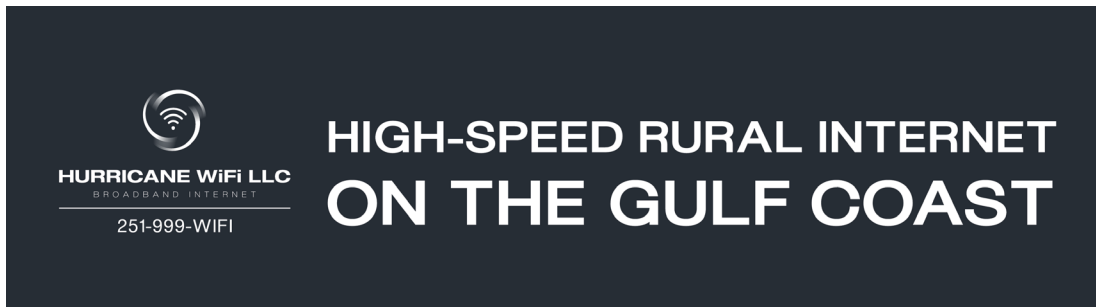


Alabama Broadband Accessibility Fund 2021 Grant Application



Perdido Alabama Hurricane WiFi
February 2021

APPLICANTS MUST USE THE FOLLOWING APPLICATION FORM, COMPLETE IT IN ITS ENTIRETY, AND LABEL ATTACHMENTS AS INSTRUCTED. FAILURE TO DO SO, MAY RESULT IN A LOSS OF POINTS.

2021 Grant Application

Applicant Information

Project Name: Perdido Alabama Hurricane WiFi

Legal Name of Entity: Hurricane WiFi LLC

Mailing Address: PO Box 1329, Bay Minette Alabama 36507

Name and Title of CEO: Timothy D. Doerr Owner

Name and Title of Contact: Timothy D. Doerr

Phone Number and Email of Contact: 251-999-9434 info@hurricanewifi.com

Note: All successful applicants will be required to complete and submit the Beason-Hammon Alabama Taxpayer and Citizen Protection Act Certification, submit a complete copy of their E-Verify Memorandum of Understanding (MOU), complete and submit the State of Alabama Disclosure Statement, complete and submit the Signatory Authority Form, and register in the State of Alabama Accounting and Resource System (STAARS).

A. Project Description

This section is worth up to 25 points. Up to an additional 10 bonus points may be available to applicants adequately demonstrating the criteria listed in number seven (7) below. Points will be awarded based on verifiable information only.

Please see attachment A, Project Description for additional answers for this section.

Please complete the project description sections below. Any additional documentation can be included in an attachment file titled Attachment A, Project Description.

1. A discussion of the area served including boundaries, number of households, businesses, and any community anchors (libraries, schools, police and fire stations, hospitals, etc.). This response shall also identify if the project area is located within an unincorporated area and provide information regarding how the area meets the definition of rural (US Census data). Please complete the following table.

Number of Households to be Served	359
Number of Businesses / Industries to be served	2
Number of Community Anchors to be served	11

2. A discussion of the technology to be deployed (fiber, cable, DSL, etc.). Additionally, include a discussion of future usage projections and the ability to upgrade.

Please see attachment A, Project Description

3. A discussion of internet speeds, service tier and pricing levels, data caps, etc.

Please see attachment A, Project Description

4. A preliminary technical evaluation of the project that is certified by an engineer. This evaluation should document the ability of the proposed infrastructure to provide the minimum speeds required to all potential customers in the project area. The evaluation shall also include a project cost estimate, project schedule and timeline to include a completion date of no more than two years, and maps showing the proposed project area. Furthermore, the evaluation should demonstrate how promised speeds will be delivered consistently to the project area, show how the network will work using the proposed equipment, and demonstrate how the backhaul will be provided. **Maps shall be in .shp, .kml, or .kmz formats.**

Additionally, maps shall clearly show area eligibility (unserved areas and rural areas). Generally, applicants may establish that an area is unserved by using the ADECA Broadband map showing unserved areas (<http://adeca.alabama.gov/broadband>). However, applicants are strongly encouraged to conduct a field review. If an area shown as unserved on ADECA's map but becomes served prior to the execution of the grant agreement, the project may not be eligible for funding. **An applicant will be required to receive approval from ADECA for methodology prior to submitting an application. Generally, the methodology will include testing or documentation at both ends of a street in question. A map showing all test sites must be included in the application.**

Please see attachment A, Project Description

5. A discussion of the operator's technical and managerial capabilities to complete the project within two years of the effective date of the grant award. Please be aware that grants shall be conditioned on project completion within two years of awarding of the grant. If a recipient fails to complete a project within the two-year deadline due to reasons other than delay caused by a government entity, ADECA may revoke the grant in its entirety.

Please see attachment A, Project Description

6. A discussion of the applicant's average pole attachment rates charged to an unaffiliated entity (does not apply to a utility as defined under Section 37-4-1 (7)a).

Please see attachment A, Project Description

7. A discussion of the applicant's plan to use vendors and subcontractors that have been certified as a Minority Business Enterprise by the Alabama Minority Business Enterprise program and/or certified by another government entity as being a Disadvantaged Business Enterprise. Please be advised if an applicant chooses to claim consideration under this criterion, a quarterly report documenting activities will be required.

Please see attachment A, Project Description

8. A discussion of Middle Mile Projects (if applicable). The applicant shall demonstrate that the project will connect other service providers eligible for grants under this section with broadband infrastructure further upstream in order to enable such providers to offer broadband service to end users; provided that eligible projects under this subdivision may include projects in (i) an unserved area or (ii) a rural area that does not meet the definition of an unserved area but otherwise meets the requirements of this section, for which the grant applicant demonstrates, by specific evidence, the need for greater broadband speeds, capacity, or service which is not being offered by an existing service provider. An example of specific evidence can be found in the Alabama Broadband Accessibility Fund Frequently Asked Questions.

Please see attachment A, Project Description

9. A discussion of hospital, public school, public safety, or economic development projects that do not meet the definition of unserved area, but otherwise meets the requirements of the program (if applicable). The applicant must demonstrate by specific evidence, the need for greater broadband speeds, capacity, or service which is not being offered by an existing service provider. Specific evidence may include documentation such as letters from local hospitals, public schools, and public safety institutions. An example of specific evidence can be found in the Alabama Broadband Accessibility Fund Frequently Asked Questions.

Please see attachment A, Project Description

B. Application Budget

This section is worth up to 25 points. Points will be awarded based on verifiable information only.

For the table, please complete the shaded boxes. The unshaded boxes will populate automatically. If you are unable to use the formulas in the table, use the following formulas to calculate the percentages: i) 65 percent of total project cost is calculated by multiplying the total project cost by .65, ii) 35 percent of total project cost is calculated by multiplying the total project cost by .35. The total grant amount cannot exceed the lesser of 35 percent of total project costs, or \$1,500,000. If federal funds are involved in the project, please see number 4 below.

Total Project Cost	\$137,522.80
65% of Total Project Cost (minimum match)	\$89,389.82
35% of Total Project Cost (grant maximum)	\$48,132.98
Total Grant Amount Requested (not to exceed \$1.5 million)	\$48,132.98

Please complete the project budget sections below. Any additional documentation can be included in an attachment file titled Attachment B, Project Budget.

1. Itemize eligible project expenses. Generally, eligible expenses will be limited to construction and construction related costs of broadband infrastructure. For the table below, please complete the shaded boxes. The unshaded boxes will populate automatically. Operating expenses will not be eligible expenses. Any additional expenses associated with the project, but not part of the grant budget, should be included in the narrative.

Budget Item	Total Cost	Grant	Match
Engineering/Design	\$4,800.00	\$1,680.00	\$3,120.00
Materials	\$68,919.06	\$24,121.67	\$44,797.39
Labor	\$26,803.74	\$9,381.31	\$17,422.43
Construction/Installation	\$37,000.00	\$12,950.00	\$24,050.00
Other (Please Specify)	\$0.00	\$0.00	\$0.00
Total	\$137,522.80	\$48,132.98	\$89,389.82

2. A discussion of the applicant's necessary financial resources to:

- a. sustain service to the project area (business model); and
- b. provide adequate project financing (additional documentation may be requested by ADECA).

See attachment B, Project Budget

3. A discussion of any partners or subcontractors associated with the project's deliverables including but not limited to adoption, deployment, and service delivery. Please describe each party's role in the project.

See attachment B, Project Budget

4. A discussion of any funds associated with the project. Please explain if the following provisions apply to your project:

- a. Projects to serve unserved areas in which the grant applicant is either or both: (i) an existing or future service provider which has or will receive support through federal universal service funding programs designed specifically to encourage broadband deployment in an area without broadband access; or (ii) an existing or future service provider which has or will receive other forms of federal or state financial support or assistance, such as a grant or loan from the United States Department of Agriculture.

No related federal or state funds

- b. Any award of state funds under this act, when combined with other forms of state or federal support or assistance dedicated to the project, other than interest-bearing loans, may not exceed 60 percent of the total project costs.

No related federal or state funds

C. Other Program Priorities

Please answer each of the following questions either "yes" or "no." For each "yes" answer, please provide a brief narrative and any supporting documentation in an attachment labeled Attachment C, Other Program Priorities. Any claims that cannot be verified will receive zero points in our scoring system. "No" answers will receive zero points in our scoring system. **"Yes" answers (that can be verified) will receive up to 10 points.**

Does this project seek to leverage grant funds through private investment?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	If yes, include an explanation and documentation in a file titled Attachment C
Will this project be an extension of existing infrastructure?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	If yes, include an explanation and documentation in a file titled Attachment C
Does this project serve locations with demonstrated community support?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	If yes, include an explanation and documentation in a file titled Attachment C
Will this project serve the highest number of unserved homes, businesses, and community anchor points for the least cost?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	If yes, include an explanation and documentation in a file titled Attachment C
Does this project emphasize the highest broadband speeds?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	If yes, include an explanation and documentation in a file titled Attachment C
Will this project provide material broadband enhancements to hospitals located in rural areas?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	If yes, include an explanation and documentation in a file titled Attachment C
Will this project support local libraries in this state for the purpose of assisting the libraries in offering digital literacy training pursuant to state library and archive guidelines?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	If yes, include an explanation and documentation in a file titled Attachment C
Is the applicant a certified Minority Business Enterprise under the Alabama Minority Business Enterprise Program? Or is it certified under another Disadvantaged Business Enterprise Program?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	If yes, include an explanation and documentation in a file titled Attachment C

D. Certifications

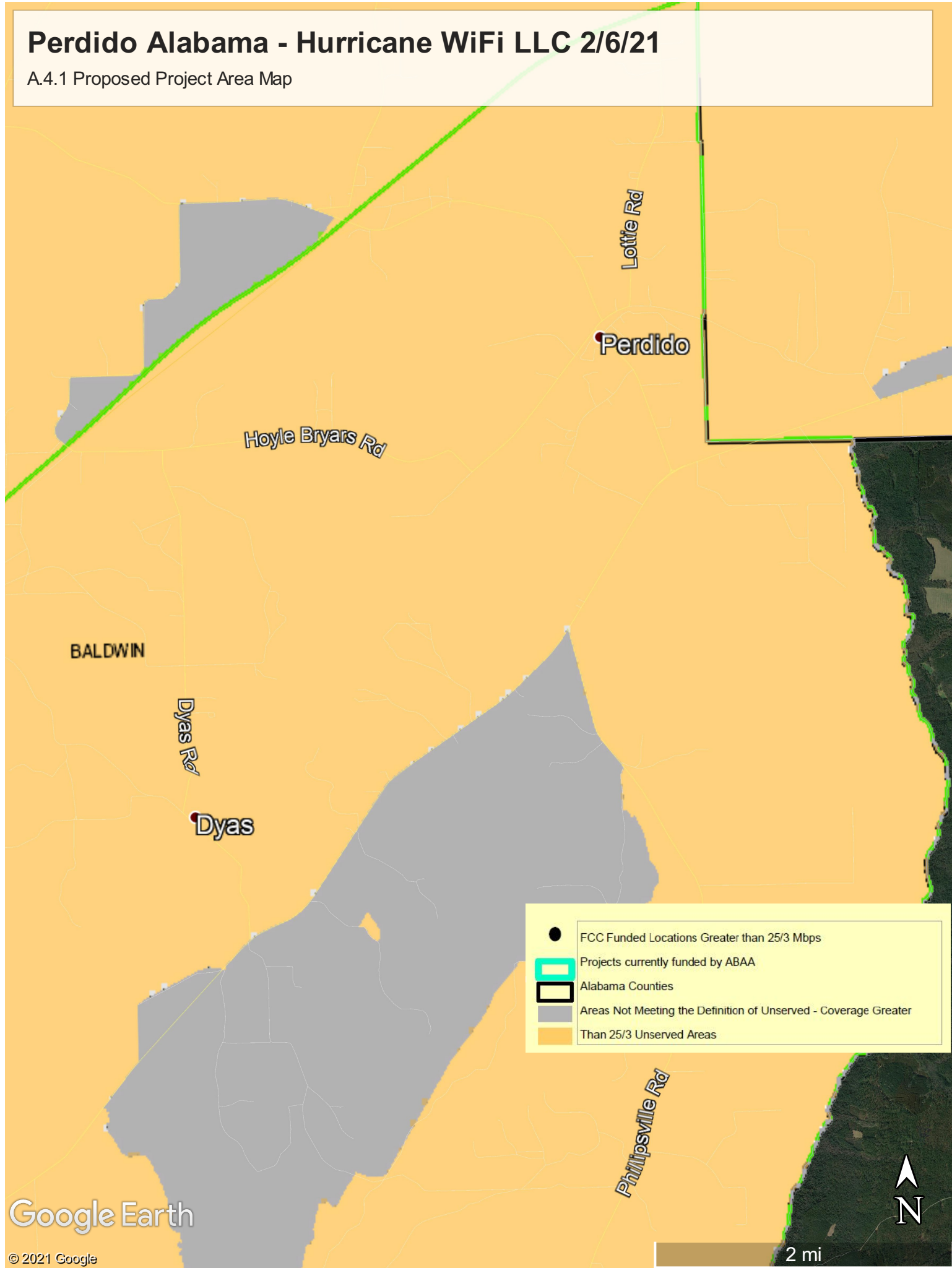
1. The applicant certifies that it is a non-governmental entity.
2. The applicant certifies all new customers served as a result of this project will have access to an internet connection that provides a capacity for transmission at an average speed per customer of at least 25 Mbps download and at least 3 Mbps upload.
3. The applicant certifies that all new customers served as a result of this project are not located within the boundaries of any incorporated city or town having a population in excess of 25,000 inhabitants, according to the last federal census.
4. The applicant certifies that it has the technical and managerial capabilities to complete the project within two years of the effective date of the grant agreement.
5. The applicant certifies that the area to be served does not have at least one provider of terrestrial broadband service that is either: (1) offering a connection to the Internet meeting the minimum service threshold; or (2) is required, under the terms of the Federal Universal Service Fund or other federal or state grant, to provide a connection to the Internet at speeds meeting the minimum service threshold by March 28, 2023.

Certification	
I the undersigned am authorized to obligate my entity and enter into agreements for my organization. I understand that the above certifications do not guarantee funding and a grant agreement will be executed prior to project funds being expended. I further understand that if the above statements cannot be verified, no grant funds will be awarded under this program. Finally, to the best of my knowledge the above certifications are true and correct.	
Signature of Applicant: <i>Timothy D. Doerr</i>	Date: 2/7/21
Title of Applicant: Owner	

For more information regarding the Alabama Broadband Accessibility Fund, please send questions to Chris Murphy at broadband.fund@adeca.alabama.gov, or call (334) 242-5292 between the hours of 8:00 a.m. to 4:00 p.m., Monday through Friday.

Perdido Alabama - Hurricane WiFi LLC 2/6/21

A.4.1 Proposed Project Area Map



Alabama Broadband Accessibility Fund 2021 Grant Application



**Perdido Alabama Hurricane WiFi
February 2021**

Attachment A Project Description

Perdido Alabama Hurricane WiFi

Attachment A - Project Description

1. Hurricane WiFi LLC plans to deploy approximately an 8-mile circumference of coverage using a private LTE network centered in the Perdido community which resides in Baldwin County, AL. The area that Hurricane WiFi LLC has decided on to use the Alabama Broadband Accessibility Grant was verified unserved by Alabama's Broadband Eligibility Map – Unserved Areas as of 11/23/2020. The number of households, businesses and Community Anchors are as follows:

Number of Households to be Served	359
Number of Businesses / Industries to be served	2
Number of Community Anchors to be served	11

This project involves building a wireless network using a private LTE network throughout the community of Perdido which is an unincorporated area considered rural according to the 2010 US Census Data. This project will provide broadband internet to 359 unserved homes, 2 unserved businesses, 2 Volunteer Fire Department, 1 school and 8 churches. Additional boundaries & serviceable locations are shown in the **Attachment A.1.1** as well in our KMZ file. This is an approximate as some people do work from home and the number of businesses could increase as we start deploying.

Contained in **Attachment A.1** is our KMZ file for this proposed service area that we plan to provide internet.

