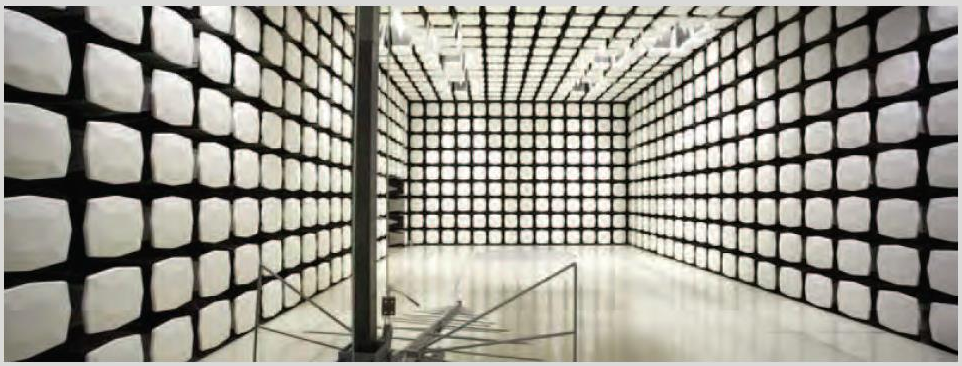
Sleep Number Corporation

LPM-7000D

FCC 15.247:2018

2.4 GHz DTS Radio

Report # SECF0102



NVLAP LAB CODE: 200881-0

CERTIFICATE OF TEST

Last Date of Test: September 11, 2018
Sleep Number Corporation
Model: LPM-7000D

Radio Equipment Testing

Standards

Specification	Method
FCC 15.207:2018	ANSI C63.10:2013, KDB 558074
FCC 15.247:2018	

Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	Yes	Pass	
11.12.1, 11.13.2, 6.5, 6.6	Spurious Radiated Emissions	Yes	Pass	
11.6	Duty Cycle	Yes	Pass	
11.8.2	Occupied Bandwidth	Yes	Pass	
11.9.1.1	Output Power	Yes	Pass	
11.10.2	Power Spectral Density	Yes	Pass	
11.11	Band Edge Compliance	Yes	Pass	
11.11	Spurious Conducted Emissions	Yes	Pass	

Deviations From Test Standards

None

Approved By:

Matt Nuernberg, Operations Manager

Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information. As indicated in the Statement of Work sent with the quotation, Element's standard process is to always use the latest published version of the test methods even when earlier versions are cited in the test specification. Issuance of a purchase order was de facto acceptance of this approach. Otherwise, the client would have advised Element in writing of the specific version of the test methods they wanted applied to the subject testing.

REVISION HISTORY

Revision Number	Description	Date (yyyy-mm-dd)	Page Number
00	None		

ACCREDITATIONS AND AUTHORIZATIONS

United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Accredited by A2LA to ISO / IEC 17065 as a product certifier. This allows Element to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

ISED - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with ISED.

European Union

European Commission – Within Element, we have a EU Notified Body validated for the EMCD and RED Directives.

Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

Korea

MSIT / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

NCC - Recognized by NCC as a CAB for the acceptance of test data.

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Israel

MOC – Recognized by MOC as a CAB for the acceptance of test data.

Hong Kong

OFCA – Recognized by OFCA as a CAB for the acceptance of test data.

Vietnam

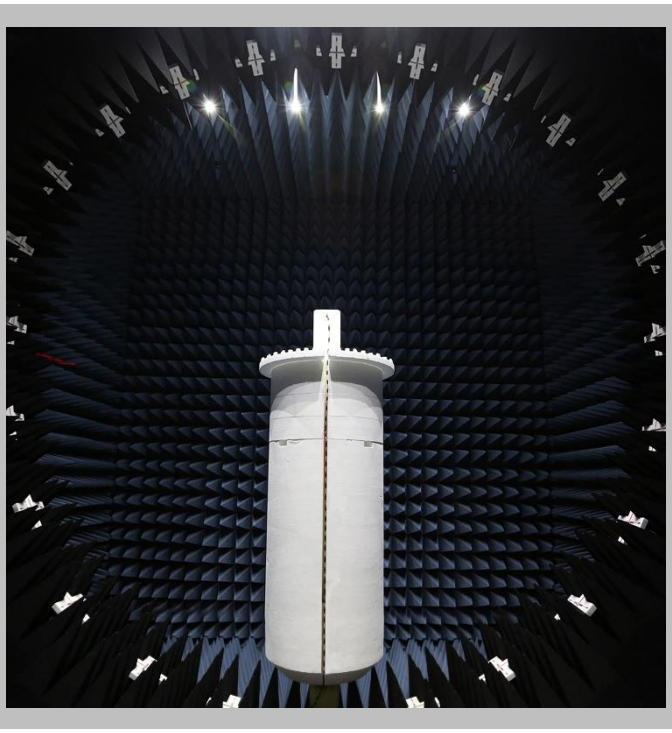
MIC – Recognized by MIC as a CAB for the acceptance of test data.

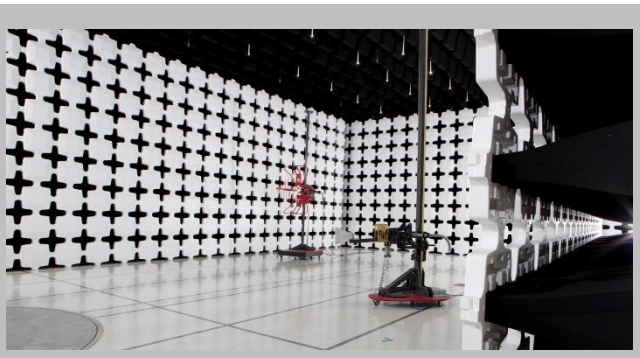
SCOPE

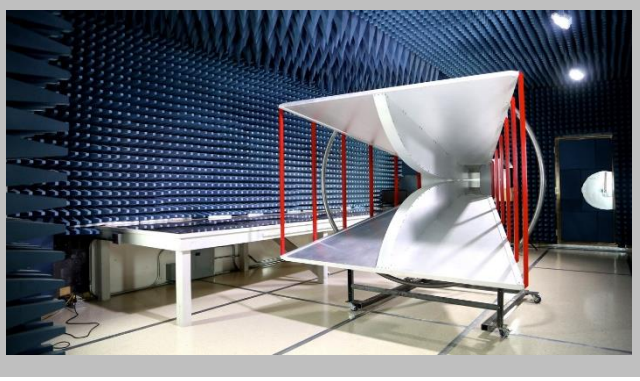
For details on the Scopes of our Accreditations, please visit:
https://www.nwemc.com/emc-testing-accreditations

FACILITIES

California	Minnesota	New York	Oregon	Texas	Washington
Labs OC01-17 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs MN01-10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214	Labs EV01-12 6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Labs NC01-05 19201 120th Ave NE Bothell, WA 98011 (425)984-6600
NVLAP					
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0
Innovation, Science and Economic Development Canada					
2834B-1, 2834B-3	2834E-1, 2834E-3	N/A	2834D-1, 2834D-*2*	2834G-1	2834F-1
BSMI					
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI					
A-0029	A-0109	N/A	A-0108	A-0201	A-0110
Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA					
US0158	US0175	N/A	US0017	US0191	US0157







MEASUREMENT UNCERTAINTY

element
TMU.2015.07.10

Measurement Uncertainty

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

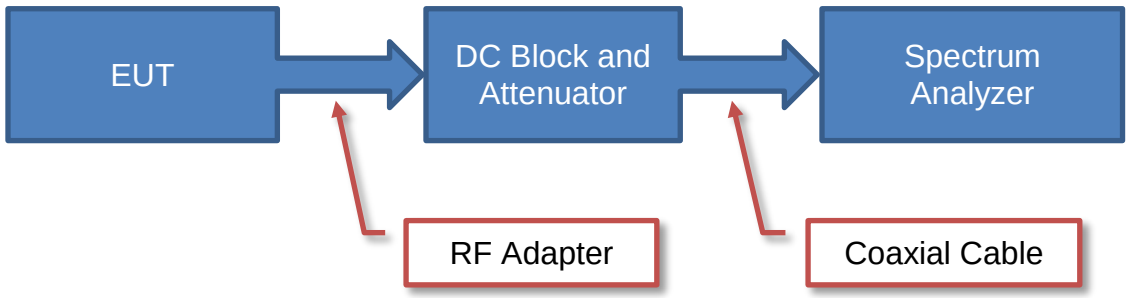
A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable test description page. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable), and are available upon request.

The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

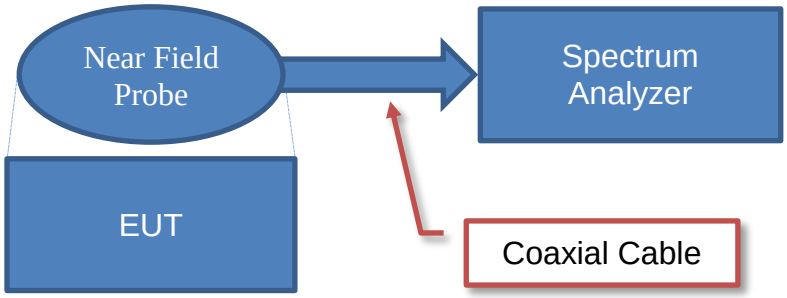
Test	+ MU	- MU
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.2 dB	-5.2 dB
AC Powerline Conducted Emissions (dB)	2.4 dB	-2.4 dB

Test Setup Block Diagrams

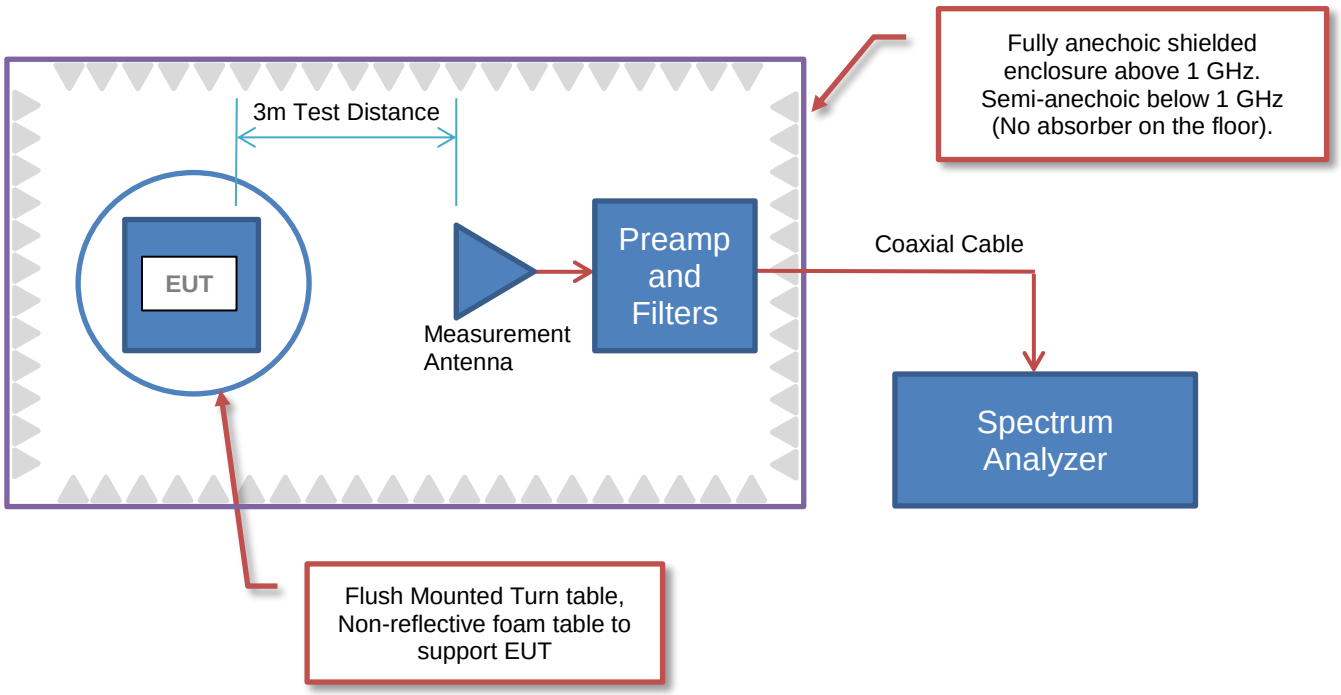
Antenna Port Conducted Measurements



Near Field Test Fixture Measurements



Spurious Radiated Emissions



PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	Sleep Number Corporation
Address:	PO Box 3034
City, State, Zip:	Orem, UT 84059
Test Requested By:	Nick Reynolds
Model:	LPM-7000D
First Date of Test:	September 10, 2018
Last Date of Test:	September 11, 2018
Receipt Date of Samples:	September 10, 2018
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
Bed pump with a Zigbee Radio, Bluetooth Low Energy Radio, and Pre-certified Wi-Fi radio module installed. The pump can be a stand-alone unit or mounted in the base unit.

