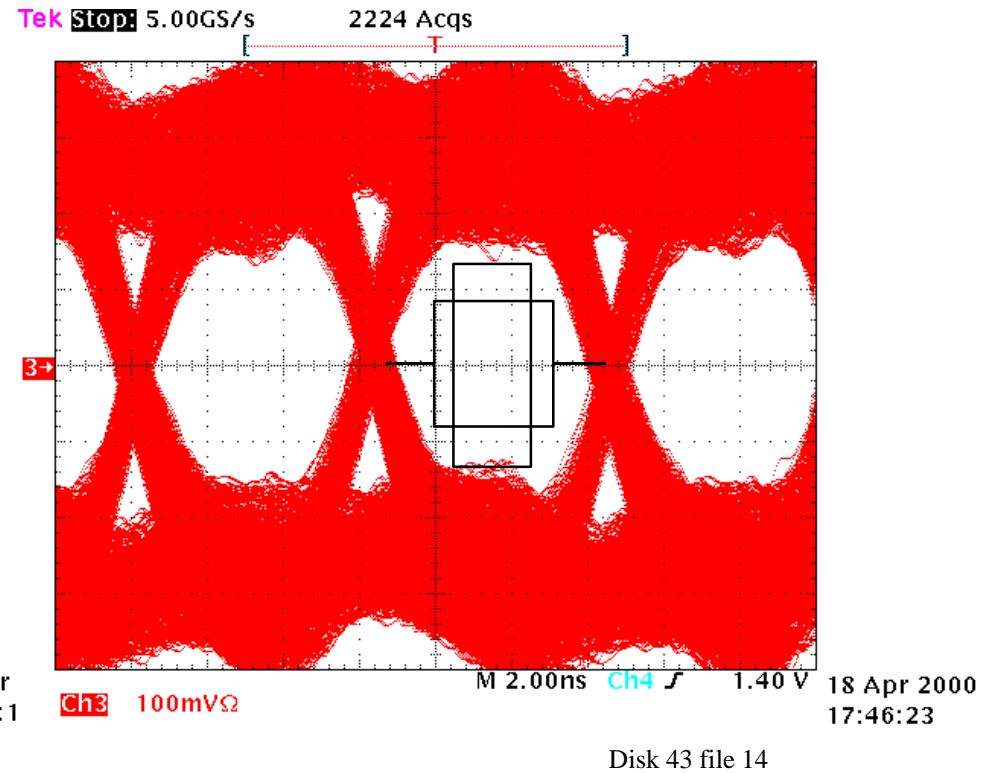
T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 34

Seagate U2 Backplane - 12m TnF, 25% Precomp, Slot 1

Data bit Random Pattern, Xtalk worst case adjacent bits, Seagate Backplane (older 16 slot)\ HP81110 tests - 25% cutback \Amphenol 12m twisted-flat - 15 loads, Data taken on DB9



