

EMC Test Report

Project Number: 3843586

Report Number: 3843586EMC01 **Revision Level:** 0

Client: Continental Automotive Systems, Inc.

Equipment Under Test: Wireless Modem Module

Model: CASAN

FCC Rule Parts: Part 2, Part 27

Industry Canada: RSS-139, Issue 3, RSS-130 Issue 1

Conducted Spurious Emissions Only

Report issued on: 11 September 2015

Test Result: Compliant

Tested by:


Jeremy O. Pickens, Senior EMC Engineer

Reviewed by:


David Schramm, EMC/RF/SAR/HAC Manager

Remarks:

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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Table of Contents

1	SUMMARY OF TEST RESULTS.....	3
1.1	MODIFICATIONS REQUIRED TO COMPLIANCE	3
2	GENERAL INFORMATION.....	4
2.1	CLIENT INFORMATION	4
2.2	TEST LABORATORY	4
2.3	GENERAL INFORMATION OF EUT	4
2.4	OPERATING MODES AND CONDITIONS	4
3	BAND EDGE AND CONDUCTED SPURIOUS EMISSIONS.....	5
3.1	TEST RESULT.....	5
3.2	TEST METHOD	5
3.3	TEST SITE	5
3.4	TEST EQUIPMENT	5
3.5	TEST DATA - BAND EDGE.....	6
3.6	TEST DATA - CONDUCTED SPURIOUS EMISSIONS	10
4	REVISION HISTORY	12

1 Summary of Test Results

Reference Sections	Test Description	Test Limit	Test Result
2.1051 27.53(c)(2) 27.53(h) RSS-139(6.5.1)	Band Edge / Conducted Spurious Emissions	$< 43 + 10\log_{10} (P_{\text{Watts}})$ at band edge and for all out of band emissions	Pass

1.1 ***Modifications Required to Compliance***

None

2 General Information

2.1 Client Information

Name: Continental Automotive System, Inc.
Address: 21440 West Lake Cook Road
City, State, Zip, Country: Deer Park, IL 60010, USA

2.2 Test Laboratory

Name: SGS North America, Inc.
Address: 620 Old Peachtree Road NW, Suite 100
City, State, Zip, Country: Suwanee, GA 30024, USA

2.3 General Information of EUT

Type of Product: Wireless Modem Module
Model Number: CASAN
FCC ID: LHJ-CASAN
IMEI Number: 358885060017573

Rated Voltage: 10.2 – 13.8 Vdc
Test Voltage: 12 Vdc,
Tx Frequency Range: 776 - 787 MHz (LTE Band 13)
1710 – 1755 MHz (LTE Band 4)
FCC Classification: PCS Licensed Transmitter PCB
Type: Pre Production

Sample Received Date: 03 September 2015
Dates of testing: 09 September 2015

2.4 Operating Modes and Conditions

The EUT was exercised by connecting a CMW communications tester to the device. The CMW was used to control signaling and channel during testing.

3 Band Edge and Conducted Spurious Emissions

3.1 Test Result

Test Description	Basic Standards	Test Result
Conducted spurious emissions and Band Edge	2.1051 27.53(c)(2) 27.53(h) RSS-139(6.5.1)	Pass

3.2 Test Method

The levels of the carrier and the various conducted spurious and harmonics frequencies are measured by means of a calibrated spectrum analyzer. The emissions spectrum emanating from the EUT transmit antenna port is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log (P)$ dB. Compliance is based on the use of a spectrum analyzer employing a resolution bandwidth of 1 MHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of a least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emissions bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

3.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 23.0°C
Relative Humidity: 49.7 %
Atmospheric Pressure: 97.7 kPa

