



FEUILLE DE Spécifications
DATASHEET

P/N: AAMCS-AMP-2G-18G-35dB-36dBm-0-C
Designation : 4W, 35dB, 2-18GHz Amplifier module



2 – 18 GHz 4W power amplifier module

Ed.	Par / By	Le	Observation
0	Belluot	28/06/2016	Création (ET16005)
1	Belluot	12/09/2016	Update following serial production
2	Belluot	08/12/2016	Update following optimization


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Caractéristiques électriques <i>Electrical features</i>			
Caractéristiques électriques <i>electrical specifications</i>	Conditions de mesure <i>Measuring conditions</i>	Spécifications AA-MCS <i>AA-MCS specifications</i>	Unités <i>Units</i>
Bande de fréquence <i>Bandwidth</i>		2 - 18	GHz
Puissance de sortie <i>Output power</i>	@ Tcase = +25°C CW @ Psat (0dBm input power typ)	36 min. 37 typ.	dBm
Puissance d'entrée <i>Input power</i>		+10 max.	dBm
Gain <i>Gain</i>	@ 0dBm input power	36 min. 37 typ. <i>(includes gain compensation versus temperature)</i>	dB
Ondulation dans la bande <i>In band ripple</i>	@ 0dBm input power	+/- 2 max.	dB
Impédance <i>Impedance</i>		50	Ohms
TOS d'entrée / sortie <i>Input VSWR</i>	Input Output	3 :1 max. 2:1 typ. 2:1 typ.	
Vitesse d'extinction <i>Time for TX on/off</i>	10-90%	0.5 typ. 1 max.	us
Densité spectrale de puissance <i>Power density in blanking mode</i>	In 2MHz BW	-120 max. RF switches in the TX path and gate bias cutoff	dBm
Résistance au TOS de charge <i>Load mismatch</i>		3:1 max.	

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Classe de fonctionnement <i>Operating class</i>		AB on GaN devices	
Parasites <i>Spurious</i>	@ Psat	-60 max.	dBc
OIP3 <i>OIP3</i>	@ 1W / carrier Spacing = 1MHz	38 min. 40 typ.	dBm
Harmoniques <i>Harmonics</i>	H2 H3	-25 typ. -15 max. -15 typ. -12 max.	dBc
Facteur de bruit <i>Noise figure</i>	@ +25°C	8 typ.	dB
Courant consommé <i>Current consumption</i>	@ Psat & +28Vdc Small signal & +28Vdc Blanking ON & +28Vdc Shut down & +28Vdc	1.2 typ. 1.5 max. 1 typ. 0.15 max. 0.07 typ.	A
Tension d'alimentation <i>Supply voltage</i>		+12 min. +28 typ. +36 max. Internal DC/DC converter	Vdc
Tension de control température <i>Temperature voltage monitoring</i>	Positive slope	10mV x T(°C) -300mV@ -30°C 0V @ 0°C +600mV@ +60°C	

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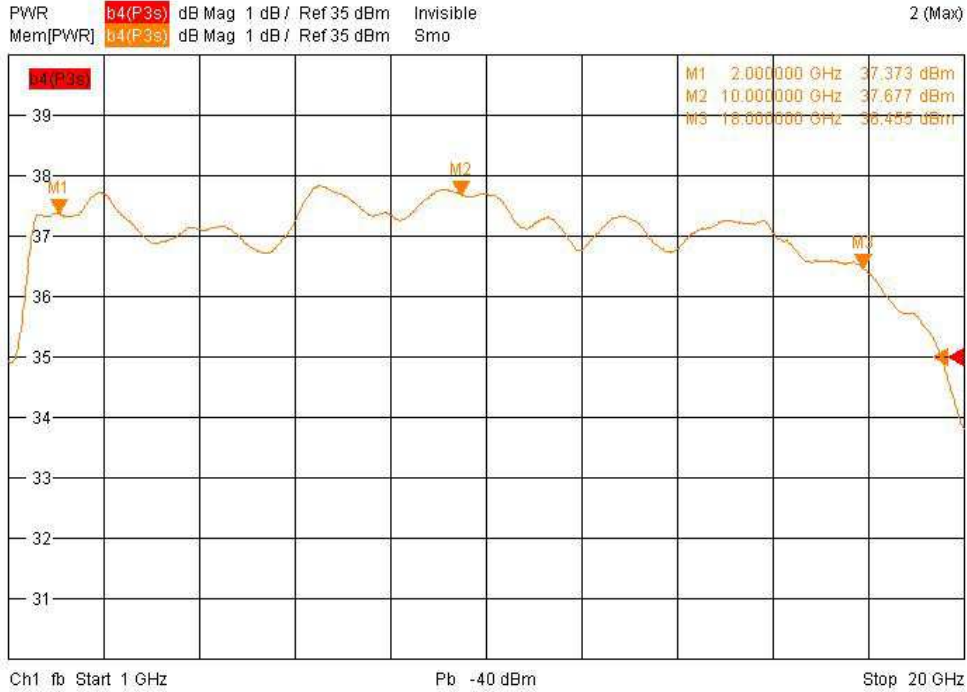


