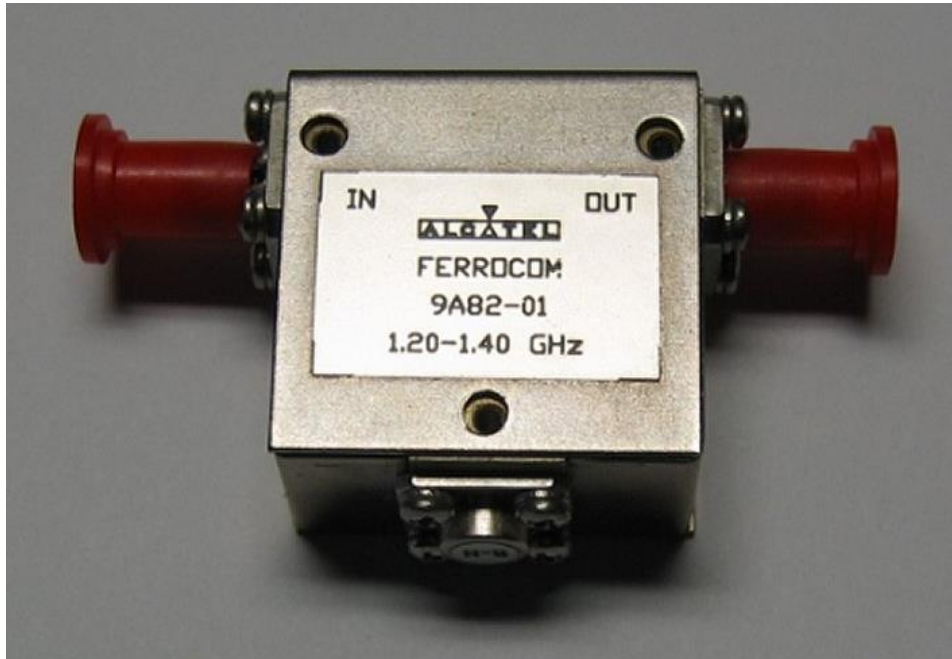


23cm band isolator ALCATEL FERROCOM 9A82-01

Matthias, DD1US, December 15th 2020

Hello,

Screening my collection of circulators and isolators in my drawers I found a 23cm isolator from ALCATEL which I had not yet characterized. The type is FERROCOM 9A82-01. Here is a picture of the device which features female SMA connectors at its input and output:

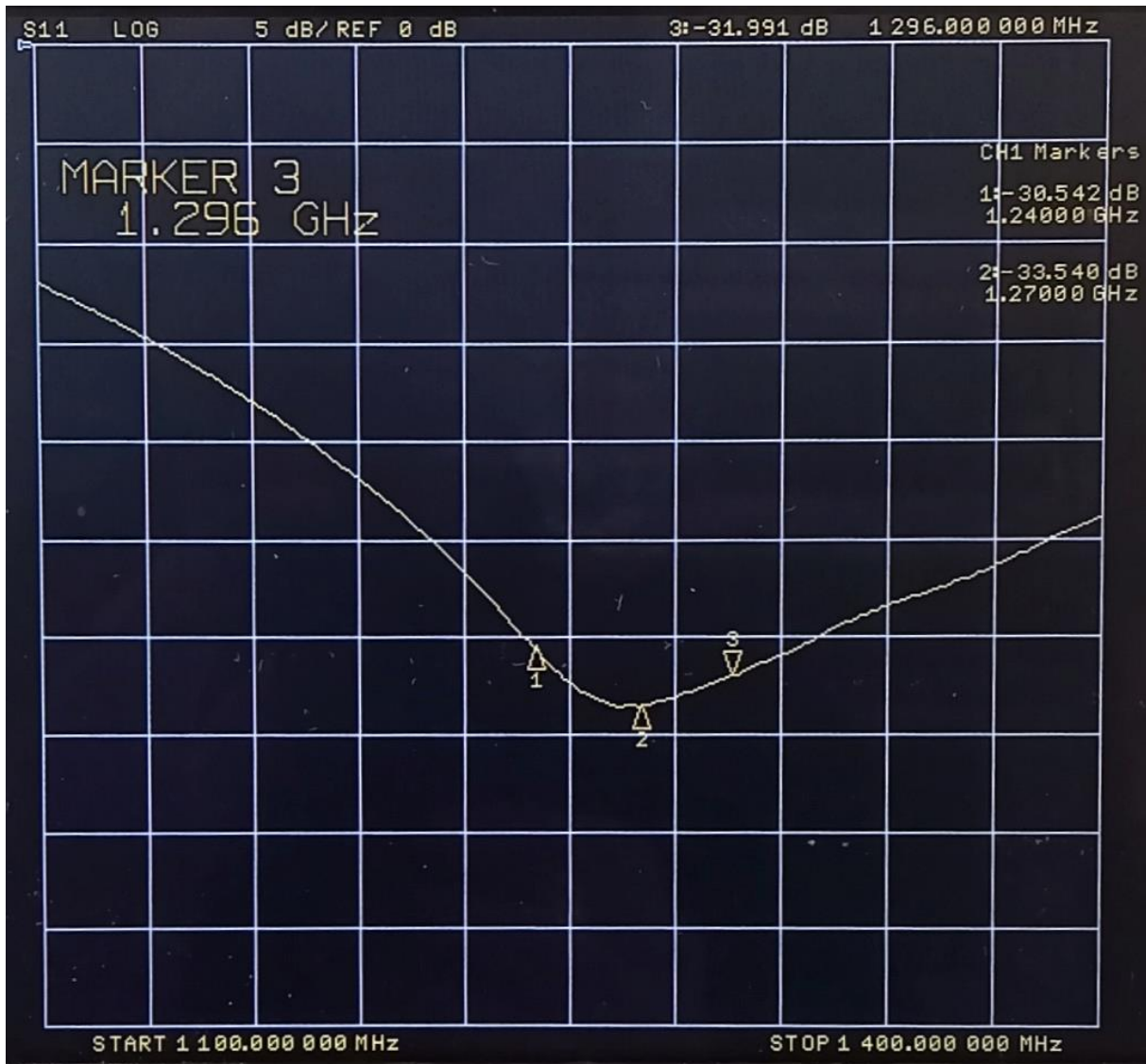


I found the following information in the internet:

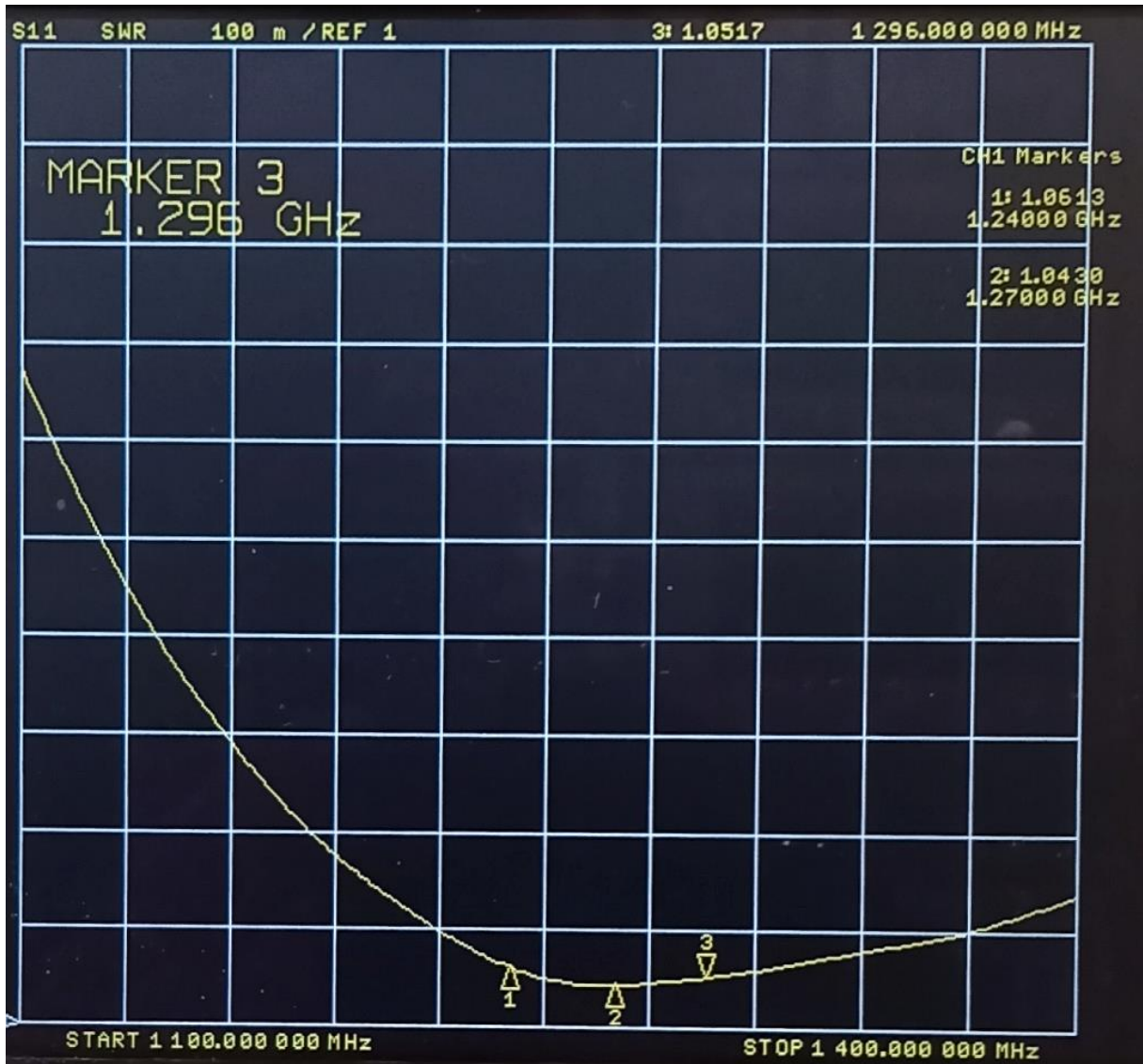
Model Number	Frequency, GHz	Isolation		VSWR		Insertion Loss		Operating Temperature, C	Dimensions (A x B x C), in	Power, Peak, W	Power, Avg, W	Weight, G
		Typ, dB	Min, dB	Typ	Max	Typ, dB	Max, dB					
9C80	0.95-1.225	20.0	18.0	1.25	1.30	0.30	0.40	-30 to +70	1.50 x 1.50 x 0.75	250	100	200
9A81	1.00-1.20	24.0	20.0	1.14	1.25	0.30	0.40	-30 to +70	1.25 x 1.25 x 0.75	250	100	150
9A82	1.20-1.40	24.0	20.0	1.14	1.25	0.30	0.40	-30 to +70	1.25 x 1.25 x 0.75	250	100	150
9A83	1.35-1.85	20.0	18.0	1.25	1.30	0.35	0.50	-30 to +70	1.25 x 1.25 x 0.75	250	100	150

