

Identifying the wireless operating configurations and parameters for submitting a laboratory testing KDB inquiry, a TCB PBA or preparing SAR reports:

- 1) identify the operating frequency range of each LTE transmission band used by the device

Band Class 13

- 777MHz - 787MHz (Uplink)
- 746MHz – 756MHz (Downlink)

- 2) identify the channel bandwidths used in each frequency band; 1.4, 3, 5, 10, 15, 20 MHz etc

Band Class 13

- 5, 10 MHz channel bandwidth

- 3) identify the high, middle and low (H, M, L) channel numbers and frequencies in each LTE frequency band

Band Class 13

- Low Channel 23205 (5MHz): 779.5 MHz
- High Channel 23255 (5MHz): 784.5 MHz
- Mid Channel 23230 (5MHz/10MHz): 782 MHz

- 4) specify the UE category and uplink modulations used

UE Category 3.Uplink modulations: QPSK and 16QAM.

- 5) include descriptions of the LTE transmitter and antenna implementation; and also 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

- The E351 has 1 RF Port for Transmitting: Main (Tx/Rx)
- The Diversity RF Port supports receive functions for GSM, HSPA, LTE, EV-DO and GPS
- Transmission (TX) is limited to antenna 1 only
- The device is unable to transmit CDMA and LTE simultaneously.
- There is only 1 LTE transmitter.
- Reception (RX) is simultaneous on both antennas for each mode.
- The Diversity antenna is a receive only antenna which is reserved for the WWAN operations only.

E351 transmission chart

| E351 Antenna | EV-DO | | LTE | | GPS |
|--------------|-------|-----|-----|-----|-----|
| | TX | RX | TX | RX | RX |
| Antenna 1 | Yes | Yes | Yes | Yes | No |
| Antenna 2 | No | Yes | No | Yes | Yes |

- 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

SAR will be tested as per the appendix in supplement to KDB 447498.

- 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

MPR is mandatory, built-in by design on all production units.

- b) A-MPR (additional MPR) must be disabled

A-MPR is disabled during testing

MPR Target Value

| Modulation | Channel bandwidth/Transmission bandwidth configuration (RB) | | MPR (dB) |
|------------|---|--------|----------|
| | 5 MHz | 10 MHz | |
| QPSK | > 8 | > 12 | ≤ 1 |
| 16QAM | ≤ 8 | ≤ 12 | ≤ 1 |
| 16QAM | > 8 | > 12 | ≤ 2 |

- 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

The following three tables describe the LTE functionality and RF conducted power.

| Channel bandwidth of LTE band 13_MPR Enabled | | | | | | | |
|--|-----------------|-----------------------|-----------------|-----------|-----------|------------|--------------------------|
| channel | Frequency (MHz) | Uplink Channel Number | Bandwidth (MHz) | RB Number | RB Offset | Modulation | Max. Average Power (dBm) |
| Low Range | 779.5 | 23205 | 5 | 1 | 0 | QPSK | 24.4 |
| | 779.5 | 23205 | 5 | 1 | 24 | QPSK | 24.3 |
| | 779.5 | 23205 | 5 | 12 | 6 | QPSK | 23.3 |
| | 779.5 | 23205 | 5 | 25 | 0 | QPSK | 23.2 |
| | 779.5 | 23205 | 5 | 1 | 0 | 16 QAM | 23.5 |
| | 779.5 | 23205 | 5 | 1 | 24 | 16 QAM | 23.5 |
| | 779.5 | 23205 | 5 | 12 | 6 | 16 QAM | 22.6 |
| | 779.5 | 23205 | 5 | 25 | 0 | 16 QAM | 22.4 |
| High Range | 784.5 | 23255 | 5 | 1 | 0 | QPSK | 24.1 |
| | 784.5 | 23255 | 5 | 1 | 24 | QPSK | 24.2 |
| | 784.5 | 23255 | 5 | 12 | 6 | QPSK | 23.1 |
| | 784.5 | 23255 | 5 | 25 | 0 | QPSK | 23.4 |
| | 784.5 | 23255 | 5 | 1 | 0 | 16 QAM | 23.6 |
| | 784.5 | 23255 | 5 | 1 | 24 | 16 QAM | 23.3 |
| | 784.5 | 23255 | 5 | 12 | 6 | 16 QAM | 22.6 |
| | 784.5 | 23255 | 5 | 25 | 0 | 16 QAM | 22.2 |
| Middle Range | 782 | 23230 | 10 | 1 | 0 | QPSK | 24.5 |
| | 782 | 23230 | 10 | 1 | 49 | QPSK | 24.3 |
| | 782 | 23230 | 10 | 25 | 13 | QPSK | 23.4 |
| | 782 | 23230 | 10 | 50 | 0 | QPSK | 23.7 |
| | 782 | 23230 | 10 | 1 | 0 | 16 QAM | 23.3 |
| | 782 | 23230 | 10 | 1 | 49 | 16 QAM | 23.8 |
| | 782 | 23230 | 10 | 25 | 13 | 16 QAM | 22.7 |
| | 782 | 23230 | 10 | 50 | 0 | 16 QAM | 22.4 |

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

Wireless modes:

- LTE (777MHz - 787MHz)
- CDMA Cell (824MHz – 848MHz)
- CDMA PCS (1850MHz – 1908MHz)

10) include the maximum average conducted output power measured for the other wireless modes and frequency bands

Conducted power table_ CDMA:2000 & EVDO

| Modes\Channels | Cellular (Average) | | | US PCS (Average) | | |
|----------------|--------------------|-------|-------|------------------|-------|-------|
| | 1013 | 384 | 777 | 25 | 600 | 1175 |
| CDMA 2000 | 24.44 | 24.51 | 24.42 | 24.43 | 24.45 | 24.41 |
| EvDO Rev.0 | 24.47 | 24.56 | 24.46 | 24.46 | 24.49 | 24.48 |
| EvDO Rev.A | 24.41 | 24.50 | 24.47 | 24.32 | 24.39 | 24.35 |

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.)

The device is unable to transmit CDMA and LTE simultaneously.

| Simultaneous TX Modes | WCDMA | CDMA | LTE |
|-----------------------|-------|------|-----|
| 1 | ON | OFF | OFF |
| 2 | OFF | ON | OFF |
| 3 | OFF | OFF | ON |

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

There are no power reduction techniques used to satisfy SAR limits.

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

There are no power reduction techniques used to satisfy SAR limits.

14) when appropriate, include a SAR test plan proposal with respect to the above

There is no requirement, as there is no power reduction techniques used.

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

Not applicable.