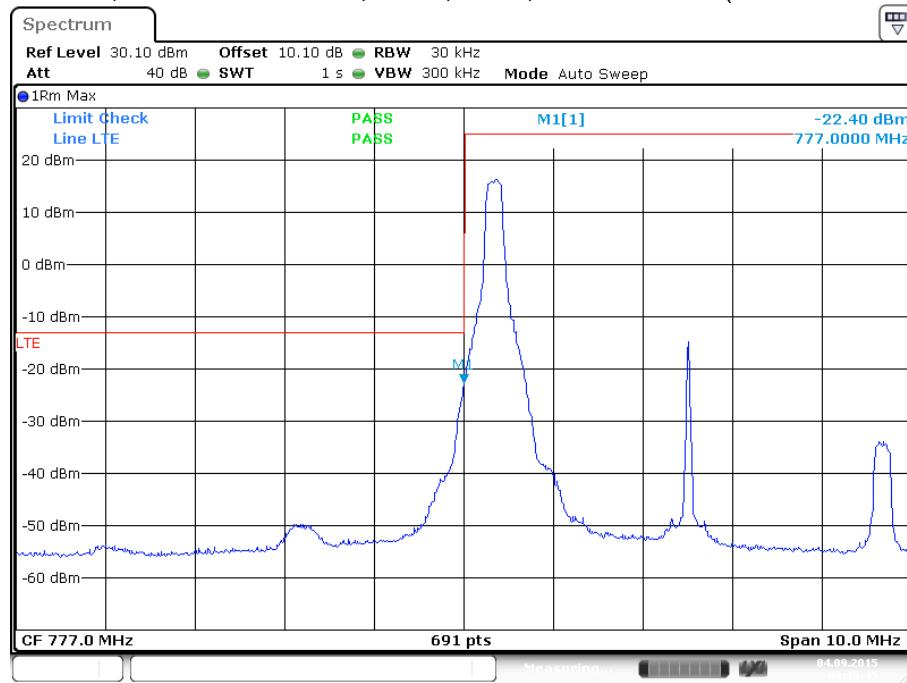
3.4 Test Equipment

Equipment	Model	Manufacturer	Asset Number	Cal Due Date
SIGNAL ANALYZER	FSV30	ROHDE & SCHWARZ	B085749	27-Sep-2015
CMW500 WIDEBAND RADIO COMMUNICATIONS TESTER	CMW500	ROHDE & SCHWARZ	B094874	6-Dec-2015
POWER SPLITTER	ZFRSC-123-S+	MINI-CIRCUITS	B101739	5-Aug-2016
COAXIAL CABLE	1134	GORE	B094785	4-Aug-2016

- Unless otherwise noted, equipment is on a 1 year calibration cycle.
- Based on manufacturer's specifications, the CMW-500 is on a 3 year calibration cycle.

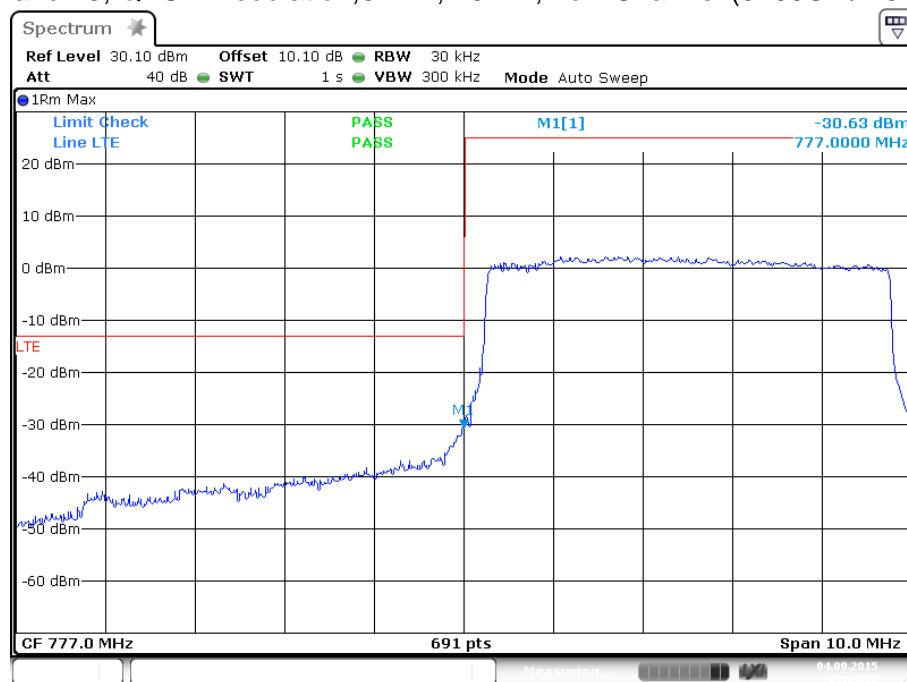
3.5 Test Data - Band Edge

LTE Band 13, QPSK modulation, 5MHz, 1 RB, Low Channel (5205UL / 23205DL)



