



Proposed Rx Test Specification

IEEE 802.3ap

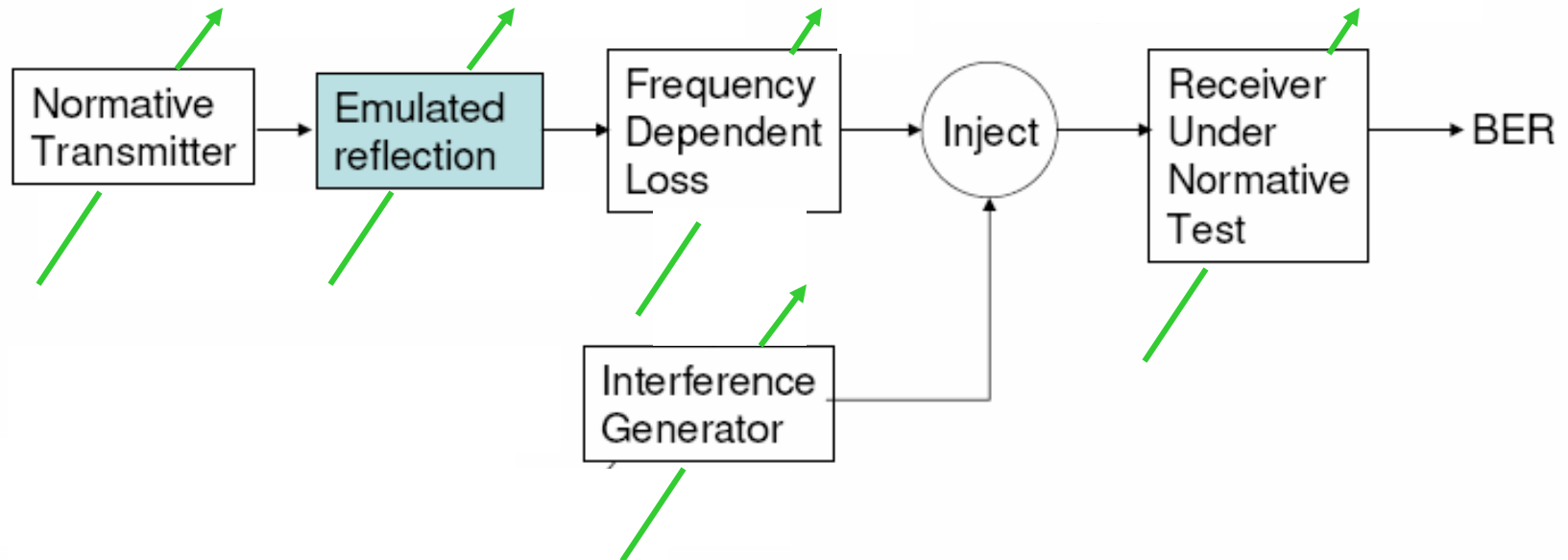
21 June 2005

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Objectives

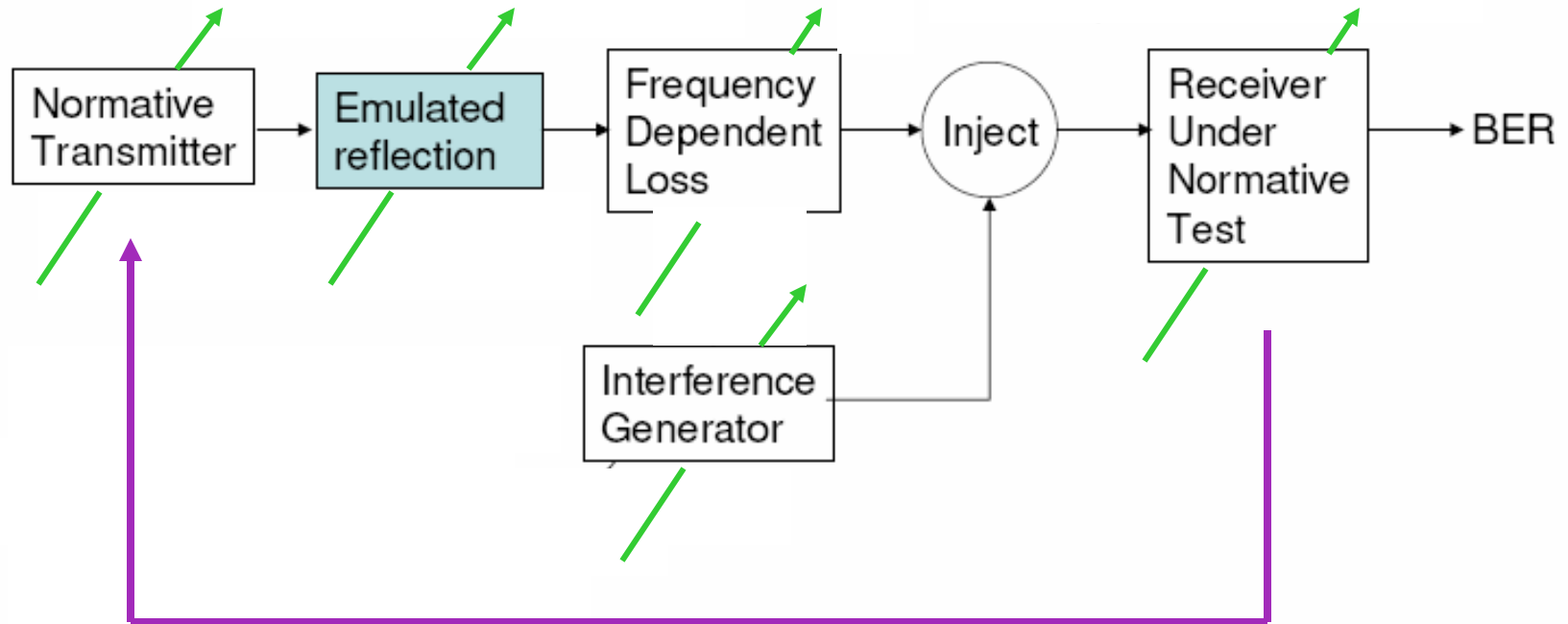
- Propose a Method of Rx Testing
 - Based on 3 “impairment generator” blocks in Palkert_01_0505
- Run Analyses
 - Stat Eye
 - IEEE Channel Library, Package Models
- Propose Rx Test Specifications
 - Realizable Silicon
 - Modest Performance
- Show which channels served by Test Specs

