

Troubleshooting Guide

Related Product	Symptom	Possible Cause
v100/v100GX	LNB/NBD Error	LNB, NBD/FSK unit, Cable between NBD/FSK unit and LNB

Document Number: #2016P2-TG0909-02-V1_1

Approval:

Approved by	Signature	Date
Document Manager	SJ Kim /	
Global Support Director	Charlie Snooke /	
HQ Support Manager	Alvin Choi /	

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Version	Date	Summary of Changes	Author
1_0	2016.02.12	Initial Creation	Hans Lee
1_1	2016.09.09	LNB Local synchronization is added	Hans Lee

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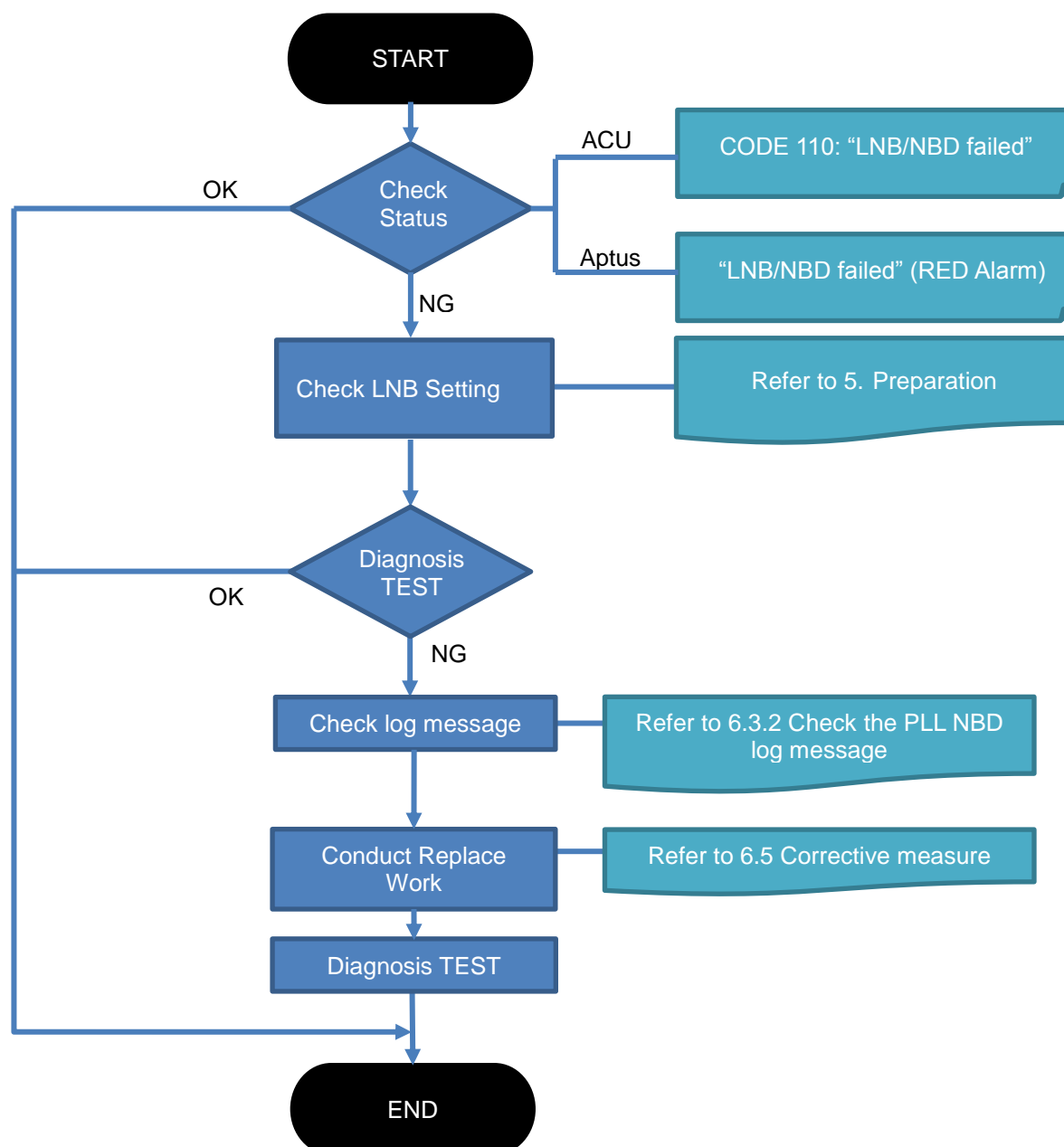
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1. Overview



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2. Problem Description

The LNB/NBD Error makes antenna tracking and VSAT service unavailable due to no RX signal from satellite. That error can be detected by Diagnosis test as LNB/NBD error (code 110).

