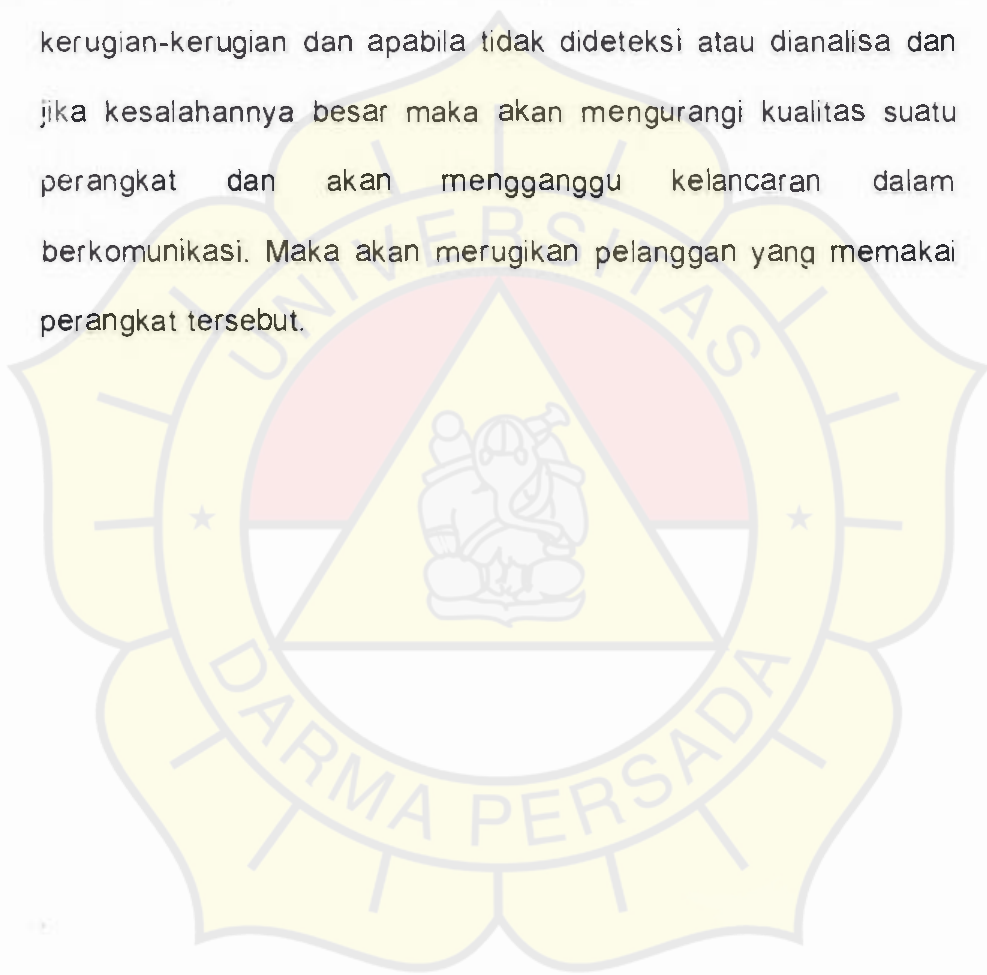


BAB V

KESIMPULAN

1. Parameter stabilitas frekuensi dari hasil pengukuran didapatkan nilai untuk kedua mobile Merk yang sama tipe yang sama adalah 0.04 dan satu merk berbeda hasilnya nilai yaitu 0.03 part permillian maka dikatakan kualitas mobile tersebut baik. Dengan asumsi bahwa pada saat mobile tersebut melakukan usaha berada pada tingkatan aman.
2. Daya pancar yang dimiliki ketiga mobile tersebut yaitu, untuk mobile merk A tipe X 1.65 Watt, untuk mobile merk A tipe X₁ 1.9 Watt dan untuk mobile merk B tipe X 1.69 Watt. Maka nilai tersebut termasuk kedalam cakupan 0.8–2 Watt dan dikatakan memiliki kualitas yang baik.
3. Parameter Emisi Spurious dari hasil pengukuran untuk mobile merk A tipe X -69.95 dBm, untuk mobile merk A tipe X₁ -37.04 dBm dan -41.03 dBm, untuk merk B tipe X -40.95 dan -39.79 dBm, maka nilai tersebut dapat dikatakan bahwa kualitas dari mobile tersebut baik.
4. Parameter bit eror rate untuk mobile merk A tipe X 0.436 %, untuk merk A tipe X₁ 0.228 %, untuk merk B tipe X 0.885 %, maka nilai tersebut dapat dikatakan mobile tersebut memiliki kualitas yang baik.

5. Parameter Rx level dari hasil pengukuran untuk ketiga mobile didapatkan nilai -106 dBm sampai -105 dBm, dengan nilai tersebut maka kepekaan mobile tersebut baik karena semakin kecil maka semakin baik .
6. Ketidak sempurnaan sistem dalam perangkat akan selalu muncul kerugian-kerugian dan apabila tidak dideteksi atau dianalisa dan jika kesalahannya besar maka akan mengurangi kualitas suatu perangkat dan akan mengganggu kelancaran dalam berkomunikasi. Maka akan merugikan pelanggan yang memakai perangkat tersebut.



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LAMPIRAN A
HANDPHONE MERK A TIPE X



Tested by : BPPT
 Test location : BEKASI
 Type of mobile : GLOBAL SYSTEM FOR MOBILE 900
 Serial number : SAMPEL

Time: 09:52
 Date: 05/01/02

Power class : 1
 IMSI : 001.01.1234567890
 IMEI : 350835.20.000125.0

LOCATION UPDATE	OK	OK
CALL TO MOBILE	OK	OK
CALL CLEARING BY MOBILE	OK	OK
CALL FROM MOBILE	OK	OK
dialled number	0210805353	

**** TX-MEASUREMENTS	CH 1	CH 62	CH 123		
PHASE ERROR RMS (avg)	1.5	1.5	1.4	deg	OK
PHASE ERROR PEAK (avg)	5.4	5.8	5.6	deg	OK
FREQUENCY ERROR (avg)	4.0	5.0	6.0	Hz	OK
PHASE ERROR RMS (max)	1.6	1.6	1.6	deg	OK
PHASE ERROR PEAK (max)	6.2	6.6	7.2	deg	OK
FREQUENCY ERROR (max)	9.0	9.0	8.0	Hz	OK

**** POWER RAMP MEASUREMENTS					
TX power control level	5	5	5		
MS TX POWER	32.2	32.1	31.9	dBm	OK
AMPLITUDE flatness	OK	OK	OK		OK
AMPL. ENVELOPE at -28us	OK	OK	OK		OK
AMPL. ENVELOPE at -18us	OK	OK	OK		OK
AMPL. ENVELOPE at -10us	OK	OK	OK		OK
AMPL. ENVELOPE at +10us	OK	OK	OK		OK
AMPL. ENVELOPE at +18us	OK	OK	OK		OK
AMPL. ENVELOPE at +28us	OK	OK	OK		OK

