

# TUX05

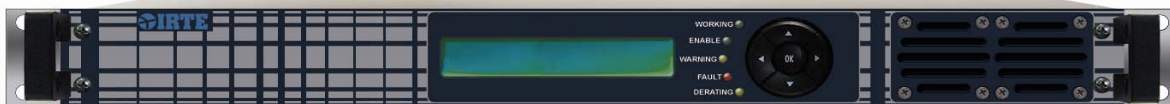
## Technical Specification Summary

Frequency Range	470 – 862MHz	Typ. Gain	45 dB
Max VSWR	3:1	Temperature Range	-5 to +45C
DVB	5 Wrms		
Supply Voltage	90 ÷ 264 V <sub>AC</sub>	Working Class	AB



## Key Features and functions

- UHF Broadcasting band (470 – 862MHz) full coverage
- Wide range of RF Output Power for the highest possible MER.
- High PA gain allow the use of the most popular modulators with 0dBm RF Output
- Full protection against infinite VSWR, overdrive and over-temperature
- Internal power supply
- Extremely strong mechanical structure
- RS485, Parallel In/Out connections
- TCP/IP Remote control (**Option**)



## General Description

The wide range of RF Output Power provided by XU Series amplifiers makes it possible to achieve the best MER results and to hit the most demanding customer targets by finding the right power level for the specific application. The XU05 final stage is equipped with a small overmolded plastic package LDMOS devices offering excellent gain, efficiency and linearity performance. The XU05 has been designed specifically in order to supply compact and extremely reliable low power DVB-T amplifier.

# TUX05

## Electrical Specifications

Parameter	Min.	Typ.	Max	Units	Notes
Frequency	470		862	MHz	Full coverage without tuning
Power Input		-8		dBm	
Gain		45		dB	@ 5Wrms
Power Consumption			56	W	
V Supply		230		V <sub>AC</sub>	
Input return loss		-16		dB	
Gain Variation			+/-0,5	dB	
F2 Second Harmonic		-30		dBc	
Baseplate Temp.			+70	°C	

Video Parameter	Min.	Typ.	Max	Units	Notes
Digital Power (DVB-T)		5		Wrms	
M.E.R. (DVB-T)		36		dB	See Note
Shoulders (DVB-T)		-39		dBc	At ± 4.2 MHz / 5W rms

**Note: without precorrection - input signal : -8 dBm - DVB-T/H modulator PT5780 MFR: PRO Television**

Physical Dimensions 482,6mm x 44,25mm x 500mm / 19"x2,60"x19,685 "  
 Weight 6,65 kg / 14,70 lb

All Specifications are valid for load impedance 50 Ohm

## ABSOLUTE Maximum Ratings

Parameter	Value	Units	Notes
Output Power	5	W	rms
Input Power	-8	dBm	
Operating Voltage	230	V <sub>AC</sub>	
VSWR	3:1		
Storage Temp.	-20 +80	°C	
Base Plate temp.	80	°C	Heatsink Temperature

## Electrical Interfaces

RF output	N Female on Rear Panel
RF Monitor	SMA connector on Rear Panel
RS485	Dsub 9 Pin on rear panel
Ethernet	RJ45 on rear Panel
Parallel Input/Output	Two-Dsub 9 Pin on rear panel

# TUX05

## Mechanical specifications

XU05 General data and layout Dimensions.  
Physical Dimensions 19 Inch x 1 Units x 500mm (19,685 ") depth  
Weight 6,65 kg / 14,7 lb

### FRONT PANEL VIEW



### REAR PANEL VIEW



#### Rear Interfaces (Connector) from Left to right:

RF Output (N), RF Monitor (SMA), RF IN(SMA), Parallel IN (D-Sub 9), Parallel OUT (D-Sub 9), RS485 (D-Sub 9), RS485 Modulator (D-Sub 9), ETHERNET, Mains In

# TUX05

## Graphs and Charts

Plot 1. Typ S21 small signal Gain, and S11 Input Return Loss

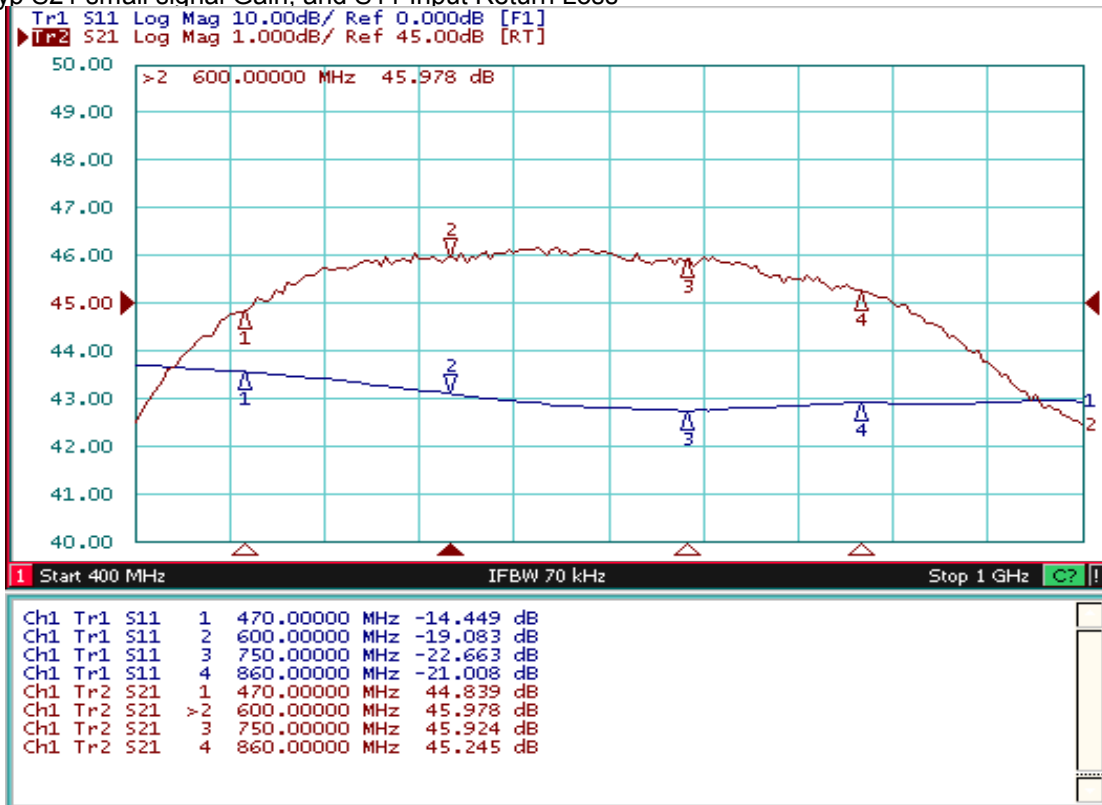
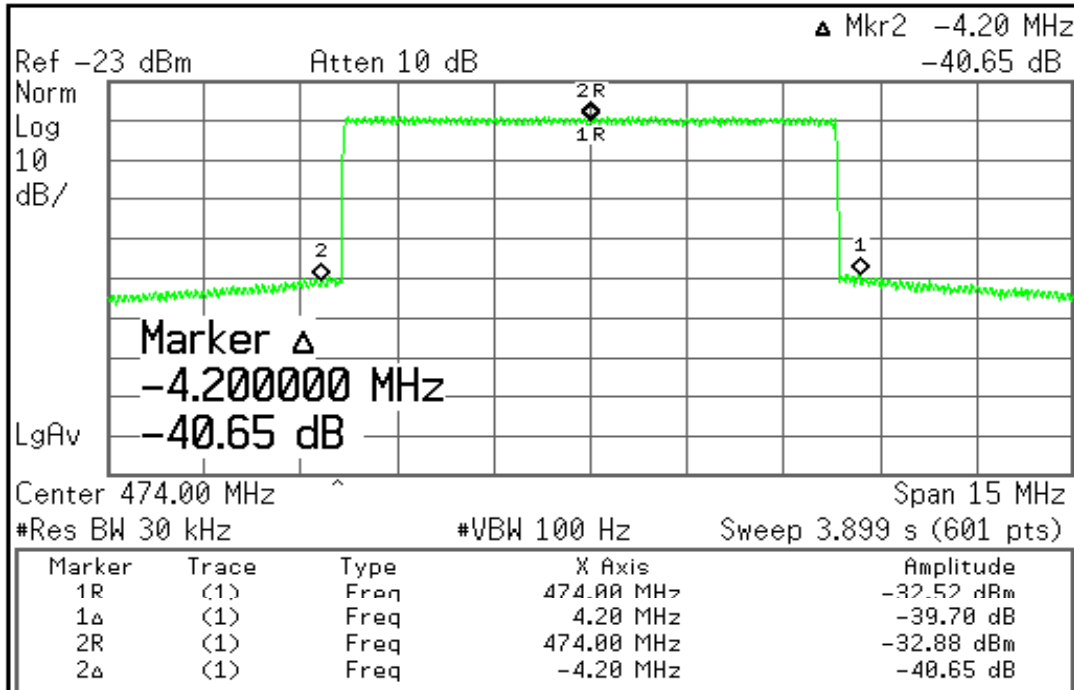