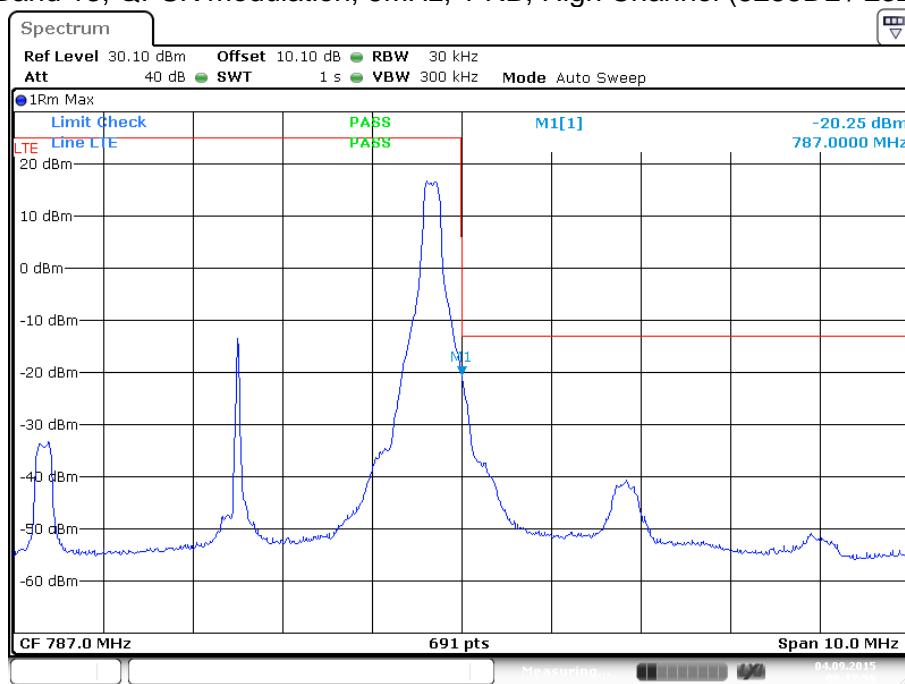
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LTE Band 13, QPSK modulation, 5MHz, 25 RB, Low Channel (5205UL / 23205DL)



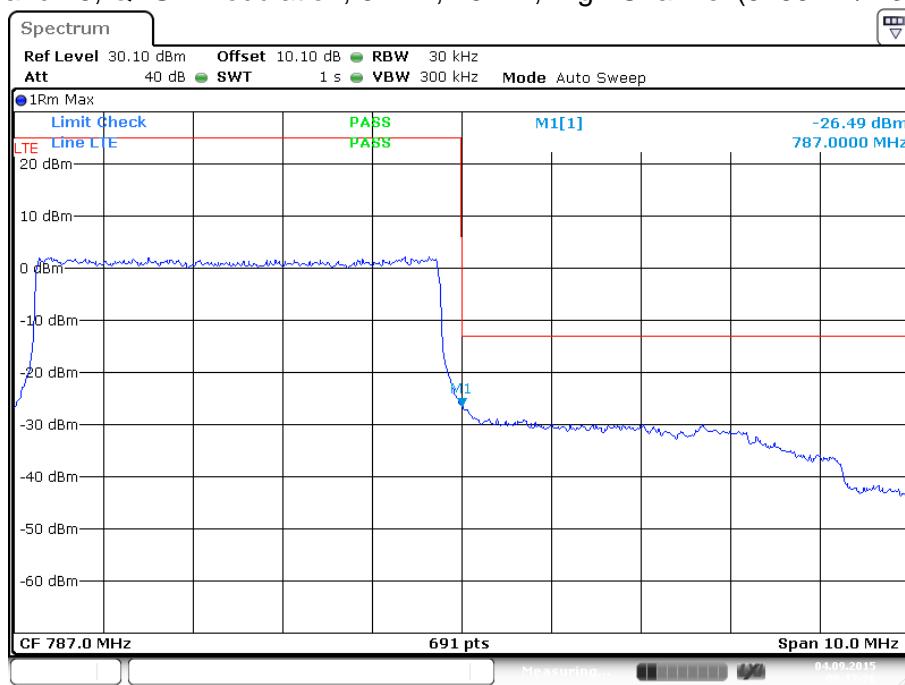
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LTE Band 13, QPSK modulation, 5MHz, 1 RB, High Channel (5255DL / 23255UL)



