

MT8820A WCDMA UE测试应用

WCDMA 测试功能模块构成



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MT8820A WCDMA测试应用:

•MT8820A面板操作;
•MT8820A一般参数设置;
•MT8820A相关参数设置说明;
•MT8820A WCDMA测试步骤;



MT8820A面板操作









面板操作

Focus ---菜单切换 Parameter : 参数设置 Fundamental : 结果数据 UE report : 手机汇报 Sequence monitor : 呼叫监控 Screen : 选择屏幕 , 同时有parameter/fundamental/PS report 或者parameter/sequence monitor/UE report



2006/01/23 15: <system informa<br="">System Info</system>	14 ation> Output Main <mark>o. </mark>	Phone-1 ₩-CDMA
Usen	Maintenance Information	System Info.
Back To ₩-CDMA	Serial Number 6200307570 Power On Time 147980 [min] Full Cal Time 2005/12/22 16:44	T A Maintenance <mark>G</mark> Information
System Config. Screen	CF Type 128 MB CF Unused Area 34,514 kbyte	T A Software <mark>G</mark> Version
Standard Load Screen	Software Version Firmware : MT8820A 4.30 #003 : IPL 4.01 #001	<mark>T</mark> A Software <mark>G</mark> Option
	: DS	<mark>T</mark> A Hardware <mark>G</mark> Revision
External Loss Screen	Scenario : MX882050A 4.30 #005 GSM : MX882001A 4.21 #016	
Parameter Save Screen	Software Option MX882000B : W-CDMA MEASUREMENT SOFTWARE MX882000B-01 : W-CDMA VOICE CODEC	Information Save
Parameter Recall Screen	MX882001A : GSM MEASUREMENT SOFTWARE MX882001A-01 : GSM VOICE CODEC MX882050A : W-CDMA CALL PROCESSING SOFTWARE	



按Config→

System info

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2006/01/23 15:5 <system configu<="" th=""><th>54 uration> Output Main Ig.</th><th>Phone-1 ₩-CDMA</th></system>	54 uration> Output Main Ig.	Phone-1 ₩-CDMA
User		System Config.
Back To ₩-CDMA	Frequency Ref. Frequency 10MHz (INT)	T A Common G
	Display Display Title Date/Time Title MT8820A	T A Phone-1 G
Standard Load Screen	Date Format YYYY/MM/DD Date(Year/Month/Day) 2006/01/23	
System Information Screen	Time (Hour: Minute: Second) 15:54:07	
External Loss Screen	Format (BMP(Color))	
Parameter Save Screen	Phone-1 确认GPIB地址	
Parameter Recall	GPIB Address 1	
Screen	10Base-T IP Address 192 . 168 . 20 . 2 Subnet Mask 255 . 255 . 0	



确认scenario 版本

2004/12/13 17: <system inform<br="">System Inf</system>	00 ation> Output Main p	Phone−1 ₩-CDMA
User	Software Version	System Info.
Back To ₩-CDMA	Firmware : MT8820A 3.32 #002	
System Config.	[Standard] #-CDMA : MX882000B 3.50S#001 Scoperio : MX882050A 3.50.#006 D	
Screen	GSM : MX882001A 3,41 #004	
Load Screen	PHS : MX882005A 3.30 #006	
Parameter Save Screen		
Parameter Recall Screen	Uther Serial Number 6200307566 Power On Time 13970 [min] Full Cal Time 2004/12/07 14:03	

升级:

(1)插入CF卡 (2)同时按set 和开机键

(3)听到嘀声 松手,系统会自 动升级



MT8820A一般参数设置





urement.

Viewing a parameter window







参数(1)

2004/11/07 14:52 Loop Mode 1	Phone-1
<fundamental measurement=""> Output Main</fundamental>	₩-CDMA
Parameter Fundamental UE Report	
UE Power : -2.7 dBm	Parameter
Common Parameter <mark> Item List <mark>Standard -</mark></mark>	
Call Processing COn Test Loop Mode Mode 1	G
Frequency	Т
UL Channel & Frequency 9738 CH = 1947.600000 MHz	A Physical G Channel
DL Channel & Frequency 10688 CH = 2137.600000 MHz	
Thequency separation (190.07)***	A Call
Level	G Processing
Input Level	T TX A Moscupomont
Output Level (Total) -65.7 dBm (Un Level Continuous Off)	G Setup
External Loss(Main DL) -2.0 dB Off	T RX
External Loss(Main UL) 2.0 dB Off	A Measurement 6 Setur
External Loss(Aux) 0.0 dB Off	- CCCap
External Loss lable (0)	A Fundamental
Signal	<mark>G</mark> Measurement
Channel Coding Reference Measurement Channel	
DTCH Data Pattern PN9	
Prioritised RABs DL Max. Rate 12.2kbps	119191

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参数(2)

2004/11/07 14:52 <fundamental measurement=""> Output Main</fundamental>	Loop Mode 1		Phone-1 ₩-CDMA
Parameter Fundamental	UE Report		_
	UE Power :	-2,7 dBm	Parameter
Physical Channel Parameter Item List Downlink Physical Channel Tota	Standard D Power/Ior (0.0)dB	A	T A Common G
CPICH Power(CPICH_Ec/Ior) P-CCPCH Power(P-CCPCH_Ec/Ior)	-3.3 dB On -5.3 dB On		T A Physical <mark>G</mark> Channel
PICHPower(PICH_Ec/Ior)DPCHPower(DPCH_Ec/Ior)OCNSPower(OCNS_Ec/Ior)	-8.3 dB On -10.3 dB On (-60.0)dB (On)		<mark>T</mark> A Call <mark>G</mark> Processing
S-CCPCH Power(S-CCPCH_Ec/Ior) AICH Power(AICH_Ec/Ior)	<u>-3.0</u> dB On 0.0 dB On		T TX A Measurement <mark>G</mark> Setup
Call Processing Parameter Item List <mark>S</mark> Base Station ID Location Area Identification	tandard		T RX A Measurement <mark>G</mark> Setup
MCC 001 MNC 01 LAC 0080 H			T A Fundamental <mark>G</mark> Measurement
Mobile Cell Identity IMSI 0010100	00000010	Ţ	123

