GLOSSARY

RSSI – Received signal strength indicator (RSSI) is a measure of the power present in a received radio signal.

dBm – A unit of measure of the absolute radio power level in decibel scale vs 1mW of power. It means 1 mW is 0 dBm, 10 mW is 10 dBm, 100 mW is 20 dBm, etc…

dB – The measure of the relative difference between 2 radio power levels. This is expressed in log10 scale which is more convenient for such measurements.

DCDC converter – An electronic circuit that provides an output regulated voltage that is different (higher / lower) than its input voltage. In a radio chiped and battery-operated system, its purpose is to convert the battery voltage to a lower regulated level (also called a "buck converter").

RF balun – This RF circuit allows RF signals (ensuring compliance with local radio regulations such as ETSI, FCC, and ARIB) and performing 50-Ohm adaptation with an antenna connector to ensure optimal RF transmission and reception performance.

PLL – Phase Lock Loop is a circuit that generates the required phase or frequency in a radio system. This is basis of the analog part of a radio transceiver to perform radio modulation & demodulation.

HS XTAL – High-speed crystal oscillator required to provide the reference frequency to the PLL in order to generate the correct RF frequency.

X:±y ppm – Parts per million frequency inaccuracy of the crystal means the maximum frequency offset of the crystal oscillator. As the crystal is used to kept the reference frequency of the transceiver PLL, it means that the RF transceiver application deviation from the desired channel frequency.

ACP – Automatic Frequency Compensation is a receiver feature that measures and corrects a transmitter's frequency offset. Frequency offset is introduced by HS XTAL ppm.

TCXO – Temperature Compensated Crystal Oscillator is a high-speed crystal that has ultra-low frequency variation thanks to temperature measurement & compensation circuitry. This architecture ensures a very accurate frequency regardless of the application temperature.

RO – A ring oscillator is an internal circuit (low-cost vs external 32 kHz crystal oscillator) that is required for low-power management of transceivers. Internal transceiver timers run based on the RO frequency.

PCB antenna – PCB antenna is designed on a printed circuit board using copper lines. Its advantage in terms of cost is that its one-quarter wavelength ensures good RF performance.

50-Ohm adaptation – In RF applications, all measurements are based on 50-Ohm connectors to ensure a reference setup for radio & power consumption measurements. Moreover it eases radio designs with antennas which are close to 50-Ohm impedance.

FSK, OOK modulations – modulations proposed by transceiver include Frequency Shift Keying modulations (FSK) with either 2-frequency (2-FSK) or 4-frequency (4-FSK), GFSK is also defined to smooth binary transitions to ease compliance with local radio-norms (ETSI, FCC, and ARIB). The principle of FSK modulation is to change the binary encoding by changing the frequency of the transmitted signal. OOK is amplitude modulation (On-Off Keying) which means turning power on/off to modulate data.
Sub-1GHz connectivity is key for various applications operating in ISM bands (Industrial, Scientific and Medical wireless devices). This type of connectivity provides the benefits of both a wide radio range and low power consumption that are used in metering, LPWAN, Smart Home & Smart Building applications.

The higher the TX power level and the lower the Receiver Sensitivity, the better the wireless application range. Thanks to its state-of-the-art performance, our S2-LP offers a best-in-class Link Budget of more than 145 dB.

A Sub-1GHz application enables products which communicate with each other over a specific topology. The communication mode also needs to be considered: Transmit only or bidirectional, Auto-retransmission, or Auto-Acknowledgment management.

The radio band spectrum used by the Sub-1GHz technology enables lots of wireless standards designed to ensure interoperability between different device manufacturers. By providing a strong protocol flexibility, customers can easily enable their own proprietary protocol over S2-LP and S2-LPTX solutions using ISM resources.