Low Loss Pre-Connectorized Cable Sets, LL58 Series, DC-3.5GHz

Lower Loss Replacement for RG58/223/400

SONA Technologies
reliable performance, dependable service

Replace traditional 'RG' types for benefit of:

- **lower loss**
- **better shielding > - 90dB**

Drop in replacement for:

- **RG58** • **RG223**

LL58 series cable sets are designed as superior alternative to RG58, RG223 types. Usable upto 3.5 GHz with a wide choice of connectors like SMA, N, BNC, TNC and in various styles like straight, right angle and panel mounts.

- **Superior replacement for RG58, RG223,** LL58 cable sets are drop-in replacement for RG58, RG223 with similar mechanical sizes.
- **RF Shielding** is 90 dB. This is 30dB higher than 60dB (typical) for single shielded RG types.
- **Low Loss :** Loss is 30% less than comparable size RG cables.
- **Flexibility:** LL58 types are highly flexible and can be routed easily. They have the tighest bend radius available for any cable of similar size and performance.

APPLICATIONS

- Superior replacement of conventional RG58, RG223 types
- Satcom, IF, Military Jamming and Military Communications

Electrical Specifications

Impedance	50 Ω
Frequency Range	DC ~ 3.5 GHz
Velocity of Propagation	83 %
Capacitance	83.3 pF/m
Shielding Effectiveness	> 90 dB
Working Voltage	1 kV (DC)
Operating Temperature	-40°C to +85°C

Mechanical Specifications

Inner Conductor	Copper
Dielectric	PE, Foamed
Outer Conductor	Aluminium Tape
Braid	Cooper, Tinned
Jacket	Black PE, 5mm dia.
Bend Radius: installation	12.7mm
Bend Radius: multiple	50mm
Weight	0.03 kg/m

Attenuation & Power Handling Data

Frequency (GHz)	**0.10**	**0.20**	**0.40**	**0.9**	**1.5**	**2**	**3**
Attenuation (dB/m)	0.12	0.17	0.25	0.37	0.49	0.57	0.70
Average Power (W)	480	337	236	156	120	104	84

