

TaitNet QS² Simulcast

- Ultra-Low Maintenance
- Spectrum Efficient
- Crystal Clear Audio

When mobile staff spread over a wide area need access to the same information, TaitNet QS² Simulcast is a dependable, cost-effective solution.

An intelligent QS² Simulcast system overcomes the biggest drawback of traditional simulcast systems - costly regular maintenance.

Ideal for utility and public safety organizations, QS² Simulcast provides the saturation coverage to ensure all staff are instantly available on the same channel.

From the mountains of British Columbia to bank vaults of central Zurich, TaitNet QS² Simulcast ensures people are connected in the most challenging mobile communications environments.



TaitNet QS² features

TaitNet QS² Simulcast broadcasts simultaneously from several transmitters on the same frequency. The transmitters then operate as a single transmitter giving superior coverage.

Reliable Performance

Our customers tell us that reliability of their radio system is their prime concern.

A TaitNet QS² system delivers reliability with the use of Digital Signal Processing (DSP) technology. This results in highly stable audio equalization characteristics which do not alter over time, making a QS² system a high performer in simulcast technology.

Frequency Efficient

QS² systems achieve frequency efficiency by using a single frequency pair across the entire coverage area, eliminating the need for multiple channel licenses – saving spectrum and cost. This efficiency is maintained for larger multi-channel QS² systems.

Maximum Wide Area Coverage

QS² systems provide maximum coverage for radio users, by adjusting the radiated signals from all site transmitters so the radio user gets the best possible result. By optimizing all transmitters we can saturate a local area and often provide coverage in traditional dead-spots like shopping malls and basement car parks.

Excellent Audio Quality

About 400 staff from three law enforcement agencies in Sonoma County, USA, use a five-channel system. "The audio quality is distinctly better than the previous system" says Joe Perez.

Reduced Cost of Ownership

Legacy simulcast systems have high maintenance requirements needing regular technician intervention. A TaitNet QS² system performs regular maintenance, known as system training, in just seconds per transmitter, compared with possibly entire days in legacy systems. However as a result of using stable DSP technology, the need for regular maintenance is reduced.



Dispatch staff can easily initiate system training, perhaps via a hardware switch. This ease-of-adjustment enables a rapid response, for instance when a network provider makes changes to fixed lines which could otherwise impact on the quality of system performance.

Fast, Multi-site System Access Time

System access is at the press of a PTT button, giving wide area multi-site operation.

Easy to Use All-informed Network

The open channel provides instant contact between all users for the fast, efficient sharing of information. The system is simple for users and reduces the workload for dispatchers.

In South Africa, more than 1000 of the Durban Metropolitan Council's Fire and Emergency Services, and Metro Electricity Division staff use TaitNet QS² system for dependable mobile communications. "The system has proved to be very reliable and relatively easy to maintain", says Les Thorpe of Durban Metro. "It is highly cost-effective which means that Greater Durban ratepayers are ultimately benefiting."

Seamless Roaming Between Sites

Because simulcast is a technology that provides wide area coverage with one frequency pair, users can travel throughout the system without needing to change channels. System-wide roaming requires no user action at all, and no user training is required when you upgrade to a QS² system.

For British Columbia Rail in Canada, their QS² system provides communications along the scenic 375 miles length of track from Vancouver to Prince George. "Staff don't have to worry about channel selection", says Tom Needes of BC Rail. "There is excellent coverage even in the mountainous sections of track where many of the 18 sites are located".

Compatible with Existing Equipment

The cost of upgrading can be reduced by using existing portable and mobile radios with the QS² system. It may also be possible to re-use existing site transmitters and receivers.

The Town of Oyster Bay, New York, installed a three-site, two-channel QS² system. "The transition was smooth," says Barry Bree, Assistant to the Commissioner. "Not one of our 600 existing mobile or portable units had to be touched by a technician."

