

## Appendix 5. System Check

Prior to the assessment, the system was verified in the flat region of the phantom, 900 MHz, 1900 MHz and 2450 MHz dipoles were used. A forward power of 250 mW was applied to the 900 MHz, 1900 MHz and 2450 MHz dipoles and the system was verified to a tolerance of  $\pm 5\%$  for the 900MHz, 1900MHz and 2450 MHz dipoles.

The applicable verification normalised to 1 Watt.

### System Check 900 Body

Date: 26/03/2013

Validation Dipole and Serial Number: D900V2; SN: 035

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	900	24.0 °C	23.4 °C	$\epsilon_r$	55.00	52.99	-3.65	5.00
				$\sigma$	1.05	1.06	0.76	5.00
				1g SAR	10.80	10.36	-4.07	5.00
				10g SAR	6.96	6.80	-2.30	5.00

### System Check 1900 Body

Date: 28/03/2013

Validation Dipole and Serial Number: D1900V2; SN: 537

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	1900	24.0 °C	23.5 °C	$\epsilon_r$	53.30	51.37	-3.62	5.00
				$\sigma$	1.52	1.54	1.18	5.00
				1g SAR	40.50	38.88	-4.00	5.00
				10g SAR	21.40	20.96	-2.06	5.00

Date: 12/04/2013

Validation Dipole and Serial Number: D1900V2; SN: 537

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	1900	23.0 °C	21.5 °C	$\epsilon_r$	53.30	51.42	-3.53	5.00
				$\sigma$	1.52	1.54	1.53	5.00
				1g SAR	40.50	40.40	-0.25	5.00
				10g SAR	21.40	21.60	0.93	5.00

### System Check 2450 Body

Date: 25/03/2013

Validation Dipole and Serial Number: D2440V2; SN: 701

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	2450	24.0 °C	22.0 °C	$\epsilon_r$	52.70	51.88	-1.56	5.00
				$\sigma$	1.95	2.03	3.93	5.00
				1g SAR	52.00	54.40	4.62	5.00
				10g SAR	24.10	23.88	-0.91	5.00

## Appendix 6. Simulated Tissues

The body mixture consists of water, Polysorbate (Tween 20) and salt. Visual inspection is made to ensure air bubbles are not trapped during the mixing process. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the tissue.

<b>Ingredient</b> (% by weight)	<b>Frequency</b>
	<b>750/835/850/900 MHz</b> <b>Body</b>
De-Ionized Water	71.30
Polysorbate 20	28.00
Salt	0.70

<b>Ingredient</b> (% by weight)	<b>Frequency</b>
	<b>1800/1900 MHz</b> <b>Body</b>
De-Ionized Water	71.50
Polysorbate 20	28.00
Salt	0.50

<b>Ingredient</b> (% by weight)	<b>Frequency</b>
	<b>2450 MHz</b> <b>Body</b>
De-Ionized Water	71.70
Polysorbate 20	28.00
Salt	0.30

## Appendix 7. DASY4 System Details

### A.7.1. DASY4 SAR Measurement System

UL, SAR measurement facility utilises the Dosimetric Assessment System (DASY™) manufactured by Schmid & Partner Engineering AG (SPEAG™) of Zurich, Switzerland. The DASY4 system is comprised of the robot controller, computer, near-field probe, probe alignment sensor, and the SAM phantom containing brain or muscle equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF). A cell controller system contains the power supply, robot controller; teach pendant (Joystick), and remote control. This is used to drive the robot motors. The Staubli robot is connected to the cell controller to allow software manipulation of the robot. The data acquisition electronics (DAE) performs signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection etc. The DAE is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card. The DAE3 utilises a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16-bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe-mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.

