

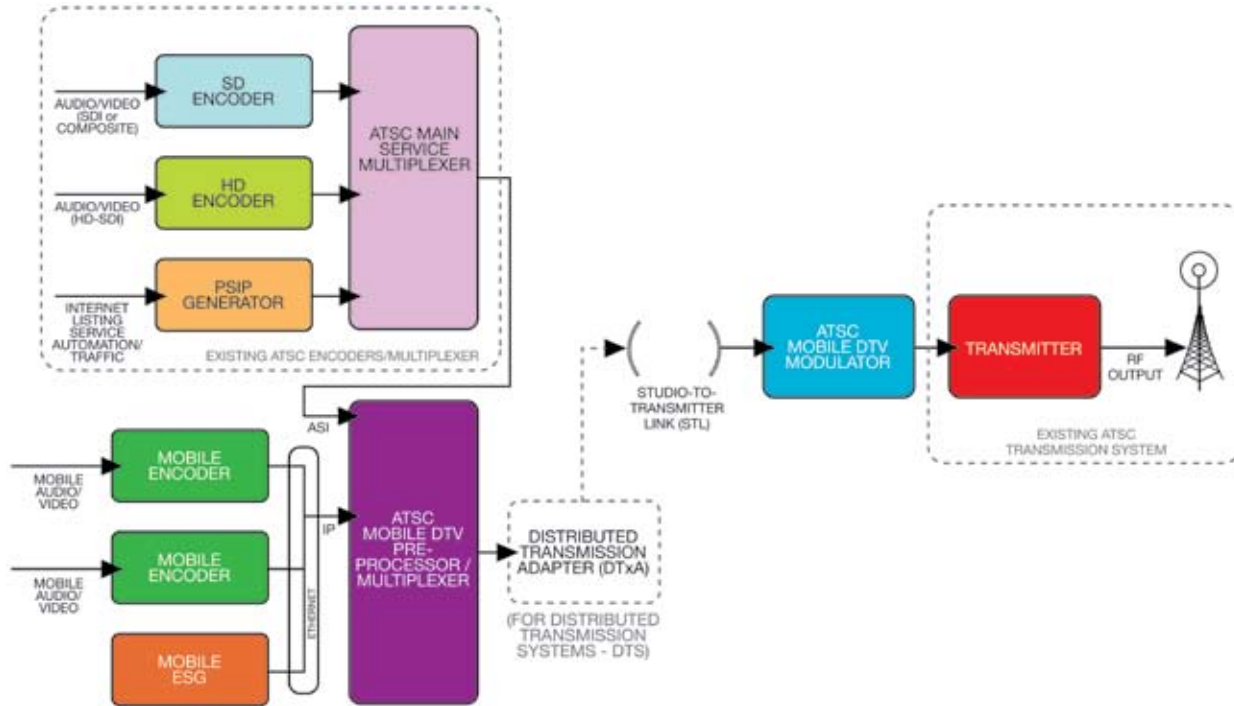
Advanced ATSC Solutions: ATSC Mobile DTV & DTS



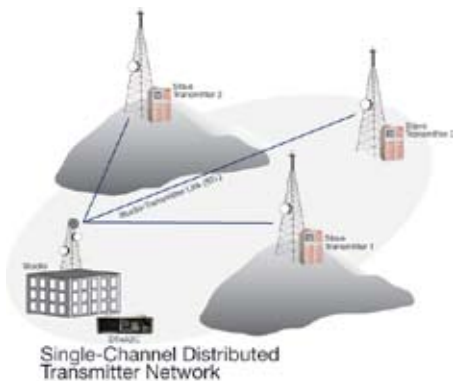
Axcera is a premier provider of RF transmission solutions for the broadcast and mobile TV industries, and the only manufacturer to commercially deploy Distributed Transmission systems. With over 25 years of experience, Our products and services are used worldwide by broadcasters and mobile media system operators. In this time, we have earned our reputation as a high quality supplier with the focus on meeting customers' needs. Axcera products are designed and manufactured to ISO 9001:2008 standards.

ATSC Mobile DTV Systems

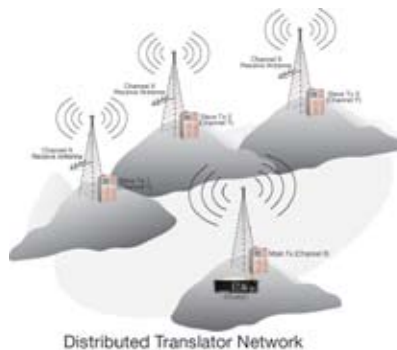
Mobile TV technology allows broadcasters to entertain, educate and inform viewers wherever they are. ATSC Mobile DTV is the mobile/handheld technology that was adopted by the ATSC (Advanced Television Systems Committee), in October, 2009. Xcera's ATSC Mobile DTV solution consists of an ATSC Mobile DTV Pre-processor/Multiplexer to combine main service and mobile content into a single transport stream feeding an ATSC broadcast transmitter. ATSC Mobile DTV service can be broadcast from a single transmitter, but to improve coverage to handheld devices and for in-building signal penetration, it is advantageous to broadcast from multiple transmitters configured in a Distributed Transmission System (DTS). Xcera is an industry leader in mobile TV transmission solutions and a pioneer in Distributed Transmission Systems.