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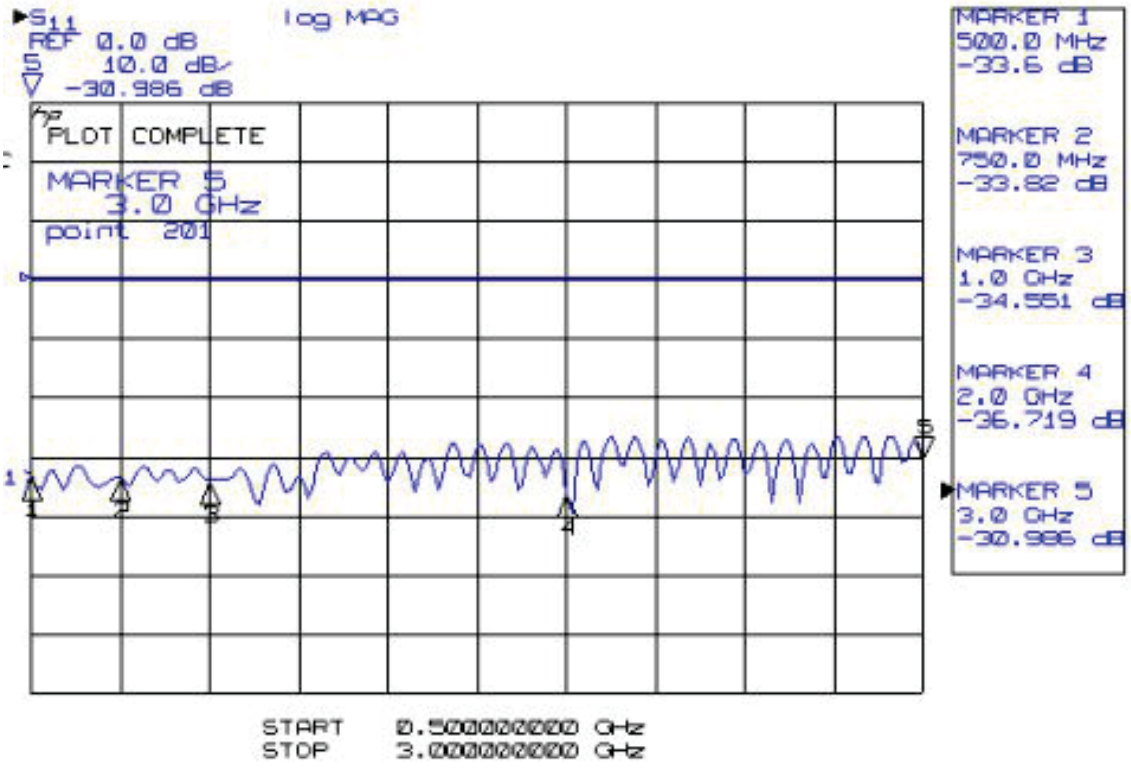
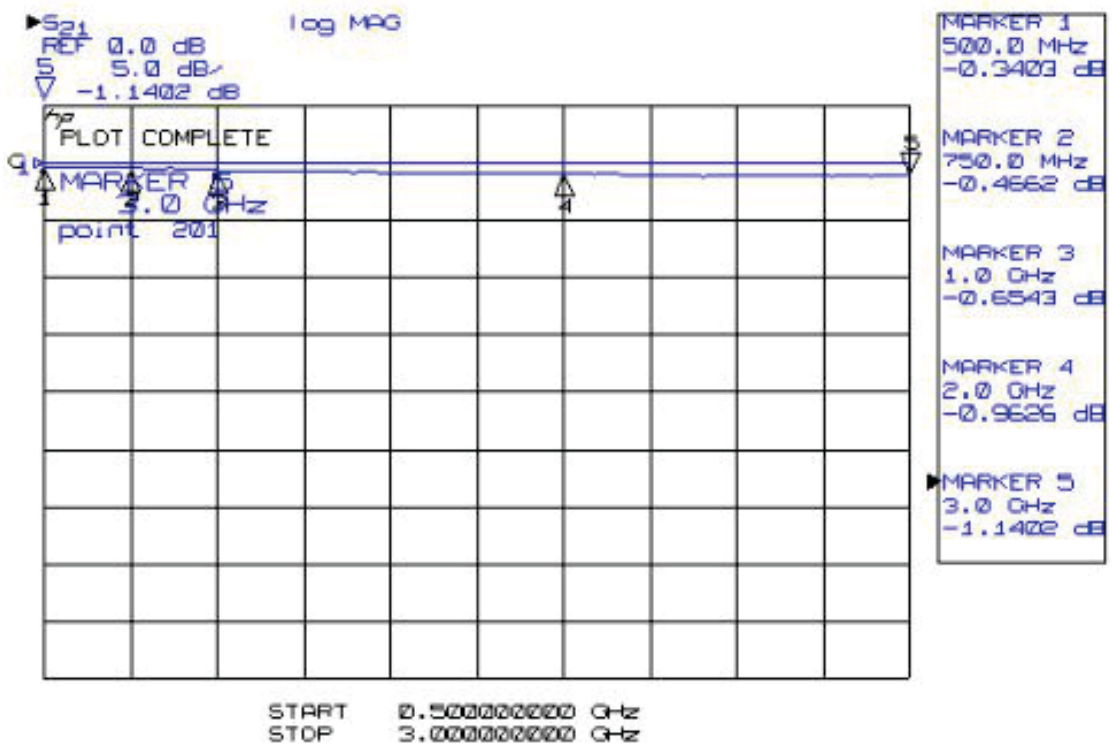
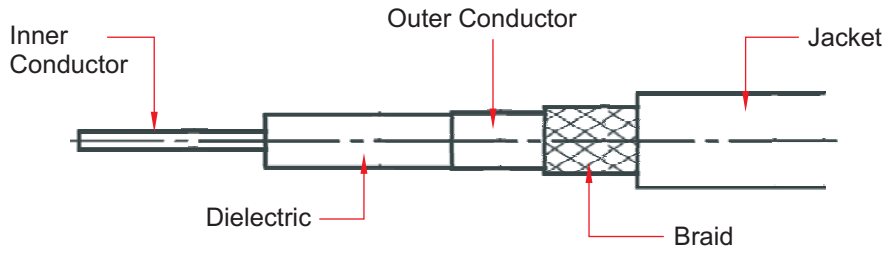
Return Loss of 1.5m. LL58 Cable Set with N(M) on both sides