No Precomp



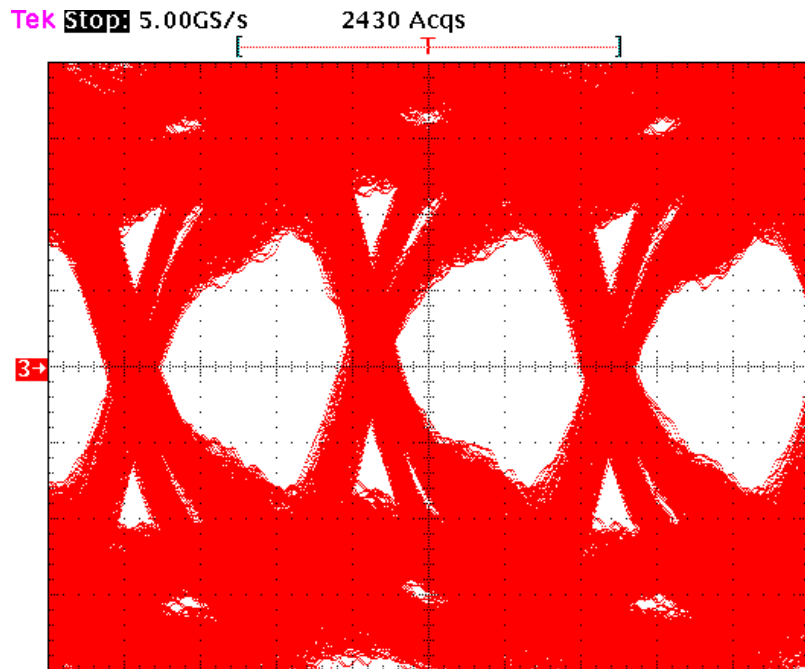
25% Precomp

Fig 225

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 35

Seagate U2 Backplane - 12m, 33% Precomp, Slot 1

Data bit Random Pattern, Xtalk worst case adjacent bits, Seagate Backplane (older 16 slot)\ HP81110 tests - 33% cutback \Amphenol 12m twisted-flat - 15 loads, Data taken on DB9