Testing Objective:
To demonstrate compliance of the 2.4 GHz DTS 802.15.4 radio to FCC 15.247 requirements.

CONFIGURATIONS

Configuration SECF0102- 1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
LPM-7000D	Sleep Number Corporation	360SIQ01D	64DBA002AD33

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
4-Port USB Hub	Anker Technology Co. Ltd.	68ANHUB-Q2S4A	22GGCJXR
USB-to-Ethernet Adapter	3objGear	BJGRTTUSBEA20	185D9A001A6B
USB Flash Drive	SanDisk	SDCZ33	BI170926225Z

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Cable	No	1.9m	No	LPM-7000D	AC Mains
USB Cable (4-Port USB Hub)	Yes	0.3m	No	4-Port USB Hub	LPM-7000D
USB Cable (USB-to-Ethernet Adapter)	Yes	0.1m	No	USB-to-Ethernet Adapter	LPM-7000D

Configuration SECF0102- 2

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
LPM-7000D	Sleep Number Corporation	360SIQ01D	64DBA002AD5B

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Cable	No	1.9m	No	LPM-7000D	AC Mains

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2018-09-10	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
2	2018-09-11	Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
3	2018-09-11	Duty Cycle	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
4	2018-09-11	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
5	2018-09-11	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
6	2018-09-11	Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
7	2018-09-11	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

POWERLINE CONDUCTED EMISSIONS

element
WTD.2017.11.22.1

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Per the standard, an insulating material was also added to ground plane between the EUT's power and remote I/O cables. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Receiver	Rohde & Schwarz	ESR7	ARI	6/26/2018	6/26/2019
Cable - Conducted Cable Assembly	Northwest EMC	MNC, HGN, TYK	MNCA	3/14/2018	3/14/2019
LISN	Solar Electronics	9252-50-R-24-BNC	LIY	3/15/2018	3/15/2019

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.4 dB	-2.4 dB

CONFIGURATIONS INVESTIGATED

SECF0102-1

MODES INVESTIGATED

Transmitting Zigbee - mid channel (2450 MHz) modulated

POWERLINE CONDUCTED EMISSIONS

element
WTD.2017.11.22.1

EUT:	LPM-7000D	Work Order:	SECF0102
Serial Number:	64DBA002AD33	Date:	09/11/2018
Customer:	Sleep Number Corporation	Temperature:	23.1°C
Attendees:	Ruben Meline, Jason Ortberg	Relative Humidity:	52.6%
Customer Project:	None	Bar. Pressure:	1018 mb
Tested By:	Dustin Sparks	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	SECF0102-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2018	ANSI C63.10:2013

TEST PARAMETERS

Run #:	4	Line:	Neutral	Add. Ext. Attenuation (dB):	0

COMMENTS

None

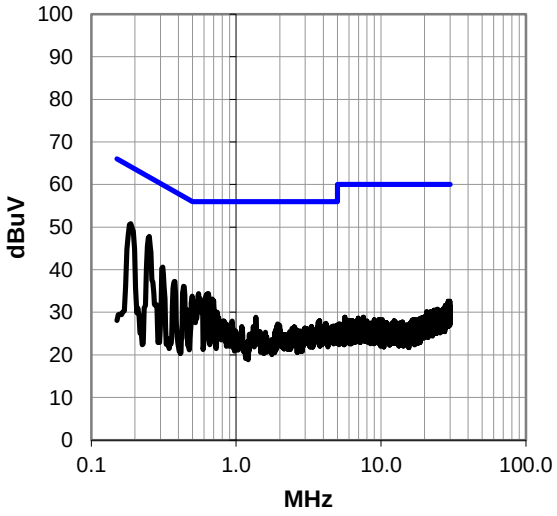
EUT OPERATING MODES

Transmitting Zigbee - mid channel (2450 MHz) modulated

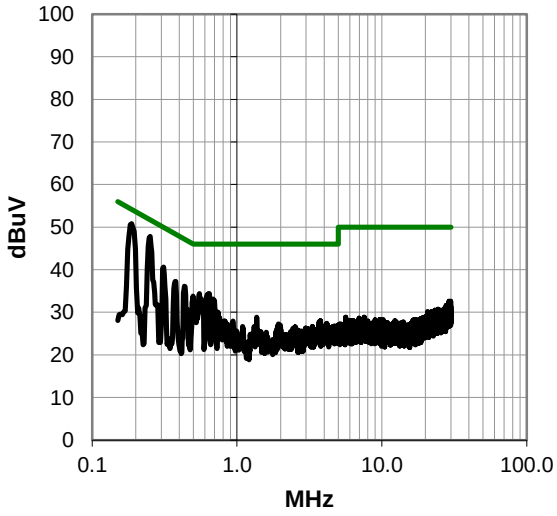
DEVIATIONS FROM TEST STANDARD

None

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2017.11.22.1

RESULTS - Run #4

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.187	30.1	20.7	50.8	64.2	-13.4
0.251	27.2	20.6	47.8	61.7	-13.9
0.310	20.2	20.4	40.6	60.0	-19.4
0.434	15.7	20.4	36.1	57.2	-21.1
0.374	16.8	20.4	37.2	58.4	-21.2
0.549	14.0	20.4	34.4	56.0	-21.6
0.639	13.9	20.5	34.4	56.0	-21.6
0.497	13.4	20.4	33.8	56.1	-22.3
0.684	12.6	20.5	33.1	56.0	-22.9
0.739	9.5	20.5	30.0	56.0	-26.0
1.366	8.3	20.5	28.8	56.0	-27.2
29.052	8.8	23.8	32.6	60.0	-27.4
29.892	8.7	23.9	32.6	60.0	-27.4
29.541	8.4	23.9	32.3	60.0	-27.7
0.818	7.5	20.5	28.0	56.0	-28.0
3.769	7.3	20.7	28.0	56.0	-28.0
28.817	8.2	23.8	32.0	60.0	-28.0
0.937	7.4	20.5	27.9	56.0	-28.1
3.679	7.1	20.7	27.8	56.0	-28.2
29.750	7.9	23.9	31.8	60.0	-28.2
29.011	7.9	23.8	31.7	60.0	-28.3
29.586	7.8	23.9	31.7	60.0	-28.3
27.810	7.9	23.7	31.6	60.0	-28.4
28.679	7.7	23.8	31.5	60.0	-28.5
4.157	6.7	20.7	27.4	56.0	-28.6
1.930	6.8	20.5	27.3	56.0	-28.7

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.187	30.1	20.7	50.8	54.2	-3.4
0.251	27.2	20.6	47.8	51.7	-3.9
0.310	20.2	20.4	40.6	50.0	-9.4
0.434	15.7	20.4	36.1	47.2	-11.1
0.374	16.8	20.4	37.2	48.4	-11.2
0.549	14.0	20.4	34.4	46.0	-11.6
0.639	13.9	20.5	34.4	46.0	-11.6
0.497	13.4	20.4	33.8	46.1	-12.3
0.684	12.6	20.5	33.1	46.0	-12.9
0.739	9.5	20.5	30.0	46.0	-16.0
1.366	8.3	20.5	28.8	46.0	-17.2
29.052	8.8	23.8	32.6	50.0	-17.4
29.892	8.7	23.9	32.6	50.0	-17.4
29.541	8.4	23.9	32.3	50.0	-17.7
0.818	7.5	20.5	28.0	46.0	-18.0
3.769	7.3	20.7	28.0	46.0	-18.0
28.817	8.2	23.8	32.0	50.0	-18.0
0.937	7.4	20.5	27.9	46.0	-18.1
3.679	7.1	20.7	27.8	46.0	-18.2
29.750	7.9	23.9	31.8	50.0	-18.2
29.011	7.9	23.8	31.7	50.0	-18.3
29.586	7.8	23.9	31.7	50.0	-18.3
27.810	7.9	23.7	31.6	50.0	-18.4
28.679	7.7	23.8	31.5	50.0	-18.5
4.157	6.7	20.7	27.4	46.0	-18.6
1.930	6.8	20.5	27.3	46.0	-18.7

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2017.11.22.1

EUT:	LPM-7000D	Work Order:	SECF0102
Serial Number:	64DBA002AD33	Date:	09/11/2018
Customer:	Sleep Number Corporation	Temperature:	23.1°C
Attendees:	Ruben Meline, Jason Ortberg	Relative Humidity:	52.6%
Customer Project:	None	Bar. Pressure:	1018 mb
Tested By:	Dustin Sparks	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	SECF0102-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2018	ANSI C63.10:2013

TEST PARAMETERS

Run #:	5	Line:	High Line	Add. Ext. Attenuation (dB):	0

COMMENTS

None

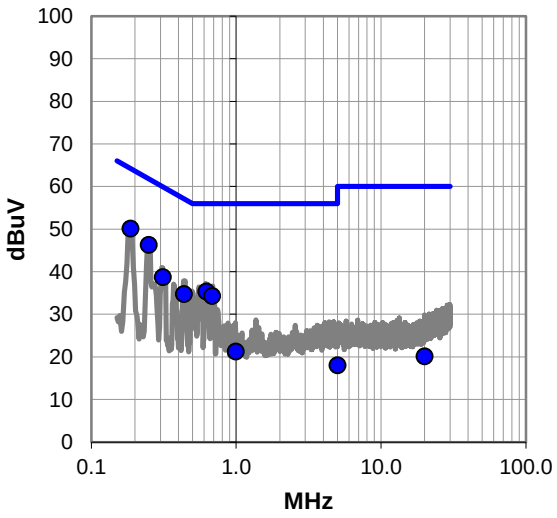
EUT OPERATING MODES

Transmitting Zigbee - mid channel (2450 MHz) modulated

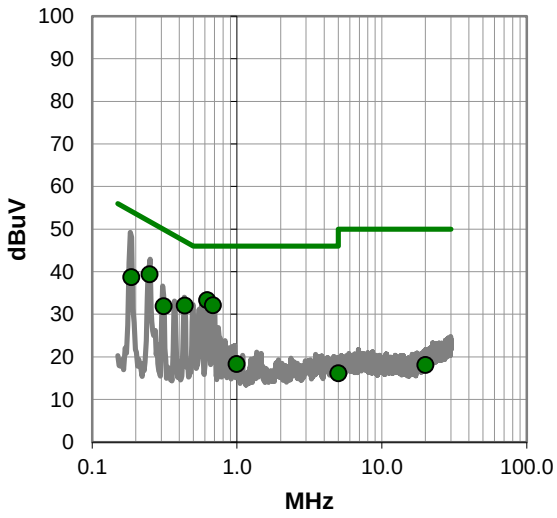
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2017.11.22.1

