Appendix B WCDMA Test Modes

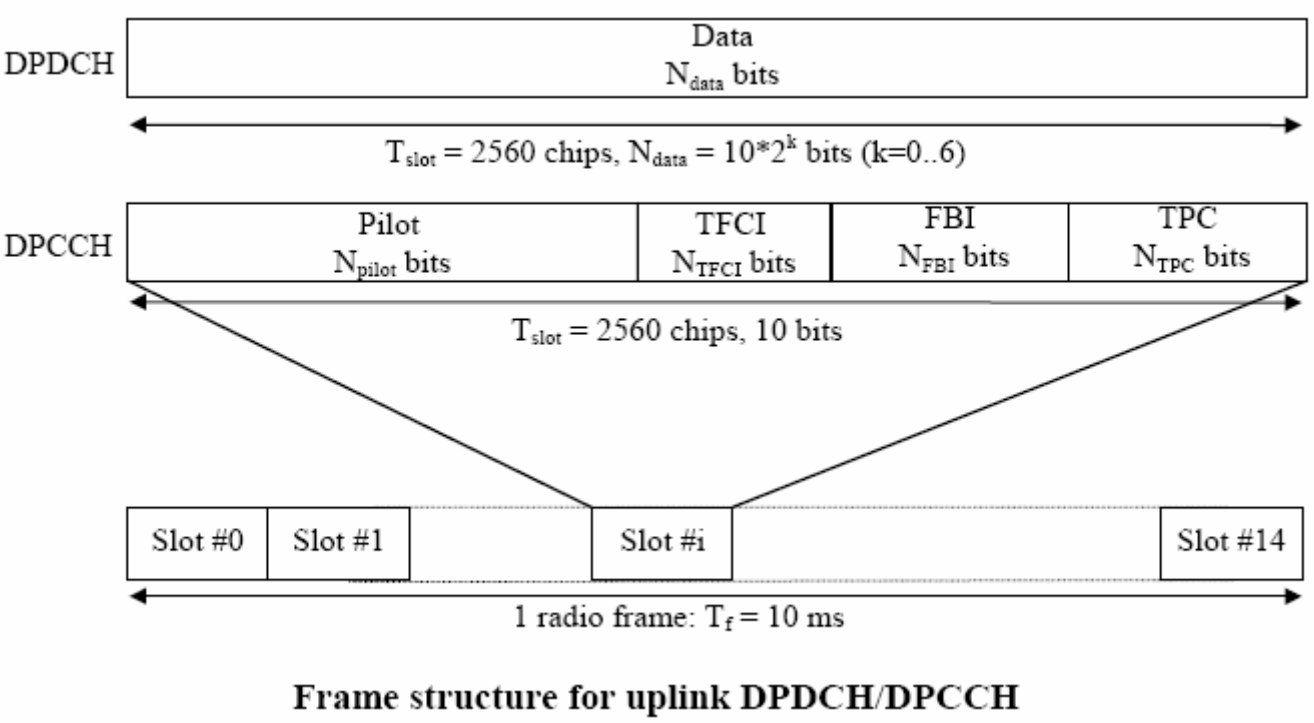
1. Conducted Output Power

RMC 12.2 kbps is the main WCDMA test mode for both EMC and SAR reports. A detailed analysis of the output power for other WCDMA modes is provided in the table below. The mobile phone supports only one DPDCH1 with a various of data rates, such as 12.2Kbps, 64kbps, 144Kbps and 384Kbps.

	Sysmbol Rates(Kbps)	SF	K	Data	Reference Channel Type (Data Rates)	Band II			Band V		
						Ch 9262	Ch9400	Ch9538	Ch 4132	Ch4182	Ch4233
						1852.4	1880	1907.6	826.4	836.4	846.6
DPDCH1	15	256	0	10	RAB 3.4Kbps	23.68	23.61	23.66	23.19	23.37	23.2
	30	128	1	20	RAB 13.6Kbps	23.7	23.64	23.57	23.18	23.41	23.16
	60	64	2	40	RMC 12.2Kbps	23.73	23.72	23.69	23.36	23.45	23.18
	120	32	3	80	Not support						
	240	16	4	160	RMC 64Kbps	23.71	23.67	23.66	23.3	23.42	23.19
	480	8	5	320	RMC 144Kbps	23.71	23.65	23.66	23.32	23.37	23.17
	960	4	6	640	RMC 384Kbps	23.7	23.65	23.62	23.31	23.4	23.15
	60	64	2	40	Vocie AMR 12.2Kbps	23.73	23.71	23.68	23.15	23.43	23.13
DPCCH	15	256	0	10							
Data: Bits/Slot ; SF:Spreading Factor ; K: Number of bits per uplink DPDCH slot.*											

