

Call Processing

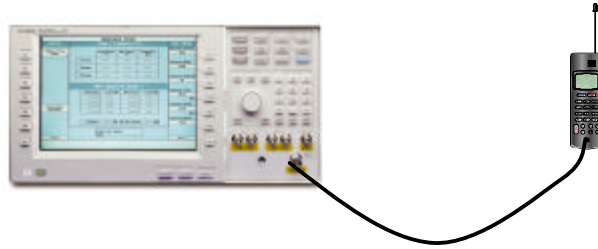
- Uses the 8960 to communicate with a phone
- Exercises circuitry not covered by a parametric verification
 - Demodulation down converter receiver path
 - Protocol and measurement interrupts
 - Protocol Processor
 - Real time interface

The Call Processing with a Phone test insures that the 8960 can originate, connect, and measure calls to and from a GSM phone.

There are no specifications associated with this test. The test collects performance data from the phone. If the same phone is used with each 8960 tested the results should match from unit to unit.

Currently the test is done in a manual mode. Current plans are to automate the test as part of the Instrument Support Tool Box.

Call Processing



Connect the Phone to the 8960

Begin by connecting the phone to the 8960. The phone has an antenna RF In/Out connector which must be connected to the 8960 RF In/Out connector. The GSM phone should be supplied with the RF Interface cable.

Call Processing

Preset

Call Setup Screen						
Call Control	Call Setup				Call Params	
Operating Mode					Cell Power	
Active Cell	Mobile Information				Cell Band	PGSM
	IMSI: IMEI: Revision Level: Supported Band: Power Class: ---- Called Number:				Broadcast Chan	20
Originate Call	Last Location		Burst Timing Error			
Paging IMSI	NCC	HNC	LAC	---- T		
001012345678901	----	----	----			
	SACCH Reports		Counters			
	Timing Adv:	----	Page:	0		
	Tx Level:	----	RACH:	0		
	Rx Level:	----	Missing Burst:	0		
Cell Info	Rx Qual:	----	Corrupt Burst:	0		
			Decode Error:	0		
	Active Cell Status :					
	Idle					
			L			
						1 of 3

Begin the test procedure by resetting the instrument. Press the blue 'SHIFT' button then the RESET button.

Call Processing

Mobile Station Call Origination

Call Setup Screen						
Call Control	Call Setup				Call Params	
Operating Mode					Traffic Band	
Active Cell	Mobile Information IMSI: 001012345678901 IMEI: 520002514041992 Revision Level: Phase 2 Supported Band: PGSM Power Class: 4.00 (33 dBm) Called Number:				PGSM	
Originate Call					Traffic Channel	
Paging IMSI	Last Location MCC MNC LAC ---- ---- ----		Burst Timing Error ---- T		30	
001012345678901					Timeslot	
					4	
	SACCH Reports Timing Adv: ---- Tx Level: ---- Rx Level: ---- Rx Qual: ----		Counters Page: 1 RACH: 1 Hissing Burst: 0 Corrupt Burst: 0 Decode Error: 0		Timing Advance	
Cell Info					0	
					MS TX Level	
					15	
					Speech	
					Echo	
	Active Cell Status :					
	Idle					
				L		
						2 of 3

Do a Mobile Station Call Origination:

Select screen 2 of 3. On the phone enter several numbers and press the 'Send' or 'Yes' button.

Call Processing

Active Call

Call Setup Screen		
Call Control	Call Setup	Call Params
Operating Mode		Traffic Band
Active Cell	Mobile Information IMSI: 001012345678901 IMEI: 520002514041992 Revision Level: Phase 2 Supported Band: PGSM Power Class: 4.00 (33 dBm) Called Number: 145236	PGSM
End Call		Traffic Channel
		30
		Timeslot
		4
		Timing Advance
		0
Paging IMSI 001012345678901	Last Location MCC MNC LAC ---- ---- ----	Burst Timing Error -0.25 T
	SACCH Reports Timing Adv: 0.00 Tx Level: 15.00 (<13 dBm) Rx Level: 23.00 (<-88 to -87 dBm) Rx Qual: 0.00 (<< 0.2 % BER)	Counters Page: 1 RACH: 1 Missing Burst: 0 Corrupt Burst: 0 Decode Error: 0
Cell Info		MS TX Level
		15
		Speech
		Echo
	Active Cell Status : Connected	
		2 of 3

When a call is connected the test data should appear in the 'Burst Timing Error' window and in the 'SACCH Reports' window, the 'Active Cell Status' window should say 'Connected'. Disconnect the call by pressing the 'End Call' button on either the phone or the 8960.