RESULTS - Run #5

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.187	29.4	20.7	50.1	64.2	-14.1
0.250	25.7	20.6	46.3	61.8	-15.5
0.622	14.9	20.4	35.3	56.0	-20.7
0.311	18.3	20.4	38.7	59.9	-21.2
0.683	13.8	20.5	34.3	56.0	-21.7
0.436	14.3	20.4	34.7	57.1	-22.4
0.995	0.7	20.5	21.2	56.0	-34.8
19.995	-2.4	22.5	20.1	60.0	-39.9
5.006	-2.7	20.7	18.0	60.0	-42.0

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.250	18.8	20.6	39.4	51.8	-12.4
0.622	12.9	20.4	33.3	46.0	-12.7
0.683	11.6	20.5	32.1	46.0	-13.9
0.436	11.6	20.4	32.0	47.1	-15.1
0.187	18.0	20.7	38.7	54.2	-15.5
0.311	11.5	20.4	31.9	49.9	-18.0
0.995	-2.2	20.5	18.3	46.0	-27.7
19.995	-4.4	22.5	18.1	50.0	-31.9
5.006	-4.6	20.7	16.1	50.0	-33.9

CONCLUSION

Pass

Tested By

SPURIOUS RADIATED EMISSIONS

PSA-ESCI 2018.05.04

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

Transmitting Zigbee - low channel (2405 MHz), mid channel (2450 MHz) and high channel (2480 MHz) modulated

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

SECF0102 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	26500 MHz

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Antenna - Standard Gain	ETS Lindgren	3160-09	AHG	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	12-Sep-2017	12 mo
Cable	ESM Cable Corp	TTBJ141 KMKM-72	MNP	12-Sep-2017	12 mo
Amplifier - Pre-Amplifier	L-3 Narda-MITEQ	AMF-6F-12001800-30-10P	PAP	24-Feb-2018	12 mo
Cable	Element	Biconilog Cable	MNX	24-Feb-2018	12 mo
Cable	Element	Standard Gain Cable	MNW	24-Feb-2018	12 mo
Cable	Element	Double Ridge Guide Horn Cables	MNV	24-Feb-2018	12 mo
Filter - Low Pass	Micro-Tronics	LPM50004	HGG	21-Sep-2017	12 mo
Filter - High Pass	Micro-Tronics	HPM50111	HFM	24-Feb-2018	12 mo
Attenuator	Coaxicom	3910-20	AXY	24-Feb-2018	12 mo
Antenna - Biconilog	ETS Lindgren	3142D	AXO	15-Dec-2017	24 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVX	24-Feb-2018	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	24-Feb-2018	12 mo
Amplifier - Pre-Amplifier	Miteq	AM-1064-9079 and SA18E-10	AOO	24-Feb-2018	12 mo
Antenna - Double Ridge	ETS-Lindgren	3115	AJQ	14-Nov-2016	24 mo
Antenna	ETS-Lindgren	3160-08	AJP	NCR	0 mo
Antenna	ETS-Lindgren	3160-07	AJJ	NCR	0 mo
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	26-Mar-2018	12 mo

MEASUREMENT BANDWIDTHS

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

TEST DESCRIPTION

The highest gain antenna of each type to be used with the EUT was tested. The EUT was configured for the required transmit frequencies and the modes as showed in the data sheets.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. These “pre-scans” are not included in the report. Final measurements on individual emissions were then made and included in this test report.

The individual emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis if required, and adjusting the measurement antenna height and polarization (per ANSI C63.10). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector
PK = Peak Detector
AV = RMS Detector

Measurements were made to satisfy the specific requirements of the test specification for out of band emissions as well as the restricted band requirements.

If there are no detectable emissions above the noise floor, the data included may show noise floor measurements for reference only.

Measurements at the edges of the allowable band may be presented in an alternative method as provided for in the ANSI C63.10 Marker-Delta method. This method involves performing an in-band fundamental measurement followed by a screen capture of the fundamental and out-of-band emission using reduced measurement instrumentation bandwidths. The amplitude delta measured on this screen capture is applied to the fundamental emission value to show the out-of-band emission level as applied to the limit.

Where the radio test software does not provide for a duty cycle at continuous transmit conditions (> 98%) and the RMS (power average) measurements were made across the on and off times of the EUT transmissions, a duty cycle correction is added to the measurements using the formula of 10*LOG(dc).

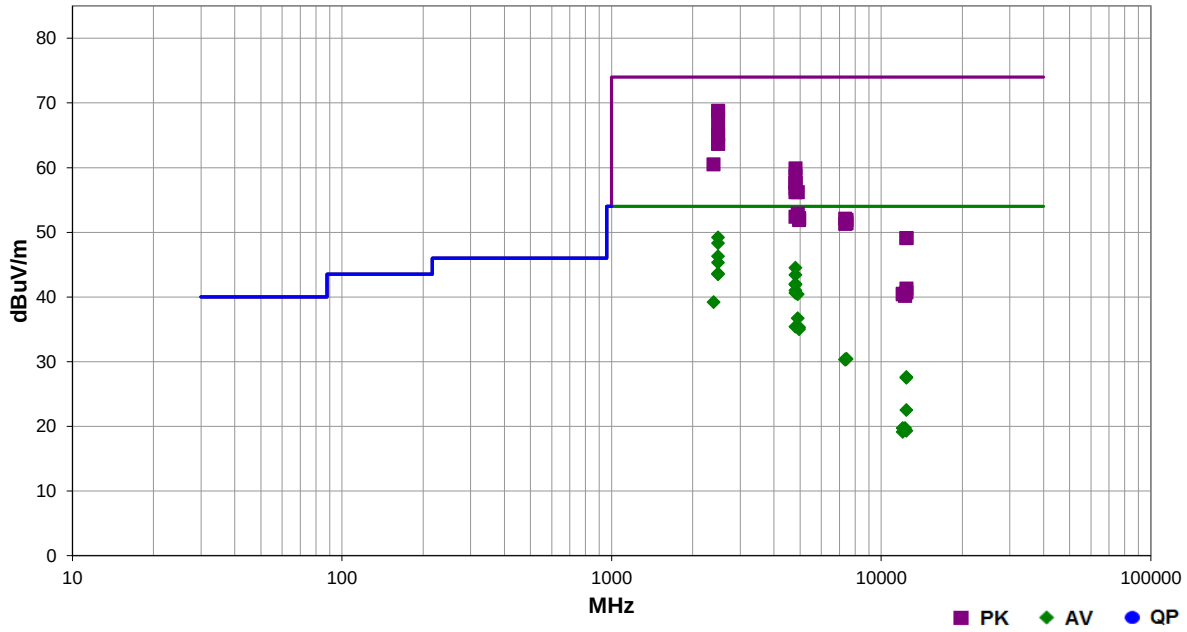
SPURIOUS RADIATED EMISSIONS

EmiR5 2018.05.07 PSA-ESCI 2018.05.04

Work Order:	SECF0102	**Date:**	10-Sep-2018		
Project:	None	**Temperature:**	23.2 °C		
Job Site:	MN09	**Humidity:**	48.7% RH		
Serial Number:	64DBA002AD33	**Barometric Pres.:**	1019 mbar	**Tested by:**	Dustin Sparks
EUT:	LPM-7000D				
Configuration:	1				
Customer:	Sleep Number Corporation				
Attendees:	Ruben Meline, Jason Ortberg				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting Zigbee - low channel (2405 MHz), mid channel (2450 MHz) and high channel (2480 MHz) modulated				
Deviations:	None				
Comments:	-10.5 dB correction factor applied to average points. This is based on the customer's declared worst-case duty cycle of 30% and was calculated using the formula 20 * log (1/DC).				

Test Specifications	**Test Method**
FCC 15.247:2018	ANSI C63.10:2013

Run #	20	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2483.500	43.9	-4.2	1.0	327.0	-10.5	20.0	Horz	AV	0.0	49.2	54.0	-4.8	High ch, EUT horz
2483.517	53.0	-4.2	1.0	327.0		20.0	Horz	PK	0.0	68.8	74.0	-5.2	High ch, EUT horz
2483.508	43.0	-4.2	1.0	272.0	-10.5	20.0	Vert	AV	0.0	48.3	54.0	-5.7	High ch, EUT on side
2483.517	52.3	-4.2	1.0	272.0		20.0	Vert	PK	0.0	68.1	74.0	-5.9	High ch, EUT on side
2483.500	41.0	-4.2	4.0	271.0	-10.5	20.0	Vert	AV	0.0	46.3	54.0	-7.7	High ch, EUT horz
2483.567	50.2	-4.2	4.0	271.0		20.0	Vert	PK	0.0	66.0	74.0	-8.0	High ch, EUT horz
2483.500	40.0	-4.2	2.9	334.0	-10.5	20.0	Horz	AV	0.0	45.3	54.0	-8.7	High ch, EUT on side
2483.742	49.3	-4.2	2.9	334.0		20.0	Horz	PK	0.0	65.1	74.0	-8.9	High ch, EUT on side
4810.875	50.8	4.2	2.3	10.0	-10.5	0.0	Horz	AV	0.0	44.5	54.0	-9.5	Low ch, EUT horz
2483.500	47.9	-4.2	2.2	338.0		20.0	Horz	PK	0.0	63.7	74.0	-10.3	High ch, EUT vert
2483.558	47.9	-4.2	1.0	219.0		20.0	Vert	PK	0.0	63.7	74.0	-10.3	High ch, EUT vert
2483.500	38.3	-4.2	2.2	338.0	-10.5	20.0	Horz	AV	0.0	43.6	54.0	-10.4	High ch, EUT vert
2483.500	38.2	-4.2	1.0	219.0	-10.5	20.0	Vert	AV	0.0	43.5	54.0	-10.5	High ch, EUT vert
4810.875	49.7	4.2	2.1	84.0	-10.5	0.0	Horz	AV	0.0	43.4	54.0	-10.6	Low ch, EUT horz
4810.917	48.3	4.2	2.4	208.0	-10.5	0.0	Horz	AV	0.0	42.0	54.0	-12.0	Low ch, EUT on side
4810.842	48.2	4.2	1.0	169.0	-10.5	0.0	Vert	AV	0.0	41.9	54.0	-12.1	Low ch, EUT vert
4810.833	47.3	4.2	1.0	113.0	-10.5	0.0	Vert	AV	0.0	41.0	54.0	-13.0	Low ch, EUT on side
4810.867	46.9	4.2	3.7	296.0	-10.5	0.0	Vert	AV	0.0	40.6	54.0	-13.4	Low ch, EUT horz