### A.7.2. DASY4 SAR System Specifications

Robot System	
<b>Positioner:</b>	Stäubli Unimation Corp. Robot Model: RX90L
<b>Repeatability:</b>	0.025 mm
<b>No. of Axis:</b>	6
<b>Serial Number:</b>	F01/5J86A1/A/01
<b>Reach:</b>	1185 mm
<b>Payload:</b>	3.5 kg
<b>Control Unit:</b>	CS7
<b>Programming Language:</b>	V+
Data Acquisition Electronic (DAE) System	
<b>Serial Number:</b>	DAE3 SN:432
PC Controller	
<b>PC:</b>	Dell Precision 340
<b>Operating System:</b>	Windows 2000
<b>Data Card:</b>	DASY4 Measurement Server
<b>Serial Number:</b>	1080
Data Converter	
<b>Features:</b>	Signal Amplifier, multiplexer, A/D converted and control logic.
<b>Software:</b>	DASY4 Software
<b>Connecting Lines:</b>	Optical downlink for data and status info. Optical uplink for commands and clock.
PC Interface Card	
<b>Function:</b>	24 bit (64 MHz) DSP for real time processing Link to DAE3 16 bit A/D converter for surface detection system serial link to robot direct emergency stop output for robot.

**DASY4 SAR System Specifications (Continued)****E-Field Probe**

<b>Model:</b>	ET3DV6
<b>Serial No:</b>	1528
<b>Construction:</b>	Triangular core
<b>Frequency:</b>	10 MHz to 2.55GHz
<b>Linearity:</b>	$\pm 0.2$ dB (30 MHz to 2.55GHz)
<b>Probe Length (mm):</b>	337
<b>Probe Diameter (mm):</b>	10
<b>Tip Length (mm):</b>	10
<b>Tip Diameter (mm):</b>	6.8
<b>Sensor X Offset (mm):</b>	2.7
<b>Sensor Y Offset (mm):</b>	2.7
<b>Sensor Z Offset (mm):</b>	2.7
<b>Phantom</b>	
<b>Phantom:</b>	Eli Phantom
<b>Shell Material:</b>	Fibreglass
<b>Thickness:</b>	2.0 $\pm 0.1$ mm

## Appendix 8. 3G Test set-up

### 3G (12.K RMC / HSDPA / HSUPA) setup

To switch from 2G to 3G, on the system config screen choose Format Switch and select WCDMA. The Call Setup Screen as shown in figure 1 pops up.

Call Setup Screen					
<b>Call Control</b> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Operating Mode</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Active Cell</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Originate Call</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Paging Parameters</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Handovers</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Clear UE Info</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">1 of 5</div>	<b>Active Cell Operating Mode</b> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">UE Information</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">UE Expected Open Loop Transmit Power</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Call Processing Status</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">HSUPA Information</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">HSUPA Information</div>		<b>Call Params</b> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Cell Power</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">-35.00</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">dBm/3.84 MHz</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Channel Type</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">12.2k RMC</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Paging Service</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">RB Test Mode</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">HSPA Parameters</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">3G.121 Preset Call Configs</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Channel (UARFCN) Params</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">1 of 3</div>		
	<b>UE Information</b> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">IMSI: (---)</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">IMEI(SU): (---)</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Power Class: (---)</div>				
	<b>UE Expected Open Loop Transmit Power</b> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Initial PRACH TX Power: -60.00 dBm</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Initial DPCCH TX Power: -11.55 dBm</div>				
	<b>Call Processing Status</b> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Current Service Type: None</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">IMI Status: None</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">GMII State: None</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Current DPCH Offset: 0 chips</div>				
	<b>HSUPA Information</b> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Rep EDCH Cat/Ext: Unrep/Unrep</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Last received E-TFCI: ----</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Throughput: ---- kbps</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Acks Transmitted: ----</div>			<b>HSUPA Information</b> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Cur UE HS-DSCH Cat: ----</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Block Error Ratio: ---- %</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Throughput: ---- kbps</div> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Blocks Transmitted: ----</div>	
				<b>Active Cell</b> <b>Idle</b> <div style="background-color: #e0e0e0; border: 1px solid black; padding: 2px; margin-bottom: 5px;">Sys Type: UTRA FDD</div>	

Figure 1: 3G Call Setup Screen

For a 12.2k RMC call follow the steps below.

#### 8.1. Steps for 12.2k RMC

1. Ensure that the Operating Mode of the cell is off before setting up the instrument.
2. On the Call Setup Screen, under Call Parameters, press the button against Cell Power. The Cell Power value is set to about -35dBm to account for all the losses and ensure sufficient signal strength to the EUT.
3. The Channel Type is selected to 12.2k RMC. Press button against Channel (VARFCN) Params select the correct Downlink Channel for the required UMTS FDD Band.
4. On the Call Setup Screen, under Call Parameters, press the button against HSPA Parameters. Under HSDPA Parameters on page 1, press HSDPA Uplink parameters and set the Delta ACK, Delta NACK, Delta CQI values to 8. Under HSDPA Params itself, press HSDPA RB Test Mode Setup button and then the HSDPA RB Test Mode Settings and change HS-DSCH Data Pattern to All Ones.

