MEMS Microphone

Knowles, STMicroelectronics/OMRON, AAC Technologies/Infineon Technologies, InvenSense/Analog Devices

Market growth, challenged leader: patent battle can start

NOW IT’S TIME FOR PATENT BATTLE IN MEMS MICROPHONE BUSINESS

The MEMS Microphone will remain one of the fastest growing MEMS components due to existing and new opportunities. According to Yole Développement, the market will grow from $785M in 2013 to $1.65B by 2019. Shipments are expected to grow from 2.4B in 2013 to 6.6B units in 2019 which points to a market filled with opportunities for existing new players. Knowles is the dominant player with 61% market shares in 2013 and 58% in 2014. A decrease is again expected in the next years with new challengers entering the market: STMicroelectronics, OMRON, AAC Technologies, Infineon Technologies and InvenSense/(Analog Devices).

The global market share of these 6 players account for more than 80% of MEMS Microphone market in 2014. These players are all developing innovative technical and manufacturing solutions, and, in parallel of course, the right patents to protect their inventions.

In a patent infringement action, the potential sales volume plays a major role for assessing the damage award. Thereby, this study is naturally focused on the last MEMS Microphone components supplied by these market leaders and challengers: Knowles (S1157, iPhone 5S/6), ST/OMRON (MP45DT01), AAC/Infineon (SR595, iPhone 5S/6), InvenSense/ADI (ICS-43432).

This raises interesting questions: What are the similarities and the differences in term of technical and manufacturing choices at the devices level? What is the related patent situation? Knowmade (specialized in patent analysis) and System Plus Consulting (specialized in reverse engineering and reverse costing) are joining their unique added value in order to combined technology and manufacturing analysis with patent claims understanding to highlight the risks of patent infringement between Knowles, STMicroelectronics, OMRON, AAC Technologies, Infineon Technologies, Analog Devices and InvenSense in the field of MEMS Microphone. As the MEMS Microphone market is growing very fast, it is the right time now to understand what could happen between these companies and how to differentiate patents and claims compared to the other players.

This report provides an overview of technology data and manufacturing process of S1157, MP45DT01, SR595 and ICS-43432 MEMS Microphone components. A comparative study of the technology and manufacturing process of these MEMS Microphone components has been performed in order to highlight the technical similarities and differences of the product features.
A LINK BETWEEN PRODUCT AND PATENT

A set of product features, mainly related to the MEMS Microphone die, has been selected regarding their interest in terms of patent study:

- Design: Acoustic Hole Shape, Transducer Number & Shape, Stress Relief.
- Packaging: Port Structure, Metal/PCB Housing, Embedded Capacitance, RF Protection.

Key patents held by Knowles, STMicroelectronics, OMRON, AAC Technologies, Infineon Technologies, Analog Devices and InvenSense related to these technology features have been identified. For each product feature, the links between the patented technologies and the target product have been established.

RISK OF PATENT INFRINGEMENT

The potential infringing parties of the target product have been identified. The contents of patents have been compared with actual technological solutions used in the marketed target products Knowles (S1157), ST/OMRON (MP45DT01), AAC/Infineon (SR595), InvenSense/ADI (ICS-43432), in order to highlight, for each MEMS Microphone component, the potential risks of patent infringement and related patents requiring more in-depth legal assessments. This report provides discussions on the potential risks of patent infringement by comparing relevant patent claim elements to the target product features. We have identified several potential risks of patent infringements in some technology features from target products S1157, MP45DT01, SR595 and ICS-43432. Key patents requiring more in-depth legal assessment have been identified.

AN USEFUL PATENT DATABASE

The report also includes an Excel database with all patents analyzed in the report (240+ patent families composed of 650+ patents)

This database allows multi-criteria searches and includes:

- Patent publication number
- Hyperlinks to the original documents
- Priority date
- Title
- Abstract
- Applicants
- Legal status for each patent
MEMS Microphone Technology and Patent Infringement Risk Analysis – April 2015

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ORDER FORM

MEMS Microphone
Technology and Patent Infringement Risk Analysis
Knowles - STMicroelectronics - OMRON - AAC Technologies
- Infineon Technologies - InvenSense - Analog Devices
April 2015

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