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FCC Part 15, Subpart C, Section 15.247

Test Report

On

ILD Sensor (Luminous Default Indicator)

Customer Name:	nke Watteco
Customer P.O:	C146509
Date of Report:	April 5, 2016
Test Report No:	R-6046N-5
Test Start Date:	March 1, 2016
Test Finish Date:	March 4, 2016
Test Technician:	M. Seamans
Approved By:	T. Hannemann
Report Prepared By:	J. Ramsey

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Technical Information					
Report Number:	R-6046N-5				
Customer:	nke Watteco				
Address:	6 Rue Gutenberg				
	Z.I. Kerandre				
	Hennebont, France 56700				
Test Sample:	ILD Sensor (Luminous Default Indicator)				
Brand Name:	nke Watteco				
Part Number:	50-70-010-000				
Model Number:	ILD				
Serial Number:	2100547320001				
Manufactured By: _	nke Watteco				
Power Requirements: _	120 VAC, 60 Hz via AC Adapter				
_	AC Adapter Model: WHAF22073F001				
FHSS Frequency Band of					
Operation: _	902.3 MHz to 914.9 MHz				
DTS Frequency Band of					
Operation:	903.0 MHz to 914.2 MHz				
Antenna Type: _	84 mm long copper wire brazed on the PCB Gain - 2.15dBi				
Antenna Connector Type:	N/A				
Equipment Use:	Industrial Process Control, Automation, Powerline Defect Detection				
FCC ID:	2AGTV50-70-010				

Test Specification:

FCC Rules and Regulations, Telecommunications, Part 15 Radio Frequency Devices, Subpart C, Intentional Radiators

Test Procedure:

ANSI C63.4:2009, Methods of Measurement of Radio Noise Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

558074 D01, FCC Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under 15.247, v03 r04, January 7, 2016

DA 00-705, FCC Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems (FHSS) Operating Under 15.247, March 30, 2000

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EUT Description:

The ILD Sensor (Luminous Default Indicator) is used in an industrial context. The sensor has six (6) On/Off inputs and two (2) opto-isolated outputs that can be used as switches. These inputs and outputs allow the ILD to have many applications in Industrial process control, automation, power line defect detection, process control, etc The data that would be typically transmitted are the states of the On/Off inputs or the states of the opti-isolated outputs. These outputs can be controlled remotely through a LoRaWAN network. The ILD Sensor will be enclosed in plastic sheath and installed indoors. The ILD Sensor is not intended to be installed inside another device or enclosure.

FHSS:

In FHSS operation data is transmitted over a 125 KHz channel selected randomly from 64 possible channels in the frequency range of 902.3 to 914.9 MHz. The duration of the transmission is limited to a maximum of 400 milliseconds.

DTS:

In DTS operation data is transmitted over a 500 kHz channel selected randomly from 8 possible channels in the 903.0 to 914.2 MHz. The duration of the transmission is limited to a maximum of 400 milliseconds.

All equipment that was utilized to achieve the EUT operating state specified is listed below:

Description	Manufacturer	Model Number	Serial Number
Laptop PC	ASUS	Eee PC	8BOAAQ486781
MSP-GANG	Texas Instruments Elprotronic	MSP-GANG	1110-1497
Programmer	Texas instruments Elprotronic	MOF-GANG	1110-1497
USB Dongle	nKe Watteco	Test FCC	70:83:D5:E7:5F:00:00:65

Table 1 - Support Equipment



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Tests Performed

The test methods performed on the EUT are shown below. Testing was performed in accordance with the applicable FCC requirements for each of the two transmission modes (DTS & FHSS).

Table 2 - Radiated Emission Limits				
FCC Part 15, Subpart C Test Method				
	DTS Test Methods Performed			
15.247(a)(2)	6 dB Bandwidth			
15.247(b)(3)	Power Output			
15.247(d)	Antenna Terminal Out of Band/			
13.247 (d)	Band Edge Conducted Emissions (25 MHz – 10 GHz)			
15.247(d)	Out of Band/Band Edge Radiated Emissions (30 MHz to 10 GHz)			
15.247(e)	Power Density			
15.207(a) Conducted Emissions, Power Leads, 150 kHz to 30 MHz				
FHSS Test Methods Performed				
15.247(a)(1)	20 dB Bandwidth			
15.247(a)(1) (iii)	Number of Hopping Channels and Time of Occupancy			
15.247(a)(1)	Channel Separation			
15.247(b)(3)	Power Output			
15.247(d)	Antenna Terminal Out of Band/			
15.247(d)	Band Edge Conducted Emissions (25 MHz – 10 GHz)			
15.247(d)	Out of Band/Band Edge Radiated Emissions (30 MHz to 10 GHz)			
15.207(a)	Conducted Emissions, Power Leads, 150 kHz to 30 MHz			

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Report No. R-6046N-5

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General Test Requirements

The measurement procedures of ANSI C63.4:2009 were utilized as specified in FCC Part 15, Subpart C, Section 15.31(a)(3), FCC Guidance for Performing Compliance Measurements on Digital Transmission Systems, v 03 r04, January 7, 2016, DA 00-705 and FCC Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems (FHSS) Operating Under 15.247, March 30, 2000.

- 1. All radiated emissions measurements were performed on an Open Area Test Site (OATS), listed with the FCC, in accordance with FCC Section 15.31(d).
- 2. All measurements were performed at the specified 3 meter test distance as required by FCC Section 15.31(f).
- 3. The EUT was rotated throughout 360 degrees for all radiated emissions measurements as specified in FCC Section 15.31(f)(5).
- 4. All readily accessible EUT controls were adjusted in such a manner as to maximize the level of emissions in accordance with FCC Section 15.31(g).
- 5. Appropriate accessories were attached to all EUT ports during the performance of radiated emissions measurements as required by FCC Section 15.31(i).
- 6. The EUT operated over the frequency range of 902.3 MHz to 914.9 MHz for FHSS operation and 903.0 to 914.2 MHz for DTS operation. Testing was performed with the device operating at 3 frequencies, 1 at the top, 1 in the middle and 1 at the bottom of the range of operation in accordance with FCC Section 15.31(m).
- 7. The frequency spectrum was investigated from the lowest frequency generated in the device up to the 10th harmonic of the highest fundamental frequency in accordance with FCC Section 15.33(a)(1).
- 8. The EUT utilizes an internal copper wire antenna and does not have an external antenna connector/external antenna and is therefore in compliance with 15.203. For testing purposes a temporary antenna connector was installed and utilized for some test methods. For the Radiated Spurious testing, the EUT was tested with the internal copper wire antenna.



Certification and Signatures

We certify that this report is a true representation of the results obtained from the tests of the equipment stated. We further certify that the measurements shown in this report were made in accordance with the procedures indicated and vouch for the qualifications of all Retlif Testing Laboratories personnel taking them.

Sento Wendan

Scott Wentworth **Branch Manager** NVLAP Approved Signatory

Todd Hannemann EMC Test Engineer iNARTE Certified Technician ATL-0255-T

Non-Warranty Provision

The testing services have been performed, findings obtained and reports prepared in accordance with generally accepted laboratory principles and practices. This warranty is in lieu of all others, either expressed or implied.

Non-Endorsement

This test report contains only findings and results arrived at after employing the specific test procedures and standards listed herein. It is not intended to constitute a recommendation, endorsement or certification of the product or material tested. This test report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

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Revision History

Revisions to this document are listed below; the latest revised document supersedes all previous issues of this document.

Revision

Date April 5, 2016 Pages Affected Original Release



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Requirements and Test Results

FCC Section 15.247 (a)(2) - DTS Bandwidth

For systems using digital modulation techniques operating in the 902-928 MHz, 2400-2483.5 MHz, and 5725 – 5850 MHz bands the minimum 6 dB bandwidth shall be at least 500 kHz.

• **Results**: The minimum 6dB bandwidth measured was 853.70 kHz and the device was found to meet the requirement of 15.247 (a)(2).

FCC Section 15.247 (b)(3) - Power Output

For frequency hopping systems operating in the 902-928 MHz; 1 Watt for systems employing at least 50 hopping frequencies.

• **Results**: The maximum measured peak conducted output power was 17.46 mW. The maximum antenna gain of the copper wire antenna is 2.15 dBi. The device was found to meet the power output requirements of 15.247 (b)(3) including de facto EIRP.

FCC Section 15.247 (b)(3) - Power Output

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g.: alternative modulation methods), the *maximum conducted output power* is the highest total transmit power occurring in any mode.

• **Results**: The maximum measured peak conducted output power was 16.60 mW. The maximum antenna gain of the copper wire antenna is 2.15 dBi. The device was found to meet the power output requirements of 15.247 (b)(3) including de facto EIRP.

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FCC Section 15.247(d) – Unwanted Emissions

Antenna Terminal Out of Band/Band Edge Conducted Emissions

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under Paragraph (b)(3) of Section 15.247, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

• **Results**: All measured out of band/band edge conducted emissions were below the specified limits and the device was found to meet the requirements of 15.247 (d).

FCC Section 15.247(d) – Unwanted Emissions

Radiated Spurious Emissions/Restricted Bands/Band Edge

Emissions which fall into restricted bands, as defined in 15.205(a) must comply with the radiated emissions limits specified in 15.209(a) and shown below in Table 3. Emissions emanating from the EUT cabinet and cables must also comply with the radiated emissions limits. Radiated emissions measurements were also performed at the band edges to ensure band edge compliance.

Frequency of Emission (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)	
30 to 88	100	3	
88 to 216	150	3	
216 to 960	200	3	
Above 960	500	3	

Table 3 - Radiated Emission Limits

Results:

All spurious emissions were measured and found to be in compliance with the limits specified in 15.209(a). Band edge emissions were also found to be in compliance with the limits specified in 15.209(a).



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FCC Section 15.247(e) – Power Spectral Density

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

• **Results**: The measured power spectral density complied with the specified power density limit and the device was found to meet the requirements of 15.247(e).

Requirement:

FCC Section 15.247 (a)(1)

Channel Separation and 20 dB Bandwidth

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

• Results:

The maximum 20 dB bandwidth of the hopping channel was 168.33 kHz. The carrier frequencies were separated by 200.40 kHz which exceeds the 20 dB bandwidth and complies with the requirements specified above.

FCC Section 15.247 (a)(1)

Number of Channels and Occupancy Time

Frequency hopping systems operating in the 902 – 928 MHz band: If the 20dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period.

• Results:

The frequency hopping system uses 64 Channels. The average time of occupancy did not exceed 0.4 seconds in an 20 second period which meets the above requirements.

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FCC Section 15.247(i) – RF Exposure

Transmitters operating under 15.247 must be operated in a manner that ensures the public is not exposed to RF energy levels in access of the commission's guidelines. Based on the transmitter power and maximum antenna gain the separation distance for acceptable MPE power density levels to meet both the Occupational/Controlled Exposure and the General Population/Uncontrolled Exposure requirements of 1.1310 was calculated. The calculation below uses the more stringent General Population MPE Limits.

 $S = PG \over 4\pi Dsq$

- D = Minimum Separation Distance in cm
- S = Max allowed Power Density in mW/cmsq
- Per 1.1310 For Frequency of 900 MHz = 0.6mW/cmsq

DTS Transmission Mode:

Power = Max Power Input to Antenna = 16.60 mW

Gain = Max Power Gain of Antenna = 2.15dBi = 1.64 numeric

 $0.6 \text{mW/cmsq} = \frac{16.60 \text{ x } 1.64}{4 (3.14) \text{ x Dsq}} = \frac{27.22}{12.56 \text{ x Dsq}}$

 $Dsq = \frac{27.22}{12.56 \times 0.6} = 3.61$

D = sq. root 3.61 = 1.90 cm

The unit has an internal antenna and the minimum separation distance will always be maintained.

FHSS Transmission Mode:

Power = Max Power Input to Antenna = 17.46 mW

Gain = Max Power Gain of Antenna = 2.15 dBi = 1.64 numeric

 $0.6 \text{mW/cmsq} = \frac{17.46 \text{ x } 1.64}{4 (3.14) \text{ x Dsq}} = \frac{28.63}{12.56 \text{ x Dsq}}$



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FCC Section 15.247(i) – RF Exposure

 $Dsq = \frac{28.63}{12.56 \times 0.6} = 3.80$

D = sq. root 3.80 = 1.95 cm

The unit has an internal antenna and the minimum separation distance will always be maintained.

Requirement:

FCC Section 15.207(a) - Conducted Limits

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits shown in Table 4, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of the paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Table 4 - Conducted Emission Limits				
Frequency of Emission (MHz)	Conducted Limit (dBµV)			
Frequency of Emission (MHz)	Quasi-Peak Avera			
0.15 to 0.5	66 to 56*	56 to 46*		
0.5 to 5	56	46		
5 to 30 60 50				
*Decreases due to logarithm of the frequency				

Table 4 - Conducted Emission Limits

Results:

The conducted emissions observed did not exceed the limits specified in Table 4.