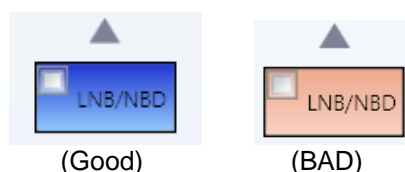
2.1 ACU



2.2 Aptus



→ LNB/NBD is diagnosed as **GOOD** or **BAD**



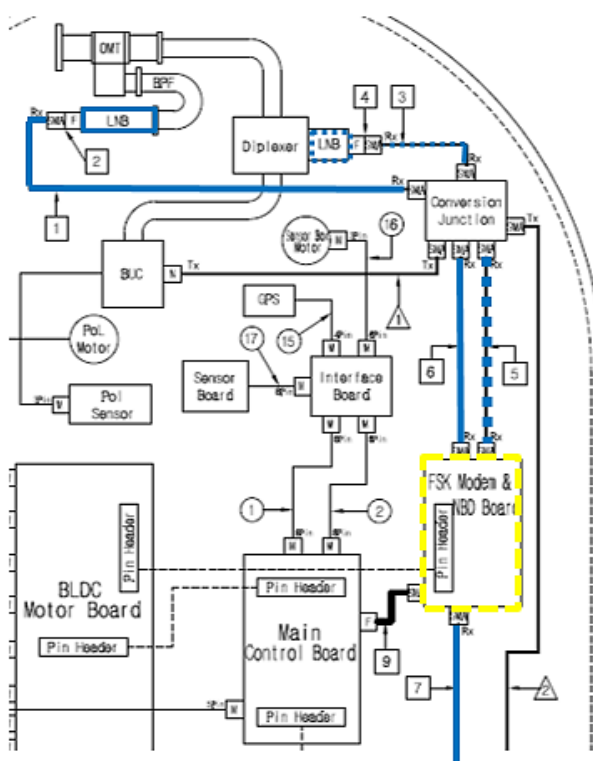
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3. Possible Cause

- LNB (Cross pol LNB / Co pol LNB) error
- FSK / NBD board error
- Cable error between LNB & NBD
- Wrong setting of Local Frequency



(LNB/NBD System Diagram)

4. Spare Parts

It is recommended to prepare the spare parts below which might be used for troubleshooting.

4.1 Module

V1-1205 Intellian Global PLL LNB

V3-5001 FSK & NBD Board Assembly for v100GX/ v100

4.2 Cable

V3-6010 Internal Interface to Skew Cable for v100GX/ v100 (NJRC Mini 8W M&C)

V3-8025 RF Cable from FSK Board to Conversion Bracket for v100GX/ v100/ v100PM

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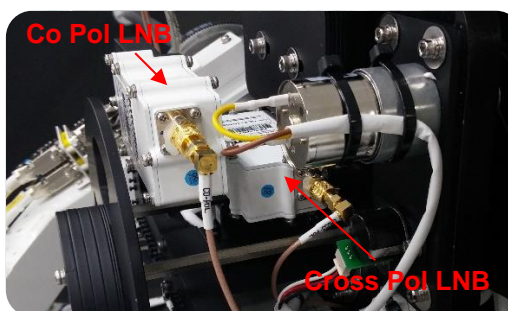
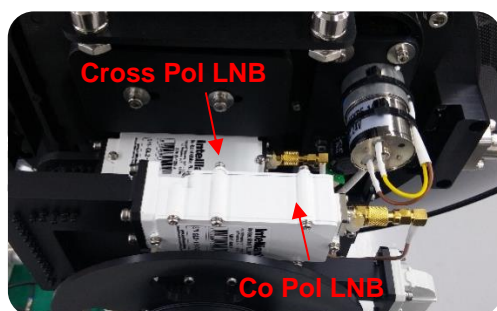
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5. Preparation