Figure 1

Orange : Output power @ 0dBm input power

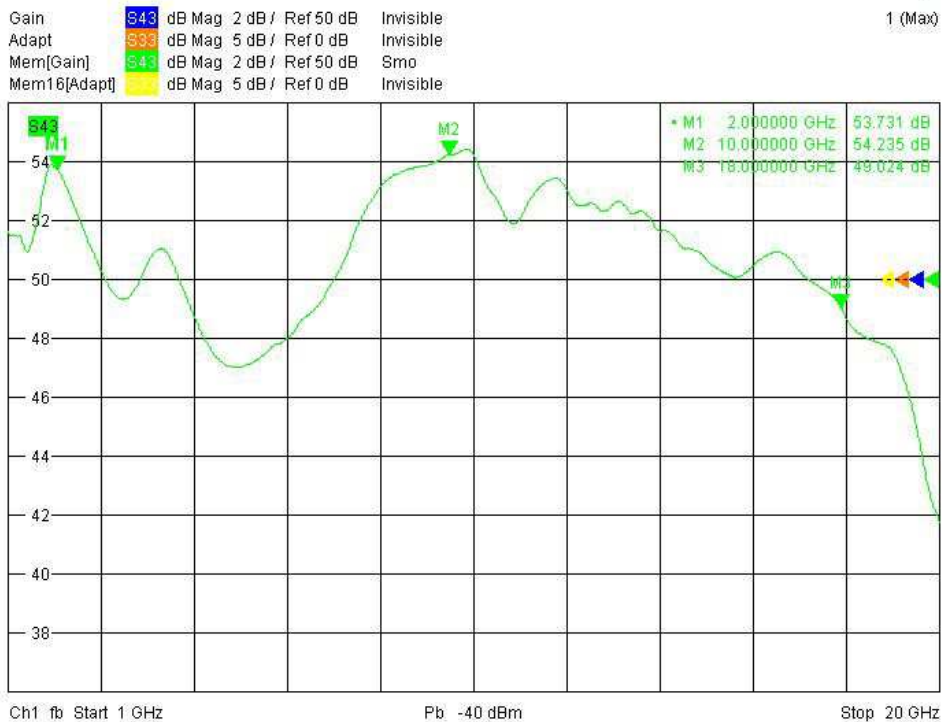


Figure 2

Green : Small signal gain

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