

Q&A from FCC on R4-30-900

1. Please update the internal photos exhibit to include photos of each side of every PCB and inside the duplexer units.

\*see revised internal photos

2. The FCC ID Label exhibit includes a statement required by FCC Pt. 15, modified to reflect compliance with Part 90. Please note that the 2 part statement only applies to Pt. 15 and not Pt. 90. This statement should be changed to reference Pt. 15 upon compliance with the requirements of Pt. 15.

\* see revised FCC ID label

3. The MPE calculation uses a maximum 9dBi Server antenna for determining the minimum safe distance. The Installation Manual uses an example on page 25/34 of a 10dBi antenna although there is no guidance regarding antenna selection or maximum antenna gains in the installation manual. If there is no guidance on antenna requirements then this must be addressed at the time of licensing. Please submit any antenna selection guidance provided to the installers.

\* see revised user manual

4. The RF test report indicates that TIA/EIA 603-1992 was used for measurements. Please note that the FCC now references newer versions of this standard. Please determine if the testing performed conforms to newer versions of the 603 standard and update the test report accordingly.

\*See revised report pages.

5. Page 70 of the RF Test Report references Part 22.917 for power limits. Page 73 references Part 22.355/24.235 for frequency stability. This application is being submitted for compliance with Part 90. Please update the test report to reference the correct FCC Rule parts for this application.

\* See revised report pages.

5a. Please note that the Operational Description document indicates that there is an optional Wireless Modem for remote controlling which is not covered in this application.

\* Wireless Modem is not covered in this application.

6. Additionally, the test report indicates that the Frequency Stability tests are not applicable. The Operational Description, Schematics and Block Diagram show that this device has frequency converters with Local Oscillators/VCO and mixers, even though there is no frequency

translation. Since this device does not have frequency generation/determining circuitry the frequency stability tests are applicable.

\*Please see followings:

The design of repeater is taking care of this aspect.

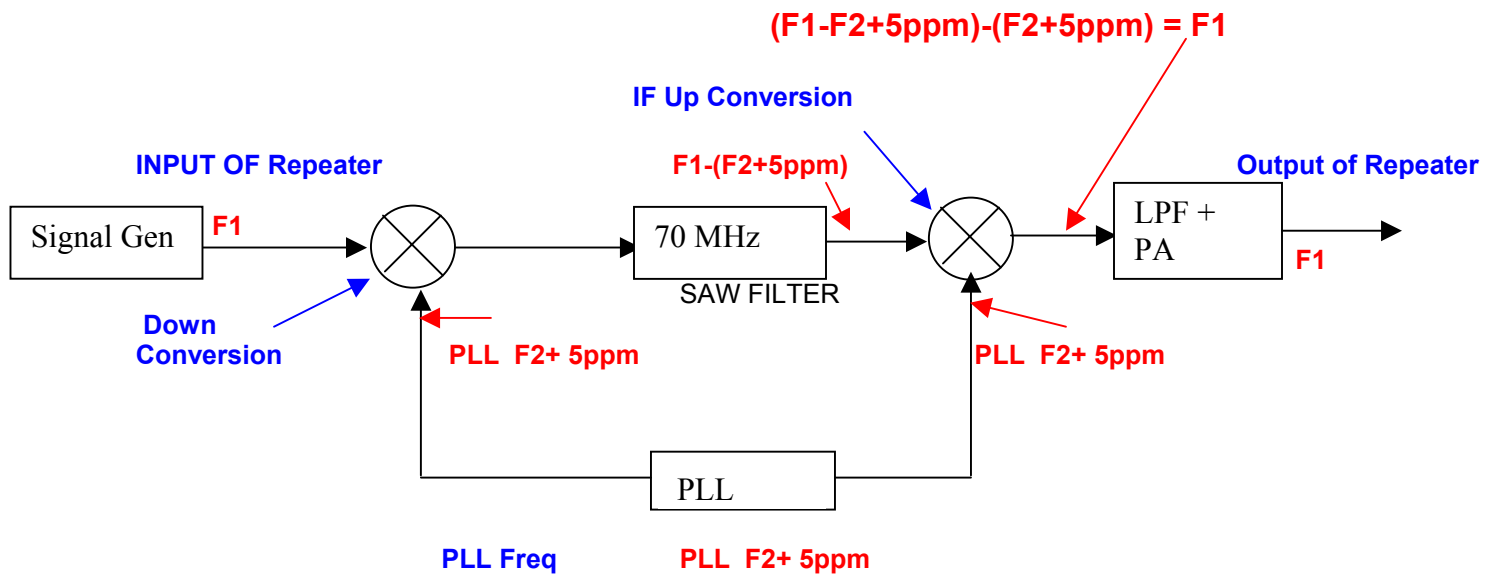
For example : If F-1 is the frequency of signal generator fed to repeater input. This frequency is down converted using PLL freq F-2 to get IF of 70 MHz which is filtered using 70 MHz SAW filter. Now same PLL frequency F-2 is again mixed with filtered 70 MHz signal to up-converted back to F-1.

