

Appendix

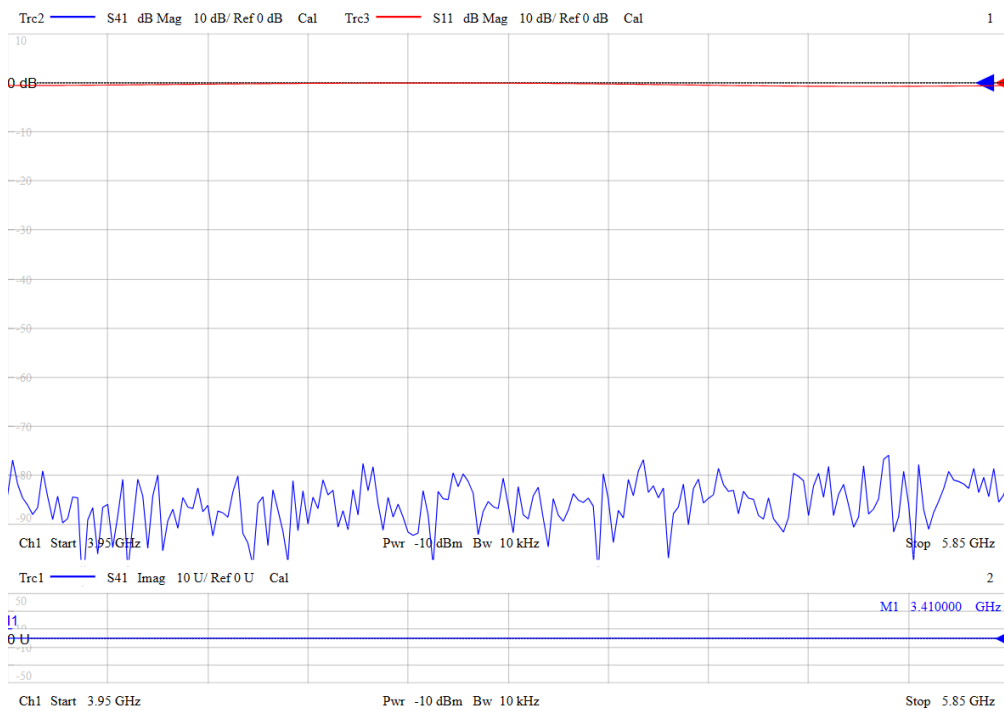
Graphs from experimental part of the diploma thesis

Aluminium alloy – thickness 0.4 mm

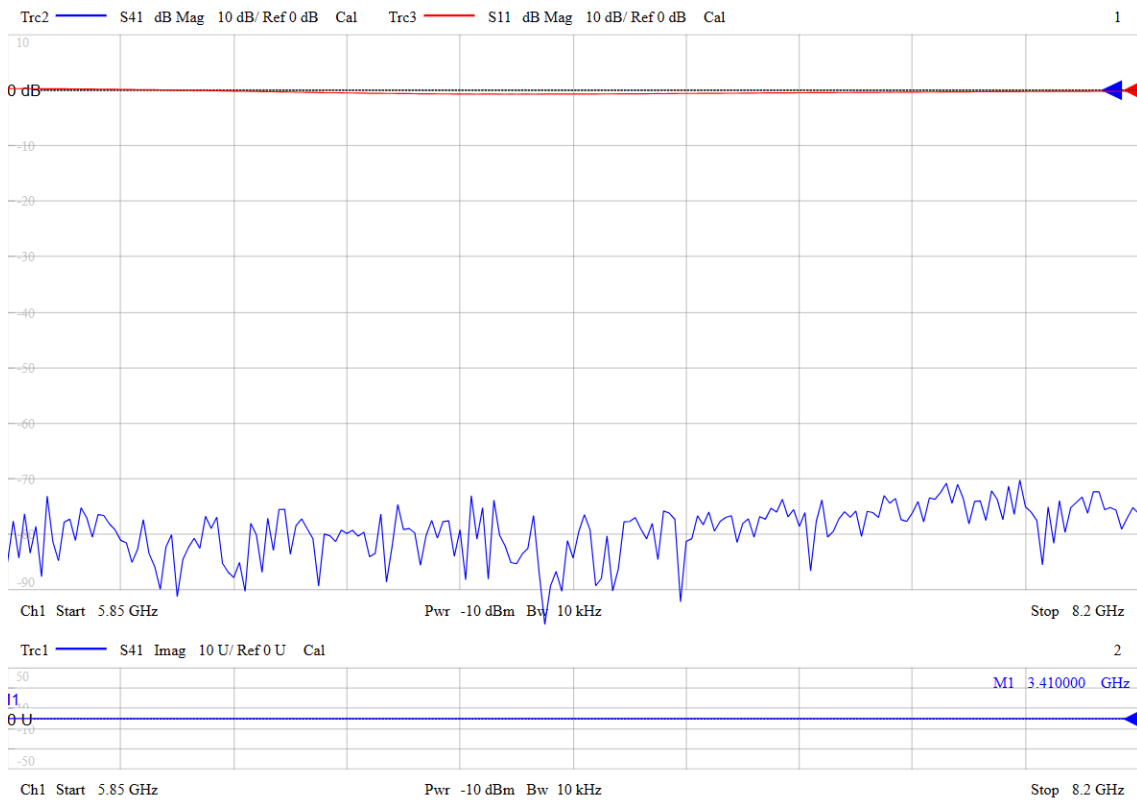
Frequency range 2.6 – 3.95 GHz



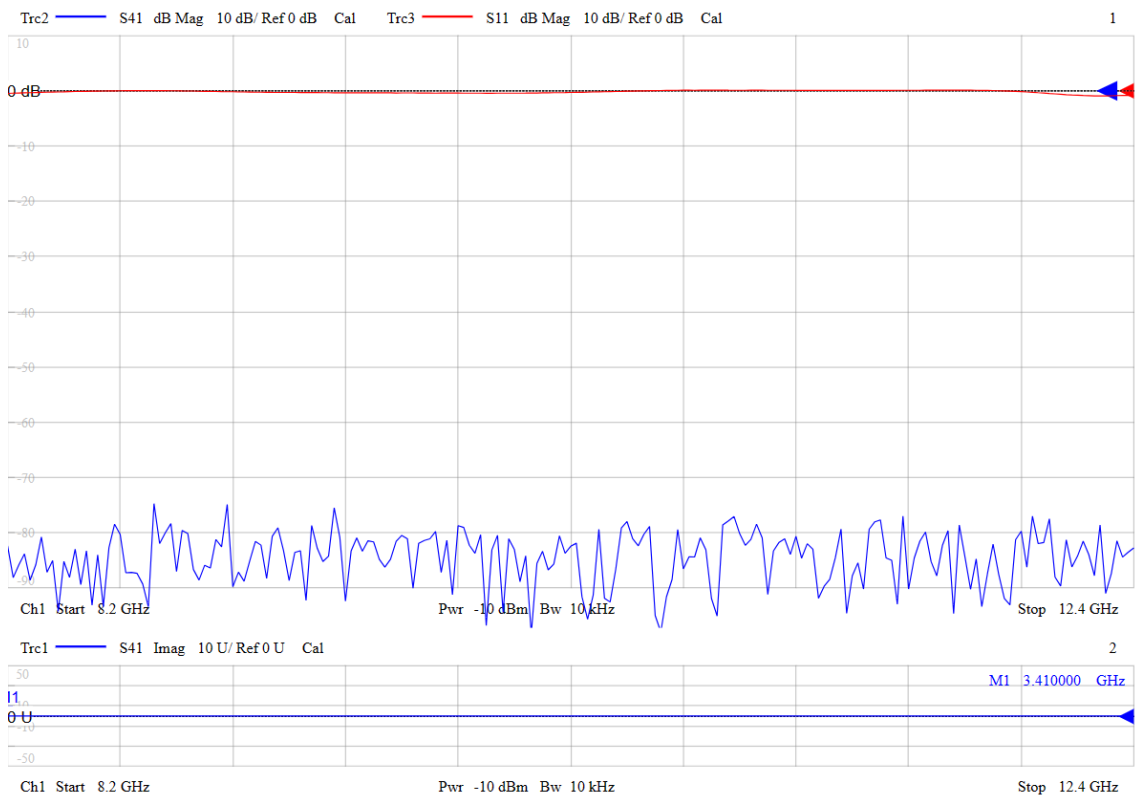
Frequency range 3.95 – 5.85 GHz



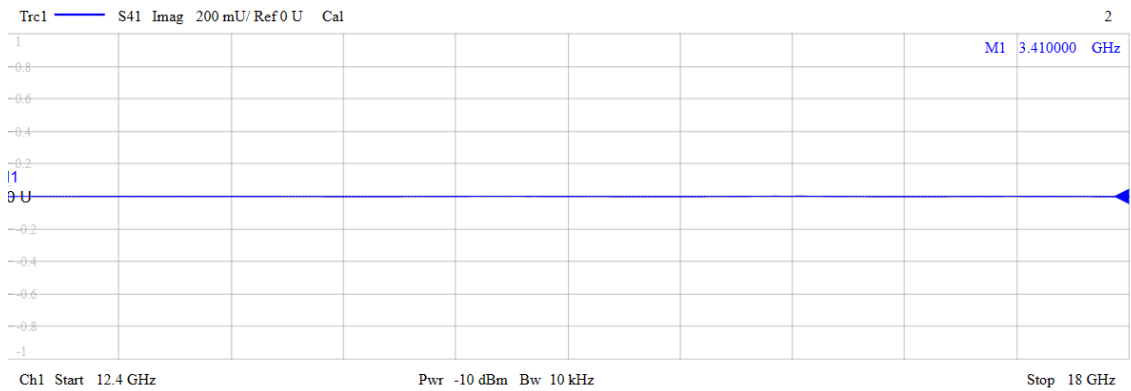
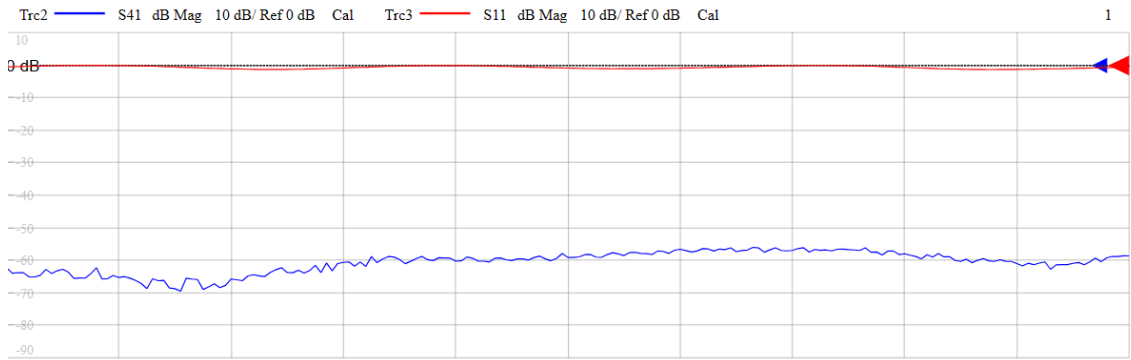
Frequency range 5.85 – 8.2 GHz



Frequency range 8.2 – 12.4 GHz

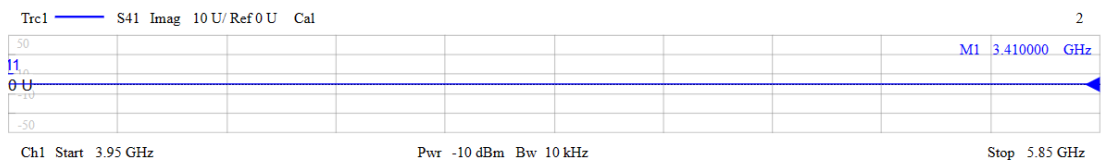
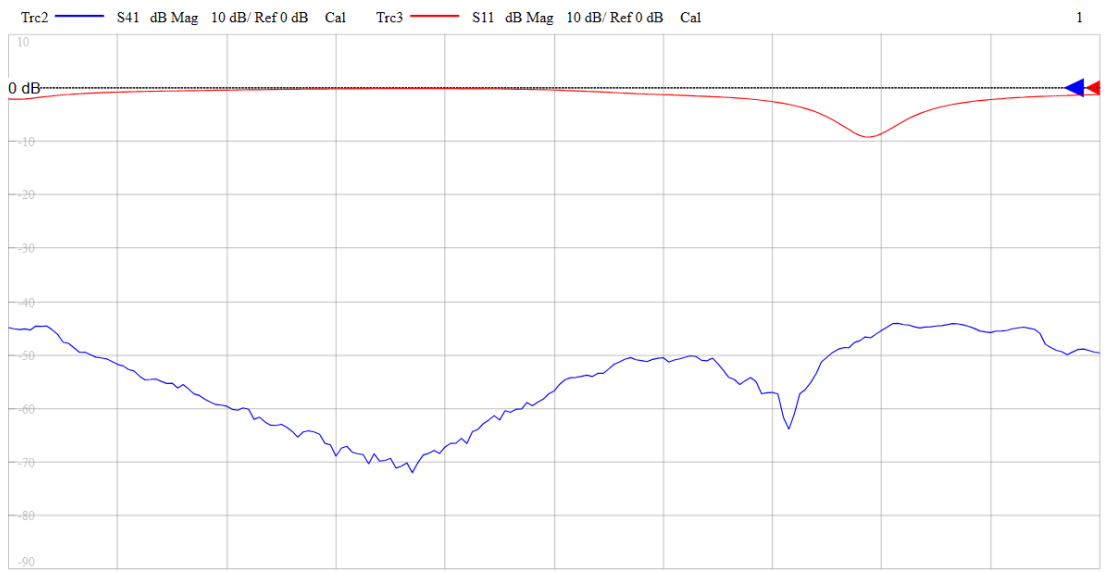


Frequency range 12.4 – 18 GHz



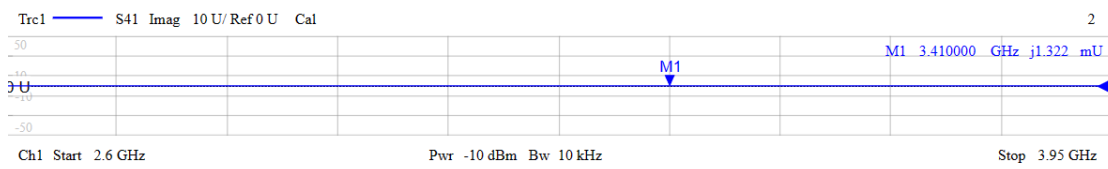
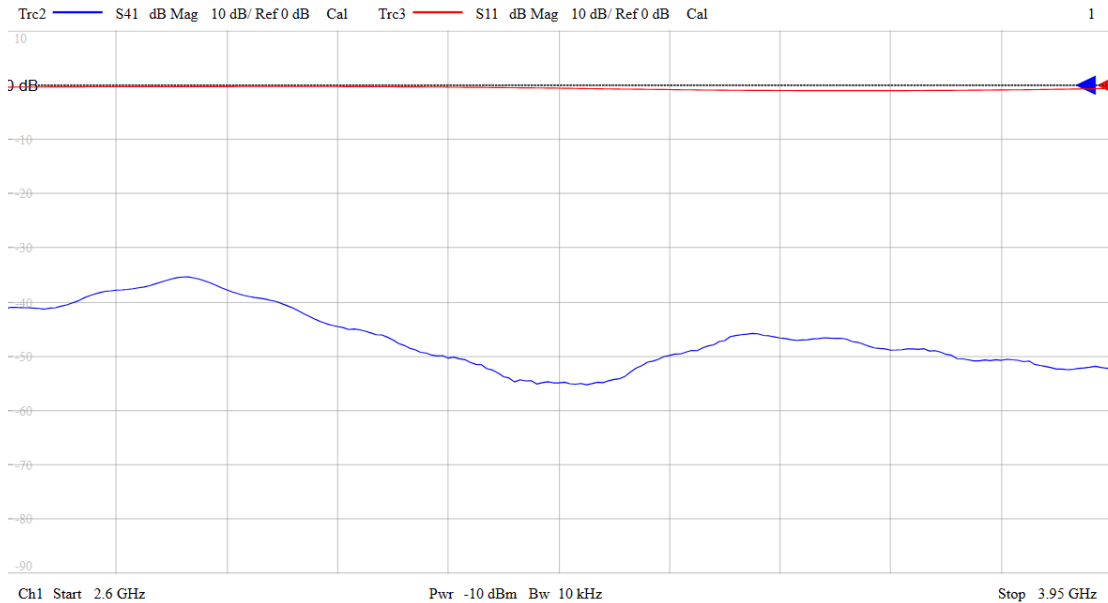
Aluminium alloy – thickness 2 mm

Frequency range 3.95 – 5.85 GHz

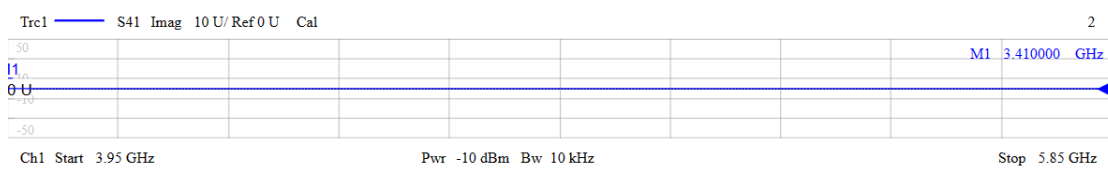
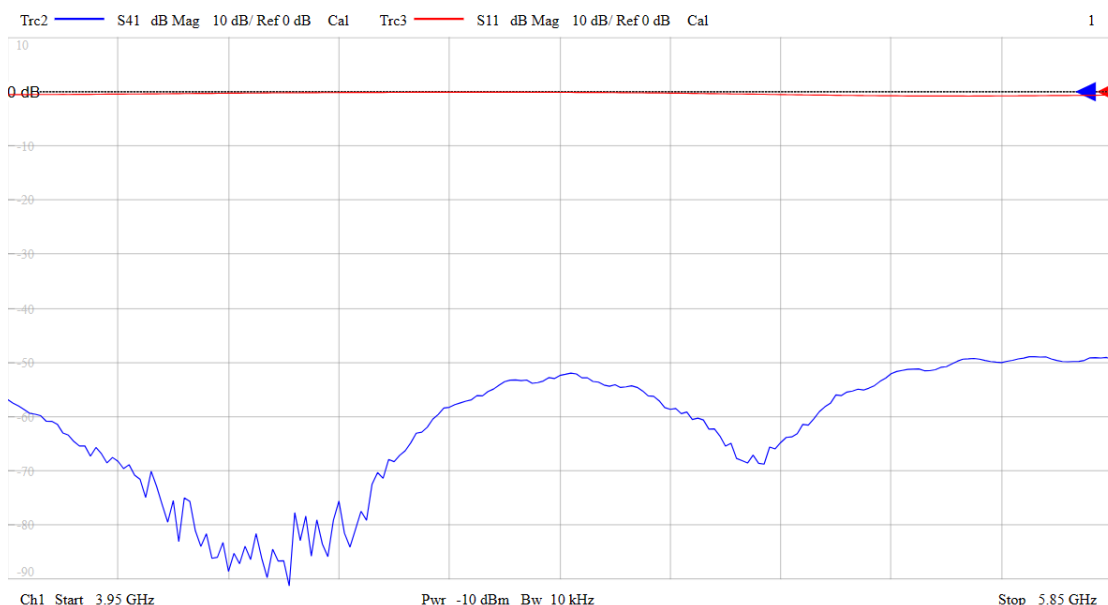


