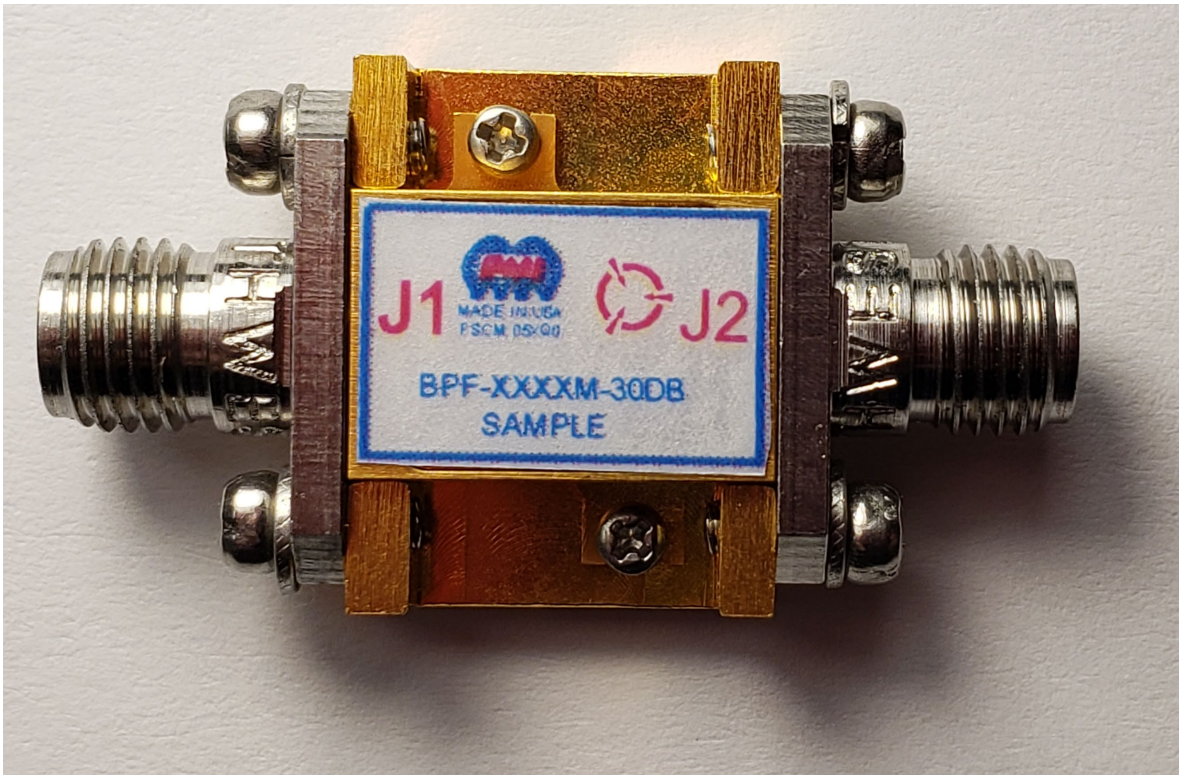
TYPICAL CHARACTERISTICS OF THE BPF-XXXXM-30DB

THE LINE OF BPF-XXXXM-30DB FILTERS ARE HIGHLY-TEMPERATURE-STABLE NARROW-BAND LUMPED-ELEMENT FILTER CENTERED AT VARIOUS FREQUENCIES DENOTED WHERE THE X's ARE IN MEGAHERTZ WITH BETTER THAN 10-DB INSERTION LOSS.



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TYPICAL CHARACTERISTICS OF THE BPF-XXXXM-30DB

1. INTRODUCTION

THIS FILTER IS ONE OF A LINE OF FILTERS VARIED AT DIFFERENT CENTER FREQUENCIES. THIS FILTER WAS TESTED OVER TEMPERATURE TO RECEIVE A FULL TYPICAL CHARACTERISTIC OF HOW THIS LINE OF FILTERS WILL REACT OVER TEMPERATURE.

