

# FMHR0147 DATA SHEET

## **Temperature Conditioned Low Loss SMA Female Bulkhead to TNC Female Bulkhead Cable LL142 Coax**

Temperature conditioned low loss SMA Female Bulkhead to TNC Female Bulkhead cable assemblies with RF test reports from Fairview Microwave are part of our full line of reliable RF components available to ship same day. These COTS (commercial-off-the-shelf) cable assemblies using LL142 triple shielded coax with expanded PTFE dielectric have traceable processes and materials that are recorded and provided in the included test report. The temperature pre-conditioned coaxial cable and captivated stainless steel RF connectors are assembled with J-STD-001 soldering processes and meet WHMA-A-620 workmanship criteria. The carefully selected materials, temperature conditioning, assembly processes and test sequence ensure a dependable cable assembly for high-reliability applications with wide temperature excursions and where the cost of failure is high. Each serialized SMA to TNC low loss cable assembly is traceable to its component lots and test data ships with every cable.

The data sheet for this low loss temperature tolerant hi-rel cable assembly using LL142 expanded PTFE cable includes specifications, CAD drawing and dimensions that are shown below. Fairview Microwave offers these high-reliability RF cable assemblies with test data and many other RF, microwave and millimeter wave components which allow designers to configure and customize their signal systems however they like. Whether the need is to provide reliable interconnects over wide temperature extremes or have supporting test reports, Fairview Microwave has the right cable assemblies for the job. Fairview can also expertly build your custom RF cable assemblies for you and ship same day.

## **Referenced Specifications**

IPC/WHMA-A-620	Requirements and Acceptance for Cable and Wire
MIL-STD-348	Harness Assemblies Radio Frequency Connector Interfaces for MIL-
	DTL-3643, MIL-DTL-3650, MIL-DTL-3655, MIL- DTL-25516, MIL-PRF-31031, MIL-PRF-39012, MIL-PRF-49142, MIL-PRF
IPC J-STD-001	Requirements for Soldered Electrical and Electronic Assemblies
IPC J-STD-006	Requirements for Electronic Grade Solder Alloys and Fluxed and Non-Fluxed Solid Solders for Electronic Soldering Applications
SAE AS5942	Marking of Electrical Insulating Materials
SAE AS23053	Insulation Sleeving, Electrical, Heat Shrinkable, General Specifications For

## **Material Specifications**

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Component	Specification
Cable	LL142 per LL142 datasheet
Connector 1	FMCN1525 per MIL-STD-348
Connector 2	FMCN1077 per MIL-STD-348
Heat Shrink 1	SUMITUBE W3B2(4X) 12/3 per SAE AS23053 as applicable
Heat Shrink 2	SUMITUBE W3B2(4X) 12/3 per SAE AS23053 as applicable
Heat Shrink 3	M23053/4-303-0 per SAE AS23053
Heat Shrink 4	M23053/4-303-0 per SAE AS23053
Solder	SN63 per J-STD-006



## **Configuration:**

- Connector 1: FMCN1525 (SMA Female Bulkhead)
- Connector 2: FMCN1077 (TNC Female Bulkhead)
- Cable: LL142

## **Features:**

- Max Frequency 18 GHz
- 80% Phase Velocity
- Triple Shielded
- FEP Jacket
- Temperature Pre-Conditioned Cable
- J-STD Soldering
- Lot Traceability
- Captivated Stainless Steel Connectors
- Expanded PTFE dielectric
- Serialized Test Data & Report
- In-stock and ships same day

## **Applications:**

- General Purpose
- Laboratory Use
- Extreme Temperatures
- Hi-Reliability
- Unmanned Systems
- COTS Solutions
- Avionics
- Electronic Countermeasures(ECM)

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## **Electrical Specifications**

Description	Min	Тур	Мах	Units
Frequency Range	DC		18	GHz
VSWR			1.4:1	
Velocity of Propagation		80		%
Capacitance		25 [82.02	]	pF/ft [pF/m]
Dielectric Withstanding Voltage (AC)			1,000	Vrms

