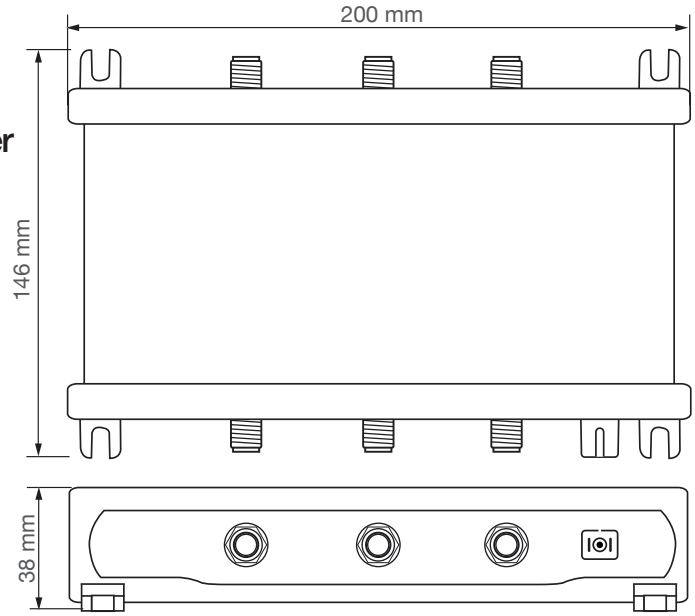
LEM ELETTRONICA®

TXWBT

Optical Transmitter
User manual

- Satellite integrated gain and slope adjustable amplifier
- Terrestrial integrated gain adjustable amplifier
- LNB and TV Terr. power feeding
- Test and Monitor for each input
- Optical monitor Led for each Laser
- ON/OFF switch for each Laser
- Double DC input for redundant power supply



Ready for **UHDTV**

MADE IN ITALY

Rel. 1.2

OPTICAL TRANSMITTER		TXWBT
RF SATELLITE INPUT	n°	2
RF TERRESTRIAL INPUT		1
RF TEST OUTPUTS	n°	3
OPTICAL OUTPUT	n°	1
OPTICAL		
OPERATION WAVELENGTH	nm	1310 - 1330 - 1550
LASER TYPE		UN-COOLED MULTI QUANTUM DFB
LASER CLASS		1M, EN 60825-1
OUTPUT POWER	dBm	8
OUTPUT CONNECTOR		SC/APC
SATELLITE		
INPUT BANDWIDTH	MHz	250... 2.400
INPUT RANGE LEVEL (ADJUSTABLE)	dBµV	70... 90
A.C.G. RANGE	dB	20
SLOPE ADJUSTER RANGE	dB	0... 9
RETURN LOSS	dB	>12
MAX. LNB REMOTE FEEDING		5,25W (15VDC/350mA)
TV TERRESTRIAL		
INPUT BANDWIDTH	MHz	80... 900
INPUT LEVEL FOR 32 MUX	dBµV	70
INPUT LEVEL ADJUSTER RANGE	dB	0... -15
MAX. TERRESTRIAL REMOTE POWER FEEDING		8W (550mA@14,5VDC)
OTHERS		
DC INPUT VOLTAGE	V	12... 20
MAX. POWER CONSUMPTION W/O EXTERNAL LOAD		3,5W (240mA@15VDC)
MAX. POWER CONSUMPTION WITH EXTERNAL LOAD		17,2W (1150mA@15VDC)
SHORT-CIRCUIT PROTECTION		ALL INPUTS
DIMENSIONS	mm	146x200x38
OPERATING TEMPERATURE	°C	0... +50

