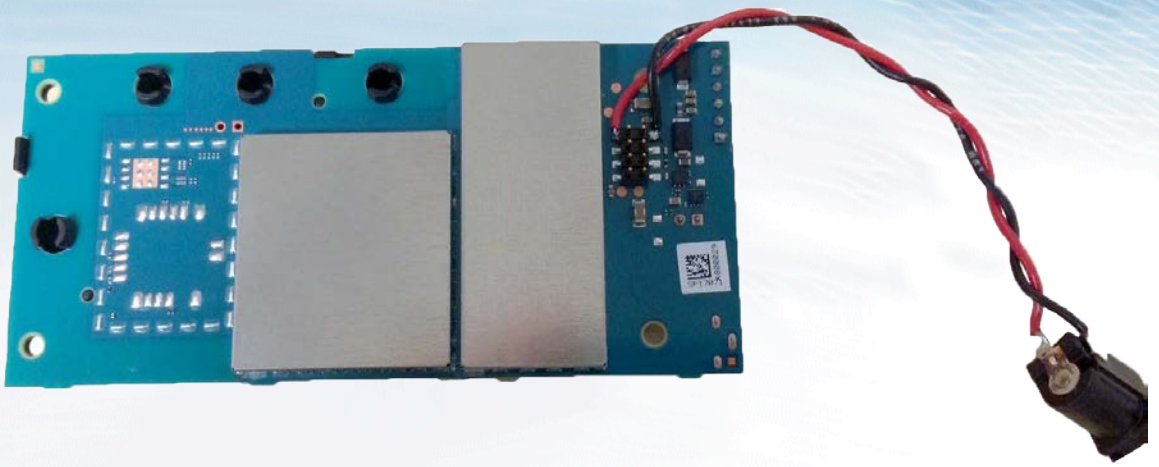
SA1100X-UG001

SA 1100



User Guide

Version 1.5

NOVATEL WIRELESS

March 1, 2016

NOVATEL WIRELESS COPYRIGHT STATEMENT

NOVATEL WIRELESS TRADEMARKS AND SERVICE MARKS

Contents

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Introduction

Device Overview

The SA 1100 Communicator Board delivers CDMA and 3G connectivity for alarm panel systems in addition to offering Wi-Fi and Z-Wave capabilities for connected home services. In order to support those technology features it incorporates the Novatel Wireless HS 3001 or HS 3002 cellular modules for data connectivity and messaging. In addition, the SA 1100 product is integrated with a Wi-Fi module that operates in the 2.4 GHz range along with a Z-Wave module operating in the 900 MHz range. The SA 1100 Communications Board supports only incoming voice calls and SMS messages. The device does not include a dial pad interface to make outbound calls.

The SA 1100 Communications Board includes a USB port to allow access to the module's AT command interface.

This is an integrated product designed to be used in conjunction with a third party end product. An 8- pin adapter between the SA 1100 Communications Board and the third party end product provides for power and data transfer.

This device is intended for professional installation and not for consumer use.

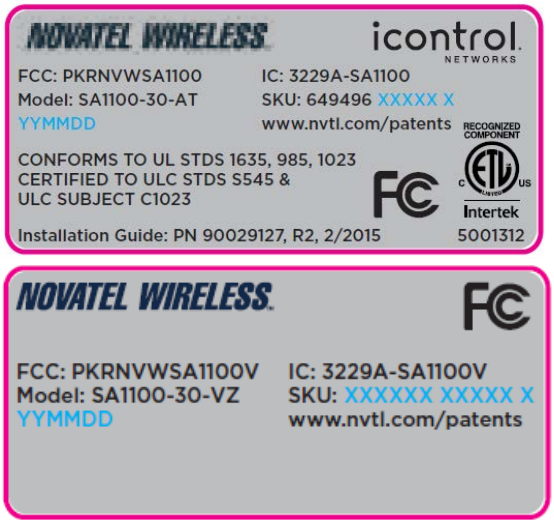
Versions

The SA 1100 Communications Board is available in the following configurations:

- SA1100-00-AT = WCDMA/HSPA
- SA1100-20-AT = WCDMA/HSPA + Wi-Fi
- SA1100-30-AT = WCDMA/HSPA + Wi-Fi + Z-Wave

- SA1100-00-VZ = CDMA 1xRTT
- SA1100-20-VZ = CDMA 1xRTT + Wi-Fi
- SA1100-30-VZ = CDMA 1xRTT + Wi-Fi + Z-Wave

Product Label



Technical Specifications

Interfaces

Host Interface:	Serial Interface
Data input/output interface:	100 position 0.4 mm pitch connector (Molex P/N 55909-1074)
Primary serial port:	V.24 protocol, 1.8V levels, UART implementation, Hardware flow control
USB port:	USB serial port and USB Debug (USB Debug is Novatel Wireless Use only)
Antenna Interface:	B2B Spring contact
Command protocol:	Novatel Wireless Packet API, AT Command set
Reference clock:	32 kHz output reference clock (accessible via 100-pin connector)
ADC:	2 ADC inputs
Logic:	ı UART1 ı PCM ı Digital Audio ı PWON ı PowerControl

