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RoHS Compliant

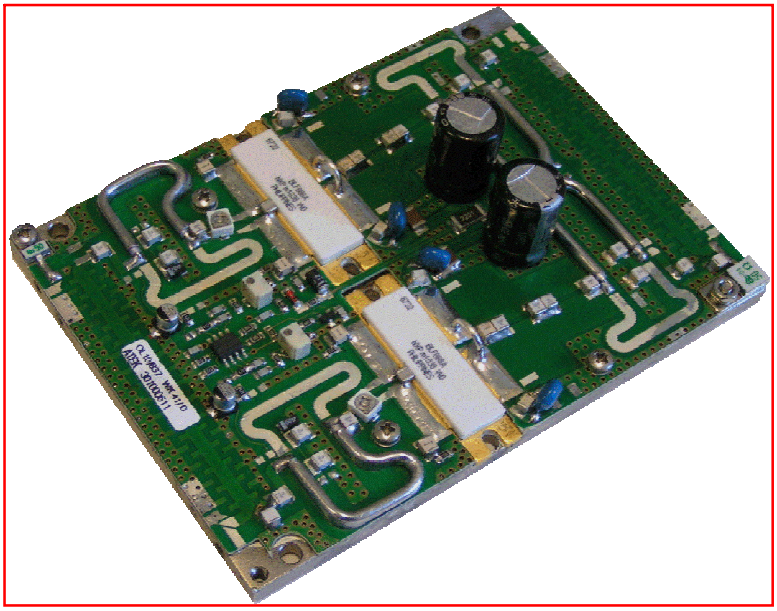
PAUHF800B

Objective data sheet

Power Amplifier Section 800W UHF

Designed for Analog and digital Tv application.
Ldmos device.
This amplifier is suitable for DVB-T, DVB-H, DTV or any analog TV standard.

- 470 - 860 Mhz
- Pout :200W DVB-T
- Gain : 19dB
- 50 Ohm in/out impedance
- Class AB operation
- Devices : 2 x BLF888A
- Supply : 50 Vdc nominal
- Dimensions : (LxWxH):115x85x33mm
  4,52"x3,34"x1.32"



Absolute maximum ratings

Parameter	Value	Symbol
Voltage supply	52Vdc	Vs
Supply current	40Adc	Is
Operating Temperature range	0 +80	°C Note1
Storage Temperature range	-30 +90	°C
Load Mismatch (full power, all phase angle)	6:1	Note2

Electrical Specifications

Parameter	Min.	Typ.	Max.	Units.	Note