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2388.400	45.0	-4.5	1.0	319.0		20.0	Horz	PK	0.0	60.5	74.0	-13.5	Low ch, EUT horz
4900.833	47.0	3.9	2.3	93.0	-10.5	0.0	Horz	AV	0.0	40.4	54.0	-13.6	Mid ch, EUT horz
4808.892	55.7	4.2	2.3	10.0		0.0	Horz	PK	0.0	59.9	74.0	-14.1	Low ch, EUT horz
2389.583	34.2	-4.5	1.0	319.0	-10.5	20.0	Horz	AV	0.0	39.2	54.0	-14.8	Low ch, EUT horz
4810.933	54.6	4.2	2.1	84.0		0.0	Horz	PK	0.0	58.8	74.0	-15.2	Low ch, EUT horz
4810.900	53.5	4.2	2.4	208.0		0.0	Horz	PK	0.0	57.7	74.0	-16.3	Low ch, EUT on side
4808.875	53.4	4.2	1.0	169.0		0.0	Vert	PK	0.0	57.6	74.0	-16.4	Low ch, EUT vert
4811.008	52.6	4.2	1.0	113.0		0.0	Vert	PK	0.0	56.8	74.0	-17.2	Low ch, EUT on side
4900.908	43.3	3.9	1.0	163.0	-10.5	0.0	Vert	AV	0.0	36.7	54.0	-17.3	Mid ch, EUT vert
4811.008	52.0	4.2	3.7	296.0		0.0	Vert	PK	0.0	56.2	74.0	-17.8	Low ch, EUT horz
4900.858	52.3	3.9	2.3	93.0		0.0	Horz	PK	0.0	56.2	74.0	-17.8	Mid ch, EUT horz
4810.942	41.7	4.2	1.5	239.0	-10.5	0.0	Horz	AV	0.0	35.4	54.0	-18.6	Low ch, EUT vert
4960.883	41.8	4.0	1.0	59.0	-10.5	0.0	Vert	AV	0.0	35.3	54.0	-18.7	High ch, EUT vert
4960.867	41.5	4.0	1.0	127.0	-10.5	0.0	Horz	AV	0.0	35.0	54.0	-19.0	High ch, EUT horz
4901.042	49.0	3.9	1.0	163.0		0.0	Vert	PK	0.0	52.9	74.0	-21.1	Mid ch, EUT vert
4809.033	48.2	4.2	1.5	239.0		0.0	Horz	PK	0.0	52.4	74.0	-21.6	Low ch, EUT vert
4960.958	48.2	4.0	1.0	59.0		0.0	Vert	PK	0.0	52.2	74.0	-21.8	High ch, EUT vert
7347.925	39.9	12.2	1.2	105.0		0.0	Horz	PK	0.0	52.1	74.0	-21.9	Mid ch, EUT horz
7441.008	39.4	12.5	1.0	166.0		0.0	Vert	PK	0.0	51.9	74.0	-22.1	High ch, EUT vert
4960.908	47.9	4.0	1.0	127.0		0.0	Horz	PK	0.0	51.9	74.0	-22.1	High ch, EUT horz
7439.733	38.9	12.5	1.0	308.0		0.0	Horz	PK	0.0	51.4	74.0	-22.6	High ch, EUT horz
7349.000	39.1	12.2	1.0	151.0		0.0	Vert	PK	0.0	51.3	74.0	-22.7	Mid ch, EUT vert
7438.517	28.4	12.5	1.0	166.0	-10.5	0.0	Vert	AV	0.0	30.4	54.0	-23.6	High ch, EUT vert
7438.250	28.4	12.5	1.0	308.0	-10.5	0.0	Horz	AV	0.0	30.4	54.0	-23.6	High ch, EUT horz
7348.358	28.6	12.2	1.2	105.0	-10.5	0.0	Horz	AV	0.0	30.3	54.0	-23.7	Mid ch, EUT horz
7352.075	28.6	12.2	1.0	151.0	-10.5	0.0	Vert	AV	0.0	30.3	54.0	-23.7	Mid ch, EUT vert
12401.500	36.7	12.4	1.0	104.0		0.0	Horz	PK	0.0	49.1	74.0	-24.9	High ch, EUT horz
12401.010	36.7	12.4	1.0	99.0		0.0	Vert	PK	0.0	49.1	74.0	-24.9	High ch, EUT vert
12402.050	25.7	12.4	1.0	104.0	-10.5	0.0	Horz	AV	0.0	27.6	54.0	-26.4	High ch, EUT horz
12402.130	25.6	12.4	1.0	99.0	-10.5	0.0	Vert	AV	0.0	27.5	54.0	-26.5	High ch, EUT vert
12398.350	33.5	-0.5	1.0	2.0	-10.5	0.0	Vert	AV	0.0	22.5	54.0	-31.5	High ch, EUT vert
12398.540	41.8	-0.5	1.0	200.0		0.0	Horz	PK	0.0	41.3	74.0	-32.7	High ch, EUT horz
12398.730	41.2	-0.5	1.0	2.0		0.0	Vert	PK	0.0	40.7	74.0	-33.3	High ch, EUT vert
12026.770	42.1	-1.6	1.1	118.0		0.0	Horz	PK	0.0	40.5	74.0	-33.5	Low ch, EUT horz
12022.730	42.0	-1.6	1.0	126.0		0.0	Vert	PK	0.0	40.4	74.0	-33.6	Low ch, EUT vert
12250.480	40.5	-0.3	1.0	276.0		0.0	Horz	PK	0.0	40.2	74.0	-33.8	Mid ch, EUT horz
12251.190	40.5	-0.3	1.0	119.0		0.0	Vert	PK	0.0	40.2	74.0	-33.8	Mid ch, EUT vert
12027.080	31.8	-1.6	1.0	126.0	-10.5	0.0	Vert	AV	0.0	19.7	54.0	-34.3	Low ch, EUT vert
12252.240	30.5	-0.3	1.0	119.0	-10.5	0.0	Vert	AV	0.0	19.7	54.0	-34.3	Mid ch, EUT vert
12252.230	30.2	-0.3	1.0	276.0	-10.5	0.0	Horz	AV	0.0	19.4	54.0	-34.6	Mid ch, EUT horz
12398.430	30.3	-0.5	1.0	200.0	-10.5	0.0	Horz	AV	0.0	19.3	54.0	-34.7	High ch, EUT horz
12026.290	31.2	-1.6	1.1	118.0	-10.5	0.0	Horz	AV	0.0	19.1	54.0	-34.9	Low ch, EUT horz

DUTY CYCLE

TEST DESCRIPTION

The Duty Cycle (x) were measured for each of the EUT operating modes. The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. The transmit power was set to its default maximum. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used

The duty cycle was calculated by dividing the transmission pulse duration (T) by the total period of a single on and total off time.

The EUT operates at 100% Duty Cycle.

OCCUPIED BANDWIDTH

XMit 2017.12.13

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	N5173B	TIW	5-Jul-17	5-Jul-20
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	15-Mar-18	15-Mar-19
Attenuator	S.M. Electronics	SA26B-20	RFW	13-Feb-18	13-Feb-19
Block - DC	Fairview Microwave	SD3379	AMI	12-Sep-17	12-Sep-18
Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	19-Dec-17	19-Dec-18

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The EUT was set to the channels and modes listed in the datasheet.

The 6dB occupied bandwidth was measured using 100 kHz resolution bandwidth and 300 kHz video bandwidth. The 99.0% occupied bandwidth was also measured at the same time which can be needed during Output Power depending on the applicable method.

OCCUPIED BANDWIDTH

TbtTx 2017.12.14 XMit 2017.12.13

EUT:	**LPM-7000D**			**Work Order:**	**SECF0102**
Serial Number:	**64DBA002AD5B**			**Date:**	**11-Sep-18**
Customer:	**Sleep Number Corporation**			**Temperature:**	**22.9 °C**
Attendees:	**Ruben Meline, Jason Ortberg**			**Humidity:**	**49.9% RH**
Project:	**None**			**Barometric Pres.:**	**1018 mbar**
Tested by:	**Dustin Sparks**	**Power:**	**110VAC/60Hz**	**Job Site:**	**MN08**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2018	ANSI C63.10:2013

COMMENTS

None

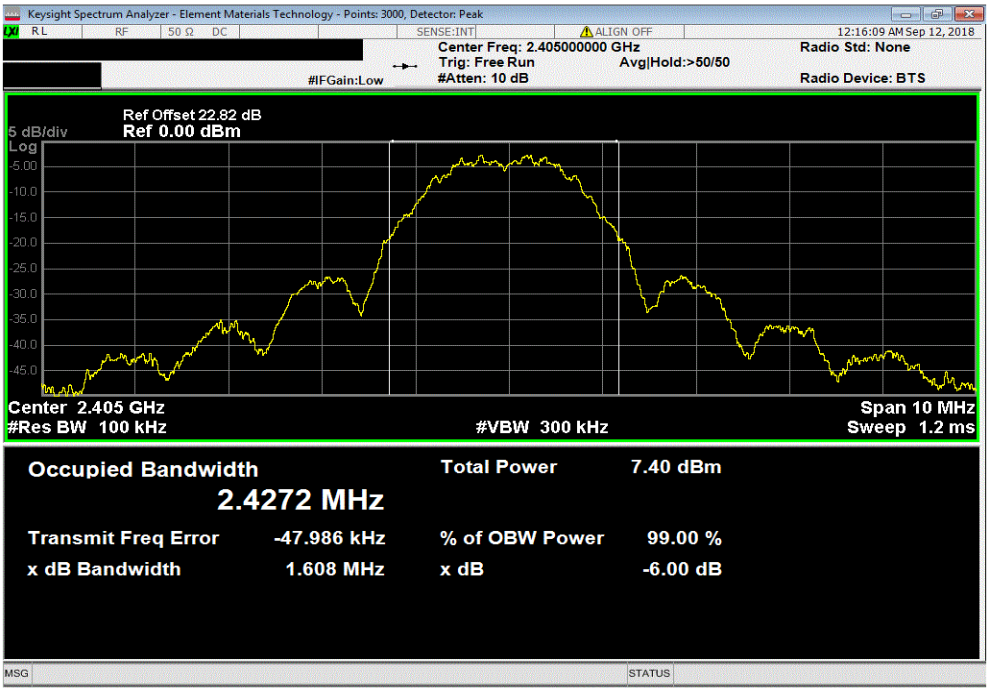
DEVIATIONS FROM TEST STANDARD

None

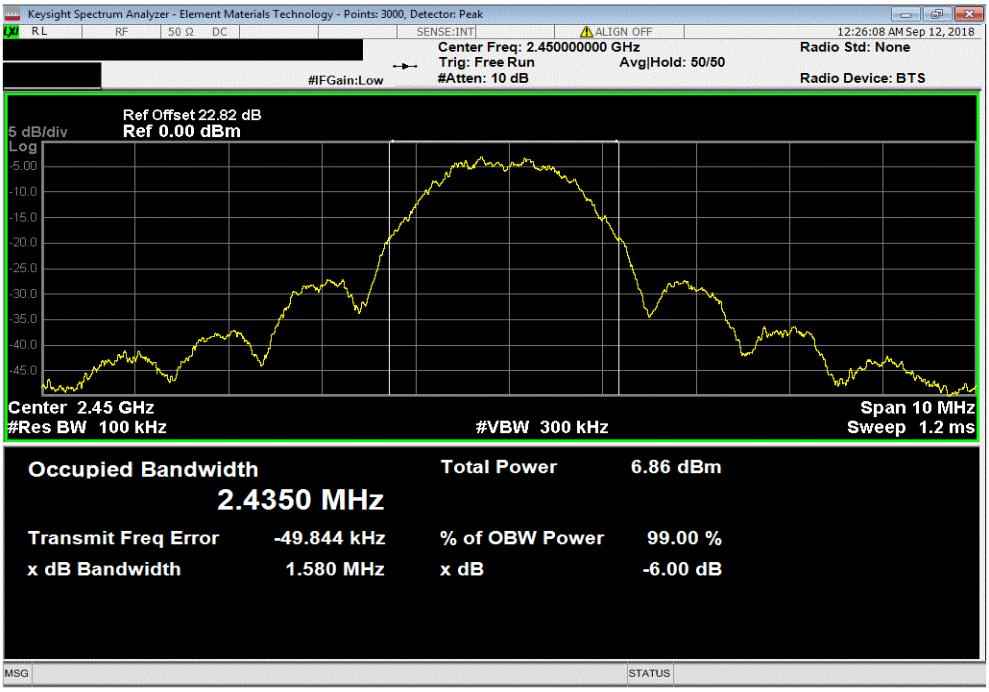
Configuration #	**2**	*Signature* Dustin Sparks

