Appendix 5. 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.

Issue Date: 21 November 2014

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

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

Ingredient	Frequency 2450/2600 MHz
(% by weight)	Body
De-Ionized Water	71.70
Polysorbate 20	28.00
Salt	0.30

Appendix 6. System Check and Dielectric Parameters

Dielectric Property Measurements: The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within ± 2°C of the temperature when the tissue parameters are characterized.

The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 3 to 4 days of use; or earlier if the dielectric parameters can become out of tolerance; for example, when the parameters are marginal at the beginning of the measurement series.

Tissue dielectric parameters were measured at the low, middle and high frequency of each operating frequency range of the test device.

System Performance 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, 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.

Site 56

System Check 900 Body

Date: 11/08/2014
Validation Dipole and Serial Number: D900V2 SN: 035

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
		23.0 23.0	ε _r	55.00	55.90	1.64	5.00	
Body	000 23.0		ε _r	1.05	1.03	-1.71	5.00	
Body 900	25.0		ε _r	10.40	10.44	-2.69	5.00	
				ε _r	6.73	6.72	-0.15	5.00

Channel Number	Band	Frequency (MHz)	Parameters	
128		824.2	ε _r	56.30
120		024.2	σ	0.98
190	GSM850	836.6	ε _r	56.20
190	GSINIOSU	830.0	σ	0.99
251		848.8	ε _r	56.2
		040.0	σ	1.00

Date: 14/08/2014 Validation Dipole and Serial Number: D900V2 SN: 035

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)	
			ϵ_{r}	55.00	55.57	1.04	5.00		
Body	Body 900 2	23.0	24.0	24.0	ε _r	1.05	1.03	-2.33	5.00
Body		25.0		ϵ_{r}	10.40	10.24	-1.54	5.00	
			ε _r	6.73	6.84	1.63	5.00		

Channel Number	Band	Frequency (MHz)	Parameters	
128		824.2	ε _r	55.91
120		024.2	σ	0.98
190	GSM850	836.6	$\epsilon_{\rm r}$	55.90
190	G31V1830	830.0	σ	0.98
251		848.8	ε _r	55.81
231		040.0	ь	0.99
4132		826.4	ε _r	55.90
4132		020.4	σ	0.98
4183	WCDMA FDD 5	836.6	ε _r	55.90
4103	WODWA 1 DD 3	830.0	σ	0.98
4233		846.6	ε _r	55.82
4233		040.0	σ	0.99

Site 56 (Continued)

Date: 18/08/2014

Validation Dipole and Serial Number: D900V2 SN: 035

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
			ε _r	55.00	54.90	-0.18	5.00	
Body	Podu 000	23.0	24.0	ε _r	1.05	1.00	4.48	5.00
Body 900	20.0	24.0	ε _r	10.40	10.12	2.69	5.00	
			ε _r	6.73	6.72	-0.15	5.00	

Channel Number	Band	Frequency (MHz)	Parameters	
4132		826.4	εr	55.24
4132		020.4	σ	0.96
4183	WCDMA FDD 5	836.6	εr	55.20
4103	WODNIA FDD 3	830.0	σ	0.97
4233		846.6	ε _r	55.16
		840.0	σ	0.97

System Check 1900 Body

Date: 14/08/2014 Validation Dipole and Serial Number: D1900V2 SN: 537

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
			ϵ_{r}	53.30	51.96	-2.51	5.00	
Body	Body 1900 23.0	23.0	24.0	σ	1.52	1.47	-3.13	5.00
Body 1900	20.0	24.0	1g SAR	40.20	40.00	-0.50	5.00	
			10g SAR	21.10	21.52	1.99	5.00	

Channel Number	Band	Frequency (MHz)		Parameters
512		1850.2	ε _r	54.06
312		1030.2	σ	1.46
661	PCS1900	1880.0	ε _r	54.00
001	PC31900	1880.0	σ	1.49
810		1909.8	ε _r	53.94
010		1909.8	σ	1.43
9262		1852.4	ε _r	54.14
9202		1832.4	σ	1.45
9400	WCDMA FDD 2	1880.0	ε _r	52.70
9400	VVCDIVIA FDD 2	1000.0	σ	1.53
9538		1907.6	ε _r	54.01
9336		1907.0	σ	1.49

