

EQ Optimization: Sample Phase Local Search

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Summary

- ❑ Apply Local Search to Sample Phase sweep in the same way that Local Search is applied to other Equalization settings
- ❑ This results in a significant runtime improvement since most sample phase values will be skipped after the first full sampling phase sweep finishes

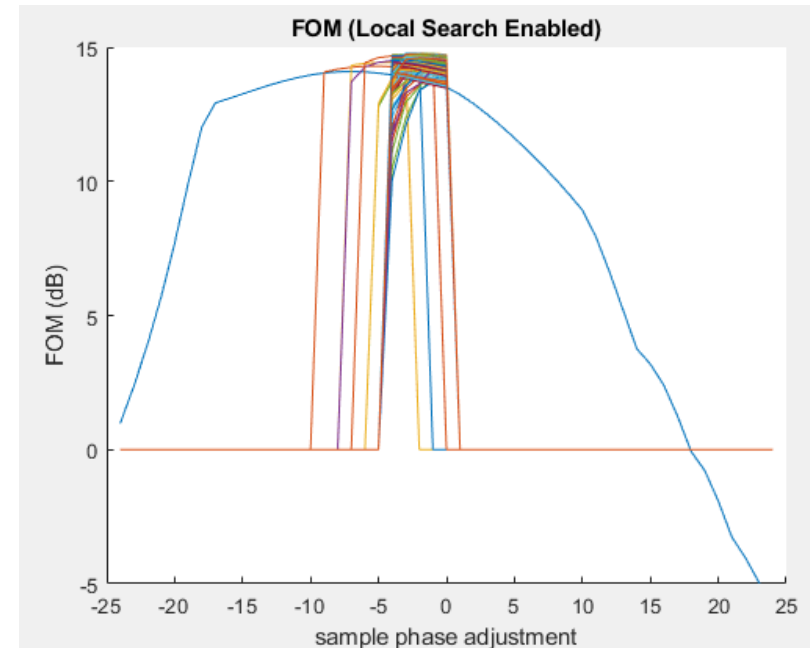
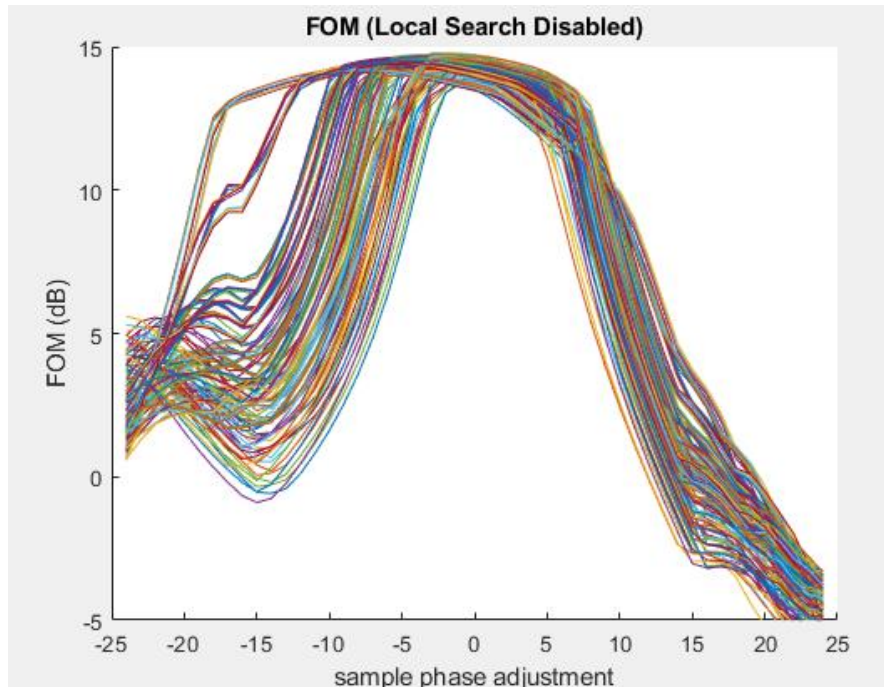
Code Change

- ❑ The block below is inserted during the sampling phase sweep
- ❑ It requires:
 - Valid FOM has been found
 - Local Search is enabled
 - One full sweep of sampling phase has finished
- ❑ If the current sample phase is far away from the best sample phase, don't run it. Far away is defined by the Local Search parameter, which is usually set to 2
- ❑ Given the optimal assumption that the best sample phase stays locked at the initial best sample phase, only 5 values will be observed. In many cases, the default is [-24 24]. So this requires around 10x less loops.

```
%% Local Search for +/- itick sweep
itick_cases=itick_cases+1;
if ~isinf(BEST.FOM) && param.LOCAL_SEARCH > 0 && ~box_search && max([THIS.g_LP_index THIS.ctle_index TK]) > 1
    if abs(THIS.itick-BEST.itick) > param.LOCAL_SEARCH
        itick_skips = itick_skips+1;
        continue;
    end
end
end
```

Optimal sampling phase vs. EQ value

- ❑ Each line represents the FOM output vs. sample phase value for a particular EQ setting
- ❑ The left plot is a full sweep. Note that irrespective of EQ setting, the best sample phase moves very little
- ❑ The right plot is with Local Search = 2. After the first sample phase sweep, most values are thrown out
- ❑ The same optimal EQ is achieved on either case. Although this may not always be true.
- ❑ Total runtime was 23 seconds vs. 8 seconds.



Thank You!