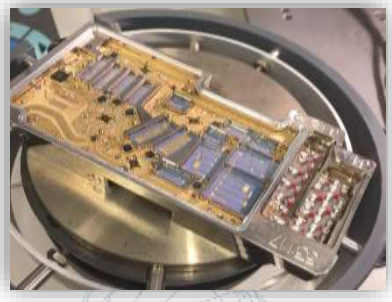
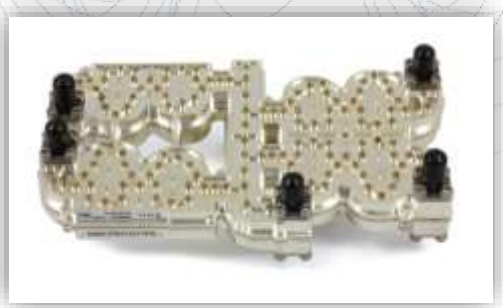
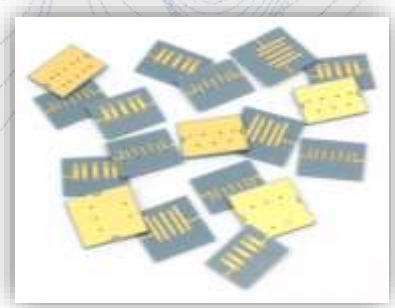
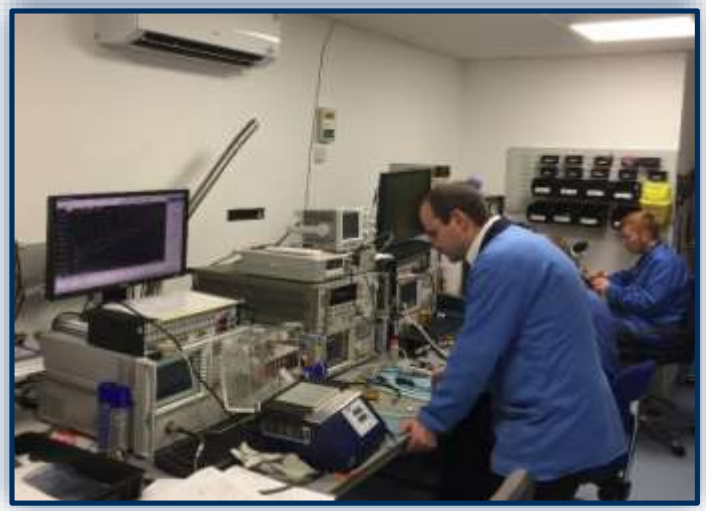





BSC
October 2020

BSC Today



- Design & Manufacture in York UK
- 85 Employees
  - 12 Design Engineers
  - 3 Mechanical Engineers
  - 3 Projects / Planning
- ISO 9001:2015
- ISO 14001:2015
- SC21 Signatory
- JOSCAR Accredited
- UK/NATO secure site status
- 14,000 sq ft facility


bsi.

Certificate of Registration

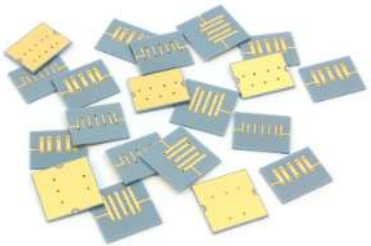
QUALITY MANAGEMENT SYSTEM - ISO 9001:2015

BSC Today

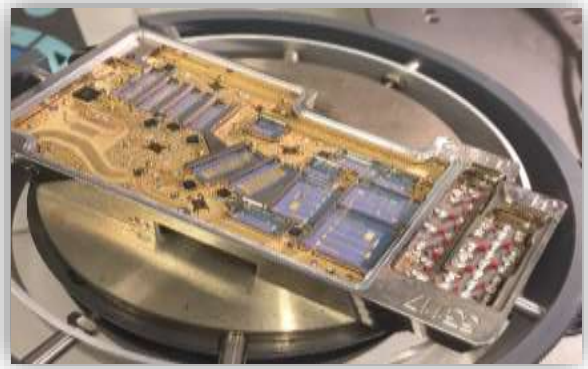
Cleanroom

Laser Weld

Vibration Test



- Extended Class 10,000 clean room
  - Integration / Modules
  - Space products
  - Plasma Cleaner
  - Deep access wire bonding
  - Bond pull test
- 4 Port Network Analyser
- Laser Weld
- Vacuum oven, backfill, Fine Leak
- CNC Milling Machine

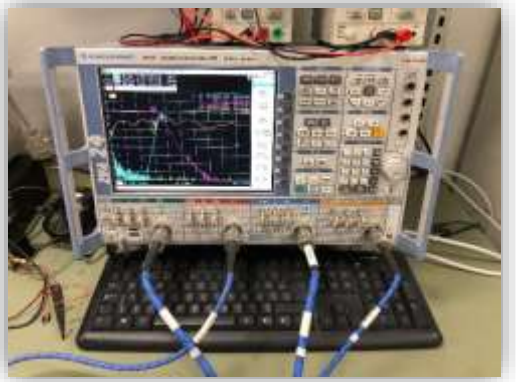


Mixed Technology Modules

Recent Investments

Extended Cleanroom

Fine Leak Tester



4-Port Analyser

Deep access wire bonding

Additional CNC Milling Machine

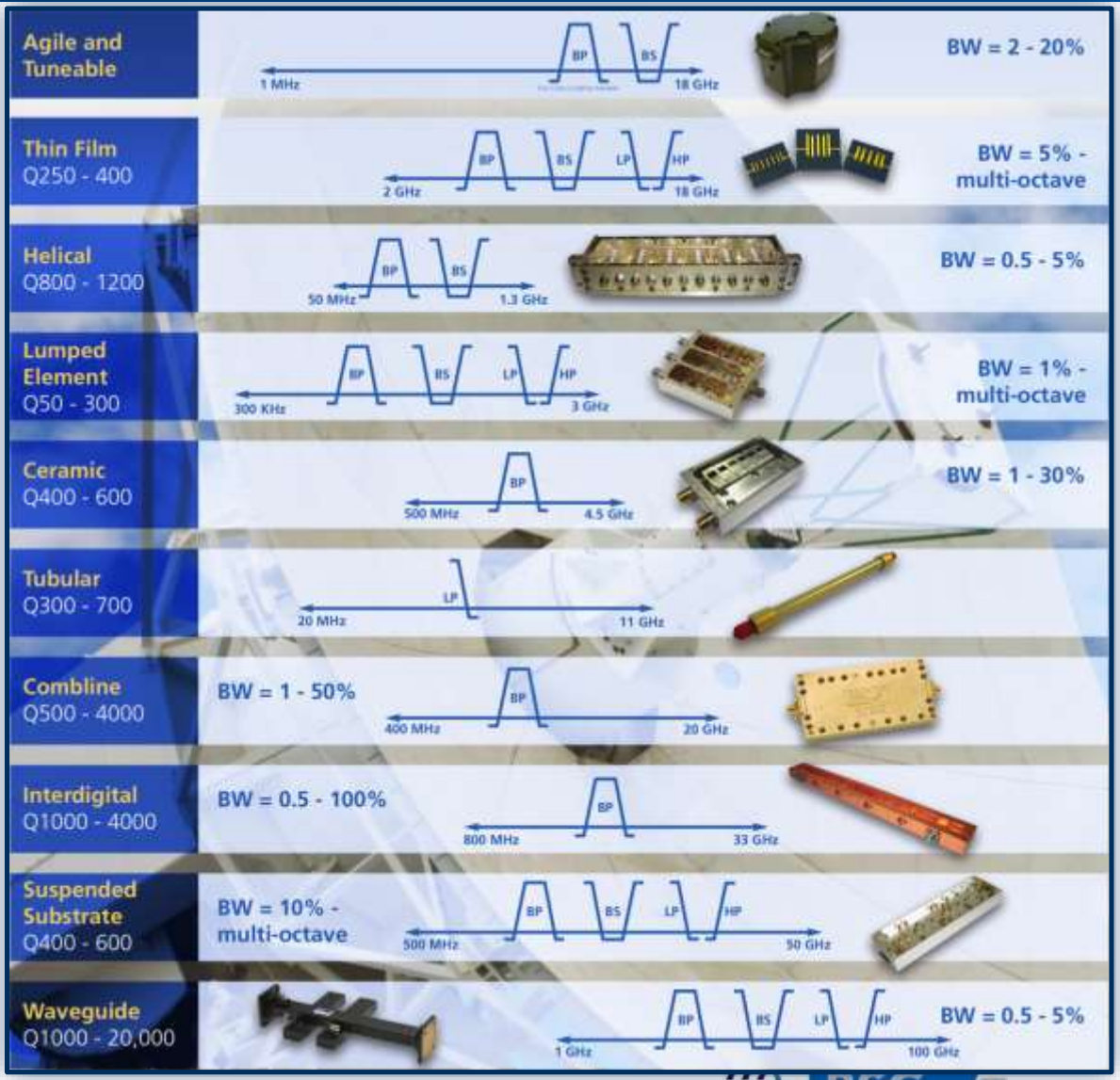
Laser Weld

BSC Core Filter Technology Range

The chart on the right illustrates most of our core filter technologies and their frequency ranges.

We build around these filters technologies to include:

- Switching
- Amplifiers (Small signal & power)
- Couplers
- Dividers & Combiners
- Frequency Dividers
- Synthesisers
- Limiters
- Gain Control & Power Monitoring
- Built-in Test
- TTL, Serial/Parallel, Ethernet Control & Telemetry
- Power Supply & Conditioning
- FPGA & Microcontroller



BSC Technology Road Map

CORE and SPACE

Miniaturisation and packaging

Systems Activities

2017

2021

SPACE Activities

LeGo Filters

QuEST Evolution

Repackaging of ThinFilm Modules

QFN Tuneables

Multi-Pulse Wide-band Rx

Synthesised Source

ThinFilm Evolution

Miniature High Sensitivity Receiver

High Level Integrations

CORE & Space

Lumped Element Filter Applications








Defence
Ground / Sea / Radar / Communications / Sensing / EW/ Jammers

Aerospace
Fighters / Radar / UAV / Missiles / Space / Civil Communications/

Commercial
Telecoms / Radio Communications / Test Equipment

Anti IED protection

High Power (50/100W) C-IED filters Provides a protective Bubble around a vehicle to prevent roadside bombs being detonated by radio

>600 Systems sold so far

Customers are looking to expand capabilities by adding Notch filters to their Jammer system to open up comms whilst protecting

Cavity Filter Applications

Defence
Ground / Sea / Radar / Communications / Sensing / Jammers

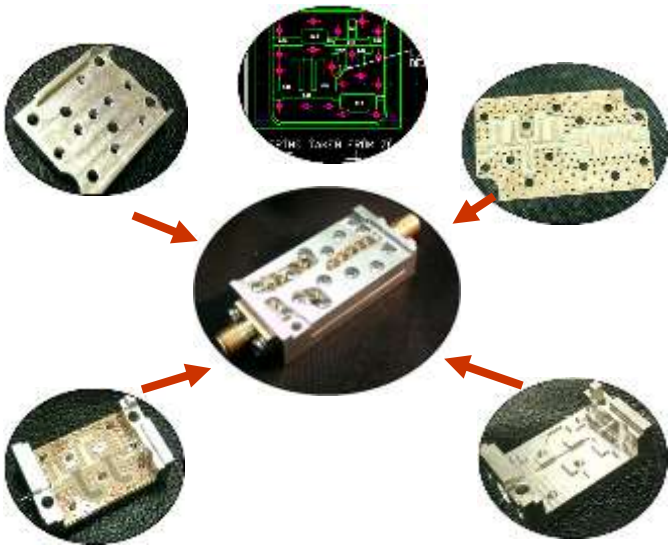
Aerospace
Fighters / Radar / UAV / Missiles / Space / Civil Communications/

Commercial
Telecoms Test/ Telematics / Radio Communications

Aircraft Ku Band SATCOM

CB 4170 Combline Filter
Ku Band satellite link
Phone & WiFi on board

Suspended Substrate Technology



Applications
- EW
- ECM
- RADAR

Structures
- Bandpass
- Bandstop
- Diplexers
- Multiplexer
- Lowpass
- Highpass

Scope
- Frequency Range:
  500 MHz to 50 GHz
- Very Wide Bandwidth 10% upwards (multi-octaves)
- Very long Stopbands
- Complex Multiplexing
- Rugged Construction for harsh environments
- Good Repeatability
- Excellent for sub system integration

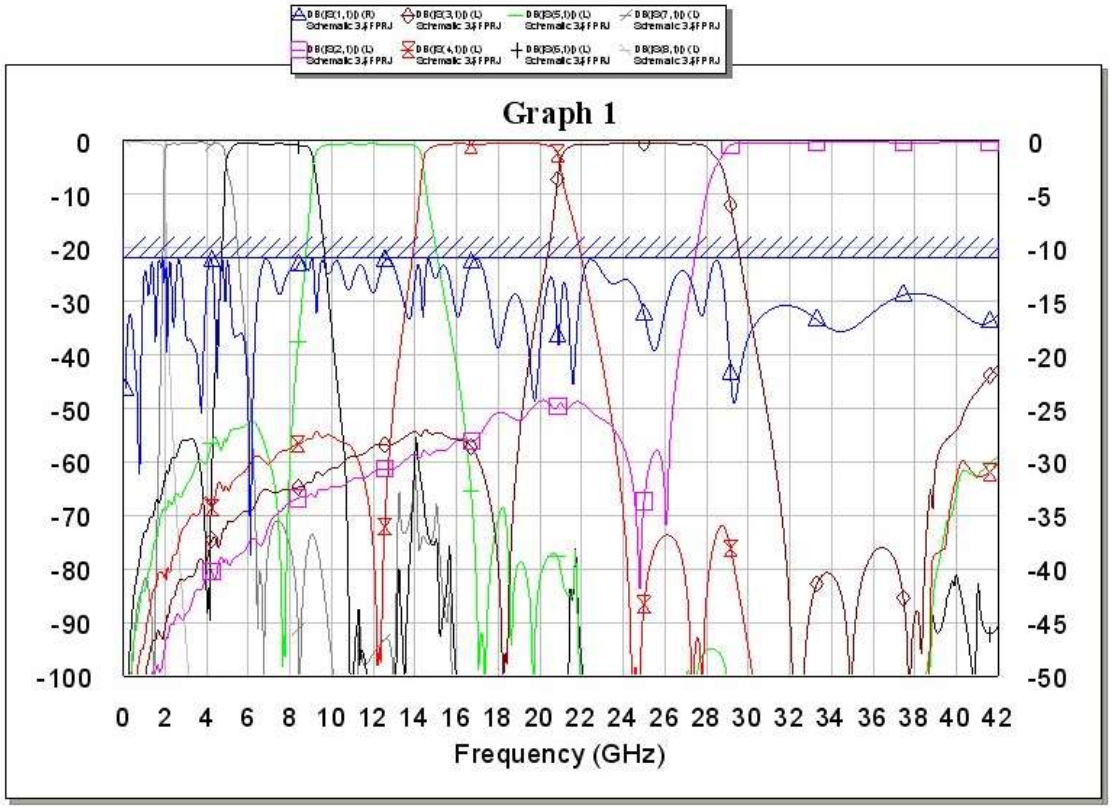
Helicopter ESM

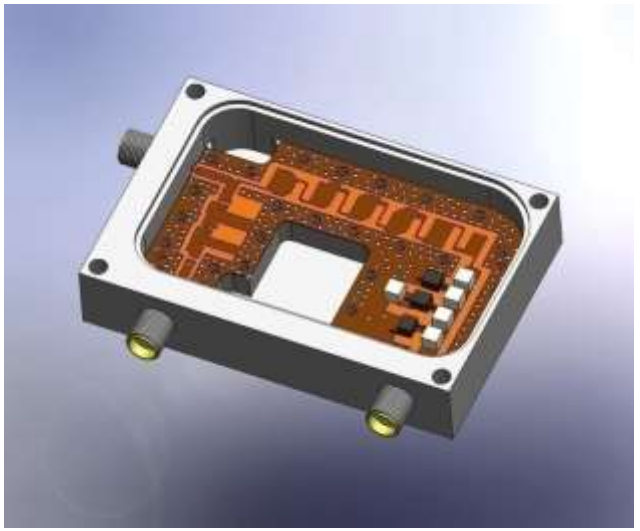
- EH101 – Anti-submarine, troop transport
- NH90 – Utility Military helicopter

SH8198 & SH8252

Fitted to Broadband ESM on both platforms

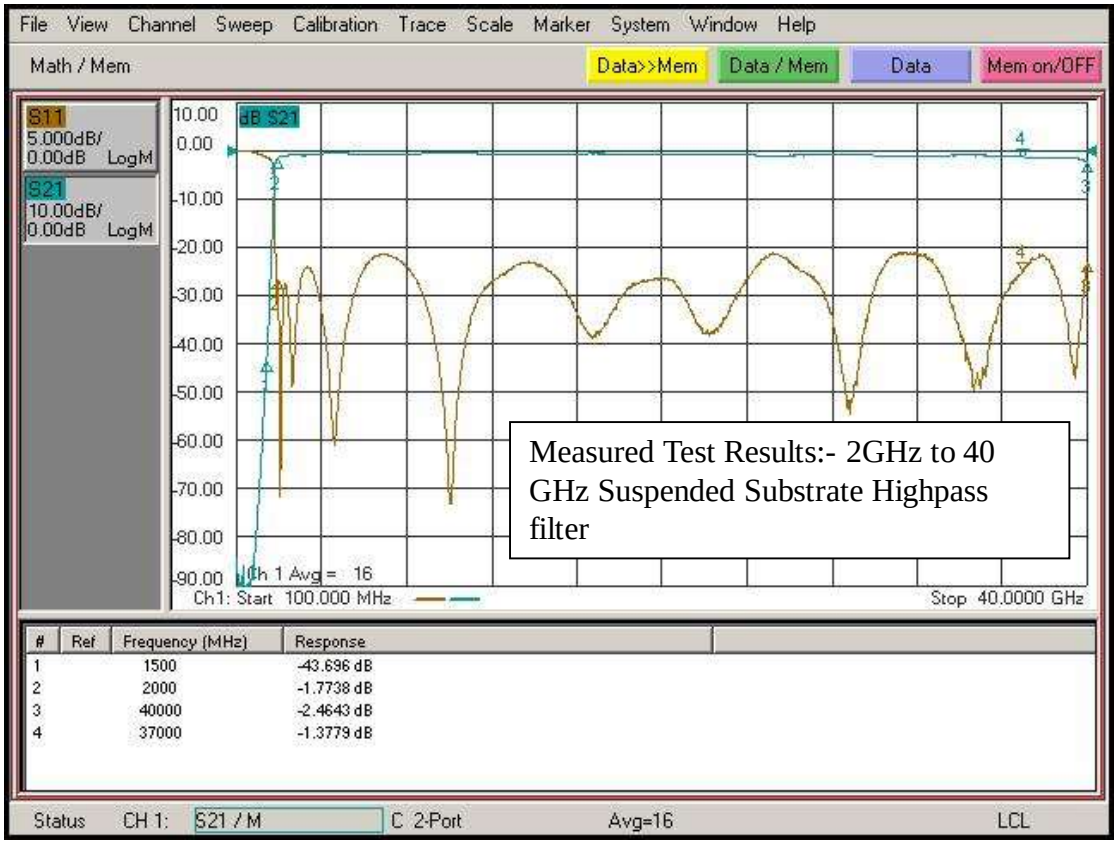
Suspended Substrate Multiplexers





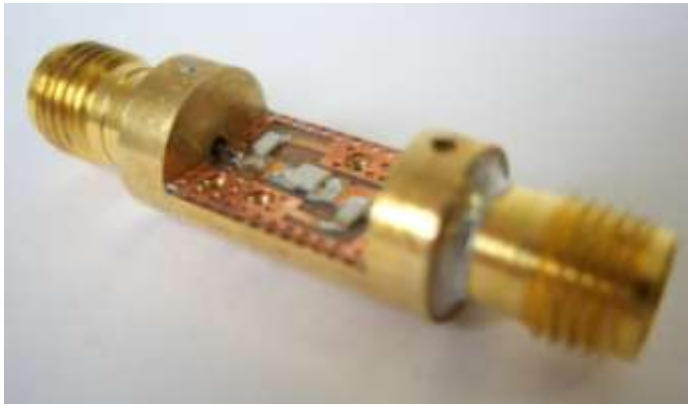
3 way to 7 way +
Cascade of lowpass-highpass diplexers
Some standard bands (2-4, 4-8, 8-12, 12-18GHz)
Mixed technologies (e.g. Lumped element & SSS)