Copper

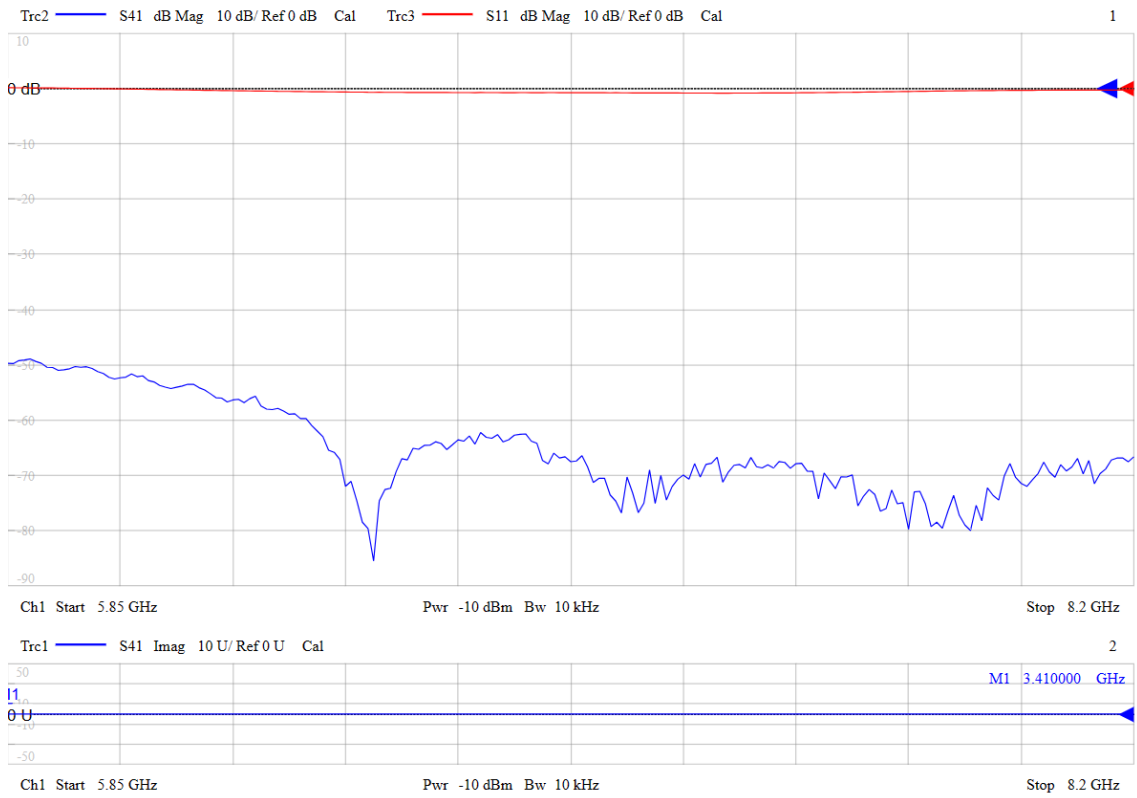
Frequency range 2.6 – 3.95 GHz



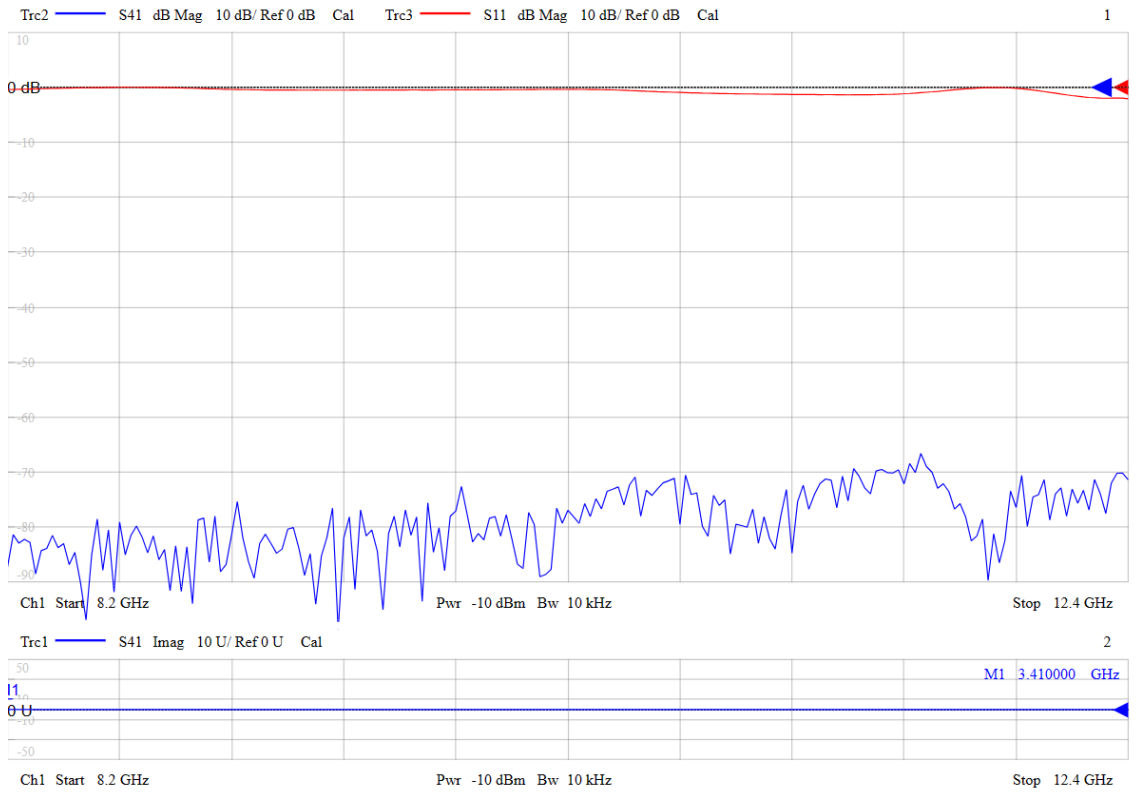
Frequency range 3.95 – 5.85 GHz



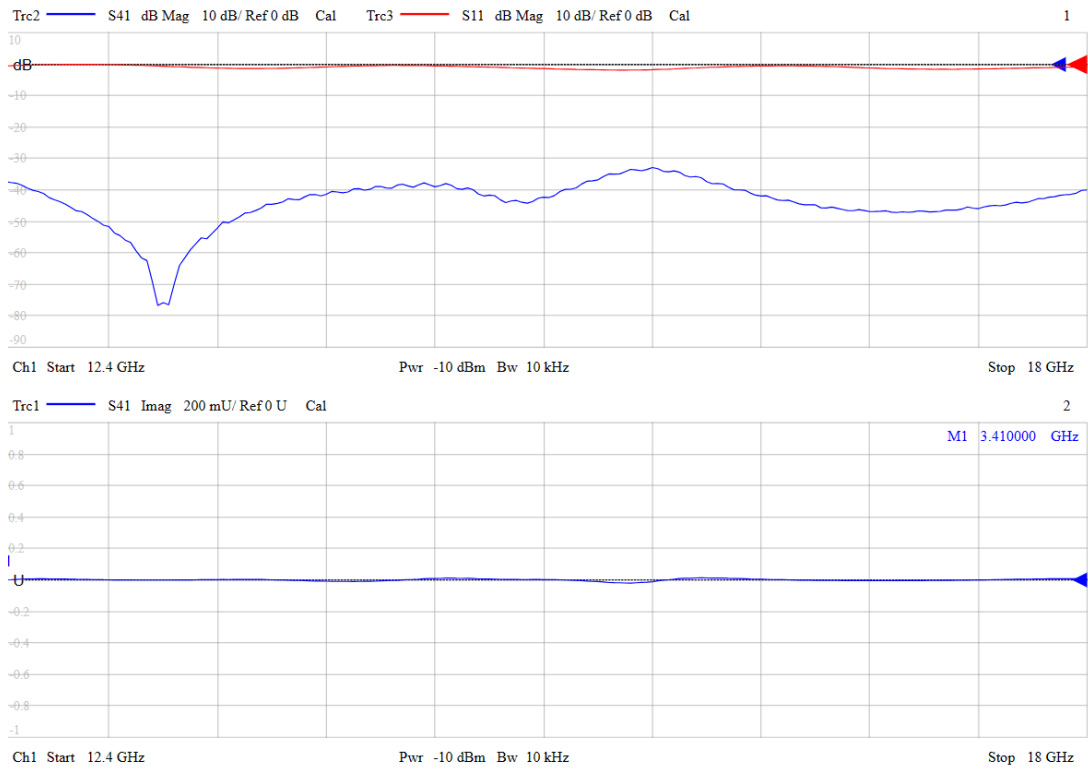
Frequency range 5.85 – 8.2 GHz



Frequency range 8.2 – 12.4 GHz

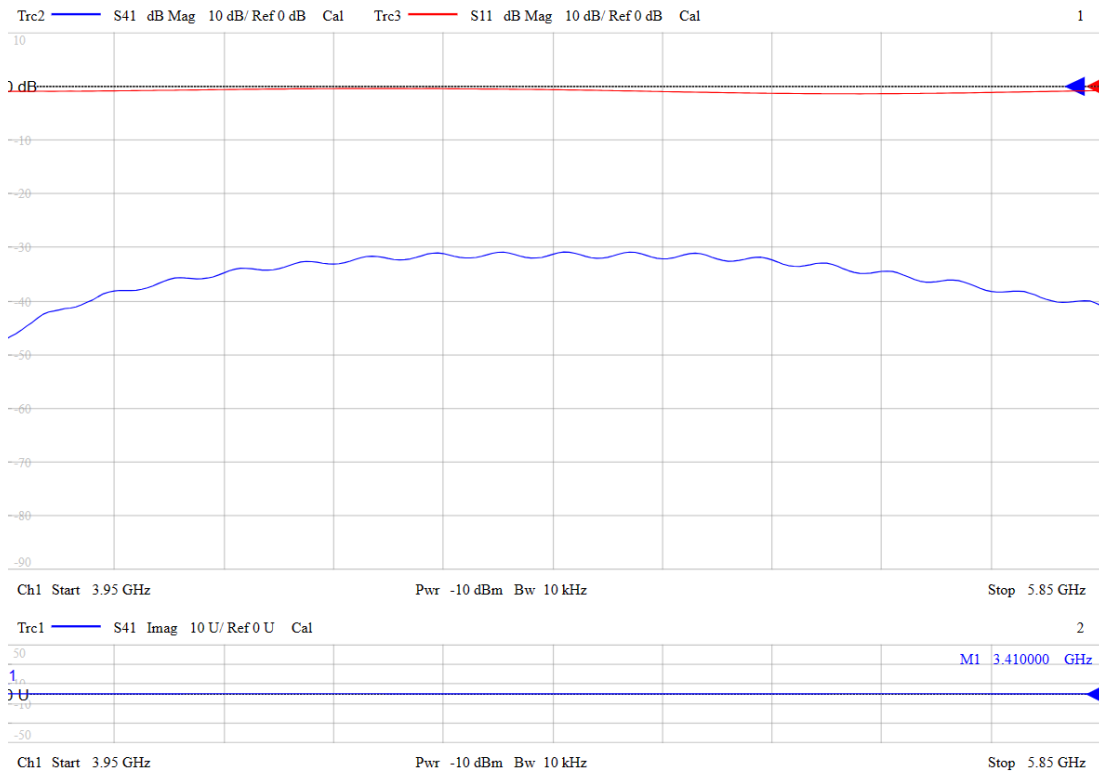


Frequency range 12.4 – 18 GHz

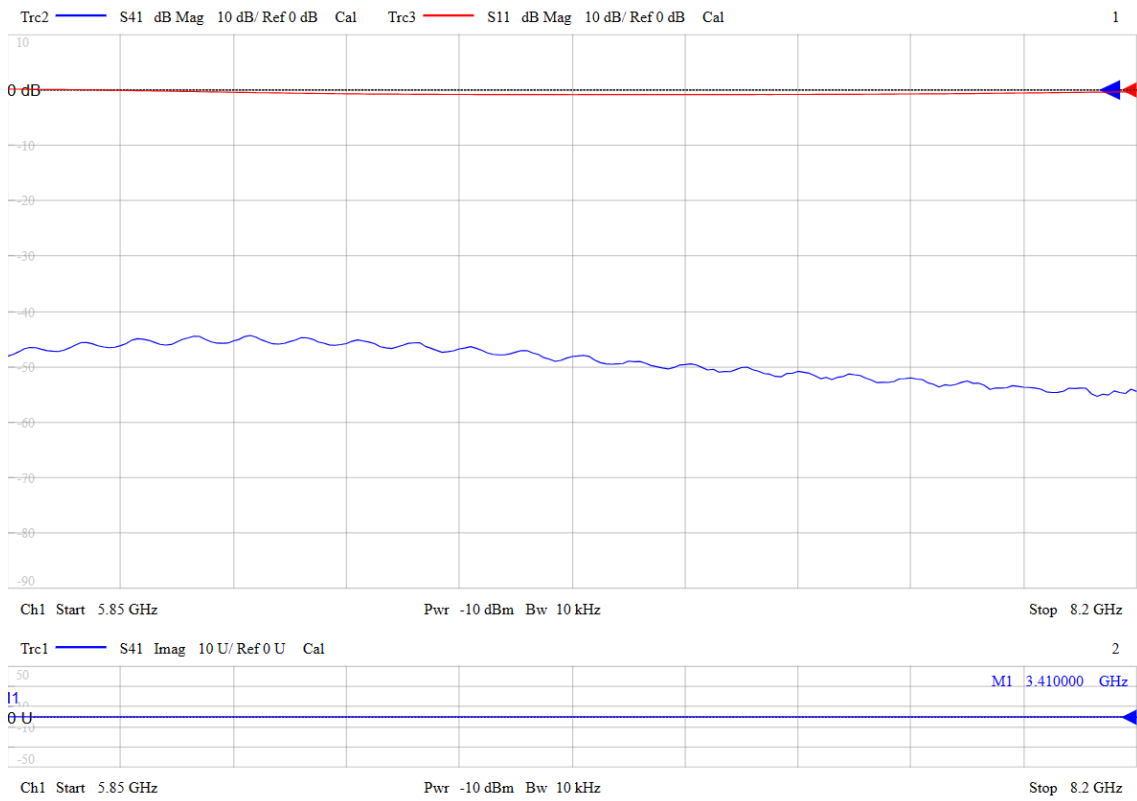


Carbon fibre composite

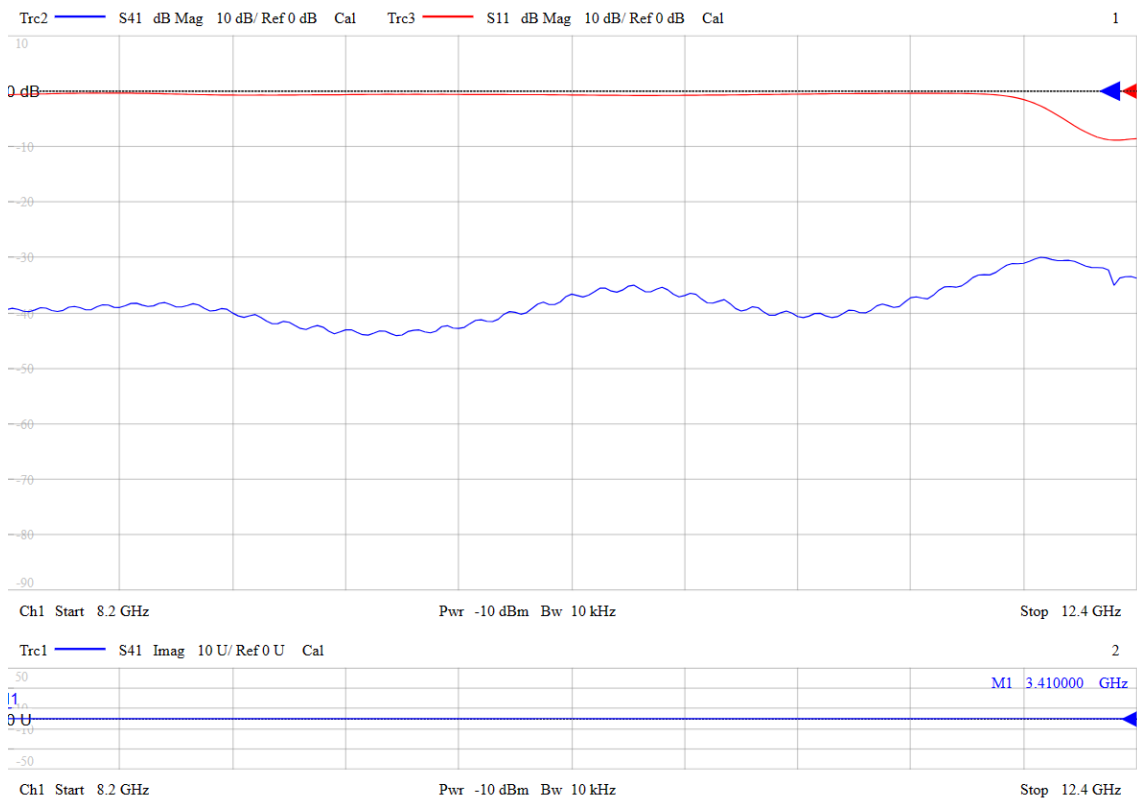
Frequency range 3.95 – 5.85 GHz



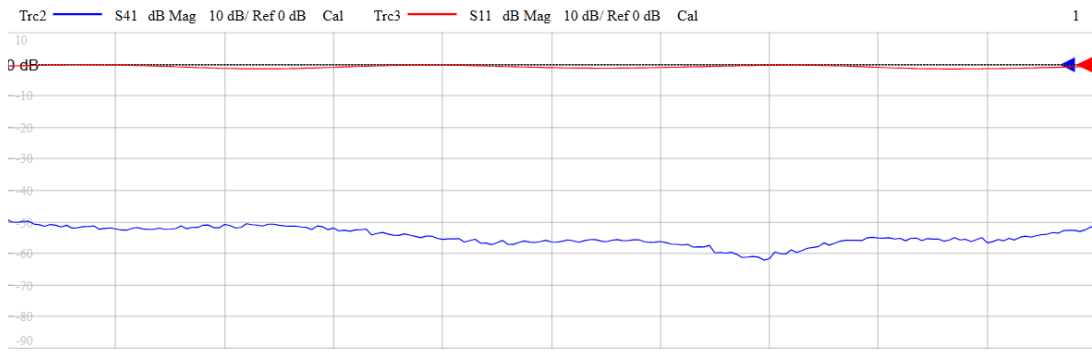
Frequency range 5.85 – 8.2 GHz



Frequency range 8.2 – 12.4 GHz



Frequency range 12.4 – 18 GHz



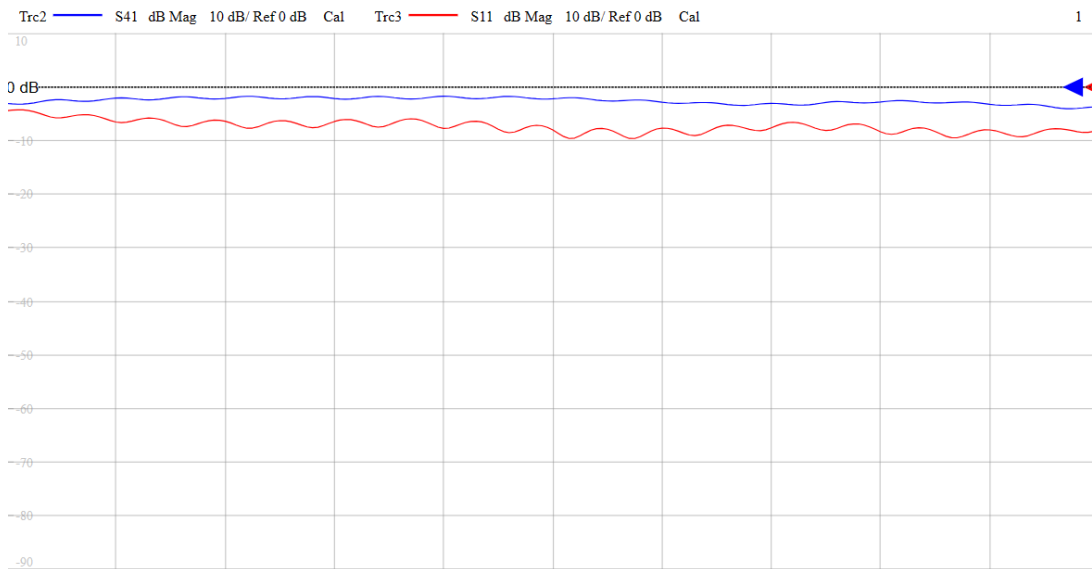