2. TEST RESULTS

The comparison between measured and simulated narrow-band and wide-band filter responses at ambient temperature can be found in FIGURE 4 and FIGURE 5, respectively. In both figures, the blue lines represent the simulated response while the red lines represent the measured response. The measured and simulated results are in very good agreement with each other.

It can be seen from FIGURE 4 that the insertion loss at center frequency 4829 MHz is better than 5 dB, while the input and output return loss is better than 10 dB within the passband of 220 MHz. The rejection at low-side adjacent channel (which is 400 MHz lower, centered at 4829 MHz) is better than 30 dB, while the rejection at high-side adjacent channel (which is 400 MHz higher, centered at 4829 MHz) is better than 30 dB.

A summary of test results against specifications can be found in TABLE 4.

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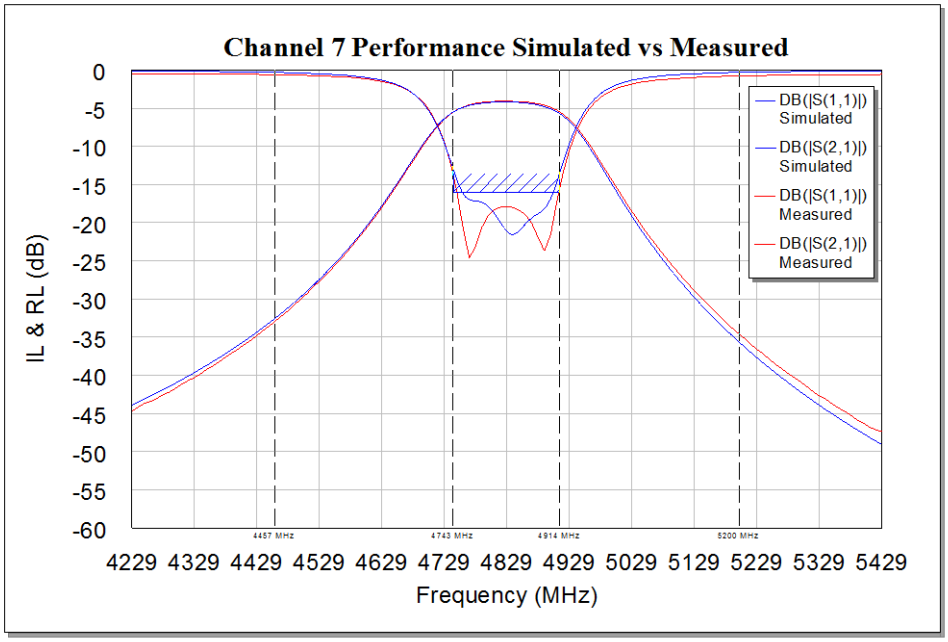