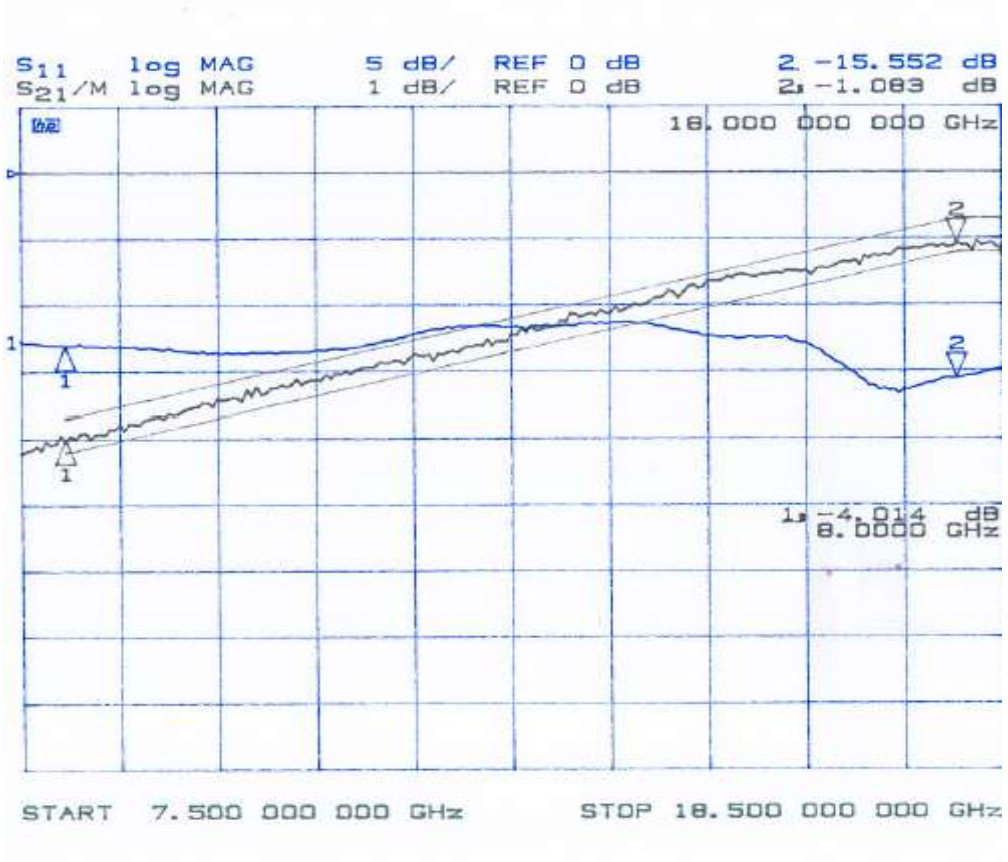
2-40 GHz Suspended Substrate HPF



Multi-Octave bandwidth, also
1GHz to 18GHz available

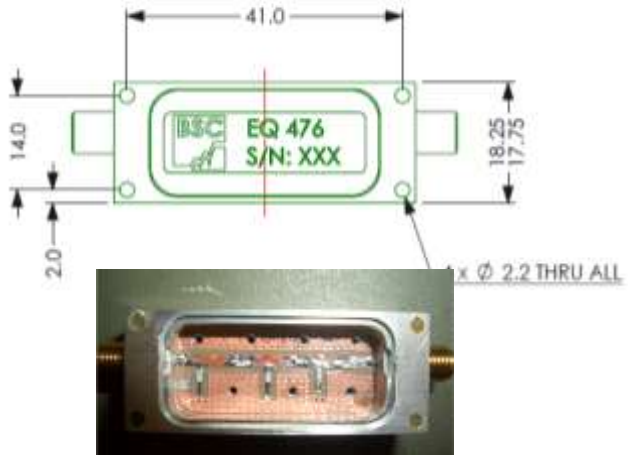
Equaliser 8 to 18 GHz

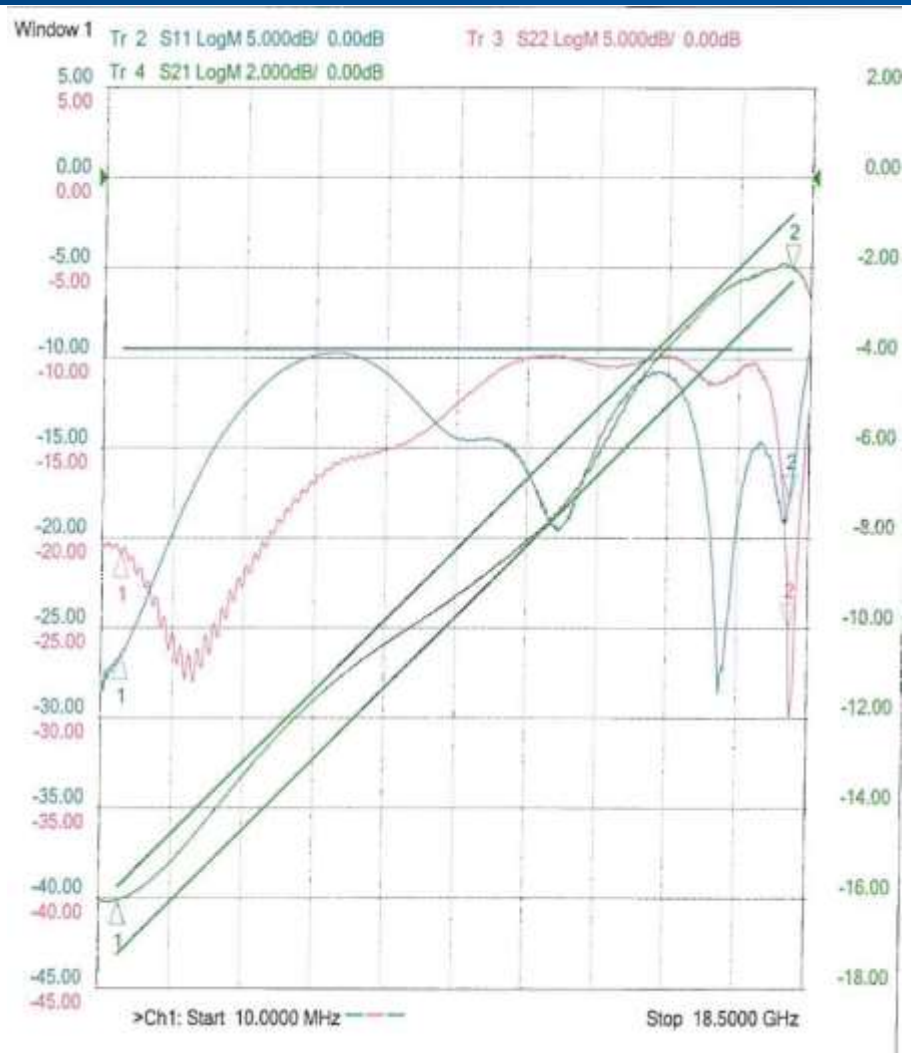




- SE4308
- 8 to 18 GHz Linear Equaliser
- Insertion Loss
  - 1dB +/- 0.25 dB @ 18 GHz
  - 4dB +/- 0.25 dB @ 8 GHz
- Linearity +/- 0.25 dB max
- 9mm diameter body
- SMA connectors
- Other frequency ranges available

Equaliser 0.5 to 18 GHz





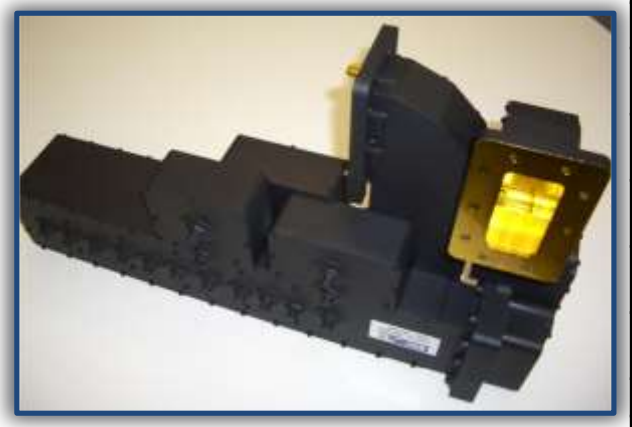
Frequency Range	From 0.5GHz to 18 GHz
Insertion Loss at 18 GHz :	2.0 dB max
Differential Insertion Loss at 0.5 GHz:	14.5 +/-0.75 dB max
Passband VSWR (0.5 to 18 GHz)	2:1 max
Linearity (0.5 to 18 GHz)	+/- 0.5dB(best straight line fit)
Maximum Power Handling	10 W CW
Dimensions:	45 x 18 x 13mm*
Connectors:	SMA Female
Operating Temp:	-40 to + 85 degrees C
External Finish: Paint	Matt Black

Complex Waveguide Design

BSC work with our Customers to find a solution for mechanically challenging systems.

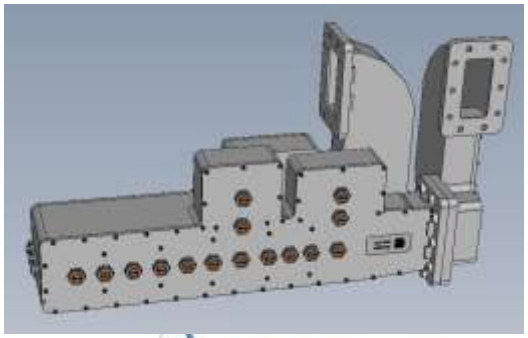
BSC design high-performance filters to fit into available space.

A triple-folded Ku-Band filter in WG19 (WR51) with integrated SMA transition. The space envelope 50mm x 40mm x 30mm. (2" x 1.6" x 1.2")



S Band ATC/4G Mitigation

Passband	2750MHz to 3051.3MHz
Insertion Loss at Bandedges	0.25dB max
Passband Return Loss	18dB min
Rejection from DC to 2600MHz	55dB min
Rejection from 2600MHz to 2690MHz	50dB min
Rejection from 3400MHz to 3500MHz	52dB min
Rejection from 3500MHz to 3600MHz	58dB min
Maximum Power Handling (into short cct)	10kW Peak
Flanges	UDR 32
Operating Temperature Range	0°C to 50°C
External Finish	Matt Black

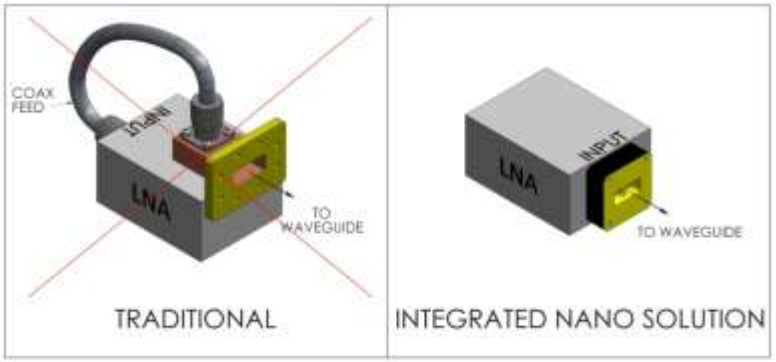


NANo – PIN to WG Transition

Interchangeable with field replaceable connector

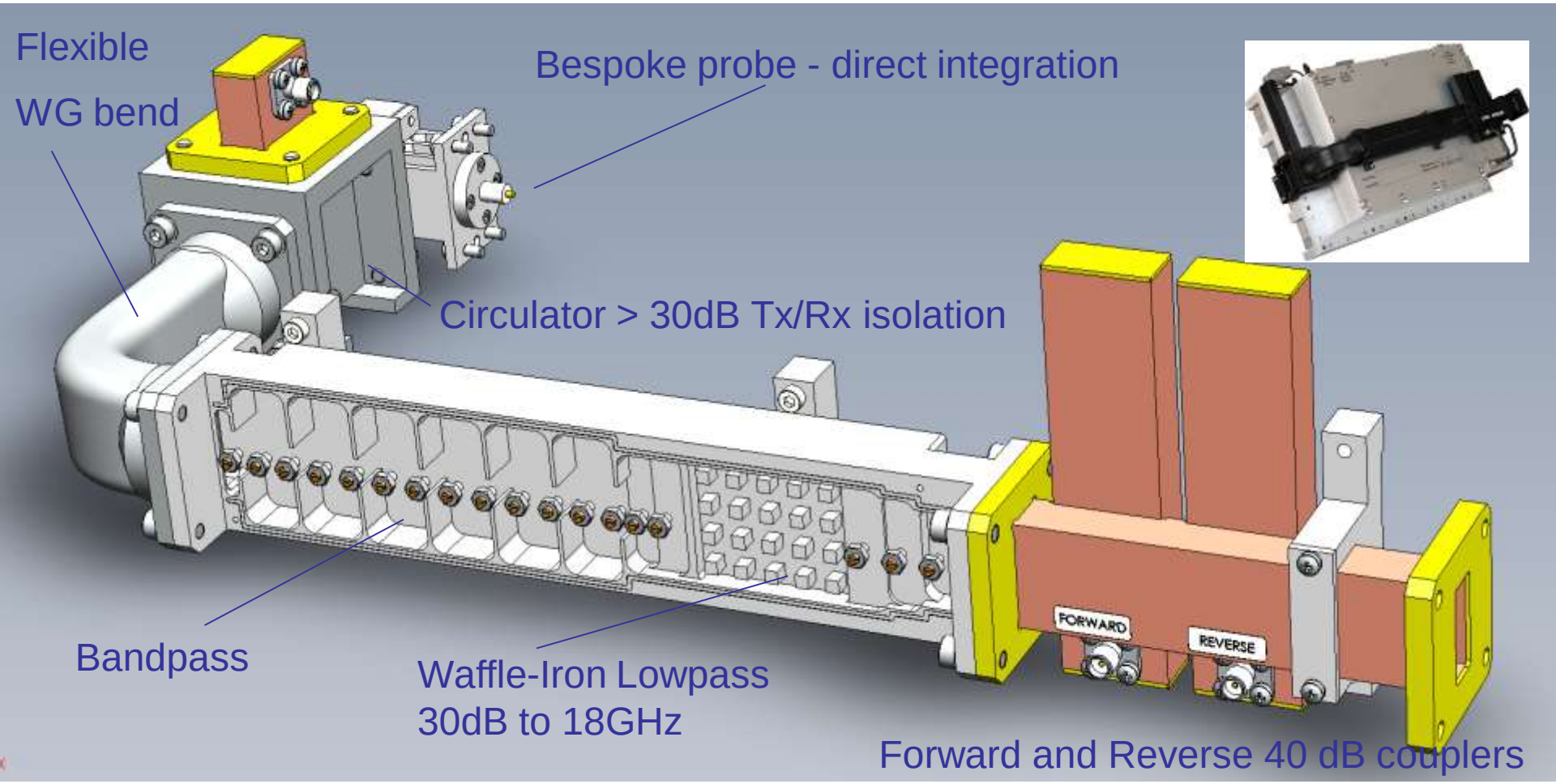
BSC Patented

- In Waveguide sizes
  WG8 – WG22
- Mate to pin Diameters:-
  .012, .015, .018, .020 inch



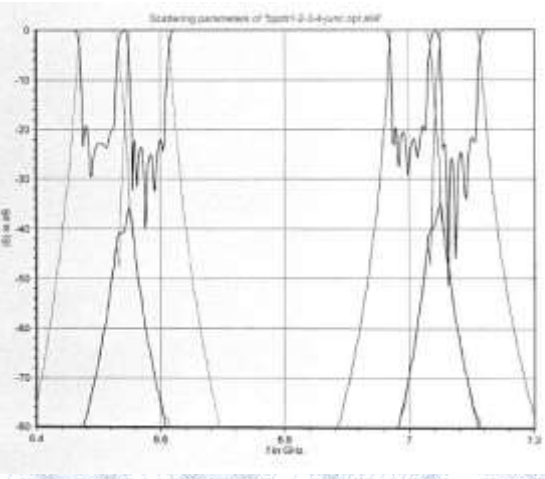
Applications
- LNA, Receiver, Radio
- 1GHz to 40GHz

Transceiver Tx / Rx Assembly



Tuned as assembly = optimised performance

Waveguide Multiplexers



- 6.5GHz to 7.5 Quadraplexer
- Commercial Rotary wing platform
- Provides simultaneous up and downlinks

- 40MHz channel BW
- 120dBc isolation
- 10 W CW power handling
- Sealed
- N-Type connectors

BSC QEST Filter Design software

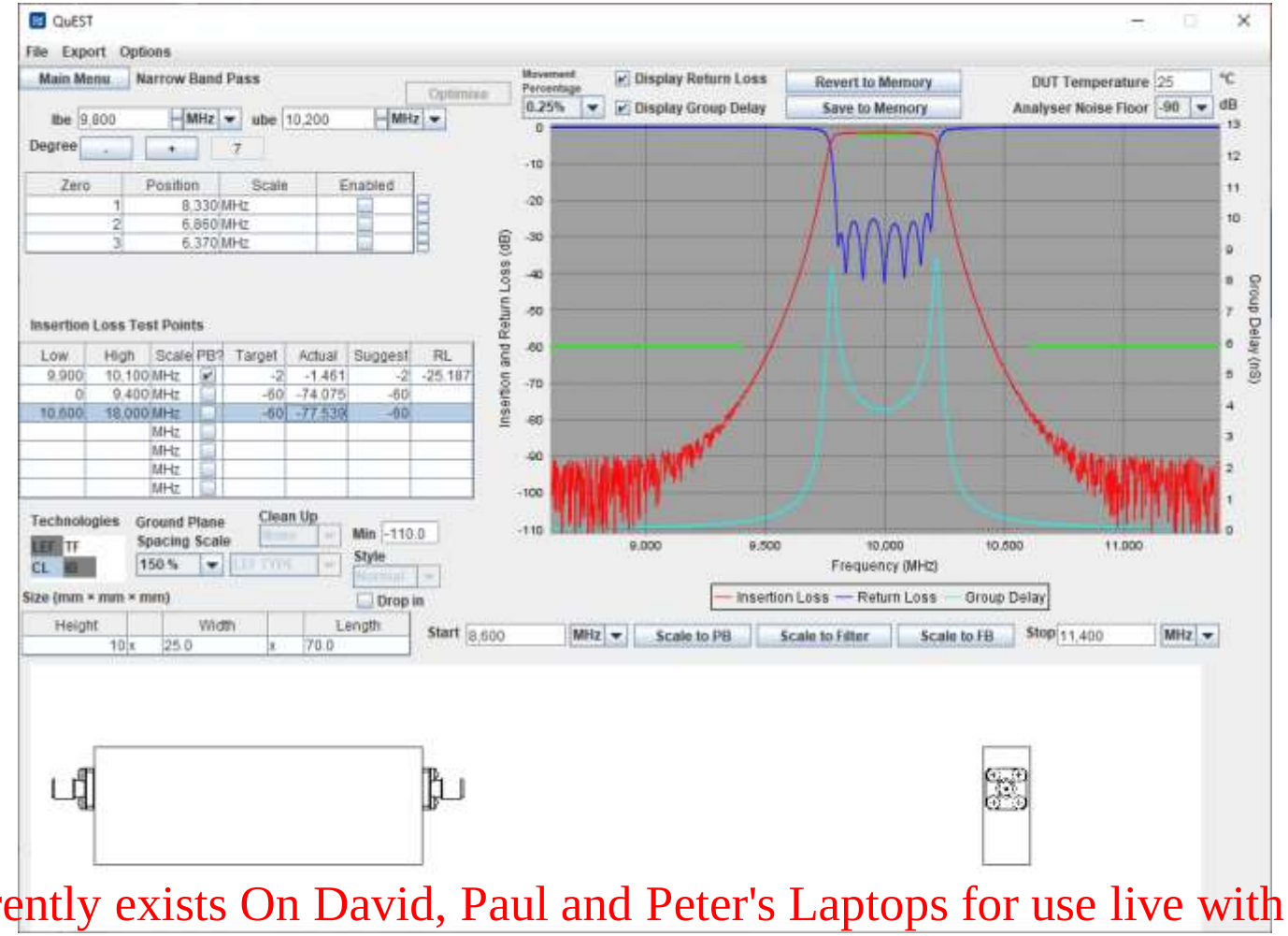
- User can design Filters
  - Band Pass
  - Low Pass
  - High Pass

- Current Technology
  - Combline
  - Interdigital
  - Lumped Element
  - Thin Film
  - Mixed technology

- Export S2P files

- Can generate an enquiry for the filter for BSC to quote quickly

QEST – BSC Sales Filter Design software.



Currently exists On David, Paul and Peter's Laptops for use live with customers.

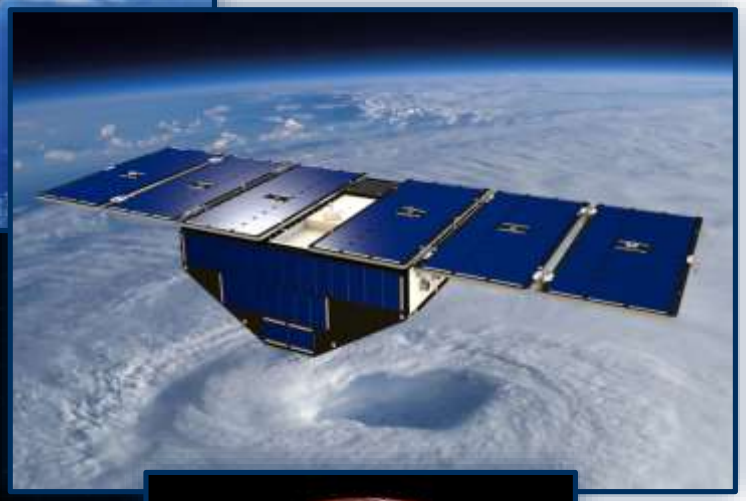
Specification, Outline drawing, plots and S2P data all available immediately.

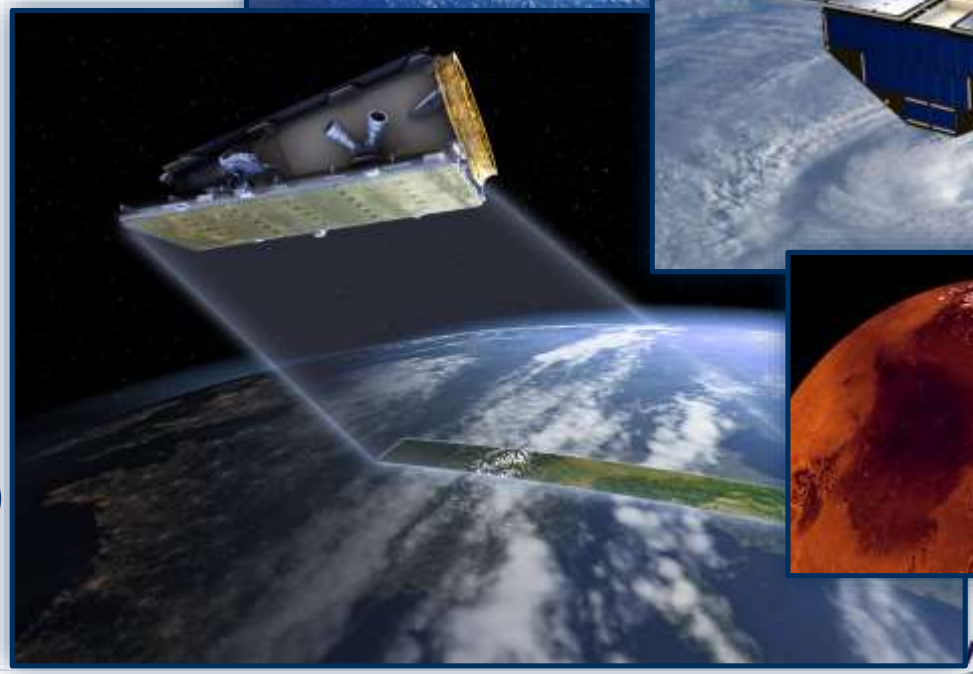
Space Heritage – Program History & Recent Additions

- *GEO Platform (Launch. ~2021) [Full S-Level Program]*
- *NGSAR (2016)*
- CyGNSS (2013)
- NovaSAR (2013)
- RapidEye (2008)
- GIOVE-A (2005)
- TopSat (2005)
- Mars Express (2003)

GIOVE-A (2005)

CyGNSS (2013)





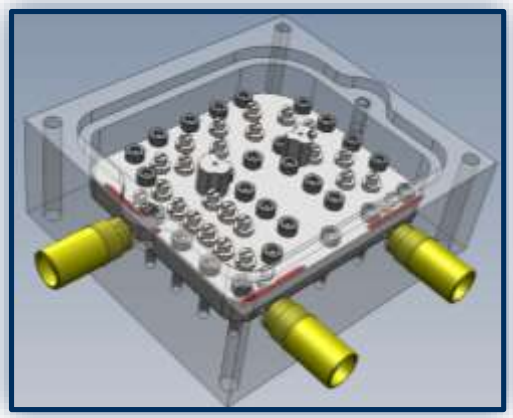
NovaSAR-S (2013)

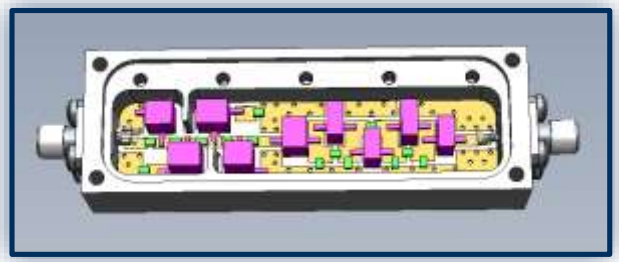
Mars Express (2003)

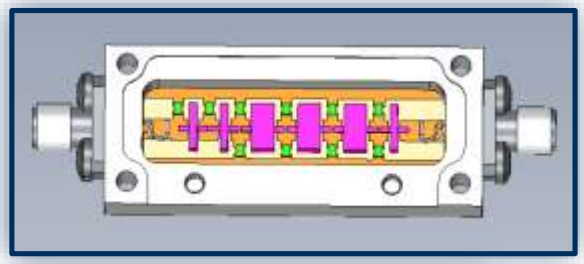
Space Heritage – NovaSAR

- <u>NovaSAR: SD 6701/SB 6698/LB 6699/LL 6700 key features:</u>

- Small size, Suspended Substrate & Lumped Element Filters
- Specialist fixtures incorporated into design (over-engineered hex bolts and enclosure)
- Space-approved epoxy and RTV compound (low outgassing)
- Micro-ventilation ducts allowing vent but not at expense of RF leakage (>1:10 diameter to depth ratio)
- 'C-loop' SMA-to-PCB wire link for strain relief





