

With constant requests from aircraft manufacturers for the need for weight savings, PIC Wire & Cable® has introduced a totally new line of RF Coaxial cables to solve this problem. The new Ultralite cables are here!

## Leading Innovation

PIC Wire & Cable has yet another innovative cable solution that is both lightweight and low loss. Our new Ultralite cables consist of the UH67163, UH22089, and UH44193. The Ultralites are an expansion to our lightweight 50 ohm RF coaxial cable family – RFMATES®.

## Impressive Weight Savings

Compare the weight savings on a single system installation and you'll find that it is quite significant, which directly affects fuel consumption. Let these savings speak for themselves:

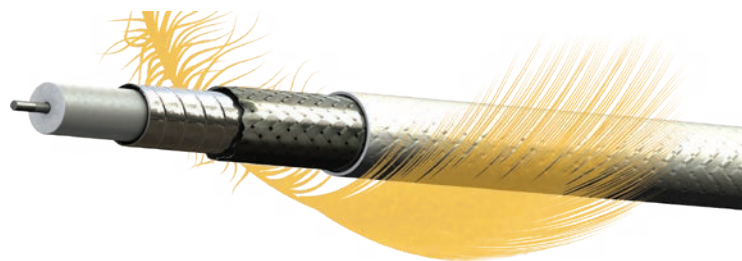
- PIC UH67163 is 80% lighter than RG393
- PIC UH22089 is 60% lighter than S22089
- PIC UH44193 is 56% lighter than RG142

## Testing Completed

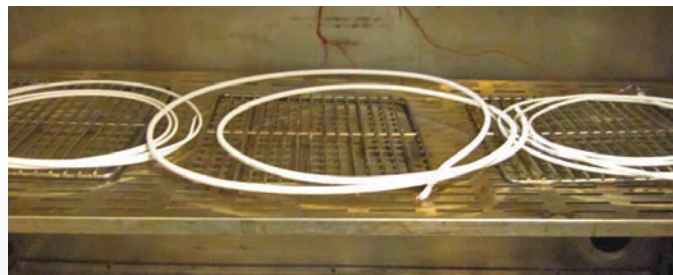
Each Ultralite cable and its corresponding connectors went through rigorous EWIS testing and all passed. Our EWIS testing includes: Vibration, Shock, Thermal Shock, Aging Stability, Flammability, Smoke & Toxicity testing per Airbus ABD0031 and many more to ensure the cables and connectors are robust enough for their rugged aerospace and defense use. A complete list of the tests performed is available along with a full qualification test report (QTR) if requested. There was also a concentrated load testing per MIL-T-81490. This determined that the Ultralites have better compressive resistance compared to similar sized cables.

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The Ultralites are Skydrol resistant, RoHS compliant, and meet the FAA flammability requirements 14 CFR Part 25.869 (a)(4) Amdt 25-113 Appendix Part 1 (a)(3); complies with MIL-C-17 as applicable.



Coaxial Cable	Conductor	Loss @ 1.0 GHz dB/100 ft	Weight (lbs/100 ft)
UH67163	14 AWG Solid SPCCA	6.2	3.4
UH22089	10 AWG Solid SPCCA	3.5	7.2
UH44193	19 AWG Solid SPCCS	10.4	1.9
RG142	19 AWG Solid SPCCS	13.4	4.3
RG393	12 AWG Stranded SPC	7.7	17.5



### Aging Stability Test

**Procedure:** The cables were placed on a rack in the temperature chamber and the temperature was set to 150 C. After 7 days, the cables were removed from the chamber and allowed to condition at room ambient temperature for 4 hours. The cables were then examined for cracks, flaws, or other examples in the jacket material, and marking were examined for legibility.

**Results:** The samples meet the specification requirement after the test. No degradation was observed.

**WE WANT TO MAKE YOUR JOB EASIER AND WE BELIEVE THAT BEGINS WITH DESIGNING EACH OF OUR PRODUCTS WITH OUR CUSTOMERS IN MIND. PIC'S NEXT GENERATION ULTRALITES ARE NO EXCEPTION.**

## Conductor

These new cables use a Silver Plated Copper Clad Aluminum (SPCCA) conductor for the UH67163 & UH22089 cables for the ultimate weight savings. SPCCA conductors are 69% lighter compared to copper conductors of the same gauge. Based on its size, we use a Silver Plated Copper Clad Steel for the UH44193 cable. Steel conductors are 11% lighter compared to copper conductors of the same gauge. The Ultralites can clearly save weight.

Is the SPCCA conductor robust enough for demanding aerospace and defense applications? Absolutely! We have done full qualification testing of the new Ultralite cables and their corresponding connectors. Please reference the Testing Completed section to understand the thorough testing that was completed to ensure these cables' robustness.

## Dielectric

The cables use either an expanded extruded PTFE dielectric or tape wrapped PTFE dielectric which allows for a variety of benefits. The Ultralites' dielectrics have a higher Velocity of Propagation (VoP) while still maintaining a strong composition. The high VoP lowers the insertion (dB) loss of the cable and also saves weight. This dielectric also increases flexibility.

## Inner Shield

All of the newly designed cables use a Silver Plated Copper spiral (helically) wrapped shield. With this design, the -110 dB shielding effectiveness achieved is actually the same as a semi-rigid coaxial cable (solid copper tube) such as RG405. This is quite impressive compared to the standard -75 dB for a dual braided shield such as RG cables and the -90 dB for a cable with a foil and an outer braid shield. Overall, the Ultralite spiral wrapped shield provides 100% coverage compared to flat braided shields. This shielding design not only helps the shielding effectiveness of the cable but lowers the dB loss of the cable for an ultra low loss solution.

**There are many opportunities for this innovative cable to be used in either aerospace or defense applications. Speak to your PIC representative today and find out how you can use Ultralites on your next project.**

## Outer Braid

The outer braid of all of the new Ultralite cables is Silver Plated Copper Clad Aluminum. All cable braids have been tested and passed the connector retention test of MIL-PRF-39012. Not only is this braid type robust, it is a specific design decision that provides a best-in-class lightweight solution.

## Outer Jacket

The outer jacket of the cables is made of high temperature, white ETFE. This means the Ultralites can be used and stored in high temperature environments, they are chemical resistant, abrasion resistant, and of course meets the FAA flammability requirements 14 CFR Part 25.869 (a)(4) Amdt 25-113 Appendix F Part 1 (a)(3). Each Ultralite is also laser-markable, so no more labeling required!

## Connectors

The Ultralites also come with a full line of M39012 style RF connectors available, guaranteeing the perfect fit for robust interconnect solutions. PIC has many innovative connectors that improve termination, installation, maintenance, and reliability. To ensure proper field installation and termination, crimp die sets are available for the connectors. In addition, please note that our Ultralite connectors were also designed for weight savings.

## Cable Assemblies

PIC also offers complete certified cable assemblies for many applications including avionics systems, video and high speed data built to your requirements.



*For over 45 years, PIC Wire & Cable has been committed to providing exceptional Quality, Technology, and Service. Our knowledgeable Customer Service and Sales team work diligently to help our customers determine the necessary products for their applications and receive them in a timely manner. PIC strives to make our customers' jobs easier and provide superior solutions for their needs.*