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EQUIPMENT LISTS

FCC Section 15.247(a)(2) – DTS 6 dB Bandwidth

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5039	NARDA MICROWAV	'E ATTENUATOR, COAXIAL	20 dB, DC - 18 GHz	757C-20DB	11/24/2015	11/30/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	10/31/2016

FCC Section 15.247(b)(3) – Power Output

EN	Manufacturer	Description	Range	Model No.	Cal Date Due Date
5039	NARDA MICROWAV	'E ATTENUATOR, COAXIAL	20 dB, DC - 18 GHz	757C-20DB	11/24/2015 11/30/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014 10/31/2016

FCC Section 15.247(d) – Antenna Terminal Out of Band/ Band Edge Conducted Emissions, 30 MHz to 25 GHz

EN	Manufacturer	Description	Range	Model No.	Cal Date Due Date
5039	NARDA MICROWAV	'E ATTENUATOR, COAXIAL	20 dB, DC - 18 GHz	757C-20DB	11/24/2015 11/30/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014 10/31/2016

FCC Section 15.247(d) – Out of Band/Band Edge Radiated Emissions

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
1232	AGILENT / HP	PRE-AMPLIFIER	1 - 26.5 GHz	8449B	6/17/2015	6/30/2016
3258	ETS / EMCO	ANTENNA, DOUBLE RIDGED GUIDE	1 - 18 GHz	3115	3/24/2015	9/30/2016
4029	RETLIF	OPEN AREA TEST SITE, FILING	3 / 10 Meters	RNH	5/15/2013	5/31/2016
5053	ETS / EMCO	ANTENNA, BICONILOG	26 MHz - 3 GHz	3142C	2/24/2015	8/31/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	10/31/2016
R469	AGILENT / HP	ANALYZER, SPECTRUM	100 Hz - 26.5 GHz	E7405A;A	11/17/2015	11/30/2016



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EQUIPMENT LISTS (continued)

FCC Section 15.247(e) – Power Density

EN	Manufacturer	Description	Range	Model No.	Cal Date Du	le Date
5039	NARDA MICROWAV	'E ATTENUATOR, COAXIAL	20 dB, DC - 18 GHz	757C-20DB	11/24/2015 11/	30/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014 10/	31/2016

FCC Section 15.247(a)(1) – 20 dB Bandwidth

EN	Manufacturer	Description	Range	Model No.	Cal Date Due Date
5039	NARDA MICROWAV	'E ATTENUATOR, COAXIAL	20 dB, DC - 18 GHz	757C-20DB	11/24/2015 11/30/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014 10/31/2016

FCC Section 15.247(a)(1) -- Channel Separation

EN	Manufacturer	Description	Range	Model No.	Cal Date Due Date
5039	NARDA MICROWAV	E ATTENUATOR, COAXIAL	20 dB, DC - 18 GHz	757C-20DB	11/24/2015 11/30/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014 10/31/2016

FCC Section 15.247(a)(1)(iii) – Number of Hopping Channels and Time Occupancy

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
5039	NARDA MICROWAV	E ATTENUATOR, COAXIAL	20 dB, DC - 18 GHz	757C-20DB	11/24/2015	11/30/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	10/31/2016

FCC Section 15.207– Conducted Emissions, Power Leads, 150 kHz to 30 MHz

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
4027	SOLAR ELECTRONICS	LISN	50 uH, 10 kHz - 50 MHz	9252-50-R-24-BNC	2/29/2016	2/28/2017
4028	ACME	TRANSFORMER, ISOLATION		120X240	No Calibrat	ion Required
5030B	NARDA MICROWAV	E ATTENUATOR, COAXIAL	10 dB, DC - 12.4 GHz	757C-10	3/18/2015	3/31/2016
5070	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 40 GHz	ESIB40	10/29/2014	10/31/2016

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Test Photograph(s) DTS Bandwidth 6 dB Bandwidth FCC Section 15.247(a)(2)



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Test Photograph(s) DTS Bandwidth 6 dB Bandwidth



Test Setup



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DTS Bandwidth 6 dB Bandwidth Test Data



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oct Mathad	6dB Bandwid	th				DRATO				<u> </u>
est Method:		un				Job No	D 604CN 5			
ustomer	Nke Watteco	DCLT	() C			Job No.	R-6046N-5			
est Sample		us Default Indic	ator) Sensor			G	2100547220	0.1		
odel Number	ILD		. 1 . 002 1			Serial No.	21005473200	001		
perating Mode		nodulated(DTS)	ě.							
est Specification	FCC Part 15,	Subpart C Pai	agraph: 15.247	(a)(2)				1.6		
echnician	M. Seamans					Date	March 1 st , 20	16		
imatic Conditions	Temp: 22.7		e Humidity: 22	2.0 %						
otes	Occupied Ban	dwidth: 853.70	kHz							
~			5 6 7 1		DDH	100 k	HZ R		20 dB	
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-70										

st Method:	6dB Bandwidt	th		TESTING					
istomer	Nke Watteco				Job No.	R-6046N-5			
	ILD (Luminou	us Default Indica	ator) Sensor			4	L		
	ILD		~			Serial No.	21005473200	01	
erating Mode	Transmitting 1	modulated(DTS)) signal at 907.8	8 MHz					
st Specification	FCC Part 15, S	Subpart C Par	ragraph: 15.247	(a)(2)					
chnician	M. Seamans					Date	March 1 st , 201	6	
matic Conditions	Temp: 22.7 °	°C Relative	e Humidity: 22	2.0 %					
tes	Occupied Ban	dwidth: 853.70	kHz						
Ref Lvl 25 dBm		Delta 1		.24 dB 483 kHz	RBW VBW SWT	100 k 300 k 120	HZ	7 Att nit	20 db dBm
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RETLIF TESTING LABORATORIES Test Method: 6dB Bandwidth Customer Nke Watteco Job No. R-6046N-5



Test Photograph(s) Power Output FCC Section 15.247(b)(3)



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Power Output DTS Test Data



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RETLIF TESTING LABORATORIES Conducted Peak Power Output **Test Method:** Job No. R-6046N-5 Customer Nke Watteco ILD (Luminous Default Indicator) Sensor **Test Sample Model Number** ILD Serial No. 2100547320001 Transmitting modulated(DTS) signal at 903 MHz **Operating Mode** FCC Part 15, Subpart C Paragraph: 15.247 (b)(3) **Test Specification** March 1st, 2016 Technician M. Seamans Date **Climatic Conditions** Relative Humidity: 22.0 % Temp: 22.7 °C Peak Power Output: 10.17 dBm Notes RBW 1 MHz RF Att Marker 1 [T1] 20 dB Ref Lvl 10.17 dBm 3 MHz VBW 25 dBm 902.90480962 MHz SWT 120 s Unit dBm 25 20.3 dB Offset A 20 10 0 IN1 **IVIEW** 1MA -10 -20 -30 -40 -50 -60 -70 -75 Center 903 MHz 500 kHz/ Span 5 MHz



RETLIF TESTING LABORATORIES Conducted Peak Power Output **Test Method:** Job No. R-6046N-5 Customer Nke Watteco ILD (Luminous Default Indicator) Sensor **Test Sample Model Number** ILD Serial No. 2100547320001 Transmitting modulated(DTS) signal at 907.8 MHz **Operating Mode** FCC Part 15, Subpart C Paragraph: 15.247 (b)(3) **Test Specification** March 1st, 2016 Technician M. Seamans Date **Climatic Conditions** Relative Humidity: 22.0 % Temp: 22.7 °C Peak Power Output: 11.31 dBm Notes RBW 1 MHz RF Att Marker 1 [T1] 20 dB 11.31 dBm Ref Lvl 3 MHz VBW 25 dBm 908.04549098 MHz SWT 120 s Unit dBm 25 20.3 dB Offset A 20 10 0 IN1 **IVIEW** 1MA -10 -20 -30 -40 -50 -60 -70 -75 Center 907.8 MHz 500 kHz/ Span 5 MHz Date: 1.MAR.2016 16:15:58



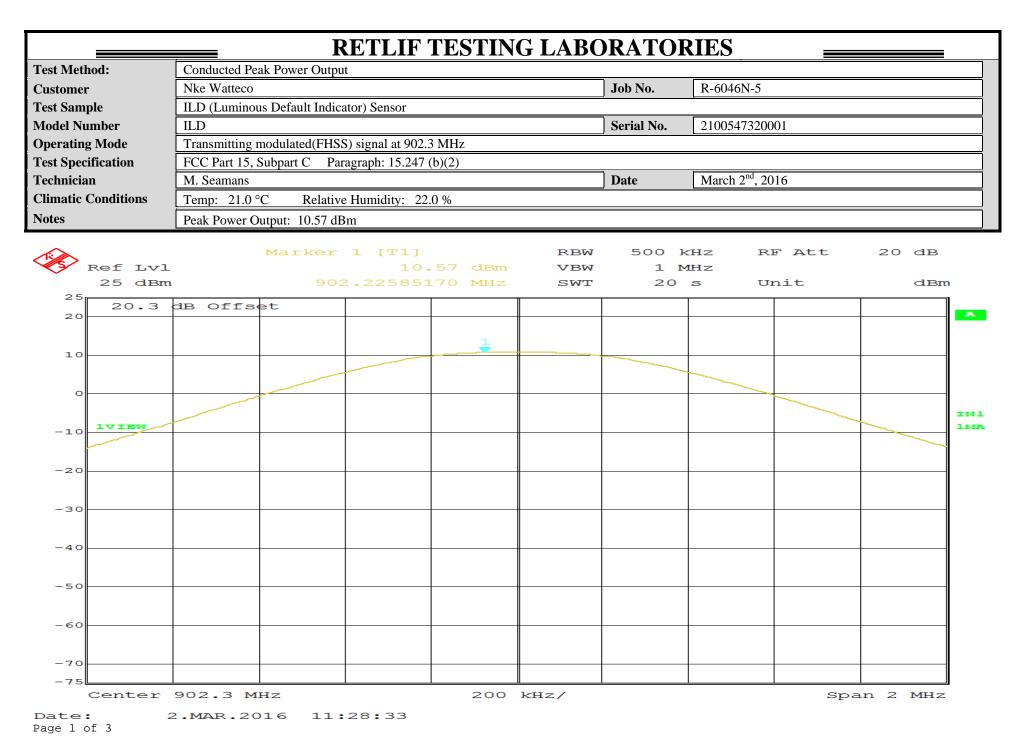
RETLIF TESTING LABORATORIES Conducted Peak Power Output **Test Method:** Job No. R-6046N-5 Customer Nke Watteco ILD (Luminous Default Indicator) Sensor **Test Sample Model Number** ILD Serial No. 2100547320001 Transmitting modulated(DTS) signal at 914.2 MHz **Operating Mode** FCC Part 15, Subpart C Paragraph: 15.247 (b)(3) **Test Specification** March 1st, 2016 Technician M. Seamans Date **Climatic Conditions** Relative Humidity: 22.0 % Temp: 22.7 °C Peak Power Output: 12.20 dBm Notes RBW 1 MHz RF Att Marker 1 [T1] 20 dB Ref Lvl 12.20 dBm 3 MHz VBW 25 dBm 914.40541082 MHz SWT 120 s Unit dBm 25 20.3 dB Offset A 20 10 0 IN1 **1VIEW** 1MA -10 -20 -30 -40 -50 -60 -70 -75 500 kHz/ Center 914.2 MHz Span 5 MHz Date: 1.MAR.2016 16:20:50

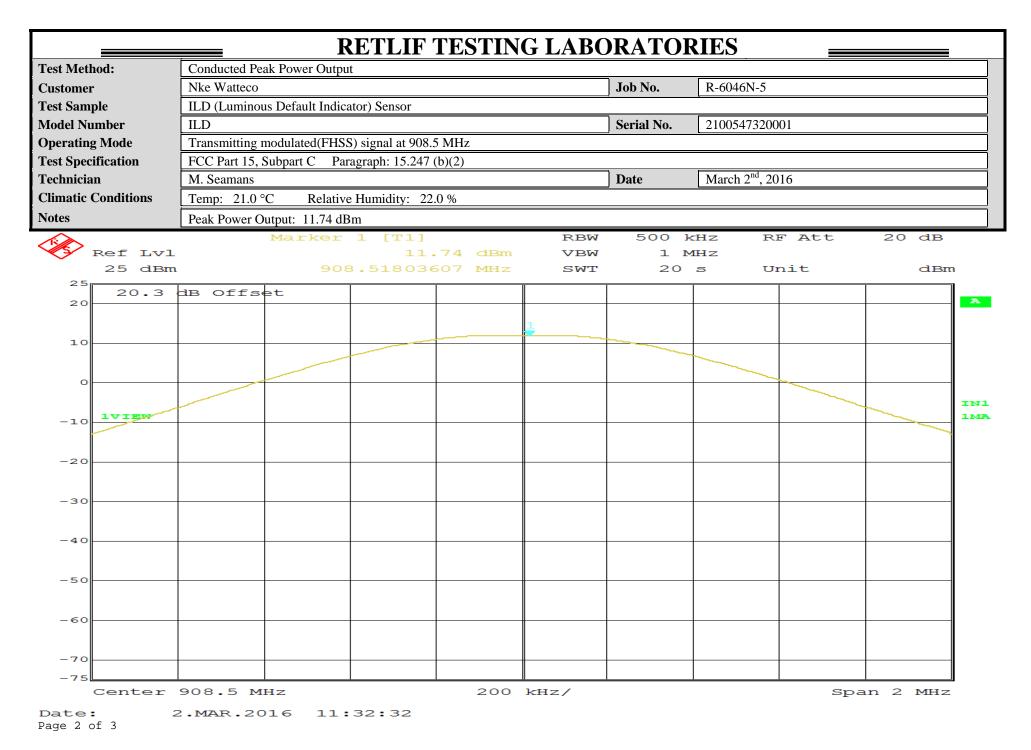
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Power Output FHSS Test Data

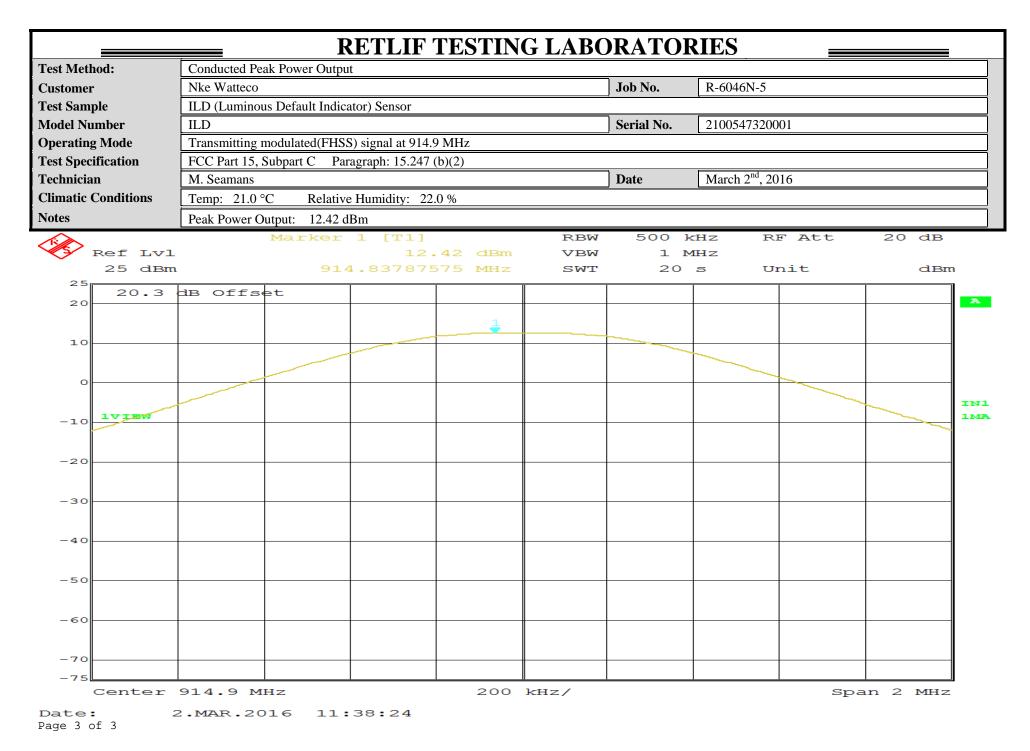


Retlif Testing Laboratories





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Test Photograph(s) Antenna Terminal Out of Band/Band Edge Conducted Emissions, 25 MHz to 10 GHz FCC Section 15.247(d)



