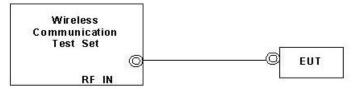
Appendix F. FCC 3G SAR Measurement Procedures

HSPA+ 3GPP release 7 (uplink category 7) 16QAM, Setup Configuration:

- a. The EUT was connected to Base Station referred to the drawing of Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting
 - i. Data rates: Varied from HSPA
 - ii. RMC Test Loop = Loop Mode 1
 - iii. Power Ctrl Mode = All Up bits
- d. The transmitted maximum output power was recorded.



Setup Configuration

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HSPA+ 3GPP release 7 (uplink category 7) 16QAM, Setup Configuration:

- a. The EUT was connected to Base Station referred to the drawing of Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting *:
 - i. Call Configs = 5.2E:HSPA+:UL with 16QAM
 - ii. Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.4, quoted from the TS 34.121-1 s5.2E

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- iii. Set Channel Parms
- iv. Set Cell Power = -86 dBm
- v. Set Channel Type = HSPA
- vi. Set UE Target Power =21 dBm
- vii. Power Ctrl Mode= All Up Bits
- viii. Set Manual Uplink DPCH Bc/Bd = Manual
- ix. Set Manual Uplink DPCH Bc and Bd=15,15(for 34.121-1 v8.10.0 tableC11.1.4 sub-test 1)
- x. Set HSPA Conn DL Channel Levels
- xi. Set HS-SCCH Configs
- xii. Set RB Test Mode Setup
- xiii. Set Common HSUPA Parameters
- xiv. Set Serving Grant
- xv. Confirm that E-TFCI is equal to the target E-TFCI of 105 for sub-test 1, and other subtest's E-TFCI
- d. The transmitted maximum output power was recorded.

Table C.11.1.4: β values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM

Sub- test	β _c (Note3)	βa	βнs (Note1)	Вес	β _{ed} (2xSF2) (Note 4)	β _{ed} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	β _{ed} 1: 30/15 β _{ed} 2: 30/15	β _{ed} 3: 24/15 β _{ed} 4: 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK} , Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c .

Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).

Note 3: DPDCH is not configured, therefore the β_c is set to 1 and β_d = 0 by default.

Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signaled to use the extrapolation algorithm.

Setup Configuration

Note:

For details settings in the Agilent 8960 test equipment, please refer to the user guide "16QAM Measurement User Guide rev2"

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Call Setup Screen											
Call Control	Active Cell Operating Mode									Call Parms	
Channel				UE Info	rmation						Cell Pouer -75.00
(UARFCN) Info		INSI: 001010123456789 Power Class: 3 INEI(SV):355791040039823() Detected PRACH Sig: 0									-75.00 dBm/3.84 HHz
Cell	Called Party Number:										Channel Type
Info		UE	Expecte	d Open I	.oop Tra	nsmit	Pouer				HSPA
	Init	Init PRACH TX Pou: -22.70 dBm Init DPCCH TX Pou: 17.99 dBm									Paging Service
Generator Info			Cu		rvice Ty	pe					RB Test Mode
IIIO	Uplink Parameters							Value			
Uplink	PRACH Ramping Cycles(MMAX)							2		t	HSPA
Parameters _▽	Availa	ble Subchai	it Nask)	000000000001				Parameters			
	Uplink	DPCH Scrar	nbling C	ode				0			
	Uplink	DPCH Bc/Bo	d Contro	1				Manual			34.121 Preset
	Manual Uplink DPCH Bc							15			Call Configs
	 	l Uplink DPC	CH Bd					15			
Close	Maximu	ım Uplink Tı	ransmit l	Pouer Le	vel			21 dBm			Channel
Henu	Uplink DPCCH Slot Format 1							1			(UARFCN) Parms
	☐ Background Active Cell Sys Type: UTRA FDD										
	Idle Loggi						Loggin	g: No Co	nn	j	
2 of 6				IntRef (lffset						1 of 3

Example for HSPA+ Subtest 1, and other subtests following table, C11.1.4 (Gain Factors (β_c = 15 and β_d = 15))

