

**CCS Technical Documentation
RH-12/RH-28 Series Transceivers**

**6(b) – RF Troubleshooting
Instructions**

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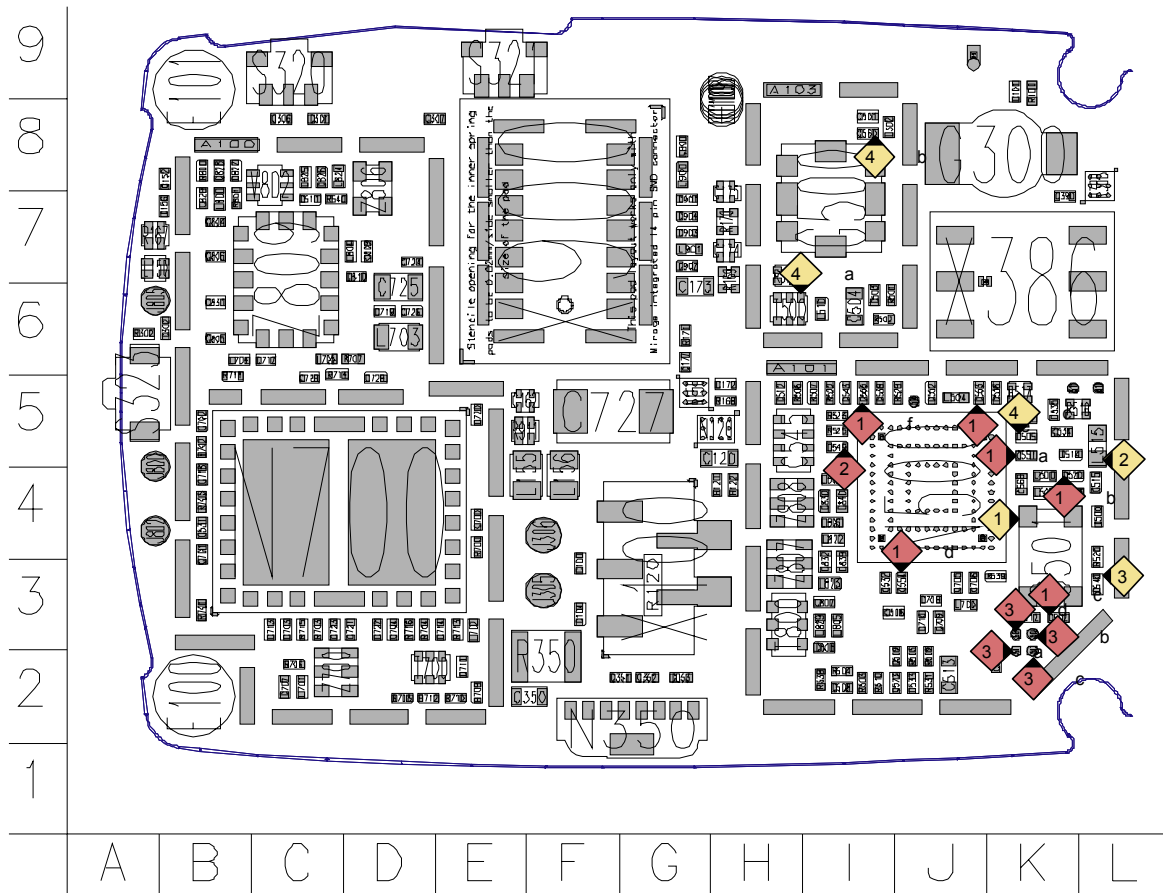
Introduction

This document is the troubleshooting guide for RH-12/RH-28. On the following pages you will find a step-by-step fault finding procedure and reference measurements at the relevant signal points.

