RFS - One Stop Shop of Innovation

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RFS – One Stop Shop of Innovation

RFS Product Lines

WIRELESS INFRASTRUCTURE SOLUTIONS
- Base Station Antennas & RF Conditioning

RF TRANSMISSION & DISTRIBUTION
- Transmission Lines
- Wireless Indoor Solutions

RADIO LINK NETWORKS
- Microwave Antennas

BROADCAST & DEFENSE
- TV, Radio, HF & Defense, Towers

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RFS end-to-end solutions

Global solutions
- 7 manufacturing centres-of-excellence (Germany, France, USA, Brazil, China, India and Australia)
- Represented on six continents
- 20+ technical support and sales offices

Innovative solutions
- At the forefront of RF technology
- Proven quality & reliability
- Renowned technical leader for over half a century

Cost-effective solutions
- Lightweight
- Scalable and flexible
- Future-proof
- Optimized end-to-end

_veritas_ True total life-cycle value, guaranteeing maximized return on investment

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RFS Australia - HF & Defense Systems

- Range of HF antennas for military, government and communication applications
- Fixed and tactical HF antennas are both available
- Standard designs, plus made to order systems
- Turnkey installations

**Proven HF experience & know-how**

RFS has been the primary supplier of antenna systems and components for many major HF projects.
The Australian **Sky-Wave radar project**
(the world’s largest antenna systems installation in the past decade)

- 3 Individual Transmit arrays.
- Each array consists of 14 Low Band Log Periodic antennas and 28 High Band Log Periodic Antennas.
- Each array covers an area 0.5 miles long by 0.2 miles wide.

- 3 Individual Receiver arrays.
- Each array consists of 960 antennas.
- Each array length 1.9 miles long.

- 5 year project
- USD 30M
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RFS Australia - Broadcast Systems

Complete portfolio of passive components

40 years of design and development experience.

The most comprehensive range of end-to-end premium performance broadcast systems with solutions for:

- FM & DAB
- VHF TV
- UHF TV
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Broadcast Antennas

- **Comprehensive range**
  - Panel arrays, slot arrays, dipole arrays, superturnstile antennas
  - Top or side mount antennas

- **Customised antenna solution**
  - Patterns tailored to meet any coverage requirement
  - To suit a range of towers and mounting arrangements

- **Fully featured**
  - RFS antennas are *broadband* and are designed to support multiple channels considering the bandwidth as well as the cumulated power and voltage.
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Transmission Lines - HELIFLEX® and CELLFLEX®

☆ RFS air and foam dielectric feeder cables

- RFS has manufactured HELIFLEX® feeder cables for the broadcast and HF industries for over 50 years.
- Sizes from 3/8-inch up to 9-inch
RFS specialises in combining solutions that allow broadcasters to maximize value from their broadband antenna systems investment.

Combining solutions:
- Available for FM & DAB radio as well as digital and analogue television

DTV adjacent channel combining
- RFS is a pioneer in the development of adjacent channel combining for the addition of digital television services

Compact UHF waveguide combiner
- RFS UHF waveguide combiner has the most compact footprint of any waveguide combiner on the market

Broad power range
- High and low power solutions are available from less than 10W up to 240kW
Broadcast Patch Panels

Customised design
- Patch panels are made to order, but a range of standard panels are available

Rapid release U-Link
- RFS uses the rapid release U Link for ease of operation and reliability

Patch panel options
- Power and VSWR monitoring
- Active MIMIC on the touch screen displays
- Motorised coaxial switches
- Automatic and remote capability
RFS manufactures a complete range of components to complete the installation of any RF system.

- RFS HCA Lite Connectors
- Rigid line products and accessories
- Power splitters
- Directional and 3dB couplers
- Monitoring systems
- Pressurization equipment
Digital Era – new & improved products

- Cutting edge developments for DTV in the last decade
- Low footprint adjacent channel waveguide combiners
- UHF Panels for 5-sided and multisided arrays
- Reduced wind load profile UHF panels – 40% wind drag reduction
- PeakPower+ UHF filters with BCAT™ tuning software
- Variable Polarisation Technology – with new PCP and PEP panels
- Supporting software packages
Low footprint adjacent channel waveguide combiner

On the 7th of January 2009 National Academy of Television Arts and Sciences has honored RFS with Tech Emmy Award for its pioneering work on adjacent channel combiners for TV broadcasting.
Digital Era – new & improved products

PHP5S Panel – developed on request of British customers

- Installed on pentagonal columns
- Increased climbing space inside antenna
- Only RFS is capable of delivering wideband five sided column covering full UHF!

Many UK sites are equipped with RFS antennas on the pentagonal columns

- Divis
- Oxford
- Sandy Heath
- Belmont
- Waltham
- Sutton Coldfield
- The Wrekin
- Stockland Hill
- Tacolneston
- Presely

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Digital Era – new & improved products

Reduced wind load UHF Panel with the streamlined radome

- Up to 40% reduction in the wind loading of the antenna column
- Verified by testing in the wind tunnel at university in Melbourne
- Systems deployed in Italy, Philippines and Australia

Mitigate the requirement of the tower strengthening when the antenna system is replaced for the new Digital TV

Lighter tower may be constructed to support the new DTV antenna

Significant cost reduction for the customers in the project realization
Digital Era – new & improved products

🌿 Peak Power+™ UHF Mask Filters

- Lowest Insertion Loss on the market (filters operate cooler than ever)
- Highest Peak Power Ratings (perfect for high altitude applications)
- Critical mask tuning with 6-pole filters already
- Output power range from 100W to 50kW (double to the competitors largest filters)
- Filter tuning easier than ever! – tune in the field (courtesy of RFS BCAT)

🌿 Supporting OEMs with the Transmitter Mask Filters
Digital Era – Variable Polarisation Technology

Polarisation agile Antennas

-45° Combiner

-45° Feeder

Adjust phase

+45° Feeder

Ch1

Ch2

Ch3

Tx1 & 2 – any standard: ISDB-T, DVB-T&T2, ATSC any polarisation: H,V,C or Epol

Tx3 – Future standard MIMO or MISO

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Digital Era – supporting software

Broadcast Computer Aided Tuning

- Result of extensive R&D effort
- Expert tuning without an expert
- Tuning to critical mask in 0.5 hour !!
- Last minute changes? No problem!
- All RFS PP+ filters supported
- Some call it ‘a Game changer’…
- Now supports balanced combiner tuning!
RFS has commenced integration of systems from Head-end to Antenna; for customers using world renowned partners for transmitters, head-end, monitoring and STL links.

RFS is capable of
a. Analyse the requirement of the customer and advice the system architecture,
b. Work with equipment suppliers to integrate the system as suitable to the customer
c. Carry out integration of systems
d. Provide integrated systems built as containerised solutions
e. Provide installation and commissioning of systems from head-end to Antenna.
f. Assist customers with training and maintenance of systems.
THANK YOU!

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