

# NORTHWEST EMC

## LightSPEED Technologies, Inc.

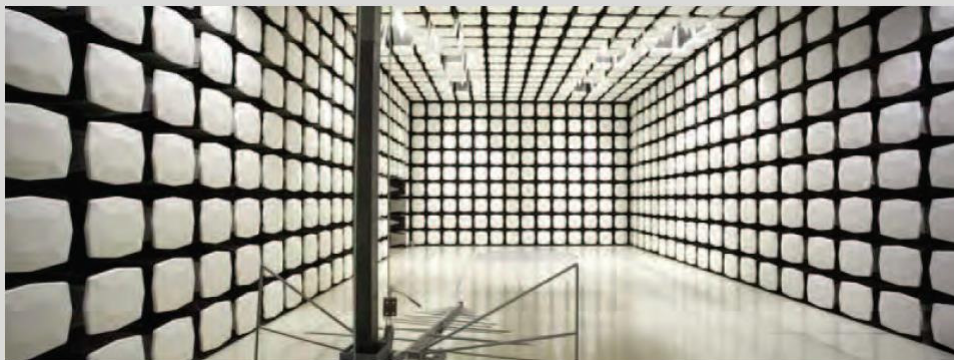
Flexcat Remote

FCC 15.247:2015

FCC 15.247:2016

BLE radio

Report # LITS0026.2



NVLAP Lab Code: 200630-0

*This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America. This Report may only be duplicated in its entirety*

# CERTIFICATE OF TEST



Last Date of Test: February 04, 2016  
LightSPEED Technologies, Inc.  
Model: Flexcat Remote

## Radio Equipment Testing

### Standards

Specification	Method
FCC 15.247:2015	ANSI C63.10:2013
FCC 15.247:2016	

### Results

Method Clause	Test Description	Applied	Results	Comments
6.2	AC Powerline Conducted Emissions	Yes	Pass	
6.5, 6.6	Spurious Radiated Emissions	Yes	Pass	
11.6	Duty Cycle	Yes	N/A	Characterization of radio
11.8.2	Occupied Bandwidth	Yes	Pass	
11.9.2.2.4	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:

Kyle Holgate, 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.*

# REVISION HISTORY

Revision Number	Description	Date	Page Number
00	None		

# ACCREDITATIONS AND AUTHORIZATIONS

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## United States

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**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 Northwest EMC to certify transmitters to FCC and IC specifications.

**NVLAP** - Each laboratory is accredited by NVLAP to ISO 17025

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## Canada

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**IC** - Recognized by Industry Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with IC.

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## European Union

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**European Commission** – Validated by the European Commission as a Conformity Assessment Body (CAB) under the EMC directive and as a Notified Body under the R&TTE Directive.

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## Australia/New Zealand

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

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## Korea

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

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## Japan

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

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## Taiwan

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**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.

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## Singapore

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

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## Israel

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

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## Hong Kong

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

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## Vietnam

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

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## SCOPE

For details on the Scopes of our Accreditations, please visit:

<http://www.nwemc.com/accreditations/>

<http://gsi.nist.gov/global/docs/cabs/designations.html>

# MEASUREMENT UNCERTAINTY

## 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 WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) for each test is on each data sheet. 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.

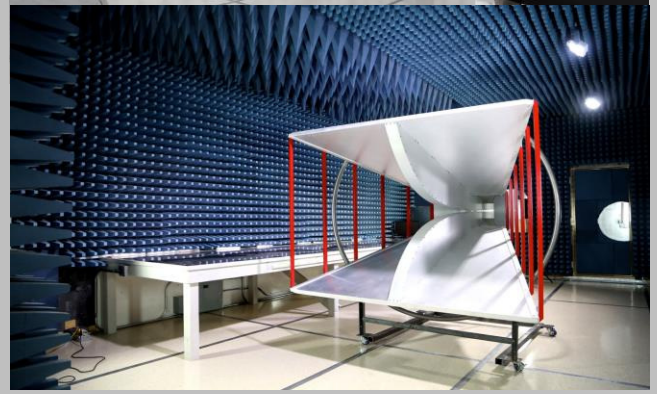
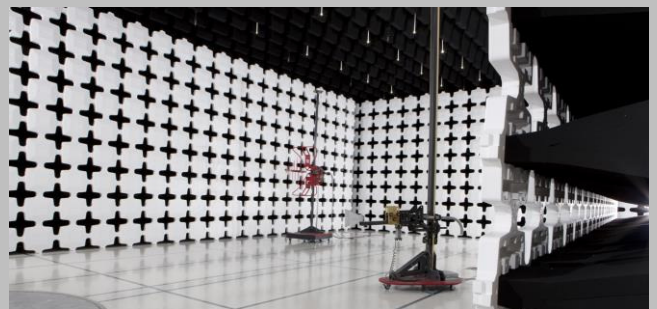
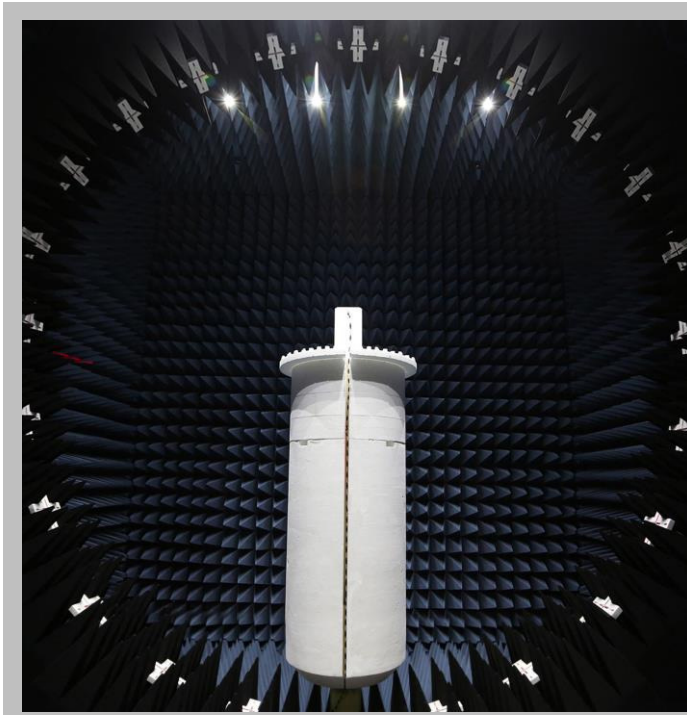
The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

<b>Test</b>	<b>+ MU</b>	<b>- MU</b>
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

# FACILITIES



<b>California</b> Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	<b>Minnesota</b> Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	<b>New York</b> Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214	<b>Oregon</b> Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	<b>Texas</b> Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	<b>Washington</b> Labs NC01-05 19201 120 <sup>th</sup> Ave NE Bothell, WA 98011 (425)984-6600
<b>NVLAP</b>					
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
<b>Industry Canada</b>					
2834B-1, 2834B-3	2834E-1	N/A	2834D-1, 2834D-2	2834G-1	2834F-1
<b>BSMI</b>					
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
<b>VCCI</b>					
A-0029	A-0109	N/A	A-0108	A-0201	A-0110
<b>Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRR, MIC, MOC, NCC, OFCA</b>					
US0158	US0175	N/A	US0017	US0191	US0157



# PRODUCT DESCRIPTION

## Client and Equipment Under Test (EUT) Information

<b>Company Name:</b>	LightSPEED Technologies, Inc.
<b>Address:</b>	11509 SW Herman Road
<b>City, State, Zip:</b>	Tualatin, OR 97062
<b>Test Requested By:</b>	Dave Jordahl
<b>Model:</b>	Flexcat Remote
<b>First Date of Test:</b>	December 28, 2015
<b>Last Date of Test:</b>	February 04, 2016
<b>Receipt Date of Samples:</b>	December 02, 2015
<b>Equipment Design Stage:</b>	Production
<b>Equipment Condition:</b>	No Damage

## Information Provided by the Party Requesting the Test

### Functional Description of the EUT:

This is a remote control/bridge that can send control signals to our base unit through Zigbee RF4CE interface. It also allows a BLE device to connect through this remote. The remote receives the command from BLE and retransmits via Zigbee RF4CE to our base unit. It also allows a BLE device to connect through this remote. The remote receives the command from BLE and retransmits via Zigbee RF4CE to our base unit.

### Testing Objective:

To demonstrate compliance of the Bluetooth radio to FCC 15.247 requirements.

# CONFIGURATIONS

## Configuration LITS0026- 2

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
RF remote	LightSPEED Technologies, Inc.	334-0041-00	AC-FCHC1-D(BP)-151201-0002

## Configuration LITS0026- 6

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
RF remote (BTLE)	LightSPEED Technologies, Inc.	334-0041-00	AC-FCHRC1-31014-0002

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
AC/DC Adapter	CUI Inc.	SWI5-5-N-I38	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
USB Cable	Yes	0.9m	No	RF Remote	AC/DC Adapter

## Configuration LITS0026- 7

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
RF remote (BTLE)	LightSPEED Technologies, Inc.	334-0041-00	AC-FCHRC1-31014-0002



# MODIFICATIONS

## Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	12/15/2015	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	12/28/2015	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	12/28/2015	Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	12/28/2015	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	12/28/2015	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
6	01/08/2016	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
7	02/04/2016	AC Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

# Duty Cycle

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 DESCRIPTION**

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The Duty Cycle (x) of the single channel operation of the radio as controlled by the provided test software was measured for each of the EUT operating modes.

There is no compliance requirement to be met by this test, so therefore no Pass / Fail criteria.

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 test software provided for operation in a fixed, single channel mode allows the EUT to operate continuously at 100% Duty Cycle.

# OCCUPIED BANDWIDTH

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.	Interval (mo)
Cable	ESM Cable Corp.	TT	EV1	NCR	0
Attenuator	S.M. Electronics	SA26B-20	AJY	7/14/2015	12
Block - DC	Fairview Microwave	SD3379	AMP	6/18/2015	12
Attenuator	S.M. Electronics	SA18N-06/SM4032	REE	10/1/2015	12
Meter - Power	Gigatronics	8651A	SPM	5/25/2015	12
Power Sensor	Gigatronics	80701A	SPL	5/25/2015	12
Generator - Signal	Keysight	5182B	TFU	NCR	0
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAQ	3/10/2015	12


## TEST DESCRIPTION

The 6dB occupied bandwidth was measured using 100 kHz resolution bandwidth and 300 kHz video bandwidth. The EUT was set to the channels and mode listed in the datasheet. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer.

# OCCUPIED BANDWIDTH

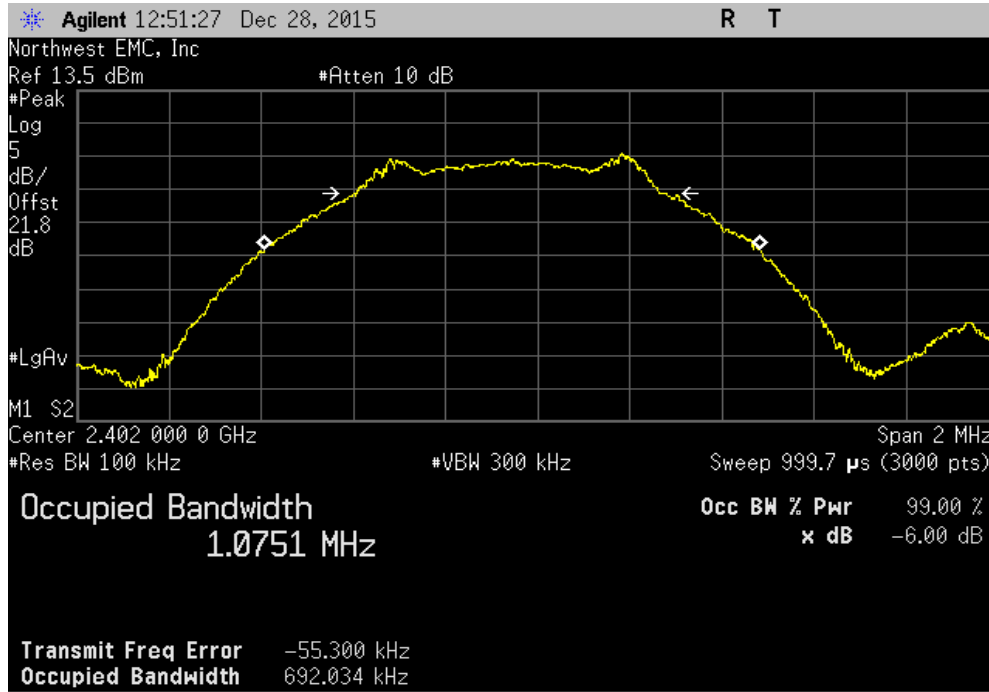


XMR 2015.01.14

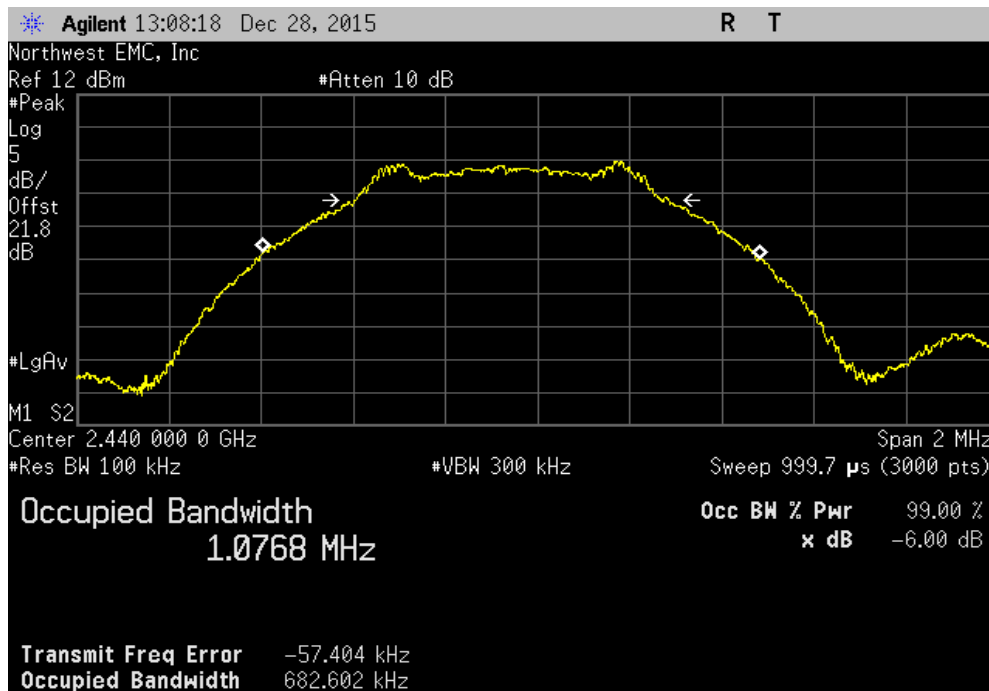
EUT: Flexcat Remote		Work Order: LITS0026
Serial Number: AC-FCHC1-D(BP)-151201-0002		Date: 12/28/15
Customer: LightSPEED Technologies, Inc.		Temperature: 22°C
Attendees: None		Humidity: 33%
Project: None		Barometric Pres.: 1019.9 mbar
Tested by: Brandon Hobbs	Power: Battery (2.4 VDC Nominal)	Job Site: EV06
TEST SPECIFICATIONS		
FCC 15.247:2015		Test Method: ANSI C63.10:2013
COMMENTS		
The product is a BTLE device operating at 100% duty cycle.		
DEVIATIONS FROM TEST STANDARD		
Configuration #	2	Signature 
		Value Limit (±) Result
Low Channel, 2402 MHz		692.034 kHz 500 kHz Pass
Mid Channel, 2440 MHz		682.602 kHz 500 kHz Pass
High Channel, 2480 MHz		676.113 kHz 500 kHz Pass

