TransAir™ SDR-2400

Software-defined radio for ultra-reliable, low-latency communications

TransAir™ SDR-2400 interface card

TransAir™ LMS-2450-ME-100 gateway

Summary

TransAir SDR-2400 is a software-defined radio guaranteeing ultra-reliable, low-latency signal transmission for mission-critical and timing-sensitive applications. Latencies meet and exceed requirements even for the most demanding use cases, including command and control of autonomous vehicles. The radio is purpose-designed for remote, mobile and geo-distributed operations such as urban, high speed and intercity rail lines, industrial and construction sites. It is available as an interface card that works with LILEE gateways to provide operational flexibility and to futureproof systems.

Differentiators

- **First available communications technology for guaranteed, ultra-reliable, low-latency communications**, proven in real-world use cases
- **Software-defined radio** enables operators to update technology as operational contexts change and evolve
- **Guaranteed time slots** eliminate medium access unpredictability of contention-based technologies
- **MIMO** available 2x2, dual 2x2 and 4x4 configurations enable operators to optimize coverage and customize system for capacity or latency
- **Cloud-based tools** simplify system management

| SKU	Description
SM-SDR-2400	2.4 GHz module

Features

TransAir SDR-2400 is proprietary radio technology that provides broadband access with guaranteed latency for vehicle to everything (V2X) communication systems. Ultra-low latencies (under 3 msec) support timing-sensitive applications, such as safety and surveillance systems, as well as command and control of autonomous vehicles.

Communications for mission-critical transportation applications
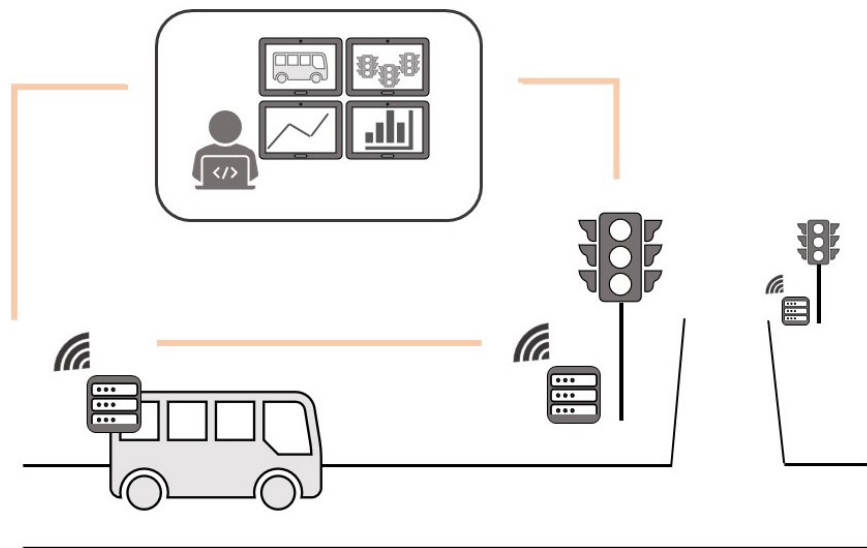
LILEE Systems' TransAir SDR-2400 was designed to eliminate medium channel access unpredictability and resulting performance lapses experienced with contention-based networks. TransAir SDR-2400 performance in mission-critical applications has been proven in autonomous vehicle and rail communications systems.

Feature	Benefit
Software-Defined Radio (SDR)	Upgrades are done in software and do not require new hardware purchase when new functionality is available
MIMO (Multiple-Input Multiple Output) radio with dual-2x2 deployment option	2x2, dual 2x2 and 4x4 configurations available—the communications system can be flexibly configured for higher spectrum efficiency or longer ranges
Worldwide ISM unlicensed frequency band—up to 1km coverage distance	Eliminates dependency on provider frequencies and provides the best balance between range and performance.
TDMA/TDD MAC design with configurable time slot length and superframe structure	Eliminates medium access unpredictability experienced with contention-based technologies
Cloud-based management	Centralized location for monitoring, management, troubleshooting and upgrades
Modular form factor	The TransAir SDR-2400 is available as a 6" wide module compatible with LILEE's TransAir LMS-2450-ME-100 gateway to provide modular extensibility to existing systems as well as the ability to add modules as technology and operational requirements change

Specifications

Frequency
2.4000 – 2.4835 GHz ISM Band
2.3700 GHz – 2.5000 GHz *

Modulation
OFDM (BPSK, QPSK,16 QAM, 64 QAM)
FEC convolution code rate 1/2, 2/3, 3/4 and 5/6
Modes of operation: TDD/TDMA
STBC for 2x2 MIMO
SFBC for 4x4 MIMO
2x2 and 4x4 MIMO multi-stream

Channel
Channel width: 20 MHz

Antenna
2x2 MIMO or 4x4 MIMO
Dual 2x2 MIMO with directional antenna for higher coverage range
Carrier output power 21 dBm
Power increments 0.25 dB
Antenna port TNC-Female   X4

Radio
Transmitter Stability into VSWR 3:1
RF Impedance 50 Ohms
Frequency stability +/- 2 ppm

Receiver sensitivity
Receiver sensitivity: -93 dBm @ QPSK & FEC 1/2
Mobility: 110 km/hour   @ QPSK & FEC 1/2

Physical Characteristics
LED Indicators: PWR, TX, RX
Dimension (WxDxH): 5.91"/150.0 mm (W) x 9.28"/235.7 mm (D) x 1.57"/40.0 mm (H)
Weight: 860 g

Certifications
FCC (47 CFR Part. 15b & Part. 15c)
Contains FCC ID: XTC-SDR2400
EN50155:2007
EN50121-4
BSMI
NCC

Power
Operating voltage 12V/3.3V DC
Power consumption 85Watt

Roaming handover and latency
Average packet latency 3.6 ms
Average roaming time 4 ms
QoS Emergency packet no-wait queue

Data Rates
2X2 STBC QAM64 30 Mbps
2X2 multi stream QAM16 43 Mbps
2X2 multi stream QAM64 67 Mbps
4X4 SFBC 30 Mbps
4X4 multi stream QAM16 91 Mbps
4X4 multi stream QAM64 136 Mbps

Environmental
Operating temperature -40˚C - 70˚C
Storage temperature -55˚C - 85˚C
95% Non-condensing humidity

*Customer may need to apply for license

Summary
TransAir SDR-2400 is a software-defined radio guaranteeing ultra-reliable, low-latency signal transmission for mission-critical and timing-sensitive applications.

Questions?
For more information or to schedule an appointment with our team to assess system requirements, please email us at:

info@lileesystems.com

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