



To:	TIMCO Engineering Inc. 849 NW State Road 45 Newberry, Florida 32669 http://www.timcoengr.com 888.472.2424 F 352.472.2030 tei@timcoengr.com	From:	Rudy J. Pillmeier Alcatel-Lucent USA Inc. Global Product Compliance Laboratory Building 28-114H 600-700 Mountain Ave, P.O Box 636 New Providence, NJ 07974-0636 908-582-2810 rudy.pillmeier@alcatel-lucent.com
Subject:	Re: FCC ID: AS5ONEBTS-16 Applicant: Alcatel-Lucent USA Inc. Correspondence Reference Number: 128308 Form 731 Confirmation Number: TC134919 Date of Original E-mail: 07/10/2012 Timco Job # 386UC12 GPCL Project # 2012-0010	Date:	July 19, 2012

Response to FCC Correspondence, Reference Number: 128308

Dear TIMCO

The responses below follow a reprint of your questions from the email dated 7/10/2012 in reference to our filing under FCC ID: AS5ONEBTS-16 and Timco Job # 386UC12.

We hope this resolves the questions raised.

Kind Regards

Rudy J. Pillmeier

1. It appears that, based on Exhibits 2 and 12, the maximum power output presented is mean/average power. Per 27.50(d)(5), PAR (peak-to-average) ratio should be less than 13 dB if average power is measured. No compliance data can be found in the test report.

Response:

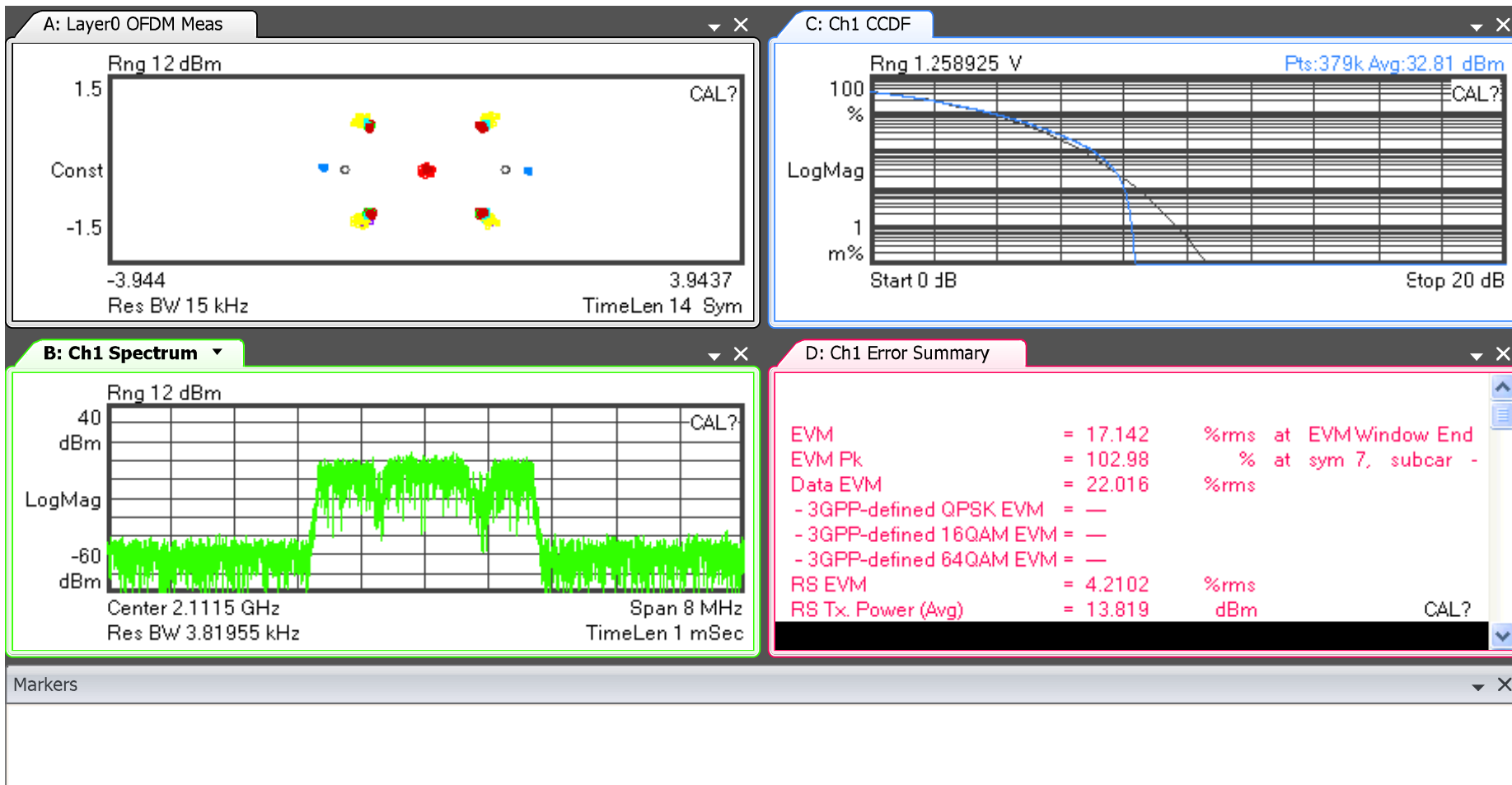
The maximum output power presented is mean/average power. Although a PAR measurement is not required in Sections 2.1046 through 2.1057 as specified in section 2.1033, the data was presented as part of the Modulation Data in the subject test report and can be found in Exhibit 13. Specifically Figures 13B, 13C and 13D on pages 9-11, attached below, includes PAR measurement as part of the analysis. The upper right "log magnitude" chart plots PAR for the actual data rate against a standard Gaussian response. The chart indicates that the PAR is approximately 8.2 dB which is well below the required 13 dB. It should be noted that the time stamp at the top right of the overall chart is the Agilent 89600B test system time stamp applied at time of measurement. The files were saved from the instrument in both "Tiff "(B&W) and pdf (color) formats with a white background (for easier printing). The pdf files were then inserted into the MSWord report prior to conversion of the overall report to pdf to reduce file size. This re-pdf'd process seems to have degraded the quality of the power charts that was in the report. Attached below are higher resolution copies of the three original source data files that were in the report documenting PAR performance for QPSK, 16QAM and 64QAM operation.