Frequency range	470		862	Mhz	Full band
Power gain	17	19		dB	
Analog tv power Imd < -45 dBc (G std red field common amp)	400	500		Wps	Without precorrection
DVB-T/ DVB-H power Shoulder <-30 dBc	180	200		Wrms	Without precorrection
DTV Shoulder < - 40 dBc from carrier	200	250		Wrms	Without precorrection

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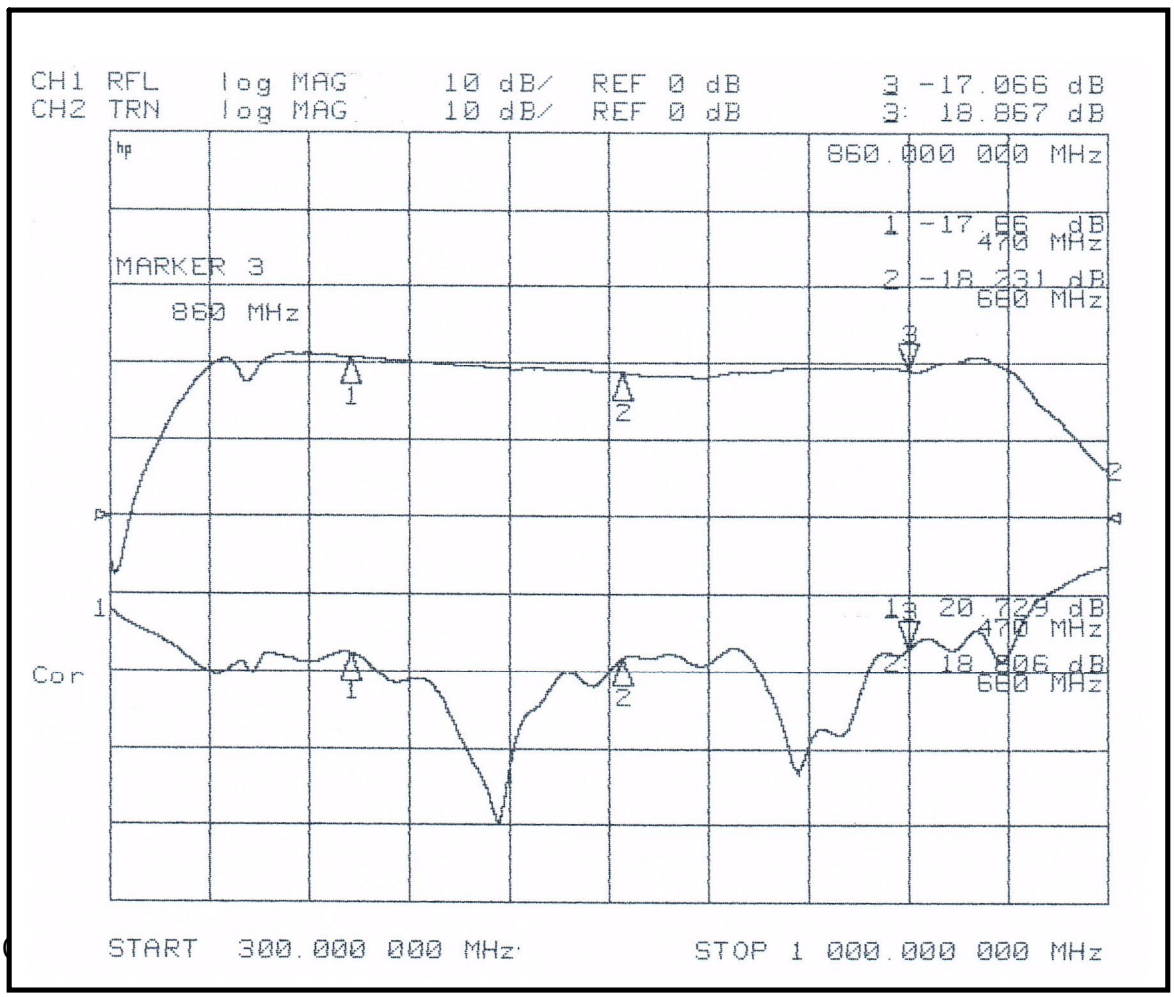
Supply voltage		50	50.5	V	
Efficiency (200W DVB-T)	22	26		%	
Efficiency (300W CW)	40	48		%	
Efficiency (500W Analog tv)	40	52		%	
Power out 1dB compression point	650	800		W	Note3
Quiescent current		2.8	3.2	Amps	Note4
Current consumption analog TV (black field)			25	Amps	Pout 500Wps
Current consumption DVB-T			17	Amps	Pout 200Wrms
Load mismatch No power degradation			4 :1	VSWR	Note2

