# A NEW KIND OF OPTICAL INTEGRATIVE SWITCHING NETWORKS TECHNOLOGY SUPPORTING WIMAX

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**Abstract.** A new kind of Optical Integrative Switching (OIS) ring networks technology supporting WiMAX is proposed in this paper. In this OIS ring network which supports WiMAX, four different classes of service traffic are introduced to meet the demand of WiMAX. We construct the architecture of the WDM OIS ring network which utilizes W-token signaling scheme. In the W-token access protocol, the token can be captured according to the service class. In OIS, multiple WTFM(wavelength tunable filter module)are used at the destination node to avoid the receiver blocking. The performance is analyzed by the simulation. It can be seen from the simulation, the OIS ring network using this token access protocol can efficiently support the WiMAX's services transporting.

**Keywords.** WiMAX, Optical Integrative Switching (OIS), token, service class.

# 1    Introduction

Worldwide Interoperability for Microwave Access (WiMAX)[1] is a technology of broadband wireless metropolitan area network (WMAN). The services in WiMAX[1] are divided into five types, type 0 is UGS(Unsolicited Grant Service), type 1 is RT-VR (Real-Time Variable Rate Service), type 2 is NRT-VR (Non-Real-Time Variable Rate service), type 3 is BE (Best Efforts Service), type 4 is ERT-VR (Extended Real-Time Variable Rate Service).

Type 0 of service named UGS means Unsolicited Grant Service. The UGS is designed to support real-time service flows (data streams) consisting of fixed-rate data packets on a periodic basis, such as T1/E1 and Voice over IP without silence suppression. The service offers fixed size grants on a real-time periodic basis.

Type 1 of service named RT-VR means Real-Time Variable Rate Service. The RT-VR is designed to support real-time service flows that generate