Re: FCC ID: BEJLEO2

Applicant: LG Electronics USA

Correspondence Reference Number: 60304

Form 731 Confirmation Number: TC690210

Date of Original E-mail: 11/12/2008

Dear Samuel:

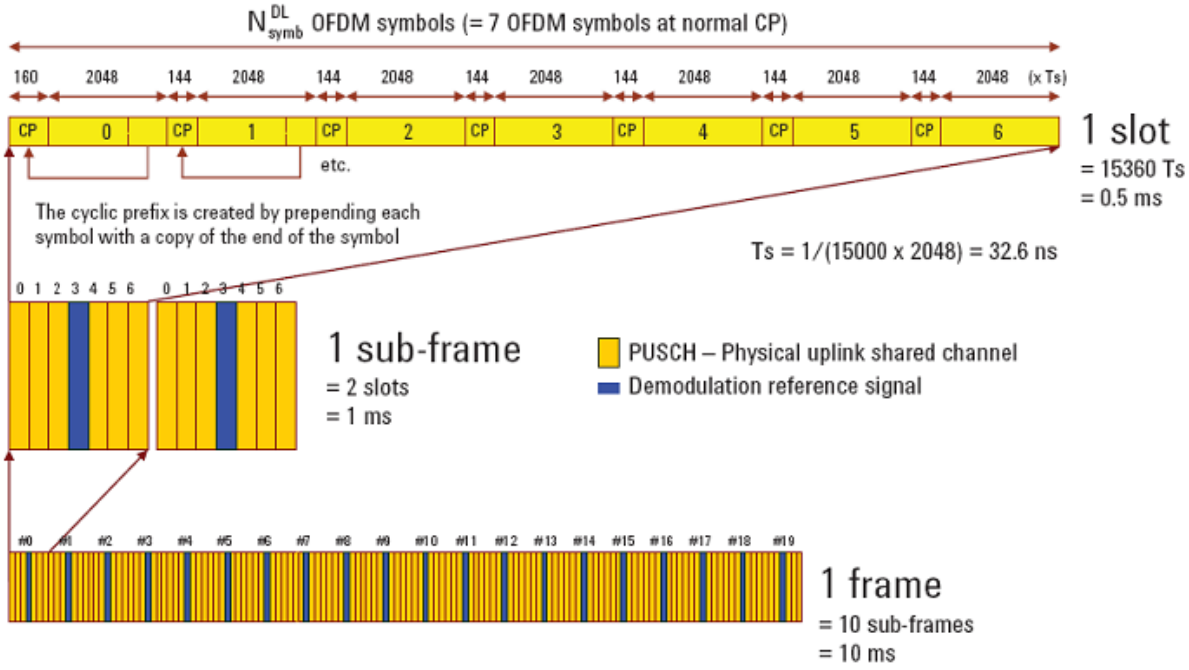
In your audit review, you asked the following questions:

Your report is insufficient, please provide the following information: 1. Details of the TDD/FDD characteristics for both normal transmission and the test signal; signal characteristics used in power measurements Describe how the test software setup or configuration to determine Duty factor and symbols and to generate worst case crest factor.. What is your maximum number of symbols per frame.We need to know the detail of your test software capabilities and how it was used to set up your DUT; This information helps to determine wether the Maximum Duty factor in Time/Freq domain operating parameters were set up correctly for both power and SAR measurements. 3. Justifications for choosing the specific test signal characteristics to demonstrate conservative or maximum exposure conditions have been tested to show SAR compliance. 4.What is your peak power. Depending on the output power and TDD signal characteristics, the specific SAR measurement issues relating to Wimax SAR probe calibration for making SAR measurements (voltage crest factor and peak to average power issues; see FCC 802.11 SAR procedures for explanation of such issues) and duty factor correction (time-averaging consideration for TDD) Detail information on the Time/freq domain operating parameters include -Max number of symbols and subscribers allowed in the uplink for the DUT to transmit. Other vital parameters needed are frame rate,transmission gap intervals, possible zone formats(FUSC,PUSC etc) to correctly determine SAR test configurations and appropriate Duty factor 5. The above may require detail explanations of the relationship between symbol and sub-carrier requirements, sub-channel groupings, TDD frame and gap time requirements, maximum uplink and downlink symbol and sub-carrier allocations; difference in test signal and exposure characteristics between the different modulations and channel bandwidth for determining appropriate test conditions, transmission formats (PUSC, FUSC etc.)

CCS reply:

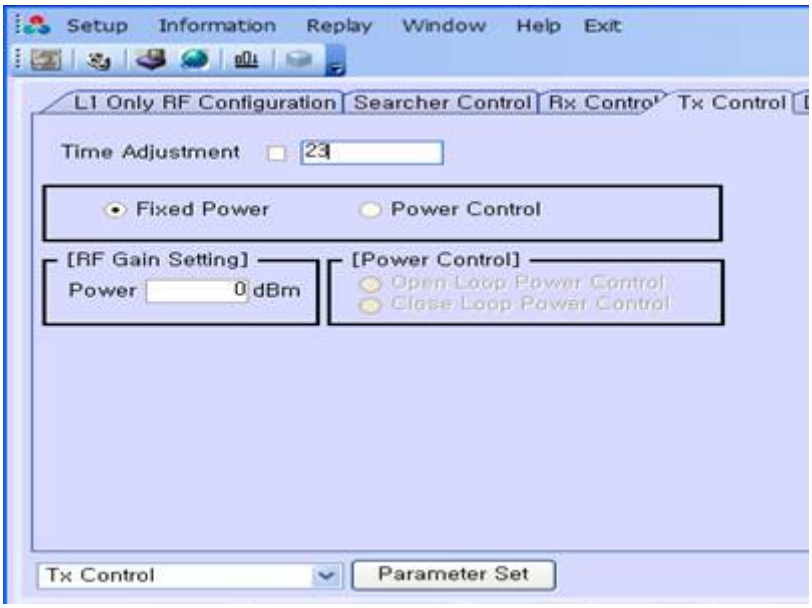
By reviewing above questions asked, these questions are applicable to WiMAX device with SAR evaluation requirements. The subject application is not a WiMAX device but a LTE device with request for limited single modular approval and such module is not subject to SAR evaluation. However, we do think the concerns that you have for WiMAX device is also applicable to LTE device. Thus, I have requested the applicant / agent to provide more technical information to address the device capabilities and test conditions. Below are additional information provided:

1) This LTE device is designed based upon the following industry standards:
    a. 3GPP standards : 3GPP RAN1(36.201/211/212/213/214)
    b. RAN2(36.302/304/306/321/322/323/331)
    c. CT(24.301)
    d. SA(23.401)
2) LTE mode: Full duplex FDD, Device is always operated in paired frequency bands(UL and DL)
3) Device channel bandwidth: 10MHz. Only 10 MHz channel bandwidth is supported. 10 MHz channel bandwidth is limited by the board design.
4) Test procedures: Test procedures described in RAN5(36.508/521/523) are supported.
5) Smart antenna or beam-forming mode: Transmit diversity and spatial multiplexing are supported
6) PUSCH Frame Structure:

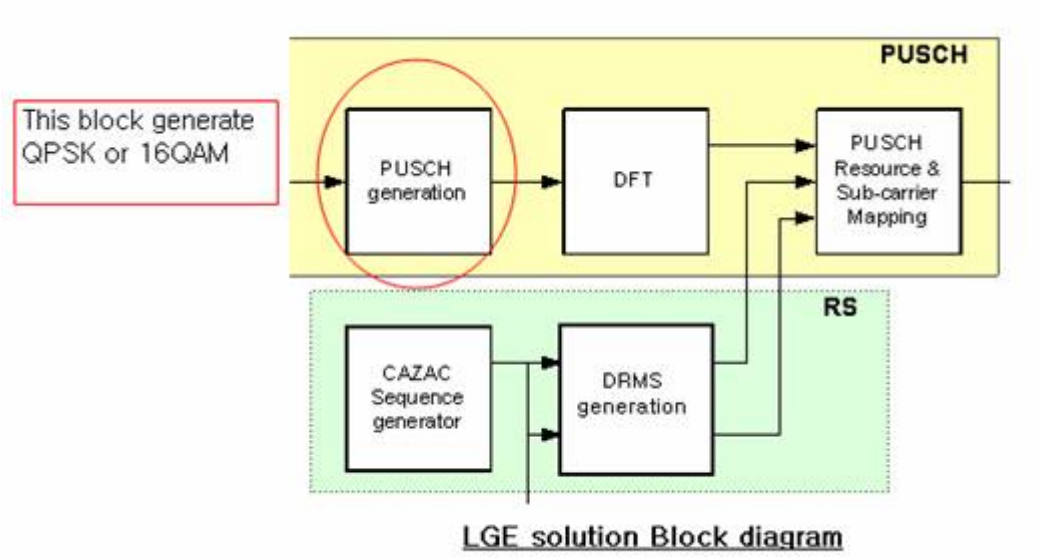


7) Explanation of Operation:
    a. Our modulation methods have two case as uplink & downlink.
    Uplink support QPSK, 16QAM like WCDMA technology. Downlink support QPSK, 16QAM, 64QAM.
    At uplink, modulated signal is generated by TX FPGA and demodulation function is executed by RX FPGA.
    b. One slot is composed of 7 symbols.
    The digital I /Q signal is converted to analog at DAC and analog I / Q signal input RF circuits.
    The input signal is amplified at VGA, PAM ,etc.
8) Test Setting:

a. Our program control VGA' amplifying value set, PAM's mode set, attenuator value set in TX path RX agc set, LNA set in RX path. So, TX output power set 23dBm at final port.
b. We use DM test tool – Diagnostic Monitor, We make it set in the notebook and it supports only control setting and monitoring functions, not data setting.
c. We generate QPSK or 16QAM modulated signal with 3GPP specification –TS36.211
d. We make modulation signal how to set the number of bits : PSK(2bits), 16QAM(4bits) at our test ;
e. In real situation, eNB(Base station) generally control if UE generate QPSK or 16QAM and and UE generate QPSK or 16QAM as eNB command.
f. If UE make IQ set two bits, it will be QPSK, If 4 bits, 16QAM
g. Due to there is no the call-setup equipment which can give commands by today. So, during final compliance tests, QPSK image was downloaded to our board's memory for QPSK generation. 16QAM image was downloaded to our board's memory for 16QAM generation.
h. Below is the image shot that we used to control the power as 23 dBm



9) The block diagram below shows how the QPSK and 16QAM were generated via PUSCH.



LGE solution Block diagram

10) There is no duty cycle in FDD method. That is, continuous TX and RX are working throughout the tests (100%).

If you have any question, please feel free to contact me.

Best Regards

Mike Kuo / CCS