Modulation and PAR were verified for each of the 11 "Edge of Block" measurement test configurations. At each of the 11 block edges the modulation and PAR was verified for QPSK, 16QAM and 64QAM operation. A total of 33 screen plots were recorded. Three were presented as examples and the compliance of the rest of the data was reported in Exhibit 13. The verification of modulation at every block edge was executed to ensure that the measurement of RF Power (Exhibit 12), Occupied Bandwidth (Exhibit 14) and Conducted Spurious emissions at the Antenna terminal (Exhibit 15) would represent valid performance.

QPSK Channel 30 Modulation data.

LTE - Agilent 89600B Vector Signal Analysis

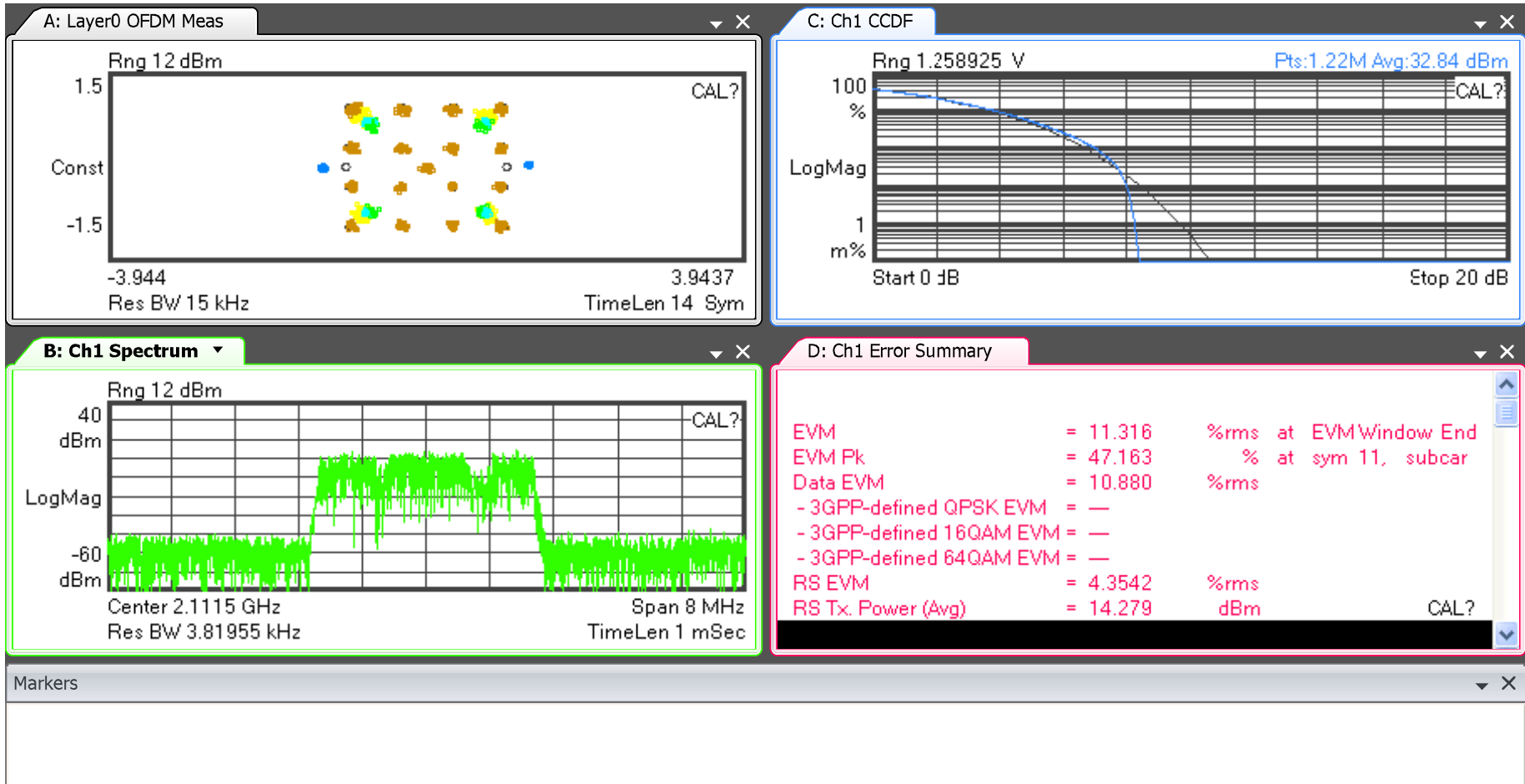
1/18/2012 5:31:24 PM



16QAM Channel 30 Modulation data.

