



Local Control Software

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Introduction

The iNode Local control software is a mobile device application that runs on an iOS or Android™ mobile platform. The application is called Intelligent Node and can be searched for using that name. It must be downloaded from a trusted source, such as Apple App Store or Google Play to your mobile device. The app communicates directly with the iNode over a USB port. It can be used to configure and monitor the iNode.

Figure 1: Intelligent Node



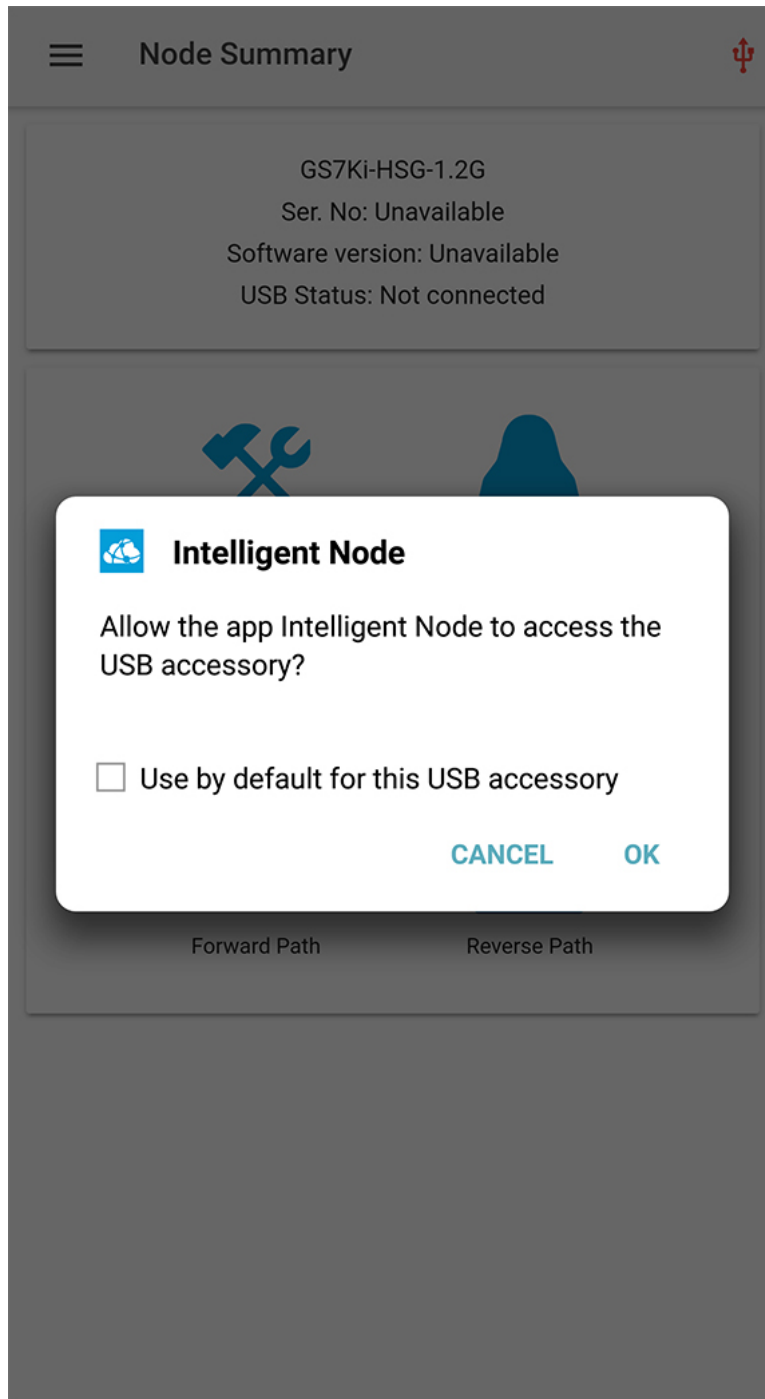
Intelligent Node

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USB Permissions

The first time that the LCS is used with the USB port, and occasionally after that, you can see the USB permissions popup. To continue, tap the checkbox and then tap OK.