	Value	**Limit (>)**	**Result**
Zigbee Low Channel, 2405 MHz	1.608 MHz	500 kHz	Pass
Zigbee Mid Channel, 2450 MHz	1.58 MHz	500 kHz	Pass
Zigbee High Channel, 2480 MHz	1.653 MHz	500 kHz	Pass

Zigbee Low Channel, 2405 MHz						
				Value	Limit (>)	Result
				1.608 MHz	500 kHz	Pass



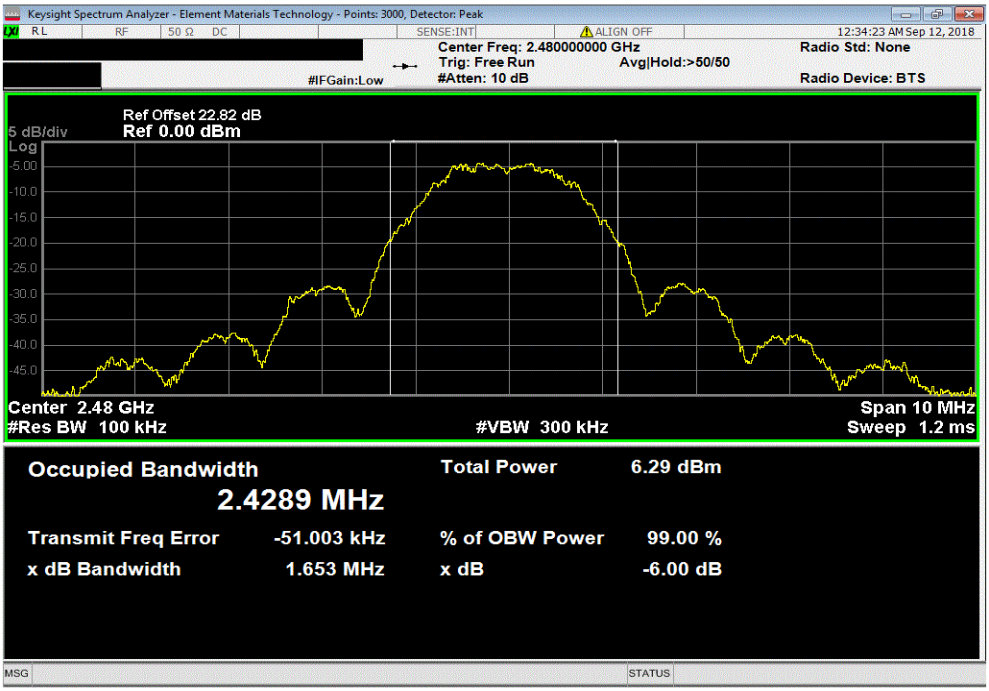
Zigbee Mid Channel, 2450 MHz						
				Value	Limit (>)	Result
				1.58 MHz	500 kHz	Pass



OCCUPIED BANDWIDTH

TbtTx 2017.12.14 XMit 2017.12.13

Zigbee High Channel, 2480 MHz							
					Value	Limit (>)	Result
					1.653 MHz	500 kHz	Pass



OUTPUT POWER

XMit 2017.12.13

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	N5173B	TIW	5-Jul-17	5-Jul-20
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	15-Mar-18	15-Mar-19
Attenuator	S.M. Electronics	SA26B-20	RFW	13-Feb-18	13-Feb-19
Block - DC	Fairview Microwave	SD3379	AMI	12-Sep-17	12-Sep-18
Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	19-Dec-17	19-Dec-18

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum.

Prior to measuring peak transmit power the DTS bandwidth (B) was measured.

The method found in ANSI C63.10:2013 Section 11.9.1.1 was used because the RBW on the analyzer was greater than the DTS Bandwidth of the radio.

De Facto EIRP Limit: The EUT meets the de facto EIRP limit of +36 dBm.

OUTPUT POWER

TbtTx 2017.12.14 XMit 2017.12.13

EUT:	**LPM-7000D**			**Work Order:**	**SECF0102**
Serial Number:	**64DBA002AD5B**			**Date:**	**11-Sep-18**
Customer:	**Sleep Number Corporation**			**Temperature:**	**22.8 °C**
Attendees:	**Ruben Meline, Jason Ortberg**			**Humidity:**	**49.7% RH**
Project:	**None**			**Barometric Pres.:**	**1018 mbar**
Tested by:	**Dustin Sparks**	**Power:**	**110VAC/60Hz**	**Job Site:**	**MN08**
TEST SPECIFICATIONS			**Test Method**		
FCC 15.247:2018			ANSI C63.10:2013		

COMMENTS

None

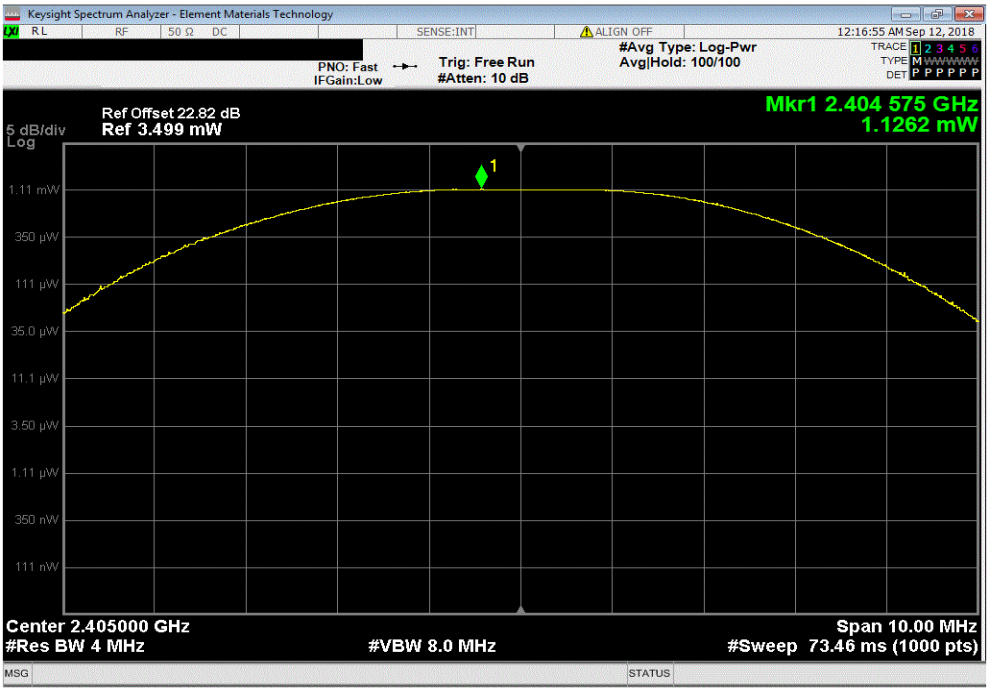
DEVIATIONS FROM TEST STANDARD

None

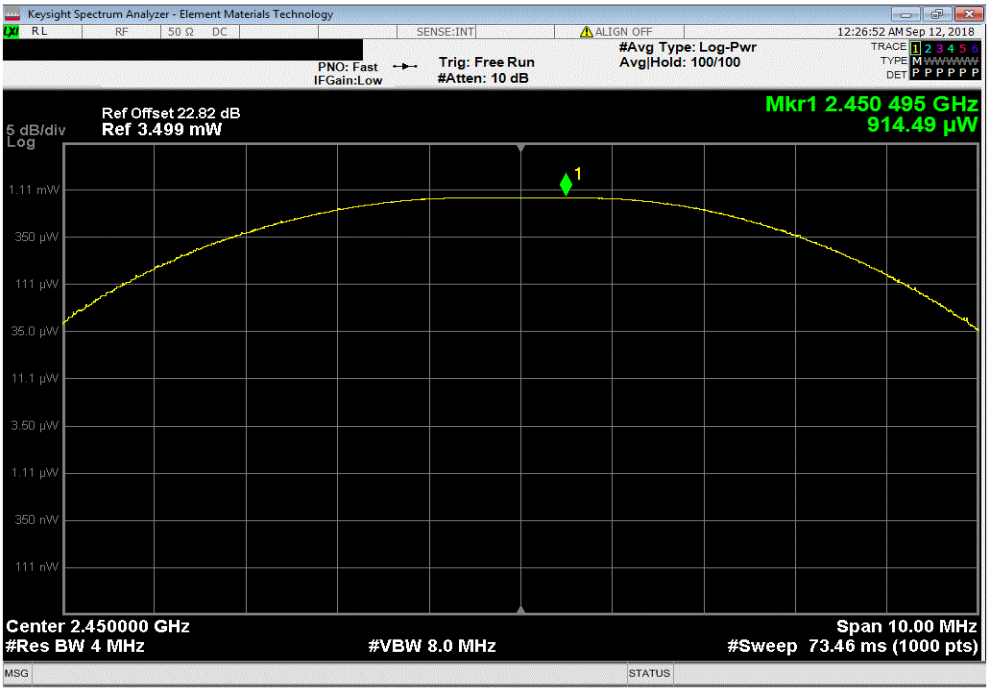
Configuration #	**2**	*Signature* Dustin Sparks

	Value	**Limit (<)**	**Result**
Zigbee Low Channel, 2405 MHz	1.126 mW	1 W	Pass
Zigbee Mid Channel, 2450 MHz	914.49 uW	1 W	Pass
Zigbee High Channel, 2480 MHz	820.65 uW	1 W	Pass

Zigbee Low Channel, 2405 MHz						
				Value	Limit (<)	Result
				1.126 mW	1 W	Pass

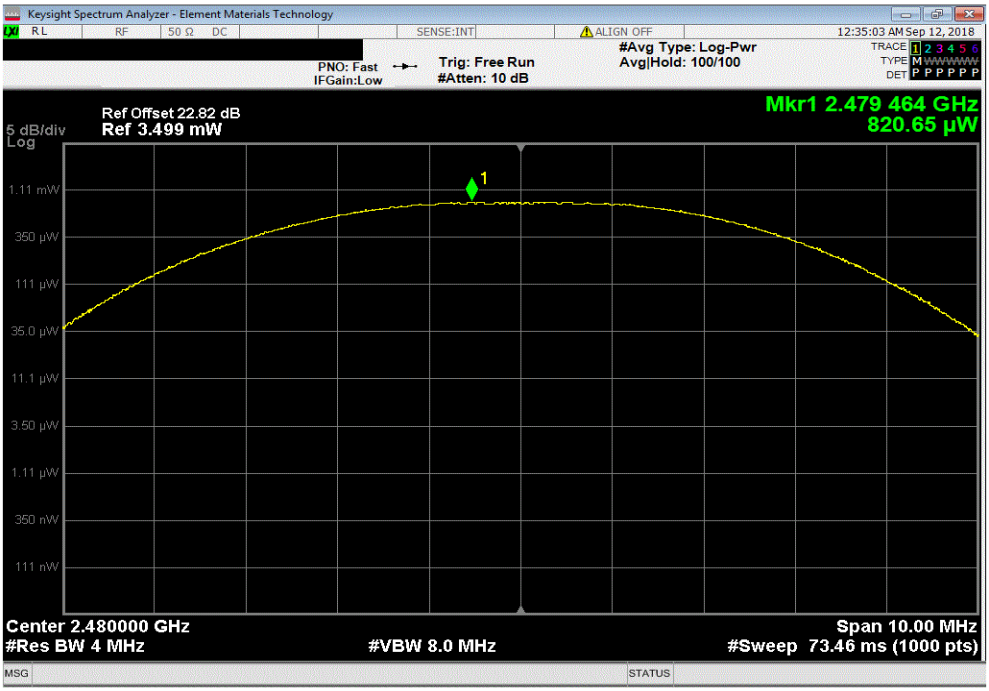


Zigbee Mid Channel, 2450 MHz						
				Value	Limit (<)	Result
				914.49 uW	1 W	Pass



