## I. Product Introduction

Comcast Business Services offers carrier grade Internet to Small and Medium Businesses (SMB) residing within the Comcast footprint. Small Businesses are defined as companies that have up to 20 employees and Medium Businesses have 21 to 500 employees. A primary component in delivering Business Class Internet to SMB is Customer Premise Equipment (CPE). Present CPE deployments have functional limitations that do not align with the long-term vision of a scalable single box solution to facilitating industry growth and adapt to industry trends. The next generation Comcast Business Router (hereafter CBR) must satisfy the complex needs of our customers while facilitating Wi-Fi coverage throughout the Comcast footprint as needed. As technology and competitive pressures evolve, it is imperative Comcast implements a scalable and cost effective device that is capable of delivering multiple complex services to meet corporate and business objectives.

The Comcast Business Router (CBR) will be the Business Class Internet's next generation CPE that will leverage the capabilities that exist with the largest DOCSIS 3.1 standard. This will allow the Business Class Internet Business Unit to adjust its product offering to accommodate the competitive pressures that exist in the market better than the current BWGs.

Additionally, the CBR will be built with the small and medium sized business in mind. This will include 8 Gigabit Ethernet ports to support a variety of LAN side network connections. The CBR will also accommodate a variety of mounting options including wall and rack mount. This will allow the installer greater flexibility when installing the CBR.

The CBR will also support RDK-B, This gives more control and flexibility to Comcast to develop software applications that will enhance the functionality and features of the device. Also, it will provide a standardized software platform that can be used across multiple hardware platforms.

Lastly, there will be considerations given for other features and functionality that will be discussed with the vendor such as Power over Ethernet (PoE), and LTE backup/failover.

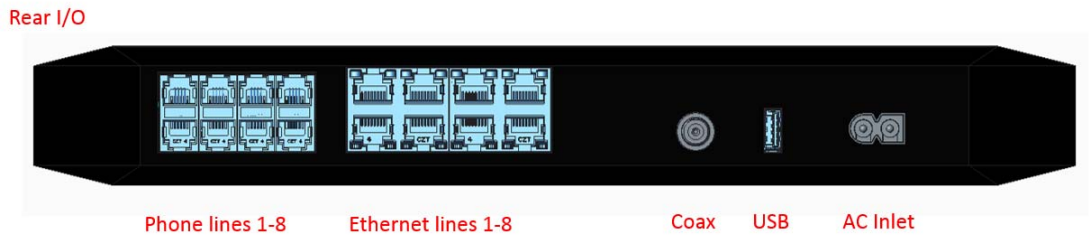
## II. Functional Overview

The CGA4131 is a DOCSIS 3.1 compliant Wireless Voice Gateway that includes:

1. Diplexer: DS 108-1002MHz; US 5-42 MHz or 5-85 MHz selectable
2. A 2x2 802.11n 2.4 GHz Wi-Fi radio and a 4x4 802.11ac 5 GHz Wi-Fi radio on WiFi card
3. A total of eight Gigabit Ethernet LAN ports (ports 5-8 share one Gigabit/s throughput)

4. POE+ (IEEE 802.3at) support on port 8 with up to 30W output).
5. Eight FXS ports that support 5REN each
6. One USB 3.0 port
7. SD Card Reader (user accessible)
8. Internal battery to support 8 hours ONHOOK and 5 hours OFFHOOK on one FXS port
9. Internal 120W PSU
10. Fans (n=2)

## III. Picture of the units




# SAFETY INSTRUCTIONS AND REGULATORY NOTICES

BEFORE YOU START INSTALLATION OR USE OF THIS PRODUCT, CAREFULLY READ ALL SAFETY INSTRUCTIONS

## Applicability

These Safety Instructions and Regulatory Notices apply to:

- Technicolor Cable Modems & Gateways

## Using equipment safely

***When using this product, always follow the basic safety precautions to reduce the risk of fire, electric shock and injury to persons, including the following:***

- Always install the product as described in the documentation that is included with your product.
- Do not use this product to report a gas leak in the vicinity of the leak.
- Avoid using this product during an electrical storm. There may be a remote risk of electric shock from lightning.

*Used symbols*

Following symbols may be found in this and accompanying documentation as well as on the product or accompanying accessories:

| Symbol | Indication |
|---|---|
|  | This symbol is intended to alert you that uninsulated voltage within this product may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this product. |
|  | This symbol is intended to alert you of the presence of important operating and maintenance (servicing) instructions in the documentation that is included with your product. |
|  | This symbol indicates for indoor use only (IEC 60417-5957). |
|  | This symbol indicates Double insulated Class II equipment (IEC 60417-5172). Does not require an earth connection. |
|  | This symbol indicates Alternating Current (AC). |
|  | This symbol indicates Direct Current (DC). |
|  | This symbol indicates Electrical polarity. |
|  | This symbol indicates Fuse. |

## Directives

### Product use

You must install and use this product in strict accordance with the manufacturer's instructions as described in the user documentation that is included with your product.