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2004/11/07 14:53	Loop Mode 1	F	Phone-1
<fundamental measurement=""> Output Main</fundamental>		4	H-CDMA
Parameter Fundamental	UE Report		
	UE Power :	-2,7 dBm	Parameter
Detect Mode Average			T
OBW Ratio 99.0 %			A Common G
Spectrum Emission Mask			<u>т</u>
Detect Mode Average			A Physical
Template Template Setup 🐼	7		<mark>G</mark> Channel
Additional Limit Non	-		T
			A Call
Modulation Analysis			G Processing
Storage Mode Latest			T TX
Long Span Code Search Off			A Measurement 6 Setun
Measuring Object W-CDMA			
EVM include Urigin Uffset J <mark>Uff</mark>			A Measurement
PV Massumement Satur Demonstration I tage Li	at Standard		G Setup
ni measurement setup rarameter Item Li Bit Ennon Rate	st jstanuaru		Т
Number of Sample 10000 Bit			A Fundamental
BEB Upper Limit 10.0 %			<mark>G</mark> Measurement
Measurement Input RF Loopback			
Ext. BER Input Polarity Positive			
Ext. BER Input Clock Rise			
Voice Channel Subflow 1		V	1 2 3





2004/11/07 14:53	Loop Mode 1	F	Phone-1
<fundamental measurement=""> Output Main</fundamental>		4	H-CDMA
Parameter Fundamental	UE Report		
	UE Power :	-2,7 dBm	Parameter
Ext. BER Input Polarity Positive Ext. BER Input Clock Rise Voice Channel Subflow 1			<mark>T</mark> A Common <mark>G</mark>
Block Error Rate Number of Sample 50 Block			<mark>T</mark> A Physical <mark>G</mark> Channel
BLER Upper Limit 10.0 % BER/BLER Timeout Length 10 sec			<mark>T</mark> A Call <mark>G</mark> Processing
Fundamental Measuremen t Parameter Iter Measurement Mode (Fast)	n List Standard		<mark>T</mark> TX A Measurement <mark>G</mark> Setup
Power Measurement On Average Frequency Error On Average Occupied Bandwidth On Average	Count 20 Count 20 Count 20		<mark>T</mark> RX A Measurement <mark>G</mark> Setup
Spectrum Emission Mask On Average Adjacent Channel Power On Average Modulation Analysis On Average	Count 20 Count 20 Count 20		T A Fundamental <mark>G</mark> Measurement
Peak Code Domain Error On BER BLFR	Count 20		
		V	123



MT8820A相关参数设置说明



输出CW信号:

Parameter Fundamental UE Report UE Power : -60, 6 dBm Parameter Common Parameter Item List Standard Item Color Call Processing Off Test Loop Mode Mode 1 Item Color Frequency UL Channel & Frequency 9738 CH = 1947.600000 MHz DL Channel & Frequency 9738 CH = 2137.600000 MHz Color Setting Frequency 10688 CH = 2137.600000 MHz Modulation DL Channel & Frequency 190.0.0.0MHz Modulation Modulation On Off Level Input Level -10.0 dBm Dn Level Continuous Off Band Output Level -20.0 dB Off Band Call Ibration External Loss(Main DL) 0.0 dB Off Band Call Ibration External Loss(Main UL) 0.0 dB Off Call Ibration Full Call bration Color Signal Channel Coding Reference Measurement Channel Total Ibration DTCH Data Pattern PN9 PN9 PN PN	2006/01/23 14:28 Off <fundamental measurement=""> Output CW</fundamental>		Phone-1 #-CDMA
UE Power: -60, 6 dBm Parameter Common Parameter Item List Standard * Call Processing Off Test Loop Mode Mode 1 * Frequency UL Channel & Frequency 9738 CH = 1947,600000 MHz DL Channel & Frequency 10688 CH = 2137,600000 MHz * Color Setting -10.0 dBm On Level * Modulation Input Level -10.0 dBm On Level Continuous Off * Band Level -10.0 dBm On Level Continuous Off * Band Level -10.0 dBm On Deff * * Level -10.0 dBm Dn Level Continuous Off * Band Calibration -20.0 dB Off * * * * Level -20.0 dB Off * * * * * External Loss (Main UL) 0.0 dB Off * * * * * * <th>Parameter Fundamental UE Report</th> <th></th> <th>-</th>	Parameter Fundamental UE Report		-
Common Parameter Item List Standard * Call Processing Off Test Loop Mode Mode 1 * Frequency 9738 CH = 1947.600000 MHz UL Channel & Frequency 10688 CH = 2137.600000 MHz * Frequency Separation (190.0)MHz * Band Indicator Off Uptur Level -10.0 dBm Output Level (Total) -65.7 dBm External Loss (Main DL) 0.0 dB External Loss (Main DL) 0.0 dB External Loss Table (0) Signal Channel Coding Reference Measurement Channel Full Call bratematic *	UE Power : -6().6 dBm	Parameter
Call Processing Dff Test Loop Mode Mode 1 Frequency UL Channel & Frequency 9738 CH = 1947.600000 MHz DL Channel & Frequency 10688 CH = 2137.600000 MHz Setting Frequency Separation (190.0.) MHz Setting Setting Evel -10.0 dBm Modulation Modulation Input Level -20.0 dBm On Level Continuous Off AWGN Level -20.0 dB Off Band Calibration External Loss(Main DL) 0.0 dB Off Band Calibration External Loss(Main UL) 0.0 dB Off Calibration Full Calibration On dB Off Calibration Full Calibration On Off Calibration Full Calibration Signal Channel Coding Reference Measurement Channel Full Calibration DTCH Data Pattern PN3 FN3 Full Full	Common Parameter Item List <mark>Standard</mark>		*
Frequency 9738 CH = 1947.600000 MHz Color LL Channel & Frequency 10688 CH = 12137.600000 MHz Color Setting 10688 CH = 1947.600000 MHz Setting Level 1000.0 MHz Modulation Input Level 0ff 0 Modulation Output Level (Total) -65.7 dBm Dn Level Continuous AHGN Level -20.0 dB Offf Band Calibration External Loss (Main DL) 0.0 dB Offf Band Calibration External Loss Table 0 0 0 Full Calibration Signal Channel Coding Reference Measurement Channel Full Calibration DTCH Data Pattern PN9 Full Full Full	Call Processing Off Test Loop Mode Mode 1		Window Size
UL Channel & Frequency 9738 CH = 1947.600000 MHz DL Channel & Frequency 10688 CH = 2137.600000 MHz Frequency Separation (190.0.) MHz Modulation Band Indicator Dff Level -10.0 dBm Modulation Output Level -10.0 dBm Modulation Output Level (Total) -65.7 dBm On Level Continuous AWGN Level -20.0 dB Offf Band Calibration External Loss (Main DL) 0.0 dB Offf Band Calibration External Loss (Main UL) 0.0 dB Offf Band Calibration Signal Color PN9 Modulation Full Calibration	Francisco		*
DL Channel & Frequency 10688 CH = [2137.600000] MHz Frequency Separation (190.0)MHz MHz Modulation Band Indicator Off Modulation Modulation Level -10.0 dBm On Level Continuous Modulation Output Level -10.0 dBm On Level Continuous Modulation AwGN Level -20.0 dB Off Band Calibration External Loss(Main DL) 0.0 dB Off Band Calibration External Loss(Main UL) 0.0 dB Off Full Calibration Signal Dhannel Coding Reference Measurement Channel PN9 Full Calibration	II Channel & Frequency 9738 CH = 1947.600000 MHz		Color
Frequency Separation (190.0) MHz Band Indicator Dff Used -10.0 Input Level -10.0 Output Level (Total) -65.7 -85.7 dBm Dutput Level (Total) -65.7 -20.0 dB Off Band -20.0 dB Off External Loss (Main DL) 0.0 dB Off External Loss (Main UL) 0.0 dB Off External Loss (Aux) 0.0 dB Off External Loss Table (0) Full Calibration Signal Channel Coding Reference Measurement Channel Tooled DTCH Data Pattern PN9 Tooled Tooled	DL Channel & Frequency 10688 CH = 2137.600000 MHz		Setting
Band Indicator Off Level Input Level -10.0 dBm Output Level (Total) -65.7 dBm On Level Continuous Dff AWGN Level -20.0 dB Off Band Calibration External Loss (Main DL) 0.0 dB Off Band Calibration External Loss (Main UL) 0.0 dB Off External Loss (Main UL) O.0 dB Off External Loss (Main UL) 0.0 dB Off External Loss (Aux) Full Calibration Signal Channel Coding Reference Measurement Channel Toth Data Pattern PN9 Toth Level Toth Level	Frequency Separation (190.0)MHz		
Level Input Level (Total) -65.7 dBm On Level Continuous Off AWGN Level (Total) -65.7 dBm On Level Continuous Off AWGN Level -20.0 dB Off External Loss(Main DL) 0.0 dB Off External Loss(Main UL) 0.0 dB Off External Loss(Aux) 0.0 dB Off External Loss Table (0) Signal Channel Coding Reference Measurement Channel DTCH Data Pattern PN9	Band Indicator Off		
Input Level -10.0 dBm Output Level (Total) -65.7 dBm On Level Continuous Off AWGN Level -20.0 dB Off Band External Loss (Main DL) 0.0 dB Off Band External Loss (Main UL) 0.0 dB Off Band External Loss (Main UL) 0.0 dB Off Band External Loss (Main UL) 0.0 dB Off Band External Loss (Aux) 0.0 dB Off Band External Loss Table 0 Full Calibration Signal Channel Coding Reference Measurement Channel Interview DTCH Data Pattern PN9 Total pattern Total pattern	Level		
Output Level (Total) -65.7 dBm On Level Continuous Off AWGN Level -20.0 dB Off External Loss (Main DL) 0.0 dB Off External Loss (Main UL) 0.0 dB Off External Loss (Main UL) 0.0 dB Off External Loss (Aux) 0.0 dB Off External Loss Table (0) Signal Channel Coding Reference Measurement Channel DTCH Data Pattern PN9	Input Level -10.0 dBm		Modulation
AWGN Level -20.0 dB Uff External Loss (Main DL) 0.0 dB Off External Loss (Main UL) 0.0 dB Off External Loss (Aux) 0.0 dB Off External Loss Table (0) Full Channel Coding Reference Measurement Channel DTCH Data Pattern PN9	Output Level (Total) -65.7 dBm On Level Continu	uous <mark>Off</mark>	
External Loss (Main UL) 0.0 0.0 0.0 0.0 Calibration External Loss (Aux) 0.0 0.0 0.0 0.0 Full External Loss (Aux) 0.0 0.0 0.0 Full Calibration External Loss Table 0 0.0 0.0 Full Calibration Signal 0.0 Reference Measurement Channel Full Calibration DTCH Data Pattern PN9 Full Full Full	AWGN Level -20.0 dB Off		Band
External Loss (Aux) 0.0 dB Dff External Loss Table (0) Signal Channel Coding Reference Measurement Channel DTCH Data Pattern PN9	External Loss (Main DL) 0.0 dB 0ff		Calibration
External Loss Table (0) Full Calibration Signal Channel Coding Reference Measurement Channel DTCH Data Pattern PN9	External Loss (Aux) 0.0 dB Off		
Signal Channel Coding Reference Measurement Channel DTCH Data Pattern PN9	External Loss Table (0)		Full
Signal Channel Coding Reference Measurement Channel DTCH Data Pattern PN9			Calibration
Channel Coding Reference Measurement Channel DTCH Data Pattern PN9	Signal		
DICH Data Pattern PN9	Channel Coding Reference Measurement Channel		
	DICH Data Pattern PN9		1 2 3