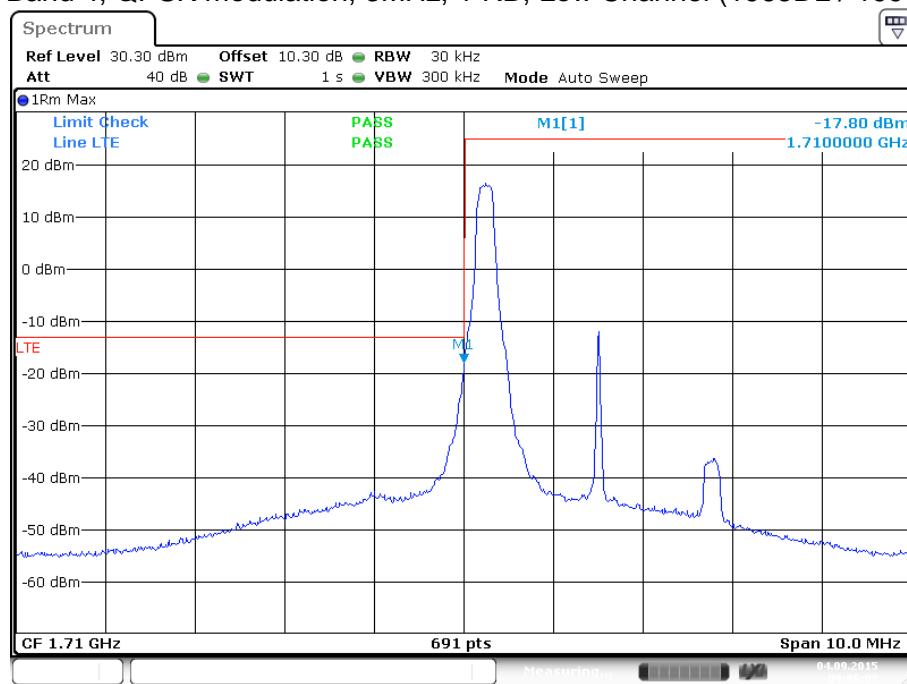
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LTE Band 13, QPSK modulation, 5MHz, 25 RB, High Channel (5255DL / 23255UL)



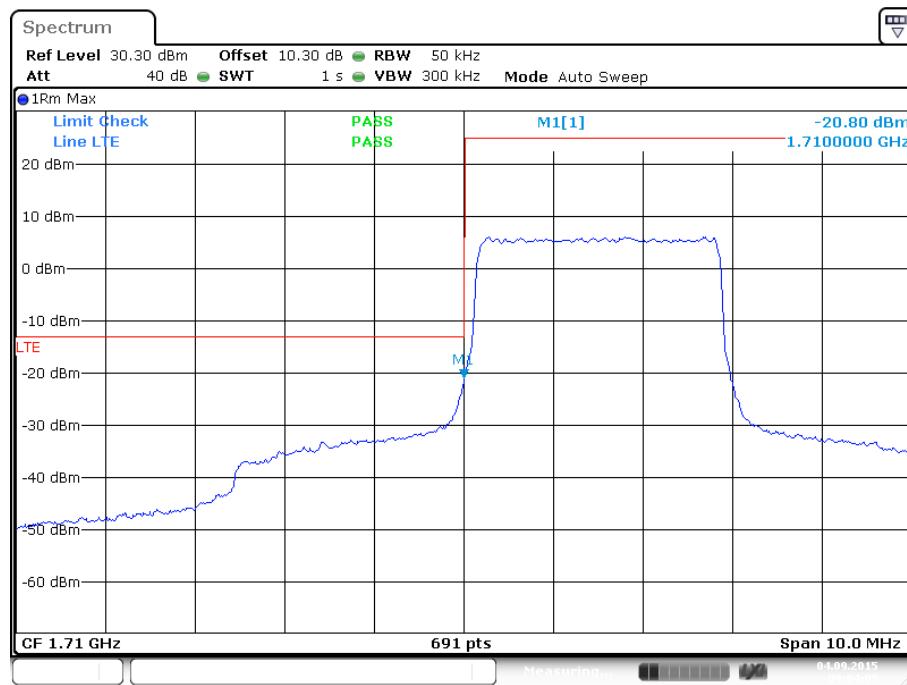
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LTE Band 4, QPSK modulation, 3MHz, 1 RB, Low Channel (1965DL / 19965UL)