Outputs

Simon XT

Mechanical: Storage and Transportation

Transportation vibration, packaged:	ASTM D999
Drop, packaged:	ASTM D775 method A, 10 drops

Mechanical: Operational

Operational vibration	Random EC60068-2-64 / MIL-STD-202G Method 214A
	50-2000 Hz, 7.56 GRMS, 3 Axis, 8 Hours per axis

Application Interface

USB:	3.4 to 4.4 Vdc (vbat)
VBUS:	Supply Vripple must be less than 25 mV across all frequencies

Power

Input Voltage Range:	Minimum: +6.0 Vdc Nominal: +12.0 Vdc Maximum: +24.0 Vdc

Radio Features

Frequency Bands:	CDMA 1xRTT BC0 (800MHz), BC1 (1900MHz) HSDPA/WCDMA: B1 (2100MHz) and B8 (900 MHz) GPRS/EDGE: 900 and 1800
Air Interfaces:	– CDMA 1xRTT – UMTS/WCDMA – R99 – HSDPA category 5/6 plus equalizer (3.6 Mbps peak rate) – GSM/GPRS/EDGE – GSM Release 4 – GPRS/EDGE Multislot Class 12, Release 4 – DTM Multislot Class 11

Audio Features

Phone Jack

Environmental

Compliant Operating Temperature:	-20 °C to 60 °C
Operating Temperature:	-30 °C to 70 °C
Storage Temperature:	-40 °C to 85 °C
Humidity:	Up to 95% non-condensing

Packet Data Transfer

Protocol	
Short Message Services:	Text, MO/MT

Regulatory

Agency approvals:	FCC Industry Canada PTCRB GCF

Reference Documents

CNN0301AT001 – HS 3001 AT Command Reference

CNN0301IG001 – HS 3001 Transition Guide

CNN0401xAT001 - HS 3002 AT Command Reference

CNN0401xTG001 - HS 3002 Transition Guide

ENF0000SD001 - HDK Guide

CNN0401AN001 - Using Digital Audio on the HS 3002

Operating Power

SA 1100 Communications Board Input Power

The SA 1100 Communications Board receives 6-12 VDC power from an external power supply using a ferrite bead dressed coaxial cable.

HS 3002 Chipset Typical Input Current

Typical Results @ 3.7V, 25 °C, with 1000 µF at connector input on V_{BAT} and RF terminated into a 50 Ω resistive load.

Band	Mode	Avg (mA)	Peak (mA)	Notes
B2 HSPA	WCDMA Radio Acccess Bearer channel of RMC12	540		
B5 HSPA	WCDMA Radio Acccess Bearer channel of RMC12	525		
GSM850 GPRS			2000	
GSM850 EGPRS			1200	
GSM1900 GPRS			1300	
GSM1900 EGPRS			900	
*4:1 VSWR				

HS 3001 Chipset Typical Input Current

Typical Results @ 3.7 V, 20 °C, with 1000 µF at connector input on V_{BAT} and RF terminated into a 50 Ω resistive load. Traffic Data Rate: Full.

Band	Mode	Avg (mA)	Peak (mA)	Notes
BC0	RC3, 3.6V, Max Power	540	590	RC3 = Radio Config 3
BC0	RC3, 3.6V, TX= 0dBm	180	180	
BC1	RC3, 3.6V, Max Power	600	680	
BC1	RC3, 3.6V, TX= 0dBm	230	230	
Both Both	Idle Slot Cycle Index = 2, Sleep = 3	<2.0	80	Modem Registered; Peak during network activity
Both	Sleep (Not Registered)	0.9		
Both	Shutdown	0.03	0.08	For minimum current draw in shut down mode, we recommend you shut down the modem by either sending AT$OFF (AT$OFFDLY must be >0) or by sending a pulse on PON line (pin 35), and then setting the ON/OFF line (pin 37) low to remove power from the device.

