ಅ ಲ್ - ಅ ಮೀ ನ್ ಕಾ ನೂ ನು ಕಾ ಲೇ ಜು

AL-AMEEN COLLEGE OF LAW

Affiliated to Karnataka State Law University and Recognised by Bar Council of India

ACCREDITED WITH NAAC B++

BSNL.

SSID: AL- AMEEN PRINCIPAL

AL-AMEEN COLLEGE OF LAW BANGALORE 560 027

Protocol: Wi-Fi 4 (802.11n)

Security type: WPA2-Personal

Manufacturer: Intel Corporation

Description: Intel(R) Wi-Fi 6 AX201 160MHz

Driver version: 22.230.0.8

Network band: 2.4 GHz

Network channel: 2

Link speed (Receive/Transmit): 144/144 (Mbps)

Link-local IPv6 address: fe80::6639:fe4:345e:a5bb%17

IPv4 address: 192.168.1.35

IPv4 DNS servers: 192.168.1.1 (Unencrypted)

Physical address (MAC): C8-5E-A9-F8-3A-31

PRINCIPAL
AL-AMEEN COLLEGE OF LAW
59, Behind Al-Ameen Tower,
Near Lalbagh Main Gate,
Hosur Road, Bangalore-560027
Ph: 080-22112563/65, Fax: 080-22278464

ಅ ಲ್ - ಅ ಮೀ ನ್ ಕಾ ನೂ ನು ಕಾ ಲೇ ಜು

AL-AMEEN COLLEGE OF LAW

Affiliated to Karnataka State Law University and Recognised by Bar Council of India

ACCREDITED WITH NAAC B++

SSID: ALAMEEN MAIN_2.4G

AL-AMEEN COLLEGE OF LAW BANGALORE 560 027

Protocol: Wi-Fi 4 (802.11n)

Security type: WPA2-Personal

Manufacturer: Intel Corporation

Description: Intel(R) Wi-Fi 6 AX201 160MHz

Driver version: 22.230.0.8

Network band: 2.4 GHz

Network channel: 9

Link speed (Receive/Transmit): 130/130 (Mbps)

Link-local IPv6 address: fe80::6639:fe4:345e:a5bb%17

IPv4 address: 192.168.0.101

IPv4 DNS servers: 192.168.0.1 (Unencrypted)

Physical address (MAC): C8-5E-A9-F8-3A-31

PRINCIPAL
AL-AMEEN COLLEGE OF LAW
59, Behind Al Ameen Tower,
Near Lalbagh Main Gate,
Hosur Road, Bangalore-560027
Ph: 080-22112563/65, Fax: 080-22278464

Gmail

Al-Ameen College of law law <alameenlaw.edu@gmail.com>

Welcome to BSNL

7 messages

support@sdc.bsnl.co.in <support@sdc.bsnl.co.in> Thu, Dec 2, 2021 at 1:09 AM
To: alameenlaw.edu@gmail.com

Dear Customer,

Thank you For choosing BSNL's Bharat Fiber Voice Service. BSNL is a complete telecom solution provider company with a wide range of world class services.

Your details are :

Name of Customer: - AL AMEEN COLLEGE OF LAW,

Name of Service: Bharat Fiber Voice,

Phone Number: 080-22112563,

Customer Account Number: 4020416094,

Billing Account Number: 9034278285,

Date of Commission of Service: 01/12/2021 14:33:45

For any queries please contact BSNL Call Center at 1500.

Regards,
BSNL Support
This is a system generated mail. Please do not reply.

---

support@sdc.bsnl.co.in <support@sdc.bsnl.co.in> Thu, Dec 2, 2021 at 1:10 AM
To: alameenlaw.edu@gmail.com

Dear Customer,

Thank you For choosing BSNL's Bharat Fiber BB Service. BSNL is a complete telecom solution provider company with a wide range of world class services.

