

LL60 Series Pre-Connectorized Cable Sets

replacement for Corrugated and RG214



LL60 series cable sets are flexible alternative to corrugated cables. Usable upto 6 GHz. These are typically used in long antenna runs where low loss is of prime importance. Traditionally corrugated cables have been used for such applications. LL60 now offers an attractive alternative to corrugated due to higher flexibility as compared to corrugated types. The RF/electrical parameters of LL60 and corresponding corrugated types are similar.

APPLICATIONS

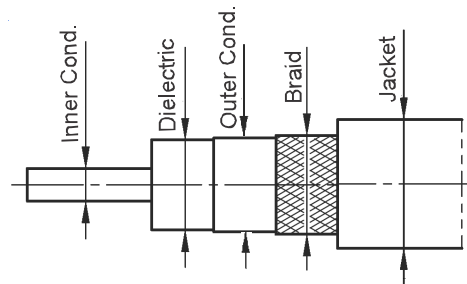
- Long run antenna feeders
- Radars, ESM, ELINT systems
- Ideal 'flexible' replacement for corrugated cables like Heliac (same electrical properties)

- Equivalent to RFS LCF12-50 and Andrews LDF4-50

- Ideal replacement for corrugated types for advantage of **FLEXIBILITY**

- **RF Shielding** is 90 dB. This is 30dB higher than 60dB (typical) for single shielded RG types.
- **Flexibility:** LL60 series are quite flexible as compared to comparable corrugated types. Whereas it is quite difficult to route and bend corrugated cables, LL60 series can be routed easily between connection points.

CABLE CONSTRUCTION



Electrical Specifications

| | |
|-------------------------|----------------|
| Impedance | 50 Ω |
| Frequency Range | DC ~ 6 GHz |
| Velocity of Propagation | 87 % |
| Capacitance | 76.7 pF/m |
| Shielding Effectiveness | > 90 dB |
| Operating Temperature | -40°C to +85°C |

Mechanical Specifications

| | |
|---------------------------|---------------------|
| Inner Conductor | BCCAI, 4.5mm dia. |
| Dielectric | PE, Foamed |
| Outer Conductor | Aluminium Foil |
| Braid | Cooper, Tinned |
| Jacket | Black PE, 15mm dia. |
| Bend Radius: installation | 80 mm |
| Weight | 0.20 kg/m |

