

5G Network Filtering



5G trials are under way and the requirements for filtering are continuing to grow. At Quantic Corry, we have developed all types of filtering using different technologies. For example, in the US market there are several bands that have been allocated for 5G. The lower frequency allocation in the US market is centered around 600MHz. At these low frequencies filtering can be easily and cost competitively designed using several different filtering technologies. The types range from discrete LC to cavity, combine, interdigital, Helical, ceramic resonator and tubular.

As the 5G frequencies increase there is the need to design with other types of filter technologies. Each filtering type has its advantages and disadvantages. For example, if size is important at the lower frequency bands the use of standard cavity filters is not optimal because the size of the cavities is quite large but as the frequencies rise the cavity size gets smaller and offers exceptional insertion loss. The next US 5G band has been allocated from 3100MHz-3550MHz and at these frequencies many filtering types work well including waveguide filtering.



The next two 5G bands for the United States market are 27.5-28.35GHz and 37-40GHz. At these higher frequencies Quantic Corry designs filters with either waveguide, microstrip, stripline, stabline or suspended strip line. At Quantic Corry we developed a surface mount 28GHz suspended strip line filter tailored to the RF properties of the customers circuit board assembly. The customer's application was wideband communications to a drone so weight was an important factor in design.

The highest band for 5G communications in the US is 64-71GHz. It is rather unknown who or what applications will play at these high frequencies. It is reported that several CATV providers are researching the feasibility of high-speed internet to the home. Whatever application Quantic Corry will have the filters needed to guard against interfering frequencies.

