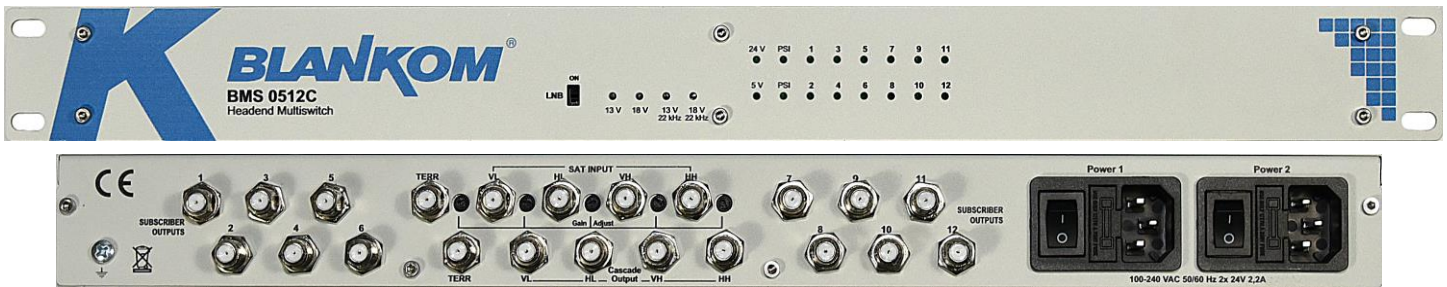


# 19" Multiswitch 5-12 cascaded



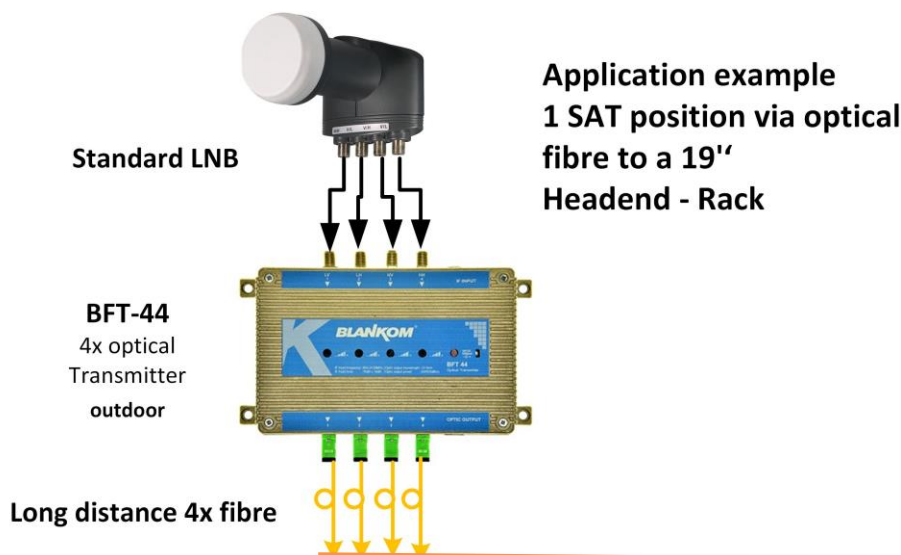
*All technical details are subject to change w/o notification*

