

**SUMMARY TEST DATA  
ON  
P5P-218-S6F**

**PLANAR MONOLITHICS INDUSTRIES MODEL NUMBER P5P-218-S6F IS A PENTAPLEXER COVERING 2 TO 18 GHz. THE UNIT IS BANDED AS FOLLOWS 2-4 GHz, 4-6 GHz, 6-8 GHz, 8-12 GHz AND 12-18 GHz, WITH A RF SURVIVAL INPUT POWER OF 1W CW.**



**DESIGNED BY  
PMI ENGINEERING**

**TESTED & REPORTED BY  
R. SIRK**

**DATE  
January 19, 2026**

**SUMMARY TEST DATA  
ON  
P5P-218-S6F  
OUTLINE**

ZONE	REV	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	7/20/24	

**DESCRIPTION:**

PLANAR MONOLITHICS INDUSTRIES MODEL NUMBER P5P-218-S6F IS A PENTAPLEXER COVERING 2 TO 18 GHz. THE UNIT IS Banded AS FOLLOWS 2-4 GHz, 4-6 GHz, 6-8 GHz, 8-12 GHz AND 12-18 GHz, WITH A RF SURVIVAL INPUT POWER OF 1W CW.

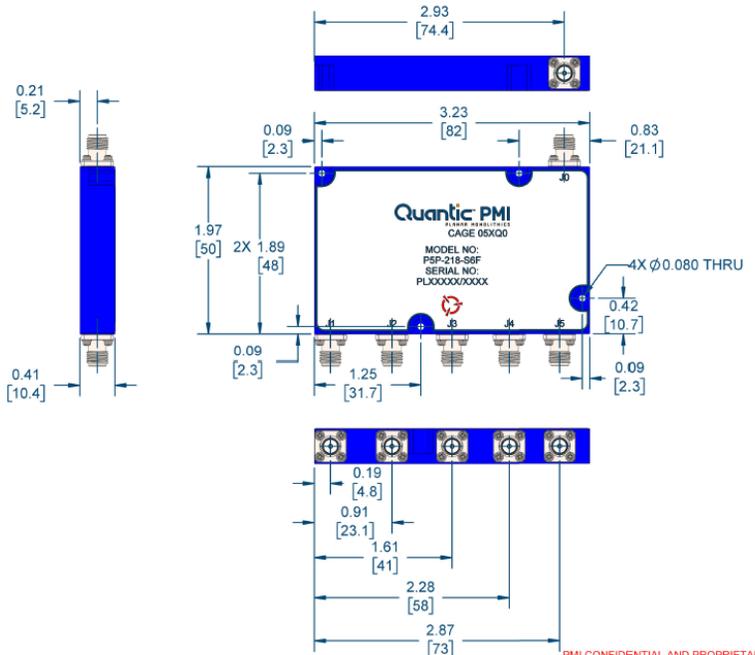
**SPECIFICATIONS:**

- RF INPUT FREQUENCY RANGE: 2.0 TO 18.0 GHz
  - RF SURVIVAL INPUT POWER: +30 dBm (1 WATT) CW MAX
  - CROSSOVER INSERTION LOSS: 4 GHz ± 2%: 5.5 dB TYP.  
6 GHz ± 2%: 5.5 dB TYP.  
8 GHz ± 2%: 5.5 dB TYP.  
12 GHz ± 2%: 5.5 dB TYP.
- BAND 1:**
- FREQUENCY RANGE: 2.0 TO 4.0 GHz
  - INSERTION LOSS: 1.5 dB MAX @ 2.1 TO 3.6 GHz
  - RETURN LOSS (OVER INSERTION LOSS BAND): 12 dB MIN
  - REJECTION: -45 dBc MIN @ DC TO 1.7 GHz, 4.3 TO 20 GHz
- BAND 2:**
- FREQUENCY RANGE: 4.0 TO 6.0 GHz
  - INSERTION LOSS: 1.5 dB MAX @ 4.2 TO 5.7 GHz
  - RETURN LOSS (OVER INSERTION LOSS BAND): 12 dB MIN
  - REJECTION: -45 dBc MIN @ DC TO 3.7 GHz, 6.3 TO 20 GHz
- BAND 3:**
- FREQUENCY RANGE: 6.0 TO 8.0 GHz
  - INSERTION LOSS: 1.5 dB MAX @ 6.3 TO 7.6 GHz
  - RETURN LOSS (OVER INSERTION LOSS BAND): 12 dB MIN
  - REJECTION: -45 dBc MIN @ DC TO 5.7 GHz, 8.3 TO 20 GHz
- BAND 4:**
- FREQUENCY RANGE: 8.0 TO 12.0 GHz
  - INSERTION LOSS: 1.5 dB MAX @ 8.4 TO 11.4 GHz
  - RETURN LOSS (OVER INSERTION LOSS BAND): 12 dB MIN
  - REJECTION: -45 dBc MIN @ DC TO 7.7 GHz, 12.3 TO 20 GHz
- BAND 5:**
- FREQUENCY RANGE: 12.0 TO 18.0 GHz
  - INSERTION LOSS: 1.5 dB MAX @ 12.6 TO 17.1 GHz
  - RETURN LOSS (OVER INSERTION LOSS BAND): 12 dB MIN
  - REJECTION: -40 dBc MIN @ DC TO 11.7 GHz, 18.6 TO 20 GHz
- SIZE: 3.22" X 1.96" X 0.39"
  - FINISH: 82mm X 50mm X 10mm PAINTED BLUE

**ENVIRONMENTAL RATINGS:**

- TEMPERATURE: -40°C TO +85°C (OPERATING)  
-65°C TO +125°C (STORAGE)

NOTE: SPECIFICATIONS WILL VARY OVER TEMPERATURE  
NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION



PMI CONFIDENTIAL AND PROPRIETARY

APPROVALS		DATE	TITLE	
DRAWN	R. SHIRK	8/19/2024	OUTLINE	
REVIEWED			P5P-218-S6F	
ISSUED		SIZE	FROM NO.	DWG NO.
		B	05XQ0	27049780
SCALE: 1:1				REV. A1
				SHEET 1 OF 1

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**Technical Specifications - Band 1**

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	TEST RESULTS		
			-40°C	+25°C	+85°C
1	Passband:	2 GHz to 4 GHz	2 GHz to 4 GHz		
2	Insertion Loss:	1.5 dB Max (2.1 to 3.8 GHz)	1.33 dB	1.37 dB	1.41 dB
3	Return Loss: (Over Insertion Loss Band)	12 dB Min	14.46 dB	14.11 dB	13.69 dB
4	Rejections:	-45 dBc MIN (DC-1.7 GHz & 4.3-20 GHz)	DC - 1.7 GHz: 47.01 dBc 4.3 - 20 GHz: 49.71 dBc	DC - 1.7 GHz: 47.11 dBc 4.3 - 20 GHz: 45.24 dBc	DC - 1.7 GHz: 47.58 dBc DC - 1.7 GHz: 47.58 dBc

**Technical Specifications - Band 2**

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	TEST RESULTS		
			-40°C	+25°C	+85°C
5	Passband:	4 GHz to 6 GHz	4 GHz to 6 GHz		
6	Insertion Loss:	1.5 dB Max (4.2 to 5.7 GHz)	1 dB	1.13 dB	1.27 dB
7	Return Loss: (Over Insertion Loss Band)	12 dB Min	19.33 dB	17.5 dB	16.59 dB
8	Rejections:	-45 dBc MIN (DC-3.7 GHz & 6.3-20 GHz)	DC - 3.7 GHz: 46.18 dBc 6.3 - 20 GHz: 55.04 dBc	DC - 3.7 GHz: 50.77 dBc 6.3 - 20 GHz: 54.75 dBc	DC - 3.7 GHz: 51.01 dBc 6.3 - 20 GHz: 54.05 dBc

**Technical Specifications - Band 3**

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	TEST RESULTS		
			-40°C	+25°C	+85°C
9	Passband:	6 GHz to 8 GHz	6 GHz to 8 GHz		
10	Insertion Loss:	1.5 dB Max (6.3 to 7.6 GHz)	1 dB	1.03 dB	1.08 dB
11	Return Loss: (Over Insertion Loss Band)	12 dB Min	14.78 dB	15.47 dB	14.05 dB
12	Rejections:	-45 dBc MIN (DC-5.7 GHz & 8.3-20 GHz)	DC - 5.7 GHz: 48.29 dBc 8.3 - 20 GHz: 53.68 dBc	DC - 5.7 GHz: 49.39 dBc 8.3 - 20 GHz: 53.5 dBc	DC - 5.7 GHz: 49.69 dBc 8.3 - 20 GHz: 53.62 dBc

**Technical Specifications - Band 4**

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	TEST RESULTS		
			-40°C	+25°C	+85°C
13	Passband:	8 GHz to 12 GHz	8 GHz to 12 GHz		
14	Insertion Loss:	1.5 dB Max (8.4 to 11.4 GHz)	1.09 dB	1.11 dB	1.15 dB
15	Return Loss: (Over Insertion Loss Band)	12 dB Min	12.27 dB	12.5 dB	12.08 dB
16	Rejections:	-45 dBc MIN (DC-7.7 GHz & 12.3-20 GHz)	DC - 7.7 GHz: 48.62 dBc 12.3 - 20 GHz: 49.12 dBc	DC - 7.7 GHz: 50.05 dBc 12.3 - 20 GHz: 49.07 dBc	DC - 7.7 GHz: 50.22 dBc 12.3 - 20 GHz: 49.2 dBc