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Fast Power Measurement Mode :

2006/01/23 14:16 <fundamental measurement=""> Output Main</fundamental>	Idle	F	Phone-1 #-CDMA
Panameten Fundamental	UE Report		
	UE Power :	-60,7 dBm	Parameter
Detect Mode Average Template Template Setup	5	A	T A Common G
Modulation Analysis			T A Physical <mark>G</mark> Channel
Long Span Code Search Off Measuring Object W-CDMA			T A Call G Processing
Fast Power Measurement Mode Off			T TX A Measurement G Setup
RX Measurement Setup Bit Error Rate	: Standard		T RX A Measurement G Seturi
Number of Sample 10000 Bit BER Upper Limit 10.0 % Measurement Toput BE Loophack			T A Audio
Ext. BER Input Polarity Positive Ext. BER Input Clock Rise			G T A Fundamental
Block Error Bate		Y	<mark>G Measurement</mark> 1 2 3

当 Fast Power Measurement Mode 被设成 On ,可以加快 测量功率的速度;

但同时,其它的TX项目不可 以被测量。

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Basic Spectrum parameter Setting :





MT8820A WCDMA测试步骤

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WCDMA 测试项目

- 1, 最大输出功率<TX>
- 2, 频率误差 <TX>
- 3, 占用带宽 <TX>
- 4, 频谱发射模板 <TX>
- 5,邻信道功率泄漏比 <TX>
- 6,矢量幅度误差 <TX>
- 7, 参考灵敏度<RX>
- 8, 最小输出功率 <TX>
- 9, 内环功率控制 <TX>
- 10, 最大输入电平<RX>





push Focus

Parameter

1. Connect to <u>Test Loop Mode1</u>.

2004/11/03 09:58 <eundamental measurement=""> Output Main.</eundamental>	Idle(Regist)	Phone-2 ₩-CDMA	Phone-1 W-CDMA
Parameter Fundamental	UE Report		
	UE Power :	-65,7 dBm	Parameter
Common Parameter Item List Detail Call Processing On Test Loop	Mode <mark>Mode 1</mark>		A Common
Frequency UL Channel & Frequency 9750 CH = 1 DL Channel & Frequency 10700 CH = 2	.950.000000 MHz		T A Physical <mark>G</mark> Channel
Frequency Separation (190.0)MHz			T A Call <mark>G</mark> Processing
Input Level -16.0 dBm Output Level (Total) -59.7 dBm AWGN Level -20.0 dB	On Level (Continuous <mark>Off</mark>	T TX A Measurement <mark>G</mark> Setup
Sequential Output -1 dB/fram External Loss(Main DL) 6.0 dB External Loss(Main UL) 6.0 dB	ne Length 31 f	rame <mark>Off</mark>	T RX A Measurement <mark>G</mark> Setup
External Loss (Aux) 0.0 dB External Loss Table (0)	Off		T A Fundamental <mark>G</mark> Measurement
Signal Channel Coding Reference Meas	surement Channel		
DCCH Data Pattern PN9 DCCH Data Pattern Signaling			- 1 2 3





2 set Input Level to <u>+35.0dBm</u>.

3 set Output Level to <u>-106.7dBm</u>.

2004/11/03 10:02 <fundamental measurement<="" th=""><th>Loop t> Output Main</th><th>Mode 1</th><th>Phone-2 ₩-CDMA</th><th>Phone-1 ₩-CDMA</th></fundamental>	Loop t> Output Main	Mode 1	Phone-2 ₩-CDMA	Phone-1 ₩-CDMA
Parameter	Fundamental	UE Report		
	U	E Power :	18.6 dBm	Parameter
Common Parameter Item L Call Processing On	ist Detail Test Loop Mode	Mode 1		T A Common G
Frequency UL Channel & Frequency DL Channel & Frequency	9750 CH = 1950.00	0000 MHz 0000 MHz		T A Physical G Channel
Frequency Separation	(190.0)MHz			T A Call <mark>G</mark> Processing
Input Level Output Level (Total)	35.0 dB <mark>n -106.7</mark> dBn -20.0 dB	On Level Cor	ntinuous <mark>Off</mark>	T TX A Measurement <mark>G</mark> Setup
Sequential Output External Loss (Main DL)	-1 dB/frame 6.0 dB Off	Length <mark>31</mark> fra	me <mark>Off</mark>	T RX A Measurement G Setup
External Loss (Nann 62) External Loss (Aux) External Loss Table	0.0 dB 0ff (0)			<mark>T</mark> A Fundamental <mark>G</mark> Measurement
Signal				
Channel Coding	Reference Measuremer	nt Channel		
DTCH Data Pattern	PN9			
DCCH Data Pattern	Signaling			123

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4 set TPC Pattern to ALL1.

2004/11/03 10:04 <fundamental measurement=""> Output Ma</fundamental>	Loop Mode 1 in	Phone-2 ₩-CDMA	Phone-1 ₩-CDMA
Parameter Fundamental	UE Report		
	UE Power :	18,5 dBm	Parameter
Measurements ReportOffCipheringOffIntegrity ProtectionOn			<mark>T</mark> A Common <mark>G</mark>
Call Drop Threshold 256	Frame Off		T A Physical <mark>G</mark> Channel
Inner Loop Power Control Power Control Algorithm Algor	ithm 1		T A Call <mark>G</mark> Processing
TPC Step Size 1dB Power Control Bit Pattern All 1 User Command 10101		10101 01010	T TX A Measurement <mark>G</mark> Setup
Compressed Mode Off Pattern Set1			T RX A Measurement <mark>G</mark> Setup
GSM DL Signal Off			T A Fundamental G Measurement
Intra - Primary Scrambling Code	Off Off Off		
Off Off Off Off Off	Off Off Off		123

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- 5. set Power Measurement to <u>On</u>.
- 6 set the average count of power measurement to 20 times.