LTE - Agilent 89600B Vector Signal Analysis

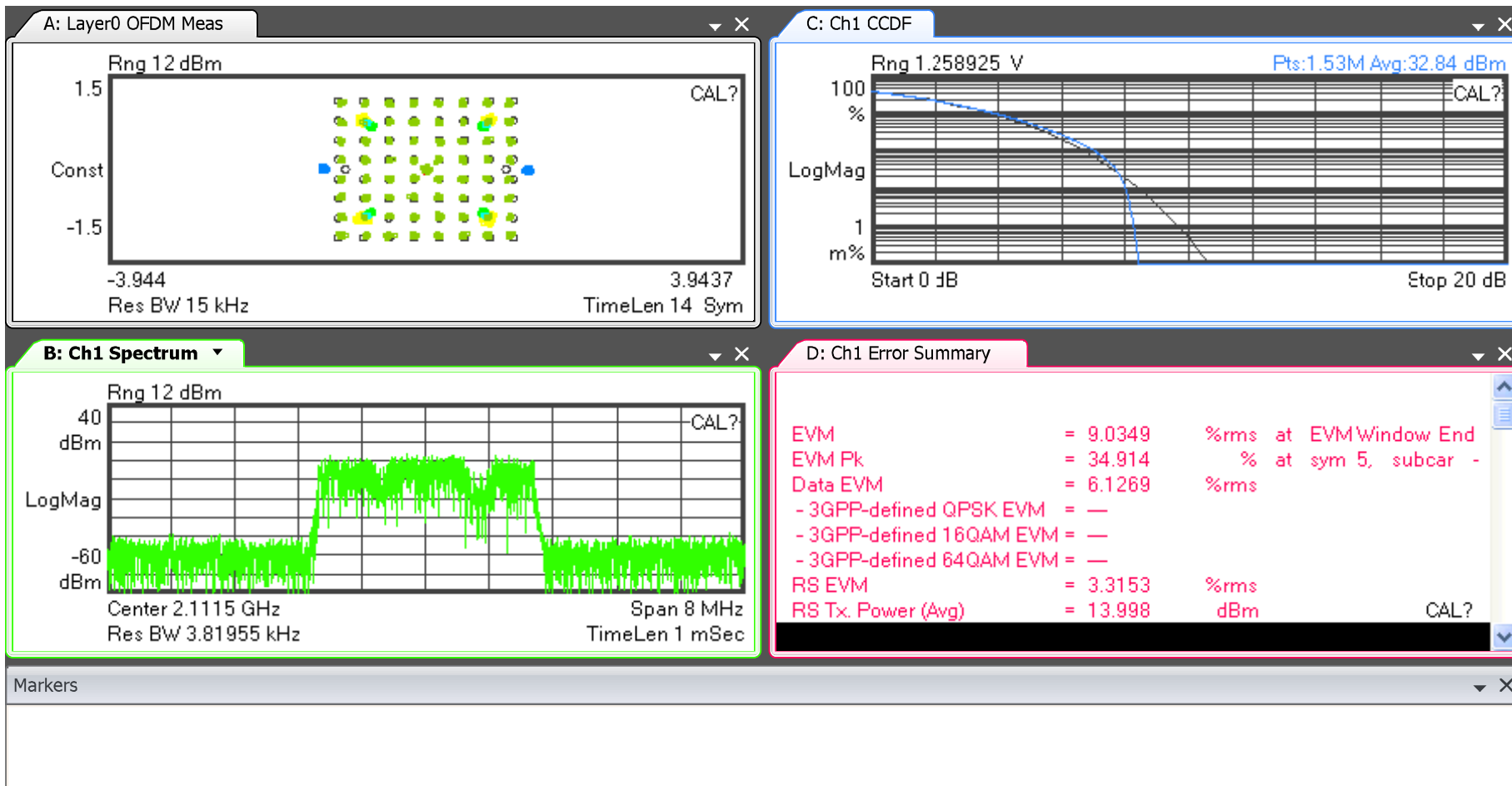
1/18/2012 6:36:36 PM



64QAM Channel 30 Modulation data.

LTE - Agilent 89600B Vector Signal Analysis

1/18/2012 7:37:15 PM



2. Part 27.53(h)(1) requires that band edge (less than 1 MHz removed from the assigned frequency block) performance is measured with a resolution bandwidth of at least 1% of the emission bandwidth, where emission bandwidth is defined to be the 26 dB bandwidth. Please clarify the relationship between the selected RBW, 30 kHz, and the 26 dB BW.

Response:

The CFR (**Part 27.53(h)(1)**) states: “a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter *may be employed*”.