Figure 2: USB Permission



iNode App Dashboard

Connect the LCS to the iNode via a USB cable. The main dashboard screen is the first screen the user sees when the application starts. Common tasks appear on this screen.

The USB icon in the upper right corner of the screen indicates the USB connectivity status. It is red when the LCS is plugged in for the first time. The USB icon turns green when the LCS is properly connected and the iNode is ready to respond to the LCS commands.

The USB icon appears red if the LCS loses connectivity to the iNode at any point. Check the USB icon. If it is red, touch it to reconnect.


The following image shows the startup interface of the LCS:

Figure 3: Node Summary

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☰ Node Summary 📶


GS7Ki-HSG-1.2G
Ser. No: BBAVBPH
Software version: 02.00.01
Mac Addr: b0:26:80:d5:7e:43
IPV4 Addr: Unavailable
IPV6 Addresses: 2002::6615:215
fe80::b226:80ff:fed5:7e43



Node Settings


Alarms


RF Settings


Status


Forward Path


Reverse Path

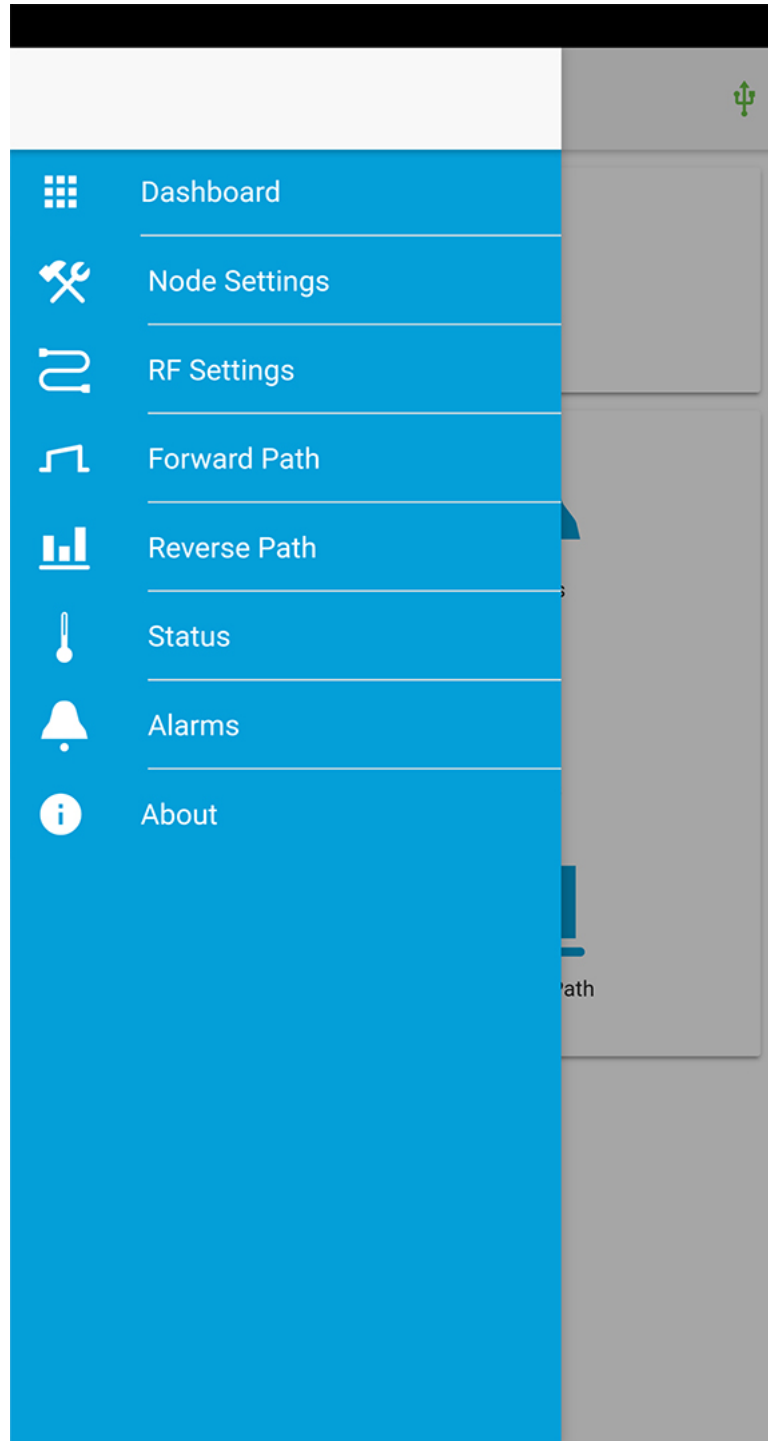
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The **Dashboard** displays the iNode name, serial number, software version, MAC address, IPv4 address, IPv6 address, and the USB connection status.

