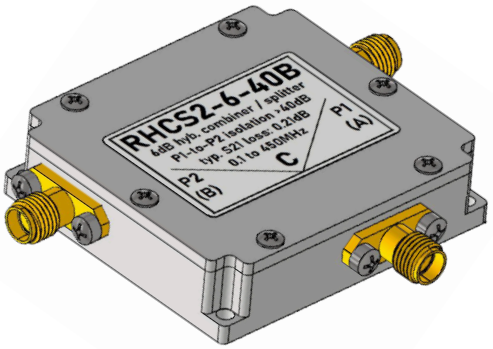
RHCS2-6-40x | 6dB Power Splitter/Combiner

2 ways-0° | 30kHz to 450MHz[1] | 2W | 6dB | >40dB isolation | 50Ω

The RHCS2-6-40X is a highly versatile, high-power splitter/combiner designed for laboratory applications across the LF to VHF range. It offers greater than 40dB (both B/C ver.) port-to-port isolation and excellent insertion loss characteristics. Primarily intended for laboratory measurements and test setups, its robust design makes it suitable for both low-power and high-power IMD measurement or similar applications.

■ Features:

- outstanding performance
- high port-to-port isolation
- ultra-light
- ruggedized aluminium enclosure
- SMA-F connectors
- CE and RED2014 - markings / declarations available



■ Typical Applications:

- intermodulation distortion measurements
- laboratory test applications
- LF to VHF transmitters / receivers
- reliability RF testing

■ Absolute Maximum Ratings & Environmental Specifications

Parameter	Testing conditions	Value	Units
Maximum Input Level (as a splitter)	for no damage	2	W
Operating Temperature	ambient	0…+40	°C
Relative Humidity	non condensing	10…70	%

■ Electrical Specifications:

@ TA = +25℃

Parameter	Testing conditions	Min.	Typ.	Max.	Units
Frequency Range	C ver. / B ver.	0.003 / 0.03	-	125 / 450	MHz
Internal Power Dissipation (as combiner)		-	-	0.5	W
Internal Power Dissipation (as combiner)				2	W
Port-to-Port isolation	C ver. / B ver.	40 / 41		50 /45	dB
Insertion Loss S21 above 6dB	C ver. / B ver.		0.17 / 0.25	-	dB

[1] B version is for 450MHz range, for P-to-P isolation > 40dB

Note 1: Electrical specifications and performance data contained herein are based on rowaves® applicable test performance criteria and measurement methods. Note 2: This document and the information contained herein is provided for evaluation purposes only and is subject to change without notice.

■ Typical Performance Data:

Freq. [MHz]	RHCS2-6-40B (450MHz ver.)					RHCS2-6-40C (125MHz ver.)				
	Total loss S21 (dB)		Isolation S21 (dB)	VSWR P1 (A)	VSWR P2 (B)	Total loss S21 (dB)		Isolation S21 (dB)	VSWR P1 (A)	VSWR P2 (B)
	P1 (A)	P2 (B)				P1 (A)	P2 (B)			
2	6.11	5.95	41.5	1.02	1.01	6.42	6.04	50.2	1.00	1.00
5	6.10	5.98	44.1	1.01	1.02	6.05	6.08	50.6	1.01	1.01
14	6.10	6	44.6	1.02	1.04	6.05	6.11	50.3	1.02	1.01
32	6.11	6.04	42.2	1.44	1.09	6.02	6.18	49.4	1.05	1.02
50	6.12	6.07	43.9	1.07	1.14	6.06	6.26	48.1	1.07	1.04
140	6.18	6.27	44.1	1.17	1.42	6.08	6.74	39.5	1.21	1.15
250	6.21	6.41	44.6	1.23	1.61	6.23	7.75	31.4	1.43	1.52
320	6.32	6.65	45	1.42	1.80	6.67	8.80	26.1	1.55	1.85
450	6.51	6.70	40.9	1.63	1.76	9.43	13.97	19.1	1.63	2.24
500	6.6	6.69	38.6	1.70	1.71	9.21	16.41	19.5	1.63	2.51