	2004/11/03 10:05	Loop Mode 1	Phone-2	hone-1	
	<fundamental measurement=""> Output</fundamental>	Main	₩-CDMA	W-CDMA	
	Parameter Fundament	al UE Report			
		UE Power :	18.5 dBm	Parameter	
	Ext. BER Input Polarity Positiv Ext. BER Input Clock Rise Voice Channel Subflow 1	re National de la companya de la company La companya de la com		T A Common G	
	Block Error Rate Number of Sample 50 Bl BLER Upper Limit 10.0 %	ock		A Physical G Channel	
	BER/BLER Timeout Length 10 sec			A Call G Processing T TX	
nor <u>mal</u> ▶	Fundamental Measureme <u>nt Parameter</u> Measurement Mode <u>Fast</u>	Item List Standard		A Measurement G Setup	
	Power Measurement On Ave Frequency Error On Ave Occupied Bandwidth On Ave	erage Count 20 erage Count 20 erage Count 20		T RX A Measurement <mark>G</mark> Setup	
	Spectrum Emission Mask On Ave Adjacent Channel Power On Ave Modulation Analysis On Ave Peak Code Domain Error On Ave	erage Count 20 erage Count 20 erage Count 20 erage Count 20		T A Fundamental <mark>G</mark> Measurement	
	BER Off BLER Off		T	123	







Single / continuous

7 perform power measurement.

8 read the result of power measurement.

Power Measurement		(Mea	as. Count	1	20/	20)	
	Avg.	Max	Min				
TX Power	23.16	23.18	23.14	dBm			
	207.0	207.9	206.1	mΨ			
Filtered Power	22.94	22.97	22.91	dBm			μ
	197.0	198.3	195.6	m₩			

Fundamental

TX Power corresponds to Mean power (5MHz band), and Filtered Power corresponds to RRC filtered mean power.

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1 Test Loop Mode1.

- 2 set Input Level to <u>+35.0dBm</u>.
- **3** set Output Level to <u>-106.7dBm</u>.
- 4 set TPC Pattern to <u>ALL1.</u>
- 5 set Frequency Measurement to <u>On</u>.
- 6 set the average count of frequency measurement to 20 times.
- **7** perform frequency measurement.
- 8 read the result of frequency error measurement.









占用带宽

1 Test Loop Mode1.

2 set Input Level to <u>+35.0dBm</u>.

3 set Output Level to <u>-106.7dBm.</u>

4 set TPC Pattern to <u>ALL1.</u>

5 set OBW Measurement to On.

6 set the average count of OBW measurement to 20 times.

7 perform measurement.

8 read the result

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占用带宽

Occupied Bandwidth View		(Meas, Count :	20 /	20) 🔺
OB I	4.118 MHz			
Uppen Frequency	2.059 MHz			
Lower Frequency	-2.059 MHz			
Center(Upper+Lower)/2	1950.000 MHz			







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频谱发射模板

1 Test Loop Mode1.

- 2 set Input Level to <u>+35.0dBm</u>.
- 3 set Output Level to <u>-106.7dBm</u>.
- 4 set TPC Pattern to <u>ALL1</u>.
- 5 set SEM Measurement to <u>On</u>.
- 6 set the average count of SEM measurement to 20 times.
- 7 perform measurement.
- 8 read the result.



频谱发射模板—图形





频谱发射模板—图形

Measured value shown in yellow, template shown in blue










邻信道功率泄漏比

1 Test Loop Mode1.

2 set Input Level to <u>+35.0dBm</u>.

3 set Output Level to <u>-106.7dBm</u>.

4 set TPC Pattern to <u>ALL1</u>.

5 set ACLR Measurement to <u>On</u>.

6 set the average count of ACLR measurement to 20 times.

7 perform Measurement .

8 read the result.

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邻信道功率泄漏比

Adjacent Channel Power		(Mea	as. Count :	20/	20) 📕
Leakage power due to Modul	lation				
Offset Freq.	Power				
	Avg.	Max	Min		
- <mark>0</mark> MHz	-46.20	-46.00	-46,40 dB	8	
5 MHz	-37.31	-36,99	-37,68 dB	}	
5 MHz	-36.50	-36.21	– 36,80 <mark>, d</mark> i		
0 MHz	-48.25	-48.06	-48,38 dE	}.	



矢量幅度误差 (EVM)

1 Test Loop Mode1.

2 set Input Level to <u>+35.0dBm</u>.

3 set Output Level to <u>-106.7dBm</u>.

4 set TPC Pattern to <u>ALL1</u>.

5 set EVM Measurement to On.

6 set the average count of EVM measurement to 20 times.

7 perform measurement.

8 read the result.

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矢量幅度误差 (EVM)

Modulation Analysis View		(Mea	as. Count	; 20/ 20) 🗖
	Avia	Max	Min	
Er <mark>hon Vector Magnitude</mark>	7.31	7,44	7.13	%(rms)
Peak Vector Enror	17.34	18,51	15.87	\$
Phase Ennon	3.14	3,23	3.02	deg.(nms)
Magnitude Enror	4.83	4.88	4.76	ll(nms)
Origin Offset	-25.78	-25,52	26, 10	dB
IQ Imbalance	102.75	103.51	101.99	\$(I/Q)
Timing Error	0.4	0.5	0.3	chip 🗌
DPCCH/DPDCH Power Ratio	-5.48	-5,44	-5.51	dB

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调制精度—图形





参考灵敏度测试

1 Test Loop Mode1.

2 set Input Level to <u>+35.0dBm</u>.

3 set Output Level to <u>-106.7dBm</u>.

4 set TPC Pattern to <u>ALL1</u>.

5 set BER Measurement to On.

6 set the number of BER measurement samples to 10000 bits.

7 perform measurement.

8 read the result.