# OCCUPIED BANDWIDTH

Low Channel, 2402 MHz				Value	Limit	Result
				692.034 kHz	500 kHz	Pass

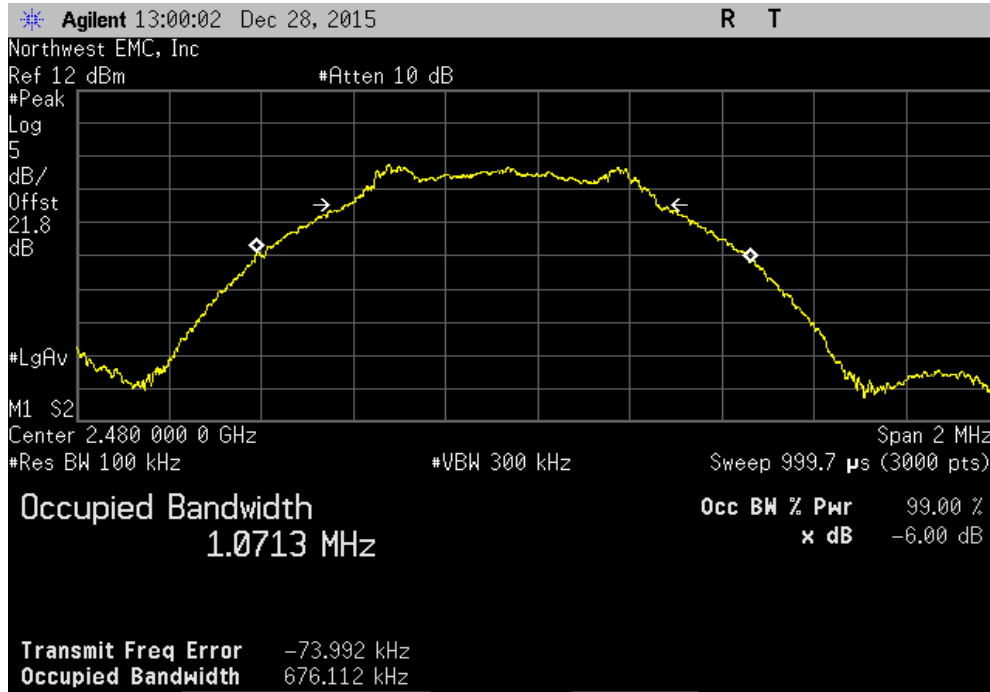


Mid Channel, 2440 MHz				Value	Limit	Result
				682.602 kHz	500 kHz	Pass



# OCCUPIED BANDWIDTH

High Channel, 2480 MHz			Value	Limit	Result
			(≥)		
			676.113 kHz	500 kHz	Pass



# OUTPUT POWER



XMIT 2015.01.14

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.	Interval (mo)
Meter - Power	Gigatronics	8651A	SPM	5/25/2015	12
Power Sensor	Gigatronics	80701A	SPL	5/25/2015	12
Attenuator	S.M. Electronics	SA18N-06/SM4032	REE	10/1/2015	12
Generator - Signal	Keysight	5182B	TFU	NCR	0
Cable	ESM Cable Corp.	TT	EV1	NCR	0
Attenuator	S.M. Electronics	SA26B-20	AUY	7/14/2015	12
Block - DC	Fairview Microwave	SD3379	AMP	6/18/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAQ	3/10/2015	12

## TEST DESCRIPTION


The transmit frequency was set to the required channels in each band. 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 reference level offset on the spectrum analyzer was adjusted to compensate for cable loss and the external attenuation used between the RF output and the spectrum analyzer input.

Prior to measuring peak transmit power the DTS bandwidth (B) and the transmission pulse duration (T) were measured. Both are required to determine the method of measuring Maximum Conducted Output Power. The transmission pulse duration (T) was measured using a zero span on the spectrum analyzer to see the pulses in the time domain.

The method found in ANSI C63.10:2013 Section 11.10.2 was used because the RBW on the analyzer was greater than the DTS Bandwidth of the radio..

**De Facto EIRP Limit:** Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +36 dBm.

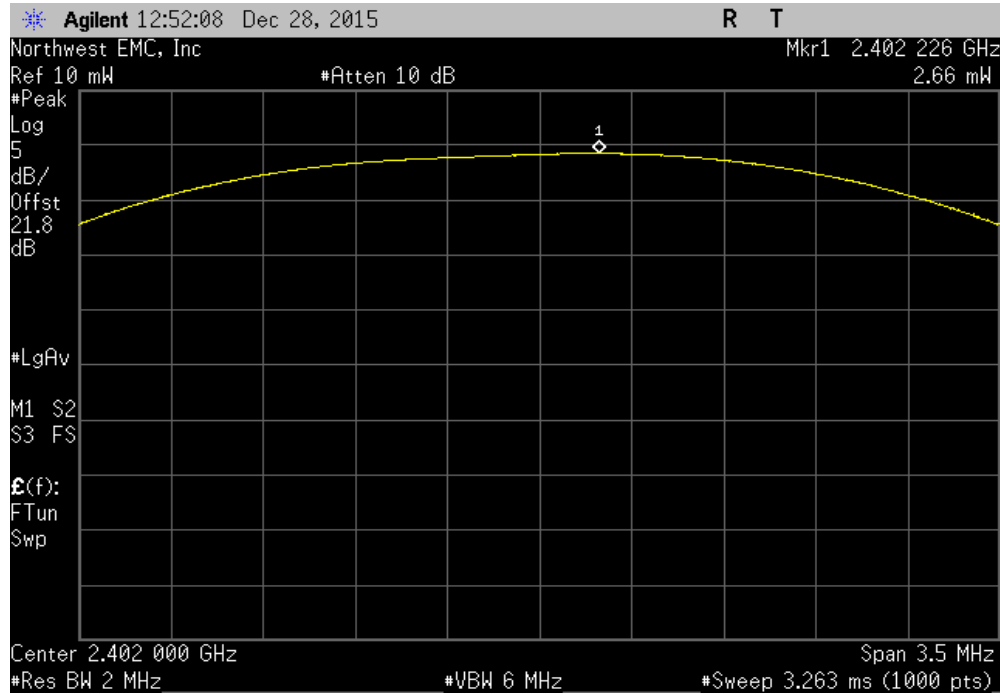
# OUTPUT POWER

EUT: Flexcat Remote		Work Order: LITS0026	
Serial Number: AC-FCHC1-D(BP)-151201-0002		Date: 12/28/15	
Customer: LightSPEED Technologies, Inc.		Temperature: 22°C	
Attendees: None		Humidity: 33%	
Project: None		Barometric Pres.: 1019.9 mbar	
Tested by: Brandon Hobbs		Power: Battery (2.4 VDC Nominal)	
		Job Site: EV06	
TEST SPECIFICATIONS			
FCC 15.247:2015		ANSI C63.10:2013	
TEST Method			
COMMENTS			
The product is a BTLE device operating at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
Configuration #	2	Signature 	
		Value	Limit (<)
Low Channel, 2402 MHz		2.656 mW	1 W
Mid Channel, 2440 MHz		1.803 mW	1 W
High Channel, 2480 MHz		1.374 mW	1 W
			Result
			Pass
			Pass
			Pass

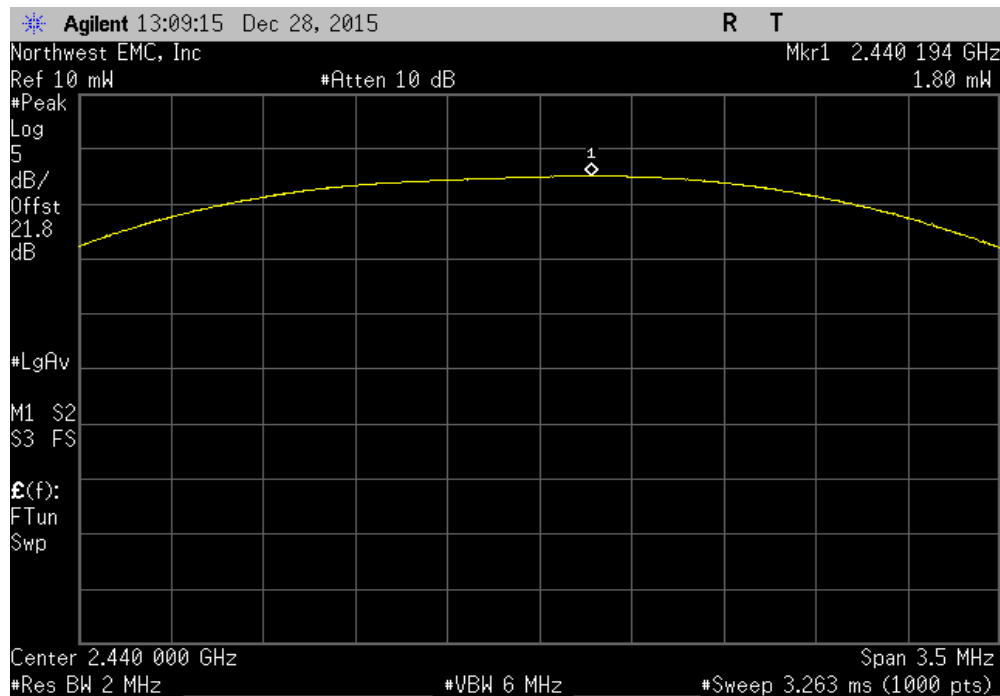


# OUTPUT POWER

Low Channel, 2402 MHz		
Value	Limit (<)	Result
2.656 mW	1 W	Pass

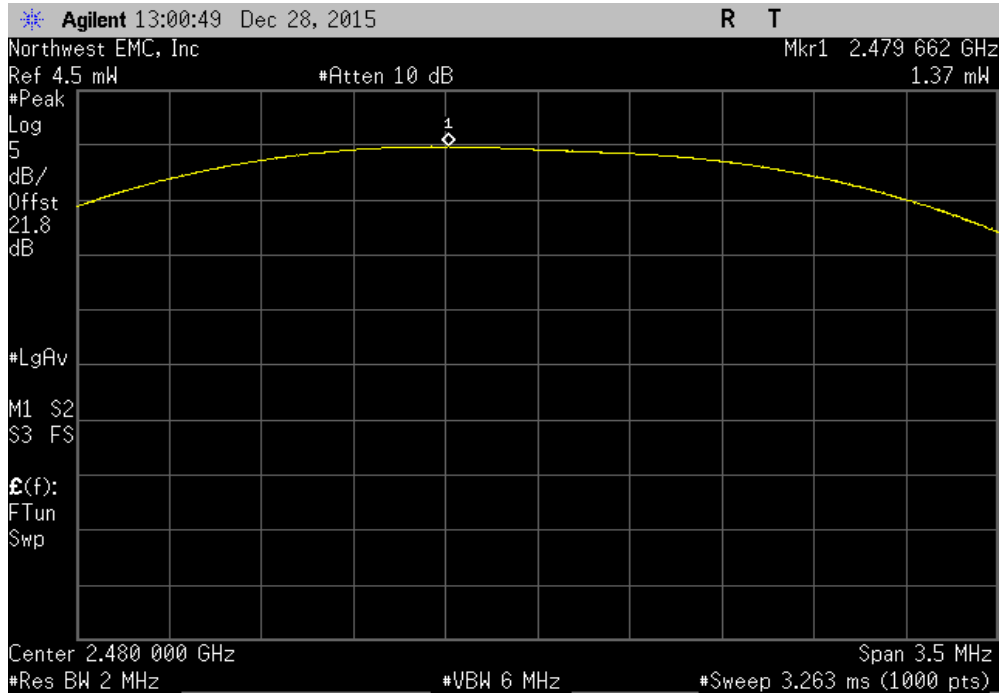


Mid Channel, 2440 MHz		
Value	Limit (<)	Result
1.803 mW	1 W	Pass



# OUTPUT POWER

High Channel, 2480 MHz			
	Value	Limit (<)	Result
	1.374 mW	1 W	Pass



# POWER SPECTRAL DENSITY



XMit 2015.01.14

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.	Interval (mo)
Meter - Power	Gigatronics	8651A	SPM	5/25/2015	12
Power Sensor	Gigatronics	80701A	SPL	5/25/2015	12
Attenuator	S.M. Electronics	SA18N-06/SM4032	REE	10/1/2015	12
Generator - Signal	Keysight	5182B	TFU	NCR	0
Cable	ESM Cable Corp.	TT	EV1	NCR	0
Attenuator	S.M. Electronics	SA26B-20	AUY	7/14/2015	12
Block - DC	Fairview Microwave	SD3379	AMP	6/18/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAQ	3/10/2015	12


## TEST DESCRIPTION

The maximum power spectral density measurements was measured using the channels and modes as called out on the following data sheets.

A direct connection was made between the RF output of the EUT and a spectrum analyzer. External attenuation and a DC block were used. The reference level offset on the spectrum analyzer was adjusted to compensate for cable loss and the external attenuation used between the RF output and the spectrum analyzer input.

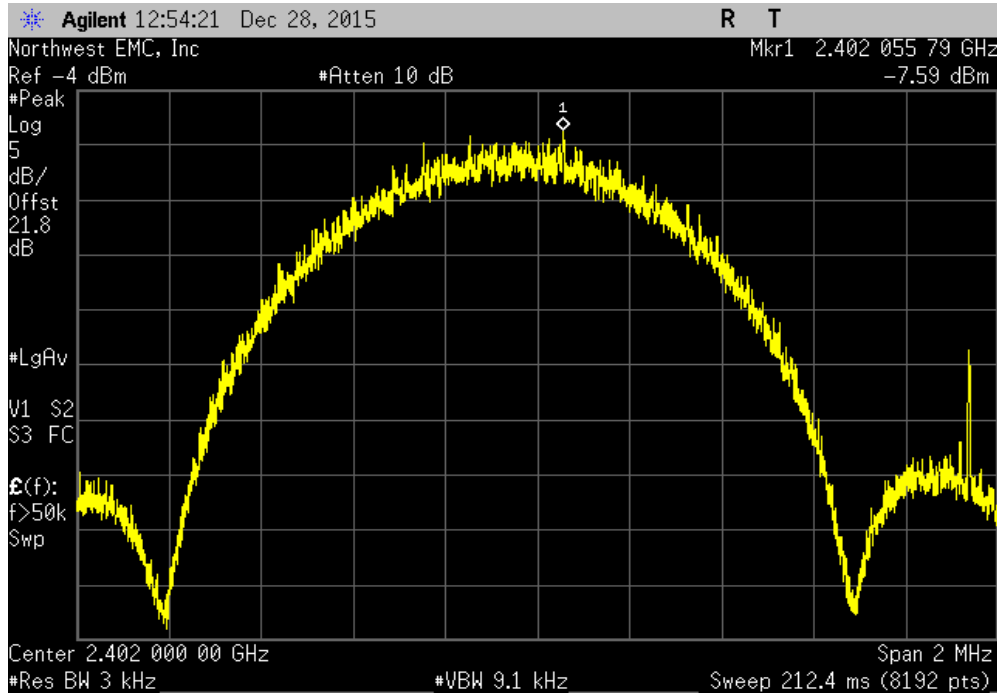
Per the procedure outlined in ANSI C63.10 the peak power spectral density was measured in a 3 kHz RBW.

