



# Messi & Paoloni LEGEND

Since 1946



Proud of “our” Made in Italy

“CABLE EXCELLENCE IS OUR MISSION”





## PROUD OF “OUR” MADE IN ITALY

**Messi & Paoloni celebrated on March 10<sup>th</sup> 2014, 68 years in business, 58 of which have been spent in telecommunications.**

70 years ago, the 18<sup>th</sup> of July 1944, Ancona was seized by the II Polish Army Corps. During the Anglo-American occupation, two young boys, the 17 years old Messi Michele and the 21 years old Dino Paoloni, were employed as civil personnel in the allied military transmitting station of Ancona harbour. It was here, during this job, that they first met each other, sharing their passion for telecommunications. Two years later, the two friends decided to establish the Messi & Paoloni company. During the first ten years of their activity, these young boys, selected their purchases at the post-war Photokina exhibition in Cologne, and rushed all around central Italy, selling, installing and servicing film projectors in all the new cinemas being rebuilt after the destruction of the war. In June 1956 they became Fracarro agents for Marche and Umbria, settling back to their first love: **Radiofrequency**. During this long term cooperation with Fracarro (the major Italian TV antenna manufacturer), they decided to establish in 1974 the coaxial cable factory (primarily 75 Ohm). Several years later, the passion for radiofrequency affected the two partners' sons, Paolo Paoloni and Stefano Messi. This led to the start of 50 Ohm cables production. In 1985 we started our business relationship with the first German customer: a long lasting and satisfactory 50 Ohm experience together. With the acquisition of 100 % of the shares in 1995, **Stefano and Maurizio Messi** took up the torch from the “founders”, carrying out passionately complex projects and continuing the legacy of innovation. In 1984, we developed our first satellite cable, model **SC/100AG** and in 1990 we created model **SAT 5** (now **DIGISAT 5 ELITE**). This model, 24 years ago, was already putting together all the best features for a digital cable (screening efficiency in A++ CLASS). After an evolution lasted 24 years, **DIGISAT 5 ELITE** is by far the best 75 Ohm cable in the world (6.8 mm jacket), performing the best attenuation values for its category (25 dB/100m to 2150 MHz). The continuous improvements in the different production cycles and continuous investments in research and technological innovation, brought the “**GAS EXPANDED TL**” technology.

**The new models designed for the HAM RADIO world, (M&P-BROAD-PRO 50, M&P-ULTRAFLEX 10, M&P-ULTRAFLEX 7, M&P-AIRBORNE 5), are all made with screening efficiency >105 dB!**

This leads to an excellent immunity against electromagnetic interferences and **low frequency impulsive noises, (responsible for the increasing of the background noise levels)**. Moreover, having very well screened cables, such as these items, gives the Ham Radio world the chance to dramatically reduce the noise level emissions from the cable itself, minimizing troubles in urban flats and urban areas.

**Differently, cables such as RG 213/U or RG 8, have 55 dB of screening efficiency, RG 58 C/U has 50 dB of screening efficiency and the extra shielded RG 214 A/U despite its impressive dual screen, can not show off more than 80 dB!**



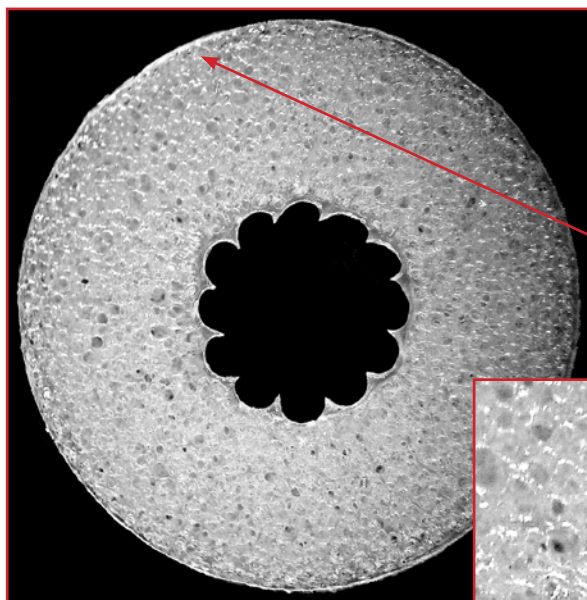
In order to achieve such top level screening efficiency values, we use in our production 24 spools braiding machines: that means 50% more crossovers if compared to traditional braiding machines (16 spools) used by the most famous and well-known cables manufacturers in the world.

**Quality is the philosophy behind the construction of each one of our cables.**

Our products are manufactured in compliance with: CEI 46-1 (construction parameters); EN 50117 (screening efficiency); CEI EN 50289 (SA test methods); IEC 60332-1-2 (cables with LSZH jacket); EN 50290-2-22 (cables with PVC jacket); EN 50290-2-23 (cables with PE jacket).

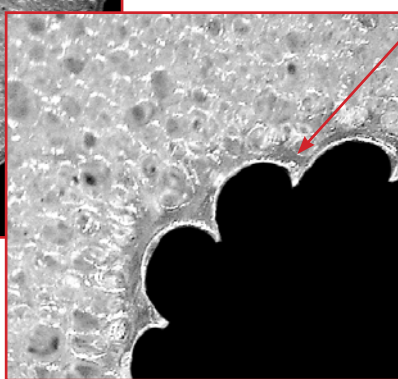


The difficulty does not lie in making a triple layer dielectric, but in closing and sealing the perfectly homogeneous foam, with its alveolar structure and sophisticated mechanics, between two protective layers (skins).



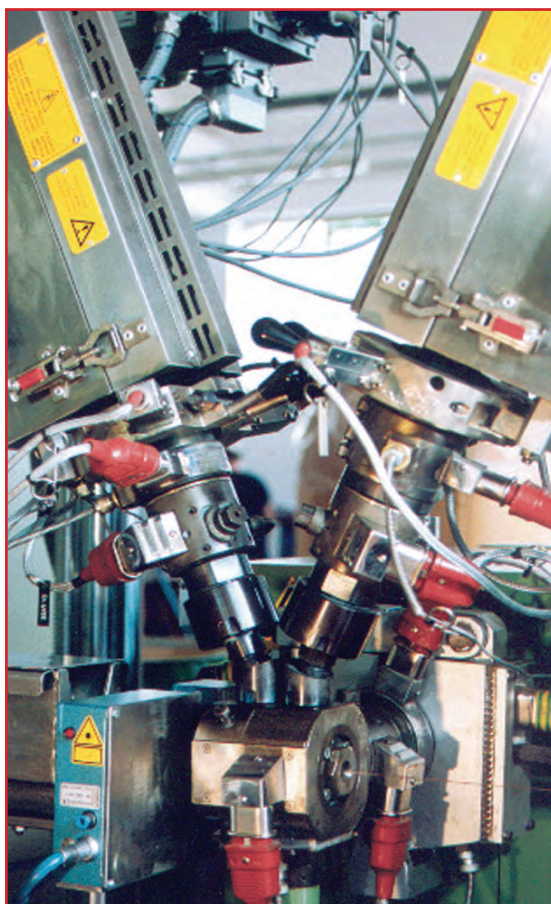
In the image at your left, we can clearly distinguish at 150 x magnifications, the mechanical structure of the **Gas Expanded TL (triple layer)** technology.

The most well-known manufacturers are betting **technological supremacy** on these few millimeters, on this physical-mechanical microcosm!



The two protective layers are adding to these cables, excellent resistance to high moisture persistence environments. (anyway, water tight connectors are warmly recommended, as moisture can penetrate through the connector itself, circumventing the above mentioned protective layers.).

## **GAS EXPANDED TRIPLE LAYER**



It's quite clear that the outer sealing layer, is preserving the dielectric properties of the sophisticated structural geometry. The inner foam, is also enclosed by a protective inner barrier (in contact with the central conductor).

In the cables for underground laying, where more than in any other application, such moisture persistence might occur, in addition to these new protections, we apply a further expensive **Petrol Jelly (PJ)** layer over the braid.







## EXTRA FLEXIBLE

UV resistant PVC jacket.

**PVC Ø 10,3 ± 0,15 mm**  
(0,405 inches)



# Broad-pro 50

High resistance copper screen (Cu) made by means of **24 spools** braiding machines.(50% more intersections if compared to traditional 16 spools machines.) This braid is **HIGHLY EFFECTIVE AGAINST LOW FREQUENCY IMPULSIVE NOISES.**

## SCREENING

**PERCENTAGE: 71%**

**144 wires**

The copper foil has an applied PE-coating, placed in order to prevent foil cracking due to short radius bends.

**SCREENING PERCENTAGE 100%**

## CU-POL

High pressure physical injection foamed polyethylene **TRIPLE LAYER DIELECTRIC**

**FPE Ø 7,3 ± 0,05 mm**

Inner conductor : 99,99% pure electrolytic annealed bare copper.  
(annealed = thermal softening process)

**Cu Ø 2,7 mm** (0,106 inches)

## ELECTRICAL DATA

Impedance @200MHz :	50 Ohm ± 3
Minimum bending radius:	
Multiple bends/single bend	103/65 mm
Temperature:	installation -40° to +60° C operative -55° to +85° C
Capacitance:	74 pF/m ± 2
Velocity ratio:	85 %
Screening efficiency:	
100-2000 MHz	>105 dB
Class	A++
Inner conductor resistance:	3,2 Ohm/Km
Outer conductor resistance:	9,2 Ohm/Km
Tension test (spark test):	8 kV
Weight (100m):	12,8 Kg
Maximum peak power:	8500 WATT

\* For connectors see the last page of the catalog

## SRL

0,3-600 MHz	>30 dB
600-1200 MHz	>25 dB
1200-2000 MHz	>20 dB

## HINTS ABOUT POWER HANDLING:

Power handling and peak power values have been calculated in a "cautious" manner. Physical accidental alterations and excessive VSWR values (impedance mismatch), are certainly increasing the lost power dissipated in the form of heat. Moreover unwanted stationary waves ratios, are making the situation even worse. In SSB operations a 5/6 seconds transmission time, followed by the same reception lag, is giving the chance to push the power handling values up. **Be aware that the power should never be exceeding the declared peak power value.**

## ATTENUATION at 20°C

FREQUENCY	dB/100m	dB/100ft
1,8 MHz	0,45	0,13
3,5 MHz	0,60	0,18
7,0 MHz	0,89	0,27
10 MHz	1,14	0,34
14 MHz	1,39	0,42
21 MHz	1,75	0,51
28 MHz	1,93	0,59
50 MHz	2,60	0,79
100 MHz	3,70	1,12
144 MHz	4,59	1,40
200 MHz	5,40	1,64
400 MHz	8,00	2,43
430 MHz	8,20	2,50
800 MHz	11,60	3,53
1000 MHz	13,00	3,96
1296 MHz	15,00	4,57
2400 MHz	21,50	6,56
3000 MHz	24,70	7,53
4000 MHz	28,67	8,73
5000 MHz	32,67	9,95
6000 MHz	36,67	11,17

## POWER HANDLING

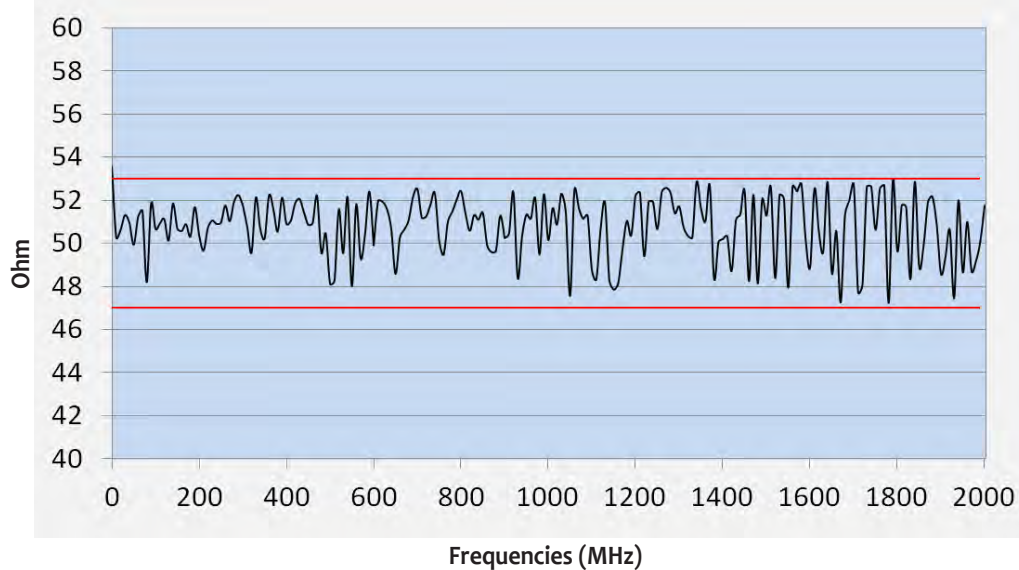
FREQUENCY	MAXP
1,8 MHz	7470 W
3,5 MHz	7133 W
7,0 MHz	6730 W
10 MHz	6490 W
14 MHz	6230 W
21 MHz	5730 W
28 MHz	5500 W
50 MHz	4710 W
100 MHz	3660 W
144 MHz	2980 W
200 MHz	2470 W
400 MHz	1360 W
430 MHz	1300 W
800 MHz	640 W
1000 MHz	480 W
1200 MHz	380 W
2400 MHz	260 W
3000 MHz	200 W
4000 MHz	150 W
5000 MHz	120 W
6000 MHz	100 W

Our products are manufactured in compliance with: CEI 46-1 (construction parameters); EN 50117(screening efficiency); CEI EN 50289(SA test methods); IEC 60332-1-2(cables with LSZH jacket); EN 50290-2-22(cables with PVC jacket); EN 50290-2-23(cables with PE jacket).