***** RX-MEASUREMENTS	CH 1	CH 62	CH 123		
measured at power	-104.0	-104.0	-104.0	dBm	
RBERR CLASS II	0.3	0.3	0.6	%	OK
RBERR CLASS 1b	0.0	0.0	0.0	%	OK
FER	0.0	0.0	0.0	%	OK

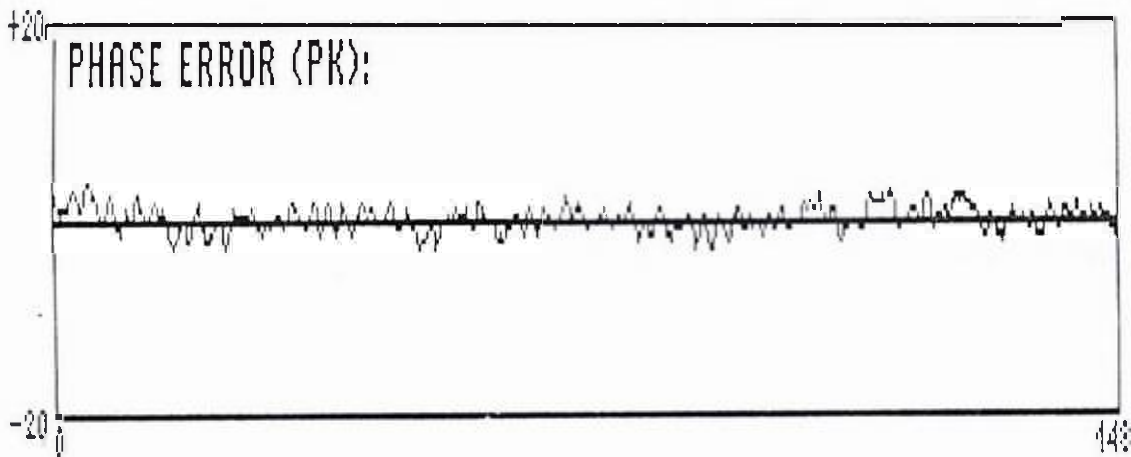
CALL CLEARING BY CMD	OK	OK
----------------------	----	----

OVERALL RESULT	OK
----------------	----

Measured with ROHDE & SCHWARZ test equipment

Tabel Data Pengukuran BER Merk A Tipe X

Test	Samples (bit)	Events (bit)	R Ber	Waktu (detik)	Samples Max (bit)	Events Max (bit)
1	7800	16	0.205 %	2	7800	202
2	7800	34	0.436 %	2	7800	202
3	62400	103	0.165 %	16	62400	1560
4	62400	231	0.370 %	16	62400	1560
5	7800	2	0.026 %	2	7800	202
6	62400	24	0.038 %	16	62400	1560
7	100074	420	0.420 %	26	100074	1560



RF Channel 1	Power 12.4 dBm		
	Current	Avarage	Maximum
Frekuensi Eror	11 Hz	12 Hz	16 Hz
Phase Error (Peak)	3.6 ^o	3.4 ^o	-4.7 ^o
Phase Error (RMS)	1.1 ^o	1.1 ^o	1.3 ^o
RF Channel 6	Power 12.3 dBm		
	Current	Avarage	Maximum
Frekuensi Eror	25 Hz	22 Hz	26 Hz
Phase Error (Peak)	3.9 ^o	3.7 ^o	4.6 ^o
Phase Error (RMS)	1.2 ^o	1.1 ^o	1.3 ^o
RF Channel 12	Power 12.3 dBm		
	Current	Avarage	Maximum
Frekuensi Eror	6 Hz	7 Hz	32 Hz
Phase Error (Peak)	4.3 ^o	3.7 ^o	-4.9 ^o
Phase Error (RMS)	1.2 ^o	1.2 ^o	1.4 ^o
RF Channel 18	Power 12.4 dBm		
	Current	Avarage	Maximum
Frekuensi Eror	5 Hz	7 Hz	14 Hz
Phase Error (Peak)	3.9 ^o	3.7 ^o	-4.6 ^o
Phase Error (RMS)	1.2 ^o	1.1 ^o	1.3 ^o
RF Channel 24	Power 12.4 dBm		
	Current	Avarage	Maximum
Frekuensi Eror	14 Hz	11 Hz	35 Hz
Phase Error (Peak)	3.6 ^o	3.4 ^o	-4.2 ^o
Phase Error (RMS)	1.2 ^o	1.2 ^o	1.2 ^o

RF Channel 30	Power 12.4 dBm		
	Current	Avarage	Maximum
Frekuensi Error	12 Hz	14 Hz	20 Hz
Phase Error (Peak)	4.1 °	3.7 °	6.2 °
Phase Error (RMS)	1.2 °	1.1 °	1.4 °

RF Channel 36	Power 12.4 dBm		
	Current	Avarage	Maximum
Frekuensi Error	16 Hz	15 Hz	19 Hz
Phase Error (Peak)	-3.3 °	3.8 °	-5.3 °
Phase Error (RMS)	1.1 °	1.1 °	1.3 °

RF Channel 42	Power 12.3 dBm		
	Current	Avarage	Maximum
Frekuensi Error	-7 Hz	4 Hz	21 Hz
Phase Error (Peak)	3.8 °	3.5 °	4.5 °
Phase Error (RMS)	1.2 °	1.1 °	1.3 °

RF Channel 48	Power 12.3 dBm		
	Current	Avarage	Maximum
Frekuensi Error	21 Hz	19 Hz	24 Hz
Phase Error (Peak)	-3.5 °	3.6 °	5.3 °
Phase Error (RMS)	1.1 °	1.2 °	1.4 °

RF Channel 54	Power 12.4 dBm		
	Current	Avarage	Maximum
Frekuensi Error	-1 Hz	12 Hz	26 Hz
Phase Error (Peak)	4.5 °	4.0 °	5.4 °
Phase Error (RMS)	1.1 °	1.1 °	1.3 °

ADDITIONAL MEASUREMENTS:

CALL ESTABLISHED

POWER RAMP

RF CHANNEL:

123

Timeslot:

0

Freq. Error:

14 Hz

PHASE FREQ.

Phase Err. (PK):

-4.2 °

Phase Err. (RMS):

1.8 °

POWER:

Reported:

15 (13.0 dBm)

Meas. (Avg):

11.9 dBm

Ramp:

PRSS

TIMING ADV. TEST

MS RECEIVER REPORTS:

RxLev:

5 (-106 to -105 dBm)

RxQual:

0 (<<0.2%)

BER TEST

DIALLED NO.:

08161372622

HANDOVER TO:

15

POWER CTRL LEV.

123

RF CHAN

0

TIMESLOT

RF LEVEL:

-102.0 dBm

TUNE BS SIGN.