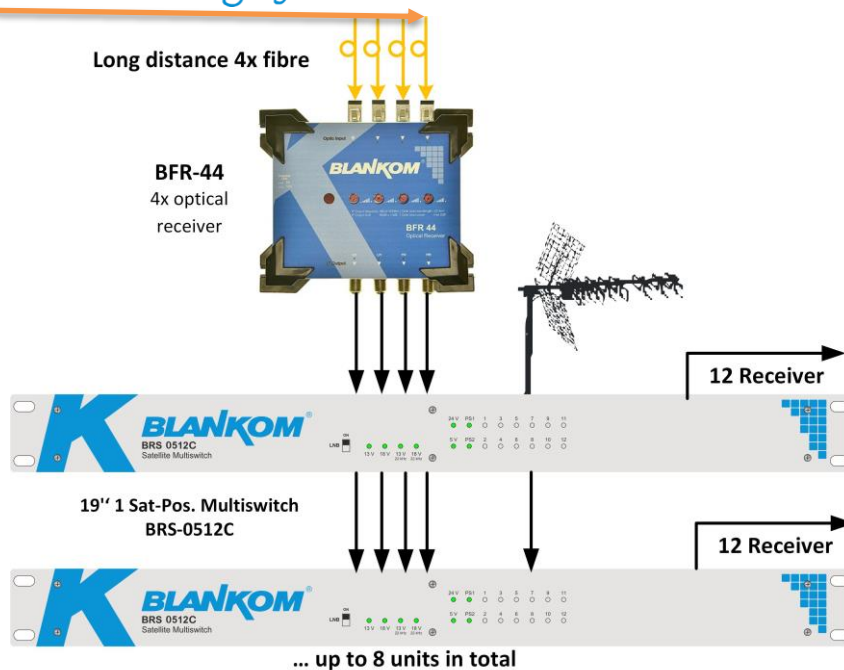
- Dual redundant power supplies by Diode circuit
- Active Terrestrial input (passive version optional available)
- Designed for installation into 19" Racks = 1RU
- Up to 7 cascading's possible
- Low power consumption
- LNB powering ON/OFF selectable
- LNB supply 13-18V, 13V-18V+22KHz and up to 2.5A in total
- QUAD LNB compatible
- 950-2150MHz and 47-870MHz lossless sharp filter design
- Trunk loss in average less than 2dB
- High Isolation between outputs
- Output port protection up to 100 Volts
- LED indicators for each output
- High performance isolated industrial power supplies
- Professional RF design for DVB IPTV and Digital Headend's

**BLANKOM BRS-0512C** is a high-performance 1x Sat-Position Gateway device for digital TV broadcasting headend systems with a high end performance. Designed for the modern 19" rack mounting installations.

This professional Multiswitch can be cascaded and is useful to grow with your demands. If more Receiver outputs are needed - simply add a second device in your 19" Rack. (Up to 8 cascading devices in one chain are possible)

The LNB power can be set to ON or OFF to be almost flexible for the combination with non-powered devices like fibre optic LNB or similar optical transmitter – receiver couples like the BLANKOM BFT-44 (4x fibre transmitter) to BFR-44 /4x (Fibre receiver). LED's are showing the actual status as well as Gain adjustments for the 4 SAT-levels are securing a flexible installation even with multiple LNB supporting.





<b>Input interface</b>	1x Sat-position with 4 Inputs F-Connector female, 75 Ohm 1x Terrestrial Input active (passive available on demand), F-connector, 75 Ohm Input adjustment by 5 potentiometer	
<b>Outputs</b>	12 Receiver outputs, F-connector female, 75 Ohm, 4 Trunk outputs + 1x terrestrial for cascading;	
<b>I/O Performance</b>	LNB polarity selectable	13V, 18V, 13V+22KHZ, 18V+22KHZ (Quad compatibel) <i>Multiple dual- and single LNB's can be installed but should not exceed 2.5A consumption in total.</i>
	Frequency range	SAT-IF: 950-2150MHz Terrestrial: 47-870MHz
	Through loss Trunks	SAT: -2dB ±0.5dB Terr.: -1dB ±0.5dB
	Receiver output gain	SAT / IF: 950MHz -2dB ±1dB SAT / IF: 2150MHz +2dB ±1 dB TERR: +4dB ±1dB
	Max. Input Level	SAT / IF: 96dBµV TERR: 84dBµV
	Max. Output Level	SAT / IF IMA3: 98dBµV TERR: 88dBµV
	Attenuation/Gain adjust.	SAT / IF and Terr = 15 dB
	Isolation:	SAT-SAT >30dB SAT-Terr >37 dB
<b>Power</b>	Primary AC 100V...230V	2x24V DC 2A with Auto pass from redundant PSU's
<b>General</b>	Dimensions	485mm × 245mm × 45mm (WxLxH) 1 RU
	Weight	Approximately 2.5kg
	Temperature	-30...50°C (operation), -20...80°C (storage)
	Power supply	AC 100V ±10%, 50/60Hz or AC 230V ±10%, 50/60Hz