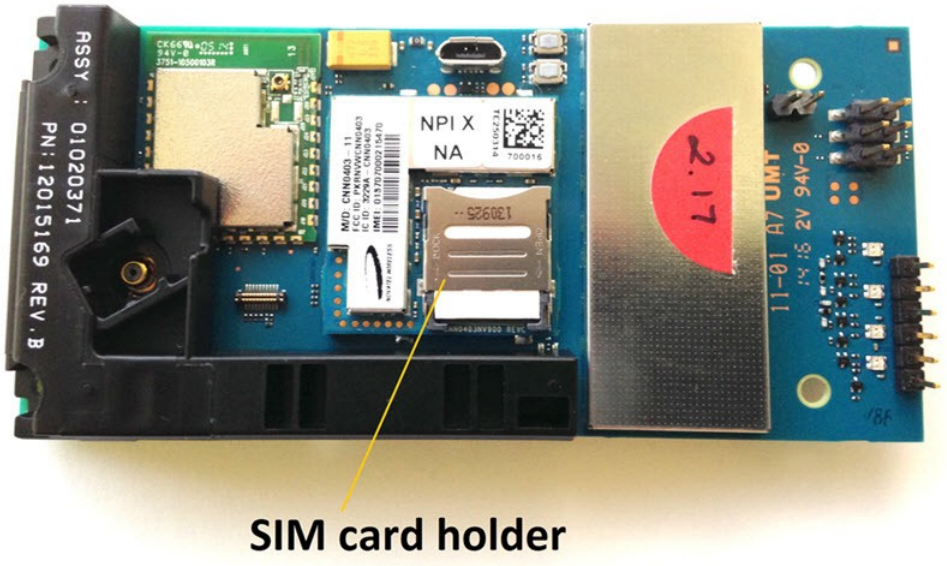
2

Using the Device

Installing the SIM Card

In the SA 1100, the SIM card slot is located on the Communications board.

Note: Only on SA1100-00-AT, SA1100-20-AT, SA1100-30-AT models.



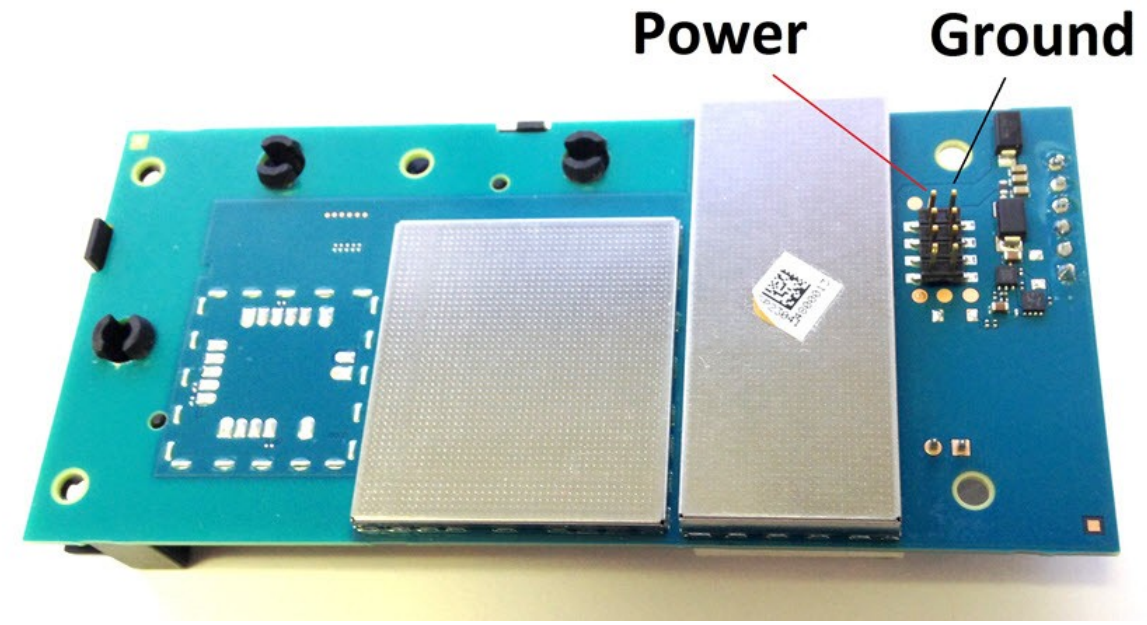
To install the SIM card:

1. Unlock the SIM card holder by sliding the holder in the "open" direction as marked on the SIM card holder.
2. Insert the SIM card into the holder, making sure the gold contact points on the SIM card are facing down (toward the board).
3. Slide the holder in the "lock" direction as marked on the SIM card holder to lock it into position.

Powering the Device

The SA 1100 requires 6-12 VDC power. The 8-pin adapter between the SA 1100 Communication Board and the third party end device provides both power and data.

The SA 1100 power pins are shown in the image below.



To power the SA 1100:

- Connect the 8-pin connector to the Security Panel Main Board connector.

Simon XT Connector

The Simon XT connector provides for data connectivity between the SA 1100 Communications Board and the third party end product.

USB

USB is provided solely for the communication with the module.

Radio Connectivity

Radio connectivity is provided solely by a Novatel Wireless HS 3002 module, which has all APIs integrated with the module software.

3

Compliance and Regulatory

General Disclaimer

TERMS OF USE OF NEW MATERIALS - PLEASE READ CAREFULLY

From time to time, Novatel Wireless, in its sole discretion, may make available for download on its website (www.novatelwireless.com), or may transmit via mail or email, updates or upgrades to, or new releases of, the firmware, software or documentation for its products (collectively, 'New Materials'). Use of such New Materials is subject to the terms and conditions set forth below, and may be subject to additional terms and conditions as set forth in Novatel Wireless's Technical Support Policy (posted on its website) and/or any written agreement between the user and Novatel Wireless.