2. Hurricane WiFi LLC will construct a private LTE network using the Citizens Broadband Radio Service (CBRS) shared spectrum in the 3.5 GHz referred to as Band 48, CBRS is often referred to as the private LTE as a terrestrial wireless broadband to bring internet to this rural community using our leased tower. Hurricane WiFi LLC will use the CBRS technology to allow homes and businesses to connect to its private LTE wireless network. This wireless network will provide future capacity for homes and businesses. Once the CBRS infrastructure is in place, the equipment can be replaced easily. As technology advances this will allow Hurricane WiFi LLC to make changes to newer and faster technologies utilizing the CBRS already in place. Unlike fiber, there are less fail points due to centralized equipment installation. A tree falling on a fiber line may cause an outage as we have seen during recent storms the damage can be widespread. With a private LTE network, we have less risk of potential outages due to storm damage. Customers will be served by having either the Baicells Atom ID06 Indoor User Equipment (UE), sometimes referred to as Customer Premises Equipment (CPE), or the Baicells Atom OD06 Outdoor High-Gain (UE) at their home through our Biacells Nova 436q Outdoor Base Stations. The base stations will then connect to our 10G managed

aggregation switches, 10G routers and the rest of our network at our tower and headend. We have attached all specifications and capability to **Attachment A.2 Scalability** for our CBRs equipment as well core infrastructure equipment and cable. Once the network is in place, the equipment can be replaced and upgraded easily. As technology advances, we can swap out our tower base stations if needed to deploy upgraded radios as well as the client's end-user equipment to newer and faster technologies utilizing the frequency already in place. Most recently, we have learned that our base stations will support up to a 550 Mbps CPE. The manufacturer announced that its new Atom Outdoor CAT15 CPE has received Part 96 certification by the FCC. The new CAT15 CPE is specifically designed to provide outdoor wireless operators with superior performance to meet the increasing throughput demands of today's Internet subscribers. This CPE operates within the 3GPP Release 12 CAT15 standards and supports operations in Bands 42, 43, and 48. Equipped with an internal antenna with a gain of 18 dBi, Carrier Aggregation technology, and 4x4 MIMO, this CPE can reach peak downlink speeds of 550 Mbps making it the perfect end-user solution to meet and exceed any upcoming Rural Digital Opportunity Fund (RDOF) requirements. This would double what we would be able to provide with the current equipment installed. The primary outdoor radios proposed for installation already support this new 550 Mbps download speed at the time of application. If customers in the community have a need for extreme speeds, we can offer this as an option to deploy the latest CPE by simply upgrading the customer's CPE.

3. Hurricane WiFi LLC offers several levels of internet to meet the needs of the Perdido community. Our base internet speed of 25 Mbps download by 3 Mbps upload for a cost of \$65 with zero data caps. We also offer 50 Mbps download by 5 Mbps uploads for \$85/month, 75 Mbps download by 7 uploads for \$115/month, 100 Mbps download by 10 Mbps upload for \$145 and 125 Mbps download by 12 Mbps upload for \$165 with all plans with no data caps. Each plan is inclusive of all taxes and fees, and the bill remains consistent unless the customer requests a plan change. Hurricane WiFi LLC follows a "no contract" business model. We believe our customers will be long-term by choice after experiencing our excellent customer service and our fast, reliable, reasonably priced product.

Packages		Pricing	Data Cap
Category 1	25/3 Mbps	\$65	None
Category 2	50/5 Mbps	\$85	None
Category 3	75/7 Mbps	\$115	None
Category 4	100/10 Mbps	\$145	None
Category 5	125/12 Mbps	\$165	None

4. Hurricane WiFi LLC estimates that the Perdido, Alabama project will have a total cost of \$137,522.80. This includes match in the amount of \$89,389.82 and grant funding in the amount of \$48,132.98. Once awarded, Hurricane WiFi LLC will order all supplies and materials needed for the coverage area. Delivery for these orders will take 2-4. Upon equipment arrival tower installation will begin and should take no more than 2-4 weeks. Overall, the projected completion timeline will be within 3 months depending on obstacles that may arise such as weather or equipment delivery delays.

A preliminary technical evaluation of the project that is certified by an engineer is attached in the KMZ file of the requested area, which is considered underserved by Alabama's Broadband Eligibility Map – Unserved Areas as of 11/23/2020 as seen in the Attachment **A.4.1 Proposed Project Area Map**.

The heat maps seen in the KMZ as well as **Attachment A.4.2 Radio Heat Map Coverage Area** demonstrates the Reference Signals Received Power (RSRP) that our evaluation shows this community will be receiving. RSRP is a measurement of the received power level in an LTE cell network. RSRP level shows this coverage area will allow us to provide the internet services levels we will advertise as well as up to 550 Mbps with upgraded CPE devices. No backhaul will be required at this location as the radios and headend reside at the same tower. Our headend will provide the community with internet through our 10G managed aggregation switches, 10G routers and fiber internet provider. As we continue to expand, we plan to bring high availability with our internet uplinks with plans to implement Border Gateway Protocol (BGP) with other uplink internet providers we use.

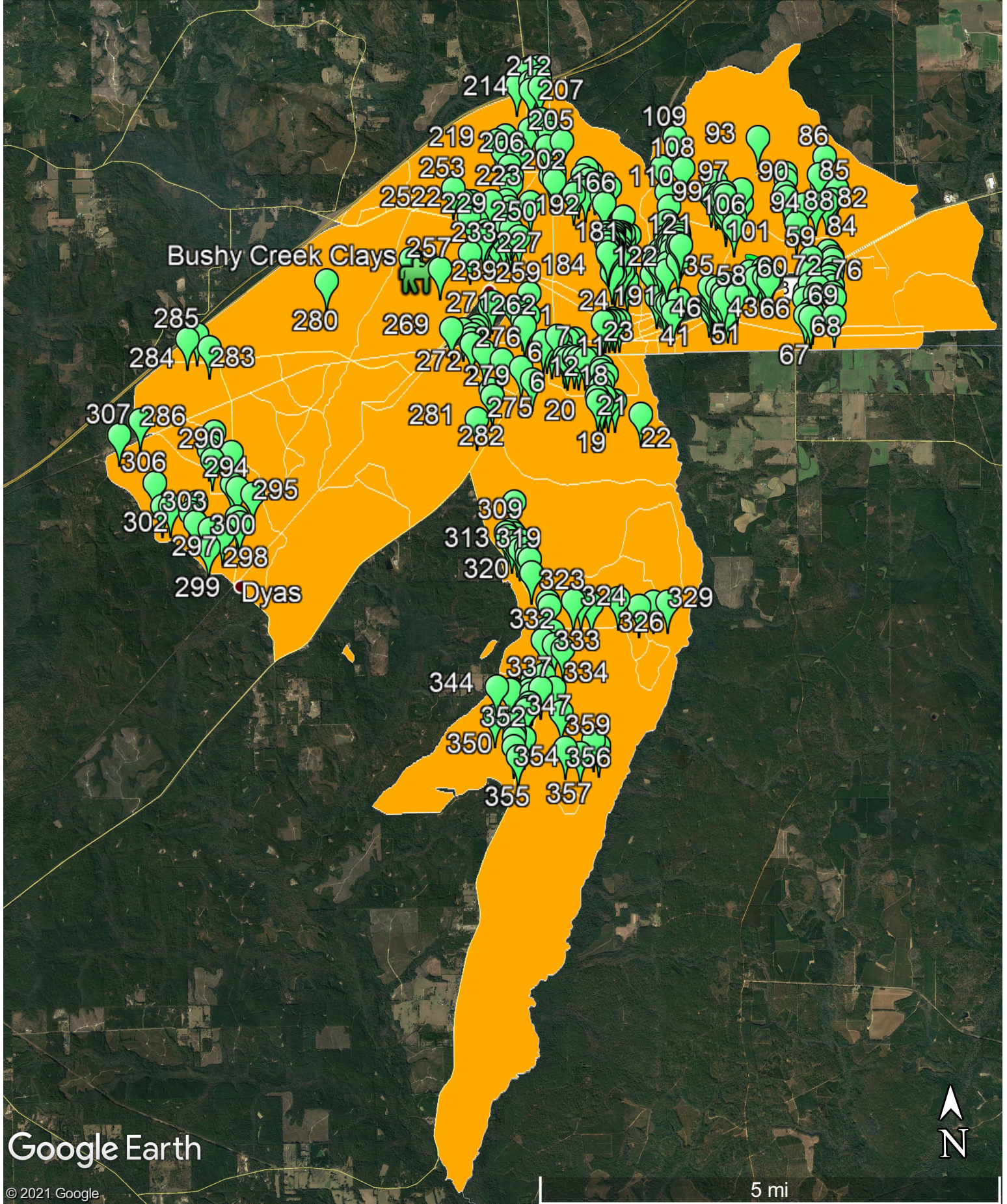
5. Hurricane WiFi LLC is a local company eager to be Perdido's first terrestrial wireless provider. We know what it takes to build, operate, and manage quality networks in rural areas. The owner of Hurricane WiFi has been in the technology field since 2000 and has implemented twenty-seven cloud managed networks for his clients. Hurricane WiFi LLC now wants to extend this knowledge of networks and business to bring the same level of network access to the local rural communities. We are extremely confident in our capability to build out to unserved areas within less than 3 months to bring internet to the Perdido community sooner than later, as some infrastructures take years to build out.
6. Hurricane WiFi LLC chosen to build a terrestrial wireless network that will not utilize aerial pole attachments. This alternative will provide a more reliable experience for end users during storms and other unexpected events.
7. Hurricane WiFi LLC has established relationships with equipment/technology providers.
8. This project is not a Middle Mile project as we are providing internet service directly.

9. The Perdido, Alabama project meets the definition of an unserved area includes covering the community's school that is located in the proposed coverage area. It is in the feeder pattern of other North Baldwin County public schools, including Baldwin County High School and Perdido School, serving Pre-K through 8th grade. Included as an attachment Included as an **Attachment A.9 School Site** is the Baldwin County Public Schools 2020-2021 School Site Locator to show this project will provide internet to the students attending Perdido School. However, with the recent school closings and transition from traditional learning to digital, those schools have been essentially re-located to homes. Hurricane WiFi LLC contacted the Baldwin County Board of Education (BCBE) to inquire on the need for service in the Perdido area. According to the BCBE's Communications Project Manager, the school board conducted a system-wide survey of parents who needed help with internet on April 3, 2020 in preparation of the 2020 COVID-19 school closings. The survey's intent was to determine if there were any students in need of a hotspot in order to complete their digital distance learning when schools closed their traditional classroom education. The school board received 236 responses from parents in the North Baldwin area, 86 from Perdido School alone, indicating that their students needed the hotspot internet assistance. According to BCBE, their poll results showed that 36% of responses came from Perdido School - the highest number of requests for internet assistance out of any school in Baldwin County. The survey was sent via email and does not count parents that could not or would not respond. The school board also noted that there were North Baldwin teachers and administrators who personally reached out to specific families who they believed had internet accessibility issues. And after the April 2020 poll, the need for broadband has skyrocketed in response to the COVID-19 pandemic. BCBE's Virtual School saw more than 6,500 new students at the beginning of the 2020-2021 school year, an increase of 1,920%, in virtual school registration from last year.

This rural broadband installation would also offer services to other community anchors including two local volunteer fire departments along with 8 churches which are currently in the area defined as unserved. Hurricane WiFi LLC will be able to act as a reliable backbone for the future growth of these community anchors as well as become a stable source of digital communication, education and commerce in the face of natural disasters or the events like the unparalleled COVID-19 pandemic.

Perdido Alabma - Hurricane WiFi LLC 2/6/21

Attachment A.1.1 Potential Customers in Unserved Areas & Areas Not Meeting the Definition of Unserved - Coverage Greater than 25/3



Perdido Alabama Hurricane WiFi

Attachment A.2 Scalability

This document is evidence to demonstrate scalability and capabilities of the proposed projects technology. This includes current technology levels, ability to upgrade, and latency levels. The information has been certified by the manufacture.

Item Specification	Page
1. Baicells Atom ID06 Indoor UE Data Sheet	2-3
2. Baicells Atom OD15G CPE Data Sheet	4-5
3. Baicells ATOM Outdoor CAT6 High Gain CPE Data	6-7
4. Baicells Nova-436q Radio Data Sheet	8-9
5. Baicells SNAP PoE Router	10-11
6. Cable EUCAHYBRID-58-12C2.5-24SM-Rev1-Preliminary	12-14
7. Cable REKDC9234PF48	15-17
8. EdgeRouterER-8-XG Data Sheet	18-20
9. EdgeSwitch ES-16-XG Data Sheet	21-25
10. Preseem 5000B Appliance	26
11. Edge Swtitch EPS-16	27-33



INTRODUCTION

The Baicells Atom ID06 Indoor User Equipment (UE) brings broadband data and voice services to end-users and has an embedded Wi-Fi AP.

Wireless and wired devices, including mobile phones, laptops, tablets, and other smart devices, can access the UE simultaneously.

3GPP Release 10 compliance provides additional frequency band support on this UE, and the ID06 supports VoIP.

The product comes with a standard one-year warranty.

FEATURES

Note: Features may vary based on model or region.

- Supports LTE TDD Bands 40/41/42/43/48
 - Customization may be requested; contact sales_na@baicells.com.
- 2.5 GHz or 3.5 GHz models
- Complies with 3GPP Release 10 Cat6/7 standards
- 1000 Mbps Ethernet interface, POTS interface
- IEEE 802.11b/g/n Wi-Fi 2.4 GHz supported
- VoIP with fax and POS equipment connectivity
- GUI-based local and remote Web management
- TR069 network management protocol support
- Cell lock, SIM lock, and pin lock
- User-friendly LED status indicators

BASIC SPECIFICATIONS

LTE Standard	3GPP Release 10, Cat6/7
ETH LAN Port	One RJ-45 port 10/100/1000 auto-sensing, auto-MDX
LED Indicators	Power, WLAN, LTE (TEL), LTE Signal
POTS	One RJ-11 interface
USIM	1.8V/3V 2FF
Restore Button	Press for 10 seconds to restore the UE to its factory settings
Power Switch	On/off
Power Supply	Input: Universal range 100V-240V AC Output: 12VDC, 1.5A
Battery	Customization
Dimensions (H/W/D)	7.6 x 6.6 x 2.9 inches 193x168 x74 millimeters
Weight	14 oz / 400 g

RF SPECIFICATIONS

LTE Mode	TDD
Channel Bandwidth	5/10/15/20 MHz
Carrier Aggregation	2CC CA
MAX Output Power	23 ± 2 dBm per transmit antenna
Frequency Bands	40/41/42/43/48

Peak Rate (20 MHz)	DL 220 Mbps, UL 15 Mbps (2:7)
Modulation	DL: QPSK, 16QAM, 64QAM UL: QPSK, 16QAM, 64QAM
Receive Sensitivity	- 94 dBm @ QPSK, 20 MHz, 25°C
Antenna Type	Internal omni, 2T4R (UL enhanced)
Antenna Gain	6.5 dBi @ 3.x GHz 5 dBi @ 2.x GHz
Antenna Polarization	Linear, vertical
Antenna Efficiency	> 70%
Isolation	N/A
VSWR	≤ 2
Horizontal Beamwidth (3 dB)	N/A
Vertical Beamwidth (3 dB)	N/A

VOICE SPECIFICATIONS

VoIP	Dual-APN, SIP ALG, G711 fax pass-through, T38 fax relay
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SOFTWARE SPECIFICATIONS

Network Mode	NAT or Bridge
IP Protocol	IPv4/IPv6
SIM	PIN management, SIM lock
Network Connection	Auto or manual
LTE Scan Mode	Full band scan or frequency lock
WLAN	WPS, MSSID isolation
VPN	L2TP L2/L3, GRE L2/L3
NAT	Port forwarding/triggering, DMZ, ALG
Firewall	IP/MAC/URL filter; access control; block port scanner / SYN flood; SPI filter
Network Mgmt	TR069, TR104, SNMP*
Diagnostics	TCP dump, ping, traceroute
Statistics	LTE status; connection, system up time; device status; DHCP client list; Wi-Fi station list; LTE status; firewall status
Maintenance	Date and time setting; reboot; restore factory settings; restore or back up configuration files; firmware upgrade locally or OTA

System Logs	Operating, run-time, filter / select / display / export
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*Future software release

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	14°F to 113°F / -10°C to 45°C
Storage Temperature	-4°F to 158°F / -20°C to 70°C
Operating Humidity	5% to 95%

WI-FI SPECIFICATIONS

Standard	IEEE 802.11b/g/n
Channel Bandwidth	20/40 MHz
Frequency	2.4 GHz
MIMO	2x2
Peak Rate	802.11b: 11 Mbps 802.11g: 54 Mbps 802.11n: 300 Mbps
Modulation	DSSS/CCK, OFDM
Receive Sensitivity	<ul style="list-style-type: none"> -64 dBm @ 65 Mbps, typical for 802.11n -65 dBm @ 54 Mbps, typical for 802.11g -76 dBm @ 11 Mbps, typical for 802.11b
Max Output Power	17 ±3 dBm
Antenna Type	Internal omni, 2T4R
Antenna Gain	2 dBi
Active Users	32

GLOBAL PART NUMBERS

EG2011B-M3	Atom Indoor Cat6/7, 2T4R, 2.5 GHz, 5 dBi, B41 UE <ul style="list-style-type: none"> FCC certification: 2AG32EG2011B (2447-2685 MHz) IC certification: 20982-EG2011B (2400-2690 MHz)
EG2013B-M11	Atom Indoor Cat6/7, 2T4R, 3.5 GHz, 6.5 dBi, 1GE, B42/43/48 UE <ul style="list-style-type: none"> FCC certification: 2AG32EG2013B (2412-3697.5 MHz) IC certification: 20982-EG2013B (3650-3700 MHz)

Notes:

1 - Other models available for other regions. Contact sales_na@baicells.com.

2 - Customized versions may be requested.



INTRODUCTION

The Baicells Atom OD15G-M11 Outdoor High-Gain CPE provides superior performance and routing capabilities to bring broadband data and voice services to end-users. It operates on standard LTE TDD to enable high-speed, wireless communications.

