

Amber Helm Development L.C.

92723 Michigan Hwy-152

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EMC Test Report

ALEG1-WR2007TX

Issued: March 4, 2020

regarding

USA: CFR Title 47, Part 15.247 (Emissions)
Canada: ISED RSS-247v2 / GENv5 (Emissions)

for



CC3100MODR1

Category: Modular Transceiver

Judgments:

15.247/RSS-247 Compliant Transceiver

Testing Completed: February 21, 2020



Prepared for:

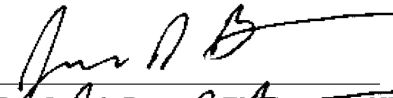
Schlage Lock Company / Allegion

11819 North Pennsylvania Street, Carmel Indiana 46032 USA

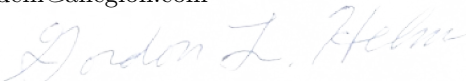
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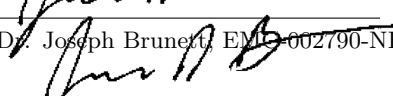

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Date of Issue: March 4, 2020

Revision History

Rev. No.	Date	Details	Revised By
r0	March 4, 2020	Initial Release.	J. Brunett

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1 Test Report Scope and Limitations

1.1 Laboratory Authorization

Test Facility description and attenuation characteristics are on file with the FCC Laboratory, Columbia, Maryland (FCC Reg. No: US5348 and US5356) and with ISED Canada, Ottawa, ON (File Ref. No: 3161A and 24249). Amber Helm Development L.C. holds accreditation under NVLAP Lab Code 200129-0.

1.2 Report Retention

For equipment verified to comply with the regulations herein, the manufacturer is obliged to retain this report with the product records for the life of the product, and no less than ten years. A copy of this Report will remain on file with this laboratory until April 2030.

1.3 Subcontracted Testing

This report does not contain data produced under subcontract.

1.4 Test Data

This test report contains data included within the laboratories scope of accreditation.

1.5 Limitation of Results

The test results contained in this report relate only to the item(s) tested. Any electrical or mechanical modification made to the test item subsequent to the test date shall invalidate the data presented in this report. Any electrical or mechanical modification made to the test item subsequent to this test date shall require reevaluation.

1.6 Copyright

This report shall not be reproduced, except in full, without the written approval of Amber Helm Development L.C.

1.7 Endorsements

This report shall not be used to claim product endorsement by any accrediting, regulatory, or governmental agency.

1.8 Test Location

The EUT was fully tested by **Amber Helm Development L.C.**, headquartered at 92723 Michigan Hwy-152, Sister Lakes, Michigan 49047 USA. Table 1 lists all sites employed herein. Specific test sites utilized are also listed in the test results sections of this report where needed.

Table 1: Test Site List.

Description	Location	Quality Num.
OATS (3 meter)	3615 E Grand River Rd., Williamston, Michigan 48895	OATSC

1.9 Traceability and Equipment Used

Pertinent test equipment used for measurements at this facility is listed in Table 2. The quality system employed at Amber Helm Development L.C. has been established to ensure all equipment has a clearly identifiable classification, calibration expiry date, and that all calibrations are traceable to the SI through NIST, other recognized national laboratories, accepted fundamental or natural physical constants, ratio type of calibration, or by comparison to consensus standards.

Table 2: Equipment List.

Description	Manufacturer/Model	SN	Quality Num.	Cal/Ver By / Date Due
Spectrum Analyzer	R & S / FSV30	101660	RSFSV30001	RS / Apr-2021
Biconical	EMCO / 93110B	9802-3039	BICEMCO01	Keysight / Aug-2020
Log Periodic Antenna	EMCO / 3146	9305-3614	LOGEMCO01	Keysight / Aug-2020
BNC-BNC Coax	WRTL / RG58/U	001	CAB001-BLACK	AHD / Jul-2020
3.5-3.5MM Coax	PhaseFlex / PhaseFlex	001	CAB015-PURP	AHD / Jul-2020
Quad Ridge Horn	Singer / A6100	C35200	HQR1TO18S01	Keysight / Aug-2020
K-Band Horn	JEF / NRL Std.	001	HRNK01	AHD / Jul-2020

2 Test Specifications and Procedures

2.1 Test Specification and General Procedures

The goal of Schlage Lock Company / Allegion is to demonstrate that the Equipment Under Test (EUT) complies with the Rules and/or Directives below. Detailed in this report are the results of testing the Schlage Lock Company / Allegion CC3100MODR1 for compliance to:

Country/Region	Rules or Directive	Referenced Section(s)
United States	Code of Federal Regulations	CFR Title 47, Part 15.247
Canada	ISED Canada	ISED RSS-247v2 / GENv5

It has been determined that the equipment under test is subject to the rules and directives above at the date of this testing. In conjunction with these rules and directives, the following specifications and procedures are followed herein to demonstrate compliance (in whole or in part) with these regulations.

