

Operational Description

INTRODUCTION

This document provides performance requirements, and compliance form, for interconnection of 2.4 GHz wireless radios (WLAN Access Point) with the InnerWireless distributed antenna system (DAS). 2.4 GHz wireless radios are interconnected to the DAS via an Access Point Interface (API). Together the API and the DAS form the in-building wireless distribution system (WDS).

OBJECTIVE

To define the operational parameters required of the 2.4 GHz wireless equipments (both radios and client devices) that ensure operation within the capability of the WDS, and to ensure operation so as to minimize interaction with, or interference to other Operator's services.

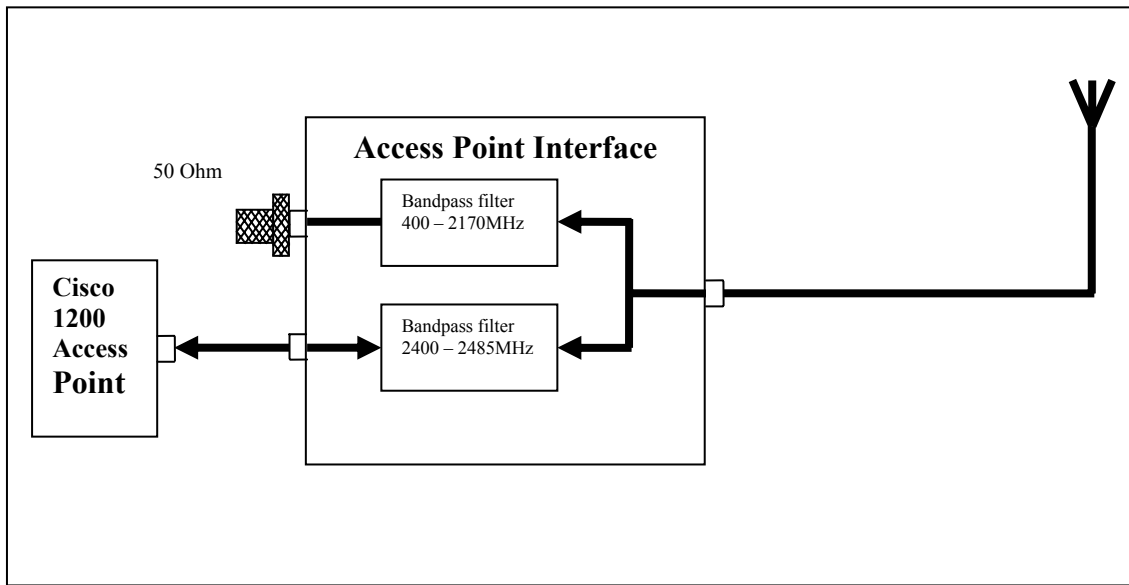
FEATURES

The API functionally provides an interconnection demarcation point between 2.4 GHz wireless radios and the DAS. The principal function is broadband passive RF signal combiner. Each port is intended for full-duplex (transceiver) operation. Specific functional features are the combining/splitting of up to 4 radios for interconnection to the DAS, and the directional isolation of the 2.4 GHz signals relative to the overall WDS. Whenever multiple 2.4 GHz radios are combined/split a hybrid power divider is used – providing port-to-port isolation for the multiple transmitters. The radio(s) are then connected to the DAS via a specialized broadband diplexer. The 2.4 GHz signals are only allowed to propagate to/from the point of interconnection to the coverage area of that specific *branch* of the overall WDS. All other *branches*, and the *trunk*, of the WDS are isolated – thus providing both privacy and the ability to reuse the same frequencies in other *branches*.

The API is designed for continuous unattended operation in minimally controlled environments. Since it has no active electronic devices and no moving mechanical parts no monitoring or alarming is provided.

Because multiple signals are being combined, care is taken with the API in design and construction, and must be taken with all 2.4 GHz wireless equipments to which it is interconnected to achieve proper operation.

The API functional block diagram is presented in the following figure. Specific product functional performance is contained in the WDS System Product Specification.



API functional block diagram

INTERFACE & COMPATIBILITY REQUIREMENTS

All 2.4 GHz equipment (radios and clients) shall comply with all applicable FCC requirements. The equipment shall only be capable of operation (transmission) within the specified 2.4 GHz ISM band – in no instance will a multi-band, or broadband, amplifier or repeater be allowed. The User must strictly adhere to the Access Point channel(s) assigned to them by the Frequency Coordinator. Further, the User's equipment (client devices) shall comply with the following requirements.

Table 2.4-2 – Compatibility Requirements – Clients

Performance Requirements	Functionality with WDS	
	Frequency Range	2400 to 2484 MHz
	Transmit Signal Level	<+20 dBm

	Receiver Sensitivity (minimum levels)	-94 dBm at 1 Mbps -91 dBm at 2 Mbps -89 dBm at 5.5 Mbps -85 dBm at 11 Mbps
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