PRODUCT OVERVIEW:
The ARRIS NVG44x-Series Triple Play (Voice, Video and Data) and Dual-Play (Video and Data) Residential Gateways are designed to deliver robust video, high-speed data and (optionally) primary line telephony, all delivered over the VDSL/VDSL2/ADSL2+ broadband network. This full-featured, high-performance Gateway provides a cost-effective way for Service Providers to migrate seamlessly from legacy ADSL networks to VDSL/VDSL2 networks via a converged services platform, made possible with the ARRIS 9x CPE Software.

Ideal for both xDSL and FTTH applications and including advanced Quality of Service (QoS) features, security firewall, and extensive remote management features, the NVG44x-Series Gateways enable reliable, single-platform delivery of voice-over-IP (VoIP), data, and streaming broadcast-quality video over the VDSL/VDSL2/ADSL2 broadband network. Users can take advantage of:

- Simultaneous use of phone, video, and high-speed data over a bonded or single copper pair
- IPTV video
- Four Gigabit Ethernet ports for high-speed home networking
- Concurrent Wi-Fi support for 802.11 b/g/n on 2.4 GHz, and 802.11ac on 5 GHz
- Primary line VoIP telephone service

The NVG44x-Series Gateways use Multiple-Input and Multiple-Output (MIMO) technology, eliminating the need for wired connections and enabling users to easily network all of their wireless 802.11b/g/n/ac-equipped devices. Its four 10/100/1000 Ethernet ports give subscribers the option of setting up a home network to share a printer and data, music, and video files. Thus, the NVG44x-Series Gateways enables users to maximize the high-bandwidth potential of their home or business network.

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### GENERAL SPECIFICATIONS

**Interfaces**

**WAN**
- Single line or bonded VDSL2, single line or bonded ADSL2+, RJ-14
- One-port 10/100/1000 Ethernet (RJ-45)
- AP-TLS, EAP-TTLS, EAP-SIM and (optional) 802.1x

**LAN**
- Concurrent Wi-Fi support for 802.11b/g/n/ac
- Four-port 10/100/1000 Ethernet switch, RJ-45
- USB3.0 network interface
- (Optional) Single-port, dual line voice FXS, RJ-14

**Embedded Firmware, Encoding and Access Protocols**

#### VDSL2 Support
- ITU-T G.993.2 VDSL2 Annex A and B
- Support for profiles 8a, 8b, 8c, 8d, 12a, 12b, 17a, 30a
- U0 Band (25 kHz to 276 kHz)
- G.993.2 Annex K.3
- (Packet Transfer Mode - PTM)
- G.993.5 (vectoring)
- G.997.1 (2012) VDSL2 physical layer OAM
- G.998.4 (G.INP)

#### ADSL2+ Support
- ITU G.992.5 with Amendment 2
- ITU G.992.3 with Amendments 1 and 2 (INP up to 16)
- K.3 Packet Transfer Mode support
- Annex L (RE-ADSL2) and Annex M support
- TR-100

#### ATM Adaptation Layer 5 (AAL5)
- Eight permanent virtual circuits (PVCs);
- UBR, CBR, VBRnrt, VBRrt
- ITU-T 1.610 (F4/F5) OAM
- DHCP Client, PPP, or 802.1x Supplicant Authentication

**IP Addressing and Routing**
- IPv4, IPv6 / 6rd
- DHCP server
- DNS proxy, dynamic DNS support
- Multiple subnet support

**Traffic Management and QoS (Quality of Service)**
- Network Address Port Translation (NAPT)
- Application Level Gateway (ALG) support
- IP maps (pinholes)
- DiffServ QoS with Weighted Fair Queuing
- IGMPv2, IGMPv3 with Fast Leave
- IEEE 802.1P/Q VLANs
- DSCP setting for SIP/RTP
- Speed Test
- Deep Packet Inspection (DPI)

**Security**
- Stateful packet inspection firewall
- Virtual DMZ/IP pass-through
- Denial of service (DoS) protection
- VPN pass-through (PPTP, L2TP, IPsec)

**Device Management**
- Password protected access, statistics, and log reporting

**Remote Management**
- TR-069/TR-098, TR-104, TR-111, WebUI, CLI (Telnet), SSH

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**Service Assurance**

The advanced features of the NVG44x-Series Gateways help Service Providers improve efficiency and reduce costs. Support for 802.1x WAN supplicant simplifies CPE authentication to the Service Provider network and eliminates the subscriber need to manually enter their PPP credentials. The ARRIS 9x CPE Software is scalable and forward looking, with the ability to support an upgrade path to more advanced features such as OSGi and DPI. And, because ARRIS designs its Gateways to be remotely manageable via industry standard TR-069/TR-098, the NVG44x-Series Gateways are interoperable with any ACS solution that follows the Broadband Forum’s TR-069/TR-098 specification.

