TYPICAL CHARACTERISTICS
ON
PEC-30-10M20-SFF-ROHS

Wednesday, July 17, 2024

Reported By: D. Hoschar

Tested By:
E. Kretz

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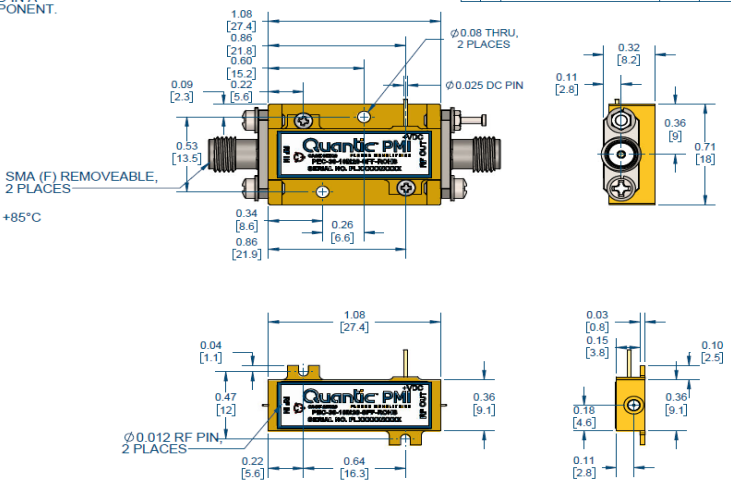
Outline Drawing

DESCRIPTION:

PMI MODEL NUMBER: PEC-30-10M20-SFF-ROHS IS A VERY LOW NOISE AMPLIFIER WITH WORKING FREQUENCY RANGE OF 10MHz TO 20GHz. THIS AMPLIFIER IS SUPPLIED IN A HOUSING THAT CAN BE USED AS A SURFACE MOUNT OR CONNECTORIZED COMPONENT.

SPECIFICATIONS:

FREQUENCY RANGE:	10 MHz TO 20 GHz
GAIN:	+26 dB MIN. (10 MHz TO 18 GHz) +28 dB MIN. (18 GHz TO 20 GHz)
GAIN FLATNESS:	±2.0 dB MAX. (10 MHz TO 18 GHz) ±2.5 dB TYP. , ±2.75 MAX. (18 GHz TO 20 GHz)
NOISE FIGURE:	4.5 dB MAX. (20 MHz TO 0.5 GHz) 3.5 dB MAX. (0.5 GHz TO 18 GHz) 4.0 dB MAX. (18 GHz TO 20 GHz)
OP1dB:	+13.5 dBm MIN. (10 MHz TO 18 GHz) +12 dBm MIN. (18 GHz TO 20 GHz)
PSat:	+15 dBm MIN. (10 MHz TO 18 GHz) +13 dBm MIN. (18 GHz TO 20 GHz)
OIP3:	+20 dBm MIN. (10 MHz TO 20 GHz) @ 25°C +14 dBm MIN. (10 MHz TO 20 GHz) @ -40°C TO +85°C
VSWR INPUT:	2.0:1 MAX (10 MHz TO 18 GHz) 2.2:1 MAX. (18 GHz TO 20 GHz)
VSWR OUTPUT:	2.1:1 MAX (10 MHz TO 18 GHz) 2.4:1 MAX. (18 GHz TO 20 GHz)
SECOND HARMONIC	
(-30dBm INPUT POWER)	40 dBc TYP. , 30 dBc MIN.
(AT P1dB)	12 dBc TYP. , 10 dBc MIN.
(+5 dBm OVER P1dB)	12 dBc TYP. , 9 dBc MIN.
(+10 dBm OVER P1dB)	12 dBc TYP. , 9 dBc MIN.
(+15 dBm OVER P1dB)	12 dBc TYP. , 9 dBc MIN.
REVERSE ISOLATION:	36 dB MIN. (10 MHz TO 18 GHz) 35 dB MIN. (18 GHz TO 20 GHz)
DC SUPPLY:	+12 TO +15 VDC @ 170 mA MAX
CONNECTORS IN/OUT:	SMA FEMALE
FINISH:	GOLD PLATED



ENVIRONMENTAL RATINGS:

TEMPERATURE:	-40°C TO +85°C (OPERATING) -40°C TO +100°C (STORAGE)
HUMIDITY:	MIL-STD-202F, METHOD 103B COND. B
SHOCK:	MIL-STD-202F, METHOD 213B COND. B
ALTITUDE:	MIL-STD-202F, METHOD 105C COND. B
TEMPERATURE CYCLE:	MIL-STD-202F, METHOD 107D COND. A

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

FEATURES:

INTERNAL VOLTAGE REGULATION
UNCONDITIONAL STABILITY

AVAILABLE OPTIONS:

VARIOUS PACKAGE TYPES
VARIOUS CONNECTOR TYPES
TEMPERATURE COMPENSATION
GAIN AND PHASE MATCHING
MIL-STD-883 SCREENING AVAILABLE

ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	3/26/2024	

PMI CONFIDENTIAL AND PROPRIETARY

PART NO.		Quantic PMI	
APPROVALS	DATE	7309-A GROVE ROAD FREDERICK, MARYLAND 21704 USA	
DRAWN	D. HOSCHAR 3/26/2024	WEB: WWW.QUANTICPMI.COM	
REDRAWN		TITLE	OUTLINE
ISSUED			PEC-30-10M20-SFF-ROHS
		SIZE B	FSCM NO. 05XQ0
		DWG NO.	26948520
		REV.	A1
		SCALE 2:1	SHEET 1 OF 1