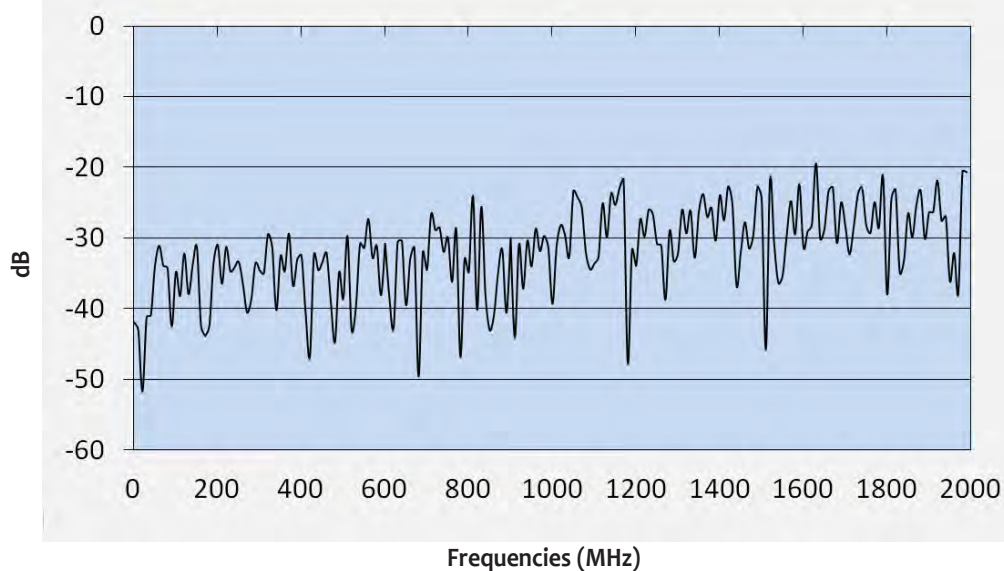


# M&P-BROAD-PRO 50

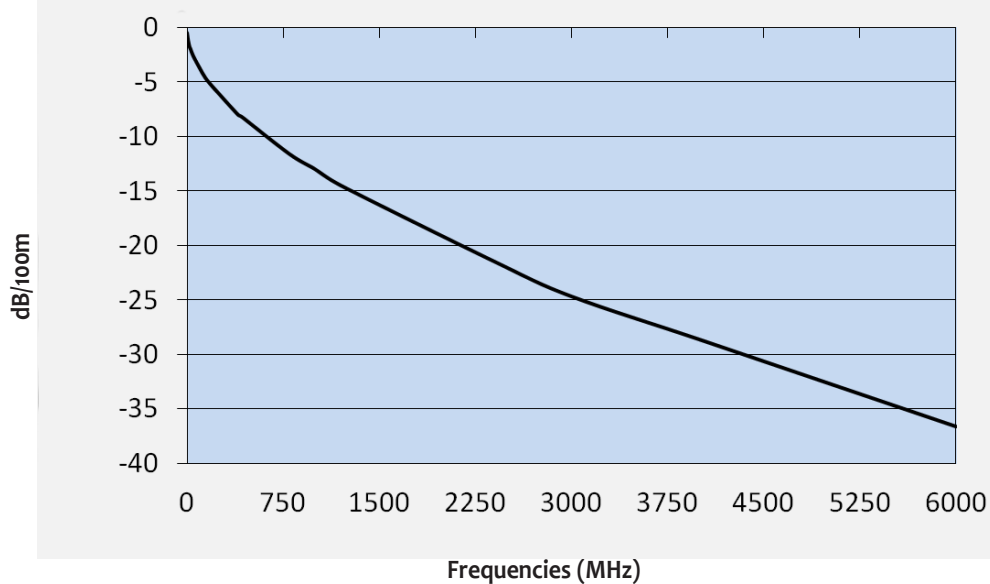
## IMPEDANCE



## SRL



## ATTENUATIONS







# Broad-pro 50

## Double Jacket

High resistance copper screen (Cu) made by means of **24 spools** braiding machines. (50% more inter-sections if compared to traditional 16 spools machines.) This braid is **HIGHLY EFFECTIVE AGAINST LOW FREQUENCY IMPULSIVE NOISES.**

**SCREENING PERCENTAGE: 71%**

**144 wires**

High pressure physical injection foamed polyethylene **TRIPLE LAYER DIELECTRIC**  
**FPE Ø 7,3 ± 0,05 mm**

Inner conductor : 99,99% pure electrolytic annealed bare copper.  
(annealed = thermal softening process)

**Cu Ø 2,7 mm**  
**(0,106 inches)**

### ELECTRICAL DATA

Impedance @200MHz:	50 Ohm ± 3
Minimum bending radius:	
Multiple bends/single bend	124/80 mm
Temperature:	installation -40° to +60° C
	operative -55° to +85° C
Capacitance:	74 pF/m ± 2
Velocity ratio:	85 %
Screening efficiency:	
100-2000 MHz	>105 dB
Class	A++
Inner conductor resistance:	3,2 Ohm/Km
Outer conductor resistance:	9,2 Ohm/Km
Tension test (spark test):	8 kV
Weight (100m):	16,8 Kg
Maximum peak power:	8500 WATT

\* For connectors see the last page of the catalog

Our products are manufactured in compliance with: CEI 46-1 (construction parameters); EN 50117(screening efficiency); CEI EN 50289(SA test methods); IEC 60332-1-2(cables with LSZH jacket); EN 50290-2-22(cables with PVC jacket); EN 50290-2-23(cables with PE jacket).

Black protective PVC jacket, waterproof and UV resistant. This cable can be laid underground. The red PE jacket clearly shows potential cracks on the above external sheath. (which might occur during pulling on rocky and rough environments).

The copper foil has an applied PE-coating, placed in order to prevent foil cracking due to short radius bends.  
**SCREENING PERCENTAGE 100%**

### CU-POL

### SRL

0,3-600 MHz	>30 dB
600-1200 MHz	>25 dB
1200-2000 MHz	>20 dB

### HINTS ABOUT POWER HANDLING:

Power handling and peak power values have been calculated in a "cautious" manner. Physical accidental alterations and excessive VSWR values (impedance mismatch), are certainly increasing the lost power dissipated in the form of heat. Moreover unwanted stationary waves ratios, are making the situation even worse. In SSB operations a 5/6 seconds transmission time, followed by the same reception lag, is giving the chance to push the power handling values up. **Be aware that the power should never be exceeding the declared peak power value.**

(0,488 inches)  
black PVC Ø12,4 mm  
± 0,20

red PE Ø9,9 mm  
± 0,20



### ATTENUATION at 20°C

FREQUENCY	dB/100m	dB/100ft
1,8 MHz	0,45	0,13
3,5 MHz	0,60	0,18
7,0 MHz	0,89	0,27
10 MHz	1,14	0,34
14 MHz	1,39	0,42
21 MHz	1,75	0,51
28 MHz	1,93	0,59
50 MHz	2,60	0,79
100 MHz	3,70	1,12
144 MHz	4,59	1,40
200 MHz	5,40	1,64
400 MHz	8,00	2,43
430 MHz	8,20	2,50
800 MHz	11,60	3,53
1000 MHz	13,00	3,96
1296 MHz	15,00	4,57
2400 MHz	21,50	6,56
3000 MHz	24,70	7,53
4000 MHz	28,67	8,73
5000 MHz	32,67	9,95
6000 MHz	36,67	11,17

### POWER HANDLING

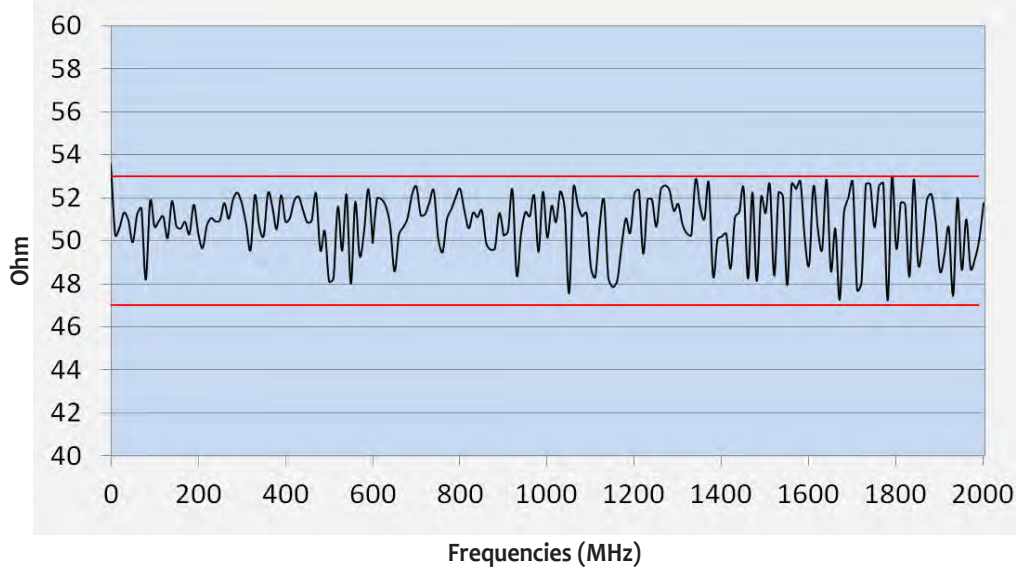
FREQUENCY	MAXP
1,8 MHz	7470 W
3,5 MHz	7133 W
7,0 MHz	6730 W
10 MHz	6490 W
14 MHz	6230 W
21 MHz	5730 W
28 MHz	5500 W
50 MHz	4710 W
100 MHz	3660 W
144 MHz	2980 W
200 MHz	2470 W
400 MHz	1360 W
430 MHz	1300 W
800 MHz	640 W
1000 MHz	480 W
1200 MHz	380 W
2400 MHz	260 W
3000 MHz	200 W
4000 MHz	150 W
5000 MHz	120 W
6000 MHz	100 W



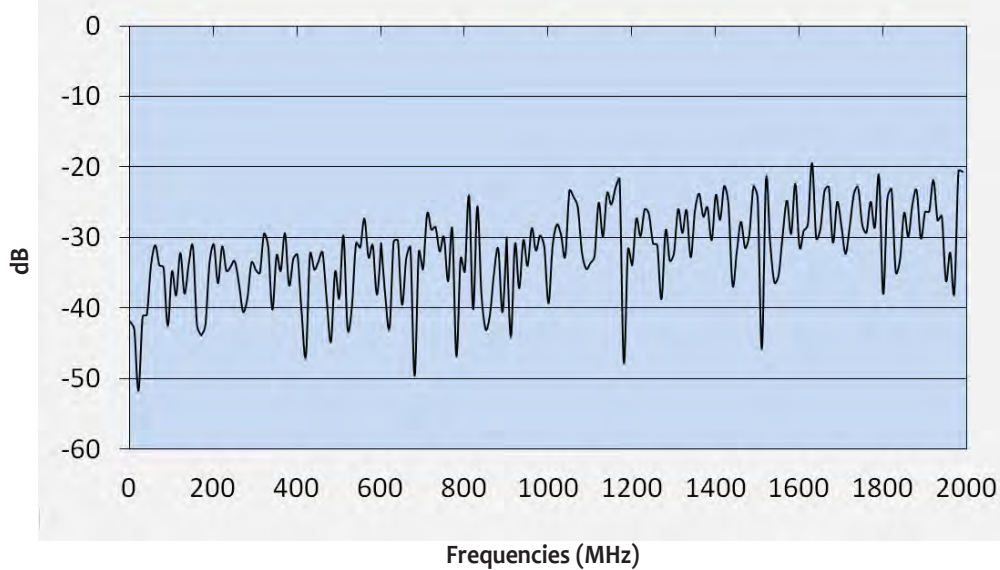
# M&P-BROAD-PRO 50

## Double-Jacket

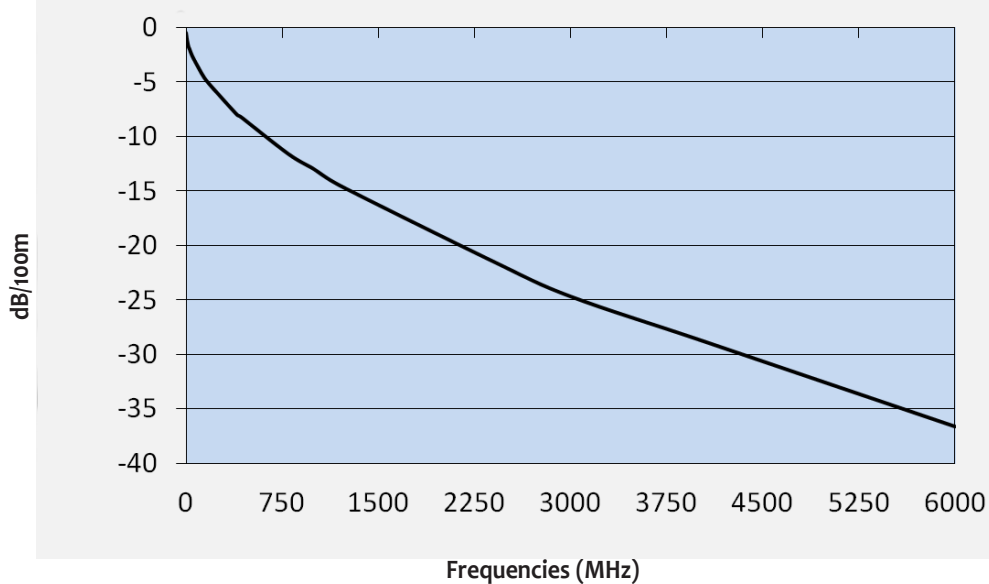
### IMPEDANCE



### SRL



### ATTENUATIONS







# M&P UltraFlex 10

( MEP-FLEX 10, H2010, NEOFLEX 10 )

High resistance copper screen (Cu) made by means of **24 spools** braiding machines. (50% more intersections if compared to traditional 16 spools machines.) This braid is **HIGHLY EFFECTIVE AGAINST LOW FREQUENCY IMPULSIVE NOISES.**

## SCREENING

**PERCENTAGE: 71%**

**144 wires**



Screening foil, highly effective against high frequency interferences. The copper foil has an applied PE-coating, placed in order to prevent foil cracking due to short radius bends. **SCREENING PERCENTAGE 100%**

## CU-POL

Inner conductor made of 7X1,0 stranded, geometric and concentric annealed copper wires. Purity 99,99%. (annealed = thermal softening process) **(7x0,039 inches)**

**Cu 7x1,0 mm - Ø 3 mm**  
**(0,118 inches)**

## ELECTRICAL DATA

Impedance @200MHz: 50 Ohm ± 3

Minimum bending radius:

Multiple bends(15)/single bend 80/40 mm

Temperature range:

installation -40° to +60° C

operative -55° to +85° C

Capacitance: 78 pF/m ± 2

Velocity ratio: 83 %

Screening efficiency:

100-2000 MHz >105 dB

Class A++

Inner conductor resistance: 3,2 Ohm/Km

Outer conductor resistance: 9,2 Ohm/Km

Tension test (spark test): 8 kV

Weight (100m): 13 Kg

Maximum peak power: 8300 WATT

\* For connectors see the last page of the catalog

## SRL

0,3-600 MHz >30 dB

600-1200 MHz >25 dB

1200-2000 MHz >20 dB

## HINTS ABOUT POWER HANDLING:

Power handling and peak power values have been calculated in a "cautious" manner. Physical accidental alterations and excessive VSWR values (impedance mismatch), are certainly increasing the lost power dissipated in the form of heat. Moreover unwanted stationary waves ratios, are making the situation even worse. In SSB operations a 5/6 seconds transmission time, followed by the same reception lag, is giving the chance to push the power handling values up. **Be aware that the power should never be exceeding the declared peak power value.**

## EXTRAFLEXIBLE

UV resistant PVC jacket.