5.1 Check the Co&Cross Pol LNB Setting

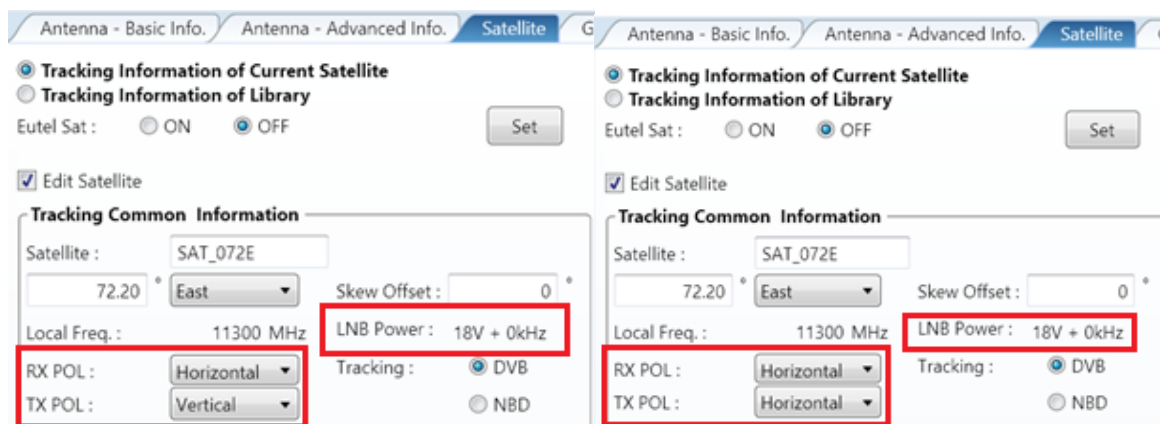
5.1.1 Verify the LNB by visual inspection.

Two LNBs (Cross pol LNB, Co pol LNB) are installed on the v100 antenna as below.



5.1.2 Check the Co&Cross Pol LNB setting on the Aptus.

Only one LNB of the two is operated by the RX polarization in use.



(Using Cross Pol LNB)

(Using Co Pol LNB)

Cross – Pol : RX & TX are different Polarization
ex) RX: V (H) & TX: H (V)

Co – Pol : RX & TX are the same Polarization
ex) RX: V (H) & TX: V (H)

Current Voltage: NBD supplies 18V
(The voltage varying according to a satellite)

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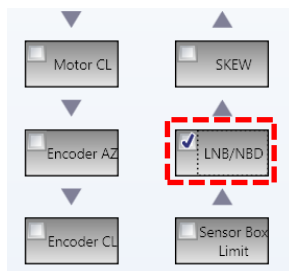
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6. Troubleshooting

6.1 Run the LNB/NBD Diagnosis test

- In diagnostics menu, choose LNB/NBD test manually and perform the test.



6.2 Check the LNB log messages

Verify the suspicious parts according to the TEST result. The antenna log message is displayed.

- Message in normal condition

```
[P5] DVB Cross Pol Check : Pass
[P5] DVB Co Pol Check : Pass
[P5] NBD AMP Check : Pass-[-303]
[P5] NBD Cross Pol Check : Pass
[P5] NBD Co Pol Check : Pass
[P] NBD pll 1190000(1590000)
[P5] DVB/NBD Pass
```

- Message at Cross pol LNB fail: Check and replace the Cross pol LNB.

```
[P5] DVB Cross Check [3]: [-669]/[-300]
[P5] DVB Cross Pol Check : Fail
[P5] DVB Co Pol Check : Pass
[P5] NBD AMP Check : Pass-[-302]
[P5] NBD Cross Check [1] : [301] [302]
[P5] NBD Cross Check [2] : [299] [302]
[P5] NBD Cross Check [3] : [299] [302]
[P5] NBD Cross Pol Check : Fail
[P5] NBD Co Pol Check : Pass
[P] NBD pll 1190000(1590000)
[P5] Check Cross Pol LNB
```


