

EXHIBIT A Part 2

Marvell's Litigation-Inspired Liability Defenses Are Objectively Baseless



Marvell's lone invalidity defense is baseless

Dr. Proakis's ignored secondary considerations, including
Worstell's 1997 email



Searching ...

```
>> To: Ed Skalko, Dave West, Bob Cronch
>> CC:
>> From: Glen Worstell
>> Date: 04/15/97 04:08:54 PM
>> Subject: DSSC Patent Proposal
>>
>> Hi Ed,
>>
>> I have reviewed the DSSC "Correlation Sensitive Adaptive Sequence Detector"
>> patent proposal.
>> I would like to wade through the math before filling out the Invention
>> Evaluation form, but so far
>> it looks very interesting.
>>
>> A couple of years ago I did some work on a Viterbi detector modification to
>> account for noise correlation. This
>> invention is related, but goes beyond my work and is probably more
>> interesting. I also know of work at
>> UCSD and IBM which is related, but again as far as I know the DSSC work is
>> different enough to warrant investigation.
>>
>> An important issue is the circuit complexity required. I'll try to look at
>> that, too.
>>
>> Expect a better evaluation next week.
>>
>> cheers,
>>
>> Glen.
```

P-161

**Marvell's Litigation-Inspired Liability Defenses
Are Objectively Baseless**

Infringement

Marvell's Litigation-Inspired Liability Defenses Are Objectively Baseless



Marvell's infringement defense is baseless

PM = BM = Branches = Trellis

If there are
Path Metrics

... then there are
Branch Metrics

If there are
Branch Metrics

... then there are
Branches

If there are
Branches

... then there is
a Trellis

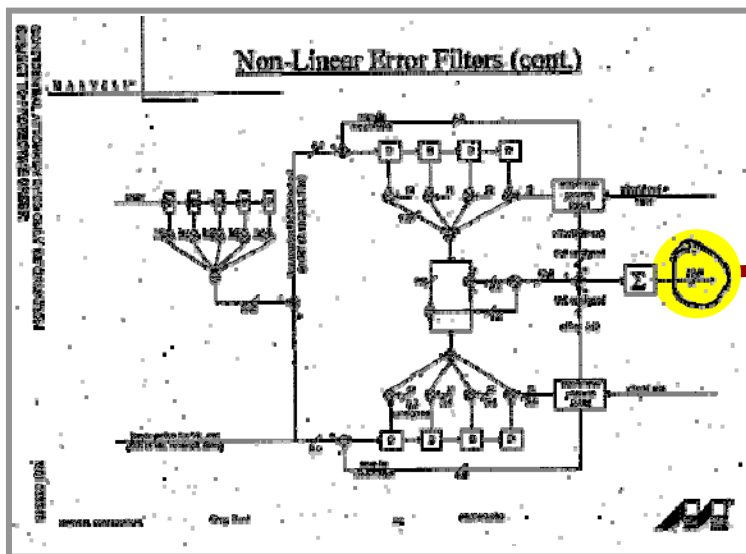
Marvell's Litigation-Inspired Liability Defenses Are Objectively Baseless



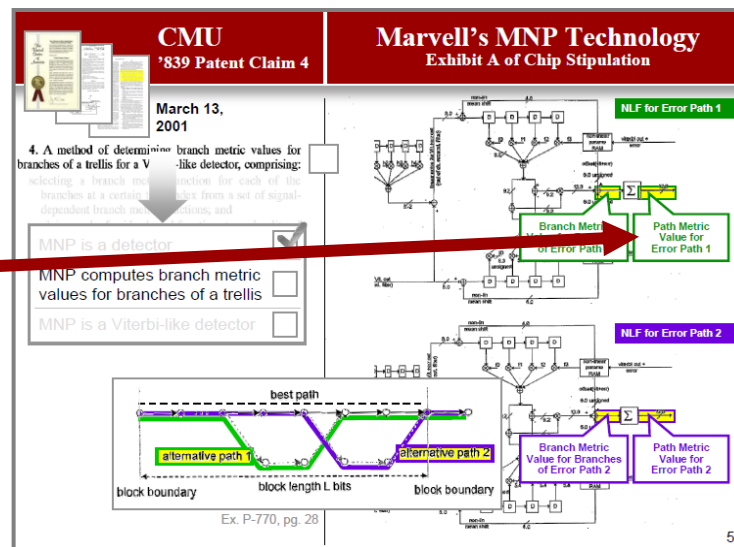
Marvell's infringement defense is baseless

