



MOTOROLA

ARRIS

SURFBOARD® SBG6700-AC DOCSIS 3.0 WIRELESS GATEWAY

PRODUCT OVERVIEW:

The ARRIS SURFboard® SBG6700-AC Wireless Gateway delivers innovative, ultra-broadband services to subscribers. Easy to setup and use, the SBG6700-AC's advanced feature set includes DOCSIS 3.0 channel bonding in a cost effective package, with the ARRIS engineered quality and performance delivering the speed and reliability demanded by today's smart home applications. Equipped with such features as a Wi-Fi pairing button and user-friendly, online configuration and diagnostics, the SBG6700-AC is as easy to setup as it is to use.

Wi-Fi Services Ready

- Dual Concurrent Radios, 802.11n on the 2.4 GHz band with 2x2 antenna array, and 802.11ac on the 5 GHz band with 3x3 antenna array
- Usable throughput of over 1600 Mbps
- MIMO Antennas provide enhanced performance

Easy to Setup and Use

- Plug-and-play installation
- Wi-Fi pairing button for easy Wi-Fi Protected Setup™ (WPS) Wi-Fi connection
- Supports standard Internet browser software
- Front panel, multicolor, LEDs indicate status and simplify troubleshooting
- Enhanced User Interface

Advanced Services Ready

- DOCSIS 3.0
- Channel bonding of up to eight downstream and four upstream channels; capable of WAN / LAN data rates of over 340 Mbps in DOCSIS received (downstream) data stream and over 100 Mbps in the send (upstream) data stream
- 1 GHz-capable tuner



- Best-in-class RF Immunity, built into ARRIS Touchstone products since 2006, protects against potential service impacting interference
- Use of full downstream bandwidth to capture up to eight DOCSIS channels for bonding
- Spectrum analyzer capability for local and remote troubleshooting
- Supports IPv4 and IPv6 to expand network addressing capabilities
- Versatile and convenient
- Integrated 2.4 802.11n and 5 GHz 802.11ac Wi-Fi access point, concurrent radios
- Backwards compatible to 802.11a/b/g

- 2x2 and 3x3 MIMO antenna arrays offer cost-effective performance benefits for wireless LAN (WLAN) access points
- Two-gigabit Ethernet ports enable flexible, high-speed connectivity with Auto Negotiate and Auto MDIX
- Support for multicast IP services
- Eight SSIDs per radio
- Support for multiple public and/or private SSIDs and Operator flexibility in Wi-Fi networks and services
- MoCA reject filter ensures care-free operation in environments also supporting a MoCA network

Reliable and Secure

- WEP/WPA/WPA2 Wi-Fi security
- Advanced firewall with Stateful Packet Inspection, DoS protection and intrusion prevention
- Enhanced security: supports AES traffic encryption

General Specifications

Cable Interface	F-Connector, female 75 Ω
Network Interface	Two 1-gigabit (10/100/1000) Ethernet ports
2.4 and 5 GHz Wi-Fi Interfaces	802.11n and 802.11ac Wi-Fi (also certified for 802.11a/b/g)
Dimensions	5 (h) x 2.1 (w) x 5 (l) in (127 x 51 x 127 mm)
Regulatory	RoHS compliant, FCC, UL listed (U.S. and Canada), Industry Canada
DOCSIS 3.0	BCM3383G
Security	DOCSIS 3.0 Security (BPI+, EAE, SSD)
Provisioning	IPv4 IPv6 (dual stack) DS Lite

Input Power

North America	105 to 125 VAC, 60 Hz
Outside North America	100 to 240 VAC, 50 to 60 Hz
Power Management	802.11e WMM power save/U-APSD (Unscheduled-Automatic Power Save Delivery), 802.3az EEE

Environmental

Operating Temperature	32 F to 104 °F (0 °C to 40 °C)
Storage Temperature	-22 °F to 158 °F (-30 °C to 70 °C)
Operating Humidity	5 to 95% R.H. (non-condensing)

DOCSIS Downstream

Modulation	64 or 256 QAM
Capture Bandwidth	Full bandwidth capture window 108 MHz – 1002 MHz
Maximum PHY Rate	DOCSIS: 343.072 Mbps (8 channels) / 42.884 (single channel) @ 256 QAM at 5.36 Msym/s EuroDOCSIS: 444.928 Mbps (8 channels) / 55.616 (single channel) @ 256 QAM at 6.952 Msym/s
Symbol Rate	64 QAM 5.057 Msym/s; 256 QAM 5.361 Msym/s
Operating Level Range	-15 to 15 dBmV (DOCSIS), -17 to +13 dBmV (EuroDOCSIS 64 QAM), -13 to +17 dBmV (EuroDOCSIS 256 QAM)
Frequency Range	108 – 1002 MHz (edge to edge) Optional 88 MHz – 1002 MHz (edge to edge)
Frequency Plans	DOCSIS Annex B EuroDOCSIS Annex A