Your details are :

Name of Customer: - AL AMEEN COLLEGE OF LAW,

Name of Service: Bharat Fiber BB,

Phone Number: 080-22112563,

Customer Account Number: 4020416094,

Billing Account Number: 9034278285,

Date of Commission of Service: 01/12/2021 15:08:33

[Quoted text hidden]

AL-AMEEN COLLEGE OF LAW
59, Behind Al-Ameen Tower,
Near Lalbagh Main Gate,
Hosur Road, Bangalore-560027
Ph: 080-22112563/65, Fax: 080-22278464

---

support@sdc.bsnl.co.in <support@sdc.bsnl.co.in> Thu, Dec 2, 2021 at 1:13 AM
To: alameenlaw.edu@gmail.com

Dear Customer,

Thank you For choosing BSNL's Bharat Fiber Voice Service. BSNL is a complete telecom solution provider company with a wide range of world class services.

Your details are :

Name of Customer: .. AL-AMEEN COLLEGE OF LAW,

Name of Service: Bharat Fiber Voice,

Phone Number: 080-22112566,

Customer Account Number: 4022990042,

Billing Account Number: 9037029776,

Date of Commission of Service: 01/12/2021 14:34:50

[Quoted text hidden]

---

upport@sdc.bsnl.co.in <support@sdc.bsnl.co.in>
To: alameenlaw.edu@gmail.com Thu, Dec 2, 2021 at 1:13 AM

Dear Customer,

Thank you For choosing BSNL's Bharat Fiber BB Service. BSNL is a complete telecom solution provider company with a wide range of world class services.

Your details are :

Name of Customer: .. AL-AMEEN COLLEGE OF LAW,

Name of Service: Bharat Fiber BB,

Phone Number: 080-22112566,

Customer Account Number: 4022990042,

Billing Account Number: 9037029776,

Date of Commission of Service: 01/12/2021 14:33:34

[Quoted text hidden]

AL-AMEEN COLLEGE OF LAW
59, Behind Al-Ameen Tower,
Near Lalbagh Main Gate,
Hosur Road, Bangalore-560027
Ph: 080-22112563/65, Fax: 080-22278464

---

support@sdc.bsnl.co.in <support@sdc.bsnl.co.in>
To: alameenlaw.edu@gmail.com Thu, Dec 2, 2021 at 1:14 AM

Dear Customer,

Thank you For choosing BSNL's Bharat Fiber BB Service. BSNL is a complete telecom solution provider company with a wide range of world class services.

Your details are :

Name of Customer: .. AL-AMEEN COLLEGE OF LAW,

Name of Service: Bharat Fiber BB,

Phone Number: 080-22112565,

Customer Account Number: 4021151529,

Billing Account Number: 9035025042,

Date of Commission of Service: 01/12/2021 14:53:21

[Quoted text hidden]

---

support@sdc.bsnl.co.in <support@sdc.bsnl.co.in> Thu, Dec 2, 2021 at 1:14 AM
To: alameenlaw.edu@gmail.com

[Quoted text hidden]

---

support@sdc.bsnl.co.in <support@sdc.bsnl.co.in> Thu, Dec 2, 2021 at 1:14 AM
To: alameenlaw.edu@gmail.com

Dear Customer,

Thank you For choosing BSNL's Bharat Fiber Voice Service. BSNL is a complete telecom solution provider company with a wide range of world class services.

Your details are :

Name of Customer: .. AL-AMEEN COLLEGE OF LAW,

Name of Service: Bharat Fiber Voice,

Phone Number: 080-22112565,

Customer Account Number: 4021151529,

Billing Account Number: 9035025042,

Date of Commission of Service: 01/12/2021 14:39:55

[Quoted text hidden]

PRINCIPAL
AL-AMEEN COLLEGE OF LAW
59, Behind Al-Ameen Tower,
Near Lalbagh Main Gate,
Hosur Road, Bangalore-560027
Ph: 080-22112563/65, Fax: 080-22278464