This CPE supports Bands 42, 43, and 48, and complies with 3GPP Release 12 CAT15 standards. The radio design is for UL 2x2 and DL 4x4 MIMO and RX diversity, which enables improved cell coverage. It also supports Carrier Aggregation (CA or CCA), which extends bandwidth, increases data rates, and improves overall network performance. The product comes with a standard one-year warranty.

FEATURES

Note: Features may vary based on model or region.

- Supports LTE TDD Bands 42/43/48
 - Customization may be requested; contact sales_na@baicells.com.

- Complies with 3GPP Release 12 CAT15 standards
- 1000 Mbps Ethernet interface
- Peak data rate of up to 550 Mbps DL and 30 Mbps UL @ 20 MHz (2:7) in controlled environment
- GUI-based local and remote management
- Supports MCS DL QPSK/16QAM/64QAM/256QAM and UL QPSK/16QAM/64QAM
- TR069 network management protocol support
- Cell lock, SIM lock, and pin lock
- User-friendly LED status indicators
- Built-in LTE directional antenna, 4x4 MIMO
- Power supply with PoE
- Pole or wall mount

BASIC SPECIFICATIONS

LTE Standard	3GPP Release 12, CAT15
ETH LAN Port	1 RJ-45, LAN, 10/100/1000 auto-sensing, auto-MDX, PoE
LED Indicators	PWR, RUN, LTE Signal
USIM	1.8V/3V 2FF

Reset Button	Press for 10 seconds to restore the CPE to its factory settings
Power Supply	Input: Universal range 100V-240V AC Output: PoE (24VDC, 0.5A)
Dimensions (HxWxD)	375 x 375 x 70 millimeters (TBD)
Weight	2500 g (TBD)

RF SPECIFICATIONS

LTE Mode	TDD
Channel Bandwidth	5/10/15/20 MHz
Frequency Bands	42/43/48 and customized
Carrier Aggregation	DL 2x2 MIMO: 2CC/3CC/4CC CA DL 4x4 MIMO: 2CC CA UL: 2CC CA
MAX Output Power	23 ± 2dBm
Peak Rate (up to) Using 2:7 configuration, 20 MHz bandwidth	DL 550 Mbps UL 30 Mbps
Modulation	DL: QPSK, 16QAM, 64QAM, 256QAM UL: QPSK, 16QAM, 64QAM
Receive Sensitivity	≤ 94 dBm @ QPSK, 20 MHz, 25°C
Antenna Type	Internal directional, 4x4 MIMO
Antenna Gain	18 dBi
Antenna Polarization	±45°
Antenna Efficiency	> 70%

SOFTWARE SPECIFICATIONS

Network Mode	NAT, Bridge, Router, Tunnel
IP Protocol	IPv4/IPv6
SIM	PIN management, SIM lock
Network Connection	Auto or Manual
LTE Scan Mode	Full band scan, frequency lock
VPN	L2TP L2/L3, GRE L2/L3, PPTP, IPSec
NAT	Port forward/trigger, DMZ, ALG
Firewall	IP/MAC/URL filter; access control; block port scanner/SYN flood; SPI filter
Network Mgmt	TR069, SNMP
Diagnostics	TCP dump, ping, traceroute

Statistics	LTE status; connection/system up time; device status; DHCP client list; Wi-Fi station list; firewall status
Maintenance	Date and time setting; reboot; restore factory settings; restore/back up configuration file; firmware upgrade locally or OTA
System Logs	Operating; run-time; filter/ select / display / export

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40°F to 131°F / -40°C to 55°C
Storage Temperature	-40°F to 158°F / -40°C to 70°C
Operating Humidity	5% to 95%
Ingress Protection Rating	IP67

GLOBAL PART NUMBERS

EG8015G-M11	Atom Outdoor CAT15, 2T4R, 3.5 GHz, 18 dBi, B42/43/48 CPE <ul style="list-style-type: none"> FCC certification: TBD IC certification: TBD
-------------	--

Atom OD06 Outdoor High-Gain UE



INTRODUCTION

The Baicells Atom OD06 Outdoor High-Gain User Equipment (UE) provides superior wireless access performance and routing capabilities to bring broadband data and voice services to end-users. The UE operates with standardized Long-Term Evolution (LTE) Time Division Duplexing (TDD) to enable high-speed, wireless communications.

The Atom OD06 high-gain UE is designed exclusively for the fixed wireless market, featuring a spring-locked gasketed door for protecting the SIM slot and eliminating the need to weatherproof the power and Ethernet connections. Wireless and wired devices, including mobile phones, laptops, tablets, and other smart devices, can access the UE simultaneously.

The product comes with a standard one-year warranty.

FEATURES

Note: Features may vary based on model or region.

- Supports LTE TDD Bands 40/41/42/43/48
 - Customization may be requested; contact sales_na@baicells.com.
- 2.5 GHz or 3.6 GHz models
- Complies with 3GPP Release 10 Cat6/7 standards
- 1000 Mbps Ethernet interface
- GUI-based local and remote Web management
- TR069 network management protocol support

- Cell lock, SIM lock, and pin lock
- User-friendly LED status indicators
- Built-in LTE bipolar, directional, high-gain antenna
- Power supply with PoE
- Pole or wall mount
- Wi-Fi assisted alignment

BASIC SPECIFICATIONS

LTE Standard	3GPP Release 10, Cat6/7
ETH LAN Port	One RJ-45 port 10/100/1000 auto-sensing, auto-MDX, PoE
LED Indicators	LTE, SIM, LAN, PWR, LTE Signal
USIM	1.8V/3V 2FF
Restore Button	Press for 10 seconds to restore the UE to its factory settings
Power Supply	Input: Universal range 100V-240V AC Output: PoE (24VDC, 0.5A)
Dimensions (HxWxD)	9.8 x 9.8 x 3.2 inches 248 x 248 x 80 millimeters
Weight	4 lbs / 1800 g

RF SPECIFICATIONS

LTE Mode	TDD
Channel Bandwidth	5/10/15/20 MHz

Carrier Aggregation	2CC CA
MAX Output Power	23 ± 2dBm / TX Ant
Frequency Bands	40/41/42/43/48 and customized
Peak Rate (20 MHz)	DL 220 Mbps, UL 15 Mbps (2:7)
Modulation	DL: QPSK, 16QAM, 64QAM UL: QPSK, 16QAM, 64QAM
Receive Sensitivity	-94 dBm @ QPSK, 20 MHz, 25°C
Antenna Type	Internal directional, 2T4R (uplink enhanced)
Antenna Gain	14 dBi @ 3.x GHz, 4 ports 11 dBi @ 2.x GHz, 4 ports
Antenna Polarization	±45°
Antenna Efficiency	> 70%
Isolation	≤ -20dB
VSWR	≤ 2.5
Horizontal Beamwidth (3 dB)	60 ±5° @ 2.x GHz, 4 ports 25 ±5° @ 3.x GHz, 4 ports
Vertical Beamwidth (3 dB)	35 ±5° @ 2.x GHz, 4 ports 25 ±5° @ 3.x GHz, 4 ports

SOFTWARE SPECIFICATIONS

Network Mode	NAT, Bridge, Router, Tunnel
IP Protocol	IPv4/IPv6
SIM	PIN management, SIM lock
Network Connection	Auto or Manual
LTE Scan Mode	Full band scan, frequency lock
WLAN	Wi-Fi for UE alignment
VPN	L2TP L2/L3, GRE L2/L3
NAT	Port forward/trigger, DMZ, ALG
Firewall	IP/MAC/URL filter; access control; block port scanner/SYN flood; SPI filter
Network Mgmt	TR069, TR104, SNMP*
Diagnostics	TCP dump, ping, traceroute
Statistics	LTE status; connection/system up time; device status; DHCP client list; Wi-Fi station list; firewall status
Maintenance	Date and time setting; reboot; restore factory settings; restore or back up configuration file; firmware upgrade locally or OTA
System Logs	Operating; run-time; filter/ select / display / export

*Future software release

WI-FI ALIGNMENT SPECIFICATIONS

Standard	IEEE 802.11b/g/n
Channel Bandwidth	20/40 MHz
Frequency	2.4 GHz
Peak Rate	802.11b: 11 Mbps 802.11g: 54 Mbps 802.11n: 300 Mbps
Modulation	DSSS/CCK, OFDM
Receive Sensitivity	<ul style="list-style-type: none"> -64 dBm @ 65 Mbps, typical for 802.11n -65 dBm @ 54 Mbps, typical for 802.11g -76 dBm @ 11 Mbps, typical for 802.11b
Max Output Power	10 ± 3dBm
Antenna Type	Internal omni, 1T1R
Antenna Gain	0 dBi

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40°F to 131°F / -40°C to 55°C
Storage Temperature	-40°F to 158°F / -40°C to 70°C
Operating Humidity	5% to 95%
Ingress Protection Rating	IP67

GLOBAL PART NUMBERS

EG7010A-M11	Atom Outdoor Cat6, 2T4R, 3.5 GHz, 14 dBi, B42/43/48 UE <ul style="list-style-type: none"> FCC certification: 2AG32EG7010AM11N (3650-3700 MHz) IC certification: 20982-EG7010A (3650-3700 MHz)
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Notes:

- 1 - Other models available for other regions. Contact sales_na@baicells.com.
- 2 - Customized versions may be requested.



INTRODUCTION

The Baicells Nova-436Q is an advanced two-carrier outdoor eNodeB (eNB) that is compliant with 3GPP LTE TDD technology. This 4x1W eNB is capable of operating in Carrier Aggregation (CA) mode or Dual Carrier (DC) / split mode.

In CA mode, contiguous or non-contiguous channels are aggregated to provide up to 40 MHz bandwidth. This essentially doubles the downlink capacity when the CA 436Q is used with all CAT6/7 user equipment. In DC mode, each carrier is treated as an independent cell, supporting 64+64 users, and each supporting 5, 10, 15, or 20 MHz bandwidth. Using a Nova-436Q in DC mode simplifies and streamlines the deployment of split sectors.

In addition to having the option to operate Nova-436Q in either CA or DC mode, HaloB (an embedded MME option) comes as a default feature in the base software. The Baicells patented HaloB solution migrates the necessary core network functions to the eNB.

This product comes with a standard product warranty; extended warranty is available.

FEATURES

Note: Features may vary based on model or region.

- Standard LTE TDD Bands 48 and partial 42, 43
 - Customization may be requested; contact sales_na@baicells.com
- GUI-based local and remote Web management
- Suitable for private and public deployments; any IP based backhaul can be used, including public transmission protected by Internet Protocol Security (IPSec)
- Excellent non-line-of-sight (NLOS) coverage

- Aggregate peak rate: (up to) DL 220 Mbps, UL 28 Mbps with 2x20 MHz, using all Cat6/7 or higher UEs
- 64 concurrent users per carrier, 64+64 in DC mode; upgradeable to higher capacity in future releases
- Supports 4-port antenna or 2 antennas with 2 ports
- Integrated small cell form factor for quick and easy installation
- Configured out of the box to work with Baicells CloudCore
- Embedded HaloB ("lite" EPC) solution
- Supports Citizens Broadband Radio Service (CBRS)
- Plug-and-play with self-organizing network (SON) capabilities
- IoT with all standard LTE Evolved Packet Core (EPC)
- TR-069 network management interface support
- Lower power consumption, which reduces OPEX, can be powered easily by Baicells compact outdoor UPS EPB41511

HARDWARE SPECIFICATIONS

LTE Mode	TDD
Frequency Bands	48 and partial bands 42, 43
Channel Bandwidth	5/10/15/20 MHz per carrier
Max Output Power	30 dBm / port
Power Supply	+/- 48VDC, AC adaptor (multi-national standards)
Power Consumption	Typical 60W, peak 100W
Receive Sensitivity	-100 dBm
Synchronization	GPS

Interfaces	1 optical (SFP) and 1 RJ-45 Ethernet interface (1 GE)
MIMO	DL: 2x2 on each carrier
Installation	Pole or wall mount
Antenna	eNB has N-Type connectors and supports external high-gain antenna(s), either (2) 2-port antennas or (1) 4-port antenna
Dimensions (HxWxD)	12.2 x 9.4 x 4.1 inches 310 x 239 x 105 millimeters
Weight	12.1 lbs / 5.5 kgs
MTBF	≥ 150000 hours
MTTR	≤ 1 hour

SOFTWARE SPECIFICATIONS

LTE Standard	3GPP Release 15		
Peak Rate (up to) in DC mode	2x20 MHz:	<u>DL (Mbps)</u>	<u>UL (Mbps)</u>
SA - Subframe Assignment (configurable parameter) SA1: config. 1(DSUUD) SA2: config. 2(DSUDD)	SA1 :	2x80	2x28
	SA2 :	2x110	2x14
	2x10 MHz:	<u>DL (Mbps)</u>	<u>UL (Mbps)</u>
	SA1 :	2x40	2x14
Peak Rate (up to) in CA mode Rates based on using all Cat6/7 or higher UEs	SA2 :	2x55	2x7
	2x20 MHz:	<u>DL (Mbps)</u>	<u>UL (Mbps)</u>
	SA1 :	160	28
	SA2 :	220	14
	2x10 MHz:	<u>DL (Mbps)</u>	<u>UL (Mbps)</u>
	SA1 :	80	14
	SA2 :	110	7
User Capacity	64 concurrent users in single carrier mode 64+64 concurrent users in DC mode 64 concurrent users in CA mode Future software release: 96		
QoS Control	3GPP standard Quality of Service Class Identifier (QCI)		
Modulation	DL: QPSK, 16QAM, 64QAM, and future software release 256QAM UL: QPSK, 16QAM, 64QAM		
Traffic Offload	Local breakout		

Voice	VoLTE (future software release)
SON	Self-organizing network: <ul style="list-style-type: none"> • Automatic setup • Automatic Neighbor Relation (ANR) • PCI conflict detection
RAN Sharing	Multi-Operator Core Network (MOCN)
Network Mgmt	TR-069
Maintenance	<ul style="list-style-type: none"> • Local/Remote Web maintenance • Online status management • Performance statistics • Fault management • Local/Remote software upgrade • Logging • Connectivity diagnosis • Automatic start and configuration • Alarm reporting • User information tracing • Signaling Trace

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40°F to 131°F / -40°C to 55°C
Storage Temperature	-49°F to 158°F / -45°C to 70°C
Humidity	5% to 95% RH
Atmospheric Pressure	70 kPa to 106 kPa
Ingress Protection Rating	IP66
Power Interface Lightning Protection	Differential mode: ±10 KA Common mode: ±20 KA

GLOBAL PART NUMBER

mBS31001-CA	Nova-436Q outdoor TDD eNodeB - LTE Release 13, 4x1W (30 dBm), 4 port, 3.5 GHz (3550-3700 MHz), B42/43/48. Includes Carrier Aggregation. <ul style="list-style-type: none"> • FCC certification: 2AG32MBS3100196N • IC certification: 20982-MBS31001
mBS31001-DC	Nova-436Q outdoor TDD eNodeB - LTE Release 13, 4x1W (30 dBm), 4 port, 3.5 GHz (3550-3700 MHz), B42/43/48. Includes Dual Carrier (Split Mode). <ul style="list-style-type: none"> • FCC certification: 2AG32MBS3100196N • IC certification: 20982-MBS31001

Note: Customized versions may be requested.



INTRODUCTION

The Baicells Simple Network Access Point (SNAP) Power over Ethernet (PoE) router is an on-premise Wi-Fi access point that provides comprehensive routing capabilities to multiple users accessing the Internet through Baicells outdoor user equipment (UE). The router provides PoE power to an outdoor UE through the Ethernet connection, thus eliminating the need for a separate power connection and adaptor for the UE.

Wi-Fi signals from user devices such as mobile phones, laptops, and tablets pass through the SNAP router and are forwarded to the outdoor UE where the Wi-Fi signals are changed to Long-Term Evolution (LTE) signals and sent on to the high-speed LTE network.

The SNAP router supports 2.4 GHz and 5 GHz Wi-Fi, may be used with the Atom Outdoor Low-Gain or Atom Outdoor High-Gain UE, and is managed through a device GUI and the Baicells Operations Management Console (OMC). The product comes with a standard one-year warranty; extended warranty is available.

FEATURES

Note: Features may vary based on model or region.