**QUICKSTART FOR THE 19" MULTISWITCH SERIES:**

**General:**

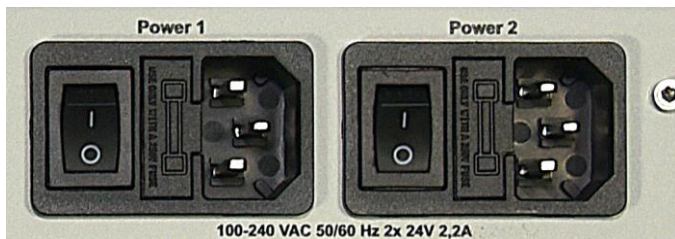
***We strongly recommend the installation by technical skilled people.***

All needed connection to the LNB's SAT-A (...D for more than 1 Sat-Position devices) as well as the cascading outputs are printed onto the rear and front-panel (LEDs for checking) so that a mismatching usually cannot be done. Please assure the grounding of every component (BMS, Coax cables as well as Antennas/dishes) to avoid voltage differences between every device. The grounding should also be fit to earth potential to secure them against lightning influences.

The BMS supports cascading to a following unit to double or even multiply the needed output numbers. (12 -> 24 -> 36...) A cascading of more than 7 units is not recommended because of the attenuation of each device in the chain. The cascade units should disable the LNB-power to the former one. If using many in cascade, please add amplifiers...

Before you connect the both power supplies to the power source by the power cords, please connect all coax-cables and the 1... 4 LNB's (dep. on Model) or the optical – electrical fibre receiver to it.

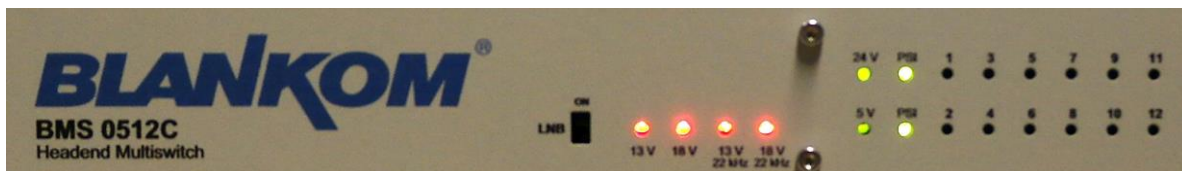
Please take care about not making any Coax- shortages and check the cables before power connecting. The device runs with only one PSU connected. The 2nd PSU is in standby just in case the first one will fail – and will take over the power-loss job. So it is recommended not to connect them both to the same power-line and fuse system:



AC 100-240V 50/60Hz supplying please!

Both have one small fuses – just in case something happens... control these.

**Remark:** The LNB-powering can be switched OFF (default is = ON) by the front panel switch. This switch has been installed more backwards to secure accidentally slighting it.



(The voltage LEDs might be green/yellow depending on customisation)

The LEDs are showing the operating status:

Internal DC Voltage supplying = OK = LEDs for 13V 18V low band, 13V & 18V high band (22kHz) and

the green ones the internal 24V and 5V DC for the operation

and the 12 Subscriber outputs will be green if a receiver is connected.

A connected optical receiver -> electrical changer installed before the unit in between LNB's and the SAT Inputs of the BMS-0512C -like our BFR-44 or similar- do not need the LNB powering ON – so you can switch it to OFF. Same happens if you cascade 2 units: Only the first might need to power the LNB.

### Cascading example:



Please take attention to the last BMS in the cascade (or if it will be used w/o cascading but standalone): The 5 terminating resistors with DC-Blockers.

