

XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

Introduction:

This document covers the Board test RF failures for all variants for XT1561/XT1562/XT153/XT1564/XT1565. There may be reference designators listed that are intentionally left unplaced.

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PCB Component Placement / Overlay:

Overview:

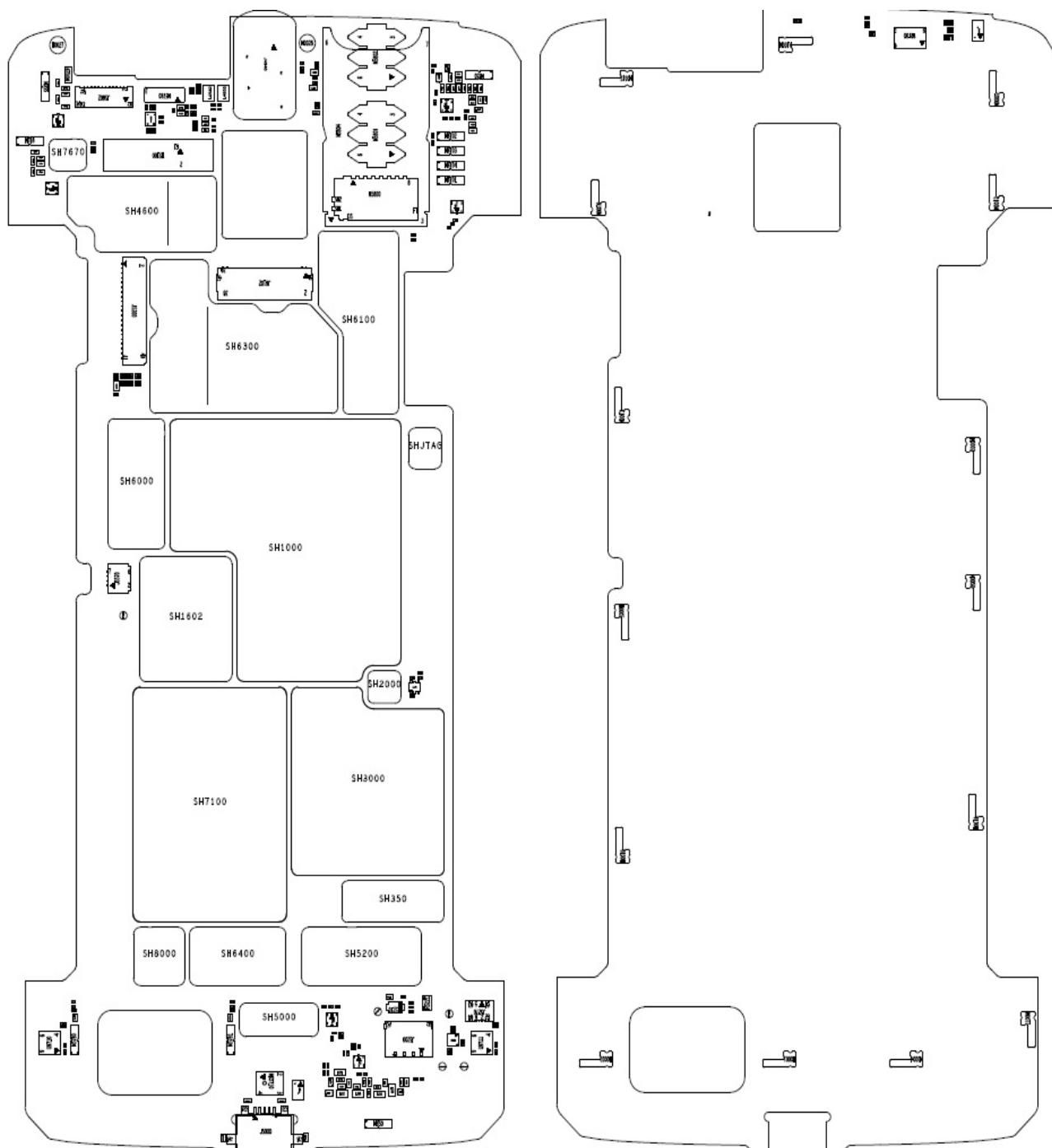


Figure 1.0

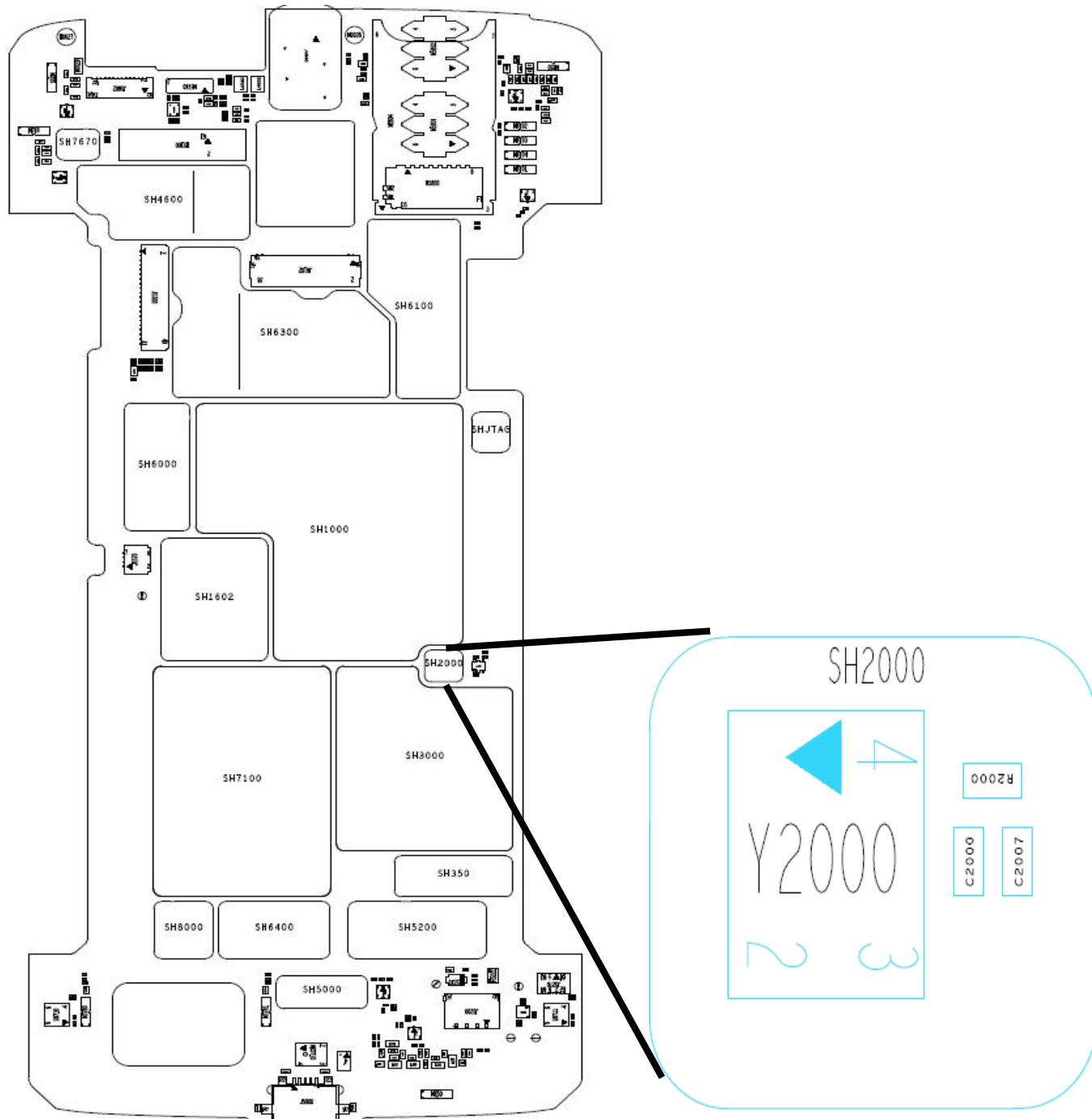
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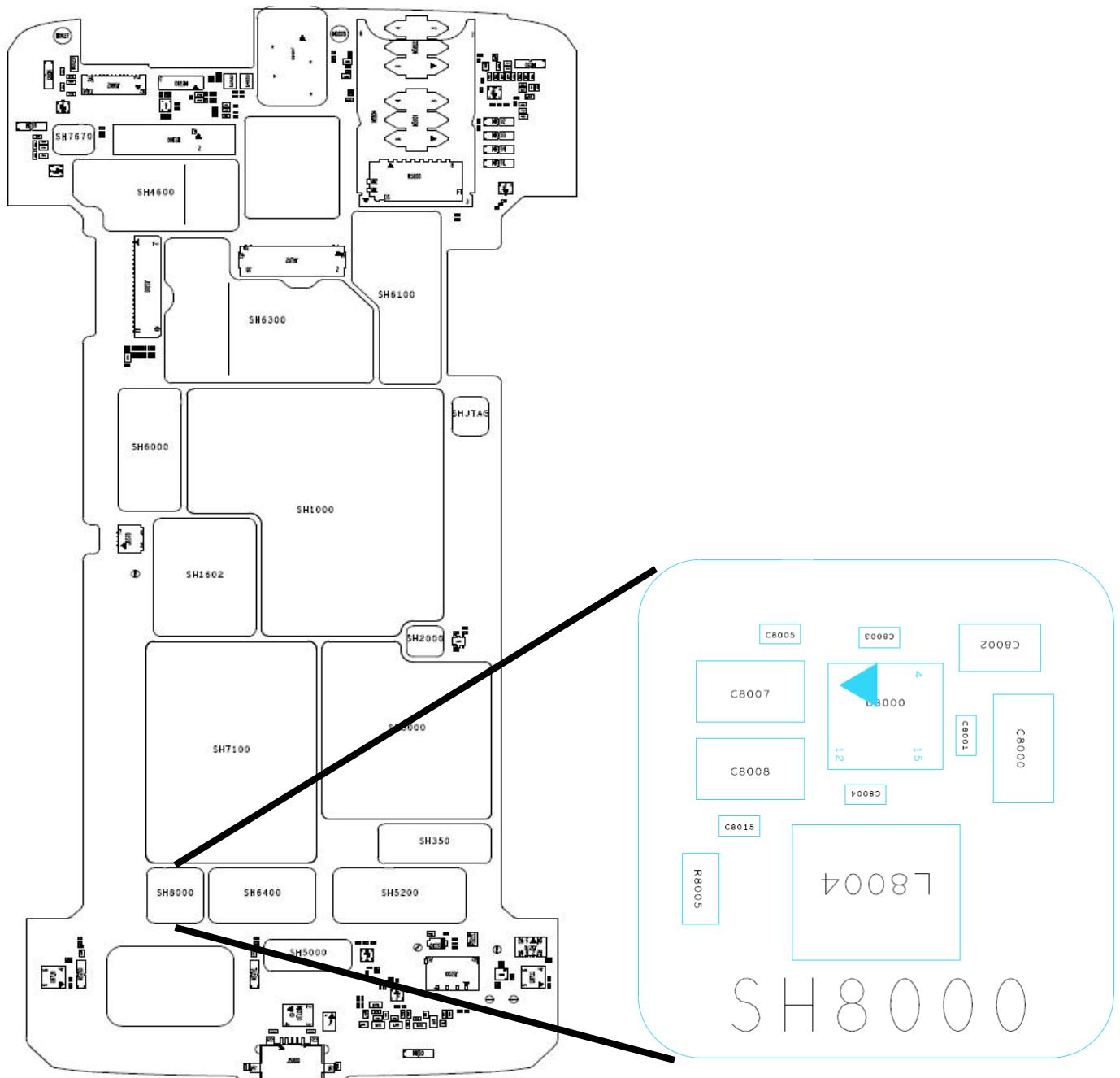
XO:


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Filters/PA:**Figure 1.3**

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LNA / TX Driver / Filters:

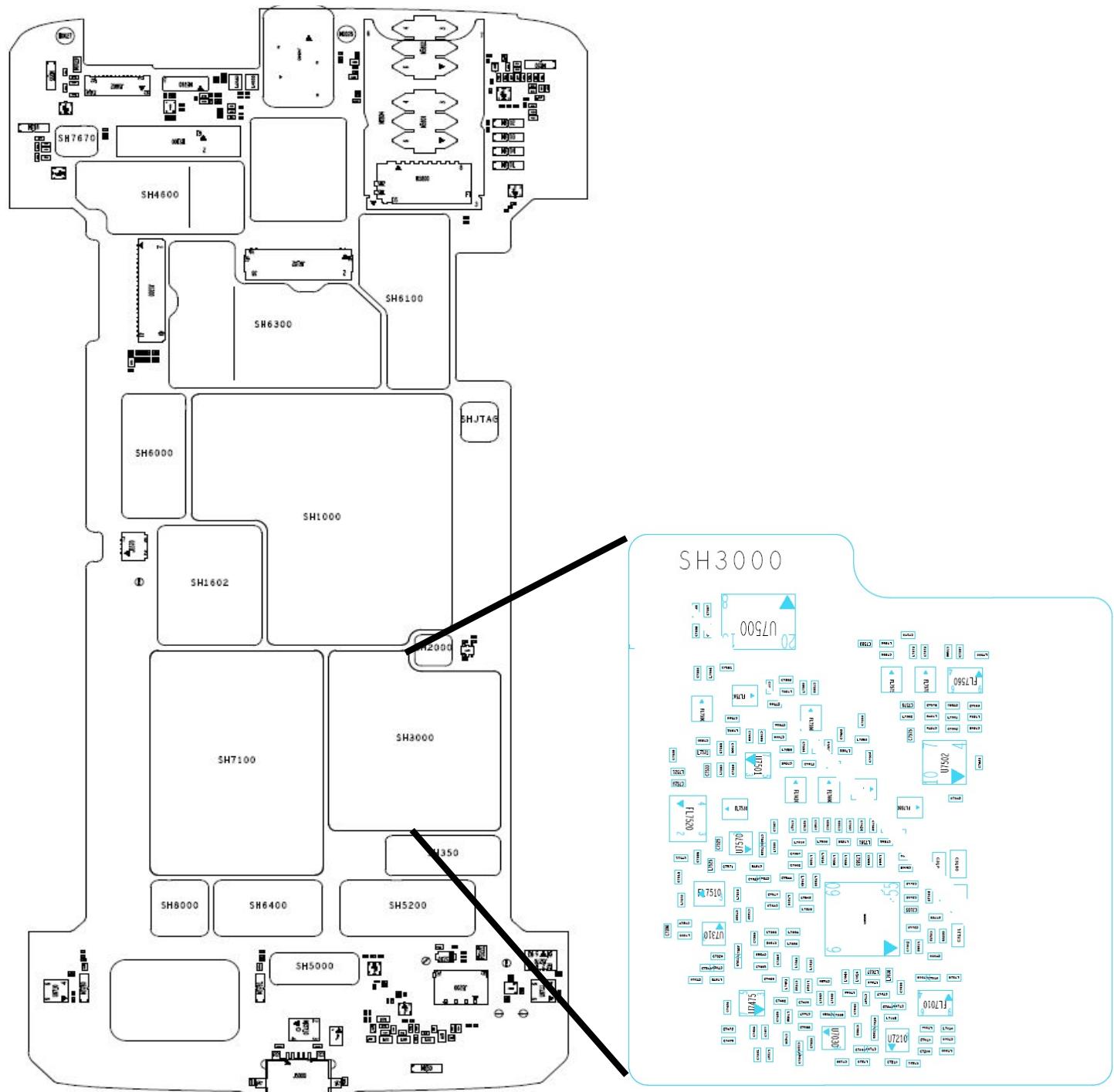


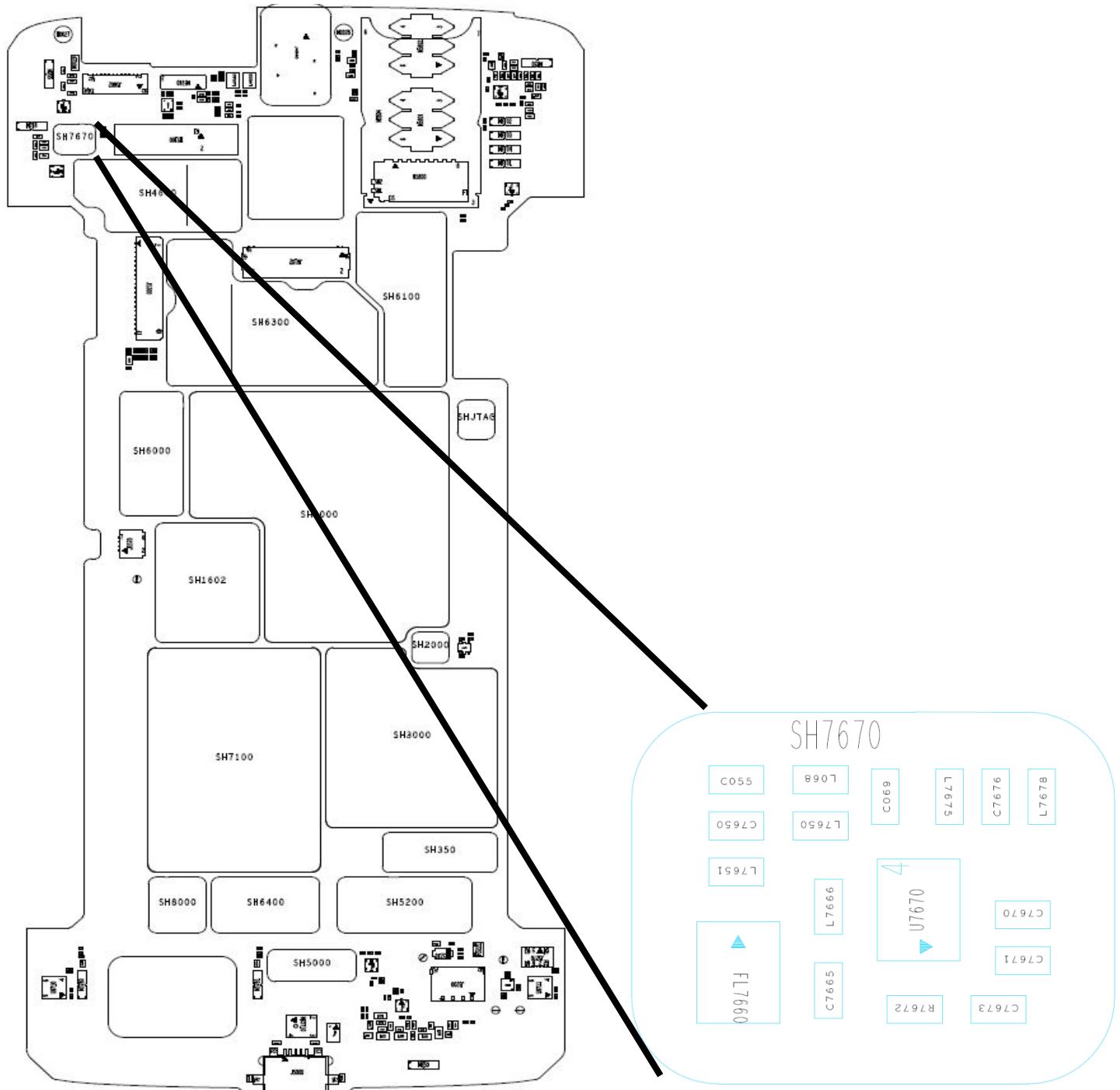
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GPS LNA/Filter:

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Figure 1.5
BT/ WIFI:

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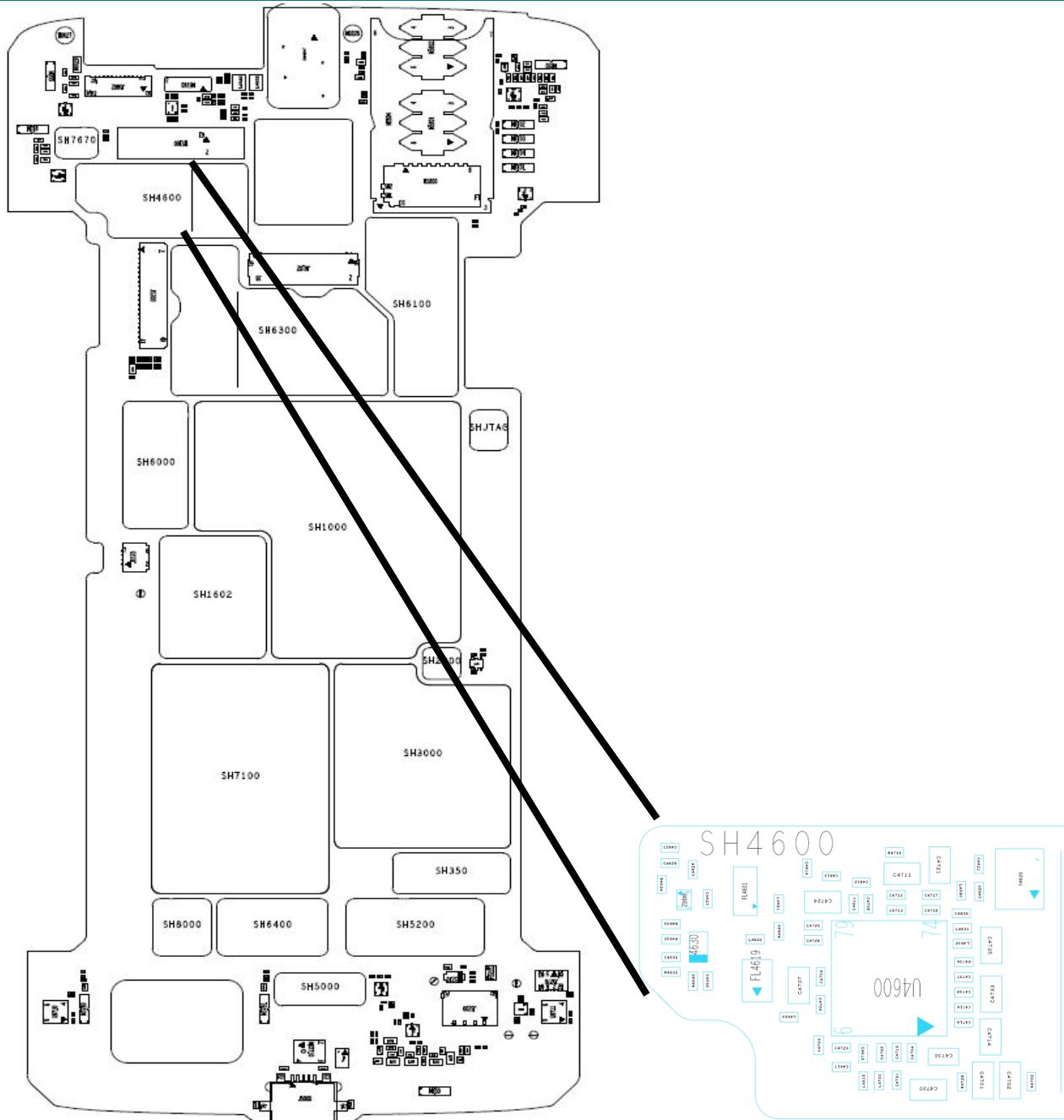


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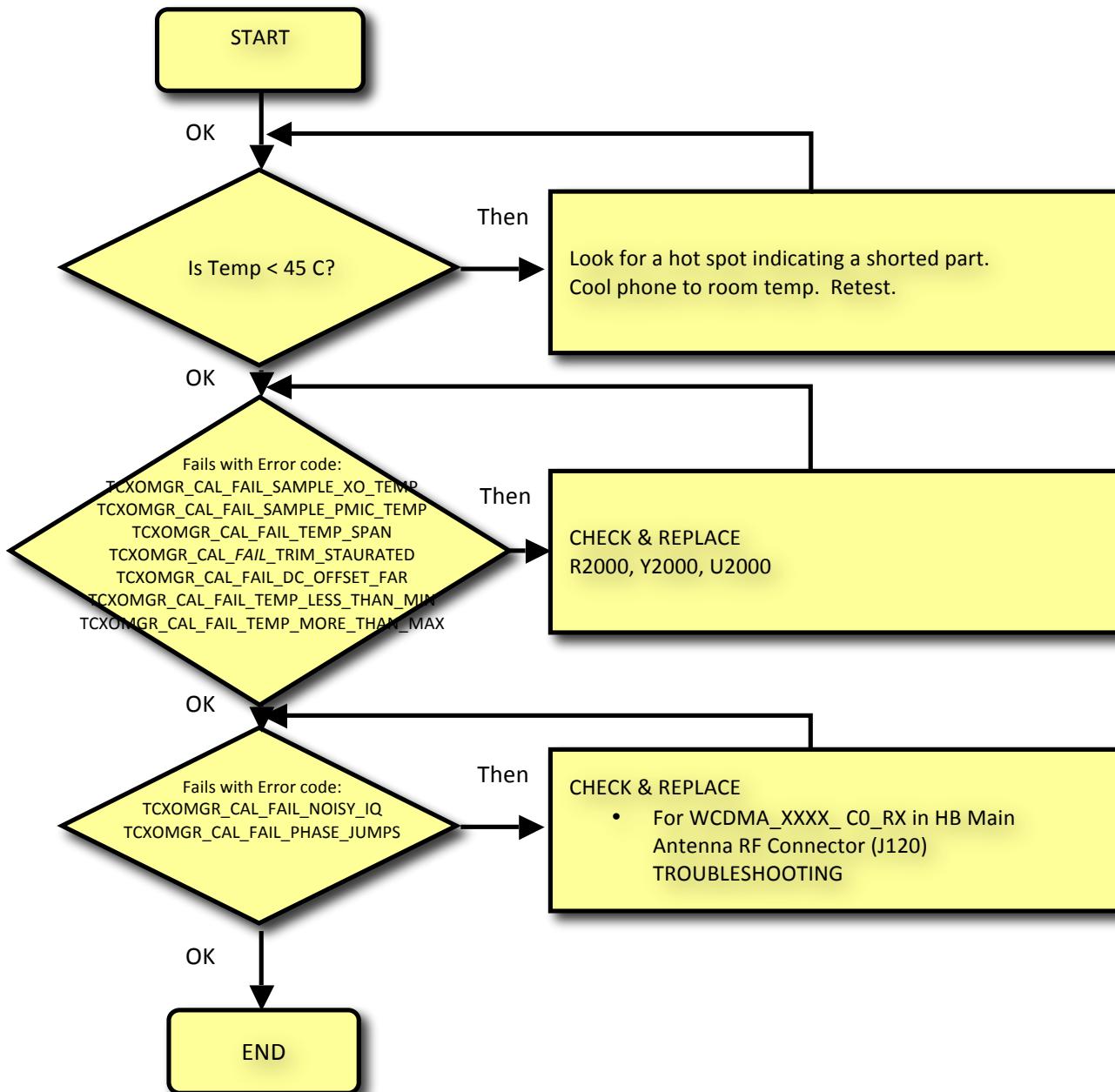
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XO_CAL_QC_XXXX_DC_WCDMA TROUBLESHOOTING:

The coarse XO cal is the first step in the crystal calibration. Coarse XO cal has nothing to do with the thermistor or board heating. You should be able to see the XO coming out of the PMIC at R2005,R2002. If you don't see any 19.2 MHz on an o-scope then there is something wrong in PMIC block or the XO itself. If one band passes and the other band fails, then there might be a missing part in the RF line-up for that band. If all the bands fail and there is 19.2 MHz getting to WTR, then this would narrow it down to the WTR.

Check Chart:



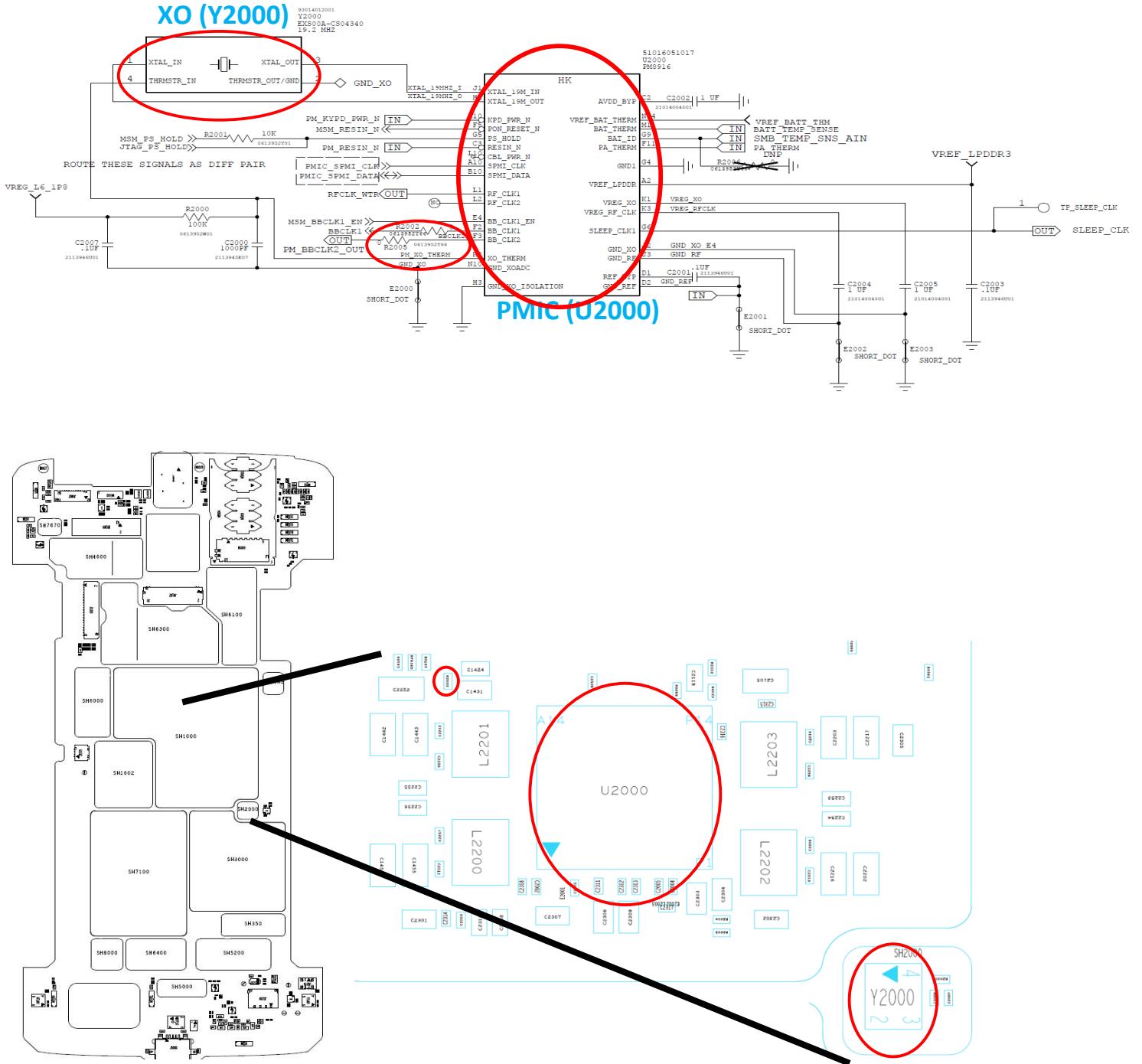
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Schematic and board overlay:


Figure 2.0

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LB Main Antenna RF Connector (J100) TROUBLESHOOTING: LB Reference Schematic:

