



# SPK ELECTRONICS CO., LTD.

## The Application and Market Outlook of 5G Dielectric Filter

Filters are the core components of Base Station's **Radio Frequency System**. The working principle is to pass specific frequencies in the transmitting and receiving bands, and to attenuate other frequencies. The metal cavity filters are widely used in the 3G and 4G applications, but they will be replaced by **dielectric filters**(the main products of SPK) in the 5G applications.

The filters used in base station include the metal cavity filters and dielectric filters. Compared with the 4G market dominated by metal cavity filters, 5G filters are expected to adopt new technologies and will be able to achieve **miniaturized** compact size. Here are some **advantages** of dielectric filters:

- Miniaturized compact size(more suitable to 5G MIMO technology)
- Low insertion loss, high attenuation (great frequency selection)
- Low power consumption
- High temperature stability
- Competitive advantages

### Market demands:

In the 4G application, the signal transmission and receiving is mainly through 4,8 and 16 channels, while 5G will use the 128 channels, even the 256 channels to match the use of large matrix antennas. Therefore, the filter's demands will be increased by about 16 times. Because of the high frequency of 5G, the range of energy radiation is small. If in the same range, more base stations will be needed. So the quantity of 5G base stations is estimated about 1.5 times of that of 4G. If the 5G has been realized to commercial use in the next 1~3 years, the demanding quantity of dielectric filters will amount to over 3 billion.

### The main products of SPK:

- 3.5G filters (highly-demanded mid-frequency filters)
- 5G filters (frequency matching service is available for different circuit
- in mass production

Besides filters, we also have various antennas and resonators to give you comprehensive supports.



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## **Applications:**

- Manufacturers of base station
- Subsidiary equipment manufacturers
- 5G WIFI Routers
- 5G Access Point

SPK is a manufacturer with strong R&D capability. We produce these products from raw materials to finished products all in our factory. Therefore, the quality and delivery is highly guaranteed. Choosing SPK will help you sharing the crazy increasing 5G market!