Table 1 Shoulder @ 5Wrms without precorrection

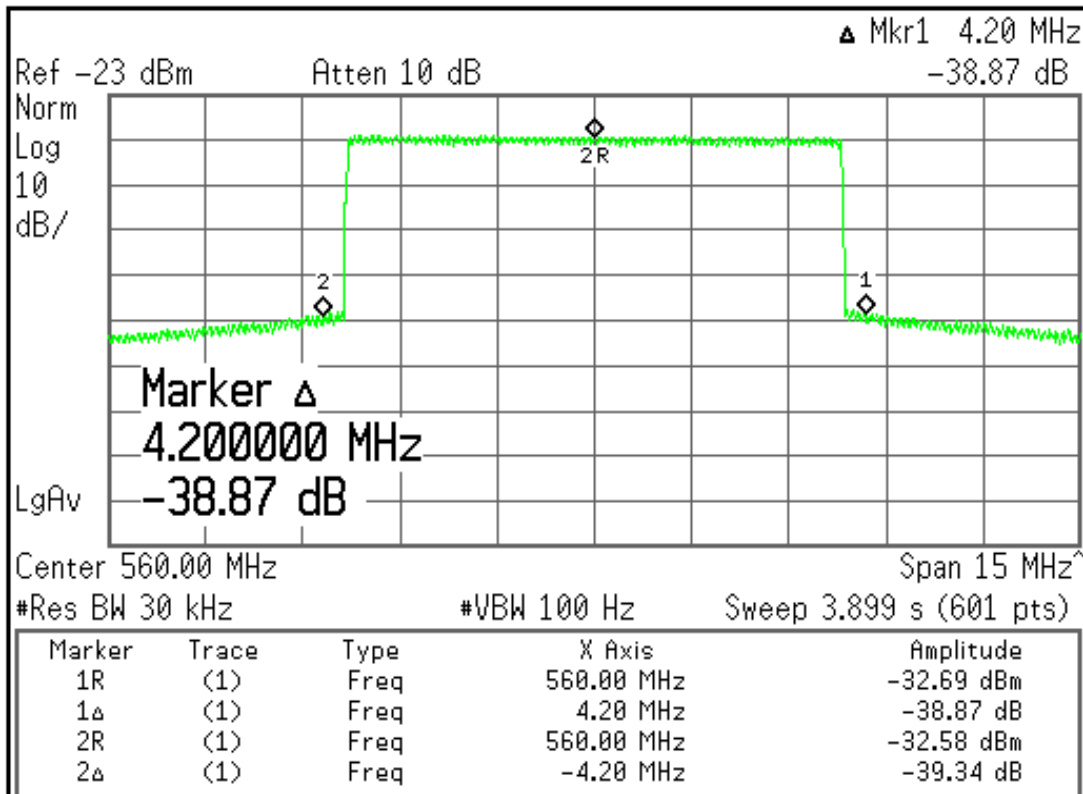
Freq.	Current (A)	Current (A)	Shoulder	Shoulder
474	0.5	1.75	-40.6	-39.7
560	0.5	1.8	-39.3	-38.8
660	0.5	1.8	-39.9	-39.1
760	0.5	1.7	-38.1	-37.5
858	0.5	1.63	-41.2	-38.9