Ch1 Start 12.4 GHz Pwr -10 dBm Bw 10 kHz Stop 18 GHz



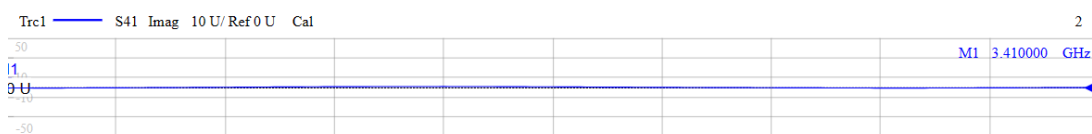
Ch1 Start 12.4 GHz Pwr -10 dBm Bw 10 kHz Stop 18 GHz

Glass fibre composite

Frequency range 3.95 – 5.85 GHz

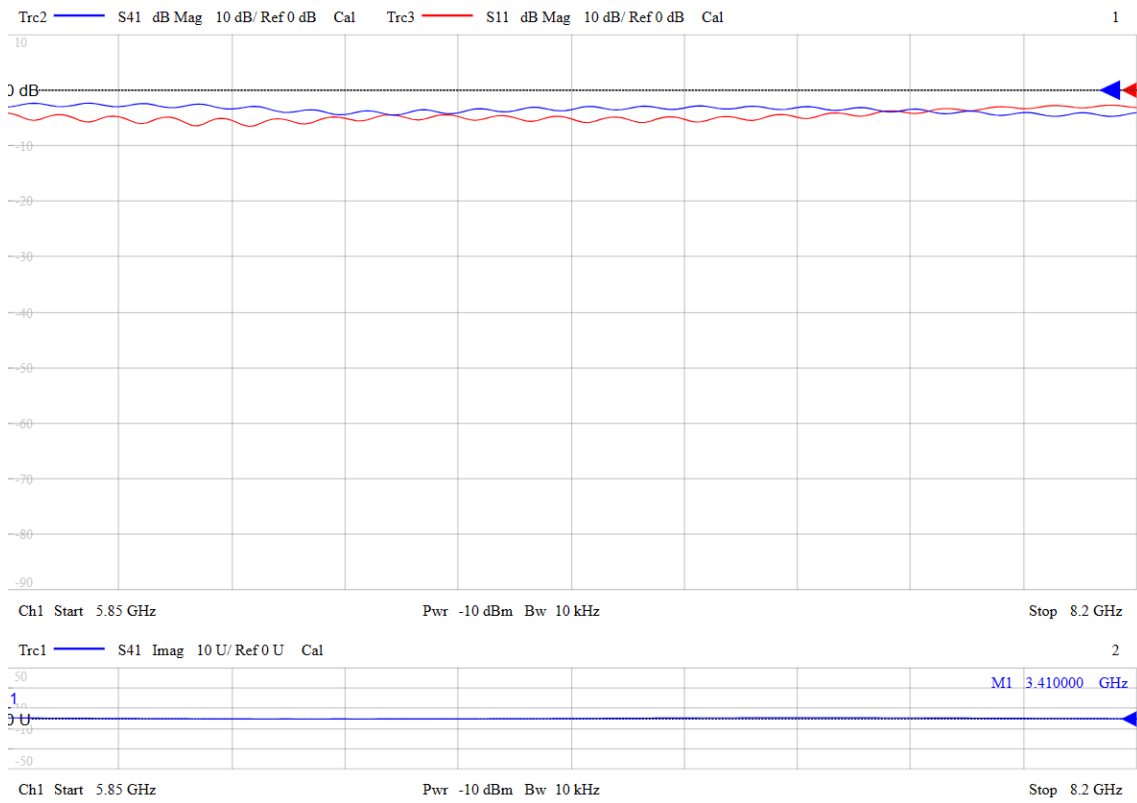


Ch1 Start 3.95 GHz Pwr -10 dBm Bw 10 kHz Stop 5.85 GHz

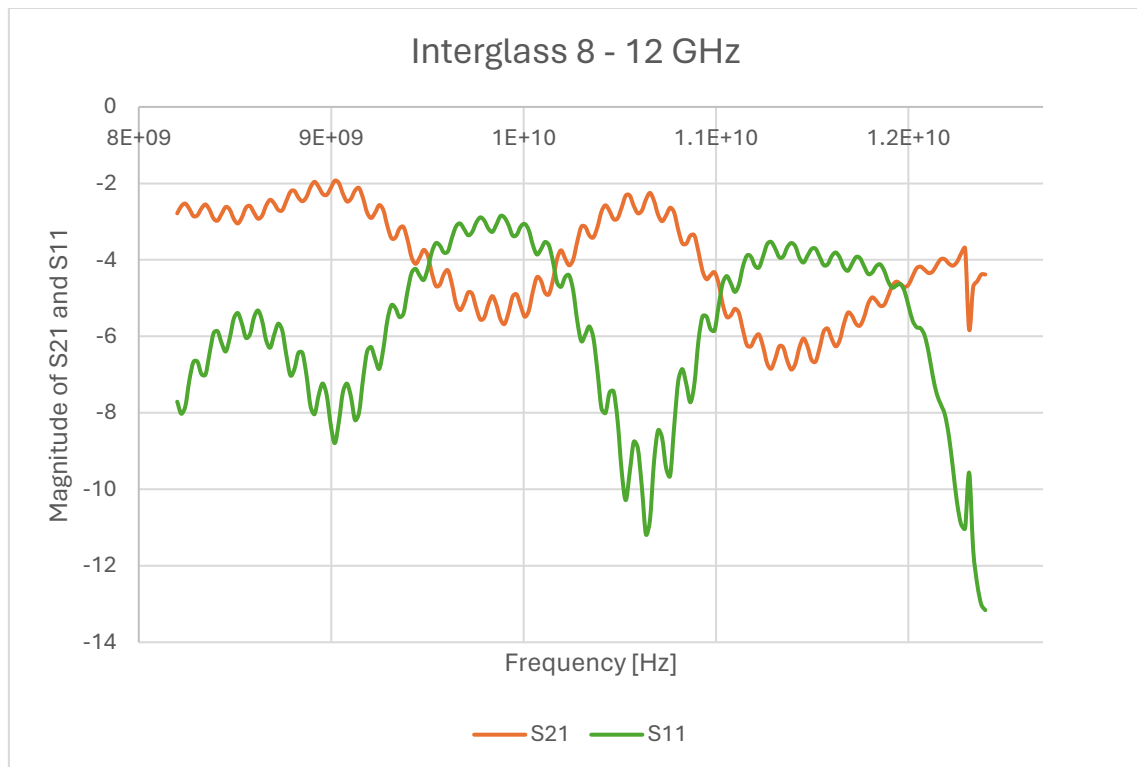


Ch1 Start 3.95 GHz Pwr -10 dBm Bw 10 kHz Stop 5.85 GHz

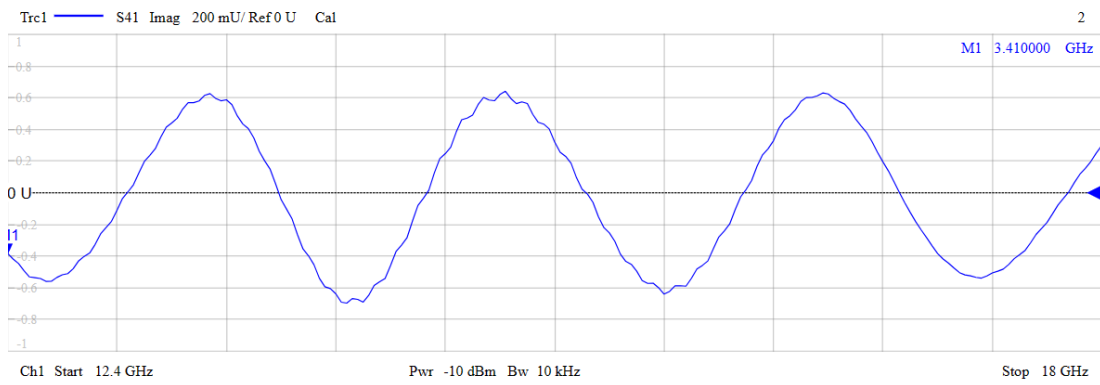
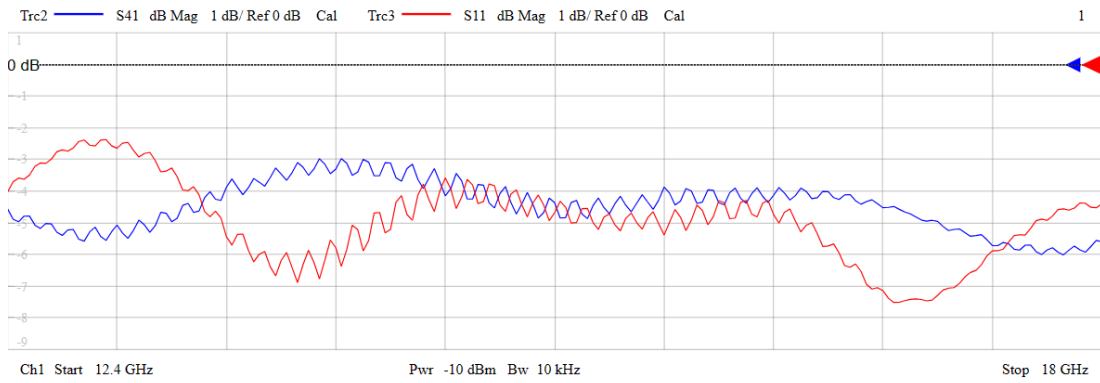
Frequency range 5.85 – 8.2 GHz



Frequency range 8.2 – 12.4 GHz

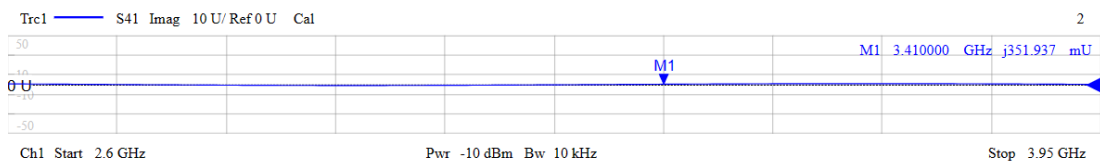
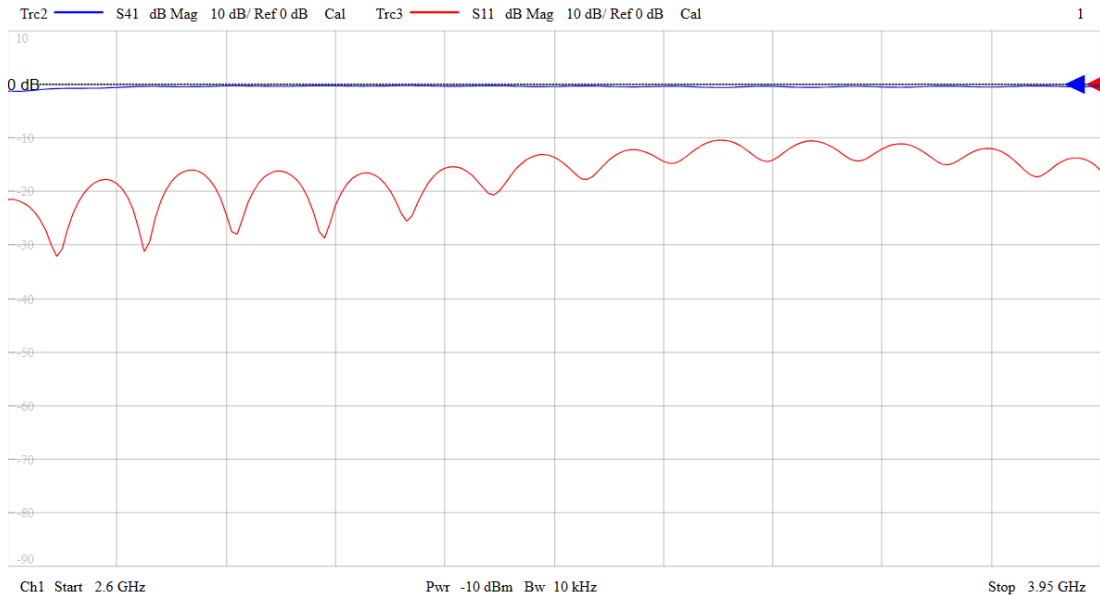