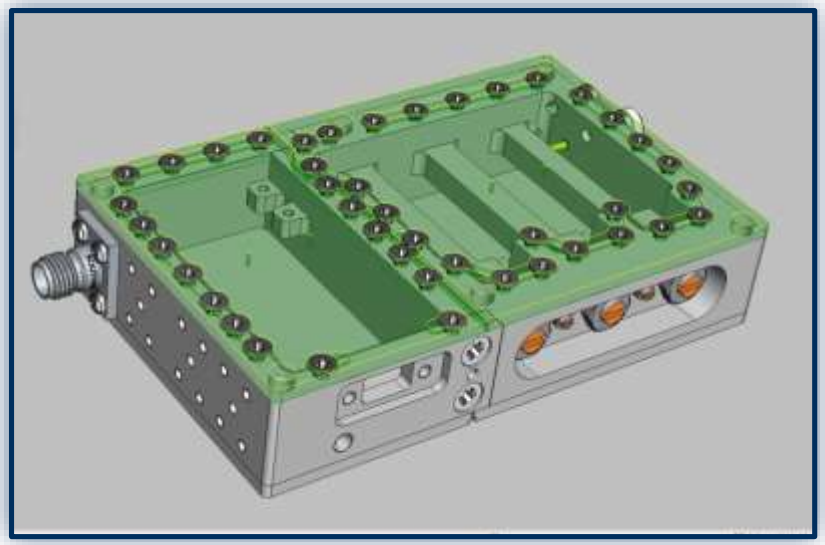


Space Heritage – CyGNSS

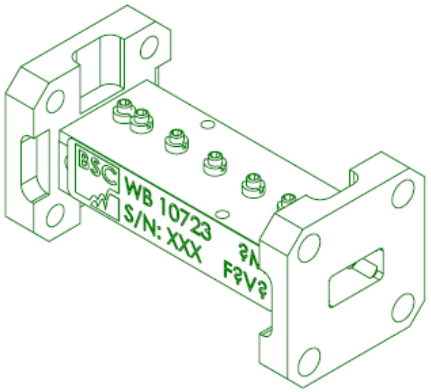
- <u>CBU 6811 (14656), key features</u>:

- Machined Combline Construction
- Very low loss (surface GPS reflectometry)
- Mechanical design standards approved by NASA
- Incorporated customer PCB with LNAs & switching

Specification	Parameter
Passband From	1565MHz to 1615MHz
Insertion Loss at Centre Frequency	0.35dB max
Passband Return Loss	14dB min
Rejection at 1500MHz	12dB typical
Rejection at 1670MHz	12dB typical
Rejection at 3200MHz	60dB min
Rejection at 6400MHz	40dB typical
Maximum Power Handling	10W CW
To Outline Drawing	Per customer files
Input Connector	SMA Female
Output Connector - mated to supplied board and supplied test connector	0.020" RF Pin
External Finish	Silver Plate (Unpainted)



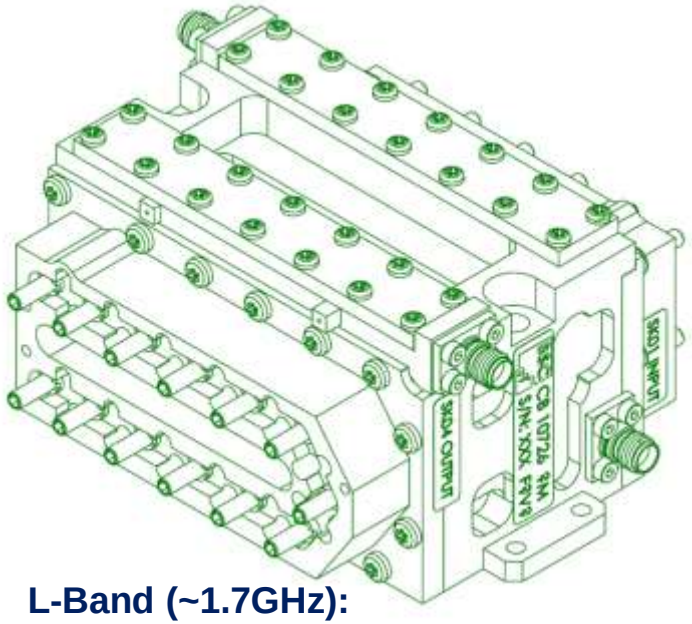
Geostationary S-Level Program



Ka-Band (~30GHz):

- Temperature stable
- Silver plated finish
- Base material Invar nilo 36

- **Flight Models (FM)**
- Breadboard Prototypes (BB)
- Engineering Models (EM)
- Engineering Qualification Models (EQM)



L-Band (~1.7GHz):

- Temperature compensated
- Silver plated finish
- Base material Aluminium and copper
- Integral lowpass filter (Brass silver plated).

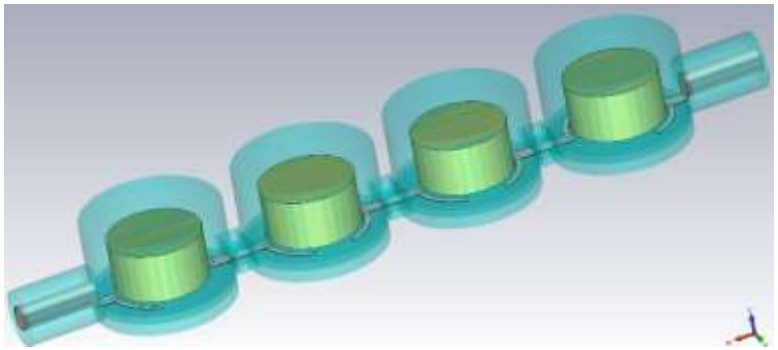
- **Flight Models (FM)**
- Breadboard Prototypes (BB)
- Engineering Models (EM)
- Engineering Qualification Models (EQM)

New Space Activity

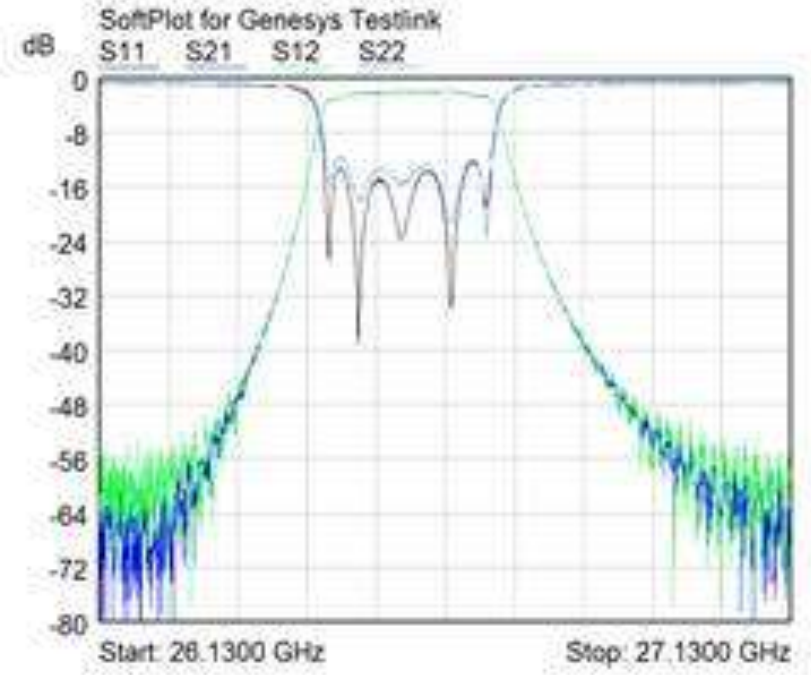
Suspended Substrate Puck

ESA funding program lodged

Internal work package already under way



Test Piece - Dielectric resonator 26.5GHz 5th Degree



Systems activities

BSC Technology Road Map

CORE and SPACE

SPACE Activities

LeGo Filters

QuEST Evolution

Miniaturisation and packaging

Repackaging of ThinFilm Modules

QFN Tuneables

Multi-Pulse Wide-band Rx

Systems Activities

Synthesised Source

ThinFilm Evolution

Miniature High Sensitivity Receiver

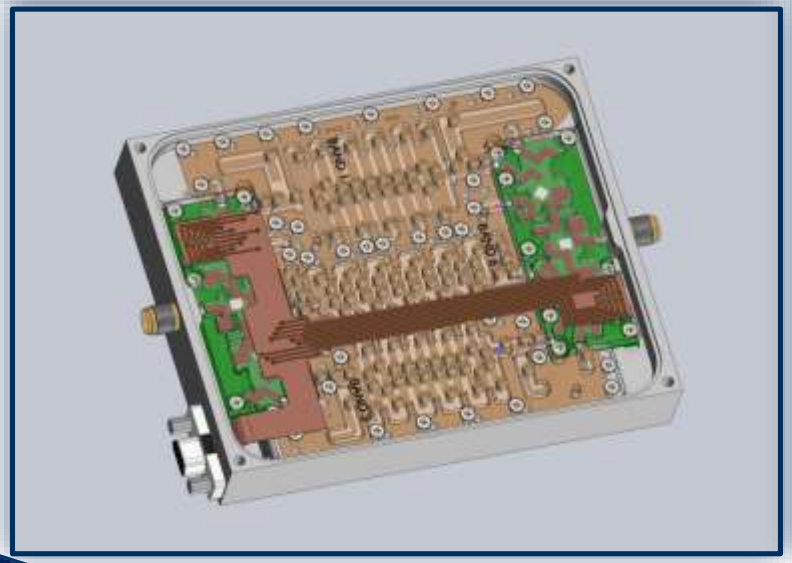
High Level Integrations

2017

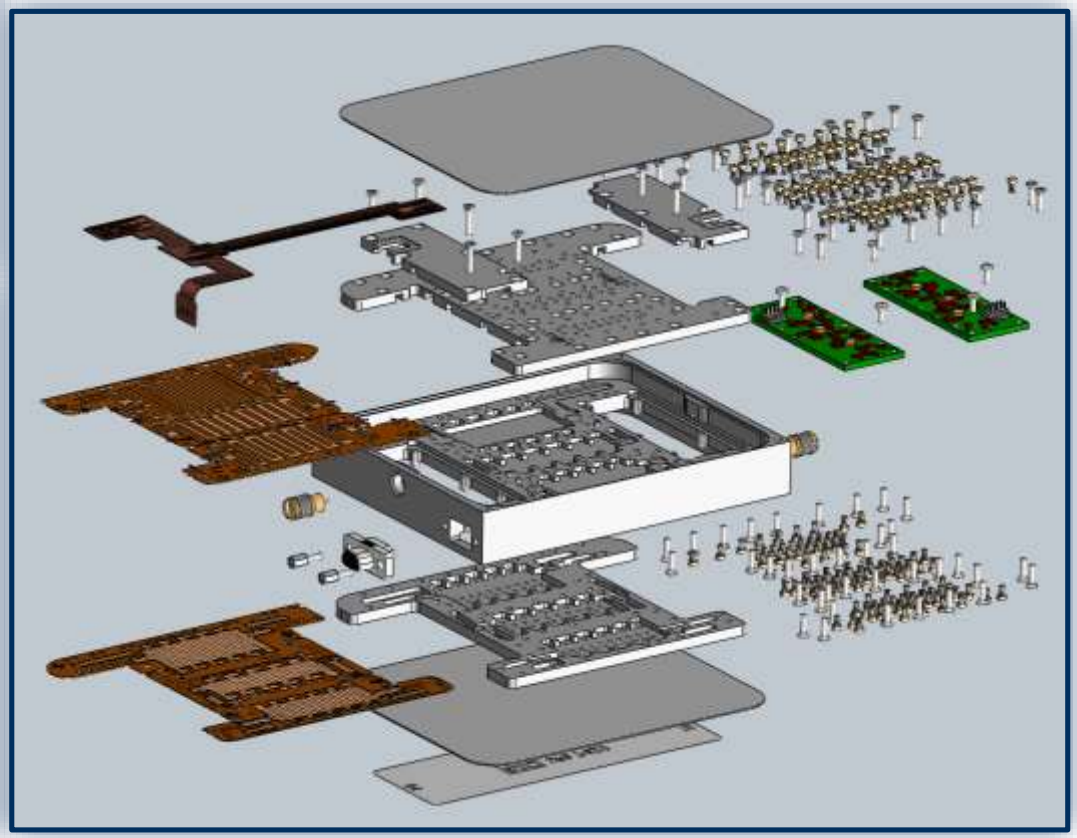
2021

BSC FILTERS | DOW-KEY MICROWAVE | K&L MICROWAVE | POLE ZERO

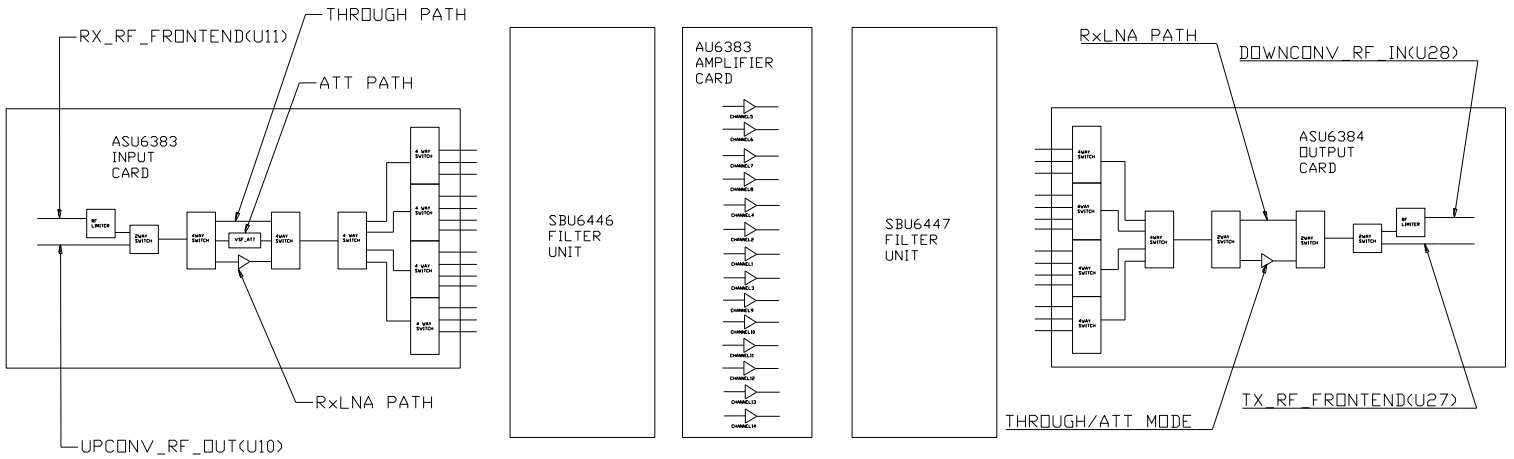
Adaptive Filtering – Switched Filter banks



- *BSC now offer full in house designed SFBs with mixed signal PCBs, flexi interconnected solutions*
  - *Few MHz to 18GHz*
  - *Pin diode, FET switched*



Adaptive Filtering– SDR Front-End



Designed for a high-spec Radio system, BSC have developed a fully-integrated 14-channel IF preselector module featuring:

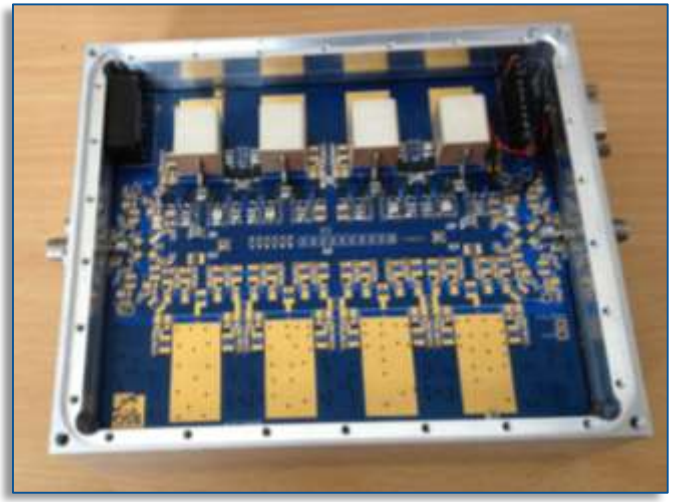
- 500 MHz to 3 GHz operation
- 64 dB Gain Control
- Adjustable front-end Dynamic Range
- LNA or bypass states

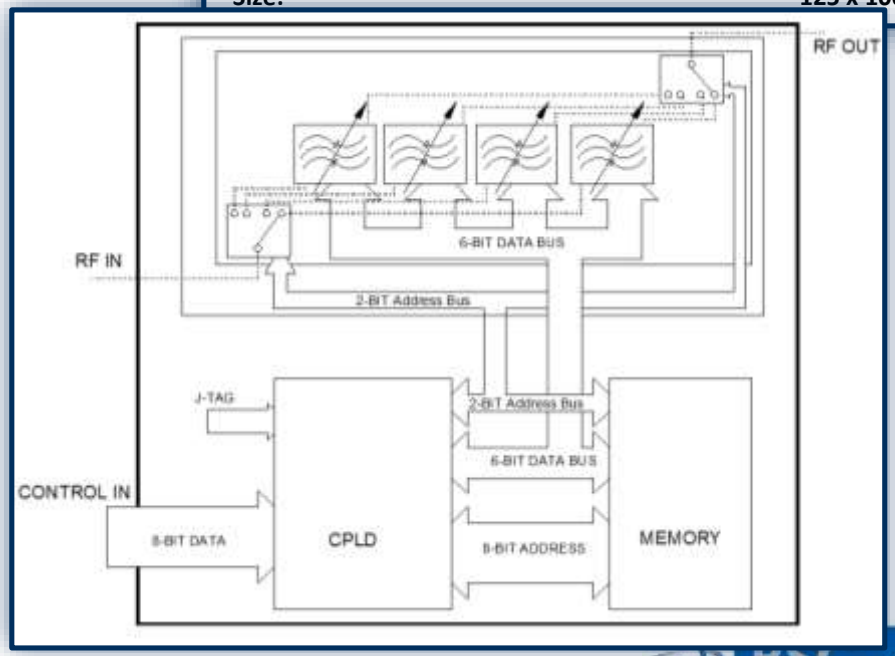
Adaptive Filtering – Tuneable Filters

- ***BSC are developing unique tuneable technologies;***
- Microwave Filter Base complete and power tested at 50W power handling on full prototype;
- HV Switch Driver
- FPGA Firmware
- Alignment and Test Software
- Calibration and Look-Up Table Programming Software.

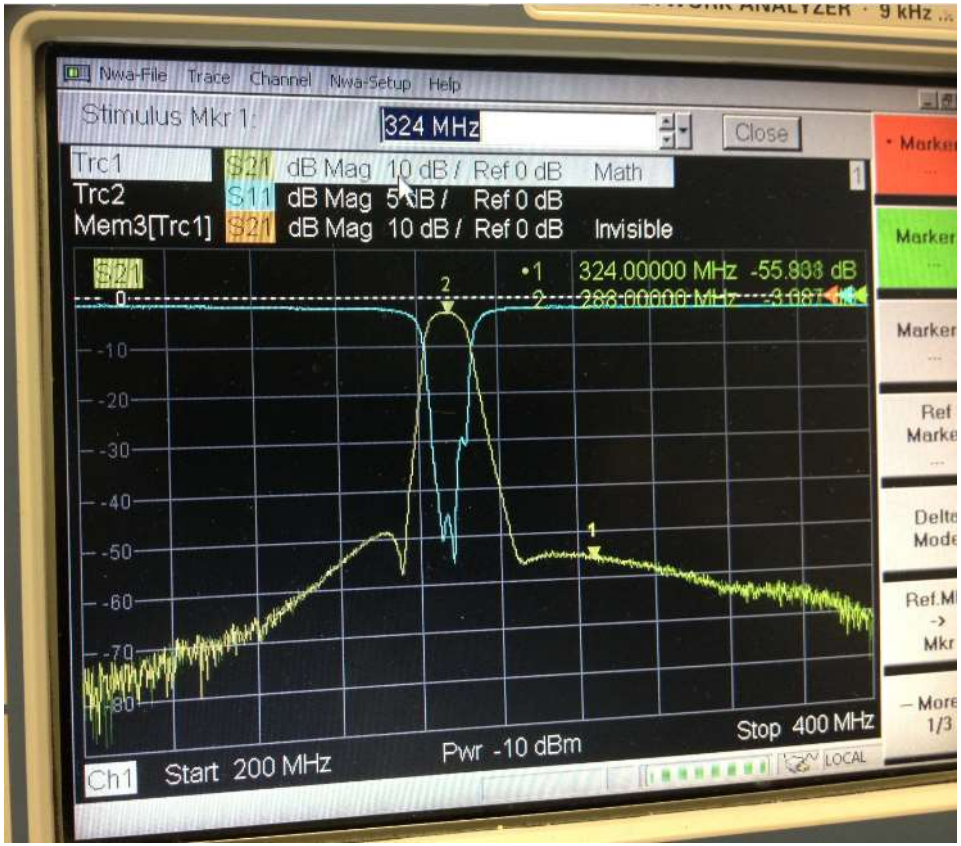
Specification

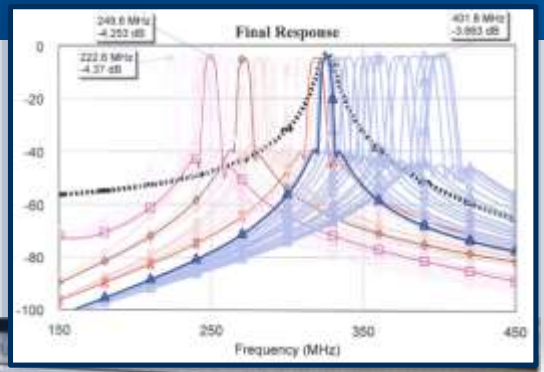
• Frequency Range:		225 to 400 MHz
• 3dB Bandwidth:		2.5% of Fo min
• Passband Insertion Loss:	4 dB max	
• Passband VSWR:		2:1 max
• Rejection Characteristics:	30 dB at 10% of Fo	
• In-Band IIP3:	+50 dBm min	
• Step Size:		88 steps @ 2 MHz
• Control:		7/8 Bit Parallel
• Supply:		+5V, <2A
• Max RF Power:	50W	
•Size:		125 x 100 x 50 mm

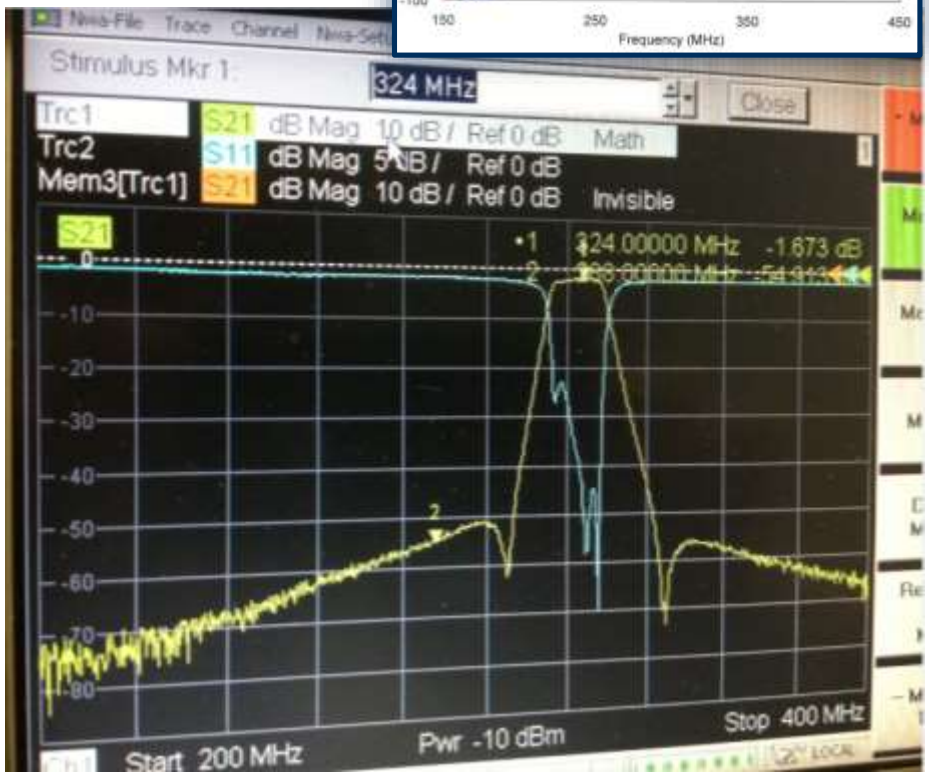




Adaptive Filtering – Tuneable Filters







Prototype performance matching models

– also tested at full 50W with hot switching (good VSWR on load).

