Motorola Mobility - Comments regarding draft KDB 941225

Comment 1:

In reviewing the test protocol dictated by draft KDB 941225, we have found that evaluation of maximum average power for the RB configurations in the order noted runs contrary to the MPR schema allowed in the 3GPP standard. For devices implementing any non-zero amount of MPR, the draft test protocol would impose SAR testing first in RB configurations where maximum average power is expected to be lower (100% and 50%), and then require further SAR testing in the expected worst-case power condition (1 RB). As an alternative, it is suggested that the test protocol be rewritten to begin with the 1 RB cases, and then proceed further for 50% and 100% RB cases if those are found to be higher in power. A candidate revision to the test protocol is provided in Attachment 1.

This approach (examination of higher-power configurations, with test exclusion of other configurations based on power) is supported by the data currently on file with the Commission. As shown in Attachment 2, for devices where MPR is implemented, the worst-case SAR value is typically found in the 1 RB configuration.

Comment 2:

We believe the additional requirement per II.I (top of page 5) for spectrum plots is unnecessarily burdensome, provides no additional technical value, and should be removed from list of reporting requirements.

Attachment 1 - Proposed Alternate Test Protocol

For each LTE frequency band:

1. Start with the largest channel bandwidth and measure SAR on the middle channel in QPSK with 1 RB allocated in the middle of the channel
   (a) When the maximum output power variation across the 1 RB allocations (low edge, middle, high edge) across the *required test channels* is > ½ dB, begin SAR measurement with the channel and 1 RB allocation with the highest output power
   (b) Then apply the test reduction provisions in KDB 447498 to determine if testing is required for the remaining channels. If testing is required for the remaining channels, test the other 1 RB allocations for the original channel, and the highest-power 1 RB allocations for the remaining channels.
      (i) If testing is required on alternate channels, apply the test reduction provisions in KDB 447498 on a per-channel basis to determine if testing on the remaining 1 RB allocations in each channel is required.
2. For QPSK with 50% RB allocated at the upper and lower edges of the channel, and also in the middle of the channel
   (a) For each 1 RB allocation within each channel, when the SAR measured in step 1 is > 1.2 W/kg, test the corresponding 50% RB allocation (e.g. if the middle channel, 1 RB at the high edge results in an SAR value > 1.2 W/kg, test the middle channel with 50% RB allocated at the high edge of the channel)
   (b) When the highest maximum output power for the *required test channels* in QPSK with 50% RB allocation in each of the three RB offset configurations is more than ½ dB higher than that in QPSK with 1 RB allocation, repeat step 1 for that RB offset configuration in QPSK with 50% RB allocation.
3. For QPSK with 100% RB allocation
   (a) When the highest SAR measured in step 1 or step 2 is > 1.2 W/kg, repeat step 1 using QPSK with 100% RB allocation
   (b) When the highest maximum output power for the *required test channels* in QPSK with 100% RB allocation is more than ½ dB higher than the highest QPSK with 1 RB allocation for that channel, repeat step 1 for 100% RB allocation in that channel
4. For each modulation besides QPSK (e.g. 16QAM or 64QAM)

Apply the procedures in steps 1, 2, and 3 to determine the channels and configurations (channel bandwidth, RB allocation, RB offset, etc.) that need SAR testing and measure SAR only when the maximum output power for a channel and configuration combination is more than ½ dB higher than the same channel and configuration in steps 1, 2, or 3 or the SAR measured in steps 1, 2, or 3 is > 1.2 W/kg.

Attachment 2 - Survey of LTE phone device filings

FCC ID	MPR?[1]	Highest SAR on 1 RB?		Notes:
		Head	Body	
NM8PJ53100	Yes (0,1,1,2)	Yes	Yes	
NM8PH98100	Yes (0,1,1,2)	Yes	Yes	
NM8PG05100	Yes (0,1,0,1)	Yes	Yes	
ZNFVS840	Yes (0,1,1,2)	Yes	Yes	
BEJVS910	Yes (0,1,0,1)	Yes	Yes	
BEJVS920	Yes (0,1,1,2)	Yes	Yes	
A3LSCHI405	Yes (0,0,1,1)	Yes	Yes	
A3LSCHI405U	Yes (0,1,1,2)	Yes	Yes	
A3LSCHI535	Yes (0,1,1,2)	Yes	Yes	
A3LSCHI515	Yes (0,0,1,1)	Yes	Yes	
A3LSPHL700	Yes (0,0,1,1)	No	No	Highest SAR on QPSK (50%) with no MPR employed
A3LSCHI510	Yes (0,0.5,0.5,1)	Yes	Yes	

FCC ID	MPR?[1]	Highest SAR on 1 RB?		Notes:
JYCAPACHE	Yes (0,1,1,2)	Yes	Yes	
IHDP56ME1	Yes (0,1,1,2)	Yes	Yes	
IHDT56MX1	Yes (0,1,1,2)	Yes	Yes	
IHDP56MN1	Yes (0,1,1,2)	Yes	Yes	
PY7A8880001	Yes (0,1,1,2)	Yes	Yes	
A3LSGHI747	Yes (0,1,1,2)	Yes	Yes	
A3LSGHI727	Yes (0,1,1,2)	Yes	Yes	
A3LSGHI717	Yes (0,1,1,(1 or 2))	Yes	Yes	
A3LSGHI577	Yes (0,1,1,2)	Yes	Yes	
A3LSGHI667	Yes (0,1,1,2)	Yes	Yes	
JYCP9070	Yes (0,1,1,2)	Yes	Yes	
OMNRM-808	Yes (0,1,1,2)	Yes	Yes	
BEJP930	Yes (0,1,1,2)	Yes	Yes	
NM8PH39100	Yes (0,0.5,0.5, 1)	Yes /No	Yes /No	Highest SAR on QPSK (1 RB) or QPSK (50%) dependent on band and position

FCC ID	MPR?[1]	Highest SAR on 1 RB?		Notes:
NM8PH39150	Yes (0,0.5,0.5, 1)	Yes /No	Yes /No	Highest SAR on QPSK (1 RB) or QPSK (50%) dependent on band and position
NM8PI86100	Yes (0,1,1,2)	Yes	Yes	
NM8PJ83100	Yes (0,1,1,2)	Yes	Yes	
A3LSPHL710	Yes (0,1,1,2)	Yes	Yes	
A3LSCHR530	Yes (0,1,1,2)	Yes	Yes	
ZNFLS840	Yes (0,1,1,2)	Yes	Yes	
NM8PJ75100	Yes (0,1,1,2)	Yes	Yes	
A3LSCHR910	Yes (Varies)	N/A	Yes	
A3LSCHR920	Yes (0,1,1,2)	Yes	Yes	
A3LSCHR900	No	N/A	Yes /No	Highest SAR on QPSK (1 RB) or QPSK (50%) dependent on band and position
BEJSM910	Yes (Varies)	Yes	Yes	
ZNFMS840	No	No	No	MPR not employed
QISM920	Yes (0,1,1,2)	Yes	Yes	
A2LSCHR930	Yes (0,1,1,2)	Yes	Yes	

Note 1: MPR is denoted in the following format: (QPSK 1 RB, QPSK 50%/100%, 16QAM 1 RB, 16QAM 50%/100%)