

ERM-WiFi

USER MANUAL



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1.0 TOPCON WIFI APPLICATION NOTE

There are three versions of the WIFI modules. The ERM-WIFI is used for connecting indicators to mobile applications. The WIFI Indicator Module (ERM-WIFI 411493) is used to connect a TMR3610, TMR4610 to mobile applications, CCT500, and to a farm wireless network. The WIFI Cab Control Module (ERM-WIFI 411492) is used by the CCT500 to connect to a TMR3610, TMR4610 as a wireless display.

ERM – WIFI EXTERNAL RADIO MODULE (ERM – WIFI 409665)



WIFI INDICATOR MODULE (ERM – WIFI 411493)



WIFI CAB CONTROL MODULE (ERM – WIFI 411492)



1.1 OVERVIEW of ERM-WIFI

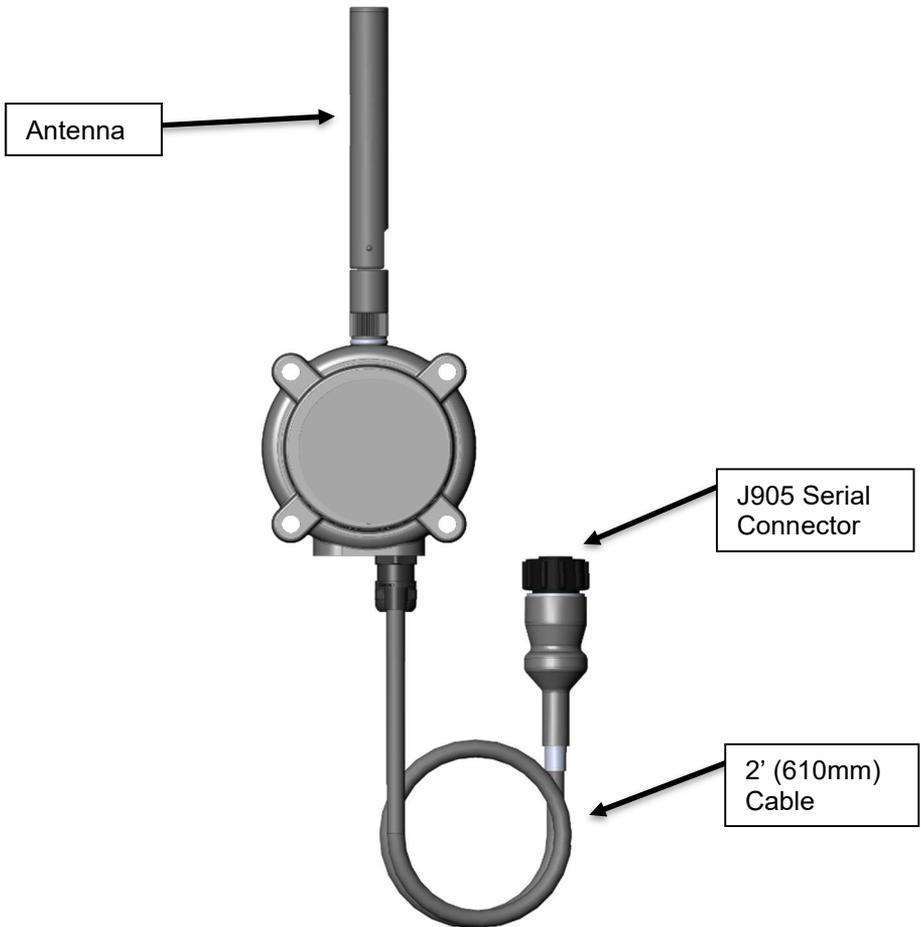


Figure 1. ERM-WiFi Overview

2.0 ERM-WIFI EXTERNAL RADIO MODULE (Legacy)

Description	Part #	Qty
RADIO-ERM-WiFi	409665	1
40" (1 meter) Extension Cable	409156	Option



2.0.a USE:

The Digi-Star ERM-WIFI is designed exclusively for use with Digi-Star scale indicators, accessories, and associated agricultural weighing equipment.

The Digi-Star ERM-WIFI device allows Apple and Android devices to wirelessly communicate and control a wide range of Digi-Star Indicators using Digi-Star mobile apps found in the Apple iTunes or Google Play Store.

The ERM-WIFI is not for use with applications for which the ERM-WIFI is not intended, or as outlined in this manual.

