LTE Checklist according to KDB 941225

Based on *3GPP/LTE Permit-But-Ask and SAR Guidance*

#	Description	Parameter
1	Identify the operating frequency range of each LTE transmission band used by the device	Band2 : 1850 to 1910 MHz Band4 : 1710 to 1755 MHz Band5 : 824 to 849 MHz Band13 : 777 to 787 MHz
2	Identify the channel bandwidths used in each frequency band; 1.4, 3, 5, 10, 15, 20 MHz etc	Band2 : 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz Band4 : 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz Band5 : 1.4MHz, 3MHz, 5MHz, 10MHz Band13 : 5MHz, 10MHz
3	Identify the high, middle and low (H, M, L) channel numbers and frequencies in each LTE frequency band	LTE Band 2 1) Low channel - Bandwidth: 1.4MH Ch No.: 18607 Frequency: 1850.7MHz - Bandwidth: 3MHz Ch No.: 18615 Frequency: 1851.5MHz - Bandwidth: 5MHz Ch No.: 18625 Frequency: 1852.5MHz - Bandwidth: 10MHz Ch No.: 18650 Frequency: 1855.0MHz - Bandwidth: 15MHz Ch No.: 18675 Frequency: 1857.5MHz - Bandwidth: 20MHz Ch No.: 18700 Frequency: 1860.0MHz 2) Middle channel - Bandwidth: 1.4MHz Ch No.: 18900 Frequency: 1880.0MHz - Bandwidth: 3MHz Ch No.: 18900 Frequency: 1880.0MHz - Bandwidth: 5MHz Ch No.: 18900 Frequency: 1880.0MHz - Bandwidth: 10MHz Ch No.: 18900 Frequency: 1880.0MHz - Bandwidth: 15MHz Ch No.: 18900 Frequency: 1880.0MHz - Bandwidth: 20MHz Ch No.: 18900 Frequency: 1880.0MHz 3) High channel - Bandwidth: 1.4MHz Ch No.: 19193 Frequency: 1909.3MHz - Bandwidth: 3MHz Ch No.: 19185 Frequency: 1908.5MHz - Bandwidth: 5MHz Ch No.: 19175 Frequency: 1907.5MHz - Bandwidth: 10MHz Ch No.: 19150 Frequency: 1905.0MHz - Bandwidth: 15MHz Ch No.: 19125 Frequency: 1902.5MHz - Bandwidth: 20MHz Ch No.: 19100 Frequency: 1900.0MHz

LTE Band 4

1) Low channel

- Bandwidth: 1.4MHz Ch No.: 19957 Frequency: 1710.7MHz
- Bandwidth: 3MHz Ch No.: 19965 Frequency: 1711.5MHz
- Bandwidth: 5MHz Ch No.: 19975 Frequency: 1712.5MHz
- Bandwidth: 10MHz Ch No.: 20000 Frequency: 1715.0MHz
- Bandwidth: 15MHz Ch No.: 20025 Frequency: 1717.5MHz
- Bandwidth: 20MHz Ch No.: 20050 Frequency: 1720.0MHz

2) Middle channel

- Bandwidth: 1.4MHz Ch No.: 20175 Frequency: 1732.5MHz
- Bandwidth: 3MHz Ch No.: 20175 Frequency: 1732.5MHz
- Bandwidth: 5MHz Ch No.: 20175 Frequency: 1732.5MHz
- Bandwidth: 10MHz Ch No.: 20175 Frequency: 1732.5MHz
- Bandwidth: 15MHz Ch No.: 20175 Frequency: 1732.5MHz
- Bandwidth: 20MHz Ch No.: 20175 Frequency: 1732.5MHz

3) High channel

- Bandwidth: 1.4MHz Ch No.: 20393 Frequency: 1754.3MHz
- Bandwidth: 3MHz Ch No.: 20385 Frequency: 1753.5MHz
- Bandwidth: 5MHz Ch No.: 20375 Frequency: 1752.5MHz
- Bandwidth: 10MHz Ch No.: 20350 Frequency: 1750.0MHz
- Bandwidth: 15MHz Ch No.: 20320 Frequency: 1747.5MHz
- Bandwidth: 20MHz Ch No.: 20300 Frequency: 1745.0MHz

