TRS-RenTelco / Viavi Hollow Core Fiber Webinar - Thursday, October 16, 2025

Questions not answered during live webinar:

	Question	Answer
36	When performing OTDR testing. If I am testing from a SM Connection from my OTDR, are the traces catching each core within the HCF? Does each core within the HCF have individual loss?	There is only one core in the HCF. In the OTDR trace, you will see the difference from SMF to HCF, you will have a drop of 14 to 20dB in RBS level.
38	There is a degassing process before capping the fibers with the regular one? Like heating it on an oven to purge the air out and then splice, creating a little vacuum inside?	Regarding the splicing process, I have not been involved in the MoP.
39	What's the recommended spacing between two spliced joints that won't significantly impact on signal quality in Hollow Core Fiber Technology?	As far as I know, there is no impact on the transmit or receive signal. The minimum distance depends on the network design. On the testing side, if you have to use a higher dynamic range PW because the OTDR is not optimized at high dynamic range at short pulse, then you may have some splices that will be merged.
41	What wavelengths are affected by the gas ingress?	For example water vapor, CO_2 at 1550nm will have an impact.
42	How is HCF useful in DFOS/DAS/DTS applications?	So far, we have not seen significant advantages for sensing. It may change overtime but this is our view today.
43	Are technicians experiencing contamination issues when splicing in the OSP environment?	According to what I have seen, you need to take special care.
44	Can you talk about the use of Viavi distributed optical fiber sensing technology that will prevent damage to these hollow core data center interconnects? I represent the fiber optic sensing association (fiberopticsensing.org) in cases anyone is interested. Viavi is an active member.	Please contact Russell Taws directly - russell.taws@viavisolutions.com.
45	What are the longest lengths of HCF that have been deployed in the field? When will the manufacturing improve to the point that lengths comparable to traditional fiber can be produced such that it's viable for long-haul use?	The longest I have tested was in a lab and it was 40km. In the field, fibers of 2 km spliced together for 20km.
46	Can you comment if manufacturers create a vacuum inside the tubes during preform manufacturing? Or, are they using special treatment with certain gases?	They keep their secrets, they have not shared this information with me.
47	It seems that the HCF with 15 microns diameter core size has perfect microbend attenuation performance.	It is hard to comment, I have not seen it.
48	Are people working on native connectors for HCF, so the conversion to SMF at both ends of the link would no longer be required?	Yes, there is work in this field; but you also need native HCF on the systems.
49	Does HCF open up new Wavelength-Windows for DWDM-Applications? Maybe in Future?	Yes, it could; but it is too soon to be sure of what the wavelengths will be.

50	Does the splicing trailer require HEPA filtration, Electrostatic Precipitator, Dehumidifier, etc.?	This is a question for the fiber manufacturer.
51	What are the major impacts that contamination could lead to? Are we speaking about losses seen in the OTDR reports and/or loss of functioning fibers in certain configurations?	More loss on the fiber.
52	How would a testing tech evaluate the first splice out from an OTDR when shooting out at a 45-50dB?	Right now for 45 to 50dB DR, it is with a 20us PW; the Dead zone is too long. This is why you need a short PW with high dynamic range.
53	Who makes the fusion splicer currently? Is there a video or White Paper addressing the fusion splicing process?	There are some manufacturers. FITEL is one of them.
54	How does hollow core fiber compare to normal fiber in heat or extremely hot areas in terms of expansion of gases or air within in the core ?	From what I have read, the HCF as some mechanical characteristics that are better than solid core. If you have a specific application, the best is to contact a manufacturer.
55	Are the curvature challenges associated with HCF vs. SMF solvable or is that inherent to the product? Ultimately trying to understand if it means that users may not be able to pull HCF though existing conduits laid with SMF, keeping in mind whether the curvatures are too tight.	If the curvature is more than the HCF limit, it is a challenge.
56	What are the thermal and mechanical limits of HCFs under extreme environmental conditions (space, subsea, etc.)?	This is specific to the manufacturers.
57	What is the air core size?	Depending on the manufacturer, between 14 to 30.
58	What are the strand counts for OSP cabling currently being deployed?	The most I have seen is 10 per cable, but it could be more.
59	Is the HCF thermal-stripped prior to cleaving?	Not on anything I have seen.
60	Will Transceivers (SFP‘s QSFPs….) change to take an advantage to couple the Laser to the HCF?	In the future, yes.
61	Why is there a significant difference in the AB and BA direction loss curves when measuring the loss of HCF using OTDR? Is it a problem of structure consistency of the optical fiber itself?	Yes, there is a variation due to the manufacturing process.
62	What is the alignment tool to line up the cores?	It is in the splicer itself, and it is very sophisticated.
63	Will the recording of this session be available?	Yes. If you registered for the webinar, you will receive a link.