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2004/11/03 10:36	Idle	Phone-2	Phone-1
<fundamental measurement=""> Output Main</fundamental>		₩-CDMA	W-CDMA
Parameter Fundamental	UE Report		
	UE Power :	-50.3 dBm	Parameter
Template Template Setup 🔀 Additional Limit Non	<u>7</u>		T A Common G
Modulation Analysis Storage Mode Latest Long Span Code Search Off			T A Physical <mark>G</mark> Channel
Measuring Object W-CDMA RX Measurement Setup Parameter Item Li	st Standard		T A Call <mark>G</mark> Processing
Bit Error Rate Number of Sample BFR Upper Limit 10.0 %			T TX A Measurement <mark>G</mark> Setup
Measurement Input RF Loopback Ext. BER Input Polarity Positive Ext. BER Input Clock Rise			T RX A Measurement <mark>G</mark> Setup
Voice Channel Subflow 1			T A Fundamental <mark>G</mark> Measurement
Number of Sample 50 Block BLER Upper Limit 10.0 %			
BER/BLER Timeout Length 10 sec		V	123



参考灵敏度测试





最小输出功率测试

1.<u>Test Loop Mode1</u>.

2.set Input Level to <u>-20.0dBm</u>.

3.set Output Level to <u>-93dBm</u>.

4.set TPC Pattern to ALLO.

5.set Power Measurement to On.

6.set the average count of power measurement to 20 times.

7.perform the measurement.

8.read the result of power measurement.



最小输出功率测试

Power Measurement		(Me:	as. Count		20/	20)	
	Avg.	Max	Min				
TX Power	-57.02	-56.93	-57.10	dBm			
	1.985	2.025	1.950	n₩			
Filtered Power	-58,92	-58.78	-59.05	dBm			
	1,282	1.325	1.244	n₩			



内环功率控制测试

1. display the Time Domain Measurement screen.

- 2. set Measurement Object to Inner Loop Power Control.
- 3. display a slot list.
- 4. register Slot0~Slot59 for the slot list.
- 5. set Time Span of Time Domain measurement to 40.0ms.
- 6. set TPC Algorithm to <u>2</u>.
- 7. set TPC Step Size to <u>1dB</u>.
- 8. set RRC Filter to Off.
- 9. Connect to Test Loop Mode1.



内环功率控制测试

display a slot list.

Stop UE Power : -21,1 dBm Time_Domain Inner Loop Power Control (Internal Trigger) Marker Off Slot List On Off Input Level : 30.00 dBm Marker 1 On Off Marker 1 On Off On Off Marker 2 On Off On Off Input Level : 30.00 dBm Marker 2 On Off Input Level : Input Level 2 Input Level 2 Input Level 2 Input Level : Input Level 3 Input Level 2 Input Level 2 Input Level : Input Level 3 Input Level 3 Input Level 3 Input Level : Input Level 4 Input Level 4 Input Level 4 Input Level : Input Level 4 Input Level 4 Input Level 4 Input Level : Input Level 4 Input Level 4 Input Level 4 Input Level : Input Level 4 Input Level 4 Input Level 4 Input Level : Input Level 4 Input Level 4 Input Level 4 Input Level 4 Input Level 4 Input Level 4 Input Level 4 Input Level 4 Input Level 4 Input Level 4 Input Level 4 Inpu	Time Domain Measurement> Uutput Main Parameter	Slot List		W-CDMA
Inner Loop Power Control (Internal Trigger) Marker Off Input Level : 30.00 dBm Marker 1 On Off Marker 2 On Off Marker 2 On Off Marker 1 On Off Marker 1 On Off Marker 2 On Off Marker 1 Marker 1 On Off Marker 1 On Off Marker 1 On Off Marker 1 Marker 2 On Off Marker 3 Marker 4 Marker 4 Marker 5 Marker 5 Marker 5 Marker 5 Marker 7 Marker 6 Marker 7	Stop	UE Power :	-21,1 dBm	Time Domain
Marker Off Slot List Input Level : Marker 1 30.00 dBn Marker 1 Marker 2 On Off Marker 2 On Off -1.0000 [ns] 4.0000 9.0000 S-CCPCH Power(S-CCPCH_Ec/Ior) -3.0 dB On Marker Type	Inner Loop Power Contr	ol(Internal Trigger)		
Input Level : 30.00 dBm Marker 1 0n Off Marker 2 0n Off Marker 2 0n Off Marker 1 0n Off Marker 2 0n Off Marker 1 0n Off Marker 2 0n Off Marker 1 0n Off Mark	Marker Off			
30.00 dBm Marker 1 0n 0ff Marker 2 0n 0ff Marker 2 0n 0ff -1.0000 [ms] 4.0000 9.0000 S-CCPCH Power(S-CCPCH_Ec/Ior) -3.0 dB 0n Marker Type	Input Level :			
Image: Construction of the second	30.00 dBm			Marke <u>r 1</u>
Marken 2 On Offi -1.0000 [ms] 4.0000 S-CCPCH Power(S-CCPCH_Ec/Ior) -3.0 dB On				On Off
-1.0000 [ms] 4.0000 9.0000 S-CCPCH Power(S-CCPCH_Ec/Ior) _3.0 dB On Marker Type				Manken 2
-1.0000 [ms] 4.0000 9.0000 S-CCPCH Power(S-CCPCH_Ec/Ior) -3.0 dB On Marker Type		· · · · · · · · · · · · · · · · · · ·		On Off
-1.0000 [ms] 4.0000 9.0000 S-CCPCH Power(S-CCPCH_Ec/Ior) -3.0 dB On Marker Type			· +	
-1.0000 [ms] 4.0000 9.0000 S-CCPCH Power(S-CCPCH_Ec/Ior) -3.0 dB On Marker Type		iiiiii		
-1.0000 [ms] 4.0000 9.0000 S-CCPCH Power(S-CCPCH_Ec/Ior) -3.0 dB On Marker Type				
-1.0000 [ms] 4.0000 9.0000 S-CCPCH Power(S-CCPCH_Ec/Ior) -3.0 dB On Marker Type				
S-CCPCH Power(S-CCPCH_Ec/Ior) _3.0 dB On	-1.0000 [ms] 4.00	000	9,0000	
	S-CCPCH Power(S-CCPCH_Ec/Ior)	-3.0 dB 0n		Marker Type
AICH Power(AICH_Ec/Ior) <u>0.0</u> dB <u>On</u> Normal Slot	AICH Power(AICH_Ec/Ior)	0.0 dB On		Normal Slot
Call Decession Decempton Item List Standard	Coll Decessing Decemptor Iter List S	tendend		
Base Station ID	<u>San Processing Parameter Item List s</u>	canuaru		



内环功率控制测试

register Slot0~Slot59 for the slot list.