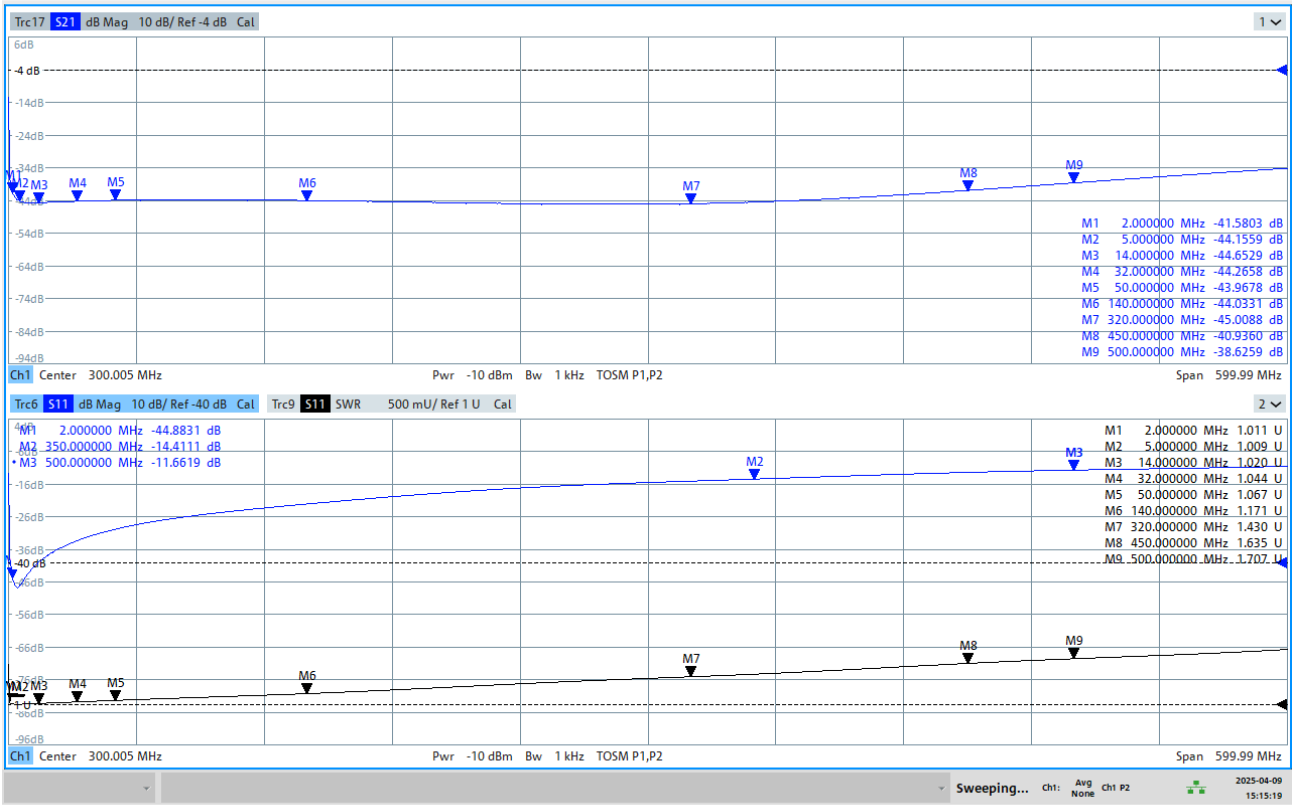


*Fig.1 Port-to-port isolation (S21) for RHCS2-6-40**B** combiner / splitter vs. VSWR (RL/S11)*

Note 1: Electrical specifications and performance data contained herein are based on rowaves® applicable test performance criteria and measurement methods. Note 2: This document and the information contained herein is provided for evaluation purposes only and is subject to change without notice.