**PVC Ø 10,3 ± 0,15 mm**  
**(0,405 inches)**



## ATTENUATION at 20°C

FREQUENCY	dB/100m	dB/100ft
1,8 MHz	0,51	0,16
3,5 MHz	0,66	0,20
7,0 MHz	0,97	0,30
10 MHz	1,20	0,37
14 MHz	1,59	0,48
21 MHz	1,90	0,58
28 MHz	2,14	0,65
50 MHz	2,76	0,84
100 MHz	3,93	1,20
144 MHz	4,74	1,44
200 MHz	5,72	1,74
400 MHz	8,31	2,53
430 MHz	8,65	2,64
800 MHz	12,17	3,71
1000 MHz	13,81	4,21
1296 MHz	15,60	4,75
2400 MHz	23,75	7,24
3000 MHz	27,30	8,32
4000 MHz	32,90	10,03
5000 MHz	38,18	11,64
6000 MHz	42,80	13,05

## POWER HANDLING

FREQUENCY	MAXP
1,8 MHz	7660 W
3,5 MHz	7410 W
7,0 MHz	6920 W
10 MHz	6550 W
14 MHz	6040 W
21 MHz	5600 W
28 MHz	5300 W
50 MHz	4500 W
100 MHz	3390 W
144 MHz	2780 W
200 MHz	2255 W
400 MHz	1290 W
430 MHz	1260 W
800 MHz	600 W
1000 MHz	430 W
1200 MHz	360 W
2400 MHz	200 W
3000 MHz	170 W
4000 MHz	120 W
5000 MHz	105 W
6000 MHz	95 W

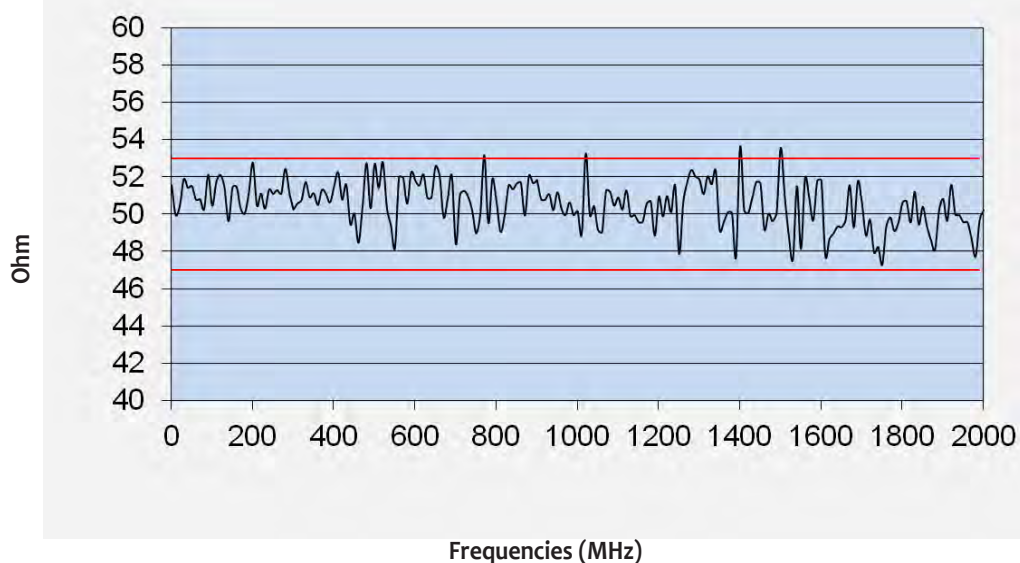
Our products are manufactured in compliance with: CEI 46-1 (construction parameters); EN 50117(screening efficiency); CEI EN 50289(SA test methods); IEC 60332-1-2(cables with LSZH jacket); EN 50290-2-22(cables with PVC jacket); EN 50290-2-23(cables with PE jacket).



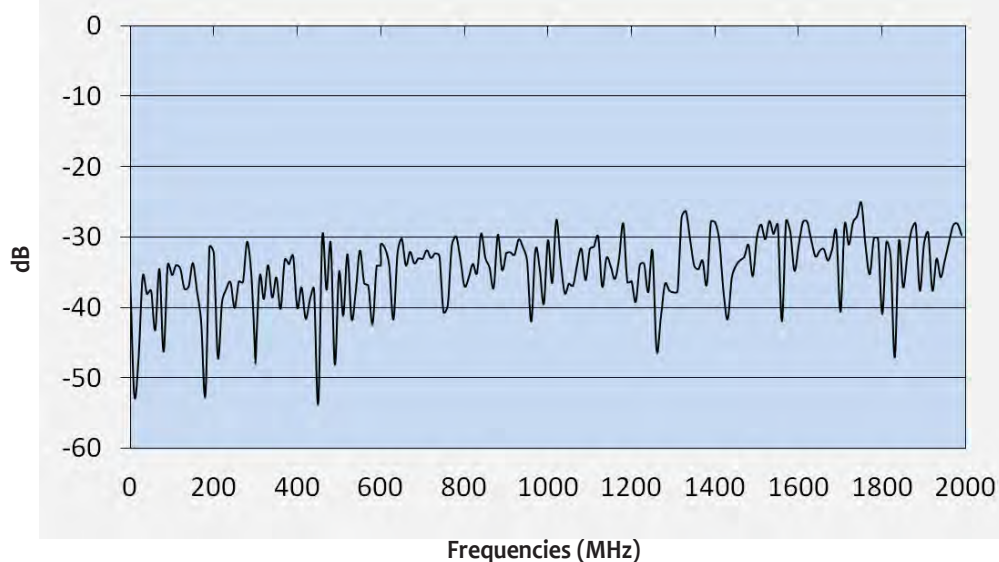
# M&P-ULTRAFLEX 10

(MEP-FLEX 10 - NEOFLEX 10 - H2010)

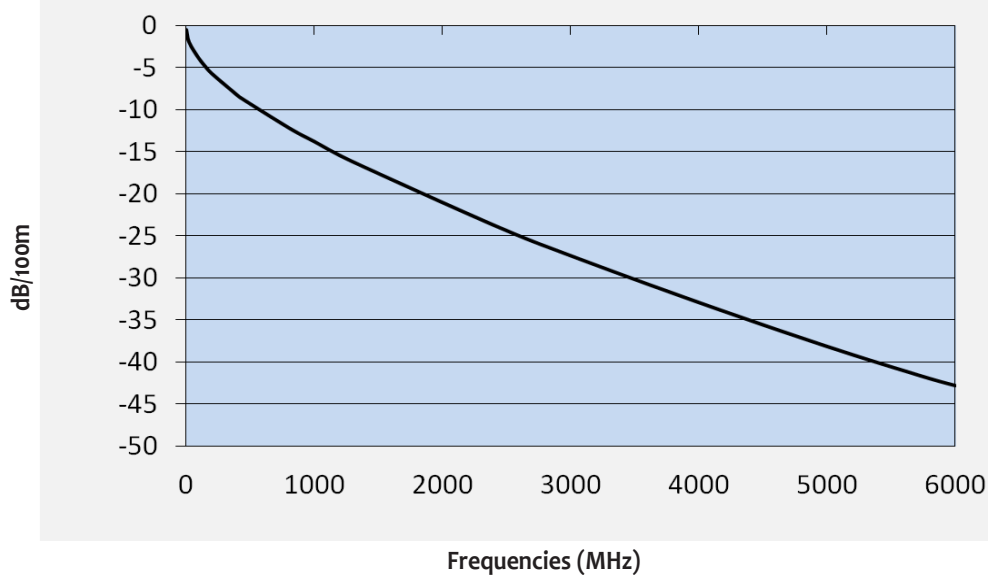
## IMPEDANCE



## SRL



## ATTENUATIONS







# M&P UltraFlex 7

(AC 7 Plus, HIGHFLEXX 7)

**ULTRAFLEXIBLE**  
UV resistant PVC jacket.  
**PVC Ø 7,3 ± 0,15 mm**  
(0,287 inches)



High resistance copper screen (**Cu**) made by means of **24 spools** braiding machines. (50% more intersections if compared to traditional 16 spools machines.) This braid is **HIGHLY EFFECTIVE AGAINST IMPULSIVE NOISES.**

**SCREENING PERCENTAGE: 83%**

High pressure physical injection foamed polyethylene.

**TRIPLE LAYER DIELECTRIC**

**FPE Ø 5 ± 0,05 mm**

**144 wires**

## ATTENUATION at 20°C

FREQUENCY	dB/100m	dB/100ft
1,8 MHz	0,6	0,19
3,5 MHz	0,9	0,27
7,0 MHz	1,2	0,36
10 MHz	1,6	0,48
14 MHz	2,1	0,64
21 MHz	2,6	0,79
28 MHz	3,0	0,91
50 MHz	4,0	1,21
100 MHz	5,8	1,76
144 MHz	6,9	2,10
200 MHz	8,2	2,49
400 MHz	11,8	3,59
430 MHz	12,3	3,74
800 MHz	17,1	5,21
1000 MHz	19,3	5,88
1296 MHz	22,3	6,79
2400 MHz	32,3	9,84
3000 MHz	36,2	11,03
4000 MHz	42,6	12,98
5000 MHz	49,3	15,02
6000 MHz	55,3	16,85

The copper foil has an applied PE-coating, placed in order to prevent foil cracking due to short radius bends.

**SCREENING PERCENTAGE 100%**

**CU-POL**

Inner conductor made of 19X0,38 stranded geometric and concentric copper wires. Purity 99,99% annealed.

(annealed = thermal softening process)

**Cu 19x0,38 mm - Ø 1,9 mm**  
(19x0,015 inches) (0,075 inches)

## ELECTRICAL DATA

Impedance @200MHz :	50 Ohm ± 3
Minimum bending radius:	
Multiple bends(15)/single bend	68/34 mm
Temperature:	installation -40° to + 60° C
	operative -55° to + 85° C
Capacitance:	75 pF/m ± 2
Velocity ratio:	83 %
Screening efficiency:	
100-2000 MHz	>105 dB
Inner conductor resistance:	7,3 Ohm/Km
Outer conductor resistance:	9,8 Ohm/Km
Tension test (spark test):	4 kV
Weight (100m):	6,9 Kg
Maximum peak power:	4400 WATT

\* For connectors see the last page of the catalog

## SRL

0,3-600 MHz	>28 dB
600-1200 MHz	>22 dB
1200-2000 MHz	>18 dB

## HINTS ABOUT POWER HANDLING:

Power handling and peak power values have been calculated in a "cautious" manner. Physical accidental alterations and excessive VSWR values (impedance mismatch), are certainly increasing the lost power dissipated in the form of heat. Moreover unwanted stationary waves ratios, are making the situation even worse. In SSB operations a 5/6 seconds transmission time, followed by the same reception lag, is giving the chance to push the power handling values up. **Be aware that the power should never be exceeding the declared peak power value.**

## POWER HANDLING

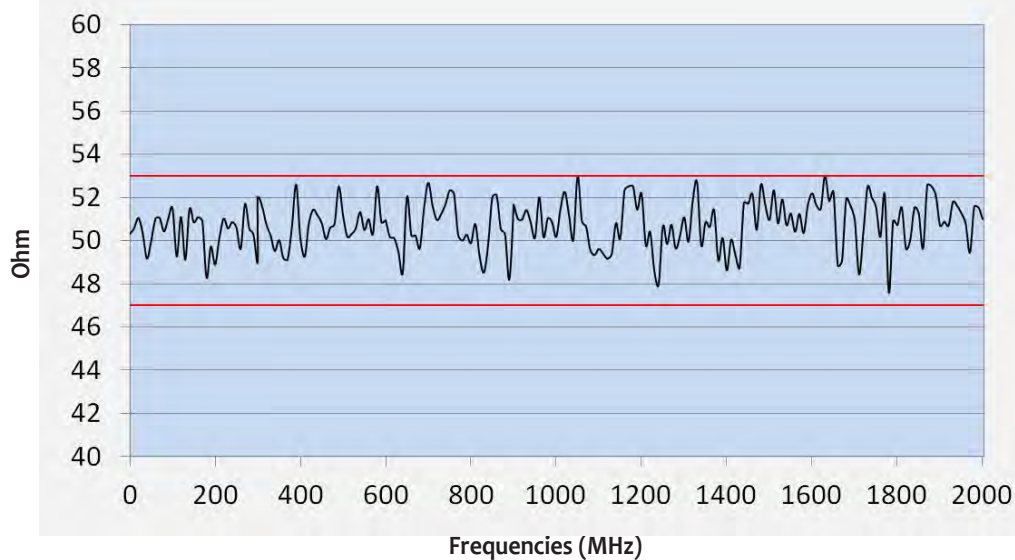
FREQUENCY	MAXP
1,8 MHz	3890 W
3,5 MHz	3700 W
7,0 MHz	3380 W
10 MHz	3080 W
14 MHz	2740 W
21 MHz	2450 W
28 MHz	2230 W
50 MHz	1820 W
100 MHz	1200 W
144 MHz	910 W
200 MHz	680 W
400 MHz	460 W
430 MHz	440 W
800 MHz	320 W
1000 MHz	280 W
1200 MHz	250 W
2400 MHz	140 W
3000 MHz	100 W
4000 MHz	70 W



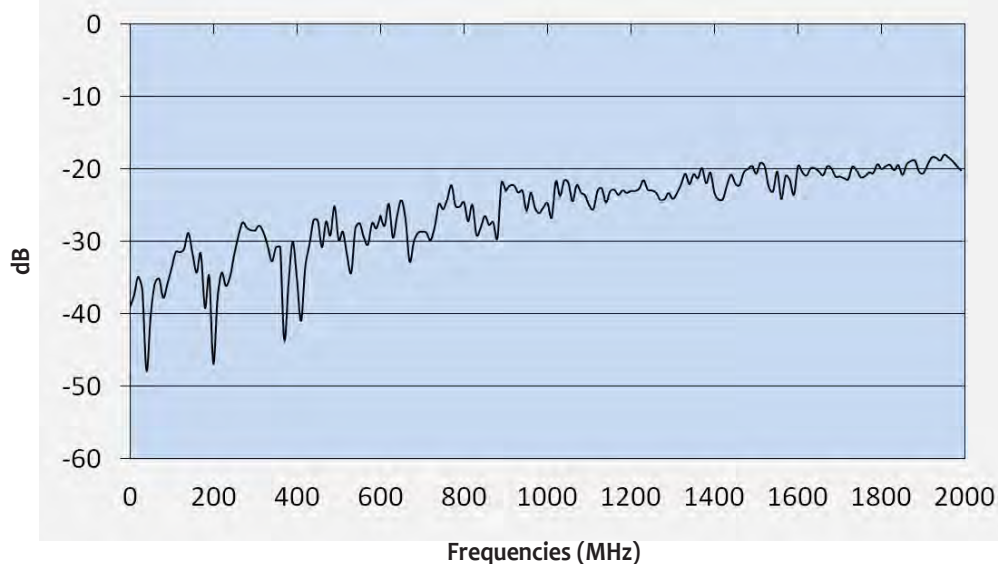
# M&P-ULTRAFLEX 7

(AC 7 Plus - HIGHFLEXX 7)

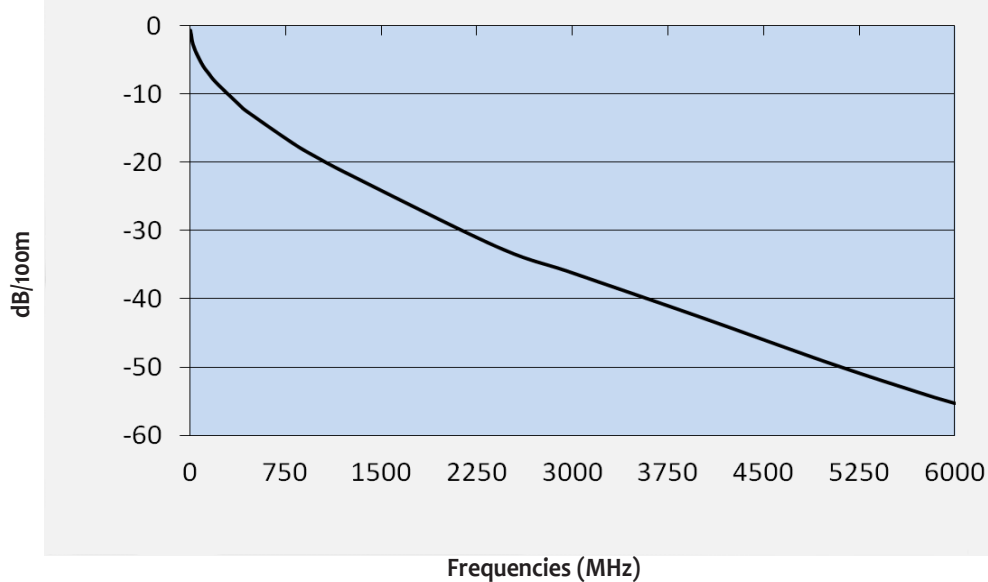
## IMPEDANCE



## SRL



## ATTENUATIONS







1,4 Kg/100m  
lighter than RG58

3,6 dB/100m better  
@50 MHz than RG58

# M&P Airborne 5

High resistance screen made of a sturdy Aluminium-Magnesium alloy **BRAID (ALMg)**. The braiding process is operated by means of **24 spools** braiding machines. (50% more intersections if compared to traditional 16 spools machines.) This braid is **HIGHLY EFFECTIVE AGAINST LOW FREQUENCY IMPULSIVE NOISES**.