64	Is the core just a hollow core? Is there any reflectance surface, other than the cladding?	Just hollow core.
65	Is there any study about HFC for MM fiber?	MM is a mode that you excite in the solid core, therefore hollow core so far, is one mode.
66	How does the DFB Laser line up with the hollow cores and the different traffic compositions?	Please contact system manufacturer. As of now they are using an adaptor from SMF to HCF and the transmission is direct.
67	How may channels can a single hollow core fiber carry?	Good question - dozens to hundreds of channels.
68	Is an end-to-end Hollow Core solution possible today? Or, is an adapter inevitable with today's network equipment technology?	Today you need the adaptor, but in the near future, maybe not.
69	Will any standard field test or splicing equipment require modification or special adapters to work with hollow-core fiber? Are there any field conditions that might cause unexpected issues compared to conventional SMF?	At the moment, I am more on the testing, rather than the splicing. Please contact a splicer manufacturer.
70	Any special cleaver for cleaving of HFC?	Not that I am aware of, but a manufacturer may have a different answer.
71 & 72	Considering all current constraints, won't MCF be more competitive compared to HCF? At least in the short to medium term?	With MCF, you still have the limitations of the solid core.
73	I read online, the Rayleigh backscattering is being improved in HCF. You showed 14dB lower Rayleigh backscattering than SMF in your example, what's the lowest you've seen so far?	The lowest I have seen is 14.
74	For your information, current large diameter ST-HCF cladding diameter 235um and Coating diameter is 370m. But it could vary with suppliers, as Mario mentioned.	Thank you for your comment Jason.
75	Is there a big difference in loss when splicing different manufactured fibers together (dissimilar fibers)?	Good question. So far I have only worked on fiber from the same manufacturer. I have not seen any mix.
76	Will polarization rotate in hollow core fiber?	Not that I am aware of. It should maintain the polarity state.
77	Can shrinkage of the different layers in the construction occur causing issues with the termination?	I don't have the answer to this question; and I doubt the manufacturer will answer it.
78	Ambient air contains some amount of humidity and contaminants; are all splices and testing currently being done in a laboratory environment? I have heard it is being deployed in Great Britain and Europe.	There is deployment in the field and the splicing is done outside (USA, ASIA, Europe).

79	Do you believe Hollow core will be more influential than multi-core fiber?	Hard to say. But MCF will have the same limitation as single solid core fiber (latency on each core can't be better for example).

Questions answered during live webinar:

1	What happens in the field when a hollow core fiber cable is broken? How do you recover from loss of lower than atmospheric pressure gas?
2	How long are the inner and outer tubes? Are the tubes a component of connectorization?
3	How does humidity in the air environment affect transmission characteristics of hollow core fiber?
4	Will the hyperscale data center spacing for AI technology be driven by hollow core latency capabilities as compared to conventional solid core fiber latency? If so, will the data center interconnects of the future primarily or perhaps exclusively, use hollow core fiber?
5	How does the 60-90km distance for remote data centers compare to the distance requirement for SMF?
6	Does HCF exhibit polarization fading? SMF undergoes random birefringence drift that scrambles polarization state, but with propagation mostly in air/vacuum, microbends should not affect the electric field orientation.
7	Can we have the presentation to download?
8	What is the shortest possible pulse width?
9	Is there an ITU nomenclature for the HCF? I mean G-65X?
10	At the moment, how are the connectors resolved?
11	For the moment, there must be a transition from HCF to SMF to connect, so there will be a connector to put on the HCF directly?
12	Is there any way to test directly HCF without the adapter?
13	Why is the OTDR line of the HCF between splices not straight?
14	I know the answer now. Please ignore my question
15	Where can I get training on Hollow Core Fiber splicing and testing?
16	Slide 28 answered my question
17	There are phase sensitive OTDR's that measure the temperature, strain and vibration along the fiber using Brillouin scattering. Is there any efficient technique to measure these phenomenon in the hollow core fiber?

18	What material is the inner and outer tubes?
19	Can you briefly talk about why there is RBS variation along the fiber length?
20	What is the cladding diameter?
21	I thought I saw the adapters SM to Hollow being angled. Do they still create such high reflections?
22	With more sensitivity to handling, does HCF require special considerations for installation equipment over SMF?
23	Could a current splicing platform do the splicing of HFC?
24	Do you notice a different response in measurement when testing different structured HCF's?
25	What are the anticipated reel lengths?
26	Is the Broadband Source a special one - and could an "old“ one like 81BBS2A be used?
27	Is there any fusion splicing equipment yet for Hollow core fiber?
28	Is the hollow core fiber more sensitive to mechanical and temperature variations/stress?
29	I assume that the hollow core fiber doesn't suffer from any darkening that can occur to glass core in certain environments ?
30	Are the HCF manufacturers working to solve the bend loss sensitivity? Do you know?
31	Is hollow core fiber affected by condensation as temperatures change?
32	Are transmission wavelengths pretty much at 1550nm?
33	Can you do fiber sensing (DAS) with your product on HCF?
34	As far as termination, how exactly is this going to differ and what other or new equipment is needed?
35	What is your point of view where Hollow Core Fiber will be in the Market, in the next 5 years ?