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TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	Test Results			QA QC
			+25°C	+85°C	-40°C	
1	Frequency Range:	10 MHz to 20 GHz	**10 MHz to 20 GHz**	**10 MHz to 20 GHz**	**10 MHz to 20 GHz**	
2	Gain:	+26 dB Min. (10 MHz to 18 GHz) +28 dB Min. (18 GHz to 20 GHz)	**+27.09 dB Min.** **+29.43 dB Min.** **See Plot**	**+26.34 dB Min.** **+28.18 dB Min.** **See Plot**	**+27.63 dB Min.** **+30.63 dB Min.** **See Plot**	
3	Gain Flatness:	±2 dB Max. (10 MHz to 18 GHz) ±2.5 dB Typ., ±2.75 Max. (18 GHz to 20 GHz)	**±1.54 dB** **±1.54 dB** **See Plot**	**±1.36 dB** **±1.36 dB** **See Plot**	**±1.87 dB** **±1.87 dB** **See Plot**	
4	Noise Figure:	4.5 dB Max. (20 MHz to 0.5 GHz) 3.5 dB Max. (0.5 GHz to 18 GHz) 4.0 dB Max. (18 GHz to 20 GHz)	**3.5 @ 20 MHz to 0.5 GHz** **2.79 @ 0.5 to 18 GHz** **3.52 @ 18 to 20 GHz**	**4.38 @ 20 MHz to 0.5 GHz** **3.28 @ 0.5 to 18 GHz** **3.83 @ 18 to 20 GHz**	**3.47 @ 20 MHz to 0.5 GHz** **2.65 @ 0.5 to 18 GHz** **3.15 @ 18 to 20 GHz**	
5	OP1dB:	+13.5 dBm Min. (10 MHz to 18 GHz) +12 dBm Min. (18 GHz to 20 GHz)	**+14.1 dBm (10 MHz to 18 GHz)** **+12.7 dBm (18 to 20 GHz)**	**+13.9 dBm (10 MHz to 18 GHz)** **+12.3 dBm (18 to 20 GHz)**	**+14.4 dBm (10 MHz to 18 GHz)** **+13.1 dBm (18 to 20 GHz)**	
5	Reverse Isolation:	36 dB Min (10 MHz to 18 GHz) 35 dB Min (18 GHz to 20 GHz)	**-37.68 dB** **-39.23 dB**	**-37.41 dB** **-39.73 dB**	**-37.85 dB** **-38.72 dB**	
6	VSWR Input:	2:1 Max. (10 MHz to 18 GHz) 2.2:1 Max. (18 GHz to 20 GHz)	**1.7:1 (10 MHz to 18 GHz)** **1.4:1 (18 to 20 GHz)** **See Plot**	**1.8:1 (10 MHz to 18 GHz)** **1.3:1 (18 to 20 GHz)** **See Plot**	**1.9:1 (10 MHz to 18 GHz)** **1.6:1 (18 to 20 GHz)** **See Plot**	
7	VSWR Output:	2.1:1 Max. (10 MHz to 18 GHz) 2.4:1 Max. (18 GHz to 20 GHz)	**2:1 (10 MHz to 18 GHz)** **1.7:1 (18 to 20 GHz)** **See Plot**	**1.9:1 (10 MHz to 18 GHz)** **1.6:1 (18 to 20 GHz)** **See Plot**	**2.1:1 (10 MHz to 18 GHz)** **1.9:1 (18 to 20 GHz)** **See Plot**	
8	DC Supply:	+12 to +15 VDC @ 170 mA MAX.	**+12 to +15 VDC @ 158 mA**	**+12 to +15 VDC @ 158 mA**	**+12 to +15 VDC @ 158 mA**	

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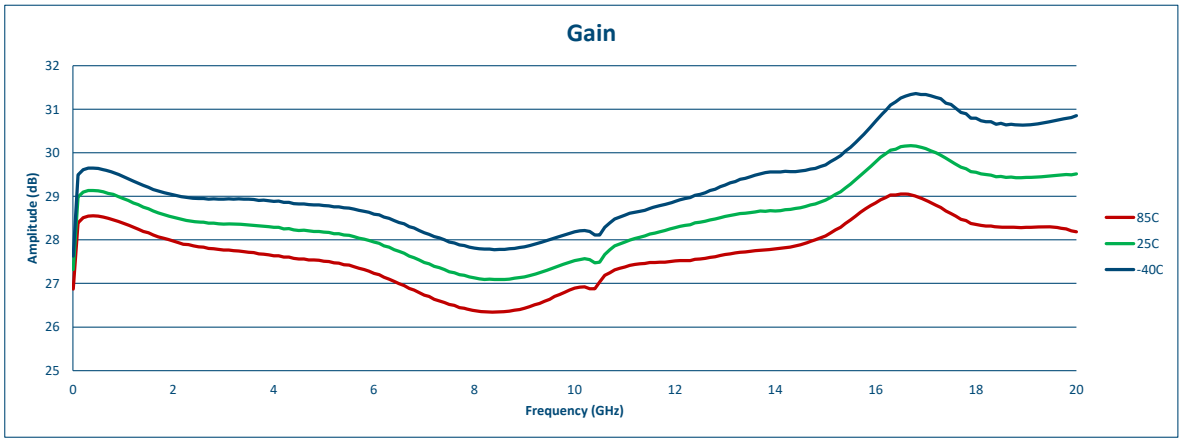