# POWER SPECTRAL DENSITY

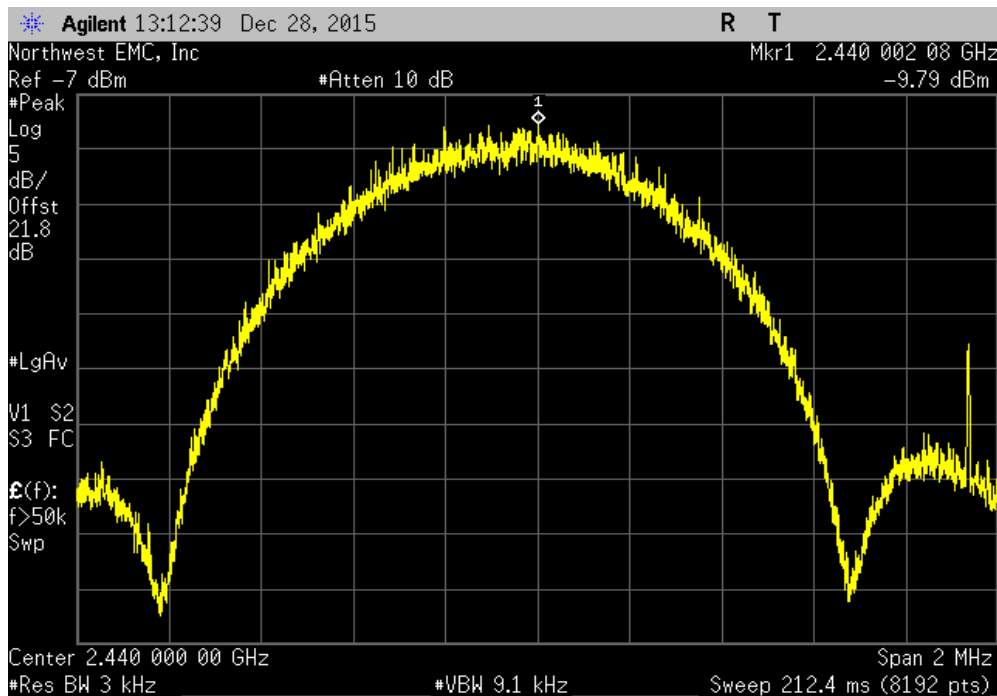
EUT: Flexcat Remote		Work Order: LITS0026	
Serial Number: AC-FCHC1-D(BP)-151201-0002		Date: 12/28/15	
Customer: LightSPEED Technologies, Inc.		Temperature: 22°C	
Attendees: None		Humidity: 33%	
Project: None		Barometric Pres.: 1019.9 mbar	
Tested by: Brandon Hobbs		Power: Battery (2.4 VDC Nominal)	
		Job Site: EV06	
TEST SPECIFICATIONS			
FCC 15.247:2015		ANSI C63.10:2013	
TEST Method			
COMMENTS			
The product is a BTLE device operating at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
Configuration #	2	Signature 	
		Value	Limit
		dBm/3kHz	< dBm/3kHz
Low Channel, 2402 MHz		-7.59	8
Mid Channel, 2440 MHz		-9.79	8
High Channel, 2480 MHz		-10.996	8
			Results
			Pass
			Pass
			Pass

# POWER SPECTRAL DENSITY

Low Channel, 2402 MHz			
	Value dBm/3kHz	Limit < dBm/3kHz	Results
	-7.59	8	Pass

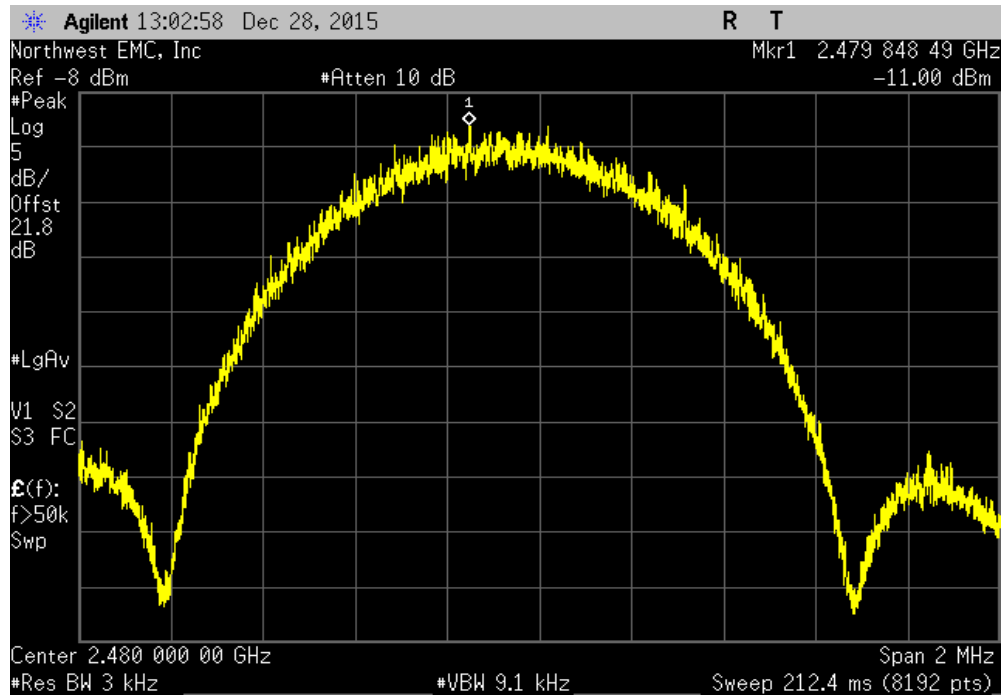


Mid Channel, 2440 MHz			
	Value dBm/3kHz	Limit < dBm/3kHz	Results
	-9.79	8	Pass



# POWER SPECTRAL DENSITY

High Channel, 2480 MHz				Value	Limit	Results
				dBm/3kHz	< dBm/3kHz	
				-10.996	8	Pass



# BAND EDGE COMPLIANCE

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.	Interval (mo)
Meter - Power	Gigatronics	8651A	SPM	5/25/2015	12
Power Sensor	Gigatronics	80701A	SPL	5/25/2015	12
Attenuator	S.M. Electronics	SA18N-06/SM4032	REE	10/1/2015	12
Generator - Signal	Keysight	5182B	TFU	NCR	0
Cable	ESM Cable Corp.	TT	EV1	NCR	0
Attenuator	S.M. Electronics	SA26B-20	AUY	7/14/2015	12
Block - DC	Fairview Microwave	SD3379	AMP	6/18/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAQ	3/10/2015	12

## TEST DESCRIPTION


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 measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate listed in the datasheet.

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

# BAND EDGE COMPLIANCE



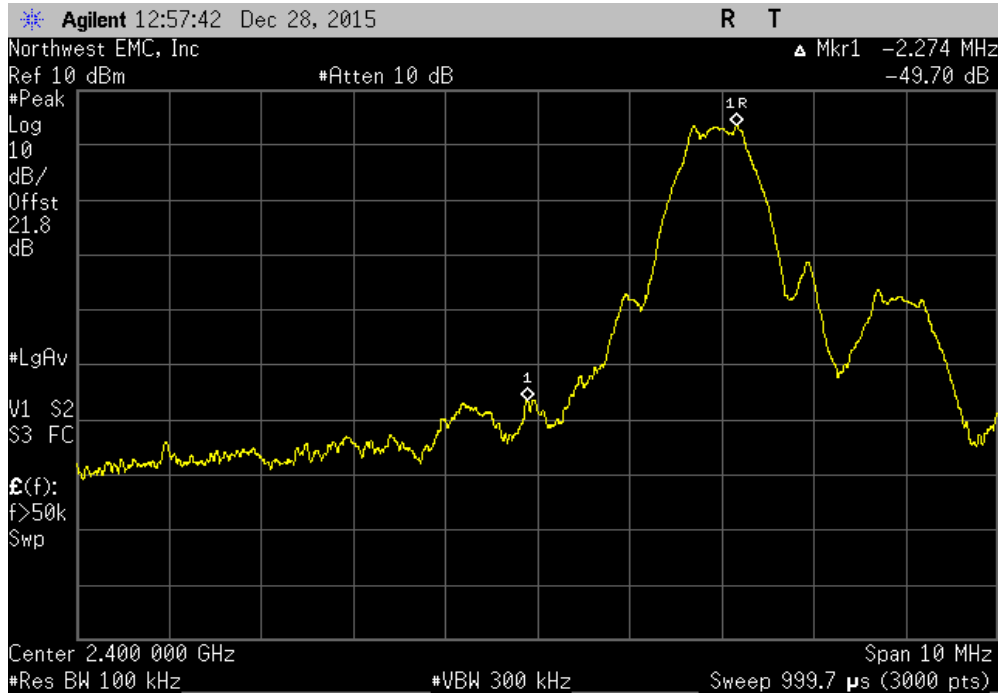
XMR 2015.01.14

EUT: Flexcat Remote		Work Order: LITS0026	
Serial Number: AC-FCHC1-D(BP)-151201-0002		Date: 12/28/15	
Customer: LightSPEED Technologies, Inc.		Temperature: 22°C	
Attendees: None		Humidity: 33%	
Project: None		Barometric Pres.: 1019.9 mbar	
Tested by: Brandon Hobbs		Power: Battery (2.4 VDC Nominal)	
		Job Site: EV06	
TEST SPECIFICATIONS			
FCC 15.247:2015		ANSI C63.10:2013	
TEST METHOD			
COMMENTS			
The product is a BTLE device operating at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
Configuration #	2	Signature 	
		Value (dBc)	Limit ≤ (dBc) Result
Low Channel, 2402 MHz		-49.7	-20 Pass
High Channel, 2480 MHz		-56.37	-20 Pass

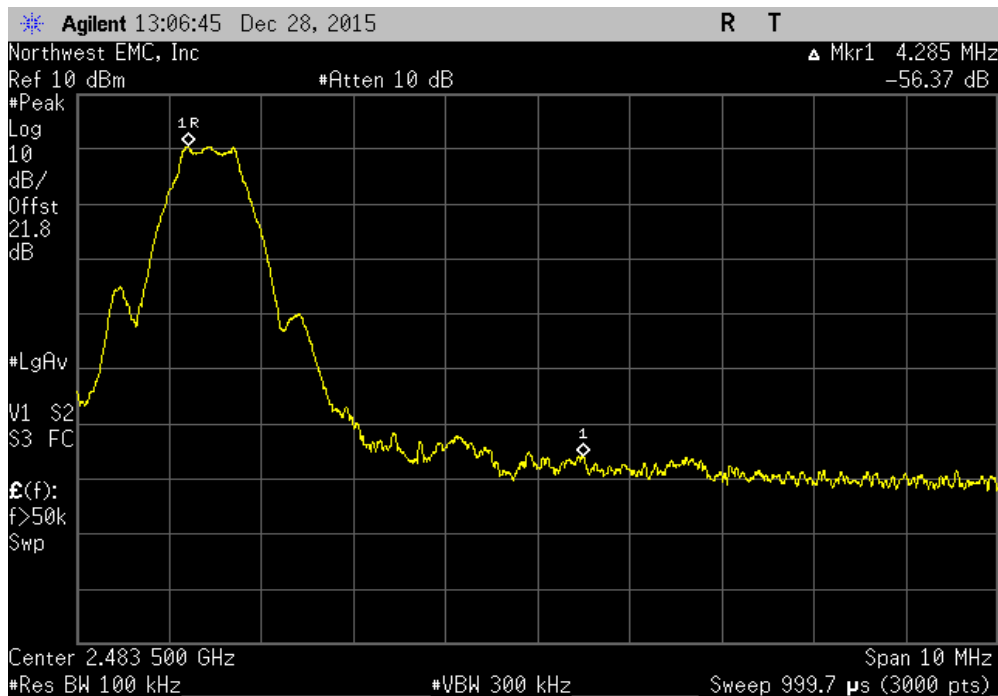


# BAND EDGE COMPLIANCE

Low Channel, 2402 MHz				Value (dBc)	Limit ≤ (dBc)	Result
				-49.7	-20	Pass



High Channel, 2480 MHz				Value (dBc)	Limit ≤ (dBc)	Result
				-56.37	-20	Pass



# SPURIOUS CONDUCTED EMISSIONS

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.	Interval (mo)
Attenuator	S.M. Electronics	SA18N-06/SM4032	REE	10/1/2015	12
Generator - Signal	Keysight	5182B	TFU	NCR	0
Meter - Power	Gigatronics	8651A	SPM	5/25/2015	12
Power Sensor	Gigatronics	80701A	SPL	5/25/2015	12
Cable	ESM Cable Corp.	TT	EV1	NCR	0
Attenuator	S.M. Electronics	SA26B-20	AUY	7/14/2015	12
Block - DC	Fairview Microwave	SD3379	AMP	6/18/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAQ	3/10/2015	12