Name	Description
Node Config	Configure general iNode settings.
RF Config	Adjust Port specific settings.
Alarms	Lists monitored items with their values if in an alarm state.
Status	Observe the status of all monitored items in the iNode.
Forward Path	Spectrum Analysis of the Forward Path.
Reverse Path	Spectrum Analysis of the Reverse Path.

The Navigation bar in the top left corner gives immediate access to all the common tasks listed by the icons on the dashboard as well as the About screen. This bar can be accessed from any of the other iNode App screens and is useful for navigation.

Figure 4: Navigation Bar



Node Configuration

The general Node Configuration is one of the two screens that allow the user to configure iNode settings. In most cases, the factory settings are sufficient and no configuration is necessary. However, adjustments can be performed here if needed.

Auto Setup

Auto setup only affects the forward path. It automatically sets up the input RF attenuators, located on the Optical Interface Board (OIB), to provide the optimum drive level into the launch amplifier. First, it checks whether the output levels (set by the user, see “RF Configuration” below) are valid. Then it measures the actual levels at the low and high frequencies to determine the RF level coming into the node. After those levels are measured, it validates that they are within the node’s operating range and then updates the attenuator setting. The auto setup process takes less than one minute to complete.




Note

Before touching the Auto Setup button, be sure to set the port frequencies and levels, enable at least Port 1 and save the configuration on the RF configuration screens. Then, return to the Node Configuration screen to touch the Auto Setup button. When the Auto Setup is in progress, no other RF screens is available for adjustment, and the user will see a spinner.

Figure 5: Node Settings

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☰ Node Settings 

Auto Setup START

Node Name Test123

Segmentation

Forward 1x ▾

Reverse x2 ▾

Access Control

Community public

Theft Prevention Enabled ▾

Theft Timeout 90 Days ▾

Power Savings

Power Save Full Power ▾

CANCEL SAVE

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Name	Description
Auto Setup	See Auto Setup , on page 8.
Node Name	(Optional) Set the Node Name
Forward	Set the forward path segmentation of the node. Only 1x is available now.
Reverse	Set the reverse path segmentation of the node. 1x1 or 1x2 are the options.
Community	Specify the SNMP community string, which is an alphanumeric string of not more than 32 characters.
Theft Prevention	Enable/Disable Theft Prevention.
Theft Timeout	Set the Theft Prevention Timeout.
Power Save	Choices are Full Power or Power Save.

Use Save button to save the configuration. Use Cancel button to restore the previously saved configuration, if the Save button has not been tapped since then.

RF Configuration

The RF Configuration screen is the second screen where parameters can be changed. Specifically, the low and high frequency settings as well as the low and high RF levels can be adjusted on this screen. These settings control the overall gain and tilt of the launch amplifier.

The amplitude and tilt of each port are set by specifying two points on a line. Those two points are defined by a low frequency and corresponding target level, and a high frequency and corresponding target level. Enter the frequencies in MHz and the levels in dBmV.



Note Before running Auto Setup on the Node configuration screen, both the low and high frequencies as well as the low and high levels must be set for at least Port 1. The port can be enabled by toggling the slider next to the Port Enable. After the parameters are entered and the port is enabled, tap the Save button. You can continue to adjust the settings for the other ports by tapping the buttons at the top of the screen with the port number and then adding the frequency and level. Remember to enable the port and save the configuration. Then return to the Node Configuration screen and tap Auto Setup.

The reverse attenuation setting can be used to assist in RF diagnostics and troubleshooting, and can be used in conjunction with the port enable switch, to simulate a wink switch.