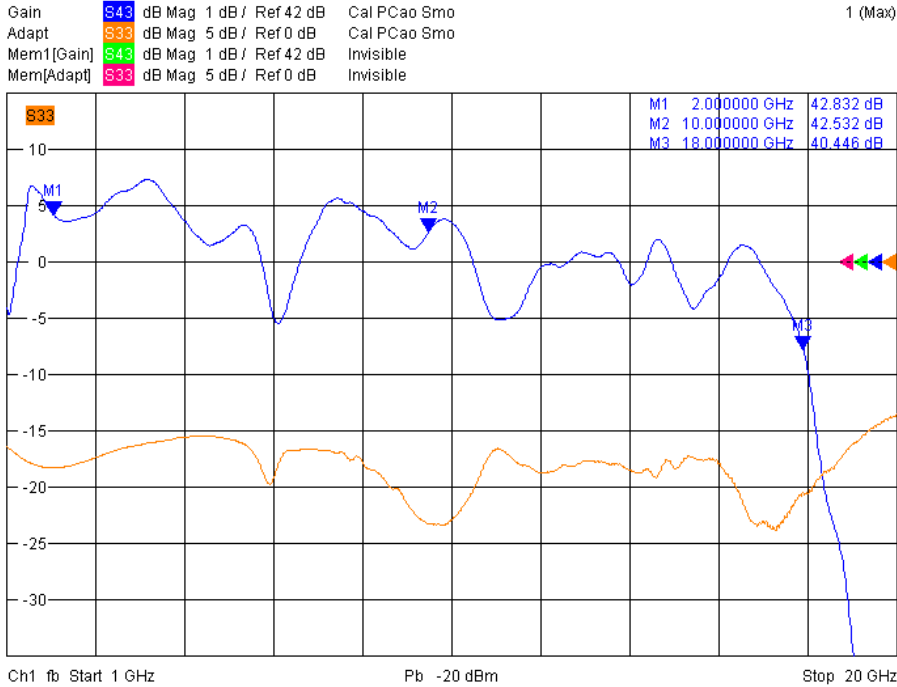


Figure 3
Orange : input return loss

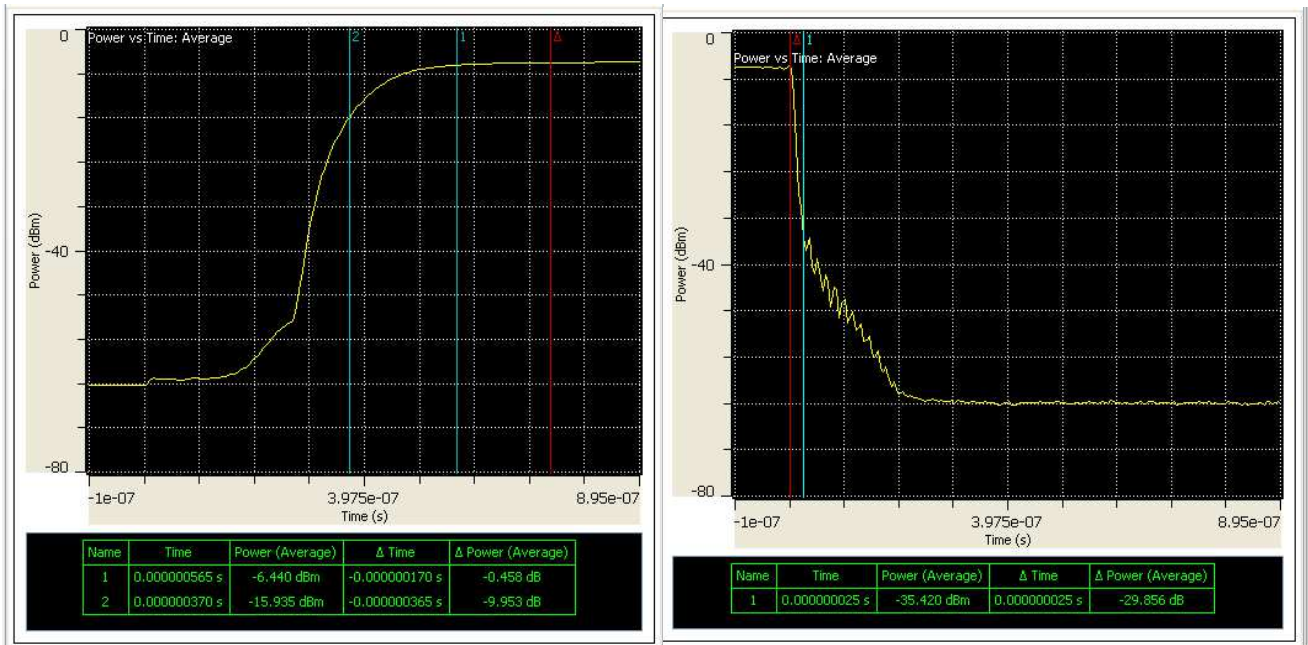


Figure 4
10-90% Blanking time (ON time on left & OFF time on right)