## Specifications by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency	1	2	4.5	9	18	GHz
Insertion Loss (Max.)	0.082	0.118	<mark>0.</mark> 172	0.257	0.376	dB/ft
	0.27	0.39	<mark>0</mark> .56	0.84	1.23	dB/m

Electrical Specification Notes:

Insertion Loss does not include the loss of the connectors. Insertion Loss is estimated as 0.1 dB for the SMA Female Bulkhead connector and 0.06\*SQRT(FGHz) dB for the TNC Female Bulkhead connector.

## **Mechanical Specifications**

#### **Cable Assembly**

Description	Min	Тур	Max	Units
Cable Outer Diameter	ter Diameter 0.19 0.195 0.2		0.2	in
Weight			0.13 [58.97]	lbs [g]

## **Cable Characteristics**

Component	Specification			
Cable Type	LL142			
Impedance	50 Ohms			
Inner Conductor Type	Solid			
Inner Conductor Mat. & Plat.	Copper, Silver			
Dielectric Type	Expanded PTFE Tape			
Number of Shields	3			
Shield Layer 1	Silver Plated Copper Tape			
Shield Layer 2	Aluminum Polyester			
Shield Layer 3	Silver Plated Copper Wire			
Jacket Material	FEP			

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### **Connector Characteristics**

Description	Connector 1	Connector 2		
Туре	SMA Female Bulkhead	TNC Female Bulkhead		
Specification	MIL-STD-348	MIL-STD-348		
Impedance	50 Ohms	50 Ohms		
Contact Mat. & Plat.	Beryllium Copper, Gold over Nickel	Beryllium Copper, Gold over Nickel		
Contact Plating Spec.	50 µin minimum	50 µin minimum		
Dielectric Type	PTFE	PTFE		
Outer Conductor Mat. & Plat.	Passivated Stainless Steel	Passivated Stainless Steel		
Outer Conductor Plating Spec.	SAE-AMS-2700	SAE-AMS-2700		
Body Mat. & Plat.	Passivated Stainless Steel	Passivated Stainless Steel		
Body Plating Spec.	SAE-AMS-2700	SAE-AMS-2700		
Contact Gage Spec.	0.000 to 0.010 in	0.187 in min		
Insulator Gage Spec.	0.000 in min	0.188 to 0.208 in		

## **Environmental Specifications**

Description		Sp	ecification	
Temperature Operating Rar	ige -	-55 t	o +125 deg C	

## **Compliance Certifications** (see product page for current document)

## **Process Specifications**

Process	Specification
Cable Preconditioning	5 cycles, -55 °C to +125°C, 20 minute dwells
Soldering	in accordance with J-STD-001, class 3
Marking	sh <mark>all meet the adherenc</mark> e requirements of SAE AS5942
Workmanship	sh <mark>all be in accordance w</mark> ith IPC/WHMA-A-620, class 3

## **Tests and Inspections**

Sampling
100%
100%
100%
100%
100%
C=0, 1.5 AQL
C=0, 1.5 AQL

### **Plotted and Other Data**

Notes:

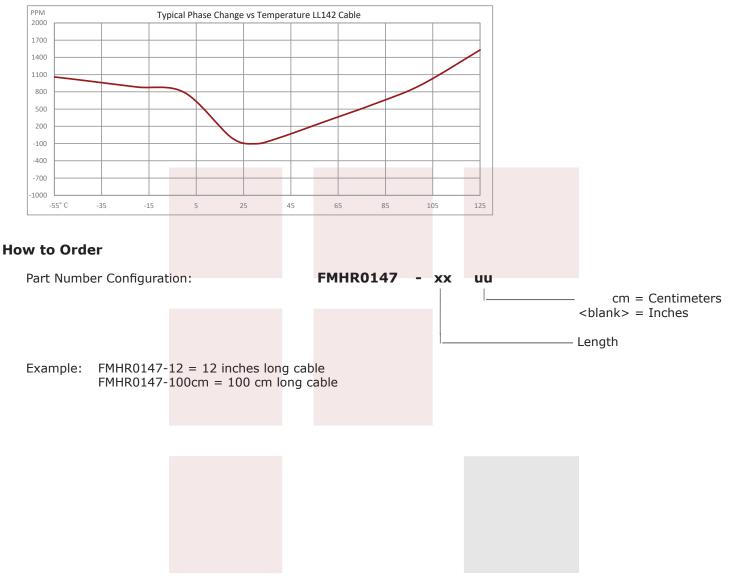
• Values at 25°C, sea level.