			Call	Setu	JP SC	reen				
Conn DL Lvls	Generator Information								Call Parms	
	Primary Scrambling Code: 0									Cell Pouer
Additional Gen Info Screens	Channel	Cell 1	DL Code	Chan	Info	Cell 2	DL Code	Chan	Info	-75.00
Into our cons		Leve)	. (dB)		0	Leve:	L (dB)		٥	dBm/3.84 MHz
	Channel Channel	Current	Desired	OVSE	Chan Code	Current	Desired	OVSF	Chan Code	
UCDMA Conn DL Channel Levels _▽	CPICH:	-3.30	-3.30	256	0	Off	-3.30	256	0	HSPA
v	P-CCPCH/ SCH: S-CCPCH:	-5.30 -10.30	-5 . 30		1 7	Off	-5.35	256	1	
HSDPA Conn DL		-10.30 -8.30	-10.30 -8.30	64 256	16					Paging Service
Channel Levels	ATCH:	-9.90	-9.90		10					RB Test Hode
·		onnecte				vels	Va	alue		
HSPA Conn DL	HSPA Cell 1 Connected CPICH Level -10.00 dB						HSPA			
Channel Levels _▽	HSPA Cell 1	Connect	ed P-CCI	PCH/S	CH Lev	el	-12.	00 dB		Parameters
	HSPA Cell 1	Connect	ed S-CCI	PCH Le	evel		0	ff		
AUGN Pouer	HSPA Cell 1	Connect	ed PICH	Level			-15.	00 dB		01 404 Dunna
Off	HSPA Cell 1	Connect	ed (F-)[DPCH L	evel		-10.	00 dB		34.121 Preset Call Configs _▽
	HSPA Cell 1	Connect	ed E-AG	CH Lev	vel		-20.	00 dB		
Close	HSPA Cell 1	Connect	ed E-HIC	CH Lev	el		-20.	00 dB		Channel
Henu	HSPA Cell 1 Connected E-RGCH Level Off ↓							(UARFCN) Parms		
	Background Active Cell Sys Type: UTRA FDD							1		
	Idle Logging: No Conn									
			Int	Ref 0	ffset					1 of 3

 $Set\ HSPA\ Conn\ DL\ Channel\ Levels: CPICH=10dBm\ ,\ P-CCPCH/SCH=-12dBm\ ,\ PICH=15\ ,$ $(F-)DPCH=-10\ ,\ E-AGCH=-20\ ,\ E-HICH=-20\ ,\ E-RGCH=off\ ,\ HS-PDSCHs=-3dBm\ ,\ HS-SCCH\ 1=-8dBm$

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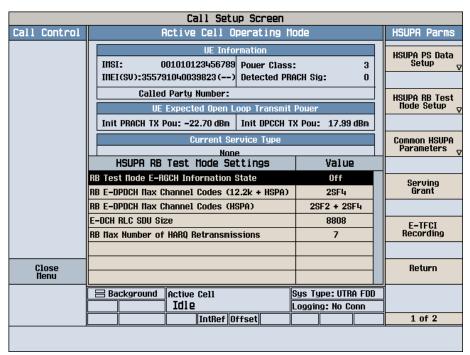
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Call Setup Screen											
DL Config	Generator Information									Call P	arms
		P	rimary S	cramt	oling C	ode: ()			Cell Poue	r
Additional Gen Info Screens	Channel	Cell 1	DL Code	Chan	Info	Cell 2	DL Code	Chan	Info	-75.	00
III o dal dollo		Level	L (dB)		Chan	Leve.	1 (dB)		Chan	dBm/3	8.84 MHz
Conn S-CCPCH Cfg	<u>Channel</u>	Current	Desired	OVSF		Current	Desire	OVSF	Code	Channel T	уре
On	CPICH:	-3.30	-3.30	256	0	Off	-3.30	256	0	HSP	'A
	P-CCPCH/ SCH: S-CCPCH:	-5.30	-5.30 -10.30	256 64	1 7	Off	-5.35	256	1	Di 0-	
HS-SCCH	PICH:	-10.30 -8.30	-10.30		16					Paging Se	
Confine	ATCH:		-9.90		10					RB Test	Поде
·		HS-SCCI					٧	alue			
HSDPA/HSPA	HS-SCCH 1 Channel Config State							0n		HSP	0
	HS-SCCH 2 Channel Config State							Off			ters
	HS-SCCH 3 (Channel (Config S	tate			1	Off			
DL Chan Code	HS-SCCH 4 Channel Config State						Off			34.121 F	Preset
Preset Configs										Call Co	nfigs _V
Close									_	Chani (UARFCN)	
Henu										(UHKFCN)	Parms
							ys Type	: UTRA	FDD		
								No Co	nn		
			Int	Ref 0	Offset					1 of	3

Set HS-SCCH Configs: HS-SCCH 2=off, HS-SCCH 3=off, HS-SCCH 4=off



Set RB Test Mode Setup : E-RGCH Information State to Off , Set RB E-DPDCH Max Channel Codes (HSPA) to 2SF2 + 2SF4 , Set E-DCH RLC SDU Size to 8808