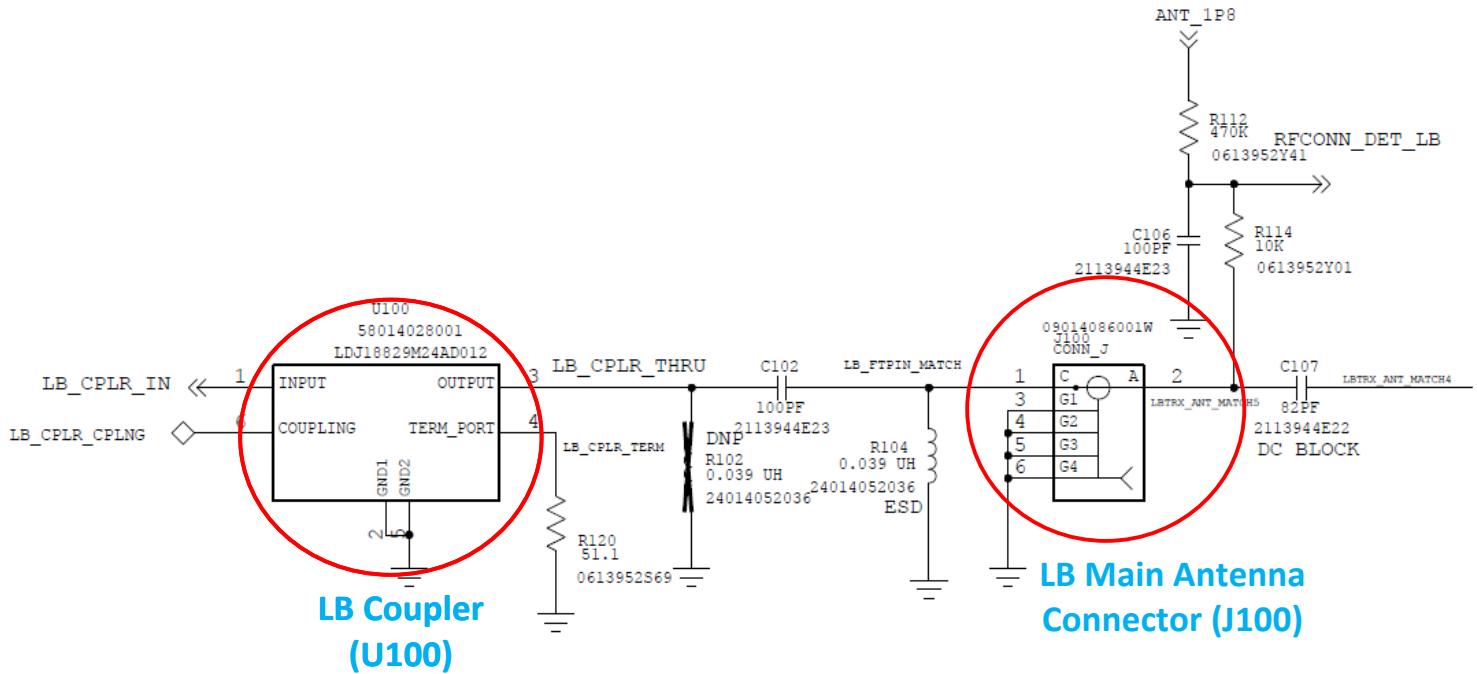


Figure 3.0

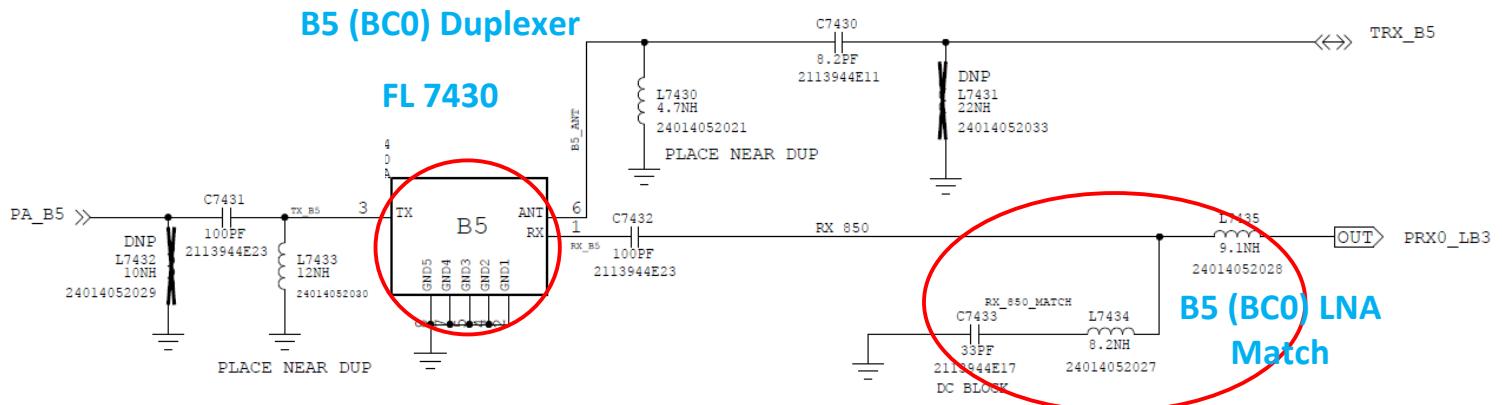
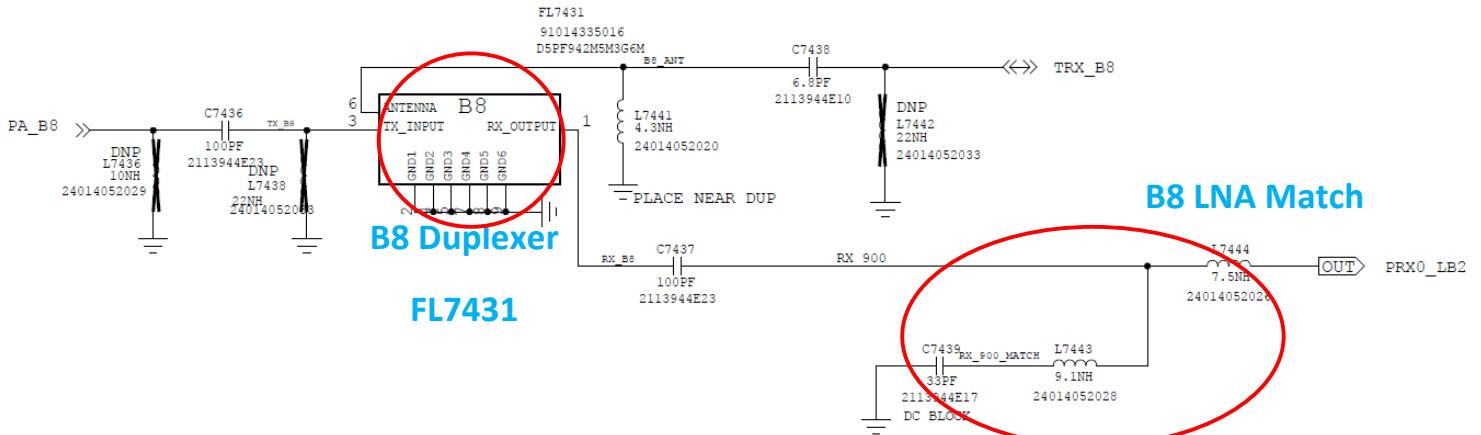
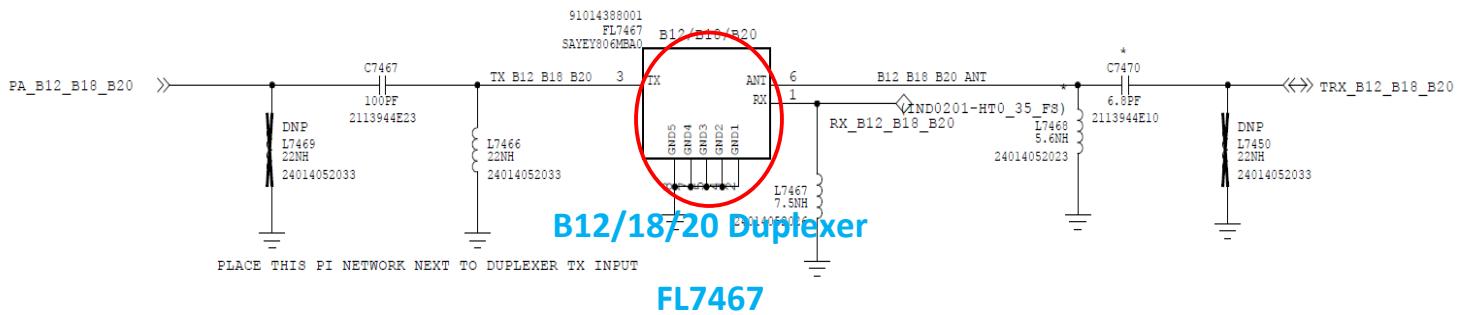


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Board Test

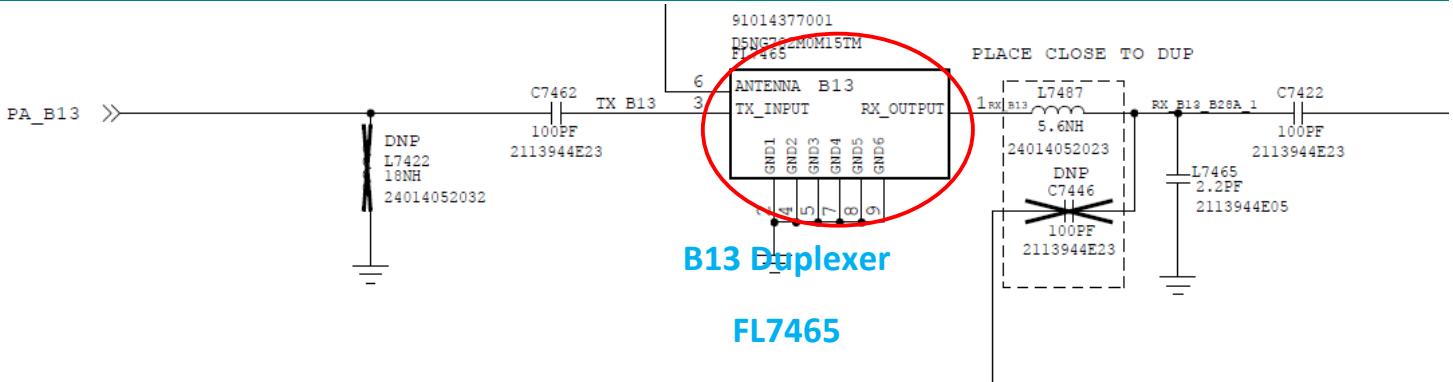


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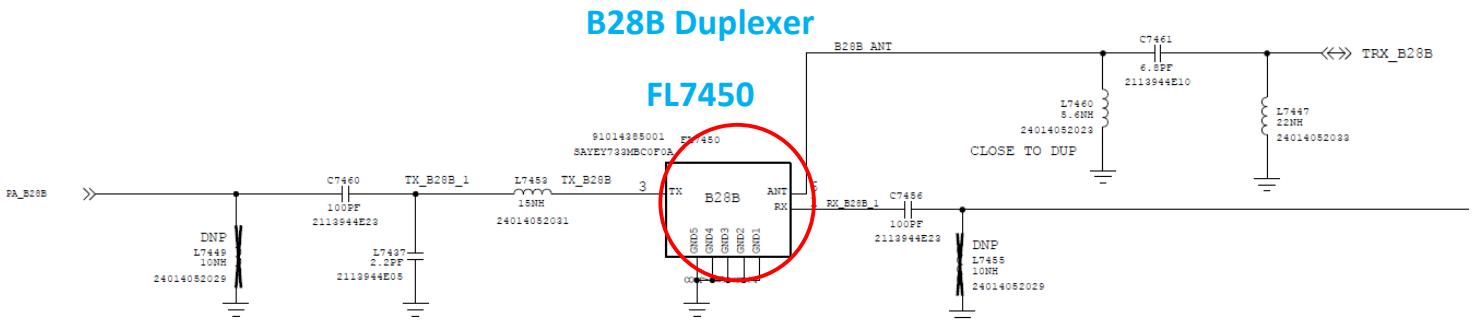
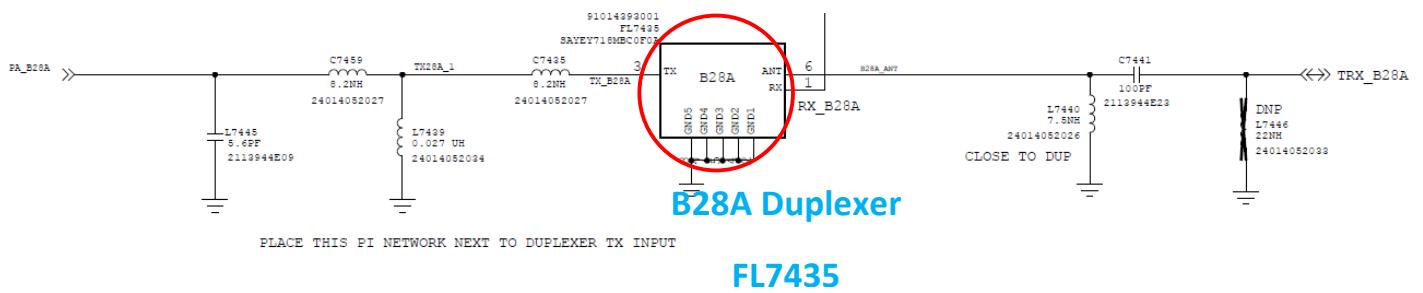


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Board Test

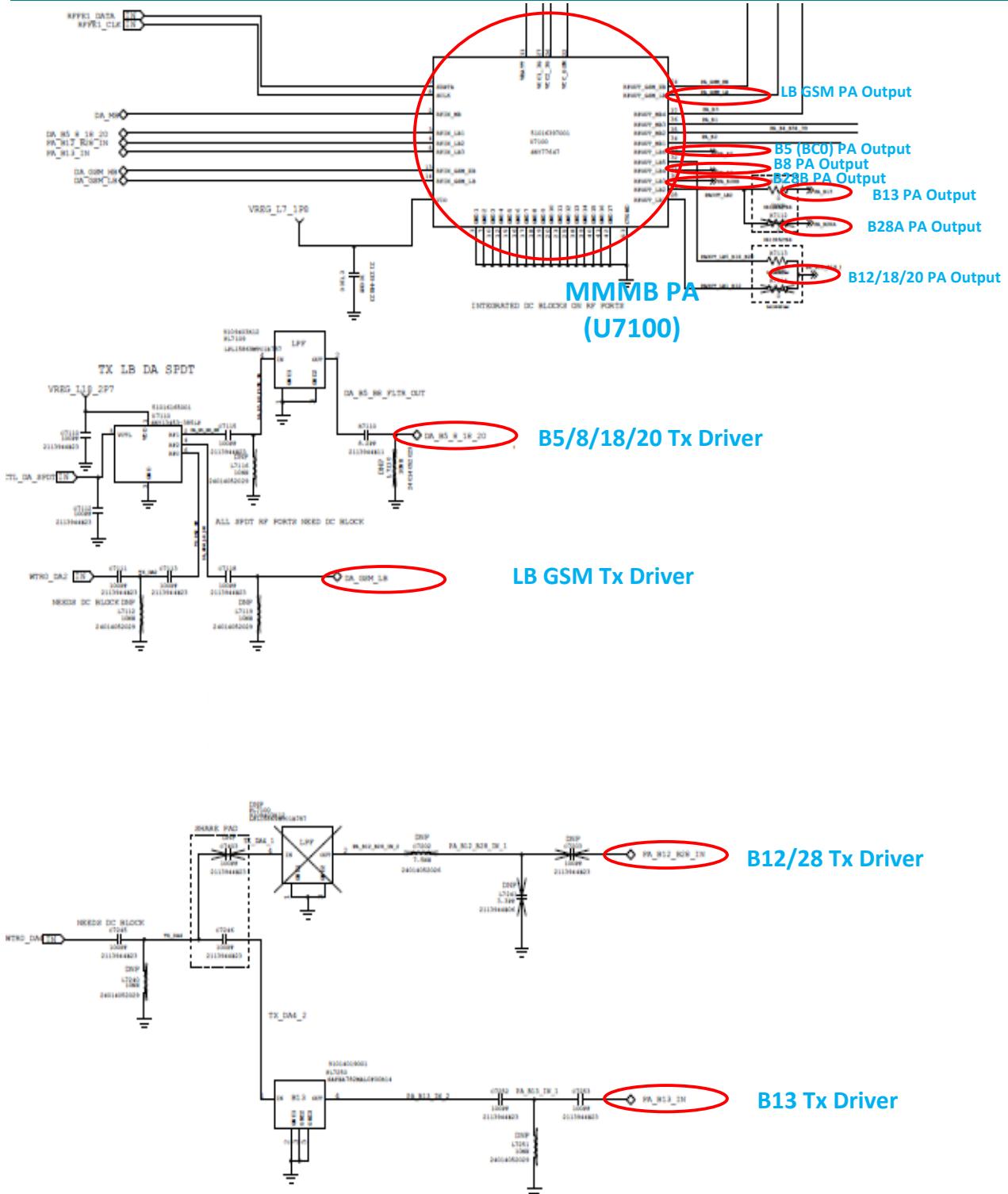
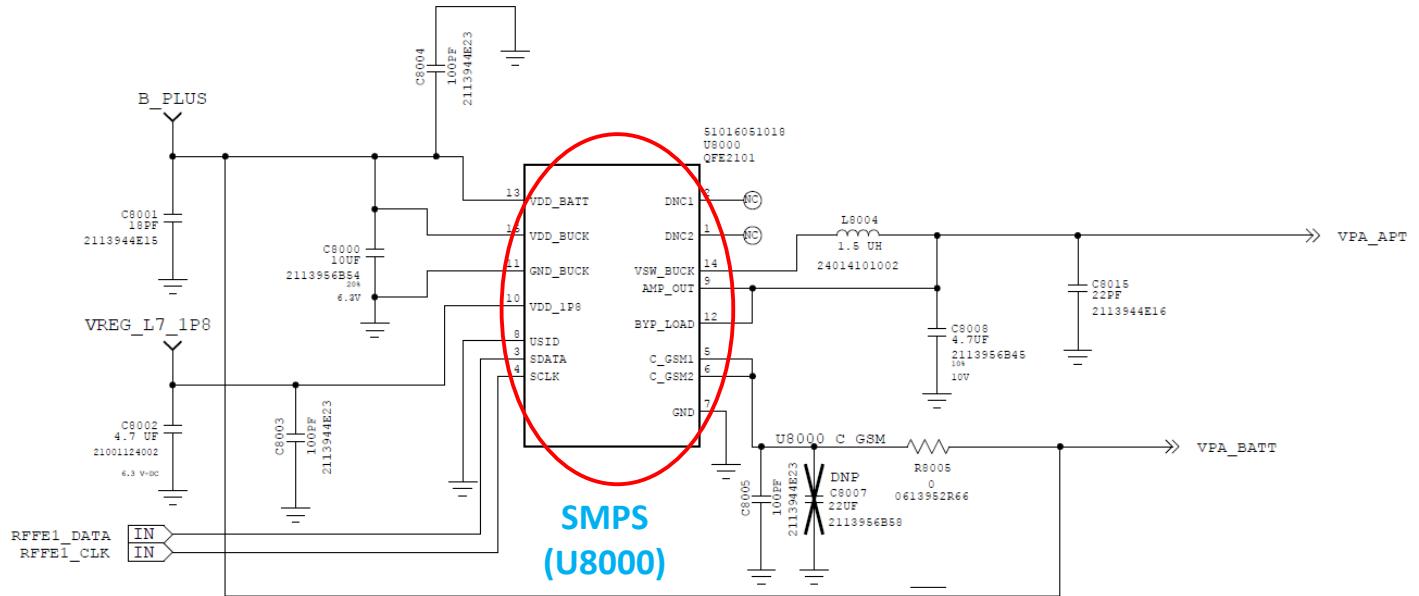
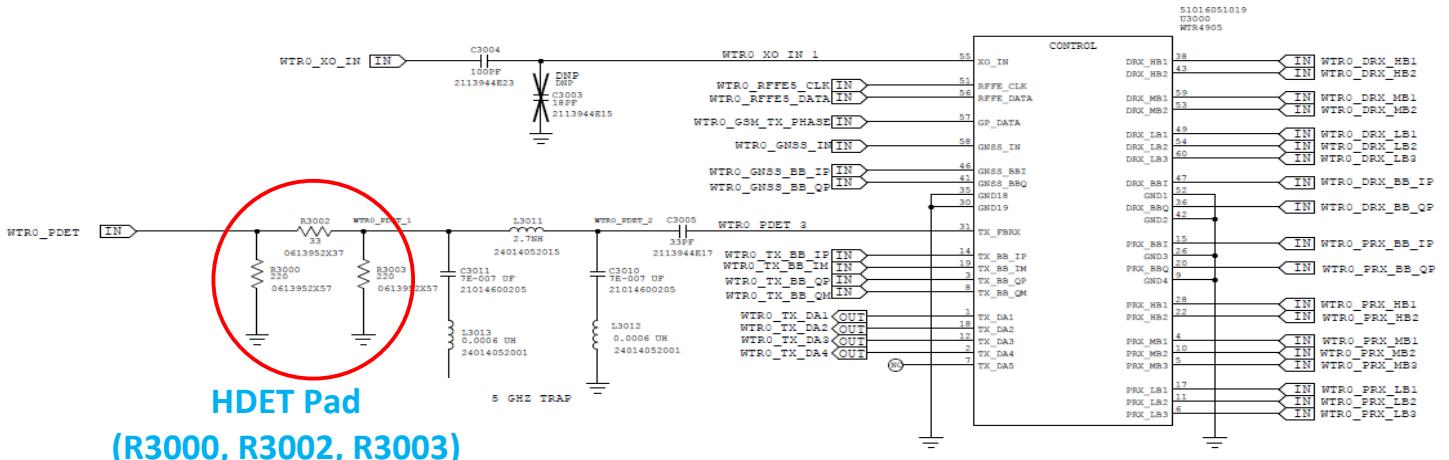


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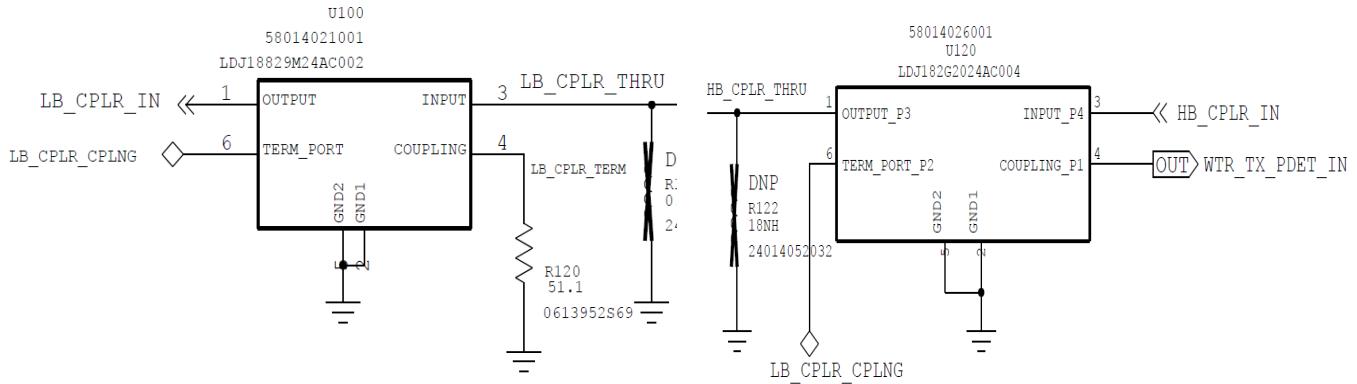
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Figure 3.7

Figure 3.8

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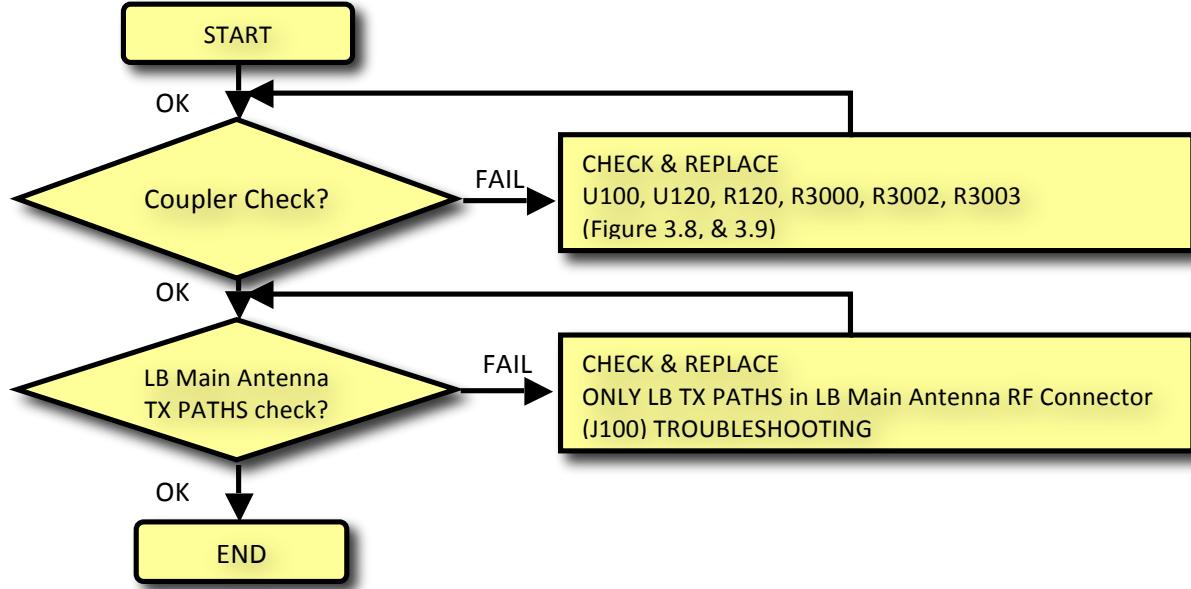
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**XT1561/XT1562/XT1563/XT1564/XT1565 Board Test
Troubleshooting Guide****Board Test****LB HDET TROUBLESHOOTING:**

Check Chart:

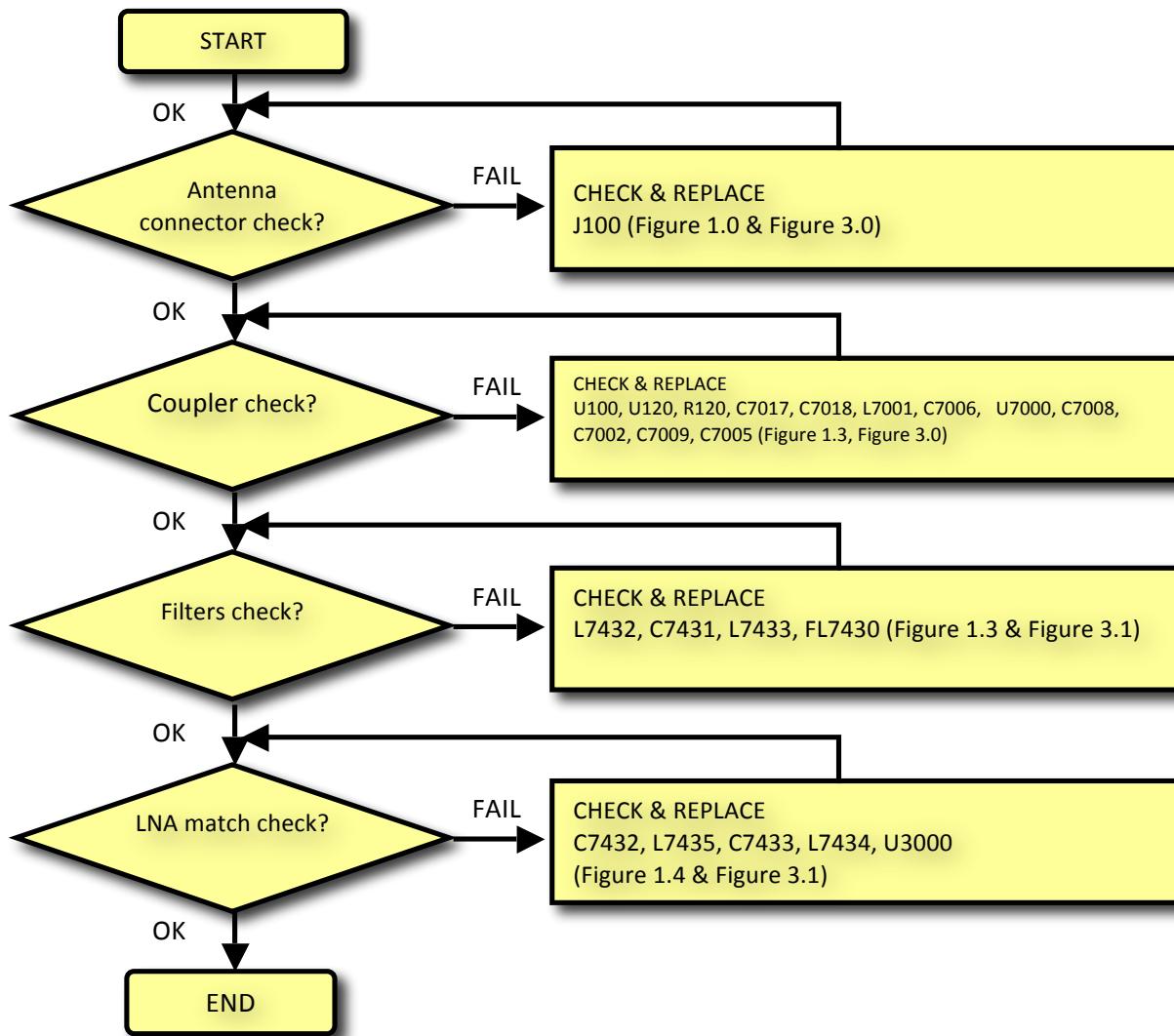


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**CDMA_800_C0_RX, GSM_850(G850)_RX, WCDMA_850_C0_RX, &
LTE_Band_5_C0_RX:**

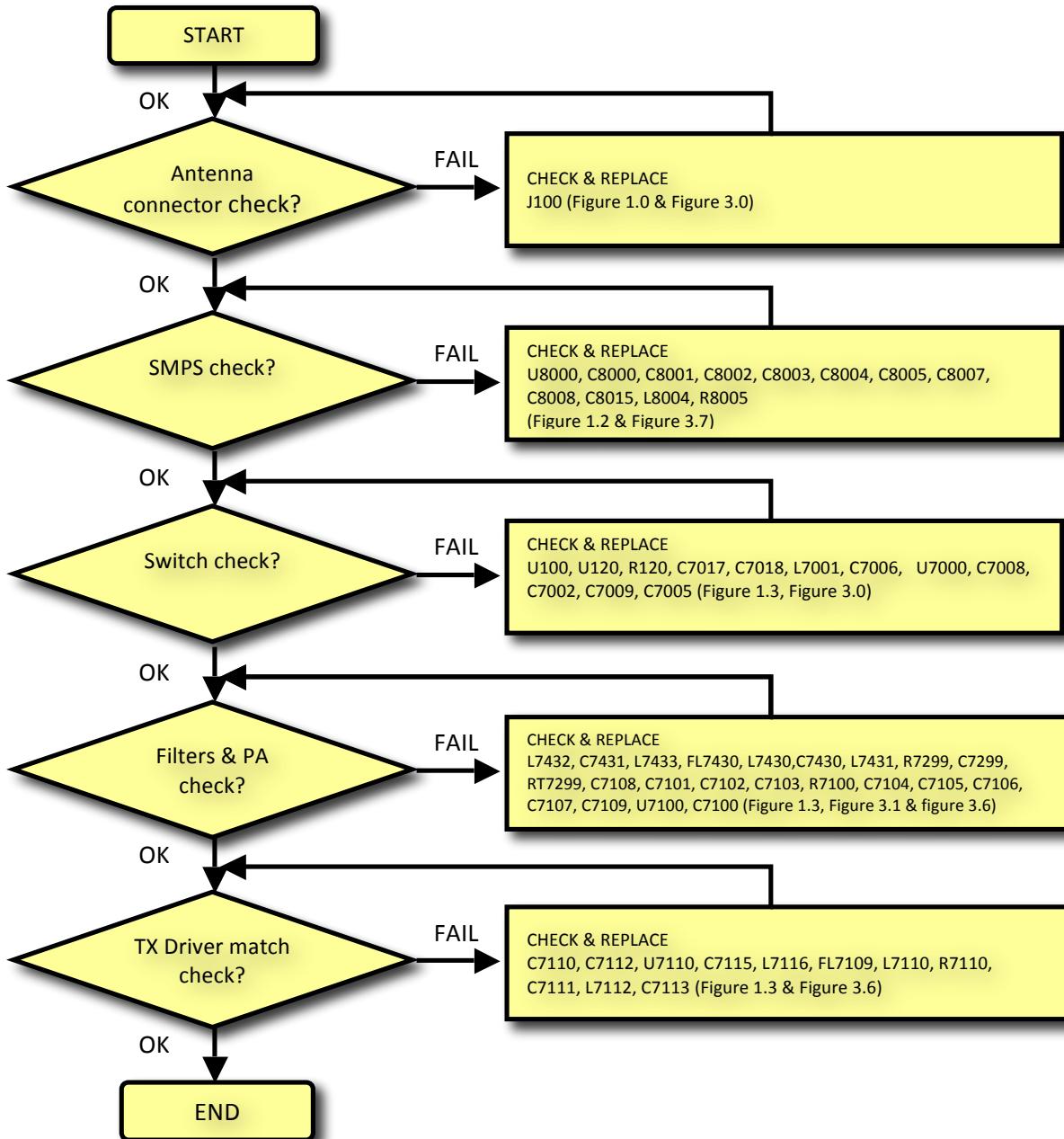
Check Chart:



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Board Test

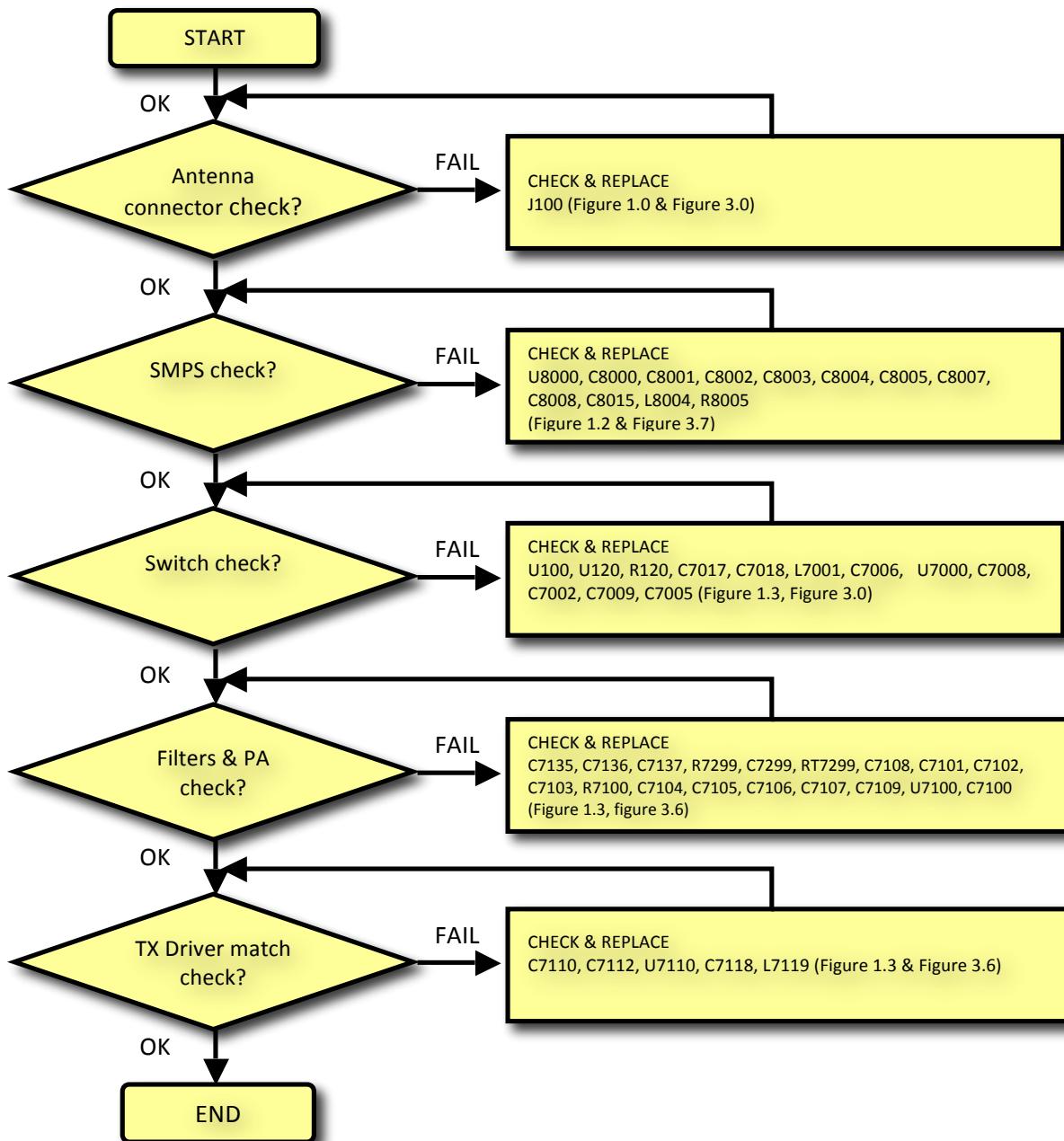
CDMA_800_C0_TX, WCDMA_850_C0_TX, & LTE_Band_5_C0_TX:
Check Chart:



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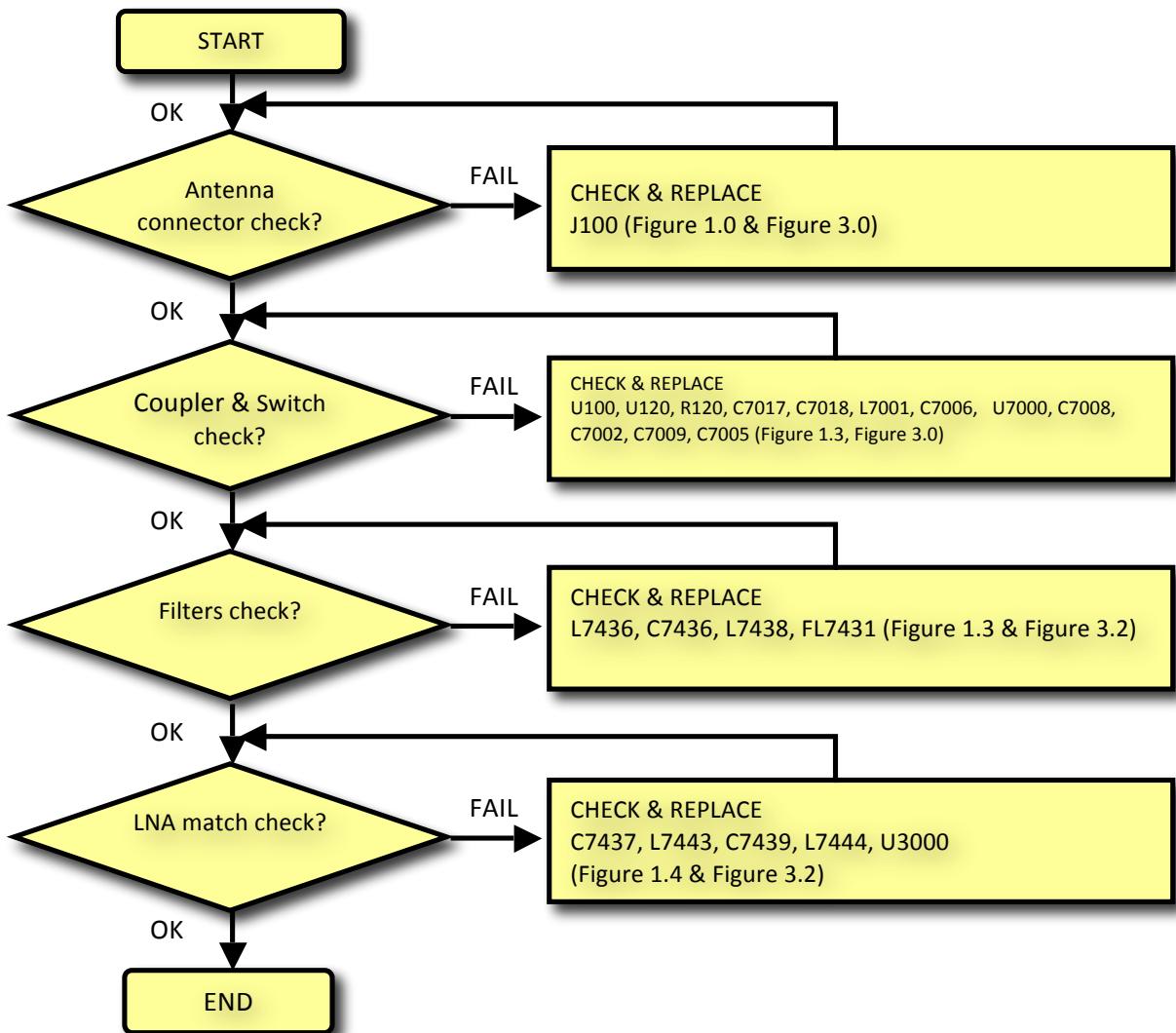
GSM_850(G850)_TX, EDGE_850_TX, GSM_900_TX, & EDGE_900_TX
Check Chart



XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

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GSM_900(G900)_ RX & WCDMA_900_C0_RX Check Chart

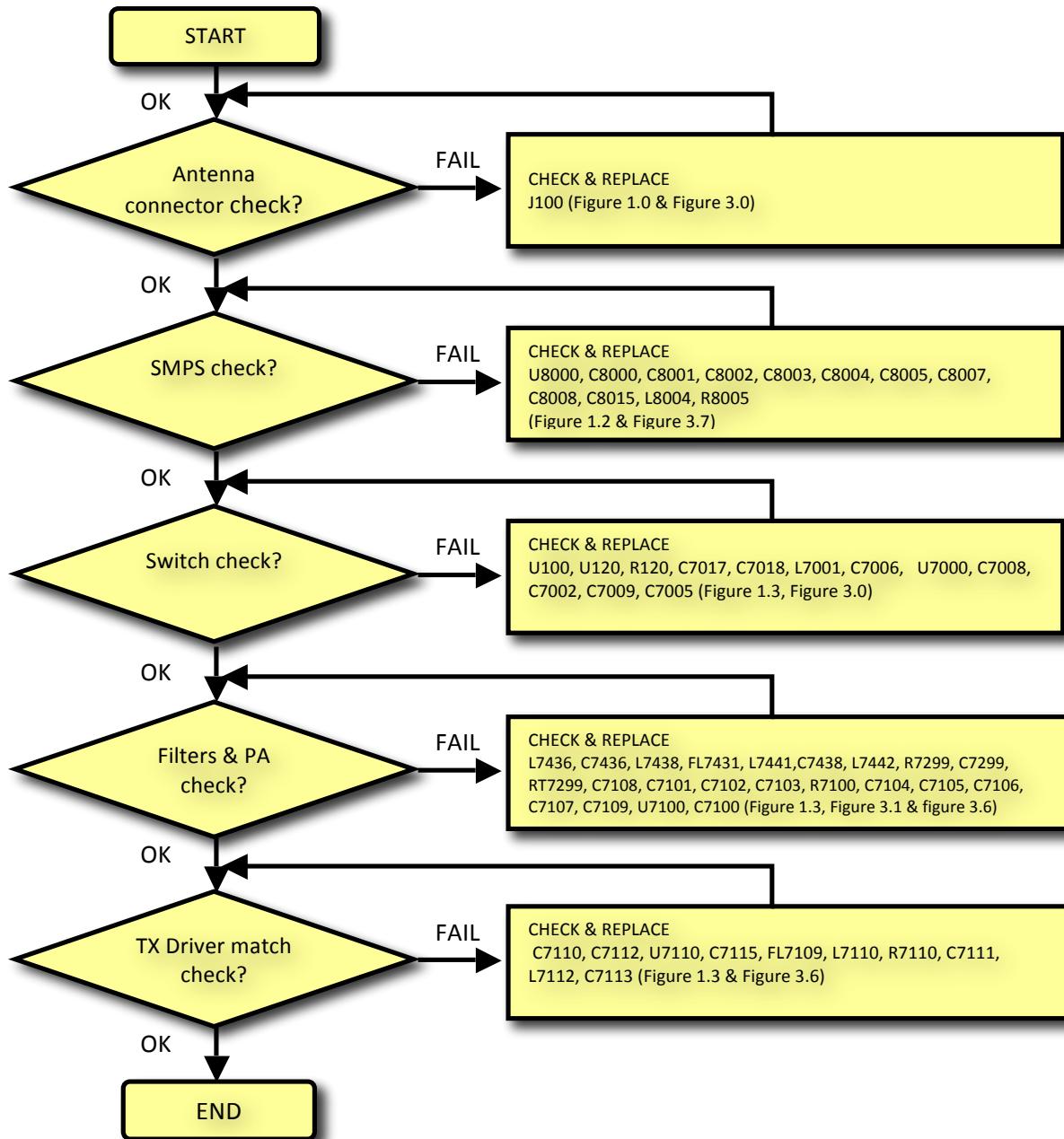


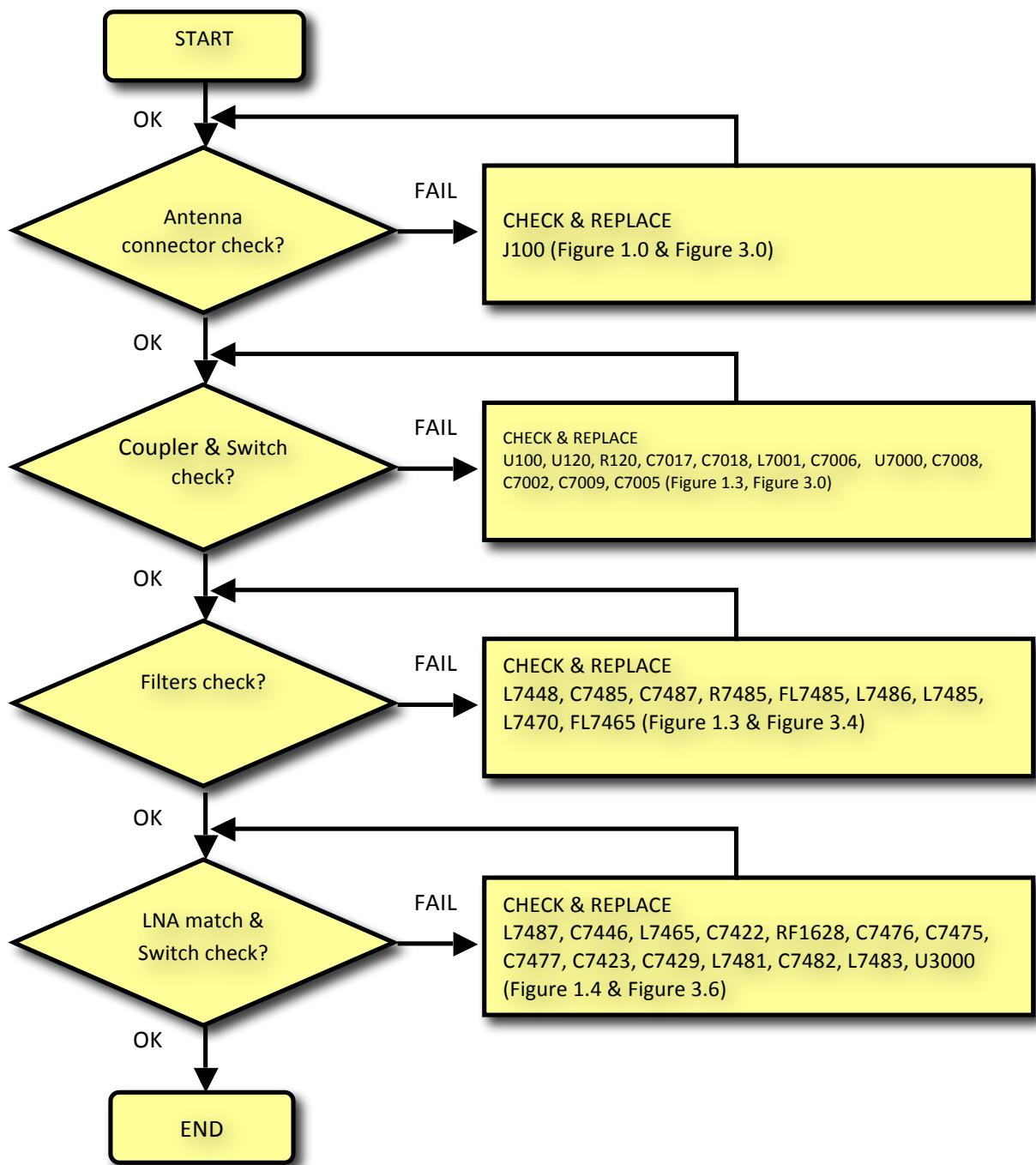
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WCDMA_900_C0_TX & LTE B8

Check Chart



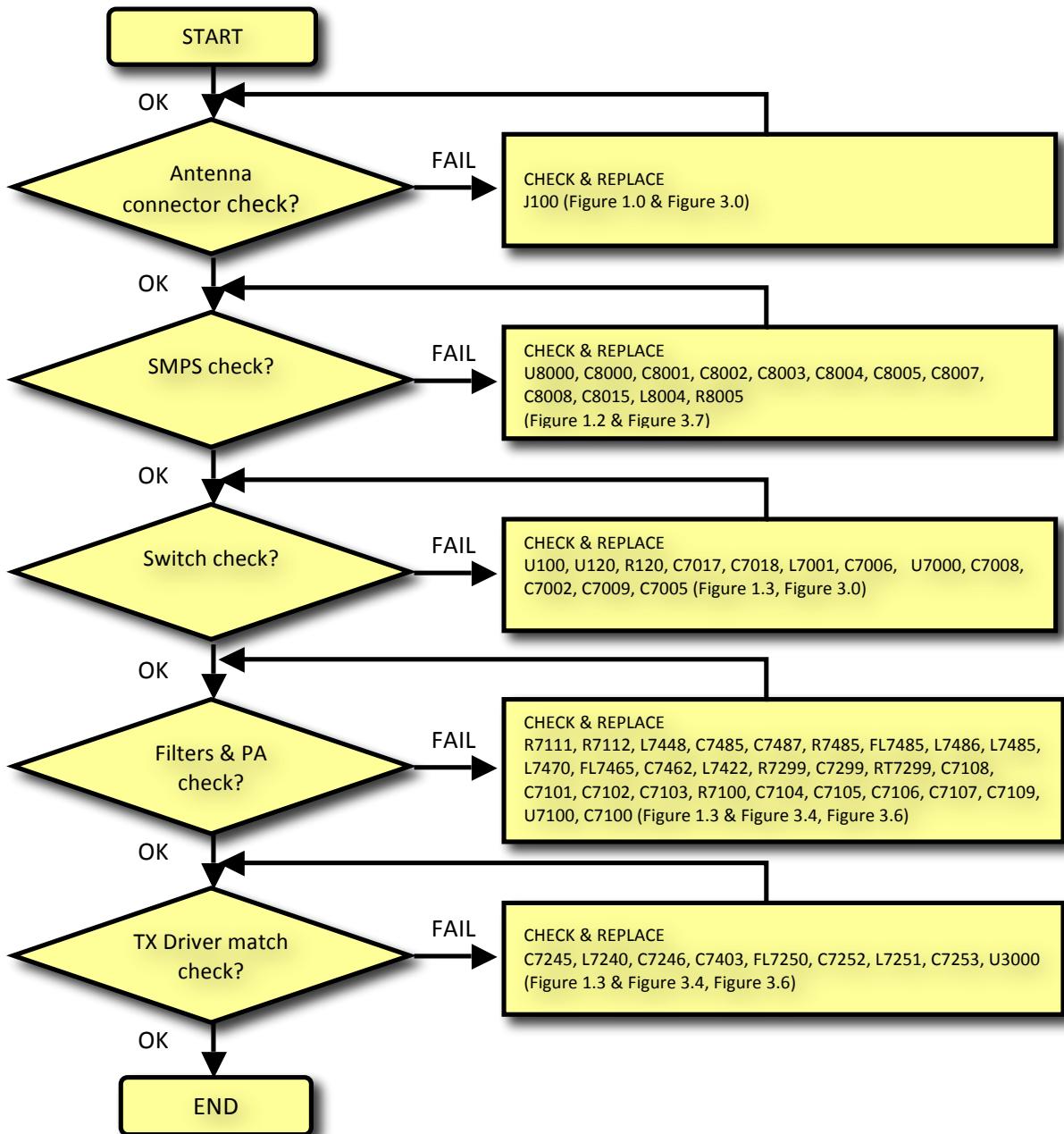
**XT1561/XT1562/XT1563/XT1564/XT1565 Board Test
Troubleshooting Guide****Board Test****LTE_Band_13_C0_RX****Check Chart**

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LTE_Band_13_C0_TX

Check Chart

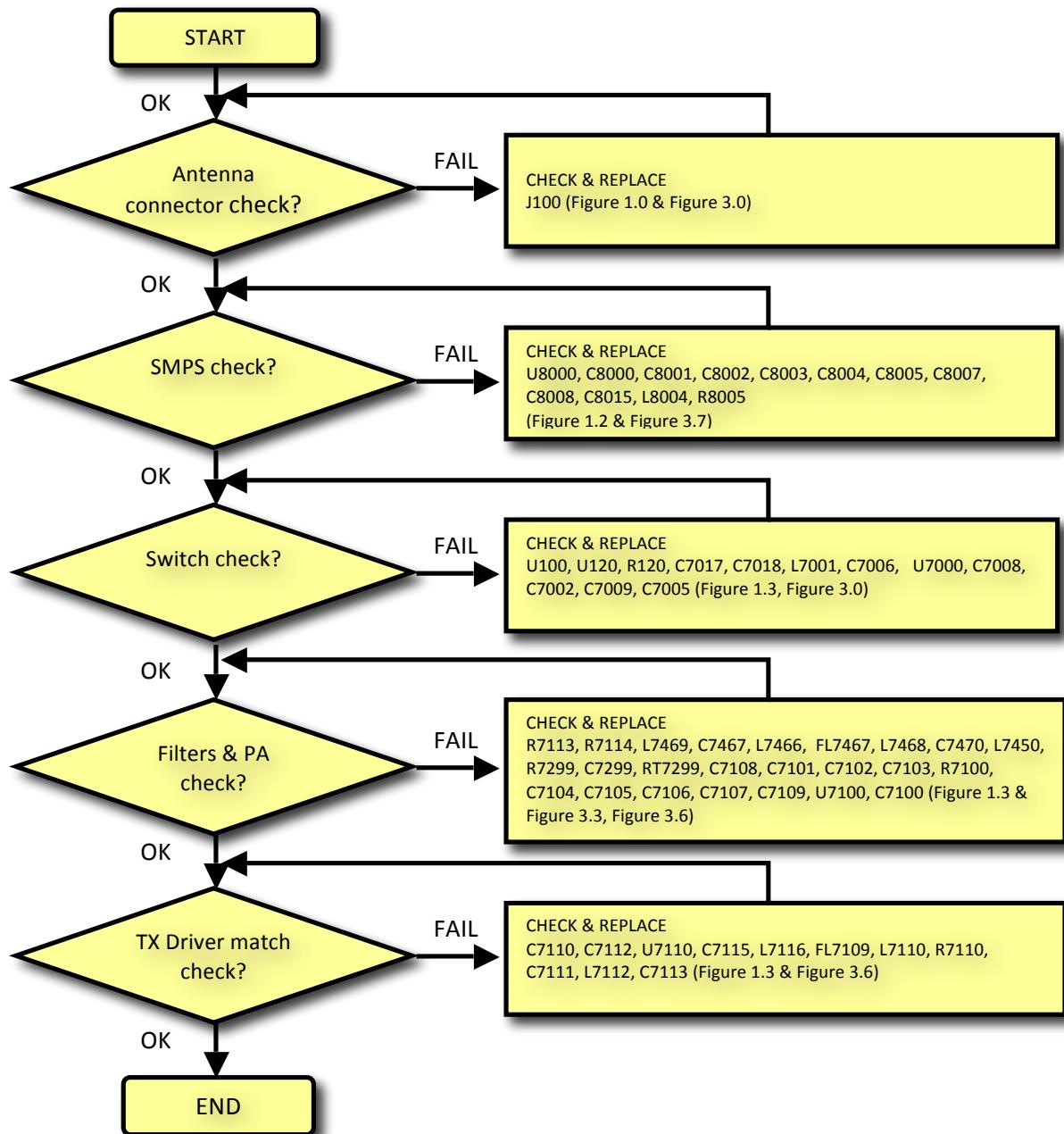


XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

Band_18_20_C0_TX

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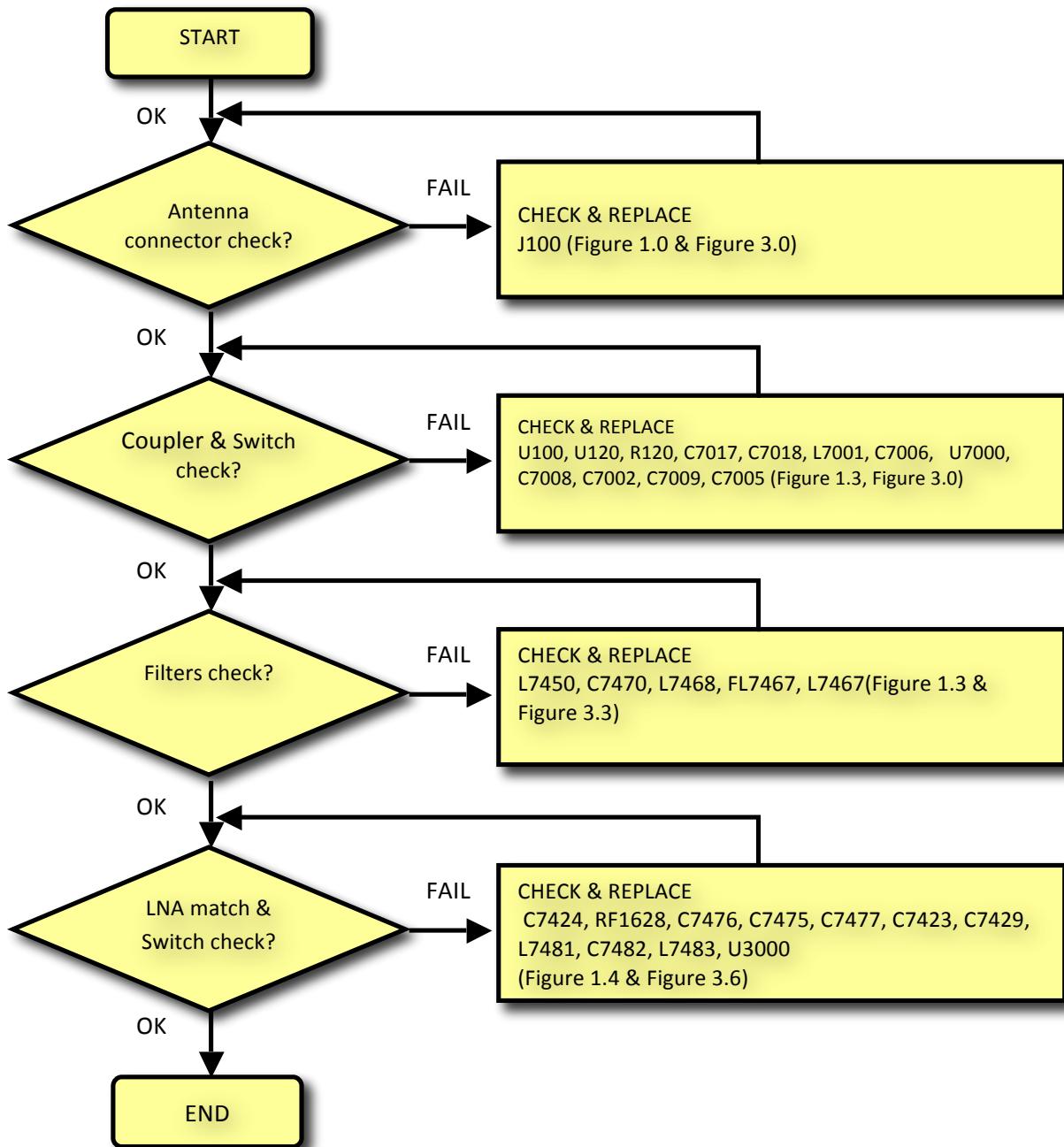


XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

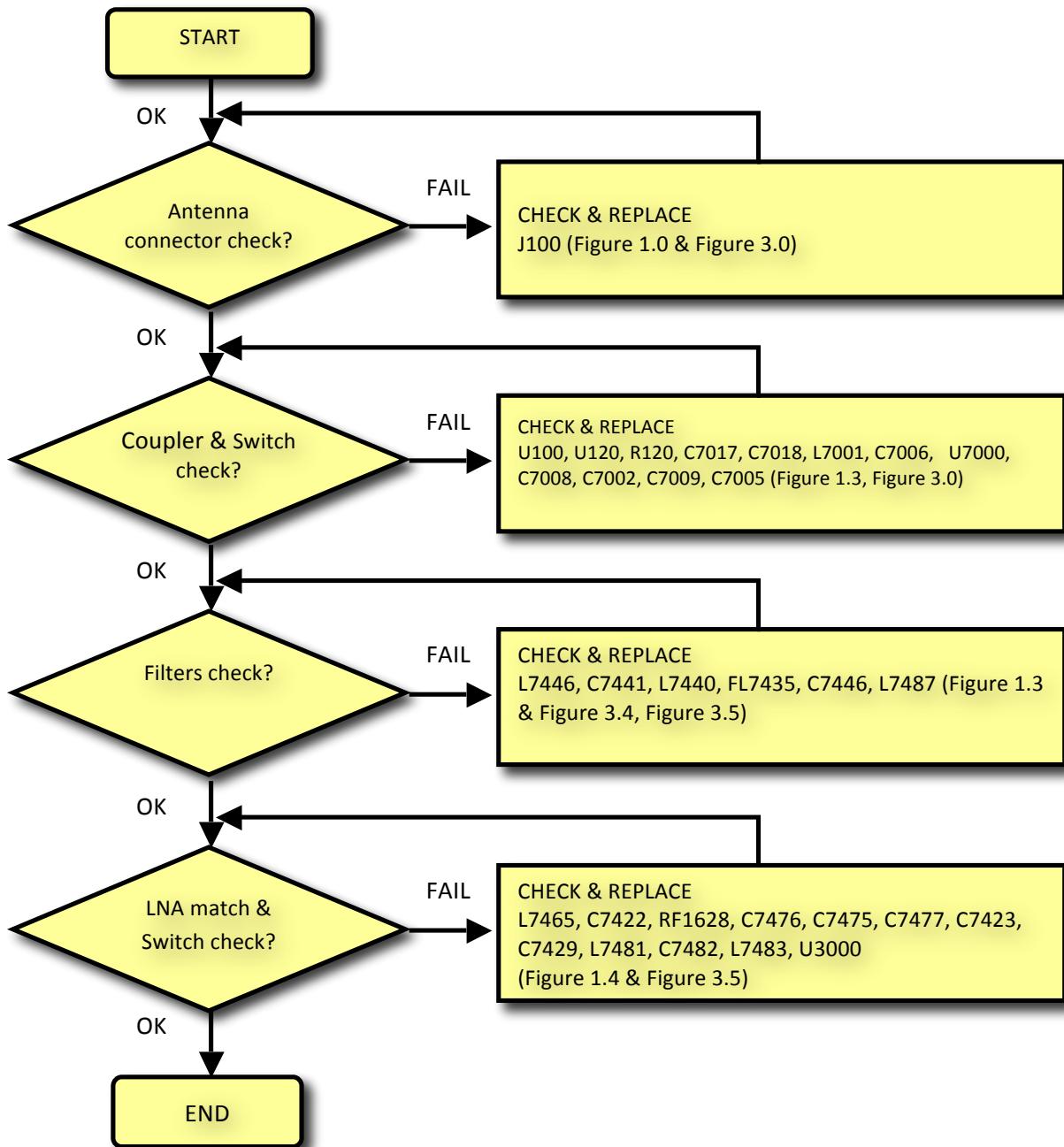
Band_18_20_C0_RX

Check Chart



**XT1561/XT1562/XT1563/XT1564/XT1565 Board Test
Troubleshooting Guide****Board Test****Band_28A_C0_RX**

Check Chart

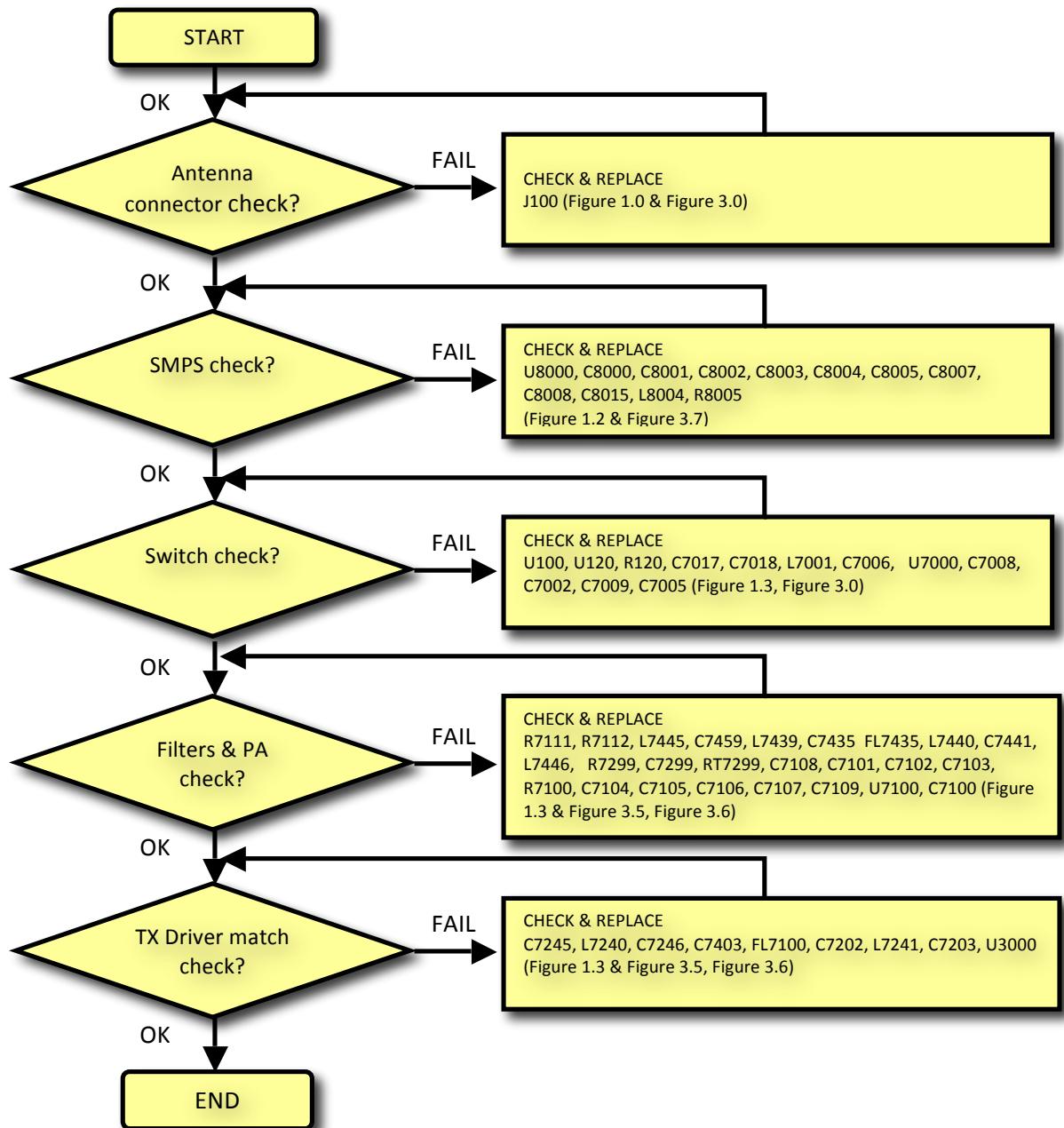


XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

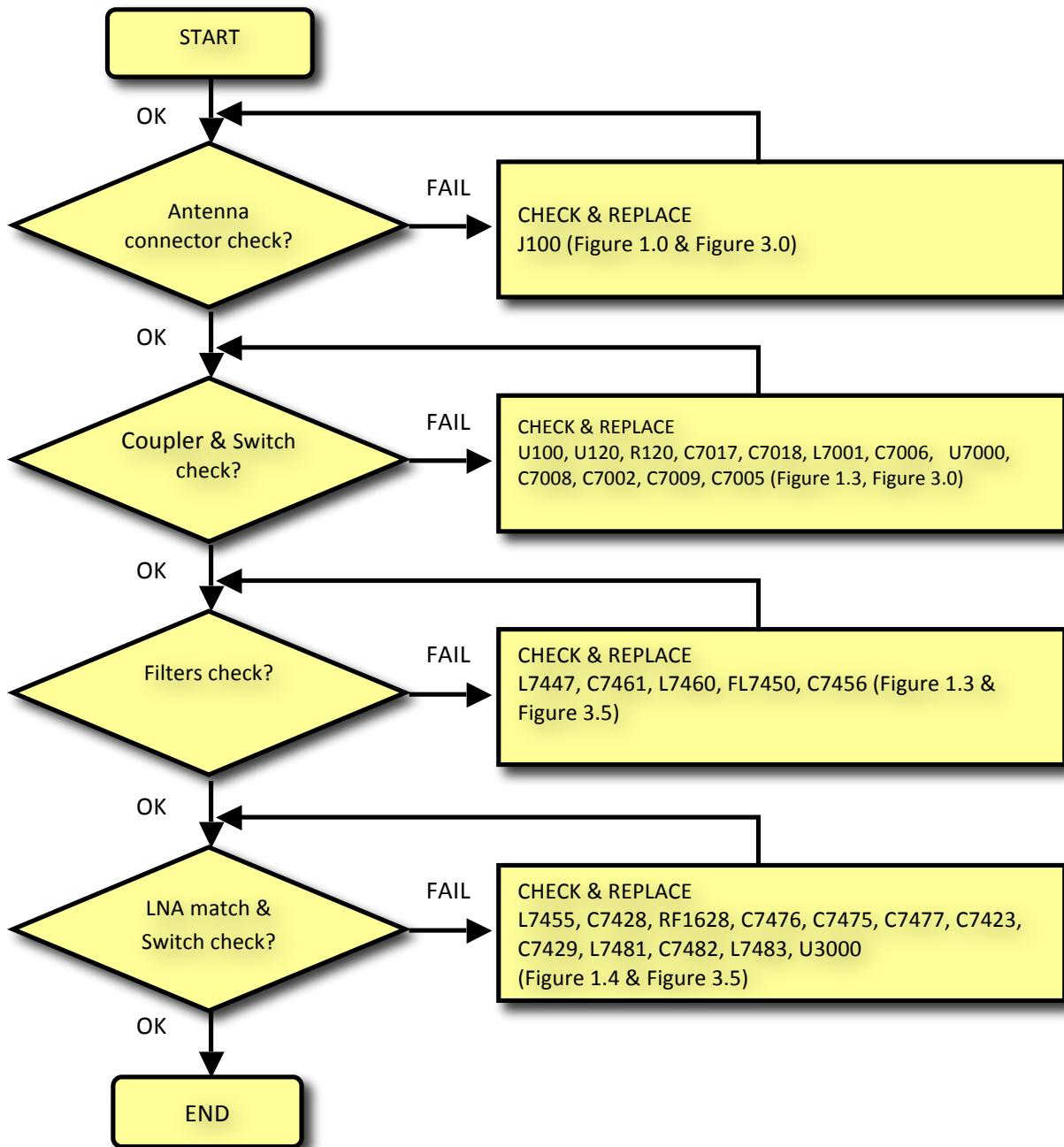
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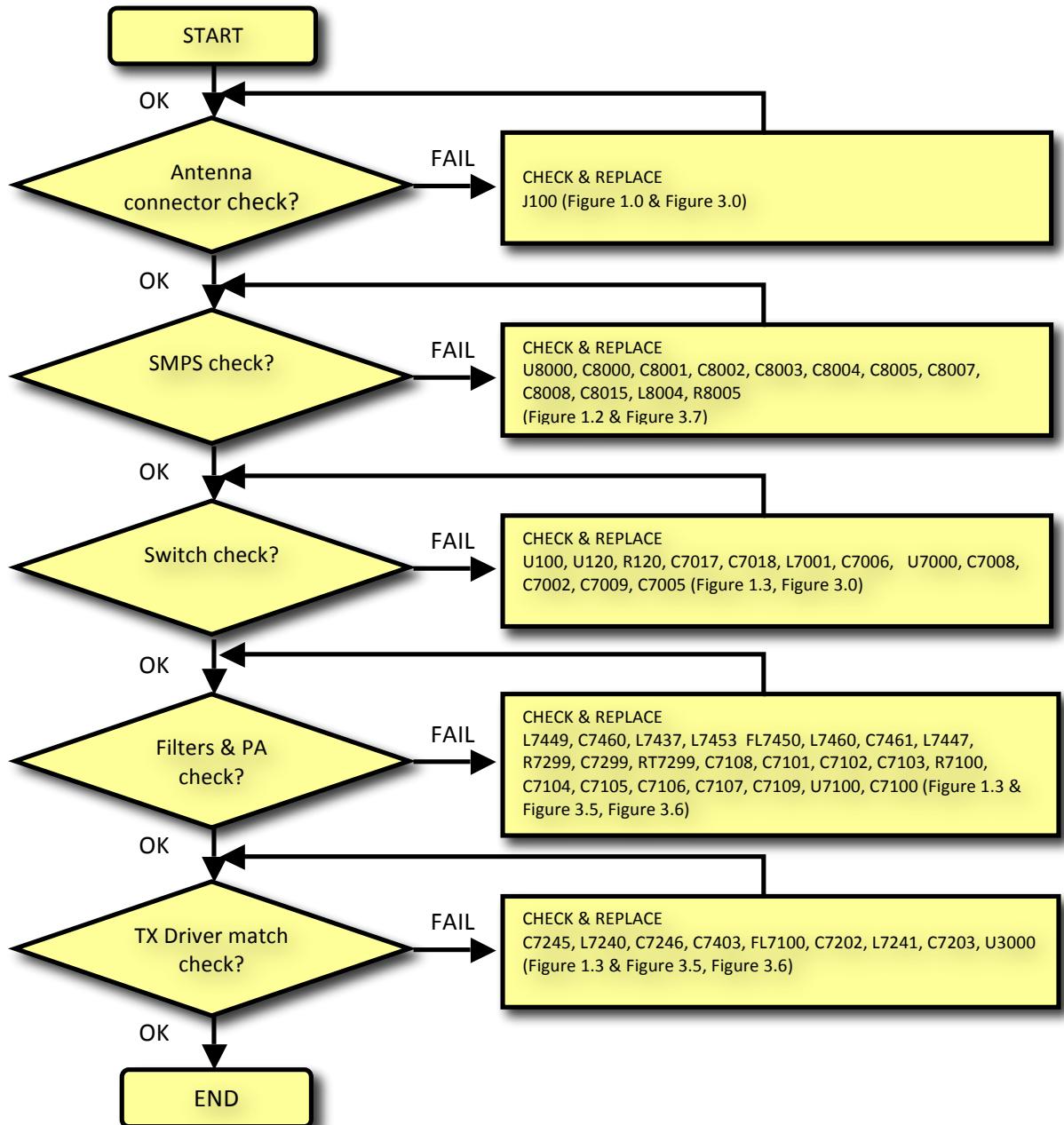
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**XT1561/XT1562/XT1563/XT1564/XT1565 Board Test
Troubleshooting Guide****Board Test****Band_28B_C0_RX**

