

N.	Test	Relevance	Modifications Needed	IMMA Comments	IMMA Justifications
1 (8A)	Vibration	Yes	Yes	The modifications will likely include the increase of the level of vibration in the tests.	1. Value of vibration test is linked to the mass of the battery. L-cat battery mass is less than M/N cat mass, so there is need to use different dynamics. When using the same force, different acceleration levels would result. 2. The location where the battery is fixed to the vehicle is different on a car, in general also the shock absorber system on a two-wheeler is different. 3. In a hybrid application the battery is not protected from the excitation force produced by the engine.
2 (8B)	Thermal shock and cycling	Yes	No changes		
3 (8C)	Mechanical shock	No but, a mechanical test for L-cat is needed, which is fundamentally different based on ISO 18243.		In June 2013, ISO will release its first CD (committee draft) of ISO 18243, so IMMA can source details from this test for the September 2013 REESS meeting.	The test was designed on the basis of a car crash configuration. This test should not apply for PTWS (= L1 - L5), there exist no relevant PTW data, to modify the test to apply for PTWs.
4 (8D)	Mechanical integrity	No	NA	Crash test not applicable to L-cat.	
5 (8E)	Fire resistance	Exemption for vehicles without passenger compartment.	For vehicles with passenger compartment IMMA cannot give a full view yet.	Vehicle without passenger compartment does not need test as the rider can easily and quickly leave the vehicle.	Still to be discussed. EC is strongly opposing to exempt category L.
6 (8F)	External short circuit protection	Yes	To be studied in more detail.	IMMA agreed to the test, some questions need to be clarified which may lead to some modifications of the test. To be confirmed at the next session.	
7 (8G)	Overcharge protection	Yes	To be studied in more detail.	IMMA agreed to the test, some questions need to be clarified which may lead to some modifications of the test. To be confirmed at the next session.	
8 (8H)	Over-discharge protection	Yes	To be studied in more detail.	IMMA agreed to the test, some questions need to be clarified which may lead to some modifications of the test. To be confirmed at the next session.	
9 (8I)	Over-temperature protection	Yes	To be studied in more detail.	IMMA agreed to the test, some questions need to be clarified which may lead to some modifications of the test. To be confirmed at the next session.	
ISO 18243 Tests (CD stage planned for June 2013)					
10 (8.3)	Drop Test	Yes, for detachable battery only.	Test is in advanced drafting stage.	A detachable battery may fall during normal usage. The tests cannot be fully disclosed as they are currently in an advanced drafting stage.	IMMA is looking into various tests that may be important. These tests are only for two wheelers, they are not relevant for M and N vehicles, : 1) Drop test related to detachable battery and for Water immersion and Salt Spray tests, IMMA considers that in M and N-vehicle the battery is better protected against water and salt spray, so IMMA is studying the need for such tests.
12 (8.6)	Water immersion			The tests cannot be fully disclosed as they are currently in an advanced drafting stage.	
13 (8.8)	Salt spray test			The tests cannot be fully disclosed as they are currently in an advanced drafting stage.	