Use of the ERM-WIFI outside of its intended purposes may result in the inability to communicate, the loss of weight information or data, as well as damage to instrument.

This manual covers the setup and operation of this device.

2.0.b Digi-Star Hardware Requirements:

A Digi-Star Indicator the ERM-WIFI is connected to must be running software 9B or later, and also utilize a J905 connector in order for the ERM-WiFi to operate.

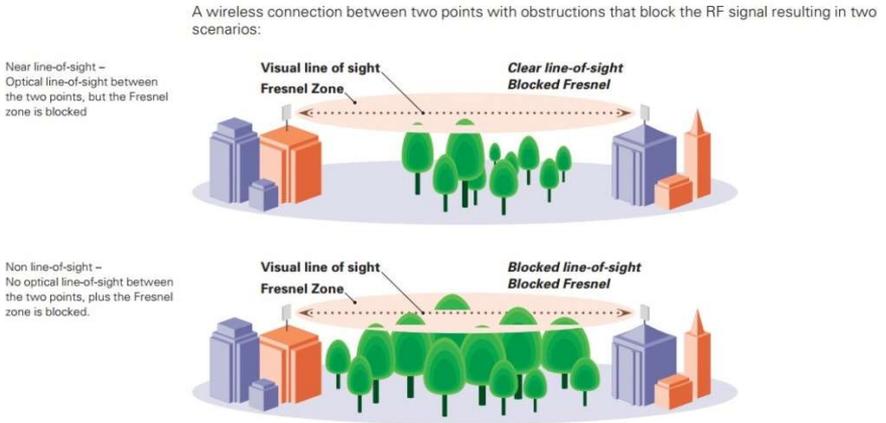
2.0.c Mobile Device Requirements:

Android Tablets and Phones require Android version 4.0.3 (Ice Cream Sandwich) or later. Apple iPhones and Tablets must be running IOS version 7.0 or newer.

Please note that the Digi-Star Apps will not work with Digi-Star ERM-2.4, ERM-2.4X, or ERM-900 wireless modems.

2.0.d Line-of-Sight Communication:

All ERM-WIFI and corresponding radio devices operate on the line-of-site principal. The antenna of each device must be in visual site of the other. Radio transmission will not pass through buildings, metal structures, or earth. The illustration below provides additional details of how both the line-of-sight and Fresnel Zone must be clear.



2.0.e Digi-Star Scale Indicator Requirements:

The Digi-Star ERM-WIFI can only be connected to Digi-Star Scale Indicators with:

1. A J905 serial port. The ERM-WIFI device is not compatible with Indicators equipped with a J904 port.
2. Software version 9B or newer.
3. Option Settings set correctly to communicate with the ERM-WIFI

See **Indicator Option Settings** section of this manual for details on how to properly setup the Digi-Star Indicator.

2.0.f Normal ERM-WiFi LED Status

During normal operation, the “Link” LED is Green, which indicates that the WiFi-ERM has created a Digi-Star WiFi Hotspot which must be joined by the mobile device. Normal LED operation can be seen below:



Figure 2. ERM-WiFi Normal Operation

Power – Orange, Indicating Power to the Module

Link – Green, Indicating a Digi-Star Hotspot Has Been Created

Com 2 – Blue – Indicating the Unit Is Able to Communicate

2.0.g Connecting to the ERM-WiFi Hotspot

When the Link LED is Green, a Digi-Star WiFi Hotspot has been created, and must be joined by the mobile device running a Digi-Star Mobile App. This can be joined like any other WiFi Hotspot. The default name of the Hotspot will be “Digi-Star[xx:xx]” where “xx:xx” is the last four digits of the MAC address of the ERM-WiFi.

Once the mobile device joins the Digi-Star WiFi-ERM Hotspot, the app will then be able to communicate with the Digi-Star Indicator.

2.0.h ERM-WiFi Hotspot and Internet Connectivity

Please note that the Digi-Star ERM-WiFi Hotspot does not provide Internet connectivity. As a result, any mobile device connected to a Digi-Star ERM-WiFi Hotspot will not be able to connect to the Internet, check e-mails, etc.. To re-access the Internet disconnect mobile device from the Digi-Star ERM-WiFi Hotspot.