Retlif Testing Laboratories

Test Photograph(s) Antenna Terminal Out of Band/Band Edge Conducted Emissions, 25 MHz to 10 GHz



Test Setup



Retlif Testing Laboratories

Antenna Terminal Out of Band/Band Edge Conducted Emissions, 25 MHz to 10 GHz Test Data



Retlif Testing Laboratories

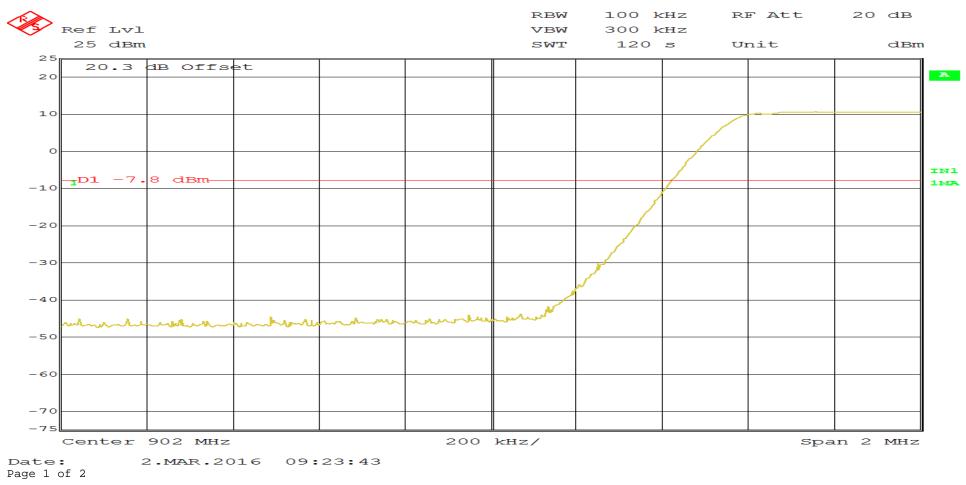
Band Edge Conducted DTS Test Data



Retlif Testing Laboratories

RETLIF TESTING LABORATORIES

Test Method:	Band Edge Conducted		
Customer	Nke Watteco	Job No.	R-6046N-5
Test Sample	ILD (Luminous Default Indicator) Sensor		
Model Number	ILD	Serial No.	2100547320001
Operating Mode	Transmitting modulated(DTS) signal at 903 MHz		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)		
Technician	M. Seamans	Date	March 2 nd , 2016
Climatic Conditions	Temp: 21.0 °CRelative Humidity: 22.0 %		
Notes	Limit: -7.8 dBm		



DETLIE TECTING I ADODATODIES

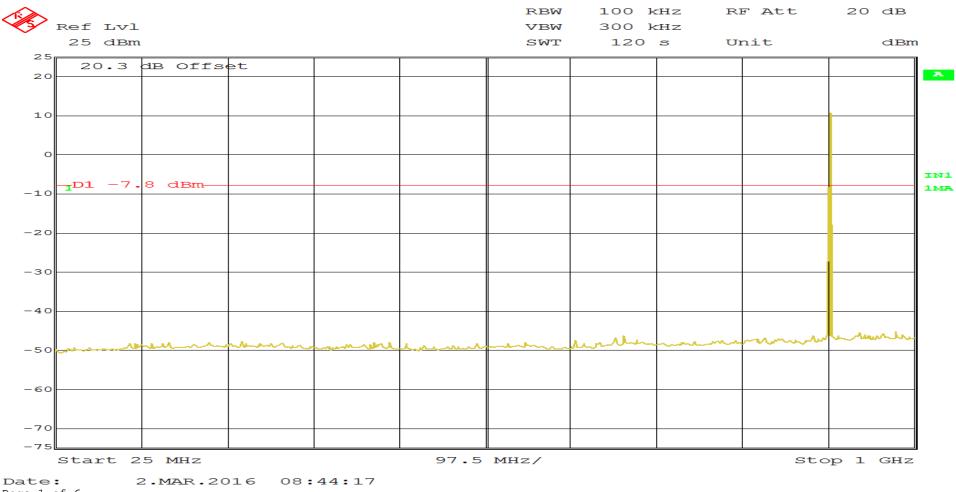
		<u> </u>		IESIIN	<u>G LABC</u>	<u>JKAIOI</u>	<u>(IES</u>			
Test Method:	Band Edge Co	onducted				_				
Customer	Nke Watteco				Job No.	R-6046N-5				
Test Sample ILD (Luminous Default Indicator) Sensor										
Model Number	ILD					Serial No.	2100547320	001		
Operating Mode	Transmitting 1	modulated(DTS)	signal at 914.2	MHz						
Test Specification	FCC Part 15, S	Subpart C Par	agraph: 15.247 ((d)						
echnician	M. Seamans					Date	March 2^{nd} , 2	016		
Climatic Conditions	Temp: 21.0 °C	C Relative	Humidity: 22.0 9	%						
lotes	Limit: -7.8 dB	m								
Ref Lvl					rbw Vbw	300 k		RF Att	20 dB	
25 dBm					SWT	120	s U	Init	dBm	a
20.3	dB Offs	et								
20										
10										
10										
0										
										IN
-10 ID1 -7.	8 dBm									111
-20									-	
-30										
-40										
	A			- Mullion	م فديات	and a state	N			
-50										1
-60										
-70									<u> </u>	
-75										
	928 MHz			200	kHz/			Spa	an 2 MHz	
Date: 2 age 2 of 2	2.MAR.20	016 09:	17:58							

Out of Band Conducted Emissions DTS Test Data

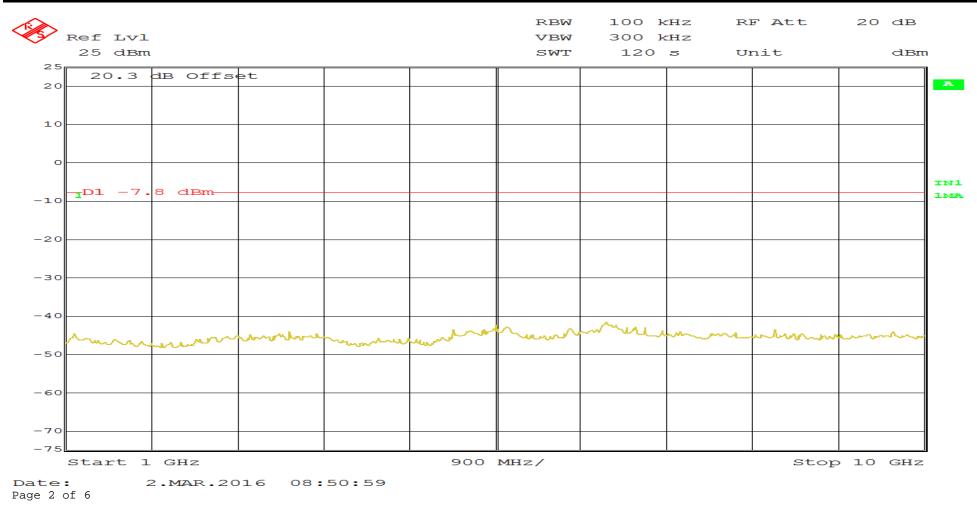


Retlif Testing Laboratories

Test Method:	Out of Band Conducted Emissions 25 MHz to 10 GHz		
Customer	Nke Watteco	Job No.	R-6046N-5
Test Sample	ILD (Luminous Default Indicator) Sensor		
Model Number	ILD	Serial No.	2100547320001
Operating Mode	Transmitting modulated(DTS) signal at 903 MHz		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)		
Technician	M. Seamans	Date	March 2 nd , 2016
Climatic Conditions	Temp: 21.0 °C Relative Humidity: 22.0 %		
Notes	Limit: -7.8 dBm		



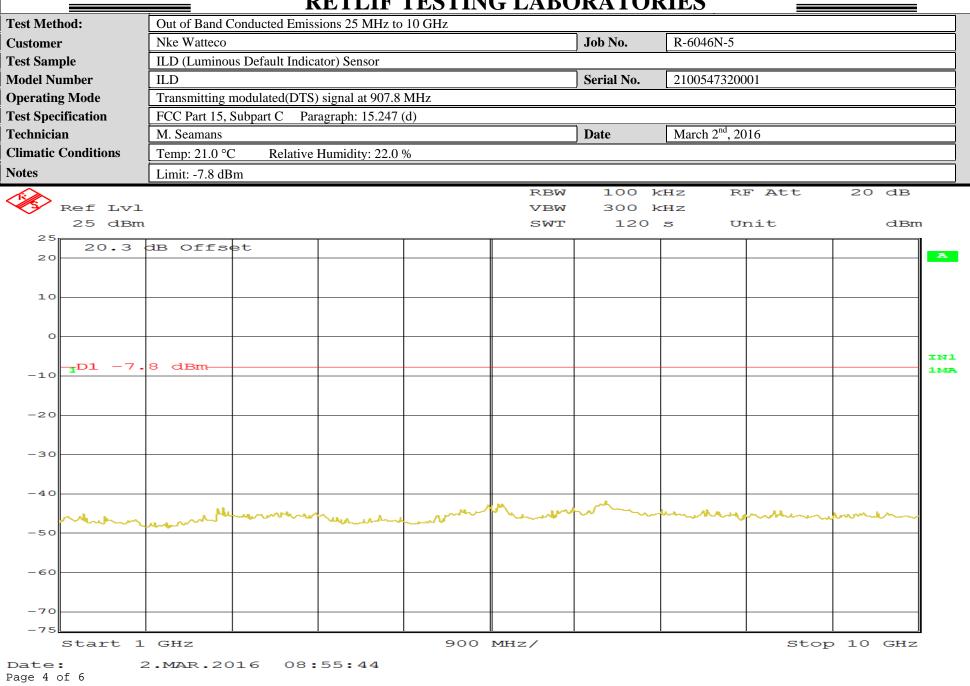
Test Method:	Out of Band Conducted Emissions 25 MHz to 10 GHz		
Customer	Nke Watteco	Job No.	R-6046N-5
Test Sample	ILD (Luminous Default Indicator) Sensor		
Model Number	ILD	Serial No.	2100547320001
Operating Mode	Transmitting modulated(DTS) signal at 903 MHz		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)		
Technician	M. Seamans	Date	March 2 nd , 2016
Climatic Conditions	Temp: 21.0 °C Relative Humidity: 22.0 %		
Notes	Limit: -7.8 dBm		



DETLIE TESTING I ADODATODIES

Method:		conducted Emis	ssions 25 MHz to	o 10 GHz		7				
omer	Nke Watteco					Job No.	R-604	6N-5		
Sample	,	us Default Indic	cator) Sensor			7				
el Number	ILD					Serial No.	210054	47320001		
ating Mode	× *		5) signal at 907.8							
Specification		Subpart C Pa	ragraph: 15.247	(d)		-		1		
nician	M. Seamans					Date	March	2 nd , 2016		
atic Conditions	Temp: 21.0 °C	C Relative	Humidity: 22.0	%						
5	Limit: -7.8 dB	m								
\triangleright					RBW	100 3	<hz< td=""><td>RF Att</td><td>20 dB</td><td>\$</td></hz<>	RF Att	20 dB	\$
Ref Lvl					VBW	300 1				
25 dBm					SWT	120	S	Unit	dB	\$m
20.3	lB Offs	et								
20										
10										
0										-
10 ID1 -7.	3 dBm									
20										
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60										-
70										
75										





DETLIE TESTING I ADODATODIES

er [Nke Watteco ILD (Luminou						- R 60//6	N-1		
5	1					Job No.	R-6046	JIN-5		
5		is Default Indica	ator) Sensor			_				
ode	ILD					Serial No.	210054	47320001		
) signal at 914.2							
tion		Subpart C Par	agraph: 15.247	(d)		-				
-	M. Seamans					Date	March	2 nd , 2016		
ditions	Temp: 21.0 °C	<u>Relative</u>	Humidity: 22.0	%						
	Limit: -7.8 dB	m								
					RBW	100 }	<hz< td=""><td>RF Att</td><td>20 0</td><td>dв</td></hz<>	RF Att	20 0	dв
f Lvl					VBW					
5 dBm					SWT	120	S	Unit	Ċ	dBm
20.3	lB Offse	et								Ξ,
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51 -7.8	3 dBm—						<u> </u>		+	
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	millen	man				man	-			
		<u> </u>			-				+	
							<u> </u>		<u> </u>	
	5 dBm 20.3 c 01 -7.8	f Lvl 5 dBm 20.3 dB Offse	f Lvl 5 dBm 20.3 dB Offset 01 -7.8 dBm	f Lvl 5 dBm 20.3 dB Offset	f Lvl 5 dBm 20.3 dB offset 01 -7.8 dBm 01	RBW 5 dBm SWT 20.3 dB Offset 01 -7.8 dBm	REW 100 h S dBm SWT 120 20.3 dB offset Image: strain	RBW 100 kHz 5 dBm SWT 120 s 20.3 dB offset Image: Constraint of the second	RBW 100 kHz RF Att f Lvl 5 dBm SWT 120 s Unit 20.3 dB offset 0 1 -7.8 dBm 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	RBW 100 kHz RF Att 20 c yew 300 kHz SWT 120 s Unit c 20.3 dB offset