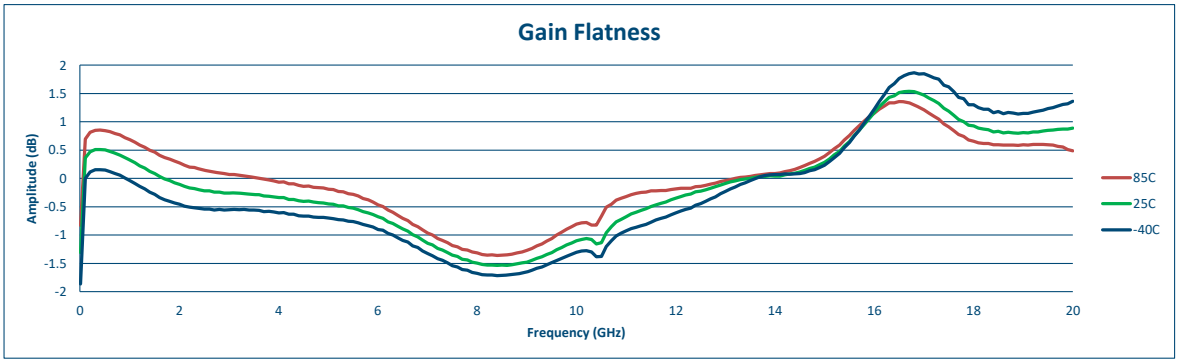

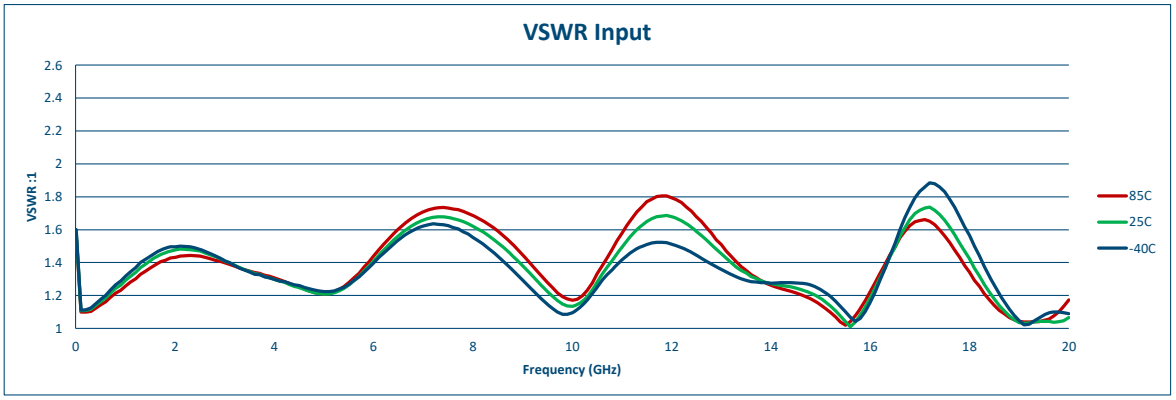

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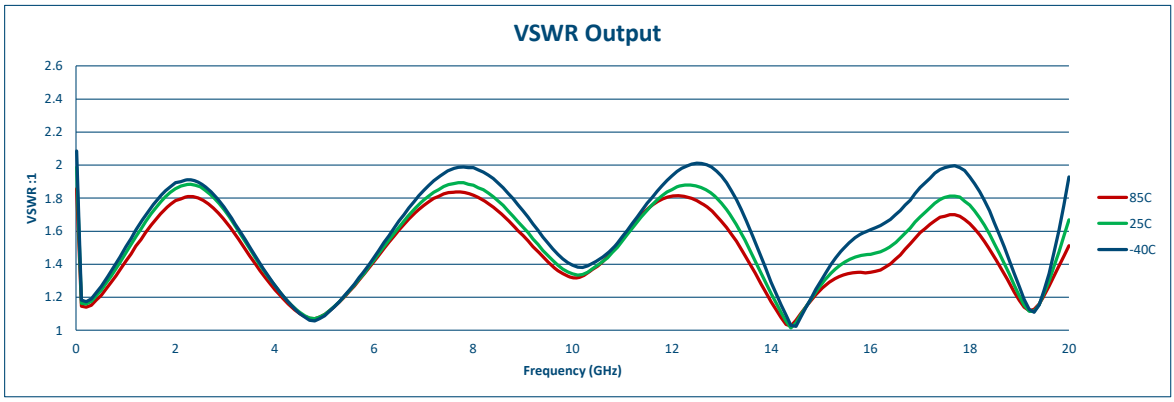