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- Message at Co pol LNB fail : Check and replace Co pol LNB.

```
[P5] DVB Co Check [3]: [-644]/[-300]
[P5] DVB Co Pol Check : Fail
[P5] NBD AMP Check : Pass-[297]
[P5] NBD Cross Pol Check : Pass
[P5] NBD Co Check[1] : [298] [298]
[P5] NBD Co Check[2] : [297] [298]
[P5] NBD Co Check[3] : [298] [298]
[P5] NBD Co Pol Check : Fail
[P] NBD pll 1190000(1590000)
[P5] Check Co Pol LNB
```

- Message at NBD Co and Cross Pol Fail : Check and replace the NBD.

```
[P5] NBD Cross Check [2] : [305] [307]
[P5] NBD Cross Check [3] : [304] [307]
[P5] NBD Cross Pol Check : Fail
[P5] NBD Co Check[1] : [306] [306]
[P5] NBD Co Check[2] : [306] [306]
[P5] NBD Co Check[3] : [305] [306]
[P5] NBD Co Pol Check : Fail
[P] NBD pll 1190000(1590000)
[P5] Fail - DVB[0,0] NBD[0,0]
```

6.3 Check the LNB input voltage and corrective measure

The LNB input power from the FSK/NBD is supplied only for one LNB in operation at one time, not for both Co / Cross pol LNB at the same time.

6.3.1 Check the Co pol LNB voltage

The LNB is set as below, you can check the condition of Co-pol LNB.

The screenshot shows the 'Satellite' tab in a configuration window. Under 'Tracking Information of Current Satellite', the 'Eutel Sat' is set to 'OFF'. The 'Edit Satellite' checkbox is checked. In the 'Tracking Common Information' section, the 'Satellite' is 'SAT_072E', 'Local Freq.' is '11300 MHz', and 'LNB Power' is '18V + 0kHz'. The 'RX POL' and 'TX POL' are both set to 'Horizontal'. The 'Tracking' option is set to 'DVB'.

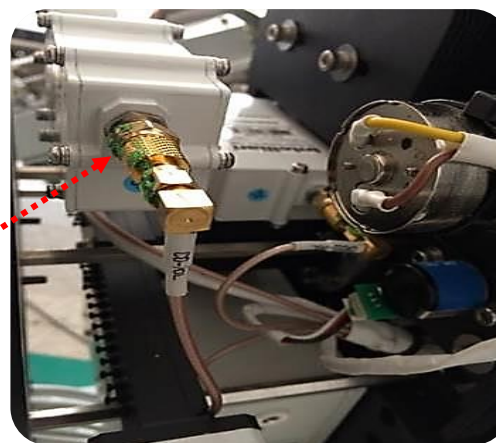
(Using Co Pol LNB)

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1. Check the Co-Pol LNB input cable.



2. Check the existing NBD board by using RF TEST cable.

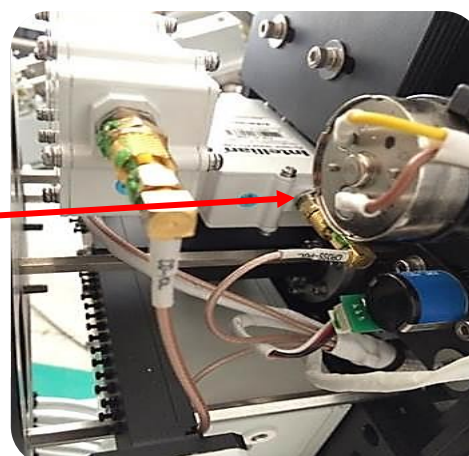


(How to measure the NBD output voltage)



(How to measure the LNB input voltage)

6.3.2 Check the Cross pol LNB voltage



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6.4 Corrective measure

6.4.1 Replace the NBD

In case that voltage is not detected on the output port of the Cross or Co Pol NBD.
→ Check and Replace the NBD

6.4.2 Replace the LNB

In case that voltage normally measured on the LNB input connector and the output port of NBD → Check and Replace the LNB

After installing new LNB, desired local setting may not be applied. In that case, run the PLL LNB synchronization to check that the LO is changed.

1. Select the chosen type of LNB Local setting as compatible with Sat info.
2. Tick the checkbox 'Edit Satellite'
3. Select the type of LNB.