All New Materials are provided AS IS. Novatel Wireless makes no warranty or representation with respect to the merchantability, suitability, functionality, accuracy or completeness of any such New Materials. The user of such New Materials assumes all risk (known or unknown) of such use. Novatel Wireless reserves all rights in such New Materials. The user shall have only a revocable and limited license to use such New Materials in connection with the products for which they are intended. Distribution or modification of any New Materials without Novatel Wireless's consent is strictly prohibited.

IN NO EVENT WILL NOVATEL WIRELESS BE RESPONSIBLE FOR ANY INCIDENTAL, INDIRECT, CONSEQUENTIAL OR SPECIAL DAMAGES AS A RESULT OF THE USE OF ANY NEW MATERIALS. NOVATEL WIRELESS'S MAXIMUM LIABILITY FOR ANY CLAIM BASED ON THE NEW MATERIALS SHALL NOT EXCEED FIFTY U.S. DOLLARS ($50).

Version Verification

Please ensure you have the latest version of this document by downloading it from www.novatelwireless.com

Warranty Information

This warranty applies to (a) products sold directly by Novatel Wireless, unless a different warranty is specified in a written agreement between Novatel Wireless and the purchaser; and (b) products sold to end users through a distributor authorized by Novatel Wireless, but only where the authorized distributor does not provide a separate warranty on such products, and Novatel Wireless has agreed to provide this warranty to such end users. If you purchased the product from an authorized distributor, please check whether this warranty from Novatel Wireless, or a separate warranty from the distributor, applies to your purchase. This warranty does not apply to any (i) accessories or batteries for the products; or (ii) demonstration samples or prototypes of the products. Unless otherwise provided in a written agreement between Novatel Wireless and the purchaser, all such accessories, batteries, samples or prototypes are provided by Novatel Wireless AS IS without any warranty of any kind.

Novatel Wireless warrants to the original purchaser of the product from Novatel Wireless or its authorized distributor (as applicable) that, for a period of one (1) year from the date of shipment of the product from Novatel Wireless, the product hardware will be substantially free from defects in material or workmanship under normal operation, and the product firmware will perform substantially in accordance with the product documentation provided by Novatel Wireless. Novatel Wireless does not warrant that (a) the product hardware or firmware will meet the purchaser's requirements; (b) the operation of the product hardware or firmware will be uninterrupted or error-free; or (c) the product, when integrated in, or combined with, other products or software not supplied by Novatel Wireless, will continue to perform substantially in accordance with the product documentation. This limited warranty is for the benefit of the original purchaser, and is not transferable.

During the warranty period, Novatel Wireless, at its expense and in its sole discretion, will repair the product, or replace the product with a corresponding or equivalent product, if it is determined to have a covered defect, provided that the purchaser first notifies Novatel Wireless (directly or through its authorized distributor from which the product was purchased) of any such defect, furnishes Novatel Wireless with a proof of purchase (if required), requests and obtains a return merchandize authorization (RMA) number from Novatel Wireless, and returns the product under that RMA to Novatel Wireless (or, at Novatel Wireless's option, to its authorized distributor), with the shipping charges being prepaid by purchaser. If, upon reasonable examination of the returned product, Novatel Wireless does not substantiate the defect claimed by purchaser, or determines that the defect is not covered under this limited warranty, Novatel Wireless will not be required to repair or replace the product, but may instead reship the product to the purchaser (or, at Novatel Wireless's option, to its authorized distributor where the product can be made available to purchaser), in which case the purchaser shall be responsible for paying Novatel Wireless's cost for reshipping the product to purchaser (or to Novatel Wireless's authorized distributor), and Novatel Wireless's usual charges for unpacking, testing, and repacking the product for reshipment to purchaser (or to Novatel Wireless's authorized distributor). Purchaser shall bear the risk of loss or damage in transit to any product returned by purchaser to Novatel Wireless, or any returned product not found to be defective or covered under this warranty, and reshipped by Novatel Wireless to purchaser (or to Novatel Wireless's authorized distributor). In the event Novatel Wireless repairs or replaces a defective product covered by this limited warranty, the repaired or replacement product will be covered under this limited warranty for the remainder of the original

warranty period on the defective product, or a period of ninety (90) days, whichever is longer. If Novatel Wireless is unable to repair or replace a defective product covered by this limited warranty, Novatel Wireless will provide to purchaser a credit or a refund (at Novatel Wireless's option) of the original purchase price (excluding taxes and shipping charges). Any returned and replaced product, or any product for which Novatel Wireless has furnished a credit or a refund, becomes the property of Novatel Wireless.