ANSI C63.4:2014	"Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz"
ANSI C63.10:2013	"American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices"
TP0102RA	"AHD Internal Document TP0102 - Radiated Emissions Test Procedure"
TP0106RC	"AHD Internal Document TP0106 - Emissions Measurement Procedures (above 40 GHz)"
ISED Canada	"The Measurement of Occupied Bandwidth"
ICES-003; Issue 6 (2016)	"Information Technology Equipment (ITE) - Limits and methods of measurement"

3 Configuration and Identification of the Equipment Under Test

3.1 Description and Declarations

The EUT is a modular WLAN transceiver. The EUT is approximately 7.5 x 10 x 0.5 cm in dimension, and is depicted in Figure 1. It is powered by 6 VDC battery supply. This device is used as a modular radio in an electronic door lock assembly. Table 3 outlines provider declared EUT specifications.



Figure 1: Photos of EUT.

Table 3: EUT Declarations.

General Declarations	
Equipment Type:	Modular Transceiver
Country of Origin:	USA
Nominal Supply:	6 VDC
Oper. Temp Range:	Not Declared
Frequency Range:	2412 – 2462 MHz
Antenna Dimension:	Not Declared
Antenna Type:	chip
Antenna Gain:	1.9 dBi (declared)
Number of Channels:	11
Channel Spacing:	5 MHz
Alignment Range:	Not Declared
Type of Modulation:	DSS, OFDM
United States	
FCC ID Number:	XPB-CC3100MODR1
Classification:	DSS
Canada	
IC Number:	8053B-CC3100MODR1
Classification:	Spread Spectrum or Digital Device (2400-2483.5 MHz)

3.1.1 EUT Configuration

The EUT is configured for testing as depicted in Figure 2.

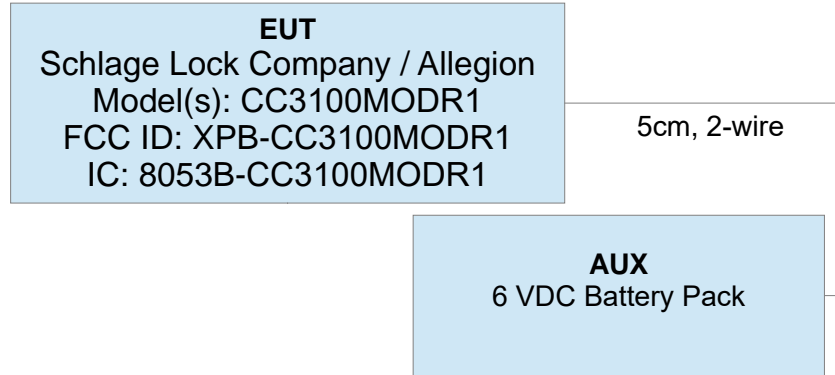


Figure 2: EUT Test Configuration Diagram.

3.1.2 Modes of Operation

The EUT is capable of operating as a WLAN module (as originally certified) powered by a 6VDC battery pack. Worst case spurious band edge, harmonic, and digital emissions are reported herein. RF conducted and radiated intentional emissions are addressed in the original module test report, as this is simply a Class II permissive change / reassessment due to a minor change of antenna layout. No change to radio schematics or BOM have occurred.

3.1.3 Variants

There is only a single electrical version of the EUT, as tested. The previous modularly certified radio (FCC ID: XPB-CC3100MODR1, IC: 8053B-CC3100MODR1) is now placed on a PCB with a slightly modified antenna layout, but identical RF schematics, BOM, etc...

3.1.4 Test Samples

Two samples of the EUT were provided for emissions testing. Both capable of continuously modulated (> 98 percent on-time) transmission in the 802.11 b, g, and n modes at lowest, middle, and highest channels as originally certified.

3.1.5 Functional Exerciser

Normal operating EUT functionality was verified by observation of transmitted signal.