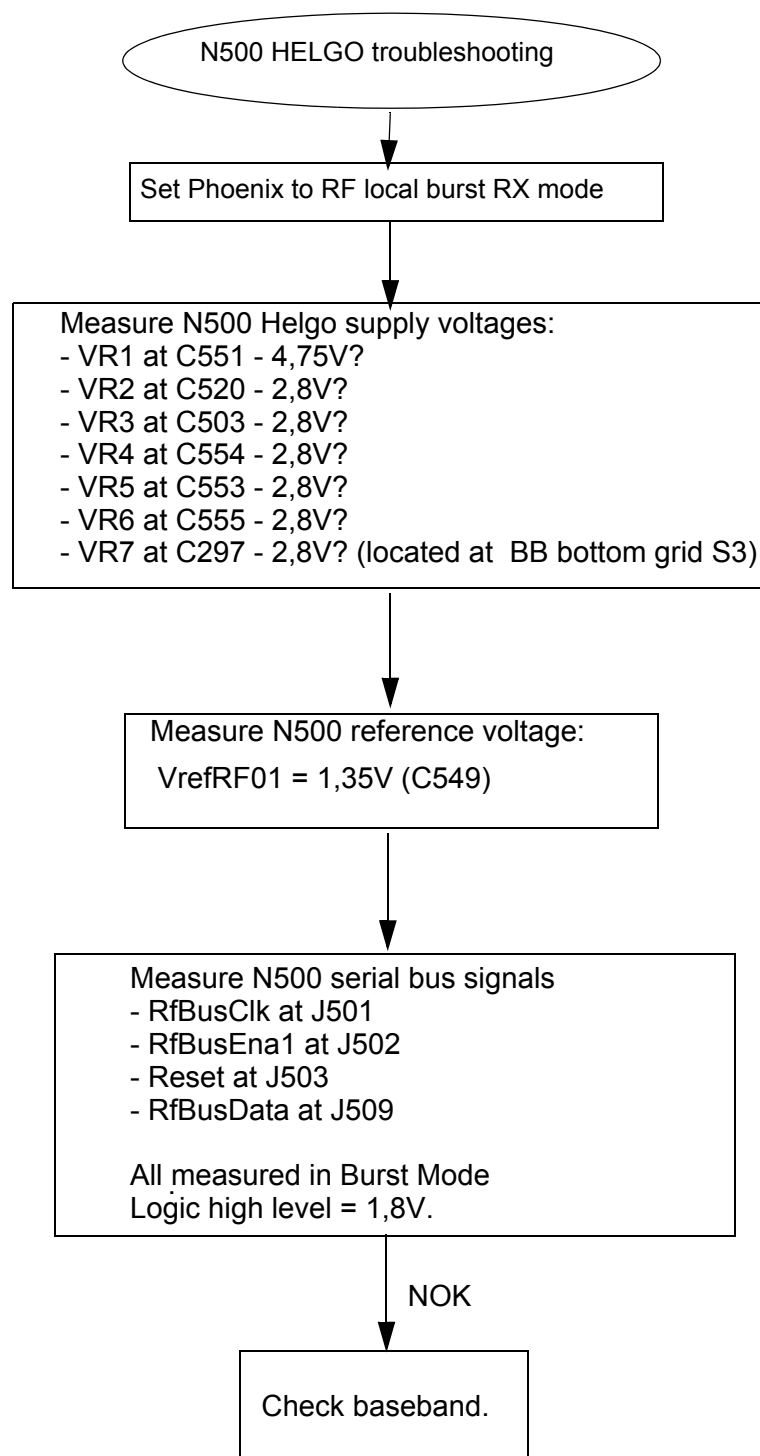
Notes on reference measurements

- LF & DC signals are measured with Textronix 100 MHz Scope (TDS3014) and P3010 13pF probe.
- RF signals are measured with R&S FSIQ 7GHz Spectrum Analyzer and Agilent resistive divider probe (10dB, 500ohm).
- Please be aware that the RF connector on service adaptor is leaking power (into air) and acts as noise source when probing on RX chain. In 1800 band the problem is most severe while there is no external LNA to amplify the signal above the noise level like in the 1900 band. In 900/850 band the leakage is not as high due to lower frequency.
- GSM SA settings: RBW=500kHz, VBW=500kHz.
- Bluetooth SA settings: RBW=2MHz, VBW=2MHz.
- All reference measurements were made on a RH-12 phone (GSM900). RH-28 (GSM850) results should be very similar.
- RF loss Module Repair Jig: 0.3dB (low bands), 0.4dB (high bands).
- RF loss RF Adaptor: 0.4dB (low band), 0.7dB (high bands).