## TEST DESCRIPTION

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

# SPURIOUS CONDUCTED EMISSIONS

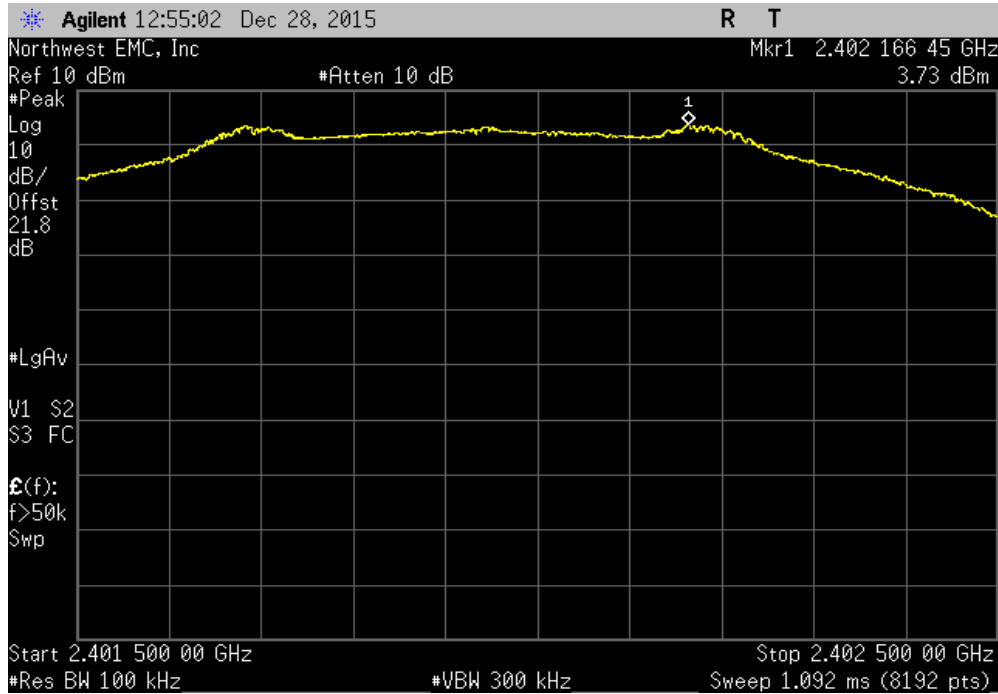


XMR 2015.01.14

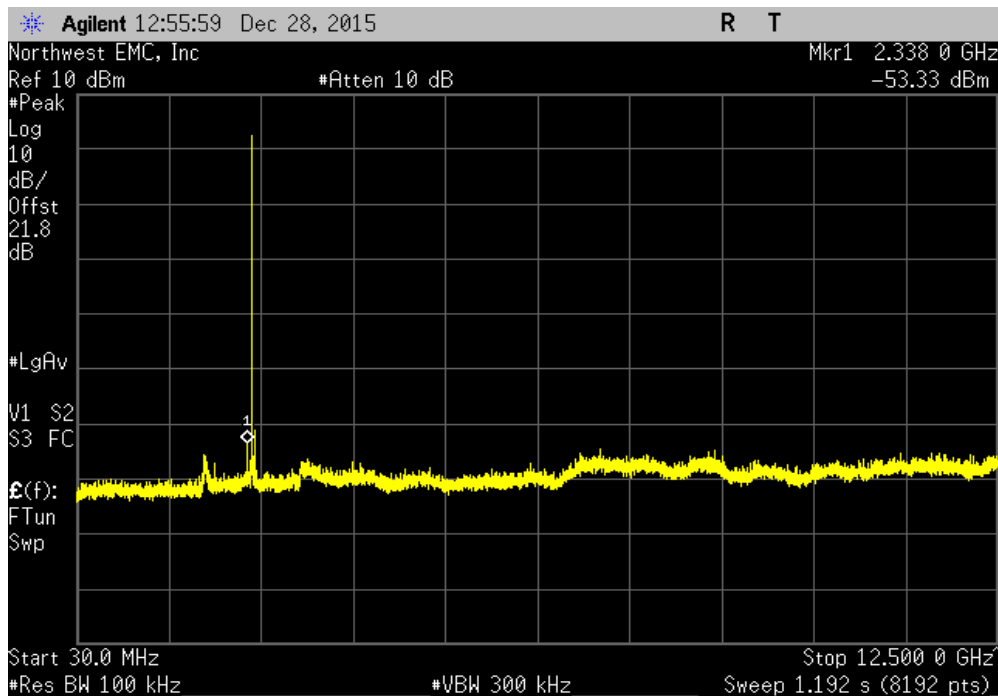
EUT: Flexcat Remote		Work Order: LITS0026			
Serial Number: AC-FCHC1-D(BP)-151201-0002		Date: 12/28/15			
Customer: LightSPEED Technologies, Inc.		Temperature: 22°C			
Attendees: None		Humidity: 33%			
Project: None		Barometric Pres.: 1019.9 mbar			
Tested by: Brandon Hobbs		Power: Battery (2.4 VDC Nominal)			
		Job Site: EV06			
TEST SPECIFICATIONS					
FCC 15.247:2015		ANSI C63.10:2013			
TEST Method					
COMMENTS					
The product is a BTLE device operating at 100% duty cycle.					
DEVIATIONS FROM TEST STANDARD					
Configuration #	2	Signature 			
		Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result
Low Channel, 2402 MHz		Fundamental	N/A	N/A	N/A
Low Channel, 2402 MHz		30 MHz - 12.5 GHz	-57.06	-20	Pass
Low Channel, 2402 MHz		12.5 GHz - 25 GHz	-51.8	-20	Pass
Mid Channel, 2440 MHz		Fundamental	N/A	N/A	N/A
Mid Channel, 2440 MHz		30 MHz - 12.5 GHz	-56.96	-20	Pass
Mid Channel, 2440 MHz		12.5 GHz - 25 GHz	-49.74	-20	Pass
High Channel, 2480 MHz		Fundamental	N/A	N/A	N/A
High Channel, 2480 MHz		30 MHz - 12.5 GHz	-52.17	-20	Pass
High Channel, 2480 MHz		12.5 GHz - 25 GHz	-49.31	-20	Pass

# SPURIOUS CONDUCTED EMISSIONS

Low Channel, 2402 MHz					
Frequency Range		Max Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental		N/A	N/A	N/A	

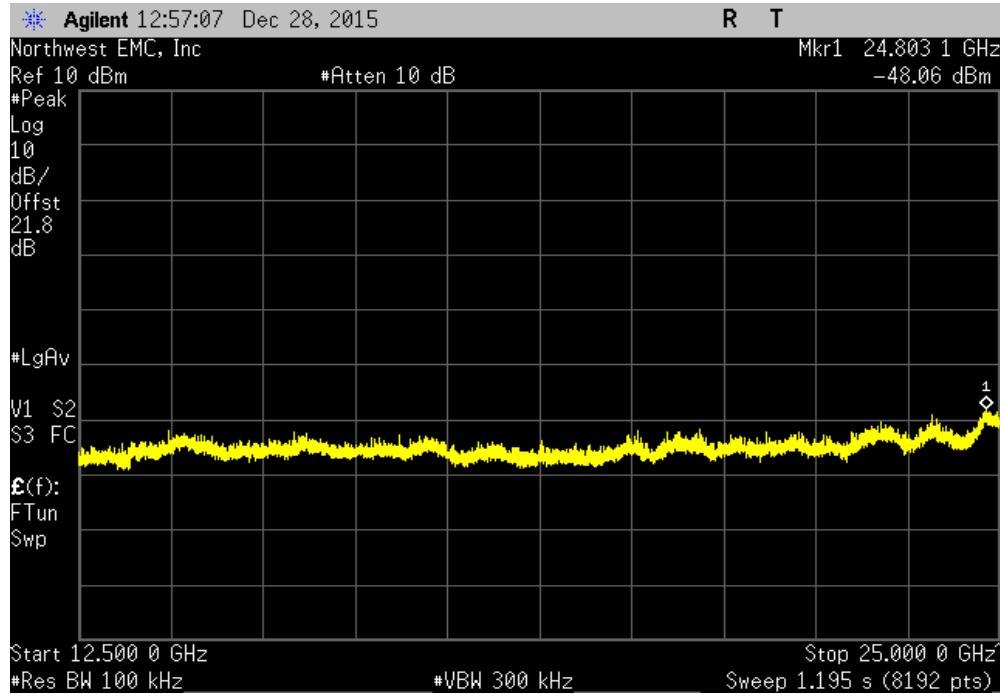


Low Channel, 2402 MHz					
Frequency Range		Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz		-57.06	-20	Pass	

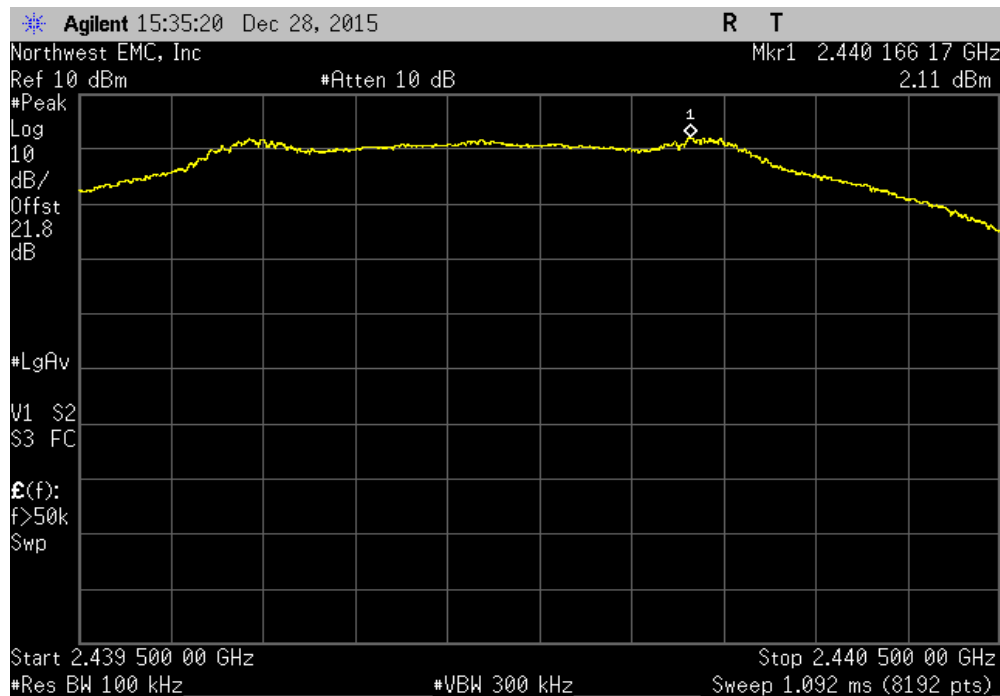


# SPURIOUS CONDUCTED EMISSIONS

Low Channel, 2402 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-51.8	-20	Pass	

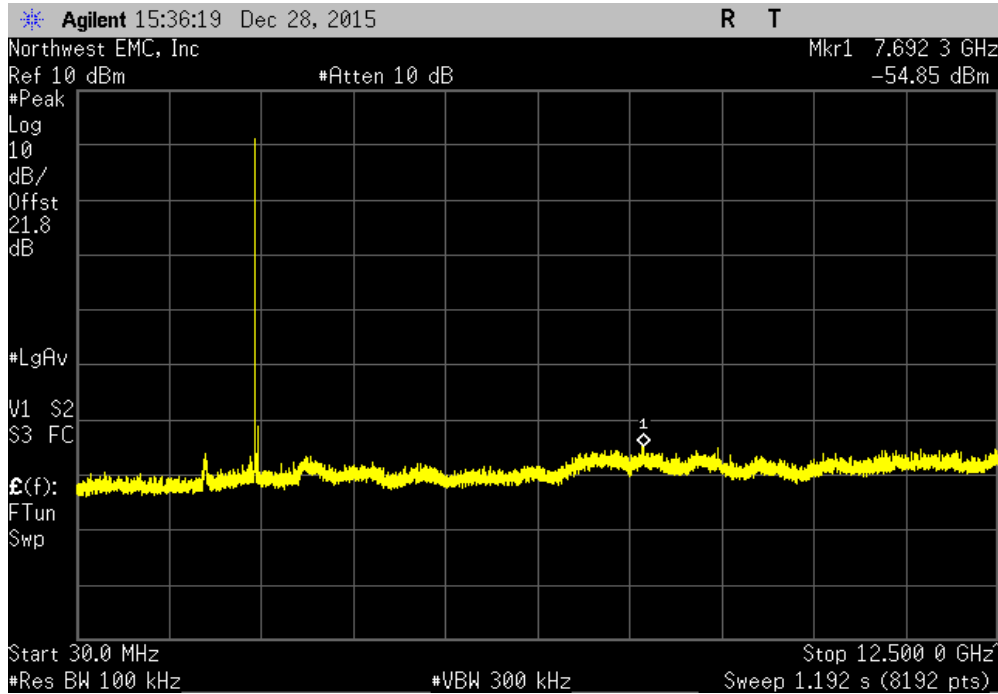


Mid Channel, 2440 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	N/A	N/A	N/A	

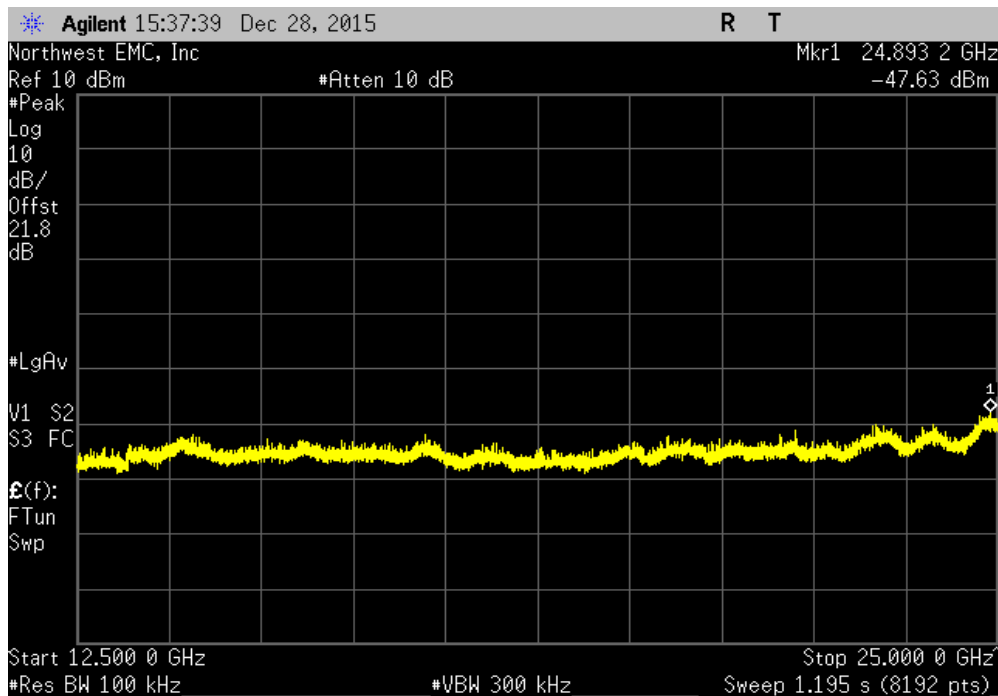


# SPURIOUS CONDUCTED EMISSIONS

Mid Channel, 2440 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-56.96	-20	Pass	

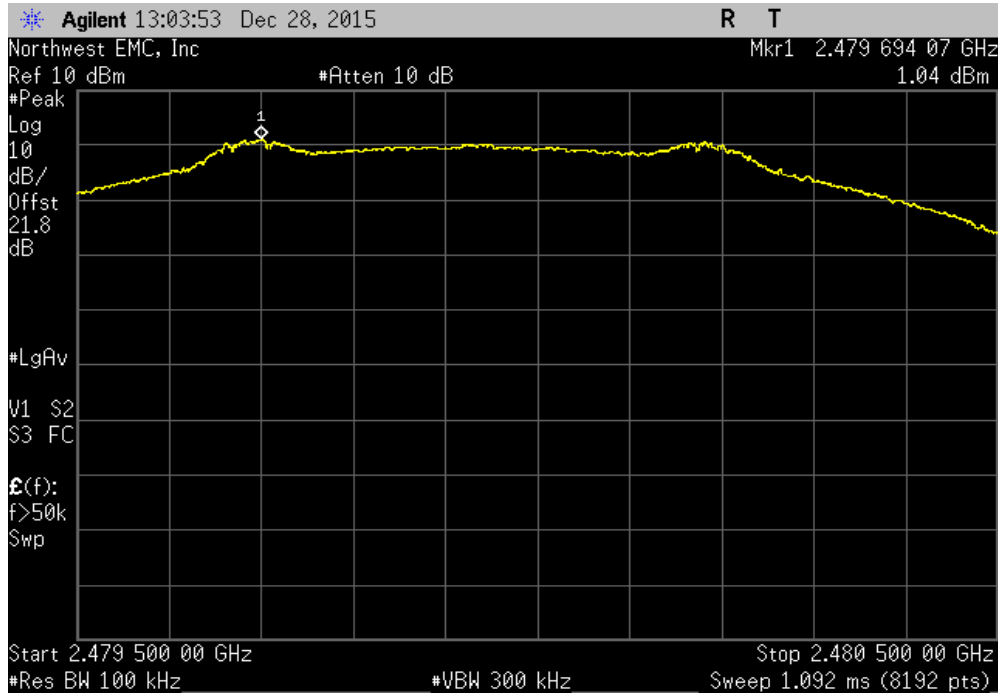


Mid Channel, 2440 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-49.74	-20	Pass	