- 1000 Mbps WAN with PoE output
- 1000 Mbps LAN port

- Standard IEEE 802.11b/g/n/ac Wi-Fi operating in dual-band 2.4 GHz and 5 GHz mode
- Local and remote management
- TR-069 network management protocol supported
- User-friendly LED status Indicators

BASIC SPECIFICATIONS

WAN Port	1*10/100/1000 auto-sensing, auto-MDX
LAN Port	2*10/100/1000 auto-sensing, auto-MDX
Power Supply	Input: Universal range 100V-240V AC PoE Output: 24V DC PoE, 2A
Power Switch	On/Off
Reset Button	Press for 10 seconds to restore the router to its factory settings
LEDs	Power/WLAN/SYS/LTE Signal
Dimensions H/W/D	6.9 x 5 x 1 inches 175 x 130 x 30 millimeters
Weight	17.6 ounces / 500 grams

Wi-Fi SPECIFICATIONS

Standard	IEEE 802.11b/g/n/ac
Channel Bandwidth	20 MHz, 40 or 20 MHz, 40 MHz, 80 MHz
Frequency	2.4 GHz and 5 GHz dual-band support
MIMO	2x2
Peak Rate	802.11b: 11 Mbps 802.11g: 54 Mbps 802.11n: 300 Mbps 802.11ac: 866 Mbps
Modulation	DSSS/CCK, OFDM
Sensitivity	<ul style="list-style-type: none"> -64 dBm @ 65 Mbps, typical for 802.11n/ac -65 dBm @ 54 Mbps, typical for 802.11g -76 dBm @ 11 Mbps, typical for 802.11b
Max Output Power	14±3 dBm
Antenna Type	Internal omni, 2T2R
Antenna Gain	5 dBi
Active Users	32

SOFTWARE SPECIFICATIONS

Network Mode	NAT or Bridge
IP Protocol	IPv4/IPv6
SIM	PIN management, SIM lock
Network Connection	Auto or Manual
LTE Scan Mode	Full band scan, frequency lock, PCI lock
WLAN	WPS, MSSID isolation
VPN	L2TP/PPTP/GRE, VxLAN
NAT	Port forwarding, DMZ, ALG
Firewall	IP/MAC/URL filter, access control, block port scanner, SYN flood
Network Mgmt	TR069
Diagnostics	iPerf, ping, traceroute

Statistics	<ul style="list-style-type: none"> LTE status Connection, system up time Device status DHCP client list Wi-Fi station list
Maintenance	<ul style="list-style-type: none"> Date and time setting Reboot Restore factory settings Restore/back up config files Firmware upgrade locally or OTA
System Logs	Operating, run-time, filter / select / display / export
Antenna Selection	N/A

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	14°F to 113°F / -10°C to 45°C
Storage Temperature	-4°F to 158°F / -20°C to 70°C
Operating Humidity	5% to 95%

GLOBAL PART NUMBER

EP3011	PoE Wi-Fi Router - IEEE 802.11b/g/n/ac Wi-Fi, 2.4/5 GHz dual-band with PoE output <ul style="list-style-type: none"> FCC certification: 2AG32EP3011 IC certification: 20982-EP3011
1103000242	Part Number (US)

Notes:

1 - Other models available for other regions. Contact sales_na@baicells.com.

2 - Customized versions may be requested.



TECHNICAL DATA SHEET

Hybrid Cables for RRH applications

Kabelwerk

EUPEN AG

Rev.: 01/2020-04-11

cable

1/2

EUCAHYBRID 58-12C2.5-24SM

PRODUCT DESCRIPTION

6 pairs copper

12 pairs fiber



5/8" hybrid fiber optic cable with copper feed lines in a corrugated aluminum shielding with UV resistant PE jacket.

TECHNICAL FEATURES

CONSTRUCTION

Copper feed lines

• Quantity	12 (6 pairs red & black)
• Conductor material	electrolytic copper
• Section	2.5 mm ²
• Diameter	2.9 mm
• Insulation material	PVC

Fiber Opticcable

• Quantity	1
• Fibers quantity	24
• Fiber type	Single Mode
• Fiber size	9/125/900 µm
• Reinforcement	Aramide fiber
• Diameter	7.9 mm

Ripcord

• Quantity	1
• Material	Steel Wire
• Diameter	0.8 mm

Outershield

• Material	Corrugated aluminum tube
• Diameter	19.7 mm

Jacket

• Material	Black Polyethylene
• Thickness	1.1 mm
• Diameter	21.9 mm



TECHNICAL DATA SHEET

Hybrid Cables for RRH applications

Kabelwerk

EUPEN AG

Rev.: 01/2020-04-11

cable

2/2

EUCAHYBRID 58-12C2.5-24SM

Eucahybrid 58-12C1.5-24SM

ISO
Certified
Company

Kabelwerk Eupen aG - Malmédier Straße 9 - 4700 Eupen - Belgium

Tel.: +32(0) 87.59.70.00 - Fax : +32(0) 87.59.71.00 - <http://www.eupen.com> - e-mail: info@eupen.com

PRELIMINARY



TECHNICAL DATA SHEET

Hybrid Cables for RRH applications

Kabelwerk

EUPEN AG

Rev.: 01/2020-04-11

cable

3/2

EUCAHYBRID 58-12C2.5-24SM

MECHANICAL

• Minimum bending radius	200 mm
• Maximum pulling strength	70 daN
• Recommended temperature range	
Storage	-25 °C - +70 °C
Installation	-5 °C - +50 °C
Operation	-25 °C - +70 °C
• Maximum Hanger spacing	1.0 m

ELECTRICAL

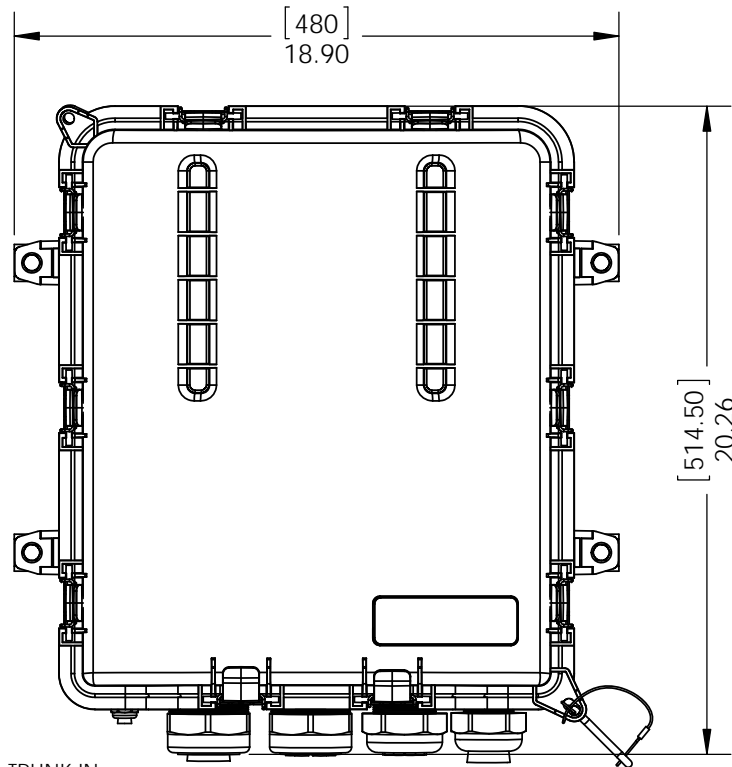
• Main conductors	
Resistance	8.5 Ohm/km at 20° C
Maximum DC current	18.0 A at 20 °C

OPTICAL

SM

• Fiber type	single mode G657A1
• Fiber wave length	1310 & 1550 nm
• Max attenuation	
	1310 nm: ≤0,40 dB/km
	1550 nm: ≤0,25 dB/km
• Core diameter	9 µm
• Cladding diameter	125 µm
• Coating diameter	250 µm
• Tight buffer fiber diameter	900 µm

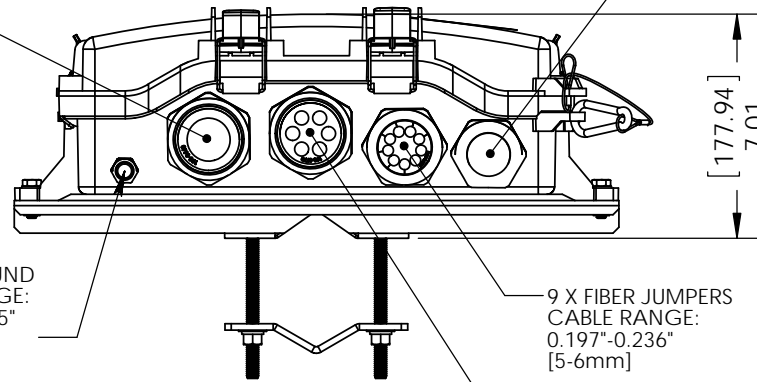
DWG NO.	REV	CHANGE	REASON FOR CHANGE
CR 100-1280	C2		Updated gland placement



HYBRID TRUNK IN
CABLE RANGE
1.496" - 1.732"
[38-44mm]

SHIPS W/ OPTIONAL
33mm INSERT (SHOWN INSTALLED)

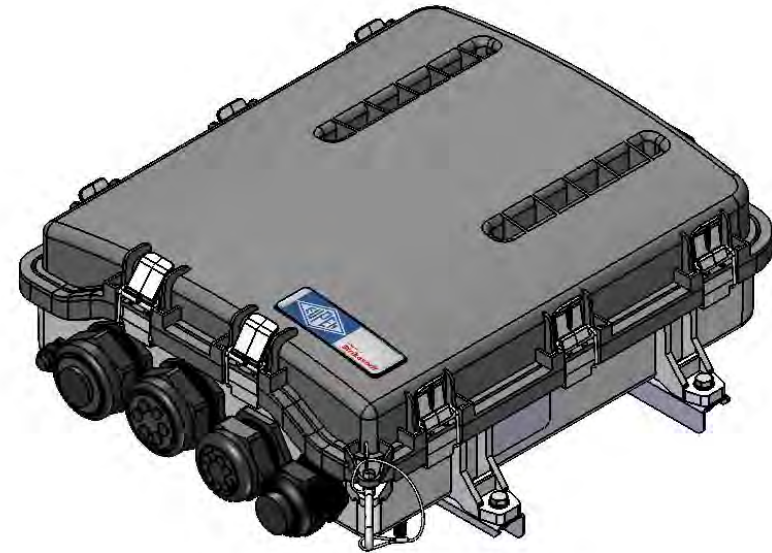
HYBRID TRUNK IN
CABLE RANGE
.87"-1.26"
[22-32MM]




MAIN GROUND
CABLE RANGE:
0.157" - 0.315"
[4-8mm]

9 X FIBER JUMPERS
CABLE RANGE:
0.197"-0.236"
[5-6mm]

6 X DC JUMPERS TO RRH
CABLE RANGE:
0.654"-0.433"
[9-11mm]



NOTES:
Fiber and power distribution for 3-6 RRH with 3
Strikesorb surge/lightning protection module-sets
[shared sector protection]; I/O 2 hybrid trunks:
6 power jumpers, 9 fiber jumpers;
incl. pole/wall mount kit and cable glands.

TOLERANCES		PH: 208-777-1166			
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		FAX 208-777-4466			
inches [mm]		800-890-2569			
.0 ±0.02 [.5]		<div>This drawing contains proprietary and confidential information of Raycap, Inc. and must be used strictly in accordance with the limited purpose for which it was submitted. Any reproduction, disclosure, or use of this drawing is expressly prohibited except as Raycap, Inc. may otherwise agree in writing.</div>		REKDC-9234-PF-48	
.00 ±0.010 [.3]					
.000 ±0.005 [.1]					
ANGLES ±.5					
ALL BENDING TOLERANCES TO BE ±1.0°		DATE	NAME	<div>DWG. NO. CR 100-1280</div> <div>REV. C2</div>	
		DRAWN BY:	B. Chamberlin		
		CHECKED BY:			
		ENG:			
		MFG. ENG:			
		SCALE : NOT TO SCALE		SHEET 1 OF 3	

REKDC-9234-PF-48

DWG NO.	REV	CHANGE	REASON FOR CHANGE
CR 100-1280	C2		Updated gland placement

3 X STRIKESORB
MODULES

5 X BEND PROTECTORS
1.18" [30mm]

WIRING LUGS
2/0-14AWG
SEE DETAIL

18 X FIBER COUPLERS

A

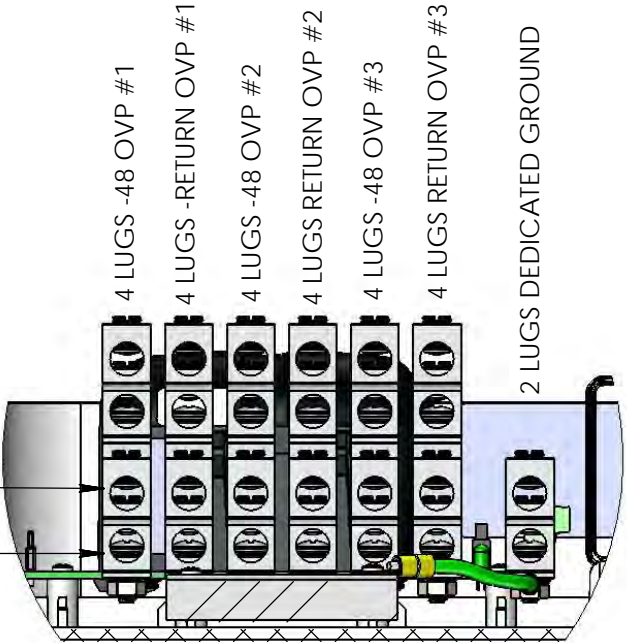
A

GROUND STRIP FOR
SHIELD AND DRAIN WIRES
4-14AWG

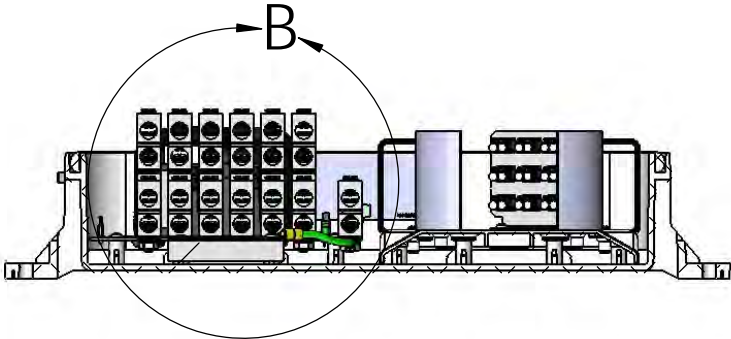
DEDICATED GROUND
2/0-14AWG


LUG WIRING DETAILS

RRH 4,5,6
RRH 1,2,3
POWER TRUNK #2
POWER TRUNK #1



DETAIL B
SCALE 2 : 5

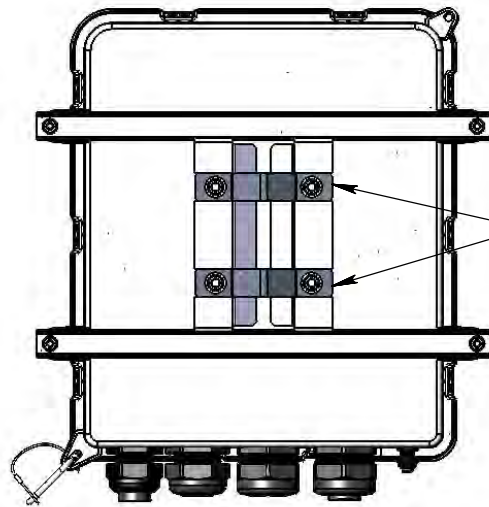


TOLERANCES		PH: 208-777-1166			
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		FAX 208-777-4466			
inches [mm]		800-890-2569			
.0 ±0.02 [.5]		<div>This drawing contains proprietary and confidential information of Raycap, Inc. and must be used strictly in accordance with the limited purpose for which it was submitted. Any reproduction, disclosure, or use of this drawing is expressly prohibited except as Raycap, Inc. may otherwise agree in writing.</div> <div>REKDC-9234-PF-48</div>			
.00 ±0.010 [.3]					
.000 ±0.005 [.1]					
ANGLES ±.5		DATE		NAME	
ALL BENDING TOLERANCES TO BE ±1.0°		DRAWN BY:		B. Chamberlin	
		CHECKED BY:			
		ENG:			
		MFG. ENG:		DWG. NO. CR 100-1280	
				REV. C2	
				SCALE : NOT TO SCALE	
				SHEET 2 OF 3	

REKDC-9234-PF-48

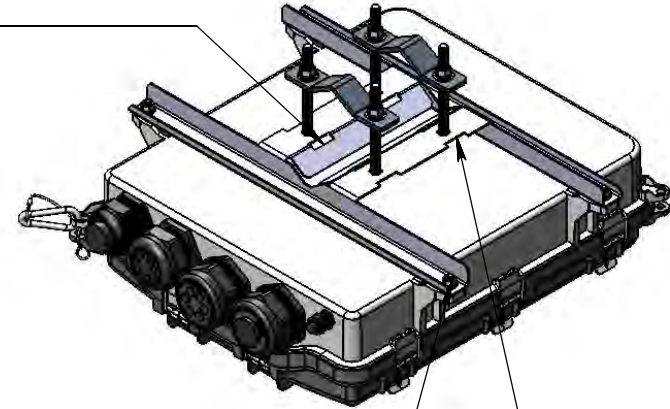
DWG NO.	REV	CHANGE	REASON FOR CHANGE
CR 100-1280	C2		Updated gland placement

POLE MOUNT BRACKET INCLUDED



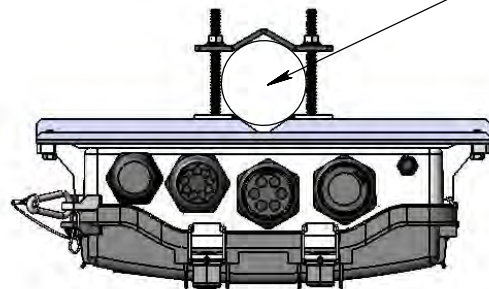
V-CLAMP BRACKET
FOR MOUNTING TO POLE

INNER SLOTS FOR BANDING TO
1 3/8" - 4" POLE



REMOVE BRACKET AND
USE ENCLOSURE MOUNTS
FOR H-FRAME OR WALL
MOUNT

3.5" MAX POLE DIAMETER
FOR V-CLAMP MOUNTING



OUTER SLOTS FOR BANDING TO
LARGER OBJECTS LIKE A
MONOPOLE

TOLERANCES		PH: 208-777-1166		<div>Raycap</div>	
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		FAX 208-777-4466			
inches [mm]		800-890-2569			
.0 ±0.02 [.5]		<div>This drawing contains proprietary and confidential information of Raycap, Inc. and must be used strictly in accordance with the limited purpose for which it was submitted. Any reproduction, disclosure, or use of this drawing is expressly prohibited except as Raycap, Inc. may otherwise agree in writing.</div>		REKDC-9234-PF-48	
.00 ±0.010 [.3]					
.000 ±0.005 [.1]					
ANGLES ±.5					
ALL BENDING TOLERANCES TO BE ±1.0°		DATE		REV	
		NAME		C2	
DRAWN BY:		B. Chamberlin		DWG. NO. CR 100-1280	
CHECKED BY:					
ENG:					
MFG. ENG:					
SCALE : NOT TO SCALE				SHEET 3 OF 3	

Hardware Overview

Ports

The EdgeRouter Infinity features eight SFP+ ports for fiber connectivity and an RJ45 port for copper connectivity. A serial console port is available for CLI management (also accessible through the browser-based interface).