DESCRIPTION OF SYMBOLS AND ELECTRICAL SAFETY	
CE	The equipment complies with the CE requirements
	The equipment is designed for indoor use only
	Equipment grounding terminal
	This symbol indicates that the equipment complies with the class II equipment safety requirements
	To avoid the risk of electric shock, do not open the equipment.
	Invisible Laser Radiation avoid direct exposure to beam
INVISIBLE LASER RADIATION DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS CLASS 1M LASER PRODUCTS	Class 1M laser product. Do not watch directly with optical instruments
	The equipment is compliant with RoHS 2011/65EU
	Dispose according to local authorities recycling processes

Safety instructions

1. Read carefully these instructions
2. Keep these instructions
3. Heed all warnings
4. Follow all instructions
5. Do not expose this apparatus to extreme temperatures
6. Do not install this apparatus near water or expose to rain and moisture
7. Place the apparatus in a dry and well-aired location
8. Install the unit on a vertical wall, or in a waterproof cabinet with a minimum IP55 rating, and fix it safely using the provided fixing plugs
9. Do not install the unit lying flat or on its top
10. Connect the power adapter cord to a detachable power supply socket
11. Unplug the apparatus during lighting storms or when unused for long time
12. Only use accessories specified by the manufacturer
13. Do not remove the cover without disconnecting from the mains first
14. Ambient temperature should not be lower than 0°C and higher than 50°C
15. Please allow air circulation around the apparatus

Installation warnings

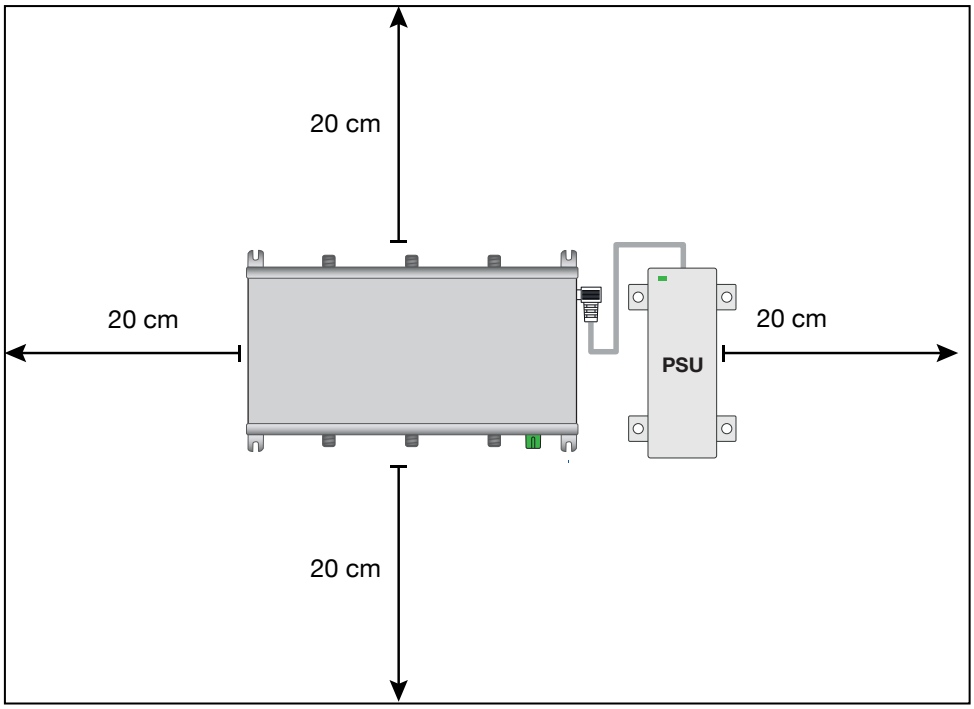
INVISIBLE LASER RADIATION
DO NOT VIEW DIRECTLY WITH
OPTICAL INSTRUMENTS
CLASS 1M LASER PRODUCTS

Place the apparatus and the power supplier in a dry and well-aired location

Install the unit on a vertical wall, or in a waterproof cabinet with a minimum IP55 rating, and fix it safely using the provided fixing plugs

Use only the power supplier provided with the amplifier.