# TUX05

**Plot 1: Shoulder without precorrection @ 5Wrms - 474MHz**

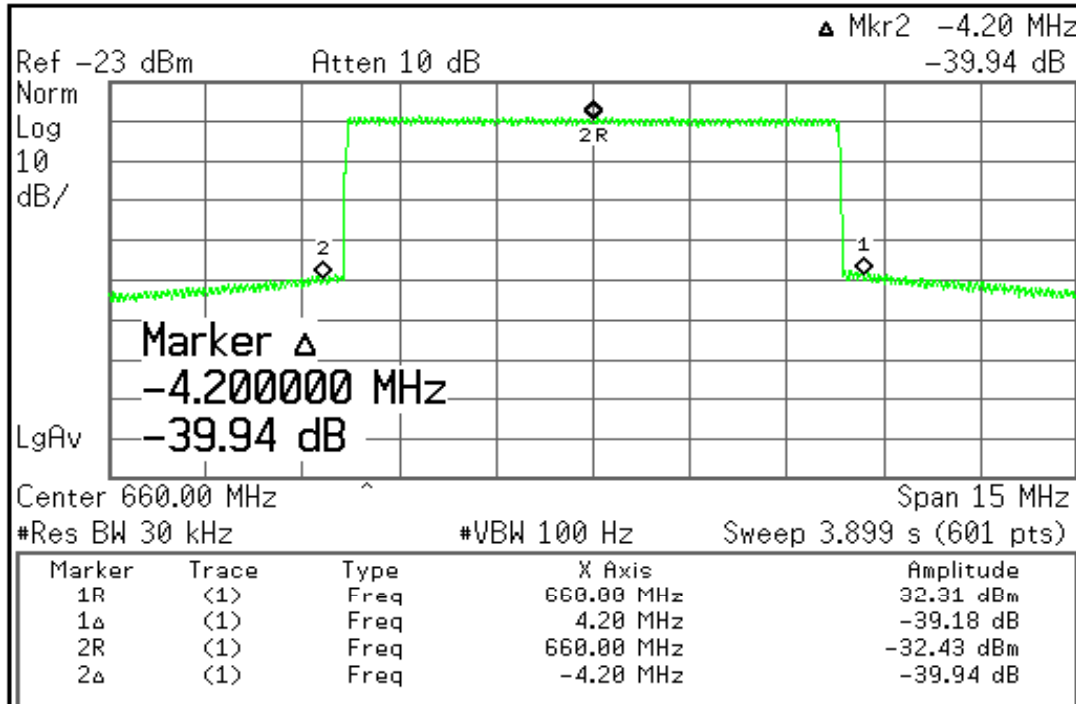


**Plot 2: Shoulder without precorrection @ 5Wrms - 560MHz**

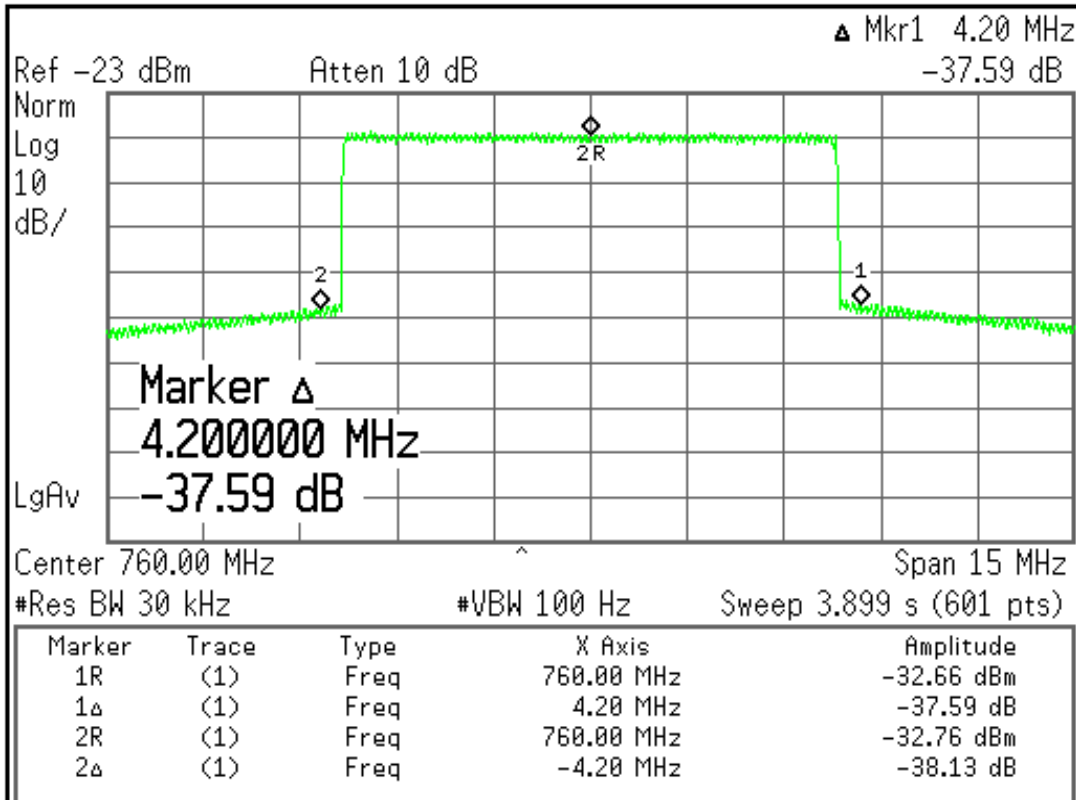


# TUX05

**Plot 3: Shoulder without precorrection @ 5Wrms - 660MHz**

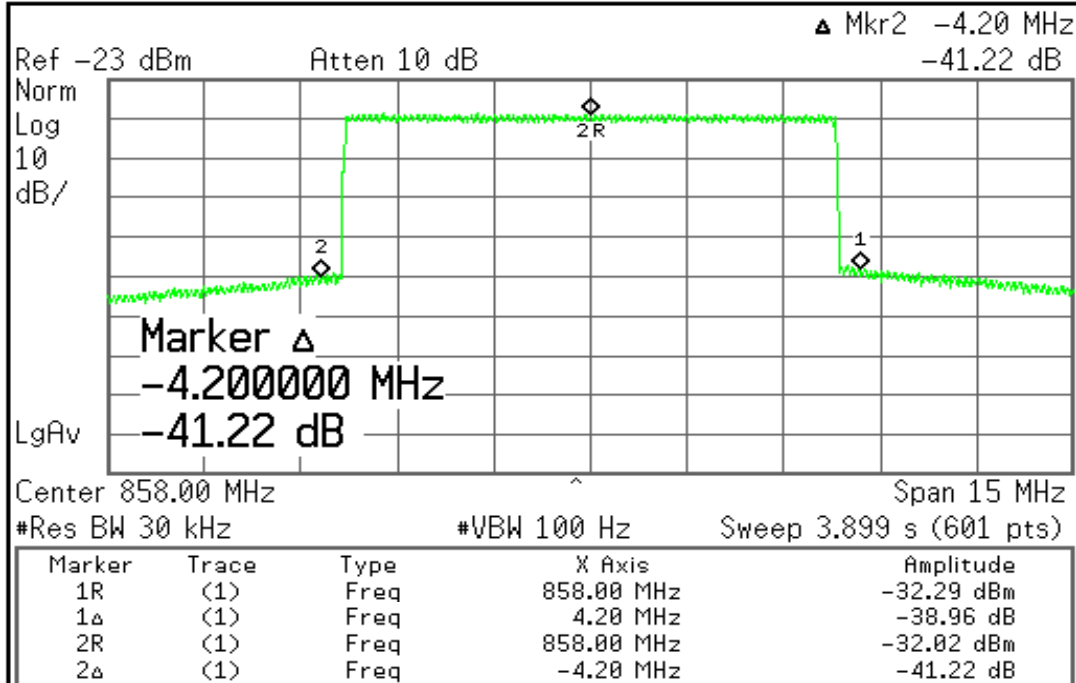


**Plot 4: Shoulder without precorrection @ 5Wrms - 760MHz**



# TUX05

Plot 5: Shoulder without precorrection @ 5Wrms - 858MHz



# TUX05

## Integration and important Operating instructions

The XU05 is designed for operation up to 5Wrms (DVB signal) with very high linearity, this design uses small overmolded plastic package LDMOS devices offering excellent gain, efficiency and linearity performance. The devices are protected by an internal circuit, for Overdrive and high Mismatch load.

However is mandatory to handle with care the Input level during the "precorrection operations" due to possible very fast and high spikes coming from the source.

The XU05 must allow the nominal voltage before applying RF driver signal or damage can result to the amplifier. For this reason the voltage must be applied before the RF driver signal. Additionally, the input signal, must be removed before powering down to prevent damage to the amplifier. You can accomplish this by removing the RF driver signal and powering down the power amplifier.

The XU05 has an internal Power Supply.

When the XU05 is installed in a 19 Inch std Rack is important to leave a right space on the rear zone to facilitate the exhausted air extraction.

It's suggested to leave one free unit (1 HE) at the top of the Amplifier.

The Amplifier is equipped with an RF Monitor Output available by a SMA connector where is possible to test the performances when the it's on duty. The RF Monitor Output is normally > -40 dB referred to the main output in order to have a right signal managed by std Instrumentation.

The logic control unit, designed specifically for this product line, accepts all necessary interfaces in every environment (TCP/IP, SNMP and RS485) for maximum flexibility. The XU05 is equipped with an RS232 on the rear panel to manage and control an external DVB-T Modulator.

Anyway a SMA pad can be put in series to reduce the RF monitor amplitude. The Amplifier is delivered in carton box packaging. Use all professional caution during unpacking, handling and mounting.

Please consult IRTE factory with any integration questions.

## IMPORTANT NOTICE

IRTE RESERVES THE RIGHT TO MAKE CHANGES TO THE PRODUCT(S) OR INFORMATION CONTAINED HEREIN WITHOUT NOTICE. IRTE S.p.A. ASSUMES NO RESPONSIBILITY FOR ANY ERRORS WHICH MAY APPEAR IN THIS DOCUMENT.

WARRANTY INFORMATION APPLICABLE TO THE PRODUCT IDENTIFIED HEREIN IS AVAILABLE UPON REQUEST. NOTHING CONTAINED HEREIN SHALL CONSTITUTE A WARRANTY, REPRESENTATION OR GUARANTEE OF ANY KIND. IRTE S.p.A. EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND/OR IMPLIED INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY, AND OF FITNESS FOR A PARTICULAR PURPOSE, USE OR APPLICATION.

NO PART OF THIS DOCUMENT MAY BE COPIED OR REPRODUCED IN ANY MEANS WITHOUT THE PRIOR WRITTEN CONSENT OF IRTE S.p.A..

## WARNING

THE SPECIFICATIONS CONTAINED HEREIN ARE SUBJECT TO CHANGE WITHOUT NOTICE. IRTE S.p.A. ASSUMES NO LIABILITY FOR THE USE OF THIS INFORMATION. THIS DATA SHEET AND CONTENTS ARE THE PROPERTY OF IRTE S.p.A.

IRTE S.p.A. PRODUCTS ARE NOT INTENDED FOR USE IN LIFE SUPPORT APPLIANCES, DEVICES OR SYSTEMS. USE OF A ITE S.p.A. PRODUCT IN ANY SUCH APPLICATION WITHOUT WRITTEN CONSENT IS PROHIBITED.

# TUX10

## Technical Specification Summary

Frequency Range	470 – 862MHz	Typ. Gain	47 dB
Max VSWR	3:1	Temperature Range	-5 to +45C
DVB	10 Wrms		
Supply Voltage	90 ÷ 264 V <sub>AC</sub>	Working Class	AB



## Key Features and functions

- UHF Broadcasting band (470 – 862MHz) full coverage
- Wide range of RF Output Power for the highest possible MER.
- High PA gain allow the use of the most popular modulators with 0dBm RF Output
- Full protection against infinite VSWR, overdrive and over-temperature
- Internal power supply
- Extremely strong mechanical structure
- RS485, Parallel In/Out connections
- TCP/IP Remote control (**Option**)



## General Description

The wide range of RF Output Power provided by XU Series amplifiers makes it possible to achieve the best MER results and to hit the most demanding customer targets by finding the right power level for the specific application. The XU10 final stage is equipped with LDMOS - plastic case -devices from Freescale characterized by an high gain. The broadband performances of this device makes it ideal for large- signal, common-source amplifier applications in 28 volt equipment. The XU10 has been designed specifically in order to supply compact and extremely reliable low power DVB-T amplifier.

