

Adaptrum ACRS2.0



TV White Space Client Radio

Ubiquitous Wireless Broadband with TV White Space Technology

Adaptrum's ACRS2.0 provides long-range wireless broadband connectivity with unrivaled non-line-of-sight (NLOS) coverage, simple deployment, and globally proven reliability. The ACRS2.0 serves as the client radio of the Adaptrum TV White Space (TVWS) System. These radios are ideal for supporting a range of fixed wireless applications: from rural broadband for underserved communities to machine-to-machine communication.

Long Range. Improved Penetration

Low frequency TVWS spectrum combined with Adaptrum's Non-Line-of-Sight (NLOS) OFDMA technology provides better propagation and improved signal penetration. Means reliable service even in rugged terrain and heavy foliage.

Fast & Low Latency

Industry leading channel efficiency and Just-In-Time OFDM Frame Buffering technology supporting up to 256-QAM provides highest data rates and lowest latency in any TVWS system. Means robust delivery of broadband services.

Dynamic Access

Wide-band frequency agile radios and patented Agile Sensing technology provide unlicensed access to underutilized TV White Space spectrum. Allows dynamic selection of best channels and optimal network planning.

Interference Free

Patented Clean Radio Emission technology is spectrum environment conscious. Produces the cleanest out-of-band emission in the industry. Provides interference free coexistence with TV broadcast systems and TVWS networks.

Ultra Rugged

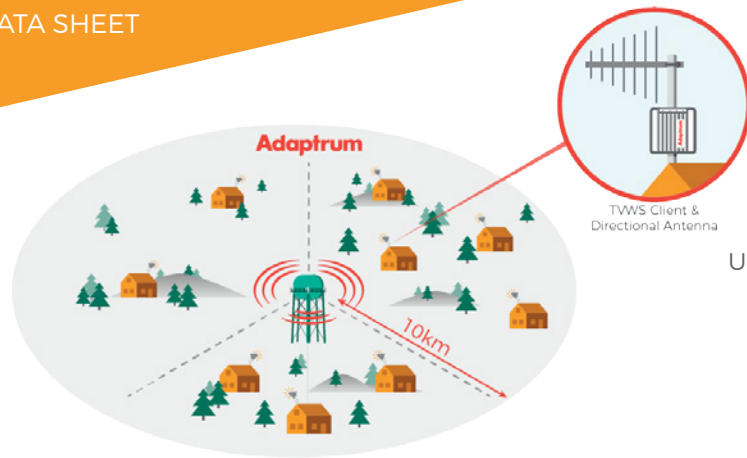
Sealed and ruggedized aluminum shell construction allows the ACRS2.0 to withstand the harshest environmental conditions and achieve extended outdoor life anywhere around the world.

Manage with Ease

Status and configuration of every device are instantly accessible remotely via the Adaptrum network manager system. Intuitive controls and rich data collection & analysis makes managing and monitoring whole networks easy.

Simple Deployment

Weighing less than 4 pounds, the ACRS2.0 can be wall or pole-mounted with the simple, provided bracket. Allows easy installations and flexible deployments with existing infrastructure in any location.



360° Point-to-Multipoint TVWS Network

ACRS2.0 client radios are typically deployed as part of a point-to-multipoint TV White Space fixed wireless network. Utilizing directional antennas, clients are oriented to point back towards an elevated basestation site typically comprised of 3 sectorized TVWS basestation radios.

Supporting non-line-of-sight links, clients can be deployed out to a distance of 6mi (10km) and in any direction from the basestation site.

ACRS2.0 Client Technical Specifications

Performance

Max Data Rate (PHY):
26.7Mbps/6MHz; 37.3Mbps/8MHz; 46.7Mbps/10MHz

Delivered Throughput (IP):
13Mbps/6MHz; 20Mbps/8MHz; 24Mbps/10MHz

Bandwidth Efficiency: 94%

Latency: 15ms typical

Radio

Frequency Range: 400MHz - 1GHz (restricted by country)

Channel Bandwidth: 6/7/8MHz channel plans, supporting channel expansion to 10MHz for 6MHz channel plans

Modulation: QPSK, 16QAM, 64QAM, 256QAM

Max Conducted Power: 100mW (20dBm)

Adjacent Channel Emission: < -55dBc

Sensitivity (by channel size):

SNR (dB)	6MHz Ch.		8MHz Ch.		Modulation
	Sensitivity (dBm)	Rate (Mbps)	Sensitivity (dBm)	Rate (Mbps)	
3.5	-98	4.0	-96.75	5.6	QPSK 1/2
11.5	-90	10.6	-88.75	14.8	16QAM 2/3
21.5	-80	20.0	-78.75	28	64QAM 5/6
29.0	-72.5	26.7	-71.25	37.3	256QAM 5/6

Features

Agile Sense Channel Scan: Active scan monitors & logs on-going RF conditions across channels (no service impact)

Power

Max Power Consumption: 20W

Power Supply included: Passive POE injector, 110/220V AC input, 48V DC output

System Interfaces

External Antenna: TNC Female

Data/Control: 10/100 Ethernet

Database Access: PAWS (IETF RFC 7545)

Management: Adaptrum browser-based GUI & NMS, SNMP Remote Monitoring

External Antenna Options

Log-Periodic: Vertically polarized 65°, 11dBi

Panel Antenna: Vertically polarized 90°, 7dBi

Physical

Size: 8.5in x 7.5in x 1.5in (216mm x 191mm x 38mm)

Weight: 3.6lbs (1.6kg)

Enclosure Characteristics: Weatherproof sealed aluminum

Mounting: Wall & pole mounting bracket included

Environmental

Operating Temperature: -40°C to 50°C (-40°F to 122°F)

Operating Humidity: 5% to 100%

Regulatory & Compliance

Approvals: FCC Part 15 Subpart H
ETSI 301 489-1, ETSI EN 301 598
Singapore iDA type approval

About Adaptrum

Driving both technical and regulatory innovations, Adaptrum has pioneered the use of previously underutilized TV White Space spectrum. Founded by leading experts in wireless communications, our creative and experienced team is committed to fundamentally changing the wireless industry and enabling universally affordable broadband.