

MEMORANDUM

DATE: January 24, 2019

TO: SQZ team
FROM: Daniel Sigg, Marc Pirello
SUBJECT: Modifications to the Voltage Controlled Crystal Oscillator
Refer to: E1900017-v1

This document lists the modifications to the Voltage Controlled Crystal Oscillator Source board, [D1700017-v2](#), to update it to revision 3, see also [E1800041-v1](#). The chassis assembly drawing is [D1600500](#).

Board modifications

Change 1 (update to revision 2):

Adding a notch at 40 kHz to cancel a resonant feature in OCXO (500-30558 and 500-31474) tune.

For a revision 1 PCB, this circuit is patched onto the location of C15.

C56 → 15 nF
L1 → 1 mH
R63 → 49.9 Ω

Change 2:

Replace the OCXO with an AT cut crystal, Wenzel P/N 500-31474, to increase the tuning range.

U15 → OCXO, Wenzel 500-31474

Change 3:

Remove the odd gain in the input path.

R9 → 4.99 k Ω
R28 → 49.9 k Ω
R39 → 24.9 k Ω

Change 4:

Remove the 1.6 Hz/40 Hz pole-zero pair at the input to the OCXO.

R25 → NL
R30 → NL
R20 → 100 Ω
C46 → NL
C47 → NL

Change 5:

Remove the corresponding compensation in the readback path.

R43 → NL
C60 → NL
C47 → NL
R66 → 499 Ω

BOM (for 4 units, changes 1 through 5):

Qty	Item	Distributor	Description
4	500-31474	Wenzel	U15; OCXO
10	1812LS-105XJLC	Coilcraft	L1; 1mH
10	81-GRM3195C1H153FA1D	Mouser	C56; 15nF, 1%
10	P49.9DACT-ND	Digi-Key	R63; 49.9 Ω
10	P100DACT-ND	Digi-Key	R20; 100 Ω
10	P499DACT-ND	Digi-Key	R66; 499 Ω
10	P4.99KDACT-ND	Digi-Key	R9; 4.99 kΩ
10	P49.9KDACT-ND	Digi-Key	R28; 49.9 kΩ
10	P24.9KDACT-ND	Digi-Key	R39; 24.9 kΩ