The 9A82-01 is specified in the frequency range 1.2 – 1.2GHz with a minimum isolation of 20dB and a maximum insertion loss of 0.4dB. The maximum average power is 100W and the pak power is 250W. Input and output matching should show a maximum VSWR of 1.25.

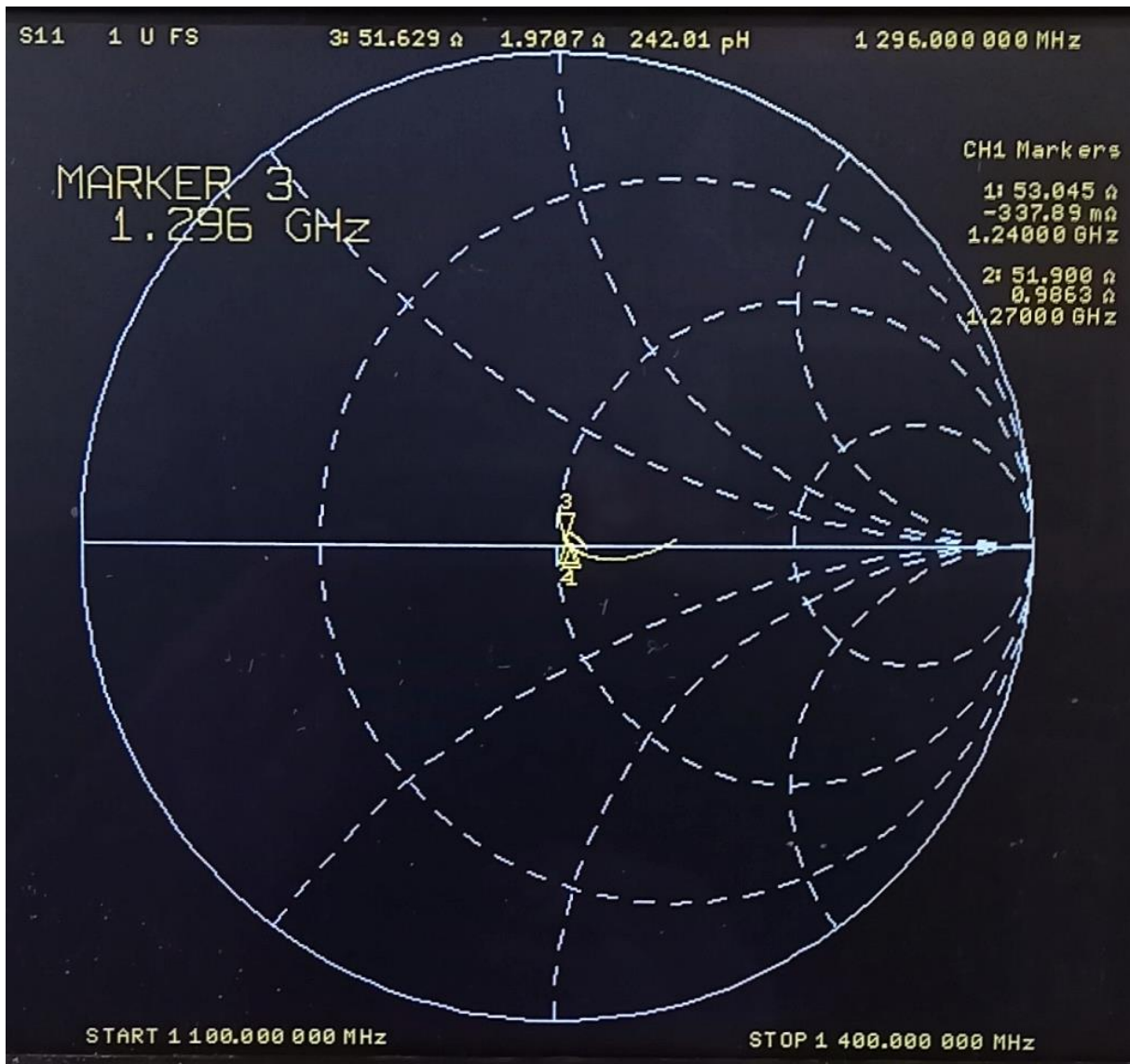
Next, I made some measurements. Below please find the measurement results of this 23cm isolator:



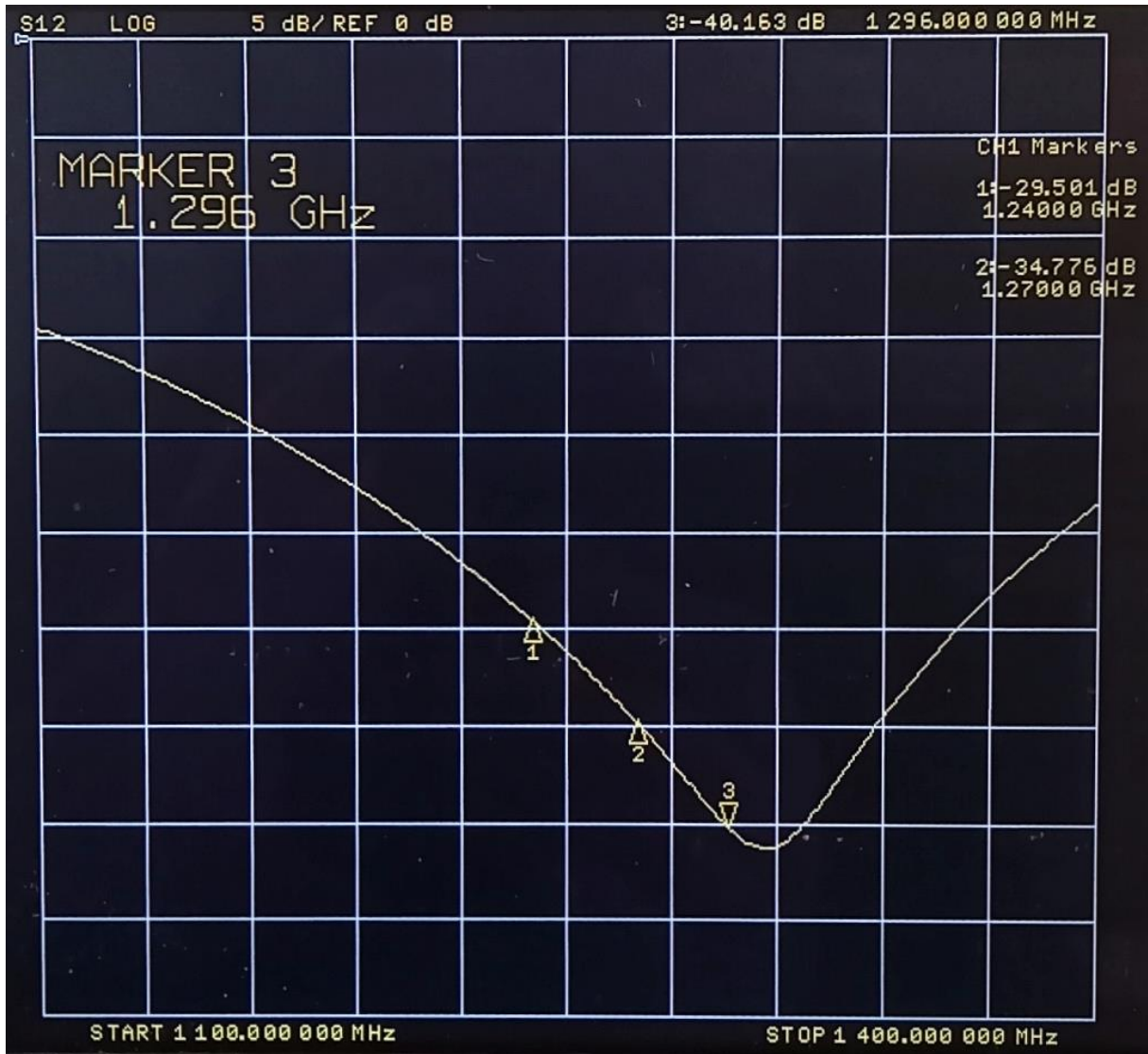
S11 input matching: return loss 30.5dB@1240MHz, 33.5dB@1270MHz, 32.0dB@1296MHz