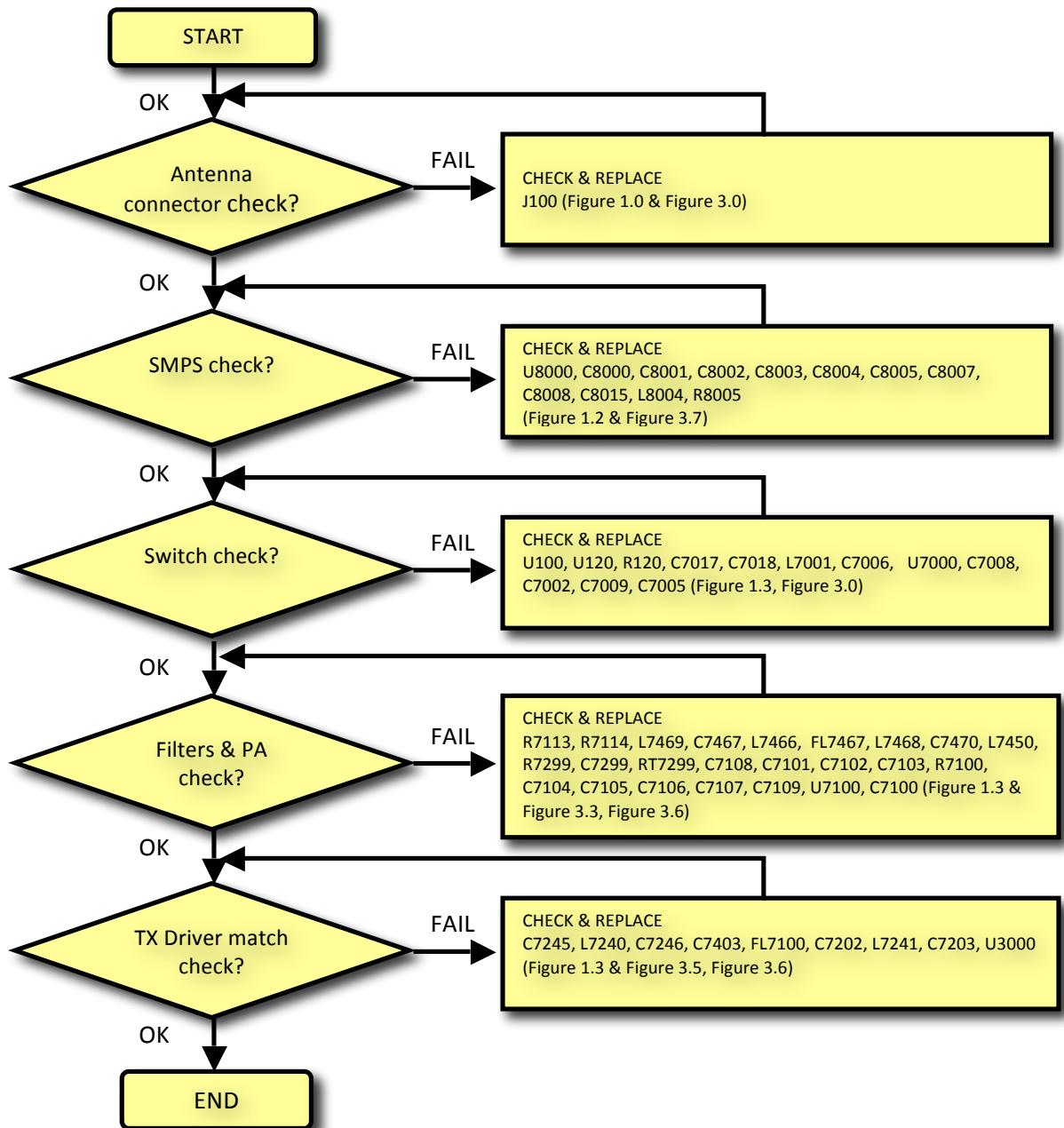
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**XT1561/XT1562/XT1563/XT1564/XT1565 Board Test
Troubleshooting Guide****Board Test****Band_28B_C0_TX
Check Chart**

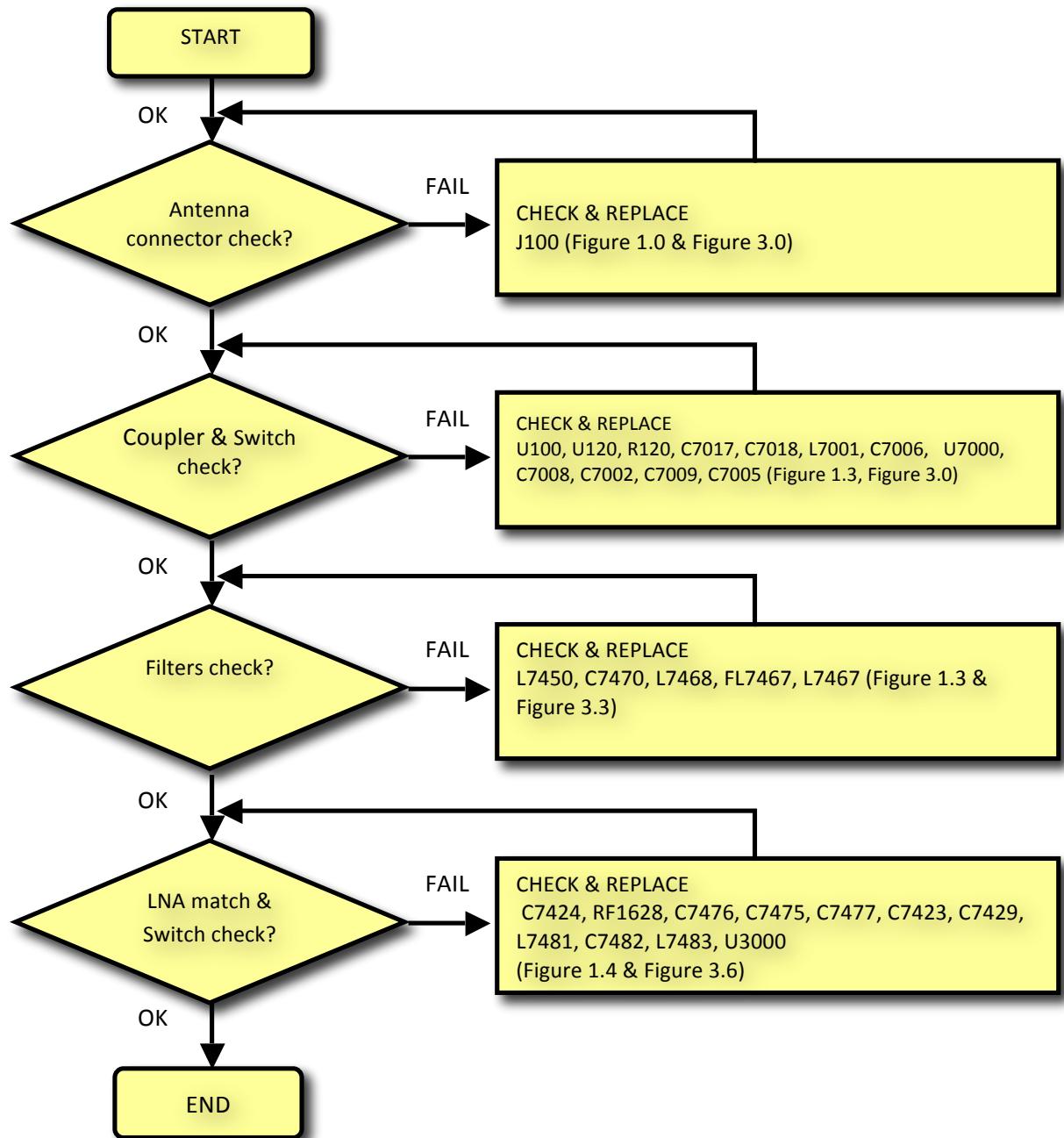
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Troubleshooting Guide****Board Test****Band_12_C0_TX**

Check Chart



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Troubleshooting Guide****Board Test****Band_12_C0_RX**

Check Chart

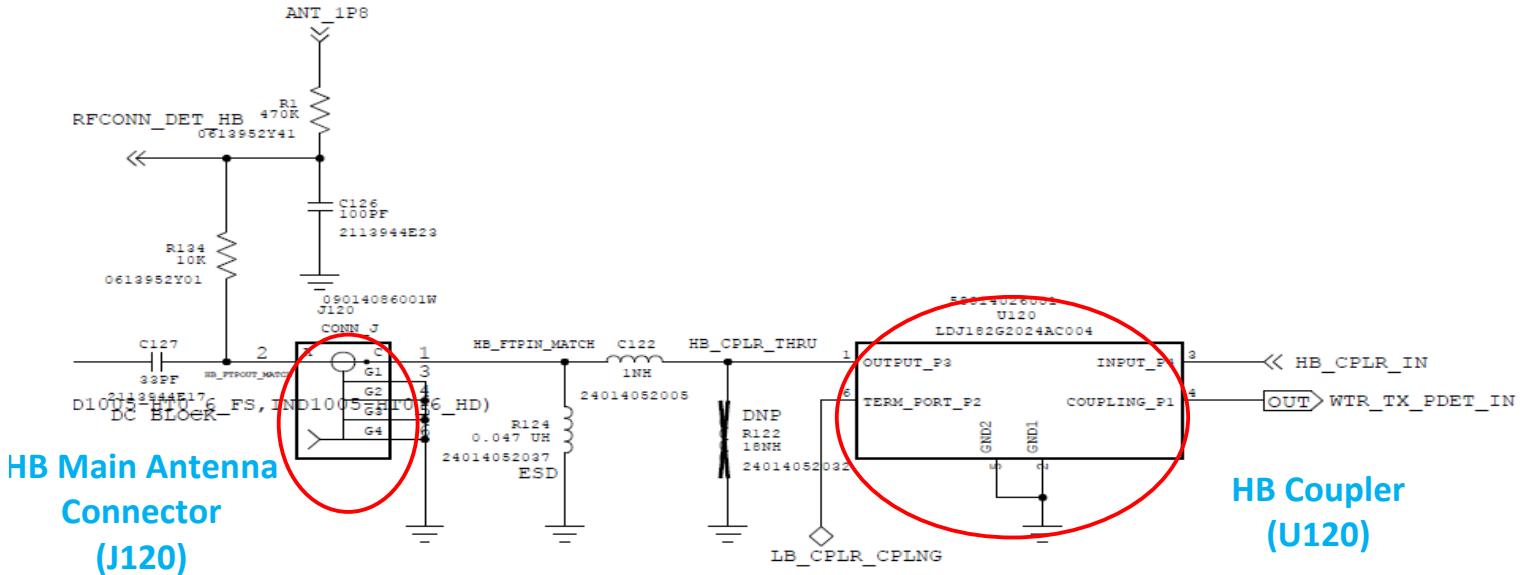


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HB Main Antenna RF Connector (J120) TROUBLESHOOTING: HB Reference Schematics:



**HB Main Antenna
Connector
(J120)**

**HB Coupler
(U120)**

Figure 4.0

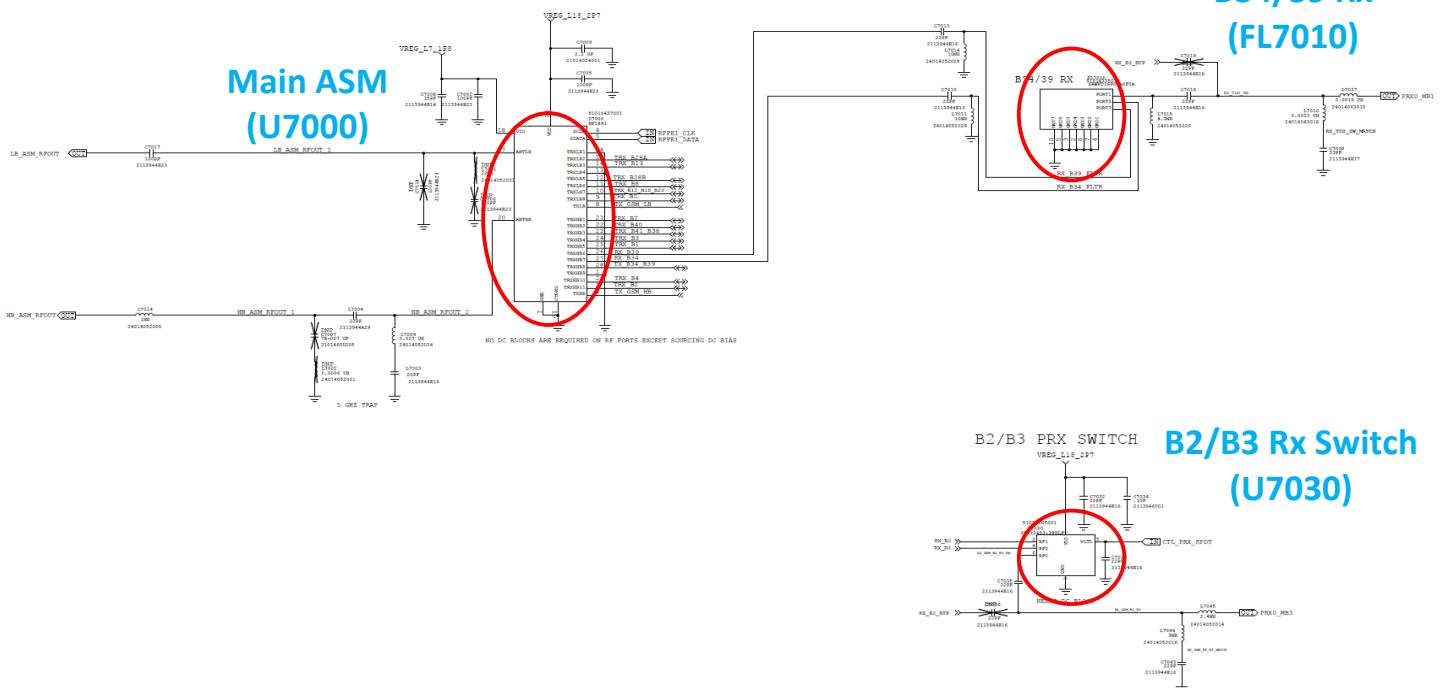
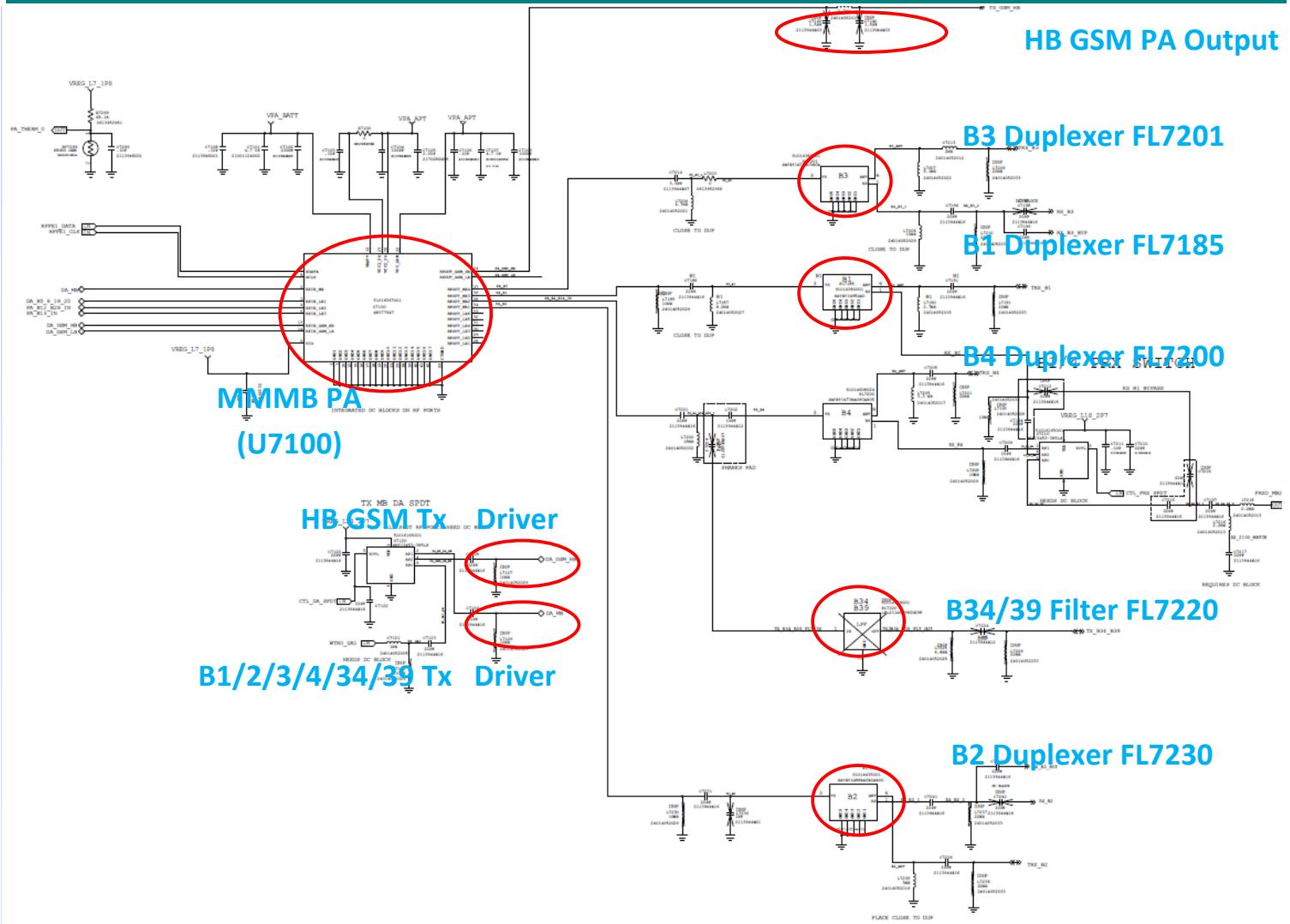


Figure 4.1

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Figure 4.2

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XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

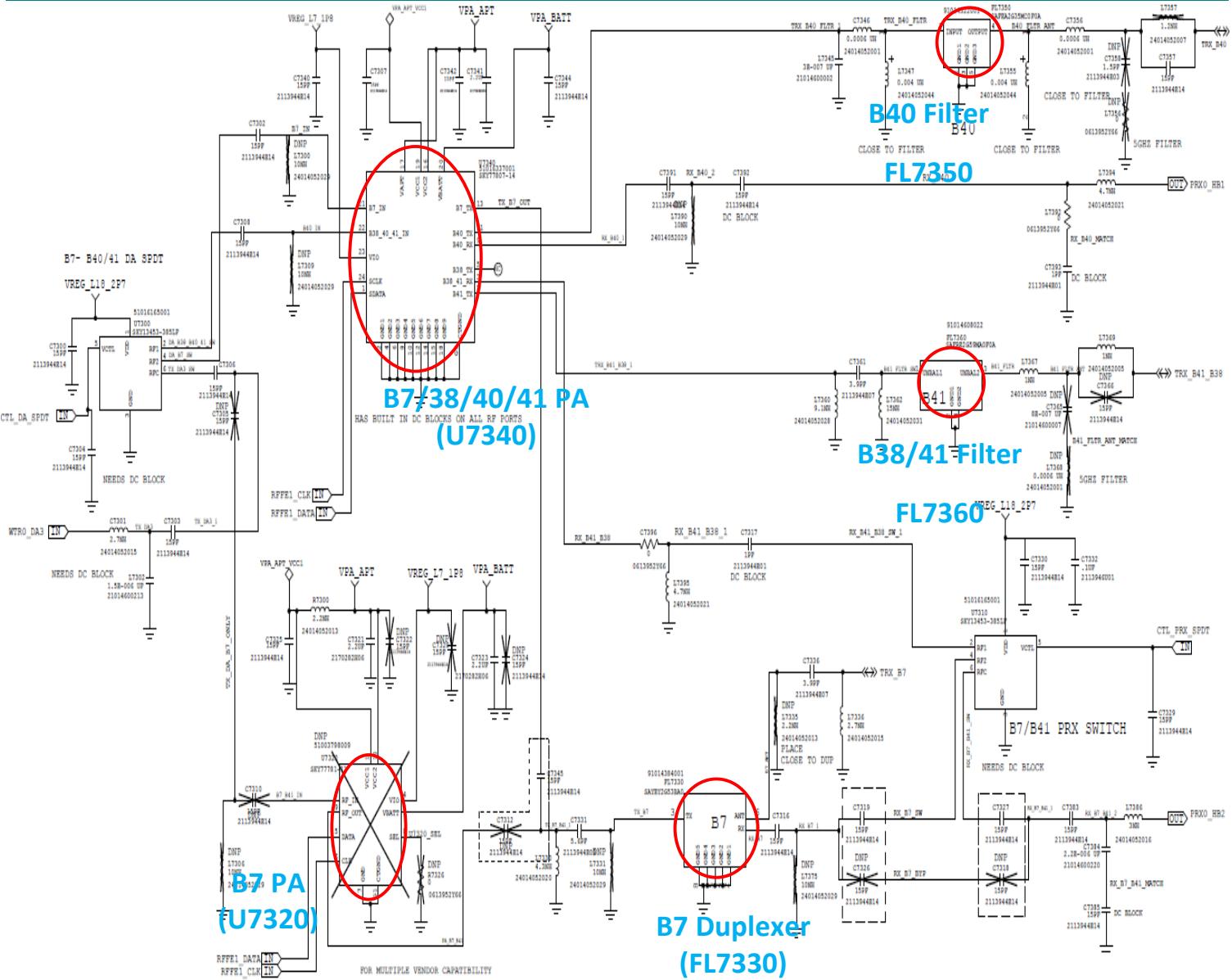


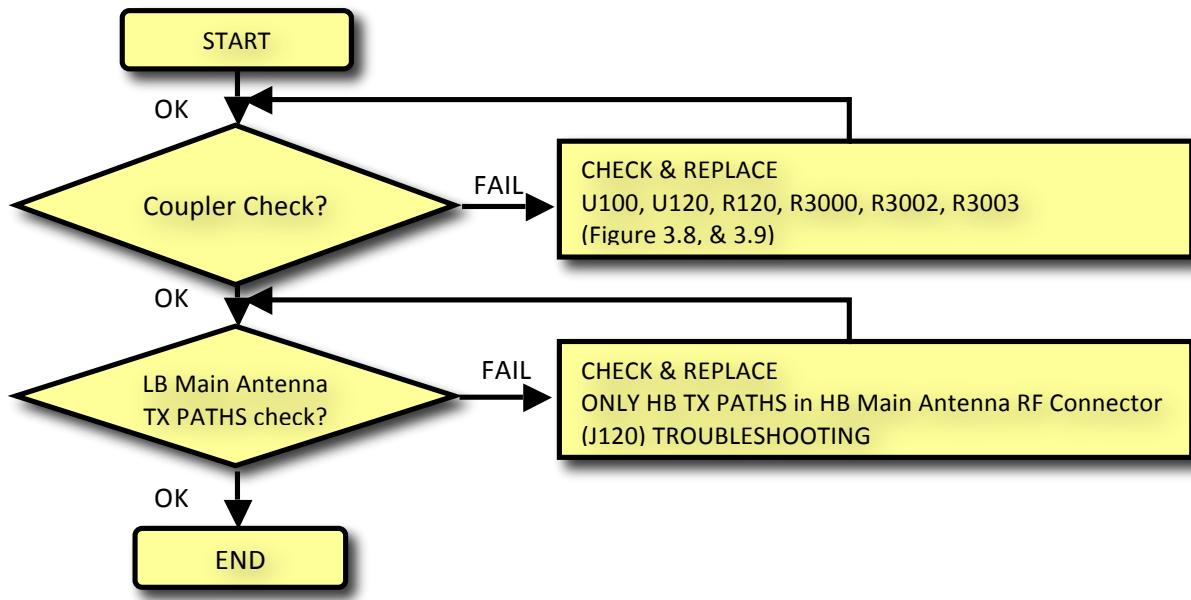
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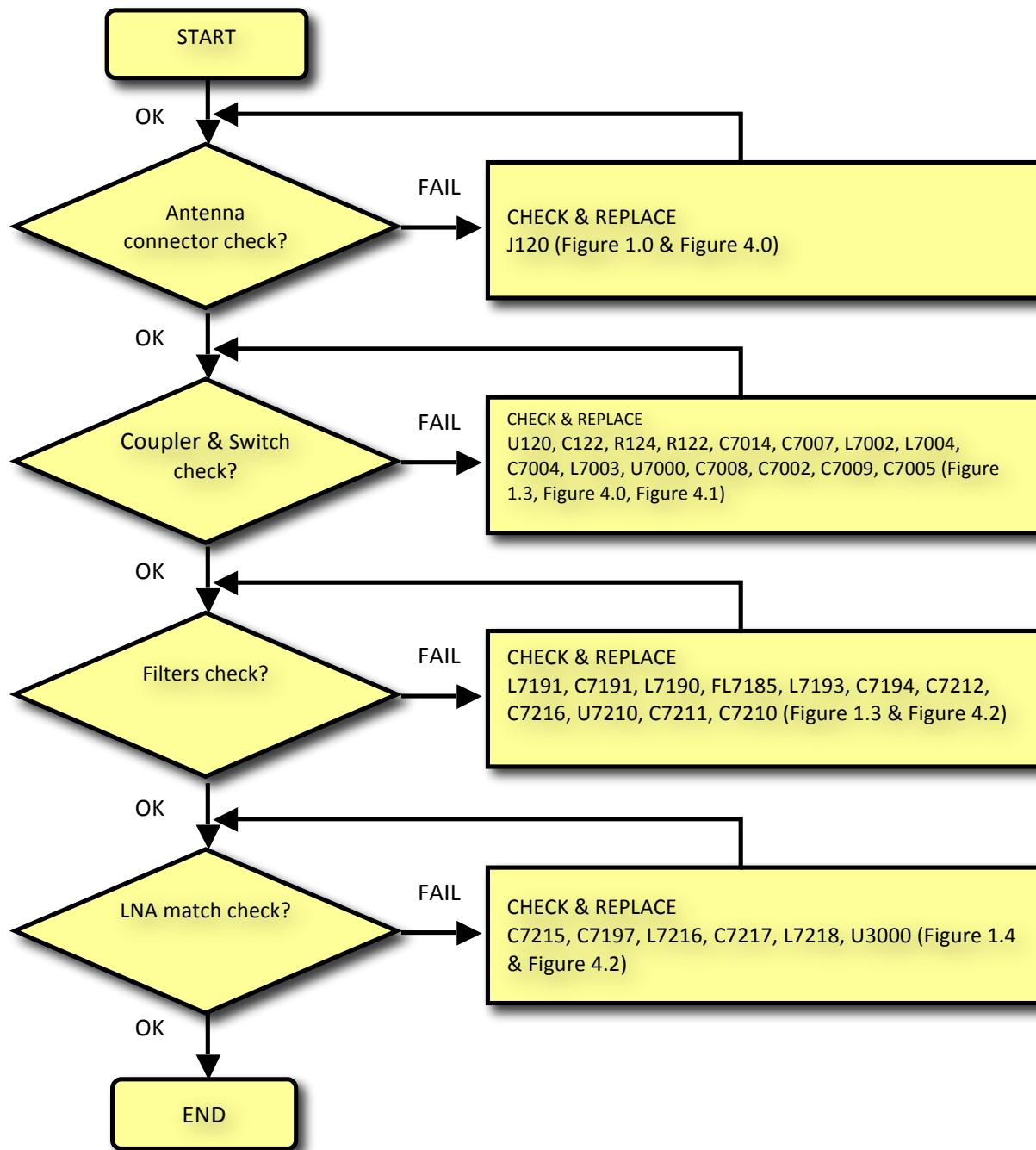
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HB HDET TROUBLESHOOTING:

Check Chart:



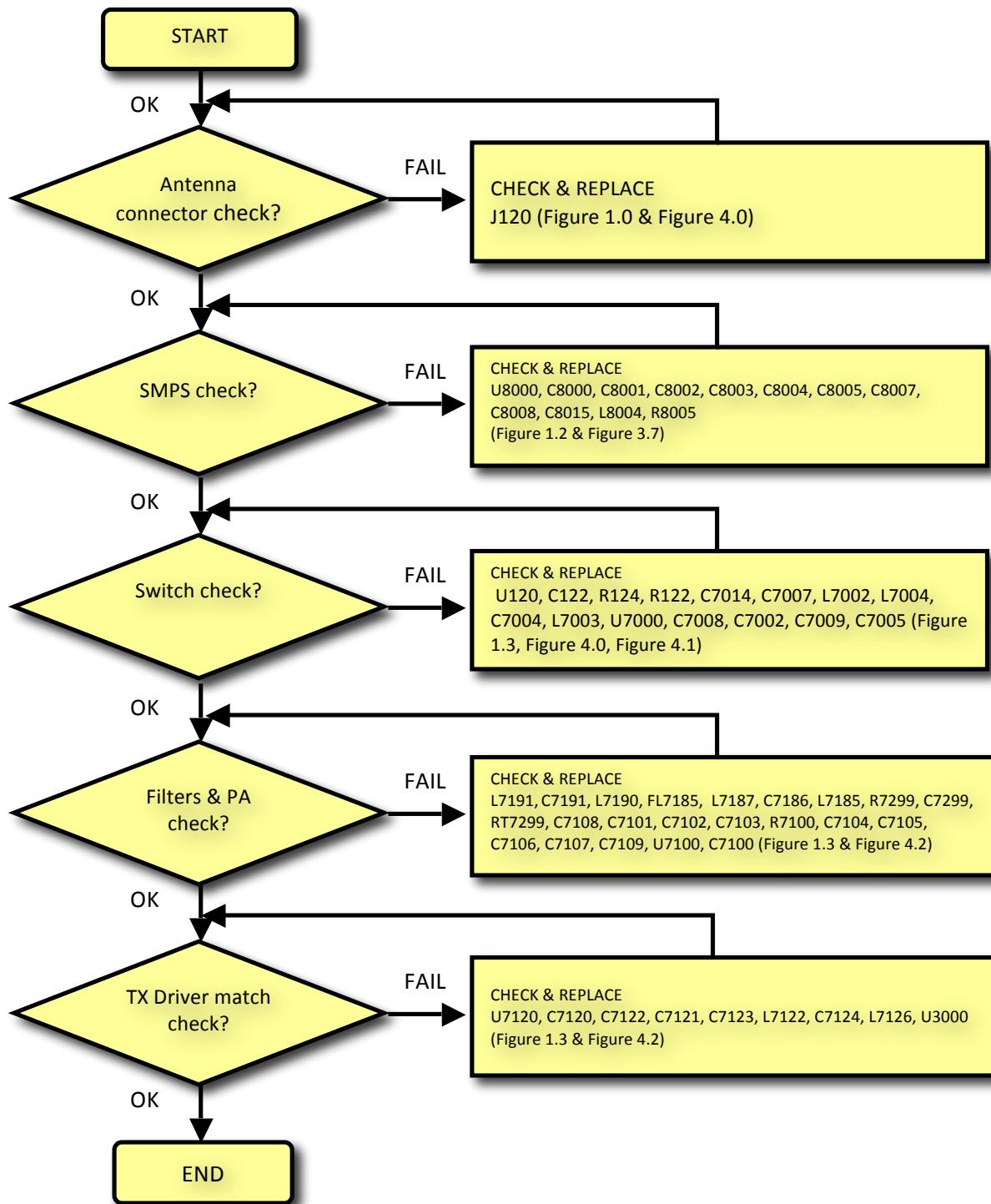
**XT1561/XT1562/XT1563/XT1564/XT1565 Board Test
Troubleshooting Guide****Board Test****WCDMA_2100_C0_RX****Check Chart**

XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

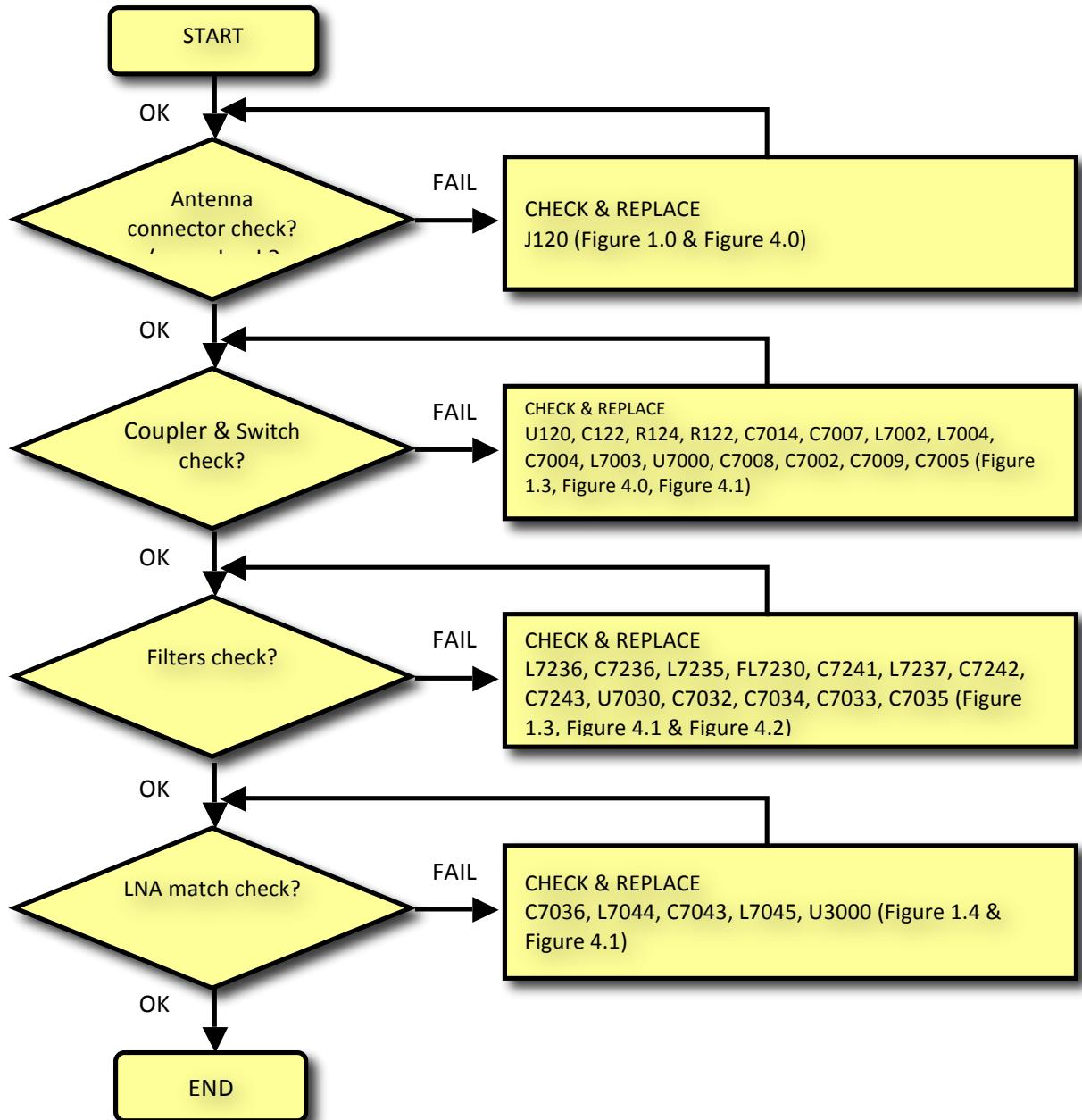
WCDMA_2100_C0_TX

Check Chart



**XT1561/XT1562/XT1563/XT1564/XT1565 Board Test
Troubleshooting Guide****Board Test****CDMA_1900_C0_RX, WCDMA_1900_C0_RX & LTE_Band_2_C0_RX:**

Check Chart:

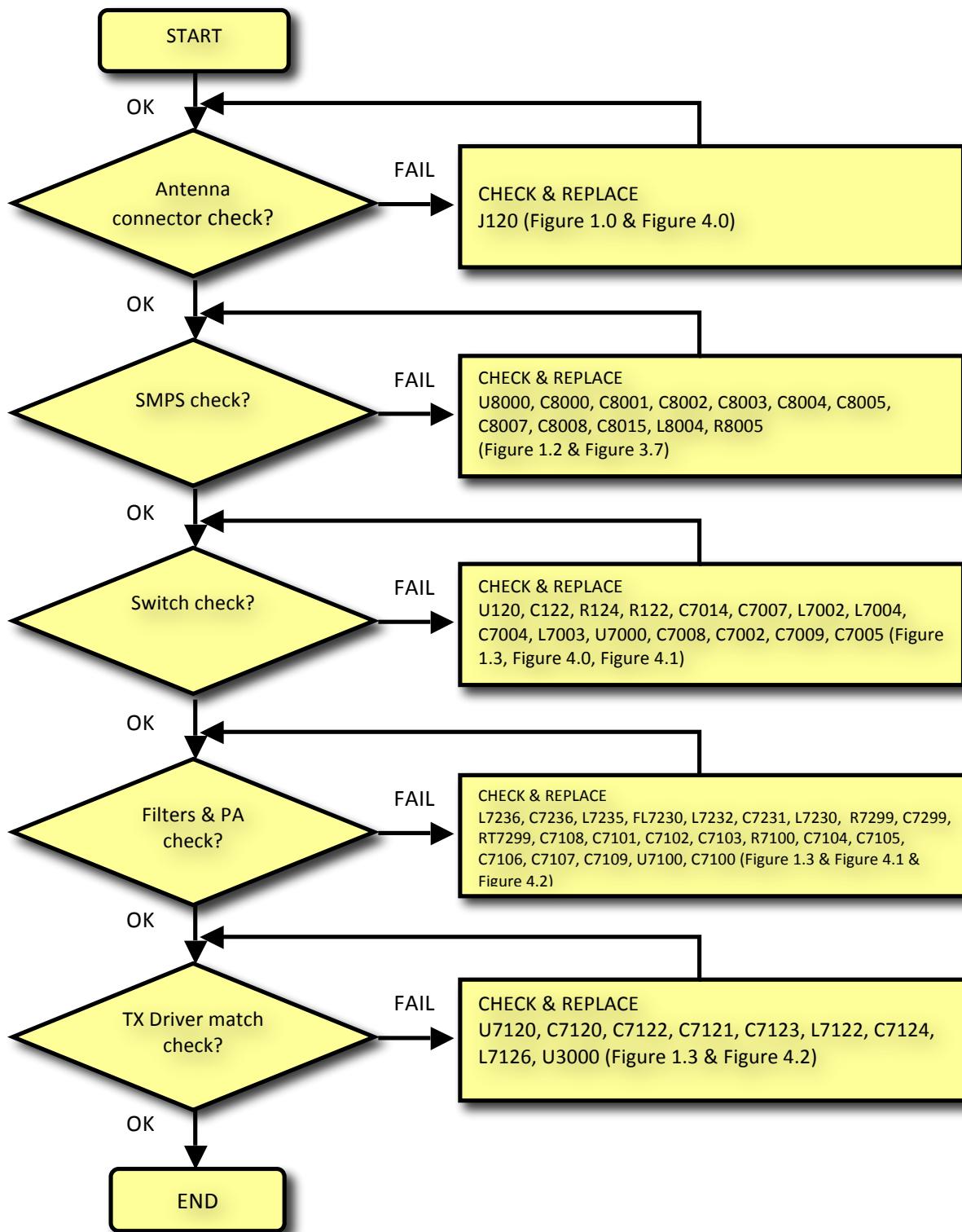


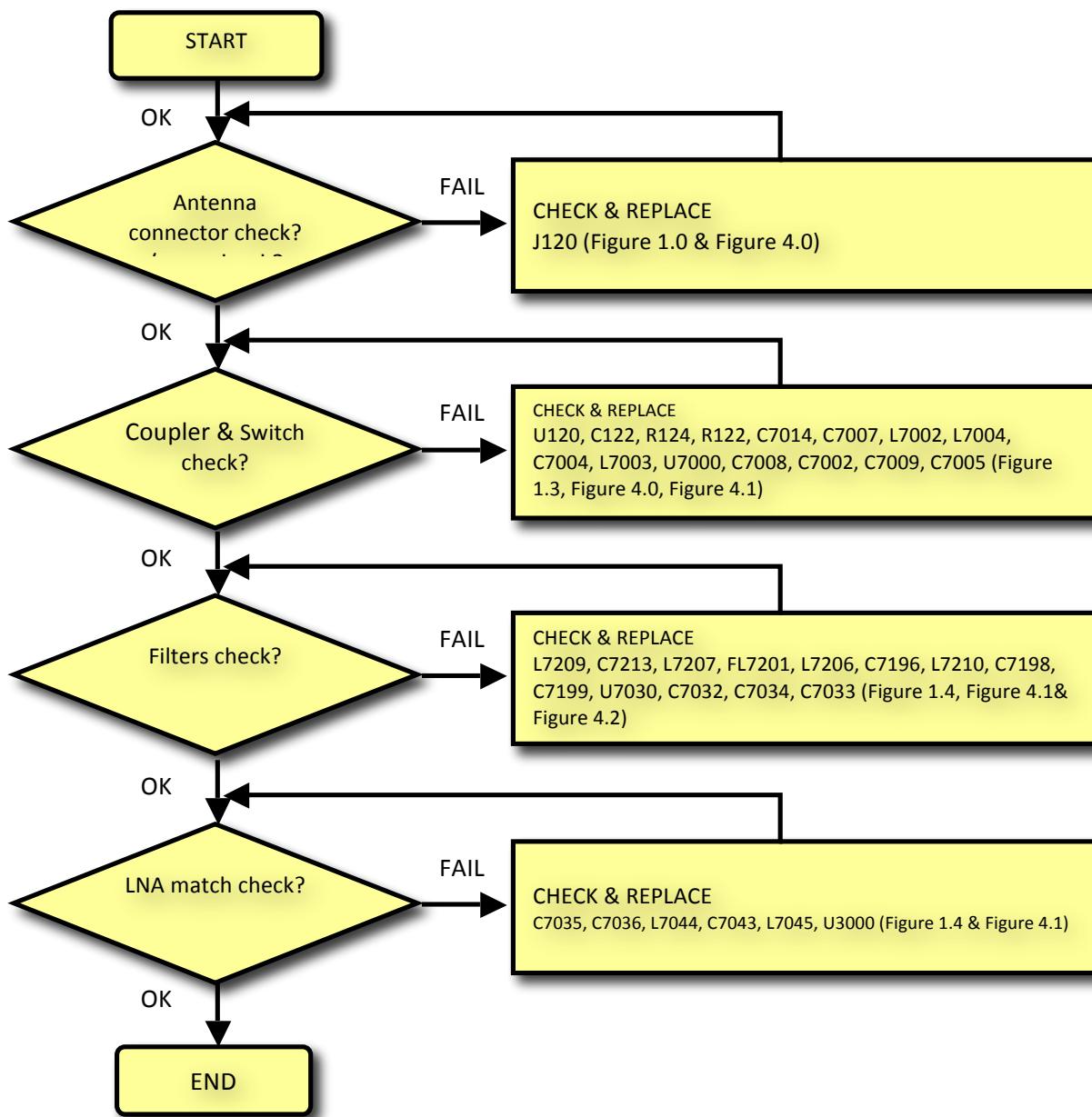
XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

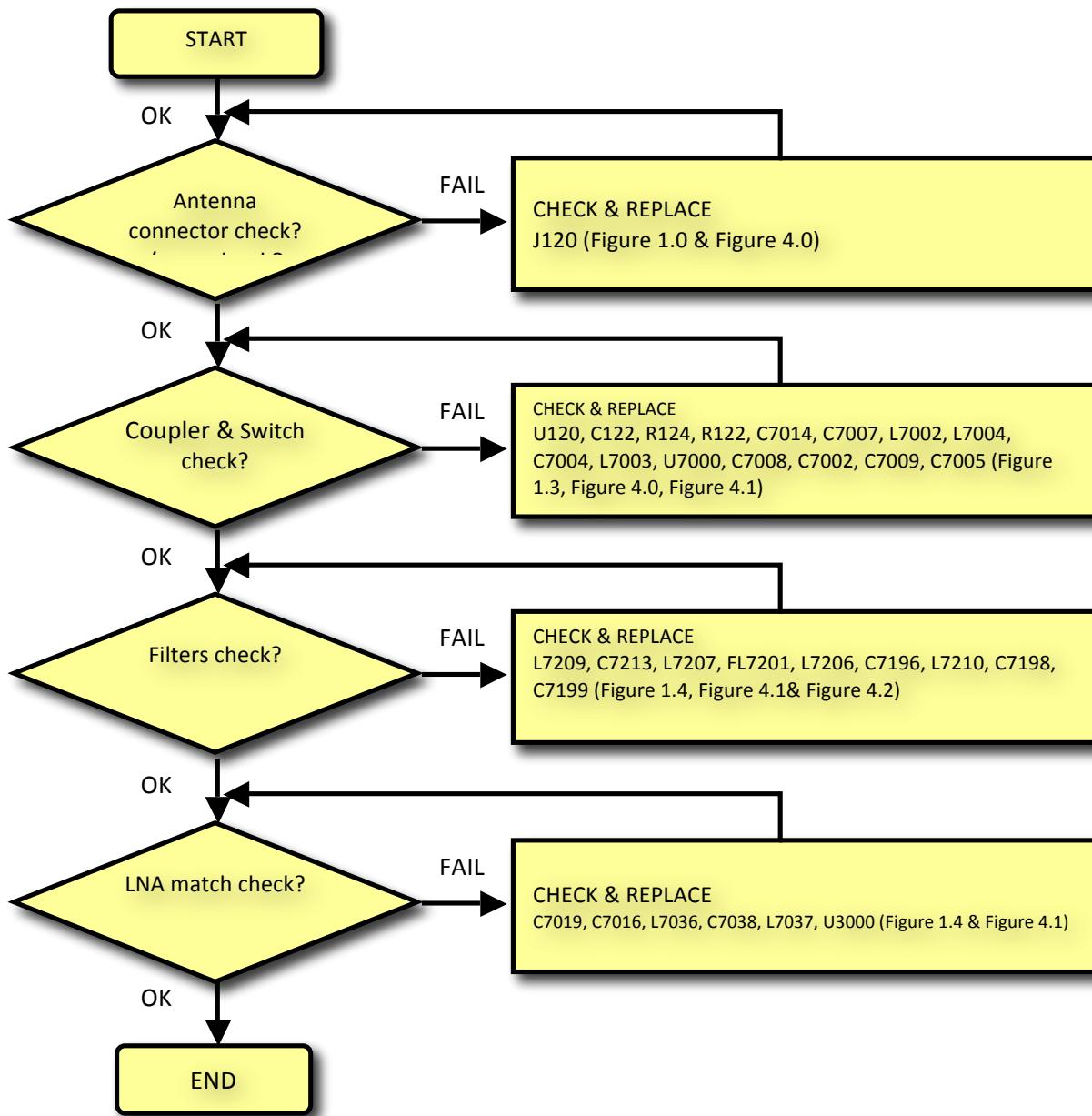
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CDMA_1900_C0_TX, WCDMA_1900_C0_TX & LTE_Band_2_C0_TX:

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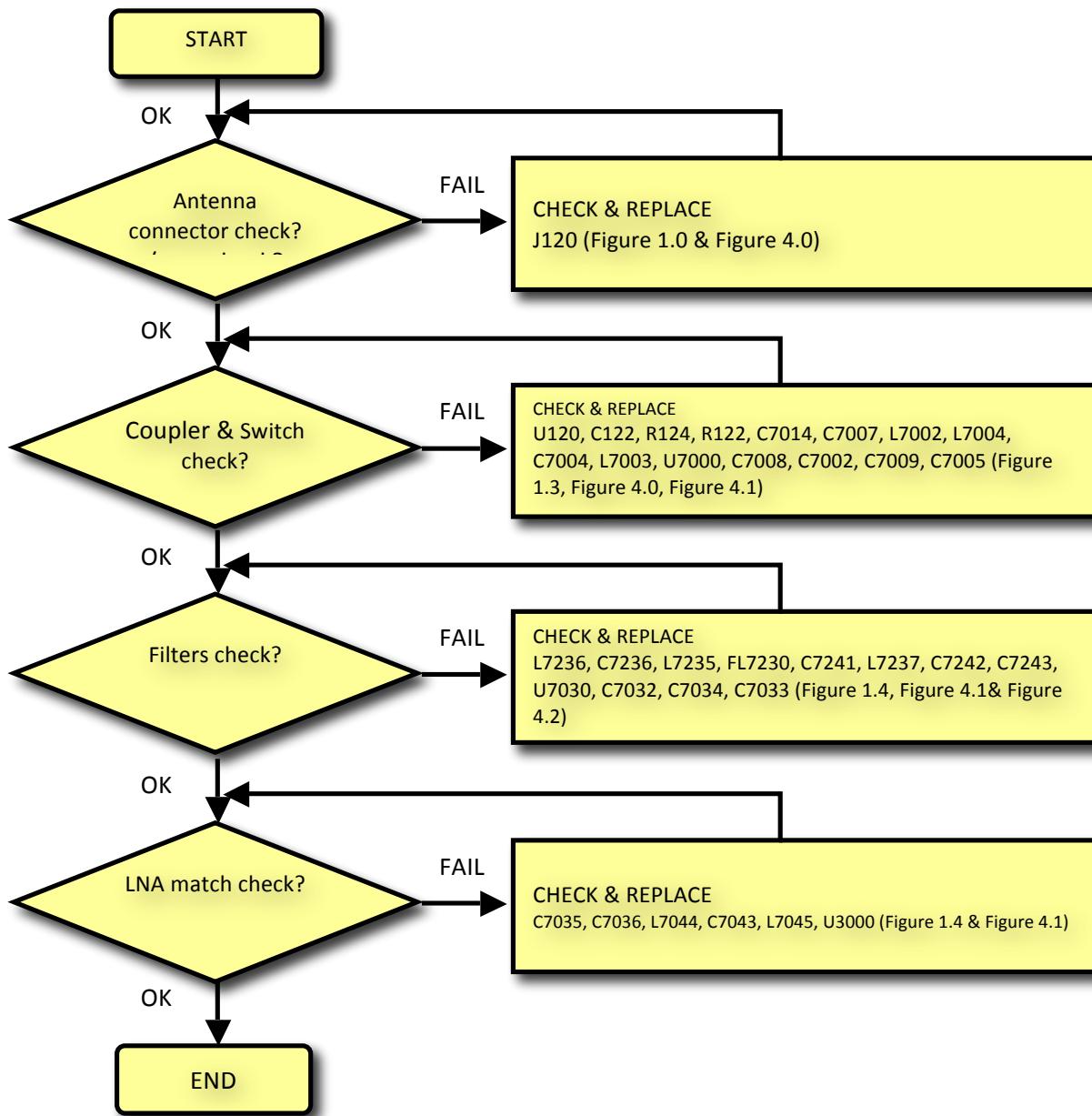
**XT1561/XT1562/XT1563/XT1564/XT1565 Board Test
Troubleshooting Guide****Board Test****GSM_1800 (CHINA SKU) _ RX
Check Chart**

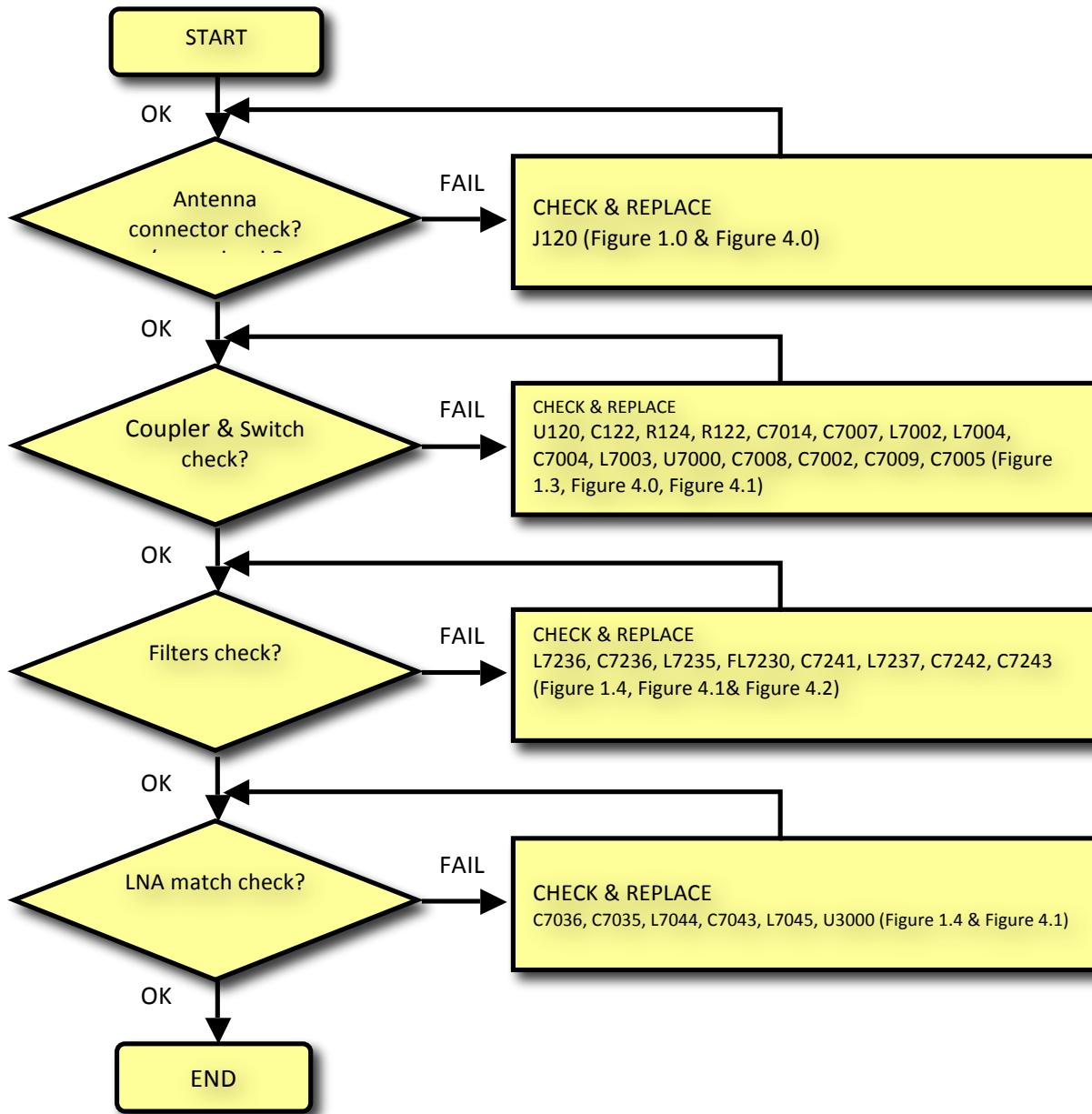
**XT1561/XT1562/XT1563/XT1564/XT1565 Board Test
Troubleshooting Guide****Board Test****GSM_1800 (OTHER SKUs) _ RX
Check Chart**

XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

GSM_1900 (CHINA SKU) _ RX Check Chart

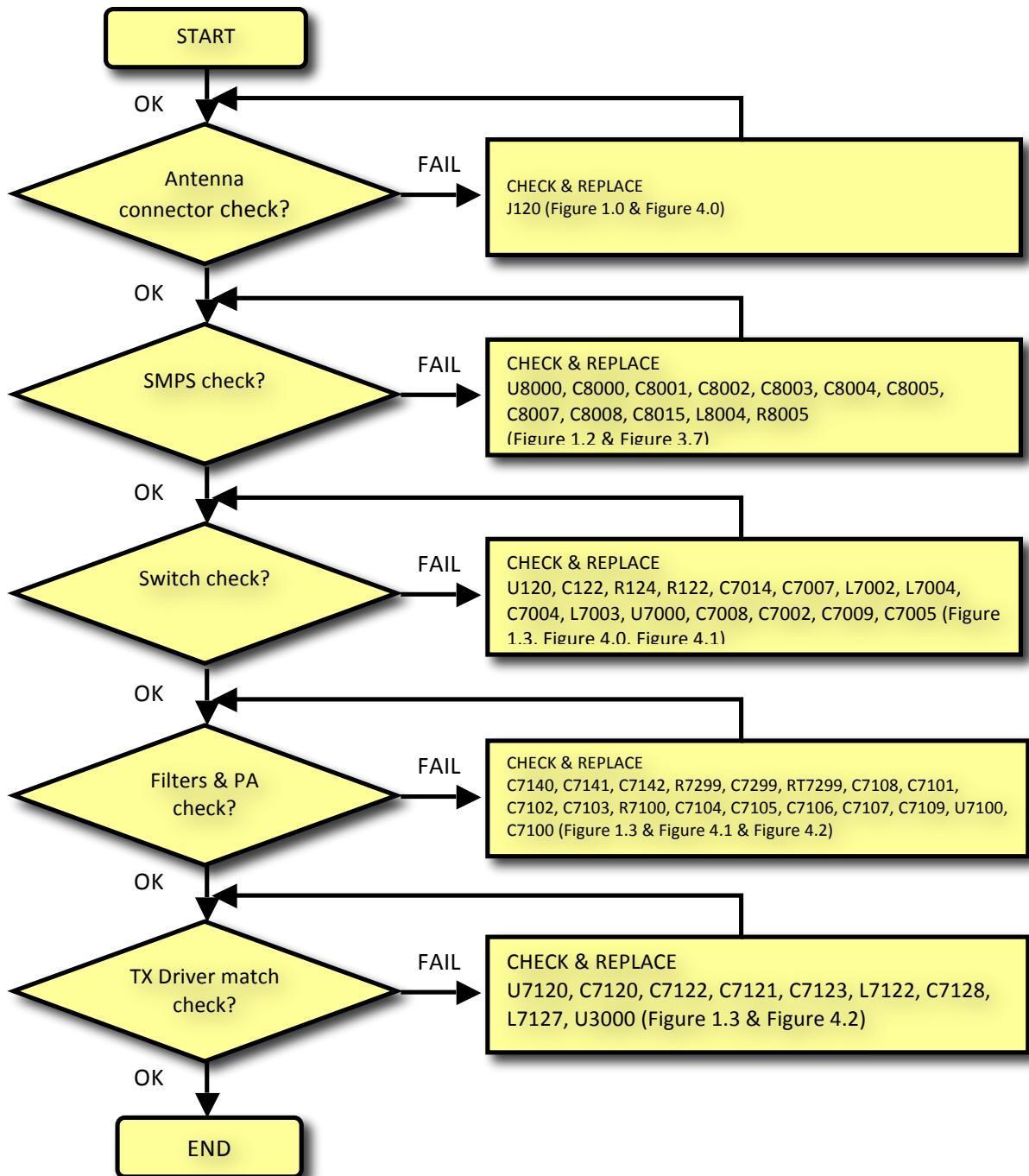


**XT1561/XT1562/XT1563/XT1564/XT1565 Board Test
Troubleshooting Guide****Board Test****GSM_1900 (OTHER SKUs) _ RX
Check Chart**

XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

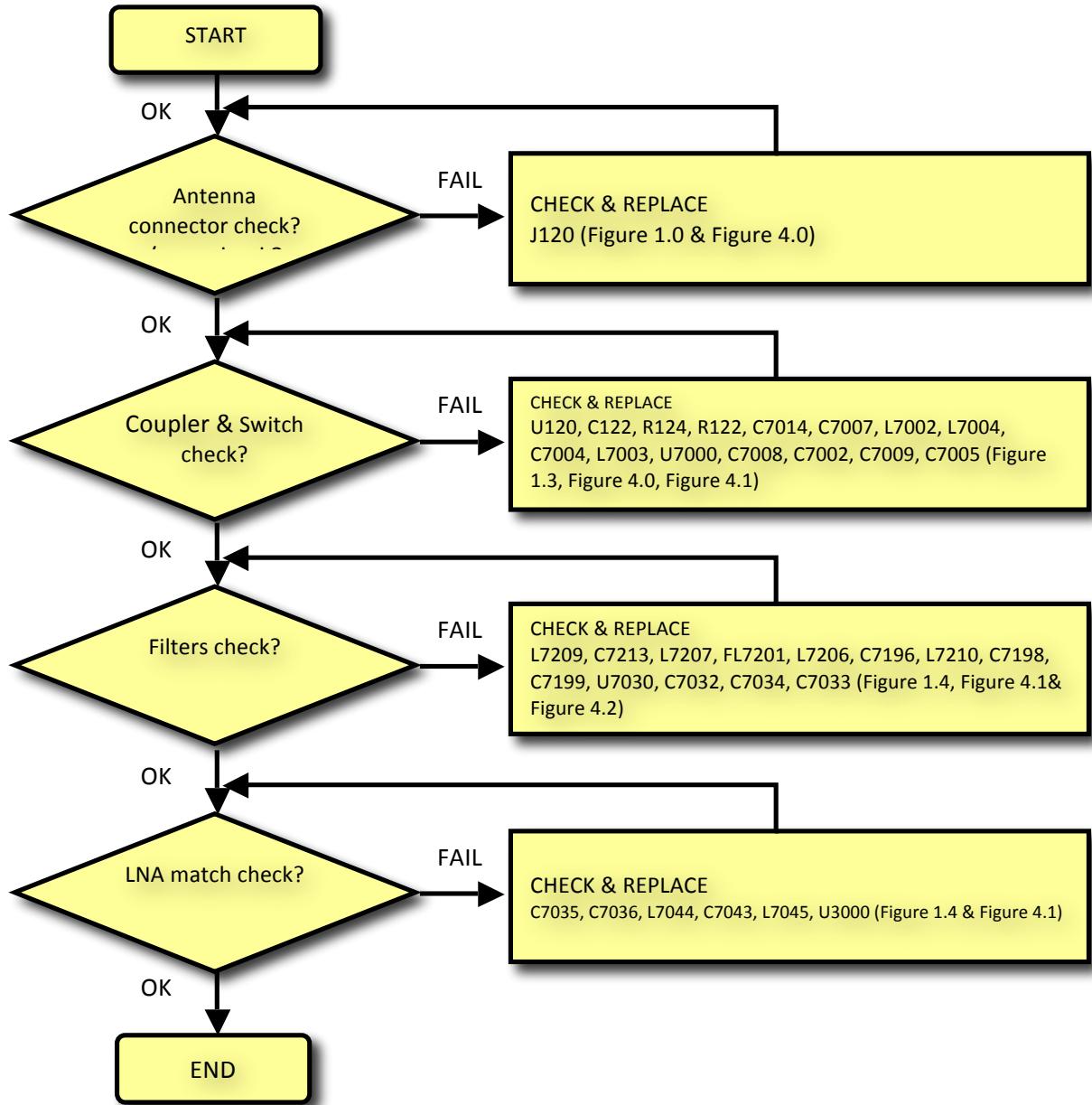
GSM_1800_TX, EDGE_1800_TX, GSM_1900_TX, & EDGE_1900_TX Check Chart



XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

LTE_Band_3_C0_RX (CHINA SKU) Check Chart

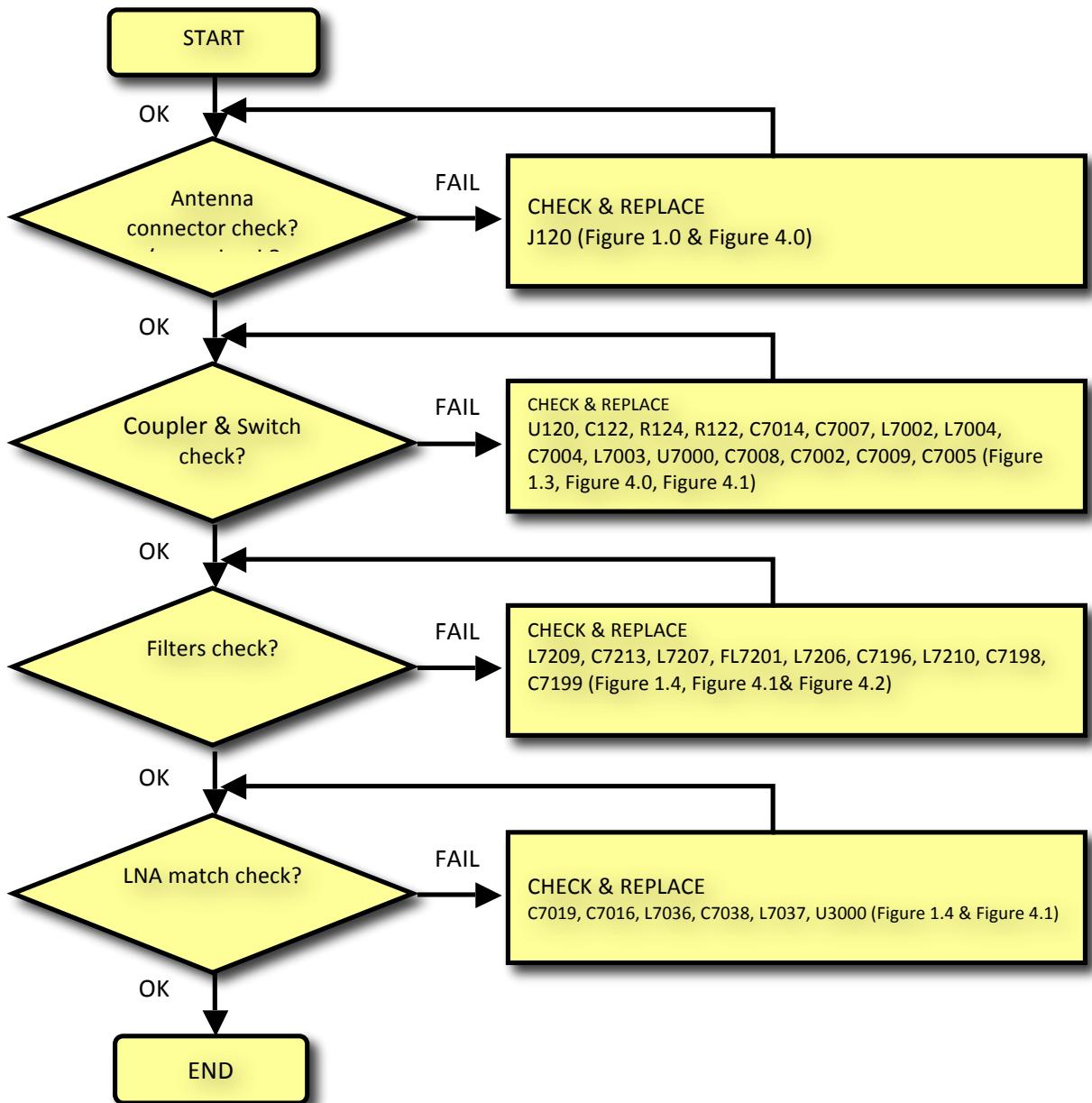


XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

LTE_Band_3_C0_RX (OTHER SKUs)