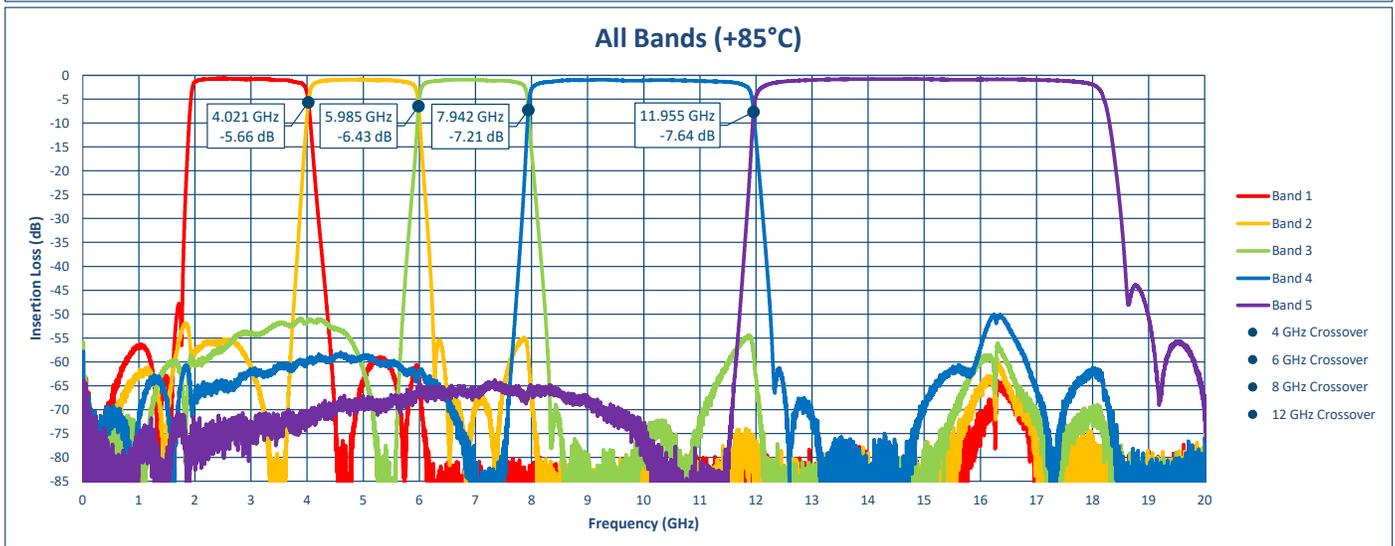
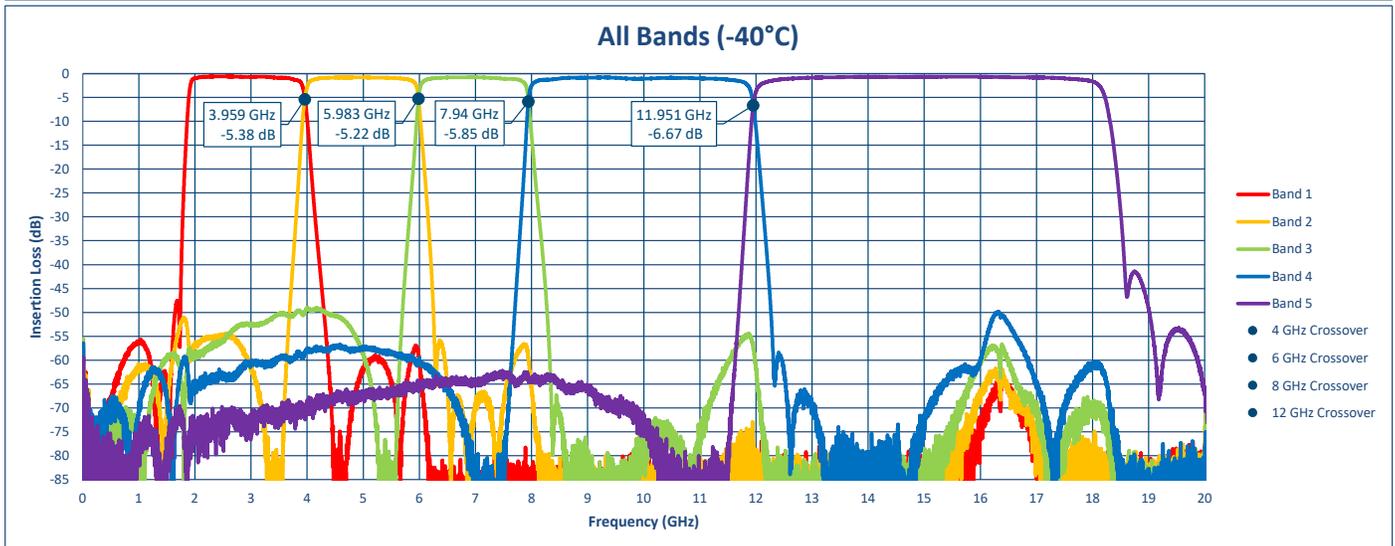
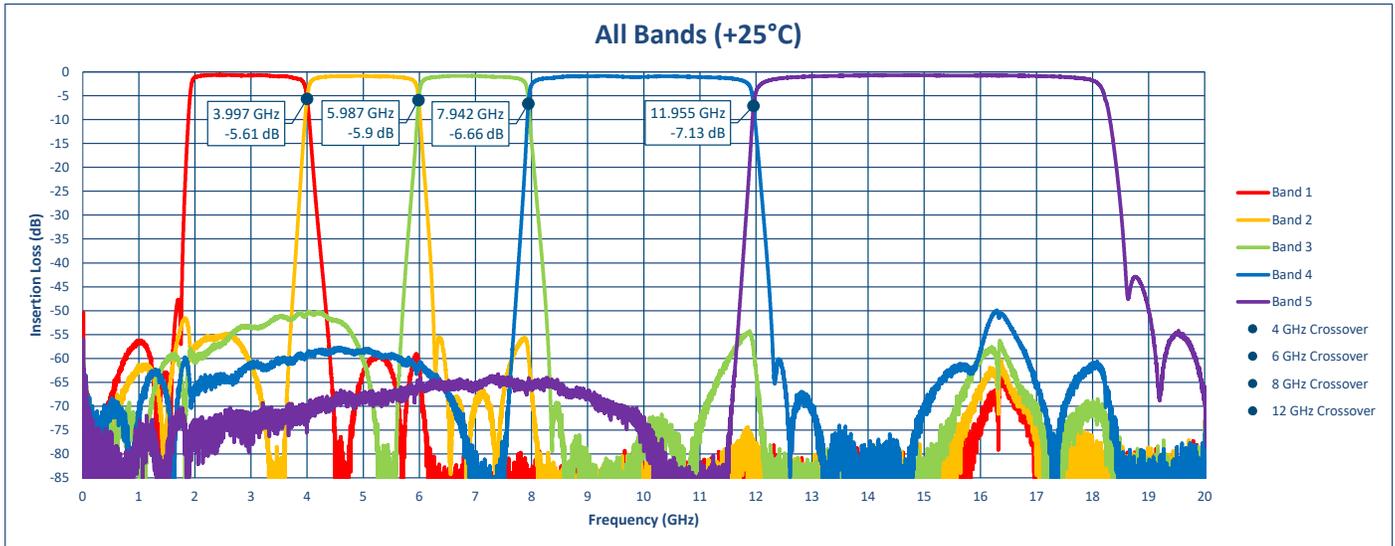
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**Technical Specifications - Band 5**