Typical performances



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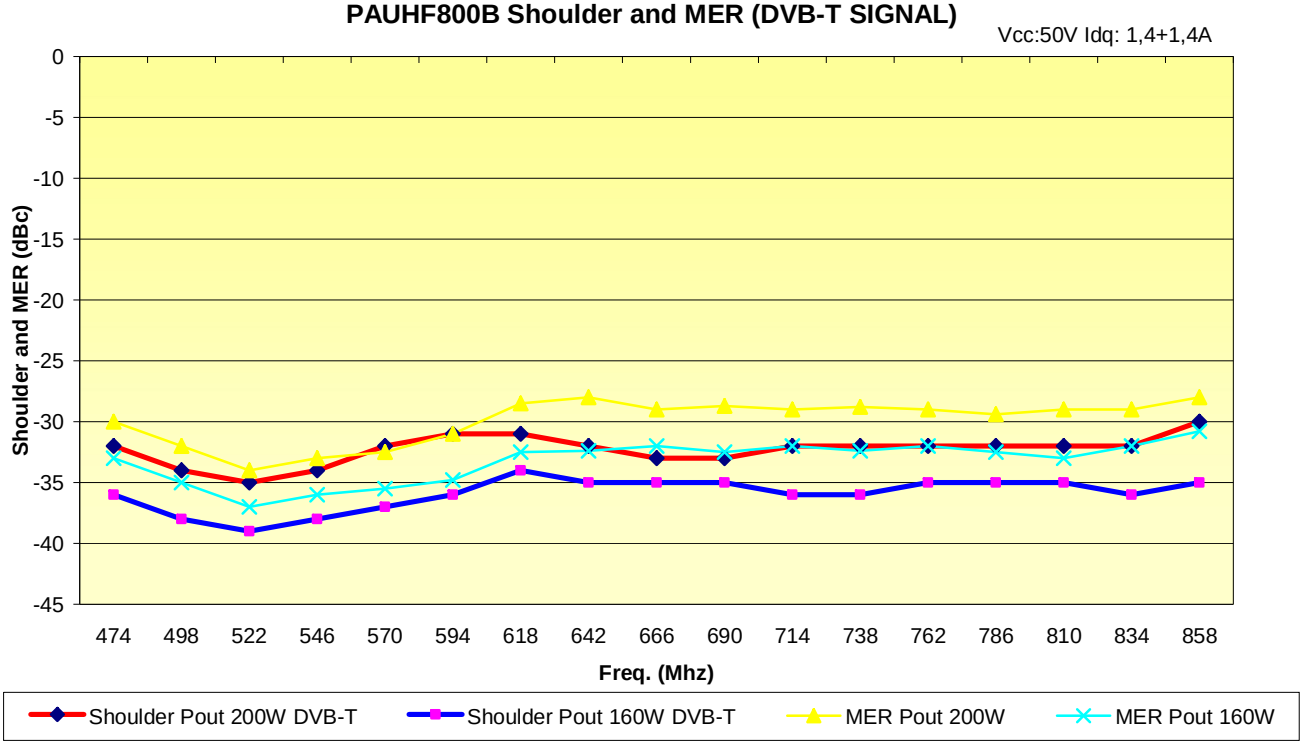
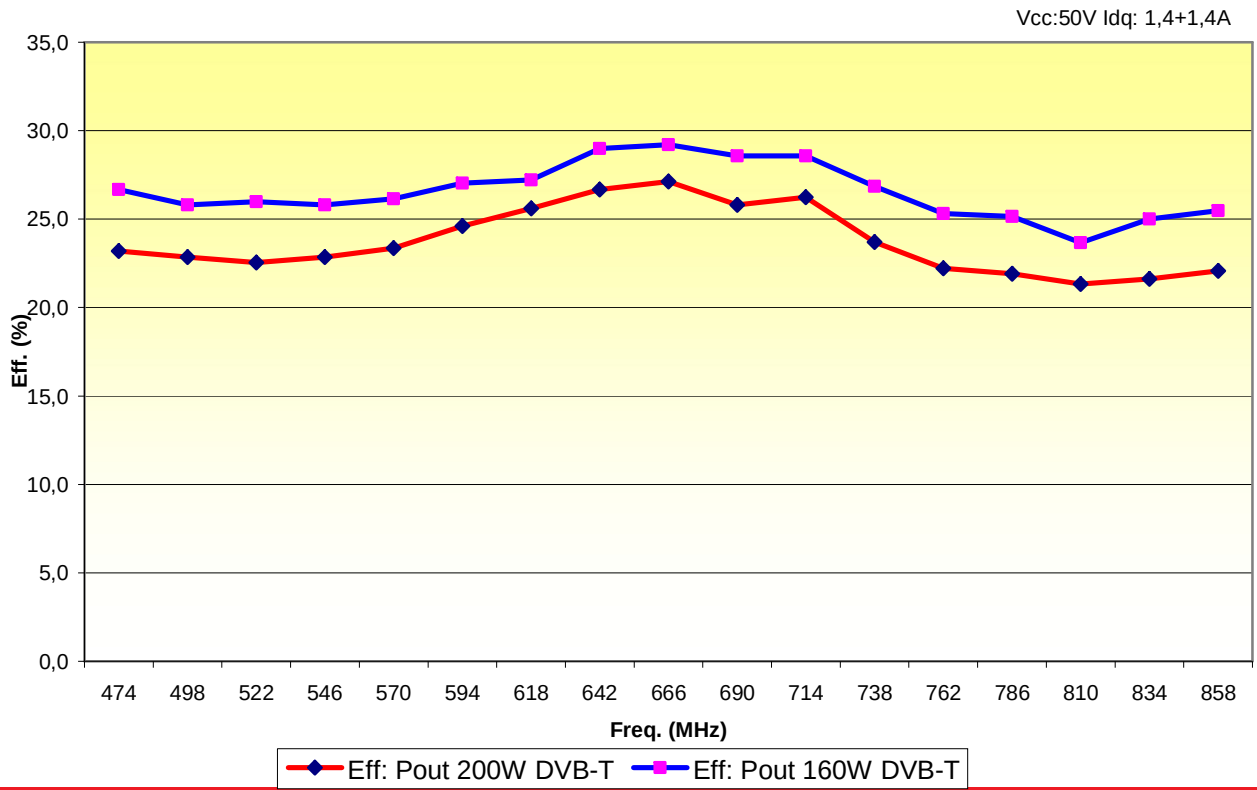
PAUHF800B Shoulder and MER (DVB-T SIGNAL)



PAUHF800B EFFICIENCY (DVB-T SIGNAL)