### Active Terrestrial Input and distribution to every output:

The unit comes with an additional terrestrial Input F-Connector serving DVB-T/T2 frequencies to pass through to the output receiver ports. The terrestrial output depends of course from the amount of energy you provide into its Input. These needs to be carefully balanced and eventually before the switch input: Attenuated or amplify to raise best conditions for the pathway of the combined Terrestrial and satellite frequency range. As example for an active T-Version: 5dB difference which means the terrestrial output signal is 78% less (remember: 3dB = 50%) at the Multiswitch output by optimal Input values. So the signal quality -as a distribution component- to all the end user wall-outlets is much better by the active internal T-Amplifier- but need to be balanced to not overload it.

### Important!

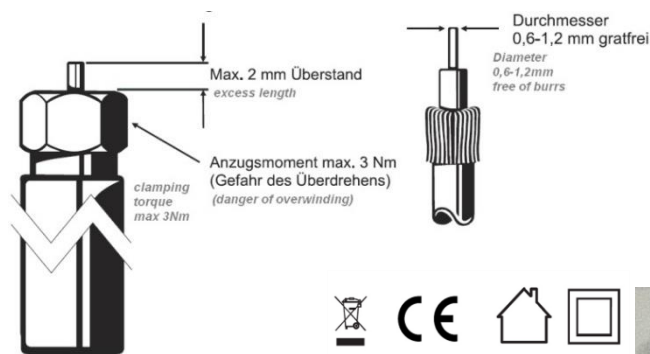
Trunk lines (cascade outputs) **-if not in use-** should always be terminated with 75 Ohm incl. DC-Blocker!!! Example:



## Installationshinweis für den F-Anschluss: / Installation guide for F-connectors:

Bitte installieren Sie die Anschlüsse gemäß dem Aufdruck  
Please install according to the sticker on the Multiswitch

Hinweis: Elektrische Installationen sollten nur durch geschultes Fachpersonal vorgenommen werden!  
Note: Electrical installations should only be done by well-educated and skilled technicians!



Die LNB-Anschlüsse sind entsprechend gekennzeichnet  
The LNB-connectors are marked as:

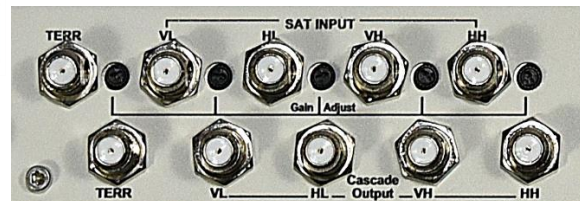
**HH=** Horizontal High-Band (18V/22KHz)

**HL =** Horizontal Low-Band (13V/22KHz)

**VL =** Vertical Low-Band (13V / 0KHz)

**VH=** Vertical High-Band (18V / 0KHz)

**Terr=** Terrestrial Input and cascade below



Cascades as well... **The Inputs can be adjusted in GAIN – see the black screw plastic knops right**

Elektronische Geräte gehören nicht in den Hausmüll, sondern müssen - gemäß Richtlinie 2002/96/EG DES EUROPÄISCHEN PARLAMENTS UND DES RATES vom 27. Januar 2003 über Elektro- und Elektronik-Altgeräte fachgerecht entsorgt werden.

Bitte geben Sie dieses Gerät am Ende seiner Verwendung zur Entsorgung an den dafür vorgesehenen öffentlichen Sammelstellen ab.