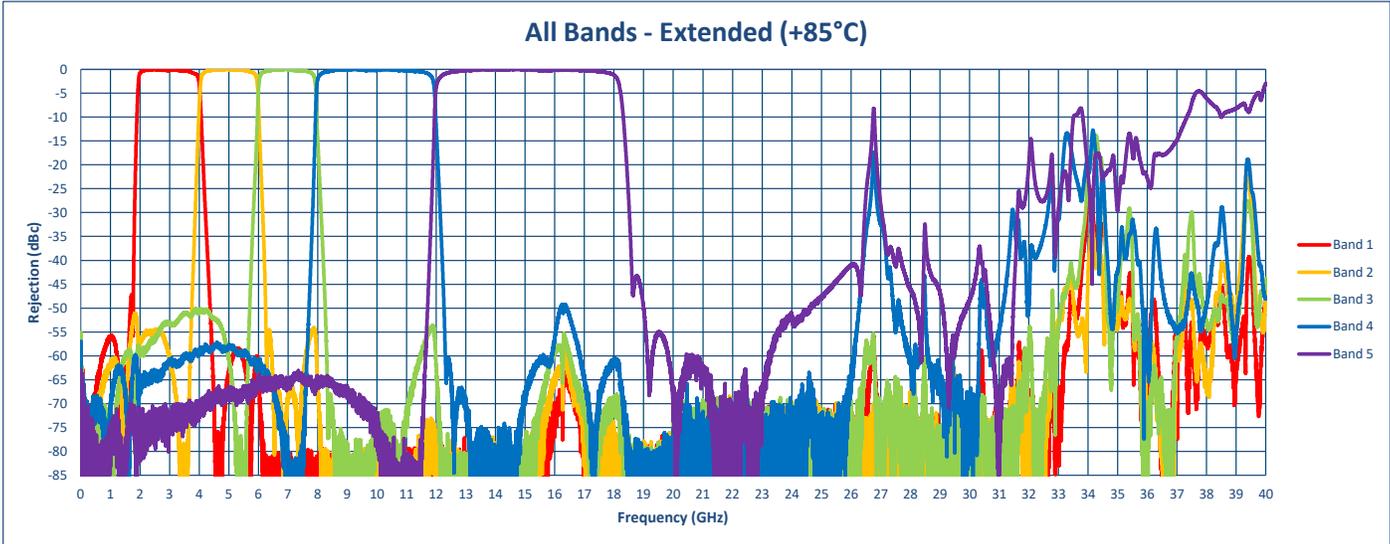
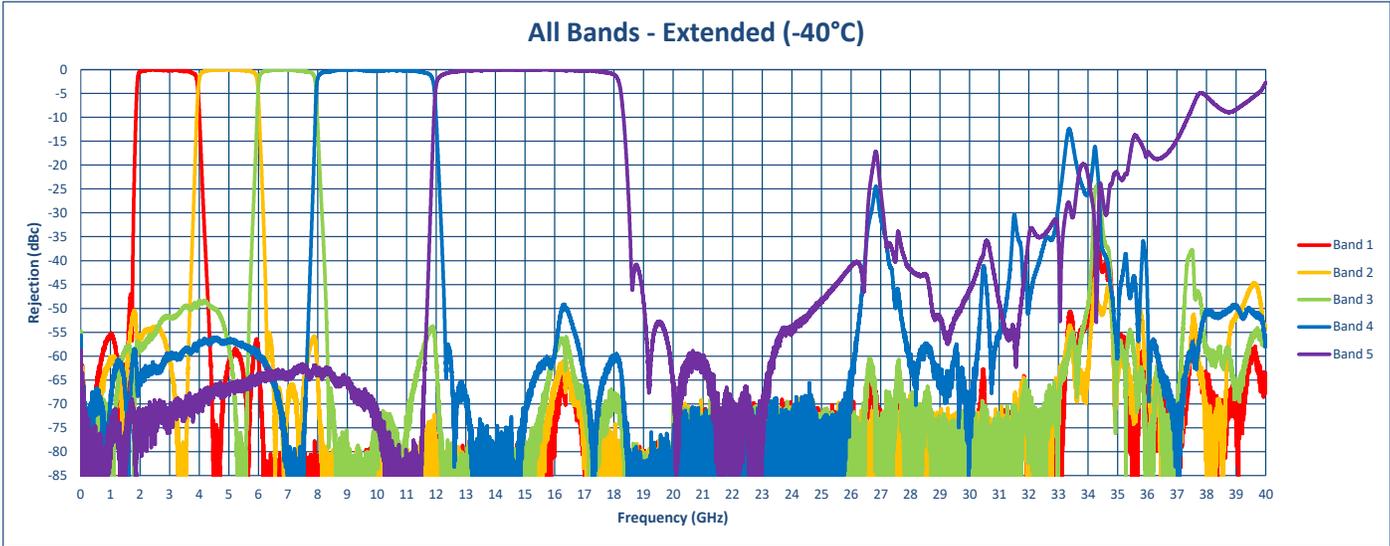
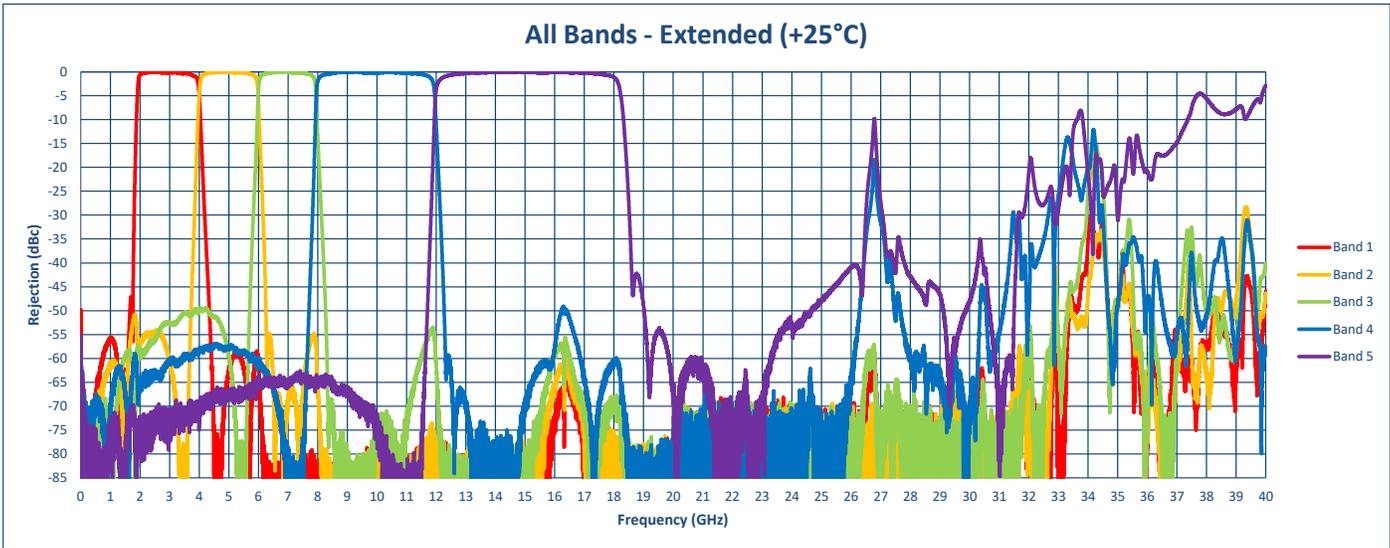
TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	TEST RESULTS		
			-40°C	+25°C	+85°C
17	Passband:	12 GHz to 18 GHz	12 GHz to 18 GHz		
18	Insertion Loss:	1.5 dB Max (12.6 to 17.1 GHz)	0.84 dB	1.09 dB	1.03 dB
19	Return Loss: (Over Insertion Loss Band)	12 dB Min	18.76 dB	17.37 dB	14 dB
20	Rejections:	-40 dBc MIN (DC-11.7 GHz & 18.6-20 GHz)	DC - 11.7 GHz: 47.22 dBc	DC - 11.7 GHz: 49.39 dBc	DC - 11.7 GHz: 50.41 dBc
			18.6 - 20 GHz: 40.83 dBc	18.6 - 20 GHz: 42.21 dBc	18.6 - 20 GHz: 43.2 dBc

**Technical Specifications - General**

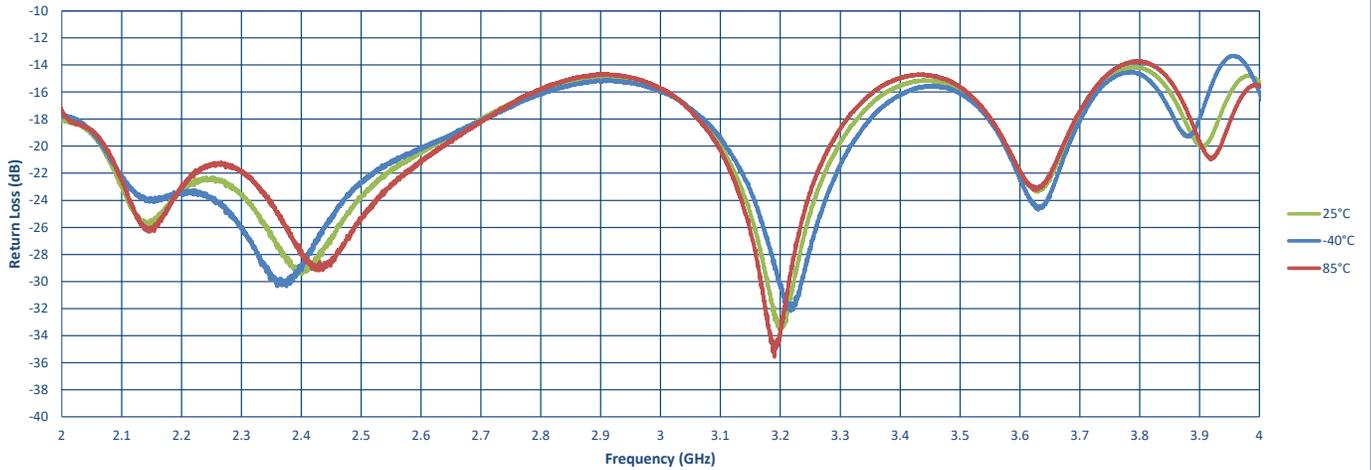
TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	TEST RESULTS		
			-40°C	+25°C	+85°C
21	Operating Frequency:	2 GHz to 18 GHz	2 GHz to 18 GHz		
22	Crossover Insertion Loss:	5.5 dB Typ. (4 GHz ± 2%)	5.38 dB @ 3.959 GHz	5.61 dB @ 3.997 GHz	5.66 dB @ 4.021 GHz
		5.5 dB Typ. (6 GHz ± 2%)	5.22 dB @ 5.983 GHz	5.9 dB @ 5.987 GHz	6.43 dB @ 5.985 GHz
		5.5 dB Typ. (8 GHz ± 2%)	5.85 dB @ 7.94 GHz	6.66 dB @ 7.942 GHz	7.21 dB @ 7.942 GHz
		5.5 dB Typ. (12 GHz ± 2%)	6.67 dB @ 11.951 GHz	7.13 dB @ 11.955 GHz	7.64 dB @ 11.955 GHz