Antenna Terminal Out of Band/Band Edge Conducted Emissions, 25 MHz to 10 GHz Test Data

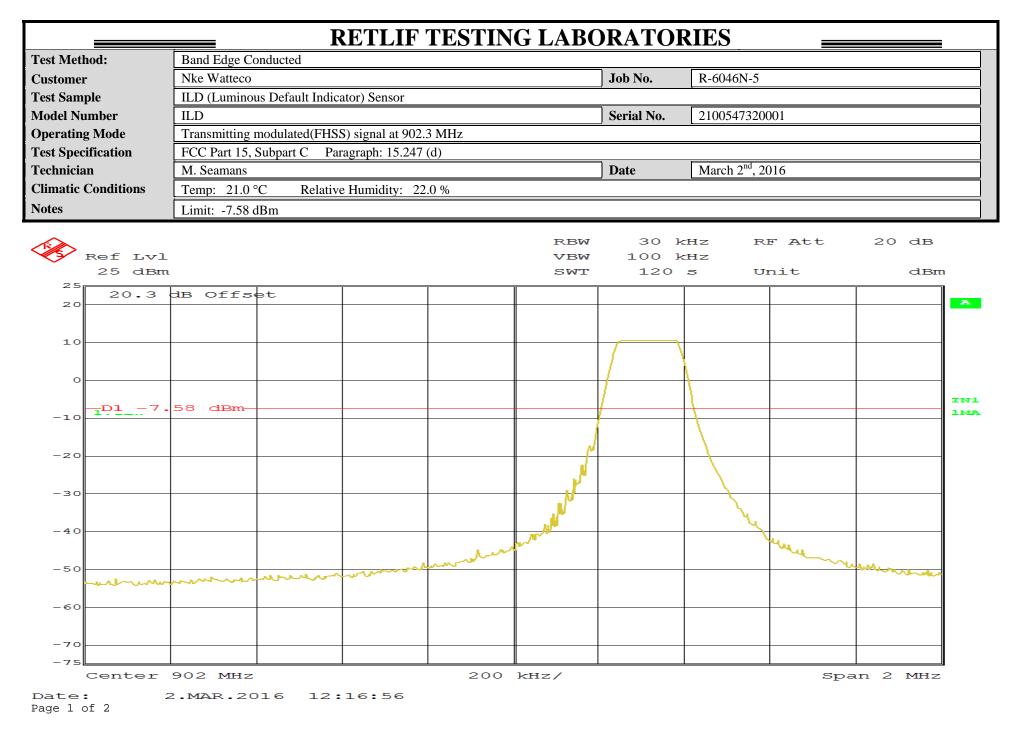


Retlif Testing Laboratories

Band Edge Conducted FHSS Test Data



Retlif Testing Laboratories



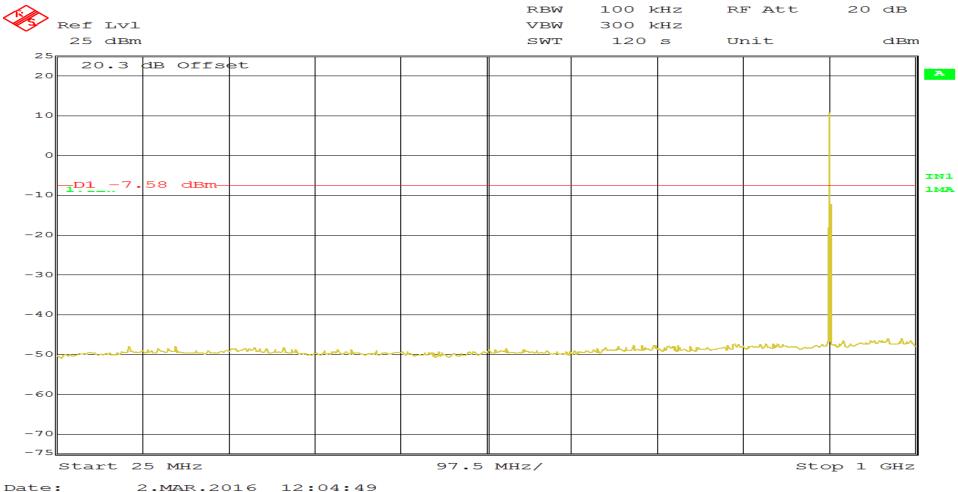
			R	ETLIF '	TESTIN	G LABC	RATOR	RIES			
Test Met	hod:	Band Edge Co						· · ·			
Customer	r	Nke Watteco					Job No.	R-6046N-5			
Test Sam	ple	ILD (Luminou	us Default Indica	tor) Sensor							
Model Nu	ımber	ILD					Serial No.	21005473200	001		
Operating	g Mode	Transmitting 1	modulated(FHSS	5) signal at 914.9	9 MHz		-				
Test Spec	rification	FCC Part 15,	Subpart C Par	agraph: 15.247 ((d)						
Technicia	in	M. Seamans					Date	March 2 nd , 20)16		
Climatic	Conditions	Temp: 21.0 °	°C Relative	Humidity: 22.	.0 %						
Notes		Limit: -7.58 c	lBm								
	Ref Lvl 25 dBm					RBW VBW SWT		Hz	F Att nit	20 dB dBm	
25	20.3	dB Offs	et								I
20											A
10											
0											
		58 dBm-									IN1
-10											
-20											
-30											
-30											
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10											
-50											
	Marine and L	and the stars					and the second second	kura kura da			
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-70											
-75											
Date: Page 2 d		928 MHZ 2.MAR.20	016 12:	19 : 30	200	kHz/			Spa	n 2 MHz	

Out of Band Conducted Emissions FHSS Test Data

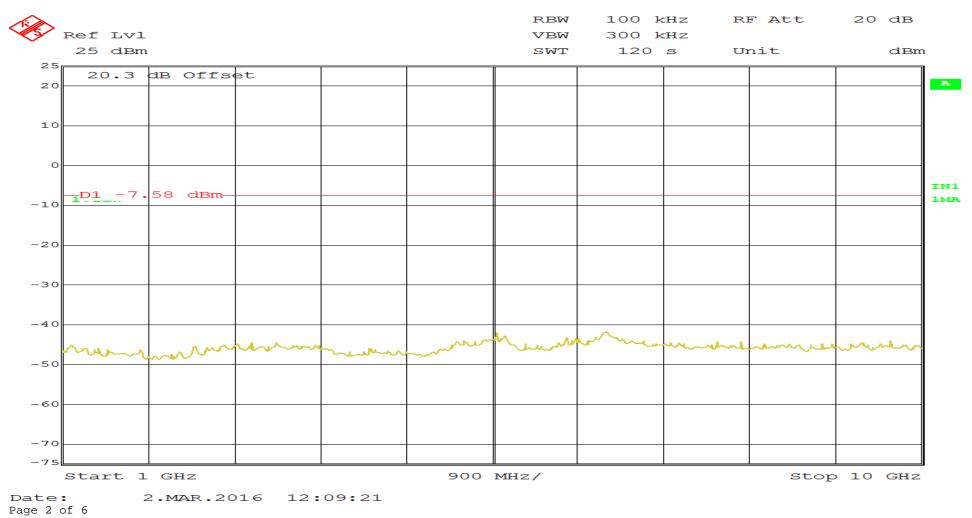


Retlif Testing Laboratories

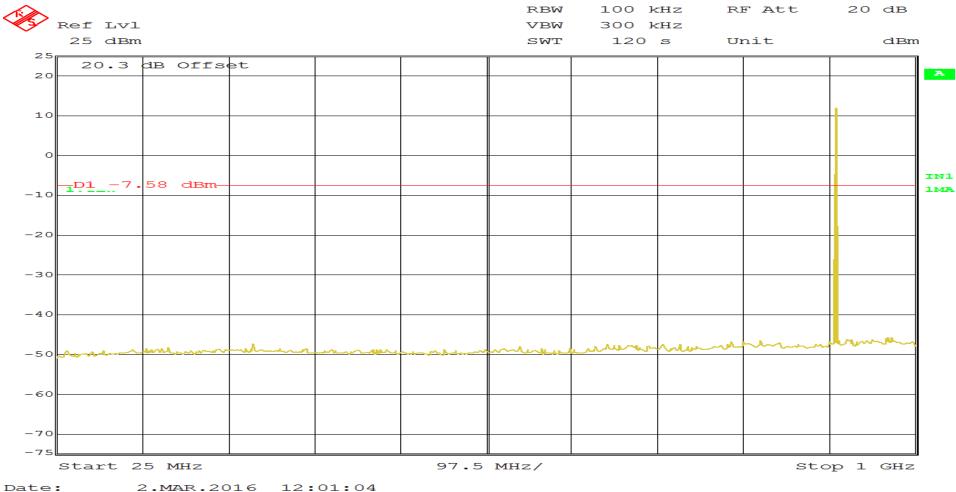
Test Method:	Out of Band Conducted Emissions 25 MHz to 10 GHz		
Customer	Nke Watteco	Job No.	R-6046N-5
Test Sample	ILD (Luminous Default Indicator) Sensor		
Model Number	ILD	Serial No.	2100547320001
Operating Mode	Transmitting modulated(FHSS) signal at 902.3 MHz		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)		
Technician	M. Seamans	Date	March 2 nd , 2016
Climatic Conditions	Temp: 21.0 °C Relative Humidity: 22.0 %		
Notes	Limit: -7.58 dBm		



Test Method:	Out of Band Conducted Emissions 25 MHz to 10 GHz		
Customer	Nke Watteco	Job No.	R-6046N-5
Test Sample	ILD (Luminous Default Indicator) Sensor		
Model Number	ILD	Serial No.	2100547320001
Operating Mode	Transmitting modulated(FHSS) signal at 902.3 MHz		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)		
Technician	M. Seamans	Date	March 2 nd , 2016
Climatic Conditions	Temp: 21.0 °C Relative Humidity: 22.0 %		
Notes	Limit: -7.58 dBm		

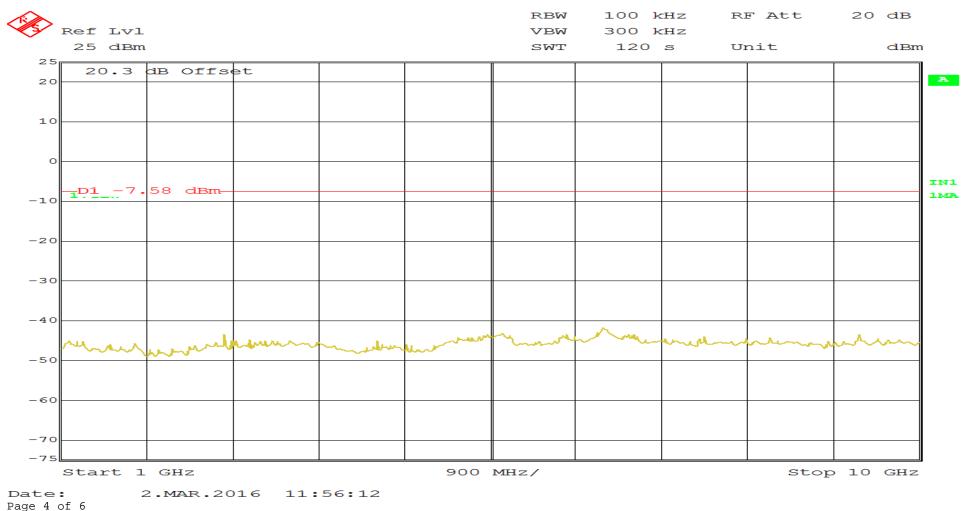


Test Method:	Out of Band Conducted Emissions 25 MHz to 10 GHz		
Customer	Nke Watteco	Job No.	R-6046N-5
Test Sample	ILD (Luminous Default Indicator) Sensor		
Model Number	ILD	Serial No.	2100547320001
Operating Mode	Transmitting modulated(FHSS) signal at 908.5 MHz		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)		
Technician	M. Seamans	Date	March 2 nd , 2016
Climatic Conditions	Temp:21.0 °CRelative Humidity:22.0 %		
Notes	Limit: -7.58 dBm		

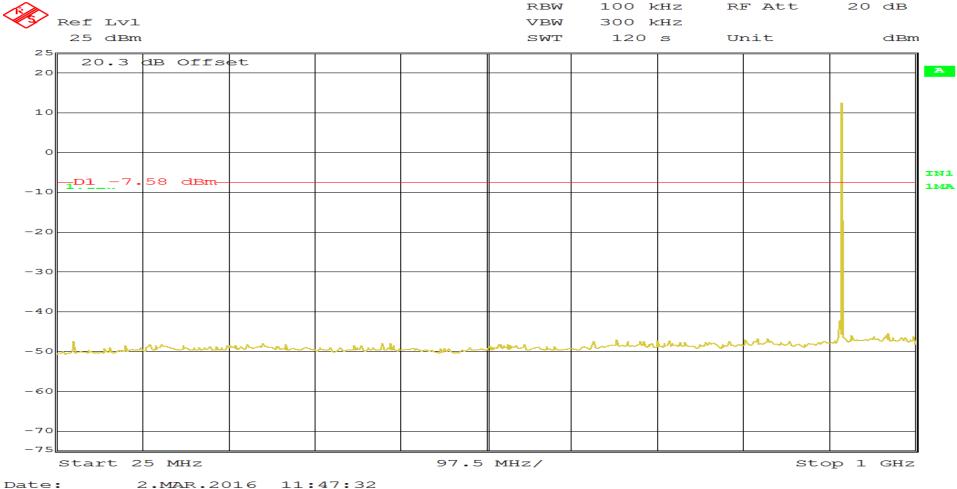


Page 3 of 8

Test Method:	Out of Band Conducted Emissions 25 MHz to 10 GHz		
Customer	Nke Watteco	Job No.	R-6046N-5
Test Sample	ILD (Luminous Default Indicator) Sensor		
Model Number	ILD	Serial No.	2100547320001
Operating Mode	Transmitting modulated(FHSS) signal at 908.5 MHz		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)		
Technician	M. Seamans	Date	March 2 nd , 2016
Climatic Conditions	Temp:21.0 °CRelative Humidity:22.0 %		
Notes	Limit: -7.58 dBm		