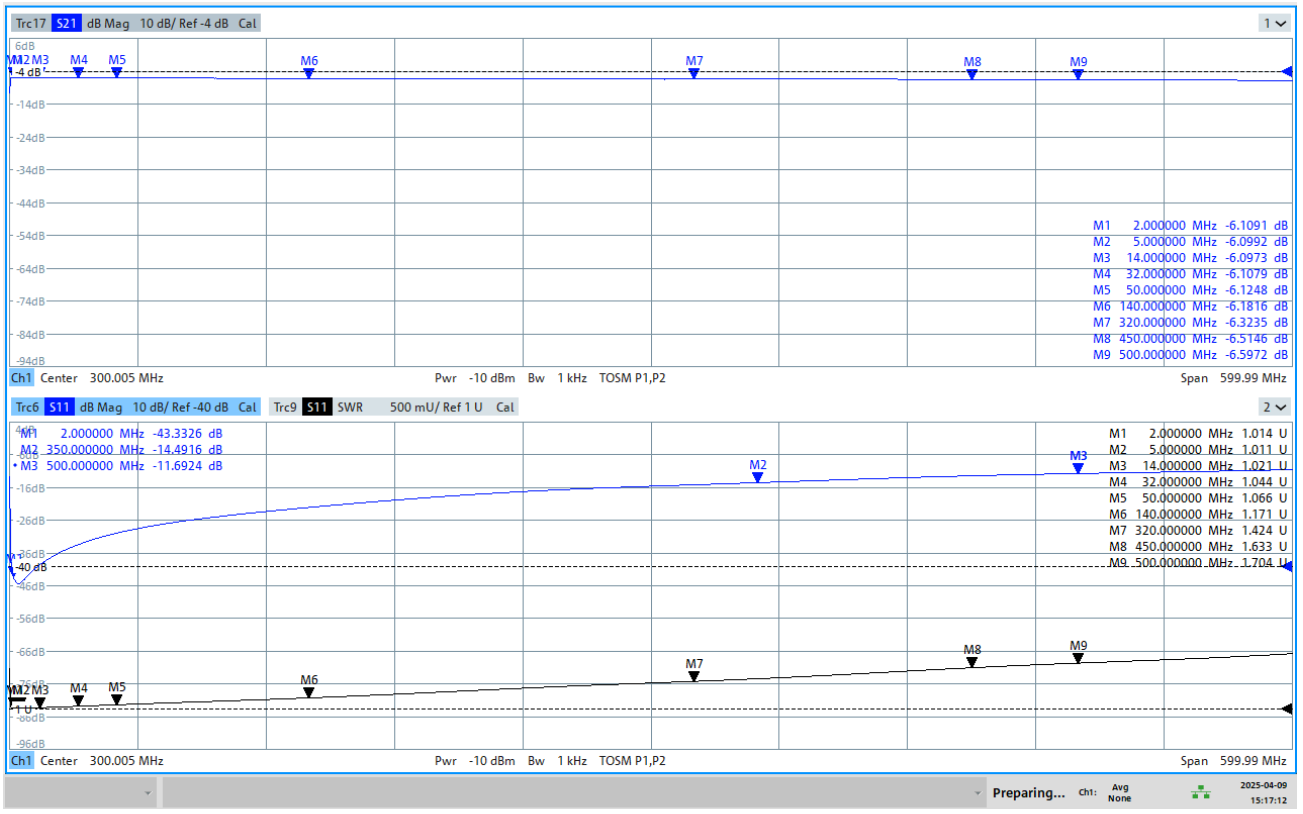


*Fig.2 Insertion loss S21 at port P1(A) for RHCS2-6-40**B** combiner/splitter vs. VSWR (RL/S11)*