OUTPUT POWER

Zigbee High Channel, 2480 MHz							
					Value	Limit (<)	Result
					820.65 uW	1 W	Pass



POWER SPECTRAL DENSITY

XMit 2017.12.13

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	N5173B	TIW	5-Jul-17	5-Jul-20
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	15-Mar-18	15-Mar-19
Attenuator	S.M. Electronics	SA26B-20	RFW	13-Feb-18	13-Feb-19
Block - DC	Fairview Microwave	SD3379	AMI	12-Sep-17	12-Sep-18
Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	19-Dec-17	19-Dec-18

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The maximum power spectral density measurements was measured using the channels and modes as called out on the following data sheets.

Per the procedure outlined in ANSI C63.10 the peak power spectral density was measured in a 3 kHz RBW.

POWER SPECTRAL DENSITY

TbtTx 2017.12.14 XMit 2017.12.13

EUT:	LPM-7000D			**Work Order:**	SECF0102
Serial Number:	64DBA002AD5B			**Date:**	11-Sep-18
Customer:	Sleep Number Corporation			**Temperature:**	22.8 °C
Attendees:	Ruben Meline, Jason Ortberg			**Humidity:**	49.6% RH
Project:	None			**Barometric Pres.:**	1018 mbar
Tested by:	Dustin Sparks	**Power:**	110VAC/60Hz	**Job Site:**	MN08

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2018	ANSI C63.10:2013

COMMENTS

None

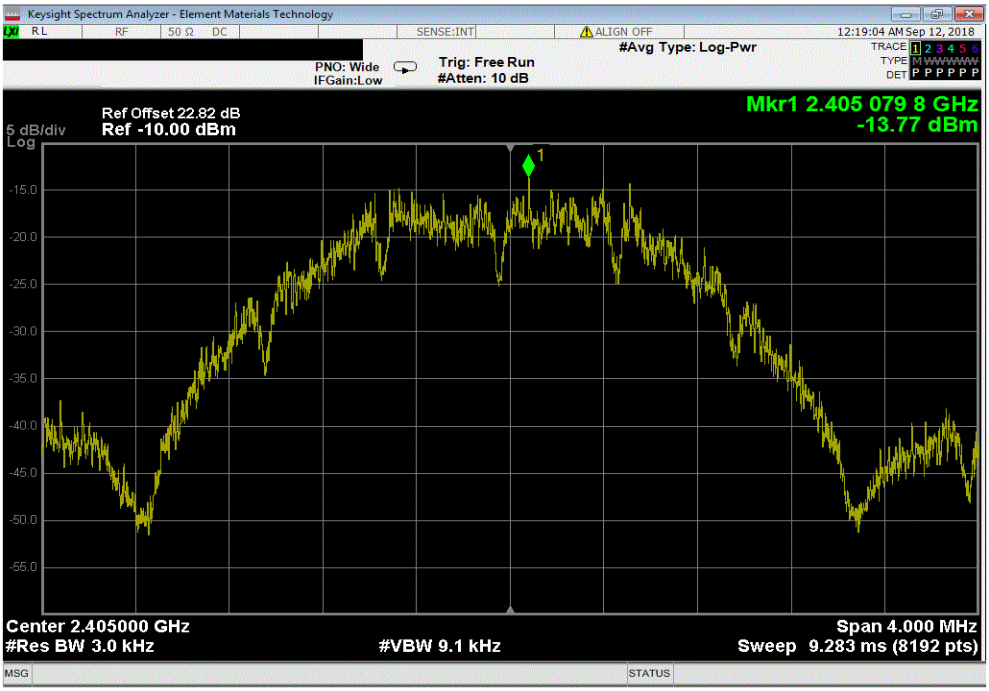
DEVIATIONS FROM TEST STANDARD

None

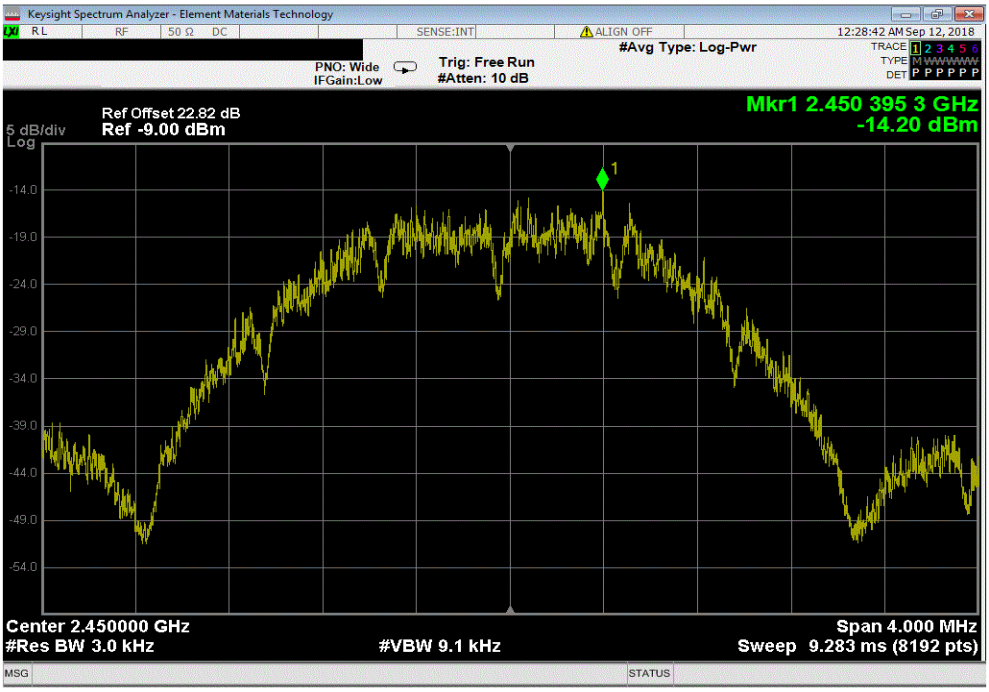
Configuration #	2	*Signature* Dustin Sparks

	Value dBm/3kHz	Limit < dBm/3kHz	Results
Zigbee Low Channel, 2405 MHz	-13.769	8	Pass
Zigbee Mid Channel, 2450 MHz	-14.2	8	Pass
Zigbee High Channel, 2480 MHz	-14.766	8	Pass

Zigbee Low Channel, 2405 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-13.769	8	Pass

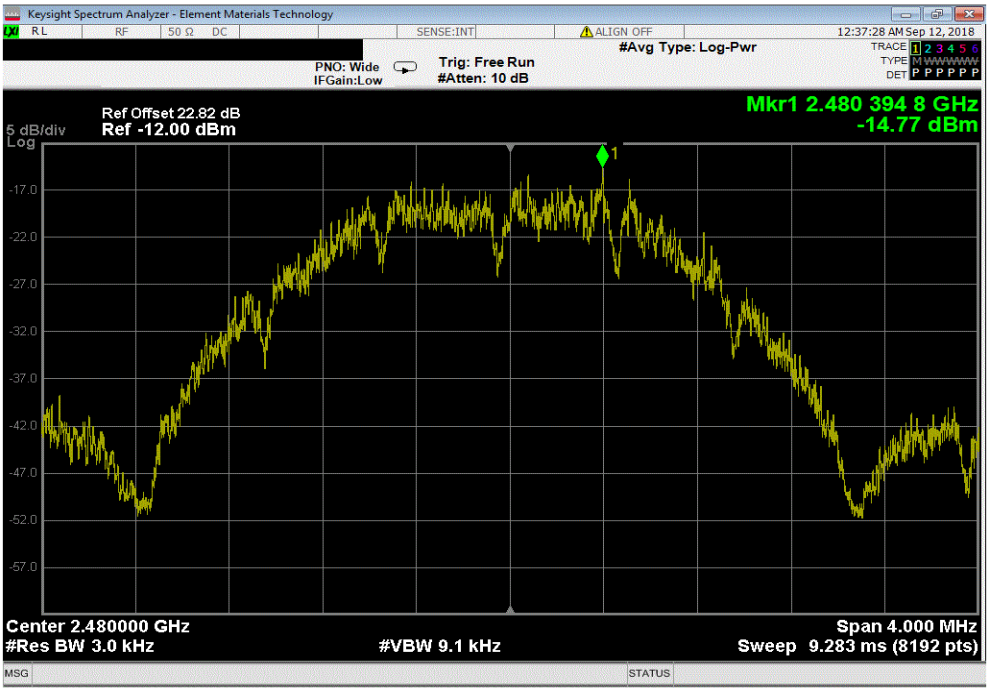


Zigbee Mid Channel, 2450 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-14.2	8	Pass



POWER SPECTRAL DENSITY

Zigbee High Channel, 2480 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-14.766	8	Pass



BAND EDGE COMPLIANCE

XMit 2017.12.13

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	N5173B	TIW	5-Jul-17	5-Jul-20
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	15-Mar-18	15-Mar-19
Attenuator	S.M. Electronics	SA26B-20	RFW	13-Feb-18	13-Feb-19
Block - DC	Fairview Microwave	SD3379	AMI	12-Sep-17	12-Sep-18
Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	19-Dec-17	19-Dec-18

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in each available band. The channels closest to the band edges were selected. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

BAND EDGE COMPLIANCE

TbtTx 2017.12.14 XMit 2017.12.13

EUT:	LPM-7000D			**Work Order:**	SECF0102
Serial Number:	64DBA002AD5B			**Date:**	11-Sep-18
Customer:	Sleep Number Corporation			**Temperature:**	22.9 °C
Attendees:	Ruben Meline, Jason Ortberg			**Humidity:**	50.4% RH
Project:	None			**Barometric Pres.:**	1018 mbar
Tested by:	Dustin Sparks	**Power:**	110VAC/60Hz	**Job Site:**	MN08