Check Chart

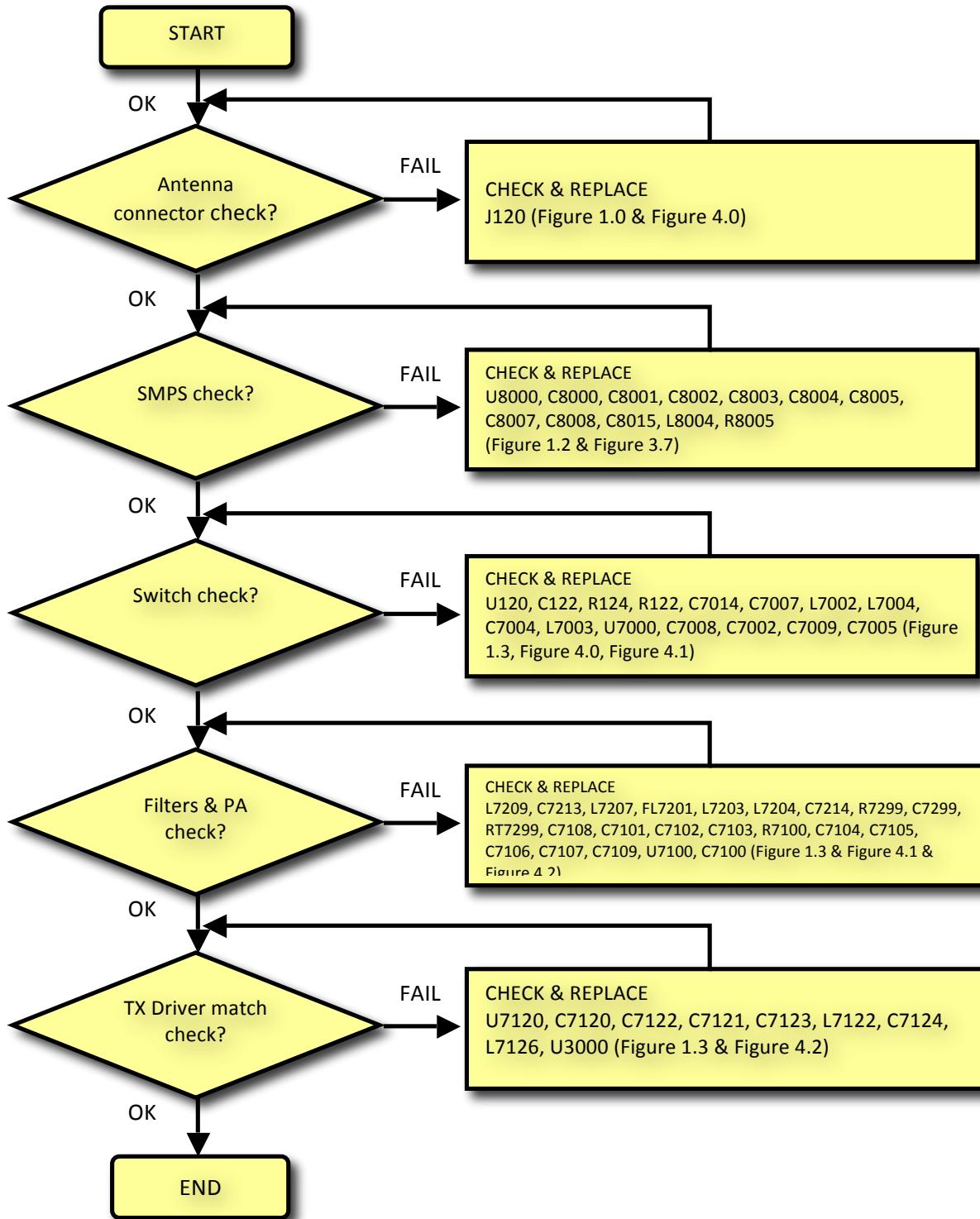


XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

LTE_Band_3_C0_TX

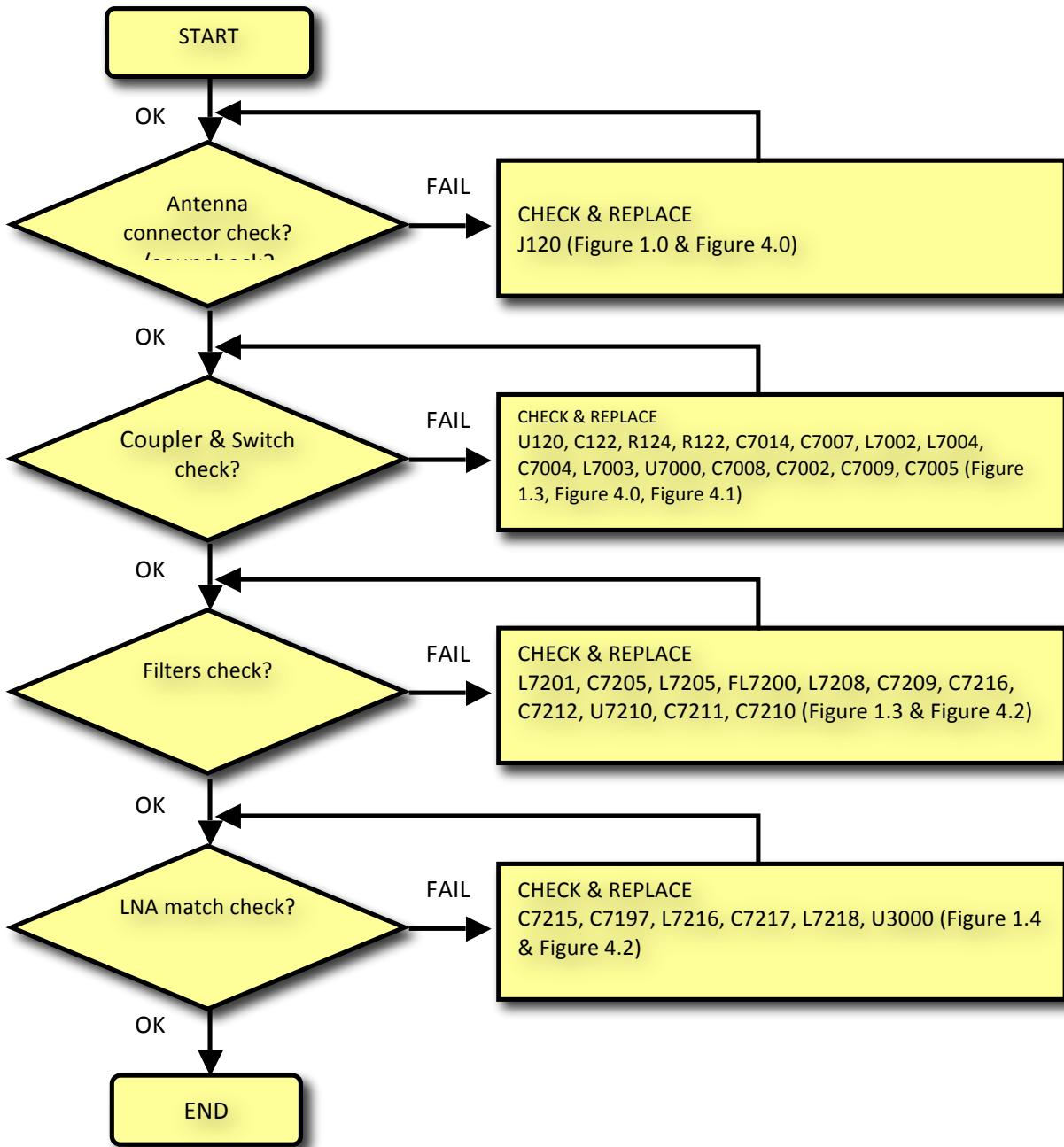
Check Chart



XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

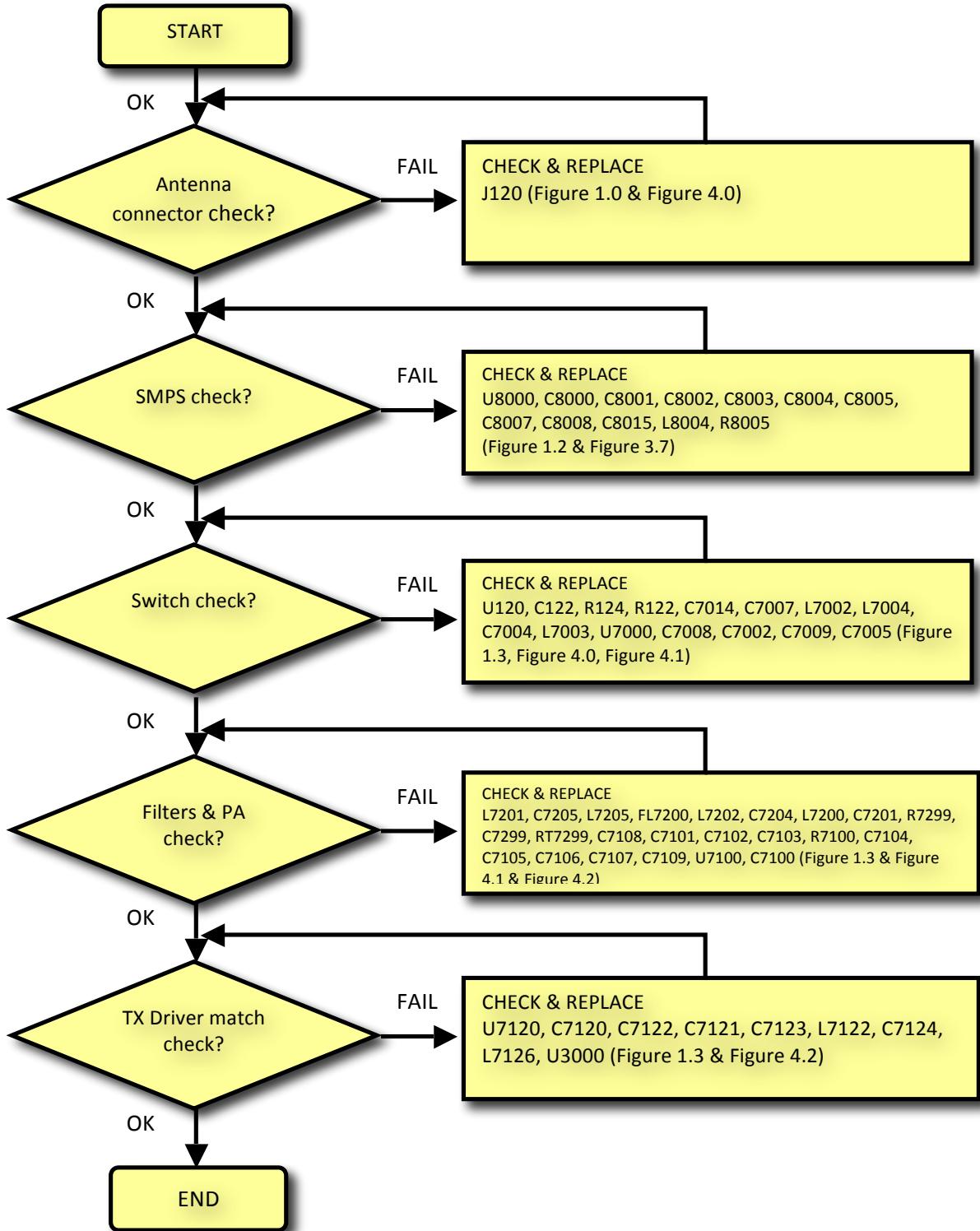
WCDMA_1700_C0_RX & LTE_Band_4_C0_RX Check Chart



XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

WCDMA_1700_C0_TX & LTE_Band_4_C0_TX Check Chart

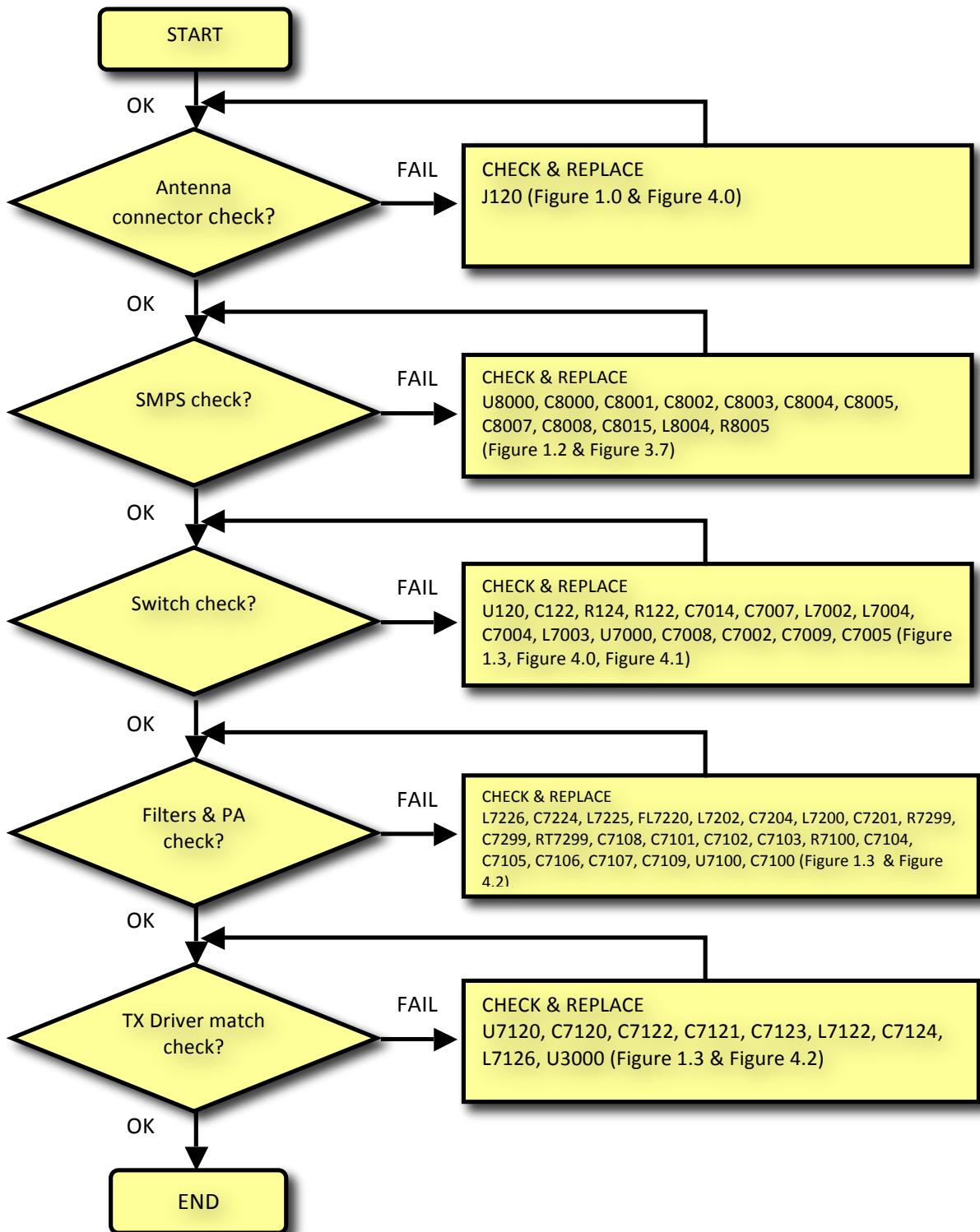


XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

LTE_B34/39_C0_TX

Check Chart

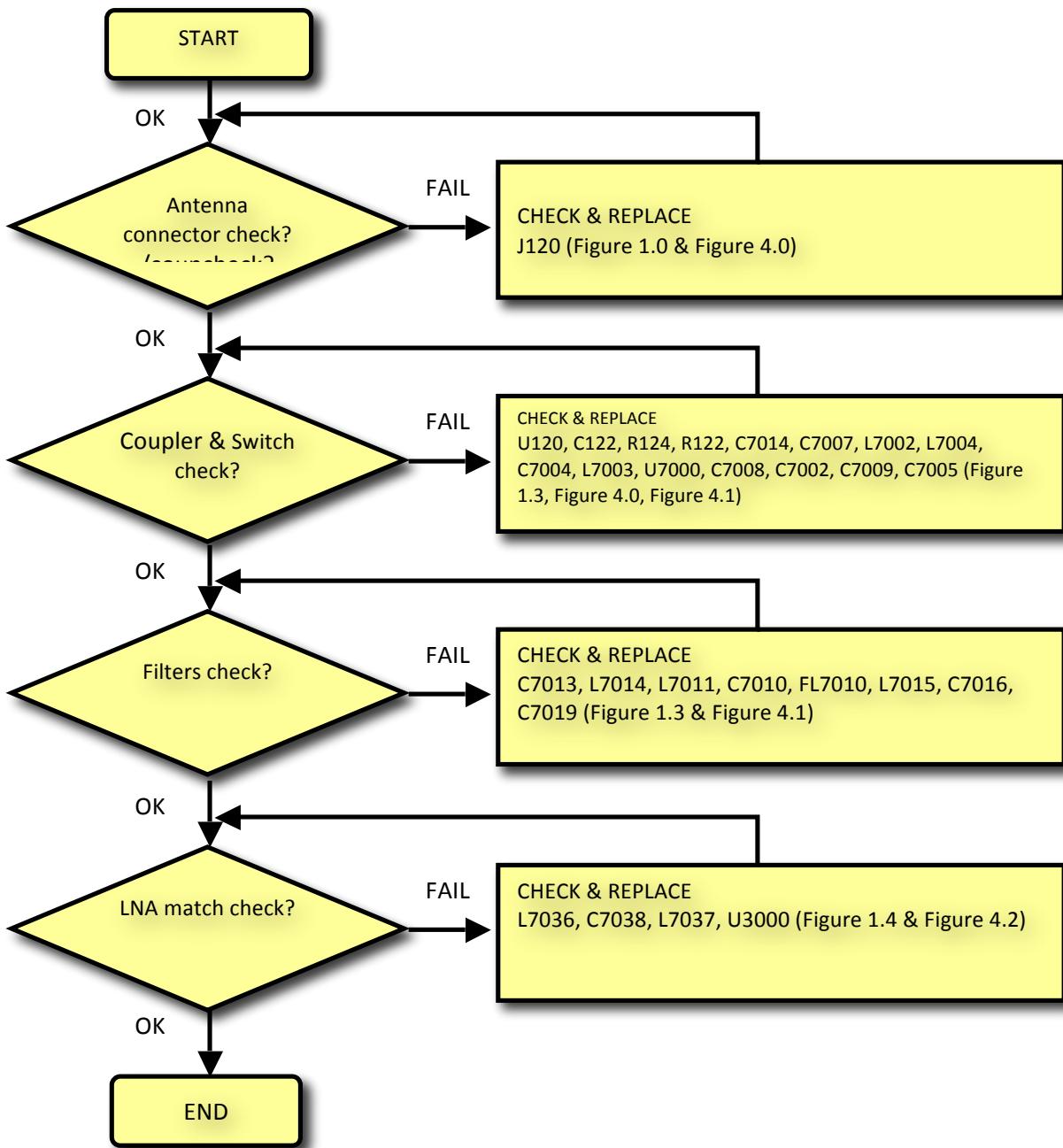


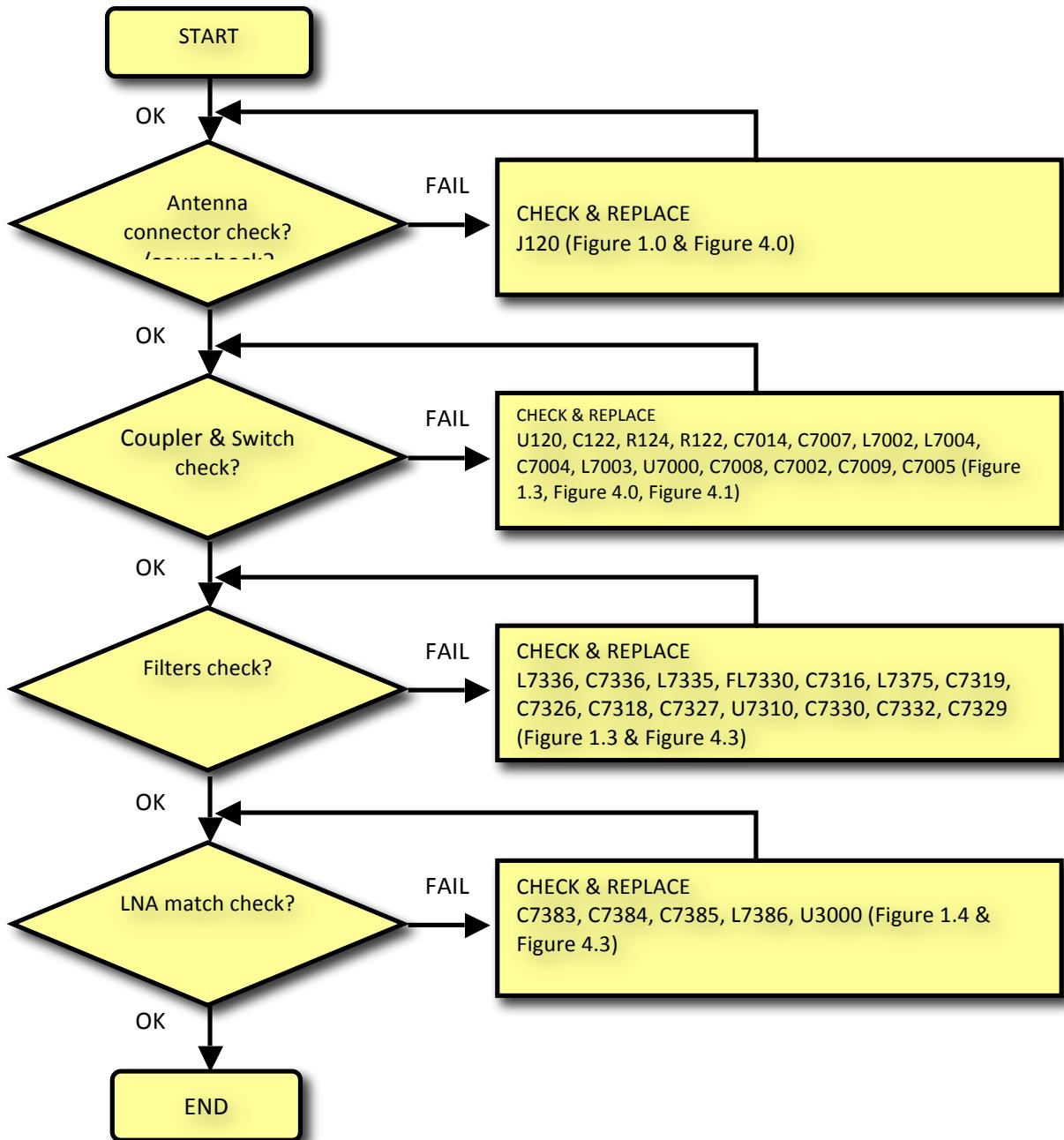
XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

LTE_B34/39_C0_RX

Check Chart

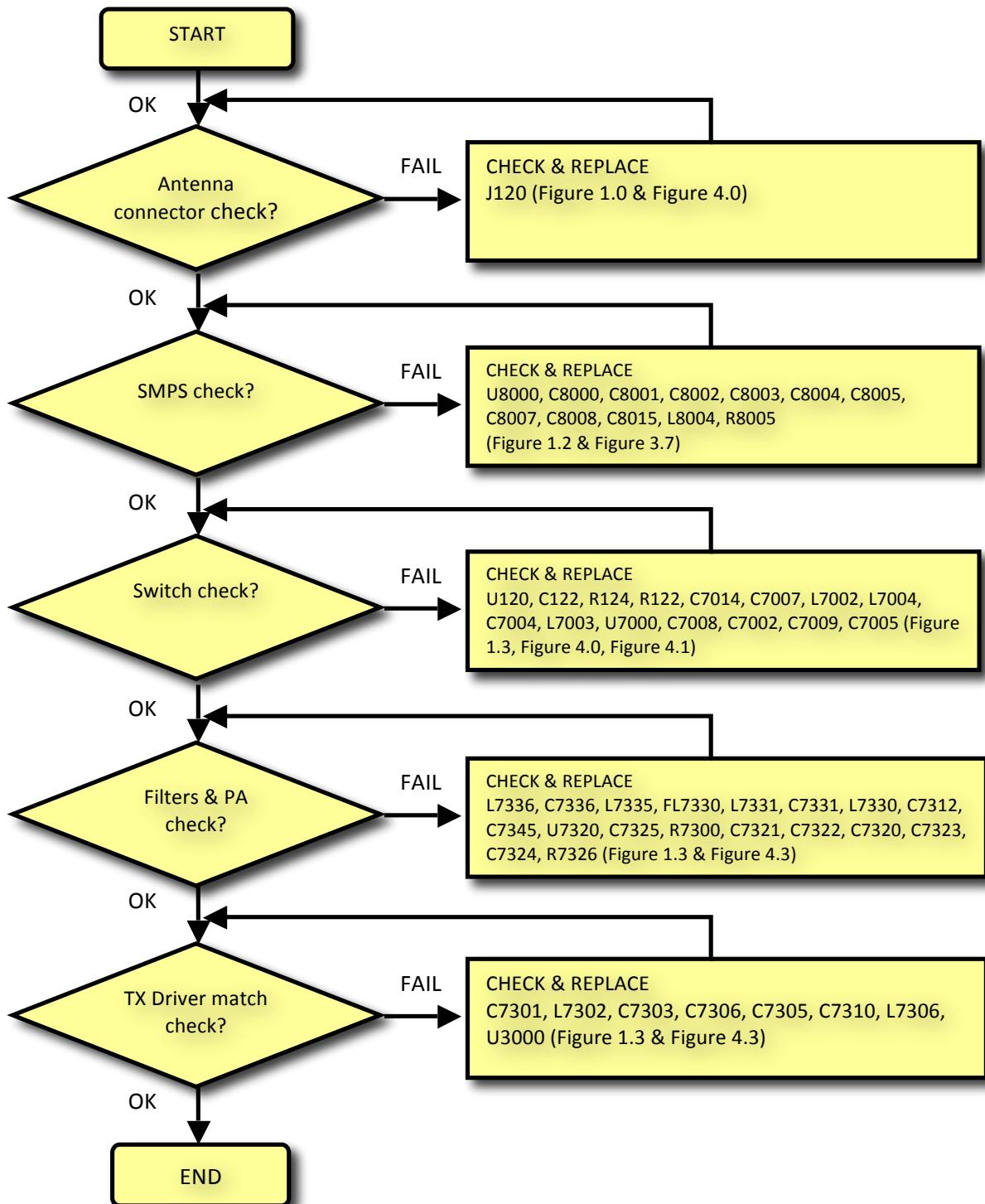


**XT1561/XT1562/XT1563/XT1564/XT1565 Board Test
Troubleshooting Guide****Board Test****LTE_Band_7_C0_RX
Check Chart**

XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

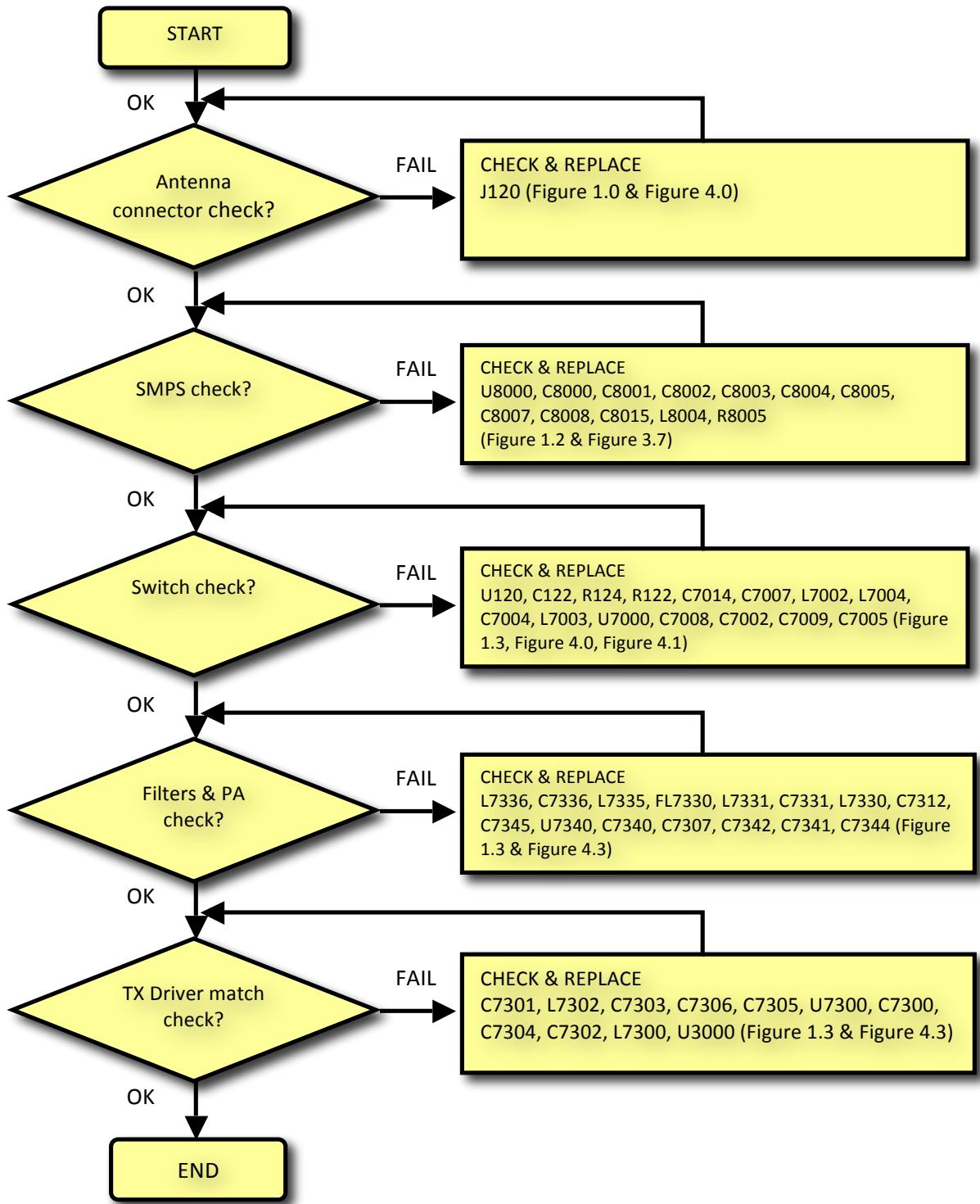
LTE_Band_7_C0_TX (Verizon and LatAm SKUs)



XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

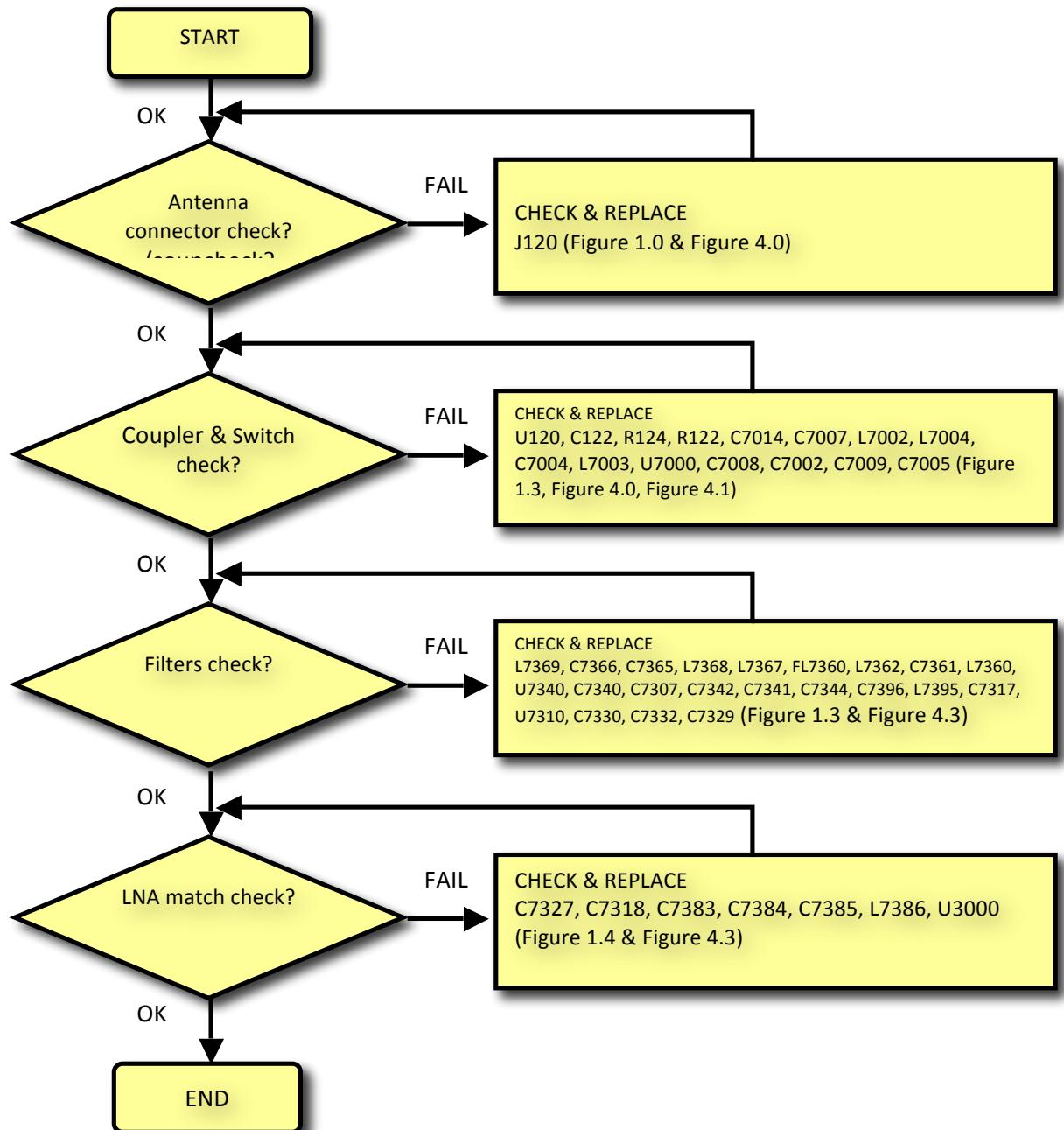
LTE_Band_7_C0_TX (ROW and CHINA SKUs)



XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

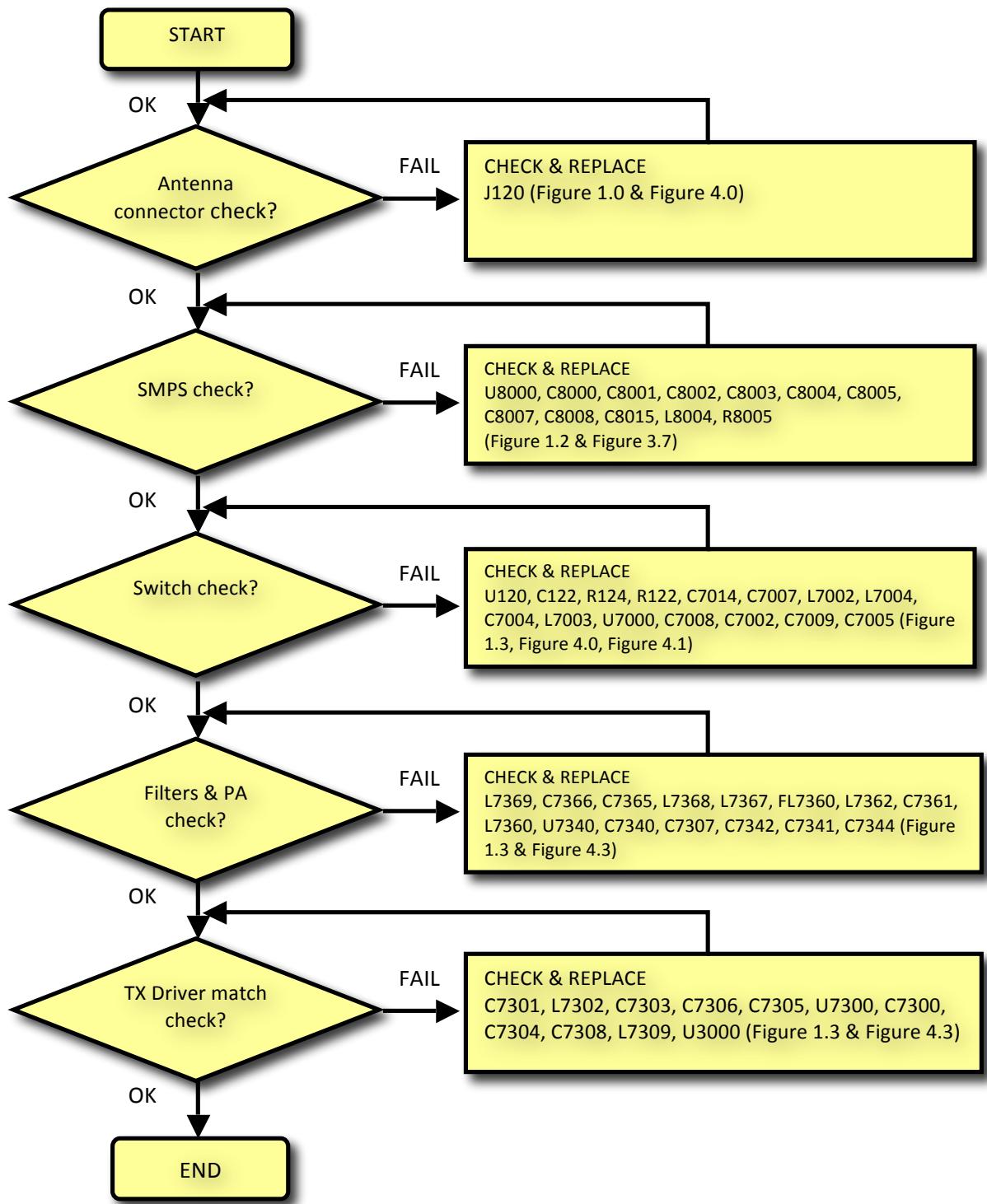
LTE_Band_41_38_C0_RX Check Chart



XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

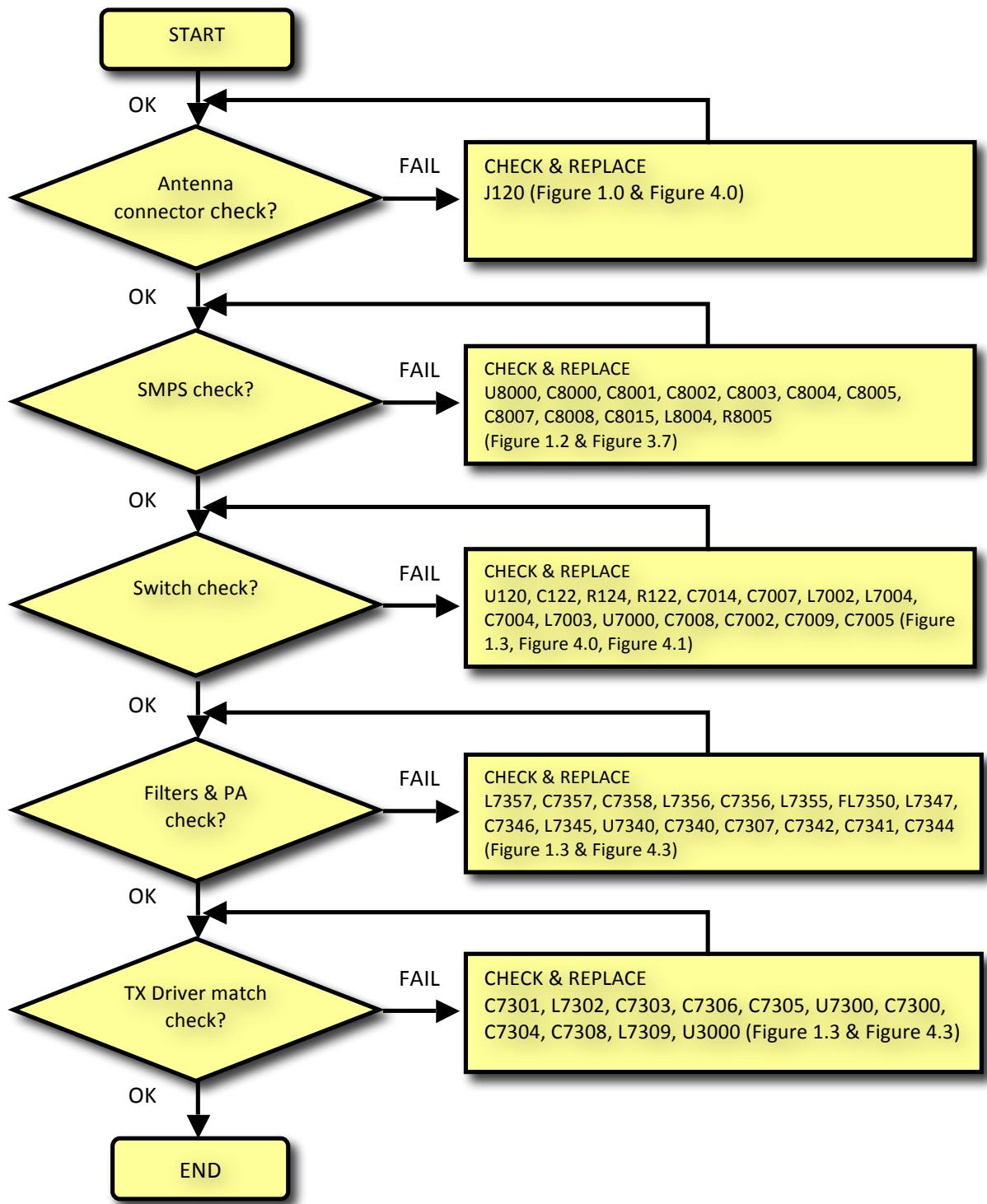
LTE_Band_41_38_C0_TX Check Chart



XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test
LTE_Band_40_C0_TX

Check Chart

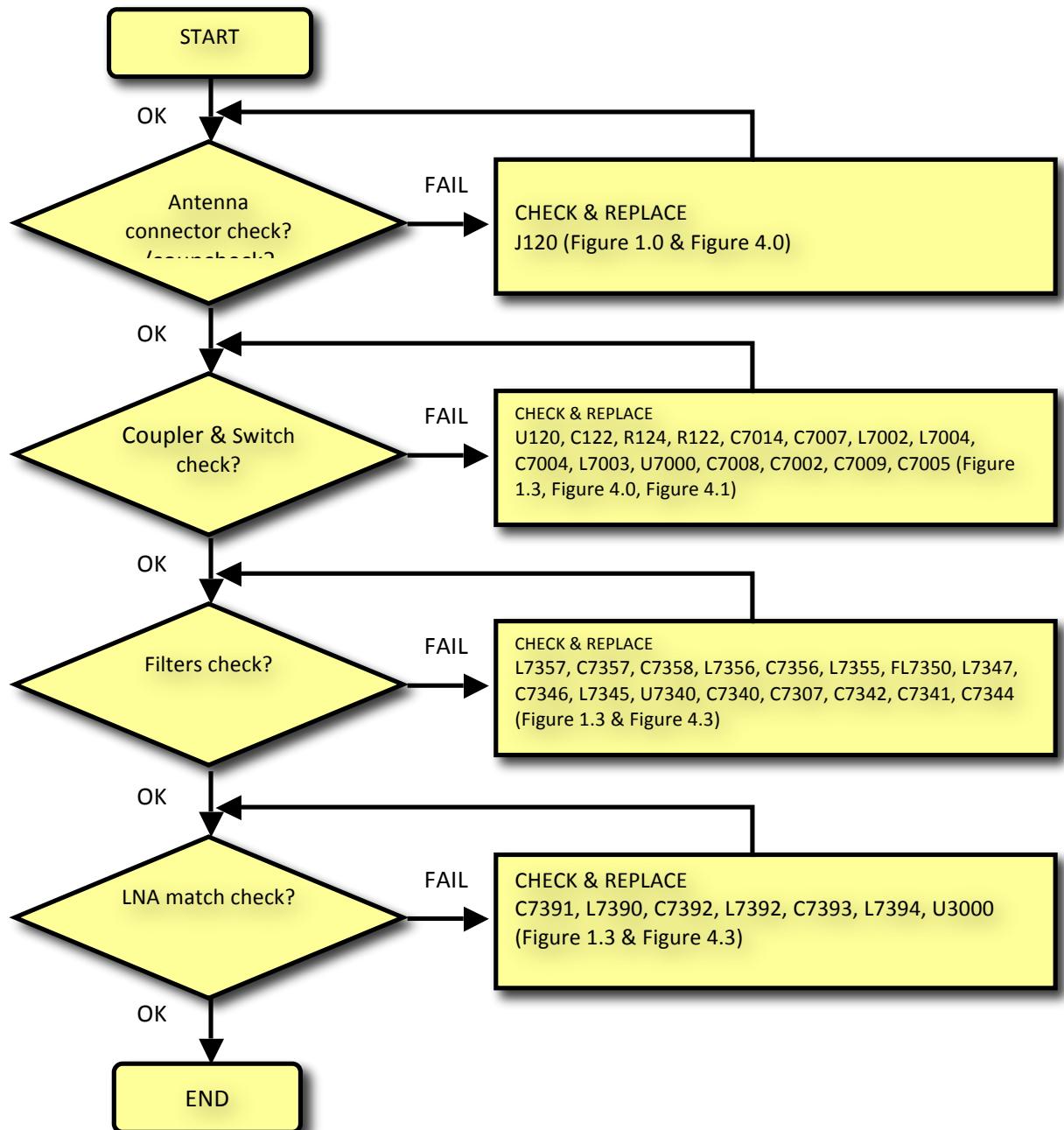


XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

LTE_Band_40_C0_RX

Check Chart



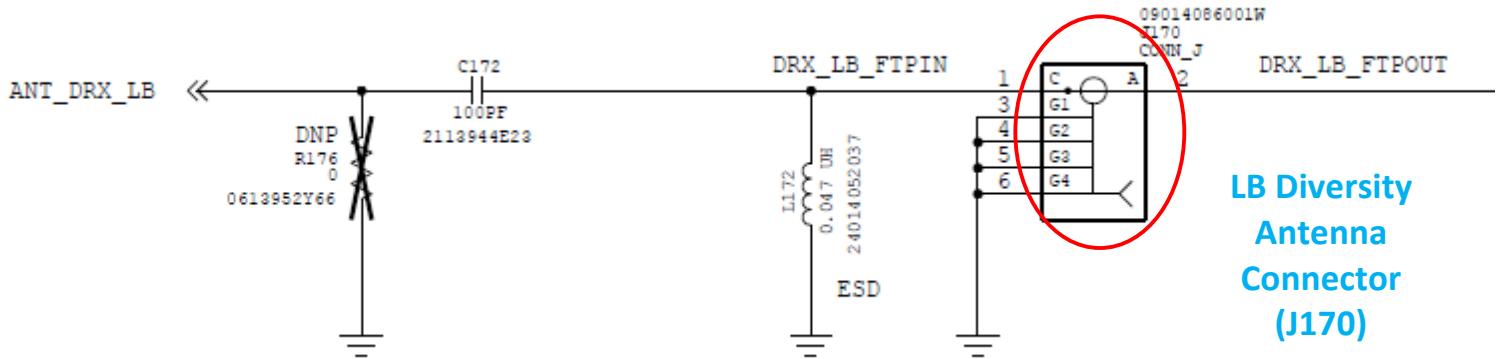
TITLE

MODEL

XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

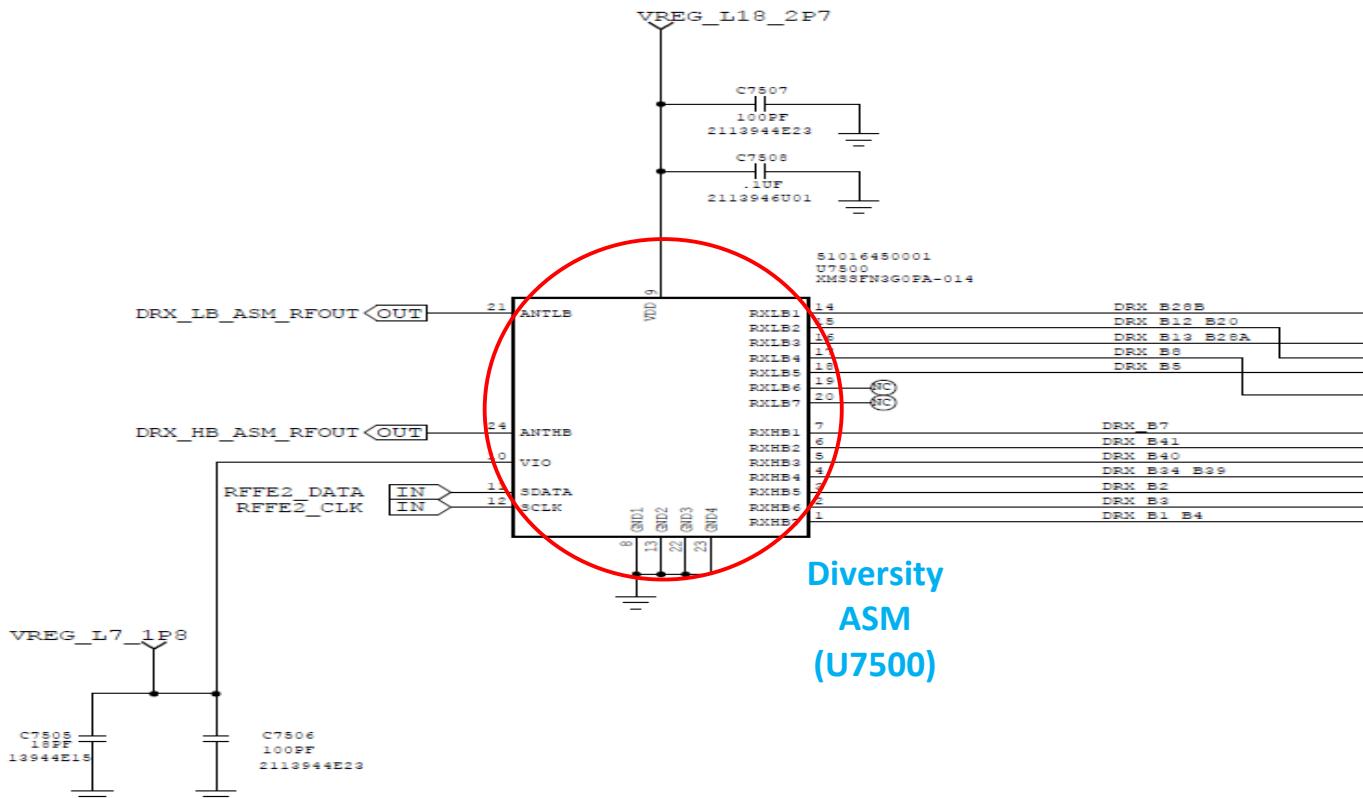
Board Test

LB Diversity Antenna RF Connector (J170) TROUBLESHOOTING: Schematics:



**LB Diversity
Antenna
Connector
(J170)**

Figure 5.0



**Diversity
ASM
(U7500)**

Figure 5.1

TITLE

MODEL

XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

LOW BANDS

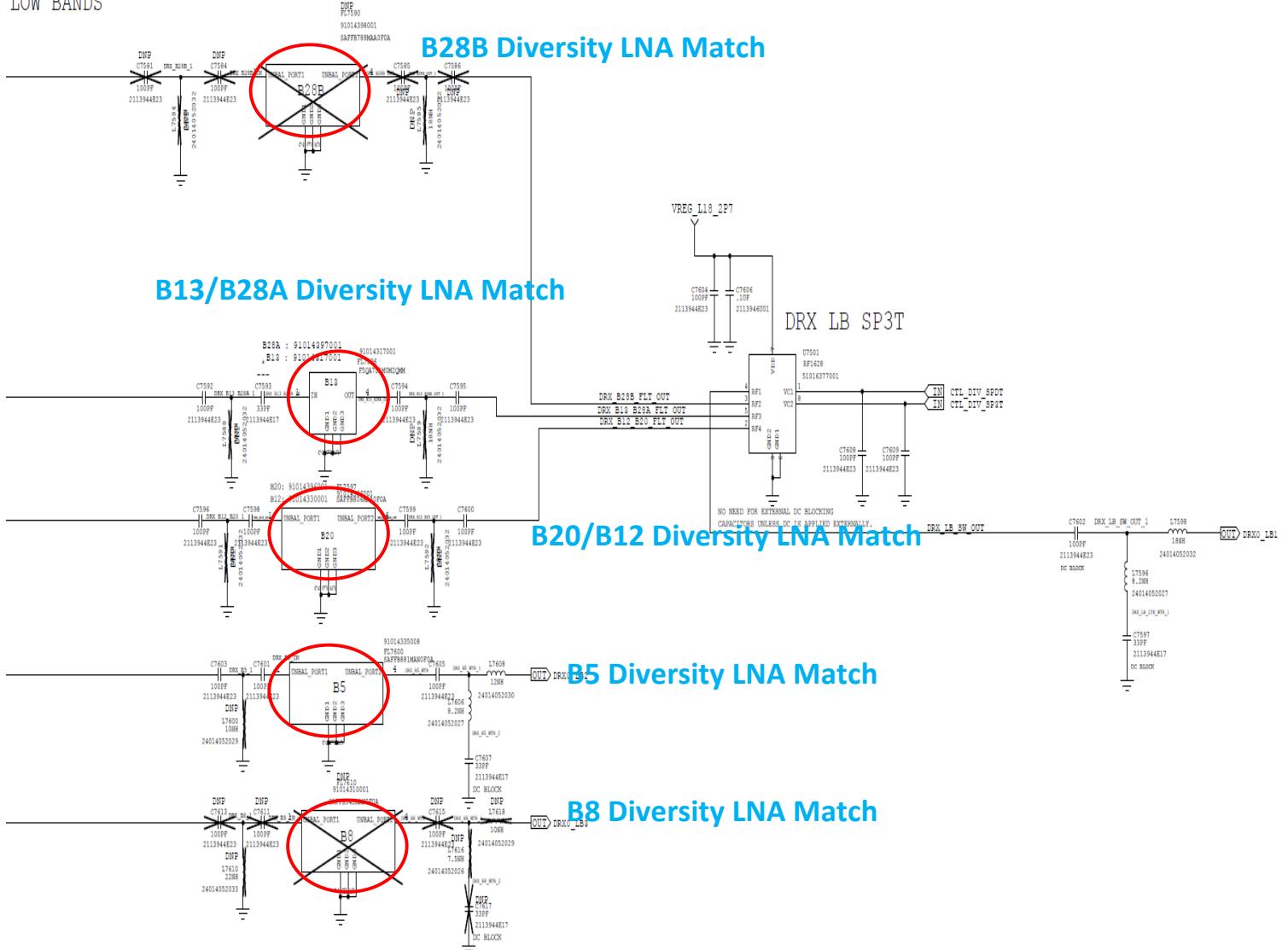
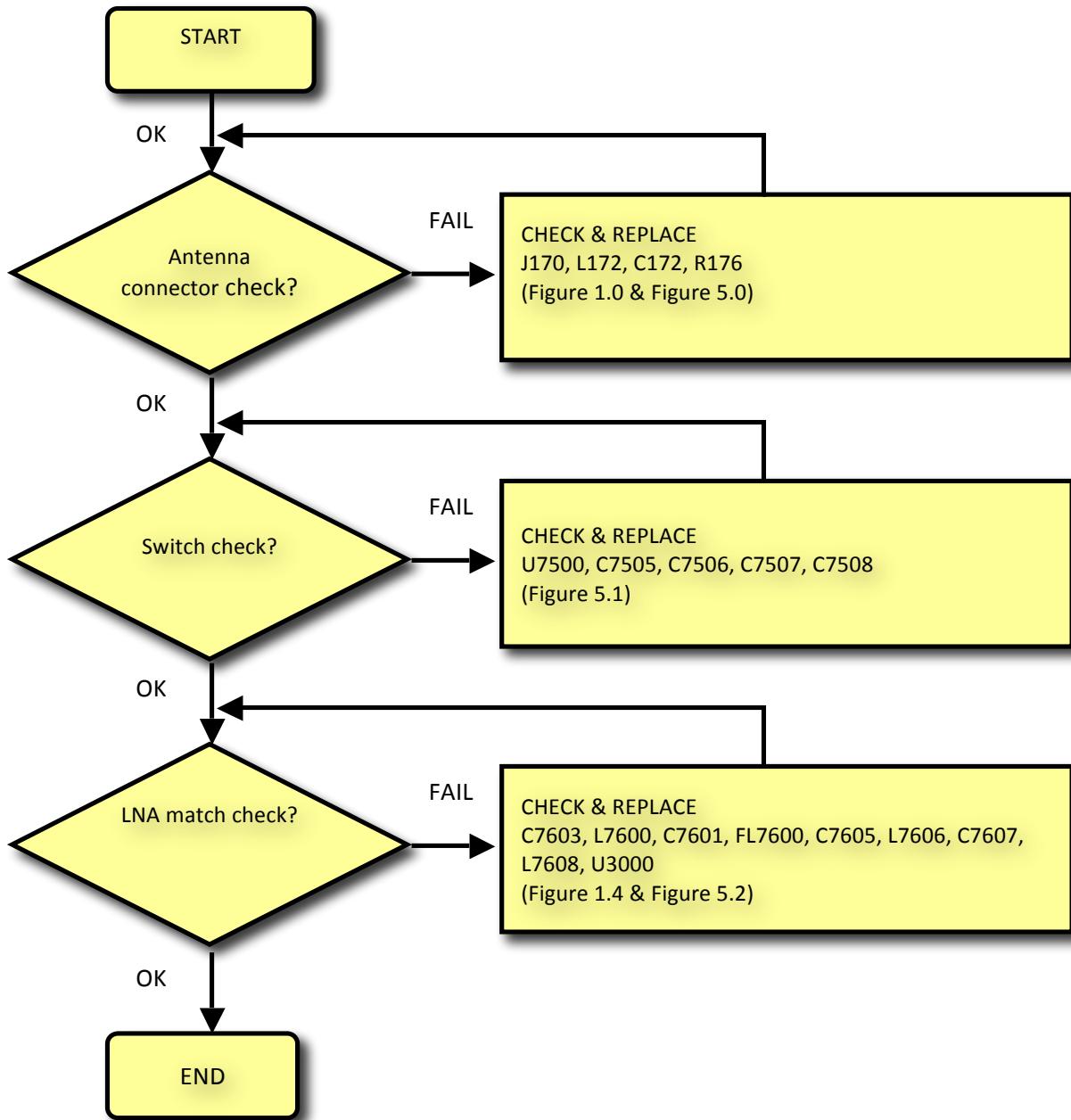


Figure 5.2

XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

CDMA_800_C1_RX, WCDMA_850_C1_RX, & LTE_Band_5_C1_RX
Check Chart

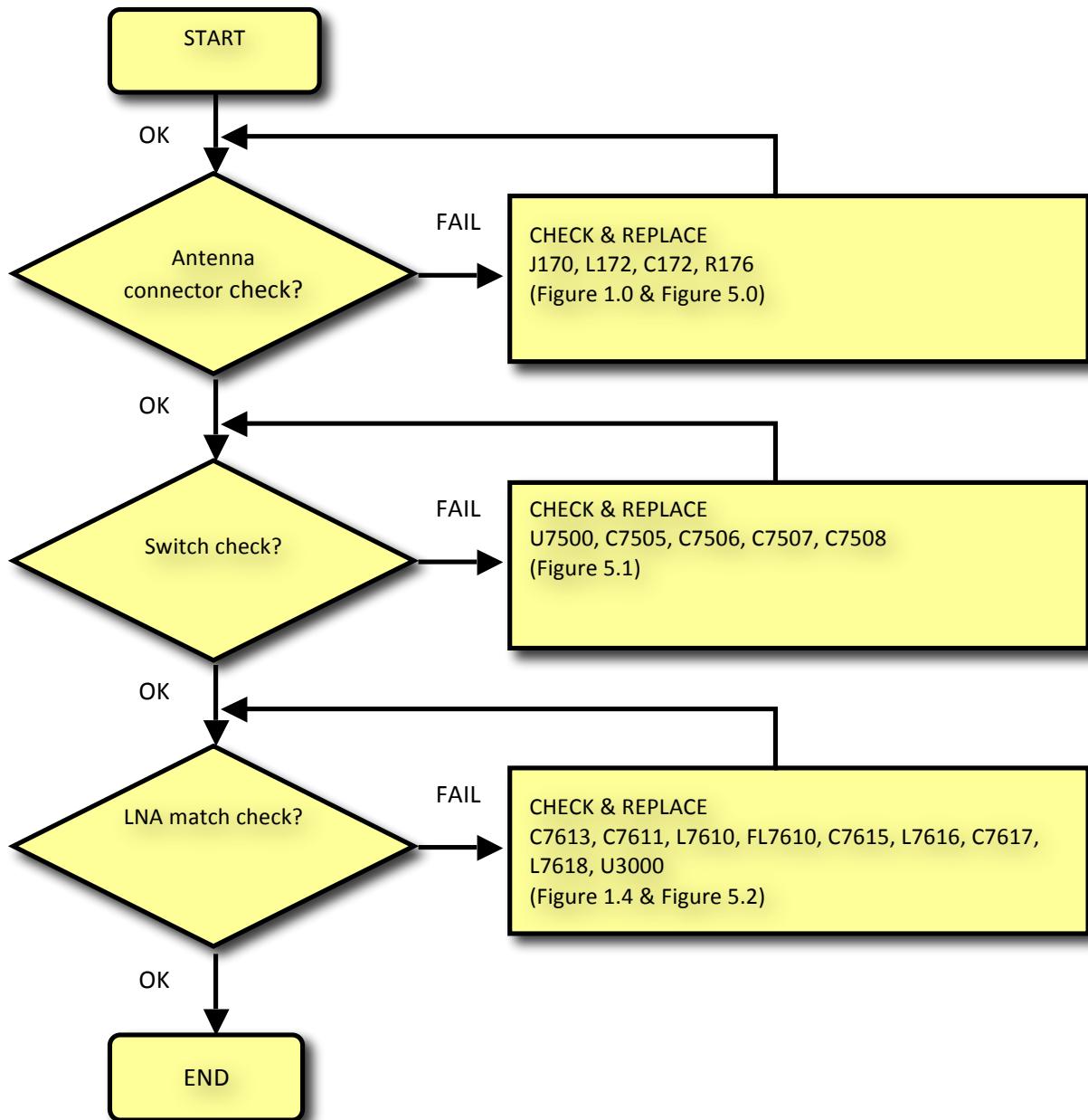


XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

WCDMA_900_C1_RX, LTE_B8_C1_RX

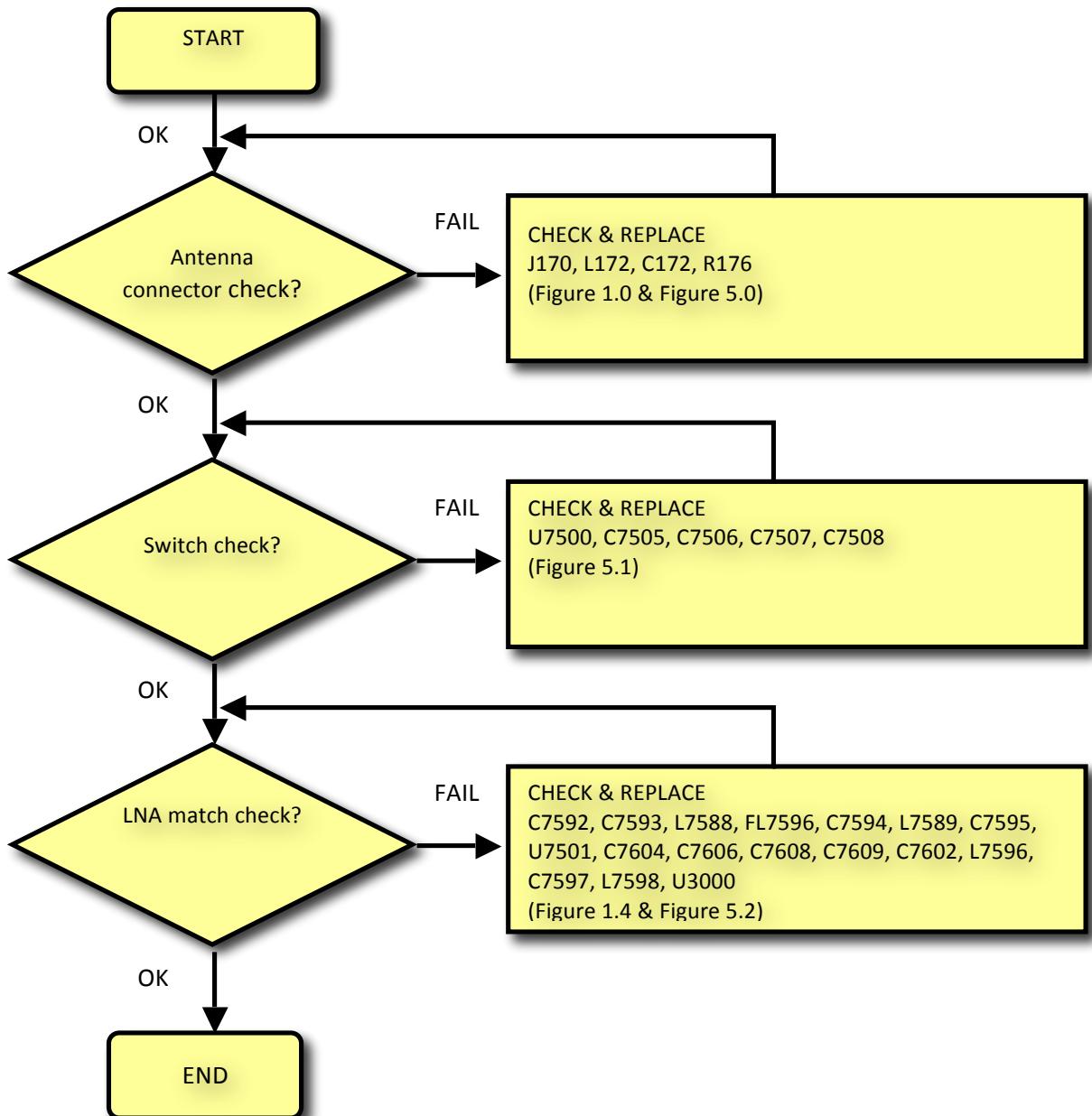
Check Chart



XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

LTE_Band_13_C1_RX & LTE_Band_28A_C1_RX
Check Chart

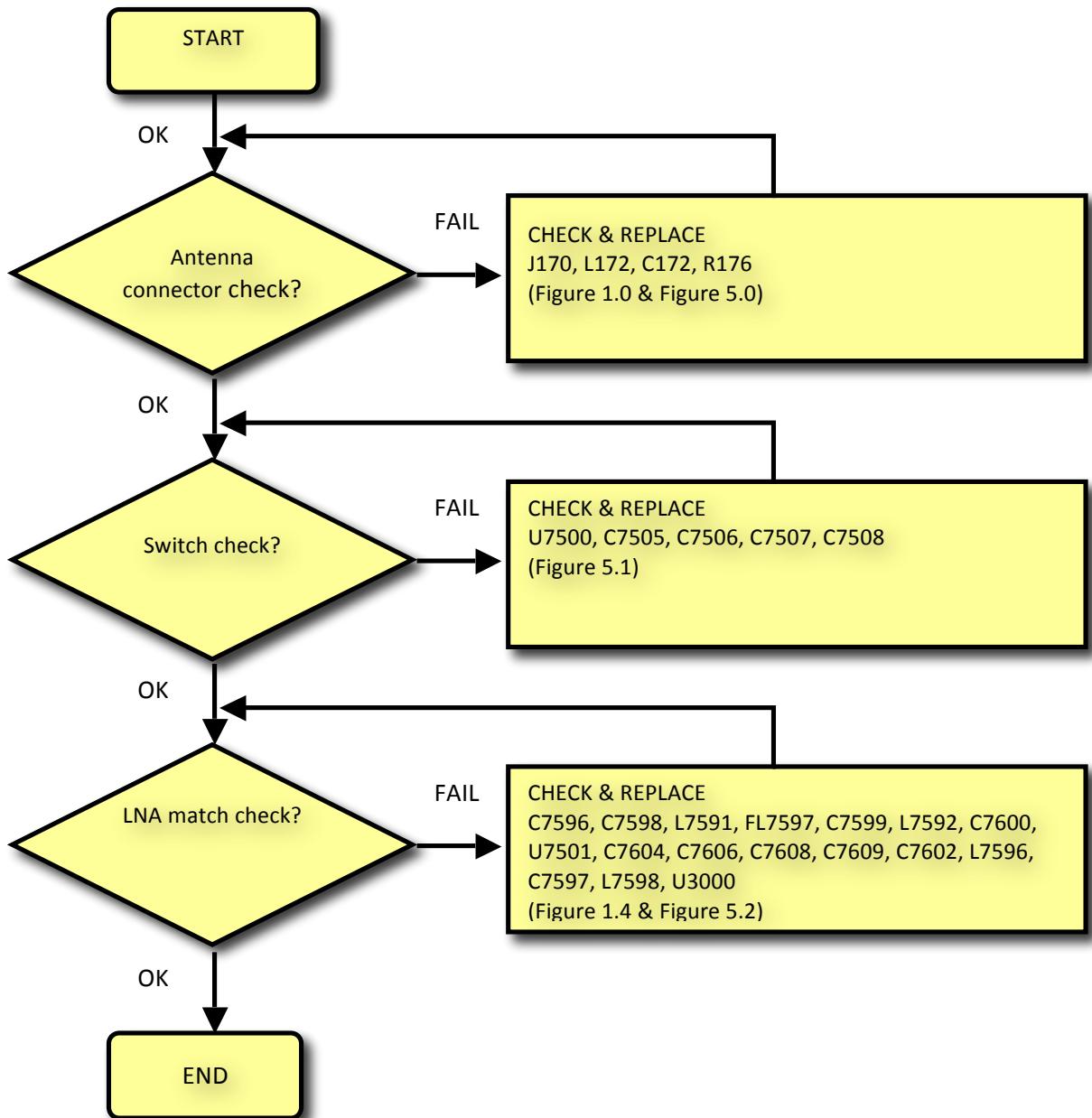


XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

LTE_Band_12_C1_RX & LTE_Band_20_C1_RX

Check Chart

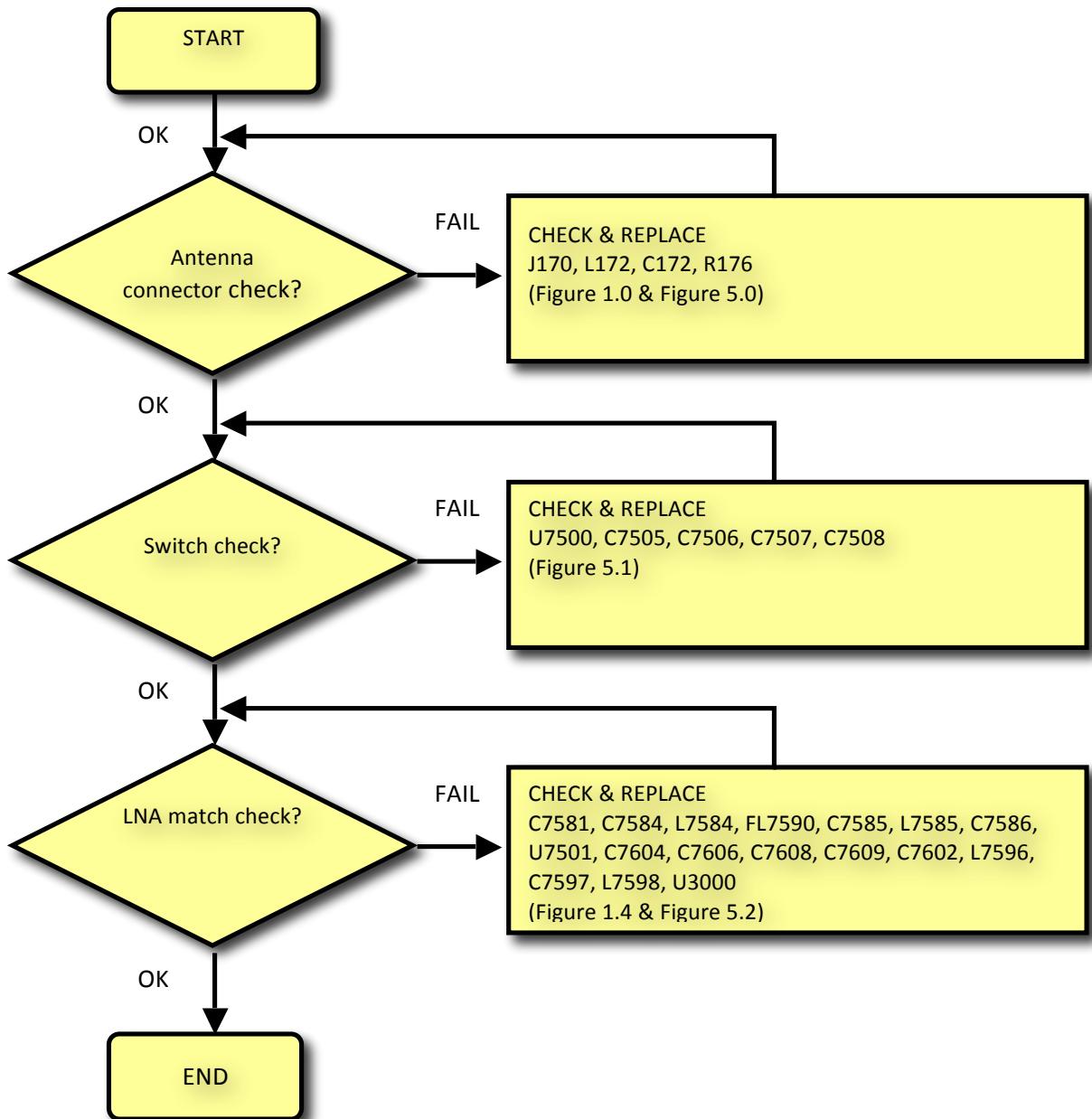


XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

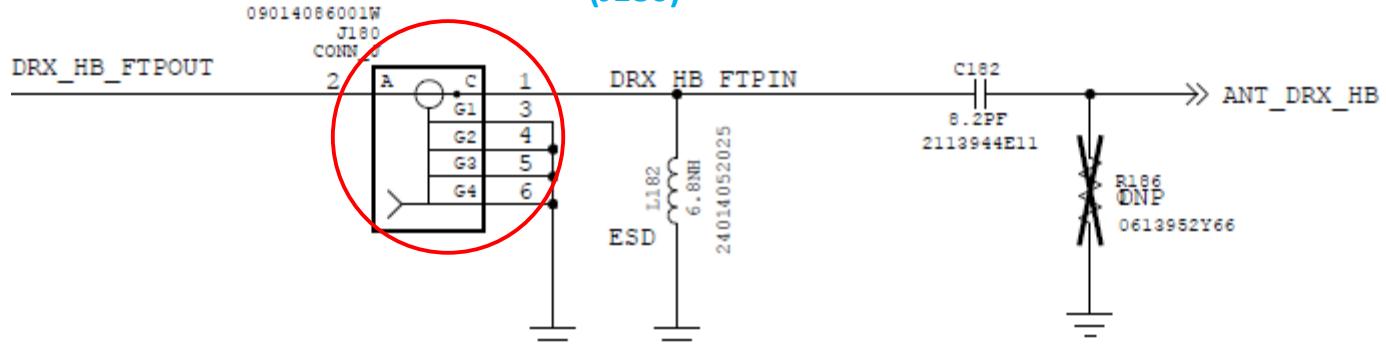
LTE_Band_28B_C1_RX

Check Chart



TITLE

MODEL

**XT1561/XT1562/XT1563/XT1564/XT1565 Board Test
Troubleshooting Guide****Board Test****HB Diversity Antenna RF Connector (J180) TROUBLESHOOTING:
Schematics:****DRX HIGH BAND ANTENNA****HB Diversity
Antenna
Connector
(J180)****Figure 6.0**