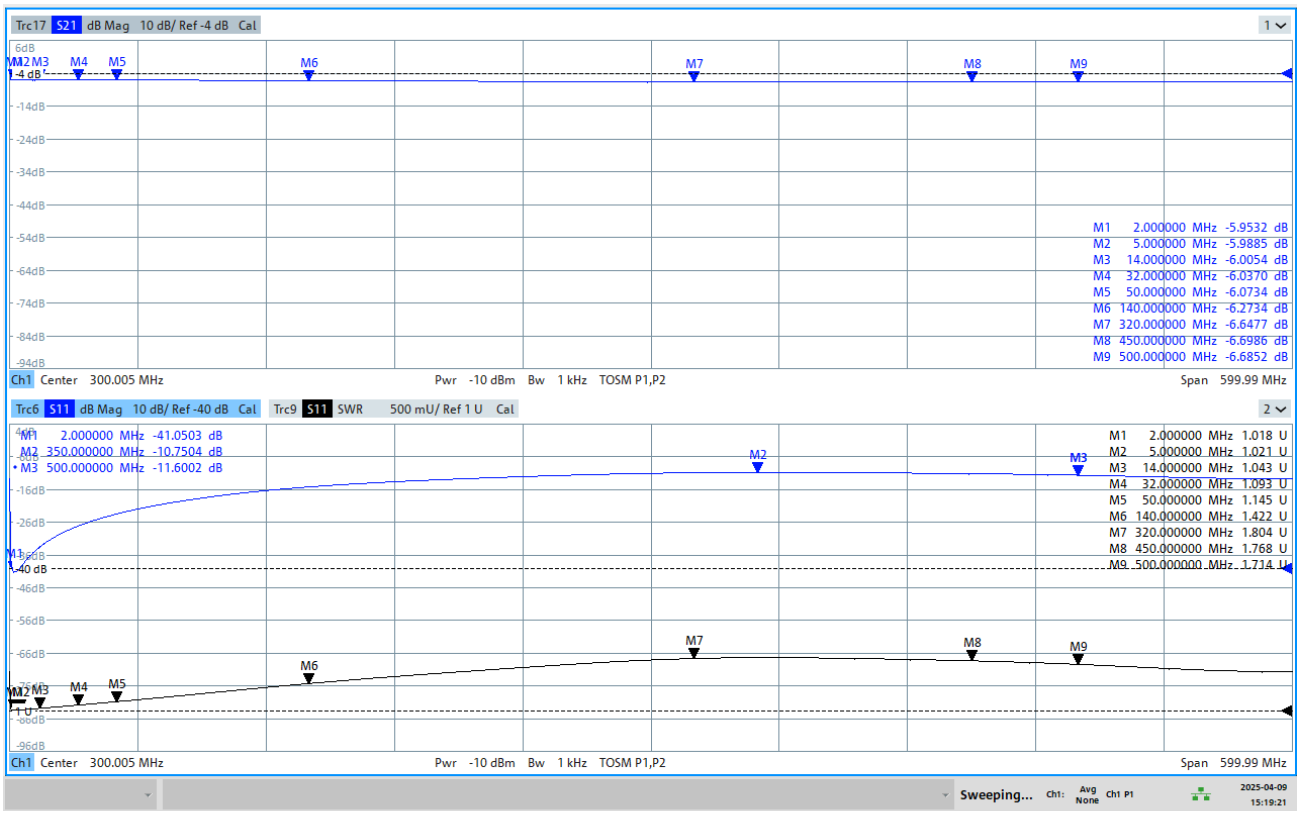


*Fig.3 Insertion loss S21 at port P2(B) for RHCS2-6-40**B** combiner/splitter vs. VSWR (RL/S11)*