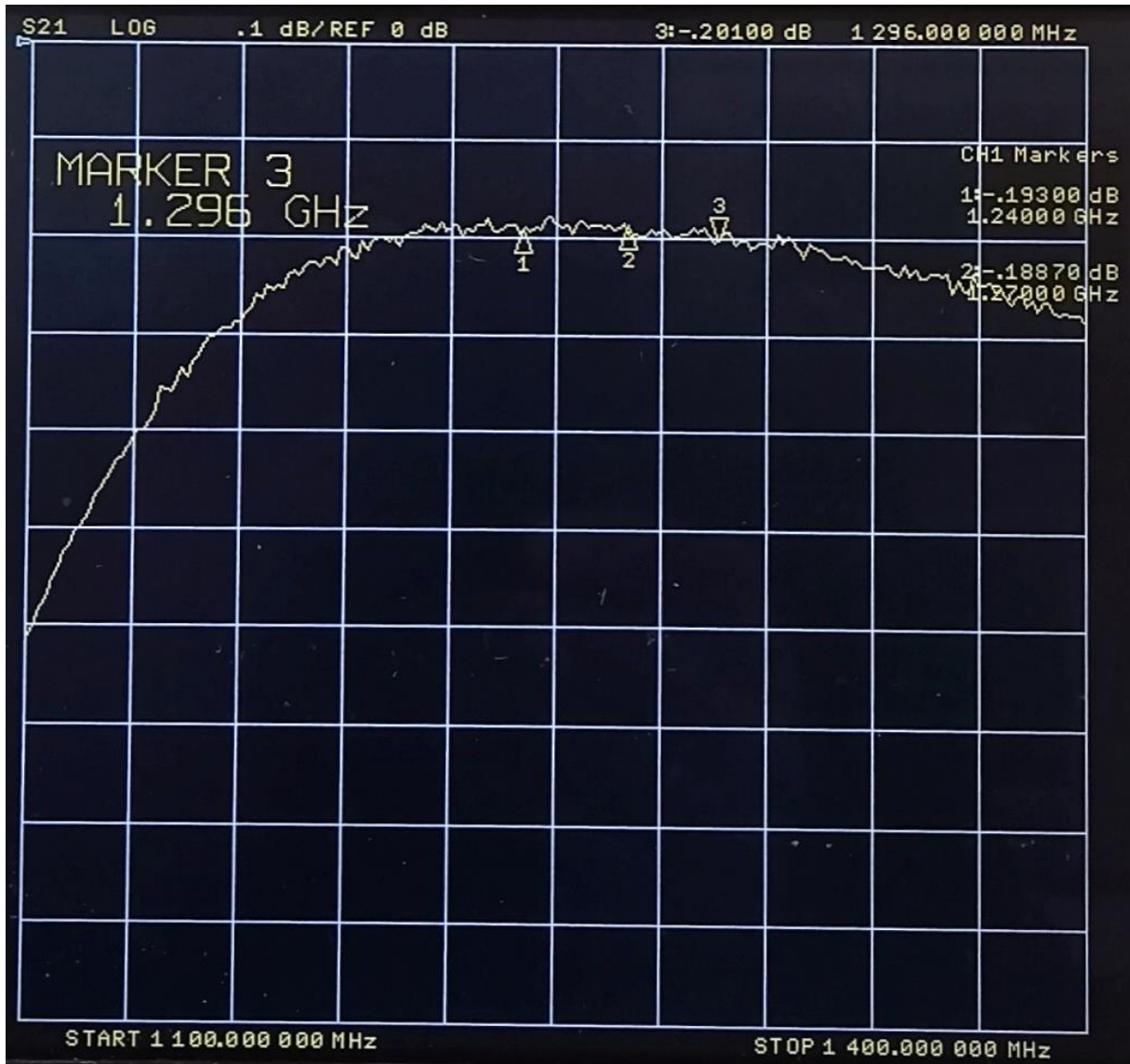
S11 input matching: SWR 1.06@1240MHz, 1.04@1270MHz, 1.05@1296MHz



