Déti
MICROWAVE

www.deti-sa.com

The major partner for your microwave projects

CATALOG 2021

Société par Actions Simplifiées au capital de 150 000 € - RCS Brest B403 061 245 - Siret 40306124500011 - Code 2611Z
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HISTORY

In front of deindustrialisation of the French electronic industry in the nineties, Gilles PICARD had the dream to set up his own firm, in disruption with the global strategic tendency of larger organisations to end with French manufacture.

With 25 years of experience in Thomson CSF as successively engineer, technical manager and then commercial manager, he decided to set-up DETI in 1995, in collaboration with his daughter, Aude PICARD, newly graduated in international business.

They together set up the firm and got in association with other engineers with many decades of hands-on experience in microwave design and industrial technologies.

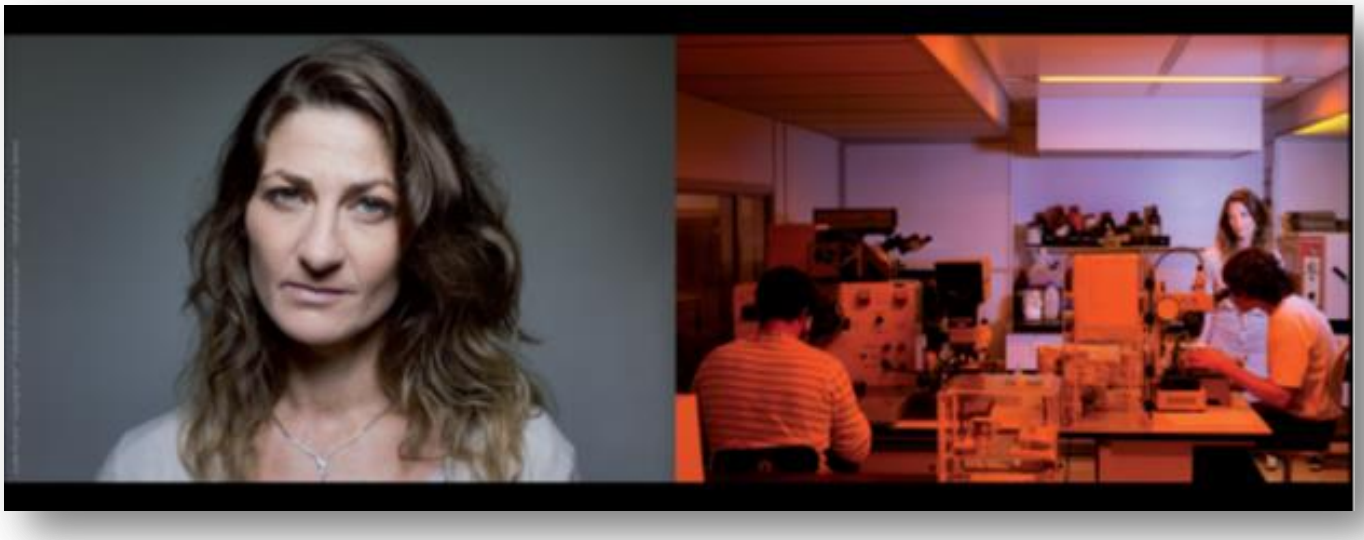
DETI then began operation designing and manufacturing passive custom RF and microwave filters, duplexers and subassemblies for military and commercial markets.

The company, since then, developed a reputation for producing very reliable parts for the military industries: Very wide frequency bands, low loss and high power performance were what set DETI apart from its competitors.

In 2012, Gilles went to retiree and Aude PICARD became general manager, after 17 years as administrative and financial manager.

In 2019, she became major owner and Chairperson of the company. DETI can be considered as a Woman Owned Small Company, despite this certification doesn't exist in France.

The managing pool is completed by Emmanuel Michaut, Deputy Director and Commercial Manager and Sylvain Mellaza as Technical Director.



PERIMETER OF ACTIVITY

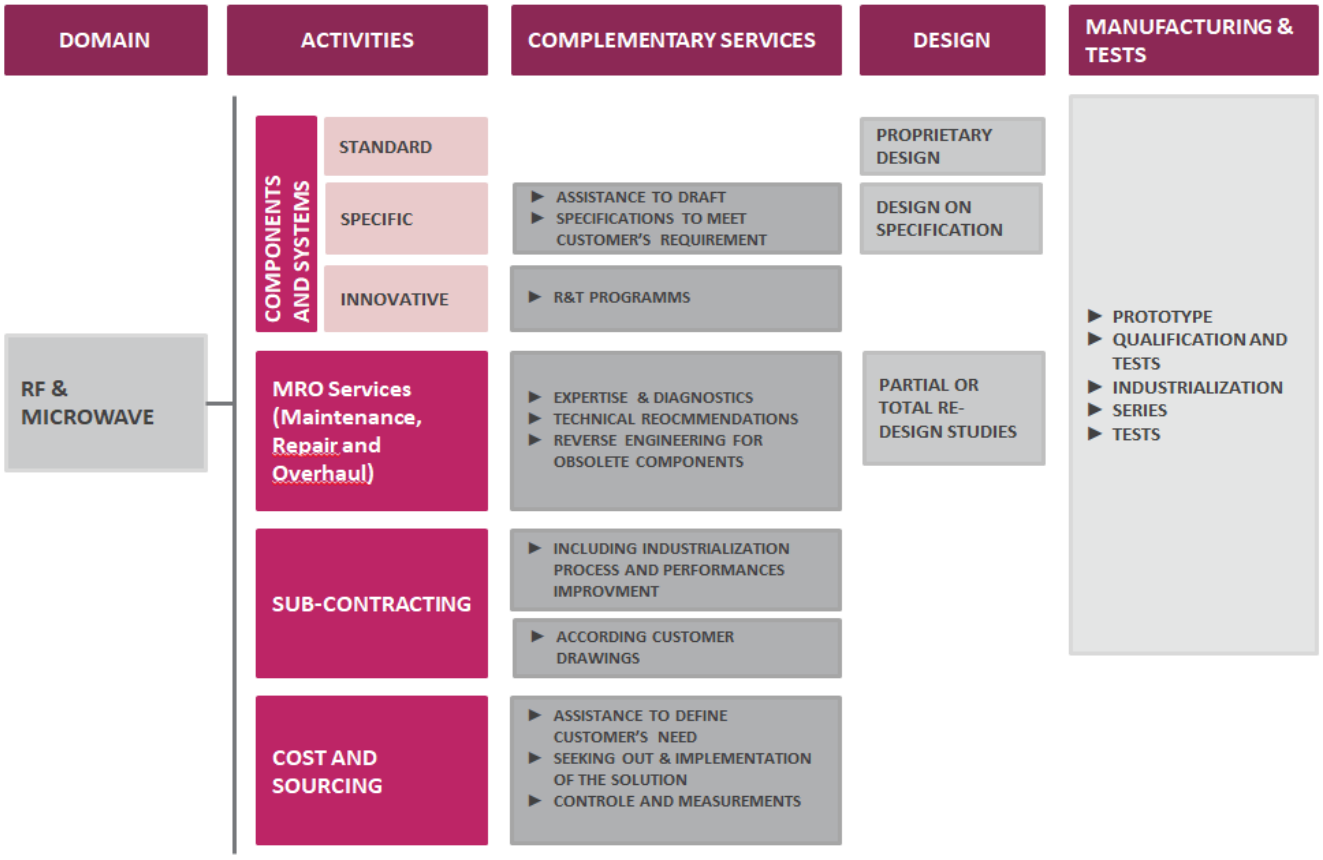
Today, DETI has widened his range to the whole DC-50 GHz band and produces RF and microwave solutions serving niche segments such as ground satcom, radars, electronic warfare and EMC testing. DETI's offer includes, among others, custom and standard filters, power dividers, directional couplers and high power combiners. Their design is based on the best combinations of technologies to meet the specifications: core technologies, microstrip, stripline, suspended substrate, coaxial or waveguide.

