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Title:	Temperature tracking in continuous casting moulds using SAW sensors
Abstract:	<p>In a worldwide steel market becoming day by day increasingly competitive, for both steel producers and steel plant providers, the two crucial factors distinguishing failure from success are speed and quality, since they determine the overall productivity of all plants, from high quality steel to rebar steel producers. Both factors depend heavily on what happens in the mould, <i>i.e.</i> the small copper tube where steel starts to solidify, which is the real core of the casting process. It's therefore very important to "instrument" the mould, to get a better knowledge and control of the process itself, particularly of the real-time heat transfer. Unluckily, due to the very difficult environment, traditional sensors are short-lived or totally fail, due to temperature peaks or simple cable failures. Wireless SAW sensors represent a very good alternative, thanks to three key features: high-temperature resistance, passivity and wireless connection. During a three year collaboration between SMS Concast and CTR, SAW temperature sensors have been installed in moulds and tested in the lab, workshop and plant. Installation has been optimized and adapted, introducing custom solutions. Despite the tricky environment, SAW sensors met the expectations, and both feasibility and applicability have been fully established. Such positive result, besides providing new means for temperature tracking in the mould opens a wide range of potential applications in steel plants, not only for temperature measurement, but for the full range of SAW sensors.</p>