SUMMIT
DATA COMMUNICATIONS

Product Brief:

SDC-SSD30AG 802.11a/g SDIO SiP Module with Antenna Connectors

The SDC-SSD30AG SDIO system-in-package (SiP) radio module from Summit Data Communications combines a high-performance 802.11a/g radio with the Summit software feature set, which is proven on mobile computers and other business-critical mobile devices that operate in harsh environments. No other Wi-Fi® radio module can match the range, robust security, seamless mobility, and easy administration of the SSD30AG module.

The SDC-SSD30AG radio module is designed for use in business-critical mobile devices and the challenging RF environments in which they operate.

Each SSD30AG module delivers:

- Hardware: Maximized radio range, minimized power consumption, and broad operating temperature range
- Software: Enterprise-level security, fast and reliable roaming, and enterprise administration
- Certifications: Regulatory certifications plus Wi-Fi Alliance® and CCX V4 certifications

The SSD30AG module is backed by a full set of support services including system integration support, regulatory process assistance, and technical support from product and wireless LAN (WLAN) experts.

Hardware Capabilities

The SSD30AG module is designed for use in business-critical mobile devices and the challenging radio environments in which they operate. Hardware innovations enable the SSD30AG module to provide far greater range than WLAN radio modules designed for office and consumer applications while minimizing power consumption and allowing for operation in extreme environments. Key hardware capabilities include:

- **802.11a and 802.11b/g:** By supporting both the IEEE 802.11a protocol and the IEEE 802.11g protocol, the SSD30AG module provides for a maximum data rate of 54 megabits per second (Mbps) in both the 5 GHz and 2.4 GHz portions of the radio frequency spectrum. Because 802.11g is a superset of the popular 802.11b standard, the SSD30AG module can be thought of as an 802.11a, 802.11b, and 802.11g module.

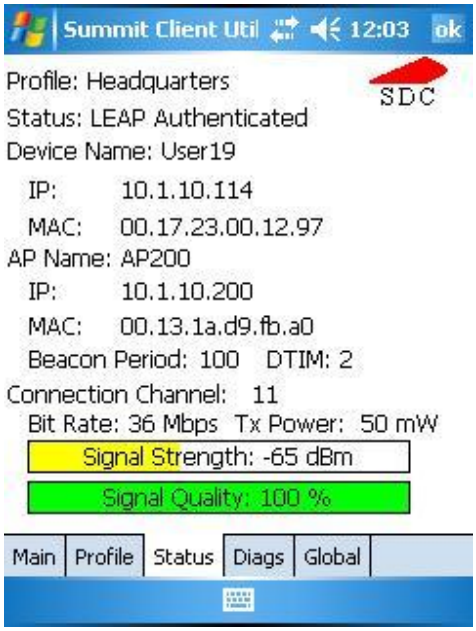
- **Small size:** With a length and width of only 15 millimeters (15 mm), the SSD30AG module is small enough to fit comfortable in virtually any mobile device.
- **Antenna interfaces:** The SSD30AG module supports antennas of varying types and gains. With two diplexed antenna interfaces, each for an antenna that supports both 2.4 GHz and 5 GHz, the module supports transmit and receive diversity in both frequency bands to maximize performance in high multipath environments.
- **Range:** To maximize radio range – how far the module can be from a WLAN access point and still send data to that AP and receive data from it – the SSD30AG module offers market-leading transmit power, receiver sensitivity, and delay spread. As a result, the SSD30AG module delivers reliable connectivity, even in environments with few APs, many substances that absorb or reflect radio waves, and many devices that compete for the airwaves.
- **Low power consumption:** With power consumption that's the lowest of any Summit module, the SSD30AG module maximizes device battery life to provide for full-shift operation.
- **Extended operating temperature:** To allow for device operation in extreme environments such as factories, warehouses, freezers, and the outdoors, the SSD30AG module provides an extended operating temperature range of -25° to +75° C, which far exceeds the capabilities of most other radio modules.

Software Capabilities

To operate effectively in a business-critical mobile device, a WLAN radio needs specialized software to deliver the security, trouble-free operations, and manageability that customers demand. Software for the SSD30AG module includes a driver, an integrated supplicant, and a full-featured management and monitoring utility called the Summit Client Utility (SCU). Key capabilities of SSD30AG module software include:

- **Operating system support:** SSD30AG software operates on:
  - Windows CE 6.0, 5.0, and 4.2
  - Windows Mobile 6.5, 6.1, 6, and 5.0, and (Pocket PC) 2003
- **Security:** Compliance with IEEE 802.11i, which is certified by the Wi-Fi Alliance through testing for the Enterprise version of Wi-Fi Protected Access 2® (WPA2®-Enterprise), provides for the highest level of interoperable WLAN security available. An integrated 802.1X supplicant supports authentication via pre-shared keys as well as a broad range of EAP types including EAP-TLS, PEAP-MSCHAPv2, PEAP-GTC, EAP-TTLS, LEAP, and EAP-FAST. Data privacy is ensured via encryption and decryption using AES (WPA2), TKIP (WPA), or WEP.

