Minutes of 1241 Standards Committee Meeting in Tucson, Arizona USA – February 19, 2009

Minutes Prepared by: Solomon Max – 2005-March-12


Attendance: (Some arrived at different times during the day)
Steve Tilden LTX-Credence, Tucson, AZ USA (Chairman)          s.j.tilden@ieee.org
Pasquale Daponte University of Sannio, Italy                        daponte@unisannio.it
Sol Max LTX-Credence Corp., Norwood, MA USA (Secretary)         sol_max@ltx.com
Tom Linnenbrink Hittite, Colorado Springs, CO USA                linnenbrink@hittite.com
Niclas Björsell, University of Gävle, Gävle, Sweden             niclas.bjorsell@hig.se
Jerry Blair Bechtel Nevada, Las Vegas, NV USA                    blairjj@earthlink.net

AGENDA

IEEE-STD-1241 ADC STANDARDS WORKING COMMITTEE

TUCSON, AZ

19 FEBRUARY 2009, 13:00 – 17:00

13:00 – 13:15 Opening remarks          Tilden
13:15 – 13:30 Review & approval of minutes from last meeting    Max
13:30 – 13:45 Discussion of PAR timetable & plans     Tilden
13:45 – 15:00 Assignments review       Max/All
15:00 - 15:15 Break                  All
15:15 – 17:00 Discussion of status of the draft standard     All
17:00 Adjourn meeting until Friday AM     Tilden

20 FEBRUARY 2009, 09:00 – 17:00

09:00 – 12:00 Continuation of draft review       All
12:00 - 13:00 Break For Lunch                  All
13:00 – 15:00 Continuation of draft review     All
15:00 – 15:15 Break                          All
15:15 – 16:30 Continuation of draft review, make assignments All
16:30 - 17:00 Assignment review              Max
17:00 Adjourn meeting                  Tilden
Log of Meeting

The changes that were reviewed before the meeting were accepted. These included;

All formatting changes were accepted.

Jerry Blair was recorded in the draft as the editor.

The text describing Figure 2 was accepted.

Extensive changes in Clause 5.0 were accepted (Sinewave testing and fitting)
Extensive changes in Clause 5.1 were accepted (Curve fitting test method)
Extensive changes in Clause 5.2 were accepted (Comment on three-parameter versus four-parameter sine fit).
Extensive changes in Clause 5.3 were accepted (Choice of frequencies and record length)
Extensive changes in Clause 5.4 were accepted (Fine scale frequency selection)
Extensive changes in Clause 5.5 were accepted (Medium-scale frequency selection)
Extensive changes in Clause 5.6 were accepted (Coarse-scale frequency selection)
Extensive changes in Clause 5.7 were accepted (Special considerations with very long record lengths)
Extensive changes in Clause 5.8 were accepted (Selecting signal amplitudes)
Extensive changes in Clause 5.9 were accepted (Presenting sinewave data)
Extensive changes in Clause 5.10 were accepted (Impurities of sinewave sources)
Extensive changes in Clause 5.11 were accepted (Estimating impurity problems from sine-fitting results)
Extensive changes in Clause 5.12 were accepted (Measuring and controlling sinewave impurities)
Extensive changes in Clause 8.7.1.2 were accepted (Measuring and controlling sinewave impurities)
Changes in Clause 8.7.1.2 were accepted (Noncoherent sampling test method 2 (sine fitting))
Extensive changes in Clause 8.7.2.1 were accepted (Coherent sampling SFDR test method)
Extensive changes in Clause 8.7.2.2 were accepted (Noncoherent SFDR sampling test method)
Changes in Clause 8.8 were accepted (Intermodulation distortion)
Changes in Clause 8.8.1 were accepted (Two-tone intermodulation test method)
Table 3 (Maximum NPR for Gaussian and uniform noise sources) was repaired
Clause 9.1.4 was eliminated (Normalized signal-to-noise measures)
Extensive changes in Clause 9.2 were accepted (Signal-to-noise ratio (SNR))
Extensive changes in Clause 9.2.1 were accepted (Coherent sampling test method for SNR)
Extensive changes in Clause 9.2.2 were accepted (Noncoherent sampling test
method 1 (windowed DFT))
Extensive changes in Clause 9.2.3 were accepted (Noncoherent sampling test
method 2 (sine fitting))

Clause 9.4 was reworded as;

9.4 Random noise

Random noise is a nondeterministic fluctuation in the output of an ADC, typically
described by its frequency spectrum and its amplitude statistical properties. For the
measurements in this clause, the following noise characteristics are assumed: The
amplitude probability density function is stationary and has zero mean. (A nonzero
mean is the same as offset error.) Also the noise is assumed to be additive. Random
noise test results should include a description of the impedance at the input to the ADC.

Extensive changes in Clause 13 were accepted (Aperture effects)
Extensive changes in Clause 13.1 were accepted (Aperture duration). It was
recommended that a figure be generated to illustrate the Clause. The figure
will be generated by Solomon Max.
Extensive changes in Annex A were accepted (ADC Architectures)
Extensive changes in A.1 were accepted (Integrating ADCs)
Extensive changes in A.2 were accepted (Flash ADCs)
Extensive changes in A.3 were accepted (Pipelined and Subranging ADCs)
Extensive changes in A.4 were accepted (SAR ADCs)
Extensive changes in A.5 were accepted (Σ-Δ ADCs)
Extensive changes in A.6 were accepted (Time-Interleaved Data ADCs)
Extensive changes in A.7 were accepted (Folding and Interpolating ADCs)
The block diagrams in Annex A were accepted

Extensive changes in Annex B were accepted (Sine wave fitting algorithms). All of the
occurrences of $\omega$ will be changed to the symbol $f$.

Annex C was generated, but it still requires further review.

Niclas Bjorsell will investigate the multi-tone IM (Clause 8.8.2) to determine whether
it should be removed from the draft.

Annex A should have the figures connected to the text.

The topic of aperture uncertainty (Clause 13.3.1) will be examined by Steve Tilden
and Richard Liggiero.

Clause 14.6.1.1 (Power consumption test method) is followed by Clause 15.6.2
(Power supply voltage effects). The numbering should be examined by Jerry
Blair to make it consistent with other clause numbering.
<table>
<thead>
<tr>
<th>Task #</th>
<th>Clause</th>
<th>Editor</th>
<th>Reviewer</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>13.1</td>
<td>Solomon Max</td>
<td>Jerry Blair</td>
<td>A Figure will be generated to illustrate the concept</td>
</tr>
<tr>
<td>2</td>
<td>8.8.2</td>
<td>Niclas Bjorsell</td>
<td>Jerry Blair</td>
<td>Should the clause on multi-tone IM remain in the standard</td>
</tr>
<tr>
<td>3</td>
<td>Annex A</td>
<td>Jerry Blair</td>
<td>Solomon Max</td>
<td>Edit the annex so as to keep the appropriate figures with the appropriate texts</td>
</tr>
<tr>
<td>4</td>
<td>13.3.1</td>
<td>Steve Tilden and Richard Liggiero</td>
<td>Jerry Blair</td>
<td>Aperture uncertainty will be reviewed and new text generated</td>
</tr>
<tr>
<td>5</td>
<td>Annex C</td>
<td>ALL</td>
<td>ALL</td>
<td>All committee members to review &amp; comment via e-mail to <a href="mailto:stds-1241@ieee.org">stds-1241@ieee.org</a></td>
</tr>
<tr>
<td>6</td>
<td>14.6.1.1</td>
<td>Jerry Blair</td>
<td>Self</td>
<td>Fix numbering, also 15.6.2</td>
</tr>
</tbody>
</table>