*Electronic equipment is not household waste - in accordance with directive 2002/96/EC OF THE EUROPEAN PARLIAMENT AND THE COUNCIL dated 27th January 2003 on used electrical and electronic equipment, it must be disposed of properly.*

*At the end of its service life, take this unit for disposal to an appropriate official collection point*

## Montage und Sicherheitshinweise / Installation and safety instructions

- Die beschriebenen Geräte dienen ausschließlich der Installation von Satelliten-Empfangsanlagen.
- *The equipment described is designed solely for the installation of satellite receiver systems.*
- Jegliche anderweitige Nutzung oder die Nichtbeachtung dieses Anwendungshinweises hat den Verlust der Gewährleistung bzw. Garantie zur Folge.
- *Any other use, or failure to comply with these instructions, will result in voiding of warranty cover.*
- Die Geräte dürfen nur in trockenen Innenräumen montiert werden. Nicht auf oder an leichtentzündlichen Materialien montieren.
- *The equipment may only be installed in dry indoor areas. Do not mount on or against highly combustible materials.*
- Die Geräte sind mit einer Potential-Ausgleichsleitung (Cu, mindestens 4 mm<sup>2</sup>) zu versehen.
- *The equipment must be provided with an earthing wire (Cu, at least 4 mm<sup>2</sup>).*
- Die Sicherheitsbestimmungen der jeweils aktuellen Normen EN 60728-11 und EN 60065 sind zu beachten.
- *The safety regulations set out in the current EN 60728-11 and EN 60065 standards must be complied with*
- Verbindungsstecker: HF-Stecker 75 Ohm (Serie F) nach EN 61169-24
- *Connector: HF plug 75 Ohm (series F) to EN 61169-24.*
- **Nicht benutzte Teilnehmerausgänge** sollten mit 75-Ohm Widerständen (z. B. EMK 03) abgeschlossen werden. (Verringerung der terrestrischen Signalwelligkeit)
- *Unused subscriber ports should be closed off by 75 Ohm resistors (e.g. EMK 03).*
- **Nicht benutzte Kaskadenausgänge** sind mit 75 Ohm Widerständen inkl. DC-Blocker abzuschließen.

- 75 Ohm Widerstände ohne Gleichspannungssperren können das Gerät beschädigen!
- **Unused trunk outputs** must be terminated with 75Ohm resistors including DC Blocker. Otherwise the device may be inoperable or damaged.
- Bitte überprüfen Sie die Anlage vor Inbetriebnahme auf evtl. Kurzschlüsse der Koaxial-Kabel. Es ist darauf zu achten, daß die Eingangsepegel der SAT-Ebenen möglichst gleich hoch sind. Power-LEDs zeigen den Betrieb an. Falls die nicht leuchten, bitte die Stromzufuhr kontrollieren.
- *Please check the installation against shortage in coax cables and connectors before switching on. The input levels should be adjusted accordingly. Power-LED's showing operational mode. If this is not illuminated, please check the power source.*
- **Stromführendes Gerät**
- **Current-carrying unit**
- Nicht öffnen oder am Gerät manipulieren!
- *Do not open or tamper with the unit!*
- Bei Arbeiten an der Anlage immer die Netzstecker aus der Steckdose ziehen!
- *When working on the system always unplug the mains plug from the wall socket!*
- Auf ausreichenden Abstand achten! Nach allen Seiten mind. 5 cm!
- *Ensure adequate clearance! Min. 5 cm to all sides!*
- Nicht über Kopf montieren.
- *Do not install overhead.*
- Für die Gerätekühlung muß freie Luftzirkulation möglich sein. Überhitzungsgefahr!
- *Free circulation of air must be possible to discharge the heat emitted by the unit. Risk of overheating!*
- Zulässige Umgebungstemperatur -20 bis +50°C
- *Permissible ambient temperature -20 to +50°C*

**Wir empfehlen die Benutzung von Gleitschienen bevor der BMS im 19 " Schrank installiert und angeschlossen wird.**

***We recommend using and installing 19" rails in your rack before you mount the BMS and install the F-connectors and cables.***