Review Palkert_01_0505



5 blocks all of which can vary

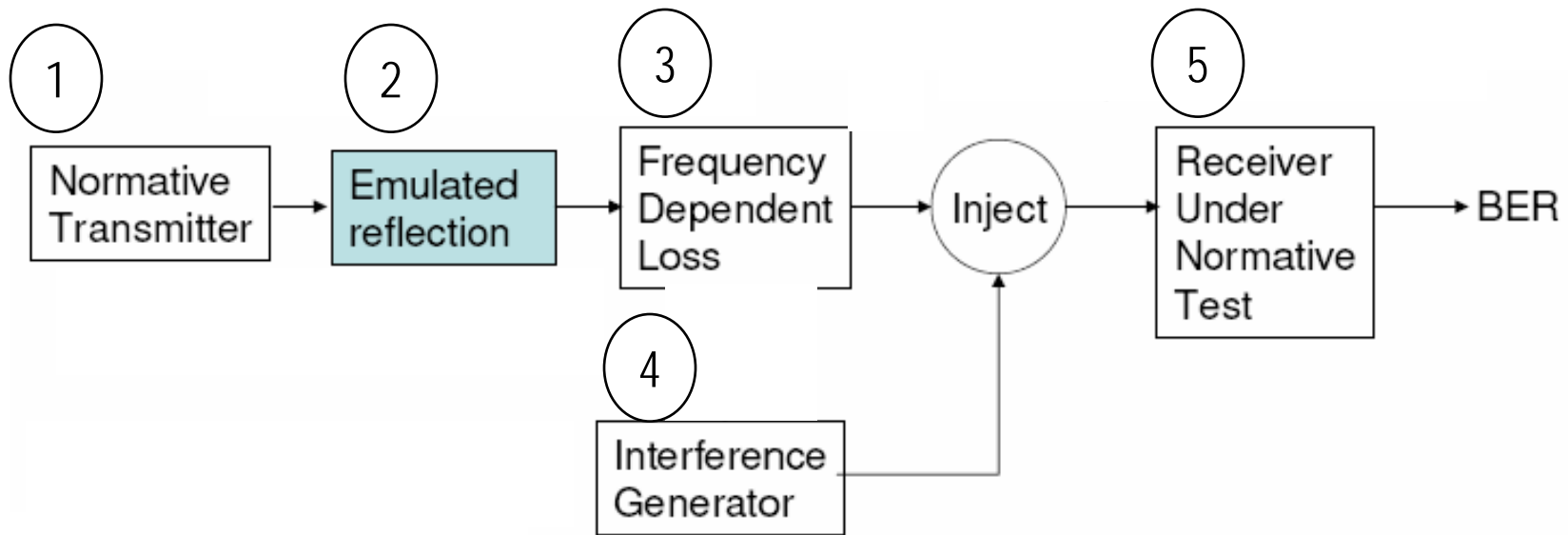
Normal (Non-Test) Operation



Feedback Path for FFE / DFE Adjust

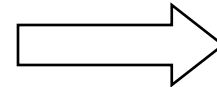
This is not convenient for Testing !

Proposed (Open Loop) Method



Choose a set of Limited Variation in 1, 2, 3, and 4.

If, with every combination of 1, 2, 3, 4, there is some setting of Rx that gives acceptable BER



Receiver Passes !

Blocks 1, 2, 3, 4 Values Loosely Tied to Each

Other

Choosing the Values

- Attenuation
 - Low, Middle, High values at 5 GHz
- Reflection
 - High, Middle, Low values (opposite of attenuation)
- Interference
 - Low, Middle High values (maybe linked to attenuation)
 - Currently work being done by Charles Moore, others.
- Tx Settings
 - 4 values?? (maybe linked to attenuation to limit the range of the DFE)

Stat Eye

- Channels Examined
 - All Tyco
 - Intel
 - Molex 1
 - Other Molex similar
- Conditions
 - See slides following summary
- Believed first Stat Eye Analyses that use Mellitz Package

Stat Eye Results

Molex	OK?
j2k2g2h2	Yes
Intel	
B1	Yes
B12	No
B20	No
M1	No
M12	No
M20	No
T1	No
T12	No
Tyco	
Case 1	Yes
Case 2	Yes
Case 3	Yes
Case 4	Yes
Case 5	Yes
Case 6	No
Case 7	Yes

Table of Values (The Numbers)

Scenario	Tx Settings	Attenuation			Reflection			Interference		
		Low	Med	High	Low	Med	High	Low	Med	High
(What Are We Trying to Get To With These Settings)	Tx(1)	TBD								
	Tx(2)	TBD								
	Tx(3)	TBD								
	Tx(4)	TBD								

TBD

Which Channels Served by These Rx Specs

Summary

Stat Eye Conditions 1

- S params
 - Through
 - Crosstalk
 - 3 Tyco
 - 8 Intel
 - 7 Molex
 - Mellitz 'cap-like' package (both ends)

Stat Eye Conditions 2

- Equalization
 - 3 tap FFE (1 precursor, 1 postcursor)
 - 5 tap DFE
- Jitter
 - Rx DJ 0.15 UIpp
 - Rx RJ 0.01 UIpp RMS
 - Tx DJ 0.15 UIpp
 - Tx RJ 0.01 UIpp RMS

Stat Eye Conditions 3

- Amplitudes
 - Tx 800 mV ppd
 - Rx threshold 15 mV ppd
 - 1e-12 probability contour
- Filters
 - Tx – twopole at (7.5 GHz, 7.5 GHz)
 - Rx – none
- Bit Rate – 10.3125e9