The use of not-original power suppliers determines the not-compliance of the product and can cause malfunctions and void the warranty



TXWBT DESCRIPTION

Box Content

01 **TXWBT** Optical transmitter

01 Power supplier unit (100-240Vac 0,5A Max / Output: 15Vdc 1,25A)

08 6x30mm fixing plugs with 4,5x40mm screws

01 User manual

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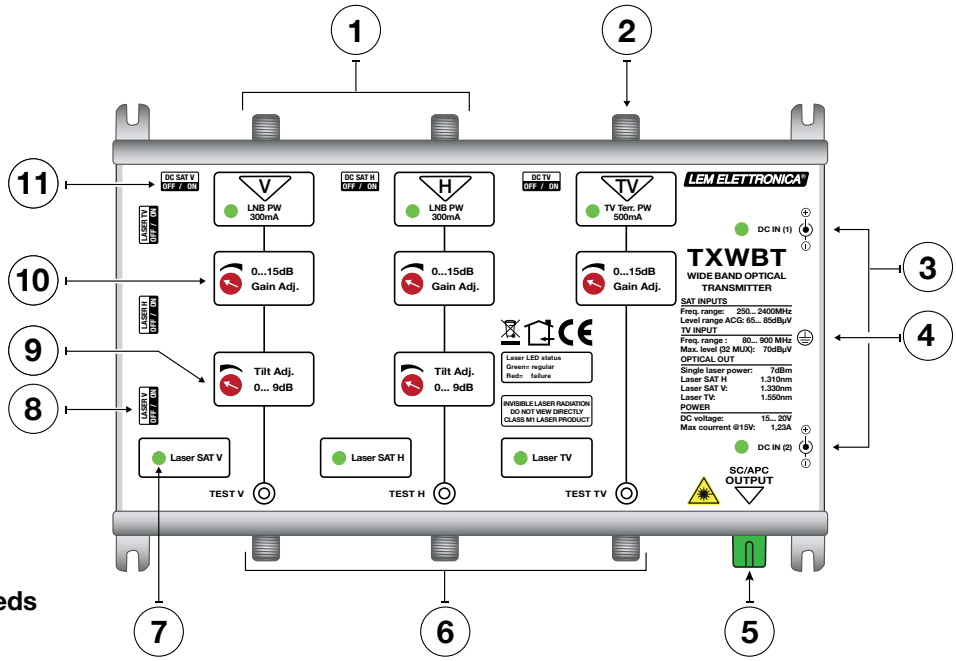
1. **Wide Band LNB V - H inputs**
2. **Terrestrial Input (DTT, FM, DAB)**
3. **DC Inputs and power Leds**
4. **Earth terminal**
5. **SC/APC Optical Output**
6. **Satellite V-H & TV Terr. Test/Monitor**
7. **Laser status Leds**
8. **Laser ON/OFF switches**
9. **Satellite V-H slope adjusters**
10. **Satellite V-H & TV Terr. level adjusters**
11. **Remote power feeding switches and Leds**



LED MONITOR DESCRIPTION

DC Input Led

OFF= No power at the DC input

Green= DC Power

Laser Led

OFF= Laser switched OFF

Green= Laser switched ON

Red= Laser malfunction

Remote power Led

OFF= No power

Green= Remote power feeding active

Red= Short circuit

Satellite V e H Wide Band inputs adjustments.