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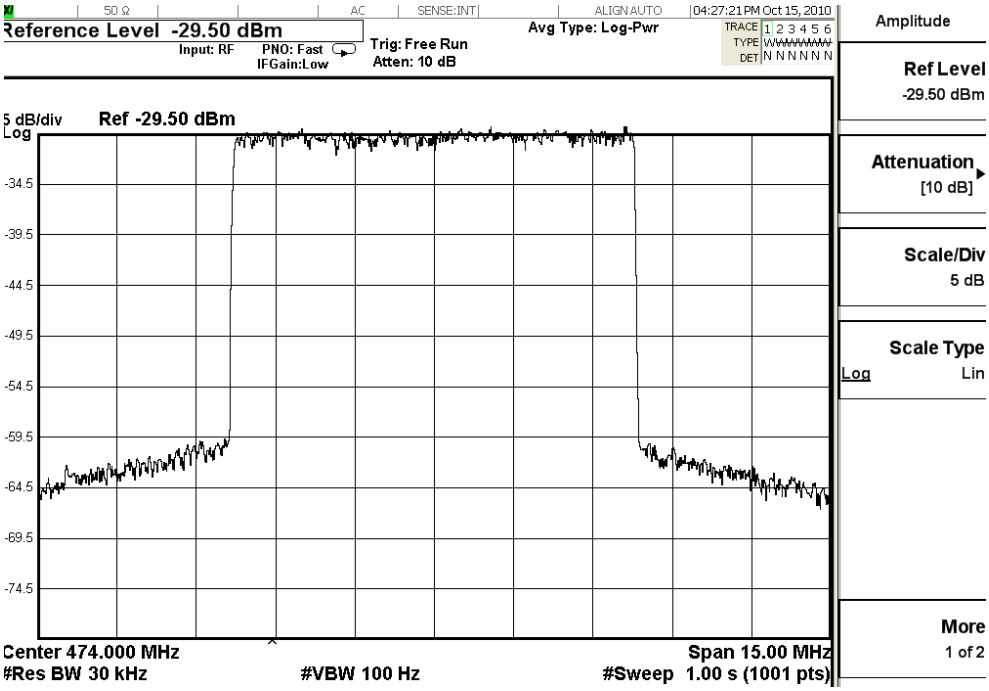
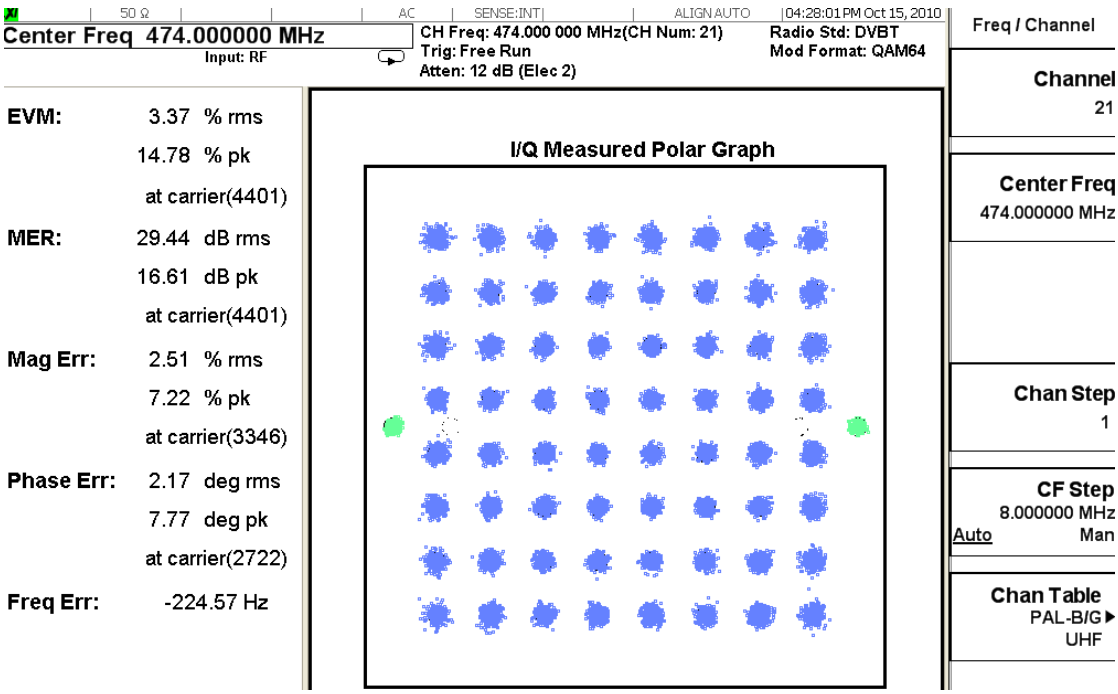


PICTURE 1: (CH21, 474MHZ@ 200W DVB-T)



PICTURE 2: (CH21, 474MHZ@ 200W DVB-T)