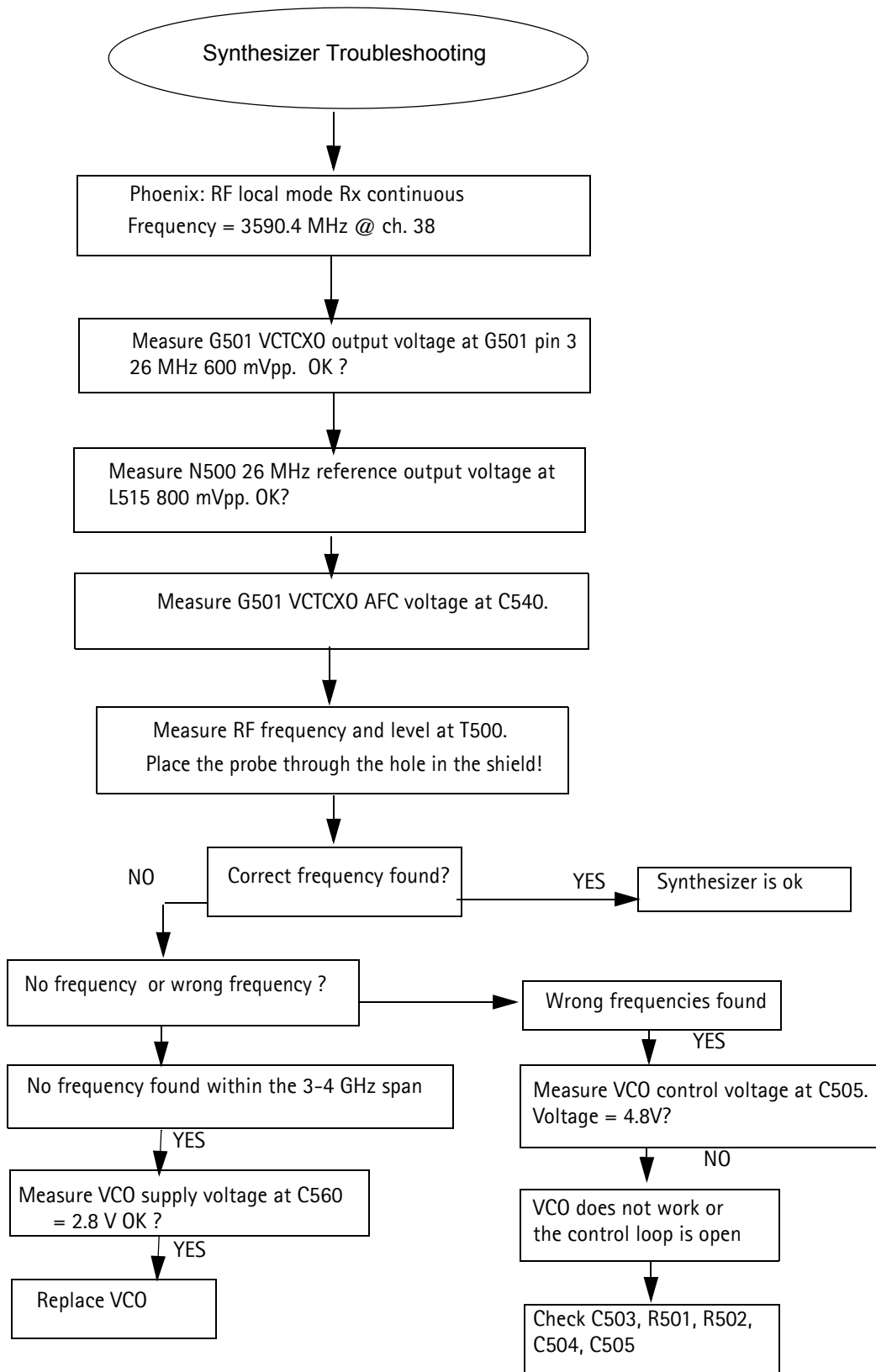
Helgo / Synthesizer Troubleshooting



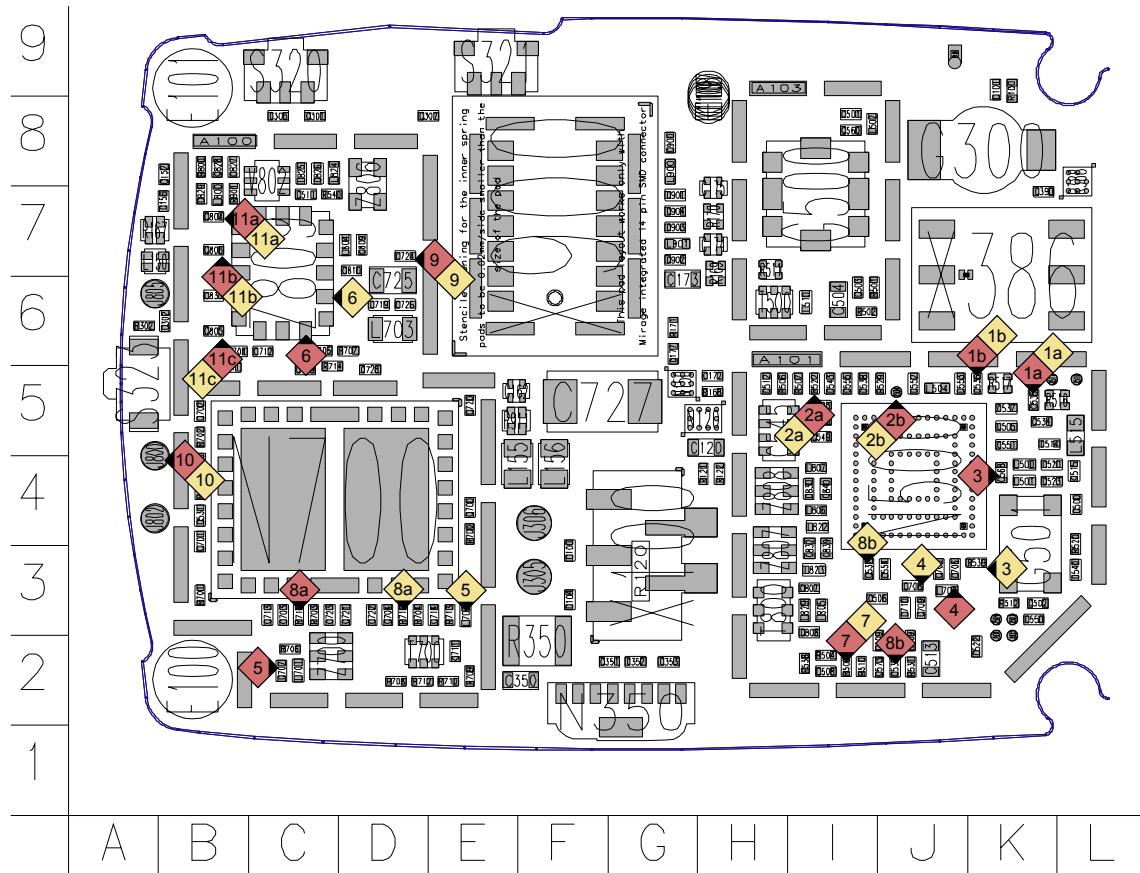