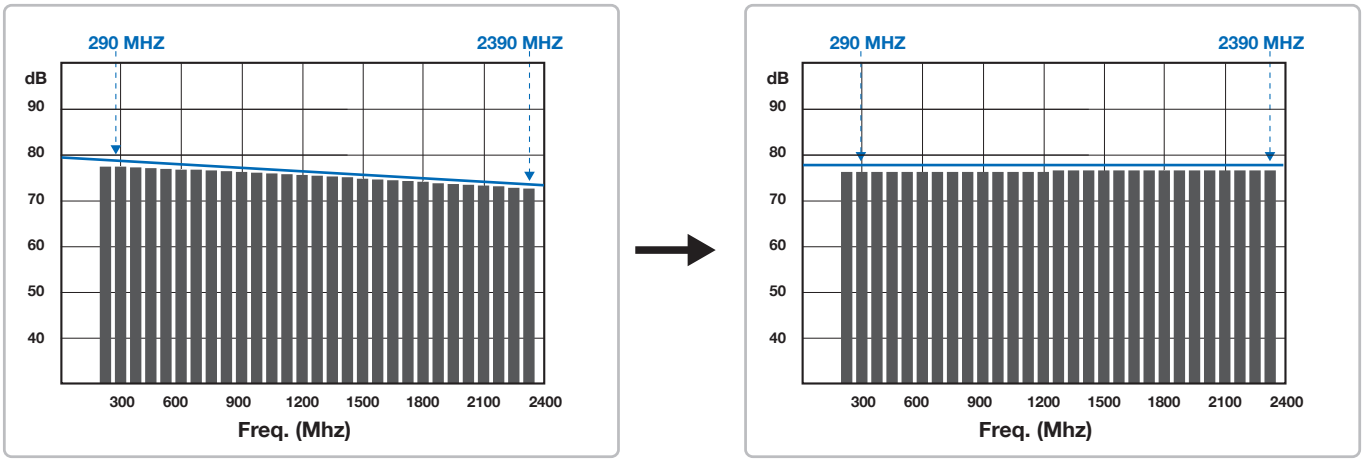
Because of possible different levels of propagation due to weather conditions the **TXWBT** Wide Band inputs are equipped with automatic Gain Control circuits. For perfect signal loss compensation and negative slope equalization of the coaxial cable between the LNB WideBand and the transmitter inputs no additional devices are required. The **TXWBT** Satellite V and H inputs have built-in pre-amplifiers and tilt adjusters.

For optimal working range of the A.C.G. circuits please set-up the slope and signal level of each input first.

Tilt adjuster

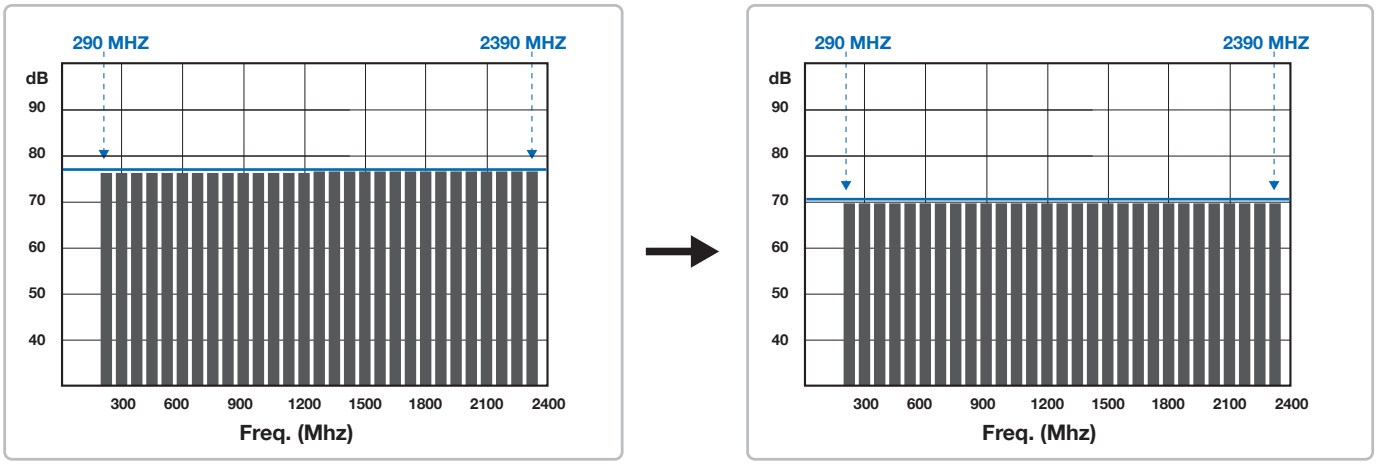
1_Activate at least one V or H for LNB power feeding.