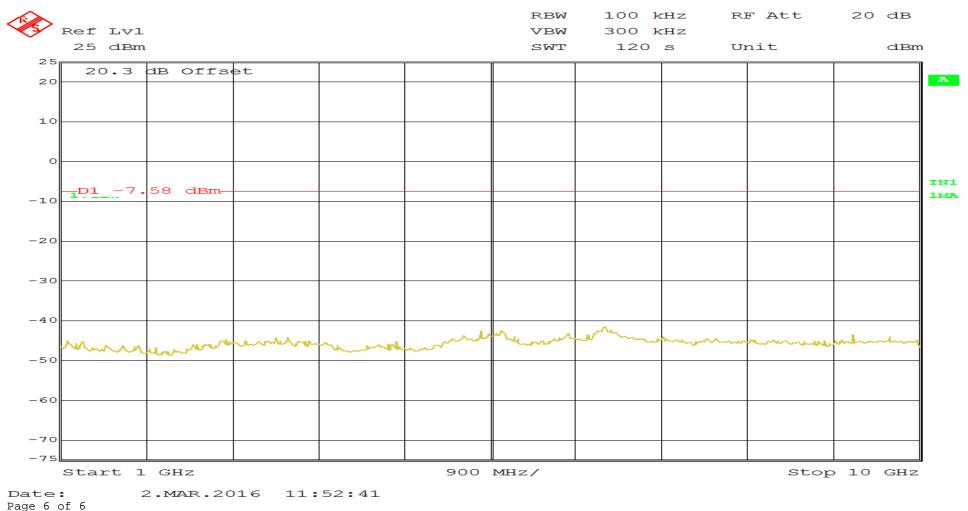


Test Method:	Out of Band Conducted Emissions 25 MHz to 10 GHz		
Customer	Nke Watteco	Job No.	R-6046N-5
Test Sample	ILD (Luminous Default Indicator) Sensor		
Model Number	ILD	Serial No.	2100547320001
Operating Mode	Transmitting modulated(FHSS) signal at 914.9 MHz		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)		
Technician	M. Seamans	Date	March 2 nd , 2016
Climatic Conditions	Temp:21.0 °CRelative Humidity:22.0 %		
Notes	Limit: -7.58 dBm		



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Test Method:	Out of Band Conducted Emissions 25 MHz to 10 GHz		
Customer	Nke Watteco	Job No.	R-6046N-5
Test Sample	ILD (Luminous Default Indicator) Sensor		
Model Number	ILD	Serial No.	2100547320001
Operating Mode	Transmitting modulated(FHSS) signal at 914.9 MHz		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (d)		
Technician	M. Seamans	Date	March 2 nd , 2016
Climatic Conditions	Temp:21.0 °CRelative Humidity:22.0 %		
Notes	Limit: -7.58 dBm		

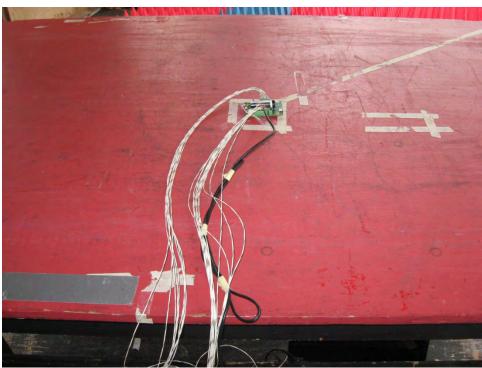


Test Photograph(s) Out of Band/Band Edge Radiated Emissions, 30 MHz to 10 GHz FCC Section 15.247(d)



Retlif Testing Laboratories

Test Photograph(s) Out of Band/Band Edge Radiated Emissions



Test Setup



Retlif Testing Laboratories

Test Photograph(s) Out of Band/Band Edge Radiated Emissions



30 MHz - 1 GHz, Horizontal Polarization



30 MHz - 1 GHz, Vertical Polarization



Retlif Testing Laboratories



Test Photograph(s) Out of Band/Band Edge Radiated Emissions

1 GHz – 10 GHz, Horizontal Polarization



Unwanted Emissions into Restricted Frequency Bands 30 MHz to 10 GHz DTS Test Data



Retlif Testing Laboratories

	= RETLIF TESTING LABORATORIES =	
	EMISSIONS TEST DATA SHEET	
Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Nke Watteco	
Job Number	R-6046N-5	
Test Sample	ILD (Luminous Default Indicator) Sensor	
Model Number	ILD	
Serial Number	2100547320001	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated (DTS) signal	
Technician	M. Seamans	
Date	March 4 th , 2016	

Detector: Quasi-Peak <1GHz, Average >1GHz

TEST PARAMETERS								
Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M	
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m	
37.50	-	-	-	-		-	100.00	
	38.00	9.00	14.20	23.20	*	14.45	Ι	
38.25	-	-	-	-		-	100.00	
73.00	-	-	-	-		-	100.00	
	74.00	14.14	8.36	22.50	*	13.34	Ι	
74.60	-	-	-	-		-	100.00	
74.80	_		_				100.00	
/4.00	75.00	14.14	8.36	22.50	*	13.24	100.00	
75.20	-	-	-	-		-	100.00	
108.00	-	-	-	-		-	150.00	
	115.00	4.68	10.02	14.70	*	5.43		
	-	-	-	-		-		
121.94	-	-	-	-		-	150.00	
123.00	-	-	-	-		-	150.00	
	132.00	3.06	9.44	12.50	*	4.22		
	-	-	-	-		-		
138.00	-	-	-	-		-	150.00	

No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).

Data Sheet 1 of 7



	= RETLIF TESTING LABORATORIES ==	
	EMISSIONS TEST DATA SHEET	
Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Nke Watteco	
Job Number	R-6046N-5	
Test Sample	ILD (Luminous Default Indicator) Sensor	
Model Number	ILD	
Serial Number	2100547320001	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated (DTS) signal	
Technician	M. Seamans	
Date	March 4 th , 2016	

Detector: Quasi-Peak <1GHz, Average >1GHz

TEST PARAMETERS								
Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M	
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m	
149.90	-	-	-	-		-	150.00	
	150.00	9.53	11.17	20.70	*	10.84		
150.05	-	-	-	-		-	150.00	
156.52	-	-	-	-		-	150.00	
	156.52	2.02	12.08	14.10	*	5.07		
156.52	-	-	-	-		-	150.00	
156.70	-	-	-	-			150.00	
	156.80	1.88	12.12	14.00	*	5.01		
156.90	-	-	-	-		-	150.00	
162.01	-	-	-	-		-	150.00	
	165.00	1.62	12.68	14.30	*	5.19		
167.17	-	-	-	-		-	150.00	
167.72	-	-	-	-			150.00	
	170.00	2.30	12.80	15.10	*	5.69		
173.20	-	-	-	-		-	150.00	

No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).

Data Sheet 2 of 7

	= RETLIF TESTING LABORATORIES		
	EMISSIONS TEST DATA SHEET		
Test Method	Unwanted Emissions into Restricted Frequency Bands		
Customer	Nke Watteco		
Job Number	R-6046N-5		
Test Sample	ILD (Luminous Default Indicator) Sensor		
Model Number	ILD		
Serial Number	2100547320001		
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247	7(d)
Operating Mode	Transmitting modulated (DTS) signal		
Technician	M. Seamans		
Date	March 4 th , 2016		

Detector: Quasi-Peak <1GHz, Average >1GHz

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m
240.00	-	-	-	-		-	200.00
	260.00	-0.75	16.85	16.10	*	6.38	
285.00	-	-	-	-		-	200.00
322.80	-	_	-	_			200.00
	330.00	0.39	18.91	19.30	*	9.23	
335.40	-	-	-	-		-	200.00
399.90	-	-	-	_			200.00
	405.00	0.61	21.49	22.10	*	12.74	200.00
410.00	-	-	-	-		-	200.00
608.00	-	-	-	_			200.00
	611.00	-0.64	27.34	26.70	*	21.63	
614.00	-	-	-	-		-	200.00
960.00	-	-	-	_		-	500.00
	975.00	1.00	32.10	33.10	*	45.19	
1240.00	-	-	-	-		-	500.00
1300.00	-	_	-	_		-	500.00
	1350.00	33.38	-9.50	23.88	*	15.63	
1427.00	-	-	-	-		-	500.00

Data Sheet 3 of 7



	= RETLIF TESTING LABORATORIES =	
	EMISSIONS TEST DATA SHEET	
Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Nke Watteco	
Job Number	R-6046N-5	
Test Sample	ILD (Luminous Default Indicator) Sensor	
Model Number	ILD	
Serial Number	2100547320001	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated (DTS) signal	
Technician	M. Seamans	
Date	March 4 th , 2016	
Notes: Antenna Test Di	stance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz	

	TEST PARAMETERS							
Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M	
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m	
1435.00	-	-	-	-		-	500.00	
	1500.00	33.94	-7.65	26.29	*	20.63		
1646.50	-	-	-	-		-	500.00	
1660.00	-	-	-	-		-	500.00	
	1680.00	32.52	-6.71	25.81	*	19.52		
1710.00	-	-	-	-		-	500.00	
1718.80	-	-	-	-		-	500.00	
	1720.00	33.44	-6.51	26.93	*	22.21		
1722.20	-	-	-	-		-	500.00	
2200.00	-	-	-	-		-	500.00	
	2250.00	33.34	-4.20	29.14	*	28.64		
2300.00	-	-	-	-		-	500.00	
2310.00	-	-	-	-		-	500.00	
	2360.00	33.67	-3.78	29.89	*	31.22		
2390.00	-	-	-	-		-	500.00	
2483.50	-	-	-	-		-	500.00	
	2490.00	33.10	-3.30	29.80	*	30.90		
2500.00	-	-	-	-			500.00	

No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).

Data Sheet 4 of 7



Report No. R-6046N-5

Retlif Testing Laboratories

	= RETLIF TESTING LABORATORIES =	
	EMISSIONS TEST DATA SHEET	
Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Nke Watteco	
Job Number	R-6046N-5	
Test Sample	ILD (Luminous Default Indicator) Sensor	
Model Number	ILD	
Serial Number	2100547320001	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated (DTS) signal	
Technician	M. Seamans	
Date	March 4 th , 2016	

Detector: Quasi-Peak <1GHz, Average >1GHz

	TEST PARAMETERS								
Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M		
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m		
2690.00	-	-	_	-			500.00		
	2709.00	53.75	-2.55	51.20		363.08			
	2723.40	53.86	-2.50	51.36		369.83			
	2742.60	55.20	-2.44	52.76		434.51			
2900.00	-	-	-	-		-	500.00		
3260.00	-	-	-	-		-	500.00		
	3263.00	32.82	-0.89	31.93	*	39.49			
3267.00	-	-	-	-		-	500.00		
3332.00	-	_	_	-			500.00		
	3336.00	34.05	-0.70	33.35	*	46.51			
3339.00	-	-	-	-		-	500.00		
3345.00	-	-	_	-		-	500.00		
	3350.00	32.77	-0.66	32.11	*	40.32			
3358.00	-	-	-	-		-	500.00		
3600.00	-	_	_	-		-	500.00		
	3612.00	33.05	0.01	33.06	*	44.98			
	3631.20	32.88	0.06	32.94	*	43.85			
	3656.80	32.87	0.12	32.99	*	44.62			

EUT emissions observed throughout the given frequency spectrum were recorded and evaluated. Emission levels closest to the limit are listed on this data sheet. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).

Data Sheet 5 of 7

Retlif Testing Laboratories



	RETLIF TESTING LABORATORIES ==	
	EMISSIONS TEST DATA SHEET	
Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Nke Watteco	
Job Number	R-6046N-5	
Test Sample	ILD (Luminous Default Indicator) Sensor	
Model Number	ILD	
Serial Number	2100547320001	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated (DTS) signal	
Technician	M. Seamans	
Date	March 4 th , 2016	

Detector: Quasi-Peak <1GHz, Average >1GHz

				ARAMETER	5		
Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m
	-		-	-		-	
4400.00	-	-	-	-		-	500.00
4500.00	-		-	_		-	500.00
	4515.00	32.45	1.67	34.12	*	50.82	00.00
	4539.00	32.46	1.70	34.16	*	51.05	
	4571.00	34.02	1.74	35.76	*	61.38	
	-	-	-	-		-	
5150.00	-	-	-	-		-	500.00
5350.00	_	_	-	_		-	500.00
	5400.00	32.10	2.77	34.87	*	55.40	
5460.00	-	-	-	-		-	500.00
7250.00	-	-	-	_		_	500.00
	7500.00	32.67	3.60	36.27	*	65.09	
7750.00	-	-	-	-		-	500.00
8025.00	-	_	-	_		-	500.00
	8127.00	33.24	4.65	37.89	*	78.43	
	8170.20	33.11	5.30	38.41	*	83.27	
	8227.80	32.90	5.33	38.23	*	81.56	
	-	-	-	-		-	
8500.00	-	-	-	-		-	500.00

* This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).