Figure 6: RF Settings

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☰ RF Settings 📶

P1 P2 P4 P5

Frequency	261	855	MHz
Level	36.9	48.1	dBmV
Calculated Tilt	11.2		
Reverse Attenuation	0.0	dB	
Port Enable	<input checked="" type="checkbox"/>		

CANCEL SAVE

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Name	Description
Frequency	Low and high RF frequency for this port.
Level	Low and high RF output level for this port.
Reverse Attenuation	Adjust reverse attenuation.
Port Enable	Enable or disable the corresponding port.

Tap the port number to set the parameters for the corresponding port. Use Save button to save the configuration; use Cancel to restore the previously saved configuration, if the Save button has not been tapped since then.

Forward Path

One of the unique features of the iNode is the capability for spectrum analysis on a per port basis. Live spectrum data is generated at regular intervals and displayed on the mobile device. This Forward Path screen presents the summary spectrum data, as well as displaying the configured target frequencies and levels, and the actual levels achieved. The next screen presents the detailed spectrum analysis. Access the details by rotating the mobile device.

Figure 7: Forward Path

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Forward Path

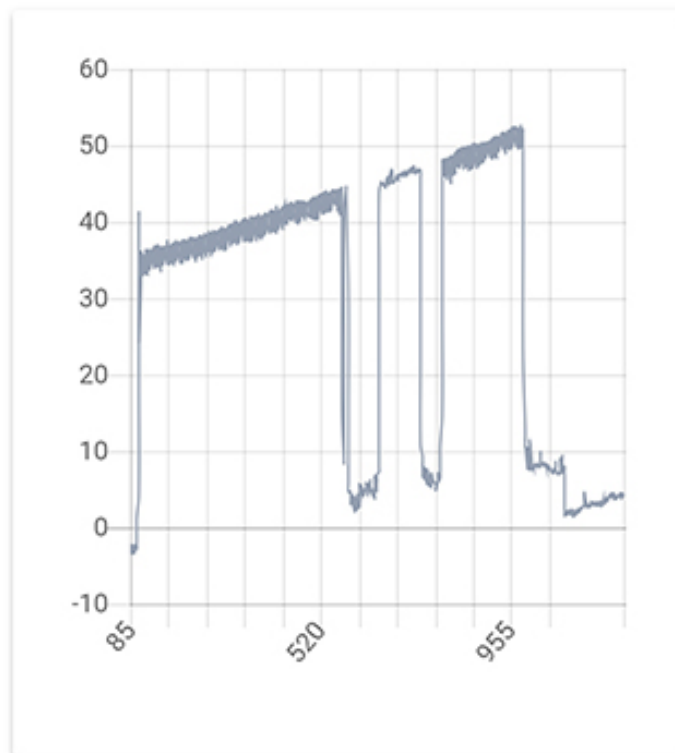
P1

P2

P4

P5

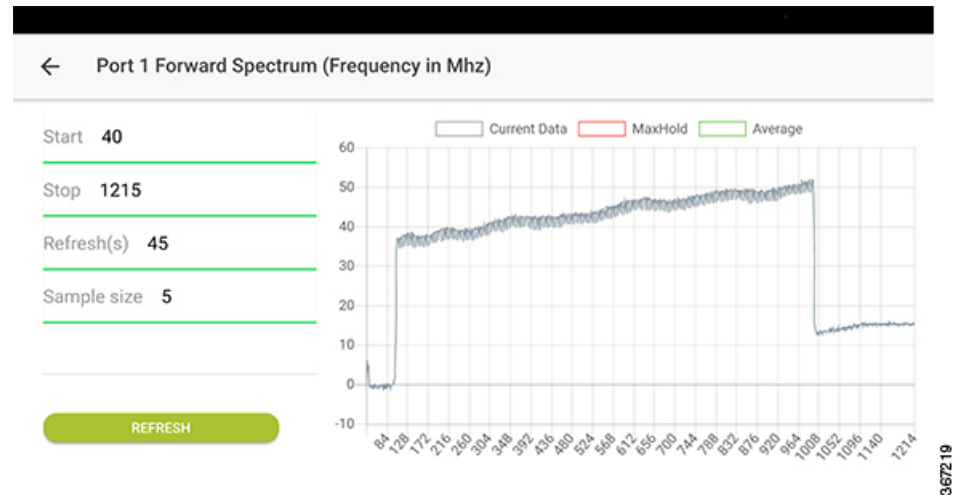
Frequency	Target Level	Actual Level
261 MHz	36.9	36.5
855 MHz	48.1	47.8



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It displays the target level, actual level, and forward spectrum of a specified port. Tap the port number to see the parameter value and chart for the corresponding port.