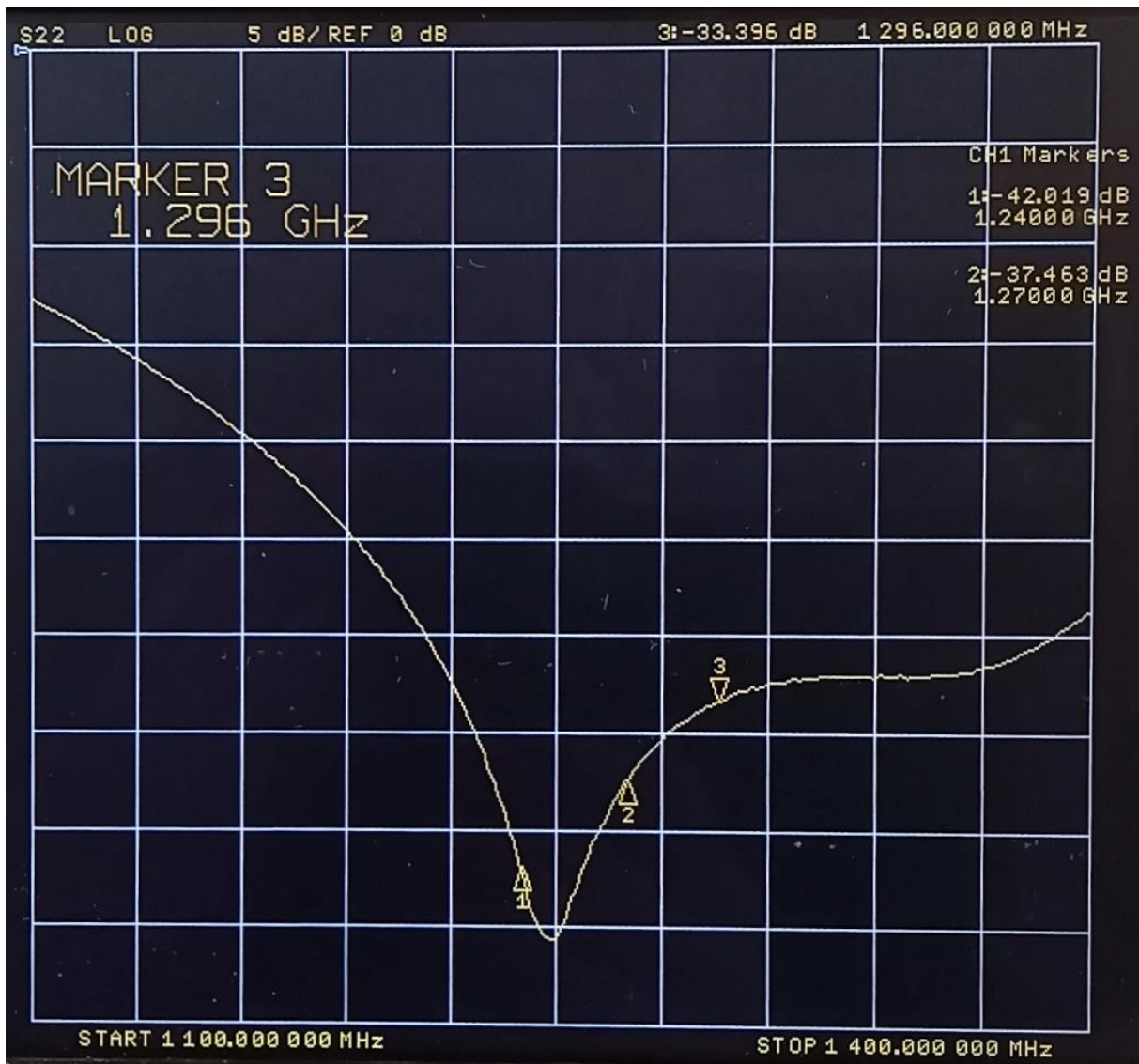
S11 input matching: Smith Chart looks almost perfect