N500 Helgo troubleshooting



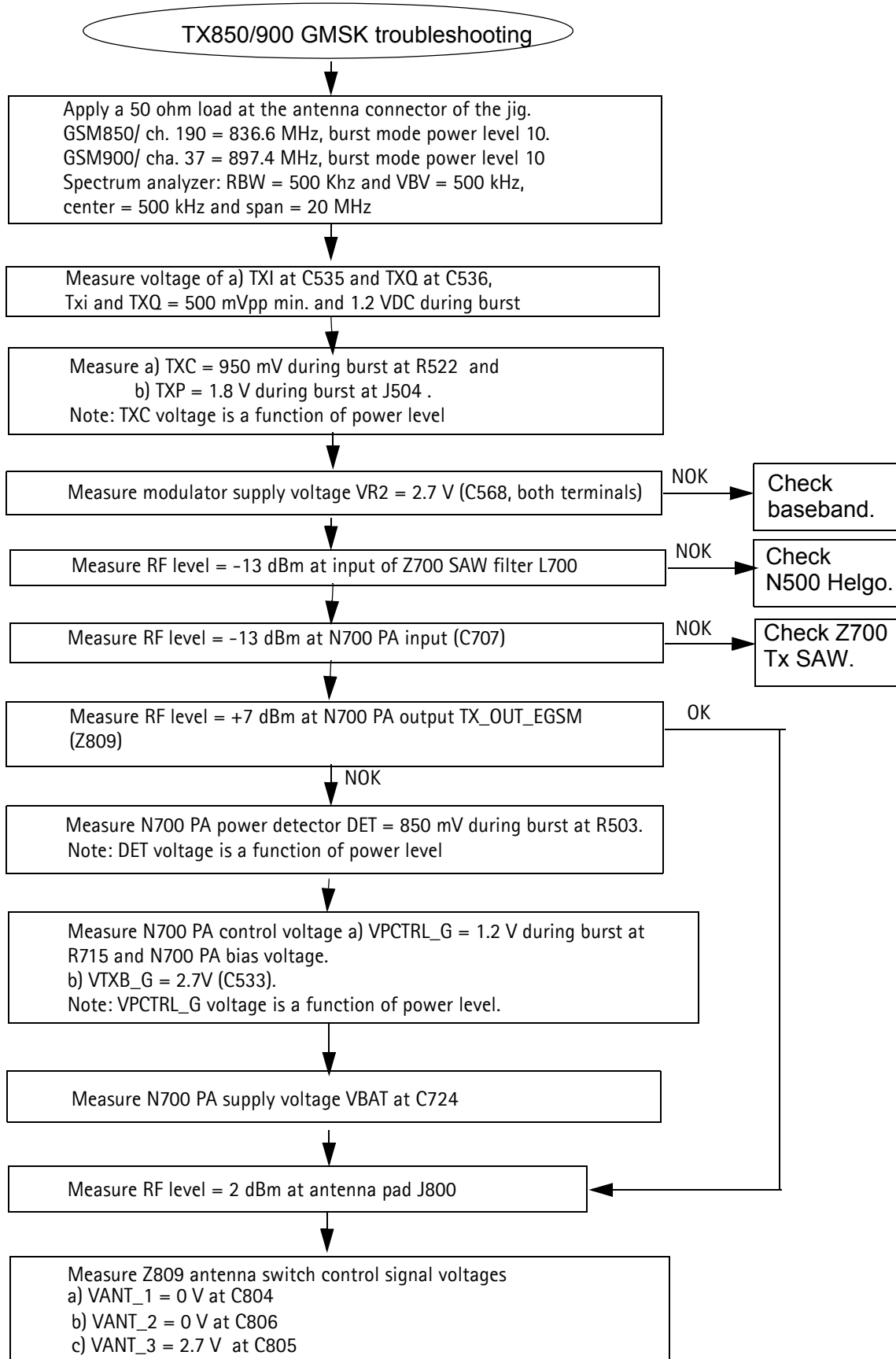
Synthesizer troubleshooting



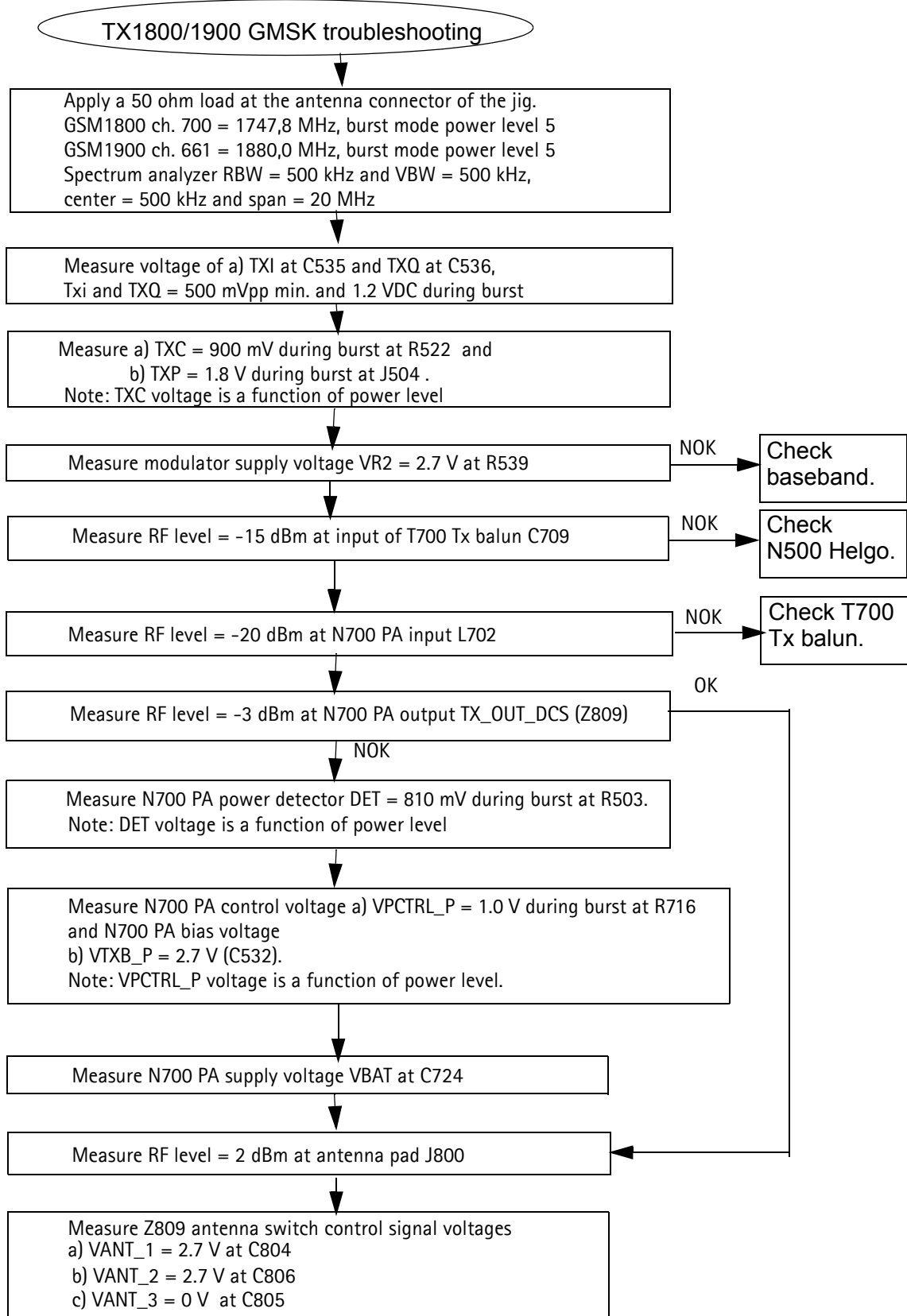
