

AirMaestro RF Signal Analyzer Integrated Circuit

General Description

The BSP2500 is a highly-integrated radio frequency (RF) signal analyzer integrated circuit, providing real-time spectrum analysis and interference classification of RF signals. When used with a 2.4/5GHz dual-band radio, the BSP2500 performs frequency-domain and time-domain analysis of RF energy in all IEEE 802.11abgn WLAN channels. Sophisticated classification algorithms embedded in the IC can detect and identify the source of many kinds of RF interference.



Applications

- WLAN access points
- WLAN mesh nodes
- WLAN security sensors
- WLAN RF sensors
- Portable RF sensors
- Broadband gateways
- Network analysis and monitoring equipment
- Laptop computers

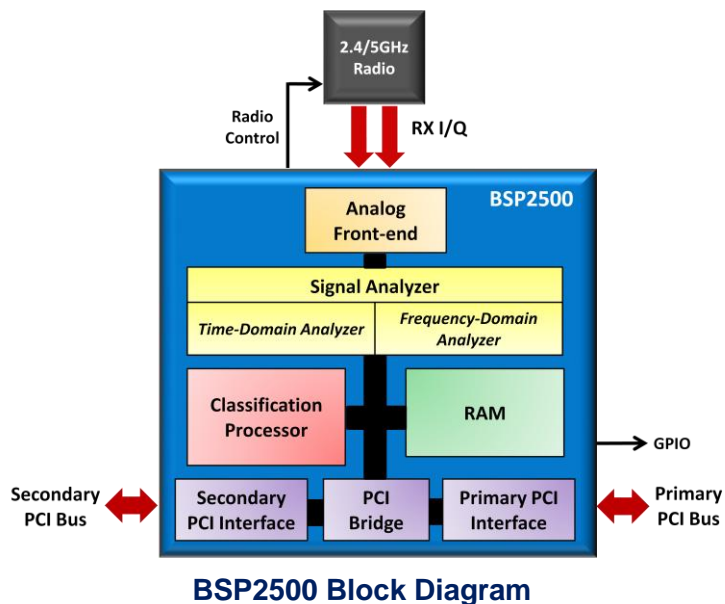
Key Features

- 40MHz analysis bandwidth
- 80MHz sampling frequency
- 156.25KHz resolution
- -90dBm to 0dBm detection range
- Time-domain and frequency-domain analysis
- 802.11 preamble detection (OFDM and DSSS)
- Estimates channel utilization for both 802.11 and non-802.11 traffic
- Embedded classification processor
- Embedded memory
- Embedded AGC (hardware and firmware)
- Primary and secondary PCI interfaces with embedded PCI bridge, enabling MiniPCI card design supporting a BSP2500 and a secondary I/O interface on a single Mini PCI card and used in a single MiniPCI card slot
- Embedded PLL provides flexible clocking options
- Highly-programmable including scan/dwell times, detection thresholds and spectral windowing.
- Detects and classifies the following RF interferers
 - Microwave ovens (conventional)
 - Microwave ovens (inverter)
 - Wireless video cameras (analog and digital)
 - Analog cordless phones
 - FHSS cordless phones
 - DSSS cordless phones
 - Bluetooth devices
 - Wireless baby monitors
 - Wireless gaming controllers
 - RF Jammers
 - Motion Detectors (S-Band radar-based)
- 1-4 second typical classification time
- Real-time spectrum analysis with hardware peak hold

Technical Specifications

Model Name	Bandspeed AirMaestro RF Signal Analyzer Integrated Circuit
Frequency Bands Supported ¹	2.4 GHz to 2.5 GHz 4.9 GHz to 5.875 GHz
WLAN Channels supported ¹	2.4 GHz: 1 – 14 5 GHz: 36 – 161
PCI card interfaces	PCI v2.2, 32-Bit, 33/66 MHz
Voltages	1.2, 3.3 V
Operating Temperature	0 to +70° Celsius
Power Consumption (typical)	Standby: 120 mW Active: 285 mW

