The highest resolution thermal camera for smartphone, 156 x 206 pixels, using a microbolometer with 12 µm pixel from Raytheon, compatible with Android and iOS.

Initially focused on the military market, uncooled thermal camera sales have grown significantly due to the substantial cost reduction of microbolometers and growing adoption in commercial markets. With the partnership with Seek Thermal and a fabless structure, Raytheon enters in the consumer market.

The Seek Thermal camera has a very compact size and is compatible with Android smartphones via its micro-USB connector. The camera performs its calibration automatically thanks to an electromechanical shutter assembled on the electronic board. The device also includes a chalcogenide lens inserted in a zinc lens housing.

The thermal camera uses a new 12µm pixel design from Raytheon. The EXC001 microbolometer, is featuring a 206x156 pixels resolution, 6 times the resolution of the FLIR One. The sensor technology in the Raytheon component is an uncooled VOx microbolometer and a 2 levels structure. Thanks to its strong integration at the die level with a wafer-level packaging (WLP), this is the world’s smallest microbolometer-based thermal imaging camera die.

Based on a complete teardown analysis of the Seek Thermal Camera and the Raytheon microbolometer, the report provides the bill-of-material (BOM) and the manufacturing cost of the infrared camera as well as a complete physical analysis and manufacturing cost estimation of the infrared module.

At last, a characteristics comparison between Flir One and Seek Thermal Cameras highlights differences in technical choices made by both companies.

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