TITLE

MODEL

XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

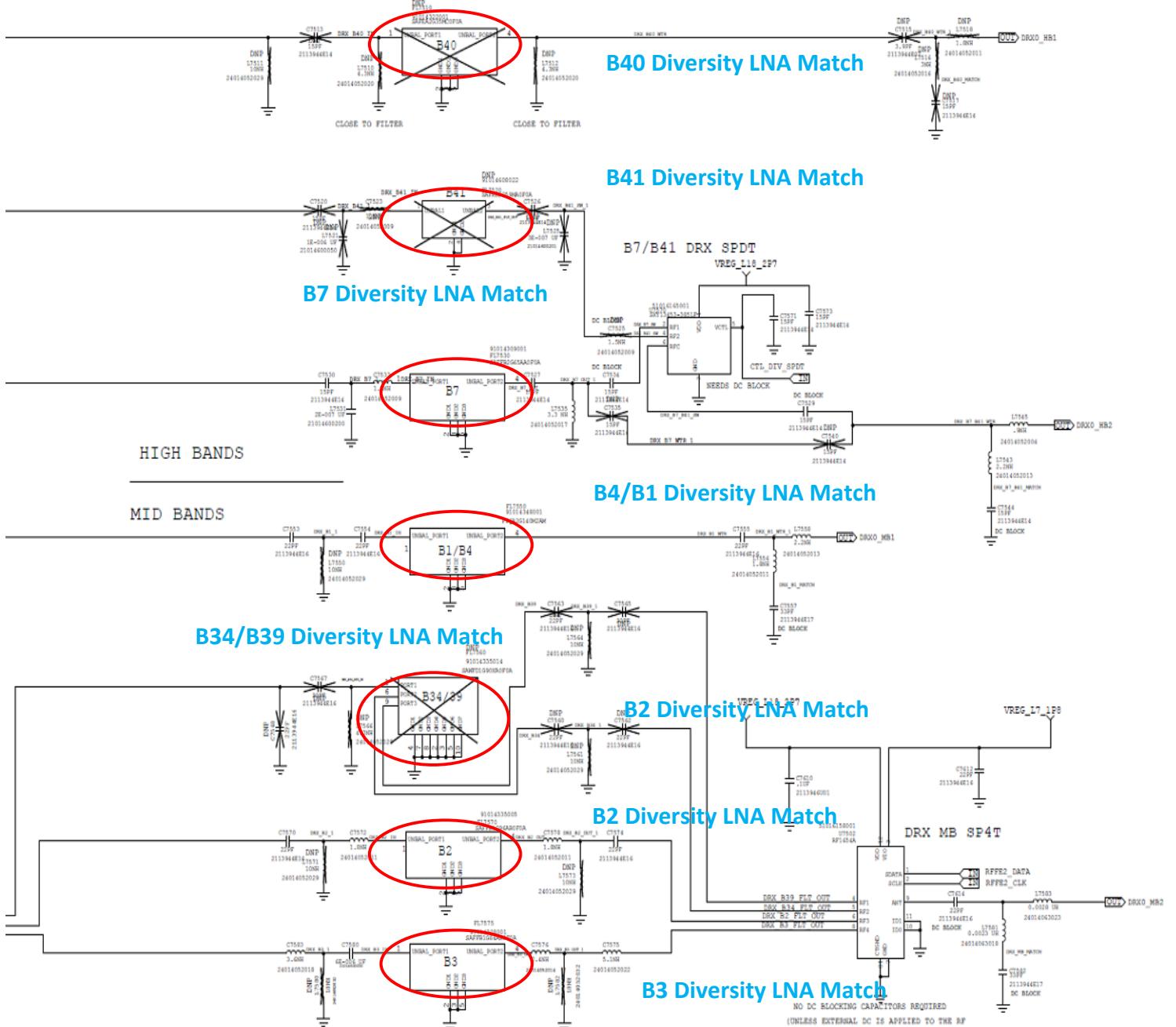
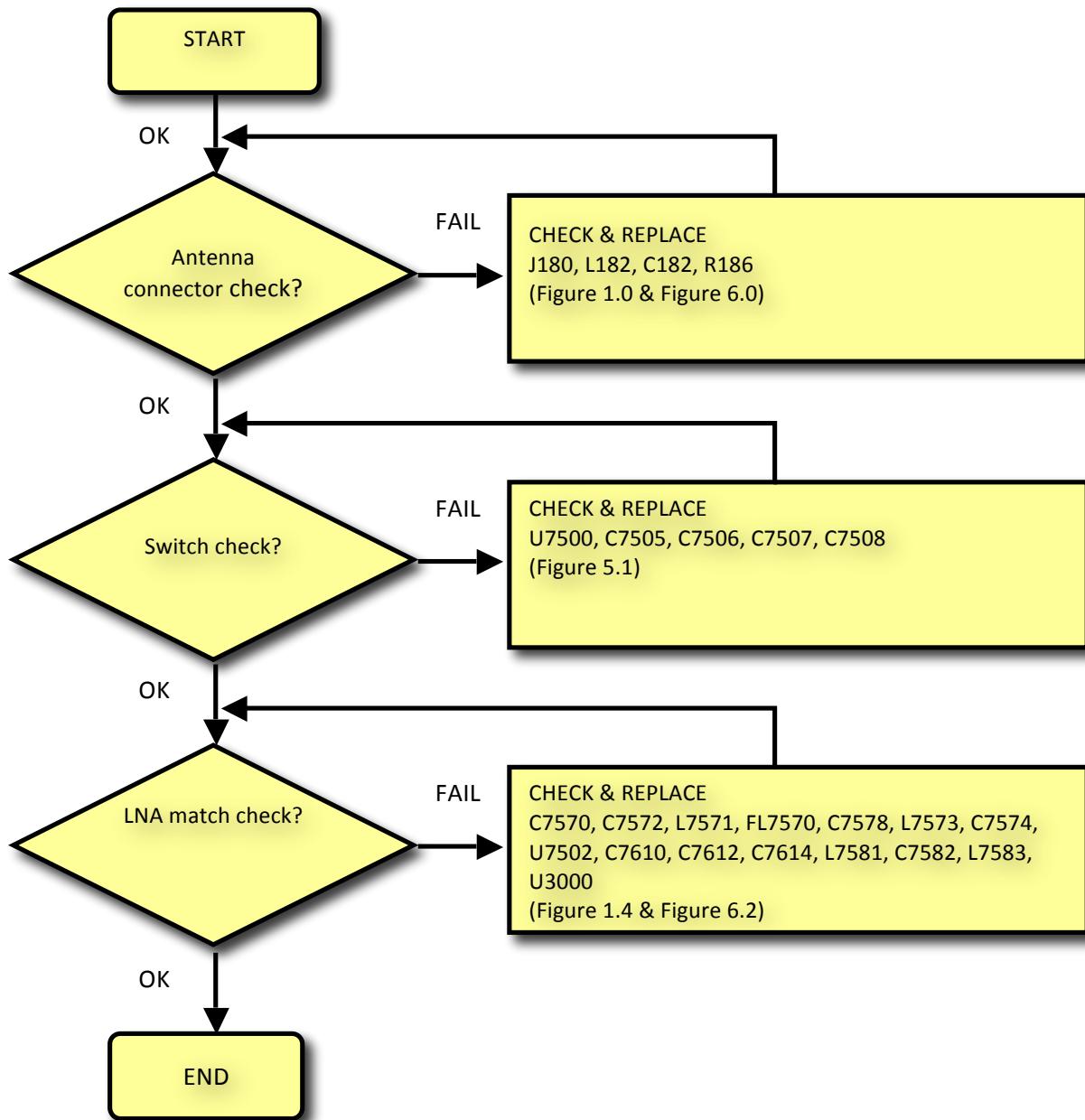


Figure 6.1

CDMA_1900_C1_RX, WCDMA_1900_C1_RX, & LTE_Band_2_C1_RX

**XT1561/XT1562/XT1563/XT1564/XT1565 Board Test
Troubleshooting Guide****Board Test**

Check Chart

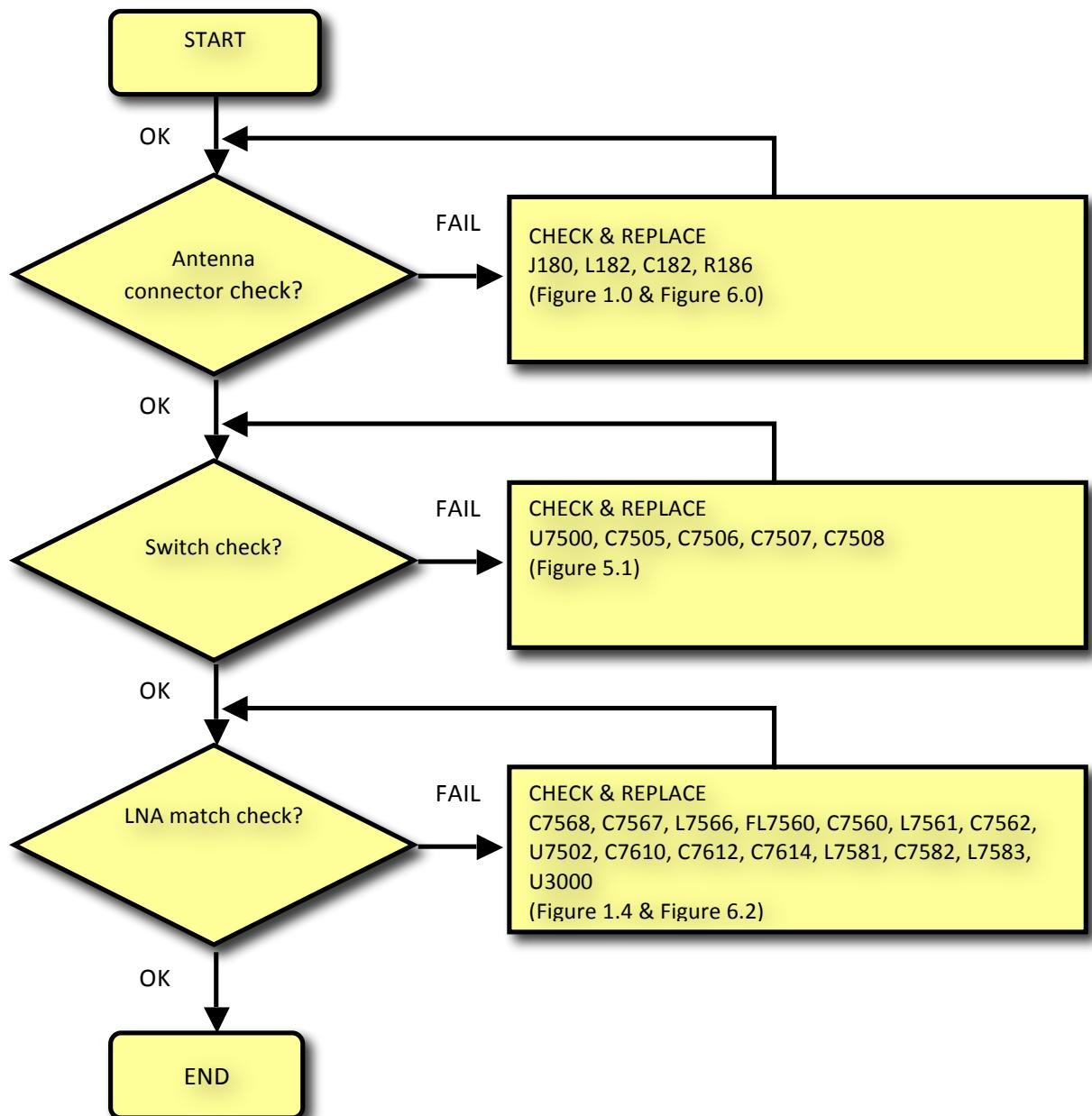


XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

LTE_Band_34_C1_RX

Check Chart

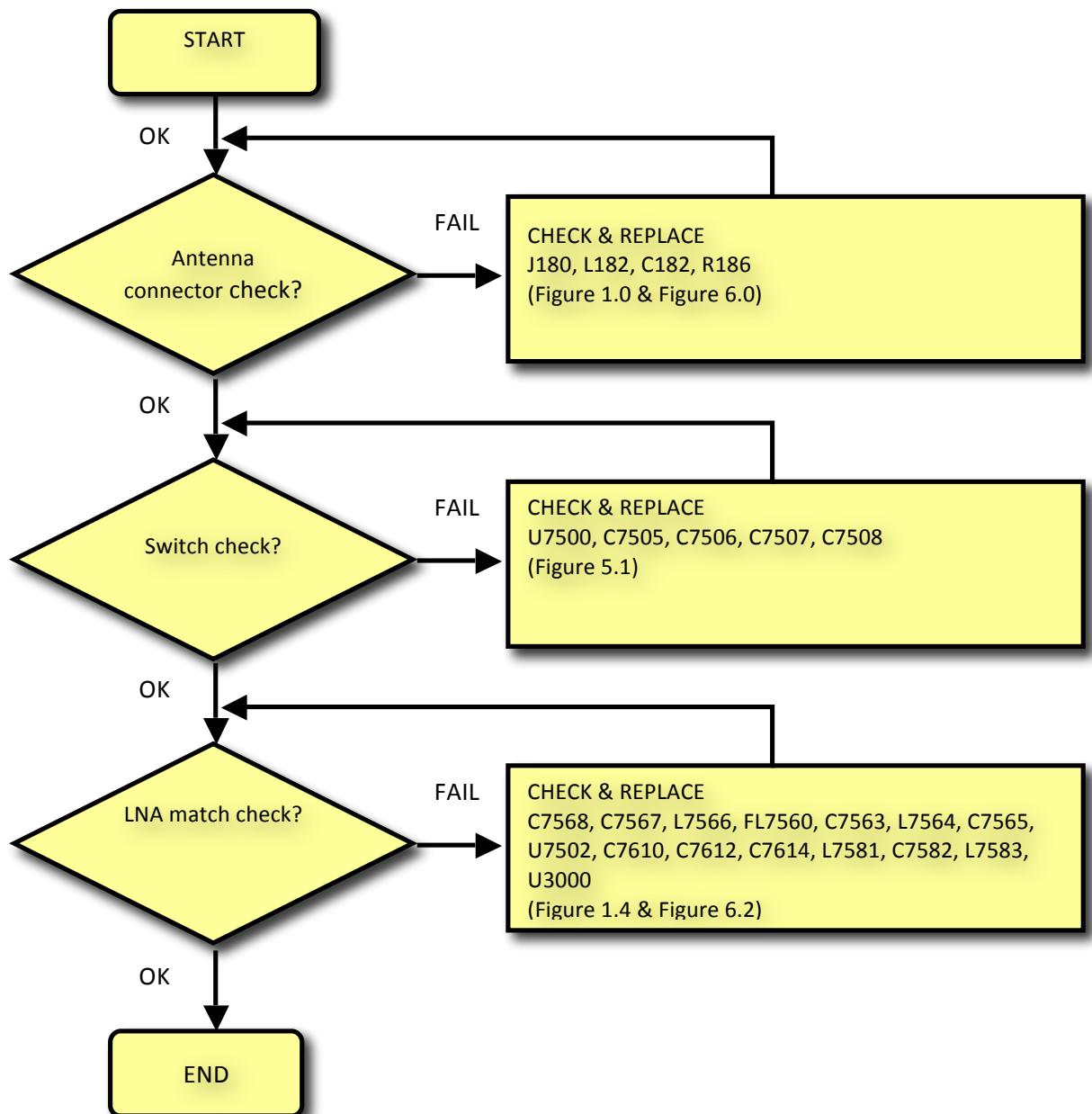


XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

LTE_Band_39_C1_RX

Check Chart

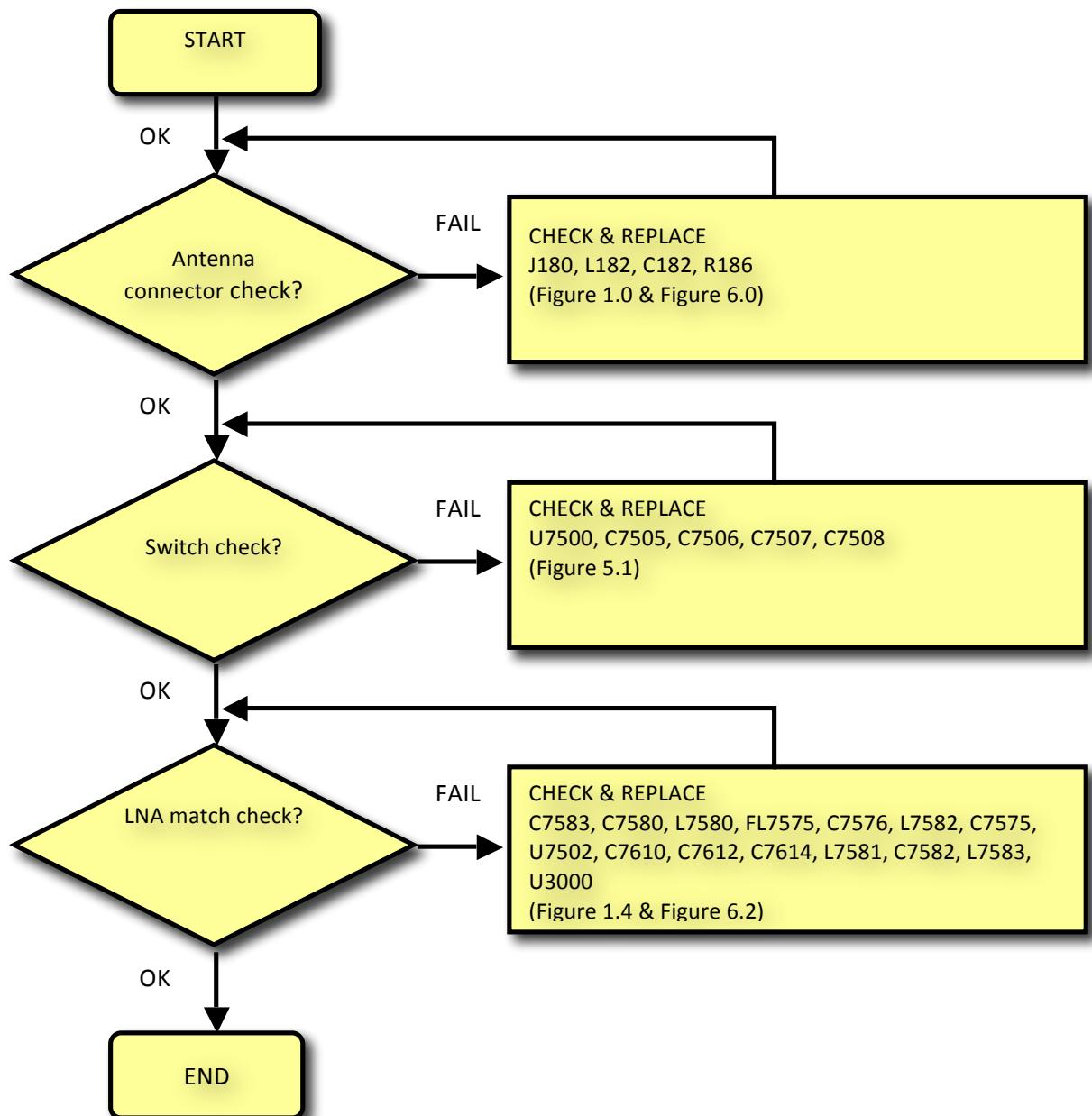


XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

LTE_Band_3_C1_RX

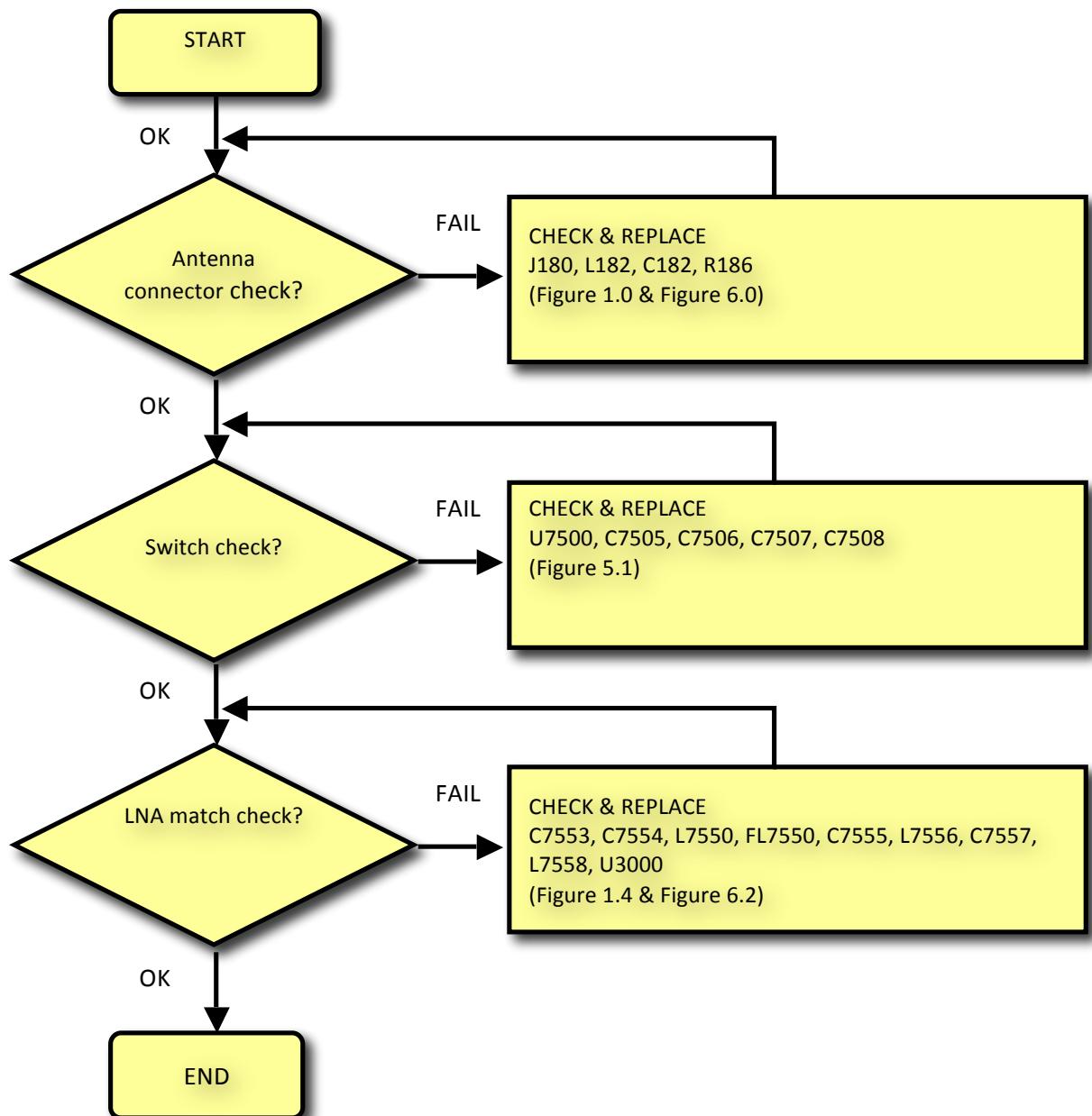
Check Chart



XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

LTE_Band_4_C1_RX, LTE_Band_1_C1_RX
Check Chart

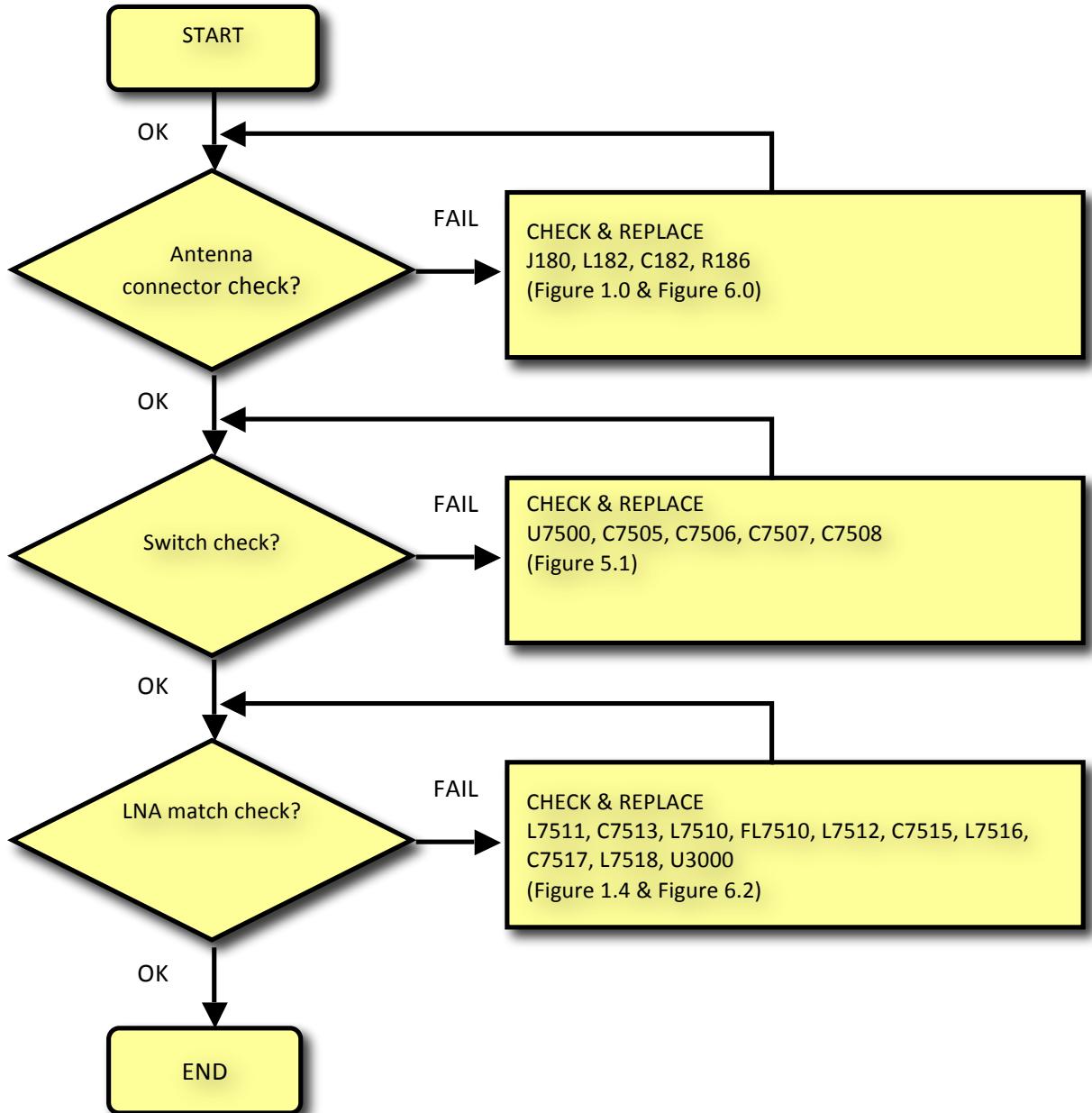


XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

LTE_Band_40_C1_RX

Check Chart

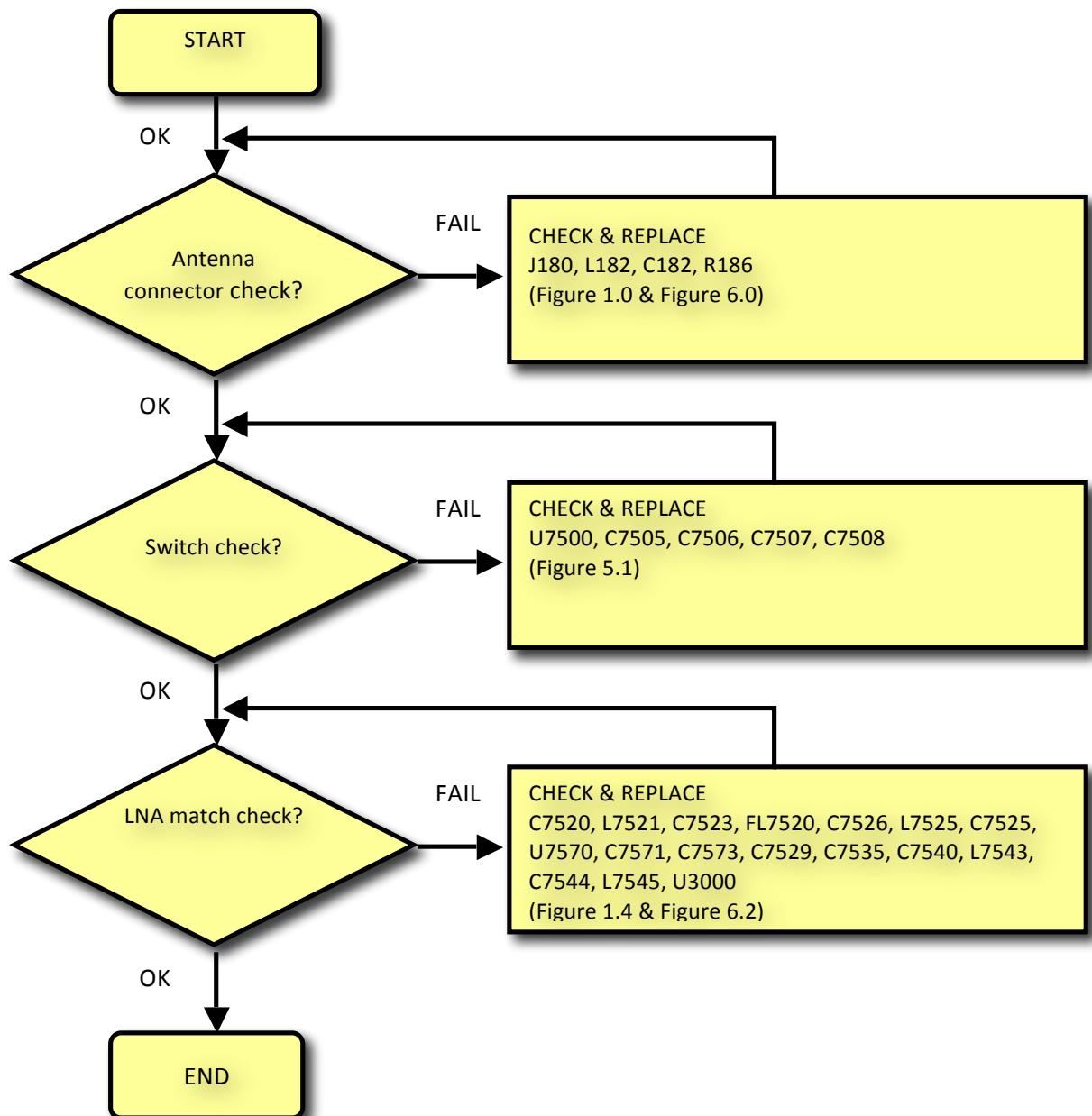


XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

LTE_Band_41_C1_RX

Check Chart



XT1561/XT1562/XT1563/XT1564/XT1565 Board Test Troubleshooting Guide

Board Test

LTE_Band_7_C1_RX

Check Chart