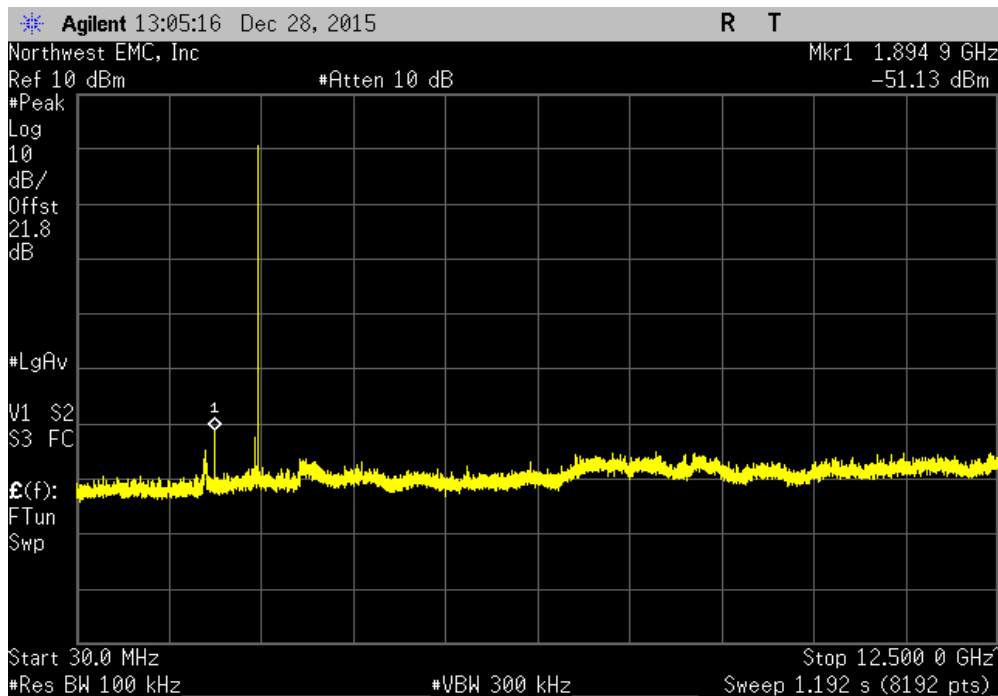


# SPURIOUS CONDUCTED EMISSIONS

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

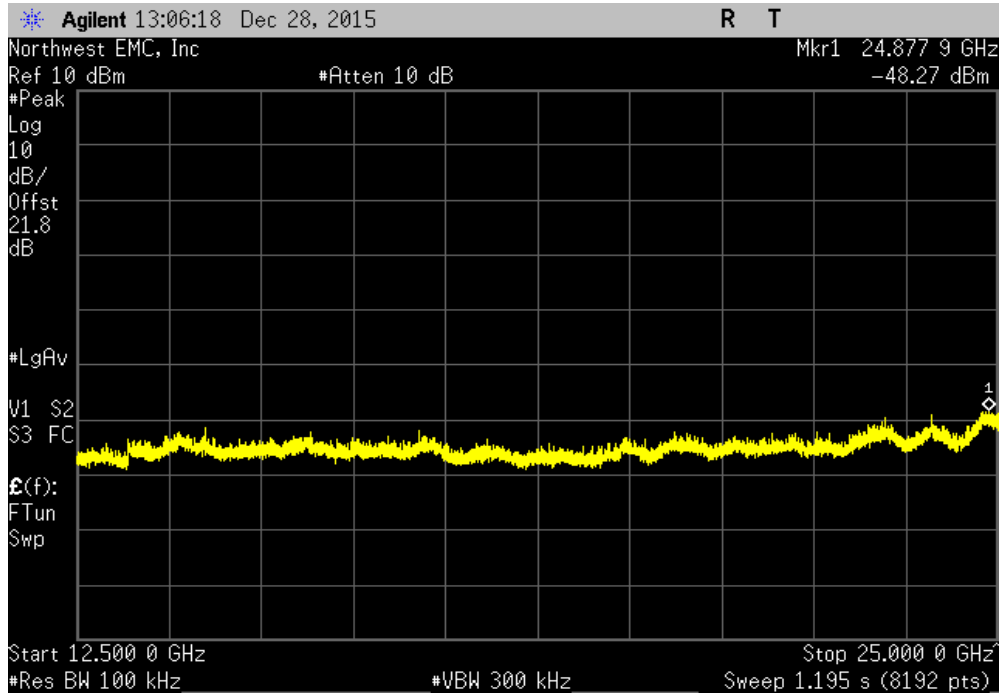


High Channel, 2480 MHz					
Frequency Range		Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz		-52.17	-20	Pass	



# SPURIOUS CONDUCTED EMISSIONS

High Channel, 2480 MHz				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-49.31	-20	Pass	





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

Continuos BTLE Tx, charging

Continuos BTLE Tx, stand alone

## POWER SETTINGS INVESTIGATED

2.4 VDC

## CONFIGURATIONS INVESTIGATED

LITS0026 - 6

LITS0026 - 7

## 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 (mo)
Cable	ESM Cable Corp.	KMKM-72	EVY	11/4/2015	12
Amplifier - Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	11/4/2015	12
Antenna - Standard Gain	ETS Lindgren	3160-09	AIV	NCR	0
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	4/16/2015	12
Antenna - Standard Gain	ETS Lindgren	3160-08	AHV	NCR	0
Cable	None	Standard Gain Horns Cable	EVF	4/20/2015	12
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	4/20/2015	12
Antenna - Standard Gain	ETS Lindgren	3160-07	AHU	NCR	0
Filter - High Pass	Micro-Tronics	HPM50111	HFO	3/31/2015	12
Attenuator	Coaxicom	3910-20	AXZ	5/24/2015	12
Cable	N/A	Double Ridge Horn Cables	EVB	4/16/2015	12
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAG	4/16/2015	12
Antenna - Double Ridge	ETS Lindgren	3115	AIZ	1/27/2014	24
Cable	N/A	Bilog Cables	EVA	2/10/2015	12
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	AOL	2/10/2015	12
Antenna - Biconilog	EMCO	3141	AXE	8/29/2014	24
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	2/10/2015	12

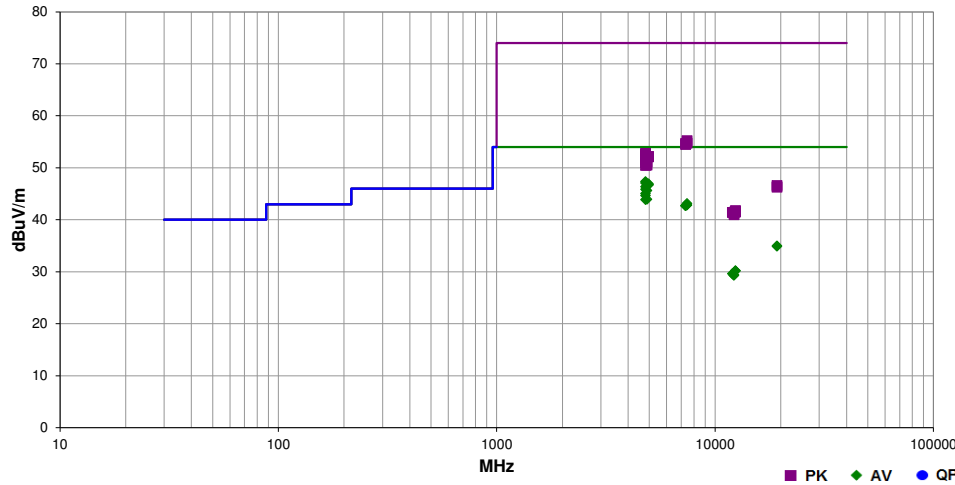
## TEST DESCRIPTION

The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization. A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

<b>Work Order:</b> LITS0026	<b>Date:</b> 01/08/16	
<b>Project:</b> None	<b>Temperature:</b> 22.1 °C	
<b>Job Site:</b> EV01	<b>Humidity:</b> 30.8% RH	
<b>Serial Number:</b> AC-FCHRC1-31014-0002	<b>Barometric Pres.:</b> 1018.4 mbar	<b>Tested by:</b> Cole Ghizzone, Rod Peloquin
<b>EUT:</b> Flexcat Remote		
<b>Configuration:</b> 6, 7		
<b>Customer:</b> LightSPEED Technologies, Inc.		
<b>Attendees:</b> None		
<b>EUT Power:</b> 2.4 VDC		
<b>Operating Mode:</b> Continuous BTLE Tx, reference the data comments for channel, frequency and charging/stand alone.		
<b>Deviations:</b> None		
<b>Comments:</b> See data comments for EUT orientation.		

<b>Test Specifications</b> FCC 15.247:2016	<b>Test Method</b> ANSI C63.10:2013
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<b>Run #</b>	36	<b>Test Distance (m)</b>	3	<b>Antenna Height(s)</b>	1 to 4(m)	<b>Results</b>	Pass
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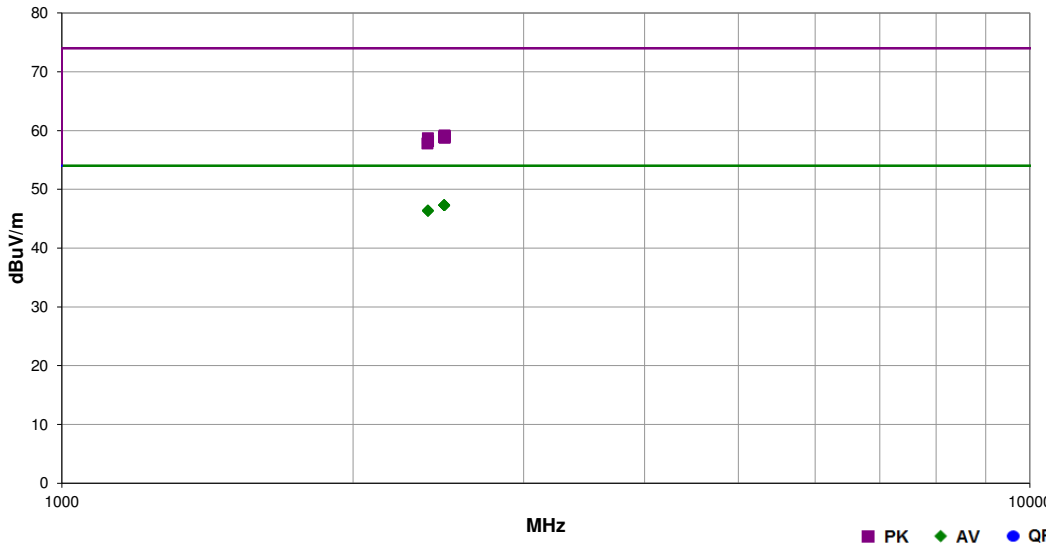
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
4805.850	40.0	7.4	1.0	68.0	3.0	0.0	Horz	AV	0.0	47.4	54.0	-6.6	Low channel, 2402 MHz, charging, EUT Vert
4805.875	39.7	7.4	1.0	54.0	3.0	0.0	Horz	AV	0.0	47.1	54.0	-6.9	Low channel, 2402 MHz, stand alone, EUT Vert
4957.883	39.4	7.5	1.0	52.0	3.0	0.0	Vert	AV	0.0	46.9	54.0	-7.1	High channel, 2480 MHz, charging, EUT Horz
4957.842	39.2	7.5	1.0	71.0	3.0	0.0	Horz	AV	0.0	46.7	54.0	-7.3	High channel, 2480 MHz, charging, EUT Vert
4957.842	39.2	7.5	1.0	60.0	3.0	0.0	Vert	AV	0.0	46.7	54.0	-7.3	High channel, 2480 MHz, stand alone, EUT Horz
4805.892	39.0	7.4	1.0	254.0	3.0	0.0	Vert	AV	0.0	46.4	54.0	-7.6	Low channel, 2402 MHz, charging, EUT Horz
4805.825	38.5	7.4	1.0	201.0	3.0	0.0	Horz	AV	0.0	45.9	54.0	-8.1	Low channel, 2402 MHz, charging, EUT Horz
4881.825	38.2	7.4	1.0	52.0	3.0	0.0	Vert	AV	0.0	45.6	54.0	-8.4	Mid channel, 2442 MHz, charging, EUT Horz
4805.850	37.7	7.4	1.0	70.0	3.0	0.0	Vert	AV	0.0	45.1	54.0	-8.9	Low channel, 2402 MHz, charging, EUT On Side
4805.917	37.3	7.4	1.0	34.0	3.0	0.0	Vert	AV	0.0	44.7	54.0	-9.3	Low channel, 2402 MHz, charging, EUT Vert
4881.892	36.5	7.4	1.0	70.0	3.0	0.0	Horz	AV	0.0	43.9	54.0	-10.1	Mid channel, 2442 MHz, charging, EUT Vert
4805.825	36.5	7.4	1.0	182.0	3.0	0.0	Horz	AV	0.0	43.9	54.0	-10.1	Low channel, 2402 MHz, charging, EUT On Side
7439.250	27.7	15.4	1.0	159.0	3.0	0.0	Vert	AV	0.0	43.1	54.0	-10.9	High channel, 2480 MHz, charging, EUT Horz
7439.700	27.4	15.4	1.0	345.0	3.0	0.0	Horz	AV	0.0	42.8	54.0	-11.2	High channel, 2480 MHz, charging, EUT Vert
7327.150	27.5	15.2	1.0	208.0	3.0	0.0	Horz	AV	0.0	42.7	54.0	-11.3	Mid channel, 2442 MHz, charging, EUT Vert
7325.917	27.5	15.2	1.0	24.0	3.0	0.0	Vert	AV	0.0	42.7	54.0	-11.3	Mid channel, 2442 MHz, charging, EUT Horz
7440.550	39.8	15.4	1.0	159.0	3.0	0.0	Vert	PK	0.0	55.2	74.0	-18.8	High channel, 2480 MHz, charging, EUT Horz
19214.630	34.3	0.7	1.5	356.0	3.0	0.0	Vert	AV	0.0	35.0	54.0	-19.0	Low channel, 2402 MHz, charging, EUT Horz
19214.250	34.2	0.7	1.5	168.0	3.0	0.0	Horz	AV	0.0	34.9	54.0	-19.1	Low channel, 2402 MHz, charging, EUT Vert
7439.658	39.3	15.4	1.0	345.0	3.0	0.0	Horz	PK	0.0	54.7	74.0	-19.3	High channel, 2480 MHz, charging, EUT Vert
7325.850	39.5	15.2	1.0	24.0	3.0	0.0	Vert	PK	0.0	54.7	74.0	-19.3	Mid channel, 2442 MHz, charging, EUT Horz
7326.283	39.3	15.2	1.0	208.0	3.0	0.0	Horz	PK	0.0	54.5	74.0	-19.5	Mid channel, 2442 MHz, charging, EUT Vert
4806.008	45.4	7.4	1.0	68.0	3.0	0.0	Horz	PK	0.0	52.8	74.0	-21.2	Low channel, 2402 MHz, charging, EUT Vert
4805.625	45.3	7.4	1.0	54.0	3.0	0.0	Horz	PK	0.0	52.7	74.0	-21.3	Low channel, 2402 MHz, stand alone, EUT Vert
4805.575	44.9	7.4	1.0	254.0	3.0	0.0	Vert	PK	0.0	52.3	74.0	-21.7	Low channel, 2402 MHz, charging, EUT Horz
4957.967	44.6	7.5	1.0	52.0	3.0	0.0	Vert	PK	0.0	52.1	74.0	-21.9	High channel, 2480 MHz, charging, EUT Horz
4957.942	44.6	7.5	1.0	60.0	3.0	0.0	Vert	PK	0.0	52.1	74.0	-21.9	High channel, 2480 MHz, stand alone, EUT Horz
4957.858	44.6	7.5	1.0	71.0	3.0	0.0	Horz	PK	0.0	52.1	74.0	-21.9	High channel, 2480 MHz, charging, EUT Vert
4805.942	44.2	7.4	1.0	201.0	3.0	0.0	Horz	PK	0.0	51.6	74.0	-22.4	Low channel, 2402 MHz, charging, EUT Horz
4805.808	44.2	7.4	1.0	70.0	3.0	0.0	Vert	PK	0.0	51.6	74.0	-22.4	Low channel, 2402 MHz, charging, EUT On Side
4881.842	43.7	7.4	1.0	52.0	3.0	0.0	Vert	PK	0.0	51.1	74.0	-22.9	Mid channel, 2442 MHz, charging, EUT Horz
4806.033	43.6	7.4	1.0	34.0	3.0	0.0	Vert	PK	0.0	51.0	74.0	-23.0	Low channel, 2402 MHz, charging, EUT Vert
4881.817	43.1	7.4	1.0	70.0	3.0	0.0	Horz	PK	0.0	50.5	74.0	-23.5	Mid channel, 2442 MHz, charging, EUT Vert
4805.933	43.1	7.4	1.0	182.0	3.0	0.0	Horz	PK	0.0	50.5	74.0	-23.5	Low channel, 2402 MHz, charging, EUT On Side
12399.430	28.3	1.9	2.6	115.0	3.0	0.0	Vert	AV	0.0	30.2	54.0	-23.8	High channel, 2480 MHz, charging, EUT Horz
12399.280	28.3	1.9	1.5	134.0	3.0	0.0	Horz	AV	0.0	30.2	54.0	-23.8	High channel, 2480 MHz, charging, EUT Vert
12008.100	29.5	0.1	1.0	243.0	3.0	0.0	Horz	AV	0.0	29.6	54.0	-24.4	Low channel, 2402 MHz, charging, EUT Vert
12207.600	28.2	1.2	1.0	43.0	3.0	0.0	Vert	AV	0.0	29.4	54.0	-24.6	Mid channel, 2442 MHz, charging, EUT Horz
12207.520	28.2	1.2	1.0	166.0	3.0	0.0	Horz	AV	0.0	29.4	54.0	-24.6	Mid channel, 2442 MHz, charging, EUT Vert
12197.830	28.2	1.1	1.0	35.0	3.0	0.0	Vert	AV	0.0	29.3	54.0	-24.7	Low channel, 2402 MHz, charging, EUT Horz
19213.760	45.9	0.7	1.5	356.0	3.0	0.0	Vert	PK	0.0	46.6	74.0	-27.4	Low channel, 2402 MHz, charging, EUT Horz
19215.870	45.6	0.7	1.5	168.0	3.0	0.0	Horz	PK	0.0	46.3	74.0	-27.7	Low channel, 2402 MHz, charging, EUT Vert
12399.870	39.9	1.9	1.5	134.0	3.0	0.0	Horz	PK	0.0	41.8	74.0	-32.2	High channel, 2480 MHz, charging, EUT Vert
12398.990	39.6	1.9	2.6	115.0	3.0	0.0	Vert	PK	0.0	41.5	74.0	-32.5	High channel, 2480 MHz, stand alone, EUT Horz
12208.730	40.3	1.2	1.0	166.0	3.0	0.0	Horz	PK	0.0	41.5	74.0	-32.5	Mid channel, 2442 MHz, charging, EUT Vert
12008.270	41.3	0.1	1.0	243.0	3.0	0.0	Horz	PK	0.0	41.4	74.0	-32.6	Low channel, 2402 MHz, charging, EUT Vert
12201.890	40.2	1.1	1.0	35.0	3.0	0.0	Vert	PK	0.0	41.3	74.0	-32.7	Low channel, 2402 MHz, charging, EUT Horz
12212.130	39.8	1.2	1.0	43.0	3.0	0.0	Vert	PK	0.0	41.0	74.0	-33.0	Mid channel, 2442 MHz, charging, EUT Horz