Data Sheet 6 of 7



Report No. R-6046N-5

Retlif Testing Laboratories

	RETLIF TESTING LABORATORIES	
	EMISSIONS TEST DATA SHEET	
Test Method	Unwanted Emissions into Restricted Frequency Bands	
Customer	Nke Watteco	
Job Number	R-6046N-5	
Test Sample	ILD (Luminous Default Indicator) Sensor	
Model Number	ILD	
Serial Number	2100547320001	
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)
Operating Mode	Transmitting modulated (DTS) signal	
Technician	M. Seamans	
Date	March 4 th , 2016	

Detector: Quasi-Peak <1GHz, Average >1GHz

TEST PARAMETERS									
Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M		
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m		
9000.00	-	-	-	-		-	500.00		
	9085.00	33.75	5.38	39.13	*	90.47			
9200.00	-	-	-	-		-	500.00		
9300.00	-	-	-	-		-	500.00		
	9400.00	33.24	6.95	40.19	*	102.21			
9500.00	-	-	-	-		-	500.00		
					ed test distance throug stem sensitivity (Nois	hout the given frequency e Floor).	y spectrum.		
						Data Sheet 7 of	7		
				®		sting Laborate			

Unwanted Emissions into Restricted Frequency Bands 30 MHz to 10 GHz FHSS Test Data



Retlif Testing Laboratories

	RETLIF TESTING LABORATORIES						
	EMISSIONS TEST DATA SHEET						
Test Method	Unwanted Emissions into Restricted Frequency Bands						
Customer	Nke Watteco						
Job Number	R-6046N-5						
Test Sample	ILD (Luminous Default Indicator) Sensor						
Model Number	ILD						
Serial Number	2100547320001						
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)					
Operating Mode	Transmitting hopping frequency data						
Technician	M. Seamans						
Date	March 4 th , 2016						

Detector: Quasi-Peak <1GHz, Average >1GHz

ency Rea Hz dB 00 9. 00 14 00 14	ding auV 	Correction Factor dB - 14.20 - - 8.36 -	Corrected Reading dBuV/m - 23.20 - 23.20 - 23.20 - 22.50 -	*	Converted Reading uV/m - 14.45 - - 13.34	Limit at 3M uV/m 100.00 I 100.00 I 100.00 I I
00 9.	- 00 	- 14.20 - - 8.36	- 23.20 		- 14.45 - - 13.34	100.00 I 100.00 100.00 I
00 9.	00 		23.20		- - - - - - - - - - - - - -	I 100.00 100.00 I
00 14		- 8.36	- 22.50		13.34	100.00 100.00 I
00 14		- 8.36	- 22.50	*	- 13.34	100.00 I
00 14	-	8.36	22.50	*	13.34	Ι
00 14	-	8.36	22.50	*	13.34	Ι
	-			*		-
		-	-		-	100.00
			1			100.00
	-	-	-		-	100.00
00 14	.14	8.36	22.50	*	13.24	
	-	-	-		-	100.00
	-	-	-		-	150.00
.00 4.	68	10.02	14.70	*	5.43	
	-	-	-		-	
	-	-	-		-	150.00
	-	-	-		-	150.00
.00 3.	06	9.44	12.50	*	4.22	100100
		-	-			
	-	-	-		-	150.00
	00 4.	00 4.68 - - - - 00 3.06 - -	00 4.68 10.02 - - - - - - 00 3.06 9.44 - - -	00 4.68 10.02 14.70 - - - - - - - - - 00 3.06 9.44 12.50 - - -	00 4.68 10.02 14.70 * - - - - - - - - - - - - 00 3.06 9.44 12.50 * - - - -	00 4.68 10.02 14.70 * 5.43 - - - - - - - - - - - - - - - - - - - - - - - - - 00 3.06 9.44 12.50 * 4.22 - - - - -

No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).

Data Sheet 1 of 7



	RETLIF TESTING LABORATORIES						
	EMISSIONS TEST DATA SHEET						
Test Method	Unwanted Emissions into Restricted Frequency Bands						
Customer	Nke Watteco						
Job Number	R-6046N-5						
Test Sample	ILD (Luminous Default Indicator) Sensor						
Model Number	ILD						
Serial Number	2100547320001						
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)					
Operating Mode	Transmitting hopping frequency data						
Technician	M. Seamans						
Date	March 4 th , 2016						

Detector: Quasi-Peak <1GHz, Average >1GHz

TEST PARAMETERS									
Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M		
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m		
149.90	-	-	-	-		-	150.00		
	150.00	9.53	11.17	20.70	*	10.84			
150.05	-	-	-	-		-	150.00		
156.52	-	-	-	-		-	150.00		
	156.52	2.02	12.08	14.10	*	5.07			
156.52	-	-	-	-		-	150.00		
156.70	-	-	-	-			150.00		
	156.80	1.88	12.12	14.00	*	5.01			
156.90	-	-	-	-		-	150.00		
162.01	-	-	-	-		-	150.00		
	165.00	1.62	12.68	14.30	*	5.19			
167.17	-	-	-	-		-	150.00		
167.72	-	-	-	-			150.00		
	170.00	2.30	12.80	15.10	*	5.69			
173.20	-	-	-	-		-	150.00		

No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).

Data Sheet 2 of 7

Retlif Testing Laboratories

	RETLIF TESTING LABORATORIES						
	EMISSIONS TEST DATA SHEET						
Test Method	Unwanted Emissions into Restricted Frequency Bands						
Customer	Nke Watteco						
Job Number	R-6046N-5						
Test Sample	ILD (Luminous Default Indicator) Sensor						
Model Number	ILD						
Serial Number	2100547320001						
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)					
Operating Mode	Transmitting hopping frequency data						
Technician	M. Seamans						
Date	March 4 th , 2016						

Detector: Quasi-Peak <1GHz, Average >1GHz

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m
240.00	-	-	-	-		-	200.00
	260.00	-0.75	16.85	16.10	*	6.38	
285.00	-	-	-	-		-	200.00
322.80	_	_	_	-		-	200.00
	330.00	0.39	18.91	19.30	*	9.23	
335.40	-	-	-	-		-	200.00
399.90	_		_				200.00
	405.00	0.61	21.49	22.10	*	12.74	200.00
410.00	-	-	-	-		-	200.00
608.00	-	_	-	_			200.00
	611.00	-0.64	27.34	26.70	*	21.63	200.00
614.00	-	-	-	-		-	200.00
960.00	-	-	-	-		-	500.00
	975.00	1.00	32.10	33.10	*	45.19	000.00
1240.00	-	-	-	-		-	500.00
1300.00	-	_	_	-			500.00
	1350.00	33.38	-9.50	23.88	*	15.63	
1427.00	-	-	-	-		-	500.00

Data Sheet 3 of 7



RETLIF TESTING LABORATORIES							
	EMISSIONS TEST DATA SHEET						
Test Method	Unwanted Emissions into Restricted Frequency Bands						
Customer	Nke Watteco	Vke Watteco					
Job Number	R-6046N-5						
Test Sample	ILD (Luminous Default Indicator) Sensor						
Model Number	ILD						
Serial Number	2100547320001						
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)					
Operating Mode	Transmitting hopping frequency data						
Technician	M. Seamans						
Date	March 4 th , 2016						
Notes: Antenna Test D	istance: 3 meters Detector: Quasi-Peak <1GHz, Average >1GHz						

			TEST PA	ARAMETER	S		
Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m
1435.00	-	-	-	-		-	500.00
	1500.00	33.94	-7.65	26.29	*	20.63	
1646.50	-	-	-	-		-	500.00
1660.00	-	_	_	_			500.00
	1680.00	32.52	-6.71	25.81	*	19.52	500.00
1710.00	-	-	-	-		-	500.00
1718.80	-	_	_	-			500.00
	1720.00	33.44	-6.51	26.93	*	22.21	
1722.20	-	-	-	-		-	500.00
2200.00							500.00
	2250.00	33.34	-4.20	29.14	*	28.64	500.00
2300.00	-	-	-	-		-	500.00
2310.00	-	_	_	-			500.00
	2360.00	33.67	-3.78	29.89	*	31.22	
2390.00	-	-	-	-		-	500.00
2483.50	_	_	_	_			500.00
	2490.00	33.10	-3.30	29.80	*	30.90	000.00
2500.00	-	-	-	-		-	500.00

No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).

Data Sheet 4 of 7



Report No. R-6046N-5

Retlif Testing Laboratories

	RETLIF TESTING LABORATORIES						
	EMISSIONS TEST DATA SHEET						
Test Method	Unwanted Emissions into Restricted Frequency Bands						
Customer	Nke Watteco						
Job Number	R-6046N-5						
Test Sample	ILD (Luminous Default Indicator) Sensor						
Model Number	ILD						
Serial Number	2100547320001						
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)					
Operating Mode	Transmitting hopping frequency data						
Technician	M. Seamans						
Date	March 4 th , 2016						

Detector: Quasi-Peak <1GHz, Average >1GHz

			TEST PA	ARAMETER	S		
Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m
2690.00	-	-	-	-		-	500.00
	2706.90	33.01	-2.56	30.45	*	33.30	
	2725.50	33.17	-2.49	30.68	*	34.20	
	2744.70	33.54	-2.43	31.11	*	35.93	
2900.00	-	-	-	-		-	500.00
3260.00	-	_	_	-		-	500.00
	3263.00	32.82	-0.89	31.93	*	39.49	
3267.00	-	-	-	-		-	500.00
3332.00	_	_	_	-			500.00
	3336.00	34.05	-0.70	33.35	*	46.51	00000
3339.00	-	-	-	-		-	500.00
3345.00	-	-	-	-		-	500.00
	3350.00	32.77	-0.66	32.11	*	40.32	
3358.00	-	-	-	-		-	500.00
3600.00	-	_	-	-			500.00
	3609.20	33.04	0.00	33.04	*	44.87	
	3659.60	32.97	0.13	33.10	*	45.19	
	3634.00	33.02	0.07	33.09	*	45.19	

No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum. * This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).

Data Sheet 5 of 7



Report No. R-6046N-5

Retlif Testing Laboratories

RETLIF TESTING LABORATORIES					
EMISSIONS TEST DATA SHEET					
Test Method	Unwanted Emissions into Restricted Frequency Bands				
Customer	Nke Watteco				
Job Number	R-6046N-5				
Test Sample	ILD (Luminous Default Indicator) Sensor				
Model Number	ILD				
Serial Number	2100547320001				
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)			
Operating Mode	Transmitting hopping frequency data				
Technician	M. Seamans				
Date	March 4 th , 2016				

Notes: Antenna Test Distance: 3 meters

Detector: Quasi-Peak <1GHz, Average >1GHz

Restricted Band	Measured Frequency	Meter Reading	Correction Factor	ARAMETERS Corrected Reading		Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m
	-		-	-		-	
4400.00	-	-	-	-		-	500.00
4500.00	_		_	_		-	500.00
	4511.50	32.44	1.66	34.10	*	50.70	
	4574.50	32.76	1.75	34.51	*	53.15	
	4542.50	32.50	1.71	34.21	*	51.35	
	-	-	-	-		-	
5150.00	-	-	-	-		-	500.00
5350.00	-	_	-	-		-	500.00
	5400.00	32.10	2.77	34.87	*	55.40	
5460.00	-	-	-	-		-	500.00
7250.00	_		_	_		-	500.00
	7500.00	32.67	3.60	36.27	*	65.09	
7750.00	-	-	-	-		-	500.00
8025.00	-	_	-	_		-	500.00
	8120.70	33.55	5.29	38.84	*	87.50	
	8176.50	33.51	5.34	38.85	*	87.60	
	8234.10	33.06	5.38	38.44	*	83.56	
	-	-	-	-		-	
8500.00	-	-	-	-		-	500.00

* This emission is not from the EUT. It is a measurement of minimum measurement system sensitivity (Noise Floor).

Data Sheet 6 of 7



Report No. R-6046N-5

Retlif Testing Laboratories

RETLIF TESTING LABORATORIES					
EMISSIONS TEST DATA SHEET					
Test Method	Unwanted Emissions into Restricted Frequency Bands				
Customer	Nke Watteco				
Job Number	R-6046N-5				
Test Sample	ILD (Luminous Default Indicator) Sensor				
Model Number	ILD				
Serial Number	2100547320001				
Test Specification	FCC Part 15 Subpart C	Paragraph: 15.247(d)			
Operating Mode	Transmitting hopping frequency data				
Technician	M. Seamans				
Date	March 4 th , 2016				

Notes: Antenna Test Distance: 3 meters

Detector: Quasi-Peak <1GHz, Average >1GHz

	1			ARAMETER	<u>S</u>		
Restricted Band	Measured Frequency	Meter Reading	Correction Factor	Corrected Reading		Converted Reading	Limit at 3M
MHz	MHz	dBuV	dB	dBuV/m		uV/m	uV/m
9000.00	-	-	-	-		-	500.00
	9085.00	33.75	5.38	39.13	*	90.47	
9200.00	-	-	-	-		-	500.00
9300.00	-	-	-	-		-	500.00
	9400.00	33.24	6.95	40.19	*	102.21	
9500.00	-	-	-	-		-	500.00
No EUT emiss * This emissio	n is not from the E	of the specified t UT. It is a measu	est limit were obse rement of minimu	rved at the specifi m measurement sy	ed test distance throu stem sensitivity (Noi	ghout the given frequency ise Floor).	y spectrum.
						Data Sheet 7 of	7
				B	Retlif Te	sting Laborat	ories

Test Photograph(s) Power Density FCC Section 15.247(e)