Dr. Blahut *admitted* that Marvell's MNP computes "*path metrics*" and computes the differences between "*branch metrics*"

- Dr. Blahut *admitted* that in his prior testimony he agreed that the MNP computed a "*path metric*" at the same place identified by Dr. McLaughlin



Blahut Report at 59



P-Demo 7 at 59

Marvell's Litigation-Inspired Liability Defenses Are Objectively Baseless



Marvell's infringement defense is baseless

Dr. Blahut *admitted* that Marvell's MNP computes "*path metrics*" and computes the differences between "*branch metrics*"

- Dr. Blahut *knew* what his "*path metric*" admission meant – when first confronted about it he tried to claim it was a "*typographical error*"

Q. Right. What you wrote here in your report is, process up to 20 events per code word, and again compute the path metrics. That's what you wrote.

A. You're looking at a sentence with a grammatic or a typographical error. It says clearly, the difference between one and two.

Marvell's Litigation-Inspired Liability Defenses Are Objectively Baseless



Marvell's infringement defense is baseless

Dr. Blahut *admitted* that Marvell's MNP computes "*path metrics*" and computes the differences between "*branch metrics*"

- On redirect, Dr. Blahut even *admitted* that the MNP computes the difference between "*branch metrics*"

The MNP calculates the difference in path metrics. It calculates the difference in branch metrics. Were I to accept the premise even that there are branches and paths in the NLV, and the difference between two things, is not the thing.

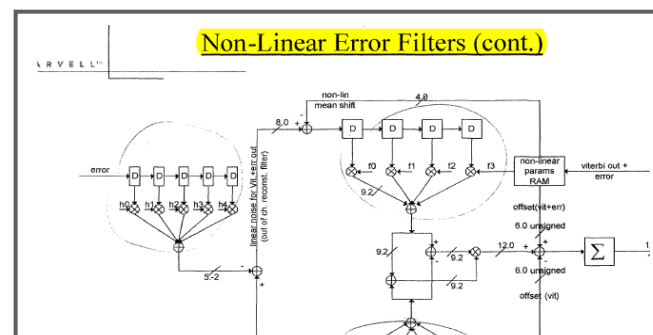
12/13/12 Tr. at 288:20-23

Marvell's Litigation-Inspired Liability Defenses Are Objectively Baseless



Marvell's infringement defense is baseless

Marvell's "**official**" and "**accurate**" documents flatly **contradict** its claim that the MNP post-processor does not compute "**branch metric values**"



Non-Linear Error Filters

- Processes up to two error events per codeword utilizing non-linear metric
- Just as linear counterpart, **Non-Linear Error Filter computes**

$$\sum_{\text{all branches by an error event}} \text{offset} [\text{BM}(\text{viterbi} + \text{error path}) - \text{BM}(\text{viterbi path})]$$

using non-linear channel information

Q And that sigma sign is the sum, a summation sign.
 A Yes.
 Q And it says all branches, right?
 A Yes.
 Q And it says something here, BM, right?
 A Right.
 Q "EM" stands for branch metric, doesn't it, sir?
 A Correct.

Marvell's Litigation-Inspired Liability Defenses Are Objectively Baseless



Marvell's infringement defense is baseless

Marvell's own documents show the **"trellis," "branch metrics"** and **"path metrics"** in the MNP post-processor

Media Noise Post-Processor

- ▶ First detector -- LVT
- ▶ **MNP**
 - Linear Filter Bank -- screens possible errors based on LVT decision and provides error event candidate
 - **NLF block -- processes the nonlinear noise**
 - Correction Block -- modifies NRZ data if needed
 - Estimation block -- estimates nonlinear parameters

Marvel Confidential 27

P-770 at 27-29

Error Event Candidate Screening

▶ Error event = Detected data – True data

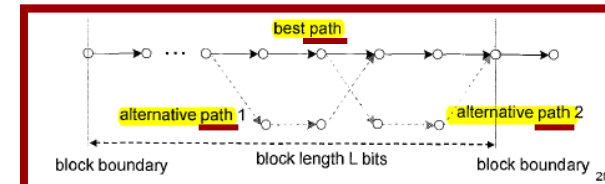
True data	0 0 0 0 1 1 1	True data	0 0 0 0 1 1 1
Detected	0 0 0 1 1 1 1	Detected	0 0 0 1 0 1 1
Error event	0 0 0 + 0 0 0	Error event	0 0 0 + - 0 0

▶ With a given block length L bits, Linear Filter Bank search for a few alternative paths that support error events in a pre-defined list.