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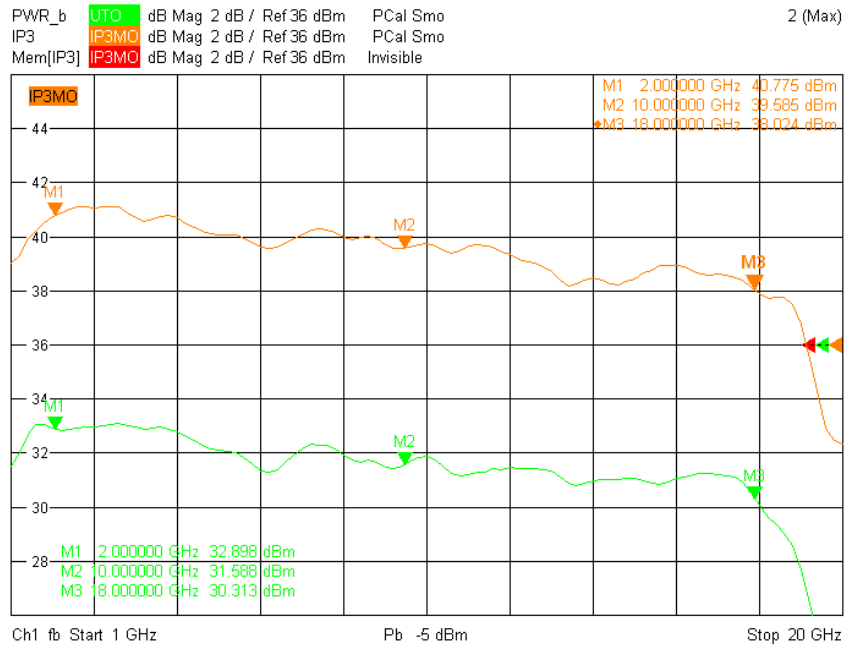


Figure 5

Orange : output IP3 @ -5dBm input power (30dBm min./carrier)

Green : output power @ -5dBm input power /carrier

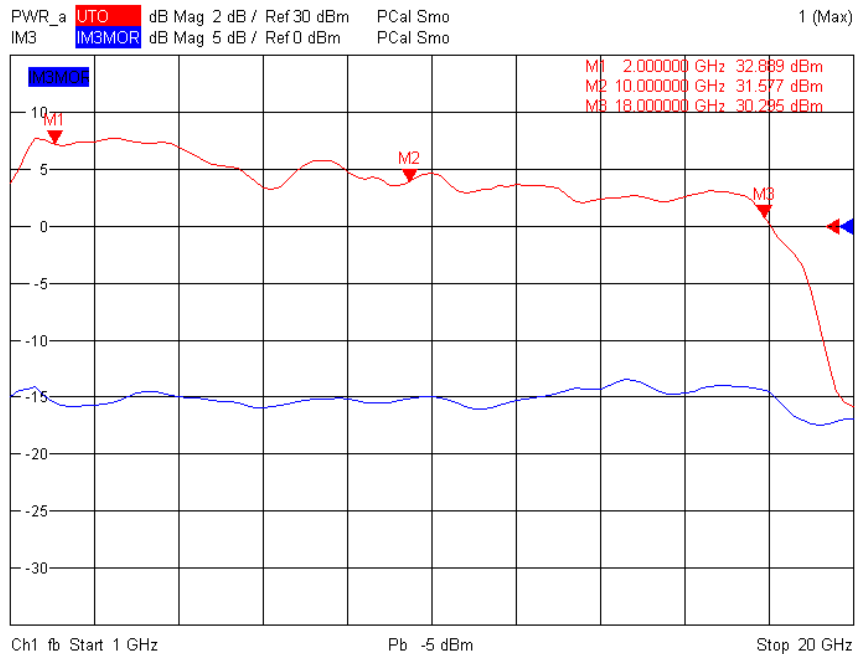


Figure 6

Blue : output IM3 in dBc @ -5dBm input power (30dBm min./carrier)