Adaptive Filtering – Reconfigurable Filter Bank

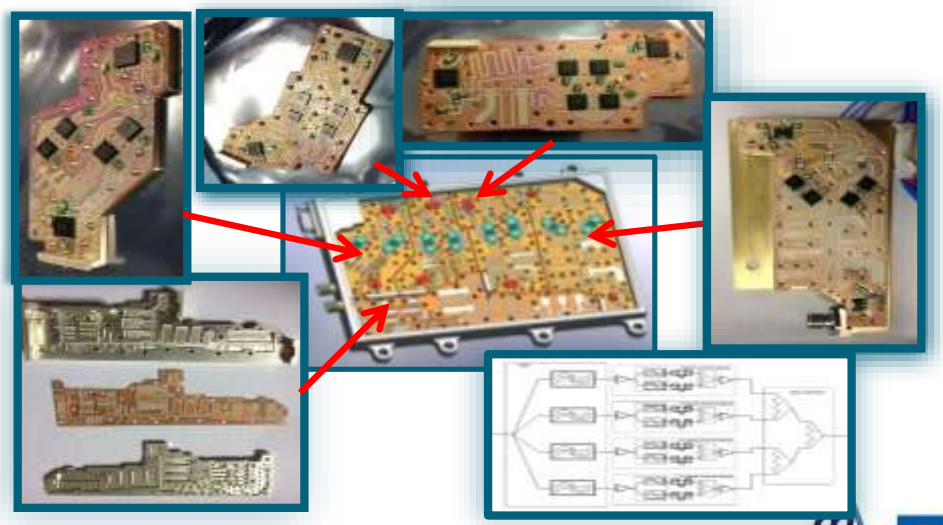
What is it ?

In a Reconfigurable Filter Bank any number of the channels are simultaneously selectable.

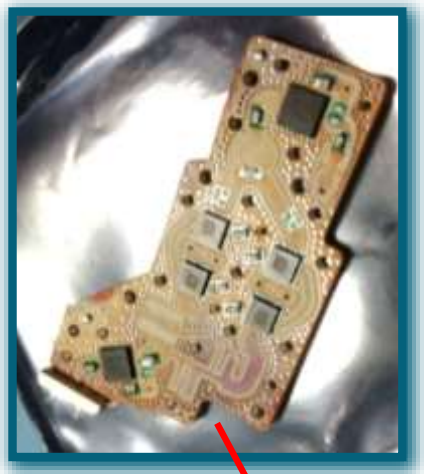
Application

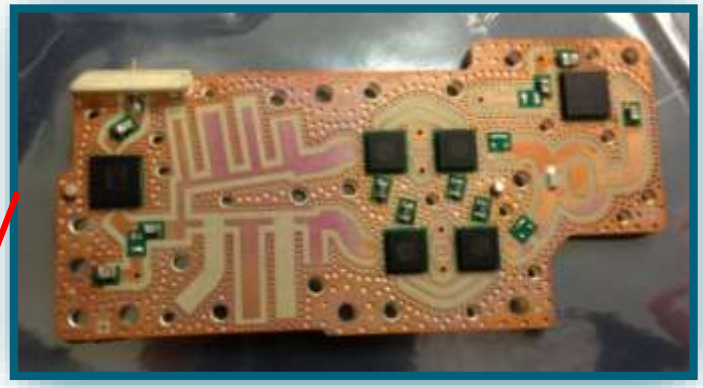
- Front end filtering of large interferers on broad band receiver systems
- EW threats typically very wide band – some radar signatures require 500MHz+ analysis BW and continue to increase….

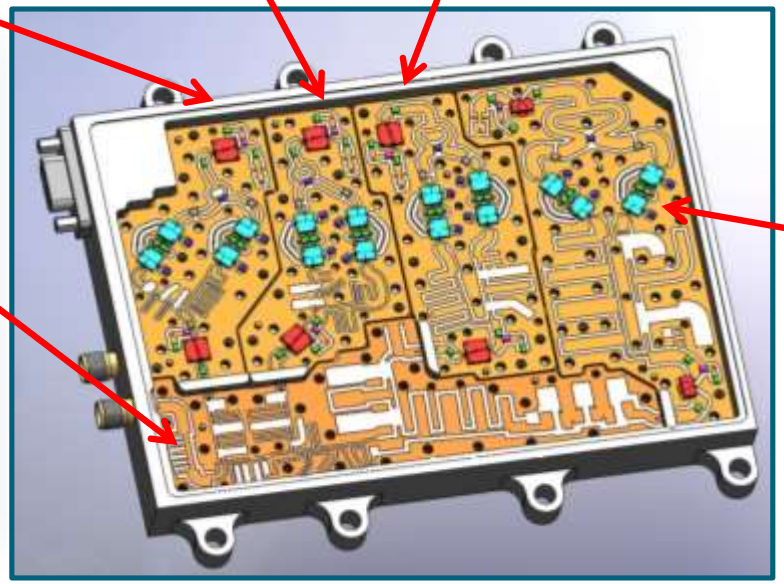
This example is an 8 channel generic design spaced in equal 2GHz bandwidths from 2 to 18GHz.



Adaptive Filtering – Reconfigurable Filter Bank





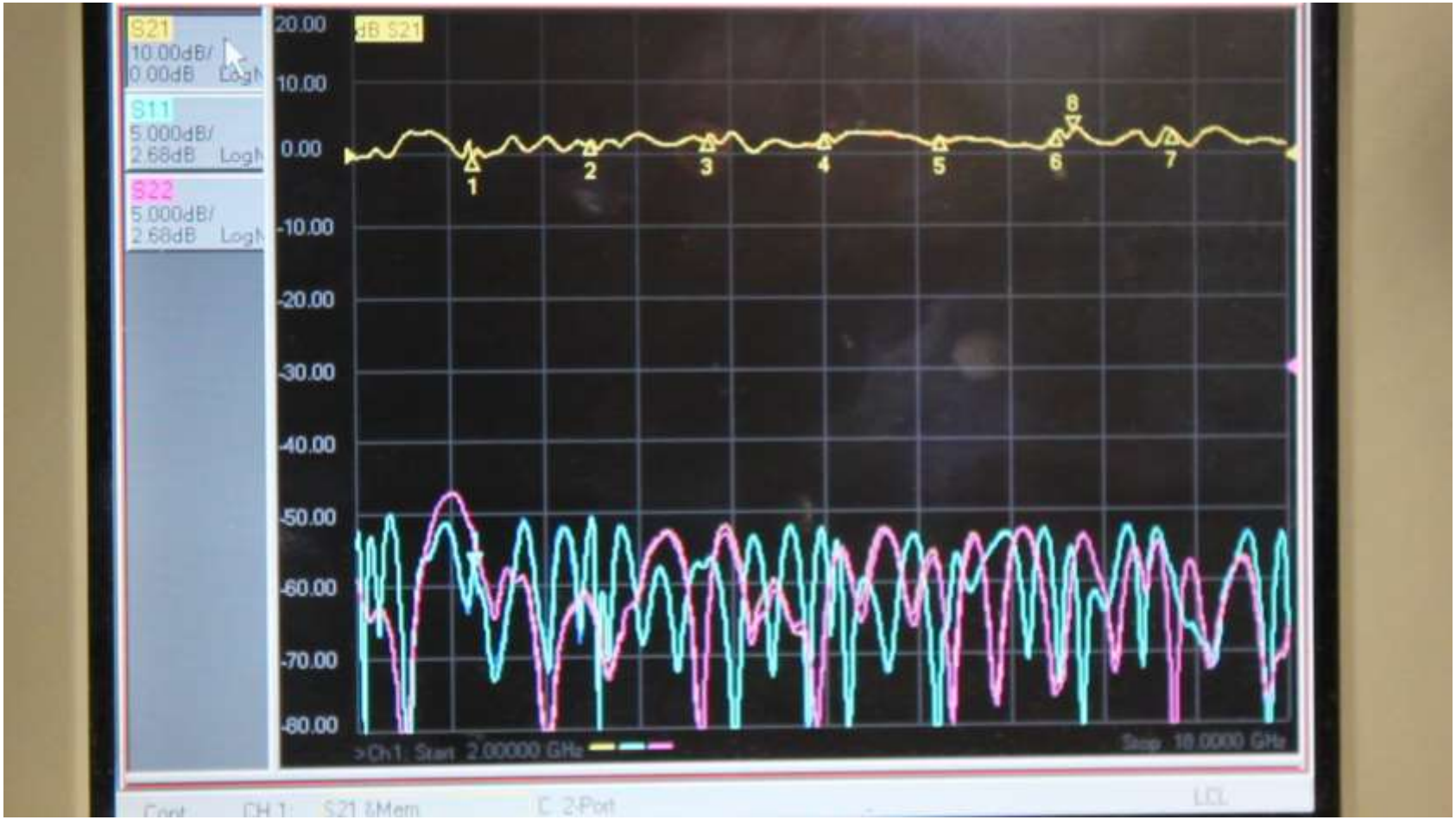


4th generation European fighter aircraft

2-18GHz, 8 channel RFB
Fitted to ESM suite
Removes interferers on a pulse-by-pulse basis

Hundreds on order, more to come….

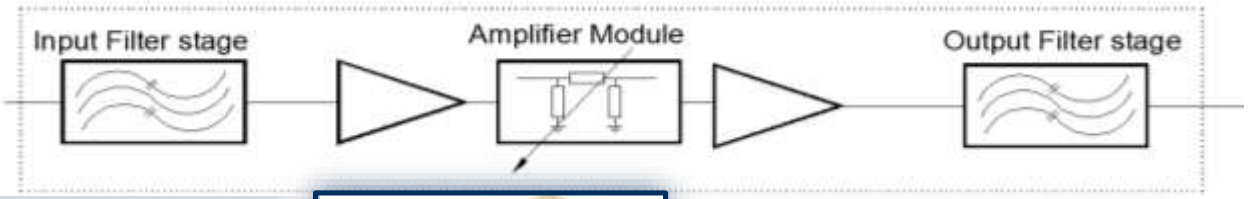
Adaptive Filtering – Reconfigurable Filter Bank

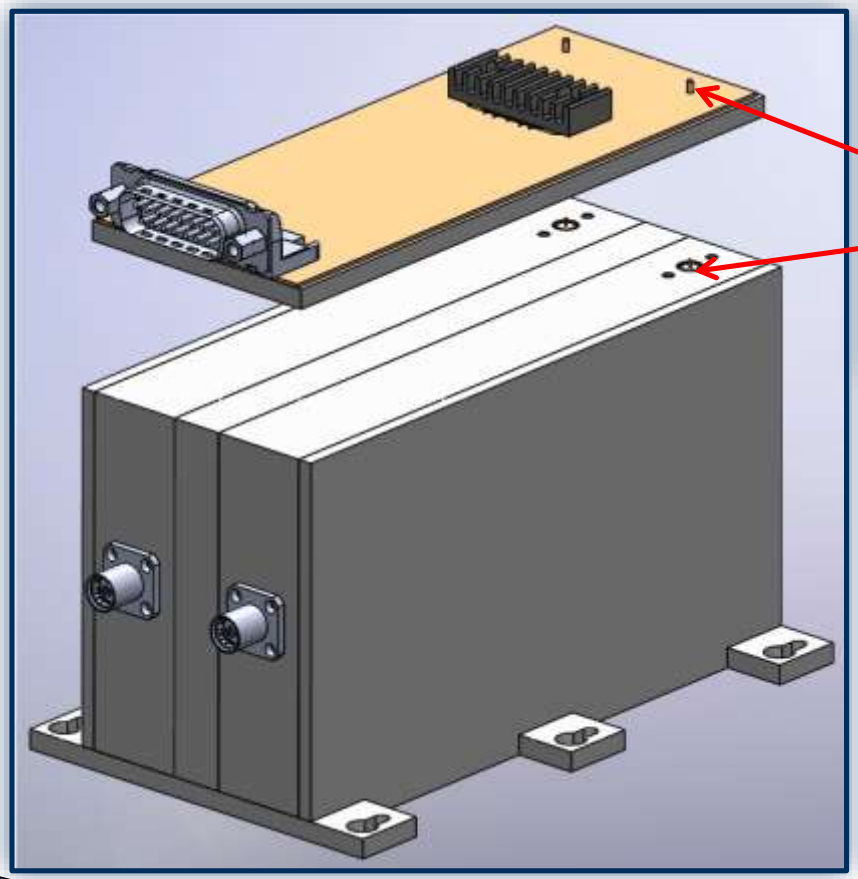


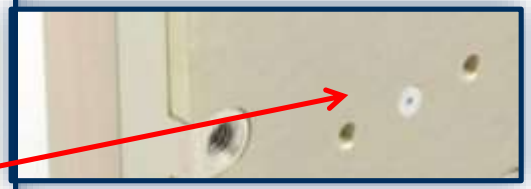
See www.bscfilters.com for datasheet

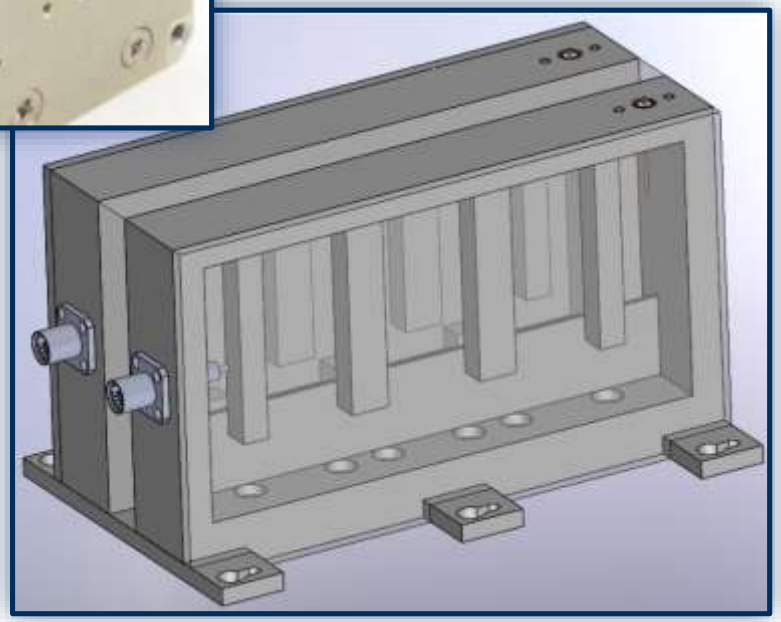
ISM Subsystem – Finished Item (6-Channel Version)

ISM Subsystem - Filtered PA Module Construction



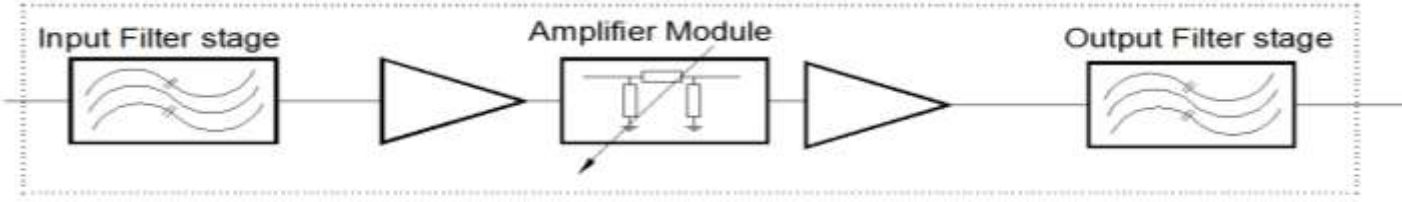






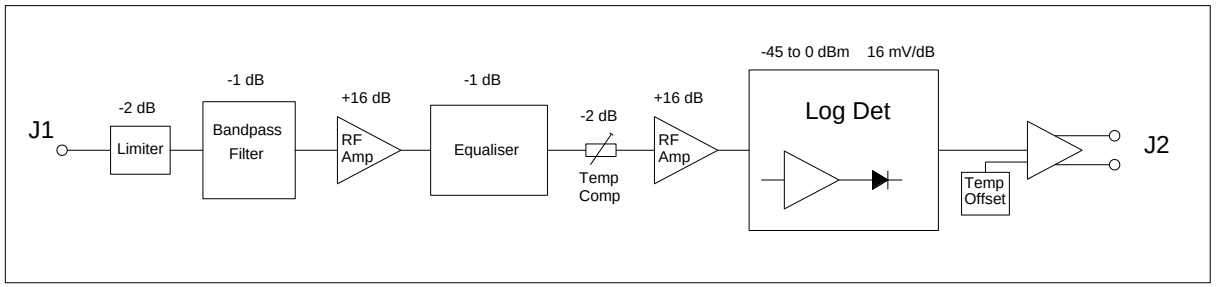
ISM Subsystem - Specification

Channel Modules



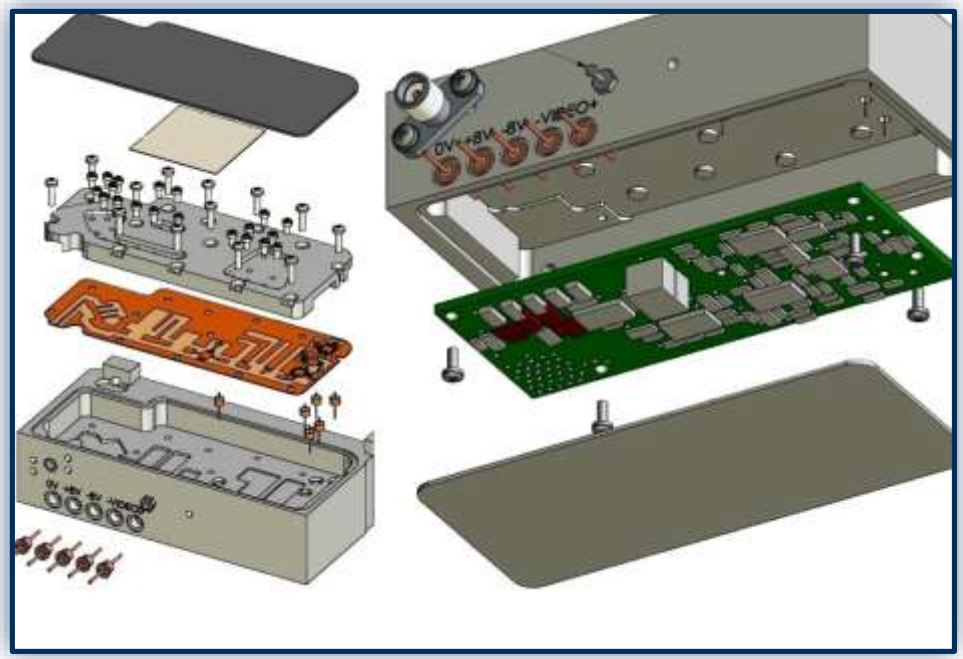
Parameter	Channel #1 Module	Channel #2 Module	Channel #3 Module	Channel #4 Module
Frequency Range	433 – 437MHz	863 – 870 MHz	2400 – 2500MHz	5725 – 5875MHz
Return Loss	10dB min	10dB min	10dB min	10dB min
Small Signal Gain	40dB	40dB	40dB	40dB
Gain Variation	+/-2dB max Target +/-1dB	+/-2dB max Target +/-1dB	+/-2dB max Target +/-1dB	+/-2dB max Target +/-1dB
Output P1dB @ full gain	34dBm nom	34dBm nom	36dBm nom	36dBm nom
Total out-of-band suppression:				
Lower 45dB Rejection	DC-423MHz	DC-850MHz	DC-2350 MHz	DC-5670MHz
Upper 45dB Rejection	447 – 6000MHz	885 – 6000MHz	2550 – 6000MHz	5930 – 6000MHz
Saturated Output power	37dBm min (38dBm nom)	37dBm min (38dBm nom)	37dBm min (39dBm nom)	37dBm min (39dBm nom)
O/P noise power suppression:				
Lower 20dB Rejection	DC-413MHz	DC-800MHz	DC – 2000MHz	DC- 5615MHz
Lower 10dB Rejection	413-423 MHz	800 – 850MHz	2000 – 2350MHz	5615 – 5670MHz
Upper 10dB Rejection	447-455 MHz	885 – 940 MHz	2550 – 3000MHz	5930-5970MHz
Upper 20dB Rejection	455 – 6000MHz	940 – 6000MHz	3000 – 6000MHz	5970-6000MHz
Supply	+28V@1A max -12V @ 0.075mA	+28V@1A max -12V @ 0.075mA	+12V @6A -12V @0.075mA	+12V @6A -12V @0.075mA
Gain Control	30dB / 1dB steps	30dB / 1dB steps	30dB / 1dB steps	30dB / 1dB steps
Module Size (TBC)	140 x 70 x 80mm	140 x 70 x 80mm	140 x 70 x 40mm	140 x 70 x 40mm

Integrated Assemblies - SDLVA



Programmable Successive Detection Log Video Amplifier (SDLVA). Used in a Fast Jet ESM platform, the SDLVA offers:

- Integrated filtering and gain equalisation
- Full temperature compensation
- Electronically adjustable dynamic range and offset
- Device shown operates in X-Band

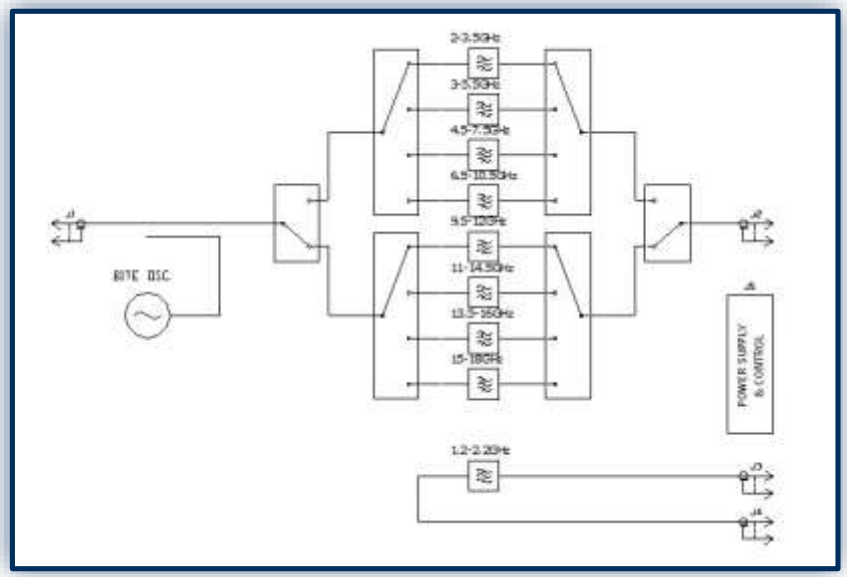


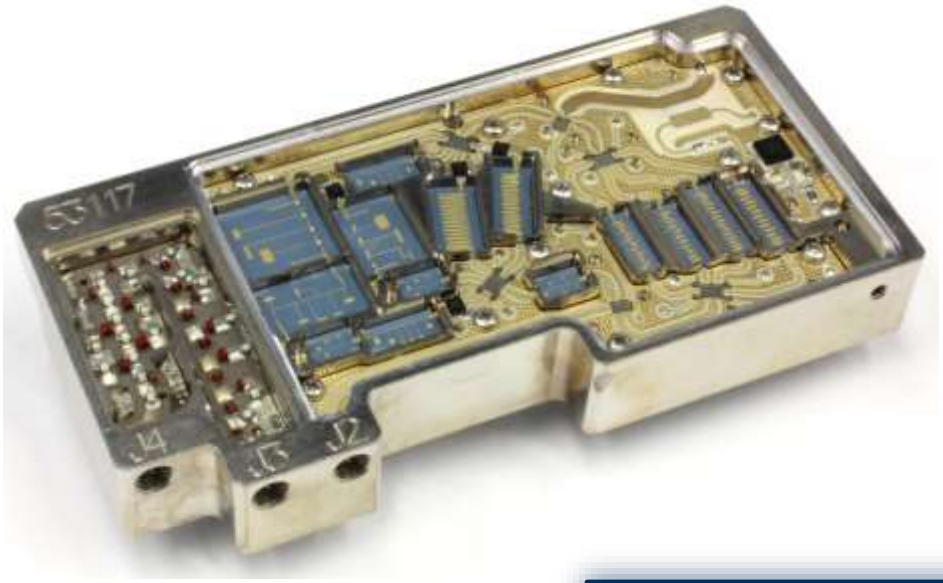
4th generation European fighter…

X Band SDLVA
Fitted to DASS suite
Removes false triggering from DASS

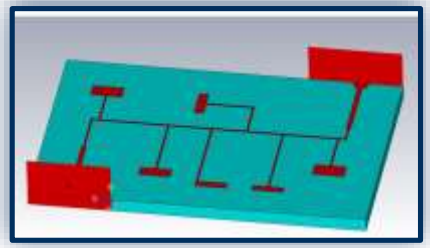
Hundreds to be ordered….