FIGURE 1 COMPARISON BETWEEN SIMULATION AND MEASUREMENT OF NARROW BAND FILTER RESPONSE

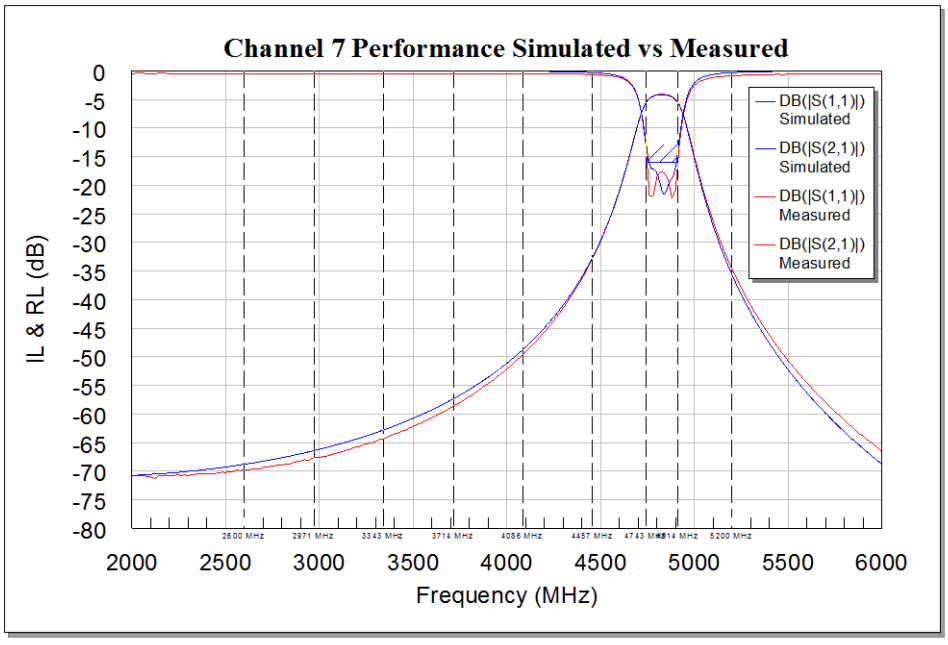

FIGURE 2 COMPARISON BETWEEN SIMULATION AND MEASUREMENT OF WIDE BAND FILTER RESPONSE

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TABLE 1 SUMMARY OF TEST RESULTS AGAINST SPECIFICATIONS

TEST ITEM NO:	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	Center Frequency	4829 MHz	4829 MHz	
2	3 dB BANDWIDTH	210 MHz TYP	220 MHz	
2	VSWR OVER 90% OF THE PASSBAND	2.0 :1 MAX.	1.96:1	
3	3 dB Passband Insertion Loss	8 dB MAX	7.06 dB	
4	REJECTION @ <4429 MHz & >5229 MHz	30 dBc MIN	34.76 dBc	

The filter response stability was tested over the temperature range from -55 °C to +85 °C, at five different temperature plateaus: -55 °C, -10 °C, +20 °C, +60 °C, and +85 °C. Note that the contract required operating temperature range is from -10 °C to +60 °C.

The overlaid narrow-band and wide-band (from 2 GHz to 20 GHz) filter responses over the above five different temperature plateaus shown in FIGURE 6 and FIGURE 7, respectively. In both figures, the green lines represent the filter response at ambient room temperature of 20 °C; the dashed and solid blue lines represent the filter response at cold temperatures of -55 °C and -10 °C, respectively; and the dashed and solid red lines represent the filter response at hot temperatures of +85 °C and +60 °C, respectively.

It can be found from FIGURE 6 that over the temperature range from -55 °C to +85 °C, the insertion stability at channel center frequency is less than 0.5 dB, while the stability of rejection at both low- and high-side adjacent channels is less than 1 dB. Therefore, filter response has been verified to be very stable.

From FIGURE 7, it can be seen that more than 50-dB rejection has been maintained up to 20 GHz, and it is temperature stable.

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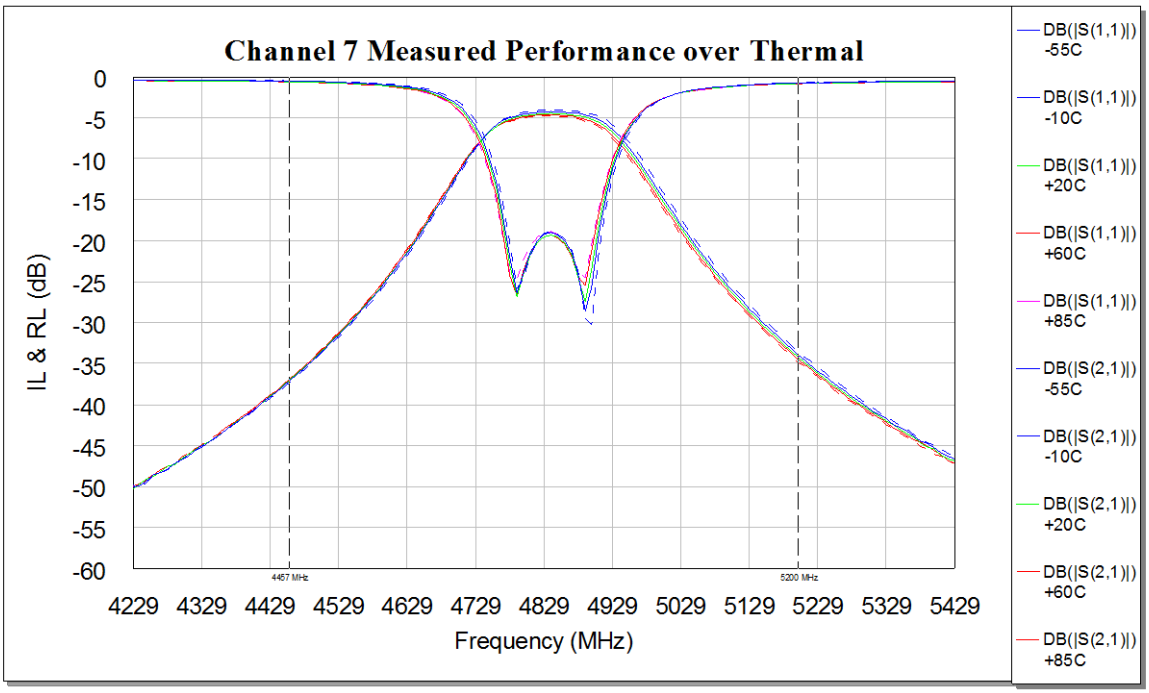