Red : output power @ -5dBm input power /carrier

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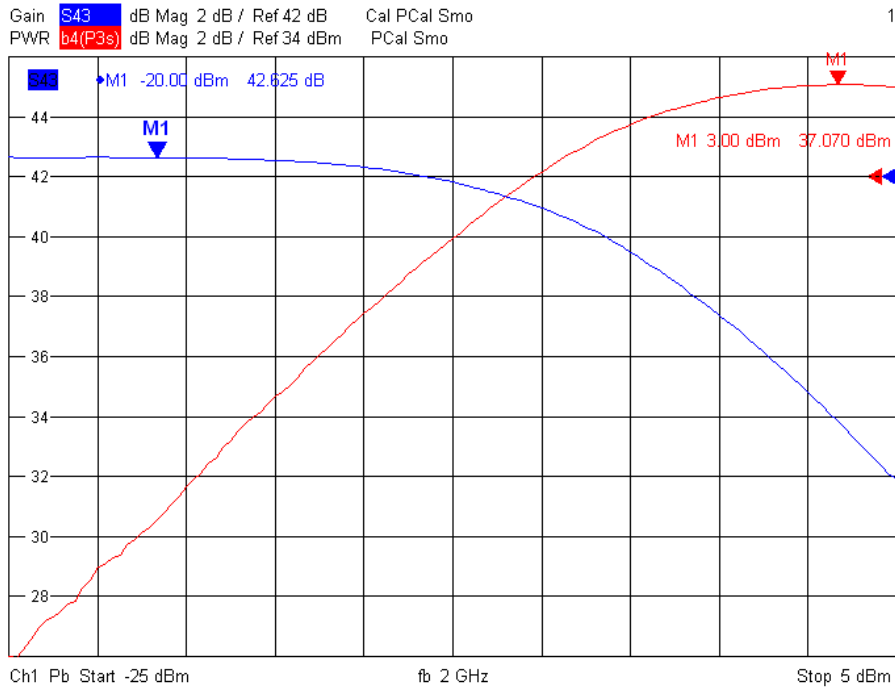