DETI's solutions

Still independent, DETI focuses on high quality, service and dependability for its customers.

Specialized in designing and manufacturing state-of-the-art products with unique electronic architectures, DETI's team continuously design and upgrade a wide array of proprietary products for new applications and customers which require bespoke solutions.

DETI also offer high technical and technological expertise for evolution of its customer's proprietary devices in the perimeter of obsolescence process or modernization such as repairing, reverse-engineering, up-grade with industrialisation or alternative solutions with new design.



ADDED VALUES



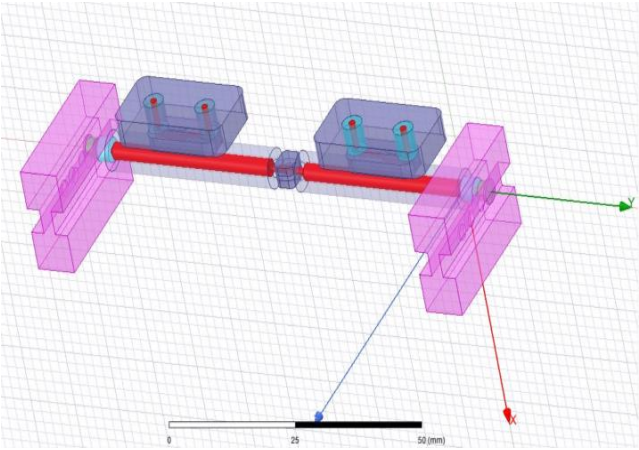
➢ **Custom-engineered and standard devices at cost-effective:**	All our products are designed by our team of engineers to meet our clients targets of performances, volume, and cost. With more of **25 years** of experience in microwave technologies, we are able to develop products fitting exactly your needs, or to guide you towards one of our standard devices.
➢ **High power multi-octave broadband designs:**	By using cutting edge technologies, we have designed a large product line of broadband power combiners/splitters and couplers able to keep up with dozens of kW of RF power. Our high power product line ranges from a 10 kHz to 18 GHz.
➢ **Flexibility, proximity, responsiveness:**	You don't exactly find in our pages the product you need? You are not sure about your design? Let's have a talk. No intermediary. Each request is handled by an engineer in charge of your projects.
➢ **Made in France:**	All our items are designed by our team of engineers set up in France. More than 95 % of our procurements are coming from French or European manufacturers. We integrate and test our products in our own production line based in our facility. French Customs gave us the certificate of Made in France. Certificate of origin can be provided on request.
➢ **ITAR Free:**	All of our products are ITAR free. CECC can be provided on request.
➢ **3 Year-Warranty:**	As a proof of our products high quality, we offer a 3 year-warranty on all of them.

Design capabilities

Design is at the heart of our activity and we consider it like a technical art.
Committed to satisfying our customers' issues and challenges, we do our best to quickly deliver efficient and fully tailored designs.
To make this possible, we continuously invest in powerful workstations equipped with up to date simulation and modeling software:

- Electromagnetic simulation softwares: Ansoft HFSS, Ansoft Designer, Ansoft Optimetrics,
- In-House Engineering Simulation Tools
- Solid Edge 3D CAD software
- Calculation and programming softwares
- Genesys RF and microwave design software
- PCB design software

We combine our modelling and simulation expertise with our mastery of advanced and cutting-edge technologies to offer our customers the most efficient solutions at cost-effective.



Manufacturing capabilities

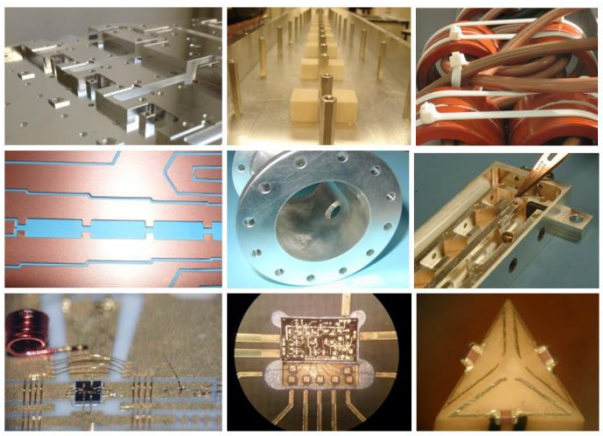
After the design of the various elements of our product, drawings and 3D models are then send to be produced in subcontractors' facilities. All those part are then assembled in House by our skilled technicians.

Our locally located subcontractors, with whom we share common ethnics and business objectives, are certified ISO 9001 and EN9100. All along our business relationship, we exercise due diligence to ensure they always perform at the highest level of quality. Our close geographic location facilitates long-term and strong cooperation.

In this way, we focus on our core competencies of design, developing and testing while being able to face to unexpected fluctuations in production load. Hence, our organization can easily be adapted to customers' needs from production of single units to volume production.

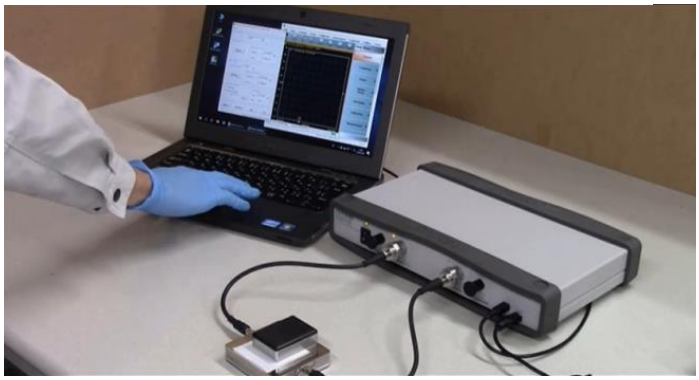
For others procurements (Off-the shelf), we favour a French or European source. This reduces our dependence on imported components. As an advantage, we are less sensitive to evolution of restrictive export regulations. Furthermore, it keeps us partially out of any global shortage from electronic parts.

Thanks to our organisation, our small team is able to maintain high quality standards and production flexibility in various technologies such as printed circuits, lumped elements, waveguide, toroidal magnetic core technology or thick-film technology.



Capabilities of testing and qualification tests

Stringent controls and measurements during the whole production cycle are an essential part of our activity.
Our components are individually tested and data registered.
Retrieval of tests results are synthesized or compiled in a test report. Different options are available to fit customers' needs.



Testing can includes, some common tests (dimensional measurements, electrical tests, low level tests, thermal test, humidity/heat) but as well any qualification tests according international military and aeronautical standards and customer's specification:

- Random vibrations test and Mechanical shock
- Thermal shock,
- Salt spray, Cooling, icing,
- Gross leak
- Stress testing
- Pressure/Altitude
- Fluid contamination
- Pyrotechnic schocks
- EMC …

All our equipment is regularly dully verified.