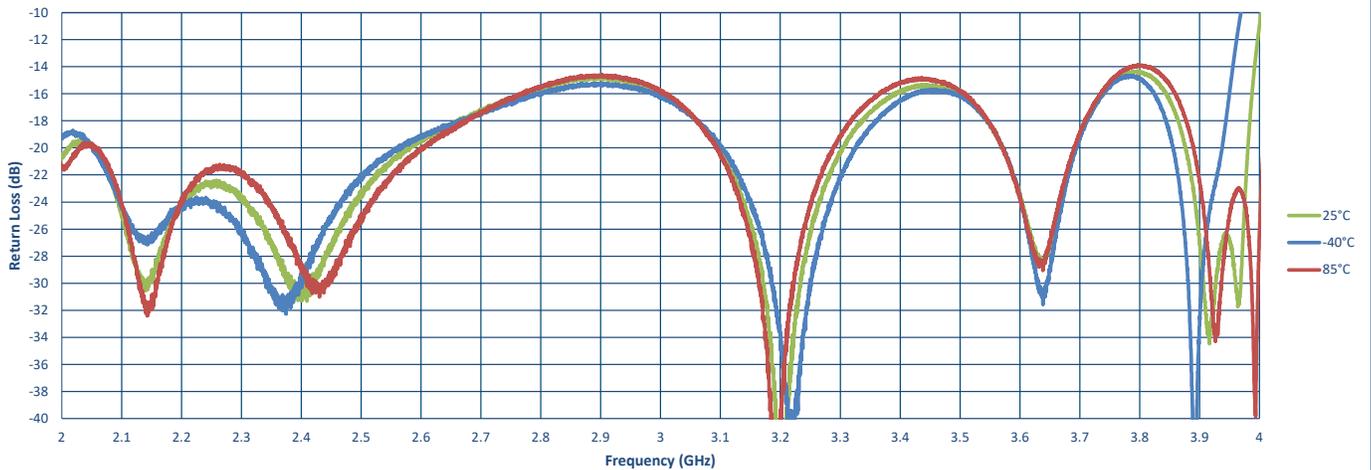
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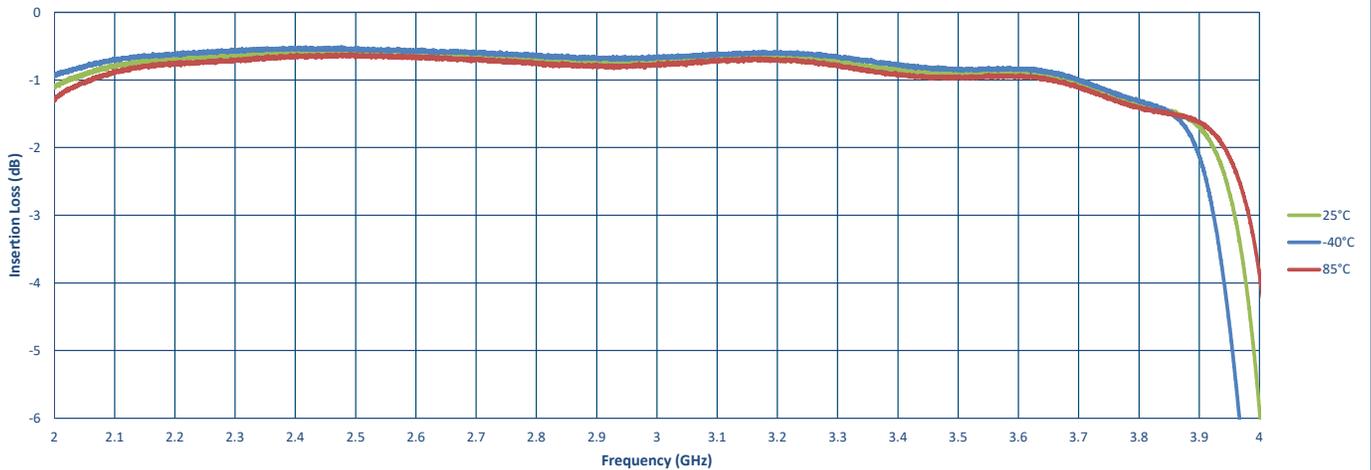
**Band 1 - Passband Return Loss - S11**

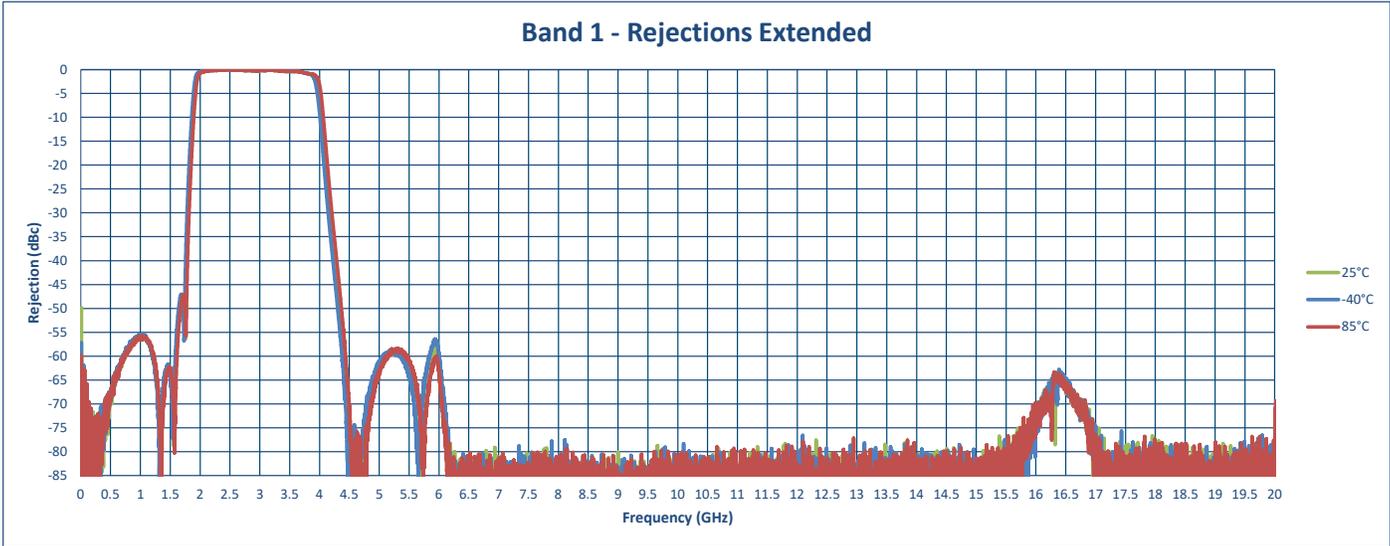
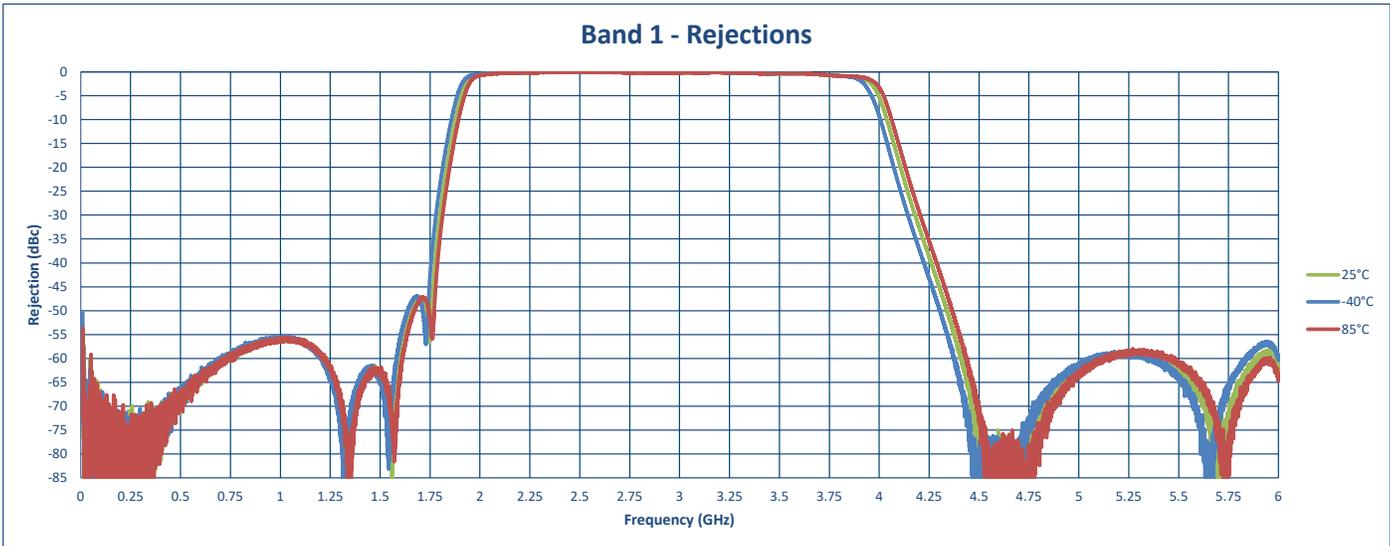