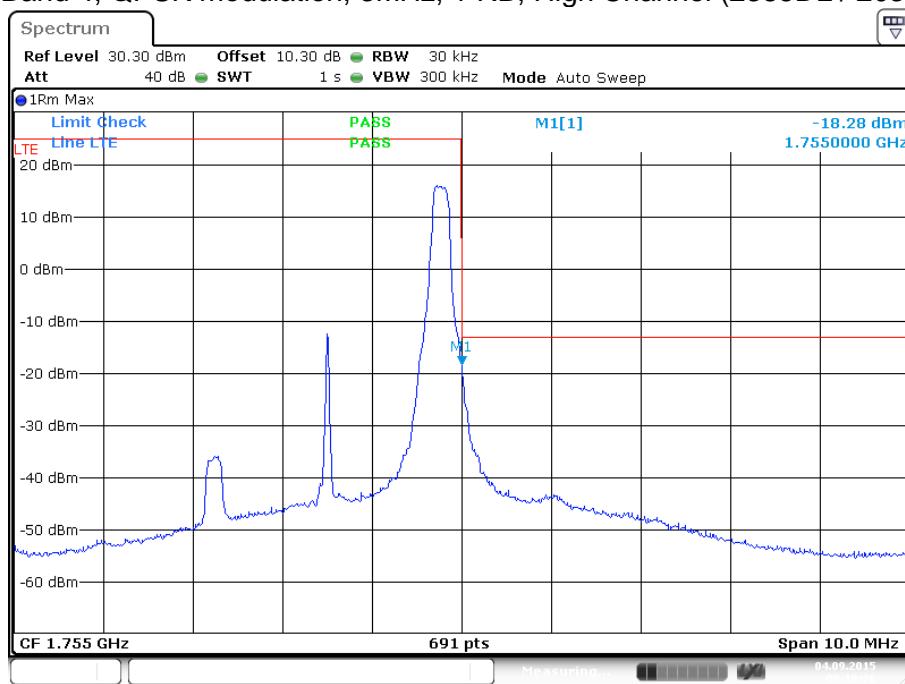
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LTE Band 4, QPSK modulation, 3MHz, 15 RB, Low Channel (1965DL / 19965UL)



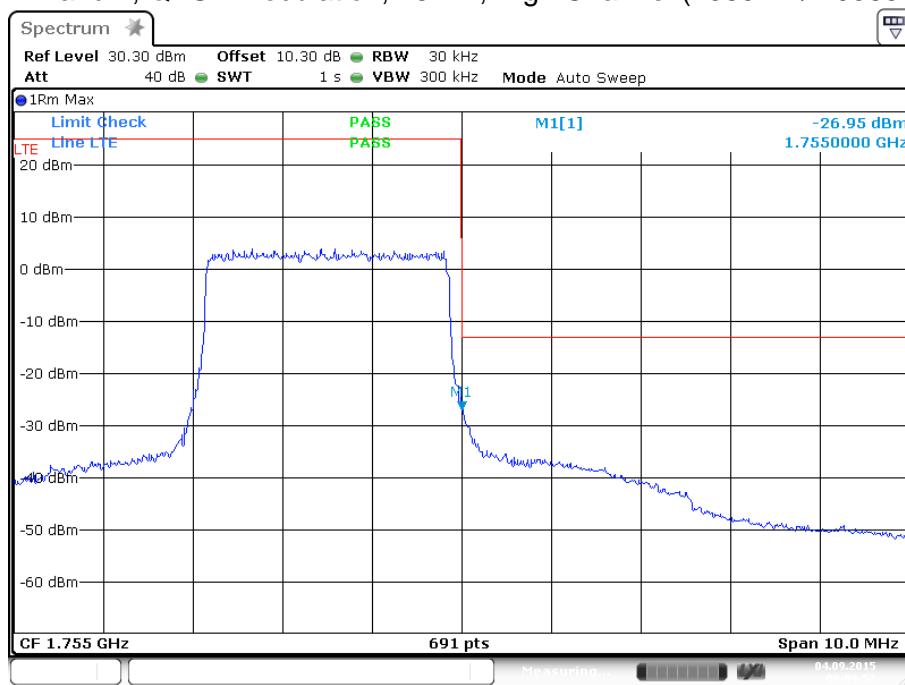
Date: 4.SEP.2015 09:04:05

LTE Band 4, QPSK modulation, 3MHz, 1 RB, High Channel (2385DL / 20385UL)