2.0.i Bootup:

1. Upon turning on the ERM-WiFi Module, the Power LED will be Orange, Net and Link LED will be Pink, and Com 2 will be Blue. If the Net and Link LED's stay Pink, power cycle Indicator. Plugging in the ERM-WiFi Module to an Indicator while it is on will result in the Net and Link lights staying Pink. You must power cycle the Indicator with the ERM-WiFi connected for the ERM-WiFi to boot up successfully.



Figure 6. ERM-WiFi Initially Plugged In

After approximately 10 seconds, the Net and Link LEDs will turn off.



Figure 7. ERM-WiFi With Digi-Star Hotspot Turned Off

2. In approximately 4 seconds, the Link LED should turn Green.



Figure 8. ERM-WiFi With Digi-Star Hotspot Turned On

NOTE: Failure to install any ERM system properly will result in decreased range or performance. Refer to the “Suggested Mounting Locations” section for more details.

3.0 Suggested Mounting Locations

The ERM-WiFi is supplied with a heavy-duty Hook & Loop fastening system and mounting holes to provide flexibility when mounting.

For many applications it is possible to attach the ERM-WiFi to the Indicator using the Hook & Loop fastener as shown below.

To increase mounting possibilities, or increase range, the ERM-WiFi may also be used with Digi-Star's **409156 – 40" (1m) Extension Cable** to position the ERM-WiFi outside the tractor cab or in a higher position that provides improved line-of-site communication.

Always orient the ERM-WiFi Antenna in the Vertical orientation. A horizontal orientation will decrease range and is not recommended.



Figure 3. ERM-WiFi Suggested Mounting



Figure 4. ERM-WiFi Incorrect Antenna Orientation



Figure 5. ERM-WiFi Horizontal Mounting w/Correct Antenna Orientation

4.0 Installation & Mounting

1. If mounting the ERM using the supplied Hook & Loop fasteners:

- a. See “Suggested Mounting Locations” above for proper mounting positions.
- b. Wipe the mounting surface clean of dirt and debris.
- c. Wipe the adhering surface and back side of ERM clean with alcohol or cleaner spray and allow to air dry.
- d. Apply hook and loop fasteners as necessary.
- e. Allow unit to cure for 12-24 hours before use.

NOTE: Adhesive will not stick to any surface at temperatures below freezing. Install at room temperature for best results.

2. If mounting the ERM using bolts:

- a. Determine the proper sized bolt for use to connect the ERM to the equipment. No more than two bolts are required.
- b. See “Suggested Mounting Locations” for proper mounting orientations. Do not mount to Indicator by drilling housing.
- c. Do not overtighten bolts! Lock nuts are recommended to securely fasten the ERM to the mount.

5.0 Indicator Option Settings for ERM-WIFI (409665):

In order for the ERM-WIFI to function properly the following Option Settings are required on the Digi-Star Scale Indicator that the ERM-WIFI is connected to.

EZ3* DAN	EZ4** DAN	Option	Setting
229	2003	EXTRAD	ON
215	N/A	COM IN	EZ2CMD
216	2304	PRTFMT (GT460 only)	PRTAC5
217	2004	MEDIA	USB
218	2001	REMOTE	ON for single line or MTLINE for 3 line display
221	2204	C1 DLY	OFF
224	2408	RMC EN (GT460 only)	ON
228	N/A	RADRES	SFTWR

* Digi-Star EZ2500/3600/4600, GT400/460 Indicators

** Digi-Star EZ2810/3410, TMR3610/4610, GT560 Indicators

Option Setting changes using Direct Access Numbers (D.A.N.) for Digi-Star Indicators with numeric Key Pads:

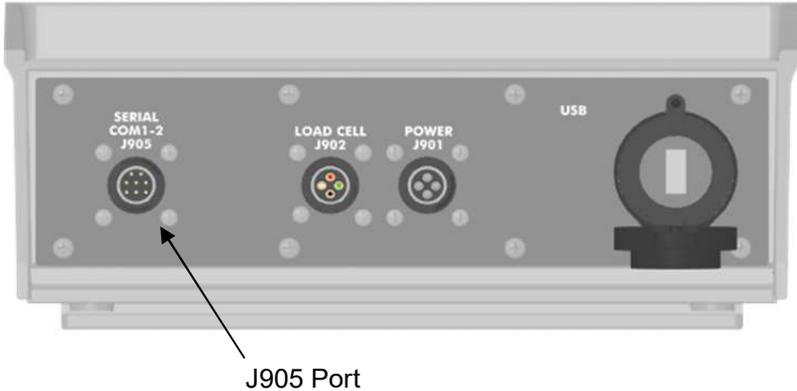
1. Directly enter the required D.A.N. number on the numeric key pad.
2. Press the SELECT or UP buttons to cycle through available settings.
3. Press ENTER to save.