For complete campaign of qualification tests, we implement the tests programs in collaboration with local laboratories, such as Emitech, DGA-MI, l'Institut de la corrosion.

Each test is done under the mastery of a DETI's member.

The qualification by a third party guarantees the independence of the tests campaign.

SYNTHESIS OF OUR GLOBAL PROCESS	
Design	► **On our site**
Mechanical machining	► **Full subcontracting**
Thick Film technology	► **On our site**
Printed circuits	► **Full subcontracting**
Lumped elements	► **On site or subcontracting**
Assembly, development, test and electrical measures	► **On our Site**
Dimensional mesurements and electrical measures	► **On our Site**
Environmental qualification tests	► **On site or subcontracting**

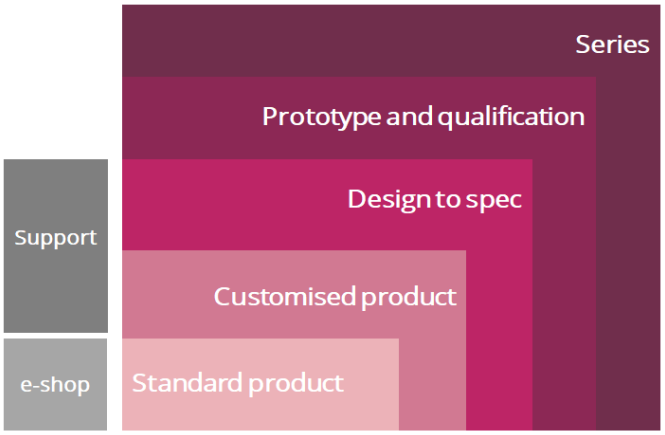
Design to specifications

We design your product

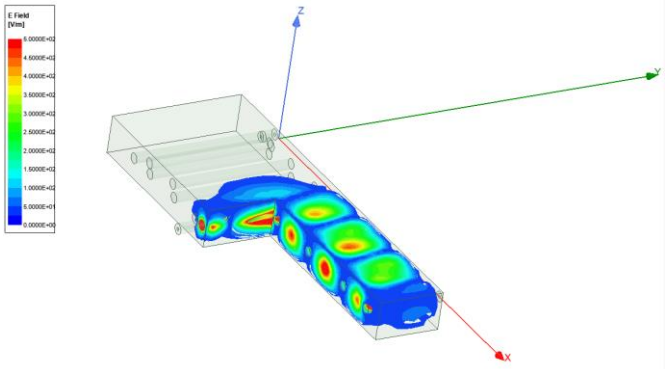
DETI is specialised in the design & manufacture of RF and microwave components to meet specific requirements that might not otherwise be available. Standard parts don't always have the specification you are looking for: this is where we step in.

From the briefest of specifications, and using the very latest technology, our in-house microwave engineers can turn your concept into a working and fully tested product, ready to be integrated to your projects.

With over twenty five years of experience in RF components and modules for radio-communication, Satcom, Electronic warfare and EMC testing or lab test applications, DETI SAS has designed and produced many bespoke electronic products for military and civil industries. Providing our customers with the very best services and solutions, we have been giving to them a competitive advantage in their markets.



How do we proceed?



Our work of design starts with the preliminary technical study of our customer need, based on a more or less detailed specification according to the project.

At the first step, we define the perimeter of the projects and point out the technical salient features.

Thanks to exchanges and a work hand-to hand with customers, we finalize the specifications adapted to a solution that matched their technical and financial objectives.

This step-by-step process involves critical reviews and a deep system of check from conceptual design, to build and test.
We are used to work with big organization and can deal with a complete development plan with milestones reviews:

- Kick off Review,
- Preliminary Design Review
- Critical Design Review
- Test Readiness Review
- Qualification tests on prototypes
- Manufacturing readiness review
- First Article configuration Review

The acceptance of the prototype will lead to the production stage. Then DETI will be able to produce your device whatever the volume you need.

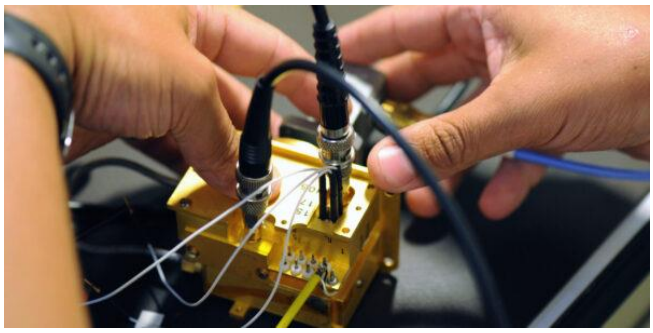
Upgrade and industrialization

Do you plan to update or improve your RF/Microwave product?

Thanks to our highly qualified specialist engineers as well as our state-of-the-art technological tools, we can assist you in all your issues related to the industrialization of microwave components.

This know-how allows us to offer an “Upgrade and Industrialization” service. Based on an already known product, we propose you to adapt or improve it depending on the use you plan to make of it.

We first discuss with you the size, performances and tolerances that the product must meet. If necessary, we can characterize your product to define its specifications. Then we proceed to the industrialization to get an improved version of the base product: easy to manufacture, compact and cost-effective.



An alternative to issues related to obsolete electronic parts

In a world, where military end users are attempting to extend lifespan of their equipment, DETI is an alternative to problems related to obsolete electronic parts.

The electronical components life cycle has drastically decreased since the 1960’s, going from 25 years in average to 3 or 4 years nowadays. Therefore, for our customers, it’s become mandatory to manage the obsolescence treatment in order to limit the risks over productivity, costs and to ensure a long term availability of their systems.

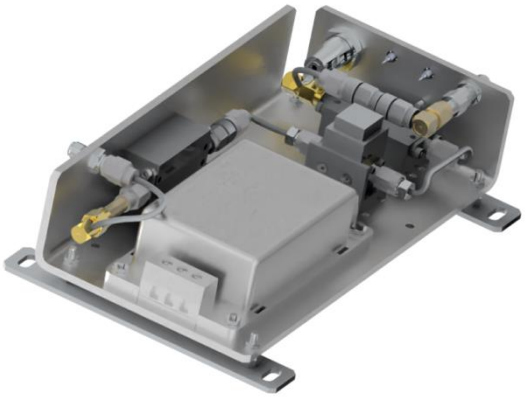
Thanks to its how know in MRO (Maintenance Repair and Overhaul), DETI can analyse and suggest the best solution for modules subjected to long cycles of use.

We are especially used to dealing with obsolete parts for on–board electronic systems. Those systems can be dedicated to aircrafts, submarines or vessels.

For example, we can mention:

- Microwave modules;
- Jammers;
- Components and antennas for radars systems;
- Radars detectors;
- Electronic warfare equipment;

As each customer has its own issues, we do our best to exactly adapt to its constraints and challenges.