2_Connect a Satellite Signal Meter in spectrum mode to the **TEST V** port (Vertical polarization) of the **TXWBT** transmitter. Rotate the **VSlope** adjuster until the spectrum appears flat.



Input pre-amplifier gain adjustment

1_Select with the Satellite Signal Meter a transponder and operate on the **VGain** adjuster to obtain a level comprised between 70 and 75 dBµV.



To set-up the H horizontal Wide Band input connect the Satellite Signal Meter to H Test port and repeat step by step the same procedure applied for the input.

Terrestrial optimal TV Terrestrial level set-up

1_Connect a Satellite Signal Meter to the TV Terrestrial Test point connector

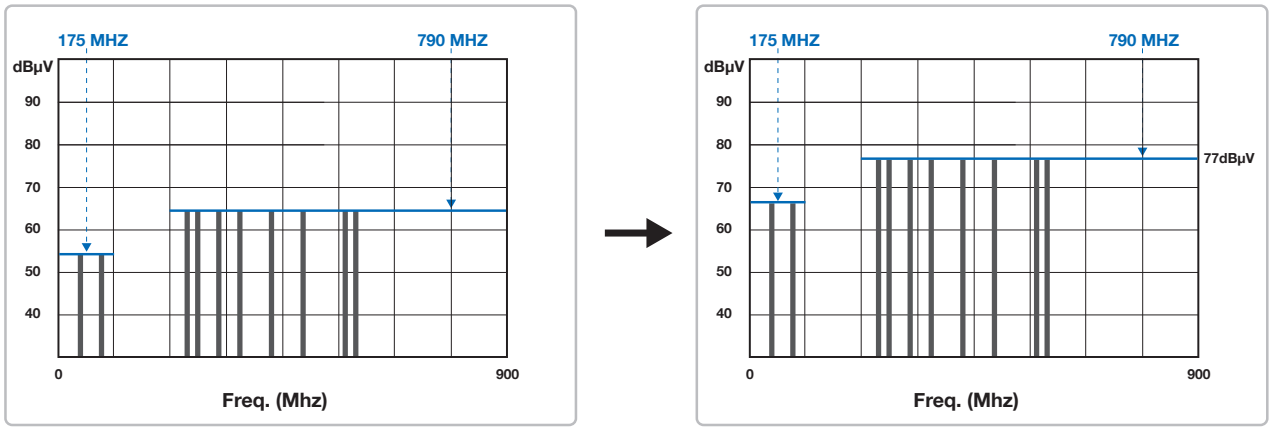
2_Set the **TV Gain** adjuster of the **TXWBT** transmitter to obtain the values showed below at the TV Terrestrial Test output.

RF Level at TV Gain test output					
TV Channels	**-7dB Optical**	**-10dB Optical**	**-14dB Optical**	**-17dB Optical**	**-21dB Optical**
40	60dBµV	65dBµV	70dBµV	70dBµV	70dBµV
16	64dBµV	69dBµV	74dBµV	74dBµV	74dBµV
8	67dBµV	72dBµV	77dBµV	77dBµV	77dBµV
4	70dBµV	75dBµV	80dBµV	80dBµV	80dBµV
1	73dBµV	79dBµV	83dBµV	83dBµV	83dBµV