ECHO

SPEECH MODE

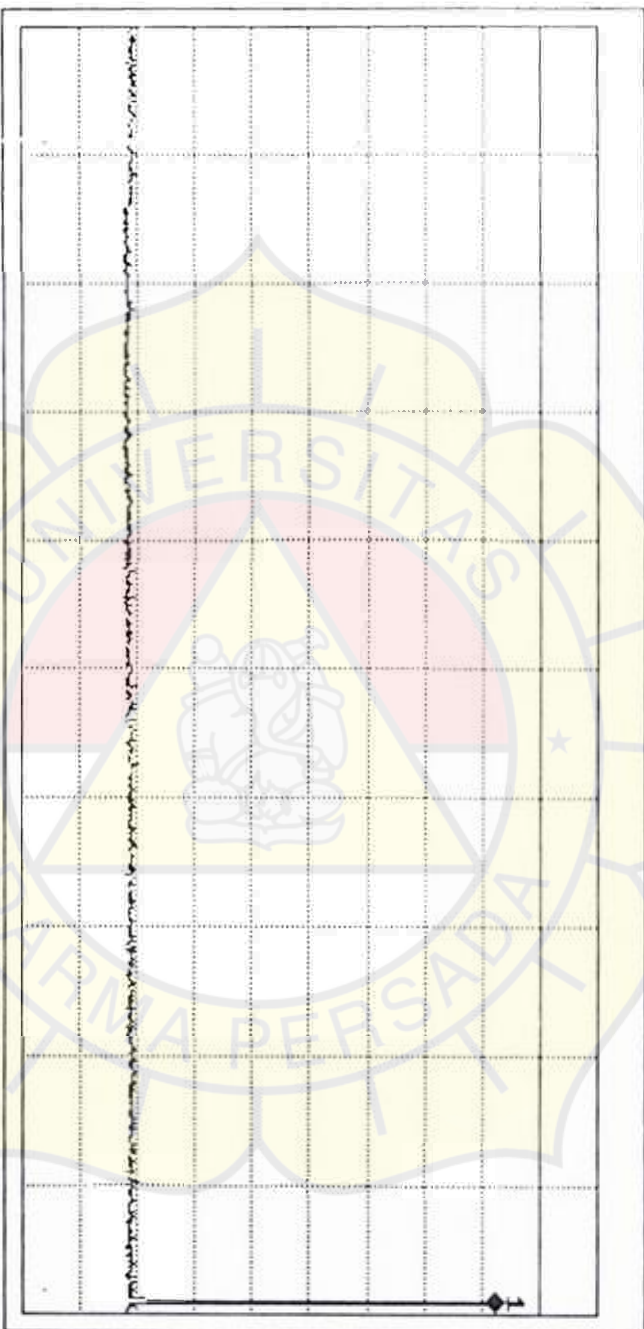
RELEASE THE CALL FROM THE MOBILE

OR PRESS

CALL RELEASE

Wed 2002 May 1 14:33

REF 10.0 dBm *A Write Posi B Blank Posi MKR 2.682 GHz -7.82 dBm



START 900 MHz STOP 2.700 GHz
*RBW 10 kHz VBW 10 kHz SWP 36 s ATT 20 dB

Spurious Emission [USER-1]

[No.]	[START FREQ.]	[STOP FREQ.]	[RBW]	[LIMIT]	[JUDGE]
1.	200.000000 MHz	300.000000 MHz	10 kHz	0.0 dBm	PASS
2.	900.000000 MHz	2.700000 GHz	10 kHz	0.0 dBm	
3.					
4.					
5.					

Spurious

1 Table No.

1 2 3

2 Load Table

4 Edit Table

5 Show Result

7 Spurious OFF

Wed 2002 May 1 14:22

Spurious Measurement Results [USER-1]

[Measurement Condition]

Table Number : 2
Start Frequency : 900.000000 MHz
Stop Frequency : 2.700000000 GHz
Resolution BW : 10 kHz
Limit Data : 0.00 dBm

[No.]	[SPURIOUS FREQ.]	[SPURIOUS LEVEL]	[JUDGE.]
1:	912.599980 MHz	-7.48 dBm	PASS

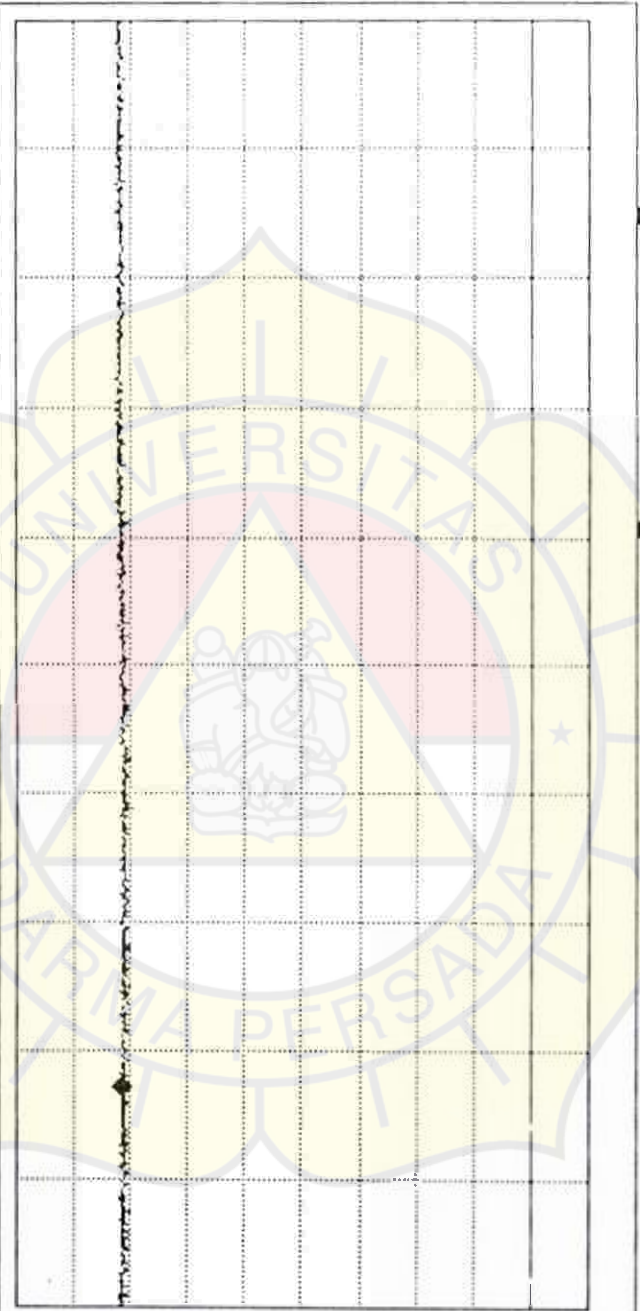
Show Result

1
Prev
Result

2
Next
Result

Wed 2002 May 1 14:24

REF 10.0 dBm MKR 779.6 MHz
10 dB/ *A Write Posi B Blank Posi -71.23 dBm



START 200.0 MHz STOP 900.0 MHz
*RBW 10 kHz VBW 10 kHz SWP 14 s ATT 20 dB

Spurious Emission [USER-1]