Figure 8a

Red : power function of input power @ 2GHz

Blue : gain function of input power @ 2GHz

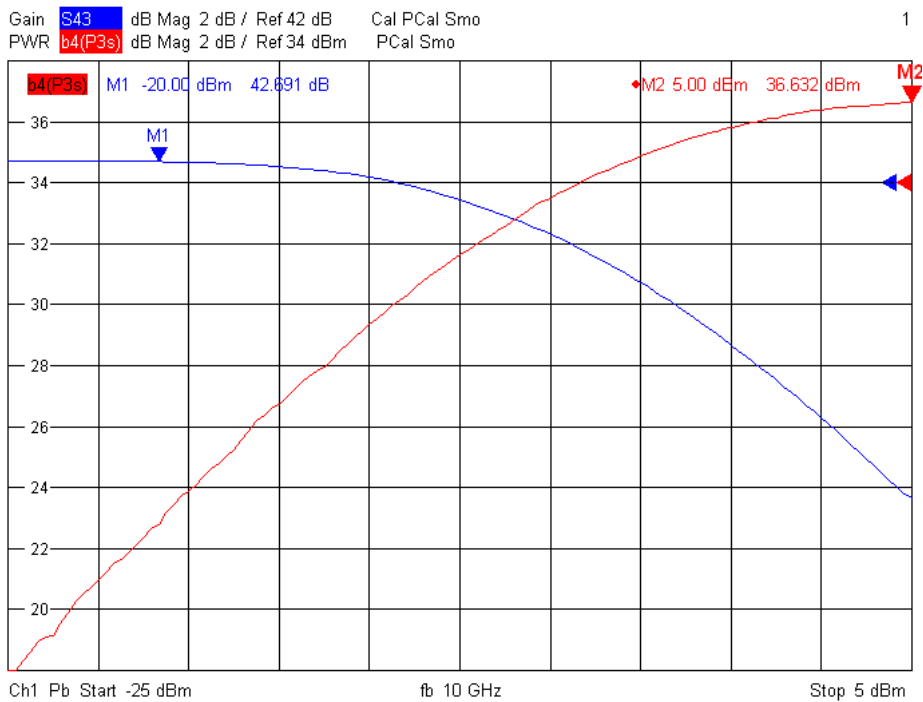


Figure 8b

Red : power function of input power @ 10GHz

Blue : gain function of input power @ 10GHz

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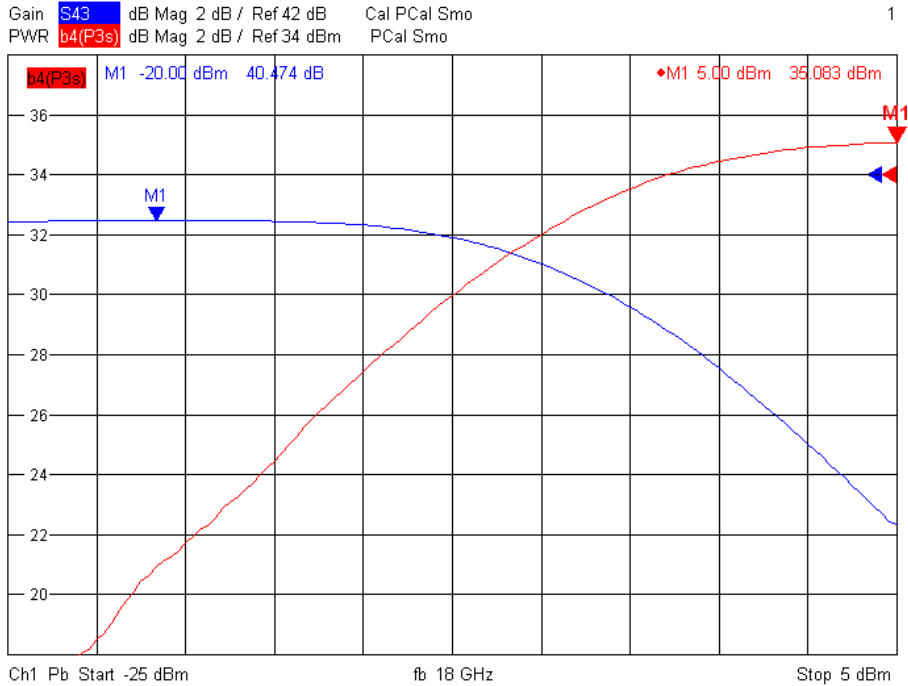