Frequency range 12.4 – 18 GHz



Kevlar

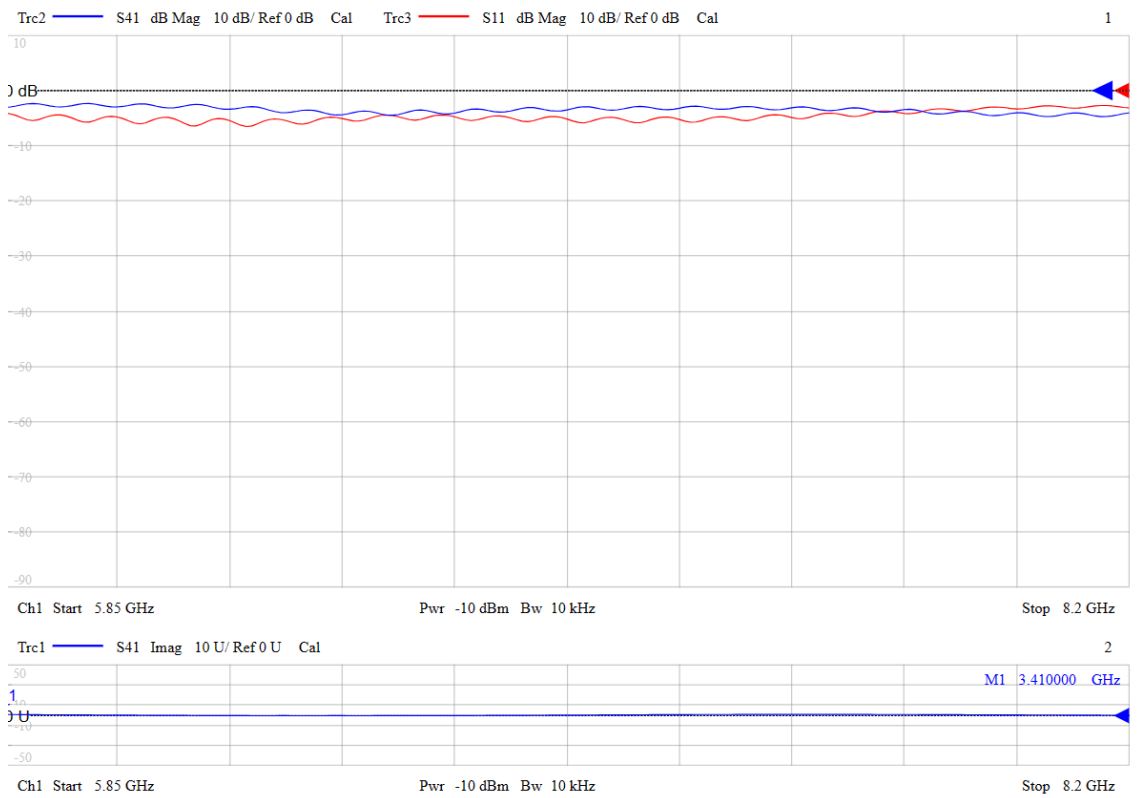
Frequency range 2.6 – 3.95 GHz



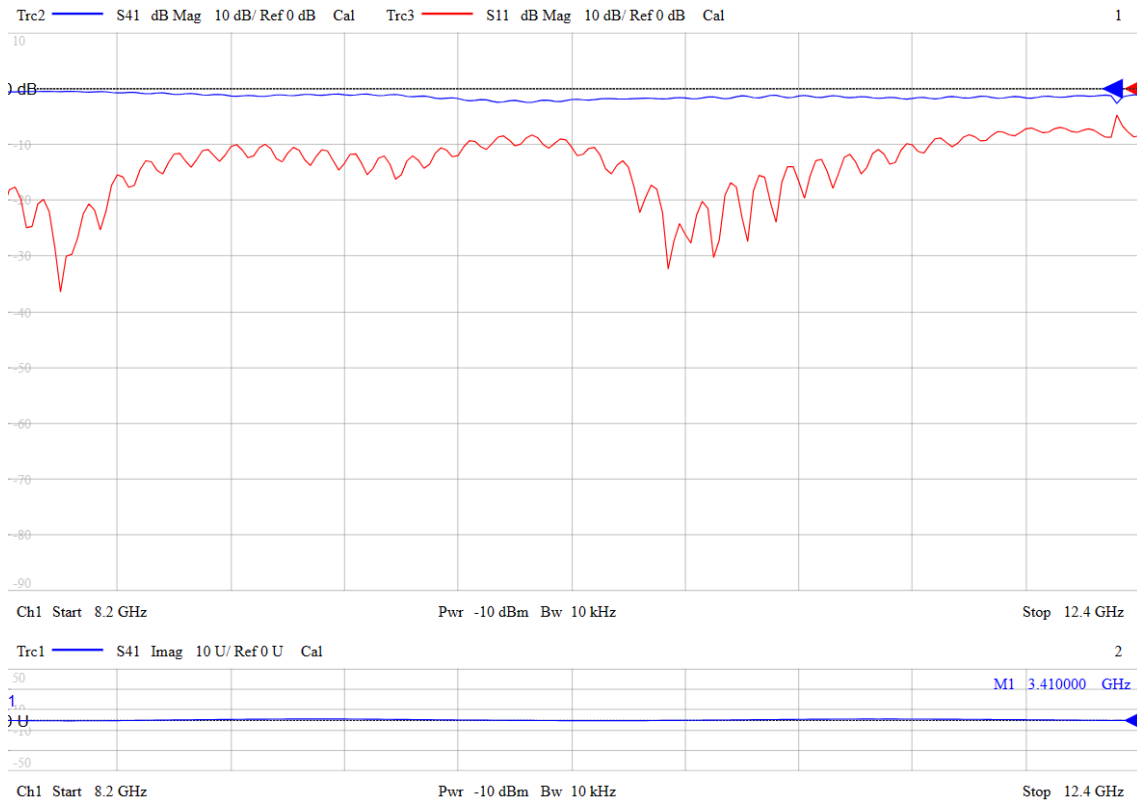
Frequency range 3.95 – 5.85 GHz



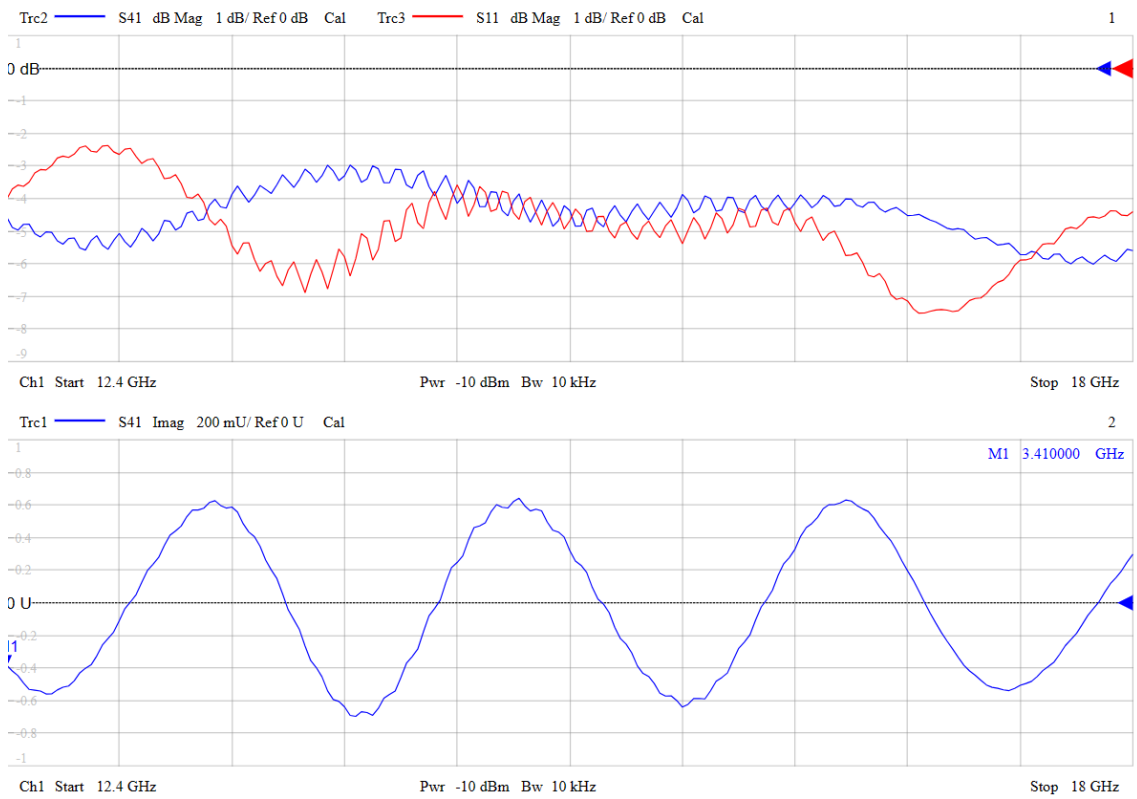
Frequency range 5.85 – 8.2 GHz



Frequency range 8.2 – 12.4 GHz

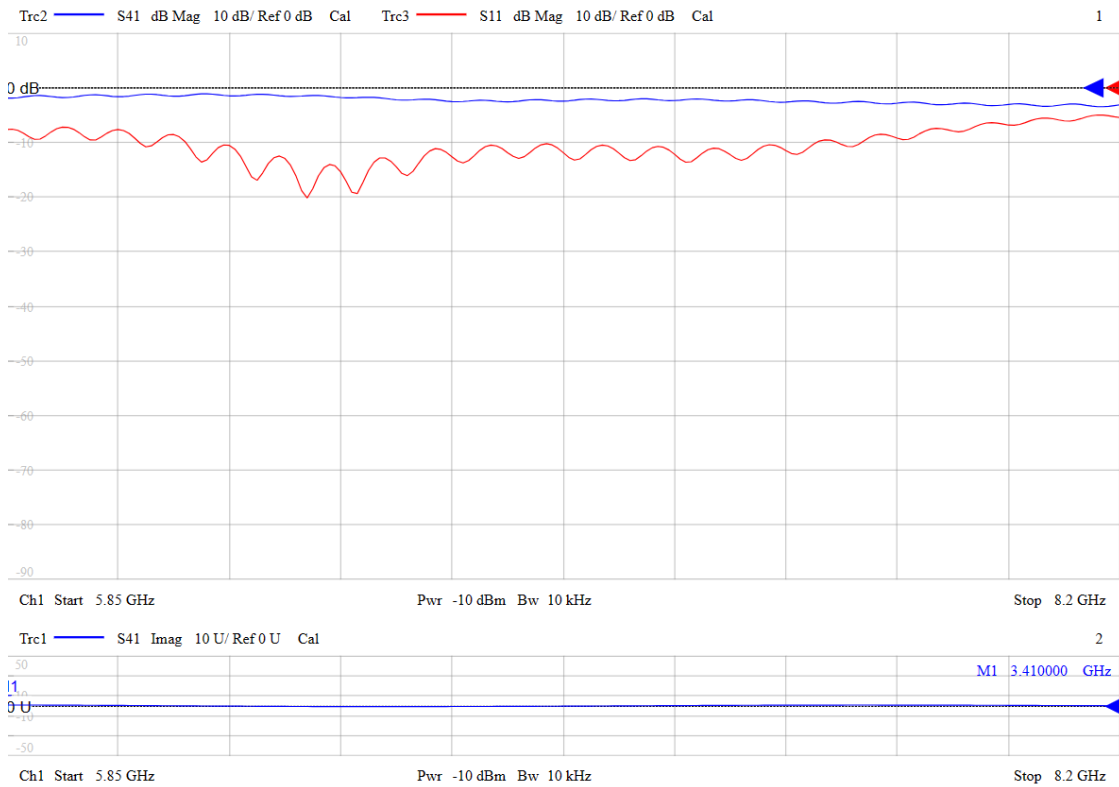


Frequency range 12.4 – 18 GHz

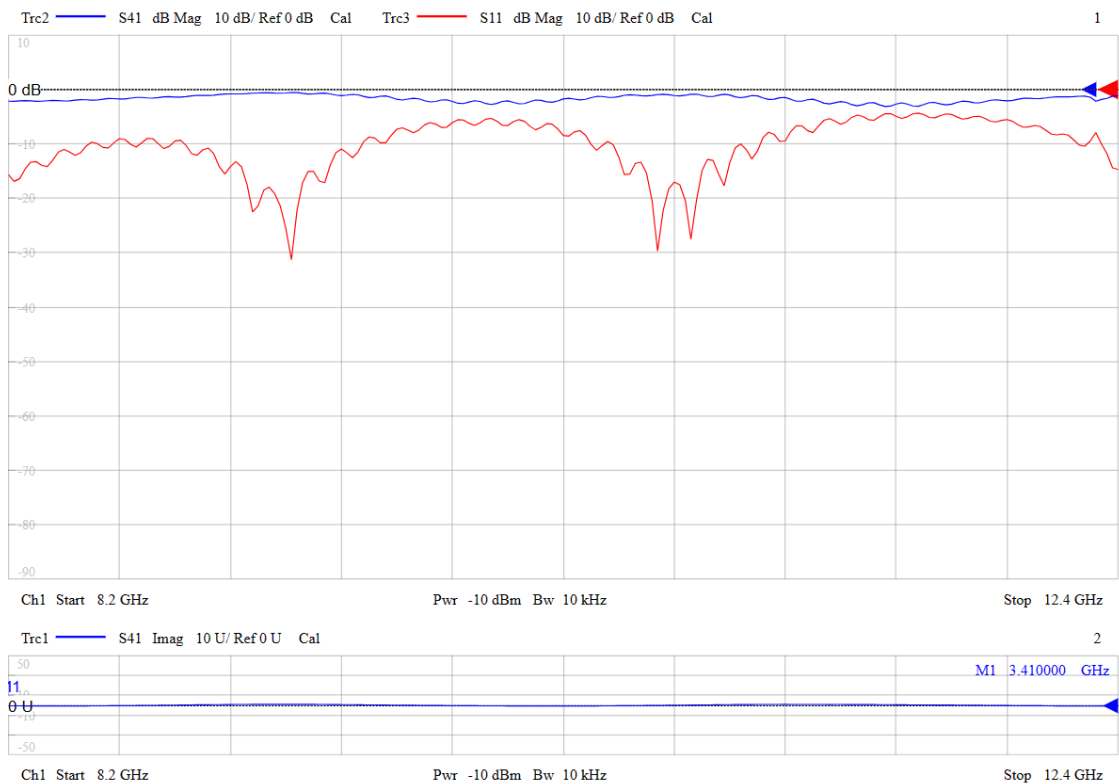


PMMA – thickness 2 mm

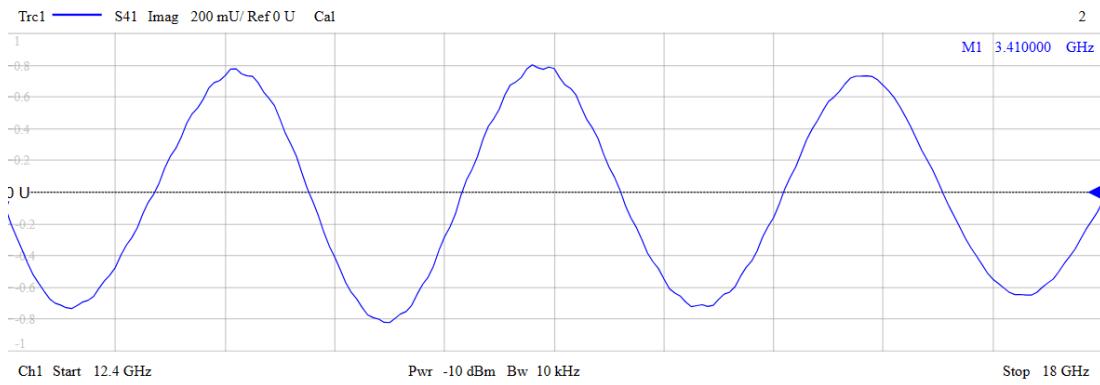
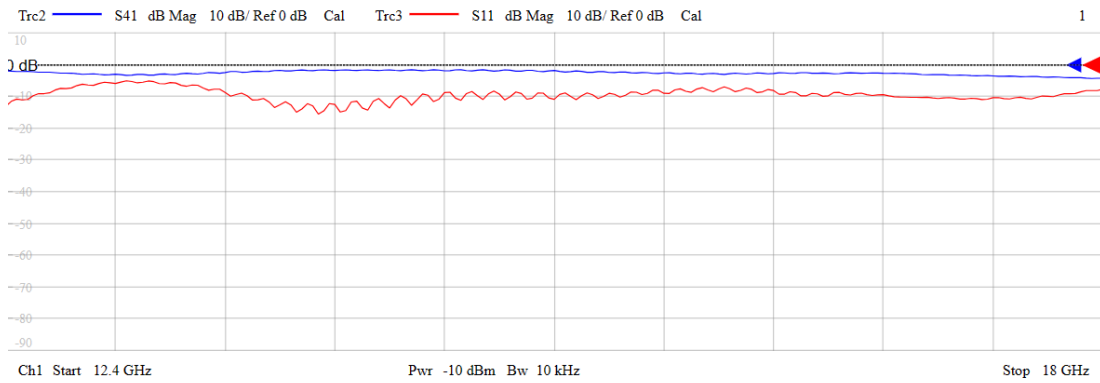
Frequency range 5.85 – 8.2 GHz



Frequency range 8.2 – 12.4 GHz

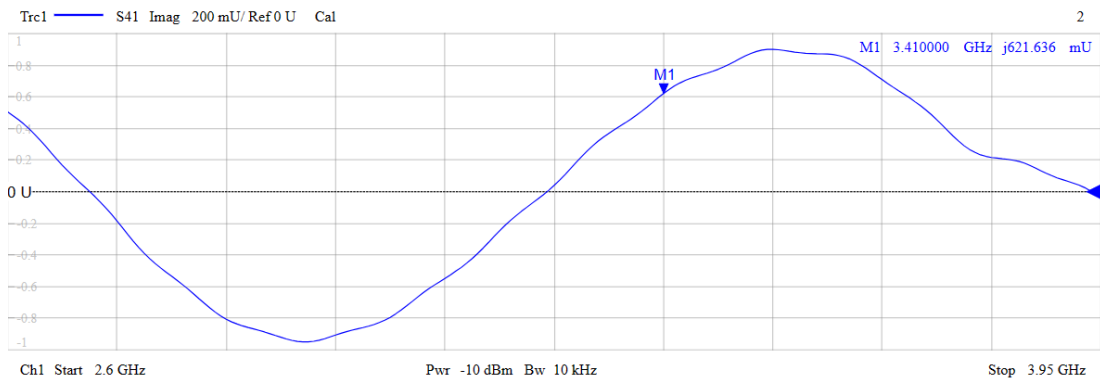
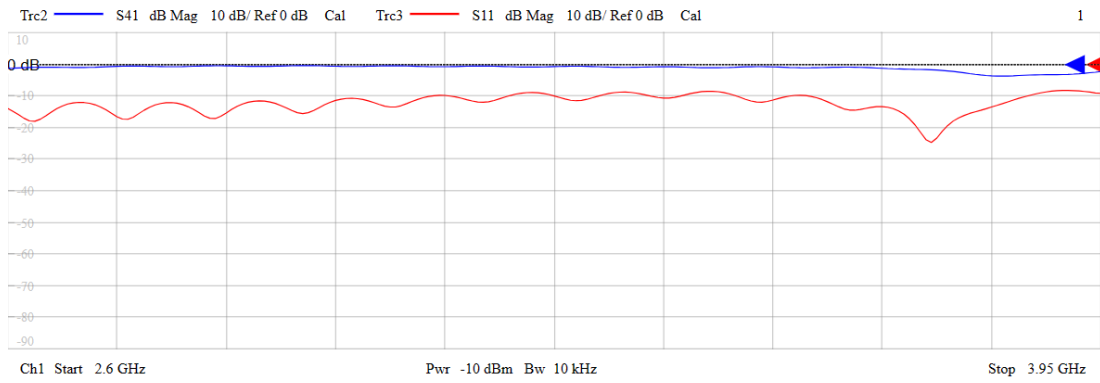