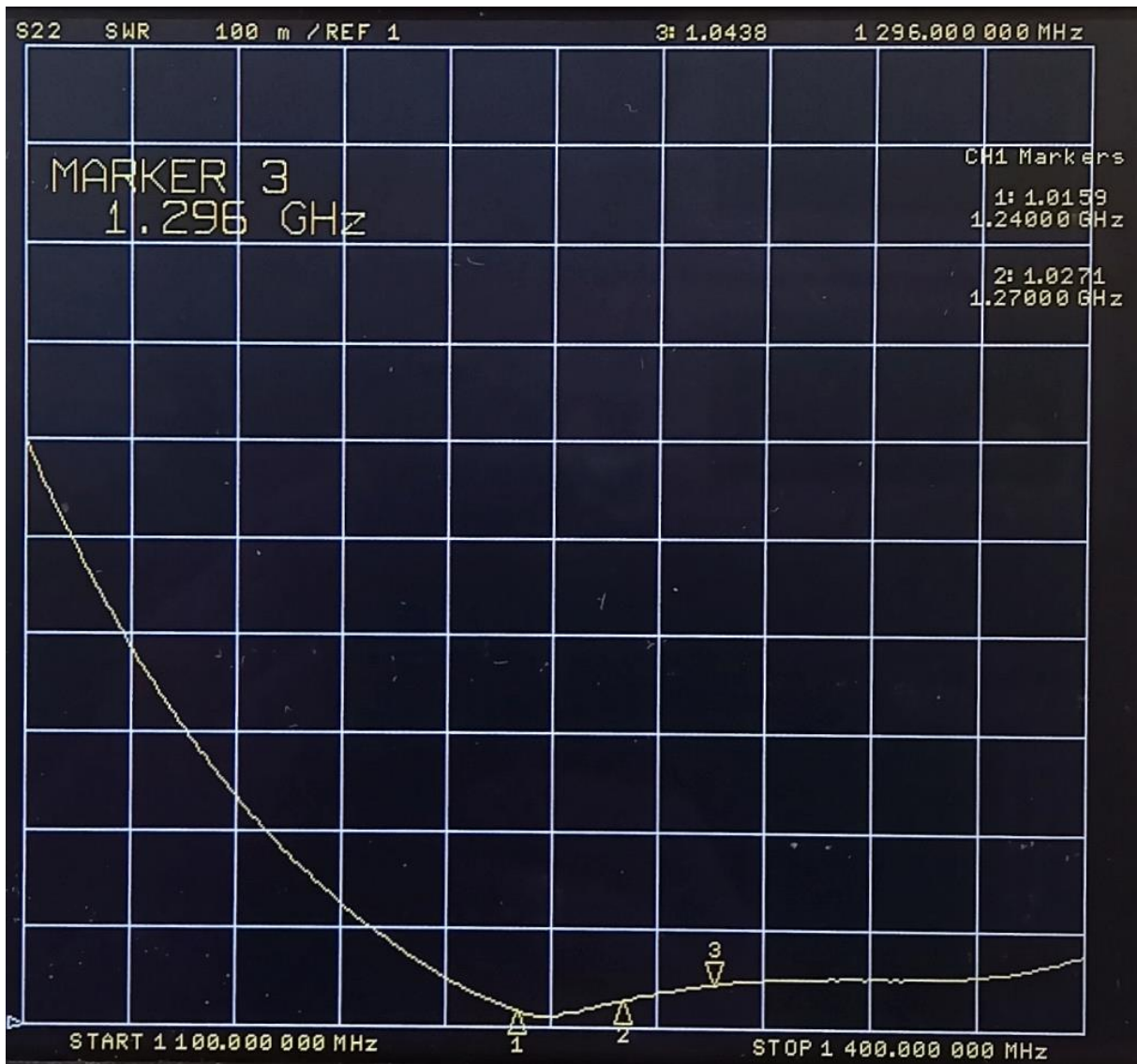
S12 isolation: 29.5dB@1240MHz, 34.8dB@1270MHz, 40.2dB@1296MHz