Call Setup Screen																
Call Control	Active Cell Operating Mode	HSDPAParms														
<div style="border: 1px solid black; padding: 5px;"> <p><b>UE Information</b></p> <p>IMSI: (---) IMEI(SV): (---) Power Class: (---)</p> </div>																
<div style="border: 1px solid black; padding: 5px;"> <p><b>UE Expected Open Loop Transmit Power</b></p> <p>Initial PRACH TX Power: -60.00 dBm Initial DPCCH TX Power: -11.55 dBm</p> </div>																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">HSDPA Uplink Parameters</th> <th style="text-align: right;">Value</th> </tr> </thead> <tbody> <tr> <td>DeltaACK</td> <td style="text-align: right;">8</td> </tr> <tr> <td>DeltaNACK</td> <td style="text-align: right;">8</td> </tr> <tr> <td>DeltaCQI</td> <td style="text-align: right;">8</td> </tr> <tr> <td>Ack-Nack Repetition Factor</td> <td style="text-align: right;">1</td> </tr> <tr> <td>CQI Feedback Cycle (k)</td> <td style="text-align: right;">2 ms</td> </tr> <tr> <td>CQI Repetition Factor</td> <td style="text-align: right;">1</td> </tr> </tbody> </table>			HSDPA Uplink Parameters	Value	DeltaACK	8	DeltaNACK	8	DeltaCQI	8	Ack-Nack Repetition Factor	1	CQI Feedback Cycle (k)	2 ms	CQI Repetition Factor	1
HSDPA Uplink Parameters	Value															
DeltaACK	8															
DeltaNACK	8															
DeltaCQI	8															
Ack-Nack Repetition Factor	1															
CQI Feedback Cycle (k)	2 ms															
CQI Repetition Factor	1															
Close Menu	<div style="border: 1px solid black; padding: 2px;"> <p>Active Cell Idle</p> </div>															
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;"></td> <td style="width: 50%; text-align: right;">Sys Type: UTRA FDD</td> <td style="width: 25%;"></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: right;">IntRef</td> <td></td> </tr> </table>				Sys Type: UTRA FDD						IntRef						
	Sys Type: UTRA FDD															
	IntRef															
1 of 2																

Figure 2: HSDPA Parameters

5. On the Call Setup Screen, under Call Parameters, on page 2, check if the DL DTCH Data is set to All Ones. On page 3, ensure that the Receiver is set to Manual. On page 3 itself, under UL CL Power Ctrl Parameters, UL CL Power Ctrl Mode is set to All Up Bits.

Call Setup Screen												
Call Control	Active Cell Operating Mode	CallParms										
Operating Mode		DL DTCH Data										
Active Cell		All Ones										
<div style="border: 1px solid black; padding: 5px;"> <p><b>UE Information</b></p> <p>IMSI: (---) IMEI(SV): (---) Power Class: (---)</p> </div>												
Originate Call	<div style="border: 1px solid black; padding: 2px;"> <p>Active Cell Idle</p> </div>											
Paging Parameters	<div style="border: 1px solid black; padding: 2px;"> <p>IntRef</p> </div>											
Handovers	<div style="border: 1px solid black; padding: 2px;"> <p>IntRef</p> </div>											
Clear UE Info	<div style="border: 1px solid black; padding: 2px;"> <p>IntRef</p> </div>											
1 of 5												
<div style="border: 1px solid black; padding: 5px;"> <p><b>Call Processing Status</b></p> <p>Current Service Type: None M1 Status: None G11 Status: None Current DPCCH Offset: 0 chips</p> <table border="1" style="width: 50%; border-collapse: collapse;"> <tr> <td style="width: 50%;">HSUPA Information</td> <td style="width: 50%;">HSDPA Information</td> </tr> <tr> <td>Rep EDCH Cat/Ext: Unrep/Unrep</td> <td>Cur UE HS-DSCH Cat: ----</td> </tr> <tr> <td>Last received E-TFCI: ----</td> <td>Block Error Ratio: ---- %</td> </tr> <tr> <td>Throughput: ---- kbps</td> <td>Throughput: ---- kbps</td> </tr> <tr> <td>Acks Transmitted: ----</td> <td>Blocks Transmitted: ----</td> </tr> </table> </div>			HSUPA Information	HSDPA Information	Rep EDCH Cat/Ext: Unrep/Unrep	Cur UE HS-DSCH Cat: ----	Last received E-TFCI: ----	Block Error Ratio: ---- %	Throughput: ---- kbps	Throughput: ---- kbps	Acks Transmitted: ----	Blocks Transmitted: ----
HSUPA Information	HSDPA Information											
Rep EDCH Cat/Ext: Unrep/Unrep	Cur UE HS-DSCH Cat: ----											
Last received E-TFCI: ----	Block Error Ratio: ---- %											
Throughput: ---- kbps	Throughput: ---- kbps											
Acks Transmitted: ----	Blocks Transmitted: ----											
<div style="border: 1px solid black; padding: 5px;"> <p><b>Call Drop Timer</b></p> <p>On</p> </div>												
<div style="border: 1px solid black; padding: 5px;"> <p><b>SRB Parameters</b></p> </div>												
2 of 3												