[No.] [START FREQ.] [STOP FREQ.] [RBW] [LIMIT] [JUDGE]

- | | | | | | |
|----|----------------|----------------|--------|---------|--|
| 1. | 200.000000 MHz | 300.000000 MHz | 10 kHz | 0.0 dBm | |
| 2. | 300.000000 MHz | 2.700000 GHz | 10 kHz | 0.0 dBm | |
| 3. | | | | | |
| 4. | | | | | |
| 5. | | | | | |

Spurious

1 Table No.

1 2 3

2 Load Table

4 Edit Table

5 Show Result

7 Spurious

OFF

Wed 2002 May 1 14:19

Spurious Measurement Results [USER-1]

[Measurement Condition]

Table Number : 1
Start Frequency : 200.000000 MHz
Stop Frequency : 900.000000 MHz
Resolution BW : 10 kHz
Limit Data : 0.00 dBm

[No.]	[SPURIOUS FREQ.]	[SPURIOUS LEVEL]	[JUDGE.]
1:	695.600000 MHz	-69.95 dBm	PASS

Show Result

1 Prev

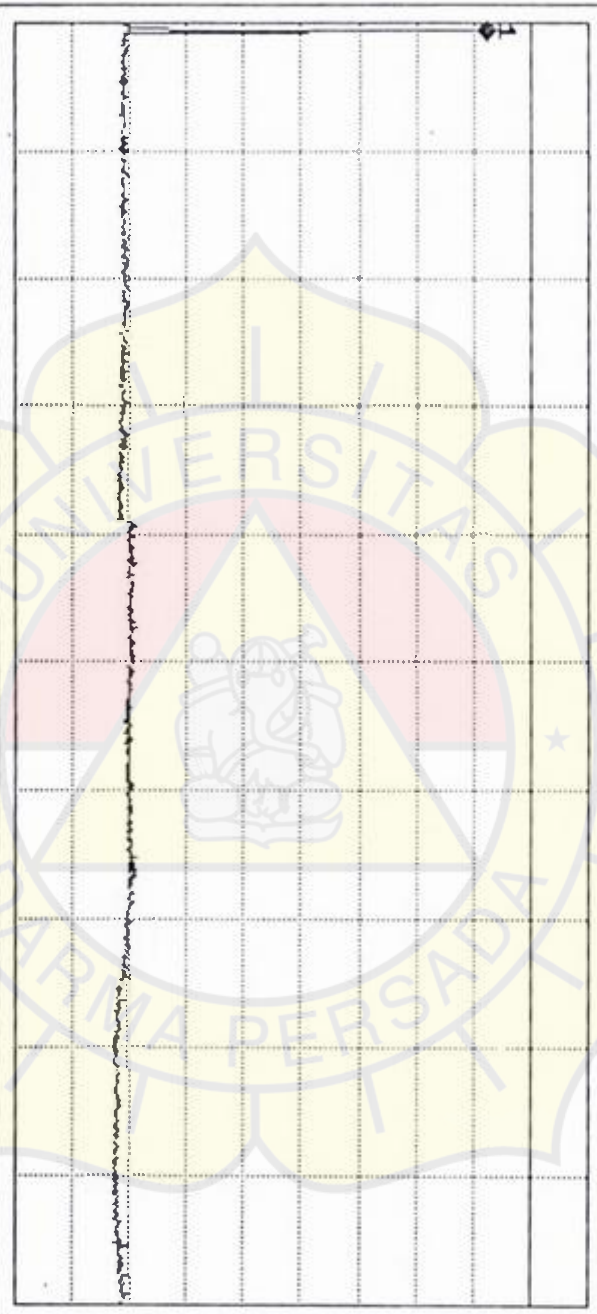
Result

2 Next

Result

Wed 2002 May 1 14:18

REF 10.0 dBm MKR 913 MHz
10 dB/ *A Write Posi B Blank Posi -7.48 dBm



START 900 MHz STOP 2.700 GHz
*RBW 10 kHz VBW 10 kHz SWP 36 s ATT 20 dB

Spurious Emission [USER-1]

[No.]	[START FREQ.]	[STOP FREQ.]	[RBW]	[LIMIT]	[JUDGE]
1.	200.000000 MHz	300.000000 MHz	10 kHz	0.0 dBm	PASS
2.	900.000000 MHz	2.700000 GHz	10 kHz	0.0 dBm	PASS
3.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
4.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
5.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Spurious

1 Table No.

1 2 3

2 Load Table

4 Edit Table

5 Show Result

7 Spurious OFF



LAMPIRAN B

HANDPHONE MERK A TIPE X₁

Tested by : BALAI UJI DITJEN POSTEL Time: 12:33
 Test location : JL. BINTARA PRIA 17 BEKASI Date: 05/29/01
 Type of mobile : SAMSUNG SGH-N300
 Serial number : 35012989002400

Power class : 4
 IMSI : 0010011234567890
 IMEI : 35012989002400

LOCATION UPDATE OK OK
 CALL TO MOBILE OK OK
 CALL CLEARING BY MOBILE OK OK
 CALL FROM MOBILE OK OK
 dialled number 16140000

*** TX-MEASUREMENTS

	CH 1	CH 62	CH 123		
PHASE ERROR RMS (avg)	1.6	1.6	1.6	deg	OK
PHASE ERROR PEAK (avg)	4.9	4.8	4.9	deg	OK
FREQUENCY ERROR (avg)	7.0	5.0	5.0	Hz	OK
PHASE ERROR RMS (max)	2.0	1.8	1.7	deg	OK
PHASE ERROR PEAK (max)	6.4	6.3	5.8	deg	OK
FREQUENCY ERROR (max)	14.0	12.0	16.0	Hz	OK

*** POWER RAMP MEASUREMENTS

TX power control level	CH 1	CH 62	CH 123		
MS TX POWER	32.2	32.2	31.2	dBm	OK
AMPLITUDE flatness	OK	OK	OK		OK
AMPL. ENVELOPE at 28us	OK	OK	OK		OK
AMPL. ENVELOPE at 18us	OK	OK	OK		OK
AMPL. ENVELOPE at -10us	OK	OK	OK		OK
AMPL. ENVELOPE at +10us	OK	OK	OK		OK
AMPL. ENVELOPE at +18us	OK	OK	OK		OK
AMPL. ENVELOPE at +28us	OK	OK	OK		OK

*** RX-MEASUREMENTS

	CH 1	CH 62	CH 123		
measured at power	-102.0	-102.0	-102.0	dBm	
BER CLASS II	0.8	1.6	0.1	%	OK
BER CLASS Ib	0.0	0.0	0.0	%	OK
ER	0.0	0.0	0.0	%	OK

ALL CLEARING BY CMD OK OK

OVERALL RESULT | OK |

Measured with ROHDE & SCHWARZ test equipment

ADJUT.
MEAS.