Alternative paths have PM closest to the best path.

- The error event list includes +, +-, ++, etc.

- Parity information is also used if available, for both best path and alternative paths.



Nonlinear Processing and Correction in MNP

▶ After error event screening, available paths are

- Linear best path
- Alternative paths

▶ **For each of the above paths, calculate the nonlinear BMs and PMs**

▶ **Select the path with smallest nonlinear PM as the nonlinear best path**

- Parity information is also considered if available

▶ If nonlinear best path ≠ linear best path, correction is made.

Marvell's Litigation-Inspired Liability Defenses Are Objectively Baseless



Marvell's infringement defense is baseless

Preliminary infringement contentions completely undercut Marvell's claim of objective reasonableness

- In its PICs, Marvell *admitted* that the MNP post-processor computed *branch metric values*

Marvell's MNP implements an advanced post-Viterbi algorithm. Starting with the best Viterbi path identified by the Viterbi detector, the MNP identifies a few alternative paths having path metrics closest to the path metric of that best Viterbi path. The MNP achieves this by identifying a few, but not all, potential error events that could have occurred to the best Viterbi path. The alternative paths contain branches that are affected by those identified error events. See Marvell Media Noise Processor (MNP) at 5, MSI 033313; Marvell C5575M/C7500M Media Noise Detector Design Review at 21, MSI 033367; Marvell 88C7500M v. 2.0 Specifications at 11-8, MSI 030314. The MNP then uses non-linear branch metrics to calculate the total path cost of the identified alternative paths and the path originally selected by the linear Viterbi block. Thus, at any given time index, a few, but not all, of the branches metrics are calculated.

Dkt. 793-1 at 11-12 (App. C at 7)

Marvell's Litigation-Inspired Liability Defenses Are Objectively Baseless



Marvell's infringement defense is baseless

Marvell's NLD Application Note and the sworn testimony of its 30(b)(6) witness flatly *contradicts* its "pre-processor" argument

Burd Tr. 491-492



CMU '839 Patent Claim 4

March 13, 2001

4. A method of determining branch metric values for branches of a trellis for a Viterbi-like detector, comprising: selecting a branch metric function for each of the branches at a certain time index from a set of signal-dependent branch metric functions; and applying each of said selected functions to a plurality of signal samples to determine the metric value corresponding to the branch for which the applied branch metric function was selected, wherein each sample corresponds to a different sampling time instant.

Entire circuit, including NLF filter, Computes Branch Metric Value

Marvell's NLD Technology

THE WITNESS: Well, it is a statement of the fact that now each whitening filter is associated with a branch metric. Right? And so in fact noise whitening filter is a parameter of branch metric function, okay, as opposed to previous architecture where we had a single noise whitening filter which was kind of built into the FIR filter or, in prior design, it was a standalone filter.

Burd Tr. at 49

Nonlinear Viterbi Detector Application Note - C8830

Hongxin Song
December 13, 2006

I. Introduction

The nonlinear Viterbi detector (NLD) in C8830 R1.0 differs from the Viterbi detector (VTD) in that NLD has noise whitening built into the branch metric calculation.

THE WITNESS: Well, it is a statement of the fact that now each whitening filter is associated with a branch metric. Right? And so in fact noise whitening filter is a parameter of branch metric function, okay, as opposed to previous architecture where we had a single noise whitening filter which was kind of built into the FIR filter or, in prior design, it was a standalone filter.

detector (VTD) in that NLD has noise whitening built into the branch metric (BM) calculation. NLD effectively integrates previously media noise processor (MNP) into

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Marvell's infringement defense is baseless

Preliminary infringement contentions completely undercut Marvell's claim of objective reasonableness

- In PICs, Marvell *admitted* that that NLD computed *branch metric values* and used "*different parameter values*" (and the term "pre-processor" appears nowhere)

Further, when calculating the branch metrics, the NLD does not "select[] a branch metric function for each of the branches". Rather, at any given time index, the NLD applies the same branch metric function, with the same set of function parameters but possibly different parameter values, rather than applying different branch metric functions with different function parameters.