Frequency range 12.4 – 18 GHz

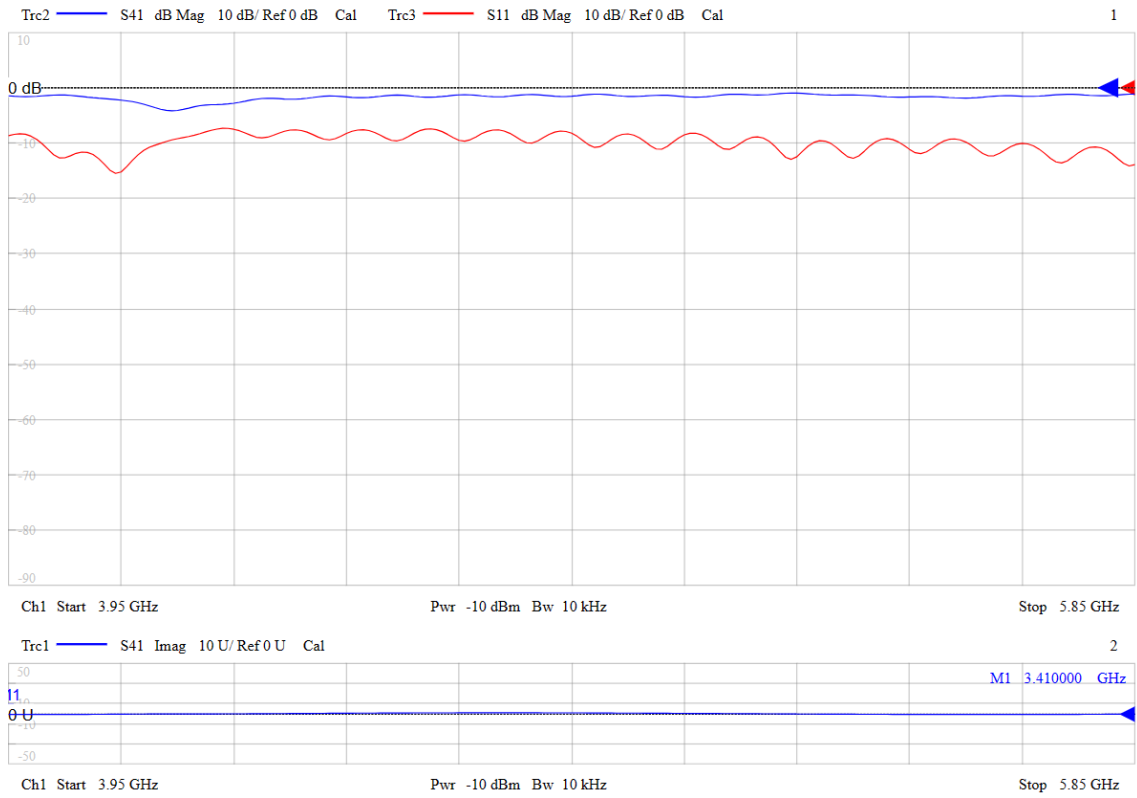


PMMA – thickness 3 mm

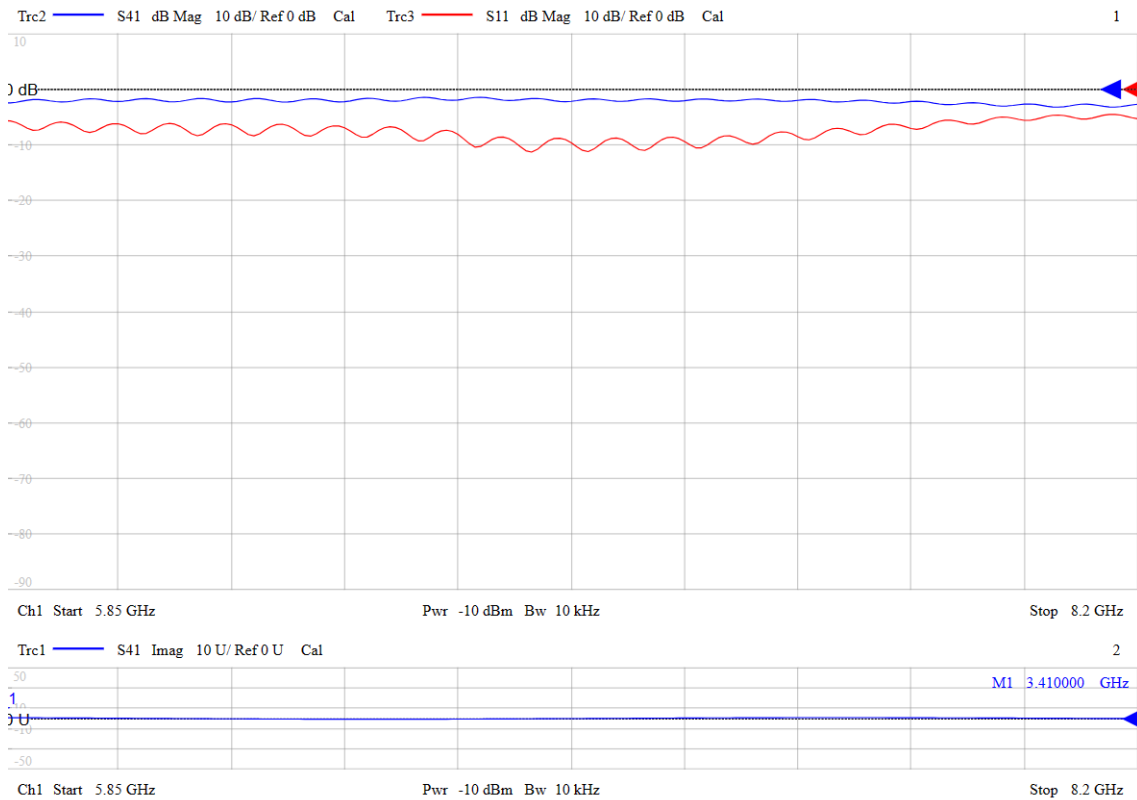
Frequency range 2.6 – 3.95 GHz



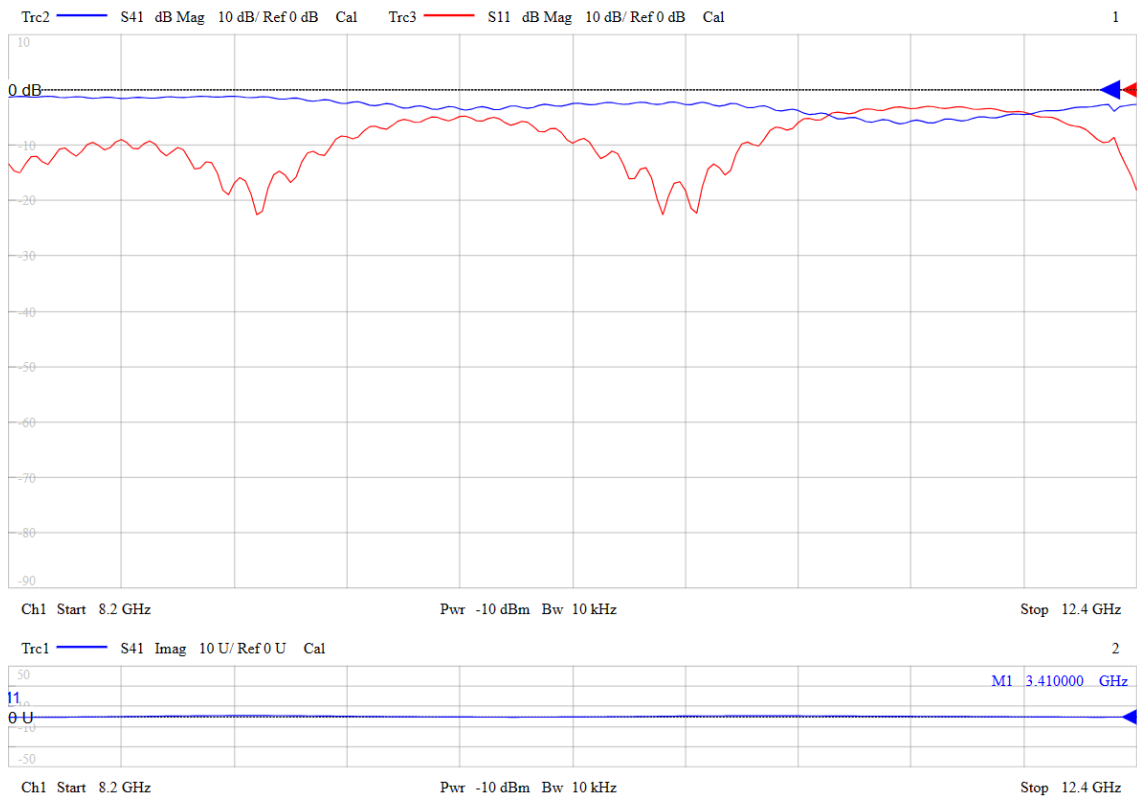
Frequency range 3.95 – 5.85 GHz



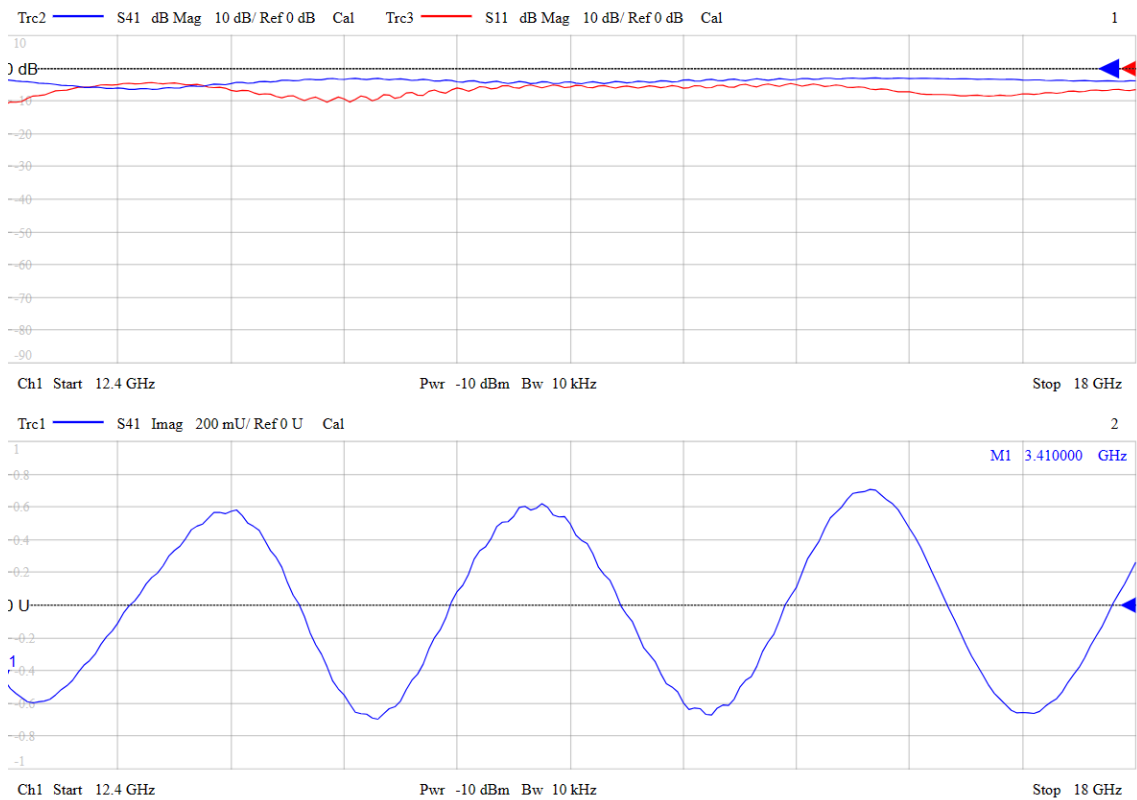
Frequency range 5.85 – 8.2 GHz



Frequency range 8.2 – 12.4 GHz



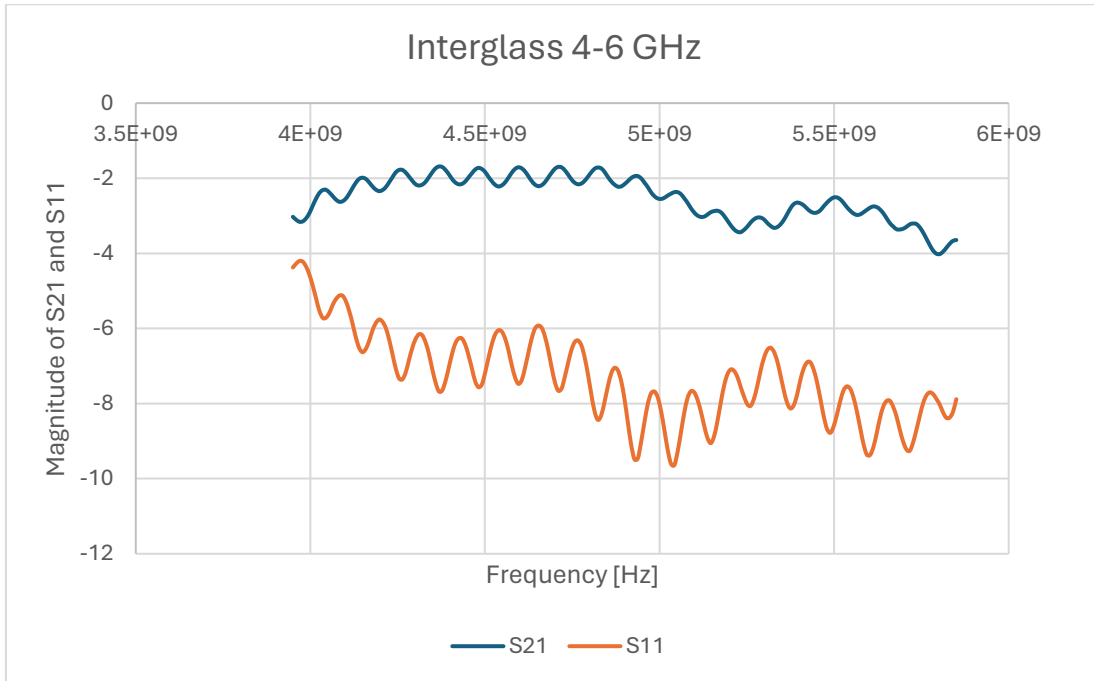
Frequency range 12.4 – 18 GHz



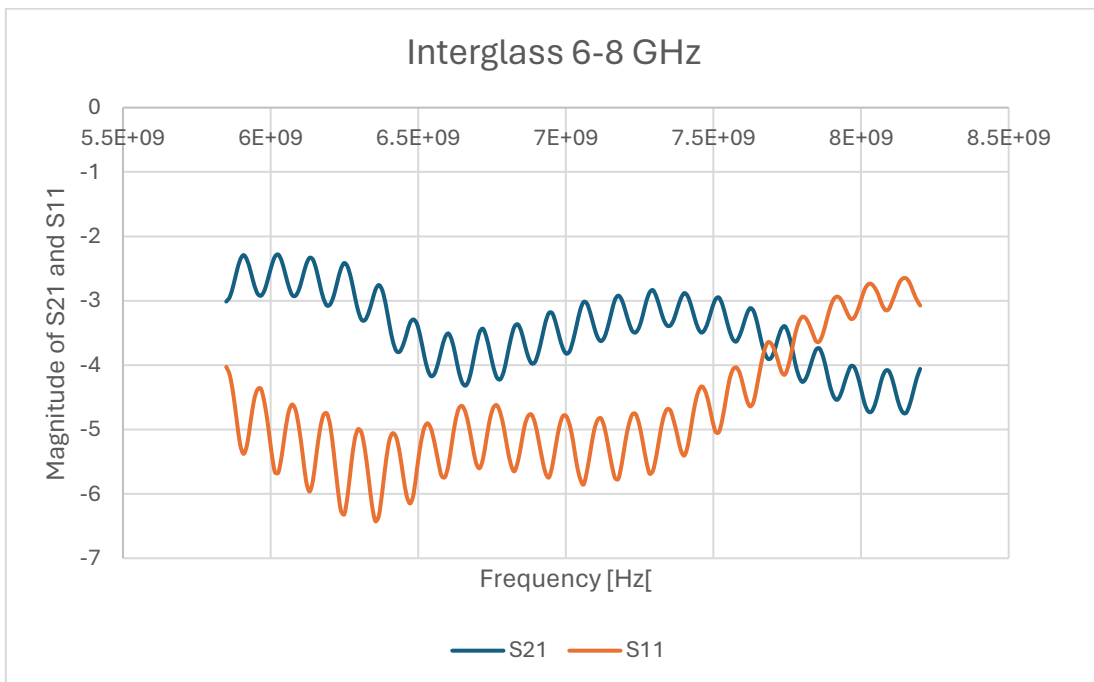
Detailed graphs for S21 and S11 for selected materials