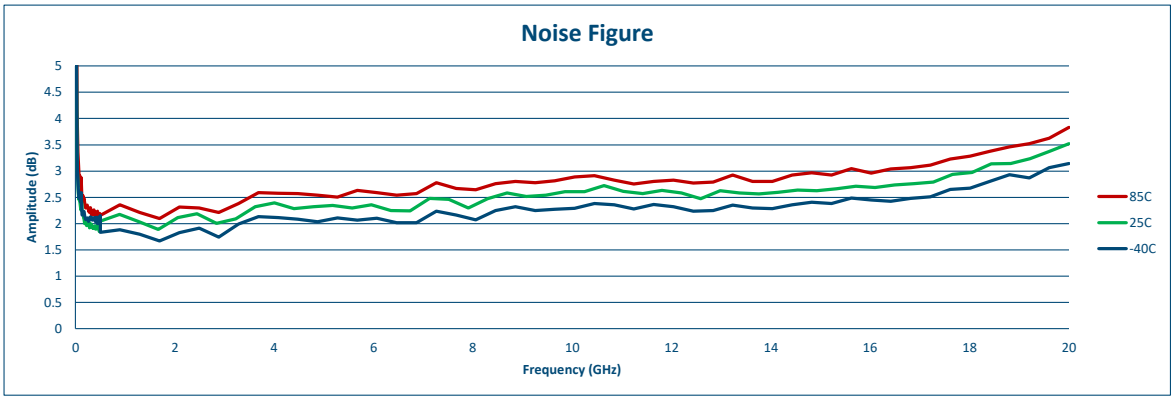

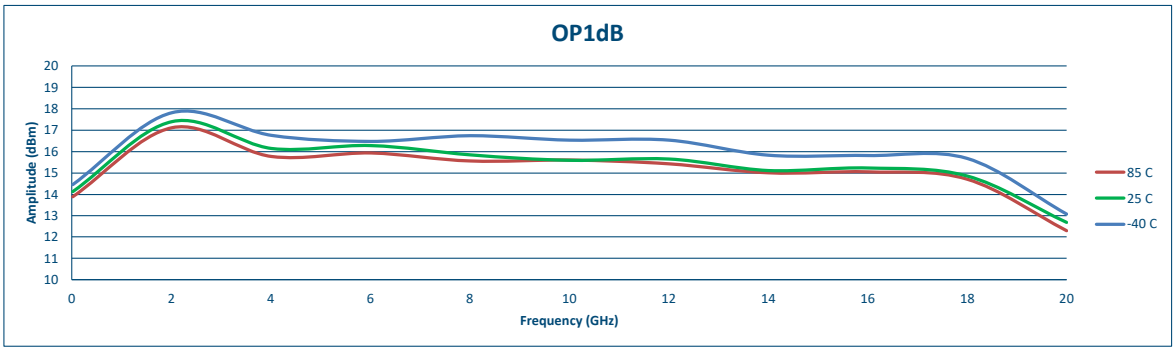

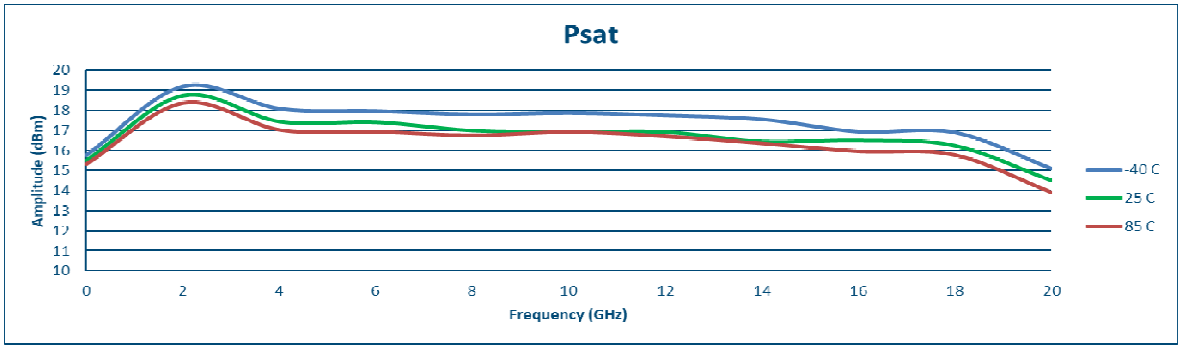

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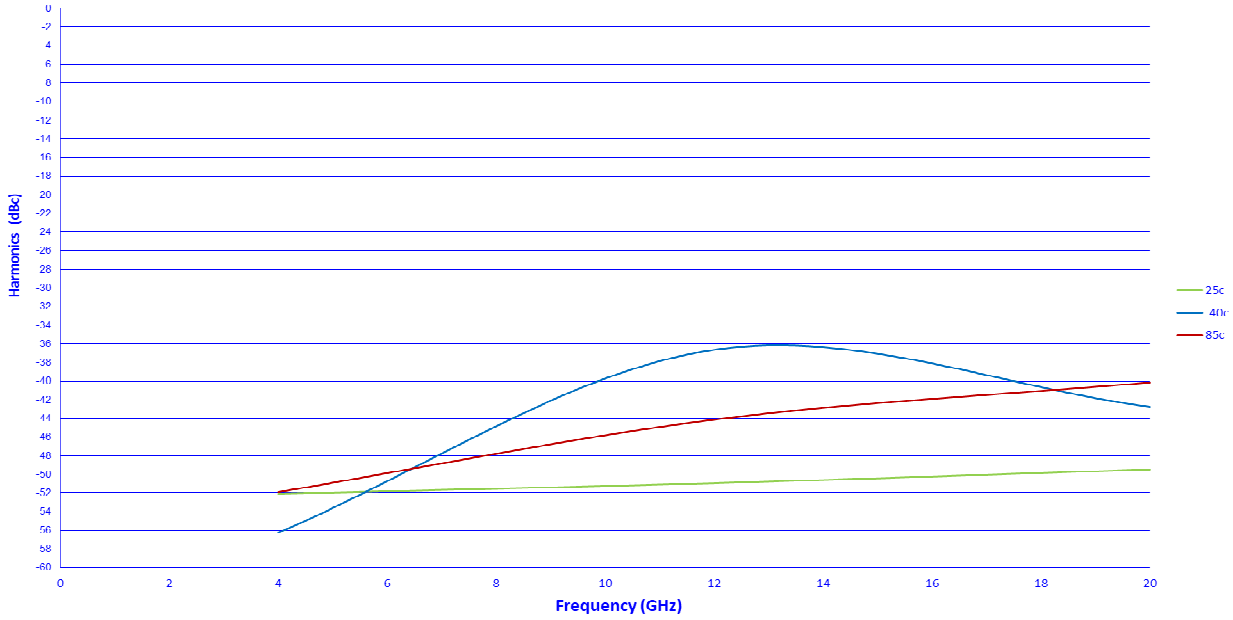
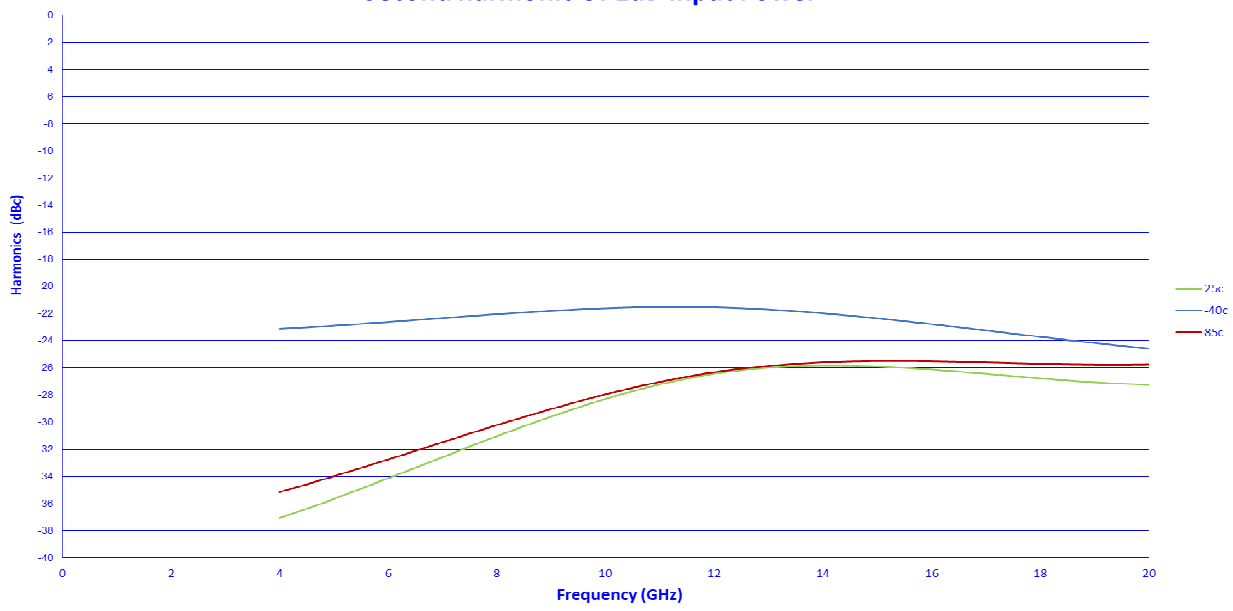
Second harmonic -30dBm Input Power