# TUX10

## Electrical Specifications

Parameter	Min.	Typ.	Max	Units	Notes
Frequency	470		862	MHz	Full coverage without tuning  @ 10Wrms
Power Input		-7		dBm	
Gain		50		dB	
Power Consumption			81	W	
V Supply		230		V <sub>AC</sub>	
Input return loss		-16		dB	
Gain Variation			+/-0,5	dB	
F2 Second Harmonic		-30		dBc	
Baseplate Temp.			+70	°C	

Video Parameter	Min.	Typ.	Max	Units	Notes
Digital Power (DVB-T)		10		Wrms	See Note At ± 4.2 MHz / 10W rms
M.E.R. (DVB-T)		37		dB	
Shoulders (DVB-T)		-40		dBc	

**Note: without pre-correction - input signal : -7 dBm - DVB-T/H modulator PT5780 MFR: PRO Television**

Physical Dimensions                      482,6mm x 44,25mm x 500mm / 19"x2,60"x19,685 "  
 Weight    6,65 kg / 14,70 lb

All Specifications are valid for load impedance 50 Ohm

## ABSOLUTE Maximum Ratings

Parameter	Value	Units	Notes
Output Power	10	W	rms
Input Power	-7	dBm	
Operating Voltage	230	V <sub>AC</sub>	
VSWR	3:1		
Storage Temp.	-20 +80	°C	
Base Plate temp.	80	°C	Heatsink Temperature

## Electrical Interfaces

RF output	N Female on Rear Panel
RF Monitor	SMA connector on Rear Panel
RS485	Dsub 9 Pin on rear panel
Ethernet	RJ45 on rear Panel
Parallel Input/Output	Two-Dsub 9 Pin on rear panel

# TUX10

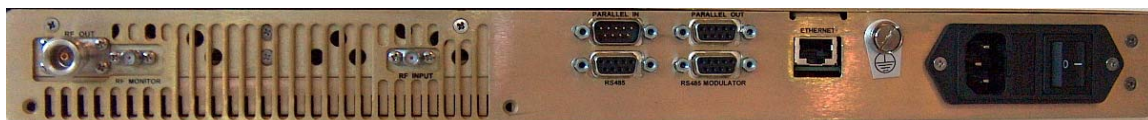
## Mechanical specifications

XU10 General data and layout Dimensions.  
Physical Dimensions 19 Inch x 1 Units x 500mm (19,685 ") depth  
Weight 6,65 kg / 14,7 lb

### FRONT PANEL VIEW



### REAR PANEL VIEW



### Rear Interfaces (Connector) from Left to right:

RF Output (N), RF Monitor (SMA), RF IN(SMA), Parallel IN (D-Sub 9), Parallel OUT (D-Sub 9), RS485 (D-

# TUX10

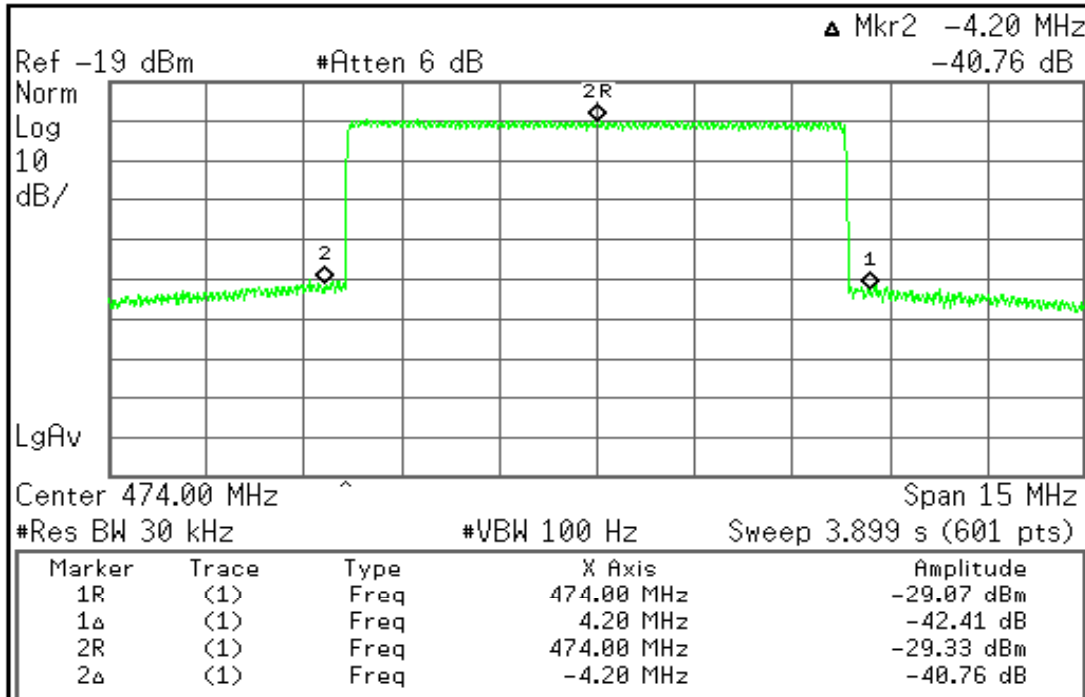
## Graphs and Charts

Table 1 Shoulder @ 10 Wrms without precorrection

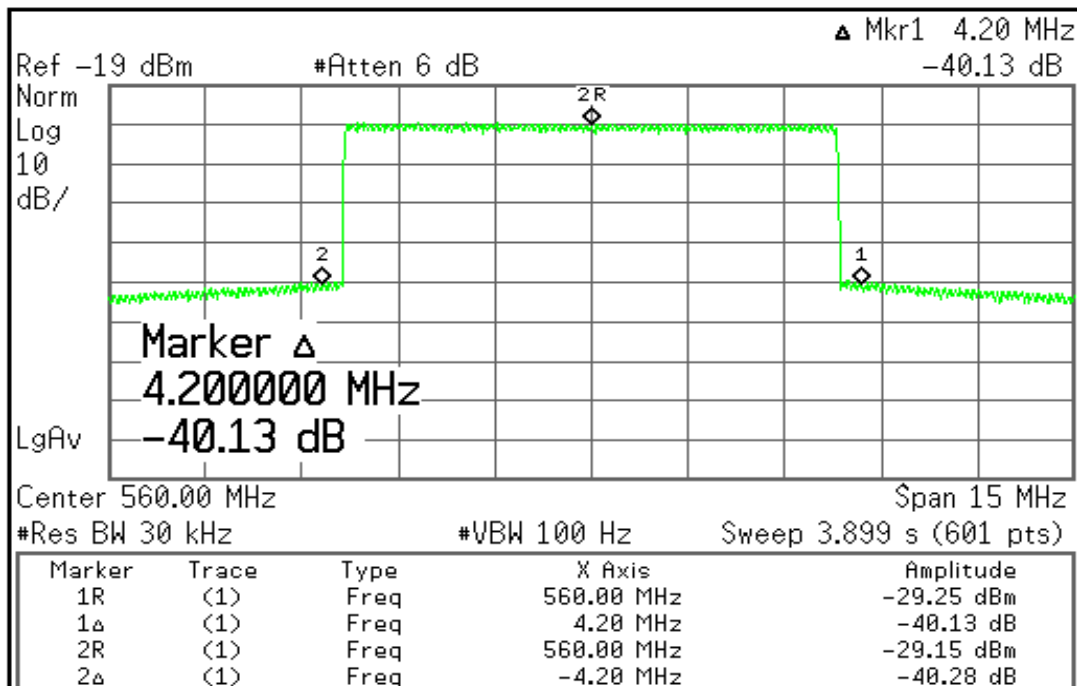
Freq.	Current (A)	Current (A)	Shoulder	Shoulder
474	0.5	1.75	-40.6	-39.7
560	0.5	1.8	-39.3	-38.8
660	0.5	1.8	-39.9	-39.1
760	0.5	1.7	-38.1	-37.5
858	0.5	1.63	-41.2	-38.9