Figure 8: Forward Path Landscape




When the mobile device is in landscape orientation, this interface changes to landscape mode to allow the user to customize the parameters, and display the forward spectrum with these parameters to get more details.



Name	Description
Start	Start Frequency in MHz.
Stop	Stop Frequency in MHz.
Refresh	Rate in seconds at which the data is collected.
Sample Size	The number of samples used in averaging.

Reverse Path

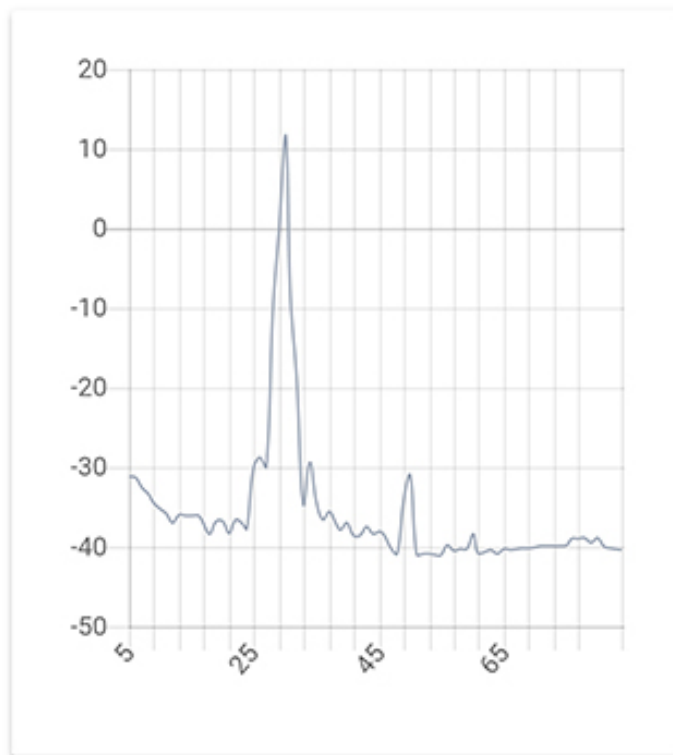
Similar to the forward path, spectrum data for the reverse path is also captured on a per port basis. Thus, live data is generated at regular intervals and displayed on the mobile device. This Reverse Path screen represents the summary spectrum data, whereas the next screen presents the detailed spectrum analysis. Access the details by rotating the mobile device to landscape orientation.

Figure 9: Reverse Path

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 Reverse Path 

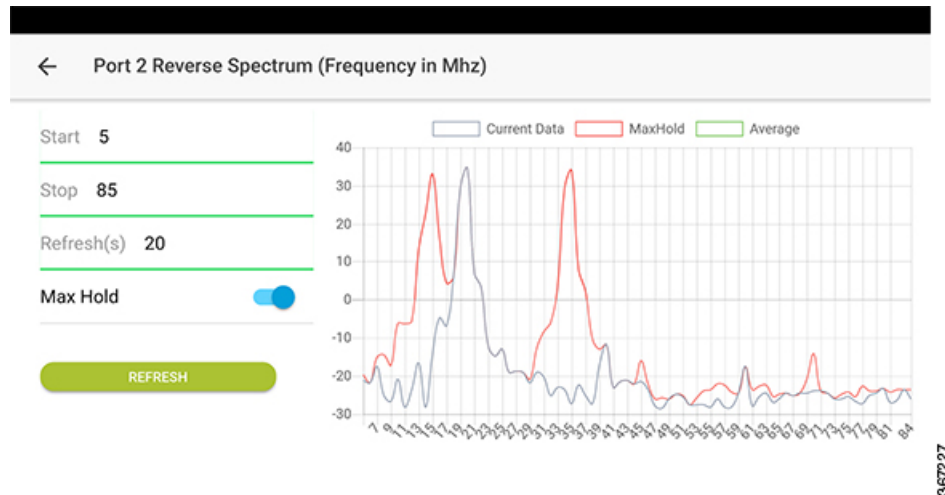
P1 P2 P4 **P5**



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It displays the spectrum of the reverse path on a specified port. Tap port number to see the chart for the corresponding port.