3.1.6 Modifications Made

There were no modifications made to the EUT by this laboratory.

3.1.7 Production Intent

The EUT appears to be a production ready sample.

3.1.8 Declared Exemptions and Additional Product Notes

Worst case digital spurious emissions were observed with the EUT in the 802.11b mode, continuously transmitting.

4 Emissions

4.1 General Test Procedures

4.1.1 Radiated Test Setup and Procedures

Radiated electromagnetic emissions from the EUT are first pre-scanned in our screen room. Spectrum and modulation characteristics of all emissions are recorded. Instrumentation, including spectrum analyzers and other test equipment as detailed in Section 1.8 are employed. After pre-scan, emission measurements are made on the test site of record. If the EUT connects to auxiliary equipment and is table or floor standing, the configurations prescribed in relevant test standards are followed. Alternatively, a layout closest to normal use (as declared by the provider) is employed if the resulting emissions appear to be worst-case in such a configuration. See Figure 3. All intentionally radiating elements that are not fixed-mounted in use are placed on the test table lying flat, on their side, and on their end (3-axes) and the resulting worst case emissions are recorded. If the EUT is fixed-mounted in use, measurements are made with the device oriented in the manner consistent with installation and then emissions are recorded. If the EUT exhibits spurious emissions due to internal receiver circuitry, such emissions are measured with an appropriate carrier signal applied.

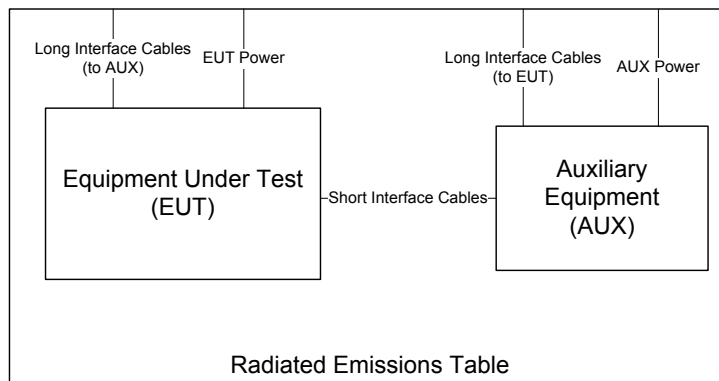


Figure 3: Radiated Emissions Diagram of the EUT.

For devices with intentional emissions below 30 MHz, a shielded loop antenna and/or E-field and H-Field broadband probes are used depending on the regulations. Shielded loops are placed at a 1 meter receive height at the desired measurement distance. For exposure in this band, the broadband probes employed are 10cm diameter single-axis shielded transducers and measurements are repeated and summed over three axes.

Emissions between 30 MHz and 1 GHz are measured using calibrated broadband antennas. For both horizontal and vertical polarizations, the test antenna is raised and lowered from 1 to 4 m in height until a maximum emission level is detected. The EUT is then rotated through 360° in azimuth until the highest emission is detected. The test antenna is then raised and lowered one last time from 1 to 4 m and the worst case value is recorded. Emissions above 1 GHz are characterized using standard gain or broadband ridge-horn antennas on our OATS with a 4×5 m rectangle of ECCOSORB absorber covering the OATS ground screen and a 1.5m table height. Care is taken to ensure that test receiver resolution and video bandwidths meet the regulatory requirements, and that the emission bandwidth of the EUT is not reduced. Photographs of the test setup employed are depicted in Figure 4.

Where regulations allow for direct measurement of field strength, power values (dBm) measured on the test receiver / analyzer are converted to $\text{dB}\mu\text{V}/\text{m}$ at the regulatory distance, using

$$E_{dist} = 107 + P_R + K_A - K_G + K_E - C_F$$

where P_R is the power recorded on spectrum analyzer, in dBm, K_A is the test antenna factor in dB/m, K_G is the combined pre-amplifier gain and cable loss in dB, K_E is duty correction factor (when applicable) in dB, and C_F is a distance conversion (employed only if limits are specified at alternate distance) in dB. This field strength value is then compared with the regulatory limit. If effective isotropic radiated power (EIRP) is computed, it is computed as

$$EIRP(\text{dBm}) = E_{3m}(\text{dB}\mu\text{V}/\text{m}) - 95.2.$$

When presenting data at each frequency, the highest measured emission under all possible EUT orientations (3-axes) is reported.