**Platform Optimization**

The NVG44x-Series Gateways are available in two models, cost optimized to meet the needs of the Service Provider:

- NVG443: VDSL2/ADSL2+ Gateway with 2.4GHz 802.11b/g/n and 5GHz 802.11ac
- NVG448: VDSL2/ADSL2+ Gateway with 2.4GHz 802.11b/g/n, 5GHz 802.11ac and VoIP

The features and specifications of the NVG44x-Series Gateways are further described below.

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### GENERAL SPECIFICATIONS (continued)

**Local Management**
- TR-064, UPnP, WebUI, CLI (Telnet), captive portal

**Utilities**
- Ping, traceroute, reverse DNS, NTP, diagnostics

**Wi-Fi Features**
- **Concurrent Wi-Fi**
  - 802.11 b/g/n/ac
- **Wi-Fi Characteristics**
  - 2.4 GHz support, 2x2 or 3x3 integrated omnidirectional antenna with diversity
  - 5 GHz UNII bands (5.15-5.35 GHz, 5.470-5.725 GHz and 5.725 – 5.850 GHz bands)
  - 20MHz, 40MHz, 80MHz supported

**Wi-Fi Features**
- Multiple BSSID (unique authentication per SSID)
- Wi-Fi Protected Setup (WPS)
- Wi-Fi Multimedia (WMM), WMM-PS (power save)
- Transmit power control

**Wi-Fi Security**
- WEP (64-bit, 128-bit, 256-bit) encryption
- WPA, WPA-PSK, WPA2, WPA2-PSK, EAP-TTLS
- MAC address filtering

**Voice Features (optional)**

**General Voice Features**
- SIP v2 call, SIPv2 call control
- DNS SRV, A records re-registration with primary SIP proxy server
- Geo-Redundancy—DNS SRV, A records
- Flexible dial plan support
- Hook flash event signaling
- RTP audio transport
- RFC2833 RTP payload, SIP INFO and InBand DTMF mode

**Voice Audio Codecs**
- G.711 (a-law and u-law), G.729a and G.726 (16, 24, 32, 40 kbps)
- AMR (narrowband)
- Adaptive jitter buffer
- PLC—(G.711 Appendix I and Frame repeat)
- VAD (voice activity detection) with silence suppression and comfort noise generation
- G.168 network echo cancellation
- G.167 acoustic echo cancellation

**FAX Relay Protocols Compliance**
- T.38 pass-through and over IP
- Fax/modem detection control, T.38 (IP) compliant
- Group 3 and SG3 fallback to Transport T.30, V.34 fax and modem bypass (automatic fallback to G.711)

### Voice Features (continued)

**CLASS Calling Features**
- Call Waiting; Call Hold; Call Resume;
- Call Forward Unconditional;
- Call Forward on Busy; Caller ID; 3-Way Conference; Call Consultant;
- Call Transfer and network-initiated class services—MWI messaging, VMVI via FSK

### Regulatory Compliance

**General**
- K.21 Basic

**Europe**
- 93/68/EEC (CE Marking Directive)
- 2006/95/EC (Low Voltage Directive)
- 2004/108/EC (EMC Directive)
- 1999/5/EC (R & PTE Directive)
- EN60950-1 (Safety)
- EN55022 (Emissions)
- EN55024 (Immunity)
- EN300328 (Electromagnetic compatibility and Radio spectrum Matters, 2.4 GHz)
- EN300386 (Electromagnetic compatibility and Radio spectrum Matters, Telecommunication Network Equipment, EMC)
- EN301489-1 (Electromagnetic compatibility and Radio spectrum Matters, EMC, Part 1)
- EN301489-17 (Electromagnetic compatibility and Radio spectrum Matters, EMC, Part 17)
- EN301893 (Broadband Radio Access Networks, 5 GHz)

**North America**
- UL 60950, CUL, CSA
- FCC Part 15 Class B Subparts B, C and E, ICES-003
- FCC Part 68, CS-03
- CEC compliant

### Environmental Specifications

**Operating Temperature**
- 0°C to 40°C (32°F to 104°F)

**Storage Temperature**
- −40°C to 60°C (−40°F to 140°F)

**Physical Specifications**

<table>
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<tr>
<th>Unit Dimensions</th>
<th>206mm High x 173mm Deep x 40mm Wide</th>
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</thead>
<tbody>
<tr>
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<td>8.1in. High x 6.8in. Deep x 1.6in. Wide</td>
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<tr>
<td>Unit Weight (with all options)</td>
<td>0.63 kg</td>
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<td>1.39 lbs</td>
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