

# **Commit request 4p5\_2: Incorrect location of cursor sample**

Adam Healey

Broadcom Inc.

IEEE P802.3dj COM ad hoc

21 May 2024 (r0)

# Commit request 4p5\_2 (1 of 2)

- The location of the cursor sample (or the number of channel pre-cursor samples  $d_h$ ), is not always correctly identified in functions MMSE() and get\_PSDs().

## Proposed changes to MMSE()

## MMSE() in COM 4.5

Proposed changes to MMSE()	MMSE() in COM 4.5
<pre> 7   fb=param.fb; 8   R_LM=param.R_LM; 9 end 10  % h=sbr(mod(cursor_i,M)+1:end-mod(cursor_i,M)); % align to sample point 11  % h=sbr(mod(cursor_i - 1,M)+1:end); % align to sample point % from Tobey (Pei-Rong Li 02/29/2024) 12  % h=reshape(h,1,[]); % make row vectors 13  % h=[ h(1:floor(length(h)/M)*M) ]; 14  % h= [h zeros(1,num_ui*M-length(h)) ]; 15  % h=h(1:M:end);% resample 16  % N=length(h); 17  % dw=param.RxFFE_cmx ; % equalizer precursor tapsindx(1:N)=(1:N)-5-1; 18  % dh=(cursor_i-mod(cursor_i,M))/M ; % precursor taps in h 19  samp_idx = (mod(cursor_i-1, M)+1):M:length(sbr); 20  dh = find(samp_idx == cursor_i)-1; 21  dw = param.RxFFE_cmx; 22  h = reshape(sbr(samp_idx), 1, []); % Ensure row vector. 23  h(end+1:num_ui) = 0; 24  h = h(1:num_ui); % Ensure length is num_ui. 25  N = length(h); % Parameter used in subsequent expressions. 26  if param.N_bg == 0 27     Nw= param.RxFFE_cmx+1+param.RxFFE_cpx; % total number of equalizer taps 28     bmax=param.bmax; </pre>	<pre> [6 unmodified lines hidden] .   fb=param.fb; .   R_LM=param.R_LM; .   end x h=sbr(mod(cursor_i,M)+1:end-mod(cursor_i,M)); % align to sample point x h=sbr(mod(cursor_i - 1,M)+1:end); % align to sample point % from Tobey (Pei-Rong Li 02/29/2024) x h=reshape(h,1,[]); % make row vectors x h=[ h(1:floor(length(h)/M)*M) ]; x h= [h zeros(1,num_ui*M-length(h)) ]; x h=h(1:M:end);% resample x N=length(h); x dw=param.RxFFE_cmx ; % equalizer precursor tapsindx(1:N)=(1:N)-5-1; x dh=(cursor_i-mod(cursor_i,M))/M ; % precursor taps in h &lt; &lt; &lt; &lt; &lt; &lt; &lt; . if param.N_bg == 0 .   Nw= param.RxFFE_cmx+1+param.RxFFE_cpx; % total number of equalizer taps .   bmax=param.bmax; </pre>

# Commit request 4p5\_2 (2 of 2)

## Proposed changes to get\_PSDs()

## get\_PSDs() in COM 4.5

<a href="#">212</a>	%%	.	%%	<a href="#">163</a>
<a href="#">213</a>	%% Hisi to be included in MLSE rho eq 178a-28	.	%% Hisi to be included in MLSE rho eq 178a-28	<a href="#">164</a>
<a href="#">214</a>	if OP.COMPUTE_COM	.	if OP.COMPUTE_COM	<a href="#">165</a>
<a href="#">215</a>	%% Hisi psd h include CTLE(CFT), TxFFE, and RxFFE but not sigma_X2	.	%% Hisi psd h include CTLE(CFT), TxFFE, and RxFFE but not sigma_X2	<a href="#">166</a>
<a href="#">216</a>	% sampling_offset = mod(cursor_i-1, M)+1; % Commit request 4p4_6, healey_3dj_COM_01_240416	x	sampling_offset = mod(cursor_i-1, M)+1; % Commit request 4p4_6, healey_3dj_COM_01_240416	<a href="#">167</a>
<a href="#">217</a>	% hisi=h(sampling_offset:M:end);	x	hisi=h(sampling_offset:M:end);	<a href="#">168</a>
<a href="#">218</a>	% hisi=hisi(:).';	x	hisi=hisi(:).';	<a href="#">169</a>
<a href="#">219</a>	% if num_ui>length(hisi)	x	if num_ui>length(hisi)	<a href="#">170</a>
<a href="#">220</a>	% hisi=[hisi zeros(1,num_ui-length(hisi))];	x	hisi=[hisi zeros(1,num_ui-length(hisi))];	<a href="#">171</a>
<a href="#">221</a>	% else	x	else	<a href="#">172</a>
<a href="#">222</a>	% hisi=hisi(1:num_ui);	x	hisi=hisi(1:num_ui);	<a href="#">173</a>
<a href="#">223</a>	% end	x	end	<a href="#">174</a>
<a href="#">224</a>	% cursor_n=floor(cursor_i/M)+1;	x	cursor_n=floor(cursor_i/M)+1;	<a href="#">175</a>
<a href="#">225</a>	samp_idx = (mod(cursor_i-1, M)+1):M:length(h);	<		-
<a href="#">226</a>	cursor_n = find(samp_idx == cursor_i);	<		-
<a href="#">227</a>	hisi = h(samp_idx);	<		-
<a href="#">228</a>	hisi(end+1:num_ui) = 0;	<		-
<a href="#">229</a>	hisi = reshape(hisi(1:num_ui), 1, []);	<		-
<a href="#">230</a>	for ii=1:length(hisi)	.	for ii=1:length(hisi)	<a href="#">176</a>