# TUX10

**Plot 1: Shoulder without precorrection @ 10Wrms - 474MHz**

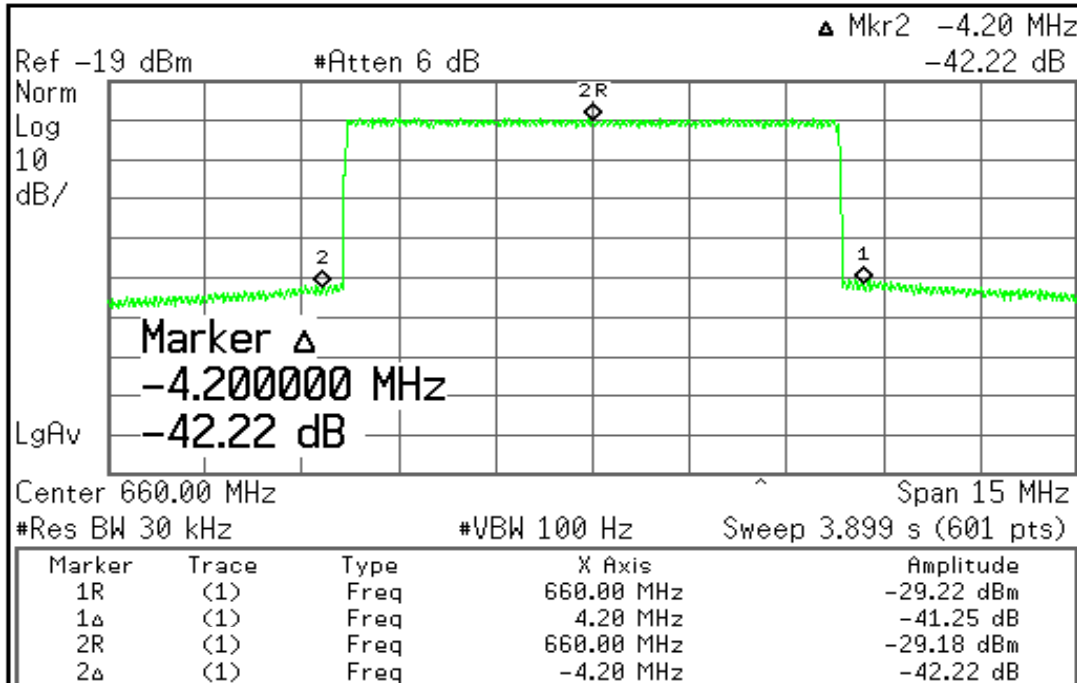


**Plot 2: Shoulder without precorrection @ 10Wrms - 560MHz**

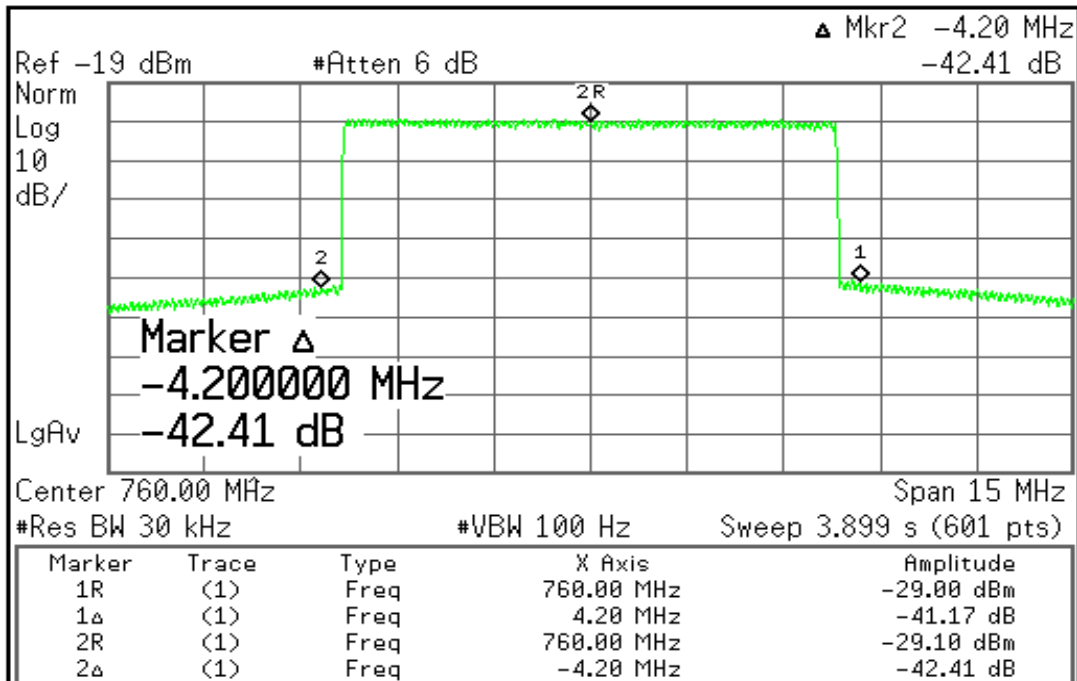


# TUX10

**Plot 3: Shoulder without precorrection @ 10Wrms - 660MHz**

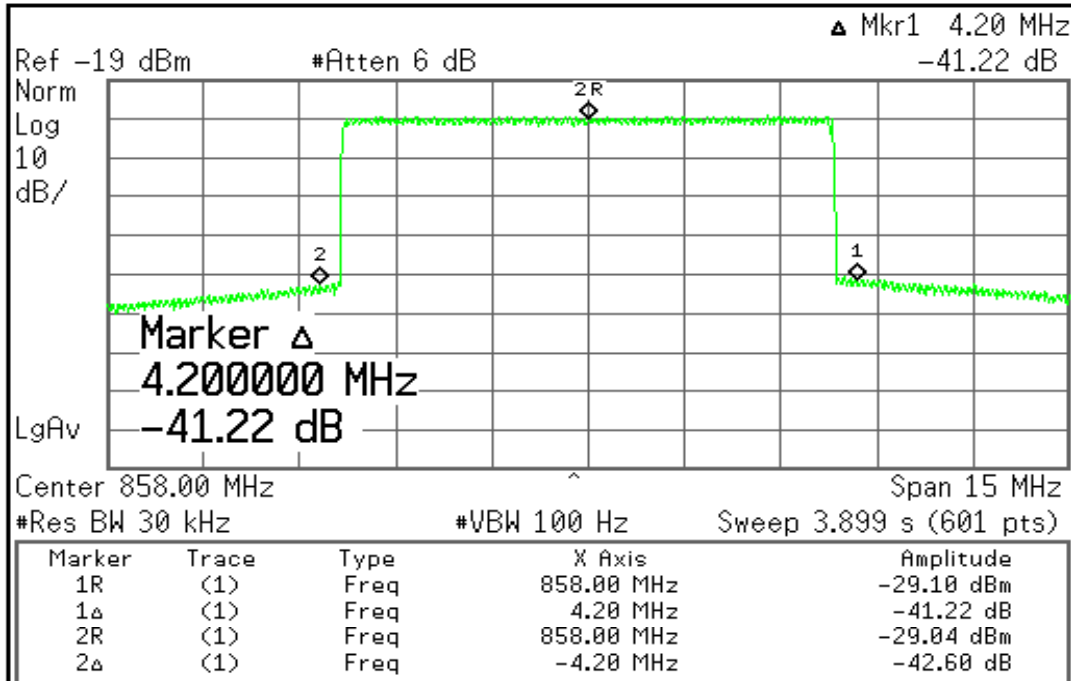


**Plot 4: Shoulder without precorrection @ 10Wrms - 760MHz**



# TUX10

**Plot 5: Shoulder without precorrection @ 10Wrms - 858MHz**



# TUX10

## Integration and important Operating instructions

The XU10 is designed for operation up to 10Wrms (DVB signal) with very high linearity, This design uses plastic package LDMOS devices offering excellent gain, efficiency and broadband performance. The devices are protected by an internal circuit, for Overdrive and high Mismatch load.

However is mandatory to handle with care the Input level during the "precorrection operations" due to possible very fast and high spikes coming from the source. The XU10 must allow the nominal voltage before applying RF driver signal or damage can result to the amplifier. For this reason the voltage must be applied before the RF driver signal. Additionally, the input signal, must be removed before powering down to prevent damage to the amplifier. You can accomplish this by removing the RF driver signal and powering down the power amplifier.

The XU10 has an internal Power Supply.

When the XU10 is installed in a 19 Inch std Rack is important to leave a right space on the rear zone to facilitate the exhausted air extraction.

It's suggested to leave one free unit (1 HE) at the top of the Amplifier.

The Amplifier is equipped with an RF Monitor Output available by a SMA connector where is possible to test the performances when the it's on duty. The RF Monitor Output is normally > -40 dB referred to the main output in order to have a right signal managed by std Instrumentation.

The logic control unit, designed specifically for this product line, accepts all necessary interfaces in every environment (TCP/IP, SNMP and RS485) for maximum flexibility. The XU10 is equipped with an RS232 on the rear panel to manage and control an external DVB-T Modulator.

Anyway a SMA pad can be put in series to reduce the RF monitor amplitude. The Amplifier is delivered in carton box packaging. Use all professional caution during unpacking, handling and mounting.

Please consult IRTE factory with any integration questions.