Figure 4: Radiated Emissions Test Setup Photograph(s).

4.1.2 Conducted Emissions Test Setup and Procedures

4.1.3 Power Supply Variation

Tests at extreme supply voltages are made if required by the procedures specified in the test standard, and results of this testing are detailed in this report.

In the case of this EUT, measurements of the worst-case radiated emissions are performed with the supply voltage varied by no less than 85% and 115% of the nominal rated value for devices connecting to AC power mains.

4.2 Intentional Emissions

4.2.1 Fundamental Emission Pulsed Operation (PREVIOUSLY TESTED)

This device was previously tested as detailed in the report(s) to which this document in an addendum (Nemko Report No. 264561-3TRFWL).

4.2.2 Fundamental Emission Occupied Bandwidth (PREVIOUSLY TESTED)

This device was previously tested as detailed in the report(s) to which this document in an addendum (Nemko Report No. 264561-3TRFWL).

4.2.3 Fundamental Radiated Power (PREVIOUSLY TESTED)

This device was previously tested as detailed in the report(s) to which this document in an addendum (Nemko Report No. 264561-3TRFWL).

4.3 Unintentional Emissions

4.3.1 Transmit Chain Radiated Spurious Emissions

The results for the measurement of transmit chain spurious emissions at the nominal voltage and temperature are provided in Table 4. Measurements are performed to 10 times the highest fundamental operating frequency.

Table 4(a): Transmit Chain Spurious Emissions.

Frequency Range	Det	IF Bandwidth	Video Bandwidth	Test Date:	22-Feb-20
25 MHz f 1 000 MHz	Pk/QPk	120 kHz	300 kHz	Test Engineer:	J. Brunett
f > 1 000 MHz	Pk/Avg	1 MHz	3 MHz	EUT:	CC3100MODR1
				Mode:	802.11B, Cont. Modulated >98%
				Meas. Distance:	3m

FCC/IC														
#	Freq. Start MHz	Freq. Stop MHz	Ant. Used	Ant. Pol.	Table Azim. deg	Ant Height m	Ka dB/m	Kg dB	E3(Pk) dBµV/m	E3 Pk Lim dBµV/m	E3(Avg) dBµV/m	E3 Avg Lim dBµV/m	Pass dB	Comments
1	Fundamental Restricted Band Edge (Low Side)													
2	2390.0	2390.0	HQR1TO18S01	H/V	22.5	1.5	30.5	-0.3	60.8	74.0	44.7	54.0	9.3	L, M, H channels, max all orient
3	Fundamental Restricted Band Edge (High Side)													
4	2483.5	2483.5	HQR1TO18S01	H/V	22.5	1.5	30.8	-0.3	59.9	74.0	43.6	54.0	10.4	L, M, H channels, max all orient
5	Harmonic / Spurious Emissions**													
6	4804.0	4804.0	HQR1TO18S01	H/V	all	1.5	32.3	-0.5	57.2	74.0	53.2	54.0	0.8	L, channel, max all orient
7	4880.0	4805.0	HQR1TO18S01	H/V	all	1.5	32.3	-0.5	55.1	74.0	51.1	54.0	2.9	M, channel, max all orient
8	4960.0	4806.0	HQR1TO18S01	H/V	all	1.5	32.3	-0.5	56.6	74.0	52.6	54.0	1.4	H, channel, max all orient
9	4000.0	6000.0	HQR1TO18S01	H/V	all	1.5	32.6	-0.6	57.2	74.0	53.2	54.0	0.8	all channels; max all, CM
10	7206.0	7206.0	HQR1TO18S01	H/V	all	1.5	33.2	-0.7	52.6	74.0	44.6	54.0	9.4	L, channel, max all orient
11	7320.0	7320.0	HQR1TO18S01	H/V	all	1.5	33.3	-0.7	50.6	74.0	42.6	54.0	11.4	M, channel, max all orient
12	7440.0	7440.0	HQR1TO18S01	H/V	all	1.5	33.4	-0.7	44.4	74.0	36.4	54.0	17.6	H, channel, max all orient
13	6000.0	8400.0	HQR1TO18S01	H/V	all	1.5	34.3	-0.8	53.6	74.0	43.5	54.0	10.5	max all, CM, noise
14	8400.0	12500.0	HQR1TO18S01	H/V	all	1.5	35.6	-1.1	49.9	74.0	37.3	54.0	16.7	max all, CM, noise
15	12500.0	18000.0	HQR1TO18S01	H/V	all	1.5	34.2	-1.6	51.2	74.0	39.9	54.0	14.1	max all, CM, noise
16	18000.0	26500.0	HRNK01	H/V	all	1.5	32.0	0.0	41.4	74.0	41.4	54.0	12.6	max all, CM, noise
17														
18														

EUT measured in each of Flat, Side, End orientations. Worst case emission from all three orientations reported here.

