

## Information Meeting 2019 Presentation Q&A

Q: What are the effects of the shift from 4G to 5G on the number of MLCCs used per smartphone?

A: We expect that the number of MLCCs used in smartphones will increase by approximately 10% when using sub-6GHz and it will further increase when millimeter wave is used.

Q: You have said that modularization of RF components is progressing. What are the determinants of competitiveness at the forefront of such a trend?

A: The filters take 60% to 70% of the total area and 50 to 60 filters are needed for a high-end model of a smartphone; therefore, the characteristics of the filters and the product lineup become important. I expect that the LTCC filter technology will be a factor of differentiation after the shift to 5G.

Q: What are the characteristics and uses of the XBAR technology?

A: It is a filter technology applicable to high frequencies by using ultra-thin piezoelectric single crystal films. The characteristics of the I.H.P. SAW filters are improving, and we consider XBAR a technology that complements such characteristics.

Q: Does Murata plan to develop millimeter wave modules or supply substrates for millimeter wave modules?

A: We plan to develop modules by working closely with a transceiver manufacturer. We will integrate our antenna technologies with the module technologies that we have been developing for Wi-Fi and other products. We will aim to develop the modules for applications other than smartphones as well.

Q: You plan to make a capital investment of 300 billion yen in FY2019, of which, I think, the percentage of buildings is high. Do you plan to reduce your investment in buildings and overall capital investment from the next fiscal year on?

A: While we still plan to make investment in buildings, including the R&D center, in the next fiscal year, capital investment is expected to decrease in the next two fiscal years in comparison to FY2019.

Q: What are the prospects for your battery business?

A: Applications such as datacenter UPS and electric bicycles are increasing in addition to power tools and vacuum cleaners in the market. We expect that various other applications will emerge, and we plan to focus on the cylinder type. The laminate type will shift to the use for smaller mobile devices. We will conduct our business while watching which markets grow and which Murata batteries best fit them.

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