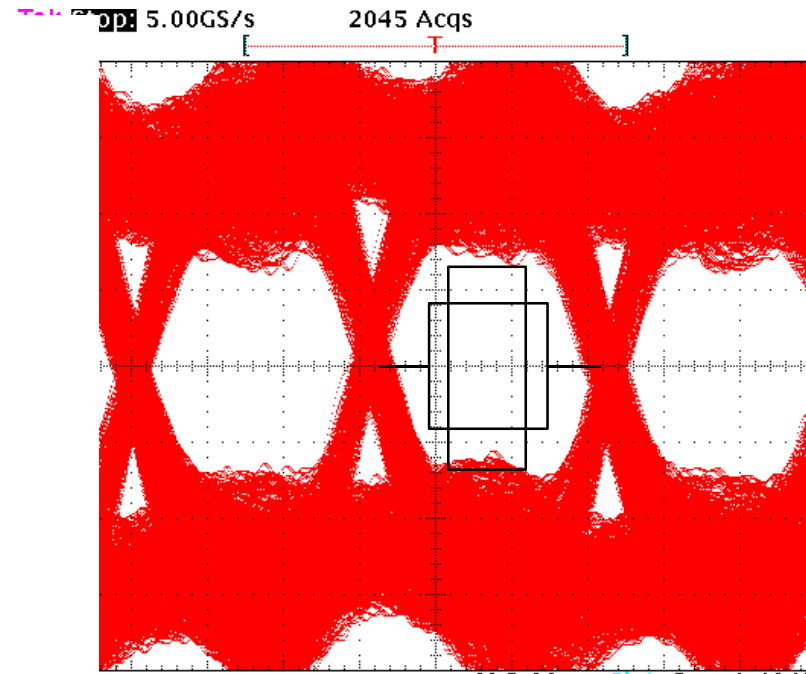
Ch3 100mVΩ

M 2.00ns Ch4 1.40 V

18 Apr 2000
17:40:16

Disk 43 file 12

No Precomp



Ch3 100mVΩ

M 2.00ns Ch4 1.40 V

18 Apr 2000
17:50:13

Disk 43 file 15

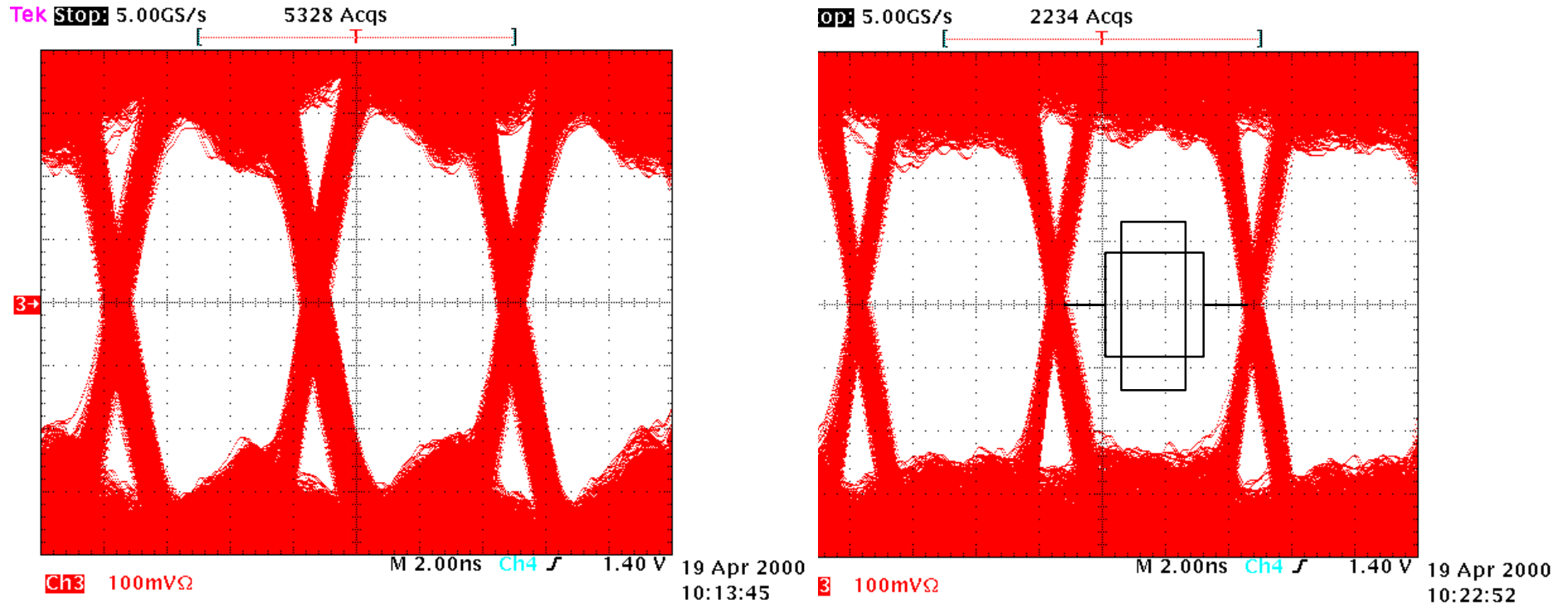
33% Precomp

Fig 226

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 36

Seagate 320BM Backplane - 18" TnF, 25% Precomp

Data bit Random Pattern, Xtalk worst case adjacent bits, Seagate 320BM Backplane (New design), HP81110 tests, 25% cutback \Amphenol 18" twisted-flat - 15 loads, Data taken on DB9, Slot 1(nearest cable)