CALL ESTABLISHED

POWER
RAMP

RF CHANNEL: 123
Timeslot: 0

HANDOVER TO: 15

POWER
CTRL LEV.

PHASE
FREQ.

Freq. Error: 14 Hz
Phase Err. (PK): -4.2 °
Phase Err. (RMS): 1.8 °

123

RF CHAN

POWER:
Reported: 15 (13.0 dBm)
Meas. (Avg): 11.9 dBm
Ramp: PASS

RF LEVEL: -102.0 dBm

TUNE
BS SIGN.

MS RECEIVER REPORTS:

ECHO

SPEECH
MODE

TIMING
ADJ. TEST

RxLevl: 5 (-106 to -105 dBm)
RxQual: 0 (<<0.2%)

RELEASE THE CALL FROM THE MOBILE
OR PRESS

CALL
RELEASE

BER
TEST

DIALLED NO.:

08151377677

SAMSUNG SGH-N220V
 SN: 350121FA002A06

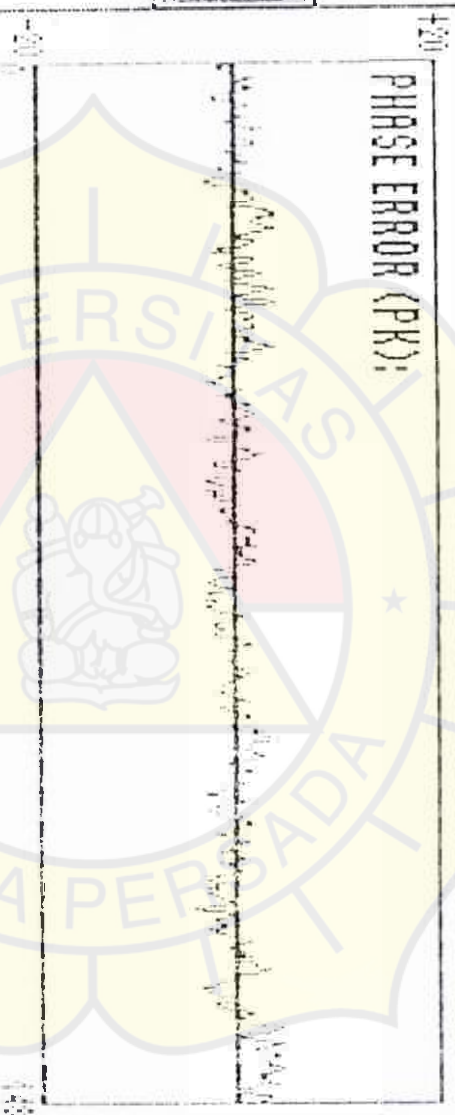
PHASE FREQUENCY

POWER
 CTRL LEV.
 15

123

RF CHAN

0
 TIMESLOT



RF CHANNEL: 123 POWER: 11.8 dBm

	POWER:		
	Current	Average	Maximum
Frequency Error:	-2 Hz	3 Hz	33 Hz
Phase Error (Peak):	4.2 °	4.8 °	7.2 °
Phase Error (RMS):	1.7 °	1.5 °	1.9 °

TUNING
 ADU, TEST

0 BURSTS 10

Frequency on
 band 123 :
 93 Hz
 Frequency on
 919,39 MHz
 stabilizers &
 33 Hz
 919,39 MHz
 0049
 hand 29/5

Tabel 4.8 Data Pengukuran BER Merk A Tipe X₁

Test	Samples (bit)	Events (bit)	R Ber	Waktu (detik)	Samples Max (bit)	Events Max (bit)
1	7800	6	0.077 %	2	7800	202
2	7800	11	0.141 %	2	7800	202
3	62400	29	0.046 %	16	62400	1560
4	62400	142	0.228 %	16	62400	1560
5	7800	0	0.000%	2	7800	202
6	62400	5	0.008 %	16	62400	1560
7	100074	68	0.068 %	25.66	100074	1560