BSNL-QuadGen
Telecom Operator Grade 5G WiFi Services
[redacted]
To
Al-Ameen College of Law

22nd April 2016

AL-AMEEN COLLEGE OF LAW
59, Behind Al-Ameen Tower,
Near Lalbagh Main Gate,
Hosur Road, Bangalore-560027
Ph: 080-22112563/65, Fax: 080-22278464

QuadGen
WIRELESS SOLUTIONS

QFi LIFE @ 5G

QuadGen BSNL

Table of Contents

1. Compelling need and benefits for Mobile Internet Access on WiFi
2. Limitations of available options for High Speed Access
3. QuadGen-BSNL solution for WiFi-based High Speed Internet Access
4. BSNL-QuadGen 5G WiFi Network Attributes
5. Types of WiFi services
6. Stakeholders involved in the WiFi Project
7. QuadGen Responsibility
8. BSNL Responsibility
9. Uniqueness and competitive advantages of BSNL-QuadGen
10. Timelines for execution of the project
11. Commercials and Financials

AL-AMEEN COLLEGE OF LAW
59, Behind Al-Ameen Tower,
Near Lalbagh Main Gate,
Hosur Road, Bangalore-560027
Ph: 080-22112563/65, Fax: 080-22278464

LIFE @ 5G

QuadGen BSNL

Compelling need and benefits of Mobile Internet Access on WiFi

India is a unique country with following characteristics:

- 2G/3G/4G services in India offered by Telcos cannot match the application needs of the current generation users for image / video / large file downloads due to very low speeds of 128 Kbps to 512 Kbps per user
- Consumption of mobile data for m-commerce, m-video, m-banking, m-governance, m-health, m-education applications requires at the least 2 Mbps speed per subscriber at the consumption Point-of-Presence.
- Mobile devices have become a defacto affordable and always available choice for digital connectivity and invoking all desired services and applications
- Every mobile device has built-in WiFi technology support irrespective of Android / IOS / Windows and Blackberry Operating Systems
- WiFi offers the most cost-effective and affordable internet service at high speeds for the ubiquitous mobile device usage

BSNL-QuadGen proposes to deploy 5G WiFi technology with unlicensed spectrum in excess of 80MHz up to 200MHz and active antennae configurations to support the highest throughput capacity of 1.3 Gbps at each WiFi Hotspot. This enables the users to have speeds of 2 Mbps to 20 Mbps thus meeting all types of connectivity to education, entertainment and enterprise applications including video services.

Limitations of available options for High Speed Access

- Telecom service providers do not have access to sufficient 3G/4G spectrum
- The available 3G/4G spectrum is prohibitively expensive for Operators
- Indoor penetration capability of 3G/4G networks is very poor due to macro cellular architecture around 1800/2100/2300/2500 MHz
- Cellular 3G/4G base stations do not support more than 20 subscribers @ 1Mbps speeds per base station due to 5 MHz spectrum per Operator
- Wireline based high speed internet access can only be done by the incumbent Telcos for subscribers within 1-3 Kms range of the telco's POPs
- Fiber based high speed internet access to the homes is prohibitively expensive due to cost, deployment logistics, RoW permissions, and long gestation period in building the NW for service offering
- Hybrid Fiber Co-ax networks deployed by the cable operators do not have technological compatibility and global construction standards to support high speed internet access

PRINCIPAL
AL-AMEEN COLLEGE OF LAW
59, Behind Al-Ameen Tower,
Near Lalbagh Main Gate,
Hosur Road, Bangalore-560027
Ph: 080-22412563/65, Fax: 080-22278464

QuadGen
WIRELESS SOLUTIONS
607 World Trade Centre, Brigade Gateway, Bangalore, India 560055
Email : raghavendra.holla@quadgenwireless.com Mobile : +91-9845566294 Website : www.qfi.rocks