Date: 4.SEP.2015 09:10:26

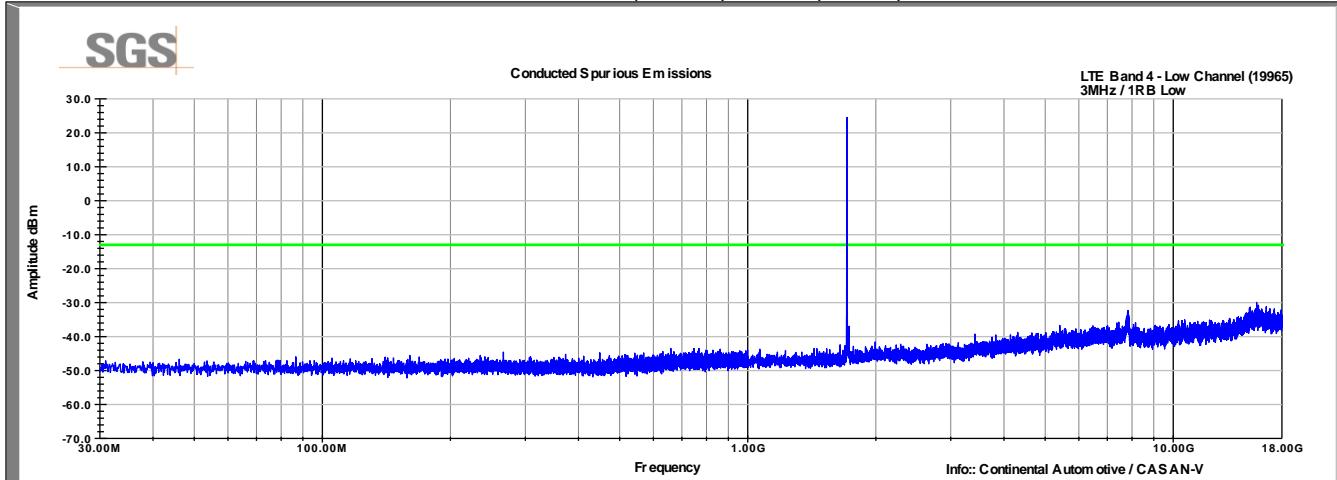
LTE Band 4, QPSK modulation, 15 RB, High Channel (2385DL / 20385UL)



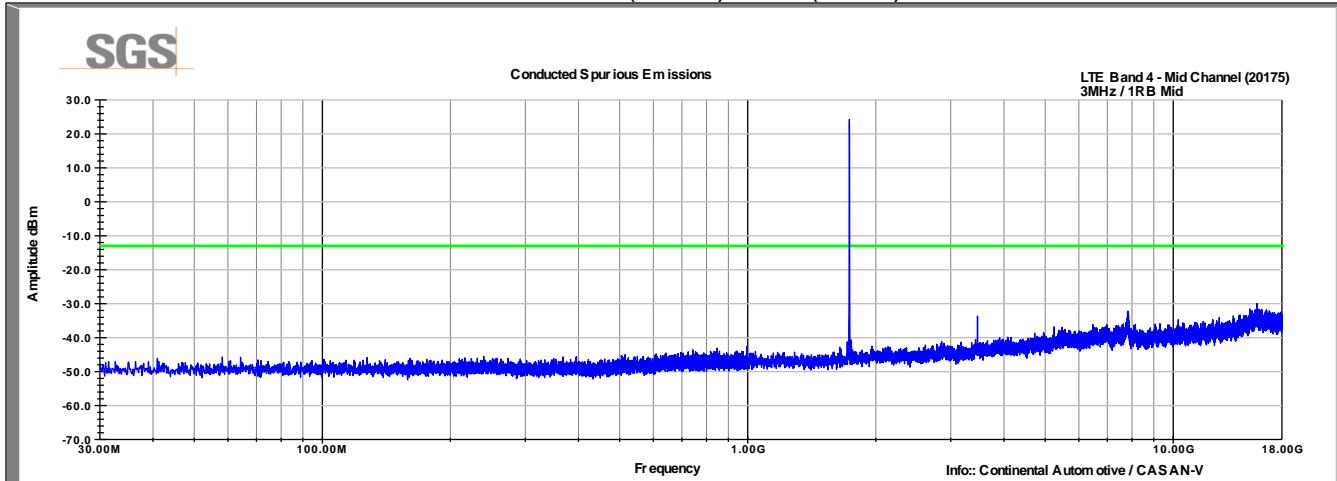
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3.6 Test Data - Conducted Spurious Emissions