Site 57

System Check 900 Body

Date: 30/06/2014

Validation Dipole and Serial Number: D900V2 SN: 035

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
			ϵ_{r}	55.00	53.42	-2.87	5.00	
Body	Pody 000	23.0	22.6	σ	1.05	1.01	-3.62	5.00
Body 900	20.0	20.0	1g SAR	10.40	10.52	1.15	5.00	
			10g SAR	6.73	6.88	2.23	5.00	

Channel Number	Band	Frequency (MHz)		Parameters
4132	WCDMA FDD 5	826.4	ε _r	53.60
4132		020.4	σ	0.97
4183		836.6	ε _r	53.60
4103	WCDIMA FDD 3	830.0	σ	0.98
4233	4222	846.6	ε _r	53.50
4233		040.0	σ	0.98

Date: 10/07/2014

Validation Dipole and Serial Number: D900V2 SN: 035

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
			ε _r	55.00	52.60	-4.36	5.00	
Body	900	23.0	22.0	ε _r	1.05	1.01	-3.48	5.00
Воду	900 25.0	ε _r	10.40	10.28	-1.15	5.00		
				ε _r	6.73	6.88	2.23	5.00

Channel Number	Band	Frequency (MHz)		Parameters
4132		826.4	ε _r	52.93
4132		020.4	σ	0.97
4183	WCDMA FDD 5	836.6	ε _r	52.90
4103	WODWA FDD 3	830.0	σ	0.98
4233		846.6	ε _r	52.84
4200		040.0	σ	0.98

Site 57 (Continued)

Date: 06/08/2014

Validation Dipole and Serial Number: D900V2 SN: 035

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
			ε _r	55.00	53.34	-3.02	5.00	
Body	900	900 23.0	23.0		-3.19	5.00		
Dody	300		20.0		10.40	10.12	-2.69	5.00
				ε _r	6.73	6.72	-0.15	5.00

Channel Number	Band	Frequency (MHz)		Parameters
4132		826.4	ε _r	54.00
4132		σ	0.97	
4183	WCDMA FDD 5	836.6	ε _r	53.95
4103	WODWA 1 DD 3	030.0	ε _r σ	0.97
4233		846.6	ε _r	53.90
7200		040.0	σ	0.98

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System Check 2450 Body

Date: 15/07/2014 Validation Dipole and Serial Number: D2440V2 SN: 701

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
			ε _r	52.70	52.43	-0.51	5.00	
Body	2450	24.0	24.0	σ	1.95	2.03	3.93	5.00
Body	2400	24.0	24.0	1g SAR 51.40	50.40	-1.95	5.00	
			10g SAR	23.90	23.80	-0.42	5.00	

Channel Number	Band	Frequency (MHz)	Parameters	
1		2412.0	ε _r	52.45
ľ	WiFi 2.4 GHz	2412.0	σ	1.97
6		2437.0	٤r	52.44
O	WIF1 2.4 GHZ	2437.0	σ	2.01
11		2462.0	ε _r	52.41
11		2402.0	σ	2.04

Site 61

System Check 1900 Body

Date: 26/06/2014

Validation Dipole and Serial Number: D1900V2 SN: 537

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
			ϵ_{r}	53.30	54.23	1.74	5.00	
Body	1900	23.2	23.4	σ	1.52	1.53	0.69	5.00
Dody	1500	20.2	20.4	1g SAR	40.20	42.00	4.48	5.00
			10g SAR	21.10	21.80	3.32	5.00	

Channel Number	Band	Frequency (MHz)		Parameters
9262		1952.4	ε _r	54.35
9202		1852.4	σ	1.48
9400	WCDMA FDD 2	1880.0	ε _r	54.28
3400	WODNA 1 DD 2	1000.0	σ	1.51
9538		1907.6	ε _r	54.21
9336		1907:0	σ	1.54

Date: 07/07/2014

Validation Dipole and Serial Number: D1900V2 SN: 537

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
			ε _r σ	ε _r	53.30	51.97	-2.50	5.00
Body	1900	24.0		σ	1.52	1.51	-0.56	5.00
Dody	1500	24.0 24.0	24.0	1g SAR 40.20	39.08	-2.79	5.00	
				10g SAR	21.10	20.52	-2.75	5.00