Retlif Testing Laboratories

<section-header><section-header>

Test Configuration

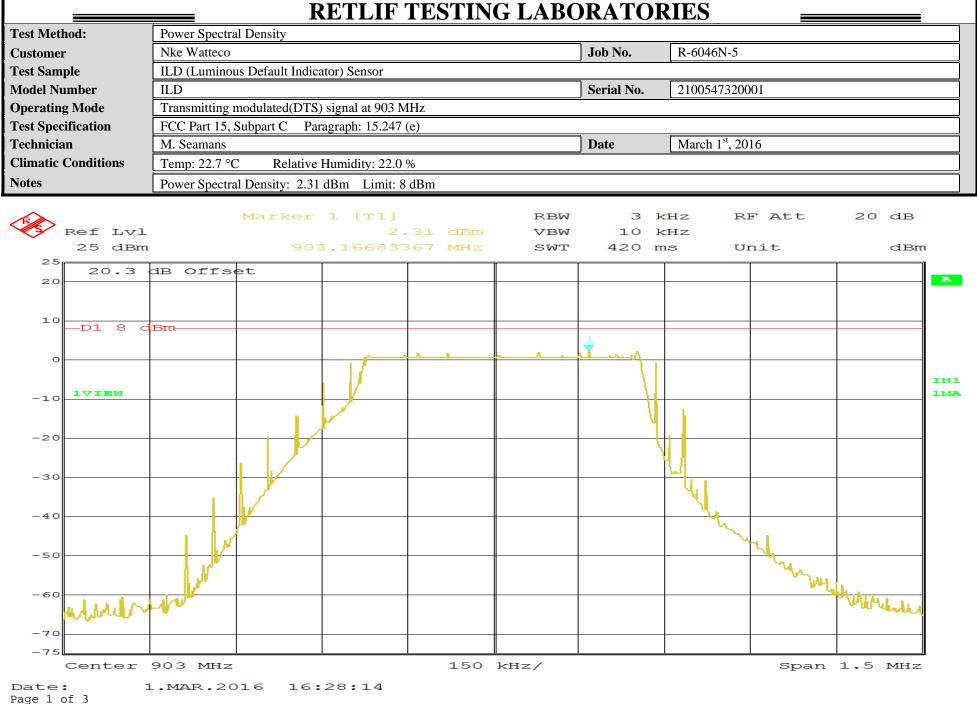


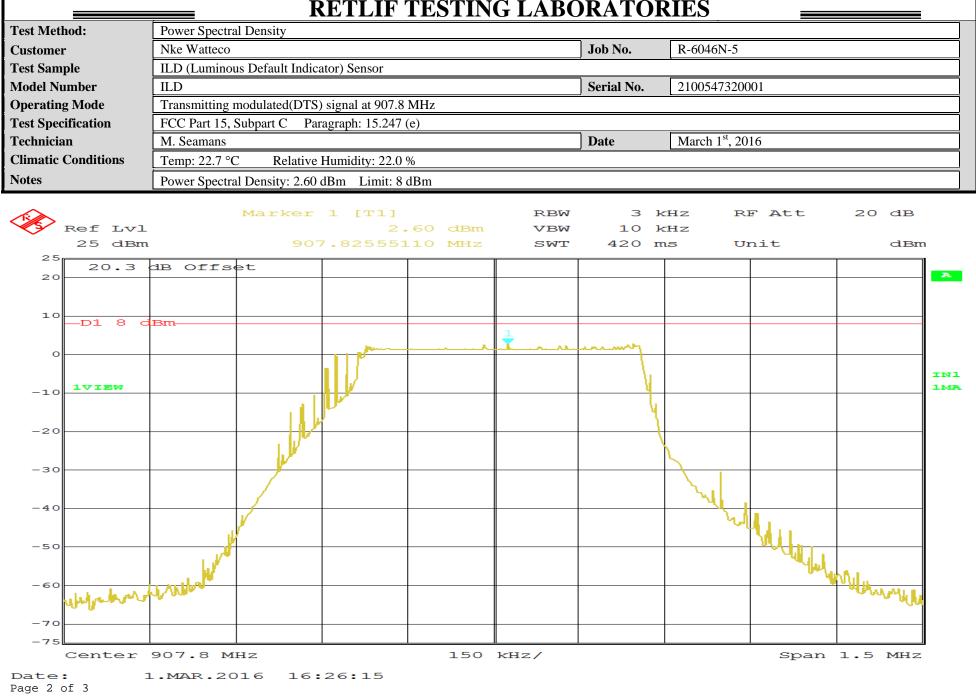
Retlif Testing Laboratories

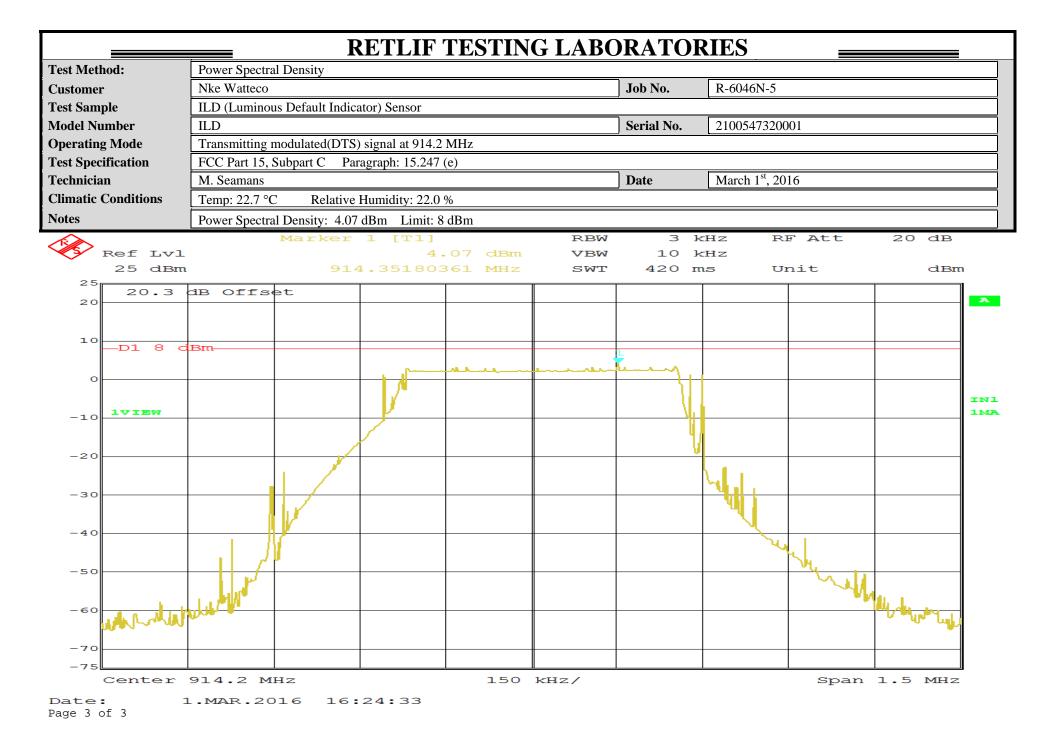
Power Spectral Density Test Data



Retlif Testing Laboratories







Test Photograph(s) FHSS Bandwidth 20 dB Bandwidth FCC Section 15.247(a)(1)



Retlif Testing Laboratories

Test Photograph(s) FHSS Bandwidth 20 dB Bandwidth



Test Setup



Retlif Testing Laboratories

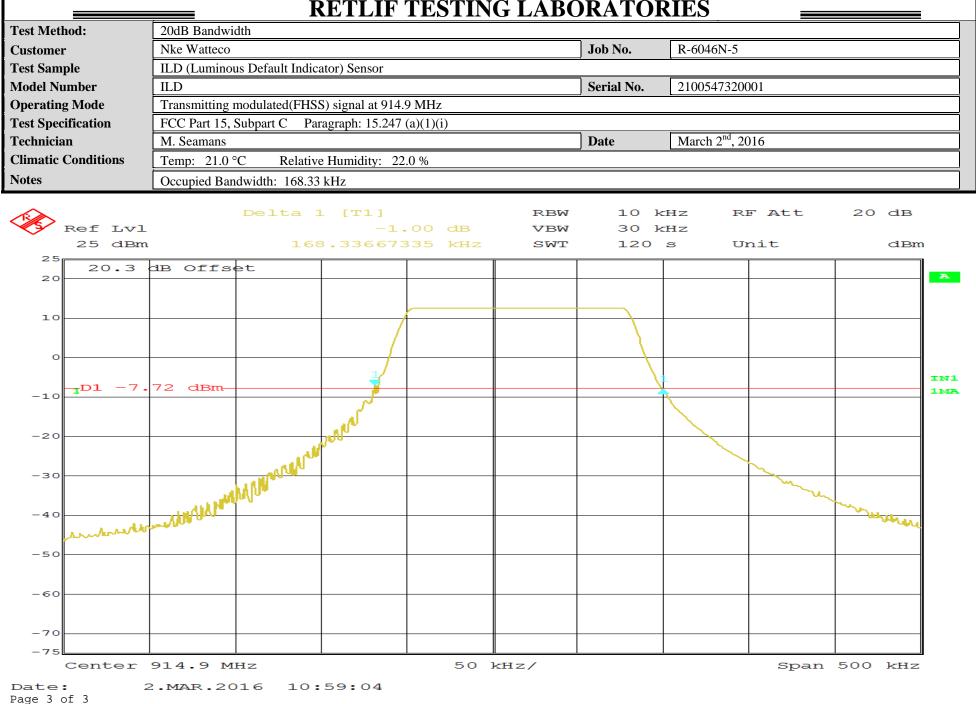
FHSS Bandwidth 20 dB Bandwidth Test Data



Retlif Testing Laboratories

Method: omer	20dB Bandwi Nke Watteco					Job No.	R-6046N-5		
		Deferit Ind'	ton) Correr			JUD 140.	K-0040IN-3		
Sample		us Default Indica	uor) Sensor			G	2100547220	201	
el Number	ILD	modulate 4/EUO	l) signal at 002	2 MHz		Serial No.	2100547320	001	
ating Mode		modulated(FHSS							
Specification nician	M. Seamans	Subpart C Par	agraph: 15.247	(a)(1)(1)		Date	March 2 nd , 2	016	
atic Conditions		C Deletion	Humidity: 22	0.0/		Date		010	
	Temp: 21.0			2.0 %					
8	Occupied Bar	ndwidth: 167.33	KHZ						
x		Delta 1	[T1]		RBW	10 k	HZ R	F Att	20 dB
Ref Lvl				.36 dB	VBW		HZ		
25 dBm	L	167	.334669	934 kHz	SWT	120	s U	nit	dBm
25 20.3	dB Offs	et							
20									
10									
			/			$\langle \rangle$			
0									
						$\langle \cdot \rangle$			
$10 = \frac{1}{D1} - 9$	62 dBm-								
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50	ſ								
60									
70									
75	<u> </u> 902.3 м	I		<u> </u>					500 kHz

omer	Nke Watteco					Job No.	R-6046N-5		
Sample		s Default Indica	ator) Sensor				1		
el Number	ILD (Lummor					Serial No.	21005473200	01	
ating Mode		nodulated(FHSS	5) signal at 908.	5 MHz			21003173200	01	
Specification		Subpart C Par							
nician	M. Seamans					Date	March 2 nd , 20	16	
atic Conditions	Temp: 21.0 °	C Relative	e Humidity: 22	.0 %			, , ,	-	
s	Ī	dwidth: 168.33							
~	Occupied Dail	awiaan. 100.55	KIIZ						
		Delta 1	[T1]		RBW	10 k	HZ RE	7 Att	20 dB
Ref Lvl				36 dB	VBW		HZ		
25 dBm			3.336673	335 kHz	SWT	120	s Ur	nit	dBn
20.3	dB Offse	et							
20									
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70									
75									



Test Photograph(s) Number of Hopping Channels and Time of Occupancy FCC Section 15.247(a)(1)(iii)



Retlif Testing Laboratories

Test Photograph(s) Number of Hopping Channels and Time of Occupancy



Test Setup



Retlif Testing Laboratories

Number of Hopping Channels and Time of Occupancy Test Data



Retlif Testing Laboratories

DETLIE TECTING I ADODATODIES

					IESIIN	G LABU	JKAIUI	(IES			
Test Method:			opping Frequence	cies							
Customer		Nke Watteco					Job No.	R-6046N-5			
Test Sample		ILD (Luminou	us Default Indic	ator) Sensor			·	-			
Model Numbe	er	ILD					Serial No.	2100547320	001		
Operating Mo	de	Transmitting l	hopping frequen	cy data							
Test Specifica	tion	FCC Part 15,	Subpart C Par	ragraph: 15.247	(a)(1)(i)						
Technician		M. Seamans					Date	March 2 nd , 20	016		
Climatic Cond	litions	Temp: 21.0 °	°C Relativ	e Humidity: 22	2.0 %						
Notes		Total Number	of Hopping Fre	equencies: 64							
2.	f Lvl 5 dBm					RBW VBW SWT		Hz	F Att nit	20 dB dBm	n
	20.3	dB Offs	et								
20 10 0 -10 -20 -30 -40	TEW										INI
-50											
-60											
-70											
-75											
Ce Date: Page 1 of 2	2	905.4 M		18:18	680	kHz/			Span	6.8 MHz	

DETLIE TESTING I ADODATODIES

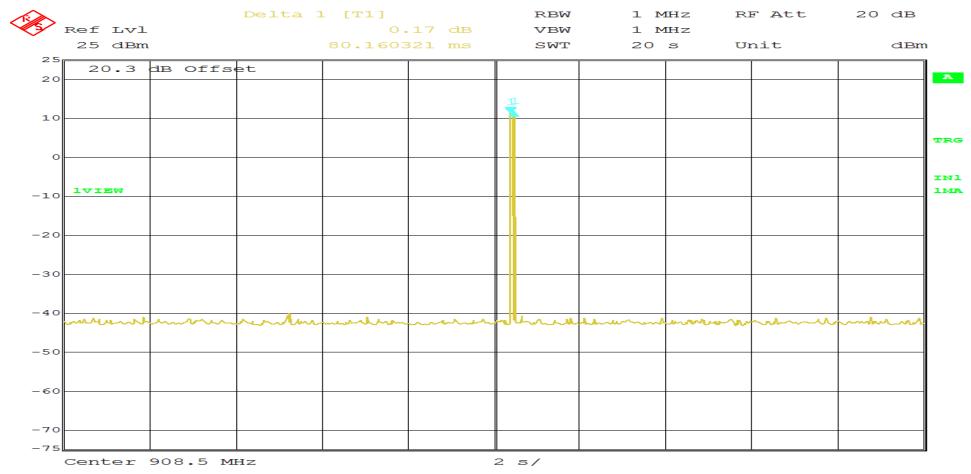
			KEILIF	1E211N	G LAB	JKATUI	(IES			<u>i </u>
est Method:		Hopping Frequer	ncies							
ıstomer	Nke Watteco	0				Job No.	R-6046N-5			
est Sample	ILD (Lumin	ous Default Indi	cator) Sensor							
odel Number	ILD					Serial No.	2100547320	001		
perating Mode	Transmitting	g hopping freque	ency data							
est Specification	FCC Part 15	· · · · · · · · · · · · · · · · · · ·	aragraph: 15.247	(a)(1)(i)		_				
echnician	M. Seamans					Date	March 2 nd , 2	016		
imatic Conditions	Temp: 21.0	O°C Relati	ve Humidity: 22	2.0 %						
otes	Total Numb	er of Hopping Fi	requencies: 64							
Ref L 25 di					RBW VBW SWT		Hz	F Att nit	20 dB dBm	n
25 20.3	3 dB Off:	set								
10					·	·	~~~~			-
-10										IN 1M
-20										
-40										-
-50										-
-60										
-70										1
-75										J
	r 911.95 2.MAR.2		:33:30	630	kHz/			Span	6.3 MHz] :