Second harmonic OP1dB Input Power



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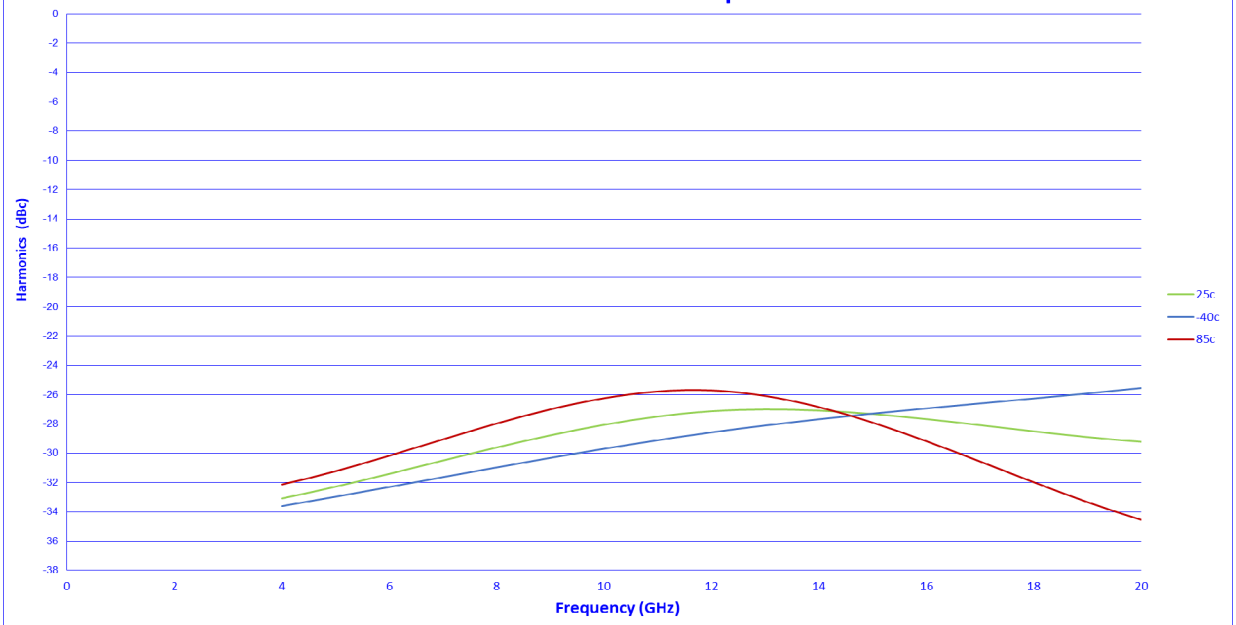
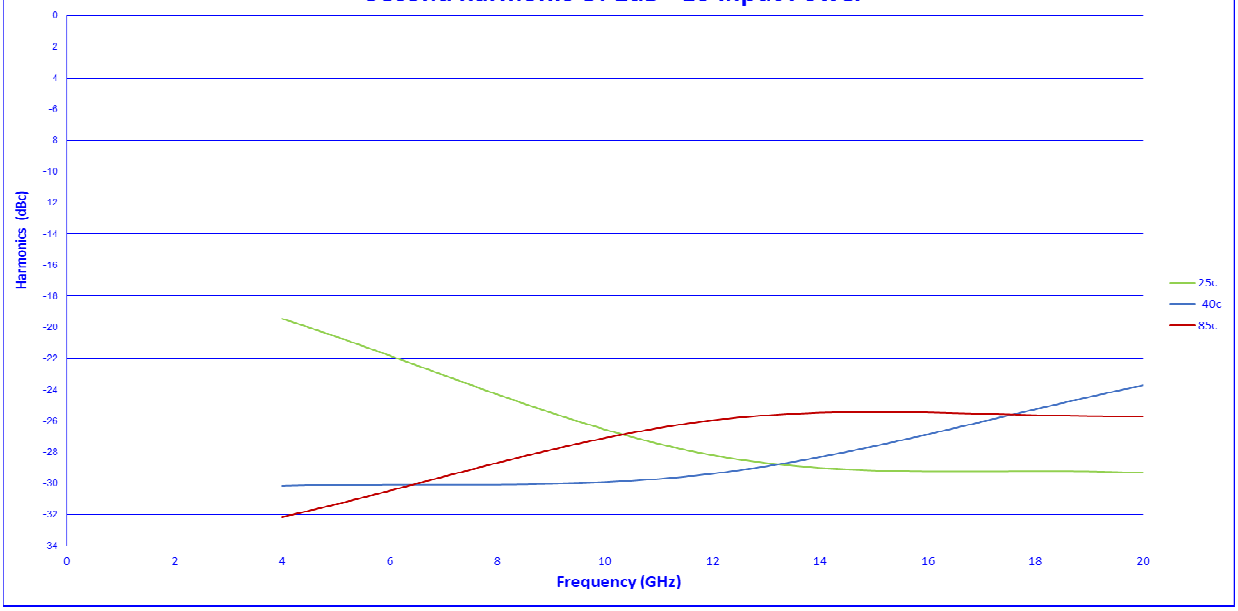
Second harmonic OP1dB +5 Input Power