## IMPORTANT NOTICE

IRTE RESERVES THE RIGHT TO MAKE CHANGES TO THE PRODUCT(S) OR INFORMATION CONTAINED HEREIN WITHOUT NOTICE. IRTE S.p.A. ASSUMES NO RESPONSIBILITY FOR ANY ERRORS WHICH MAY APPEAR IN THIS DOCUMENT.

WARRANTY INFORMATION APPLICABLE TO THE PRODUCT IDENTIFIED HEREIN IS AVAILABLE UPON REQUEST. NOTHING CONTAINED HEREIN SHALL CONSTITUTE A WARRANTY, REPRESENTATION OR GUARANTEE OF ANY KIND. IRTE S.p.A. EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND/OR IMPLIED INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY, AND OF FITNESS FOR A PARTICULAR PURPOSE, USE OR APPLICATION.

NO PART OF THIS DOCUMENT MAY BE COPIED OR REPRODUCED IN ANY MEANS WITHOUT THE PRIOR WRITTEN CONSENT OF IRTE S.p.A..

## WARNING

THE SPECIFICATIONS CONTAINED HEREIN ARE SUBJECT TO CHANGE WITHOUT NOTICE. IRTE S.p.A. ASSUMES NO LIABILITY FOR THE USE OF THIS INFORMATION. THIS DATA SHEET AND CONTENTS ARE THE PROPERTY OF IRTE S.p.A.

IRTE S.p.A. PRODUCTS ARE NOT INTENDED FOR USE IN LIFE SUPPORT APPLIANCES, DEVICES OR SYSTEMS. USE OF A ITE S.p.A. PRODUCT IN ANY SUCH APPLICATION WITHOUT WRITTEN CONSENT IS PROHIBITED.

# TUX20

## Technical Specification Summary

Frequency Range	470 – 862MHz	Typ. Gain	50 dB
Max VSWR	3:1	Temperature Range	-5 to +45C
DVB	20 Wrms		
Supply Voltage	90 ÷ 264 V <sub>AC</sub>	Working Class	AB



## Key Features and functions

- UHF Broadcasting band (470 – 862MHz) full coverage
- Wide range of RF Output Power for the highest possible MER.
- High PA gain allow the use of the most popular modulators with 0dBm RF Output
- Full protection against infinite VSWR, overdrive and over-temperature
- Internal power supply
- Extremely strong mechanical structure
- RS485, Parallel In/Out connections
- TCP/IP Remote control (**Option**)



## General Description

The wide range of RF Output Power provided by XU Series amplifiers makes it possible to achieve the best MER results and to hit the most demanding customer targets by finding the right power level for the specific application. The XU20 final stage is equipped with LDMOS - BLF71-devices from NXP, the excellent ruggedness and broadband performance of this device makes it ideal for digital transmitter applications. The XU20 has been designed specifically in order to supply compact and extremely reliable low power DVB-T amplifier.

# TUX20

## Electrical Specifications

Parameter	Min.	Typ.	Max	Units	Notes
Frequency	470		862	MHz	Full coverage without tuning  @ 20Wrms
Power Input		-7		dBm	
Gain		50		dB	
Power Consumption			160	W	
V Supply		230		V <sub>AC</sub>	
Input return loss		-16		dB	
Gain Variation			+/-0,5	dB	
F2 Second Harmonic		-30		dBc	
Baseplate Temp.			+70	°C	

Video Parameter	Min.	Typ.	Max	Units	Notes
Digital Power (DVB-T)		20		Wrms	See Note At ± 4.2 MHz / 20W rms
M.E.R. (DVB-T)		36		dB	
Shoulders (DVB-T)		-39		dBc	

**Note: without pre-correction - input signal : -7 dBm - DVB-T/H modulator PT5780 MFR: PRO Television**

Physical Dimensions                      482,6mm x 44,25mm x 500mm / 19"x2,60"x19,685 "  
 Weight    6,65 kg / 14,70 lb

All Specifications are valid for load impedance 50 Ohm

## ABSOLUTE Maximum Ratings

Parameter	Value	Units	Notes
Output Power	20	W	rms
Input Power	-7	dBm	
Operating Voltage	230	V <sub>AC</sub>	
VSWR	3:1		
Storage Temp.	-20 +80	°C	
Base Plate temp.	80	°C	Heatsink Temperature

## Electrical Interfaces

RF output	N Female on Rear Panel
RF Monitor	SMA connector on Rear Panel
RS485	Dsub 9 Pin on rear panel
Ethernet	RJ45 on rear Panel
Parallel Input/Output	Two-Dsub 9 Pin on rear panel

# TUX20

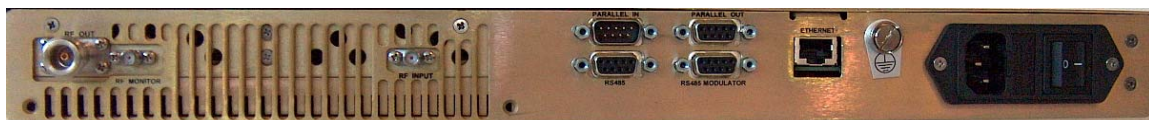
## Mechanical specifications

XU20 General data and layout Dimensions.  
Physical Dimensions 19 Inch x 1 Units x 500mm (19,685 ") depth  
Weight 7,40 kg / 16,314 lb

### FRONT PANEL VIEW



### REAR PANEL VIEW



### Rear Interfaces (Connector) from Left to right:

RF Output (N), RF Monitor (SMA), RF IN(SMA), Parallel IN (D-Sub 9), Parallel OUT (D-Sub 9), RS485 (D-