Insertion Loss of 1.5m, LL58 Cable Set with N(M) on both sides



CABLE CONSTRUCTION



Connectors Specifications

Specifications	SMA Connectors	N Connectors	TNC Connectors
Outer Conductor	Brass, Gold Plated	Brass, Nickel alloy plated	Brass, Nickel alloy plated
Center Conductor	Brass, Gold Plated	Brass, Gold Plated	Brass, Gold Plated
Insulation	PTFE	PTFE	PTFE
Gasket	Silicone Rubber	Silicone Rubber	Silicone Rubber
Nominal Impedance	50 Ω	50 Ω	50 Ω
Frequency range	DC~6 GHz	DC~6 GHz	DC~6 GHz
Mating/Unmating	500 operations	500 operations	500 operations

Ordering Codes Description

	(Length)		(Connector 1)		(Connector 2)	
LL58 -	□ □	-	□ (□ / □)	-	□ (□ / □) -	□
	L L		1 2 3		1 2 3	U

L L	Length	0.5 = 0.5 ; 1 = 1.0 ; 2 = 2.0
1	Connector Series	SMA = SMA ; N = N ; BNC = BNC; TNC = TNC
2	Male/Female Designator	M = Male ; F = Female
3	Orientation of Connector	ST = Straight ; RA = Right Angle
U	Unit of Length	M = Meter ; F = Feet ; I = Inch