### **Zur Beachtung / Important notes:**

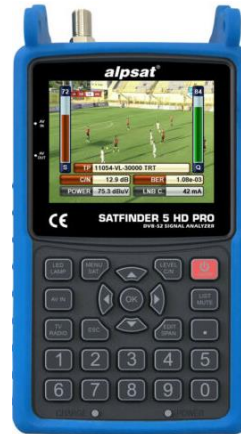
- Auf das Netzgerät dürfen keine mit Flüssigkeit gefüllten Gegenstände gestellt werden.
- *No liquid-filled items may be placed on top of the power supply unit.*
- Das Netzgerät darf nicht Tropf- oder Spritzwasser ausgesetzt sein.
- *The power supply unit must not be exposed to dripping or splashing water.*
- Der Netzstecker muss ohne Schwierigkeiten zugänglich und benutzbar sein.
- *The mains plug must be easily accessible and operable.*
- Das Gerät kann nur durch Ziehen des Netzsteckers vom Netz getrennt werden.
- *The only reliable method of disconnecting the unit from the mains is to unplug it.*
- Bei größerem Durchmesser des Kabel- Innenleiters als 1,2 mm bzw. Grat können die Gerätebuchsen zerstört werden.
- *If the inner cable conductor diameter is greater than 1.2 mm or in case of burr, the device sockets may be destroyed.*

**Please use appropriate measurement equipment when installing and do not use coax length > 50m between Dish-Farm and the Multiswitch to secure signal quality and less slope.**

**Using a handy instrument from i.e. PROMAX or for the cheaper controlling an ALPSAT:**



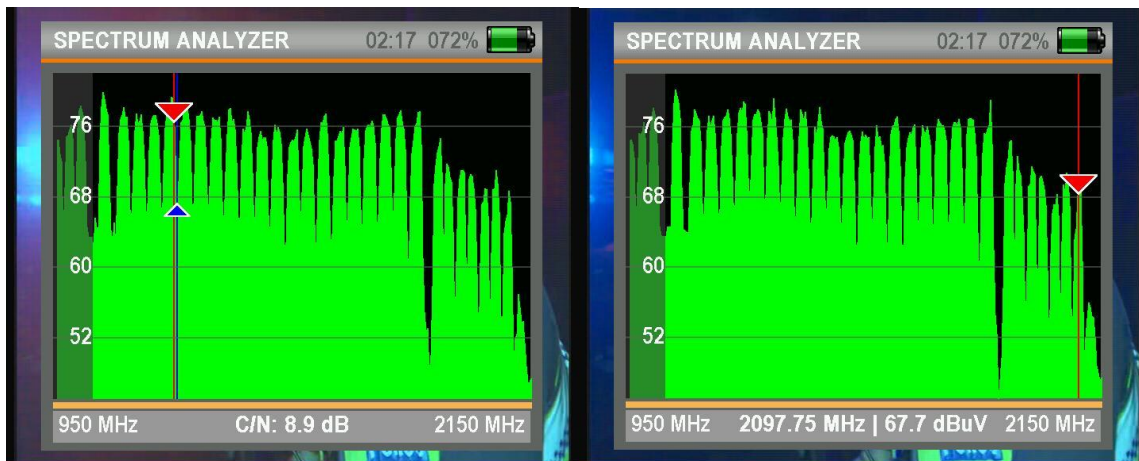
Professional



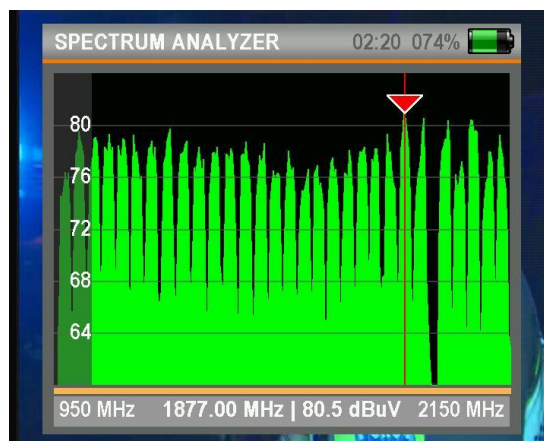
Semi-professional

and

**Example Spectrums:**



Left: C/N measuring. **You see the SLOPE = higher attenuation on higher frequencies?** Right: Level



Shown is a good quality output level of 80 dB $\mu$ V directly from a BLANKOM 32 -> 32 -Multiswitch cascaded output. The first 2 showing ASTRA Satellite high band while the 3rd shows Eutelsat Hotbird 13°E on DiSEqC SAT Pos. 2 with a better adjusted LNB at the dish(es). So your signal quality depends on: Dish direction and angles, LNB focus and angle and also its LNB-quality and the cable length and quality.