Modular System

TaitNet QS² Simulcast is designed and configured to a customer's precise needs and can be easily expanded in the future. Taking up just 3U of rack space, QS² Simulcast reduces site installation and operational costs.

Multiple Link Types

TaitNet QS² Simulcast supports the use of differing link types for different sites.

Kuala Lumpur Mass Transit Rail uses a mix of optical fiber and buried copper. Other scenarios such as RF link and microwave are also typical.

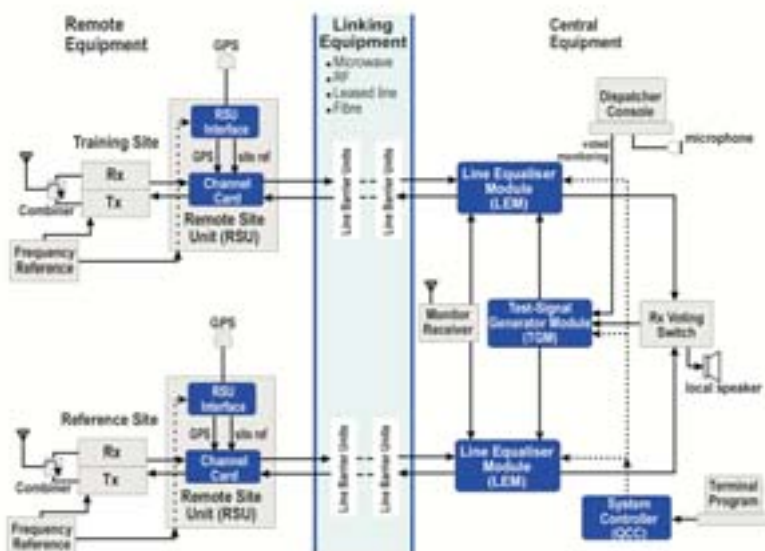
Site Break-out

An individual site can operate independently from the main QS² system, as a talk-through repeater, if a link to that site should fail. This enables local operations to continue during a line outage.

CTCSS/PL Generation

These signals are generated locally at each transmitter site and do not have to be transported around the network via links. They are synchronized across the network with GPS receivers at each site.

2-site QS² Simulcast System



General

Max No of transmitters per system	31
Max No of receivers per system	40
Number of RF channels per system (multiple systems supported)	1

Equalization

Band Width	300–3000Hz
Accuracy	
Amplitude	±0.5dB
Phase	±5°
Equalization Range	
End to end loss @ 1kHz	16dB
Delay between two sites	(manual) 49mSec
	(automatic) 5mSec
Link amplitude response (able to be equalized)	+2 to -6dB

CTCSS/PL

Any single EIA Group A, B or C tone (Any tone 67–259.1Hz in 0.1Hz increments)	
Synchronization	GPS 1ppS
Max Level	2 Vp-p, 5k ohm load
(Selectable) Reverse Burst	200ms Duration, 180ms @ 120° 200ms Duration, 150ms @ 180°

Distribution System Signaling

Control to Remote Site	Idle tone
Remote to Control Site	Idle tone

Note: E & M signaling is supported in the control to remote direction only. For solar installations, this option will not allow link/site monitoring in this direction.

Link System Levels

Control Site to Remote Site	(Traffic)	-12dBm
	(Signaling)	-16dBm
Remote Site to Control Site	(Traffic)	-10dBm
	(Signaling)	-16dBm

Authorized Dealer



Tait is your complete supplier of radio communications equipment, with mobile, portable and infrastructure solutions. Tait is renowned for its flexibility, responsiveness and commitment to producing innovative world-class mobile radio communications products.

Specifications are subject to change without notice and shall not form part of any contract. They are issued for guidance purposes only. Please note not all frequency bands and power outputs are available in all markets. For further information please check with your nearest Tait office or authorized dealer.

Tait Electronics Ltd is an ISO9001: 2000 and ISO 14001: 2004 certified supplier.

Patent: US5745840. Equalization is a simulcast communication system