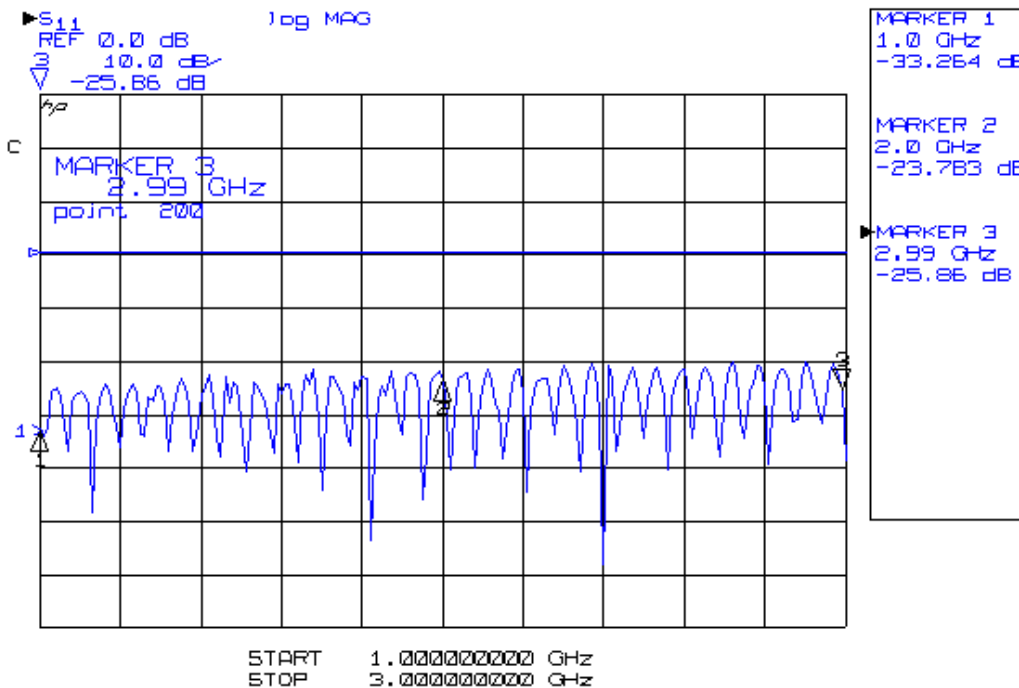
Attenuation & Power Handling Data

| Frequency (GHz) | 0.03 | 0.05 | 0.15 | 0.22 | 0.45 | 0.9 | 1.5 | 1.8 | 2 | 2.5 | 5.8 |
|-----------------------|------|------|------|------|------|-----|------|------|------|------|------|
| Attenuation dB/100 ft | 0.5 | 0.6 | 1.1 | 1.4 | 1.8 | 2.7 | 3.5 | 3.9 | 3.9 | 4.6 | 7.5 |
| Attenuation dB/100 m | 1.6 | 1.9 | 3.5 | 3.9 | 5.8 | 8.5 | 10.9 | 12.3 | 12.9 | 14.7 | 23.9 |
| Average Power Watt | 5500 | 4220 | 2400 | 1930 | 1300 | 900 | 690 | 600 | 570 | 500 | 300 |

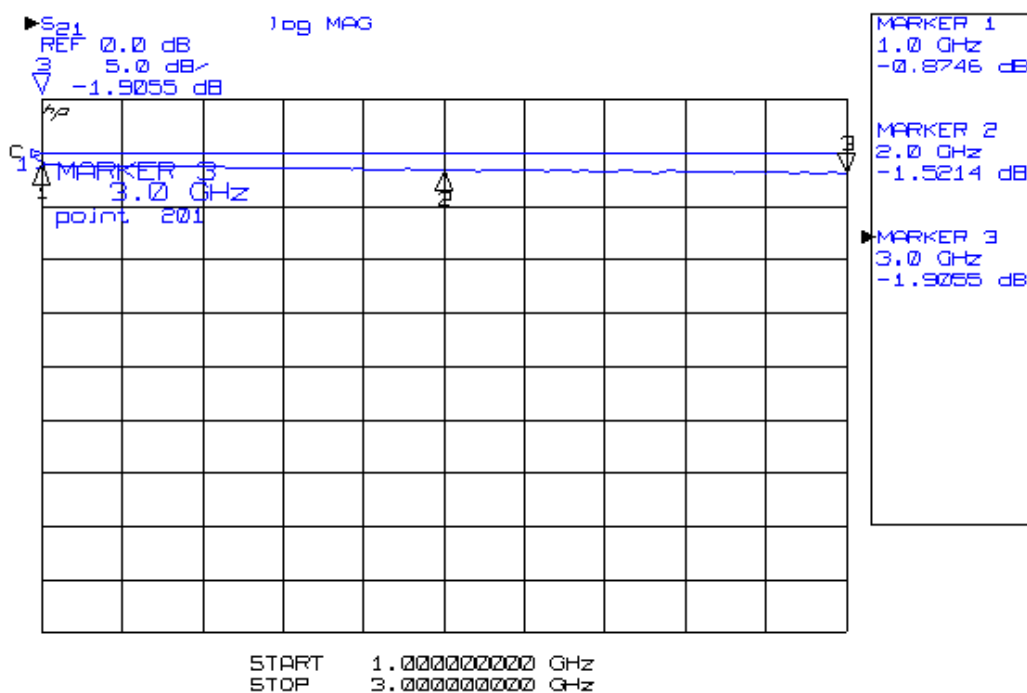
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Return Loss of 10m, LL60 Cable Set with N(M) on both sides



Insertion Loss of 10m, LL60 Cable Set with N(M) on both sides



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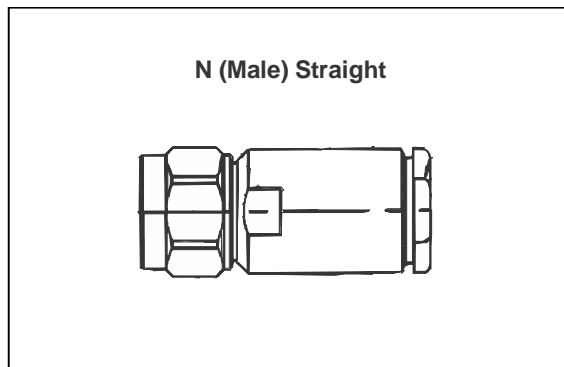
Ordering Codes Description