Dkt. 456-10 at 252 (p. 3 of App. D)

Marvell's Litigation-Inspired Liability Defenses Are Objectively Baseless



Marvell's infringement defense is baseless

Marvell's '585 patent

- Marvell's reliance on *King Instrument Corp. v. Otari Corp.*, 767 F.2d 853, 867 (Fed. Cir. 1985) is misplaced



“An infringer does not fall within *King Instruments*' good faith belief scenario if, as is the case here, the patent was issued after the infringing activities.”

Advanced Cardiovascular Sys., Inc. v. Medtronic, Inc., C-95-03577 DLJ, 2000 WL 34334583, at *5 (N.D. Cal. Mar. 31, 2000)



“[Defendant] attempts to bring itself within the parameters of *King Instrument*... [Defendant's] patent, however, did not issue until almost two years **after** [Defendant's] **infringement began**. In any event, that someone has a patent right to exclude others from making the invention claimed in his patent does not mean that his invention cannot infringe claims of another's patent broad enough to encompass, i.e., to 'dominate,' his invention.”

Rolls Royce Ltd. v. GTE Valeron Corp., 800 F.2d 1101, 1110 n. 9 (Fed. Cir. 1986)

Marvell's Litigation-Inspired Liability Defenses Are Objectively Baseless



Marvell's infringement defense is baseless

Dr. Wu's *contradictory* testimony about Marvell's '585 patent was not "manufactured"

Q Now, am I right, sir, that -- in your opinion that Marvell's MNP does Claim 1 of this patent?

A Marvell MNP what?

Q Does Claim 1 of the patent.

A Yeah, the Claim 1 of patent covers MNP, and it also covers the connection with the Viterbi.

Q Okay, let's go to Claim 1.

A Yes.

Q It's Column -- I think it's Column 5 or 7. Do you have it? Blow up Claim 1.

Okay. Now, Claim 1 requires a signal detector, right?

A Yes.

Q And the detector includes all three of these things,

right?

A Right.

Q And one of the things that the detector includes is a non-linear post-processor, right?

A Correct.

Q That computes path metrics.

A Right. This is a pattern to teach other engineers in the field how to implement something close to us, but it doesn't teach our exact implementation where we only compute --

MR. GREENSWAG: Side bar, Your Honor.

12/12/12 Tr. at 66:13 – 67:12

- Marvell cannot hide behind a patent that it claims *both does and does not* cover the MNP

Marvell's Litigation-Inspired Liability Defenses Are Objectively Baseless



Marvell's infringement defense is baseless

The Silvus email (DX-189)

- At trial, Dr. Blahut ignored this email
- The objectively reasonable defendant would have read the file histories
- The “intrinsic evidence” (the file histories) contradicts Marvell’s (mis)reading of this email

¹³At the claim construction hearing, the Court entered into evidence Marvell Exhibit A, the 10/8/2001 email from Dr. Kavcic to Gregory Silvus. (Docket No. 106-1). The Court gives no weight to this email as it is of the type of extrinsic evidence that the PHOSITA could not be aware of since it is a personal email and it post-dates the filing and issuance of the ‘839 Patent. Furthermore, the email is contradicted by the intrinsic evidence, as discussed below, therefore even if the PHOSITA were aware of the contents of the email, it would be disregarded in favor of the conclusions that would be drawn from the intrinsic record.