2004/11/07 13:24 <time domain="" measurem<="" th=""><th>ent> Output Main</th><th>Idle(Regist)</th><th></th><th>Phone-1 W-CDMA</th><th></th></time>	ent> Output Main	Idle(Regist)		Phone-1 W-CDMA	
Time Domain	Parameter	Slot List			
Stop		UE Power :	-21.1 dBm	Slot Power	
Inner Input Level : 30.00 dBm	Loop Power Contro Marker 1 : Marker 2 : (2-1 :	(Internal Trigger) _1.0000ms2Sto _1.0000ms2Sto 0.0000ms0Sto	t	# Regist. Slot into List Delete Slot	
			·····	from List	
-1.0000 [ms]	4.000	00	9,0000		
Slot No <mark>Time [ms] </mark> L	evel [dBm] Slot(R	el) Time(Rel) [ms] L	.evel(Rel) [dB]		
				1 2	
Possible™					/inrits





set TPC Algorithm to <u>2</u>.

set TPC Step Size to <u>1dB</u>.

2004/11/07 13:25 <time domain="" measurement=""> Output Ma</time>	Idle(Regist) in	Phone-1 \-CDMA
Time Domain Parameter	Slot List	
Stop	UE Power : -2	1.1 dBm Parameter
Inner Loop Power Cor	itrol(Internal Trigger)	*
Marker 👖	: <u>-1.0000</u> ms <u>-2</u> Slot <u>-</u>	dBm Window Size
Input Level : Marker 🖉	:	
30.00 abm (≥- <u>+</u>	: <u>0.000</u> 4ms4516t	Color
		Setting
	i i i i	
+	-+	
	· · · · · · · · · · · · · · · · · · ·	Modulation
<u>+</u>	-	
<u>2</u>		Band
-1.0000 [ms] 4	.0000	9.0000 Calibration
Registration Mode Auto		Euli
		Calibration
Inner Loop Power Control		
Power Control Algorithm Algor TPC Stop Size	rithm 2	
Power Control Bit Pattern Inner	Loop Power Control	v 1 2 3

/inritsu

- 1. set TPC Test Step to A.
- 2. set TPC Algorithm to <u>2</u>.
- 3. set TPC Step Size to <u>1dB</u>.
- 4. set TPC Pattern to Inner Loop Power Control.
- 5-1 set Output Level to <u>-65.7dBm</u>.
- 5. set Input Level to <u>-10.0dBm</u>.
- 6. set TPC Pattern to Alternate.
- 7. set Input Level to 0.0dBm.
- 8. perform the measurement.
- 9. read the measurement result.

^{**} In some cases, several dBs lower/higher value from Input Level is required for UE output power before starting Inner Loop Power Control measurement.



set TPC Test Step to \underline{A}



/inritsu

set TPC Pattern to Inner Loop Power Control.

2004/11/07 13:31 <time domain="" measuremen<="" th=""><th>nt> Output Main</th><th>Idle(Regist)</th><th></th><th>Phone−1 #-CDMA</th></time>	nt> Output Main	Idle(Regist)		Phone−1 #-CDMA
Stop	Fallalle Ler	UE Power :	-21.1 dBm	Parameter
Inner L	oop Power Contro Marker 1 :	I <mark>(Internal Trigger)</mark> 1.0000∫ms2Sic	otdBm	* \indow Size
Input Level : 30.00 dBm	Marker 2 : (2-1 :	<u>-1.0000</u> ms <u>-2</u> Stc <u>0.0000</u> ms <u>0</u> Stc	otdBm otdB)	* Color Setting
				Modulation <mark>On</mark> Off
-1.0000 [ms]	4.000	00	9,0000	Band Calibration
Inner Loop Power Contr Power Control Algorit	ol hm Algorith 1dB	m 2		Full Calibration
Power Control Bit Pat	tern <mark>Inner Lo</mark>	op Power Control		
RACH Parameter			V	123

/inritsu

	Inner L	.oop Pow	<mark>er Cont</mark>	rol (Int	<mark>ernal T</mark> i	<mark>rigger)</mark>		
Input Level : 0.00 dBm		Man	ker Uff			S	TEP A	
	1 1 1 1				 	I I I I		
	ן 	 		r 				
	 	 			 			
0.0000 [ms]			20.	0000				40.0000



10. set TPC Test Step to <u>B</u>.
11. set TPC Algorithm to <u>2</u>.
12. set TPC Step Size to <u>1dB</u>.
13. set TPC Pattern to Alternate.
14. set Input Level to 0.0dBm.
15. perform the measurement.

16. read the measurement result.







17. set TPC Test Step to <u>C</u>.
18. set TPC Algorithm to <u>2</u>.
19. set TPC Step Size to <u>1dB</u>.
20. set TPC Pattern to Alternate.
21. set Input Level to 0.0dBm.
22. perform the measurement.

23. read the measurement result.





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24. set TPC Test Step to <u>D</u>.
25. set TPC Algorithm to <u>1</u>.
26. set TPC Step Size to <u>1dB</u>.
27. set TPC Pattern to <u>Alternate</u>.
28. set Input Level to +25.0dBm.
29. perform the measurement.

30. read the measurement result.





- 31. set TPC Test Step to \underline{E} .
- 32. set the number of slots in Test Step E to 40.
- 33. set TPC Algorithm to $\underline{1}$.
- 34. set TPC Step Size to <u>1dB</u>.
- 35. set TPC Pattern to Alternate.
- 36. set Input Level to +25.0dBm.
- 37. perform the measurement.
- 38. read the measurement result.





