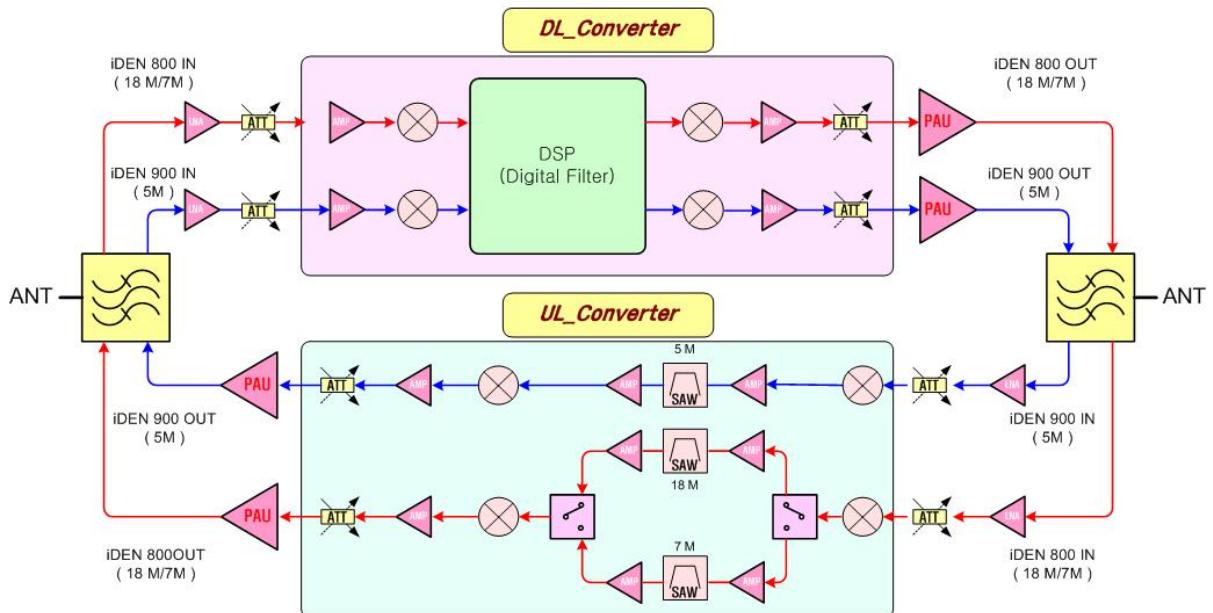


Operational Description

The iDEN (Integrated Digital Enhanced Network) RF repeater is composed of PSU(Power Supply Unit), RCU(RF Control Unit), Up / Down Converter Module, PAU(Power Amplifier Unit), Filter, and Isolator Check module.



Filter is a cavity type that is connected to the donor ANT and service ANT of iDEN repeaters and has only the desired bands pass selectively among the base station(EBTS) signals and terminal signals received through antenna.

The Up / Down Converter Module is composed of a down converter, up converter, and digital filter of variable bandwidth from the filter to the PAU input in the down link and up link of iDEN repeaters. Besides, this is composed of a pair of equal structure in order to deal with two bands of 900M and 800M.

The up/down converter of Down Link was realized with a digital filter through conversion and A/D conversion with IF frequencies(62.5MHz) for the base station(EBTS) signals inputted through the LNA part.

This picks up an excellent roll off characteristic with a digital filter, minimizes influence on other signals by intercepting other neighbor bands and signals, and is improved to remove and separate spurious waves.

And, the Up Link takes a roll off characteristic of a SAW filter by converting RF signals at the inputted terminal to IF frequencies(70MHz) through LNA differently from the Down Link, minimizes influence on other signals by suppressing neighbor signals, and is improved to remove and separate spurious waves.

PAU amplifies the iDEN signals to a proper output level with a module at the final step of wndrPrldml, pass through a filter, and then discharges it through ANT.

PSU (Power Supply Unit)

This is used to supply stable DC power to each device provided with active elements through A/D conversion and D/D conversion by receiving AC power, uses semiconductors for industry or higher in terms of major activation elements, is mechanically strong, and satisfies all electrical characteristics. A power used, it is supposed to receive 108~127VAC, convert to DC 3.8V, DC 7V, DC 12 and DC 27V, and then use it. And, the controller uses replaceable batteries and improper replacement can bring about explosion, so dispose of the used batteries safely.

Controller

A controller is composed of RCU(RF Control Unit) and NCU(Network Control Unit) and plays a role to monitor and control the status of each module of iDEN repeater. The RCU(RF Control Unit) is connected to GUI through DEBUG port and can collect and control the status monitoring information of modules. NCU(Network Control Unit) enables the upper NMS(Ethernet) communication through the RJ-45 port and can monitor and control status. The front face of NCU is provided with LED to display the status so as to confirm existence of abnormality in modules easily.

Filter

This is connected to donor ANT of iDEN repeaters as a cavity type of filter and has only the desired bands among the signals from the base station(EBTS) received through antenna pass selectively, so as to remove other bands, secure isolation between DL and UL enough, and have only the bands to service inputted through the LNA terminal. Besides, in the reverse direction(Up Link), it works to minimize the spurious radiation power generated by PAU.

Up / Down Converter Module

The Up / Down Converter Module is composed of a down converter, up converter, and digital filter of variable bandwidth from the filter to the PAU input in the down link and up link of iDEN repeaters. Besides, this is composed of a pair of equal structure in order to deal with two bands of 900M and 800M.

The up/down converter of Down Link was realized with a digital filter through conversion and A/D conversion with IF frequencies(62.5MHz) for the base station(EBTS) signals inputted through the LNA part.

This picks up an excellent roll off characteristic with a digital filter, minimizes influence on other signals by intercepting other neighbor bands and signals, and is improved to remove and separate spurious waves.

And, the Up Link takes a roll off characteristic of a SAW filter by converting RF signals at the inputted terminal to IF frequencies(70MHz) through LNA differently from the Down Link, minimizes influence on other signals by suppressing neighbor signals, and is improved to remove and separate spurious waves.

This suppresses leakage of local signals to the input terminal by inserting a band passage filter at the front side of mixers. The mixer minimizes IMD components of a system by applying an element that has a characteristic of High IP3 and minimizes influence on the next step by maintaining linearity. The base station(EBTS) signal converted to a IF frequency is recovered to the original frequency through the up converter.

The local step for IF conversion is designed to minimize phase noises in order not to reduce quality(ρ value) of waveform that can take place during the conversion process of signals.

The RF block of the up/down converter of the down link performs AGC and ALC functions to protect equipment during application of over input to the iDEN RF repeater, enables the on/off function according to necessity from users, and has an automatic compensation function of gains with respect to the temperature of a system.

PAU (Power Amplifier Unit)

PAU applied elements with reliability, durability, and good and high P1dB by considering the spurious characteristics, is always monitoring the output by being connected to the control part of a system, enables reporting to its superiors during occurrence of major items, and enables the on/off of PAU operation according to the necessity from users.

The Down Link PAU amplifies iDEN signals to a proper output level and provides the VSWR information of repeater output level and output port for the Control board.

Besides, this monitors the normal operation status of modules by providing Control boards with the information on its temperature detection and device failure.