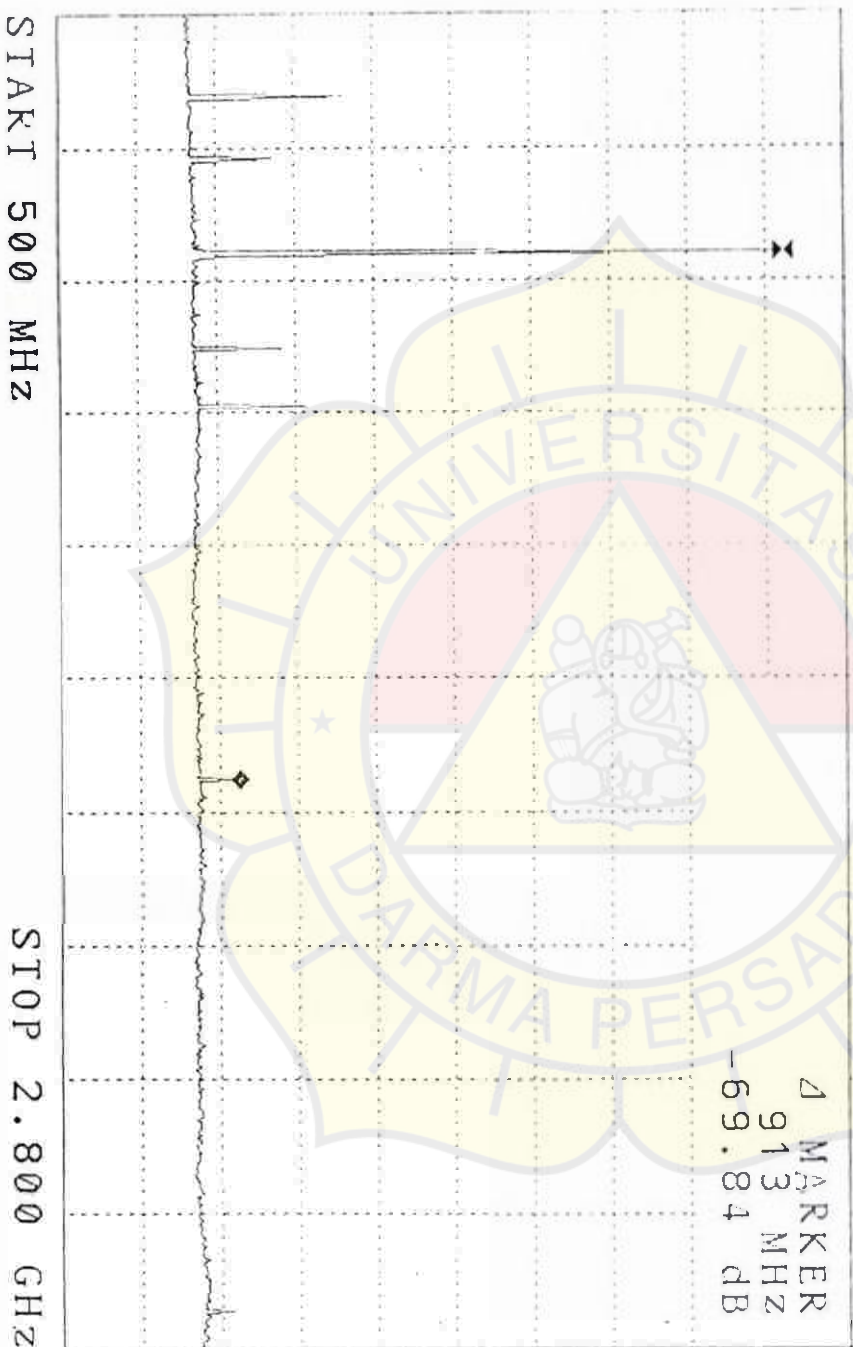
SN: SC011320005406

SAMSUNG SGH-N200 EMISI SPURIOUS
REF 0.0 dBm
10dB/

Tue May 29 14:02:07 2001
A_write&max B_blank

Δ MKR
913 MHz

RBW 10 KHz
VBW 10 KHz
SWP 46 S



~~Resistor~~

Resistor opusius pada harmonis

Le-2 : -69,84 dB

Resistor opusius pada harmonis

Le-2 : -69,84 dB + 20,5 dBm

-40,34 dBm

Ked 29/5/2001

SN: 45 012061002906

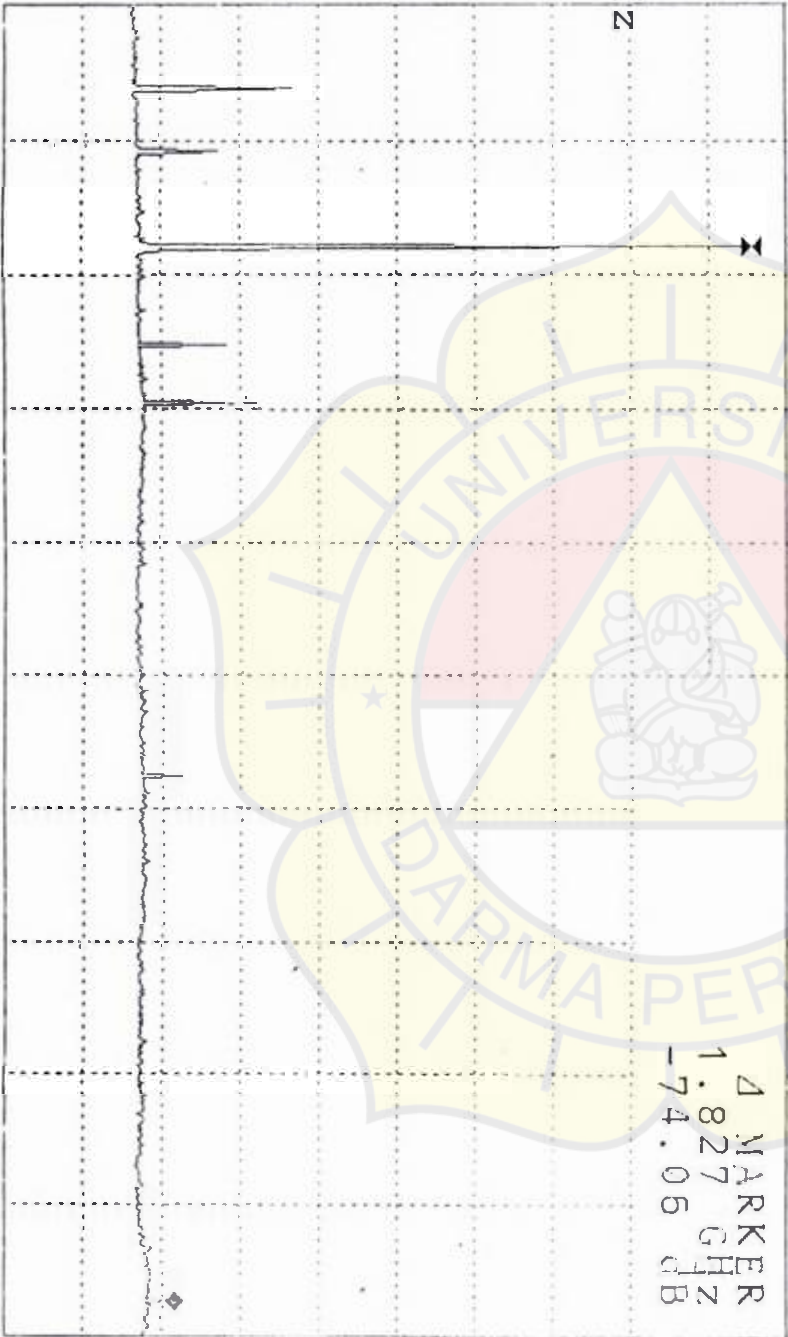
SAMSUNG SGH-N2000 EMISI SPURIOUS
REF 0.0 dBm
10dB/

Δ MKR
1.827 GHZ

RBW 10 KHZ
VBW 10 KHZ
SWP 46 S

ATT 10 dB
Tue May 29 14:03:39 2001
A_writed&max B_blank

Δ MARKER
1.827 GHZ
-74.06 dB



Handwritten notes:
 - 1.827 GHz
 - 74.06 dBm + 28.15 dB
 = -45.91 dBm
 had 29/5/2001



LAMPIRAN C

HANDPHONE MERK B TIPE X

P T . S A M S U N G E L E K T R O N I C S

tested by : BALAI UJI DITJEN POSTEL Time: 12:52
 test location : JL. BINTARA RAYA 17 BEKASI Date: 05/28/01
 type of mobile : SAMSUNG SGH-N200
 serial number : 35012989002408-9

power class : 4
 MSI : 001.01.1234567890
 MEI : 350129.89.002408.0

LOCATION UPDATE OK OK
 CALL TO MOBILE OK OK
 CALL (CLEARING BY MOBILE) OK OK
 CALL FROM MOBILE OK OK
 dialled number 6000000000

*** TX-MEASUREMENTS

	CH 1	CH 62	CH 123		
PHASE ERROR RMS (avg)	1.8	1.7	1.7	deg	OK
PHASE ERROR PEAK (avg)	5.8	5.0	4.9	deg	OK
FREQUENCY ERROR (avg)	5.0	-4.0	-9.0	Hz	OK
PHASE ERROR RMS (max)	2.2	1.9	1.8	deg	OK
PHASE ERROR PEAK (max)	-7.0	5.9	-6.0	deg	OK
FREQUENCY ERROR (max)	9.0	-12.0	-16.0	Hz	OK