QFi LIFE @ 5G

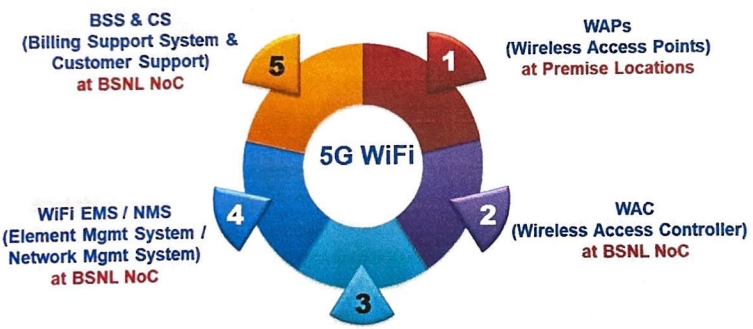
QuadGen BSNL

WiFi Solution Technologies ,Features and Network Elements for High Speed Internet

5G Technologies in BSNL-QuadGen WiFi

5G WiFi Service Featuees

Network Elements of 5G Telco-grade WiFi Network



AL-AMEEN COLLEGE OF LAW
59, Behind Al-Ameen Tower,
Near Lalbagh Main Gate,
Hosur Road, Bangalore-560027
Ph: 080-22112563/65, Fax: 080-22278464

QuadGen WIRELESS SOLUTIONS

607 World Trade Centre, Brigade Gateway, Bangalore India 560055
Email : raghavendra.holla@quadgenwireless.com Mobile : +91-9845566294 Website : www.qfi.rocks

5G Technologies in BSNL-QuadGen 5G WiFi

Radio Access Network (RAN)

- 2.4 /5 GHz band on 802.11n /802.11ac standard with downward compatibility
- RAN based on Dual-band deployments with Integrated Access cum Backhaul option

BackHaul to BSNL NW :

- Fiber 10 Mbps /100Mbps / 1Gbps Links
- ADSL+2 backhaul & VDSL backhaul links at n*E1 links termination support
- Metro Ethernet backhaul for IP back haul also supported

Core NW:

- Wi-Fi Core Network Elements with High Availability on **EPC** technology standards
- Authentication mechanisms supported on AAA (EAP-SIM, AKA, TTLS/TLS, PEAP,EAP over HTTP and TAL and seamless authentication using WISPr2.0)
- WAC & WAG plat forms conforms **to Multi Service Routers (MSR)** category
- **NGH & HOTSPOT 2.0 compatible standards**

BSNL-QuadGen 5G WiFi Service Attributes

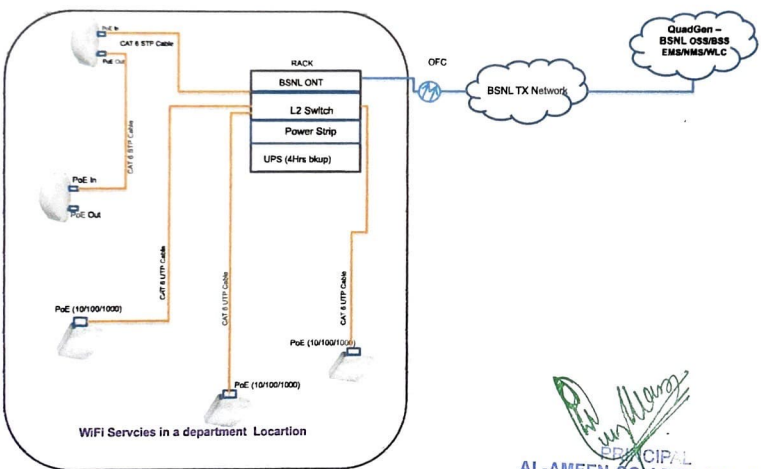
- **Speed :** Assured throughputs between 2 to 20 Mbps to the users at the HotSpot
- **Availability** : 99.9% availability of WiFi service at the HotSpots
- **Network Management :** Centralised Provisioning ,Activation and Monitoring
- **Security :** Absolutely secure authentication in conformance to LEA requirements
- **Scalability :** 10 to 50 WiFi APs per HotSpot
- **Coverage :** At HotSpot Premises From 200 mt *200 mt area to 1 Km * 1 Km area
- **Capacity :** From 200 subscribers to 4000 subscribers in the proposed HotSpot area
- **Customer Support :** 24/7 dedicated Wi-Fi Service Customer Support Center
- **Affordable Pricing :** Affordable Competitive tariffs for Enterprises and Consumers