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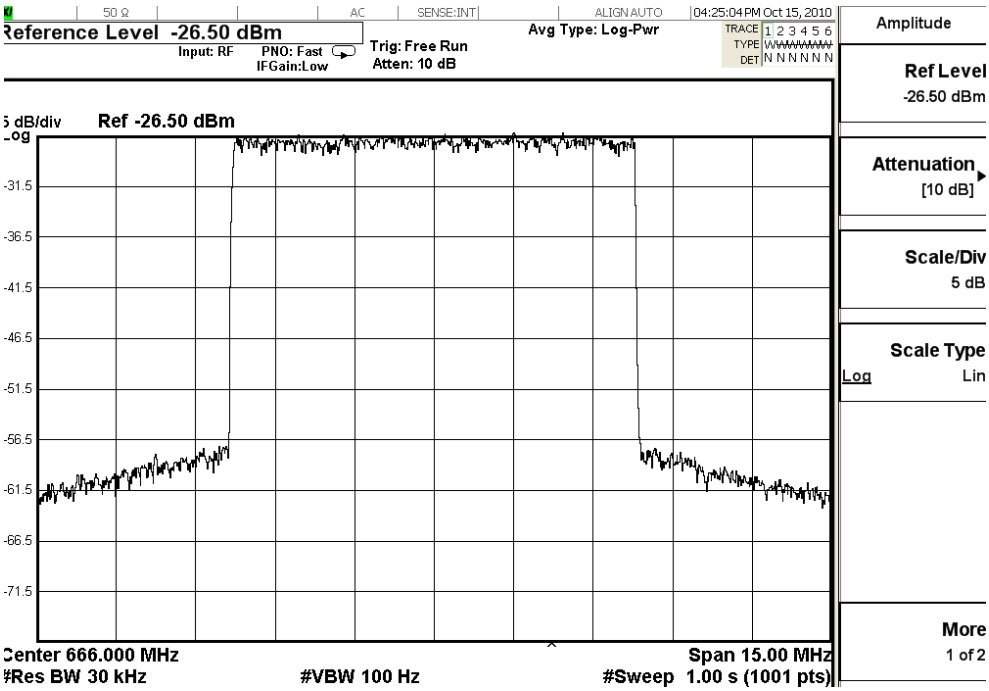
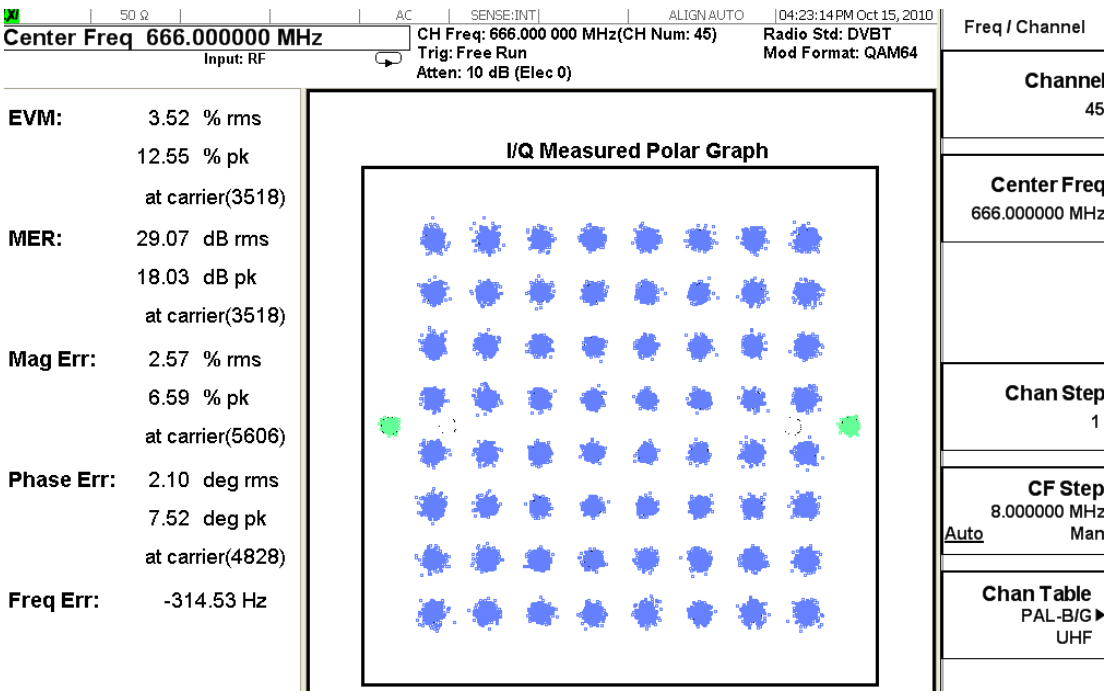


PICTURE 3: (CH45, 666MHZ@ 200W DVB-T)



PICTURE 4: (CH45, 666MHZ@ 200W DVB-T)