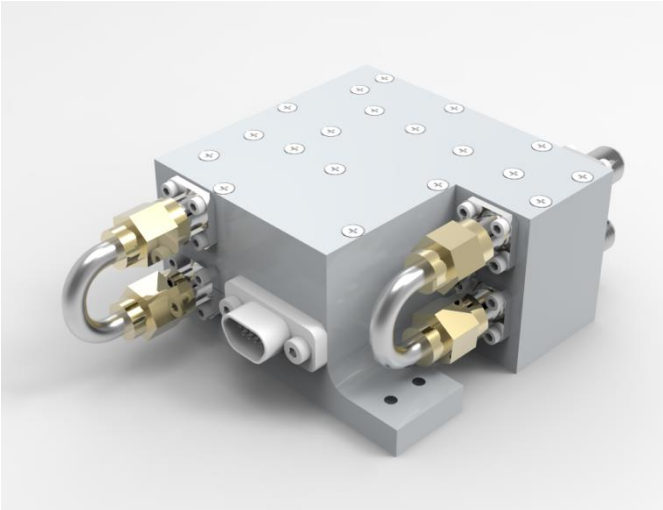
Example: Case of defective, failed, or degraded modules

After a complete analysis of the failed device, we set possible scenarios to follow in order to regain its original capabilities. Depending ont the situation, customers will choose between those senarios that can be a repair (when it is possible) or a re-manufacture of the module (reverse engineering). Finally, for a device that had to be maintained on a longer term, we can suggest total or partial redesign studies in substitution of obsolete functions.

Reverse engineering

Reverse engineering of an electronic item implies determining its precise internal functioning and manufacturing method.

The technical expertise and mastery of DETI engineers allow us to offer you a reverse engineering service for all your electronic products which are worn out, broken or too old to be used. Bring us your modules, we will reproduce them identically!



How do we proceed?

The first step in the process is to discuss with our design office to characterize the specificities that your reproduction must have and the performance that it must be able to achieve.

Together, we will redefine the choice of materials used in the manufacture of your module so that it adapts to the environment in which it is destined to be integrated. We will handle to take the exact dimensions of the product thanks to our measuring device specially dedicated to this type of operation, which allows precise measurements, without possible human error.

We identify the technology that has to be implemented and look for subcontractors when what's needed falls outside of our direct expertise.

Once the prototype is designed, we follow our usual process of prototyping, manufacturing and tests.

FILTERS

- Low Pass
- High Pass
- Band Pass
- Band Stop

COMBINERS

- Narrow Band
- Multi-octave Broadband
- Waveguide

COUPLERS

- Directional Couplers
- Hybrid Couplers
- High Power Couplers

DIVIDERS

- Standard Parts and custom Designs

ORIGINAL DESIGN AND IN-HOUSE MANUFACTURING – ITAR FREE
HIGH RELIABILITY FOR COMMERCIAL AND MILITARY APPLICATIONS
ALL OUR PRODUCTS ARE 3 YEAR WARRANTY

Custom designs available on request.
Please contact us to get datasheets or STEP files.
contact@deti-sa.com

Microwave Filters

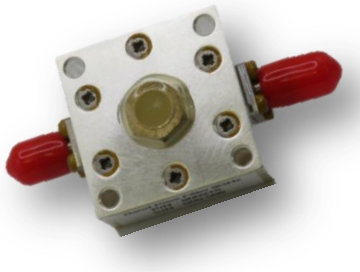
LOWPASS FILTERS

Part Number	*Fmax (MHz)*	*I.L. (dB)*	*Rejected Freq. (MHz)*	*Rejection (dB)*	*VSWR*	*Power Handling (W CW)*	*Reference*
001682	4.9	0.5	18	100	1.5:1	10	LPF-LP-6.8-50-1.25-BF-BF
011001	1000	1.0	1500	40	1.5:1	2	***- - NEW - -*** LPF-SS-1000-1500-10000-40-SF-SF
011002	1100	0.5	2060	65	1.5:1	100	LPF-CL-1350-5000-1.15-SF-SF
011004	1600	0.5	2400	35	1.5:1	1000	LPF-CL-1800-12500-1.30-NF-NF
011005	3000	1.0	4600	40	1.5:1	2	***- - NEW - -*** LPF-SS-3000-4600-12000-40-SF-SF
011006	8000	1.0	12000	40	1.5:1	2	***- - NEW - -*** LPF-SS-8000-12000-24000-40-SF-SF
011007	18000	1.0	20000	20	1.7:1	2	***- - NEW - -*** LPF-SS-18000-20000-30000-20-SM-SF

HIGHPASS FILTERS

Part number	Fmin(MHz) PassBand@ 1dB	Fmax(MHz) PassBand@1 dB	I.L (dB)	Rejected Freq. (MHz)	Rejection (dB)	VSWR	Inter-face	Reference
800192	700	**18000** *(1.4dB)*	3	410	40	2.0:1	SMA	HPF-LP-410-40-500-18000-SF-SF
800070	2000	**18000**	1	1400	50	2.0:1	SMA	HPF-SS-2000-18000-1.30-SF-SF
800091	2800	**18000**	1	2220	30	2.0:1	SMA	HPF-SS-2800-18000-1.15-SF-SF
800075	3000	**18000**	1.5	1700	30	2.0:1	SMA	***High-Temperature Stability*** HPF-SS-1700-30-3000-18000-SF-SF
800029	3300	**18000**	1	2600	30	2.0:1	SMA	HPF-SS-3300-18000-1.15-SF-SF
800023	4400	**18000**	1	3480	30	2.0:1	SMA	HPF-SS-4400-18000-1.3-SF-SM
800076	5000	**18000**	1.5	3300	60	2.0:1	SMA	***High-Temperature Stability*** HPF-SS-3300-60-5000-18000-SF-SF
800021	5500	**18000**	1	3850	30	2.0:1	SMA	HPF-SS-5500-18000-1.30-SF-SF
800077	6000	**18000**	0.7	4000	20	2.0:1	SMA	***High-Temperature Stability*** HPF-SS-4000-20-6000-18000-SF-SF
011012	6600	**18000**	1	4620	30	2.0:1	SMA	HPF-SS-6600-18000-1.15-SF-SF
011020	18000	**40000**	1.5	16000	60	2.0 :1	K	HPF-SS-16000-60-18000-40000-KF-KF
800194	20000	**40000**	1	15000	50	2.0:1	K	HPF-SS-15000-50-20000-40000-KF-KF
011021	3080	**18000**	1	2430	30	2.0 :1	SMA	HPF-SS-2430-3080-18000-SF-SF
001167	7900	**8400**	0.3	7650	30	1.25 :1	WR112	HPF-WG-7900-8400-CUSTOM-001167
001185	7900	**8400**	0.15	7650	30	1.20:1	WR112	HPF-WG-7900-8400-CUSTOM-001185
001175	7900	**8400**	0.15	7250	15	1.20:1	WR112	HPF-WG-7900-8400-CUSTOM-001175
001176	7900	**8400**	0.4	7250	50	1.25:1	WR112	HPF-WG-7900-8400-CUSTOM-001176
001341	7900	**8400**	0.6	7750	100	1.20:1	WR112	HPF-WG-7900-8400-CUSTOM-001341
001137	7900	**8400**	0.5	7750	40	1.40:1	WR112	HPF-WG-7900-8400-CUSTOM-001137
001366	8340	**8400**	0.15	7850	40	1.20.1	WR112	HPF-WG-8340-8400-CUSTOM-001366

