UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION
INTERNATIONAL ATOMIC ENERGY AGENCY
INTERNATIONAL CENTRE FOR THEORETICAL PHYSICS
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PARTICIPANTS' REPORTS-9

ICTP - URSI - ITU/BDT WORKSHOP ON THE USE OF RADIO FOR DIGITAL COMMUNICATIONS IN DEVELOPING COUNTRIES

(17 - 28 February, 1997)

"Radio Based Digital Network in Yerevan"

A. Toneyan
Yerevan
REPUBLIC ARMENIA

Radio Based Digital Network in Yerevan

Toneyan Albert, e-mail albert@yerphi.am

Computing centre of

Yerevan Physics Institute,

Republic Armenia

In 1994 Satellite Station Was installed

in Yerevan Physics Institute (YerPhI).

It Connects LAN of YerPhI to DESY

in Hamburg at 64 kbps channel.

~ 300 scientists are using this channel

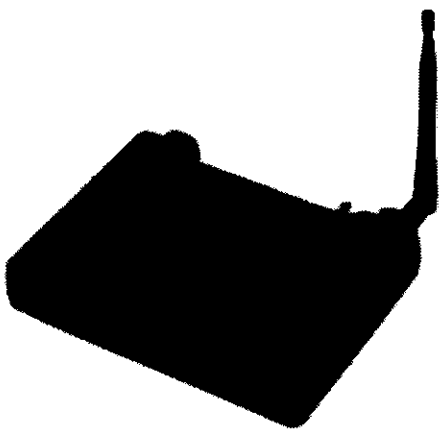
to access to Internet.

Aironet™

ARLAN® 640/2400

Wireless Ethernet Bridge

PC MAGAZINE EDITORS' CHOICE™
January 7, 1997
Aironet BR2000-EE



PCWEEKLABS ANALYST'S CHOICE
MARCH 13, 1995

The ARLAN 640/2400 wireless bridge provides unsurpassed flexibility and capability in building-to-building communications. Designed for linking Ethernet networks in different locations together, the ARLAN 640/2400 can span line of sight distances up to 4 miles with optional antennas, at speeds up to 2 Mbps.

Using patented spread spectrum radio technology, originally developed by the U.S. military for fast, secure, and reliable communications, the ARLAN 640/2400 operates reliably under all weather conditions.

Aironet wireless bridges are a low cost alternative to laying cable or leasing expensive telephone lines, and can be used where traditional wired LAN interconnections are impossible. And unlike wired alternatives, they are portable and easily re-deployed as needs change.

Provides **transparent wireless connectivity** between multiple Ethernet segments over line-of-sight distances up to **4 Miles**.

Features second generation multi-channel **Direct Sequence Spread Spectrum** radio technology for worldwide operation, with data rates up to 2 Mbps per channel.

ARLAN® 640/2400 Specifications

Wireless Medium:	Direct Sequence Spread Spectrum Radio
Operating Frequency Range:	2.4-2.4835 GHz (FCC, Canada, ETSI) 2.471-2.497 GHz (Japan)

Performance:

Data Rate per Channel (Min/Max):	354 Kbps/2 Mbps (FCC, Canada, ETSI, Japan)
Number of Channels:	5 with 3 non-overlapping (FCC, Canada, ETSI) 1 (Japan)
Wireless LAN Capacity *:	6 Mbps (3 Ch. @ 2 Mbps) (FCC, Canada, ETSI) 2 Mbps (1 Ch. @ 2 Mbps) (Japan)
CPU:	25 Mhz Motorola 68360

Range:

Directional Range**:	Up to 7 Km (4 Mi.)
Radio Output Power:	50 mW (ETSI) 100 mW (FCC)
Standard Antenna:	2.15 dBi Dipole
Optional Antennas:	2.2 dBi Omni, 3 dBi Patch, 5.2 dBi Omni, 8.5 dBi Patch, 13.5 dBi Yagi, others available
Antenna Connection:	Reverse Polarity TNC (RP-TNC)

Network Support:

Wired LAN Protocol:	IEEE 802.3 CSMA/CD and Ethernet Blue Book
Wired LAN Connections:	10Base2 (Thin/BNC), 10Base5 (Thick/AUI), 10BaseT (Twisted-pair/RJ-45)
Wired LAN capacity:	10 Mbps
Wired LAN Filtering:	Intelligent packet filtering by network address, protocol, or packet content
Wireless LAN Protocol:	Patented Microcellular Architecture (TMA) based upon CSMA/CA
Wireless LAN Roaming:	Supported via Patented Microcellular Architecture (TMA)
Wired Access Points per LAN:	Unlimited
Wireless Access Points per LAN:	Unlimited
Users per Access Point:	2043

Configuration and Management:

Local Configuration via:	System Console Port (Serial RS-232C DB-9 Female)
Remote Configuration via:	Any wired or wireless LAN station via Telnet, FTP, or SNMP
Automatic Configuration via:	BOOTP
SNMP Compliance:	MIB I, MIB II, and ARLAN Enterprise MIB

