Far East Journal of Electronics and Communications

Published Online: January 2016
http://dx.doi.org/10.17654/EC016010199
Volume 16, Number 1, 2016, Pages 199-201 **ISSN: 0973-7006**

ERRATUM: ANALYSIS OF A CONTROLLER-BASED ALL-DIGITAL PHASE-LOCKED LOOP

[Published in Volume 15, Number 1 (2015)
Pages 57-73 of the
Far East Journal of Electronics and Communications]

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This paper was published online in July, 2015 [Volume 15, Number 1, Pages 57-73]. In this paper, we performed modeling and analysis of a controller-based all-digital phase-locked loop (ADPLL). However, we made a mistake in the calculation of the step response of the ADPLL to validate the model using behavior-level simulation.

The following sentences in the pages 69, 70, 71 should be corrected and Figure 5 should be replaced as follows.

Page 69, line 1: "… with tuning range of 393MHz to 418MHz."

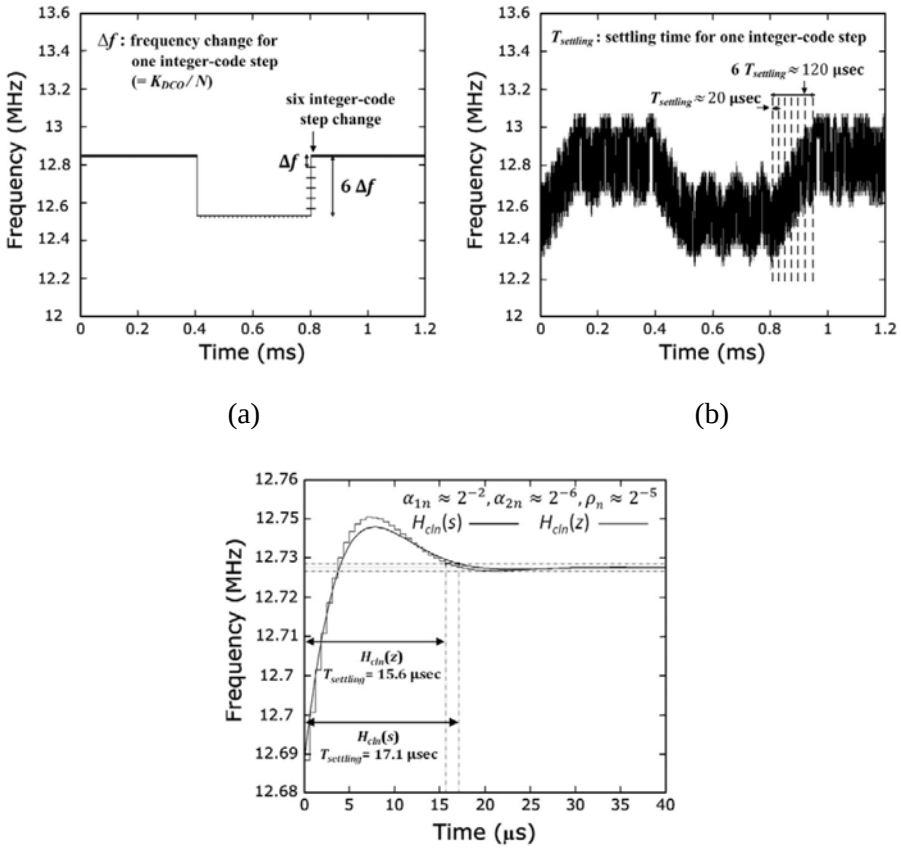
Page 69, line 10: "The DCO integer and fractional bit code changes for a power-up condition are shown in Figures 4(a) and 4(b) as decimal value variations."

Page 70, line 1: "… code with time to reduce the phase error is shown in Figure 4(c) as decimal variation. Figure 5(a) shows the frequency step of the reference clock corresponding to a step change of six DCO integer-code, which can show enough change in ADPLL output frequency over frequency variation. By considering this large frequency step as combination of small one integer-code step, the small-signal approximation used in equations (3) and (4) can still be validated. As shown in Figure 5(b), the output frequency settling to a step change of one integer-code is around 20μsec. The K_{DCO} from simulations is about 1.6MHz/code change $(= 3.2\pi \text{ Mrps/code change})$, and the K_{PPF+PI} is $2\pi/64$ for the 64-phase…"

Page 71, line 7: "$\ldots \rho_n \approx 2^{-5}$".

Page 71, line 10: "… settling times of 15.6μsec and 17.1μsec which are close to the settling time simulated using the behavior-level simulation $(T_{\text{setting}} \approx 20\mu\text{sec})$".

The corrected Figure 5 is shown as below.



(a) (b)

(c)

Figure 5. (a) Frequency step of the reference clock, (b) ADPLL output frequency response with frequency division $(N = 32)$ for the reference frequency step, and (c) step responses of $H_{cln}(z)$ and $H_{cln}(s)$ with the extracted simulation parameters.

The correction does not affect the other parts. We express our apology for confusing the readers and the editors.