Tx Troubleshooting



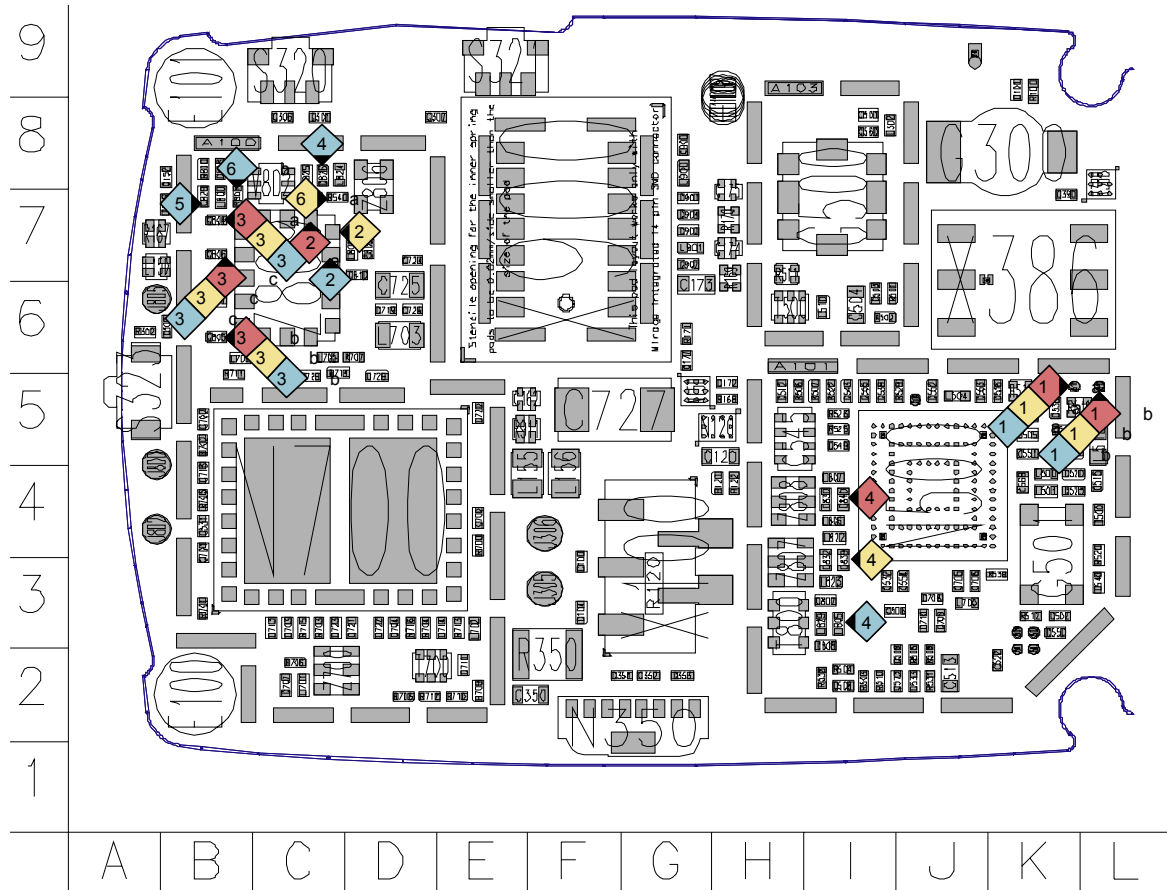
Tx 850/900 GMSK troubleshooting