# TUX20

## Graphs and Charts

Plot 1. Typ S21 small signal Gain, and S11 Input Return Loss

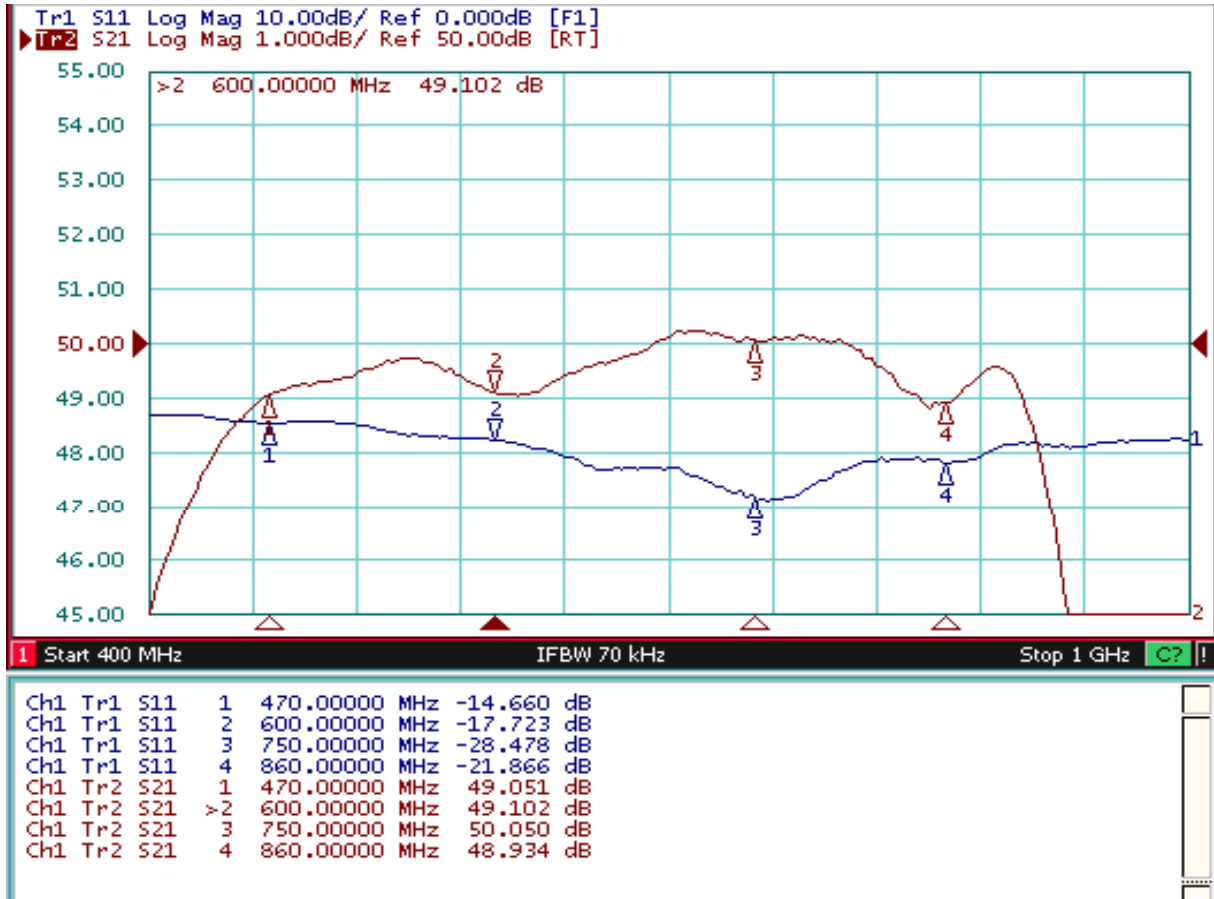
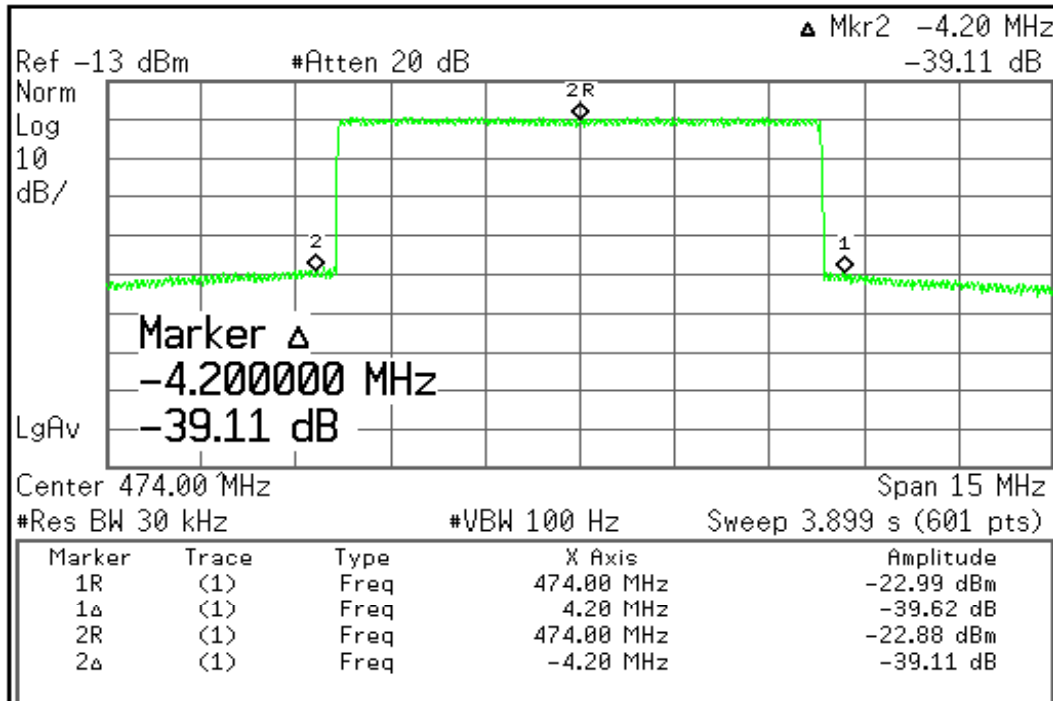


Table 1 Shoulder @ 20 Wrms without precorrection

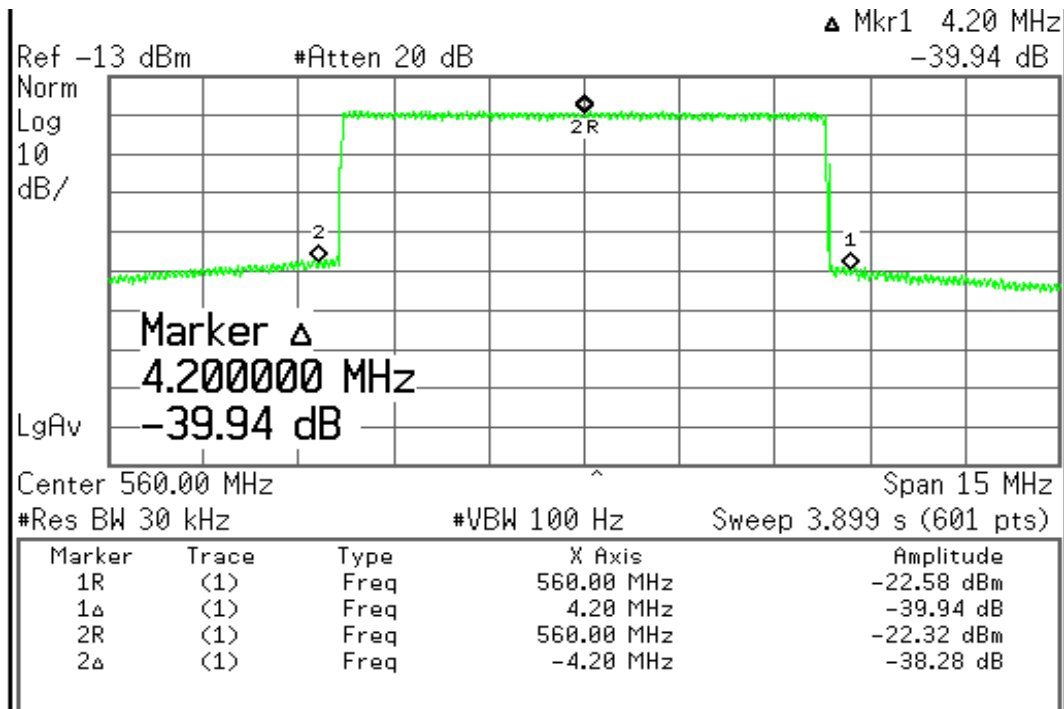
Freq. (MHz)	Current (A)	Current	Current (A)	Shoulder	Shoulder
474	0.5	0.9	2.7	-39.1	-39.6
560	0.5	0.9	2.8	-38.2	-39.9
660	0.5	0.9	3.0	-40.6	-43.3
760	0.5	0.9	2.6	-42.4	-45
858	0.5	0.9	2.4	-42.4	-42.9