Channel Number	Band	Frequency (MHz)		Parameters
9262		1852.4	ε _r	52.25
9202		1002.4	σ	1.44
9400	WCDMA FDD 2	1880.0	ε _r	52.45
9400	WODNA 1 DD 2	1000.0	σ	1.44
9538		1907.6	ε _r	54.00
9336		1907.0	σ	1.49

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Date: 10/07/2014

Validation Dipole and Serial Number: D1900V2 SN: 537

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
			ε _r	53.30	52.36	-1.76	5.00	
Body	1900	23.0	24.0	σ	1.52	1.45	-4.51	5.00
Body	1500	23.0 24.0	24.0	1g SAR	40.20	39.44	-1.89	5.00
			10g SAR	21.10	20.36	-3.51	5.00	

Issue Date: 21 November 2014

Channel Number	Band	Frequency (MHz)		Parameters
9262	9262 9400 WCDMA FDD 2 9538	1852.4	ε _r	52.58
9202		1002.4	σ	1.42
9400		1880.0	ε _r	52.45
9400		1000.0	σ	1.44
9538		1907.6	ε _r	52.35
		1907.0	σ	1.46

Date: 08/08/2014

Validation Dipole and Serial Number: D1900V2 SN: 537

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
		23.0	23.2	ϵ_{r}	53.30	51.48	-3.41	5.00
Body	1900			σ	1.52	1.53	0.42	5.00
Body	1300			1g SAR	40.20	40.40	0.50	5.00
				10g SAR	21.10	21.00	-0.47	5.00

Channel Number	Band	Frequency (MHz)		Parameters
9262		1852.4	ε _r	52.58
9202		1052.4	σ	1.42
9400	WCDMA FDD 2	1880.0	ε _r	52.45
9400	WCDIWIA FDD 2	1680.0	σ	1.44
9538		1907.6	ε _r	54.00
9538		1907.0	σ	1.49

Appendix 7. Measurement Uncertainty Table

Measurement uncertainty tables for technologies tested.

A.7.1. GSM / GPRS / EDGE 850 / WCDMA FDD 5 Body Configuration 1g

Туре	Source of uncertainty	+	-	Probability	Divisor	C _{i (1g)}	Stan Uncer	dard tainty	υ _i or
		Value	Value	Distribution		- (-3)	+ u (%)	- u (%)	veff
В	Probe calibration	6.000	6.000	normal (k=1)	1.0000	1.0000	6.000	6.000	8
В	Axial Isotropy	0.250	0.250	normal (k=1)	1.0000	1.0000	0.250	0.250	∞
В	Hemispherical Isotropy	1.300	1.300	normal (k=1)	1.0000	1.0000	1.300	1.300	×
В	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	∞
В	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	× ×
В	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	×
В	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	∞
В	Readout Electronics	0.160	0.160	normal (k=1)	1.0000	1.0000	0.160	0.160	∞
В	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
В	Integration Time	1.730	1.730	Rectangular	1.7321	1.0000	0.999	0.999	∞
В	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞
В	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	×
В	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
В	Extrapolation and integration /Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
Α	Test Sample Positioning	2.510	2.510	normal (k=1)	1.0000	1.0000	2.510	2.510	10
Α	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
В	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
В	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	8
В	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	∞
Α	Liquid Conductivity (measured value)	2.000	2.000	normal (k=1)	1.0000	0.6400	1.280	1.280	5
В	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
Α	Liquid Permittivity (measured value)	1.560	1.560	normal (k=1)	1.0000	0.6000	0.936	0.936	5
	Combined standard uncertainty			t-distribution			9.37	9.37	>500
	Expanded uncertainty			k = 1.96			18.36	18.36	>500