## SCREENING

**PERCENTAGE: 82% 96 wires**

Triple layer screening tape, (foil), highly effective against high frequency interferences.

## SCREENING

**PERCENTAGE 100%**

**AL-POL-AL**

Trampling-resitant, UV shielded PE jacket to be used in particular for underground and outdoor installations.

**PE Ø 5 ± 0,15 mm**  
(0,197 inches)

**Waterproof**

**Sturdy**

## ATTENUATION at 20°C

FREQUENCY	dB/100m	dB/100ft
1,8 MHz	1,07	0,33
3,5 MHz	1,46	0,45
7,0 MHz	2,25	0,69
10 MHz	2,92	0,89
14 MHz	3,83	1,17
21 MHz	4,68	1,43
28 MHz	5,37	1,64
50 MHz	6,98	2,13
100 MHz	9,38	2,86
144 MHz	11,0	3,35
200 MHz	12,85	3,92
400 MHz	18,38	5,60
430 MHz	19,01	5,79
800 MHz	26,57	8,10
1000 MHz	29,88	9,11
1296 MHz	34,2	10,42
2400 MHz	47,58	14,50
3000 MHz	53,50	16,31
4000 MHz	61,0	18,59
5000 MHz	68,6	20,90
6000 MHz	75,6	23,04

High pressure physical injection foamed polyethylene **TRIPLE LAYER DIELECTRIC FPE Ø 3 ± 0,05 mm**

Inner conductor : 99,99% pure electrolytic annealed bare copper. (annealed = thermal softening process)  
**Cu Ø 1,13 mm (0,044 inches)**

## ELECTRICAL DATA

Impedance @200MHz :	50 Ohm ± 3
Minimum bending radius:	
Multiple bends/single bend	50/25 mm
Temperature:	-45° to + 70° C
Capacitance:	76 pF/m ± 2
Velocity ratio:	85 %
Screening efficiency:	
100-2000 MHz	>105 dB
Class	A++
Inner conductor resistance:	17 Ohm/Km
Outer conductor resistance:	34 Ohm/Km
Tension test (spark test):	8 kV
Weight (100m):	2,35 Kg
Maximum peak power:	1650 WATT

\* For connectors see the last page of the catalog

## SRL

0,3-600 MHz	>30 dB
600-1200 MHz	>28 dB
1200-2000 MHz	>25 dB

## HINTS ABOUT POWER HANDLING:

Power handling and peak power values have been calculated in a "cautious" manner (in fact, during DXpeditions, the cable can be used in tropical countries with more than 40-50°C. in the shade). Physical accidental alterations and excessive VSWR values (impedance mismatch), are certainly increasing the lost power dissipated in the form of heat. Moreover unwanted stationary waves ratios, are making the situation even worse. In SSB operations a 5/6 seconds transmission time, followed by the same reception lag, is giving the chance to push the power handling values up. **Be aware that the power should never be exceeding the declared peak power value.**

## POWER HANDLING

FREQUENCY	MAXP
1,8 MHz	1330 W
3,5 MHz	1210 W
7,0 MHz	1080 W
10 MHz	1005 W
14 MHz	925 W
21 MHz	828 W
28 MHz	735 W
50 MHz	540 W
100 MHz	340 W
144 MHz	262 W
200 MHz	212 W
400 MHz	164 W
430 MHz	160 W
800 MHz	130 W
1000 MHz	110 W
1200 MHz	105 W
2400 MHz	67 W
3000 MHz	50 W

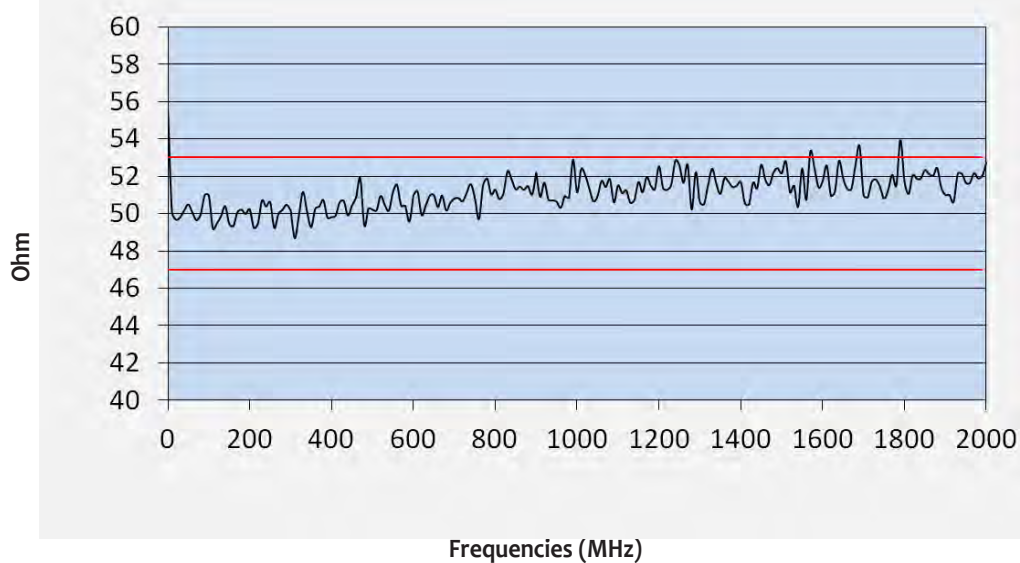
Our products are manufactured in compliance with: CEI 46-1 (construction parameters); EN 50117(screening efficiency); CEI EN 50289(SA test methods); IEC 60332-1-2(cables with LSZH jacket); EN 50290-2-22(cables with PVC jacket); EN 50290-2-23(cables with PE jacket).



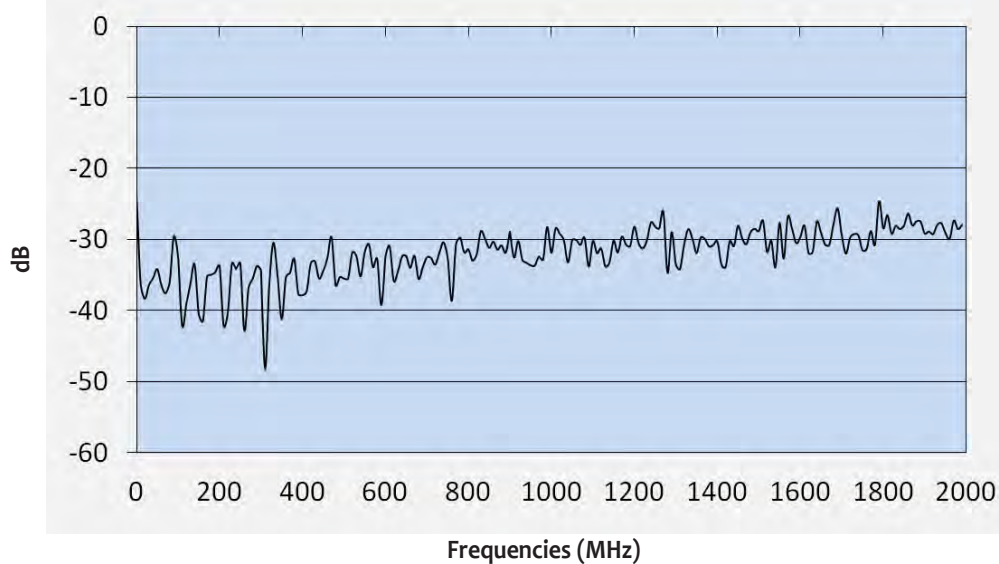
# M&P-AIRBORNE 5

(AC 5 Plus AIRBORNE)

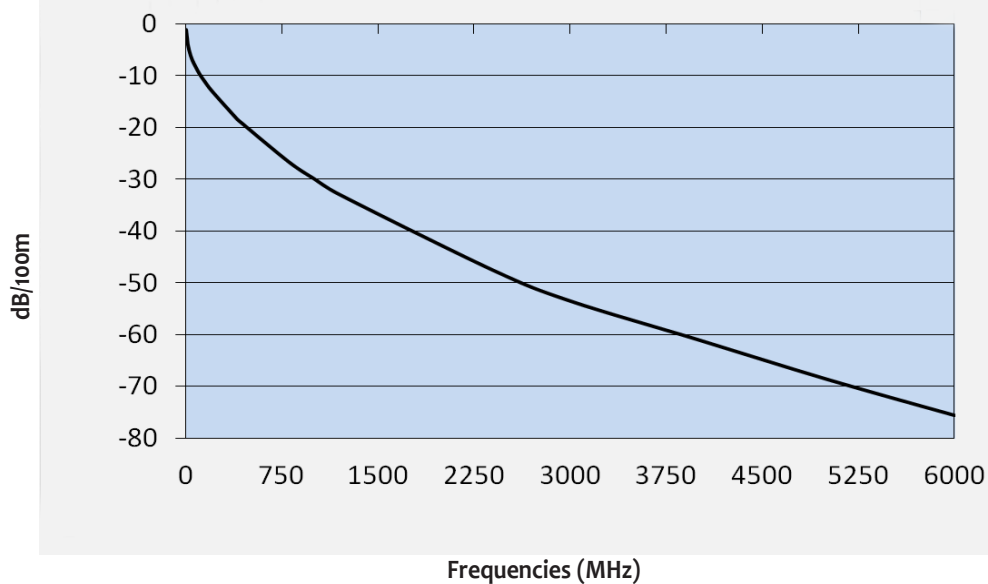
## IMPEDANCE



## SRL



## ATTENUATIONS





**RG 214 A/U**  
**MIL C17-F**



High resistance "tear proof" PVC jacket.

**PVC Ø 10,8 ± 0,15 mm**  
**(0,425 inches)**

Double special screen made of a silver plated copper **BRAID (CuAg)**. Exceptional long lasting performance: silver oxide has even better conductivity than silver itself. Resulting is an outstanding operative life, especially nearby the sea. The braiding process is operated by means of **24 spools** braiding machines. Highly effective against low frequency impulsive noises.

**2° screen :**  
**168 wires with**  
**98% coverage**

**1° screen :**  
**144 wires with**  
**96% coverage**

Solid polyethylene  
**DIELECTRIC**  
**PE Ø 7,25 ± 0,05 mm**

Inner conductor made of **7X0,75** stranded geometric and concentric silver plated copper wires. Purity 99,99% annealed. (annealed = thermal softening process)  
**(7x0,029 inches)**  
**CuAg 7X0,75 mm**  
**Ø 2,25 mm (0,088 inches)**

<b>SRL</b>	
0,3-600 MHz	>30 dB
600-1200 MHz	>30 dB
1200-2000 MHz	>25 dB

#### **ELECTRICAL DATA**

Impedance:	50 Ohm ± 3
Minimum bending radius:	
Multiple bends/single bend	120/60 mm
Capacitance:	101 pF/m ± 2
Velocity ratio:	66 %
Screening efficiency:	
100-900 MHz	>80 dB
Inner conductor resistance:	5,5 Ohm/Km
Outer conductor resistance:	4 Ohm/Km
Tension test (spark test):	8 kV
Weight (100m):	20 Kg
Maximum peak power:	8400 W
* For connectors see the last page of the catalog	

#### **ATTENUATION at 20°C**

FREQUENCY	dB/100m	dB/100ft
1,8 MHz	1,2	0,36
3,5 MHz	1,4	0,43
7,0 MHz	1,8	0,55
10 MHz	2,0	0,61
14 MHz	2,3	0,70
21 MHz	2,9	0,88
28 MHz	3,4	1,04
50 MHz	4,6	1,40
100 MHz	6,2	1,88
144 MHz	8,3	2,53
200 MHz	10,0	3,04
400 MHz	14,5	4,41
430 MHz	15,4	4,70
800 MHz	21,6	6,58
1000 MHz	25,3	7,71
1296 MHz	31,8	9,69

#### **POWER HANDLING**

FREQUENCY	MAXP
1,8 MHz	6350 W
3,5 MHz	6070 W
7,0 MHz	5530 W
10 MHz	5280 W
14 MHz	4900 W
21 MHz	4290 W
28 MHz	3620 W
50 MHz	2900 W
100 MHz	1650 W
144 MHz	1350 W
200 MHz	1100 W
400 MHz	410 W
430 MHz	330 W
800 MHz	220 W
1000 MHz	180 W
1296 MHz	150 W

#### **HINTS ABOUT POWER HANDLING:**

Power handling and peak power values have been calculated in a "cautious" manner. Physical accidental alterations and excessive VSWR values (impedance mismatch), are certainly increasing the lost power dissipated in the form of heat. Moreover unwanted stationary waves ratios, are making the situation even worse. In SSB operations a 5/6 seconds transmission time, followed by the same reception lag, is giving the chance to push the power handling values up. **Be aware that the power should never be exceeding the declared peak power value.**

Our products are manufactured in compliance with: CEI 46-1 (construction parameters); EN 50117(screening efficiency); CEI EN 50289(SA test methods); IEC 60332-1-2(cables with LSZH jacket); EN 50290-2-22(cables with PVC jacket); EN 50290-2-23(cables with PE jacket).





**RG 58 C/U**  
**MIL C17-F**

High resistance "tear proof"  
PVC jacket.

**PVC Ø 5 ± 0,15 mm**

(0,197 inches)

High resistance screen made of a tinned copper  
**BRAID (CuSn)**. The braiding process is operated  
by means of **16 spools** braiding machines. Highly  
effective against low frequency impulsive noises.

### SCREENING

**PERCENTAGE: 92% 112 wires**

Solid polyethylene dielectric  
**PE Ø 2,95 ± 0,05 mm**

Inner conductor made of 19x0,18 stranded geo-  
metric and concentric tinned copper (CuSn).