** No other spurious emissions from the EUT were observed within 20 dB of the regulatory limit.

Table 4(b): Transmit Chain Spurious Emissions.

Frequency Range	Det	IF Bandwidth	Video Bandwidth	Test Date:	22-Feb-20
25 MHz f 1 000 MHz	Pk/QPk	120 kHz	300 kHz	Test Engineer:	J. Brunett
f > 1 000 MHz	Pk/Avg	1 MHz	3 MHz	EUT:	CC3100MODR1
				Mode:	802.11G, Cont. Modulated >98%
				Meas. Distance:	3m

FCC/IC														
#	Freq. Start MHz	Freq. Stop MHz	Ant. Used	Ant. Pol.	Table Azim. deg	Ant Height m	Ka dB/m	Kg dB	E3(Pk) dBµV/m	E3 Pk Lim dBµV/m	E3(Avg) dBµV/m	E3 Avg Lim dBµV/m	Pass dB	Comments
1	Fundamental Restricted Band Edge (Low Side)													
2	2390.0	2390.0	HQR1TO18S01	H/V	22.5	1.5	30.5	-0.3	69.2	74.0	43.0	54.0	4.8	L, M, H channels, max all orient
3	Fundamental Restricted Band Edge (High Side)													
4	2483.5	2483.5	HQR1TO18S01	H/V	22.5	1.5	30.8	-0.3	66.9	74.0	44.0	54.0	7.1	L, M, H channels, max all orient
5	Harmonic / Spurious Emissions**													
6	4804.0	4804.0	HQR1TO18S01	H/V	all	1.5	32.3	-0.5	55.3	74.0	49.2	54.0	4.8	L, channel, max all orient
7	4880.0	4805.0	HQR1TO18S01	H/V	all	1.5	32.3	-0.5	54.8	74.0	48.4	54.0	5.6	M, channel, max all orient
8	4960.0	4806.0	HQR1TO18S01	H/V	all	1.5	32.3	-0.5	55.7	74.0	49.5	54.0	4.5	H, channel, max all orient
9	4000.0	6000.0	HQR1TO18S01	H/V	all	1.5	32.6	-0.6	55.7	74.0	49.5	54.0	4.5	all channels; max all, CM
10	7206.0	7206.0	HQR1TO18S01	H/V	all	1.5	33.2	-0.7	52.4	74.0	45.6	54.0	8.4	L, channel, max all orient
11	7320.0	7320.0	HQR1TO18S01	H/V	all	1.5	33.3	-0.7	48.1	74.0	41.9	54.0	12.1	M, channel, max all orient
12	7440.0	7440.0	HQR1TO18S01	H/V	all	1.5	33.4	-0.7	44.0	74.0	37.2	54.0	16.8	H, channel, max all orient
13	6000.0	8400.0	HQR1TO18S01	H/V	all	1.5	34.3	-0.8	52.4	74.0	45.6	54.0	8.4	max all, CM, noise
14	8400.0	12500.0	HQR1TO18S01	H/V	all	1.5	35.6	-1.1	49.3	74.0	42.4	54.0	11.6	max all, CM, noise
15	12500.0	18000.0	HQR1TO18S01	H/V	all	1.5	34.2	-1.6	50.9	74.0	44.9	54.0	9.1	max all, CM, noise
16	18000.0	26500.0	HRNK01	H/V	all	1.5	32.0	0.0	41.4	74.0	41.4	54.0	12.6	max all, CM, noise
17														
18														

EUT measured in each of Flat, Side, End orientations. Worst case emission from all three orientations reported here.

** No other spurious emissions from the EUT were observed within 20 dB of the regulatory limit.

Table 4(c): Transmit Chain Spurious Emissions.