Time of Occupancy Test Data



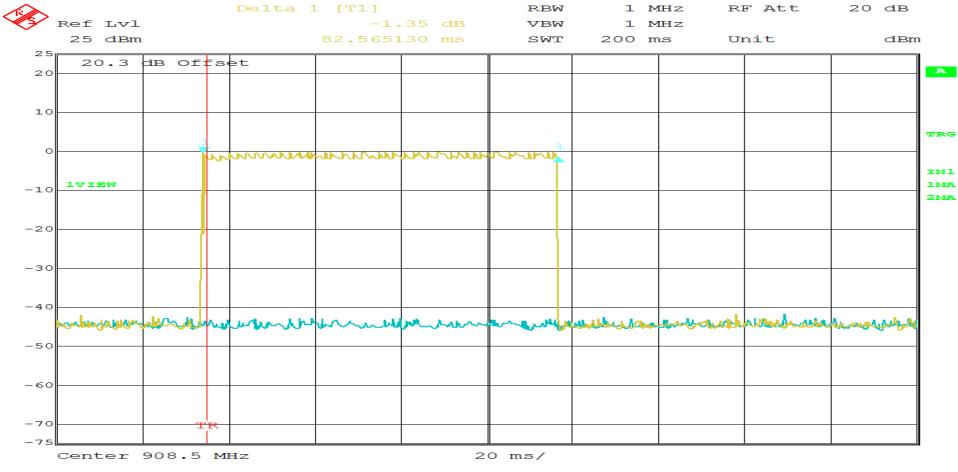
Retlif Testing Laboratories

Test Method:	Time of Occupancy		
Customer	Nke Watteco	Job No.	R-6046N-5
Test Sample	ILD (Luminous Default Indicator) Sensor		
Model Number	ILD	Serial No.	2100547320001
Operating Mode	Transmitting hopping frequency data		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(1)(i)		
Technician	M. Seamans	Date	March 2 nd , 2016
Climatic Conditions	Temp: 21.0 °C Relative Humidity: 22.0 %		
Notes	Test Frequency: 908.5 MHz Pulse Width: 82.56 ms		



Date: 2.MAR.2016 13:47:19 Page 1 of 2

Test Method:	Time of Occupancy		
Customer	Nke Watteco	Job No.	R-6046N-5
Test Sample	ILD (Luminous Default Indicator) Sensor		
Model Number	ILD	Serial No.	2100547320001
Operating Mode	Transmitting hopping frequency data		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(1)(i)		
Technician	M. Seamans	Date	March 2 nd , 2016
Climatic Conditions	Temp: 21.0 °C Relative Humidity: 22.0 %		
Notes	Test Frequency: 908.5 MHz Pulse Width: 82.56 ms		





Test Photograph(s) Channel Separation FCC Section 15.247(a)(1)



Retlif Testing Laboratories

Test Photograph(s) Channel Separation



Test Setup



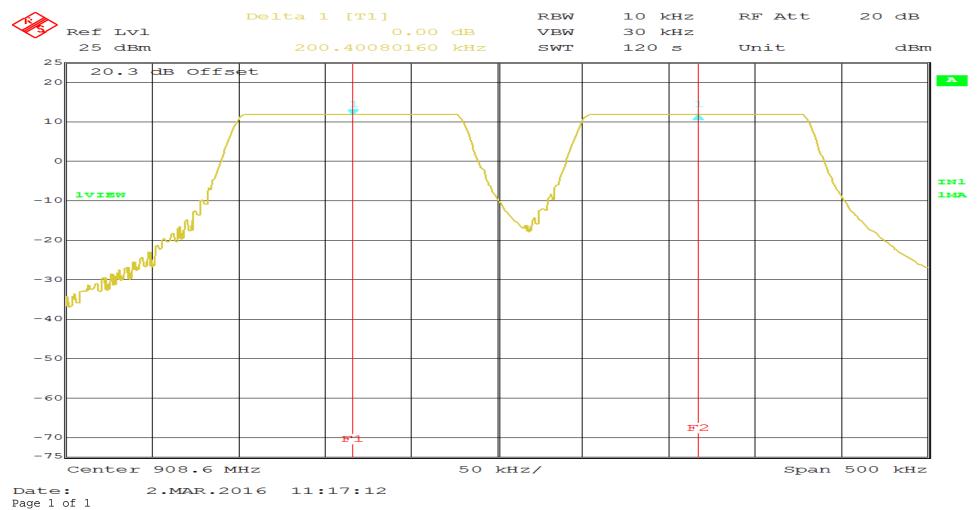
Retlif Testing Laboratories

Channel Separation Test Data



Retlif Testing Laboratories

Test Method:	Channel Carrier Frequency Separation		
Customer	Nke Watteco	Job No.	R-6046N-5
Test Sample	ILD (Luminous Default Indicator) Sensor		
Model Number	ILD	Serial No.	2100547320001
Operating Mode	Transmitting hopping frequency data		
Test Specification	FCC Part 15, Subpart C Paragraph: 15.247 (a)(1)		
Technician	M. Seamans	Date	March 2 nd , 2016
Climatic Conditions	Temp: 21.0 °C Relative Humidity: 22.0 %		
Notes	Channel Carrier Frequency Separation: 200.4 kHz		



Test Photograph(s) Conducted Emissions, Power Leads, 150 kHz to 30 MHz FCC Section 15.207(a)

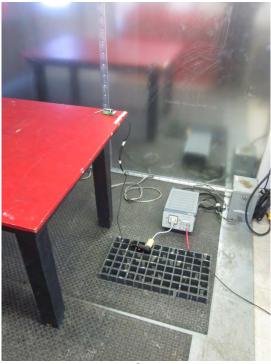


Retlif Testing Laboratories

Test Photograph(s) Conducted Emissions



Test Setup



Test Setup



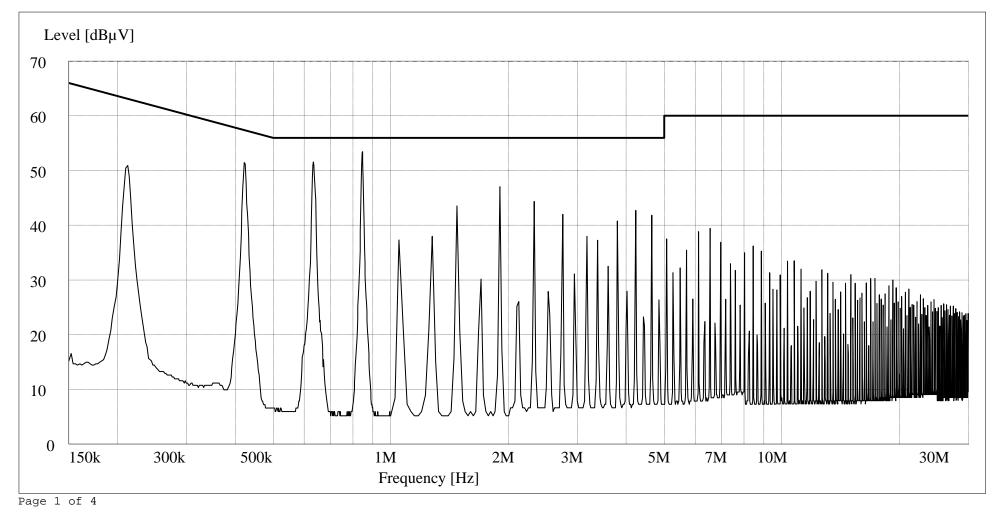
Retlif Testing Laboratories

Conducted Emissions Test Data



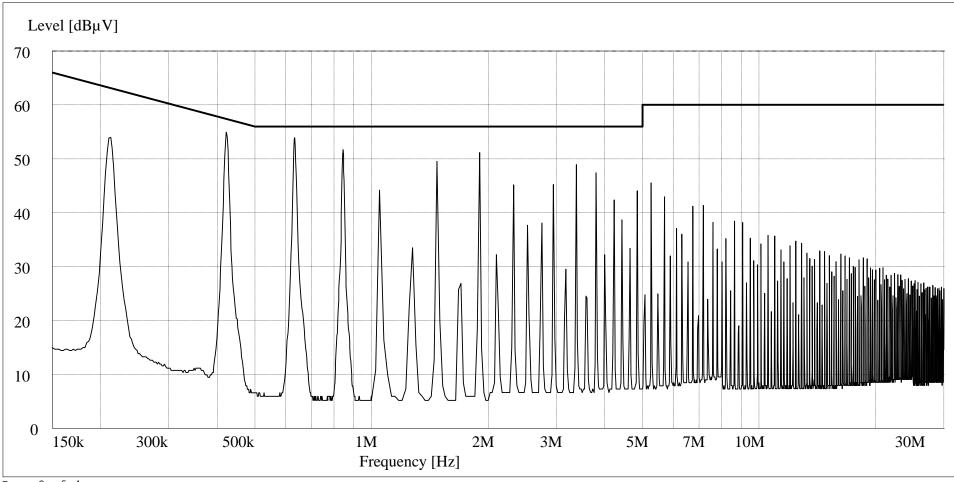
Retlif Testing Laboratories

Test Method	Conducted Emissions 150 kHz to 30 MHz		
Customer	Nke Watteco	Job No.	R-6046N-5
Test Sample	ILD (Luminous Default Indicator) Sensor		
Model No.	ILD	Serial No.	2100547320001
Operating Mode	Transmitting modulated signal		
Test Specification	FCC Part 15. 207(a)		
Technician	M. Seamans	Date	March 3 rd , 2016
Climatic Conditions	Temp:24.0 °CRelative Humidity:14.0 %		
Lead Tested	120 VAC 60 Hz Hot Quasi-Peak Readings to Quasi-Peak Limits.		



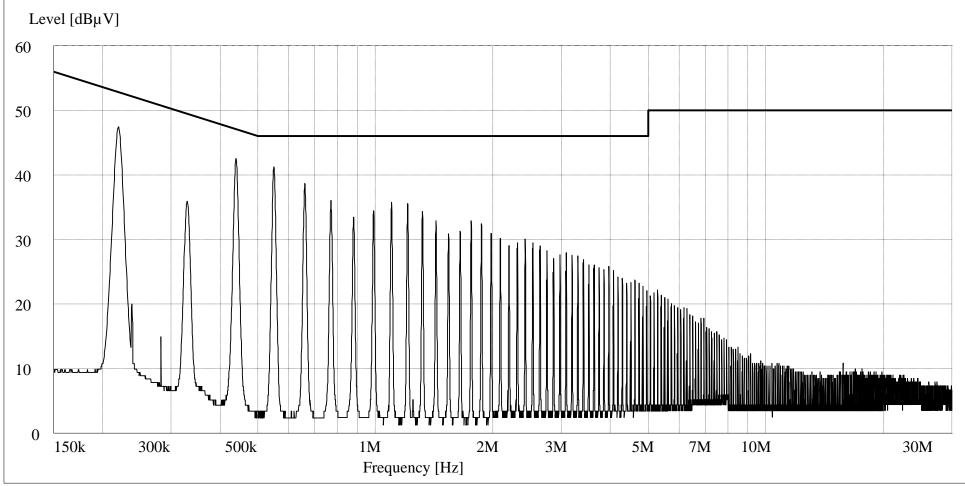
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EXECUTE TESTING LADORATORIES					
Test Method	Conducted Emissions 150 kHz to 30 MHz				
Customer	Nke Watteco	Job No.	R-6046N-5		
Test Sample	ILD (Luminous Default Indicator) Sensor				
Model No.	ILD	Serial No.	2100547320001		
Operating Mode	Transmitting modulated signal				
Test Specification	FCC Part 15. 207(a)				
Technician	M. Seamans	Date	March 3 rd , 2016		
Climatic Conditions	Temp:24.0 °CRelative Humidity:14.0 %				
Lead Tested	120 VAC 60 Hz Neutral Quasi-Peak Readings to Quasi-Peak Limits.				

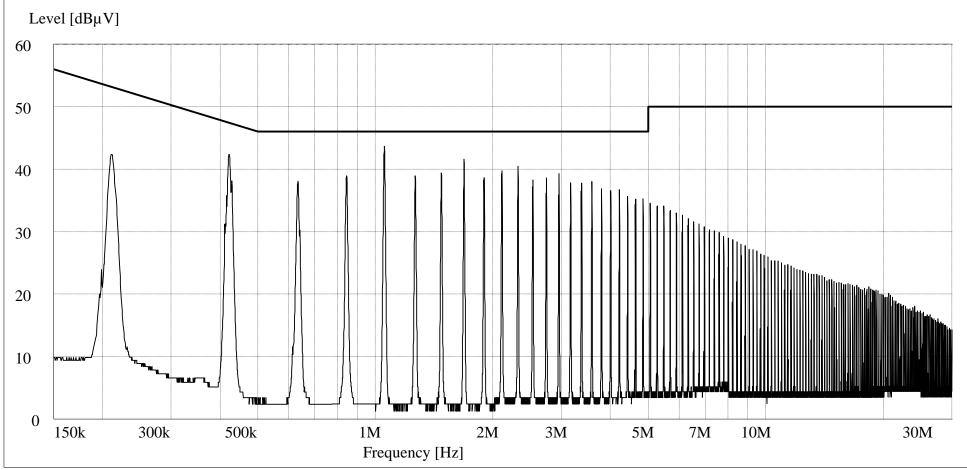


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Test Method	Conducted Emissions 150 kHz to 30 MHz				
Customer	Nke Watteco	Job No.	R-6046N-5		
Test Sample	ILD (Luminous Default Indicator) Sensor				
Model No.	ILD	Serial No.	2100547320001		
Operating Mode	Transmitting modulated signal				
Test Specification	FCC Part 15. 207(a)				
Technician	M. Seamans	Date	March 3 rd , 2016		
Climatic Conditions	Temp: 24.0 °C Relative Humidity: 14.0 %				
Lead Tested	120 VAC 60 Hz Hot Average Readings to Average Limits.				



Test Method	Conducted Emissions 150 kHz to 30 MHz				
Customer	Nke Watteco	Job No.	R-6046N-5		
Test Sample	ILD (Luminous Default Indicator) Sensor				
Model No.	ILD	Serial No.	2100547320001		
Operating Mode	Transmitting modulated signal				
Test Specification	FCC Part 15. 207(a)				
Technician	M. Seamans	Date	March 3 rd , 2016		
Climatic Conditions	Temp:24.0 °CRelative Humidity:14.0 %				
Lead Tested	120 VAC 60 Hz Neutral Average Readings to Average Limits.				



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