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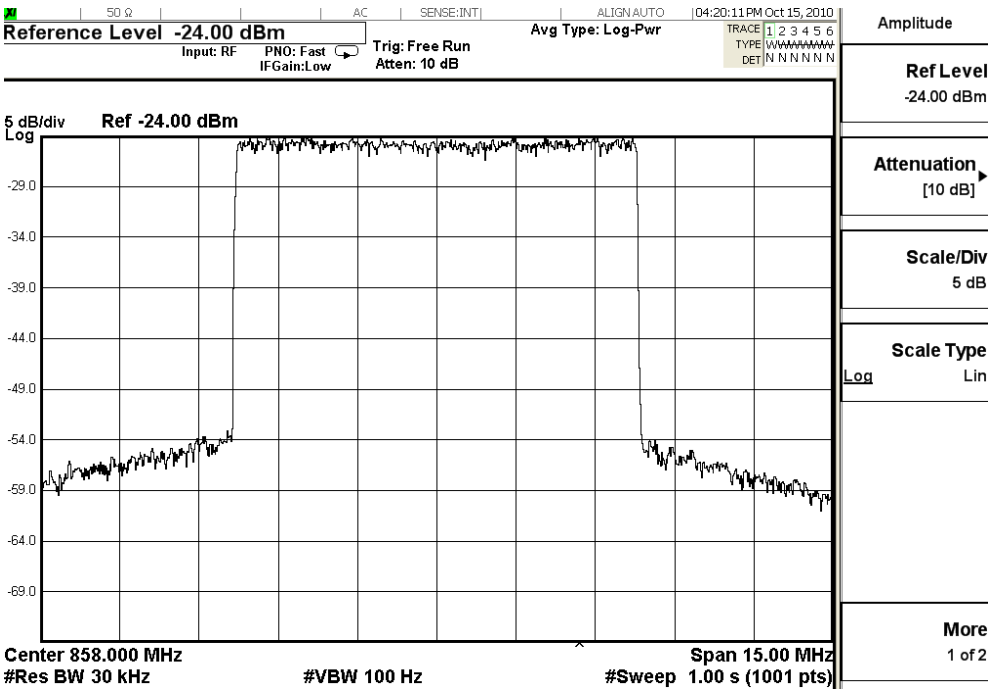
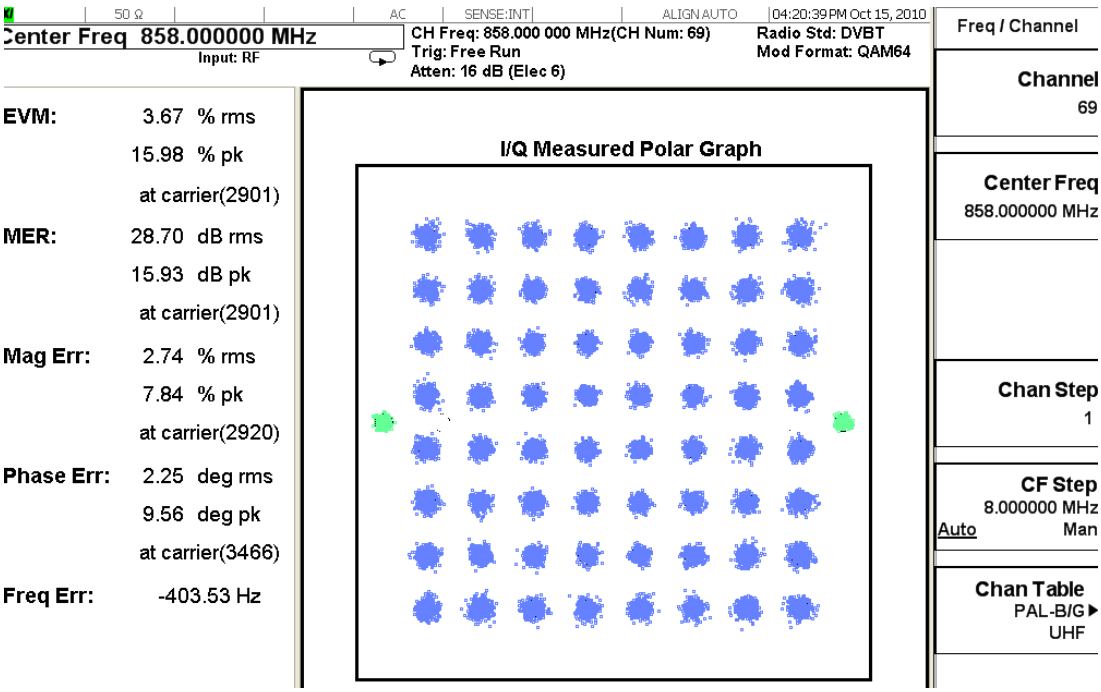


PICTURE 5: (CH69, 858MHZ@ 200W DVB-T)



PICTURE 6: (CH69, 858MHZ@ 200W DVB-T)