Issue Date: 21 November 2014

A.7.2. PCS / GPRS / EDGE 1900 / WCDMA FDD 2 Body Configuration 1g

Туре	Source of uncertainty	+	-	Probability	Divisor	C _{i (1g)}	Standard Uncertainty		υ _i or
•	,	Value	Value	Distribution		. (.9)	+ u (%)	- u (%)	Veff
В	Probe calibration	6.000	6.000	normal (k=1)	1.0000	1.0000	6.000	6.000	∞
В	Axial Isotropy	0.250	0.250	normal (k=1)	1.0000	1.0000	0.250	0.250	× ×
В	Hemispherical Isotropy	1.300	1.300	normal (k=1)	1.0000	1.0000	1.300	1.300	× ×
В	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	× ×
В	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞
В	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	× ×
В	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	× ×
В	Readout Electronics	0.160	0.160	normal (k=1)	1.0000	1.0000	0.160	0.160	∞
В	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	× ×
В	Integration Time	1.730	1.730	Rectangular	1.7321	1.0000	0.999	0.999	∞
В	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	× ×
В	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
В	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
В	Extrapolation and integration / Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
Α	Test Sample Positioning	1.860	1.860	normal (k=1)	1.0000	1.0000	1.860	1.860	10
Α	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
В	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
В	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞
В	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	∞
Α	Liquid Conductivity (measured value)	2.610	2.610	normal (k=1)	1.0000	0.6400	1.670	1.670	5
В	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
Α	Liquid Permittivity (measured value)	2.140	2.140	normal (k=1)	1.0000	0.6000	1.284	1.284	5
	Combined standard uncertainty			t-distribution			9.32	9.32	>500
	Expanded uncertainty			k = 1.96			18.26	18.26	>500

A.7.3 WiFi 2450 MHz Body Configuration 1g

Туре	Source of uncertainty	+	-	Probability	Divisor	C _{i (1g)}	Standard Uncertainty		υ _i or
7.	•	Value	Value	Distribution		. (.9)	+ u (%)	- u (%)	Veff
В	Probe calibration	6.000	6.000	normal (k=1)	1.0000	1.0000	6.000	6.000	×
В	Axial Isotropy	0.250	0.250	normal (k=1)	1.0000	1.0000	0.250	0.250	× ×
В	Hemispherical Isotropy	1.300	1.300	normal (k=1)	1.0000	1.0000	1.300	1.300	oc
В	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	× ×
В	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞
В	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	×
В	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	×
В	Readout Electronics	0.160	0.160	normal (k=1)	1.0000	1.0000	0.160	0.160	œ
В	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	× ×
В	Integration Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
В	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞
В	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
В	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
В	Extrapolation and integration / Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
Α	Test Sample Positioning	2.440	2.440	normal (k=1)	1.0000	1.0000	2.440	2.440	10
Α	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
В	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	× ×
В	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	× ×
В	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	×
Α	Liquid Conductivity (measured value)	2.260	2.260	normal (k=1)	1.0000	0.6400	1.446	1.446	5
В	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
Α	Liquid Permittivity (measured value)	2.150	2.150	normal (k=1)	1.0000	0.6000	1.290	1.290	5
	Combined standard uncertainty			t-distribution			9.36	9.36	>500
	Expanded uncertainty			k = 1.96			18.35	18.35	>500

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.

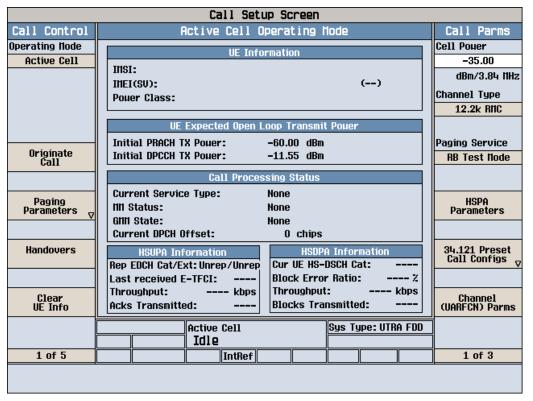


Figure 1: 3G Call Setup Screen

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) Parms select the correct Downlink Channel for the required WCDMA 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 Parms 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.

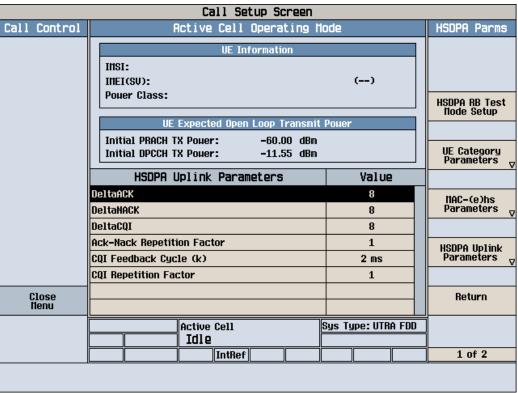


Figure 2: HSDPA Parameters

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.