LTE Band5

1) Low channel

- Bandwidth: 1.4MHz Ch No.: 20407 Frequency: 824.7MHz
- Bandwidth: 3MHz Ch No.: 20415 Frequency: 825.5MHz
- Bandwidth: 5MHz Ch No.: 20425 Frequency: 826.5MHz
- Bandwidth: 10MHz Ch No.: 20450 Frequency: 829.0MHz

2) Middle channel

- Bandwidth: 1.4MHz Ch No.: 20525 Frequency: 836.5MHz
- Bandwidth: 3MHz Ch No.: 20525 Frequency: 836.5MHz
- Bandwidth: 5MHz Ch No.: 20525 Frequency: 836.5MHz
- Bandwidth: 10MHz Ch No.: 20525 Frequency: 836.5MHz

3) High channel

- Bandwidth: 1.4MHz Ch No.: 20643 Frequency: 848.3MHz

		- Bandwidth: 3MHz Ch No.: 20635 Frequency: 847.5MHz - Bandwidth: 5MHz Ch No.: 20625 Frequency: 846.5MHz - Bandwidth: 10MHz Ch No.: 20600 Frequency: 844.0MHz LTE Band 13 1) Middle channel - Bandwidth: 5MHz Ch No.: 23230 Frequency: 782.0MHz - Bandwidth: 10MHz Ch No.: 23230 Frequency: 782.0MHz
4	Specify the UE category and uplink modulations used	UE Category: 4 Uplink modulation: QPSK, 16QAM
5	Descriptions of the LTE transmitter and antenna implementation & identify whether it is a standalone transmitter operating independently of other wireless transmitters in the device or sharing hardware components and/or antenna(s) with other transmitters etc	This model(LG-VW820) has the same HW and two Tx antennas for CDMA/LTE. For details, please refer to the antenna distance document and block diagram.
6	Identify the LTE voice/data requirements in each operating mode and exposure condition with respect to head and body test configurations, antenna locations, handset flip-cover or slide positions, antenna diversity conditions etc	* Exposure conditions 1) Body SAR is required because LTE hotspot is supported. - Hotspot SAR: Front/Back/Edge Left/Edge Bottom/Edge Right is required * For details, please refer to the antenna document. 2) Head SAR is required because LTE VoIP(e.g. VoLTE, 3rd part VoIP) application is supported.
7	Identify if Maximum Power Reduction (MPR) is optional or mandatory, i.e. built-in by design: a) only mandatory MPR may be considered during SAR testing, when the maximum output power is permanently limited by the MPR implemented within the UE; and only for the applicable RB (resource block) configurations specified in LTE standards b) A-MPR (additional MPR) must be disabled	MPR is mandatory. For details, please see the conducted power table. * Target MPR(1.4/3/5/10/15/20 MHz) - QPSK 1RB 0offset: 0dB, QPSK 1RB 99offset: 0dB :BW 20MHz - QPSK 1RB 0offset: 0dB, QPSK 1RB 74offset: 0dB :BW 15MHz - QPSK 1RB 0offset: 0dB, QPSK 1RB 49offset: 0dB :BW 10MHz - QPSK 1RB 0offset: 0dB, QPSK 1RB 24offset: 0dB :BW 5MHz - QPSK 1RB 0offset: 0dB, QPSK 1RB 14offset: 0dB :BW 3MHz - QPSK 1RB 0offset: 0dB, QPSK 1RB 5offset: 0dB :BW 1.4MHz - 16QAM 1RB 0offset: 1dB, 16QAM 1RB 99offset: 1dB :BW 20MHz - 16QAM 1RB 0offset: 1dB, 16QAM 1RB 74offset: 1dB :BW 15MHz - 16QAM 1RB 0offset: 1dB, 16QAM 1RB 49offset: 1dB :BW 10MHz - 16QAM 1RB 0offset: 1dB, 16QAM 1RB 24offset: 1dB :BW 5MHz