- **Mobility:** A mobile device often roams from one AP to another. When scanning for a better AP or roaming to that AP, a device's radio cannot send or receive data. If roaming takes too long, a business-critical application that requires a constant connection can be disrupted. Summit radios support the fastest roaming in the industry and enable an administrator to tune roaming behavior to the needs of an application and its environment.
- **Administration:** SCU enables a user to view, and an administrator to configure, all radio operation and security settings. SCU also enables a user or administrator to view status and troubleshoot issues. All SCU functions are available to centralized management applications through the Summit software developer's kit (SDK).



SCU is a graphical utility for configuration, troubleshooting, and management

- **Integration:** Summit provides device manufacturers with the Summit Manufacturing Utility, a tool that can be used to set regulatory parameters such as channel set and maximum transmit power to provide for worldwide compliance across multiple platforms.

Certifications

The SSD30AG module is certified as compliant with all applicable regulations as set forth by agencies such as ETSI, the FCC, and TELEC. Thanks to software support for all Wi-Fi requirements and key Cisco innovations, the SSD30AG module is Wi-Fi CERTIFIED™ and certified for Cisco Compatible Extensions (CCX) Version 4 for application-specific devices.

Summit helps device manufacturers achieve regulatory, Wi-Fi, and CCX certifications for devices equipped with the SSD30AG module. By leveraging existing grants, test reports, and approvals, Summit customers incur minimal costs when attaining all required certifications.

Support Services

A business-critical mobile device depends on its WLAN radio for communication with the business network. **Summit understands that, if the radio doesn't work, the device doesn't work. If the device doesn't work, the end user can't do his or her job.**

Summit tests the SSD30AG module on a broad range of devices. For device vendors that offer the SSD30AG module as a device component or option, Summit provides consultation and documentation to aid in hardware and software integration. When devices experience issues with the SSD30AG module in the field, Summit's support team provides Level 2 technical support to device vendors. That team is well-versed in radio frequency characteristics, wired and wireless network architectures, and security protocols.

SDC-SSD30AG Specifications

System Interface	4-bit SDIO and optional 4-Mbaud serial with 0.5 mm pitch QFN (Quad Flat No leads) physical interface	
Antenna Interface	Pads for 2 dual-band antennas	
Chipset	Atheros AR6002	
Input Power Requirements	3.3 VDC +/- 10%	
Typical Power Consumption (at maximum transmit power setting)	**802.11a** Transmit: 381 mA (1257 mW) Receive: 116 mA (383 mW) Standby: 3 mA (10 mW)	**802.11b/g** Transmit: 324 mA (1069 mW) Receive: 93 mA (307 mW) Standby: 2 mA (7 mW)
Operating Temperature	-25° to 75°C (-13° to 167°F)	
Operating Humidity	10 to 90% (non-condensing)	
Storage Temperature	-30° to 85°C (-22° to 185°F)	
Storage Humidity	10 to 90% (non-condensing)	
Dimensions: L x W x H	15 mm (0.59”) x 15 mm (0.59”) x 2.6 mm (0.1”)	
Weight	5g (0.17 oz.)	
Mounting	Solder	
Wi-Fi Wireless Media	Direct Sequence-Spread Spectrum (DSSS) Orthogonal Frequency Divisional Multiplexing (OFDM)	
Wi-Fi Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)	
Network Architecture Types	Infrastructure and ad hoc	
Network Standards	IEEE 802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i	
Wi-Fi Data Rates Supported	802.11a and 802.11g (OFDM): 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b (DSSS): 1, 2, 5.5, 11 Mbps	
Wi-Fi Modulation	1, 6, 9 Mbps: BPSK 2, 12, 18 Mbps: QPSK 5.5, 11 Mbps: CCK 24, 36 Mbps: 16-QAM 48, 54 Mbps: 64-QAM	