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2018	ANSI C63.10:2013

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

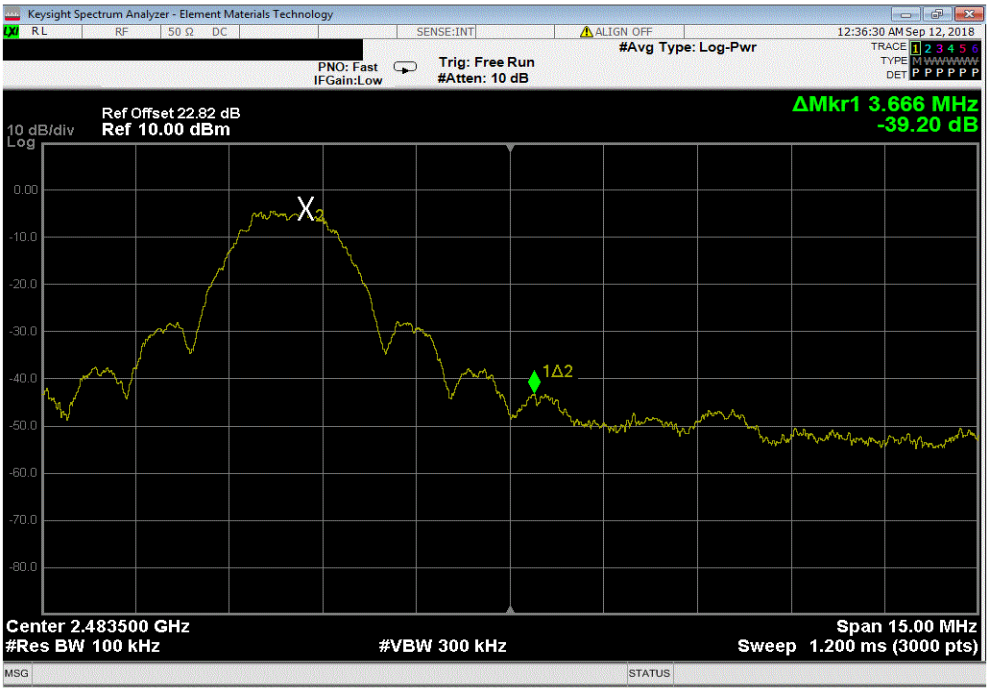
None

Configuration #	2	*Signature* Dustin Sparks

	Value (dBc)	Limit ≤ (dBc)	Result
Zigbee Low Channel, 2405 MHz	-42.87	-20	Pass
Zigbee High Channel, 2480 MHz	-39.2	-20	Pass

Zigbee Low Channel, 2405 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-42.87	-20	Pass

Zigbee High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-39.2	-20	Pass



SPURIOUS CONDUCTED EMISSIONS

XMit 2017.12.13

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	N5173B	TIW	5-Jul-17	5-Jul-20
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	15-Mar-18	15-Mar-19
Attenuator	S.M. Electronics	SA26B-20	RFW	13-Feb-18	13-Feb-19
Block - DC	Fairview Microwave	SD3379	AMI	12-Sep-17	12-Sep-18
Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	19-Dec-17	19-Dec-18

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions were measured with the EUT set to low, medium and high transmit frequencies. The EUT was transmitting at the data rate(s) listed in the datasheet. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

SPURIOUS CONDUCTED EMISSIONS

TbtTx 2017.12.14 XMit 2017.12.13

EUT:	LPM-7000D			**Work Order:**	SECF0102
Serial Number:	64DBA002AD5B			**Date:**	11-Sep-18
Customer:	Sleep Number Corporation			**Temperature:**	22.8 °C
Attendees:	Ruben Meline, Jason Ortberg			**Humidity:**	49.5% RH
Project:	None			**Barometric Pres.:**	1018 mbar
Tested by:	Dustin Sparks	**Power:**	110VAC/60Hz	**Job Site:**	MN08

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2018	ANSI C63.10:2013

COMMENTS

None

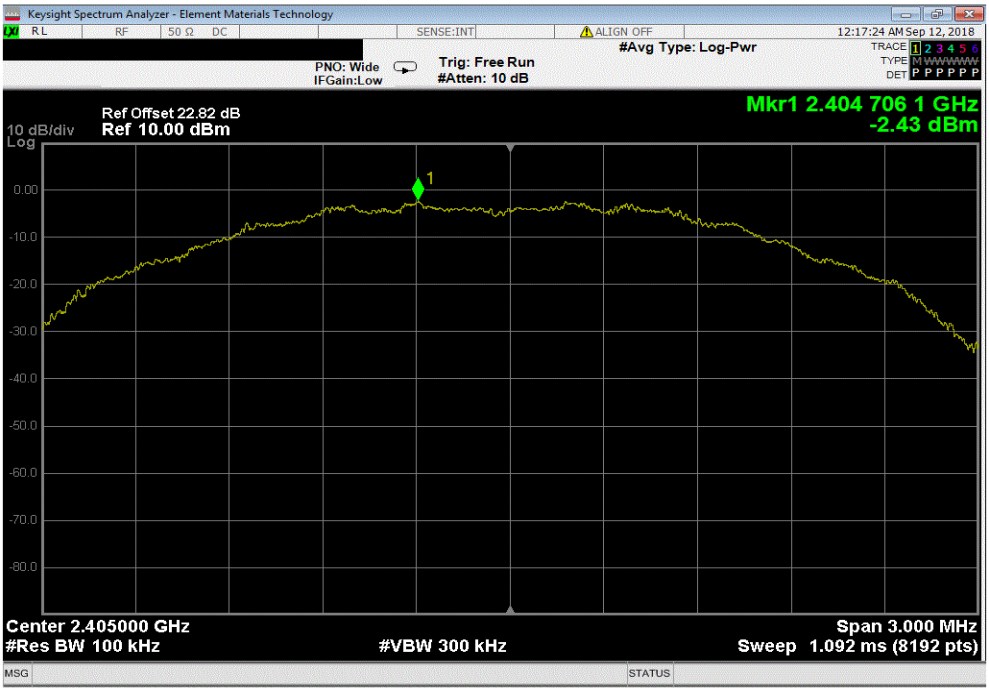
DEVIATIONS FROM TEST STANDARD

None

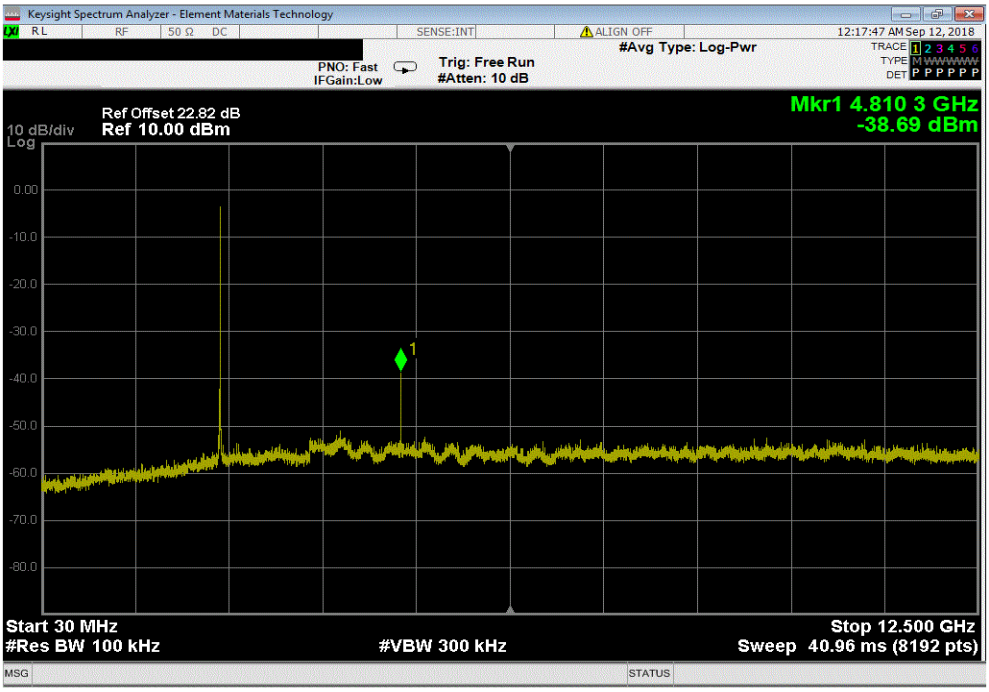
Configuration #	2	*Signature* Dustin Sparks

	Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result
Zigbee Low Channel, 2405 MHz	Fundamental	N/A	N/A	N/A
Zigbee Low Channel, 2405 MHz	30 MHz - 12.5 GHz	-36.26	-20	Pass
Zigbee Low Channel, 2405 MHz	12.5 GHz - 25 GHz	-46.42	-20	Pass
Zigbee Mid Channel, 2450 MHz	Fundamental	N/A	N/A	N/A
Zigbee Mid Channel, 2450 MHz	30 MHz - 12.5 GHz	-35.94	-20	Pass
Zigbee Mid Channel, 2450 MHz	12.5 GHz - 25 GHz	-46.35	-20	Pass
Zigbee High Channel, 2480 MHz	Fundamental	N/A	N/A	N/A
Zigbee High Channel, 2480 MHz	30 MHz - 12.5 GHz	-36.05	-20	Pass
Zigbee High Channel, 2480 MHz	12.5 GHz - 25 GHz	-45.83	-20	Pass

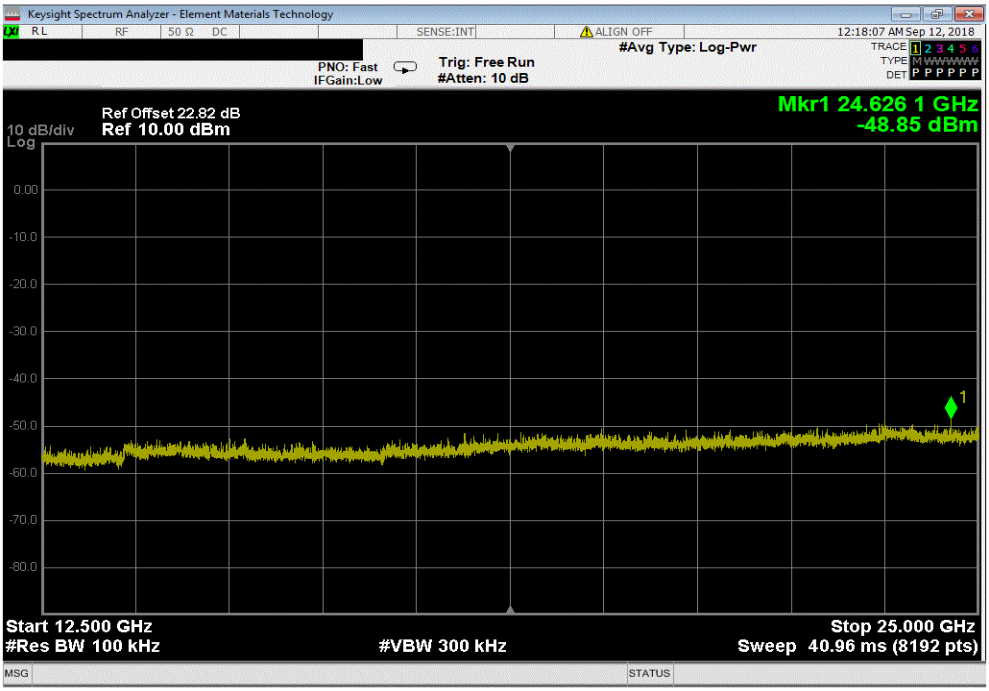
Zigbee Low Channel, 2405 MHz						
	Frequency Range			Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental			N/A	N/A	N/A