Option Setting changes for Digi-Star Indicators without numeric Key Pads:

1. Repeatedly press the SELECT key until MENU is displayed.
2. Press FUNCTION.
3. Press SELECT until Menu 2 is displayed.
4. Press the ON/OFF key until the required Option is displayed.
5. Press the NET/GROSS key until the required Setting is displayed.
6. Press ON/OFF to save the setting and move to the next menu option.

6.0 Connecting to Indicator & Scale Indicator Option Settings (409665):

1. Verify that the Indicator has a J905 port installed.



If no J905 serial port is available the Indicator must be sent in to a Digi-Star Authorized Service Center for an upgrade.

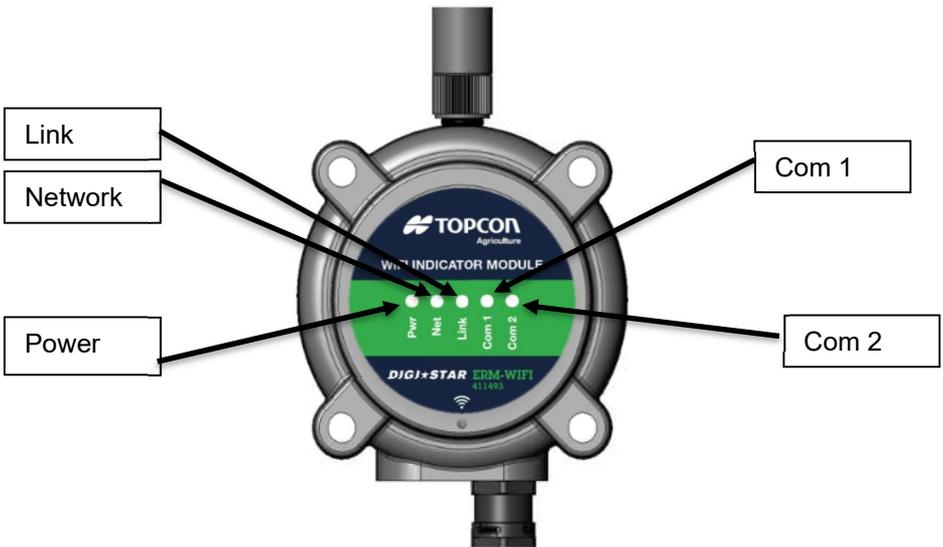
NOTE: The ERM-WIFI device is not compatible with Indicators equipped with a J904 port.

2. Ensure that the software running on the scale Indicator is compatible with the ERM-WIFI.
 - a. To check the current software version of the Indicator, with the Indicator Already On press “ON” momentarily.
 - b. The software version is displayed immediately after “PRGID”. Any version that displays 9B or newer is compatible. (For example 9D would be compatible).
 - c. If the Indicator has software that is older than 9B then newer software must be installed by Digi-Star or an Authorized Digi-Star Service and Repair Center. Go to www.digi-star.com under the Support tab for details.

3. Activate the Remote output function. Set REMOTE in Menu 2 (D.A.N. 218/ D.A.N. 2001) to "ON".
 - a. Important! Option Setting EXTRAD (D.A.N. 229/ D.A.N. 2003) must be set to ON before making the remaining Option Setting changes. Changing EXTRAD to ON after setting REMOTE to ON will automatically turn REMOTE back to OFF.
4. Activate the External Radio function. Set EXTRAD in Menu 2 (D.A.N. 229/ D.A.N. 2003) to "ON".
5. Set the Computer Input Mode function to EZ2 Command. Set COM IN in Menu 2 (D.A.N. 215) to "EZ2CMD". Setting not required in EZ4.
6. Once these the settings have been set, turn off the Indicator, plug in the ERM-WiFi module into the J905 port, and turn on the Indicator.