AL-AMEEN COLLEGE OF LAW
59, Behind Al-Ameen Tower,
Near Lalbagh Main Gate,
Bangalore-560027
PH: 080-22278464

607 World Trade Centre, Brigade Gateway, Bangalore-560055
Email : raghavendra.holla@quadgenwireless.com Mobile : +91-9845566494 Website : www.qfi.rocks

BSNL-QuadGen 5G WiFi Network Architecture

Typicel On-site WiFi Deployment Diagram



PRINCIPAL
AL-AMEEN COLLEGE OF LAW
59, Behind Al-Ameen Tower,
Near Lalbagh Main Gate,
Hosur Road, Bangalore-560027
Ph: 080-22112563/65, Fax: 080-22278464

607 World Trade Centre, Brigade Gateway, Bangalore India 560055
Email : raghavendra.holla@quadgenwireless.com Mobile : +91-9845566294 Website : www.qfi.rocks

BSNL-QuadGen 5G WiFi Project Proposal

- **BSNL–QuadGen** would create a Carrier-grade WiFi Network connecting **Schools, Colleges, Universities, Courts, Govt Hospitals, Bus Stands, State Govt Offices, Agriculture Market Yards, Tourist Places** etc with 5G WiFi
- QuadGen will Build and Operate a State of the art, Reliable, Scalable, and **End to End Manageable Carrier grade Wi-Fi Network**
- **Customer Support** for WiFi Network Services will be provided by **QuadGen**
- **n*10 Mbps Internet Bandwidth** will be leased from BSNL for extending WiFi coverage at the campus
- WiFi Coverage will be at maximum footfall areas within the campus premises
- Govt staff will be preprovisioned into the system for access to campus-wide WiFi
- General public coming into the campus will have WiFi access just like using WiFi at any Public HotSpot through e-coupon or Hard Coupon purchase
- 24/7 Monitoring and QoS/QoE with Cyber Security is assured

E2E WiFi Services on a Turnkey basis

- Site Survey , WiFi Network Design for both Capacity & Coverage
- Installation & Commissioning of the 5G WiFi Network at the identified locations
- Campus-wide WiFi Network Infrastructure with the BSNL Internet Gateway.
- Centralized Operations, Maintenance and Control (OMC) for WiFi Network Services
- Subscriber Registration, Authentication and Activation
- Service Assurance of QoE / QoS with Accounting

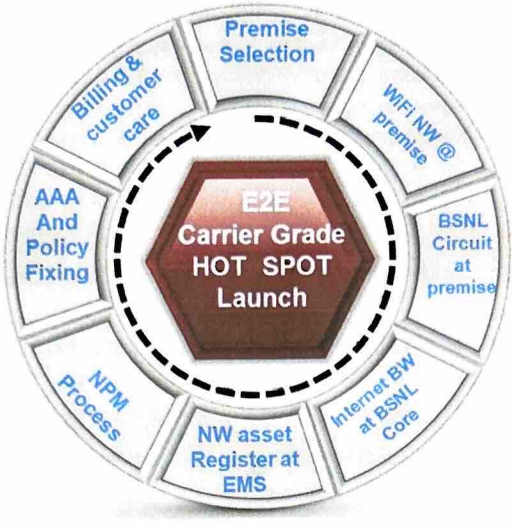
Stakeholders involved

- **QuadGen as a overlay WiFi Service Provider with network build, own, operate and maintain responsibility**
- **BSNL as a backhaul internet bandwidth Service provider**
- **User Institutions / Municipal Corporations** to provide permissions to the premise / campus for WiFi network establishment involving the poles for mounting of WAPs, digging the trenches for laying the fiber, pulling aerial fiber, extending AC power and providing security for the Wi-Fi Network Equipment