Before you start installation or use of this product, carefully read the contents of this document for device specific constraints or rules that may apply in the country where you want to use this product. If you have any doubts about the installation, operation or safety of this product, please contact your supplier.

Any change or modification made to this product that is not expressly approved by Technicolor will result in the loss of product warranty and may void the user's authority to operate this equipment. Technicolor disclaims all responsibility in the event of use that does not comply with the present instructions.

### Software and firmware use

The firmware in this equipment is protected by copyright law. You may only use the firmware in the equipment in which it is provided. Any reproduction or distribution of this firmware, or any portion of it, without express written consent from Technicolor is prohibited.

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For avoidance of doubt, Open Source Software is only licensed by the original owner of the Open Source Software under the terms set forth in the designated Open Source License.

## Environmental information

### Batteries (if applicable)

Batteries contain hazardous substances which pollute the environment. Do not dispose of them with other articles. Take care to dispose them at special collecting points.
Recycle or dispose of batteries in accordance with the battery manufacturer's instructions and local/national disposal and recycling regulations.

### Energy efficiency

*Energy savings*

The user documentation that is included with your product not only provides useful information on all the features of your product, but also on its energy consumption. We strongly encourage you to carefully read this documentation before putting your equipment in service in order to get the best service it can offer you.

## Safety instructions

- *Read these instructions.*
- *Keep these instructions.*
- *Heed all warnings and cautions.*
- *Follow all instructions.*

### Climatic conditions

This product:
- Is intended for in-house stationary use; the maximum ambient temperature must not exceed 40 °C (104 °F); the relative humidity must be between 20 and 80 %.
- Must not be mounted in a location exposed to direct or excessive solar and/or heat radiation.
- Must not be exposed to heat trap conditions and must not be subjected to water or condensation.
- Must be installed in a Pollution Degree 2 environment (an environment where there is no pollution or only dry, non-conductive pollution).

If applicable, batteries (battery pack or batteries installed) must not be exposed to excessive heat such as sunshine, fire or the like.

### Ventilation and positioning

This product is intended to be used indoors in a residential or office environment.
- Remove all packaging material before applying power to the product.
- Place and use the product only in positions as described in the user documentation that is included with your product.
- Do not block or cover any ventilation openings; never stand it on soft furnishings or carpets.
- Never push objects through the openings in this product.
- Leave 7 to 10 cm (3 to 4 inches) around the product to ensure that proper ventilation gets to it.
- Do not install the product near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not put anything on it which might spill or drip into it (for example, lighted candles or containers of liquids). Do not expose it to dripping or splashing, rain or moisture. If a liquid enters inside the product, or if the product has been exposed to rain or moisture, unplug it immediately and contact your supplier or customer service.

### Cleaning

Unplug this product from the wall socket and disconnect from all other devices before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

Water and moisture
Do not use this product near water, for example near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement or near a swimming pool. Transition of the product from a cold environment to a warm one may cause condensation on some of its internal parts. Allow it to dry by itself before using the product.

Electrical powering
The powering of the product must adhere to the power specifications indicated on the marking labels.
In case this product is powered by a power supply unit:

- *For USA and Canada*: This product is intended to be supplied by a UL listed Direct Plug-inPower Unit marked "Class 2" and rated as indicated on the label on your product.
- This power supply unit must be Class II and a Limited Power Source in accordance with the requirements of IEC 60950-1/EN 60950-1, Clause 2.5 and rated as indicated on the label on your product. It must be tested and approved to national, or local standards.

Only use the power supply unit that is supplied with this product, is supplied by your service provider or local product supplier, or a replacement power supply unit provided by your service provider or local product supplier.
***The use of other types of power supplies is prohibited.***
If you are not sure of the type of power supply needed, consult the user documentation that is included with your product or contact your service provider or local product supplier.

Accessibility
The plug on the power supply cord or power supply unit serves as disconnect device. Be sure that the mains supply socket outlet you use is easily accessible and located as close to the product as possible.
The power connections to the product and the mains supply socket outlet socket must be accessible at all times, so that you always can disconnect the product quickly and safely from the mains supply.

Overloading
Do not overload mains supply socket outlets and extension power cords as this increases the risk of fire or electric shock.

Handling batteries
This product may contain disposable batteries.