# TUX20

**Plot 1: Shoulder without precorrection @ 20Wrms - 474MHz**

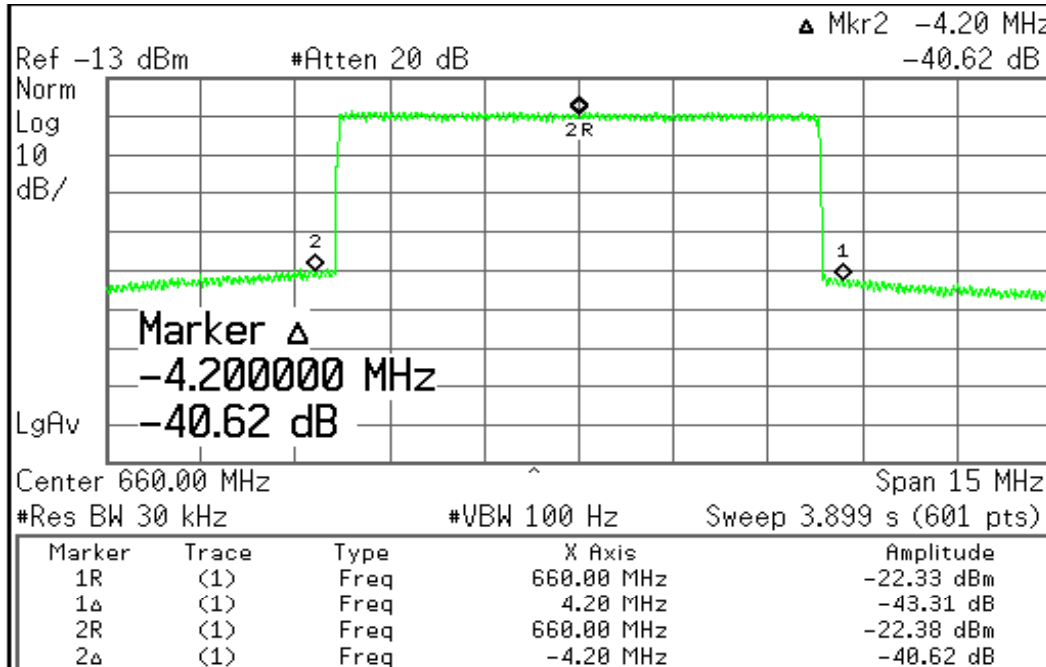


**Plot 2: Shoulder without precorrection @ 20Wrms - 560MHz**

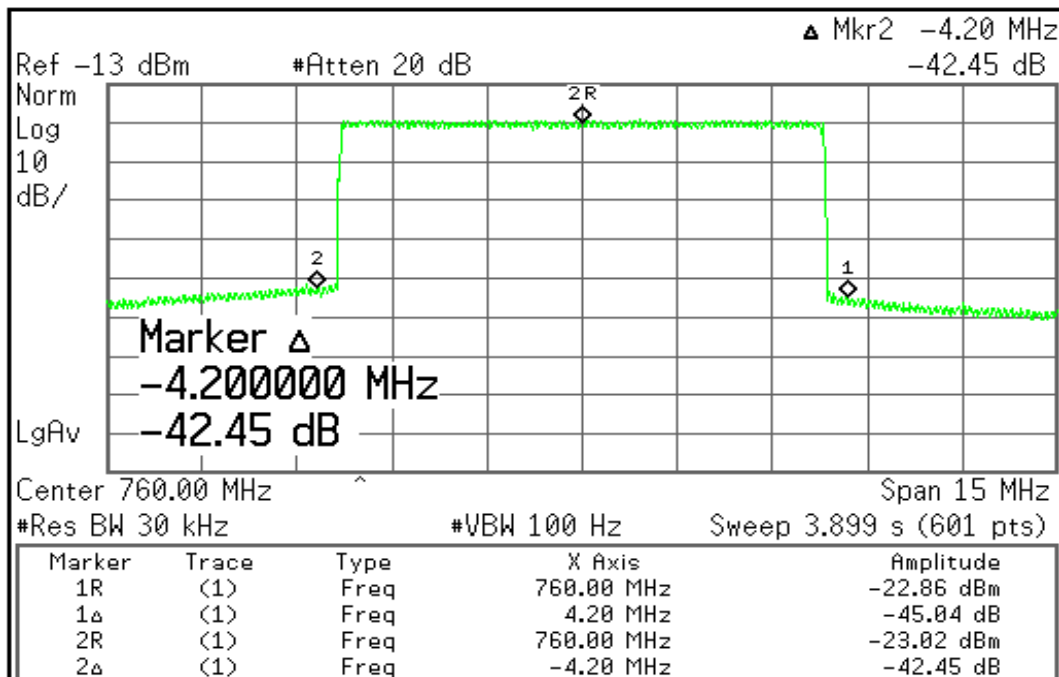


# TUX20

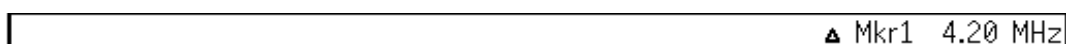
**Plot 3: Shoulder without precorrection @ 20Wrms - 660MHz**



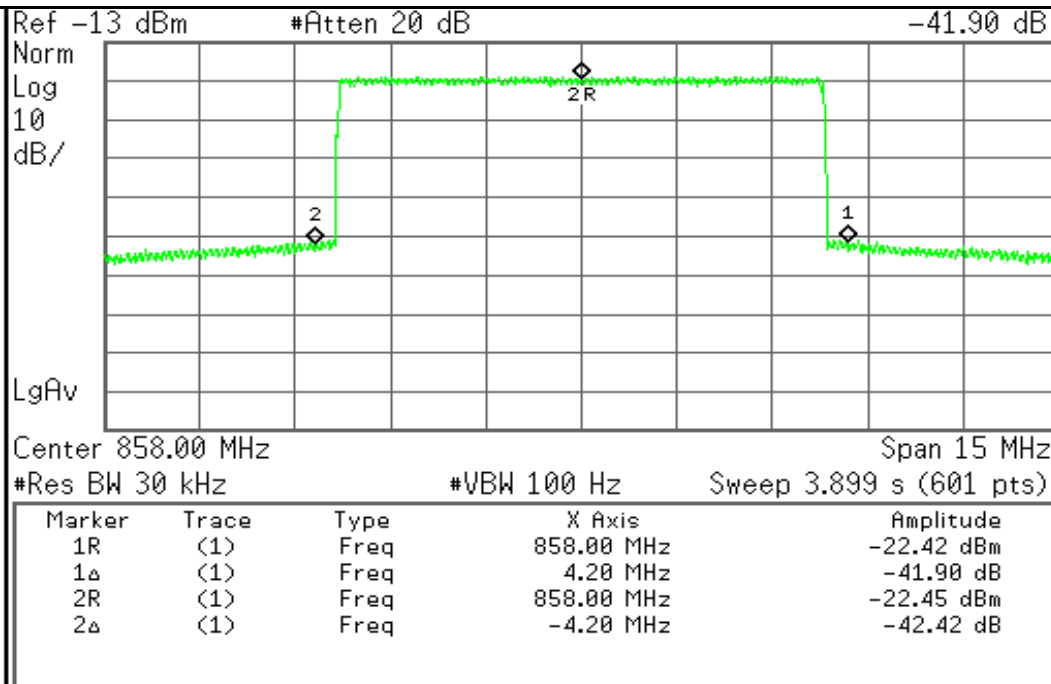
**Plot 4: Shoulder without precorrection @ 20Wrms - 760MHz**



**Plot 5: Shoulder without precorrection @ 20Wrms - 858MHz**



# TUX20



## Integration and important Operating instructions

The XU20 is designed for operation up to 20Wrms (DVB signal) with very high linearity. This design uses BLF871 LDMOS devices offering excellent ruggedness and broadband performance. The devices are protected by an internal circuit, for Overdrive and high Mismatch load. However is mandatory to handle with care the Input level during the "precorrection operations" due to possible very fast and high spikes coming from the source.

The XU20 must allow the nominal voltage before applying RF driver signal or damage can result to the amplifier. For this reason the voltage must be applied before the RF driver signal. Additionally, the input signal, must be removed before powering down to prevent damage to the amplifier. You can accomplish this by removing the RF driver signal and powering down the power amplifier.

The XU20 has an internal Power Supply.

When the XU20 is installed in a 19 Inch std Rack is important to leave a right space on the rear zone to facilitate the exhausted air extraction.

It's suggested to leave one free unit (1 HE) at the top of the Amplifier.

The Amplifier is equipped with an RF Monitor Output available by a SMA connector where is possible to test the performances when the it's on duty.

The RF Monitor Output is normally > -40 dB referred to the main output in order to have a right signal managed by std Instrumentation.

The logic control unit, designed specifically for this product line, accepts all necessary interfaces in every environment (TCP/IP, SNMP and RS485) for maximum flexibility.

The XU20 is equipped with an RS232 on the rear panel to manage and control an external DVB-T Modulator.

Anyway a SMA pad can be put in series to reduce the RF monitor amplitude. The Amplifier is delivered in carton box packaging. Use all professional caution during unpacking, handling and mounting.

Please consult IRTE factory with any integration questions.

## IMPORTANT NOTICE

IRTE RESERVES THE RIGHT TO MAKE CHANGES TO THE PRODUCT(S) OR INFORMATION CONTAINED HEREIN WITHOUT NOTICE. IRTE S.p.A. ASSUMES NO RESPONSIBILITY FOR ANY ERRORS WHICH MAY APPEAR IN THIS DOCUMENT.

WARRANTY INFORMATION APPLICABLE TO THE PRODUCT IDENTIFIED HEREIN IS AVAILABLE UPON REQUEST. NOTHING CONTAINED HEREIN SHALL CONSTITUTE A WARRANTY, REPRESENTATION OR GUARANTEE OF ANY KIND. IRTE S.p.A. EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND/OR IMPLIED INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY, AND OF FITNESS FOR A PARTICULAR PURPOSE, USE OR APPLICATION.

NO PART OF THIS DOCUMENT MAY BE COPIED OR REPRODUCED IN ANY MEANS WITHOUT THE PRIOR WRITTEN CONSENT OF IRTE S.p.A..

## WARNING

THE SPECIFICATIONS CONTAINED HEREIN ARE SUBJECT TO CHANGE WITHOUT NOTICE. IRTE S.p.A. ASSUMES NO LIABILITY FOR THE USE OF THIS INFORMATION. THIS DATA SHEET AND CONTENTS ARE THE PROPERTY OF IRTE S.p.A.

IRTE S.p.A. PRODUCTS ARE NOT INTENDED FOR USE IN LIFE SUPPORT APPLIANCES, DEVICES OR SYSTEMS. USE OF A ITE S.p.A. PRODUCT IN ANY SUCH APPLICATION WITHOUT WRITTEN CONSENT IS PROHIBITED.