**Band 1 - Passband Return Loss - S22**

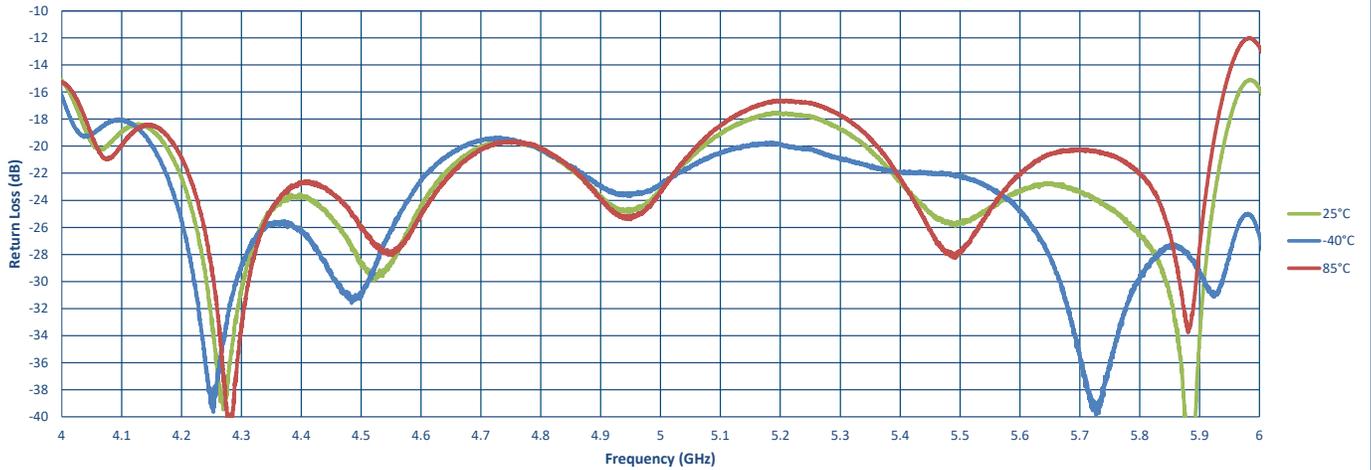


**Band 1 - Passband Insertion Loss**

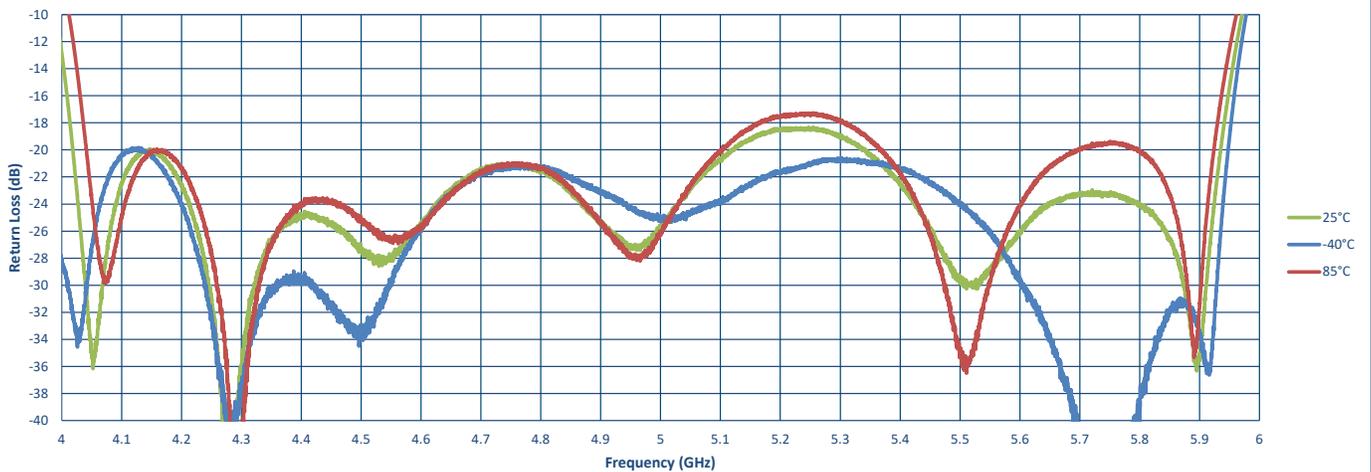




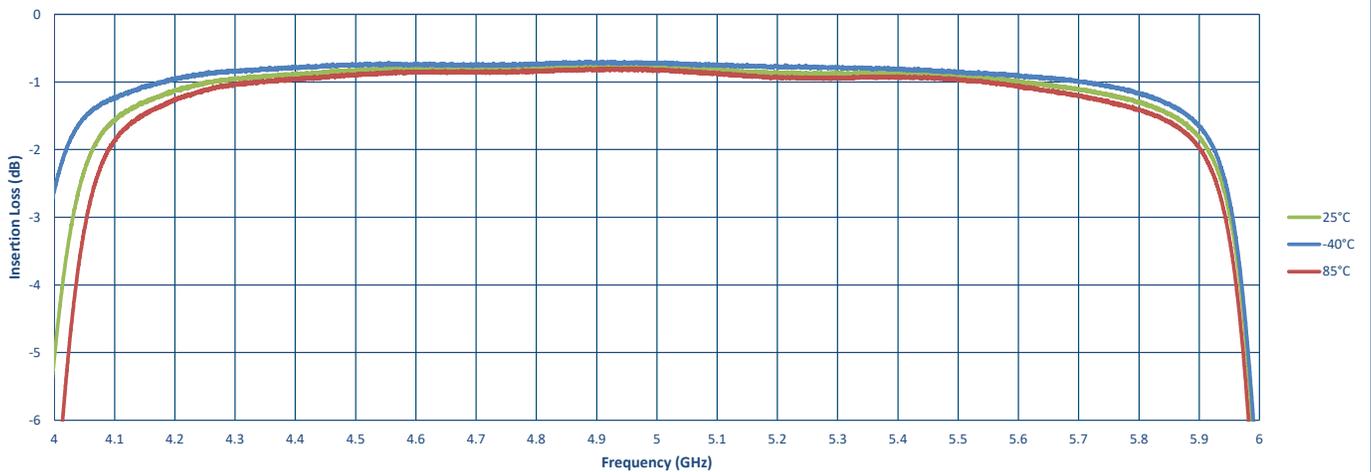
**Band 2 - Passband Return Loss - S11**

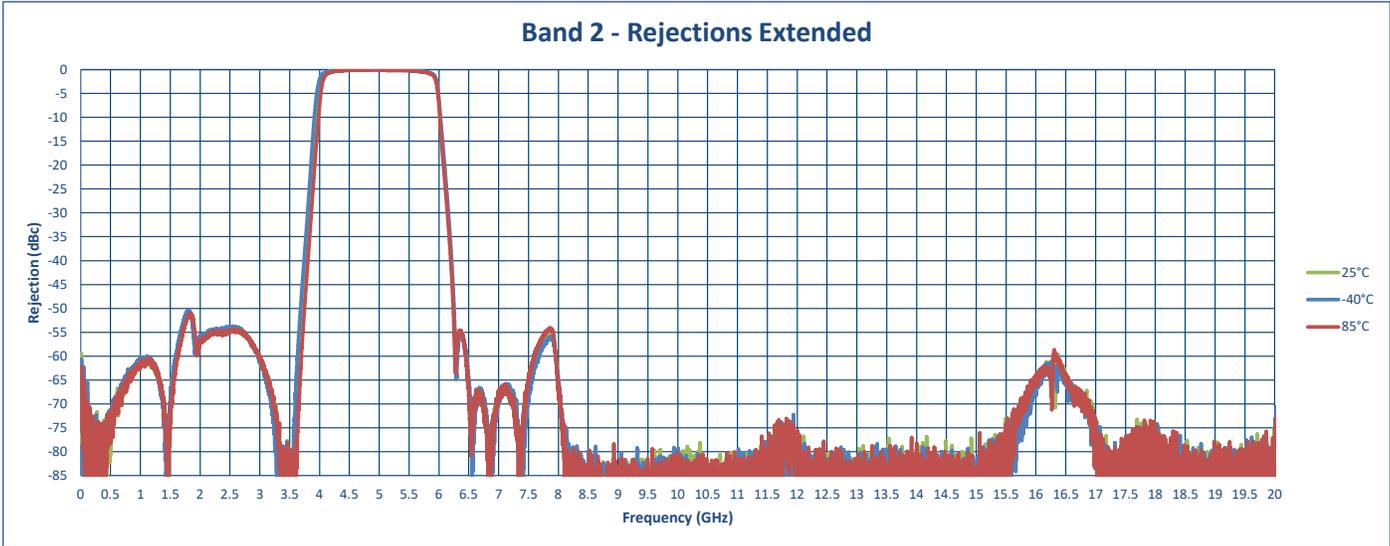
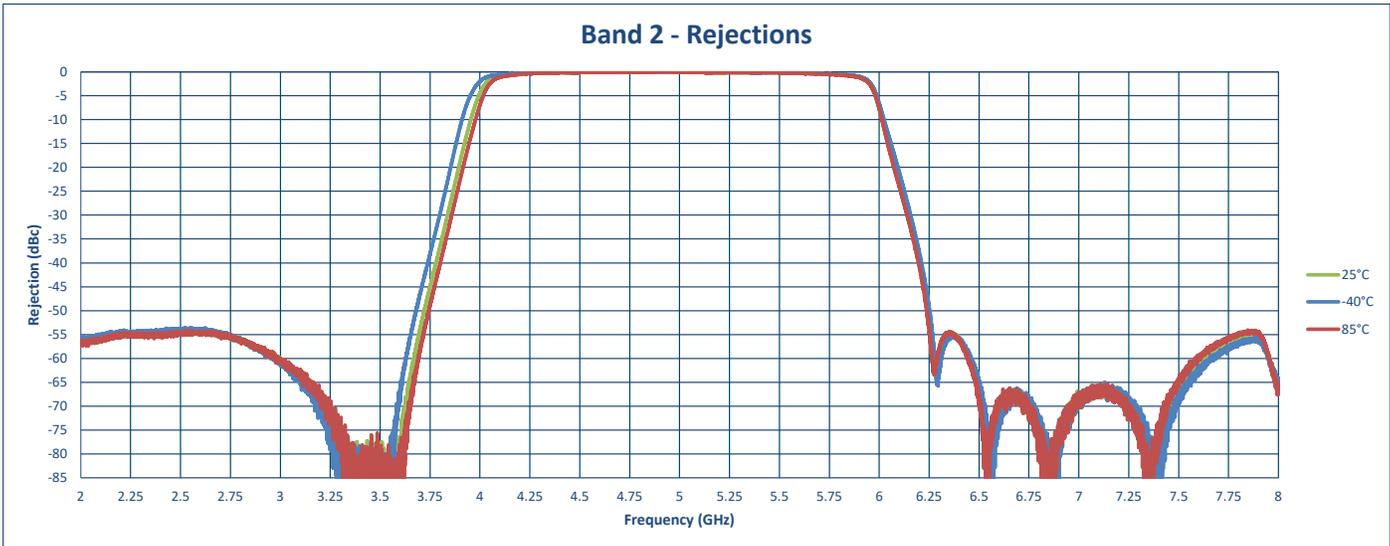