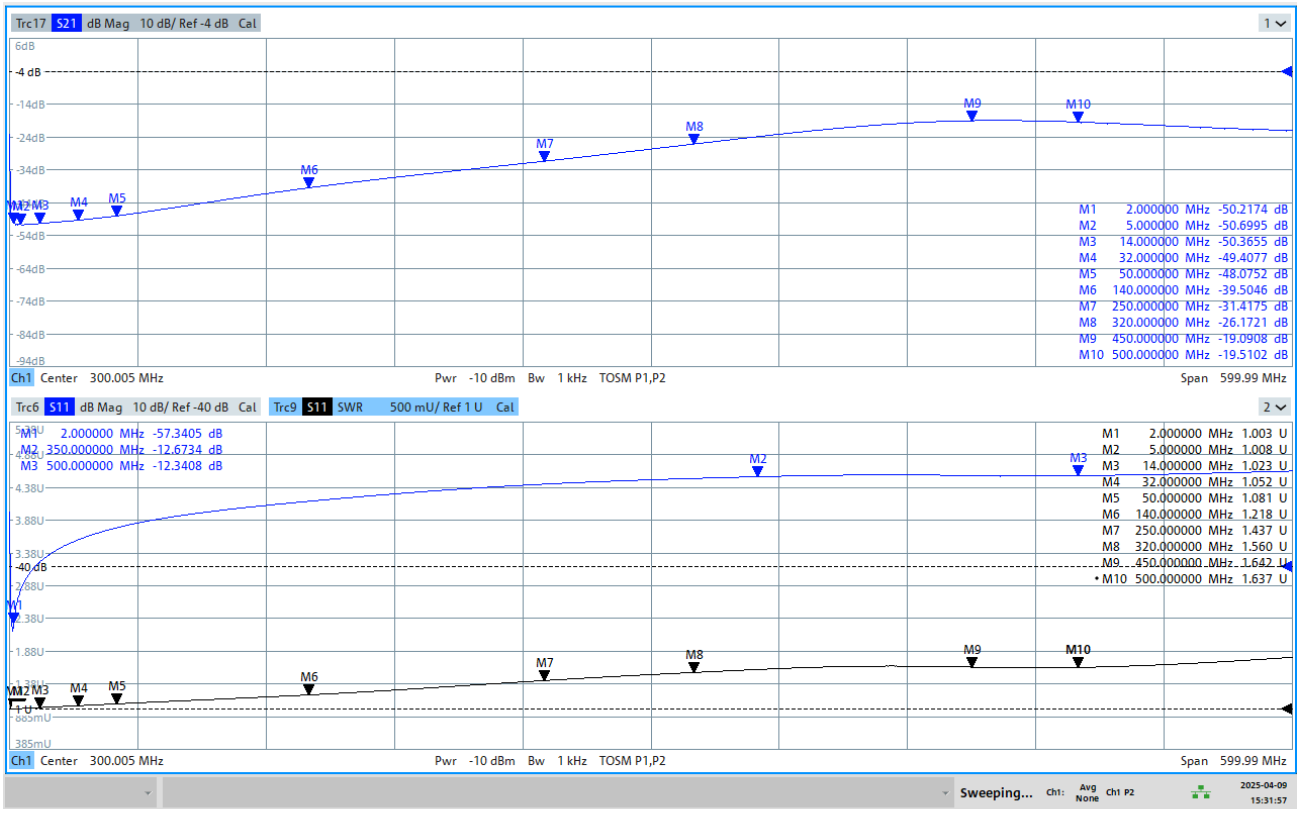


*Fig.4 Port-to-port isolation (S21) for RHCS2-6-40**C** combiner / splitter vs. VSWR (RL/S11)*