DOCSIS Upstream

Modulation	QPSK and 8, 16, 32, 64, 128, 256 QAM
Maximum PHY Rate @256 QAM at 6.4 MHz	122.8 Mbps: 4 channels 30.72 Mbps: single channel
Channel Width	200 kHz, 400 kHz, 800 kHz, 1.6 MHz, 3.2 MHz, 6.4 MHz
Symbol Rates	160, 320, 640, 1280, 2560, 5120 ksym/s
Operating Level Range	Level range per channel (Multiple Transmit Channel mode disabled, or only Multiple Transmit Channel mode enabled with one channel in the TCS)
TDMA Single Channel	
	Pmin to +57 dBmV (32 QAM, 64 QAM)
	Pmin to +58 dBmV (8 QAM, 16 QAM)
	Pmin to +61 dBmV (QPSK)
S-CDMA Single Channel	
	Pmin to +56 dBmV (all modulations), where:
	Pmin = +17 dBmV, 1280 kHz modulation rate
	Pmin = +20 dBmV, 2560 kHz modulation rate
	Pmin = +23 dBmV, 5120 kHz modulation rate
	Level range per channel (two channels in the TCS)
TDMA 2 Channels	
	Pmin to +54 dBmV (32 QAM, 64 QAM)
	Pmin to +55 dBmV (8 QAM, 16 QAM)
	Pmin to +58 dBmV (QPSK)
S-CDMA 2 Channels	
	Pmin to +53 dBmV (all modulations), where:
	Pmin = +17 dBmV, 1280 kHz modulation rate
	Pmin = +20 dBmV, 2560 kHz modulation rate
	Pmin = +23 dBmV, 5120 kHz modulation rate
	Level range per channel (three or four channels in the TCS)
TDMA 3-4 Channels	
	mmin to +51 dBmV (32 QAM, 64 QAM)
	Pmin to +52 dBmV (8 QAM, 16 QAM)
	Pmin to +55 dBmV (QPSK)
S-CDMA 3-4 Channels	
	Pmin to +53 dBmV (all modulations), where:
	Pmin = +17 dBmV, 1280 kHz modulation rate
	Pmin = +20 dBmV, 2560 kHz modulation rate
	Pmin = +23 dBmV, 5120 kHz modulation rate
Frequency Range	5–42 MHz (edge to edge), optional 5 to 65 MHz (edge to edge) optional 5 to 85 MHz (edge to edge)

Compatibility

PC	Windows XP, Windows 7, Windows 8, (older versions of Windows, although not specifically supported, will work with this cable modem), UNIX, Linux®
Macintosh	Power PC or later; OS 10 or higher
Home Networking	Ethernet router and wireless access point

Network

Gateway	DHCP, NAT, DNS, VPN tunneling, GRE tunneling; static routing and dynamic IP routing (RIPv1, RIPv2); SPI firewall with DoS protection and intrusion prevention; port, packet, and URL keyword filtering; full suite of ALGs; UPnP IGD 1.0; L2TPv3, L2VPN, eRouter, DLNA
WLAN	802.11a/b/g/n /ac Wi-Fi, WDS bridging, 802.11e WMM admission control, QoS, QoS per Interface, Beamforming
Radios	802.11ac 5 GHz, 3x3 MIMO antenna array 802.11n 2.4 GHz, 2x2 MIMO antenna array
Security	Default = security enabled WPA2, WPA-PSK, WEP 64/128, WPA, TKIP, AES, 802.1x, 802.11i (pre-authentication)
Wi-Fi Pairing	WPS 2.0
Regulatory Domains	US, Canada, ETSI, World

Management

FCB Spectrum Analyzer capability	
SNMP	SNMPv3
TR069	TR069, TR181
CLI	TACACS+, Radius, Authentication
GUI	Admin and root users access
HTML based user interface supports Google Translate for multiple language translations.	

Addendum A

Next Generation Gateways Compared to Current Product Offering

Hardware Capability Compare to SBG6580		
Feature	SBG6580	SBG6700-AC
Chipset	BCM3380G	BCM3383G
WiFi Chipset	BCM43224/8	BCM43217, BCM4360
Tuner(s)	2 x 32 MHz	FCB 108-1002 MHz
Flash memory	SPI 16 MB	SPI 16 MB
RAM	DDR2 64 MB	DDR3 128 External
Power Supply	External	External
Maximum power required	24 W	18 W
MoCA	No	No
Radios	Dual switched	Dual concurrent
SSIDs	8	16 (8 per radio)
2.4 GHz		
Output	+17 dBm	+17 dbm
Antenna array	2 x 2 MIMO	2 x 2 MIMO
Total output	+21 dBm	+21 dBm
5.0 GHz		
Output	+16 dBm	+16 dBm
Antenna array	2 x 2 MIMO	3 x 3 MIMO
Total output	+20 dBm	+20 dBm
Beamforming	No	Yes
4-port GigE switch	Yes	No, two GigE ports integrated into product
Multi-color LED	Yes	Yes
SCTE40 compliance	Yes	Yes
Enhanced RF immunity	Yes	Yes
Superior Performance Capability Compare to SBG6580		
Operation	SBG6580	SBG6700-AC
WiFi throughput	300 Mbps	1600 Mbps
Spatial streams	2	6

Wi-Fi throughput, reach, and range are factors that are greatly impacted by the operating environment, and the connected client capabilities. Please contact ARRIS for additional test information.

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