- (8) 10G SFP+ Ports
- (1) RJ45 Gigabit Ethernet Port
- (1) RJ45 Serial Console Port

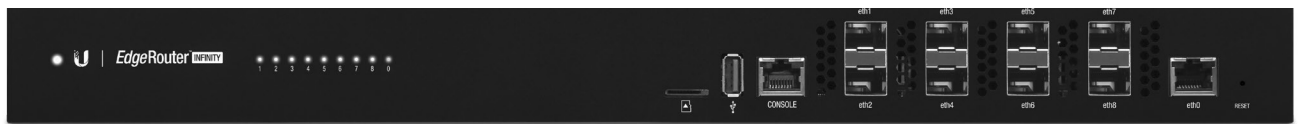
Power Options

The EdgeRouter Infinity includes two AC/DC 100W power supplies.

If it detects failure of the primary PSU, then the backup automatically activates to supply uninterrupted power.

The AC/DC module is also sold separately as model RPS-AC-100W.

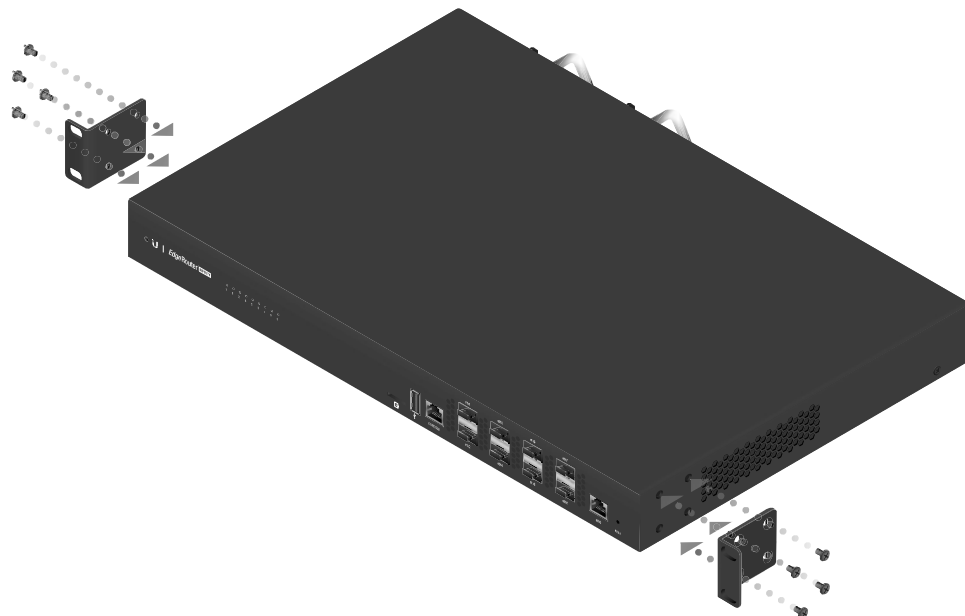
You also have the option to use a DC/DC PowerModule™, model RPS-DC-100W (sold separately):



ER-8-XG Front Panel



ER-8-XG Back Panel



Attaching Rack-Mount Brackets to the EdgeRouter Infinity

Hardware Specifications

ER-8-XG	
Dimensions	442.4 x 285.6 x 43.7 mm (17.42 x 11.24 x 1.72")
Weight	
Without Mount	4.950 kg (10.91 lb)
With Mount	5.045 kg (11.12 lb)
Enclosure Characteristics	SGCC Steel
Max. Power Consumption	100W
Power Method	Hot-Swappable AC/DC or DC/DC* Power Supply Module
Supported Voltage Range	
AC/DC Power Supply Module	100 to 240VAC, 24VDC Output
DC/DC Power Supply Module	38 to 54VDC, 24VDC Output
Button	Reset
LEDs	
System	Status
SFP+ Data Ports	Link/Activity
RJ45 Data Port	Link/Activity
Ports	
Serial Console Port	(1) RJ45 Serial Port
Data Ports	(8) SFP+ Ports (1) RJ45 Gigabit Ethernet Port
Layer 3 Forwarding Performance	
Packet Size: 64 Bytes	18,000,000 pps
Packet Size: 1514 Bytes	80 Gbps (Line Rate)
Processor	MIPS64 16 Core 1.8 GHz with Hardware Acceleration for Packet Processing
System Memory	16 GB DDR4 RAM
On-Board Flash Storage	8 MB NOR Flash 4 GB eMMC NAND Flash
Certifications	CE, FCC, IC
Rackmount	Yes, 1U
ESD/EMP Protection	Air: ± 24 kV, Contact: ± 24 kV
Operating Temperature	-5 to 40° C (23 to 104° F)
Operating Humidity	5 - 95% Noncondensing

* DC/DC power supply module not included.





Router Software Specifications

EdgeOS	
Interface/Encapsulation	Ethernet 802.1q VLAN PPPoE GRE IP in IP Bridging Bonding (802.3ad)
Addressing	Static IPv4/IPv6 Addressing DHCP/DHCPv6
Routing	Static Routes OSPF/OSPFv3 RIP/RIPng BGP (with IPv6 Support) IGMP Proxy MPLS
Security	ACL-Based Firewall Zone-Based Firewall Application Identification with Deep Packet Inspection (DPI) NAT
VPN	IPSec Site-to-Site and Remote Access OpenVPN Site-to-Site and Remote Access PPTP Remote Access L2TP Remote Access PPTP Client
Services	DHCP/DHCPv6 Server DHCP/DHCPv6 Relay Dynamic DNS DNS Forwarding VRRP RADIUS Client Web Caching PPPoE Server
QoS	FIFO Stochastic Fairness Queueing Random Early Detection Token Bucket Filter Deficit Round Robin Hierarchical Token Bucket Ingress Policing
Management	Web UI Ubiquiti Network Management System (UNMS) CLI (GUI, Console, SSH, Telnet) SNMP NetFlow LLDP NTP UBNT Discovery Protocol Syslog

Specifications are subject to change. Ubiquiti products are sold with a limited warranty described at: www.ubnt.com/support/warranty
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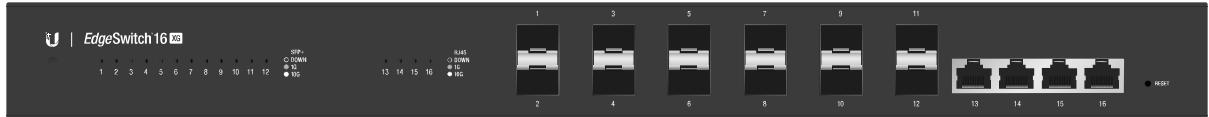


Model

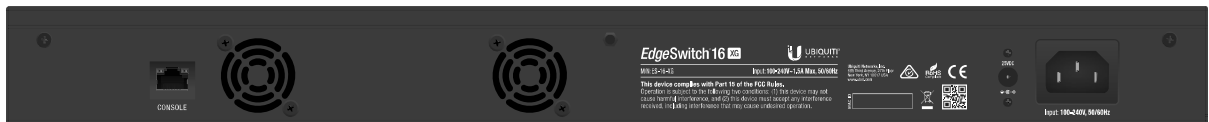
EdgeSwitch 16 XG

Model: ES-16-XG

- (12) SFP+ Ports
- (4) 10G RJ45 Ports
- (1) RJ45 Serial Console Port
- Non-Blocking Throughput: 160 Gbps
- Switching Capacity: 320 Gbps
- Forwarding Rate: 238.10 Mpps
- Rack Mountable with Rack-Mount Brackets (Included)
- DC Input Option (Redundant or Stand-Alone)



Front Panel



Back Panel



Attaching Rack-Mount Brackets to the EdgeSwitch XG

EdgeSwitch® 16 XG

Hardware Specifications

ES-16-XG		
Dimensions	443 x 221 x 43 mm (17.44 x 8.70 x 1.69")	
Weight	Rack-Mount Brackets Included	Rack-Mount Brackets Excluded
	2.71 kg (5.97 lb)	2.62 kg (5.78 lb)
Enclosure Characteristics	SGCC Steel	
Total Non-Blocking Throughput	160 Gbps	
Switching Capacity	320 Gbps	
Forwarding Rate	238.10 Mpps	
Max. DC Power Consumption	36W (Excludes SFP/SFP+ Modules)	
Power Method	AC	DC
	100-240VAC/50-60 Hz, Universal Input	DC 56W, 25 to 16V, with 2.5 mm DC Power Inline Connector
Supported Voltage Range	100 to 240VAC	25 to 16VDC
Power Supply	AC/DC, Internal, 56W DC	
LEDs Per Data Port	Speed/Link/Activity	
Networking Interfaces	(12) 1/10 Gbps SFP+ Ethernet Ports (4) 1/10 Gbps RJ45 Ethernet Ports	
Management Interface	(1) RJ45 Serial Port, Ethernet In/Out Band	
Rackmount	Yes, 1U High	
ESD/EMP Protection	Air: ± 24 kV, Contact: ± 24 kV	
Shock and Vibration	ETSI300-019-1.4 Standard	
Operating Temperature	-5 to 40° C (23 to 104° F)	
Operating Humidity	5 to 95% Noncondensing	
Certifications	CE, FCC, IC	



Software Specifications

The following specifications have been updated with firmware version 1.8.0.
We recommend that you update the EdgeSwitch to the latest firmware.

Software Information	
Core Switching Features	<ul style="list-style-type: none">• ANSI/TIA-1057: LLDP-Media Endpoint Discovery (MED)• IEEE 802.1AB: Link Layer Discovery Protocol (LLDP)• IEEE 802.1D: Spanning Tree Compatibility• IEEE 802.1S: Multiple Spanning Tree Compatibility• IEEE 802.1W: Rapid Spanning Tree Compatibility• IEEE 802.1Q: Virtual LANs with Port-Based VLANs• IEEE 802.1p: Ethernet Priority with User Provisioning and Mapping• IEEE 802.1X: Port-Based Authentication with Guest VLAN Support• IEEE 802.3ab: 1000BASE-T• IEEE 802.3an-2006: 10GBASE-T• IEEE 802.1ak: Virtual Bridged Local Area Networks - Amendment 07: Multiple Registration Protocol• IEEE 802.3ac: VLAN Tagging• IEEE 802.3ad: Link Aggregation• IEEE 802.3x: Flow Control• IEEE 802.1D-2004: Generic Attribute Registration Protocol: Clause 12 (GARP)• IEEE 802.1D-2004: Dynamic L2 multicast registration: Clause 10 (GMRP)• IEEE 802.1Q-2003: Dynamic VLAN registration: Clause 11.2 (GVRP)• RFC 4541: Considerations for Internet Group Management Protocol (IGMP) Snooping Switches
Advanced Layer 2 Features	<ul style="list-style-type: none">• Broadcast Storm Recovery• Broadcast/Multicast/Unknown Unicast Storm Recovery• DHCP Snooping• IGMP Snooping Querier• Independent VLAN Learning (IVL) Support• Jumbo Ethernet Frame Support• Port MAC Locking• Port Mirroring• Protected Ports• Static MAC Filtering• TACACS+• Voice VLANs• Unauthenticated VLAN• Internal 802.1X Authentication Server

Software Information	
Platform Specifications	<ul style="list-style-type: none"> • DHCP Server <ul style="list-style-type: none"> • Maximum Number of Pools: 128 • Maximum Number of Leases (Total): 2048 • Routing <ul style="list-style-type: none"> • Number of Routes: 16 • Number of Routing Interfaces: 15 • VLANs: 4093 • MAC Addresses: 16,384 • MSTP Instances: 4 • LAGs: 32 • ACLs: 100 with 10 Rules per Port • Traffic Classes (Queues): 8
System Facilities	<ul style="list-style-type: none"> • Event and Error Logging Facility • Run-Time and Configuration Download Capability • PING Utility • FTP/TFTP Transfers via IPv4/IPv6 • Malicious Code Detection • BootP and DHCP • RFC 2021: Remote Network Monitoring Management Information Base Version 2 • RFC 2030: Simple Network Time Protocol (SNTP) • RFC 2819: Remote Network Monitoring Management Information Base • RFC 2865: RADIUS Client • RFC 2866: RADIUS Accounting • RFC 2868: RADIUS Attributes for Tunnel Protocol Support • RFC 2869: RADIUS Extensions • RFC 3579: RADIUS Support for EAP • RFC 3580: IEEE 802.1X RADIUS Usage Guidelines • RFC 3164: BSD Syslog Protocol
Management	<ul style="list-style-type: none"> • Web UI • Industry-Standard CLI • IPv6 Management • Password Management • Autoinstall Support for Firmware Images and Configuration Files • SNMP v1, v2, and v3 • SSH 1.5 and 2.0 • SSL 3.0 and TLS 1.0 • Telnet (Multi-Session Support)
Layer 3 Routing	<ul style="list-style-type: none"> • Static Routing

Software Information

QoS	<ul style="list-style-type: none"> • Access Control Lists (ACLs), Permit/Deny Actions for Inbound IP and Layer 2 Traffic Classification Based on: <ul style="list-style-type: none"> • Time-Based ACL • Source/Destination IP Address • TCP/UDP Source/Destination Port • IP Protocol Type • Type of Service (ToS) or Differentiated Services (DSCP) Field • Source/Destination MAC Address • EtherType • IEEE 802.1p User Priority • VLAN ID • RFC 1858: Security Considerations for IP Fragment Filtering • Optional ACL Rule Attributes <ul style="list-style-type: none"> • Assign Flow to a Specific Class of Service (CoS) Queue • Redirect Matching Traffic Flows • Differentiated Services (DiffServ) <ul style="list-style-type: none"> • Classify Traffic Based on Same Criteria as ACLs • Mark the IP DSCP or Precedence Header Fields, Optional • Police the Flow to a Specific Rate with Two-Color Aware Support • RFC 2474: Definition of the Differentiated Services Field (DS field) in the IPv4 and IPv6 Headers • RFC 2475: An Architecture for Differentiated Services • RFC 2597: Assured Forwarding Per-Hop Behavior (PHB) Group • RFC 3246: An Expedited Forwarding PHB • RFC 3260: New Terminology and Clarifications for DiffServ • Class of Service (CoS) Queue Mapping Configuration <ul style="list-style-type: none"> • AutoVoIP: Automatic CoS Settings for VoIP • IP DSCP-to-Queue Mapping • Configurable Interface Trust Mode (IEEE 802.1p, DSCP, or Untrusted) • Interface Egress Shaping Rate • Strict Priority versus Weighted Scheduling per Queue
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Preseem 5000 B



1U x86 Rackmount Network Appliance powered by Intel's 7th Gen Core Processors

Capacity – 5 Gbit/s aggregate

Management Interfaces

- Redundant GbE RJ-45

Data Interfaces

- Model 5000B
- 4 x GbE RJ-45 (both pairs with electrical bypass)
- 2 x GbE SFP
- 4 x SFP+

EdgePoint™

Hardware Specifications

EP-R6	
Dimensions	188.6 x 177.1 x 49.8 mm (7.43 x 6.97 x 1.96")
Weight	605 g (1.33 lb)
Enclosure Characteristics	Polycarbonate with UV Resistance
Max. Power Consumption	7W (Excludes PoE Output)
Power Input	(1) DC Terminal Block or (1) RJ45 (eth0) (Self-Correcting Polarity Protection on DC Terminal Block Only, Diode ORed Protection on All Power Inputs)
Power Supply	Min. 24V / 0.3A (Excludes PoE Output Power)
VDC Input	24V, 3A
Passive PoE Input	(1) 24V / 1.4A, 4-Pair (+1, 2, 4, 5; -3, 6, 7, 8) Passive PoE, eth0 (Do NOT Configure eth0 in PoE Output Mode if You Are Using a PoE Input Power Source.)
Passive PoE Output	(5) 24V / 0.7A, 2-Pair (+4, 5; -7, 8) Passive PoE, eth0 to eth4
Power Monitoring	(1) DC Terminal Block, Input Power (1) RJ45, eth0, Input Power
Supported Voltage Range	26 to 16VDC
Button	Reset
LEDs	
System	Power
eth0 to eth4	Speed/Link/Activity, PoE
eth5/SFP	Speed/Link/Activity
Ports	
Data Ports	(5) 10/100/1000 RJ45 Ports (1) 1 Gbps SFP Port
Processor	Dual-Core 880 MHz, MIPS1004Kc
System Memory	256 MB DDR3-1600 RAM
Code Storage	256 MB NAND
Certifications	CE, FCC, IC
Pole Mount	Yes
Wind Loading	46 N @ 200 km/h (10.34 lbf @ 125 mph)
Wind Survivability	200 km/h (125 mph)
Operating Temperature	-40 to 65° C (-40 to 149° F)
Operating Humidity	10 to 90% Noncondensing