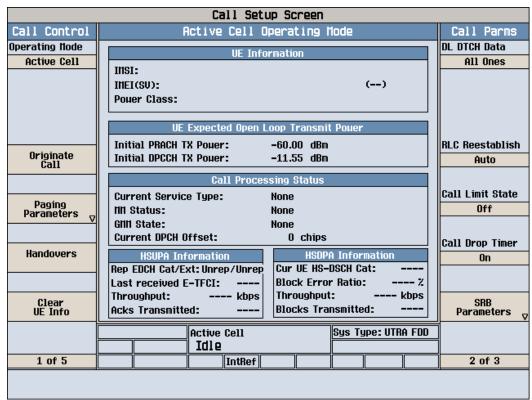


Figure 3: DL DTCH Data Parms

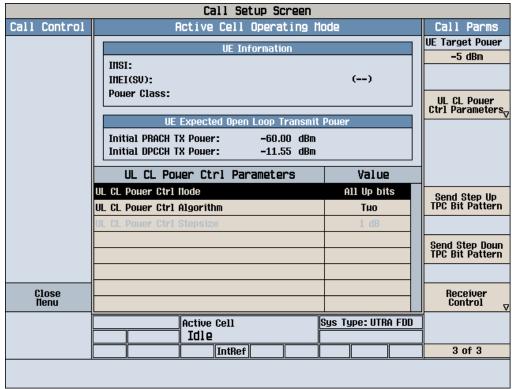


Figure 4: UL CL Power Ctrl Parameters

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.

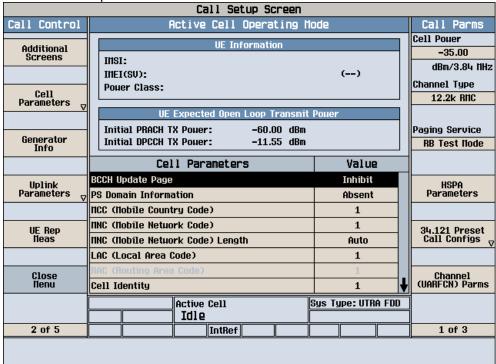


Figure 5: Cell Parameters

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.

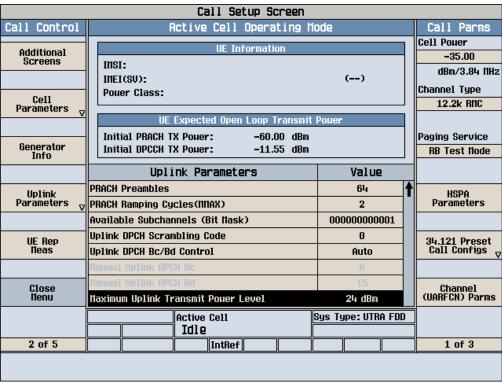


Figure 6: Uplink Parameters

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.

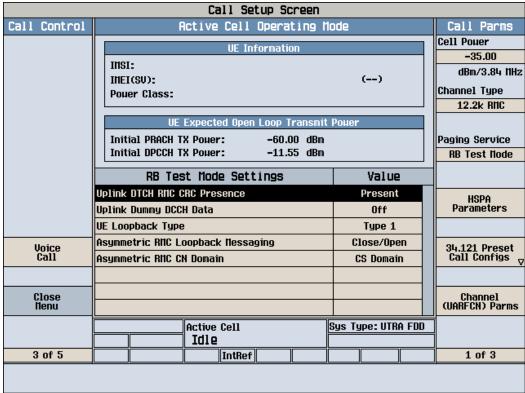


Figure 7: RB Test Mode Settings

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.

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- 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	β _c	$oldsymbol{eta}_{ ext{d}}$	B _d (SF)	$eta_{c/} eta_d$	β _{hs} ⁽¹⁾	SM (dB) ⁽²⁾
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 ⁽³⁾	15/15 ⁽³⁾	64	12/15 ⁽³⁾	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 Δ_{CQI} = 8 \Leftrightarrow A_{hs} = β_{hs}/β_c = 30/15 \Leftrightarrow β_{hs} = 30/15 * β_c

Note 2: CM = 1 for β_{c}/β_{d} = 12/15, B_{hs}/β_{c} = 24/15

Note 3: For subtest 2 the $\beta_{c'}$ β_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 β_c = 11/15 and β_d = 15/15