**CuSn 19x0,18 mm (19x0,007 inches)**

**Ø 0,90 mm (0,035 inches)**

### ATTENUATION at 20°C

FREQUENCY	dB/100m	dB/100ft
1,8 MHz	2,1	0,64
3,5 MHz	2,9	0,88
7,0 MHz	3,9	1,19
10 MHz	4,7	1,43
14 MHz	5,6	1,71
21 MHz	6,7	2,04
28 MHz	7,9	2,41
50 MHz	10,8	3,29
100 MHz	15,8	4,81
144 MHz	19,3	5,88
200 MHz	22,1	6,73
400 MHz	33,3	10,14
430 MHz	34,9	10,64
800 MHz	51,1	15,57
1000 MHz	58,0	17,67
1296 MHz	63,0	19,20

### ELECTRICAL DATA

Impedance @200MHz :	50 Ohm ± 3
Minimum bending radius:	
Multiple bends/single bend:	50/25 mm
Temperature:	installation -40° to +60° C
	operative -55° to +85° C
Capacitance:	101 pF/m ± 2
Velocity ratio:	66 %
Screening efficiency:	
100-900 MHz	>55 dB
Inner conductor resistance:	37 Ohm/Km
Outer conductor resistance:	15 Ohm/Km
Tension test (spark test):	4 kV
Weight (100m):	3,7 Kg
Maximum peak power:	1400 WATT

\* For connectors see the last page of the catalog

### SRL

0,3-600 MHz	>35 dB
600-1200 MHz	>30 dB
1200-2000 MHz	>30 dB

### HINTS ABOUT POWER HANDLING:

Power handling and peak power values have been calculated in a "cautious" manner. Physical accidental alterations and excessive VSWR values (impedance mismatch), are certainly increasing the lost power dissipated in the form of heat. Moreover unwanted stationary waves ratios, are making the situation even worse. In SSB operations a 5/6 seconds transmission time, followed by the same reception lag, is giving the chance to push the power handling values up. **Be aware that the power should never be exceeding the declared peak power value.**

### POWER HANDLING

FREQUENCY	MAXP
1,8 MHz	1000 W
3,5 MHz	690 W
7,0 MHz	570 W
10 MHz	480 W
14 MHz	390 W
21 MHz	300 W
28 MHz	240 W
50 MHz	160 W
100 MHz	120 W
144 MHz	110 W
200 MHz	100 W
400 MHz	92 W
430 MHz	90 W

Our products are manufactured in compliance with: CEI 46-1 (construction parameters); EN 50117(screening efficiency); CEI EN 50289(SA test methods); IEC 60332-1-2(cables with LSZH jacket); EN 50290-2-22(cables with PVC jacket); EN 50290-2-23(cables with PE jacket).





High resistance "tear proof" PVC jacket.  
**PVC Ø 2,8 ± 0,15 mm**  
 (0,110 inches)

**RG 174 A/U**  
**MIL C17-F**

High resistance screen made of tinned copper BRAID (CuSn). The braiding process is operated by means of **16 spools** braiding machines. Highly effective against low frequency impulsive noises.

### SCREENING

**PERCENTAGE: 86% 64 wires**

Solid polyethylene dielectric.

**PE Ø 1,5 ± 0,05 mm**

Inner conductor made of 7x0,16 stranded geometric and concentric copper plated steel (CCS).

**CCS 7x0,16 mm (7x34 awg)**

**Ø 0,48 mm (0,018 inches)**



### ATTENUATION at 20°C

FREQUENCY	dB/100m	dB/100ft
1,8 MHz	7,3	2,23
3,5 MHz	7,8	2,38
7,0 MHz	9,2	2,81
10 MHz	9,8	2,99
14 MHz	10,6	3,23
21 MHz	12,2	3,72
28 MHz	14,1	4,30
50 MHz	18,5	5,64
100 MHz	26,0	7,92
144 MHz	32,0	9,76
200 MHz	39,1	11,91
400 MHz	54,9	16,73
430 MHz	57,0	17,38
800 MHz	80,0	24,38
1000 MHz	91,6	27,93
1296 MHz	107,0	32,61

### ELECTRICAL DATA

Impedance @200MHz :	50 Ohm ± 3
Minimum bending radius:	
Multiple bends/single bend	28/14 mm
Temperature:	installation -40° to +60° C
	operative -55° to +85° C
Capacitance:	101 pF/m ± 2
Velocity ratio:	66 %
Screening efficiency:	
100-900 MHz	>50 dB
Inner conductor resistance:	521 Ohm/Km
Outer conductor resistance:	37,5 Ohm/Km
Tension test (spark test):	2 kV
Weight (100m):	1,1 Kg
Maximum peak power:	420 WATT

\* For connectors see the last page of the catalog

### SRL

0,3-600 MHz	>35 dB
600-1200 MHz	>30 dB
1200-2000 MHz	>30 dB

### HINTS ABOUT POWER HANDLING:

Power handling and peak power values have been calculated in a "cautious" manner. Physical accidental alterations and excessive VSWR values (impedance mismatch), are certainly increasing the lost power dissipated in the form of heat. Moreover unwanted stationary waves ratios, are making the situation even worse. In SSB operations a 5/6 seconds transmission time, followed by the same reception lag, is giving the chance to push the power handling values up. **Be aware that the power should never be exceeding the declared peak power value.**

### POWER HANDLING

FREQUENCY	MAXP
1,8 MHz	320 W
3,5 MHz	154 W
7,0 MHz	90 W
10 MHz	58 W
14 MHz	38 W
21 MHz	30 W
28 MHz	25 W
50 MHz	22 W
100 MHz	21 W
144 MHz	19 W
200 MHz	17 W
400 MHz	16 W
430 MHz	16 W

Our products are manufactured in compliance with: CEI 46-1 (construction parameters); EN 50117(screening efficiency); CEI EN 50289(SA test methods); IEC 60332-1-2(cables with LSZH jacket); EN 50290-2-22(cables with PVC jacket); EN 50290-2-23(cables with PE jacket).

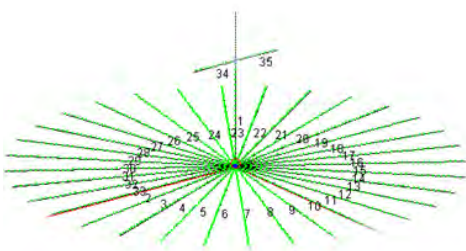


## CPR 6 x 0,75 mm<sup>2</sup>

**Shielded cable for  
rotor operated antennas**

DATASHEET	
Number of conductors:	6 (+ one PVC cilinder for centering the cable )
Section of each conductor:	0,75 mmq <sup>2</sup>
Conductor colors:	White
	Brown
	Green
	Grey
	Yellow
	Pink
Shielding:	Alluminium tape matched with a polyester film (+ flexible earth conductor)
External insulation:	Dark grey PVC Jacket - FLAME RETARDANT - Ø 7,6mm
Packaging:	Coils 100m
	Coils 50m

## Cable for radial grounding - GR 163



Inner conductor	pure copper 99,99 %
diameter	1,63 mm - (2,1 mm <sup>2</sup> )
Conductor resistance (Ohm/Km)	7,8
Jacket	black PE
diameter	2,9 mm

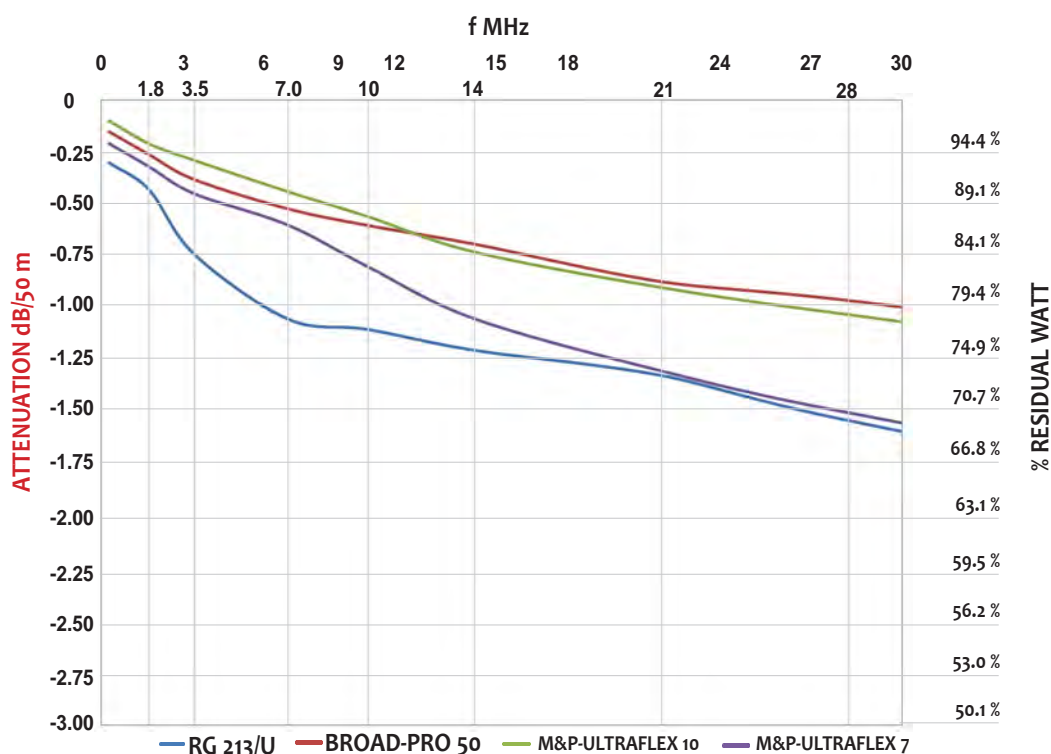
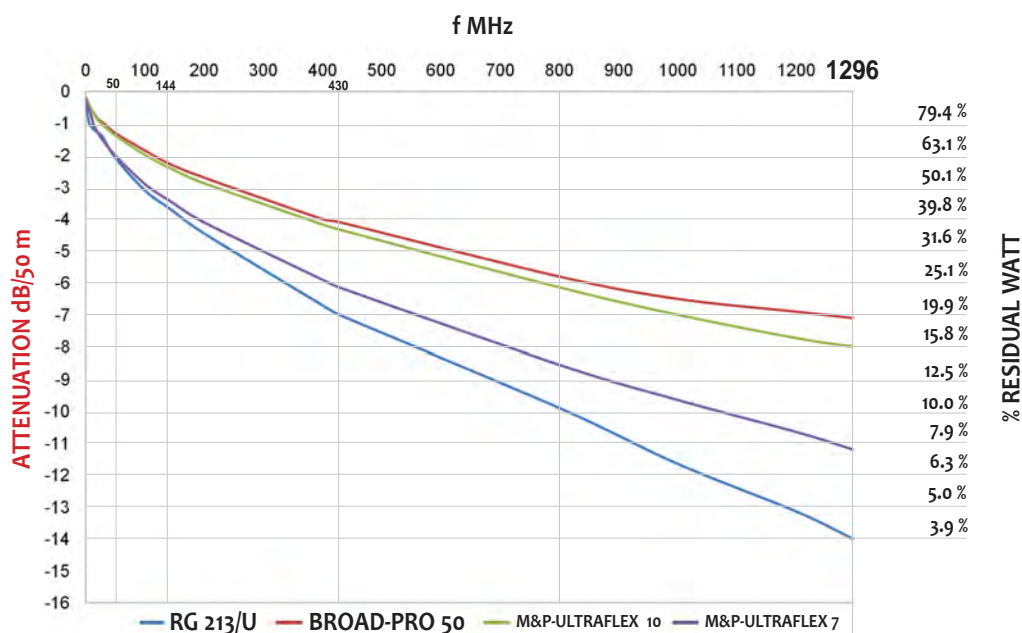
Doesn't fear neither water nor corrosion and if well sealed on both ends, can be buried underground and it is virtually eternal. (Remember to seal the ends)



# COMPARISON CHART

## ATTENUATION-POWER RATIO

The graphs below give a clear view of the behavior of our top models on a 50 m stretch, compared to the old fashioned RG 213/U. Note that the M&P-ULTRAFLEX 7 despite being just 7.3 mm (compared with 10.3 mm of RG213/U), outclasses this old item in every parameter. Graphs can be used to calculate the power loss in any way and for any Messi & Paoloni cable. Let's take an example: Model M&P-AIRBORNE 5 Attenuation at 430 MHz 19 dB/100m. If the cable stretch is 25m long, calculate 19 dB divided by 4 = 4.75 dB. Let us watch on the left side of the table (dB/50m) and positioning with a ruler at the 4.75 dB position, we can observe the other end in the right column (PERCENT RESIDUAL WATT) the percentage residual output of the cable.

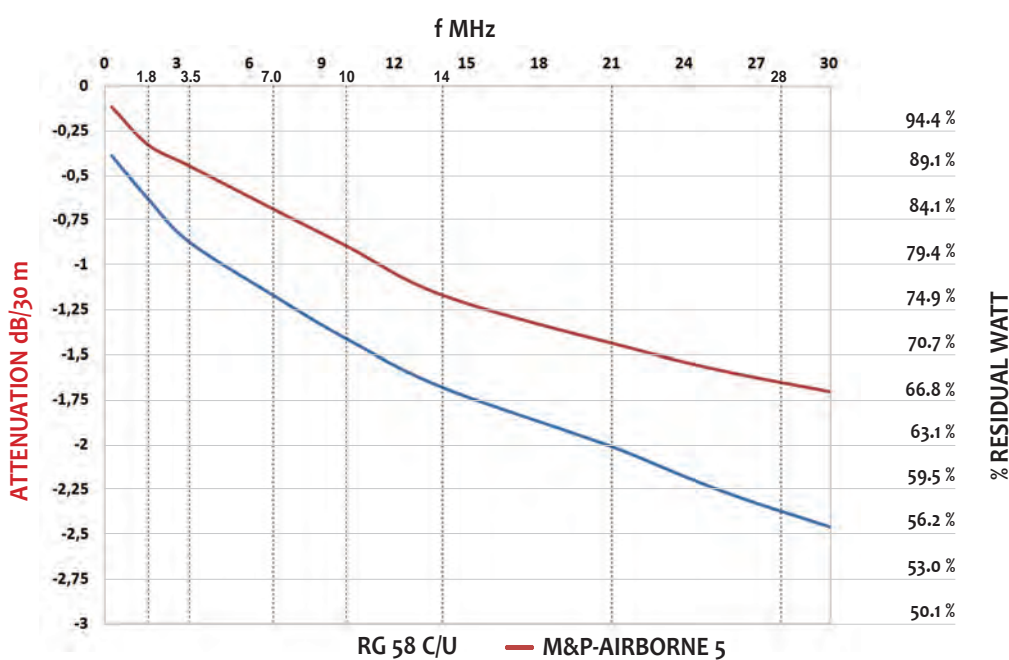
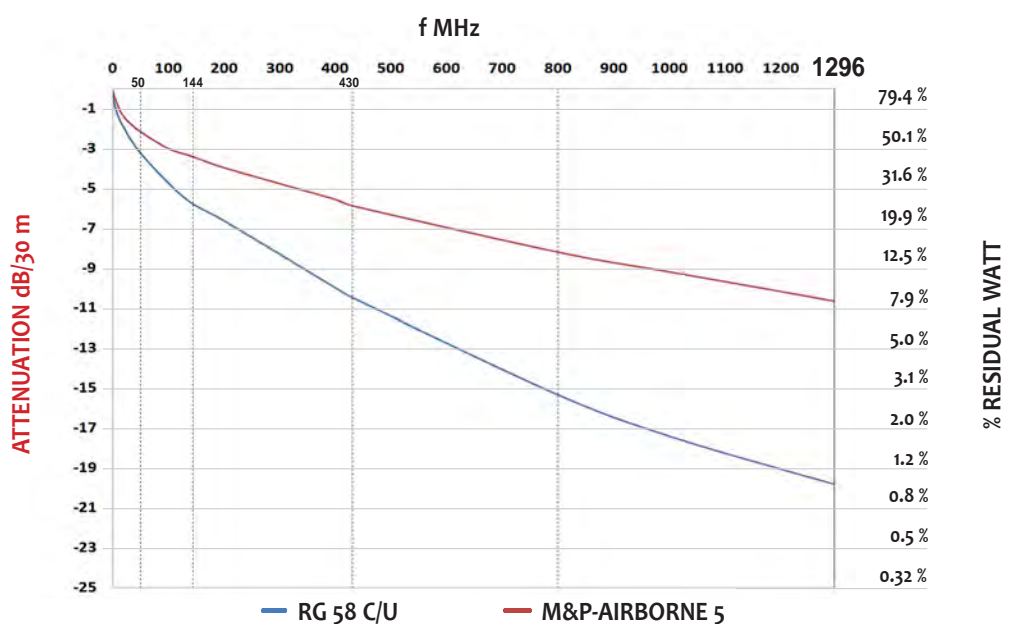




# COMPARISON CHART

## ATTENUATION-POWER RATIO

Example of the power loss in a 30m stretch between model M&P-AIRBORNE 5 and the traditional RG 58 C/U.