Table 1 Conducted output power

Followed by FCC suggestinons[1]:



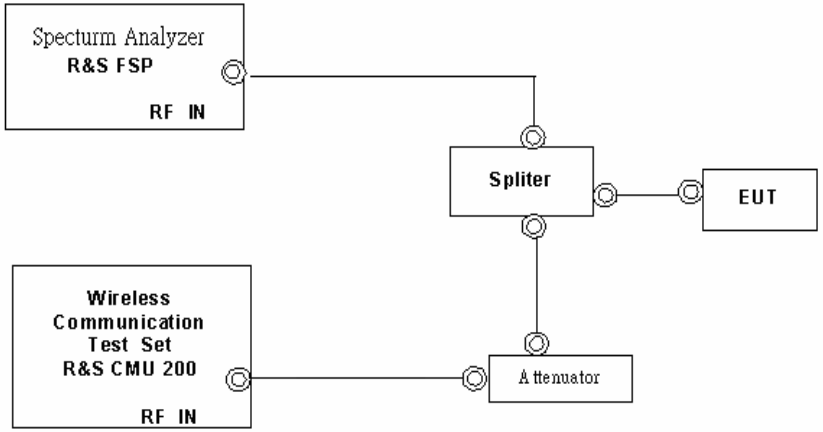
Frame structure for uplink DPDCH/DPCCH

The parameter K in the figure determines the number of bits per uplink DPDCH slot. It is related to the spreading factor SF of the DPDCH as $SF = 256/2^k$. The DPDCH spreading factor may range from 256 down to 4. The spreading factor of the uplink DPCCH is always equal to 256, i.e. there are 10 bits per uplink DPCCH slot.

	Channel Bit Rate (kbps)	Channel Symbol Rate (ksps)	Spreading Factor	Spreading Code Number	Bits/Slot
DPCCH	15	15	256	0	10
$DPDCH_1$	15	15	256	64	10
	30	30	128	32	20
	60	60	64	16	40
	120	120	32	8	80
	240	240	16	4	160
	480	480	8	2	320
	960	960	4	1	640
$DPDCH_n$	960	960	4	1, 2, 3	640