Figure 10: Reverse Path Landscape



When the mobile device is in landscape orientation, this interface changes to landscape mode to allow the user to customize the parameters, and display the reverse spectrum with these parameters to get more details.

Name	Description
Start	Start Frequency in MHz.
Stop	Stop Frequency in MHz.
Refresh	Rate in seconds at which the data is collected.
Max Hold	Keeps the maximum value while new sample data is collected, since the reverse path data experiences bursts.

Alarms

A monitored item is displayed in the Alarms screen only when it is in an alarm state. In normal operation, the Alarms screen is blank and does not contain any entries.

The following screen displays a sample alarm, which shows that the iNode temperature (OIB) is in minor alarm state (orange). If a monitored item is in a major alarm state, it is displayed in red.

Figure 11: Alarms

Alarms		
1	Oib Temperature	33.0

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Status

The Status screen has two sections. The top section lists iNode information. The bottom section lists all monitored items with their values. Scroll down to see all the items listed.

Figure 12: Status

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☰ Status 📶

GS7Ki-HSG-1.2G
Ser. No: BBAVBPH
Software version: 02.00.01

Forward Amp Ser. No: FJZ2203051Z
Forward Amp part No: 73-18298-02
Forward Amp Version: 2.0

OIB Ser. No: FJZ215200JY
OIB part No: 73-18300-02
OIB Version: 4.0

Reverse Amp Ser. No: FJZ215200FZ
Reverse Amp part No: 73-18299-02
Reverse Amp Version: 2.0

Forward Segmentation: 1x
Reverse Segmentation: x2
Power Save mode: fullPower
LCS Access: enabled
SNMP Access: readWrite
SNMP Community String: public
Theft Prevention: enabled
Lid Status: closed

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Node Information	Example
Model	GS7ki-HSG-1.2G
Serial Number	BBAVBPH
Software Version	02.00.01
Forward Amp Ser. No	FJZ2203051Z
Forward Amp part No.	73-18298-02
Forward Amp Version	2.0
OIB Ser. No	FJZ2215200JY
OIB part No	73-18300-02
OIB Version	4.0
Reverse Amp Ser. No	FJZ2215200FZ
Reverse Amp part No.	73-18299-02
Reverse Amp Version	2.0
Forward Segmentation	1x
Reverse Segmentation	x2
Power Save Mode	full Power
LCS Access	enabled
SNMP Access	readWrite
SNMP Community String	public
Theft Prevention	enabled
Lid Status	closed
Monitored Items	Sample Current Value or Status
Oib temperature	39.0
Ps 1 AC Input	57.2
Ps 1 Plus24 Vdc Output	24.8
Ps 1 Plus8 Vdc Output	8.7
Ps 1 Plus5 Vdc Output	6.1
Ps 1 Minus6 Vdc Output	-6.1
Ps 2 AC Input	0.0