		- 16QAM 1RB 0offset: 1dB, 16QAM 1RB 14offset: 1dB :BW3MHz - 16QAM 1RB 0offset: 1dB, 16QAM 1RB 5offset: 1dB :BW 1.4MHz - QPSK 50RB 24offset: 1dB, 16QAM 50RB 24offset: 2dB :BW 20MHz - QPSK 36RB 16offset: 1dB, 16QAM 36RB 16offset: 2dB :BW 15MHz - QPSK 25RB 12offset: 1dB, 16QAM 25RB 12offset: 2dB :BW 10MHz - QPSK 12RB 6offset: 1dB, 16QAM 12RB 6offset: 2dB :BW 5MHz - QPSK 6RB 3offset: 1dB, 16QAM 6RB 3offset: 2dB :BW 3MHz - QPSK 3RB 2offset: 1dB, 16QAM 3RB 2offset: 2dB :BW 1.4MHz - QPSK 100RB 0offset: 1dB, 16QAM 100RB 0offset: 2dB :BW 20MHz - QPSK 75RB 0offset: 1dB, 16QAM 75RB 0offset: 2dB :BW 15MHz - QPSK 50RB 0offset: 1dB, 16QAM 50RB 0offset: 2dB :BW 10MHz - QPSK 25RB 0offset: 1dB, 16QAM 25RB 0offset: 2dB :BW 5MHz - QPSK 15RB 0offset: 1dB, 16QAM 15RB 0offset: 2dB :BW 3MHz - QPSK 6RB 0offset: 1dB, 16QAM 6RB 0offset: 2dB :BW 1.4MHz A-MPR is always disabled during the SAR testing.
8	Include the maximum average conducted output power measured on the required test channels for each channel bandwidth and UL modulation used in each frequency band: a) with 1 RB allocated at the upper edge of a channel b) with 1 RB allocated at the lower edge of a channel c) using 50% RB allocation centered within a channel d) using 100% RB allocation	Please see the conducted power table.
9	Identify all other U.S. wireless operating modes (3G, Wi-Fi, WiMax, Bluetooth etc), device/exposure configurations (head and body, antenna and handset flip-cover or slide positions, antenna diversity conditions etc.) and frequency bands used for these modes	* Supported band & Exposure conditions 1) CDMA - Exposure conditions: Head/Body worn SAR required * CDMA is supported hotspot. * DTM is not supported. 2) Bluetooth 2.4GHz - Exposure conditions: BT SAR is not required due to the lower power & antenna separation distance. 3) WiFi 802.11 b/g/n 2.4GHz - Exposure conditions: Head/Body SAR required * WiFi 2.4Ghz is supported hotspot.
10	Include the maximum average conducted output power measured for the other wireless modes	Please find the conducted power table.

	and frequency bands	
11	Identify the simultaneous transmission conditions for the voice and data configurations supported by all wireless modes, device configurations and frequency bands, for the head and body exposure conditions and device operating configurations (handset flip or cover positions, antenna diversity conditions etc.)	* Simultaneous transmission conditions 1) CDMA Voice + WiFi data. 2) CDMA EVDO + WiFi data. 3) LTE + WiFi * CDMA & LTE doesn't transmit simultaneously. * DTM is not supported. For details about the simultaneous transmission configurations.
12	When power reduction is applied to certain wireless modes to satisfy SAR compliance for simultaneous transmission conditions, other equipment certification or operating requirements, include the maximum average conducted output power measured in each power reduction mode applicable to the simultaneous voice/data transmission configurations for such wireless configurations and frequency bands; and also include details of the power reduction implementation and measurement setup	No power reduction applied
13	Include descriptions of the test equipment, test software, built-in test firmware etc. required to support testing the device when power reduction is applied to one or more transmitters/antennas for simultaneous voice/data transmission	No power reduction applied
14	When appropriate, include a SAR test plan proposal with respect to the above	No power reduction applied
15	If applicable, include preliminary SAR test data and/or supporting information in laboratory testing inquiries to address specific issues and concerns or for requesting further test reduction considerations appropriate for the device; for example, simultaneous transmission configurations	No power reduction applied