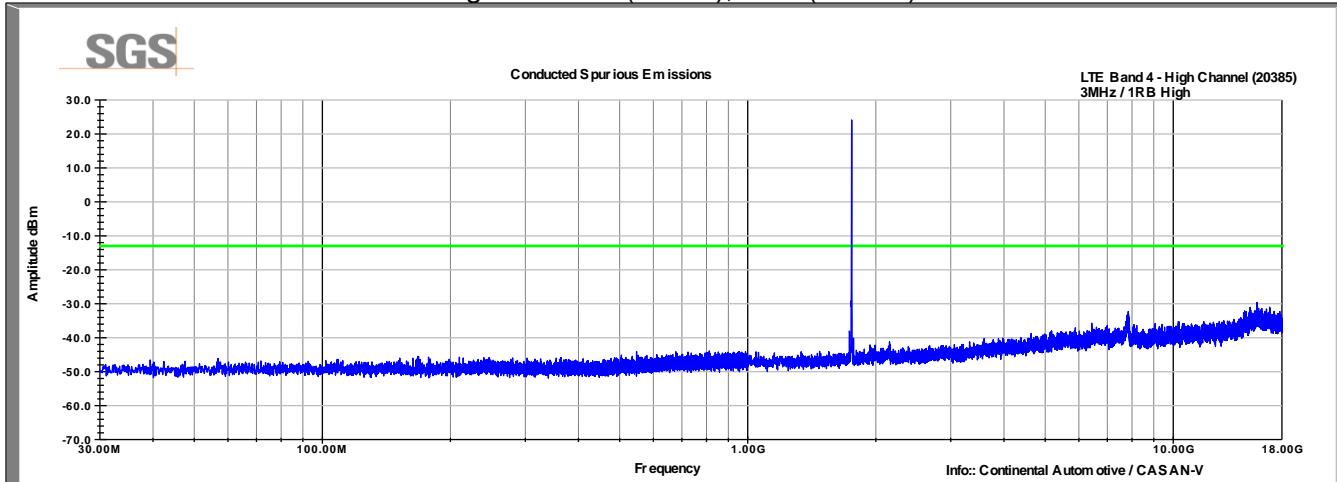
LTE Band 4, QPSK modulation, 3MHz
Low Channel (19965), 1RB (Pos 0)



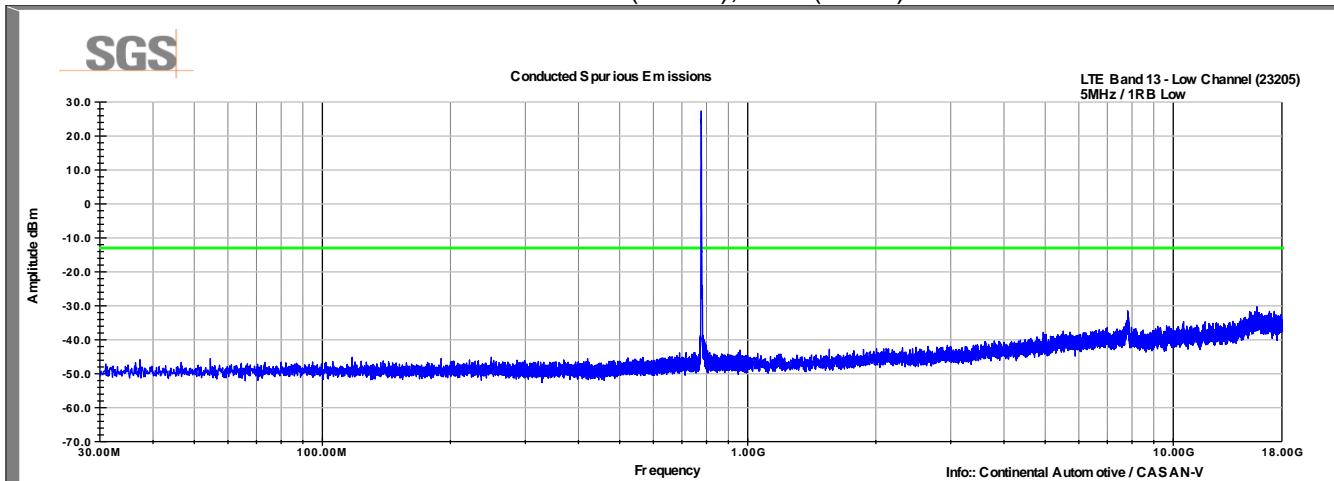
Mid Channel (20175), 1RB (Pos 8)



