

**Q&A**

**Lumped Element Distributed Filter Products Update, RepTech 2020**

#	Question	Answer
1	when will we add the TNC connector as a catalog model? what about adaptor with TNC?	We have done some TNC's as specials for customers when we put a model into the catalog. There's a lot of work and a lot of upkeep: cycle counting, making sure reviewing if it's selling or not. And the TNC is a good connector, but the uses has been spotty. Back in the early days when I started Mini-Circuits everyone loved TNC and then they went away from it, and really adapted the SMA we see some small military customers coming back to the TNC but we don't see the overall high demand. So we will do it upon request with you guys, but I don't think we'll put them in the catalog.
2	for test cable do we have a plan to offer more flexible cable? Huber Shuner has excellent cable that keeping the band	Yes, we are releasing FL series which is more flexible and now we are expanding to 50GHz. We are also looking at more cable type for catalog, you can contact us if you have any urgent need
3	What is typical lead time for phase matching cables?	It depends what the cable is. But let's say we have the cables in stock. We could take them out and test them and phase match them. Probably in about two weeks, if we have sufficient cables and depending what the spec on. A good spec for Phase Matching is probably plus or minus one degree per GHz.
4	do we have a plan to offer low loss cable?	We shied away from low loss cables, because how do you make a low loss cable? Well, you inject air into the dielectric. But what that does is, it minimizes the reliability of the cable. It's just not as good as a solid dielectric. So we have to really think about that, and if we do it, we have to understand the application. Because we don't want a customer wanting a very high, reliable cable or a standard cable that can handle 20,000 flexes, it won't happen if you have an air dielectric, but you'll get lower loss. So we really have to look at it, understand the application, and then we would move forward. But I don't see it on the product roadmap in the near future.
5	Can you explain who the main competitors are?	Mini-Circuits has a lot of competitors. So it really depends on what product line. A big one on the adapters, terminations is past Pasternack, Inmet, Weinschel. There are a lot of mom-and-pop shops out there. Someone brought to my attention, there's a company, P1dB. But what they won't give you is the value, the competitive pricing, the quality that Mini-Circuits can give you, and the stock that we have to give it to the customers when they need it.
6	Some years ago, Maury have introduced adapters with a color code on the adapters then others manufacturers did follow what became kind of a standard. Are we going to follow what is called kind of standard	We had that, but I have not had that question in a long time. Do you have customers that need it? If you do, we will look at doing that, we're very adaptive on our adapters.
7	What is the difference between FL086 and FL86? (This is not good. I ran into this issue with one customer, who wants the keep the part number family. Will cause a lot of confusion.)	They are almost the same, but when we did the FL86 we had some unique connectors going up to that 40 gigahertz range. So the SSMP and think of it as SSMP and then another SSMP and we are limited by the number of characters we can put in our system. We anticipated you guys wanting specials. So we had add a dash number. So I was conserving space by removing that initial zero, not the best answer. But that's reality.
8	Do you have plans to make adapter finder tool on the web site? If yes, when?	We are going to be redoing our website and we will have an adapter finder in there. But I can't give you a time frame for that yet.
9	Do you plan to have termination for high frequencies >18GHz that can handle high power >100W?	Yes, it's on our roadmap
10	Are you able to mix and match the smaller connectors? 2.4mm 1.85mm SMA?	We are coming out with new cables in our FL86 and in our FL47 series, with the 2.9mm to the SSMP the 2.4mm. We haven't developed that cable high frequency enough yet, but I imagine we could put 1.85mm on it, depending on the frequency the customers operating at. I don't think that cable can go to 65GHz, but if the customers frequency is below it, we might be able to put those connectors on that cable. I don't see why not.
11	Hand Flex series require 2 wrenches because Hand Fled has anti torque nut. some customer does not like it. do you have such feedback from other customer?	This is first I am hearing about this but if one customer says something other customers require it. Please get more details as what is preferred and we will clearly look at it
12	What is the application for the inner/outer DC block?	The applications I've seen are on a board aircraft where they want to have blocked the DC as well as blocked ground loops on it. We also saw some applications in the quantum computing when they're working at very low temperature levels they really want to make sure that DC doesn't get anywhere, both on the main line and on the ground line. So those are the two applications. I'm sure there's more out there. And I challenge you to give me opportunities for it.
13	What temperature have the cables used in quantum applications gone down to?	Our customers, and we don't have the ability to test this, have gone down. They say they've gone down to the milliCalvin's and they use unjacketed with copper base cables. And probably copper rather than tin, because copper is a better conductor. And the unjacketed, as the jacket will start to break under those extreme cold temperatures.
14	what is the road map for the cable assembly? Do you have any plan to offer low PIM cable?	We don't have any plans to offer PIM rated cables. According to our belief the demand for PIN related products is declining and the cost of equipment to enter this market is high. We will reconsider if you have requirements in which our customers are asking for this.
15	Can some of the cheat sheets added to the product page?	We can add a general application note to the website, but maybe not to individual product page; We are going to be redoing our website and we will have an adapter finder in there. But I can't give you a time frame for that yet.
16	What is the deciding factor between choosing the FL vs. the Handflex interconnect cables?	What is the customers application if he bends once the handflex is better. If we wants some flexibility then the FL is the better choice

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17	When are we going to offer waveguide adapters and up to what frequency?	We are working on some wave guide adapters, I would probably say were three to six months away and we will be using the higher frequency wave guide adapters probably going to 110 GHz and not going below 40 GHz as a rough start, you know, we won't go for those bigger wave guides to start with.
18	Will we be going about 67 GHz in our cable offering?	On eventually on a longer roadmap, I do see us going on 110 GHz, you know, with the 1.0 mm connector. They are a lot more fragile, short lens. But I think our customers will drive us there, and we will be doing that, probably in a year's time frame from now.
19	When will we offer terminations between the 500 Watt currently available, and some of the lower power offerings?	We will be I'd really like to, what is your customer need we're open to develop. We have 100W attenuators, that's a termination in itself. So you can use that. But if you need a termination, let us know. But you know you have 100W attenuator there's a termination right there for your needs.
20	What is the most unique application where customers use the hand flex cables?	Wow, there are so many great applications: maybe the quantum computing, that we were talking about, or we actually had them fly in high altitude balloons, or maybe our test stations. There are so many customers just asking for so many unique applications, day in and day out. But if I had to pick one of them, probably the quantum computing, because that's state of the art technology and we're a part of making that state of the art technology work.