*** POWER RAMP MEASUREMENTS

	5	5	5		
TX power control level	5	5	5		
MS TX POWER	33.2	32.3	31.2	dBm	OK
AMPLITUDE flatness	OK	OK	OK		OK
AMPL. ENVELOPE at -28us	OK	OK	OK		OK
AMPL. ENVELOPE at -18us	OK	OK	OK		OK
AMPL. ENVELOPE at -10us	OK	OK	OK		OK
AMPL. ENVELOPE at +10us	OK	OK	OK		OK
AMPL. ENVELOPE at +18us	OK	OK	OK		OK
AMPL. ENVELOPE at +28us	OK	OK	OK		OK

***** RX-MEASUREMENTS

	CH 1	CH 62	CH 123		
measured at power	-102.0	-102.0	-102.0	dBm	
BER CLASS II	0.1	2.4	0.1	%	OK
BER CLASS Ib	0.0	0.0	0.0	%	OK
FER	0.0	0.0	0.0	%	OK

CALL CLEARING BY CMD OK OK

OVERALL RESULT OK

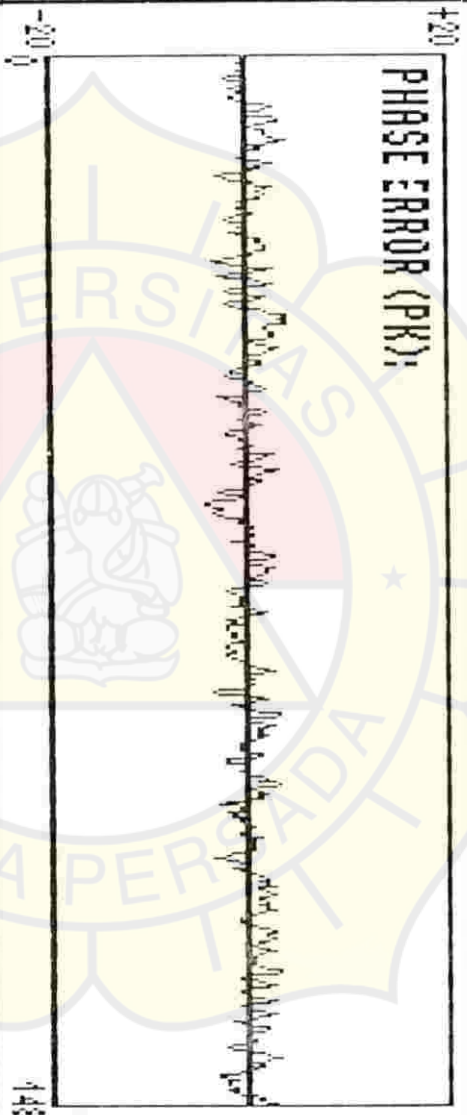
Measured with RONDE & SCHWARZ test equipment

Power: 32,3 dBm (169 W)

PHASE FREQUENCY

POWER RAMP

PHASE FREQ.



PHASE ERROR (PK):

POWER CTRL LEV.

15

RF CHAN

0 TIMESLOT

RF CHANNEL:

123

POWER:

11.8 dBm

	Current	Average	Maximum
Frequency Error:	5 Hz	2 Hz	30 Hz
Phase Error (Peak):	-4.5°	5.0°	-7.4°
Phase Error (RMS):	1.5°	1.6°	2.0°

TIMING ADJ. TEST

0 BURSTS 10

Tabel 4.9 Data Pengukuran BER Merk B Tipe X

Test	Samples (bit)	Events (bit)	R Ber	Waktu (detik)	Samples Max (bit)	Events Max (bit)
1	7800	6	0.077 %	2	7800	202
2	7800	69	0.885 %	2	7800	202
3	62400	66	0.106 %	16	62400	1560
4	62400	323	0.518 %	16	62400	1560
5	7800	2	0.026 %	2	7800	202
6	62400	24	0.038 %	16	62400	1560
7	100074	89	0.089 %	25.66	100074	1560

ADDITIONAL MEASUREMENTS:

CALL ESTABLISHED

POWER RAMP

RF CHANNEL:

123

Timeslot:

0

PHASE FREQ.

Freq. Error:

14 Hz

Phase Err. (PK):

-4.2°

Phase Err. (RMS):

1.8°

POWER:

Reported:

15 (-13.0 dBm)

Meas. (Avg):

11.9 dBm

Ramp:

PRSS

TIMING ADV. TEST

MS RECEIVER REPORTS:

RxLevl:

5 (-106 to -105 dBm)

RxQual:

0 (<<0.2%)

BER TEST

DIALED NO.:

08161372622

HANDOVER TO:

15

POWER CTRL LEV.

123

RF CHAN

0

TIMESLOT

RF LEVEL:

-102.0 dBm

TUNE BS SIGN.

ECHO

SPEECH MODE

RELEASE THE CALL FROM THE MOBILE

OR PRESS

CALL RELEASE

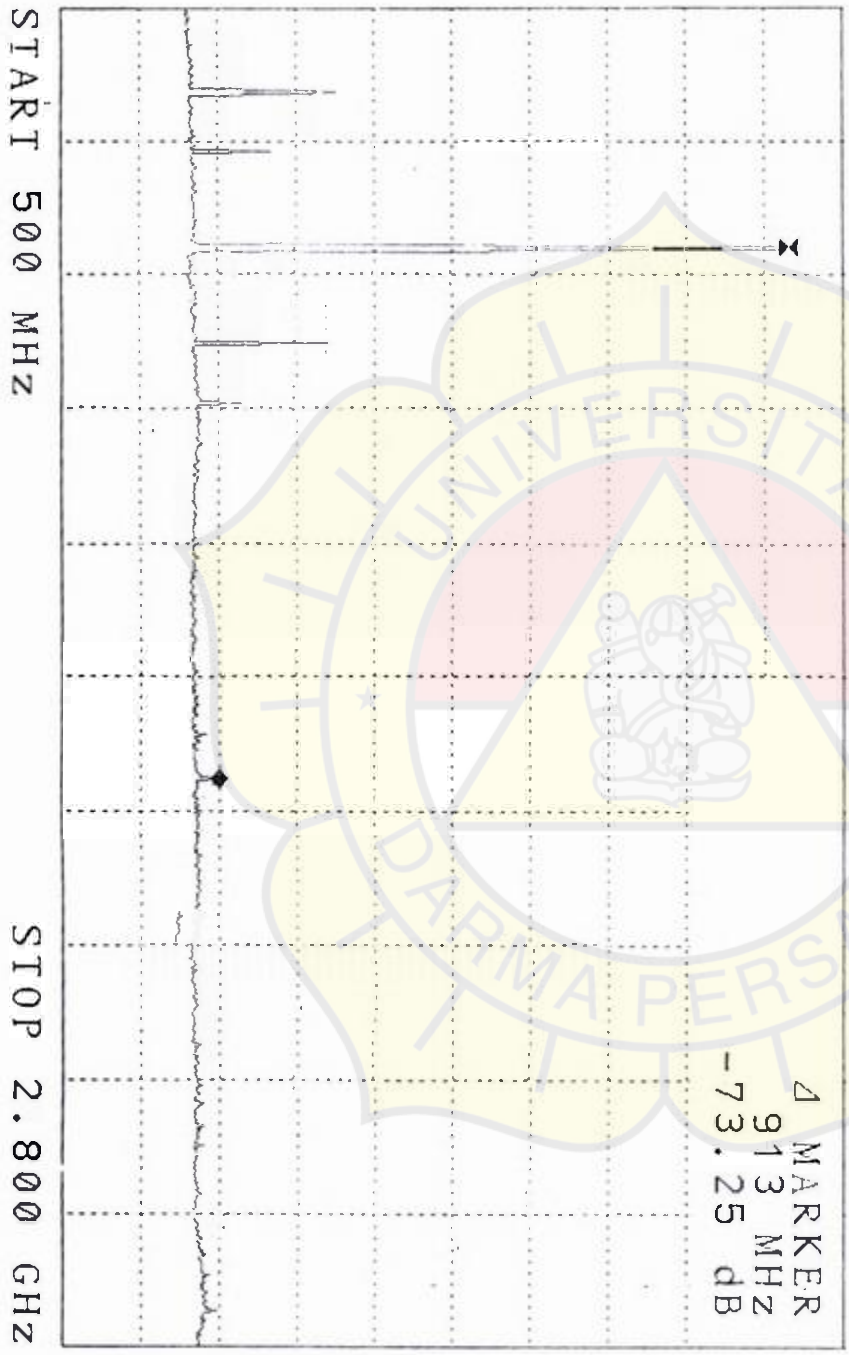
FN : 35012962002408
 SAMSUNG SGH-N2000 EMISI SPURIOUS
 REF 0.0 dBm
 10dB/