Novatel Wireless shall not have any obligation to provide any firmware bug fixes, upgrades or new releases except as may be necessary to correct any covered defect of which purchaser notifies Novatel Wireless in writing during the warranty period. Novatel Wireless, from time to time and in its sole discretion, may make available for download on its website (www.nvtl.com), or may provide via email, certain firmware bug fixes, upgrades or new releases for the product. Download and use of any such bug fixes, upgrades or new releases is subject to all of the applicable terms and conditions of Novatel Wireless's technical support policy as posted and updated on its website. Novatel Wireless shall have no obligation under this limited warranty for (a) normal wear and tear; (b) the cost of procurement of substitute products; or (c) any defect that is (i) discovered by purchaser during the warranty period but for which purchaser does not request an RMA number from Novatel Wireless, as required above, until after the end of the warranty period, (ii) caused by any accident, misuse, abuse, improper installation, handling or testing, or unauthorized repair or modification of the product, (iii) caused by use of any materials not supplied by Novatel Wireless, or by use of the product other than in accordance with its documentation, or (iv) the result of electrostatic discharge, electrical surge, fire, flood or similar causes. The purchaser (or its customers, as applicable) shall be solely responsible for the proper configuration, testing and verification of the Novatel Wireless product prior to deployment in the field, and for ensuring that any end user product or system into which the Novatel Wireless product is integrated or incorporated operates as intended and meets the requirements of purchaser (or its customers). Novatel Wireless shall have no responsibility whatsoever for the integration, configuration, testing, verification, installation, upgrade, support or maintenance of any such end user product or system, or for any liabilities, damages, costs or expenses associated there with.

NOVATEL WIRELESS'S SOLE RESPONSIBILITY AND PURCHASER'S SOLE REMEDY UNDER THIS LIMITED WARRANTY SHALL BE FOR NOVATEL WIRELESS TO REPAIR OR REPLACE THE PRODUCT OR IF REPAIR OR REPLACEMENT IS NOT POSSIBLE, PROVIDE A CREDIT OR REFUND OF THE PURCHASE PRICE) AS PROVIDED ABOVE. NOVATEL WIRELESS EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY, SATISFACTORY PERFORMANCE AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL NOVATEL WIRELESS BE LIABLE FOR ANY INDIRECT, SPECIAL, EXEMPLARY, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOSS OR INTERRUPTION OF USE, DATA, REVENUES OR PROFITS) RESULTING FROM A BREACH OF THIS WARRANTY OR BASED ON ANY OTHER LEGAL THEORY, EVEN IF NOVATEL WIRELESS HAS BEEN ADVISED OF THE POSSIBILITY OR LIKELIHOOD OF SUCH DAMAGES.

Some jurisdictions may require a longer warranty period than specified above and, accordingly, for products sold in those jurisdictions the applicable warranty period shall be extended as required under the laws of those jurisdictions. Furthermore, some jurisdictions may not allow the disclaimer of implied warranties or the exclusion or limitation of incidental or consequential damages, so the above disclaimer, limitation or exclusion may not apply to products sold in those jurisdictions. This limited

warranty gives the purchaser specific legal rights and the purchaser may have other legal rights that vary from jurisdiction to jurisdiction. This limited warranty shall be governed by the laws of the State of Texas, United States of America, without regard to conflict of laws principles. This limited warranty shall not be governed in any respect by the United Nations Convention on Contracts for the International Sale of Goods.

Regulatory Compliance

Regulatory Compliance

This section summarizes the responsibilities and actions required of manufacturers and integrators who install the Novatel Wireless SA 1100 into their products. In certain situations and applications, these products will require additional FCC, IC, GCF, PTCRB or other regulatory approvals prior to sale or operation. Appropriate instructions, documentation and labels are required for all products. For more information concerning regulatory requirements, please contact Novatel Wireless.

PTCRB APPROVAL

The Novatel Wireless HS 3002 module is type approved in accordance with the requirements of and through the procedures set forth by the GSM industry association. The relevant conformance specification is 3GPP TS 51010-1. Any OEM changes in the SIM interface, antenna port, software or the physical makeup of the unit may require an incremental FTA to ensure continued compliance with the above-mentioned standard. For more information concerning type approval, please contact Novatel Wireless.

FCC CERTIFICATION

Novatel Wireless certifies that the SA 1100 (FCC ID: PKRNVWSA1100 & PKRNVWSA1100V) complies with the RF requirements applicable to broadband PCS equipment operating under the authority of 47 CFR Part 24, Subpart E and Part 22 Subpart H of the FCC Rules and Regulations. This certification is contingent upon installation, operation and use of SA 1100 product and its host product in accordance with all instructions provided to the end user. When installed and operated in a manner consistent with the instructions provided, SA 1100 meets the maximum permissible exposure (MPE) limits for general population/uncontrolled exposure at defined in Section 1.1310 of the FCC Rules and Regulations.

The SA 1100 is designed for use in a variety of host units, "enabling" the host platform to perform wireless data communications. However, there are certain criteria relative to integrating the SA 1100 into a host platform that must be considered to ensure continued compliance with FCC compliance requirements.