**Band 2 - Passband Return Loss - S22**

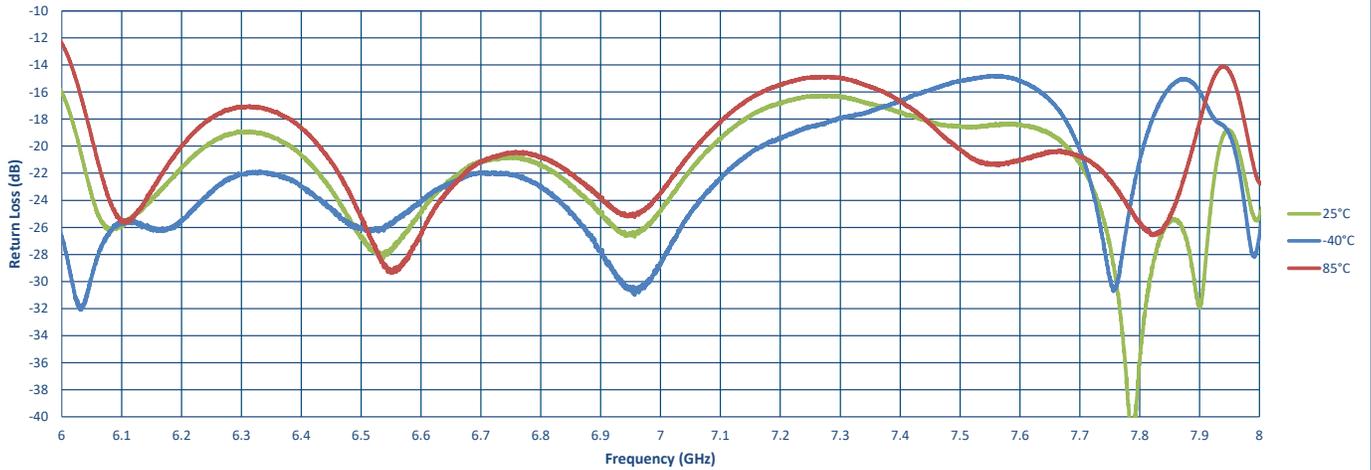


**Band 2 - Passband Insertion Loss**

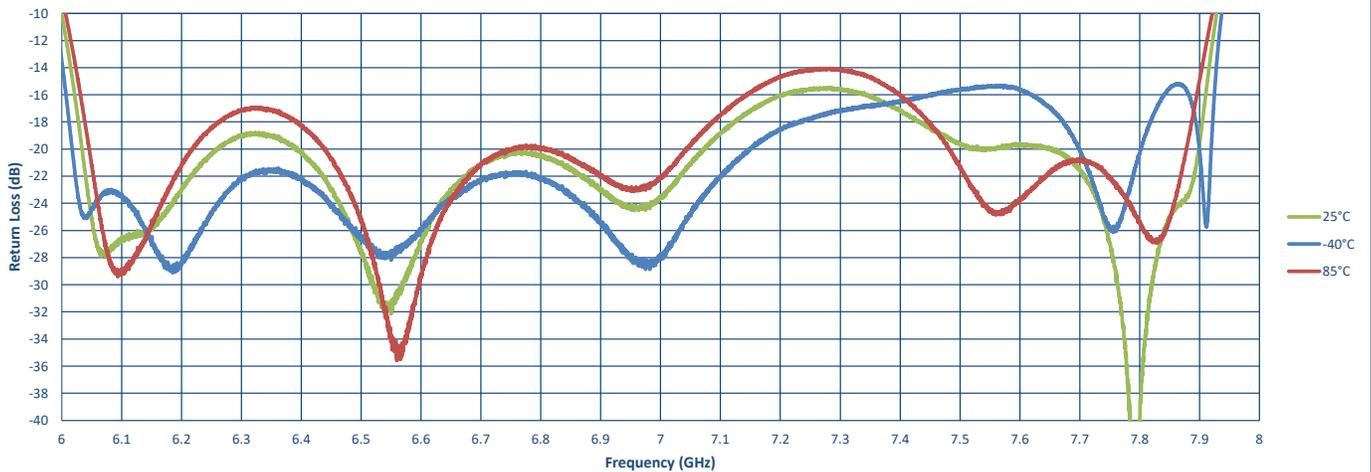




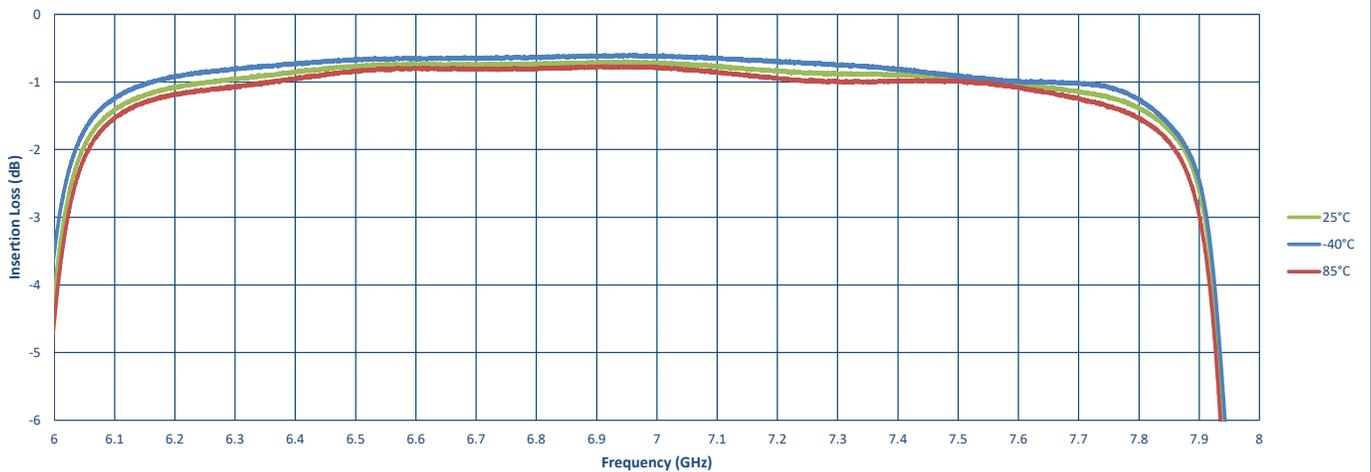
**Band 3 - Passband Return Loss - S11**

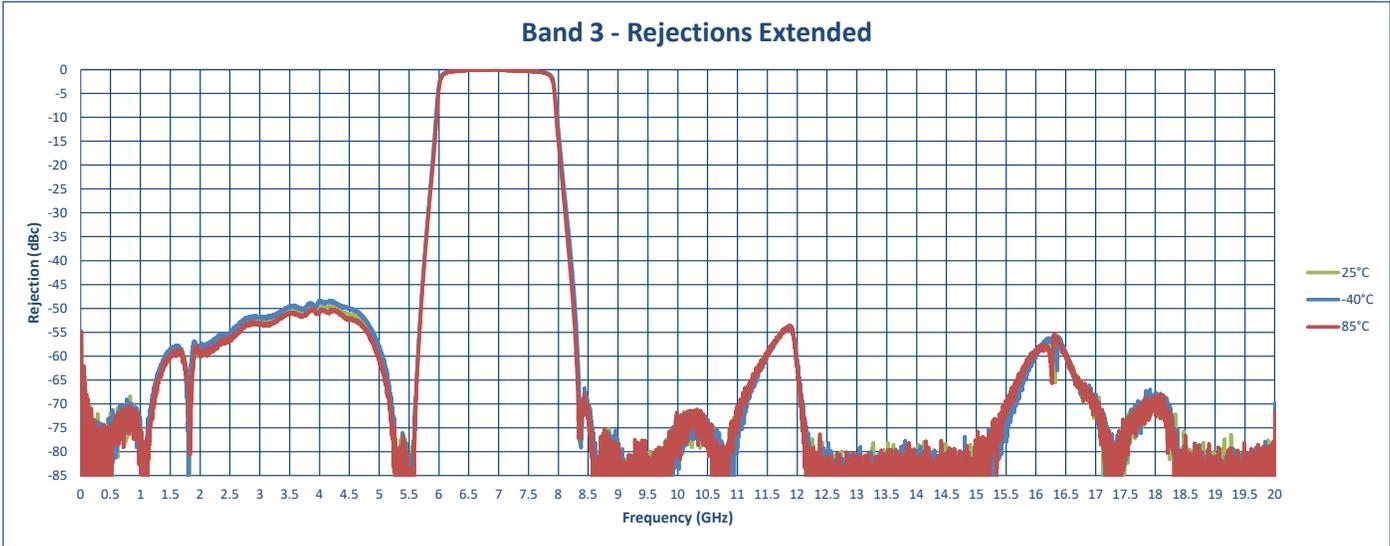
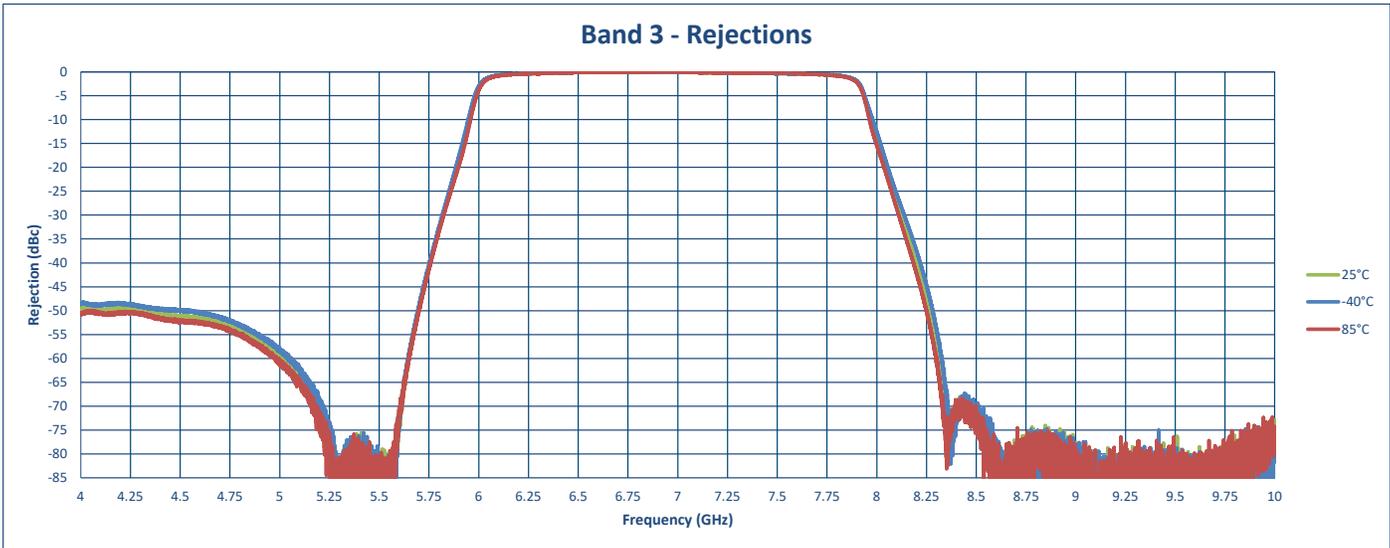