BANDPASS FILTERS

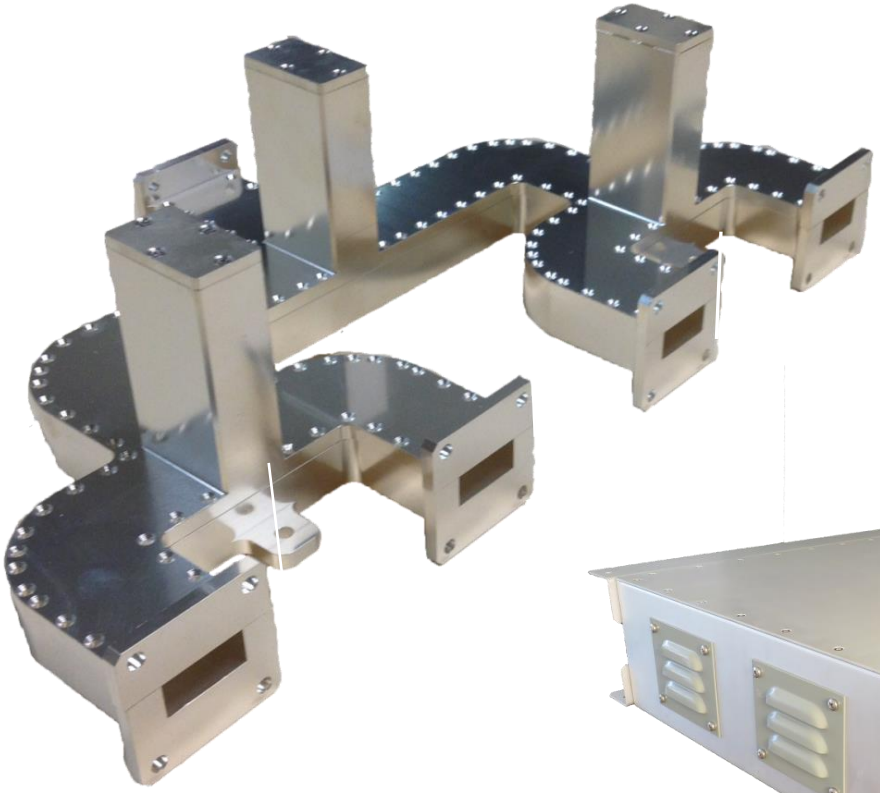


Part number	Low Rejected Freq. (MHz)	Low Rejection (dB)	Low Passband Freq. (MHz)	I.L. (dB)	High Passband Freq. (MHz)	High Rejected Freq. (MHz)	High Rejection (dB)	VSWR	Reference
001015	1050	50	**1250**	0.5	**1400**	1600	50	1.5:1	BPF-CO-1250-1400-CUSTOM-001015
800179	1200	20	**2000**	1.0	**18 000**	21 000	20	2.0:0	BPF-SS-1200-20-2000-18000-21000-20-SF-SF
001181	4081	40	**4230**	0.5	**4232**	4700	10	1.1:1	BPF-CA-4230-4232-CUSTOM-001181
001235	7100	20	**7250**	1.1	**7750**	7900	48	1.38:1	BPF-CA-7250-7750-CUSTOM-001235
001234	7100	31	**7250**	0.9	**7750**	7900	A43	1.33:1	BPF-CA-7250-7750-CUSTOM-001234
001233	7750	53	**7900**	1.1	**8400**	11850	50	1.45:1	BPF-CA-7900-8400-CUSTOM-001233
011040	21000	60	**22700**	1.5	**23500**	25000	60	1.5 :1	BPF-IN-21000-60-22700-23500-25000-60-SF-SF

BANDSTOP FILTERS

Part number	Low Rejected Freq. (MHz)	High Rejected Freq. (MHz)	Rejection (dB)	I.L. (dB)	VSWR	Power Handling (W CW)	Connector	Reference
001324	7800	**7880**	40	0.4	1.15:1	2500	WR112	BSF-WG-7800-7880-40-WR112-WR112-CUSTOM 001342
800141	7900	**8400**	50	1.0	1.6:1	1	SMA	BSF-CL-7900-8400-50-SM-SF
001187	7900	**8400**	55	1.0	1.8:1	1	SMA	BSF-CL-7900-8400-55-SF-SF-CUSTOM-001187
800059	29700	**29900**	25	1.0	1.5:1	250	WR34	BSF-WG-29700-29900-25-WR34-CUSTOM-800059

Power Combiners



Narrow Band Combiners

Most of our designs tolerate mismatch and full input failure.

Part number	Ways	Low Freq. (MHz)	High Freq. (MHz)	Power Handling (W CW)	I.L. (dB)	VSWR	Isolation (dB)	Reference
800162	2	390	450	500	0.5	1.3:1	15	CO-2-390-450-500-NF-NF
001387	2	1450	1500	200	0.3	1.15:1	23	CO-2-1450-1500-100-SF-NF
001395	2	1450	1500	700	0.15	1.15:1	23	CO-2-1450-1500-350-716F-716F
011129	2	5400	5900	400	0.4	1.3 :1	0.4	CO-2-5400-5900-400-NF-NF
001678	3	1700	2100	600	0.65	1.3:1	18	CO-3-1700-2100-600-NF-NF
011119	4	1200	1400	900	0.4	1.4:1	18	CO-4-1200-1400-220-NF-NF
001394	4	1450	1500	400	0.4	1.15:1	23	CO-4-1450-1500-100-SF-716F
001396	4	1450	1500	1400	0.2	1.15:1	23	CO-4-1450-1500-350-716F-716F
001356	4	2020	2120	800	0.2	1.22:1	20	CO-4-2020-2120-200-NF-716F
011259	4	3400	3800	2	0.5	1.4 :1	23	CO-4-3400-3800-2-SF-SF
011131	4	4400	5000	200	0.7	1.5 :1	15	CO-4-4400-5000-200-NF-NF
011132	4	4400	5000	1000	0.7	1.5 :1	15	CO-4-4400-5000-1000-716F-NF
011133	4	5400	5900	400	0.9	1.4 :1	18	CO-4-5400-5900-400-NF-NF
011122	8	1200	1400	920	0.6	1.4:1	18	CO-8-1200-1400-115-NF-NF
011123	8	2846	2866	400	0.6	1.4:1	18	CO-8-2846-2866-50-NF-NF
011136	8	5400	5900	640	1.3	1.5 :1	18	CO-8-5400-5900-640-NF-716F
011139	8	5500	6000	400	1	1.5 :1	18	CO-8-5500-6000-400-NF-NF
800221	8	8500	11000	16	1.4	1.8 :1	16	CO-8-8500-11000-16-SF-SF
001144	16	2025	2120	640	0.5	1.22:1	25	CO-16-2025-2120-40-SF-716F
001609	16	2100	2900	240	0.3	2:1	10	CO-16-2100-2900-15-NF-716F

Multi-octave Broadband Combiners

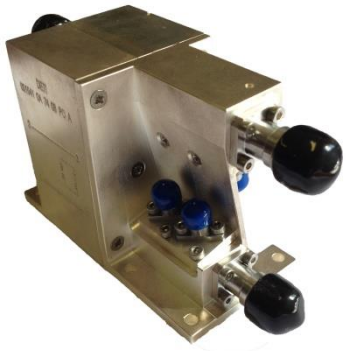
Most of our designs tolerate mismatch and full input failure.