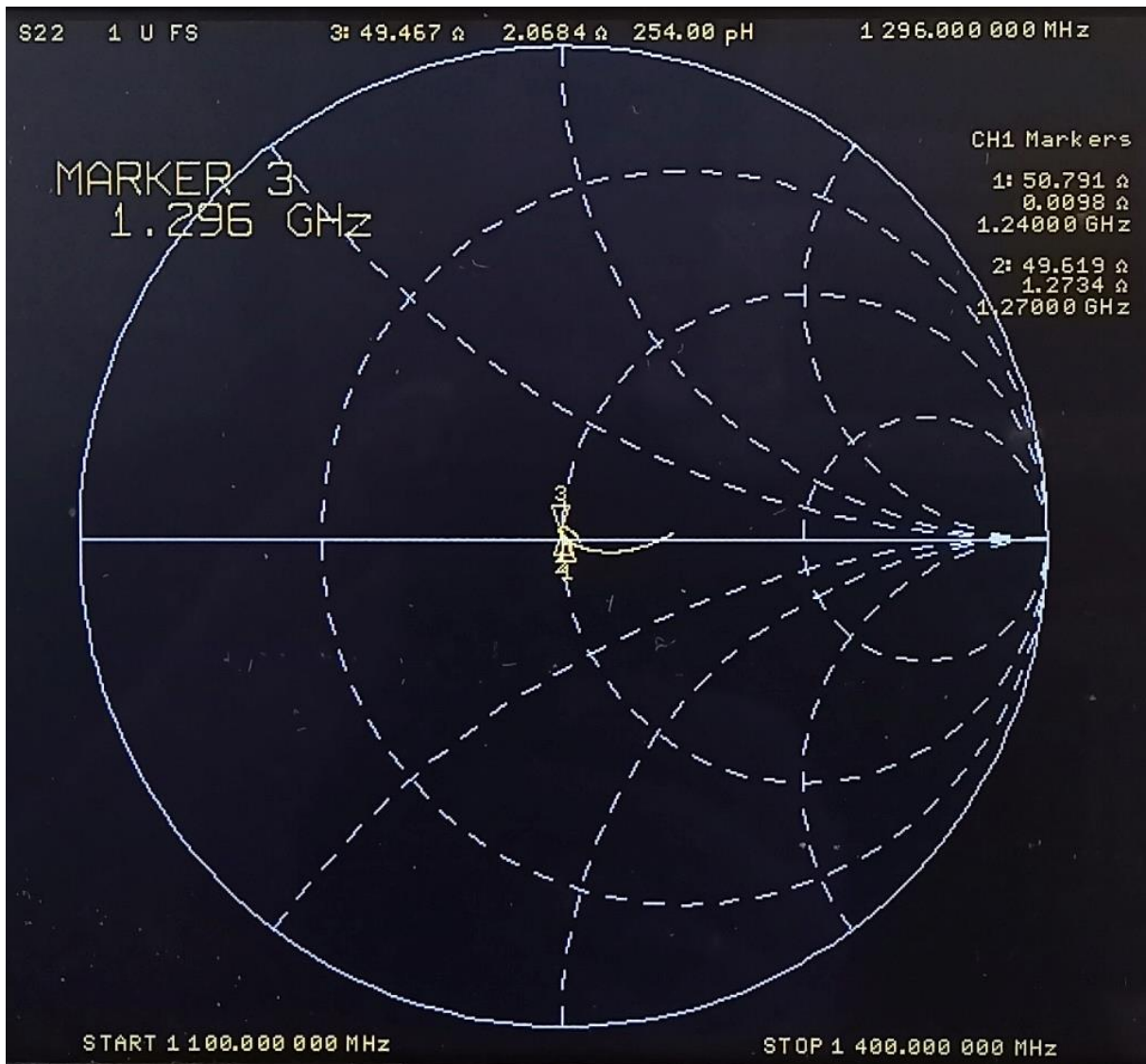
S21 forward transmission: insertion loss 0.19dB@1240MHz, 0.19dB@1270MHz, 0.20dB@1296MHz



S22 output matching: return loss 42dB@1240MHz, 37.5dB@1270MHz, 33.4dB@1296MHz



S22 output matching: SWR 1.02@1240MHz, 1.03@1270MHz, 1.04@1296MHz



S22 input matching: Smith Chart looks almost perfect

The 9A82-01 is specified in the frequency range 1.2 – 1.2GHz with a minimum isolation of 20dB and a maximum insertion loss of 0.4dB. The maximum average power is 100W and the pak power is 250W. Input and output matching should show a maximum VSWR of 1.25.

All measured parameters were significantly better than specified in the datasheet:

Parameter	Specified	Measured
S11 VSWR	≤1:1.25	≤1:1.06
S21 IL	≤0.4dB	≤0.2dB
S12 ISOL	≥20dB	≥30dB
S22 VSWR	≤1:1.25	≤1:1.04

I always appreciate feedback. Many thanks in advance.

Best regards

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