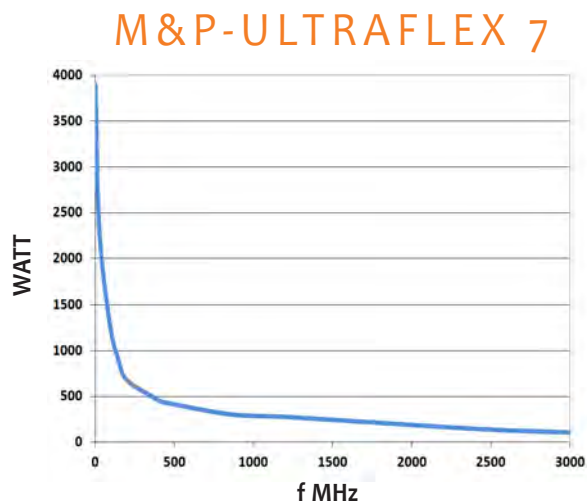
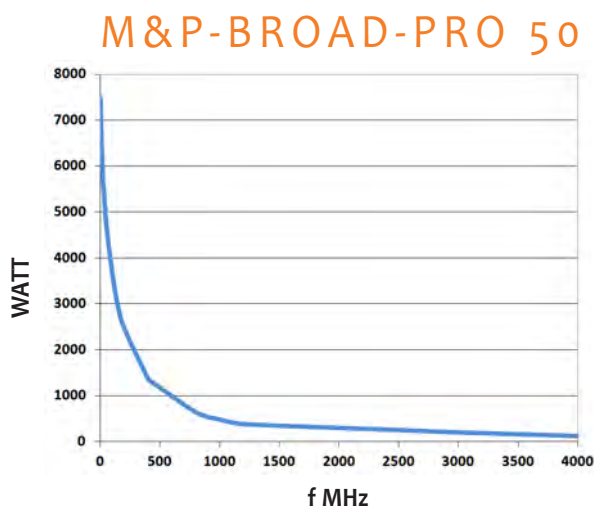




# POWER HANDLING

In order to calculate the POWER HANDLING, we need to start by the maximum **peak power**. Once calculated, you can proceed to the subsequent processing in various frequencies. The data that we have declared, expressed in WATTS, should be considered for continuous transmissions (**key down**) and by convention at a temperature of 20° C. (68° F)

Since these are **cautious values**, they also take into account some environmental and remarkable temperatures (40° C) (104° F). Moreover we have also taken in consideration some potential alterations, due to shortage in connectors, damage or connectors disconnection. Even water infiltration into the connectors can cause serious damage to the impedance and to the VSWR. **Therefore, under optimal conditions and with the transmission in SSB, the values can also be easily increased, provided that the power values will be never equal or bigger than indicated peak power values.**



Source: **M&P Lab.** Roberto Moroni

## ATTENUATION/SRL RATIO

When designing a transmission line, it is necessary to carefully choose the cable to be used, based on the frequency and the distance between the transmitter and the antenna. We assume that the impedance matching between the various components has been treated with the utmost diligence.

Everyone knows how important is to buy a REALLY low-loss cable, but not everyone reminds that  $-3\text{dB} = \frac{1}{2}$  the power available. It is also important to verify that the difference between the value of SRL and attenuation should be as wide as possible. In fact, as seen in the picture, it is inevitable that the two curves will cross each other. With increasing frequency, the attenuation curve (A) is approaching more and more to that of the reflected waves (B). Comes the point where the attenuation value in dB and that of SRL meet each other. Starting from this frequency and beyond, the output signal will be ZERO, regardless of the input power value.

The example concerns a test on the cable **M&P-BROAD-PRO 50**, (a 30 meters long coil). In these conditions the signal is **reduced to zero** at the frequency of 10 GHz (in transmission only). It is clearly inadvisable to use such a cable length at this frequency, but the chart clearly indicates that at all frequencies lower than 10 GHz, the transmission line works in an excellent manner. Increasing the cable length, inevitably increases the attenuation so that the intersection with the SRL curve, will happen before (at a lower frequency). Differently, shortening the cable length will assure a correct use at higher frequencies.



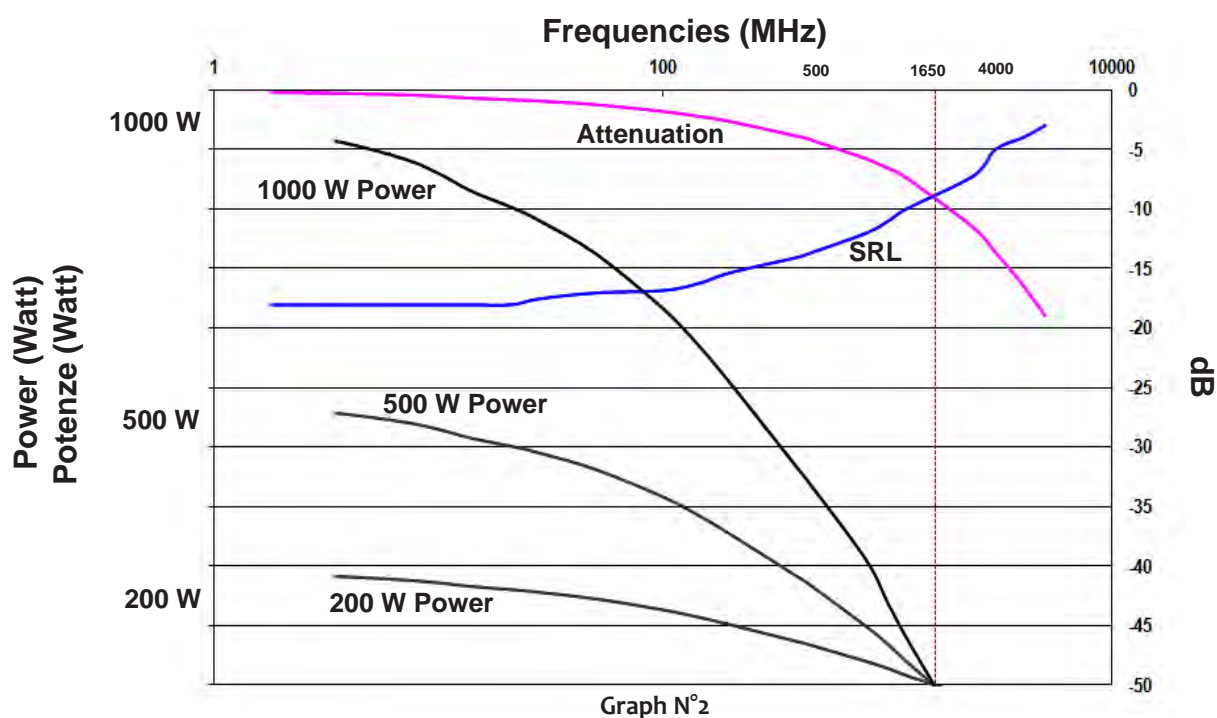
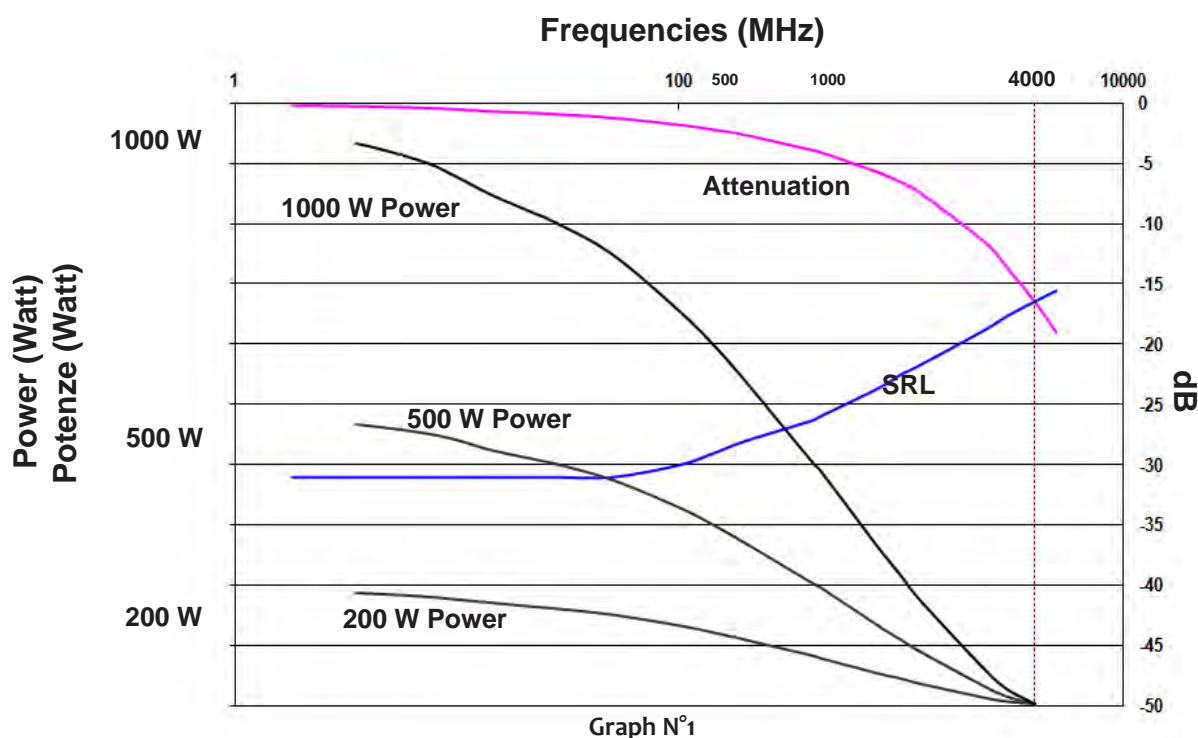
**A: Attenuation**

**B: SRL**



In the following charts we can see how the SRL affects the power. Graph N°1 is showing a 50m long, perfectly tuned transmission line. The cable used is again **M&P-BROAD-PRO 50**. The red curve is the attenuation, the blue curve is the SRL. The three black curves, are 3 different input powers: 200, 500 and 1000 Watts. As previously said, regardless of the input power, when the SRL is equivalent to attenuation, there is no more output signal.

In graph N°2 please note that as soon as the SRL value increases, (for example due to an impedance mismatch), the output power quickly collapses. Although an optimal SRL (low) is typically between -40 and -30 dB, we can say that until -18 dB there are no considerable losses. Increasing the SRL to higher values, the closer the SRL values are to 0, the more the effects evolve from troublesome to destructive. In the presence of strong SRL, (dB values close to zero), along the cable will occur overvoltage and overcurrent.





Given a power fed to the X value (any value expressed in Watts), the actual power output of the cable is shown in the table in the form of remaining percentage. (for example, if we use a cable such as M&P-BROAD-PRO 50, entering 1000 Watts over a length of 35m, at a frequency of 144 MHz, there remains 69% of 1000). **For maximum applicable power, see the Power Handling of the cable concerned.** From these values, have already been deducted the SRL values, typical of each one of our models, for the respective frequencies.

**REMEMBER: Make sure to match the line accurately!**

M&P-BROAD-PRO 50 / M&P-BROAD-PRO 50 Double Jacket															
length in meters															
	5	10	15	20	25	35	50	75	100	130	160	200	300		
Frequencies (MHz)	3,5	99.3	98.6	97.9	97.2	96.6	95.2	93.3	90.1	87.1	83.5	80.1	75.8	66	Useful signal output (residual power %)
	7	98.9	97.9	96.9	95.9	95	93	90.2	85.7	81.4	76.6	72	66.3	54	
	14	98.4	96.8	95.3	93.7	92.4	89.4	85.3	78.6	72.6	65.9	59.9	52.7	38.3	
	28	97.8	95.6	93.5	91.4	89.4	85.5	80	71.7	64	56.1	49.1	41	26.3	
	50	97.1	94.2	91.4	88.7	86	81	74.1	63.7	54.9	45.9	38.3	30.1	16.5	
	144	94.9	90	85.2	80.8	76.6	69	58.9	45.1	34.7	25.2	18.3	11.9	4.1	
	430	90.7	82.5	75.2	68.4	62.1	51.5	38.7	24.1	15	8.3	4.6			
	1200	84	71	60	50.7	42.7	30.5	18.1	7.6	3					
	2400	76.6	59.4	46	35.6	27.4	16.1	6.9							
	3000	73.7	55	41	30.5	22.5	12.1	4.3							
	4000	70.4	50.2	35.7	25.2	17.7	8.4								
	5000	66.7	45.2	30.4	20.3	13.1	5.2								
	6000	63.1	40.5	25.7	16	9.5									
	8000	55.2	31	16.7	8.3										
	10.000	48	23	9.7											
12.000	33.4	8.4													

M&P-ULTRAFLEX 10 (MEP-FLEX 10 - H 2010 - NEOFLEX 10)															
length in meters															
	5	10	15	20	25	35	50	75	100	130	160	200	300		
Frequencies (MHz)	3,5	99.3	98.6	97.8	97.2	96.5	95.1	93.1	89.8	86.7	83	79.5	75.1	65.1	Useful signal output (residual power %)
	7	99	98	96.9	96	95	93	90.3	85.8	81.5	76.6	72	66.3	54	
	14	98.3	96.7	95.1	93.6	92	89	84.7	78	71.7	65	58.8	51.5	37	
	28	97.8	95.6	93.5	91.5	89.5	85.6	80	71.6	64.1	56.1	49.1	41.1	26.3	
	50	97	94.3	91.6	89	86.4	81.5	74.7	64.6	55.8	46.9	39.3	31.2	17.4	
	144	94.9	90.1	85.6	81.3	77.2	69.6	59.6	46	35.5	26	19.1	12.6	4.4	
	430	90.9	82.8	75.4	68.6	62.5	51.8	39	24.4	12.5	8.6	4.9			
	1200	83.8	70.6	59.6	50.2	42.8	30	17.7	7.2						
	2400	74	55.6	41.6	31.1	23.1	12.5	4.5							
	3000	70.4	50.4	35.9	25.5	17.9	8.6								
	4000	65.1	43	28.2	18.2	11.6	4.1								
	5000	59.9	36.5	21.8	12.7	7									
	6000	55.4	31.1	16.9	8.6										
	8000	46.3	21.3	8.9											
	10.000	37.2	12.7												
12.000	21.1														



Given a power fed to the X value (any value expressed in Watts), the actual power output of the cable is shown in the table in the form of remaining percentage. (for example, if we use a cable such as M&P-ULTRAFLEX 7, entering 1000 Watts over a length of 35m, at a frequency of 144 MHz, there remains 57,3% of 1000). **For maximum applicable power, see the Power Handling of the cable concerned.** From these values, have already been deducted the SRL values, typical of each one of our models, for the respective frequencies.