Glass fibre

Frequency range 3.85 – 5.85 GHz

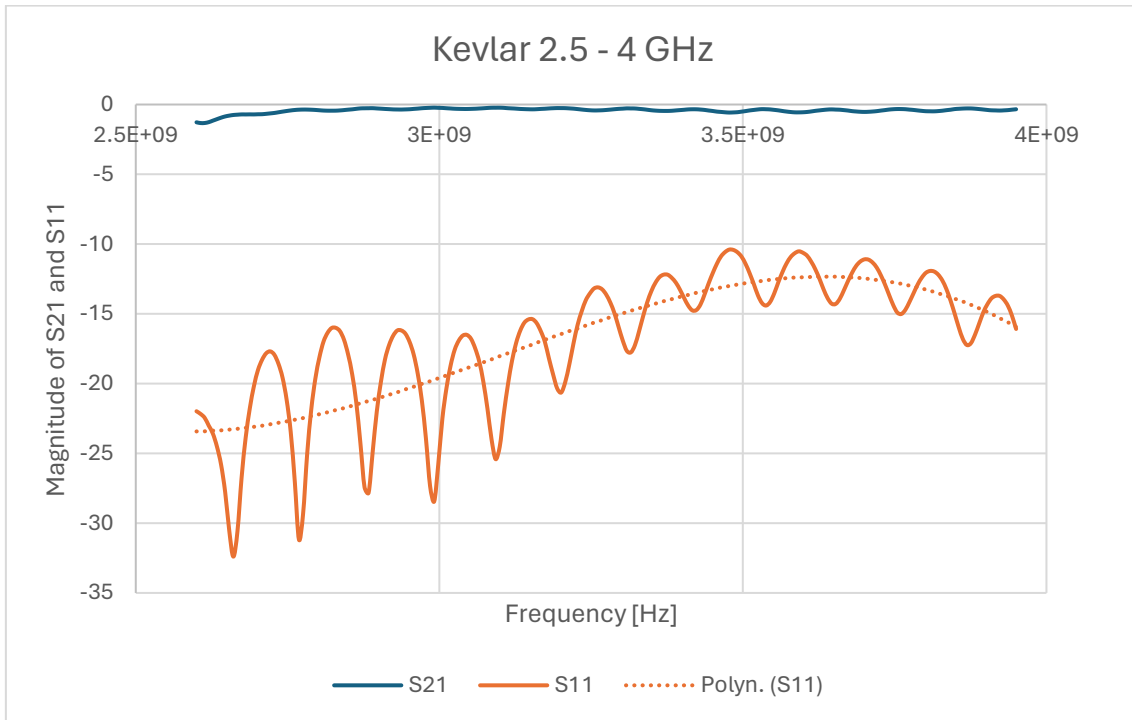


Frequency range 5.85 – 8.2 GHz

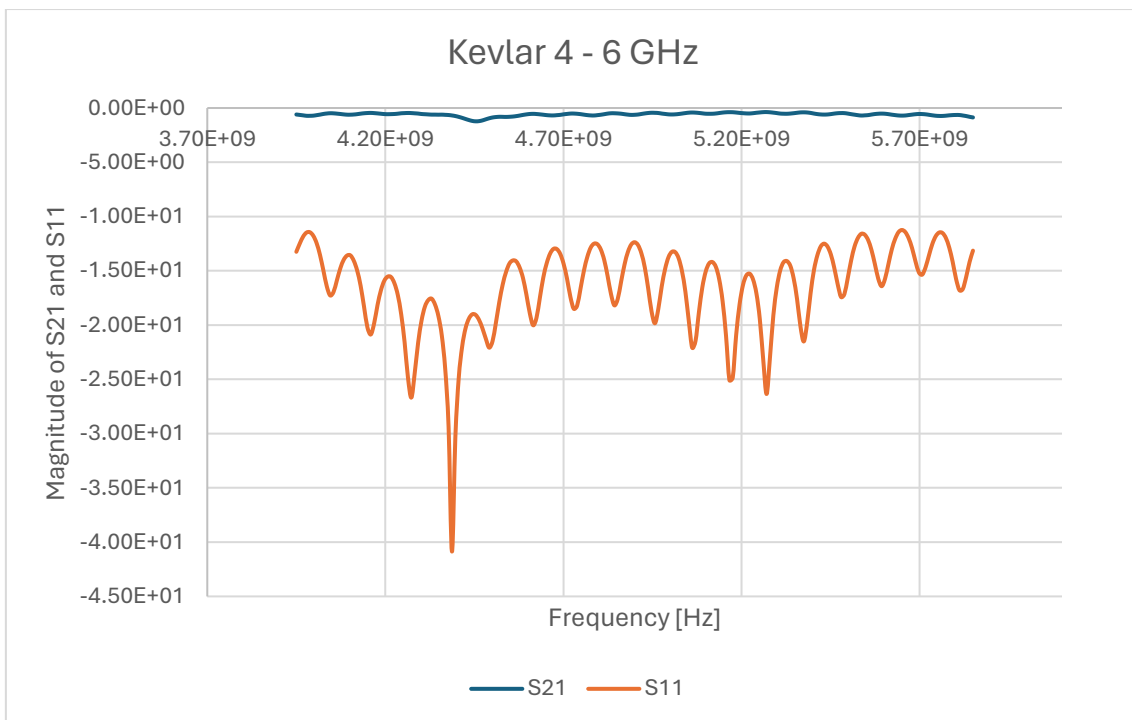


Kevlar

Frequency range 2.5 – 4 GHz

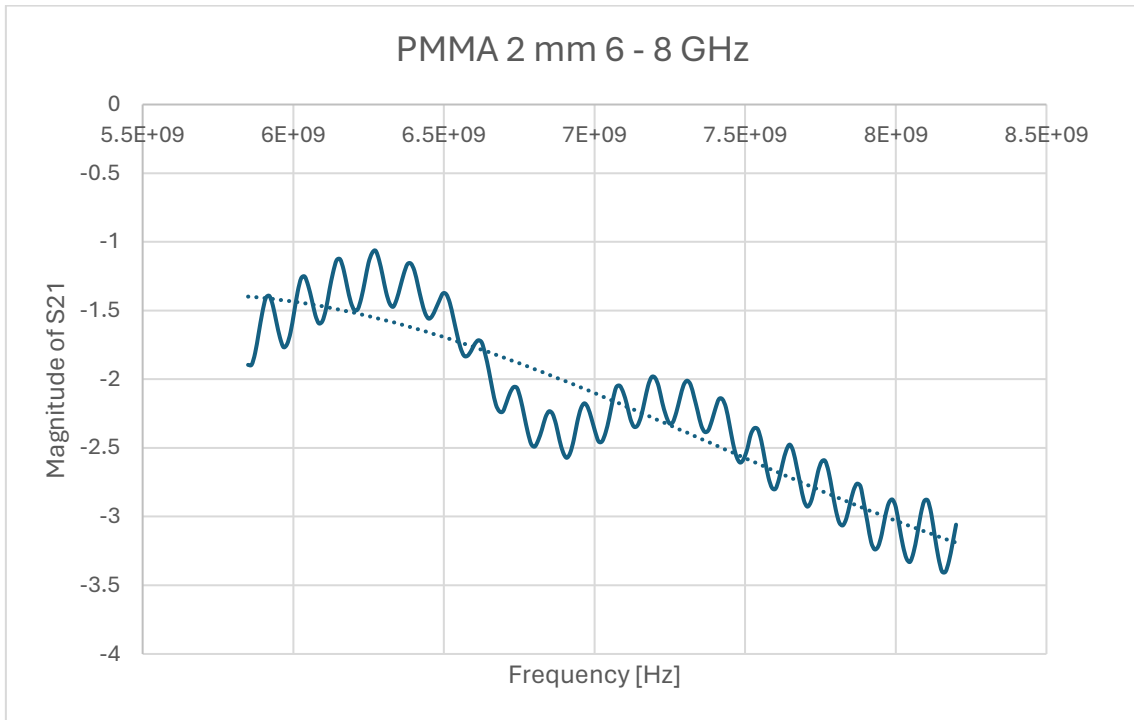


Frequency range 4 – 6 GHz

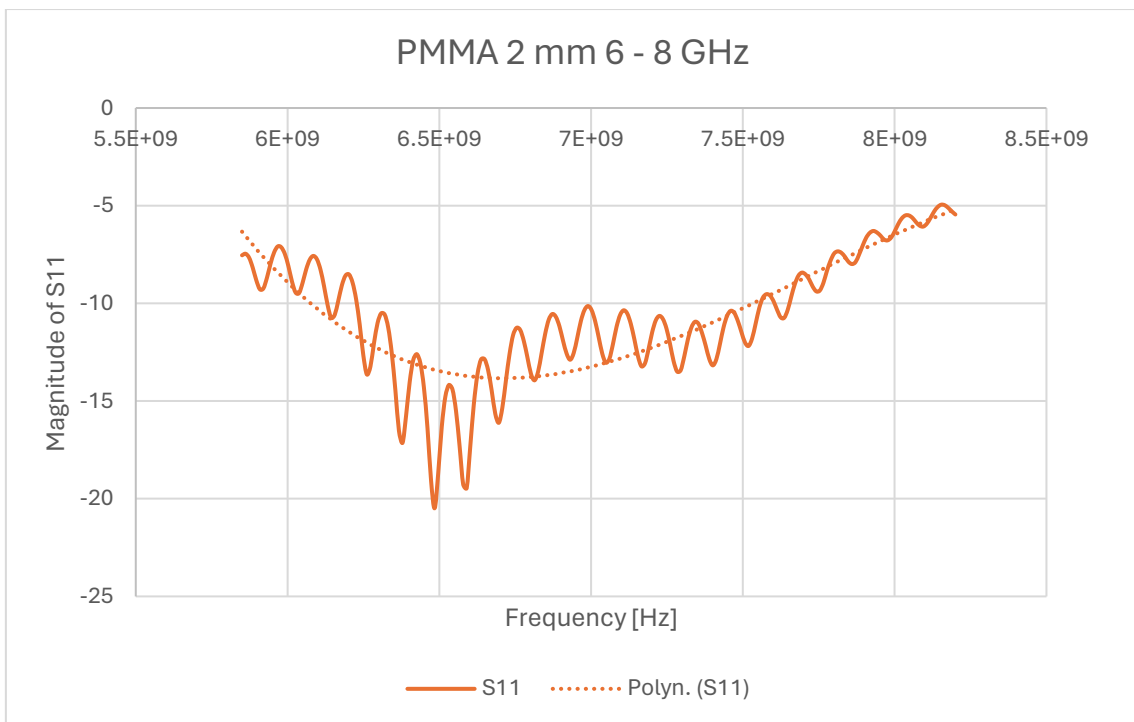


PMMA – thickness: 2 mm

Frequency range 6-8 GHz

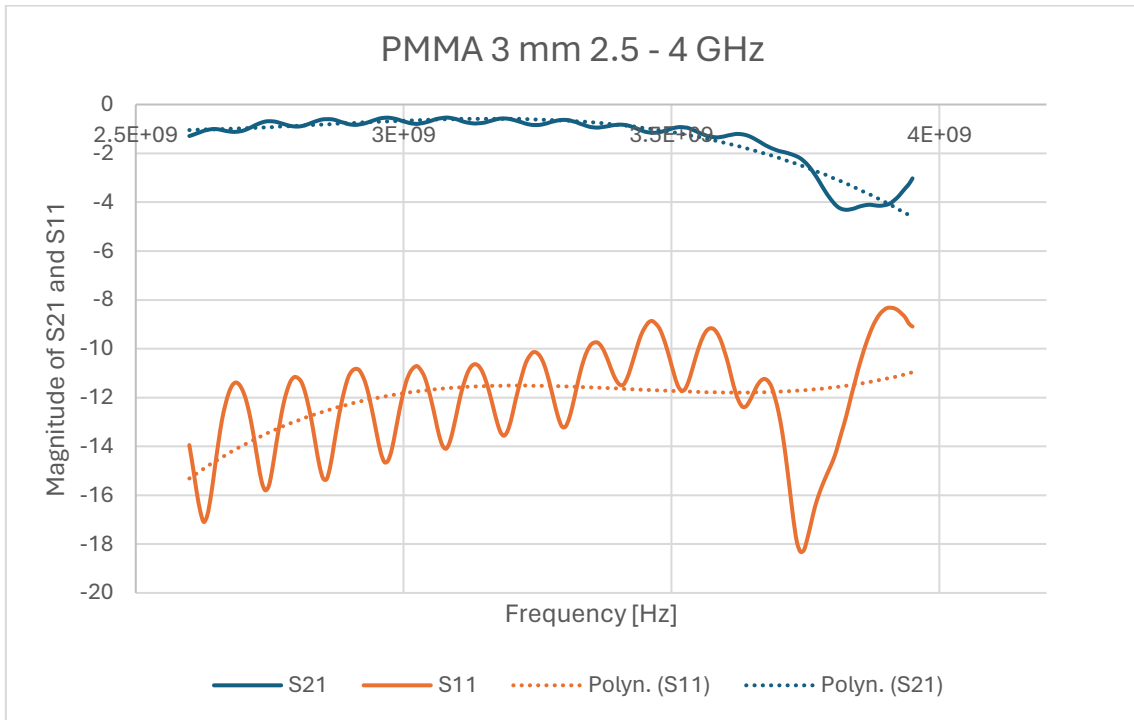


Frequency range 6 – 8 GHz

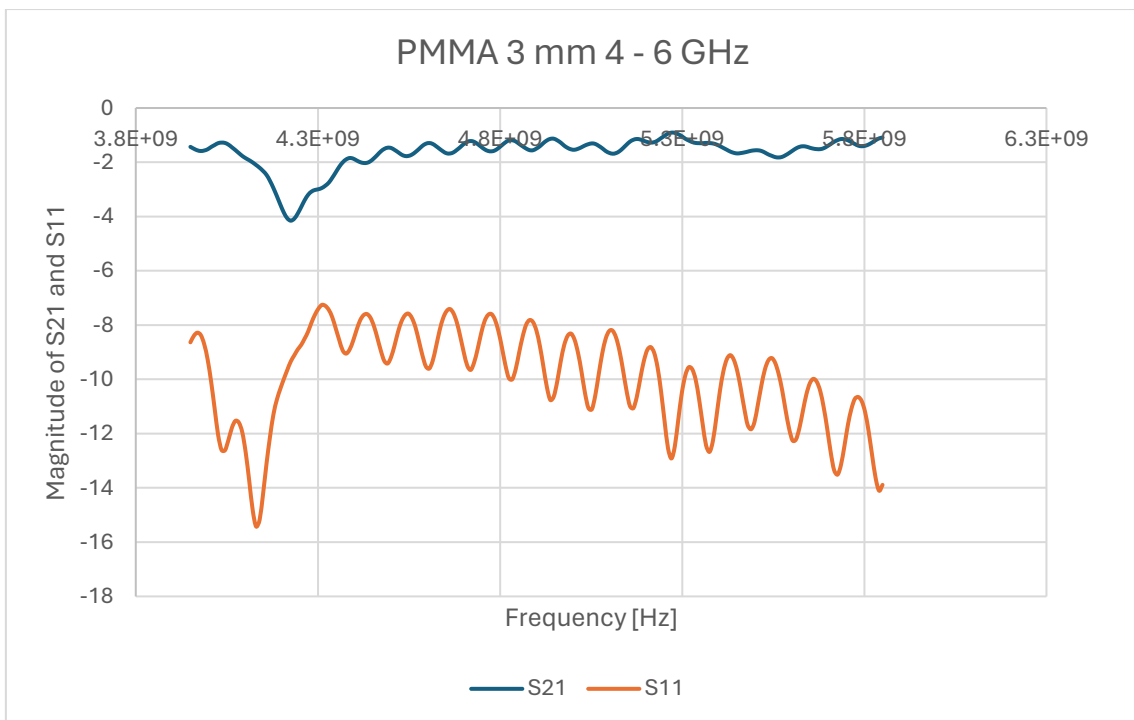


PMMA – thickness: 3 mm

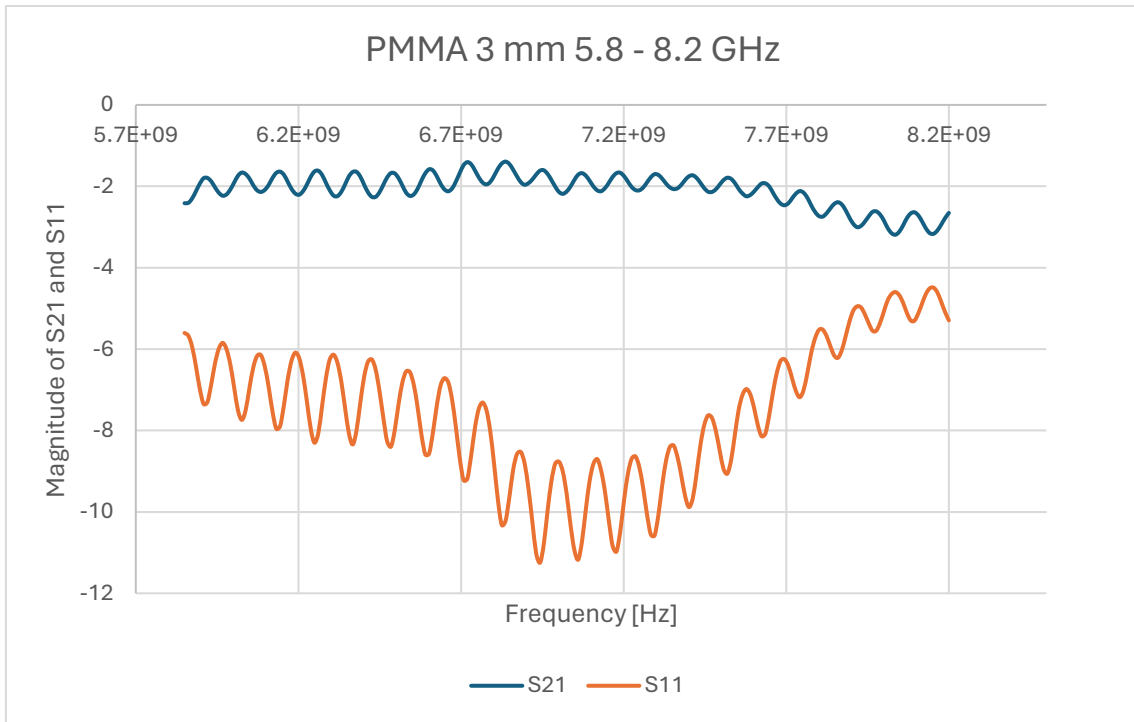
Frequency range 2.5 – 4 GHz



Frequency range 4 – 6 GHz

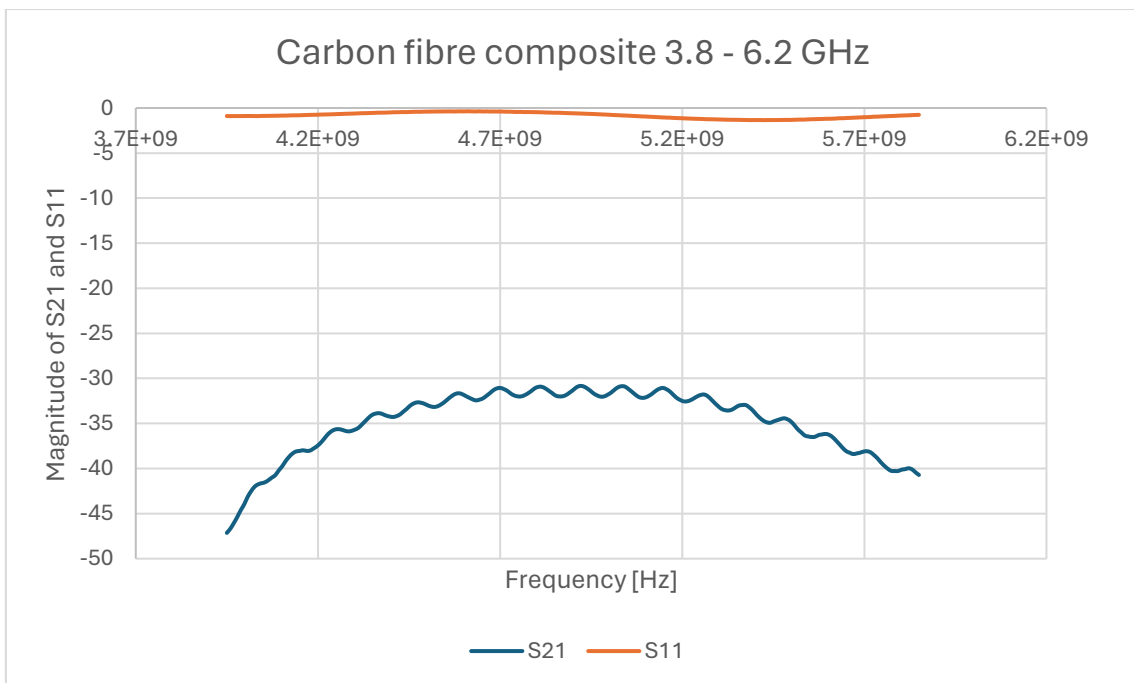


Frequency range 5.8 – 8.2 GHz

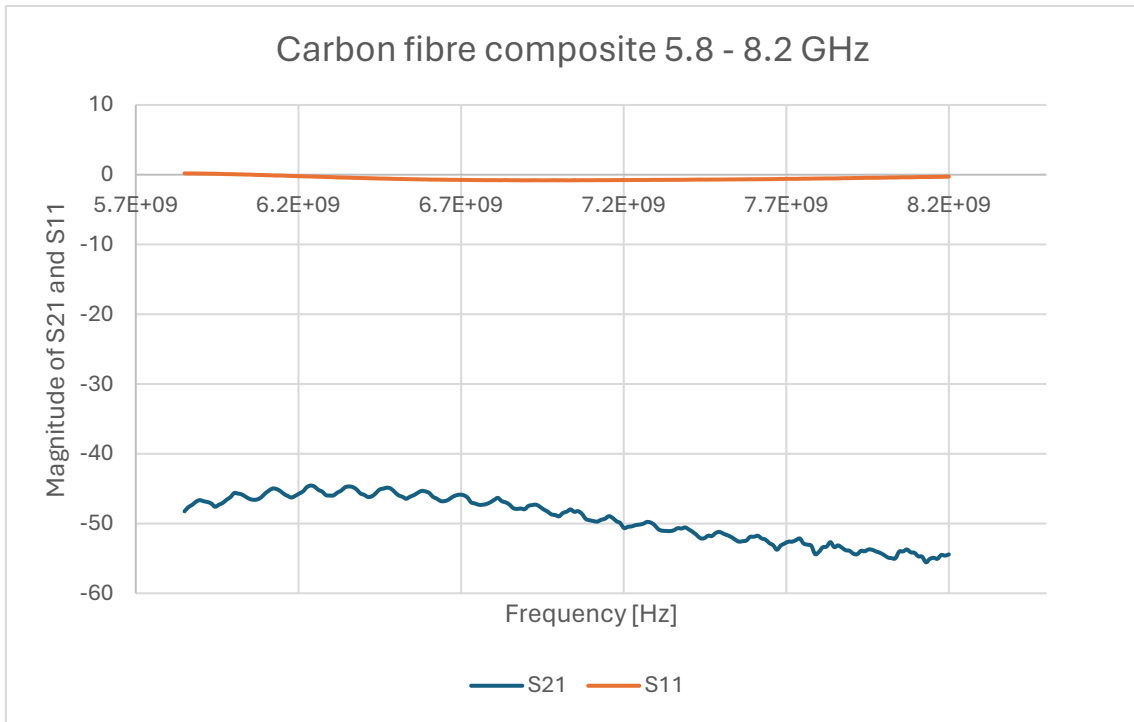


Carbon fibre composite

Frequency range 3.8 – 6.2 GHz

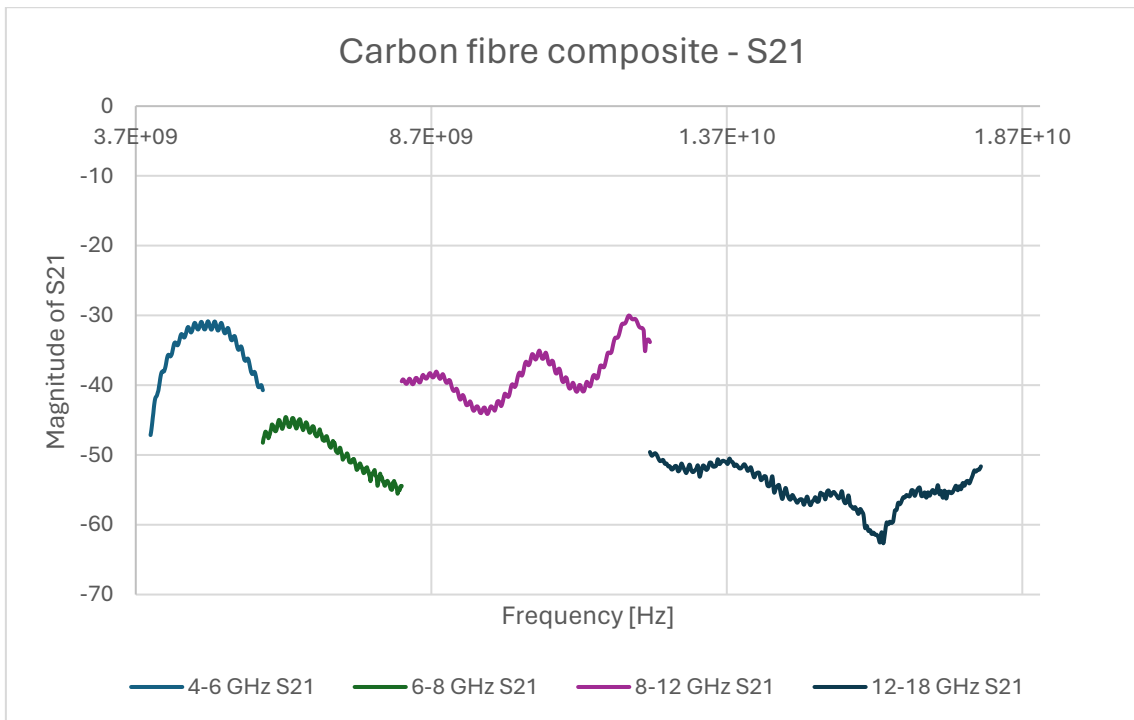


Frequency range 5.8 – 8.2 GHz

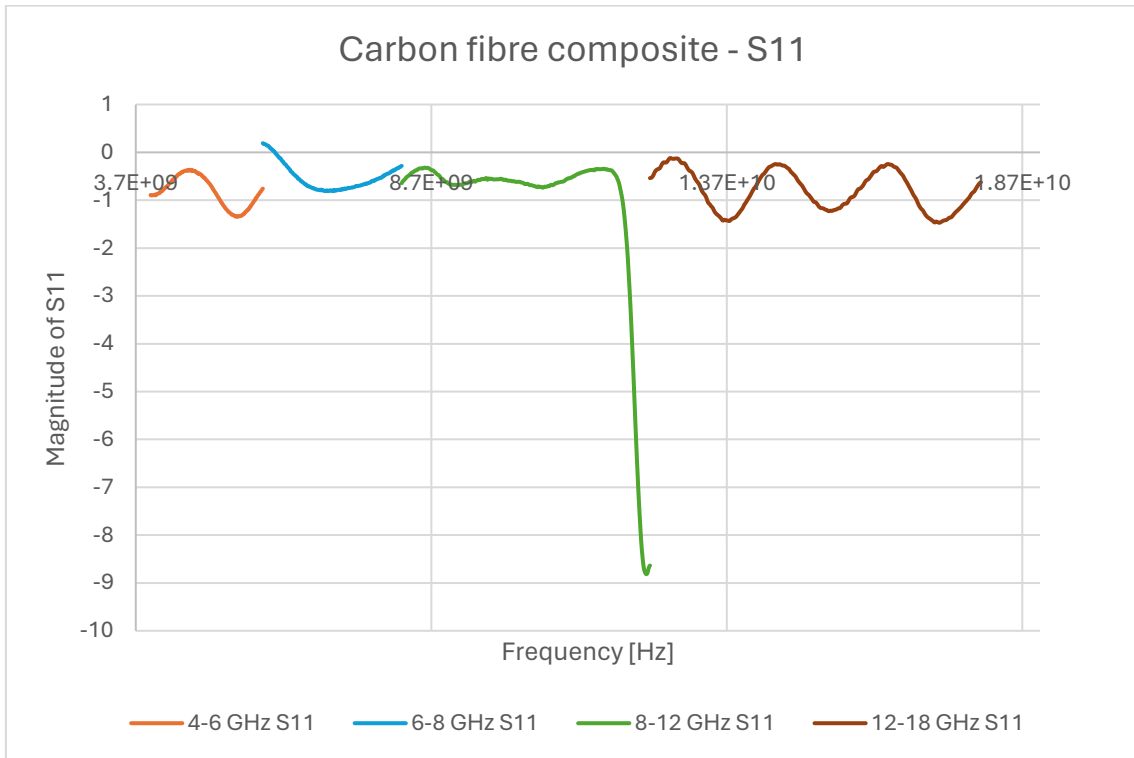