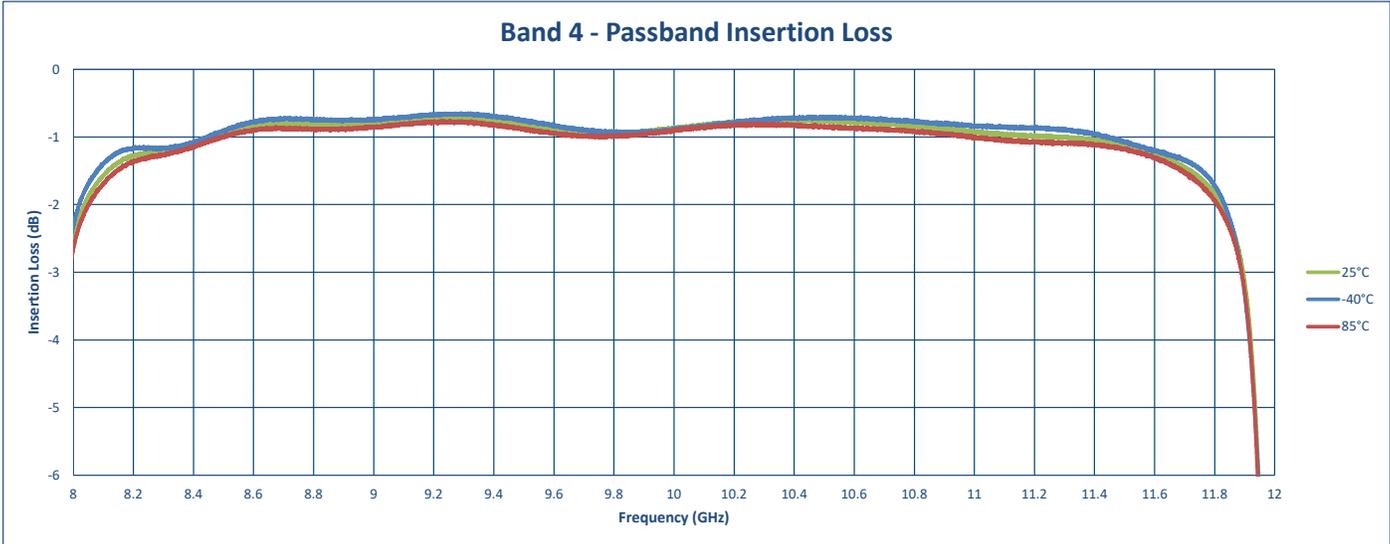
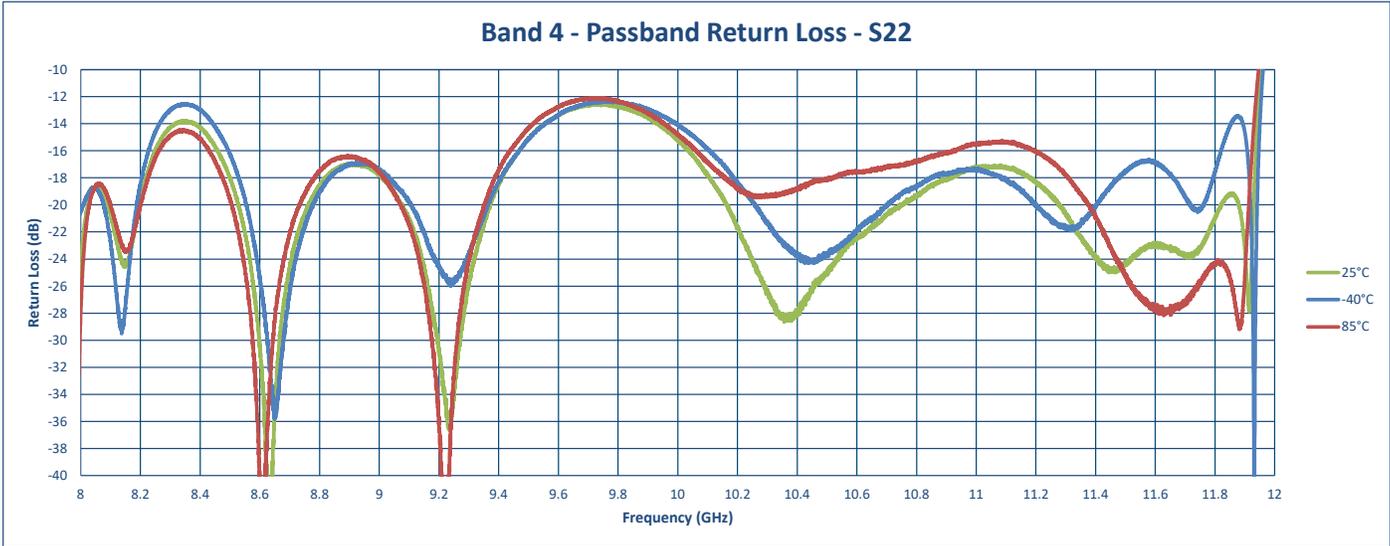
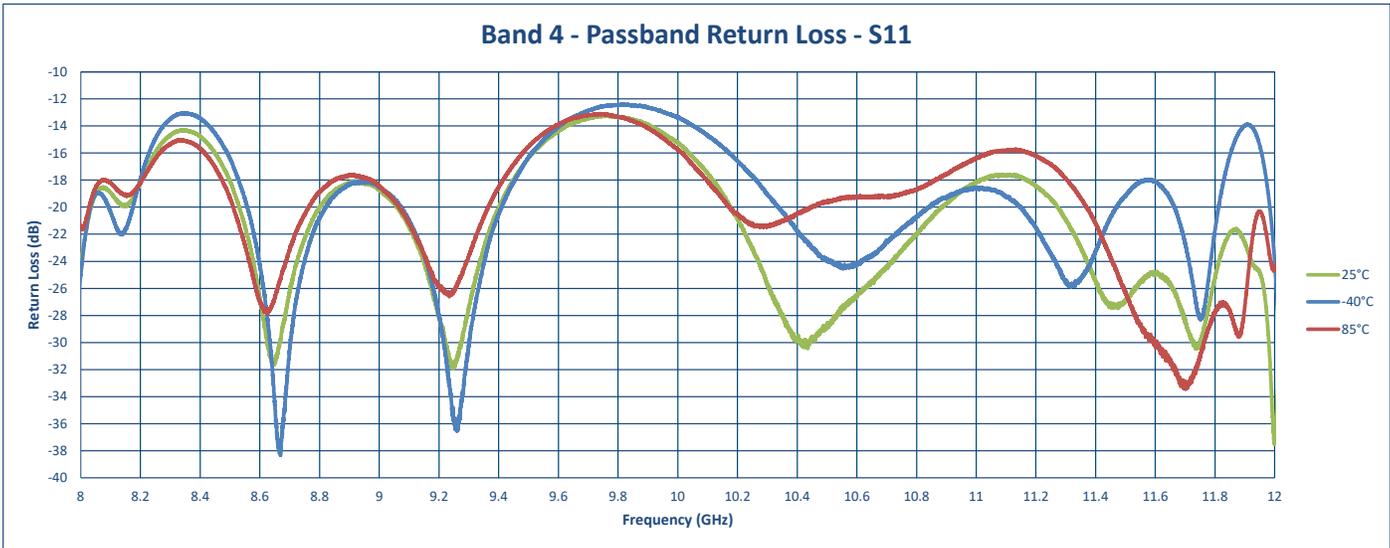
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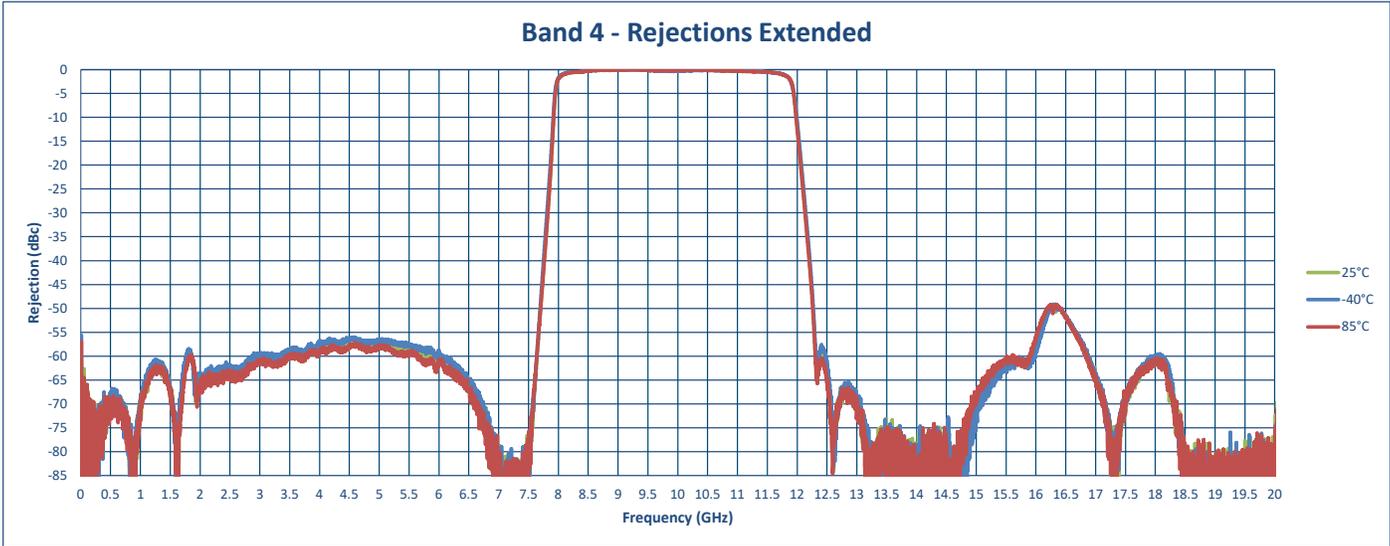
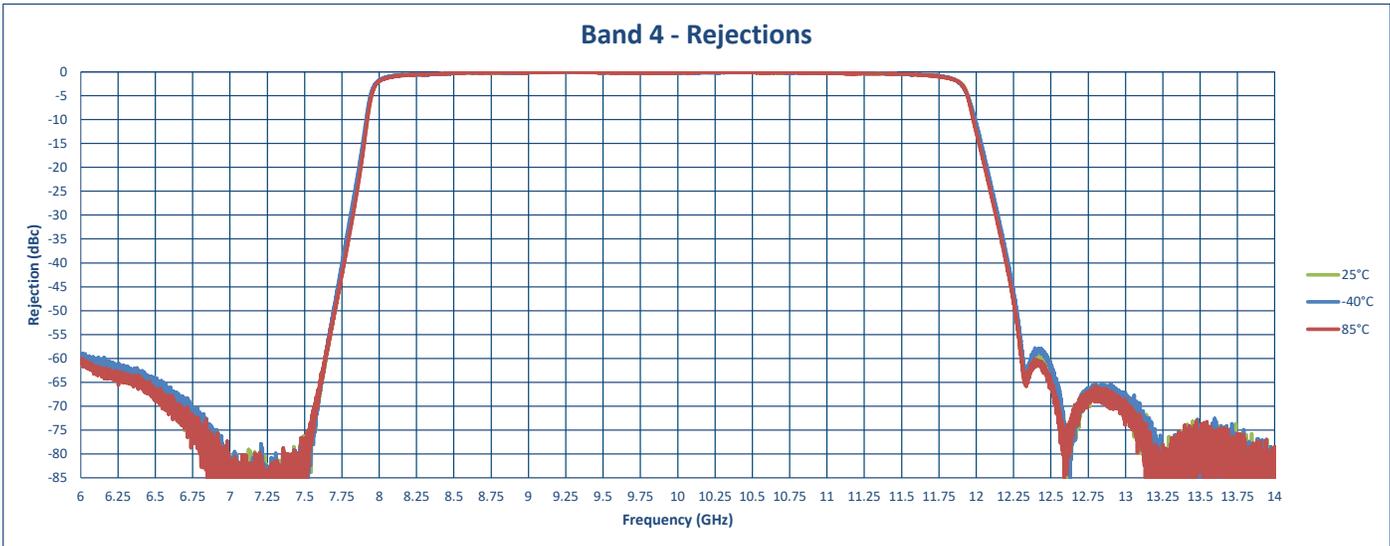