MT8820A's dynamic range (40dB), segment the power control sequence into smaller subsequence

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- 39. set TPC Test Step to \underline{E} .
- 40. set the number of slots in Test Step E to 40.
- 41. set TPC Algorithm to <u>1</u>.
- 42. set TPC Step Size to <u>1dB</u>.
- 43. set TPC Pattern to Alternate.
- 44. set Input Level to -15.0dBm.
- 45. perform the measurement.
- 46. read the measurement result.







- 47. set TPC Test Step to \underline{F} .
- 48. set the number of slots in Test Step F to 40.
- 49. set TPC Algorithm to <u>1</u>.
- 50. set TPC Step Size to <u>1dB</u>.
- 51. set TPC Pattern to Alternate.
- 52. set Input Level to -15.0dBm.
- 53. perform the measurement.
- 54. read the measurement result.







- 55. set TPC Test Step to \underline{F} .
- 56. set the number of slots in Test Step F to 40.
- 57. set TPC Algorithm to $\underline{1}$.
- 58. set TPC Step Size to <u>1dB</u>.
- 59. set TPC Pattern to Alternate.
- 60. set Input Level to +25.0dBm.
- 61. perform the measurement.
- 62. read the measurement result.





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- 63. set TPC Test Step to <u>G</u>.
- 64. set the number of slots in Test Step G to 20.
- 65. set TPC Algorithm to <u>1</u>.
- 66. set TPC Step Size to <u>2dB</u>.
- 67. set TPC Pattern to Alternate.
- 68. set Input Level to +25.0dBm.
- 69. perform the measurement.
- 70. read the measurement result.





- 71. set TPC Test Step to G.
- 72. set the number of slots in Test Step G to 20.
- 73. set TPC Algorithm to <u>1</u>.
- 74. set TPC Step Size to 2dB.
- 75. set TPC Pattern to Alternate.
- 76. set Input Level to -15.0dBm.
- 77. perform the measurement.
- 78. read the measurement result.


内环功率控制测试(stepG2)



内环功率控制测试(stepH1)

- 79. set TPC Test Step to <u>H</u>.
- 80. set the number of slots in Test Step H to 20.
- 81. set TPC Algorithm to $\underline{1}$.
- 82. set TPC Step Size to 2dB.
- 83. set TPC Pattern to Alternate.
- 84. set Input Level to -15.0dBm.
- 85. perform the measurement.
- 86. read the measurement result.



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内环功率控制测试(stepH1)





内环功率控制测试(stepH2)

- 87. set TPC Test Step to \underline{H} .
- 88. set the number of slots in Test Step H to 75.
- 89. set TPC Algorithm to <u>1</u>.
- 90. set TPC Step Size to <u>2dB</u>.
- 91. set TPC Pattern to Alternate.
- 92. set Input Level to +25.0dBm.
- 93. perform the measurement.
- 94. read the measurement result.



内环功率控制测试(stepH2)



Slot list

2002/02/19 18:05 <time domain="" measurement=""> Output Mai</time>	Communication n	Phone-1 ₩-CDMA
Time Domain Parameter	Slot List	
End	UE Power :	11.9 dBm Time Domain
Inner Loop Power Cont	rol(Internal Trigger)	
Marker <mark>1</mark>	8.0000 <mark>ms 12</mark> Slot	-23.71dBm Slot List
Input Level : Marker 2	: 10.6667 <mark>ms 16</mark> Slot	-20.01 dBm
10.00 dBm (2-1	: 2.6667 <mark>ms 4</mark> Slot	3.70dB) Marker 1
		On Off
مراجع میں میں اور	· · · · · ·	Marker 2
		Active Marker
		1 2
		Sync Marker
		1 and 2
-10.0000 [ms] 40.	0000	90.0000 Un Uff
Slot Nol Time [ms] Level [dBm] Slot	(Rel) Time(Rel) [ms]]e	vel (Bel) [dB]
* 12 8.0000 -23.71	0 0.0000	0.00 Normal Slot
13 8.6667 -22.67	1 0.6667	1.04
14 9.3333 -21.90	2 1.3333	1.81
15 10.0000 -20.79	3 2.0000	2.92
	4 2.6667	



最大输入电平测试(RX)

1. set TPC Algorithm to <u>2</u>.

2. set TPC Step Size to <u>1dB</u>.

3. Connect to Test Loop Mode1.

4. set Output Level to <u>-25.7dBm</u>.

5. set DPCH_Ec/lor to -19.0dB.

6. set Input Level to +20.0dBm.

7. set TPC Pattern to Inner Loop Power Control.

8. Set BER Measurement to On.

9. set the number of BER measurement samples to 10000 bits.

10. perform BER measurement.

11. read the result of BER measurement.



最大输入电平测试



Discover What's Possible™

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从WCDMA切换到 GSM

2004/08/12 18:05 <fundamental measurement=""> C</fundamental>	lutput Main	Loop Mode 1		Phone-1 ₩-CDMA
Parameter Fun	damental	UE Report		
End		UE Power :	-10.1 dBm	Parameter
Power Measurement TX Power	Avg. -9.03	(Meas, Count Max Min -9.03 -9.03	: 1/ 1) dBm	Relative (AF)
Filtered Power	<u>124.9</u> -9.24 119.2	<u> 124.9 124.9</u> <u> -9.24 -9.24</u> <u> 119.2 119.2</u>	u₩ dBm u₩	
Frequency Error	Avg.	(Meas. Count lood мн+	: 1/ 1)	Handover To GSM
Carrier Frequency Error	Avg. -0.0010	Max Min -0.0010 -0.0010 0.00 0.00	kHz ppm	Select Scenario
Common Parameter Item List Call Processing On	<mark>Standard</mark> Test Loop M	1ode Mode 1		Load Scenario
Frequency UL Channel & Frequency 9 DL Channel & Frequency 10	750 CH = 19 700 CH = 21	50.000000 MHz 40.000000 MHz		Delete Scenario



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Thank You!

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