Sub-test 5 Setup for Release 6 HSUPA

Sub- test	β _c	β_d	B _d (SF)	β_{c}/β_{d}	β _{hs} ⁽¹⁾	B _{oc}	B _{od}	B _{od} (SF)	B _{od} (codes)	CM ⁽²⁾ (dB)	MPR (dB)	AG ⁽⁴⁾ Index	E-TFCI
1	11/15 ⁽³⁾	15/15 ⁽³⁾	64	11/15 ⁽³⁾	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 _{al1} : 47/15 B _{al2} : 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 ⁽⁴⁾	15/15 ⁽⁴⁾	64	15/15 ⁽⁴⁾	24/15	24/15	134/15	4	1	1.0	0.0	21	81

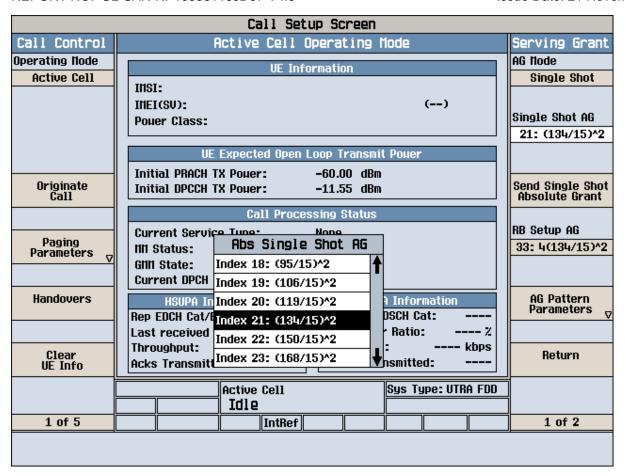
Note 1: $\Delta_{ACK,}$ Δ_{NACK} and Δ_{CQI} = 8 \Leftrightarrow A_{hs} = β_{hs}/β_c = 30/15 \Leftrightarrow β_{hs} = 30/15 * β_c

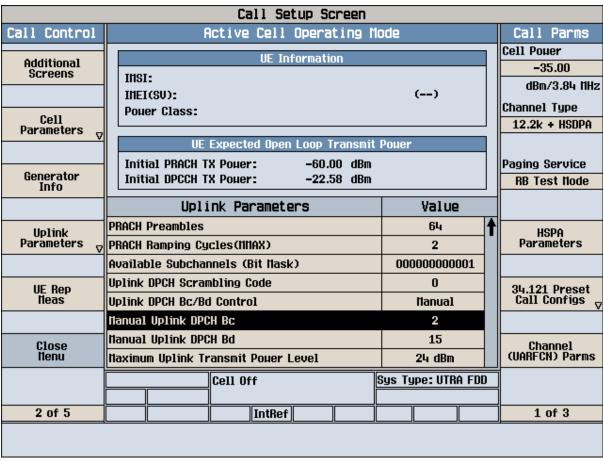
Note 2: CM = 1 for $\beta_{c'}$ β_d = 12/15, $B_{hs'}$ β_c = 24/15. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH AND E-DPCCH for the MPR is based on the relative CM difference. Note 3: For subtest 1 the $\beta_{c'}$ β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.

Note 4: For subtest 5 the $\beta_{c'}$ β_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 β_c = 14/15 and β_n = 15/15.

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

Note 6: \mathbf{B}_{od} can not be set directly; it is set by Absolute Grant Value.





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.

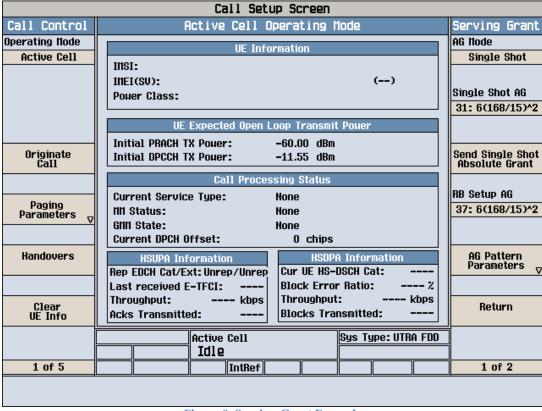


Figure 8: Serving Grant Example