Thin Film Broadband Module



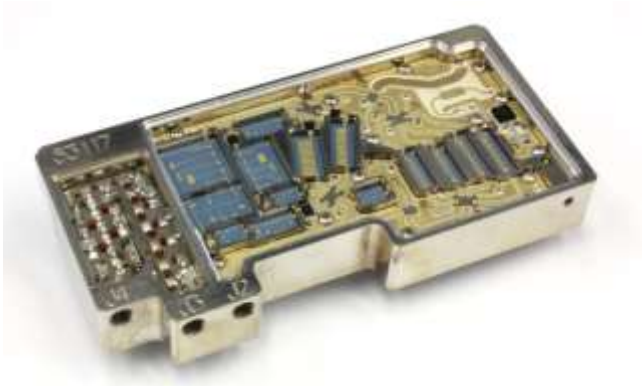


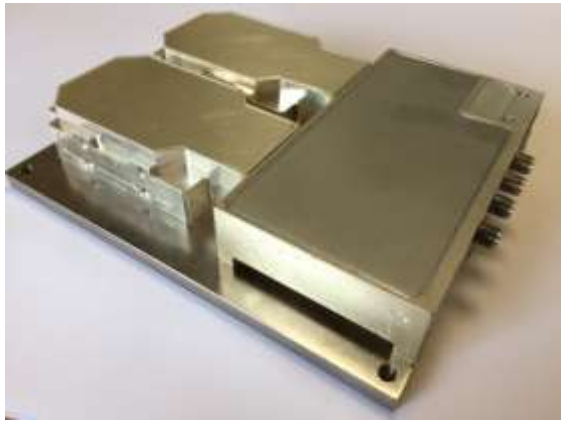
- Broadband, 2 – 18 GHz Miniature Switched Filter Bank
- 8 Channels
- Built-in test function with oscillator
- Features new quasi-distributed Thin Film designs
- 100 x 40 x 15 mm
- < 100 ns switching speed
- ***<u>Excellent example of Thin Film integration and mixed technology.</u>***



Shipborne ESM / EW

Next Generation frigates.
Preselector & Switched notches fitted behind antennas on the mast
IF switched filters on DRFM (Jammer) front end





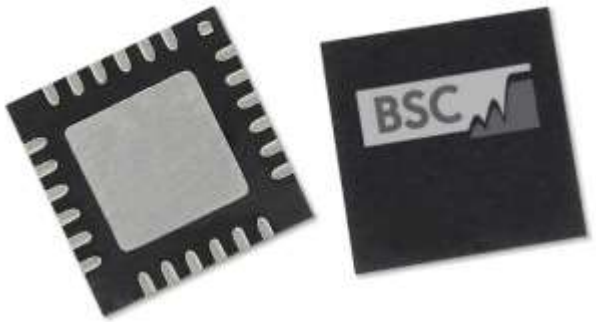
Recent Development – RF Distribution Unit

- Two identical RF channels
  - 2-6GHz inputs
  - 12dB gain
  - Coupled outputs
- Single 4GHz channel Input
  - 2 amplified identical outputs
  - Two Freq divide by 4 identical outputs
- Threshold detection on all outputs

Future large aircraft (Transport)

Miniaturisation & Packaging (part of the R&D Roadmap)

Current Design Study – QFN-Packaged Tuneables

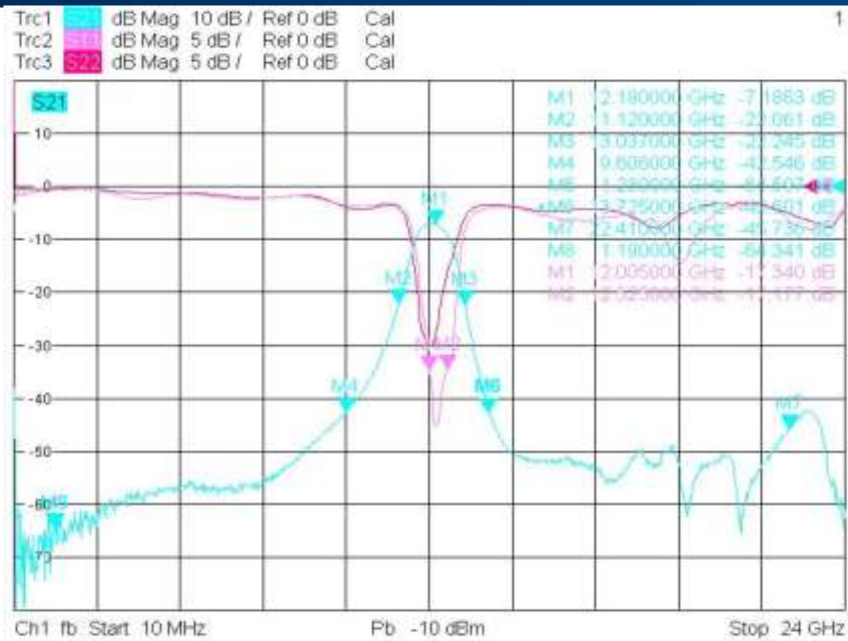


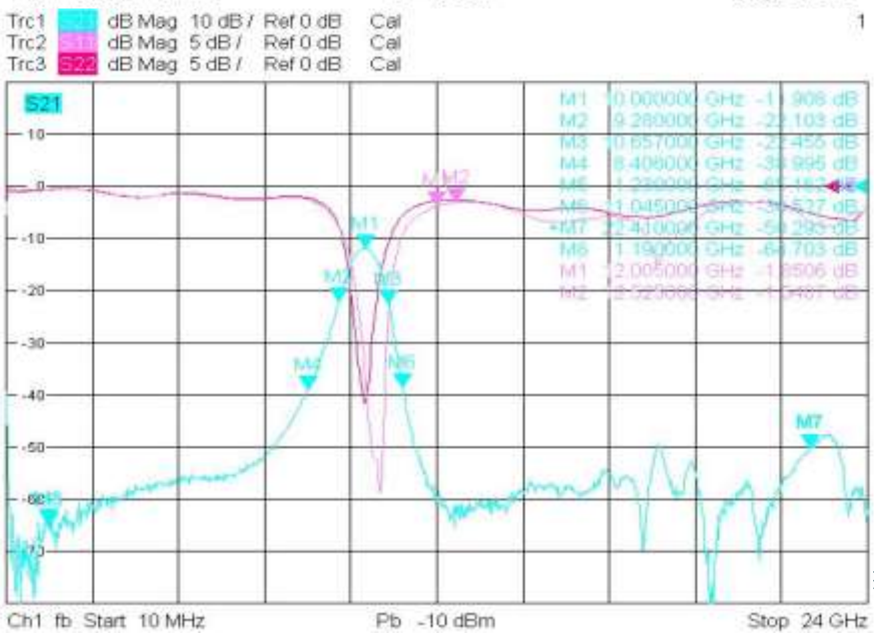
Current approaches are expected to utilise 12 mm x 12 mm Plastic QFN package

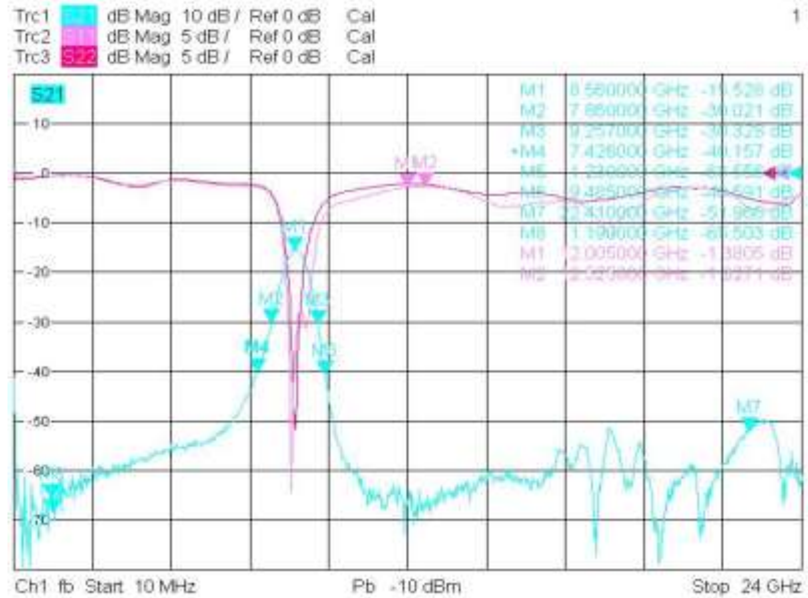
BSC are in the early stages of developing QFN -packaged tuneable Filters:-

- Currently undergoing virtual prototyping:
  - L-Band (1 – 2 GHz)
  - S-Band (2.4 – 3.5 GHz)
  - X-Band (7 – 12 GHz)
  - X-Band Notch (7 – 12 GHz)
  - ACTIVE x-band tuneable
- Current models exceeding market precedent – higher Q

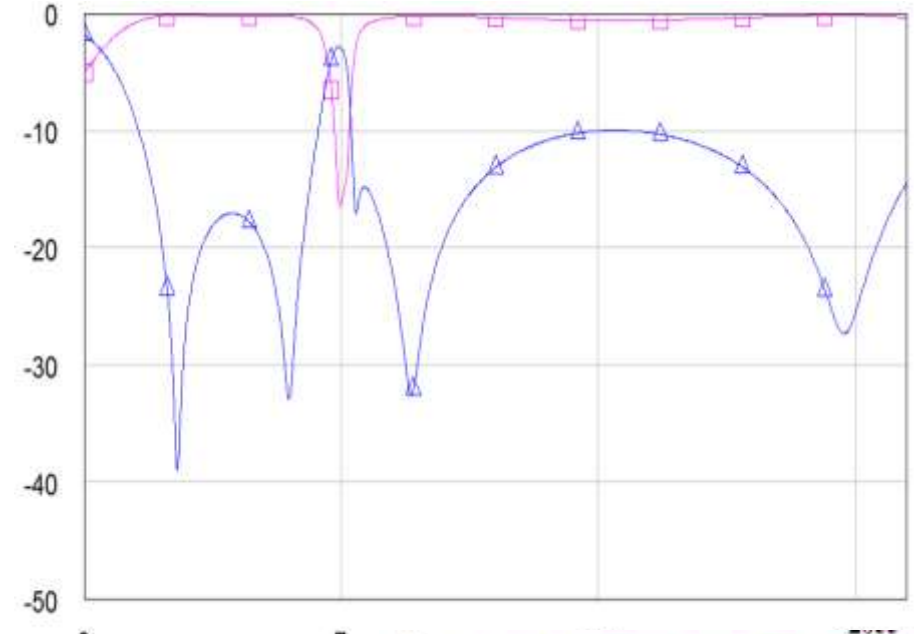
QFN Tuneables – Early Results X Band

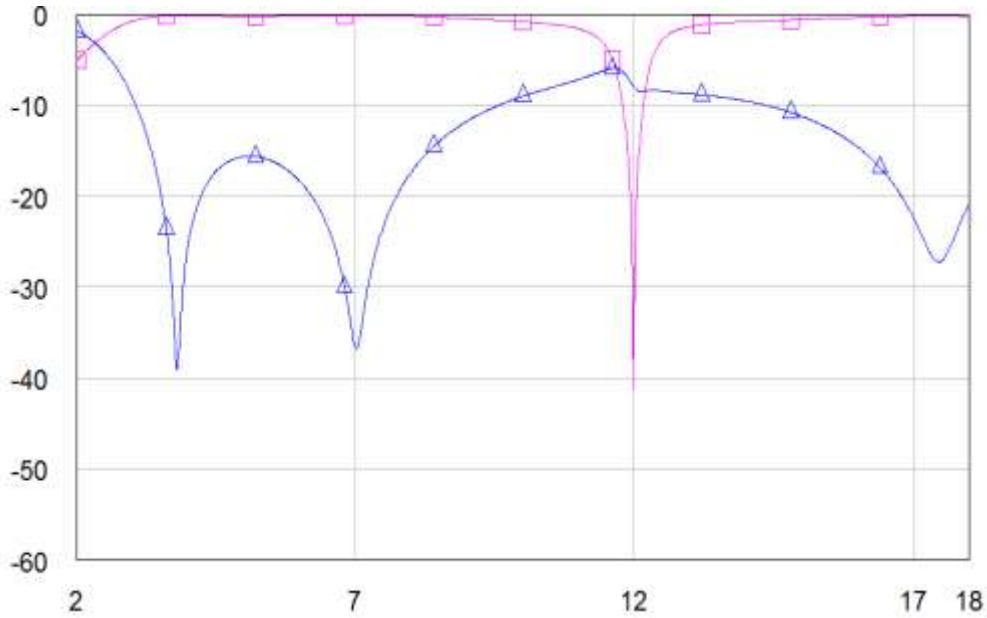


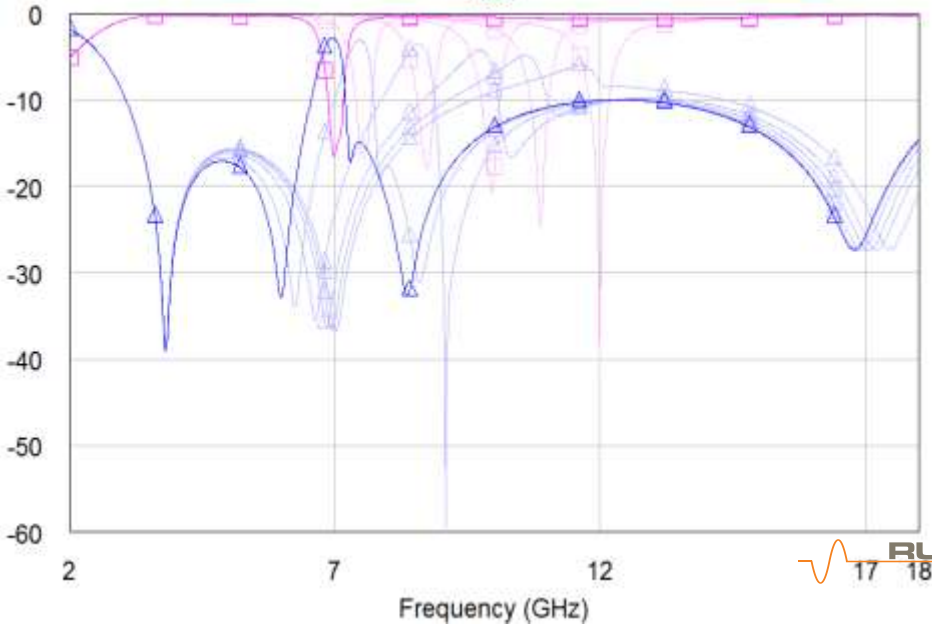




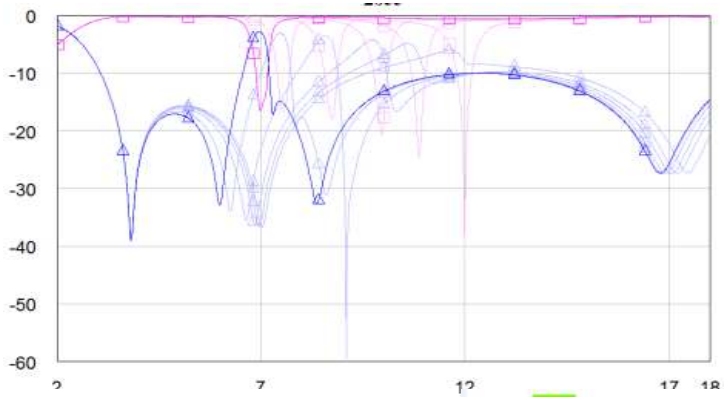
Predicted Performance – Single X band – NOTCH

