



UL is 'Flexing' Its Standards



Standards and specifications are boring. There, I've said it. Unfortunately this activity describes much of my activity in our industry. Nobody likes to work on standards and specifications (me included), and it is often the same group of us diehards who hammer out the details of PWB related standards in relative obscurity. Unfortunately, there are no Steven Kings or Danielle Steeles among us. Recognition of our toils only comes when someone finds that we screwed up a paragraph here or forgot punctuation there. Glory and praise are non-existent in this thankless endeavor, except for the occasional plaque. But I like to think that someday when the specification survives and we're all forgotten, people will say that there was an important reason a particular sentence or requirement made it in the specification (hopefully, to never find out we made the decision over a beer after the meetings).

One of the more interesting standards I have been involved with in recent years is the new Underwriters Laboratories (UL) Flex Standard, UL 796"F". For those of you non-flexible people, UL's safety requirements for flexible PWBs have historically been mixed in with the rigid board requirements of UL 796, and as such, were handled in a confusing manner.

Isn't UL 796F just the "F" revision of UL 796, you ask? The answer to that seemingly obvious question is no! UL does not create specification revisions in the manner that the rest of us are used to. UL 796 and UL 796F are two *different specifications entirely*, and have the same number just to confuse us (like tax forms 1040, 1040A & 1040EZ). Revisions to UL standards are handled by revision date rather than revision letter.

More Unusual Numbers

UL, in its infinite wisdom, has given different product types a unique category control number (CCN) for their internal

reference. Up until September of 2000, these categories for our industry were as follows: 1) ZPMV2-PWBs; 2) QMTS2-Laminates; 3) QMJU2-Soldermask. I have yet to get a straight answer to what these numbers really mean, and the decoder ring out of my last box of cracker jacks wasn't very helpful either (my theory is that ZPM means "Zero Profit Margin"). These numbers, although mystical in origin, control the way UL categorizes all of the products it recognizes/lists, and identifies them to people who use these products further down stream in the product's life.

UL 796F (published September 18, 2000) introduces a new Flexible PWB CCN to the mix: ZPXK2. Confused yet? Currently, all flexible PWBs are recognized under the ZPMV2 PWB category, and according to UL, the new category ZPXK2 is "intended to accommodate flexible PWBs currently recognized under the ZPMV2 category, as well as to accommodate the future needs of the flex PWB industry." That is quite a tall order for a new standard and category. It actually sounds like something Congress would say before it releases a new tax code.

Why a New UL Category?

Traditionally, products from the flexible PWB industry were just that—flex, flex-rigid, and stiffened flex PWBs. These bare, unpopulated boards were the only things that UL has historically listed/recognized in the current ZPMV2 category. Some OEMs are now requiring that flex PWB fabricators perform certain assembly types of operations prior to shipping the PWB, while still supplying a UL flame-rated product. These hybrid end-products are not currently referenced in UL 796, and their status in the UL chain of recognition has been shrouded in mystery. It is my understanding that UL intends to establish this new ZPXK2 category with built-in flexibility (no pun intended) to deal with these and other future issues that may come up. Additionally, to reflect envi-

sioned future products (and definitely not to confuse us), the new title of "Flexible Materials Interconnect Constructions (FMICs)" has been adopted by UL to refer to these products. Yet another new name for us to remember!

What Else is in There?

The new Standard is 172 pages of riveting bedtime reading, and many people are wondering how 11 pages of flex specific information found in UL796 turned into this new novel called UL796F. Those 11 pages also had years of accumulated "unwritten policies" that UL has used internally when dealing with flex PWB issues that have been integrated into the new standard. Another improvement area was in test methods. Many methods that worked well for rigid PWBs have always needed "adjustments" to work with flex PWBs. There is also a lot of information in UL 796 that was applicable to both rigid and flex PWBs that had to be duplicated in the new UL 796F. This specification does more to clarify the way things are currently being done rather than effect any real substantial changes. What this new standard does more than anything is allow changes in future revisions without affecting or having to get the approval of the rigid PWB community regulated by UL 796.

UL 796F and You

As a UL Client Agent, I hear the stories of how people don't want to touch their UL file in fear that they'll "open up a can of worms." The proliferation of new materials, material combinations, OEM requirements, and process changes demand that you keep your file up to date as well as keeping up with the changing standards. I know standards are boring and those "worms" can be potentially bothersome, but keeping up with the droll sure beats the excitement generated by a UL "early bird" variation notice that forces you to deal with the worms on their terms.