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## **Typical Performance Data**



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Cable Assembly Length Tolerances:

Imperial English		Me	tric
"L" ≤ 1 ft	+0.5 in / -0 in	"L" ≤ 0.3 m	+12.5 mm / -0 mm
1 ft < "L" ≤ 5 ft	+1 in / -0 in	0.3 m < "L" ≤ 1.5 m	+25 mm / -0 mm
5 ft < "L" ≤ 10 ft	+2 in / -0 in	1.5 m < "L" ≤ 3 m	+50 mm / -0 mm
10 ft < "L" ≤ 25 ft	+3 in / -0 in	3 m < "L" ≤ 7.5 m	+75 mm / -0 mm
25 ft < "L"	+2%"L" / -0%"L"	7.5 m < "L"	+2%"L" / -0%"L"

\* Cable Length = "L"

Temperature Conditioned Low Loss SMA Female Bulkhead to TNC Female Bulkhead Cable LL142 Coax from Fairview Microwave has same day shipment for domestic and International orders. Our RF, microwave and fiber optic products maintain a 99% availability and are part of the broadest selection in the industry.

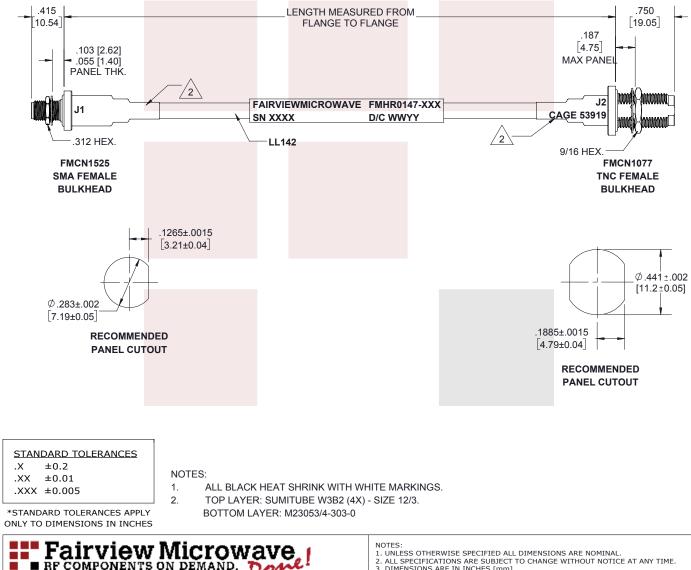
Click the following link to obtain additional part information: Temperature Conditioned Low Loss SMA Female Bulkhead to TNC Female Bulkhead Cable LL142 Coax FMHR0147

URL: https://www.fairviewmicrowave.com/temperature-conditioned-sma-female-tnc-female-cable-ll142-coax-fmhr0147-p. aspx

The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Fairview Microwave reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Fairview Microwave does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Fairview Microwave does not assume any liability arising out of the use of any part or documentation.







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TITLE Temperature Conditioned Low Loss SMA Female Bulkhead to TNC Female Bulkhead Cable LL142 Coax	DWG NO FMHR0147			CAGE CODE 3FKR5		
	CAD FILE 02/15/19	SHEET 1 OF 1	SCALE	E N/A	SIZE A	CN2379