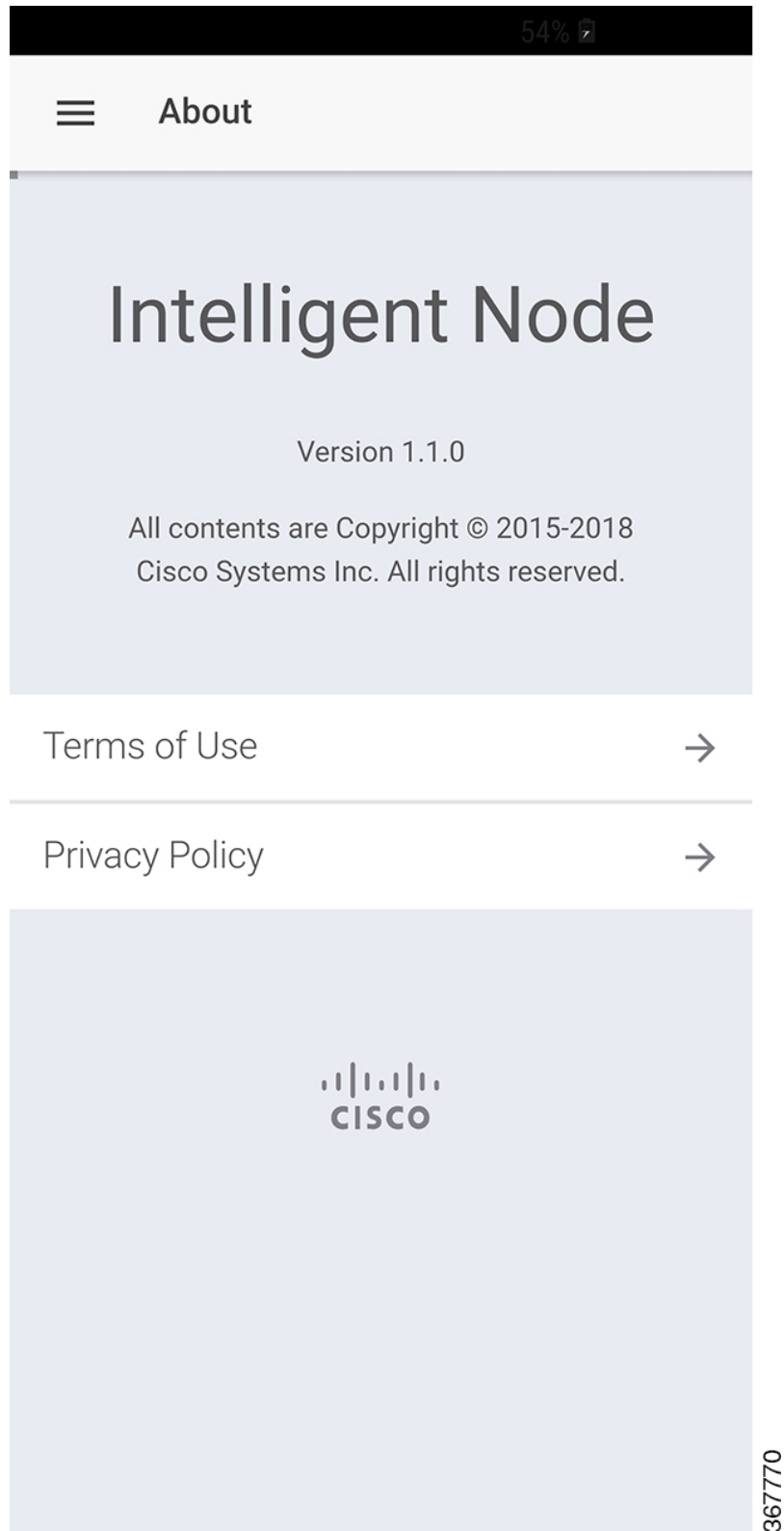
Node Information	Example
Ps 2 Plus24 Vdc Output	0.1
Ps 2 Plus8 Vdc Output	0.0
Ps 2 Plus5 Vdc Output	0.0
Ps 2 Minus6 Vdc Output	0.0
Optical Receiver Input Power	-30.0
Optical Transmitter1 Output Power	3.9
Optical Transmitter2 Output Power	3.9
Tamper	Normal
Auto Setup Status	Normal
Spectrum Capture Device Status	Normal
Rf Port1 Age Lock	Normal
Rf Port2 Age Lock	Normal
Rf Port14Age Lock	Normal
Rf Port5 Age Lock	Normal

About

The About screen displays the following details:

- Version of the iNode
- Terms of use
- Privacy policy

Figure 13: About screen



Troubleshooting LCS

The USB icon appears red if the LCS loses connectivity to the iNode. If the icon is red, touch the USB icon to reconnect. If the USB icon does not turn green in a reasonable time, verify your connection and restart the iNode App.