Hardware Specifications

EP-R8	
Dimensions	326.6 x 382.7 x 88.8 mm (12.86 x 15.07 x 3.50")
With Wall-Mount	326.6 x 382.7 x 105.5 mm (12.86 x 15.07 x 4.15")
Weight	3.4 kg (7.50 lb)
With Wall-Mount	3.8 kg (8.38 lb)
Enclosure Characteristics	Diecast Aluminum Alloy and Polycarbonate with UV Resistance
Max. Power Consumption	40W (Excludes PoE Output)
Power Input	(1) DC Terminal Block or (2) RJ45 (PoE In and eth0) (Self-Correcting Polarity Protection on DC Terminal Block Only, Diode ORed Protection on All Power Inputs)
Power Supply	Min. 54V / 0.8A (Excludes PoE Output Power)
VDC Input	54VDC, 6A
Passive PoE Input	(2) 54V / 1.5A, 4-Pair (+1, 2, 4, 5; -3, 6, 7, 8) Passive PoE, eth0 and PoE In (PoE In is DC Only, No Data)
Passive PoE Output	(2) 54V or 24V / 1.4A, 4-Pair (+1, 2, 4, 5; -3, 6, 7, 8) Passive PoE, eth1 to eth2 (5) 24V / 0.7A, 2-Pair (+4, 5; -7, 8) Passive PoE, eth3 to eth7
Power Monitoring	(1) DC Terminal Block, Input Power (2) RJ45, PoE In and eth0, Input Power
Supported Voltage Range	56 to 42VDC
Button	Reset
LEDs	
System	Power
eth0	Speed/Link/Activity
eth1 to eth7	Speed/Link/Activity, PoE
SFP	Speed/Link/Activity
Ports	
Serial Console Port	(1) RJ45 Serial Port
PoE In Port	(1) RJ45 Port
Data Ports	(6) 10/100/1000 RJ45 Ports (2) 10/100/1000 RJ45/SFP Combination Ports
Processor	Dual-Core 600 MHz, MIPS64 with Hardware Acceleration for Packet Processing
System Memory	2 GB DDR3-1600 RAM
Code Storage	4 GB
Certifications	CE, FCC, IC
Pole/Wall Mount	Yes
Wind Loading	153 N @ 200 km/h (34 lbf @ 125 mph)
Wind Survivability	200 km/h (125 mph)
Operating Temperature	-40 to 65° C (-40 to 149° F)
Operating Humidity	10 to 90% Noncondensing



Router Software Specifications

EdgeOS	
Interface/Encapsulation	Ethernet 802.1q VLAN PPPoE GRE IP in IP Bridging Bonding (802.3ad)
Addressing	Static IPv4/IPv6 Addressing DHCP/DHCPv6
Routing	Static Routes OSPF/OSPFv3 RIP/RIPng BGP (with IPv6 Support) IGMP Proxy
Security	ACL-Based Firewall Zone-Based Firewall Application Identification with Deep Packet Inspection (DPI) NAT
VPN	IPSec Site-to-Site and Remote Access OpenVPN Site-to-Site and Remote Access PPTP Remote Access L2TP Remote Access PPTP Client
Services	DHCP/DHCPv6 Server DHCP/DHCPv6 Relay Dynamic DNS DNS Forwarding VRRP RADIUS Client Web Caching PPPoE Server
QoS	FIFO Stochastic Fairness Queueing Random Early Detection Token Bucket Filter Deficit Round Robin Hierarchical Token Bucket Ingress Policing
Management	Web UI CLI (Console, SSH, Telnet) SNMP NetFlow LLDP NTP UBNT Discovery Protocol Logging

Hardware Specifications

EP-S16	
Dimensions	326.6 x 382.7 x 88.8 mm (12.86 x 15.07 x 3.50")
With Wall-Mount	326.6 x 382.7 x 105.5 mm (12.86 x 15.07 x 4.15")
Weight	3.4 kg (7.50 lb)
With Wall-Mount	3.8 kg (8.38 lb)
Enclosure Characteristics	Diecast Aluminum Alloy and Polycarbonate with UV Resistance
Non-Blocking Throughput	36 Gbps
Switching Capacity	72 Gbps
Forwarding Rate	53.57 Mpps
Max. Power Consumption	40W (Excludes PoE Output)
Power Input	(1) DC Terminal Block or (2) RJ45 (Ports 1 and 2) (Self-Correcting Polarity Protection on DC Terminal Block Only, Diode ORed Protection on All Power Inputs)
Power Supply	Min. 54V / 0.8A (Excludes PoE Output Power)
VDC Input	54VDC, 6A
Passive PoE Input	(2) 54V/1.5A, 4-Pair (+1, 2, 4, 5; -3, 6, 7, 8) Passive PoE, Ports 1 and 2 (Do NOT Configure Port 1 or 2 in PoE Output Mode if You Are Using PoE Input Power Sources.)
Passive PoE Output	(4) 54V or 24V /1.4A, 4-Pair (+1, 2, 4, 5; -3, 6, 7, 8) Passive PoE, Ports 1 to 4 (12) 802.3af/at or 24V/0.7A, 2-Pair (+4, 5; -7, 8) Passive PoE, Ports 5 to 16
Power Monitoring	(1) DC Terminal Block, Input Power (2) RJ45, Ports 1 and 2, PoE Input or Output Power (14) RJ45, Ports 3 to 16, PoE Output Power
Supported Voltage Range	56 to 42VDC
Button	Reset
LEDs	
System	Power
1 to 16	Speed/Link/Activity, PoE
SFP	Speed/Link/Activity
Ports	
Serial Console Port	(1) RJ45 Serial Port
Data Ports	(16) 10/100/1000 RJ45 Ports (2) 1/10 Gbps SFP+ Ports
Processor	ARM Cortex-A9 400 MHz
System Memory	256 MB DDR3 RAM
Code Storage	32 MB
Certifications	CE, FCC, IC
Pole/Wall Mount	Yes
Wind Loading	153 N @ 200 km/h (34 lbf @ 125 mph)
Wind Survivability	200 km/h (125 mph)
Operating Temperature	-40 to 65° C (-40 to 149° F)
Operating Humidity	10 to 90% Noncondensing

Switch Software Specifications

Software Information	
Core Switching Features	<ul style="list-style-type: none"> • ANSI/TIA-1057: LLDP-Media Endpoint Discovery (MED) • IEEE 802.1AB: Link Layer Discovery Protocol (LLDP) • IEEE 802.1D: Spanning Tree Compatibility • IEEE 802.1S: Multiple Spanning Tree Compatibility • IEEE 802.1W: Rapid Spanning Tree Compatibility • IEEE 802.1Q: Virtual LANs with Port-Based VLANs • IEEE 802.1p: Ethernet Priority with User Provisioning and Mapping • IEEE 802.1X: Port-Based Authentication with Guest VLAN Support • IEEE 802.3: 10BASE-T • IEEE 802.3u: 100BASE-T • IEEE 802.3ab: 1000BASE-T • IEEE 802.1ak: Virtual Bridged Local Area Networks - Amendment 07: Multiple Registration Protocol • IEEE 802.3ac: VLAN Tagging • IEEE 802.3ad: Link Aggregation • IEEE 802.3x: Flow Control • IEEE 802.1D-2004: Generic Attribute Registration Protocol: Clause 12 (GARP) • IEEE 802.1D-2004: Dynamic L2 Multicast Registration: Clause 10 (GMRP) • IEEE 802.1Q-2003: Dynamic VLAN Registration: Clause 11.2 (GVRP) • RFC 4541: Considerations for Internet Group Management Protocol (IGMP) Snooping Switches • RFC 5171: Unidirectional Link Detection (UDLD) Protocol
Advanced Layer 2 Features	<ul style="list-style-type: none"> • Broadcast Storm Recovery • Broadcast/Multicast/Unknown Unicast Storm Recovery • DHCP Snooping • IGMP Snooping Querier • Independent VLAN Learning (IVL) Support • Jumbo Ethernet Frame Support • Port MAC Locking • Port Mirroring • Protected Ports • Static MAC Filtering • TACACS+ • Voice VLANs • Unauthenticated VLAN • Internal 802.1X Authentication Server

Software Information	
Platform Specifications	<ul style="list-style-type: none"> • DHCP Server <ul style="list-style-type: none"> • Maximum Number of Pools: 128 • Maximum Number of Leases (Total): 2048 • Routing <ul style="list-style-type: none"> • Number of Routes: 16 • Number of Routing Interfaces: 15 • VLANs: 255 • MAC Addresses: 8k • ARP Cache Size: 493 • MSTP Instances: 4 • LAGs: 6 • ACLs: 100 with 10 Rules per Port • Traffic Classes (Queues): 8
System Facilities	<ul style="list-style-type: none"> • Event and Error Logging Facility • Run-Time and Configuration Download Capability • PING Utility • FTP/TFTP Transfers via IPv4/IPv6 • Malicious Code Detection • BootP and DHCP • RFC 2021: Remote Network Monitoring Management Information Base Version 2 • RFC 2030: Simple Network Time Protocol (SNTP) • RFC 2819: Remote Network Monitoring Management Information Base • RFC 2865: RADIUS Client • RFC 2866: RADIUS Accounting • RFC 2868: RADIUS Attributes for Tunnel Protocol Support • RFC 2869: RADIUS Extensions • RFC 3579: RADIUS Support for EAP • RFC 3580: IEEE 802.1X RADIUS Usage Guidelines • RFC 3164: BSD Syslog Protocol
Management	<ul style="list-style-type: none"> • Web UI • Industry-Standard CLI • IPv6 Management • Password Management • Autoinstall Support for Firmware Images and Configuration Files • SNMP v1, v2, and v3 • SSH 1.5 and 2.0 • SSL 3.0 and TLS 1.0 • Secure Copy (SCP) • Telnet (Multi-Session Support)
Layer 3 Routing	<ul style="list-style-type: none"> • Static Routing • Policy-Based Routing

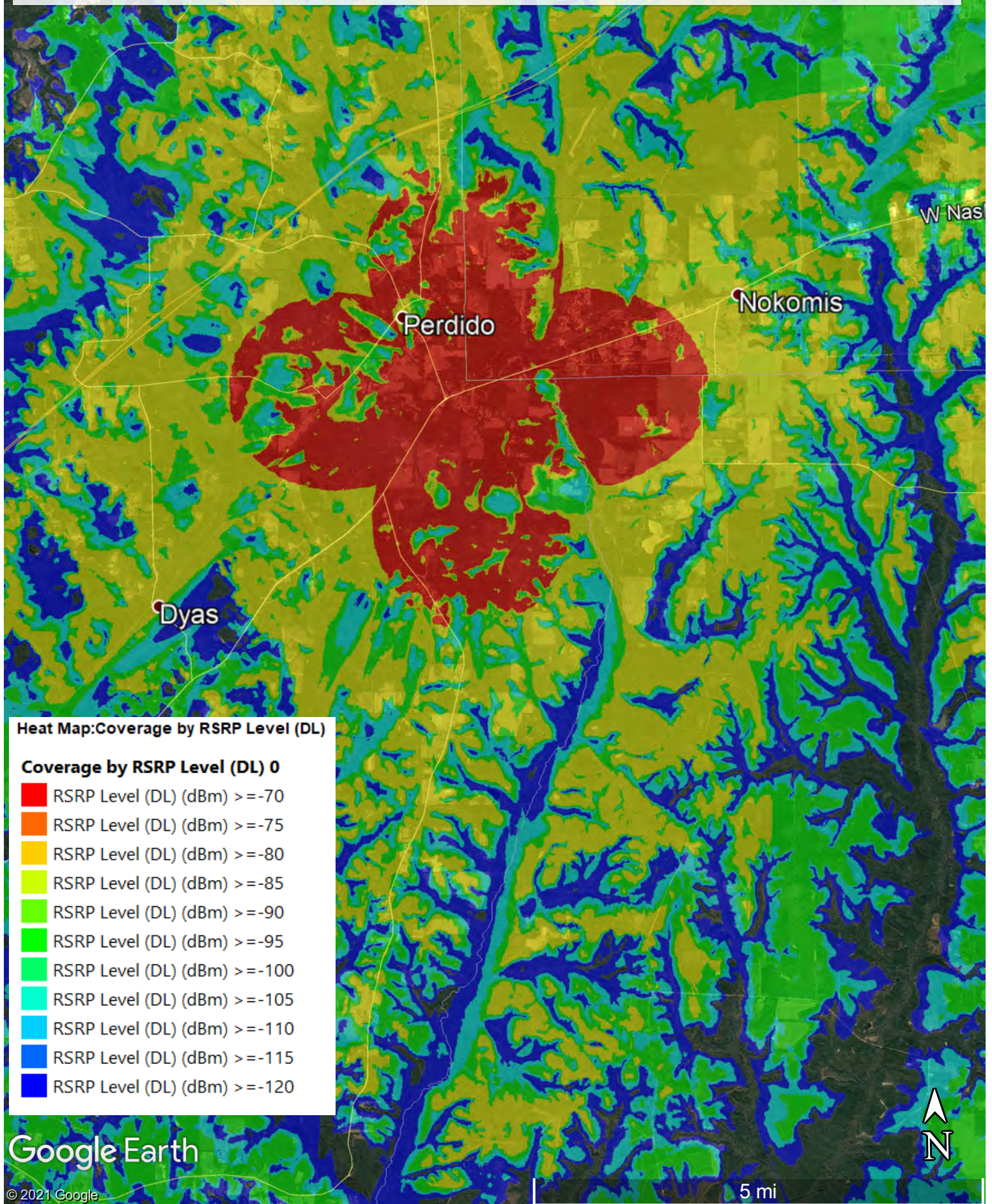
Software Information

QoS

- Access Control Lists (ACLs), Permit/Deny Actions for Inbound IP and Layer 2 Traffic Classification Based on:
 - Time-Based ACL
 - Source/Destination IP Address
 - TCP/UDP Source/Destination Port
 - IP Protocol Type
 - Type of Service (ToS) or Differentiated Services (DSCP) Field
 - Source/Destination MAC Address
 - EtherType
 - IEEE 802.1p User Priority
 - VLAN ID
 - RFC 1858: Security Considerations for IP Fragment Filtering
- Optional ACL Rule Attributes
 - Assign Flow to a Specific Class of Service (CoS) Queue
 - Redirect Matching Traffic Flows
- Differentiated Services (DiffServ)
 - Classify Traffic Based on Same Criteria as ACLs
 - Mark the IP DSCP or Precedence Header Fields, Optional
 - Police the Flow to a Specific Rate with Two-Color Aware Support
 - RFC 2474: Definition of the Differentiated Services Field (DS field) in the IPv4 and IPv6 Headers
 - RFC 2475: An Architecture for Differentiated Services
 - RFC 2597: Assured Forwarding Per-Hop Behavior (PHB) Group
 - RFC 3246: An Expedited Forwarding PHB
 - RFC 3260: New Terminology and Clarifications for DiffServ
- Class of Service (CoS) Queue Mapping Configuration
 - AutoVoIP: Automatic CoS Settings for VoIP
 - IP DSCP-to-Queue Mapping
 - Configurable Interface Trust Mode (IEEE 802.1p, DSCP, or Untrusted)
 - Interface Egress Shaping Rate
 - Strict Priority versus Weighted Scheduling per Queue

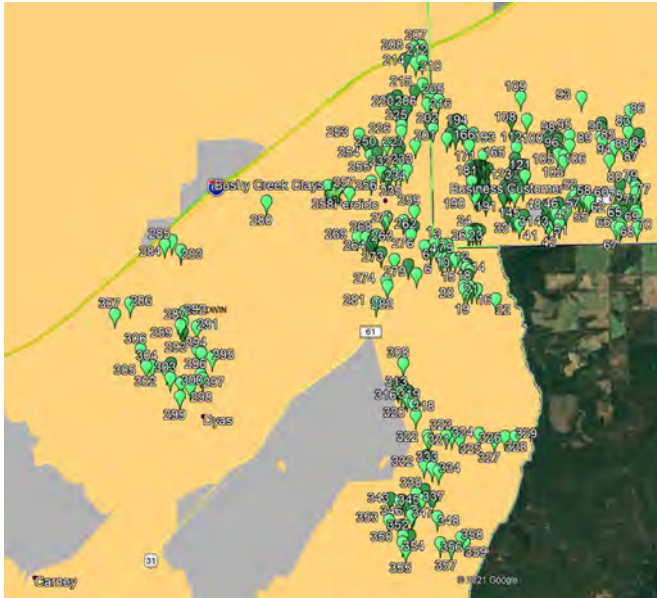
Perdido Alabama - Hurricane WiFi LLC 2/6/21

A.4.2 Radio Heat Map Coverage Area



Perdido Alabama - Hurricane WiFi LLC 2/6/21

A.4.2 Radio Heat Map Coverage Area Continued

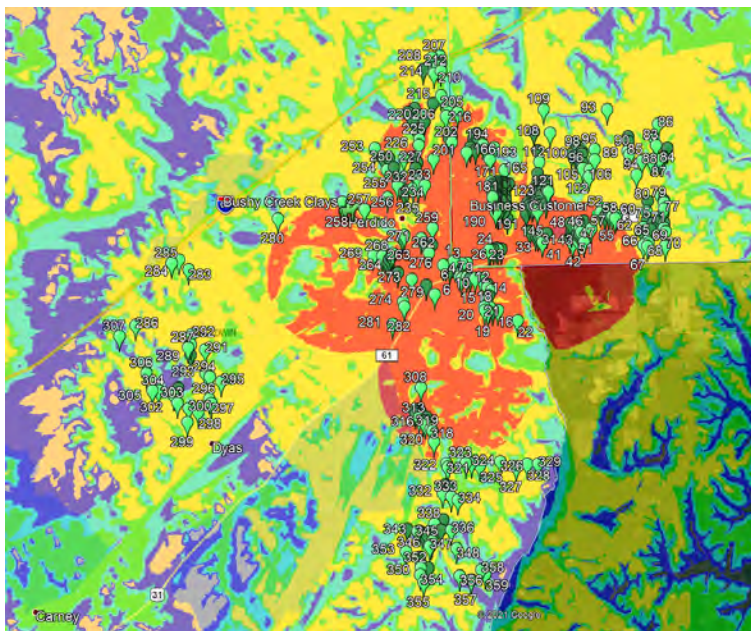


Heat Map: Coverage by RSRP Level (DL)