Important Information for Canada/USA OEM Integrators

This section provides guidance for using the SA 1100 in host devices through the FCC Permissive Change process. When utilizing the permissive change process, Novatel Wireless, the grantee, is responsible for all integrations and must be consulted on all regulatory matters involving the SA 1100.

The SA 1100 is granted with FCC/IC as a certified transmitter for mobile[1] and fixed use applications, and may be installed as a standalone[2] transmitter in final products meeting the following conditions. If the following conditions are followed, it may be used in final products without additional FCC/IC certification. Otherwise, additional FCC/IC approvals must be obtained.

- The SA 1100 transmitter antennas must be installed to provide at least 20cm separation from the human body at all times.
- The SA 1100 transmitter antennas must not be co-located with any other transmitter or antenna within a host device, except in accordance with FCC/IC multi-transmitter RF Exposure procedures.

- The transmitter antennas used with the SA 1100 must not exceed the following levels:
  - CDMA BC0/GSM850/WCDMA Band 5: the maximum gain is 1.0dBi.
  - CDMA BC1/GSM1900/WCDMA Band 2: the maximum gain is 2.0dBi.
  - Z-Wave 900MHz: the maximum gain is 0.0dBi.
- Only antennas of the same type and with equal or less gains as shown below may be used with this WLAN device. Other types of antennas and/or higher gain antennas may require additional testing and/or authorization for operation.
  - WLAN 2.4GHz: the maximum gain is 3.62dBi.
  - PIFA Antenna Type for 802.11b/g/n.
- To comply with the aspects of KDB 996369, strict adherence to the design parameters in the Section Antenna and RF Signal Trace must be observed. This Section provides PCB RF trace design guidelines for the coplanar micro strip between the transmitters RF compression pads and the SMA coaxial connector.

A label containing the SA 1100 FCC ID and Industry Canada certification number must be permanently affixed to the exterior of the host device into which the SA 1100 transmitter is installed. The label may also be in a user accessible location such as under a panel or battery pack if it is a handheld device, readily accessible, not placed on a removable part and the FCC ID and Industry Canada certification number are visible at the time of purchase. The label must contain a statement similar to the following

- When Using Models SA1100-00-AT, SA1100-20-AT, SA1100-30-AT:
  - This device contains FCC ID: PKRNVWSA1100
  - This device contains IC: 3229A-SA1100
- When Using Models SA1100-00-VZ, SA1100-20-VZ, SA1100-30-VZ:
  - This device contains FCC ID: PKRNVWSA1100V
  - This device contains IC: 3229A-SA1100V

If the SA 1100 certified transmitter is intended for use in a portable use device, the OEM integrator is responsible to design the product to comply with RF exposure requirements, and must work with Novatel Wireless (the grantee) to satisfy FCC/IC SAR requirements. Refer to Industry Canada RSS-102 and FCC KDB publication 447498 D01 and the applicable SAR/RF Exposure KDB publications available at: https://apps.fcc.gov/oetcf/kdb/reports/GuidedPublicationList.cfm. [1]

[1]Mobile Device Definition – FCC defines as a transmitting antenna located at a distance ≥ 20cm from the user.
[2]Standalone is defined as a single transmitter transmitting as opposed to 2 or more transmitters transmitting simultaneously.

The system user manuals and other documentation must clearly indicate operating conditions that must be observed to ensure compliance with FCC/IC RF exposure guidelines and also include appropriate caution and warning statements and information.

The host device containing the SA 1100 certified transmitter may also require compliance to FCC Part 15 Subpart B – Unintentional Radiator rule part as well as Industry Canada ICES-003.

Industry Canada

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 interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

CAN ICES-3(B)/NMB-3(B)

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

FCC NOTICE TO USERS

Novatel Wireless has not approved any changes or modifications to this device by the user. Any changes or modifications could void the user's authority to operate the device. See 47 CFR Sec. 15.21. The device complies with part 15 of the FCC 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 undesired operation. See 47 CFR Sec. 15.19.

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.

If the FCC ID of the SA 1100 device is not visible when installed in the host platform, then a permanently attached or marked label must be displayed on the host unit referring to the SA 1100 device.

The label should contain wording such as:

Contains FCC ID: Mxxxxxxxx

This device complies with Part 15 of the FCC 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 undesired operation.

REGULATORY REQUIREMENTS FOR OTHER COUNTRIES

In most other countries there are similar rules and regulations that may need to be met for importing the HS 3002 module and for placing it on the market in the integrated device. Each country may require a different mark of approval as an acceptance requirement. For each of these cases the country should identified, and the appropriate steps should be taken to meet the requirements set forth in the intended market.