Graphs across all frequency ranges for selected materials

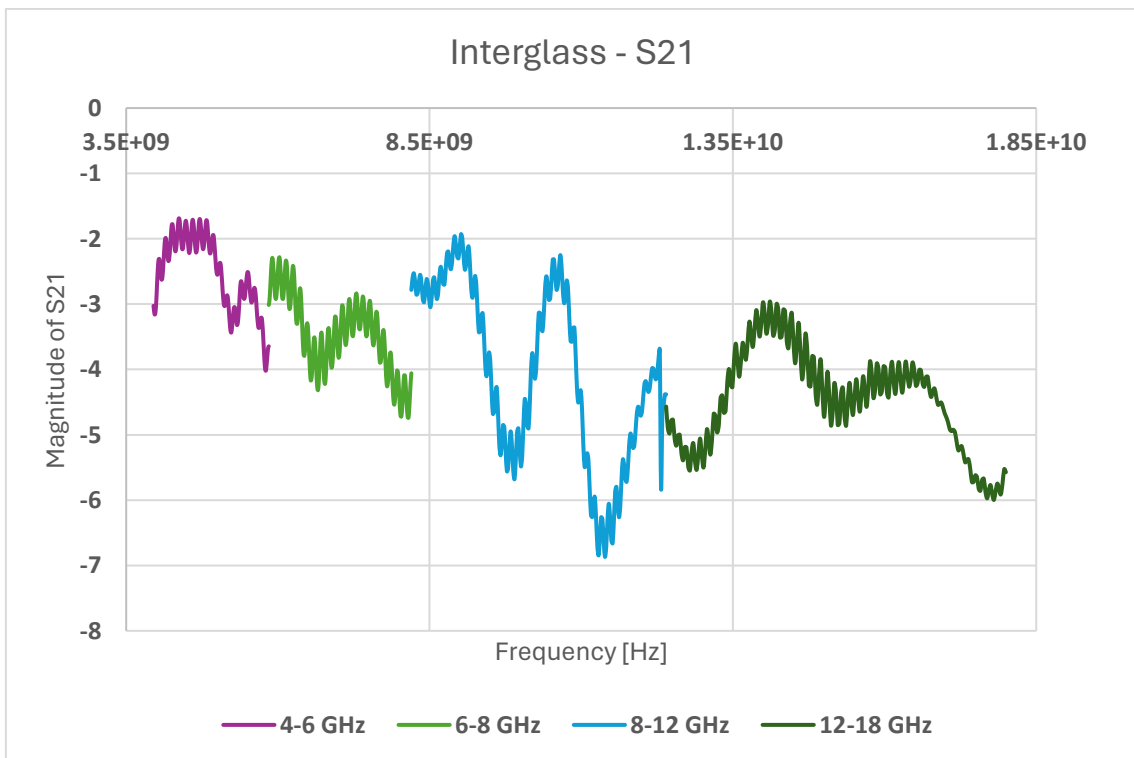
Carbon fibre composite – S21



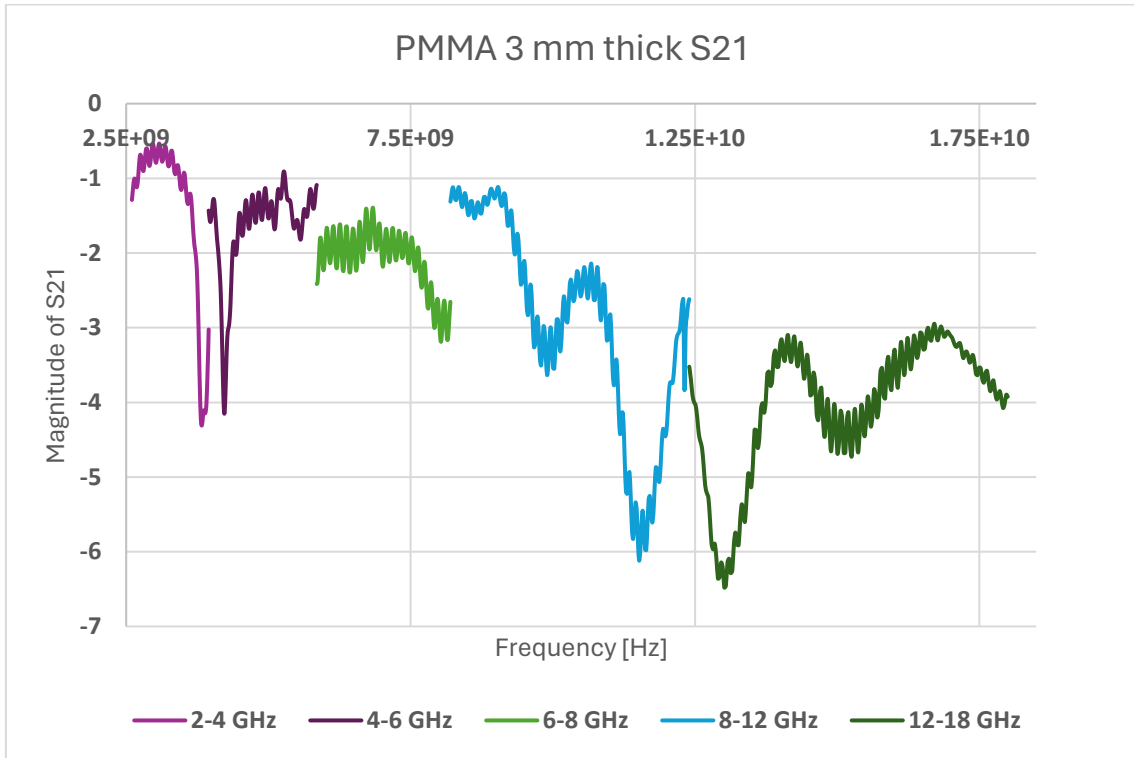
Carbon fibre composite – S11



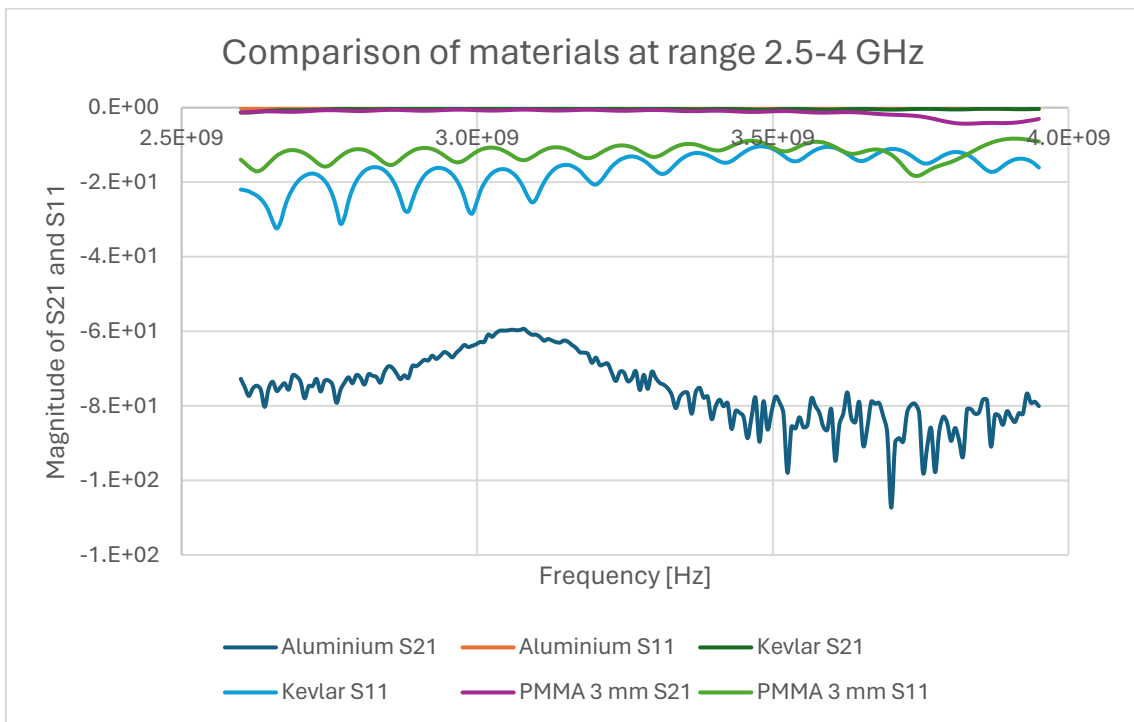
Interglass – S21



PMMA – 3 mm thick – S21

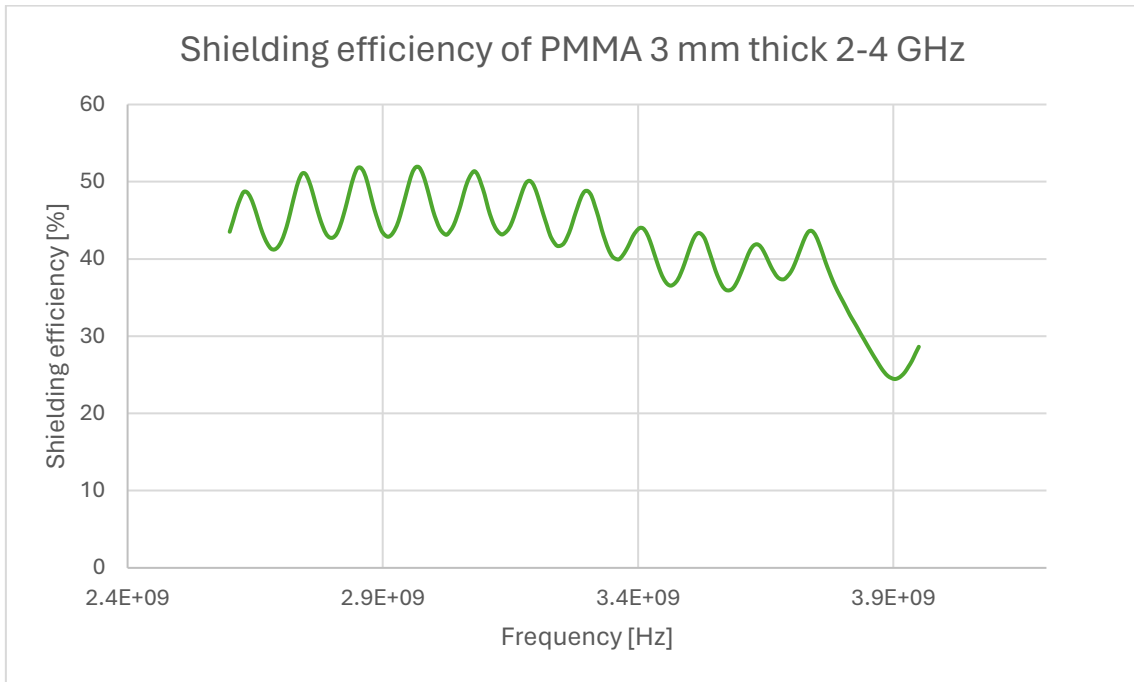


Comparison of results for thin Aluminium alloy, Kevlar and PMMA

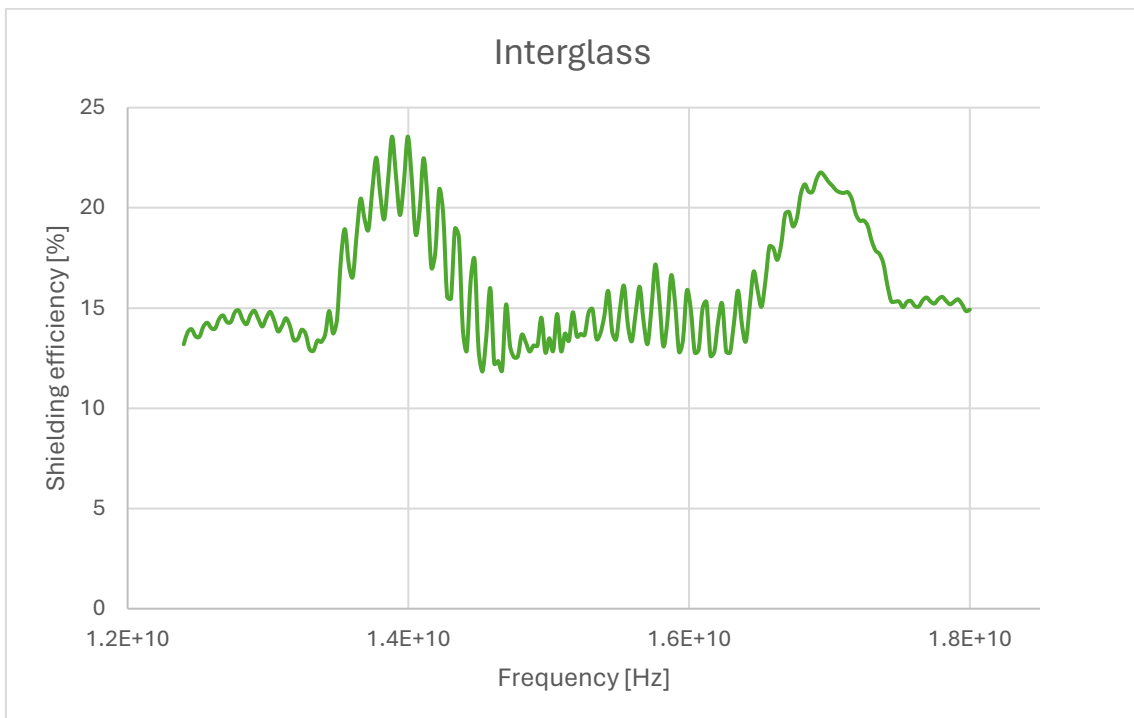


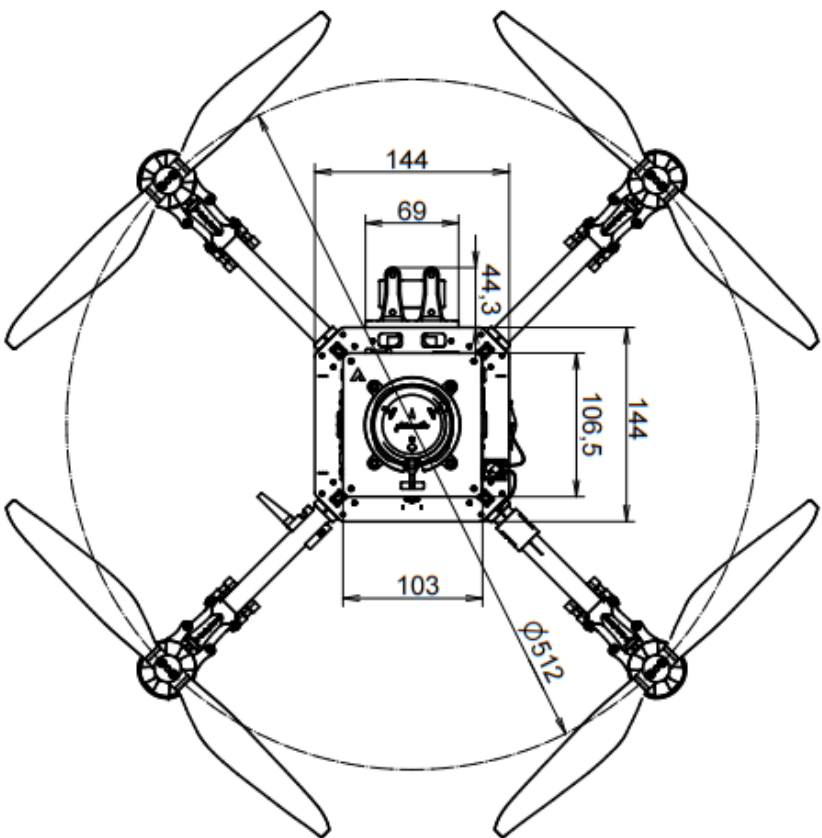
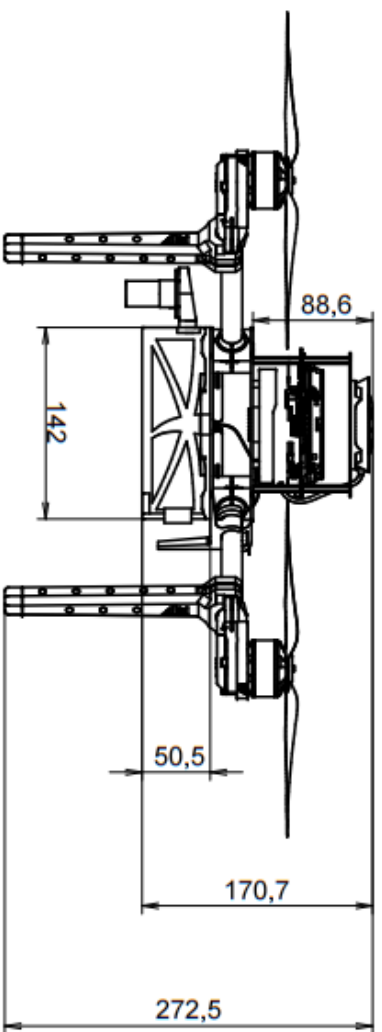
Shielding efficiency of selected materials and frequency ranges

Shielding efficiency of PMMA at frequency range 2 – 4 GHz



Shielding efficiency of Interglass at frequency range 12 – 18 GHz





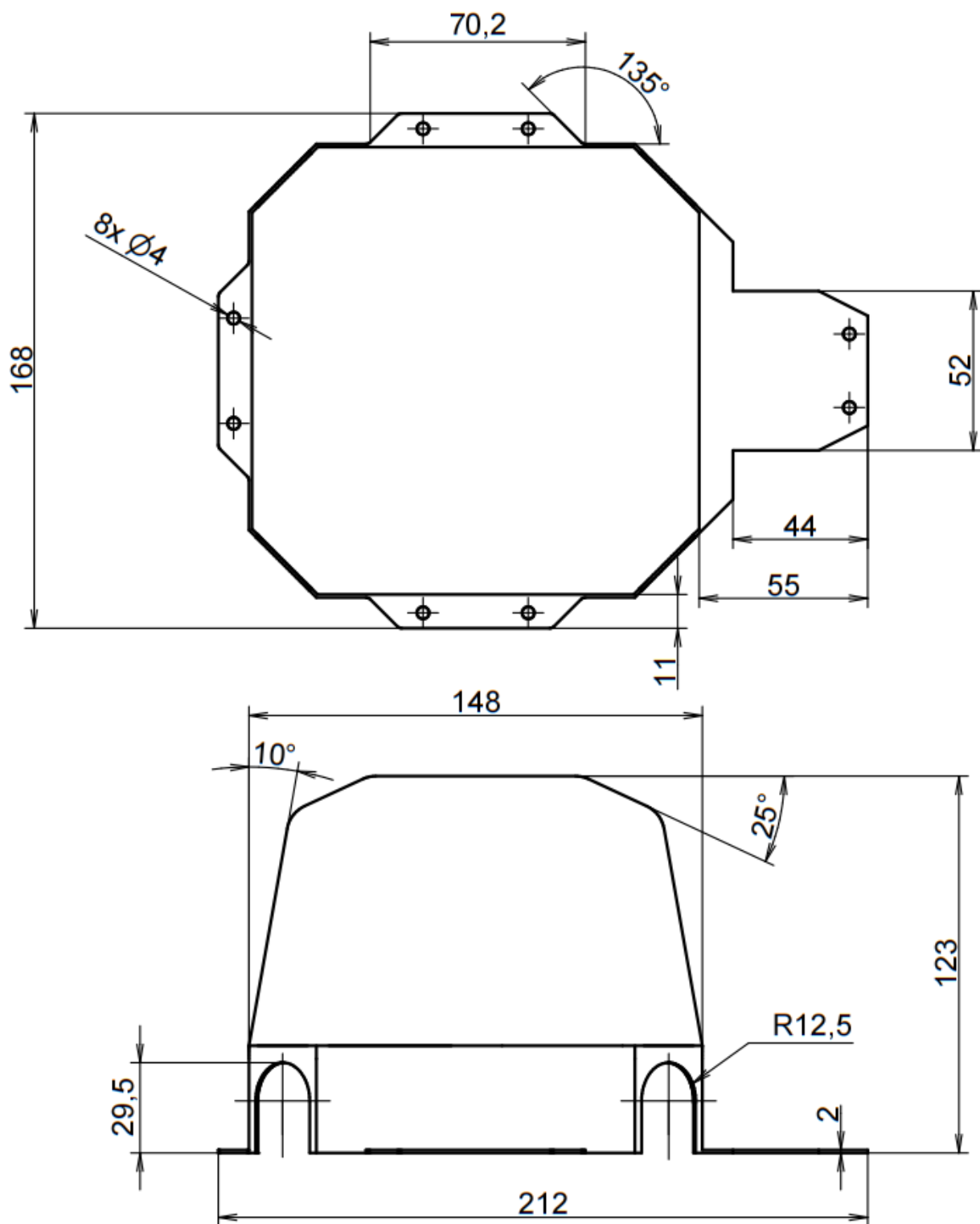
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TOLEROVANÍ	ISO 8015				VEŠL	KOBRLOVÁ			DATUM	15.5.2024		
PŘESNOST	ISO 2768-mK				C. SEZNAMU				C. SESTAVY	24-0515-01		