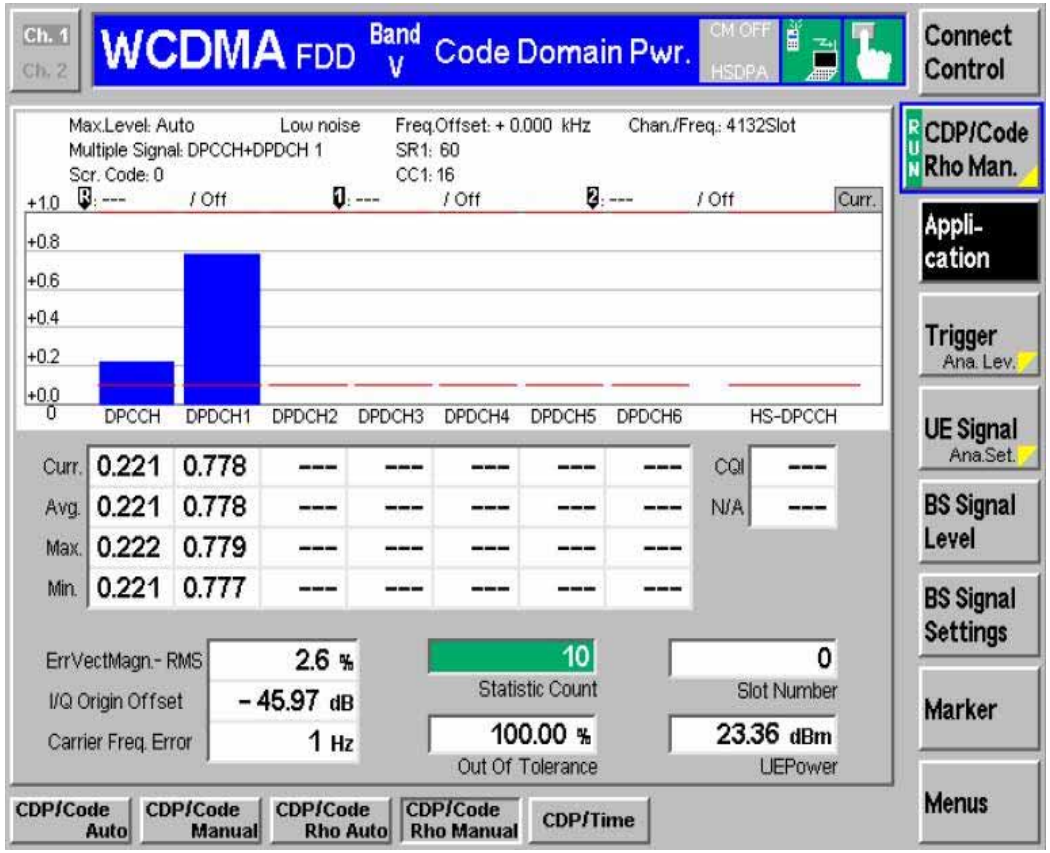
DPCCH and DPDCH

There is only one DPCCH per radio link. Data rates, channelization codes and spread factor information for DPCCH and $DPDCH_n$ are indicated in the following Table. Spreading Rate (SF) * Symbol Rate = 3.84 Mcps.

