

DAFTAR ISI

HALAMAN JUDUL.....	i
LEMBAR PENGESAHAN PEMBIMBING.....	ii
LEMBAR PENGESAHAN PENGUJI.....	iii
HALAMAN PERSEMBAHAN.....	iv
HALAMAN MOTTO.....	v
KATA PENGANTAR.....	vi
DAFTAR ISI.....	ix
DAFTAR GAMBAR.....	xii
DAFTAR TABEL.....	xiv
ABSTRAK.....	xv
SINGKATAN.....	xvi
ISTILAH-ISTILAH.....	xvi
BAB I Pendahuluan	
1.1. Latar Belakang.....	1
1.2. Rumusan Masalah.....	2
1.3. Batasan Masalah.....	2
1.4. Tujuan Penelitian.....	3
1.5. Manfaat Penelitian.....	3
1.6. Metodologi Penelitian.....	4
1.7. Sistematika Penulisan.....	5
BAB II Dasar Teori	
2.1. Sistem Komunikasi Generasi ke Tiga.....	6
2.2. Sistem WCDMA.....	7
2.2.1. Arsitektur Antarmuka.....	10
2.2.2. Spread Spektrum.....	12
2.2.3. Direct Sequence Spread Spectrum	
2.2.3.1. Proses Spreading.....	15
2.2.3.2. Proses Despreading.....	16
2.2.4. PN Sequence.....	17

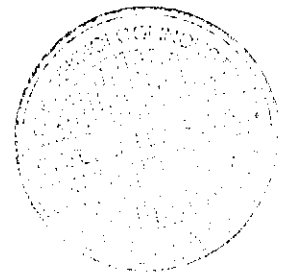
2.2.5. Transmisi Uplink	
2.2.5.1. Struktur Bingkai Transmisi Uplink.....	17
2.2.5.2. Penyebaran & Modulasi Transmisi Uplink.....	18
2.2.6. Transmisi Downlink	
2.2.6.1. Struktur Bingkai Transmisi Downlink.....	20
2.2.6.2. Penyebaran & Modulasi Transmisi Downlink.....	20
2.2.7. Teknik Power Control Konvensional	21
2.2.8. Teknik Multi-User Detection.....	24
2.2.9. MMSE Detector.....	25
2.3. Handover	
2.3.1. Tujuan Handover.....	28
2.3.2. Proses Handover.....	29
2.3.3. Handover Pada sistem WCDMA.....	32
2.3.4. Soft Handover.....	34
2.3.5. Prinsip Soft Handover.....	34
2.3.6. Algoritma Soft Handover WCDMA.....	36
BAB III Perancangan Sistem	
3.1. Algoritma SHO	
3.1.1. Power Control.....	39
3.1.2. Access Data.....	43
3.1.3. Probabilitas SHO.....	45
3.2. Bahasa Program.....	52
3.3. Perancangan Antarmuka.....	53
BAB IV Analisa dan Pembahasan	
4.1. Pengujian	56
4.2. Analisis.....	57
4.3. Pembahasan program simulasi.....	61
4.4. Pembahasan soft handover.....	70
BAB V Penutup	
5.1 Kesimpulan.....	74
5.2 Saran.....	75

DAFTAR PUSTAKA.....xvii

LAMPIRAN

1. Listing program.....xxx

2. Biografi.....xxxvii



DAFTAR GAMBAR

Gambar 2.1	Teknologi kandidat 3G	6
Gambar 2.2	Skema Kode Akses Jamak	8
Gambar 2.3	Kondisi Ideal WCDMA	10
Gambar 2.4	Efek Near Far	10
Gambar 2.5	Model Protokol Interface radio WCDMA	11
Gambar 2.6	Deret Chip sebuah PN Code	15
Gambar 2.7	Proses Spreading	15
Gambar 2.8	Proses Despreading	16
Gambar 2.9	Bingkai Uplink	18
Gambar 2.10	Penyebar & Modulasi Transmisi Uplink	19
Gambar 2.11	Struktur Bingkai Transmisi Downlink	20
Gambar 2.12	Penyebar & Modulasi Transmisi Downlink	21
Gambar 2.13	Blok diagram MUD	25
Gambar 2.14	Proses Handover	30
Gambar 2.15	Model- model Handover pada sistem WCDMA	33
Gambar 2.16	Perbandingan antara Hard & Soft Handover	35
Gambar 2.17	Algorithma Soft Handover WCDMA	36
Gambar 3.1	Blok diagram alir	38
Gambar 3.2	Blok diagram PC	39
Gambar 3.3	Gain kanal	40
Gambar 3.4	PN code	41
Gambar 3.5	Pembangkit gold code	41
Gambar 3.6	Pemodelan SHO 1	49
Gambar 3.7	Pemodelan SHO 2	51
Gambar 3.8	Interface perancangan	53
Gambar 4.1	Pengujian Berdasarkan <i>Base Station 1</i>	63
Gambar 4.2	Pengujian Berdasarkan <i>Base Station 2</i>	64
Gambar 4.3	Pengujian Berdasarkan Pengguna	65
Gambar 4.4	Pengujian Berdasarkan Chip	67
Gambar 4.5	Pengujian Berdasarkan Iterasi	68