**Band 3 - Passband Insertion Loss**

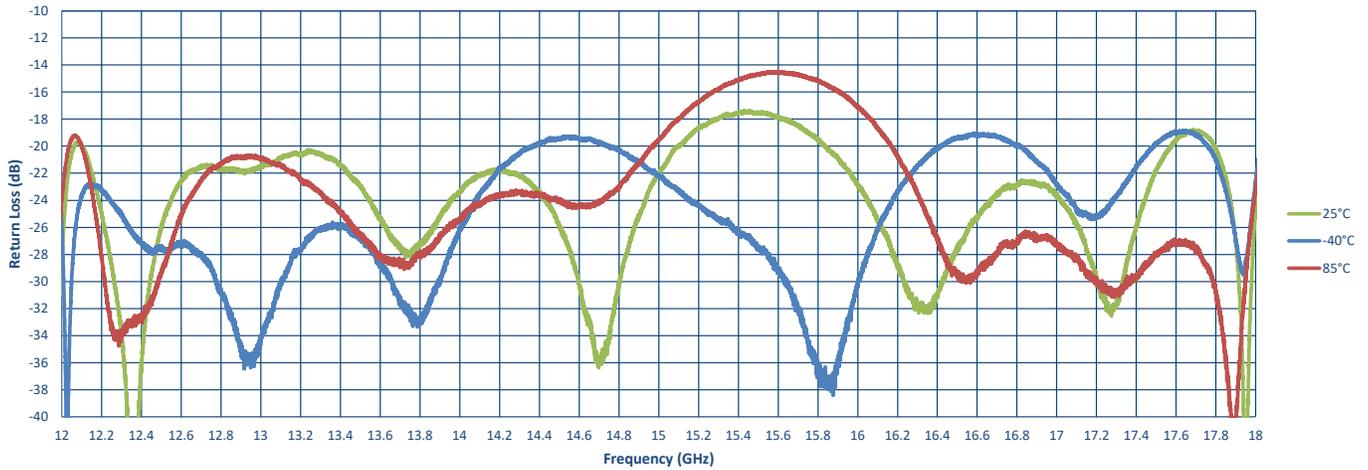




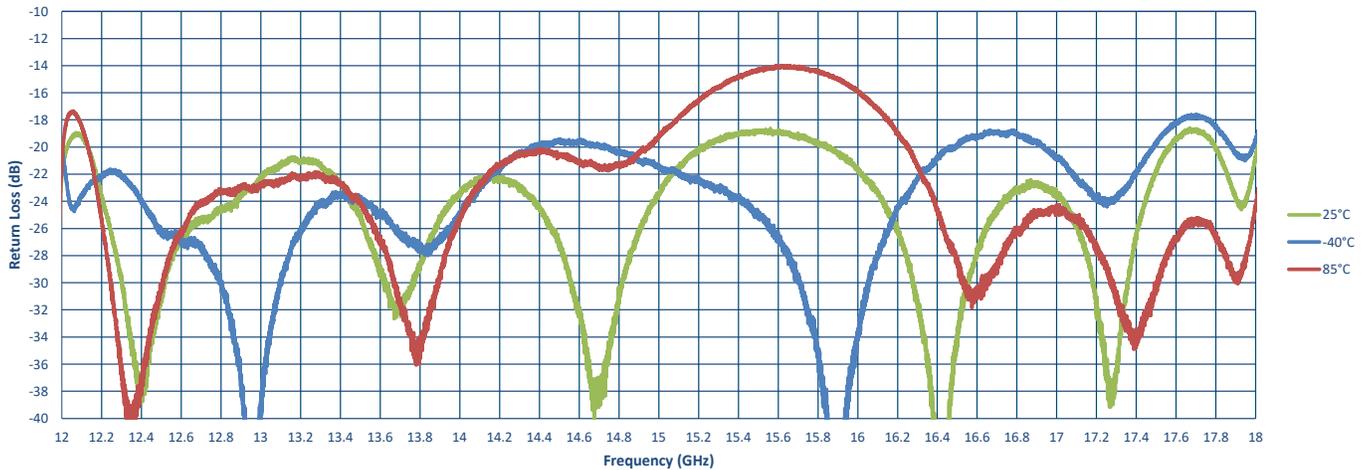




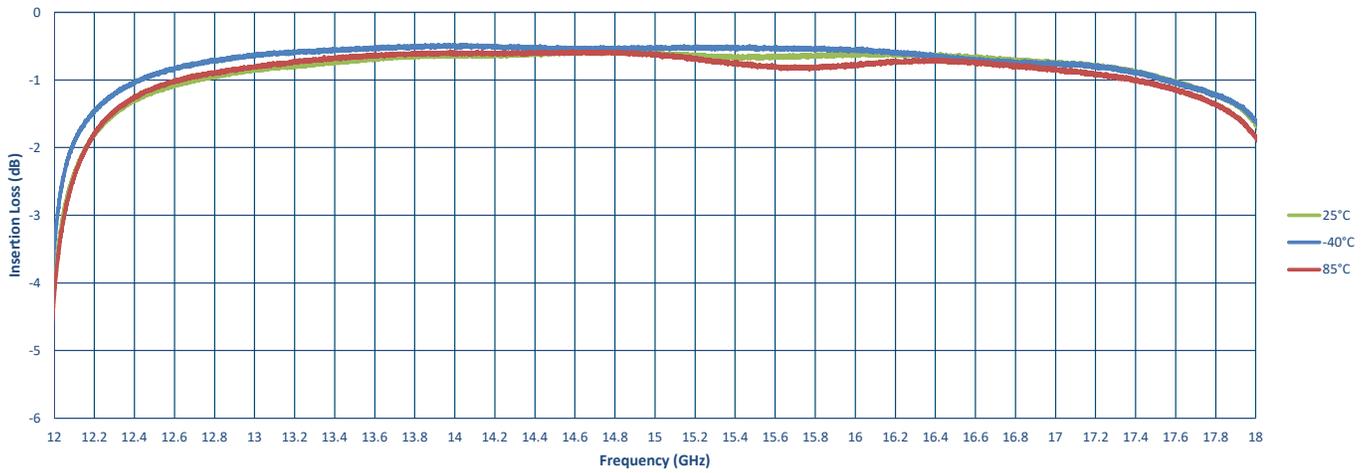
**Band 5 - Passband Return Loss - S11**



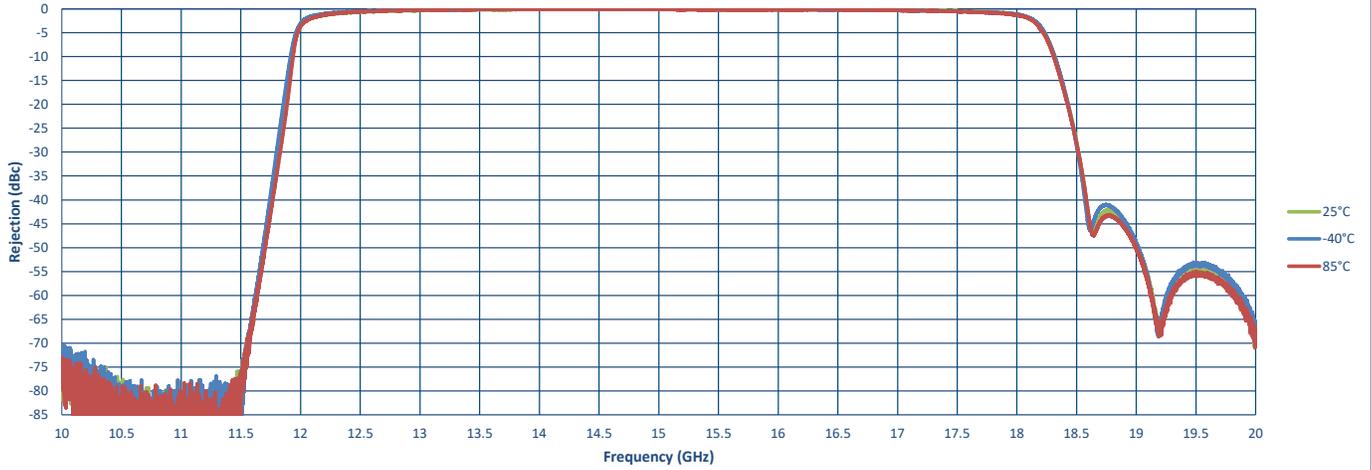
**Band 5 - Passband Return Loss - S22**



**Band 5 - Passband Insertion Loss**



**Band 5 - Rejections**



**Band 5 - Rejections Extended**

