2007年第4回知的財産翻訳検定＜和文英訳＞
電気･電子工学分野 標準解答

【問 1】

What we claim is:

1. A network-storage-access terminal configured to communicate with an authentication server, a processing server, and a storage device on a network to establish a storage connection between an external device and the storage device, the network-storage-access terminal comprising:

an interface unit configured to interface communication with the external device;

an authentication processing unit configured to perform predetermined authentication processing together with the authentication server;

a wireless-connection processing unit configured to receive connection information of the storage device from the processing server, to establish a path to the storage device on the network on the basis of the connection information, and to transfer to the external device storage information including at least a folder name and authorization information associated with a storage area in the storage device to cause the external device to recognize the storage device accessible through the storage connection; and

a data processing-and-converting unit configured to perform predetermined data processing and data conversion on data received from the external device and to transfer resultant data to the storage device through the storage connection.

【問 2】

An optical frequency shifter that can shift the frequency (wavelength) of incident light by a predetermined amount is one example of devices that are of critical importance in a wide range of fields, such as optoelectronics and quantum electronics, including those used in optical communications systems, optical measurement apparatuses, and spectroscopic instruments. Various methods of optical frequency shifting have been proposed for such optical frequency shifters.

As one example, an optical frequency shifter that uses the acoustooptic effect is currently available on the market. This optical frequency shifter utilizes the diffraction of light by an acoustic wave (i.e., a compression and rarefaction wave) propagating through a crystal. The optical frequency shifter operating according to this principle, however, has an operating frequency with an upper limit of a few hundred megahertz, which is relatively low. This is due to the problem of extremely high propagation loss of an acoustic wave propagating through a crystal in the high-frequency region, as well as the fundamental problem of the wavelength of an acoustic wave being smaller than that of a light wave, thus not experiencing diffraction, in a high-frequency region on the order of 1 GHz or greater. As a result, it is not possible to increase the amount of shift in optical frequency with the above-described optical frequency shifting method.

【問 3】

In Fig. 1, a local oscillator circuit 10 includes an LC resonant circuit which includes a coil L and a capacitor C1, and a transistor TR which amplifies an oscillating current generated by the coil L and capacitor C1. The coil L has one end connected to ground via a diode D4, and a tuning voltage VT is applied to that end of the coil L via a resistor R2. In addition, the other end of the coil L is connected to ground via a diode D3 and a resistor R1, and a node between the diode D3 and the resistor R1 is connected to one end of the capacitor C1. The other end of the capacitor C1 is connected to a base of the transistor TR and is also connected to ground via a resistor R5. A collector of the transistor TR is connected to a constant-voltage power source +B via a resistor R3 and also to the base via a resistor R4. In addition, an emitter of the transistor TR is connected to ground via a capacitor C2 and also via a resistor R6.