1 – Radio Dependent

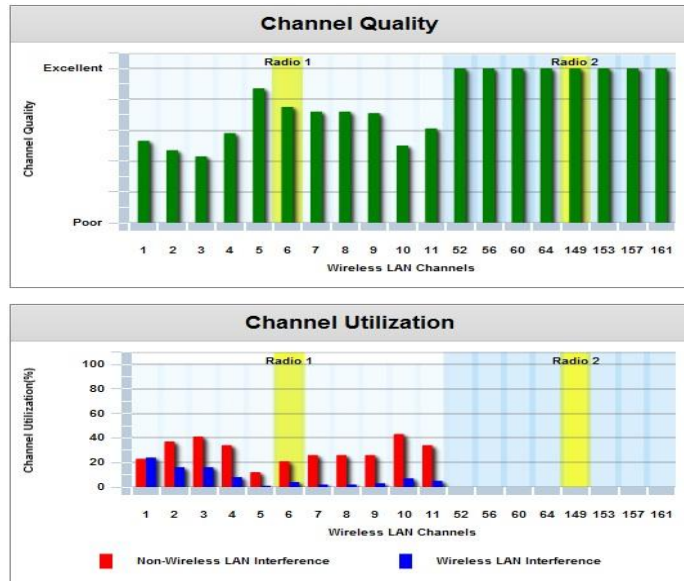


Bandspeed AirMaestro RF Signal Analysis Software

Bandspeed AirMaestro RF Signal Analysis Software consists of device drivers and software modules to be integrated with the target system's software stack. Included are software modules providing active displays for WLAN Channel Management and an RF Interference Log. For WLAN access points, software supporting Bandspeed Listen+Learn® AICS (Automated and Intelligent Channel Selection) for dynamic RF interference avoidance is included.

Channel Management Display

The Channel Management Display provides visibility into the calculated channel quality for each of the WLAN channels (top chart), as well as the level of interference detected on each channel (bottom chart). The interference is differentiated between WLAN interference and non-WLAN interference on the bottom chart, along with the channel utilization percentage from each type of interference.



Also shown on the display is the WLAN channel on which the access point's WLAN interface/radio is operating. In the case where the AirMaestro RF Signal Analyzer is embedded into an access point with multiple WLAN interfaces, multiple radios and their respective channels are displayed.

Interference Log

AirMaestro RF Signal Analyzer solutions automatically classify RF interference from multiple sources and create interference logs of current and historical interference detected.

Details on each interferer include type of interferer, signal strength (current, average, maximum), impacted WLAN channels, start time, end time and duration of interference. When an interferer is detected, a log entry is created in the interference log. While an interferer is active, the status indicator in the log entry is red and the text for the log entry is bold. When an interferer becomes inactive, the associated status indicator changes to gray and the log entry text changes to non-bold.

Interferer	Strength Cur/Avg/Max	Channels	Duration	Start Time	Stop Time
Inverter Microwave...	-85 / -85 / -85	3,4,5,6,7,8,9	00:00:...	Fri Dec 11 2009 0...	-
Wireless Video C...	-69 / -70 / -68	2,3,4,5,6,7,8	00:02:...	Fri Dec 11 2009 0...	-
Inverter Microwave...	-77 / -77 / -40	1,2,3,4,5,6,...	00:04:...	Fri Dec 11 2009 0...	Fri Dec 11 2009 ...
Illegal jamming d...	-91 / -91 / -91	1,2,3	00:00:...	Fri Dec 11 2009 0...	Fri Dec 11 2009 ...

Related Products

This section lists the other related products from Bandspeed.

Part Number	Description
BSP2500-MPCI	AirMaestro BSP2500 RF Signal Analyzer Mini PCI Card
BSP2500-RDP	AirMaestro BSP2500 Mini PCI Card Reference Design Platform

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