

## CR 50 540 (1/2") Cable Specifications

**CR 50 540 PE** cable features a Polyethylene jacket and is intended for indoor or outdoor wireless transmission line applications where a riser rated cable is not required by local electrical codes.

**CR 50 540 R** cable features a UV stabilized Polyethylene jacket and is intended for use within buildings where local electrical codes require cable rated as CMR (or CATVR). This requirement is usually encountered when coaxial cable penetrates more than one floor of a building, but does not pass through plenums, ducts, false ceilings or other environmental air-handling spaces.

**Cell Reach** cables and connectors are designed for wireless transmission line systems. This smooth-wall, copper 50 Ohm coaxial cable eliminates water migration, offers industry-leading attenuation and VSWR performance, provides a high average power rating and easy connectorization.



### Cable Characteristics

Electrical		
Impedance, Ohms	50 ± 1	
Cutoff Frequency, GHz	8.8	
Velocity %	88	
Peak Power Rating, kW	41.8	
DC Resistance, Ohms/1000 ft (1000m)		
Inner	0.42	(1.38)
Outer	0.58	(1.92)
DC Breakdown, Volts	4000	
Jacket Spark, Volts RMS	8000	
Capacitance, pF/ft (pF/m)	23.1	(75.8)
Inductance, μH/ft (μH/m)	0.058	(0.19)

### VSWR Specification

30-2500 MHz	1.10:1	(26.4dB)
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### DTF Specification (at minimum bend radius)

30-2500 MHz	1.006	(50.0dB)
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### Mechanical

Jacket	PE or riser rated CMR/CATVR	
Outer Conductor	Copper	
Inner Conductor	Copper-Clad Al.	
Inner Conductor Dia., in. (mm)	.1975	(5.02)
Dia. Over Dielectric, in. (mm)	.523	(13.2)
Dia. Over Outer Conductor, in. (mm)	.540	(13.7)
Dia. Over Outer Jacket, in. (mm)	.610	(15.5)
Minimum Bend Radius, in. (mm)	4.0	(102)
Number of Bends, min	15	
Bending Moment, ft-lbs. (Nm)	9.7	(13.1)
Cable Weight, lbs/ft (kg/m)	0.15	(0.22)
Tensile Strength, lbs. (Kg)	600	(272)
Flat Plate Crush Strength, lbs./in. (kg/mm)	110	(2.0)

### Nominal Attenuation and Average Power

Frequency Mhz	Attenuation		Average Power kW
	dB/100 ft	dB/100m	
100	0.644	2.11	3.57
108	0.650	2.13	3.32
150	0.772	2.53	2.91
174	0.830	2.72	2.61
200	0.891	2.92	2.44
300	1.11	3.63	1.94
400	1.29	4.23	1.66
450	1.37	4.48	1.56
500	1.45	4.76	1.50
512	1.47	4.82	1.45
600	1.60	5.25	1.36
700	1.74	5.71	1.26
800	1.87	6.14	1.16
824	1.90	6.24	1.13
894	1.99	6.53	1.10
960	2.07	6.79	1.05
1000	2.12	6.96	1.03
1700	2.87	9.42	0.750
1800	2.96	9.69	0.728
1900	3.04	10.0	0.705
2000	3.13	10.3	0.693
2200	3.31	10.9	0.656
2300	3.39	11.1	0.638
2400	3.47	11.4	0.625
2500	3.55	11.6	0.610
2600	3.62	11.9	0.600
3000	3.83	12.6	0.542
4000	4.41	14.5	0.455
5000	5.15	16.9	0.397
6000	5.84	19.2	0.353
8000	7.04	23.1	0.294
8800	7.47	24.5	0.277

### Standard Conditions:

- For Attenuation, VSWR 1.0 ambient temperature 20° (68°F), atmospheric pressure, dry air.
- For Average Power, VSWR 1.0, inner temperature 100° (212°F), ambient temperature 40° (104°F), atmospheric pressure, dry air, no solar loading.
- Specifications subject to change without notice.

### CR 50 540 (1/2") Connectors and Assemblies

All Cell Reach connectors are premium quality. The two piece construction is designed for quick and consistent termination while maintaining superior performance. Termination craftsmanship issues are reduced to a minimum by using a Cell Reach self gauging coring tool.

Brass is used as the connector body base material. Surfaces in the RF transmission path are silver plated. All other surfaces are nickel/tin coated. Insulators are made of polypropylene, polytetrafluorethylene (PTFE), polycarbonate and Delrin. All O-rings are made of ethylene propylene rubber (EPDM) to ensure the tightest seal against moisture ingress.



N-Male



N-Female



7/16 DIN-Female



7/16 DIN-Male



N-Male Right Angle



DIN Male Right Angle

#### Insertion Loss, dB-Formula

Straight  $.05 \sqrt{f}$ , GHz    Right Angle  $.1 \sqrt{f}$ , GHz

#### Intermodulation-3rd Order Product-dBm (dBC)

>112 (155) (Two +43 dBm carriers, IM product  
between 1870-1900 MHz)

Product No.	Interface	Maximum Length inches	Maximum Length (mm)	Maximum Diameter inches	Maximum Diameter (mm)
540NM	N-Male	3.752	(95.3)	1.05	(26.8)
540NF	N-Female	3.52	(89.4)	1.05	(26.8)
540DM	7/16 DIN-Male	3.689	(93.7)	1.05	(26.8)
540DF	7/16 DIN-Female	3.764	(95.6)	1.05	(26.8)
540NMR	N-Male Right Angle	3.791	(96.3)	1.05	(26.8)
540DMR	7/16 DIN-Male Right Angle	3.976	(101.0)	1.05	(26.8)

#### Adapters

NF-UHFM	N-Female to UHF-Male	1.46	(37.3)	.788	(20.0)
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### 540 Jumper Assemblies

#### Guaranteed Low VSWR Specifications, Type CR 540

Frequency Code No.	Frequency MHz	VSWR (RL)			Connectors
		1-25 ft. (.5-7.5m)	26-100 ft. (7.6-30.5m)	101-200 ft. (30.6-61m)	
A	824-960	1.06 (30.7)	1.07 (29.4)	1.08 (28.3)	NF, NM, DF, DM
		1.20 (20.8)	1.20 (20.8)	1.18 (21.7)	NMR, DMR
B	824-960 1700-1900	1.12 (24.9)	1.12 (24.9)	1.13 (24.2)	NF, NM, DF, DM
		1.33 (17.0)	1.33 (17.0)	1.28 (18.2)	NMR, DMR
C	1700-2000	1.09 (27.3)	1.10 (26.4)	1.12 (24.9)	NF, NM, DF, DM
		1.25 (19.1)	1.25 (19.1)	1.23 (19.7)	NMR
		1.30 (17.7)	1.30 (17.7)	1.30 (17.7)	DMR
D	1900-2200	1.09 (27.3)	1.10 (26.4)	1.12 (24.9)	NM, DM
		1.30 (17.7)	1.30 (17.7)	1.30 (17.7)	NMR, DMR

Standard assembly lengths are 3', 6', 10' and 12'.

VSWR values are guaranteed for factory fit assemblies only.

Note: Tools and hardware, pages 29-36