Second harmonic OP1dB +10 Input Power



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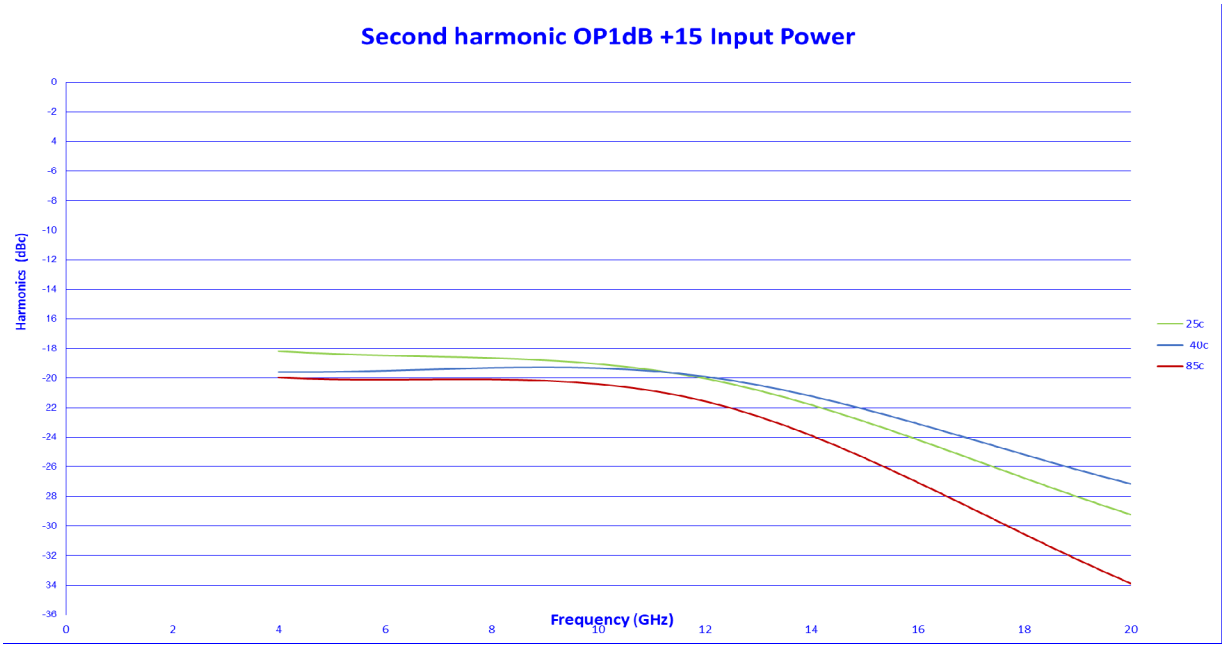

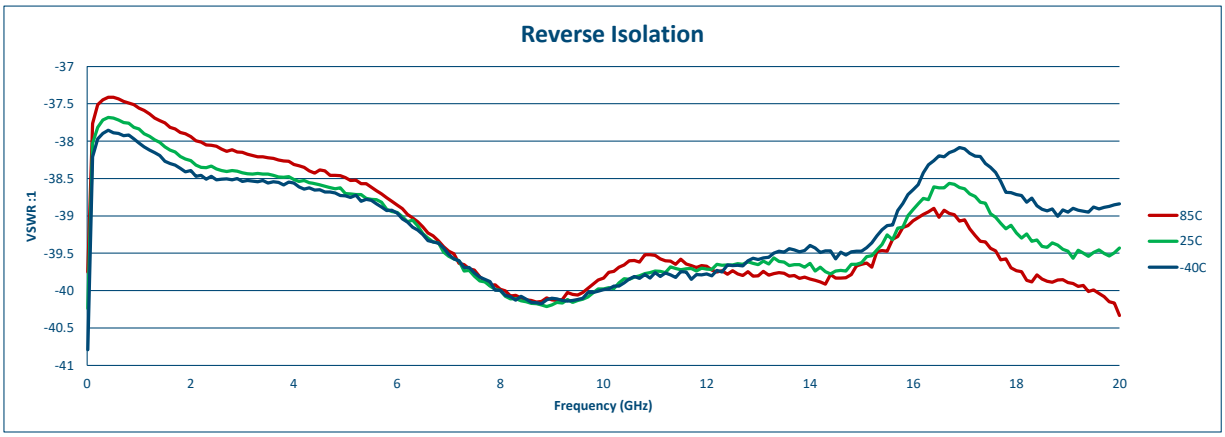

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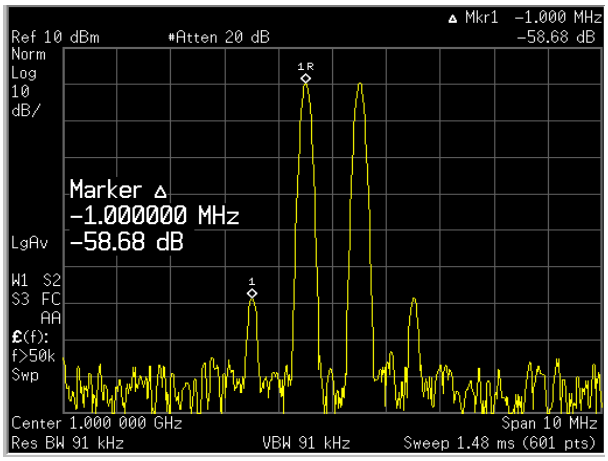
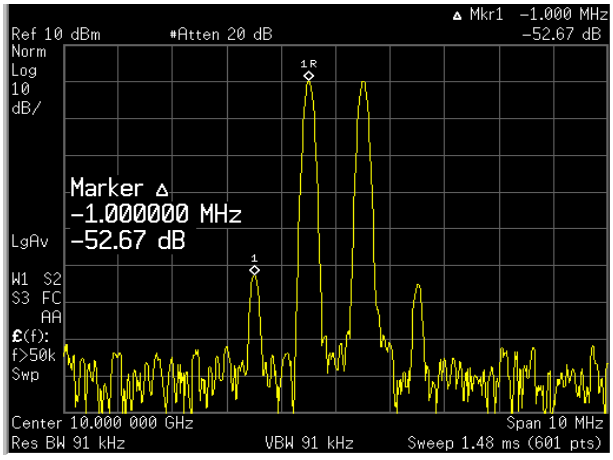
+25C