Conformité au règlement

Cette section résume les responsabilités et les actions des fabricants et des intégrateurs qui installent le Novatel Wireless SA 1100 dans leurs produits. Dans certains cas, ces produits nécessiteront des directives supplémentaires FCC, IC, GCF, PTCRB ou d'autres accords réglementaires avant toute vente ou utilisation. Des instructions appropriées, de la documentation et des étiquettes sont nécessaires pour tous les produits. Pour plus d'informations à propos des exigences réglementaires, n'hésitez pas à contacter Novatel Wireless.

CERTIFICATION FCC

Novatel Wireless certifie que le SA 1100 (FCC ID : PKRNVWSA 1100 & PKRNVWSA 1100V) est en accord avec les exigences RF applicables aux équipements PCS haut-débit opérant sous l'autorité de 47 CFR partie 24, sous-partie E et partie 22 sous-partie H des règles et réglementations FCC. Cette certification est contingente lors de l'installation, l'opération et l'utilisation du produit SA 1100 et de son produit hôte en accord avec les instructions fournies à l'utilisateur final. Lorsqu'installé et opéré d'une manière qui correspond aux instructions fournies, le SA 1100 atteint les limites d'exposition maximale admissible (MPE) pour la population générale/l'exposition non-contrôlée, comme défini dans la Section 1.1310 des règles et réglementations FCC.

Le SA 1100 est conçu pour une utilisation dans divers unités hôtes, ce qui « permet » à la plateforme hôte de produire des communications de données sans fil. Cependant, il existe certains critères relatifs à l'intégration du SA 1100 dans une plateforme hôte qui doivent être pris en compte afin de s'assurer de rester conforme aux exigences de conformité FCC.

Informations importantes pour les intégrateurs OEM au Canada/Etats-Unis

Cette section fournit des conseils d'utilisation du SA 1100 dans des appareils hôtes via le processus de changement permissif FCC. Lorsqu'il utilise le processus de changement permissif, Novatel Wireless, le bénéficiaire, est responsable de toutes les intégrations et doit être consulté pour toute question réglementaire concernant le SA 1100.

Le SA 1100 est muni du FCC/IC comme émetteur certifié pour applications d'usage mobiles et fixes , et peut être installé en tant qu'émetteur autonome dans les produits finis qui remplissent les conditions suivantes. Si les conditions suivantes sont remplies, il peut être utilisé dans les produits finis sans certification FCC/IC supplémentaire. Dans le cas contraire, des accords FCC/IC supplémentaires doivent être obtenus.

- Les antennes de l'émetteur SA 1100 doivent être installées de façon à se trouver à 20cm minimum du corps humain à tout moment.
- Les antennes de l'émetteur SA 1100 ne doivent pas se trouver au même endroit que tout autre émetteur ou antenne dans l'appareil hôte, sauf en accord avec la procédure FCC/IC d'exposition RF pour les multi-émetteurs.
- Les antennes de l'émetteur utilisées avec le SA 1100 ne doivent pas excéder les niveaux suivants:
    - CDMA BCO/GSM850/WCDMA Band 5 : le gain maximal est de 1.0dBi
    - CDMA BC1/GSM1900/WCDMA Band 2 : le gain maximal est de 2.0dBi

- Z-Wave 900MHz : le gain maximal est de 0.0dBi

- Seules les antennes du même type et avec gains égaux ou inférieurs comme ci-dessous peuvent être utilisées avec cet appareil WLAN. Les autres types d'antennes et/ou les antennes à gain plus élevé peuvent nécessiter des tests supplémentaires et/ou une autorisation d'opération.
  - WLAN 2.4GHz : le gain maximal est de 3.62dBi.
  - Antenne type PIFA pour 802.11b/g/n.

- Pour être en accord avec les aspects de KDB 996369, une conformité stricte avec les paramètres de conception de l'Antenne de Section et de la courbe de signal RF doit être observée. Cette Section fournit des instructions PCB RF sur la conception de la courbe pour la microbande coplanaire entre les blocs de compressions des émetteurs RF et le câble coaxial SMA.

Une étiquette contenant le numéro de certification SA 1100 DC ID et Industry Canada doit être collée de manière permanente sur l'extérieur de l'appareil hôte dans lequel l'émetteur SA 1100 est installé. L'étiquette doit également se trouver dans un endroit accessible aux utilisateurs comme sous un panneau ou un bloc-batterie s'il s'agit d'un appareil portable, accessible facilement, pas placée sur une partie amovible et le numéro de certification FCC ID et Industry Canada doit être visible au moment de l'achat. L'étiquette doit contenir un énoncé similaire à celui-ci :

- Pour l'utilisation des modèles SA1100-00-AT, SA1100-20-AT, SA1100-30-AT :
  - Cet appareil contient FCC ID : PKRNVWSA1100
  - Cet appareil contient IC : 32291-SA1100
- Pour l'utilisation des modèles SA 1100-00-VZ, SA1100-20-VZ, SA1100-30-VZ :
  - Cet appareil contient FCC ID : PKRNVWSA1100V
  - Cet appareil contient IC : 3229A-SA1100V

