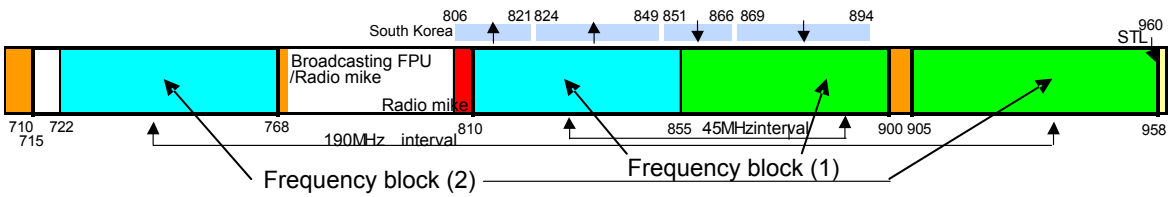
Outline of new frequency arrangement

- Apply Tx-Rx frequency separation of 45MHz, as in most cases in foreign countries.
- Minimize interference with radio communication systems in South Korea as much as possible.
- Maximize the frequency range that can be used.

Taking into account above items, the following 2 frequency blocks are considered to be suitable for new frequency bands.*

(1) 810-855 MHz / 855-900 MHz
(2) 715-768 MHz / 905-958 MHz

*However, there is a possibility of causing the limitation in use of 715-722MHz along with the review of the frequency for broadcasting until 2006. Therefore, there is a possibility of the change about the Tx - Rx frequency separation.



UE Tx frequency is assumed to be 810-855MHz for frequency block (1), but for frequency block (2), it is decided after the verification of imaging interference to the digital broadcasting system.

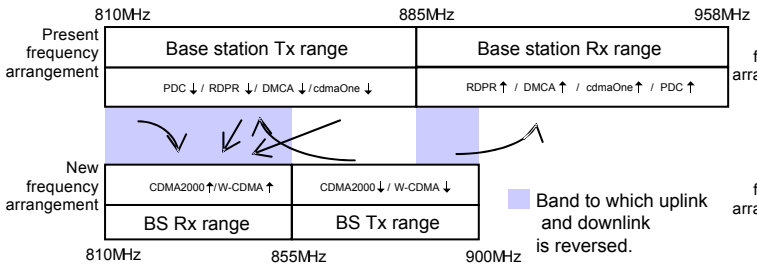
Interference analysis between mobile communication systems for the new frequency arrangement (1)

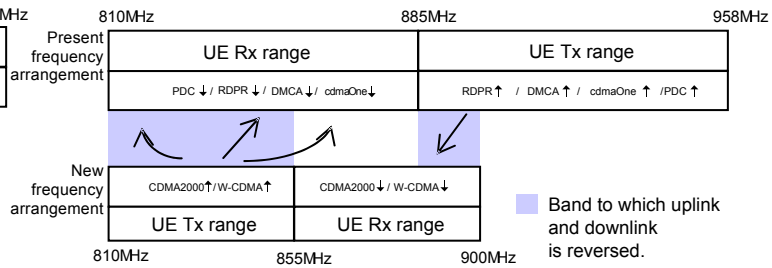
Outline

Because of 700MHz frequency range cannot be used until 2012, it is necessary to examine the accomodation of a new mobile communication system in 810-855/855-900MHz.

In this frequency block, severe interference cases (BS to BS / UE to UE)occurs, when introducing a new mobile communication system close to present system, because (a)The direction of Tx frequency is reversed,and (b)Tx - Rx frequency separation is changed.

To introduce the third generation cellular phone(IMT-2000), the guard band of the assumed interference cases is examined.





Methodology

BS → BS The Tx and Rx device of the interferer and the interfered system and the location are modeled, and the guard band width was derived to satisfy the permissible interference level below the noise level.

UE → UE Number of UEs operated in the interferer system in an area of interfered system is assumed which can be derived from the system design parameter. Position of the UEs in the area and its output power were randomely selected and under this conditions, a probability that falls below the acceptable interference level of the UE is examined.

Interference analysis between mobile communication systems for the new frequency arrangement (2)

Result of analysis

Each system of IMT-2000, thought to be the main use in the 800MHz band, can be introduced in the future by the frequency in which it meets the following requirements.

Introducing system	Existing system	Necessary guard band (MHz)
W-CDMA ↑	PDC ↓	9MHz
	DMCA↓ (AMCA↓)	5MHz(10MHz)
	RDPR ↓	6MHz
	cdmaOne	8MHz
W-CDMA ↓	DMCA ↑	15MHz
	RDPR ↑	6MHz
	cdmaOne ↑	8MHz

Introducing system	Existing system	Necessary guard band (MHz)
CDMA2000↑	PDC↓	5MHz
	DMCA ↓	6MHz
	RDPR ↓	6MHz
CDMA2000↓	DMCA ↑	16MHz
	RDPR ↑	6MHz

RDPR : Regional Disaster Prevention Radio
Uplink(↑) : UE to BS
Downlink(↓) : BS to UE