Output IP3 @ 1 GHz



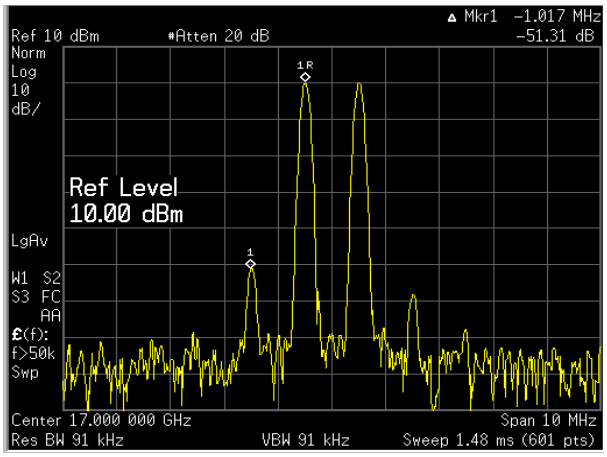
IP3 = Pout +dBc/2 = 28.3 dBm

Output IP3 @ 10 GHz



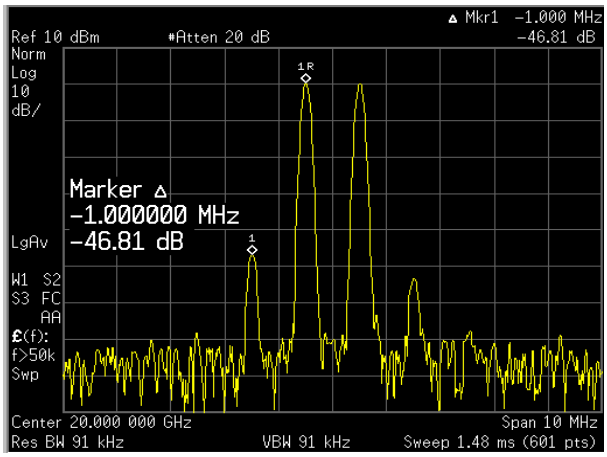
IP3 = Pout +dBc/2 = 26.3 dBm

Output IP3 @ 17 GHz



IP3 = Pout +dBc/2 = 25.7 dBm

Output IP3 @ 20 GHz



IP3 = Pout +dBc/2 = 23.4 dBm

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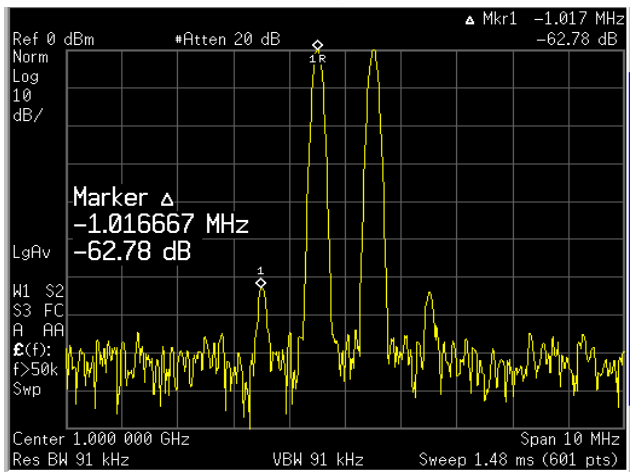
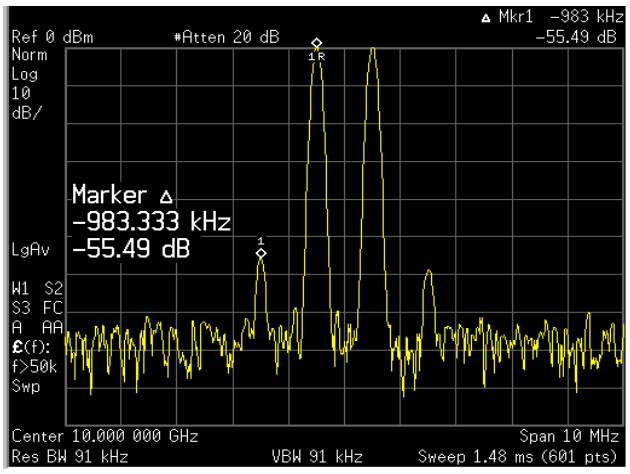
+85C