## SPURIOUS RADIATED EMISSIONS

Work Order:	LITS0026	Date:	01/08/16	
Project:	None	Temperature:	22.1 °C	
Job Site:	EV01	Humidity:	30.8% RH	
Serial Number:	AC-FCHRC1-31014-0002	Barometric Pres.:	1018.4 mbar	
EUT: Flexcat Remote				
Configuration: 6, 7				
Customer: LightSPEED Technologies, Inc.				
Attendees: None				
EUT Power: 2.4 VDC				
Operating Mode:	Continuous BTLE Tx, reference the data comments for channel, frequency and charging/stand alone.			
Deviations:	None			
Comments:	See data comments for EUT orientation.			

Test Specifications	Test Method
FCC 15.247:2016	ANSI C63.10:2013

Run #	39	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2484.700	30.3	-3.0	1.0	209.0	3.0	20.0	Vert	AV	0.0	47.3	54.0	-6.7	High channel, 2480 MHz, charging, EUT Horz
2484.492	30.3	-3.0	1.0	266.0	3.0	20.0	Horz	AV	0.0	47.3	54.0	-6.7	High channel, 2480 MHz, charging, EUT On Side
2484.175	30.3	-3.0	1.0	152.0	3.0	20.0	Vert	AV	0.0	47.3	54.0	-6.7	High channel, 2480 MHz, charging, EUT On Side
2483.850	30.3	-3.0	2.2	136.0	3.0	20.0	Horz	AV	0.0	47.3	54.0	-6.7	High channel, 2480 MHz, charging, EUT Vert
2483.733	30.3	-3.0	1.0	236.0	3.0	20.0	Horz	AV	0.0	47.3	54.0	-6.7	High channel, 2480 MHz, charging, EUT Horz
2483.700	30.3	-3.0	1.0	112.0	3.0	20.0	Vert	AV	0.0	47.3	54.0	-6.7	High channel, 2480 MHz, charging, EUT Vert
2483.650	30.3	-3.0	4.0	105.0	3.0	20.0	Vert	AV	0.0	47.3	54.0	-6.7	High channel, 2480 MHz, stand alone, EUT Horz
2388.542	29.7	-3.3	1.0	101.0	3.0	20.0	Vert	AV	0.0	46.4	54.0	-7.6	Low channel, 2402 MHz, charging, EUT Horz
2389.808	29.7	-3.3	4.0	316.0	3.0	20.0	Horz	AV	0.0	46.4	54.0	-7.6	Low channel, 2402 MHz, charging, EUT Vert
2389.883	29.6	-3.3	1.0	109.0	3.0	20.0	Vert	AV	0.0	46.3	54.0	-7.7	Low channel, 2402 MHz, stand alone, EUT Horz
2484.867	42.2	-3.0	4.0	105.0	3.0	20.0	Vert	PK	0.0	59.2	54.0	5.2	High channel, 2480 MHz, stand alone, EUT Horz
2486.300	42.1	-3.0	1.0	152.0	3.0	20.0	Vert	PK	0.0	59.1	54.0	5.1	High channel, 2480 MHz, charging, EUT On Side
2484.492	42.0	-3.0	1.0	236.0	3.0	20.0	Horz	PK	0.0	59.0	54.0	5.0	High channel, 2480 MHz, charging, EUT Horz
2484.608	41.9	-3.0	2.2	136.0	3.0	20.0	Horz	PK	0.0	58.9	54.0	4.9	High channel, 2480 MHz, charging, EUT Vert
2484.483	41.9	-3.0	1.0	112.0	3.0	20.0	Vert	PK	0.0	58.9	54.0	4.9	High channel, 2480 MHz, charging, EUT Horz
2483.958	41.9	-3.0	1.0	266.0	3.0	20.0	Horz	PK	0.0	58.9	54.0	4.9	High channel, 2480 MHz, charging, EUT On Side
2486.467	41.8	-3.0	1.0	209.0	3.0	20.0	Vert	PK	0.0	58.8	54.0	4.8	High channel, 2480 MHz, charging, EUT Horz
2388.575	42.0	-3.3	1.0	109.0	3.0	20.0	Vert	PK	0.0	58.7	54.0	4.7	Low channel, 2402 MHz, stand alone, EUT Horz
2389.400	41.5	-3.3	4.0	316.0	3.0	20.0	Horz	PK	0.0	58.2	54.0	4.2	Low channel, 2402 MHz, charging, EUT Vert
2386.317	41.1	-3.3	1.0	101.0	3.0	20.0	Vert	PK	0.0	57.8	54.0	3.8	Low channel, 2402 MHz, charging, EUT Horz

# AC POWERLINE CONDUCTED EMISSIONS

## 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	ESCI	ARH	3/11/2015	3/11/2016
Cable - Conducted Cable Assembly	Northwest EMC	EVG, HHD, RKA	EVGA	5/12/2015	5/12/2016
LISN	Solar Electronics	9252-50-R-24-BNC	LIP	1/27/2015	1/27/2017

## MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.4 dB	-2.4 dB

## CONFIGURATIONS INVESTIGATED

LITS0026-6

## MODES INVESTIGATED

Charging, AC-DC Adapter input voltage 110VAC/60Hz, BTLE set to Tx High Channel.  
Charging, AC-DC Adapter input voltage 110VAC/60Hz, BTLE set to Tx Low Channel.  
Charging, AC-DC Adapter input voltage 110VAC/60Hz, BTLE set to Tx Mid Channel.

# AC POWERLINE CONDUCTED EMISSIONS



WTD:2015.12.01  
PSA-ESCI 2015.07.01, EmIR5 2015.11.06

EUT:	Flexcat Remote	Work Order:	LITS0026
Serial Number:	AC-FCHRC1-31014-0002	Date:	02/04/2016
Customer:	LightSPEED Technologies, Inc.	Temperature:	22°C
Attendees:	None	Relative Humidity:	40%
Customer Project:	None	Bar. Pressure:	1015 mb
Tested By:	Jeff Alcoke	Job Site:	EV07
Power:	5VDC Via AC-DC adapter	Configuration:	LITS0026-6

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2016	ANSI C63.10:2013

## TEST PARAMETERS

Run #:	2	Line:	High Line	Add. Ext. Attenuation (dB):	0
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## COMMENTS

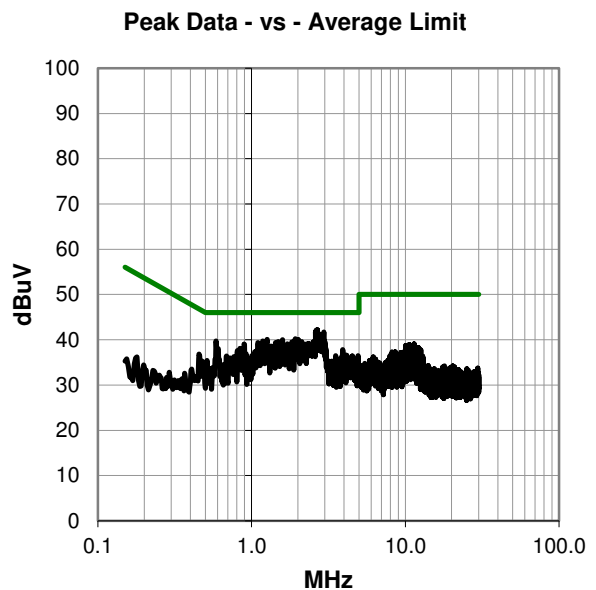
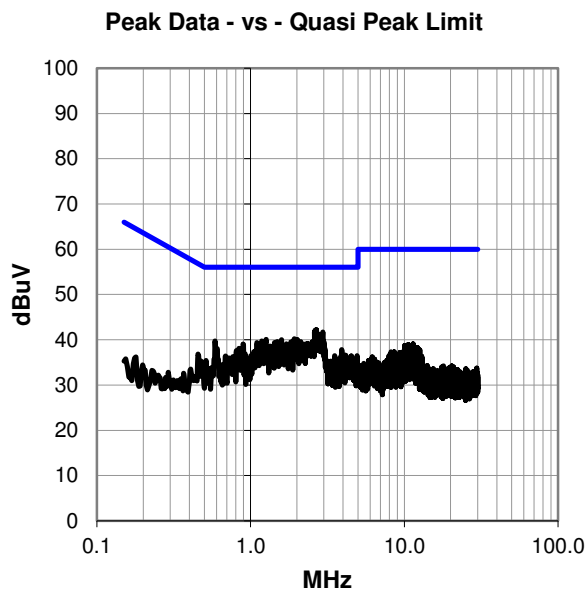
None

## EUT OPERATING MODES

Charging, AC-DC Adapter input voltage 110VAC/60Hz, BTLE set to Tx Low Channel.

## DEVIATIONS FROM TEST STANDARD

None



# AC POWERLINE CONDUCTED EMISSIONS

## RESULTS - Run #2

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
2.679	22.0	20.2	42.2	56.0	-13.8
2.635	21.9	20.2	42.1	56.0	-13.9
2.605	21.5	20.2	41.7	56.0	-14.3
2.944	21.5	20.2	41.7	56.0	-14.3
2.791	21.0	20.2	41.2	56.0	-14.8
2.915	21.0	20.2	41.2	56.0	-14.8
1.922	20.1	20.1	40.2	56.0	-15.8
1.262	20.0	20.1	40.1	56.0	-15.9
1.586	19.9	20.1	40.0	56.0	-16.0
2.012	19.9	20.1	40.0	56.0	-16.0
0.587	19.7	20.0	39.7	56.0	-16.3
1.180	19.6	20.1	39.7	56.0	-16.3
2.124	19.5	20.1	39.6	56.0	-16.4
1.489	19.5	20.1	39.6	56.0	-16.4
1.829	19.4	20.1	39.5	56.0	-16.5
2.519	19.3	20.2	39.5	56.0	-16.5
1.101	19.3	20.1	39.4	56.0	-16.6
1.430	19.3	20.1	39.4	56.0	-16.6
2.105	19.2	20.1	39.3	56.0	-16.7
1.568	19.2	20.1	39.3	56.0	-16.7
1.709	19.0	20.1	39.1	56.0	-16.9
2.239	18.9	20.1	39.0	56.0	-17.0
0.896	18.9	20.1	39.0	56.0	-17.0
1.232	18.5	20.1	38.6	56.0	-17.4
1.340	18.5	20.1	38.6	56.0	-17.4
1.381	18.4	20.1	38.5	56.0	-17.5

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
2.679	22.0	20.2	42.2	46.0	-3.8
2.635	21.9	20.2	42.1	46.0	-3.9
2.605	21.5	20.2	41.7	46.0	-4.3
2.944	21.5	20.2	41.7	46.0	-4.3
2.791	21.0	20.2	41.2	46.0	-4.8
2.915	21.0	20.2	41.2	46.0	-4.8
1.922	20.1	20.1	40.2	46.0	-5.8
1.262	20.0	20.1	40.1	46.0	-5.9
1.586	19.9	20.1	40.0	46.0	-6.0
2.012	19.9	20.1	40.0	46.0	-6.0
0.587	19.7	20.0	39.7	46.0	-6.3
1.180	19.6	20.1	39.7	46.0	-6.3
2.124	19.5	20.1	39.6	46.0	-6.4
1.489	19.5	20.1	39.6	46.0	-6.4
1.829	19.4	20.1	39.5	46.0	-6.5
2.519	19.3	20.2	39.5	46.0	-6.5
1.101	19.3	20.1	39.4	46.0	-6.6
1.430	19.3	20.1	39.4	46.0	-6.6
2.105	19.2	20.1	39.3	46.0	-6.7
1.568	19.2	20.1	39.3	46.0	-6.7
1.709	19.0	20.1	39.1	46.0	-6.9
2.239	18.9	20.1	39.0	46.0	-7.0
0.896	18.9	20.1	39.0	46.0	-7.0
1.232	18.5	20.1	38.6	46.0	-7.4
1.340	18.5	20.1	38.6	46.0	-7.4
1.381	18.4	20.1	38.5	46.0	-7.5

## CONCLUSION

Pass



Tested By

# AC POWERLINE CONDUCTED EMISSIONS

EUT:	Flexcat Remote	Work Order:	LITS0026
Serial Number:	AC-FCHRC1-31014-0002	Date:	02/04/2016
Customer:	LightSPEED Technologies, Inc.	Temperature:	22°C
Attendees:	None	Relative Humidity:	40%
Customer Project:	None	Bar. Pressure:	1015 mb
Tested By:	Jeff Alcoke	Job Site:	EV07
Power:	5VDC Via AC-DC adapter	Configuration:	LITS0026-6

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2016	ANSI C63.10:2013

## TEST PARAMETERS

Run #:	3	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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## COMMENTS

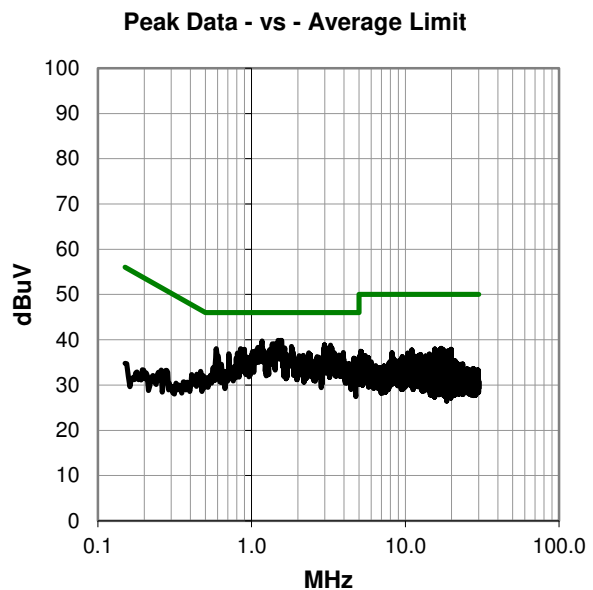
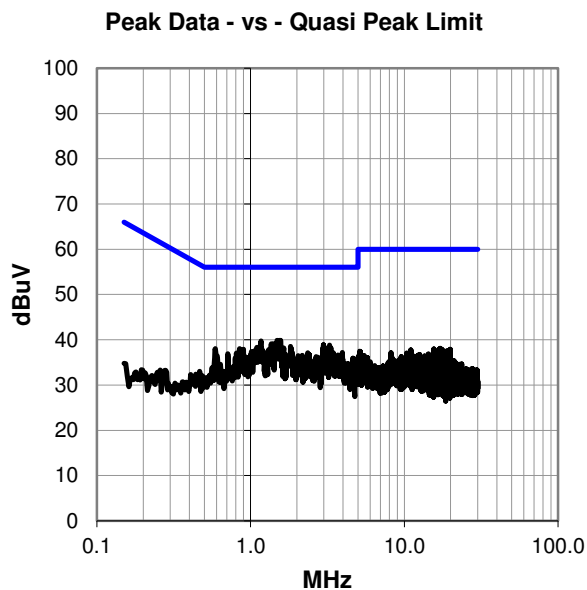
None

## EUT OPERATING MODES

Charging, AC-DC Adapter input voltage 110VAC/60Hz, BTLE set to Tx Low Channel.