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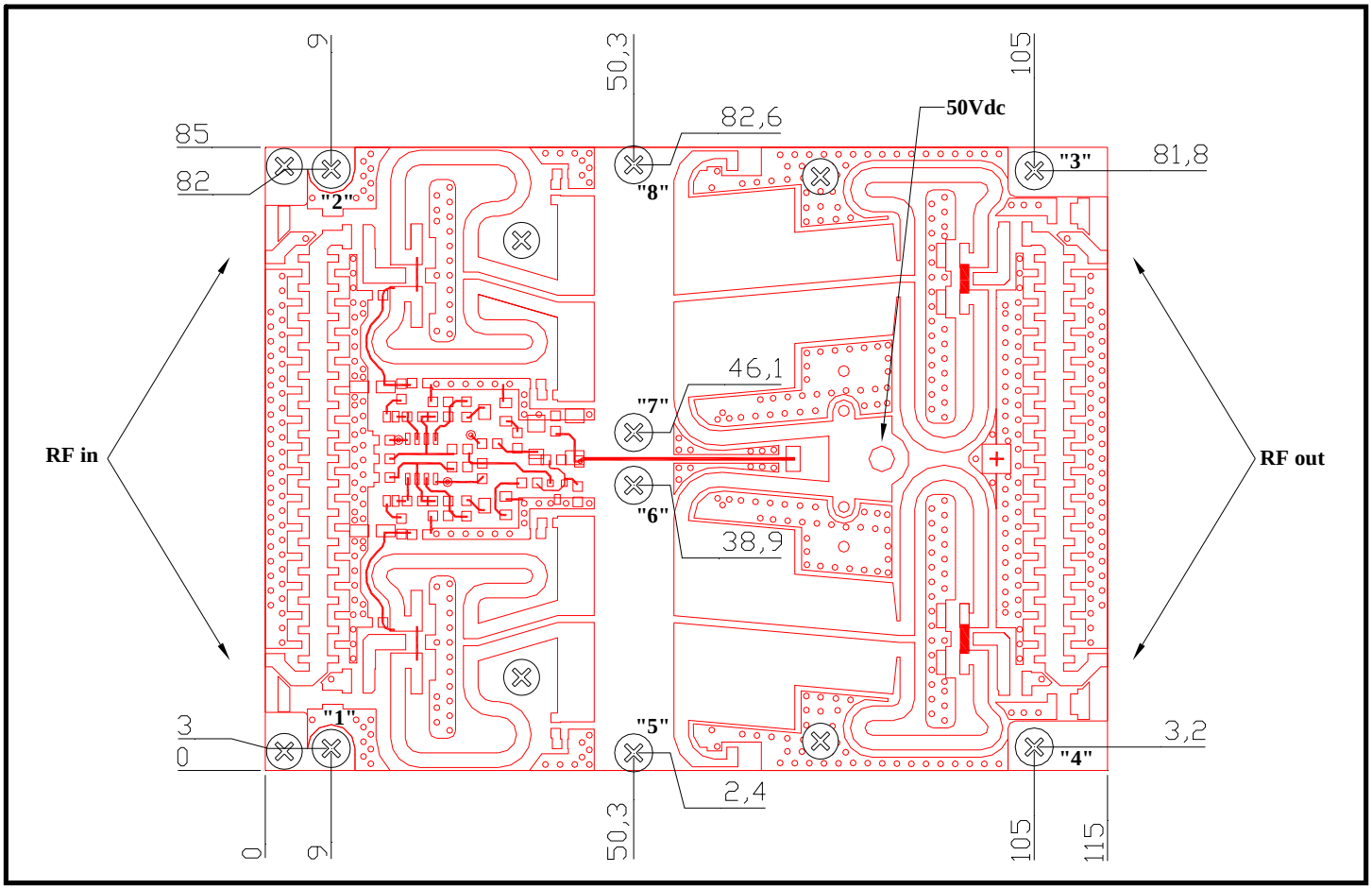

Mechanical Layout

Screws Type:

Screws point 1-2-3-4-5-6-7-8 M3 Socket head cap screws + 8 Split lock washers WZ ø 3.5 + 8 Flat washers WZ ø 3.5

Thermal Compound

Recommended Dow Corning 340 (heat sink compound) or equivalent

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Application Note

Read carefully the Following information, before design the system integration of this amplifier. Please remember that Italmec engineers are available to help customers in any Design activity.

Note 1 (thermal excanger requirements)
Max operative temperature is measured very closed to the device flange. Max temperature value is referred to the nominal operative condition (Pout 500W analog TV VD 50V).In case of different working conditions, this limit can be different. Please contact our technical department for further information.
Warning, even if the amplifier linearity allow to use this up to 500W of analog TV, please consider that a very efficient heatsynk must be provided. Please take in consideration this limit during your equipment design.

Note 2 (Load matching)
This amplifier can work without power reduction on a 3:1 VSWR load matching (analog or digital TV application). In this condition Phase and temperature are irrelevant. Please remember that this limit is valid only in digital or analog TV. Pulsed signal or other kind of modulation can drastically change this limit.
Please pay attention to the device temperature, since the reflected power increase the temperature.

Note 3 (Max CW power)
Power relative to 1 dB compression point, can be reach only for short time test (2 sec max). This amplifier is designed for 350Wrms max in continuous work. Please pay attention during evaluation test.

Note 4 (quiescent current)
Quiescent current is set in factory at about 2.8 amps (1,4 for device), this setting is a compromise Between analog and digital TV application. On request we can provide amplifier optimised for a particular kind of modulation.

Note 5 (shielding)
Due to the High gain of this pallet, a good shielding between final stage and any driver/low power stage is required. Please foresee a good RF choke also on the supply wiring.
On request Italmec can provide an analysys on your line up.

Note 6 (Overdriver)
High driver level can damage this amplifier, design of equipment where the amplifier will be mounted, must foresee an appropriate protection circuits. Max input level is + 6dB referred to the nominal input power.