ATT 10 dB
 Tue May 29 15:55:46 2001
 A_writ&max B_blank

Δ MKR
 913 MHz

Δ MARKER
 913 MHz
 -73.25 dB

RBW 10 KHZ
 VBW 10 KHZ
 SWP 46 S



Residual emission pada 913 MHz
 Le -23 -73.25 dB
 Emission operation pada 913 MHz
 Le -23 -73.25 dB
 = -47.55 dBm
 Band 2017-10-11

CN : 3501291624V8

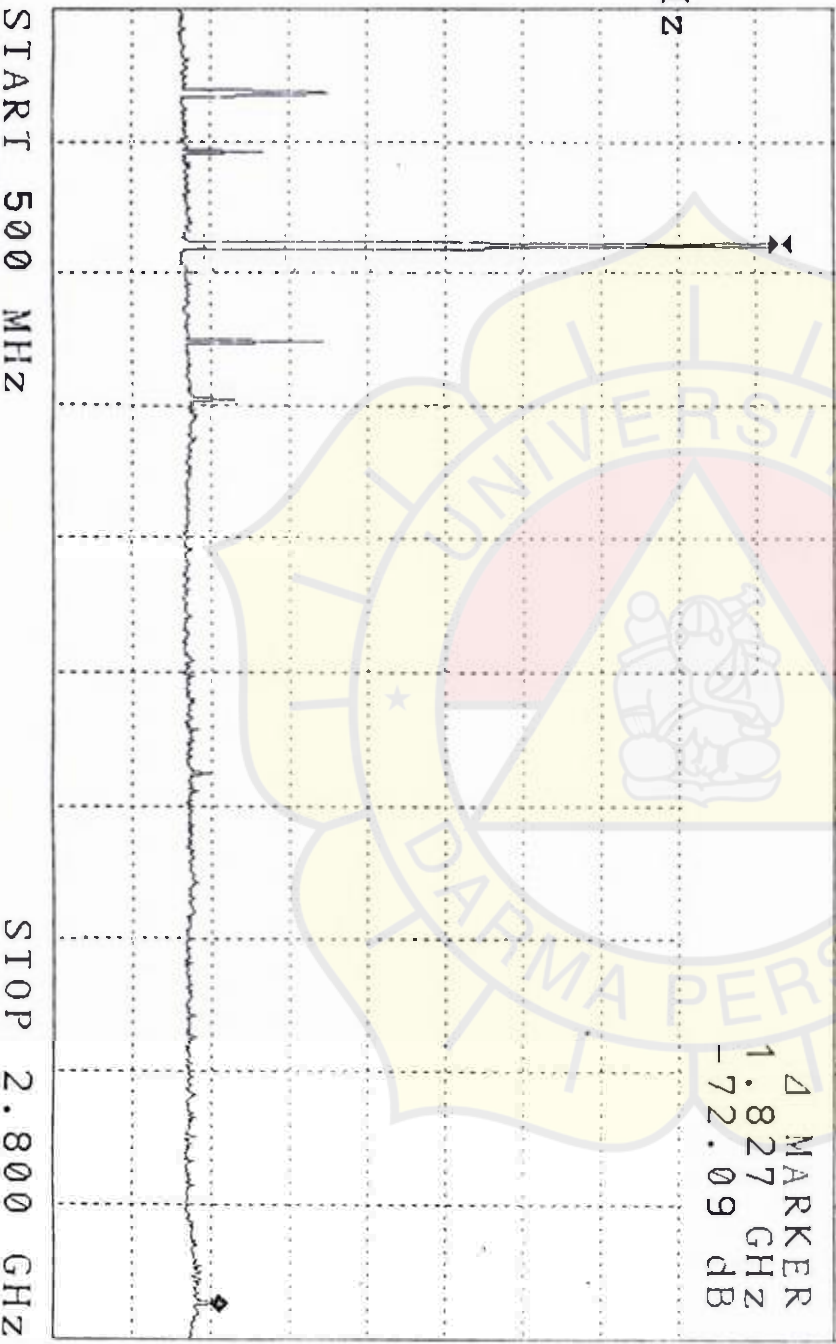
SAMSUNG SGH-N200 EMISI SPURIOUS
REF 0.0 dBm ATT 10 dB
10dB/

Tue May 29 15:56:43 2001
A_writ&max B_blank

Δ MKR
1.827 GHZ

Δ MARKER
1.827 GHZ
-72.09 dB

RBW 10 KHZ
VBW 10 KHZ
SWP 46 S



START 500 MHZ

STOP 2.800 GHZ

*Basic operation pada daya
wil level : -72,09 dBm
Swing operation pada daya
wil level : -72,09 dBm
= -39,79 dBm
level 29/5-2001*

DAFTAR RIWAYAT HIDUP

Data diri:

Nama : RIZZA. KURNIA
NIM : 97210033
Tempat/ tanggal lahir : Jakarta, 23 Oktober 1976
Alamat : Jl. Pejaten Timur Rt 03/07
: Jakarta Selatan
Kewarganegaraan : Indonesia
Status : Belum menikah

Pendidikan :

SD : di Jakarta tamatan tahun 1990
SMP : di Jakarta tamatan tahun 1993
STM : di Jakarta tamatan tahun 1996