7.0 Overview of ERM-WIFI Indicator Module

Description	Part #	Qty
ERM-WIFI-EZ4/TST/INDICATOR	411493	1
40" (1 meter) Extension Cable	409156	Option



Operational Status:

The Pwr is the power light, ensure that this is activated when power is applied. The Net and Link lights indicate proper operation. The Link light will display green when the indicator is ready for a wireless display to connect to it. The Net light will turn blue when the module is connecting and operating on the farm network.

7.0.a Cab Control to TMR3610 or TMR4610 Indicator

When using a CCT500 to connect to an ERM-WIFI EZ4/TST/Indicator Module the WIFI feature in the TMR3610, TMR4610 need to be enabled. If WIFI feature is not enabled, follow the steps below.

Step 1

Connect the WIFI-ERM to the serial port (J905) on scale. Then press  & , then hold for 3 to 5 seconds at the say time. Message will start scrolling on display.

Step 2

Press four , , , , then press  key once. Then "SERVICE MENU" will scroll across the display.

Step 3

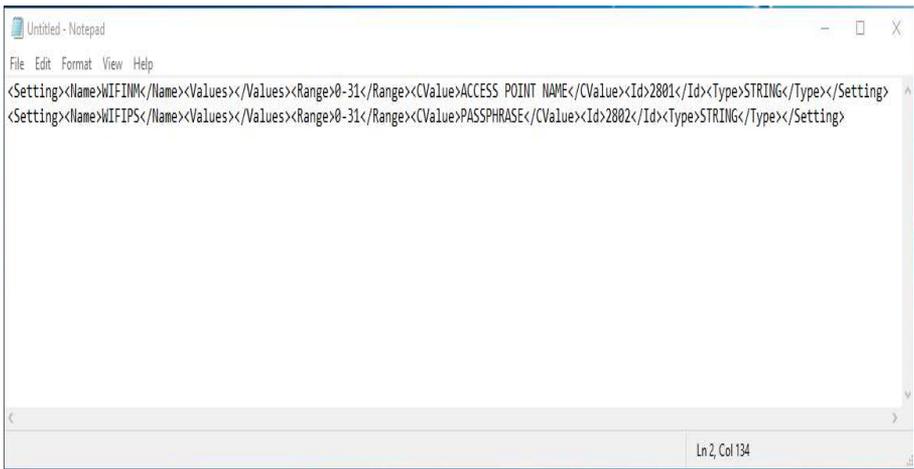
Press  key to step through service menu. When "WIFOFF" is displayed, press  to enable feature. "WIFION" will be displayed. Continue pressing the  key to advance through menu. When "RESET" is displayed, stop pressing the  key. The scale will reset to enable the new feature.

7.0.c Setup Wireless Network Feeding Transfers

There are multiple settings on the TMR3610 and TMR4610 that are needed to enable the full functionality of the module.

In the service menu the WIFI option must be activated to WIFION. This will activate the device and allow a wireless device to connect to the indicator. The connection to the farm network is required for wireless transfer of feeding information to the indicator.

The menu item WIFINM (D.A.N. 2801) must be set to the access point name and menu item WIFIPS (D.A.N. 2802) should contain the passphrase to the network if wireless security is enabled. Both settings must be set through the USB transfer of settings. Enter D.A.N. 8713 and select Yes to download the settings to USB. Open file named DS_MENU_SETTINGS.XML on USB, in a text editor on PC. Then modify the settings. Example Figure 1.



```
Untitled - Notepad
File Edit Format View Help
<Setting><Name>WIFINM</Name><Values><Range>0-31</Range><CValue>ACCESS POINT NAME</CValue><Id>2801</Id><Type>STRING</Type></Setting>
<Setting><Name>WIFIPS</Name><Values><Range>0-31</Range><CValue>PASSPHRASE</CValue><Id>2802</Id><Type>STRING</Type></Setting>
```

Ln 2, Col 134

Figure 1

The two lines that need modification are highlighted:

```
<Setting><Name>WIFINM</Name><Values></Values><Range>0-31</Range><CValue>ACCESS POINT NAME</CValue><Id>2801</Id><Type>STRING</Type></Setting><Setting><Name>WIFIPS</Name><Values></Values><Range>0-31</Range><CValue>PASSPHRASE</CValue><Id>2802</Id><Type>STRING</Type></Setting>
```

Change the ACCESS POINT NAME and PASSPHRASE values to reflect your network configuration and save the file.