## DEVIATIONS FROM TEST STANDARD

None



# AC POWERLINE CONDUCTED EMISSIONS

## RESULTS - Run #3

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
1.489	19.8	20.1	39.9	56.0	-16.1
1.542	19.8	20.1	39.9	56.0	-16.1
1.169	19.6	20.1	39.7	56.0	-16.3
1.363	19.0	20.1	39.1	56.0	-16.9
1.404	19.0	20.1	39.1	56.0	-16.9
2.982	18.7	20.2	38.9	56.0	-17.1
3.258	18.6	20.2	38.8	56.0	-17.2
1.821	18.4	20.1	38.5	56.0	-17.5
2.959	18.1	20.2	38.3	56.0	-17.7
3.194	18.1	20.2	38.3	56.0	-17.7
1.101	18.2	20.1	38.3	56.0	-17.7
1.642	18.1	20.1	38.2	56.0	-17.8
3.325	18.0	20.2	38.2	56.0	-17.8
0.848	18.0	20.0	38.0	56.0	-18.0
0.590	18.0	20.0	38.0	56.0	-18.0
1.844	17.9	20.1	38.0	56.0	-18.0
0.900	17.8	20.1	37.9	56.0	-18.1
3.243	17.4	20.2	37.6	56.0	-18.4
1.012	17.3	20.1	37.4	56.0	-18.6
3.116	17.2	20.2	37.4	56.0	-18.6
3.959	17.0	20.2	37.2	56.0	-18.8
3.168	16.9	20.2	37.1	56.0	-18.9
3.437	16.9	20.2	37.1	56.0	-18.9
2.351	16.9	20.2	37.1	56.0	-18.9
0.810	17.0	20.0	37.0	56.0	-19.0
0.710	16.9	20.0	36.9	56.0	-19.1

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
1.489	19.8	20.1	39.9	46.0	-6.1
1.542	19.8	20.1	39.9	46.0	-6.1
1.169	19.6	20.1	39.7	46.0	-6.3
1.363	19.0	20.1	39.1	46.0	-6.9
1.404	19.0	20.1	39.1	46.0	-6.9
2.982	18.7	20.2	38.9	46.0	-7.1
3.258	18.6	20.2	38.8	46.0	-7.2
1.821	18.4	20.1	38.5	46.0	-7.5
2.959	18.1	20.2	38.3	46.0	-7.7
3.194	18.1	20.2	38.3	46.0	-7.7
1.101	18.2	20.1	38.3	46.0	-7.7
1.642	18.1	20.1	38.2	46.0	-7.8
3.325	18.0	20.2	38.2	46.0	-7.8
0.848	18.0	20.0	38.0	46.0	-8.0
0.590	18.0	20.0	38.0	46.0	-8.0
1.844	17.9	20.1	38.0	46.0	-8.0
0.900	17.8	20.1	37.9	46.0	-8.1
3.243	17.4	20.2	37.6	46.0	-8.4
1.012	17.3	20.1	37.4	46.0	-8.6
3.116	17.2	20.2	37.4	46.0	-8.6
3.959	17.0	20.2	37.2	46.0	-8.8
3.168	16.9	20.2	37.1	46.0	-8.9
3.437	16.9	20.2	37.1	46.0	-8.9
2.351	16.9	20.2	37.1	46.0	-8.9
0.810	17.0	20.0	37.0	46.0	-9.0
0.710	16.9	20.0	36.9	46.0	-9.1

## CONCLUSION

Pass



Tested By



# AC POWERLINE CONDUCTED EMISSIONS



WTD:2015.12.01  
PSA-ESCI 2015.07.01, EmIR5 2015.11.06

EUT:	Flexcat Remote	Work Order:	LITS0026
Serial Number:	AC-FCHRC1-31014-0002	Date:	02/04/2016
Customer:	LightSPEED Technologies, Inc.	Temperature:	22°C
Attendees:	None	Relative Humidity:	40%
Customer Project:	None	Bar. Pressure:	1015 mb
Tested By:	Jeff Alcoke	Job Site:	EV07
Power:	5VDC Via AC-DC adapter	Configuration:	LITS0026-6

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2016	ANSI C63.10:2013

## TEST PARAMETERS

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

None

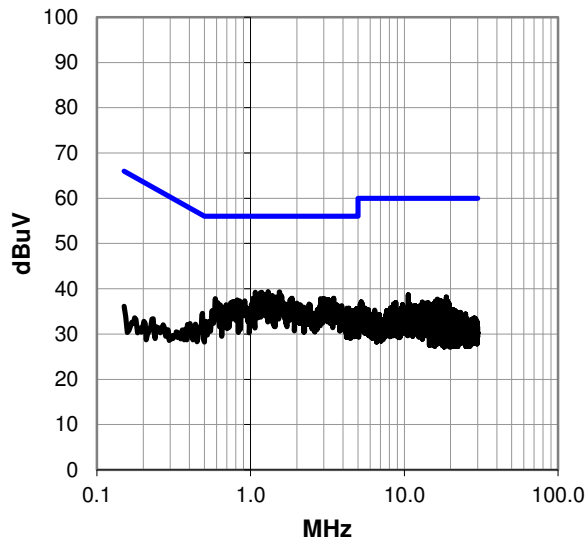
## EUT OPERATING MODES

Charging, AC-DC Adapter input voltage 110VAC/60Hz, BTLE set to Tx Mid Channel.

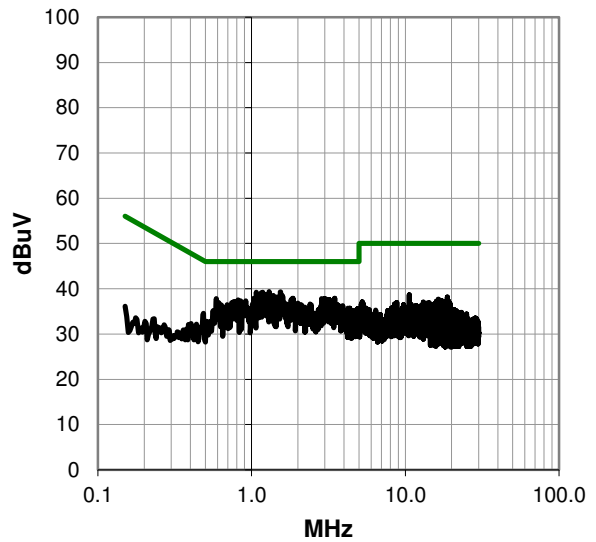
## DEVIATIONS FROM TEST STANDARD

None

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



# AC POWERLINE CONDUCTED EMISSIONS

## RESULTS - Run #4

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
1.303	19.3	20.1	39.4	56.0	-16.6
1.538	19.2	20.1	39.3	56.0	-16.7
1.072	19.1	20.1	39.2	56.0	-16.8
1.180	19.1	20.1	39.2	56.0	-16.8
1.154	19.0	20.1	39.1	56.0	-16.9
1.206	18.7	20.1	38.8	56.0	-17.2
1.232	18.5	20.1	38.6	56.0	-17.4
1.385	18.4	20.1	38.5	56.0	-17.5
1.329	18.3	20.1	38.4	56.0	-17.6
1.460	18.1	20.1	38.2	56.0	-17.8
1.486	18.0	20.1	38.1	56.0	-17.9
1.034	17.8	20.1	37.9	56.0	-18.1
1.844	17.8	20.1	37.9	56.0	-18.1
1.866	17.8	20.1	37.9	56.0	-18.1
3.474	17.7	20.2	37.9	56.0	-18.1
0.590	17.8	20.0	37.8	56.0	-18.2
2.859	17.6	20.2	37.8	56.0	-18.2
2.985	17.6	20.2	37.8	56.0	-18.2
3.060	17.5	20.2	37.7	56.0	-18.3
1.254	17.5	20.1	37.6	56.0	-18.4
1.806	17.5	20.1	37.6	56.0	-18.4
3.202	17.4	20.2	37.6	56.0	-18.4
0.818	17.5	20.0	37.5	56.0	-18.5
1.105	17.3	20.1	37.4	56.0	-18.6
0.848	17.3	20.0	37.3	56.0	-18.7
0.915	17.2	20.1	37.3	56.0	-18.7

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
1.303	19.3	20.1	39.4	46.0	-6.6
1.538	19.2	20.1	39.3	46.0	-6.7
1.072	19.1	20.1	39.2	46.0	-6.8
1.180	19.1	20.1	39.2	46.0	-6.8
1.154	19.0	20.1	39.1	46.0	-6.9
1.206	18.7	20.1	38.8	46.0	-7.2
1.232	18.5	20.1	38.6	46.0	-7.4
1.385	18.4	20.1	38.5	46.0	-7.5
1.329	18.3	20.1	38.4	46.0	-7.6
1.460	18.1	20.1	38.2	46.0	-7.8
1.486	18.0	20.1	38.1	46.0	-7.9
1.034	17.8	20.1	37.9	46.0	-8.1
1.844	17.8	20.1	37.9	46.0	-8.1
1.866	17.8	20.1	37.9	46.0	-8.1
3.474	17.7	20.2	37.9	46.0	-8.1
0.590	17.8	20.0	37.8	46.0	-8.2
2.859	17.6	20.2	37.8	46.0	-8.2
2.985	17.6	20.2	37.8	46.0	-8.2
3.060	17.5	20.2	37.7	46.0	-8.3
1.254	17.5	20.1	37.6	46.0	-8.4
1.806	17.5	20.1	37.6	46.0	-8.4
3.202	17.4	20.2	37.6	46.0	-8.4
0.818	17.5	20.0	37.5	46.0	-8.5
1.105	17.3	20.1	37.4	46.0	-8.6
0.848	17.3	20.0	37.3	46.0	-8.7
0.915	17.2	20.1	37.3	46.0	-8.7

## CONCLUSION

Pass



Tested By

# AC POWERLINE CONDUCTED EMISSIONS



WTD:2015.12.01  
PSA-ESCI 2015.07.01, EmIR5 2015.11.06

EUT:	Flexcat Remote	Work Order:	LITS0026
Serial Number:	AC-FCHRC1-31014-0002	Date:	02/04/2016
Customer:	LightSPEED Technologies, Inc.	Temperature:	22°C
Attendees:	None	Relative Humidity:	40%
Customer Project:	None	Bar. Pressure:	1015 mb
Tested By:	Jeff Alcoke	Job Site:	EV07
Power:	5VDC Via AC-DC adapter	Configuration:	LITS0026-6

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2016	ANSI C63.10:2013

## TEST PARAMETERS

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

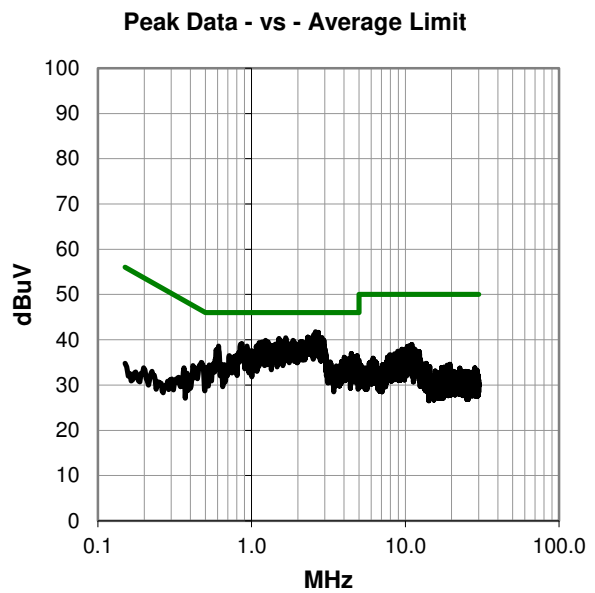
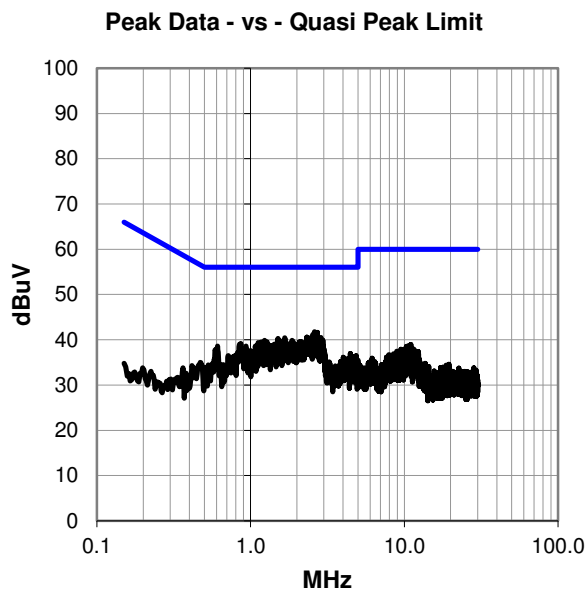
None

## EUT OPERATING MODES

Charging, AC-DC Adapter input voltage 110VAC/60Hz, BTLE set to Tx Mid Channel.