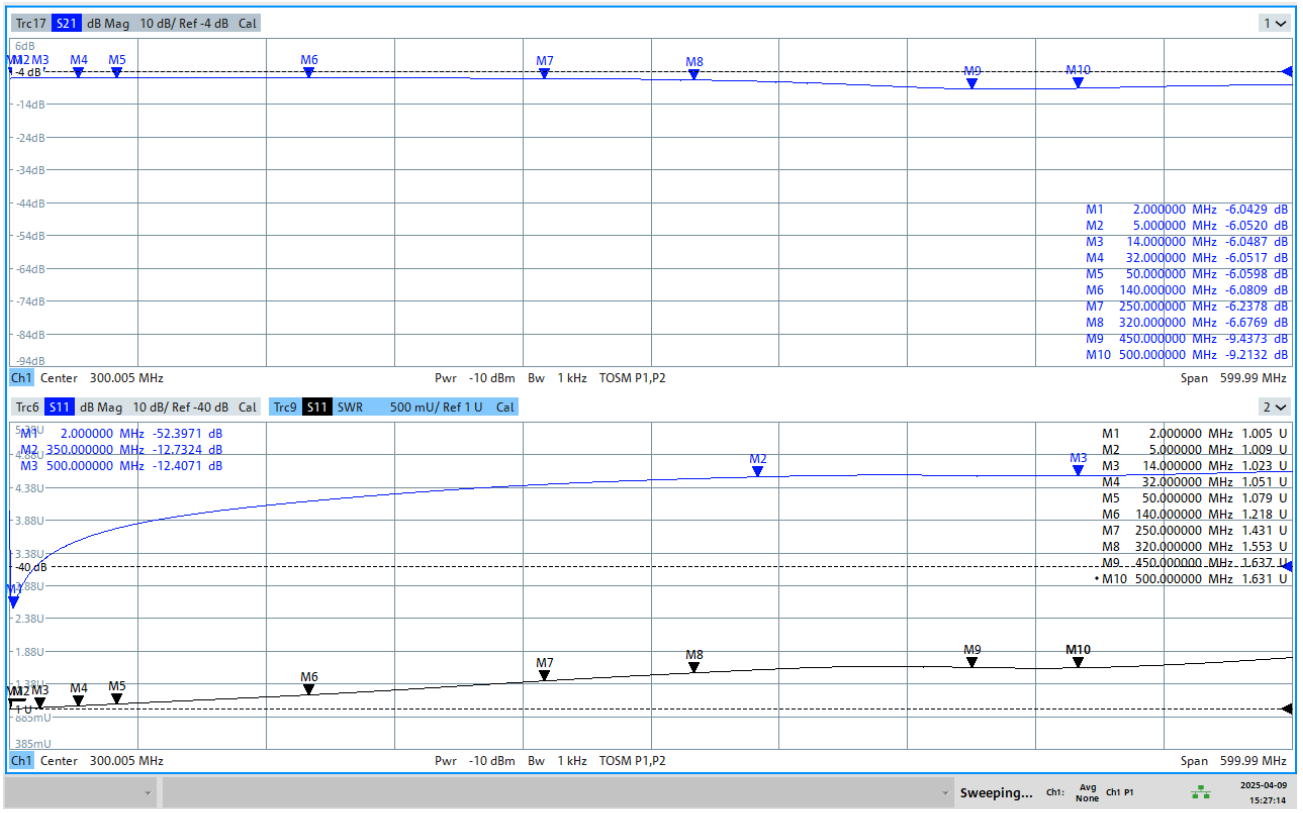


*Fig.5 Insertion loss S21 at port P1(A) for RHCS2-6-40**C** combiner/splitter vs. VSWR (RL/S11)*