LL60 - (Length) (Connector 1) (Connector 2)
 □ □ - (□/ □) □ - (□/ □) □ - □
L L 1 2 3 1 2 3 U

| | | |
|-----------|--------------------------|---------------------------------|
| LL | Length | 0.5 = 0.5 ; 1 = 1.0 ; 2 = 2.0 |
| 1 | Connector Series | N = N |
| 2 | Male/Female Designator | M = Male |
| 3 | Orientation of Connector | ST = Straight |
| U | Unit of Length | M = Meter ; F = Feet ; I = Inch |

10 meter LL60 cable set with N(Male) on both sides = LL60-10-N(M/ST)-N(M/ST)-M

Connectors for LL60 Series Cable Sets



Cable Set Ordering Codes

| Length | Conn 1 | Conn 2 | Ordering Code | Insertion Loss (dB) Typical | | | | | |
|--|--------|--------|-----------------------------|-----------------------------|-------|-------|-------|-------|-------|
| | | | | 500 MHZ | 1 GHZ | 2 GHZ | 3 GHZ | 4 GHZ | 5 GHZ |
| N (Male) Straight - N (Male) Straight (DC to 6 GHz) | | | | | | | | | |
| 1m | N(M) | N(M) | LL60-0.5-N(M/ST)-N(M/ST)-M | 0.17 | 0.24 | 0.33 | 0.41 | 0.48 | 0.54 |
| 2m | N(M) | N(M) | LL60-1.0-N(M/ST)-N(M/ST)-M | 0.23 | 0.32 | 0.46 | 0.57 | 0.67 | 0.75 |
| 3m | N(M) | N(M) | LL60-2.0-N(M/ST)-N(M/ST)-M | 0.29 | 0.41 | 0.59 | 0.74 | 0.86 | 0.98 |
| 5m | N(M) | N(M) | LL60-5.0-N(M/ST)-N(M/ST)-M | 0.41 | 0.59 | 0.84 | 1.06 | 1.24 | 1.41 |
| 10m | N(M) | N(M) | LL60-10.0-N(M/ST)-N(M/ST)-M | 0.71 | 1.11 | 1.48 | 1.86 | 2.19 | 2.49 |
| 30m | N(M) | N(M) | LL60-30.0-N(M/ST)-N(M/ST)-M | 1.90 | 2.76 | 4.02 | 5.08 | 5.99 | 6.83 |
| 50m | N(M) | N(M) | LL60-50.0-N(M/ST)-N(M/ST)-M | 3.09 | 4.49 | 6.56 | 8.30 | 9.8 | 11.17 |

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Specifications for Flexible Low Loss Cable Assemblies for Outdoor use

Length Connector 1 Connector 2

- Should be flexible and bendable, easily routable & non-kink type
- Cable should conform to MIL-C-17, Connectors to MIL-PRF-39012

Cable Electrical Specifications

- Frequency of Usage : DC~6 GHz
- Shielding Effectiveness : 90 dB or better
- Velocity of Propagation : $\geq 86 \%$
- Impedance : 50 ohms
- Capacitance : 76.7 pF/m
- Power (Average) : > 500 W @ 2 GHz
- Loss : < 0.14 dB/meter @ 2 GHz
- VSWR : < 1.3 (DC~6 GHz) for straight connectors

Cable Construction

- Outer Diameter : ≤ 15.5 mm
- Centre conductor : Solid BCCAI
- Dielectric : Low Loss Polyethylene
- Outer conductor : Aluminium Tape
- Overall braid : Tinned Copper
- Jacket : Black Polyethylene
- Strain Relief : Reliable strain relief at the cable to connector joint should be provided. A double strain relief with progressive stress distribution is preferred

Cable Mechanical and Environmental Specifications

- Weight : < 0.22 (kg/meter)
- Bend Radius : < 80 mm
- Working Temperature : $-50^{\circ}\text{C} \sim + 85^{\circ}\text{C}$

Connectors Specifications

- Attachment Method : Inner Solder, Outer Crimp/Clamp
- Frequency Range : DC~6 GHz
- Material : Brass with Nickel alloy plating