1 meter cable set with SMA (Male) on both sides = LL58-1.0-SMA(M/ST)-SMA(M/ST)-M

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Cable Set Ordering Codes

Ordering Code	Length	Insertion Loss (dB) Typical			
		400 GHz	1 GHz	1.5 GHz	3 GHz
SMA (Male) Straight - SMA (Male) Straight					
LL58-0.5-SMA(M/ST)-SMA(M/ST)-M	0.5m	0.19	0.29	0.36	0.50
LL58-1.0-SMA(M/ST)-SMA(M/ST)-M	1m	0.32	0.48	0.60	0.81
LL58-2.0-SMA(M/ST)-SMA(M/ST)-M	2m	0.55	0.85	1.08	1.47
LL58-5.0-SMA(M/ST)-SMA(M/ST)-M	5m	1.24	1.95	2.51	3.43
LL58-1.0-SMA(M/ST)-SMA(M/ST)-F	1 feet	0.16	0.21	0.27	0.35
LL58-2.0-SMA(M/ST)-SMA(M/ST)-F	2 feet	0.22	0.33	0.41	0.55
N (Male) Straight - N (Male) Straight					
LL58-0.5-N(M/ST)-N(M/ST)-M	0.5m	0.25	0.31	0.38	0.50
LL58-1.0-N(M/ST)-N(M/ST)-M	1m	0.34	0.50	0.62	0.83
LL58-2.0-N(M/ST)-N(M/ST)-M	2m	0.57	0.87	1.10	1.49
LL58-5.0-N(M/ST)-N(M/ST)-M	5m	1.26	1.97	2.53	3.45
LL58-1.0-N(M/ST)-N(M/ST)-F	1 feet	0.18	0.23	0.29	0.37
LL58-2.0-N(M/ST)-N(M/ST)-F	2 feet	0.24	0.35	0.43	0.57
TNC (Male) Straight - TNC (Male) Straight					
LL58-0.5-TNC(M/ST)-TNC(M/ST)-M	0.5m	0.22	0.32	0.39	0.51
LL58-1.0-TNC(M/ST)-TNC(M/ST)-M	1m	0.34	0.51	0.63	0.84
LL58-2.0-TNC(M/ST)-TNC(M/ST)-M	2m	0.58	0.88	1.11	1.50
LL58-5.0-TNC(M/ST)-TNC(M/ST)-M	5m	1.27	1.98	2.54	3.46
LL58-1.0-TNC(M/ST)-TNC(M/ST)-F	1 feet	0.19	0.24	0.30	0.38
LL58-2.0-TNC(M/ST)-TNC(M/ST)-F	2 feet	0.25	0.36	0.43	0.58
BNC (Male) Straight - BNC (Male) Straight					
LL58-0.5-BNC(M/ST)-BNC(M/ST)-M	0.5m	0.23	0.33	0.40	0.52
LL58-1.0-BNC(M/ST)-BNC(M/ST)-M	1m	0.36	0.52	0.64	0.85
LL58-2.0-BNC(M/ST)-BNC(M/ST)-M	2m	0.59	0.89	1.12	1.51
LL58-5.0-BNC(M/ST)-BNC(M/ST)-M	5m	1.28	1.99	2.55	3.47
LL58-1.0-BNC(M/ST)-BNC(M/ST)-F	1 feet	0.20	0.25	0.31	0.39
LL58-2.0-BNC(M/ST)-BNC(M/ST)-F	2 feet	0.26	0.37	0.45	0.59
SMA (Male) Straight - SMA (Male) Right Angle					
LL58-0.5-SMA(M/ST)-SMA(M/RA)-M	0.5m	0.25	0.35	0.42	0.54
LL58-1.0-SMA(M/ST)-SMA(M/RA)-M	1m	0.38	0.54	0.66	0.87
LL58-2.0-SMA(M/ST)-SMA(M/RA)-M	2m	0.61	0.91	1.14	1.53
LL58-5.0-SMA(M/ST)-SMA(M/RA)-M	5m	1.30	2.01	2.57	3.49
LL58-1.0-SMA(M/ST)-SMA(M/RA)-F	1 feet	0.22	0.27	0.33	0.41
LL58-2.0-SMA(M/ST)-SMA(M/RA)-F	2 feet	0.28	0.39	0.47	0.61

Specifications for Flexible Low Loss Cable Assemblies

Length Connector 1 Connector 2

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

Cable Electrical Specifications

• Frequency of Usage	:	DC~ 3.5 GHz
• Shielding Effectiveness	:	90 dB or better
• Velocity of Propagation	:	> 80 %
• Impedance	:	50 ohms
• Capacitance	:	83.3 pF /m
• Power (Average)	:	> 140 Watt @ 1 GHz > 100 Watt @ 2 GHz > 80 Watt @ 3 GHz
• Loss	:	< 0.42 dB/meter @ 1 GHz < 0.60 dB/meter @ 2 GHz < 0.75 dB/meter @ 3 GHz
• VSWR	:	< 1.35 (DC~3.5 GHz) for straight connectors

Cable Construction

• Centre conductor	:	Solid Copper
• Dielectric	:	Foamed Polyethelene
• Outer conductor	:	Aluminium Tape
• Overall braid	:	Tinned Cooper
• Jacket	:	Black PE
• 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

• Outer Diameter	:	< 5.1 mm
• Bending Radius (static)	:	< 13 mm
• Bending Radius (repeated)	:	< 51 mm
• Working Temperature	:	-40°C to + 85 °C

Connectors Specifications

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