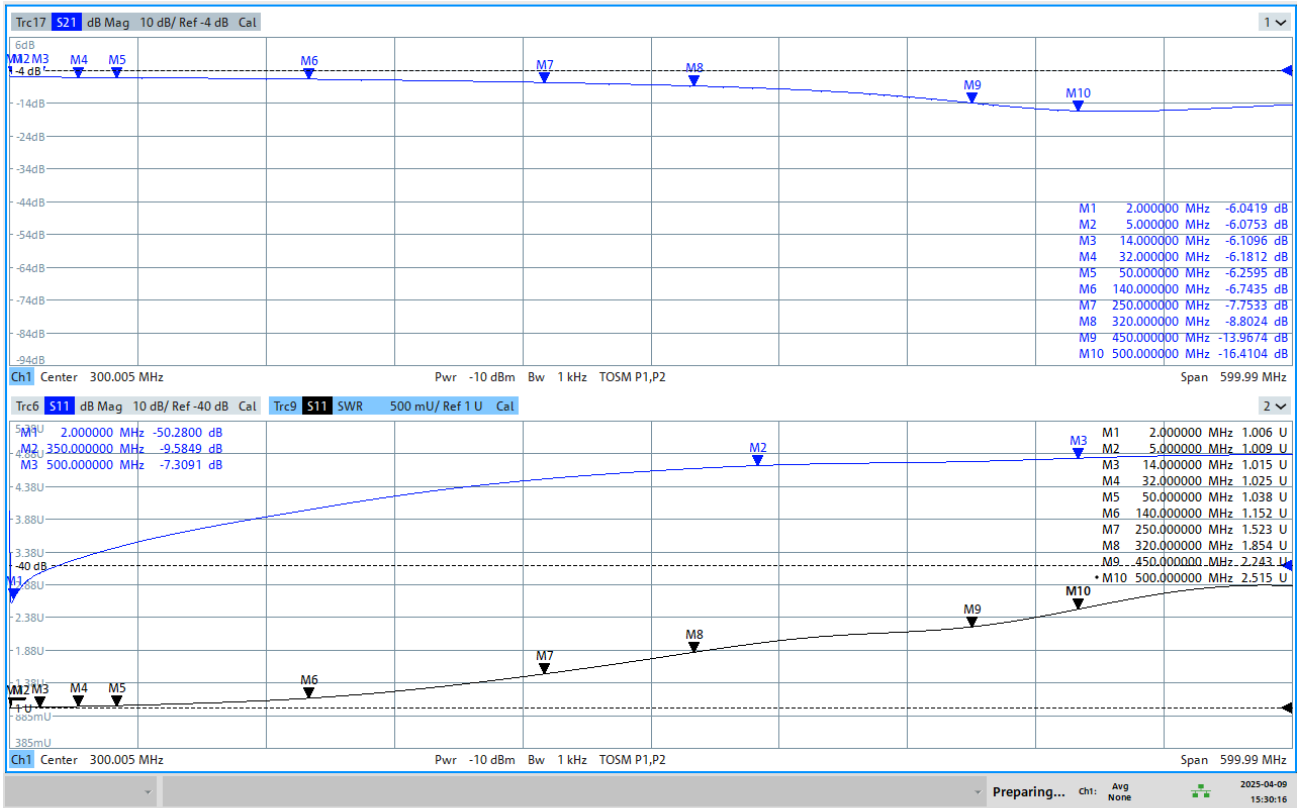
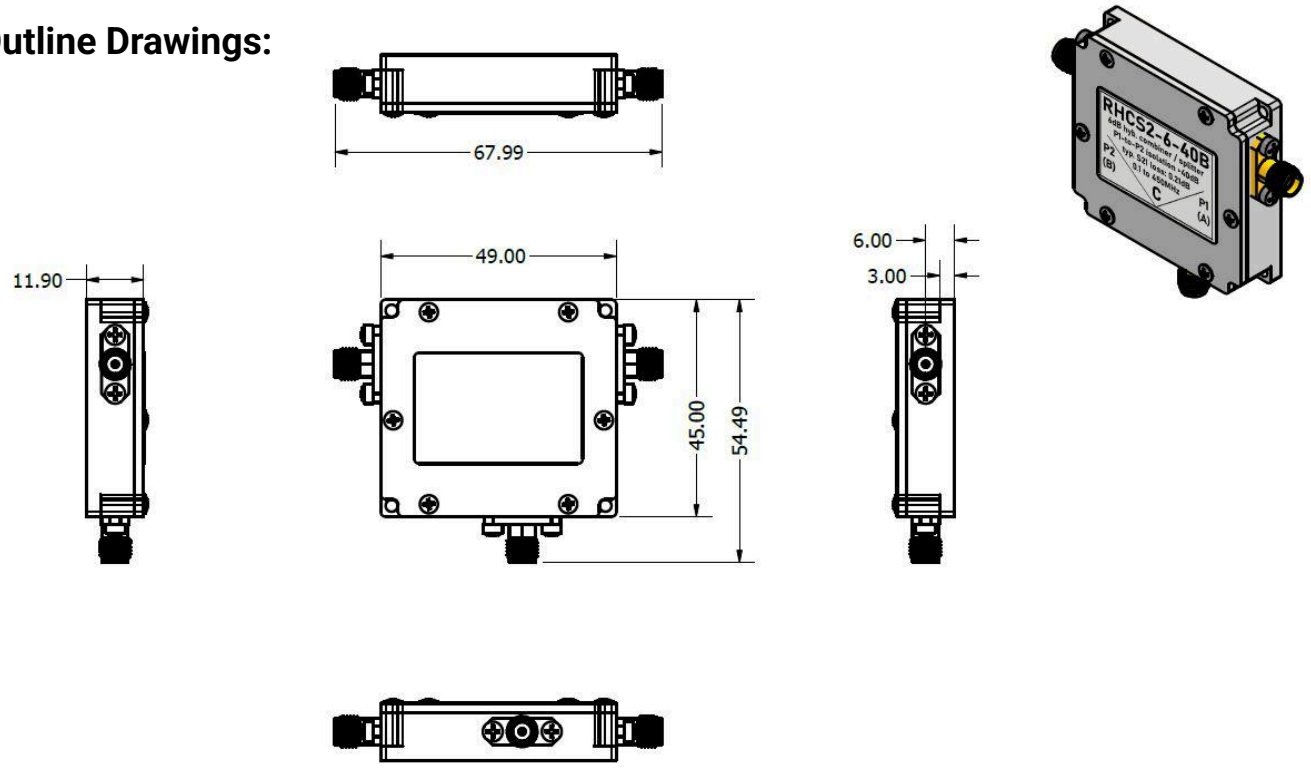