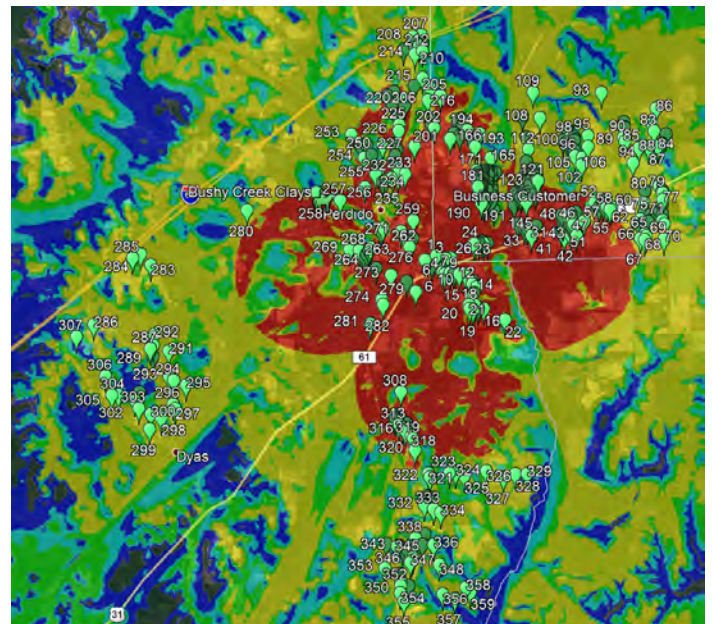
Coverage by RSRP Level (DL) 0

- RSRP Level (DL) (dBm) ≥ -70
- RSRP Level (DL) (dBm) ≥ -75
- RSRP Level (DL) (dBm) ≥ -80
- RSRP Level (DL) (dBm) ≥ -85
- RSRP Level (DL) (dBm) ≥ -90
- RSRP Level (DL) (dBm) ≥ -95
- RSRP Level (DL) (dBm) ≥ -100
- RSRP Level (DL) (dBm) ≥ -105
- RSRP Level (DL) (dBm) ≥ -110
- RSRP Level (DL) (dBm) ≥ -115
- RSRP Level (DL) (dBm) ≥ -120

Snippet of the customers prior to overlay of heat map



Snippet of the customers with overlay of heat map including unserved layer under

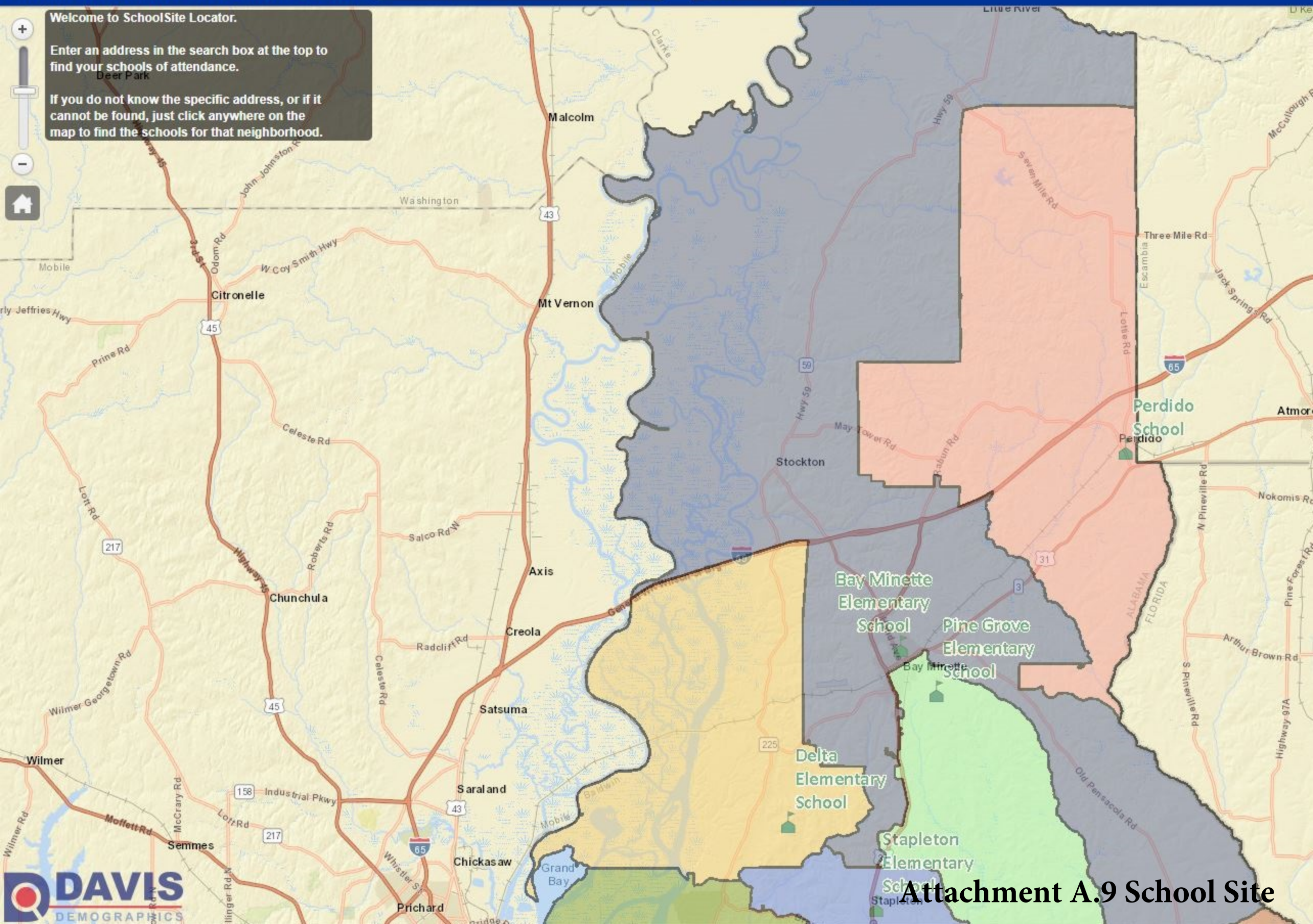


Snippet of the customers with overlay of heat map not including unserved layer under

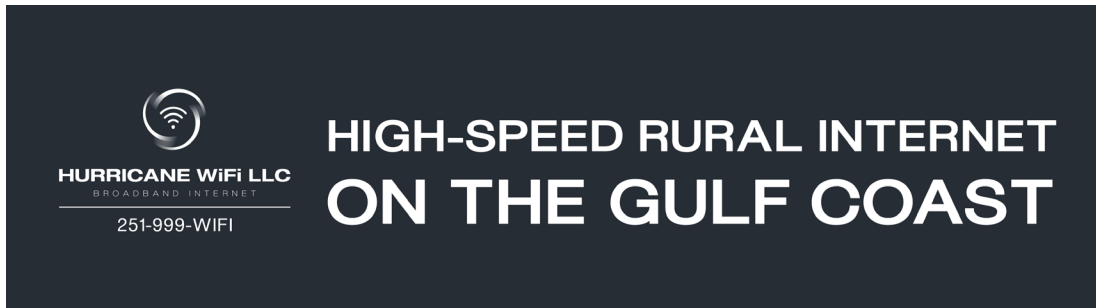
Welcome to SchoolSite Locator.

Enter an address in the search box at the top to find your schools of attendance.

If you do not know the specific address, or if it cannot be found, just click anywhere on the map to find the schools for that neighborhood.



Alabama Broadband Accessibility Fund 2021 Grant Application



Perdido Alabama Hurricane WiFi
February 2021

Attachment B Project Budget

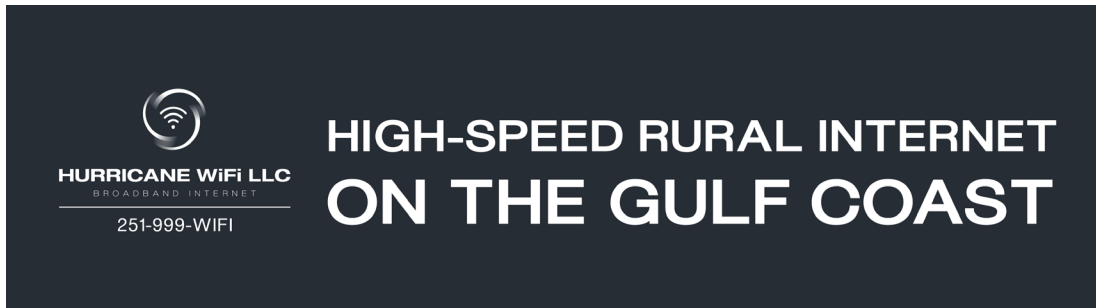
B.2 Applicant's Necessary Financial resources

- a. The Hurricane WiFi LLC business model is to serve local only by finding the highest density of rural homes that have no option at all besides dial-up or satellite. With Covid-19 the desire for internet in rural areas has been seen not only by residents, students but businesses owners that were left with no ability to work from home. Hurricane WiFi LLC has had numerous requests to establish reliable, faster internet from this community. The basis of the model is a three-tiered approach that includes cost of equipment, return on equipment cost, and finally sustainability of the buildout. Hurricane WiFi LLC sustains operations of our network build outs in the following ways. We have collected data of penetration rates of different markets that we build to. For example, if we build Internet service to a market that only has satellite service available, we can expect 60% penetration into that market. We also have data that allows us to know how long it will take us to get to our full market penetration and we use this data to make accurate budget forecasting. Hurricane WiFi LLC calculates all CBRS fees, average maintenance expenses, cost to upgrade network infrastructure for planning our return on investment as well as sustainability into an unserved area.
- b. This Perdido Alabama project that Hurricane WiFi LLC is requesting state broadband grant funding for, will supply internet services to approximately 372 service locations who currently do not have 25 Mbps download by 3 Mbps Internet Service. With this location, we expect to get a minimum of 30% market share of the 372 locations. The total project cost is \$137,522.80 and we believe that average per user rate is going to be \$115 per location. Using the above metrics and \$115 per location we can expect a monthly reoccurring revenue of \$12,834.00 at minimum. With funding through the grant, Hurricane WiFi LLC will have \$89,389.82 invested into the Perdido project. We would then project the ROI for this project would be 6.96 months.

B.3 Applicant's Partners or Subcontractors associated with the project's deliverables

Hurricane WiFi LLC works with subcontractors on projects such as this. This will be determined if awarded the grant on which if any subcontractors will be needed. Specifically, we may consider the installation of tower equipment on the tower through Southeastern Towers LLC.

Alabama Broadband Accessibility Fund 2021 Grant Application



Perdido Alabama Hurricane WiFi

February 2021

Attachment C Other Program Priorities

C. Other Program Priorities

Does this project serve locations with demonstrated community support?

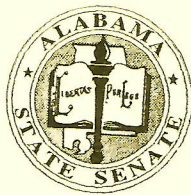
Yes, we have attached to this Attachment C letters of support.

Will this project serve the highest number of unserved homes, businesses, and community anchor points for the least cost?

Yes. The most economical deployment would be our wireless design compared to 16 miles of fiber or other cable infrastructure.

Does this project emphasize the highest broadband speeds?

Yes. Hurricane WiFi LLC's proposed infrastructure will meet and exceed the FCC's existing speed benchmark of 25 Mbps download and 3 Mbps upload for fixed services. All customers connected to the network have a capacity of up to 100 Mbps, with the opportunity for upgrade to 550 Mbps by adding additional equipment upon us adding it as an option soon.



ALABAMA STATE SENATE
ALABAMA STATE HOUSE

11 SOUTH UNION STREET, 7TH FLOOR
MONTGOMERY, ALABAMA 36130-4600
334-261-0897

CHRIS ELLIOTT
STATE SENATOR DISTRICT 32
DISTRICT OFFICE:
1100 FAIRHOPE AVENUE
FAIRHOPE, AL 36532
PHONE 251-990-4610

Committees:
Governmental Affairs (Vice-Chair)
Transportation and Energy
Agriculture, Conservation and Forestry
Banking and Insurance
Education Policy
Tourism

January 20, 2021

Dear Director Boswell,

I am writing to strongly encourage you to award grants to Hurricane WiFi LLC for their efforts to bring better internet access and availability to the Rabun and Perdido communities here in Baldwin County, where reliable broadband service is greatly needed.

Rabun and Perdido certainly meet the qualifications of underserved, rural communities that lack access to both widely available and reliable internet service. Hurricane WiFi's proposal, backed by grant funding from ADECA, will go a long way to helping the residents of those communities be able to fully utilize the vital utility that internet access has become.

Now more than ever, we know that Alabama's families need steady access to broadband internet in order to go about their lives, whether it be people working from home or our children virtually attending school. Both the Rabun and Perdido areas are currently at a disadvantage in allowing for even these basic capabilities afforded to other Alabama residents at this time.

Perdido and Rabun clearly fit the definition of underserved rural communities in this state that have struggled to find a way to get reliable broadband access and certainly embody the legislative intent of what we in the legislature set up with funding this program.

I implore you to award these grants to Hurricane WiFi for Rabun and Perdido, and I assure you those awards will certainly make life better for our Alabama residents here in Baldwin County.

Sincerely,

A handwritten signature in blue ink, appearing to read "T. Elliott", is written over a horizontal line.

Sen. Chris Elliott



**ALABAMA
HOUSE OF REPRESENTATIVES**

11 SOUTH UNION STREET, MONTGOMERY, ALABAMA 36130

REP. HARRY SHIVER
DISTRICT 64
55550 STATE HIGHWAY 59 NORTH
STOCKTON, ALABAMA 36579

DELEGATION OFFICE: 251-937-0240
STATE HOUSE: 334-261-0445
EMAIL: harryshiver@aol.com

January 20, 2021

Dear Director Boswell,

It is my understanding that the Alabama Broadband Accessibility Fund is currently seeking grant applications, and I am writing to strongly encourage you to award grants to Hurricane WiFi LLC for their efforts to bring better internet access and availability to the Rabun and Perdido communities here in Baldwin County.

Rabun and Perdido are certainly underserved communities in our state. While many residents lack widely available access to broadband internet connectivity at all, those who are lucky enough to find access somehow are left with unreliable connections that cause continual access issues.

Especially in these troubling pandemic times, reliable and fast internet access is vital for a myriad of reasons, including at-home learning and work-from-home capabilities. These two communities in our county are prime locations for this grant funding and are exactly the sort of locations we in the legislature had in mind when authorizing the funding for this grant program.

I hope you will find it within your ability to award these grants to Hurricane WiFi LLC and our Rabun and Perdido communities, and I strongly encourage you to do so.

Sincerely,

A handwritten signature in cursive script that reads "Harry Shiver".

Rep. Harry Shiver



Chairman, Tripp Ward • Vice Chairman, Donna Givens • Secretary, Sara Davis • Treasurer, Martha Ryan

February 1, 2021

Dear Director Boswell,

I am writing to strongly recommend Hurricane WiFi LLC as a recipient for an ADECA grant through the Alabama Broadband Accessibility Fund. On behalf of the North Baldwin Chamber of Commerce Board of Directors and membership, comprised of more than 300 businesses representing more than 4,000 employees, I fully support the efforts of Hurricane WiFi LLC to bring better internet access and availability to the Rabun and Perdido communities located in North Baldwin County Alabama.

The communities of Rabun and Perdido meet the qualifications of being underserved, rural communities that lack access to available and reliable internet service. Hurricane WiFi LLC's plan to deploy a private LTE network, centered in both Rabun and Perdido, will provide much needed broadband access to nearly 800 unserved homes and businesses.

One of the many lessons learned from 2020 is the importance of available and reliable internet access. Families in North Baldwin County need steady access to broadband internet as the current climate requires the ability to work from home and to attend school virtually. Families who reside in North Baldwin County, specifically Rabun and Perdido, are at a disadvantage as they do not have equal, adequate, or reliable access to broadband internet that is currently afforded to more densely populated areas of Alabama and even Baldwin County.

The North Baldwin Chamber of Commerce supports policies, legislation, grant opportunities and businesses who seek to expand and improve reliable broadband connectivity across Baldwin County necessary for increased economic development and improved quality of life for residents.

I strongly encourage you to consider the proposal put forth by Hurricane WiFi LLC and award the grants necessary to bring broadband internet access to two rural communities in North Baldwin County, which will improve the quality of life for our residents and increase capacity for economic development opportunities in our area.

Sincerely,

Ashley Jones Davis, Executive Director
North Baldwin Chamber of Commerce
301 McMeans Avenue | PO Box 310
Bay Minette, AL 36507
Ph. 251-937-5665 ext 2
ashley@northbaldwinchamber.com

To whom it may concern:

I am writing because I would like to give my support to Hurricane WiFi LLC in their quest to serve Perdido, Alabama with wireless internet with no data caps, and let the committee that chose recipient of the Alabama Broad Band Accessibility Fund know how receiving this grant would help the community.