Now if PLL frequency changes by +5 ppm due to change in temperature to +55 degree C

THERE WILL BE NO CHANGE AT THE OUTPUT OF REPEATER w.r.t INPUT signal. This is explained below using block diagram

## A) BLOCK DIAGRAM

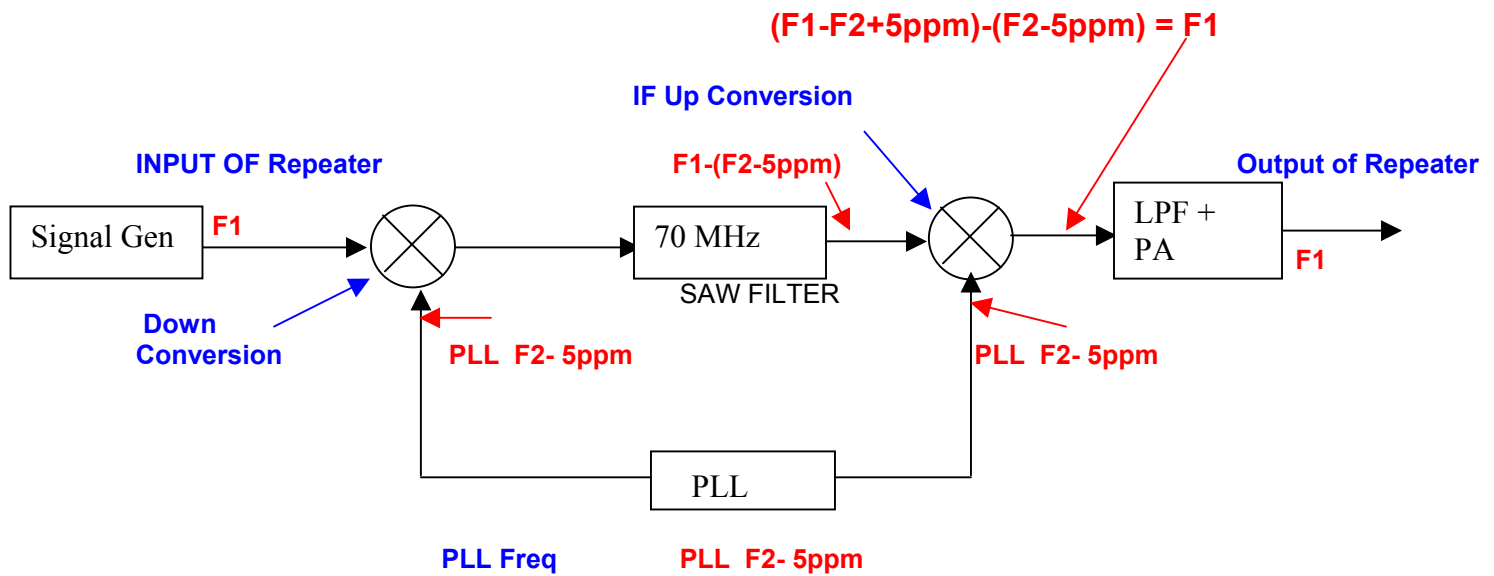
CASE-1 (@ temperature +55 deg C PLL frequency increased by +5ppm)



Here  $F_1 - F_2 = 70 \text{ MHz}$

## B) BLOCK DIAGRAM

CASE-2 (@ temperature -30 deg C the PLL frequency reduced by -5ppm)



Here  $F1 - F2 = 70 \text{ MHz}$   
**CONCLUSION :**

**AS PER THE DESIGN OF THE REPEATER , THERE IS NO CHANGE IN FREQUENCY AT OUTPUT OF REPEATER WITH RESPECT TO INPUT SIGNAL FREQUENCY EVEN THOUGH THE PLL FREQUENCY CHANGED BY +/- 5 ppm DUE TO TEMPERATURE VARIATION FROM -30 deg C to +55 deg C**