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Marvell's infringement defense is baseless

Group II Claims:

- Infringement is determined on a claim-by-claim basis



Defense to one claim does not mean there is an objectively reasonable defense to other claims

Amazon.com, Inc. v. Barnesandnoble.com, Inc., 239 F.3d 1343, 1351 (Fed. Cir. 2001)



Otherwise, willfulness would be precluded unless the patent holder prevails on every claim

See DataQuill Ltd. v. High Tech Computer Co., 887 F. Supp. 2d 999, 1019 (S.D. Cal. 2011)

**Compelling Evidence Supports the
Jury's Finding of Subjective Willfulness**

Compelling Evidence Supports the Jury's Finding of Subjective Willfulness

The Jury's Verdict

E. QUESTIONS AS TO WILLFULNESS

19. Did Marvell have actual knowledge of the '180 Patent prior to commencement of this lawsuit (in other words, prior to March 6, 2009)?

YES NO

*If you answered NO, skip Questions #20 and #21 (leave them blank) and move to Question #22. Otherwise, proceed to Question #20.

20. If Marvell learned of the '180 Patent and prior to commencement of this lawsuit, did Marvell have an objectively reasonable defense to CMU's claim of infringement?

"Yes" finds for Marvell and "No" finds for CMU.

YES NO

*If you answered NO, proceed to Question #21. Otherwise, skip Question #21 (leave it blank) and move to Question #22.

21. If Marvell learned of the '180 Patent, do you find clear and convincing evidence that Marvell actually knew or should have known that its actions would infringe Claim 2 of the '180 Patent?

"Yes" finds for CMU and "No" finds for Marvell.

YES NO

Proceed to Question #22.

22. Did Marvell have actual knowledge of the '839 Patent prior to commencement of this lawsuit (in other words, prior to March 6, 2009)?

YES NO

*If you answered NO, skip the remaining questions (leave them blank) and move to the instructions on Page 9. Otherwise, proceed to Question #23.

23. If Marvell learned of the '839 Patent and prior to commencement of this lawsuit, did Marvell have an objectively reasonable defense to CMU's claim of infringement?

"Yes" finds for Marvell and "No" finds for CMU.

YES NO

*If you answered NO, proceed to Question #24. Otherwise, skip the remaining question (leave it blank) and move to the instructions on Page 9.

24. If Marvell learned of the '839 Patent, do you find clear and convincing evidence that Marvell actually knew or should have known that its actions would infringe Claim 4 of the '839 Patent?

"Yes" finds for CMU and "No" finds for Marvell.

YES NO

*Please proceed to the instructions on Page 9.

Compelling Evidence Supports the Jury's Finding of Subjective Willfulness

The law on **JMOL** favors CMU



JMOL “should be granted only if, viewing the evidence in the **light most favorable** to the nonmovant and giving it the advantage of **every fair and reasonable inference**, there is insufficient evidence from which a jury reasonably could find liability.”

Lightening Lube, Inc. v. Witco Corp., 4 F.3d 1153, 1166 (3d Cir. 1993)



JMOL “should be granted only if, viewing all the evidence which has been tendered and should have been admitted in the light most favorable to the moving party opposing the motion, **no jury could decide in that party's favor.**”

Walter v. Holiday Inns, Inc., 985 F.2d 1232, 1238 (3d Cir. 1993)



In considering a JMOL motion, the Court “**may not weigh the evidence**, determine the credibility of witnesses, or substitute [its] version of the facts for the jury's version.”

Agrizap, Inc. v. Woodstream Corp., 520 F.3d 1337, 1342 (Fed. Cir. 2008)
(quoting *Lightning Lube, Inc. v. Witco Corp.* 4 F.3d 1153, 1166 (3d Cir. 1993))

Compelling Evidence Supports the Jury's Finding of Subjective Willfulness

The law on Motions for a **New Trial** favors CMU



“When the motion for a new trial is based on the claim that the verdict is against the clear weight of the evidence, the ***Court’s discretion is limited***:... that is, where a ***miscarriage of justice*** would result if the verdict were to stand.”

See Jackson v. City of Pittsburgh, No. 07-111, 2011 WL 3443951, at *8 (W.D. Pa. Aug. 8, 2011)



“The Court must not substitute its own judgment of the facts and ***assessment of the witnesses’ credibility*** for the jury’s.”

See Jackson v. City of Pittsburgh, No. 07-111, 2011 WL 3443951, at *8 (W.D. Pa. Aug. 8, 2011); *Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1203 (Fed. Cir. 2010) (quoting *Williamson v. Consol. Rail Corp.*, 926 F.2d 1344, 1353 (3d Cir. 1991))