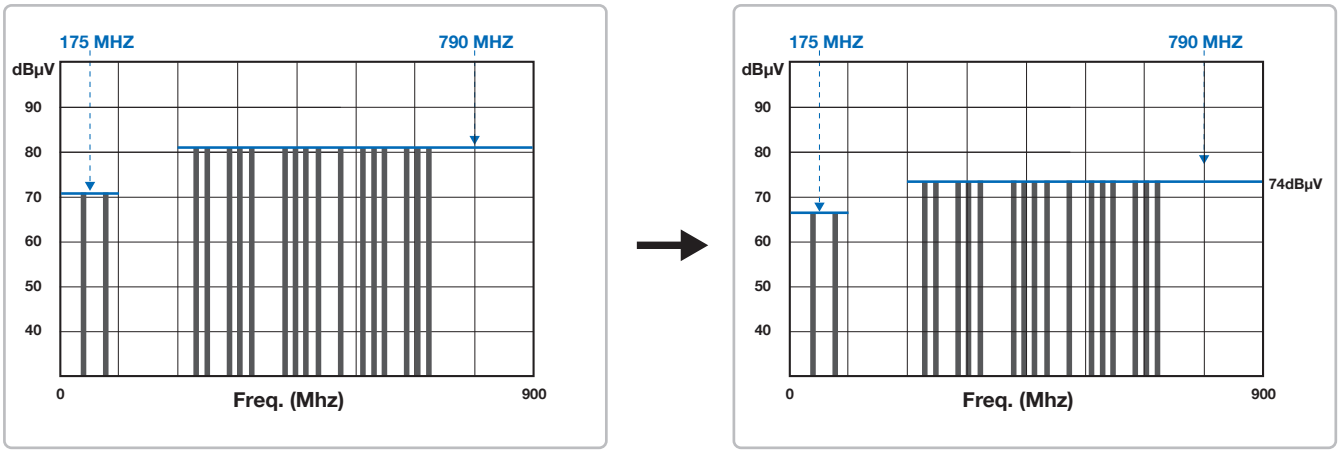
These levels are guidelines in an ideal scenario, assuming that all DTT signal channels at the input are steady and at the same level, if not, the use of a DTT signal equalizer like the DSP20 is highly recommended.