Figure 8c

Red : power function of input power @ 18GHz

Blue : gain function of input power @ 18GHz

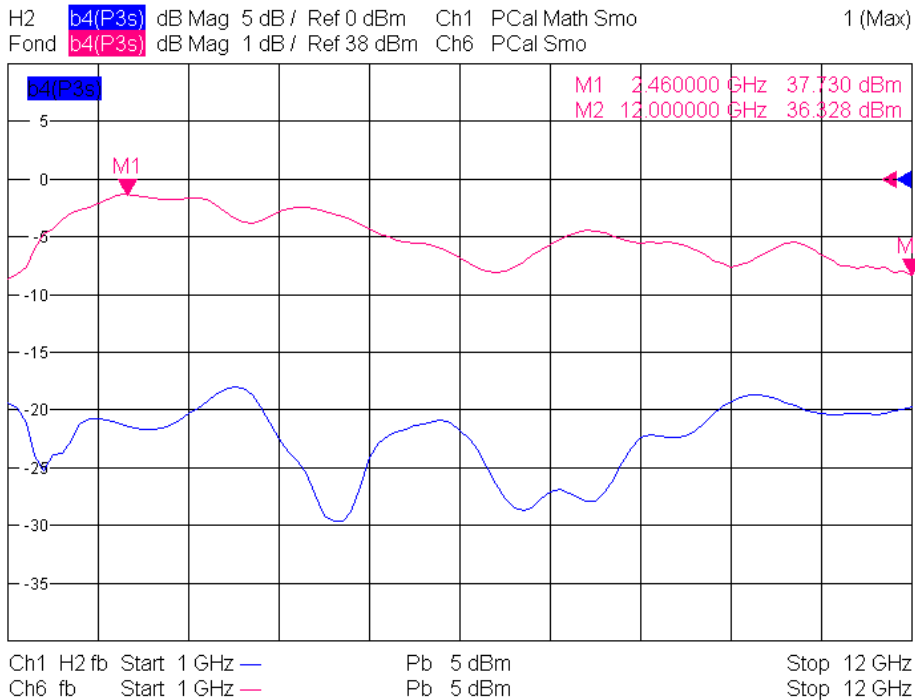


Figure 9

Pink : Psat reference in dBm

Blue : relative harmonic 2 in dBc

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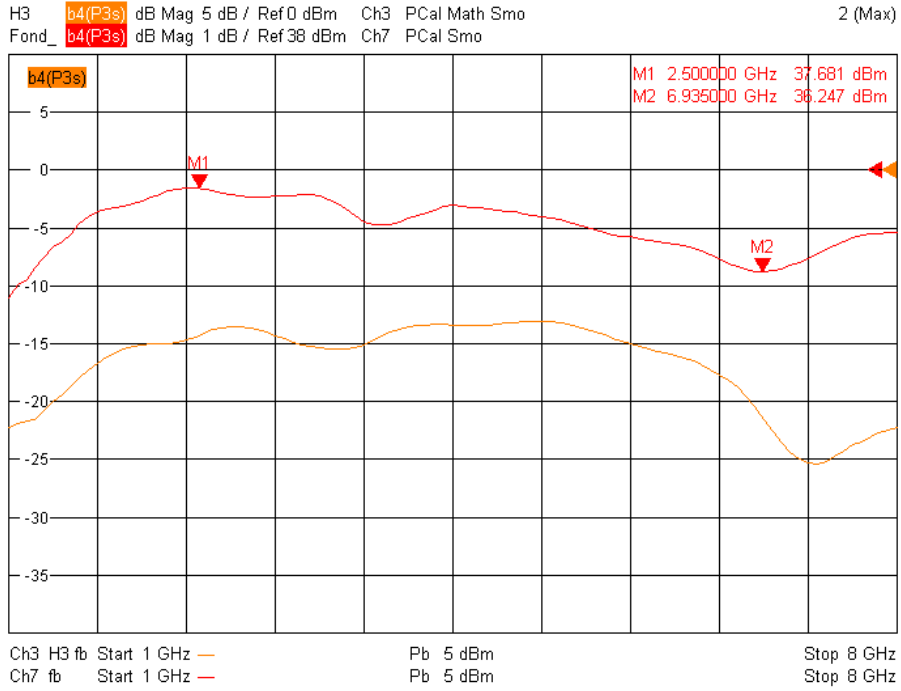


Figure 10

red : Psat reference in dBm
orange : relative harmonic 3 in dBc

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Control / commandes <i>Command & control bits</i>		
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Control extinction <i>Blanking/noise quieting control bit</i>	1 solder Pin	TTL High or Not connected : RF Output ON Low : RF Output OFF
Lecture temperature <i>Temperature analog signal</i>	1 solder Pin	Analog Analog, refer to Electrical features

Caractéristiques mécaniques <i>Mechanical features</i>			
Longueur x largeur x Hauteur <i>Length x width x height</i>	L x W x H ISO 2768-mH	120 x 60 x 30 max. (without connectors)	mm
Connectique RF <i>RF Connectors</i>	Input / Output	SMA female	-
Connecteur de control et alim <i>Supply & Control connector</i>		Solderable feedthru and pins	
Poids <i>Weight</i>		500 max.	g
Châssis <i>Housing</i>		Aluminium coated with Surtec 650	
Etanchéité <i>Sealing</i>		Hermetically sealed	