Part number	Ways	Low Freq. (MHz)	High Freq. (MHz)	Power Handling (W CW)	I.L. (dB)	VSWR	Isolation (dB)	Reference
001549	2	80	1000	2600	0.3	1.6:1	15	CO-2-80-1000-1400-716F-716F
011140	2	100	500	200	0.8	1.5:1	20	CO-2-100-500-200-NF-NF
001435	2	200	1000	4000	0.6	1.5:1	15	CO-2-200-1000-2000-716F-158
011145	2	700	1500	700	0.3	1.35:1	15	CO-2-700-1500-700-NF-NF
001517	2	800	4000	1000	0.3	1.5:1	15	CO-2-800-4000-500-NF-716F
001558	2	800	4200	150	0.4	1.5:1	12	CO-2-800-4200-75-SF-SF
011149	2	1000	6000	70	0.2	1.6:1	12	CO-2-1000-6000-35-SF-NF
001510	4	0.01	230	4000	0.5	1.5:1	15	CO-4-0.01-230-16000-716F-158
001594	4	0.01	400	1500	2	1.6 :1	15	CO-4-0.01-400-6000-NF-716F
001488	4	0.1	250	1200	0.7	1.2:1	15	CO-4-0.1-250-1200-NF-NF
011167	4	1	30	6000	0.2	1.15 :1	30	CO-4-1-30-5000-NF-716F
011156	4	700	1500	1000	0.4	1.35:1	15	CO-4-700-1500-1000-NF-NF
001586	4	800	4000	2000	0.8	1.6:1	12	CO-4-800-4000-500X-NF-716F
001514	4	800	4200	300	0.8	1.5:1	12	CO-4-800-4200-75-SF-SF
011161	8	700	1500	2000	0.6	1.5:1	15	CO-8-700-1500-2000-NF-716F

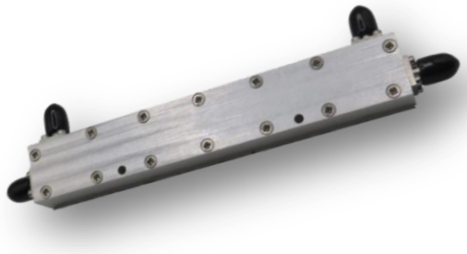
Waveguide Power Combiners

Part number	Ways	Low Freq. (MHz)	High Freq. (MHz)	Power Handling (W CW)	I.L. (dB)	VSWR	Isolation (dB)	Type	Reference
001614	4	9100	9600	600	0.8	1.5:1	18	WR90	CO-4-9100-9600-150-WR90
001564	4	27500	31000	25	0.4	1.3:1	20	WR28	CO-4-27500-31000-8-WR28
001542	16	27000	31000	100	1.0	1.6:1	20	WR28	CO-16-27000-31000-100-WR28

Couplers



Directional Couplers



Part number	Low Freq. (MHz)	High Freq. (MHz)	Coupling Factor (dB)	VSWR (Main line)	Directivity (dB)	I.L. (dB)	Power Handling (W CW)	Reference
001665	400	**4000**	10	1.25	20	0.5	50	CD-1-400-4000-10-50-SF-SF-SF
011261	500	**2000**	6	1.2:1	22	0.5	50	CD-1-500-2000-6-50-SF-SF-SF
011260	500	**2000**	10	1.2:1	22	0.3	50	CD-1-500-2000-10-50-SF-SF-SF
011262	500	**2000**	16	1.2:1	22	0.3	50	CD-1-500-2000-16-50-SF-SF-SF
011263	500	**2000**	20	1.2:1	22	0.3	50	CD-1-500-2000-20-50-SF-SF-SF
011264	500	**2000**	30	1.2:1	22	0.3	50	CD-1-500-2000-30-50-SF-SF-SF
800060	1000	**2000**	20	1.2:1	23	0.2	30	CD-1-1000-2000-20-30-SF-SF-SF
011052	2000	**4000**	6	1.2:1	22	0.3	30	CD-1-2000-4000-6-30-SF-SF-SF
800057	2000	**4000**	30	1.2:1	20	0.2	50	CD-1-2000-4000-30-50-SF-SF-SF
011265	2000	**8000**	6	1.25:1	20	0.5	50	CD-1-2000-8000-6-50-SF-SF-SF
011266	2000	**8000**	10	1.25:1	20	0.5	50	CD-1-2000-8000-10-50-SF-SF-SF
011267	2000	**8000**	16	1.25:1	20	0.5	50	CD-1-2000-8000-16-50-SF-SF-SF
011268	2000	**8000**	20	1.25:1	20	0.3	50	CD-1-2000-8000-20-50-SF-SF-SF
011269	2000	**8000**	30	1.25:1	20	0.3	50	CD-1-2000-8000-30-50-SF-SF-SF
011053	2000	**18000**	20	1.4:1	12	0.7	30	CD-1-2000-18000-20-30-SF-SF-SF
011062	2000	**18000**	40	1.3 :1	15	0.5	40	CD-1-2000-18000-40-50-SF-SF-SF
011063	2200	**2300**	30	1.25 :1	18	0.2	50	CD-1-2200-2300-30-50-NM-NF-NF
011066	6000	**18000**	20	1.35 :1	16	0.4	50	CD-1-6000-18000-20-50-SF-SF-SF
011054	7000	**12000**	10	1.3:1	15	0.5	50	CD-1-7000-12000-10-50-SF-SF-SF
011056	8000	**8500**	30	1.3:1	18	0.25	50	CD-1-8000-8500-30-50-SM-SF-SF
011057	17000	**21000**	10	1.5:1	15	0.8	10	CD-1-17000-21000-10-10-KF-KF-KF
011058	20000	**30000**	10	1.7:1	12	1.7	5	CD-1-20000-30000-10-5-KF-KF-KF
011059	24000	**28000**	10	1.5:1	18	0.75	5	CD-1-24000-28000-10-5-KF-KF-KF
011060	25000	**27000**	6	1.5:1	18	0.75	2	CD-1-25000-27000-6-2-KF-KF-KF
011061	27000	**31000**	10	1.5:1	15	0.8	5	CD-1-27000-31000-10-5-KF-KF-KF

Hybrid Couplers

Part number	Low Freq. (MHz)	High Freq. (MHz)	Coupling Factor (dB)	Phase (°)	VSWR	Isolation (dB)	I.L. (dB)	Power Handling (W CW)	Reference
800173	1000	**2000**	3	90	1.25:1	20	0.5	400	CH-90-1000-2000-400-NF
001695	1700	**2100**	3	180	1.5:1	18	0.5	50	CH-180-1700-2100-50-NF
800174	2000	**4000**	3	90	1.25:1	20	0.5	400	CH-90-2000-4000-400-NF
011068	25500	**27000**	3	90	1.5:1	18	0.5	10	CH-90-25500-27000-10-KF
800034	25500	**27000**	3	180	1.5:1	18	0.5	10	CH-180-25500-27000-10-KF-C

