

# ARTIK 530(s) User Manual and HOST INSTALLATION MANUAL

## Reference

Samsung Module Model: SIP005AFS30

FCC ID: A3L-SIP005AFS30

IC ID: 649E-SIP005AFS30

The Samsung ARTIK 530(s) is a certified transmitter module approved under FCC ID: A3L-SIP005AFS30 and ISED Canada certification number 649E-SIP005AFS30.

Instructions for installation of this module when using the onboard uFL connectors can be found in this document and provided that those instructions are followed the certification of the module can be leveraged for the combination of host and system. If using an on-board trace to connect to an antenna, either directly or via an on-board rf connector, please refer to the limited modular approval installation guide.

The Full Modular Approval (FMA) covers the module installed such that the U.FL connectors for the ZigBee and Wi-Fi/Bluetooth antennas on the module connect directly to the antennas via an u.FL-to-RP-SMA connector.

The FMA covers the antenna configuration listed below:

- Option 1: Patch Antenna direct connected to SoM (see the Molex 146153-0050 peak gain in the section below)



- Option 2: Use SMA Mounted Antenna direct connected to SoM (see the Taoglas GW.71.5153 peak gain in the section below). The connector should be reverse gender or thread.



The u.FL-to-RP-SMA connector specification and its loss are listed below:

- Vendor: Data Alliance, LLC. (<https://www.data-alliance.net>)
- Antenna Cable: SKU: RSf30mmUFL, u.FL to RP-SMA Female: 1 inch cable  
One end has a U.FL connector and the other end has a RP-SMA female connector.
- Cable Thickness: 1.13mm: Thin, flexible

- Attenuation Per Foot:
  - at 900 MHz: 0.23 db/ft
  - at 2.4 GHz: 0.39 db/ft
  - at 3.4GHz: 0.47 db/ft
  - at 5.1-5.8GHz: 0.643 db/ft
- The actual measurement of the cable loss:

	Frequency	Cable loss
WiFi	2400MHz	<b>0.37</b>
	5180MHz	<b>0.57</b>
	5320MHz	<b>1.6</b>
	5600MHz	<b>0.87</b>
	5800MHz	<b>1.0</b>
Zigbee	2400MHz	<b>0.37</b>

The Full Modular Approval covers these 2 antenna:

1. Molex 146153-0050

**Antenna type** 2.4/5GHz Balanced Flex Antenna  
**Antenna peak gain** +2.56 dBi(2484 MHz)  
**(WiFi and Zigbee)** +3.04 dBi (5180 MHz)  
 +3.49 dBi (5320 MHz)  
 +4.59 dBi (5600 MHz)  
 -4.87 dBi (5800 MHz)

2. Taoglas GW.71.5153

**Antenna type** Dipole 2.4GHz/5.8GHz RP-SMA Antenna  
**Antenna peak gain** +3.2 dBi(2484 MHz)  
**(WiFi and Zigbee)** +4.8 dBi (5180 MHz)  
 +4.7 dBi (5320 MHz)  
 +4.3 dBi (5600 MHz)  
 +4.0 dBi (5800 MHz)

Connection of an antenna directly to the U.FL connectors on the module, is covered by the certification provided that the following requirements are met:

1. The antenna type must be a dipole or patch antenna;



<b>Antenna peak gain</b>	+2.56 dBi(2484 MHz)
<b>(WiFi and Zigbee)</b>	+3.04 dBi (5180 MHz)
	+3.49 dBi (5320 MHz)
	+4.59 dBi (5600 MHz)
	-4.87 dBi (5800 MHz)

2. Taoglas GW.71.5153

<b>Antenna type</b>	Diploe 2.4GHz/5.8GHz RP-SMA Antenna
<b>Antenna peak gain</b>	+3.2 dBi(2484 MHz)
<b>(WiFi and Zigbee)</b>	+4.8 dBi (5180 MHz)
	+4.7 dBi (5320 MHz)
	+4.3 dBi (5600 MHz)
	+4.0 dBi (5800 MHz)

**FCC REGULATORY DISCLOSURES**

This device complies with Part 15 of the FCC’s Rules. Operation is subject to the following two Conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesirable operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the transmitter’s radiating structure(s) and the body of the user or nearby persons.

This module is intended for OEM integration. The OEM integrator is responsible for FCC compliance and compliance with all applicable regulations including those for modular transmitters 47 C.F.R. 15.212. The

OEM product must comply with all applicable labeling requirements including those contained in 15 C.F.R. 15.19. The OEM is solely responsible for certification and testing and labeling of its own products. In addition to any independently required labels, the OEM shall also affix to the outside of a device into which the module is installed a label referring to the enclosed module. This exterior label should be prepared in a legible font and permanently affixed and using the wording "Contains Transmitter Module FCCID: A3LSIP005AFS30"

The OEM is required to ensure that the end product integrates this module so as to maintain a minimum distance of 20 cm between the equipment's radiating structure(s) and the body of the user or nearby persons. The OEM shall also advise its end user of this requirement as required by applicable rules. The OEM shall require that the end user of its product be informed that the FCC radio frequency exposure guidelines for an uncontrolled environment can be satisfied. The OEM shall further inform its end user that any change or modifications to this module not expressly approved by the manufacturer will void the warranty and the users' authority to operate the equipment.

## **INDUSTRY CANADA REGULATORY DISCLOSURES**

### **INDUSTRY CANADA STATEMENT**

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**Cet appareil est conforme avec Industrie Canada exempts de licence standard RSS (s). L'opération est soumise aux deux conditions suivantes:(1) cet appareil ne peut causer d'interférences, et (2) cet appareil doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.**

### **INDUSTRY CANADA RADIATION EXPOSURE STATEMENT AND LIMITATIONS ON USE**

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body. This equipment should be installed and must not be co-located or operating in conjunction with any other antenna or transmitter.

This equipment is restricted to indoor use in the 5.15-5.25 GHz range. This equipment is not able to be operated at 5600-5650. In the United States and Canada, only Channel 1~11 can be operated and these channel assignments deal only with the 2.4 GHz range.

The end product must be labeled to display the Industry Canada certification number of the module.

**"Contains transmitter module IC: 649E-SIP005AFS30"**

*Le dispositif d'accueil doivent être étiquetés pour afficher le numéro de certification d'Industrie Canada du module.*

***Contient module émetteur IC : 649E-SIP005AFS30.***