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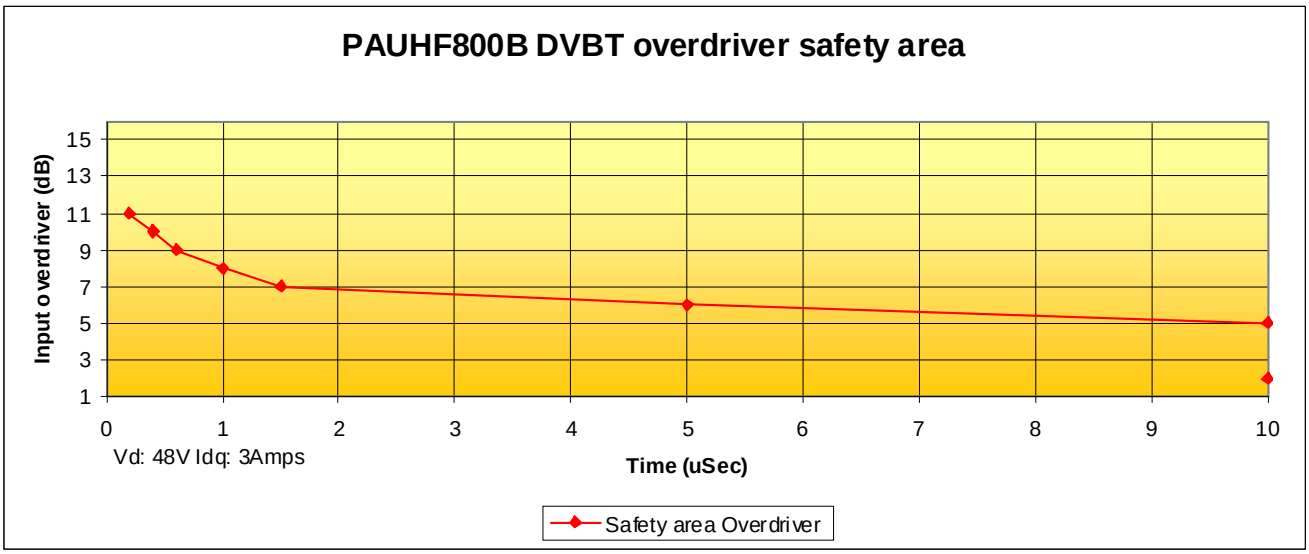
Note 7 (Protection)

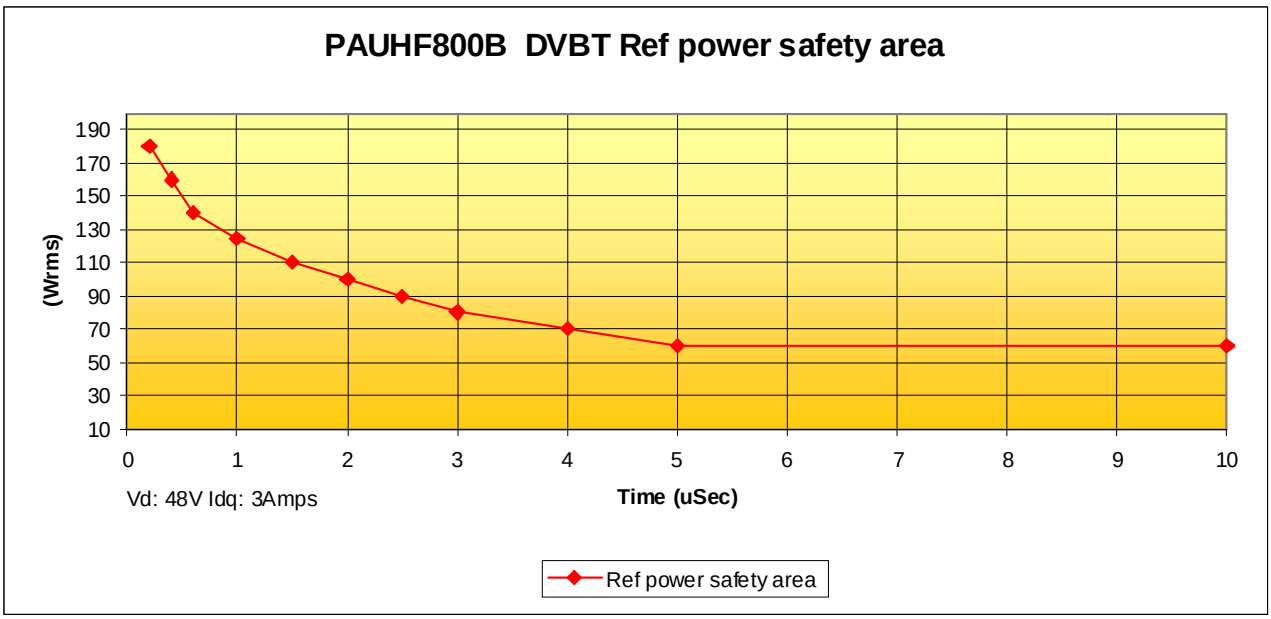
In order to take the amplifier safe in any working conditions, please add these protection in the final equipment.

a) Overdriver protection, if the input power of pallet exceed 3dB over the nominal, the device can be damaged, please use an appropriate Fast protection to reduce or switch off the input signal, in according to the following graph in DVB-T applications.



B)Reflected power protection (see note 2), a suitable protection system should switch off (or reduce) the input power in case of excessive reflected power.

The following graph show the safety area Vs load mismatch @ full power, in DVBT applications



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c) thermal protection, switch off supply voltage if Device flange temperature exceed 80C° When amplifier work at full power.

In case of operation at low power, working temperature can be higher, however don't exceed 170C° of junction temperature, to avoid a sensitive reduction in the Amplifier MTBF.

Junction temperature can be calculated using the formula "Tj= Flange temperature + (device dissipated power*Device thermal resistance).

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