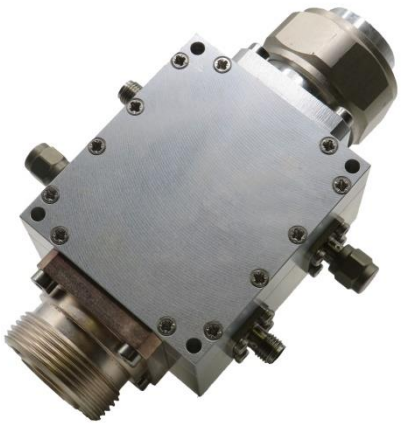
High Power Couplers

Unidirectional

Part number	Low Freq. (MHz)	High Freq. (MHz)	Coupling (dB)	VSWR (Main line)	Directivity (dB)	I.L. (dB)	Power Handling (W CW)	Peak Power (kW)	Reference
011086	2000	**4000**	30	1.20 :1	27	0.2	200		CD-1-2000-4000-30-200-NF-NF-NF
011077	6000	**18000**	25	1.40:1	22	0.3	200	2	CD-1-6000-18000-25-200-TF-TF-SF
011078	6000	**18000**	30	1.40:1	22	0.3	200	2	CD-1-6000-18000-30-200-TF-TF-SF
011079	6000	**18000**	30	1.50:1	20	0.3	200	2	CD-1-6000-18000-30-200-NM-NM-SF
011080	6000	**18000**	40	1.40:1	22	0.3	200	2	CD-1-6000-18000-40-200-TF-TF-SF
011081	6000	**18000**	40	1.40:1	22	0.3	200	2	CD-1-6000-18000-40-200-NF-NF-SF
011082	6000	**18000**	40	1.40:1	22	0.3	200	2.5	CD-1-6000-18000-40-200-NM-NF-SF
011083	8900	**9900**	20	1.50:1	12	0.5	75	0.75	CD-1-8900-9900-20-75-SF-SF-SF
011084	9000	**10000**	30	1.40:1	22	0.3	200	2	CD-1-9000-10000-30-200-TF-TF-SF
011085	15000	**18000**	30	1.40:1	22	0.3	200	2	CD-1-15000-18000-30-200-TF-TF-SF

High Power Couplers

Dual Directional



Part number	Low Freq. (MHZ)	High Freq. (MHz)	Coupling (forward) (dB)	Coupling (reverse) (dB)	VSWR (Main Line)	Directivity (dB)	I.L. (dB)	Power Handling (W CW)	Peak Power (kW)	Reference
011104	1	30	50	50	1.3 :1	20	0.1	6000		CD-2-1-30-50-50-6000-716F-716F-NF
011091	400	2000	40	40	1.3:1	18	0.2	200		CD-2-400-2000-40-40-200-NF-NF-NF
800045	800	2500	30	30	1.4:1	20	0.2	500	10	CD-2-800-2500-30-30-500-716F-716F-SF
011095	1000	3000	20	20	1.15:1	27	0.3	300	10	CD-2-1000-3000-20-20-300-TF-TF-TF
011096	1000	3000	30	30	1.4:1	20	0.2	500	10	CD-2-1000-3000-30-30-500-716F-716F-SF
800061	1000	3000	30	30	1.4:1	18	1	1000		CD-2-1000-3000-30-30-1000-NM-NF-NF
011097	1000	4000	20	20	1.15:1	27	0.3	160	3	CD-2-1000-4000-20-20-160-NM-NF-NF
001624	1000	4000	20	20	1.15:1	27	0.3	500	10	CD-2-1000-4000-20-20-500-NM-NF-NF
011099	1200	1400	30	30	1.2:1	20	0.2	600	10	CD-2-1200-1400-30-30-600-NM-NF-NF
011100	1200	1400	50	50	1.2:1	25	0.15	1000	10	CD-2-1200-1400-50-50-1000-716F-716F-NF
001677	1700	2100	30	30	1.10:1	27	0.1	500		CD-2-1700-2100-30-30-500-NM-NF-SF
800072	1700	2100	50	40	1.20:1	20	0.3	2500	10	CD-2-1700-2100-50-40-2500-158-158-NF
800046	2000	4000	30	30	1.4:1	20	0.2	500	10	CD-2-2000-4000-30-30-716F-716F-SF
800210	2000	6000	50	50	1.3 :1	20	0.1	1000		CD-2-2000-6000-50-50-1000-716F-716F-NF
800027	2000	8000	10	10	1.50:1	15	1	30		CD-2-2000-8000-10-10-30-SF-SF-SF
011103	6000	18000	40	40	1.50:1	12	0.5	200	2.5	CD-2-6000-18000-40-40-200-NM-NF-SF
011270	8000	12000	35	35	1.50:1	12	0.5	150	0.5	CD-2-8000-12000-35-35-150-TF-TF-SF
001639	15000	18000	40	30	1.50:1	20	0.5	120	0.4	CD-2-15000-18000-40-30-120-TF-TM-SF

Power Dividers

Part number	Ways	Low Freq. (MHz)	High Freq. (MHz)	I.L. (dB)	VSWR	Isolation (dB)	Ampl. balance (db)	Phase bal. (°)	Reference
800037	2	400	6000	1.2	1.4:1	17	0.3	5	DI-2-400-6000-30-SF-SF
800278	2	500	2000	0.3	1.3:1	22	0.3	2	DI-2-500-2000-30-SF-SF
011179	2	500	3000	0.4	1.4:1	20	0.3	1	DI-2-500-3000-30-SF-SF
800279	2	700	2700	0.4	1.3:1	20	0.3	2	DI-2-700-2700-30-SF-SF
011181	2	800	960	0.3	1.3:1	25	0.3	2	DI-2-800-960-30-SF-SF
011182	2	800	2200	0.4	1.3:1	23	0.3	2	DI-2-800-2200-30-SF-SF
800280	2	1000	2000	0.3	1.3:1	23	0.3	2	DI-2-1000-2000-30-SF-SF
011184	2	1000	3000	0.5	1.3:1	20	0.3	2	DI-2-1000-3000-30-SF-SF
001633	2	1000	18000	1.5	1.6:1	17	0.3	8	DI-2-1000-18000-30-SF-SF
001674	2	1700	2100	0.4	1.2	20	0.2	3	DI-2-1700-2100-50-NF-NF
800281	2	2000	4200	0.4	1.3:1	23	0.3	2	DI-2-2000-4200-30-SF-SF
800282	2	2000	8000	0.4	1.4:1	20	0.3	4	DI-2-2000-8000-30-SF-SF
800283	2	2000	18000	1	1.4:1	18	0.3	5	DI-2-2000-18000-30-SF-SF
800284	2	2000	26500	1.2	1.6:1	17	0.4	6	DI-2-2000-26500-10-SF-SF
800206	2	2000	40000	2	1.9:1	15	0.6	8	DI-2-2000-40000-10-KF-KF
011191	2	4000	8000	0.4	1.35:1	20	0.2	2	DI-2-4000-8000-30-SF-SF
800276	2	4000	26500	1	1.6:1	18	0.4	6	DI-2-4000-26500-10-SF-SF
011200	2	12000	18000	0.3	1.4:1	20	0.3	4	DI-2-12000-18000-30-SF-SF
800196	2	15000	40000	1.2	1.8:1	13	0.8	10	DI-2-15000-40000-10-KF-KF
011192	2	18000	26500	1	1.5:1	18	0.3	3	DI-2-18000-26500-10-SF-SF
011194	2	25000	27000	1	1.6:1	18	0.5	6	DI-2-25000-27000-10-KF-KF
011195	2	27000	31000	1	1.6:1	18	0.5	6	DI-2-27000-31000-10-KF-KF
001675	3	1700	2100	0.8	1.45	22	0.4	6	DI-3-1700-2100-50-SF-SF
800038	4	400	6000	1.7	1.5:1	18	0.5	6	DI-4-400-6000-30-SF-SF
011212	4	1000	4000	1	1.5:1	18	0.8	6	DI-4-1000-4000-30-SF-SF
001676	4	1700	2100	0.8	1.25	20	0.4	6	DI-4-1700-2100-50-NF-NF
800288	4	2000	8000	1	1.5:1	18	0.5	6	DI-4-2000-8000-30-SF-SF
800058	4	2000	18000	1.8	1.7:1	17	0.5	12	DI-4-2000-18000-30-SF-SF
011214	4	3200	6200	0.9	1.5:1	20	0.4	6	DI-4-3200-6200-30-SF-SF
011215	4	4200	6000	0.8	1.5:1	20	0.4	5	DI-4-4200-6000-30-SF-SF
800040	4	6000	18000	0.9	1.5:1	17	0.5	6	DI-4-6000-18000-30-SF-SF