Distributed Transmission Systems



Distributed Transmission Systems utilize multiple transmitters to service a coverage area where terrain shielding makes it harder to transmit a signal using a single tall tower. The transmission system is fed through studio-to-transmitter links which carry identical signals to a number of slave transmitters. The slave transmitters all transmit identical synchronized signals on the same RF channel.



Distributed Transmission can also be applied to translator systems by creating a "distributed translator network." Slave transmitters are fed through receive antennas that get the program and synchronized information from the main transmitter site.

ATSC Exciters, ATSC Mobile DTV Multiplexer, Distributed Transmission System Adapter

DM8C-R ATSC Exciter

The DM8C-R builds on the field-proven technology of Axcera's digital exciter family, offering broadcasters the most flexible and affordable solution available. Designed with LPTV operators in mind, the DM8C-R comes standard with One-Touch Correction (OTC) that corrects distortions at the touch of a button with the option of having full continuous adaptive correction (AXACT).



Product Features

- Supports ATSC main service and ATSC Mobile DTV
- One-Touch Correction (OTC)
- DTVision™ signal analysis
- Axcera Adaptive Correction Technology (AXACT™)
- Software upgradable from legacy ATSC to Distributed Transmission (DTx) slave mode and ATSC Mobile DTV with no change in hardware
- Dual Processors ensure high availability
- Part of Axcera's complete family of exciters
- Bandwidth Enhancement Technology™ compatible narrowband transmission system

Axciter™ Digital Exciter-Modulator

The Axciter digital television modulator is the most advanced exciter available today. Building on the field-proven hardware platform of Axcera's digital exciter family, the Axciter offers terrestrial broadcasters the most flexible solution available.



Product Features

- Supports ATSC main service and ATSC Mobile DTV
- Axcera Adaptive Correction Technology (AXACT™)
- DTVision™ signal analysis
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ATSC Mobile DTV Multiplexer

The Axcera ATSC Mobile DTV pre-processor and multiplexer provides broadcasters the most flexible and cost-effective solution for ATSC mobile DTV service.



Product Features

- Ethernet interface
- SMPTE 310M/ASI input for HD and SD Channel(s)
- UDP/IP interface for mobile channels
- ATSC Mobile DTV (A/153) compliant output

Distributed Transmission Systems (DTS)

Axcera's Distributed Transmission Network (DTxN) solution consists of a Distributed Transmission Adapter (DTxA), one or more slave transmitters, studio-to-transmitter links, and integration services. This approach allows multiple signals to be broadcast in overlapping coverage areas on the same channel.



Distributed Transmission Adapter (DTxA) Product Features

- Supports ATSC main service and ATSC Mobile DTV
- Accepts a SMPTE 310M (ASI optional) data stream with embedded placeholder packets
- Outputs a modified SMPTE 310M (ASI optional) stream including distributed transmission packets
- Synchronizes symbols and pilot frequency of each slave site
- Supports one frequency for single frequency networks as well as multiple frequencies for Distributed Translator Networks
- Supports signal transmission to DTS slave transmitters via standard studio-to-transmitter microwave, satellite, or fiber-optic links
- When more than one frequency is available, the main transmitter can serve as the transport mechanism to the slave sites, eliminating the need for separate STLs for each site

The Most Comprehensive Transmitter Line Available



Innovator® CX Solid State Transmitter/Translator/Transposer/Gap Filler
Designed as a compact, affordable and high quality transmission solution, the Innovator CX features multiple configurations for any application.

Product Features

- Frequency agile exciter
- Broadband amplifier
- Frequency: 174-230 MHz, 470-862 MHz
- Up to 2000W ATSC (UHF), 6000W ATSC (VHF)
- Compact, single module configuration up to 125W ATSC
- Transmitter version includes built-in frequency agile digital or analog exciter
- Low delay echo-canceling repeater version utilized for on-channel gap filler applications
- Remote monitoring and control capability through a Web browser or SNMP interface



Innovator® HX Air-Cooled Solid State Transmitter

The Innovator HX offers a modern design with a high level of versatility, allowing broadcasters to choose the configuration that best meets their individual needs. Reliable, quiet and efficient air-cooling provides for long amplifier life.

Product Features

- Frequency agile exciter
- Broadband amplifiers
- Frequencies: 54-88MHz, 170-220 MHz, 470-862 MHz
- Up to 40kW ATSC
- Modular construction with hot-swappable components
- Parallel amplifiers and power supplies
- Remote monitoring and control capability through a Web browser or SNMP interface



6X™ Series Liquid-Cooled Solid State Transmitter

This state-of-the-art liquid-cooled transmitter uses our frequency agile exciter and the latest LDMOS devices for broadband operation across the entire UHF band. The 6X Series employs a high power density, reducing floor space requirements.