Frequency Range	Det	IF Bandwidth	Video Bandwidth	Test Date:	22-Feb-20
25 MHz f 1 000 MHz	Pk/QPk	120 kHz	300 kHz	Test Engineer:	J. Brunett
f > 1 000 MHz	Pk/Avg	1 MHz	3 MHz	EUT:	CC3100MODR1
				Mode:	802.11N, Cont. Modulated >98%
				Meas. Distance:	3m

														FCC/IC
#	Freq. Start MHz	Freq. Stop MHz	Ant. Used	Ant. Pol.	Table Azim. deg	Ant Height m	Ka dB/m	Kg dB	E3(Pk) dBµV/m	E3 Pk Lim dBµV/m	E3(Avg) dBµV/m	E3 Avg Lim dBµV/m	Pass dB	Comments
1	Fundamental Restricted Band Edge (Low Side)													
2	2390.0	2390.0	HQR1TO18S01	H/V	22.5	1.5	30.5	-0.3	67.5	74.0	38.8	54.0	6.5	L, M, H channels, max all orient
3	Fundamental Restricted Band Edge (High Side)													
4	2483.5	2483.5	HQR1TO18S01	H/V	22.5	1.5	30.8	-0.3	65.1	74.0	40.2	54.0	8.9	L, M, H channels, max all orient
5	Harmonic / Spurious Emissions**													
6	4804.0	4804.0	HQR1TO18S01	H/V	all	1.5	32.3	-0.5	56.7	74.0	50.1	54.0	3.9	L, channel, max all orient
7	4880.0	4805.0	HQR1TO18S01	H/V	all	1.5	32.3	-0.5	54.2	74.0	48.1	54.0	5.9	M, channel, max all orient
8	4960.0	4806.0	HQR1TO18S01	H/V	all	1.5	32.3	-0.5	54.3	74.0	48.2	54.0	5.8	H, channel, max all orient
9	4000.0	6000.0	HQR1TO18S01	H/V	all	1.5	32.6	-0.6	56.7	74.0	50.1	54.0	3.9	all channels; max all, CM
10	7206.0	7206.0	HQR1TO18S01	H/V	all	1.5	33.2	-0.7	50.4	74.0	43.6	54.0	10.4	L, channel, max all orient
11	7320.0	7320.0	HQR1TO18S01	H/V	all	1.5	33.3	-0.7	48.4	74.0	41.7	54.0	12.3	M, channel, max all orient
12	7440.0	7440.0	HQR1TO18S01	H/V	all	1.5	33.4	-0.7	43.1	74.0	36.6	54.0	17.4	H, channel, max all orient
13	6000.0	8400.0	HQR1TO18S01	H/V	all	1.5	34.3	-0.8	50.4	74.0	43.6	54.0	10.4	max all, CM, noise
14	8400.0	12500.0	HQR1TO18S01	H/V	all	1.5	35.6	-1.1	48.9	74.0	42.1	54.0	11.9	max all, CM, noise
15	12500.0	18000.0	HQR1TO18S01	H/V	all	1.5	34.2	-1.6	48.5	74.0	42.1	54.0	11.9	max all, CM, noise
16	18000.0	26500.0	HRNK01	H/V	all	1.5	32.0	0.0	41.4	74.0	41.4	54.0	12.6	max all, CM, noise
17														
18														

EUT measured in each of Flat, Side, End orientations. Worst case emission from all three orientations reported here.

** No other spurious emissions from the EUT were observed within 20 dB of the regulatory limit.

4.3.2 Relative Transmit Chain Spurious Emissions (PREVIOUSLY TESTED)

This device was previously tested for this parameter as detailed in the report(s) to which this document in an addendum (Nemko Report No. 264561-3TRFWL).

4.3.3 General Radiated Spurious

The results for the measurement of general spurious emissions (emissions arising from digital circuitry) at the nominal voltage and temperature are provided in Table 5. Radiation from digital components are measured up to 1000 MHz or to the highest frequency required by the applied standards, whichever is greater.

Table 5: Radiated Digital Spurious Emissions.

