



Interference Protection

Flexible solutions to protect your network



Overcome Filtering Challenges with RFS Innovation

No Matter How Unique or Complex, Trust RFS Filtering Technology to Ensure Network Performance

As demand for mobile services continues to grow at an explosive rate, operators need to maximize capacity and utilize every kHz of frequency that they have as efficiently as possible. To do this, operating frequency bands are often co-located, i.e. have smaller than desired guard bands, which can result in interference that degrades system performance and can increase the number of dropped calls in the network. Co-location filters are a valuable component that can be used to prevent this common problem.

As the RF spectrum allocation evolves, the filtering challenges associated with indispensable, modern co-location scenarios have become particularly complex because each scenario is unique. Radio Frequency Systems (RFS) is an expert in out-of-band emissions and intermodulation solutions and draws from customer successes all around the globe. RFS has designed solutions for a multitude of applications including interference between international borders, mitigating radar interference and interference between heterogeneous applications (such as between TV channels and telecom carriers).



Our Deep Expertise, Global Knowledge, and Wide Inventory Can Help You Meet Your Filtering Requirements

RFS is ideally positioned to address today's highly sophisticated, tailor-made co-location filtering requirements and solve the challenges of virtually every scenario. It has a wide inventory of RF conditioning products covering all bands, and offers dedicated engineering support on a product-by-product basis.

RFS is a trusted supplier of wireless and broadcast infrastructure offering a vast line of filtering products globally. RFS' products are proven to be long-lasting, extremely reliable and able to withstand a variety of harsh environmental conditions. All RFS filtering solutions are subject to literally hundreds of rigorous design verification tests, including those for shock, vibration, temperature extremes, salt, fog and other environmental hazards.

As a manufacturing leader with state-of-the-art equipment, optimized processes and multiple facilities around the world, RFS touts robotic tuning and lean production methods – backed by the support of its experts. As a result, RFS is able to deliver on the promise of better repeatability and quicker turnaround times on custom filter designs.

RFS' skilled engineering team is ready to engage customers in technical discussions at the earliest stage in a project to help create an optimal solution and offer innovation in both the design and manufacture of filters.

Flexible Interference Mitigation Filter Platforms

Model Number*	Pass Band, MHz	Rejection Band, MHz	Typ. Insertion Loss in PB 1, dB	Min. Rejection, dB	Ports
KIT-FIMH887N-1C-DL	898.5-960	869-894	0.3	40	2 in/2 out
FIM800CAB-C1D	817-824/863.525-869	849-861.35/861.35-862.925	0.5/1.0	47/52	2 in/2 out
FIMB72575-1C	2575-2615	2500-2565/2625-2690	0.5	40	2 in/2 out
FIMB382575-1C	2500-2570/2620-2690	2575-2615	0.4	40	2 in/2 out
FIMM1963S-1C	2496-2550/2578-2690	2558-2568	0.85	35	2 in/2 out
FIMBW2593S-1C	2496-2565.4/2619.8-2690	2582-2609	0.5	60	2 in/2 out
FIMW1985-1C	1920-2170	1983.25-1990	0.25	40	2 in/2 out
FIMG875H-1C	881.2-960	869-880	0.5	40	2 in/2 out
FIM899A70D7-1C	824-834/869-879	882.5-915	0.25/0.5	70	2 in/2 out
FIM899A50D7-1C	824-834/869-879	882.5-915	0.2/0.5	50	2 in/2 out
FIMH874WD7-1C	890-915/935-960	869-879	0.2	45	2 in/2 out
FIM3252A6089-1C	2496-2690	2704-3800	0.3	60	8 in/8 out

* This is a limited list of RFS filters. Additional models are available. Contact us for details.

Protect Your Network Investment With Customized Filter Designs

Challenge	RFS Solution
-----------	--------------



Utilizing both FDD and TDD spectrums without interference

- A frequency auction was held in Taiwan for four FDD and two TDD licenses in the 2.5/2.6 GHz spectrum.
- It was critical that both LTE systems coexist without interfering with each other.
- RFS designed and prototyped two distinct, low-cost, high-performance solutions in less than eight weeks.
- RFS filters enabled FDD/TDD to operate in harmony and were the preferred solution due to the cost-effective pricing.



Protect a system from out-of-band LTE emissions in a small cell application

- A filtering solution was needed for LTE2600 to protect an adjacent system uplink from out-of-band LTE emissions.
- The New York City small cell application required the filter be sized appropriately for easy concealment.
- RFS designed a two-branch device using high-performance combine filter technology to minimize effect on pass-band.
- RFS provided the solution quickly and remained in constant contact with the customer to accommodate changing spec requirements.



Out-of-band emissions at the Canadian / USA border

- An 800MHz LTE/ CDMA system on the US/ Canada border had out-of-band emissions above FCC requirements for the Business and Industrial Land Transportation (B/ILT) licensees.
- Frequency points and rejections were non-negotiable and the filters had a firm weight requirement.
- RFS engineered four ceramic filters utilizing common components across all filters and requiring only tuning variations to differentiate them.
- RFS delivered on time with four low insertion loss filters brilliantly crafted to meet critical frequency points.



Government mandate prompts fast fix on interference issues in Uganda

- In Uganda, LTE Band 20 interference with CDMA850 prompted the government to mandate a fast fix.
- RFS was selected over competing vendors and provided its Interference Mitigation Filter to solve the problem.
- Within three months, RFS completed the design and supplied over 500 filters that are now being used at 200 sites in Uganda.

Why Choose RFS

- A partner for tailored solutions** → RFS will partner with you, understand your needs and develop a custom solution that addresses the challenges of your unique scenario.
- Proven building blocks for success** → RFS' existing and trusted platforms are ideal building blocks that can be efficiently modified and developed into tailored solutions, preserving time and resources for on-time deployment.
- Quick turnarounds** → RFS offers a quick turnaround on all products, enabled by robotic tuning and lean production methods.
- Industry-leading performance** → RFS design utilizes low insertion loss, low group delay and narrow guard bands to deliver the highest quality performance, every time.



December 2016
REVISION A

www.RFSworld.com