Disk 44 file 4

Disk 44 file 5

No Precomp

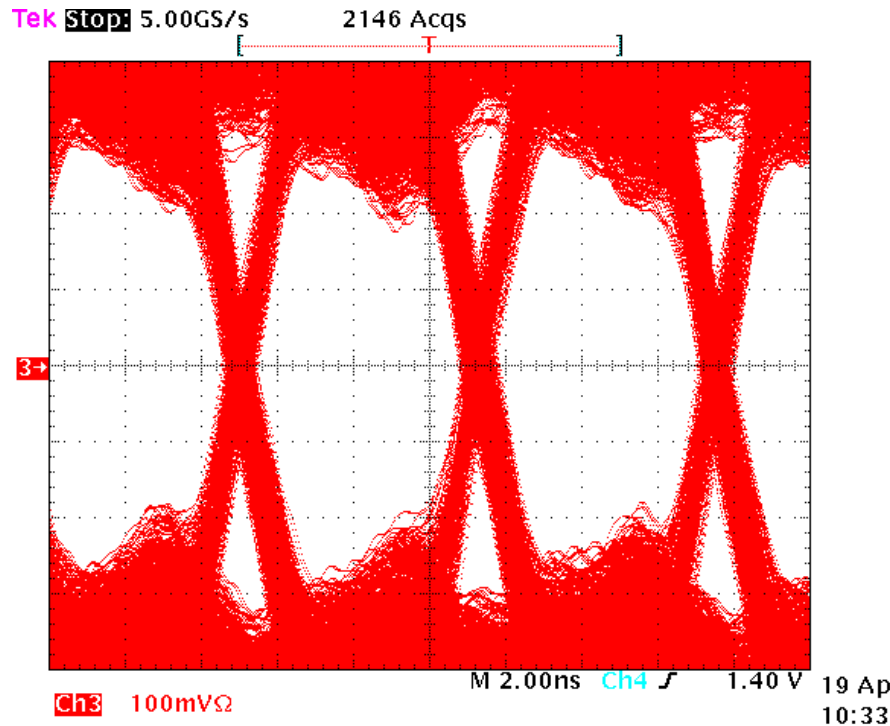
25% Precomp

Fig 230

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 37

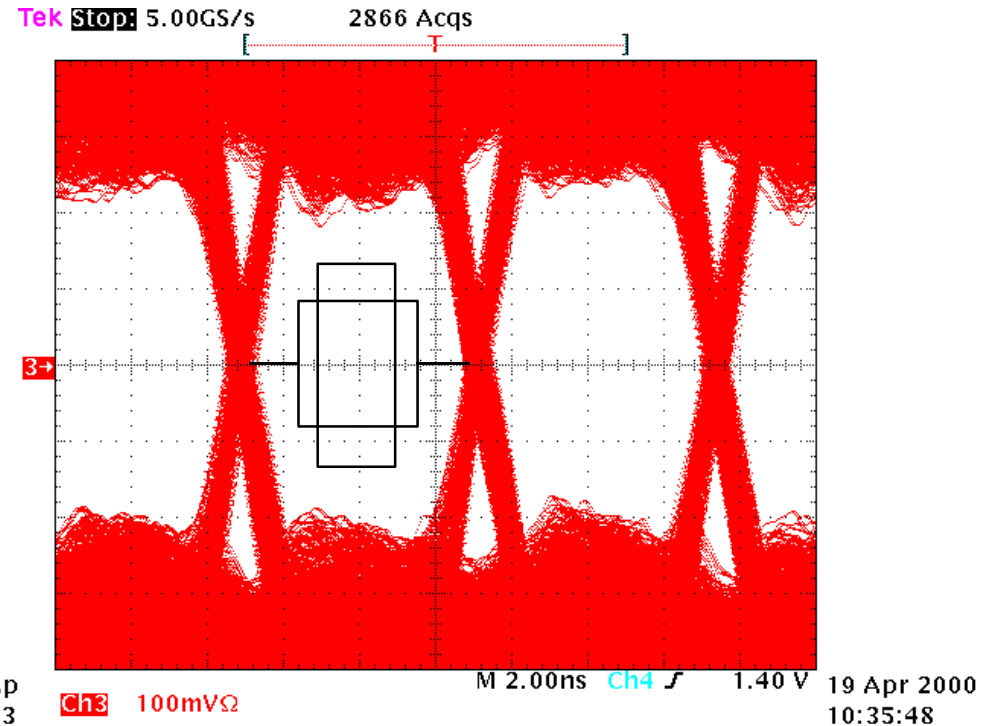
Seagate 320BM Backplane - 1m TnF, 25% Precomp

Data bit Random Pattern, Xtalk worst case adjacent bits, Seagate 320BM Backplane (New design), HP81110 tests, 25% cutback \Amphenol 1m twisted-flat - 15 loads, Data taken on DB9, Slot 1(nearest cable)