Gambar 4.6	Skenario kejadian SHO	72
Gambar 4.7	Voice traffic modeling	73



SINGKATAN

1xEV-DO 1x	Evolution Data Optimized
1xEV-DV 1x	Evolution Data Voice
16QAM	16-quadrature amplitude modulation
3G	Third generation
3GPP	Third Generation Partnership Project
AMR	Adaptive Multi-Rate
BER	Bit error rate
BLER	Block error rate
BSC	Base Station Controller
BTS	Base Transceiver Station
CDMA	Code division multiple access
cdmaOne	Code Division Multiple Access as specified in IS-95
CDMA 2000	Code Division Multiple Access as specified in IS-2000
CS	Circuit switched
CTIA	Cellular Telecommunication Industry Association
DCH	Dedicated Channel
DPCCH	Enhanced Dedicated Physical Control Channel
DPDCH	Dedicated Physical Data Channel Channel
E_b/N_o	Ratio of signal energy to additive noise and interference
E_c/I_o	Correlated signal strength of pilot channel
EDGE	Enhanced Data for Global Evolution
EIR	Equipment Identification Register



ETSI	European Telecommunication Standards Institute
EUTRAN	Evolved Universal Terrestrial Radio Access Network
MS	Mobile Station
MSC	Mobile Switching Center
FER	frame error rate
FDD	Frequency Division Duplex
GPRS	General packet radio service
GSM	Global system for mobile communication
GERAN	GSM EDGE Radio Access Network
HLR	Home Location Register
HSDPA	High Speed Downlink Packet Access
HSPA	High Speed Packet Access (HSDPA + HSUPA)
HSPA +	High Speed Packet Access Plus (also known as HSPA Evolution)
HSUPA	High Speed Uplink Packet Access
IMEI	International Mobile Equipment Identity
IMSI	International Mobile Subscriber Identity
IP	Internet Protocol
ISP	Internet Service Provider
IS-95	Interim Standard 95 of the Telecommunications Industry Association
ITU	International Telecommunication Union
LAN	Local Area Network
Mcps	Mega chips per second

MMS	Multimedia Messaging Service
MS	Mobile Sculer
Node B	Radio Base Station
PDN	Public Data Network
PLMN	Public Land Mobile Network
PS	Packet Switched
PSTN	Public Switch Telephony Network
P-SCH	Primary synchronization channel
PCMCIA	Personal Computer Manufacturers' Card Interface Adapter
PCS	Personal Communication System
QAM	Quadrature Amplitude Modulation
QPSK	Quadrature Phase Shift Keying
QoS	Quality of Service
RAN	Radio Access Network
RF	Radio frequency
RNC	Radio network controller
SCCH	High-Speed Shared Control Channel
S-SCH	Secondary synchronization channel
SIM	Subscriber Identity Module
SMS	Short Message Service
TDM	Time Division Multiplex
TDMA	Time division multiple access
TFC	Transport Format Combination

TTI	Transmission Time Interval
UE	User Equipment
UMTS	Universal Mobile Telecommunications System
USIM	Universal Subscriber Identity Module
UTRAN	Universal Terrestrial Radio Access Network
VLR	Visitor Location Register
VoIP	Voice over Internet Protocol
VPN	Virtual Private Network
WAP	Wireless Application Protocol
WCDMA	Wideband Code Division Multiple Access
WIM	Wireless Internet Module
WLAN	Wireless Local Area Network



ISTILAH - ISTILAH

Bandwith	Lebar pita irekuensi
Bit	Satuan terkecil data biner
Blocking	Pemblokian atau penolakan perminataan hubungan baru
Chip	Satuan terkecil data bit
Coverage	Jangkauan suatu sel
Demodulator	Merubah kembali data Modulasi.
Dropping	Pendropan oleh suatu sistem atau sel
Downlink	Hubungan antara MS & BS dimana BS berperan utama
Evolusi	Perubahan terencana sehingga hasilnya lebih baik
Kanal	Saluran
Modulator	Pemodulasi
Modulasi	Proses encoding sumber data dalam suatu sinyal carrier dengan carrier
Operator	Penyedia layanan seluler
Omnidirectional	Antena segala arah
Paket data	Sejumlah data berupa bit/chip data yang berhasil di transmisikan
Propagasi	Rugi-rugi antenna pada sistem seluler.
Scrambling	Pengacakan
Scrambling Panjang	Pengacakan untuk data lebih sederhana dari scrambling pendek.

Scrambling Pendek	Sistem pengacakan data yang dilengkapi deteksi jamak & penghapusan interferensi.
Seluler	Sistem komunikasi dengan daerah layanan yang kecil.
Soft handover	Pergantian sel karena mobilitasnya
Subscriber	Pelanggan seluler (MS)
Spreading	Penyebaran data
Sinyal carrier	Sinyal pembawa
Telekomunikasi	Hubungan jarak jauh
Throughput	Jumlah subpaket yang berhasil ditransmisikan dalam 1 durasi paket (slot).
Up link	Hubungan MS & BS dimana MS lebih berperan
Up date daya	Meningkatkan penerimaan Sinyal atau daya