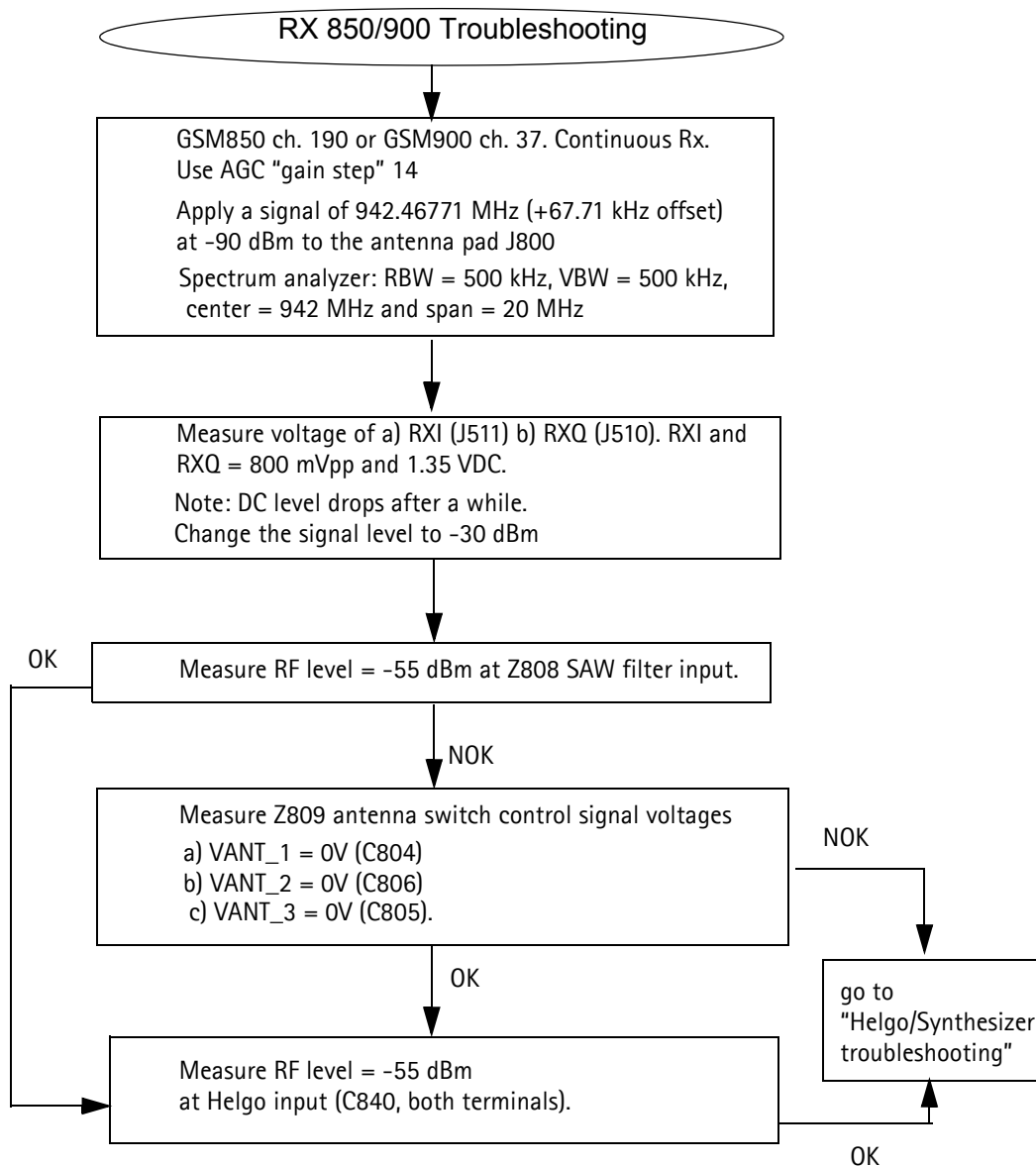
Tx 1800/1900 GMSK troubleshooting



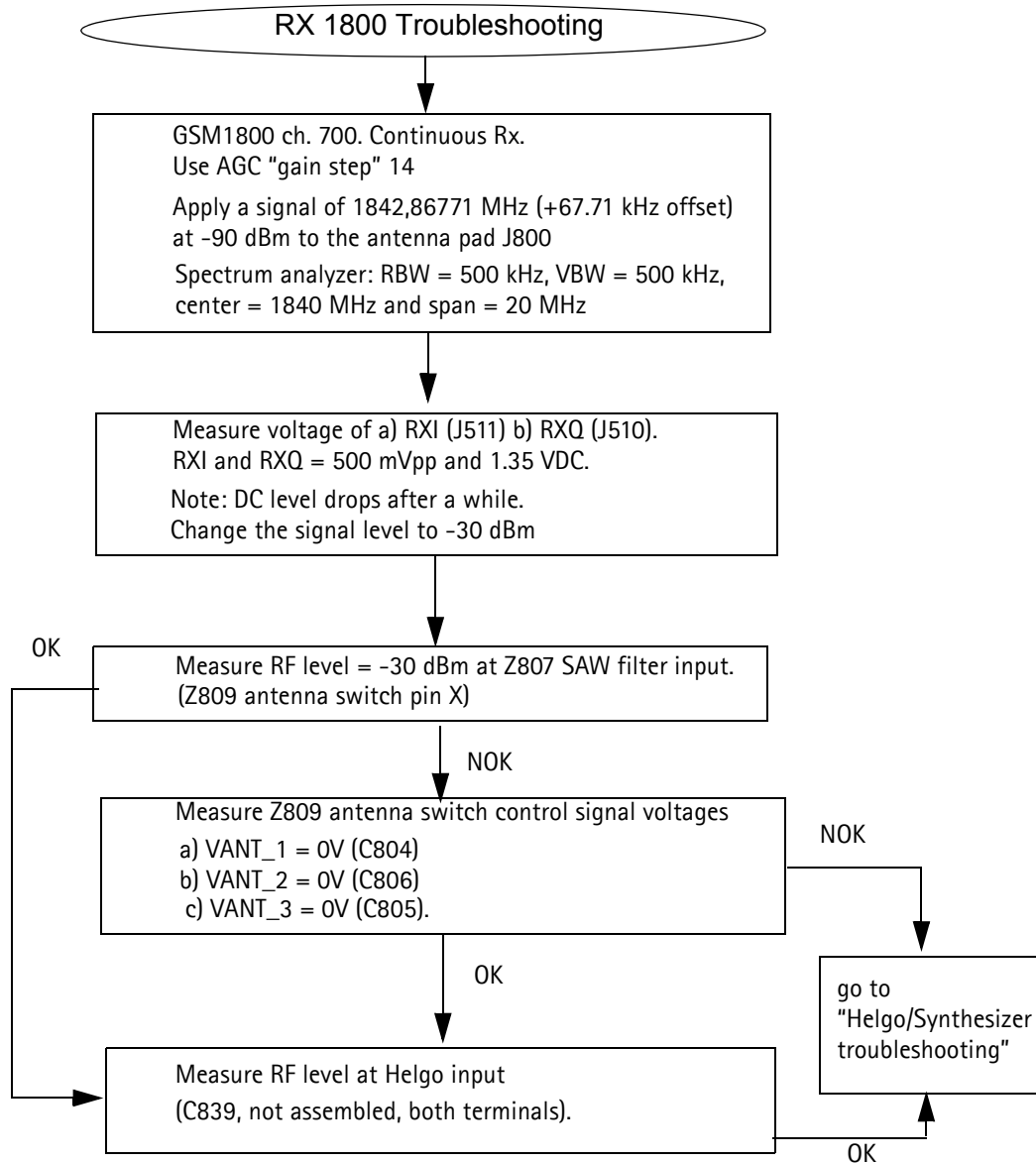
Rx Troubleshooting