Disk 44 file 4

No Precomp



Disk 44 file 5

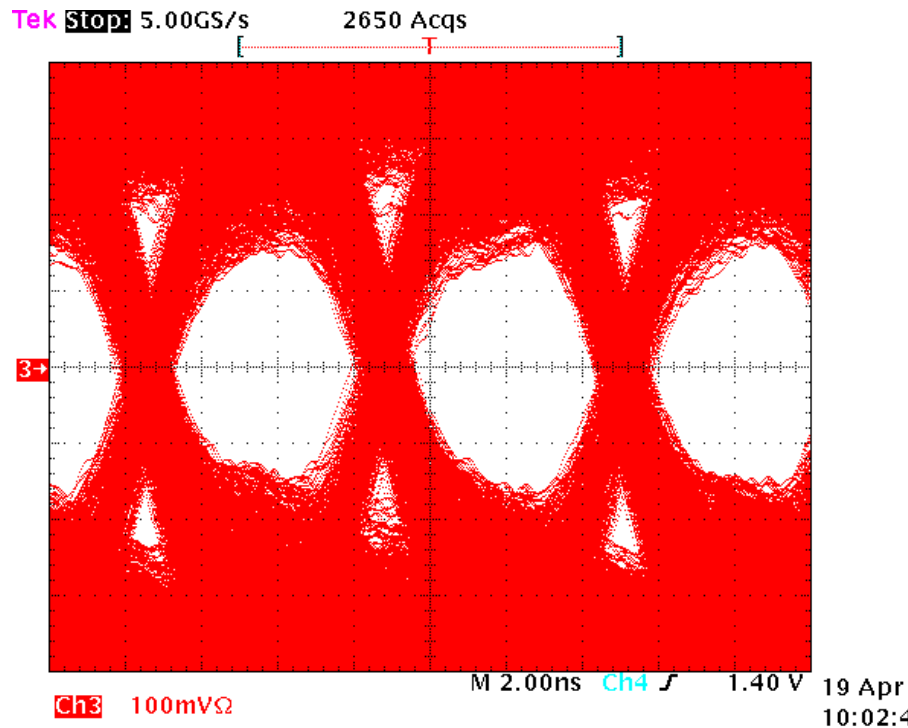
25% Precomp

Fig 233

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 38

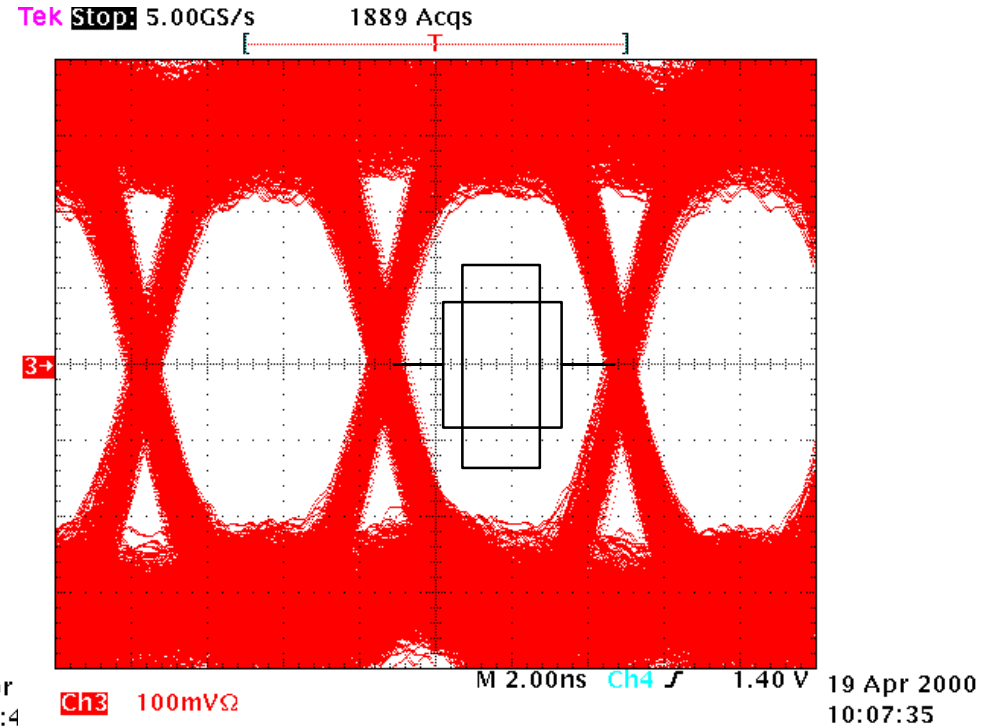
Seagate 320BM Backplane - 12M TnF, 25% Precomp

Data bit Random Pattern, Xtalk worst case adjacent bits, Seagate 320BM Backplane (New design), HP81110 tests, 25% cutback \Amphenol 12m twisted-flat - 15 loads, Data taken on DB9, Slot 1(nearest cable)