ČESKÉ VYSOKÉ UČENÍ
TECHNICKÉ
FAKULTA STROJNÍ

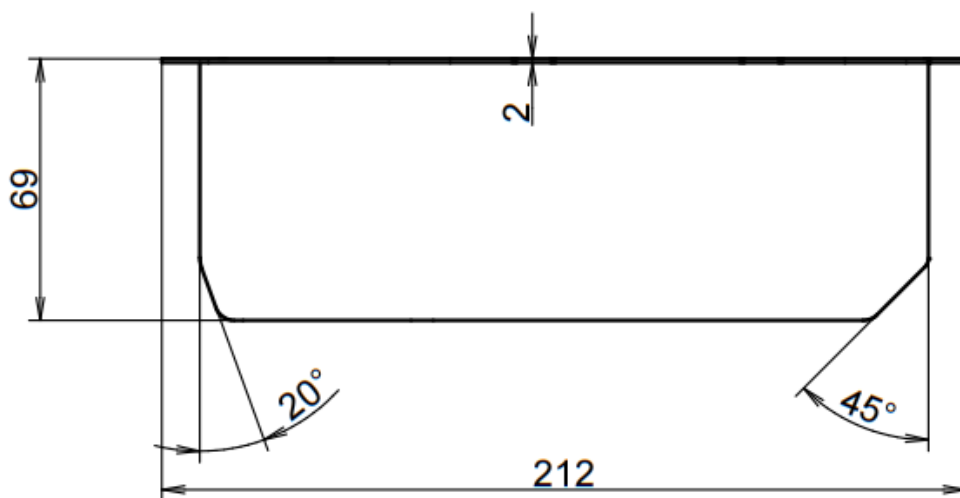
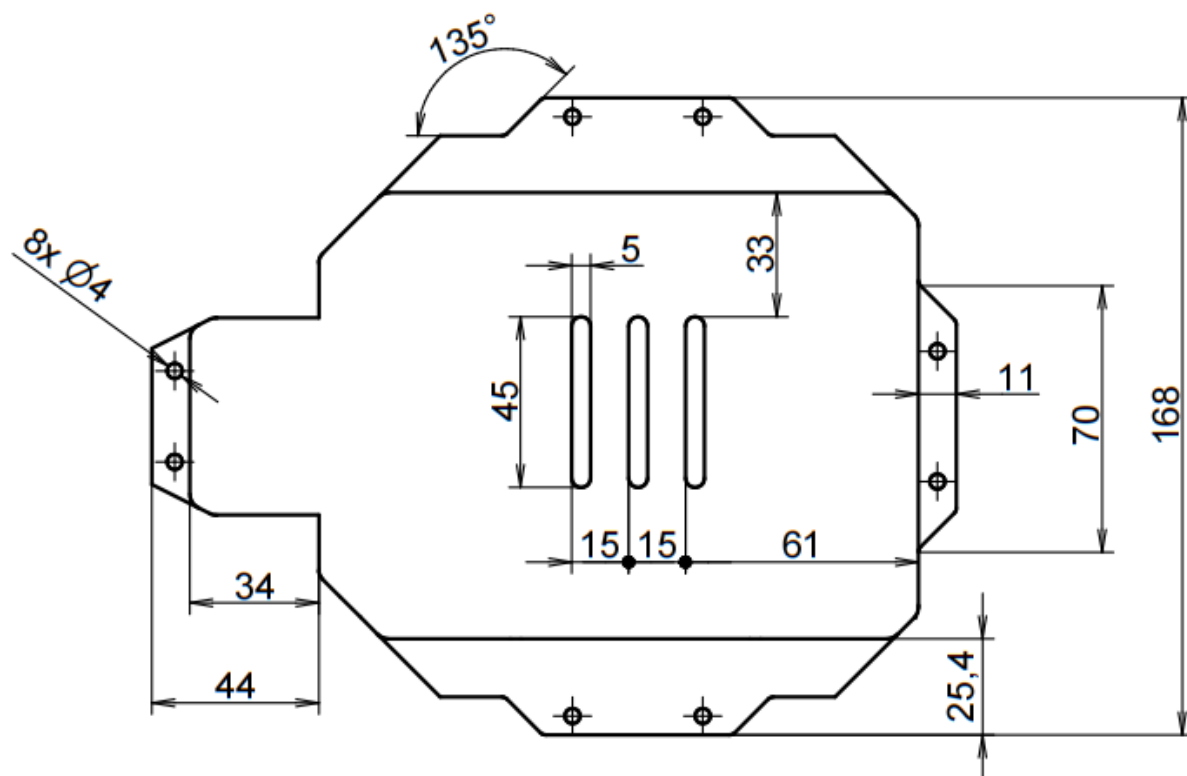
DRONE

ČÍSLO VÝKRESU: 24-0515-01/00

LISTU: 2 LIST: 1



MATERIÁL		PMMA								
POLOTOVAR										
HMOTNOST	0,65	kg	MĚŘÍTKO			DATUM	PODPIS			
PROMÍTÁNÍ	[ISO E]		1:2	ZMĚNA						
TOLEROVÁNÍ	ISO 8015			KRESLIL	KOBRLOVÁ	SCHVÁLIL				
PŘESNOST	ISO 2768 - mK			Č. SEZNAMU		Č. SESTAVY	24-0515-01			
ČESKÉ VYSOKÉ UČENÍ TECHNICKÉ FAKULTA STROJNÍ				NÁZEV :				HORNÍ KRYT DRONU		
				ČÍSLO VÝKRESU :				24-0515-01/01		
				LISTŮ :				LIST :		



MATERIÁL		PMMA					
POLOTOVAR							
HMOTNOST	0,78	kg	MĚŘÍTKO	ZMĚNA		DATUM	PODPIS
PROMÍTÁNÍ	[ISO E]		1/2	KRESLIL	KOBRLOVÁ	SCHVÁLIL	
TOLEROVÁNÍ	ISO 8015			Č. SEZNAMU		Č. SESTAVY	24-0515-01
PŘESNOST	ISO 2768 - mK		NÁZEV : DOLNÍ KRYT DRONU				
ČESKÉ VYSOKÉ UČENÍ TECHNICKÉ			ČÍSLO VÝKRESU : 24-0515-01/02				
FAKULTA STROJNÍ			LISTŮ : LIST :				