Call Processing

Base Station Call Origination

Call Setup Screen						
Call Control	Call Setup				Call Params	
Operating Mode					Traffic Band	
Active Cell	Mobile Information				PGSM	
	IMSI: 001012345678901 IMEI: 520002514041992 Revision Level: Phase 2 Supported Band: PGSM Power Class: 4.00 (33 dBm) Called Number:				Traffic Channel	
Originate Call					30	
Paging IMSI	Last Location		Burst Timing Error		Timeslot	
001012345678901	MCC	MNC	LAC	---- T		4
	----	----	----			Timing Advance
	SACCH Reports		Counters		0	
	Timing Adv:	----	Page:	1	MS TX Level	
	Tx Level:	----	RACH:	1	15	
	Rx Level:	----	Missing Burst:	0	Speech	
Cell Info	Rx Qual:	----	Corrupt Burst:	0	Echo	
			Decode Error:	0		
	Active Cell Status :					
	Idle					
			L			
					2 of 3	

Do a Base Station Call Origination:

Select screen 2 of 3. On the 8960 press the 'Originate Call' button. The phone should ring, then press the 'Send' or 'Yes' button on the phone to connect the call.

Call Processing

Active Call

Call Setup Screen						
Call Control	Call Setup				Call Params	
Operating Mode					Traffic Band	
Active Cell	Mobile Information IMSI: 001012345678901 IMEI: 520002514041992 Revision Level: Phase 2 Supported Band: PGSM Power Class: 4.00 (33 dBm) Called Number: 145236				Traffic Channel	
End Call					Timeslot	4
Paging IMSI	Last Location MCC MNC LAC ---- ---- ----		Burst Timing Error -0.25 T		Timing Advance	0
001012345678901					MS TX Level	15
	SACCH Reports Timing Adv: 0.00 Tx Level: 15.00 (13 dBm) Rx Level: 23.00 (-88 to -87 dBm) Rx Qual: 0.00 (<< 0.2 % BER)		Counters Page: 1 RACH: 1 Missing Burst: 0 Corrupt Burst: 0 Decode Error: 0		Speech	
Cell Info					Echo	
	Active Cell Status : Connected					
				L		2 of 3

When a call is connected the test data should appear in the 'Burst Timing Error' window and in the 'SACCH Reports' window, the 'Active Cell Status' window should say 'Connected'. Do not disconnect, proceed to the next tests.

Call Processing Handoffs

Call Setup Screen					
Call Control	Call Setup				Call Params
Operating Mode					Traffic Band
Active Cell	Mobile Information IMSI: 001012345678901 IMEI: 520002514041992 Revision Level: Phase 2 Supported Band: PGSM Power Class: 4,00 (33 dBm) Called Number: 145236				PGSM
End Call					Traffic Channel
					30
					Timeslot
					4
Paging IMSI	Last Location MCC MNC LAC ---- ---- ----		Burst Timing Error -0.25 T		Timing Advance
001012345678901					0
	SACCH Reports Timing Adv: 0.00 Tx Level: 15.00 (13 dBm) Rx Level: 23.00 (-88 to -87 dBm) Rx Qual: 0.00 (< 0.2 % BER)		Counters Page: 1 RACH: 1 Missing Burst: 0 Corrupt Burst: 0 Decode Error: 0		MS TX Level
Cell Info					15
					Speech
					Echo
	Active Cell Status : Connected				
			L		
					2 of 3

The 8960 and phone call connection must be tested for the following protocol steps:

- Traffic Channel Handover - Press the 'Traffic Channel' button on the 8960. Insure that the channel number can be changed and the call remains connected.
- Mobile Transmit Level Handover - Press the 'MS TX Level' button on the 8960. Insure that the transmit level can be set to a level between 5 and 15 and the call remains connected. The TX Level Data in the 'SACCH Reports' screen should change.
- Mobile Transmit Timing Advance Handover - Press the 'Timing Advance' button on the 8960. Insure that the timing advance number can be changed and the call remains connected.
- Mobile Transmit Timeslot Handover- Press the 'Timeslot' button on the 8960. Insure that the timeslot number can be set to a timeslot between 3 and 5 and the call remains connected.
- Dual Band Handoff- Press the 'Traffic Band' button on the 8960. Insure that the the band can be changed from 'PGSM' to "DCS' bands and the call remains connected.
- Press end call on either the phone or the 8960 to disconnect and stop the test.