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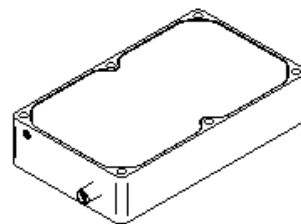
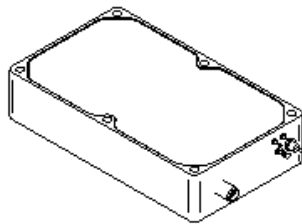
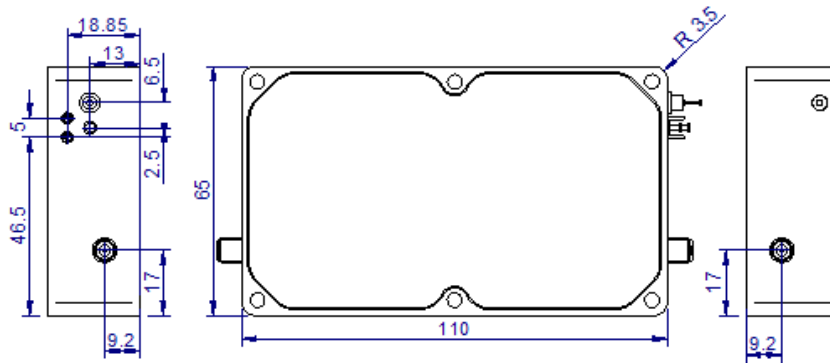
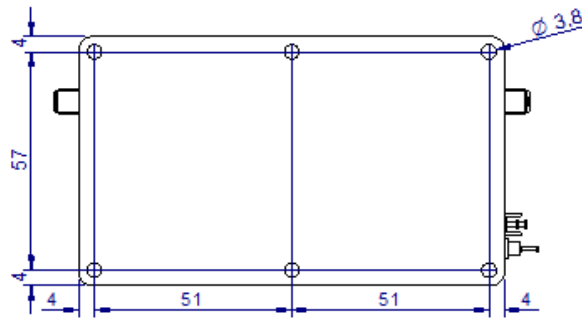
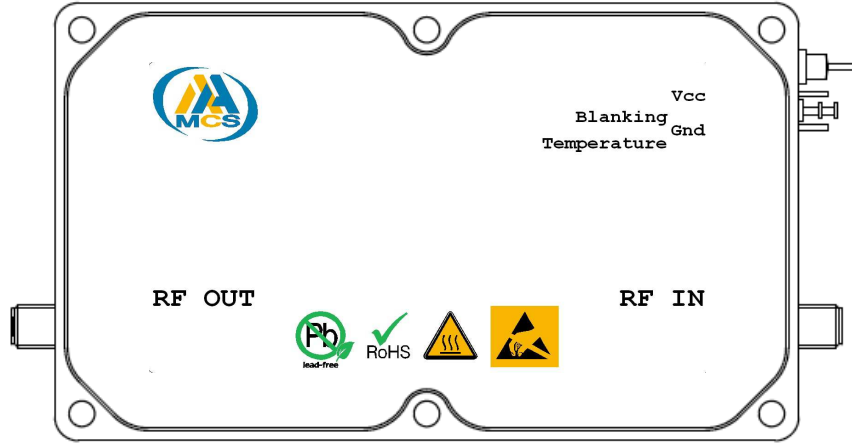
Conditions environnementales <i>Environmental conditions</i>			
Température de service à froid <i>Cold temperature operation</i>	Case temperature	-32 min.	°C
Température de stockage à froid <i>Cold temperature storage</i>	Case temperature	-46 min.	°C
Température de service à chaud <i>Dry heat temperature operation</i>	Case temperature	+85 max. <small>(includes automatic shutdown for thermal protection when baseplate temp exceeds +90°C)</small>	°C
Température de stockage à chaud <i>Dry heat temperature storage</i>	Case temperature	+85 max.	°C
Altitude <i>Altitude</i>		30 000 max.	ft
Sable et poussières <i>Sand and dust</i>		As per MIL-STD-810G method 510.5 procedure I & II	
Humidité <i>Humidity</i>	97% @ +26°C	As per MIL-STD-810G method 507.5 procedure II	%
Vibrations aléatoires operation <i>Functional random vibrations</i>		MIL-STD-810G method 514.5 procedure I Airborne	
Chocs fonctionnels <i>Functional shocks</i>		As per MIL-STD-810G method 516.6 procedure I 20g	
Accélération fonctionnelle <i>Functional acceleration</i>		Forward 12g Back 4g Up 4g Down 2g Lateral 3g	

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