Figure 3: DL DTCH Data Params

Call Control		Active Cell Operating Mode				CallParms	
		UE Information				UE Target Power	
		IMSI: (--)				-5 dBm	
		IMEI(SV):					
		Power Class:					
		UE Expected Open Loop Transmit Power				UL CL Power Ctrl Parameters	
		Initial PRACH TX Power: -60.00 dBm		Initial DPCCH TX Power: -11.55 dBm			
		UL CL Power Ctrl Parameters		Value			
		UL CL Power Ctrl Mode		All Up bits		Send Step Up TPC Bit Pattern	
		UL CL Power Ctrl Algorithm		Two			
		UL CL Power Ctrl Stepsize		1 dB		Send Step Down TPC Bit Pattern	

**Figure 4: UL CL Power Ctrl Parameters**

6. On the Call Setup Screen, under Call Control, page 2, Cell Parameters, it is ensured that PS Domain information is kept as Absent for RMC.

Call Setup Screen								
Call Control		Active Cell Operating Mode					CallParms	
Additional Screens		UE Information					Cell Power	
		IMSI: (--)					-35.00 dBm/3.84 MHz	
Cell Parameters	▼	IMEI(SU):					Channel Type	
Generator Info		Power Class:					12.2k RNC	
		UE Expected Open Loop Transmit Power					Paging Service	
Uplink Parameters	▼	Initial PRACH TX Power: -60.00 dBm					RB Test Node	
UE Rep Meas		Initial DPCCH TX Power: -11.55 dBm					HSPA Parameters	
		Cell Parameters			Value		34.121 Preset Call Configs	
		BCCH Update Page			Inhibit		▼	
		PS Domain Information			Absent		Channel (UARFCN)Parms	
		MCC (Mobile Country Code)			1		1 of 3	
		MNC (Mobile Network Code)			1			
		MNC (Mobile Network Code) Length			Auto			
		LAC (Local Area Code)			1			
		RAC (Routing Area Code)			1			
		Cell Identity			1			
			Active Cell			Sys Type: UTRA FDD		
			Idle					
2 of 5			IntRef					

Figure 5: Cell Parameters

7. On the same page under Uplink Parameters the maximum Uplink Transmit Power is made 24dBm. Uplink DPCH Bc/Bd Control Settings are kept at Auto for RMC. These vary according for HSDPA and HSUPA as per the values given in KDB 941225 D01 SAR test for 3G devices v02.

Call Setup Screen			
Call Control	Active Cell Operating Mode		CallParms
Additional Screens	UE Information		Cell Power -35.00 dBm/3.84 MHz
Cell Parameters	IMSI: IMEI(SV): (--) Power Class:		Channel Type 12.2k RNC
Generator Info	UE Expected Open Loop Transmit Power		Paging Service RB Test Node
	Initial PRACH TX Power: -60.00 dBm Initial DPCCH TX Power: -11.55 dBm		
Uplink Parameters	Uplink Parameters		HSPA Parameters
UE Rep Meas	PRACH Preambles	64	34.121 Preset Call Configs
Close Menu	PRACH Ramping Cycles(mMAX)	2	Channel (UARFCN) Params
2 of 5	Available Subchannels (Bit Mask)	000000000001	1 of 3
	Uplink DPCH Scrambling Code	0	
	Uplink DPCH Bc/Bd Control	Auto	
	Manual Uplink DPCH Bc	8	
	Manual Uplink DPCH Bd	15	
	Maximum Uplink Transmit Power Level	24 dBm	

Figure 6: Uplink Parameters

8. On page 3 under Call Control, for the RB Test Mode setup, Asymmetric RMC CN Domain is ensured to be in CS Domain for RMC call.

