DATA SHEET

Adaptrum ACRS2.0

Simple. Affordable. Universal.

Ubiquitous Wireless Broadband
with TV White Space Technology

Adaptrum's ACRS2.0 provides long-range wireless broadband connectivity with unrivaled coverage, simple deployment, and reliability. The ACRS2.0 is available in both base and client radio configurations as part of the Adaptrum TV White Space (TVWS) System. These radios are ideal for supporting a range of wireless applications: from rural broadband for underserved communities, to wireless offload, 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 provides highest data rates and lowest latency in any TVWS system. Means robust delivery of streaming and interactive broadband services.

Dynamic Access
Patented Agile Sensing and geo-location technology provide unlicensed access to underutilized TV White Space spectrum. Allows dynamic selection of best channels and optimal network channel 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.

Affordable & Scalable
With zero upfront spectrum cost and very low infrastructure CAPEX, networks investment can be scaled with connected client take-up. Achieve a sustainable, profitable business.

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 base and client are instantly accessible via Adaptrum's remote manager. Intuitive controls and rich data collection & analysis makes managing and monitoring whole networks of radios easy.

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

What is TV White Space?

TV White Spaces (TVWS) are vacant portions of UHF spectrum resulting from legacy TV channel plans. Throughout the world there exist large areas where channels are effectively unused. With the transition from analog to digital TV, an increased number of white spaces now exist in the TV bands.

Recent regulation has opened this spectrum for access via unlicensed (but certified) wireless devices. Because lower frequency results in improved propagation, TVWS technology promises better range and improved indoor coverage than higher frequency unlicensed bands (i.e. 900MHz, 2.4GHz, 5GHz, etc.). Additionally, TVWS provides abundant spectrum (up to 180MHz). Free (unlicensed) use, long range propagation, and a large quantity of available spectrum make it very attractive for wireless broadband services.

Accessing TVWS spectrum requires intelligent technology to locate vacant channels at each radio's location and dynamically construct a network. Adaptrum's industry leading white space radios harnesses adaptive radio technology to detect optimal white spaces and establish reliable and high-performance communication.

Technical Specifications

Performance

Max Data Rate:
20Mbps/6MHz; 28Mbps/8MHz; 35Mbps/10MHz

Delivered Throughput:
10Mbps/6MHz; 15Mbps/8MHz; 18Mbps/10MHz

Bandwidth Efficiency: 94%

Latency: 15ms typical

Radio

Frequency Range: 400MHz - 1GHz

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

Modulation: QPSK, 16QAM, & 64QAM

Max Conducted Power: Standard Version 100mW (20dBm)

Adjacent Channel Emission: < -55dBc

Sensitivity (by channel size):

SNR	6MHz Ch.		8MHz Ch.		Modulation
(dB)	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

Advanced Spectrum Technology:
Channel quality measurement and analysis

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

External Antenna Options

Log-Periodic: Vertically polarized 65˚, 11dBi

Panel Antenna: Vertically polarized 90˚, 11dBi

Physical

Dimensions: 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.

Adaptrum

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