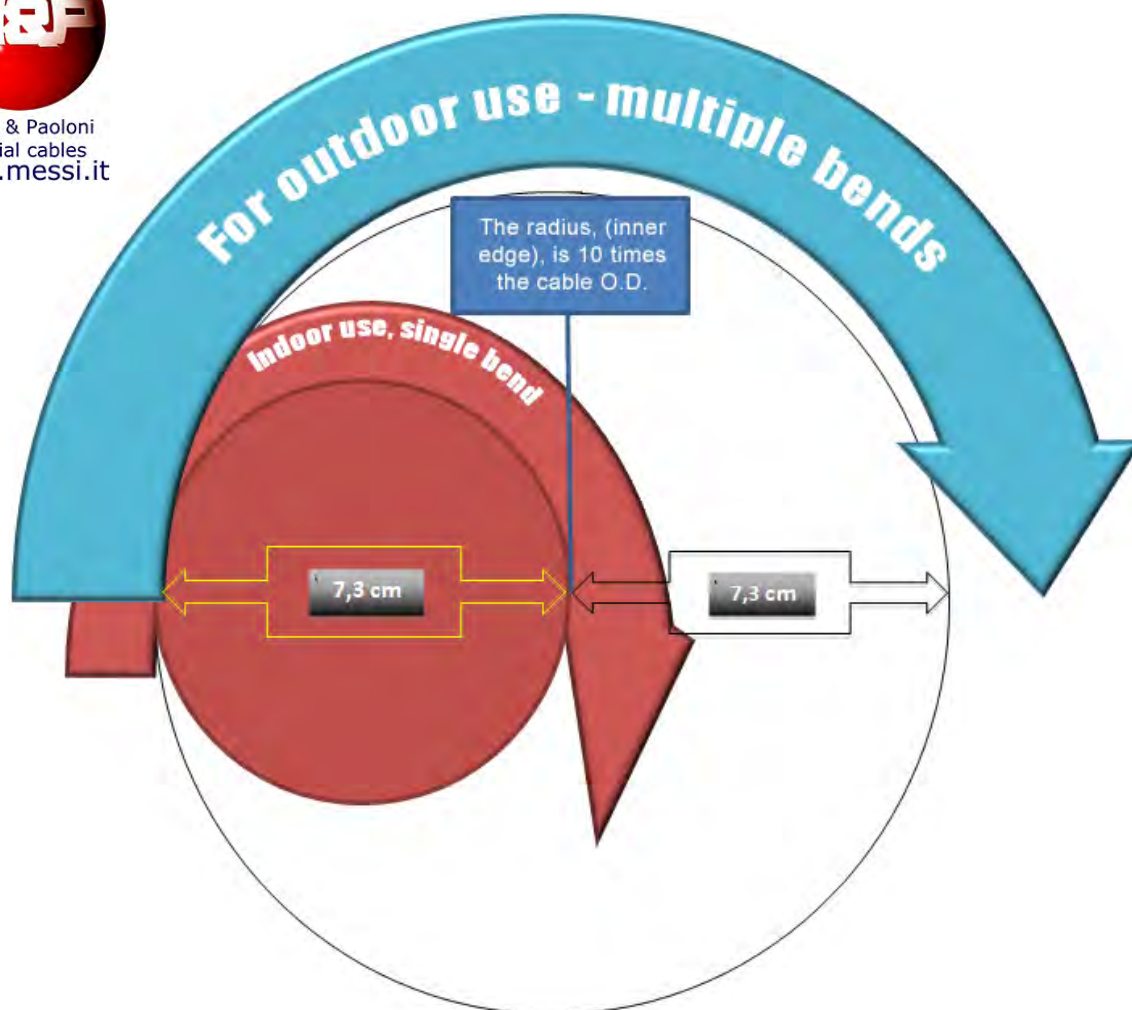
**REMEMBER: Make sure to match the line accurately!**

		M&P-ULTRAFLEX 7 (AC 7 Plus - HIGHFLEXX 7)													
		length in meters													
			5	10	15	20	25	35	50	75	100	130	160	200	
Frequencies (MHz)	3,5	98.8	97.9	96.9	95.9	94.9	93	90.1	85.6	81.3	76.4	71.7	66	53.7	Useful signal output (residual power %)
	7	98.5	97.2	95.9	94.6	93.3	90.8	87.1	81.5	75.8	69.8	64.2	57.5	43.6	
	14	97.6	95.2	93	90.8	86.6	84.4	78.5	69.6	61.6	53.3	46.1	38	23.4	
	28	96.5	93.3	90.1	87.1	84.1	78.5	70.7	59.5	50	40.6	33	25	12.5	
	50	95.4	91.1	87.1	83.1	79.3	72.9	63	50	39.7	30.1	22.8	15.7	6.2	
	144	92.3	85.2	78.7	72.7	67.2	57.3	45.1	30.8	20.3	12.6	7.8	4.1		
	430	86.6	75	65.2	56.6	49	37	24.1	11.7	5.7					
	1200	77.6	60.6	47.3	36.9	28.9	17.3	8							
	2400	67.4	45.9	31.2	21	14	5.8								
	3000	63.4	40.9	26.1	16.4	9.9									
	4000	58.1	34.3	19.8	10.9	5.4									
	5000	52.7	28.2	14.2	6.3										
	6000	48.9	24	10.8	3.9										

		M&P-AIRBORNE 5 (AC 5 Plus AIRBORNE)													
		length in meters													
			5	10	15	20	25	35	50	75	100	130	160	200	
Frequencies (MHz)	3,5	98.2	96.6	95	93.4	91.8	88.8	84.4	77.6	71.3	64.5	58.3	51	36.4	Useful signal output (residual power %)
	7	97.3	94.9	92.4	90.1	87.8	83.3	77.1	67.7	59.5	50.9	43.6	35.4	21	
	14	95.6	91.5	87.5	83.7	80.1	73.3	64.2	51.5	41.3	31.7	24.3	17	7	
	28	93.9	88.3	83	78	73.4	64.8	53.9	39.5	28.9	19.9	13.7	8.3		
	50	92.2	85.1	78.5	72.4	66.8	56.9	44.6	30.1	19.9	12.3	7.7	3.9		
	144	88	77.5	68.3	60.2	53	41.1	28.1	14.9	7.8	3.6				
	430	80.2	64.4	51.7	41.5	33.2	21.5	11.1	3.6						
	1200	67.8	46.2	31.4	21.3	14.4	6.4								
	2400	56.2	31.9	17.7	9.6	5									
	3000	52	27.2	13.8	6.5										
	4000	46.4	21.4	9											
	5000	39.1	14.3	3											
6000	26														



# Minimum Bending Radius



## With reference to norms: IEC 60092 and CEI 11/17 we can affirm as follows:

To determine how tightly a given cable can be bent without damage, the radius of the curve of the inner edge of any bend, shall not be less than 10 times the cable Overall Diameter (O.D.). Since the radius is one half the diameter, you can then multiply your result by 2 to get the actual diameter of the object that the cable can be safely bent around repeatedly, (for example a bobbin). In DXpeditions, there is a basic need to unwind the cable and later on to rewind it in the same bobbin. (multiple bends). For this operation, needed twice per DXpedition, please consider 20 times the cable O.D. **(this will preserve your cable for a much longer number of DXpeditions)** Solid inner conductor cables, need more attention, even though we have succeeded to make them a little more flexible (M&P-BROAD-PRO 50). The smaller the bend radius, the greater is the material flexibility. Cables such as M&P-ULTRAFLEX 7 or M&P-ULTRAFLEX 10, having a stranded inner conductor, a strong and flexible 24 spools braid, and an excellent quality PVC jacket, ALLOW MORE, but never infringe the values in the cables datasheets. (always to be taken with good sense... careful!)

**The diagram above illustrates a cable with a 7,3 centimeter bend radius (M&P-ULTRAFLEX 7).** When meaning Outdoor use, we intend that the variety of harsh temperatures we could have outside, might change temporarily the physics of the cable components, requiring therefore more cautiousness. (20 times O.D.)

In case we need to effect a sharper bend, (ex. Like in a choke), we can do only if:

- 1) **We shall effect Just a single bend (possibly always indoor)**
- 2) The operation is made at temperatures never below 15° C. (59° F)
- 3) The cable is coiled over a Cylinder with an O.D. equal or bigger than ten times the cable O.D.



## HALOGEN FREE AND SELF-SUPPORTING CABLES

All the cables in our production range, can be built with an outer halogen free jacket upon request.

To the cable name, will shall add the suffix “**LSZH**” (LOW SMOKE ZERO HALOGEN).

This jacket is perfectly compliant with the norms :

**CEI EN 60332-1-1**

**CEI EN 60332-1-2**

**CEI 20-35/1-1**

**CEI 20-35/1-2**

Model **M&P-BROAD-PRO 50** and **M&P-ULTRAFLEX 10** can be supplied, **on demand**, implemented by means of a 7x0,80mm FeZn stranded “**MESSENGER**”, co-extruded together with a polyethylene sheath (side by side).



These cables can be used to posing suspended sections where the underground laying is impeded by the presence of rocks or other obstacles. Thanks to this stranded messenger, these cables are not subject to stress or mechanical alterations normally occuring on overhead cable lines (elongation due to heat fluctuations, wind swinging and the cable weight itself are leading to strain and alterations of the mechanical/electrical properties of the cable).





Messi & Paoloni  
coaxial cables  
[www.messi.it](http://www.messi.it)

## COMPARISON CHART ATTENUATION/POWER RATIO

## TABELLE COMPARAZIONE RAPPORTO ATTENUAZIONE/POTENZA

Residual Watts related to frequency and calculated on **1000 Watt** input power.  
Watt residui in rapporto alla frequenza e calcolati su una potenza in ingresso di **1000 Watt**.

RG 213/U		
FREQ. MHz	Attenuations Attenuazioni dB/50 m	Residual WATT/50m
0,3	0,3	933
1,8	0,4	912
3,5	0,74	843
7	1,05	785
10	1,1	776
14	1,2	758
21	1,3	741
28	1,53	703
50	2,0	630
100	3,1	489
144	3,7	426
200	4,45	358
400	6,6	218
430	7,01	199
800	9,9	102
1000	11,6	69
1200	13,15	48
1296	14,0	39

M&P-BROAD-PRO 50		
FREQ. MHz	Attenuations Attenuazioni dB/50 m	Residual WATT/50m
0,3	0,09	979
1,8	0,3	933
3,5	0,4	912
7	0,52	887
10	0,6	870
14	0,69	853
21	0,87	818
28	0,96	801
50	1,3	741
100	1,85	653
144	2,29	590
200	2,7	537
400	4,0	398
430	4,1	389
800	5,8	263
1000	6,5	223
1200	6,9	204
1296	7,1	194
2400	10,7	84

M&P-ULTRAFLEX 10		
FREQ. MHz	Attenuations Attenuazioni dB/50 m	Residual WATT/50m
0,3	0,06	984
1,8	0,21	952
3,5	0,29	935
7	0,44	903
10	0,56	879
14	0,73	845
21	0,9	812
28	1,03	788
50	1,38	727
100	1,99	632
144	2,42	572
200	2,88	515
400	4,17	382
430	4,34	368
800	6,14	243
1000	7,0	199
1200	7,73	168
1296	8,0	158
2400	12,4	57,5

M&P-ULTRAFLEX 7		
FREQ. MHz	Attenuations Attenuazioni dB/50 m	Residual WATT/50m
0,3	0,15	966
1,8	0,3	933
3,5	0,45	901
7	0,6	870
10	0,8	831
14	1,05	785
21	1,3	741
28	1,5	707
50	2,0	630
100	2,9	512
144	3,45	451
200	4,1	389
400	5,9	257
430	6,15	242
800	8,55	139
1000	9,65	108
1200	10,65	86
1296	11,2	75

M&P-AIRBORNE 5		
FREQ. MHz	Attenuations Attenuazioni dB/30 m	Residual WATT/30m
0,3	0,12	972
1,8	0,33	926
3,5	0,44	902
7	0,69	853
10	0,89	813
14	1,17	763
21	1,43	718
28	1,65	683
50	2,15	608
100	3,0	501
144	3,40	456
200	3,96	401
400	5,55	278
430	5,86	259
800	8,19	151
1000	9,18	120
1200	10,16	96
1296	10,65	86

RG 58 C/U		
FREQ. MHz	Attenuations Attenuazioni dB/30 m	Residual WATT/30m
0,3	0,39	914
1,8	0,63	864
3,5	0,87	818
7	1,17	763
10	1,41	722
14	1,68	679
21	2,01	629
28	2,37	579
50	3,24	474
100	4,74	335
144	5,79	263
200	6,63	217
400	9,99	100
430	10,47	89
800	15,33	29
1000	17,4	18
1200	19,05	12
1296	19,8	10

Fonte / Source: **M&P Lab.** Roberto Moroni



# CONVERSION CHART

## VSWR/REFLECTED POWER

# TABELLE CONVERSIONE

## ROS/POTENZA RIFLESSA

VOLTAGE STANDING WAVE RATIO (VSWR)  RAPPORTO ONDE STAZIONARIE (ROS)	VSWR (dB)	SRL STRUCTURAL RETURN LOSS (dB)  PERDITE CUMULATIVE DI RIFLESSIONE	REFLECTED POWER (%)  POTENZA RIFLESSA	TRANSMISSION LOSS (dB)  PERDITA DI TRASMISSIONE	TRANSMITTED POWER (%)  POTENZA TRASMESSA	MODELS M&P-BROAD-PRO 50 M&P-ULTRAFLEX 10 M&P-ULTRAFLEX 7 M&P-AIRBORNE 5
1	0	∞	0	0	100	from 300 KHz to 450 MHz
1,1	0,83	26,44	0,227	0,01	99,773	
1,2	1,58	20,83	0,826	0,036	99,174	
1,3	2,28	17,69	1,7	0,075	98,3	from 450MHz to 1 GHz
1,4	2,92	15,56	2,78	0,122	97,22	from 1 GHz to 2 Ghz
1,5	3,52	13,98	4	0,177	96	
1,6	4,08	12,74	5,33	0,238	94,67	
1,7	4,61	11,73	6,72	0,302	93,28	
1,8	5,11	10,88	8,16	0,37	91,84	
1,9	5,58	10,16	9,6	0,44	90,4	
2	6,02	9,54	11,1	0,512	88,9	
2,1	6,44	9	12,6	0,584	87,4	
2,2	6,85	8,52	14,1	0,658	85,9	
2,3	7,23	8,09	15,5	0,732	84,5	
2,4	7,6	7,71	17	0,807	83	
2,5	7,96	7,36	18,4	0,881	81,6	
2,6	8,3	7,04	19,8	0,956	80,2	
2,7	8,63	6,76	21,1	1,03	78,9	
2,8	8,94	6,49	22,4	1,1	77,6	
2,9	9,25	6,25	23,7	1,18	76,3	
3	9,54	6,02	25	1,25	75	
3,2	10,1	5,62	27,4	1,39	72,6	
3,4	10,6	5,26	29,8	1,53	70,2	
3,6	11,1	4,96	31,9	1,67	68,1	
3,8	11,6	4,68	34	1,81	66	
4	12	4,44	36	1,94	64	
5	14	3,52	44,4	2,55	55,6	
6	15,6	2,92	51	3,1	49	
7	16,9	2,5	56,3	3,59	43,8	
8	18,1	2,18	60,5	4,03	39,5	
9	19,1	1,94	64	4,44	36	
10	20	1,74	66,9	4,81	33,1	



# The Q CODE FOR HAM RADIO OPERATORS

Source: **Dario Grossi** (IZ4UEZ) ARI Ferrara

SIGNAL Q	QUESTION ?	ANSWER, NOTICE OR ORDER
QRA	What is the name of your station?	My name is ...
QRB	How far approximately are you from my station?	The distance between our stations is about...your nautical miles (or kilometers).
QRG	What is my exact frequency?	Your exact frequency is ... kHz (Or MHz).
QRK	What is the intelligibility of my signals	The intelligibility of your signals is ... (scale of 1 to 5).
QRL	Are you busy?	I'm busy Please do not interfere.
QRM	Are you bothered by noise?	I am disturbed by interference.
QRN	Are you bothered by noise of natural origin (storms, lightning)?	I am disturbed by natural origin noise
QRO	Shall I increase transmitter power?	Increase (or increase) the transmission power.
QRP	Shall I decrease transmitter power?	Decrease the transmission power.
QRQ	Shall I send faster?	Increase the transmission speed [... Words per minute].
QRS	Shall I send more slowly?	Send more slowly [... Words per minute].
QRT	Shall I stop transmissions?	Close (or I close) transmissions.
QRV	Are you ready?	I'm ready.
QRX	When you call me again?	I'll get back at ... on ... kHz (or MHz).
QRZ	Who is calling me?	You are called by ... on ... kHz (or MHz).
QSA	What is the strength of my signals	The strength of your signals is ... (Scale from 1 to 5).
QSB	Does my signal strength fade?	The strength of your signals varies.
QSK	Can you hear me? If so, can I interrupt you?	I hear you, speak up.
QSL	Can you receive?	Confirmed, received.
QSO	Can you communicate with ... directly or through support?	I can communicate with ... directly NOTE: It is also synonymous of direct communication or direct connection.
QSP	Will you transmit to...?	I'll transmit back to....
QSY	Should I change my transmission to another frequency?	Change transmission to another frequency.
QTH	What is your position	My position is ..... : QTH generally describes the place from which you are transmitting.
QTR	What time is it ?	It's ...