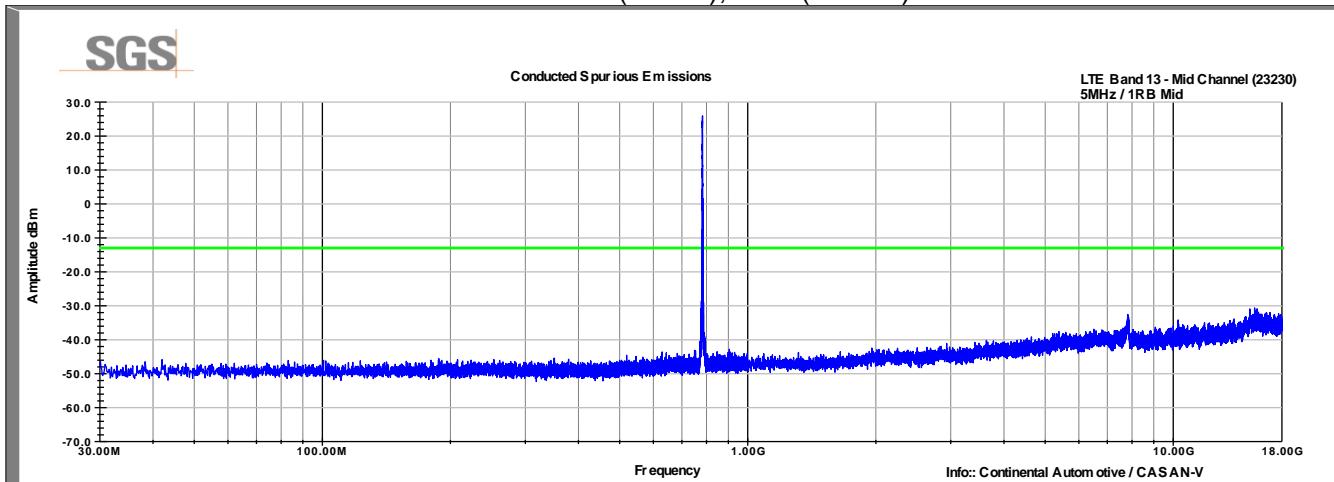
High Channel (20385), 1RB (Pos 14)



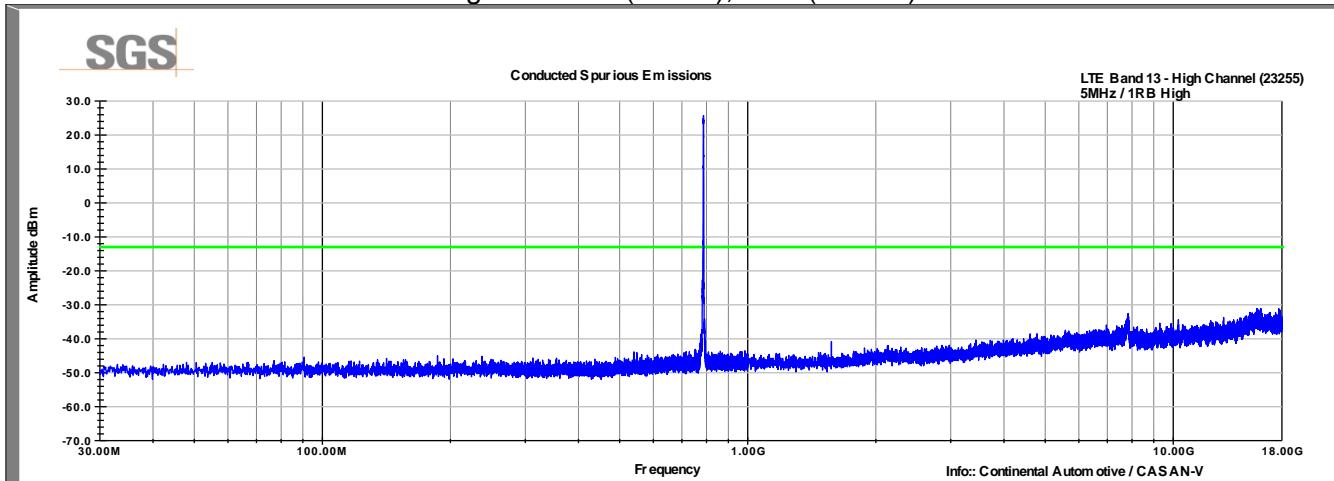
LTE Band 13, QPSK modulation, 5MHz
Low Channel (23205), 1RB (Pos 0)



Mid Channel (23230), 1RB (Pos 13)



High Channel (23255), 1RB (Pos 24)



4 Revision History

Revision Level	Description of changes	Revision Date
0	Initial release	11 September 2015