BSNL-QuadGen 5G WiFi HotSpot Launch Process

QuadGen
607 World Trade Centre, Brigade Gateway, Bangalore India 560055
Email : raghavendra.holla@quadgenwireless.com Mobile : +91-9845566294 Website : www.quadgen.com

AL-AMEEN COLLEGE OF LAW
59, Behind Al-Ameen Tower,
Near Lalbagh Main Gate,
Hosur Road, Bangalore-560027
Ph: 080-22112563/65, Fax: 080-22278464



QuadGen would select Public and Institutional WiFi HS Locations ,and coordinate with BSNL for Internet BW to be terminated with **NW Performance Monitoring (NPM)**,and QuadGen responsible for all NW **Element Mgmt System (EMS)** with Subscriber **AAA** functions Authentication, Authorization and Accounting including QoS policy.

BSNL Responsibility

- Extend OFC links @n*10 Mbps at competitive rates as compared to any other Telco
- QoS enabled Internet BW for campus-wide WiFi through BSNL Gateway
- Provide interface for Lawful Intercept Monitoring and IPDR sharing to LEAs.
- BSNL would have a nodal officer @ GM-level to co-ordinate and monitor the extension of backhaul links to all the identified WiFi sites

QuadGen Responsibility

PRINCIPAL
AL-AMEEN COLLEGE OF LAW
59, Behind Al-Ameen Tower,
Near Lalbagh Main Gate,
Hosur Road, Bangalore-560027
Ph: 080-22112563/65, Fax: 080-22278464

QuadGen
607 World Trade Centre, Brigade Gateway, Bangalore India 560055
Email : raghavendra.holla@quadgenwireless.com Mobile : +91-9845566294 Website : www.qfi.rocks

- Identify maximum Footfall areas at the locations identified for WiFi deployment
- Plan and Design Radio Network for both Capacity and Coverage
- Plan for Subscriber Capacity & Internet Bandwidth for the Campus-wide deployment
- Deploy the WiFi Network Infrastructure on the Campus Premises
- Integrate the Campus WiFi network with the BSNL Internet Gateway
- Set up and manage a portal for online registration, recharge etc.,
- Operate a NOC with EMS/NMS and OSS/BSS systems for Operations, Monitoring and Control (OMC) of the entire WiFi Network
- Operate a call center for end user support

Al-Ameen College of Law Responsibility

- Engage BSNL on G2G basis for the launch of 5G Wi-Fi by QuadGen and extend support thro Local Municipal Corporations to provide the necessary permissions and approvals

Al-Ameen College of Law Responsibility

- Provide permissions for utilizing the poles for mounting of WAPs, digging the trenches for laying the fiber, pulling aerial fiber, extending AC power and providing security for the Wi-Fi Network Equipment

Types of WiFi Services Offered

- End user WiFi services on B2C basis for Time-based and Volume-based packs
  - Time-based : 30 min / 1 hour / 4 hour / 1 day / 1 week / 1 month
  - Volume-based : 100 MB / 300 MB / 500 MB / 1 GB / 2 GB / 3 GB / 4 GB
- **e-Vouchers / Hard Vouchers** for Time / Volume WiFi Service Packs
- **Institutional Managed WiFi Services on B2B-basis with n*10 Mbps Internet BW at attractive tariffs supporting users from 200 to 4000 depending on the campus size with every user in the campus to be supported with Time-based or Volume-based WiFi Service Packs as mentioned above**