*CAUTION*
There is danger of explosion if the battery is mishandled or incorrectly replaced. Replace only with the same or equivalent type of battery. Do not disassemble it or attempt to recharge it outside the system.
Do not disassemble, crush, puncture, short the external contacts, dispose of in fire, or expose to fire, water or other liquids.

- Insert batteries correctly. There may be a risk of explosion if the batteries are incorrectly inserted.
- Do not attempt to recharge disposabal or non-reusable batteries.
- Please follow instructions provided for charging rechargeable batteries.
- Replace batteries with the same or equivalent type.
- Do not expose batteries to excessive heat (such as sunlight or fire) and to temperatures above 100 °C (212 °F).

Cable Distribution
For this apparatus, the cable shield/screen shall be grounded (earthed) as close as practical to the point of entry of the cable into the building.
For products sold in the USA and Canada, this reminder is provided to call the system installer's attention to ANSI/NFPA 70, the National Electrical Code (NEC), in particular Section 820.93, Grounding of Outer Conductive Shield of a Coaxial Cable (or Canadian Electrical Code Part 1).

Servicing

To reduce the risk of electric shock or electrocution, do not disassemble this product.
If service or repair work is required, take it to a qualified service dealer.

Damage requiring service
Unplug this product from the mains supply socket outlet and refer servicing to qualified service personnel under the following conditions:

- When the power supply, power cord or its plug are damaged.
- When the attached cords are damaged or frayed.
- If liquid has been spilled into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally.

- If the product has been dropped or damaged in any way.
- There are noticeable signs of overheating.
- If the product exhibits a distinct change in performance.
- If the product is giving off smoke or a burning smell.

Protect the product when moving it
Always disconnect the power source when moving the product or connecting or disconnecting cables.

Interface classifications (upon applicability)
The external interfaces of the product are classified as follows:
- Cable (IN/OUT): TNV circuit, not subjected to overvoltages (TNV-1)
- Phone, FXS: TNV (Telecommunications Network Voltage ) circuit, not subjected to overvoltages (TNV-2)
- MoCA, HPNA, RF: TNV circuit, not subjected to overvoltages (TNV-1)
- All other interface ports (e.g. Ethernet, USB,...), including the low voltage power input from the AC mains power supply: SELV (Safety Extra-Low Voltage) circuits.

## Regulatory information

North-America - Canada
***Notification of Canadian Radio Frequency interference statement***
This Class B digital apparatus complies with Canadian ICES-003.
This product meets the applicable Innovation, Science and Economic Development Canada technical specifications.
***Canada - Radiation exposure statement***
This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 30 cm (12 inches) between the radiator and your body.
***Canada - Industry Canada (IC)***
In case this product is equipped with a wireless transceiver, this device complies with Industry Canada's licence-exempt RSSs. 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.
***Restricted frequency bands***
In case this product is equipped with a wireless transceiver operating in the 2.4 GHz band, it may only use channels 1 to 11 (2412 to 2462 MHz) on Canada territory.
In case this product is equipped with a wireless transceiver operating in the 5 GHz band, it is for indoor use only.
The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

North-America - United States of America
***Important safety instructions***
- The cable distribution system should be grounded (earthed) in accordance with ANSI/NFPA 70, the National Electrical Code (NEC), in particular Section 820,93, Grounding of outer Conductive Shield of a Coaxial Cable.
- Leave 5 to 8 cm (2 to 3 inches) around the product to ensure proper ventilation to it.
- Never push objects through the openings in this product.

***Federal Communications Commission (FCC) radio frequency interference statement***
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 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.

*FCC Caution*: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Responsible Party: Technicolor, 101W. 103rd St., Indianapolis, IN 46290 USA, 317-587-5466.

***RF exposure statement***

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. To maintain compliance with FCC RF exposure compliance requirements, please follow operation instruction as documented in the product documentation.

When the product is equipped with a wireless interface, then it becomes a mobile or fixed mounted modular transmitter and must have a separation distance of at least 30 cm (12 inches) between the antenna and the body of the user or nearby persons. In practice, this means that the user or nearby persons must have a distance of at least 30 cm (12 inches) from the product and must not lean on the product in case it is wall-mounted.

With a separation distance of 30 cm (12 inches) or more, the M(aximum) P(ermissible) E(xposure) limits are well above the potential this wireless interface is capable to produce.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

***Restricted frequency bands***

In case this product is equipped with a wireless transceiver operating in the 2.4 GHz band, it can only use channels 1 to 11 (2412 to 2462 MHz) on U.S.A. territory.

In case this product is equipped with a wireless transceiver operating in the 5 GHz band, it meets all the other requirements specified in Part 15E, Section 15.407 of the FCC Rules.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.