REMARK: THE DEVICE HAS BEEN RENAMED AFTER FIRST PRODUCTION HAS ARRIVED:

BMS-0512K was first product name and revised by Product management to:  
BRS-0512C

So please do not wonder if you are getting it with the 'old' Front panel to save environment carbon footprint and so on. We do recycling.



Annex: Table for Conversions of Power @ 75Ω

<b>dBmV</b>	<b>dBμV</b>	<b>dBm 75Ω</b>	<b>mV<sub>RMS</sub></b>	<b>mW 75Ω</b>
8	68	-40.75	2.51	8.4E-05
9	69	-39.75	2.82	1.1E-04
10	70	-38.75	3.16	1.3E-04
11	71	-37.75	3.55	1.7E-04
12	72	-36.75	3.98	2.1E-04
13	73	-35.75	4.47	2.7E-04
14	74	-34.75	5.01	3.3E-04
15	75	-33.75	5.62	4.2E-04
16	76	-32.75	6.31	5.3E-04
17	77	-31.75	7.08	6.7E-04
18	78	-30.75	7.94	8.4E-04
19	79	-29.75	8.91	1.1E-03
20	80	-28.75	10.00	1.3E-03
21	81	-27.75	11.22	1.7E-03
22	82	-26.75	12.59	2.1E-03
23	83	-25.75	14.13	2.7E-03
24	84	-24.75	15.85	3.3E-03
25	85	-23.75	17.78	4.2E-03
26	86	-22.75	19.95	5.3E-03
27	87	-21.75	22.39	6.7E-03
28	88	-20.75	25.12	8.4E-03
29	89	-19.75	28.18	0.011
30	90	-18.75	31.62	0.013
31	91	-17.75	35.48	0.017
32	92	-16.75	39.81	0.021
33	93	-15.75	44.67	0.027
34	94	-14.75	50.12	0.033
35	95	-13.75	56.23	0.042
36	96	-12.75	63.10	0.053
37	97	-11.75	70.79	0.067
38	98	-10.75	79.43	0.084
39	99	-9.75	89.13	0.106
40	100	-8.75	100.00	0.133
41	101	-7.75	112.20	0.168
42	102	-6.75	125.89	0.211
43	103	-5.75	141.25	0.266

dBmV	dB $\mu$ V	dBm 75 $\Omega$	mV <sub>RMS</sub>	mW 75 $\Omega$
44	104	-4.75	158.49	0.335
45	105	-3.75	177.83	0.422
46	106	-2.75	199.53	0.531
47	107	-1.75	223.87	0.668
48	108	-0.75	251.19	0.841
49	109	0.25	281.84	1.059
50	110	1.25	316.23	1.333
51	111	2.25	354.81	1.679
52	112	3.25	398.11	2.113
53	113	4.25	446.68	2.660
54	114	5.25	501.19	3.349
55	115	6.25	562.34	4.216
56	116	7.25	630.96	5.308
57	117	8.25	707.95	6.683
58	118	9.25	794.33	8.413
59	119	10.25	891.25	10.591
60	120	11.25	1000.00	13.333
61	121	12.25	1122.02	16.786
62	122	13.25	1258.93	21.132
63	123	14.25	1412.54	26.604
64	124	15.25	1584.89	33.492
65	125	16.25	1778.28	42.164
66	126	17.25	1995.26	53.081
67	127	18.25	2238.72	66.825
68	128	19.25	2511.89	84.128

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