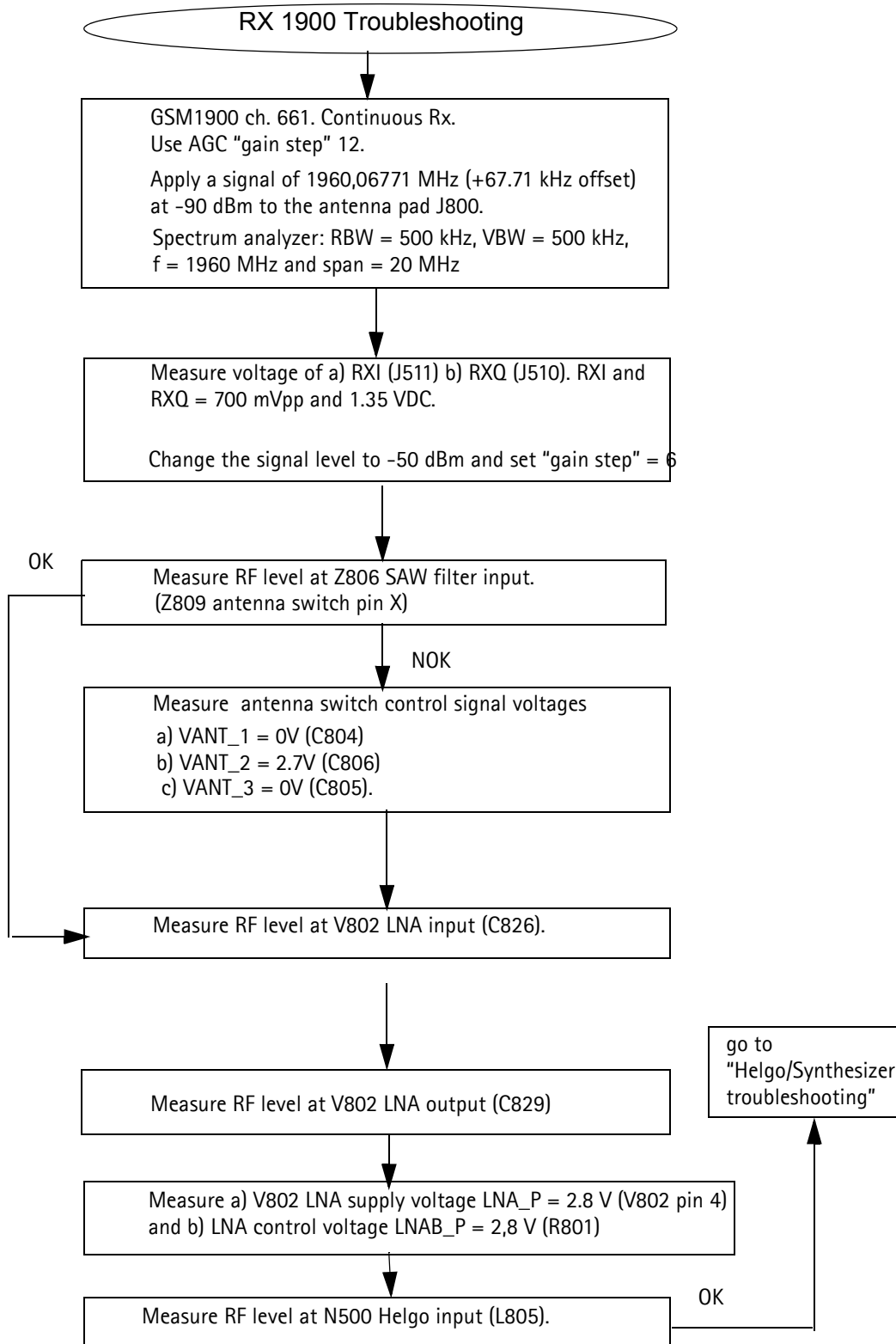
Rx 850/900 troubleshooting



Rx 1800 troubleshooting



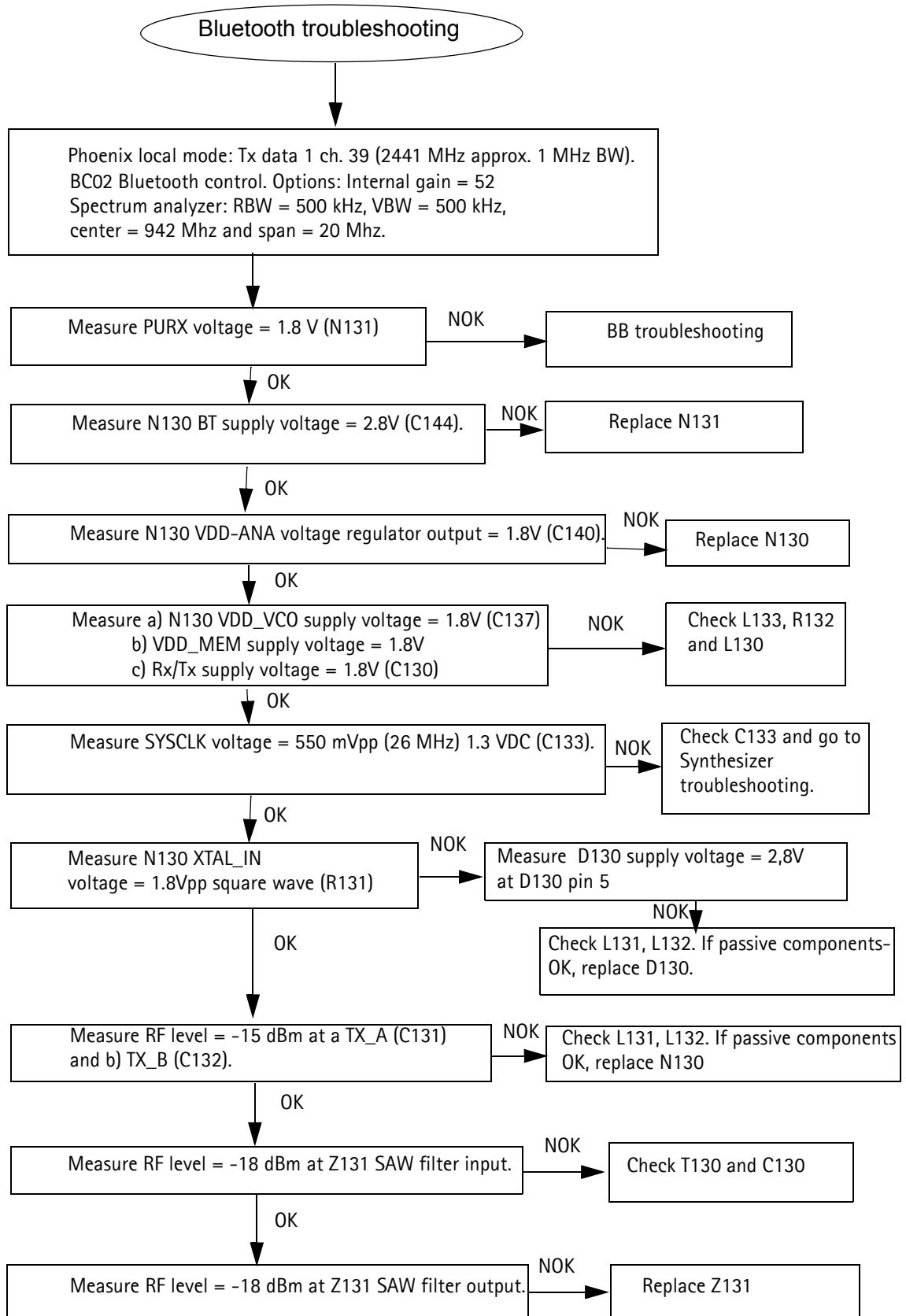
Rx 1900 troubleshooting



Bluetooth / FM Radio Troubleshooting



Bluetooth troubleshooting



FM radio troubleshooting