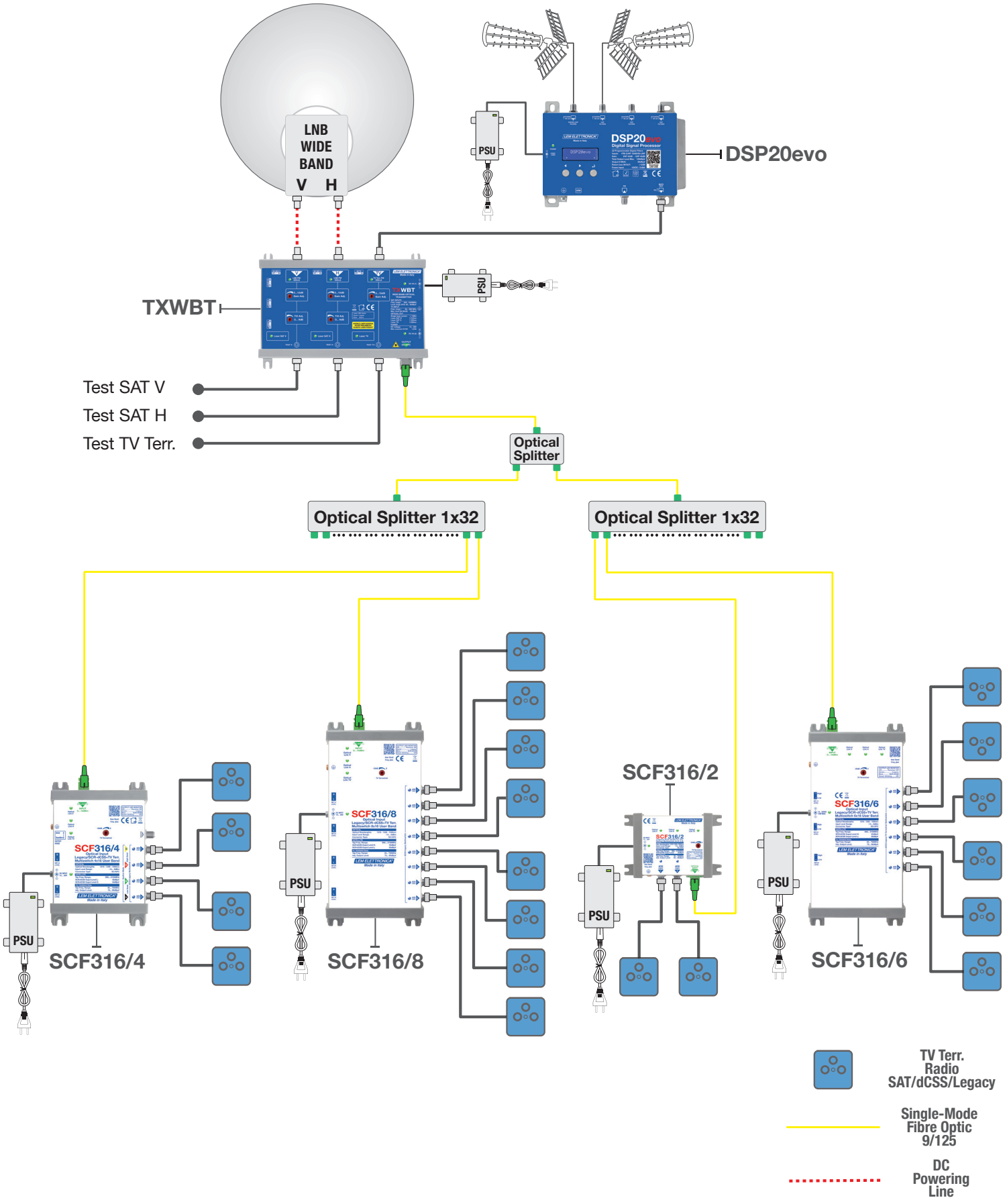
The FM and DAB signal levels should be at least 10dB lower than the DTT signals

Example (A): Scenario with 8 digital TV terrestrial channels plus DAB and FM in a PON (Passive Optical Network) of 16 optical points. The optimal signal level at the **TV Terr. Test** output should be 77dBµV. This level can be set adjusting the **TV Terr. Gain** trimmer.



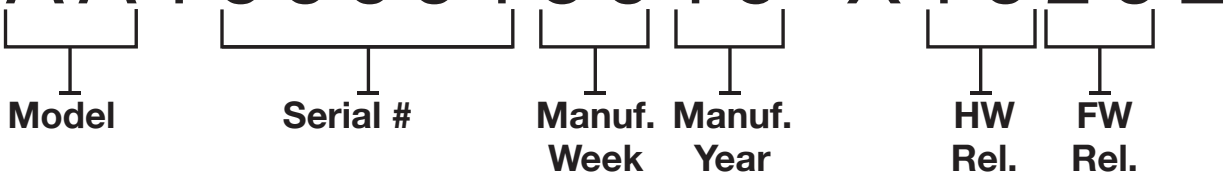
Example (B): Scenario with 16 digital TV terrestrial channels plus DAB and FM in a PON (Passive Optical Network) of 32 optical points. The optimal signal level at the **TV Terr. Test** output should be 74dBµV, this level can be set adjusting the **TV Terr. Gain** trimmer.





The **TXWBT** headend converts and transmits over a single-mode optical fibre the terrestrial signals (DTT, FM, DAB) processed by the programmable terrestrial headend **DSP20evo** and all the transponders of a satellite received from a Wide Band LNB. The optical signals are received by the optical multiswitch of the **SCF316** series and converted into RF ready for a single or multi-dwelling coaxial distribution. Each **SCF316** series output provides terrestrial and satellite signals supporting the legacy or SCR/dCSS standards (AUTO-SWITCH).

Label with serial and tracking data



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