Antenna - Basic Info. **Satellite** Antenna - Advanced Info

☒ Tracking Information of Current Satellite
☐ Tracking Information of Library

Eutel Sat : ☒ ON ☐ OFF Set

☒ Edit Satellite

Tracking Common Information

Satellite : ABS-2
 116.00° East Skew Offset : 0°

Local Freq. : 10250 MHz LNB Power : 13V + 22kHz
 Vertical Horizontal Tracking : ☒ DVB ☐ NBD

L-VT Type
 M-VT Type
 N-VT Type
 O-VT Type
 P-VT Type
R-VT Type
 S-VT Type
 T-VT Type
 U-VT Type
 V-VT Type
 Y-VT Type
 Dual-V Type
 Dual-T Type
 Another

Decode 12490 27490 00AD

NBD
 IF Freq(kHz) : 1133790
 BW(kHz) : 1000
 Base Local : 10250 MHz

Edit Satellite Information

Set Local Freq.(MHz)
 13V+0kHz 13V+22kHz 18V+0kHz 18V+22kHz
 9750 10250 10750 11250

Add Satellite Edit Satellite Delete Satellite

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- Change the local frequency within the selected type of LNB local
Ex) LNB local 10250 → 9750

Applied in 'Edit Enable' / Switch 10250 to 9750

Click the button 'Set Local Freq.(MHz)' to verify LNB local is changed to 9750

6.4.3 Replace RF cables

In case that the voltage is measured normally on output port of NBD but is not measured on the LNB input connector → Check and replace RF cables between the NBD and the LNB.

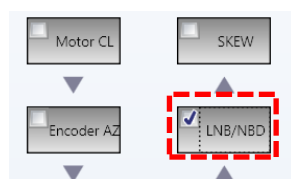
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6.5 Re-check the error with diagnosis test

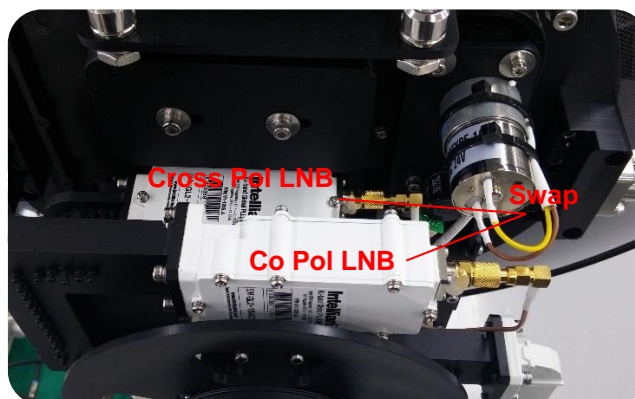
After taking measure for each problem, re-check the LNB/NBD with the diagnosis Test. In diagnostics menu, choose LNB/NBD test manually and perform the test. If the LNB/NBD error is not resolved, goes to the 6.3 Check the log messages each LNB/NBD.



7. Tips for Solving Problems

7.1 LNB swap test

LNB/NBD diagnosis test can be conducted by swapping the Cross pol LNB and the Co pol LNB in defect of spare LNB for replacement or test.



Example

- Antenna LNB/NBD test result check
 - NBD Cross pol Pass Check : Pass
 - NBD Co Pol Pass check : Fail**
- Swap the Cross pol LNB and the Co pol LNB. Then run the LNB/NBD diagnosis test again.
 - NBD Cross pol Pass Check : Fail**
 - NBD Co Pol Pass check : Pass
- In that case, the original Co Pol LNB is defective.

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Please contact your local TS team should you require any further information.

APAC

Headquarters/Innovation
Center
Intellian Technologies, Inc.
348-5 Chungho-Ri, Jinwi-Myeon,
Pyeongtaek-Si, Gyeonggi-Do,
17709 Korea

T +82 31 379 1000
F +82 31 377 6185
SupportAPAC@intelliantech.com

EMEA

Rotterdam Office

Intellian B.V.
Sheffieldstraat 18, 3047AP
Rotterdam,
The Netherlands

T +31 1 0820 8655
F +31 1 0820 8656
SupportEMEA@intelliantech.com

AMERICAS

Irvine Office

Intellian Technologies USA, Inc.
9004 Research Drive
Irvine, CA 92618 U.S.A.

T +1 949 727 4498
F +1 949 271 4183
SupportAMERICAS@intelliantech.com