Example;

```
<Setting><Name>WIFINM</Name><Values></Values><Range>0-31</Range><CValue>Netgear-1</CValue><Id>2801</Id><Type>STRING</Type></Setting><Setting><Name>WIFIPS</Name><Values></Values><Range>0-31</Range><CValue>KutzDairy</CValue><Id>2802</Id><Type>STRING</Type></Setting>
```

After changes are made, save file back to the USB. Remove USB from PC, then install USB in TMR3610 or TMR4610 indicator. Enter D.A.N. 8714 on the indicator and press SELECT until Yes is displayed, then press ENTER to reload the settings onto the indicator. When displayed "Remove USB" settings are finished loading. Cycle power on the indicator after this is complete and indicator will attempt to connect to the farm network to allow wireless.

7.0.d EZ4 Indicator Module Settings

D.A.N. #	Feature	Setting
Instructions on page 20	WIFI	WIFION
2001	REMOTE	ON
2003	EXTRAD	OFF
2212	C2 PA	NONE
2213	C2DATA	8
2803	WIFICH	AUTO
5001	RMDPPT	COM 2
5004	WIPOINT	COM 2

8.0 Overview of ERM-WIFI Cab Control Module

Description	Part #	Qty
ERM-WIFI-GCAN/CAB CONTROL	411492	1
40" (1 meter) Extension Cable	409156	Option



8.0.a Connecting to the ERM-WiFi Cab Control

This module plugs directly into the CCT500 and requires no special settings change, other than selecting the scale number of the indicator needed to be connected to.

Note: When connecting to the CCT500 and ERM-WIFI cab control, cycle the power on the CCT500.

Operational Status:

This module powers up with the Net and Link lights green while waiting for the wireless display to command the connection to the indicator. When connected to the indicator the Link light turns blue and the Net light is off.

9.0 ERM -WiFi Module (Legacy) Troubleshooting:

TMR3600, TMR4600 Indicator Troubleshooting

ERM is not turning ON.	<ul style="list-style-type: none"> • Ensure power is plugged into indicator. • Ensure indicator is powered ON. • Ensure that a J905 port is installed on the Indicator and PWR LED is ON. • Ensure the indicator is running 9B or newer. • Ensure Indicator settings are configured to work with the ERM
ERM is not communicating	<ul style="list-style-type: none"> • Ensure the Digi-Star Hotspot has been joined. • Ensure ERM is connected properly to J905, PWR LED is ON, and the Link light is GREEN. • Ensure that Com 2 Led is BLUE

Technical Support: Tel: 800-225-7695

10.0 ERM-WIFI Indicator Module Troubleshooting:

TMR3610, TMR4610 Indicator Troubleshooting

ERM is not turning ON.	<ul style="list-style-type: none">• Ensure power is plugged into indicator.• Ensure indicator is powered ON.• Ensure that a J905 port is installed on the Indicator and PWR LED is ON.• Ensure the indicator is running 9B or newer.• Ensure Indicator settings are configured to work with the ERM
ERM is not communicating	<ul style="list-style-type: none">• Ensure the Digi-Star Hotspot has been joined.• Ensure ERM is connected properly to J905, PWR LED is ON, and the Link light is GREEN.• Ensure that Com 2 Led is RED.

Technical Support: Tel: 800-225-7695

11.0 ERM-WIFI Cab Control Module Troubleshoot:

TMR3610, TMR4610 Indicator Troubleshooting

ERM is not turning ON.	<ul style="list-style-type: none"> • Ensure power is plugged into indicator. • Ensure indicator is powered ON. • Ensure that a J905 port is installed on the Indicator and PWR LED is ON. • Ensure the indicator is running 9B or newer. • Ensure Indicator settings are configured to work with the ERM
ERM is not communicating	<ul style="list-style-type: none"> • Ensure the Digi-Star Hotspot has been joined. • Ensure ERM is connected properly to J905, PWR LED is ON, and the Link light is GREEN. • Ensure that Com 2 Led is RED.

Technical Support: Tel: 800-225-7695

12.0 Agency Approvals

United States of America

FCC

ID: YOPGS2011MIE

Contains Model GS2011MIE

The enclosed device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (i.) this device may not cause harmful interference and (ii.) this device must accept any interference received, including interference that may cause undesired operation.

Canada

Industry Canada

Contains Model GS2011MIE, IC: 9154A-GS2011MIE

Europe

ETSI



Japan

MIC: 211-140402

13.0 NOTES: