

MEMORANDUM

DATE: September 4, 2013

TO: ISC team
FROM: Daniel Sigg
SUBJECT: Modifications to the RF sources
Refer to: LIGO- E1300698-v1

The RF sources for the ALS frequencies are partially wrong. This is part due to an initial error and part due to the fact that the third interferometer has been converted into a straight configuration. Since the IMC lengths are all identical now, so should the RF frequencies.

Change all ALS frequencies to the nominal H1/L1 frequencies. This is what it should be:

H1X/L1X: $f=24.407079$ MHz,
H1Y/L1Y: $f=24.482125$ MHz,
H2X: $f=24.440707$ MHz, and
H2Y: $f=24.515730$ MHz.

And here is what we have:

S/N	Freq. (MHz)	OCXO	Description	New (MHz)	Location
S1000575	24.407079	500-14927	H1 EX	—	H1 EX
S1000576	24.407079	500-14927	LHO spare	—	LHO spare
S1000577	24.407079	500-14927	L1 EX	—	L1 EX
S1000578	24.407079	500-14927	LLO spare	—	LLO spare
S1000579	24.515730	500-14927	H2 EY	24.407079	H2 EX
S1000580	24.515730	500-14927	LHO spare	79.200000	L1 corner
S1000581	24.440707	500-14927	H1 EY	24.482125	H1 EY
S1000582	24.440707	500-14927	LHO spare	79.200000	H2 corner
S1000583	24.440707	500-14927	L1 EY	24.482125	L1 EY
S1000584	24.440707	500-14927	LLO spare	24.482125	LLO spare
S1000585	24.482125	500-14927	H2 EX	—	H2 EY
S1000586	24.482125	500-14927	LHO spare	—	LHO spare

Change the H2 IMC frequency to the same as H1/L1:

S/N	Freq. (MHz)	OCXO	Description	New (MHz)	Location
S1000569	24.078360	500-14927	H1 IMC corner	—	H1 IMC corner
S1000570	24.078360	500-14927	LHO spare	—	LHO spare
S1000571	24.078360	500-14927	L1 IMC corner	—	L1 IMC corner
S1000572	24.078360	500-14927	LLO spare	—	LLO spare
S1000573	22.993090	500-14927	H2 IMC corner	24.078360	H2 IMC corner
S1000574	22.993090	500-14927	LHO spare	79.200000	H1 corner

These changes are covered by ECRs, [E1300697](#) and [E1300659](#).

There are no changes to the schematics.

Modifications to the RF source (D080702):

S/N: S1000581, S1000582, [S1000583](#), [S1000584](#), S1000585, S1000586, S1000579, S1000580, S1000573, S1000574

Open the chassis

De-cable and remove the magnetic shielded enclosure

Remove the oscillator board from the magnetic shielded enclosure

Change the OCXO

Reassemble the magnetic shielded enclosure

Reinstall and cable up the magnetic shielded enclosure

Retest using E1000059-v2, sections 13, 14, 17 and 18.

Modifications to the oscillator test box (D0902705):

S/N: S1103738, [S1103739](#)

Change 4th OCXO to 24.482125 MHz (from 24.440707 MHz)

Update label on front panel

S/N: S1103740

Change 2nd OCXO to 24.078360 MHz (from 22.993090 MHz)

Change 3rd OCXO to 24.407079 MHz (from 24.515730 MHz)

Update label on front panel