Si l'émetteur SA 1100 certifié est destiné à l'utilisation dans un appareil portable, l'intégrateur OEM est responsable de la conception du produit en accord avec les exigences d'exposition RF, et doit travailler avec Novatel Wireless (le bénéficiaire) pour satisfaire les exigences FCC/IC SAR. Se référer à Industry Canada RSS-102 et FCC KDB publication 447498 D01 et aux publications KDB d'exposition SAR/RF disponibles sur : https://apps.fcc.gov/oetcf/kdb/reports/GuidedPublicationList.cfm

Les manuels d'utilisateur et autres documents doivent indiquer clairement la marche à suivre qui doit être observée pour s'assurer de la conformité avec les instructions d'exposition FCC/IC RF et aussi inclure les avertissements appropriés et les mises en garde et l'information.

L'appareil hôte contenant l'émetteur certifié SA 1100 peut aussi nécessiter la conformité au FCC partie 15 sous-partie B – partie sur la règle des Radiations Involontaires ainsi que l'Industry Canada ICES-003.

Industry Canada

Cet appareil est en accord avec les standards RSS d'Industry Canada sans licence. L'opération est soumise aux deux conditions suivantes : (1) l'appareil ne doit pas causer d'interférences, et (2) cet appareil ne doit pas accepter d'interférences, y compris des interférences qui peuvent causer une opération non-désirée de l'appareil.

CAN ICES-3(B)/NMB-3(B)

Selon les régulations Industry Canada, cet émetteur radio ne peut opérer qu'en utilisant une antenne d'un type and d'un gain maximum (ou inférieur) approuvé pour l'émetteur par Industry Canada. Pour réduire l'interférence radio potentielle pour les autres utilisateurs, le type d'antenne et son gain doivent être choisis de façon à ce que la puissance isotrope rayonnée (e.i.r.p.) ne soit pas supérieure à ce qui est nécessaire pour une communication réussie.

REMARQUES FCC POUR LES UTILISATEURS

Novatel Wireless n'a approuvé aucun changement ou modification à cet appareil par l'utilisateur. Tout changement ou toute modification pourrait reprendre à l'utilisateur son autorité pour opérer l'appareil. Voir 47 CFR sec. 15.21. L'appareil est en accord avec la partie 15 des règles FCC. L'opération est sujette aux deux conditions suivantes :

(1) Cet appareil ne peut pas causer d'interférence dangereuse et (2) cet appareil doit accepter toute interférence reçue, y compris des interférences qui pourraient causer des opérations non désirées. Voir 47 CFR Sec. 15.19.

Cet équipement a été testé et approuvé comme étant en accordance avec les limites pour un appareil digital de classe B, selon la partie 15 des règles FCC. Ces limites sont conçues pour fournir une protection raisonnable contre les interférences dangereuses dans une installation résidentielle. Cet équipement génère, utilise, et peut faire rayonner de l'énergie de fréquences radio et, s'il n'est pas installé et utilisé en suivant ces instructions, peut causer des interférences dangereuses pour les communications radio. Cependant, il n'y a pas de garantie que cette interférence ne se produira pas dans une installation particulière. Si cet équipement cause en effet des interférences dangereuses avec la radio ou la réception de la télévision, ce qui peut être déterminé en éteignant l'équipement et en le rallumant, nous encourageons l'utilisateur à essayer de corriger l'interférence d'une ou de plusieurs des manières suivantes :

- Réorienter ou relocaliser l'antenne de réception
- Augmenter la séparation entre l'équipement et le récepteur
- Connecter l'équipement sur une prise sur un circuit différent de celui sur lequel le récepteur est connecté
- Consulter le vendeur ou un technicien radio/TV expérimenter afin d'obtenir de l'aide

Si le FCC ID de l'appareil SA 1100 n'est pas visible lors de son installation dans la plateforme hôte, alors une étiquette attachée ou marquée de manière permanente doit être mise en évidence sur l'unité hôte rattachée à l'appareil SA 1100.

L'étiquette doit contenir une formulation de ce type :

Contient FCC ID : Mxxxxxxxxx

Cet appareil est en accord avec la partie 15 des règles FCC. L'opération est sujette aux deux conditions suivantes : (1) Cet appareil ne doit pas causer d'interférences dangereuses, et (2) Cet appareil doit accepter toute interférence reçue, y compris les interférences qui pourraient causer des opérations non désirées.

EXIGENCES REGLEMENTAIRES POUR LES AUTRES PAYS

Dans la plupart des autres pays, des règles et réglementations similaires, qui doivent être suivies pour importer le module HS 3002 et pour le placer sur le marché dans l'appareil intégré, existent. Chaque pays peut nécessiter un type d'accord différent comme exigence d'acceptation. Le pays doit identifier chacun de ces cas, et les étapes appropriées doivent être suivies afin de répondre aux exigences mises en avant dans le marché visé.