Part number	Ways	Low Freq. (MHz)	High Freq. (MHz)	I.L. (dB)	VSWR	Isolation (dB)	Ampl. balance (db)	Phase bal. (°)	Reference
011218	6	2000	8000	1.2	1.6:1	18	0.8	7	DI-6-2000-8000-30-SF-SF
800290	8	400	6000	2	1.8:1	16	0.5	6	DI-8-400-6000-30-SF-SF
011219	8	800	3000	1.3	1.6:1	20	0.5	6	DI-8-800-3000-30-SF-SF
011220	8	2000	4200	0.8	1.5:1	23	0.5	10	DI-8-2000-4200-30-SF-SF
800277	8	6000	18000	1.5	1.6:1	16	0.5	6	DI-8-6000-18000-30-SF-SF
011252	32	3100	3500	2.0	1.6	20	0.8	7	DI-32-3100-3500-30-SM-SF

Operating Temperature: -40 °C to +85 °C
Storage Temperature: -55 to +125°C
Mechanical Shocks: MIL STD 202 - Method 213 - Test cond. C: 100g 6ms ½
Sinus Vibrations: MIL STD 202 - Method 204D - Test cond. A: 10g / 10-2000Hz
Thermal Shocks: MIL STD 202 - Method 107G - Test cond. A: -40°C/+85°C
Humidity: MIL STD 202 - Method 103 - Test cond. B: 95% 96h

RoHs COMPLIANCE STATEMENT

The RoHS directive (2002/95/CE) deals with the Restriction of use of Hazardous Subtances in electrical and electronical equipments. The text entered into force in june 2006 and had been updated in may 2011 (Directive RoHs 2011/65/EU and its amendement 2015/863/EU). This directive is closely related to the EU WEEE directive about the Waste of Electronical and Electrical Equipment; their aim is to limit the impact of electronical and electrical waste and to reduce the risk of polution inherent in these sectors.

The text prevents the use of 10 differents substances over 1000 ppm (100 ppm for cadmium) which are the following:

- Mercury (Hg)
- Hexavalent chromum (Cr 6+)
- Polybrominated biphenyls (PBB)
- Bis(2-Ethylhexyl) phthalate (DEHP)
- Dibutyl phthalate (DBP)
- Lead (Pb)
- Cadmium (Cd)
- Polybrominated Diphenyl Ethers (PBDE)
- Benzyl butyl phthalate (BBP)
- Diisobutyl phthalate (DIBP)

Most of our products meet ROHS requirement and do not contain any of these substances over the indicated limit. We can have exceptions (lead) in some few specific cases of existing products and our customer can ask for the detailed ROHS certificate of products ordered. For component bought on specifications, we kindly ask our customer to identify their need for ROHS compliance in their specifications or orders.

REACH COMPLIANCE STATEMENT

The EU regulation on Registration, Evaluation, Authorization and Restrictions of Chemicals also known as REACH (EC 1907/2006) came into force in June 1st, 2007.

This legislation not only aims to improve human health and environment protection but also to maintain European chemical industry competiveness by limiting the use of dangerous products and inciting innovation.

As a manufacturer of components used for HF communication, Deti is fully aware of the requirements of REACH. Consequently, DETI constantly analyse its products content to check the presence of any substances mentioned in the latest EU SVHC Candidate List. Our analysis relies on our suppliers' data.

As a result, Lead (CAS 7439-92-1), added in the SVHC list in June 2018, can be found in some of our products and particularly in copper and steel alloys of connectors or resistors. For more information, our customer can ask for the detailed REACH certificate of products ordered.

CONFLICTS MINERALS STATEMENT

Deti SAS undertakes to make its purchases in strict compliance with regulations. In this sense, the company must comply with the regulation on minerals from conflict zones (gold, tin, tungsten, tantalum), which entered into force at European level on 1 January 2021. This text follows on from the Dodd-Frank, which entered into force in the USA in 2010.

In some regions, such as the Central African Republic or the Congo, trade in these minerals is used to finance armed groups committing violence against local populations. Deti SAS promises to be vigilant and not to contribute to the brutality and human rights violations occurring in these countries. So it is not per obligation but by conviction that we apply ourselves to compliance with this law.

Deti SAS does not directly source its minerals from mines and, like many companies, our supply chain is global, making information gathering and materials traceability more complex. Consequently, Deti SAS relies on the information provided by our direct suppliers, which previously rely upon their own suppliers.

Nevertheless, to ensure that the products you buy from us do not contribute to the financing of these acts of violence, Deti SAS is prepared to implement all necessary measures to comply with the Conflict Minerals Regulation.

OTHER ENVIRONMENTAL REGULATIONS COMPLIANCE STATEMENT

DETI certifies that, without exceptions, products made by our company DO NOT CONTAIN:

Abestos	**Regulation reference:** **Asbestos – Directive 83/477/CEE and Amendment 2007/30/EC**
Ozone Depleting Substances	**Regulation reference: Ozone Depleting Substances – Regulation (EC)1005/2009**
Radioactive substance	**Regulation reference: Radioactive Substances per EU Regulation 2013/59/EURATOM**
Biocidal product	**Regulation reference: Biocidal product regulation per EU Regulation 528/2012**

STATEMENT OF NO USE OF "ITAR" FURNITURE

The International Traffic in Arms Regulations (ITAR) is a set of U.S. regulations on defence matters. The purpose of the ITAR regulations is to control the export and import in all forms of any technology or technical data that may be used for military purposes.

In this sense, the products controlled under the ITAR are war materials and related materials, integrating ITAR-classified components. This regulation applies to both US and non-US products when a US entity is involved in the design, manufacture or export of these products. The products subject to compliance checks specific to this regulation are mentioned in the USML, the "United States Munition List".

As a subcontractor in the defence sector, DETI SAS is fully aware of the standards and regulations in force induced by this regulation. Thus, we certify that none of our products or part of them fall within the scope of the ITAR regulation and are therefore «ITAR FREE».

STATEGIC CUSTOMERS