Data Integrity:	Direct Sequence Spreading
Security:	System ID required, over 16 million available
Configuration Security:	Password Protected
Flash ROM:	256 KB for Configuration Tables and Firmware
System RAM:	1 MB Standard
LED Indicators:	System Status, Ethernet Activity, Wireless LAN Activity

Physical Characteristics:

Dimensions (W x D x H):	20 cm x 15 cm x 5 cm (7.8 in. x 5.9 in. x 1.9 in.)
Weight:	0.7 Kg (1 lb. 8 oz.)
Temperature Range:	-20°C to +50°C (-4°F to +122°F)
Power Supply:	90 - 260 V.A.C., 50/60 Hz, 18 V.D.C. @ 1 A
Warranty:	One Year Parts and Labor returned to Factory
Approvals:	FCC Part 15, SubPart B, Class A FCC Part 15.247 Approved for use in over 30 countries

* Requires multiple bridge pairs.

** Directional range is with optional Yagi antenna. Ranges and coverage patterns can be modified by using other antennas. For more information, please contact Aironet Technical support.

In our constant effort to improve products and systems, Aironet Wireless Communications Inc. reserves the right to change or modify features and specifications without notice.

®

Return to Aironet Home Page

Aironet™

ARLAN® 655

ISA Wireless LAN Client Adapter

The ARLAN 655 allows an Industry Standard Architecture bus computer to be quickly and cost-effectively added to an ARLAN network, without running wires or maintaining a costly wired cable infrastructure. Providing unmatched flexibility in network design, the ARLAN 655 allows fixed, mobile, or moving stations to be placed where productivity dictates - offices, factories, hospitals, retail stores.

Using patented spread spectrum radio technology, originally developed by the U.S. military for fast, secure, and reliable communications, the ARLAN 655 can be equipped with either a 900 MHz or 2.4 GHz radio. Combined with Aironet's Microcellular Architecture, the ARLAN 655 can be configured to form a peer-to-peer network with other ARLAN wireless adapters or function as an Ethernet, Token Ring, or LocalTalk II client to appropriate ARLAN Access Points.

- Provides wireless connectivity from an ISA client PC to an Aironet wireless **Ethernet, Token Ring, or LocalTalk II** LAN.
- Features second generation multi-channel **Direct Sequence Spread Spectrum** radio technology for worldwide operation, with data rates up to 2 Mbps.
- Patented Microcellular Architecture for unmatched **roaming** and **power management**.
- Supports **Peer-to-Peer** or **access point** based configurations.
- Implementation in diskless computers supported via **BOOTP**.
- Communicates up to **1000 feet indoors** in any direction, with optional antennas for greater range or modified coverage areas.
- Over 16 million system ID settings for **security** and **subnetwork isolation**.
- Menu driven **system configuration** and management via standard setup and diagnostic utility.
- **NDIS, ODI,** and **PACKET** device drivers provide support for all popular network operating systems, including Novell NetWare.
- Modular design provides easy **migration path** to alternative radio technology.

ARLAN® 655 Specifications

PERFORMANCE
MODEL 655-900

Operating Frequency Range:	902-928 MHz (FCC, Canada) 915-928 MHz (Australia)
Data Rate (Min/Max):	215 Kbps/860 Kbps (FCC, Canada) 172 Kbps/215 Kbps (Australia)
Number of Channels:	12 (FCC, Canada) 7 (Australia)
CPU:	16 Mhz Zilog Z182

RANGE
MODEL 655-900

Typical coverage per microcell*:	7,000 sq. m. (75,000 sq. ft.)
Omni-Directional range, Indoors*:	Up to 300 m. (1,000 ft.)
Omni-Directional range, Outdoors*:	Up to 600 m. (2,000 ft.)
Output power:	450 mW
Standard Antenna:	2.15 dBi Dipole
Optional Antennas:	3 dBd Omni, 6 dBd Patch, 6 dBd Yagi
Antenna Connection:	Reverse Polarity TNC (RP-TNC)

PERFORMANCE
MODEL 655-2400

Operating Frequency Range:	2.4-2.4835 GHz (FCC, Canada, ETSI) 2.471-2.497 GHz (Japan)
Data Rate (Min/Max):	1 Mbps / 2 Mbps (FCC, Canada, ETSI, Japan)
Number of Channels:	5 (FCC, Canada, ETSI) 1 (Japan)
CPU:	16 Mhz Zilog Z182

RANGE
MODEL 655-2400

Typical coverage per microcell*:	4,500 sq. m. (50,000 sq. ft.)
Omni-Directional range, Indoors*:	Up to 150 m. (500 ft.)
Omni-Directional range, Outdoors*:	Up to 300 m. (1,000 ft.)
Output power:	50 or 100 mW

The maine goal of the Project:

Providing Internet access to number of

Scientific and Educational Organisations in Yerevan.

Radio Backbone and cellular area in Down Town of Yerevan is installed
Providing full access to Internet and to inter organisation Network
using TCP/IP, IPX and other protocols.

In this year we are going to continue the Backbone from

YerPhI to nearest region of Armenia, Ashtaraks region

distanced ~ 25 km from Yerevan.

We have tested ARLAN'S in this distance, the results are good.

7 more institutes well be connected at the end of this step.