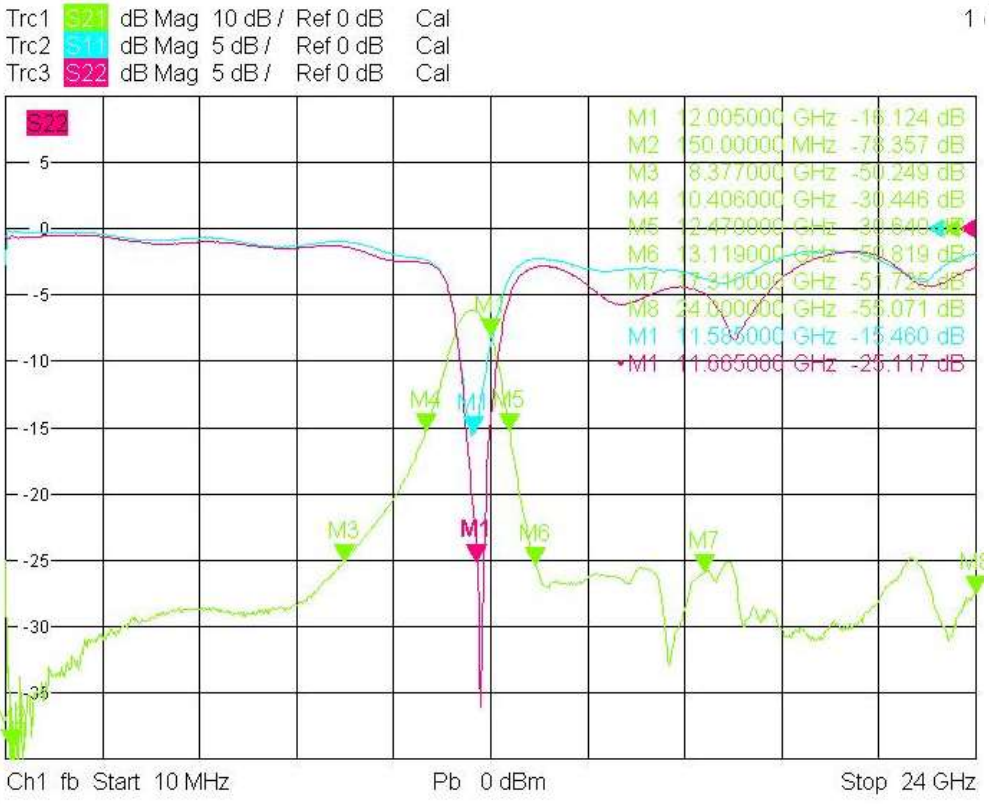


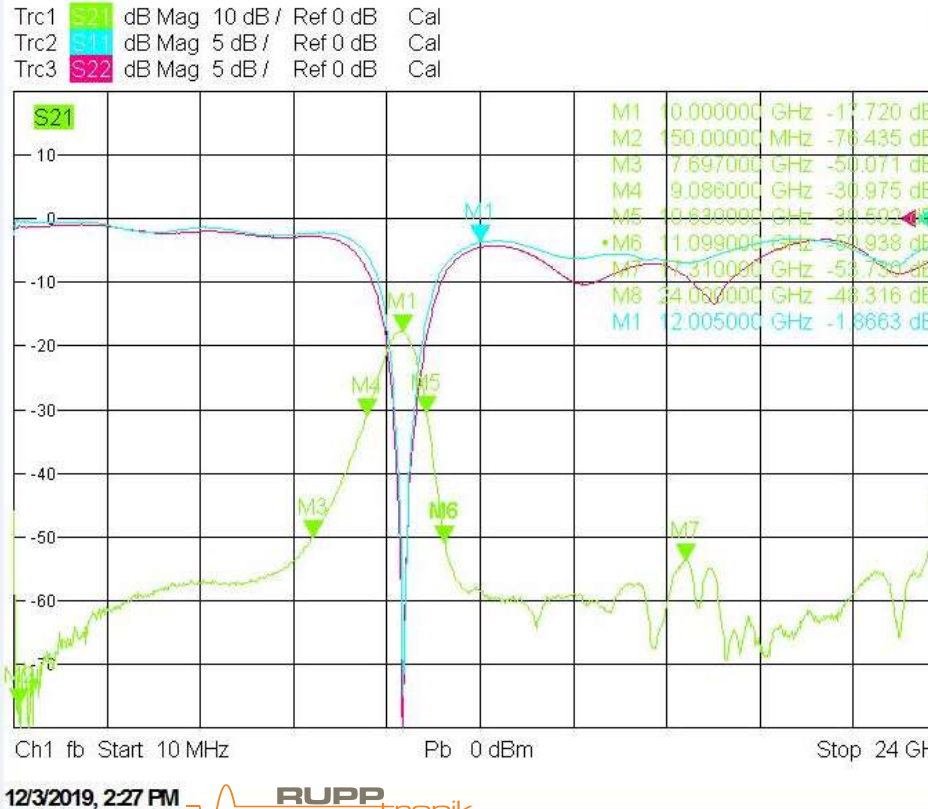




X Band NOTCH QFN

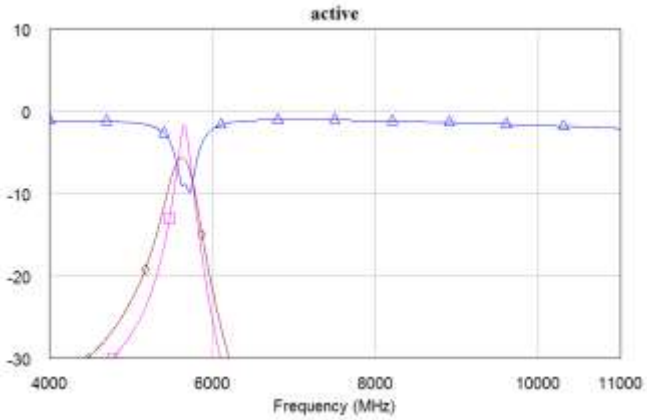


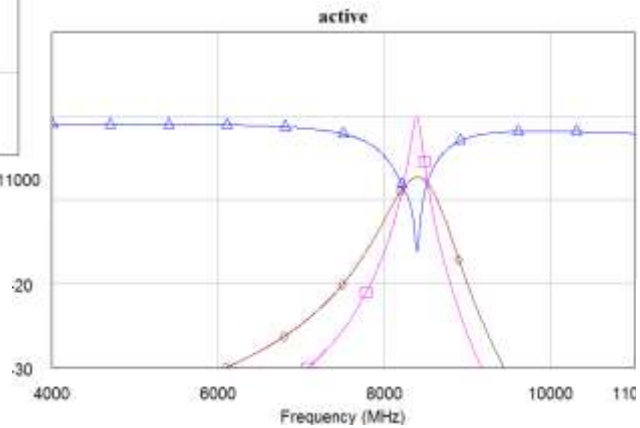


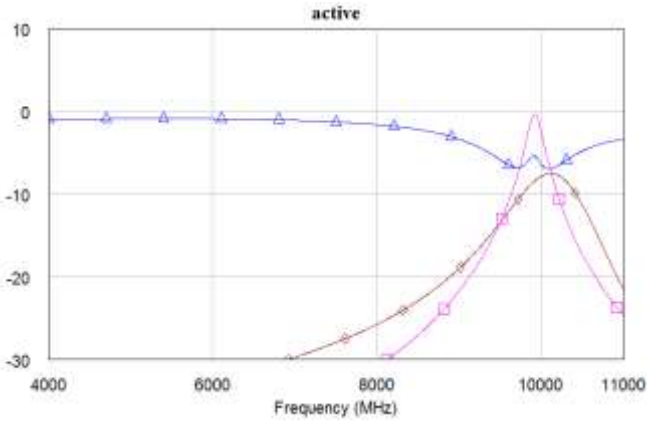


ACTIVE tuneable QFN

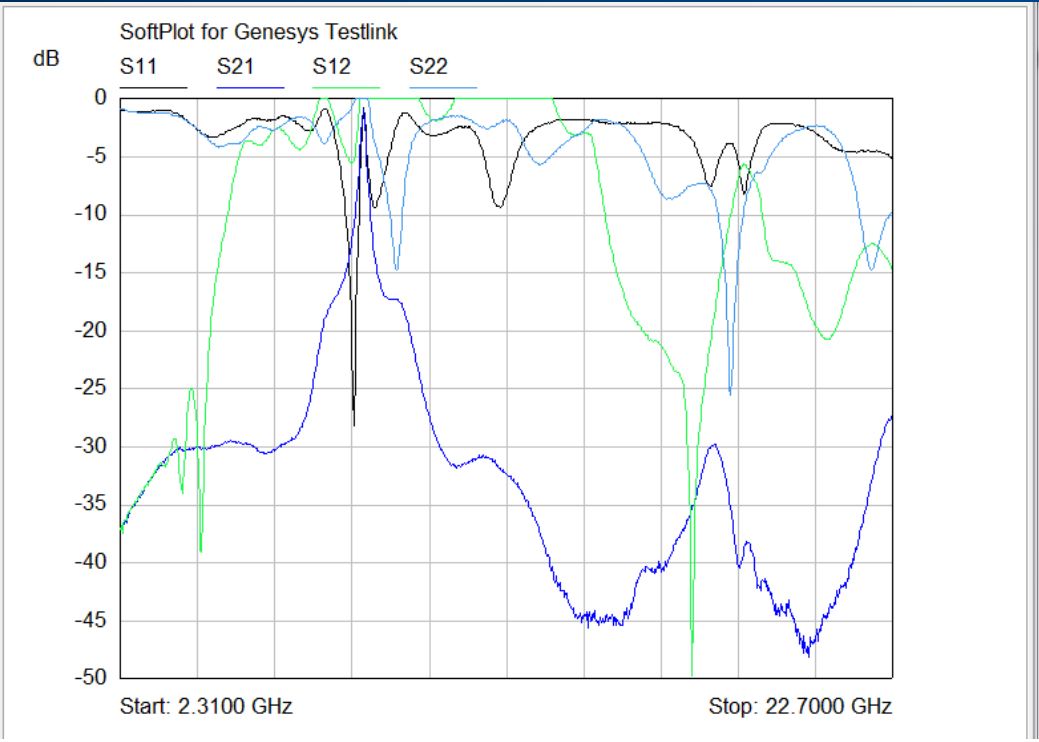
Utilising a unique REGENERATIVE active filter to recover passband energy in a superposition technique.

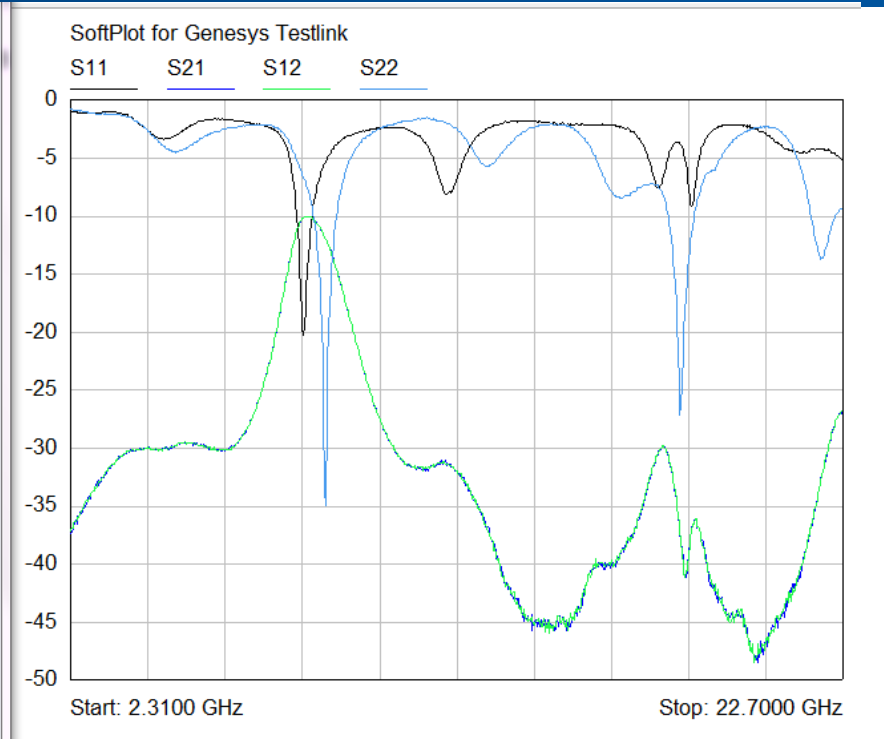


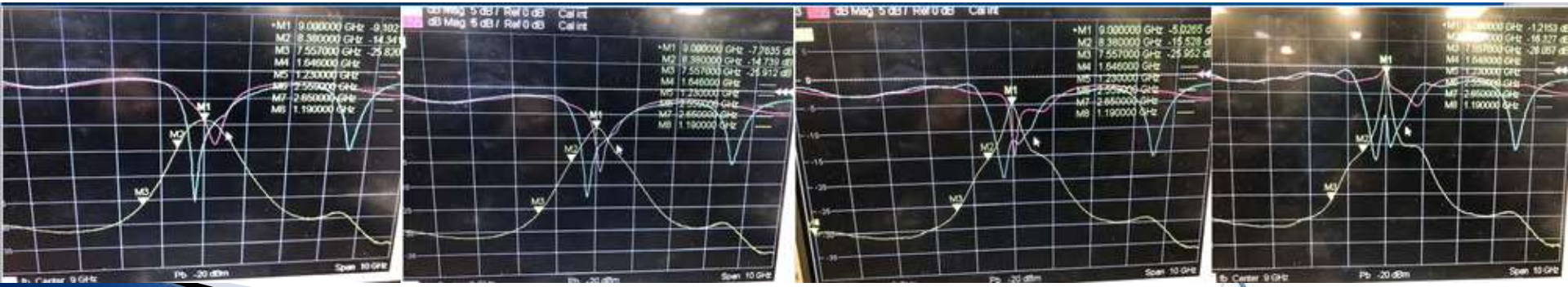




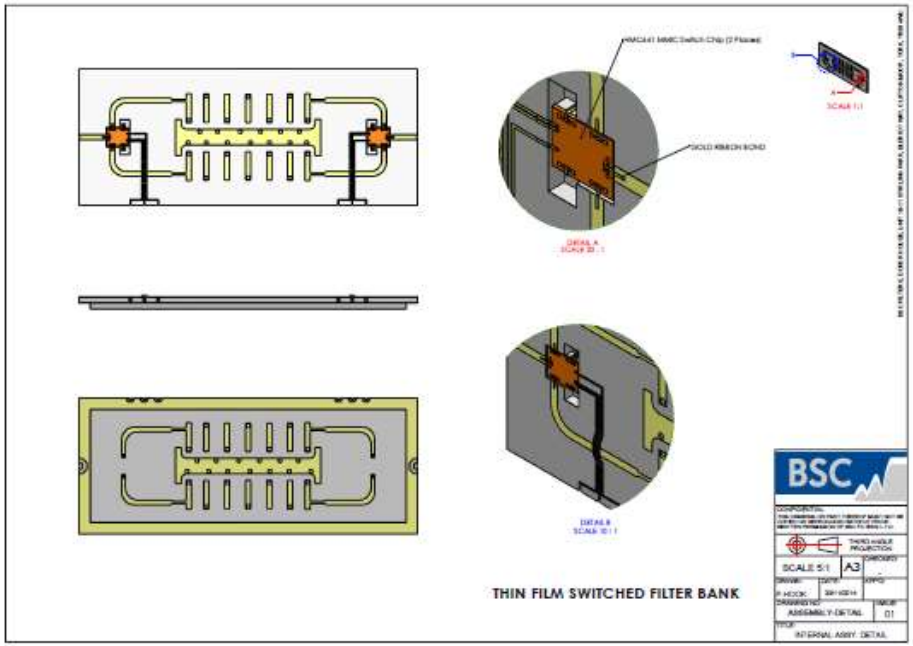
Measured Performance



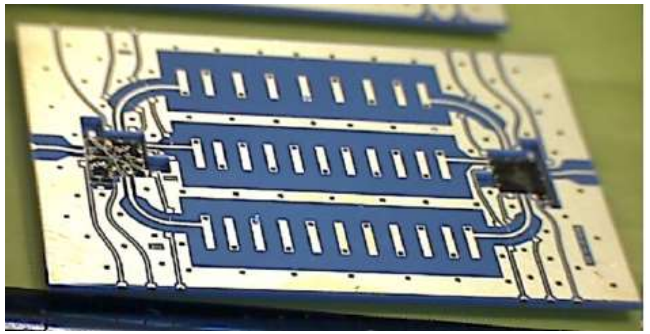




Thin Film Technology



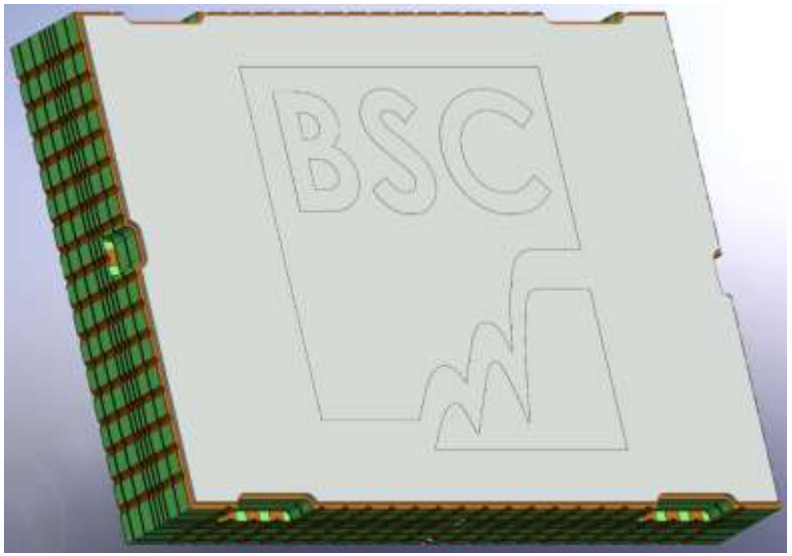
4 Channel Concept

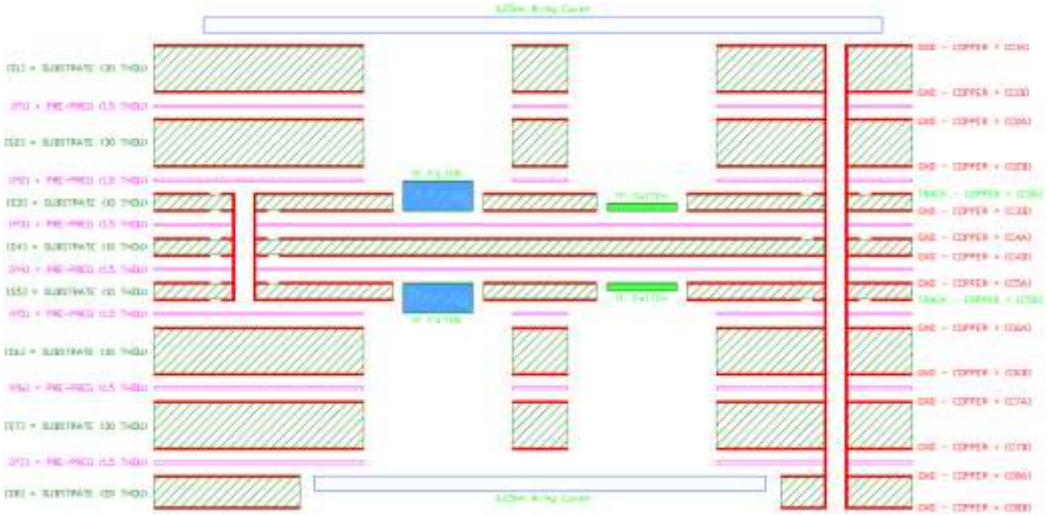


6 Channel X Band Prototype

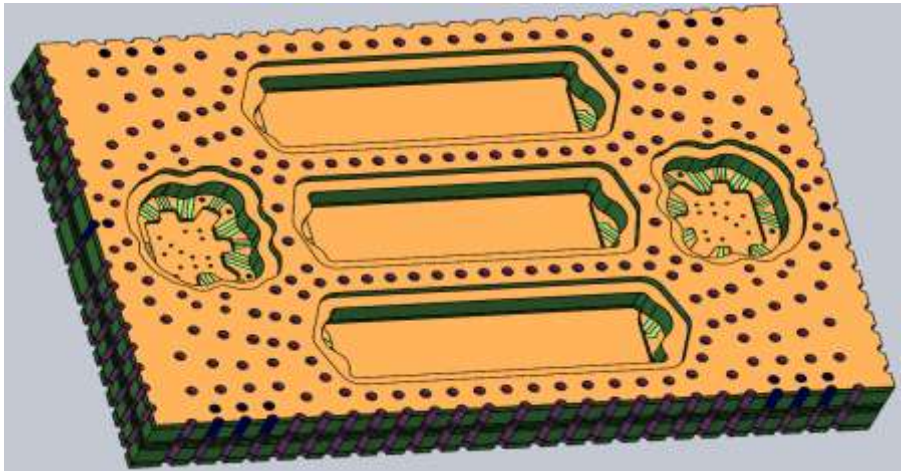
High Density uW MODULES

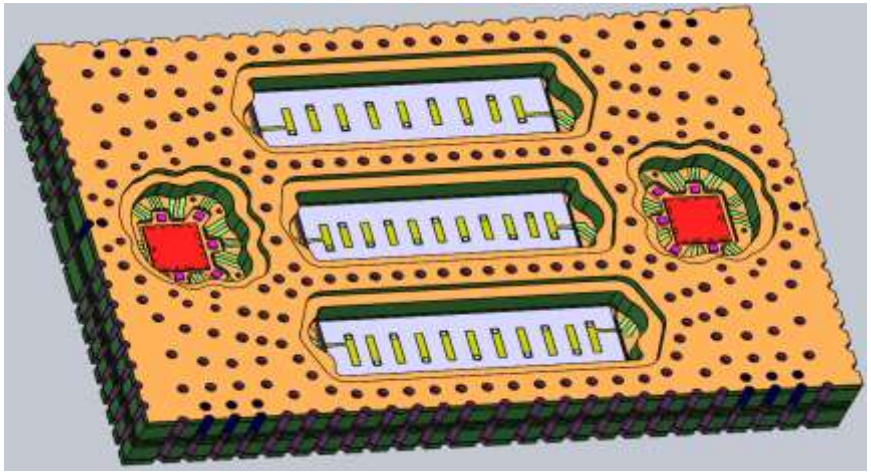
- **Meet Customer demand for SMT Thin Film SFBs**
  - Stay away from just ceramic tiles, but keep the size