# CONVERSION TABLE

## DECIBEL-VOLT-WATT (50 Ohm)

dBm	V	Po
+ 53	100.0	200 W
+ 50	70.7	100 W
+ 49	64.0	80 W
+ 48	58.0	64 W
+ 47	50.0	50 W
+ 46	44.5	40 W
+ 45	40.0	32 W
+ 44	32.5	25 W
+ 43	32.0	20 W
+ 42	28.0	16 W
+ 41	26.2	12.5 W
+ 40	22.5	10 W
+ 39	20.0	8 W
+ 38	18.0	6.4 W
+ 37	16.0	5 W
+ 36	14.1	4 W
+ 35	12.5	3.2 W
+ 34	11.5	2.5 W
+ 33	10.0	2 W
+ 32	9.0	1.6 W
+ 31	8.0	1.25 W

dBm	V	Po
+ 30	7.10	1.0 W
+ 29	6.40	800 mW
+ 28	5.80	640 mW
+ 27	5.00	500 mW
+ 26	4.45	400 mW
+ 25	4.00	320 mW
+ 24	3.55	250 mW
+ 23	3.20	200 mW
+ 22	2.80	160 mW
+ 21	2.52	125 mW
+ 20	2.25	100 mW
+ 19	2.00	80 mW
+ 18	1.80	64 mW
+ 17	1.60	50 mW
+ 16	1.41	40 mW
+ 15	1.25	32 mW
+ 14	1.15	25 mW
+ 13	1.00	20 mW
+ 12	0.90	16 mW
+ 11	0.80	12.5 mW
+ 10	0.71	10 mW

dBm	V	Po
+ 9	0.64	8 mW
+ 8	0.58	6.4 mW
+ 7	0.500	5 mW
+ 6	0.445	4 mW
+ 5	0.400	3.2 mW
+ 4	0.355	2.5 mW
+ 3	0.320	2.0 mW
+ 2	0.280	1.6 mW
+ 1	0.252	1.25 mW
0	0.225	1.0 mW
- 1	0.200	0.80 mW
- 2	0.180	0.64 mW
- 3	0.160	0.50 mW
- 4	0.141	0.40 mW
- 5	0.125	0.32 mW
- 6	0.115	0.25 mW
- 7	0.100	0.20 mW
- 8	0.090	0.16 mW
- 9	0.080	0.125 mW
- 10	0.071	0.10 mW

## Abbreviations used in the HAM RADIO service

**AR:** End of message

**BK:** "Break" Signal used to interrupt a transmission in progress

**CQ:** Calling all stations

**CW:** "Continuous Wave" continuous wave telegraphy

**DE:** Used to take apart the ID. from the station

**K:** Invitation to transmit

**MSG:** Message

**PSE:** "Please"

**RTD:** intelligibility, signal strength, tone

**R:** Received

**RX:** Receiver

**SIG:** Signal

**SK:** End of QSO (or even "Silent Key" = passage to a better life)

**TNX:** Thanks

**TX:** Transmitter

**UR:** Your

**VA:** end of work



# DEFINITIONS OF THE ELECTRICAL FEATURES OF A CABLE

## CAPACITY:

The capacity of a cable is the value that indicates the properties of the dielectric to store electrical charges between the central conductor and the screen.

The capacity is expressed in pF (picofarad,  $1 \text{ pF} = 1 \times 10^{-12} \text{ F}$ ). The higher is the capacity the more high frequencies are attenuated along the cable. So the **best cable** is the one that has the **lowest capacity**. (at the same impedance).

## IMPEDANCE:

It indicates the opposition of a transmission line to the flow of electrons, it is expressed in Ohms and is derived from the relation between the voltage V and the current I at any point of the coaxial cable.

## ATTENUATION:

It quantifies the loss of signal and is expressed in dB (Decibels). In reception and transmission (power) the attenuation is given by  $10 \times \log_{10} (P_{in} / P_{out})$ . **The signal is halved every 3 dB.**

## SRL - STRUCTURAL RETURN LOSS:

It measures the intensity of reflected waves (toward the source) inside the cable. The SRL is highly affected by the imperfections of the impedance in one or more points along the transmission line.

## SCREENING EFFICIENCY:

It generally indicates the ability of a screen to prevent electromagnetic interference, which can “contaminate” the signal along the cable and vice versa that the signal could be radiated outside of the cable. At high frequencies ( $> 30 \text{ MHz}$ ), this is expressed in “**Screening Attenuation**” (SA) and the unit of measurement is the decibel. At low frequencies ( $< 30 \text{ MHz}$ ), it’s called **transfer impedance (Zt)** and it is expressed in mOhm/m.

The lower is the value in milliohms, the better is the cable performance.

In the old RG cables, the maximum screening efficiency obtained is 80 dB, while in our new cables is  $> 105 \text{ dB}$  (A++ CLASS).

The Zt in the old RG cables does not drop below  $13 \text{ m}\Omega/\text{m}$  (RG 214), compared to  $0.9 \text{ m}\Omega/\text{m}$  of our new cables:

- **M&P-BROAD-PRO 50 and M&P-BROAD-PRO 50** Double Jacket
- **M&P-ULTRAFLEX 10**
- **M&P-ULTRAFLEX 7**
- **M&P-AIRBORNE 5**

## VELOCITY RATIO:

It’s the speed which the signal travels at, along the cable, and it is expressed as a percentage of the light speed. In the cables with plain polyethylene, the best value reached is 66%, against the 85% of the cables with foamed polyethylene dielectric.

# STANDARD PACKAGING

MODEL	Quick description	Overall size over the jacket	Type of packaging	First value Ø Flange Second value inner flange to flange Third value Ø inner tube (bobbin)	Packing CODE	Meters per packing	Gross weight per packing unit
RG 58 C/U	In compliance	Ø 5 mm 0,197 inches	Shrinkwrapped coil	Suitable for Arianna unwinder	AR100	100	3,75 Kg
RG 58 C/U	with		Shrinkwrapped coil	Suitable for Arianna unwinder	AR200	200	7,45 Kg
RG 58 C/U	MIL-C17-F		Plastic bobbin	mm. 345x165x130 Hole Ø 45	B500	500	19,26 Kg
RG 58 C/U	military		Plastic bobbin	mm. 345x325x130 Hole Ø 45	B1000	1000	37,78 Kg
RG 58 C/U	specification		Wooden drum	mm. 500x360x160 Hole Ø 80	B2000	2000	77,35 Kg
M&P-AIRBORNE 5	<b>Evolution</b>	Ø 5 mm 0,197 inches	Shrinkwrapped coil	Suitable for Arianna unwinder	AR100	100	2,40 Kg
M&P-AIRBORNE 5	For DXers		Shrinkwrapped coil	Suitable for Arianna unwinder	AR200	200	4,75 Kg
M&P-AIRBORNE 5	5mm cables:		Plastic bobbin	mm. 345x165x130 Hole Ø 45	B500	500	12,51 Kg
M&P-AIRBORNE 5	Performant		Plastic bobbin	mm. 345x325x130 Hole Ø 45	B1000	1000	24,28 Kg
M&P-AIRBORNE 5	waterproof		Wooden drum	mm. 500x360x160 Hole Ø 80	B2000	2000	50,35 Kg
M&P-AIRBORNE 5	lightweight		Wooden drum	mm. 500x360x160 Hole Ø 80	B2000	2000	50,35 Kg
M&P-Ultraflex 7	<b>Evolution</b>	Ø 7,3 mm 0,287 inches	Shrinkwrapped coil	Suitable for Arianna unwinder	AR50	50	3,50 Kg
M&P-Ultraflex 7	For DXers		Shrinkwrapped coil	Suitable for Arianna unwinder	AR100	100	6,95 Kg
M&P-Ultraflex 7	7mm cables:		Plastic bobbin	mm. 345x165x130 Hole Ø 45	B200	200	14,56 Kg
M&P-Ultraflex 7	Performant		Plastic bobbin	mm. 345x325x130 Hole Ø 45	B500	500	35,28 Kg
M&P-Ultraflex 7	lightweight		Wooden drum	mm. 500x360x160 Hole Ø 80	B1000	1000	72,35 Kg
M&P-Ultraflex 7	ultraflexible		Wooden drum	mm. 750x335x210 Hole Ø 70	B2000	2000	150,8 Kg
M&P-Ultraflex 10	<b>Evolution</b>	Ø 10,3 mm 0,405 inches	Shrinkwrapped coil	mm. 345x165x130 Hole Ø 45	T50	50	6,56 Kg
M&P-Ultraflex 10	of		Plastic bobbin	mm. 345x165x130 Hole Ø 45	B100	100	13,76 Kg
M&P-Ultraflex 10	10mm cables:		Plastic bobbin	mm. 345x325x130 Hole Ø 45	B200	200	26,78 Kg
M&P-Ultraflex 10	ultraflexible		Wooden drum	mm. 500x360x160 Hole Ø 80	B500	500	68,35 Kg
M&P-Ultraflex 10	High performances		Wooden drum	mm. 750x335x210 Hole Ø 70	B1000	1000	142,8 Kg
M&P-BROAD-PRO 50	<b>Evolution</b>	Ø 10,3 mm 0,405 inches	Shrinkwrapped coil	mm. 345x165x130 Hole Ø 45	T50	50	6,46 Kg
M&P-BROAD-PRO 50	of		Plastic bobbin	mm. 345x165x130 Hole Ø 45	B100	100	13,56 Kg
M&P-BROAD-PRO 50	10mm cables:		Plastic bobbin	mm. 345x325x130 Hole Ø 45	B200	200	26,38 Kg
M&P-BROAD-PRO 50	semi-flexible		Wooden drum	mm. 500x360x160 Hole Ø 80	B500	500	67,35 Kg
M&P-BROAD-PRO 50	Very high perform.		Wooden drum	mm. 750x335x210 Hole Ø 70	B1000	1000	140,8 Kg
BROAD-PRO 50 LSZH	LSZH black jacket	Ø 10,3 mm	Wooden drum	mm. 750x335x210 Hole Ø 70	B1000	1000	143,1 Kg
M&P-BROAD-PRO 50	Same as above	Ø 12,4 mm 0,488 inches	Wooden drum	mm. 500x360x160 Hole Ø 80	B400	400	70,55 Kg
<b>Double Jacket</b> M&P-BROAD-PRO 50	for Underground Laying		Wooden drum	mm. 750x335x210 Hole Ø 70	B800	800	147,20 Kg



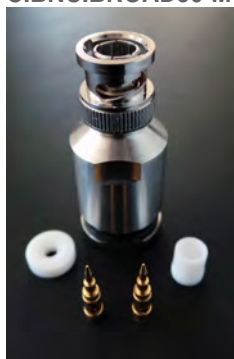
Unwinders are sold separately.



# EXCELLENT QUALITY PROFESSIONAL CONNECTORS

Extensively tested by our laboratory they have shown, due to their high build quality, very low VSWR levels and impedance alteration. (Referring to models with \*) - **For step to step assembly instructions please visit our website.**

**C.BNC.BROAD50-M**



\* "BNC" type connector  
male soldering for  
**M&P-BROAD-PRO 50**  
M&P-BROAD-PRO 50 Double Jacket  
**M&P-ULTRAFLEX 10**  
RG 213/U  
RG 214 A/U

**C.N.BROAD50-M**



\* "N" type connector  
male soldering for  
**M&P-BROAD-PRO 50**  
M&P-BROAD-PRO 50 Double Jacket  
**M&P-ULTRAFLEX 10**  
RG 213/U  
RG 214 A/U

**C.UHF.BROAD50-M**



\* "UHF" type connector  
male soldering for  
**M&P-BROAD-PRO 50**  
M&P-BROAD-PRO 50 Double Jacket  
**M&P-ULTRAFLEX 10**  
RG 213/U  
RG 214 A/U

**C.BROAD.PL259**



**AMPHENOL®**  
"UHF" type connector  
male soldering for  
**M&P-BROAD-PRO 50**  
M&P-BROAD-PRO 50 Double Jacket  
**M&P-ULTRAFLEX 10**  
RG 213/U  
RG 214 A/U

**C.TNC.BROAD50-M-S**



\* "TNC" type connector  
male soldering for  
**M&P-BROAD-PRO 50**  
M&P-BROAD-PRO 50 Double Jacket  
**M&P-ULTRAFLEX 10**  
RG 213/U  
RG 214 A/U

**C.N.AC7.M-S**



\* "N" type connector  
male soldering for  
**M&P-ULTRAFLEX 7**

**C.UHF.AC7.M-S**



\* "UHF" type connector  
male soldering for  
**M&P-ULTRAFLEX 7**

**C.TNC.AC7.M-S**



\* "TNC" type connector  
male soldering for  
**M&P-ULTRAFLEX 7**

**C.N.AC5M-S**



\* "N" type connector  
male soldering for  
**M&P-AIRBORNE 5**  
RG 58 C/U

**C.UHF.AC5M-S**



\* "UHF" type connector  
male soldering for  
**M&P-AIRBORNE 5**  
RG 58 C/U

**C.BNC174MC**



"BNC" type connector  
male crimp type for  
RG 174 A/U



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EXCELLENCE IN PRODUCTION IS OUR MISSION



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