Disk 44 file 2

No Precomp



Disk 44 file 3

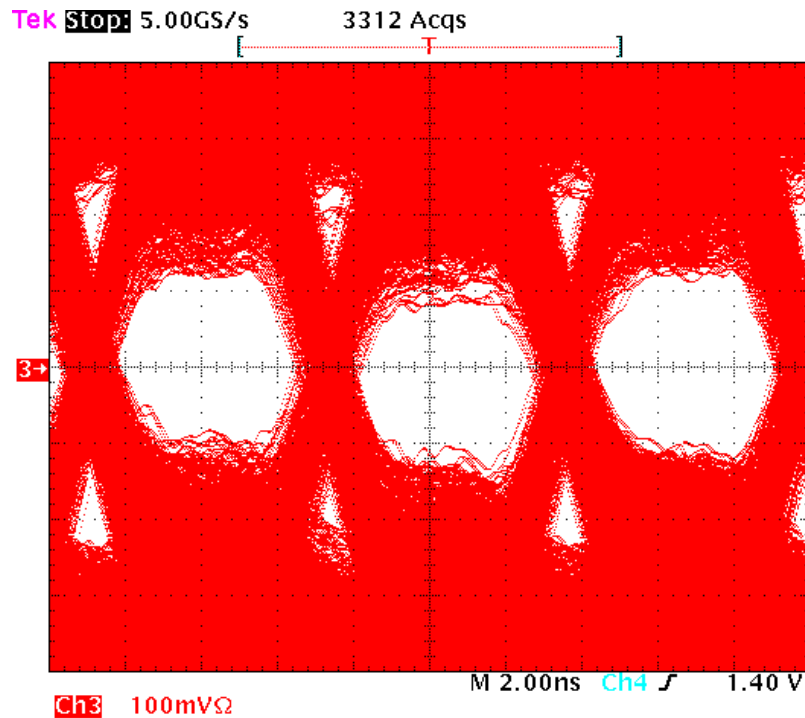
25% Precomp

Fig 231

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 39

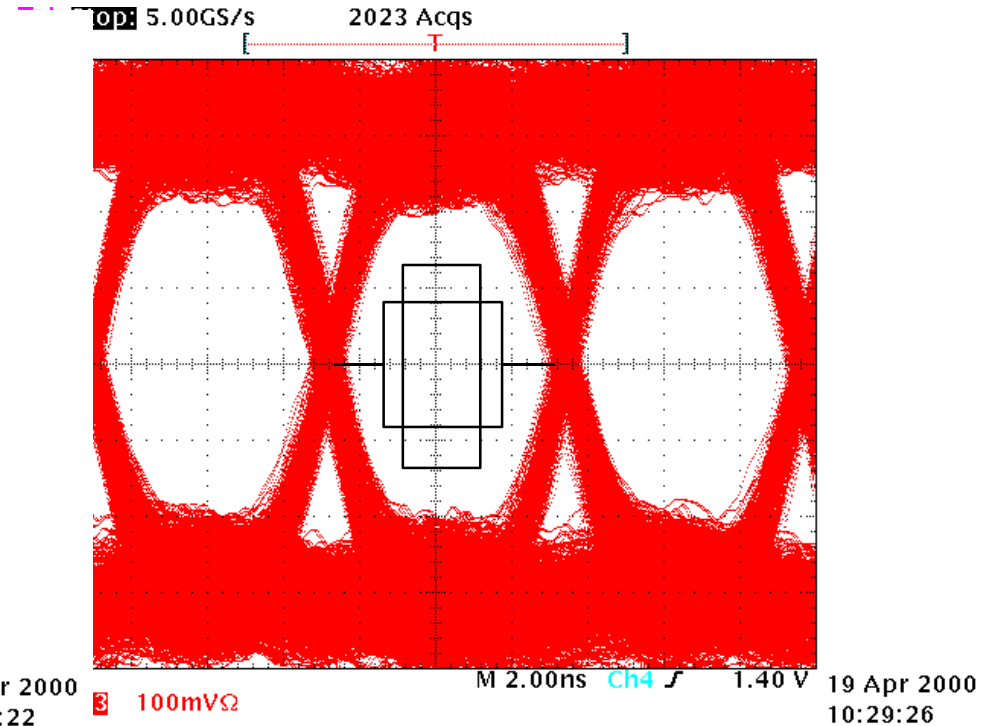
Seagate 320BM Backplane - 12M Round, 25% Precomp

Data bit Random Pattern, Xtalk worst case adjacent bits, Seagate 320BM Backplane (New design), HP81110 tests, 25% cutback \ 12m Round - 15 loads, Data taken on DB9, Slot 1 (nearest cable)



Disk 44 file 6

No Precomp



Disk 44 file 7

25% Precomp

Fig 232

T10 SCSI - 4/4/26/00
320 precomp rev j.ppt - - 40