PRINCIPAL
AL-AMEEN COLLEGE OF LAW
Quadgen Wireless Tower,
Near Talbagh Main Gate,
Hosur Road, Bangalore-560027
Ph: 080-22112563/65, Fax: 080-22278464

Uniqueness and Competitive Advantages of BSNL-QuadGen WiFi

QuadGen
607 World Trade Centre, Brigade Gateway, Bangalore India 560055
Email : raghavendra.holla@quadgenwireless.com Mobile : +91-9845566294 Website : www.qfi.rocks

- Wide reach
- Ubiquitous BackHaul (BH)
- Back Haul @ n*10/100 Mbps and readily available Back Haul
- No need for ROW
- Shortest deployment time
- **G2G & open trust**
- 5G WiFi Telecom Operator-grade
- Throughput from **600 Mbps upto 1.3 Gbps**
- Users 256 upto 512 per WiFi Access Point &Campus-wide support upto 4000 users

Timelines for Deployment for WiFi Services at Chosen Institutional Premsies

- Deployment to establish 5G WiFi Network on a Campus Premise is 1 to 2 weeks
- BSNL-QuadGen can complete about **1000+ Institutional WiFi HSs in 4 months.**
  - Schools and Colleges
  - Universities
  - Banks
  - Hospitals
  - Bus stands
  - Govt Offices
  - Tourist Places etc

PRINCIPAL
AL-AMEEN COLLEGE OF LAW
59, Behind Al-Ameen Tower,
Near Lalbagh Main Gate,
Hosur Road, Bangalore-560027
Ph: 080-22112563/65, Fax: 080-22278464

Commercial Offering

QuadGen WIRELESS SOLUTIONS
607 World Trade Centre, Brigade Gateway, Bangalore India 560055
Email : raghavendra.holla@quadgenwireless.com Mobile : +91-9845566294 Website : www.qfi.rocks

Sr No	Venues	4 Mbps	10 Mbps
1	Calangute Residency	Rs 10,00,000	Rs 13,92,000
2	Panjim Residency	Rs 5,00,000	Rs 6,96,000
3	Margao Residency	Rs 11,50,000	Rs 14,52,000
4	Miramar Residency	Rs 19,50,000	Rs 22,68,000

- Mix of Indoor and Outdoor as needed based on the network design
- POE switches, Rack, UPS and other auxiliary equipment as needed
- Site Survey , CAT 5 /CAT 6 cabling based on network design
- Installation & Commissioning of WAP and Integration with centralized core
- Monitoring and Management of Campus WiFi network on 24x7 basis
- Repair/Replacement of the Equipment. No additional AMC charges needed.
- Service Tax Extra at Actuals
- Work order to place on BSNL .

PRINCIPAL
AL-AMEEN COLLEGE OF LAW
59, Behind Al-Ameen Tower,
Near Lalbagh Main Gate,
Hosur Road, Bangalore-560027
Ph: 080-22112563/65, Fax: 080-22278464

607 World Trade Centre, Brigade Gateway, Bangalore India 560055
Email : raghavendra.holla@quadgenwireless.com Mobile : +91-9845566294 Website : www.qfi.rocks

RK CABLE NETWORK
NO 365 H SIDDAIAH ROAD, BADA MAKAN BANGALORE 560027
Phone: 734171545 8553006454

18/09/2023.

This is certify that Al-Ameen College of Law, Near Lal Bagh Main Gate Hosur Road Bangalore has the following details of the Hathway Connection

Al-Ameen College of Administrative Block = 100 mbps Unlimited

Al-Ameen College of Law= Computer Block: 200 MBPS Unlimited

Riyaz Ahmed.

R.K. CABLE NETWORK
No. 366, H. Siddaiah Road
Bada Makan, Bengaluru - 5[illegible]
Phone No. 934171545[illegible]

19/9/23

8553005454

AllAmeen Law collage = 100 mBPS unlimited.

AllAmeen computer class = 900 mBPS Unlimited.

Riyaz Ahmed.