CHAPTER FOUR: SUMMARY, CONCLUSION AND RECOMMENDATION.

The handover mechanism guarantees that whenever the mobile is moving from one base station area/cell to another, radio connection is handed over to the target base station without interruption. Intra and inter MSC handover, Inter-MSC and intra-MSC handover from WCDMA to GSM were discussed. Handover scenarios in 2G, 3G, 4G, and 5G were addressed. Inter-frequency handover, hard handover, soft and softer handover were treated with the aid of diagrams to illustrate them, Uplink and Downlink power control in soft handover were explained. Handover procedure and parameters in the handover algorithm were not left out. Useful Glossary of Terms were added to this work.

Cell planning process step1: traffic and coverage analysis (system requirement). Step2, nominal cell plan, step 3 surveys and radio requirement, step4 system design (the final plan), step5 implementation and step 6 system tuning were carefully discussed and practically done. The descriptions of the replaceable units(RUs) and Buses in RBS 2000 macro were not left out. The use of Operation and Maintenance Terminal (OMT) to design Radio Base Station(RBS) were carried out. Configuration of RBS 2207 2+2+2 900MHz and RBS 2206 4+4+2 1800MHz were designed, configured and loaded and ready for integration.

The difference between GSM-900 and GSM 1800?

It has been proven that 900 Mhz band has 30-40 per cent better coverage than 1800 Mhz band. The two types of cellular telephony radiation use different carrier frequencies and give different frequency spectra, but they usually also differ in intensity, as **GSM 900 MHz antennas operate at about double the power output than the corresponding DCS 1800 MHz ones**.

The use of 900 MHz frequency.

Overview. 3GPP Band 8 (900 MHz) is used globally for **2G GSM voice and basic data mobile communications**. Technology-neutral licensing enabled 900 MHz to become a mainstream

spectrum choice for mobile broadband using 3G HSPA / HSPA+ / DC-HSPA+, particularly due to the limited bandwidth required by previous 2G GSM systems.

The advantages of 900 MHz.
Better range & building penetration: The 900MHz wavelength is 70% shorter than 300MHz products, allowing the signal to "squeeze" through narrow opening in both commercial and residential environments. The FCC allows higher transmit powers for 900MHz spread spectrum systems.

How far can 900 MHz go?
In an ideal, obstacle-free environment, 900 MHz signals can travel **several kilometers**. However, in urban areas with buildings and other structures, the range is typically reduced to a few hundred meters.

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