Regulatory Domain Support	FCC (Americas and parts of Asia and the Middle East) ETSI (Europe, Middle East, Africa, and parts of Asia) TELEC (Japan) KCC (Korea)
2.4 GHz Frequency Bands	**FCC** 2.4-2.473 GHz **ETSI** 2.4-2.483 GHz **TELEC** 2.4-2.495 GHz **KCC** 2.4-2.483 GHz
2.4 GHz Operating Channels (non-overlapping)	**FCC** 3 **ETSI** 3 **TELEC** 4 **KCC** 3
5 GHz Frequency Bands	**FCC** 5.15-5.35 GHz, 5.47-5.725 GHz, 5.725-5.82 GHz **ETSI** 5.15-5.35 GHz, 5.47-5.725 GHz **TELEC** 5.15-5.35 GHz **KCC** 5.15-5.25 GHz, 5.725-5.82 GHz
5 GHz Operating Channels (non-overlapping)	**FCC** 23 **ETSI** 19 **TELEC** 8 **KCC** 8
Wi-Fi Transmit Power Settings *Maximum transmit power will vary according to individual country regulations. All values nominal, +/-2 dBm*	**802.11a** 15 dBm (30 mW) 13 dBm (20 mW) 10 dBm (10 mW) **802.11b** 18 dBm (63 mW) 17 dBm (50 mW) 15 dBm (30 mW) 13 dBm (20 mW) 10 dBm (10 mW) 7 dBm (5 mW) 0 dBm (1 mW) **802.11g** 18 dBm (63 mW) 17 dBm (50 mW) 15 dBm (30 mW) 13 dBm (20 mW) 10 dBm (10 mW) 7 dBm (5 mW) 0 dBm (1 mW)
Typical Receiver Sensitivity (PER <= 10%) *All values nominal, +/-3 dBm*	**802.11a** 6 Mbps: -85 dBm 12 Mbps: -83 dBm 18 Mbps: -81 dBm 24 Mbps: -75 dBm 36 Mbps: -73 dBm 48 Mbps: -68 dBm 54 Mbps: -67 dBm **802.11b** 1 Mbps: -95 dBm 2 Mbps: -94 dBm 5.5 Mbps: -93 dBm 11 Mbps: -89 dBm **802.11g** 6 Mbps: -93 dBm 12 Mbps: -88 dBm 18 Mbps: -85 dBm 24 Mbps: -83 dBm 36 Mbps: -77 dBm 48 Mbps: -74 dBm 54 Mbps: -72 dBm
Wi-Fi Delay Spread	1 Mbps: 600 ns 2 Mbps: 500 ns 5.5 Mbps: 400 ns 6 Mbps: 400 ns 9 Mbps: 400 ns 11 Mbps: 200 ns 12 Mbps: 350 ns 18 Mbps: 350 ns 24 Mbps: 250 ns 36 Mbps: 250 ns 48 Mbps: 150 ns 54 Mbps: 150 ns
Operating Systems Supported	Windows Mobile 6.1, 6, 5.0, and (Pocket PC) 2003 Windows CE 6.0 (all releases), 5.0, and 4.2
Security	**Standards** Wireless Equivalent Privacy (WEP) Wi-Fi Protected Access (WPA), Personal and Enterprise IEEE 802.11i, or WPA2, Personal and Enterprise **802.1X Extensible Authentication Protocol (EAP) Types** PEAP-MSCHAPv2, PEAP-GTC, EAP-TLS, EAP-TTLS, EAP-FAST, LEAP

	Encryption Protocols Wireless Equivalent Privacy (WEP, RC4 Algorithm) Temporal Key Integrity Protocol (TKIP, RC4 Algorithm) Advanced Encryption Standard (AES, Rijndael Algorithm) **Encryption Key Provisioning (40-bit and 128-bit key lengths)** Static Pre-shared via WPA-PSK or WPA2-PSK Dynamic via EAP authentication
Compliance	**FCC Regulatory Domain** FCC Part 15.247 Subpart C FCC Part 15.207 Subpart E **Industry Canada** RSS-210 RSS-Gen Issue 2 **TELEC Regulatory Domain** Article 2 Item 19, Category WW (2.4GHz Channels 1-13) Article 2 Item 19-2, Category GZ (2.4GHz Channel 14) **ETSI Regulatory Domain** EN 300 328 EN 301 489-1 EN 301 489-17 EN 301 893 EN 60950-1 EU 2002/95/EC (RoHS)
Certifications	**Wi-Fi Alliance** 802.11a, 802.11b, 802.11g WPA: Personal and Enterprise WPA2: Personal and Enterprise **Cisco Compatible Extensions (CCX)** Version 4
Warranty	**Limited Lifetime**
All specifications are subject to change without notice.	

Summit Data Communications, Inc. designs, manufactures, and supports WLAN radio modules for business-critical mobile devices such as mobile computers and medical devices. Summit delivers comprehensive solutions of hardware, software, certifications, and support services that ensure trouble-free integration and operation.

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