

Specification



Multiswitch family 5 Inputs to 12 / 16 / 24 / 32 Outputs

Options: **S**tandalone, **R**eceiver powered, **T**errestrial active, **22kHz** Generator, **C**ascade (**K**)

Brief description

This Multiswitch is intended for small distribution networks as a standalone version, Receiver powered or as Cascade Version. Each user output circuitry is operated from users STB or TV. A power supply (15 or 18V depending on type) must be connected to the switch for remote powering LNBs or trunk line amplifiers and for feeding internal Terrestrial amplifiers and has an optional 22 kHz generator for QUAD-LNB support (22k – versions). Terrestrial (off-air) signals are routed active (T-Versions) or passive.

The 5 Inputs' (4x SAT, 1x terrestrial) to 8/12/16/24/32 Outputs' Multiswitches are available with different features according to the type names starting with:

- BS** = Standalone (incl. PSU with Euro-Plug)
- BSB** = Standalone (incl. PSU) but with **B**ritish power cord
- BS 51-X** = Standalone, terrestrial passive for Quattro LNB's. **The 'X' is a placeholder for 12 or 16 or 24 or 32 outputs'**
- BS 51-X T** = Standalone, terrestrial **a**ctive for Quattro LNB's
- BS 51-X T 22k** = Standalone, terrestrial active, with 22 kHz supporting **Q**UAD-LNB's and QUATTRO LNB's
- BSD 51-X R** = Standalone, no internal PSU, Power served from the **SAT-Receiver**s. Optional external PSU available. *This Version has no T-Active option / avoiding too much power consumption from connected SAT-receiver(s).*
- BSD 51-X (T / 22k)** = Standalone version w/o internal PSU, coax cable power served by trunk- or input-amplifier or from external PSU, different options
- BKD 51-X (T)** = not standalone, 5 **C**ascaded outputs', external PSU necessary or sourced by a connected standalone final Multiswitch (i.e., BS 51-X (T)), terrestrial Active (T) or passive (w/o T). Cascades are **n**ot available with 22 kHz Quad –option because that doesn't really make sense!

The smaller ones (all 5 IN with 1 SAT-pos. up to 32 Outputs' and the 2 SAT pos. = 9 Inputs' up to 8 Outputs') are available as Receiver served units. There is no intention to separate them into BSD w/o the R because the LNB-Voltage might not be sufficient by using the non – R versions without a PSU.

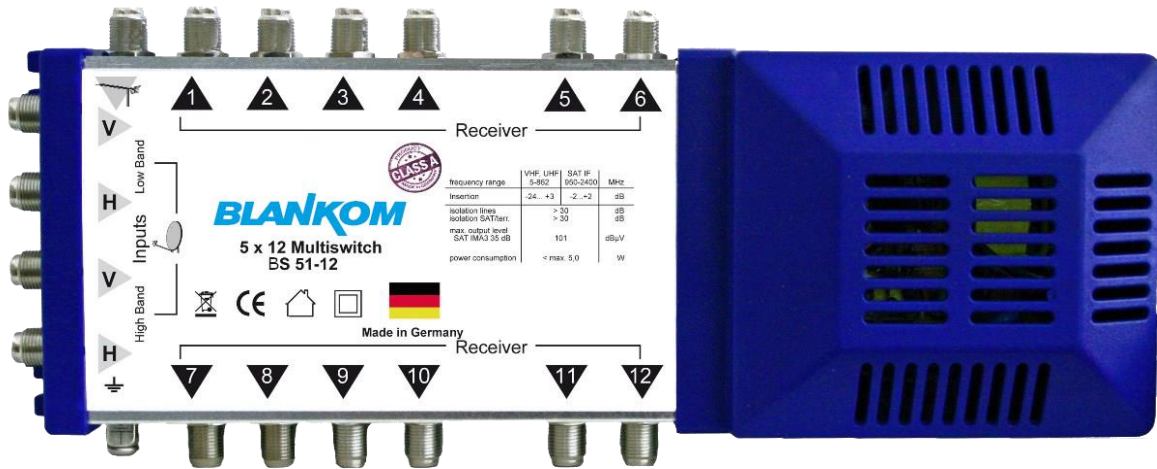
Supporting QUAD LNB's has the advantage for the customers which has used and installed a QUAD LNB before (2 or 4 direct Receiver connections = inbuilt simple Multiswitch receiver powered) to be able to simply increase the number of connected receivers by just adding this multiswitch –by no need to exchange the existing LNB from Quad (or Dual) to Quattro.

Type- Matrix:

I - O	T-passive	T-Active	22KHz – Quad support	Receiver powered	Standalone w/ PSU	K=Cascade	Standalone w/o PSU	UK-plug
5 – 8	No 'T'	T	22k	BSD 51-8 R	BS/BMP 51-8	BKD	BSD (no R)	BSB
5 – 12	No 'T'	T	22k	R	BS 51-12	BKD	BSD (no R)	BSB
5 – 16	No 'T'	T	22k	R	BS/BMP	BKD	BSD (no R)	BSB
5 – 24	No 'T'	T	22k	R	BS/BMP	BKD	BSD (no R)	BSB
5 – 32	No 'T'	T	22k	R	BS/BMP	BKD	BSD (no R)	BSB

Summary: all 32 Variants are available. Cascades are **n**ot available with 22KHz Quad -option

Example Picture for BS 51-12:



Example Picture for (BS) BMP 5116:



Example Picture for BS (BMP) 5132:



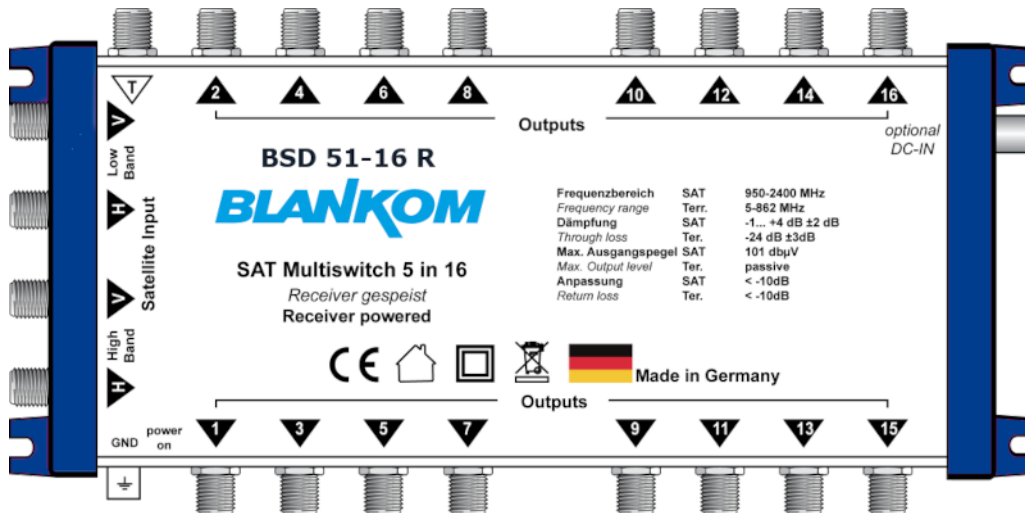
Example Picture Cascade-Version, external PSU Option with T-active:



Receiver sourced version examples:



Example Picture **BSD 51-8R** Receiver powered
(Available with optional external Power supply connector as RCA-Jack)

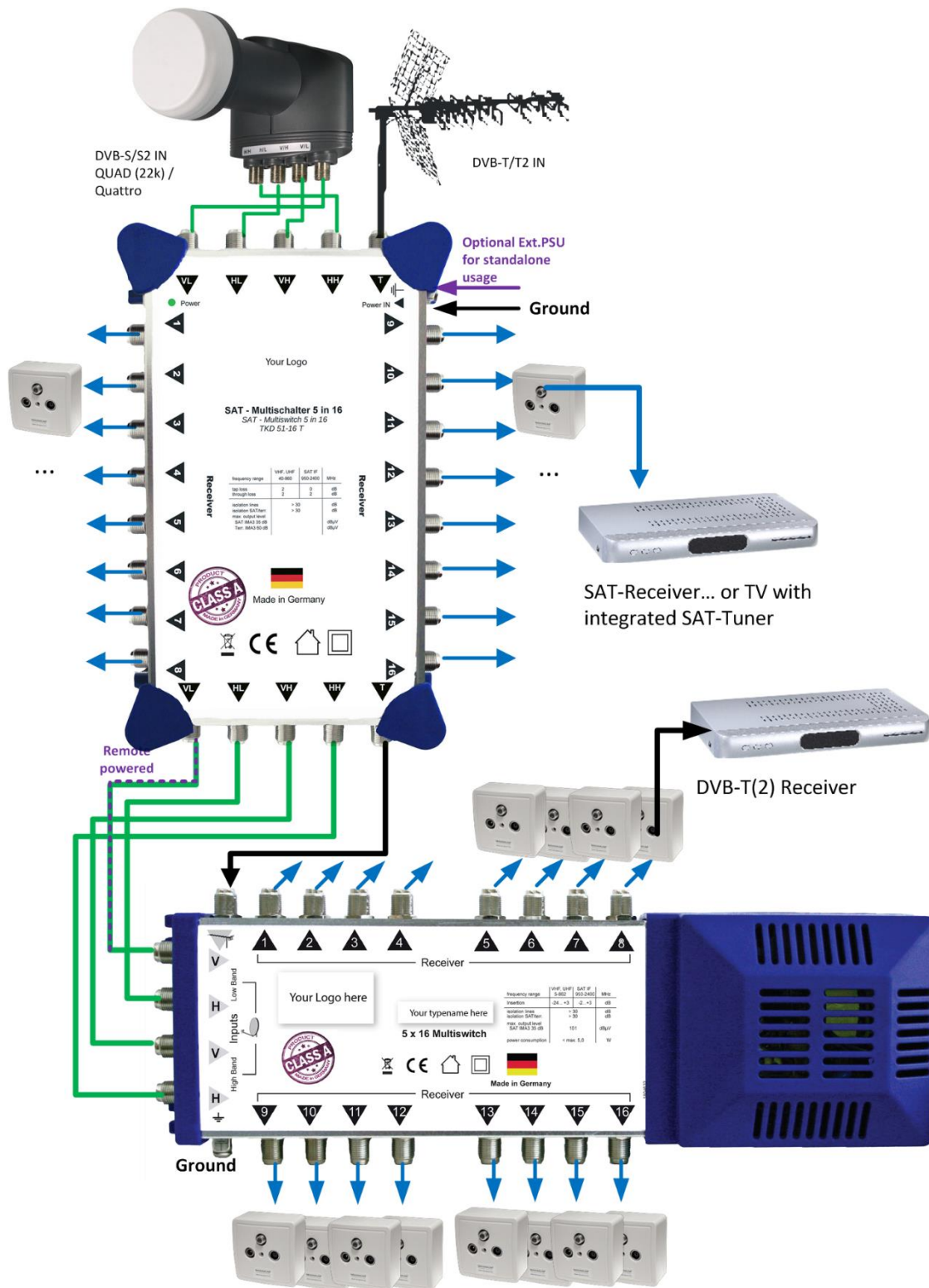


Example Picture **BSD 51-16 R** Receiver powered
(Available with optional external Power supply connector as RCA)

With 2 SAT-positions:



Installation example: (We accept OEM)



Remark: Only one Power source should be used. If more cascades are to be designed, Trunk and/or Input amplifiers might be considered. Remote power sourcing does not work with 22 kHz QUAD -support versions.

Operation parameters

Item	characteristics	Cascades	Receiver powered
Inputs	4x SAT, 1x TERR	4x SAT, 1x TERR	4x SAT, 1x TERR
User outputs	12/16/24/32	12/16/24/32	12/16/24/32
Impedance In- and Outputs	75 Ohm F-Female		
Frequency range SAT	950 ... 2400 MHz		
Frequency range TERR	40... 862 MHz (T-active) or	5... 862 MHz (passive)	5... 862 MHz (passive only)
Insertion loss SAT	-1... +4 dB \pm 2 dB -6... 0 dB \pm 2 dB (24/32 out)	-4... -1 dB \pm 2 dB (Cascade) -6... 0 dB \pm 2 dB (24/32 out)	-1... +4 dB \pm 2 dB -6... 0 dB \pm 2 dB (24/32 out)
Insertion loss TERR	-2 dB \pm 2dB (T active) -24 dB \pm 3dB (T passive)	-22 dB \pm 3dB (T passive) 0 dB \pm 3dB (T active) -33 dB \pm 3dB (T-pas. 24/32 out) -2 dB \pm 2dB (T-act. 24/32 out)	-24 dB \pm 3dB (passive only)
Isolation TERR/SAT	30 dB typ.		
Trunk outputs	---	5 (4x SAT + 1x Ter)	---
Through loss SAT	---	-2...-4 dB \pm 1dB (12/16out) -2... -6 dB \pm 2dB (24/32 out)	---
Through loss TERR	---	-1...-2 dB \pm 1dB (12/16 out) -2... -6 dB \pm 2dB (24/32 out)	---
Isolation H/V	30 dB typ.		
Input return loss SAT	>10 dB		
Input return loss TERR	>10 dB		
LNB Supply Voltage	18V		
Max. LNB supply current	500mA	---	---
Max. output level SAT (IMD3 35dB)	101 dB μ V		
Max. output level TERR (IMD3 60dB)	91 dB μ V (T-Active) 88dB μ V (12/16 Out)	T-Passive or T-Active (84 dB μ V)	passive
Output return loss SAT	>10 dB		
Output return loss TER	>10 dB		
Current consumption (from STB)	29...38 mA	27...35 mA	29...38 mA
Current consumption (from PSU)	10...140 mA (12/16 Out) 10...305 mA (24/32 out)	10mA (pass.) / 110...305mA (act.)	Optional ext. PSU ---
Main Voltage (internal PSU)	90...264 VAC, 50/60 Hz	Ext. PSU ---	Optional ext. PSU ---
External PSU and optional for R-types	--	90... 230 VAC to 15 VDC 2A or 3,3A	optional
Dimension (L x W x H)	310 x 110 x 57 mm (12/16) 324 x 140 x 63 mm (24/32)	220 x 140 x 63 mm (12/16) 240 x 140 x 63 mm (24/32)	215 x 110 x 45mm (12/16) 240 x 140 x 63mm (24/32)
Switch commands	13/18 V, 0/22 kHz		
Weight	~300 g	~500g	~300 g
Operating temperature range	0...+55 °C	-20... 70 °C Types w/o internal PSU	-20... 70 °C
DC Connector Type	RCA female internal	DC-Jack 5.5 /2.1 mm	RCA female