Call Setup Screen			
Call Control	Active Cell Operating Mode		CallParms
	UE Information		Cell Power -35.00 dBm/3.84 MHz
	IMSI: IMEI(SV): (--) Power Class:		Channel Type 12.2k RNC
	UE Expected Open Loop Transmit Power		Paging Service RB Test Mode
	Initial PRACH TX Power: -60.00 dBm Initial DPCCH TX Power: -11.55 dBm		
Voice Call	RB Test Mode Settings		HSPA Parameters
	Uplink DTCH RNC CRC Presence		34.121 Preset Call Configs
	Uplink Dummy DCCH Data		Channel (UARFCN) Params
	UE Loopback Type		1 of 3
	Asymmetric RMC Loopback Messaging		
	Asymmetric RMC CN Domain		
Close Menu			
3 of 5			

Figure 7: RB Test Mode Settings

9. After the test set has been set up, change the cell Operating Mode to Active Cell and originate a call.

## 8.2. Steps for 12.2k RMC + HSDPA/HSUPA

1. Most of the steps to be followed are as in the case of 12.2k RMC however, some of the settings need to be changed. The Channel Type is changed to 12.2k RMC+HSDPA or 12.2k RMC+HSUPA as required.
2. For HSDPA and HSUPA, the settings remain same as the case for RMC but the PS Domain is made Present for Cell Parameters (Figure 5) and RB Test Mode Setup (Figure 7).
3. The following tables taken from FCC 3G SAR procedures (KDB 941225 D01 SAR test for 3G devices v02) below were applied to the Agilent 8960 series 10 wireless communications test set which supports 3G / HSDPA release 5 / HSUPA release 6.

### Sub-test 1 Setup for Release 5 HSDPA

Sub-test	$\beta_c$	$\beta_d$	$B_d$ (SF)	$\beta_c/\beta_d$	$\beta_{hs}^{(1)}$	SM (dB) <sup>(2)</sup>
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 <sup>(3)</sup>	15/15 <sup>(3)</sup>	64	12/15 <sup>(3)</sup>	24/15	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

Note 1:  $\Delta_{ACK}, \Delta_{NACK}$  and  $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$

Note 2: CM = 1 for  $\beta_c/\beta_d = 12/15$ ,  $B_{hs}/\beta_c = 24/15$

Note 3: For subtest 2 the  $\beta_c/\beta_d$  ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 11/15$  and  $\beta_d = 15/15$

### Sub-test 5 Setup for Release 6 HSUPA

Sub-test	$\beta_c$	$\beta_d$	$B_d$ (SF)	$\beta_c/\beta_d$	$\beta_{hs}^{(1)}$	$B_{oc}$	$B_{od}$	$B_{od}$ (SF)	$B_{od}$ (codes)	CM <sup>(2)</sup> (dB)	MPR (dB)	AG <sup>(4)</sup> Index	E-TFCI
1	11/15 <sup>(3)</sup>	15/15 <sup>(3)</sup>	64	11/15 <sup>(3)</sup>	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	31/15	B <sub>al1</sub> : 47/15 B <sub>al2</sub> : 47/15	4	1	2.0	1.0	15	92
4	2/15	15/15	64	2/15	2/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 <sup>(4)</sup>	15/15 <sup>(4)</sup>	64	15/15 <sup>(4)</sup>	24/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1:  $\Delta_{ACK}, \Delta_{NACK}$  and  $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$

Note 2: CM = 1 for  $\beta_c/\beta_d = 12/15$ ,  $B_{hs}/\beta_c = 24/15$ . For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH AND E-DPCCH for the MPR is based on the relative CM difference.