## DEVIATIONS FROM TEST STANDARD

None



# AC POWERLINE CONDUCTED EMISSIONS

## RESULTS - Run #5

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
2.601	21.6	20.2	41.8	56.0	-14.2
2.721	21.4	20.2	41.6	56.0	-14.4
2.657	21.3	20.2	41.5	56.0	-14.5
2.668	21.1	20.2	41.3	56.0	-14.7
2.527	20.9	20.2	41.1	56.0	-14.9
2.624	20.9	20.2	41.1	56.0	-14.9
2.321	20.4	20.2	40.6	56.0	-15.4
2.873	20.3	20.2	40.5	56.0	-15.5
2.362	20.3	20.2	40.5	56.0	-15.5
1.668	20.3	20.1	40.4	56.0	-15.6
1.508	20.2	20.1	40.3	56.0	-15.7
2.381	19.9	20.2	40.1	56.0	-15.9
2.814	19.8	20.2	40.0	56.0	-16.0
1.232	19.8	20.1	39.9	56.0	-16.1
1.859	19.8	20.1	39.9	56.0	-16.1
2.907	19.7	20.2	39.9	56.0	-16.1
2.493	19.6	20.2	39.8	56.0	-16.2
1.553	19.7	20.1	39.8	56.0	-16.2
2.131	19.5	20.1	39.6	56.0	-16.4
1.176	19.4	20.1	39.5	56.0	-16.5
1.280	19.4	20.1	39.5	56.0	-16.5
2.079	19.4	20.1	39.5	56.0	-16.5
2.105	19.3	20.1	39.4	56.0	-16.6
1.482	19.1	20.1	39.2	56.0	-16.8
0.866	19.1	20.1	39.2	56.0	-16.8
1.639	19.0	20.1	39.1	56.0	-16.9

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
2.601	21.6	20.2	41.8	46.0	-4.2
2.721	21.4	20.2	41.6	46.0	-4.4
2.657	21.3	20.2	41.5	46.0	-4.5
2.668	21.1	20.2	41.3	46.0	-4.7
2.527	20.9	20.2	41.1	46.0	-4.9
2.624	20.9	20.2	41.1	46.0	-4.9
2.321	20.4	20.2	40.6	46.0	-5.4
2.873	20.3	20.2	40.5	46.0	-5.5
2.362	20.3	20.2	40.5	46.0	-5.5
1.668	20.3	20.1	40.4	46.0	-5.6
1.508	20.2	20.1	40.3	46.0	-5.7
2.381	19.9	20.2	40.1	46.0	-5.9
2.814	19.8	20.2	40.0	46.0	-6.0
1.232	19.8	20.1	39.9	46.0	-6.1
1.859	19.8	20.1	39.9	46.0	-6.1
2.907	19.7	20.2	39.9	46.0	-6.1
2.493	19.6	20.2	39.8	46.0	-6.2
1.553	19.7	20.1	39.8	46.0	-6.2
2.131	19.5	20.1	39.6	46.0	-6.4
1.176	19.4	20.1	39.5	46.0	-6.5
1.280	19.4	20.1	39.5	46.0	-6.5
2.079	19.4	20.1	39.5	46.0	-6.5
2.105	19.3	20.1	39.4	46.0	-6.6
1.482	19.1	20.1	39.2	46.0	-6.8
0.866	19.1	20.1	39.2	46.0	-6.8
1.639	19.0	20.1	39.1	46.0	-6.9

## CONCLUSION

Pass



Tested By

# AC POWERLINE CONDUCTED EMISSIONS



WTD:2015.12.01  
PSA-ESCI 2015.07.01, EmIR5 2015.11.06

EUT:	Flexcat Remote	Work Order:	LITS0026
Serial Number:	AC-FCHRC1-31014-0002	Date:	02/04/2016
Customer:	LightSPEED Technologies, Inc.	Temperature:	22°C
Attendees:	None	Relative Humidity:	40%
Customer Project:	None	Bar. Pressure:	1015 mb
Tested By:	Jeff Alcoke	Job Site:	EV07
Power:	5VDC Via AC-DC adapter	Configuration:	LITS0026-6

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2016	ANSI C63.10:2013

## TEST PARAMETERS

Run #:	6	Line:	High Line	Add. Ext. Attenuation (dB):	0
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## COMMENTS

None

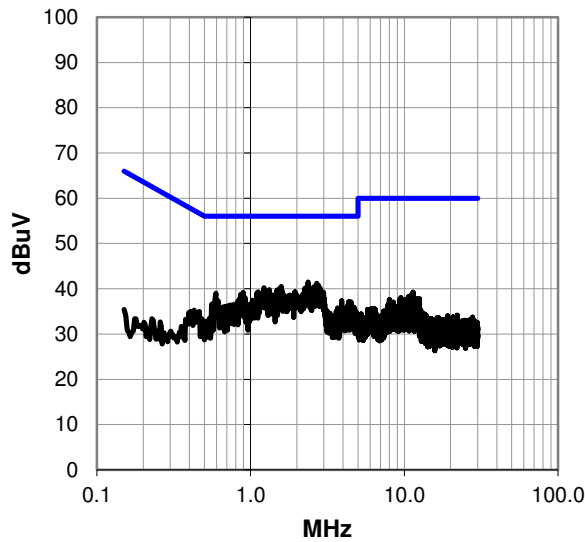
## EUT OPERATING MODES

Charging, AC-DC Adapter input voltage 110VAC/60Hz, BTLE set to Tx High Channel.

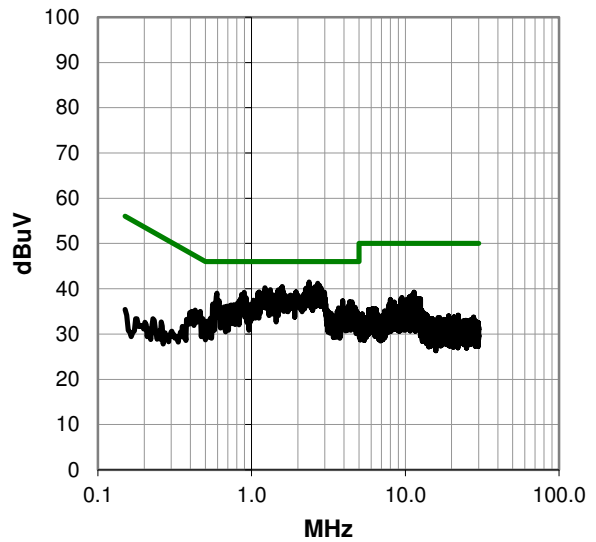
## DEVIATIONS FROM TEST STANDARD

None

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



# AC POWERLINE CONDUCTED EMISSIONS

## RESULTS - Run #6

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
2.362	21.3	20.2	41.5	56.0	-14.5
2.691	21.0	20.2	41.2	56.0	-14.8
2.765	20.5	20.2	40.7	56.0	-15.3
1.579	20.4	20.1	40.5	56.0	-15.5
2.638	20.3	20.2	40.5	56.0	-15.5
2.586	20.2	20.2	40.4	56.0	-15.6
1.221	20.1	20.1	40.2	56.0	-15.8
2.269	20.0	20.2	40.2	56.0	-15.8
1.553	20.0	20.1	40.1	56.0	-15.9
2.478	19.9	20.2	40.1	56.0	-15.9
2.836	19.9	20.2	40.1	56.0	-15.9
2.243	19.8	20.2	40.0	56.0	-16.0
1.325	19.7	20.1	39.8	56.0	-16.2
1.486	19.6	20.1	39.7	56.0	-16.3
1.538	19.6	20.1	39.7	56.0	-16.3
1.120	19.2	20.1	39.3	56.0	-16.7
1.280	19.2	20.1	39.3	56.0	-16.7
1.945	19.2	20.1	39.3	56.0	-16.7
1.206	19.1	20.1	39.2	56.0	-16.8
2.534	19.0	20.2	39.2	56.0	-16.8
0.896	19.1	20.1	39.2	56.0	-16.8
1.098	19.0	20.1	39.1	56.0	-16.9
1.504	19.0	20.1	39.1	56.0	-16.9
0.594	19.0	20.0	39.0	56.0	-17.0
2.463	18.8	20.2	39.0	56.0	-17.0
2.187	18.7	20.1	38.8	56.0	-17.2

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
2.362	21.3	20.2	41.5	46.0	-4.5
2.691	21.0	20.2	41.2	46.0	-4.8
2.765	20.5	20.2	40.7	46.0	-5.3
1.579	20.4	20.1	40.5	46.0	-5.5
2.638	20.3	20.2	40.5	46.0	-5.5
2.586	20.2	20.2	40.4	46.0	-5.6
1.221	20.1	20.1	40.2	46.0	-5.8
2.269	20.0	20.2	40.2	46.0	-5.8
1.553	20.0	20.1	40.1	46.0	-5.9
2.478	19.9	20.2	40.1	46.0	-5.9
2.836	19.9	20.2	40.1	46.0	-5.9
2.243	19.8	20.2	40.0	46.0	-6.0
1.325	19.7	20.1	39.8	46.0	-6.2
1.486	19.6	20.1	39.7	46.0	-6.3
1.538	19.6	20.1	39.7	46.0	-6.3
1.120	19.2	20.1	39.3	46.0	-6.7
1.280	19.2	20.1	39.3	46.0	-6.7
1.945	19.2	20.1	39.3	46.0	-6.7
1.206	19.1	20.1	39.2	46.0	-6.8
2.534	19.0	20.2	39.2	46.0	-6.8
0.896	19.1	20.1	39.2	46.0	-6.8
1.098	19.0	20.1	39.1	46.0	-6.9
1.504	19.0	20.1	39.1	46.0	-6.9
0.594	19.0	20.0	39.0	46.0	-7.0
2.463	18.8	20.2	39.0	46.0	-7.0
2.187	18.7	20.1	38.8	46.0	-7.2

## CONCLUSION

Pass



Tested By

# AC POWERLINE CONDUCTED EMISSIONS



WTD:2015.12.01  
PSA-ESCI 2015.07.01, EmIR5 2015.11.06

EUT:	Flexcat Remote	Work Order:	LITS0026
Serial Number:	AC-FCHRC1-31014-0002	Date:	02/04/2016
Customer:	LightSPEED Technologies, Inc.	Temperature:	22°C
Attendees:	None	Relative Humidity:	40%
Customer Project:	None	Bar. Pressure:	1015 mb
Tested By:	Jeff Alcoke	Job Site:	EV07
Power:	5VDC Via AC-DC adapter	Configuration:	LITS0026-6

## TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2016	ANSI C63.10:2013

## TEST PARAMETERS

Run #:	7	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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## COMMENTS

None

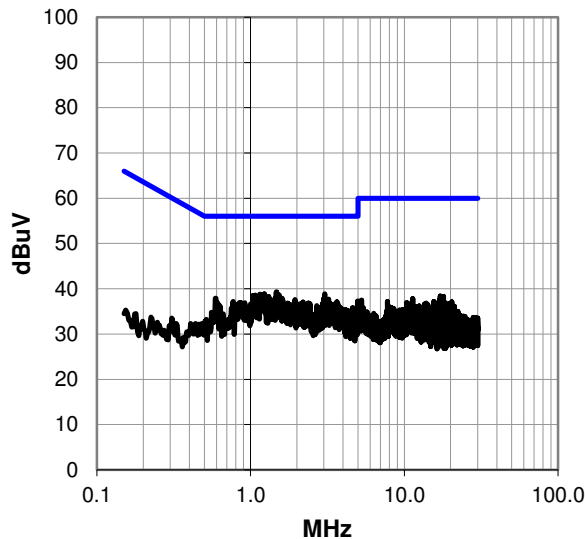
## EUT OPERATING MODES

Charging, AC-DC Adapter input voltage 110VAC/60Hz, BTLE set to Tx High Channel.

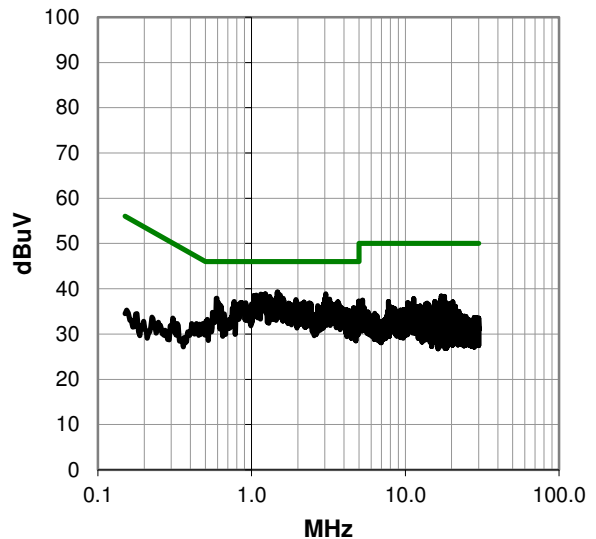
## DEVIATIONS FROM TEST STANDARD

None

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



# AC POWERLINE CONDUCTED EMISSIONS

## RESULTS - Run #7

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
1.471	19.2	20.1	39.3	56.0	-16.7
1.228	18.8	20.1	38.9	56.0	-17.1
3.030	18.7	20.2	38.9	56.0	-17.1
1.146	18.7	20.1	38.8	56.0	-17.2
1.180	18.6	20.1	38.7	56.0	-17.3
1.072	18.5	20.1	38.6	56.0	-17.4
1.534	18.5	20.1	38.6	56.0	-17.4
1.030	18.4	20.1	38.5	56.0	-17.5
1.310	18.2	20.1	38.3	56.0	-17.7
0.590	17.9	20.0	37.9	56.0	-18.1
1.609	17.8	20.1	37.9	56.0	-18.1
2.997	17.6	20.2	37.8	56.0	-18.2
1.437	17.7	20.1	37.8	56.0	-18.2
1.105	17.6	20.1	37.7	56.0	-18.3
3.224	17.5	20.2	37.7	56.0	-18.3
1.941	17.5	20.1	37.6	56.0	-18.4
3.082	17.3	20.2	37.5	56.0	-18.5
4.978	17.0	20.3	37.3	56.0	-18.7
0.769	17.2	20.0	37.2	56.0	-18.8
3.105	16.9	20.2	37.1	56.0	-18.9
3.646	16.9	20.2	37.1	56.0	-18.9
2.191	16.9	20.1	37.0	56.0	-19.0
0.866	16.9	20.1	37.0	56.0	-19.0
0.609	16.9	20.0	36.9	56.0	-19.1
0.915	16.8	20.1	36.9	56.0	-19.1
1.557	16.8	20.1	36.9	56.0	-19.1

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
1.471	19.2	20.1	39.3	46.0	-6.7
1.228	18.8	20.1	38.9	46.0	-7.1
3.030	18.7	20.2	38.9	46.0	-7.1
1.146	18.7	20.1	38.8	46.0	-7.2
1.180	18.6	20.1	38.7	46.0	-7.3
1.072	18.5	20.1	38.6	46.0	-7.4
1.534	18.5	20.1	38.6	46.0	-7.4
1.030	18.4	20.1	38.5	46.0	-7.5
1.310	18.2	20.1	38.3	46.0	-7.7
0.590	17.9	20.0	37.9	46.0	-8.1
1.609	17.8	20.1	37.9	46.0	-8.1
2.997	17.6	20.2	37.8	46.0	-8.2
1.437	17.7	20.1	37.8	46.0	-8.2
1.105	17.6	20.1	37.7	46.0	-8.3
3.224	17.5	20.2	37.7	46.0	-8.3
1.941	17.5	20.1	37.6	46.0	-8.4
3.082	17.3	20.2	37.5	46.0	-8.5
4.978	17.0	20.3	37.3	46.0	-8.7
0.769	17.2	20.0	37.2	46.0	-8.8
3.105	16.9	20.2	37.1	46.0	-8.9
3.646	16.9	20.2	37.1	46.0	-8.9
2.191	16.9	20.1	37.0	46.0	-9.0
0.866	16.9	20.1	37.0	46.0	-9.0
0.609	16.9	20.0	36.9	46.0	-9.1
0.915	16.8	20.1	36.9	46.0	-9.1
1.557	16.8	20.1	36.9	46.0	-9.1

## CONCLUSION

Pass



Tested By