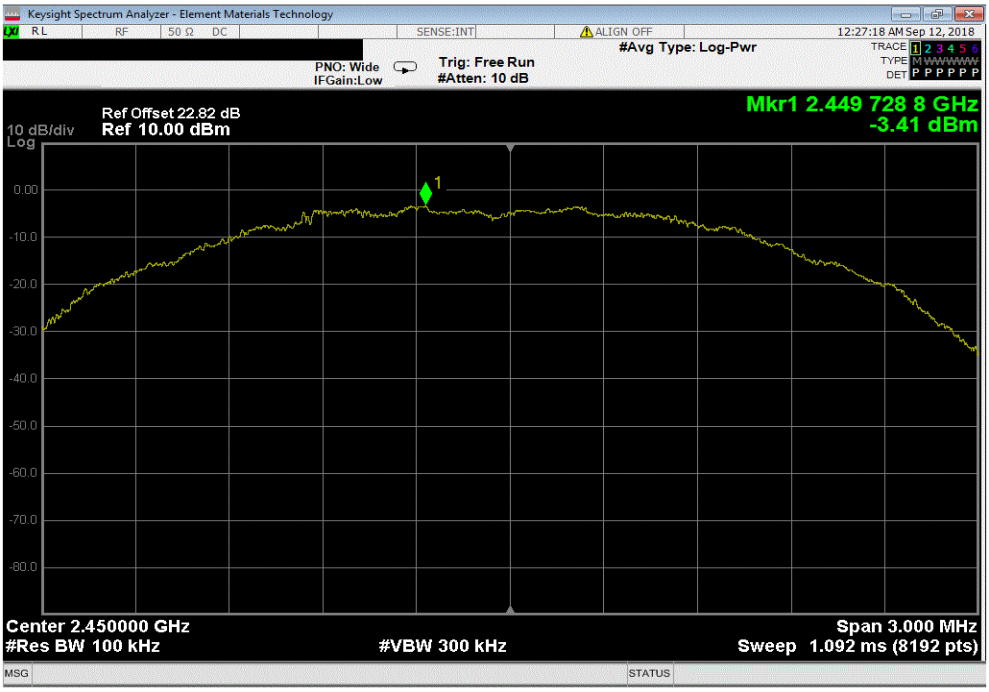
Zigbee Low Channel, 2405 MHz					
Frequency Range			Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz			-36.26	-20	Pass



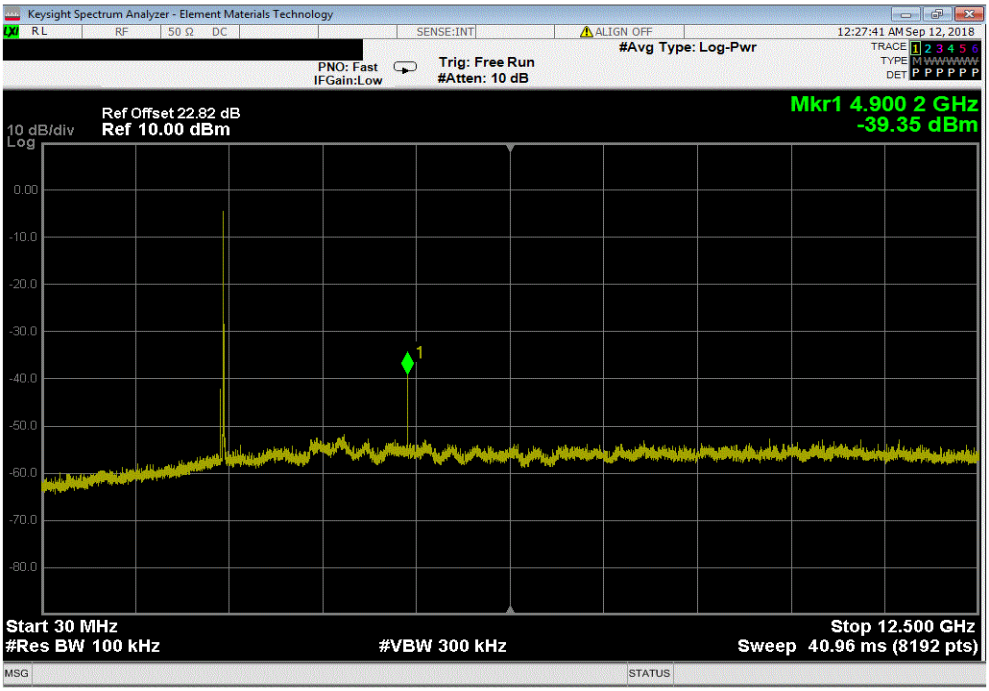
Zigbee Low Channel, 2405 MHz				
Frequency Range		Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz		-46.42	-20	Pass



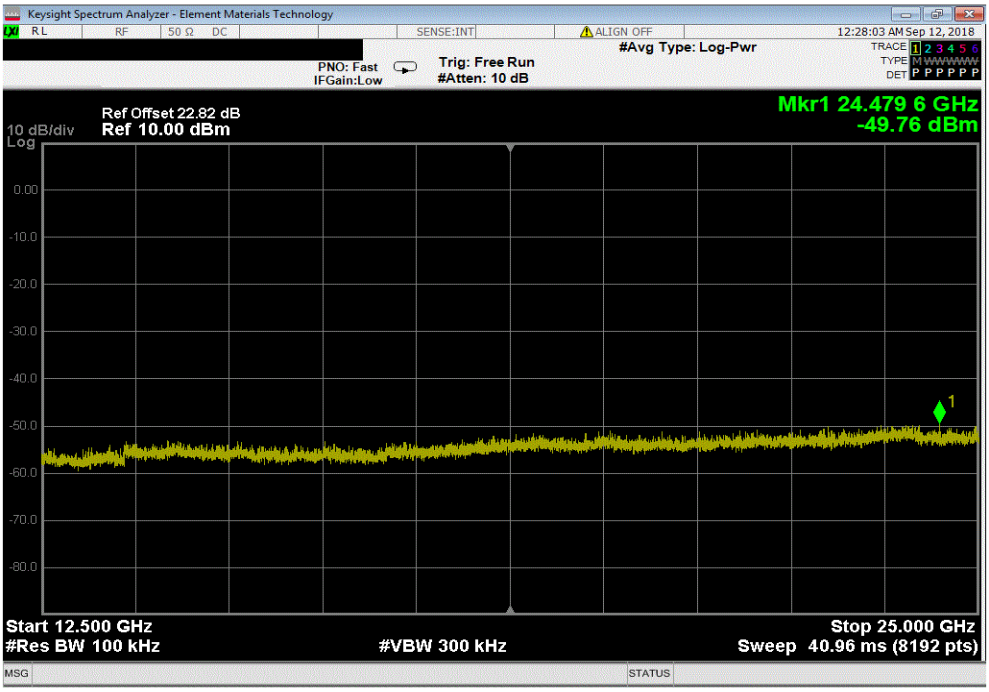
Zigbee Mid Channel, 2450 MHz						
Frequency Range				Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental			N/A	N/A	N/A



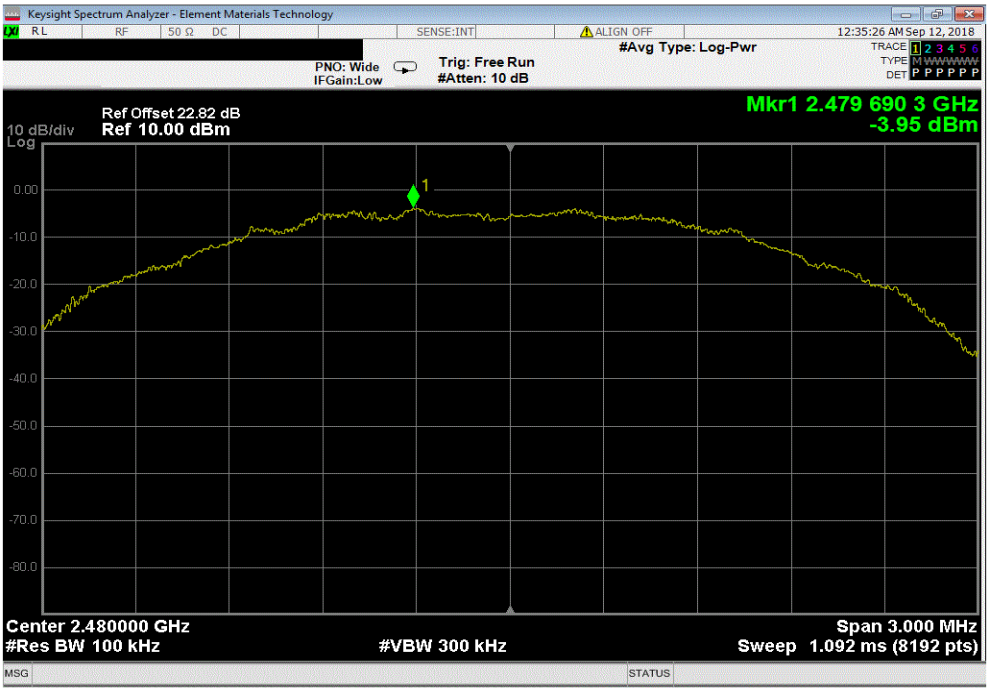
Zigbee Mid Channel, 2450 MHz				
Frequency Range		Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz		-35.94	-20	Pass



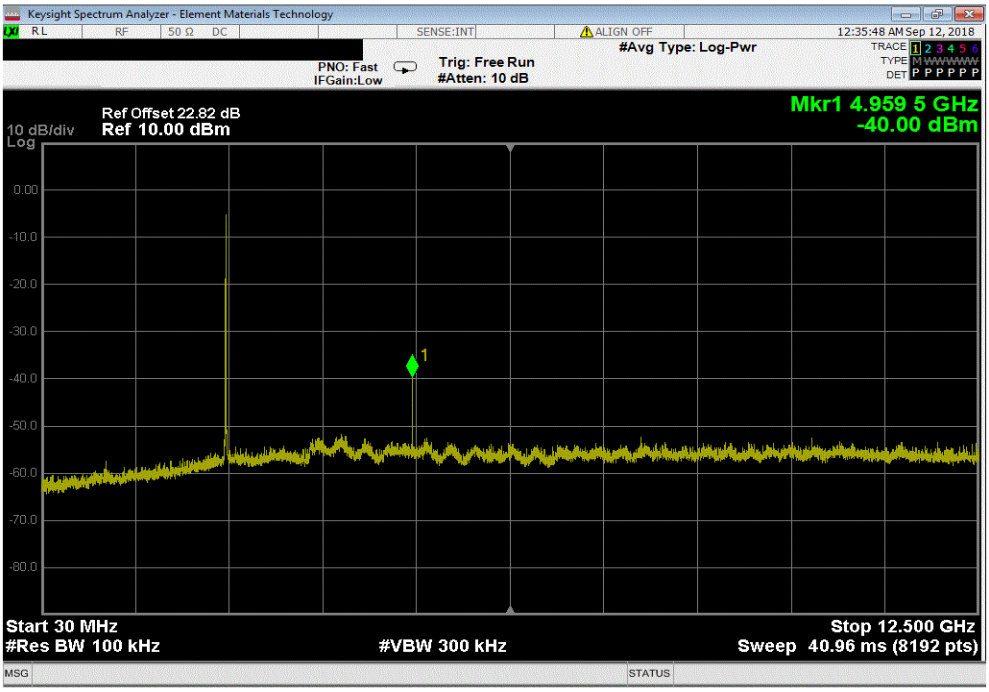
Zigbee Mid Channel, 2450 MHz				
Frequency Range		Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz		-46.35	-20	Pass



Zigbee High Channel, 2480 MHz						
	Frequency Range			Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental			N/A	N/A	N/A



Zigbee High Channel, 2480 MHz					
Frequency Range			Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz			-36.05	-20	Pass



Zigbee High Channel, 2480 MHz				
Frequency Range		Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz		-45.83	-20	Pass