Note 3: For subtest 1 the  $\beta_c/\beta_d$  ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 10/15$  and  $\beta_d = 15/15$ .

Note 4: For subtest 5 the  $\beta_c/\beta_d$  ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 14/15$  and  $\beta_d = 15/15$ .

Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.

Note 6:  $B_{od}$  cannot be set directly; it is set by Absolute Grant Value.

Call Setup Screen			
Call Control	Active Cell Operating Mode		Serving Grant
Operating Mode	UE Information		AG Node
Active Cell	IMSI: (--) IMEI(SU): (--) Power Class: (--)		Single Shot
Originate Call	UE Expected Open Loop Transmit Power		Single Shot AG
Paging Parameters	Initial PRACH TX Power: -60.00 dBm Initial DPCCH TX Power: -11.55 dBm		21: (134/15)^2
Handovers	Call Processing Status		Send Single Shot Absolute Grant
Clear UE Info	Current Service Type: None IMI Status: Abs Single Shot AG GMI State: Index 18: (95/15)^2 Current DPCCH: Index 19: (106/15)^2 HSUPA Info: Index 20: (119/15)^2 Rep EDCH Cat/B: Index 21: (134/15)^2 Last received Throughput: Index 22: (150/15)^2 Acks Transmitt: Index 23: (168/15)^2 DSCH Cat: ---- Ratio: ---- % : ---- kbps Transmitted: ----		RB Setup AG
	Active Cell Idle		33: 4(134/15)^2
1 of 5	Sys Type: UTRA FDD		AG Pattern Parameters
			Return
			1 of 2

Call Setup Screen			
Call Control	Active Cell Operating Mode		CallParms
Additional Screens	UE Information		Cell Power
Cell Parameters	IMSI: (--) IMEI(SU): (--) Power Class: (--)		-35.00 dBm/3.84 MHz
Generator Info	UE Expected Open Loop Transmit Power		Channel Type
Uplink Parameters	Initial PRACH TX Power: -60.00 dBm Initial DPCCH TX Power: -22.58 dBm		12.2k + HSOPA
UE Rep Meas	Uplink Parameters		Paging Service
Close Menu	PRACH Preambles: 64 PRACH Ramping Cycles(MMAX): 2 Available Subchannels (Bit Mask): 00000000000001 Uplink DPCH Scrambling Code: 0 Uplink DPCH Bc/Bd Control: Manual Manual Uplink DPCH Bc: 2 Manual Uplink DPCH Bd: 15 Maximum Uplink Transmit Power Level: 24 dBm		RB Test Mode
2 of 5	Cell Off		HSOPA Parameters
	Sys Type: UTRA FDD		34.121 Preset Call Configs
			Channel (UARFCN)Parms
			1 of 3

4. For HSUPA the Serving Grant Parameter needs to be set. On the Call Setup Screen, under Call Parameters, press the button against HSPA Parameters. On the new screen that pops up, press HSUPA and Serving Grant. The Serving Grant is set according to the table for HSPA in the KDB (AG Index). The correct AG is chosen from the Single Shot AG. Consecutively, the RG Setup AG is set as per the ratio set on Single Shot AG.

Call Setup Screen			
Call Control	Active Cell Operating Mode		Serving Grant
Operating Mode	UE Information		AG Mode
Active Cell	IMSI: (---) IMEI(SU): Power Class:		Single Shot
Originate Call	UE Expected Open Loop Transmit Power		Single Shot AG
Paging Parameters	Initial PRACH TX Power: -60.00 dBm Initial DPCCH TX Power: -11.55 dBm		31: 6(168/15)^2
Handovers	Call Processing Status		Send Single Shot Absolute Grant
Clear UE Info	Current Service Type: None IMI Status: None GMI State: None Current DPCH Offset: 0 chips		RB Setup AG
	HSUPA Information		37: 6(168/15)^2
	Rep EDCH Cat/Ext: Unrep/Unrep Last received E-TFCI: ---- Throughput: ---- kbps Acks Transmitted: ----		AG Pattern Parameters
	HSDPA Information		Return
	Cur UE HS-DSCH Cat: ---- Block Error Ratio: ---- % Throughput: ---- kbps Blocks Transmitted: ----		
1 of 5	Active Cell Idle		1 of 2
	Sys Type: UTRA FDD		
	IntRef		

Figure 8: Serving Grant Example