Frequency Range		Det	IF Bandwidth	Video Bandwidth	Test Date:	25-Feb-20
25 MHz f 1 000 MHz		Pk/QPk	120 kHz	300 kHz	Test Engineer:	J. Brunett
f > 1 000 MHz		Pk	1 MHz	3 MHz	EUT:	CC3100MODR1
f > 1 000 MHz		Avg	1 MHz	10kHz	EUT Mode:	CM RF. 802.11B
					Meas. Distance:	3 meters

Digital Spurious Emissions																FCC/IC + CE(CISPR)				
#	Test Freq, MHz	Antenna QN Used	Test Pol.	Pr (Pwr Rx.)*				E-Field @ 3m**				FCC/IC Class B		CE Class B		FCC/IC Class A		CE Class A		Comments
				Pk dBm	QPk/Avg dBm	Ka dB/m	Kg dB	Pk dBμV/m	QPk/Avg dBμV/m	E3lim dBμV/m	Pass dB	E3lim dBμV/m	Pass dB	E3lim dBμV/m	Pass dB	E3lim dBμV/m	Pass dB			
1	178.0	BICEMC001	H			14.1	-2.6	33.8			43.5	9.7	40.5	6.7	54.0	20.2	50.5	16.7		
2	178.0	BICEMC001	V			14.1	-2.6	29.3			43.5	14.2	40.5	11.2	54.0	24.7	50.5	21.2		
3	186.0	BICEMC001	H			14.4	-2.7	36.1			43.5	7.4	40.5	4.4	54.0	17.9	50.5	14.4		
4	186.0	BICEMC001	V			14.4	-2.7	30.8			43.5	12.7	40.5	9.7	54.0	23.2	50.5	19.7		
5	199.7	BICEMC001	H			14.7	-2.8	39.6			43.5	3.9	40.5	0.9	54.0	14.4	50.5	10.9		
6	199.7	BICEMC001	V			14.7	-2.8	33.2			43.5	10.3	40.5	7.3	54.0	20.8	50.5	17.3		
7	384.7	LOGEMC001	H			15.5	-4.3	43.2			46.0	2.8	47.5	4.3	56.9	13.7	57.5	14.3		
8	384.7	LOGEMC001	V			15.5	-4.3	40.1			46.0	5.9	47.5	7.4	56.9	16.8	57.5	17.4		
9	751.6	LOGEMC001	H			21.0	-6.3	41.1			46.0	4.9	47.5	6.4	56.9	15.8	57.5	16.4		
10	751.6	LOGEMC001	V			21.0	-6.3	38.7			46.0	7.3	47.5	8.8	56.9	18.2	57.5	18.8		
11	771.9	LOGEMC001	H			21.2	-6.4	38.2			46.0	7.8	47.5	9.3	56.9	18.7	57.5	19.3		
12	771.9	LOGEMC001	V			21.2	-6.4	34.2			46.0	11.8	47.5	13.3	56.9	22.7	57.5	23.3		
13	773.3	LOGEMC001	H			21.2	-6.4	39.4			46.0	6.6	47.5	8.1	56.9	17.5	57.5	18.1		
14	773.3	LOGEMC001	V			21.2	-6.4	33.9			46.0	12.1	47.5	13.6	56.9	23.0	57.5	23.6		
15	777.3	LOGEMC001	H			21.2	-6.4	38.2			46.0	7.8	47.5	9.3	56.9	18.7	57.5	19.3		
16	777.3	LOGEMC001	V			21.2	-6.4	37.1			46.0	8.9	47.5	10.4	56.9	19.8	57.5	20.4		
17																				
18																				
19																				
20																				

*QPk detection below 1 GHz, Avg detection at or above 1 GHz with receiver bandwidth as specified at top of table.
 ** When E-field is reported directly from Spectrum Analyzer, Antenna Factors and Cable losses are included directly in SA settings.

5 Measurement Uncertainty and Accreditation Documents

The maximum values of measurement uncertainty for the laboratory test equipment and facilities associated with each test are given in the table below. This uncertainty is computed for a 95.45% confidence level based on a coverage factor of $k = 2$.

Table 6: Measurement Uncertainty.

Measured Parameter	Measurement Uncertainty [†]
Radio Frequency	$\pm(f_{Mkr}/10^7 + RBW/10 + (SPN/(PTS - 1)))/2 + 1 \text{ Hz}$
Conducted Emm. Amplitude	$\pm 1.9 \text{ dB}$
Radiated Emm. Amplitude (30 – 200 MHz)	$\pm 4.0 \text{ dB}$
Radiated Emm. Amplitude (200 – 1000 MHz)	$\pm 5.2 \text{ dB}$
Radiated Emm. Amplitude ($f > 1000 \text{ MHz}$)	$\pm 3.7 \text{ dB}$

[†]Ref: CISPR 16-4-2:2011+A1:2014



Figure 5: Accreditation Documents