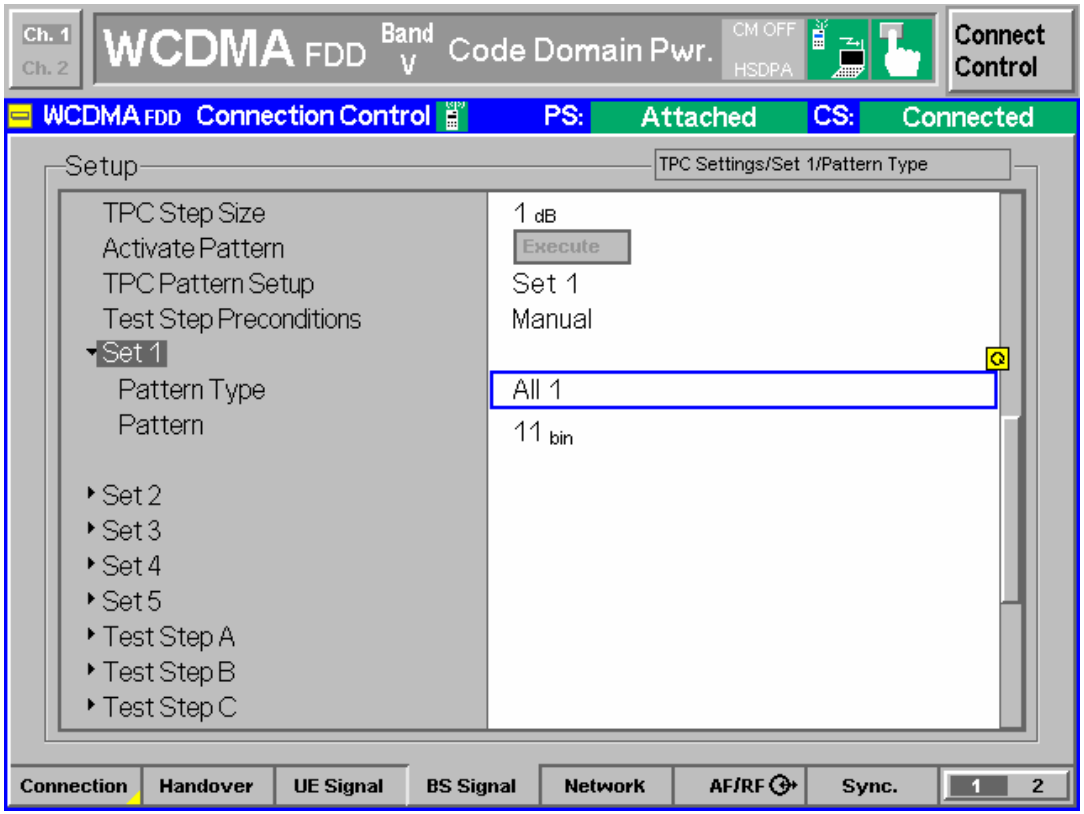


Setup Configuration

1. The EUT was connected to Specturm Analyzer and Base Station via power spliter. Refer to the drawing of Setup Configuration.
2. The RF path losses was compensated into the measurements.
3. A call was established beween EUT and Bsae Station with following setting:
   a. Data rates : Varied RAB,RMC and Voice for each measurements .
   b. TPC with All Up
4. The transmitted maximum output power was recorded.



Single DPCCH with only one DPDCH at RMC 12.2Kbps (Symbol Rate 60 Kbps)



TPC with All “ 1” (Contiunous transmiting)

2. Band Edge and Conducted Spurious Emission

The band edge and conducted spurious emission do not have obvious difference for all different WCDMA modes. As those results were far from the limit line, -13dBm, the test mode RMC 12.2Kbps can take as the main test mode for EMC requirement.

Sysmbol Rates	SF	K	Data	Refe Channel Type	Band II		Band V	
					Ch 9262	Ch9538	Ch 4132	Ch4233
					1852.4(MHz)	1907.6(MHz)	826.4(MHz)	846.6(MHz)
15	256	0	10	RAB 3.4Kbps	-27.59dBm	-25.6dBm	-27.08dBm	-25.08dBm
30	128	1	20	RAB 13.6Kbps	-27.57dBm	-25.48dBm	-26.94dBm	-25.45dBm
60	64	2	40	RMC 12.2KbpsDL/UL	-27.49dBm	-27.96dBm	-27.28dBm	-26.38dBm
240	16	4	160	RMC 64KbpsDL/UL	-27.42dBm	-28.4dBm	-27.71dBm	-26.03dBm
480	8	5	320	RMC 144KbpsDL/UL	-27.02dBm	-27.86dBm	-26.33dBm	-25.15dBm
960	4	6	640	RMC 384KbpsDL/UL	-27.16dBm	-26.97dBm	-27.02dBm	-25.65dBm
60	64	2	40	Vocie AMR 12.2Kbps	-26.93dBm	-26.44dBm	-27.53dBm	-26.51dBm

Table 2 Worst band edge data

Refe Channel Type	Band II Ch9400				Band V Ch4182			
	Frequency(MHz)	level(dBm)	Limit(dBm)	Margin(dB)	Frequency(MHz)	level(dBm)	Limit(dBm)	Margin(dB)
RAB 3.4Kbps	142.52	-26.83	-13	-13.83	1672	-57.98	-13	-44.98
	3760	-33.6	-13	-20.6	2508	-47.55	-13	-34.55
RAB 13.6Kbps	142.52	-29.08	-13	-16.08	1672	-58.64	-13	-45.64
	3760	-35.44	-13	-22.44	2508	-47.79	-13	-34.79
RMC 12.2KbpsDL/UL	142.52	-28.4	-13	-15.4	1672	-58	-13	-45
	3760	-33.92	-13	-20.92	2508	-48.01	-13	-35.01
RMC 64KbpsDL/UL	142.52	-29.16	-13	-16.16	1672	-58.61	-13	-45.61
	3760	-34.76	-13	-21.76	2508	-48.75	-13	-35.75
RMC 144KbpsDL/UL	142.52	-29	-13	-16	1672	-57.73	-13	-44.73
	3760	-34.76	-13	-21.76	2508	-48.17	-13	-35.17
RMC 384KbpsDL/UL	142.52	-28.9	-13	-15.9	1672	-58.44	-13	-45.44
	3760	-33.55	-13	-20.55	2512	-48.27	-13	-35.27
Vocie AMR 12.2Kbps	142.52	-29.38	-13	-16.38	1672	-58.36	-13	-45.36
	3760	-34.17	-13	-21.17	2512	-47.87	-13	-34.87

Table 3 Conducted spurious emission

Reference:

[1.]SAR Measurement Procedures for 3G Devices CDMA 2000/Ev-Do/WCDMA/HSDPA
June 2006 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)