FIGURE 3 NARROW-BAND FILTER RESPONSE THERMAL STABILITY

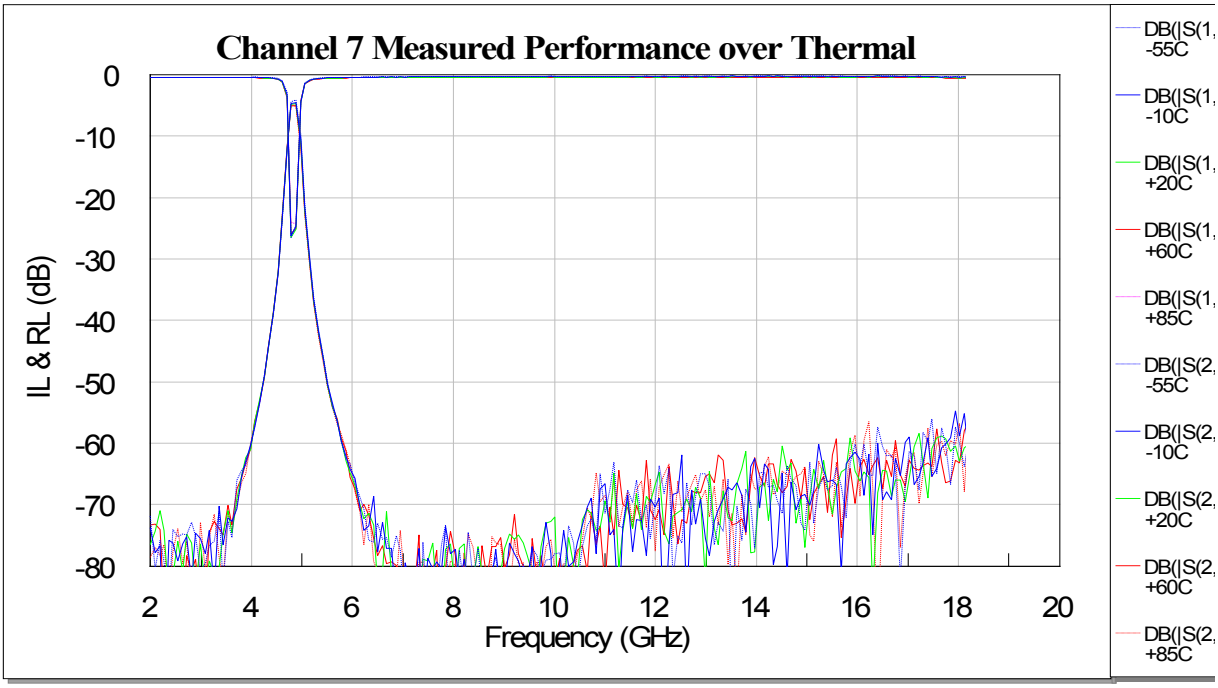

FIGURE 4 WIDE-BAND FILTER RESPONSE THERMAL STABILITY

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