1. My current situation with my internet provider is as follows: (Please list any relevant information about speeds, what you are unable to do with our current internet, etc. if you have no options list no internet options)

We currently have Frontier, which is our only reasonably priced option we have found. We are also moving soon closer to Perdido. Frontier will not be an option there.

2. If you have Internet now what is your current plan? Are you able to stream on multiple devices?

Frontier is slow and we are only able to use a few devices at a time without it kicking us off and not working.

3. Receiving wireless internet will impact me by: (Please list how this will better your life or give me better access to healthcare or if a business list how company would benefit)

Receiving wireless internet will impact me by being able to use it at a time such as the television, phones, and computer. I will also be able to do my work from home when needed and will be used for my own personal use.

4. If I was able to sign up for Hurricane WiFi LLC I would benefit as a residential or business customer? (If a business list name of company)

I would benefit as a residential and business customer as I would be able to do business from home.

TM Wood Works

Sincerely,

Name: Meagan Tolbert

Address: 1809 Highway 31 Atmore, AL 36502

Phone Number: 251-300-0849

Email Address: Meagan97.mt@gmail.com

To whom it may concern:

I am writing because I would like to give my support to Hurricane WiFi LLC in their quest to serve Rabun, Alabama with wireless internet with no data caps, and let the committee that chooses the recipient of the Alabama Broad Band Accessibility Fund know how receiving this grant would better our community.

1. My current situation with my internet provider is as follows: (Please list any relevant information about speeds, what you are unable to do with our current internet, etc. or if you have no options list no internet options)
My current internet provider is terrible and wish I had better options. It is hard to work from home due to no service some days and when it does work it is very slow.
2. If you have Internet now what is your current plan? Are you able to stream on multiple devices?
We currently do not have home internet due to lack of provider options. My phone service with AT&T is awful so I am definitely not going to add home internet with them.
3. Receiving wireless internet will impact me by: (Please list how this will better your life, i.e., gives me better access to healthcare or if a business list how company would benefit)
I am sure having wireless internet would better our lives but unfortunately we have never had the opportunity to experience the conveniences that others get to experience. ☐
4. If I was able to sign up for Hurricane WiFi LLC I would benefit as a residential or business customer? (If a business list name of company)
I would love to be able to sign up for Hurricane WiFi as a residential customer. I would be able to work from home and my children would be able to stream, and be able to use the internet for homework etc.

Sincerely,

Name: Ashley Brantley

Address: 15936 Ben Stewart Road S

Phone Number: 251-937-1179

Email Address: Brantley_a@ymail.com

To whom it may concern:

I am writing because I would like to give my support to Hurricane WiFi LLC in their quest to serve Perdido, Alabama with wireless internet with no data caps, and let the committee that chooses the recipient of the Alabama Broad Band Accessibility Fund know how receiving this grant would better our community.

1. My current situation with my internet provider is as follows: I currently utilize satellite internet through Viasat. The max download speeds are at around 100-300 mbs per second.

2. What your current package? Are you able to stream on multiple devices? We currently have a 120GB package for high speed internet that slows down to dial up speed when exceeded. Streaming on multiple devices is not an option we have and due to the slow internet speeds are even unable to stream services such as Disney+ or the WWE Network.

3. Receiving wireless internet will impact me by: Allowing my children to watch educational shows, watch streaming networks, allow my family to participate in online college, ability to video chat for personal and business reasons.

4. If I was able to sign up for Hurricane WiFi LLC I would benefit as a residential or business customer? I would benefit as a residential customer. However I currently am a member of the board of directors for Victories for Vets and First Responders and unlimited internet would assist in the video calls and other business that needs to be accomplished.

Sincerely,

Name: James Cheney

Address: 20001 Phillipsville Road Exd. Bay Minette, AL 36507

Phone Number: 850-501-1515

Email Address: jamesdcheney@gmail.com

To whom it may concern:

I am writing because I would like to give my support to Hurricane WiFi LLC in their quest to serve Rabun, Alabama with wireless internet with no data caps, and let the committee that chooses the recipient of the Alabama Broad Band Accessibility Fund know how receiving this grant would better our community.

1. My current situation with my internet provider is as follows: (Please list any relevant information about speeds, what you are unable to do with our current internet, etc. or if you have no options list no internet options)
2. What your current package? Are you able to stream on multiple devices?
3. Receiving wireless internet will impact me by: (Please list how this will better your life, i.e., gives me better access to healthcare or if a business list how company would benefit)
4. If I was able to sign up for Hurricane WiFi LLC I would benefit as a residential or business customer? (If a business list name of company)

Sincerely,

Whitney Roberts

Name:

Address:

Phone Number:

Email Address:

To whom it may concern:

I am writing because I would like to give my support to Hurricane WiFi LLC in their quest to serve Perdido, Alabama with wireless internet with no data caps, and let the committee that chooses the recipient of the Alabama Broad Band Accessibility Fund know how receiving this grant would better our community.

1. My current situation with my internet provider is as follows: (Please list any relevant information about speeds, what you are unable to do with our current internet, etc. or if you have no options list no internet options)
Satellite Internet is my only option. The promised speeds are never met and are throttled after a usage threshold is reached. My current service is very inadequate for use with school or work from home demands. Weather constantly interrupts service.
2. If you have Internet now what is your current plan? Are you able to stream on multiple devices?
Via-sat and no. I am not able to watch netflix without buffering or quality issues on one device.

3. Receiving wireless internet will impact me by: (Please list how this will better your life, i.e., gives me better access to healthcare or if a business list how company would benefit)
Reliable connectivity would mean less problems with school work submissions and the ability to work remotely effectively when possible. It would also allow more affordable options that are available to others for entertainment would be available to me. I could also remotely monitor critical infrastructure from home more consistently.

4. If I was able to sign up for Hurricane WiFi LLC I would benefit as a residential or business customer? (If a business list name of company)

Residential customer. Would use for work as a first responder and to remotely monitor utility infrastructure.

Sincerely,

Shaun
Livermore

Digitally signed by Shaun
Livermore
Date: 2021.01.26 12:01:46
-06'00'

Name:

Shaun Livermore

Address: 21940 McInain road, Bay Minette, AL 36507

Phone Number:

251-253-8491

Email Address:

shaunlivermore@yahoo.com

To whom it may concern:

I am writing because I would like to give my support to Hurricane WiFi LLC in their quest to serve Perdido, Alabama with wireless internet with no data caps, and let the committee that chooses the recipient of the Alabama Broad Band Accessibility Fund know how receiving this grant would better our community.

1. My current situation with my internet provider is as follows: (Please list any relevant information about speeds, what you are unable to do with our current internet, etc. or if you have no options list no internet options)

Speed is 10Mbps

Cannot stream on multiple devices

2. If you have Internet now what is your current plan? Are you able to stream on multiple devices?

current plan: 350 Gb per month

- cannot stream on multiple devices

3. Receiving wireless internet will impact me by: (Please list how this will better your life, i.e., gives me better access to healthcare or if a business list how company would benefit)

My husband and I both work from home on most days. If we had faster internet, it would allow us to be more efficient at our jobs.

4. If I was able to sign up for Hurricane WiFi LLC I would benefit as a residential or business customer? (If a business list name of company)

Residential, and because we work from home, it would also benefit us greatly. Name of Alan Howell's workplace:
TAG Aerospace

Sincerely,

Jaime Howell

Name: Jaime Howell / Alan Howell

Address: 21994 Gap Weekly Rd Perdido, AL 36562

Phone Number: 251-508-0305 Alan: 251-269-0705

Email Address: ~~jaimeinla@gmail.com~~ jaimeinla2015@gmail.com

To whom it may concern:

I am writing because I would like to give my support to Hurricane WiFi LLC in their quest to serve Perdido, Alabama with wireless internet with no data caps, and let the committee that chooses the recipient of the Alabama Broad Band Accessibility Fund know how receiving this grant would better our community.

1. My current situation with my internet provider is as follows: (Please list any relevant information about speeds, what you are unable to do with our current internet, etc. or if you have no options list no internet options) *Renews data on 28th and has 15GB and we receive a message before the 1st of the month that data has been used. We cannot stream movies. We need for our business to do billing + for our children to use for online classes for school + college.*
2. If you have Internet now what is your current plan? Are you able to stream on multiple devices?

Verizon - no

3. Receiving wireless internet will impact me by: (Please list how this will better your life, i.e., gives me better access to healthcare or if a business list how company would benefit) *Our kids will be able to submit their school assignments on time + not have the stress of worrying that they can't complete assignments; Stream movies - like Disney +, etc. Not worry about client's not receiving our emails for monthly billing; back ups for computers + iPhones*
4. If I was able to sign up for Hurricane WiFi LLC I would benefit as a residential or business customer? (If a business list name of company)

Residential + business Triple H Lawn Care

Sincerely,

Name: *Rick + Donna Bates*

Address: *22202 McLain Rd., Bay Minette, AL 36507*

Phone Number: *(251) 232-6062 - Rick ; (251) 232-7228 - Donna*

Email Address: *rickbates22@gmail.com ; ddbates3@gmail.com*

To whom it may concern:

I am writing because I would like to give my support to Hurricane WiFi LLC in their quest to serve Perdido, Alabama with wireless internet with no data caps, and let the committee that chooses the recipient of the Alabama Broad Band Accessibility Fund know how receiving this grant would better our community.

1. My current situation with my internet provider is as follows: (Please list any relevant information about speeds, what you are unable to do with our current internet, etc. or if you have no options list no internet options)
I was only able to find satellite internet option for my home/home business, which reviews were all negative for speed and pricing. I went with AT&T business hotspot, which is extremely limited range and speed.

2. If you have Internet now what is your current plan? Are you able to stream on multiple devices?
AT&T hotspot "unlimited" (as advertised)- which is actually limited. AT&T slows you down after approx 100Gigs per month, which is not much to work on a computer. We also watch movies and play games with the family, occasionally. The 100Gigs are used quickly, just from below average usage. It seems we are not able to be on more than 2-3 devices at a time. It is already a slow speed and when they cut our speed towards the end of billing cycle, it's impossible to work or watch tv per internet. My children also need to occasionally do homework in the evenings, or virtual school during the day. We have even had to disconnect our cell phones from WiFi permanently.

3. Receiving wireless internet will impact me by: (Please list how this will better your life, i.e., gives me better access to healthcare or if a business list how company would benefit)
A great signal of wireless internet for a fair price would give my family and business the access we require on a daily basis. We are not wealthy, so there is no option to pay the high satellite prices for limited access. My children could watch their tv shows and do their schoolwork with ease, and no worries of using too much internet which would put mom in a bind for work. Being able to have a nice speed would make my job much easier to provide for my family and keep my company and boss satisfied with my production and efficiency.

4. If I was able to sign up for Hurricane WiFi LLC I would benefit as a residential or business customer? (If a business list name of company)
Primarily business, Lad Drago State Farm.
Personal family usage also.

Sincerely,

Jennifer Reid Digitally signed
by Jennifer Reid

Name: Jennifer Reid

Address: 23856 County Rd 47 Perdido, AL 36562

Phone Number: 251.776.3310

Email Address: jennifer@gowithdrago.com

To whom it may concern:

I am writing because I would like to give my support to Hurricane WiFi LLC in their quest to serve Perdido, Alabama with wireless internet with no data caps, and let the committee that chooses the recipient of the Alabama Broad Band Accessibility Fund know how receiving this grant would better our community.

1. My current situation with my internet provider is as follows: (Please list any relevant information about speeds, what you are unable to do with our current internet, etc. or if you have no options list no internet options)

I currently do not reside in Perdido but am under contract to purchase a home there. I have several family members in the area however and the only internet I'm aware of that is a "hot spot" through cellular data or satellite internet. Neither of those has been able to consistently provide service for streaming, recreational internet use, and home office type of work.

2. If you have Internet now what is your current plan? Are you able to stream on multiple devices?

See answer to #1. I do currently have Mediacom high speed internet service (not in Perdido). I would like to be able to have a comparable service upon moving there. The cable internet I have allows us to use multiple devices for streaming and I regularly work from home. My child also uses it for school since Baldwin County uses chromebooks for all school work. I do not have cable TV and for many years I have only used streaming services for TV.

3. Receiving wireless internet will impact me by: (Please list how this will better your life, i.e., gives me better access to healthcare or if a business list how company would benefit)

Reliable wireless internet in Perdido would be convenient, enjoyable, and also improve my quality of life. I would not have to worry about whether my son will be able to do his homework. With COVID, we do not know if schools will be closed again for extended periods. There are also multiple reasons I may need or want to work from home e.g. when my child is sick or when schools are closed. I also have a chronic pain condition and internet allows me to work at home on days that I feel like I need to and can be slightly more comfortable while still contributing as an employee. Of course we would also use it for entertainment purposes.

4. If I was able to sign up for Hurricane WiFi LLC I would benefit as a residential or business customer? (If a business list name of company)

Residential

Sincerely,

Hannah Ray

Digitally signed by Hannah Ray
DN: cn=Hannah Ray, o, ou,
email=hbray06@gmail.com, c=US
Date: 2021.02.07 20:53:24 -06'00'

Name:

Hannah Ray

Address: 23900 McCoy Rd Perdido AL (future)

Phone Number:

251-604-6169

Email Address:

hbray06@gmail.com

From: [Kala White](#)
To: [Tim Doerr](#)
Subject: Re: Letter of Support
Date: Sunday, February 7, 2021 11:10:20 AM
Attachments: [cidB78C16B7-08C3-4EB5-8F92-C8329707E169.pdf](#)

1. None
- 2.n/a
3. My child's school work and to fully function our business
4. Coastal Fire Solutions

Kala White
48531 phillipsville road bay Minette, AL 36507
2516567224
Teach2all1213@gmail.com

Sent from my iPhone

On Feb 7, 2021, at 8:56 AM, Tim Doerr <tim.doerr@doerrtech.com> wrote:

See attached or reply with answers below.

To whom it may concern:

I am writing because I would like to give my support to Hurricane WiFi LLC in their quest to serve Perdido , Alabama with wireless internet with no data caps, and let the committee that choses the recipient of the Alabama Broad Band Accessibility Fund know how receiving this grant would better our community.

1. My current situation with my internet provider is as follows: (Please list any relevant information about speeds, what you are unable to do with our current internet, etc. or if you have no options list no internet options)

2.What your current package? Are you able to stream on multiple devices?

3.Receiving wireless internet will impact me by: (Please list how this will better your life, i.e., gives me better access to healthcare or if a business list how company would benefit)

4.If I was able to sign up for Hurricane WiFi LLC I would benefit as a residential or business customer? (If a business list name of company)

Sincerely,

Name:

Address:

Phone Number:

Email Address:

Thanks,

Tim Doerr
Doerr Technology LLC
251-379-4972

<Letter of Support Resident or Business Perdido.pdf>

To whom it may concern:

I am writing because I would like to give my support to Hurricane WiFi LLC in their quest to serve Perdido , Alabama with wireless internet with no data caps, and let the committee that choses the recipient of the Alabama Broad Band Accessibility Fund know how receiving this grant would better our community.

1. My current situation with my internet provider is as follows: My hotspot data slows down after a day or so during the billing cycle. I am unable to be on more than one device at a time when the speeds slow down. I have no other internet options at this time.

2.What your current package? Are you able to stream on multiple devices? Hotspot unlimited data that slows after a certain amount of usage, usually within the first few day of renewed billing cycle and I am unable to stream on multiple devices.

3.Receiving wireless internet will impact me by: give me better access to my online classes.

4.If I was able to sign up for Hurricane WiFi LLC I would benefit as a residential or business customer? (If a business list name of company) Residential and home business (Tupperware)

Sincerely,

Name: Chelsea Sansom

Address: 49989 Dyas Rd

Bay Minette, AL 36507

Phone Number: 251 776 0910

Email Address: chelsea.sansom@gmail.com

To whom it may concern:

I am writing because I would like to give my support to Hurricane WiFi LLC in their quest to serve Rabun, Alabama with wireless internet with no data caps, and let the committee that chooses the recipient of the Alabama Broad Band Accessibility Fund know how receiving this grant would better our community.

1. My current situation with my internet provider is as follows: (Please list any relevant information about speeds, what you are unable to do with our current internet, etc. or if you have no options list no internet options)
2. What your current package? Are you able to stream on multiple devices?
3. Receiving wireless internet will impact me by: (Please list how this will better your life, i.e., gives me better access to healthcare or if a business list how company would benefit)
4. If I was able to sign up for Hurricane WiFi LLC I would benefit as a residential or business customer? (If a business list name of company)

Sincerely,

Caroline A Ashdown

Name:

Address:

Phone Number:

Email Address:

To whom it may concern:

I am writing because I would like to give my support to Hurricane WiFi LLC in their quest to serve Perdido, Alabama with wireless internet with no data caps, and let the committee that chooses the recipient of the Alabama Broad Band Accessibility Fund know how receiving this grant would better our community.

1. My current situation with my internet provider is as follows: (Please list any relevant information about speeds, what you are unable to do with our current internet, etc. or if you have no options list no internet options)

Viasat is slow during storms or even a cloudy day

2. If you have Internet now what is your current plan? Are you able to stream on multiple devices?

Viasat states that I can stream up to 4 devices at once but it rarely works with multiple devices

3. Receiving wireless internet will impact me by: (Please list how this will better your life, i.e., gives me better access to healthcare or if a business list how company would benefit)

Pricing would be less most likely and better service

4. If I was able to sign up for Hurricane WiFi LLC I would benefit as a residential or business customer? (If a business list name of company)

residential

Sincerely,

Name: Jessica Presley

Address: 53321 Cemetery Rd Perdido AL 36562

Phone Number: 251-586-7004

Email Address: presley.jessica590@gmail.com