*Fig.6 Insertion loss S21 at port P2(B) for RHCS2-6-40**C** combiner/splitter vs. VSWR (RL/S11)*

■ Outline Drawings:



Note 1: Electrical specifications and performance data contained herein are based on rowaves® applicable test performance criteria and measurement methods. Note 2: This document and the information contained herein is provided for evaluation purposes only and is subject to change without notice.

■ Mechanical Specifications:

Parameter	Value	Unit	Comments
Length	45 ± 0.1mm	mm / in	excluding SMA connectors
Width	49 ± 0.1mm	mm / in	excluding SMA connector
Height	12 ± 0.1mm	mm / in	-
Weight	60 / 2	g / lbs	-
Cooling	-	-	natural convection, Aluminium block

■ Connectors - for both versions B/C

Description	Connectors no.1 (P1/A)	Connector no.2 (P2/B)	Connector no.3 (C)
Type	50Ω SMA-Female, straight	50Ω SMA-Female, straight	50Ω SMA-Female, straight

■ Ordering Information

Model	Mech. details	Description
RHCS2-6-40B	SMA-F connectors, aluminium enclosure	0.03 - 450MHz
RHCS2-6-40C	SMA-F connectors, aluminium enclosure	0.003 - 125MHz

■ Change History | DS-10

date	change	comment
20 Feb 2025	initial release	1st revision available
27 Mar 2025	introduced preliminary mechanical specs introduced preliminary electrical specs	1.1 rev. available
10 Apr 2025	S21 and S11 plots introduced measured all parameters extended performance data inserted	rev.1.2, 1st initial public release

DISCLAIMER

ROWAVES SRL ("ROWAVES") PROVIDES TECHNICAL SPECIFICATIONS AND DATA (INCLUDING DATASHEETS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, AND OTHER INFORMATION AND RESOURCES “AS IS” AND WITH ALL FAULTS. ROWAVES DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.

These resources are intended for developers skilled in the art of designing with roWaves products. You are solely responsible for (1) selecting the appropriate products for your application, (2) designing, validating, and testing your application, and (3) ensuring your application meets applicable standards and other requirements. roWaves makes no guarantee regarding the suitability of its products for any particular purpose, nor does roWaves assume any liability whatsoever arising out of your use or application of any roWaves product. roWaves grants you permission to use these resources only for development of an application that uses roWaves
products. Other reproduction or use of these resources is strictly prohibited. No licence is granted to any other roWaves intellectual property or to any third-party intellectual property. roWaves reserves the right to make changes to the product(s) or information contained herein without notice. roWaves Technologies is a trademark or registered trademarks of rowaves.
All other trademarks used are the property of their respective owners.

rowaves SRL | VAT ID: RO51570090 | mailing address: Calea Turnisorului 36, Sibiu 550136, Romania
e-mail: support@rowaves.com | phone: +40 742 854 185 | web: https://rowaves.com