Product Features

- Frequency agile exciter
- Broadband amplifiers
- Frequency: 470-862 MHz
- Up to 40kW ATSC
- Hot-swappable amplifiers with parallel configuration
- Optional N+1 power supply configurations available
- Remote monitoring and control capability through a Web browser or SNMP interface



Visionary® Series IOT Transmitter

Whether your requirement is a single or multi-collector IOT; or air, water or water/glycol cooling, the Visionary Series transmitter is your high power UHF solution for today and tomorrow.

Product Features

- Frequency agile exciter
- Broadband LDMOS driver amplifiers
- Frequency: 470-862 MHz
- Up to 120kW ATSC
- Most versatile design available
- Standard or multiple collector IOTs



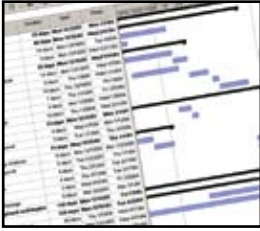
Outdoor Enclosures

Environmental enclosures allow for simple outdoor or rooftop installation. They provide environmental control for operation over a wide range of ambient temperatures while still providing easy access to system components. Enclosures are field-proven in the harshest environments ensuring the reliability of your transmitter anywhere in the world.

Product Features

- Can be equipped with surge or lightning protection, heating, fire suppression and more
- Air conditioned and non-air conditioned enclosures available

Project Management & System Integration



Project Management

Services are available to support the design and implementation of systems involving Axcera products. Axcera maintains a fully staffed project management and support team of engineers to help with application, design, and support of customer systems.

Features

- RF coverage analysis
- Maintenance packages
- System design & integration
- Project management
- Installation

Projects & Capabilities

MTVA (Metropolitan Television Alliance)

In the wake of the September, 2001 World Trade Center collapse, many broadcasters including members of the MTVA lost their main transmission site. Since then, analog transmissions have resumed from atop the Empire State Building, but adequate digital coverage remained a problem. With the completion of the Freedom Tower (a potential transmission site) years away, and the analog shutoff looming, MTVA was granted permission from the FCC to build an experimental Distributed Transmission solution in metropolitan New York City in order to restore digital coverage to pre-9/11 levels.

Faced with the challenge of providing strong coverage in an environment with high levels of multipath and building penetration loss, Axcera provided a distributed transmission solution consisting of four transmission sites. The result was a successful deployment of Distributed Transmission technology and a system that was the first of its kind in an urban setting.



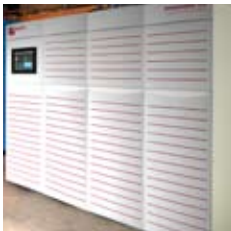
WPSX

The mountainous terrain of central Pennsylvania was a daunting threat to the propagation of Penn State Public Broadcasting's digital signal. However, distributed transmission technology allows WPSX-DT to blanket this hilly coverage area with a high quality digital signal from multiple synchronized transmitters, all using a single UHF channel.



WTVE-DT (Reading Broadcasting)

In order to improve coverage and increase the amount of populace served within its service range, WTVE-DT needed an innovative solution. Axcera provided this solution with 7 transmitter sites designed to function in a distributed transmission system, all delivering a high quality digital signal to viewers in Reading, PA and surrounding areas.



WVPT/WVPY (Virginia Public Television)

In 2005 WVPT/WVPY commissioned Axcera for their Distributed Transmission build-out. This included replacing the standard exciter in their existing Harris transmitter with an Axcera slave exciter. Axcera also provided 5 new transmitters to the network and modified an existing Axcera Innovator transmitter, turning a single unit into a main and a backup system. The system uses one distributed transmission adaptor to serve two overlapping single frequency networks on two separate channels.



Crown Castle

Axcera supplied and managed the installation of the majority of Mobile TV base stations to Crown Castle's Mobile TV subsidiary, Modeo, for a technology trial in Pittsburgh and a commercial trial in New York City with over 60 units installed in New York City alone.





Complete System Integration & Customer Support

Axcera is serious about our commitment to "Total Customer Happiness." When you choose our products and systems, you will also receive our relentless commitment to your overall satisfaction. Our extensive RF capabilities and experience enables us to provide design and integration services and on-going customer service and support that are unparalleled in the broadcast industry.

Axcera offers complete RF coverage analysis, system design and integration, installation, project management and support services directly and through our global network of integration and support partners. Our knowledgeable account managers and systems engineers will work with you to ensure that you are provided with a solution that is optimal for your needs. Our world class integration, installation and support team is well recognized in the industry for our exceptional customization capabilities and installation craftsmanship.

Our industry-leading Customer Support Group is a team of experienced field service technicians available 24/7. Our team is also available to travel to your site to quickly resolve any service issues. They are also available for routine maintenance, equipment installation, proof of performance testing and product training.

**Our professional support is available by phone 1-800-215-2614
or +1 724-873-8100 or email: service@axcera.com**

At Axcera we look forward to the opportunity to demonstrate our commitment to your total happiness with our products and services.



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the **rf** experts

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