Subject to change without notice! Class A might be valid only for SAT IF for some product types > 9 Inputs'.

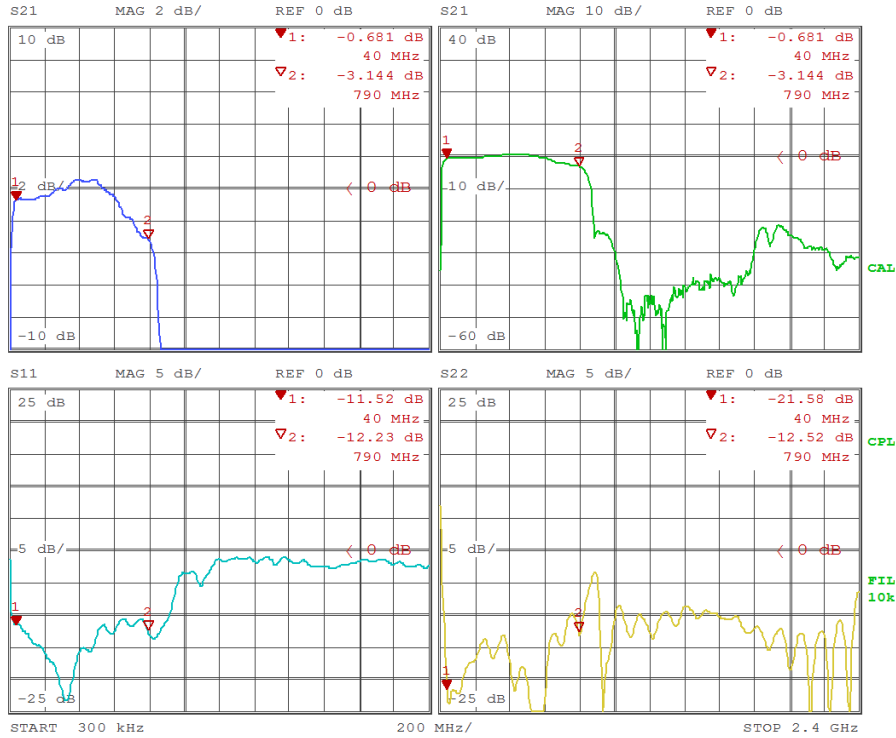
Improvements of measured values might happen during product lifecycle and might not be up-to-date in this datasheet.

All Multiswitch up to 9 IN and 16 Out are full CLASS A compliant. All models are SAT-IF Class A.

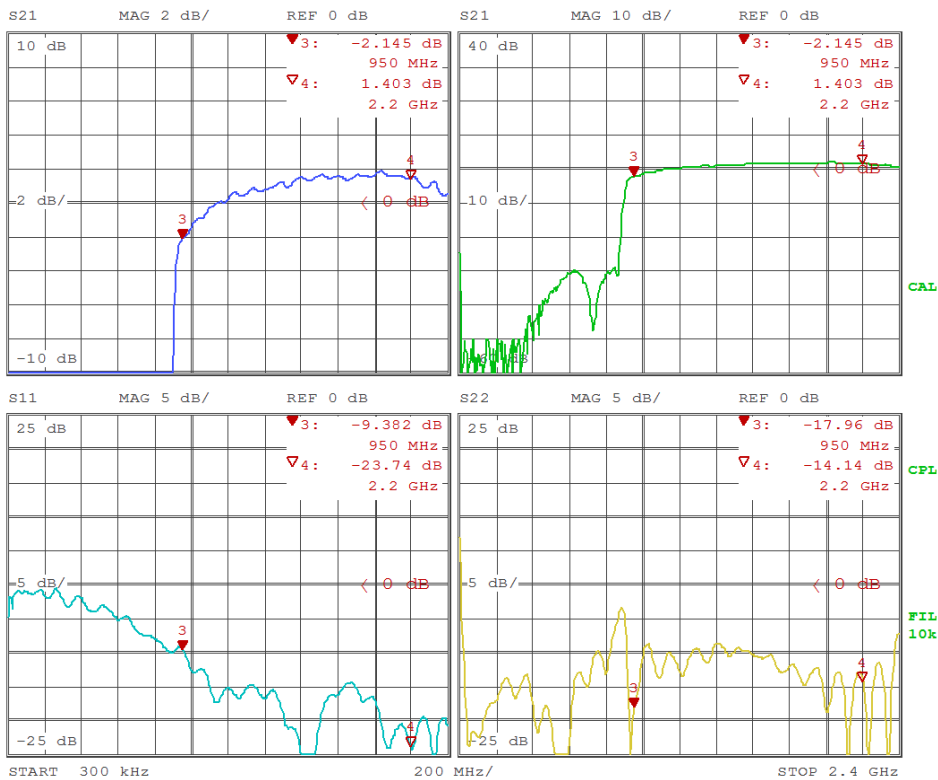
Example Measurements for the BS 51-16T 22k and the BKD 51-32:

Multiswitch 5-16 standalone, terrestrial active, 22kHz generator, BS 51-16 T 22k:

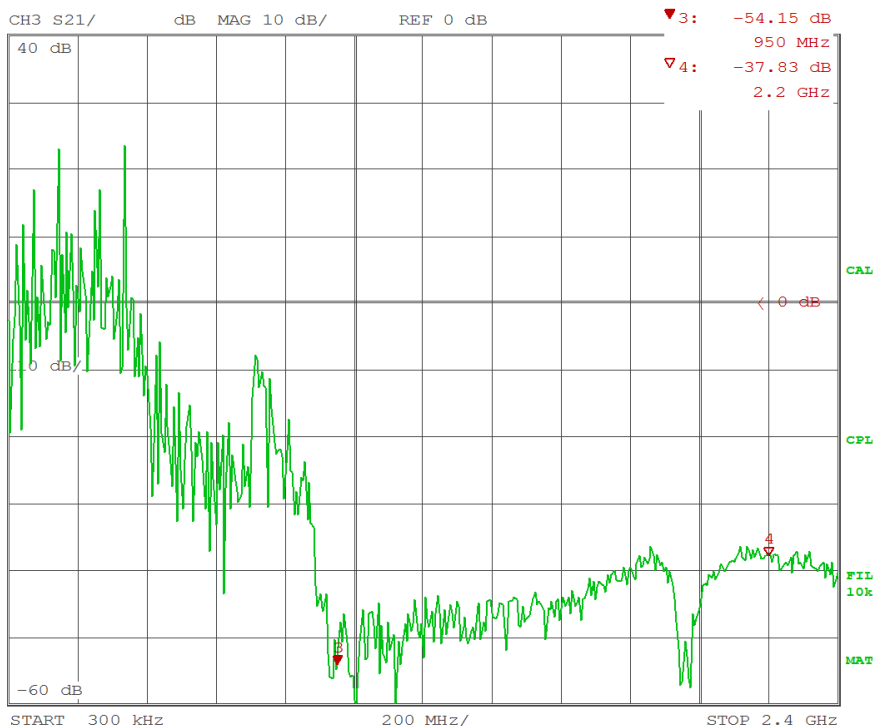
Insertion Loss TERR:



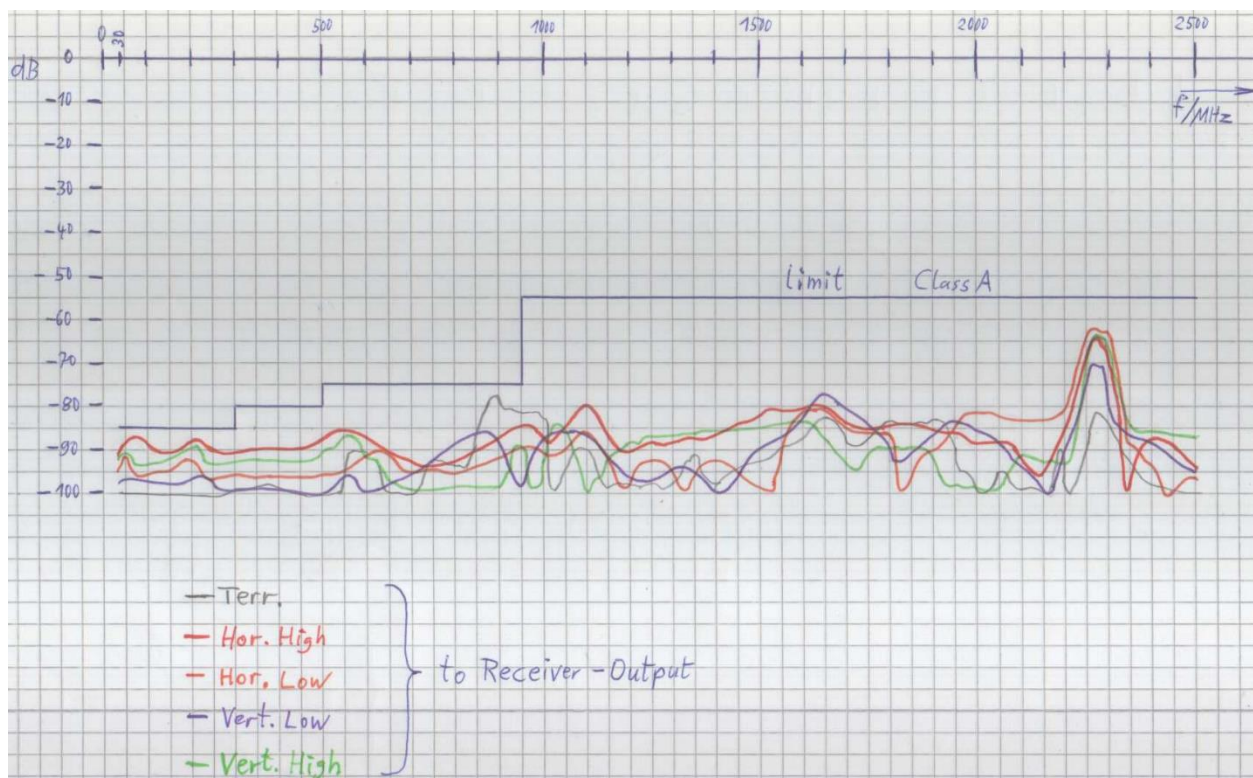
Insertion Loss SAT:



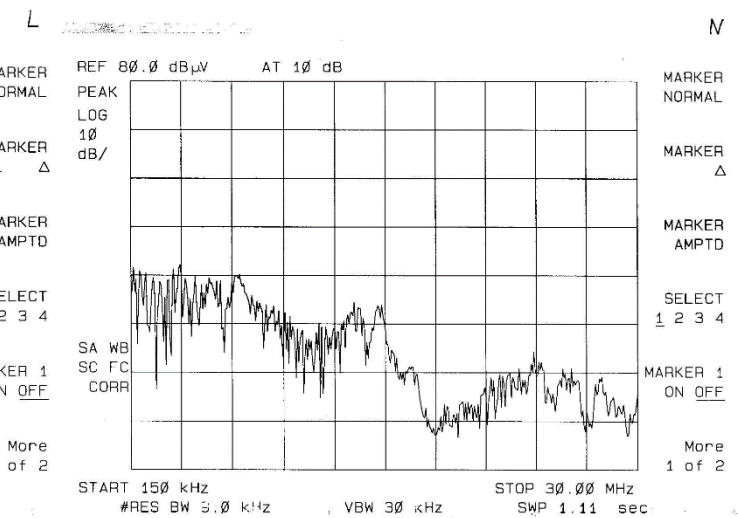
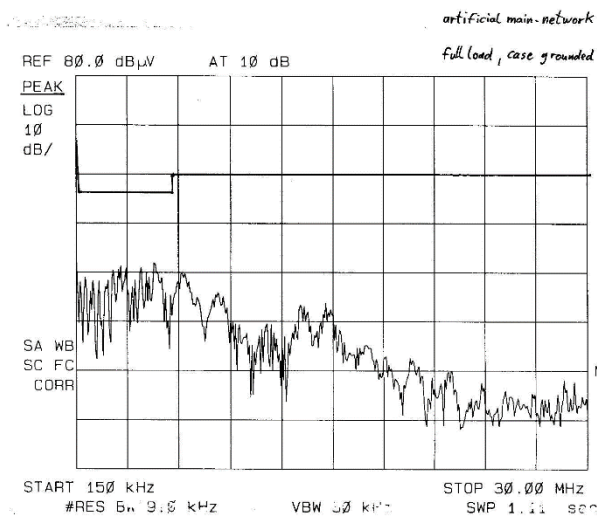
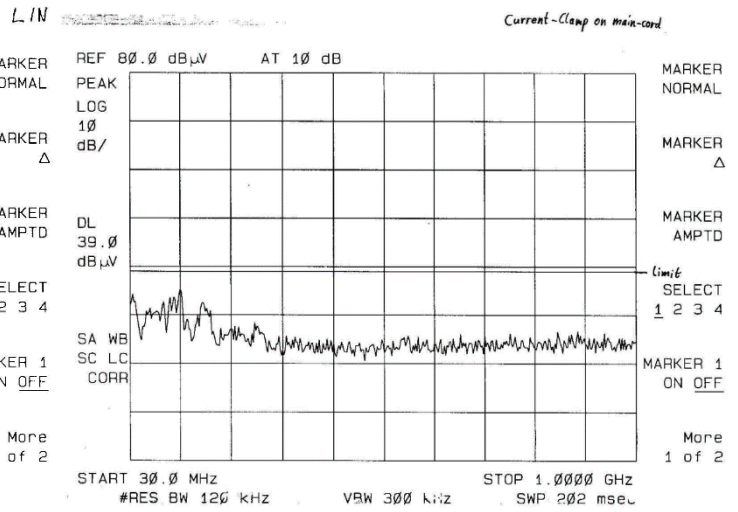
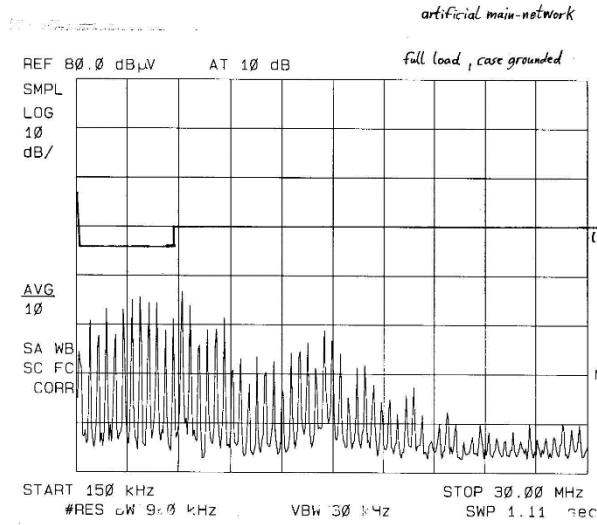
Isolation between inputs:



EMI isolation:

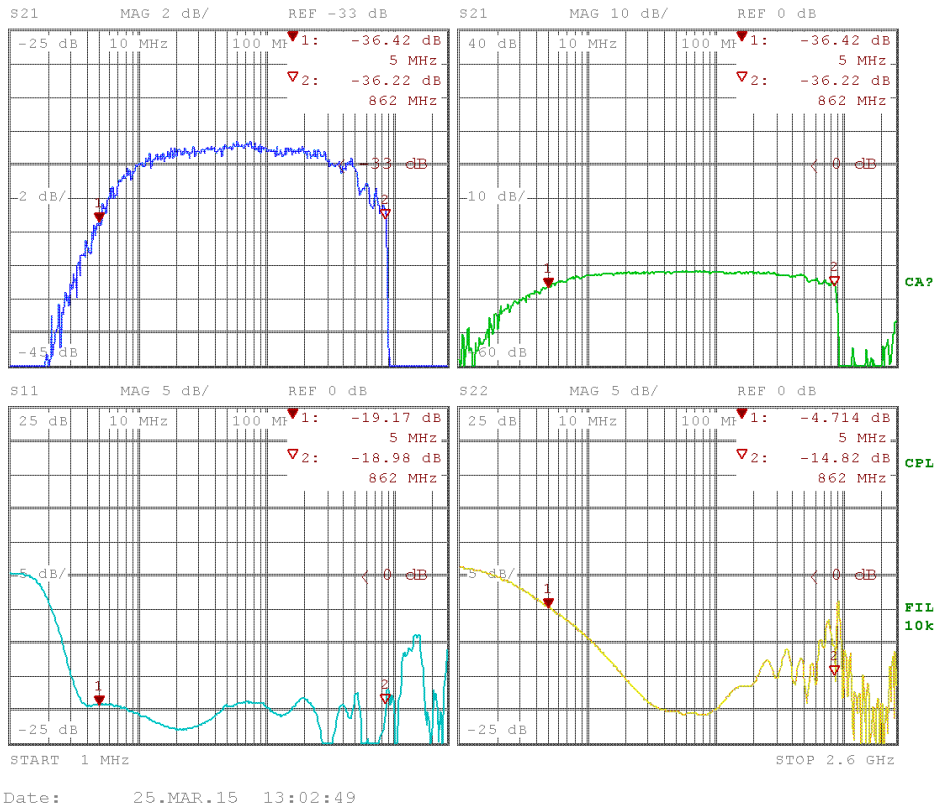


EMI voltage disturbance on mains input:

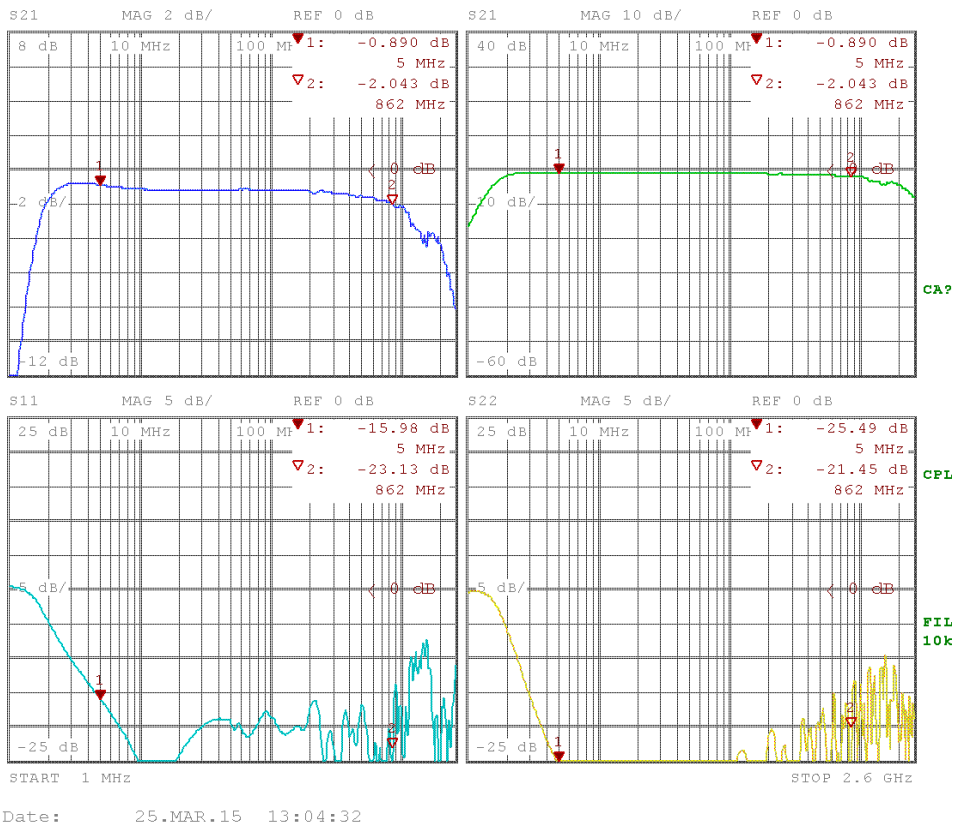


Measurements for Multiswitch BKD 51-32 (Cascade, terrestrial passive):

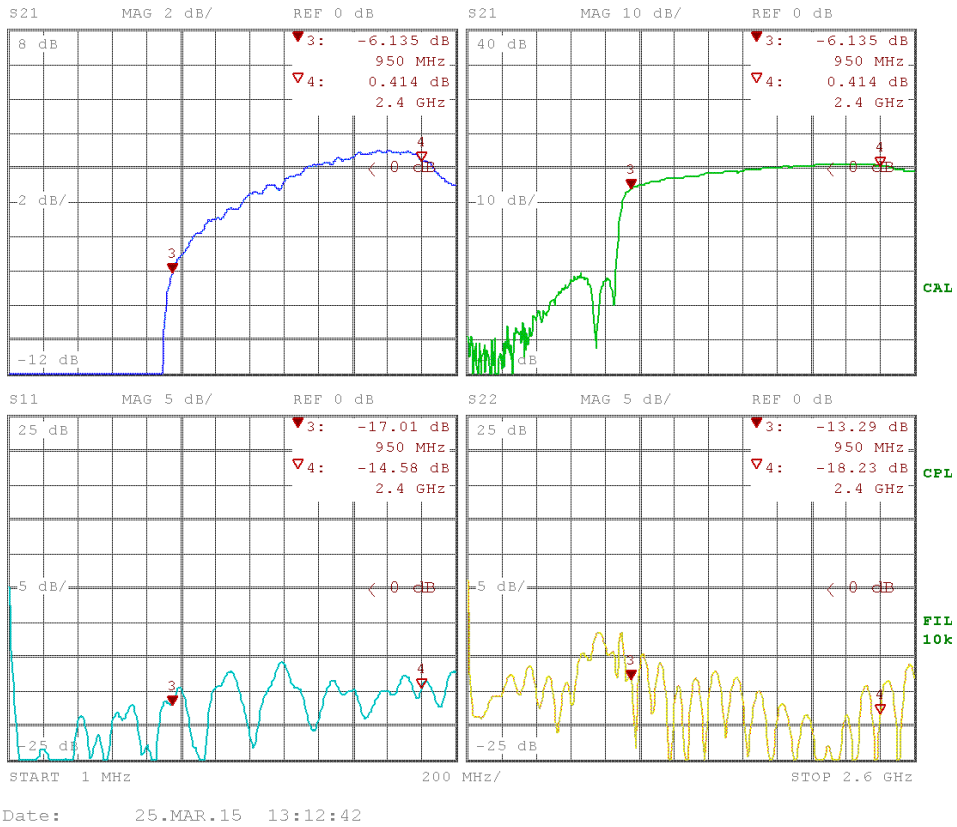
Insertion loss TERR:



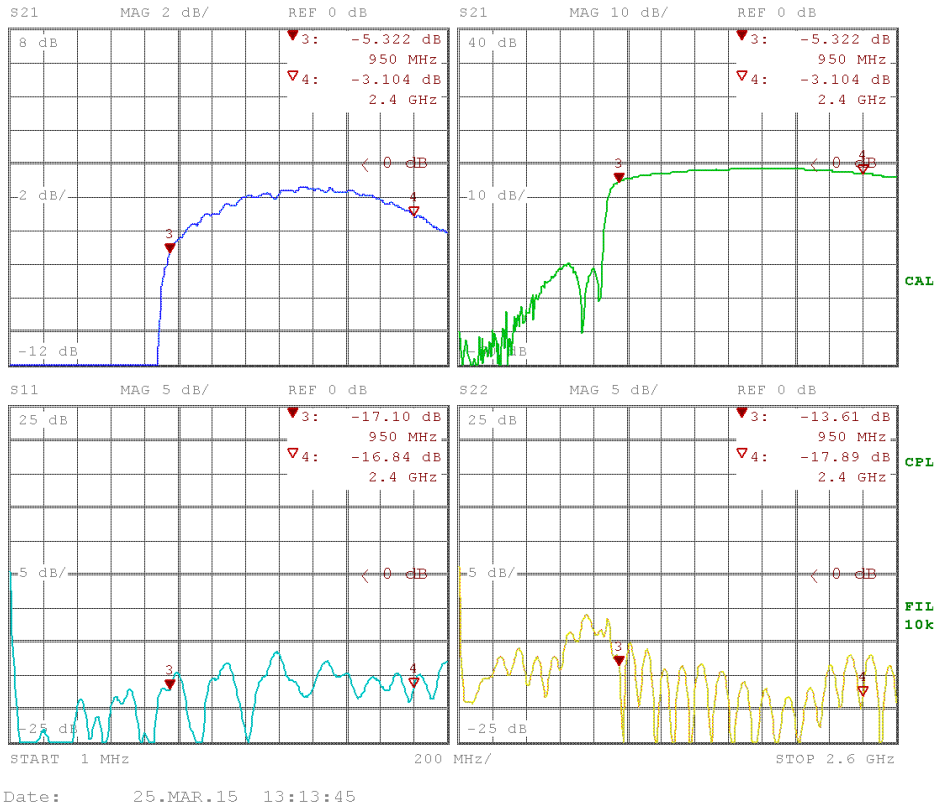
TERR trunk line:



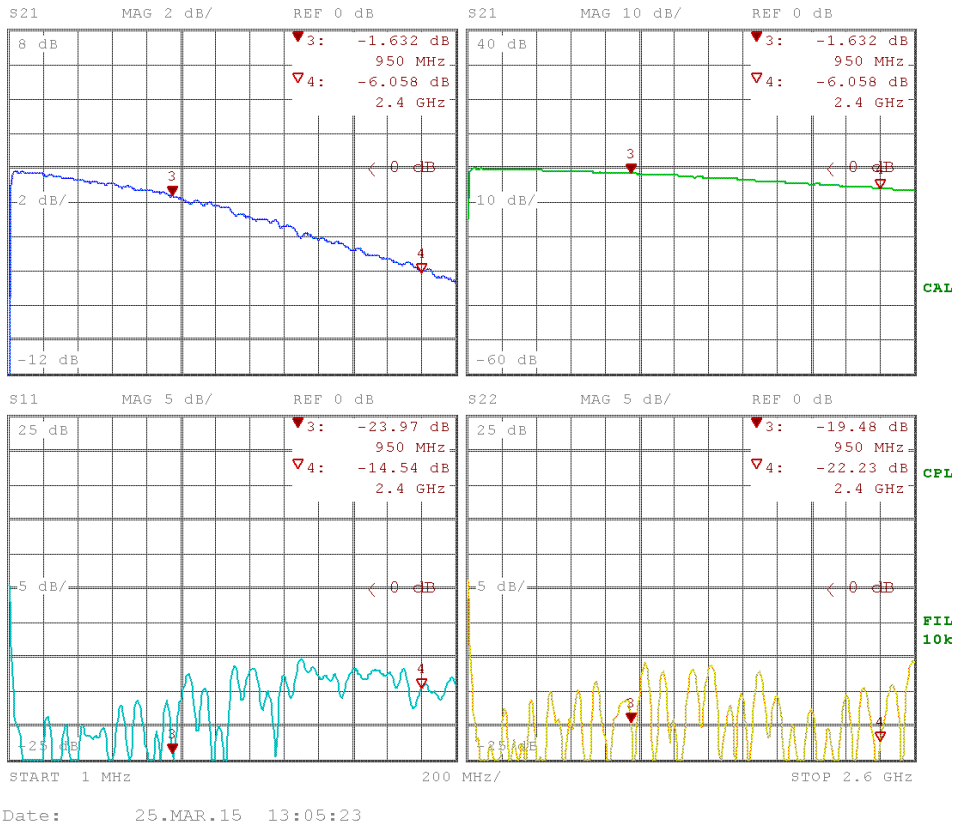
Insertion loss SAT (out 1):



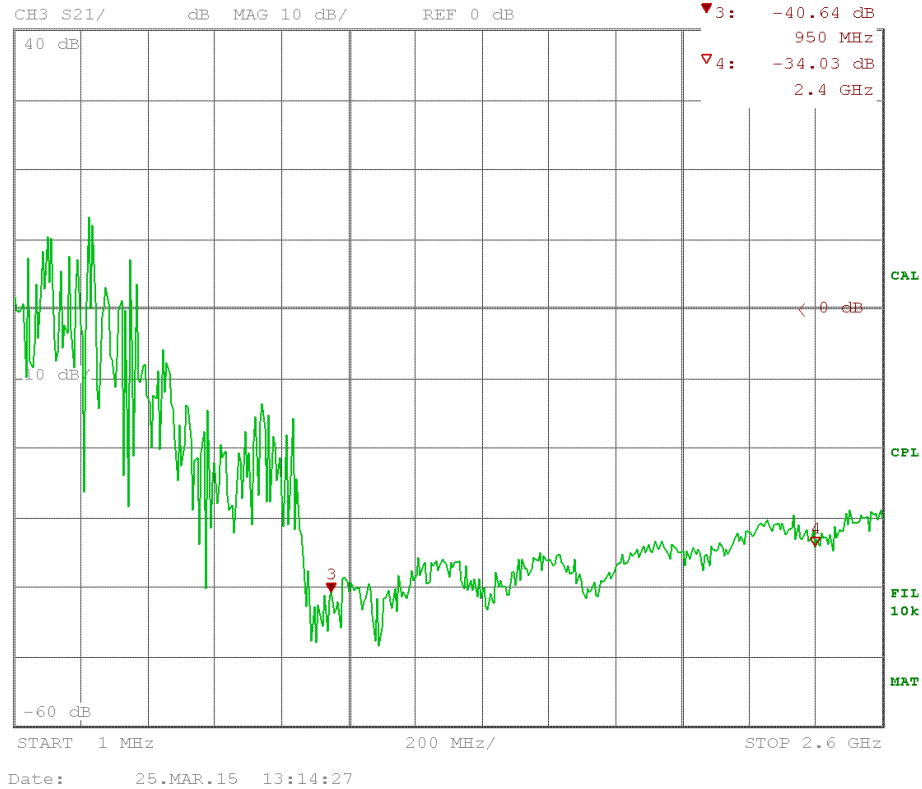
Insertion loss SAT (out 32):



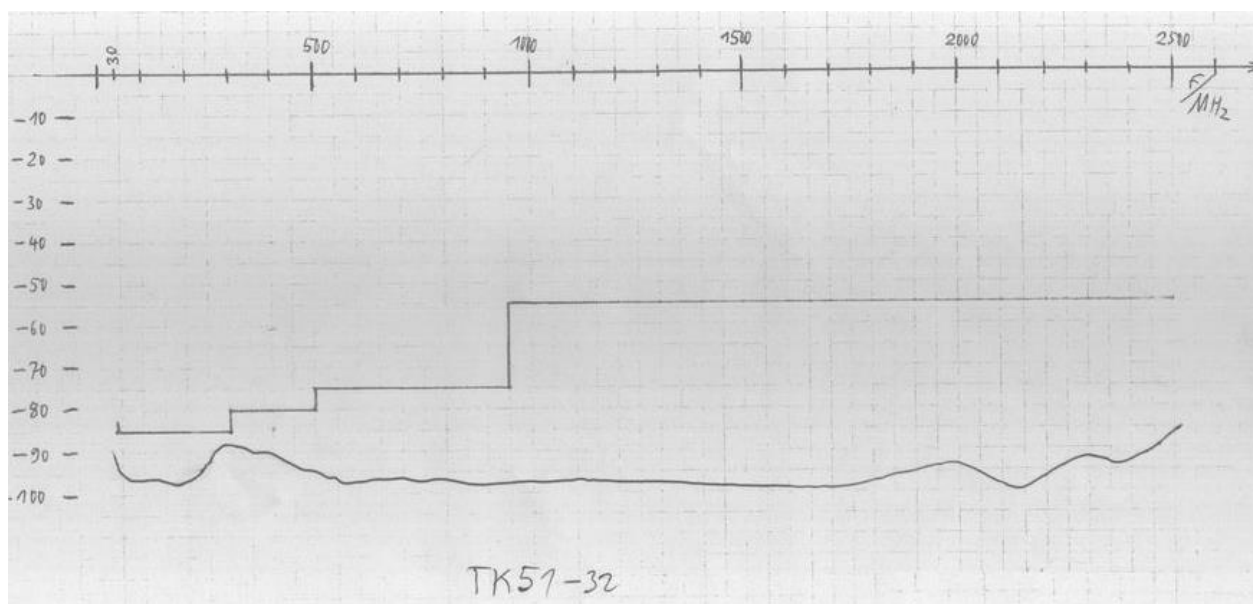
SAT trunk line:



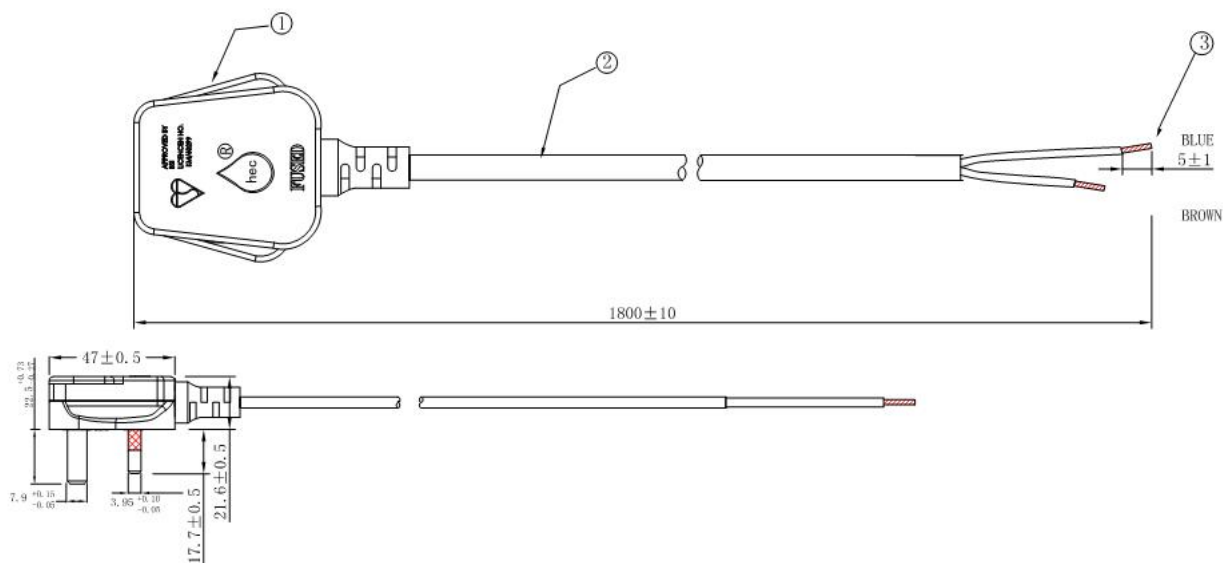
Isolation between Inputs:



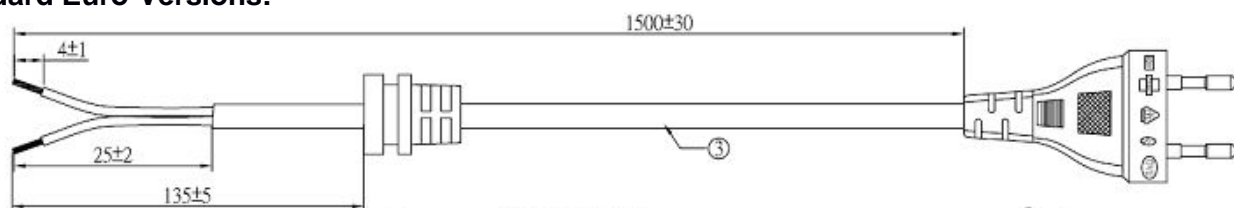
EMI shielding:



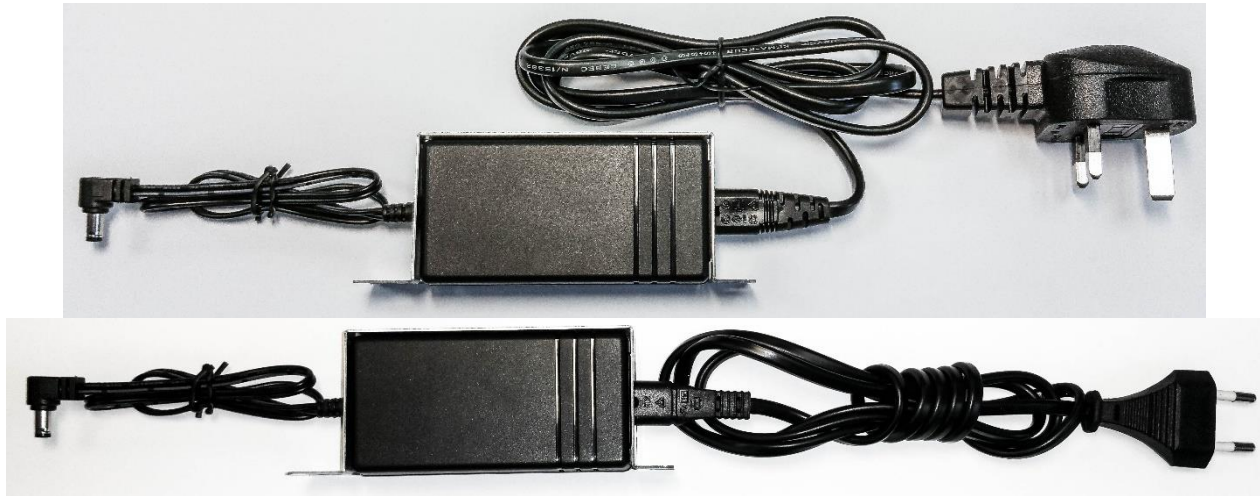
B- Type Versions will have British power cords:



Standard Euro-Versions:



External PSUs with mounting metal and DC-Jack, available as 2A and 3.3 A (2A Version will be phased out H2 2016):



For the compatibility with older types of Multiswitches and optional external Receiver-sourced power serving , we are adding a DC-Jack to RCA adaptor.

History, Changelog

Date	Version	What	Author
20.07.2015	V.1.0	Finished	Ralf Riedel
07.08.2015	V 1.2a	Added pictures and notes, optimizing	RR
4. may 2016	V 1.3	Improved Revisions avail. From June 2016, added pictures	RR
June 2023	V.1.3.1	updates	RR

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