A 3 MHz emissions bandwidth signal has a 1% bandwidth of 30 kHz. The recommendation of the CFR is to use a resolution bandwidth more narrow than the signal bandwidth in order to accurately assess the performance at band edge. Since spectrum analyzers typically have fixed resolution bandwidth, the tradition has been to select a bandwidth close to the desired value and appropriately adjust the limits. Test equipment with a 30 kHz resolution bandwidth typically provides a 10 dB lower noise floor than testing at 50 kHz. When connecting to a high power transmitter, the insertion loss of the coupling network also impacts the overall dynamic range thus the 10 dB lower noise floor improves the compliance margin that can be resolved.

The use of a 30 kHz resolution bandwidth has traditionally been used to show performance close to the carrier. Some areas of the CFR specify 30 kHz specifically or in other cases such as CFR Part 27.53(a)(5) which states: "A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (*i.e.* 1 MHz or 1 percent of emission bandwidth, as specified)." For the Occupied bandwidth measurements presented, the data represents an integration not only 1 MHz beyond the “edge of block” but for each and every AWS block and band.

The EMC tests were conducted over a period of time according to the dates shown on spectrum analyzer plots. The applicant is advised to list test dates in future test report summary. This could put a test date on those tests that do not show time stamps. That information is also useful in verifying the calibration dates of the equipment used.

Response:

All of the test plots in the subject test report have an equipment generated time stamp. The transmit port conducted measurements were performed over the period of January 17-24, 2012. We acknowledge your suggestion for a test date summary and will consider its inclusion for the next filing.

From: tei@timcoengr.com [mailto:tei@timcoengr.com]
Sent: Wednesday, July 11, 2012 5:01 PM
To: Pillmeier, Rudolf J (Rudy); Farina, Michael P (Michael); Majkowski, Walter S (Steve)
Subject: Request for additional info - ALCATEL-LUCENT USA, INC. - FCC ID: AS5ONEBTS-16 - JOB #: 386UC12

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TCB & FCB

*FCC Approvals
Industry Canada Approvals
Notified Body for Europe*

July 11, 2012

MR. RUDOLPH PILLMEIER
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SUBJECT: TIMCO-TCB/Request for additional info - ALCATEL-LUCENT USA, INC. - FCC ID: AS5ONEBTS-16 - JOB #: 386UC12

Dear MR. PILLMEIER:

Today, we received a request for more information from the FCC. They state there are two minor issues which require your clarification. We will submit your response to the FCC as soon as it is received. The following is from the FCC:

In review of this grant, two minor issues are identified which require your clarification.

1. It appears that, based on Exhibits 2 and 12, the maximum power output presented is mean/average power. Per 27.50(d)(5), PAR (peak-to-average) ratio should be less than 13 dB if average power is measured. No compliance data can be found in the test report.
2. Part 27.53(h)(1) requires that band edge (less than 1 MHz removed from the assigned frequency block) performance is measured with a resolution bandwidth of at least 1% of the emission bandwidth, where emission bandwidth is defined to be the 26 dB bandwidth. Please clarify the relationship between the selected RBW, 30 kHz, and the 26 dB BW.

The EMC tests were conducted over a period of time according to the dates shown on spectrum analyzer plots. The applicant is advised to list test dates in future test report summary. This could put a test date on those tests that do not show time stamps. That information is also useful in verifying the calibration dates of the equipment used.

The items indicated above must be submitted before processing can continue on the above referenced application.

Failure to provide the requested information within 30 days of the original e-mail date may result in application dismissal pursuant to Section 2.917(c).

DO NOT Reply to this email by using the reply button. In order for your response to be processed expeditiously, you must upload your response via the Internet at www.fcc.gov, E-Filing, OET TCB/Accreditor Electronic Filing, TCB Login, Submit Correspondence. Also, please note that partial responses increase processing time and should not be submitted.

Mr. Pillmeier, Please respond to the two items listed. We will submit your response to the FCC as soon as it is received. Your help is greatly appreciated.

Best regards,
Timco Engineering