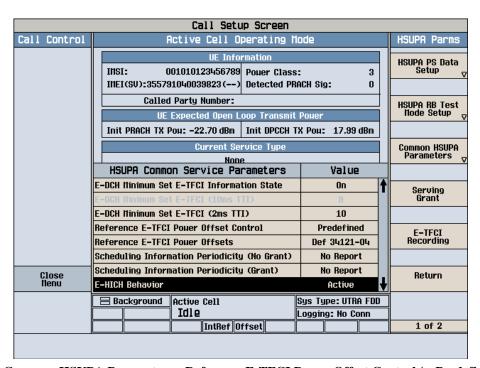
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	Call Setup Screen		
Call Control	Active Cell Operating Mo	ode	HSUPA Parms
	UE Information	HSUPA PS Data	
	INSI: 001010123456789 Power Class: INEI(SV):355791040039823() Detected PRA	Setup _▽	
	Called Party Number:	ICH Sig: 0	HSUPA RB Test
	UE Expected Open Loop Transmit	Роцег	HOUPH RB Test Hode Setup ▽
	Init PRACH TX Pou: -22.70 dBm Init DPCCH TX		
	Current Service Type		Common HSUPA Parameters _▽
	HSUPA Common Service Parameters	Value	V
	E-DCH TTI	2 ms	Serving
	E-DCH 16QAM State	On	Grant
	E-DPCCH/DPCCH Power Offset (DeltaE-DPCCH)	8	
	Happy Bit Delay Condition	100 ms	E-TFCI
	Happy Bit Averaging Period	1.000 s	Recording
	E-TFCI Table Index (10 ms TTI)	0	
Close	E-TFCI Table Index (2 ms TTI)	0	Return
Henu	E-TFCI Table Index (2 ms TTI with 16QAN)	2	
	Background Active Cell 9	Gys Type: UTRA FDD	
	Idle	.ogging: No Conn	
	IntRef Offset		1 of 2

Set Common HSUPA Parameters : E-DCH TTI to 2 ms , E-DCH 16QAM State to On , E-DPCCH/DPCCH Power Offset (DeltaE-DPCCH)=8 , E-TFCI Table Index=2ms

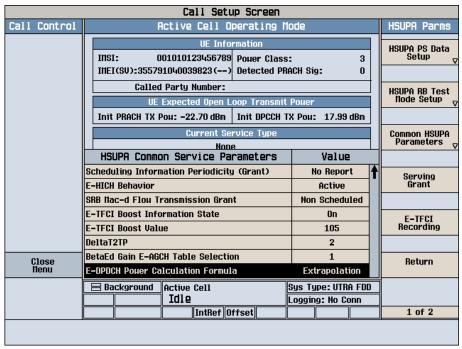


Set Common HSUPA Parameters: Reference E-TFCI Power Offset Control to Predefined Reference E-TFCI Power Offsets to Definition 34.121-04

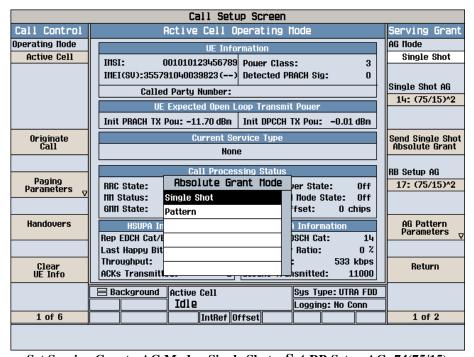
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Set Common HSUPA Parameters: E-TFCI Boost Information State to On,
E-TFCI Boost Value to 105, DeltaT2TP to 2,
BetaEd Gain E-AGCH Table Selection to 1
E-DPDCH Power Calculation Formula to Extrapolation

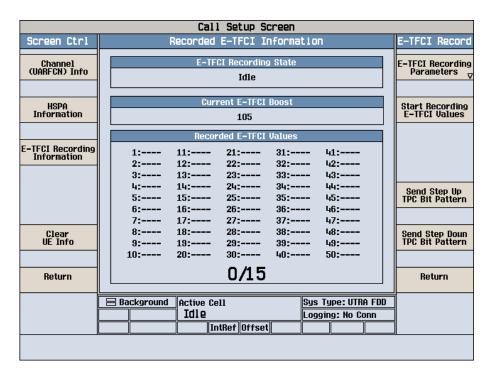


Set Serving Grant : AG Mode= Single Shot , Set RB Setup AG=74(75/15)

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Example: Confirm that E-TFCI is equal to the target E-TFCI of 105 for sub-test 1

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- [1] 941225 D01 SAR test for 3G devices v02, SAR Measurement Procedures for 3G Devices CDMA 2000/Ev-Do/WCDMA/HSDPA/HSPA Oct. 2007 Laboratory Division Office of Engineering and Technology Federal Communications Commission
- [2.] TS 34.121 Universal Mobile Telecommunications System (UMTS); Terminal Conformance Specification, Radio Transmission and Reception (FDD)
- [3.] HSUPA Measurement Guide with 8960 V7.5.0 Release 7 (2007-06) Ver.: v.02.18

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