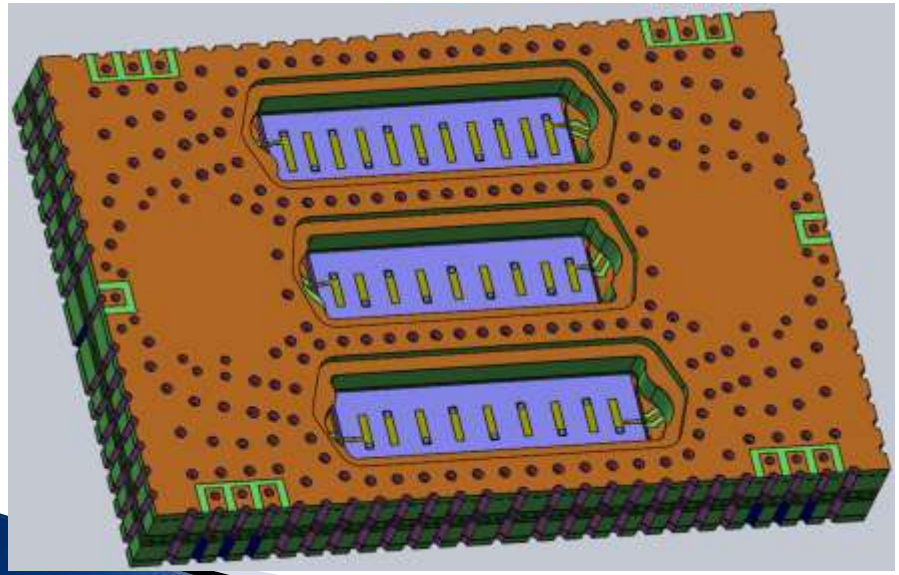


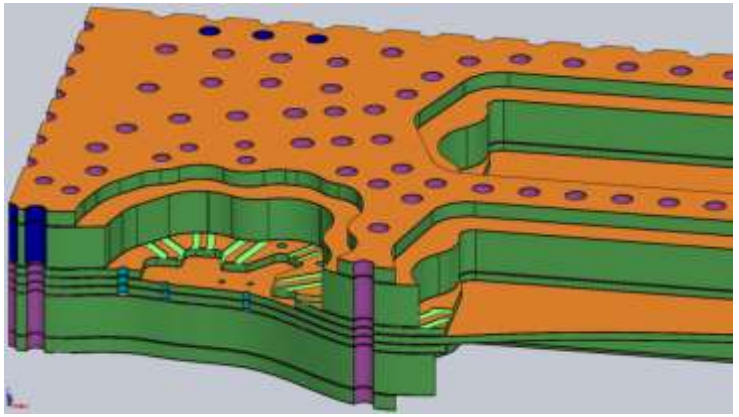


High Density uW MODULES

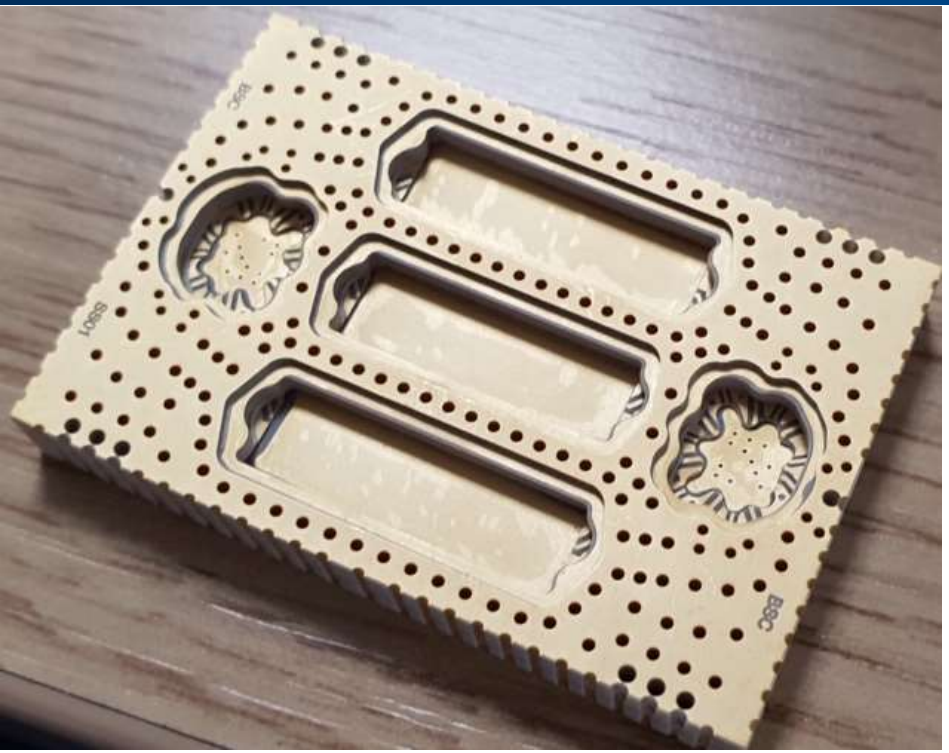


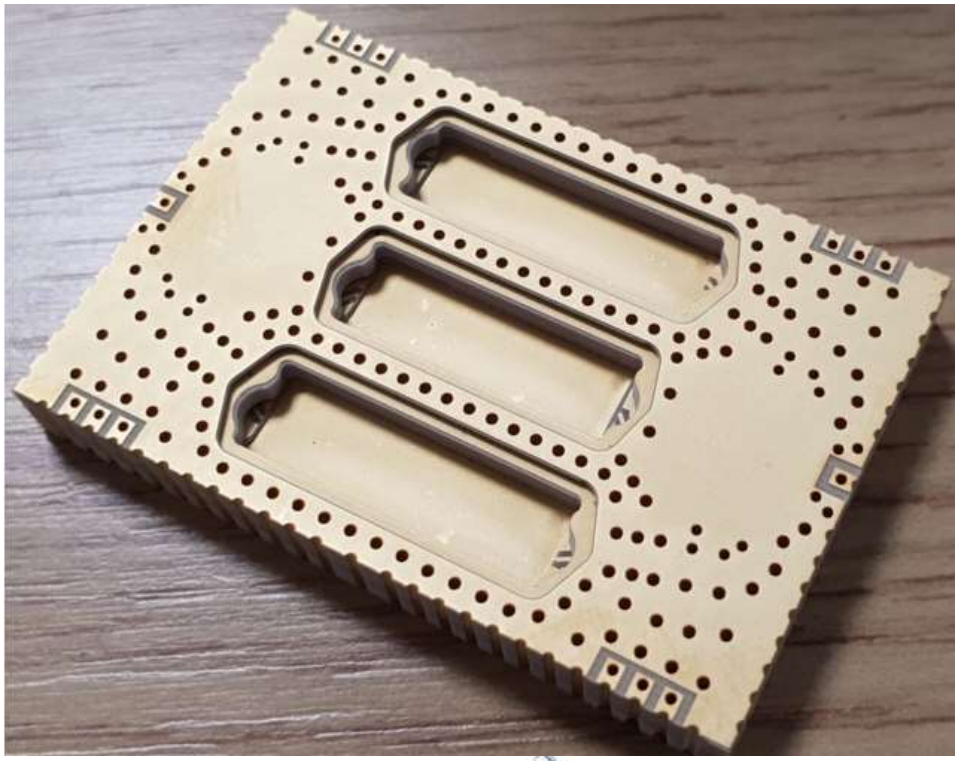


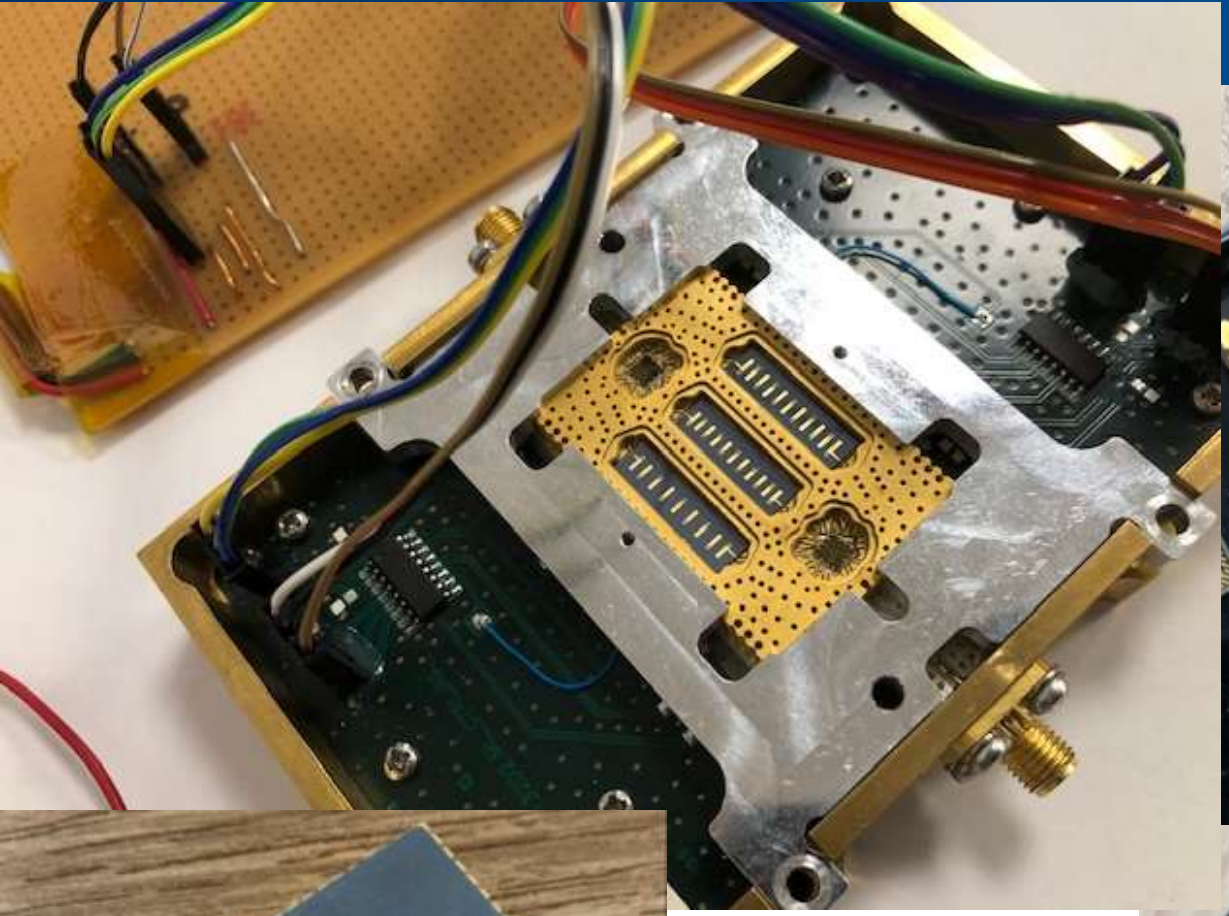




High Density uW MODULES



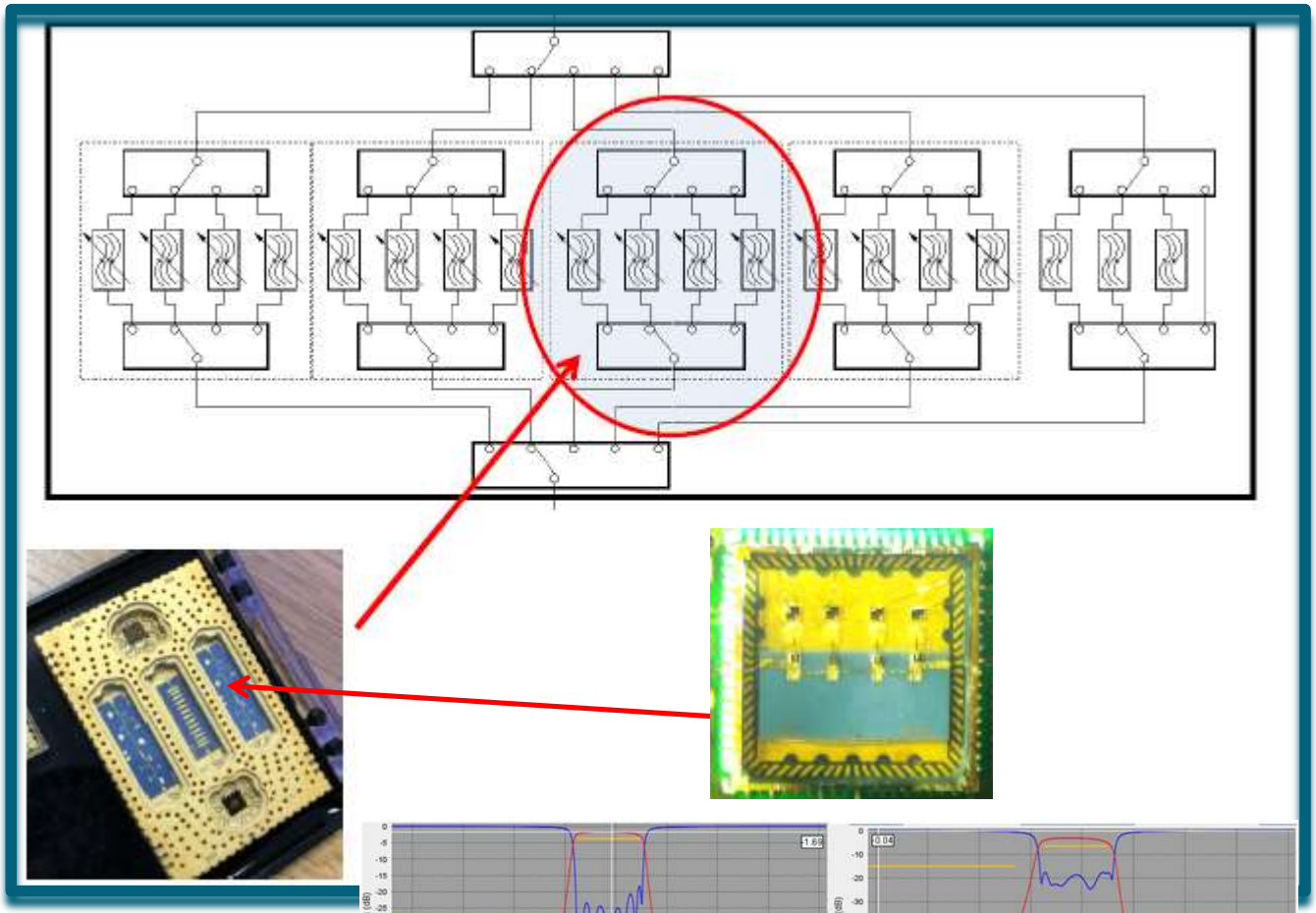


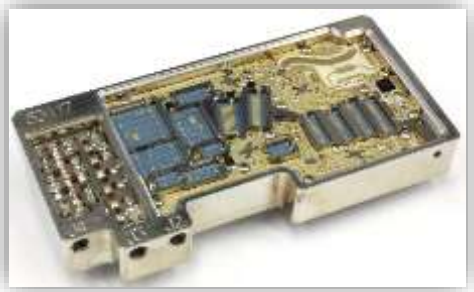



BSC


RUPP tronik

Preselectors – Solid State YiG replacement





Generate a 2-18GHz Solid-state high performance Tuneable Filter to act as a YiG replacement.

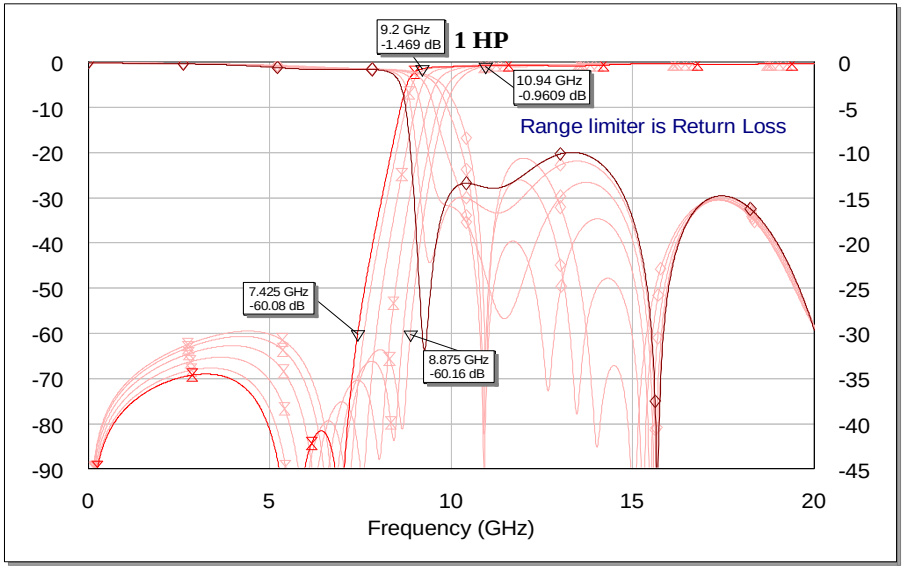
- ***High degree filters (6 to 8 section***
- ***Wide bandwidths – 1GHz***
- ***Each filter will tune over a small section of the band, with a large number of filters required to switch between.***

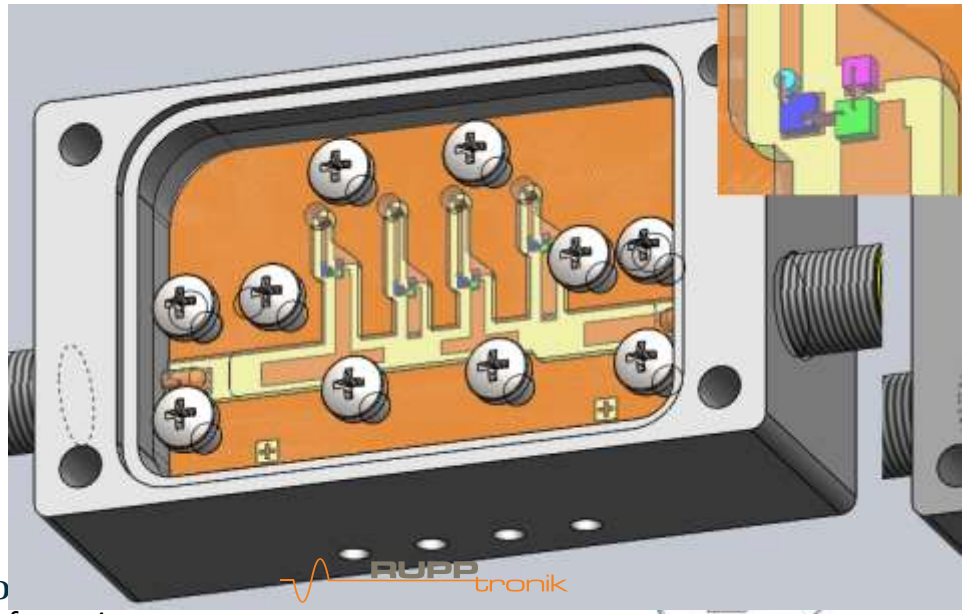
- ***3U Card for single, or ideally dual module.***

Tunable Highpass

Product Overview

- The graph (right) shows the potential frequency range covered by a resonator only tuned highpass design.
- The limiting factor with only one mode of tuning is return loss.
- Suitable for higher frequency HP designs.

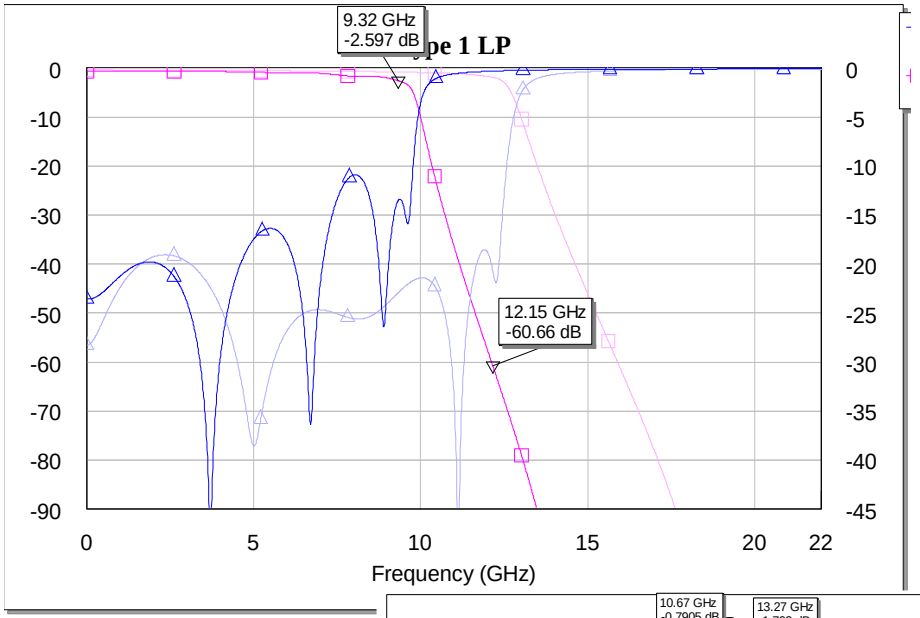


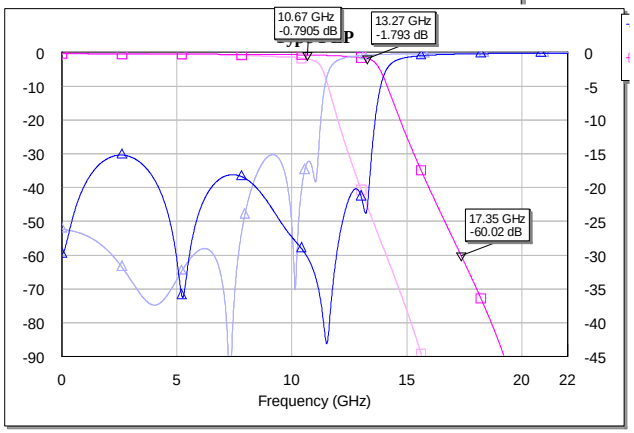


Tunable Lowpass

Product Overview

- The range of the lowpass is greater with single mode tuning and the centre frequency of the tuning range can be adjusted with correct component value selection.
- This frequency range shift can be seen on the lower graph.
- Again, the limiting factor is return loss.

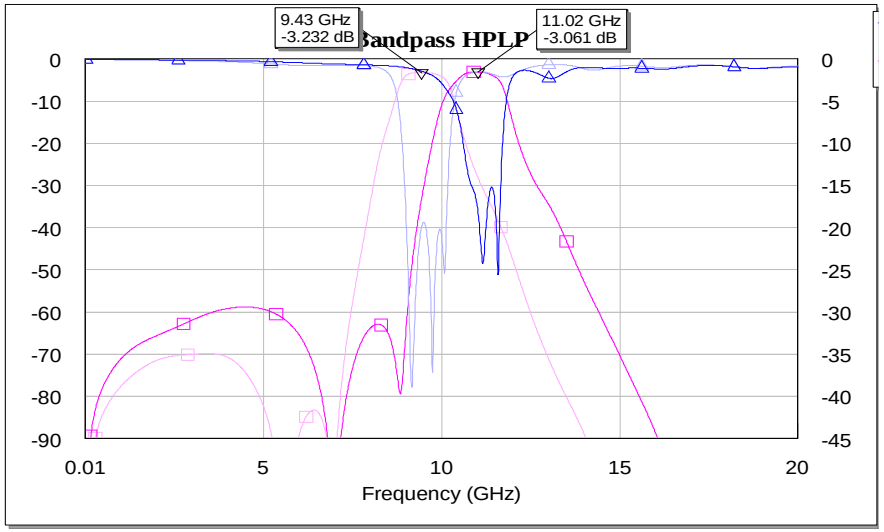




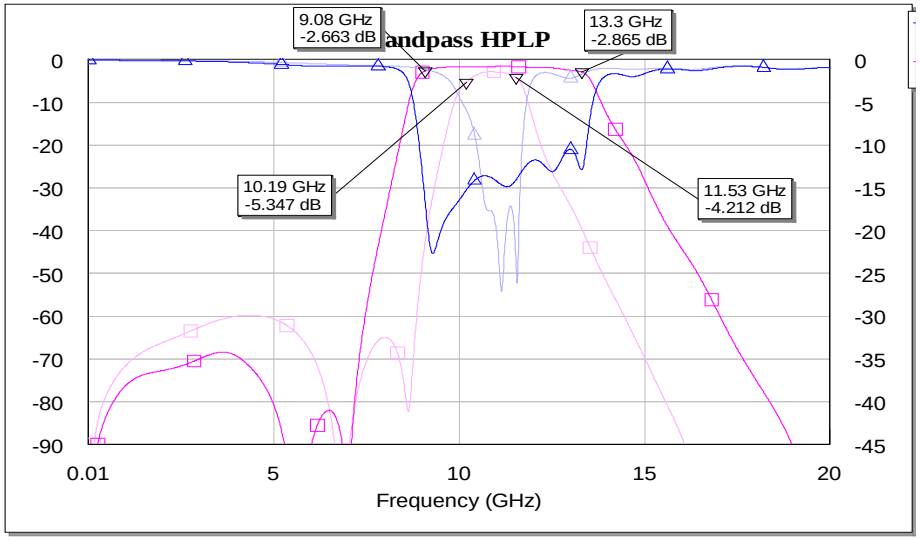
Combined Bandpass

Product Overview

- Combining the two filters we get either:
  - a frequency tuneable narrowband bandpass or
  - a bandwidth tuneable bandpass or
  - A combination of tuneable centre frequency and bandwidth.



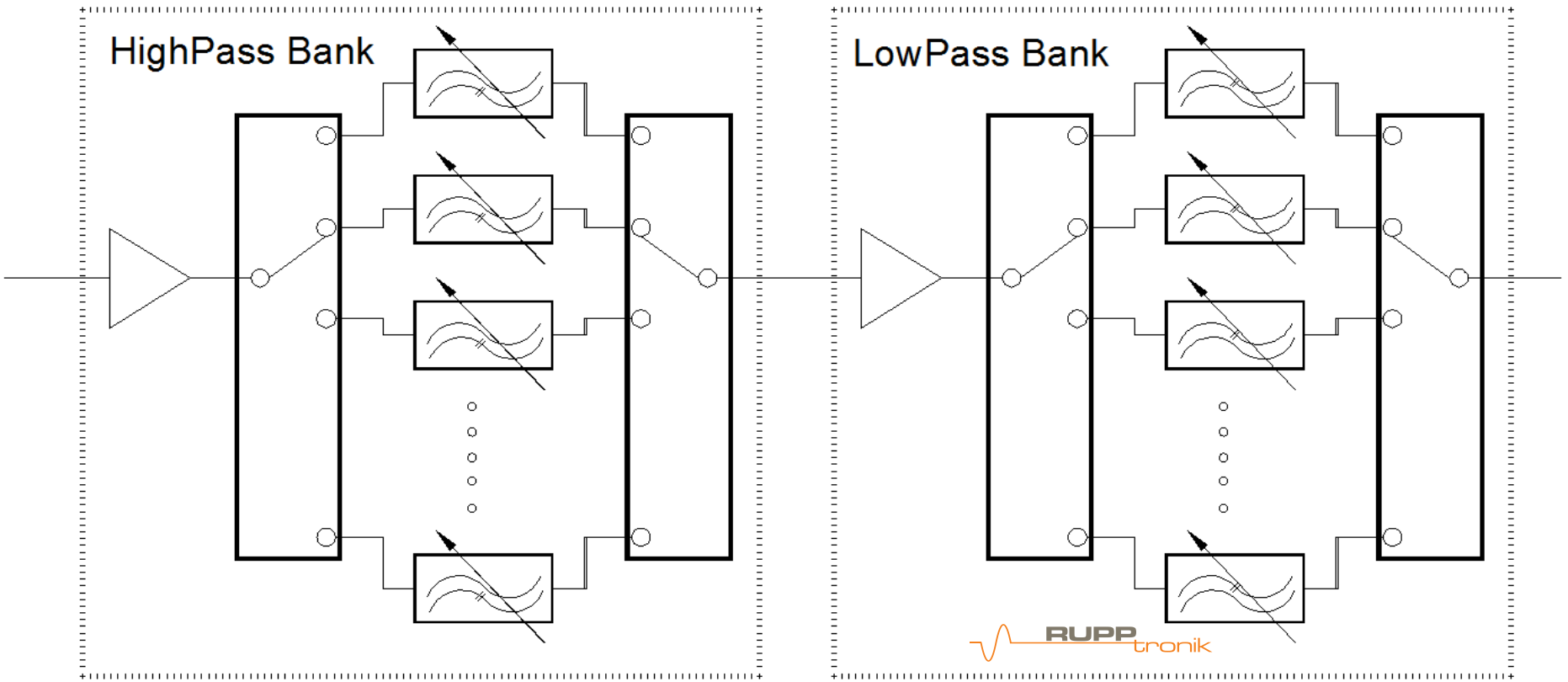
- As a bandwidth tuneable bandpass the filter demonstrates a tuning range of 300%.
- Return Loss can be optimised further depending on customer requirement.