Output IP3 @ 1 GHz



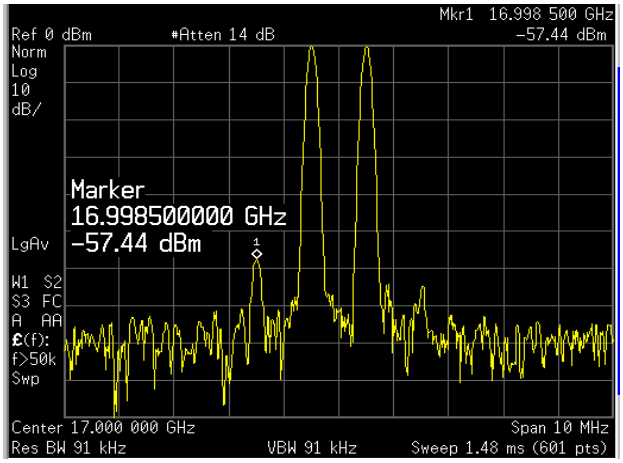
IP3 = Pout +dBc/2 = 31.4 dBm

Output IP3 @ 10 GHz



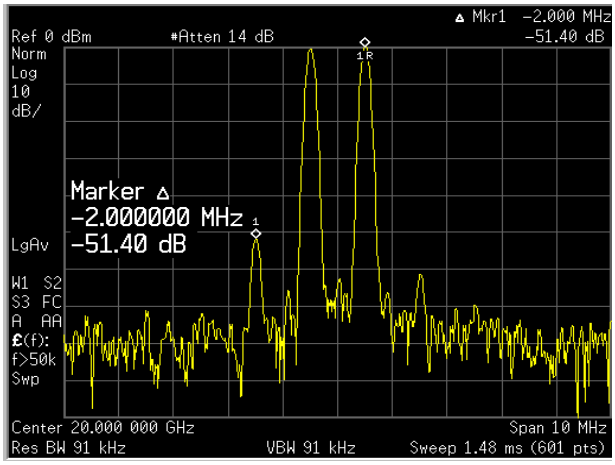
IP3 = Pout +dBc/2 = 27.7 dBm

Output IP3 @ 17 GHz



IP3 = Pout +dBc/2 = 28.7 dBm

Output IP3 @ 20 GHz



IP3 = Pout +dBc/2 = 25.7 dBm

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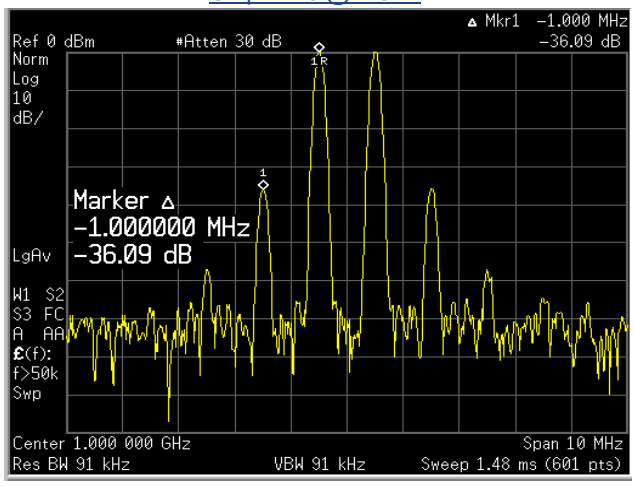
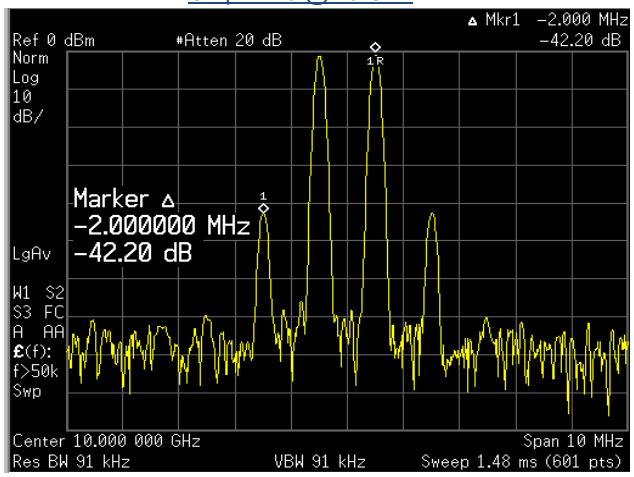
-40C

Output IP3 @ 1 GHz



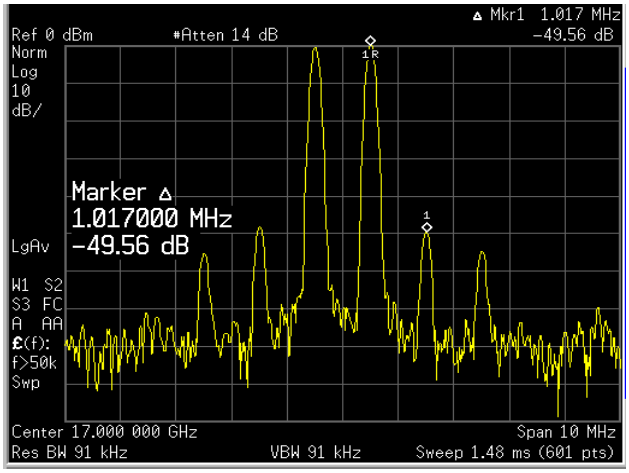
IP3 = Pout +dBc/2 = 18 dBm

Output IP3 @ 10 GHz



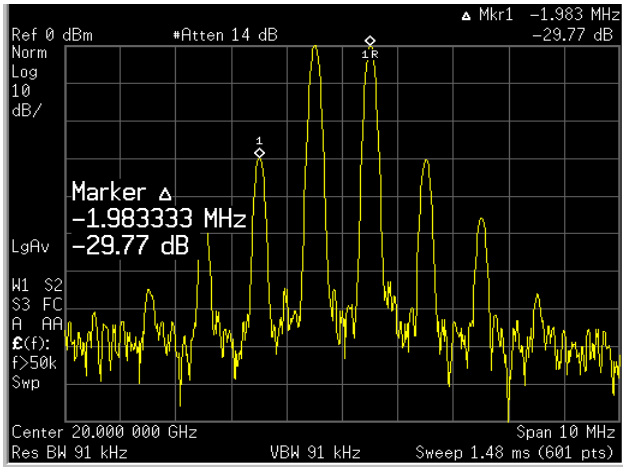
IP3 = Pout +dBc/2 = 21.1 dBm

Output IP3 @ 17 GHz



IP3 = Pout +dBc/2 = 24.7 dBm

Output IP3 @ 20 GHz



IP3 = Pout +dBc/2 = 14.9 dBm

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