Infinitely variable , generic 2-18GHz filter

Preselector where and centre frequency and any bandwidth can be selected that falls within 2-18GHz Band

- ***Bank of tuneable low-pass filters***
- ***Bank of tuneable high-pass filters***
- ***3U module form factor***
- ***Utilise broadband SSS LP/HP technology modified structures.***



Value Add Subsystems
Narrowband EW receiver
Broadband, multipulse reciever

Target Specifications…. *IN A 3U SINGLE SLOT*

DCV-5800 RF MODULE SPECIFICATIONS

Input frequency range	0.25 - 18.250 GHz
Center tune RF	0.5 - 18.0 GHz input range
Connector type(s)	SMA female (all input/outputs)
Input VSWR	2.5:1 maximum, input impedance 50 ohms
Maximum input	+23 dBm (without damage)
LO RF radiation	<-80 dBm (0.5 - 18 GHz)
Noise figure (at 25°C)	15 dB maximum at center tune frequency and 13 dB typical (NF increases 1.0 dB/25°C)
Wideband IF output	
Center frequency	1.0 GHz
Bandwidth 3 dB	±250 MHz
RF to IF gain	+8.5 dB ±2.5 dB
Instantaneous linear dynamic range	95 dB typical (1.0 MHz ref BW), ≥1 dB minimum
Output VSWR	<2.0:1
Group delay variation	<3 nsec typical across 80% 3 dB BW
Narrowband IF output	
Center frequency	160 MHz
Bandwidth 3 dB	±35 MHz
RF insertion gain.	+11.0 dB ±3.0 dB
Instantaneous linear dynamic range	90 dB (1 MHz BW)
Output VSWR	<2.0:1
Group delay variation	<4 nsec typical across 80% 3 dB BW
LO. input VSWR	2.5:1 maximum, input impedance 50 ohms
RF attenuation.	None
Image rejection	70 dB minimum
IF rejection	70 dB minimum
Internally generated spurious	-90 dBm equivalent input, typically -80 dBm maximum
RF/IF gain flatness	±1 dB (80% bandwidth)

Log video output	
Detected 160 MHz output	0.2 to +2.0 VDC typically
Detected RF bandwidth	15 MHz centered at 160 MHz
Video detection bandwidth	7.5 MHz, 1/2 IF bandwidth
Dynamic range	80 dB typically, 60 dB minimum
Output impedance	50/100 ohms

SYN-5800 SYNTHESIZER MODULE

1st L.O. sample output	Front panel (SMA female)
1st L.O. sample	-15 dBm +3 dB output level
1st L.O. tuning resolution	100 kHz (other lower step sizes available)
Slow tuning time	<20 msec typically 1.0 GHz step
Slow tuning time	<5 msec typically 100 MHz step
Fast tuning time	<300 µsec typically 1 GHz step
Fast tuning time	<200 µsec typically 100 MHz step
Total impressed integrated phase noise	<0.85 degrees rms (slow tune mode) typical, 1.0 degrees rms maximum
Total impressed integrated phase noise	<10 degrees rms (fast tune mode) maximum
Total impressed composite phase noise	Profile at 18 GHz from all local oscillators sources (typical)

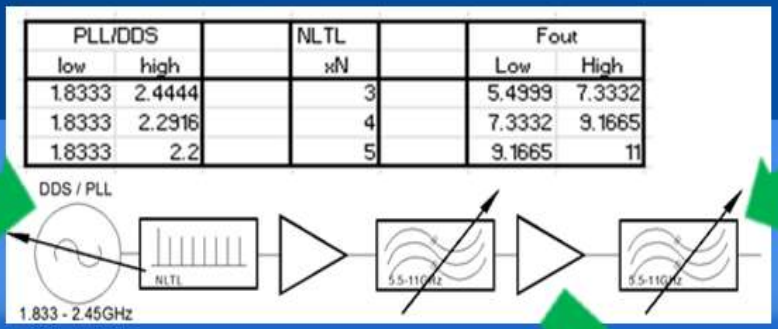
Frequency offset	Phase noise density
100 Hz	-65 dBc/Hz
1 kHz	-86 dBc/Hz
10 kHz	-88 dBc/Hz
100 kHz	-98 dBc/Hz
1 MHz	-115 dBc/Hz
10 MHz	-128 dBc/Hz

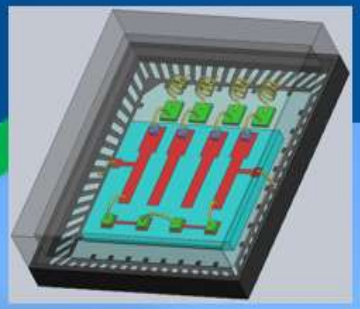
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

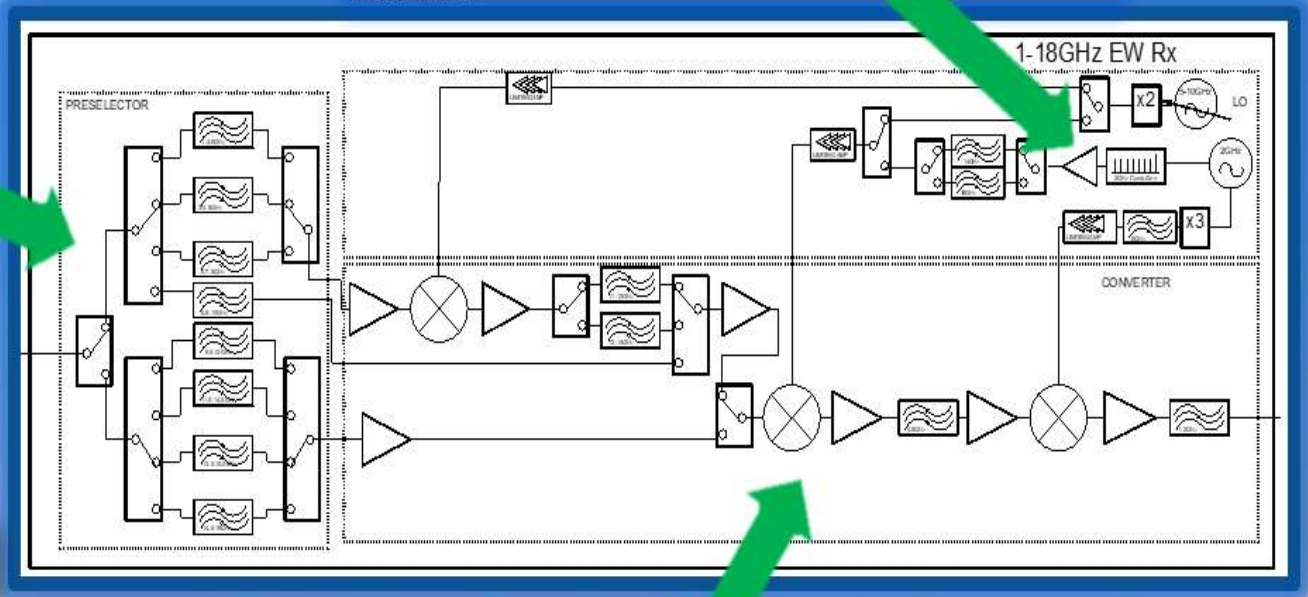
Rockwell – RC5800

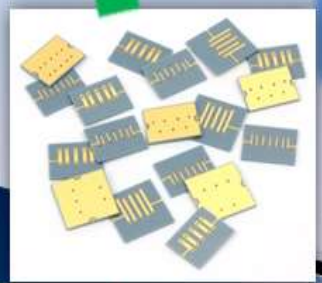
Compact EW Rx – Low TRL

PLL/DDS			NLTL		Fout	
low	high		xN		Low	High
1.8333	2.4444		3		5.4999	7.3332
1.8333	2.2916		4		7.3332	9.1665
1.8333	2.2		5		9.1665	11





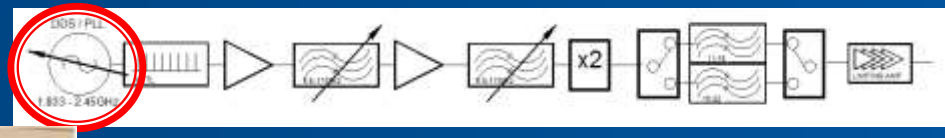




Microwave Products Group

BSC

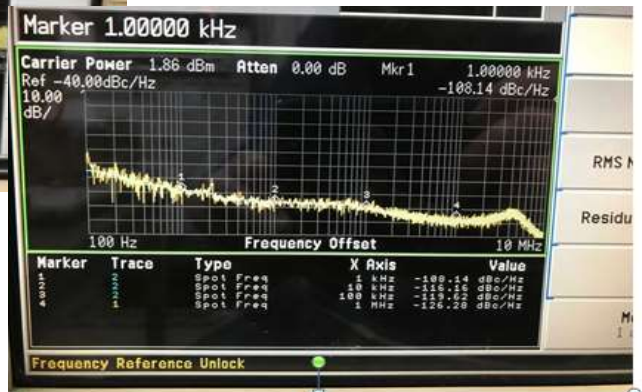
DDS/PLL – prototype



0dBm O/P Power
-70dBc Spurious

Phase Noise DDS/PLL;

(N=5)	Target	Measured
1kHz	**-105dBc/Hz**	**-106.7dBc/Hz**
10kHz	**-110dBc/Hz**	**-114.6dBc/Hz**
100kHz	**-115dBc/Hz**	**-118.5dBc/Hz**
1MHz	**-115dBc/Hz**	**-126.3dBc/Hz**
10MHz	**-135dBc/Hz**	**-142dBc/Hz**

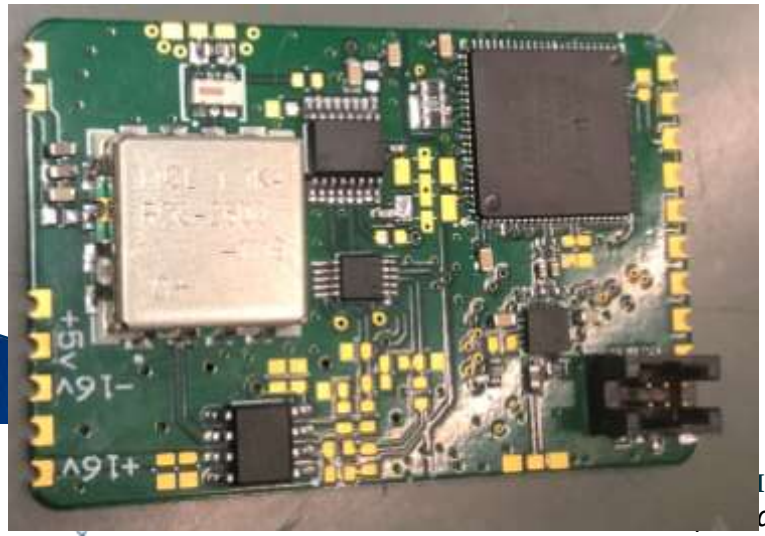


2.5GHz Ref – 1.8GHz

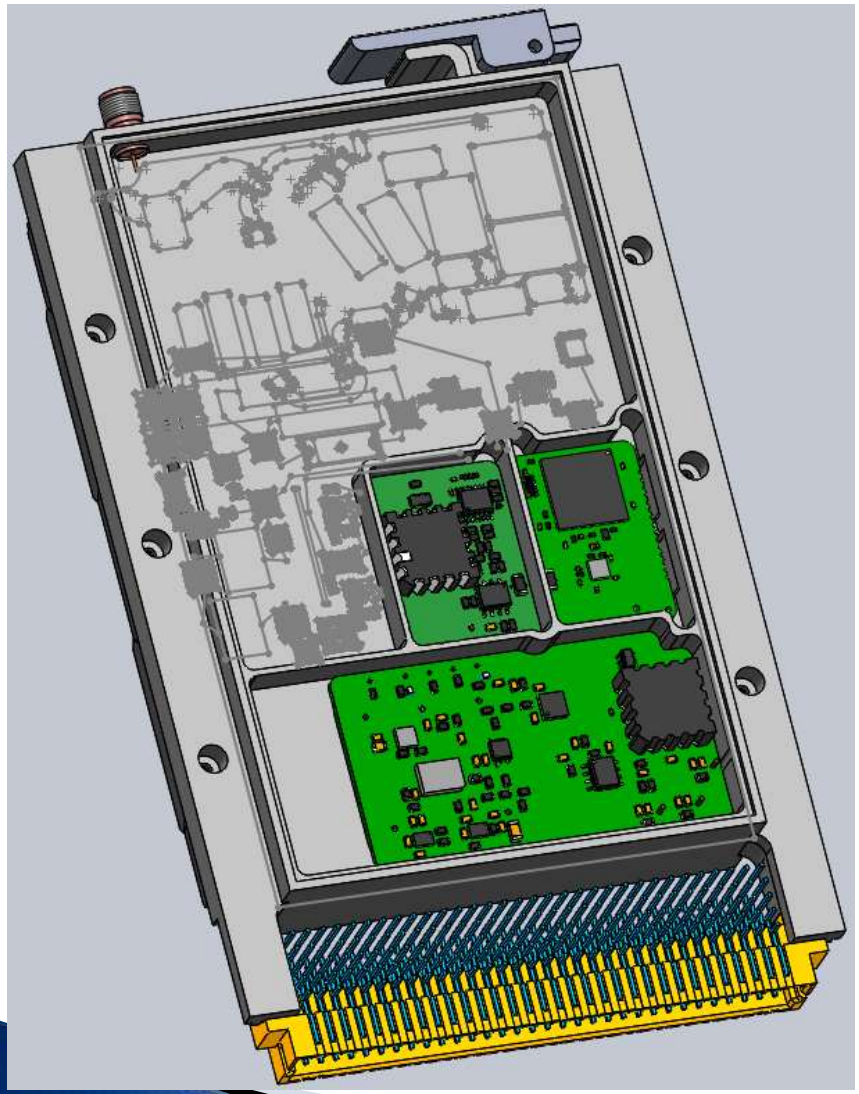
Phase Noise

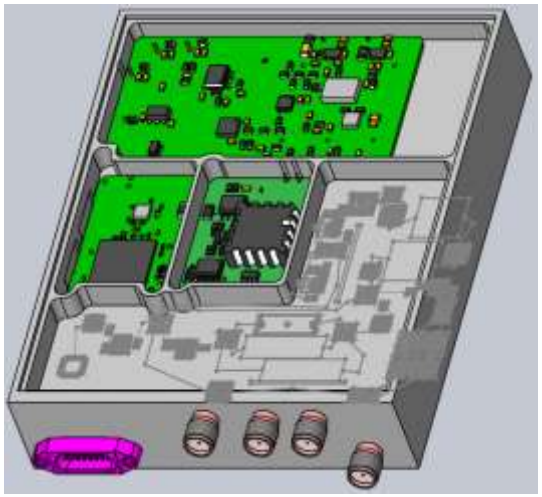
2.5GHz Ref – 2.4GHz

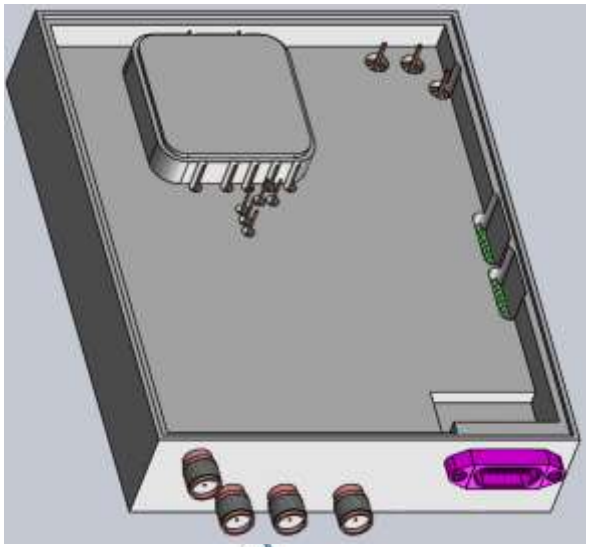
Phase Noise



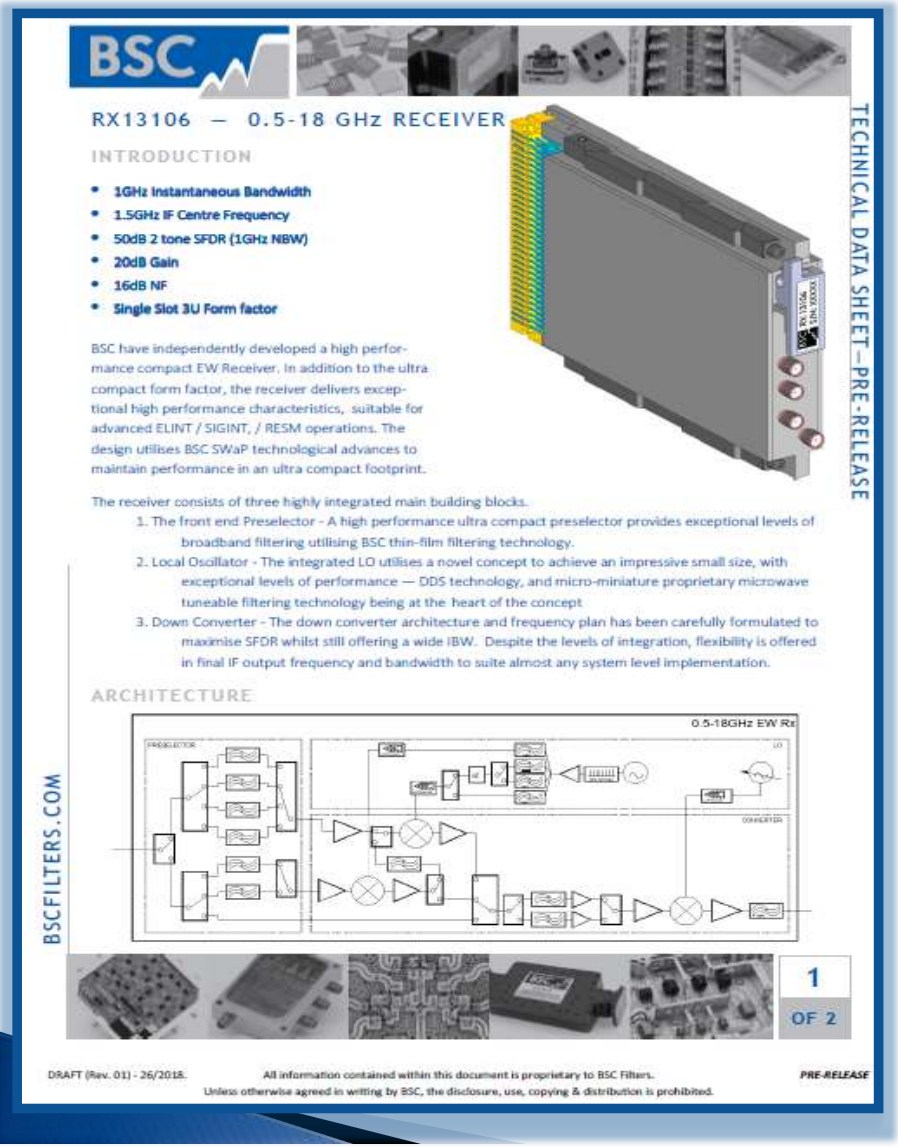
Stand-alone Synth – 2.75-22GHz







Compact EW Rx Datasheet



BSC

RX13106 — 0.5-18 GHz RECEIVER

TECHNICAL DATA SHEET – PRE-RELEASE

INTRODUCTION

- 1GHz Instantaneous Bandwidth
- 1.5GHz IF Centre Frequency
- 50dB 2 tone SFDR (1GHz NBW)
- 20dB Gain
- 16dB NF
- Single Slot 3U Form factor

BSC have independently developed a high performance compact EW Receiver. In addition to the ultra compact form factor, the receiver delivers exceptional high performance characteristics, suitable for advanced ELINT / SIGINT, / RESM operations. The design utilises BSC SWaP technological advances to maintain performance in an ultra compact footprint.

The receiver consists of three highly integrated main building blocks.

1. The front end Preselector - A high performance ultra compact preselector provides exceptional levels of broadband filtering utilising BSC thin-film filtering technology.
2. Local Oscillator - The integrated LO utilises a novel concept to achieve an impressive small size, with exceptional levels of performance — DDS technology, and micro-miniature proprietary microwave tuneable filtering technology being at the heart of the concept
3. Down Converter - The down converter architecture and frequency plan has been carefully formulated to maximise SFDR whilst still offering a wide IBW. Despite the levels of integration, flexibility is offered in final IF output frequency and bandwidth to suite almost any system level implementation.

ARCHITECTURE

0.5-18GHz EW Rx

BSCFILTERS.COM

1 OF 2

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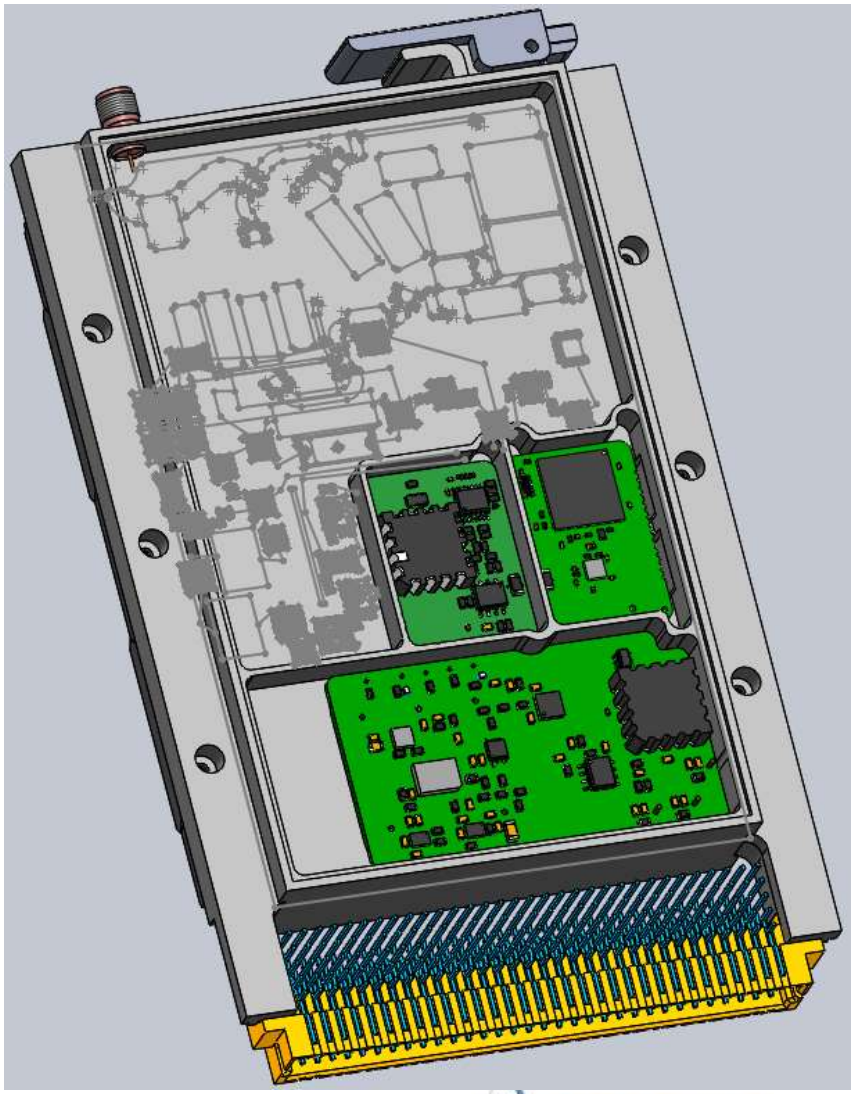

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